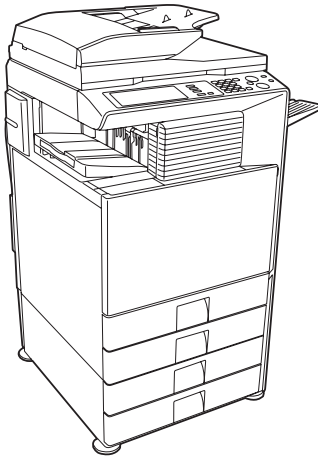


# SHARP SERVICE MANUAL

CODE: 00ZMX1800/S1E



## DIGITAL FULL COLOR MULTIFUNCTIONAL SYSTEM

### MODEL **MX-1800N**

#### CONTENTS

NOTE FOR SERVICING . . . . . i	● DETAILS OF EACH SECTION
[1] PRODUCT OUTLINE . . . . . 1-1	[A] EXTERNAL OUTFIT . . . . . A-1
[2] SPECIFICATIONS . . . . . 2-1	[B] OPERATION PANEL . . . . . B-1
[3] CONSUMABLE PARTS . . . . . 3-1	[C] SCANNER SECTION . . . . . C-1
[4] UNPACKING AND INSTALLATION	[D] MANUAL PAPER FEED
* For unpacking and installation, refer to the	SECTION . . . . . D-1
installation manual (00ZMX2700/I1E).	[E] TRAY PAPER FEED SECTION . . . E-1
[5] EXTERNAL VIEW AND	[F] PAPER TRANSPORT
INTERNAL STRUCTURE . . . . . 5-1	SECTION . . . . . F-1
[6] ADJUSTMENTS . . . . . 6-1	[G] DUPLEX SECTION . . . . . G-1
[7] SIMULATION . . . . . 7-1	[H] LSU SECTION . . . . . H-1
[8] SELF DIAG AND	[I] PHOTOCONDUCTOR SECTION . . . i-1
TROUBLE CODE . . . . . 8-1	[J] TONER SUPPLY SECTION . . . . . J-1
[9] MAINTENANCE . . . . . 9-1	[K] DEVELOPING SECTION . . . . . K-1
[10] ROM VERSION-UP . . . . . 10-1	[L] TRANSFER SECTION . . . . . L-1
[11] ELECTRICAL SECTION . . . . . 11-1	[M] PROCESS CONTROL SENSOR,
[12] OTHERS . . . . . 12-1	REGISTRATION SENSOR
	SECTION . . . . . M-1
	[N] FUSING SECTION . . . . . N-1
	[O] PAPER EXIT SECTION . . . . . O-1
	[P] DRIVE SECTION . . . . . P-1
	[Q] PWB SECTION . . . . . Q-1
	[R] FAN AND FILTER SECTION . . . . R-1
	[S] SENSOR, SWITCH SECTION . . . . S-1

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.

# CONTENTS

## NOTE FOR SERVICING

1. Precautions for servicing . . . . . i
2. Warning for servicing . . . . . i
3. Note for installing site . . . . . i

## [1] PRODUCT OUTLINE

1. Configuration . . . . . 1-1

## [2] SPECIFICATIONS

1. Basic specifications . . . . . 2-1
2. Functional specifications . . . . . 2-4
3. Ambient conditions . . . . . 2-14

## [3] CONSUMABLE PARTS

1. Supply system table . . . . . 3-1
2. Maintenance parts list . . . . . 3-1
3. Production number identification . . . . . 3-2

## [5] EXTERNAL VIEW AND INTERNAL STRUCTURE

1. Identification of each section and functions . . . . . 5-1

## [6] ADJUSTMENTS

1. General . . . . . 6-1
2. Adjustment item list . . . . . 6-1
3. Details of adjustment . . . . . 6-2

## [7] SIMULATION

1. General . . . . . 7-1
2. List of simulation codes . . . . . 7-3
3. Details of simulation . . . . . 7-8

## [8] SELF DIAG AND TROUBLE CODE

1. Self diag . . . . . 8-1
2. Trouble code list . . . . . 8-4
3. Details of trouble code . . . . . 8-7

## [9] MAINTENANCE

1. Maintenance system table . . . . . 9-1
2. Details of maintenance . . . . . 9-3
3. Other related items . . . . . 9-14

## [10] ROM VERSION-UP

1. General . . . . . 10-1
2. Version-up procedure . . . . . 10-1

## [11] ELECTRICAL SECTION

1. Block diagram . . . . . 11-1
2. Actual wiring chart . . . . . 11-8
3. Signal list . . . . . 11-29

## [12] OTHERS

1. System settings . . . . . 12-1
2. Paper JAM code . . . . . 12-7

## ● DETAILS OF EACH SECTION

### [A] EXTERNAL OUTFIT

1. Disassembly and assembly . . . . . A-1

### [B] OPERATION PANEL

1. Electrical and mechanism relation diagram . . . . . B-1
2. Operational descriptions . . . . . B-2
3. Disassembly and assembly . . . . . B-2

### [C] SCANNER SECTION

1. Electrical and mechanism relation diagram . . . . . C-1
2. Operational descriptions . . . . . C-2
3. Disassembly and assembly . . . . . C-3

### [D] MANUAL PAPER FEED SECTION

1. Electrical and mechanism relation diagram . . . . . D-1
2. Operational descriptions . . . . . D-2
3. Disassembly and assembly . . . . . D-2

### [E] TRAY PAPER FEED SECTION

1. Electrical and mechanism relation diagram . . . . . E-1
2. Operational descriptions . . . . . E-3
3. Disassembly and assembly . . . . . E-4

### [F] PAPER TRANSPORT SECTION

1. Electrical and mechanism relation diagram . . . . . F-1
2. Operational descriptions . . . . . F-2
3. Disassembly and assembly . . . . . F-2

### [G] DUPLEX SECTION

1. Electrical and mechanism relation diagram . . . . . G-1
2. Operational descriptions . . . . . G-2
3. Disassembly and assembly . . . . . G-2

### [H] LSU SECTION

1. Electrical and mechanism relation diagram . . . . . H-1
2. Operational descriptions . . . . . H-2
3. Disassembly and assembly . . . . . H-3

### [I] PHOTOCONDUCTOR SECTION

1. Electrical and mechanism relation diagram . . . . . i-1
2. Operational descriptions . . . . . i-2
3. Disassembly and assembly . . . . . i-3

### [J] TONER SUPPLY SECTION

1. Electrical and mechanism relation diagram . . . . . J-1
2. Operational descriptions . . . . . J-2

### [K] DEVELOPING SECTION

1. Electrical and mechanism relation diagram . . . . . K-1
2. Operational descriptions . . . . . K-2
3. Disassembly and assembly . . . . . K-2

### [L] TRANSFER SECTION

1. Electrical and mechanism relation diagram . . . . . L-1
2. Operational descriptions . . . . . L-2
3. Disassembly and assembly . . . . . L-3

### [M] PROCESS CONTROL SENSOR, REGISTRATION SENSOR SECTION

1. Electrical and mechanism relation diagram . . . . . M-1
2. Operational descriptions . . . . . M-1
3. Disassembly and assembly . . . . . M-2

### [N] FUSING SECTION

1. Electrical and mechanism relation diagram . . . . . N-1
2. Operational descriptions . . . . . N-2
3. Disassembly and assembly . . . . . N-3

### [O] PAPER EXIT SECTION

1. Electrical and mechanism relation diagram . . . . . O-1
2. Operational descriptions . . . . . O-2
3. Disassembly and assembly . . . . . O-2

### [P] DRIVE SECTION

1. Disassembly and assembly . . . . . P-1

### [Q] PWB SECTION

1. Disassembly and assembly . . . . . Q-1

### [R] FAN AND FILTER SECTION

1. Disassembly and assembly . . . . . R-1

### [S] SENSOR, SWITCH SECTION

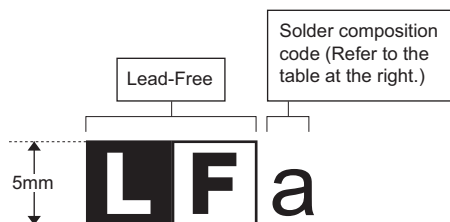
1. Disassembly and assembly . . . . . S-1



# 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 recommendable.

## (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 inkorrektter 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  
(MANGANESE 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 MANGANESE)  
QUI DOIT ÊTRE TRAITÉE CORRECTEMENT. ENLEVEZ LA  
PILE DU PRODUIT ET PRENEZ CONTACT AVEC VOTRE  
AGENCE ENVIRONNEMENTALE LOCALE POUR DES  
INFORMATIONS SUR LES MÉTHODES DE RECYCLAGE ET  
DE TRAITEMENT.

# SHARP

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# NOTE FOR SERVICING

## 1. Precautions for servicing

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

## 2. Warning for servicing

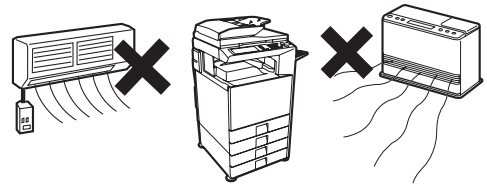
- 1) Be sure to connect the power cord only to a power outlet that meets the specified voltage and current requirements.  
Avoid complex wiring, which may lead to a fire or an electric shock.  
It may cause a fire or an electric shock.
- 2) If there is any abnormality such as a smoke or an abnormal smell, interrupt the job and disconnect the power plug.  
It may cause a fire or an electric shock.
- 3) Be sure to connect the grounding wire. If an electric leakage occurs without grounding, a fire or an electric shock may result.  
To protect the machine and the power unit from lightning, grounding must be made.
- 4) When connecting the grounding wire, never connect it to the following points.  
It may cause an explosion, a fire or an electric shock.
  - Gas tube
  - Lightning conductor
  - A water pipe or a water faucet, which is not recognized as a grounding object by the authorities.
  - Grounding wire for telephone line
- 5) Do not damage, break, or work the power cord.  
Do not put heavy objects on the power cable. Do not bend it forcibly or do not pull it extremely.  
It may cause a fire or an electric shock.

- 6) Keep the power cable away from a heat source.  
Do not insert the power plug with dust on it into a power outlet.  
It may cause a fire or an electric shock.
- 7) Do not put a receptacle with water in it or a metal piece which may drop inside the machine.  
It may cause a fire or an electric shock.
- 8) With wet or oily hands, do not touch the power plug, do not insert the telephone line jack, do not operate the machine, or do not perform servicing.  
It may cause an electric shock.

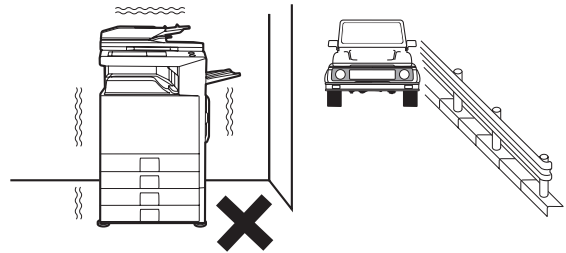
## 3. Note for installing site

Do not install the machine at the following sites.

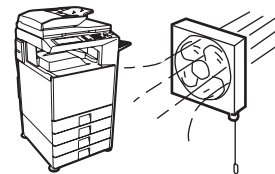
- 1) **Place of high temperature, high humidity, low temperature, low humidity, place under an extreme change in temperature and humidity.**  
Paper may get damp and form dews inside the machine, causing paper jam or copy dirt.  
For operating and storing conditions, refer to the specifications described later.



- 2) **Place of much vibrations**  
It may cause a breakdown.



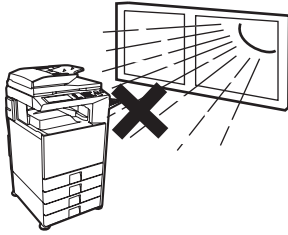
- 3) **Poorly ventilated place**  
An electro-static type copier will produce ozone inside it.  
The quantity of ozone produced is designed to a low level so as not to affect human bodies. However, continuous use of such a machine may produce a smell of ozone. Install the machine in a well ventilated place, and ventilate occasionally.



4) **Place of direct sunlight.**

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

It may cause a breakdown or copy dirt.



5) **Place which is full of organic gases such as ammonium**

The organic photoconductor (OPC) drum used in the machine may undergo qualitative change due to organic gases such as ammonium.

Installation of this machine near a diazo-type copier may result in dirt copy.



6) **Place of much dust**

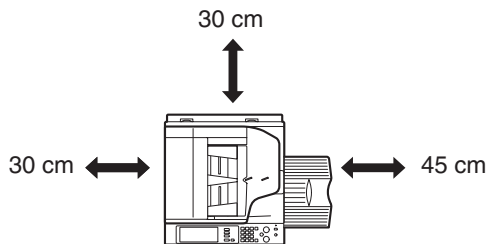
When dusts enter the machine, it may cause a breakdown or copy dirt.



7) **Place near a wall**

Some machine require intake and exhaust of air.

If intake and exhaust of air are not properly performed, copy dirt or a breakdown may be resulted.



