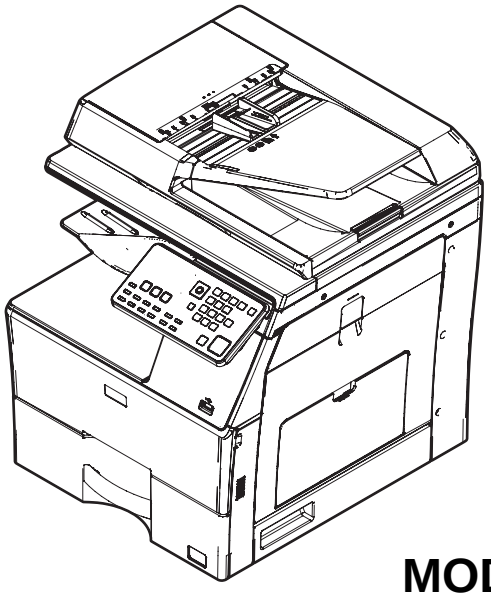
SHARP SERVICE MANUAL

CODE: 00ZMXB450WS1E



DIGITAL MULTIFUNCTIONAL SYSTEM

MODEL

MX-B350FZ / W / WB / WE / WZ / Z
AR-B351FT / T / WT
MX-B450FZ / W / WB / WE / Z
AR-B451FT / T / WT

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

CONTENTS

NOTE FOR SERVICE

1. Precautions for servicing

- 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.
- There is a high temperature area inside the machine. Use extreme care when servicing.

  It may cause a burn.
- There is a high voltage section inside the machine which may cause an electric shock. Be careful when servicing.
- 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.
- When servicing with the machine operating, be careful not to squeeze you hands by the chain, the belt, the gear, and other driving sections.
- 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.
- When servicing, do not breathe toner, developer, and ink excessively. Do not get them in the eyes.

  If toner, developer, or ink enters your eyes, wash it away with water immediately, and consult a doctor if necessary.
- The machine has got sharp edges inside. Be careful not to damage fingers when servicing.
- Do not throw toner or a toner cartridge in a fire. Otherwise, toner may ignite and burn you.
- When replacing a lithium battery on a PWB, only use the specified replacement battery.

  If a battery of different specification is used, it may cause a machine malfunction or breakdown.
- When carrying a unit with PWB or electronic parts installed to it, be sure to put it in an anti-static-electricity bag.

  It may otherwise cause a machine breakdown or malfunction.

CAUTION
DOUBLE POLE/NEUTRAL FUSING

2. Warning for servicing

- 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.

  It may cause a fire or an electric shock.
- 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.
- Be sure to connect the grounding wire. If an electric leakage occurs without grounding, a fire or an electric shock may result.

  To protect the machine and the power unit from lightening, grounding must be made.
- When connecting the grounding wire, never connect it to the following points.
  - 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

  It may cause an explosion, a fire or an electric shock.
- Do not damage, break, or stress the power cord.

  Do not put heavy objects on the power cable. Do not stress, forcibly bend, or pull the power cord.

  It may cause a fire or an electric shock.
- 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.
- Do not place liquids or foreign metallic objects inside the machine.

  It may cause a fire or an electric shock.
- Do not touch the power cord, insert the phone jack, operate the machine, or perform service on the machine with wet or oily hands.

  It may cause an electric shock.

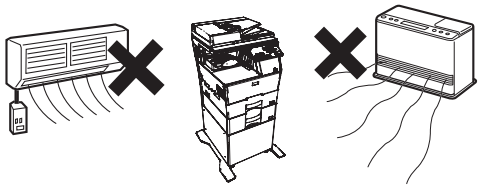
3. Note for installing site

Do not install the machine at the following sites.

- **Place of high temperature, high humidity, low temperature, low humidity, place under an extreme change in temperature and humidity.**

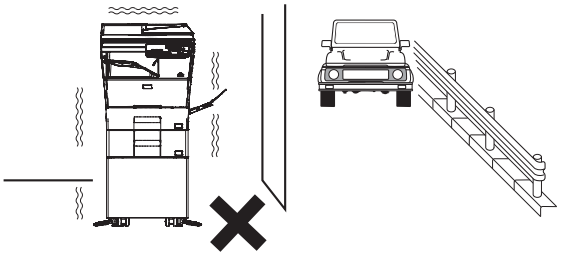
  Paper may get damp and form condensation inside the machine, causing paper jam or copy dirt.

  For operating and storing conditions, refer to the specifications described later.



- **Place of extreme vibrations**

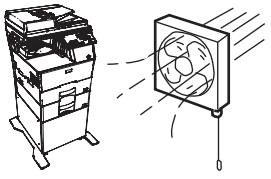
  It may cause a breakdown.



- **Poorly ventilated place**

  An electrostatic type copier will produce ozone.

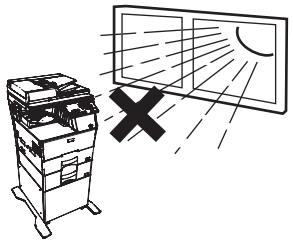
  The quantity of ozone produced is designed to a low level so as not to affect human bodies. However, continuous use of such a machine may produce an ozone smell. Install the machine in a well ventilated place.



- **Place of direct sunlight.**

  Plastic parts and ink may be deformed, discolored, or may undergo qualitative change.

  It may cause a breakdown or output quality problems.



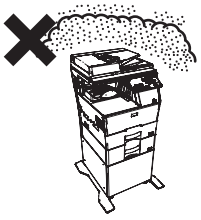
- **Place which is full of organic gases such as ammonium**

  The organic photo-conductor (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 and blue print machine may result in poor quality output.

- **Place of much dust**

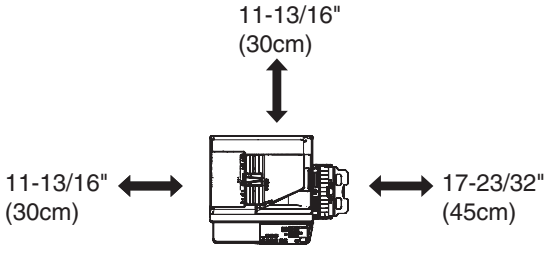
  When dust or contaminants enters the machine, it may cause a breakdown or poor quality output.



- **Place near a wall**

  The machine will require ventilation.

  If ventilation is not proper, poor output or machine failure may result.



- **Unstable or irregular surface**

  If the machine is dropped or tips over, it may cause injury or machine malfunction.

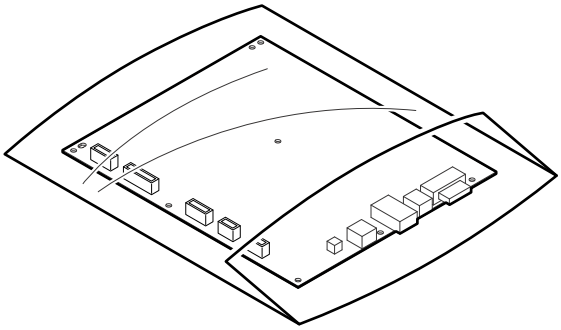
  Use an optional desk or an exclusive-use desk.

  When using the optional desk, be sure to fix the adjuster and lock the casters.

4. Note for handling PWB and electronic parts

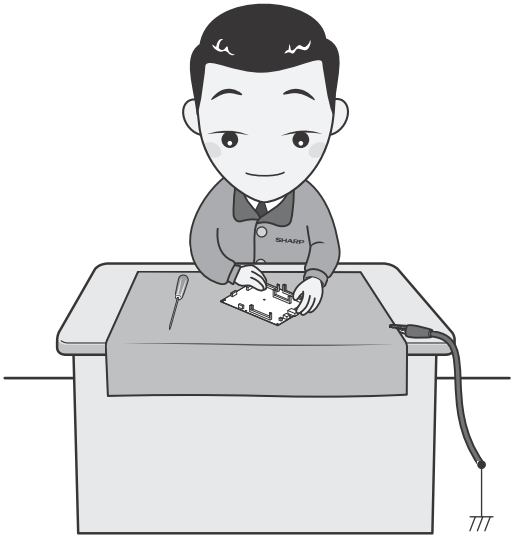
When handling the PWB and the electronic parts, be sure to observe the following precautions in order to prevent against damage by static electricity.

- 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.



- 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 repairing/replacing the LSU

When repairing or replacing, be sure to observe the following items.

- When repairing or replacing the LSU, be sure to disconnect the power plug from the power outlet.
- When repairing or replacing the LSU, follow the procedures described in this Service Manual.
- When checking the operations after repairing the LSU, keep all the parts including the cover installed and perform the operation check.
- Do not modify the LSU.
- 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 the LSU is modified, ones safety may be at risk.

6. Note for handling the drum unit, the transfer unit, the developing unit

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

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

Drum unit

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

Transfer unit

- Be careful not to leave fingerprints, oil, grease, or other foreign material on the transfer roller.

Developing unit

- Be careful not to leave fingerprints, oil, grease, or other foreign material on the developing unit.

7. Screw tightening torque

The screws used in this machine are largely classified into three types.

These types are classified according to the shape of the screw grooves and use positions.

The table below shows the types of the screws and the tightening torques depending on the use position.

When tightening the screws for repair or maintenance, refer to the table.

However, for the other conditions of tightening screws than specified on this table, or under special circumstances, the details are described on the separate page. Refer to the descriptions on such an exception.

Important

Especially for the screw fixing positions where there is an electrode or a current flows, use enough care to tighten securely to avoid loosening.

Screw kinds and tightening torques

Normal screws, set screws (including step screws)

Screw diameter	Material to be fixed	Tightening torque (N·m)	Tightening torque (kgf·cm)	Tightening torque (lbft)
M2.6	Steel plate	0.8 - 1.0	8 - 10	0.6 - 0.7
M3	Steel plate	1.0 - 1.2	10 - 12	0.7 - 0.9
M4	Steel plate	1.6 - 1.8	16 - 18	1.2 - 1.3

Tapping screws (for iron)

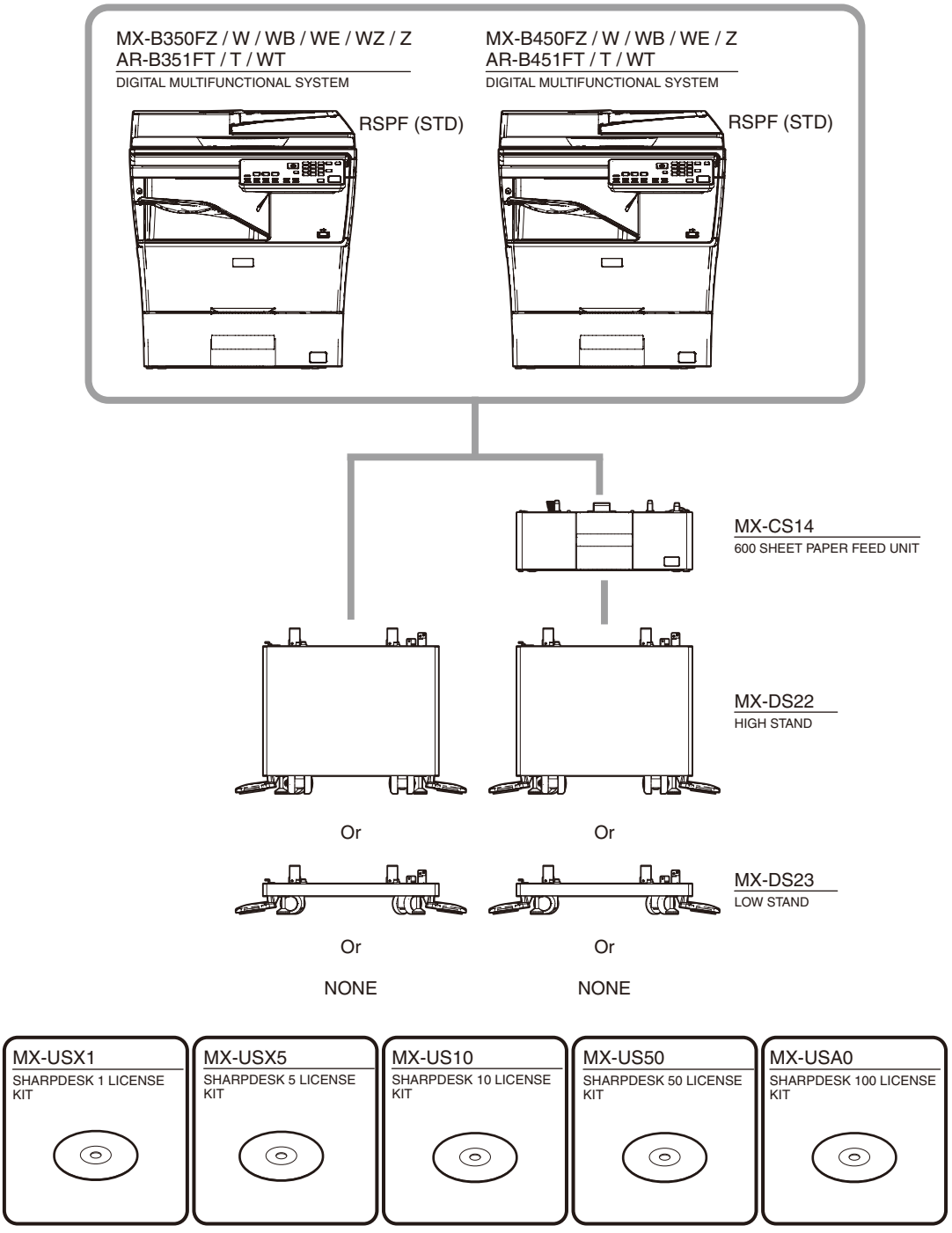
Screw diameter	Material to be fixed	Tightening torque (N·m)	Tightening torque (kgf·cm)	Tightening torque (lbft)
M3	Steel plate (Plate thickness 0.8mm or above)	1.0 - 1.2	10 - 12	0.7 - 0.9
M4	Steel plate (Plate thickness 0.8mm or above)	1.6 - 1.8	16 - 18	1.2 - 1.3
M3	Steel plate (Plate thickness less than 0.8mm)	0.6 - 0.8	6 - 8	0.4 - 0.6
M4	Steel plate (Plate thickness less than 0.8mm)	1.2 - 1.4	12 - 14	0.9 - 1.0

Tapping screw (for plastic)

Screw diameter	Material to be fixed	Tightening torque (N·m)	Tightening torque (kgf·cm)	Tightening torque (lbft)
M3	Plastic resin	0.6 - 0.8	6 - 8	0.4 - 0.6
M4	Plastic resin	1.0 - 1.2	10 - 12	0.7 - 0.9

[1] PRODUCT OUTLINE

1. System diagram



2. Product List

<Main Unit>

US (SIICA/SECL/SCMEX/LAG120V)

Product Name	Model	cpm	Panel	HDD	Copy	Print (PCL/PS)	Scan	Fax	DF	Sharp OSA	Wireless LAN
MX-B350W	MFP W model	35	5 Line LCD	N/A	STD	STD	STD	STD	STD RSPF	N/A	STD
MX-B450W		45	5 Line LCD	N/A	STD	STD	STD	STD	STD RSPF	N/A	STD

Europe

Product Name	Model	cpm	Panel	HDD	Copy	Print (PCL/PS)	Scan	Fax	DF	Sharp OSA	Wireless LAN
MX-B350W	MFP W model	35	5 Line LCD	N/A	STD	STD	STD	STD	STD RSPF	N/A	STD
MX-B350WE		35	5 Line LCD	N/A	STD	STD	STD	STD	STD RSPF	N/A	STD
MX-B450W		45	5 Line LCD	N/A	STD	STD	STD	STD	STD RSPF	N/A	STD
MX-B450WE		45	5 Line LCD	N/A	STD	STD	STD	STD	STD RSPF	N/A	STD

Oceania

Product Name	Model	cpm	Panel	HDD	Copy	Print (PCL/PS)	Scan	Fax	DF	Sharp OSA	Wireless LAN
MX-B350W	MFP W model	35	5 Line LCD	N/A	STD	STD	STD	STD	STD RSPF	N/A	STD

Asia

Product Name	Model	cpm	Panel	HDD	Copy	Print (PCL/PS)	Scan	Fax	DF	Sharp OSA	Wireless LAN
MX-B350WZ	MFP W model	35	5 Line LCD	N/A	STD	STD	STD	STD	STD RSPF	N/A	STD
MX-B350WB		35	5 Line LCD	N/A	STD	STD	STD	STD	STD RSPF	N/A	STD
MX-B450WB		45	5 Line LCD	N/A	STD	STD	STD	STD	STD RSPF	N/A	STD
MX-B350FZ	MFP F model	35	5 Line LCD	N/A	STD	STD	STD	STD	STD RSPF	N/A	N/A
MX-B450FZ		45	5 Line LCD	N/A	STD	STD	STD	STD	STD RSPF	N/A	N/A
MX-B350Z	MFP S model	35	5 Line LCD	N/A	STD	STD	STD	N/A	STD RSPF	N/A	N/A
MX-B450Z		45	5 Line LCD	N/A	STD	STD	STD	N/A	STD RSPF	N/A	N/A

Middle East & Africa

Product Name	Model	cpm	Panel	HDD	Copy	Print (PCL/PS)	Scan	Fax	DF	Sharp OSA	Wireless LAN
AR-B351WT	MFP W model	35	5 Line LCD	N/A	STD	STD	STD	STD	STD RSPF	N/A	STD
AR-B451WT		45	5 Line LCD	N/A	STD	STD	STD	STD	STD RSPF	N/A	STD
AR-B351FT	MFP F model	35	5 Line LCD	N/A	STD	STD	STD	STD	STD RSPF	N/A	N/A
AR-B451FT		45	5 Line LCD	N/A	STD	STD	STD	STD	STD RSPF	N/A	N/A
AR-B351T	MFP S model	35	5 Line LCD	N/A	STD	STD	STD	N/A	STD RSPF	N/A	N/A
AR-B451T		45	5 Line LCD	N/A	STD	STD	STD	N/A	STD RSPF	N/A	N/A

3. Option list

Item	Model name	Name	Fax STD	Fax N/A
			35/45cpm	35/45cpm
Paper Feeder	MX-CS14	600-SHEET PAPER FEED UNIT	OPT	OPT
Stand	MX-DS22	HIGH STAND	OPT	OPT
	MX-DS23	LOW STAND	OPT	OPT
PS Expansion Kit	---	---	STD	STD
Fax Expansion Kit	---	---	STD	---
Application	MX-USX1	SHARPDESK 1 LICENSE KIT	OPT	OPT
	MX-USX5	SHARPDESK 5 LICENSE KIT	OPT	OPT
	MX-US10	SHARPDESK 10 LICENSE KIT	OPT	OPT
	MX-US50	SHARPDESK 50 LICENSE KIT	OPT	OPT
	MX-USA0	SHARPDESK 100 LICENSE KIT	OPT	OPT

—: Connection not allowed

STD: Equipped as standard

OPT: Installable option

[2] SPECIFICATIONS

1. Basic specifications

A. Engine specification

Photo Conductor	OPC (Diameter: φ30mm)
Recording method	Electronic Photo (Laser)
Development method	Dry-Type Dual-Component Magnetic Brush Development
Charging method	Charged Saw-Tooth Method
Transfer method	Transfer roller
Separation method	Natural Separation Method *Sub Separation pawl is equipped.
Cleaning method	Counter Blade
Fusing method	Heat Roller
Waste toner disposal	Toner Collecting Container
Toner supply during operation (continuous run)	No
MC automatic cleaning mechanism	No
Automatic Toner Cartridge Eject Function	No
Developer refresh system	No

B. Engine speed (ppm)

<Tray1>

Paper size (Feed from short edge)	35 ppm	45 ppm
A4, 8.5x11	35	45
8.5x14, 8.5x13, 8.5x13.4, 8.5x13.5	N/A	N/A
B5, 7.25x10.5, 16K	35	45
A5, 5.5x8.5	35	45
A6	35	45
Custom size	28	37

<Tray2>

Paper size (Feed from short edge)	35 ppm	45 ppm
A4, 8.5x11	35	45
8.5x14, 8.5x13, 8.5x13.4, 8.5x13.5	28	37
B5, 7.25x10.5, 16K	35	45
A5, 5.5x8.5	35	45
A6	N/A	N/A
Custom size	28	37
Heavy paper (A4, A5, 8.5x11, 8.5x5.5, 16K)	26	26
Heavy paper (8.5x14, 8.5x13, 8.5x13.4, 8.5x13.5)	23	23
Heavy paper (custom)	26	26

<Bypass tray>

Paper size (Feed from short edge)	35 ppm	45 ppm
A4, 8.5x11	32	40
8.5x14, 8.5x13, 8.5x13.4, 8.5x13.5	27	34
B5, 7.25x10.5, 16K	32	40
A5, 5.5x8.5	32	40
A6	32	40
Custom size	27	34
Transparency (A4, 8.5x11)	32	32
Envelope (Monarch, Com-9, Com-10, DL, C5, C6, Chokei 3/4, Yokei 2/4, Kakugata 3)	27	27
Heavy paper (A4, A5, 8.5x11, 8.5x5.5,16K)	32	32
Heavy paper (Postcard HIGH)	32	32
Heavy paper (Postcard LOW)	27	27
Heavy paper (Other than above)	27	27

C. First Copy Time

	35ppm	45ppm
OC	9.0 sec	8.5 sec
RSPF	9.5 sec	9.0 sec

D. Printable area

Loss width (void area)*	Top	4±1 mm
	Rear	2-5 mm
	Top + Rear	8mm or less
	Left/Right edge	Total 4±2 mm

*: Loss width (Void area) is defined as the area which cannot be printed or do not be printed.

Top is design value, and Rear is design value and including tolerance of paper.

E. Engine resolution

35cpm/45cpm models

Resolution	Copy	Writing 600 x 600dpi
	Print	Writing 600 x 600dpi
Tone	Copy	1bit/2bit
	Print (PCL/PS)	1bit/2bit

F. Scanner section

(1) Resolution / Gradation

		Mono	
		35ppm	45ppm
Scan Resolution (Copy)	OC	600x600dpi	600x600dpi
	RSPF	600x600dpi 600x300dpi (Default)	600x600dpi 600x300dpi (Default)
Exposure Lamp		LED	
Scan Levels		10bit	
Output Levels for transmit	B&W	2 levels (1bit)	
	Grayscale	8bit	
	Full color	RGB each color 8bit	

G. Document feeder

(1) Basic Specifications

RSPF

Type			RSPF (Reversing single pass feeder)		
Document setup Direction			Upward Standard (1 to N feeding standard)		
Document standard position			Center Standard		
Document transport method			Sheet-through method		
Original Size	Scan Area	Fixed size	AB system	A4, B5, A5, A6, 16K	
			Inch system	8.5x14, 8.5x13.5, 8.5x13.4, 8.5x13, 8.5x11, 5.5x8.5	
			*Paper feeding of fixed size originals are from short edge		
		Custom size		Simplex	Duplex
			Horizontal scanning	105 mm - 216mm	105 mm - 216mm
			Vertical scanning	140 mm - 356mm	140 mm - 356mm
	Long Paper		500mm (Mono 2 levels only)		
	Business Card		Horizontal scanning	51mm - 55mm	
			Vertical scanning	89mm - 91mm	
			*Simplex scanning only		
Mix Feeding (Same AB or inch system, same width)			Available		
Random Feeding (Different combination of AB/inch system, different width)			N/A		

Document weight			Simplex scanning	Duplex scanning
	Plain Paper		50 - 105g/m^2, 13 - 28 lb Bond	50 - 105g/m^2, 13 - 28 lb Bond
	Special Paper	Business card	Thickness : 0.1mm - 0.2mm	N/A
Document Capacity	64g/m^2: Max. 50 sheets (80g/m^2, 21lbs Bond) or Max. 6.5 mm or less 80g/m^2: Max. 50 sheets (80g/m^2, 21lbs Bond) or Max. 6.5 mm or less Business card: Max. 25 sheets or Max. 6.5 mm or less			
Types of document that may not be transported	The following documents are NOT allowed; Transparency, second original drawing, tracing paper, carbon paper, thermal paper, wrinkled/ broken/ torn document, document with cuts and pastes, documents printed by an ink ribbon, and perforated document except 2-hole punched/ 3-hole punched/ 4-hole punched/ 4 wide hole-punched			
Paper detection	No			
Paper Feeding Direction	Right hand feeding			
Stamp	No			

*1: Default 200x200dpi

(2) Scan Speed

RSPF

Scan Speed (A4/8.5x11)		Mono	Color
Copy	Simplex	40 sheets/minutes (600x300dpi, 8bit) 20 sheets/minutes (600x600dpi, 8bit)	N/A
	Duplex	18 sheets/minutes (600x300dpi, 8bit) 10 pages/minutes (600x600dpi, 8bit)	N/A
Fax *1 *3	Simplex	23 sheets/minutes (200x200dpi, 1bit)	N/A
	Duplex	18 pages/minutes (200x200dpi, 1bit)	N/A
Scanner *2 *4	Simplex	40 sheets/minutes (200x200/300x300dpi, 1bit)	13 sheets/minutes (200x200/300x300dpi, 8bit)
	Duplex	18 pages/minutes (200x200/300x300dpi, 1bit)	6 pages/minutes (200x200/300x300dpi, 8bit)

*1: Default Standard (Equivalent to 200x100dpi)

*2: Default 200x200dpi

*3: measured with Test chart "C"

*4: measured with specific condition

H. Paper feed section

(1) Basic specification

Form	Standard	1 tray + Multi bypass tray
	Maximum	2 trays + Multi bypass tray
Heater		No

Details of Paper Feeding Section

Tray		Tray 1	Multi Bypass
Paper Capacity	Standard paper (80g/m^2)	500 sheets*1	50 sheets
Paper Size Detection		No	No
Paper Type Settings		Yes	
Method to change paper size		By user	By user
Universal cassette handle		Yes (Lock mechanism is not available)	---
Default Paper Size Settings	Inch-system	8.5x11	8.5x11
	AB-system	A4	A4
Display of paper remaining		No	No
Paper size display window		Yes	---

*1: Paper capacity for A6 size is 150 sheets

(2) Extra Paper Capacity

Paper Type	Tray1 (STD)	Tray2 (OPT)	Bypass Tray
Post Card	N/A	N/A	10 sheets
Double Postcard	N/A	N/A	10 sheets
Envelope	N/A	N/A	10 sheets
TRANSPARENCY	N/A	N/A	10 sheets
Heavy Paper1: 106-176g/m^2	N/A	350 sheets	20 sheets
Heavy Paper2: 177-220g/m^2	N/A	250 sheets	20 sheets
Tab Paper	N/A	N/A	N/A
Glossy Paper	N/A	N/A	1 sheet
Others	N/A	N/A	1 sheet

(3) Feedable Paper Type

			Main unit	Options	Std.
			Tray1	Tray2	Multi Bypass
Min.paper weight			60g/m^2	55g/m^2	55g/m^2
Max.paper weight			105g/m^2	220g/m^2	220g/m^2
Paper Type	Thin paper 55-59g/m^2 13-16 lb. bond		-	Yes	Yes
	Plain paper 1 60-89g/m^2 16-24 lbs bond		Yes	Yes	Yes
	Plain paper 2 90-105g/m^2 24-28 lbs bond		Yes	Yes	Yes
	Recycled Paper		Yes	Yes	Yes
	Colored Paper		Yes	Yes	Yes
	Letter head		Yes	Yes	Yes
	Pre printed		Yes	Yes	Yes
	Pre Punched		Yes	Yes	Yes
	Heavy Paper 106-176g/m^2 28 lbs bond-65 lbs Cover		-	Yes	Yes
	Heavy Paper 177-220g/m^2 65 lbs Cover-80 lbs Cover		-	Yes	Yes
	Heavy Paper 221g/m^2 or more 80 lbs Cover or more		-	-	-
	Embossed paper		-	-	-
	Envelope		-	-	Yes
	Transparency		-	-	Yes
	Label		-	-	Yes
	Tab Paper		-	-	-
	Glossy Paper		-	-	Yes
	User setting 1-7		Yes	Yes	Yes
Paper Size	Legal (8.5x14)	216x356	-	Yes	Yes
	Asian Legal (8.5x13.5)	216x343	-	Yes	Yes
	Mexican Legal (8.5x13.4)	216x340	-	Yes	Yes
	Foolscap (8.5x13)	216x330	-	Yes	Yes
	Letter (8.5x11)	216x279	Yes	Yes	Yes
	Executive (7.25x10.5)	184x266	Yes	Yes	Yes
	Invoice(5.5x8.5)	140x216	Yes	Yes	Yes
	A4	210x297	Yes	Yes	Yes
	B5	182x257	Yes	Yes	Yes
	A5	148x210	Yes	Yes	Yes
	A6	105x148	Yes	-	Yes
	16K	195x270	Yes	Yes	Yes
	Monarch	98x191	-	-	Yes
	COM9	98.4x225.4	-	-	Yes
	COM10	105x241	-	-	Yes
	DL	110x220	-	-	Yes
	C5	162x229	-	-	Yes
	C6	114x162	-	-	Yes
	Custom-Custom Size		Yes	Yes	Yes
	Extra		-	-	Yes
	Custom range	Min X	148mm, 5- 7/8inch	210mm, 8- 3/8inch	140mm, 5-1/2inch
		Max X	297mm, 11- 5/8inch	356mm, 14inch	356mm, 14inch
		Min Y	105mm, 4- 1/4inch	140mm, 5- 1/2inch	90mm/3_5/8inch
		Max Y	216mm, 8- 1/2inch	216mm, 8- 1/2inch	216mm, 8- 1/2inch

(4) Detection Size

			Tray1		Tray2		Multi Bypass
			Auto-AB	Auto-Inch	Auto-AB	Auto-Inch	
Paper Size	Legal (8.5x14)	216x356	No	No	No	No	No
	Asian Legal (8.5x13.5)	216x343	No	No	No	No	No
	Mexican Legal (8.5x13.4)	216x340	No	No	No	No	No
	Foolscap (8.5x13)	216x330	No	No	No	No	No
	Letter (8.5x11)	216x279	No	No	No	No	No
	Executive (7.25x10.5)	184x266	No	No	No	No	No
	Invoice(5.5x8.5)	140x216	No	No	No	No	No
	A4	210x297	No	No	No	No	No
	B5	182x257	No	No	No	No	No
	A5	148x210	No	No	No	No	No
	A6	105x148	No	No	No	No	No
	16K	195x270	No	No	No	No	No

Yes: Automatically detected

No: Paper can be set / cannot be automatically detected

-: Paper cannot be set.

I. Paper exit section

(1) Basic specification

Exit Location	Center of the main unit
Exit Method	Face down
Exit Capacity	250 sheets (A4 / 8.5x11) (80g/m^2, recommended paper)
Shifting function	No
Exit Paper Detection	No
Exit Tray Full Detection	Yes

(2) Usable Paper Size

				Duplex Section	Center Tray (Main Unit)
Paper Type	Thin Paper		55-59g/m^2, 13-16 lb. bond	-	Yes
	Plain Paper 1/2			Yes	Yes
	Recycled Paper			Yes	Yes
	Colored Paper			Yes	Yes
	Letter head			Yes	Yes
	Pre printed			Yes	Yes
	Pre Punched			Yes	Yes
	Heavy Paper1 106-176g/m^2, 28 lbs bond-65 lbs Cover			-	Yes
	Heavy Paper2 177-220g/m^2, 65 lbs bond-80 lbs Cover			-	Yes
	Envelope			-	Yes
	Transparency			-	Yes
	Label			-	Yes
	Tab Paper			-	-
	Glossy Paper			-	Yes
	User Setting 1 - 7			-	-
Paper Size	Legal (8.5x14)		216x356	Yes	Yes
	Asian Legal (8.5x13.5)		216x343	Yes	Yes
	Mexican Legal (8.5x13.4)		216x340	Yes	Yes
	Foolscap (8.5x13)		216x330	Yes	Yes
	Letter (8.5x11)		216x279	Yes	Yes
	Executive (7.25x10.5)		184x266	-	Yes
	Invoice (5.5x8.5)		140x216	Yes	Yes
	A4		210x297	Yes	Yes
	B5		182x257	Yes	Yes
	A5		148x210	Yes	Yes
	A6		105x148	-	Yes
	16K		195x270	Yes	Yes
	Postcard *1		100x148	-	Yes
	Reply Postcard (Short edge feeding) *1		148x210	-	Yes
	Reply Postcard (Long edge feeding) *1		210x148	-	-
	Envelope	Monarch	98x191	-	Yes
		COM9	98.4x225.4	-	Yes
		COM10	105x241	-	Yes
		DL	110x220	-	Yes
		C5	162x229	-	Yes
		C6	114x162	-	Yes
		Chokei 3	120x235	-	Yes
		Chokei 4	90x205	-	Yes
		Yokei 2	114x162	-	Yes
		Yokei 4	105x235	-	Yes
		Kakugata 3	216x277	-	Yes
	Extra (Custom size)			Yes	Yes
		Custom Range	X (Sub Scan Direction)	210 - 356mm, 8-1/2 - 14”	140 - 356mm 5-1/2 - 14”
			Y (Main Scan Direction)	140 - 216mm 5-1/2 - 8-1/2”	90 - 216mm 3-5/8 - 8-1/2”

*1: Japan only

J. Operation panel

(1) Display Device

Type	Monochrome 5-line LCD with back light
Number of Display Dot	192 x 73 dot
LCD Drive Display Area (WxD)	80.63 x 30.65 mm
LCD Back Light	White LED
LCD Contrast Adjustment	Yes
Angle/Position Adjustment	No
Antibacterial sheet for the display	No

K. Controller board

CPU		Quatro 5510 800MHz	
Interface			
IEEE1284 Parallel		No	
Ethernet		1 port	
	Interface	10Base-T, 100Base-TX, 1000Base-T	
	Support Protocol	TCP/IP (IPv4, IPv6)	Yes
		IPX/SPX	No
		EtherTalk	No
USB 2.0 Host (High Speed) *1		1 port (Front)	
USB 2.0 Device (High Speed) *2		1 port	
Acquisition of USB Validation		No	
Serial I/F (for Vendor)		No	
Memory		Copy/Printer	1GB
		Fax	64MB
Memory Slot		No	
Acquisition of Windows Premium		No	
WHQL aquisition		Yes	
NFC tag		No	

*1: USB device can be disabled by simulation setting

*2: Default is disabled. It is possible to activate by simulation setting.

L. Wireless LAN

Item		Specification
Compliant Regulation		IEEE802.11 b/g/n
Transmission Method	IEEE802.11g/n	OFDM
	IEEE802.11b	DS-SS
Host I/F		USB 2.0 TypeA (connect the module to MFP's internal USBI/F)
Device I/F		IEEE802.11 b/g/n
Antenna type		Integrated antenna
Access Mode		Infrastructure mode, Software AP mode
Security		WEP, WPA/WPA2-mixed Personal (PSK), WPA2 Personal (PSK)

M. Warm Up

Warm up time	29 sec
Availability of Prehear mode	Yes
Jam Recovery time (After 60 seconds leaves door open, standard condition, polygon motor is stopping)	20 sec

N. Power source

	US	Over sea 200V
Voltage / Current	120 V 12 A	220-240V 8 A
Frequency	60Hz	50/60Hz
Power source cord	Fixed type (Direct)	Inlet type
Power switch	1 switch	

O. Power consumption

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

		Oversea 100V	Oversea 200V
Max. rated power consumption		1.44 kW	1.44 kW
TEC value	35ppm	2.7 KWh	2.1 kWh or less
	45ppm	3.8 KWh	2.9 kWh or less
Network/Fax waiting power consumption		2W or less	2W or less
Recovery time from Preheat mode		10 sec	
Recovery time from sleep mode		20 sec	

P. Security

Admin/Service password scheme	No

2. Copy function

A. Copy Magnification Ratio

Copy Ratio	Same size 1:1±0.8% AB system: 50%, 70%, 81%, 86%, 100%, 115%, 122%, 141%, 200% Inch system: 50%, 64%, 77%, 100%, 129%, 200%
Zoom	25 - 400% (25 - 200% for the document feeder)
Preset magnification ratio	No
XY Zoom	No
Auto Ratio calculation	No

B. Density / Copy Image Quality Processing

Exposure mode	Text, Text/Print Photo, Photo
Mode of Copy original	No
Mode of Highlighted Lines	N/A
Color Tone Enhancement	N/A
Manual levels	Yes (5 levels + Auto)
Toner save mode	Yes (On / Off)

3. Printer function

A. Printer driver supported OS

OS		Custom PCL6 SPDL2	Custom PCL5	Custom PS	PPD	PC-Fax	TWAIN
Windows	Server 2008	Yes	No	Yes	Yes	Yes	Yes
	Server 2008 x 64	Yes	No	Yes	Yes	Yes	Yes
	Windows 7	Yes	No	Yes	Yes	Yes	Yes
	Windows 7 x 64	Yes	No	Yes	Yes	Yes	Yes
	Server 2008 R2 x64	Yes	No	Yes	Yes	Yes	Yes
	Windows 8	No	No	No	No	No	No
	Windows 8 x 64	No	No	No	No	No	No
	Server 2012 x64	Yes	No	Yes	Yes	Yes	Yes
	Windows 8.1	Yes	No	Yes	Yes	Yes	Yes
	Windows 8.1 x 64	Yes	No	Yes	Yes	Yes	Yes
	Server 2012 R2 x 64	Yes	No	Yes	Yes	Yes	Yes
	Windows 10	Yes	No	Yes	Yes	Yes	Yes
	Windows 10 x64	Yes	No	Yes	Yes	Yes	Yes
	Server 2016 x64	Yes	No	Yes	Yes	Yes	Yes
Mac	X10.6	No	No	Yes	No	No	No
	X10.7	No	No	Yes	No	No	No
	X10.8	No	No	Yes	No	No	No
	X10.9	No	No	Yes	No	No	No
	X10.10	No	No	Yes	No	No	No
	X10.11	No	No	Yes	No	No	No
	X10.12	No	No	Yes	No	No	No
	X10.13	No	No	Yes	No	No	No

B. PDL emulation·Font

PDL (Command)	Pre-installed Font	Optional Font
SPDL2 (JPN) PCL5c Compatible/ PCL6 Compatible	European outline font = 80 styles Line printer font (BMP) = 1 style	N/A
ESC/P (VP-1100) compatible, ESC/P_super compatible	N/A	N/A
BMLinkS	N/A	N/A
Postscript3 compatible	• European outline font =136 styles	N/A

4. Image send function

A. Mode

Mode	Sub mode	Support
Scanner	E-mail	Yes
	FTP server	Yes *1 *2
	Shared folder (SMB)	Yes *1
	Desktop	Yes *1
	USB memory	Yes
	HDD	No
Internet Fax/ Direct SMTP	-	No
Fax	-	Yes
Data input (metadata)	E-mail	No
	FTP server	No
	Shared folder (SMB)	No
	Desktop	No
Remote PC scan	-	Yes

*1: “E-mail including hyper links” is not supported.

*2: Enable to select “Active” or “Passive” when registering on address book.

B. Support image

Mode	Format/ Compression method	Item	Support
Scanner	File format (Mono 2 gradation)	TIFF (1 page to 1 file, All pages to 1 file)	Yes
		PDF (All page to 1 file)	Yes
		PDF/A-1b	No
		PDF/A-1a	No
		Encrypted PDF	No
		XPS	No
		Searchable PDF	No
		Office file (pptx, xlsx, docx)	No
		Text file (TXT) (UTF-8)	No
		Rich text file (RTF)	No
		XMDF (Reflow type)	No
	File format (Color/ Grayscale)	Color TIFF (1 page to 1 file, All pages to 1 file)	Yes
		JPEG (1 page to 1 file)	Yes
		PDF (All page to 1 file)	Yes
		PDF/A-1b	No
		PDF/A-1a	No
		Encrypted PDF	No
		High compression PDF	No
		XPS	No
		Searchable PDF	No
		Office file (pptx, xlsx, docx)	No
		Text file (TXT) (UTF-8)	No
		Rich textfile (RTF)	No
		XMDF (Reflow type)	No

Mode	Format/ Compression method	Item	Support
Scanner	Compression method (Mono 2 gradation)	Non-compression	Yes
		G3 (1-dimentional)= MH (Modified Huffman)	Yes
		G4= MMR (Modified MR)	Yes
	Compression method (Color/ Grayscale)	JPEG (High/Middle/Low)	Yes
		High compression PDF	No
		Black Letter Emphasis	No
		2-color PDF	N/A
Fax	File format (Monochrome)	N/A	N/A
	Compression method (Monochrome)	MH/ MR/ MMR/JBIG	Yes
File per page (Setting of the number of pages available)			Yes (Number of page cannot be specified)

* One scan multi format is not supported.

C. Image processing

(1) Color Mode

	Scanner	Fax
B&W	Yes	Yes
Grayscale	Yes	N/A
Full color	Yes	N/A
Auto Color Selection (ACS)	N/A	N/A

(2) Resolution

Level	Scanner	Fax
1	100x100dpi	Standard: 203.2x97.8 dpi (Half Tone: N/A.)
2	150x150dpi	N/A
3	200x200dpi	Fine (203.2x195.6 dpi)
4	300x300dpi	Super Fine (203.2x391 dpi)
5	400x400dpi	No
6	600x600dpi	N/A

(3) Exposure / Original Type

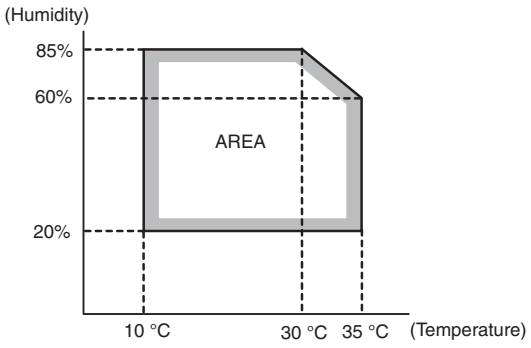
Mode		Scanner	Fax
Halftone reproduction		Equivalent to 256 gradations	Equivalent to 256 gradations
Exposure Adjustment	Auto	Yes	Yes
	Manual	5 levels	5 levels
Original document type (Selectable in manual mode)	Text	Yes	N/A
	Text / Photo	No	N/A
	Text / Printed photo	Yes	N/A
	Photo	Yes	N/A
	Printed photo	No	N/A
	Map	No	N/A
Magical scan (Area division + Suppress Background)		No	N/A
Selection of image quality		N/A	Halftone (B&W only) ON/OFF

5. Dimension and weight

* Designed value

Outer dimensions (WxDxH)	492 x 517 x 559 mm 19-3/8 x 20-23/64 x 22-1/64 inch
Dimensions occupied by machine (WxD)	492 x 517 mm 19-3/8 x 20-23/64 inch
Occupied area (WxD) (When extending bypass tray, exit tray)	687 x 517 mm 27-1/16 x 20-23/64 inch
Weight (Include Drum/Developer, without toner cartridge)	Approx. 29 kg, Approx. 63.9 lb

6. Environmental conditions



[3] CONSUMABLE PARTS

1. Supply system table

A. North America

Item	Model name	Content	Qty	Life	Qty in collective package	Remarks
Toner cartridge	MX-B45NT	Toner cartridge	1	30K	10	*Life: A4/Letter size at area coverage 5%
Toner cartridge	MX-B35NT	Toner cartridge	1	12K	10	*Life: A4/Letter size at area coverage 5%
Developer	MX-B45NV	Developer	1	100K	10	
Drum unit	MX-B45DU	Drum unit	1	100K	10	

B. Europe, Australia, New Zealand

Item	Model name	Content	Qty	Life	Qty in collective package	Remarks
Toner cartridge	MX-B45GT	Toner cartridge	1	30K	10	*Life: A4/Letter size at area coverage 5%
Toner cartridge	MX-B35GT	Toner cartridge	1	12K	10	*Life: A4/Letter size at area coverage 5%
Developer	MX-B45GV	Developer	1	100K	10	
Drum unit	MX-B45DU	Drum unit	1	100K	10	

C. Asia, Hong Kong

Item	Model name	Content	Qty	Life	Qty in collective package	Remarks
Toner cartridge	MX-B45AT	Toner cartridge	1	30K	10	*Life: A4/Letter size at area coverage 5%
Toner cartridge	MX-B35AT	Toner cartridge	1	12K	10	*Life: A4/Letter size at area coverage 5%
Developer	MX-B45AV	Developer	1	100K	10	
Drum unit	MX-B45DU	Drum unit	1	100K	10	

D. Middle East, Africa

Item	Model name	Content	Qty	Life	Qty in collective package	Remarks
Toner cartridge	AR-B35FT	Toner cartridge	1	8K	10	*Life: A4/Letter size at area coverage 5%
Developer	MX-B45FV	Developer	1	100K	10	
Drum unit	MX-B45DU	Drum unit	1	100K	10	

E. Philippines

Item	Model name	Content	Qty	Life	Qty in collective package	Remarks
Toner cartridge	MX-B35FT	Toner cartridge	1	12K	10	*Life: A4/Letter size at area coverage 5%
Developer	MX-B45FV	Developer	1	100K	10	
Drum unit	MX-B45DU	Drum unit	1	100K	10	

2. Maintenance parts list

A. North America

Item	Model name	Content	Qty	Life	Qty in collective pachage	Remarks
Fusing unit	MX-B35FU1	Fusing unit (120V series)	1	100K	4	
Transfer unit	MX-B35U1	Transfer unit	1	100K	10	
DV filter	MX-B35FK	DV filter	1	100K	10	

B. Europe/Australia, New Zealand, Asia, Hong Kong, Middle East, Africa, Philippines

Item	Model name	Content	Qty	Life	Qty in collective pachage	Remarks
Fusing unit	MX-B35FU	Fusing unit (200V series)	1	100K	4	
Transfer unit	MX-B35U1	Transfer unit	1	100K	10	
DV filter	MX-B35FK	DV filter	1	100K	10	

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 judges as life end

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 copy / print quantity

When therefore the rpm reaches the specified amount, it is judged as life end

To check the developer / drum life, use SIM22-13

Developer

	Counter	Rotation
35/45 cpm machine	100K	600K

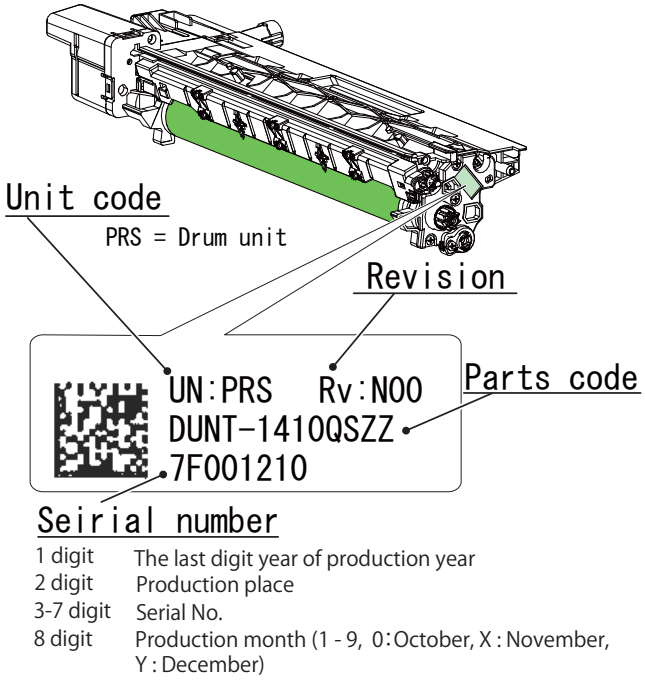
Drum unit

	Counter	Rotation
35/45 cpm machine	100K	600K

4. Production number identification

A. Drum unit

The label indicating the management number is attached to the rear side of the Drum unit.



B. Developer

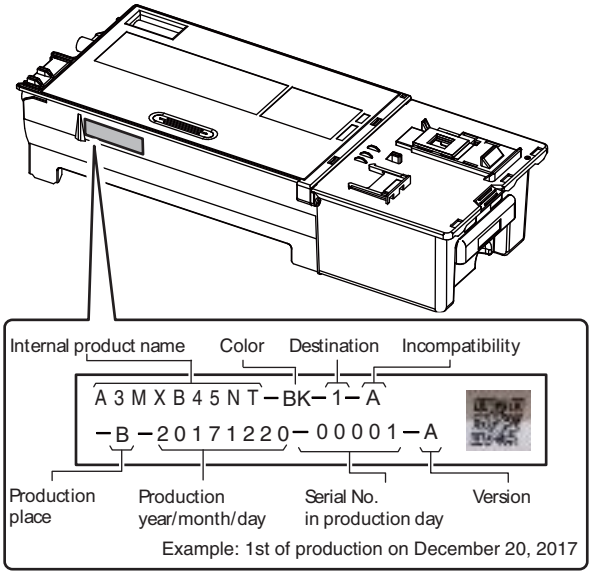
The lot number is of 8 digits. Each digit indicates the content as follows.

The number is printed on the right under side of the back surface of the developer bag.

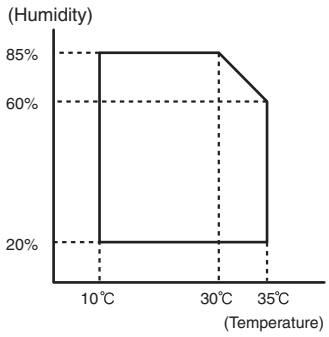
Digit	Character type	Content
1	Alphabet	Indicates the production factory.
2	Number	Indicates the production year.
3	Number	Indicates the production month.
4		
5	Number	Indicates the production day.
6		
7	Hyphen	
8	Number	Indicates the production lot.

C. Toner cartridge

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



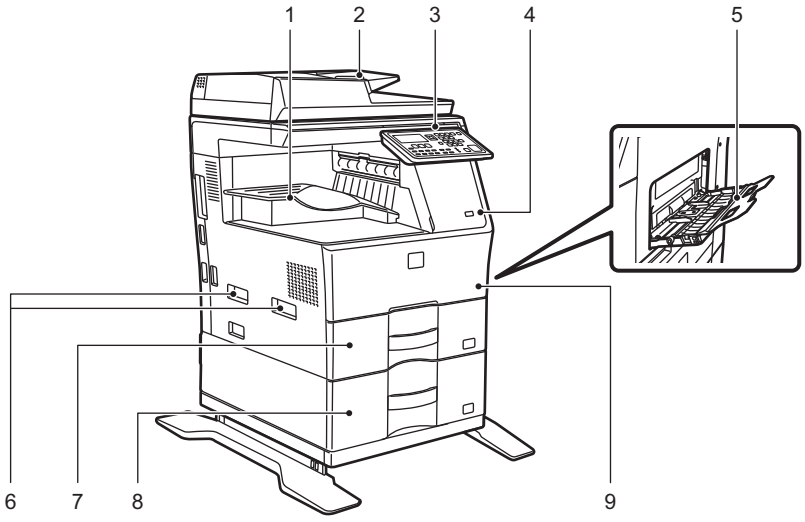
5. Environmental conditions



Standard environmental conditions	Temperature	21 – 25 °C
	Humidity	50 ± 10 %RH
Usage environmental conditions	Temperature	10 – 35 °C
	Humidity	20 – 85 %RH
Storage period	Toner/Developer/Drum unit: 24 months from the manufactured month (Production lot) under unsealed state	

[4] EXTERNAL VIEW AND INTERNAL STRUCTURE

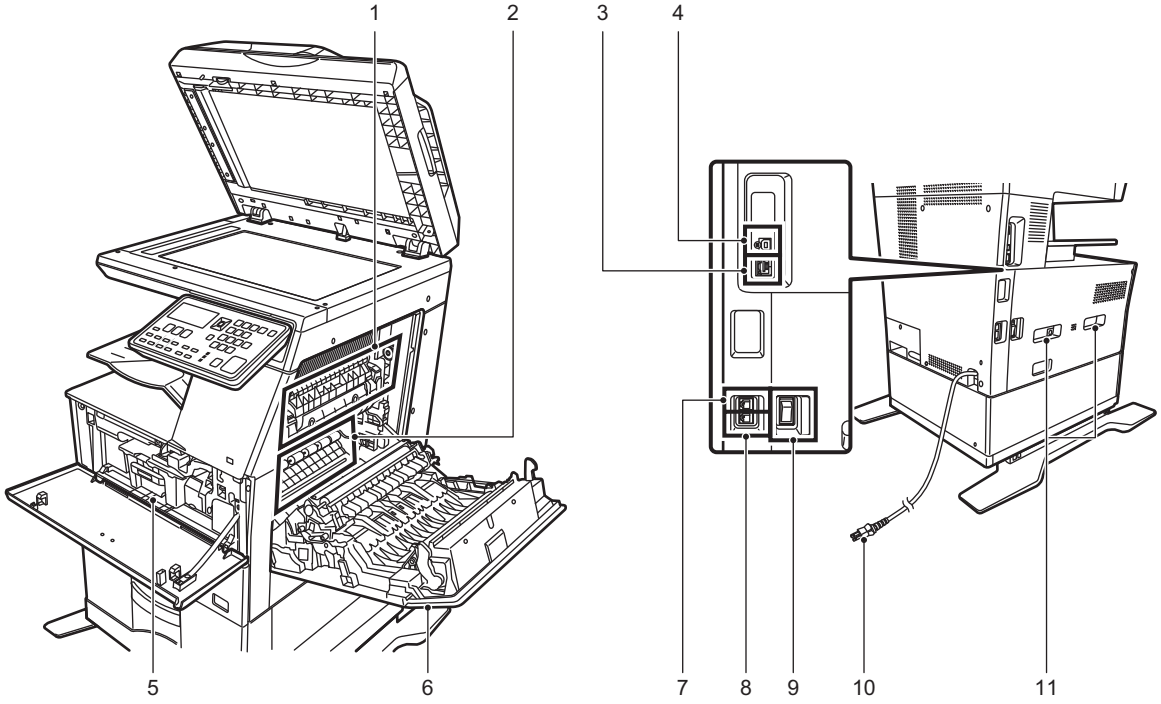
1. Exterior



No.	Name	Function and Operation
1	Output tray (exit tray cabinet)	Received faxes and printed papers are delivered to this tray.
2	Automatic document feeder	It automatically feeds and scans multiple originals. 2-sided originals can be automatically scanned.
3	Operation panel	This panel hosts the [ENERGY SAVE] key/indicator, Printer mode indicator, FAX mode indicators, and operation keys.
4	USB port (A type)	This is used to connect a USB device such as a USB memory device to the machine. Supports USB 2.0 (Hi-Speed).
5	Bypass tray	Use this tray to feed paper manually. When loading paper, also open the extension tray.
6	Handle	Grasp it when moving the machine.
7	Tray 1	Store paper in this tray.
8	Tray 2 (when a 600-sheet paper feed unit is installed)*	Store paper in this tray.
9	Front cover	Open this cover to replace a toner cartridge.

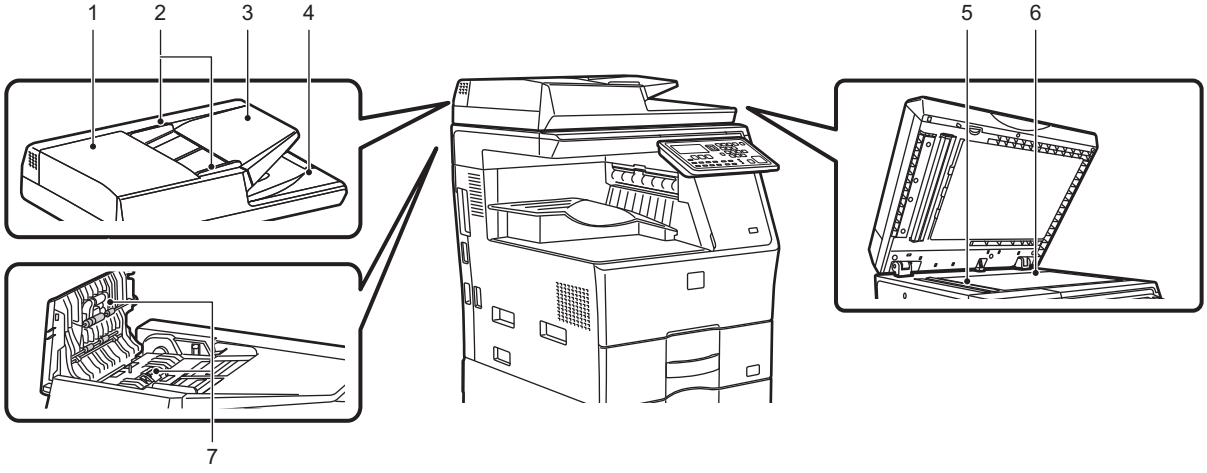
* Optional

2. Interior, side and back



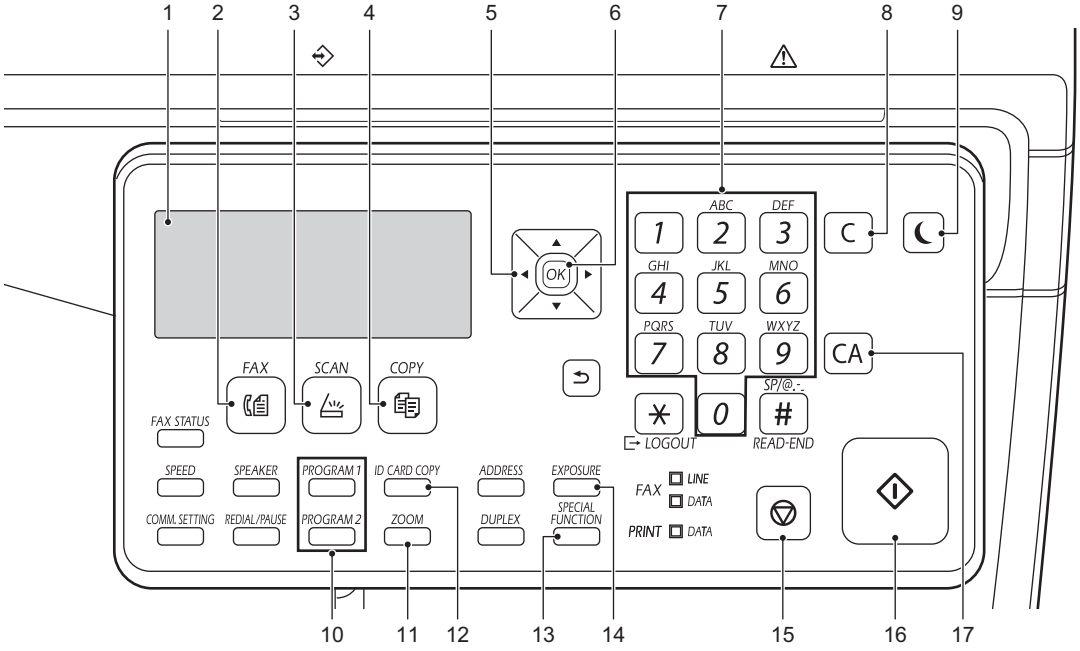
No.	Name	Function and Operation
1	Fusing unit	Heat is applied here to fuse the transferred image onto the paper. WARNING: The fusing unit is hot. Take care not to burn yourself when removing a misfeed.
2	Photoconductive drum unit	Images are formed on the photoconductive drum. CAUTION: Do not touch or damage the photoconductive drum and the transfer roller. This may cause a defective image.
3	LAN connector	Connect the LAN cable to this connector when the machine is used on a network. Use a shielded LAN cable.
4	USB port (B type)	The machine does not use this connector.
5	Toner cartridge	This cartridge contains toner. When the toner in a cartridge runs out, replace with new one.
6	Side cover	Open this cover to remove a paper misfeed.
7	Telephone line jack (LINE)	When the fax function of the machine is used, the telephone line is connected to this jack.
8	Extension phone jack (TEL)	When the fax function of the machine is used, an extension phone can be connected to this jack.
9	The main power switch	Use this switch to turn on the power for the machine. When using the fax, always keep this switch in the " I " position.
10	Power plug	
11	Handle	Grasp it when moving the machine.

3. Automatic document feeder and document glass

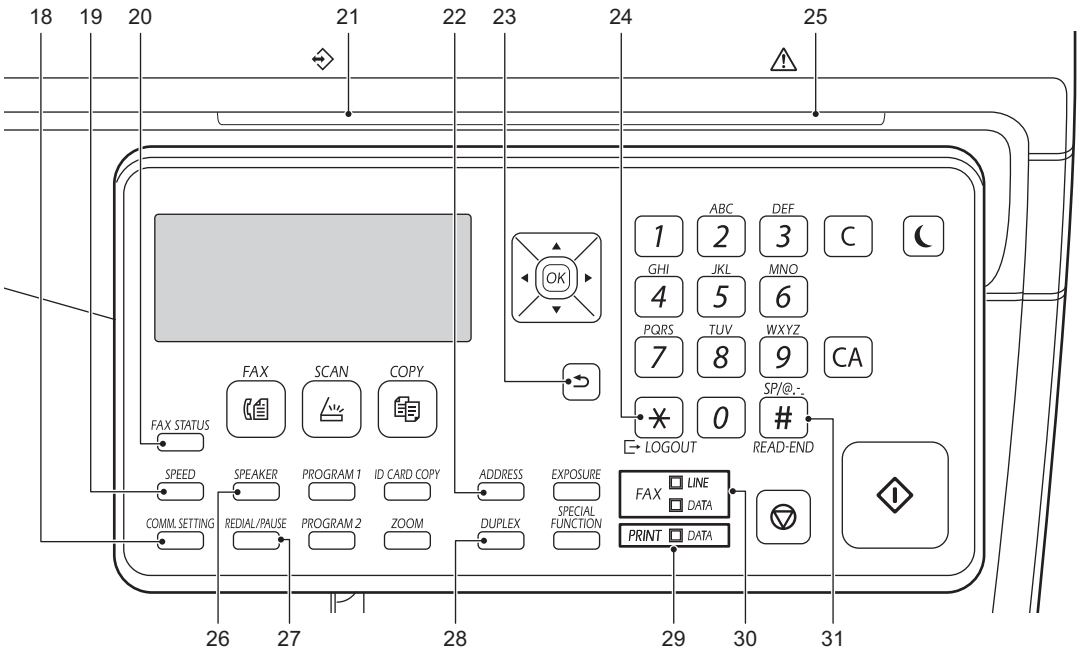


No.	Name	Function and Operation
1	Document feeding cover	Open this cover to remove an original misfeed. This cover is also opened to clean the paper feed roller.
2	Original guides	These guides help ensure that the original is scanned correctly. Adjust the guides to the width of the original.
3	Document feeder tray	Place the original. Place the original with the print side facing up.
4	Original exit tray	The original is discharged to this tray after scanning.
5	Scanning area	Originals placed in the automatic document feeder are scanned here.
6	Document glass	If you want to scan books or other thick originals that cannot be fed through the automatic document feeder, place them on this glass.
7	Paper feed roller	This roller rotates to automatically feed the original.

4. Operation panel



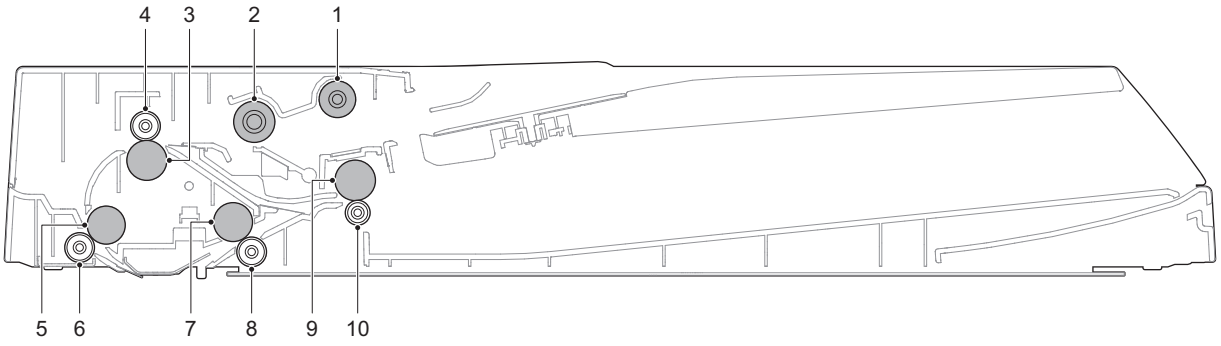
No.	Name	Function and Operation
1	Display	Shows various messages.
2	[FAX] key / indicator	Press to select fax mode.
3	[SCAN] key / indicator	Press to select scan mode.
4	[COPY] key / indicator	Press to select copy mode. To check the total number of pages output in copy, print, and fax modes hold down the [COPY] key when the machine is in the standby state. The counts will appear while the key is held down. The toner level is shown at the bottom of the screen.
5	Arrow keys	Press to move the highlighting (which indicates that an item is selected) in the display.
6	[OK] key	Press to enter the selected setting.
7	Numeric keys	Enter characters/numbers.
8	[C] key	Press to clear the set number of copies or stop a copy run.
9	[ENERGY SAVE] key / indicator	Press to enter the energy save mode.
10	[PROGRAM 1 / PROGRAM 2] key	Press to use the scanner settings already stored.
11	[ZOOM] key	Press to select a reduction or enlargement copy ratio.
12	[ID CARD COPY] key	Enable ID Card Copy.
13	[SPECIAL FUNCTION] key	Press to select Special Modes.
14	[EXPOSURE] key	Use to select the exposure mode.
15	[STOP] key	Press this key to stop a copy job or scanning of an original.
16	[START] key / indicator	Press this key to copy or scan an original. This key is also used to send a fax in fax mode.
17	[CA] key	Clears all selected settings and returns the machine to the default settings.



No.	Name	Function and Operation
18	[COMM. SETTING] key	This is used to switch between memory transmission and direct transmission, and to switch between automatic reception and manual reception.
19	[SPEED] key	This is used to dial by Speed dialing.
20	[FAX STATUS] key	This is used to cancel a fax transmission or a stored fax transmission.
21	Data notification indicator	The indicator lights solidly or blinks to indicate the status of a job.
22	[ADDRESS] key	Used to search for address, numbers and other contact information stored for auto dialing.
23	[BACK] key	Press to return the display to the previous screen.
24	[LOGOUT] key	Press this key to log out after you have logged in and used the machine. When using the fax function, this key can also be pressed to send tone signals on a pulse dial line.
25	Error indicator	Lights solidly or blinks to indicate the status of the error.
26	[SPEAKER] key	This is used to dial without lifting an extension phone connected to the machine.
27	[REDIAL/PAUSE] key	This is used to redial the last number dialed, and enter a pause when entering a fax number.
28	[DUPLEX] key	Select the duplex copy/fax/scan mode.
29	Printer mode indicator	• DATA indicator Blinks when print data is being received. Lights steadily during printing.
30	FAX mode indicators	• LINE indicator Lights up when a fax is being sent or received. • DATA indicator Blinks when a fax cannot be printed because there is no paper or otherwise. Lights steadily when there is an unsent fax.
31	[READ-END] key	When copying in sort mode from the document glass, press this key when you have finished scanning the original pages and are ready to start copying.

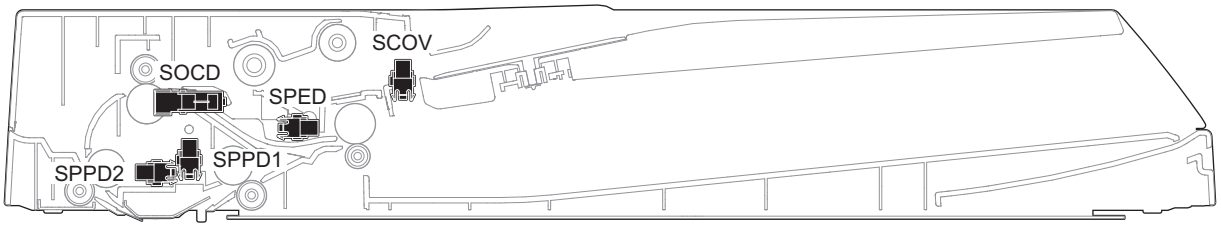
5. RSPF

A. Rollers



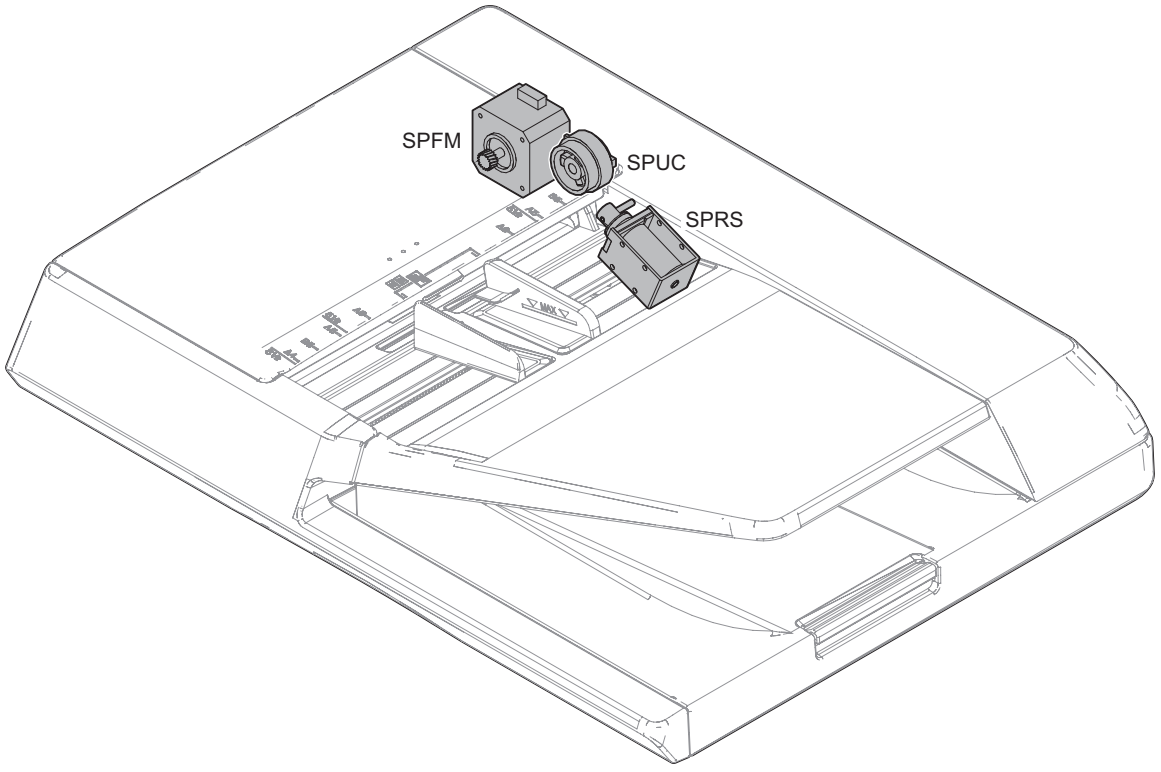
No.	Name	Function and Operation
1	Pickup roller	Feeds a document to the paper feed roller.
2	Separation roller	Separates a document to prevent double-feeding.
3	Registration roller (Drive)	Transports a document to the Before reading roller. / Controls the transport timing of the document and adjusts the document scanning timing.
4	Registration roller (Idle)	Apply a pressure to a document and the registration roller to provide the transport power of the transport roller to the document.
5	Before reading roller (Drive)	Transports a document transported from the registration roller to the document scanning section.
6	Before reading roller (Idle)	Apply a pressure to a document and the transport roller to provide the transport power of the transport roller to the document.
7	After reading roller (Drive)	Transports a document transported from the document scanning section to the paper exit roller.
8	After reading roller (Idle)	Apply a pressure to a document and the transport roller to provide the transport power of the transport roller to the document.
9	Exit roller (Drive)	Discharges a document. Switchbacks the document and transports it to the registration roller when scanning the back surface.
10	Exit roller (Idle)	Apply a pressure to a document and the paper exit roller to provide the transport power of the paper exit roller to the document.

B. Sensors



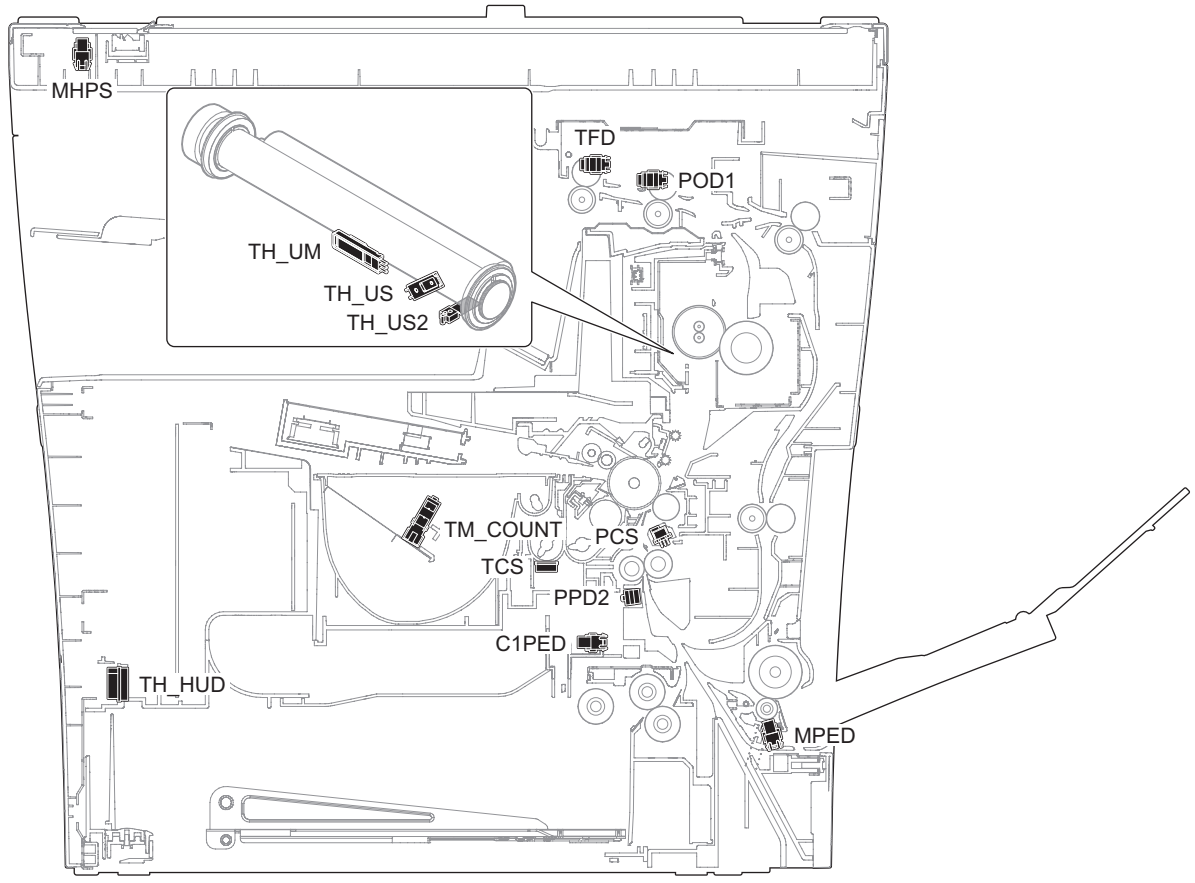
Signal name	Name	Type	Function and Operation
SCOV	RSPF cover open/close sensor	Transmission type	Detects open/close of the RSPF cover
SOCD	RSPF UNIT open/close sensor	Transmission type	Detects open/close of the RSPF unit
SPED	Document tray empty sensor	Transmission type	Detects document empty in the RSPF paper feed tray
SPPD1	Document pass sensor 1	Transmission type	Detects paper feed and the document length.
SPPD2	Document pass sensor 2	Transmission type	Detects paper pass

C. Motors/Clutches/Solenoidos



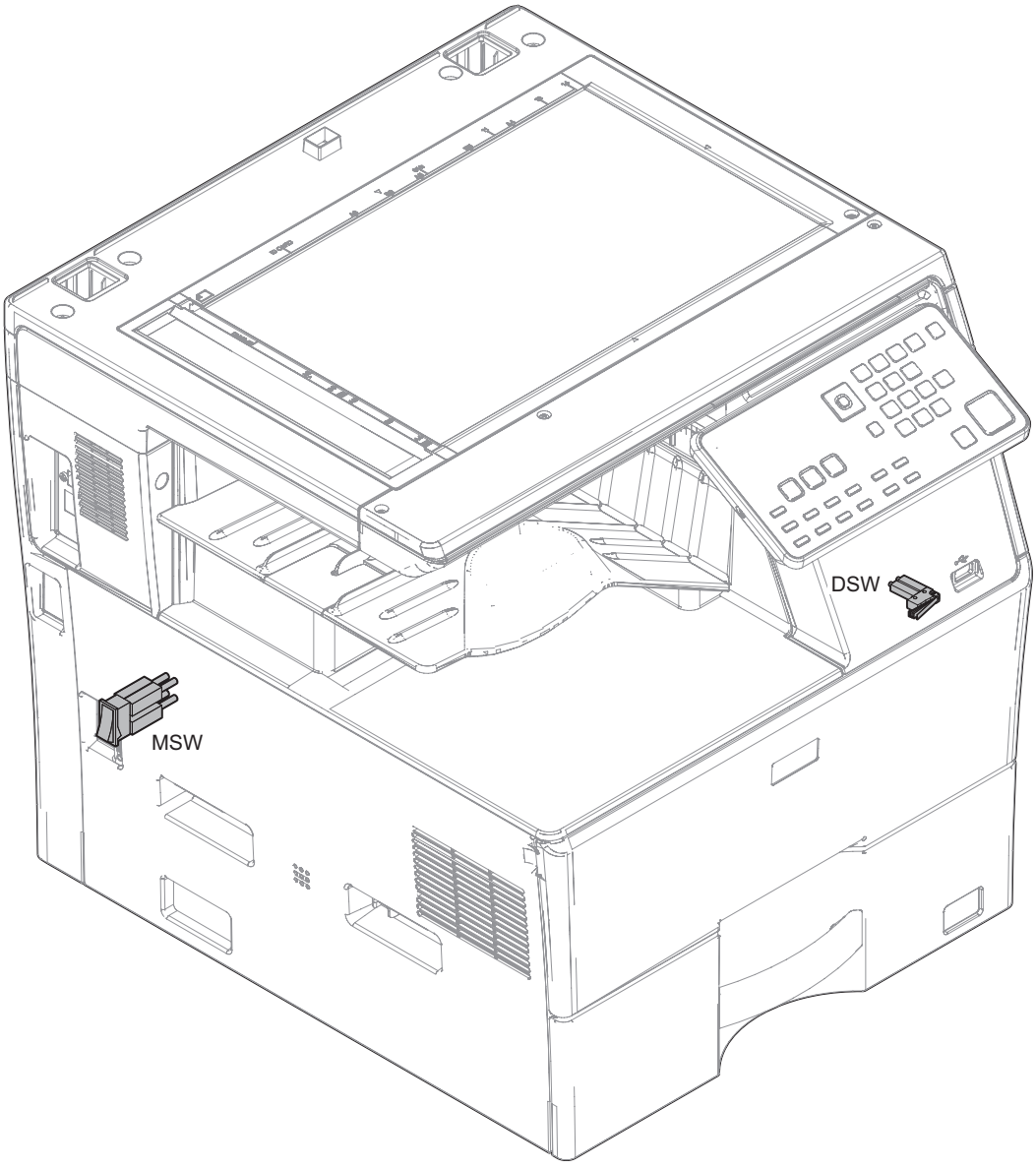
Signal name	Name	Type	Function and Operation
SPFM	RSPF transport motor	Stepping motor	Transports a document
SPRS	Paper exit roller solenoid	Electromagnetic solenoid	Control the driven pressure of the paper exit roller (idle)
SPUC	Paper feed clutch	Electromagnetic clutch	Controls ON/OFF of the pickup and separation roller

6. Sensors



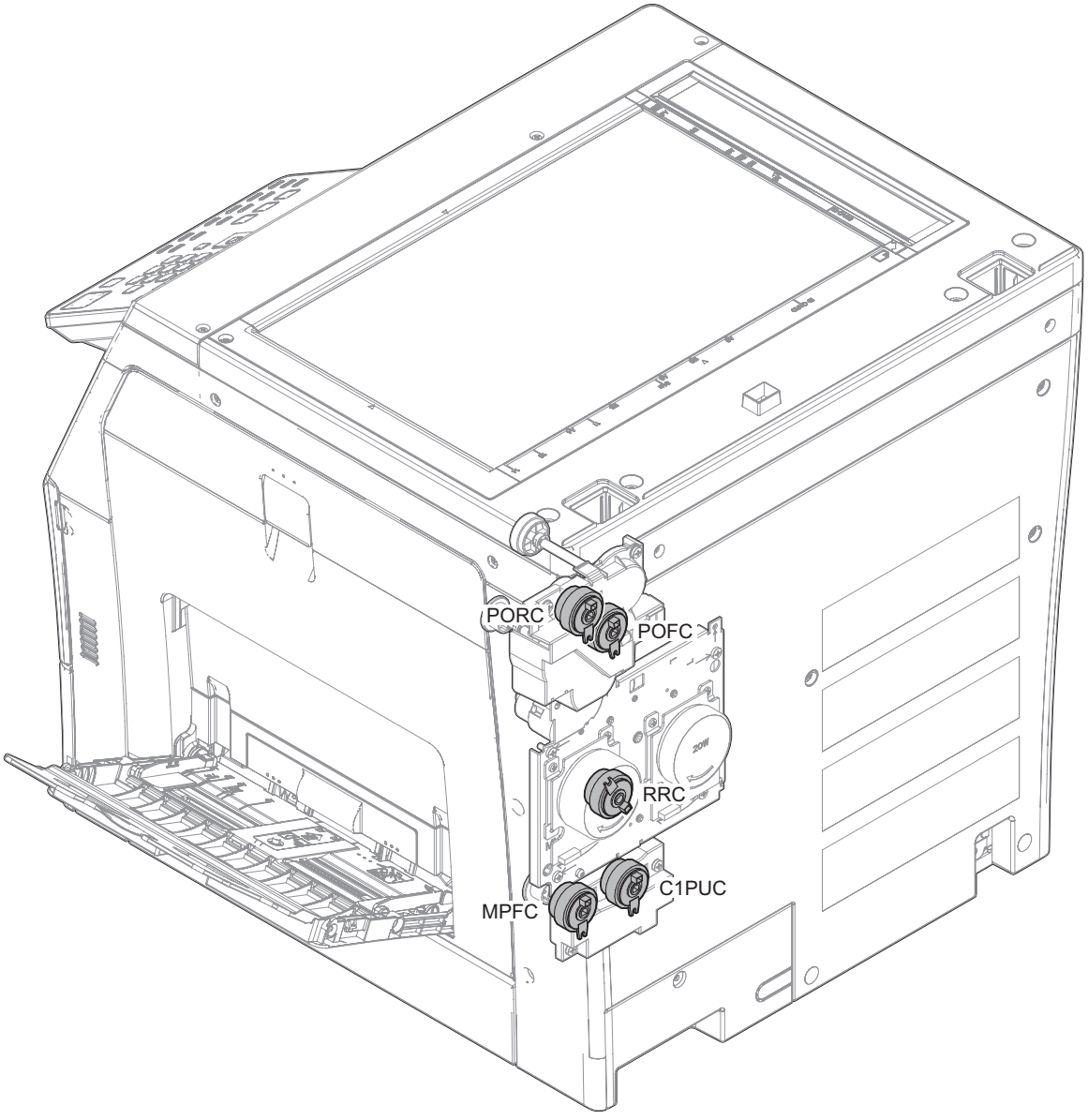
Signal name	Name	Type	Function and Operation	Unit
C1PED	1st cassette paper empty detect	Transmission type	Detects paper empty (Paper feed tray 1)	Frame unit: 1st cassette (Paper feed)
MHPS	Scanner home position sensor	Transmission type	Detects the scanner home position	Scanner unit
MPED	Paper empty sensor (Manual paper feed tray)	Transmission type	Detects presence of paper (Manual paper feed tray)	Manual paper tray unit
PCS	Process control sensor	Reflection type	Detects toner patch density	Right side door
POD1	Paper exit sensor 1	Transmission type	Detects paper transport from the fusing section	Frame unit: Paper exit
PPD2	Paper transport sensor 2	Reflection type	Detection of paper fed from each paper feed port and detection of paper transferred from ADU	Frame unit: main (Paper feed)
TCS	Toner density sensor	Magnetic sensor	Detects the toner density	Developer unit
TFD	Paper exit tray full sensor	Transmission type	Detects paper full in the paper exit tray	Frame unit: Paper exit
TH_HUD	Temperature and humidity sensor	Thermistor	Detects the temperature and the humidity	Frame unit: main
TH_UM	Fusing thermistor UM (Upper Main)	Thermistor	Detects the surface temperature at the center of the fusing roller	Fusing unit
TH_US	Fusing thermistor US (Upper Sub)	Thermistor	Detects the surface temperature at the edge section of the fusing roller	Fusing unit
TH_US2	[Reserve] Fusing thermistor US2 (Upper Sub2)	Thermistor	Detects the surface temperature at the edge section of the fusing roller	Fusing unit
TM_COUNT	Toner motor drive detect sensor	Transmission type	Detect the rotating operation of toner motor	Toner motor drive unit

7. Switches



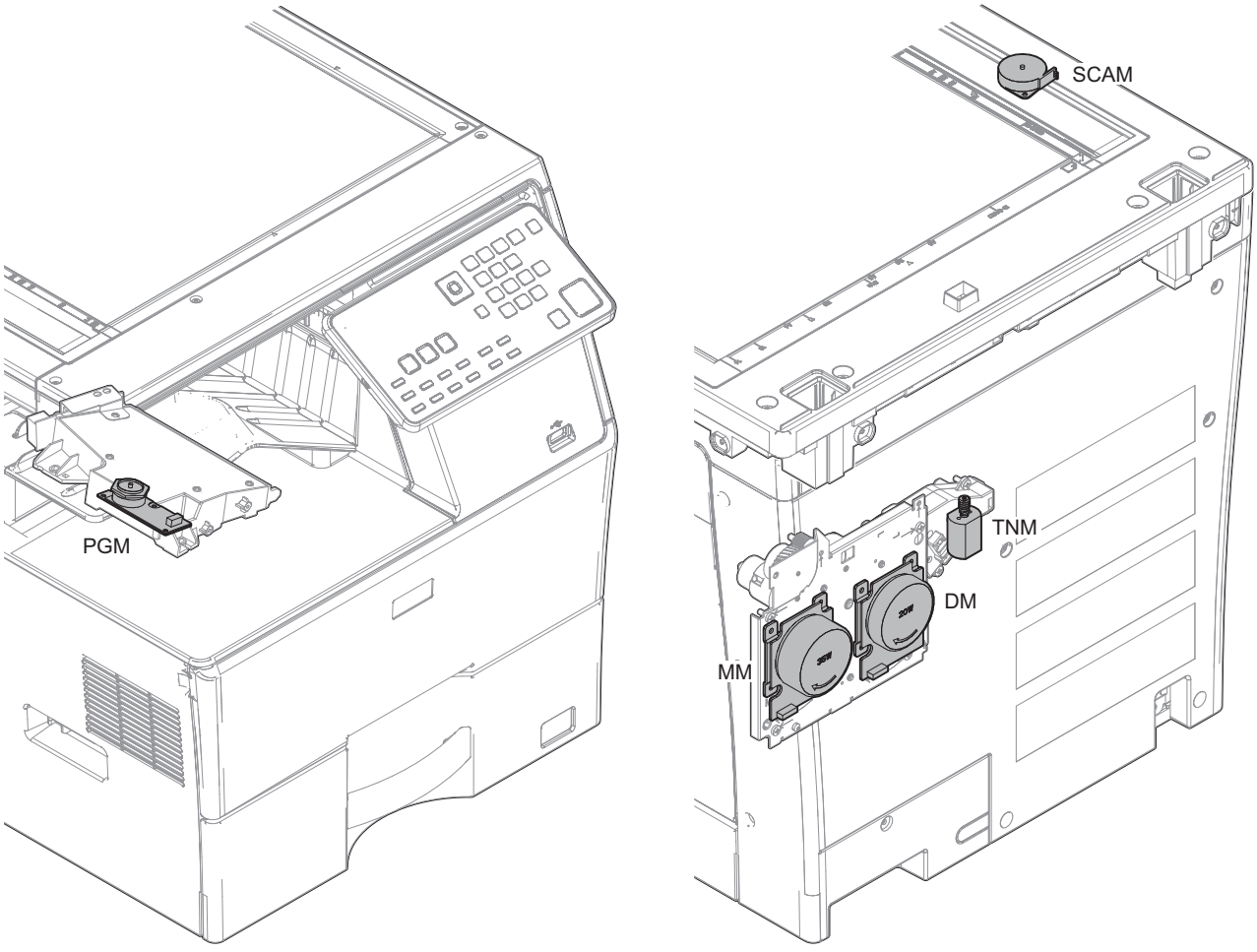
Signal name	Name	Type	Function and Operation	Unit
DSW	Right transport unit (right door) open/close switch	Micro switch	Detects open/close of the right paper transport section (right door) and the front door. Detects ON/OFF of the power line of the fusing unit, the motors, and LSU laser.	Frame unit: main (other)
MSW	Main power switch	Seesaw switch	Turns ON/OFF the main power.	Frame unit: main (other)

8. Clutches and solenoids



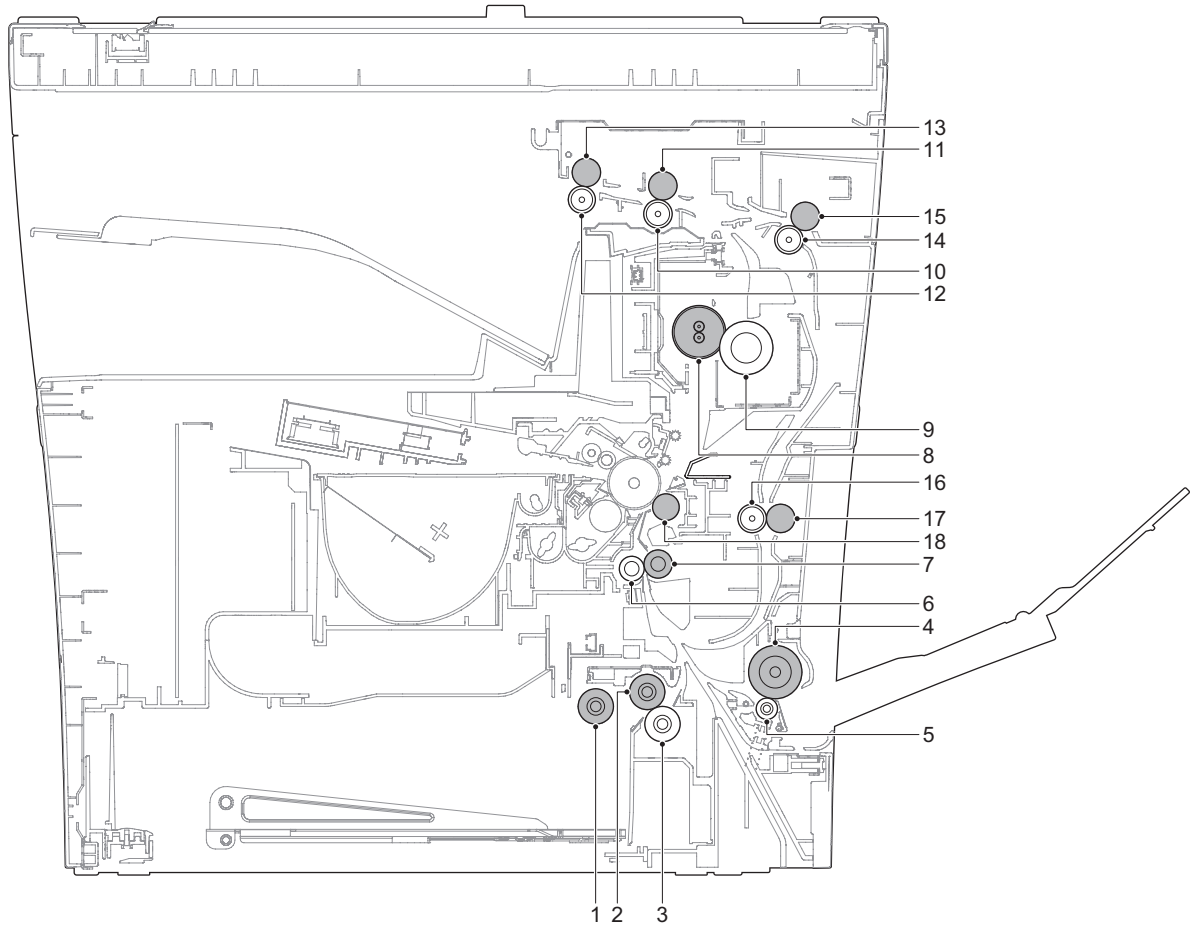
Signal name	Name	Type	Function and Operation	Unit
C1PUC	Paper feed clutch (Paper feed tray 1)	Magnetic clutch	Controls ON/OFF of the paper feed roller in the paper feed tray 1 section (Paper feed tray 1)	Frame unit: 1st cassette (Paper feed)
MPFC	Manual paper feed clutch (Manual paper feed tray)	Magnetic clutch	Controls ON/OFF of the paper feed roller in the manual paper feed section (Manual paper feed tray)	Frame unit: Manual paper tray (Paper feed)
POFC	Paper exit clutch (normal rotation)	Magnetic clutch	Control ON / OFF of normal rotation of paper discharge roller	Frame unit: Paper exit
PORC	Paper exit clutch (reverse rotation)	Magnetic clutch	Control ON / OFF of reverse rotation of paper discharge roller	Frame unit: Paper exit
RRC	Paper stop (resist) clutch	Magnetic clutch	Controls ON/OFF of registration roller	Main Engine Drive Unit

9. Drive motors



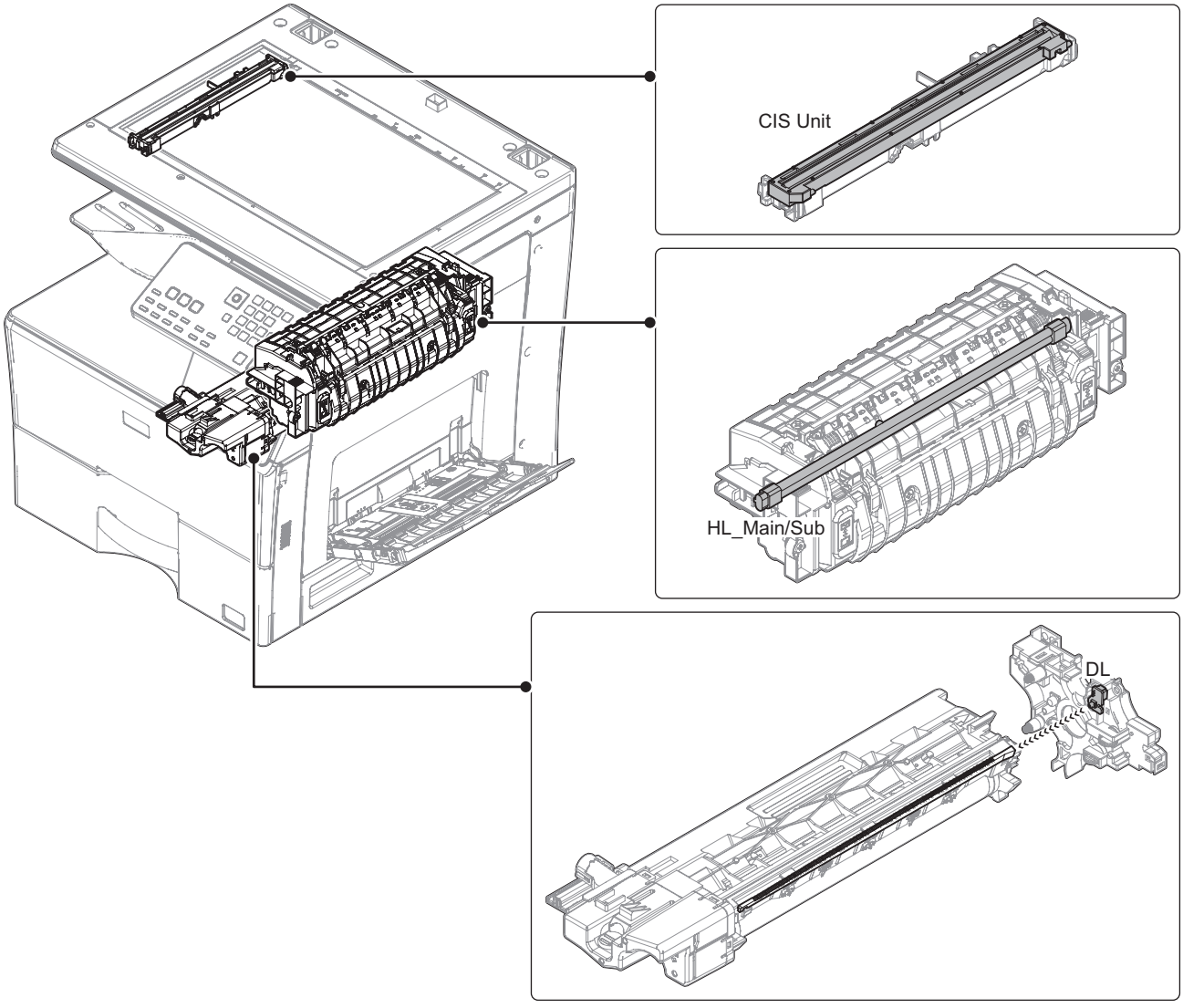
Signal name	Name	Type	Function and Operation	Unit
DM	Drum motor	DC brushless motor	Drives the OPC drum/developing section	Main engine drive unit
MM	Main motor	DC brushless motor	Main drive	Main engine drive unit
PGM	Polygon Motor	DC brushless motor	Scans laser beams	LSU
SCAM	SCAN Motor	Stepping motor	Drives the scanner unit. (scan, return operations)	Scanner unit
TNM	Toner motor (DCM)	DC brush motor	Sends toner to the DV unit.	Toner motor drive unit

10. Rollers



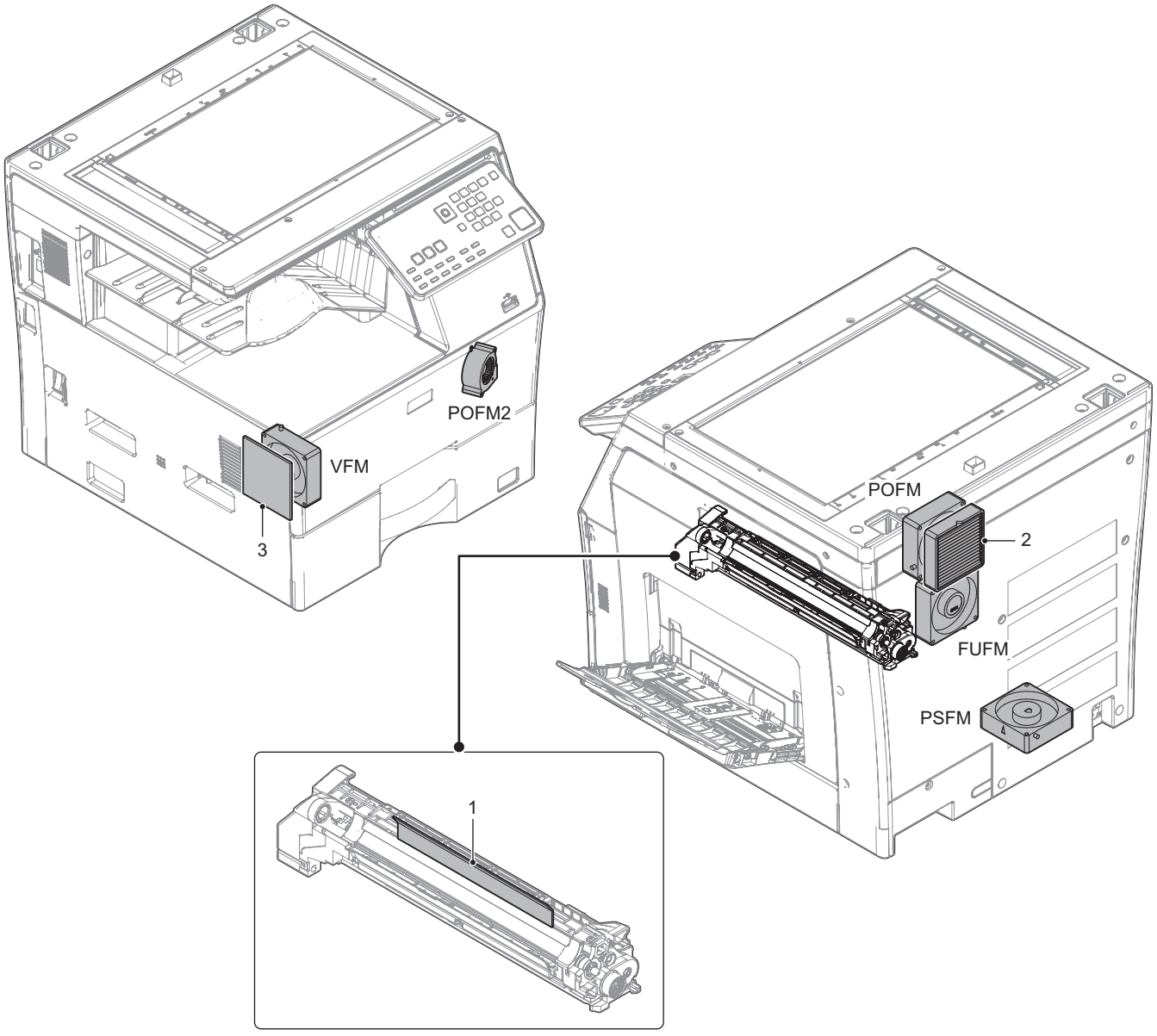
No.	Name	Function and Operation	Unit
1	Paper pick up roller (Paper feed tray 1)	This roller sends a paper to Paper feed roller.	500 cassette
2	Paper feed roller (Paper feed tray 1)	This roller sends a paper to Resist roller.	500 cassette
3	Separation roller (Paper feed tray 1)	This roller separates papers to prevent double-feeding.	500 cassette
4	Paper feed roller (Manual paper feed tray)	This roller sends a paper to registration roller.	Right side door
5	Separation roller (Manual paper feed tray)	This roller separates a paper to prevent double-feeding.	Right side door
6	Registration roller (Idle)	This roller applies a pressure to a paper and the registration roller, and provides transport power of the registration roller to the paper.	PS unit
7	Registration roller (Drive)	This roller sends a paper to the transport section, controlling the timing for transportation to adjust correlation between image and paper.	PS unit
8	Fusing roller	This roller adheres toner onto a paper.	Fusing unit
9	Pressure roller	This roller applies pressure to fuse toner onto a paper.	Fusing unit
10	Paper exit roller 1 (Idle)	This roller applies pressure to a paper and the exit roller to provide transport power of the exit roller to the paper.	Paper exit unit
11	Paper exit roller 1 (Drive)	This roller sends a paper to Paper exit roller 2 or reverses a paper for duplex printing.	Paper exit unit
12	Paper exit roller 2 (Idle)	This roller applies pressure to a paper and the exit roller to provide transport power of the exit roller to the paper.	Paper exit unit
13	Paper exit roller 2 (Drive)	This roller discharges paper to a tray.	Paper exit unit
14	Transport roller 2 (Idle)	This roller applies pressure to a paper and the Transport roller to provide transport power of the Transport roller to the paper.	Right side door
15	Transport roller 2 (Drive)	This roller sends a paper to Transport roller 3.	Right side door
16	Transport roller 3 (Idle)	This roller applies pressure to a paper and the Transport roller to provide transport power of the Transport roller to the paper.	Right side door
17	Transport roller 3 (Drive)	This roller sends a paper to Registration roller.	Right side door
18	Transfer roller	Transfer toner to paper	Transfer unit

11. Lamps



Signal name	Name	Type	Function and Operation	Unit
—	CIS Unit	—	Reads the original image.	Scanner unit
DL	Discharge lamp	LED	Discharges electric charges on the OPC drum	Frame unit: main
HL_Main	Heater lamp (Main)	Halogen lamp	Heats the fusing roller	Fusing unit
HL_Sub	Heater lamp (Sub)	Halogen lamp	Heats the fusing roller	Fusing unit

12. Fans and filter

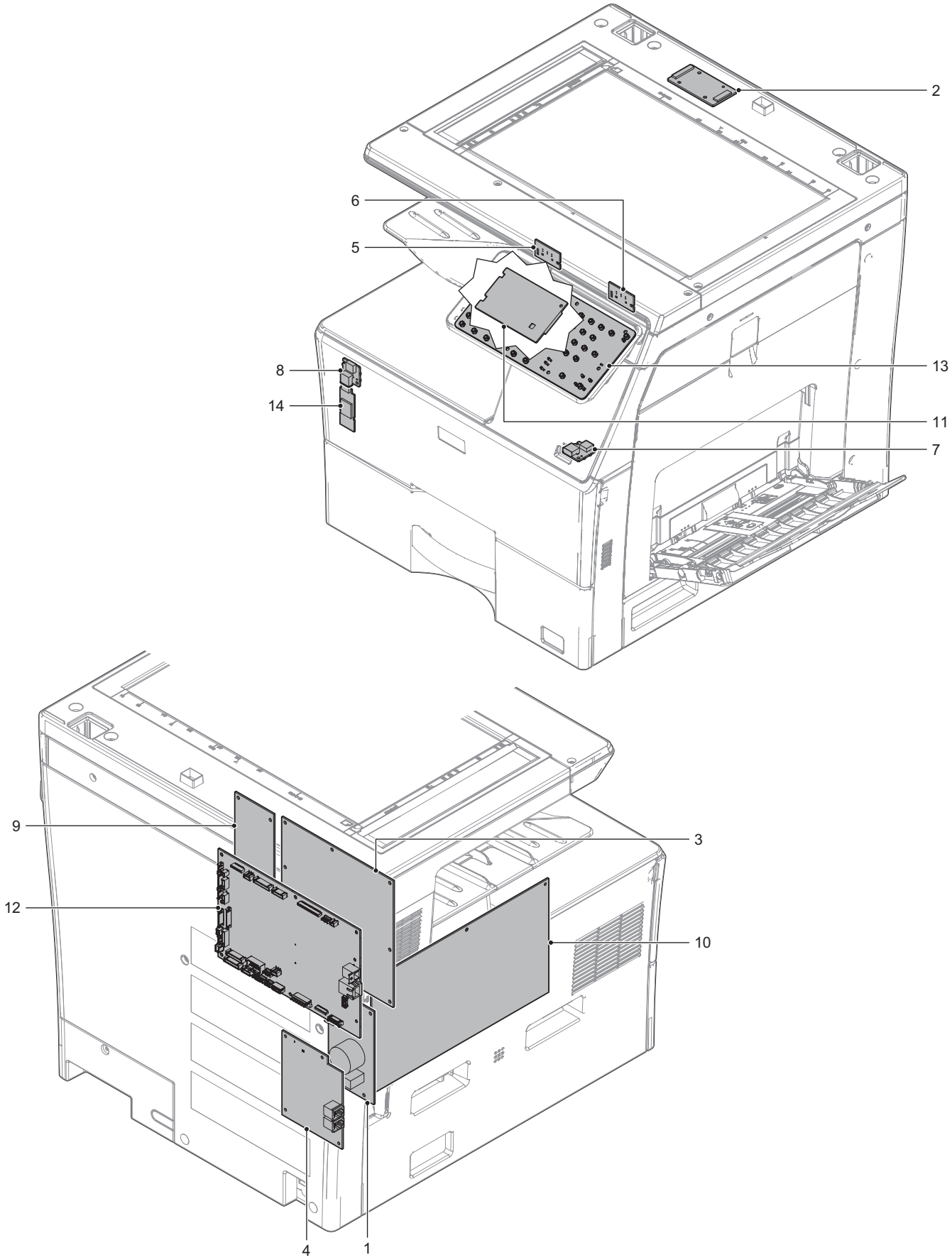


Signal name	Name	Function and Operation	Unit
FUFM	Fusing cooling Fan (Exhaust)	Cools the fusing section	Frame unit: main (FAN)
POFM	Paper exit cooling Fan (Exhaust)	Cools the paper exit section	Frame unit: main (FAN)
POFM2	Paper cooling Fan (Aspirated)	Cools the paper	Frame unit: main (FAN)
PSFM	Power supply cooling Fan	Cools the power unit	Frame unit: main (FAN)
VFM	Ventilation Fan (Aspirated)	Cools the inside of the machine	Frame unit: main (FAN)

No.	Name	Function and Operation	Unit
1	DV filter	Prevents toner splash	Developer unit
2	UFP filter *1	Absorb UFP generated in the machine (Europe and Japan only)	Frame unit: main (Paper exit cooling FAN)
3	Intake Filter	Prevent the dust from entering inside the machine	Frame Unit main

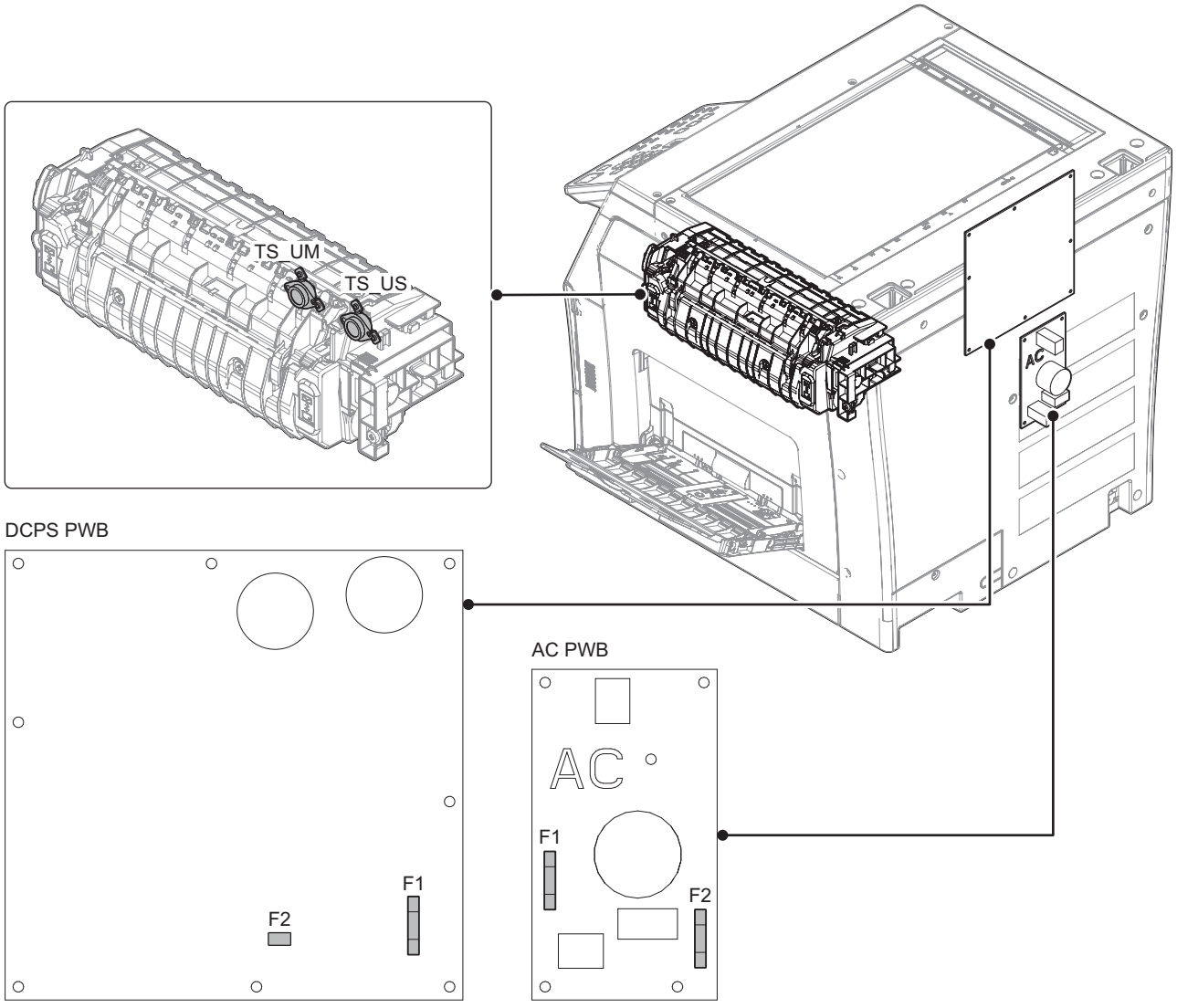
*1 UFP：Ultrafine Particle (particle that is 0.1 micrometer or less in diameter)

13. PWB/memory device



No.	Name	Function and Operation	Unit
1	AC PWB	This PWB is an AC input power source.	AC
2	AFE PWB	Scanner (front) read CD control PWB.	Scanner unit
3	DCPS PWB	This PWB generates DC power.	
4	FAX PWB	This PWB controls entire Fax unit.	FAX
5	Status LED_G	This PWB displays operating status of main unit.	Front side
6	Status LED_R	This PWB displays operating status of main unit.	Front side
7	Front USB PWB	USB Interface	Front side
8	Front USB PWB	This PWB connects Wireless LAN PWB and MFPc PWB.	Front side
9	HL PWB	This PWB drives Heater lamp.	
10	HV PWB	This PWB generates charging roller voltage, developing bias voltage and transfer voltage.	High voltage PWB
11	LCD PWB	Output the signal to LCD unit.	Operation unit
12	MFP Controller PWB	This PWB controls entire machine.	
13	MFP Key PWB	This PWB outputs key operation signal.	Operation unit
14	Wireless LAN PWB	This PWB makes a wireless network connection.	

14. Fuses and thermostats



Signal name	Name	Type	Function and Operation	Unit
TS_UM	Thermostat (Main)	Mechanical thermostat	Shuts down the heater lamp (HL_UM) circuit when the fusing section is overheated (center section)	Fusing unit
TS_US	Thermostat (Sub)	Mechanical thermostat	Shuts down the heater lamp (HL_US) circuit when the fusing section is overheated (edge section)	Fusing unit

Signal name	Name	Type	Section
F1	Fuse	20A 250V	AC PWB (For 100V series)
F1	Fuse	10A 250V	AC PWB (For 200V series)
F2	Fuse	10A 250V	AC PWB (For 200V series)
F1	Fuse	6.3A 250V	DCPS PWB
F2	Fuse	2A 250V	DCPS PWB

[5] ADJUSTMENTS AND SETTINGS

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	Adjust the developing unit	1A	Toner density control reference value setting			25-2
ADJ 2	Adjusting high voltage values	2A	Adjust the charging bias voltage			8-1
		2B	Adjust the developing bias voltage			8-1
		2C	Transfer current and voltage adjustment			8-6
		2D	Transfer separation bias voltage adjustment			8-6
ADJ 3	Print engine image skew, image position, image magnification ratio, void area adjustments (Manual adjustments)	3A	Print engine image magnification ratio adjustment (Main scanning direction)			50-10
		3B	Print engine print area (void area) adjustment			50-10/50-1
		3C	Print engine image off-center adjustment			50-10
ADJ 4	Scanner image skew adjustment (RSPF mode)	4A	RSPF skew adjustment (Front surface mode)			64-2
ADJ 5	Scan image magnification ratio adjustment (Manual adjustment)	5A	Scan image magnification ratio adjustment (main scanning direction) (Manual adjustment) (Document table mode)			48-1
		5B	Scan image magnification ratio adjustment (sub scanning direction) (Manual adjustment) (Document table mode)			48-1
		5C	Scan image magnification ratio adjustment (main scanning direction) (Manual adjustment) (RSPF mode)			48-1
		5D	Scan image magnification ratio adjustment (sub scanning direction) (Manual adjustment) (RSPF mode)			48-1
ADJ 6	Scan image off-center adjustment (Manual adjustment)	6A	Scan image off-center adjustment (Manual adjustment) (Document table mode)			50-12
		6B	Scan image off-center adjustment (Manual adjustment) (SPF mode)			50-12/50-6
ADJ 7	Print lead edge image position, void area adjustment (Printer mode)					50-5
ADJ 8	Copy image position, image loss adjustment (Manual adjustment)	8A	Copy image position, image loss, void area adjustment (Manual adjustment) (Document table mode)			50-1
		8B	Copy image position, image loss, void area adjustment (Manual adjustment) (SPF mode)			50-6
ADJ 9	Gray balance/density adjustment		Note before execution of the image quality adjustment			
			Copy image quality check			
			Printer image quality check			
		9A	Scanner calibration	9A (1)	CIS gamma adjustment (CIS calibration) (Document table mode)	63-3 (63-5)
		9B	Copy quality adjustment (Basic adjustment)	9B (1)	Copy gray balance and density adjustment (Automatic adjustment)	46-24

Job No	Adjustment item list					Simulation
ADJ 9	Gray balance/density adjustment	9C	Copy/Image send/FAX image quality adjustment (Individual adjustment)	9C (1)	Monochrome copy density adjustment (for each monochrome copy mode) (separately for the low density area and high density area)) (No need to adjust normally)	46-2
				9C (2)	Monochrome copy density, gamma adjustment (for each monochrome copy mode)	46-16
				9C (3)	Automatic monochrome (Copy/Scan/FAX) mode document density scanning operation (exposure operation) conditions setting (Normally no need to set)	46-19
				9C (4)	Document low density image density reproduction adjustment in the automatic monochrome (Copy/Scan/FAX) mode (No need to adjust normally) (Background density adjustment in the scanning section)	46-32
				9C (5)	Monochrome (Copy/Scan/FAX) mode color document reproduction adjustment (No need to adjust normally)	46-37
				9C (6)	Copy high density image density reproduction setting (Normally unnecessary the setting change)	46-23
				9C (7)	RSPF mode (Copy/Scan/FAX) density adjustment (No need to adjust normally)	46-9
				9C (8)	Copy gamma, gray balance adjustment for each dither (Automatic adjustment)	46-54
		9D	Printer image quality adjustment (Basic adjustment)	9D (1)	Printer gray balance adjustment (Manual adjustment)	67-25
		9E	Printer image quality adjustment (Individual adjustment)	9E (1)	Printer density adjustment (Low density section density adjustment) (No need to adjust normally)	67-36
				9E (2)	Printer high density image density reproduction setting (Supporting the high density section tone gap) (No need to adjust normally)	67-34
ADJ 10	Image density sensor adjustment	10A	Image density sensor adjustment			44-2
ADJ 11	Image send, FAX send mode, image quality adjustment	11A	Color image send mode, image density and gradation adjustment (by each mode)			46-4
		11B	Monochrome image send mode, image density and gradation adjustment (by each mode)			46-5
		11C	Image send mode, image color balance adjustment			46-8
		11D	FAX send mode, image sharpness adjustment			46-39
ADJ 12	FAX send mode image quality adjustment	12A	Image density and gradation adjustment in the FAX send mode (Collective adjustment of all the FAX mode)			46-40
		12B	Image density and gradation adjustment in the FAX send mode (Normal mode)			46-41
		12C	Image density and gradation adjustment in the FAX send mode (Fine mode)			46-42
		12D	Image density and gradation adjustment in the FAX send mode (Super fine mode)			46-43

3. Details of adjustment

ADJ 1 Adjust the developing unit

1-A Toner density control reference value setting

This adjustment is needed in the following situations:

* When developer is replaced.