8) **Unstable or slant surface**

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

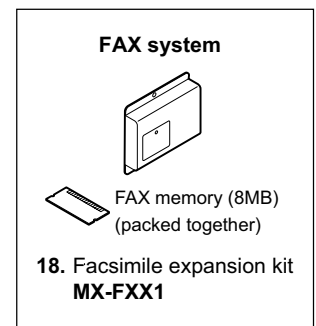
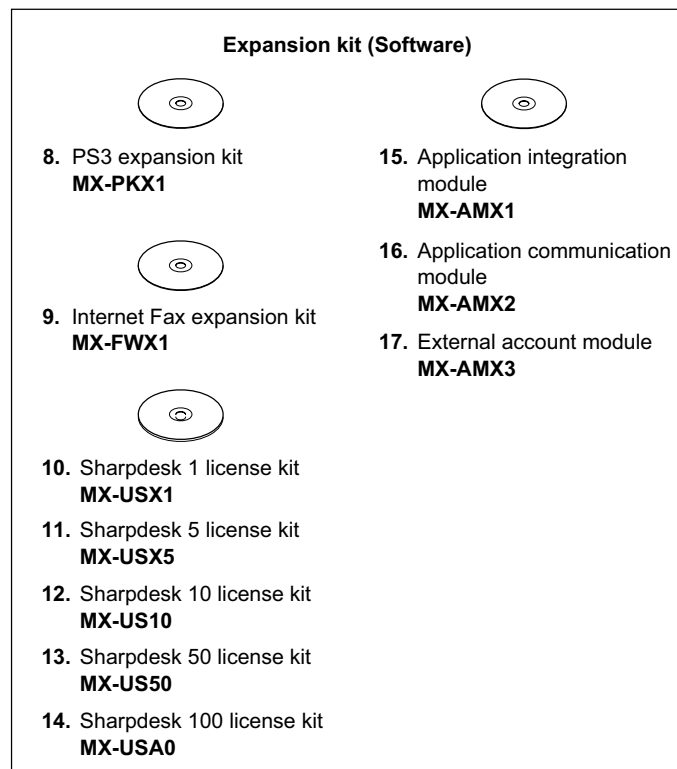
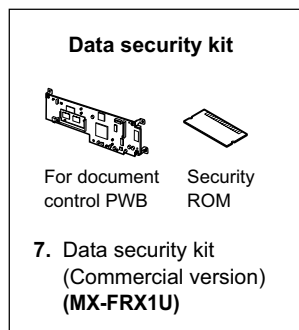
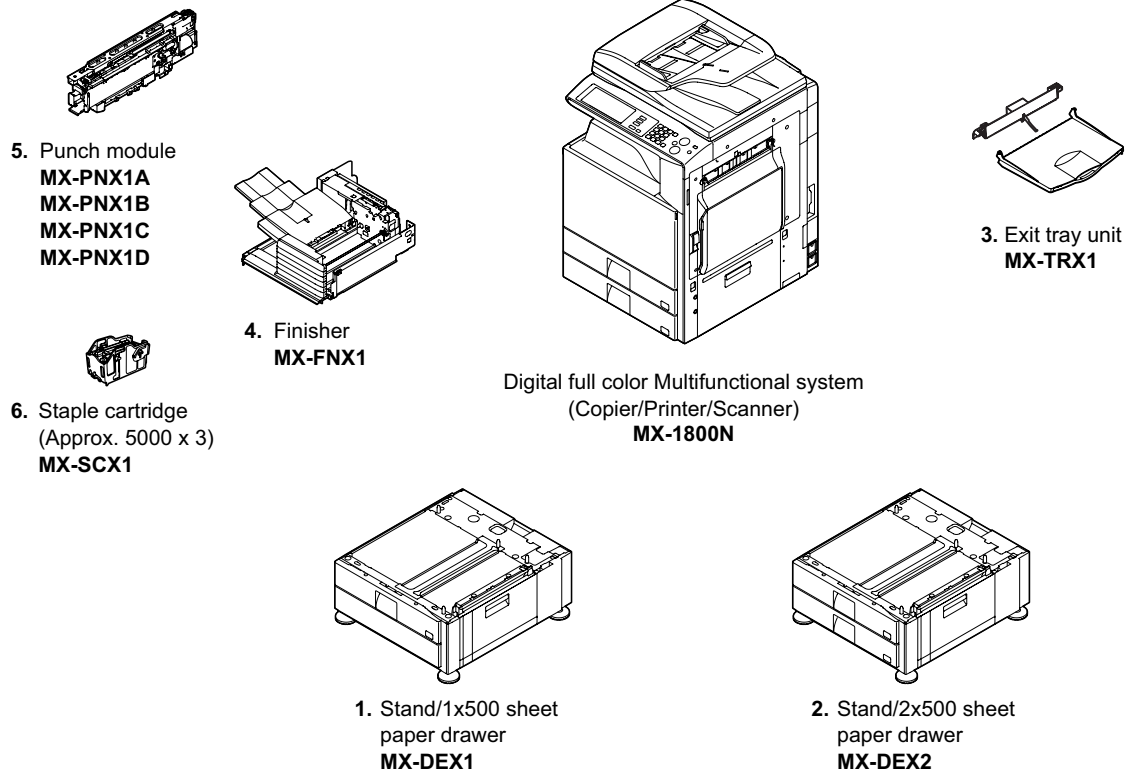
If there are optional paper desk and the copier desk specified, it is recommendable to use them.

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

# [1] PRODUCT OUTLINE

## 1. Configuration

### A. Lineup (Main unit and option)



## B. Machine configuration

Copier memory (Local memory) (MB)	768
Printer memory (System memory) (MB)	640
Copier	Standard provision
PCL printer	Standard provision
PS printer	Option (Product key target.)
Main body LCD	MONOCHROME HVGA 8.1"
FAX	Option (No support for some areas.)
Scanner	Standard provision
Filing	Standard provision
HDD	Standard provision
RSPF	Standard provision
OC	—
Automatic duplex	Standard provision
Security	Option (Product key target.)
Internet Fax	Option (Product key target.)

## C. Combination of options list

Section	Name	Model name	Remarks
Paper feed system	1. Stand/1x500 sheet paper drawer	MX-DEX1	
	2. Stand/2x500 sheet paper drawer	MX-DEX2	
Paper exit system	3. Exit tray unit	MX-TRX1	
	4. Finisher	MX-FNX1	
	5. Punch module	MX-PNX1A	2-hole
		MX-PNX1B	3-hole
		MX-PNX1C	4-hole
		MX-PNX1D	4-hole (broad space)
	6. Staple cartridge	MX-SCX1	Approx. 5000 x 3
Data security kit	7. Data security kit	MX-FRX1U	Commercial version
Electrical system (Software)	8. PS3 expansion kit	MX-PKX1	
	9. Internet Fax expansion kit	MX-FWX1	
	10. Sharpdesk 1 license kit	MX-USX1	
	11. Sharpdesk 5 license kit	MX-USX5	
	12. Sharpdesk 10 license kit	MX-US10	
	13. Sharpdesk 50 license kit	MX-US50	
	14. Sharpdesk 100 license kit	MX-USA0	
	15. Application integration module	MX-AMX1	
	16. Application communication module	MX-AMX2	
	17. External account module	MX-AMX3	
FAX system	18. Facsimile expansion kit	MX-FXX1	No support for some areas.

## [2] SPECIFICATIONS

### 1. Basic specifications

#### A. Base engine

##### (1) Type

Type	Desk-top
Color support	Full color

##### (2) Engine speed

###### a. Tray1 – 4 (Main unit)

Paper size	B/W	Color
A3, 11 x 17, 8K	11	10
B4, 8.5 x 14, 8.5 x 13	13	11
A4, B5, 8.5 x 11, 16K	18	18
A4R, B5R, A5R, 8.5 x 11R, 7.25 x 10.5R, 5.5 x 8.5R, 16KR	14	13

###### b. Manual (Main unit)

Paper size	B/W	Color
A3, 11 x 17, 8K	11	10
B4, 8.5 x 14, 8.5 x 13	13	11
A4, 8.5 x 11, 16K	18	18
B5	18	18
A4R, 16KR	14	13
8.5 x 11R	14	13
B5R, 7.25 x 10.5R	12	11
A5R, 5.5 x 8.5R	14	13
A3W, 12 x 18 *	10	10
OHP(A4, 8.5 x 11)	11	10
OHP(A4R, 8.5 x 11R)	9	7
Extra	10	9
Envelope	10	9
Heavy paper (B5, A4, A5R, 8.5 x 11, 8.5 x 5.5R, 16K)	11	10
Heavy paper (Other sizes)	7	5

\* Indicates the engine speed when the inner finisher (option) provides an output. (For A3W and 12 x 18, paper exit to the center tray of the main unit is disabled.)

##### (3) Engine composition

Photoconductor kind	OPC (Drum diameter: Black; $\phi$ 30mm, Color; $\phi$ 30mm x 3)
Copying method	Electronic photo (Laser)
Developing system	Dry-type dual-component magnetic brush development
Charging system	Charged saw-tooth method
Transfer system	Intermediate transfer belt
Cleaning system	Counter blade
Fusing system	Heat roller
Waste toner disposal	No toner recycling system

##### (4) Shifter

Type	Shifter		
Paper weight	55 – 209g/m <sup>2</sup> (17 – 56 lbs)		
Paper size	Non offset mode (Normal output)	A3, B4, A4R, B5, B5R, A5R, Postcard, 8K, 16K, 16KR, 11 x 17, 8.5 x 14, 8.5 x 13, 8.5 x 11, 8.5 x 11R, 7.25 x 10.5R, 5.5 x 8.5R, Envelope, Extra	
	Offset mode	A3, B4, A4R, B5, B5R, A5R, Postcard, 8K, 16K, 16KR, 11 x 17, 8.5 x 14, 8.5 x 13, 8.5 x 11, 8.5 x 11R, 7.25 x 10.5R, 5.5 x 8.5R (Not Envelope, Extra)	
Productivity (A4, 8.5x11)	Non-offset (Normal output)	B/W	18cpm
		Color	18cpm
	Offset mode	B/W	18cpm
		Color	18cpm
Offset range	30mm		
Range of error (In using the recommended paper, A4/8.5 x 11)		Horizontal direction	Vertical direction
	Non-offset	Not drop from the tray.	–
	Offset mode	Within 50mm	Within $\pm$ 10mm

##### (5) Engine resolution

Resolution	Writing: 600 x 600dpi 1200 x 600dpi (Monochrome printing only.) * Rotation output not allowed at 1200dpi x 600dpi. PS expansion kit needed.
Smoothing function	None
Gradation	Writing: Monochrome: 2 levels (1bit) / Equivalent of 256 steps Color: Each color 2 levels (1bit) / Each color 16 levels (4bits) / Equivalent of 256 steps

##### (6) Warmup

Warmup time	80 sec or less * The value may be increased if process-control processing is being executed. Same as current model
Pre-heat	Yes

##### (7) Jam recovery time

With the door open	Approx. 60 sec	Condition: After the door is kept open for 60 seconds, standard setting, the polygon motor halt
--------------------	----------------	---

##### (8) Printable area

A3	293 x 413mm	12 x 18 *	279 x 432mm
B4	253 x 357mm	11 x 17	275 x 425mm
A4	206 x 290mm	8.5 x 14	212 x 349mm
B5	178 x 250mm	8.5 x 13	212 x 323mm
A5	144 x 203mm	8.5 x 11	212 x 272mm
7.25 x 10.5	180 x 260mm	5.5 x 8.5	136 x 209mm
Postcard	96 x 141mm	8K	266 x 383mm
		16K	191 x 263mm

\* The printable area for 12 x 18 must be as large as the A3/11 x 17 page dimension by PCL / PS driver.

##### (9) Void area

Void area Image loss	Top: 4 mm or less Bottom: 3 mm or less FR Total: 4 mm or less
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## (10) Auto Color Selection

	Copy	Print	Scan
Read	The decision -color or monochrome- is decided when the document is scanned. The scanning speed for color is always adopted.	N/A	The decision -color or monochrome- is decided when the document is scanned. The scanning speed for color is always adopted.
Output	For the output of a black-white original, the decision to switch from color mode to black-white mode is made when the drum running distance shortens. First copy (print): If a fixed number of black-white pages are contained in a series, switch from color mode to black-white mode, starting with the first page of the batch. If the original starts with a black-white page, the output will start in the black-white mode. From the second copy (print) on: The condition is completely understood. If there are a fixed number of black-white pages in a series, switch to the black-white mode, starting with the first page in the series.	N/A	
Count	Black-white count for the pages recognized as black-white. Color count for the pages recognized as colored. For N-UP, a page will be counted as a color page if there is at least one colored page inserted upon N-UP.		

## (11) Power source

200V type	
Voltage / Current	220 – 240V 8A
Frequency	50/60Hz
Power source code	Inlet type
Power switch	2 switches (Primary switch: in the front cover; Secondary switch: the operation panel)

## (12) Power consumption

200V type	
Maximum rated power consumption	1.84kW

\*1: Heater is OFF when power source ON.

## (13) Noise

In action	B/W : 63dB or less Color : 63dB or less
Standby	B/W : 55dB or less

## (14) Dimensions

Outer dimensions (W x D x H) (with Multi Manual)	620 x 670 x 950mm (24 13/32 x 26 3/8 x 37 26/64 inch)
Footprint (W x D)	590 x 670mm (23 15/64 x 26 3/8 inch)

## (15) Weight

Main unit	Approx. 112kg (247lbs)
Main unit + Developer + Toner cartridge	Approx. 116kg (256lbs)

## (16) Dimensions occupied by Machine (with Multi Manual/Exit tray extended)

W1050 x D670mm (W41-22/64 x D26-3/8 inch)
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## B. Paper feed unit/Transport/Paper exit section

### (1) Machine paper feed tray

Form	Standard: Double feeder tray + multi manual Maximum: Fourfold feeder tray + multi manual + large capacity feeder cassette
Feeding method	Feeding from the upper section with front loading
Heater (Engine part)	Service parts

### (2) Paper feed tray 1/tray 2

Feeding method	Feeding from the upper section with front loading
Heater (Engine part)	Service parts
Paper size	A3, B4, A4, A4R, B5, B5R, A5R, 8K, 16K, 16KR 11 x 17, 8.5 x 14, 8.5 x 13, 8.5 x 11, 8.5 x 11R, 7.25 x 10.5R, 5.5 x 8.5R
Changing of paper size	Guide adjustment by users and size setting through key input
Paper type setting	Yes
Default paper size setting	(Tray 1) Abroad-AB : A4 Abroad-inches : 8.5 x 11 (Tray 2) Abroad-AB : A3 Abroad-inches : 11 x 17
Feedable paper type/weight	Plain paper: 60-105g/m <sup>2</sup> (16-28 lbs)
Paper capacity	Standard paper: 500 sheets (80g/m <sup>2</sup> , 21lbs)
Paper Type	Plain paper, pre-printed paper (not including backing paper), recycled paper, letter head, pre-punched paper, colored paper * Users can set up all of these paper types.
Paper size detection (Size setting through key input)	A3, B4, A4, A4R, B5, B5R, A5R, 8.5 x 13 11 x 17, 8.5 x 14, 8.5 x 11, 8.5 x 11R, 5.5 x 8.5R, 7.25 x 10.5R, 8K, 16K, 16KR
Detection of Remaining Paper	Level detection (4 levels: 100%, 67%, 33%, and none)

### (3) Manual feed tray (Bypass tray)

Paper Size	A3, B4, A4, A4R, B5, B5R, A5R, 8K, 16K, 16KR 12 x 18, 11 x 17, 8.5 x 14, 8.5 x 13, 8.5 x 11, 8.5 x 11R, 7.25 x 10.5R, 5.5 x 8.5R Envelope (Monarch / Com-10 / DL / C5 / Rectangle 3 / Western 2 / Western 4) Extra Size (Tab paper is limited to A4; tab width 12mm-20mm / 8.5 x 11; tab width 6.1-17mm)	
Changing of paper size	Guide adjustment by users	
Paper type setting	Yes	
Feedable paper type/weight	Thin paper: 55 – 59g/m <sup>2</sup> (15 – 16 lbs) Plain paper: 60 – 105g/m <sup>2</sup> (16 – 28 lbs) Heavy Paper: 106 – 209g/m <sup>2</sup> (28+ – 56 lbs) Envelope: 75 – 90g/m <sup>2</sup> (20 – 24 lbs) OHP Label paper Tab paper Gloss Paper	
Paper capacity	Standard paper: 100 sheets Envelope: 20 sheets OHP: 20 sheets Heavy paper: 40 sheets Tab paper: 20 sheets Gloss paper: 20 sheets Other special paper: 1 sheet	
Paper Type	Plain paper, pre-printed paper (Excluding back print paper), recycled paper, letter head, pre-punched paper, colored paper, heavy paper, thin paper, label paper, OHP, tab paper, envelope. * Users can set up all of these paper types.	
Paper size detection	Auto Detect Auto-AB	A3, B4, A4, A4R, B5, B5R, A5R, 8.5 x 13, Postcard, 8.5 x 11, 11 x 17
	Auto Detect Auto-Inch	12 x 18, 11 x 17, 8.5 x 14, 8.5 x 11, 8.5 x 11R, 5.5 x 8.5R, 7.25 x 10.5R, A3, B4, A4, B5
	For China	A3, B4, A4, A4R, B5, B5R, A5R, 11 x 17, 8.5 x 14, 8.5 x 11, 8K, 16K

Detection of remaining paper	yes or no only
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#### (4) Double-sided

Method	Non-Stack
Paper size	A3, B4, A4, A4R, B5, B5R, A5R, 8K, 16K, 16KR, 11 x 17, 8.5 x 14, 8.5 x 13, 8.5 x 11, 8.5 x 11R, 8.5 x 5.5R
Paper type	Plain paper, pre-printed paper (not including backing paper), recycled paper, letter head, pre-punched paper, colored paper
Paper weight (for duplex operation)	Plain paper: 60-105g/m <sup>2</sup> (16-28 lbs)
Logo paper support	For paper such as letterhead paper with front-back attributes, the engine control must be cared for printing side.

#### (5) Paper exit tray (Center tray)

Exit location/ method	Face down in the main unit
Exit capacity	500 sheets (A4 or 8.5 x 11 (color recommended paper))
Exit paper size/ type	All feedable paper except 12x18.
Exit paper detection	No
Exit tray full detection	Yes
Shifting function	Yes
Rotation sort	No

#### (6) Paper exit tray unit (Right tray)

\* Option (MX-TRX1)

Form	Exit tray unit
Transport standard	Center standard
Ejecting location/ method	External ejection from the right face of the main unit / face-down ejection
Tray capacity	100 sheets (A4 or 8.5 x 11 (color recommended paper))
Ejected paper size/ type	Any feedable paper except envelope and tab paper.
Full tray detection	Yes
Shifter	No
Dimensions	W289 x D405 x H52mm (W11-3/8 x D15-61/64 x H2-3/64 inch) With tray extended: W419 x D405 x H52mm (W16-1/2 x D15-61/64 x H2-3/64 inch)
Weight	Approx. 0.93kg (2lbs)
Installation/ maintenance	Installation by service personnel.
Optional detection	Setting by simulation (Sim. 26-1)
Packaged items	Exit tray, full actuator, installation advisory (in 6 languages)

#### (7) Reversing single pass feeder

Form		RSPF (Reversing single pass feeder)	
Scan speed		Monochrome (A4/8.5 x 11)	Color (A4/8.5 x 11)
	Copy	1-sided: 27 sheets/minute (600 x 300dpi, 1bit) 2-sided: 15 pages/minute (600 x 300dpi, 1bit)	1-sided: 27 sheets/minute (600 x 600dpi, 4bit) 2-sided: 12 pages/minute (600 x 600dpi, 4bit)
	Fax	1-sided: 48 sheets/minute (200 x 200dpi, 1bit) 2-sided: 15 pages/minute (200 x 200dpi, 1bit)	N/A
	Scanner	1-sided: 48 sheets/minute (200 x 200dpi, 1bit) 2-sided: 15 pages/minute (200 x 200dpi, 1bit)	1-sided: 35 sheets/minute (200 x 200dpi, 8bit) (when in full color) 2-sided: 15 pages/minute (200 x 200dpi, 8bit)
	Internet Fax	1-sided: 48 sheets/minute (200 x 200 dpi, 1bit) 2-sided: 15 pages/minute (200 x 200 dpi, 1bit)	N/A
Document setup direction		Upward standard (1toN feeding standard)	
Document standard location		Center standard (Rear one-side standard for random feeding)	
Document transport method		Sheet-through method	
Document sizes		Inch type-1	11 x 17, 8.5 x 14, 8.5 x 11, 8.5 x 11R, 8.5 x 5.5, A4, A3
		Inch type-2	11 x 17, 8.5 x 13, 8.5 x 11, 8.5 x 11R, 8.5 x 5.5, A4, A3
		AB type-1	A3, B4, A4, A4R, B5, B5R, A5, 8.5 x 11, 8.5 x 14, 11 x 17
		AB type-2	A3, B4, A4, A4R, B5, B5R, A5, 8.5 x 11, 216 x 330, 11 x 17
		AB type-3	A3, B4, A4, A4R, A5, 8K, 16K, 16KR, 8.5 x 11, 216 x 330, 11 x 17
		Long paper	800mm (Monochrome 2 levels only)
		Mixed feeding (same type / same width) possible Random feeding (feeding of different types / different widths) Only the following combinations of 2 size types are allowed: A3 and B4; B4 and A4R; A4 and B5; B5 and A5; and 11-inch and 8.5-inch. 2-sided scanning is disabled during random feeding. * When mix feeding, random feeding, or manual set of document size, scan speed is 16 pages/minute (A4, 8.5 x 11)	
Document weights	1-side	Thin paper	35 – 49g/m <sup>2</sup> (9 – 13 lbs) * Thin paper mode is (18 pages/minute (A4, 8.5 x 11) set up for the thin paper.
		Plain paper	50 – 128g/m <sup>2</sup> (13 – 34 lbs)
	2-side	50 – 105 g/m <sup>2</sup> (13 – 28 lbs)	
Document carrying capacity		Maximum: 100 sheets (80g/m <sup>2</sup> , 21lbs), or Maximum: 13 mm, 1/2 inch or less	
Types of document that may not be transported		The following documents are NOT allowed: OHP, 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-punched / 3-punched (Perforated document by punch unit is allowed.)	
Paper detection		Yes	

Paper detection size	Auto detection (Switching one type of detection unit through system setting)	
	Inch-1	11 x 17, 8.5 x 14, 8.5 x 11, 8.5 x 11R, 5.5 x 8.5, A4, A3
	Inch-2	11 x 17, 8.5 x 13, 8.5 x 11, 8.5 x 11R, 5.5 x 8.5, A4, A3
	AB-1	A3, B4, A4, A4R, B5, B5R, A5, 8.5 x 11, 8.5 x 14, 11 x 17
	AB-2	A3, B4, A4, A4R, B5, B5R, A5, 8.5 x 11, 216 x 330, 11 x 17
	AB-3	A3, B4, A4, A4R, A5, 8K, 16K, 16KR, 8.5 x 11, 216 x 330, 11 x 17
Paper feeding direction	Right hand feeding	
Document inversion	Yes	
Simultaneous double-sided scanning	Not allowed	
Maintenance parts	Paper feed roller, pick-up roller, separation roller	
Power source	Provided from the main unit	
Power consumption	35.8W	
Dimensions	W590 x D510 x H155 (mm) W23-15/64 x D20-5/64 x H6-7/64 (inch)	
Weight	Approx. 10kg (22.0lbs)	

## C. Scanner section

### (1) Resolution/Gradation (or Levels)

Scan resolution (dpi)	Copy mode		
		Monochrome	Color
	Original Cover	600 x 600dpi 600 x 300dpi (Default)	600 x 600dpi (Default)
	RSPF	600 x 600dpi 600 x 300dpi (Default)	600 x 600dpi (Default)
Transmission resolution (dpi)	Image process	(Scanner) 100 x 100dpi / 200 x 200dpi / 300 x 300dpi / 400 x 400dpi / 600 x 600dpi (Internet Fax) 200 x 100dpi (Half tone not allowed) / 200 x 200dpi / 200 x 400dpi / 400 x 400dpi / 600 x 600dpi (FAX) Standard (203.2 x 97.8dpi) (Half tone not allowed) / Fine (203.2 x 195.6 dpi) / Super fine (203.2 x 391dpi) / Ultra fine (406.4 x 391 dpi)	
		PC-FAX/ PC-Internet Fax 200 x 100dpi / 200 x 200dpi / 200 x 400dpi / 400 x 400dpi	
		Network TWAIN 75dpi / 100dpi / 150dpi / 200dpi / 300dpi / 400dpi / 600dpi or custom: 50-9600dpi	
Exposure lamp	Xenon		
Scan Levels	10bits		
Output levels	FAX mode: 1bit Internet Fax mode: 1bit Scanner mode: Black & White: 1bit Gray Scale: 8bit Full Color: Each color RGB 8bit		

## (2) Original cover

Scan Range	297 x 432mm	
Original Cover Standard Location	Left back as standard	
Detection	Yes	
Detection Size	Auto Detect (One type of detection unit to be switched for software destination)	
	Inch	<INCH-1> 11 x 17, 8.5 x 14, 8.5 x 11, 8.5 x 11R, 5.5 x 8.5 <INCH-2> 11 x 17, 8.5 x 13, 8.5 x 11, 8.5 x 11R, 5.5 x 8.5
	AB	<AB-1> A3, A4, A4R, A5, B4, B5, B5R <AB-2> A3, A4, A4R, A5, B5, B5R, 216 x 330 <AB-3> 8K, A4, A4R, A5, B4, 16K, 16KR
Heater (Scanner part)	Service parts	

## D. Fuser section

### (1) Type

System	Heat roller attachment system
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## 2. Functional specifications

### A. Specifications of copy functions

#### (1) Copy speed (Continuous copy speed)

##### a. Tray 1 – 4

Paper size	B/W	Color
A3, 11 x 17, 8K	11	10
B4, 8.5 x 14, 8.5 x 13	13	11
A4, B5, 8.5 x 11, 16K	18	18
A4R, B5R, A5R, 8.5 x 11R, 7.25 x 10.5R, 5.5 x 8.5R, 16KR	14	13

##### b. Manual feed

Paper size	B/W	Color
A3, 11 x 17, 8K	11	10
B4, 8.5 x 14, 8.5 x 13	13	11
A4, 8.5 x 11, 16K	18	18
B5	18	18
A4R, 16KR	14	13
8.5 x 11R	14	13
B5R, 7.25 x 10.5R	12	11
A5R, 5.5 x 8.5R	14	13
A3W, 12 x 18 *	10	10
OHP(A4, 8.5 x 11)	11	10
OHP(A4R, 8.5 x 11R)	9	7
Extra	10	9
Envelope	10	9
Heavy paper (B5, A4, A5R, 8.5 x 11, 8.5 x 5.5R, 16K)	11	10
Heavy paper (Other sizes)	7	5

\* Indicates the engine speed when the inner finisher (option) provides an output. (For A3W and 12 x 18, paper exit to the center tray of the main unit is disabled.)

### (2) First copy time

Platen/RSPF	B/W	Color
Platen	6.3 sec	8.9 sec
RSPF	11.6 sec	16.9 sec

[Measuring Conditions]

\* Polygon in rotation

\* Feeding A4/8.5 x 11 (landscape) paper from the main unit tray 1

\* No Auto Color Selection and No Auto Color for color

### (3) Job speed

#### a. Document changing speed (in copy mode)

Mode	B/W	Color
S to S	18cpm (100%)	18cpm (100%)

\* The copy speed in combination of the main unit and the auto document feed user is defined.