NOTE: Be sure to execute this adjustment only when developer is replaced. Never execute it in the other cases.

1) With the front cabinet open, enter SIM 25-2.
   Install developer unit and toner cartridge with developer replacement.
2) Close the front cabinet and press [OK/START] button.
3) After completion of the adjustment of the toner density control reference value.
4) When [OK/START] key is pressed, it is highlighted. The developing roller rotates, and the toner density sensor detects toner density, and the output value is displayed. The above operation is executed for 70 seconds, and the average value of the toner density sensor detection level is set (saved) as the reference toner density control value. When the reference toner density control adjustment operation is completed, "COMPLETE" is displayed and results are displayed. This makes known about whether the adjustment operation is completed or not.
   NOTE:
   If the operation is interrupted within 70 seconds, the adjustment result is not reflected. If you press the [Reset/Stop] key during rotation, operation stops, operation stops, and an abnormal end screen is displayed. If [EE-EU], [EE-EL] or [EE-EC] is displayed, setting of the reference toner density control value is not completed normally.

Error display	Content	Details of content
EE-EL	EL abnormality	Auto developer adjustment reference value is less than TPC_AIR + over toner threshold.
EE-EU	EU abnormality	Auto developer adjustment reference value exceeds TPC_AIR + under toner threshold.
EE-EC	EC abnormality	Peak to Peak of sensor output value is less than 1count.

NOTE: When not replacing the developer, do not execute SIM25-2.

ADJ 2 Adjusting high voltage values

2-A Adjust the charging bias voltage

This adjustment is needed in the following situations:

* When the high voltage PWB is replaced.
* U2 trouble has occurred.
* The MFPc PWB has been replaced.
* The EEPROM of the MFPc PWB has been replaced.

1) Enter the SIM 8-2 mode.
2) Select an output mode and an item to be adjusted.

Item/Display			Content	Setting range	Actual voltage	
					35	45
MIDDLE	A	M MHV_K	Charging bias voltage (Medium speed mode)	500 - 2000	-1300V ±5V	-1300V ±5V
LOW	A	L MHV_K	Charging bias voltage (Low speed mode)	500 - 2000	-1300V ±5V	-1300V ±5V

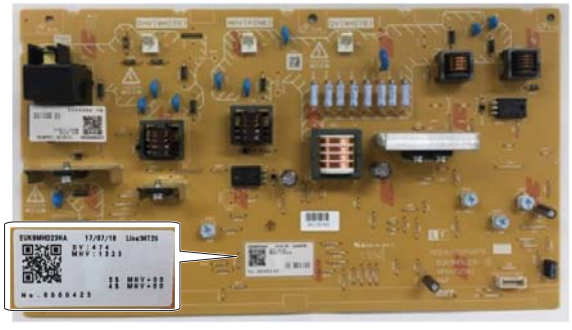
3) Enter the adjustment value (specified value) in the middle speed mode and press [OK] key.
   Enter the adjustment value of each mode which is specified on the label attached on the high voltage power PWB.

   MHV: XXXX

   The default value s specified for each model must be changed as follows.

   35cpm machine: +0

   45cpm machine: +0



Important

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. 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.

Important

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.

2-B Adjust the developing bias voltage

This adjustment is needed in the following situations:

* When the high voltage PWB is replaced.
* U2 trouble has occurred.
* The MFPc PWB has been replaced.
* The EEPROM of the MFPc PWB has been replaced.

1) Enter the SIM 8-1 mode.
2) Select an output mode and an item to be adjusted.

Item/Display			Content	Setting range	Default value	
					35	45
MIDDLE	A	M DVB_K	Developing bias voltage (Medium speed mode)	0 - 650	-475V±5V	
LOW	A	L DVB_K	Developing bias voltage (Low speed mode)	0 - 650	-475V±5V	

3) Enter the adjustment value (specified value) in the middle speed mode and press [OK] key.

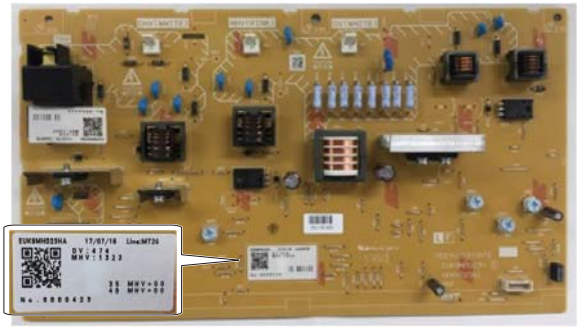
   Enter the adjustment value of each mode which is specified on the label attached on the high voltage power PWB.

   DV: XXX

   The Default values specified for each model must be changed accordingly.

   35cpm machine: +0

   45cpm machine: +0



Important

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 write down the adjustment value in advance.

Important

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.

2-C Transfer current and voltage adjustment

This adjustment must be performed in the following cases.

- U2 trouble has occurred
- The MFPc PWB has been replaced
- The EEPROM of the MFPc PWB has been replaced

1) Enter the Sim 8-6 mode
2) Select an item to be adjusted

Item/Display		Content		Paper Surface	Setting range		35 CPM		45 CPM	
					Speed	Value	Default value	Actual output value	Default value	Actual output value
1	TC PLN BW S	Transfer bias reference value	Plain paper 1 (60-89g/m^2)	Front	Middle	0 - 255	93	18 µA	98	20 µA
2	TC PLN BW D			Back	Middle	0 - 255	80	13 µA	85	15 µA
3	TC PLN2 BW S		Plain paper 2 (90-105g/m^2)	Front	Middle	0 - 255	93	18 µA	98	20 µA
4	TC PLN2 BW D			Back	Middle	0 - 255	80	13 µA	85	15 µA
5	TC HEV1 BW S		Heavy paper 1 (106-176g/m^2)	Front	Low	0 - 255	72	10 µA	72	10 µA
6	TC HEV1 BW D			Back	Low	0 - 255	72	10 µA	72	10 µA
7	TC HEV2 BW S		Heavy paper 2 (177-220g/m^2)	Front	Low	0 - 255	72	10 µA	72	10 µA
8	TC HEV2 BW D			Back	Low	0 - 255	72	10 µA	72	10 µA
9	TC OHP BW		OHP	Front	Low	0 - 255	72	10 µA	72	10 µA
10	TC ENV BW		Envelope	Front	Low	0 - 255	72	10 µA	72	10 µA
11	TC THIN BW		Thin paper	Front	Middle	0 - 255	72	10 µA	72	10 µA
12	TC GLOS BW		Gloss paper	Front	Low	0 - 255	72	10 µA	72	10 µA
13	TC LABEL BW		Label paper	Front	Low	0 - 255	72	10 µA	72	10 µA
14	TC FRONT EDGE LO S	Transfer tip bias reference value	low speed	Front	Low	0 - 255	72	10 µA	72	10 µA
15	TC FRONT EDGE LO D		low speed	Back	Low	0 - 255	72	10 µA	72	10 µA
16	TC FRONT EDGE MI S		middle speed	Front	Middle	0 - 255	93	18 µA	98	20 µA
17	TC FRONT EDGE MI D		middle speed	Back	Middle	0 - 255	80	13 µA	85	15 µA
18	TC ADSORPTION LO	Transfer adsorption bias reference value	low speed(+)	-	Low	0 - 255	80	13 µA	72	10 µA
19	TC ADSORPTION MI		middle speed(+)	-	Middle	0 - 255	80	13 µA	85	15 µA
20	TC BACKEND LO S	Transfer back end bias reference value	low speed	Front	Low	0 - 255	72	10 µA	72	10 µA
21	TC BACKEND LO D		low speed	Back	Low	0 - 255	72	10 µA	72	10 µA
22	TC BACKEND MI S		middle speed	Front	Middle	0 - 255	64	7 µA	72	10 µA
23	TC BACKEND MI D		middle speed	Back	Middle	0 - 255	59	5 µA	72	10 µA
1	TC INTERVAL LO	Reference value between transfer sheets	low speed(+)	-	Low	0 - 255	80	13 µA	72	10 µA
2	TC INTERVAL MI		middle speed(+)	-	Middle	0 - 255	80	13 µA	85	15 µA
3	TC COUNTER LO	Transfer counter bias reference value	low speed(-)	-	Low	0 - 255	182	-800V	182	-800V
4	TC COUNTER MI		middle speed(-)	-	Middle	0 - 255	182	-800V	182	-800V

Item/Display		Content		Paper Surface	Setting range		35 CPM		45 CPM	
					Speed	Value	Default value	Actual output value	Default value	Actual output value
5	TC MNS CLEN LO	Cleaning minus bias reference value	low speed(-)	-	Low	0 - 255	182	-800V	182	-800V
6	TC MNS CLEN MI		middle speed(-)	-	Middle	0 - 255	182	-800V	182	-800V
7	TC PLS CLEN LO	Cleaning plus bias reference value	low speed(+)	-	Low	0 - 255	59	5 µA	59	5 µA
8	TC PLS CLEN MI		middle speed(+)	-	Middle	0 - 255	59	5 µA	59	5 µA
1	DHV LO BW S	Separation bias reference value	low speed	Front	Low	0 - 255	111	-1400V	111	-1400V
2	DHV LO BW D		low speed	Back	Low	0 - 255	111	-1400V	111	-1400V
3	DHV MI BW S		middle speed	Front	Middle	0 - 255	85	-1000V	85	-1000V
4	DHV MI BW D		middle speed	Back	Middle	0 - 255	85	-1000V	85	-1000V

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

When [OK/START] key is pressed, the voltage entered in the procedure 3) is outputted for 30sec and the set value is saved. When [OK/START] key is pressed again, EXEC turns black and the currently set voltage is output.

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

2-D Transfer separation bias voltage adjustment

This adjustment is needed in the following situations:

* When the high voltage PWB is replaced.
* U2 trouble has occurred.
* The MFPc PWB has been replaced.
* The EEPROM of the MFPc PWB has been replaced.

1) Enter the SIM 8-6 mode.
2) Select a mode to be adjusted with the scroll key.
3) Enter an adjustment value (specified value) and press [OK] key.

   By setting the default value, the specified voltage is outputted.

   When the start key is pressed again, EXEC black reverses and the currently set voltage is output.

Item/Display		Content		Paper Surface	Setting range		35 CPM		45 CPM	
					Speed	Value	Default value	Actual output value	Default value	Actual output value
1	DHV LO BW S	Separation bias reference value	low speed	Front	Low	0 - 255	111	-1400V	111	-1400V
2	DHV LO BW D		low speed	Back	Low	0 - 255	111	-1400V	111	-1400V
3	DHV MI BW S		middle speed	Front	Middle	0 - 255	85	-1000V	85	-1000V
4	DHV MI BW D		middle speed	Back	Middle	0 - 255	85	-1000V	85	-1000V

ADJ 3 Print image magnification ratio, void area adjustments (Manual adjustments)

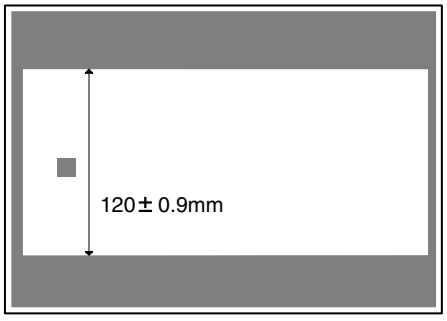
3-A Print engine image magnification ratio adjustment (Main scanning direction)

This adjustment is needed in the following situations:

* When the LSU (writing) unit is replaced.
* U2 trouble has occurred.
* The MFPc PWB has been replaced.
* The EEPROM of the MFPc PWB has been replaced.

1) Enter the SIM 50-10 mode.
2) Set A4 (11" x 8.5") paper in the paper feed tray.
3) Select the paper feed tray set in procedure 2) with the scroll key.
4) Press [OK/START] key.

   The check pattern is printed out.
5) Check that the inside dimension of the printed half tone is 120 ± 0.9mm.



   If the above requirement is not met, do the following steps.
6) Change the set value of set item A.

   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) - 6) until a satisfactory result is obtained.

3-B Print engine print area (void area) adjustment

This adjustment must be performed in the following cases

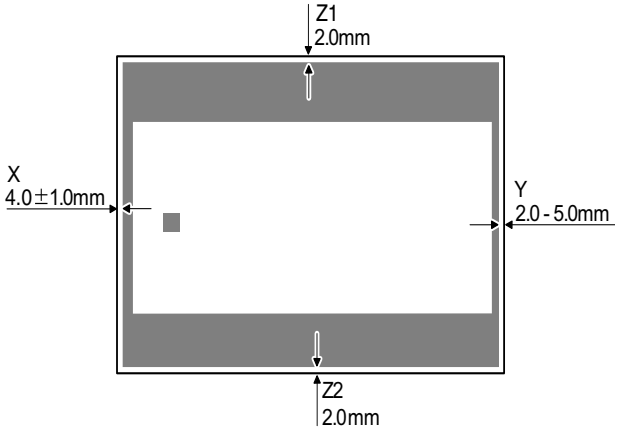
* When LSU unit has been replaced or removed
* When paper tray has been replaced
* When paper tray section has been disassembled
* When manual feed tray has been replaced
* When manual feed tray has been disassembled
* When duplex mode paper transport section has been disassembled
* When registration roller section has been disassembled
* When U2 trouble has been occurred
* When MFPc PWB has been replaced
* When EEPROM on the MFPc PWB has been replaced

Note

Check to insure the following item before execution of this adjustment

- ADJ3A Print image magnification ration adjustment (main scanning direction) (manual adjustment) has been properly adjusted

1) Enter Sim 50-10 mode
2) Set A4 (11”x8.5”) paper in the paper feed tray
3) Select the paper feed tray set in step2) with scroll key
4) Tap [OK/START] key
   Check pattern is printed out.
5) check that the items below are in the range of the standard values



	Content	Standard adjustment value
X	Lead edge void area	4.0±1.0mm
Y	Rear edge void area	2.0mm?5.0mm
Z1 / Z2	FRONT/REAR void area	Total 4.0±2.0mm

If the above condition is not satisfied, perform the following steps

6) change setting value and tap [OK/START] key to print check pattern. Repeat step3) – step6) until the condition of step5)is satisfied

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

Main scanning direction: setting value is increased, image position is shifted to rear side

Sub scanning direction: setting value is increased, image position is shifted to rear side of paper transport direction

Main scanning direction	MAIN-MFT	Manual tray
	MAIN-CS1	Tray 1
	MAIN-CS2	Tray 2
	MAIN-ADU	Back side of duplex
Sub scanning direction	SUB-MFT	Manual tray
	SUB-CS1	Tray 1
	SUB-DSK	Tray 2
	SUB-ADU	Back side of duplex
Main scanning direction	MAIN-STD	All tray
Sub scanning direction	SUB-STD	All tray

Note

MAIN-STD and SUB-STD are changed image position of all trays.

3-C Print engine image off-center 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 3A 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 section is disassembled.
* When the duplex section is installed or replaced.
* When the registration roller section is disassembled.
* U2 trouble has occurred.
* The MFPc PWB has been replaced.
* The EEPROM of the MFPc PWB has been replaced.

(Note)

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

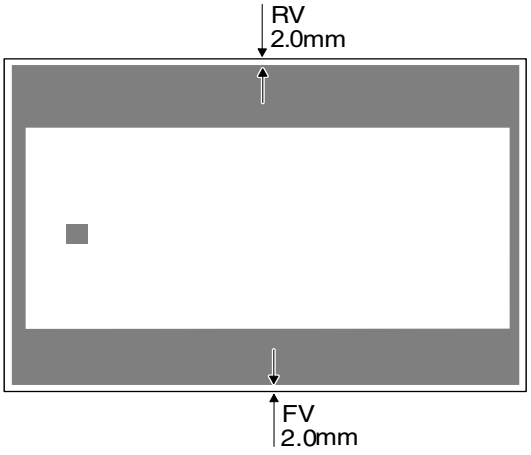
* Check that the ADJ 3A Print engine image magnification ratio adjustment (Main scanning direction) has been properly adjusted.

1) Enter SIM 50-10 mode.
2) Use the scroll key to select a paper feed tray which is to be adjusted. (Items B - H)

Item/Display		Content		Setting range		Default value
1	BK-MAG	Main scan print magnification ratio BK		80 - 120		105
2	MAIN-STD	Reference adjustment value (off center)		1 - 99		61
3	SUB-STD	Reference adjustment value (Transport direction)		1 - 99		47
4	MAIN-MFT	Print off center adjustment value (Manual paper feed)		1 - 99		33
5	MAIN-CS1	Print off center adjustment value (Tray 1)		1 - 99		50
6	MAIN-CS2	Print off center adjustment value (Tray 2)		1 - 99		50
7	MAIN-ADU	Print off center adjustment value (ADU) NOTE: Before execution of this adjustment check to insure that the adjustment items A - H have been properly adjusted. If not, this adjustment cannot be made properly.		1 - 99		48
8	SUB-MFT	Registration motor ON Timing adjustment	Manual paper feed	1 - 99		50
9	SUB-CS1		Tray1	1 - 99		50
10	SUB-DSK		Desk tray	1 - 99		50
11	SUB-ADU		ADU	1 - 99		42
12	SUB-HV-A	Shift amount	Heavy paper 1,2	1 - 99		50
13	SUB-HV-B		Heavy paper 3,4	1 - 99		50
14	SUB-GLOSSY PAPER		Glossy paper	1 - 99		50
15	SUB-OHP		OHP	1 - 99		50
16	SUB-ENV		Envelope	1 - 99		50
17	MULTI COUNT	Number of print		1 - 999		1
18	PAPER MFT	Tray selection	Manual paper feed	1 - 5	1	2 (CS1)
	CS1		Tray 1		2	
	CS2		Tray 2		3	

Item/Display			Content		Setting range		Default value
19	DUPLEX	YES	Duplex print selection	Yes	0 - 1	0	1 (NO)
		NO		No		1	

3) Set A4 (11" x 8.5") paper in the paper feed tray selected in procedure 2).
4) Press [OK/START] 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.



RV: REAR VOID AREA
FV: FRONT VOID AREA
RV + FV 4.0mm±2.0mm
*The void must be 1 mm or more on both sides.
RV = 2.0mm -5.0mm
FV = 4.0 ±1.0mm
If the above requirement is not met, do the following steps.

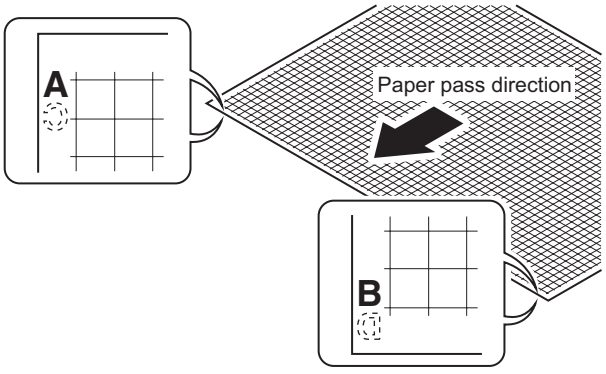
6) Change the adjustment value.
   Enter the adjustment value and press the [OK/START] key.
   When [OK/START] key is pressed, the adjustment pattern is printed. When the adjustment value is increased, the adjustment pattern is shifted to the front frame side. When it is decreased, the adjustment pattern 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 3) - 6) until the conditions of procedure 5) are satisfied. In case a satisfactory result cannot be obtained by repeating the above procedures, perform the following procedure.

ADJ 4 Scanner image skew adjustment (RSPF)

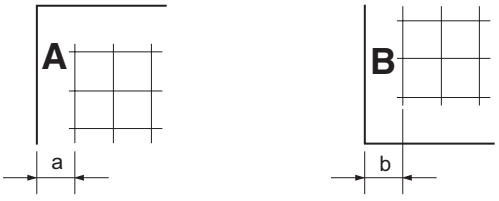
4-A SPF scan image skew adjustment

This adjustment must be performed in the following cases
* When SPF section has been disassembled
* When SPF unit has been replaced
* When SPF unit generates skewed scanned images

1) Create adjustment chart by printing the self print pattern (grid pattern) available in Sim 64-2 in duplex mode/
   Sim 64-2 set value A=1, B=1, C=254, D=255
   Make sure that the print and pattern is almost in parallel with the paper edge and apply position marks “A” and “B” to the front and back side of the leading edge on front side of the paper

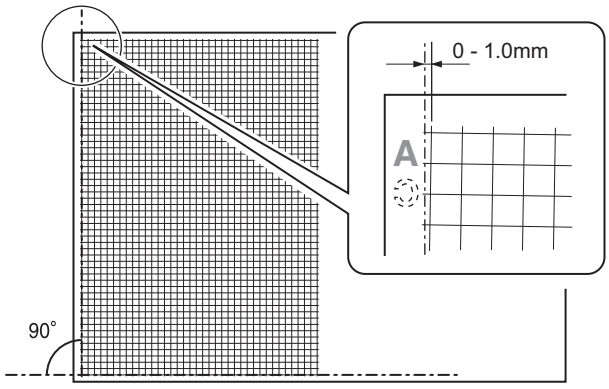


2) Copy the adjustment chart (created in step1) to A4 (11" x 8.5") paper in RSPF duplex mode and check the image for skews (set in the RSPF feed tray so that the mark on the adjustment chart is at the edge)
   * Check with in of the following methods
   Method 1
   (Front side)
   Make sure that the output satisfies the condition
   a-b ≤ ± 1 mm



Method 2

Check that the squareness of the main scanning direction print line for the longitudinal direction of paper is within 1.0mm

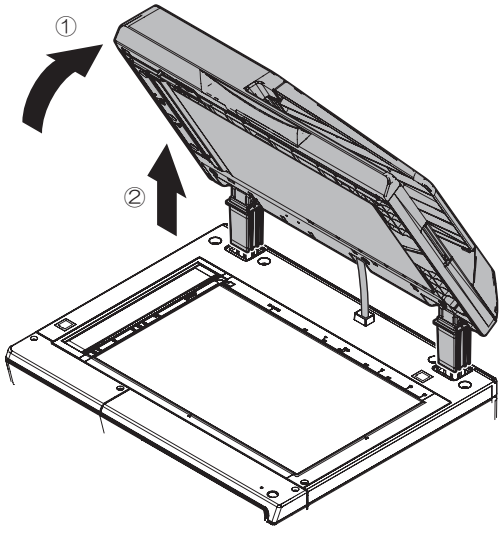


If the copy image is not in the above state, perform the step3)

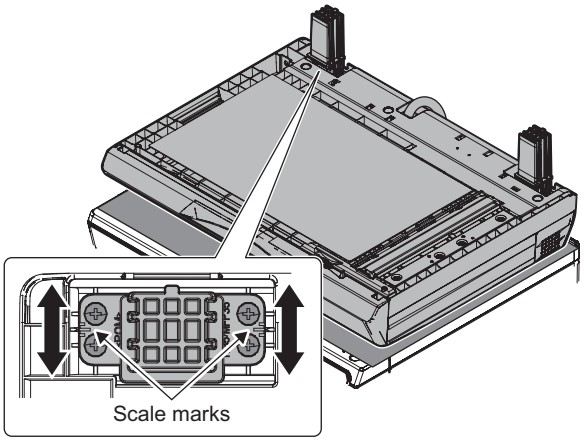
3) Adjust the position of the right hinge of the SPF unit.

For RSPF procedure

a) Open the DSPF unit and lift it.



b) Place the RSPF unit on the protective sheet then, adjust the position of the hinge, after loosening four screws of the right hinge of the RSPF unit.



4) Fasten the four screws of the hinge, after adjusting the position of it.

5) Make copy again and measure a and b on the copied test chart. Repeat step2) to 4) until the condition (a-b=±1mm or less) is satisfied

ADJ 5 Scan image magnification ratio adjustment (Manual adjustment)

Note

Normally if the adjustment is executed by ADJ 4 (automatic adjustment), there is no need to execute this adjustment.

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

In other words, this manual adjustment is executed when a satisfactory result is not obtained from the automatic adjustment (ADJ 4).

5-A Scan image magnification ratio adjustment (main scanning direction) (Manual adjustment) (Document table mode)

Important

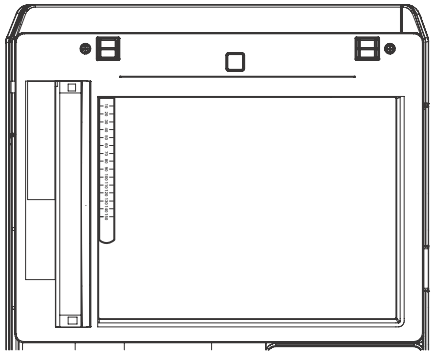
If the default adjustment value of the scan image magnification ration adjustment (main scanning direction) of SIM 48-1, copy image quality may be degraded. Therefore, this adjustment must be executed only when there is a special necessity.

This adjustment must be performed in the following cases:

* When the copy magnification ratio in the copy image main scanning direction is not properly adjusted.
* When the scanner motor is replaced.
* U2 trouble has occurred.
* When the MFPc PWB is replaced.
* When the EEPROM of the MFPc PWB is replaced.

Before this adjustment, the focus adjustment (CIS unit installing position adjustment) must have been completed.

1) Place a scale on the document table as shown in the figure below.



2) Enter the SIM 48-1 mode.

Sim48-01 MAGNIFICATION ADJ	
1: CCD(MAIN)	50
2: CCD(SUB)	50
3: SPF(MAIN)	50
1/ 2 [1- 99]	50

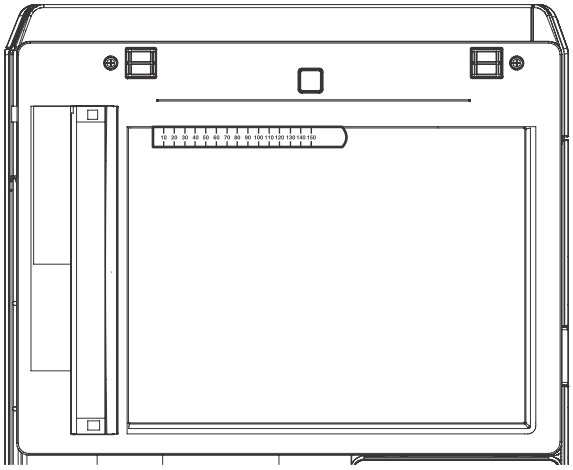
3) Make a normal copy and obtain the copy magnification ratio.
   Enter the set value with 10 key.
   Press the OK key. (Store set value)
4) Check that the copy magnification ratio is within the specified range (100 +/- 0.8%).
   If the copy magnification ratio is within the specified range (100 +/- 0.8%), the adjustment is completed. If the copy magnification ratio is not within the specified range, perform the following procedure.
5) Change the CCD (MAIN) adjustment value of Simulation 48-1.
   When the adjustment value is increased, the copy magnification ratio is increased.
   When the adjustment value is changed by 1, the copy magnification ratio is changed by about 0.02%.
   Repeat the procedures 3) - 5) until the copy magnification ratio is within the specified range (100 +/- 0.8%).

5-B Scan image magnification ratio adjustment (sub scanning direction) (Manual adjustment) (Document table mode)

This adjustment must be performed in the following cases:

* When the copy magnification ratio in the copy image sub scanning direction is not properly adjusted.
* When the scanner motor is replaced.
* U2 trouble has occurred.
* When the MFPc PWB is replaced.
* When the EEPROM of the MFPc PWB is replaced.

1) Place a scale on the document table as shown in the figure below.

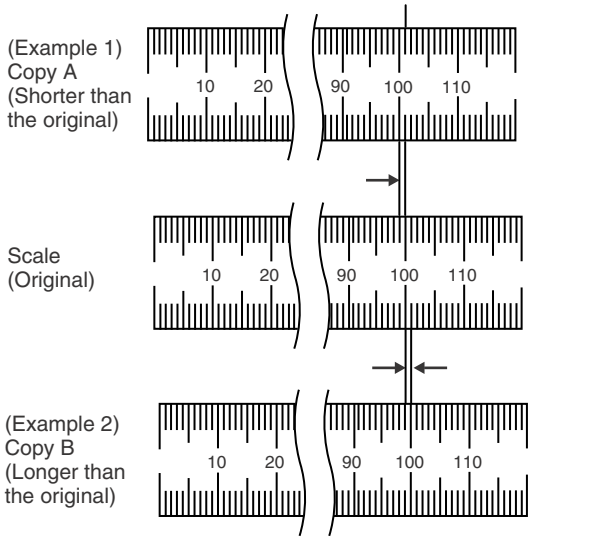


2) Enter the SIM 48-1 mode.

Sim48-01 MAGNIFICATION ADJ	
1: CCD(MAIN)	50
2: CCD(SUB)	50
3: SPF(MAIN)	50
1/ 2 [1- 99]	50

3) Make a normal copy and obtain the copy magnification ratio.
Go to the copy mode, and make a copy.

$$\text{Copy magnification ratio} = \frac{\text{(Original dimension - Copy dimension)}}{\text{Original dimension}} \times 100\%$$



4) Check that the copy magnification ratio is within the specified range (100 +/- 0.8%).
If the copy magnification ratio is within the specified range (100 +/ - 0.8%), the adjustment is completed. If the copy magnification ratio is not within the specified range, perform the following procedure.
5) Change the CCD (SUB) adjustment value of Simulation 48-1.
When the adjustment value is increased, the copy magnification ratio in the sub scanning direction is increased.
When the adjustment value is changed by 1, the copy magnification ratio is changed by about 0.1%.

Repeat the procedures 3) - 5) until the copy magnification ratio is within the specified range (100 +/- 0.8%).

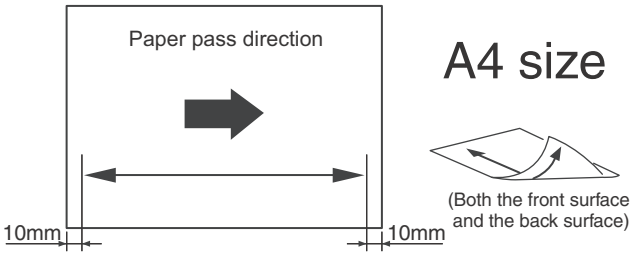
5-C Scan image magnification ratio adjustment (main scanning direction) (Manual adjustment) (RSPF mode)

This adjustment must be performed in the following cases:

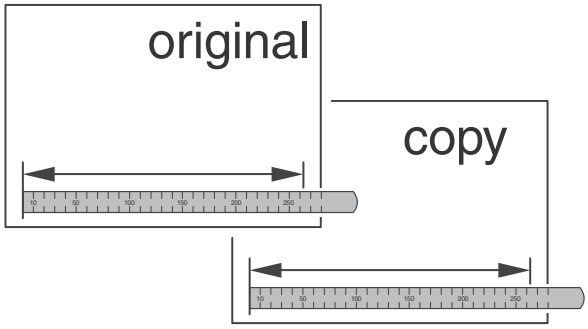
* When the MFPc PWB is replaced.
* When the EEPROM on the MFPc PWB is replaced.
* When U2 trouble occurs.
* When the copy magnification ratio of the RSPF mode copy image in the main scanning direction is not proper.
* When the RSPF is disassembled.

a. Adjustment procedures

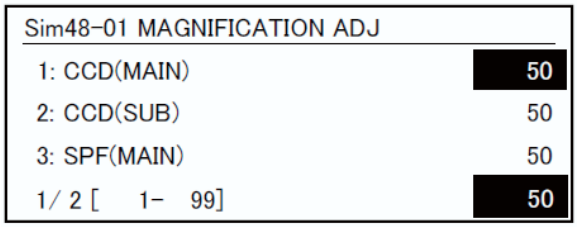
1) Place the duplex adjustment chart shown below on the document tray of the RSPF.
The adjustment chart is prepared by the following procedures.
Use A4 (11" x 8.5") paper, and put marks on both sides and both surfaces of the paper at 10mm from each edge.



2) Make a duplex copy at the normal ratio on A4 paper.
3) Measure the images on the copy paper and the original images.



4) Obtain the image magnification ratio according to the following formula:
Image magnification ratio = Original size / Original size x 100 (%)
Image magnification ratio = 99 / 100 x 100 = 99 (%)
If the image magnification ratio is within the specified range (100 +/- 0.8%), there is no need to perform the adjustment.
If it is not within the specified range, perform the following procedures.
5) Enter the SIM 48-1 mode.



SPF

Item	Display	Content	Setting range	Default value
A	CCD(MAIN)	SCAN main scanning magnification ratio adjustment (CCD)	1 - 99	50
B	CCD(SUB)	SCAN sub scanning magnification ratio adjustment (CCD)	1 - 99	50
C	SPF(MAIN)	SPF document front surface magnification ratio adjustment (Main scan)	1 - 99	50
D	SPF(SUB)	SPF document front surface magnification ratio adjustment (Sub scan)	1 - 99	50
E	SPFB(MAIN)	SPF document back surface magnification ratio adjustment (Main scan)	1 - 99	50
F	SPFB(SUB)	SPF document back surface magnification ratio adjustment (Sub scan)	1 - 99	50

6) Select an adjustment item of SPF (MAIN)/SPFB (MAIN) with the scroll key.

SPF (MAIN)	Main scanning direction image magnification ratio (Front surface)
SPFB (MAIN)	Main scanning direction image magnification ratio (Back surface)

7) Enter an adjustment value with 10-key, and press [OK] key.
When the adjustment value is increased, the image magnification ratio is increased. When the adjustment value is changed by 1, the image magnification ratio is changed by 0.02%.
8) Make a normal copy and obtain the copy magnification ratio.

Repeat the procedures of 1) - 8) until a satisfactory result is obtained.

5-D Scan image magnification ratio adjustment (sub scanning direction) (Manual adjustment) (RSPF mode)

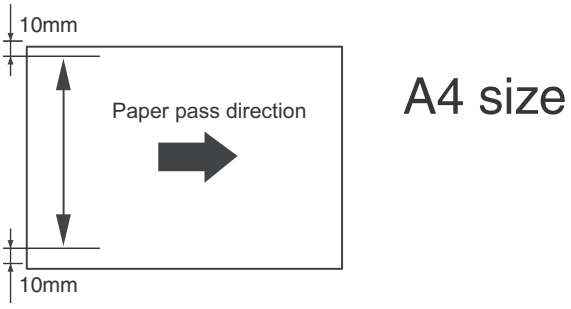
This adjustment must be performed in the following cases:

* When the MFPc PWB is replaced.
* When the EEPROM on the MFPc PWB is replaced.
* When U2 trouble occurs.
* When the copy magnification ratio of the SPF mode copy image in the sub scanning direction is not proper.
* When the SPF is disassembled.

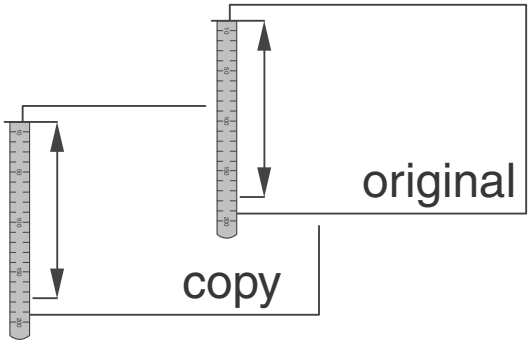
1) Place the duplex adjustment chart shown below on the document tray of the SPF.

   The adjustment chart is prepared by the following procedures.

   Use A4 (11" x 8.5") paper, and put marks on both sides and both surfaces of the paper at 10mm from each edge.



2) Make a duplex copy at the normal ratio on A4 paper.
3) Measure the images on the copy paper and the original images.



4) Obtain the image magnification ratio according to the following formula:

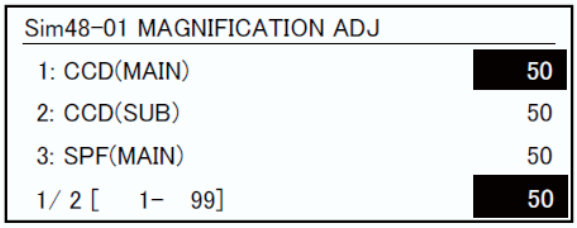
   Image magnification ratio = Original size / Original size x 100 (%)

   Image magnification ratio = 99 / 100 x 100 = 99 (%)

   If the image magnification ratio is within the specified range (100 +/- 0.8%), there is no need to perform the adjustment.

   If it is not within the specified range, perform the following procedures.

5) Enter the SIM 48-1 mode.



Item	Display	Content	Setting range	Default value
A	CCD(MAIN)	SCAN main scanning magnification ratio adjustment (CCD)	1 - 99	50
B	CCD(SUB)	SCAN sub scanning magnification ratio adjustment (CCD)	1 - 99	50
C	SPF(MAIN)	RSPF document front surface magnification ratio adjustment (Main scan)	1 - 99	50
D	SPF(SUB)	RSPF document front surface magnification ratio adjustment (Sub scan)	1 - 99	50
E	SPFB(MAIN)	RSPF document back surface magnification ratio adjustment (Main scan)	1 - 99	50
F	SPFB(SUB)	RSPF document back surface magnification ratio adjustment (Sub scan)	1 - 99	50

6) Select an adjustment item with the scroll key.

   SPF (SUB) Sub scanning direction image magnification ratio (Front surface)

   SPFB (SUB) Sub scanning direction image magnification ratio (Back surface)

7) Enter an image magnification ratio adjustment value with 10-key, and press [OK] key.

   When the adjustment value is increased, the image magnification ratio is increased.

   When the adjustment value is changed by 1, the image magnification ratio is changed by 0.1%.

8) Make a normal copy and obtain the copy magnification ratio.

Repeat the procedures of 1) - 8) until a satisfactory result is obtained.

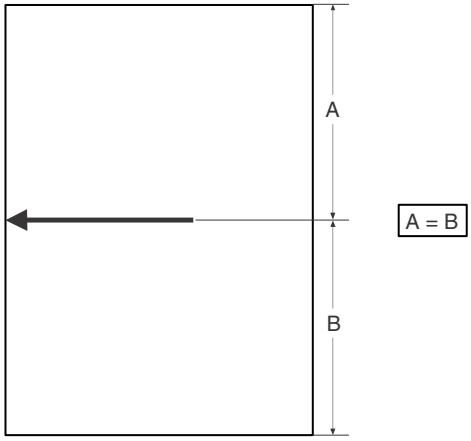
ADJ 6 Scan image off-center adjustment (Manual adjustment)

6-A Scan image off-center adjustment (Manual adjustment) (Document table mode)

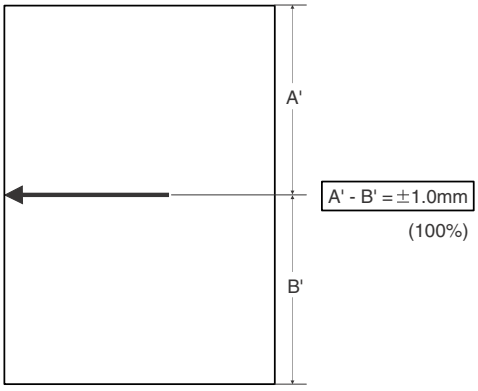
This adjustment must be performed in the following cases:

* When the scanner (reading) section is disassembled.
* When the scanner (reading) unit is replaced.
* When a U2 trouble occurs.
* When the MFPc PWB is replaced.
* When the EEPROM on the MFPc PWB is replaced.

1) Make a copy of the adjustment chart (made by yourself) in the adjustment mode (document table).



2) Check the copy image center position.
If A - B = +/- 1.0mm, the adjustment is not required.



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

3) Enter the SIM 50-12 mode.
4) Select the adjustment mode OC with the scroll key.
5) Enter the adjustment value with 10-key, and press [OK] key.
The entered value is set.
When the set value is increased, the main scanning print position is shifted to the front side by 0.1mm.
6) Go to the copy mode, and make a copy.

Repeat the procedures of 1) - 6) until the above condition is satisfied.

6-B Scan image off-center adjustment (Manual adjustment) (RSPF mode)

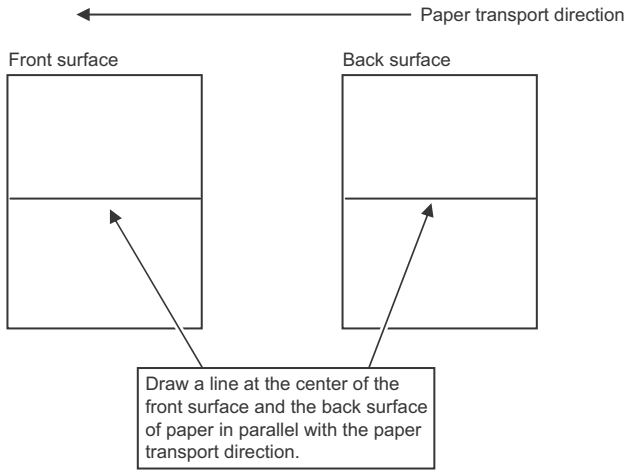
This adjustment must be performed in the following cases:

* When the MFPc PWB is replaced.
* When the EEPROM on the MFPc PWB is replaced.
* When the scanner (reading) section is disassembled.
* When the scanner (reading) section is replaced.
* When U2 trouble occurs.
* When the SPF section is disassembled.
* When the SPF unit is replaced.

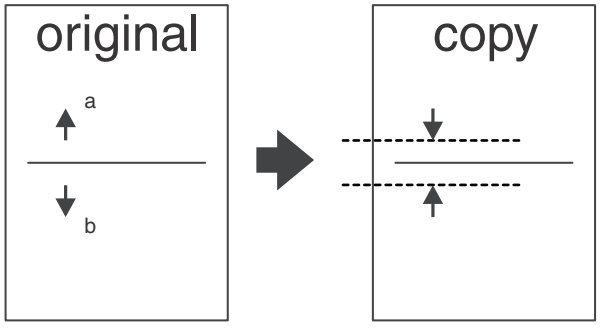
Important

To execute this adjustment, it is required that the ADJ6A Scan image off-center adjustment (Document table mode) must have been properly adjusted.

1) Prepare the adjustment chart.
Draw a line at the center of the front surface and the back surface of A4 (11" x 8.5") paper in parallel with the paper transport direction.



2) Set the adjustment chart to the RSPF.
3) Make a duplex copy in the normal magnification ratio from the manual paper feed tray, and check the image position on the front surface and the back surface of the copy paper.



If the difference is within the range of 0 +/- 2.7mmm there is no need to perform the adjustment.
If the adjustment is required, perform the following procedures.

4) Enter the SIM 50-12 or 50-6 mode.

SIM50-12

Item	Display	Content	Setting range	Default value
A	OC	Document table image off-center adjustment	20 - 80	50
B	SPF(SIDE1)	SPF front surface image off-center adjustment	20 - 80	50
C	SPF(SIDE2)	SPF back surface image off-center adjustment	20 - 80	50

A - C: When the adjustment value is increased, the image position is shifted to the rear frame side.
1step = 0.1mm

SIM50-6

Item/Display		Content	Setting range	Default value
A	SIDE1	Front surface document scan position adjustment (CCD)	1 - 99	50
B	SIDE2	Back surface document scan position adjustment (CCD)	1 - 99	50

Item/Display			Content	Setting range	Default value
C	Image loss amount setting SIDE1	LEAD_EDGE (SIDE1)	Front surface lead edge image loss amount setting	0 - 99	20
D		FRONT_REAR(SIDE1)	Front surface side image loss amount setting	0 - 99	20
E		TRAIL_EDGE (SIDE1)	Front surface rear edge image loss amount setting	0 - 99	40
F	Image loss amount setting SIDE2	LEAD_EDGE (SIDE2)	Back surface lead edge image loss amount setting	0 - 99	40
G		FRONT_REAR(SIDE2)	Back surface side image loss amount setting	0 - 99	20
H		TRAIL_EDGE (SIDE2)	Back surface rear edge image loss amount setting	0 - 99	40
I	OFFSET_SPF1		SPF front surface document off-center adjustment	20 - 80	50
J	OFFSET_SPF2		SPF back surface document off-center adjustment	20 - 80	50
K	SCAN_SPEED_SPF1		SPF document front surface magnification ratio (Sub scan)	1 - 99	50
L	SCAN_SPEED_SPF2		SPF document back surface magnification ratio (Sub scan)	1 - 99	50

* Item A, B: When the adjustment value is increased, the scan timing is delayed.
* Item C - H: When the adjustment value is increased, the image loss is increased.
* Item A - H: 1 step = 0.1mm change
* The SPF rear edge image loss setting is provided for countermeasures against the case when shades are produced.

5) Select an adjustment mode with the scroll key.

(SIM50-12)

SPF(SIDE1) Front surface mode
SPF(SIDE2) Back surface mode

(SIM50-6)

OFFSET SPF1 Front surface mode
OFFSET SPF2 Back surface mode

6) Enter an adjustment value with 10-key, and press [OK] key.
(Change for change in the adjustment value: 0.1mm/step)
(When the adjustment value is increased, the print image is shifted to the rear.)

Repeat the procedures of 2) - 6) until a satisfactory result is obtained.

ADJ 7 Print lead edge image position, void area adjustment (Printer mode)

This adjustment is needed in the following situations:

* When the registration roller section is disassembled.
* When the LSU is replaced or removed.
* U2 trouble has occurred.
* The MFPc PWB has been replaced.
* The EEPROM of the MFPc PWB has been replaced.

NOTE: This adjustment is performed by the user to increase the lead edge void area to greater than the standard value (3mm) in the printer mode.

1) Enter the SIM 50-5 mode.

Item/Display		Content	Setting range	Default value
1	DEN-C	Used to adjust the print lead edge image position. (PRINTER MODE)	1 - 99	30
2	DEN-B	Rear edge void area adjustment	1 - 99	41
3	FRONT/REAR	FRONT/REAR void area adjustment	1 - 99	23
4	DENB-MFT	Manual feed rear edge void area adjustment correction value	1 - 99	50
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
8	DENB-HV	Heavy paper rear edge void area adjustment correction value	1 - 99	50

2) Select the adjustment target of the paper feed mode adjustment item DENC with the scroll key.

ADJ 8 Copy image position and image loss adjustment (Manual adjustment)

8-A Copy image position and image loss adjustment (Manual adjustment) (Document table mode)

This adjustment must be performed in the following cases:

* When the scanner (reading) section is disassembled.
* When the scanner (reading) unit is replaced.
* When the LSU is replaced or removed.
* When the registration roller section is disassembled.
* U2 trouble has occurred.
* The MFPc PWB has been replaced.
* The EEPROM of the MFPc PWB has been replaced.

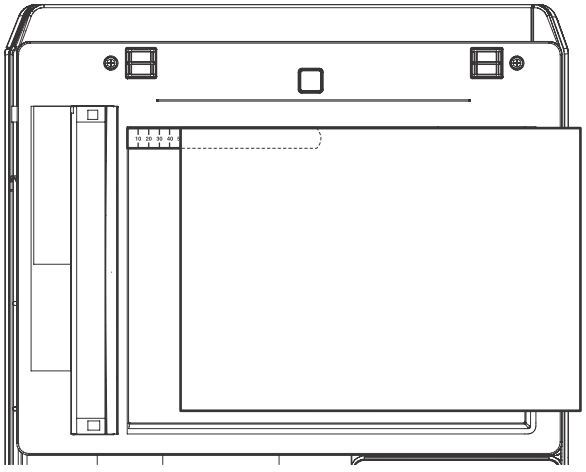
Note

Before executing this adjustment, be sure to confirm that the ADJ 3 Print engine image position, image loss, image magnification ratio, void area adjustments has been completed normally.

1) Place a scale on the document table as shown in the figure below.

   Place a scale so that it is in parallel with the scanning direction and that its lead edge is in contact with the document guide plate.

   Place white paper on the document table so that the scale lead edge can be seen.



2) Enter the SIM 50-1 mode.

3) Set RRCA, LEAD, and SIDE to the default values.

Item/Display			Content	Setting range	Default value
1	Lead edge adjust-ment value	RRCA	Document lead edge reference position (OC)	0 - 99	50
2	Image loss area setting value	LEAD	Lead edge image loss area setting	0 - 99	40
3		SIDE	Side image loss area adjustment	0 - 99	20
4	Void area adjust-ment	DENA	Lead edge void area adjustment	1 - 99	40
5		DENB	Rear edge void area adjustment	1 - 99	30
6		FRONT/ REAR	FRONT/REAR void area adjustment	1 - 99	23
7	Off-center adjust-ment	OFFSET_ OC	OC document off-center adjustment	20 - 80	50
8	Magnificati on ratio correction	SCAN_ SPEED_ OC	SCAN sub scanning magnification ratio adjustment (CCD)	1 - 99	50
9	Sub scanning direction print area correction value	DENB-MFT	Manual feed correction value	1 - 99	50
10		DENB-CS1	Tray 1 correction value	1 - 99	50
11		DENB-CS2	Tray 2 correction value	1 - 99	50
12		DENB-ADU	ADU correction value	1 - 99	50
13		DENB-HV	Heavy paper correction value	1 - 99	50

4) Perform the image lead edge reference position adjustment.

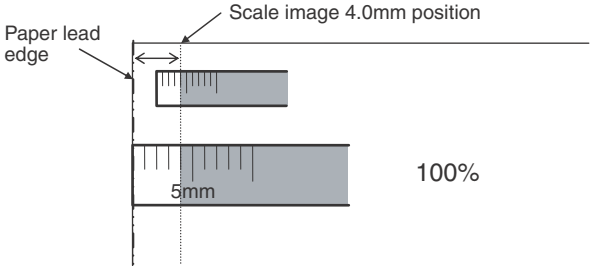
   Shift to the copy mode, and make a copy at each of 100% in the document table mode.

   When the adjustment value of RRCA is proper, the lead edge image from 4.0mm is not copied in either of 100% copy scale.

   If not, change and adjust the RRCA value.

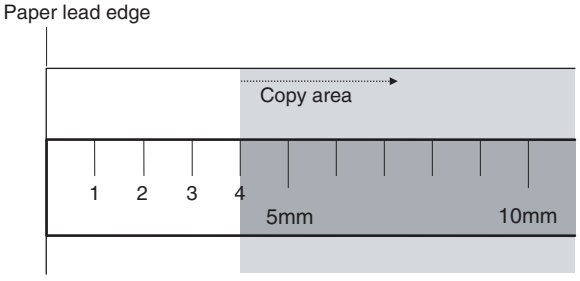
   (Adjust so that the lead edge image from 4.0mm is not copied in either of different copy magnification ratios.)

   Repeat the above procedures until a satisfactory result is obtained.



5) Image loss adjustment

   When the adjustment item of the image loss below is set to the default value, it is adjusted to the standard state. If it is not in the below standard state, or when it is set to a desired value, change these adjustment items.



Void area: 4.0mm, Image loss: 4.0mm

Item/ Display	Content		Setting range	Default value	Standard adjustment value
LEAD	Image loss adjustment	Lead edge image loss adjustment	0 - 99	40	4.0+/- 1.0mm
SIDE		Side image loss adjustment	0 - 99	20	2.0+/- 1.0mm

When the adjustment value is increased, the image loss is increased. When the adjustment value is decreased, the image loss is decreased.

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

8-B Copy image position and image loss adjustment (Manual adjustment) (RSPF mode)

This adjustment must be performed in the following cases:

* When the MFPc PWB is replaced.
* When the EEPROM on the MFPc PWB is replaced.
* When the scanner (reading) section is disassembled.
* When the scanner (reading) unit is replaced.
* When U2 trouble occurs.
* When the SPF section is disassembled.
* When the SPF unit is replaced.

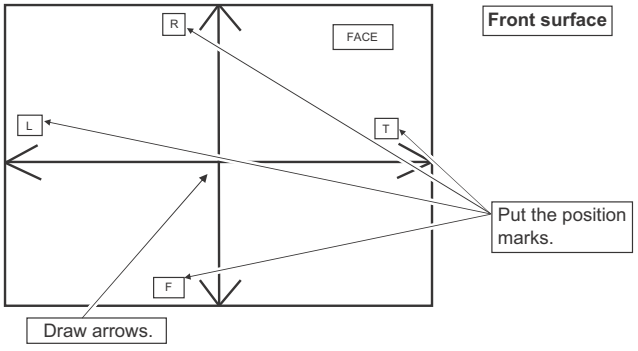
a. Adjustment procedures

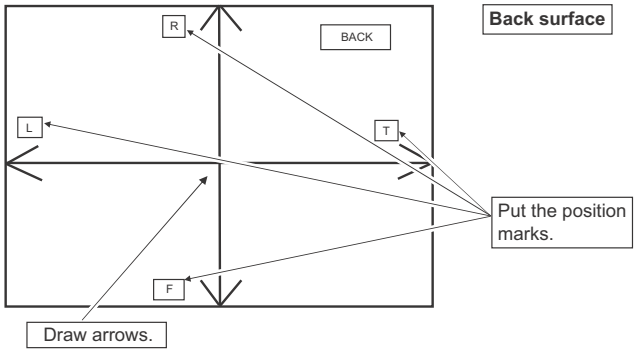
1) Prepare the adjustment chart.

   The adjustment chart can be made by the following procedures.

   Use A4 (11" x 8.5") paper and draw arrow marks vertically and horizontally on the front and the back surfaces.

   At the same time, put marks of the lead edge, the trail edge, the front end, and the rear end as well as the identification marks of the front surface and the back surface.





2) Enter the SIM 50-6 mode.

	Item/Display		Content	Setting range	Default value
A	SIDE1		Front surface document scan position adjustment (CIS)	1 - 99	50
B	SIDE2		Back surface document scan position adjustment (CIS)	1 - 99	50
C	Image loss amount setting SIDE1	SIDE1_LEAD EDGE	Front surface lead edge image loss amount setting	0 - 99	10
D		SIDE1_FRO NT_REAR	Front surface side image loss amount setting	0 - 99	10
E		SIDE1_TRAI L_EDGE	Front surface rear edge image loss amount setting	0 - 99	35
F	Image loss amount setting SIDE2	SIDE2_LEAD EDGE	Back surface lead edge image loss amount setting	0 - 99	10
G		SIDE2_FRO NT_REAR	Back surface side image loss amount setting	0 - 99	10
H		SIDE2_TRAI L_EDGE	Back surface rear edge image loss amount setting	0 - 99	35

* Item A, B: When the adjustment value is increased, the scan timing is delayed.
* Item C - H: When the adjustment value is increased, the image loss is increased.
* Item A - H: 1 step = 0.1mm change
* The RSPF rear edge image loss setting is provided for counter-measures against the case when shades are produced.

(Lead edge image loss adjustment)

1) Set the lead edge image loss adjustment values SIDE1 LEAD_EDGE/SIDE2 LEAD_EDGE on the front surface and the back surface to the following values.

   (Standard set value)

   TRAIL EDGE (SIDE 1):

   10 Lead edge image loss set value (Front surface)

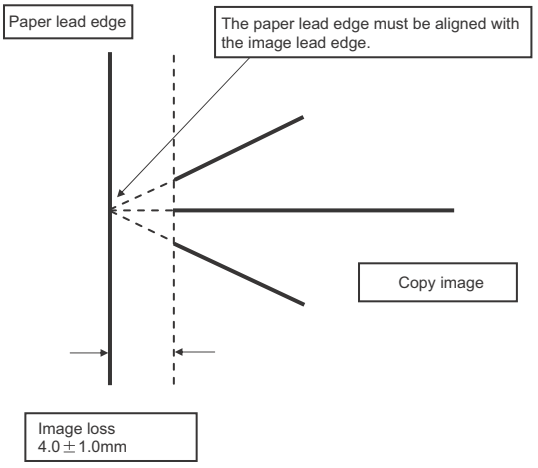
   TRAIL EDGE (SIDE 2):

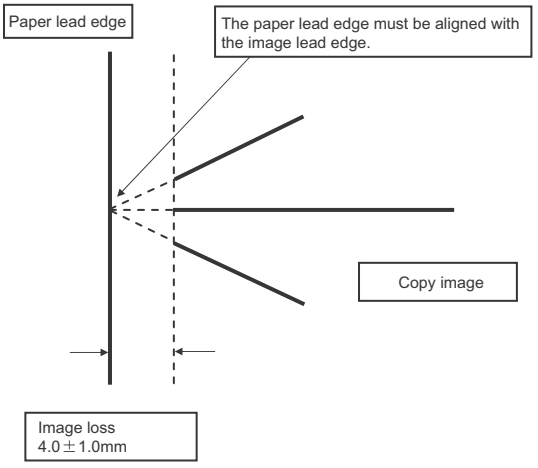
   10 Lead edge image loss set value (Back surface)

   (When the set value is increased, the lead edge image loss is increased.)

   (Change for change in the set value: 0.1mm/step)

2) Make a duplex copy in 100% in the RSPF mode. Check to confirm that the lead edge image loss is within 4.0 +/- 1.0mm on the front surface and the back surface. The paper lead edge must be aligned with the presumed image lead ed





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

3) Enter the adjustment value of SIDE1/SIDE2 with 10-key, and press [OK] key.

Adjust so that the paper lead edge is aligned with the presumed image lead edge.

SIDE1: Front surface lead edge scan position adjustment

SIDE2: Back surface lead edge scan position adjustment

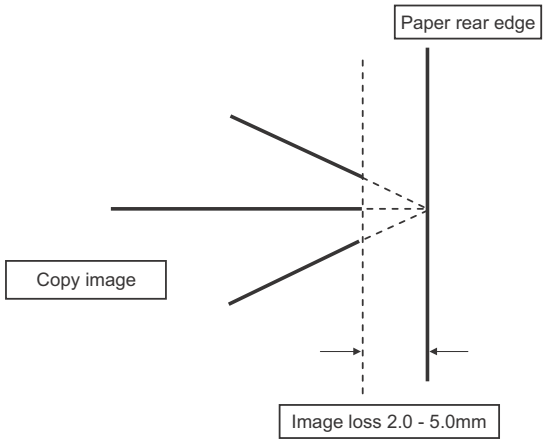
(When the adjustment value is increased, the print image position is shifted to the delaying direction for the paper.)

(Change for change in the set value: 0.1mm/step)

Perform the procedures of 2) - 3) until a satisfactory result is obtained.

(Rear edge image loss adjustment)

1) Make a duplex copy in 100% in the RSPF mode. Check to confirm that the rear edge image loss is 2.0 - 5.0mm on the front surface and the back surface.



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

2) Enter the adjustment value of SIDE1 TRAIL_EDGE/SIDE2 TRAIL_EDGE with 10-key, and press [OK] key.

SIDE1 TRAIL_EDGE

Rear edge image loss adjustment value (Front surface)

SIDE2 TRAIL_EDGE:

Rear edge image loss adjustment value (Back surface)

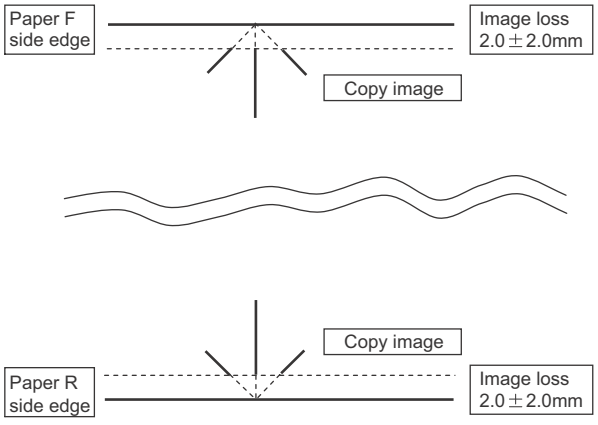
(When the adjustment value is increased, the rear edge image loss is increased.)

(Change for change in the set value: 0.1mm/step)

Perform the procedures of 1) - 2) until a satisfactory result is obtained.

(Front/rear frame direction image loss adjustment)

1) Make a duplex copy in 100% in the RSPF mode. Check to confirm that the image losses on the front frame side and the rear frame side are 2.0 +/- 2.0mm on the front surface and the back surface.



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

2) Enter the adjustment value of SIDE1 TRAIL_EDGE/SIDE2 TRAIL_EDGE, and press [OK] key.

SIDE1 TRAIL_EDGE:

Front/Rear image loss adjustment value (Front surface)

SIDE2 TRAIL_EDGE:

Front/Rear image loss adjustment value (Back surface)

(When the adjustment value is increased, the front/rear image loss is increased.)

(Change for change in the adjustment value: 0.1mm/step)

Perform the procedures of 1) - 2) until a satisfactory result is obtained.

ADJ 9 Gray balance/density adjustment

(1) Note before execution of the gray balance/density adjustment

* Requisite conditions before execution of the gray balance/density adjustment

Before execution of the gray balance/density adjustment, check to insure that the adjustments which affect the gray balance/density have been completed properly.

(Though the following items affect the gray balance/density, there is no need to adjust them frequently. When, however, a trouble occurs, they must be checked and adjusted.)

1) The following items must be adjusted properly.

Job No	Adjustment item			Sim
ADJ 2	Adjusting high voltage values	ADJ2B	Developing bias voltage adjustment	8-1
		ADJ2C	Transfer current and voltage adjustment	8-6
		ADJ2D	Transfer separation bias voltage adjustment	8-6
ADJ 1	Developing unit adjustment	ADJ 1A	Toner density control reference value setting	25-2

Note for the gray balance/density check and adjustments

When setting the adjustment pattern on the document table in the automatic gray balance adjustment procedures, place 5 sheets of white paper on the adjustment pattern in order to prevent back copying and adverse effects of paper wrinkles as far as possible.

(2) Relationship between the servicing job contents and the gray balance/density check and adjustment

Note that the jobs before and after execution of the gray balance/density check and adjustment depend on the machine status and the servicing conditions.

Follow the flowchart of the gray balance/density adjustment procedures depending on the actual conditions.

There are following four, major cases.

1) When installing (When a printer option is installed)
2) When a periodic maintenance is performed.
3) When a repair, an inspection, or a maintenance is performed. (When a consumable part is replaced.)
4) When an installation, a repair, or inspection is performed. (Without replacement of a consumable part)

(3) Copy gray balance and density check

NOTE: Before checking the copy gray balance and density, be sure to execute the following jobs.

* Execute the high density image correction (Process correction) forcibly. (SIM 44-6)

* Execute the half-tone image correction forcibly. (SIM 44-26)

Method 1

Make a copy of the gray test chart (UKOG-0162FCZZ), and check that they are proper.

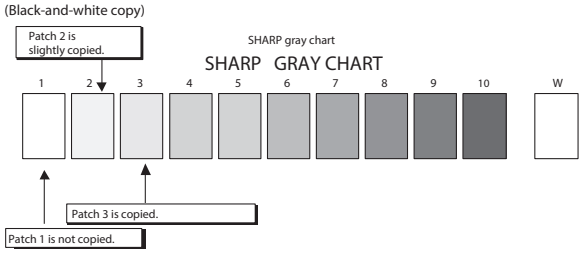
Note for checking the density

To check the density, use the gray test chart (UKOG-0162FCZZ) and the servicing color test chart (UKOG-0326FCZZ/UKOG-0326FC11). Set the copy density level to "Manual 3" in the Text/Printed Photo mode (Manual).

In addition, all the gray balance adjustments in the user adjustment mode must be set to the default (center).

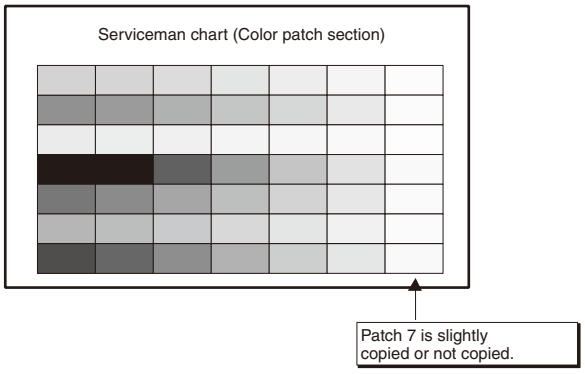
Check with the gray test chart (UKOG-0162FCZZ)

In the copy density check with the gray test chart, check to insure the following conditions.



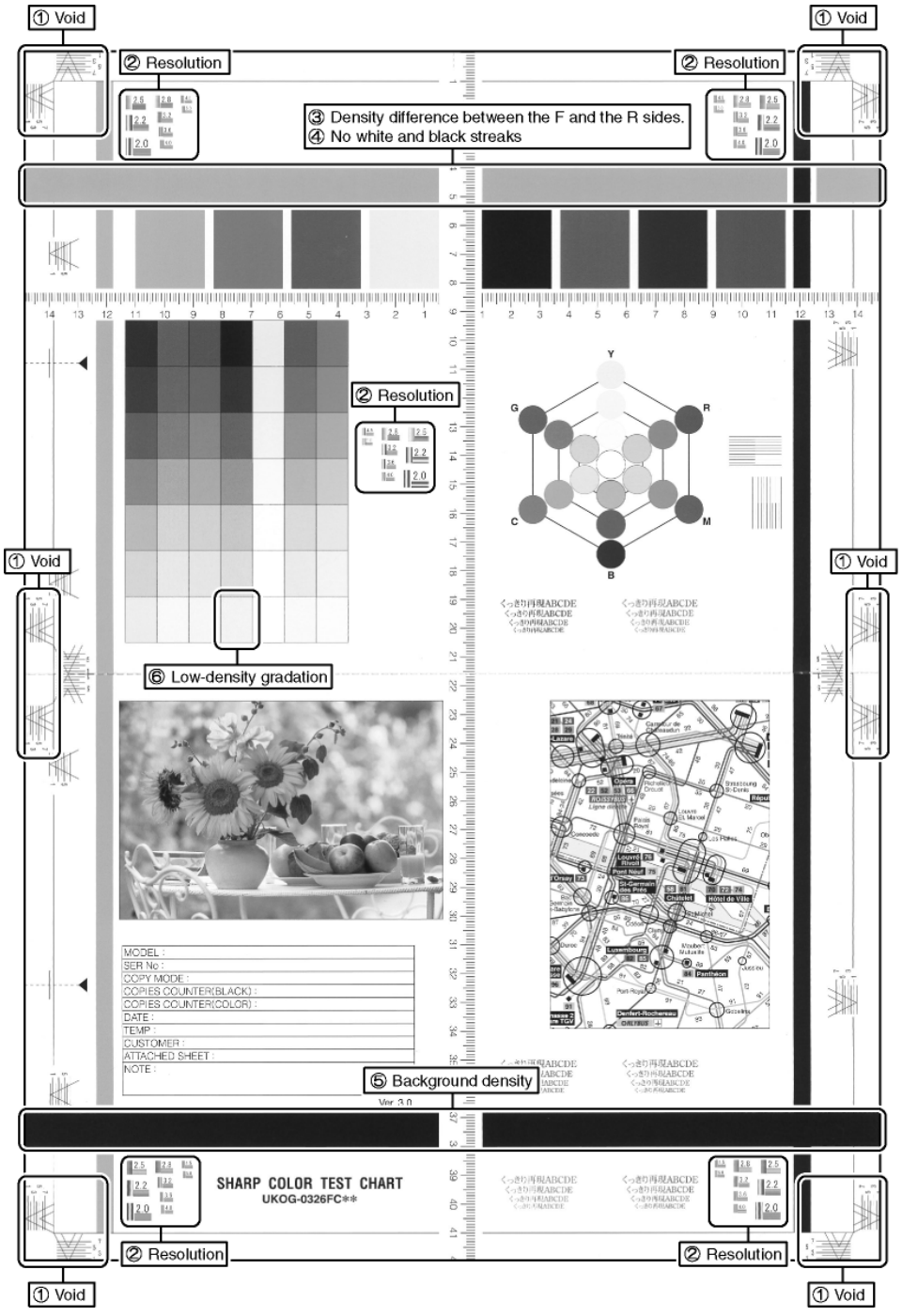
Check with the servicing color test chart (UKOG-0326FCZZ/ UKOG-0326FC11)

In the copy gray balance check with the servicing color test chart, check to insure the following conditions



Monochrome copy check items (Check to confirm the following:)

1) There are 12 void areas.
2) The resolution of 4.0 (5 points) can be seen.
3) The density difference between the F and the R sides is not so great.
4) There are no white and black streaks.
5) The background solid is not so light.
6) The black low-density gradation is copied slightly.



(4) Printer gray balance/density check

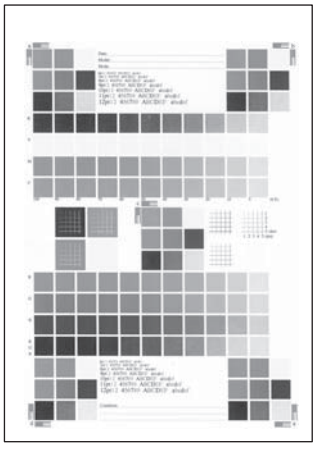
NOTE: Before checking the copy gray balance and the density, be sure to execute the following procedures in advance.

* Execute the high density image correction forcibly. (SIM 44-6)
* The half-tone image correction is forcibly executed. (SIM 44-26)

Method 1

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

Set each set value to the default and press [EXECUTE] key. The print test pattern is printed.



The print density must be changed gradually from the lighter level to the darker level. The density changing direction must not be reversed.

9-A Scanner calibration

9-A (1)Scanner calibration (CIS calibration) (Document table mode)

This adjustment must be performed in the following cases

* When CIS unit has been replaced
* When U2 trouble has been occurred
* When MFPc PWB has been replaced
* When EEPROM on the MFPc PWB has been replaced

(1) Note before adjustment

* Check that the table glass, No 1, 2, 3 mirror and the lens surface are free from dirt and dust (when there is some dirt or dust clean with ethanol alcohol)
* Check to confirm that the patches arrays of the scanner adjustment chart (UKOG-0356FCZZ) is free from dirt and scratch. If it is dirt, clear it. If it is scratched or streaked, replace with new one

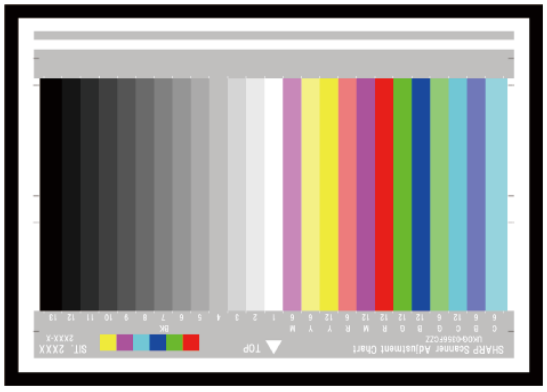
Note

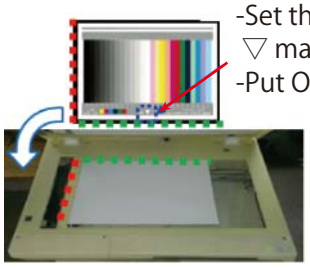
Since the scanner adjustment chart (UKOG-0356FCZZ) is easily discolored by sunlight (especially ultraviolet rays) and humidity and temperature, put it in a bag

(2) Adjustment step

1) Set the scanner adjustment chart (UKOG-0356FCZZ) to the reference position on the left rear frame side of the document table

   Set the chart in order that the arrow marks is placed on the rear side





-Set the chartface down so that ▽ mark is placed on rear side.
-Put OC mat over the chart.

   If the scanner adjustment chart is not available, execute Sim 63-5 to set the CIS gamma to the default. In this case, however the adjustment accuracy is lower when compared with the adjustment method using the scanner adjustment chart

2) Enter Sim 63-3 mode and tap [OK/START] key

   Automatic operation is started during the adjustment [EXEC] is highlighted, after completion of the adjustment [EXEC] returns to the normal display

9-B Copy quality adjustment (Basic adjustment)

This adjustment must be performed in the following cases:

* When a consumable part (developer, OPC drum) is replaced.
* The CIS unit has been replaced.
* When the scanner (reading) section is disassembled.
* When the scanner (reading) unit is replaced.
* U2 trouble has occurred.
* When the MFP PWB is replaced.
* When the EEPROM on the MFP PWB is replaced.

9-B (1) Copy gray balance and density adjustment (Automatic adjustment)

a. General

The gray balance adjustment (automatic adjustment) is used to adjust the copy density automatically.

When this adjustment is executed, the gray balance adjustments of all the copy modes are revised.

There are following two modes in the auto gray balance adjustment.

1) Auto gray balance adjustment by the serviceman (SIM 46-24 is used.)
2) Auto gray balance adjustment by the user (The user program mode is used.) (The gray balance target is the service target.)

   The auto gray balance adjustment by the user is provided to reduce the number of service calls.

   If the copy gray balance is lost for some reason, the user can use this gray balance adjustment to recover the balance.

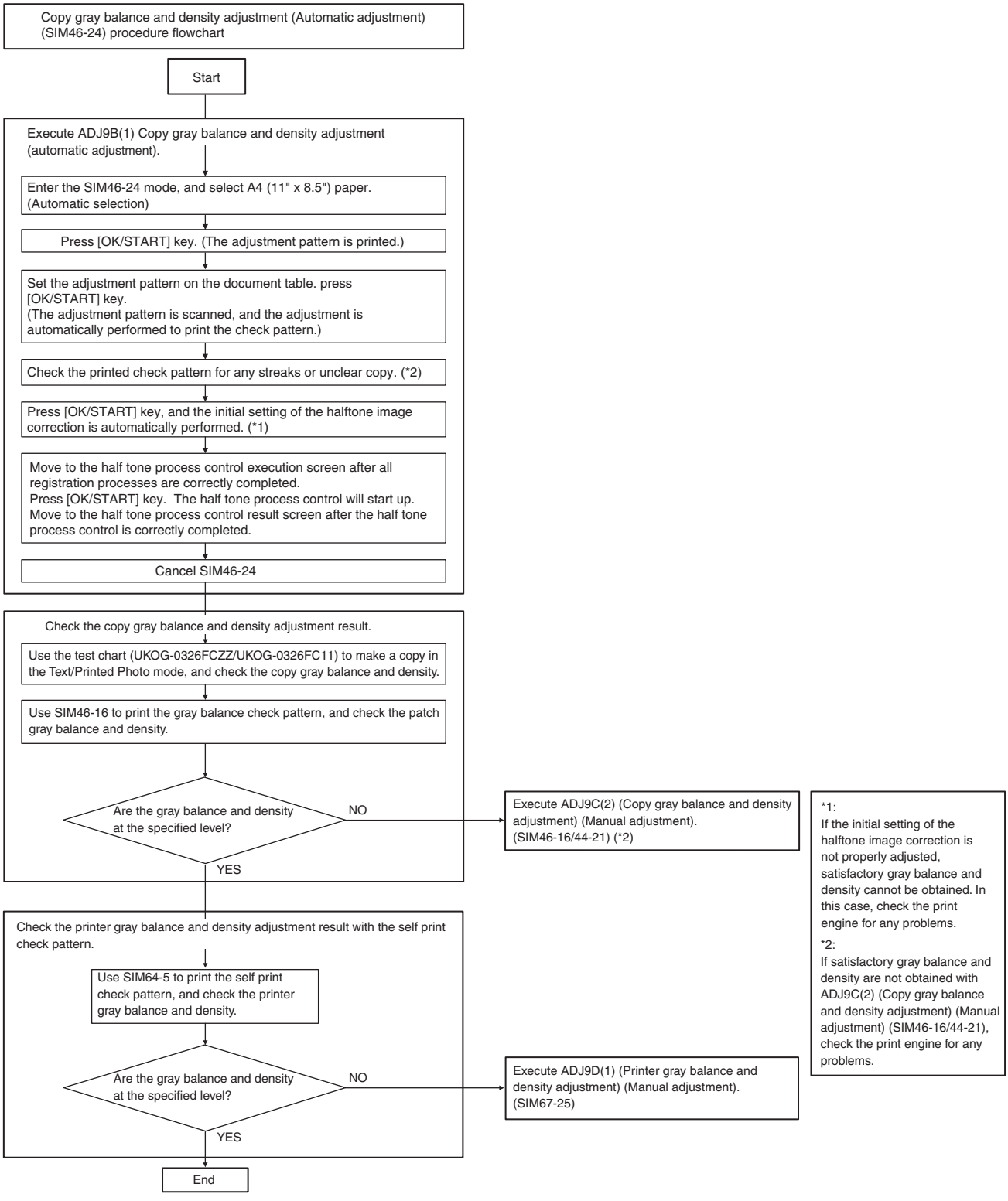
   When, however, the machine has a fatal problem or when the machine condition is greatly changed, this function does not work effectively.

   If the machine condition is dramatically changed, a fatal problem occurs, or the normal gray targets cannot be obtained, service must recalibrate the machine to specification.

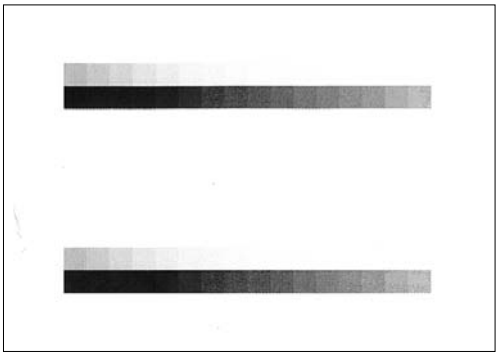
   To perform the adjustment, the above difference must be fully understood.

b. Adjustment procedure

(Auto gray balance adjustment by the serviceman)



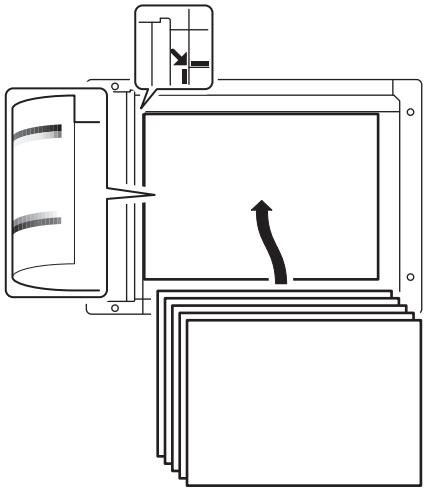
1) Enter the SIM 46-24 mode.
2) Press [OK/ START] key. The high density process control is executed, and the patch image (adjustment pattern) is printed out. Check that the paper (A4/11" × 8.5") is loaded to the paper tray.



3) After the patch image is printed out, the display is shifted to the patch scan standby screen.

   Place the printed patch image (adjustment pattern) paper on the document table so that the lighter side of the lines on the paper is on the left side.

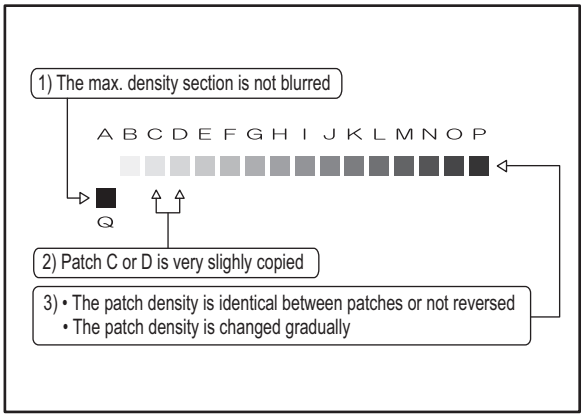
   Place 5 sheets of the white paper on the printed patch image (adjustment pattern) paper.



4) Press [OK/START] key. [EXEC] is highlighted and the scanning is started.
5) After the patch is scanned, the check patch image is automatically printed out.

   Check that any problem such as the streak or blurring, etc. does not appear on the printed check pattern.

   If the trouble can be seen, check if there is the problem with the print engine.



6) Press [OK/START] key. The correction value is saved, and the half-tone process control reference value registration process is started.
7) The display is shifted to the half-tone process control execution screen.

   Press [OK/ START] key. The half-tone process control is performed.
8) When “OK” message is displayed, the adjustment is completed. Cancel SIM46-24.
9) Check the copy gray balance and density.

   (Refer to the item of the copy gray balance and density check)

   Use the servicing color test chart (UKOG-0326FCZZ / UKOG-0326FC11) in the Text/Photo mode (Manual) to check the copy gray balance and density. (Refer to the item of the copy gray balance and density check.)
10) Use SIM46-16 to perform the engine gray balance manual adjustment.

    Check the copy gray balance and density, and if no problem is observed, please move to Step14. If the copy gray balance or density is not in the satisfactory level, perform the following procedures.
11) Perform the engine gray balance manual adjustment. (SIM46-16)
12) Perform the initial setting of the half-tone image correction. (SIM44-21)
13) Use the servicing color test chart (UKOG-0326FCZZ / UKOG-0326FC11) in the Text/Photo mode (Manual) to check the copy gray balance and density. (Refer to the item of the copy gray balance and density check.)

    Though the above procedures (11) - (13) are performed, the copy gray balance and density are not in the specified range, there may be another cause.

    Troubleshoot the cause, repair or perform necessary works, and repeat the adjustment from the beginning.

    Continuously check the printer
14) Execute self print of the printer. (SIM64-5)
15) Check the copy gray balance and density. Exit the simulation mode if it is fine. If the copy gray balance or density is not in the satisfactory level, perform the following procedures.
16) Make an adjustment with the printer gray balance adjustment. (SIM67-25)
17) Execute self print of the printer. (SIM64-5)
18) Check the copy gray balance and density. Exit the simulation mode if it is fine. If the copy gray balance or density is not in the satisfactory level, there may be another cause.

    Troubleshoot the cause, repair or perform necessary works, and repeat the adjustment from the beginning.

9-C Copy / Image send / FAX image quality adjustment (Individual adjustment)

a. General

This adjustment is used to execute the fine adjustment in each mode only when a satisfactory image quality is not obtained by the basic adjustments ADJ 9B and ADJ 9C or there is a request from the user. Normally there is no need to execute this adjustment.

In this adjustment, the adjustment result may be applied to the image send mode and the FAX mode as well as the copy mode.

This must be well understood for execution of the adjustment.

		Copy MODE		IMAGE SEND(SCAN) MODE					
		Monochrome mode		Color mode		Monochrome mode			
		Auto	Manual	Auto	Manual	Auto	Manual	FAX	Printer
46-02	Monochrome copy density adjustment (for each monochrome copy mode) (separately for the low-density area and the high-density area) (No need to adjust normally)	○	○	-	-	-	-	-	-
46-04	Color image send mode image density adjustment (for each mode) (No need to adjust normally)	-	-	○	○	-	-	-	-
46-05	Monochrome image send mode image density adjustment (for each mode) (No need to adjust normally)	-	-	-	-	○	○	-	-
46-09	DSPF mode (Copy/Scan/FAX) density adjustment (No need to adjust normally)	○	○	○	○	○	○	○	-
46-16	Monochrome copy density, gamma adjustment (for each monochrome copy mode) (No need to adjust normally)	○	○	-	-	-	-	-	-
46-19	Automatic monochrome (Copy/Scan/FAX) mode document density scanning operation (exposure operation) conditions setting (Normally no need to set)	○	-	-	-	○	-	○	-
46-23	Copy high density image density reproduction setting (Normally unnecessary to the setting change)	○	○	-	-	-	-	-	-
46-24	Copy gray balance and density adjustment (Automatic adjustment)	○	○	-	-	-	-	-	-
46-32	Document low density image density reproduction adjustment in the automatic monochrome (Copy/Scan/FAX) mode (No need to adjust normally) (Background density adjustment in the scanning section)	○	-	-	-	○	-	○	-
46-37	Monochrome (Gray Scan) mode color document reproduction adjustment (No need to adjust normally)	-	-	-	-	○ (Gray)	○ (Gray)	-	-
46-39	FAX send image sharpness adjustment	-	-	-	-	-	-	○	-
46-40	FAX send image density adjustment (Collective adjustment of all the modes)	-	-	-	-	-	-	○	-
46-41	FAX send image density adjustment (Normal text mode)	-	-	-	-	-	-	○	-
46-42	FAX send image density adjustment (Fine text mode)	-	-	-	-	-	-	○	-
46-43	FAX send image density adjustment (Super fine mode)	-	-	-	-	-	-	○	-
46-51	Gamma manual adjustment for the copy mode heavy paper and the image process mode (dither) (No need to adjust normally)	○	○	-	-	-	-	-	-
46-52	Gamma default setting for the copy mode heavy paper and the image process mode (dither)	○	○	-	-	-	-	-	-
46-54	Copy gamma, gray balance adjustment for each dither (Automatic adjustment) (No need to adjust normally)	○	○	-	-	-	-	-	-
63-12	Monochrome image generation adjustment	○	○	-	-	○	○	○	-

9-C (1) Monochrome copy density adjustment (for each monochrome copy mode) (separately for the low-density area and the high-density area) (No need to adjust normally)

The density is adjusted in each copy mode individually.

This adjustment must be performed in the following cases:

* When there is necessity to change the copy density of the low density and high density part at each copy density individually.
* When there is necessity to change the density gradient of the copy by each the copy mode individually.
* When there is necessity to change all copy density by each the copy mode individually.
* When there is request from the user.

1) Enter the SIM 46-2 mode.
2) Select the copy mode to be adjusted with the scroll key.

Item/Display			Setting range	Default
1	LOW	TEXT	1 - 99	50
2		TEXT/PRINTED PHOTO	1 - 99	50
3		PHOTOGRAPH	1 - 99	50
1	HIGH	TEXT	1 - 99	50
2		TEXT/PRINTED PHOTO	1 - 99	50
3		PHOTOGRAPH	1 - 99	50

3) Enter the adjustment value with 10-key and press [OK] key.

   When adjusting the copy density on the low density part, select "LOW" mode and change the adjustment value. When adjusting the copy density on the high density part, select "HIGH" mode and change the adjustment value.

   When the adjustment value is increased, the copy density is increased. When the adjustment value is decreased, the copy density is decreased.

4) Make a copy and check the adjustment result.

   Switch the adjustment simulation mode and the normal copy mode alternately, and adjust and check the adjustment result.

   Repeat switching the adjustment simulation mode and the normal copy mode and changing the adjustment value and checking the copy until a satisfactory result is obtained.

9-C (2) Monochrome copy density, gamma adjustment (for each monochrome copy mode) (No need to adjust normally)

This adjustment is used to execute the density adjustment for each density level in each monochrome copy mode.

This adjustment must be performed in the following cases:

* When it is required to change the gamma in each copy mode.
* When there is request from the user.

1) Enter the SIM 46-16 mode.
2) Select the density level (point) to be adjusted with the scroll key.

Item/Display		Density level (Point)	Adjustment value range	Default
A	POINT1	Point 1	1 - 255	128
B	POINT2	Point 2	1 - 255	128
C	POINT3	Point 3	1 - 255	128
D	POINT4	Point 4	1 - 255	128
E	POINT5	Point 5	1 - 255	128
F	POINT6	Point 6	1 - 255	128
G	POINT7	Point 7	1 - 255	128
H	POINT8	Point 8	1 - 255	128
I	POINT9	Point 9	1 - 255	128
J	POINT10	Point 10	1 - 255	128
K	POINT11	Point 11	1 - 255	128
L	POINT12	Point 12	1 - 255	128
M	POINT13	Point 13	1 - 255	128
N	POINT14	Point 14	1 - 255	128
O	POINT15	Point 15	1 - 255	128
P	POINT16	Point 16	1 - 255	128
Q	POINT17	Point 17	1 - 255	128

3) Enter the adjustment value with 10-key and press [OK] key.

   When the adjustment value is increased, the density is increased. When the adjustment value is decreased, the density is decreased.

   When the arrow key is pressed, the densities are collectively adjusted.

   That is, all the density levels (points) from the low density point to the high density point can be adjusted collectively.

   When [OK] key is pressed, the adjustment pattern is printed out.

   The density at each density level (point) can be checked by referring to this printed adjustment pattern. However, it is more practical to make a copy and check it.

   This adjustment pattern can be used to check the gray balance and the density for each density level (point).

4) Make a copy and check the adjustment result.

   Switch the adjustment simulation mode and the normal copy mode alternately, and adjust and check the adjustment result.

Repeat switching the adjustment simulation mode and the normal copy mode and changing the adjustment value and checking the copy until a satisfactory result is obtained.

9-C (3) Automatic monochrome (Copy/Scan/FAX) mode document density scanning operation (exposure operation) conditions setting (Normally no need to set)

Use for setting the condition of read operation (Exposure) for document density in monochrome auto copy mode.

When a copy with correct density is not obtained by type of document, change the setting.

This setting is required in the following cases.

* When a proper density copy is not obtained in the monochrome automatic copy mode.
* When a document with images near its lead edge is copied.
* When a document with colored background is copied.

1) Enter the SIM 46-19 mode.
2) Set REALTIME, STOP to adjustment item AE STOP COPY. For contents of each setting item, refer to below.

Item/Display		Content	Setting range	Default value
1	AE_MODE	Automatic monochrome mode (0: Real time 1: Leading edge stop)	0-1	1

9-C (4) Document low density image density reproduction adjustment in the automatic monochrome (Copy/Scan/FAX) mode (No need to adjust normally) (Background density adjustment in the scanning section)

Use for the reproducibility adjustment of document background density in monochrome auto copy mode.

This adjustment is required in the following cases.

* When there is a desire not to reproduce the background of the document. When there is a desire to reproduce the low density image of the document.
* When there is request from the user.

1) Enter the SIM 46-32 mode.
2) Select the adjustment mode with the scroll key.
3) Enter the adjustment value with 10-key and press [OK] key.

   When the adjustment value is increased, reproducibility of the background and the low density image is increased. When the adjustment value is decreased, reproducibility of the background and the low density image is decreased.

Item/Display		Content	Setting range	Default value
1	AE CONTROL: BW COPY	AE 反応性制御設定（MONO COPY）	0-255	160
2	AE CONTROL: FAX	AE 反応性制御設定（FAX）	0-255	160
3	AE CONTROL: CL PUSH	AE 反応性制御設定（COLOR PUSH）	0-255	160
4	AE CONTROL: BW PUSH	AE 反応性制御設定（MONO PUSH）	0-255	160

9-C (5) Monochrome (Copy/Scan/FAX) mode color document reproduction adjustment (No need to adjust normally)

Use to adjust the reproducibility for the red image and the yellow image when printing color document that included the red/yellow image in monochrome copy mode.

This adjustment is required in the following cases.

* When there is desire to change reproducibility of yellow/red image in case of making a color copy of the color document in monochrome copy mode.
* When there is request from the user.

1) Enter the SIM 46-37 mode.
2) Select the mode to be adjusted with the scroll key.

Item/Display		Content	Setting range	Default value
1	R-ratio	Gray making setting (R)	0 - 999	183
2	G-ratio	Gray making setting (G)	0 - 999	737

B=1000-R-G	Gray making setting (B) (1000 - (R-ratio) - (G-ratio))

3) Enter the adjustment value with 10-key.

   When the adjustment value of adjustment item A is increased, copy density of red image is decreased. When the adjustment value is decreased, copy density of red image is increased.

   When the adjustment value of adjustment item B is increased, copy density of yellow image is decreased. When the adjustment value is decreased, copy density of yellow image is increased.
4) Press [OK] key.
5) Make a copy in monochrome text/printed photo copy mode (manual), check the copy.

   If a satisfactory result is not obtained, return to the SIM 46-37 mode and change the adjustment value.

   Repeat the above procedures until a satisfactory result is obtained.

9-C (6) Copy high density image density reproduction setting (Normally unnecessary to the setting change)

If a tone gap occurs on part of high density in copy mode, or if there is necessity to increase the density of the part of high density, change the setting.

This setting is 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 a necessity to increase the density of the part of high density.
* When there is request from the user.

a. Adjustment procedure

1) Enter the SIM 46-23 mode.
2) Select the item A, B with the scroll key.

Item	Display	Content		Setting range	Default value
A	K (0:ENABLE 1:DISABLE)	0	K engine highest density correction mode: Enable	0 - 1	1
		1	K engine highest density correction mode: Disable		
B	BLACK MAX TARGET	Scanner target value for BLACK max. density correction		0 - 999	500

* If a tone gap occurs on part of high density, set 0 to item A.

  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 A.

  The tone gap may occur in high density part.

NOTE: If the setting values of item B is changed, density of the high density part is changed.

When these values are changed, be sure to perform the copy gray balance and density adjustment. (Automatic adjustment)

9-C (7) RSPF mode (Copy/Scan/FAX) density adjustment (No need to adjust normally)

This setting is normally not required, however, in the following cases, make changes to the setting:

* When copy in RSPF mode differs from copy in document table mode.
* When copy density in DSPF mode is low or too high.
* When the RSPF unit is replaced.
* When the RSPF unit is disassembled.
* The CIS unit has been replaced.
* U2 trouble has occurred.
* When the MFPc PWB is replaced.
* When the EEPROM on the MFPc PWB is replaced.

a. Adjustment procedure

1) Enter the SIM 46-9 mode.
2) Select the mode to be adjusted with the scroll key.

   When adjusting density on low density part, select "A".

   When adjusting density on high density part, select "D".

Item/Display			Content	Setting range	Default
1	LOW	COPY	SPF Copy mode exposure adjustment (Low density side)	1-99	48
2		SCAN	SPF Scanner mode exposure adjustment (Low density side)	1-99	48
3		FAX	SPF FAX mode exposure adjustment (Low density side)	1-99	48
1	HIGH	COPY	SPF Copy mode exposure adjustment (High density side)	1-99	53
2		SCAN	SPF Scanner mode exposure adjustment (Low density side)	1-99	53
3		FAX	SPF FAX mode exposure adjustment (High density side)	1-99	53

3) Enter the adjustment value with 10-key.

   In case of increase of image density, input large numeric value. Or in case of diluting the image density, input small numeric value.
4) Press [OK] key.
5) Make a copy in the RSPF mode and check the copy.

   If a satisfactory result is not obtained, return to the SIM 46-9 mode and change the adjustment value.

   Repeat the above procedures until a satisfactory result is obtained.

9-C (8) Copy gamma, gray balance adjustment for each dither (Automatic adjustment)

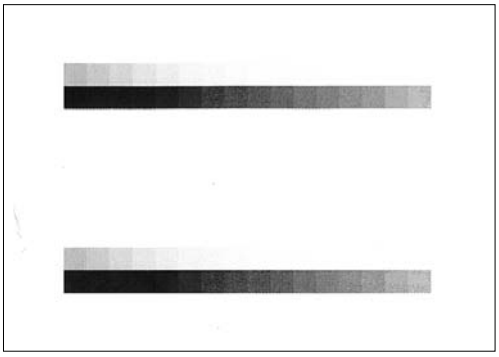
a. General

This simulation is used to improve the image quality in a certain mode. (Refer to the list in procedure 6.)

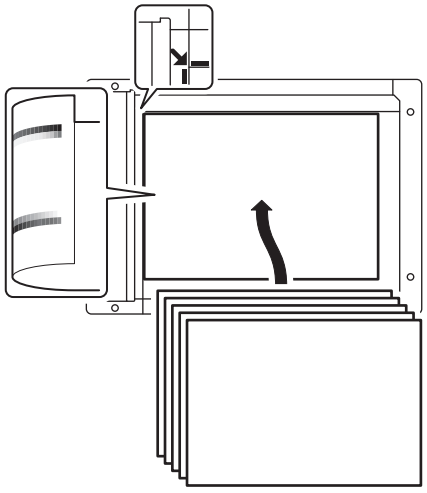
b. Adjustment procedures

1) Enter the SIM46-54 mode.
2) Press [OK/START] key.

   A4/11" x 8.5" paper is automatically selected. The gray patch image (adjustment pattern) is printed.



3) Set the patch image (adjustment pattern) printed in the procedure 2) on the document table so that the thin lines on the printed patch image (adjustment pattern) are on the left side. Place 5 sheets of white paper on the printed patch image (adjustment pattern).



4) Press [OK/START] key.

   The gray balance and the density are automatically adjusted.

   The adjustment pattern is printed out. Check it for any abnormality.
5) Press [OK] key.

   The list of the adjustment items (for each dither) is displayed.
6) Select an adjustment item (for each dither).

Select item (Mode/Image)	Content
Heavy Paper *1	Adjustment item to improve the gray balance in the heavy paper mode
B/W Ed	Adjustment item to improve the gray balance in the text mode, Text/Photograph mode, Light density document mode and the map mode.

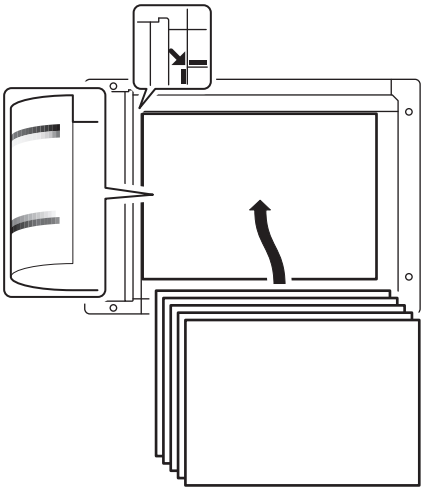
*1: When performing adjustments in the heavy paper mode, load paper in the tray 3, 4.

7) Press [OK/START] key.

   A4/11" x 8.5" paper is automatically selected.

   The patch image (adjustment pattern) is printed out.

8) Set the patch image (adjustment pattern) printed in the procedure 7) on the document table so that the thin lines on the printed patch image (adjustment pattern) are on the left side. Place 5 sheets of white paper on the printed patch image (adjustment pattern).



9) Press [OK/START] key.

   The gray balance and the density are automatically adjusted, and the machine goes to the state of procedure 6).

   To complete the adjustment and enable the adjustment result, press [OK] key.
10) Make a copy, and check the copy image quality.

    (Refer to the item of the printer gray balance and density check.)

NOTE: Use SIM46-52 to reset the adjustment values to the default values.

9-D Printer image quality adjustment (Basic adjustment)

Requisite condition before execution of the printer gray balance/ density adjustment

Before execution of the printer gray balance/density adjustment, the copy gray balance/density adjustment must have been completed properly.

This adjustment is required in the following cases.

* Basically same as when the copy gray balance/density adjustment is required.
* After the copy gray balance/density adjustment.

9-D (1) Printer gray balance adjustment (Manual adjustment)

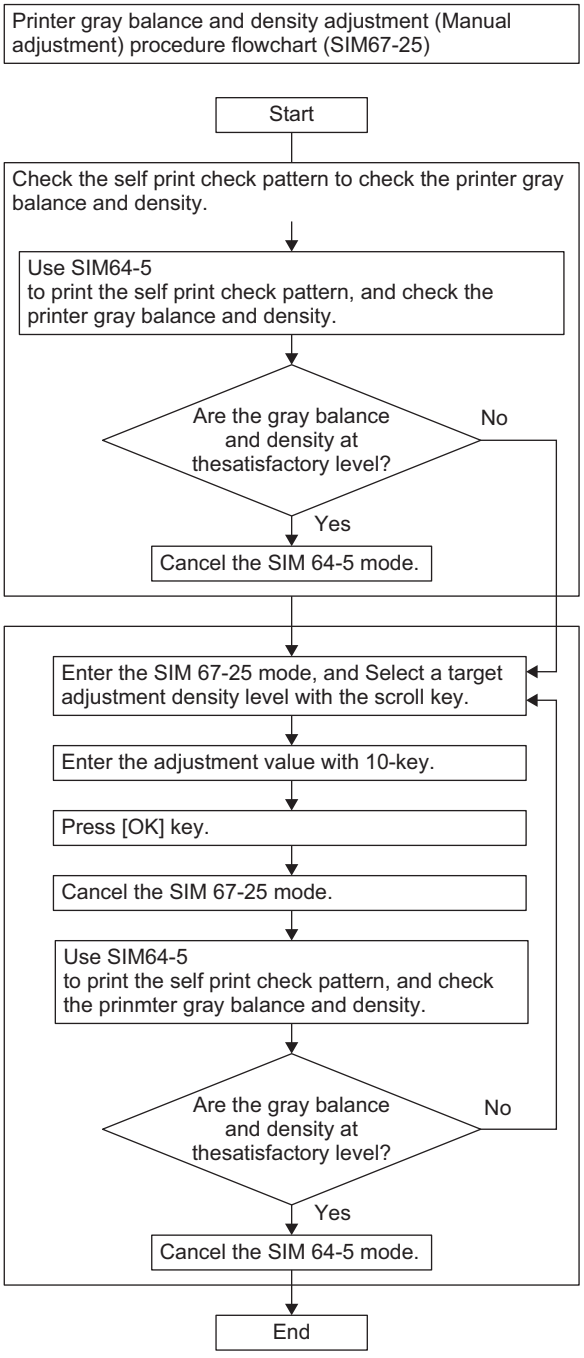
a. General

The gray balance adjustment (Manual adjustment) is used to adjust the printer density. This is used at the following situation. When the result of auto adjustment described above is not existing within the range of reference. When a fine adjustment is required. When there is request from the user for changing (customizing) the gray balance.

In this manual adjustment, adjust only the gray patch which could not adjusted properly in the automatic adjustment.

If the gray balance is improper, execute the automatic gray balance adjustment in advance, and execute this adjustment for better efficiency.

b. Adjustment procedure



1) Execute self print of the printer. (SIM64-5)
2) Check the printer gray balance and density. Exit the simulation mode if it is fine. If the printer gray balance or density is not in the satisfactory level, perform the following procedures.
3) Make an adjustment with the printer gray balance adjustment. (SIM67-25)

   Enter the SIM 67-25 mode.

   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.
4) Execute self print of the printer. (SIM64-5)
5) Check the printer gray balance and density. Exit the simulation mode if it is fine. If the printer gray balance or density is not in the satisfactory level, there may be another cause.

   Troubleshoot the cause, repair or perform necessary works, and repeat the adjustment from the beginning.

9-E Printer image quality adjustment (Individual adjustment)

a. General

This adjustment is used to execute the fine adjustment in each mode only when a satisfactory image quality is not obtained by the basic adjustments ADJ 9E (1) and ADJ 9E (2) or there is a request from the user. Normally there is no need to execute this adjustment.

This must be well understood for execution of the adjustment.

9-E (1) Printer density adjustment (Low density section density adjustment) (No need to adjust normally)

This adjustment is used to adjust the image density in the low density area in the printer mode.

Adjust to reproduction setting of the low density image.

This adjustment is required in the following cases.

* When it is required not to reproduce images in the low density section, or to reproduce low-density images.
* When there is request from the user.

1) Enter the SIM 67-36 mode.
2) Enter the adjustment value and press the [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.

9-E (2) Printer high density image density reproduction setting (Supporting the high density section tone gap) (No need to adjust normally)

When a tone gap is generated in the high density section in the printer mode, the setting is changed to lower the density in the high density section.

This setting is normally not required, however, in the following cases, a change of setting must be made.

* When a tone gap occurs on part of high density.
* To lower the density in the high density section.

a. Adjustment procedure

1) Enter the SIM 67-34 mode.
2) Select the item with the scroll key.

Display/Item		Content		Setting range	Default value
1	K PROHIBIT	Engine maximum density correction mode Enable	0	0~1	0
		Engine maximum density correction mode Disable	1		

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

  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.

  The tone gap may occur in high density part.

ADJ 10 Image density sensor adjustment

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

- Check to confirm that the color image density sensor is clean.
- Check to confirm that the drum is clean and free from scratches.

10-A Image density sensor adjustment

The image density sensor and the drum surface are used to make the sensitivity adjustment of the image registration sensor.

This adjustment executes automatically at the outset of process control operation as well as Sim 44-2

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 Sim 44-2 mode
2) Press [OK/START] key.

The sensitivity adjustment of the color image density sensor is automatically performed.

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

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

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

- Color image density sensor
- The MFPc PWB
- Transfer roller (dirt, scratch)

ADJ 11 Image send, FAX send mode image quality adjustment

11-A Color image send mode, image density and gradation adjustment (by each mode)

Normally, there is no need to perform this adjustment. In the following cases, however, this adjustment must be performed.

* When the user requests to perform the adjustment.
* When there is a defective copy in a scan image.
* When the scan image density is too light.

1) Enter the Sim. 46-4 mode.
2) Select a mode to be adjusted with the scroll button.

Item/Display				Setting rage	Default value
1	LOW	TEXT	Text LOW	1 - 99	50
2		TEXT/ PRINTEDPHOTO	Text/Printed Photo LOW	1 - 99	50
3		PHOTOGRAPH	Photograph LOW	1 - 99	50
1	HIGH	TEXT	Text HIGH	1 - 99	50
2		TEXT/PRINTED PHOTO	Text/Printed Photo HIGH	1 - 99	50
3		PHOTOGRAPH	Photograph HIGH	1 - 99	50

3) Enter the adjustment value with 10-key, and press [OK] button.
When the adjustment value is increased, the image density is increased. When the adjustment value is decreased, the image density is decreased.

11-B Monochrome image send mode, image density and gradation adjustment (by each mode)

Normally, there is no need to perform this adjustment. In the following cases, however, this adjustment must be performed.

* When the user requests to perform the adjustment.
* When there is a defective copy in a scan image.
* When the scan image density is too light.

1) Enter the Sim. 46-5 mode.
2) Select a mode to be adjusted with the scroll button.

Item/Display				Setting rage	Default value
1	LOW	TEXT	Text LOW	1 - 99	50
2		TEXT/ PRINTEDPHOTO	Text/Printed Photo LOW	1 - 99	50
3		PHOTOGRAPH	Photograph LOW	1 - 99	50
1	HIGH	TEXT	Text HIGH	1 - 99	50
2		TEXT/PRINTED PHOTO	Text/Printed Photo HIGH	1 - 99	50
3		PHOTOGRAPH	Photograph HIGH	1 - 99	50

11-D FAX send mode, image sharpness adjustment

Normally, there is no need to perform this adjustment. In the following cases, however, this adjustment must be performed.

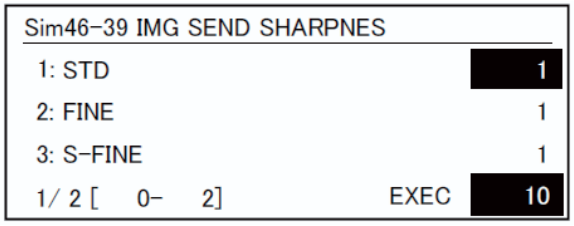
* When the user requests to perform the adjustment.
* When the sharpness in the FAX send mode is too low.

Note:

Normally this adjustment value may be set to the default and there is no need to perform the adjustment. When, however, the sharpness of a printed image on the receiving FAX side to too low, perform this adjustment.

When performing this adjustment, be sure to check that the receiving side FAX is normal.

1) Enter the Sim. 46-39 mode.



2) Select a mode to be adjusted with the scroll button.

Display/Item		Content	Setting range	Default
1	STD	Normal	0 - 2	1
2	FINE	Fine	0 - 2	1
3	S-FINE	Super Fine	0 - 2	1
4	FINE/HT	Fine + Halftone	0 - 2	1
5	S-FINE/HT	Super Fine + Halftone	0 - 2	1

ADJ 12 FAX send mode image quality adjustment

Normally this adjustment is not required. However, perform this adjustment in the following cases:

* When the user request for performing this adjustment.
* When the FAX send image density is low or high.

NOTE:

Normally, the adjustment value may be set to the default value and there is no need to make this adjustment. When, however, the image density on the receiving FAX side is unsatisfactory, perform this adjustment.

Before execution of this adjustment, however, be sure to confirm that the receiving FAX operates normally.

12-A Image density and gradation adjustment in the FAX send mode (Collective adjustment of all the FAX modes)

1) Enter the Sim. 46-40 mode, and select the FAX.
2) Press [OK/START] button.
The adjustment pattern is printed.
3) Check the print density in the adjustment pattern.
If the print density of the adjustment pattern is unsatisfactory, perform the following procedure.
4) Enter the adjustment value with 10-key, and press [OK] button.
When the adjustment value is increased, the image density is increased. When the adjustment value is decreased, the image density is decreased.
Repeat the procedures 2 thru 4 until a satisfactory result is obtained.

12-B Image density and gradation adjustment in the FAX send mode (Normal mode)

1) Enter the Sim. 46-41 mode, and select the FAX.
2) Select a mode to be adjusted with the scroll button.

Display/Item		Content	Setting range	Default
A	AUTO	FAX auto exposure mode send image density (Normal mode)	1 - 99	50
B	EXPOSURE1	FAX exposure level 1 send image density (Normal mode)	1 - 99	50
C	EXPOSURE2	FAX exposure level 2 send image density (Normal mode)	1 - 99	50
D	EXPOSURE3	FAX exposure level 3 send image density (Normal mode)	1 - 99	50
E	EXPOSURE4	FAX exposure level 4 send image density (Normal mode)	1 - 99	50
F	EXPOSURE5	FAX exposure level 5 send image density (Normal mode)	1 - 99	50
G	EXECUTE MODE	AUTO	1	1 (AUTO)
		EXP1	2	
		EXP2	3	
		EXP3	4	
		EXP4	5	
		EXP5	6	

3) Press [OK/START] button.
   The adjustment pattern is printed.
4) Check the print density of the adjustment pattern.
   If the print density of the adjustment pattern is unsatisfactory, perform the following procedure.
5) Enter the adjustment value with 10-key, and press [OK] button.
   When the adjustment value is increased, the image density is increased. When the adjustment value is decreased, the image density is decreased.
   Repeat the procedures 3 thru 5 until a satisfactory result is obtained.
   To select the exposure mode actually used in the FAX send mode, select item G and enter the set value corresponding to the exposure mode with 10-key and press [OK] button.

12-C Image density and gradation adjustment in the FAX send mode (Fine mode)

1) Enter the Sim. 46-42 mode, and select the FAX.
2) Select a mode to be adjusted with the scroll button.

Display/Item		Content	Setting range	Default
A	AUTO	FAX auto exposure mode send image density (Fine mode)	1 - 99	50
B	EXPOSURE1	FAX exposure level 1 send image density (Fine mode)	1 - 99	50
C	EXPOSURE2	FAX exposure level 2 send image density (Fine mode)	1 - 99	50
D	EXPOSURE3	FAX exposure level 3 send image density (Fine mode)	1 - 99	50
E	EXPOSURE4	FAX exposure level 4 send image density (Fine mode)	1 - 99	50
F	EXPOSURE5	FAX exposure level 5 send image density (Fine mode)	1 - 99	50
G	AUTO H_TONE	FAX auto exposure mode send image density (Half-tone/Fine mode)	1 - 99	50
H	EXPOSURE1 H_TONE	FAX exposure level 1 send image density (Half-tone/Fine mode)	1 - 99	50
I	EXPOSURE2 H_TONE	FAX exposure level 2 send image density (Half-tone/Fine mode)	1 - 99	50
J	EXPOSURE3 H_TONE	FAX exposure level 3 send image density (Half-tone/Fine mode)	1 - 99	50
K	EXPOSURE4 H_TONE	FAX exposure level 4 send image density (Half-tone/Fine mode)	1 - 99	50
L	EXPOSURE5 H_TONE	FAX exposure level 5 send image density (Half-tone/Fine mode)	1 - 99	50
M	EXECUTE MODE	AUTO	1	1 (AUTO)
		EXP1	2	
		EXP2	3	
		EXP3	4	
		EXP4	5	
		EXP5	6	
		AUTO H_TONE	7	
		EXP1 H_TONE	8	
		EXP2 H_TONE	9	
		EXP3 H_TONE	10	
		EXP4 H_TONE	11	
		EXP5 H_TONE	12	

3) Press [OK/START] button.
   The adjustment pattern is printed.
4) Check the print density of the adjustment pattern.
   If the print density of the adjustment pattern is unsatisfactory, perform the following procedure.
5) Enter the adjustment value with 10-key, and press [OK] button.
   When the adjustment value is increased, the image density is increased. When the adjustment value is decreased, the image density is decreased.
   Repeat the procedures 3 thru 5 until a satisfactory result is obtained.
   To select the exposure mode actually used in the FAX send mode, select item M and enter the set value corresponding to the exposure mode with 10-key and press [OK] button

12-D Image density and gradation adjustment in the FAX send mode (Super fine mode)

1) Enter the Sim. 46-43 mode.
2) Select a mode to be adjusted with the scroll button.

Display/Item		Content	Setting range	Default
A	AUTO	FAX auto mode send image density (Super fine mode)	1 - 99	50
B	EXPOSURE1	FAX exposure level 1 send image density (Super fine mode)	1 - 99	50
C	EXPOSURE2	FAX exposure level 2 send image density (Super fine mode)	1 - 99	50
D	EXPOSURE3	FAX exposure level 3 send image density (Super fine mode)	1 - 99	50
E	EXPOSURE4	FAX exposure level 4 send image density (Super fine mode)	1 - 99	50
F	EXPOSURE5	FAX exposure level 5 send image density (Super fine mode)	1 - 99	50
G	AUTO H_TONE	FAX auto exposure mode send image density (Half-tone/Super fine mode)	1 - 99	50
H	EXPOSURE1 H_TONE	FAX exposure level 1 send image density (Half-tone/Super fine mode)	1 - 99	50
I	EXPOSURE2 H_TONE	FAX exposure level 2 send image density (Half-tone/Super fine mode)	1 - 99	50
J	EXPOSURE3 H_TONE	FAX exposure level 3 send image density (Half-tone/Super fine mode)	1 - 99	50
K	EXPOSURE4 H_TONE	FAX exposure level 4 send image density (Half-tone/Super fine mode)	1 - 99	50
L	EXPOSURE5 H_TONE	FAX exposure level 5 send image density (Half-tone/Super fine mode)	1 - 99	50
M	EXECUTE MODE	AUTO	1	1 (AUTO)
		EXP1	2	
		EXP2	3	
		EXP3	4	
		EXP4	5	
		EXP5	6	
		AUTO H_TONE	7	
		EXP1 H_TONE	8	
		EXP2 H_TONE	9	
		EXP3 H_TONE	10	
		EXP4 H_TONE	11	
		EXP5 H_TONE	12	

3) Press [OK/START] button.
   The adjustment pattern is printed.
4) Check the print density of the adjustment pattern.
   If the print density of the adjustment pattern is unsatisfactory, perform the following procedure.
5) Enter the adjustment value with 10-key, and press [OK] button.
   When the adjustment value is increased, the image density is increased. When the adjustment value is decreased, the image density is decreased.
   Repeat the procedures 3 thru 5 until a satisfactory result is obtained.
   To select the exposure mode actually used in the FAX send mode, select item M and enter the set value corresponding to the exposure mode with 10-key and press [OK] button.

[6] SIMULATION

1. General and purpose

The simulation mode has the following functions, to display the machine operating status, identify the trouble position and causes in an earlier stage and to efficiently setup and adjust the machine for improved serviceability.

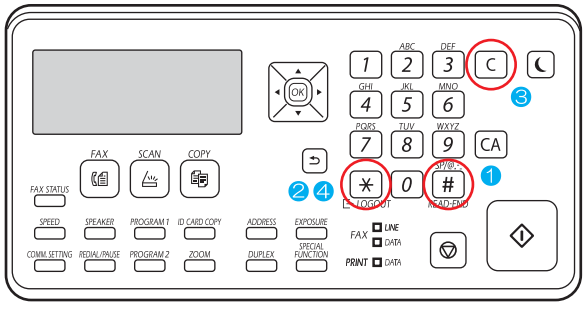
1) Various adjustments
2) Setting of the specifications and functions
3) Canceling troubles
4) Operation check
5) Counters check, setting clear
6) Machine operating conditions (histories) data check, clear
7) Various (adjustments, setting, operation, counters, etc) data transport.

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

2. Starting the simulation

A. Entering the simulation mode

1) Machine in Copy mode: [#] key -> [*] key -> [C] key -> [*] key -> Ready for input of main code of simulation.



2) Entering a main code with the 10-key -> START key ON.
3) Entering a sub code with the 10-key -> START key ON.
4) Select an item with arrow key.
5) The machine enters the mode corresponding to the selected item. Press [START] key to start the simulation operation.

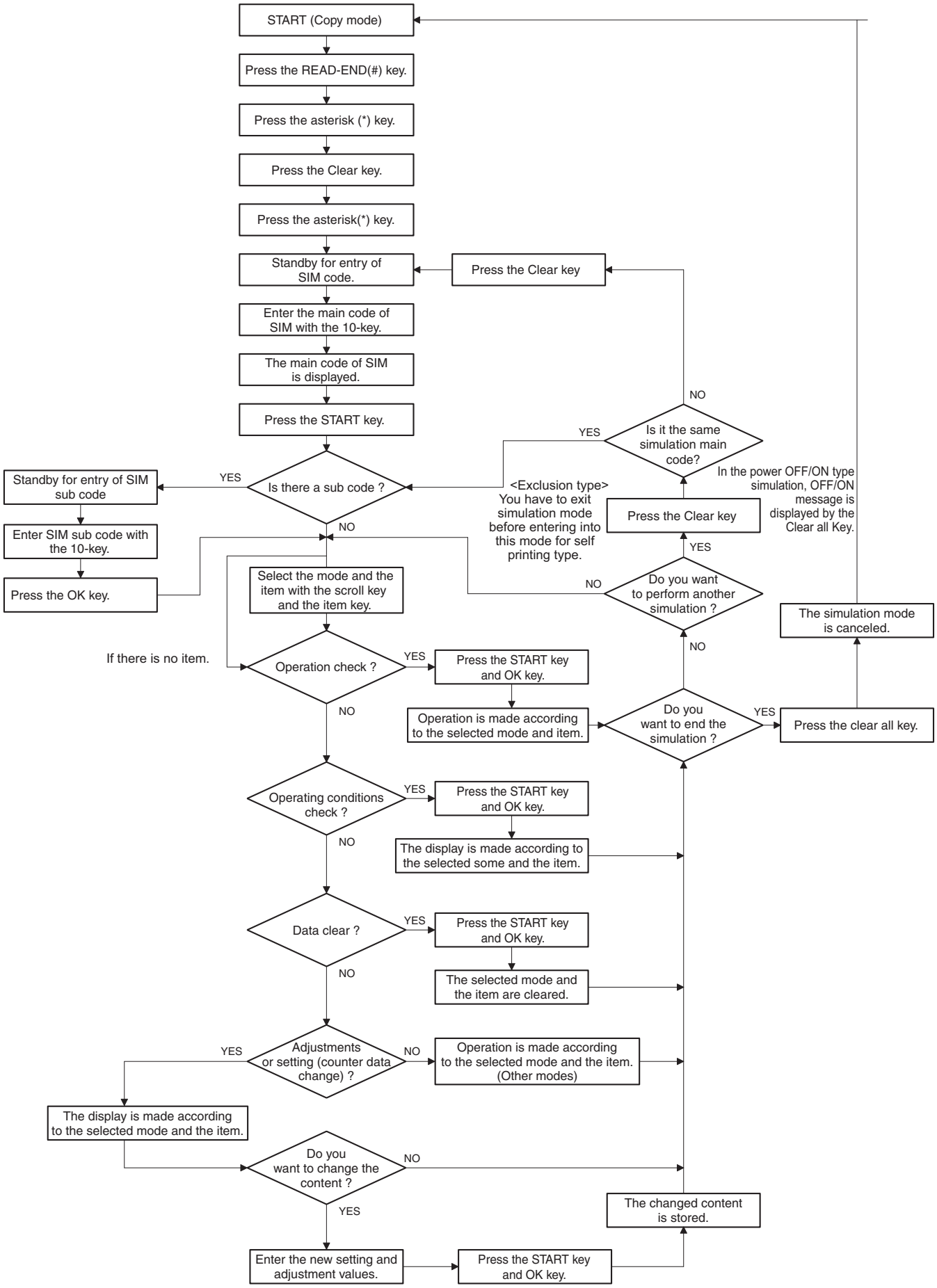
   To cancel the current simulation mode and change the main code and the sub code, press [STOP] key.

B. Canceling the simulation mode to return to the normal mode

1) Press [CA] 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.


START (Copy mode)
Press the READ-END(#) key.
Press the asterisk (*) key.
Press the Clear key.
Press the asterisk(*) key.
Standby for entry of SIM code.
Press the Clear key
Enter the main code of SIM with the 10-key.
The main code of SIM is displayed.
Press the START key.
NO
YES
Is it the same simulation main code?
YES
Is there a sub code ?
Standby for entry of SIM sub code
Enter SIM sub code with the 10-key.
Press the OK key.
NO
<Exclusion type>
You have to exit simulation mode before entering into this mode for self printing type.
Press the Clear key
In the power OFF/ON type simulation, OFF/ON message is displayed by the Clear all Key.
YES
NO
Do you want to perform another simulation ?
Select the mode and the item with the scroll key and the item key.
The simulation mode is canceled.
NO
If there is no item.
Operation check ?
YES
Press the START key and 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.
Operating conditions check ?
YES
Press the START key and OK key.
NO
The display is made according to the selected some and the item.
Data clear ?
YES
Press the START key and 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 START key and OK key.

3. List of simulation codes

Sim No.		Function
1	1	Check the operation of the scanner (reading) unit and the control circuit
	2	Check the sensors in the scanner (reading) section and the related circuit
	5	Check the operation of the scanner (reading) unit and the control circuit
2	1	Check the operation of the auto document feeder and the control circuit
	2	Check the operation of the sensors in the auto document feeder section and the control circuit
	3	Check the operation of the loads in the auto document feeder and the control circuit
5	1	Check the operation of the display, LCD in the operation panel and the control circuit
	2	Check the operation of the heater lamp and the control circuit
	3	Check the operation of the scanner lamp and the control circuit
	4	Check the operation of the discharge lamp and the control circuit
6	1	Check the operation of the loads in the paper transport system (clutches and solenoids) and the control circuit
	2	Check the operation of the each fan motor and the control circuit
	90	Set default position back to the factory setting (scanner is set to the lock enable position)
7	1	Set the operating condition of aging
	6	Set the operating intermittent aging cycle
	8	Check the warm up time
	12	Set the document reading number of sheets (for aging operation)
8	1	Check and adjust the operation of the developping voltage in each print mode and the control circuit
	2	Check and adjust the operation of the main charger voltage in each print mode and the control circuit
	6	Check and adjust the operation of the transport voltage and the control circuit
9	2	Check the operation of the sensors in the paper reverse section (duplex section) and the control circuit
	3	Check the operation of the loads in the paper reverse section (duplex section) and the control circuit
10	1	Check the operation of the toner supply mechanism (toner motor) and the control circuit
	4	Toner cartridge motor count sensor check
14		Cancel H3, H4, H5 trouble
16		Cancel U2 trouble
21	1	Set maintenance cycle
22	1	Check the print count value in each section and each operation mode
	2	Check the total number of misfeed and trouble
	3	Check misfeed ppositions and misfeed count of each position
	4	Check the trouble history
	5	Check the firmware version of each unit
	6	Output setting/adjustment data, firmware version and counter list
	8	Check the number of operation (counter value) of the finisher, SPF and scan (reading) unit
	9	Check the number of use (print counter) of each paper feed section
	10	Check the system configuration
	11	Check FAX counter
	12	Check SPF misfeed positions and number of misfeed at each position
	13	Check the operation time of the process section (Drum unit, DV unit, toner cartridge) and fusing unit
	14	Check the use status of the toner cartridge
	19	Check counter value of scan, image send mode
23	2	Output JAM, trouble history data
24	1	Clear JAM counter and trouble counter
	2	Clear paper feed counter of each paper feed section
	3	Clear SPF, scan (reading) and finisher counter
	4	Clear maintenance counter and print counter of the transport unit and the fusing unit
24	5	Clear developer counter
	35	Clear used toner cartridge counter
25	1	Check the operation of the developing section
	2	Set toner density initial level when replacing developer
	4	Check toner supply control data
	5	Check toner density correction data
26	6	Set the destination
	7	Set the machine ID
	18	Set the toner save mode
	30	Set the operation mode corresponding to CE control
	35	Set SIM22-4 trouble history when a same trouble occurred repeatedly as one trouble or several time
	38	Set print operation when the maintenance life is reached
	41	Set auto magnification ratio select function in the center binding mode
	49	Set the print speed in postcard mode
	50	Set the function
	54	LCD duty setting
	65	Set finisher alarm mode
	66	Set simulation password
	69	Set toner near end operating condition
	73	Adjust image enlargement and A3 wide copy
	74	Set OSA trial mode
	78	Set remote operation panel password
	79	Set security function
	85	Set simulation function
30	1	Check the operation of the sensors in other than the paper feed section and the control circuit
43	1	Set the fusing temperature in each mode
	2	Set the fusing operation and preheat mode
	20	Set the fusing temperature in each mode (environment correction under low temperature and low humidity of Sim43-2)
	21	Set the fusing temperature in each mode (environment correction under high temperature and high humidity of Sim43-2)
	24	Set the fusing operation
	35	Check fusing unit pressure state
44	1	Set each correction operation function in the image forming section
	2	Set the sensitivity of the image density sensor
	4	Used to set the conditions of the high density process control operation.
	6	Execute the high density process control forcibly
	9	Check the high density process control operation data
	12	Check the high density process control and the image density sensor operation data
	14	Check the output level of the temperature and humidity sensor
	15	Set the OPC drum idle rotation
	17	Execute refresh operation of the developer and transfer roller
	21	Set the halftone process control target
	22	Check the toner patch density level in the halftone process control operation
	24	Check the correction target and the correction level in the halftone process control operation
	25	Set the calculating conditions of the correction value for the halftone process control
	26	Execute the halftone process control forcibly
	27	Clear the correction data of the halftone process control
	28	Set the process control execution condition
	29	Set the operating condition of the halftone process control
	37	Set the developer bias correction level in the continuous printing operation
	43	Check the identification information of the developing unit
	62	Set the process control execution condition
46	2	Adjust the copy density in the copy mode
	4	Adjust the color scan density in the image send mode
	5	Adjust the monochrome scan density in the image send mode
	9	Adjust the scan image density (SPF)
	16	Adjust the copy gray balance and gamma (for all mode)
	19	Set the scanning operating condition of the document density in the auto mode
	23	Set the density correction of copy high density area (for high density tone gap)

Sim No.		Function
46	24	Adjust copy gray balance (auto adjustment)
	32	Adjust the document background density reproducibility in the auto mode
	37	Adjust the reproducibility capability of gray image creation
	39	Adjust the sharpness of send image
	40	Adjust the FAX send image density (all modes)
	41	Adjust the FAX send image density (normal)
	42	Adjust the FAX send image density (fine)
	43	Adjust the FAX send image density (super fine)
	51	Adjust the gamma of heavy paper mode and image process mode in the copy mode
	52	Set gamma default value of heavy paper mode and image process mode in the copy mode
	54	Adjust the engine halftone auto density (dither)
48	1	Adjust the scan image magnification ratio (main scanning direction and sub scanning direction)
	6	Adjust the rotation speed of each motor
49	1	Update the firmware
50	1	Adjust the copy image position and the image loss
	5	Adjust the printer image position and the image loss
	6	Adjust SPF image position and the image loss
	10	Adjust the image position in the each paper feed tray
	12	Adjust the scan image off center position
51	1	Set the transfer voltage timing
	2	Adjust the contact pressure on paper by the main unit and the SPF resist roller
53	8	Adjust the document lead edge and the scan position
	9	Set the dirt detection and scan position
	10	Execute SPF dirt detection
55	1	Set the specification of the engine operation
	2	Set the specification of the scanner operation
	3	Set the specification of the controller operation
	10	Used to set the special stamp text for Taiwan
56	2	Backup the data in the EEPROM and STORAGE to the USB memory
	5	Backup the SIM22-6 data in the text format to the USB memory
60	1	Check read/write memory operation
61	1	Check the LSU polygon motor rotation and laser detection
	3	Set the laser power
63	1	Check shading correction data
	2	Execute shading correction
	3	Adjust scanner (CCD) color balance and gamma correction
	5	Reset the scanner (CCD) color balance and gamma correction
	12	B/W image create adjustment
64	2	Test print
	4	Printer test print
	5	Printer test print (PCL)
	6	Printer test print (PS)
65	10	KEY time setting display
66	1	Set the specification of image send operation
	2	Set country code
	4	Check signal output level (max)
	7	Used to output all image data saved in the image memory
	8	Used to send the selected sound message to the line and the speaker (max)
	10	Used to clear the FAX and image send image data
	11	Used to send the selected signal at 300bps to the line and the speaker (max)
	13	Used to register dial number for Sim66-14/15/16 dial test
	17	Used to send the DTMF signal to the line and the speaker (max)
	21	Used to print the selected iyems (system error, protocol monitor)
	30	Used to display the TEL/LIU status change, the display is highlighted by status change
	31	Used to set ON/OFF the port for output to TEL/LIU
	32	Used to check the fixed data received from the line and to display the result
	33	Used to execute detection of various signals with the line connected and to display the detection result. When a signal is detected the display is highlighted
	34	Communication time display

Sim No.		Function
66	52	Pseudo ringer check
67	25	Adjust printer gray balance (manual)
	31	Clear printer calibration data
	33	Adjust printer screen gamma
	34	Set the density correction of printer high density area
	36	Adjust the density in the printer low density area
	52	Set gamma default value of the printer screen

4. Details of simulation

1

1-1

Purpose	Operation test/check
Function (Purpose)	Scanner check.
Section	Scanner (reading)

Operation/Procedure

1) Select the operation speed with the touch panel key.
2) Tap [OK/START] key.
   Scanning is once performed at the speed corresponding to the scan resolution (operation speed).

Item	No	Display	Content
OC SCAN	1	MONO400	400DPI(84.0mm/s)
	2	MONO600	600DPI(56.0mm/s)
	3	COLOR400	400DPI(42.0mm/s)
	4	COLOR600	600DPI(28.0mm/s)

1-2

Purpose	Operation test/check
Function (Purpose)	Scanner sensor check
Section	Scanner (reading)

Operation/Procedure

The operating status of the sensor is displayed.

When "MHPS" is highlighted, the scanner unit is in the home position.

2

2-1

Purpose	Operation test/check
Function (Purpose)	SPF aging.
Section	SPF

Operation/Procedure

1) Select the operation mode and the speed with the 10 key.
2) Tap [OK/START] key.
   The RSPF repeats paper feed, transport, and paper exit operations at the speed corresponding to the scan resolution (operation speed).
   When [OK/START] key is tapped, the operation is terminated.

No	Display	Content
1	MONO 300S	Monochrome 300DPI Single-sided mode
2	MONO 600S	Monochrome 600DPI Single-sided mode
3	COLOR 300S	Color 300DPI Single-sided mode
4	COLOR 600S	Color 600DPI Single-sided mode
5	MONO 300D	Monochrome 300DPI Duplex mode
6	MONO 600D	Monochrome 600DPI Duplex mode
7	COLOR 300D	Color 300DPI Duplex mode
8	COLOR 600D	Color 600DPI Duplex mode

2-2

Purpose	Operation test/check
Function (Purpose)	SPF sensor check.
Section	Automatic document feeder

Operation/Procedure

The operating conditions of the sensors and detectors are displayed.

The code names of the sensors and the detectors which are active are highlighted.

RSPF

Display	Content
SCOV	RSPF cover open/close sensor
SOCD	RSPF UNIT open/close sensor
SPED	Document tray empty sensor
SPPD1	Document pass sensor 1
SPPD2	Document pass sensor 2
SSET	SPF installation detection

2-3

Purpose	Operation test/check
Function (Purpose)	SPF output check.
Section	SPF

Operation/Procedure

1) Select a target item of the operation check with the 10 key.
2) Tap [OK/START] key.
   The selected load performs the operation.
   When [OK/START] key is tapped, the operation is terminated.

RSPF

Display	Content
SPRS	Paper exit roller solenoid
SPUC	Paper feed clutch
SPFM_F	SPF paper feed motor (normal rotation)
SPFM_R	SPF paper feed motor (reverse rotation)

5

5-1

Purpose	Operation test/check
Function (Purpose)	Display check
Section	Operation panel

Operation/Procedure

The LCD is changed as shown below.

The contrast changes every 2sec from the current level to MAX → MIN → Off → the current level. During this period, each LED is lighted.

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

5-2

Purpose	Operation test/check
Function (Purpose)	Heater lamp load setup
Section	Fusing

Operation/Procedure

1) Select the item to be operation checked with the 10 key.
2) Tap [OK/START] key.
   The selected heater lamp operates ON/OFF.
   When [OK/START] key is tapped, the operation is terminated.

Heater lamp operation check method:
Remove the front cabinet upper and the paper exit tray, and the lighting status of each heater lamp can be checked through the clearance between the fusing pressure release drive gear and the frame fusing section.

HL_UM	Main heater lamp (Upper main)
HL_US	Sub heater lamp (Upper sub)

5-3

Purpose	Operation test/check
Function (Purpose)	Copy lamp check.
Section	Scanner (reading)

Operation/Procedure

1) Select the item to be operation checked with the 10 key.
2) Tap [OK/START] key.
   The scanner lamp lights up for 10 sec.
   When [OK/START] key is tapped, the operation is terminated.

5-4

Purpose	Operation test/check
Function (Purpose)	Discharge lamp check
Section	Process

Operation/Procedure

1) Select a target of the operation check with the 10 key.
2) Tap [OK/START] key.
   The selected discharge lamp is lighted for 30 sec.
   When [OK/START] key is tapped, the operation is terminated.

DL	Discharge lamp

6

6-1

Purpose	Operation test/check
Function (Purpose)	Feed output check.
Section	Paper transport/Paper exit section

Operation/Procedure

1) Select the item to be operation checked with the 10 key.
2) Tap [OK/START] key.
   The selected load performs the operation.
   When [OK/START] key is tapped, 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.

Display	Content
MM	Main motor
POFC	Paper exit clutch (normal rotation)
PORC	Paper exit clutch (reverse rotation)
RRC	Paper stop (resist) clutch
MPFC	Manual paper feed clutch (Manual paper feed tray)
C1PUC	Paper feed clutch (Paper feed tray 1)
D1PFM	Desk1 Main motor
D1LM	Desk1 Lift up motor
D1PFC	Desk1 Paper feed clutch
D1TRC	Desk1 Transport clutch

6-2

Purpose	Operation test/check
Function (Purpose)	Fan load setup.
Section	Others

Operation/Procedure

1) Select the item to be operation checked with the 10 key.
2) Tap [OK/START] key.
   The selected load performs the operation.
   When [OK/START] key is tapped, the operation is terminated.
   Tap [ALL] key to select all the fans collectively.

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.

Display	Content
POFM	Paper exit cooling Fan (Exhaust)
PSFM	Power supply cooling Fan
FUFM	Fusing cooling Fan (Exhaust)
VFM	Ventilation Fan (Aspirated)
POFM2	Paper cooling Fan (Aspirated)

6-90

Purpose	Setting
Function (Purpose)	Load move for shipment
Section	Other

Operation/Procedure

1) Tap [OK/START] key.
2) When processing is completed "Please turn off the power." is displayed.

7

7-1

Purpose	Setting
Function (Purpose)	Aging test setting.
Section	Others

Operation/Procedure

1) Select an item to be set with the 10 key.
2) Tap [OK/START] 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.

AGING	Aging operation setup
INTERVAL	Intermittent operation setting
MISFEED DISABLE	JAM detection ignoring setting
FUSING DISABLE	Fusing unit ignoring setting
WARMUP DISABLE	Warming up ignoring setting
DV CHECK DISABLE	Developing unit ignoring setting
SHADING DISABLE	Shading correction operation omitting setting
CCD GAIN FREE	CCD gain adjustment omitting setting

7-6

Purpose	Setting
Function (Purpose)	Interval aging cycle time setup
Section	

Operation/Procedure

1) Enter the intermittent aging operation cycle (unit: sec) with 10-key.
2) Tap [OK] key.
   The time entered in procedure 1) is set.
   * The cycle 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.

7-8

Purpose	Operation display
Function (Purpose)	Warm up time display setting.
Section	

Operation/Procedure

Tap [OK/START] key.

Counting of the warm-up time is started and the time required for warm-up is displayed

Interruption of counting by tapping [OK/START] key is inhibited.

7-12

Purpose	Operation test/check
Function (Purpose)	Originals setting
Section	SPF

Operation/Procedure

1) Set document reading quantity with 10-key.
   (Setting range:0 - 255)
2) Tap [OK] key. The set value is saved.

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)	DV setting and output
Section	Process (Developing)

Operation/Procedure

1) Select operating speed (MIDDLE / LOW) with the 10 key and press OK / Start key.
2) Enter the setting value with 10-key. (The value specified on the label of the high voltage PWB must be entered.)
   * When the △ ▽ key is tapped, the setting value of each item can be changed with 1up (1down) collectively.
3) Tap [OK] key. Tap [OK] key. The set value is saved.

Item	Item / Display		Content	Setting range	Default value
1	MIDDLE	M DVB_K	Developing bias voltage (middle speed)	0 - 650	475
1	LOW	L DVB_K	Developing bias voltage (middle speed)	0 - 650	475

* By adjusting the middle speed, low speed setting is also adjusted at the same time.

8-2

Purpose	Operation test/check/adjustment
Function (Purpose)	MHV/grid setting and output.
Section	Process (Charging)

Operation/Procedure

1) Select operating speed (MIDDLE / LOW) with the 10 key and press OK / Start key.
2) Enter the adjustment value with 10-key. (The value specified on the label of the high voltage PWB must be entered.)
   * When the △ ▽ key is tapped, the setting value of each item can be changed with 1up (1down) collectively.
3) Tap [OK] key. The set value is saved.

Item	Item / Display		Content	Setting range	Default value
1	MIDDLE	M MHV_K	Charging bias voltage (middle speed)	500 - 2000	1320
1	LOW	L MHV_K	Charging bias voltage (middle speed)	500 - 2000	1320

* By adjusting the middle speed, low speed setting is also adjusted at the same time.

8-6

Purpose	Operation test/check/adjustment
Function (Purpose)	THV setting and output.
Section	Process (Transport)

Operation/Procedure

1) Select a target item to be adjusted with scroll keys.
2) Enter the set value with 10-key.
   Enter the default value specified on the following list.
3) Tap [OK] key. The set value is saved.

Item	Item/Display		Content				Setting range	45 CPM	35 CPM
1	TC	TC PLN BW S	TC bias value	B/W	Plain paper 1	Front	0 - 255	98	93
2		TC PLN BW D				Back	0 - 255	85	80
3		TC PLN2 BW S			Plain paper 2	Front	0 - 255	98	93
4		TC PLN2 BW D				Back	0 - 255	85	80
5		TC HEV1 BW S			Heavy paper 1	Front	0 - 255	72	72
6		TC HEV1 BW D				Back	0 - 255	72	72
7		TC HEV2 BW S			Heavy paper 2	Front	0 - 255	72	72
8		TC HEV2 BW D				Back	0 - 255	72	72
9		TC OHP BW			OHP		0 - 255	72	72
10		TC ENV BW			Envelope		0 - 255	72	72
11		TC THIN BW			Thin paper		0 - 255	72	72
12		TC GLOS BW			Gloss paper		0 - 255	72	72
13		TC LABEL BW			Label paper		0 - 255	72	72
14		TC FRONT EDGE LO S	TC front edge bias value	Low		Front	0 - 255	72	72
15		TC FRONT EDGE LO D				Back	0 - 255	72	72
16		TC FRONT EDGE MI S		Middle		Front	0 - 255	98	93
17		TC FRONT EDGE MI D				Back	0 - 255	85	80
18		TC ADSORPTION LO	TC adsorption bias value	Low			0 - 255	72	80
19		TC ADSORPTION MI		Middle			0 - 255	85	80
20		TC BACKEND LO S	TC rear edge bias value	Low		Front	0 - 255	72	72
21		TC BACKEND LO D				Back	0 - 255	72	72
22		TC BACKEND MI S		Middle		Front	0 - 255	72	64
23		TC BACKEND MI D				Back	0 - 255	72	59
1	TC CLEAN	TC INTERVAL LO	Interval bias value	Low			0 - 255	72	80
2		TC INTERVAL MI		Middle			0 - 255	85	80
3		TC COUNTER LO	TC counter bias value	Low			0 - 255	182	182
4		TC COUNTER MI		Middle			0 - 255	182	182
5		TC MNS CLEN LO	Cleaning negative bias value	Low			0 - 255	182	182
6		TC MNS CLEN MI		Middle			0 - 255	182	182
7		TC PLS CLEN LO	Cleaning positive bias value	Low			0 - 255	59	59
8		TC PLS CLEN MI		Middle			0 - 255	59	59
1	DHV	DHV LO BW S	Separation bias value	B/W	Low	Front	0 - 255	111	111
2		DHV LO BW D				Back	0 - 255	111	111
3		DHV MI BW S			Middle	Front	0 - 255	85	85
4		DHV MI BW D				Back	0 - 255	85	85

* Heavy paper 1: 106-176g/m^2 28 lbs bond-65 lbs Cover
Heavy paper 2: 177-220g/m^2 65lbs Cover-80 lbs Cover

* Standard paper 1: 60-89g/m^2 16-24 lbs bond
Standard paper 2: 90-105g/m^2 24-28 lbs bond

10

10-1

Purpose	Operation test/check
Function (Purpose)	Toner motor activation
Section	Process (Developing)

Operation/Procedure

1) Select a target of the operation check with the 10 key.
2) Tap [OK/START] key.
   The selected load operation is performed for 10 sec.
   When [Reset/STOP] key is tapped, the operation is terminated.

Important

This simulation must be executed without installing the toner cartridge.

TNM	Toner motor

10-4

Purpose	Operation test/check
Function (Purpose)	Toner cartridge motor count sensor check
Section	Process (Developing)

Operation/Procedure

1) When entering the SIM 10-4, the state change of the sensor is displayed.
   When the sensor turns ON, the sensor name corresponding to that sensor is highlighted.

Important

This simulation must be executed without installing the toner cartridge.

TM_COUNT	Toner motor rotation detection sensor output confirmation

14

14--

Purpose	Cancel (Trouble etc.)
Function (Purpose)	Trouble cancellation (other)
Section	

Operation/Procedure

1) When you press the OK/ START key, the [EXEC] turns black and releases the trouble. Then the machine restarts.

16

16--

Purpose	Clear/Cancel (Trouble etc.)
Function (Purpose)	U2 trouble cancellation.
Section	MFPc PWB

Operation/Procedure

1) When you press the OK/ START key, the [EXEC] turns black and releases the trouble. Then the machine restarts.

21

21-1

Purpose	Setting
Function (Purpose)	Maintenance cycle setup.
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) Enter the set value with 10-key.
2) Tap [OK] key. (The set value is saved.)

Item/Display		Content	Setting range	Default value
1	MAINTENANCE CYCLE (TOTAL)	Maintenance counter (Total)	0: Default 1 - 300: 1K - 300K 999: Free	100

22

22-1

Purpose	Adjustment/Setting/Operation data output/ Check
Function (Purpose)	Counter display
Section	

Operation/Procedure

Change the display page with scroll key on the touch panel.

Item	Display	Content	
Total output quantity	TOTAL OUT (BW)	Total output quantity of black and white	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)
Copy	COPY (BW)	Black and white copy counter	Billing target (excluding self print)
Print	PRINT (BW)	Black and white print counter	Billing target (excluding self print)
Other	OTHER (BW)	Black and white other counter	Self print quantity

22-2

Purpose	Adjustment/Setting/Operation data check
Function (Purpose)	JAM/trouble counter display
Section	

Operation/Procedure

The paper jam, trouble counter value is displayed.

MACHINE JAM	Machine JAM counter
SPF JAM	SPF JAM counter
TROUBLE	Trouble counter

22-3

Purpose	Adjustment/Setting/Operation data check
Function (Purpose)	JAM history data display.
Section	

Operation/Procedure

The paper jam and misfeed history is displayed from the latest one up to 50 items. (The old ones are deleted sequentially.)

22-4

Purpose	Adjustment/Setting/Operation data check
Function (Purpose)	Trouble code data display
Section	

Operation/Procedure

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

22-5

Purpose	Others
Function (Purpose)	ROM version data display
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	Content
S/N	Serial No. (The codes for November and December are "X" and "Y" respectively.)
MCU BOT	MCU (Boot section)
MCU PRG	MCU (Program section)
MCU PRP	MCU (Property)
CPLD	CPLD
PNL BOT	PNL (Boot section)
PNL PRG	PNL (Program section)
DESK	DESK

22-6

Purpose	Adjustment/Setting/Operation data check
Function (Purpose)	Data print mode.
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-key.

Item/Display		Content
1	No.1	List printout
3	No.3	List printing (related to process control)
4	No.4	Duplex printing

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

22-8

Purpose	Adjustment/Setting/Operation data check
Function (Purpose)	Org./staple counter display.
Section	

Operation/Procedure

The counter values of the finisher, the SPF, and the scanner related counters are displayed.

Display	Content
SPF	Document feed quantity
SCAN	Number of times of scan
COVER	Document cover open/close counter
HP_ON	Number of scanner HP detection
OC LAMP TIME	Total lighting time of the scanner lamp

22-9

Purpose	Adjustment/Setting/Operation data check
Function (Purpose)	Paper feed counter display.
Section	Paper feed, ADU

Operation/Procedure

The counter values related to paper feed are displayed.

Display	Content
TRAY1	Paper feed counter (Paper feed tray 1)
TRAY2	Paper feed counter (Paper feed tray 2)
MFT	Manual paper feed counter
ADU	ADU paper transport counter

22-10

Purpose	Adjustment/Setting/Operation data check
Function (Purpose)	Machine system display.
Section	

Operation/Procedure

The system configuration is displayed.

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

Item display name	Display content	Content
MCHINE	MX-B350FZ	Main unit
	MX-B350W	
	MX-B350WB	
	MX-B350WE	
	MX-B350WZ	
	MX-B350Z	
	AR-B351FT	
	AR-B351T	
	AR-B351WT	
	MX-B450FZ	
	MX-B450W	
	MX-B450WB	
	MX-B450WE	
	MX-B450Z	
	AR-B451FT	
	AR-B451T	
	AR-B451WT	
SPF	STANDARD	Duplex single pass feeder
FAX	NONE/STANDARD	Facsimile expansion kit
PS	STANDARD	PS expansion kit
DESK	NONE/MX-CS14	600-sheet paper feed unit
NIC	STANDARD	NIC
WLAN	NONE/STANDARD	Wireless LAN module

22-11

Purpose	Adjustment/Setting/Operation data check
Function (Purpose)	FAX counter display
Section	FAX

Operation/Procedure

The values of the FAX send counter and the FAX receive counter are displayed.

Display		Contents
COMM PAGE	SND	FAX send counter
	RCV	FAX receive counter
COMM TIME	SND	FAX send time
	RCV	FAX receive time
PRINT PAGE		Number of print quantity

22-12

Purpose	Adjustment/Setting/Operation data check
Function (Purpose)	SPF JAM history data display
Section	SPF

Operation/Procedure

The paper jam and misfeed history is displayed from the latest one up to 50 items. (The old ones are deleted sequentially.)

22-13

Purpose	Adjustment/Setting/Operation data check
Function (Purpose)	Process cartridge display
Section	Process

Operation/Procedure

The number of prints and the number of rotations in the process section are displayed.

Item	Display	Content
1	MAINTE	Maintenance
2	MINI MAINTE	Mini maintenance
3	FUS	Fusing roller
4	PRESS	Pressure roller
5	TC	Transfer roller
6	DV(K)	Developer cartridge (K)
7	DRUM(K)	Drum unit (K)
8	TN(K)	Toner cartridge(K)

22-14

Purpose	Adjustment/Setting/Operation data check
Function (Purpose)	Toner counter display
Section	Process

Operation/Procedure

The status of the toner cartridge is displayed.

Items / Display			Contents
1	K	INSTALL	Accumulated toner cartridge installation number
		NN END	Accumulated near near end number
		END	Accumulated end number
		RESIDUAL	Remaining amount (%)

22-19

Purpose	Adjustment/Setting/Operation data check
Function (Purpose)	Network scanner counter display
Section	

Operation/Procedure

Used to display the counter value related to the network scanner

Change the display with scroll key.

Item/Display		Content
Network scanner	NET SCN ORG_B/W	Network scanner document read quantity counter (B/W scan job)
	NET SCN ORG_CL	Network scanner document read quantity counter (Color scan job)

23

23-2

Purpose	Adjustment/Setting/Operation data check
Function (Purpose)	JAM/trouble data print mode
Section	

Operation/Procedure

Tap [OK/START] key to execute print.

24

24-1

Purpose	Data clear
Function (Purpose)	JAM/trouble counter data clear
Section	

Operation/Procedure

1) Select the item to be cleared with 10 keys.
2) Press [OK]/[START] key.
3) Press [OK]/[START] key.

The target counter is cleared.

MACHINE	Machine JAM counter
SPF	SPF JAM counter
TROUBLE	Trouble counter

24-2

Purpose	Data clear
Function (Purpose)	Paper feed counter clear
Section	

Operation/Procedure

1) Select the item to be cleared with 10 keys.
2) Press [OK]/[START] key.
3) Press [OK]/[START] key.

The target counter is cleared.

TRAY1	Tray 1 paper feed counter
TRAY2	Tray 2 paper feed counter
MFT	Manual paper feed counter (Total)
ADU	ADU paper feed counter

24-3

Purpose	Data clear
Function (Purpose)	Org./output counter data clear
Section	

Operation/Procedure

1) Select the item to be cleared with the10 key.
2) Press [OK]/[START] key.

The target counter is cleared.

SPF	SPF document feed counter (No. of discharged sheets)
SCAN	Scan counter
COVER	Document cover open/close counter
HP_ON	Number of scanner HP detection
OC LAMP TIME	Total lighting time of the scanner lamp

24-4

Purpose	Data clear
Function (Purpose)	Maintenance counter clear
Section	

Operation/Procedure

1) Select the item to be cleared with 10 keys.
2) Press [OK]/[START] key.
3) Press [OK]/[START] key.

The target counter is cleared.

MAINTE ALL	Maintenance Total (Counter)
	Number of day that used Maintenance Total
FUS	Fusing roller Counter
	Number of day that used Fusing roller
	Fusing roller accumulated traveling distance
PRESS	Pressure roller (counter)
	Pressure roller (use days)
	Pressure roller (accumulated rotation)
TC	Transfer roller (counter)
	Transfer roller (use days)
	Transfer roller (accumulated rotation)
DV_K	DV unit counter (K)
	Number of day that used DV unit (K)
	DV unit accumulated traveling distance (K)
DRUM_K	Drum unit counter (K)
	Number of day that used Drum unit (K)
	Drum unit accumulated traveling distance (K)

24-5

Purpose	Data clear
Function (Purpose)	Developer counter data clear
Section	

Operation/Procedure

1) Select the item to be cleared with 10 keys.
2) Press [OK]/[START] key.
3) Press [OK]/[START] key.

The target counter is cleared.

Note

When SIM25-2 is executed, this counter is also cleared automatically.

Button display	Content
DV_K	Developer cartridge print counter (K)
	Developer cartridge accumulated traveling distance (cm) (K)
	Number of day that used developer (day) (K)

24-35

Purpose	Data clear
Function (Purpose)	Toner end counter clear
Section	

Operation/Procedure

1) Select the item to be cleared with 10 keys.
2) Press [OK]/[START] key.
3) Press [OK]/[START] key.

The target counter is cleared.

25

25-1

Purpose	Operation test/check
Function (Purpose)	Toner sensor output monitor
Section	Process (Developing section)

Operation/Procedure

1) Select the process speed with 10 keys.
2) Press [OK]/[START] key.

The developing motor and the OPC drum motor rotate for 3 minutes and the output level of the toner density sensor is displayed.

MIDDLE	TCS_MID	Toner sensor output value (K)
	TSG_MID	Toner density sensor control voltage level (K)
	P-P_MID	Toner sensor output amplitude value
LOW	TCS_LOW	Toner sensor output value (K)
	TSG_LOW	Toner density sensor control voltage level (K)
	P-P_LOW	Toner sensor output amplitude value

LOW	Process speed: Low speed
MIDDLE	Process speed: Medium speed

25-2

Purpose	Setting
Function (Purpose)	Automatic developer adjustment
Section	Image process (Photo conductor/Developing/Transfer/Cleaning)

Operation/Procedure

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

The developing motor rotates for 70 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.

Important

This simulation is executed by installing a toner cartridge.

Important

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.

Division	Item/Display	Display range	Default value
Toner density control adjustment value in the low speed mode	TCS_L	0-255	128
Toner density control adjustment value in the middle speed mode	TCS_M	0-255	128
Toner density control adjustment standard value in the low speed mode	REF_L	0-65535	9600
Toner density control adjustment standard value in the middle speed mode	REF_M	0-65535	9600
Toner density control adjustment amplitude value in the low speed mode	P-P_L	0-255	128
Toner density control adjustment amplitude value in the middle speed mode	P-P_M	0-255	128

Display during execution of the simulation

Item/Display	Content
TCS	Toner sensor output value (K)
REF	Sensor count value
P-P	Sensor output amplitude value

Error content

Display	Error name	Error content
EE-EL	EL abnormality	Auto developer adjustment reference value is less than TPC_AIR + over toner threshold.
EE-EU	EU abnormality	Auto developer adjustment reference value exceeds TPC_AIR + under toner threshold.
EE-EC	EC abnormality	The sensor output amplitude level is less than 1

25-4

Purpose	Adjustment/Setting/Operation data check
Function (Purpose)	Toner control data display
Section	Process

Operation/Procedure

The operation data of the toner supply quantity are displayed.

25-5

Purpose	Adjustment/Setting/Operation data check
Function (Purpose)	Toner fall detect control display
Section	Process

Operation/Procedure

The toner density correction data are displayed.

26

26-6

Purpose	Setting
Function (Purpose)	Destination setup
Section	

Operation/Procedure

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

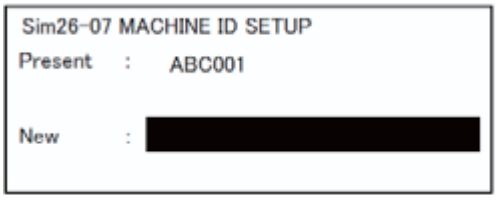
The selected set content is saved.

26-7

Purpose	Setting
Function (Purpose)	Machine ID setup
Section	

Operation/Procedure

1) When entering the simulation 26-07, the following screen appears.



Max. 30 digits of numerals and alphabetical characters can be inputted.

To select a desired character, tap the 10-key repeatedly.

Refer to the following list and enter characters.

Change the machine ID value with 10 key.

The entered value is displayed in "New:".

2) Press the OK key, the currently input data is set and displayed in "Present:".

Note

The machine ID can be set also by the Web Page service mode function.

Conventionally, the machine ID has been set by the Web Page function. In this mode, this function is made available in the simulation mode.

Content	Number of digits	Default value
Machine ID	Up to 30 digits	30 digits

10-key	Number of times of key input									
	1	2	3	4	5	6	7	8	9	10
1	1	-	-	-	-	-	-	-	-	-
2	A	B	C	a	b	c	2	-	-	-
3	D	E	F	d	e	f	3	-	-	-
4	G	H	I	g	h	i	4	-	-	-
5	J	K	L	j	k	l	5	-	-	-
6	M	N	O	m	n	o	6	-	-	-
7	P	Q	R	S	p	q	r	s	7	-
8	T	U	V	t	u	v	8	-	-	-
9	W	X	Y	Z	w	x	y	z	9	-
0	0	-	-	-	-	-	-	-	-	-

26-18

Purpose	Setting
Function (Purpose)	Toner save mode setup
Section	

Operation/Procedure

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

The selected set content is saved.

Item	Display	Content		Setting range	Default value
1	TN SAVE MODE COPY	1	Copy toner save mode is allowed	0 - 1	0
		0	Copy toner save mode is inhibited.		
2	TN SAVE MODE PRINT	1	Printer toner save mode is allowed.	0 - 1	0
		0	Printer toner save mode is inhibited.		

26-30

Purpose	Setting
Function (Purpose)	CE mark control setting
Section	

Operation/Procedure

1) Enter the set value with 10-key.

0	Control allowed
1	Control inhibited

2) Press [OK] /[START] 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.

<Default value of each destination>

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.	1 (CE not supported)
JAPAN	1 (CE not supported)	AB_A	1 (CE not supported)
AB_B	1 (CE not supported)		

26-35

Purpose	Setting
Function (Purpose)	Trouble memory mode setup
Section	

Operation/Procedure

1) Enter the set value with 10-key.

0	Only once display. (Default)
1	Any time display.

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

26-38

Purpose	Setting
Function (Purpose)	Engine life over setting
Section	

Operation/Procedure

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

Item/Display		Content		Default value
1	M LIFE OVER (0: CONTINUE 1: STOP)	0	Setting of Print Continue/ Stop when the maintenance life is over (Print Continue)	0
		1	Setting of Print Continue/ Stop when the maintenance life is over (Print Stop)	

26-49

Purpose	Setting
Function (Purpose)	Copy speed mode setup
Section	

Operation/Procedure

Enter the set value with the 10 key and press the OK / Start key, the input value is reflected.

Item	Display	Content	Setting range	Default value
1	POSTCARD	Postcard copy speed LOW	0 - 1	1
		Postcard copy speed HIGH		

26-50

Purpose	Setting
Function (Purpose)	Function setting
Section	

Operation/Procedure

1) Enter the set value with 10-key.
2) Tap [OK] key. (The set value is saved.)

Item/Display		Content		Default value
1	WIRELESS SET	0	Disables wireless LAN setting.	0
		1	Enables wireless LAN setting.	
2	POWER SHUT-OFF SET	0	Automatic power shut off is not displayed.	Refer to *1
		1	Automatic power shut off is displayed.	
3	USB DEVICE	0	USB device setting is disabled	0
		1	USB device is enabled	

(*1)

<Default value of each destination>

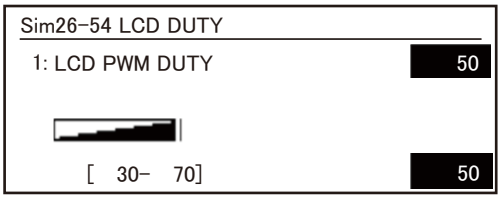
Destination	Item 2
U S A	1
CANADA	1
INCH	1
AB_B	1
EUROPE	0
U K	0
AUS	1
AB_A	1

26-54

Purpose	
Function (Purpose)	LCD duty setting
Section	

Operation/Procedure

1) Enter the set value with 10 keys.



Item	Display	Contents	Setting range
1	LCD PWM duty	PWM duty value	30 - 70

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

26-69

Purpose	Setting
Function (Purpose)	Toner near end setting
Section	

Operation/Procedure

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

Item/Display			Content		Default value
1	TN PREP (0:YES 1:NO)		0	The toner preparation message is displayed.	0
			1	The toner preparation message is not displayed.	
2	REM TN LV	5%	0	Toner preparation at remaining toner level of 5%	1
		10%	1	Toner preparation at remaining toner level of 10%	
		15%	2	Toner preparation at remaining toner level of 15%	
		20%	3	Toner preparation at remaining toner level of 20%	
		25%	4	Toner preparation at remaining toner level of 25%	
		30%	5	Toner preparation at remaining toner level of 30%	
		35%	6	Toner preparation at remaining toner level of 35%	
		40%	7	Toner preparation at remaining toner level of 40%	
		45%	8	Toner preparation at remaining toner level of 45%	
		50%	9	Toner preparation at remaining toner level of 50%	
3	TN N END (0:YES 1:NO)		0	The toner near end message is displayed.	0
			1	The toner near end message is not displayed.	
4	TN END		1	Operation setup 1	2
			2	Operation setup 2	
			3	Operation setup 3	
5	TN END CNT		1	Print number setting when toner end detect 0	3
			2	Print number setting when toner end detect 10	
			3	Print number setting when toner end detect 20	
			4	Print number setting when toner end detect 30	
			5	Print number setting when toner end detect 40	
6	TN E-MAIL ALERT		0	Low status send of E-mail alert (When the toner preparation message is displayed) (in near near toner end)	1
			1	Low status send of E-mail alert (near toner end)	
7	TN MIB UNIT		0	Receive the remaining toner level MIB in 1% increment.	0
			1	Receive the remaining toner level MIB in 5% increment.	
			2	Receive the remaining toner level MIB in 25% increment.	
8	MIB TN L INDICATION		0	Get toner remaining quantity from toner MIB when toner low detects.	0
			1	Get toner low from toner MIB when toner low detects.	

(Contents of set items)

A: Enable/Disable setting of the toner preparation message display.

B: The toner remaining quantity at which the toner preparation message is displayed.

C: Enable/Disable setting of the toner preparation message display when the toner near end status is reached.

26-73

Purpose	Setting
Function (Purpose)	TN SAVE ENABLING
Section	

Operation/Procedure

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

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

30

30-1

Purpose	Operation test/check
Function (Purpose)	Main unit sensor check
Section	

Operation/Procedure

The operating conditions of the sensors and detectors are displayed.

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

Item/Display		Content
1	PPD2	Resist detection
2	POD1	Detects the paper exit from fusing.
3	TFD	Paper exit tray full detection
4	DSW	Right door/Front cover open/close detection
5	C1PED	1CS paper detection
6	MPED	Paper empty sensor (Manual paper feed tray)
7	DSW_D1	Desk 1 transport cover open/close detector
8	D1PPD	Desk 1 paper transport sensor
9	D1PQD	Desk 1 remaining paper quantity sensor
10	D1PED	Desk 1 paper empty sensor
11	D1ULD	Desk 1 upper limit detector
12	D1PRED1	Desk 1 paper rear edge sensor 1
13	D1PRED2	Desk 1 paper rear edge sensor 2
14	D1PRED3	Desk 1 paper rear edge sensor 3

43

43-1

Purpose	Setting
Function (Purpose)	Fuser temp setup
Section	

Operation/Procedure

1) Select the SW-A or the SW-B with 10 keys.
2) Press [OK]/[START] key.
3) Select an item to be set with Arrow keys.
4) Enter the set value with 10 keys.
5) Press [OK]/[START] key.
   The set value in step 4) is saved.

Item	Display	Content	Setting range	Default
SW_A	PLAIN PAP&WUP& RDY GR	Used to change the fusing temperature setting of plain paper 1, WUP, and Ready series	30 - 70	50
	PLAIN PAPER 2	Used to change the fusing temperature setting of plain paper 2	30 - 70	50
	HEAVY PAPER GR	Used to change the fusing temperature setting of heavy paper series	30 - 70	50
	THIN PAPER GR	Used to change the fusing temperature setting of thin paper series	30 - 70	50
	RECYCLED PAPER GR	Used to change the fusing temperature setting of recycled paper series	30 - 70	50
	GLOSSY PAPER GR	Used to change the fusing temperature setting of gloss paper series	30 - 70	50
	ENV PAPER GR	Used to change the fusing temperature setting of envelope series	30 - 70	50
	OHP PAPER	Used to change the fusing temperature setting of OHP paper	30 - 70	50
	FUSING CONDITION ADJ	Fusing condition adjustment setting	0 - 5	0
	WUP&RDY GR ADJ LL	WUP/Ready LL environment fine adjustment	40 - 60	50
	PLAIN PAP ADJ LL	Normal paper LL environment fine adjustment	40 - 60	50
	HEAVY PAPER GR ADJ LL	Heavy paper LL environment fine adjustment	40 - 60	50
	SPECIAL PAPER ADJ LL	Special paper LL environment fine adjustment	40 - 60	50
	WUP&RDY GR ADJ HH	WUP/Ready HH environment fine adjustment	40 - 60	50
	PLAIN PAP ADJ HH	Normal paper HH environment fine adjustment	40 - 60	50
	HEAVY PAPER GR ADJ HH	Heavy paper HH environment fine adjustment	40 - 60	50
	SPECIAL PAPER ADJ HH	Special paper HH environment fine adjustment	40 - 60	50
SW_B	PLAIN PAP&WUP& RDY GR	Used to change the fusing temperature setting of plain paper 1, WUP, and Ready series	30 - 70	50
	PLAIN PAPER 2	Used to change the fusing temperature setting of plain paper 2	30 - 70	50
	HEAVY PAPER GR	Used to change the fusing temperature setting of heavy paper series	30 - 70	50
	THIN PAPER GR	Used to change the fusing temperature setting of thin paper series	30 - 70	50
	RECYCLED PAPER GR	Used to change the fusing temperature setting of recycled paper series	30 - 70	50
	GLOSSY PAPER GR	Used to change the fusing temperature setting of gloss paper series	30 - 70	50
	ENV PAPER GR	Used to change the fusing temperature setting of envelope series	30 - 70	50
	OHP PAPER	Used to change the fusing temperature setting of OHP paper	30 - 70	50
	FUSING CONDITION ADJ	Fusing condition adjustment setting	0 - 5	0
	WUP&RDY GR ADJ LL	WUP/Ready LL environment fine adjustment	40 - 60	50
	PLAIN PAP ADJ LL	Normal paper LL environment fine adjustment	40 - 60	50
	HEAVY PAPER GR ADJ LL	Heavy paper LL environment fine adjustment	40 - 60	50
	SPECIAL PAPER ADJ LL	Special paper LL environment fine adjustment	40 - 60	50

Item	Display	Content	Setting range	Default
SW_B	WUP&RDY GR ADJ HH	WUP/Ready HH environment fine adjustment	40 - 60	50
	PLAIN PAP ADJ HH	Normal paper HH environment fine adjustment	40 - 60	50
	HEAVY PAPER GR ADJ HH	Heavy paper HH environment fine adjustment	40 - 60	50
	SPECIAL PAPER ADJ HH	Special paper HH environment fine adjustment	40 - 60	50

SW-A Setting value when plain paper is selected in the system setting/ device setting/fusing control setting.

SW-B Set value when heavy paper is selected in the system setting/ device setting/fusing control setting.

43-2

Purpose Setting

Function (Purpose) Fuser motion & preheat setup

Section

Operation/Procedure

1) Select the SW-A or the SW-B with 10 keys.
2) Press [OK]/[START] key.
3) Select an item to be set with Arrow keys.
4) Enter the set value with 10 keys.
5) Press [OK]/[START] key.
   The set value in step 4) is saved.

Item / Display		Content	Setting range	Default value
1	WARMUP FUMON TH_UM T	Fusing motor previous rotation start TH_UM set value	0 - 200	List of Default values and set values for each destination
2	WARMUP FUMOFF	Fusing motor previous rotation complete time	0 - 255	
3	WARMUP END TIME	Warm-up complete time	0 - 255	
4	HI WU FM ON TMP	FM preliminary rotation start TH_UM when warming up at alpha degree C or above	0 - 200	
5	HI WU END TIME	Warm-up completion time when warm-up at alpha degree C or above	0 - 255	
6	LO WARMUP TIME	Setting value applying time in warm-up of 120 degrees C or below (Timer from Ready completion)	0 - 255	
7	HI WARMUP TIME	Setting value applying time in warm-up of 120 degree C or above (Time from Ready completion)	0 - 255	
8	HI WARMUP BORDER	Threshold value alpha to apply the setting value in warm-up of alpha degree C or above	1 - 119	
9	JOBEND FUMON TIME	After-rotation time after completion of a job	0 - 255	
10	TH_UM E-STAR	TH_UM set value when preheating	30 - 200	
11	TH_US E-STAR	TH_US set value when preheating	30 - 200	
12	TH_UM PRE-JOB	TH_UM set value from recovering the preheating	30 - 200	

List of Default values and set values for each destination

Item	Default value (35 ppm)			
	SW_A		SW_B	
	Group B	Group C	Group B	Group C
1	165	165	100	100
2	5	5	5	5
3	10	10	30	30
4	165	165	100	100
5	10	10	30	30
6	0	0	0	0
7	0	0	0	0
8	60	60	60	60
9	5	5	5	5
10	150	155	150	155
11	150	155	150	155
12	185	185	190	190

Item	Default value (45 ppm)			
	SW_A		SW_B	
	Group B	Group C	Group B	Group C
1	175	175	100	100
2	5	5	5	5
3	10	10	30	30
4	175	175	100	100
5	10	10	30	30
6	0	0	0	0
7	0	0	0	0
8	60	60	60	60
9	5	5	5	5
10	160	165	160	165
11	160	165	160	165
12	195	195	200	200

SW-A Setting value when plain paper is selected in the system setting/ device setting/fusing control setting.

SW-B Set value when heavy paper is selected in the system setting/ device setting/fusing control setting.

43-20

Purpose	Adjustment/Setup
Function (Purpose)	Fuser motion & preheat adj (LL)
Section	

Operation/Procedure

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

Correction value: -49 - +49, Input value: Actually inputted value (1 - 99)

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

Item / Display		Content	Setting range	Default value
1	WARMUP FUMON TH_UM T LL	Correction value for fusing motor pre-rotation start TH_UM set value under LL environment	1 - 99	40
2	WARMUP FUMOFF LL	Fusing motor prior rotation completion time under LL environment	1 - 99	60
3	WARMUP END TIME LL	Correction value for warm-up completion time under LL environment	1 - 99	75
4	HI_WU_FM_ON_TMP_LL	Correction value for FM prior rotation start TH_UM in warm-up at alpha degree C or above under LL environment	1 - 99	40
5	HI_WU_END_TIME_LL	Correction value for warm-up completion time in warm-up at alpha degree C or above under LL environment	1 - 99	50
6	LO_WARMUP_TIME_LL	Correction value of the setting value applying time in warm-up of 120degree C or below under LL environment (Time from Ready completion)	1 - 99	50
7	HI_WARMUP_TIME_LL	Correction value of the setting value applying time in warm-up of 120degree C or above under LL environment (Time from Ready completion)	1 - 99	50
8	HI_WARMUP_BORDER_LL	Correction value of the threshold value alpha to apply the setting value in warm-up of alpha degree C or above under LL environment	1 - 99	50
9	JOBEND_FUMON_TIME LL	Correction value for the after rotation time when completing a job under LL environment	1 - 99	50
10	TH_UM E-STAR LL	Correction value for preheating TH_UM set value under LL environment	1 - 99	55
11	TH_US E-STAR LL	Correction value for preheating TH_US set value under LL environment	1 - 99	55
12	TH_UM PRE-JOB LL	Correction value for the set value of TH_UM when restoring from preheating under LL environment	1 - 99	55

* Item WARMUP END TIME LL: 1 Count = 1s Change
Correction value for the other items: 1 count for 1degrees C change

43-21

Purpose	Adjustment/Setup
Function (Purpose)	Fuser motion & preheat adj (HH)
Section	

Operation/Procedure

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

Correction value: -49 - +49, Input value: Actually inputted value (1 - 99)

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

Item / Display		Content	Setting range	Default value
1	WARMUP FUMON TH_UM T HH	Fusing motor previous rotation start TH_UM set value	1 - 99	50
2	WARMUP FUMOFF HH	Fusing motor previous rotation completion time	1 - 99	50
3	WARMUP END TIME HH	Warm-up completion time	1 - 99	50
4	HI_WU_FM_ON_TMP HH	FM preliminary rotation start TH_UM when warming up at alpha degree C or above	1 - 99	50
5	HI_WU_END_TIME HH	Warm-up completion time when warm-up at alpha degree C or above	1 - 99	50
6	LO_WARMUP_TIME_HH	Correction value for AF - AH application time (Time from Ready complete)	1 - 99	50
7	HI_WARMUP_TIME HH	Correction value for AJ - AL application time (Time from Ready complete)	1 - 99	50
8	HI_WARMUP_BORDER_HH	Threshold value alpha to which AN - AP is applied	1 - 99	50
9	JOBEND_FUMON_TIME HH	After-rotation time after completion of a job	1 - 99	50
10	TH_UM E-STAR HH	TH_UM set value when preheating	1 - 99	50
11	TH_US E-STAR HH	TH_US set value when preheating	1 - 99	50
12	TH_UM PRE-JOB HH	Resetting from preheating TH_UM set value	1 - 99	50

* Item WARMUP END TIME HH: 1 Count = 1s Change
Correction value for the other items: 1 count for 1 degrees C change

43-24

Purpose	Adjustment/Setup
Function (Purpose)	Fuser motion setup2
Section	

Operation/Procedure

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

Correction value: -49 - +49, Input value: Actually inputted value (1 - 99)

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

Item / Display		Content	Setting Value	Default value
1	COOL_DOWN _HEAVY	Cool down time (Heavy paper)	1-60	List of Default values and set values for each destination
2	COOL_DOWN _OHP	Cool down time (OHP)	1-60	
3	COOL_DOWN _ENVELOPE	Cool down time (Envelope)	1-60	
4	POWER SET	Power supply voltage 1:100V, 2 :110 - 120V, 3 : 220 - 240V	1-3	

* Each cool down time: 1 count = 1sec change

List of destination groups

Group	Destination			
Group B	U. S. A	CANADA	INCH	TAIWAN
Group C	EUROPE	U. K	AUS.	AB

List of Default values and set values for each destination

Item	Default value (35 ppm)		Default value (45 ppm)	
	Group B	Group C	Group B	Group C
1	10	10	10	10
2	10	10	10	10
3	10	10	10	10
4	2	3	2	3

43-35

Purpose	Adjustment and setting
Function (Purpose)	Fuser nip check
Section	Fusing

Operation/Procedure

1) After entering the setting item with the 10 key, pressing the OK / start key sets the input value.
2) After setting the input value, pressing the start key will make the EXEC black inversion, Self-printing currently set is started.

Item/Display item			Content	Setting range		Default value
A	PAPER	MFT	Cassette selection	1 - 3	1	2
		CS1			2	
		CS2			3	

44

44-1

Purpose	Setting
Function (Purpose)	Mode setting
Section	Image process (Photo conductor/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]/[START] key.
   The set value in step 2) is saved.

Important

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

Item/ Display	Content	Setting range	Default value
HV	Normal operation high density process control Enable/Disable setting	Allow:0 Inhibit:1	0
HT	Normal operation halftone process control Enable/Disable setting		0
TN_PIX_ SUP	Setting of Enable/Disable of toner supply control for the yield count		0
TN_FB	Enable/Disable setting of FEEDBACK toner supply control		0
TN_INT	Enable/Disable setting of the interval toner supply control		0
TN_REC V	Enable/Disable setting of developer recovery		0
TN_ADJ	Enable/Disable setting of the sensor output adjustment		0
TN_EMP	Setting of Enable/Disable of the toner falling distance detection control		0
TN_EMP _INT	Setting of Enable/Disable of the toner falling distance detection control of job interruption		0
TN_EMP _NEW	Enable/Disable setting of fall amount detection control of a new cartridge		0
TN_PIX_ TBL	Enable/Disable setting of toner supply control by the yield count		0
PRT_HT	Enable/Disable setting of printer correction feedback of half-tone process control		0
MD LD	Enable/Disable setting of the membrane decrease laser power voltage correction		0
MD LD EV	Enable/Disable setting of environmental area and the membrane decrease count laser power voltage correction		0
MD LD HV	Enable/Disable process control laser power voltage correction		0
MD DL	Enable/Disable setting of the membrane decrease discharge light quantity correction		0
MD DL EV	Enable/Disable setting of the membrane decrease environment discharge quantity correction		0
MD DV LIFE	Implementation of fluctuation of developing bias and compensation by film thickness reduction correction count		0
MD EV LIFE	Implementation of correction by environmental area and film reduction correction count		0
MD DV EV	Implementation of development bias variation and environmental area correction		0
TC	Enable/Disable setting of transfer output correction		0

44-2

Purpose	Adjustment/Setup
Function (Purpose)	Process control gain adjustment
Section	Process

Operation/Procedure

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

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

Item/Display		Content
1	PCS K LED ADJ	Image density sensor sensitivity
2	PCS K DARK	Image density sensor dark voltage
3	PCS K GRAND	Drum surface detection level
4	PCS V1	Linearity correction
5	PCS V2	
6	PCS V3	
7	PCS V4	
8	PCS V5	
9	PCS K DRM MAX	Drum surface detection level max value
10	PCS K DRM MIN	Drum surface detection level min value
11	PCS K DRM DIF	Drum surface detection level difference

Error name	Error content
BK_SEN_ADJ_ERR	Black sensor adjustment abnormality PCS K LED ADJ error The target is not reached by 3 times of adjustments.
P_GRND	Basis material reading abnormality PCS K GRND error Effective difference of the upper and the lower values of the drum element surface.

44-4

Purpose	Setting
Function (Purpose)	Process control initial density setup
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]/[START] key.
   The set value in step 2) is saved.

Important

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

Item/Display		Content	Default value
1	PCS TARGET	Sensor target value	210
2	LED K OUTPUT	Sensor light emitting quantity value	21
3	PCS ADJ LIM	Sensor adjustment target limit value	10
4	DRM GROUND DIF	Effective difference of the upper and lower value of drum element surface	1
5	B_BK STD DIF	Bias reference calculation difference	30
6	B PAT INT	Patch bias output interval	60
7	K TAR ID	Patch density standard value	50
8	K TAR ID LOWER 1	Patch density correction value	100
9	HV BK_GR LIM	Surface light reception effective area value at the patch position	60
10	TARGET LOWER LIMIT	Sensor lower target value	179
11	LED ADJ FINE STEP	LED fine adjustment step	1
12	LED ADJ ROUGH STEP	LED rough adjustment step	2
13	LED UPPER LIMIT	LED upper limit value	255
14	LED LOWER LIMIT	LED lower limit value	5

44-6

Purpose	Adjustment
Function (Purpose)	High density/engine halftone process control compulsory execution
Section	Process

Operation/Procedure

When [OK]/[START] 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.

<Execution item>

Item	Content
HIGH DENSITY MID	High density process control Middle speed
HIGH DENSITY LOW	High density process control Low speed
ENGINE HALFTONE MID	Engine halftone process control Middle speed
ENGINE HALFTONE LOW	Engine halftone process control Low speed

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

Details of error display	Content description
BK_SEN_ADJ_ERR	Black image sensor adjustment abnormality
K_HV_ERR	K high density process control abnormality
K_EHT_ERR	K process control abnormality
TIMEOUT_ERR	Time out

44-9

Purpose	Operation data display
Function (Purpose)	Process control data display
Section	Image process (Photo conductor/Developing/Transfer/Cleaning)

Operation/Procedure

1) Select 1 or 2 with 10 key or select item with ↑ ↓ key.
2) Press the OK key to move to the target item page.
3) Switch pages using the ↑ ↓ key.

* Update data every 5 seconds

44-12

Purpose	Operation data display
Function (Purpose)	Process control patch/target data display
Section	Image process (Photo conductor/Developing)

Operation/Procedure

1) Select 1 to 3 with 10 key or select item with ↑ ↓ key.
2) Press the OK key to move to the target item page.
3) Switch pages using the ↑ ↓ key.

44-14

Purpose	Operation data display
Function (Purpose)	Temperature and humidity sensor data display monitor
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	Content	Range	Default value
TH_UM (deg)	Fusing main thermistor detection temperature (Temperature degrees C)	Temperature 0 - 255 degrees 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_AD 1 (deg)	Fusing main thermistor compensation sensor temperature (Temperature degrees C)	Temperature 0.0 - 255.0 degrees C(+/-0.1degrees C)	Measured value
TH_UM_AD 1 (hex)	Fusing main thermistor compensation sensor, AD value V	AD value 0 - 1023	Measured value
TH_UM_AD 2 (hex)	Fusing main thermistor 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 - 255 degrees C(+/- 1degrees C)	Measured value
TH_US_AD (hex)	Fusing sub thermistor AD input value (AD value)	AD value 0 - 1023	Measured value
TH_US2 (deg)	Fusing sub thermistor detection temperature (Temperature degrees C)	Temperature 0 - 255 degrees C(+/- 1degrees C)	Measured value
TH_US2_AD (hex)	Fusing sub thermistor2 AD input value (AD value)	AD value 0 - 1023	Measured value
TH_M (deg)	Multipurpose tray temperature sensor AD value (Temperature degrees C)	Temperature -40.0 degrees 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

* above AD values are changed to hexadecimal

44-15

Purpose	Setting
Function (Purpose)	Drum control setting
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]/[START] key.
   The set value in step 2) is saved.

Item/ Display		Content	Setting range	Default value
1	TIME	Idle rotation interval (time interval between the previous OPC drum idle rotation and the next one) setting (h)	0 - 255	6
2	AREA1	Environmental area difference judgment threshold value setting (difference between the previous OPC drum idle rotation and the current one)	0 - 5	2
3	AREA2	Environmental area conditions (AND condition of the previous OPC drum idle rotation and the current one)	1 - 15	1
4	CYCLE	Previous rotation time setting (sec) in the process control when recovered from power ON, preheating/sleep mode.	0 - 255	0
5	FLAG	OPC drum idle rotation is allowed or disabled.	0 - 1 (0 : Allow 1 : Disable)	0

44-17

Purpose	Setting
Function (Purpose)	Process refresh execution
Section	Process

Operation/Procedure

Select the item to be executed with the 10 key and press the OK key, the EXEC black inverts and starts execution.

NOTE: Do not execute this simulation unless specially required.

Display items and descriptions of contents

Display	Content
TC	Transfer roller refresh
DEVE	Development refresh

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

44-21

Purpose	Adjustment/Setup
Function (Purpose)	Halftone process control standard value register setup
Section	Process

Operation/Procedure

Tap [EXECUTE] key.

The halftone process control target is set and the operation data are displayed.

Item/Display		Content	Range
K	#1 - #17	Half-tone correction values each color	0 - 255

Display	Content
BK_SEN_ADJ_ERR	Black image density sensor sensitivity adjustment error
[K]	High density process control error [K]
OTHER	Other errors

44-22

Purpose	Operation data display
Function (Purpose)	Halftone correct result display
Section	Process

Operation/Procedure

1) The toner patch density level made in the halftone process control operation is displayed.

44-24

Purpose	Operation data display
Function (Purpose)	Halftone process control result display
Section	Process

Operation/Procedure

1) Select the display category with 10 keys.
2) Select a target adjustment item with [OK]/[START] 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)	Halftone process control initial value display
Section	Process

Operation/Procedure

1) Select the display category with 10 keys.
2) Select a target adjustment item with [OK]/[START] key.
3) Enter the set value with 10 keys.
4) Press [OK]/[START] key.

Important

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

Item/Display		Content	Setting range	Default value
				K
1	HIGHTLIGHT LIMIT K	Highlight correction amount limit value	0 - 128	20
2	MAX LIMIT K	Maximum density value correction limit value	0 - 128	20

44-26

Purpose	Adjustment/Setup
Function (Purpose)	Halftone density correct execution
Section	Process

Operation/Procedure

Press [OK]/[START] key.

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

Item/Display		Content	Range
K	#1 - #17	Half-tone correction values each color	0 - 255

COMPLETE	Normal complete
BK_SEN_ADJ_ERR	Black image density sensor sensitivity adjustment error
[K]	High density process control error [K] error
OTHER	Other errors

44-27

Purpose	Data clear
Function (Purpose)	Halftone process control adjustment data clear
Section	Process

Operation/Procedure

Press [OK] key, initialization of the target item is executed.

The correction data of the halftone process control are cleared.

44-28

Purpose	Adjustment/Setup
Function (Purpose)	Process control timing adjustment
Section	Process

Operation/Procedure

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

Important

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

Item/Display			Content		Setting range	Default value
1	INITIAL	YES	When warm-up after clearing the counter of the OPC drum and the developer unit	Enable	0	0
		NO		Disable	1	
2	SW ON		When supplying the power (when canceling power shut-off)	Process control Disable	1	3
				BK process control Enable	2	
				Pixel count judgment	3	

Item/Display			Content		Setting range	Default value
3	TIME		After passing the specified time from leaving READY continuously (Time can be changed by INTERVAL TIME)	Process control Disable	1	3
				BK process control Enable	2	
				Pixel count judgment	3	
4	HUM_LIMIT		HUM judgment is made when turning ON the power and after passing INTERVAL TIME.	Process control Disable	1	2
				BK process control Enable	2	
5	HUM		The temperature and humidity inside the machine are monitored only during a job at the interval set by the item of HUM HOUR. When the changes in the temperature and the humidity are greater than the specified level (the set value of item HUM DIF) in comparison with the previous process control.	Process control Disable	1	2
				BK process control Enable	2	
6	REV1	YES	When the accumulated traveling distance of K OPC drum unit reaches the specified level after turning ON the power.	Enable	0	0
		NO		Disable	1	
7	REV2 _BK	YES	When the accumulated traveling distance of K OPC drum unit reaches the specified level from execution of the previous density correction.	Enable	0	0
		NO		Disable	1	
8	REFRESH MODE	YES	Select of YES/NO of the manual process control key with key operation	Key operation display	0	1
		NO		Key operation NO display	1	
9	DAY		When there is no job from when the previous process control was performed to when the number of days set by this item setting, perform the process control when executing the next warming up.	0: Disable of the specified days judgment	0	1
				1 - 999: 1 - 999 days passing	999	

Item/Display		Content		Setting range	Default value
10	HI-COV	Setting of the execution conditions of the process control for the print ratio	The process control is performed by considering the average print ratio of every 10 pages as the judgment criteria.	0	0
			Print ratio judgment inhibit (The process control for the target of print ratio is not performed.)	1	
			The process control is performed by considering the average print ratio of 30 pages as the judgment criteria in a continuous print job of 30 or more pages.	2	
11	LO-COV	Setting of the execution judgment of the process control in continuous printing of low print ratio images	Enable	0	1
			Disable	1	
12	TonerCA-END	Setting of the process control interval reduction when the toner cartridge remaining quantity is 25% or less (If this is set to Enable, item M RATIO is changed.)	Enable	0	1
			Disable	1	
13	JOB STOP	JOB interruption process control	Enable	0	0
			Disable	1	
14	AVERAGE-PAGE	Setting of the number of pages of item	10 pages	1	5
			50 pages	5	
15	LIMIT PAGE	Setting of the number of connected jobs of the process control and of the limit number of the process control	10 pages	1	10
			990 pages	99	

Item/Display		Content		Setting range	Default value
16	PIX_RATIO_BK	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%.		0 - 999	10
17	INTERVAL TIME	Setting of the leaving time when turning ON the power (including the sleep recovery time) (h: hour)		1 - 255	2
18	HUM HOUR	Interval setting of the temperature and humidity monitoring time of "HUM" (unit: 10 minutes)		1 - 24	2
19	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
20	BK_RATIO	Magnification ratio setting (%) of the specified value of the BK OPC drum traveling distance of "REV2_BK"		1 - 999	15
21	REV1_RATIO	Magnification ratio setting (%) of the REV1 OPC drum traveling distance of "REV1"		1 - 255	20
22	LOW RATIO	Process control in low mode execution interval		1 - 999	15
23	HT_DIF	HT process control execution judgment developing bias variation value		1 - 255	60
24	HT TYPE	Halftone process control in middle mode	Enable	0	0
			Disable	1	
25	TC CLEAN TIME	TC cleaning execution time		5 - 999	100
26	DRUM_REVERSE	Drum reverse rotation	Enable	0	1
			Disable	1	

44-29

Purpose Setting

Function (Purpose) Halftone setting

Section Process

Operation/Procedure

1) Enter the set value with 10-key.
2) Press [OK] key.

Item/ Display		Content	Setting range		Default value
1	COPY	During copy job	0 - 2	0: No execution 1: HV only 2: HV -> HT	2
2	PRINTER	During print job			2
3	FAX	During FAX print job			2
4	SELF PRINT	During self print			2
5	HT RETRY	Halftone process control retry setting	1 - 255		6
6	HT TARGET RETRY	Halftone process control standard value registration retry	1 - 255		3
7	HT RETRY SET	Halftone process control retry setting	0	Enable	0
			1	Disable	

HV: High density process control

HT: Halftone process control

44-37

Purpose Adjustment/Setup

Function (Purpose) Image density adjustment setting

Section

Operation/Procedure

1) Select a set target color with the touch panel.
2) Select a target item with scroll keys.
3) Enter the set value with 10-key.
4) Tap [OK] key. (The set value is saved.)

Note

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

Item/Display		Content		Setting range	Default value
A	MUL_MHV_ADJ	Multi-grid bias correction enable/ disable setting	Enable	0	0
			Disable	1	
B	MUL_DV_ADJ	Multi-fusing bias correction enable/ disable setting	Enable	0	1
			Disable	1	

44-43

Purpose Data display

Function (Purpose) Developer unit AD monitor

Section Developing system

Operation/Procedure

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

Item/Display		Content	Setting range
1	DVCH KIND K	K color development unit identification number	0 - 255

44-62

Purpose	Setup/Adjustment
Function (Purpose)	Process control setting collective input
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.

   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.

Display/Item			Content
PROCON TARGET	0	NORMAL(0)	Standard density
	1	ID DOWN(-2)	Density decreases (high density process control target value decreases)
	2	ID DOWN(-1)	
	3	ID UP(+1)	Density increases (high density process control target value increases)
	4	ID UP(+2)	
	5	CUSTOM	CUSTOM Customized density
PROCON MODE	0	NORMAL	Process control is executed in the standard frequency
	1	PRINT PERFORMANCE2	Execution frequency of the process control is low
	2	PRINT PERFORMANCE1	
	3	HIGH QUALITY1	Execution frequency of the process control is high
	4	HIGH QUALITY2	
	5	CUSTOM	Customized execution frequency

(When PROCON TARGET is selected.)

2A) Select the density level.

(When PROCON MODE is selected.)

2B) Select the execution frequency of the process control.

3) Enter the set value with 10 keys.

4) Press [OK]/[START] key.

   The set value in step 2) is saved.

46

46-2

Purpose	Adjustment (Monochrome copy mode)
Function (Purpose)	Exposure adjustment (Copy)
Section	

Operation/Procedure

1) Select an adjustment target item with scroll key.

2) Enter the set value with 10-key.

   * When the △ ▽ key is tapped, the setting value of each item can be changed with 1up (1down) collectively.

3) Tap [OK] key. (The set value is saved.)

When the adjustment value is increased, the copy density is increased. When the adjustment value is decreased, the copy density is decreased.

Mode	Item/Display		Content	Setting range	Default value
LOW	1	TEXT	Text	1 - 99	50
HIGH				1 - 99	50
LOW	2	TEXT/PRINTED PHOTO	Text/Printed	1 - 99	50
HIGH				1 - 99	50
LOW	3	PHOTOGRAPH	Photograph	1 - 99	50
HIGH				1 - 99	50

46-4

Purpose	Adjustment (Color scanner mode)
Function (Purpose)	Exposure adjustment
Section	

Operation/Procedure

1) Select an adjustment target item with scroll key.

2) Enter the set value with 10-key.

   * When the △ ▽ key is tapped, the setting value of each item can be changed with 1up (1down) collectively.

3) Tap [OK] key. (The set value is saved.)

When the adjustment value is increased, the image density is increased, and vice versa.

Mode	Item/Display		Content	Setting range	Default value
LOW	1	TEXT	Text	1 - 99	50
	2	TEXT/PRINTED PHOTO	Text/Printed Photo	1 - 99	50
	3	PHOTOGRAPH	Photograph	1 - 99	50
HIGH	1	TEXT	Text	1 - 99	50
	2	TEXT/PRINTED PHOTO	Text/Printed Photo	1 - 99	50
	3	PHOTOGRAPH	Photograph	1 - 99	50

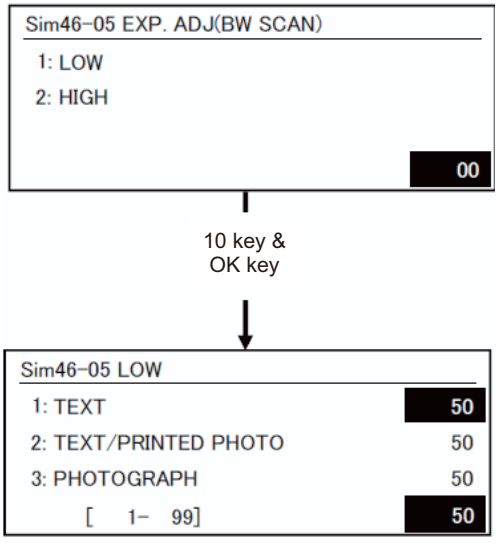
46-5

Purpose	Adjustment (Monochrome scanner mode)
Function (Purpose)	Exposure adjustment
Section	

Operation/Procedure

1) Select the mode to be set (LOW or HIGH) with 10 key.
2) OK key is pressed, the adjustment value of the selected mode is displayed.
3) ↑ ↓ key to switch the setting item, and input the set value with 10 key.
4) Press the OK key. (The set value is saved.)

Mode	Item/Display		Content	Setting range	Default value
LOW	1	TEXT	Text	1 - 99	50
	2	TEXT/PRINTED PHOTO	Text/Printed Photo	1 - 99	50
	3	PHOTOGRAPH	Photograph	1 - 99	50
HIGH	1	TEXT	Text	1 - 99	50
	2	TEXT/PRINTED PHOTO	Text/Printed Photo	1 - 99	50
	3	PHOTOGRAPH	Photograph	1 - 99	50



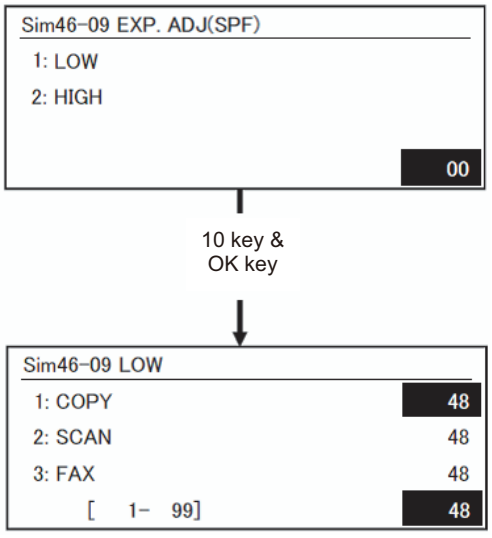
46-9

Purpose	Adjustment (DSPF/RSPF mode)
Function (Purpose)	Exposure adjustment
Section	

Operation/Procedure

1) Select the mode to be set (LOW or HIGH) with 10 key.
2) OK key is pressed, the adjustment value of the selected mode is displayed.
3) ↑ ↓ key to switch the setting item, and input the set value with 10 key.
4) Press the OK key. (The set value is saved.)

Item/Display			Content	Setting range	Default value
1	LOW	COPY	RSPF copy mode exposure adjustment (Low density side)	1 - 99	48
2		SCAN	RSPF scanner mode exposure adjustment (Low density side)	1 - 99	48
3		FAX	RSPF FAX mode exposure adjustment (Low density side)	1 - 99	48
1	HIGH	COPY	RSPF copy mode exposure adjustment (High density side)	1 - 99	53
2		SCAN	RSPF scanner mode exposure adjustment (Low density side)	1 - 99	53
3		FAX	RSPF FAX mode exposure adjustment (high density)	1 - 99	53



46-16

Purpose	Adjustment
Function (Purpose)	Monochrome copy gradation manual adjustment
Section	

Operation/Procedure

1) ↑ ↓ key to switch the setting item, and input the set value with 10 key.
2) Press the OK key. (The set value is saved.)

Item/Display		Density level (Point)	Setting range	Default value
1	POINT1 K	Point 1	1 - 255	128
2	POINT2 K	Point 2	1 - 255	128
3	POINT3 K	Point 3	1 - 255	128
4	POINT4 K	Point 4	1 - 255	128
5	POINT5 K	Point 5	1 - 255	128
6	POINT6 K	Point 6	1 - 255	128
7	POINT7 K	Point 7	1 - 255	128
8	POINT8 K	Point 8	1 - 255	128
9	POINT9 K	Point 9	1 - 255	128
10	POINT10 K	Point 10	1 - 255	128
11	POINT11 K	Point 11	1 - 255	128
12	POINT12 K	Point 12	1 - 255	128
13	POINT13 K	Point 13	1 - 255	128
14	POINT14 K	Point 14	1 - 255	128
15	POINT15 K	Point 15	1 - 255	128
16	POINT16 K	Point 16	1 - 255	128
17	POINT17 K	Point 17	1 - 255	128

46-19

Purpose	Setting
Function (Purpose)	Monochrome exposure mode setup
Section	

Operation/Procedure

1) Select an item to be set with 10 keys.
2) Press [OK] key.(The set value is saved.)

Item/Display	Content	Setting range	Default value
AE_MODE	0: Real time process, 1: Stop process at the edge	0 - 1	1

46-23

Purpose	Adjustment/Setup
Function (Purpose)	Copy maximum density adjustment mode
Section	

Operation/Procedure

1) Enter the set value with 10-key.

0	Enable
1	Inhibit

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

Item/Display		Content		Setting range	Default value
1	K	Engine highest density correction mode: Enable	0	0~1	1
		Engine highest density correction mode: Disable	1		
2	BLACK MAX TARGET	Scanner target value for BLACK max. density correction		0~999	500

* When tone gap is generated in the high density area, set item 1 to "0".

The density of high density part decreases. However, the tone gap is better.

* To increase the density in the high density area further, set item 1 to "1".

The tone gap may occur in high density part.

Important

Do not change the values of item 2. If these values are changed, the density in the high density area is changed.

46-24

Purpose	Adjustment
Function (Purpose)	Copy gradation auto adjustment
Section	

Operation/Procedure

1) Press [OK]/[START] key.

   The color patch image (adjustment pattern) is printed out.
2) Plate the printed adjustment pattern on the document table.
3) Press [OK]/[START] key.

   The copy color balance automatic adjustment is performed, then the adjustment result pattern is printed.
4) Press [OK]/[START] key.

   The half tone correction target registration is processed.
5) After completing the self-printing, it transits to the registration processing start waiting screen.

   Pressing the OK / Start key, the correction amount is saved.
6) After completing the all registration process normally, it transits to the halftone process control execution screen.
   When the OK / start key is pressed, the halftone process control works.
7) After normal completion of halftone process control process, transition to the halftone process result display screen.

46-32

Purpose	Adjustment/Setup
Function (Purpose)	Limit of AE reaction setting
Section	

Operation/Procedure

1) Select an item to be set with 10 keys.
2) Press [OK] key.(The set value is saved.)

When the adjustment value is increased, reproducibility of the background and the low density image is increased. When the adjustment value is decreased, reproducibility of the background and the low density image is decreased.

Item/Display		Content	Setting range	Default value
1	AE CONTROL: BW COPY	Limit of AE reaction setting (MONO COPY)	0 - 255	160
2	AE CONTROL: FAX	Limit of AE reaction setting (FAX)	0 - 255	160
3	AE CONTROL: CL PUSH	Limit of AE reaction setting (COLOR PUSH)	0 - 255	160
4	AE CONTROL: BW PUSH	Limit of AE reaction setting (MONO PUSH)	0 - 255	160

46-37

Purpose	Adjustment/Setup
Function (Purpose)	Monochrome image create adjustment
Section	

Operation/Procedure

1) Enter the set value with 10 keys.
2) Press [OK]/[START] key.(The set value is saved.)

This is to adjust the reproduction capability of red and yellow images when scanning color documents with red and yellow images in the monochrome mode.

Item/Display		Content	Setting range	Default value
1	R-ratio	Gray making setting (R)	0 - 999	183
2	G-ratio	Gray making setting (G)	0 - 999	737

B=1000-R-G	Print gray making setting (B) (1000-(R-ratio)-(G-ratio))

When the adjustment value of adjustment item A is increased, scan density of red image is decreased. When the adjustment value is decreased, scan density of red image is increased.

When the adjustment value of adjustment item B is increased, scan density of yellow image is decreased. When the adjustment value is decreased, scan density of yellow image is increased.

46-39

Purpose	Adjustment/Setup
Function (Purpose)	Image send sharpness adjustment
Section	

Operation/Procedure

1) Enter the value with the 10 key and store the set value with the start key.
2) When the start key is pressed, reading operation and printing are performed.

Input small numeric value to obtain crispy image. Input large numeric value to decrease moire.

Item/Display		Content	Setting range	Default value
1	STD	Normal	0 - 2	1
2	FINE	Fine	0 - 2	1
3	S-FINE	Super Fine	0 - 2	1
4	FINE/HT	Fine + Halftone	0 - 2	1
5	S-FINE/HT	Super Fine + halftone	0 - 2	1

46-40

Purpose	Adjustment/Setup
Function (Purpose)	Exposure adjustment FAX:all
Section	

Operation/Procedure

1) Enter the value with the 10 key and store the set value with the start key.
2) When the start key is pressed, reading operation and printing are performed.

Item/Display		Content	Setting range	Default value
1	AUTO	Used to adjust the FAX send image density. (Collective adjustment of all the modes)	1 - 99	50

46-41

Purpose	Adjustment/Setup
Function (Purpose)	Exposure adjustment FAX:normal
Section	

Operation/Procedure

1) Enter the value with the 10 key and select the item with OK / Start key.
2) Enter the value with the 10 key and memorize the set value with OK / Start key.
3) When the start key is pressed, EXEC is reversed, reading operation and printing are performed.

Item/Display		Content	Setting range	Default value
1	AE	Auto exposure value (Normal)	1 - 99	50
2	MANUAL	Manual exposure value (Normal)	1 - 99	50

46-42

Purpose	Adjustment/Setup
Function (Purpose)	Used to adjust the FAX send image density. (Fine)
Section	

Operation/Procedure

1) Enter the value with the 10 key and select the item with OK / Start key.
2) Enter the value with the 10 key and memorize the set value with OK / Start key.
3) When the start key is pressed, EXEC is reversed, reading operation and printing are performed.

Item/Display		Content	Setting range	Default value
1	AE(PHOTO ON)	Automatic exposure value (Fine/HIT)	1 - 99	50
2	AE(PHOTO OFF)	Automatic exposure value (Fine)	1 - 99	50
3	MANUAL(PHOTO ON)	Manual exposure value (Fine/HIT)	1 - 99	50
4	MANUAL(PHOTO OFF)	Manual exposure value (Fine)	1 - 99	50

46-43

Purpose	Adjustment/Setup
Function (Purpose)	Exposure adjustment FAX:fine
Section	

Operation/Procedure

1) Enter the value with the 10 key and select the item with OK / Start key.
2) Enter the value with the 10 key and memorize the set value with OK / Start key.
3) When the start key is pressed, EXEC is reversed, reading operation and printing are performed.

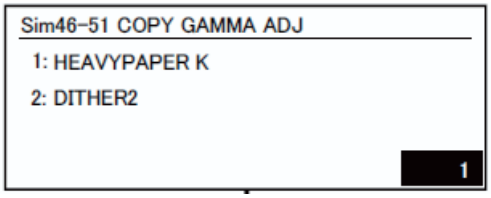
Item/Display		Content	Setting range	Default value
1	AE(PHOTO ON)	Automatic exposure value (Super Fine/HIT)	1 - 99	50
2	AE(PHOTO OFF)	Automatic exposure value (Super Fine)	1 - 99	50
3	MANUAL(PHOTO ON)	Manual exposure value (Super Fine/HIT)	1 - 99	50
4	MANUAL(PHOTO OFF)	Manual exposure value (Super Fine)	1 - 99	50

46-51

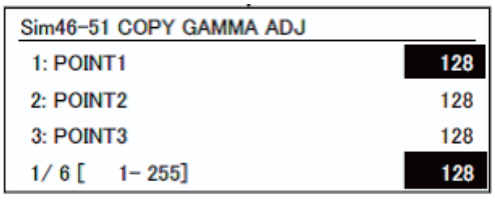
Purpose	Adjustment/Setup
Function (Purpose)	Copy gradation manual adjustment
Section	

Operation/Procedure

1) Select the screen with the 10 key.
2) When the OK key is pressed, the adjustment value of the selected item is displayed.



3) Switch setting items by the ↑ ↓ key.
4) Change the set value with 10 key.
5) Press the OK key to save the setting value



Pressing the start key starts self-printing currently set.

Item/Display		Content
1	HEAVYPAPER K	Copier heavy paper K
2	DITHER2	Monochrome error diffusion

Item/Display		Density level (Point)	Setting range	Default value
1	POINT1	Point 1	1 - 255	128
2	POINT2	Point 2	1 - 255	128
3	POINT3	Point 3	1 - 255	128
4	POINT4	Point 4	1 - 255	128
5	POINT5	Point 5	1 - 255	128
6	POINT6	Point 6	1 - 255	128
7	POINT7	Point 7	1 - 255	128
8	POINT8	Point 8	1 - 255	128
9	POINT9	Point 9	1 - 255	128
10	POINT10	Point 10	1 - 255	128
11	POINT11	Point 11	1 - 255	128
12	POINT12	Point 12	1 - 255	128
13	POINT13	Point 13	1 - 255	128
14	POINT14	Point 14	1 - 255	128
15	POINT15	Point 15	1 - 255	128
16	POINT16	Point 16	1 - 255	128
17	POINT17	Point 17	1 - 255	128

46-52

Purpose	Adjustment/Setup
Function (Purpose)	Copy gradation data clear
Section	

Operation/Procedure

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].
2) Press [OK]/[START] key

Select item (Mode/Image)		Content
Dither	ALL	All dither values
	Heavy Paper	Dither values for heavy paper
	B/W ED	Dither values for the monochrome mode

46-54

Purpose	Adjustment
Function (Purpose)	Copy gradation auto adjustment
Section	

Operation/Procedure

1) Press [OK]/[START] key.
   The color patch image (adjustment pattern) is printed out.
2) Plate the printed adjustment pattern on the document table.
3) Press [OK]/[START] key.
   The copy color balance automatic adjustment is performed, then the adjustment result pattern is printed.
4) Press [OK]/[START] key.
   The half tone correction target registration is processed.
5) After completing the self-printing, it transits to the registration processing start waiting screen.
   Pressing the OK / Start key, the correction amount is saved.
6) After completing the all registration process normally, it transits to the halftone process control execution screen.
   When the OK / start key is pressed, the halftone process control works.
7) After normal completion of halftone process control process, transition to the halftone process result display screen.
8) After normal completion of halftone process control processing, transition to dither selection screen.
   Select the item (dither) you want to adjust the density.
9) Press the OK / Start key. Self printing of 32 patches is started.
10) After completing self-printing, transition to the output patch reading start waiting screen. Set the printed 32 patches on the glass table.
11) Press the OK / Start key. EXEC is highlighted and scanning of the set 32 patches is started.

48

48-1

Purpose Adjustment

Function (Purpose) Ratio adjustment

Section

Operation/Procedure

1) Enter the set value with 10 keys.
2) Press [OK]/[START] key.

The set value in step 1) is saved.

When the adjustment value is increased, the image magnification ratio is increased.

A change of "1" in the adjustment value of item 1, 3, or 5 corresponds

to a change of about 0.02% in the copy magnification ratio.

A change of "1" in the adjustment value of item 2, 4, or 6 corresponds

to a change of about 0.1% in the copy magnification ratio.

Item/Display		Content	Setting range	Default value
1	CCD (MAIN)	SCAN main scanning magnification ratio adjustment (CCD)	1 - 99	50
2	CCD (SUB)	SCAN sub scanning magnification ratio adjustment (CCD)	1 - 99	50
3	SPF (MAIN)	RSPF document front surface magnification ratio adjustment (Main scan)	1 - 99	50
4	SPF (SUB)	RSPF document front surface magnification ratio adjustment (Sub scan)	1 - 99	50
5	SPFB (MAIN)	RSPF document back surface magnification ratio adjustment (Main scan)	1 - 99	50
6	SPFB (SUB)	RSPF document back surface magnification ratio adjustment (Sub scan)	1 - 99	50

48-6

Purpose Adjustment

Function (Purpose) Velocity 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]/[START] 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.

Mode Select		Item/ Display		Content	Setting range	Default value
MONO	MID	1	DM	Drum motor correction value	1 - 99	50
HEAVY1,2	LOW A	1	DM			43
MONO	MID	2	MM	Main motor correction value	1-99	48
HEAVY1,2	LOW A	2	MM			49

49

49-1

Purpose

Function (Purpose) Firmware update

Section

Operation/Procedure

1) Save the firmware to the USB memory.
2) Insert the USB memory into the main unit. (Use USB I/F of the operation panel section.)
3) Select a target firmware file for update.
4) Press [OK]/[START] key.
5) Press [OK]/[START] 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.

50

50-1

Purpose Adjustment

Function (Purpose) Copy edge adjustment

Section

Operation/Procedure

1) Select an adjustment target item with scroll key.
2) Enter the set value with 10-key.
3) Tap [OK] key. (The set value is saved.)

Item/Display			Content	Setting range	Default value
1	Lead edge adjustment value	RRCA	Document lead edge reference position (OC)	0 - 99	50
2	Image loss area setting value	LEAD	Lead edge image loss area setting	0 - 99	10
3		SIDE	Side image loss area adjustment	0 - 99	10
4	Void area adjustment	DENA	Lead edge void area adjustment	1 - 99	40
5		DENB	Rear edge void area adjustment	1 - 99	41
6		FRONT/ REAR	FRONT/REAR void area adjustment	1 - 99	23
7	Off-center adjustment	OFFSET _OC	OC document off-center adjustment	1 - 99	50
8	Magnification ratio correction	SCAN_ SPEED_ OC	SCAN sub scanning magnification ratio adjustment (CCD)	1 - 99	50
9	Sub scanning direction print area correction value	DENB-MFT	Manual feed correction value	1 - 99	50
10		DENB-CS1	Tray 1 correction value	1 - 99	50
11		DENB-CS2	Tray 2 correction value	1 - 99	50
12		DENB-ADU	ADU correction value	1 - 99	50
13		DENB-HV	Heavy paper correction value	1 - 99	50

1. (RRC-A) Timing from starting document scanning to specifying the image lead edge reference is adjusted. (01.mm/step)

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

2. (LEAD) The lead edge image loss amount is adjusted. (0.1mm/step)

* When the value is increased, the image loss is increased.

3. (SIDE) The side image loss amount is adjusted.

* When the value is increased, the image loss is increased. (0.1mm/step)

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

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

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

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

6. (FRONT/REAR) The void amount on the right and left edges of paper is adjusted. (0.1mm/step)

50-5

Purpose	Adjustment
Function (Purpose)	Print edge adjustment
Section	

Operation/Procedure

1) Enter the set value with the 10 key.
2) Press the OK key. (The set value is saved.)
3) Press the OK key.
   The set value is saved.
   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.

Item/Display		Content	Setting range	Default value
1	DEN-C	Used to adjust the print lead edge image position. (PRINTER MODE)	1 - 99	30
2	DEN-B	Rear edge void area adjustment	1 - 99	41
3	FRONT/REAR	FRONT/REAR void area adjustment	1 - 99	23
4	DENB-MFT	Manual feed rear edge void area adjustment correction value	1 - 99	50
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
8	DENB-HV	Heavy paper correction value	1 - 99	50

50-6

Purpose	Adjustment
Function (Purpose)	SPF edge adjustment
Section	SPF

Operation/Procedure

1) Select the item with the ↑ ↓ key and enter the value number with 10 key.
2) Press the OK key. (The set value is saved.)

Item/Display			Content	Setting range	Default value
1	SIDE1		Front surface document scan position adjustment (CCD)	1 - 99	50
2	SIDE2		Back surface document scan position adjustment (CCD)	1 - 99	50
3	Image loss amount setting SIDE1	SIDE1 LEAD_EDGE	Front surface lead edge image loss amount setting	0 - 99	10
4		SIDE1 FRONT_REAR	Front surface side image loss amount setting	0 - 99	10
5		SIDE1 TRAIL_EDGE	Front surface rear edge image loss amount setting	0 - 99	35
6	Image loss amount setting SIDE2	SIDE2 LEAD_EDGE	Back surface lead edge image loss amount setting	0 - 99	10
7		SIDE2 FRONT_REAR	Back surface side image loss amount setting	0 - 99	10
8		SIDE2 TRAIL_EDGE	Back surface rear edge image loss amount setting	0 - 99	35

Item 1, 2: When the adjustment value is increased, the scan timing is delayed.

Item 3 - 8: When the adjustment value is increased, the image loss is increased.

Item 1 - 8: 1 step = 0.1mm change

50-10

Purpose	Adjustment
Function (Purpose)	Manual image position 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]/[START] key.
   The set value in step 2) is saved.

Item/Display			Content		Setting range		Default value
1	BK-MAG		Main scan print magnification ratio		80 - 120		105
2	MAIN-STD		Combined correction value	Standard correction amount (Off center direction)	1 - 99		61
3	SUB-STD			Standard correction amount (Paper feed direction)	1 - 99		47
4	MAIN-MFT		Print off center adjustment value	Manual paper feed	1 - 99		33
5	MAIN-CS1			Tray 1	1 - 99		50
6	MAIN-CS2			Tray 2	1 - 99		50
7	MAIN-ADU			ADU	1 - 99		48
8	SUB-MFT		Registration motor ON timing adjustment	Manual paper feed	1 - 99		50
9	SUB-CS1			Tray 1	1 - 99		50
10	SUB-DSK			DSK	1 - 99		50
11	SUB-ADU			ADU	1 - 99		42
12	SUB-HV-A		Shifting amount value	Heavy1,2	1 - 99		50
13	SUB-HV-B			Heavy3,4	1 - 99		50
14	SUB-GLOSSY PAPER			Glossy	1 - 99		50
15	SUB-OHP			OHP	1 - 99		50
16	SUB-ENV			Envelop	1 - 99		50
17	MULTI COUNT		Number of print		1-999		1
18	PAPER	MFT	Tray selection	Manual paper feed	1-3	1	2
		CS1		Tray 1		2	
		CS2		Tray 2		3	
19	DUPLEX	YES	Duplex print selection	YES	0-1	0	1
		NO		NO		1	

50-12

Purpose	Adjustment
Function (Purpose)	Original center offset setup
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.

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

1step = 0.1mm

Item/Display		Content	Setting range	Default value
1	OC	Document table image off-center adjustment	20-80	50
2	SPF (SIDE1)	SPF front surface image off-center adjustment	20-80	50
3	SPF (SIDE2)	SPF back surface image off-center adjustment	20-80	50

51

51-1

Purpose	Adjustment/Setup
Function (Purpose)	Transcription timing setup
Section	

Operation/Procedure

1) Enter the set value with the 10 key.
2) Press the OK key. (The set value 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.

Item/Display		Content	Default value
1	TC ON TIMING	Transfer voltage ON timing setting	35
2	TC OFF TIMING	Transfer voltage OFF timing setting	40
3	FRONT EDGE ON TIMING	Front edge bias ON timing setting	35
4	BACKEND OFF TIMING	Rear edge bias OFF timing setting	50
5	DHV ON TIMING	Separation output ON timing setting	50
6	DHV OFF TIMING	Separation output OFF timing setting	50

51-2

Purpose	Adjustment/Setup
Function (Purpose)	Regist roller adjustment
Section	

Operation/Procedure

1) Enter the value with 10 key and select the item with OK / Start key.
2) Enter the set value with the 10 key.
3) Press the OK key. (The set value is saved.)

Mode	Display/Item		Content	Default value
SIDE1	1	PLAIN_HIGH	RSPF front surface document deflection amount adjustment value (Normal/Plain paper/HIGH)	50
	2	PLAIN_LOW	RSPF front surface document deflection amount adjustment value (Normal/Plain paper/LOW)	50
	3	THIN _HIGH	RSPF front surface document deflection amount adjustment value (Normal/Thin paper/HIGH)	50
	4	THIN _LOW	RSPF front surface document deflection amount adjustment value (Normal/Thin paper/LOW)	50
SIDE2	1	PLAIN_ HIGH	RSPF back surface document deflection amount adjustment value 1 (Normal/Plain paper/HIGH)	50
	2	PLAIN_ LOW	RSPF back surface document deflection amount adjustment value 1 (Normal/Plain paper/LOW)	50
ENGINE	1	TRAY 1 PLAIN S	Main unit cassette 1 (Upper stage)/deflection adjustment value (Plain paper/Small size)	60
	2	TRAY 1 PLAIN L	Main unit cassette 1 (Upper stage)/deflection adjustment value (Plain paper/Large size)	60
	3	TRAY 2 PLAIN S	Main unit cassette 2 (Lower stage)/deflection adjustment value (Plain paper/Small size)	50
	4	TRAY 2 PLAIN L	Main unit cassette 2 (Lower stage)/deflection adjustment value (Plain paper/Large size)	50
	5	TRAY 2 HEAVY A S	Main unit cassette 2 (Upper stage)/deflection adjustment value (Heavy paper A/Small size)	50
	6	TRAY 2 HEAVY A L	Main unit cassette 2 (Upper stage)/deflection adjustment value (Heavy paper A/Large size)	50
	7	TRAY 2 HEAVY B S	Main unit cassette 2 (Upper stage)/deflection adjustment value (Heavy paper B/Small size)	50
	8	TRAY 2 HEAVY B L	Main unit cassette 2 (Upper stage)/deflection adjustment value (Heavy paper B/Large size)	50
	9	MANUAL PLAIN S	Manual feed tray/deflection adjustment value (Plain paper/Small size)	30
	10	MANUAL PLAIN L	Manual feed tray/deflection adjustment value (Plain paper/Large size)	30
ENGINE	11	MANUAL HEAVY A S	Manual feed tray/deflection adjustment value (Heavy paper A/Small size)	30
	12	MANUAL HEAVY A L	Manual feed tray/deflection adjustment value (Heavy paper A/Large size)	30
	13	MANUAL HEAVY B S	Manual feed tray/deflection adjustment value (Heavy paper B/Small size)	30
	14	MANUAL HEAVY B L	Manual feed tray/deflection adjustment value (Heavy paper B/Large size)	30
	15	MANUAL OHP	Manual feed tray/deflection adjustment value (OHP)	30
	16	MANUAL ENV	Manual feed tray/deflection adjustment value (Envelop)	30
	17	MANUAL LABEL	Manual feed tray/deflection adjustment value (Label)	30
	18	ADU PLAIN S	ADU/deflection adjustment value (Plain paper/Small size)	30
	19	ADU PLAIN L	ADU/deflection adjustment value (Plain paper/Large size)	30
	20	ADU HEAVY A S	ADU/deflection adjustment value (Heavy paper A/Small size)	30
	21	ADU HEAVY A L	ADU/deflection adjustment value (Heavy paper A/Large size)	30
	22	ADU HEAVY B S	ADU/deflection adjustment value (Heavy paper B/Small size)	30
	23	ADU HEAVY B L	ADU/deflection adjustment value (Heavy paper B/Large size)	30

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.)

53

53-8

Purpose	Adjustment
Function (Purpose)	SPF scanning position adjustment
Section	

Operation/Procedure

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

Item/Display	Content	Setting range	Default value
MANUAL ADJUST VALUE	SPF reading position adjustment (Manual adjustment)	1-99 (0.1mm unit)	50

* When the adjustment value is increased, the scanner stop position in the RSPF mode is shifted to the right.
* When the adjustment value is changed by 1, the position is shifted by 0.1mm.

53-9

Purpose	Adjustment
Function (Purpose)	SPF dirt detection setting
Section	

Operation/Procedure

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

Item/Display		Contents	Setting Range		Default value
1	POS SET START	RSPF front surface optimum scan position detection setting (When starting)	0 - 1	0: OFF/ 1: ON	0
2	POS SET JOB	RSPF front surface optimum scan position detection setting (After a job)	0 - 1	0: OFF/ 1: ON	1
3	POS LV	RSPF front surface optimum scan position detection level setting	0 - 1	0: Weak 1: Middle 2: Strong	1

53-10

Purpose	Adjustment/Setup
Function (Purpose)	SPF dirt detection execution
Section	

Operation/Procedure

1) Press [OK]/[START] key.

Item	Content
SPF	SPF front surface dirt detection position (main scan position 1 to 8) "-": No dirt, A"*": Dirt

55

55-1

Purpose	(Do not use this function unless specially required.)
Function (Purpose)	Engine software SW setting
Section	

Operation/Procedure

55-2

Purpose	(Do not use this function unless specially required.)
Function (Purpose)	Scanner software SW setting
Section	

Operation/Procedure

55-3

Purpose	(Do not use this function unless specially required.)
Function (Purpose)	MFP software SW setting
Section	

Operation/Procedure

56

56-2

Purpose	Data backup
Function (Purpose)	Used to backup the data in the EEPROM to the USB memory. (Corresponding to the device cloning and the storage backup.)
Section	

Operation/Procedure

1) Insert the USB memory 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]/[START] key.
   Data transfer is performed
   When the operation is completed normally, "COMPLETE" is displayed. In case of an abnormal end, "ERROR" is displayed.

56-5

Purpose	Adjustment/Setting/Operation data check
Function (Purpose)	Used to import the SIM22-6 data to a USB memory in the TEXT format.
Section	

Operation/Procedure

1) Insert the USB flash drive into the main unit.
2) Select a kind of data to be imported with Arrow keys.
3) Press [OK]/[START] key.
   Procedure 2) The selected data are imported.

60

60-1

Purpose	Operation test/check
Function (Purpose)	SDRAM read/write test
Section	

Operation/Procedure

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

Result display	Description
OK	Success
NG	Fail

61

61-1

Purpose	Operation test/check
Function (Purpose)	LSU test
Section	LSU

Operation/Procedure

1) Press [OK]/[START] 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 abnormality (K)

61-3

Purpose	Adjustment/Setup
Function (Purpose)	Laser power auto setup
Section	

Operation/Procedure

1) Select an item to be set with Arrow keys.
2) Enter the set value with 10 keys.
3) Press [OK]/[START] key.
   The set value in step 2) is saved.
   When the laser power are increased, the print density is increased and the line width of line images are increased.

Item/Display		Contents		Setting Range	Default value	
					35 ppm	45 ppm
1	1: COPY MID	LP MID (BW)	Laser power setting middle speed/BW	0 - 255	113	149
2		LP DUTY MID (BW)	Laser duty select middle speed/BW	0 - 255	0	0
1	2: COPY LOW	LP LOW (BW)	Laser power setting low speed/BW	0 - 255	113	113
2		LP DUTY LOW (BW)	Laser duty select low speed/BW	0 - 255	0	0
1	3: COPY CORRECT	LP K1	Laser power setting K1	0 - 255	100	100
2		LP K2	Laser power setting K2	0 - 255	100	100
1	4: PRINTER MIDDLE	LP MID (BW)	Laser power setting middle speed/BW	0 - 255	113	149
2		LP DUTY MID (BW1)	Laser duty select middle speed/BW 1BIT	0 - 255	0	0
1	5: PRINTER LOW	LP LOW (BW)	Laser power setting low speed/BW	0 - 255	113	113
2		LP DUTY LOW (BW)	Laser duty select low speed/BW	0 - 255	0	0

63

63-1

Purpose	Adjustment/Setting/Operation data check
Function (Purpose)	Shading data display
Section	Scanner

Operation/Procedure

1) Select a target color to display with Arrow keys.

Item/Display	Contents
GAIN1(mono)	Gain adjustment value 1 (monochrome)
GAIN2(mono)	Gain adjustment value 2 (monochrome)
GAIN3(mono)	Gain adjustment value 3 (monochrome)
GAIN1(color)	Gain adjustment value 1 (color)
GAIN2(color)	Gain adjustment value 2 (color)
GAIN3(color)	Gain adjustment value 3 (color)
OFFSET1(mono)	Offset value1 (monochrome)
OFFSET2(mono)	Offset value2 (monochrome)
OFFSET3(mono)	Offset value3 (monochrome)
OFFSET1(color)	Offset value1 color)
OFFSET2(color)	Offset value2 color)
OFFSET3(color)	Offset value3 color)
SMP MAX1(mono)	Reference plate sampling average value 1 (monochrome)
SMP MAX2(mono)	Reference plate sampling average value 2 (monochrome)
SMP MAX3(mono)	Reference plate sampling average value 3 (monochrome)
SMP MAX1(color)	Reference plate sampling average value 1 (color)
SMP MAX2(color)	Reference plate sampling average value 2 (color)
SMP MAX3(color)	Reference plate sampling average value 3 (color)
TARGET VALUE	Target value
BLACK LEVEL	Black output level
ERROR CODE	Error code (0, 1-14)(for debug)

63-2

Purpose	Adjustment
Function (Purpose)	Shading execution
Section	

Operation/Procedure

1) Press [OK] key.
   Used to perform shading.

When the operation is completed, [OK] key returns to the normal display.

63-3

Purpose	Adjustment
Function (Purpose)	Scanner color balance auto adjustment
Section	Scanner

Operation/Procedure

For OC mode

1) Place the scanner adjustment chart (UKOG-0356FCZZ) on the reference position of the left rear frame side of the document table.
2) Press [OK]/[START] key.
   The scanner (CIS) color balance automatic adjustment is performed.

63-5

Purpose	Adjustment/Setup
Function (Purpose)	Standard scanner gamma setup
Section	

Operation/Procedure

1) Press [OK] key.
2) The scanner (CIS) color balance and gamma are set to the default.

Item/Display		Contents
1	SD A(OC)	Copy gamma correction 1 and color correction coefficient
2		TWAIN gamma correction 1 and color correction coefficient

63-12

Purpose	Adjustment/Setup
Function (Purpose)	B/W image create 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.

Item/Display	Contents	Setting range	Default value
R-Ratio	Red mixing ratio (R)	0 - 100	20
G-Ratio	Green mixing ratio (G)	0 - 100	70
B-Ratio	Blue mixing ratio (B)	0 - 100	10

64

64-2

Purpose	Operation test/check
Function (Purpose)	Self print (B/W) : service
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.
4) Press [START] key.
   The test print (self print) is performed.

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	PLAIN1	Paper type	Standard paper	1 - 7	1	1 (PLAIN)
		PLAIN2		Standard paper 2		2	
		HEAVY		Heavy paper		3	
		OHP		OHP		4	
		ENVELOPE		Envelope		5	
		HEAVY2		Heavy paper 2		6	
		GLOSSY		Glossy paper		7	

Print pattern of Item 1

Pattern No.	Content	Pattern generating section	NOTE
1	Grid pattern	MFPC	* When the print width is 100 or more and all colors are selected, print is made in the three colors (CMY). * Print is started at 4mm from the paper lead edge. * Writing regardless of pound. The first one is fixed to LD1.
2	Dot print		–
9	Each color 10% area (A4/ A4R) density print		* Each interval is 41.86mm (989dot). * If m is not in the range of 1 - 13%, it is rounded. * K print is started at 17mm from the paper lead edge.
17	All background (halftone)	MFPC	–
18	256 gradations pattern (Other dither)		–
19	256 gradations pattern (For text dither)		–
22	Slant line	MFPC	

64-4

Purpose	Operation test/check
Function (Purpose)	Printer self print
Section	

Operation/Procedure

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

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	128
3	MULTI COUNT		Number of print		1 - 999	1
4	PAPER	MFT	Paper feed tray selection	Manual paper feed	1	2
		CS1		Tray 1	2	
		CS2		Tray 2	3	
5	HALFTONE	LOW	Halftone	Low line number	0	0
		HIGH		High line number	1	
6	QUALITY	STANDARD	Image quality setting	600dpi	0	1
		HIGHQUALITY		600dpi (High Quality)	1	
7	DITHER	STRAIGHT	Specification of dither correction	Straight	1	1
		CALIB		Calibration	2	
8	PAPER TYPE	PLAIN	Paper type	Plain paper	0	0
		HEAVY		Heavy paper	1	
		GLOSSY		Glossy paper	2	

Print pattern of Item 1

Pattern No.	Content
1	256 gradations pattern (B/W)
2	Halftone pattern (B/W)
3	Background dot print

64-5

Purpose	Operation test/check
Function (Purpose)	Printer self print
Section	

Operation/Procedure

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

Item/Display			Content		Setting range	Default value
1	PRINT PATTERN		Print pattern specification		1	1
2	DENSITY		Print gradation specification		1 - 255	255
3	MULTI COUNT		Number of print		1 - 999	1
4	PAPER	MFT	Paper feed tray selection	Manual paper feed	1	2
		CS1		Tray 1	2	
		CS2		Tray 2	3	
5	HALFTONE	LOW(IMAGE)	Halftone	For Photo	0	2
		HIGH(TEXT)		For text	1	
		AUTO		Auto (for photo/text)	2	
6	QUALITY	STANDARD	Image quality setting	600dpi	0	1
		HIGHQUALITY		600dpi (High Quality)	1	
7	DITHER	STRAIGHT	Specification of dither correction	Straight	0	1
		CALIB		Calibration	1	
8	PAPER TYPE	PLAIN	Paper type	Standard paper	0	0
		HEAVY		Heavy paper	1	
		GLOSSY		Glossy paper	2	
9	TONER SAVE MODE		Do not set toner save mode		0	0
			Set toner save mode		1	

64-6

Purpose	Operation test/check
Function (Purpose)	Printer 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 [START] key.
   The set value in step 2) is saved.

Item/Display			Content		Setting range	Default value
1	PRINT PATTERN		Print pattern specification		1	1
2	DENSITY		Print gradation specification		1 - 255	255
3	MULTI COUNT		Number of print		1 - 999	1
4	PAPER	MFT	Paper feed tray selection	Manual paper feed	1	2
		CS1		Tray 1	2	
		CS2		Tray 2	3	
5	HALFTONE	LOW(IMAGE)	Halftone	For Photo	0	2
		HIGH(TEXT)		For text	1	
		AUTO		Auto (for photo/text)	2	
6	QUALITY	STANDARD	Image quality setting	600dpi	0	1
		HIGHQUALITY		600dpi (High Quality)	1	
7	DITHER	STRAIGHT	Specification of dither correction	Straight	0	1
		CALIB		Calibration	1	
8	PAPER TYPE	PLAIN	Paper type	Standard paper	0	0
		HEAVY		Heavy paper	1	
		GLOSSY		Glossy paper	2	
9	TONER SAVE MODE		Do not set toner save mode		0	0
			Set toner save mode		1	

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65-10

Purpose	Setting
Function (Purpose)	KEY time setting display
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.

Item	Content	Setting
KEY ACK TIME	Used to set the display of the key waiting time.	0: not displayed 1: displayed

66

66-1

Purpose	Setting
Function (Purpose)	Image send software SW setting
Section	FAX

Operation/Procedure

1) Enter the [SW NO] with 10-key.
   * When [C] key is tapped, the entered value of [SW NO] is cleared.
2) Press [OK]/[START] key. The soft SW data entered in procedure 1) is displayed.
   * When [SW NO] key is pressed, the display returns to the initial screen.
3) Enter the number corresponding to the bit to be changed with 10-key.
   * [1] -> [0]
     [0] -> [1]
4) When [OK]/[START] key is pressed, it is highlighted and the setting is saved.

66-2

Purpose	Setting
Function (Purpose)	Image send software SW clear
Section	FAX

Operation/Procedure

1) When the machine enters Simulation 66-02, the following screen is displayed.
2) Enter the country code (8 digits) with Arrow keys.
3) When [OK]/[START] key is pressed after entering the country code, he soft SW corresponding to the country code is initialized.

Operation/Procedure (Shifting to the country page)

* When Arrow key is pressed on the initial screen, the display is shifted to the country code list screen.

  Use scroll keys to select the country select page.

<Country code list>

JAPAN	00000000
U.S.A.	10110101
AUSTRALIA	00001001
U.K.	10110100
FRANCE	00111101
GERMANY	00000100
SWEDEN	10100101
NEWZEALAND	01111110
CHINA	00100110
SINGAPORE	10011100
TW	11111110
MIDDLEANDNEAREAST	11111101
SLOVAKIA	11111100
FINLAND	00111100
NORWAY	10000010
DENMARK	00110001
NETHERLANDS	01111011
ITALY	01011001
SWITZERLAND	10100110
AUSTRIA	00001010
INDONESIA	01010100
THAILAND	10101001
MALAYSIA	01101100
INDIA	01010011
PHILIPPINES	10001001
HONGKONG	01010000
RUSSIA	10111000
SOUTHAFRICA	10011111
SPAIN	10100000
PORTUGUESE	10001011
LUXEMBURG	01101001
BELGIUM	00001111
CZECH	00101110
HUNGARY	01010001
GREECE	01000110
POLAND	10001010
BRAZIL	00010110
KOREA	01100001
VIETNAM	10111100

66-4

Purpose	Operation test/Check
Function (Purpose)	Signal output check (level max)
Section	FAX

Operation/Procedure

1) Select a button of a signal to be sent with Arrow keys and input the setting values with 10 keys.
2) Determine the setting values with [OK]/[START] key.
3) Press [OK]/[START] key to send the signals.

1: NO SIGNAL	12: 9600bps(V34)	23: 2400bps(V27ter)
2: 33600bps(V34)	13: 7200bps(V34)	24: 300bps(FLAG)
3: 31200bps(V34)	14: 4800bps(V34)	25: 2100Hz(CED)
4: 28800bps(V34)	15: 2400bps(V34)	26: 1100Hz(CNG)
5: 26400bps(V34)	16: 14400bps(V17)	27: 300bps(V21)
6: 24000bps(V34)	17: 12000bps(V17)	28: 2100Hz(ANSam)
7: 21600bps(V34)	18: 9600bps(V17)	29: PSEUDO RINGER
8: 19200bps(V34)	19: 7200bps(V17)	30: NO MESSAGE
9: 16800bps(V34)	20: 9600bps(V29)	31: NO RBT
10: 14400bps(V34)	21: 7200bps(V29)	32: DP MAKE
11: 12000bps(V34)	22: 4800bps(V27ter)	33: DP BREAK

* For the signals from 1: NO SIGNAL and 31: NO RBT to 33: DP BREAK, there is no selection of the transmission level.
* Since V33 is not supported by the modem, it is not included in the selection signal.
* Also, 29: PSEUDO RINGER and 30: NO MESSAGE do not change even if the transmission level is selected.

66-7

Purpose	Data output/Check
Function (Purpose)	Image memory print out
Section	FAX

Operation/Procedure

1) When [OK]/[START] key is pressed, it is highlighted and all image data saved in the image memory are outputted.
2) After completion of printing, [EXEC] returns to the normal display.

66-8

Purpose	Operation test/Check
Function (Purpose)	Message output check (level max)
Section	FAX

Operation/Procedure

The transmission level can be selected from Large (LARGE) and SOFT SW.

1) When the machine enters Simulation 66-08, the following screen is displayed.
2) Select an item to be set with 10 keys.
3) Determine the setting values with [OK]/[START] key.
4) Select an item to be set with 10 keys.
5) Press [OK]/[START] key to send the sound messages.

<Sound message table>

Message number	Voice message
1	NONE
2	FAX/TEL MSG1
3	FAX/TEL MSG2
4	FAX/TEL MSG3
5	RINGER
6	EXT.TELRINGER

66-10

Purpose	Data clear
Function (Purpose)	Image memory clear
Section	FAX

Operation/Procedure

1) Press [OK]/[START] key.
2) After completion of clearing, press [CA] key to reboot the machine.

66-11

Purpose	Operation test/Check
Function (Purpose)	300bps signal output (level max)
Section	FAX

Operation/Procedure

1) Select an item to be set with 10 keys.
2) Determine the setting values with [OK]/[START] key.
3) Press [OK]/[START] key and a selected signal is sent.

<300bps send signal table>

No	Signal	No	Signal
1	No signal (CML ON)	4	010101
2	00000	5	11110
3	11111	6	00001

66-13

Purpose	Setting
Function (Purpose)	Dial test number setting
Section	FAX

Operation/Procedure

The dials which can be sent are as follows

– Dial pulse 10PPS
– Dial pulse 20PPS
– DTMF

1) Select an item to be set with 10 keys.
2) Determine the setting values with [OK]/[START] key.
3) Press [OK]/[START] key and a selected dial is sent.

66-17

Purpose	Operation test/Check
Function (Purpose)	DTMF signal output (level max)
Section	FAX

Operation/Procedure

1) When the machine enters Simulation 66-17, the number selection screen is displayed.
2) Select an item to be set with 10 keys.
3) Determine the setting values with [OK]/[START] key.
4) Enter 10 Keys for the outputting DTMF.
5) Press [OK]/[START] key and a selected dial is sent.