\* S to S: A4/8.5 x 11 document, 11 pages and 1 copy (not including the first copy)

Monochrome: 600 x 300dpi and color: 600 x 600dpi (default)

#### b. BLI standard

Mode	B/W (1bit)	Color (4bit)
Copy method	S to S	16cpm (89%)
	S to D	15cpm (83%)
	D to D	15cpm (83%)

\* S to S: 10 pages of A4/8.5 x 11 document and 5 copies

\* S to D: 10 pages of A4/8.5 x 11 document and 5 copies

\* D to D: 10 pages (20 sides) of A4/8.5 x 11 document and 5 copies

#### c. Bertl standard

Mode	B/W (1bit)	Color (4bit)
Copy method	S to S	15cpm (83%)
	S to D	12cpm (67%)
	D to D	14cpm (78%)

\* S to S: 5 pages of A4/8.5 x 11 document and 5 copies

\* S to D: 10 pages of A4/8.5 x 11 document and 1 copy

\* D to D: 5 pages (10 sides) of A4/8.5 x 11 document and 5 copies

### (4) Continuous copy

Multi max. number	999 sheets
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### (5) Resolution

Scan resolution	600 x 600dpi
Writing resolution	600 x 600dpi

### (6) Copy document

Document	Max. A3 (11 x 17)
Document type	Sheet/Book original

### (7) Copy magnification ratio

Copy magnification ratio	Normal: 1:1±0.8% AB series: 25%, 50%, 70%, 81%, 86%, 100%, 115%, 122%, 141%, 200%, 400% Inch series: 25%, 50%, 64%, 77%, 100%, 121%, 129%, 200%, 400%
Zoom	25 – 400% (25 – 200% for RSPF)
Preset magnification ratio	4
XY zoom	Yes

### (8) Density, copy image quality processing

Exposure mode	Automatic (Color: Auto Color, Black-white: Character AE) Text, Text/Printed Photo, Print photo, Text/Photo, Photo, Map, Pale-color document.
Copy document mode	Effective for Text, Text/Printed photo, Printed photo mode.
Color emphasis	Effective for Text, Text/Printed photo, Printed photo, Text/Photo, Photo, Map mode.
Manual steps	9 steps
Toner save mode	Monochrome: Yes Color: Yes Off on printed photo, photo or pale-color document

### (9) Color copy mode

Auto Color Selection copy	Copy mode automatically discerning color/monochrome.
Full color mode	Enforced full color mode
2-color mode	Red-black mode (Change red point in document into other color) Mode to select black and another color from R/G/B/C/M/Y
Single color mode	Mode to select one color from R/G/B/C/M/Y
Monochrome copy mode	Enforced monochrome copy mode

### (10) Color Adjustment

RGB adjustment	Yes
Color balance	Yes
Saturation adjustment	Yes
Brightness adjustment	Yes
Contrast adjustment	No
Sharpness adjustment	Yes
Background removal	Yes
Auto color calibration	Allowed by system setting
Registration adjustment	Allowed by system setting (automatic-manual)

### (11) Copy functions

Function	Automatic paper selection	Yes (Mixed/random size feeding supported)
	Automatic magnification selection	Yes
	Paper type select	Yes Type setting allowed
	Auto tray switching	Yes
	Rotated copy	Yes Large rotated copy exceeding A4 supported
	Electronic sort	Yes
	Rotated sort	No Unavailable
	Job reservation	Yes
	Program call/registration.	Yes (The program name can be registered.)
	Preheat function	Yes Conditions set up by system setting
	Auto power shutoff	Yes Conditions set up by system setting
	User authentication	200
	Process control	Yes
	Tandem copy	Yes
	Mixed document feeder	Yes (Random + MIX)
	Document paper size input	Yes (Determinate/indeterminate size)
	Indeterminate paper size input	Yes
	2-sided copy direction switch	Yes
Special function	Margin shift	Yes
	Edge/center erase	Yes
	Dual page copy	Yes
	Cover/insertion	Yes
	Tab paper insertion	Yes (Insertion only. Tab copy not allowed. Staple/Punch not allowed.)
	OHP insertion	Yes
	Tab copy	Yes
	Centering	Yes
	2in1/4in1	Yes
	Pamphlet	Yes

Special function	Card shot	Yes
	Book copy	Yes
	Large capacity document mode	Yes
	Black-white Inversion	Yes (Only black-white copy allowed/ color copy not allowed upon setup Not ready)
	Multi-Page Enlargement	Yes
	Mirror image	Yes
	Photo repeat	Yes
	Date print	Yes (Colored allowed: Bk, C, M, Y)
	Character	Yes (Colored allowed: Bk, C, M, Y)
	Stamp	Yes (Colored allowed: Bk, C, M, Y)
	Page printing	Yes (Colored allowed: Bk, C, M, Y)
	Shading	No
	Proof copy	Yes
	Document Control	Yes (with Data Security Kit equipped)

## B. Image send function

### (1) Mode

Scanner	Scan to e-mail Scan to Desktop Scan to FTP Scan to Folder(SMB) Scan to USB memory Scan to e-mail with Meta Scan to Desktop with Meta Scan to FTP with Meta Scan to SMB with Meta
Internet Fax	Internet Fax to e-mail/FTP Full mode supported (including Simple mode)
IP-FAX	No

### (2) System environment

	Copier memory (Local memory)	Printer memory (System Memory)	Data saving destination
Scanner	768MB	640MB	HDD
Internet Fax	768MB	640MB	HDD

### (3) Image send function (Push send from the main unit)

#### a. Support system

Item	Scanner	Internet Fax
Corresponding server /protocol	SMTP FTP(TCP/IP) SMB	POP server SMTP server ESMTP server

#### b. Support image

Item	Scanner	Internet Fax
File format	Monochrome: TIFF, PDF, Encrypted PDF Color: Gray scale, color TIFF, JPEG, PDF, Encrypted PDF	Monochrome TIFF-FX (TIFF-F, TIFF-S)
Compression method	<b>[Monochrome]</b> <ul style="list-style-type: none"> <li>Non-compression</li> <li>G3 (1-dimensional) = MH (Modified Huffman)</li> <li>G4 = MMR (Modified MR)</li> </ul> <b>[Color/Gray scale]</b> <ul style="list-style-type: none"> <li>JPEG (High, middle, low)</li> </ul>	MH, MMR
Specified pages per size (number of page(s) specification allowed)	Yes	---

## c. Image processing

Item	Scanner	Internet Fax
Original scanning color	Full color, grayscale, B/W	B/W
Auto color selection	<b>[When Color start key pressed.]</b> <ul style="list-style-type: none"> <li>Auto (When judged as Color : Full color, When judged as B/W : B/W (2 value)/Gray scale)</li> </ul> <b>[When B/W start key]</b> <ul style="list-style-type: none"> <li>B/W (2 value)</li> <li>Gray scale</li> </ul>	---
Halftone reproduction	Equivalent of 256 steps	
Density adjustment	Auto + 5 steps (The image quality of "Auto" is the same as that of "Manual = 3" when selecting full color/ grayscale.)	Auto + 5 steps
	Black-white enabled <ul style="list-style-type: none"> <li>Auto</li> <li>Manual</li> </ul> Color button enabled When selecting "Auto": <ul style="list-style-type: none"> <li>Text/printed photo</li> <li>Text/photo</li> <li>Text</li> </ul> When selecting "Manual": <ul style="list-style-type: none"> <li>Text/printed photo</li> <li>Text/Photo</li> <li>Text</li> <li>Photo</li> <li>Printed photo</li> <li>Map</li> </ul>	---
Selection of image quality	---	Half tone (Black-white only) ON/OFF
Resolution (depends on file format/transmission method)	100 x 100 dpi	200 x 100dpi (Half tone not allowed)
	200 x 200 dpi	200 x 200dpi
	300 x 300 dpi	200 x 400dpi
	400 x 400 dpi	400 x 400dpi
	600 x 600 dpi	600 x 600dpi
Moire reduction mode	Yes (Color/grayscale)	---
Notes' security feature	Yes (color only)	---

#### d. Specification of Addresses

Item	Scanner	Internet Fax
Address specification	Specification by one-touch/group/direct address entry. Entry from soft keyboard. (Scanner/Internet Fax) Entry from 10-key. (Fax) Selection from LDAP server	
Setting of default address *1	Yes	---
Number of One-touch address key registration	Total (number of key): Maximum 999	
Number of Group (1 key) address registration	Number of Group (1 key) address registration : maximum 500 Number of Group key registration : 5000 (Total address number included in /999 key)	
Program	48	
Direct entry of addresses	Soft keyboard	
Chain dial	---	
Resend	Call up nearest 8 addresses. *4	

Item	Scanner	Internet Fax
Shortcut for address selection (quick key)	Use the 10-key to call up registered numbers of addresses.	
CC/BCC sending	Yes	---
Subjet	Selective/direct entry from the list	
File name	Selective/direct entry from the list	
Sender name	Selective/direct entry from the list/selection from LDAP server	--- (1 default address fixed as sender name)
Transmission message (message body)	Selective/direct entry from the list. (Number of characters: Maximum of 1800 half-size characters (888 full size characters))	
Preset mail footer *2	Yes	
Disable direct entry transmission *3	Yes	
Disable PC- Fax sending	Yes	
Disable Internet Fax sending	Yes	

\*1: The scanner mode allows setting the default address. To transmit data, users only have to set the original and press the start key.

\*2: Function to set up a text message that will be added automatically to the message body upon mail transmission. Editing upon transmission is not allowed.

\*3: When disabled, the address registration is not allowed either.

\*4: Except for FTP, Desktop, SMB, USB memory, Broadcast.

#### e. Specification of Multiple Addresses

Item	Scanner	Internet Fax
Broadcast	Yes (500 destinations) (e-mail/FTP/Desktop allowed)	Yes (500 destinations)

\* Broadcast transmission by scanner, Internet Fax and Fax is allowed. (Monochrome only)

#### f. Transmission function

Item	Scanner	Internet Fax
Memory transmission	94 destinations in all	
Rotated transmission	---	Yes
Scaled transmission	Yes Enlargement/reduction is allowed only from a fixed size to another. Reduction may be done on the receiver side with Fax/Internet Fax sending.	
Recall mode	Error	---
	Busy	---
	---	Number/time to be set up through system setup
Long original transmission	Yes Maximum of 800mm (single side only/black-white 2 values only)	
Change of the number of pages for each file	Yes	---
Job partition through recognition of white paper.	No	---
Restriction on transmission size	Yes	---
Large capacity original mode	Yes	
Scanning of thin paper	Yes	
Mixed originals feeder	Yes (Random + MIX)	
Default date sender transmission	---	Yes (ON only)

#### g. Reception function

Item	Internet Fax
Automatic reception	Yes
Manual reception	Yes
Memory reception	Yes
Fixed size reduced reception	Yes
Specified size scaled reception	No
Rotated reception	Yes
Setting of received data print condition	No
2-sided reception	Condition setting through system setting
2-in-1 reception	No
Automatic reduction setting upon receiving A3	Yes
Automatic reduction setting upon receiving letter	Yes
Address/Domain-specified reception allowed	Yes (50 domains)
Address/Domain-specified reception not allowed. (To be rejected)	Yes (50 domains)
Received data bypass output	Yes
Reception confirmation cycle setting	Setting by 0-8 hours/each minute
POP3 communications timeout setting	Setting by 30-300/each 30 seconds
Index printing	No
Body text print select setting	Yes
Transfer function upon disabling of output.	Yes (1 receiver (of transfer) registration)
Internet Fax/Fax to e-mail (Transfer of Internet Fax/Fax reception data to e-mail, inbound routing)	Yes
Exit tray setting	Yes
Insertion of job separator sheet	No
Staple function of received data	Yes
Auto wake up print *1	Yes
Received data print hold *2	Yes
Color toner print when black toner runs out.	No
Fax response lamp	No

\*1: The auto wake up print for Internet Fax is a pseudo night-time mode with main power source (primary) switch ON and main unit power (secondary) switch OFF. Following the interval of the reception confirmation cycle, it allows reception of the data from a POP server (if there are any) and launch the main unit for output. (It cannot attain the pseudo night-time mode if the main power source (primary) switch is off. In this case, this function is not supported.)

\*2: This function saves all received data in memory and starts output after password entry. (Confidential reception is excluded.) Setting only on the receiver side.

#### h. Report/list function

Item	Scanner	Internet Fax
Image sending activity report	Yes Time-specified output Output with memory full * Maximum of 200 times including both transmission and reception	
Transaction report	Yes	
Address/phone number table	Yes	
Group table	Yes	
Program table	Yes	
Communication original contents print	---	Always print/Upon error/no print
List of addresses allowed or not allowed for reception	---	Yes

## i. Other Functions

Item	Scanner	Internet Fax
Time specification	Yes	
Sender print	---	Yes
Page number print	---	Yes
Date print	---	Yes (Date can be expressed alternatively)
Page partition transmission	Yes	
Page connection	No	
Edge erase	Yes	
Center erase	Yes	
2 in 1	No (Allowed for Fax / Internet Fax broadcast)	Yes
Background removal	Yes (Only color and gray scale)	---
Card shot	Yes (Equivalent or enlargement up to the paper width. The maximum enlargement is not allowed to exceed 400%)	
Confirm transmission	---	Yes Timeout time Setting for 1 minute – 240 hours/ each minute
Forward data transmission/reception (Document Admin)	Yes Data transmission by PC-Fax/PC-Internet Fax is allowed, too.	

\* This function means that e-mail address setting on F code relay broadcast allowed.

## j. Record size

Item	Internet Fax
Maximum record width	293mm / 11-17/32
Record size	A3 – A5/11 x 17 – 5.5 x 8.5

## k. Registration-related settings

Item	Scanner	Internet Fax
One-touch/group *1 E-mail FTP Desktop SMB Internet Fax	999 destinations Use of LDAP allowed Up to 500 registered addresses for each group dial. Registered name in 18 full-size character (36 half-size characters)	
Default address setup	Yes	---
Desktop registration	Yes Registration by using Web or NST	---
Program	Registration of addresses (groups), settings (density, image quality) and special functions in one set is allowed. (48 of them)	
Sender registration	200 (user registration from Web) *2	---
Number of sender registration	---	1 (20 characters)
Quick key (short cut registration) *3	Yes (001 – 999)	
Retrieving/scanning of registered data to other model	Yes (By address book conversion utility)	
Import/export of address book	Yes (By storage backup)	

\*1: Since scan/Internet Fax/Fax uses the common address book, the number of addresses allowed for registration is the sum total of all modes.

\*2: The book for address selection is used when a scan sender is selected.

\*3: Quick key is the function to select an address based on the registered number of each address within the book for address selection. Users should be able to select a quick key number.

## l. Sound settings

Item	Item	Scanner	Internet Fax
Reception sound	Sound volume setting	---	Yes *1
Communication error sound	Sound volume setting	---	Yes *2
Sound setting for end of original reading (image send)	Sound volume setting	Yes *1	

\*1: Large/middle/small. Setup by system setting.

\*2: Large/middle/small/no sound. Setup by system setting.

## m. Others

Item	Scanner	Internet FAX
PC-Internet Fax	---	Yes

## C. PC-Fax functions

### (1) PC-Fax/PC-Internet Fax operating environment

OS	Windows 98 Windows Me Windows NT4.0 Workstation (Service Pack5, IE4.0 or more) Windows 2000 Windows XP Home Edition Windows XP Professional Windows Server 2003 Windows Vista*
PC	IBM PC/AT compatible machine
CPU	Pentium II 300MHz or more
Monitor	640x480 Pixels or more of screen resolution 256 or more of colors
Memory	64MB or more
HDD	Free space of 50MB or more
Interface	USB2.0 10/100BASE-TX
Communications protocol	LPR/lp Port9100(RAW) IPP USB2.0

\* By Web support

### (2) PC-Fax/PC-Internet Fax functions

PC-Fax Send	Yes (with Fax equipped) Maximum of 64 digits for Fax number (including sub-address and passcode)
PC-Internet Fax Send	Yes (Necessary options: Internet Fax expansion kit) Maximum of 64 digits for Internet Fax address
Resolution	200 x 100dpi/200 x 200dpi /200 x 400dpi/400 x 400dpi
Transmission original sizes	A3/B4/A4/A5/B5/11 x 17/8.5 x 14/8.5 x 11/5.5 x 8.5/8.5 x 13/8K/16K
Compression method	MH/MMR
Broadcast transmission	Yes (Fax, Internet Fax mixture possible. Maximum of 500)
F code transmission	Yes Sub-address Passcode Yes Maximum of 20 digits Yes Maximum of 20 digits
Phone book registration/transmission function	Yes
Use of MFP phone book	No
Attach a cover sheet	Yes (Not allowed for broadcast transmission)
Create cover sheets function	Yes
Preview function	Yes
Transmission confirmation (Notice to PC by NJR)	Yes
Document filing function	Filing Quick File Yes Yes

PC-Fax Transmission log	Yes (Re-transmission not allowed)
User authentication	Yes
Timer	No
R-KEY (SEEG/SEF only)	Yes

## D. Remote PC Functions (Network TWAIN)

Pull scan (TWAIN) specification

Interfaces	NIC	Yes
	USB	No
OS's	Windows 98/Me/2000/XP/2003 Server/Vista* * By Web support	
WHQL validated OS's	Windows 2000/XP/Vista	
Hardware environment	System: Must satisfy the operational conditions for each OS. HDD: 10MB or more: 100MB or more recommended. Monitor: 800 x 600 dots or more; 256 or more of colors must be available. Other: Network port	
2-sided scan	Yes	
Color modes	Mono 2 gradation/Mono Diffusion/Grayscale/Full Color	
Resolutions	75dpi/100dpi/150dpi/200dpi/300dpi/400dpi/600dpi or custom: 50-9600dpi	
Scanning ranges	A3/A4/A4-R/A5/A5-R/B4/B5/B5-R/11 x 17/8.5 x 11/8.5 x 11-R/7.25 x 10.5/7.25 x 10.5-R/8.5 x 13/5.5 x 8.5/5.5 x 8.5-R/8.5 x 14/Postcard/8K/16K/16K-R/Auto/Auto(Mixed size)/Custom * "Auto" includes the same width (Mix). "Auto (Mixed size)" means random.	
Preview function	Yes	
Zoom preview function	Yes	
Rotated scan	Yes (90-degree/ 180-degree/ 270-degree)	
Brightness/contrast adjustment	Auto/ manual (-100 – +100)	
Gamma adjustment	Yes	
Color matching	None/For Printer/For CRT/For LCD/ICM	
Edge emphasis	None/Normal/Sharp/Blur	
Black-white inversion	Yes	
Selection of illuminant color	Yes (Red/Green/Blue/White)	
Selection of threshold value	Auto/ manual (1 – 254)	
Addition of void area	Allowed (4 sides; 2.5mm for each)	
Save of setup contents	Yes	
Save of preview image	Yes	
Display unit of scanning range	Pixel/mm/inch	
Notes's security function	Yes	
Image acquisition method from the main unit	Non-compression	

## E. Printer function

### (1) Platform

- IBM PC/AT compatible machine
- Macintosh

### (2) Support OS

Custom PS	Windows 98/Me Windows NT 4.0 SP5 or later* Windows 2000 Windows XP Windows Server 2003 Windows Vista*
Custom PCL5c/6	Windows 98/Me Windows NT 4.0 SP5 or later* Windows 2000 Windows XP Windows Server 2003 Windows Vista*
PPD	Windows 98/Me Windows NT 4.0 SP5 or later* Windows 2000 Windows XP Windows Server 2003 Windows Vista* MacOS 9.0-9.2.2, x 10.1.5, x 10.2.8, x 10.3.3 – 10.3.9, x 10.4
WHQL	Windows 2000 Windows XP Windows Server 2003 Windows Vista*

\* By Web support

### (3) Command system

PCL5c compatible	Standard
PCL6 compatible	
PS3 compatible	Option (PS3 expansion kit: MX-PKX1)

### (4) Installed fonts

For PCL5c/PCL6 compatible	Roman outline fonts = 80 types Line printer font (Bitmap) = 1 type
For PS3 (Option)	Roman outline fonts = 136 types

### (5) Print channel

Support print channel	<ul style="list-style-type: none"> <li>• USB2.0 (high speed)</li> <li>• PSERVER/RPRINT for netware environment</li> <li>• LPR</li> <li>• IPP</li> <li>• PAP: EtherTalk (AppleTalk)</li> <li>• FTP</li> <li>• NetBEUI</li> <li>• Raw Port (Port9100)</li> <li>• HTTP (Web Submit Print)</li> <li>• POP3 (E-Mail To Print)</li> </ul>
USB	USB 1.1: Windows 98/Me/2000/Server 2003/XP/Vista only USB 2.0 (High speed): Windows 2000/Server 2003/XP/Vista only
PSERVER/RPRINT for NetWare environment	Print channel in PSERVER/PRINT mode to be used in netware environment
LPR	UNIX LPR/LPD command-compatible print channel
IPP	Print channel in compliance with IPP1.0
PAP: EtherTalk (AppleTalk)	Print channel to be used for Machintosh environment
FTP	Equipped with the function to print data received via built-in FTP server
NetBEUI	Microsoft NetBEUI compatible print channel
Port9100	9100 TCP port (Raw Port) supported

### (6) Command Compatibility

PCL5c compatibility	PCL5c must be compatible with HP Color Laser Jet 4600.
PCL XL compatibility	PCL XL must be compatible with HP Color Laser Jet 4600.
PostScript compatibility	Must be compatible with Adobe PS3.



## (7) Environmental settings

Setting item	Overview
Initial setting	Basic settings for printer use such as number of copies or printing direction.
PCL setting	Setting of PCL symbols and fonts
PS setting	Whether or not printing is allowed upon PS error is to be set up.

## (8) Print functions

Function	Content	PCL6/5c	PS (Option)
Network tandem print	Two units connected via network can be used simultaneously for a printout.	Yes	Yes (Windows only)
Encryption PDF/PDF/ TIFF/JPEG direct print	PDF/TIFF/JPEG file can be printed without printer driver. 1) Printing of e-mail attachment file 2) Printing from FTP server 3) Printing from setup file on Web page 4) USB memory	Yes (No for encrypted PDF/PDF)	Yes
E-Mail To Print	Direct printing of an attached file upon receipt of the e-mail.	Yes	Yes
Pull print from front panel	Browsing of FTP server from front panel and pull-printing of a specified file (direct printing).	Yes	Yes
Print by file setup on Web page [Web Submit Print]	Setting and direct printing of a file on network through Web page.	Yes	Yes
Continuous print function	The function executes multiple print jobs continuously as if they are one single job even if the unit receives an end of job command, in order to support print from the application assuming printout on continuous pages.	Yes	Yes
ROPM	The function enables the printout of a multiple number of copies in one RIP processing.	Yes	Yes
Multi-access	RIP processing must be allowed during printing. Printing must also be allowed during scanning.	Yes	Yes
Paper direction setting for 2-sided printing of letterhead paper and pre-punched paper.	Pages with front-back attribute such letterhead or punch paper are to be printed correctly in front-back page order for 2-sided printing.	Yes	Yes
Enable selected paper type in bypass tray	For setting of bypass tray, even if the setup values on the main unit side do not match with those on the driver side, the printing will be executed in the setting of the driver regardless of the setup values on the main unit side.	Yes	Yes
Setting environmental control under terminal server control	Print setting of each client is memorized under meta frame environment (auto print create environment). (Setup for each log-in can be skipped.)	Yes	Yes
Driver delivery function	PAU4.0 allows the administrator to deliver a driver to clients.	Yes	Yes
Form overlay	The function downloads a form to the main unit beforehand, sends the contained data only, and inserts the data into the form in the main unit for printout.	Yes (5c only)	No
Planet Press	Object Lune Corporation's Planet Press (Software to execute the mapping of forms (DL beforehand) and variable data in the printer interior)	Yes	Yes
Improvement of downloading method of font form	This expands the function to prevent the deletion and overwriting of the editing functional enhancement font/form on Web page. A unified UI for the lineup is necessary. Currently, registration is done by Web page and deleted by P.J.L. This function is supported by HDD.	Yes (5c only)	Yes
Management of password by hidden Web page	The purpose is to prevent the access even if the hidden Web page address becomes known.	Yes	Yes
Expansion font list	In self-print of a font list, ESC command information is needed for BITMAP font.	Yes (5c only)	No
Bonjour for Macintosh environment	This technology detects and connects peripheral equipment on the network automatically. The dynamic network connection (computer, peripheral equipment and software) is possible without user setting.	No	Yes
Document control	When printing, the unique pattern for prevention against unauthorized copy is embedded in printing.	Yes (OPT)	Yes (OPT)
Object judgement (screen change/color change)	In the printer color mode output, object of image data (area of photograph/graphic text) is judged. Print screen (resolution) and profile (color) are changed automatically.	PCL6: Yes PCL5: No	Yes
CMYK Simulation	Choice of CMYK simulation is as follows. 1) Default 2) Custom Default is defined depending on the destination of service simulation. 1. Japan = Japan Color 2. North America / China / Other abroad inch type = SWOP 3. Europe / Other abroad AB type = Euroscale Custom profile can upload by Web setting. Notation of driver is Custom. Example: Use SWOP profile in Japan.	No	Yes
ICC Profile	<Source Profile> Choice of source profile is as follows. • sRGB • AppleRGB • Custom Custom profile can upload by Web setting. (The attached ICC profile on devices is available.) <Output Profile> There is no user selection for output profile. Sharp provides Custom profile. Upload of profile supports by service. The tool is set on the Web (service setting). The concrete method of profile making is to be considered separately.	Yes	Yes
Pantone color	For Pantone color support, the profile upload can be made by Web setting.	No	Yes

## (9) Windows driver function

### PCL5-c/6: Standard

**PS:** Option (Installation of the PS3 expansion kit (MX-PKX1) is required.)

#### a. Frequently used functions

Function	PCL5-c/6	PS	PPD
Copies (Copy processing by MFP/Printer firmware)	1-999		
Orientation	Portrait/Landscape		
Duplex	2-Sided (Book) 2-Sided (Tablet)		
Pamphlet (Pamphlet processing by MFP/Printer firmware)	2-Up Pamphlet		N/A
	Tiled Pamphlet		
Binding Edge	Top/Left/Right		N/A
N-Up Printing	1-Up, 2-Up, 4-Up, 6-Up, 8-Up, 9-Up, 16-Up	(Windows NT: N/A) (Windows 9x: 1-Up/2-Up/4-up)	
Black N-Up Border	Yes/No		N/A
N-Up Order	[2-Up] Left to Right Right to Left [4, 6, 8, 9, 16-Up] Right, and Down Down, and Right Left, and Down Down, and Left		

#### b. Paper feed system

Function	PCL5-c/6	PS	PPD
Paper Size	A2 (Fit To Page) (PCL6 only)	N/A	N/A
	12 x 18, A3, A4, A5, B4, B5, 11 x 17, 8.5 x 11, 8.5 x 14, 7.25 x 10.5, 8.5 x 13, 5.5 x 8.5, 8K, 16K, DL, C5, COM10, Monarch, Custom Paper		
Paper Selection	Paper Source Paper Type	Auto Selection/ Paper Source / Paper Type	
Different Paper	Cover Page		N/A
	Last Page		N/A
	Other Page		N/A
Transparency Inserts	Blank/Printed		
Tab Printing	Image Shift		N/A
	Tab Paper Printing (PCL6 only)	N/A	
Set Tray Status	Set Paper Size Set Paper Type		N/A
Paper Type Name (USER TYPE 1-7)	Display Name		N/A
Input Tray Options	Two Trays/Three Trays/Four Trays		N/A