66-21

Purpose	Check
Function (Purpose)	FAX information print out
Section	FAX

Operation/Procedure

1) Select an item to be set with 10 keys.
2) Press [OK]/[START] key and printing is started.

66-30

Purpose	Operation test/Check
Function (Purpose)	TEL/LIU sensor check
Section	FAX

Operation/Procedure

1) When the machine enters Simulation 66-30, the state of the signal is displayed.

Signal	Notice (Signal Low)	Notice (Signal High)
EXRHS	Inversion	No inversion

66-31

Purpose	Setting
Function (Purpose)	TEL/LIU setting
Section	FAX

Operation/Procedure

1) Select an item to be set with 10 keys.
2) Press [OK]/[START] key and the changed setting is reflected.

<Port which outputs to TEL/LIU>

[1] 150VON	[2] SON	[3] CION

66-32

Purpose	Operation test/Check
Function (Purpose)	Receive data check
Section	FAX

Operation/Procedure

1) Press [OK]/[START] key to check the fixed data received from the line.

* Fixed data check procedure

– The data received from the line is checked of the following fixed data status for minutes, then if they are in accord with "OK" is displayed on LCD, if not "NG" is displayed.

Receive speed: 300BPS

Receive data: 00H

Judgment data: 100byte

66-33

Purpose	Operation test/Check
Function (Purpose)	Signal detect check
Section	FAX

Operation/Procedure

1) When the machine enters Simulation 66-33, the item selection screen is displayed.
2) Select an item to be set with 10 keys.
3) Determine the setting values with [OK]/[START] key.

<Signal used for signal detection check>

(When "CI/FNET" is selected)

CI	FNET

(When "CNG/CED/BT/DT/DTMF" is selected)

CNG	CED	BT	DT	DTMF

66-34

Purpose	Operation test/Check
Function (Purpose)	Communication time display
Section	FAX

Operation/Procedure

<Range>

Send: From sending the flag before sending the image data to sending the RCP frame

Receive: From receiving the flag before receiving the image data to receiving the RCP frame

1) Enter the SIM 66-34 mode.
2) Press [OK]/[START] key. Then, the time of last Fax communication is displayed on LCD.

66-52

Purpose	Operation test/Check
Function (Purpose)	Pseudo ringer check
Section	FAX

Operation/Procedure

1) Press [OK]/[START] key. Pseudo ringer rings. When the external phone is connected, it rings.

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67-25

Purpose	Adjustment/Setup
Function (Purpose)	Printer gradation 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.

	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)	Printer gradation data clear
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)	Printer gradation 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.

Item/Display		Content	Setting range	Default value		
				Heavy paper	screen 5 to 7	screen 8
1	POINT1	Point 1	0 - 255	128	128	128
2	POINT2	Point 2	0 - 255	128	128	126
3	POINT3	Point 3	0 - 255	128	128	126
4	POINT4	Point 4	0 - 255	128	128	125
5	POINT5	Point 5	0 - 255	128	128	124
6	POINT6	Point 6	0 - 255	128	128	123
7	POINT7	Point 7	0 - 255	128	128	117
8	POINT8	Point 8	0 - 255	128	128	108
9	POINT9	Point 9	0 - 255	128	128	96
10	POINT10	Point 10	0 - 255	128	128	82
11	POINT11	Point 11	0 - 255	128	128	70
12	POINT12	Point 12	0 - 255	128	128	59
13	POINT13	Point 13	0 - 255	128	128	50
14	POINT14	Point 14	0 - 255	128	128	41
15	POINT15	Point 15	0 - 255	128	128	34
16	POINT16	Point 16	0 - 255	128	128	29
17	POINT17	Point 17	0 - 255	128	255	26

Items that can be selected with SCREEN

Item/Display		Content
1	HEAVY PAPER_K	Heavy paper K
21	SCREEN5_K	B/W 600 dpi 1bit K
22	SCREEN6_K	B/W 600 dpi 2bit Photo K
23	SCREEN7_K	B/W 600 dpi 2bit Graphics K
24	SCREEN8_K	B/W Toner save K

67-34

Purpose	Adjustment/Setup
Function (Purpose)	Printer maximum density adjustment mode
Section	Printer

Operation/Procedure

1) Enter the set value with 10-key.

0	Enable
1	Disable

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

Display/Item		Content		Setting range	Default value
1	K PROHIBIT (0: ENABLE 1: DESABLE)	0	K Engine highest density correction mode: Enable	0 - 1	0
		1	K Engine highest density correction mode: Disable		

* When tone gap is generated in the high density section, set items 1 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 to "1.

The tone gap may occur in high density part.

67-36

Purpose	Adjustment/Setup
Function (Purpose)	Printer highlight adjustment
Section	Printer

Operation/Procedure

1) Enter the adjustment value using the 10 keys.
2) Press [OK]/[STSRT]. 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 (high-light section), changing this adjustment value may improve the trouble.

Item/Display		Content	Setting range	Default value
1	A PATCH INPUT	A patch input value K	0 - 13	1

67-52

Purpose	Adjustment/Setup
Function (Purpose)	Printer gradation data clear
Section	Printer

Operation/Procedure

This simulation is used to reset the adjustment values of 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].

Item/Display		Content
1	ALL	All dither value
2	HEAVY PAPER	Heavy paper dither value
3	B/W 1BIT	1 bit dither value
4	B/W 2BIT	2 bit dither value

2) Press [OK]/[START] key.

5. Soft switch (Detail of Sim. 66-1)

A. Soft switch list

SW No.	Bit No.	System settings	Item	SW selection and function		Remarks
1	1 - 8		Country code			
2	1 - 2		Not used			
	3 - 8		language			
3	1-4	Adjustment value	Minimum pause time (10PPS) setting	0(525ms) -15(900ms) X(ms) = (N * 25) + 525		Two states input
	5 - 8	Adjustment value	Make time (10PPS) setting	Setting range 26 to 41 seconds (1 ms intervals)		Two states input
4	1-4	Adjustment value	Minimum pause time (10PPS) setting	0(525ms) - 15(900ms) X(ms) = (N * 25) + 525		Two states input
	5 - 8	Adjustment value	Minimum pause time (20PPS) setting	375ms	0 0 0	
				400ms	0 0 1	
				425ms	0 1 0	
				450ms	0 1 1	
				475ms	1 0 0	
				500ms	1 0 1	
				525ms	1 1 0	
				550ms	1 1 1	
5	1-4	Adjustment value	Make time (20PPS) setting	Setting range 9 to 26 ms (1 ms intervals)		Two states input
	5		Not used			
	6 - 8	Adjustment value	Setting of DTMF minimum pause time	90ms	0 0 0	
				100ms	0 0 1	
				110ms	0 1 0	
				120ms	0 1 1	
				130ms	1 0 0	
				140ms	1 0 1	
				150ms	1 1 0	
				160ms	1 1 1	
6	1-5	Adjustment value	DTMF signal send time	Setting range 6(60ms) to 31(310ms) ms X(ms) = (N * 10)		
	6 - 7	Adjustment value	Dial call waiting time	3.5s	0 0	
				4.0s	0 1	
				5.0s	1 0	
				6.0s	1 1	
	8	Adjustment value	SDT signal detection	0: No	1: Yes	
7	1	Setting	No. 2 dial tone detection	0: No	1: Yes	
	2	Setting	Dial tone detection	0: No	1: Yes	
	3 - 4	Adjustment value	Dial tone ON detection time (during continuous detection)	1.0s	0 0	
				1.5s	0 1	
				2.0s	1 0	
	5-8	Adjustment value	Upper limit of dial tone ON/OFF detection time (during intermittent detection)	Setting range 1000ms to 4000ms (200ms intervals)		Two states input
8	1-3	Adjustment value	Lower limit of dial tone ON/OFF detection time (during intermittent detection)	Not used	0 0 0	
				100ms	0 0 1	
				200ms	0 1 0	
				300ms	0 1 1	
				400ms	1 0 0	
				500ms	1 0 1	
				Not used	1 1 0	
				Not used	1 1 1	
	4		Not used			
	5-8	Setting	External line connection number setting 1 <First digit>	The numbers and codes which can be registered are as follows. 0 - 9 / * (a) / # (b) / – (pause) (c) / Not used for this digit and after (d) / Any is OK (f).		

SW No.	Bit No.	System settings	Item	SW selection and function		Remarks
9	1-4	Setting	External line connection number setting 1 <Second digit>	The numbers and codes which can be registered are as follows. 0 - 9 / * (a) / # (b) / – (pause) (c) / Not used for this digit and after (d) / Any is OK (f).		
	5-8	Setting	External line connection number setting 1 <Third digit>	The numbers and codes which can be registered are as follows. 0 - 9 / * (a) / # (b) / – (pause) (c) / Not used for this digit and after (d) / Any is OK (f).		
10	1-4	Setting	External line connection number setting 1 <Fourth digit>	The numbers and codes which can be registered are as follows. 0 - 9 / * (a) / # (b) / – (pause) (c) / Not used for this digit and after (d) / Any is OK (f).		
	5-8	Setting	External line connection number setting 2 <First digit>	The numbers and codes which can be registered are as follows. 0 - 9 / * (a) / # (b) / – (pause) (c) / Not used for this digit and after (d) / Any is OK (f).		
11	1-4	Setting	External line connection number setting 2 <Second digit>	The numbers and codes which can be registered are as follows. 0 - 9 / * (a) / # (b) / – (pause) (c) / Not used for this digit and after (d) / Any is OK (f).		
	5-8	Setting	External line connection number setting 2 <Third digit>	The numbers and codes which can be registered are as follows. 0 - 9 / * (a) / # (b) / – (pause) (c) / Not used for this digit and after (d) / Any is OK (f).		
12	1-4	Setting	External line connection number setting 2 <Fourth digit>	The numbers and codes which can be registered are as follows. 0 - 9 / * (a) / # (b) / – (pause) (c) / Not used for this digit and after (d) / Any is OK (f).		
	5		Not used			
	6 -7	Adjustment value	DT/BT detection level	MODEM fixed (400Hz)	0 0	
				420Hz - 600Hz	0 1	
				360Hz - 440Hz	1 0	
				245Hz - 650Hz	1 1	
	8	Setting	Busy tone detection	0: No	1: Yes	
13	1-8		Not used			
14	1, 2	FAX initial setting	Flash send out waiting time	0s	0 0	
				0.5s	0 1	
				1s	1 0	
				2s	1 1	
	3, 4	FAX initial setting	Flash send out time	90ms	0 0	
				180ms	0 1	
				270ms	1 0	
				360ms	1 1	
	5	Setting	Dial tone detection	0 : 10s	1 : 17s	
	6, 7	Setting	Busy tone detection	2 puls	0 0	
				4 puls	0 1	
				6 puls	1 0	
				10 puls	1 1	
	8		Not used			

SW No.	Bit No.	System settings	Item	SW selection and function		Remarks
15	1 - 4	Setting	Minimum BT ON time	Not used	0 0 0 0	Refer to the detailed table. *1
				140ms	0 0 0 1	
				200ms	0 0 1 0	
				220ms	0 0 1 1	
				270ms	0 1 0 0	
				280ms	0 1 0 1	
				310ms	0 1 1 0	
				450ms	0 1 1 1	
				100ms	1 0 0 0	
				450ms	Other settings	
	5- 8		Not used			
16	1 - 8		Not used			
17	1, 2	Adjustment value	1300Hz detection time	1.5s	0 0	
				2.5s	0 1	
				3.0s	1 0	
	3	FAX initial setting	150V ON control	0: No	1: Yes	
	4 - 7	Settings/FAX initial setting	Setting of the number of calls for changing over from manual to automatic reception	Setting range 1 to 9times		
	8	ECM	150V ON control	0: No	1: Yes	
18	1 - 7	FAX initial setting	CI signal off detection time	Setting range 0 to 1270 ms (10ms intervals)		Two states input
	8		Not used			.
19	1 - 7	FAX initial setting	Maximum RING disappear OFF time	5s	0 0	
				10s	0 1	
				15s	1 0	
				20s	1 1	
	8		Not used			
20	1-4	Adjustment value	Lower limit of the detection time during talking	270ms	0 1	Refer to the detailed table. *1
				400ms	1 0	
				450ms	1 1	
				540ms	0 0	
				570ms	0 1	
				630ms	1 0	
				680ms	1 1	
				900ms	0 0	
20	5-8	Adjustment value	Upper limit of the detection time during talking	610ms	0 0 0 1	Refer to the detailed table. *1
				880ms	0 0 1 0	
				1100ms	0 0 1 1	
				1210ms	0 1 0 0	
				1540ms	0 1 0 1	
				1560ms	0 1 1 0	
				1600ms	0 1 1 1	
				1650ms	1 0 0 0	
				1760ms	1 0 0 1	
				2750ms	1 0 1 0	
21	1-4	Adjustment value	Ring back tone send out number	0 - 15 times		Two states input
	5-8	Adjustment value	Ring back tone limit number	Setting range 0 - 15 times 0 : Fixed value		Two states input
22	1-4	Adjustment value	Ring back tone ON time	Setting range 0.2 - 3.0 s (200ms intervals) 0 : Fixed value		Two states input
	5-8	Adjustment value	Ring back tone OFF time	Setting range 0.2 - 3.0 s (200ms intervals) 0 : Fixed value		Two states input
23	1-4	Adjustment value	CNG detecting time	Setting range 0 - 15 times 0 : Fixed value		Two states input
	5, 6	Adjustment value	Telefone/FAX transmission automatical voice message	Message 1 before simulated ring	0 0	
				Message 2 before simulated ring	0 1	
				Message after simulated ring	1 0	
				No message	1 1	
	7, 8		Not used			
24			Not used			

SW No.	Bit No.	System settings	Item	SW selection and function		Remarks
25	1-5	Adjustment value	Signal sending out level	0(0dBm) - 26(-26dBm)		Two states input
	6-8		Not used			
26	1 - 4	Timer	T1 timer setting	Setting range 15 - 90s (5s intervals)		Two states input
	5 - 6	Timer	T2 timer setting	6s	0 0	
				7s	0 1	
				8s	1 0	
				9s	1 1	
	7 - 8	Timer	T4 timer setting Timer during automatic operation (+1.5 seconds at times of manual operation)	3s	0 0	
				4s	0 1	
				5s	1 0	
				6s	1 1	
27	1, 2	Timer	T5 timer setting	1min	0 0	Two states input
				5min	0 1	
				10min	1 0	
				15min	1 1	
	3	Setting	Sharp machine mode	0 : OFF	1 : ON	
	4	Setting	V.34 mode function	0 : OFF	1 : ON	
	5	Setting	V.34 mode function at times of manual communication	0 : OFF	1 : ON	
	6 - 7	Communication/ Setting	Coding capacity during transmission and reception (V.34 communication) (reflected in DIS/ DCS/DTC)	JBIG/MMR/MR/MH	0 0	
				MMR/MR/MH	0 1	
				MR/MH	1 0	
				MH	1 1	
	8		Not used			
28	1, 2	Communication/ Setting	Coding capacity during transmission and reception (other than V.34 communication) (reflected in DIS/DCS/DTC)	JBIG/MMR/MR/MH	0 0	Two states input
				MMR/MR/MH	0 1	
				MR/MH	1 0	
				MH	1 1	
	3, 4	Setting	300bps preamble send out time	1.0s	0 0	
				1.0s	0 1	
				1.5s	1 0	
				2.0s	1 1	
	5	Setting	Error handling when transmission and receiving RTN	0 : Error	1 : Not error	
	6	Setting	PIN code correspondence	0 : OFF	1 : ON	
	7 - 8		Not used			
29-30			Not used			
31	1 - 3	Setting	Symbol rate transmission	Automatic	0 0 0	
				2400	0 0 1	
				2400/2743	0 1 0	
				2400/2743/2800	0 1 1	
				2400/2743/2800/3000	1 0 0	
				2400/2743/2800/3000/3200	1 0 1	
				2400/2743/2800/3000/3200/ 3429	1 1 0	
				Not used	1 1 1	
	4 - 7	Communication/ Setting	Modem transmission speed (less than V.33 mode)	V.27 2400bps	0 0 0 0	
				v.29 9600bps	0 0 0 1	
				V.27 4800bps	0 0 1 0	
				V.29 7200bps	0 0 1 1	
				V.33 14.4kbps	0 1 0 0	
				V.33 12.0kbps	0 1 1 0	
				V.17 9600bps	1 0 0 1	
				V.17 12.0kbps	1 0 1 0	
				V.17 7200bps	1 0 1 1	
				V.17 14.4kbps	Other setting values than above settings	
	8	Communication/ Setting	Echo countermeasure (setting of hold time between DIS reception and sending of signal) when transmitting.	0 : 500ms	1 : 800ms	

SW No.	Bit No.	System settings	Item	SW selection and function		Remarks
32	1, 2	Communication/ Setting	Echo countermeasure (setting of hold time between DIS reception and sending of signal) when transmitting.	0 : Once when performing NSF reception Twice when performing DIS reception	0 0	Two states input
				Twice regardless of NSF reception	0 1	
				Once regardless of NSF reception	1 0	
				Not used	1 1	
	3	Setting	Echo suppressor tone setting	0 : OFF	1 : ON	
	4	Setting	Training	0 : Short training	1 : Long training	
	5, 6		Phase-C head dummy data send time	0.2s	0 0	
				0.3s	0 1	
				0.4s	1 0	
				0.5s	1 1	
	7, 8		Not used			
33	1 - 4	Setting	V.34 Primary channel sending speed	Sending Speed = 2400(bps) x N N : 0=2400bps 15=33600bps		Two states input
	5	Setting	REN EOL send out number	0 : 12 times	1 : 6 times	Two states input
	6 - 8		Not used			
34-35			Not used			
36	1	Timer	EOL detection timer	0 : 13s	1 : 25s	
	2	Communication/ Adjustment value	CED signal sending	0 : OFF	1 : ON	
	3, 4	Communication/ Adjustment value	CED signal sending time	3s	0 0	
				4s	0 1	
				5s	1 0	
				6s	1 1	
	5	Communication /Adjustment value	CED detection time	0 : 700ms	1 : 1400ms	
	6 - 7	Speed/Setting	Fixing of modem speed during reception	Not fixed	0 0	
				V.29-9600BPS	0 1	
				V.27ter-4800BPS	1 0	
				V.17-14400BPS	1 1	
	8	Communication/ Setting	Echo countermeasure (CED tone sending interval) when receiving	0 : 75ms	1 : 500ms	
37	1		Protocol monitor	0 : OFF	1 : ON	
	2		Only at times of Protocol monitor error	0 : OFF	1 : ON	
	3		Enable/Disable of 33 bit or later of DIS (Reflected only to DIS)	0 : Enable	1 : Disable	
	4		CSI sending	0 : OFF	1 : ON	
	5	Communication/ Adjustment value	EYE Q Check	0 : Receive and EYE Q Check	1 : Only EYE Q Check	
	6	Communication/ Adjustment value	Time out time setting after starting TCF signal reception	0 : 2s	1 : 4s	
	7	Speed/Setting	TCF Check time	0 : 1.3s	1 : 1.0s	
	8	Adjustment value	Time between DCS-TCF	0 : 150ms	1 : 75ms	
38	1 - 3	Adjustment value	Dial in waiting time	1000ms	0 0 0	Two states input
				1200ms	0 0 1	
				1400ms	0 1 0	
				1600ms	0 1 1	
				1800ms	1 0 0	
				2000ms	1 0 1	
				2200ms	1 1 0	
				2400ms	1 1 1	
	4 - 7	Setting	V.34 primary channel reception speed	Sending Speed = 2400(bps) x N N : 0=2400bps 15=33600bps		Two states input
	8		Not used			

SW No.	Bit No.	System settings	Item	SW selection and function		Remarks
39	1, 2	Communication/ Setting	ANSam signal sending time	3s	0 0	Two states input
				4s	0 1	
				5s	1 0	
				6s	1 1	
	3 - 5	Communication/ Setting	Reception gain changeover when receiving	0dBm	0 0 0	
				1dBm	0 0 1	
				2dBm	0 1 0	
				3dBm	0 1 1	
				4dBm	1 0 0	
				5dBm	1 0 1	
				6dBm	1 1 0	
				7dBm	1 1 1	
	6 - 7		Not used			
	8		Receiving level adjustment(U1F1)	0 : Valid	1 : Invalid	
40-41			Not used			
42	1		Data output during communication error	0 : Output	1 : Not output	
	2		Memory overflow during receiving data	0 : Output	1 : Not output	
	3		Not used			
	4		Duplex printing tray (Tray 1)	0 : OFF	1 : ON	
	5		Duplex printing tray (Tray 2)	0 : OFF	1 : ON	
	6		Duplex rotated printing	0 : ON	1 : OFF	
	7 - 8		Not used			
43-44			Not used			
45	1		Simulated ring bell sounds	0 : Sound	1 : Not sound	
	2	FAX initial setting	Digital line net setting	0 : OFF	1 : ON	
	3		Quick memory send setting display	0 : Displayed	1 : Not displayed	
	4		Not used			
	5 - 8		Magnification setting in automatic reduction	Setting range 0 - 15% (100 - setting value)		
46	1		Remote reception indication	0 : OFF	1 : ON	
	2		Remote changeover number setting	0 : Only call-in	1 : Call-in/Call-out	
	3		Transfer function	0 : Prohibited	1 : Permitted	
	4		Specified number reception Enable/Disable setting on manual reception	0 : Ignore the specified number	1 : Reject the specified number	
	5		Record of rejected reception	0 : Record	1 : Not record	
	6		Print in automatic reduction	0 : Prohibited	1 : Permitted	
	7		Priority order of the paper selection	0 : Priority area	1 : Priority width	
	8		Output way (Inch) when receiving the A4 width image	0 : 210mm width printing	1 : 8.5inch width printing	
47	1		Reception copy setting when receiving the data	0 : Print out the copy when receiving every one data	1 : Print out all copies after receiving all copies	
	2		Report output (when cancelled)	0 : Output	1 : Not output	
	3		Report output (when refusing reception)	0 : Output	1 : Convert name to the dial number and print out	
	4		Address name of report conversion	0 : Not convert	1 : Reject the specified number	
	5 - 6		Range of the sound monitor	Speaker is always off.	0 0	
				Speaker is on while dialing and handshaking; off in data mode.	0 1	
				Speaker is always on.	1 0	
				Speaker is off while dialing; on during handshaking and retraining.	1 1	
	7		Control of the communication error sound	0 : Sound	1 : Not sound	
	8		The communication error sound when there is no response	0 : Sound	1 : Not sound	

SW No.	Bit No.	System settings	Item	SW selection and function		Remarks
48	1	FAX initial setting	Speaker volume after finishing scanning (Small)	0 : Use volume 1	1 : Use volume 2	
	2	FAX initial setting	Speaker volume after finishing scanning (Middle)	0 : Use volume 2	1 : Use volume 3	
	3	FAX initial setting	Speaker volume after finishing scanning (Large)	0 : Use volume 3	1 : Use volume 4	
	4-6		Not used			
	7	FAX initial setting	Speaker volume of line monitor (Small)	0 : Use volume 1	1 : Use volume 2	
	8	FAX initial setting	Speaker volume of line monitor (Middle)	0 : Use volume 2	1 : Use volume 3	
49	1	FAX initial setting	Speaker volume of line monitor (Large)	0 : Use volume 3	1 : Use volume 4	
	2	FAX initial setting	Speaker volume when finishing communication (Small)	0 : Use volume 1	1 : Use volume 2	
	3	FAX initial setting	Speaker volume when finishing communication (Middle)	0 : Use volume 2	1 : Use volume 3	
	4	FAX initial setting	Speaker volume when finishing communication (Large)	0 : Use volume 3	1 : Use volume 4	
	5	FAX initial setting	Speaker volume when on-hook (Small)	0 : Use volume 1	1 : Use volume 2	
	6	FAX initial setting	Speaker volume when on-hook (Middle)	0 : Use volume 2	1 : Use volume 3	
	7	FAX initial setting	Speaker volume when on-hook (Large)	0 : Use volume 3	1 : Use volume 4	
	8	FAX initial setting	Call sound volume (Small)	0 : Use volume 1	1 : Use volume 2	
50	1	FAX initial setting	Call sound volume (Middle)	0 : Use volume 2	1 : Use volume 3	
	2	FAX initial setting	Call sound volume (Large)	0 : Use volume 3	1 : Use volume 4	
	3, 4	Setting	Order of the year/month/day of LCD, report, original record	year/month/day	0 0	
				month/day/year	0 1	
				day/month/year	1 0	
	5	Setting	Time display format	0 : 24 hours	1 : AM/PM	
	6	Setting	Prior to the display of the day	0 : OFF	1 : ON	
	7, 8		Not used			
51	1	FAX initial setting	Preferred setting of the data LED during energy saving	0 : Prior to energy saving	1 : Prior to data LED	
	2	FAX initial setting	The machine moves to the power off mode when the machine is shut down.	0 : Prohibited	1 : Permitted	
	3 - 8		Not used			
52-53			Not used			
54	1	FAX initial setting	Automatic/Manual reception default setting	0 : Automatic reception	1 : Manual reception	
	2		Not used			
	3	FAX initial setting	Printing hold function	0 : OFF	1 : ON	
	4 - 8		Not used			
55	1, 2	Communication/ Setting	Report output (when sending the data)	Print is prohibited	0 0	
				Print all	0 1	
				Only when data cannot be sent	1 0	
	3, 4	Setting	Report output (sequential multi-address transmission, sequential send request, relay multi-address transmission)	Print is prohibited	0 0	
				Print all	0 1	
				Only for the address where data cannot be sent	1 0	
	5, 6	Setting	Print the copy when the memory send error occurs	Print is prohibited	0 0	
				Print all	0 1	
				When the sending is failed	1 0	
	7, 8	Setting	Report output (when receiving the data)	Print is prohibited	0 0	
				Print all	0 1	
				Only when the error occurs	1 0	
56	1	FAX initial setting	Memory management number control change at Broadcast.	0: Display, do not add 3 digits	1: Do not display, add 3 digits	
	2	FAX initial setting	Automatic printing of the record sheet	0 : Prior to energy saving	1 : Prior to data LED	
	3	FAX initial setting	Select a designated time of the communication record sheet	0 : Prohibited	1 : Permitted	
	4 - 8	FAX initial setting	Printing of the communication record sheet at a designated time (hours)	Setting range 0 - 23 hours		Two states input

SW No.	Bit No.	System settings	Item	SW selection and function		Remarks
57	1 - 6	FAX initial setting	Printing of the communication record sheet at a designated time (minutes)	Setting range 0 - 59 minutes		Two states input
	7-8		Not used			
58	1, 2	FAX initial setting	Tone/Pulse initial setting (Dial call signal setting)	10PPS	0 0	
				20PPS	0 1	
				TONE	1 0	
	3 - 6	FAX initial setting/ Adjustment value	Pause time setting (between dials)	Setting range 1 - 15s (4 - 15s only for South Africa)		
	7, 8	FAX initial setting	Speaker volume when on-hook	No sound	0 0	
				Small	0 1	
				Middle	1 0	
				Large	1 1	
59	1, 2	FAX initial setting	Call sound volume	No sound	0 0	
				Small	0 1	
				Middle	1 0	
				Large	1 1	
	3, 4	FAX initial setting	Line monitor volume setting	No sound	0 0	
				Small	0 1	
				Middle	1 0	
				Large	1 1	
	5, 6	FAX initial setting	Volume of the transmission completion sound	No sound	0 0	
				Small	0 1	
				Middle	1 0	
				Large	1 1	
	7, 8	FAX initial setting	Volume of the scanning completion sound	No sound	0 0	
				Small	0 1	
				Middle	1 0	
				Large	1 1	
60	1, 2	FAX initial setting	Tone of the successful transmission sound	550Hz	0 0	
				1000Hz	0 1	
				1700Hz	1 0	
	3, 4	FAX initial setting	Tone of the reception sound	550Hz	0 0	
				1000Hz	0 1	
				1700Hz	1 0	
	5 - 7	FAX initial setting	Setting of the time of the transmission/reception error sound	Not used	0 0 0	
				1 : 2.0s	0 0 1	
				2 : 2.5s	0 1 0	
				3 : 3.0s	0 1 1	
				4 : 3.5s	1 0 0	
				5 : 4.0s	1 0 1	
				Not used	1 1 0	
				Not used	1 1 1	
	8	FAX initial setting	External telephone connection	0 : OFF	1 : ON	
61	1 - 4	FAX initial setting	Distinctive link	OFF	0 0 0 0	
				Standard/ON	0 0 0 1	
				Pattern 1	0 0 1 0	
				Pattern 2	1 0 0 0	
				Pattern 3	0 1 0 0	
				Pattern 4	1 1 0 0	
				Pattern 5	0 0 1 0	
				ON (Australia)	1 0 1 0	
				ON (New Zealand)	1 1 1 0	
				ON (Hong Kong)	1 0 0 1	
	5	FAX initial setting	Telephone/FAX in automatic transmission	0 : OFF	1 : ON	
	6	FAX initial setting	Dial-in function	0 : Invalid	1 : Valid	
	7	FAX initial setting	1300Hz detection	0 : Detect	1 : Not detect	
	8	FAX initial setting	Answerphone connection function	0 : OFF	1 : ON	
62	1 - 4	FAX initial setting	Answerphone call number setting	Setting range 0 - 15 times		Two states input
	5 - 8		Not used			
63	1 - 8	FAX initial setting	Remote changeover number setting	Setting range 0 - 9		Two states input

SW No.	Bit No.	System settings	Item	SW selection and function		Remarks
64	1 - 3	FAX initial setting	PBX setting	OFF	0 0 0	
				Flash	1 0 1	
				ID	1 1 0	
	4	FAX initial setting	Data printing hold key operation	0 : Prohibited	1 : Permitted	
	5 ,6		Not used			
	7, 8	FAX initial setting	Paper size setting	A4	0 0	
				8.5x11	0 1	
				8.5x14	1 0	
				16K	1 1	
65	1 - 3	FAX initial setting	Image quality priority selection	Ordinary lettering	0 0 0	
				Small lettering	0 0 1	
				Fine	0 1 0	
				Very fine	0 1 1	
				Not used	1 0 0	
				Small lettering, medium tone	1 0 1	
				Fine, medium tone	1 1 0	
				Very fine, medium tone	1 1 1	
	4 - 8	FAX initial setting	Density default setting	OFF	Automatic	
				Light	1 0 0 0 0	
				Slightly light	0 1 0 0 0	
				Middle	0 0 1 0 0	
				Deep	0 0 0 1 0	
				Slightly deep	0 0 0 0 1	
				Use default values	Other settings than above settings	
66	1	FAX transmission setting	Memory send/Direct send Default setting	0 : Memory send	1 : Direct send	
	2	FAX transmission setting	Quick Memory transmission changeover	0 : Prohibited	1 : Permitted	
	3	FAX initial setting	Designation of date and source printing position	0 : Outside of document (outside of send data)	1 : Inside of document (inside of send data)	
	4 - 5	FAX initial setting	Address confirmation function	OFF	0 0	
				ON	0 1	
				Only for applying the direct input	1 0	
				Not used	1 1	
	6 - 8		Not used			
67	1 - 4	FAX initial setting	Interval between recalls when busy	Setting range 1 - 15 min 4 - 15 min (Taiwan)		Two states input
	5 - 8	FAX initial setting	Number of re-calls when busy	Setting range 0 - 15times (Japan, Taiwan) 0 - 14 times (North America, Canada) 0 - 10 times (England, Germany, France, Middle east, South Africa) 0 - 9 (Australia, New Zealand, Singapore, Malaysia, India) 0 - 3 (China, Hong Kong)		Two states input
68	1 - 4	FAX initial setting	Interval between recalls when communication error	Setting range 1 - 15 min 4 - 15 min (Taiwan) 1 - 15 min (Malaysia, Thailand, India) 0 - 15 min (Other countries than above countries) 0 : Re-send right after the line is disconnected		Two states input
	5 - 8	FAX initial setting	Number of re-calls when communication error	Setting range 0 - 15times (Japan, Taiwan) 0 - 1 times (North America, Canada, Australia) 0 - 5 times (England, Germany, France, Middle east, South Africa) 0 - 9 (Australia, New Zealand, Hong Kong, Malaysia, India) 0 - 3 (China, Hong Kong) 0 - 14 (Taiwan) 0 - 9 (Singapore, Malaysia, India, Brasil)		Two states input

SW No.	Bit No.	System settings	Item	SW selection and function		Remarks
69	1 - 4	Timer	Setting of call time (T0 timer setting) in automatic transmission	Setting range 30 - 45 s (China, Hong Kong) 30 - 75s (Japan) 30 - 35s (Russia) 30 - 60s (Other countries than above countries) 5s intervals X (ms) = (N*5) + 30		Two states input
	5	FAX initial setting	Selection of date and transmission source print	0 : OFF	1 : ON	Two states input
	6 - 8		Not used			
70	1 - 2	FAX initial setting	Reception Lamp	Pattern1	0 0 0	
				Pattern2	1 0 1	
				Pattern3	1 1 0	
	3 - 5	FAX initial setting	Call sound number	Setting range 0 - 15times (Japan, Taiwan, North America, Malaysia, India) 2 - 4 times (New Zealand, Australia) 0 - 3 times (Singapore) 0 - 9 (Other countries than above countries)		Two states input
	7	FAX reception setting/ Setting	Setting for changing over to automatic reception during manual reception	0 : Prohibited	1 : Permitted	
	8	FAX initial setting	Paper tray setting (Tray 1)	0 : OFF	1 : ON	
71	1	FAX initial setting	Paper tray setting (Tray 2)	0 : OFF	1 : ON	
	2, 3	FAX initial setting	Output setting	Reduce the size	0 0	
				Same size	0 1	
				Separate	1 0	
	4	FAX reception setting	Double-faced printing of received data (double-faced reception setting)	0 : Prohibited	1 : Permitted	
	5		Setting of size selection in A4 data reception (AB series)	0 : 210mm with printing	1 : 8.5 inch printing	
	6	FAX reception setting	Specified number reception Enable/Disable setting	0 : Reception Enable	1 : Reception Disable	
	7	FAX initial setting	Polling protection	0 : Protect	1 : Do not protect	
	8		Not used			
72	1 - 4	FAX initial setting	FAX copy off center adjustment (SPF)	0 dot	0 0 0 0	
				7 dot	0 0 0 1	
				14 dot	0 0 1 0	
				21 dot	0 0 1 1	
				28 dot	0 1 0 0	
				35 dot	0 1 0 1	
				42 dot	0 1 1 0	
				49 dot	0 1 1 1	
				0 dot	1 0 0 0	
				- 7 dot	1 0 0 1	
				-14dot	1 0 1 0	
				- 21 dot	1 0 1 1	
				- 28 dot	1 1 0 0	
				- 35 dot	1 1 0 1	
				- 42 dot	1 1 1 0	
				- 49 dot	1 1 1 1	
	5 - 8	FAX initial setting	FAX copy off center adjustment (OC)	0 dot	0 0 0 0	
				7 dot	0 0 0 1	
				14 dot	0 0 1 0	
				21 dot	0 0 1 1	
				28 dot	0 1 0 0	
				35 dot	0 1 0 1	
				42 dot	0 1 1 0	
				49 dot	0 1 1 1	
				0 dot	1 0 0 0	
				- 7 dot	1 0 0 1	
				-14dot	1 0 1 0	
				- 21 dot	1 0 1 1	
				- 28 dot	1 1 0 0	
				- 35 dot	1 1 0 1	
				- 42 dot	1 1 1 0	
				- 49 dot	1 1 1 1	

SW No.	Bit No.	System settings	Item	SW selection and function		Remarks
73-77			Not used			
78	1	Adjustment value	AirFax completion notification timing	0 : Completion of Fax sending	1 : Completion of AirFax acceptance	
	2 - 8		Not used			
79-80			Not used			
81	1 - 4	Adjustment value	Signal sending level	0 - 15 dBm		
	5 - 8		Not used			
82	1 - 3	Adjustment value	Time setting before dialing (20PPS)	50ms	0 0 0	
				60ms	0 0 1	
				70ms	0 1 0	
				80ms	0 1 1	
				90ms	1 0 0	
				100ms	1 0 1	
				110ms	1 1 0	
				120ms	1 1 1	
	4 - 6	Adjustment value	Time setting before dialing (DTMF)	30ms	0 0 0	
				40ms	0 0 1	
				50ms	0 1 0	
				60ms	0 1 1	
				70ms	1 0 0	
				80ms	1 0 1	
				90ms	1 1 0	
				100ms	1 1 1	
	7, 8		Not used			
83	1 - 4	Adjustment value	Setting of DTMF send level (high group)	Setting range 0(0dBm) - 15 (-15dBm) 1dBm intervals		Two states input
	5 - 8	Adjustment value	Setting of DTMF send level (low group)	Setting range 0(0dBm) - 15 (-15dBm)		Two states input
84	1 - 4	Adjustment value	Setting of DTMF send maximum level (high group)	Setting range 0(0dBm) - 15 (-15dBm)		Two states input
	5	Adjustment value	Setting of DTMF send level (low group adjustment)	0 : 0.5dBm adjustment OFF	1 : 0.5dBm adjustment ON	
	6	Adjustment value	Setting of DTMF send level (high group adjustment)	0 : 0.5dBm adjustment OFF	1 : 0.5dBm adjustment ON	
	7	Adjustment value	Polar reverse check when calling	0 : OFF	1 : ON	
	8		Not used			
85	1, 2		Not used			
	3, 4	Setting	External line on-hook time	100ms	0 0	
				200ms	0 1	
				300ms	1 0	
				400ms	1 1	
	5	Setting	External line on-hook detection	0 : Photo coupler	1 : Line voltage	
	6, 7	Setting	External line on-hook detection threshold with Line voltage	16V	0 0	
				18V	0 1	
				20V	1 0	
				22V	1 1	
	8		DPMUTE control	0 : OFF	1 : ON	
86	1 - 4	Adjustment value	DPMUTE time afte dialing	X(ms) = (N * 5) + 5		Two states input
	5 - 8	Adjustment value	The interval till the next call after finishing the communication	Setting range 0 - 15s		Two states input
87	1	Adjustment value	Manual calibration	0 : Perform manual calibration	1 : Does not perform manual calibration	Two states input
	2, 3	Adjustment value	External line off-hook detection time under the simulated voltage addition	50ms	0 0	
				100ms	0 1	
				200ms	1 0	
				300ms	1 1	
	4 - 8		Not used			
88-89			Not used			
90	1 - 8	Adjustment value	Minimum cycle of CI signal	CI signal maximum cycle +1 to 255 ms(1ms interval)		Two states input

SW No.	Bit No.	System settings	Item	SW selection and function		Remarks
91	1 - 8	Adjustment value	Maximum cycle of CI signal	12 to 254 ms(1ms interval)		Two states input
92	1 - 3	Adjustment value	CI signal ON detection time	155ms	0 0 0	
				165ms	0 0 1	
				175ms	0 1 0	
				185ms	0 1 1	
				195ms	1 0 0	
				205ms	1 0 1	
				215ms	1 1 0	
				225ms	1 1 1	
	4	Adjustment value	Ring ON OFFSET	0 : No	1 : +100ms	Two states input
	5	Adjustment value	Ring OFF OFFSET	0 : No	1 : +100ms	Two states input
	6 - 8		Not used			
93	1 - 8	Adjustment value	CI signal Threshold value	Not used at this moment		Two states input
94-95			Not used			
96	1	Adjustment value	Telephone/FAX CNG judgement	0 : Perform CNG judgement	1 : Does not perform CNG judgement	
	2	Adjustment value	Telephone/FAX CNG 4s observation	0 : Observe 4s	1 : Does not observe 4s.	
	3 - 8		Not used			
97	1		Not used			
	2 - 3	Setting	Time out setting when the image cannot be detected during receiving the data (V1.7)	30s	0 0	
				40s	0 1	
				50s	1 0	
				60s	1 1	
	4 - 7	Adjustment value	Maximum signal send level	Setting range 0(0dBm) - 15 (-15dBm)		Two states input
	8	Adjustment value	Maximum signal send level adjustment	0 : Not used	1 : 0.5dBm adjustment	Two states input
98	1	FAX initial setting	ECM byte/frame	0 : 256[byte/frame]	1 : 64[byte/frame]	
	2	FAX transmission setting	JBIG encode line template selection	0 : 3 line template	1 : 2 line template	
	3	FAX initial setting	Apply with the one stripe and one page length when receiving the JBIG data.	0 : Applied	1 : Not applied	
	4	FAX initial setting	JBIG encode TP mode	0 : TP mode invalid	1 : TPmode valid	
	5	FAX initial setting	Last stripe	0 : Applied	1 : Not applied	
	6 - 7		Not used			
	8		Waiting time between flames	0 : 3.4s	1 : 4.4s	
99	1	Adjustment value	Time up time on v.8 mode	0 : 10s	1 : 15s	
	2	Adjustment value	Timer out between flames	0 : Does not check	1 : Check	
	3 - 4	Setting	Minimum flag numbers between flames	1-flag	0 0	
				2-flag	0 1	
				3-flag	1 0	
				4-flag	1 1	
	5 - 6	Setting	Time out setting when the image cannot be detected during receiving the data	30s	0 0	
				60s	0 1	
				90s	1 0	
				120s	1 1	
	7 - 8	Setting	PPR occurrence number limitation when the image cannot be detected during receiving the data	No limitation	0 0	
				5 times	0 1	
				10 times	1 0	
				15 times	1 1	
100	1	FAX initial setting	Moves to non-V.34 communication	0 : Does not move	1 : Move	
	2 - 6	Adjustment value	Timeout value used by the answering modem from the beginning of the +FRH=FSKL command to the +A8I:0 indicator	Setting range 0 - 26s		Two states input
	7 - 8	Setting	Threshold of Packet error ratio	Not used	0 0	
				100%	0 1	
				50%	1 0	
				33.3%	1 1	

SW No.	Bit No.	System settings	Item	SW selection and function		Remarks
101	1		Silent time adjustment when receiving CM	0 : 75ms	1 : 500ms	
	2		Individual SiDaa setting judgement after AT+GCI (ADDG1)	0 : Only GCI command of AT	1 : Activate the SW of individual SiDAA registor (U62) below GCI +.	
	3		Individual SiDaa setting judgement after AT+GCI (ADDG3)	0 : Only GCI command of AT	1 : Activate the SW of individual SiDAA registor (U63) below GCI +.	
	4		Individual SiDaa setting judgement after AT+GCI (ADDG4)	0 : Only GCI command of AT	1 : Activate the SW of individual SiDAA registor (U65) below GCI +.	
	5		Individual SiDaa setting judgement after AT+GCI (ADDG5)	0 : Only GCI command of AT	1 : Activate the SW of individual SiDAA registor (U66) below GCI +.	
	6		Individual SiDaa setting judgement after AT+GCI (ITC1)	0 : Only GCI command of AT	1 : Activate the SW of individual SiDAA registor (U67) below GCI +.	
	7		Individual SiDaa setting judgement after AT+GCI (ITC3)	0 : Only GCI command of AT	1 : Activate the SW of individual SiDAA registor (U68) below GCI +.	
	8		Individual SiDaa setting judgement after AT+GCI (ITC4)	0 : Only GCI command of AT	1 : Activate the SW of individual SiDAA registor (U6A) below GCI +.	
102	1		U62 Reg. DAAC1 FULL2	0 : DAA FULL2 bit cleared	1 : DAA FULL2 bit set.	
	2		U62 Reg. DAAC1 On-Hook Speed 2	0 : Not used at this moment	1 : Not used at this moment	
	3		U62 Reg. DAAC1 FOH	0 : Automatic calibration timer set to 426 ms.	1 : Automatic calibration timer set to 106 ms.	
	4		U62 Reg. DAAC1 DL	0 : Digital loopback beyond isolation capacitor interface.	1 : Digital loopback across isolation capacitor interface only.	
	5 - 8		U63 Reg. DAAC3 AC Termination Select	Real 600 Ω	0 0 0 0	
				220 Ω + (820 Ω || 120 nF) and 220 Ω + (820 Ω || 115 nF)	0 0 1 1	
				370 Ω + (620 Ω || 310 nF)	0 1 0 0	
				Global complex impedance	1 1 1 1	
103	1		U65 Reg. DAAC4 PWM Gain	0 : No gain.	1 : 6 dB gain applied to AOUT.	
	2		U65 Reg. DAAC4 Powerdown	0 : Normal.	1 : Powerdown.	
	3		U65 Reg. DAAC4 Powerdown Line-Side Chip	0 : Normal operation.	1 : Places the Si3018 in powerdown mode.	
	4		U66 Reg. DAAC5 Frame Detect	0 : Isolation link frame lock not established.	1 : Isolation link frame lock established.	
	5 - 6		U67 Reg. ITC1 Minimum Operational Loop Current	10mA	0 0	
				12mA	0 1	
				14mA	1 0	
				16mA	1 1	
	7		U67 Reg. ITC1 Current Limiting Enable	0 : Current limiting mode disabled.	1 : Current limiting mode enabled.	
	8		U67 Reg. ITC1 DC Impedance Selection	0 : 50 Ω dc termination slope is selected.	1 : D800 Ω dc termination is selected.	
104	1 - 2		U67 Reg. ITC1 TIP/RING Voltage Adjust	3.1 V–4 dB	0 0	
				3.2 V–2 dB	0 1	
				3.35 V0 dB	1 0	
				3.5 V0 dB	1 1	
	3		U67 Reg. ITC1 Ringer Impedance	0 : Maximum (high) ringer impedance.	1 : Synthesize ringer impedance. C	
	4		U67 Reg. ITC1 Ringer Threshold Select	0 : 11 to 22 Vrms.	1 : 17 to 33 Vrms.	
	5		U67 Reg. ITC1 On-Hook Speed	0 : Not used at this moment	1 : Not used at this moment	
	6		U68 Reg. ITC3 Billing Tone Protect Enable	0 : Disabled.	1 : Enabled.	
	7		U68 Reg. ITC3 Receive Overload	0 : Normal receive input level.	1 : Excessive receive input level.	
	8		U68 Reg. ITC3 Billing Tone Detected	0 : No billing tone.	Billing tone detected (cleared by writing 0).	

SW No.	Bit No.	System settings	Item	SW selection and function		Remarks
105	1		U6A Reg. ITC4 Spark quenching. SQ1	0 : Not used at this moment	1 : OHS OHS2 SQ1 SQQ AOUT.	
	2		U6A Reg. ITC4 Spark quenching. SQQ	0 : 0 1 0 0 3ms +/- 10% (meets ETSI standard)	1 : 1 x 1 1 26 ms +/- 10% (meets Australia spark quenching spec).	
	3		U6A Reg. ITC4 Loop current loss:	0 : No loop current loss	1 : Loop current loss	
	4		1800 Hz Guard Tone Enable	0 : Disable	1 : Enable	
	5 - 6		V.34 Precoder Options.	Allow precoder use. However, if packet error percentage is greater than UD6 threshold, negotiate lower primary channel rate and stop using precoder.	0 0	
				Allow precoder use. However, if packet error percentage is greater than UD6 threshold, negotiate lower primary channel rate but keep using precoder.	0 1	
				Never use precoder	1 0	
				Never use precoder	1 1	
	7		Disable automatic TX level control during V.34 transmission.	0 : automatic TX level control during V.34 enabled.	1 : automatic TX level control during V.34 disabled.	
	8		Not used			
106	1 - 4		V.34 Connection Aggressiveness Control	Use ROM Table with automatic aggressiveness setting.	0 0 0 0	
				Use ROM Table (most aggressive).	0 0 1 0	
				Use ROM Table (more aggressive).	0 0 1 1	
				Use ROM Table (aggressive).	0 1 0 0	
				Use ROM Table (less aggressive).	0 1 0 1	
				Use ROM Table (least aggressive).	0 1 1 0	
	5 - 6		G3 dropout threshold	6.0 dB	0 0	
				4.1 dB	0 1	
				2.5 dB	1 0	
				1.1 dB	1 1	
	7		Disable G3 Echo Suppression when the modem is the originator.	0 : G3 Echo Suppression Enabled	1 : G3 Echo Suppression Disabled	
	8		Disable G3 Echo Suppression when the modem is the answerer.	0 : G3 Echo Suppression Enabled	1 : G3 Echo Suppression Disabled	
107	1		Add slight pre-emphasis to V.34 CC to overcome attenuation at high frequency.	0 : Enable	1 : Disable	
	2		Mechanism to watch for the case where the V.34 Primary Channel	0 : Enable this mechanism	1 : Disable this mechanism	
	3 - 5		Number of additional V.34 control channel inter frame flags	0-flag	0 0 0	
				1-flag	0 0 1	
				2-flag	0 1 0	
				3-flag	0 1 1	
				4-flag	1 0 0	
				5-flag	1 0 1	
				6-flag	1 1 0	
				7-flag	1 1 1	
	6 - 8		Number of additional V.34 primary channel inter frame flags	0-flag	0 0 0	
				1-flag	0 0 1	
				2-flag	0 1 0	
				3-flag	0 1 1	
				4-flag	1 0 0	
				5-flag	1 0 1	
				6-flag	1 1 0	
				7-flag	1 1 1	
108	1 - 4		Guaranteed V.34 preamble duration for primary channel	Setting value +50ms		Two states input
	5 - 8		Guaranteed V.34 preamble duration for control channel	Setting value +50ms		Two states input

SW No.	Bit No.	System settings	Item	SW selection and function		Remarks
109	1 - 3		Delayed time from ANSam detection	1.0s	0 0 0	
				1.5s	0 0 1	
				2.0s	0 1 0	
				2.5s	0 1 1	
				3.0s	1 0 0	
				3.5s	1 0 1	
				4.0s	1 1 0	
				4.5s	1 1 1	
	4 - 5		Not used			
	6		Measure the communication time (Image)	0 : OFF	1 : ON	
	7 - 8		Not used			
110 - 111			Not used			
112	1, 2		CNG send starting time	0.5s	0 0	
				1.0s	0 1	
				1.5s	1 0	
	3, 4		RCP send number	3 times	0 0	
				6 times	0 1	
				9 times	1 0	
				12 times	1 1	
	5, 6		V.34 retrain PPR number when sending	Does not retrain	0 0	
				1 times	0 1	
				2 times	1 0	
				3 times	1 1	
	7, 8		CI send number to move to non-V.34 communication	Does not retrain	0 0	
				1 times	0 1	
				2 times	1 0	
				3 times	1 1	
113	1	FAX initial setting/ Adjustment value	Super G3 invalid when the last call is re-sent at error	0 : Super G3 invalid	1 : Super G3 valid	
	2	FAX initial setting	Prohibit/Permit the re-call of direct send	0 : Prohibited	1 : Permitted	
	3, 4		Not used			
	5		Operation when receiving EER flame	0 : Does not continue operation	1 : Continue operation	
	6 - 8		Not used			
114 - 115			Not used			
116	1, 2		Line error ratio of RTN sending	6line	0 0	
				12line	0 1	
				60line	1 0	
				120line	1 1	
	3, 4		Waiting time of CED starting sending	2.25s	0 0	
				3s	0 1	
				4s	1 0	
	5, 6		Waiting time of ANSam starting sending	2.25s	0 0	
				3s	0 1	
				4s	1 0	
	7, 8		Not used			
117	1 - 8		Not used			
118	1, 2		CI send number to move to non-V.34 communication	Does not move	0 0	
				1 times	0 1	
				2 times	1 0	
				3 times	1 1	
	3, 4		V.34 retrain PPR number when receiving Data ratio : More than 16800bps	Does not retrain	0 0	
				1 times	0 1	
				2 times	1 0	
				3 times	1 1	
	5, 6		V.34 retrain PPR number when receiving Data ratio : More than 14400bps	Does not retrain	0 0	
				1 times	0 1	
				2 times	1 0	
				3 times	1 1	
	7		Primary channel fall back when V.34 is received	0 : Does not fall back	1 : Fall back	
	8		Not used			

SW No.	Bit No.	System settings	Item	SW selection and function		Remarks
119	1, 2		Not used			
	3, 4		SC threshold of TCF reception judgement	Loose(-3 dB against the Normal)	0 0	
				Normal (Default)	0 1	
				Severe (+3 dB against the Normal)	1 0	
				Not used at this moment	1 1	
	5 - 8		Not used			
120-122			Not used			
123	1		Alternate reception	0 : OFF	1 : ON	
	2		Document quantity count confirmation when the error occurs	0 : Remove the sending error page	1 : Include the sending error page	
	3		Remaining receivable memory	0 : 128KB	1 : 64KB	
	4		Recover from the energy saving of external telephone	0 : Does not recover	1 : Recover	
	5		Origin telephone number registration	0 : Possible	1 : Impossible	
	6		PC-FAX job finish waiting time	0 : 2min	1 : 10min	
	7, 8		Modem speaker volume	OFF	0 0	
				Low	0 1	
				Medium	1 0	
				High	1 1	
124	1		Telephone line menu	0 : Permitted	1 : Prohibited	
	2		Extend the time of FSS data reception (Extend the communication time)	0 : Not used at this moment	1 : Not used at this moment	
	3		Not used			
	4 - 7		TEL/LIU PWB setting	Japan	0 0 0 0	
				Europe	0 0 0 1	
				North America	0 0 1 0	
				South Africa/Middle East	0 1 0 0	
				China	0 1 0 1	
				No	0 1 1 0	
	8		Not used			
125	1		Test mode judgement flag	0 : Normal mode	1 : Test mode	
	2, 3		Threshold of primary channel fall back EQM when V.34 is received	Very fine	0 0	
				Fine	0 1	
				Small	1 0	
				Normal	1 1	
	4, 5		Not used			
	6, 7		Delayed time when releasing the line during the dial test	2s	0 0	
				3s	0 1	
				4s	1 0	
				5s	1 1	
	8		Not used			
126	1		CNG display function	0 : CNG display valid	1 : CNG display invalid	
	2		CNG detection judgement	0 : Normal mode	1 : CNG detection invalid	
	3 - 8		Not used			
127-139			Not used			
140	1 - 5		Not used			
	6		CI detection method	0 : Ring detection circuit	1 : Silicon DAA-RGDT signal	
	7, 8		Not used			
141-150			Not used			

B. Fax software switch initial value list

Destination	Destination name	Destination	Destination name	Destination	Destination name
A	North America	N	India	a	South Africa
B	Canada	O	Hong Kong	b	Czech
C	U.K.	P	Sweden	c	Slovakia
D	Germany	Q	Spain	d	Hungary
E	France	R	Portugal	e	Greece
F	Australia	S	Italy	f	Poland
G	New Zealand	T	Switzerland	g	Russia
H	China	U	Finland	h	Brazil
I	Taiwan	V	Denmark	i	Viet Nam
J	Singapore	W	Norway	j	Korea
K	Malaysia	X	Netherland		
L	Thailand	Y	Luxemburg		
M	Middle East	Z	Belgium		

SW NO.	Bit NO.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	a	b	c	d	e	f	g	h	i	j
SW1	1	1	0	1	0	0	0	0	0	1	1	0	1	1	0	0	1	1	1	0	1	0	0	1	0	0	0	1	0	1	0	0	1	1	0	1	0
	2	0	0	0	0	0	0	1	0	1	0	1	0	1	1	1	0	0	0	1	0	0	0	0	1	1	0	0	0	1	1	1	0	0	0	0	1
	3	1	1	1	0	1	0	1	1	1	0	1	1	1	0	0	1	1	0	0	1	1	1	0	1	1	0	0	1	1	0	0	0	1	0	1	1
	4	1	0	1	0	1	0	1	0	1	1	0	0	1	1	1	0	0	0	1	0	1	1	0	1	0	0	1	0	1	1	0	0	1	1	1	0
	5	0	0	0	0	1	1	1	0	1	1	1	1	1	0	0	0	0	1	1	0	1	0	0	1	1	1	1	1	1	0	0	1	1	0	1	0
	6	1	0	1	1	1	0	1	1	1	1	1	0	1	0	0	1	0	0	0	1	1	0	0	0	0	1	1	1	1	0	1	0	0	1	1	0
	7	0	0	0	0	0	0	1	1	1	0	0	0	0	1	0	0	0	1	0	1	0	0	1	1	0	1	1	1	0	0	1	1	0	1	0	0
	8	1	0	0	0	1	1	0	0	0	0	0	1	1	1	0	1	0	1	1	0	0	1	0	1	1	1	1	0	0	1	0	0	0	0	0	1

SW NO.	Bit NO.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	a	b	c	d	e	f	g	h	i	j
SW2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1	1	0	0
	6	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	0	1	1	1	0	1	1	0	0	0
	7	0	0	1	0	1	0	0	1	1	1	1	1	1	1	1	1	0	0	0	0	0	1	0	1	1	1	1	1	0	0	1	0	1	0	1	0
	8	1	1	0	0	1	1	1	1	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	1	1	0	0	1	1	1	0	1	1	0	1
SW3	1	1	1	1	1	1	1	1	0	0	0	0	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	2	0	0	1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	0
	3	0	0	0	0	0	1	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0
	4	1	1	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
	5	1	1	0	1	0	0	0	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1	1	1	1	1	1	0	1	1
	6	1	1	1	1	1	1	1	0	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1
	7	1	1	1	1	1	1	1	1	1	1	1	0	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1
	8	0	0	1	0	1	0	1	0	1	1	1	0	0	1	1	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	1	1	0	0
SW4	1	0	0	1	1	1	1	0	0	0	0	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	0
	2	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	0
	3	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	1	1	1	1	1	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
SW6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	1	1	1	0	0	0	0	0	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	0	0	1	0
	6	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0	1
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	1	1	0	0	0	1	1	1	1	1	1	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0	1
SW8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW9	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SW NO.	Bit NO.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	a	b	c	d	e	f	g	h	i	j
SW10	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW11	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW12	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	1	1	1	1	1	1	1	0	1	1	1	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	7	1	1	1	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1
	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
SW13	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW14	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW15	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW16	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW17	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

SW NO.	Bit NO.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	a	b	c	d	e	f	g	h	i	j
SW18	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW19	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	1	1	1	1	1	0	0	0	1	0	0	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	1
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW20	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW21	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW22	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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SW23	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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SW24	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW25	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
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	5	1	1	1	1	1	0	1	0	1	0	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	1
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	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SW NO.	Bit NO.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	a	b	c	d	e	f	g	h	i	j
SW26	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW27	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
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	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW28	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW29	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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SW30	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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SW31	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW32	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW33	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SW NO.	Bit NO.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	a	b	c	d	e	f	g	h	i	j
SW34	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW35	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW36	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
SW37	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
SW38	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW39	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0
SW40	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW41	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SW NO.	Bit NO.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	a	b	c	d	e	f	g	h	i	j
SW42	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW43	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW44	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW45	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
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	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
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SW46	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
SW47	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
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	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW48	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW49	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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SW NO.	Bit NO.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	a	b	c	d	e	f	g	h	i	j
SW50	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	1	1	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
	4	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	5	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	6	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	1	1	1	1	0	0	0	1	1	1	1	1	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW51	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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SW52	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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SW53	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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SW54	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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SW55	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
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SW56	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
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SW57	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SW NO.	Bit NO.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	a	b	c	d	e	f	g	h	i	j
SW58	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0
	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW59	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW60	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
SW61	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW62	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW63	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
SW64	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW65	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SW NO.	Bit NO.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	a	b	c	d	e	f	g	h	i	j
SW66	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW67	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	4	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW68	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	4	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	1	1	1	1	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
	8	1	1	1	1	1	1	1	0	0	0	0	0	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1
SW69	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1
	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW70	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
SW71	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW72	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW73	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SW NO.	Bit NO.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	a	b	c	d	e	f	g	h	i	j
SW74	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW75	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW76	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW77	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW78	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW79	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW80	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW81	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	1	1	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1
	4	1	1	1	1	1	1	1	0	1	0	0	0	0	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SW NO.	Bit NO.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	a	b	c	d	e	f	g	h	i	j
SW82	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW83	1	0	0	1	1	1	0	1	1	0	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	0
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SW84	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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SW85	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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SW86	1	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	0
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SW87	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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SW88	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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SW89	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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SW NO.	Bit NO.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	a	b	c	d	e	f	g	h	i	j
SW90	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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SW91	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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SW92	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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SW93	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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SW96	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW97	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	1	1	1	1	1	0	0	0	0	1	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0
	5	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	1	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
	7	1	1	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SW NO.	Bit NO.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	a	b	c	d	e	f	g	h	i	j
SW98	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW99	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW100	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
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SW101	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
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	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW102	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW103	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW104	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW105	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SW NO.	Bit NO.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	a	b	c	d	e	f	g	h	i	j
SW106	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW107	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW108	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW109	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW110	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW111	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW112	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW113	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SW NO.	Bit NO.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	a	b	c	d	e	f	g	h	i	j
SW114	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW115	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW116	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW117	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW118	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW119	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW120	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW121	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SW NO.	Bit NO.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	a	b	c	d	e	f	g	h	i	j
SW122	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW123	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
SW124	1	0	0	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0
	6	1	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	7	0	0	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0	1	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW125	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW126	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW127	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW128	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW129	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SW NO.	Bit NO.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	a	b	c	d	e	f	g	h	i	j
SW130	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW131	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW132	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW133	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW134	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW135	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW136	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW137	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SW NO.	Bit NO.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	a	b	c	d	e	f	g	h	i	j
SW138	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW139	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW140	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW141	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
SW142	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
SW143	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW144	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW145	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

SW NO.	Bit NO.	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	a	b	c	d	e	f	g	h	i	j
SW146	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW147	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW147	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW148	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW149	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SW150	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

***1 BT detection range table**

	BT				
		ON Time 1	OFF Time 1	Minimum cycle	Maximum cycle
		Total Time		Minimum ON Time	
Japan		500	500	640	1400
		1000		320	
North America		500	500	500	1000
		1000		250	
U.K.		375	375	300	1410
		750		150	
Germany		480	480	300	1410
		960		150	
France		500	500	300	1410
		1000		150	
Australia		375	375	600	2500
		750		300	
New Zealand		500	500	500	1000
		1000		250	
China		350	350	700	1400
		700		350	

	BT				
		ON Time 1	OFF Time 1	Minimum cycle	Maximum cycle
		Total Time		Minimum ON Time	
Taiwan		500	500	1000	1000
		1000		500	
Singapore		750	750	500	1500
		1500		250	
Malaysia		500	500	750	1000
		1000		500	
Thailand		500	500	600	1000
		1000		300	
Middle East		500	500	500	1600
		1000		220	
India		750	750	500	1500
		1500		250	
Hong Kong		500	500	500	1100
		1000		250	

		BT			
		ON Time 1	OFF Time 1	Minimum cycle	Maximum cycle
		Total Time		Minimum ON Time	
Sweden	I	250	250	300	1410
		500		150	
	II	500	500		
		1000			
Spain	I	200	200	300	1410
		400		150	
	II	500	500		
		1000			
Portugal		500	500	300	1410
		1000		150	
Italy		500	500	300	1410
		1000		150	
Switzerland		500	500	300	1410
		1000		150	
Finland		300	300	300	1410
		600		150	
Denmark	I	250	250	300	1410
		500		150	
	II	500	500		
		1000			
Norway		500	500	300	1410
		1000		150	
Netherland		500	500	300	1410
		1000		150	
Luxemburg		480	480	300	1410
		960		150	
Belgium		500	500	300	1410
		1000		150	
South Africa		500	500	500	1100
		1000		250	
Czech		330	330	300	1410
		660		150	
Slovakia		330	330	300	1410
		660		150	
Hungary		300	300	300	1410
		600		150	
Greece		300	300	300	1410
		600		150	
Poland		500	500	300	1410
		1000		150	
Russia		400	400	600	800
		800		300	
Brazil		250	250	450	550
		500		225	
Viet Nam				300	1410
				150	
Korea				500	1000
				300	

	Default values		
	Lower limit of the detection time during talking	Upper limit of the detection time during talking	Minimum BT ON time
	SW20 - 1-4	SW20 - 5-8	SW15 - 1-4
Japan	570	1600	280
North America	450	1100	220
U.K.	270	1560	140
Germany	270	1560	140
France	270	1560	140
Australia	540	2750	270
New Zealand	450	1100	220
China	630	1540	310
Taiwan	570	1600	280
Singapore	450	1650	220
Malaysia	680	1100	450
Thailand	540	1100	270
Middle East	450	1760	200
India	450	1650	220
Hong Kong	450	1210	220
Sweden	270	1560	140
Spain	270	1560	140
Portugal	270	1560	140
Italy	270	1560	140
Switzerland	270	1560	140
Finland	270	1560	140
Denmark	270	1560	140
Norway	270	1560	140
Netherland	270	1560	140
Luxemburg	270	1560	140
Belgium	270	1560	140
South Africa	450	1210	220
Czech	270	1560	140
Slovakia	270	1560	140
Hungary	270	1560	140
Greece	270	1560	140
Poland	270	1560	140
Russia	270	880	140
Brazil	400	610	200
Viet Nam	270	1560	140
Korea	450	1100	270

[7] SELF DIAG AND TROUBLE CODE

1. Trouble 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.

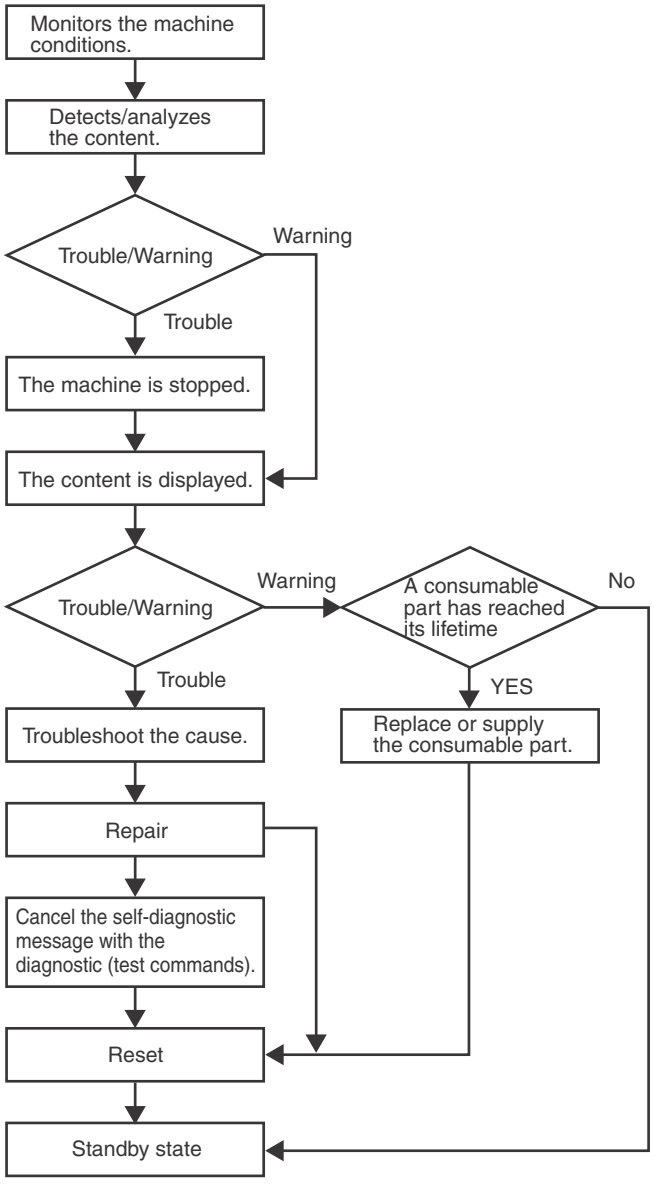
A warning message is displayed when a consumable part life is nearly expired or is expired.

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) Trouble code and operatable mode

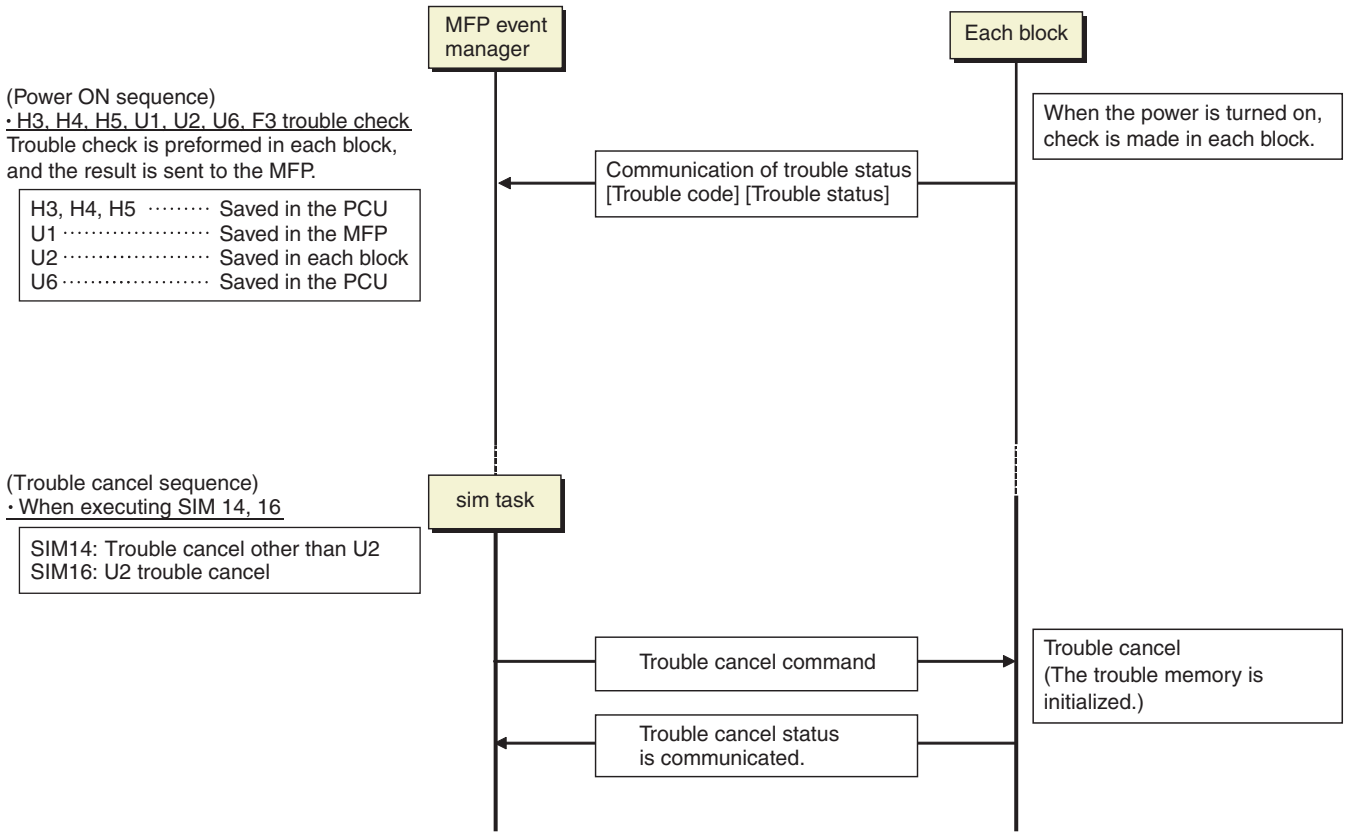
Trouble content		Judg-ment block	Trouble code	Operatable mode					
				Copy scan (including interrup-tion)	Scan (Push)	Scan (Pull)	List print	FAX Send	FAX print
FAX board trouble	• FAX board breakdown	ICU	F6 (00, 04, 21)	x	x	x	x	x	x
Operation communication trouble	• OPU communication trouble		U9 (00, 81, 82, 84, 88, 99)	x	x	x	x	x	x
Backup battery voltage fall trouble_save	• Backup battery voltage fall		U1 (01)	x	x	x	x	x	x
Operation disable trouble 2	• Connection trouble • Memory error (included not installed the expansion RAM)		A0 (30) U2 (00, 05, 06, 11)	x	x	x	x	x	x
Operation disable trouble 3	• Image memory trouble, decode error		E7 (01, 91, 93)	x	x	x	x	x	x
Laser trouble	• Laser breakdown	PCU	E7 (20, 21) L6 (10)	x	x	x	x	x	x
Engine trouble 2_save	• PCU troubles (motor, fusing, etc.)		H3 (00, 02) H4 (00, 02, 30) H5 (01) U2 (91)	x	x	x	x	x	x
Engine trouble 2	• PCU troubles (motor, fusing, etc.)		F2 (22, 40, 64, 70, 74) H2 (00, 02, 03, 06) H7 (10, 12) L4 (01, 14, 17, 31, 32, 35, 39, 43) L8 (01, 02)	x	x	x	x	x	x
Paper feed tray 2 trouble_save	• Paper feed tray 2 breakdown		U6 (01)	x	x	x	x	x	x
Paper feed tray other troubles	• Paper feed tray other breakdown		U6 (00, 11, 50, 56)	x	x	x	x	x	x
Other troubles	• Other troubles		EE (EC, EL, EU)	x	x	x	x	x	x
Process control trouble	• Process control breakdown (PCU detection)		F2 (39, 58, 78)	x	x	x	x	x	x
Scanner trouble 2	• Scanner section breakdown (mirror motor, lens, copy lamp)		L1 (00) L3 (00)	x	x	x	x	x	x
CCD trouble	• CCD breakdown (shading, etc.)		E7 (10, 11, 14)	x	x	x	x	x	x

Trouble where only history data are saved

Trouble content	Judg-ment block	Trouble code	Operatable mode					
			Copy scan (including interrup-tion)	Scan (Push)	Scan (Pull)	List print	FAX Send	FAX print
(only history data are saved) (PCU detection)	PCU	E7(38)	○	○	○	○	○	○

○: Operation enabled ×: Operation disabled

(2) Trouble detection sequence and trouble cancel sequence when turning on the power



F. Trouble code list

Trouble code		Trouble description	Trouble detection
A0	30	Machine configuration error	MFPC
E7	01	Image data error	MFP
	10	Shading error(Black level)	SCU
	11	Shading error(White level)	SCU
	14	CCD-ASIC error	SCU
	20	LSU laser detection error	PCU
	21	LSU laser deterioration trouble	PCU
	38	Quatro chip AD adjustment error	PCU
	80	Communication error between ICU and SCU	MFP
	90	Communication error between ICU and PCU	MFP
	91	Decode error(FAX received image data)	MFP
	93	Decode error(Copy, image send, FAX, filing, print image data)	MFP
EE	EC	Automatic toner density adjustment error(Sampling abnormal)	PCU
	EL	Automatic toner density adjustment error(Over toner)	PCU
	EU	Automatic toner density adjustment error(Under toner)	PCU
F2	22	Discharge lamp trouble	PCU
	39	Temperature and humidity sensor trouble (temperature)	PCU
	40	Toner concentration sensor trouble	PCU
	58	Temperature and humidity sensor trouble (humidity)	PCU
	64	Black toner supply trouble	PCU
	70	Mismatched black toner cartridge	PCU
	74	Black CRUM error	PCU
	78	Image density sensor error	PCU
F6	00	Communication errorMFP - FAX)	MFP
	04	FAX modem error	FAX
	21	Combination error(LIU - FAX soft SW setting)	FAX
H2	00	Thermistor open trouble (TH_UM_AD2)	PCU
	02	Thermistor open trouble (TH_US)	PCU
	03	Thermistor open trouble (TH_UM_AD1)	PCU
	06	Thermistor open trouble (TH_US2)	PCU

Trouble code		Trouble description	Trouble detection
H3	00	Fuser high temperature trouble (TH_UM)	PCU
	02	Fuser high temperature trouble (TH_US1)	PCU
H4	00	Fuser low temperature trouble (TH_UM)	PCU
	02	Fuser low temperature trouble (TH_US1)	PCU
	30	Fuser different input trouble (TH_UM)	PCU
H5	01	5 times continuous POD1 not-reach jam	PCU
H7	10	Recovery error from fuser low temperature (TH_UM)	PCU
	12	Recovery error from fuser low temperature (TH_US)	PCU
L1	00	Scanner feed trouble	SCU
L3	00	Scanner return trouble	SCU
L4	01	Main motor lock trouble	PCU
	14	Toner cartridge motor lock trouble	PCU
	17	Drum motor lock trouble	PCU
	31	Paper delivery cooling fan trouble	PCU
	32	Power supply unit fan trouble	PCU
	35	Fuser cooling fan trouble	PCU
	39	Machine cooling fan trouble	PCU
	43	Paper cooling fan trouble	PCU
L6	10	Polygon motor trouble	PCU
L8	01	Full wave signal detection error	PCU
	02	Abnormal full wave signal error	PCU
U1	01	Battery trouble	MFP
U2	00	MFP EEPROM read/write error	MFP
	05	Erroneous detection of account management data	MFP
	06	Memory content Error (Flash ROM sector management error) detection eMMC Read Error Detection	MFP
	11	MFP EEPROM counter check sum error	MFP
	91	PCU EEPROM check sum error	PCU
U6	00	PCU - Paper feed desk (paper feed tray 2) communication error	PCU
	01	Desk paper feed tray 1 lift trouble	PCU
	11	Desk paper feed tray 1 transport trouble	PCU
	50	Desk - Main unit combination trouble	PCU
	56	Desk paper feed tray 1 firmware error	PCU
U9	00	Communication trouble between the controller and OPU	MFPC
	81	OPU communication trouble (parity)	MFPC
	82	OPU communication trouble (overrun)	MFPC
	84	OPU communication trouble (flaming) * Flaming is the one kind of communication error related with the length and the parity bit	MFPC
	88	OPU communication trouble (time-out)	MFPC
	99	OPU language error	MFPC

G. Details of trouble codes and countermeasures

A0-30 Machine configuration error

Trouble detection	MFP
Cause	FAX PWB is broken Wireless LAN PWB is not connected properly Wireless LAN PWB is broken RSPF/SPF is not connected properly RSPF/SPF is broken
Check & Remedy	Check connection of FAX PWB Replace FAX modem PWB Check connection of Wireless LAN PWB Replace Wireless LAN PWB Check connection of RSPF/SPF Replace RSPF/SPF

E7-01 Image data error

Trouble detection	MFP
Cause	Image data transfer error in MFPC PWB MFPC PWB trouble
Check & Remedy	Check connection state of MFPC PWB connector, harness Replace MFPC PWB

E7-10 Shading error(Black level)

Trouble detection	SCU
Cause	Abnormality in the CIS black scan level when the copy lamp is turned OFF. Improper installation of the harness to the CIS unit/MFPC PWB. Improper installation of the harness to the CIS unit/AFE PWB. Improper installation of the harness to the MFPC PWB/ AFE PWB. CIS unit abnormality. AFE PWB abnormality. MFPC PWB abnormality.
Check & Remedy	Check connection of the harness to the CIS unit/MFPC PWB. Check connection of the harness to the CIS unit/AFE PWB. Check connection of the harness to the AFE PWB/MFPC PWB. Check the CIS unit. Check the AFE PWB. Check the MFPC PWB.

E7-11 Shading error(White level)

Trouble detection	SCU
Cause	Abnormality in the CIS white reference plate scan level when the scanner lamp is turned ON. Improper installation of the harness to the CIS unit/MFP PWB. Improper installation of the harness to the CIS unit/AFE PWB. Improper installation of the harness to the MFPC PWB/ AFE PWB. Dirt on the mirror, lens, and the reference white plate. Copy lamp lighting trouble. CIS unit abnormality. AFE PWB abnormality. MFPC PWB abnormality.
Check & Remedy	Check connection of the harness to the CIS unit/MFPC PWB. Check connection of the harness to the CIS unit/AFE PWB. Check connection of the harness to the MFPC PWB/AFE PWB. Check connection of the harness to the Copy lamp unit. Clean the mirror, the lens, and the reference white plate. Check the CIS unit. Check the AFE PWB. Check the MFPC PWB

E7-14 CIS-ASIC error

Trouble detection	SCU
Cause	MFPC PWB trouble. AFE PWB trouble. MFPC PWB trouble. Improper installation of the harness to the MFPC PWB/AFE PWB.
Check & Remedy	Check the MFPC PWB. Replace the MFPC PWB. Check the AFE PWB. Replace the AFE PWB. Check connection of the harness to the AFE PWB/MFPC PWB.

E7-20 LSU laser detection error

Trouble detection	PCU
Cause	Reduced laser power, lighting error, laser diode trouble LSU connector, harness connection trouble LSU unit trouble MFPC PWB trouble
Check & Remedy	SIM61-1 to execute Check connection state of LSU connector, harness Replace LSU unit Replace MFPC PWB

E7-21 LSU laser deterioration error

Trouble detection	PCU
Cause	Reduced laser power, lighting error, laser diode trouble LSU connector, harness connection trouble LSU unit trouble MFPC PWB trouble
Check & Remedy	SIM61-1 to execute Check connection state of LSU connector, harness Replace LSU unit Replace MFPC PWB

E7-38 Quatro chip AD adjustment error

Trouble detection	PCU
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.

E7-80 Communication error between ICU and SCU

Trouble detection	MFP
Cause	MFPC PWB trouble
Check & Remedy	Check connection state of MFPC PWB connector, harness Replace MFPC PWB

E7-90 Communication error between ICU and PCU

Trouble detection	MFP
Cause	MFPC PWB trouble
Check & Remedy	Check connection state of MFPC PWB connector, harness Replace MFPC PWB

E7-91 Decode error (FAX received image data)

Trouble detection	MFP
Cause	Image compression data corruption MFPC PWB trouble FAX PWB trouble
Check & Remedy	SIM60-1 to execute Replace MFPC PWB Replace FAX PWB

E7-93 Decode error

Trouble detection	MFP
Cause	Image compression data corruption HDD trouble MFPC PWB trouble
Check & Remedy	SIM60-1 to execute Replace HDD Replace MFPC PWB

EE-EC Automatic toner density adjustment error (Sampling abnormal)

Trouble detection	PCU
Cause	Toner density sensor trouble. Charging voltage / developing voltage trouble. Toner density trouble. Developing unit trouble. MFPC PWB trouble.
Check & Remedy	Replace Developing unit. Replace MFPC PWB.

EE-EL Automatic toner density adjustment error (Over toner)

Trouble detection	PCU
Cause	Toner density sensor trouble. Charging voltage / developing voltage trouble. Toner density trouble. Developing unit trouble. MFPC PWB trouble.
Check & Remedy	Replace Developing unit. Replace MFPC PWB.

EE-EU Automatic toner density adjustment error (Under toner)

Trouble detection	PCU
Cause	Toner density sensor trouble. Charging voltage / developing voltage trouble. Toner density trouble. Developing unit trouble. MFPC PWB trouble.
Check & Remedy	Replace Developing unit. Replace MFPC PWB.

F2-22 Discharge lamp trouble

Trouble detection	PCU
Cause	Connector, harness connection trouble Discharge lamp trouble MFPC PWB trouble
Check & Remedy	Check connection state of connector, harness Replace discharge lamp Replace MFPC PWB

F2-39 Temperature and humidity sensor trouble (temperature)

Trouble detection	PCU
Cause	Connector, harness connection trouble Sensor (TH/HUD) trouble MFPC PWB trouble
Check & Remedy	Check connection state of connector, harness Replace sensor (TH/HUD) Replace MFPC PWB

F2-40 Toner concentration sensor trouble

Trouble detection	PCU
Cause	Connector, harness connection trouble DV unit trouble Sensor (TCS) trouble MFPC PWB trouble
Check & Remedy	Check connection state of connector, harness Replace DV unit Replace MFPC PWB

F2-58 Temperature and humidity sensor trouble (humidity)

Trouble detection	PCU
Cause	Connector, harness connection trouble Sensor (TH/HUD) trouble MFPC PWB trouble
Check & Remedy	Check connection state of connector, harness Replace sensor (TH/HUD) Replace MFPC PWB

F2-64 Black toner supply trouble

Trouble detection	PCU
Cause	Connector, harness connection trouble DV unit trouble Toner cartridge trouble Toner transport pipe section trouble Sensor (TCS) trouble Motor (TNM) trouble MFPC PWB trouble
Check & Remedy	Check connection state of connector, harness Replace DV unit Replace toner cartridge Check transport pipe section Replace motor (TNM) Replace MFPC PWB

F2-70 Mismatched black toner cartridge

Trouble detection	PCU
Cause	Improper toner cartridge is inserted Toner cartridge trouble
Check & Remedy	Replace toner cartridge

F2-74 Black CRUM error

Trouble detection	PCU
Cause	Connector, harness connection trouble Toner cartridge trouble MFPC PWB trouble
Check & Remedy	Check connection state of connector, harness Replace toner cartridge Replace MFPC PWB

F2-78 Image density sensor error

Trouble detection	PCU
Cause	Connector, harness connection trouble Sensor (PCS) dirt or trouble MFPC PWB trouble
Check & Remedy	Check connection state of connector, harness Clean sensor (PCS) or replace Replace MFPC PWB

F6-00 Communication error (MFP-FAX)

Trouble detection	MFP
Cause	Connector, harness connection trouble FAX PWB trouble
Check & Remedy	Check connection state of connector, harness Replace FAX PWB

F6-04 FAX modem error

Trouble detection	FAX
Cause	FAX modem chip operation trouble
Check & Remedy	Replace FAX PWB

F6-21 Combination error (FAX soft SW setting)

Trouble detection	FAX
Cause	Improper destination of FAX PWB FAX PWB trouble
Check & Remedy	Check proper destination of FAX PWB Replace FAX PWB

H2-00 Thermistor open trouble (TH_UM_AD2)

Trouble detection	PCU
Cause	Thermistor connector, harness connection trouble Fusing section connector connection trouble Thermistor trouble MFPC PWB trouble AC PWB trouble Fusing unit not installed
Check & Remedy	SIM44-14 to execute Check connection state of thermistor connector, harness Check connection state of fusing section connector Replace thermistor Replace MFPC PWB Replace AC PWB trouble Check fusing unit installed

H2-02 Thermistor open trouble (TH_US)

Trouble detection	PCU
Cause	Thermistor connector, harness connection trouble Fusing section connector connection trouble Thermistor trouble MFPC PWB trouble AC PWB trouble Fusing unit not installed
Check & Remedy	SIM44-14 to execute Check connection state of thermistor connector, harness Check connection state of fusing section connector Replace thermistor Replace MFPC PWB Replace AC PWB trouble Check fusing unit installed

H2-03 Thermistor open trouble (TH_UM_CS)

Trouble detection	PCU
Cause	Thermistor connector, harness connection trouble Fusing section connector connection trouble Thermistor trouble MFPC PWB trouble Fusing unit not installed Fusing unit trouble
Check & Remedy	SIM44-14 to execute Check connection state of thermistor connector, harness Check connection state of fusing section connector Replace thermistor Replace MFPC PWB Check fusing unit installed Replace fusing unit

H2-06 Thermistor open trouble (TH_US2)

Trouble detection	PCU
Cause	Thermistor connector, harness connection trouble Fusing section connector connection trouble Thermistor trouble MFPC PWB trouble AC PWB trouble Fusing unit not installed
Check & Remedy	Check connection state of thermistor connector, harness Check connection state of fusing section connector Replace thermistor Replace MFPC PWB Replace AC PWB trouble Check fusing unit installed

H3-00 Fuser high temperature trouble (TH_UM_CS)

Trouble detection	PCU
Cause	Thermistor connector, harness connection trouble Thermistor trouble MFPC PWB trouble AC PWB trouble
Check & Remedy	SIM44-14 to execute SIM5-2 to execute Check connection state of thermistor connector, harness Replace thermistor Replace MFPC PWB Replace AC PWB SIM14 to cancel

H3-02 Fuser high temperature trouble (TH_US)

Trouble detection	PCU
Cause	Thermistor connector, harness connection trouble Thermistor trouble MFPC PWB trouble AC PWB trouble
Check & Remedy	SIM44-14 to execute SIM5-2 to execute Check connection state of thermistor connector, harness Replace thermistor Replace MFPC PWB Replace AC PWB SIM14 to cancel

H4-00 Fuser low temperature trouble (TH_UM_CS)

Trouble detection	PCU
Cause	Thermistor connector, harness connection trouble Thermistor trouble Heater lamp trouble MFPC PWB trouble Thermostat trouble AC PWB trouble
Check & Remedy	SIM44-14 to execute SIM5-2 to execute Check connection state of thermistor connector, harness Replace thermistor Replace heater lamp Replace MFPC PWB Replace thermostat Replace AC PWB SIM14 to cancel

H4-02 Fuser low temperature trouble (TH_US)

Trouble detection	PCU
Cause	Thermistor connector, harness connection trouble Thermistor trouble Heater lamp trouble MFPC PWB trouble Thermostat trouble AC PWB trouble
Check & Remedy	SIM44-14 to execute SIM5-2 to execute Check connection state of thermistor connector, harness Replace thermistor Replace heater lamp Replace MFPC PWB Replace thermostat Replace AC PWB SIM14 to cancel

H4-30 Fuser differential input trouble (TH_UM)

Trouble detection	PCU
Cause	Thermistor connector, harness connection trouble Thermistor trouble Heater lamp trouble MFPC PWB trouble
Check & Remedy	SIM5-2 to execute Check connection state of thermistor connector, harness Replace thermistor Replace heater lamp Replace MFPC PWB SIM14 to cancel

H5-01 5 times continuous POD1 not reach jam

Trouble detection	PCU
Cause	Fusing jam was not cancel completely (jam paper remains) Fusing unit installation trouble Fusing unit, drive section trouble Sensor (POD1) connector, harness connection trouble Sensor (POD1) trouble
Check & Remedy	Check fusing unit installed Check fusing drive section Check connection state of sensor (POD1) connector, harness Replace sensor (POD1) Replace fusing unit SIM14 to cancel

H7-10 Recovery error from fuser low temperature (TH_UM_CS)

Trouble detection	PCU
Cause	Thermistor connector, harness connection trouble Thermistor trouble Heater lamp trouble MFPC PWB trouble Thermostat trouble AC PWB trouble
Check & Remedy	SIM5-2 to execute Check connection state of thermistor connector, harness Replace thermistor Replace heater lamp Replace MFPC PWB Replace thermostat Replace AC PWB

H7-12 Recovery error from fuser low temperature (TH_US)

Trouble detection	PCU
Cause	Thermistor connector, harness connection trouble Thermistor trouble Heater lamp trouble MFPC PWB trouble Thermostat trouble AC PWB trouble
Check & Remedy	SIM5-2 to execute Check connection state of thermistor connector, harness Replace thermistor Replace heater lamp Replace MFPC PWB Replace thermostat Replace AC PWB

L1-00 Scanner feed trouble

Trouble detection	SCU
Cause	Connector, harness connection trouble Scanner unit trouble Sensor (MHPS) trouble Motor (MIM) trouble MFPC PWB trouble
Check & Remedy	SIM1-1 to execute Check connection state of connector, harness Replace scanner unit Replace sensor (MHPS) Replace motor (MIM) Replace MFPC PWB

L3-00 Scanner return trouble

Trouble detection	SCU
Cause	Connector, harness connection trouble Scanner unit trouble Sensor (MHPS) trouble Motor (MIM) trouble MFPC PWB trouble
Check & Remedy	SIM1-1 to execute Check connection state of connector, harness Replace scanner unit Replace sensor (MHPS) Replace motor (MIM) Replace MFPC PWB

L4-01 Main motor lock trouble

Trouble detection	PCU
Cause	Connector, harness connection trouble Motor trouble(MM) MFPC PWB trouble
Check & Remedy	SIM6-1 to execute Check connection state of connector, harness Replace motor (MM) Replace MFPC PWB

L4-14 Toner cartridge motor lock trouble

Trouble detection	PCU
Cause	Motor trouble(TNM) Toner motor drive detect sensor trouble (TM_COUNT) Connector, harness connection trouble MFPC PWB trouble
Check & Remedy	SIM10-1 to execute SIM10-4 to execute Check connection state of connector, harness Replace motor (TNM) Replace toner motor drive detect sensor Replace MFPC PWB Replace detect sensor

L4-17 Drum motor lock trouble

Trouble detection	PCU
Cause	Motor trouble(DM) Connector, harness connection trouble MFPC PWB trouble
Check & Remedy	SIM25-1 to execute Check connection state of connector, harness Replace motor (DM) Replace MFPC PWB

L4-31 Paper delivery cooling fan trouble

Trouble detection	PCU
Cause	Motor trouble(POFM) Connector, harness connection trouble
Check & Remedy	SIM6-2 to execute Check connection state of connector, harness Replace fan (POFM)

L4-32 Power supply unit fan trouble

Trouble detection	PCU
Cause	Motor trouble(PSFM) Connector, harness connection trouble
Check & Remedy	SIM6-2 to execute Check connection state of connector, harness Replace fan (PSFM)

L4-35 Fuser cooling fan trouble

Trouble detection	PCU
Cause	Motor trouble(FUFM) Connector, harness connection trouble
Check & Remedy	SIM6-2 to execute Check connection state of connector, harness Replace fan (FUFM)

L4-39 Machine cooling fan trouble

Trouble detection	PCU
Cause	Motor trouble(VFM) Connector, harness connection trouble
Check & Remedy	SIM6-2 to execute Check connection state of connector, harness Replace motor (VFM)

L4-43 Paper cooling fan trouble

Trouble detection	PCU
Cause	Motor trouble(POFM2) Connector, harness connection trouble MFPC PWB trouble
Check & Remedy	SIM6-2 to execute Check connection state of connector, harness Replace motor (POFM2) Replace MFPC PWB

L6-10 Polygon motor trouble

Trouble detection	PCU
Cause	Connector, harness connection trouble Motor (PGM) trouble MFPC PWB trouble
Check & Remedy	SIM6-1 to execute Check connection state of connector, harness Replace LSU unit Replace MFPC PWB

L8-01 Full wave signal detection error

Trouble detection	PCU
Cause	Connector, harness connection trouble Power supply unit trouble MFPC PWB trouble
Check & Remedy	Check connection state of connector, harness Replace power supply unit Replace MFPC PWB

L8-02 Abnormal full wave signal error

Trouble detection	PCU
Cause	Connector, harness connection trouble Power supply unit trouble MFPC PWB trouble
Check & Remedy	Check connection state of connector, harness Replace power supply unit Replace MFPC PWB

U1-01 Battery trouble

Trouble detection	MFP
Cause	Battery life Battery circuit trouble
Check & Remedy	Check battery voltage is 2.5V or above Replace battery

U2-00 MFP EEPROM read/write error

Trouble detection	MFP
Cause	MFPC PWB EEPROM trouble. EEPROM socket contact trouble. MFPC PWB trouble. Strong external noises.
Check & Remedy	Replace the MFPC PWB EEPROM. Replace the MFPC PWB. Check the power environment.

U2-05 Account data error(HDD-MFP SRAM)

Trouble detection	MFP
Cause	EEPROM is broken The device access error/connection error of EEPROM by the noise
Check & Remedy	Cancel the error by SIM16

U2-06 Memory content Error (Flash ROM sector management error) detection eMMC Read Error Detection

Trouble detection	MFP
Cause	Flash ROM data error/Program ROM data error Flash ROM device contact trouble/Program devicetrouble Device access trouble by the noise
Check & Remedy	Export the backup data using SIM56-2/3, restore the data, import again. Replace the MFPC PWB.

U2-11 MFP EEPROM counter check sum error

Trouble detection	MFP
Cause	EEPROM device error EEPROM device contact failure Device access error due to noises
Check & Remedy	Cancellation of U2 trouble (Use SIM16 to cancel U2 trouble.)

U2-91 PCU EEPROM check sum error

Trouble detection	PCU
Cause	EEPROM socket contact trouble Replace EEPROM Replace MFPC PWB
Check & Remedy	Check contact of EEPROM socket Replace EEPROM Replace MFPC PWB SIM16 to cancel

U6-00 MFPC PWB - Paper feed desk (paper feed tray 2) communication error

Trouble detection	PCU
Cause	Malfunction due to noises Connector, harness connection trouble Desk control PWB trouble MFPC PWB trouble
Check & Remedy	Power OFF/ON to cancel Check connection state of connector, harness Replace desk control PWB Replace MFPC PWB

U6-01 Desk paper feed tray 1 lift trouble

Trouble detection	PCU
Cause	Connector, harness connection trouble Sensor (D1LUD) trouble Desk tray1 control PWB trouble Lift unit trouble MFPC PWB trouble
Check & Remedy	SIM4-2 to execute Check connection state of connector, harness Replace sensor (D1LUD) Replace desk tray1 control PWB Replace lift unit Replace MFPC PWB

U6-11 Desk paper feed tray 1 transport trouble

Trouble detection	PCU
Cause	Connector, harness connection trouble Motor (D1PFM) trouble Desk tray1 control PWB trouble MFPC PWB trouble
Check & Remedy	SIM4-3 to execute, operation check motor (D1PFM) Replace desk tray1 control PWB

U6-50 Desk - Main unit combination trouble

Trouble detection	PCU
Cause	Improper combination between main machine and desk
Check & Remedy	Install desk which is proper for main machine

U6-56 Desk paper feed tray 1 firmware error

Trouble detection	PCU
Cause	Firmware version is inconsistency
Check & Remedy	SIM49-1 to execute

U9-00 Communication trouble between the controller and OPU

Trouble detection	MFP
Cause	OPU connector connection trouble Harness trouble between OPU PWB and MFPC PWB Break connector pin of OPU PWB
Check & Remedy	Check connector connection and harness of OPU PWB and MFPC PWB Replace OPU PWB or MFPC PWB Check ground point Power off/on

U9-81 OPU communication trouble (parity)

Trouble detection	MFP
Cause	Harness trouble between OPU PWB and MFPC PWB
Check & Remedy	Check connector connection and harness of OPU PWB and MFPC PWB Replace OPU PWB or MFPC PWB Check ground point Power off/on

U9-82 OPU communication trouble (overrun)

Trouble detection	MFP
Cause	Harness trouble between OPU PWB and MFPC PWB
Check & Remedy	Check connector connection and harness of OPU PWB and MFPC PWB Replace OPU PWB or MFPC PWB Check ground point Power off/on

U9-84 OPU communication trouble (flaming)

Trouble detection	MFP
Cause	Harness trouble between OPU PWB and MFPC PWB
Check & Remedy	Check connector connection and harness of OPU PWB and MFPC PWB Replace OPU PWB or MFPC PWB Check ground point Power off/on

U9-88 OPU communication trouble (time-out)

Trouble detection	MFP
Cause	Command size error from MFPC to OPU
Check & Remedy	Replace OPU PWB or MFPC PWB Power off/on

U9-99 OPU language error

Trouble detection	MFP
Cause	Command size error from MFPC to OPU
Check & Remedy	Replace OPU PWB or MFPC PWB Power off/on

H. LED status and errors of MFPC PWB

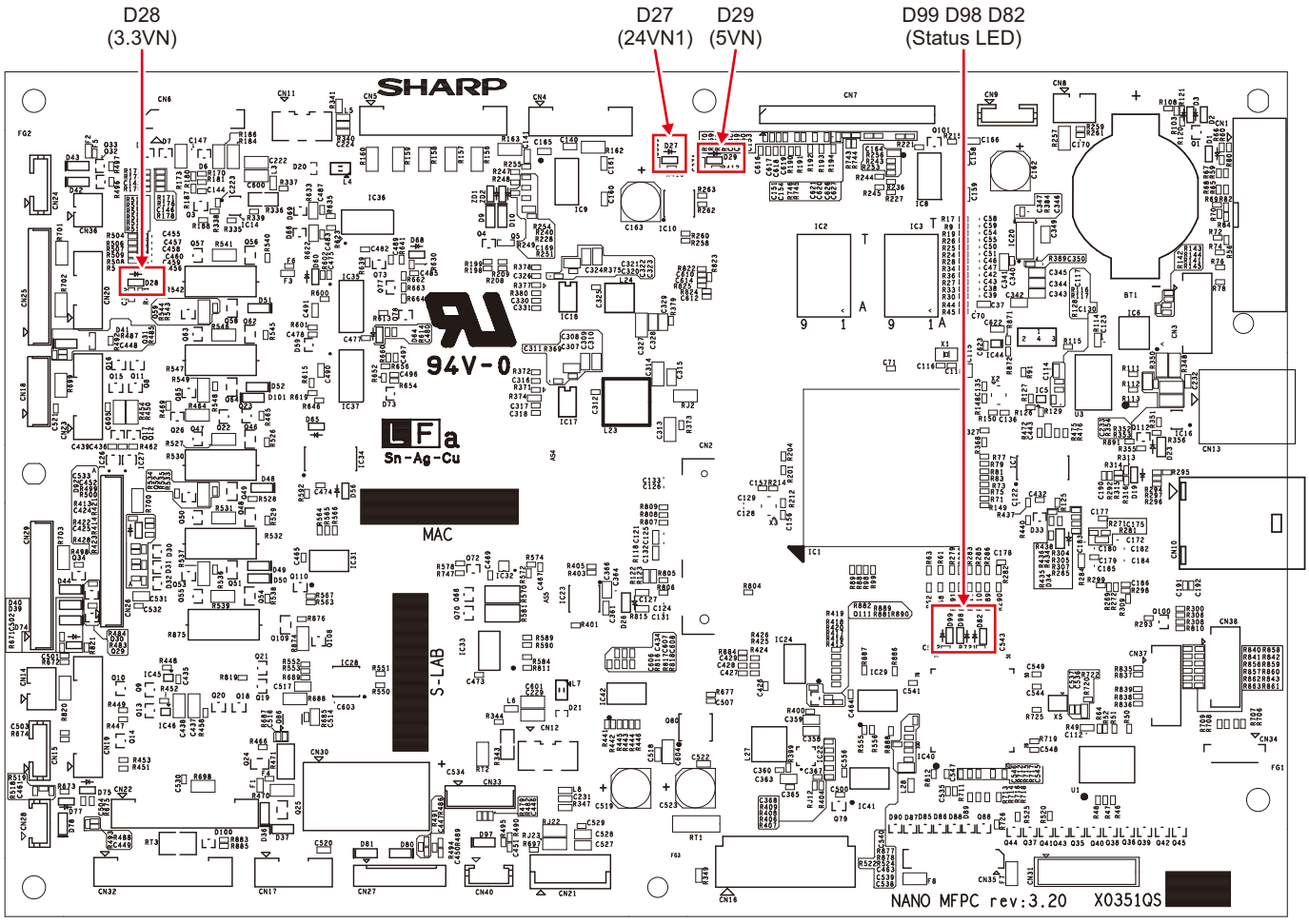
LED lighting status on PWB indicates whether PWB is correctly activated or not.

If PWB is correctly activated, D82 (Status LED) is blinking at 1s interval.

If D82 (Status LED) is blinking or off even though MFP is not in Energy Save mode or the power is not turned off, PWB may have some trouble or it may not be activated correctly.

For other LEDs, please see the table below:

Ref	Purpose	Normal condition						Energy Save mode	Power-OFF
		From Power-ON to machine ready					Correctly activated		
D27	Power distribution check of 24V line	●					●	○	○
D28	Power distribution check of 3.3VN line	●					●	○	○
D29	Power distribution check of 5VN line	●					●	○	○
D82	Status LED	●	⇒	○	⇒	○	● ⇔ ○	○	○
D98		○		●		○	●	○	○
D99		○		○		●	●	○	○



2. JAM and troubleshooting

A. JAM code list

(1) Main machine and options

JAM code	JAM content
D1PPD_S02	D1PPD remaining JAM (Tray 2 paper feed)
DESK_ERR	DESK communication error detection
DRUM	Drum JAM
FUSER	Fuser JAM
MFT	PPD2 not-reached JAM (Manual paper feed)
MFT_1ST	Manual feed tray paper feed JAM (check paper loading state)
MFT_LE	Manual feed tray paper feed JAM (paper feed roller needs to be replaced)
MFT_RT	Manual feed tray paper feed JAM (check paper state)
MTR_ILG	Motor driver trouble JAM
NO_MATCH	Parameter error
POD1_N	POD1 not-reached JAM
POD1_NA	POD1 not-reached JAM (In the case of a jam at second surface)
POD1_S	POD1 remaining JAM
POD1_SA	POD1 remaining JAM (In case of a jam at second surface)
PPD2_N2	PPD2 not-reached JAM (Tray 2 paper feed)
PPD2_NA	PPD2 not-reached JAM (ADU refeed paper)
PPD2_S1	PPD2 remaining JAM (Tray 1 paper feed)
PPD2_S2	PPD2 remaining JAM (Tray 2 paper feed)
PPD2_SA	PPD2 remaining JAM (ADU refeed paper)
PPD2_SM	PPD2 remaining JAM (Manual paper feed)
SIZE_ILG	Size illegal JAM
STOP_JAM	Stop request JAM
TRAY1	PPD2 not-reached JAM (Tray 1 paper feed)
TRAY1_1ST	Tray 1 paper feed JAM (check paper loading state)
TRAY1_LE	Tray 1 paper feed JAM (paper feed roller needs to be replaced)
TRAY1_RT	Tray 1 paper feed JAM (check paper state)
TRAY2	D1PPD not-reached JAM (Tray 2 paper feed)
TRAY2_1ST	Tray 2 paper feed JAM (check paper loading state)
TRAY2_LE	Tray 2 paper feed JAM (paper feed roller needs to be replaced)
TRAY2_RT	Tray 2 paper feed JAM (check paper state)

3. Image send communication report code

A. Outline and code system descriptions

After completion of communication, the communication report table, the communication registration table, and the protocol are described on the communication report column.

The communication report code is composed as follows:

Communication report: XX (XXXX)

The upper 2 digits of the communication report code:
Communication report code of 00 - 99 (Refer to communication report main code.)

The lower 4 digits of the communication report code:
Used by the serviceman.

The upper 2 digits: Communication report sub code 1 (Refer to communication report sub code 1.)

The lower 2 digits: Communication report sub code 2 (Refer to communication report sub code 2.)

Important

The communication report sub code 1 and sub code 2 are in hexadecimal notation. (The others are in decimal notation.)

Important

The communication report sub code 1 is not used in the these models.

B. Details

(1) Communication report main code

Report code	Final receive signal (Send side)	Final receive signal (Receive side)
0	Abnormal signal	Abnormal signal
1	NSF, DIS	(SID), (SUB), NSS, DCS
2	CFR	(PWD), (SEP), NSC, DTC
3	FTT	EOP
4	MCF	EOM
5	PIP, PIN	MPS
6	RTN, RTP	PRI-Q
7	No signal, DCN	DCN
8	PPR	PPS-EOP
9		PPS-EOM
10		PPS-MPS, PPS-NULL
11	RNR	RR
12	CTR	CTC
13	ERR	EOR-Q
14		PPS-PRI-Q
16	Abnormal signal	Abnormal signal
17	NSF, DIS	SID, SUB, NSS, DCS
18	CFR	PWD, SEP, NSC, DTC
19	FTT	PPS-EOP
20	MCF	PPS-EOM
21	PIP, PIN	PPS-MPS, PPS-NULL
22	RTN, RTP	PRI-Q
23	No signal, DCN	DCN
24	PPR	
25	RNR	RR
26	CTR	CTC
27	ERR	EOR-Q
28		PPS-PRI-Q
29	V.8 Phase-1	V.8 Phase-1
30	V.8 Phase-2	V.8 Phase-2
31	V.8 Phase-3	V.8 Phase-3

Important

For report codes 16 - 31, V.34 MODE COMMUNICATION.

Report code (Communication result)	Display in the column of result	Content of communication interruption
0 - 31	Refer to “previous table”.	Depends on the point of communication interruption. For 16 or later, V.34 mode communication.
33	BUSY	The calling side cannot establish connection with the remote party.
34	CANCEL	A communication interruption command is made during sending/receiving. The interruption key is pressed for interruption of input. <Send/Receive/Polling/Bulletin board>
35	NG35 XXXX	Power is failed during sending/receiving. <Send/Receive/Polling/Bulletin board>
36	(No record paper)	
37	(Record paper jam)	
38	MEM. FULL	Memory over during reception. <Receive/Polling> Print is not made during reception in acting reception inhibit. <Receive/Polling>
39	(Number of paper unmatched)	
40	(Relay not received)	
41	LENGTH OVER	The send data length of one page exceeds the limit (2m) in sending. <Send/Bulletin board>
42	LENGTH OVER	The receive data length of one page exceeds the limit. <Receive/Polling>
43	(Communication) (OK)	Speaking before data transmission
44	ORIGINAL ERROR	A document jam occurs in direct sending. <Send>
45	(Picture quality error)	
46	NO RESPONSE	The FAX signal from the remote party is not detected within T1 time. <Send/Polling> (When in recall, however, the recall setting in case of a communication error is valid.)
47	TX DECODE ERROR	A decode error occurs in the FAX board. <Send/Bulletin board>
48	OK	Normal end of communication
	OK REPLY RECEIVE	OK in Internet FAX send with reception confirmation.
49	NO RX POLL	The called side does not have polling function in polling reception. <Polling> The called side has no data to send. <Polling>
50	RX POLL FAIL	In polling reception, DCN is received for DTC. <Polling> In polling sending, there is no send data. <Bulletin board>
51	PASS # NG	In poling sending, the allow number is not matched. <Bulletin board> In polling sending, the system number is not matched. <Bulletin board>
52	(No confidential function in remote party)	In confidential sending, the remote party does not have confidential function. <Send> (Including other company's machines) 1) The NSF signal has not "Confidential function" bit. 2) The NSF is not a Sharp machine.
53	(Confidential not received)	1) In confidential sending, DCN is received for NSS. <Send>
54	(Confidential BOX NO NG)	1) In confidential reception, a confidential box number which is not registered is specified.
55	(No relay function in remote party)	In relay command sending, the remote machine has no relay function. <Send> (Including other company's machine) 1) The NSF signal has not "Confidential function" bit. 2) The NSF is not a Sharp machine.
56	NO REL RX	1) In relay command sending, DCN is received for NSS. <Send> 2) In relay command reception, a remote station number which is not registered is specified. <Receive> 3) In F code relay broadcasting, an F code relay command is received.<Receive>
57	(Relay ID unmatched)	1) In relay command reception, the relay ID does not match. <Receive>
58	REJECTED	In reception, data are sent from a remote machine of receive inhibit number. <Receive> (Not rejected in the bulletin board send or the F code bulletin board send.)
59	RX NO F-CODE POLL	In F code polling (calling), the remote machine has no DIS bit 47 (polling function). <Polling> In F code polling (calling), the called side has no send data. (DIS bit 9 is 0.)<Polling>
60	NO F-CODE POLL	In F code polling (calling), DCN is received for SEP. <Polling> In bulletin board, there is no send data for SEP. <Bulletin board>
61	RX POLL # NG	In bulletin board, the sub address (bulletin board number (SEP)) is not matched. <Bulletin board>
62	F POLL PASS # NG	In bulleting board, the pass code (PWD) is not matched. <Bulletin board>
63	NO F FUNC	In F code sending, the remote machine has no DIS bit 49 (sub address function). <Send> (Check that the remote machine conforms to F code.)
64	NO F-CODE	In F code sending : <Send> 1) DCN is received for SUB. --- Check the box number. 2) DCN is received for SID. --- Check the box number and pass code. In F code receiving : <Receive> "F code relay broadcasting" or "F code confidential reception" is "Inhibited with soft SW."
67	F PASS # NG	In F code receiving, the pass code (SID) is not matched. <Receive>
68	BOX NO. NG	In F code reception, a box number which is not registered is specified. (SUB is not matched.) <Receive>
69	MEMORY OVER	Memory over in quick online sending <Send>
70	(JOB MEMORY OVER)	In PC-FAX reservation, the number of remote parties is exceeded. <Send>
72	(NG72 XXXX) *1	In department management setting on the machine side: • In reservation from PC-FAX or PC-Internet FAX, a department number which is not registered on the machine side is specified. <Send> • In reservation from PC-FAX or PC-Internet FAX, the department number is not specified. <Send>
73	NG73 XXXX *1	In reservation from PC-FAX or PC-Internet FAX, the use quantity limit is exceeded. <Send>
75	NG75 XXXX *1	• Reservation cannot be made due to machine busy. (Reservation of PC-FAX cannot be accepted.) • When "PC-FAX or PC-internet FAX send inhibit" is set on the machine side.
79	NG79 XXXX *1	An authentication error occurs when PC-FAX or PC-Internet FAX is reserved.

Report code (Communication result)	Display in the column of result	Content of communication interruption
80	NG80 XXXX *1	NIC connect failure (network abnormality) • Check for disconnection of cables. • A network trouble (CE-XX) occurs. • The port is set to DISABLE. • Authentication of the POP server is failed when POP before SMTP is enabled. • When an error other than the communication result code 93 or 94 in D-SMTP send (including error response of 5XX)

*1: For a job status result in "Display in the column of result," "NG △△ XXXX" is displayed. "△△" is the code number.
For a communication result, "Communication error △△ (XXXX)" is displayed.

(2) Communication report sub code 1

The communication report sub code 1 (upper 2 digits) are always indicated as "00."

(3) Communication report sub code 2

Report code 2	Content of communication interruption	Send/Receive
00	When the conditions after 01 do not apply.	Send/Receive
01	Send length over	Send
02	EOL time up	Receive
03	Carrier detection time up	Receive
04	Time up of the communication start command from the machine side	Receive
05	Time up in phase C (8 min)	Send
06	Memory image decode error	Receive
07	Memory image decode error	Send
08	Time up between frames in phase C (Report code is 0 or 16.)	Send/Receive
09	Not used	-
10	Not used	-
11	Polarity reversion detection	Receive
12	Invalid command reception	Receive
13	Time up (1-minute timer/6-second time)	Receive
14	PUT error	Receive
15	In V.34 mode, time up is generated when shifting from Primary to Control.	Receive
16	In V.34 mode, time up is generated when shifting from Control to Primary.	Receive
17	Command receive time-up from MFP controller	Receive
18	Not used	-
19	Not used	-
20	Polarity reversion detection	Send
21	Invalid command reception	Send
22	Fallback retry number over	Send
23	Command retry number resend over	Send
24	Time up (T5 timer)	Send
25	Time up (T5 timer) in V.34 mode	Send
26	In V.34 mode, time up is generated when shifting from Primary to Control.	Send
27	In V.34 mode, time up is generated when shifting from Control to Primary.	Send
28	When sending the FSK signal, no response of send completion is sent back from the MODEM chip within a certain time. (V.34, other than V.34)	Send
29	Not used	-
30	A communication error is generated between MFP controller and Modem controller. (Report code is 0 or 16.)	-
31	DC current not detected (busy)	Send
32	Dial tone not detected (busy)	Send
33	Busy tone detection (busy)	Send
34	T0 time up (Remote machine not responding)	Send
35	T1 time up (Remote machine not responding)	Send
36	In dialing, polarity reversion detection (Remote machine not responding)	Send
37	Calling is not made (busy)<Collision detected (including CNG detection)>	Send
38	Not used	-

When the sub code 2 is "08" or "30" and the communication report is "OK," the report code is "00" or "16."

4. Dial tone

When shipping from the factory, the dial tone detection when sending is set to Enable (changed from OFF to ON). When installing this machine, be sure to check and confirm that the dial tone is properly detected and the auto dial sending is enabled.

Check to confirm that the continuous buzzer sound is heard when the on-hook key is pressed. (Press the on-hook key again to cancel the buzzer sound.)

If facsimile communication cannot be executed normally through the IP telephone line, try the general telephone line.

[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

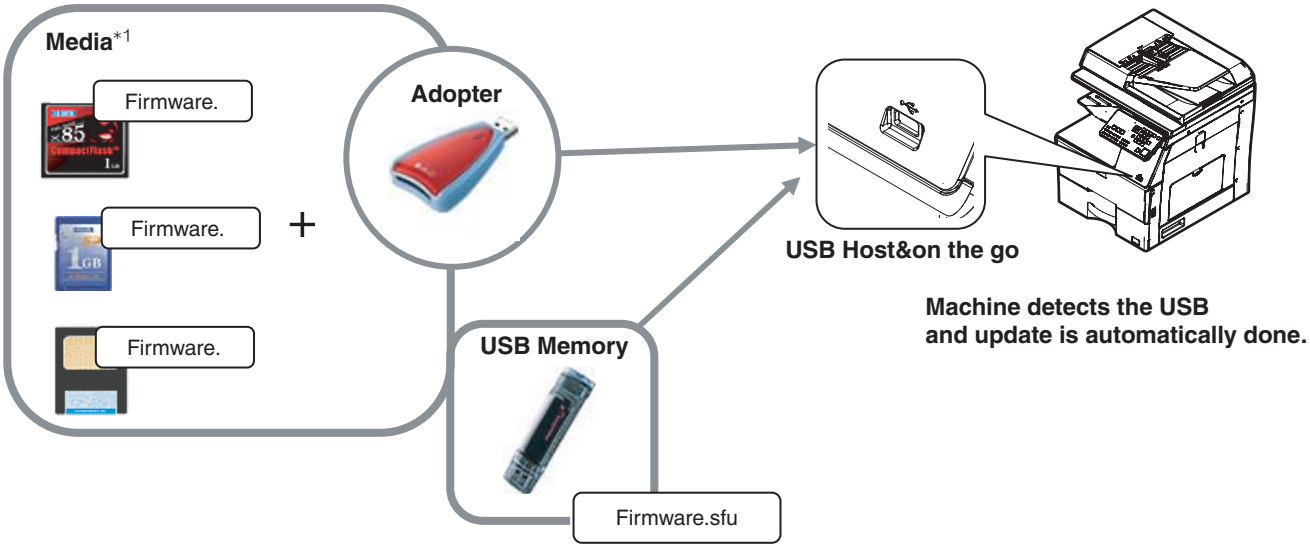
There are following methods of update of the firmware.

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.



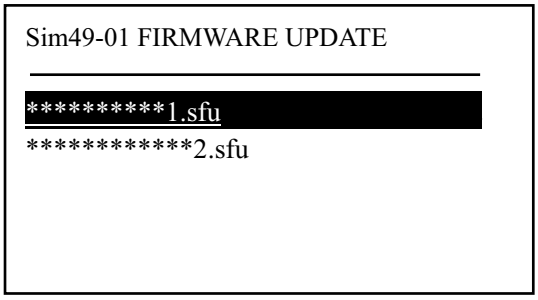
*1:

- Store the firmware data (xxx .sfu) to the media or USB memory beforehand.
- The media used for the update must have a minimum of 64MB of storage capacity.
- The USB thumb drive equipped with the security (secure) function cannot be used.

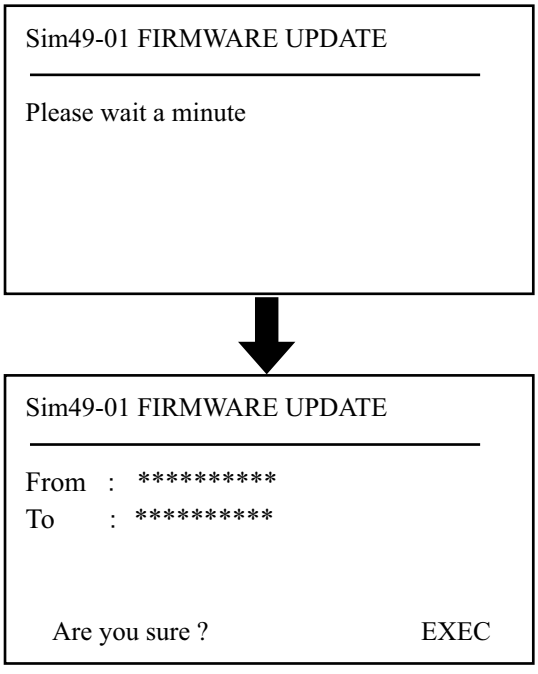
(1) Firmware update procedure from the USB memory

The firmware update executes by SIM49-01.

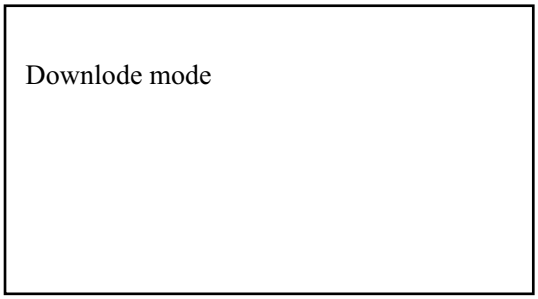
1) Insert the media or USB memory which stores the firmware into the main unit. (Use the USB I/F of the operation panel section.)
2) Enter the SIM49-01.
   Select the firmware file to be updated with [up] or [down] key. The displayed firmware file is changed depending on the files in the USB thumb drive.



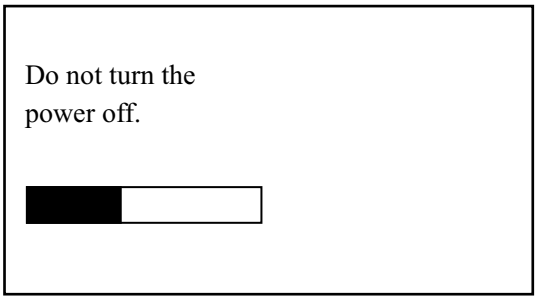
   * When there is no firmware file in the USB memory, “No file detected” message is displayed.
   * The displayed firmware file is changed depending on the files in the USB thumb drive.
3) Select the file and press [OK] button or [Start] button. Then, the current version and the new version are displayed.



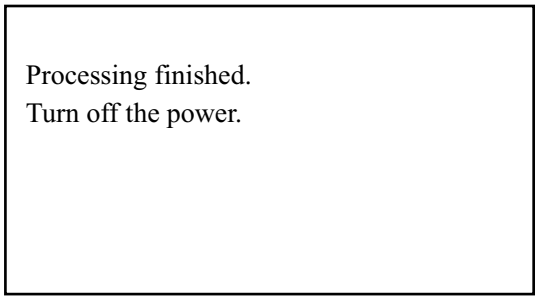
4) Press [OK] button or [Start] button. Then, the machine is restarted and the download of the firmware file starts.
   * At this moment, do not disconnect the USB memory.



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. Works necessary when executing the maintenance

A. Counter check

Before execution of the maintenance, execute SIM22 to check the counter values of the following counters to confirm consuming states of each section.

1) Each consumable part counter
2) Each unit counter
3) Trouble counter, JAM counter

B. Counter reset

When a part or consumable part is replaced with new one in the maintenance. Execute SIM24 reset the following counters.

1) Maintenance counter
2) Each consumable part counter
3) Each unit counter
4) Trouble counter, JAM counter

C. Firmware version check and upgrading

Execute SIM22-5 to check the firmware version and update it as needed.

2. Display of maintenance execution timing

The message of maintenance execution timing is displayed when each counter reaches the set value. The relations between the message and the counters are shown below.

A. Maintenance counter

Display content	Display condition			Print JOB Enable/ Disable
	Sim26-38-A set value	Counter name	Counter value	
Maintenance required: TA	0 (Print continue)	Maintenance counter (Total)	When SIM21-1 set value is reached	Enable
	1 (Print stop)		When 90% of SIM21-1 set value is reached	
□Maintenance required: TA	1 (Print stop)		When SIM21-1 set value is reached	Disable

* After execution of maintenance, be sure to execute SIM24-4 to clear the maintenance counter (Total).

B. Transfer unit

Display content	Display condition			Print JOB Enable/ Disable
	Sim26-38-A set value	Counter name	Counter value	
Maintenance required: TK	0 (Print continue)	Transfer roller print counter	When 100K is reached	Enable
	1 (Print stop)			

* After execution of the maintenance, execute SIM24-4 to clear the print counter, the accumulated rotation counter and the use day counter of TC ROLLER.

C. Fusing unit

Display content	Display condition			Print JOB Enable/ Disable
	Sim26-38-A set value	Counter name	Counter value	
Maintenance required: FK1	0 (Print continue)	Fusing roller print counter	When 100K is reached	Enable
	1 (Print stop)			
Maintenance required: FK2	0 (Print continue)	Pressure roller print counter		Enable
	1 (Print stop)			

* After execution of the maintenance, execute SIM24-4 to clear the print counter, the accumulated rotation counter and the use day counter of FUSING ROLLER, PRESSURE ROLLER.

D. Drum unit

Display content	Display condition			Print JOB Enable/ Disable
	Sim26-38-A set value	Counter name	Counter value	
Maintenance required: DK	0 (Print continue)	OPC drum print counter OPC drum accumulated rotation counter	When 100K is reached or When 600K rotation is reached	Enable
	1 (Print stop)			

* After execution of the maintenance, execute SIM24-4 to clear print counter, the accumulated rotation counter and the use day counter of DRUM UNIT K.

E. Developer

Display content	Display condition			Print JOB Enable/ Disable
	Sim26-38-A set value	Counter name	Counter value	
Maintenance required: VK	0 (Print continue)	Developer print counter DV unit accumulated rotation counter	**When 100K is reached or When 600K rotation is reached**	Enable
	1 (Print stop)			

* After replacing developer, execute SIM25-2 to automatically clear counters.

F. Toner

Status	Display content	Display condition			Print JOB Enable/ Disable
		Sim26-38-A set value	Counter name	Counter value	
Close to Near end (Near naer end)	Toner Low. (Do not replace cartridge until requested.)	No relation	Toner motor rotation time	Specified time of rotations	Enable
Near end	Change the toner cartridge.	No relation	Toner supply amount is decreasing	Toner remaining sensor output variation	Enable
Toner end (End)	Change the toner cartridge.	0 (Print continue)	The toner remaining counter from near end reaches the specified value	Specified toner remaining counter	Disable
		1 (Print stop)			

3. Maintenance list

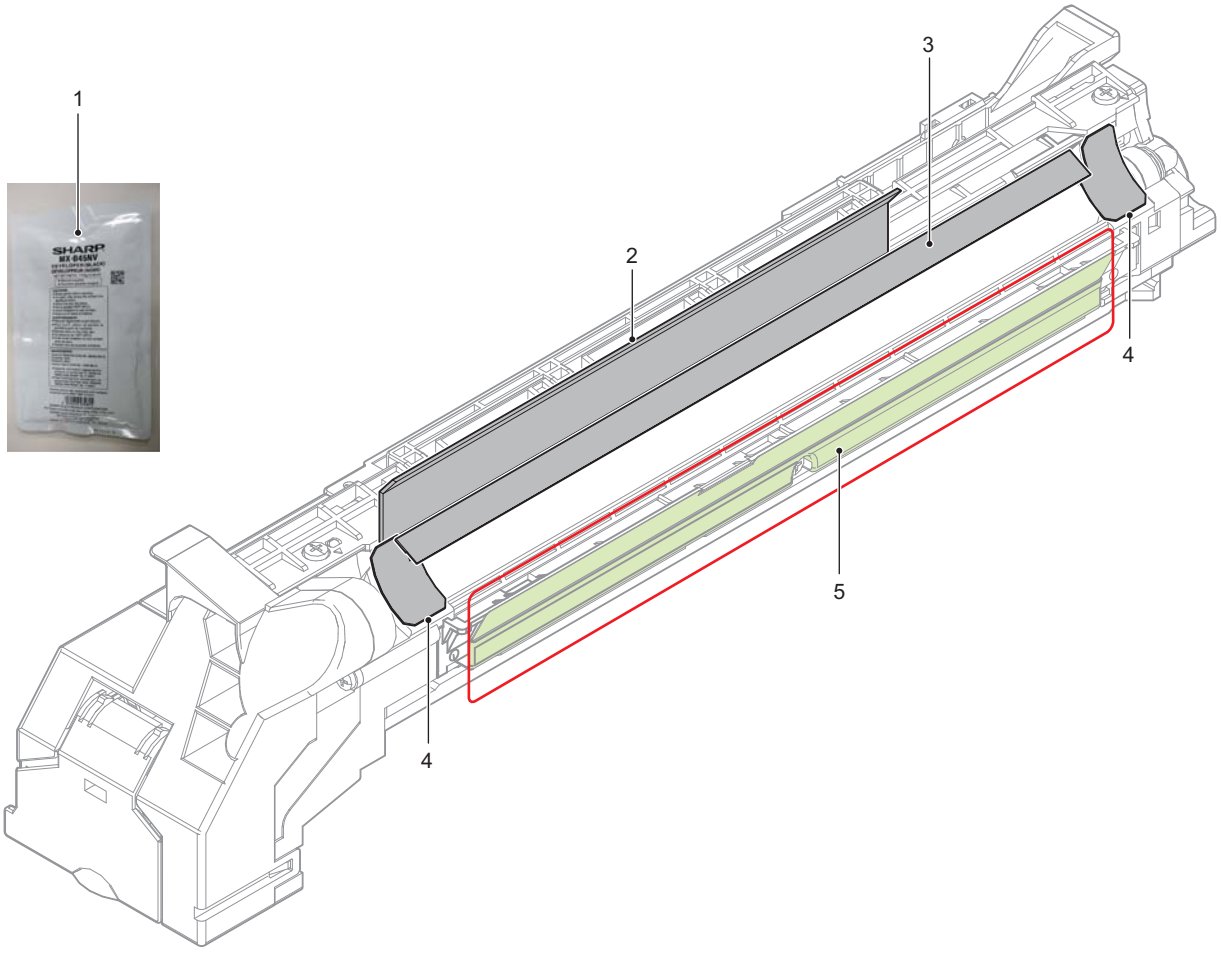
x: Check (Clean, replace, or adjust according to necessity) ○: Clean ▲: Replace △ : Adjust ☆: Lubricate

Section	No.	Part name		When calling	100k	200k	300k	Remarks
Developing section	1	Developer		—	▲	▲	▲	Replace when the specified rotation number is reached
	2	DV filter		—	▲	▲	▲	Replace the DV filter at the same time as replacing the developer.
	3	DV blade		x	x	x	x	Replace as needed
	4	Side seat		x	x	x	x	Replace as needed
	5	DV paper guide		○	○	○	○	
Transfer section	1	Transfer unit		x	▲	▲	▲	Replace at (100K) or 2 years of use
Fusing section	1	Fusing unit		x	▲	▲	▲	Replace at (100K) or 2 years of use
Main unit filter section	1	Inspiration filter		x	○	○	○	
Paper feed section	1	Paper pick up roller		○	○	○	○	Replacement reference: Replace referring to the paper feed counter value at each tray Paper feed tray: When 100K is reached or 1 years of use. Manual paper feed tray: When 100K is reached or 1 year of use.
	2	Paper feed roller		○	○	○	○	
	3	Separation roller		○	○	○	○	
	4	Torque limiter		x	—	—	—	
Transport section/Paper reverse section/Paper exit section	1	PS roller (Idle)		x	○	○	○	
	2	rollers		x	○	○	○	
	3	Transfer paper guides		○	○	○	○	
	4	Discharge brush		x	x	x	x	
	5	Gears		x	—	—	—	Apply grease to the specified position as needed
	6	Belts		x	—	—	—	
	7	Sensors		x	—	—	—	Blow air to clean reflection type sensor section
	8	Process control sensor		x	○	○	○	Clean with air blow when replacing drum cartridge, developer
Drive section	1	Gears (grease)		x	—	—	—	Apply grease to the specified position as needed
	2	Shafts earth section (conductor grease)		x	—	—	—	Apply grease to the specified position as needed
Scanner section	1	CIS		x	x	x	x	Blow air to clean SELFOC lens section
	2	Table glass, SPF glass		○	○	○	○	
	3	Rail (grease)		x	x	x	x	Apply grease (UKOG-0307FCZZ) to the specified position when checking
	4	Drive belt		x	x	x	x	Clean as needed after copy image check
	5	Drive gear, pulley		x	—	—	—	Apply grease (UKOG-0299FCZZ) to the specified position as needed
RSPF	1	Paper feed section/ Transfer section	Paper feed roller	○	○	○	○	Replacement reference: Replace referring to the paper feed counter value. SPF part roller: Replace at 100K or wear.
	2		Paper pickup roller	○	○	○	○	
	3		Separation sheet	x	x	x	x	
	4		Transfer rollers	x	○	○	○	
	5		Torque limiter (for pickup)	x	x	x	x	
	6		Sensors	x	—	—	—	
	7		Scan plate	○	○	○	○	
	8	Paper exit section	Paper exit roller	x	○	○	○	
	9		Discharge brush	x	x	x	x	
	10	Other	OC mat	○	○	○	○	
	11	Drive section	Gears	x	—	—	—	

A. Developing section

x: Check (Clean, replace, or adjust according to necessity) ○: Clean ▲: Replace △ : Adjust ☆: Lubricate

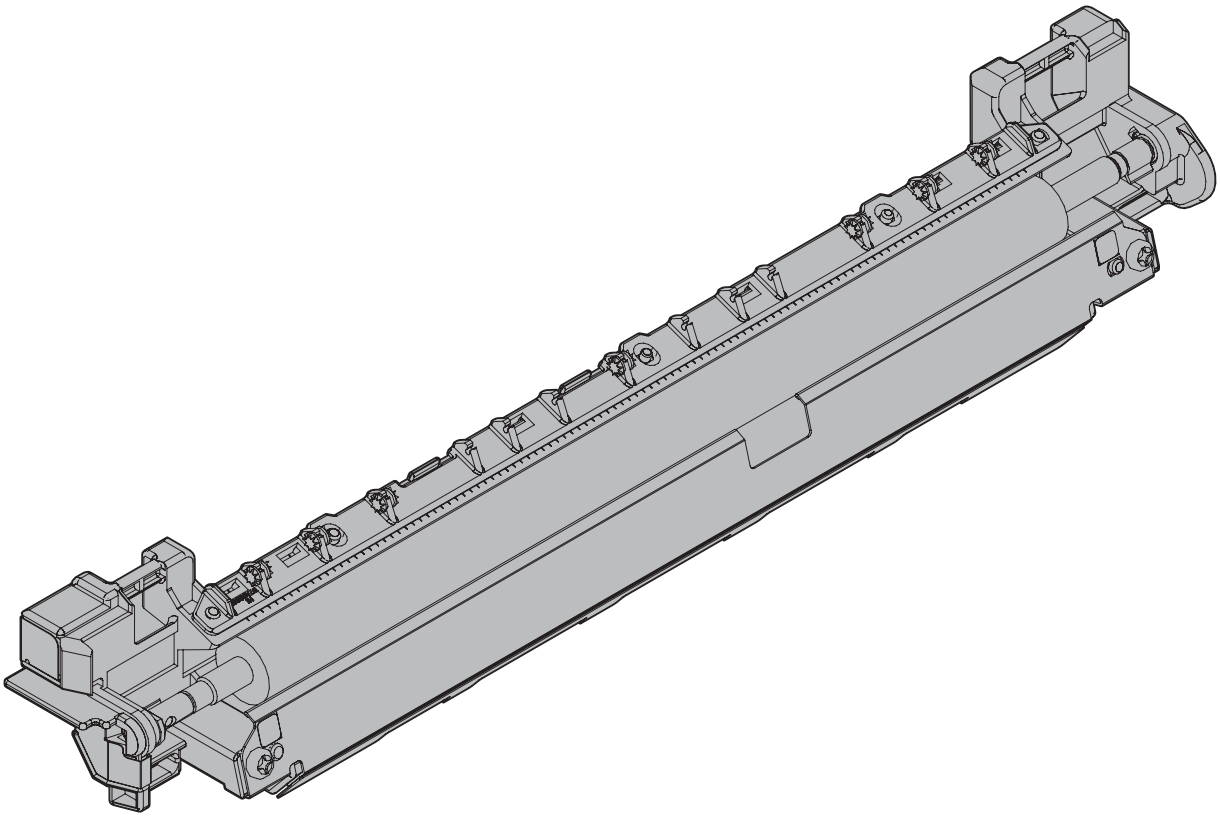
No.	Part name	When calling	100k	200k	300k	Remarks
1	Developer	—	▲	▲	▲	Replace when the specified rotation number is reached
2	DV filter	—	▲	▲	▲	Replace the DV filter at the same time as replacing the developer.
3	DV blade	x	x	x	x	Replace as needed
4	Side seat	x	x	x	x	Replace as needed
5	DV paper guide	○	○	○	○	



B. Transfer section

x: Check (Clean, replace, or adjust according to necessity) ○: Clean ▲: Replace △ : Adjust ☆: Lubricate

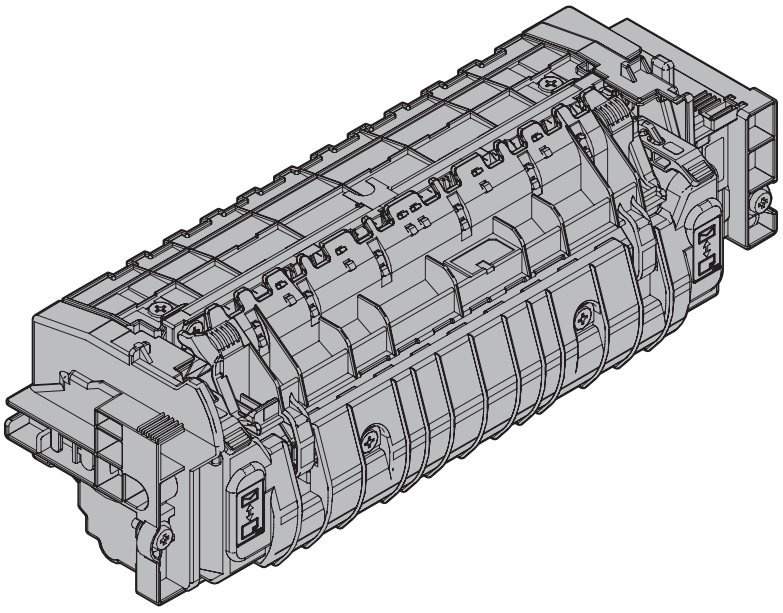
No.	Part name	When calling	100k	200k	300k	Remarks
1	Transfer unit	x	▲	▲	▲	Replace at (100K) or 2 years of use



C. Fusing section

x: Check (Clean, replace, or adjust according to necessity) ○: Clean ▲: Replace △ : Adjust ☆: Lubricate

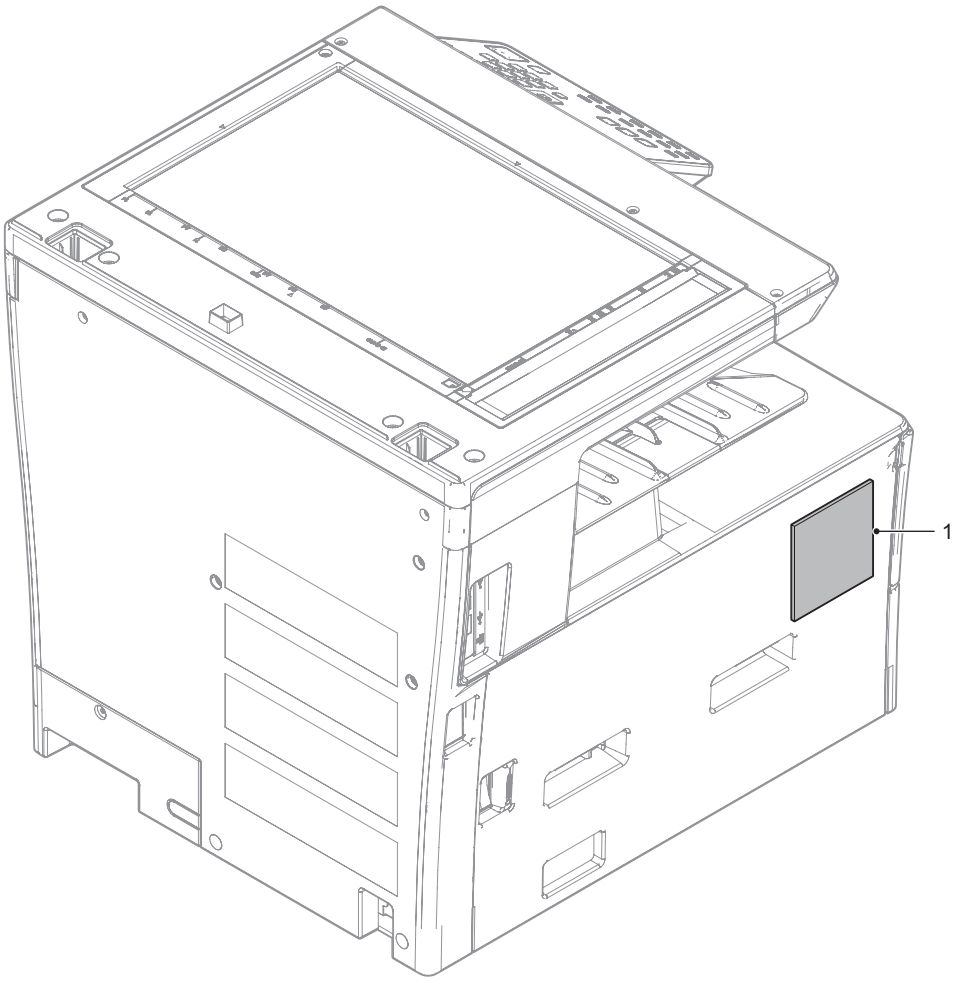
No.	Part name	When calling	100k	200k	300k	Remarks
1	Fusing unit	x	▲	▲	▲	Replace at (100K) or 2 years of use



D. Main unit filter section

x: Check (Clean, replace, or adjust according to necessity) ○: Clean ▲: Replace △ : Adjust ☆: Lubricate

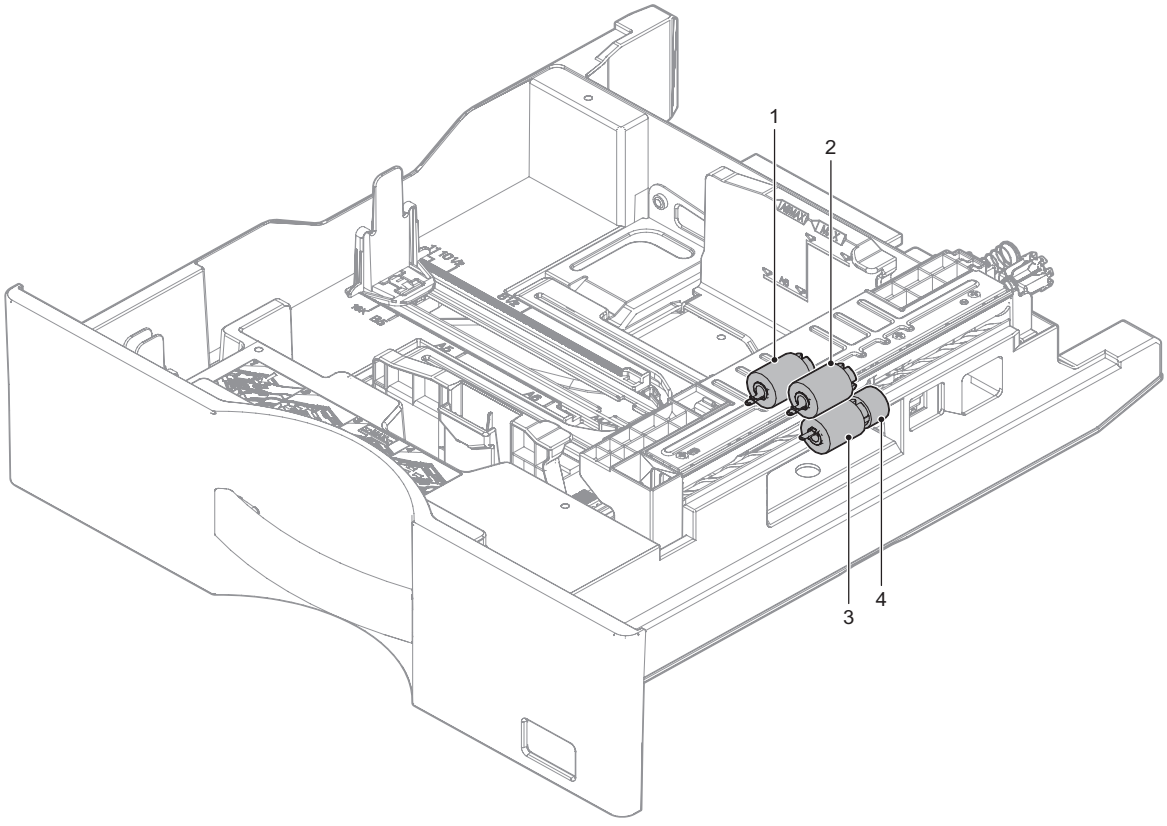
No.	Part name	When calling	100k	200k	300k	Remarks
1	Inspiration filter	x	○	○	○	

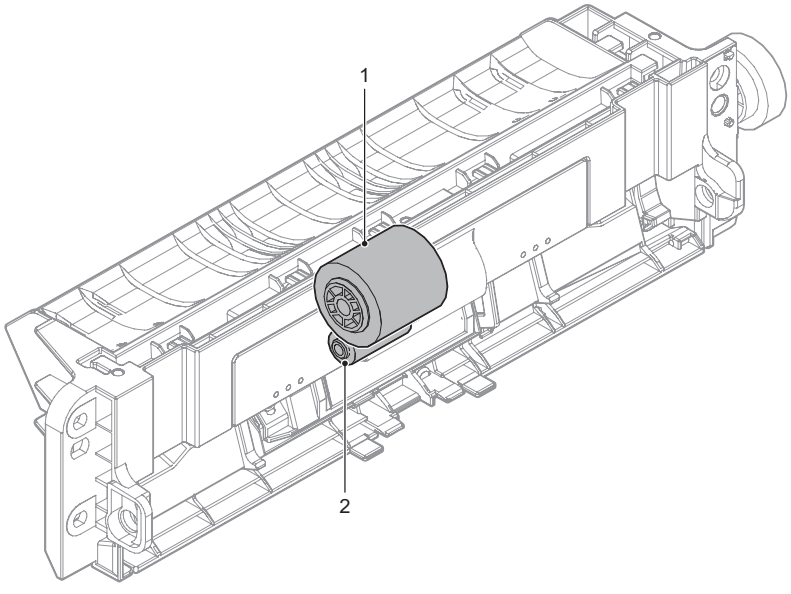


E. Paper feed section

x: Check (Clean, replace, or adjust according to necessity) ○: Clean ▲: Replace △ : Adjust ☆: Lubricate

No.	Part name	When calling	100k	200k	300k	Remarks
1	Paper pick up roller	○	○	○	○	Replacement reference: Replace referring to the paper feed counter value at each tray Paper feed tray: When 100K is reached or 1 years of use. Manual paper feed tray: When 100K is reached or 1 year of use.
2	Paper feed roller	○	○	○	○	
3	Separation roller	○	○	○	○	
4	Torque limiter	x	—	—	—	

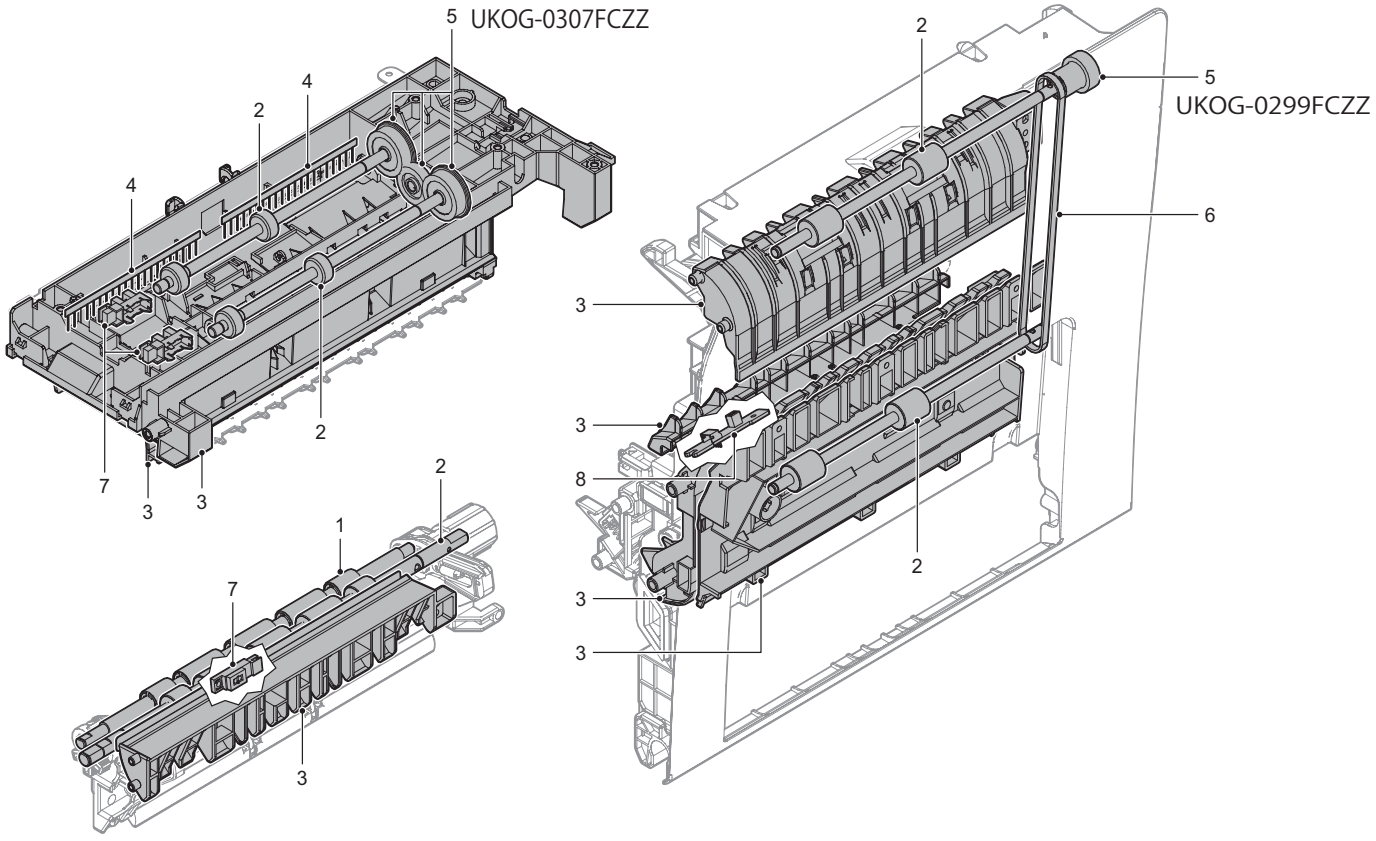




F. Transport section/Paper reverse section/Paper exit section

x: Check (Clean, replace, or adjust according to necessity) ○: Clean ▲: Replace △ : Adjust ☆: Lubricate

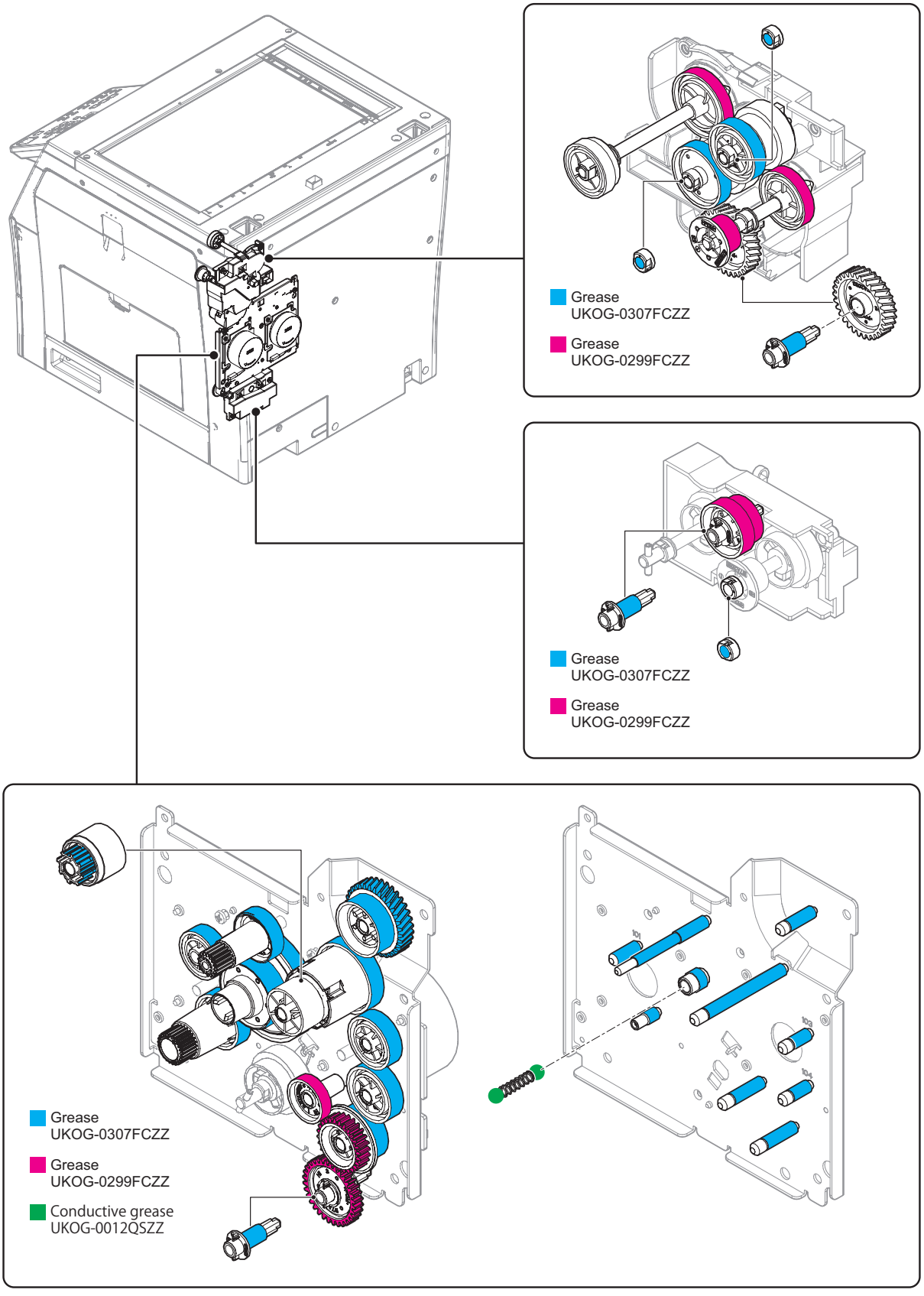
No.	Part name	When calling	100k	200k	300k	Remarks
1	PS roller (Idle)	x	○	○	○	
2	rollers	x	○	○	○	
3	Transfer paper guides	○	○	○	○	
4	Discharge brush	x	x	x	x	
5	Gears	x	—	—	—	Apply grease to the specified position as needed
6	Belts	x	—	—	—	
7	Sensors	x	—	—	—	Blow air to clean reflection type sensor section
8	Process control sensor	x	○	○	○	Clean with air blow when replacing drum cartridge, developer



G. Drive section

x: Check (Clean, replace, or adjust according to necessity) ○: Clean ▲: Replace △ : Adjust ☆: Lubricate

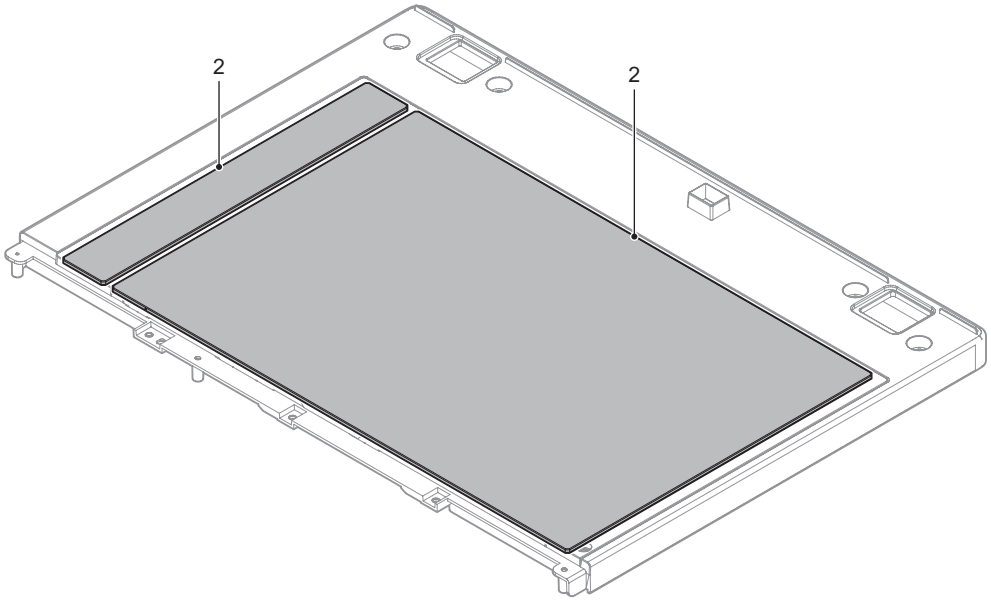
No.	Part name	When calling	100k	200k	300k	Remarks
1	Gears (grease)	x	—	—	—	Apply grease to the specified position as needed
2	Shafts earth section (conductor grease)	x	—	—	—	Apply grease to the specified position as needed

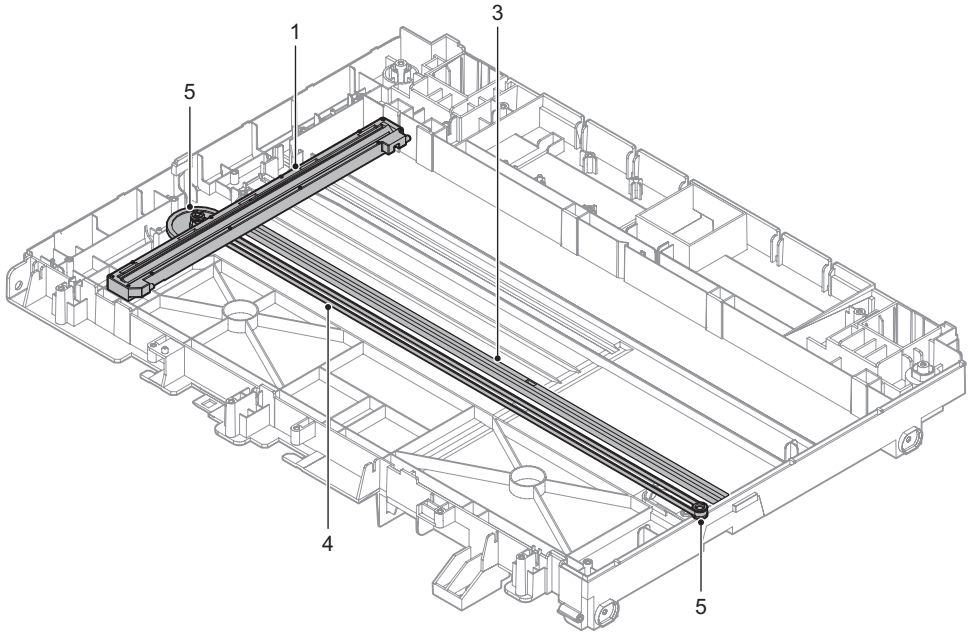


H. Scanner section

x: Check (Clean, replace, or adjust according to necessity) ○: Clean ▲: Replace △ : Adjust ☆: Lubricate

No.	Part name	When calling	100k	200k	300k	Remarks
1	CIS	x	x	x	x	Blow air to clean SELFOC lens section
2	Table glass, SPF glass	○	○	○	○	
3	Rail (grease)	x	x	x	x	Apply grease (UKOG-0307FCZZ) to the specified position when checking
4	Drive belt	x	x	x	x	Clean as needed after copy image check
5	Drive gear, pulley	x	—	—	—	Apply grease (UKOG-0299FCZZ) to the specified position as needed

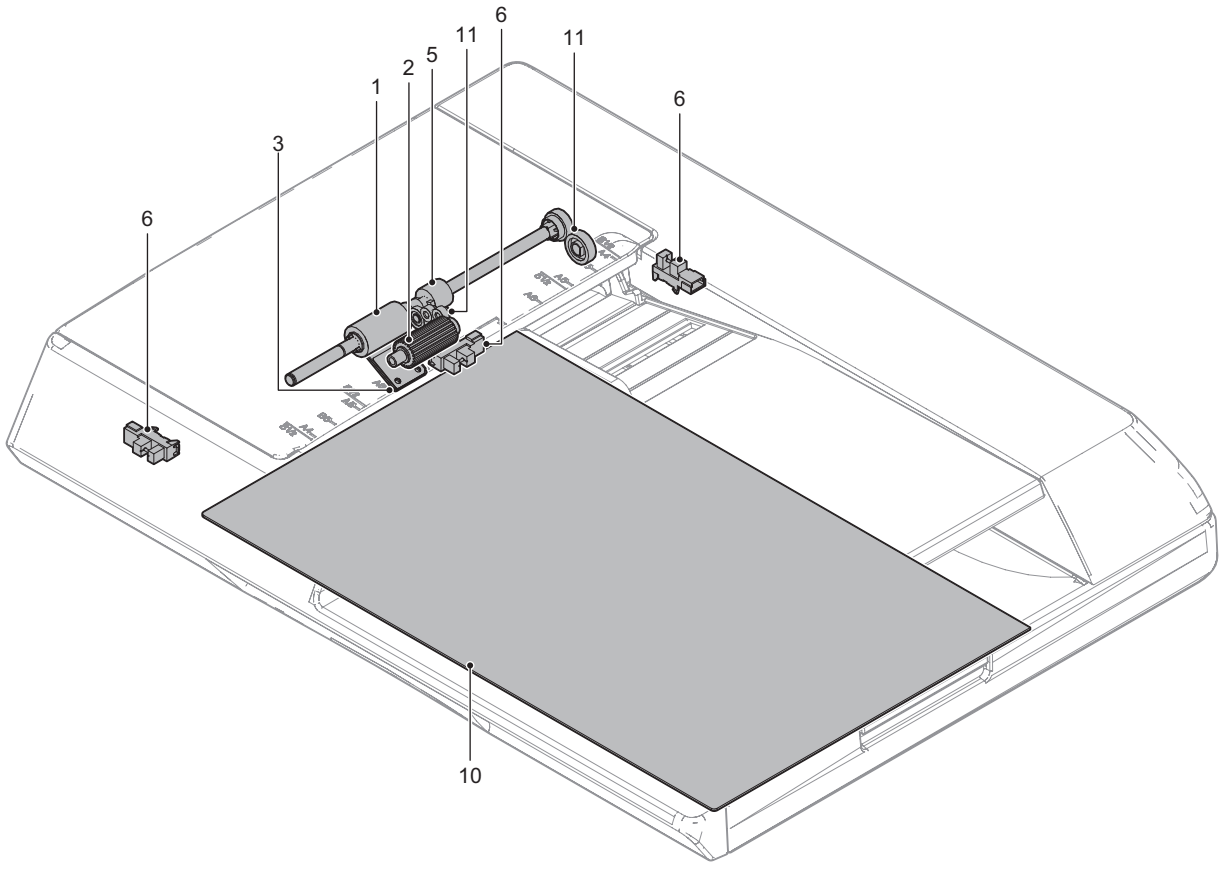




I. RSPF

x: Check (Clean, replace, or adjust according to necessity) ○: Clean ▲: Replace △ : Adjust ☆: Lubricate

No.	Part name		When calling	100k	200k	300k	Remarks
1	Paper feed section/ Transfer section	Paper feed roller	○	○	○	○	Replacement reference: Replace referring to the paper feed counter value. SPF part roller: Replace at 100K or wear.
2		Paper pickup roller	○	○	○	○	
3		Separation sheet	x	x	x	x	
4		Transfer rollers	x	○	○	○	
5		Torque limiter (for pickup)	x	x	x	x	
6		Sensors	x	—	—	—	
7		Scan plate	○	○	○	○	
8	Paper exit section	Paper exit roller	x	○	○	○	
9		Discharge brush	x	x	x	x	
10	Other	OC mat	○	○	○	○	
11	Drive section	Gears	x	—	—	—	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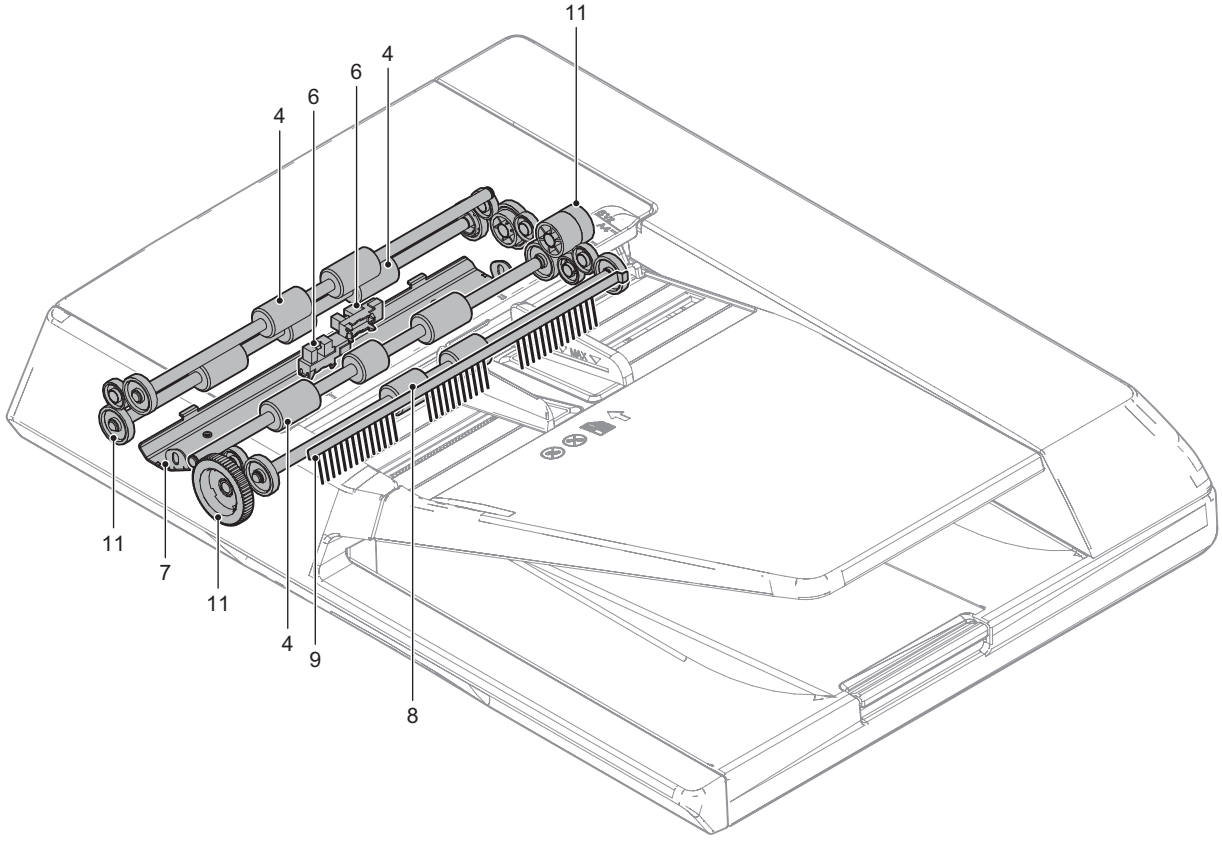
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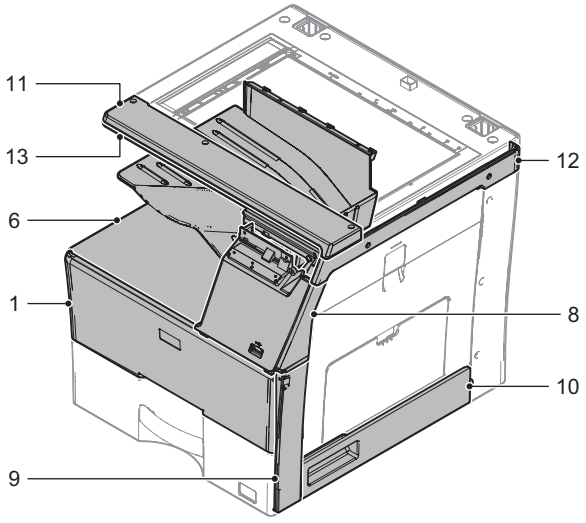
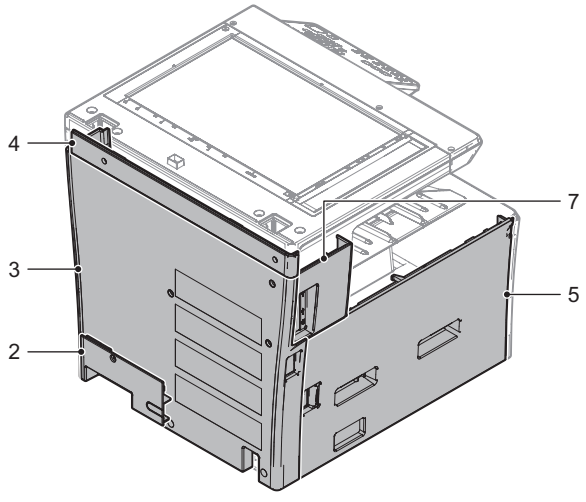
[10] DISASSEMBLY AND ASSEMBLY

1. Disassembly of Units

A. External view

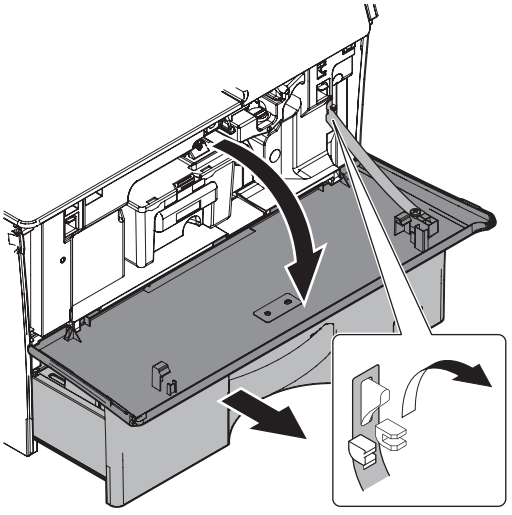
No.	Name
1	Front cabinet
2	Rear handle cabinet
3	Rear cabinet
4	Rear cabinet upper
5	Left cabinet
6	Paper exit tray cabinet
7	Left upper cabinet rear
8	Front cabinet right upper
9	Front cabinet right
10	Right cabinet lower
11	Scanner front cover upper
12	Upper cabinet right
13	Scanner front cover lower



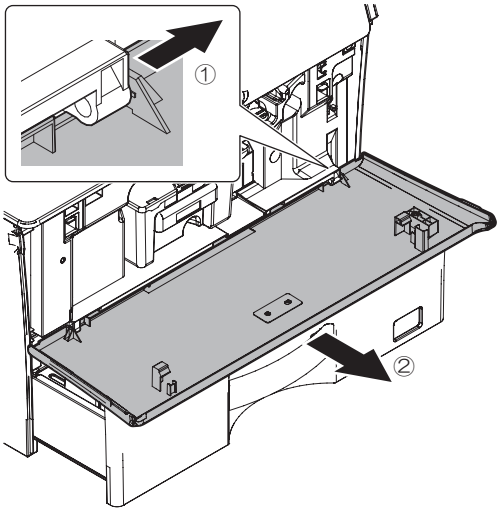


(1) Front cabinet

1) Open the front cabinet and the 500 cassette. Then, remove the band from the guide.

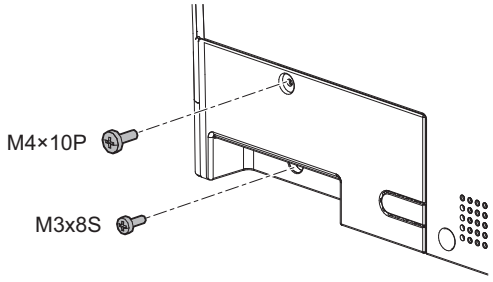


2) Remove the front cabinet.

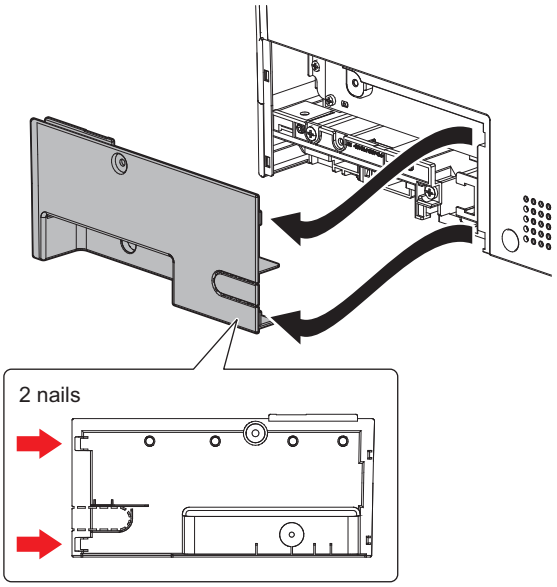


(2) Rear handle cabinet

1) Remove the screw.

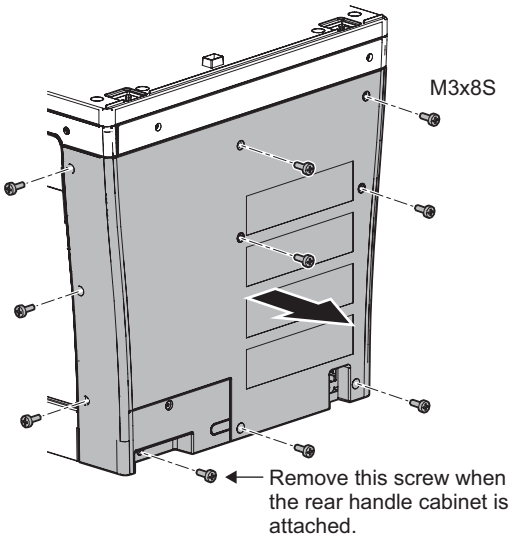


2) Remove the rear handle cabinet.



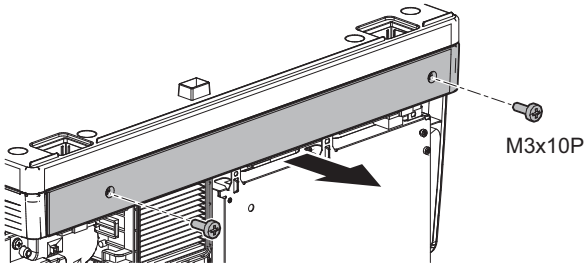
(3) Rear cabinet

1) Remove the screw.
2) Remove the rear cabinet.



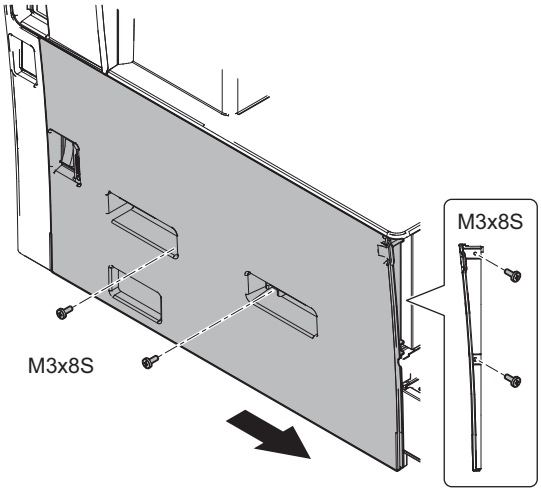
(4) Rear cabinet upper

1) Remove the rear cabinet.
2) Remove the screw.
3) Remove the rear cabinet upper.

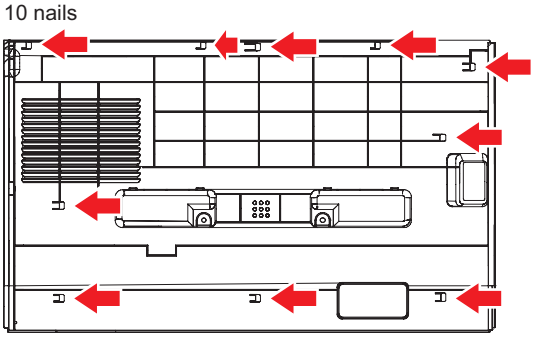


(5) Left cabinet

1) Remove the front cabinet.
2) Remove the screw.
3) Remove the left cabinet.

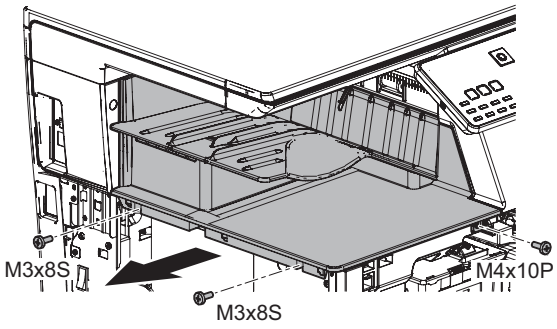


NOTE: Make sure to insert the nails firmly when attaching.

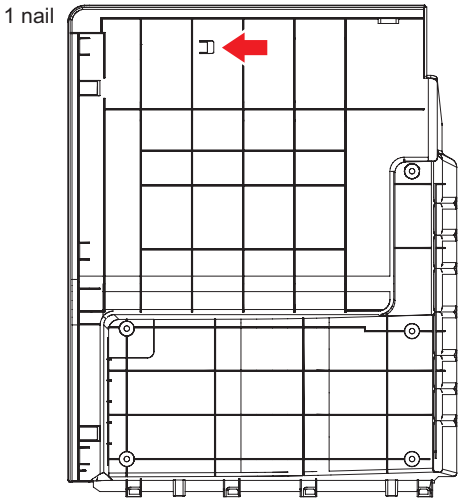


(6) Paper exit tray cabinet

1) Open the front cabinet.
2) Remove the left cabinet.
3) Remove the screw.
4) Remove the paper exit tray cabinet.



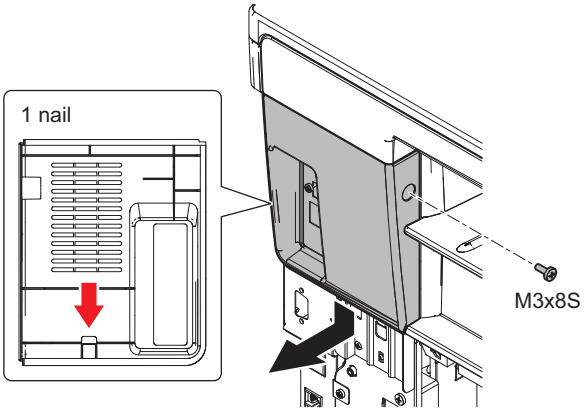
NOTE: Make sure to insert the nails firmly when attaching.



(7) Left upper cabinet rear

1) Remove the rear cabinet and the left cabinet.
2) Remove the screw.
3) Remove the left upper cabinet rear.

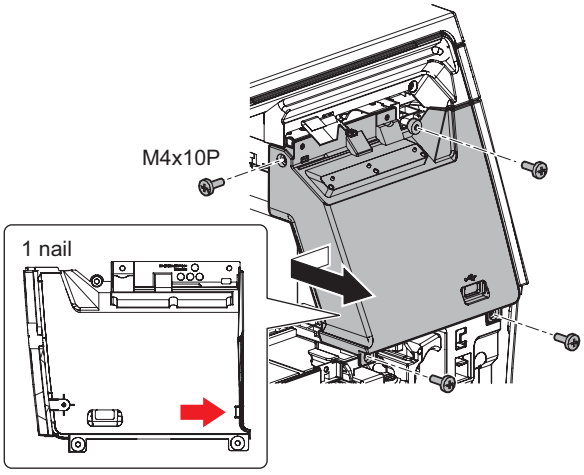
NOTE: Make sure to insert the nails firmly when attaching.



(8) Front cabinet right upper

1) Remove the operation panel.
2) Open the front cabinet.
3) Remove the paper exit tray cabinet.
4) Open the right door.
5) Remove the screw.
6) Remove the front cabinet right upper.

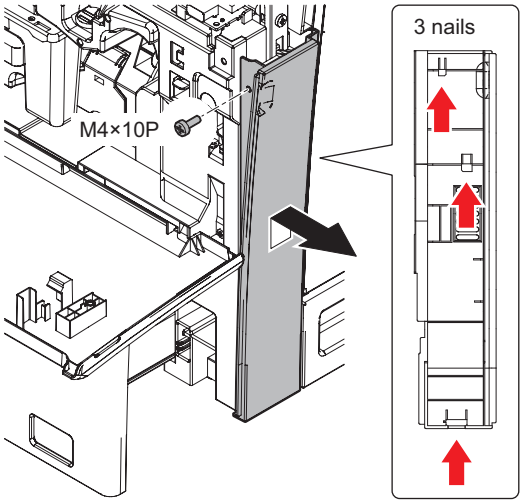
NOTE: Make sure to insert the nails firmly when attaching.



(9) Front cabinet right

1) Remove the front cabinet right upper.
2) Open the cassette.
3) Remove the screw.
4) Remove the front cabinet right.

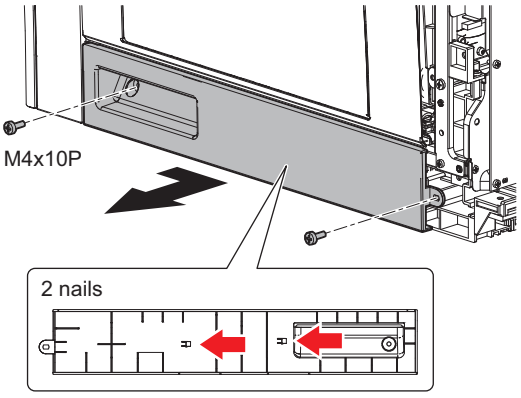
NOTE: Make sure to insert the nails firmly when attaching.



(10) Right cabinet lower

1) Remove the rear cabinet.
2) Remove the screw.
3) Remove the right cabinet lower.

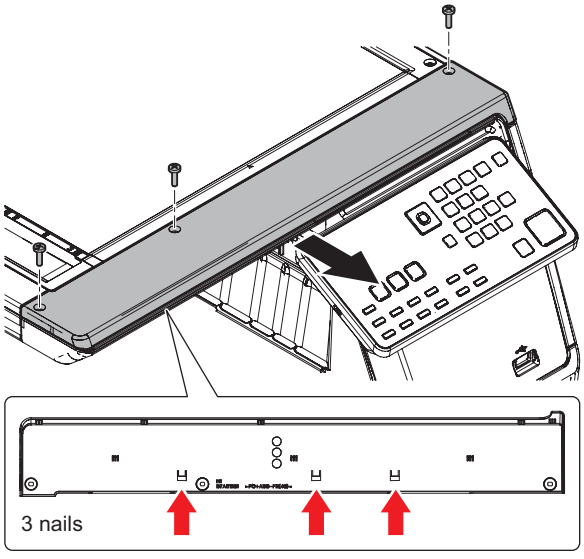
NOTE: Make sure to insert the nails firmly when attaching.



(11) Scanner front cover upper

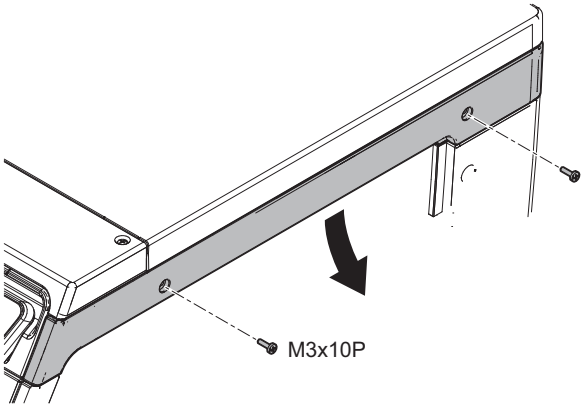
1) Remove the screw.
2) Remove the scanner front cover upper.

NOTE: Make sure to insert the nails firmly when attaching.



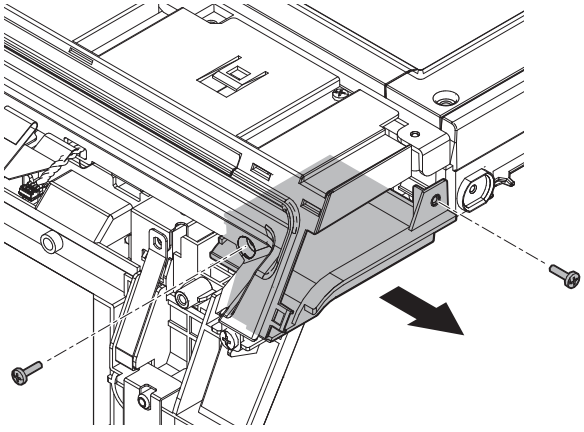
(12) Upper cabinet right

1) Open the right door.
2) Remove the screw.
3) Remove the upper cabinet right.

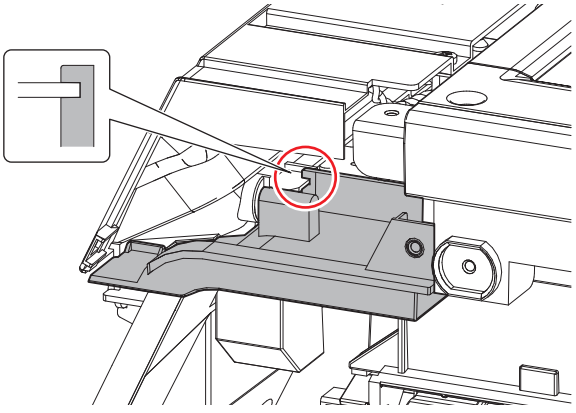


(13) Scanner front cover lower

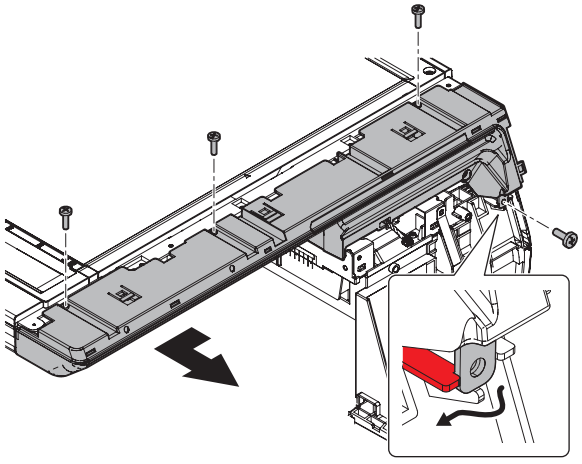
1) Remove the operation panel.
2) Remove the front cabinet right upper.
3) Remove the scanner front cover upper.
4) Remove the upper cabinet right.
5) Remove the screws and cover.



NOTE: Make sure to insert the nails firmly when attaching.

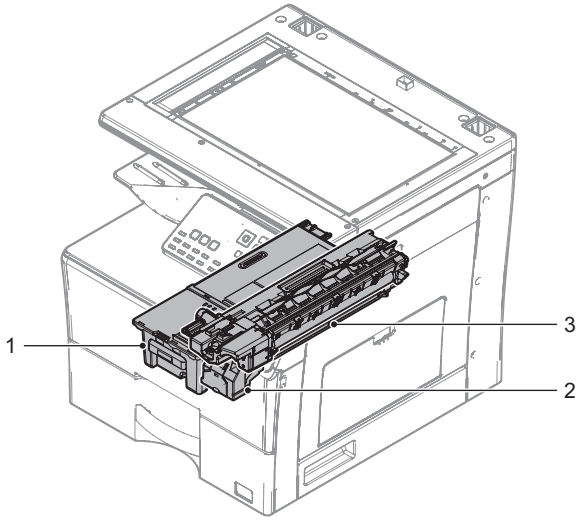


6) Remove the screws.
7) Remove the scanner front cover lower.



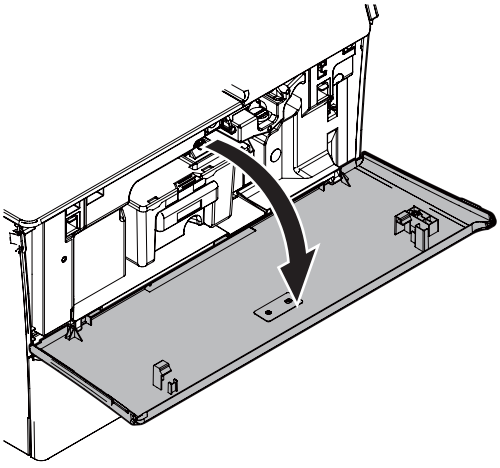
B. Developing/Drum unit section

No.	Name
1	Toner cartridge
2	Developing unit
3	Drum unit
4	Transfer unit

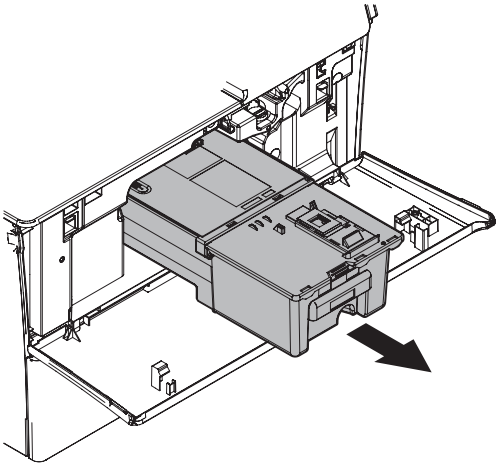


(1) Toner cartridge

1) Open the front cabinet.

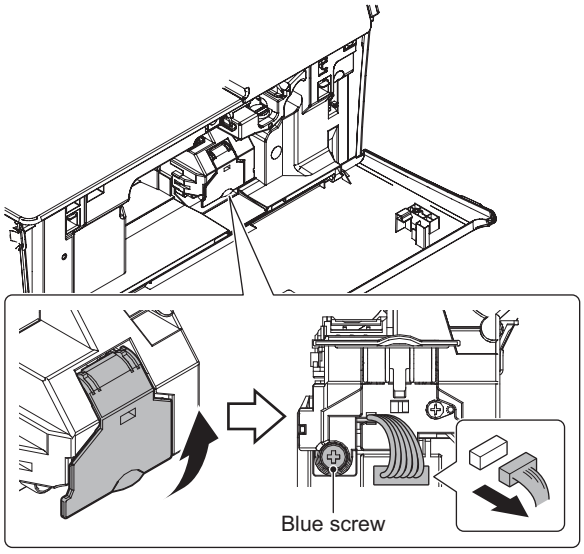


2) Remove the toner cartridge.

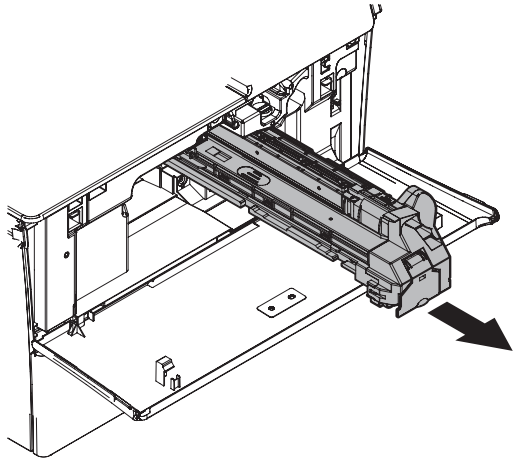


(2) Developing unit

1) Remove the toner cartridge.
2) Open the cover.
3) Loosen the blue screw.
4) Disconnect the connector.



5) Pull out the developing unit horizontally and slowly.



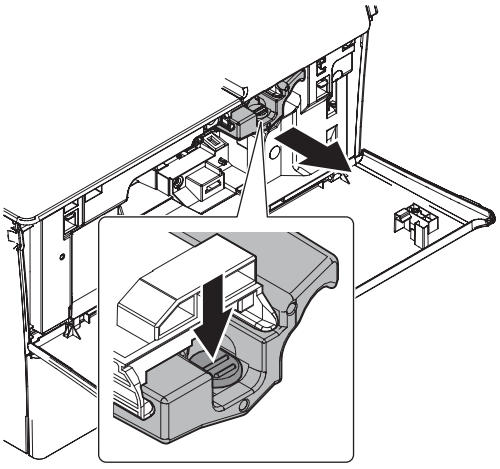
Important

Note the following points when installing the developing unit.

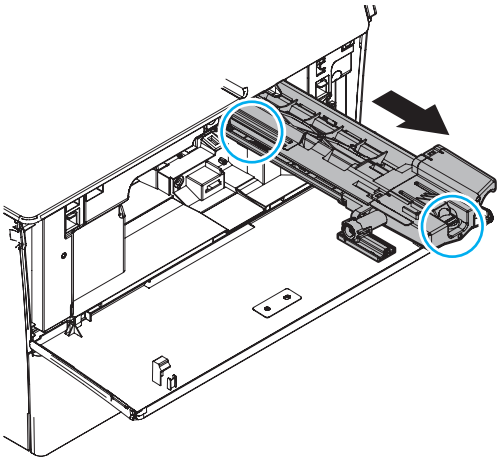
1) Hold the unit horizontally and slowly insert it.
2) Insert it completely.
3) Insert so that impact is not applied when inserting the unit.
4) Be careful not to touch the MG roller, the DV blade and the side seat F/R

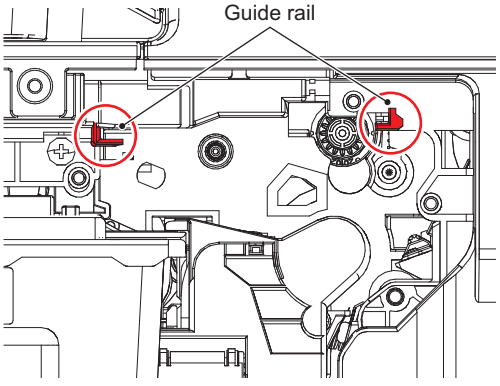
(3) Drum unit

1) Open the front cabinet.
2) Remove the developing unit.
3) Push the lock lever to release the lock. Then, pull out the drum unit.



4) Remove the drum unit by holding both blue framed areas.





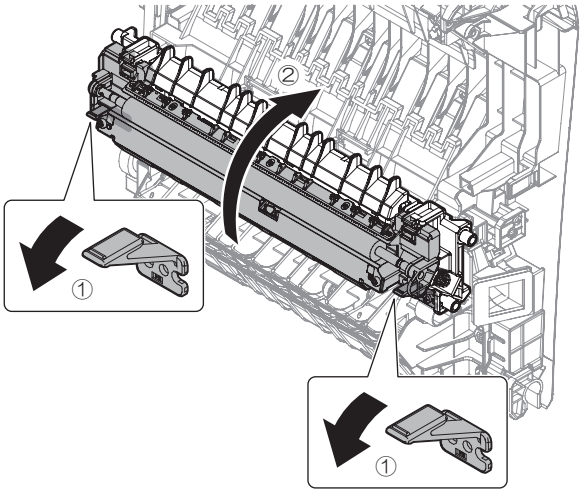
Important

When pulling out and inserting the Drum unit, be careful not to touch the OPC drum, separator pawl, charging roller and cleaning roller.

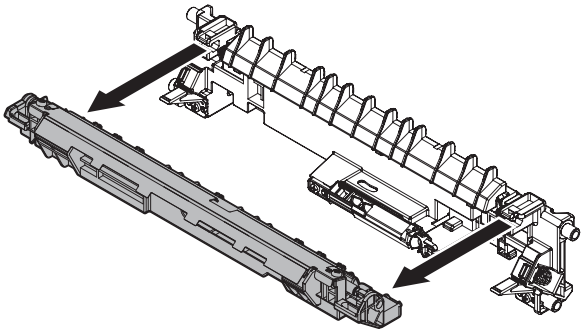
Check that unit lock is surely locked after inserting the Drum unit.

(4) Transfer unit

1) Open the right door.
2) Remove the nail and rotate the transfer unit.

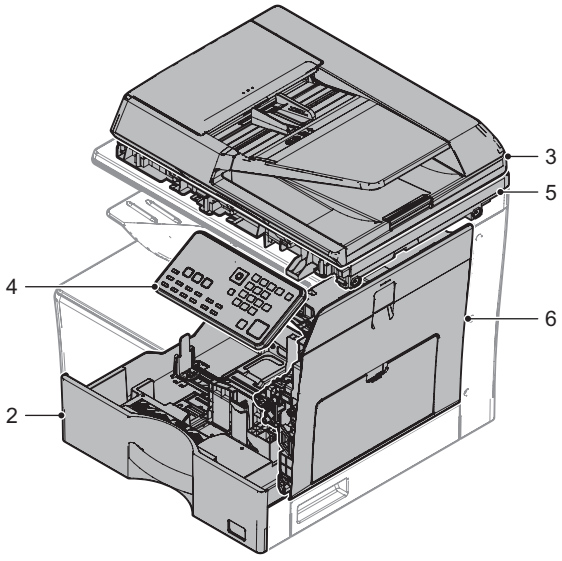


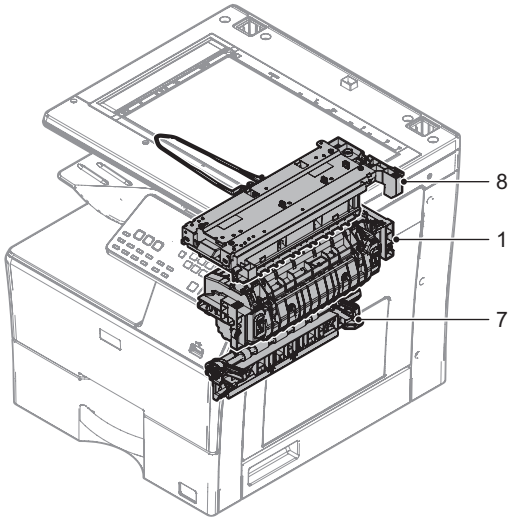
3) Remove the transfer unit.

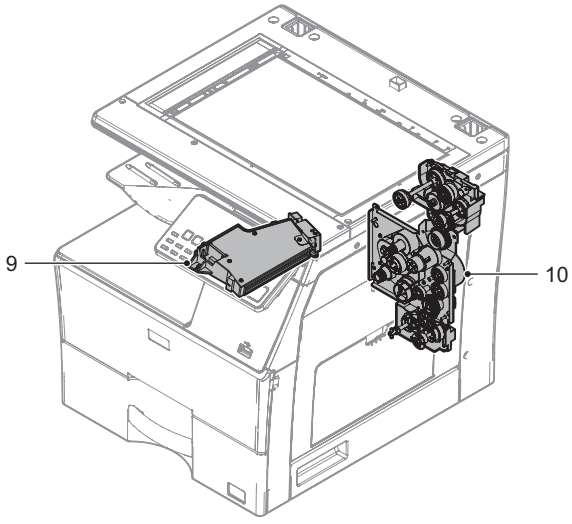


C. Each unit section

No.	Name
1	Fusing unit
2	500 casette
3	Auto document feeder section (RSPF)
4	Operation panel
5	Scanner unit
6	Right door unit
7	PS unit
8	Exit paper unit
9	LSU unit
10	Main drive unit

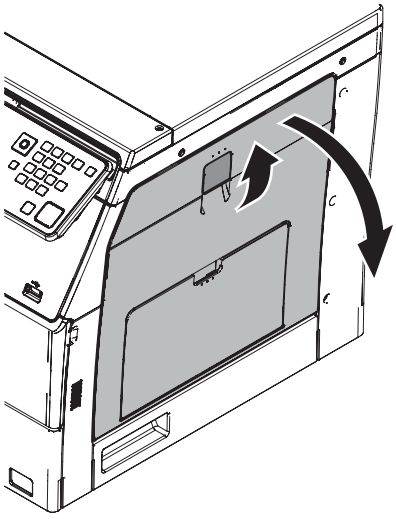




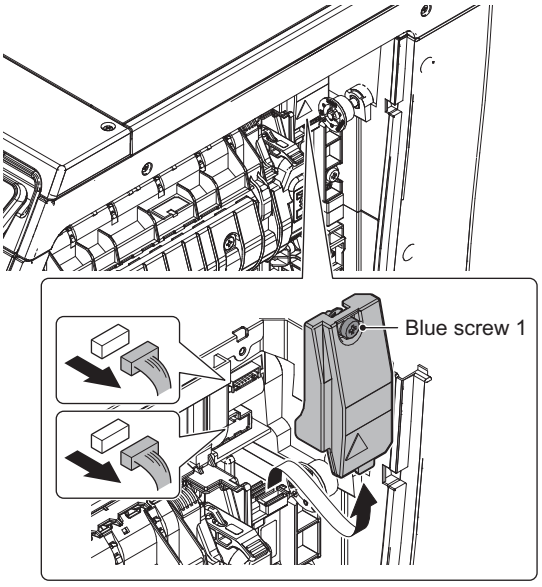


(1) Fusing unit

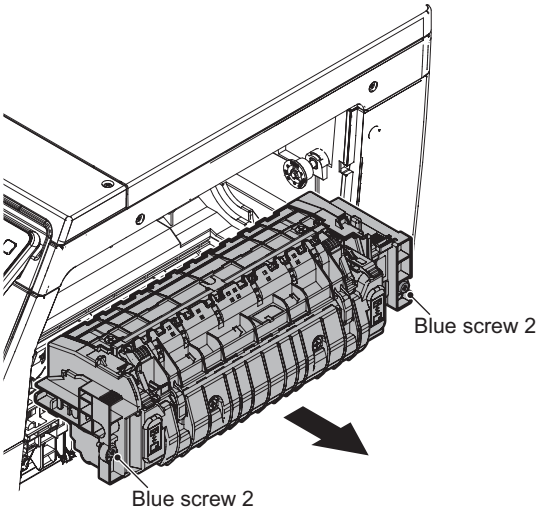
1) Open the right door.



2) Loosen the blue screw 1.
3) Remove the cover.
4) Disconnect the connector.

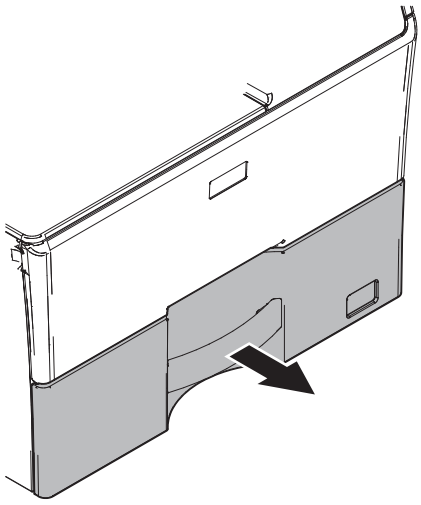


5) Loosen the blue screw 2.
6) Remove the fusing unit.



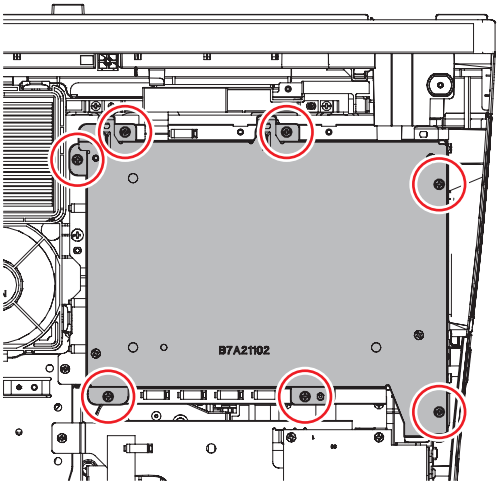
(2) 500 casette

1) Pull out the 500 casette.

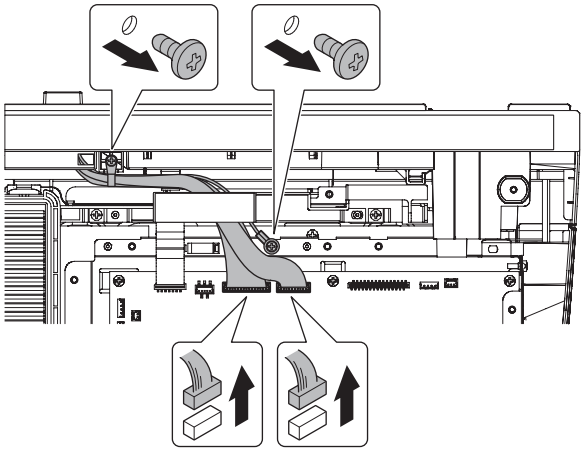


(3) Auto document feeder section (RSPF)

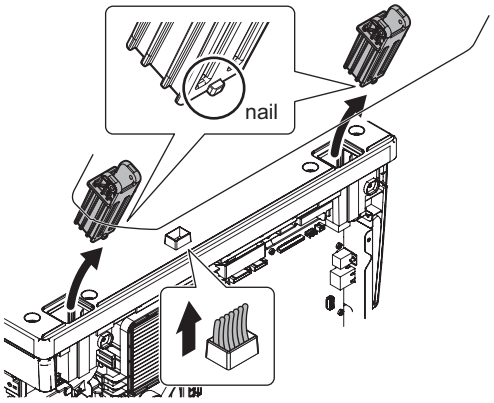
1) Remove the rear cabinet.
2) Remove the rear cabinet upper.
3) Remove the MFPC shield plate.



4) Remove the screws and disconnect the connectors.

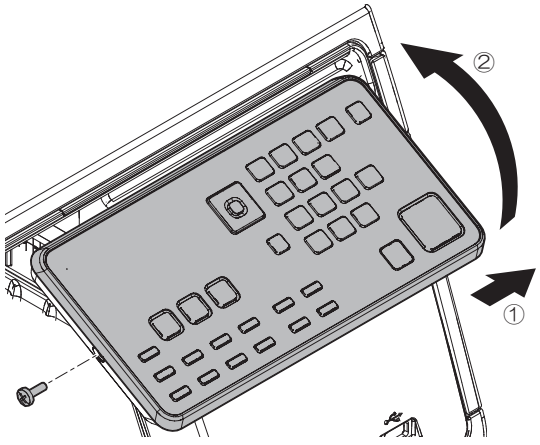


5) Pull out the harness from the square hole.
6) Remove the RSPF.

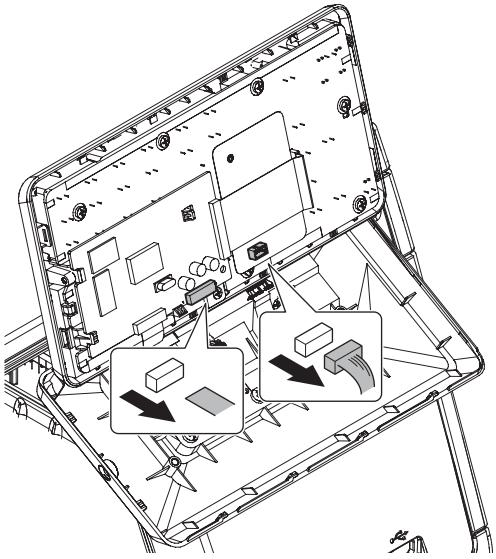


(4) Operation panel

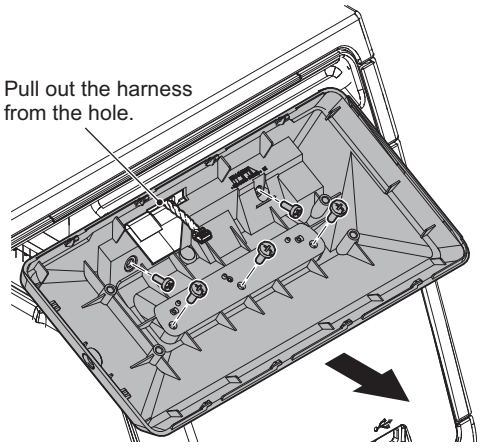
1) Remove the screw and open the operation panel.



2) Disconnect the connector and the harness.

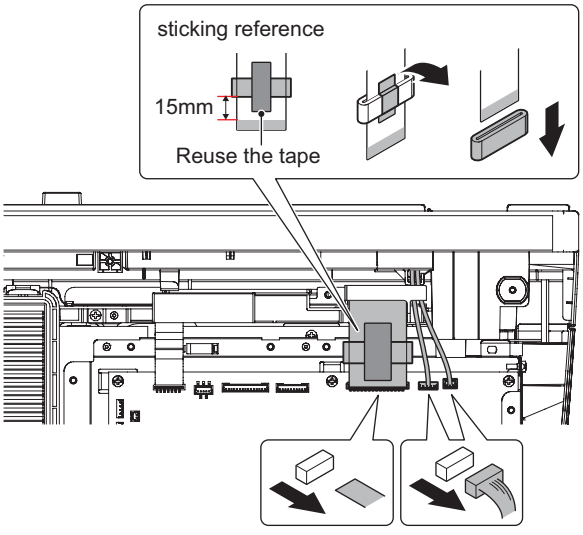


3) Remove the screws and the base cabinet.



(5) Scanner unit

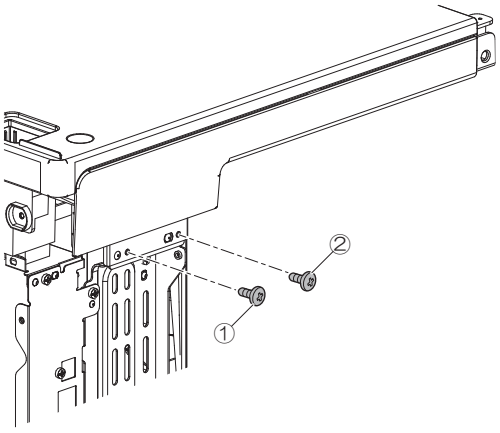
1) Remove the RSPF.
2) Remove the operation panel.
3) Remove the front cabinet right upper.
4) Remove the Scanner front cover upper.
5) Remove the upper cabinet right.
6) Remove the scanner front cover lower.
7) Remove the left upper cabinet rear.
8) Remove the MFPC shield plate.
9) Disconnect the connector and the FFC.

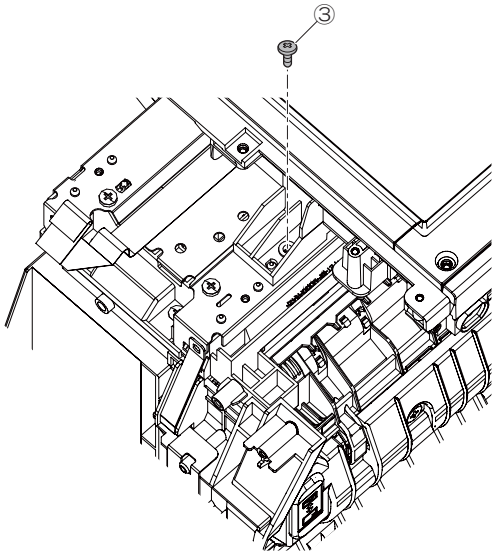


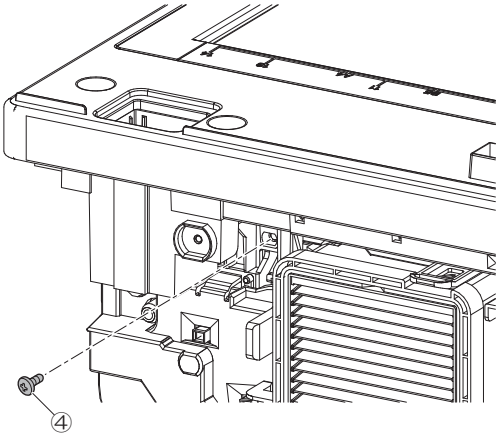
10) Remove the screw.

Important

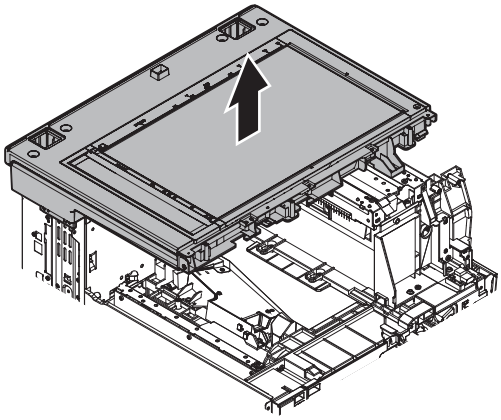
When attaching the scanner unit, tighten the screw in the order of (1) - (4).







11) Remove the scanner unit.

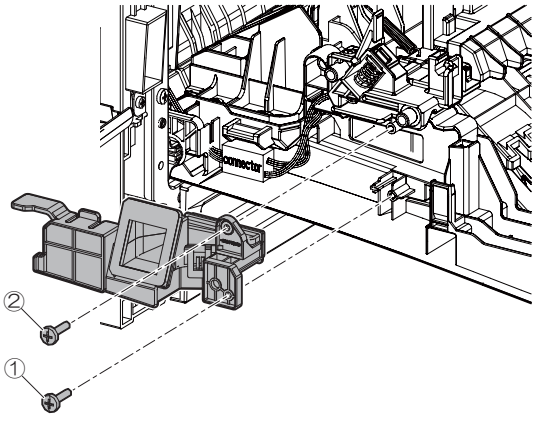


(6) Right door unit

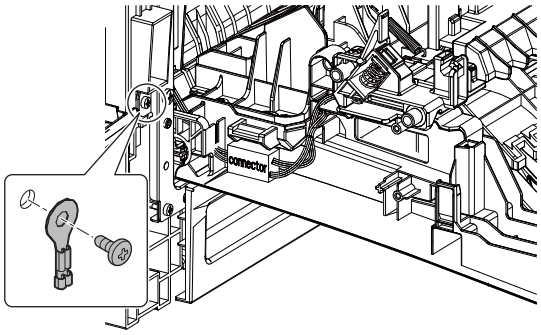
1) Remove the front cabinet right.
2) Open the right door.
3) Remove the screw and the ADU duct.

Important

When attaching the ADU duct, tighten the screw in the order of (1) - (2).

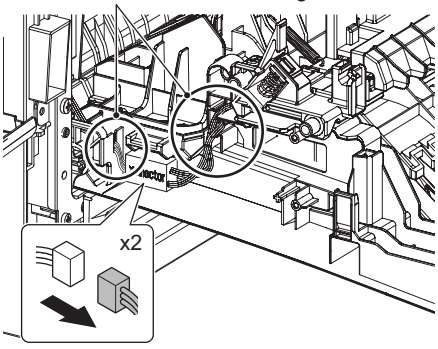


4) Remove the screw and the ground wire.

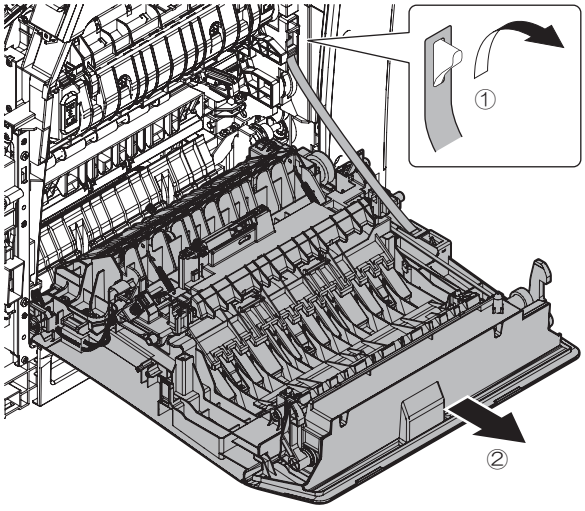


5) Disconnect the connectors.

Remove the harness from the groove.

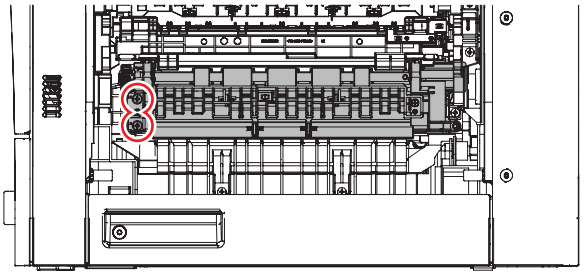


6) Remove the right door unit.



(7) PS unit

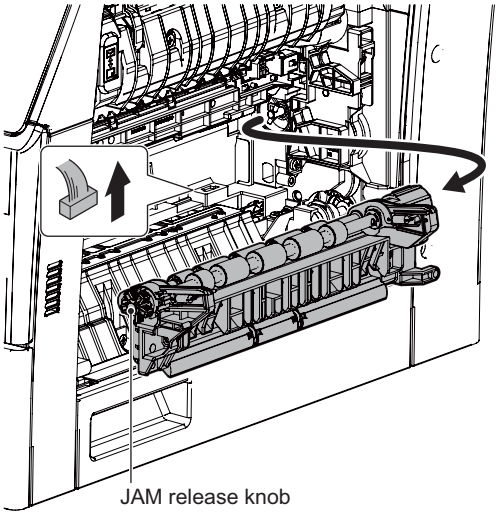
1) Open the right door unit.
2) Remove the screw.

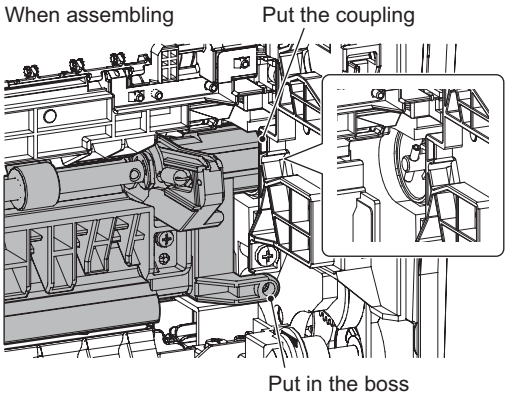


3) Pull out the PS unit and disconnect the connector. Then, remove the PS unit.

Important

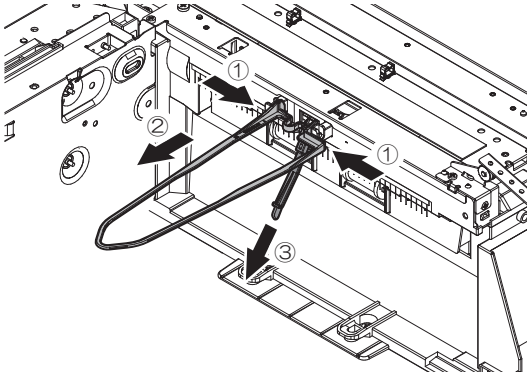
After assembling, check that the roller turns smoothly by turning JAM release knob.



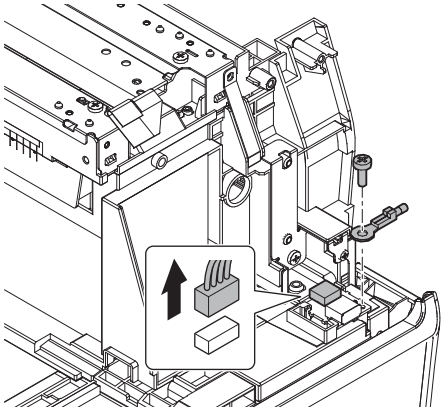


(8) Exit paper unit

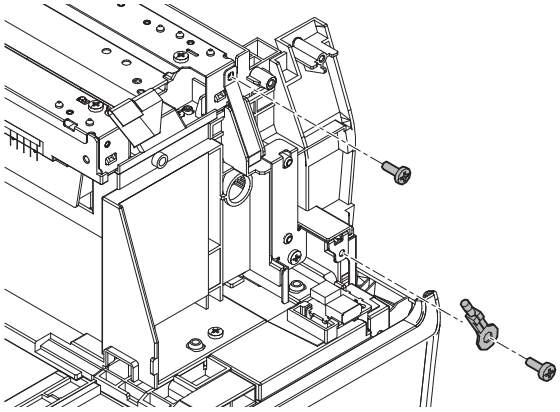
1) Remove the scanner unit.
2) Remove the paper fixing arm and the empty lever.



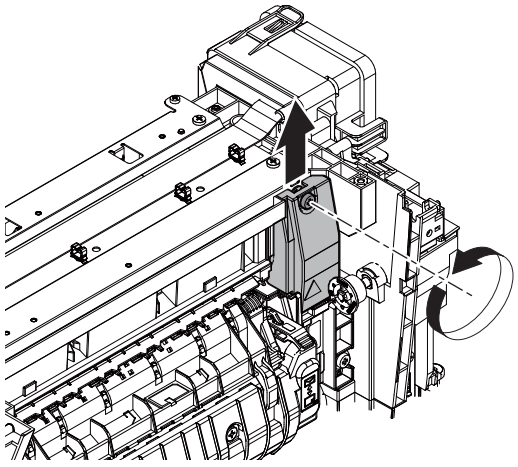
3) Disconnect the connector and remove the screw and the ground wire.



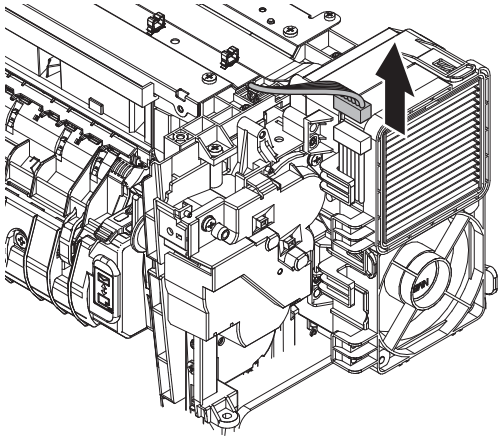
4) Remove the screw and the ground wire.



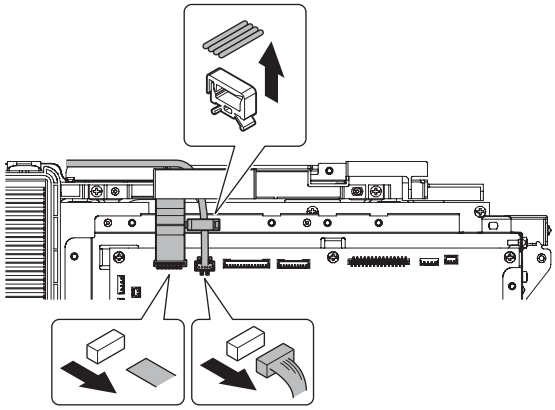
5) Loosen the screw and remove the cover.



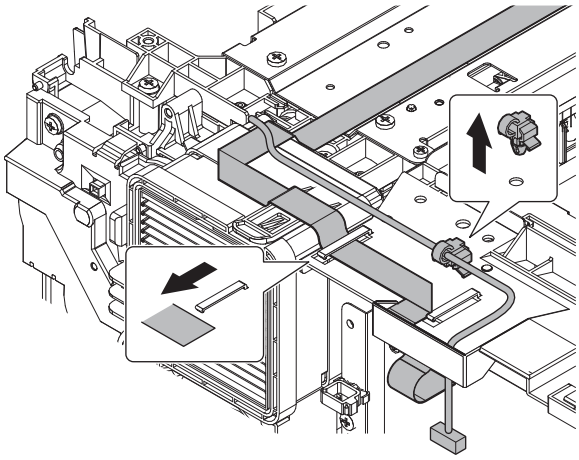
6) Disconnect the connector.



7) Disconnect the connector and the FFC.
Remove the harness from the wire saddle.



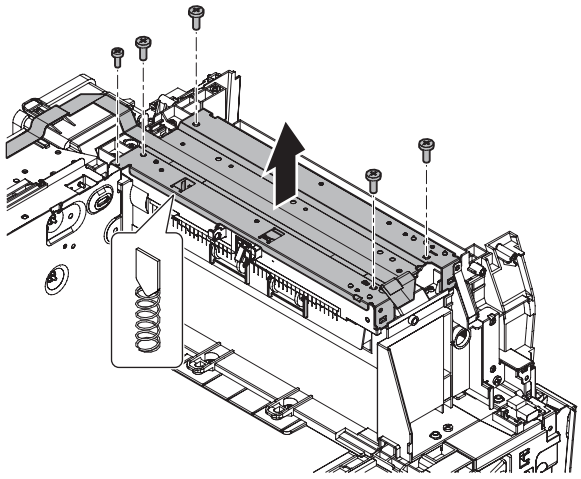
8) Remove the reuse bands and the FFC.



9) Remove the screws and the stay.

Important

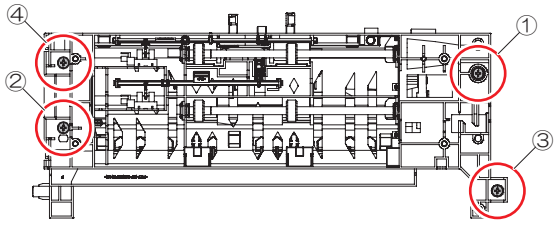
When attaching the exit paper unit, confirm orientation of the spring.



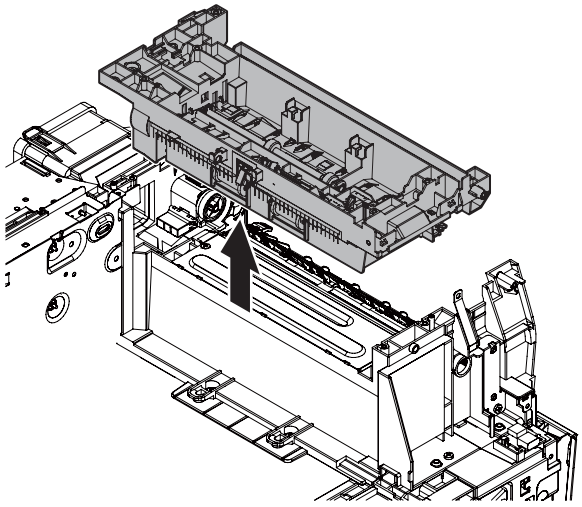
10) Remove the screws.

Important

When attaching the exit paper unit, tighten the screw in the order of (1) - (4).

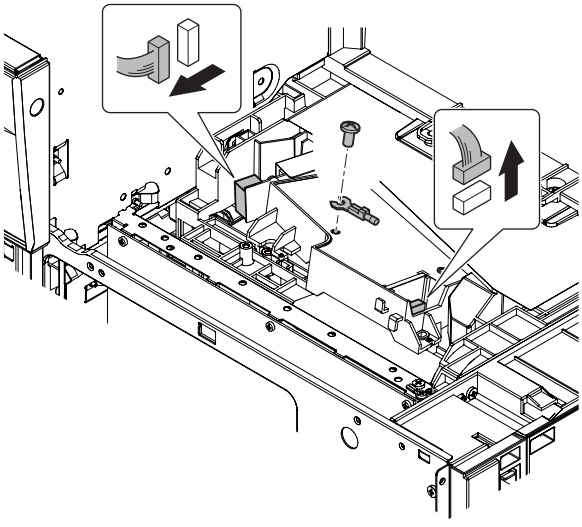


11) Remove the exit paper unit.



(9) LSU unit

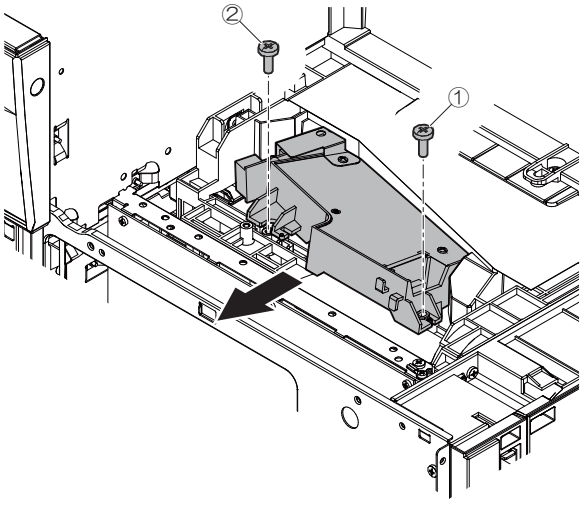
1) Remove the paper exit tray cabinet.
2) Disconnect the connector and remove the screw and the ground wire.



3) Remove the screw and the LSU unit.

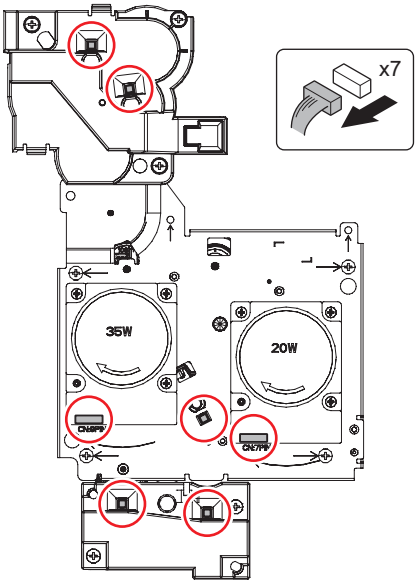
Important

When attaching the LSU unit, tighten the screw in the order of (1) - (2).

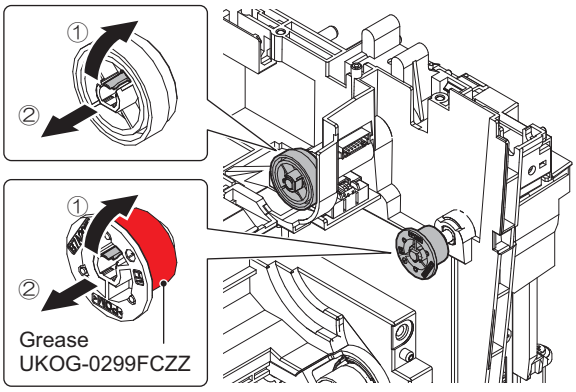


(10) Main drive unit

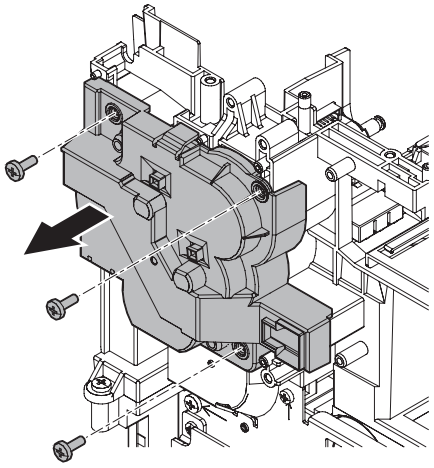
1) Remove the developing unit.
2) Remove the process unit.
3) Remove the fusing unit.
4) Remove the 500 casette.
5) Remove the RSPF.
6) Remove the operation panel.
7) Remove the scanner unit.
8) Remove the PS unit.
9) Remove the exit paper unit.
10) Remove the MFPC fix plate unit.
11) Remove the PCU fix plate unit.
12) Remove the rear exhaust duct.
13) Disconnect the connectors.



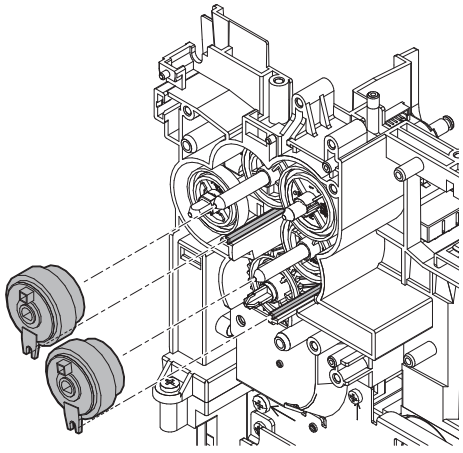
14) Remove the gears.



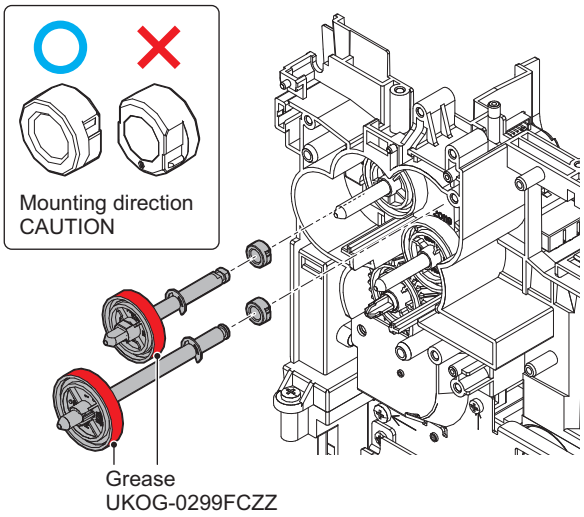
15) Remove the screws and the cover.



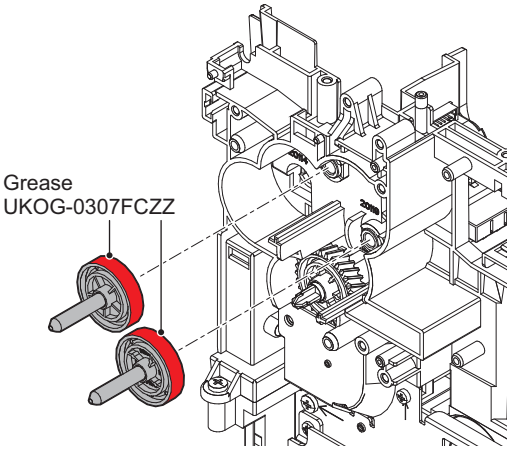
16) Remove the clutches.



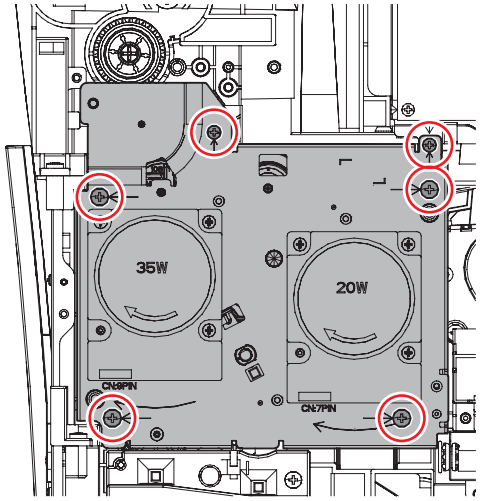
17) Remove the gear assemblies and the bearings.



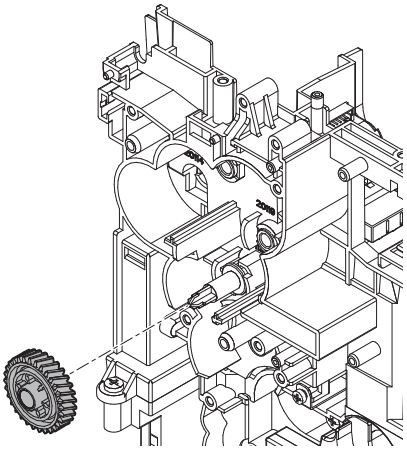
18) Remove the gear assemblies.



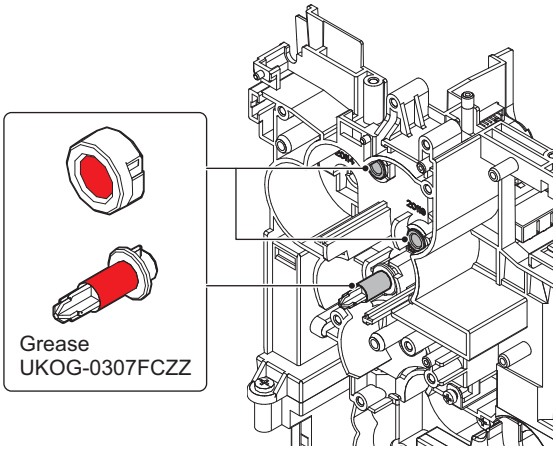
19) Remove the screws and the main drive unit.



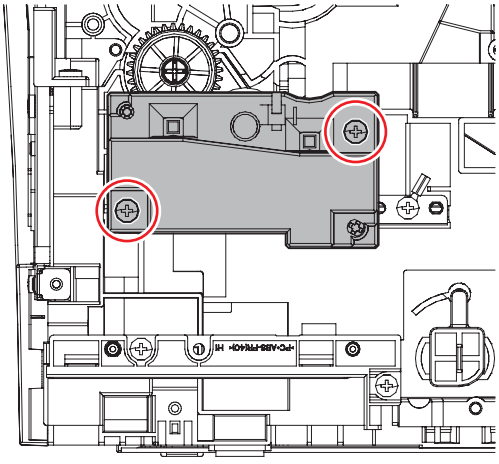
20) Remove the gear.



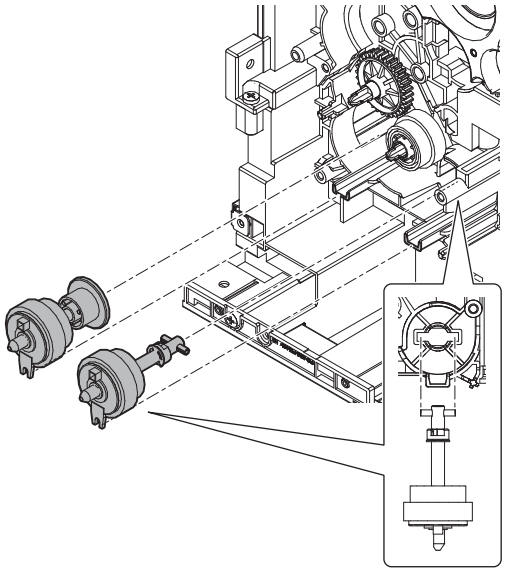
21) Apply grease to the specified position as needed.