#### c. Paper exit method

Function	PCL5-c/6	PS	PPD
Output Tray	Center Tray/Right Tray/Offset Tray		
Staple	None/1-Staple/2-Staples		
Punch	Yes/No		
No Offset	Yes/No		
Output Tray Options	None/Finisher		
Punch Module	None/2 Holes/3 Holes/4 Holes/4 Holes (Wide)		
Right Tray	Yes/No		

#### d. Exposure

Function	PCL5-c/6	PS	PPD
Resolution	600 x 600dpi 300 x 300dpi	1200 x 600dpi (monochrome only) 600 x 600dpi	600 x 600dpi
Color Mode	Auto/Color(CMYK)/Monochrome (K only)		
ICM Method (Cannot be specified with the monochrome mode)	N/A	OFF	OFF
	System (Windows ICM). Effective only when Color Options is Custom. Windows NT: N/A		
	Printer		
Rendering Intent (Cannot be specified with the monochrome mode)	When ICM Method is anything other than Custom: Default When ICM Method is Custom: Perceptual matching Relative colorimetric Saturation matching Absolute colorimetric	Perceptual matching Relative colorimetric Saturation matching Absolute colorimetric	
ICC Profile Selection (Cannot be specified with the monochrome mode)	Source Profile (Monitor Profile) When Windows ICM is off: None sRGB Apple RGB Custom When Windows ICM is on: Monitor Profile installed in PC	Source Profile (Monitor Profile) sRGB Apple RGB Custom	
Print Priority (Cannot be specified with the monochrome mode)	1 bit	1 bit	
	4 bit	4 bit	
Contrast *	0-100		N/A
Brightness *	0-100		N/A
Saturation (Cannot be specified with the monochrome mode) *	0-100		N/A
Color Balance (RGB) (Cannot be specified with the monochrome mode) *	0-100		N/A
Text To Black (Can be specified only with the monochrome mode)	Yes/No		N/A
Vector To Black (Can be specified only with the monochrome mode)	Yes/No		N/A
Toner Save (1bit only)	Yes/No		Yes/No
Screen Setting (Cannot be specified with the monochrome mode)	Default Photo Text & Graphic		
Pure Black Print (Cannot be specified with the monochrome mode)	N/A	Yes/No	
Black Overprint (Cannot be specified with the monochrome mode)	N/A	Yes/No	
CMYK Simulation (Cannot be specified with the monochrome mode)	N/A	Yes/No In case of Yes: Default / Custom	Off/ Default/ Custom
Bitmap Compression	None (PCL6 only)	None	N/A

Function	PCL5-c/6	PS	PPD
Image Type	Standard/Graphics/Photo/Custom		
	CAD		
Neutral Grays (Cannot be specified with the monochrome mode)	Black Only 4-Color		

\*: Some OS may not allow one-number-to-next specification for setup values.

#### e. Font

Function	PCL5-c/6	PS	PPD
Font Source	Resident Font Download Font		N/A
Font Substitution	N/A		
Download Font Type	TrueType (Type 42)		Yes
	Bitmap (Type 3)		
	N/A	Adobe (Type1)	
	As Graphics	N/A	

#### f. Other functions

Function	PCL5-c/6	PS	PPD
Watermark	Transparent Text		
	Overwrite Text		
	Outline Text		
	Yes (PCL6 only)	Image Stamp	N/A
Overlay	Create Overlay Load Overlay Delete Query Page Overlay		N/A
Rotate 180 degrees	Yes/No		
Collate	Yes/No		
Carbon Copy	Top Copy Carbon Copy		N/A
Fit To Page	A3, A4, A5, B4, B5, 11 x 17, 8.5 x 11, 8.5 x 14, 7.25 x 10.5/ 8.5 x 13/5.5 x 8.5, 8K, 16K, DL, C5, COM10, Monarch		N/A
Poster	2 x 2/3 x 3/ 4 x 4 (PCL6 only)	2 x 2/3 x 3/4 x 4	N/A
Poster Dash Border	Yes/No (PCL6 only)	Yes/No	N/A
Poster Overlap	Yes/No (PCL6 only)	Yes/No	N/A
Margin Shift (Margin Shift processing by MFP/Printer firmware)	None/10mm (0.4 inch)/20mm (0.8 inch)/30mm (1.2 inch)		
Zoom	25% – 400%		
	N/A	X-Y Zoom	N/A
Mirror Image	N/A	No Mirror Image Vertical Horizontal	None Vertical Horizontal
Graphics Mode	Vector/Raster	N/A	
PS Pass Through	N/A	Yes/No	N/A
PS Error Printing	N/A	Yes/No	
Job Compression	N/A	None/Fastest/ Fast/Medium/ Best Compression	N/A
Retention	Hold Only Hold After Printd Sample Print Password		N/A
Document Filing	Quick File Main Folder Custom Folder		N/A
User Authentication	Login Name Password		N/A
Job ID	User Name Job Name		N/A
Notify Job End	Yes/No		N/A

Function	PCL5-c/6	PS	PPD
Auto Job Control Review	Yes/No		N/A
Tandem Print	Yes/No		N/A
Set Tandem Print	IP Address (Slave Machine)		N/A
Auto Configuration	Yes		N/A

### (10) Macintosh driver functions

#### a. Frequently used functions

Function	OS9 PPD	OSX 10.1	OSX 10.2/3/4
Copies	1-999		
Orientation	Portrait/Landscape		
Duplex	2-Sided (Long) 2-Sided (Short)		
Pamphlet (Pamphlet processing by MFP/Printer firmware)	Tiled Pamphlet		
	Multiple Tiled Pamphlet (Only more than 10.2)		
Binding Edge	Top/Left/Right	N/A	Top/Left/Right
N-Up Printing	1-Up/2-Up/4-Up/6-Up/9-Up/16-Up		
N-Up Border	Yes/No		
N-Up Order	[2-Up] Left to Right Right to Left [4, 6, 8, 9, 16-Up] Right, and Down Down, and Right Left, and Down Down, and Left		

#### b. Paper feed method

Function	OS9 PPD	OSX 10.1	OSX 10.2/3/4
Paper Size Setting	12 x 18, A3, A4, A5, B4, B5, 11 x 17, 8.5 x 11, 8.5 x 14, 7.25 x 10.5, 8.5 x 13, 5.5 x 8.5, 8K, 16K, DL, C5, COM10, Monarch, Custom Paper		
Paper Selection	Auto Select Paper Source Paper Type		
Different Paper	Cover Page		
Transparency Inserts	Blank/Printed		
Tab Printing	N/A		
Set Tray Status	N/A		
Paper Type Name (USER TYPE 1-7)	Yes		
Input Tray Options	Two Trays/ Three Trays/ Four Trays	N/A	Two Trays/ Three Trays/ Four Trays

### c. Paper exit method

Function	OS9 PPD	OSX 10.1	OSX 10.2/3/4
Output Tray	Center Tray/Right Tray/Offset Tray		
Staple	None/1-Staple/2-Staples		
Punch	Yes/No		
No Offset	Yes/No		
Output Tray Options	None/Finisher	N/A	None /Finisher
Punch Module	None / 2 Holes / 3 Holes / 4 Holes / 4 Holes (Wide)	N/A	None / 2 Holes / 3 Holes / 4 Holes / 4 Holes (Wide)
Right Tray	Yes/No	N/A	Yes/No

### d. Exposure

Function	OS9 PPD	OSX 10.1	OSX 10.2/3/4
Resolution	600 x 600dpi		
Color Mode	Auto/Color (CMYK) /Monochrome (K only)		
ICM Method ColorSync (Cannot be specified with the monochrome mode) *1	OFF	N/A	OFF
	System	N/A	System (10.3 only)
	Printer		
Rendering Intent *1	Perceptual matching Relative colorimetric Saturation matching Absolute colorimetric		
ICC Profile Selection (Cannot be specified with the monochrome mode) *1	Source Profile (Monitor Profile) sRGB Apple RGB Custom	N/A	Source Profile (Monitor Profile) sRGB Apple RGB Custom (10.3 only)
Print Priority (Cannot be specified with the monochrome mode)	1 bit or 2 bit		
	2 bit or 4 bit		
Contrast *2	N/A		
Brightness *2	N/A		0-100
Saturation (Cannot be specified with the monochrome mode) *2	N/A		0-100
Color Balance (RGB) (Cannot be specified with the monochrome mode) *2	N/A		
Text To Black	N/A		
Vector To Black	N/A		
Toner Save (1bit only)	Yes/No		
Screen Setting (Cannot be specified with the monochrome mode)	Default Photo Test & Graphic		
Pure Black Print (Cannot be specified with the monochrome mode)	Yes/No		
Black Overprint (Cannot be specified with the monochrome mode)	Yes/No		
CMYK Simulation (Cannot be specified with the monochrome mode)	Off Default Custom		
Bitmap Compression	N/A		
Image Type	Standard/Graphic/Photo/CAD/Custom		
Neutral Grays (Cannot be specified with the monochrome mode)	Black Only 4-Color		

\*1: Specification depending on OS

\*2: Some OS may not allow one-number-to-next specification for setup values.

### e. Font

Function	OS9 PPD	OSX 10.1	OSX 10.2/3/4
Font Source (Resident Font/Download Font)	N/A		
Font Substitution	N/A		
Download Font Type	Yes	N/A	

### f. Other functions

Function	OS9 PPD	OSX 10.1	OSX 10.2/3/4
Watermark	Transparent Text/Overwrite Text/Outline Text		
Overlay	N/A		
Rotate 180 degrees	Yes/No	N/A	Yes/No
Collate	Yes/No		
Carbon Copy	N/A		
Fit To Page	N/A		
Poster	N/A		
Black Poster Border	N/A		
Poster Overlap	N/A		
Margin Shift (Margin Shift processing by MFP/ Printer firmware	None/10mm/20mm/30mm (1.2inch)		
Zoom	25% – 400%		
Mirror	None Vertical Horizontal	N/A	
Graphics Mode	N/A		
PS Pass through	N/A		
PS Error Printing	Yes/No		
Job Compression	N/A		
Retention	Hold Only, Hold After Print, Sample Print, Pass Code	N/A	Hold Only, Hold After Print, Sample Print, Pass Code
Document Filing	N/A		Quick File Main Folder Custom Folder
User Authentication	Login Name Password	N/A	Login Name Password
Job ID	N/A		User Name Job Name
Notify Job End	N/A		
Auto Job Control Review	N/A		
Tandem Print	N/A		Yes/No
Set Tandem Print	N/A		IP Address (Slave Machine)
Auto Configuration	Yes	N/A	Yes (10.3 only)

## F. Document filing function

### (1) Basic function

Capacity for document filing	Main folder Custom folder	10GB
	Quick file folder	10GB
Pages or files for allowed for filing	Main folder Custom folder	1,400 pages or 1,000 files (SHARP standard document)
	Quick file folder	1,400 pages or 1,000 files (SHARP standard document)
Maximum number of user folder	Maximum of 500 folders	
Number of users allowed for registration	Depends on the number of user registrations. (Maximum of 200 users)	

## (2) Data saving for each function

Job	Quick File Folder		Main/Custom Folder	
	Shared storage	Confidential storage	Shared storage	Confidential storage
Copy	Yes	No	Yes	Yes
Printer	Yes		Yes	Yes
Direct print (FTP)	Yes		No	No
Direct print (e-mail)	Yes		Yes	No
Direct print (Web)	Yes		No	No
Scan to e-mail/FTP	Yes		Yes	No
Scan to SMB	---		---	---
Scan to USB memory	---		---	---
Fax reception	No		No	No
Fax transmission	Yes		Yes	No
Internet Fax reception	No		No	No
Internet Fax transmission	Yes		Yes	No
PC-Fax/PC-Internet Fax transmission	Yes		Yes	Yes
Remote PC Scan	---		---	---
Scan to HDD	No		Yes	Yes

## G. Safety and environmental protection standards

### (1) Safety standards

	200V type
Safety standard	EN60950 IEC60825 (Laser)
EMC	EN55022 Class A CISPR22 Class A EN61000-3-2 EN61000-3-3
Line standard (for Fax expansion)	TS 103 021, EG 201 120, EG 201 121 (Europe)

### (2) Environmental Readiness

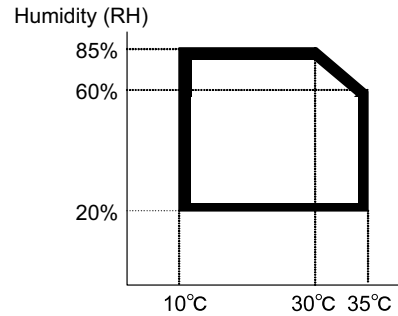
- International Energy Star Program MFP (EPA)
- Nordic Swan
- European ROHS regulations
- WEEE (Following to SHARP super green product declaration.)

## 3. Ambient conditions

### A. Operating environmental conditions (Main unit)

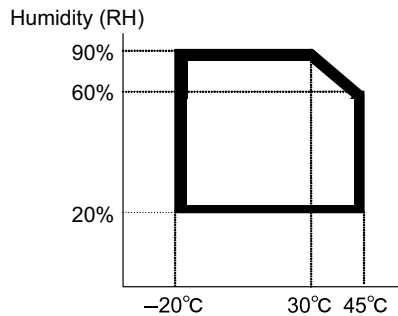
Temperature: 10°C – 35°C, Humidity: 20 – 85%RH

Air pressure: 590 – 1013hPa (height: 0 – 2000m)



### B. Ambient conditions for transporting (Main unit)

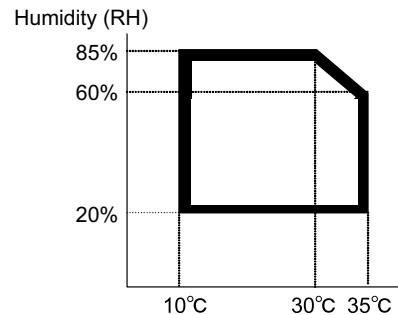
–20°C to 45°C (No condensation)



### C. Standard environmental conditions (Supply)

- An available life time under an environmental condition.
  - 1) Photoconductor drum  
36 months from the production month
  - 2) Photoconductor drum unit  
24 months from the production month
  - 3) Toner (K)/Color toner (C/M/Y)  
24 months from the production month

### D. Operating environmental conditions (Supply)



### E. Ambient conditions for transporting

–20°C to 45°C (No condensation)

### F. Ambient storage conditions (Supply) (packed conditions)

–10°C to 40°C (No condensation)

## [3] CONSUMABLE PARTS

### 1. Supply system table

#### A. Europe

No.	Item	Content	Life	Model Name	Remarks
1	Toner cartridge (Black)	Toner cartridge (with IC) (Black toner : Net 360g) x 1	13.2K	MX-18GTBA	* Life: A4 size at Area Coverage 5% (Reference: 11K for A4 6%)
2	Toner cartridge (Cyan)	Toner cartridge (with IC) (Cyan toner : Net 310g) x 1	10K	MX-18GTCA	* Life: A4 size at Area Coverage 5%
3	Toner cartridge (Magenta)	Toner cartridge (with IC) (Magenta toner : Net 310g) x 1	10K	MX-18GTMA	* Life: A4 size at Area Coverage 5%
4	Toner cartridge (Yellow)	Toner cartridge (with IC) (Yellow toner : Net 310g) x 1	10K	MX-18GTYA	* Life: A4 size at Area Coverage 5%
5	Developer (Black)	Developer (Black) (Black developer : Net 265g) x 1	80K	MX-27GVBA	
6	Developer (Cyan/Magenta/Yellow)	Developer (Cyan/Magenta/Yellow) (Cyan/Magenta/Yellow developer : Net 265g) x 1	40K	MX-27GVSA	
7	Drum	OPC drum x 1	80K (Black) 40K (Color)	MX-27GRSA	
8	Drum unit	OPC drum unit (Process unit + OPC drum) x 1 Color identification seal (B/C/M/Y) x 1 each x 1	80K (Black) 40K (Color)	MX-27GUSA	

\*1: The toner life may vary depending on the document density and temperature and humidity.

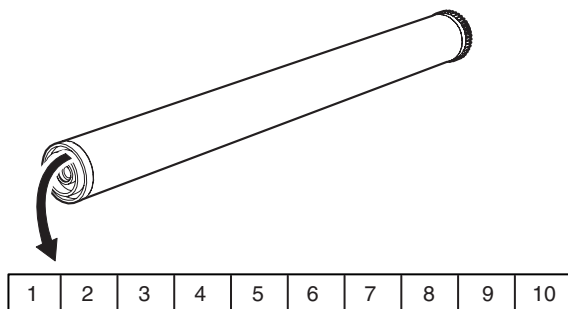
### 2. Maintenance parts list

#### A. Europe

No.	Item	Content	Life	Model name	Remarks
1	Upper heat roller kit	Upper heat roller unit x 1 Upper separation pawl x 4 Upper thermistor x 1	160K	MX-270UH	
2	Lower heat roller kit	Lower heat roller unit x 1 Lower thermistor x 1	160K	MX-270LH	
3	Primary transfer belt kit	Intermediate transfer belt x 1 Primary transfer blade x 1 Primary transfer conductive collar x 4 TC roller bearing x 4 PS paper dust removal cleaner unit x 1	80K	MX-270B1	
4	Primary transfer roller kit	Primary transfer coat roller x 4 Belt drive gear x 1	240K	MX-270X1	
5	Secondary transfer belt kit	Secondary transfer belt x 1	240K	MX-270B2	
6	Secondary transfer roller kit	Secondary transfer roller x 1 Secondary transfer idle gear x 1 Upper thermistor PA x 1	240K	MX-270X2	
7	Filter kit	Ozone filter PA x 1 Paper exit filter x 2	80K	MX-270FL	
8	Waste toner box kit	Waste toner box unit (with LSU cleaner x3) x 1	50K	MX-270HB	Each color 5% coverage, color ratios 25%
9	DV seal kit	DV blade N kit x 1 DV side seal F x 1 DV side seal R x 1 Toner filter unit x 3	Black: 80K, Color: 40K	MX-270DS	
10	Main charger kit	Main charger unit x 1 Drum cleaning blade x 1 Toner stirring plate x 2 Toner stirring sheet x 1	Black: 80K, Color: 40K	MX-270MK	
11	Staple cartridge	Staple cartridge x 3	5000 times x 3	MX-SCX1	For inner finisher (MX-FNX1)
12	Primary transfer belt unit	Primary transfer belt unit (For service rotation) x 1	—	MX-270U1	
13	Secondary transfer belt unit	Secondary transfer belt unit (For service rotation) x 1	—	MX-270U2	
14	Fusing unit	Fusing unit (For service rotation) (Heater lamp 230V) x 1 Fusing unit (For service rotation) (Heater lamp 100V) x 1	— —	MX-270FU MX-270FU2	

### 3. Production number identification

#### A. Drum cartridge

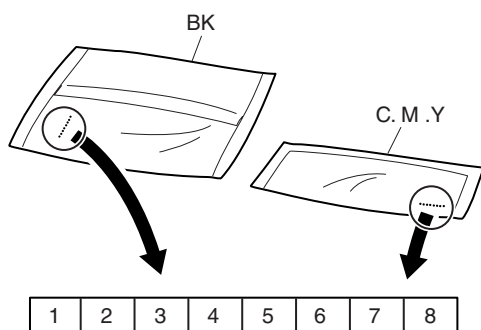


The lot number is of 10 digits. Each digit indicates the content as follows.

The number is printed on the flange on the front side. The laser print shows the production year and month.

- 1: Number  
For this model, this digit is 2.
- 2: Alphabet  
Indicates the model conformity code. H for this model.
- 3: Number  
Indicates the end digit of the production year.
- 4: Number or X, Y, Z  
Indicates the production month.  
X stands for October, Y November, and Z December.
- 5/6: Number or X, Y, Z  
Indicates the production month.  
X stands for October, Y November, and Z December.
- 7: Number  
Indicates the production month.  
Indicates the day of the month of packing.  
X stands for October, Y November, and Z December.
- 8/9: Number  
Indicates the day of the day of packing.
- 10: Alphabet  
Indicates the production factory. "C" for China.

#### B. Developer



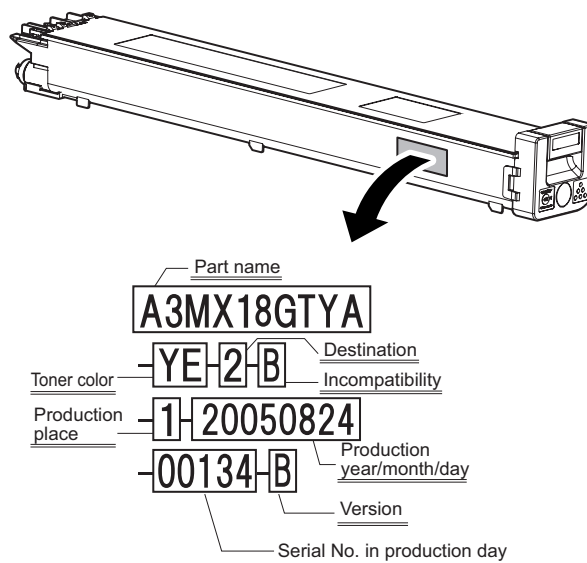
The lot number is of 8 digits. Each digit indicates the content as follows.

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

- 1: Alphabet  
Indicates the production factory.
- 2: Number  
Indicates the production year.
- 3/4: Number  
Indicates the production month.
- 5/6: Number  
Indicates the production day.
- 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.

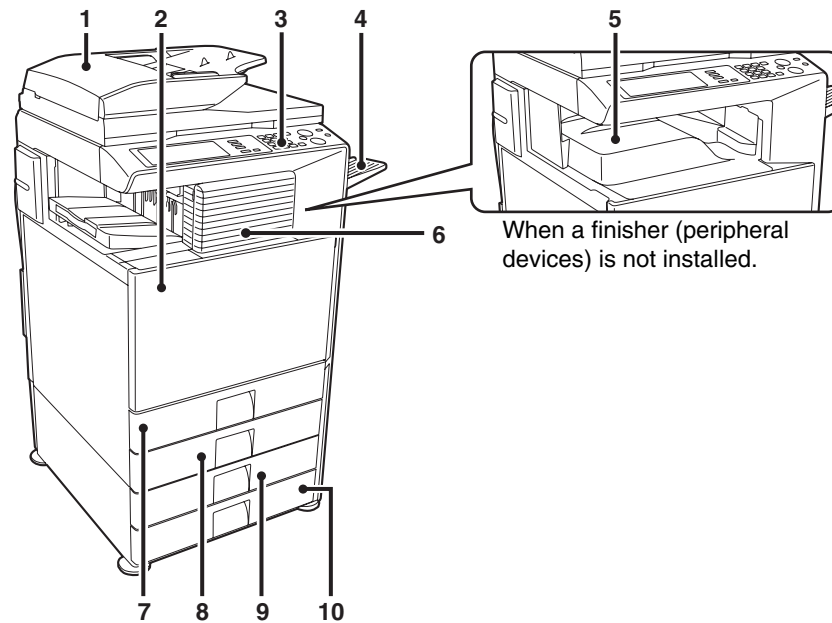


Example: 134th of production on August 24, 2005

## [5] EXTERNAL VIEW AND INTERNAL STRUCTURE

### 1. Identification of each section and functions

#### A. Exterior



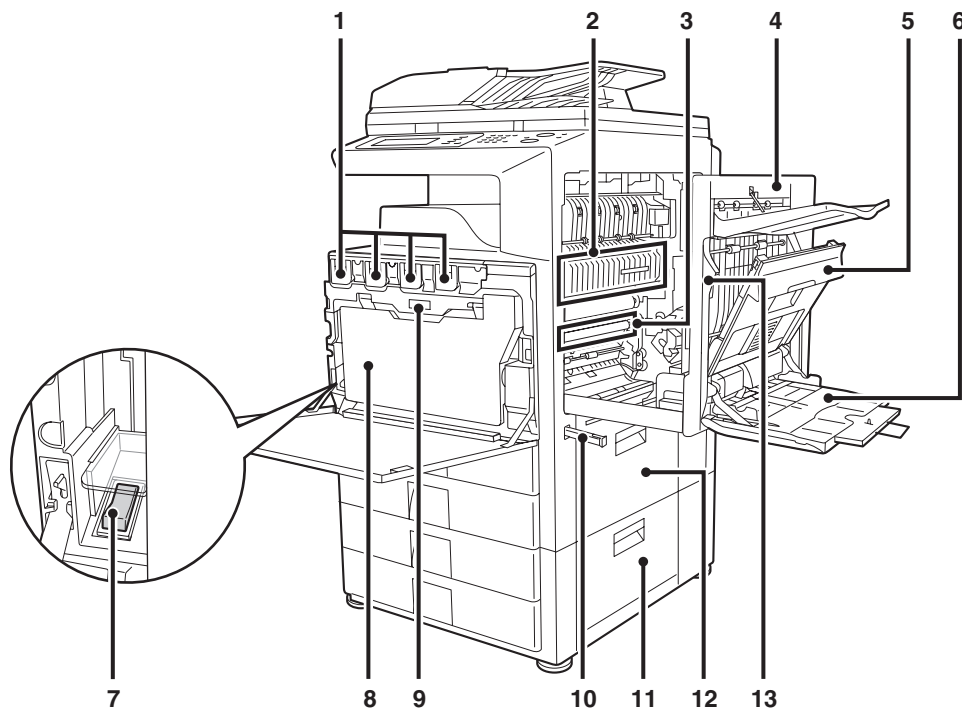
No.	Name	Function/Operation	Note
1	Reversing single pass feeder (automatic document feeder)	This automatically feeds and scans multiple originals. Both sides of two-sided originals can be automatically scanned.	
2	Front cover	Open this cover to switch the main power switch to "On" or "Off" or to replace a toner cartridge.	
3	Operation panel	This is used to select functions and enter the number of copies.	
4	Exit tray unit (right tray)*	When installed, output can be delivered to this tray.	
5	Output tray (centre tray)	Copy jobs and print jobs are delivered to this tray.	
6	Finisher*	This can be used to staple output. A punch module can also be installed to punch holes in output.	
7	Tray 1	This holds paper. Up to 500 sheets of paper can be loaded.	
8	Tray 2	This holds paper. Up to 500 sheets of paper can be loaded.	
9	Tray 3 (when a stand/1 x 500 sheet paper drawer or a stand/2 x 500 sheet paper drawer is installed)*	This holds paper. Up to 500 sheets of paper can be loaded.	
10	Tray 4 (when a stand/2 x 500 sheet paper drawer is installed)*	This holds paper. Up to 500 sheets of paper can be loaded.	

\*: Peripheral Devices:

The peripheral devices are generally optional, however, some models include certain peripheral devices as standard equipment.