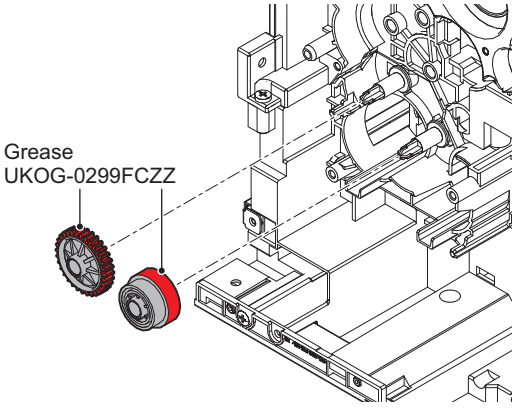
22) Remove the screws and the cover.



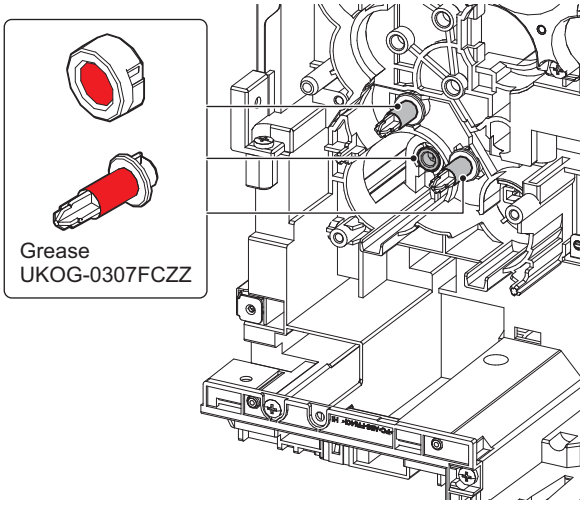
23) Remove the clutch assemblies.



24) Remove the gears.

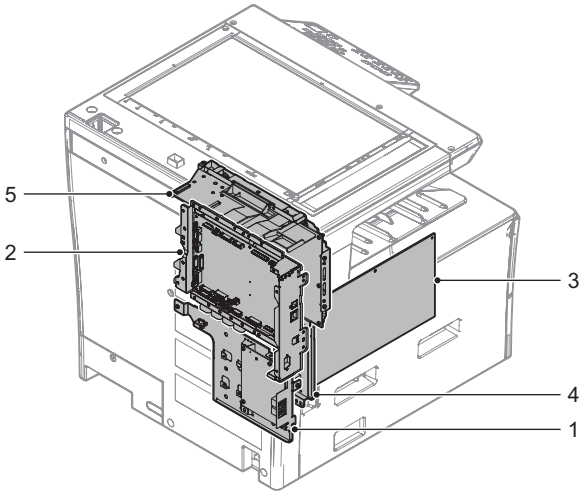


25) Apply grease to the specified position as needed.



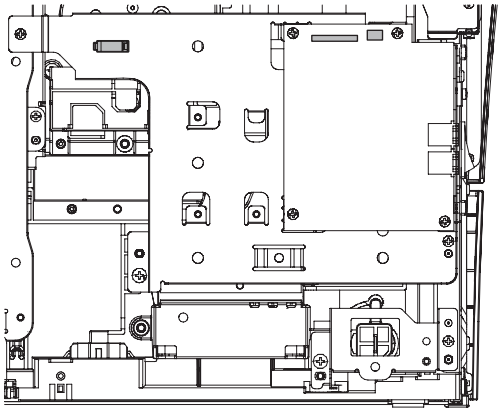
D. PWB section

No.	Name
1	FAX fix plate unit
2	MFPC fix plate unit
3	HV PWB
4	AC fix plate unit
5	DC fix plate unit



(1) FAX fix plate unit

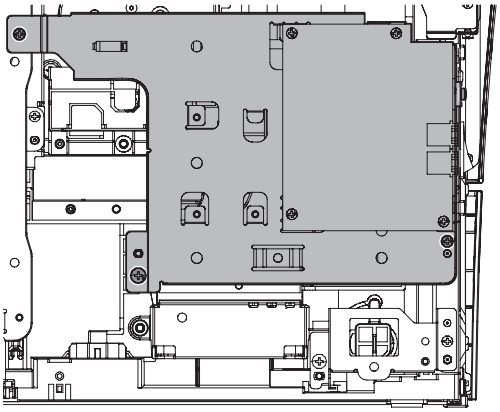
1) Remove the rear cabinet.
2) Remove the Left cabinet.
3) Disconnect the connector and the FFC.



4) Remove the screw and remove the FAX fix plate unit.

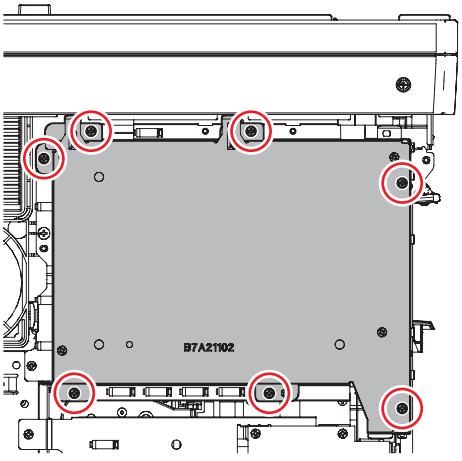
Important

When attaching the FAX fix plate unit, tighten the screw in the order of (1) - (4).



(2) MFPC fix plate unit

1) Remove the rear cabinet.
2) Remove the left cabinet.
3) Remove the left upper cabinet rear.
4) Remove the screws and the MFPC shield plate.

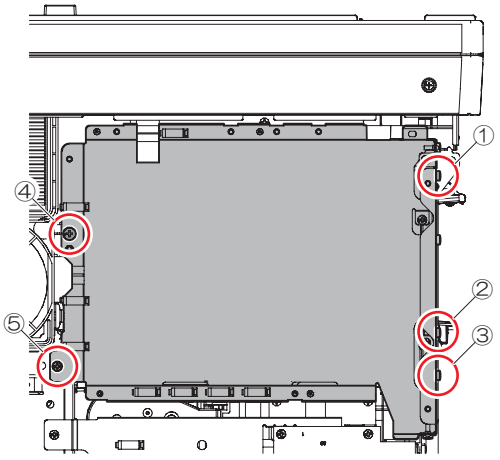


5) Disconnect the connectors and the FFCs.

6) Remove the screws and the MFPC fix plate unit.

Important

When attaching the MFPC fix plate unit, tighten the screw in the order of (1) - (5).



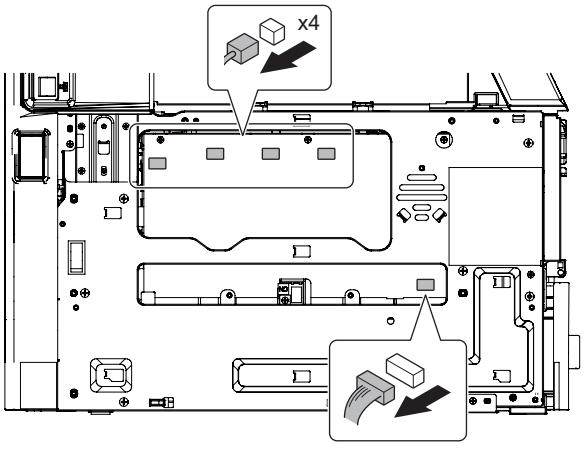
Important

Perform the following operations after replacing the MFPC PWB.

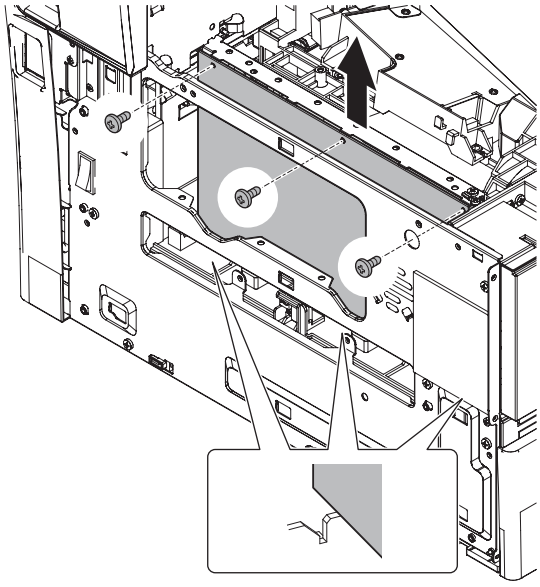
- Remove the fusing unit and turn ON the main power. Then, leave the main unit for 20 seconds.
- Turn OFF the main power.
- Attach the fusing unit.

(3) HV PWB

1) Remove the paper exit tray cabinet.
2) Disconnect the connectors.

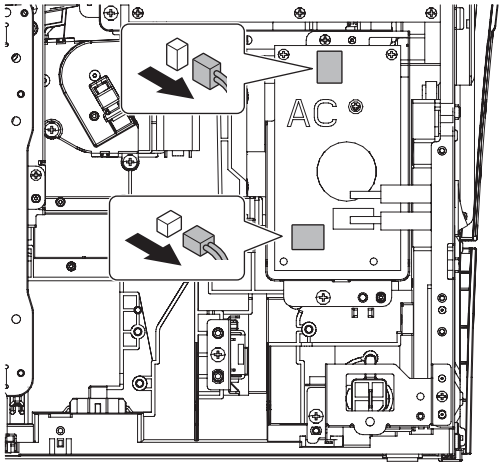


3) Remove the screws and the HV PWB.



(4) AC fix plate unit

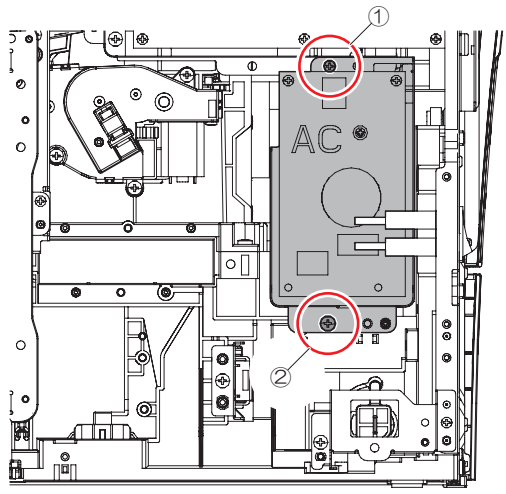
1) Remove the harness holder.
2) Disconnect the connectors.



3) Remove the screws and the AC fix plate unit.

Important

When attaching the AC fix plate unit, tighten the screw in the order of (1) - (2).

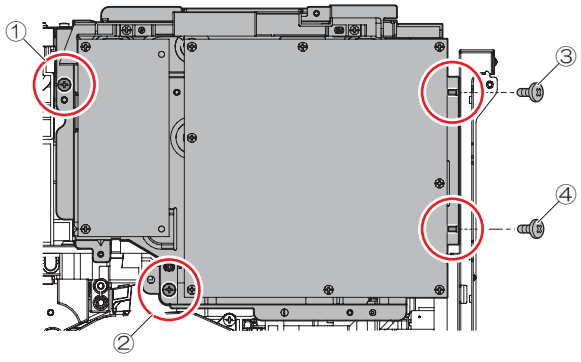


(5) DC fix plate unit

1) Remove the scanner unit.
2) Remove the main drive unit.
3) Remove the AC fix plate unit.
4) Disconnect the connectors.
5) Remove the screws and the DC fix plate unit.

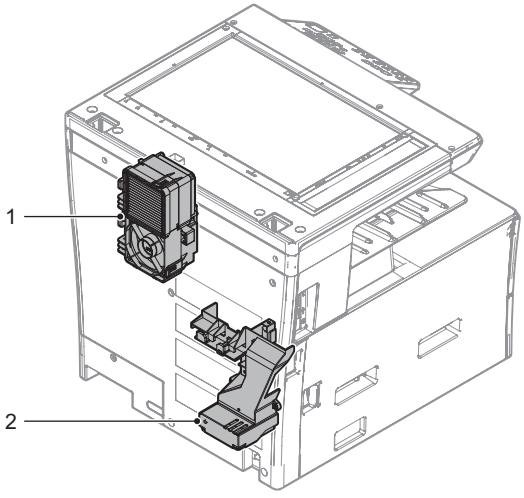
Important

When attaching the DC fix plate unit, tighten the screw in the order of (1) - (4).



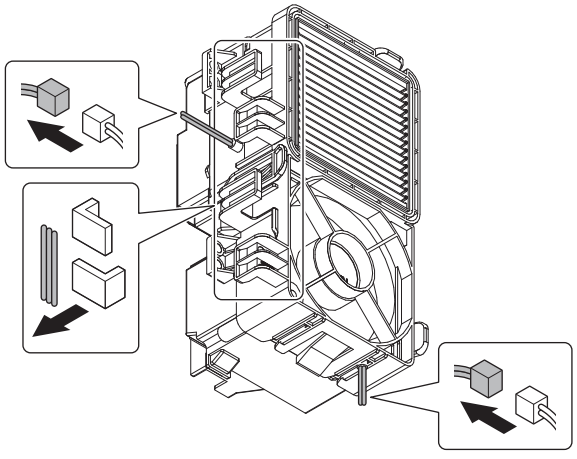
E. Other section

No.	Name
1	Rear exhaust duct
2	Harness holder



(1) Rear exhaust duct

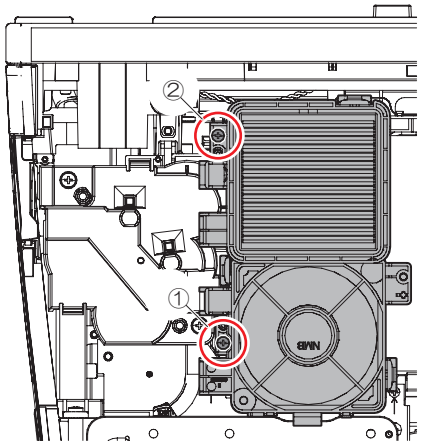
1) Remove the MFPC fix plate unit.
2) Disconnect the connectors and remove the harness from the rib.



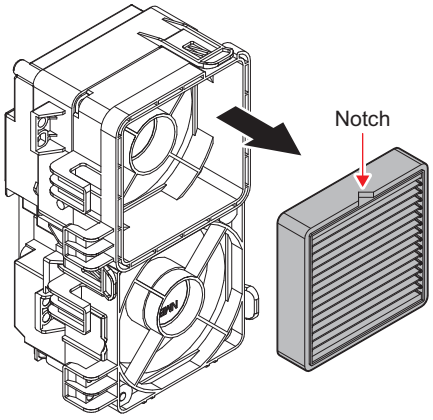
3) Remove the screw and the rear exhaust duct.

Important

When attaching the rear exhaust duct, tighten the screw in the order of (1) - (2).

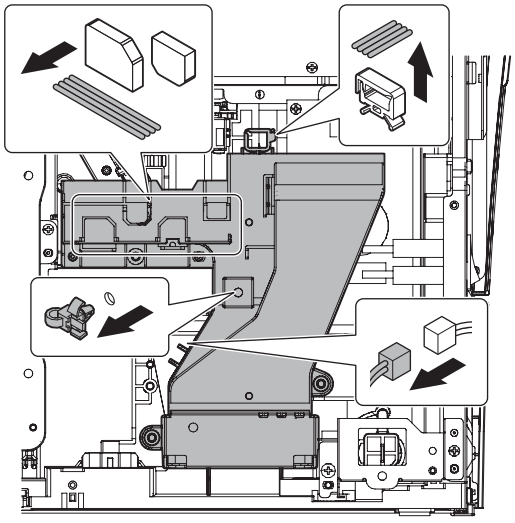


4) Remove the UFP filter.

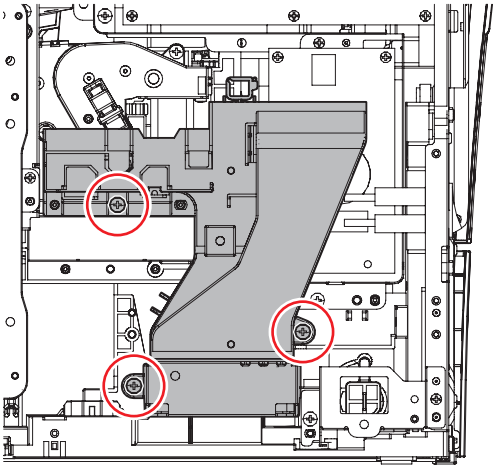


(2) Harness holder

1) Remove the FAX fix plate unit.
2) Remove the MFPC fix plate unit.
3) Disconnect the connector and remove the reuse band. Remove the harnesses from the rib and the wire saddle.



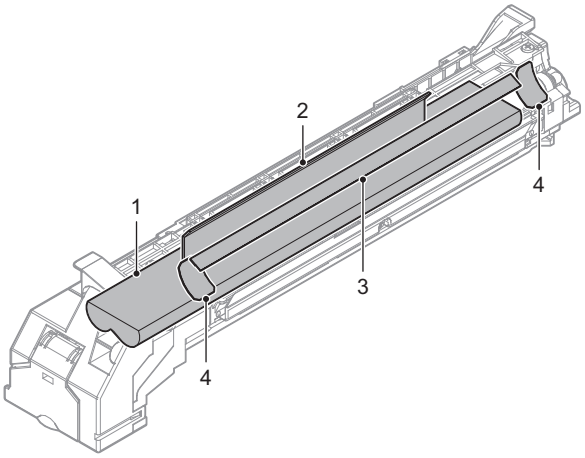
4) Remove the screws and the harness holder.



2. Disassembly and assembly of each unit

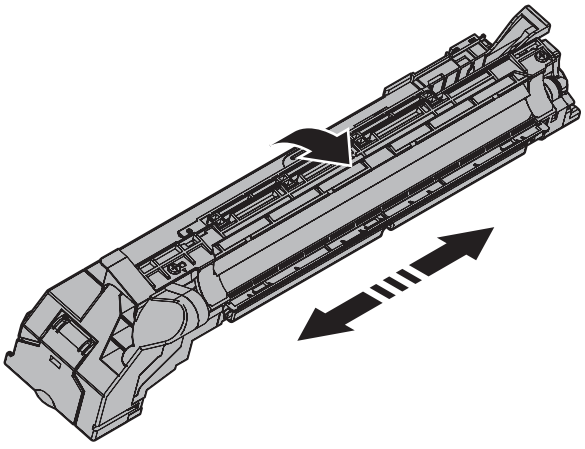
A. Developing unit

Part No.	Part name
1	Developer
2	DV filter
3	DV blade
4	Side seat F/R

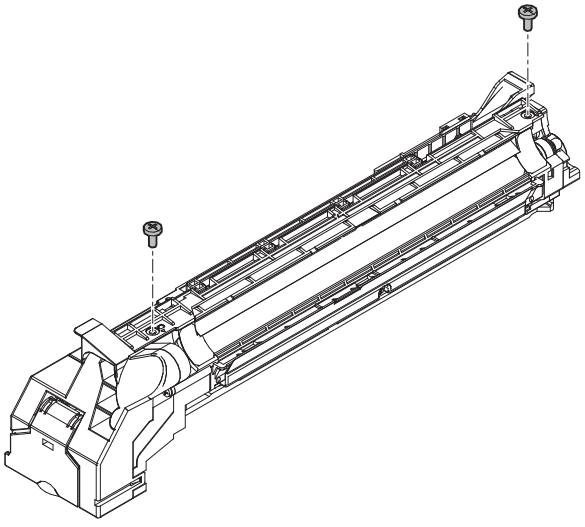


(1) Developer

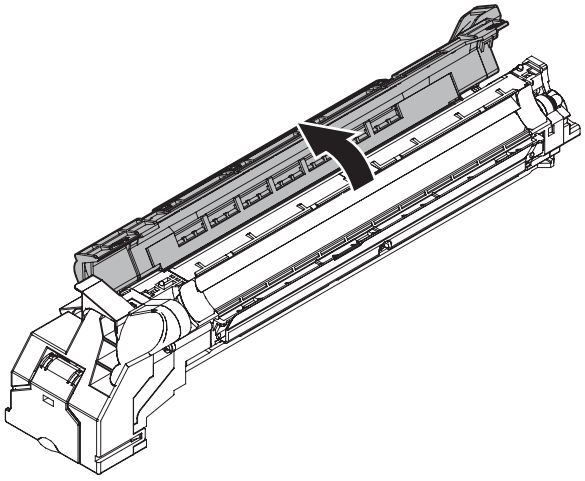
1) Tilt the developing unit slightly toward the direction of arrow and gently shake up a little.
*To prevent the developer spilling out of developing unit.



2) Remove the screw.

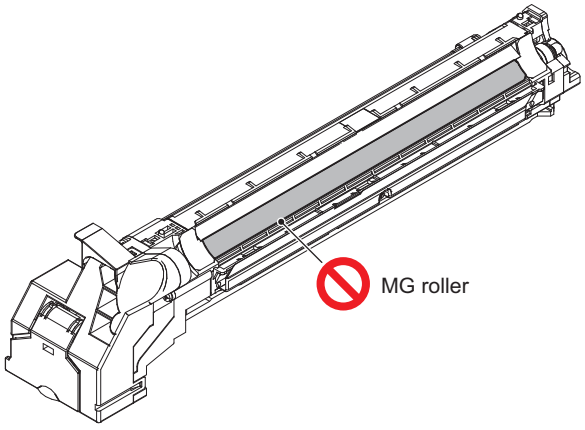


3) Remove the DV upper cover.

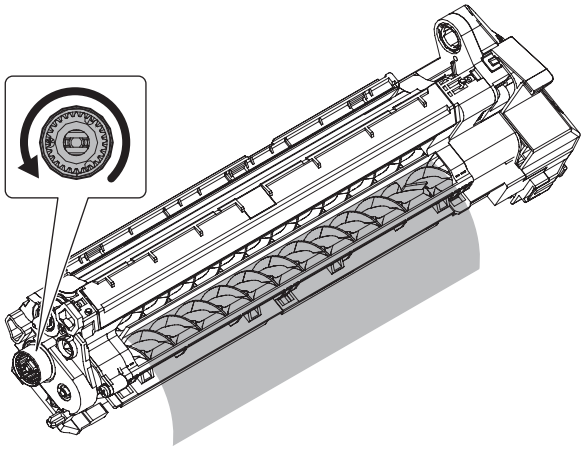


Important

Do not touch the MG roller.



4) While rotating the gear, dispose of developer.



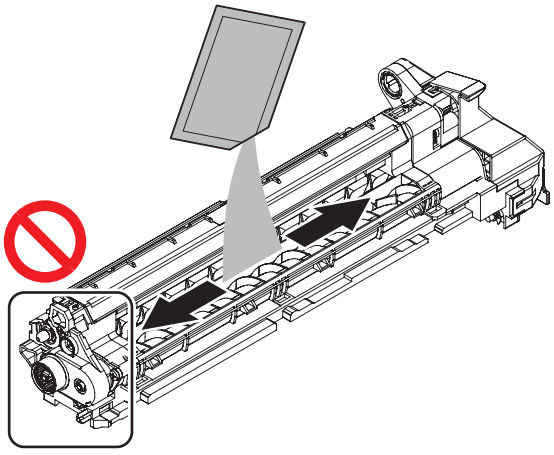
5) Loading developer to the developing unit.

Important

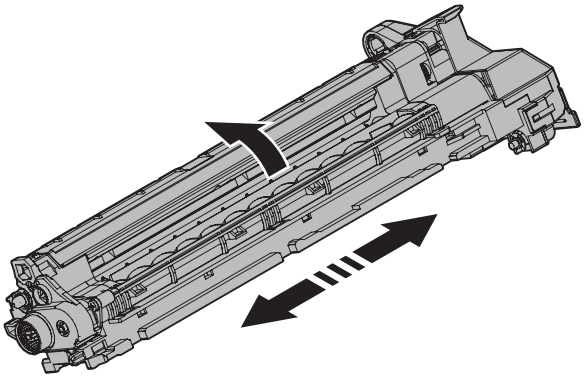
Be sure to shake the bag of developer thoroughly before pouring into the developing unit.

Important

When pouring the developer into the unit, use care not to get developer into the drive section.



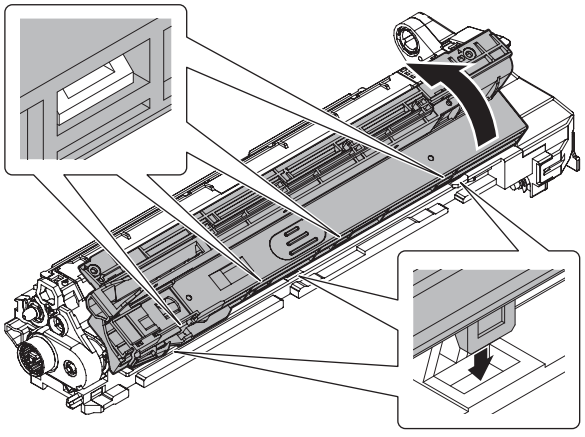
6) Slightly tilt the developing unit. Load developer on lower side of MG roller evenly on left and right.



Important

Do not tilt the developing unit after loading the developer.

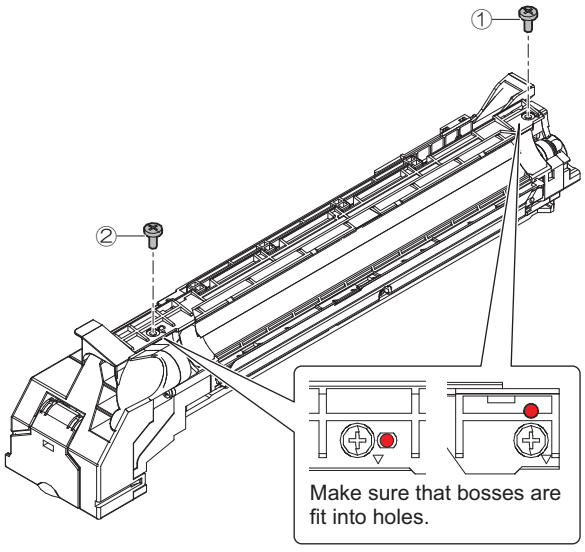
7) Rotate and insert the DV upper cover.



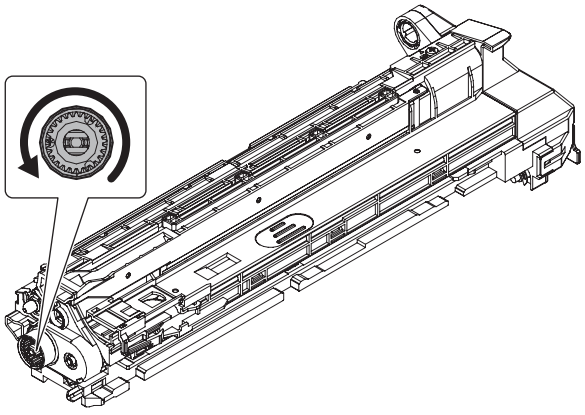
8) Check the mounting condition of the DV upper cover and tighten screws.

Important

When attaching the DV upper cover, tighten the screw in the order of (1) - (2).

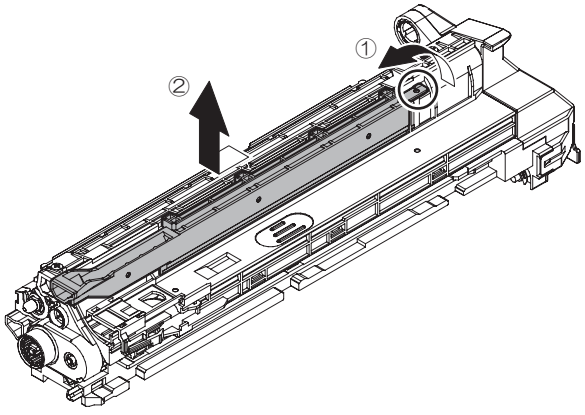


9) Turning the coupling around 5 laps.

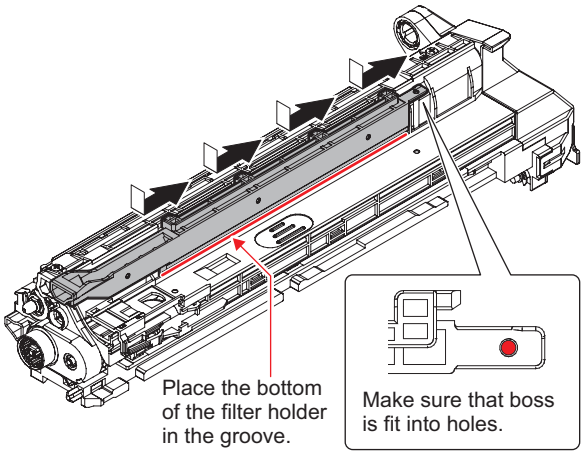


(2) DV filter

1) Remove the filter holder.



2) Attach the filter holder.



(3) DV blade

1) Remove the DV blade.

Important

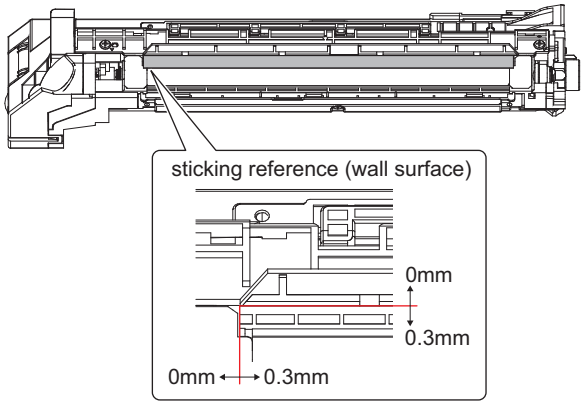
Be careful not to have bubbles and waviness under the DV blade when sticking the DV blade.

Important

Press firmly after sticking the DV blade.

Important

When replacing the DV blade, affix the DV blade based on the reference position.



(4) Side seat F/R

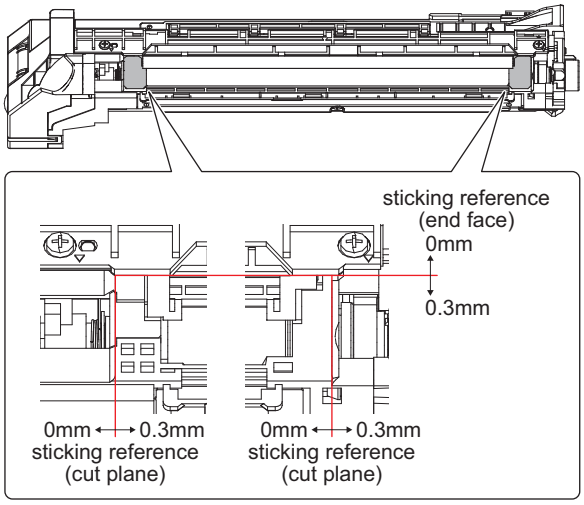
1) Remove the side seat F/R.

Important

Press firmly after sticking the side seat F/R.

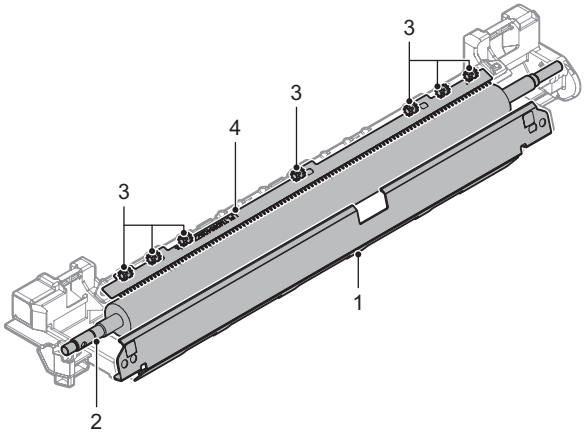
Important

When replacing the side seat F/R, affix the side seat F/R based on the reference position.



B. Transfer unit

Part No.	Part name
1	Before transfer paper guide
2	Transfer roller
3	Star ring
4	TC separate terminal



(1) Before transfer paper guide

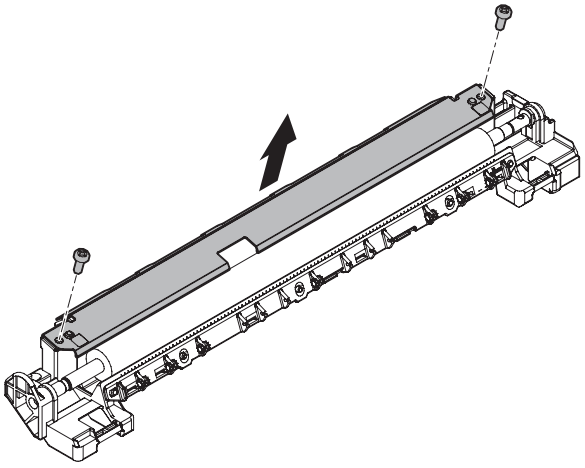
1) Remove the before transfer paper guide.

Important

Be careful not to touch the before transfer paper guide on the roller.

Important

When attaching the before transfer paper guide, use an antistatic air duster gun to clean the unit and remove dust.

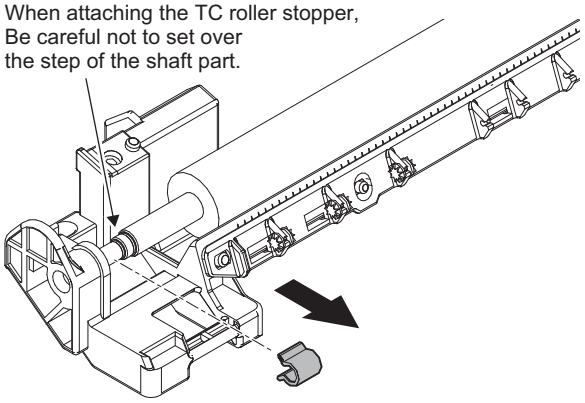


(2) Transfer roller

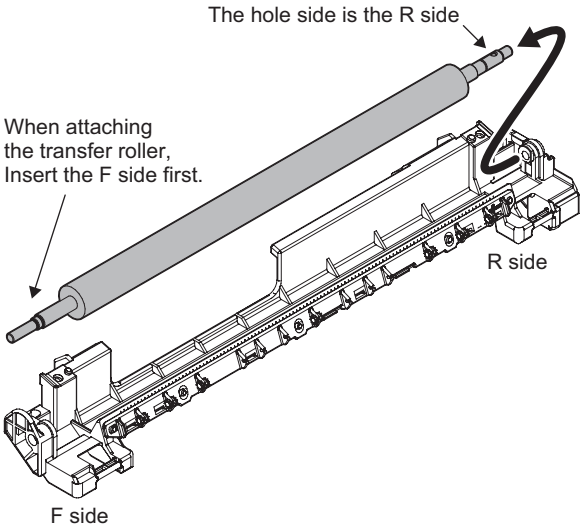
1) Remove the TC roller stopper.

Important

Do not touch the roller part (Rubber part).

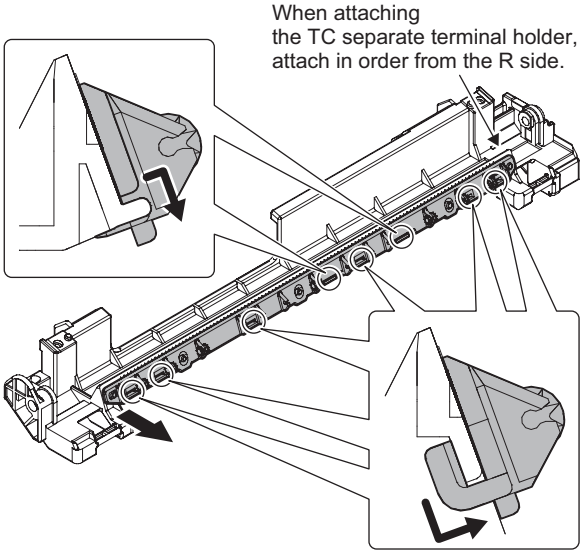


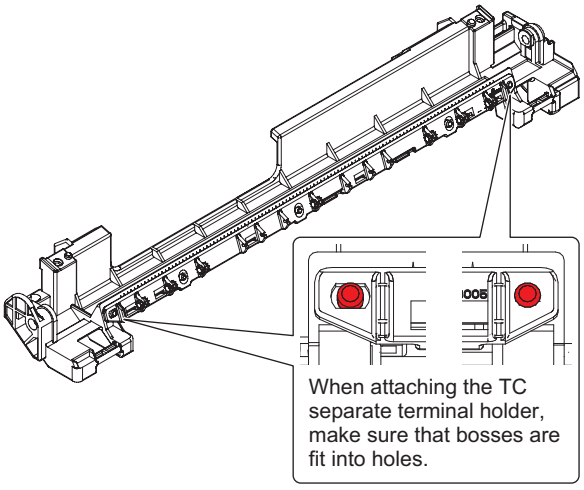
2) Remove the transfer roller.



(3) Star ring

1) Remove the TC separate terminal holder.

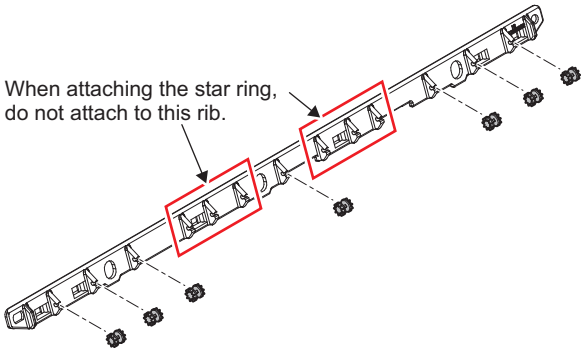




2) Remove the star ring.

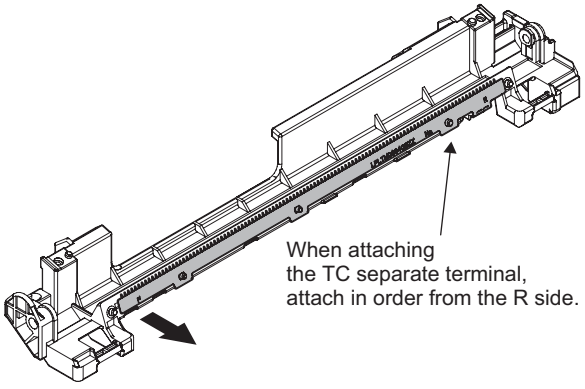
Important

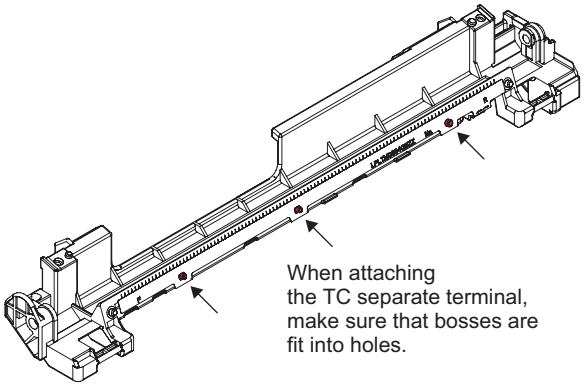
When attaching the star ring, check that the star ring rotates smoothly.



(4) TC separate terminal

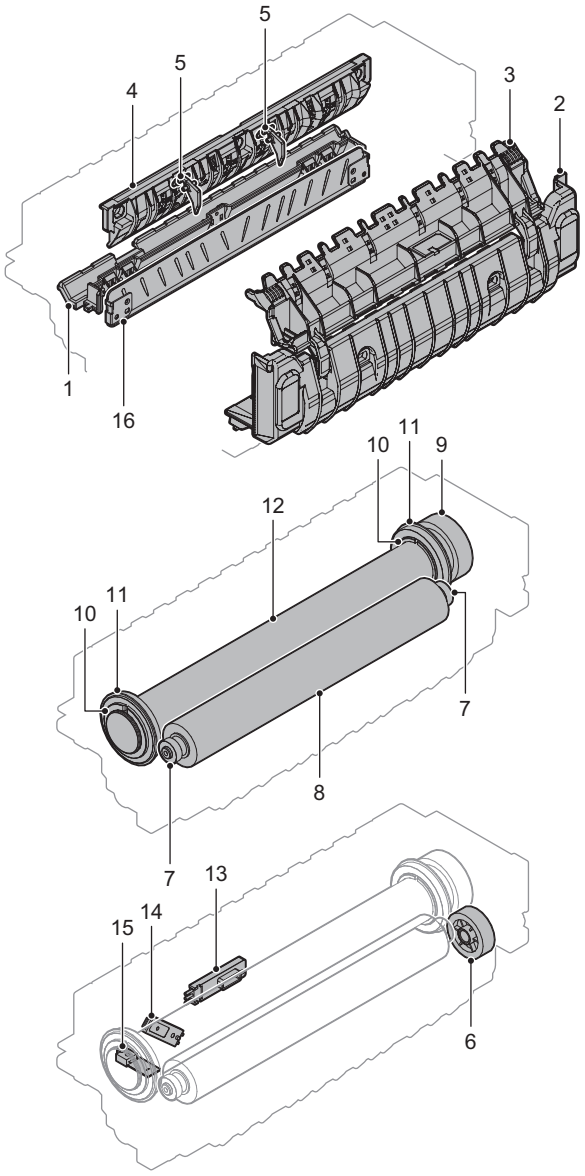
1) Remove the TC separate terminal.





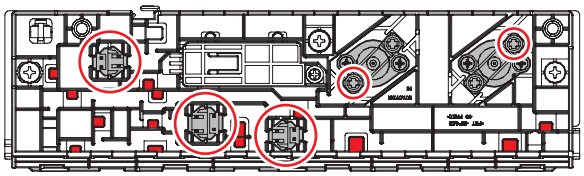
C. Fusing unit

Part No.	Part name
1	Fusing front upper paper guide
2	Fusing under paper guide
3	Fusing rear under paper guide
4	Fusing rear upper paper guide
5	Upper separating nail spring/Upper separating nail
6	Fusing connection gear
7	Pressure roller bearing
8	Pressure roller
9	Fusing gear
10	Insulation bush
11	Heat roller bearing
12	Fusing roller
13	Main thermistor
14	Sub thermistor
15	Sub 2 thermistor
16	Fusing enter paper guide

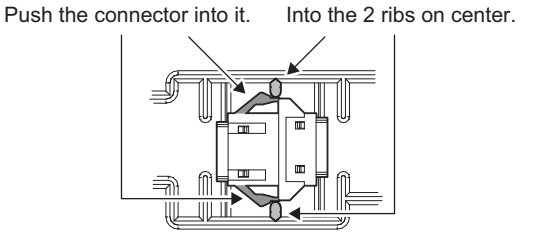


(1) Fusing front upper paper guide

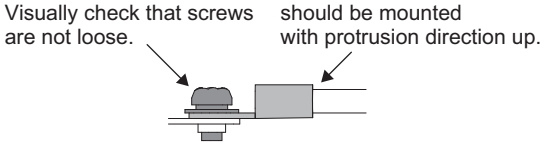
1) Disconnect the connector and remove the round terminal.



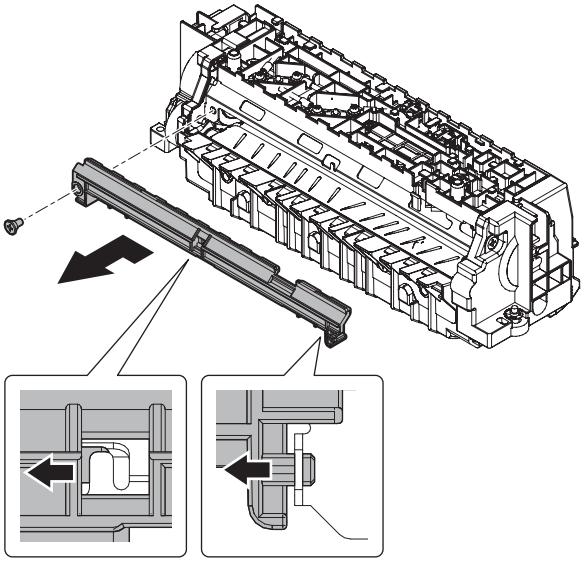
Connector installation



Round terminal installation

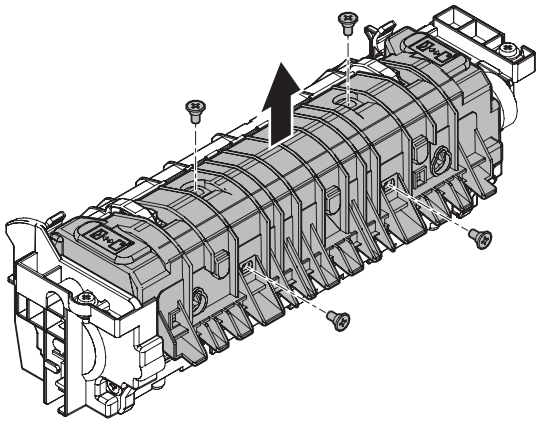


2) Remove the fusing front upper paper guide.



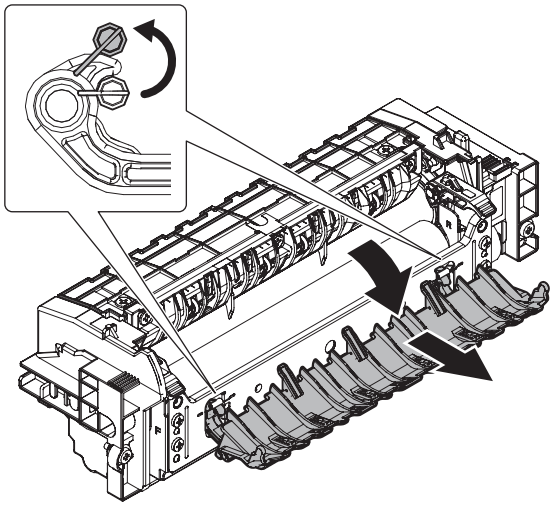
(2) Fusing under paper guide

1) Remove the fusing under paper guide.



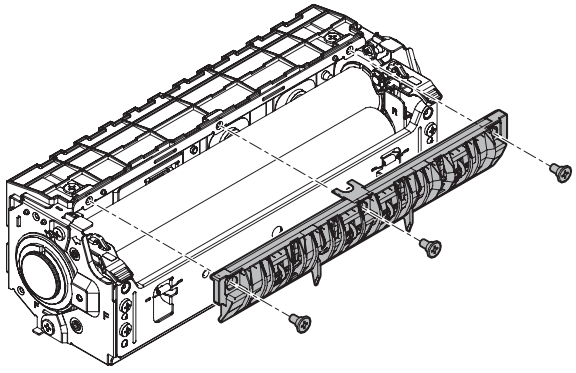
(3) Fusing rear under paper guide

1) Remove the fusing under paper guide.



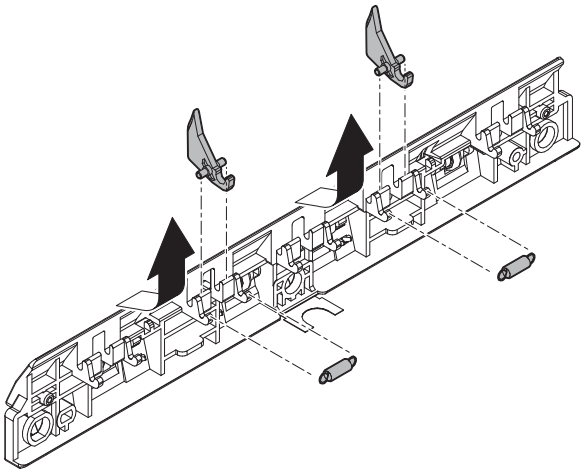
(4) Fusing rear upper paper guide

1) Remove the fusing rear upper paper guide.



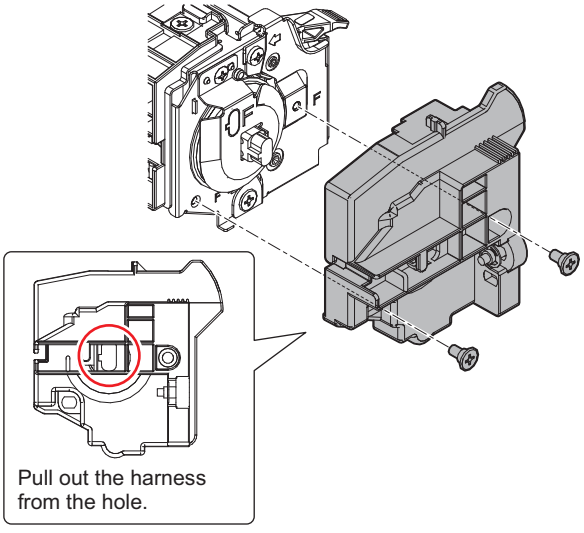
(5) Upper separating nail spring/Upper separating nail

1) Remove the upper separating nail spring.
2) Remove the upper separating nail.



(6) Fusing connection gear

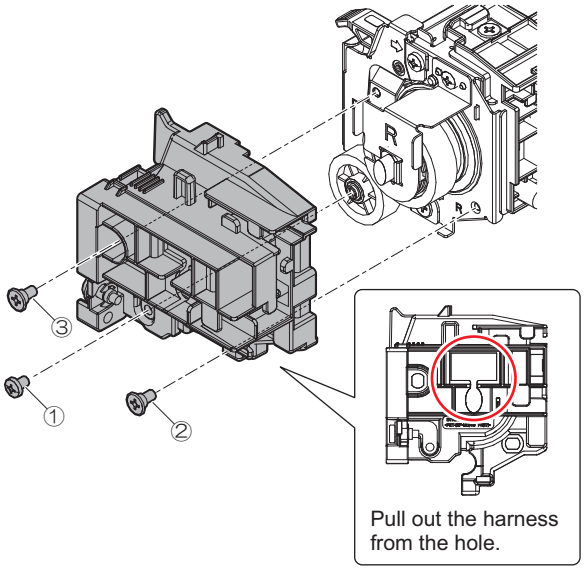
1) Remove the fusing F cover.



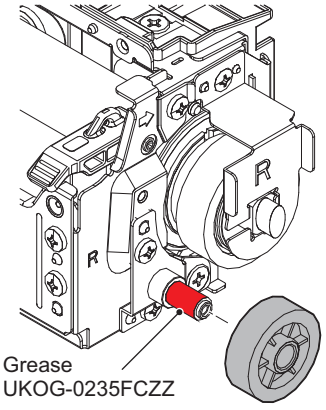
2) Remove the fusing R cover.

Important

When attaching the fusing R cover, tighten the screw in the order of (1) - (3).



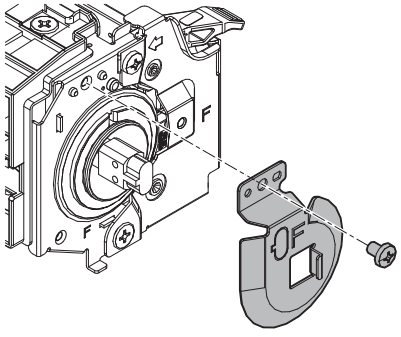
3) Remove the fusing connection gear.



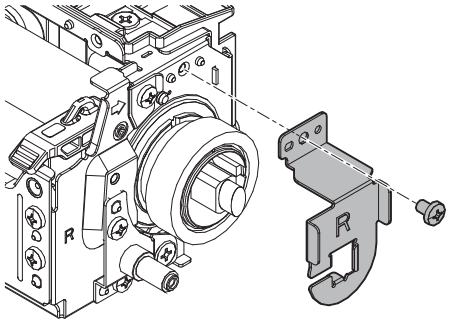
(7) Pressure roller bearing

(8) Pressure roller

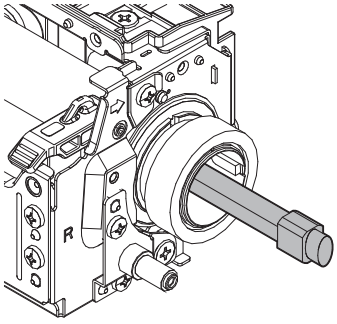
1) Remove the lamp holder F.

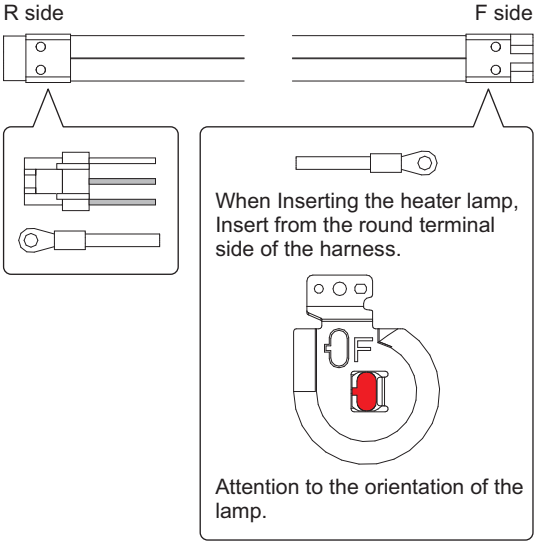


2) Remove the lamp holder R.

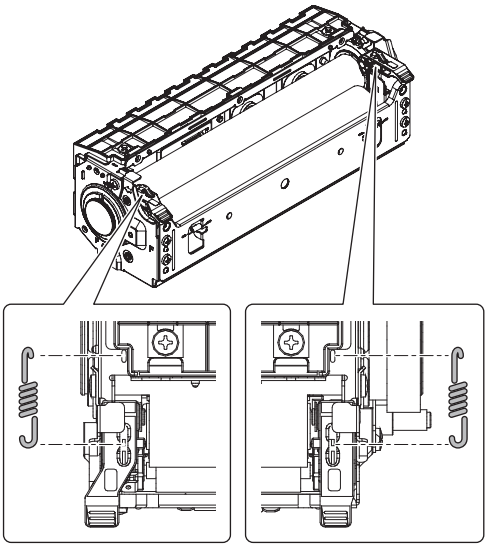


3) Remove the heater lamp.

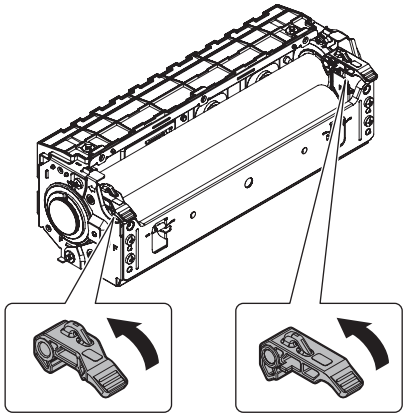




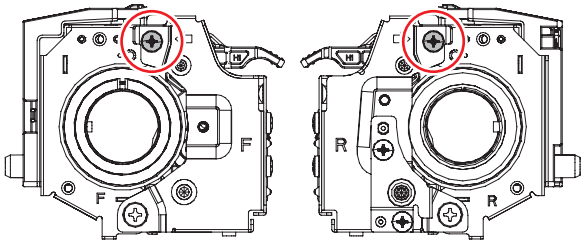
4) Remove the pressure release sub spring.



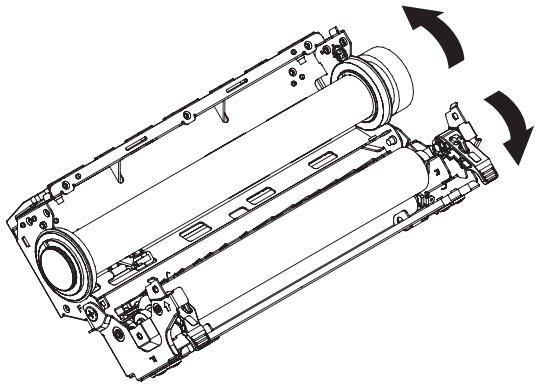
5) Pull up lever and release pressure.



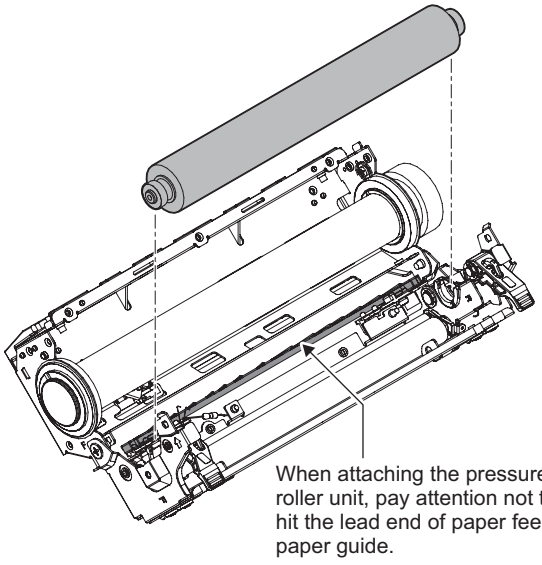
6) Remove the screw.



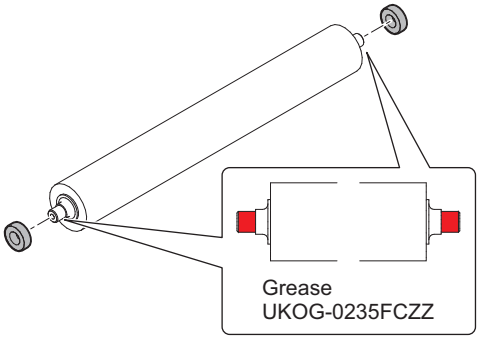
7) Open the fusing unit.



8) Remove the pressure roller unit.



9) Remove the pressure roller bearing.



(9) Fusing gear

(10) Insulation bush

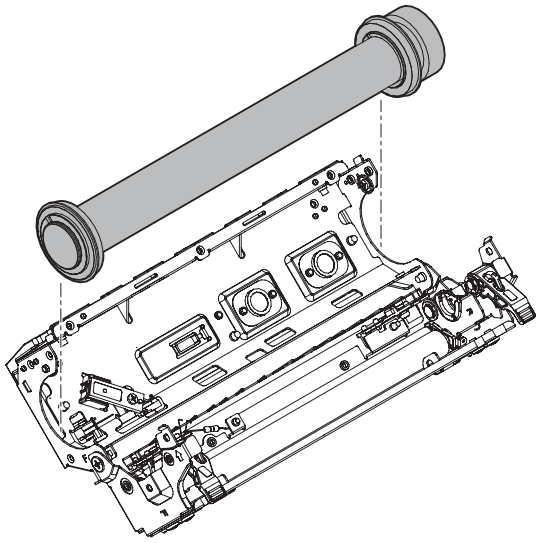
(11) Heat roller bearing

(12) Fusing roller

1) Remove the fusing roller unit.

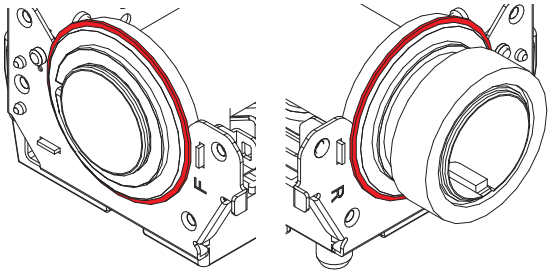
Important

Be careful not to scratch the fusing roller surface.



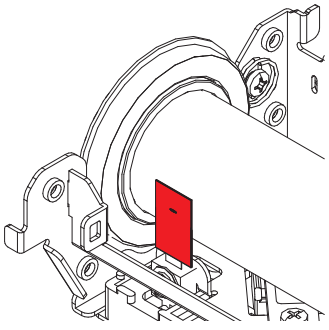
Important

When attaching the fusing roller unit, Insert by checking the flange side of the bearing to be outside of sheet metal.

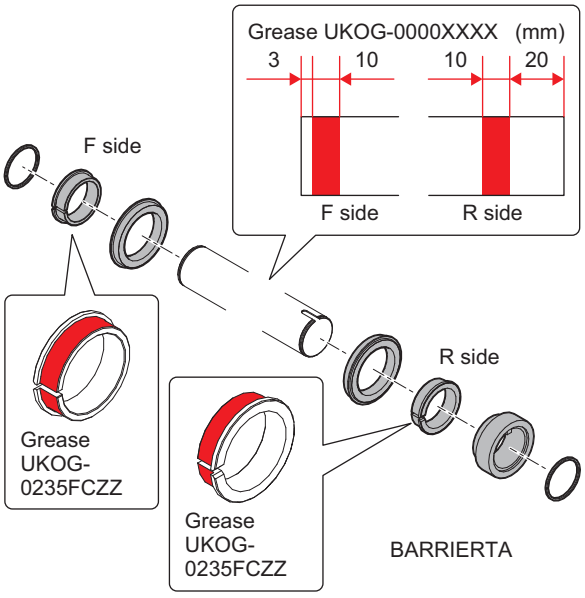


Important

When attaching the fusing roller unit, the sub 2 thermistor contacts the fusing roller.

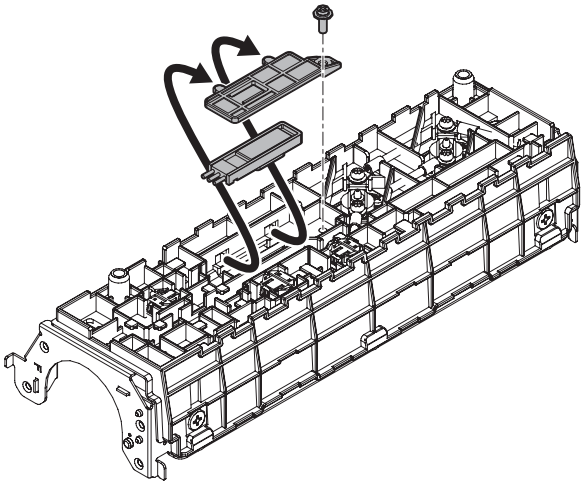


2) Remove the roller stopper, the fusing gear, insulation bush and the heat roller bearing.



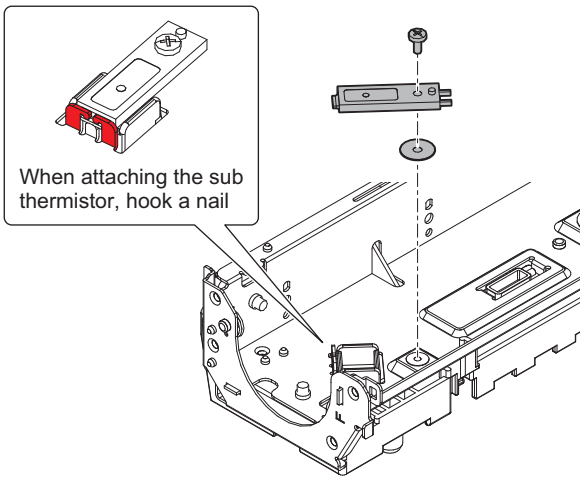
(13) Main thermistor

1) Remove the main thermistor.



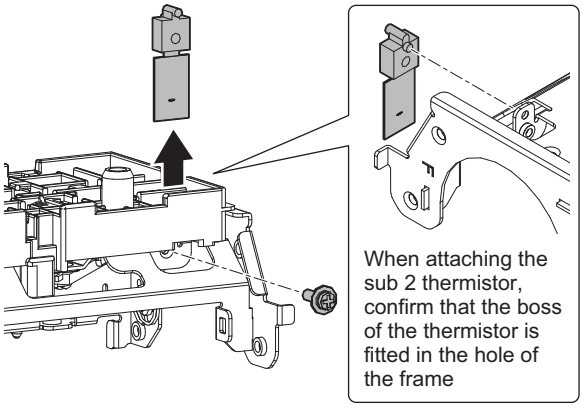
(14) Sub thermistor

1) Remove the sub thermistor.



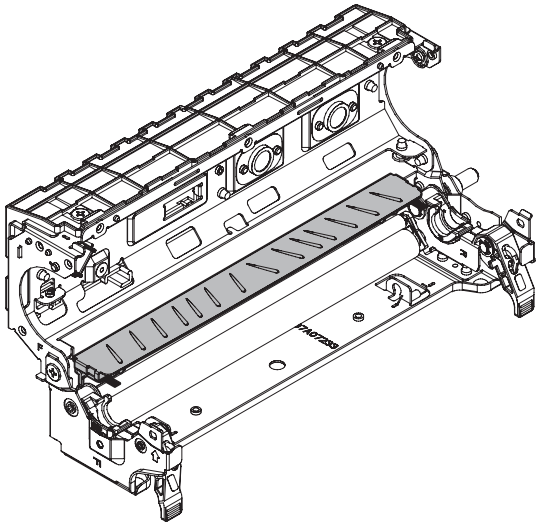
(15) Sub 2 thermistor

1) Remove the sub 2 thermistor.



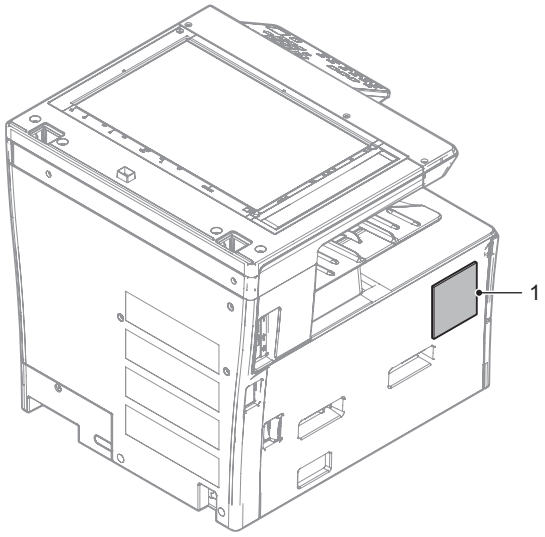
(16) Fusing enter paper guide

1) Clean the fusing enter paper guide.



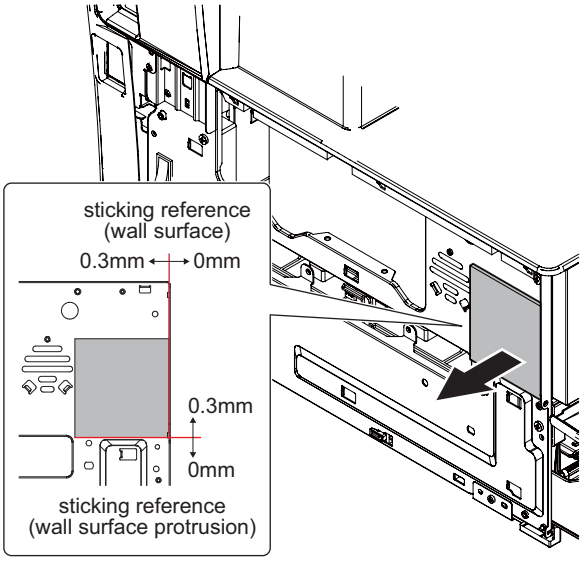
D. Main unit filter

Part No.	Part name
1	Intake filter



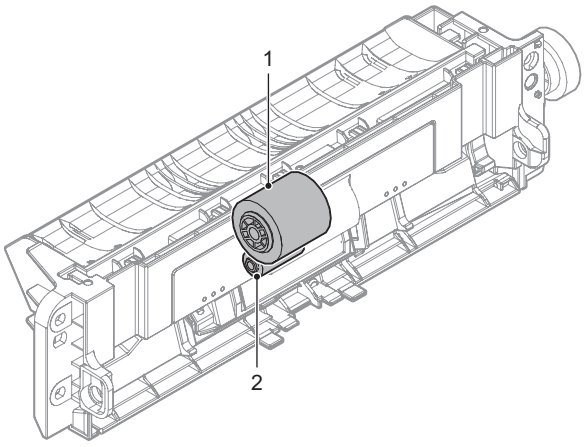
(1) Intake filter

1) Remove the left cabinet.
2) Remove the Intake filter.



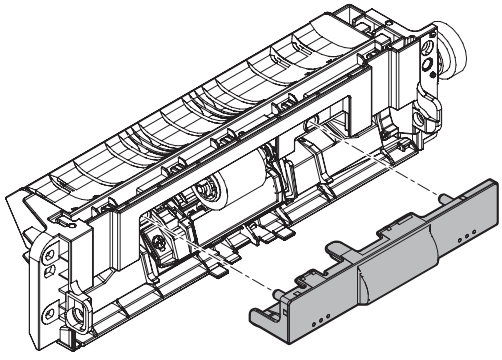
E. Manual paper feed unit

Part No.	Part name
1	Paper feed roller
2	Separate roller

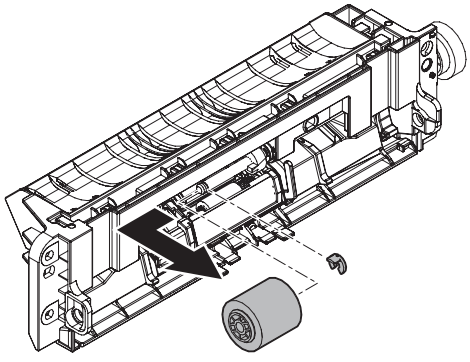


(1) Paper feed roller

1) Remove the maintenance cover.

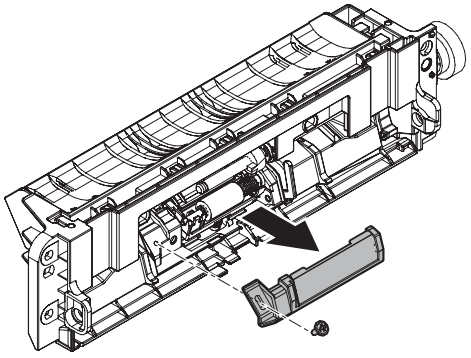


2) Remove the paper feed roller.

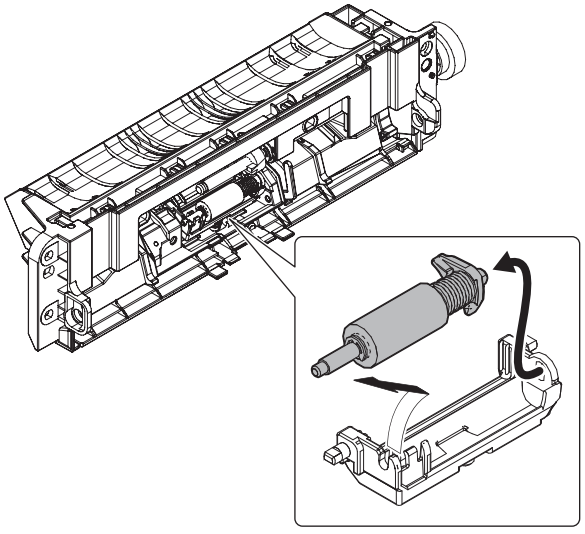


(2) Separate roller

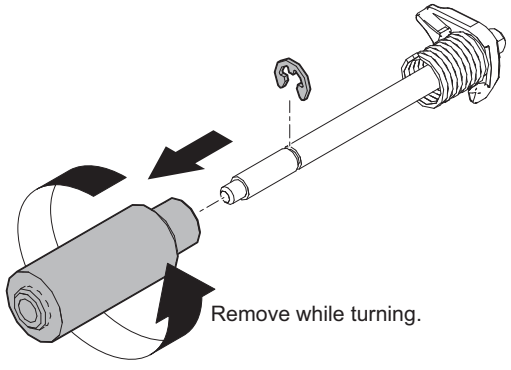
1) Remove the separation cover.



2) Remove the separate roller.

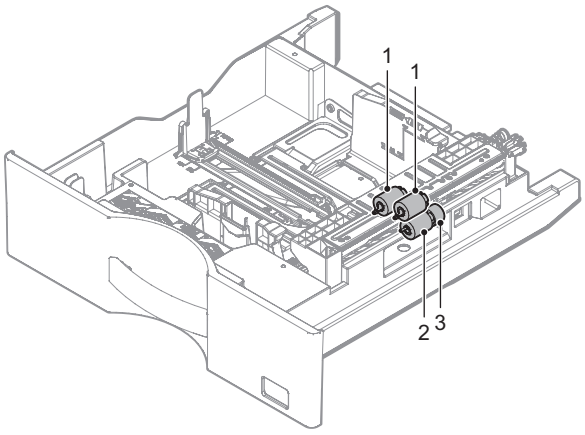


3) Remove the separate roller.



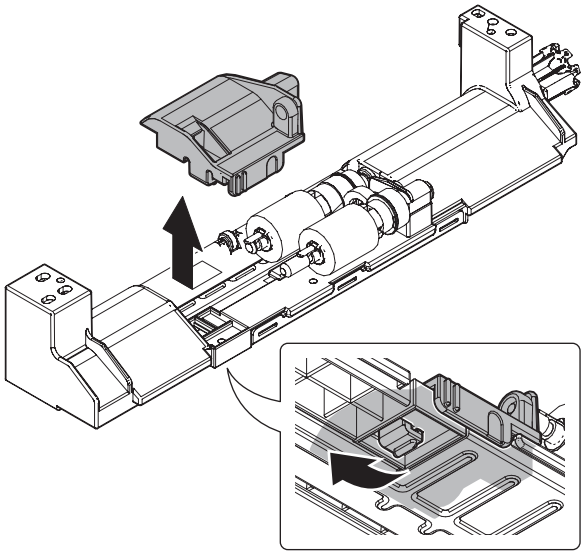
F. Tray paper feed unit

Part No.	Part name
1	Paper feed roller
2	Separation roller
3	Torque limiter

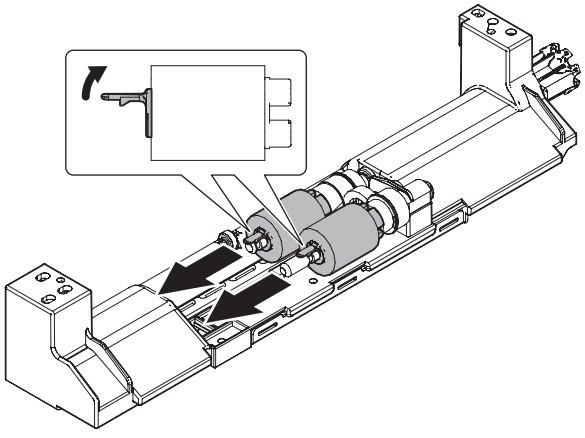


(1) Paper feed roller

1) Remove the paper guide.



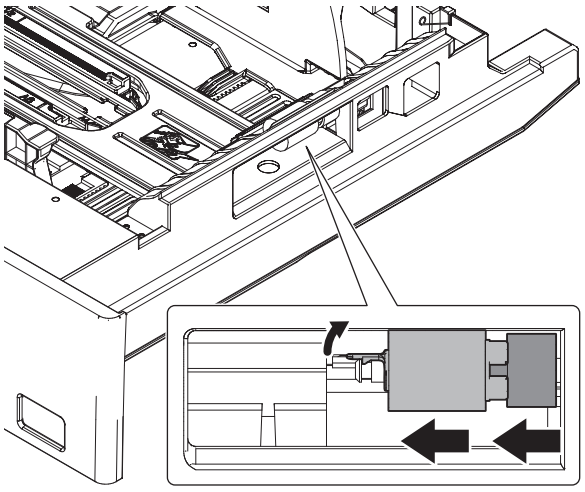
2) Remove the paper feed roller.



(2) Separation roller

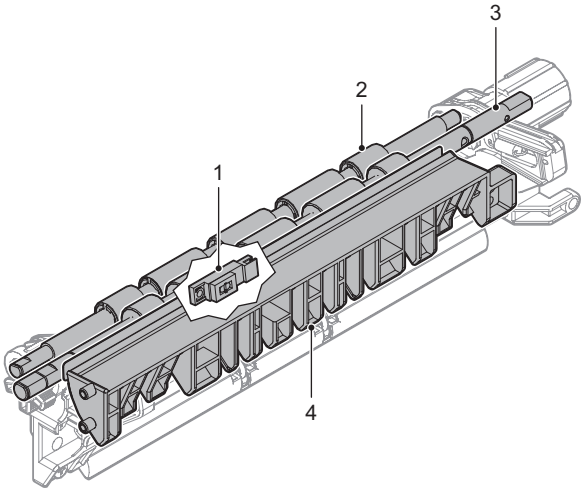
(3) Torque limiter

1) Remove the separation roller and the torque limiter.



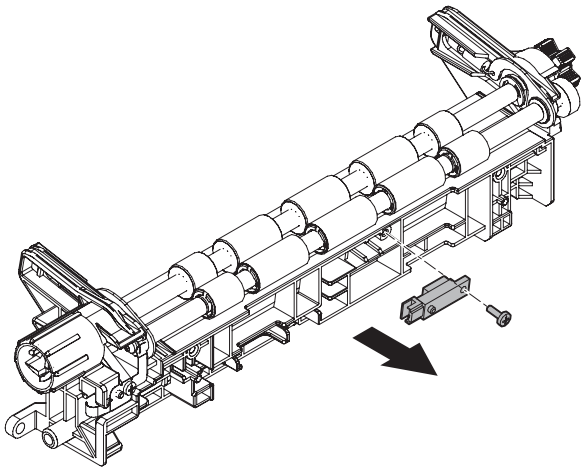
G. PS unit

Part No.	Part name
1	Sensor
2	PS roller (Idle)
3	PS roller
4	PS guide



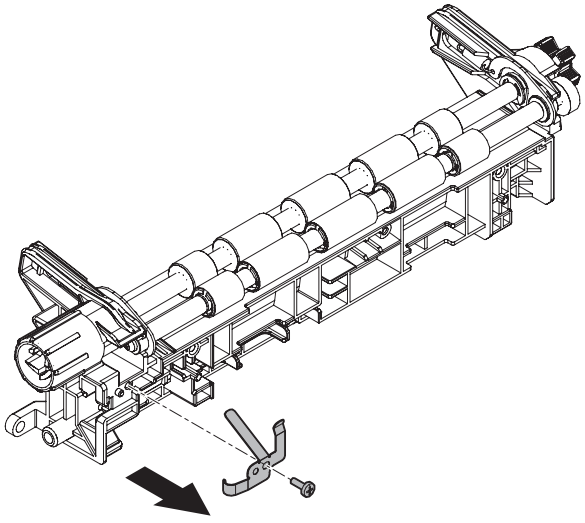
(1) Sensor

1) Remove the sensor.

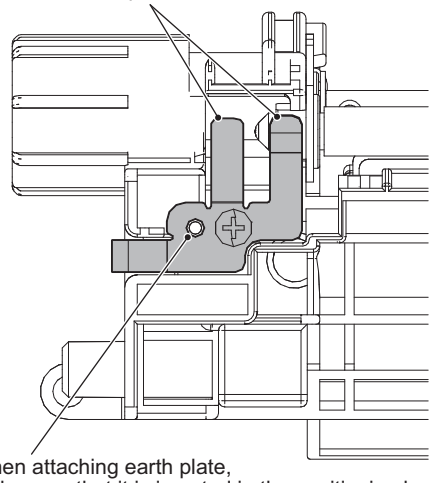


(2) PS roller (Idle)

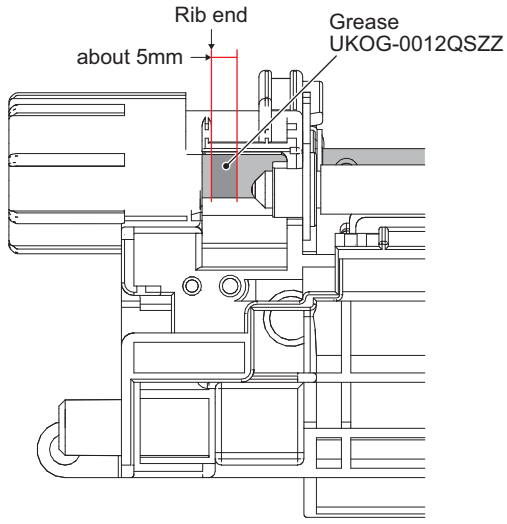
1) Remove the earth plate.



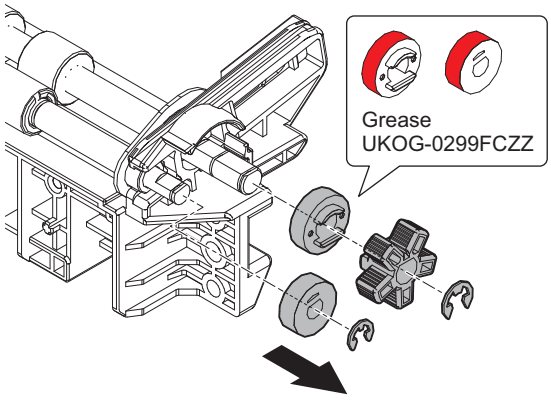
When attaching earth plate,
check that earth plate contacts to the shaft.



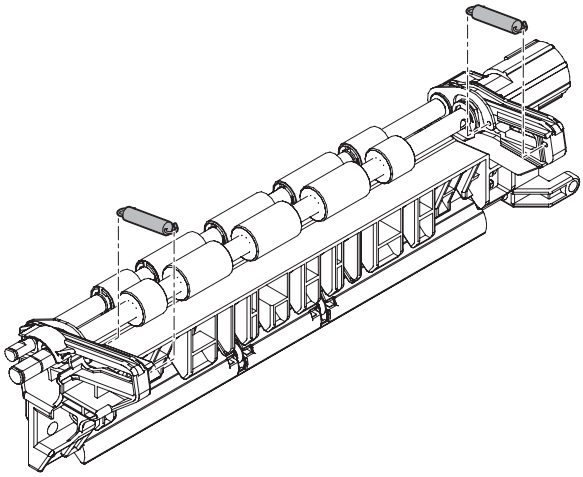
When attaching earth plate,
make sure that it is inserted in the positioning boss.



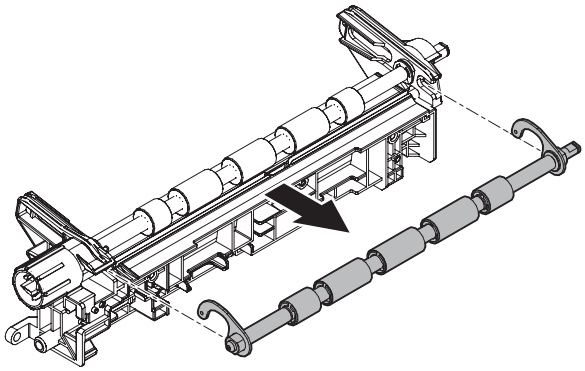
2) Remove the e-ring, the knob and the gear.



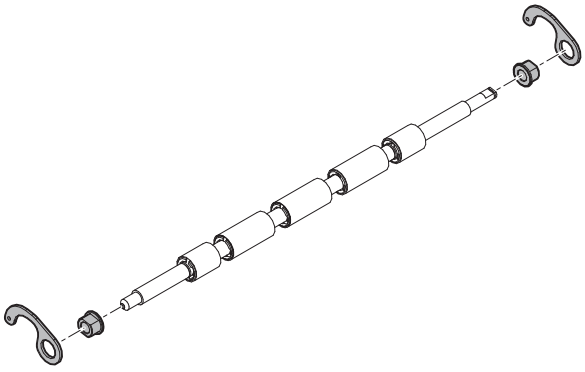
3) Remove the spring.



4) Remove the PS roller (Idle) assembly.

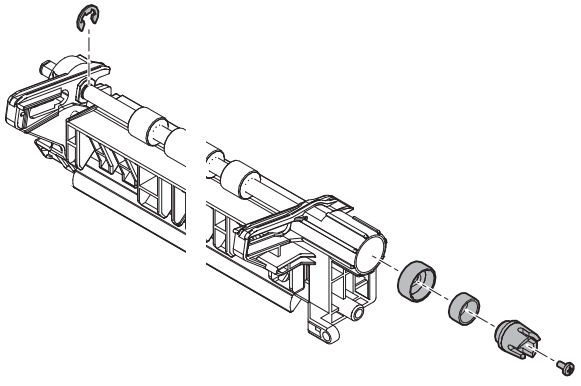


5) Remove the plate and the bearing.

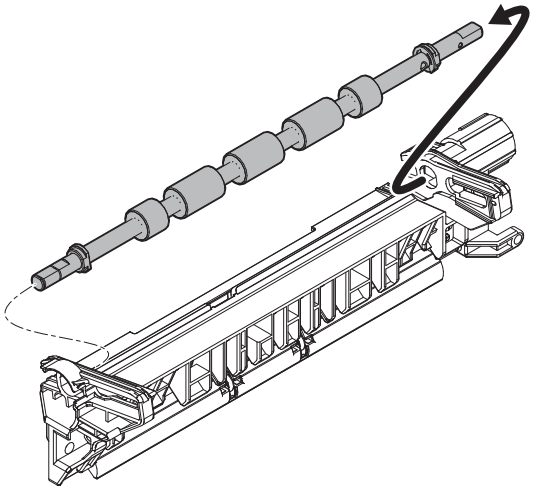


(3) PS roller

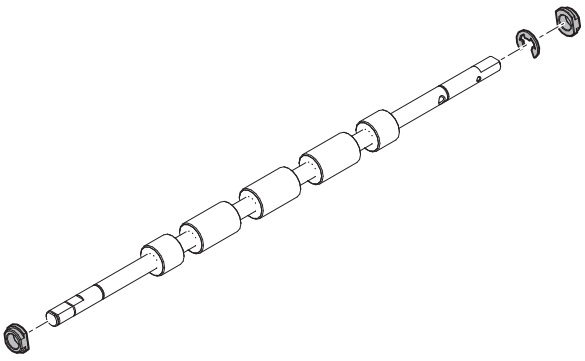
1) Remove the screw, the coupling, the spring, the holder and the e-ring.



2) Remove the PS roller assembly.

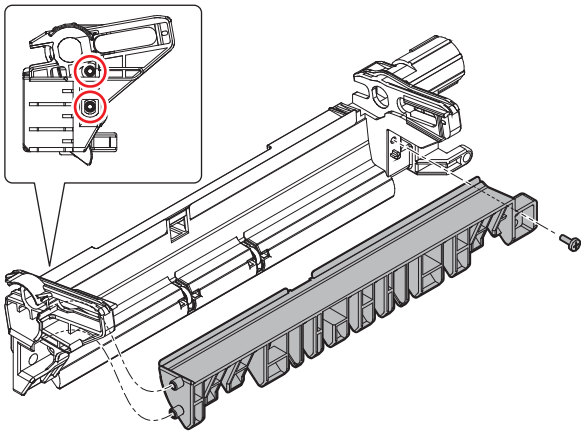


3) Remove the bearing and the e-ring.

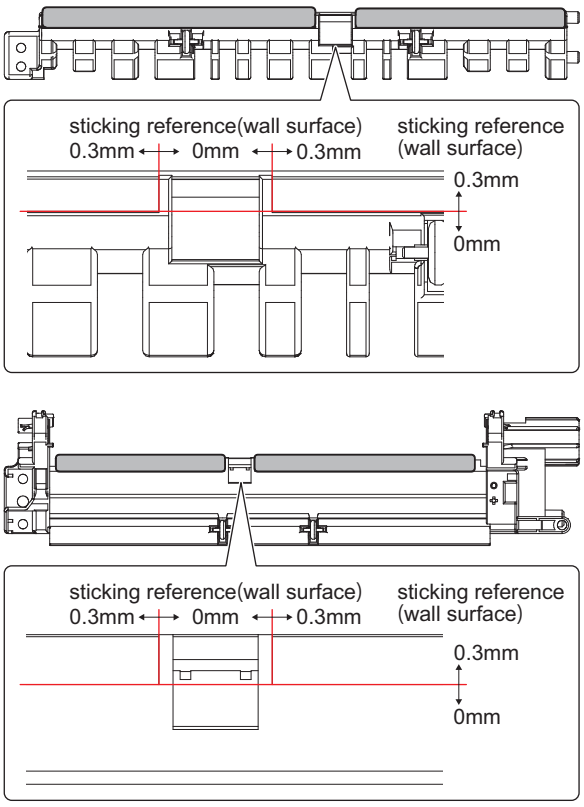


(4) PS guide

1) Remove the PS guide assembly.

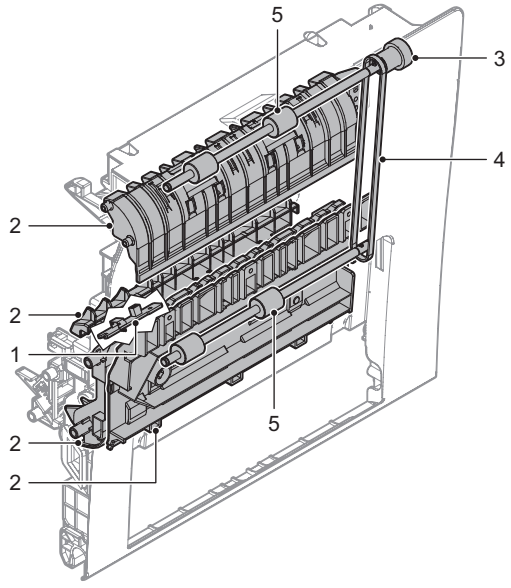


2) Remove the guide sheet.



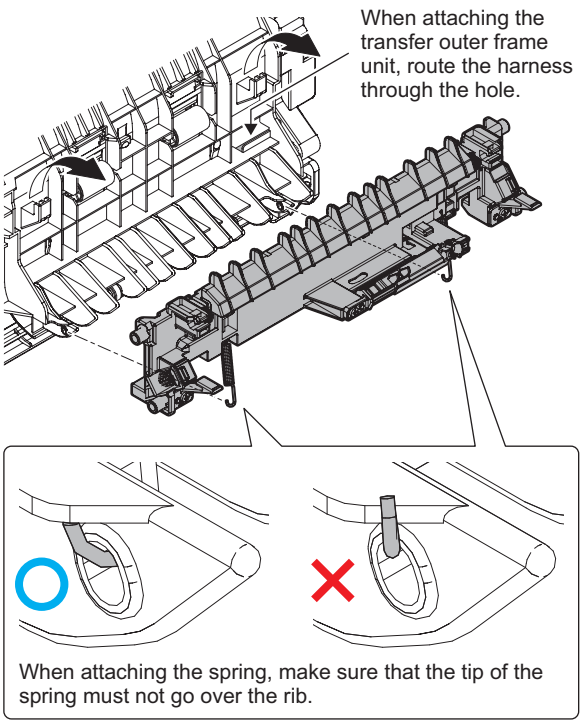
H. Right door unit

Part No.	Part name
1	Process control sensor
2	Paper guide
3	Gear
4	Belt
5	Roller

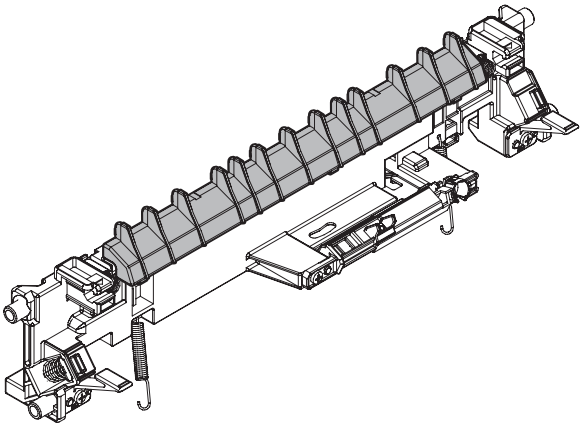


(1) Process control sensor

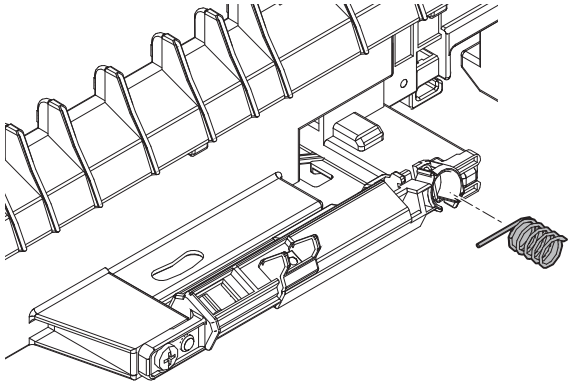
1) Remove the transfer outer frame unit.



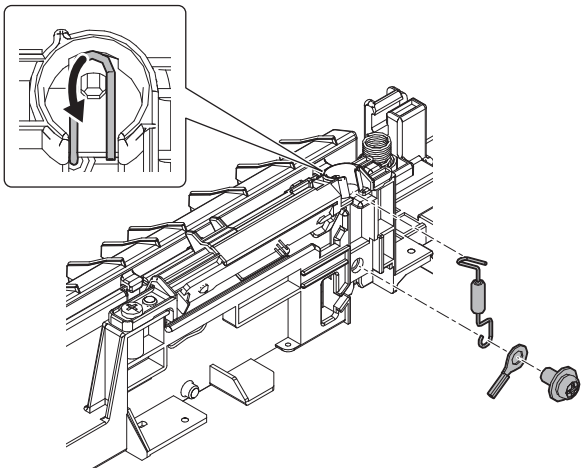
2) Use an antistatic air duster gun to clean the unit and remove dust.



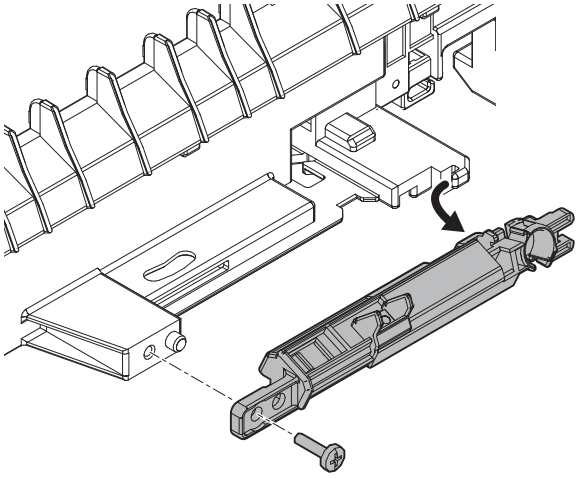
3) Remove the earth spring.



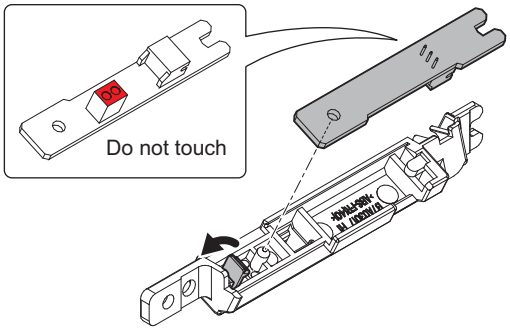
4) Remove the screw, the earth wire and the resistance.



5) Remove the holder.

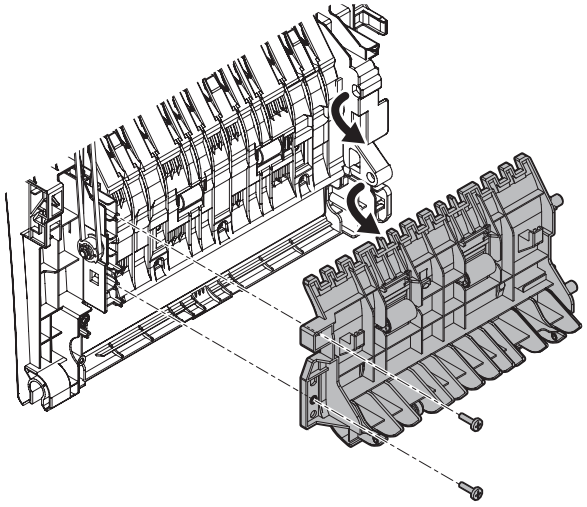


6) Remove the process sensor PWB.

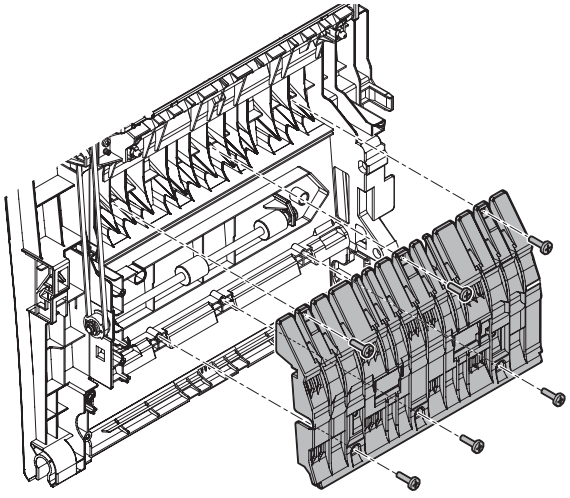


(2) Paper guide

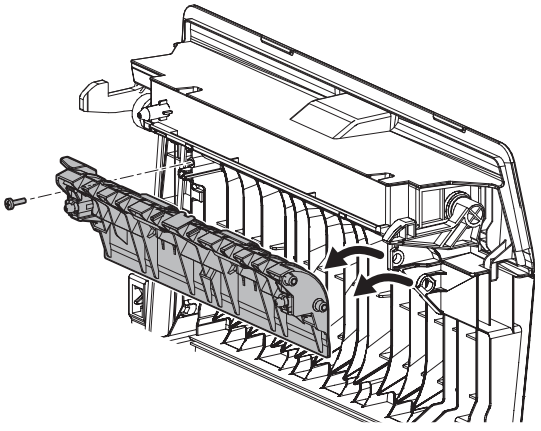
1) Remove the transport follower roller unit.



2) Remove the ADU duct paper guide.

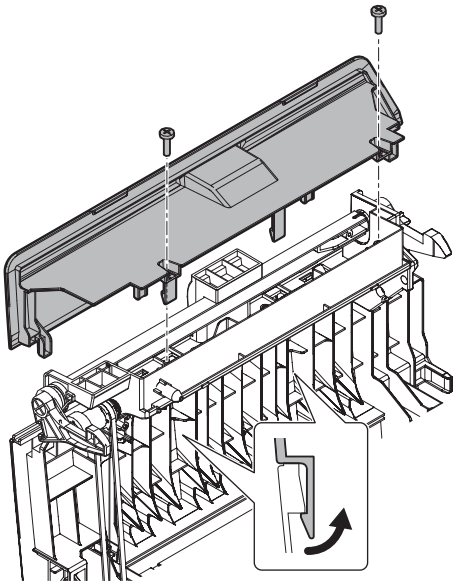


3) Remove the fusing paper guide push button holder unit.

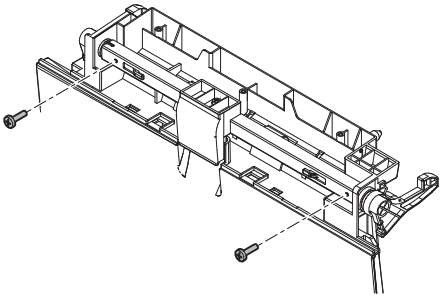


(3) Gear

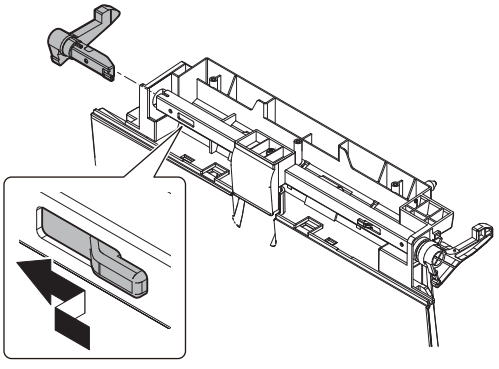
1) Remove the ADU upper cabinet.



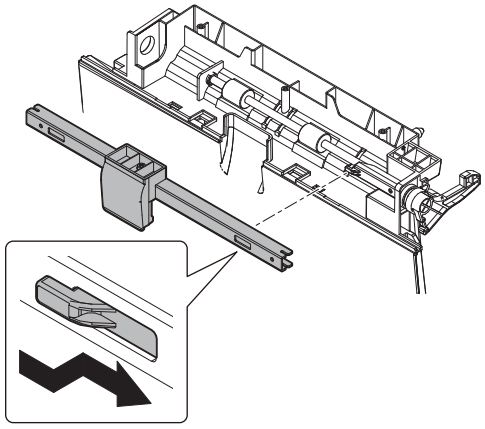
2) Remove the screw.



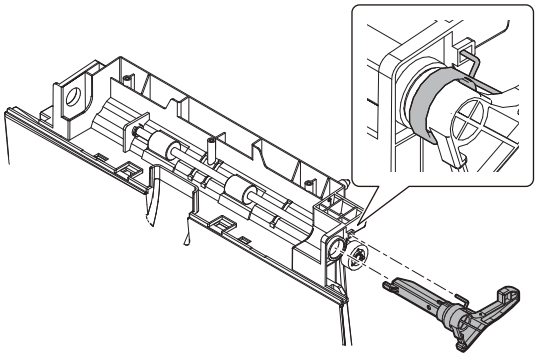
3) Remove the ADU lock pawl F.



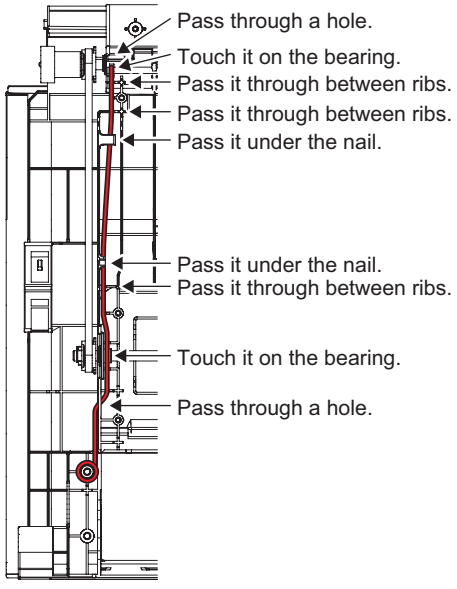
4) Remove the ADU lock plate assembly.



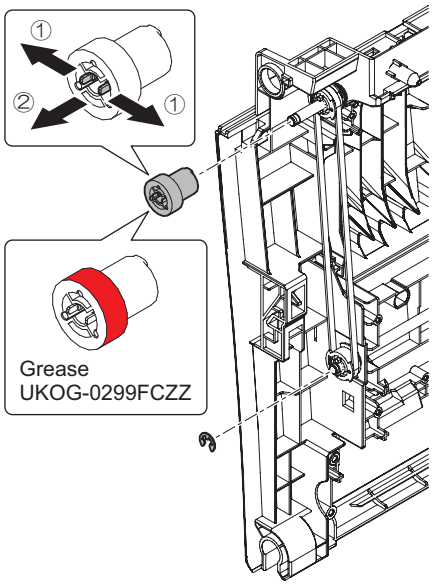
5) Remove the ADU lock pawl F and the ADU lock spring.



6) Remove the ADU earth spring.

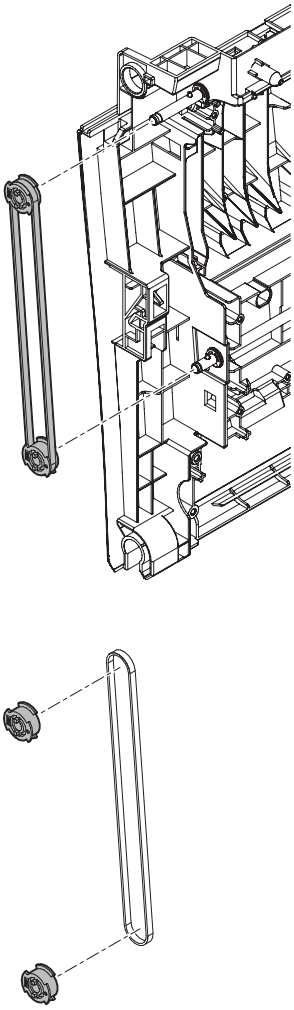


7) Remove the gear.



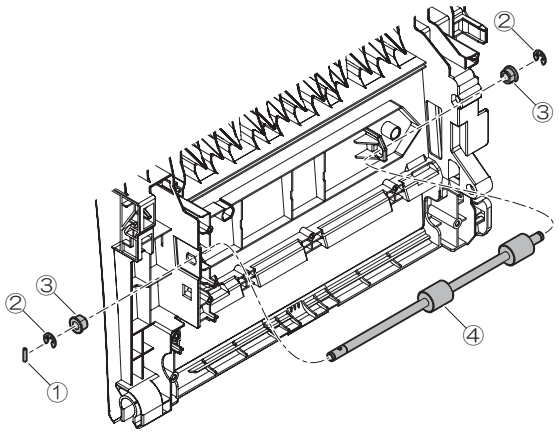
(4) Belt

1) Remove the pulley and the belt.

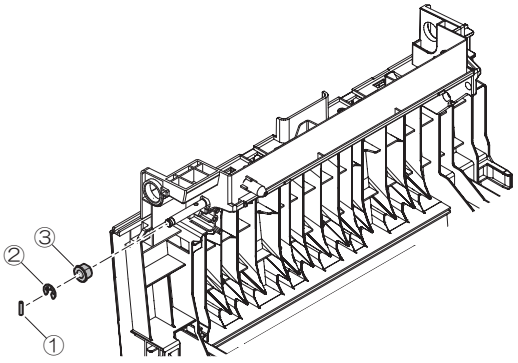


(5) Roller

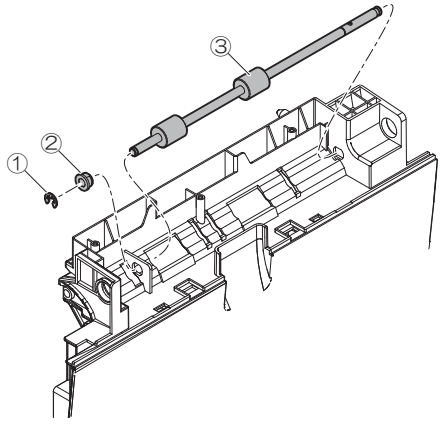
1) Remove the pin, the e-ring, the bearing and the roller.



2) Remove the pin, the e-ring and the bearing.

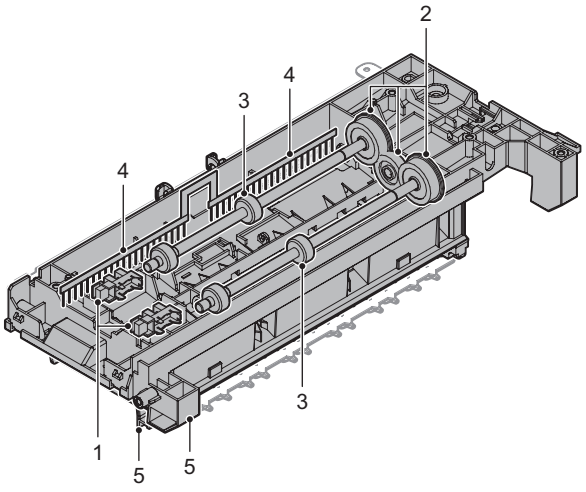


3) Remove the e-ring, the bearing and the roller.



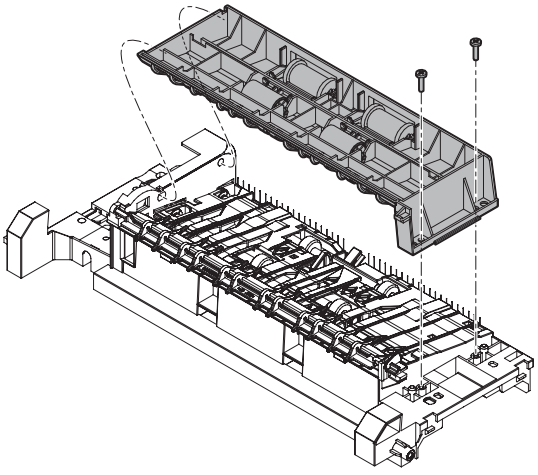
I. Paper exit unit

Part No.	Part name
1	Sensor
2	Gear
3	Roller
4	Discharge brush
5	Paper guide

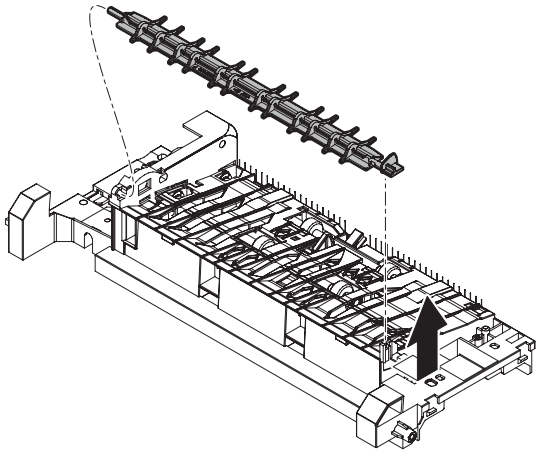


(1) Sensor

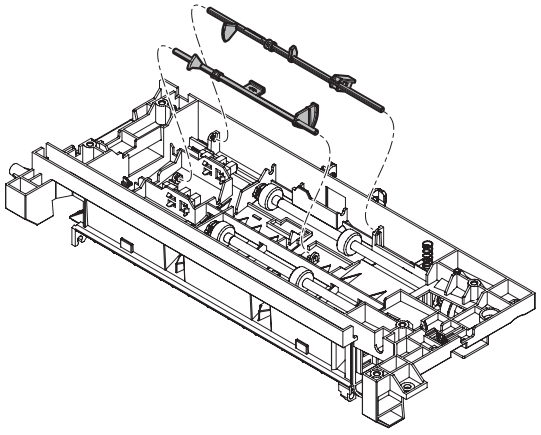
1) Remove the upper paper guide assembly.



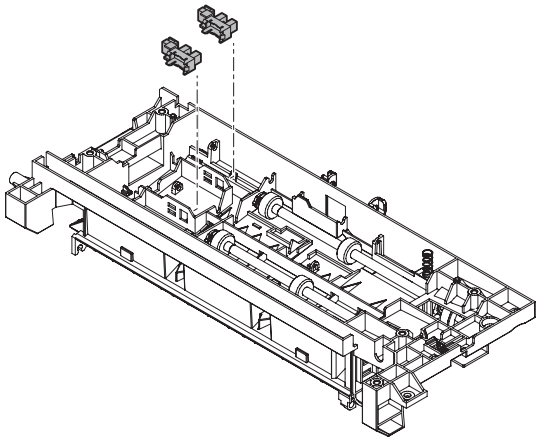
2) Remove the reverse gate.



3) Remove the actuator.

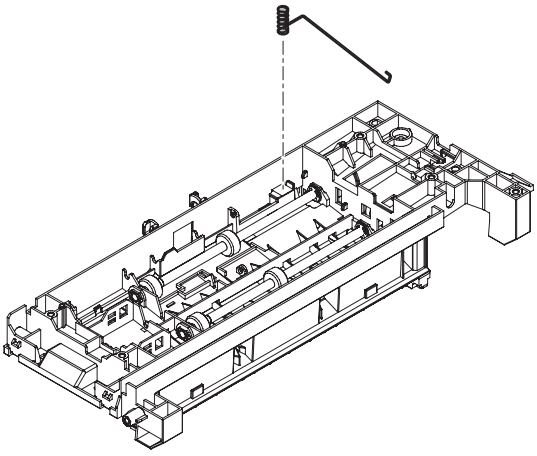


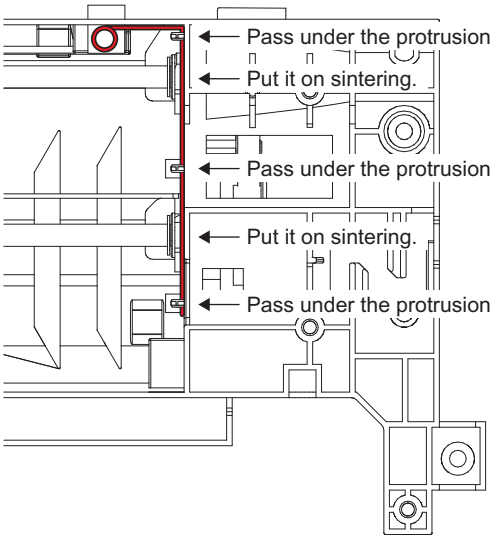
4) Remove the sensor.



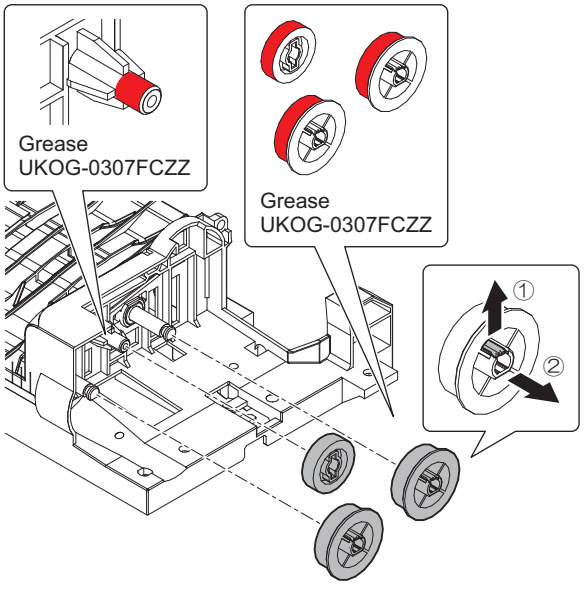
(2) Gear

1) Remove the earth spring.



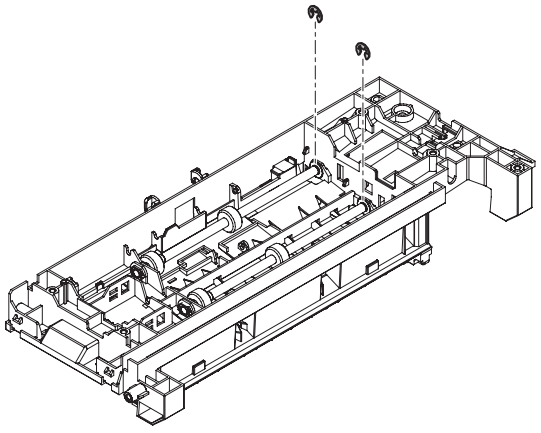


2) Remove the gear.

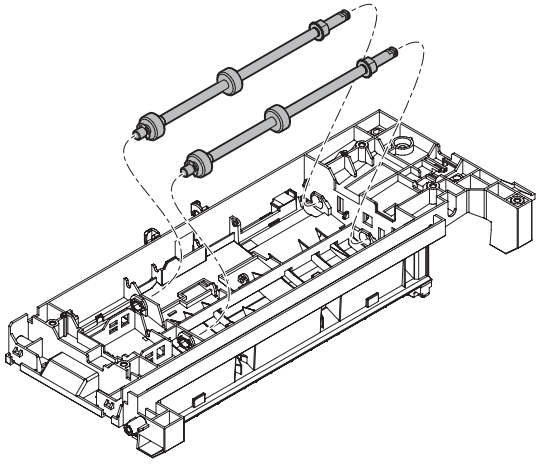


(3) Roller

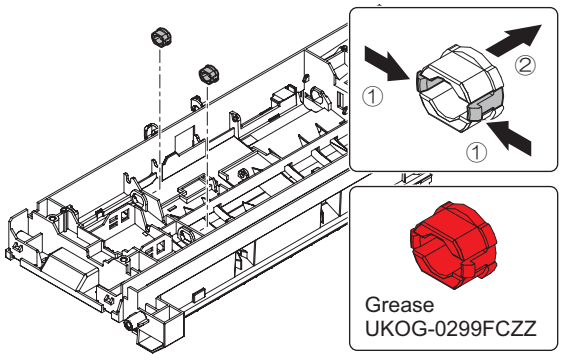
1) Remove the e-ring.



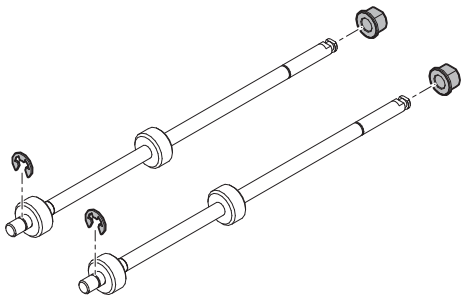
2) Remove the roller assembly.



3) Remove the gearing.

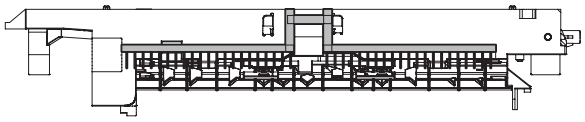


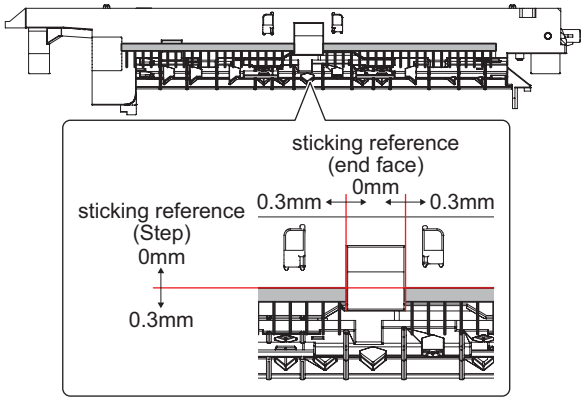
4) Remove the e-ring and the bearing.

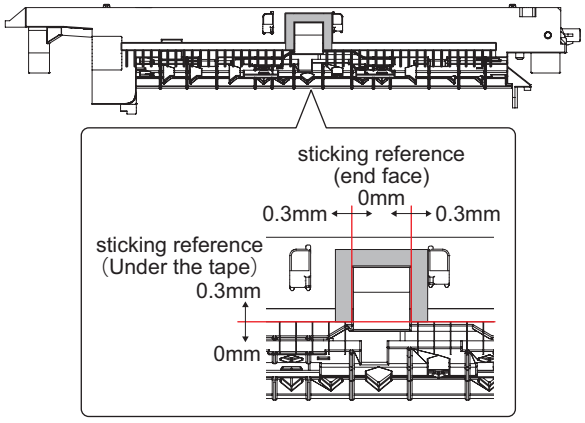


(4) Discharge brush

1) Remove the discharge brush.

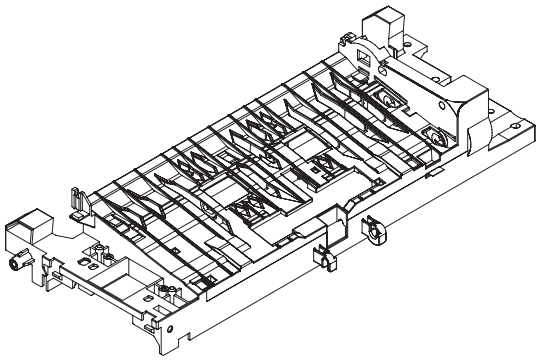


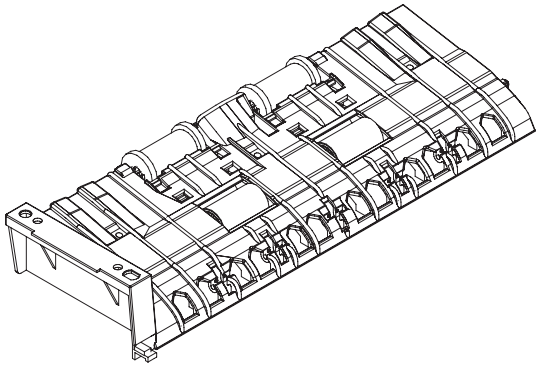




(5) Paper guide

1) Clean the paper guide.

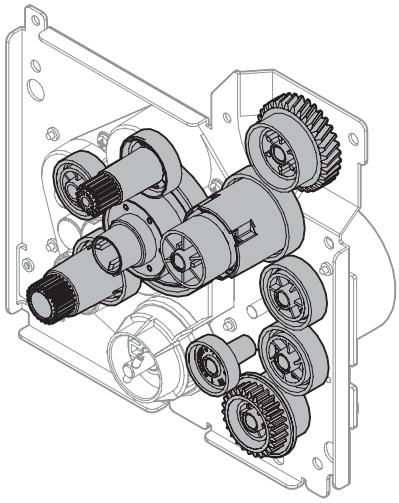




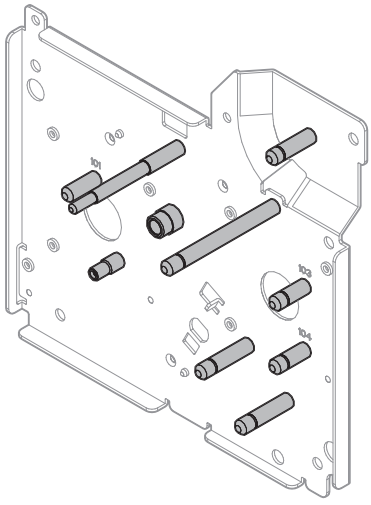
J. Main drive unit

Part No.	Part name
1	Gears
2	Shafts

1

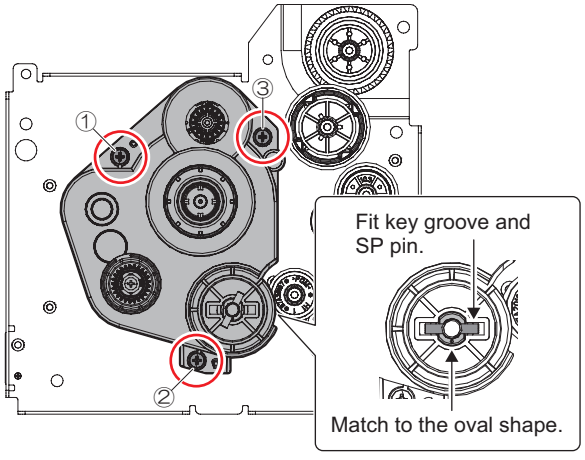


2

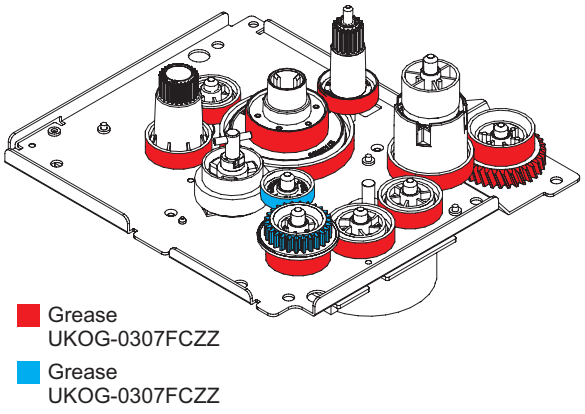


(1) Gears

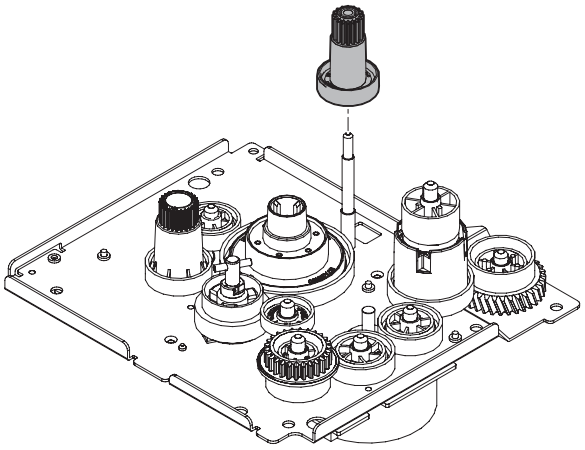
1) Remove the cover.



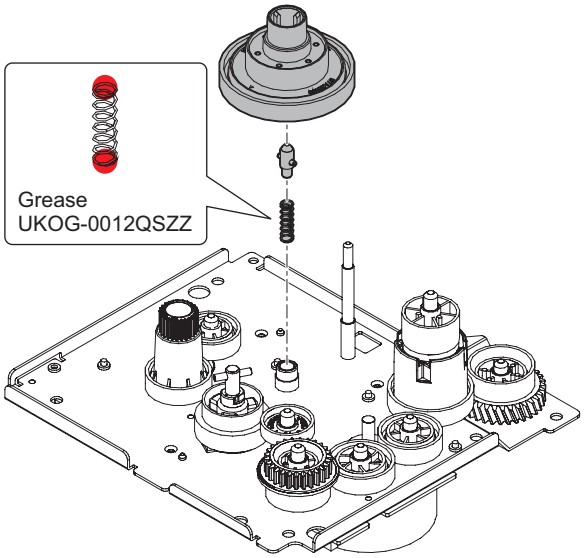
2) Apply grease to the specified position as needed.



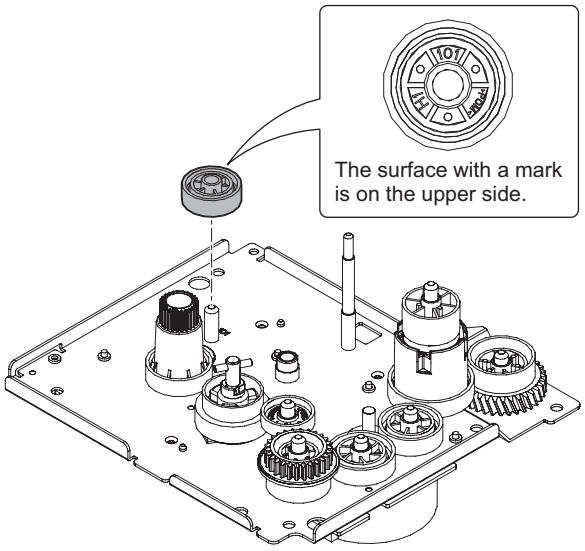
3) Remove the gear.



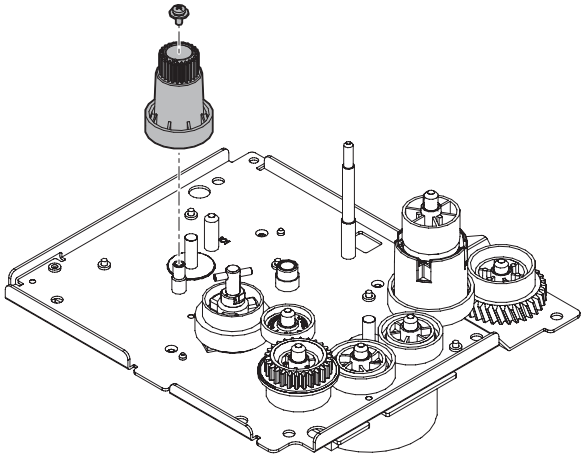
4) Remove the gear, the shaft and the spring.



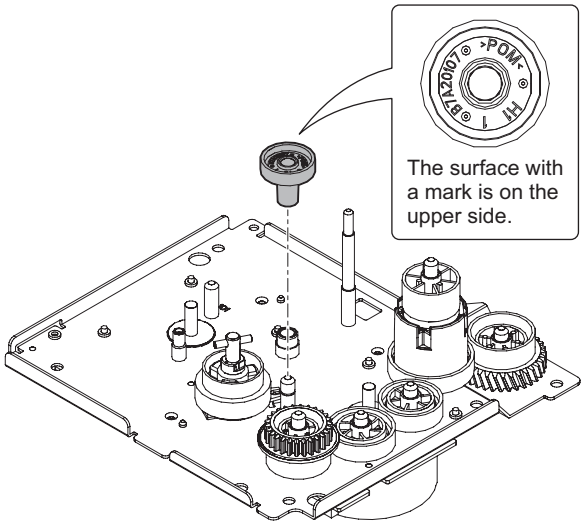
5) Remove the gear.



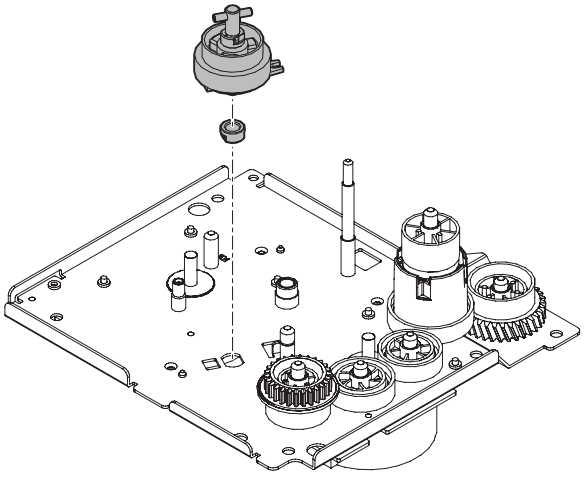
6) Remove the screw and the gear.

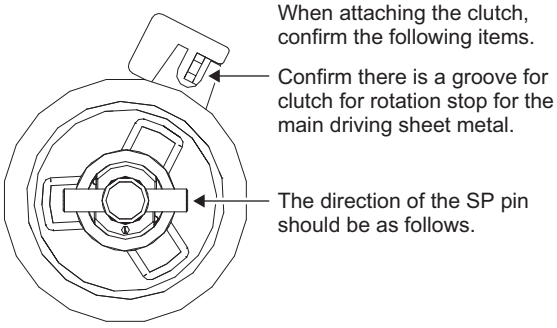


7) Remove the gear.

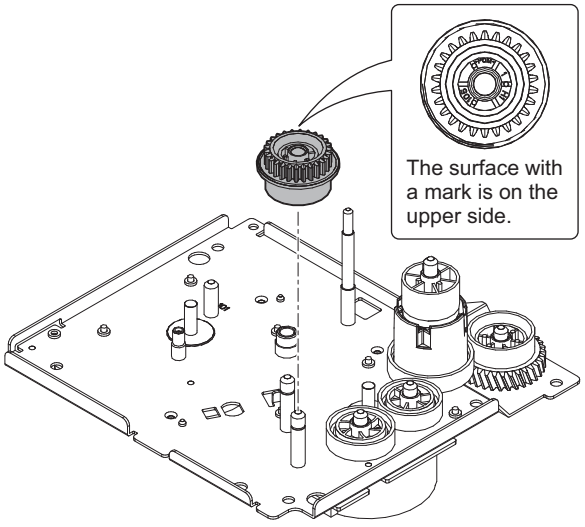


8) Remove the clutch and the bearing.

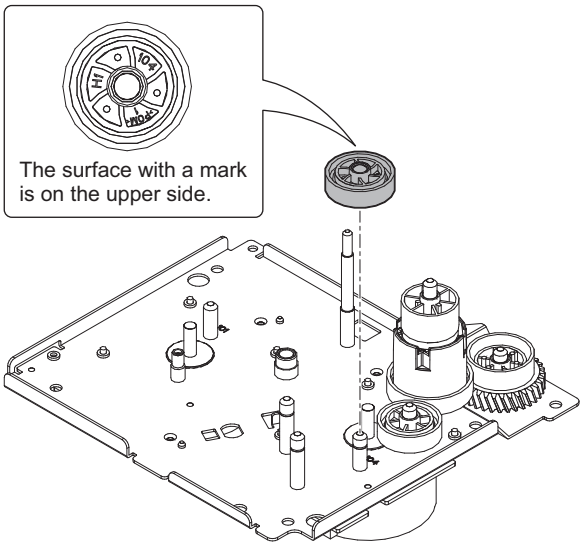




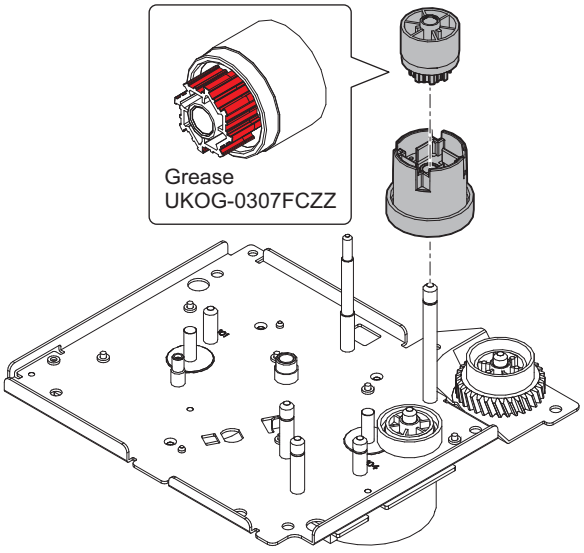
9) Remove the gear.



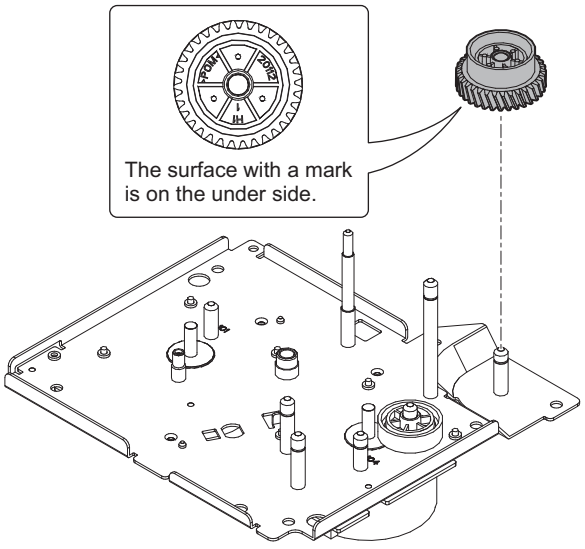
10) Remove the gear.



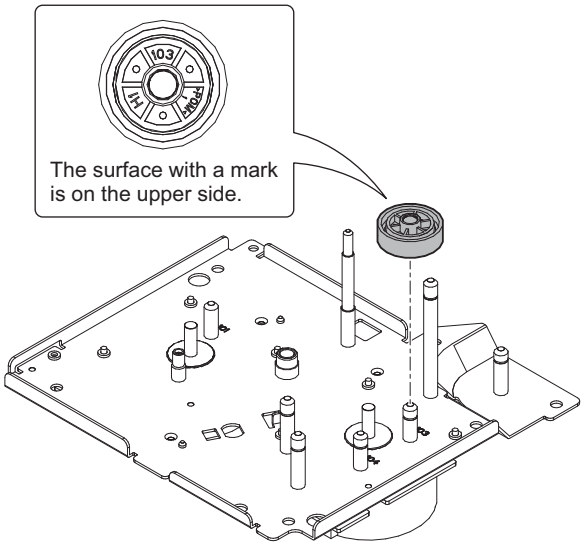
11) Remove the gear.
Apply grease to the specified position as needed.



12) Remove the gear.

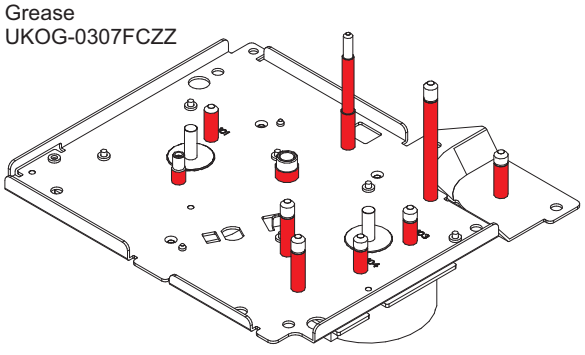


13) Remove the gear.



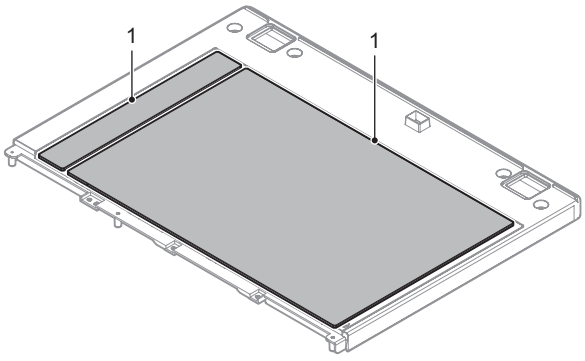
(2) Shafts

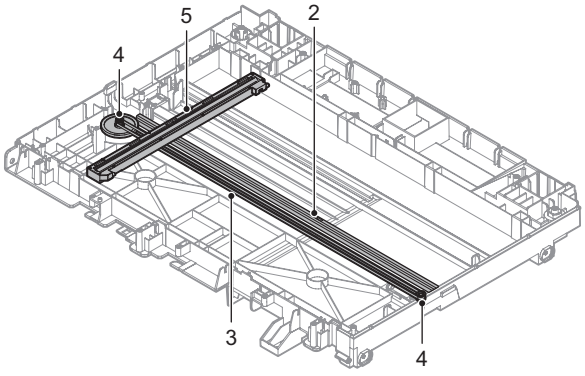
1) Apply grease to the specified position as needed.



K. Scanner unit

Part No.	Part name
1	Table glass, SPF glass
2	Rail
3	Drive belt
4	Drive gear, pulley
5	CIS

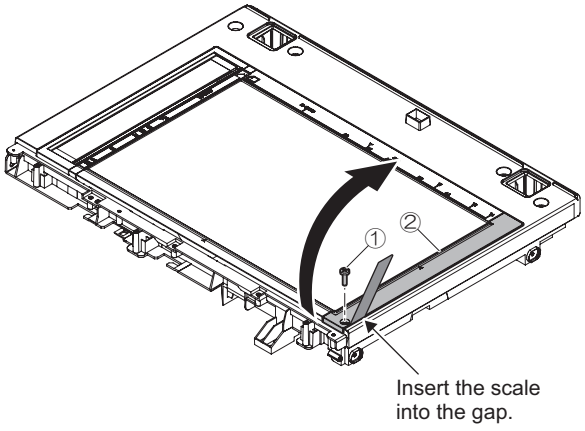




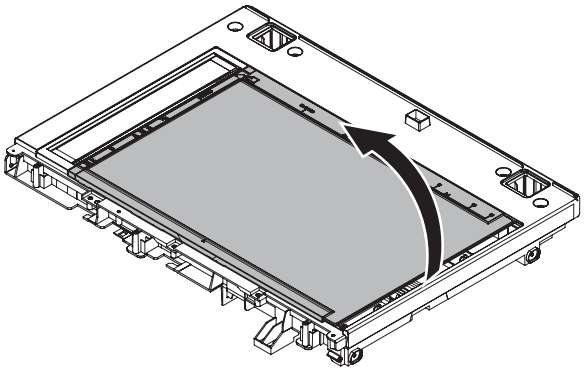
(1) Table glass, SPF glass

1) Remove the screw and the table glass holder.

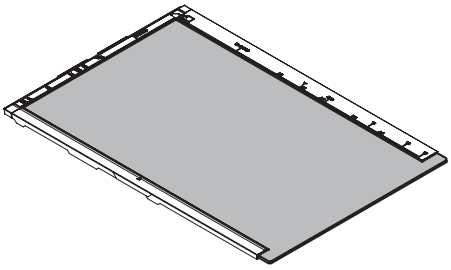
NOTE: When removing the table glass holder, pay attention to double sided tape. Reuse double sided tape.

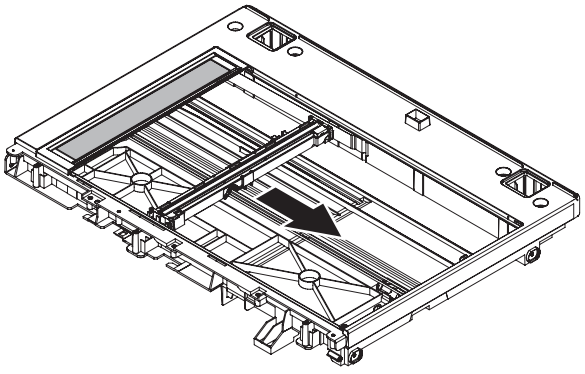


2) Remove the table glass.



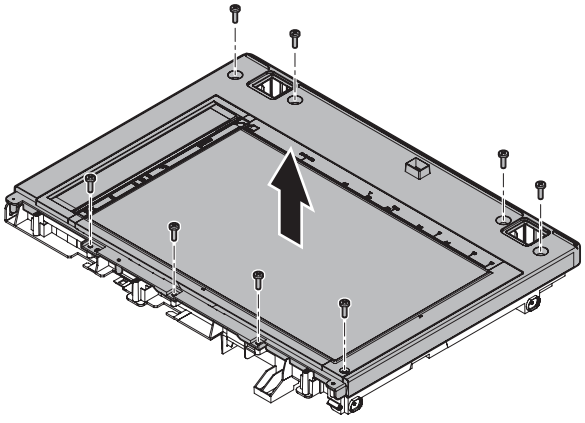
3) Clean the table glass and the SPF glass.





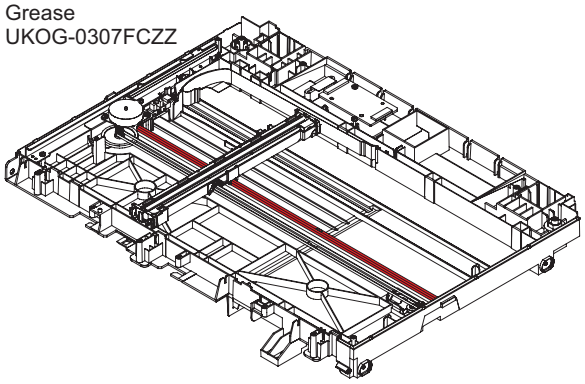
(2) Rail (grease)

1) Remove the screws and the cover assembly.



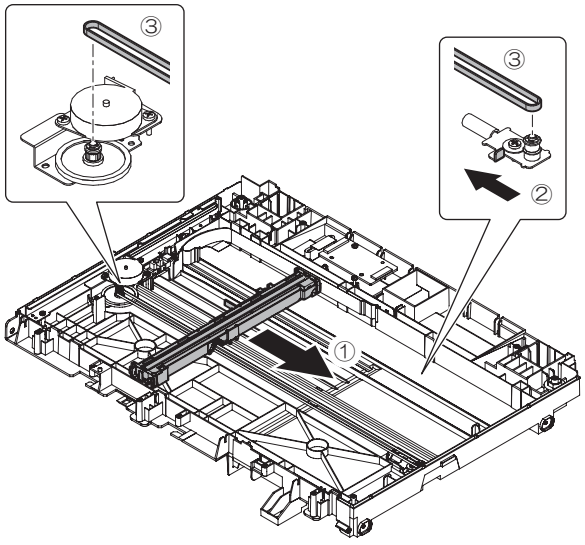
2) Apply grease to the specified position when checking.

Grease
UKOG-0307FCZZ



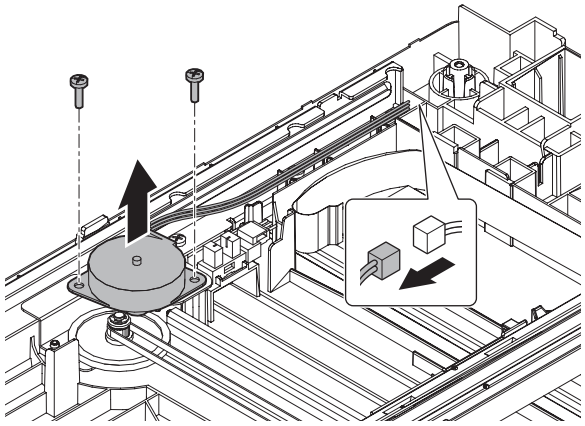
(3) Drive belt

1) Remove the drive belt.

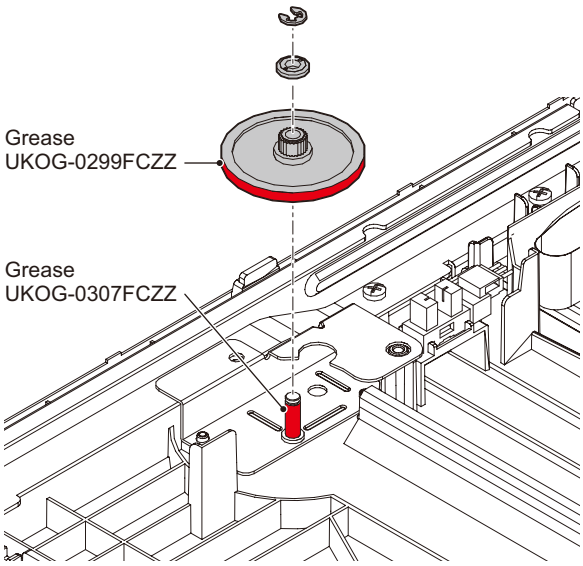


(4) Drive gear, pulley

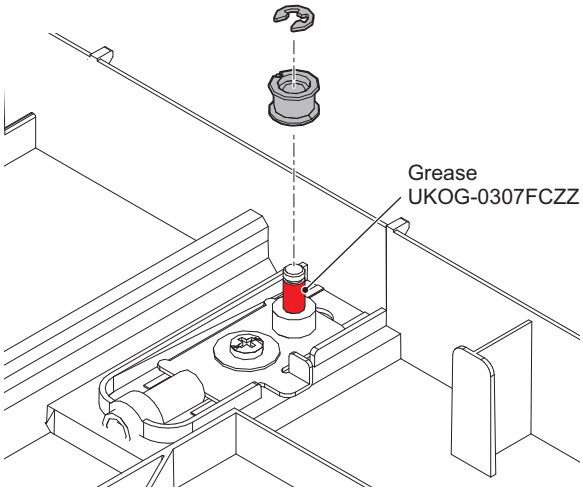
1) Disconnect connector. Then, Remove the screws and the motor.



2) Remove the e-ring, the collar and the gear.

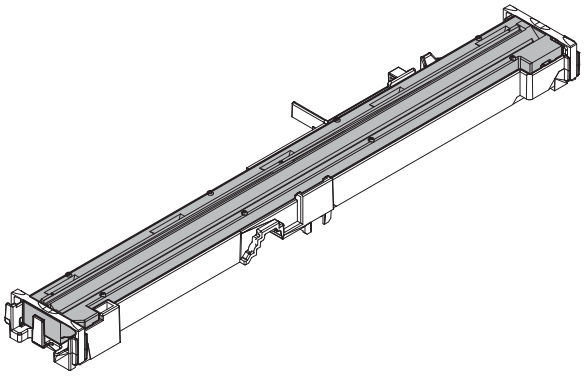


3) Remove the e-ring and the pulley.



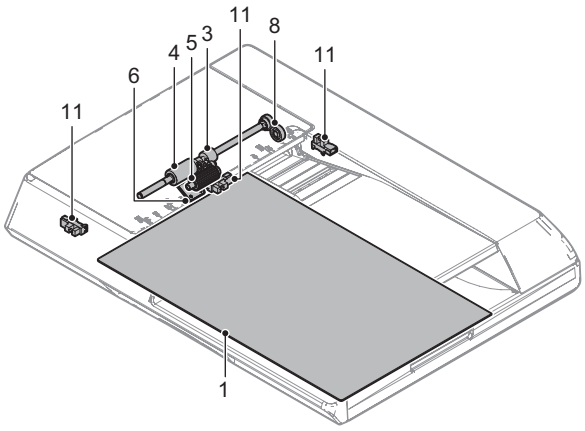
(5) CIS

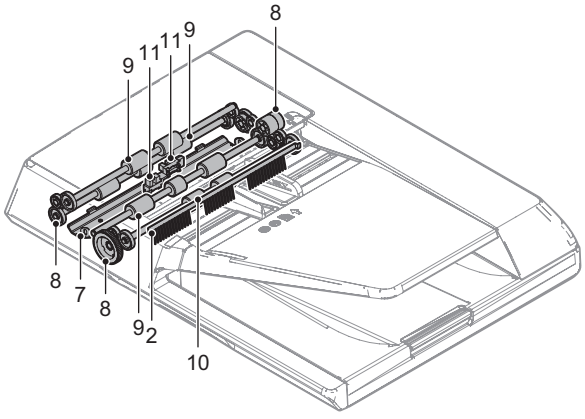
1) Clean the CIS.



L. RSPF unit

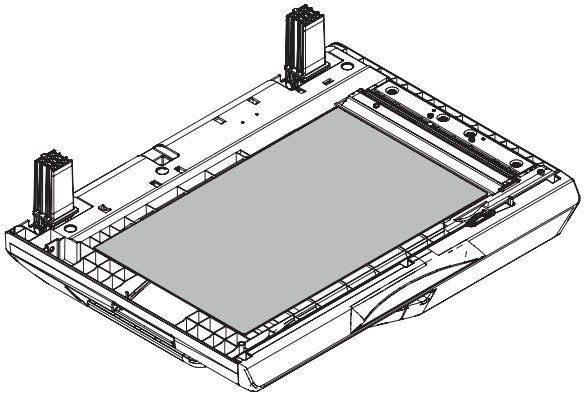
Part No.	Part name
1	OC mat
2	Discharge brush
3	Torque limiter (for pickup)
4	Paper feed roller
5	Paper pickup roller
6	Separation sheet
7	Scan plate
8	Gears
9	Transfer rollers
10	Paper exit roller
11	Sensors





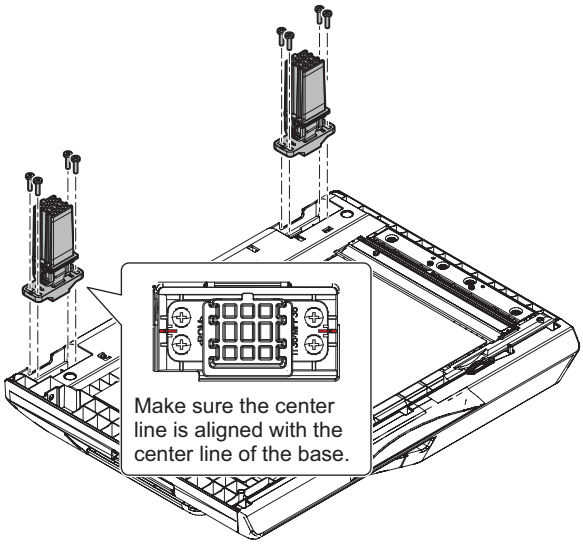
(1) OC mat

1) Clean the OC mat.

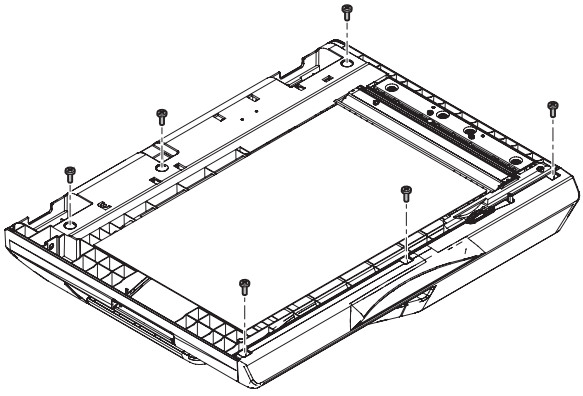


(2) Discharge brush

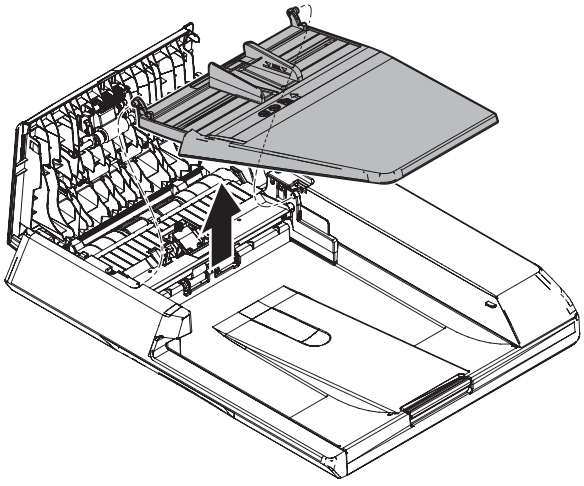
1) Remove the hinge.



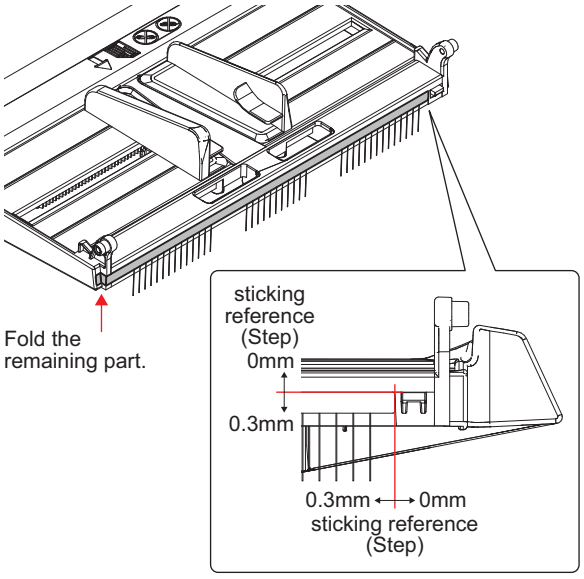
2) Remove the screw.



3) Open the upper cover and remove the document tray.

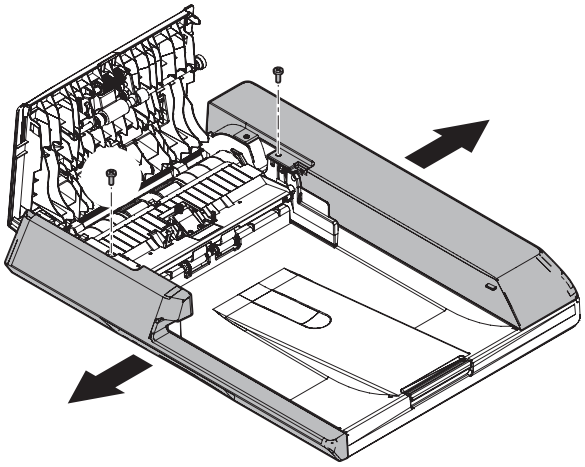


4) Remove the discharge brush.

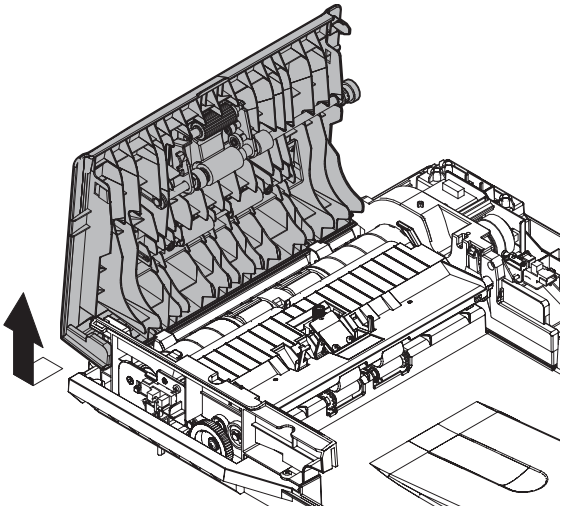


(3) Torque limiter (for pickup)

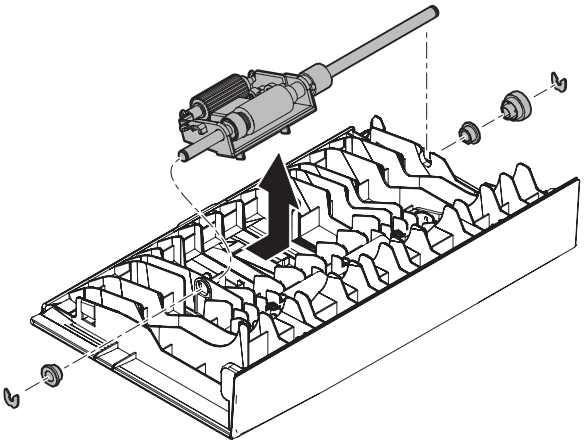
1) Remove the front cabinet and rear cabinet.



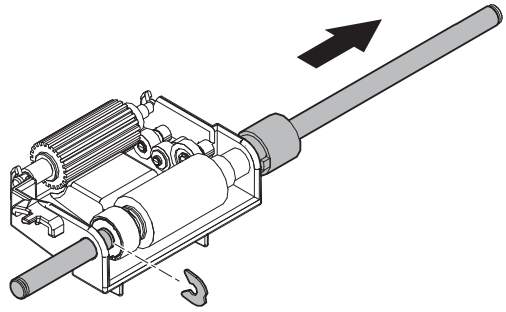
2) Remove the upper cover.



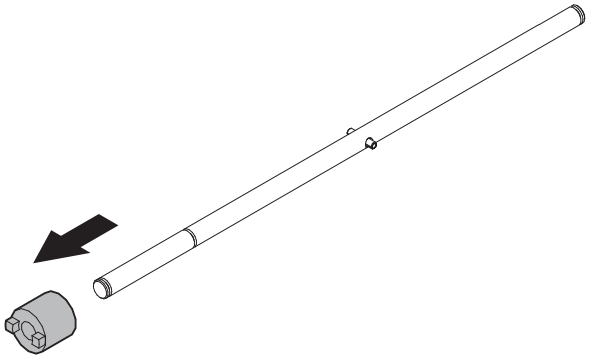
3) Remove the e-ring, the gear, the bearing and the pickup assembly.



4) Remove the e-ring and the shaft.

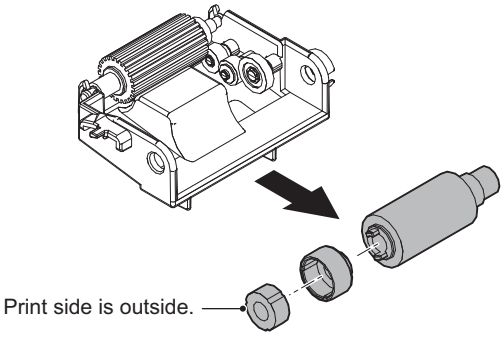


5) Remove the torque limiter (for pickup).



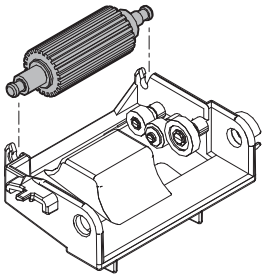
(4) Paper feed roller

1) Remove the flywheel and the paper feed roller.

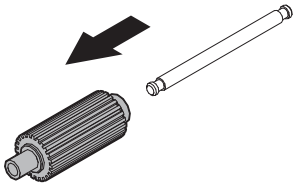


(5) Paper pickup roller

1) Remove the paper pickup roller assembly.

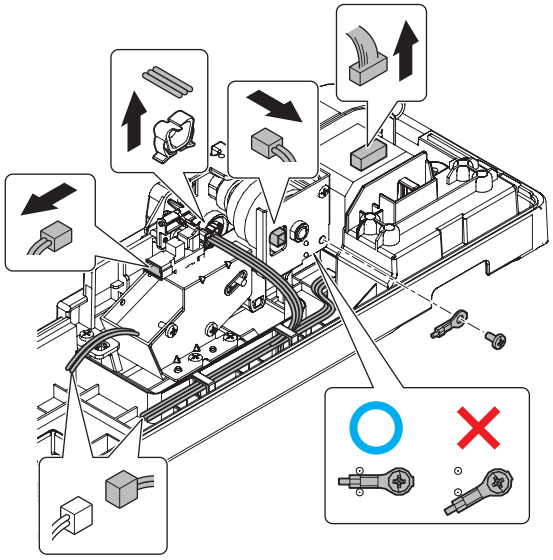


2) Remove the paper pickup roller.

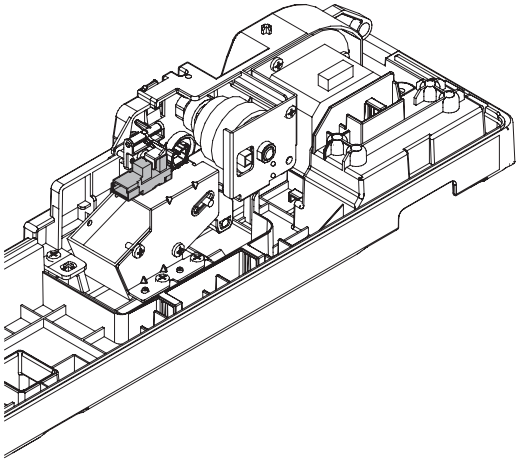


(6) Separation sheet

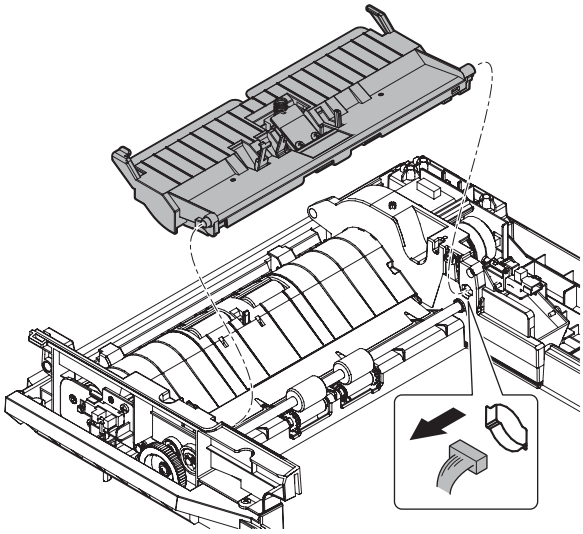
1) Disconnect connector and ground wire.



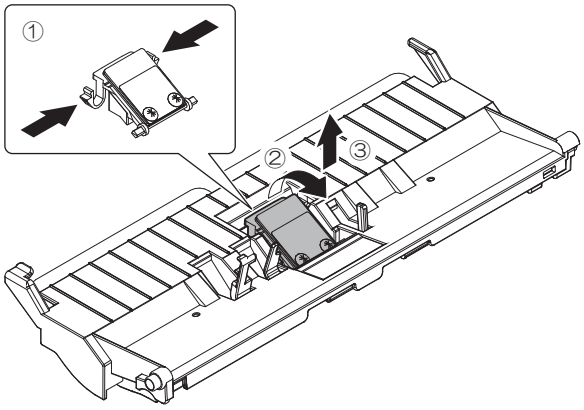
2) Check the sensor.



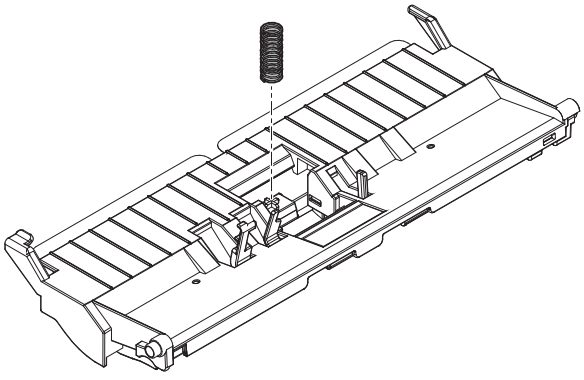
3) Remove the front module.



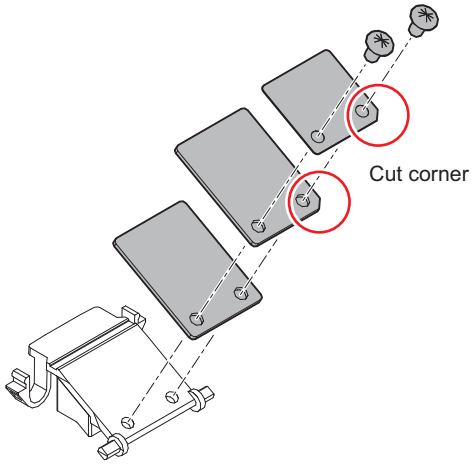
4) Remove the pad assembly.



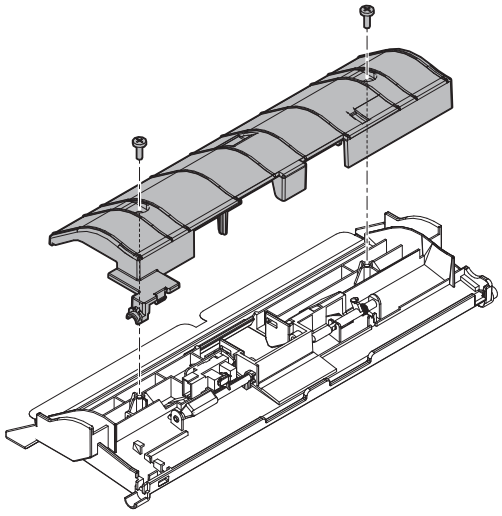
5) Remove the spring.



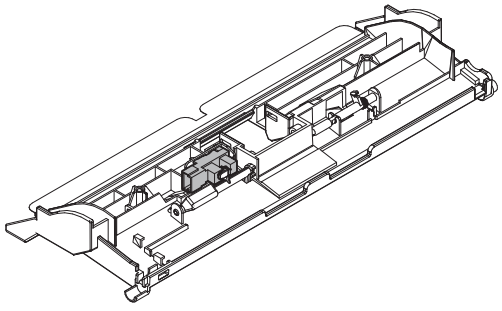
6) Remove the separation sheet.



7) Remove the front cover.

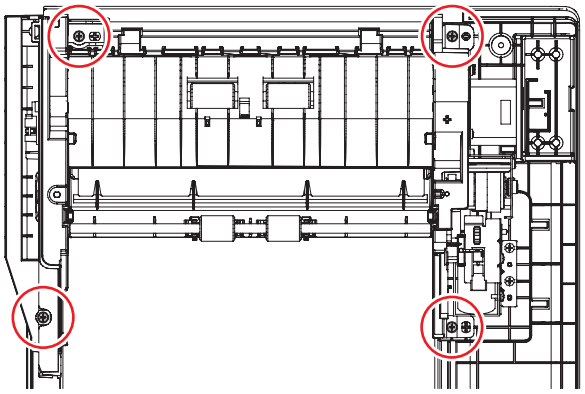


8) Check the sensor.

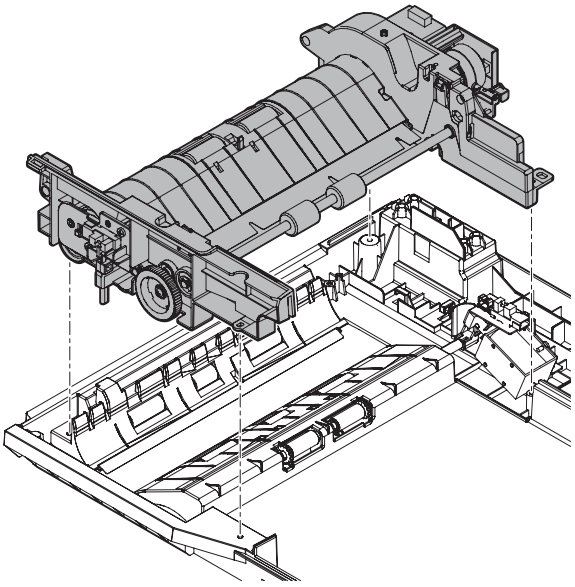


(7) Scan plate

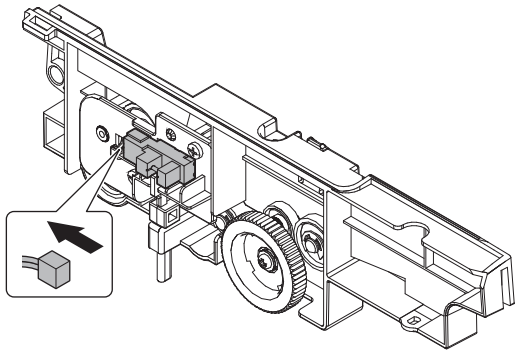
1) Remove the screw.



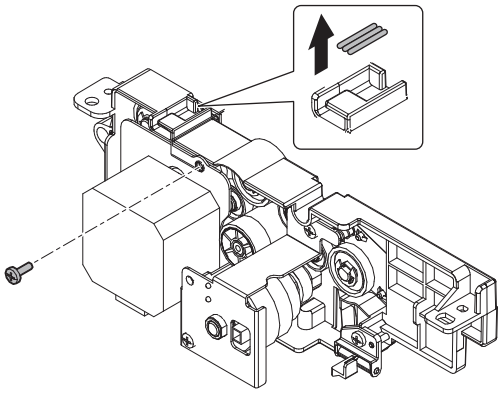
2) Remove the frame assembly.



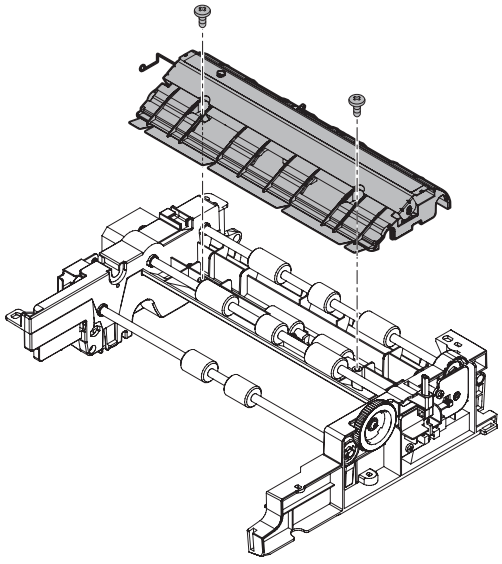
3) Disconnect the connector and check the sensor.



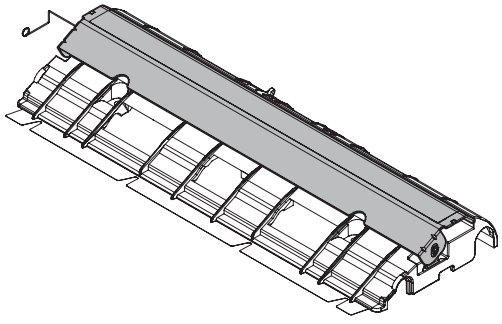
4) Remove the screw and remove the harness from the rib.



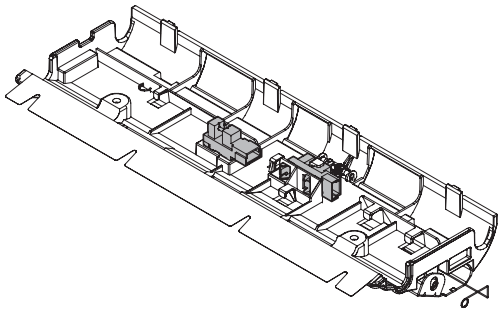
5) Remove the lower module.



6) Clean the scan plate.

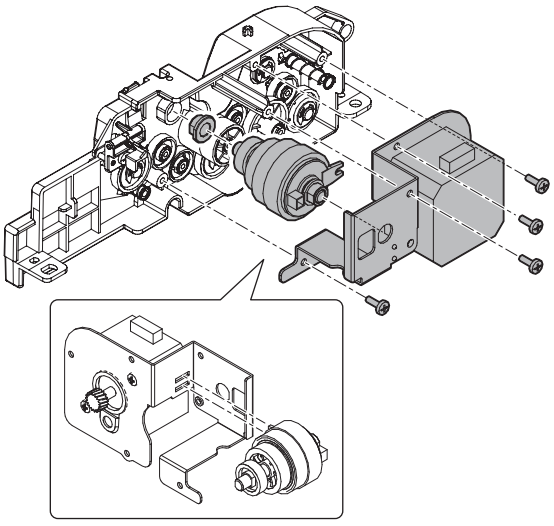


7) Check the sensor.

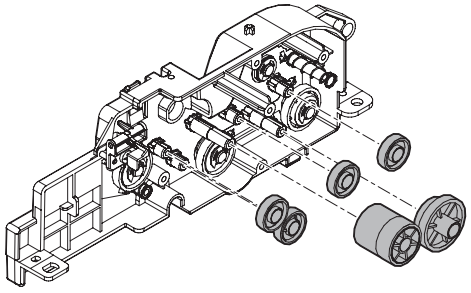


(8) Gears

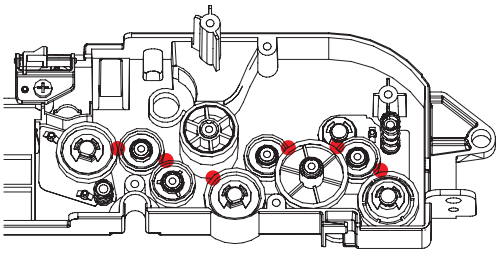
1) Remove the motor and clutch.



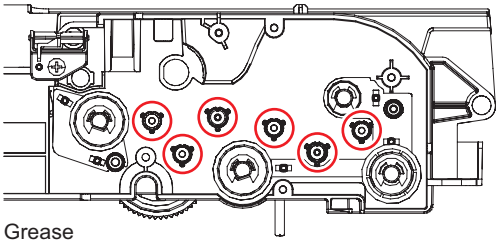
2) Remove the gear.



3) Apply grease to the specified position as needed.

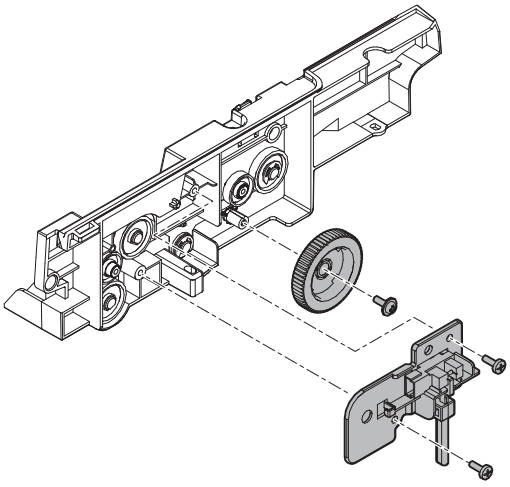


Grease
UKOG-0307FCZZ

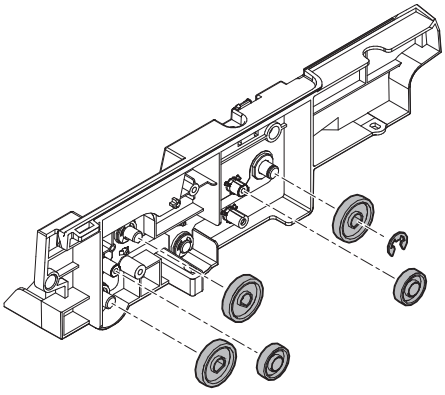


Grease
UKOG-0307FCZZ

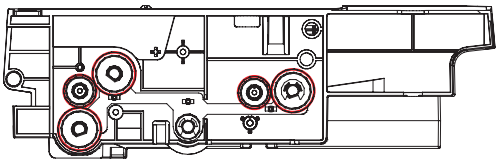
4) Remove the gear and the bracket.



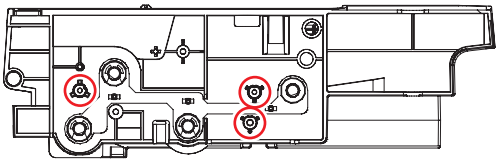
5) Remove the e-ring and the screw.



6) Apply grease to the specified position as needed.

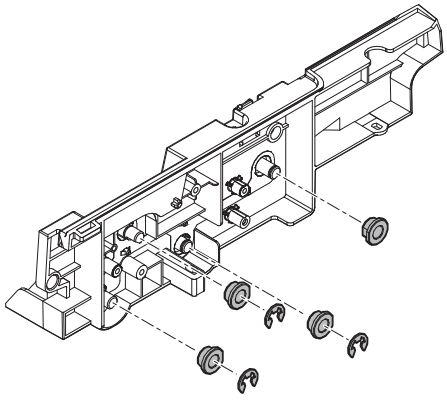


Grease
UKOG-0307FCZZ

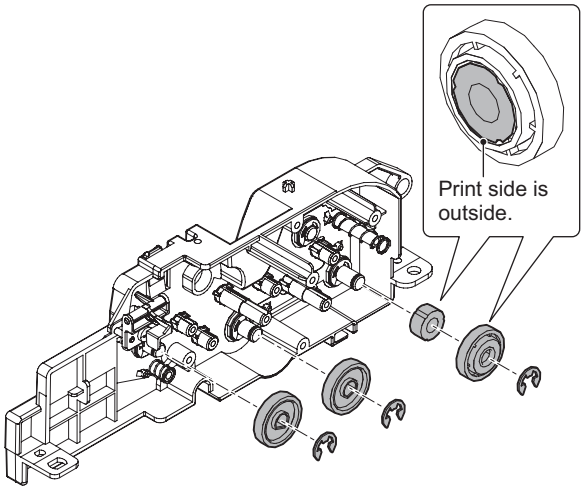


Grease
UKOG-0307FCZZ

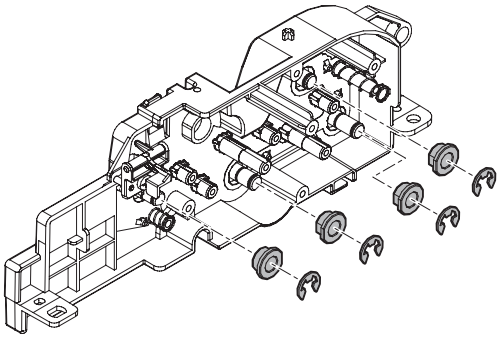
7) Remove the e-ring and bearing.



8) Remove the e-ring and the gear.



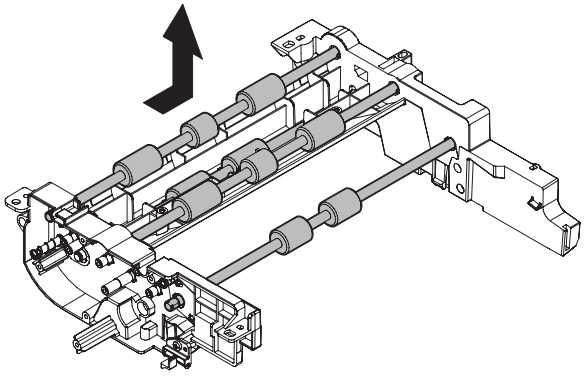
9) Remove the e-ring and bearing.



(9) Transfer rollers

(10) Paper exit roller

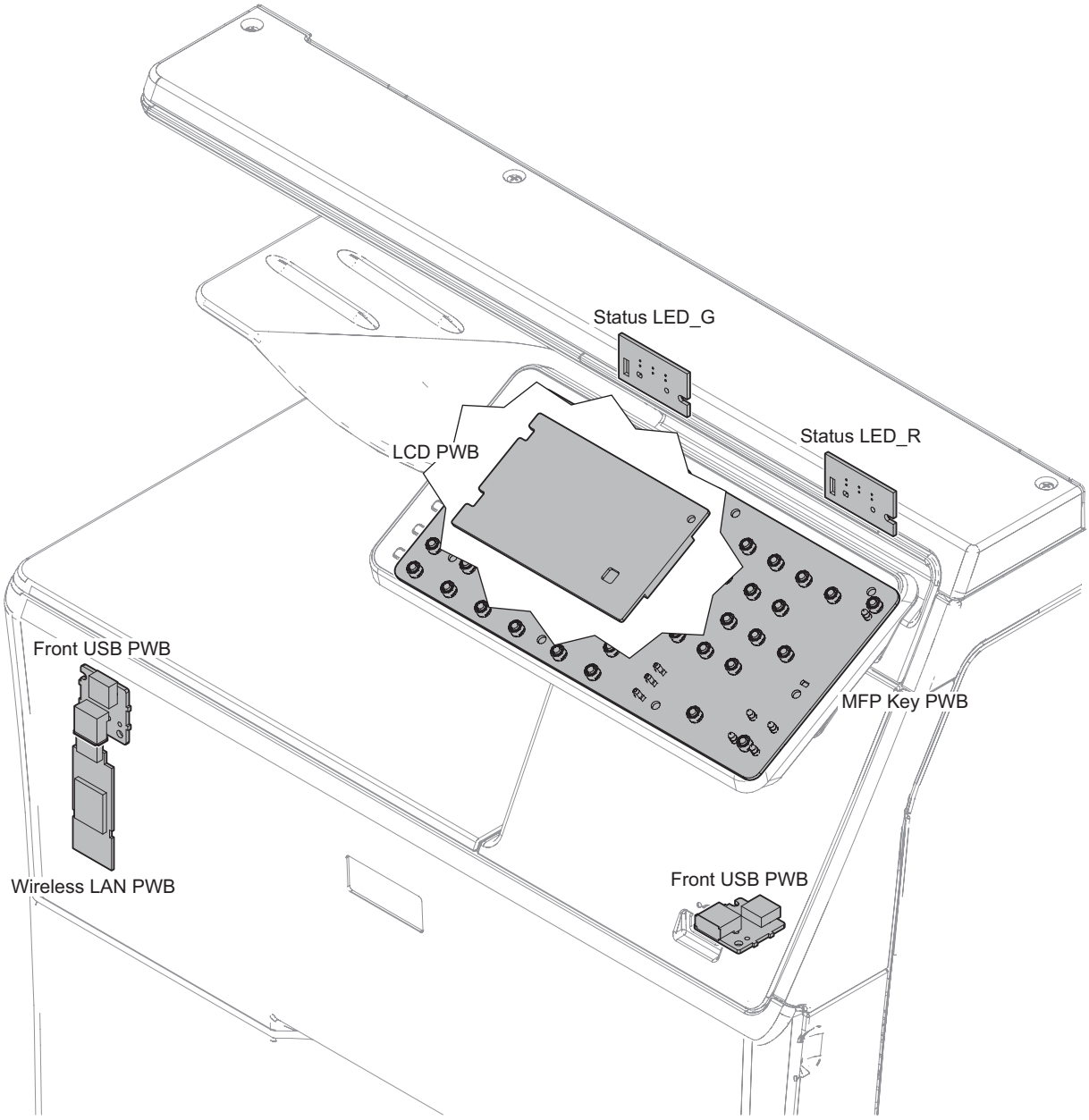
1) Remove the transfer rollers and the paper exit roller.



[11] OPERATIONAL DESCRIPTIONS

1. Operation panel section

A. Mechanism relation diagram



No.	Name	Function and Operation
1	Front USB PWB	USB Interface
2	Front USB PWB	This PWB connects Wireless LAN PWB and MFPc PWB.
3	LCD PWB	Output the signal to LCD unit.
4	MFP Key PWB	This PWB outputs key operation signal.
5	Status LED_G	This PWB displays operating status of main unit.
6	Status LED_R	This PWB displays operating status of main unit.
7	Wireless LAN PWB	This PWB makes a wireless network connection.

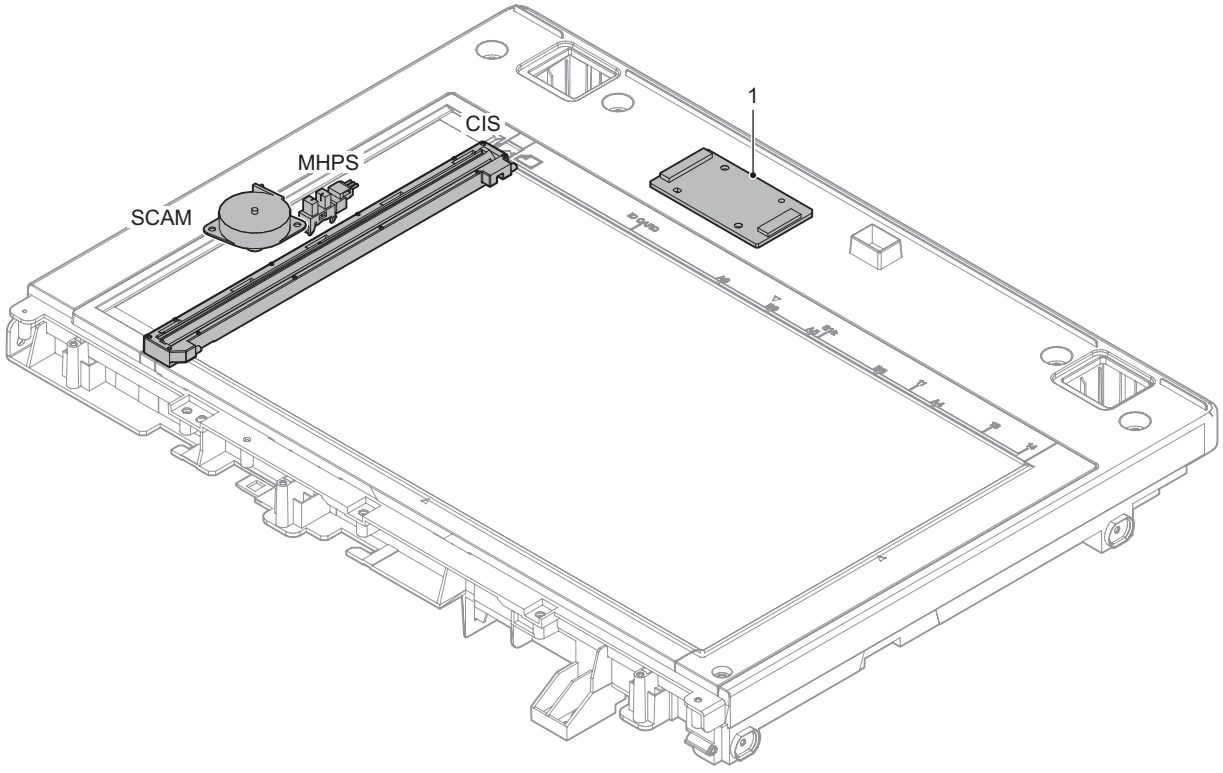
B. Operational descriptions

The operation panel unit is composed of the key board, the LCD unit,
the LCD PWB, and the MFP Key PWB.

It displays the machine operation.

2. Scanner section

A. Mechanism relation diagram



Signal name	Name	Function and Operation
MHPS	Scanner home position sensor	Detects the scanner home position
SCAM	SCAN Motor	Drives the scanner unit. (scan, return operations)

No.	Name	Function and Operation
1	AFE PWB	Transfer the analog signal to the digital signal.

B. Outline

This section performs the following functions.

1) Light is radiated to the document by the scanner CIS lamp, and the contrast of the reflected light is read by the CIS elements into the image signal (analog).
2) The image signals (analog) are converted into 16bit digital signals by the A/D converter.
3) The image signals (digital) are sent to the image process section (scanner control PWB).

C. Optical section drive

The CIS unit in the optical section is driven by the scanner motor (MIM) through the belt.

The scanner motor (MIM) is controlled by the drive signal sent from the MFPC PWB.

D. Scanner lamp drive

R, G and B LEDs are mounted. These LEDs lights in order of R, G, B, R, G, B, ... with the color scanning. These LEDs light at the same time with the lighting ratio set in SIM63-12 with the monochrome scanning.

E. Image scan/color separation

Light is radiated to the document by the CIS unit, and the contrast of the reflected light is read by the on line CMOS elements to be converted into the image signal (analog).

The color components of document images are extracted to R, G, and B separately by the one line CMOS elements (R,G,B).
The inside of the LED element contains the R, G and B elements.
The document scan in the main scanning direction is performed by the CMOS element. The document scan in the sub scanning direction is performed by shifting the carriage unit with the scanner motor.

The scan resolution is 600 dpi.

F. Image signal A/D conversion

1) The image signal (analog) for each of R, G, and B is converted into 16bit digital signal by the A/D converter.

   Each color pixel has 10bit information.
2) The 16bit digital image signals of R, G, B are sent to the image process section.

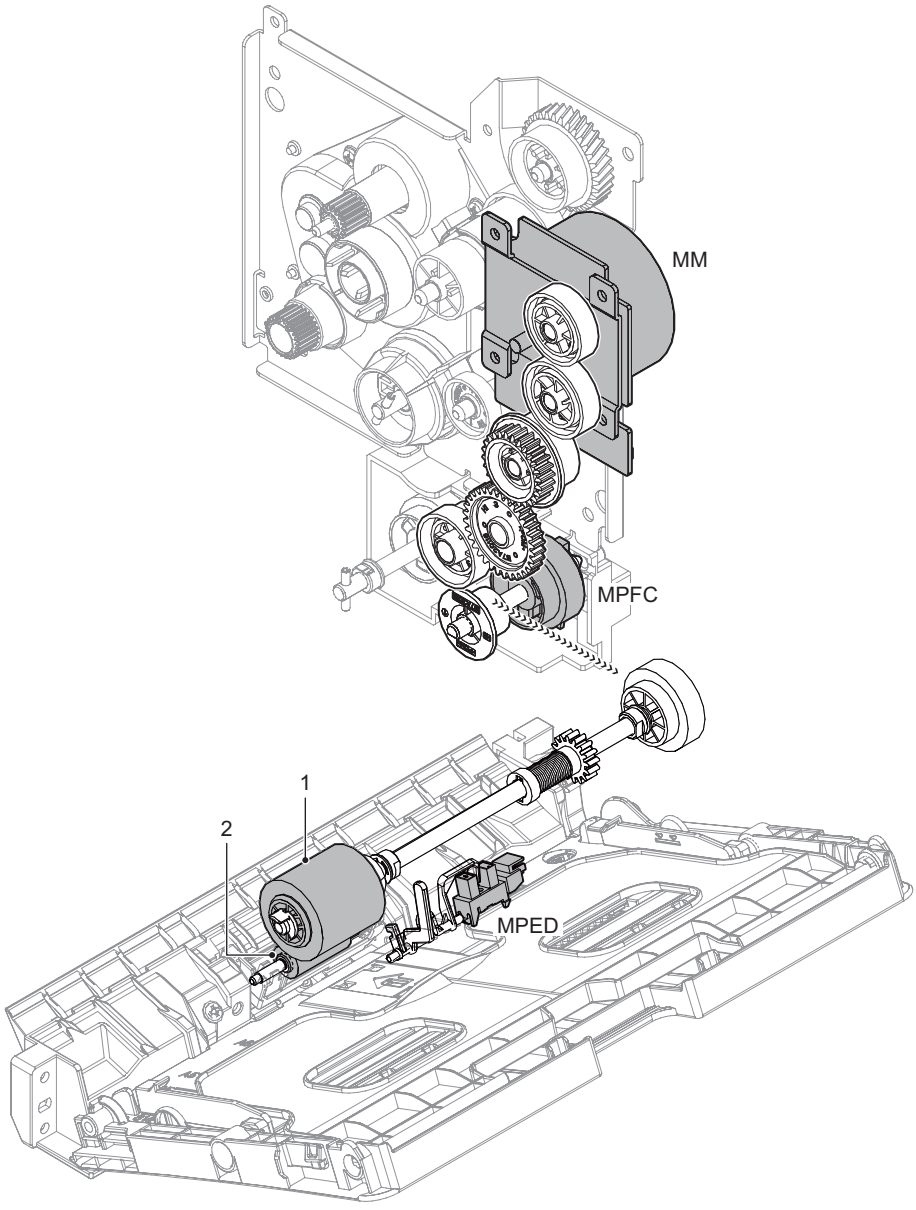
G. Zooming operation

Zooming in the sub scanning direction is performed by changing the scanning speed in the sub scanning direction and using the image process technology (software).

Zooming in the main scanning direction is not performed optically, but performed with the image process technology (by the software).

3. Manual paper feed section

A. Mechanism relation diagram



Signal name	Name	Function and operation
MM	Main Motor	Main drive.
MPED	Paper empty sensor	Detects presence of paper.
MPFC	Manual paper feed clutch	Controls ON/OFF of the paper feed roller in the manual paper feed section.

No.	Name	Function and operation
1	Paper feed roller	This roller sends a paper to registration roller.
2	Separation roller	This roller separates a paper to prevent double-feeding.

B. Operational descriptions

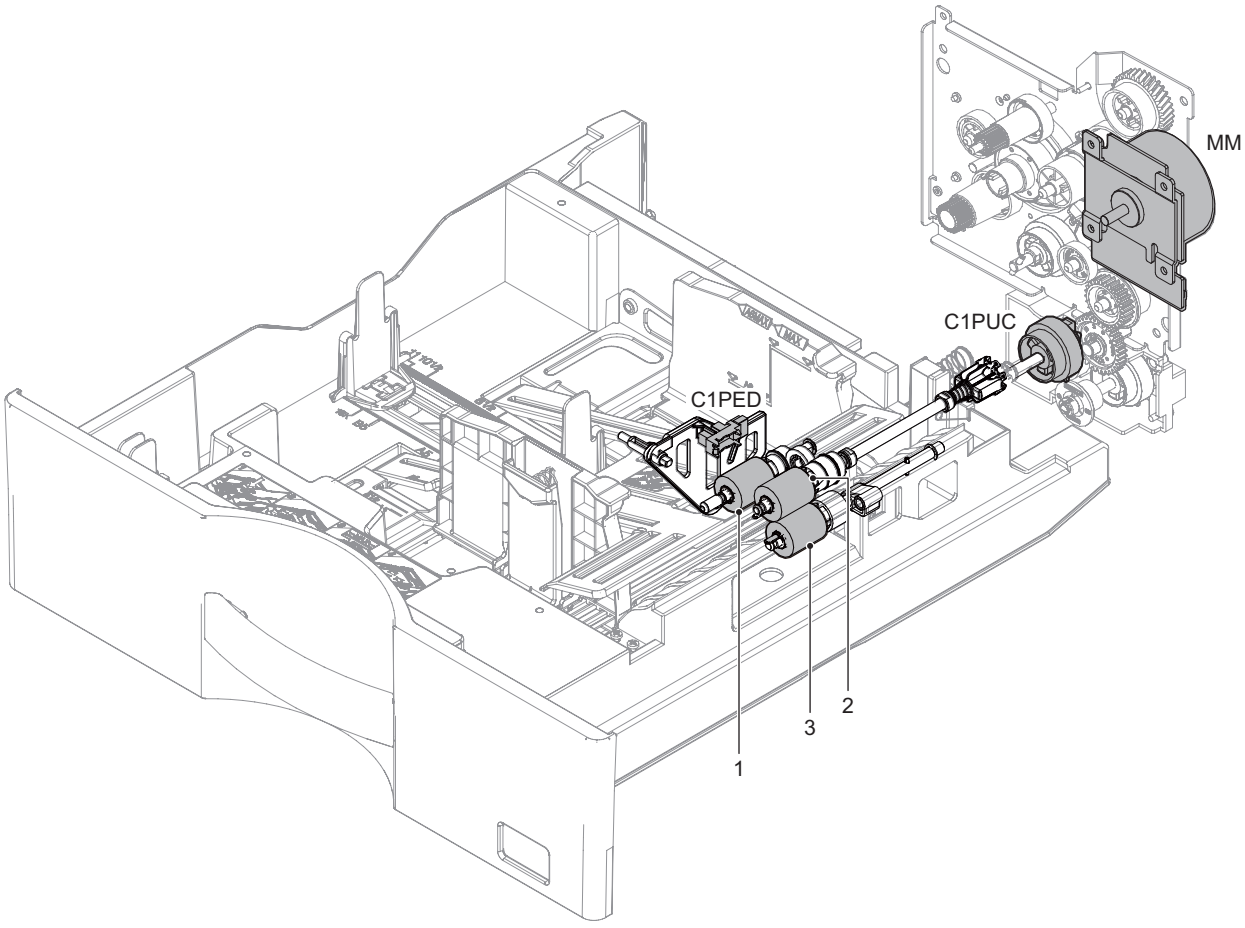
Only the top sheet of paper is fed from the paper stack on the manual bypass tray, the feed roller is pressed against the paper surface and sent to the transport section.

The feed roller transports paper to registration section. The separation roller stops paper to prevent double-feed. 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.

4. Paper feed tray section

A. Mechanism relation diagram



Signal name	Name	Function and operation
MM	Main Motor	Main drive
C1PUC	Paper feed clutch	Controls ON/OFF of the paper feed roller in the paper feed tray 1 section
C1PED	1st cassette paper empty detect	Detects paper empty

No.	Name	Function and operation
1	Paper pick up roller	This roller sends a paper to Paper feed roller.
2	Paper feed roller	This roller sends a paper to Resist roller.
3	Separation roller	This roller separates papers to prevent double-feeding.

B. Operational descriptions

(1) 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 paper pick up roller by way of a spring under the plate.

A constant pressure of the top sheet of paper to the paper pick up 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.

(2) Paper size detection operation

This model have a function to detect the paper size in the cassette.

(3) Paper pick up operation

The main motor (MM) is turned ON, and then the paper feed clutch (CPUC1) is turned ON.

The power of main motor (MM) is transmitted through the paper feed clutch (CPUC1) to the paper pick up roller and the paper feed roller.

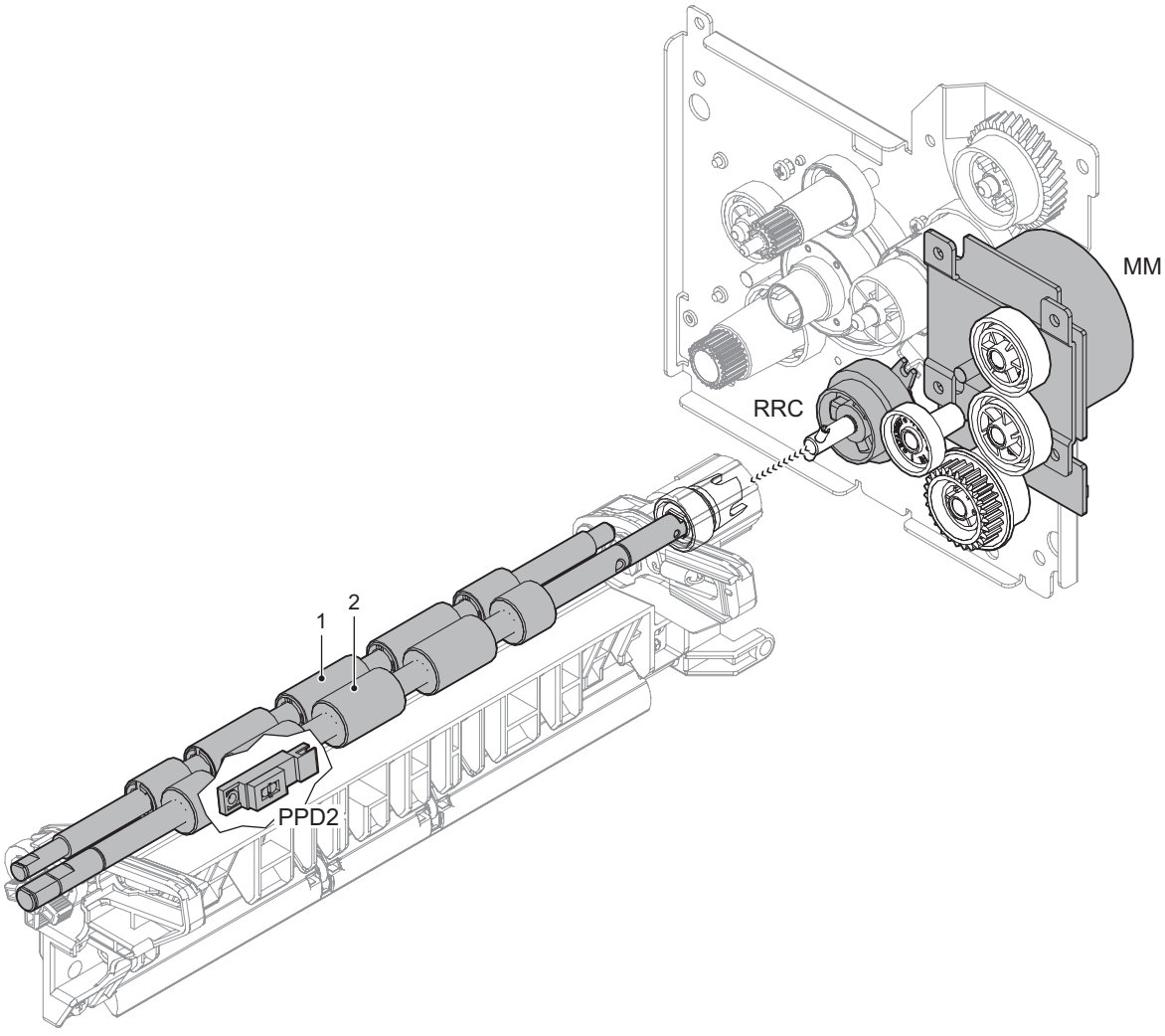
The paper feed roller feeds paper to the paper transport section.

At that time, the separation roller stops paper to prevent double-feed.

To prevent a double feeding, the separation roller apply counter force to the paper from bottom side.

5. Paper registration section

A. Mechanism relation diagram



Signal name	Name	Function and operation
RRC	Paper stop (resist) clutch	Controls ON/OFF of registration roller
PPD2	Paper transport sensor 2	Detects paper pass in the transport roller and registration roller

No.	Name	Function and operation
1	Registration roller (Idle)	This roller applies a pressure to a paper and the registration roller, and provides transport power of the registration roller to the paper.
2	Registration roller (Drive)	This roller sends a paper to the transport section, controlling the timing for transportation to adjust correlation between image and paper.

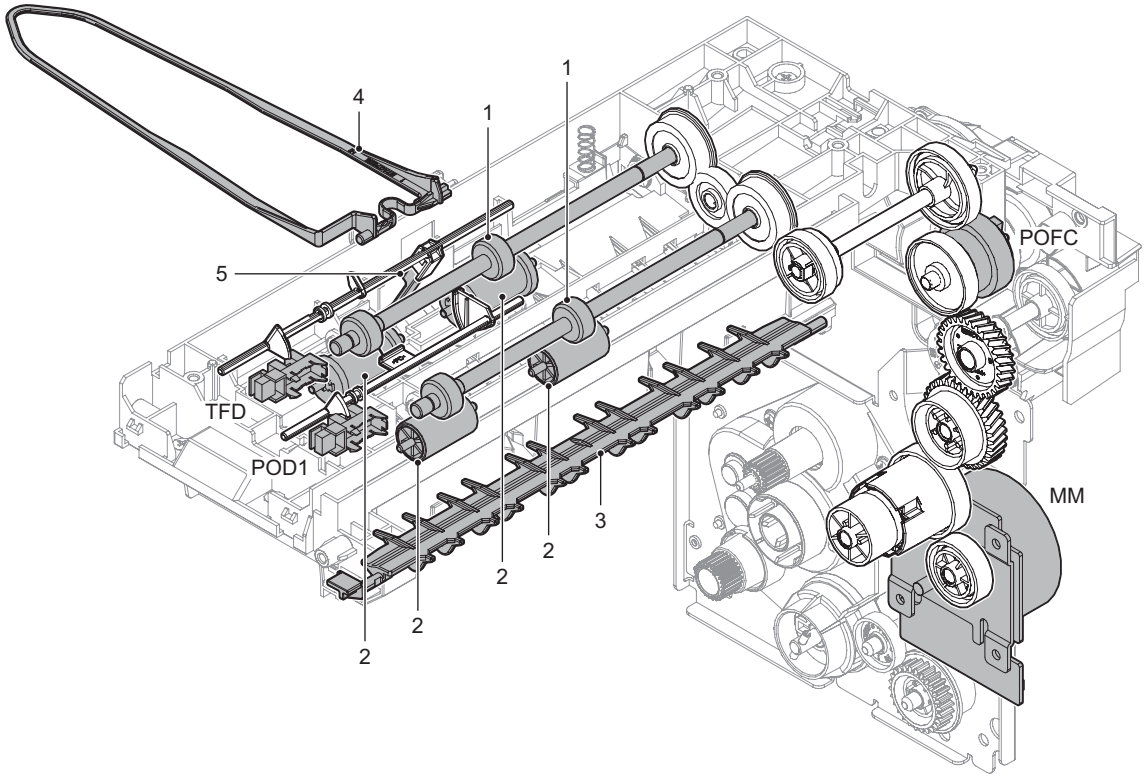
B. Operational descriptions

The resist roller set controls the synchronization of the Image on the OPC drum to the timing of the paper making its way to the transfer section.

Start stop movement is controlled by the PS Clutch (RRC).

6. Paper exit section

A. Mechanism relation diagram



No.	Name	Function and operation
1	Paper exit/transfer roller (drive)	Exit the paper onto the exit tray and perform switch back operations when in duplex mode.
2	Paper exit/transfer roller (idle)	This roller applies a pressure to a paper and the registration roller, and provides transport power of the registration roller to the paper.
3	ADU gate	Changing the transport direction of switched back paper
4	Paper holding arm	Suppress the jumping out of the discharged paper and load it on the tray.
5	Paper full actuator	Detect full of output paper

Signal name	Name	Function and operation
MM	Main motor	Main drive
POD1	Paper exit detector 1	Detects paper pass in the paper exit section. Detects a paper jam.
POFC	Paper exit clutch	Control ON / OFF of normal rotation of paper discharge roller
TFD	Paper exit tray full detector	Detects paper full in the paper exit tray.

B. Operational descriptions

The paper transported from the fusing section is sent from transport roller to paper exit roller, and then discharged to the exit tray.

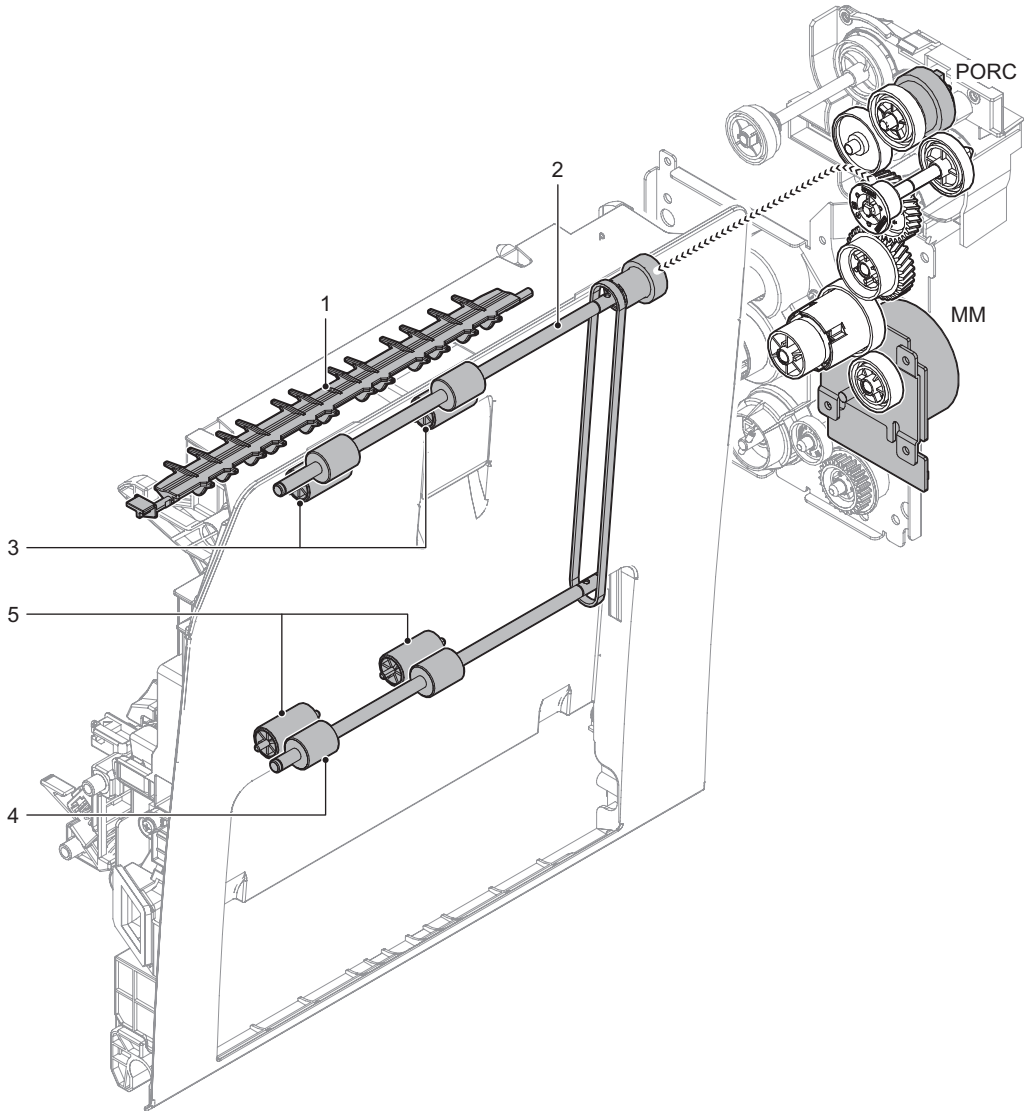
(1) Switchback operation

In the duplex print mode, from when the POD1 detects the lead edge of the paper transported from the fusing section, and after passing a certain time (depending on the paper size), the paper exit clutch POFC is turned off, the paper exit reverse clutch PORC is turned on, the paper exit roller rotates in the switchback direction.

Consequently, the paper is transported to the switchback section.

7. ADU section

A. 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 (Drive)	Drive Roller in ADU section that transports paper to the Lower transport rollers in the Duplex Section.
3	Paper feed roller (Idle)	Applies pressure to the back of the paper for drive to the Upper Duplex Transport Rollers
4	Paper feed roller (Drive)	Drive roller to transport paper to the Registration Rollers.
5	Paper feed roller (Idle)	Applies pressure to the back of the paper for drive to the Lower Duplex Transport Rollers

Signal name	Name	Function and operation
MM	Main motor	Main drive
PORC	Paper exit clutch	Control ON / OFF of reverse rotation of paper discharge roller

B. Operational descriptions

The switched back paper which comes from paper exit section is passed above

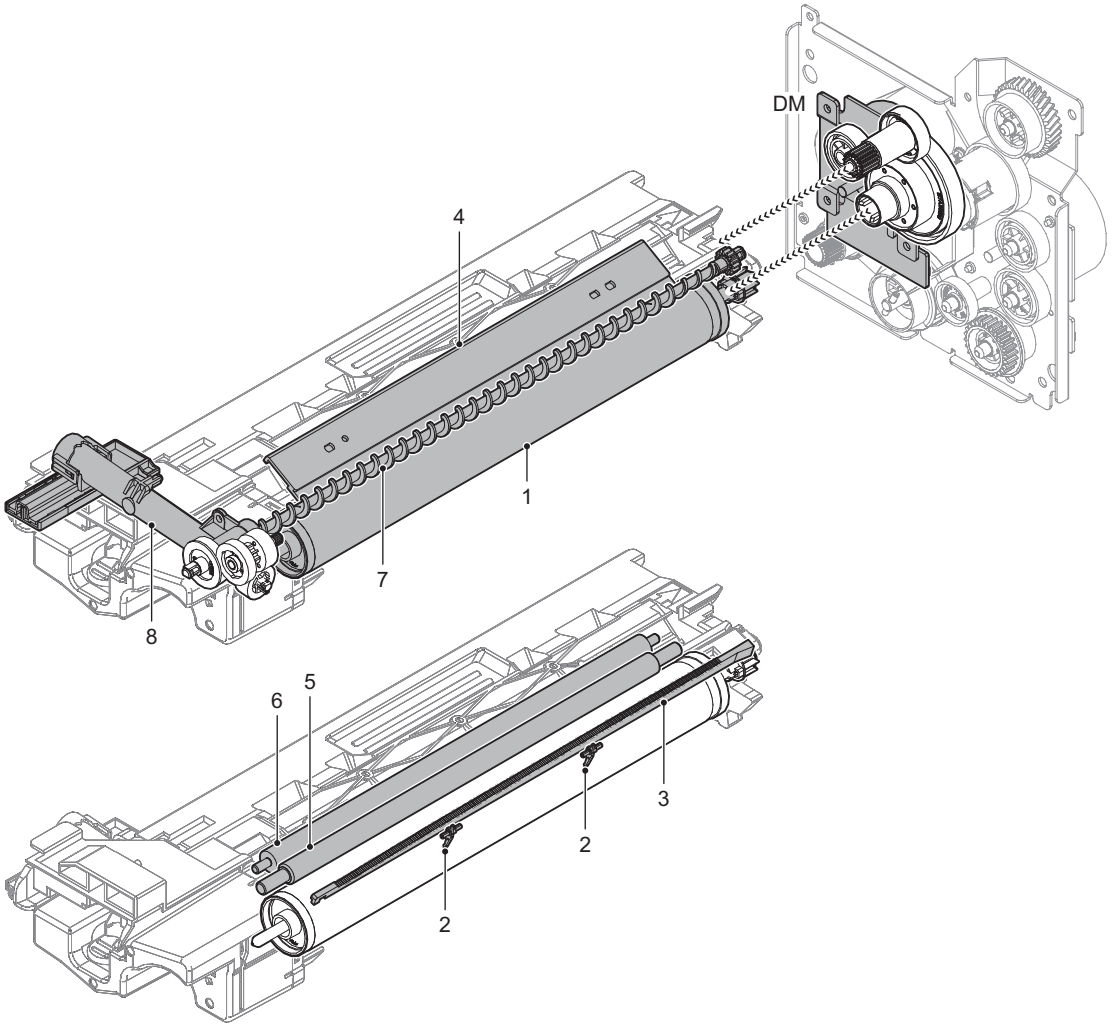
the paper guide, and goes to ADU section.

The ADU drive rollers which are driven by the Main motor transport the paper to the registration section.

section

8. OPC drum section

A. Mechanism relation diagram



No.	Name	Function and operation
1	OPC drum	Latent electrostatic images are formed.
2	Drum separation pawl	Separates paper from the OPC drum.
3	DCH lens	Discharges electric charges on the OPC drum.
4	Cleaning blade	Cleans remaining toner on the OPC drum.
5	MC roller	Applies a high voltage to charge the OPC drum.
6	Cleaning roller	Clean the MC roller with a cleaning roller.
7	Waste toner transport screw	Waste toner on the OPC drum is transported to the waste toner box.
8	Waste toner transport pipe	Transports toner from the cleaner section to the waste toner box in the toner cartridge front section.

Signal name	Name	Function and operation
DM	Drum motor	Drives the Drum unit and DV unit.

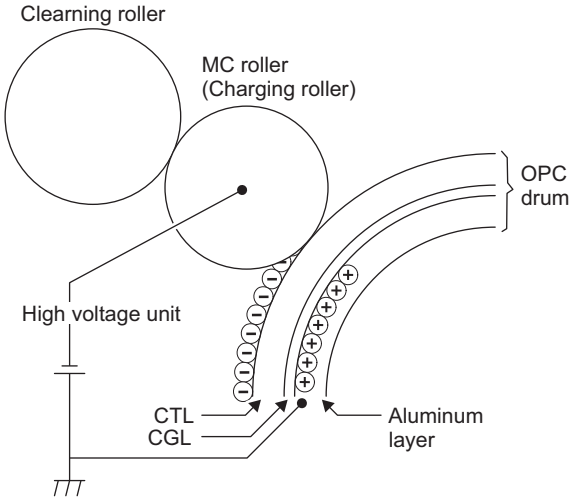
B. Operational descriptions

The OPC drum surface is negatively charged by the contact type charging roller.

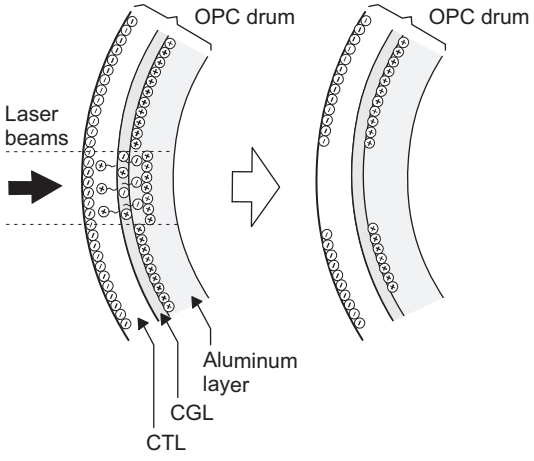
The laser beam images are radiated to the OPC drum surface by the laser (writing) unit to form latent electrostatic images.

1) The OPC drum surface is negatively charged by the contact type charging roller.

   Clean the charging roller with a cleaning roller.



2) Laser lights are radiated to the OPC drum surface by the laser (writing) unit to form latent electrostatic images.



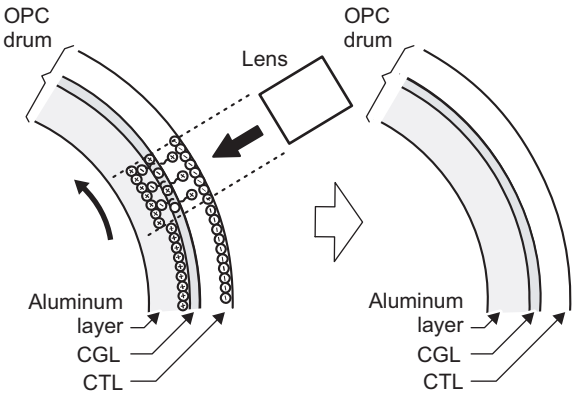
   When laser lights are radiated to the OPC drum CGL, negative and positive charges are generated.

   Positive charges generated on the CGL are attracted by the negative charges on the OPC drum surface. On the other hand, negative charges are attracted by the 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 lights are not radiated. As a result, latent electrostatic images are formed on the OPC drum surface.

3) The whole surface of the OPC drum is discharged.

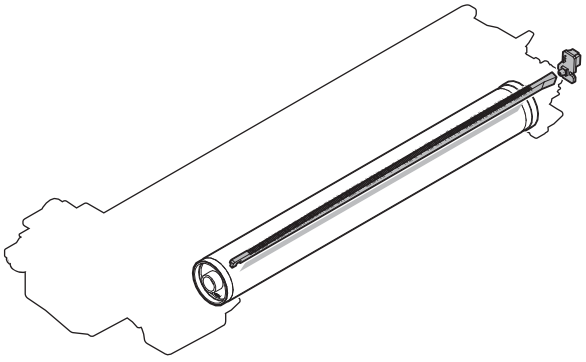


   By radiating the discharge lamp light to the discharge lens, light is radiated through the lens to the OPC drum surface.

   When the discharge lamp light is radiated to the OPC drum CGL, positive and negative charges are generated.

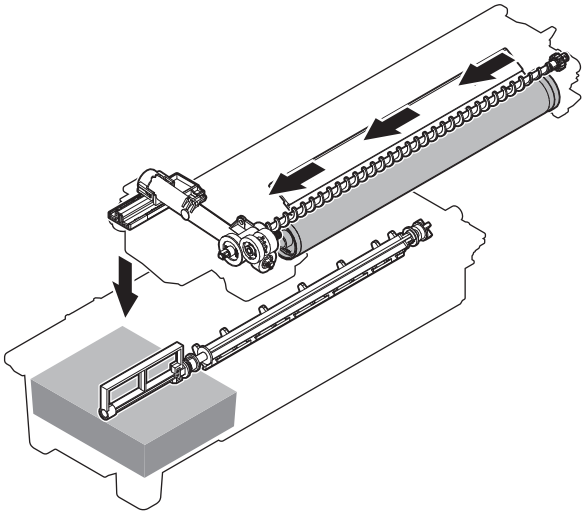
   Positive charges generated in CGL are attracted to the negative charges on the OPC drum surface. On the other hand, negative charges are attracted to positive charges in the aluminum layer of the OPC drum.

   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.



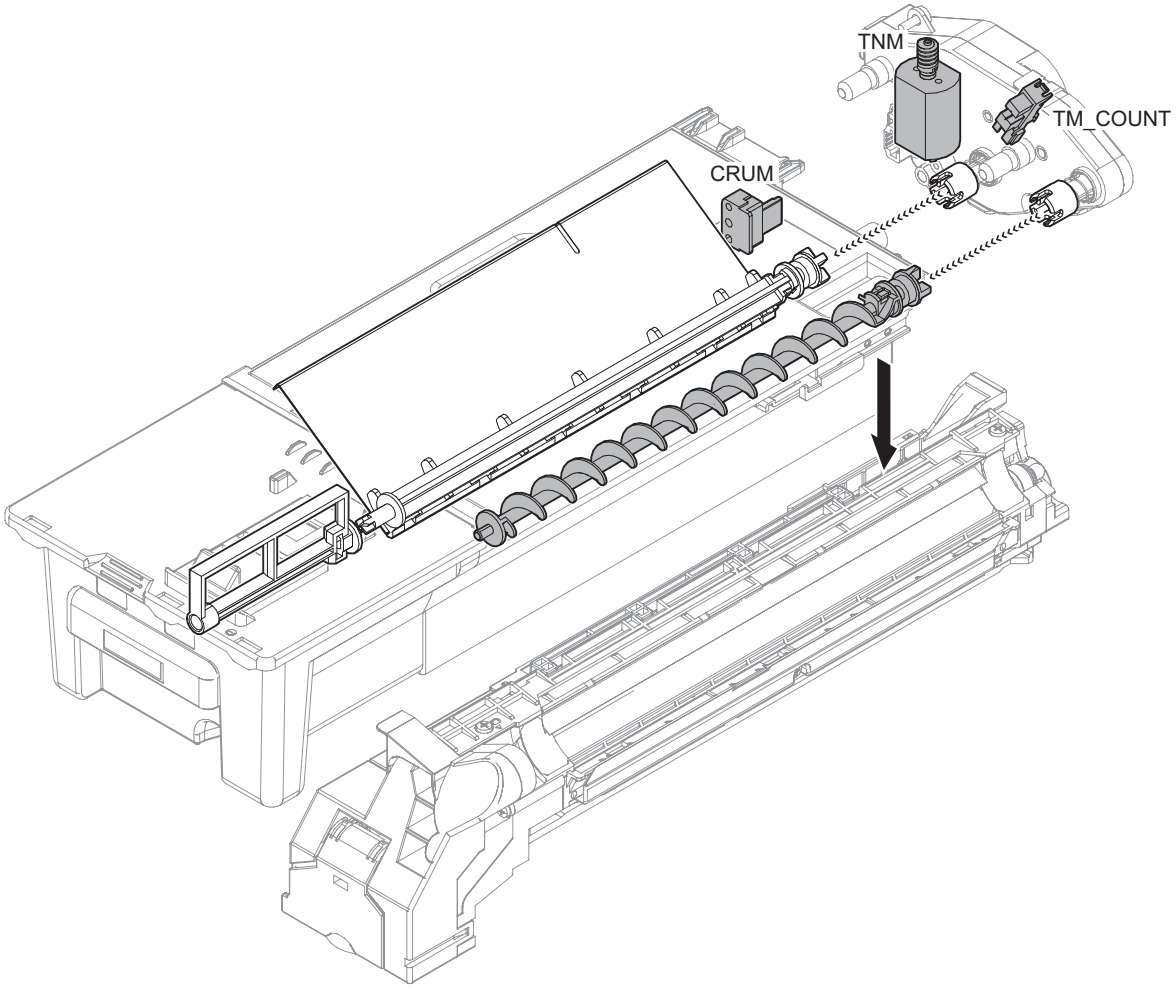
4) After transfer operation, remaining toner is removed by the cleaning blade.

   Toner removed from the OPC drum surface is transported to the waste toner BOX integrated with toner cartridge by the waste toner transport screw.



9. Toner supply section

A. Mechanism relation diagram



Signal name	Name	Function and operation
TNM	Toner motor	Supplies toner from the hopper to the developing unit
TM_COUNT	Toner motor rotation detection sensor	Detects the rotation of the toner motor.
CRUM	CRUM	Saves various data of the toner cartridge.

B. Operational descriptions

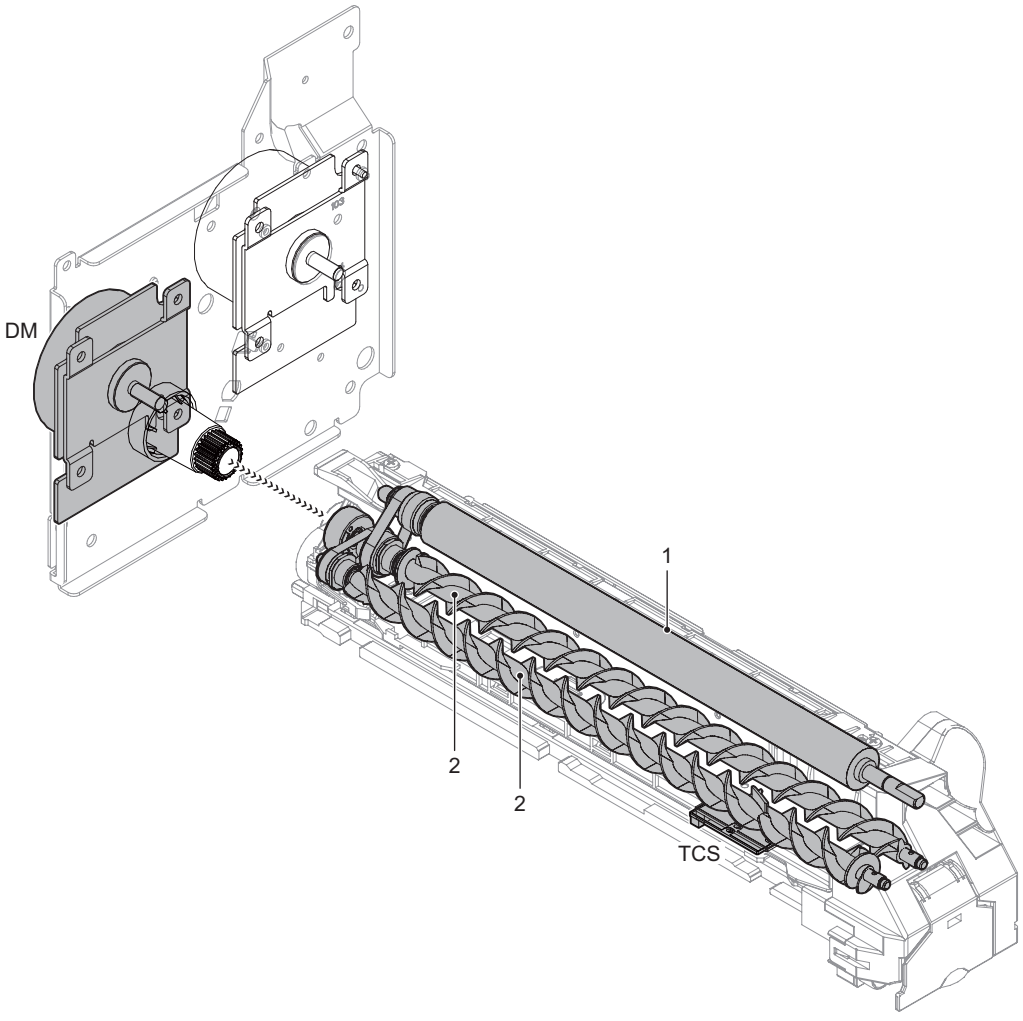
Based on the print pixel count and the process control information, Yes/No of toner supply is judged.

When it is judged that the toner density is decreasing, the toner motor is rotated to supply toner in the toner cartridge through the toner transport screw and the toner transfer pipe to the developing unit.

In addition, trouble detection of the toner replenishment operation is performed by looking at the output of the toner motor rotation detection sensor (TM_COUNT).

10. Developing section

A. Mechanism relation diagram

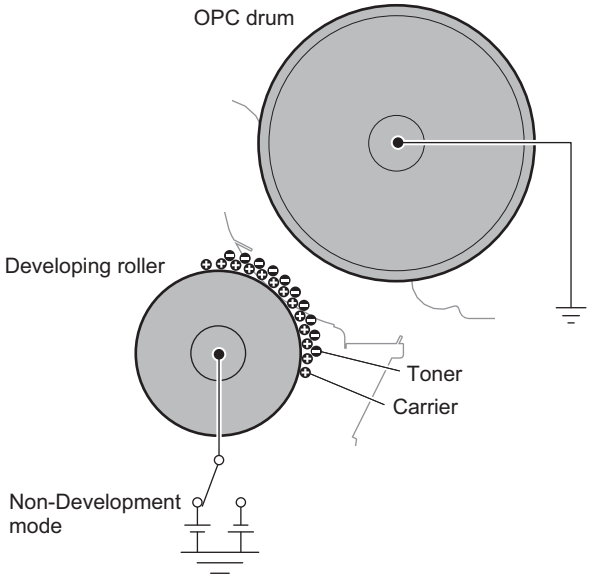


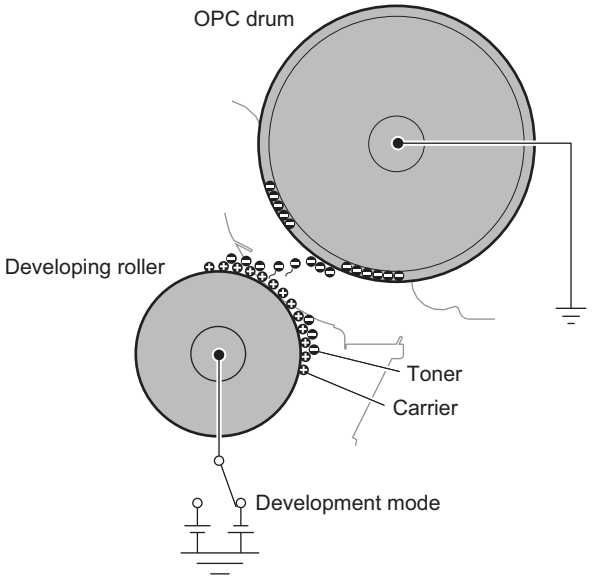
Signal name	Name	Function and operation
DM	Drum motor	Drives the Drum unit and DV unit.
TCS	Toner sensor	Detects the toner density in the developing unit.

No.	Name	Function and operation
1	Developing roller	Forms electrostatic latent images on the OPC drum into visible images.
2	Stirring roller	Stirring roller Stirs toner and developer to charge toner negatively by friction.

B. Operational descriptions

Electrostatic latent images formed on the OPC drum surface by the laser (writing) unit (laser image beams) are converted into visible images by toner.





Toner and carrier in the developing unit are agitated and transported by the mixing roller.

By stirring, toner and carrier are negatively charged by mechanical friction.

The developing bias voltage (negatively charged) 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 the developing bias.

If the OPC drum is not exposed, the negative potential is higher than the developing bias voltage, and toner is not attracted.

Time and stopping the OPC drum rotation start, there is the area where the OPC is not negatively charged. A positive voltage is applied to it so that toner is not attracted.

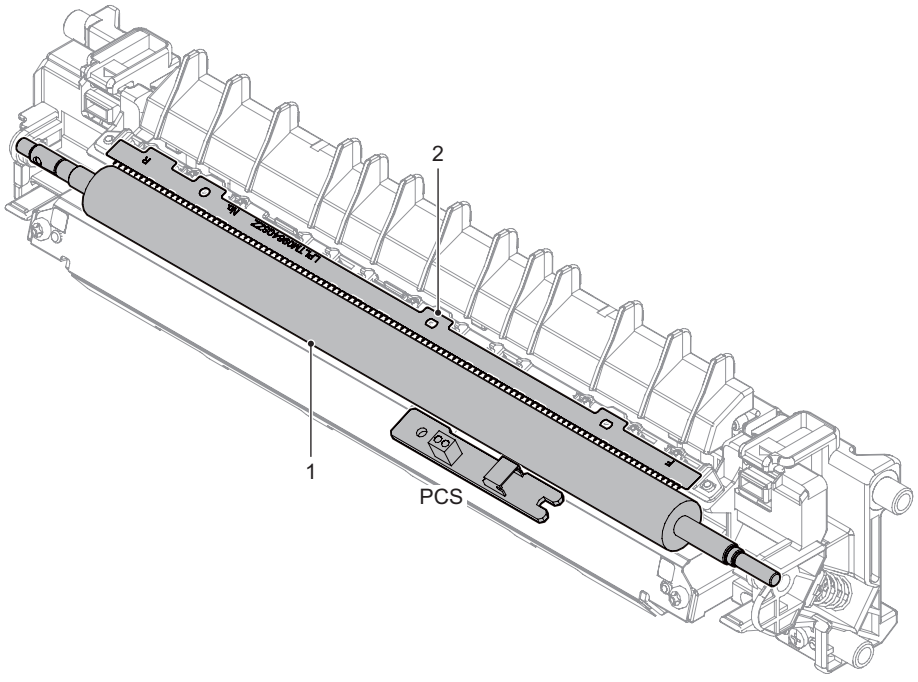
The toner sensor detects the toner supply state from the toner cartridge.

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. Mechanism relation diagram



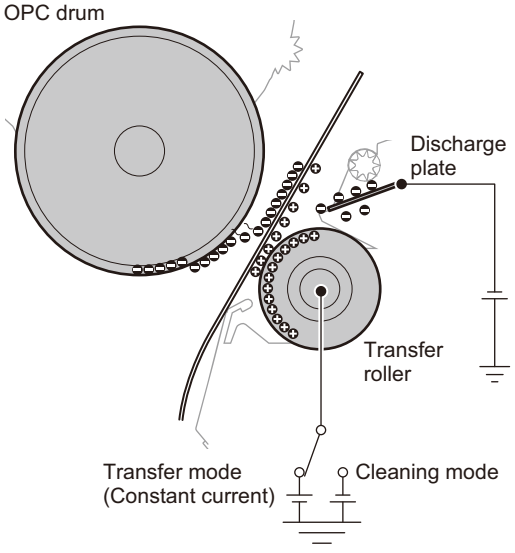
Signal name	Name	Function and Operation
PCS	Image density sensor	Detects the toner patch density on the OPC drum in process control.

No.	Name	Function and Operation
1	Transfer roller	Transfers toner images from the OPC drum surface to paper.
2	Discharge plate	Apply the negative voltage to the paper which the positive voltage is to and discharge the paper.

B. Operational descriptions

(1) Transfer operation

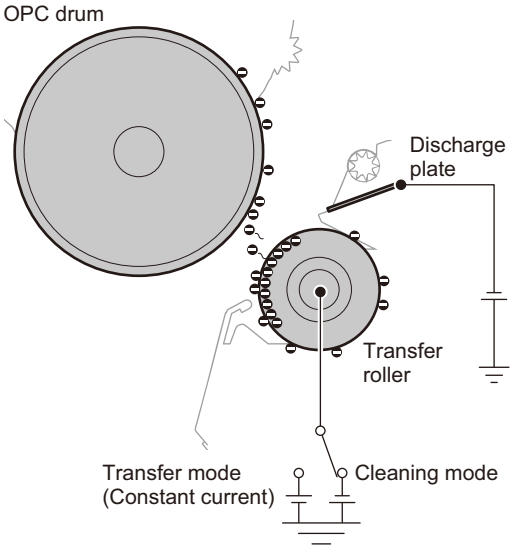
A positive high voltage is applied to the transfer roller to transfer the toner images from the OPC drum to paper.



(2) Cleaning operation

The unnecessary toner on the transfer roller is moved to the photo conductor by changing the polar character of the transfer roller to the negative high voltage type.

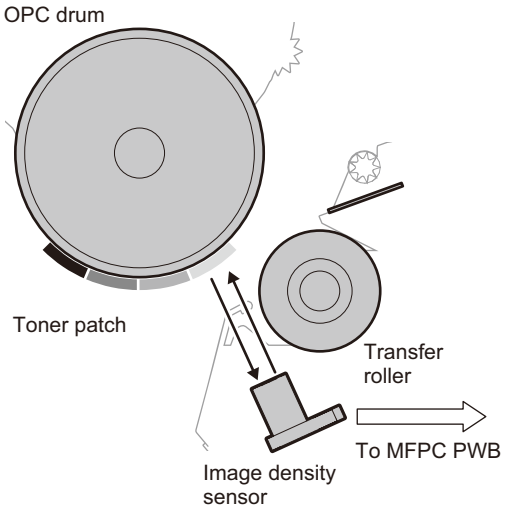
Then, the unnecessary toner is transported to the waste toner section by the cleaning blade of the photo conductor.



(3) Toner patch density detection in the process control

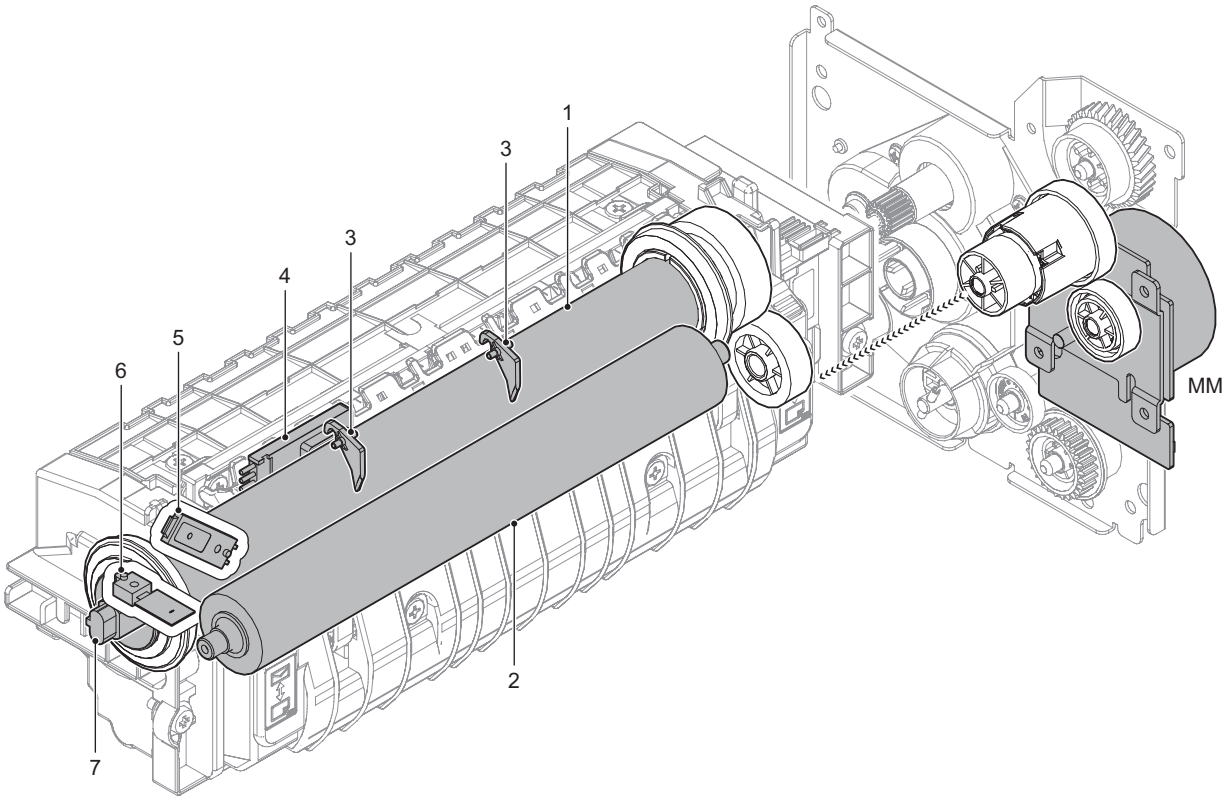
In the process control, the toner patch density on the OPC drum is detected with the image density sensor.

In addition, the sensitivity of the image density sensor is automatically performed by using reflection on the OPC drum surface.



12. Fusing section

A. Mechanism relation diagram



No.	Name	Function and Operation
1	Fusing roller	This roller adheres toner onto a paper.
2	Pressure roller	This roller applies pressure to fuse toner onto a paper.
3	Separation pawl	Mechanically separates paper which was not naturally separated from the fusing roller.
4	Non-contact thermistor	Detects the surface temperature at the center of the fusing roller
5	Fusing thermistor US (Upper Sub)	Detects the surface temperature at the edge section of the fusing roller
6	Fusing thermistor US2 (Upper Sub2)	Detects the surface temperature at the edge section of the fusing roller
7	Heater lamp	Heats the fusing roller

Signal name	Name	Function and operation
MM	Main motor	Main drive

B. Operational descriptions

(1) Overview

This machine employs the 2 roller fusing system by the fusing roller (hard roller) and pressure roller (soft roller).

Due to sponge pressure roller (lower heat capacity) and higher lamp efficiency, Shortening the warm-up time, and improving energy-saving performance.

In this system, optimization of fixing control and peeling nail,

Cleaning-less is realized by adopting a non-contact thermistor in the paper passing part.

(2) Heater lamp drive

The surface temperature of the heat roller detected by the thermistor is sent to the PCU. When the temperature is lower than the specified level, the heater lamp ON signal is sent from the PCU to the heater lamp drive circuit on the HL PWB.

The power triac in the heater lamp drive circuit is turned on, and the AC power is supplied to the heater lamp, lighting the lamp and heating the heat roller.

To prepare for an abnormally high temperature of the heat roller, the thermostat is provided for safety.

When the thermostat is opened, the power supply (AC line) to the heater lamp is cut off.

A heater lamp is arranged on the fixing roller.

Heater lamp (HL_UM / US) are two of the lamp has become an integral structure.

Heater lamp operation

Heater lamp	Operation
Heater lamp (HL_UM)	Heats fusing roller
Heater lamp (HL_US)	Heats fusing roller

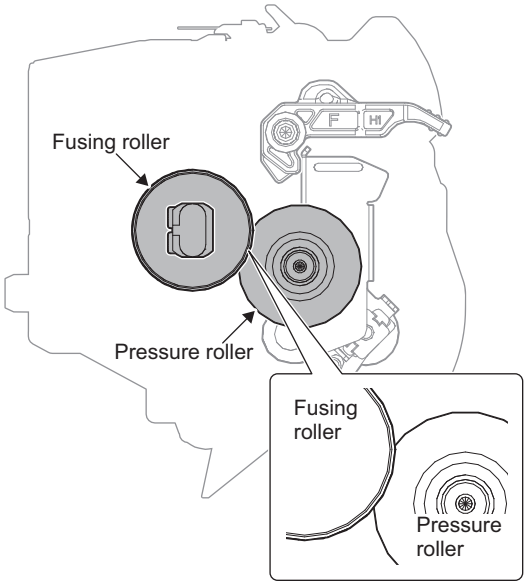
(3) Fusing operation

Toner on paper is heated and pressed to be fused by the heat roller.

The fusing heat roller (heating) is provided with three/two heater lamps, which heat the fusing roller to fuse toner onto paper.

The fusing roller and pressure roller which is provided with the sponge layer realize the following operations.

1) The nip quantity is increased to increase heat capacity for paper.
2) By pressing paper with the flexible roller, toner is fused without deformation.



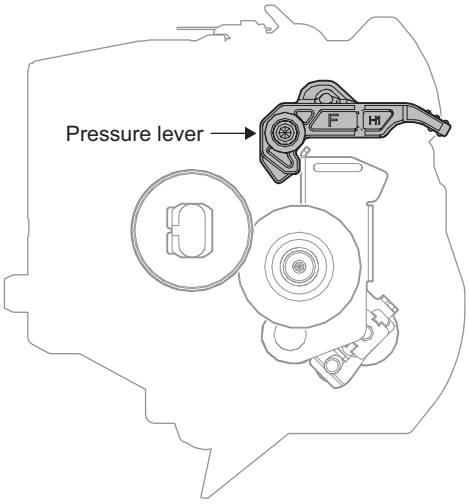
(4) Manual pressure release

Normally, the fixing roller and the pressure roller are in a pressurized state.

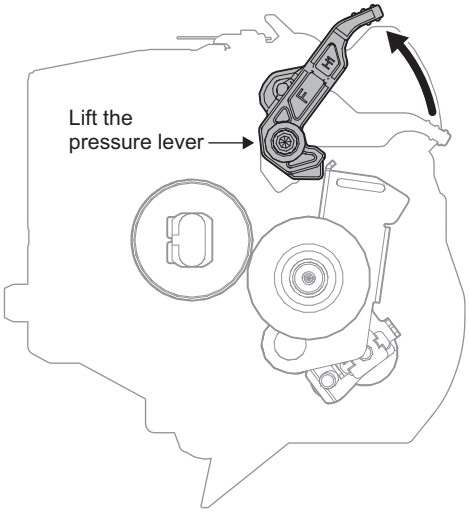
When the following conditions are satisfied, it is necessary to release the pressurization by pressing levers of F and R.

- Envelope mode

a. Pressure state

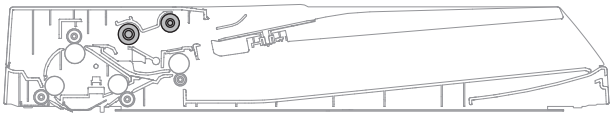


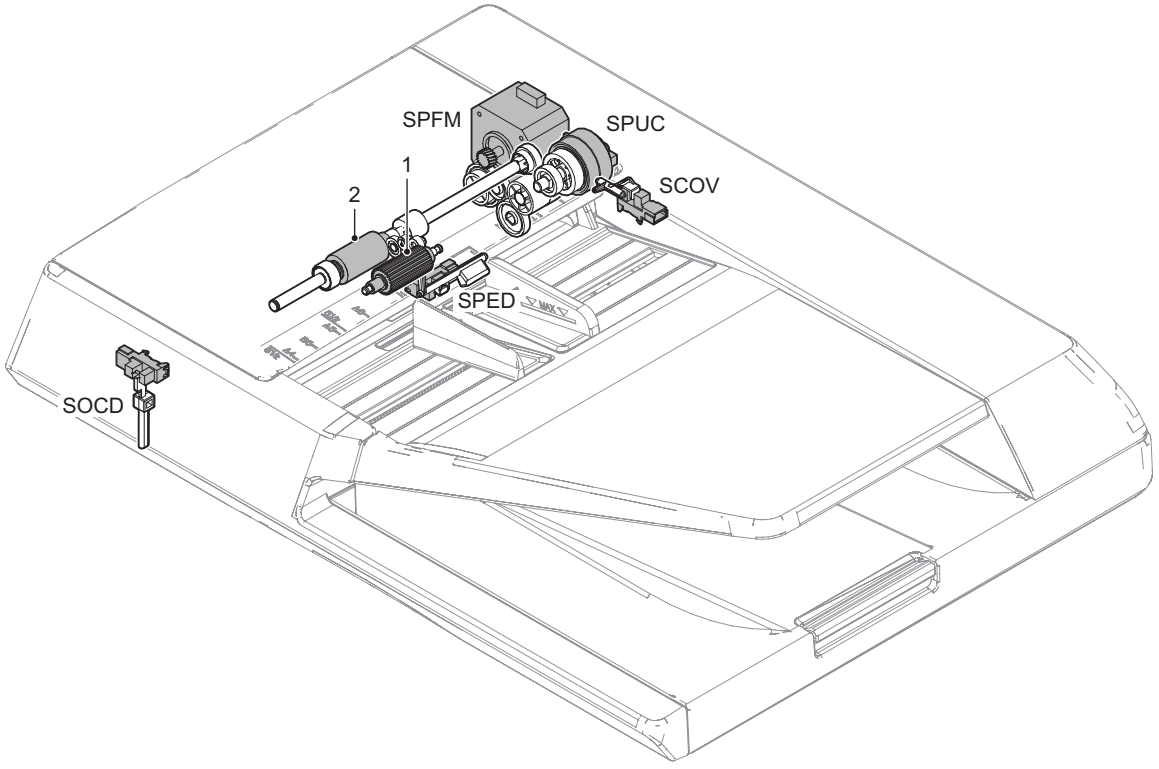
b. Pressure release state



13. RSPF section

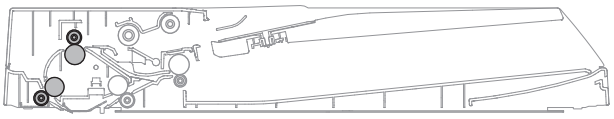
A. Mechanism relation diagram

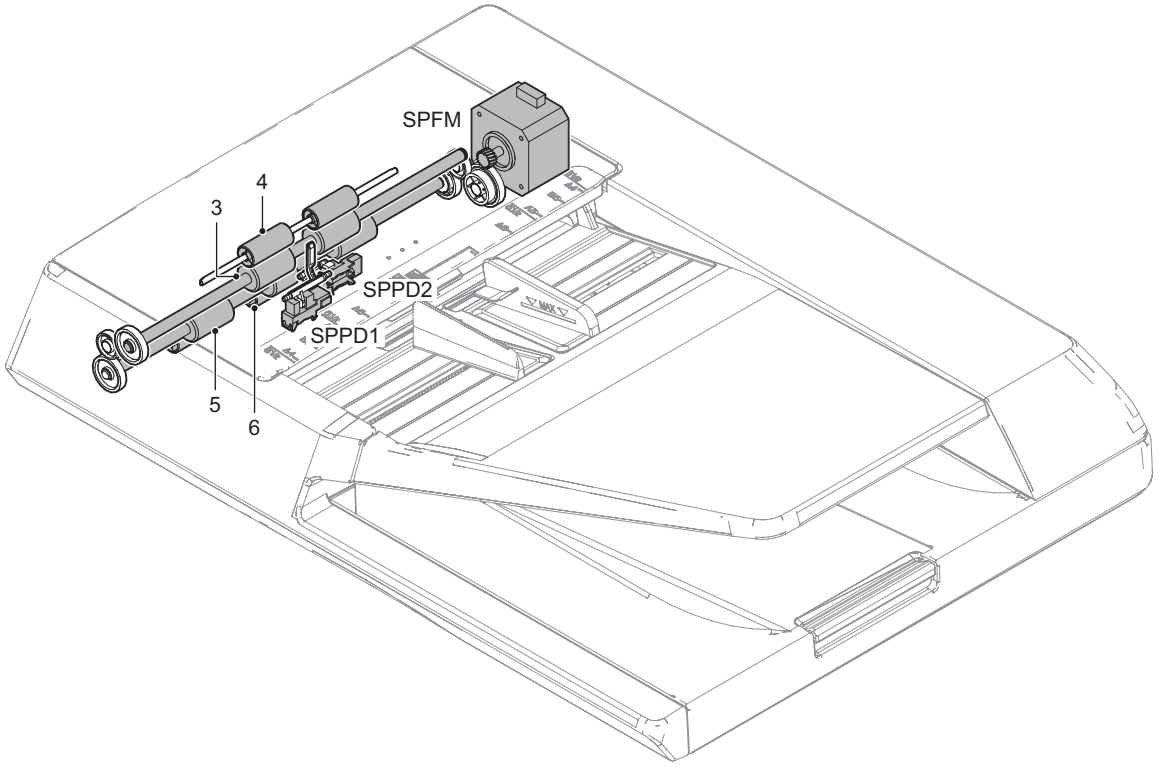




Signal name	Name	Function and Operation
SCOV	RSPF cover open/close sensor	Detects open/close of the RSPF cover
SOCD	RSPF UNIT open/close sensor	Detects open/close of the RSPF unit
SPED	Document tray empty sensor	Detects document empty in the RSPF paper feed tray
SPFM	RSPF transport motor	Transports a document
SPUC	Paper feed clutch	Controls ON/OFF of the pickup and separation roller

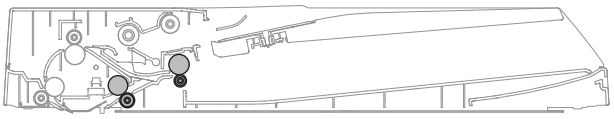
No.	Name	Function and Operation
1	Pickup roller	Feeds a document to the paper feed roller.
2	Separation roller	Separates a document to prevent double-feeding.

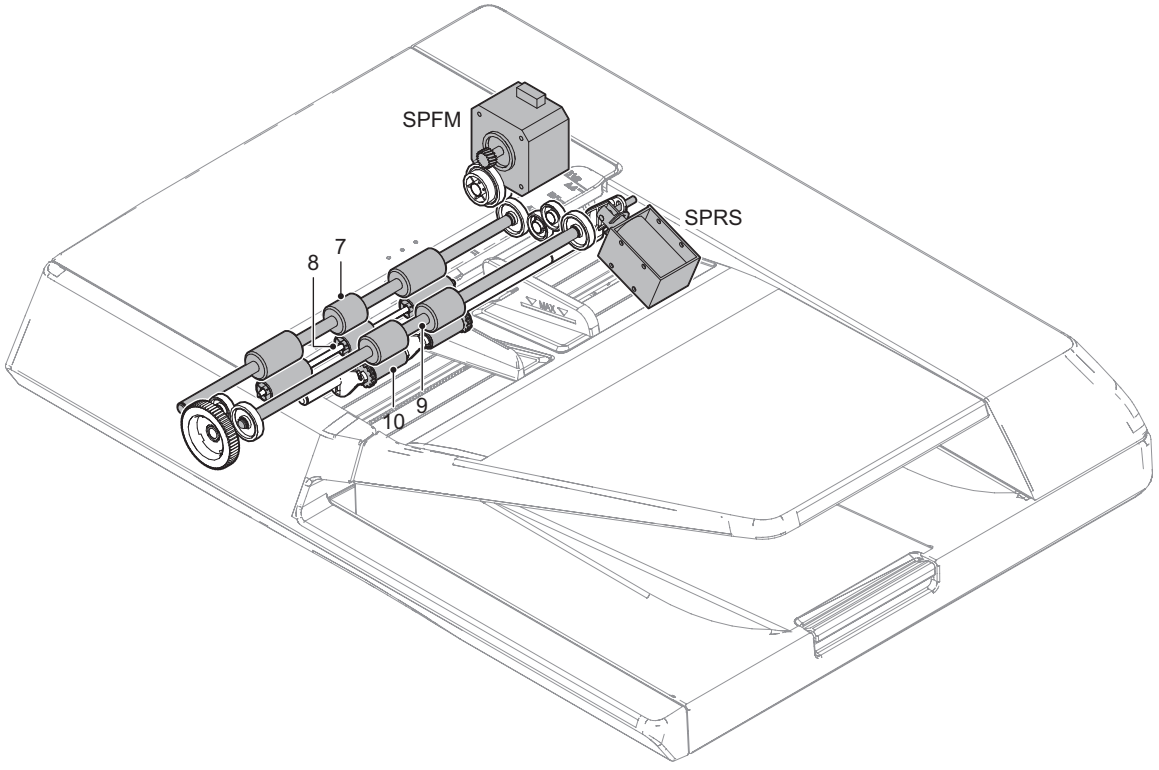




Signal name	Name	Function and Operation
SPFM	RSPF transport motor	Transports a document
SPPD1	Document pass sensor 1	Detects paper feed and the document length.
SPPD2	Document pass sensor 2	Detects paper pass

No.	Name	Function and Operation
3	Registration roller (Drive)	Transports a document to the Before reading roller. / Controls the transport timing of the document and adjusts the document scanning timing.
4	Registration roller (Idle)	Apply a pressure to a document and the registration roller to provide the transport power of the transport roller to the document.
5	Before reading roller (Drive)	Transports a document transported from the registration roller to the document scanning section.
6	Before reading roller (Idle)	Apply a pressure to a document and the transport roller to provide the transport power of the transport roller to the document.





Signal name	Name	Function and Operation
SPFM	RSPF transport motor	Transports a document
SPRS	Paper exit roller solenoid	Controls ON/OFF of the power of the paper exit roller

No.	Name	Function and Operation
7	After reading roller (Drive)	Transports a document transported from the document scanning section to the paper exit roller.
8	After reading roller (Idle)	Apply a pressure to a document and the transport roller to provide the transport power of the transport roller to the document.
9	Exit roller (Drive)	Discharges a document. Switchbacks the document and transports it to the registration roller when scanning the back surface.
10	Exit roller (Idle)	Apply a pressure to a document and the paper exit roller to provide the transport power of the paper exit roller to the document.

B. Operational descriptions

(1) Paper feed and transport operations

a. Paper feed operation

The transport motor is turned ON and the power of the transport motor is transmitted to the pickup roller by turning ON the paper feed clutch.

The pickup roller descends to pickup the top document and feed it to the paper feed roller.

The paper feed roller feeds a document to the transport section.

At that time, the document is separated by the separation sheet to prevent double-feeding.

b. Single face scanning

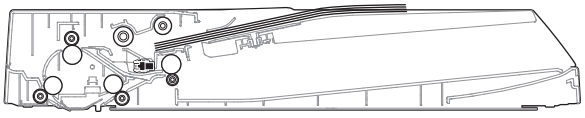
The fed document is passed through the registration roller and transport roller 1 to the document

scanning section, where images are scanned.

Then the document is passed through transport roller 2 to the paper exit roller.

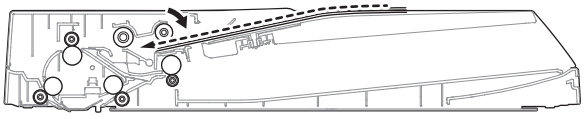
The rollers (the registration roller, transport rollers 1 and 2, the paper exit roller) in the transport section are driven by the transport motor.

1) Document set (Document empty sensor ON)

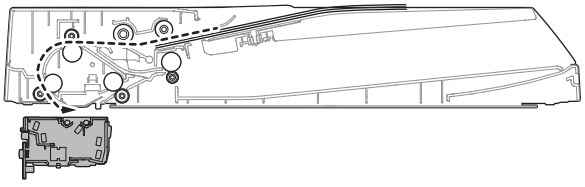


2) Paper feed start (1st sheet)

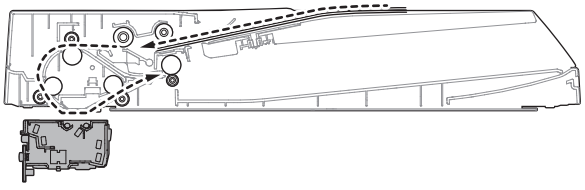
The pick-up roller descends. (The transport motor is booted. And the paper feed clutch is ON.)



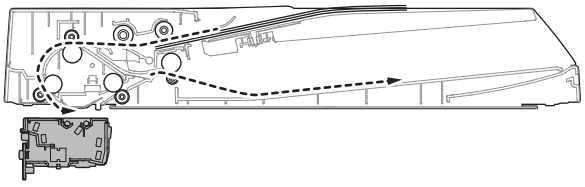
3) Scanning start (1st sheet)



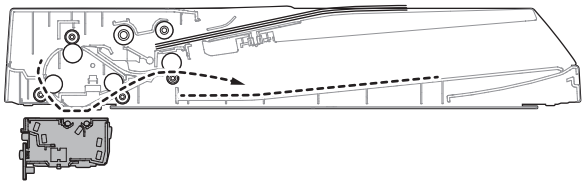
4) Paper feed start (2nd sheet)



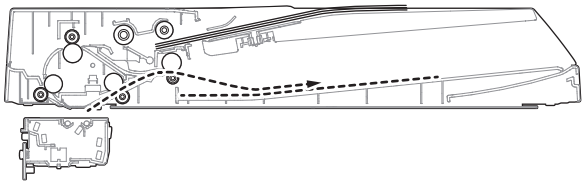
5) Scanning start (2nd sheet)



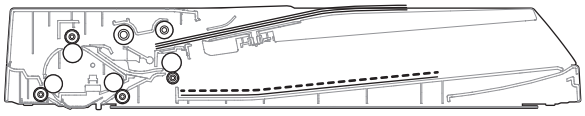
6) Paper exit complete (1st sheet)



7) Scanning complete (2nd sheet)

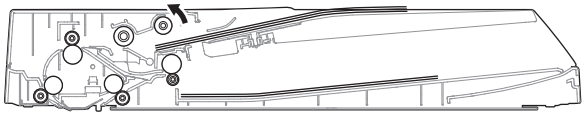


8) Paper exit complete (2nd sheet)



9) Pick-up roller lifting up

(After completion of a job, the paper feed clutch is ON, then, the paper exit motor is rotated reversely at a low speed for a certain time to lift the pickup roller.)



c. Duplex scanning

Images on the document surface are scanned, and detection of the rear edge of the document by sensor SPPD2 triggers the following.

That is, when the rear edge of the document passes the reverse gate, the transport motor is reversed.

Due to the above operation, the paper exit roller is reversed to switchback the document, returning it to the registration roller section and aligning (registration) the document.

Then the transport motor is rotated normally to transport the document to the scanning section, scanning images on the back surface.

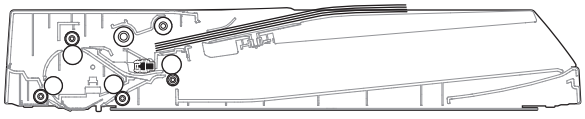
To reset the page order of the documents, the following operations are made which are triggered by the detection of the rear edge of the document.

That is, when the rear edge of the document passes the reverse gate, the transport motor is reversed.

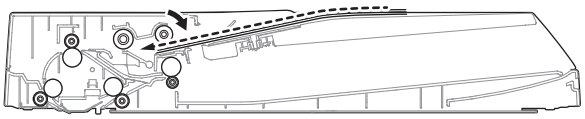
Due to the above operation, the paper exit roller is reversed to switchback the document, returning it to the registration roller section and aligning (registration) the document.

Then the transport motor is rotated normally to transport the document to the paper exit section and discharge it.

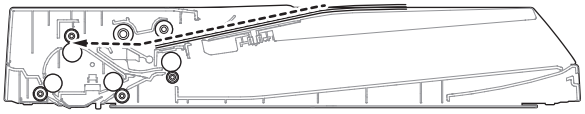
1) Document set (Document empty sensor ON)



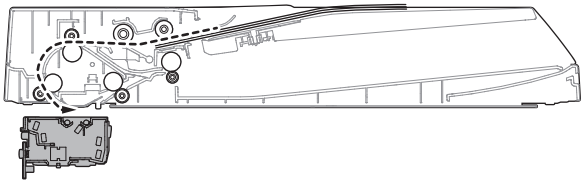
2) Paper feed start (1st sheet)
Pick-up roller descending



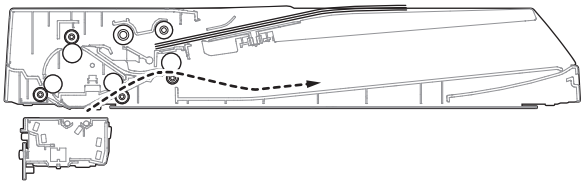
3) Registration operation (1st sheet, front surface)



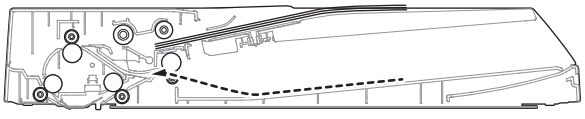
4) Scanning start (1st sheet, front surface)



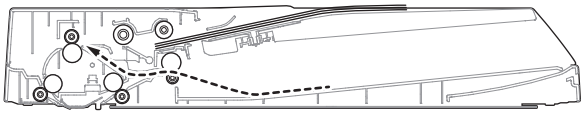
5) Scanning complete (1st sheet, front surface)



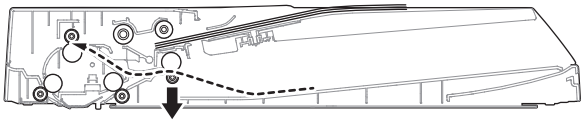
6) After passing through the inverse gate, reversing is started.



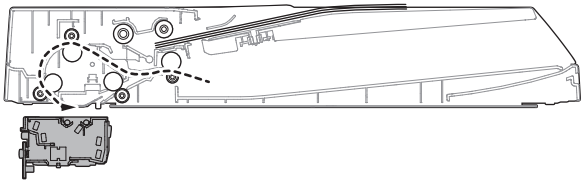
7) After reversing, registration operation is executed.



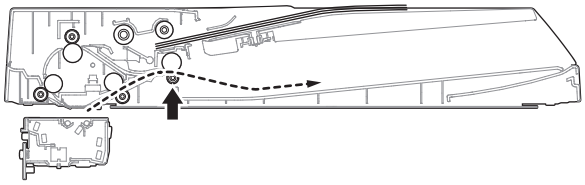
8) Motor start (forward rotation), the solenoid ON, the reverse follower roller pressure is released.



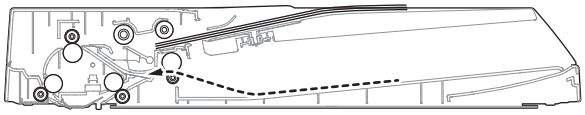
9) Scanning start (First sheet, back surface)



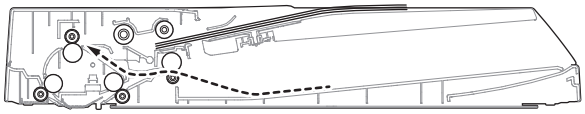
10) After completion of scanning, the solenoid OFF, the reverse follower roller is pressed.



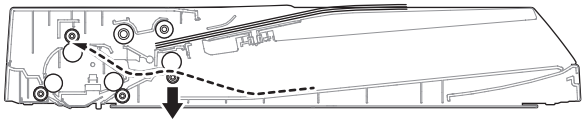
11) After passing through the inverse gate, reversing is started.



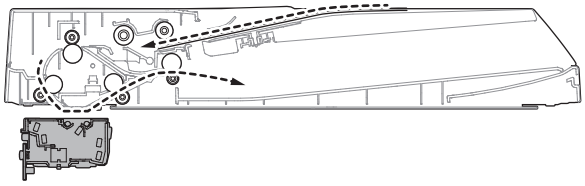
12) After reversing, registration operation is executed.



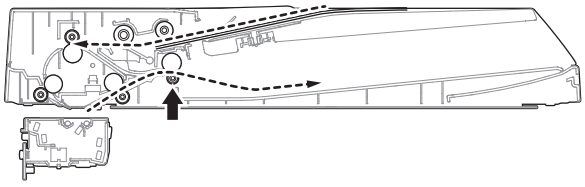
13) Motor start (forward rotation), the solenoid ON, the reverse follower roller pressure is released.



14) Scanning start (Second sheet)

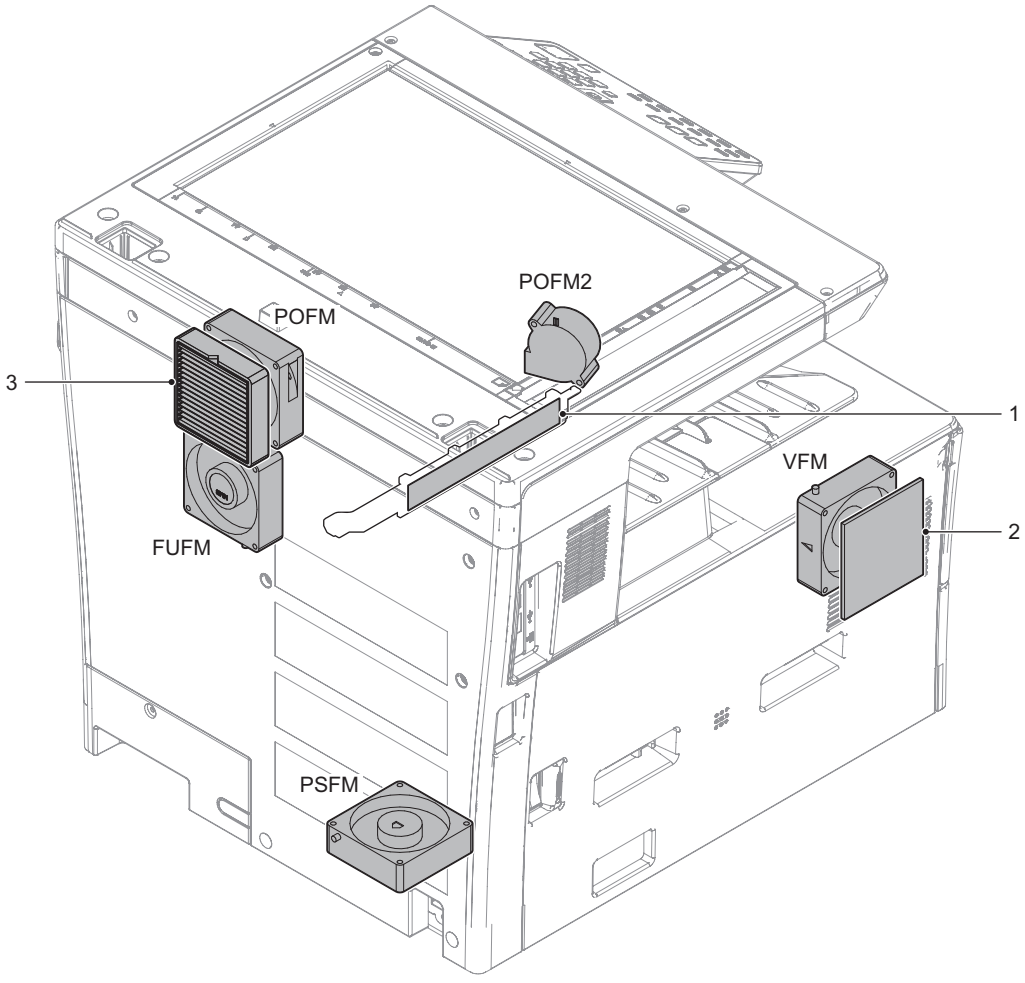


15) After passing the scanning section, the reverse follower roller is pressed.



14. Fan and Filter section

A. Mechanism relation diagram



Signal name	Name	Function and Operation
FUFM	Fusing cooling Fan (Exhaust)	Cools the fusing section
POFM	Paper exit cooling Fan (Exhaust)	Cools the paper exit section
POFM2	Paper cooling Fan (Aspirated)	Cools the paper
PSFM	Power supply cooling Fan	Cools the power unit
VFM	Ventilation Fan (Aspirated)	Cools the inside of the machine

No.	Name	Function and Operation
1	DV filter	Prevents toner splash
2	Intake filter	Prevent the dust from entering inside the machine
3	UFP filter	Absorb UFP generated in the machine. (Europe and Japan only)

B. Operational descriptions

(1) Functions and operations of major parts

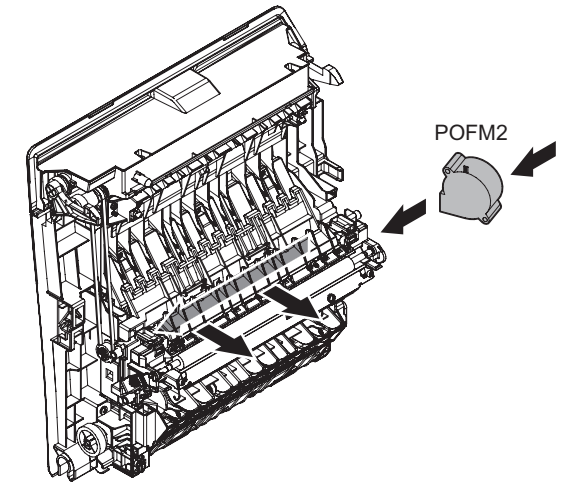
This machine is equipped with the following filter, the function of each filter is as shown in the table below.

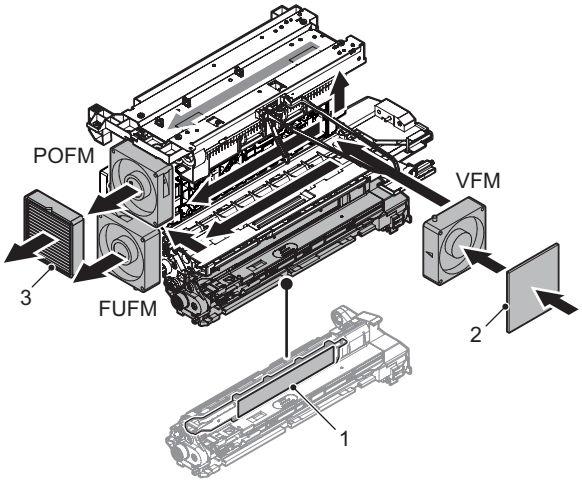
In order to prevent the toner from scattering from the opening of the developing unit, an air pressure difference is generated between the inside and the outside of the developing unit by the air current of the fixing fan, but the DV filter generates a pressure difference Thereby preventing leakage of toner from the slit.

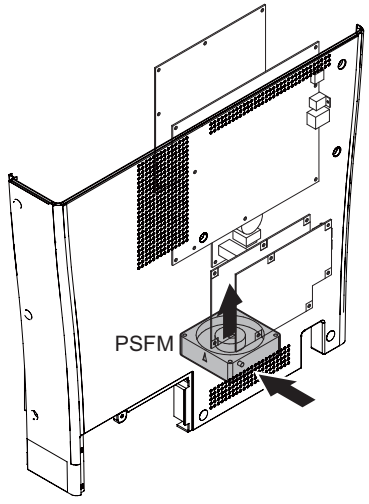
No.	Name	Function and Operation
1	DV filter	Prevents toner splash
2	Intake filter	Prevent the dust from entering inside the machine
3	UFP filter	Absorb UFP generated in the machine (For Europe and Japan only)

(2) Air flow chart

The air current is as shown below.



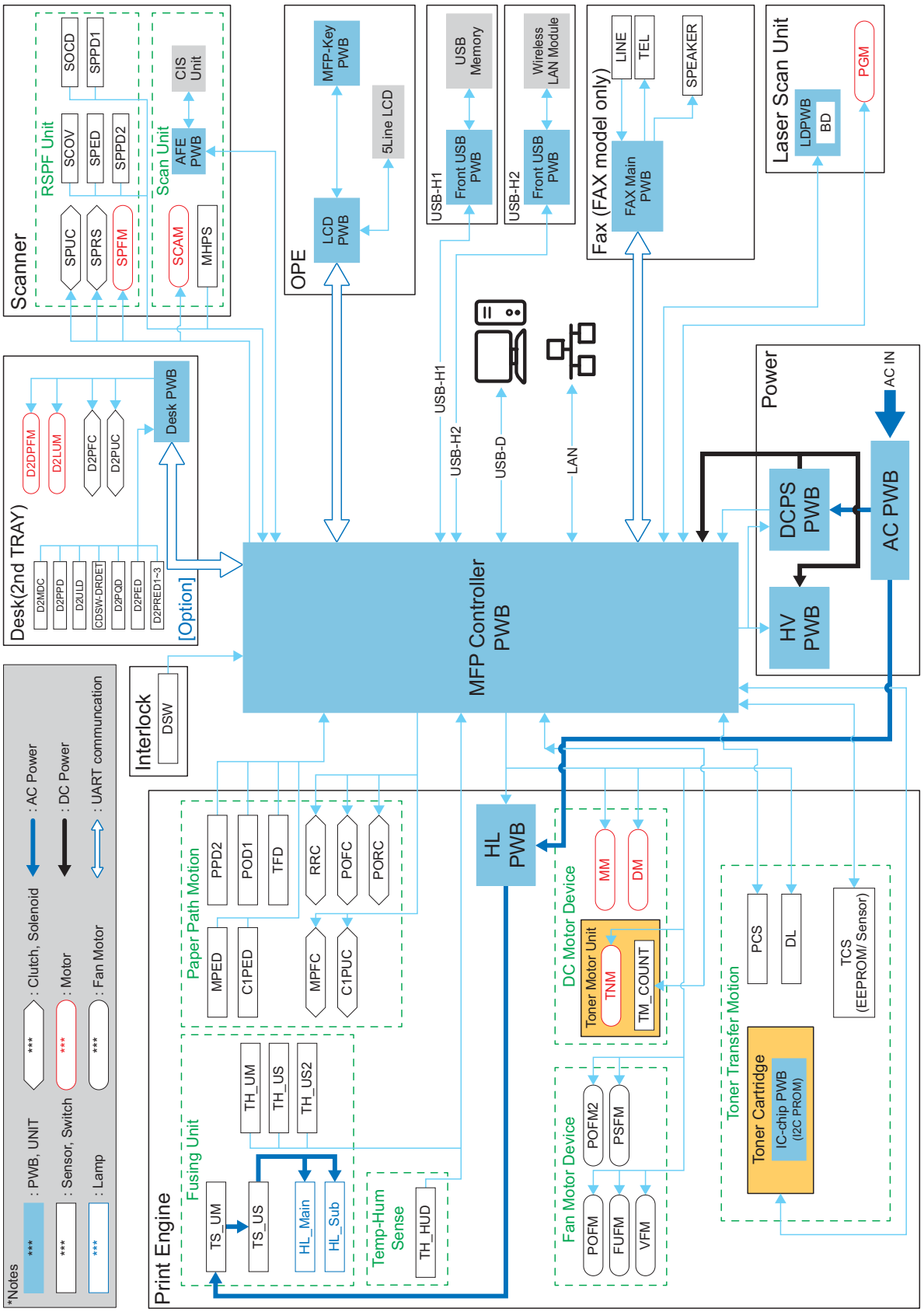




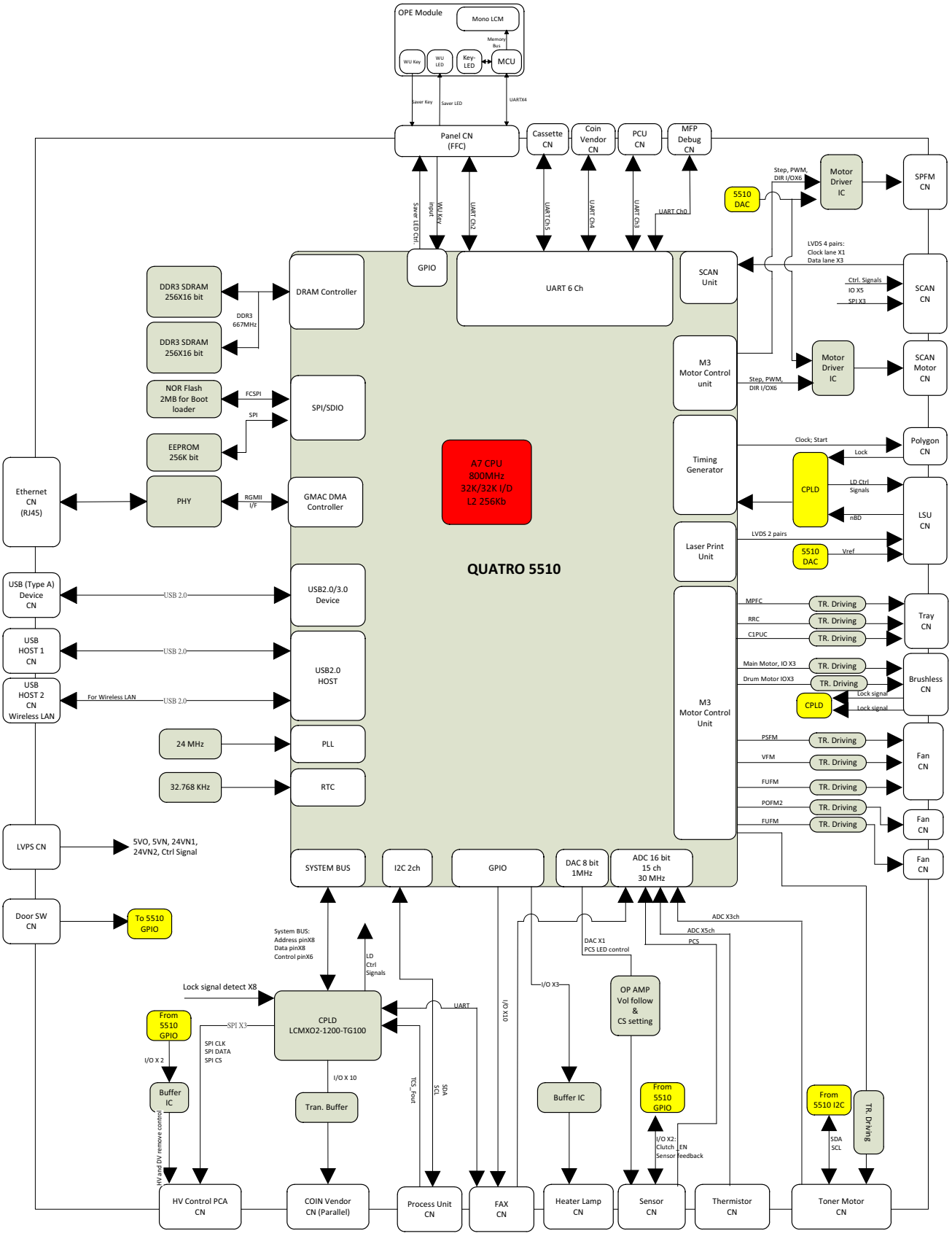
[12] ELECTRICAL SECTION

1. Block diagram

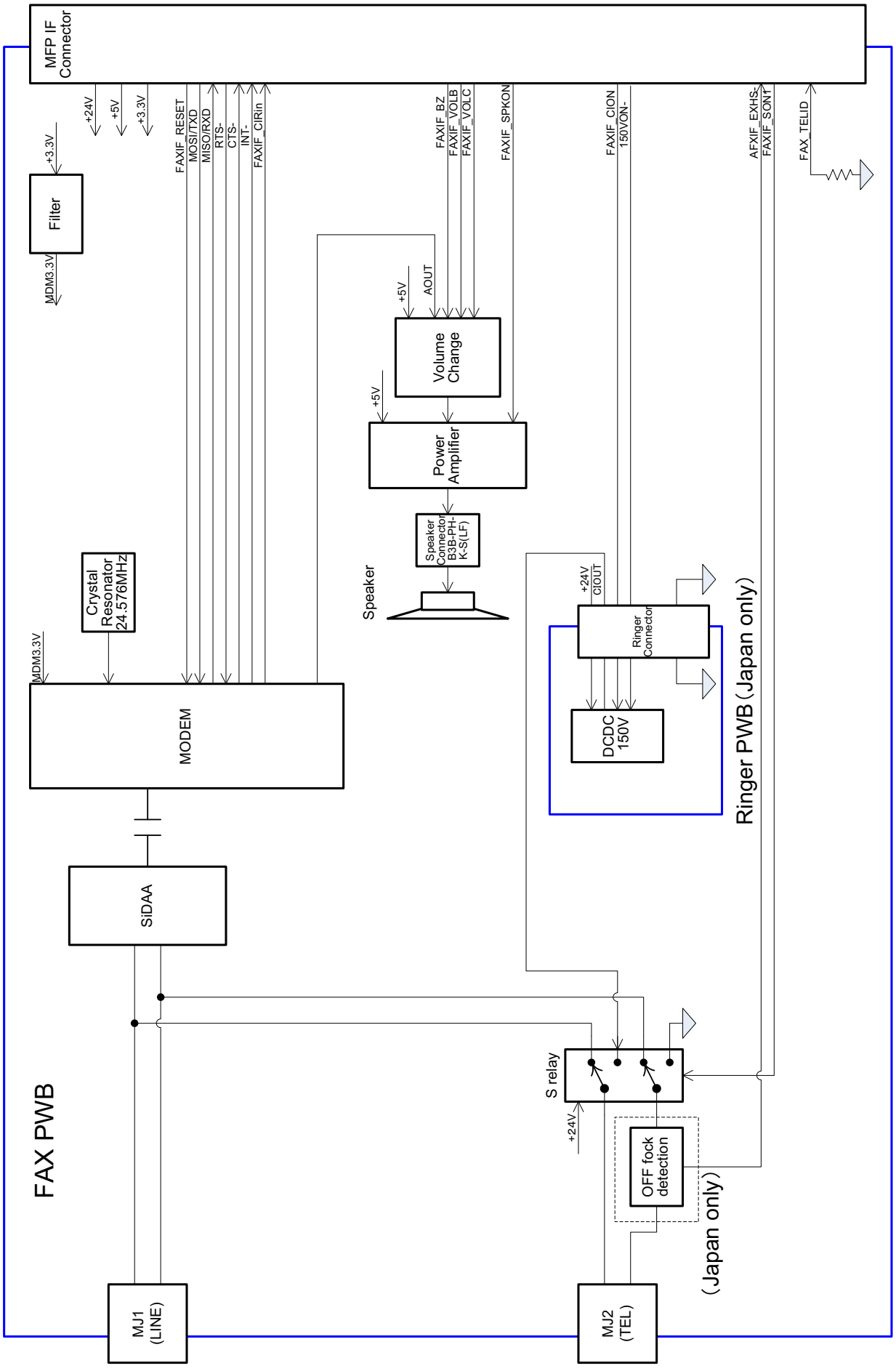
A. SYSTEM BLOCK DIAGRAM



B. MFPc PWB

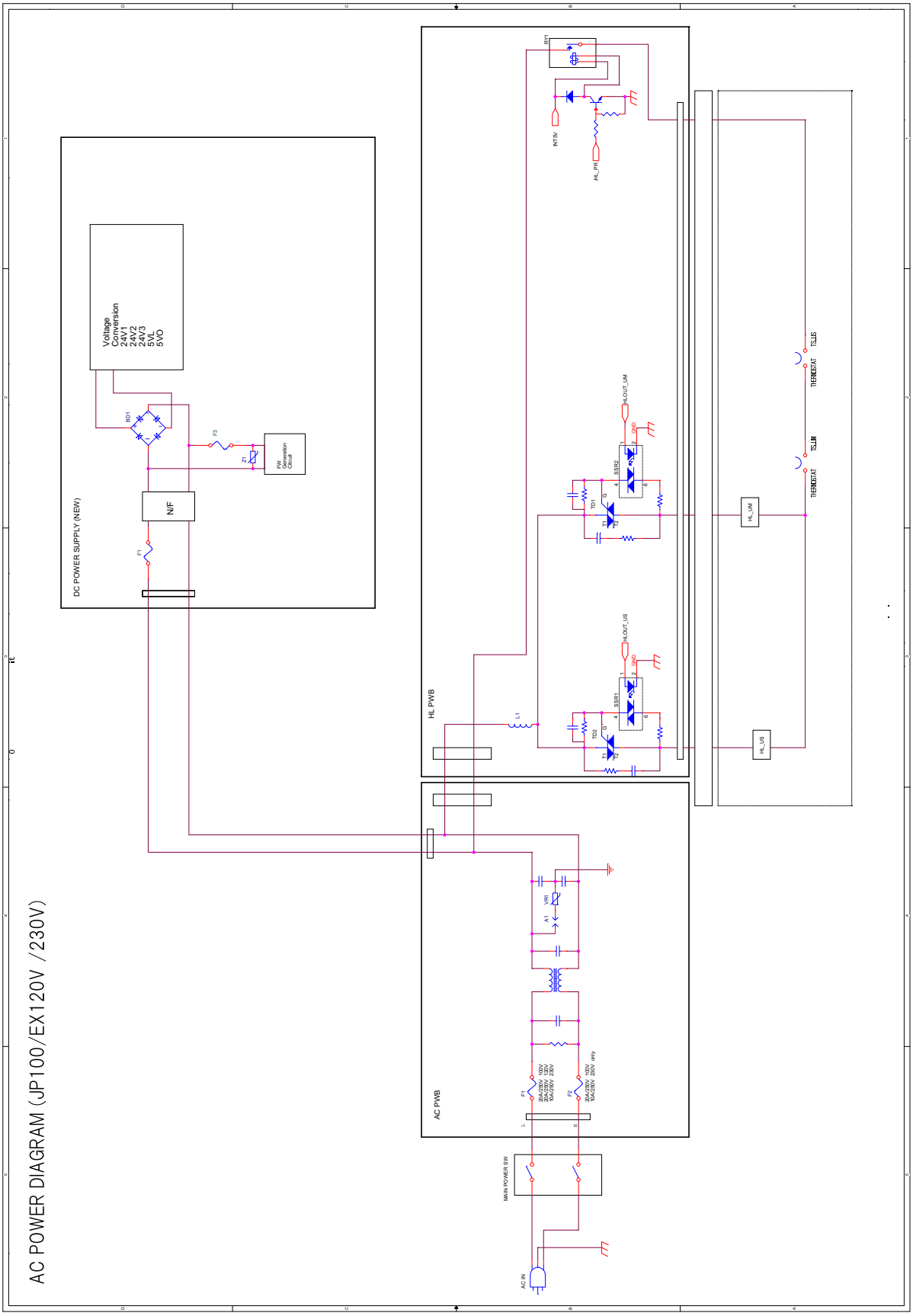

OPE Module
Mono LCM
Memory Bus
WU Key
WU LED
Key-LED
MCU
Saver Key
Saver LED
UARTX4
Panel CN (FFC)
Cassette CN
Coin Vendor CN
PCU CN
MFP Debug CN
Saver LED Ctrl
WU Key Input
UART Ch2
UART Ch5
UART Ch4
UART Ch3
UART Ch0
5510 DAC
Step, PWM, DIR I/OX6
Motor Driver IC
SPFM CN
LVDS 4 pairs: Clock lane X1 Data lane X3
Ctrl. Signals IO X5 SPI X3
SCAN CN
SCAN Motor CN
GPIO
UART 6 Ch
SCAN Unit
M3 Motor Control unit
DDR3 SDRAM 256X16 bit
DDR3 667MHz
DRAM Controller
NOR Flash 2MB for Boot loader
FCSPI
SPI
SPI/SDIO
EEPROM 256K bit
A7 CPU 800MHz 32K/32K I/D L2 256Kb
Timing Generator
Clock; Start
Lock
Polygon CN
CPLD
LD Ctrl Signals
nBD
LSU CN
Ethernet CN (RJ45)
PHY
RGMII I/F
GMAC DMA Controller
Laser Print Unit
LVDS 2 pairs
Vref
QUATRO 5510
USB (Type A) Device CN
USB 2.0
USB2.0/3.0 Device
USB HOST 1 CN
USB2.0 HOST
USB HOST 2 CN Wireless LAN
For Wireless LAN
24 MHz
PLL
32.768 KHz
RTC
MPFC
RRC
C1PUC
TR. Driving
Tray CN
Main Motor, IO X3
Drum Motor IOX3
Brushless CN
Lock signal
M3 Motor Control Unit
PSFM
VFM
FUFM
POFM2
Fan CN
LVPS CN
5VO, 5VN, 24VN1, 24VN2, Ctrl Signal
SYSTEM BUS
I2C 2ch
GPIO
DAC 8 bit 1MHz
ADC 16 bit 15 ch 30 MHz
Door SW CN
To 5510 GPIO
System BUS: Address pinX8 Data pinX8 Control pinX6
LD Ctrl Signals
ADC X3ch
ADC X5ch
PCS
DAC X1 PCS LED control
Lock signal detect X8
From 5510 GPIO
SPI X3
SPI CLK
SPI DATA
SPI CS
CPLD LCMXO2-1200-TG100
UART
I/O X16
I/O X3
OP AMP Vol follow & CS setting
I/O X 2
I/O X 10
Buffer IC
Tran. Buffer
TCS_Fout
SDA
SCL
Buffer IC
From 5510 GPIO
I/O X2: Clutch_EN Sensor feedback
From 5510 I2C
SDA
SCL
TR. Driving
HV and DV remove control
HV Control PCA CN
COIN Vendor CN (Parallel)
Process Unit CN
FAX CN
Heater Lamp CN
Sensor CN
Thermistor CN
Toner Motor CN

C. FAX SECTION

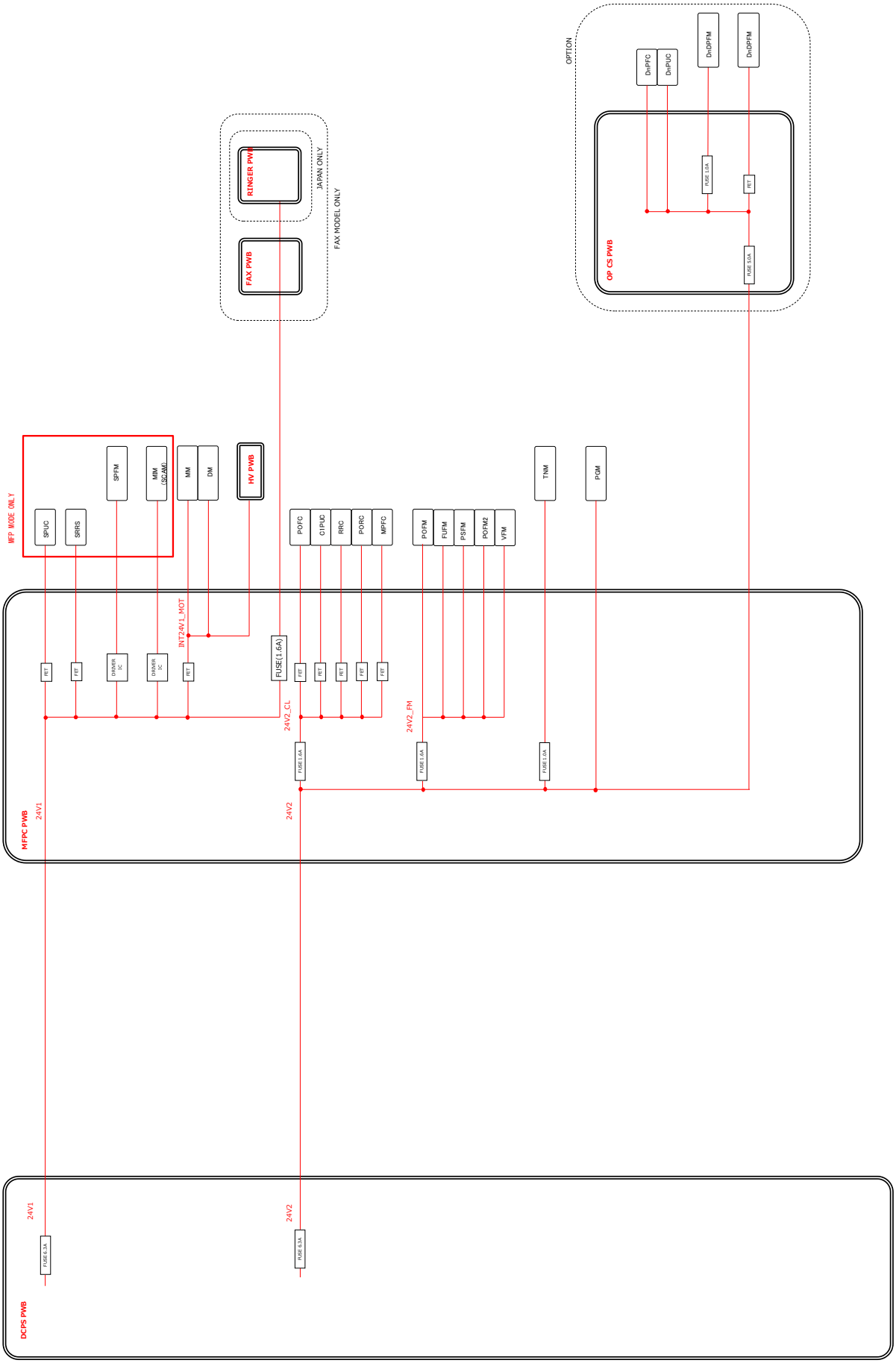


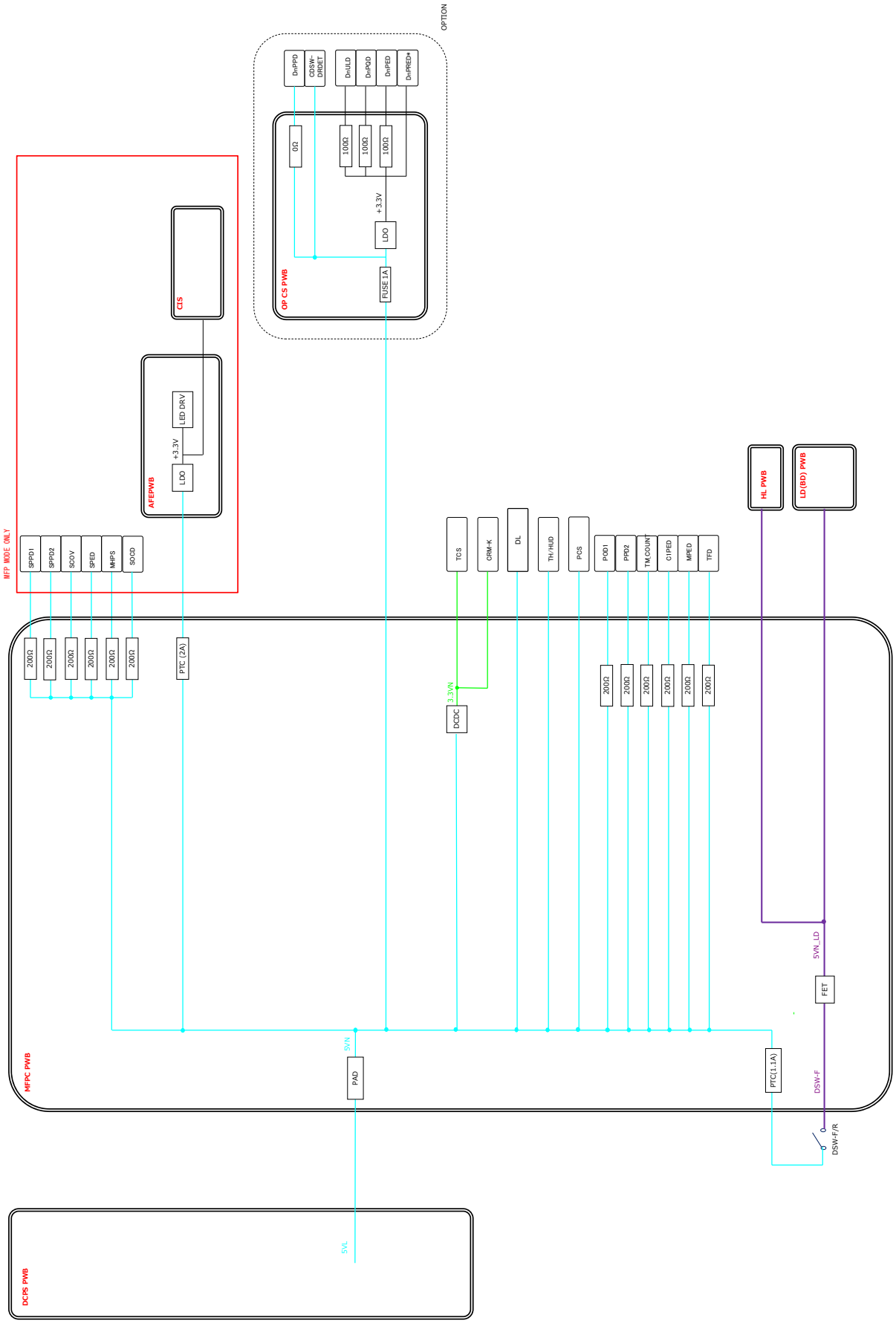
2. Power line diagram

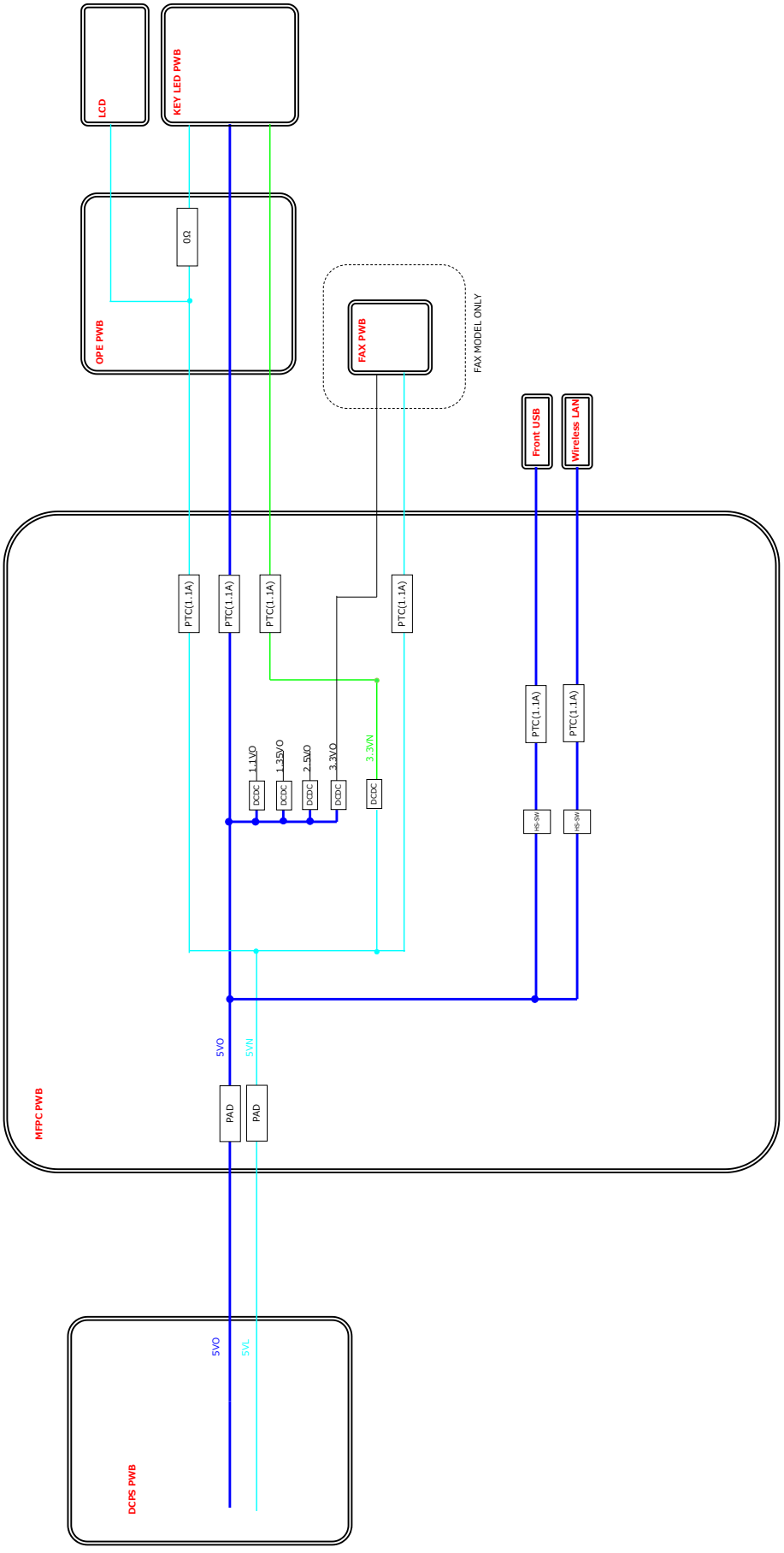
A. AC power line diagram



B. DC power line diagram

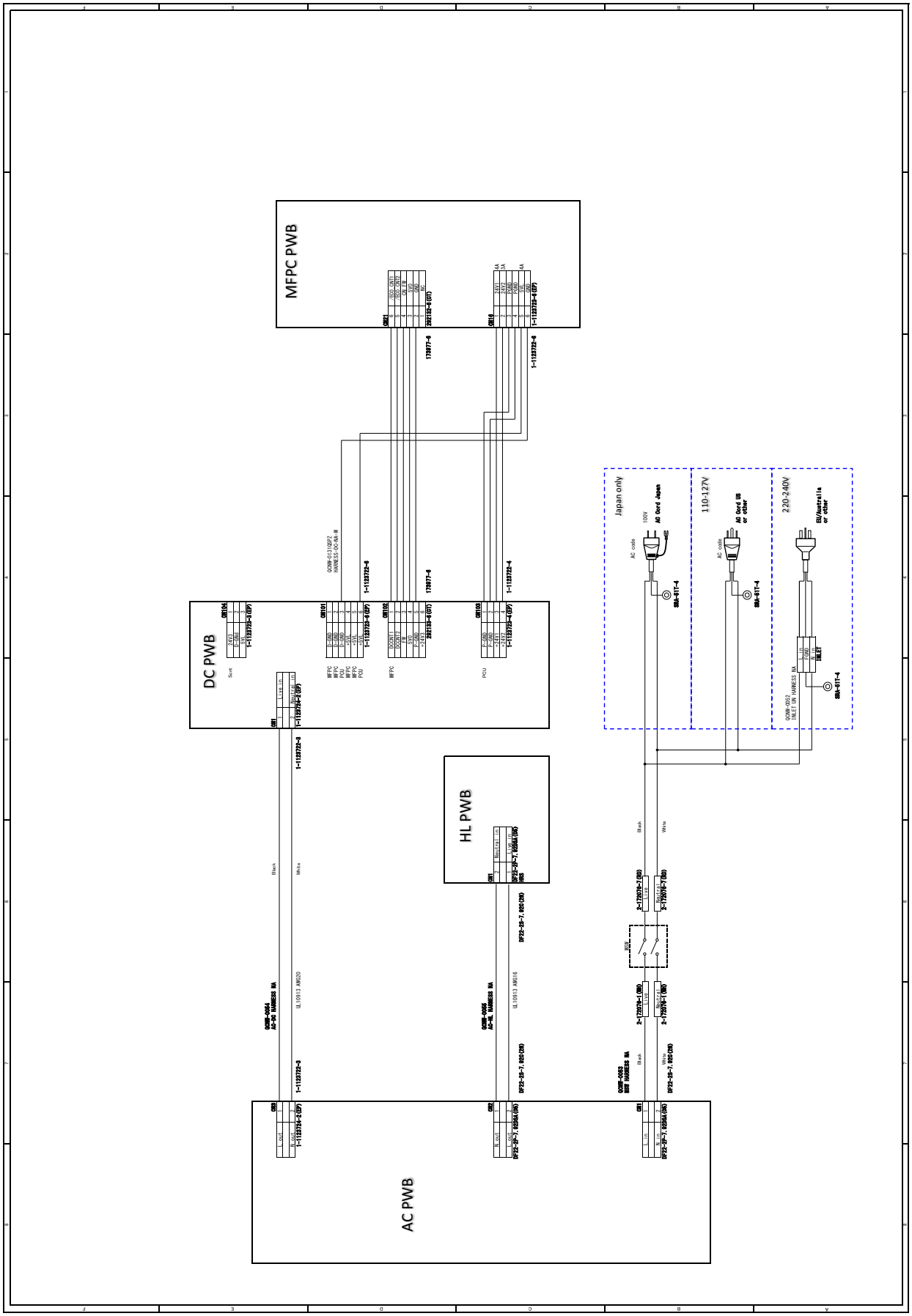



OPTION
DnPPD
CDSW-DRDET
DnHLD
DnPOD
DnPED
DnPRED+
0Ω
100Ω
100Ω
100Ω
+3.3V
LDO
FUSE 1A
OP CS PWB
CIS
LED DRV
+3.3V
LDO
AFEPWB
MFP MODE ONLY
SPPD1
SPPD2
SCOV
SPED
MHPS
SOCD
200Ω
200Ω
200Ω
200Ω
200Ω
200Ω
PTC (2A)
HL PWB
LD(BD) PWB
TCS
CRM+K
DL
TH/HUD
PCS
POD1
PPD2
TM.COUNT
CIPED
MPED
TFD
200Ω
200Ω
200Ω
200Ω
200Ω
200Ω
3.3VN
DCDC
MFPC PWB
5VN
PAD
5VL
5VN_LD
FET
PTC(1.1A)
DSW-F
DSW-F/R
DCPS PWB

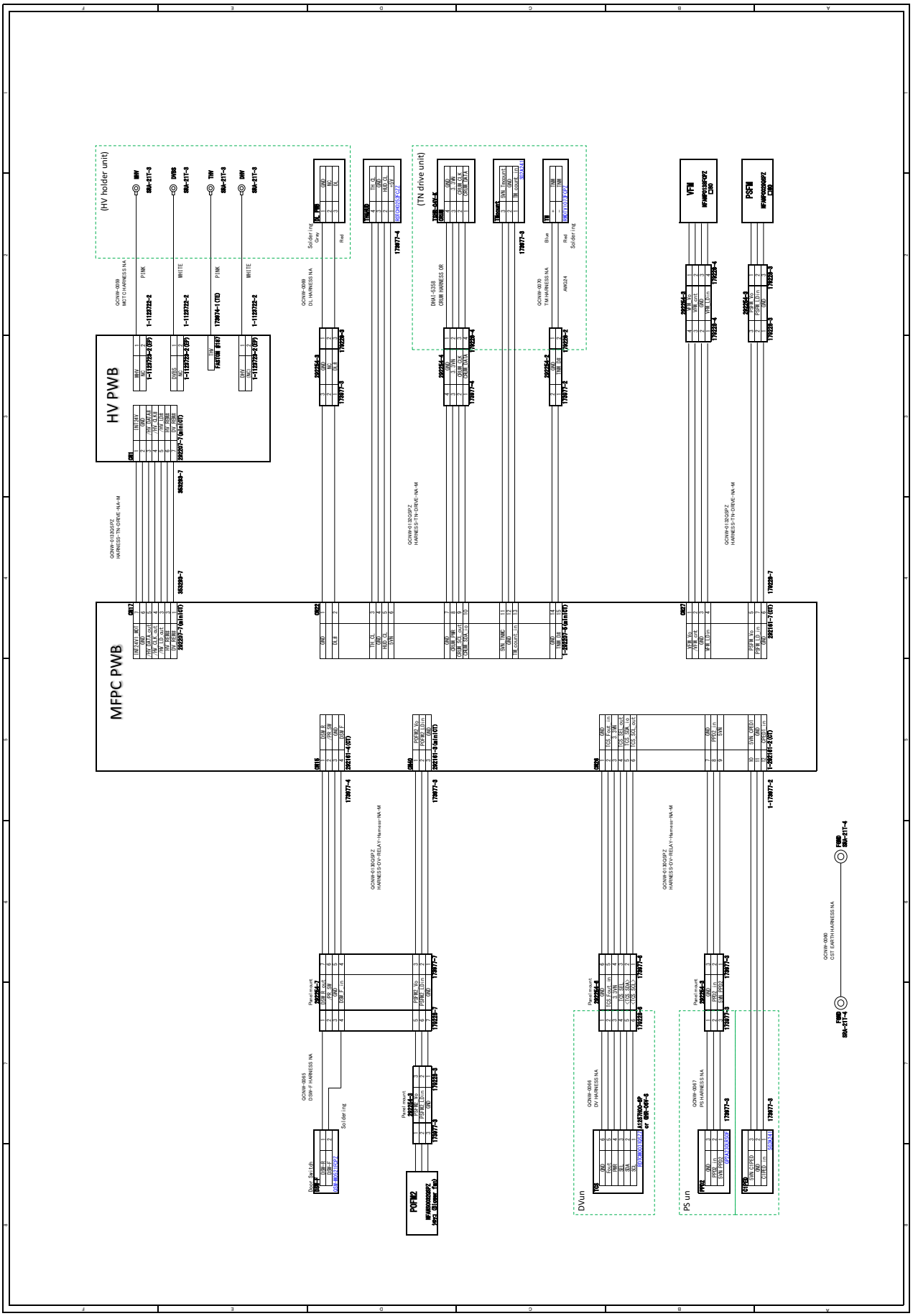

LCD
KEY LED PWB
0Ω
OPE PWB
FAX PWB
FAX MODEL ONLY
Front USB
Wireless LAN
PTC(1.1A)
PTC(1.1A)
PTC(1.1A)
PTC(1.1A)
PTC(1.1A)
PTC(1.1A)
1.1V/O
1.35V/O
2.5V/O
3.3V/O
3.3V/N
DCDC
DCDC
DCDC
DCDC
DCDC
HS-SW
HS-SW
5V/O
5V/N
PAD
PAD
MFPC PWB
5V/O
5V/L
DCPS PWB

3. Actual wiring chart

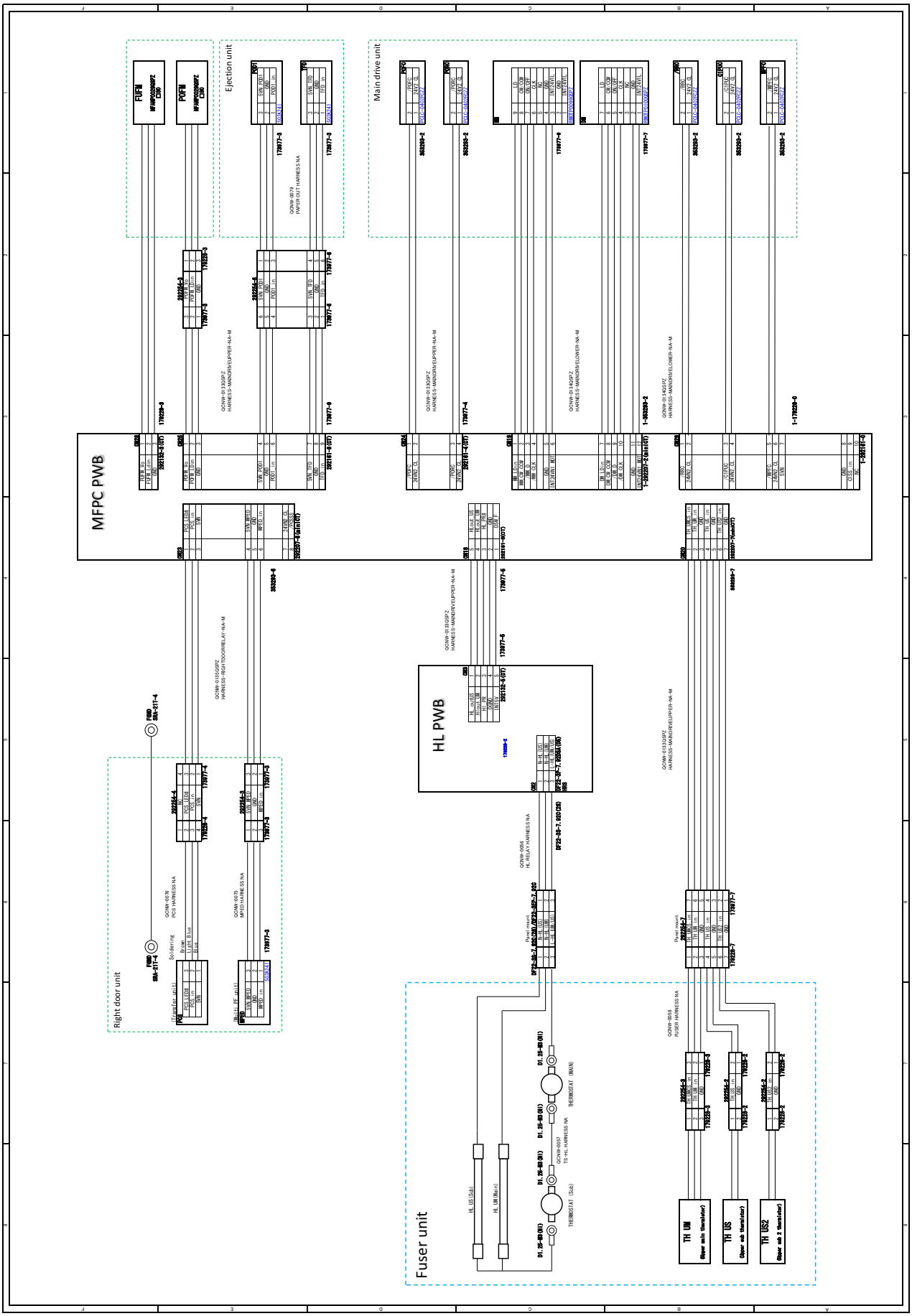
A. AC/DC power supply



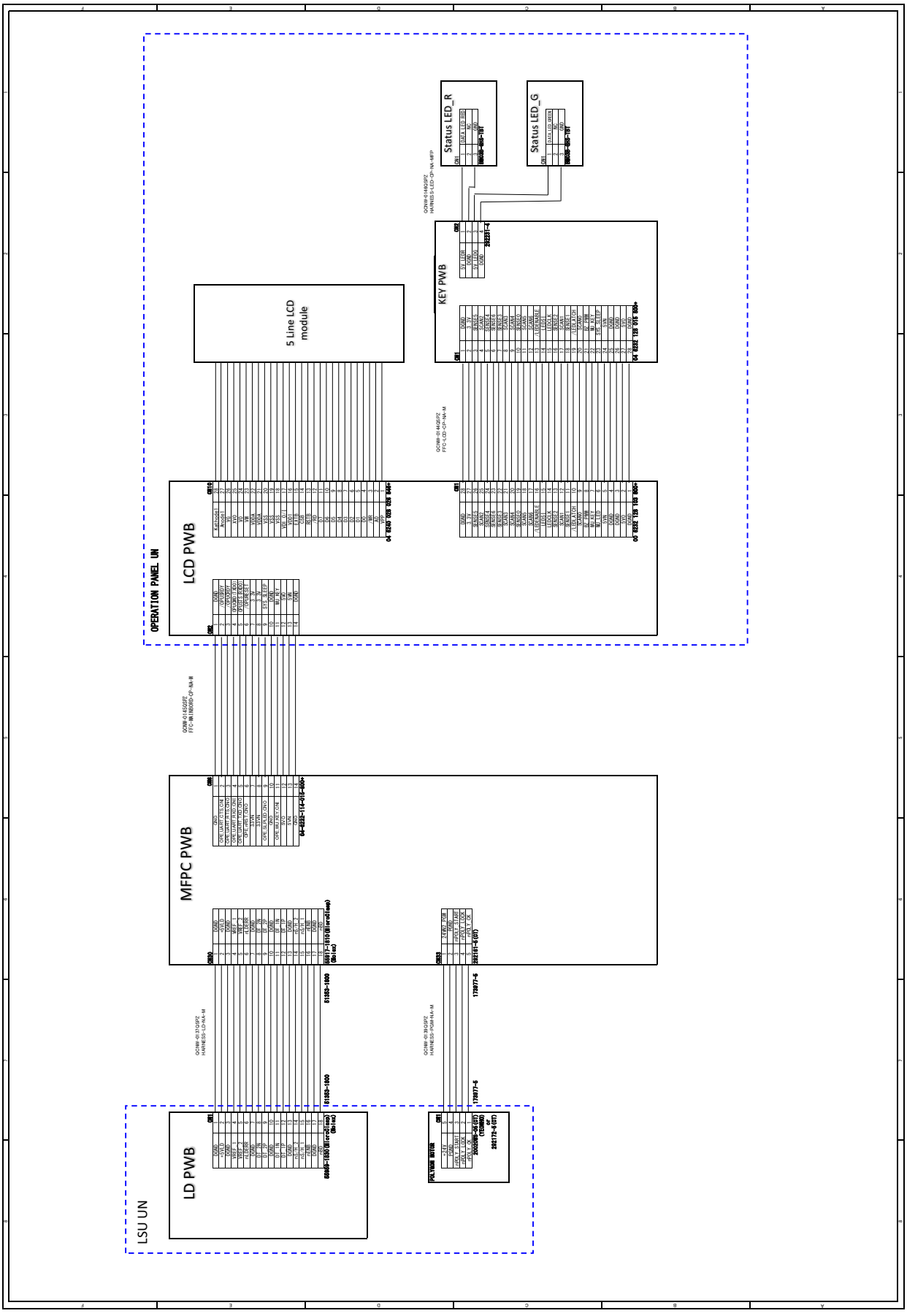
B. HV / DV / PS / TN drive / Fan



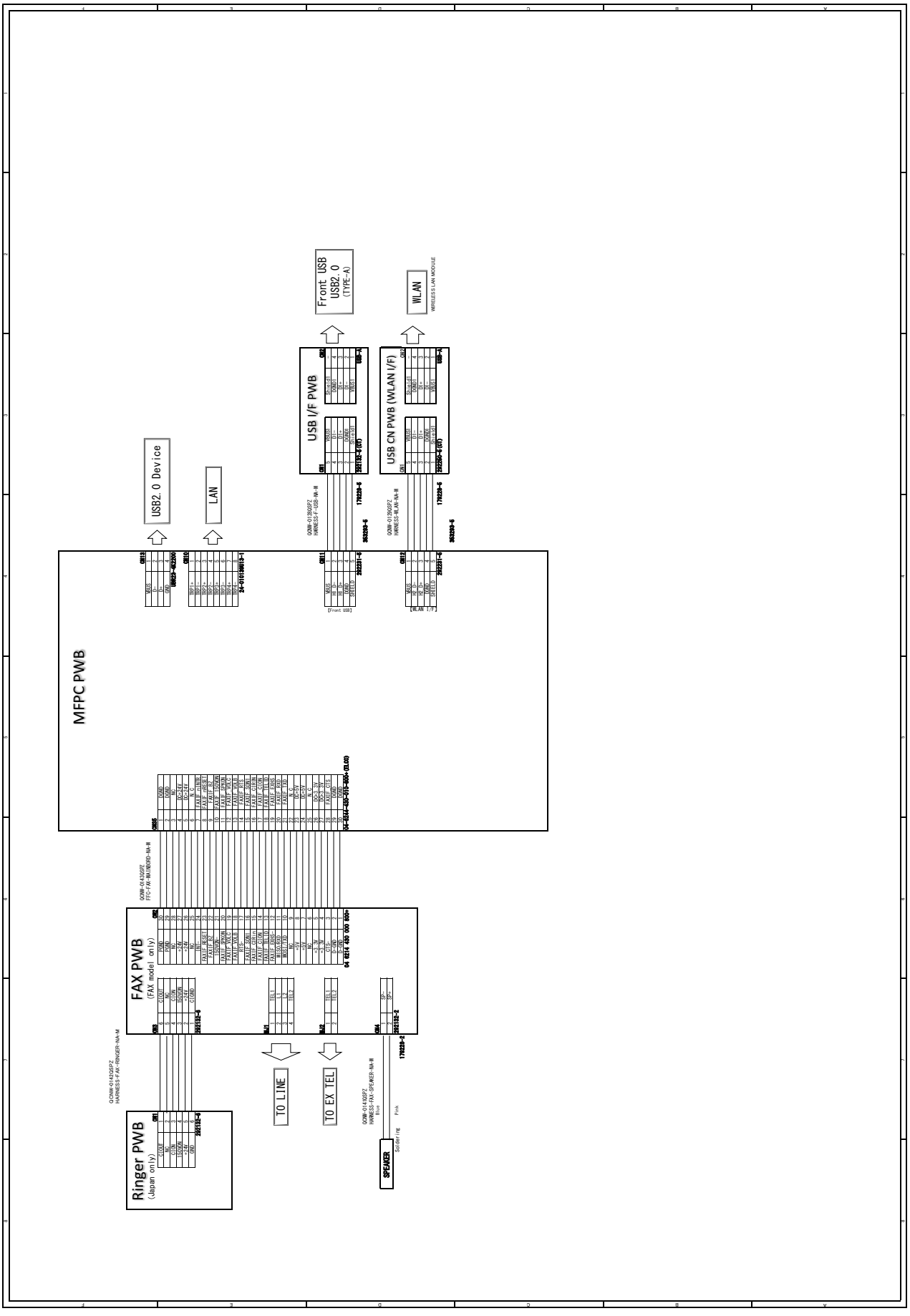
C. Fuser / Main drive / Ejection / Right door



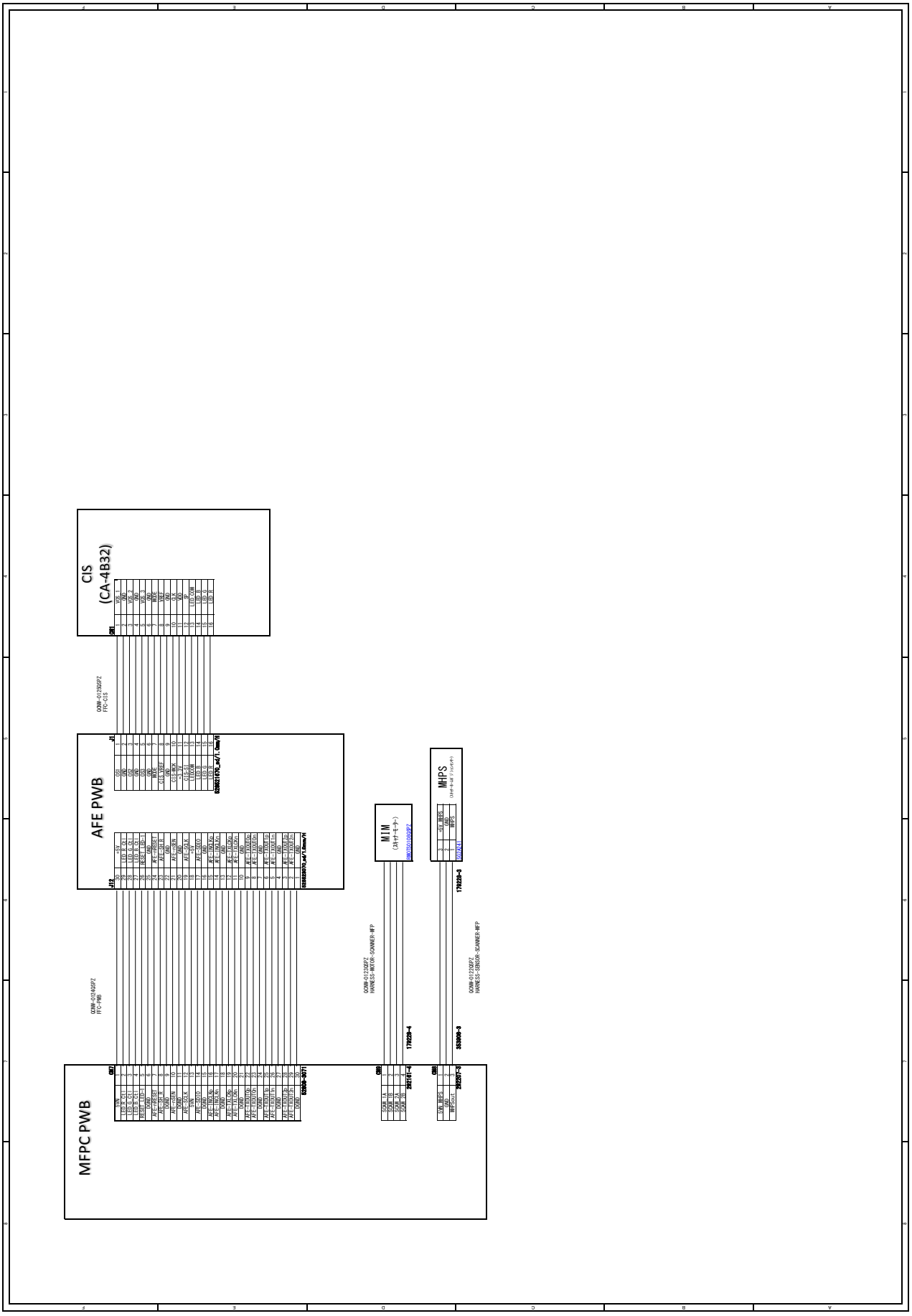
D. LSU / Operation panel



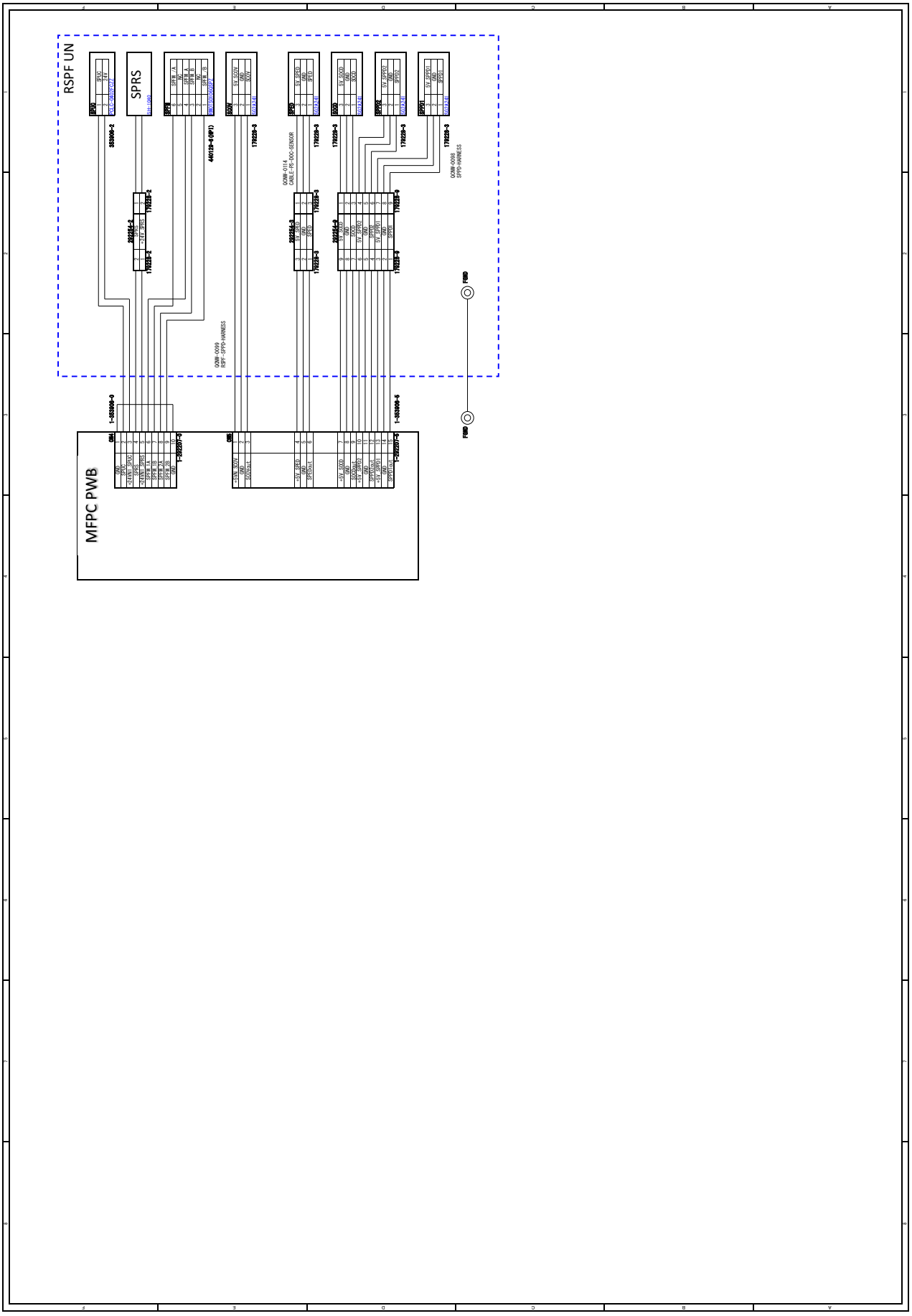
E. FAX/USB


MFPC PWB
USB2.0 Device
LAN
USB I/F PWB
USB CN PWB (WLAN I/F)
Front USB USB2.0 (TYPE-A)
WLAN
WIRELESS LAN MODULE
FAX PWB
(FAX model only)
Ringer PWB
(Japan only)
TO LINE
TO EX TEL
SPEAKER

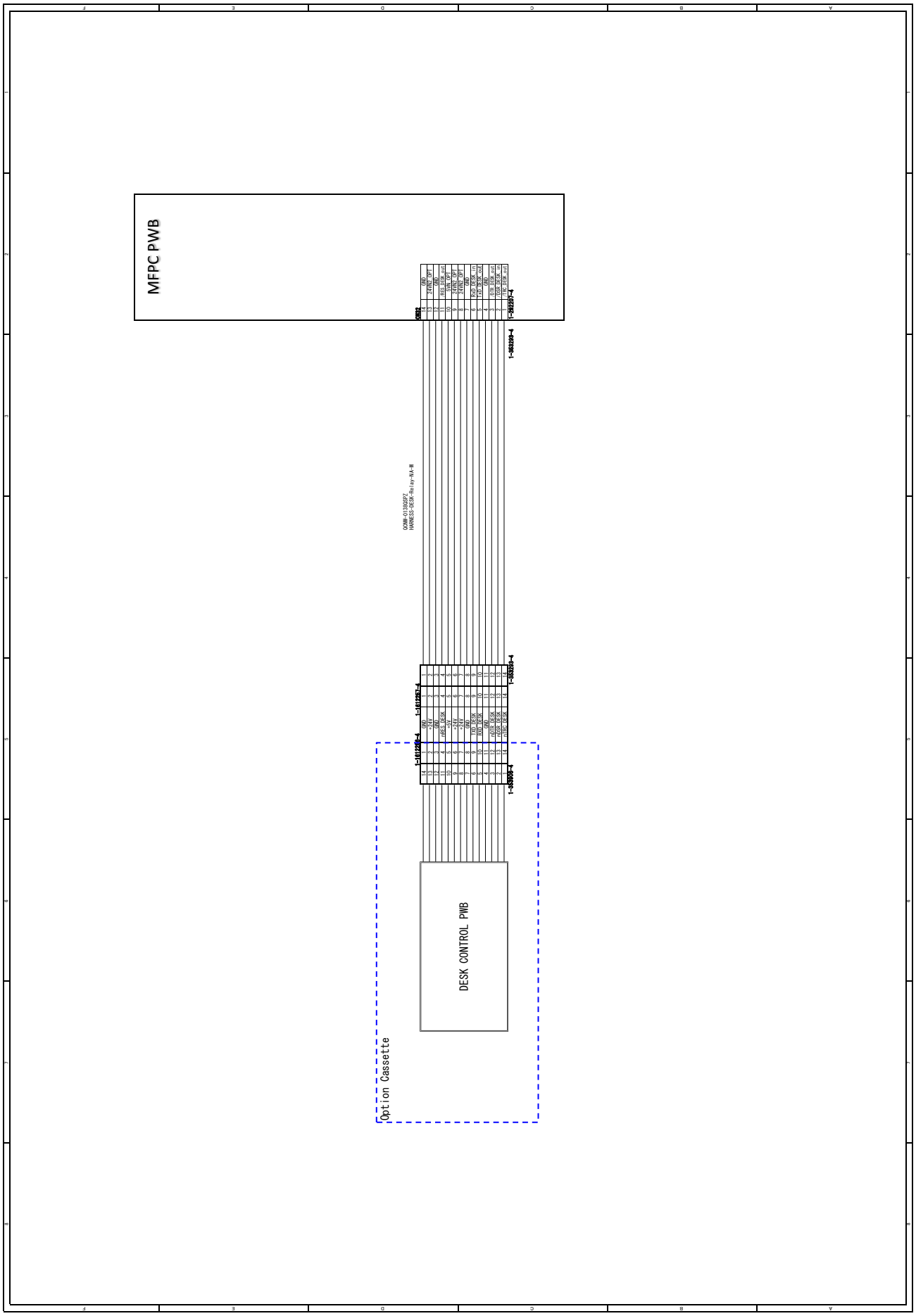
F. SCANNER



G. RSPF



H. OPTION



[13] OTHERS

1. TOOL LIST

PARTS CODE	Name	NOTE
UKOG-0012QSZZ	Conductive grease	Drive unit
UKOG-0020QSZZ	White standard chart	DSPF CIS calibration
UKOG-0162FCZZ	Gray test chart	Gray balance adjustment
UKOG-0235FCZZ	Grease (JFE552)	
UKOG-0299FCZZ	Grease (HANARL FL-955R)	
UKOG-0307FCZZ	Grease (FLOIL G-313S)	
UKOG-0312FCZZ	Stearic acid powder	OPC drum
UKOG-0326FC11	Service test chart	Gray balance adjustment
UKOG-0326FCZZ	Service test chart	Gray balance adjustment
UKOG-0356FCZZ	Scanner adjustment chart	CCD calibration / CIS calibration

2. VARIOUS STORAGE DATA HANDLING

A. Program ROM memory contents

(1) Program ROM data contents list

Stored data	Before installation (when shipping from the factory)	After installation (after use by users)	Data backup	Backup method	Data reinstallation	Data reinstall procedures	Reinstall operator
Firmware	Available	Available	Disable	-	Enable	SIM49-01	Service
System registration data	Available	Available	Enable	SIM56-02/ Device cloning	Enable	SIM56-02/ Device cloning	Service/ User
Fax data	Not available	Available	Disable	-	Disable	-	-
Log	Available	Available	Enable	SIM00-11	Disable	-	-

B. Necessary steps when replacing PWB, Program ROM

(1) MFPc PWB replacement procedure (work flow)

Registered user information will not be recovered if MFPc PWB is affected by U2-05 trouble.

1) Attach EEPROM, Program ROM of the MFPc PWB onto the new MFPc PWB and install it to the main unit.

   Ground your body with grounding band during the work.

2) U2 trouble occurs, use Sim16 to cancel it.

3) Set as follows after rebooting the main unit.

   Set the appropriate country code by Sim66-2 (clear software switch related to FAX).

(2) Program ROM storage data and backup

Some Program ROM storage data can be backed up, some storage data can be reinstalled, If Program ROM operate normally before replacement and can be backed up data before replacement of Program ROM referring to Program ROM storage data list. Then reinstall the data after replacement of Program ROM.

a. Work contents and procedures

Step	
Step 1	Use Sim56-2 to backup Program ROM data to USB memory
Step 2	Backup Program ROM by device cloning function when operation panel screen is customized
Step 3	Replace Program ROM with new one
Step 4	Upgrade firmware to the latest version
Step 5	Use Sim56-2 to restore data backed up in step1)
Step 6	Restore data backed up in step2) by using device cloning function

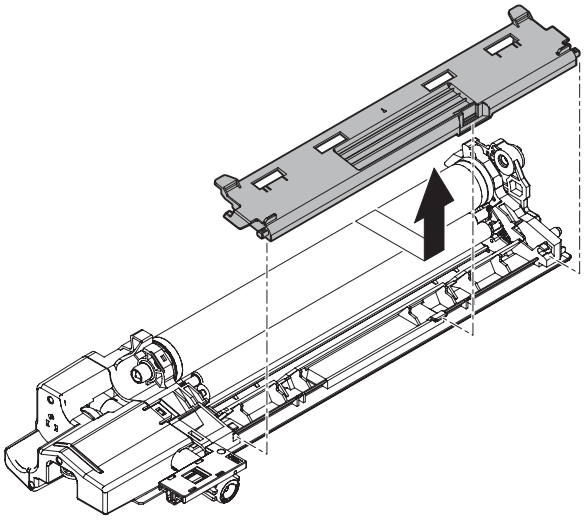
3. CLEANIG BLADE REPLACEMENT PROCEDURE

Note

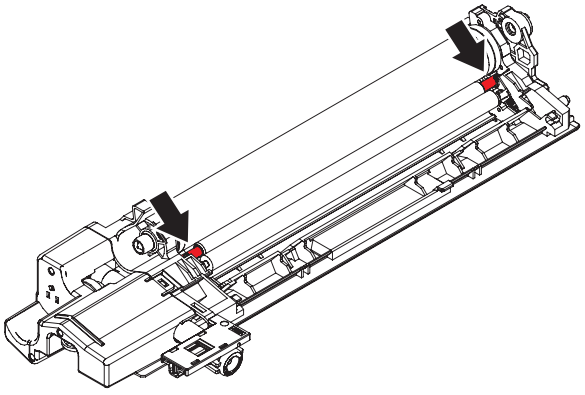
- Drum units are based on replacement in units.
- As OPC drum, charging roller, cleaning roller, cleaning blade, etc., dirt, scratches, and inadequate mounting will affect image quality, sufficient care is required.
- If you need to replace the cleaning blade, replace it carefully following the procedure below.

Disassembly procedure

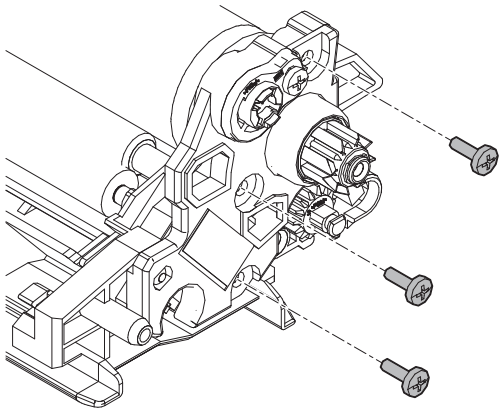
1) Remove the MCR cover.



2) Push down the shaft at both ends of the charging roller until it clicks downward.
Confirm that the OPC drum and the charging roller are not in contact with the whole area.



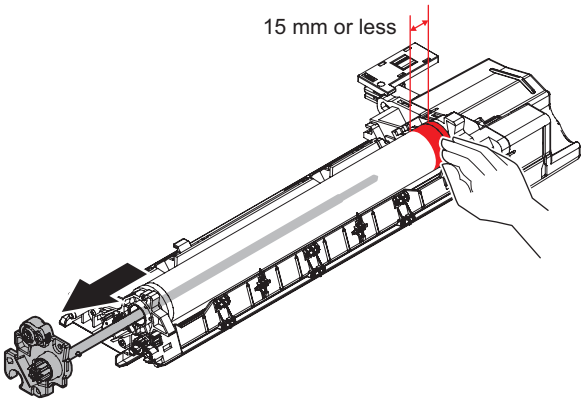
3) Remove the 3 screws.



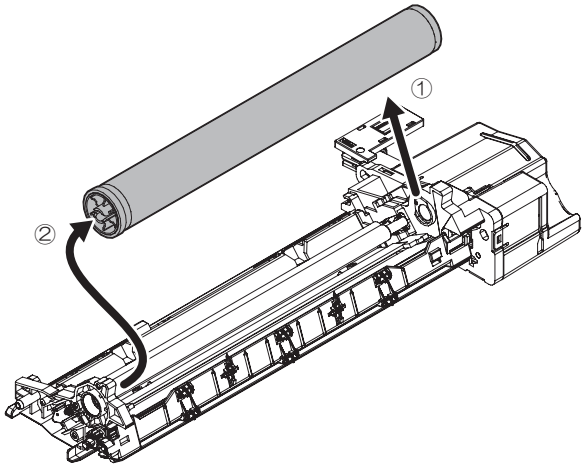
4) Remove the Drum shaft assembly.
Hold down the opposite end of the drum.

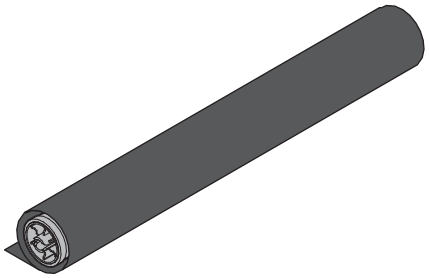
Important

- As much as possible, hold down only the flange area (black area) and do not touch the OPC drum.



5) Remove the OPC drum.Block the OPC drum with black paper.
Also place it on a cushioning material etc. and take care not to scratch it.

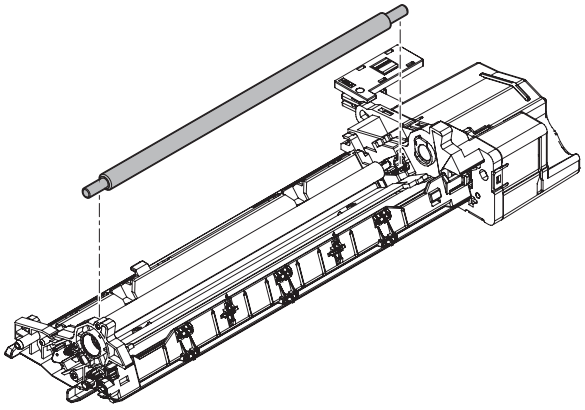




6) Remove the charging roller. Having both ends.

Important

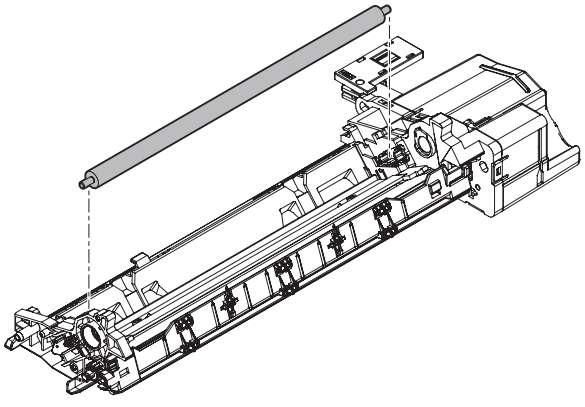
- During storage, hold only the shaft parts at both ends so that the rollers do not come in contact with others.
- Keep the roller surface so that it does not get dirty.
  Also, do not touch it with bare hands.When there is dirt adhesion, it can be wiped with a dry cloth.
  Alcohol can not be used.



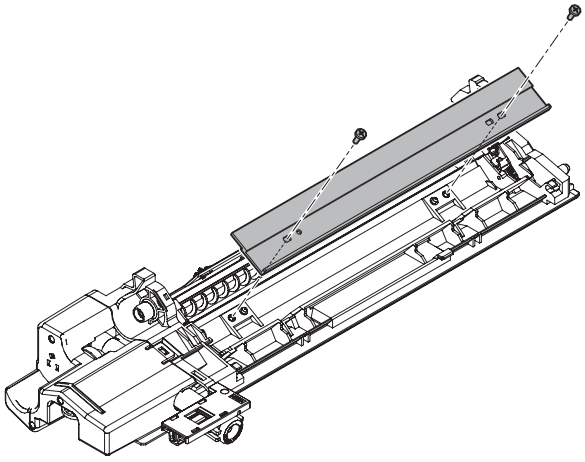
7) Remove the cleaning roller. Having both ends.

Important

- During storage, hold only the shaft parts at both ends so that the rollers do not come in contact with others.
- Keep the roller surface so that it does not get dirty.



8) Remove 2 screws.
9) Remove the cleaning blade.

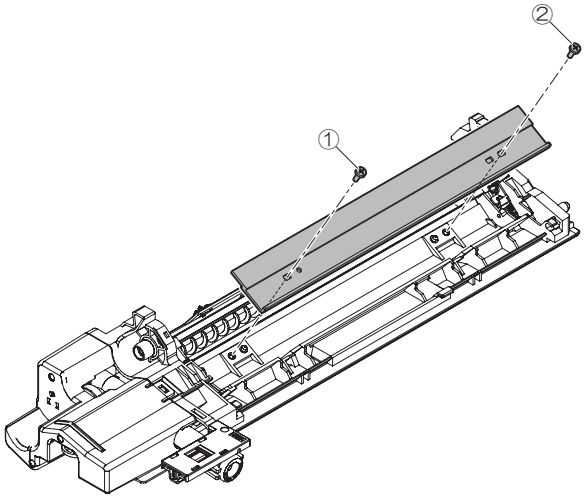


Assembling procedure

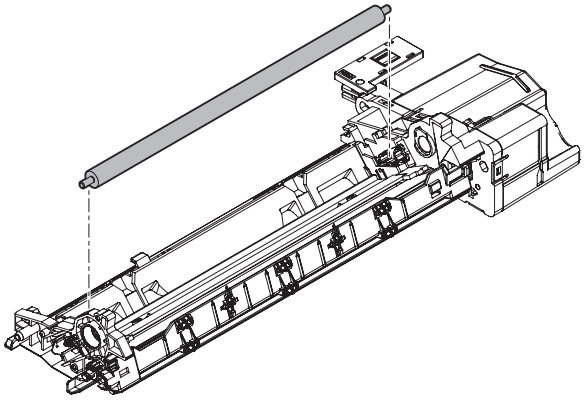
1) Attach the cleaning blade.

Important

- When attaching the cleaning blade, tighten the screw in the order of (1) - (2).
- Since the screw is directly fastened to the resin frame, be careful not to break the screw hole when fastening the screw.
- After installation, make sure that the cleaning blade does not ride on the side seal F side and R side (brown malt). Can not run on.



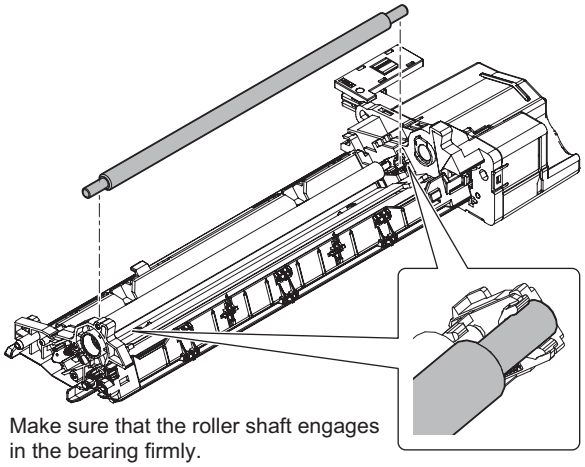
2) Attach the cleaning roller. Having both ends.



3) Attach the charging roller. Having both ends.
When installing the charging roller, push it all the way in.

Important

- Do not touch the roller part. (see the shaded part in the drawing below) of the cleaning roller and the charging roller. Hold the end sides of the shaft.
- Be careful not to attach stearic acid to charging roller or cleaning roller.
- After attaching the charging roller, confirm that the bearings at both ends are in a state of being lowered to the bottom.

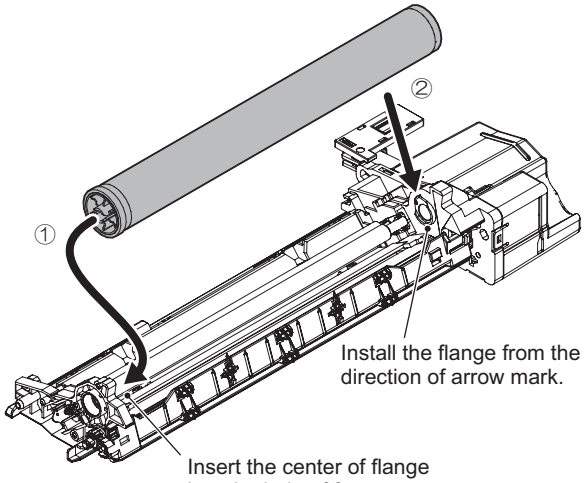


Make sure that the roller shaft engages in the bearing firmly.

4) Attach the OPC drum slowly in the order of (1) - (2).

Important

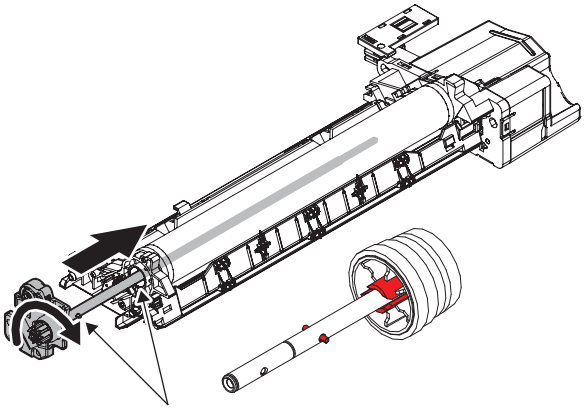
- When handling the OPC drum, hold it 15 mm or less from both ends (as much as possible, the flange area (black portion)).
- Be careful with handling the drum to prevent its surface from having a scratch.
- Before attaching the OPC drum, apply stearic acid powder (UKOG-0312FCZZ) to the entire OPC drum.
  Be careful not to over paint.
- Be careful that stearic acid (white powder) on the drum surface does not adhere to the charging roller.
  When stearic acid adheres, it can be wiped with a dry cloth.
  Alcohol can not be used.



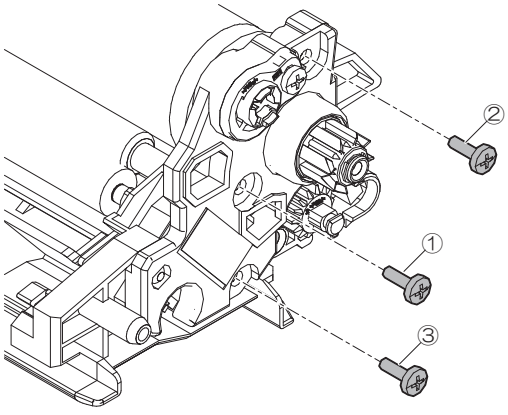
5) Attach the Drum shaft assembly.

Important

When attaching the drum shaft assembly, tighten the screw in the order of (1) - (3).



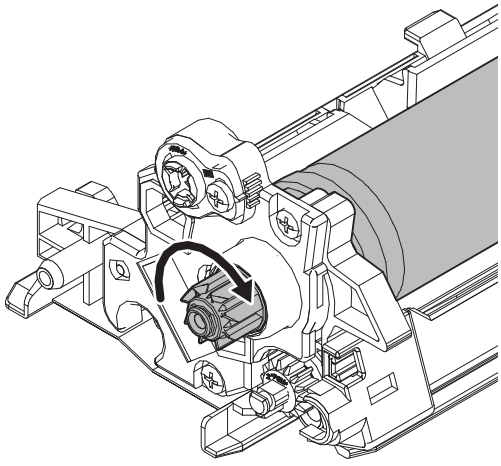
When inserting, rotate the gear (shaft) in the direction of the arrow to make SP pin fit into the flange cut, and insert it in far enough.



6) After assembling, rotate the OPC drum to the arrow direction.

Important

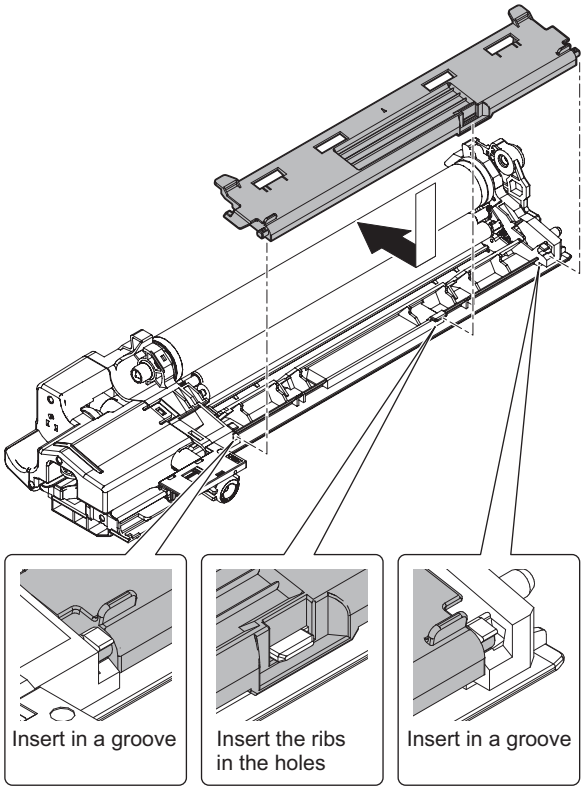
- Rotate the drum only in the direction of the arrow.Do not reverse rotation.
- Do not touch the image area. (meaning Do not touch the drum.)
- Turn the drum more than 2 turn.(Rotate it till the powder is gone.)
- Be careful with handling the drum to prevent its surface from having a scratch.



7) Attach the MCR cover.

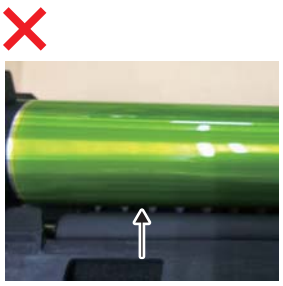
Important

- Press it firmly until it clicks in the direction of the arrow below.



- After installing MCR cover, check that the MC roller contacts to the drum surface including F/R.

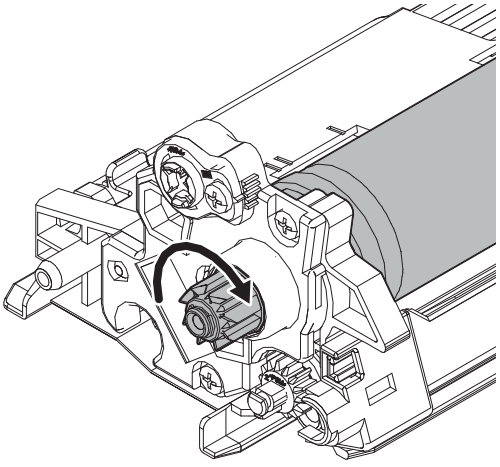
The drum surface contacts with the charging roller, and there is no gap.



There is a gap between the drum surface and the charging roller.

- After installing the MCR cover, rotate the drum in the correct direction of rotation, and confirm that the charging roller and the cleaning roller rotate.

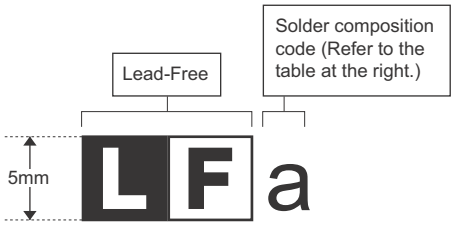
  At that time, check whether there is dirt or foreign matter adhering to the roller, and remove it with cloth in some cases.
- Rotate the drum only in the direction of the arrow. Do not reverse rotation.



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.

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