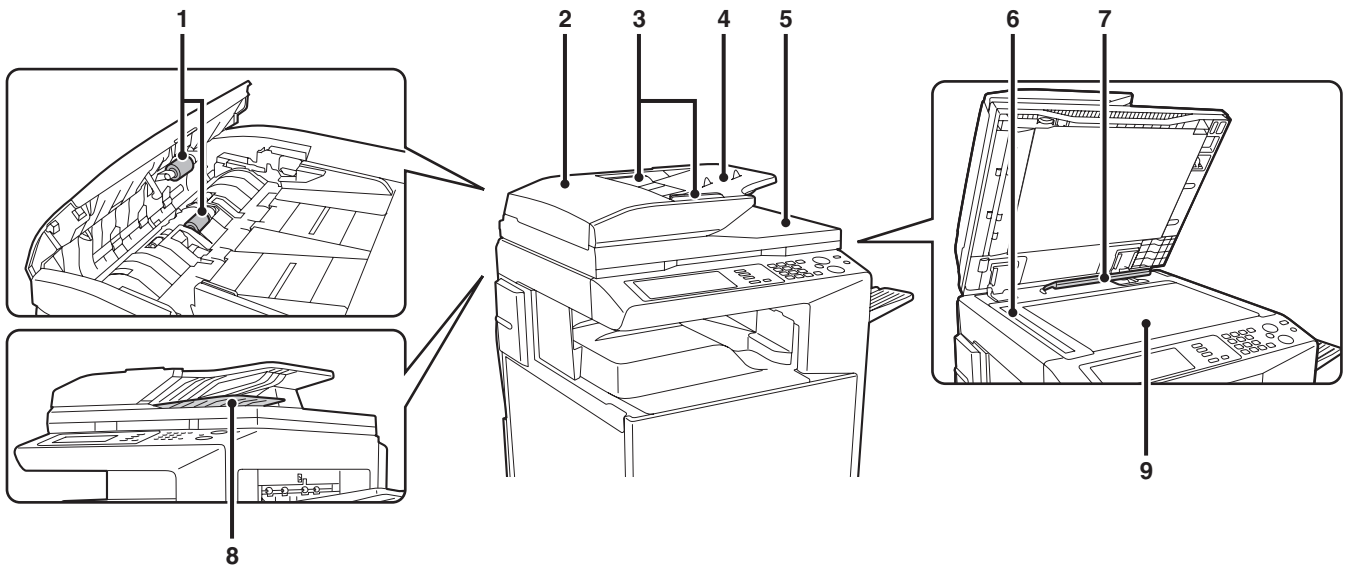


## B. Interior



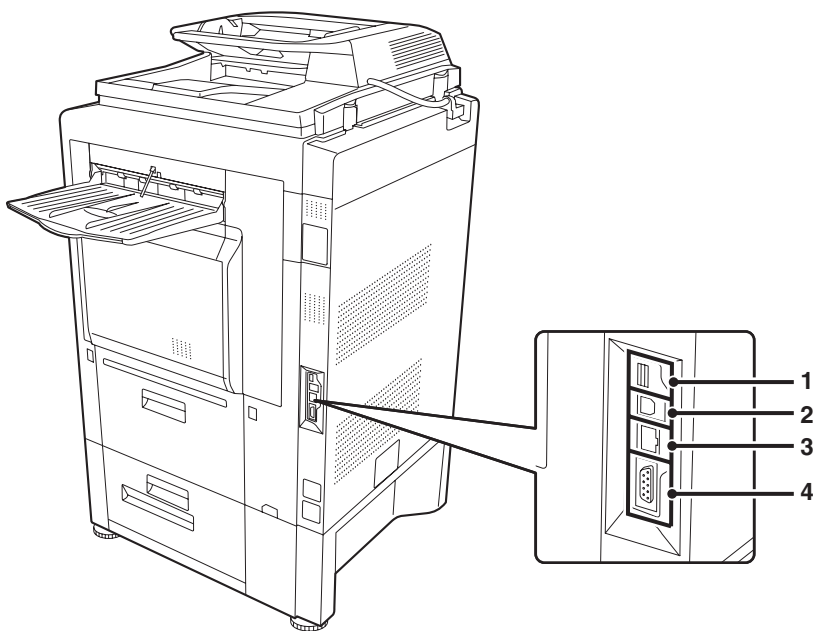
No.	Name	Function/Operation	Note
1	Toner cartridges	When the toner in a cartridge runs out, the cartridge must be replaced with a new cartridge of the same colour.	
2	Fusing area	Heat is applied here to fuse the transferred image onto the paper.	Caution: The fusing unit is hot. Take care not to burn yourself when removing a paper misfeed.
3	Transfer belt	During full colour copying, the toner images of each of the four colours on each of the photoconductive drums are combined together on the transfer belt. During black and white copying, only the black toner image is transferred onto the transfer belt.	Do not touch or damage the transfer belt. This may cause a defective image.
4	Right side cover	Open this cover to operate the fusing area pressure adjustment lever and to remove a misfeed.	
5	Paper reversing section cover	This is used when 2-sided copying and printing is performed. Open this cover to remove a paper misfeed.	
6	Bypass tray	Use this tray to feed paper manually. When loading paper larger than A4R or 8-1/2" x 11"R, be sure to pull out the bypass tray extension.	
7	Main power switch	This is used to power on the machine. When using the fax or Internet fax functions, keep this switch in the "On" position.	
8	Waste toner box	This collects excess toner that remains after copying and printing.	Your service technician will collect the waste toner box.
9	Waste toner box release button	Press this button when you need to release the waste toner box lock to replace the waste toner box or clean the laser unit.	
10	Handle	Pull this out and grasp it when moving the machine.	
11	Right cover of stand/1 x 500 sheet paper drawer Right cover of stand/2 x 500 sheet paper drawer (when a stand/1 x 500 sheet paper drawer or a stand/2 x 500 sheet paper drawer is installed)	Open this to remove a paper misfeed in tray 3 or tray 4.	
12	Paper tray right side cover	Open this to remove a paper misfeed in tray 1 or tray 2.	
13	Right side cover release lever	To remove a paper jam, pull and hold this knob up to open the right side cover.	

## C. Automatic document feeder and document glass

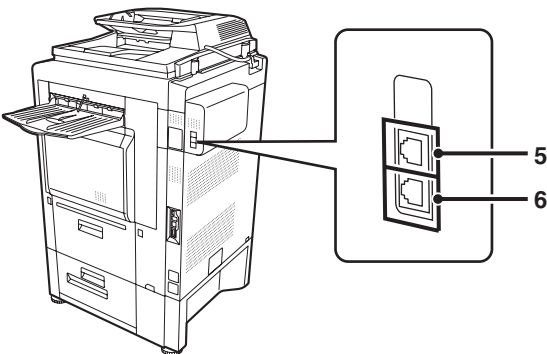


No.	Name	Function/Operation	Note
1	Paper feed roller	This roller rotates to automatically feed the original.	
2	Document feeding area cover	Open this cover to remove an original misfeed or clean the paper feed roller.	
3	Original guides	These help ensure that the original is scanned correctly. Adjust the guides to the width of the original.	
4	Document feeder tray	Place originals in this tray. 1-sided originals must be placed face up.	
5	Original exit tray	Originals are delivered to this tray after scanning.	
6	Scanning area	Originals placed in the document feeder tray are scanned here.	
7	Original size detector	This detects the size of an original placed on the document glass.	
8	Reversing tray	During scanning of a 2-sided original, the original is temporarily output to this tray in order to be turned over for scanning of the reverse side.	
9	Document glass	Use this to scan a book or other thick original that cannot be fed through the automatic document feeder.	

D. Connectors

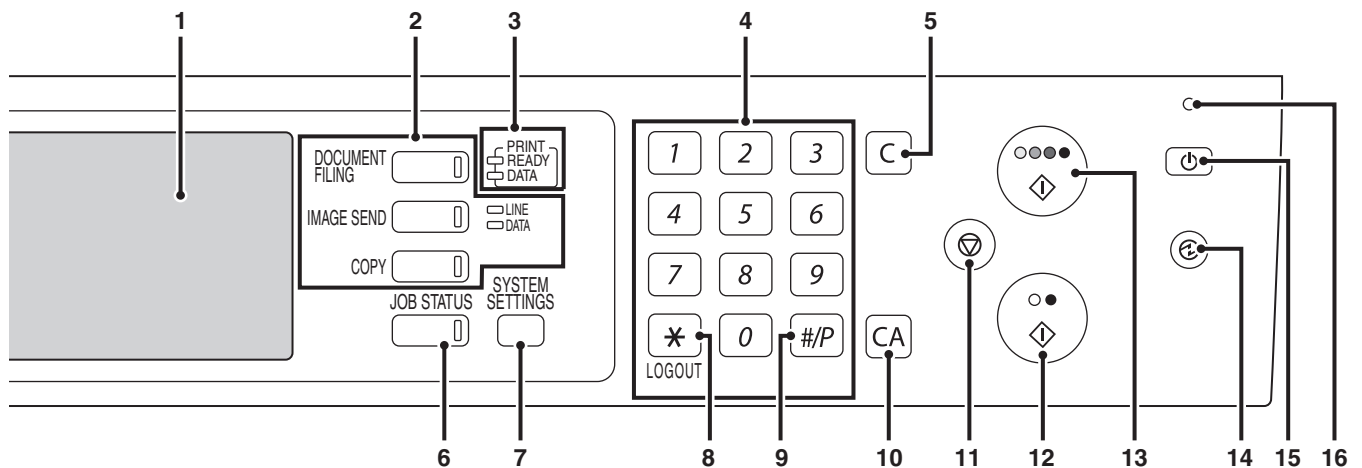


When the fax expansion kit is installed



No.	Name	Function/Operation	Note
1	USB connector (A type)	Supports USB 2.0 (Full Speed). This is used to connect a USB hub or USB memory device to the machine. For the USB cable, use a shielded type cable.	
2	USB connector (B type)	Supports USB 2.0 (Hi-Speed). A computer can be connected to this connector to use the machine as a printer. For the USB cable, use a shielded type cable.	
3	LAN connector	Connect the LAN cable to this connector when the machine is used on a network. For the LAN cable, use a shielded type cable.	
4	Service-only connector	Caution: Connecting a cable to this connector may cause the machine to malfunction. Important note for service technicians: The cable connected to the service connector must be less than 3 m (118") in length.	
5	Extension phone socket	When the fax function of the machine is used, an extension phone can be connected to this socket.	
6	Telephone line socket	When the fax function of the machine is used, the telephone line is connected to this socket.	

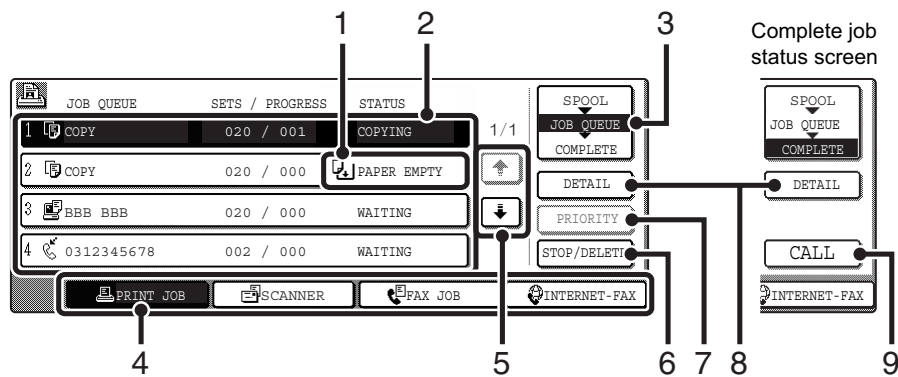
## E. Operation panel



No.	Name	Function/Operation	Note
1	Touch panel	Messages and keys appear in the touch panel display. Touch the displayed keys to perform a variety of operations. When a key is touched, a beep sounds and the selected item is highlighted. This provides confirmation as you perform an operation.	
2	Mode select keys and indicators	Use these keys to change the mode displayed in the touch panel. The indicator of a key lights when the key is selected. <ul style="list-style-type: none"> <li>• [DOCUMENT FILING] key Press this key to switch to document filing mode when you wish to store a document as an image file on the hard drive or print or transmit an image stored on the hard drive.</li> <li>• [IMAGE SEND] key Press this key to select network scanner / fax mode to use the scanner function or fax function.</li> <li>• LINE indicator This lights up during transmission or reception in fax or Internet fax, and during transmission in scan.</li> <li>• DATA indicator This lights up during reception in fax or Internet fax. This blinks when a received fax cannot be printed because of a problem such as out of paper. This lights up when an image is being sent in scan mode.</li> <li>• [COPY] key Press this key to select copy mode. Hold the [COPY] key down to view the machine's total page use count and amount of toner remaining.</li> </ul>	
3	PRINT mode indicators (READY indicator / DATA indicator)	<ul style="list-style-type: none"> <li>• READY indicator Print data can be received when this indicator is lit.</li> <li>• DATA indicator This blinks while print data is being received and lights steadily while printing is taking place.</li> </ul>	
4	Numeric keys	These are used to enter the number of copies and fax numbers.	
5	[CLEAR] key	Press this key to return the number of copies to "0".	
6	[JOB STATUS] key	Press this key to display the job status screen. The job status screen is used to check information on jobs and cancel jobs. The indicator in the key lights up when the job status screen is displayed.	
7	[SYSTEM SETTINGS] key	Press this key to display the system settings menu screen. The system settings can be adjusted to make the machine easier to use, such as configuring paper tray settings and storing addresses.	
8	[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.	
9	[PROGRAM] key	When using the copy function, press this key to use a job program. When using the fax function, this key can be used for dialing.	
10	[CLEAR ALL] key	Press this key to return to the initial operation state. Use this key when you wish to cancel all settings that have been selected and start operation from the initial state.	
11	[STOP] key	Press this key to stop a copy job or scanning of an original.	
12	[BLACK & WHITE START] key	Press this key to copy or scan an original in black and white. This key is also used to send a fax in fax mode.	
13	[COLOUR START] key	Press this key to copy or scan an original in colour. This key cannot be used for fax or Internet fax.	
14	[POWER SAVE] key / indicator	Use this key to put the machine into auto power shut-off mode to save energy. The [POWER SAVE] key blinks when the machine is in auto power shut-off mode.	
15	[POWER] key	Use this key to turn the machine power on and off.	
16	Main power indicator	This lights up when the machine's main power switch is in the "On" position.	

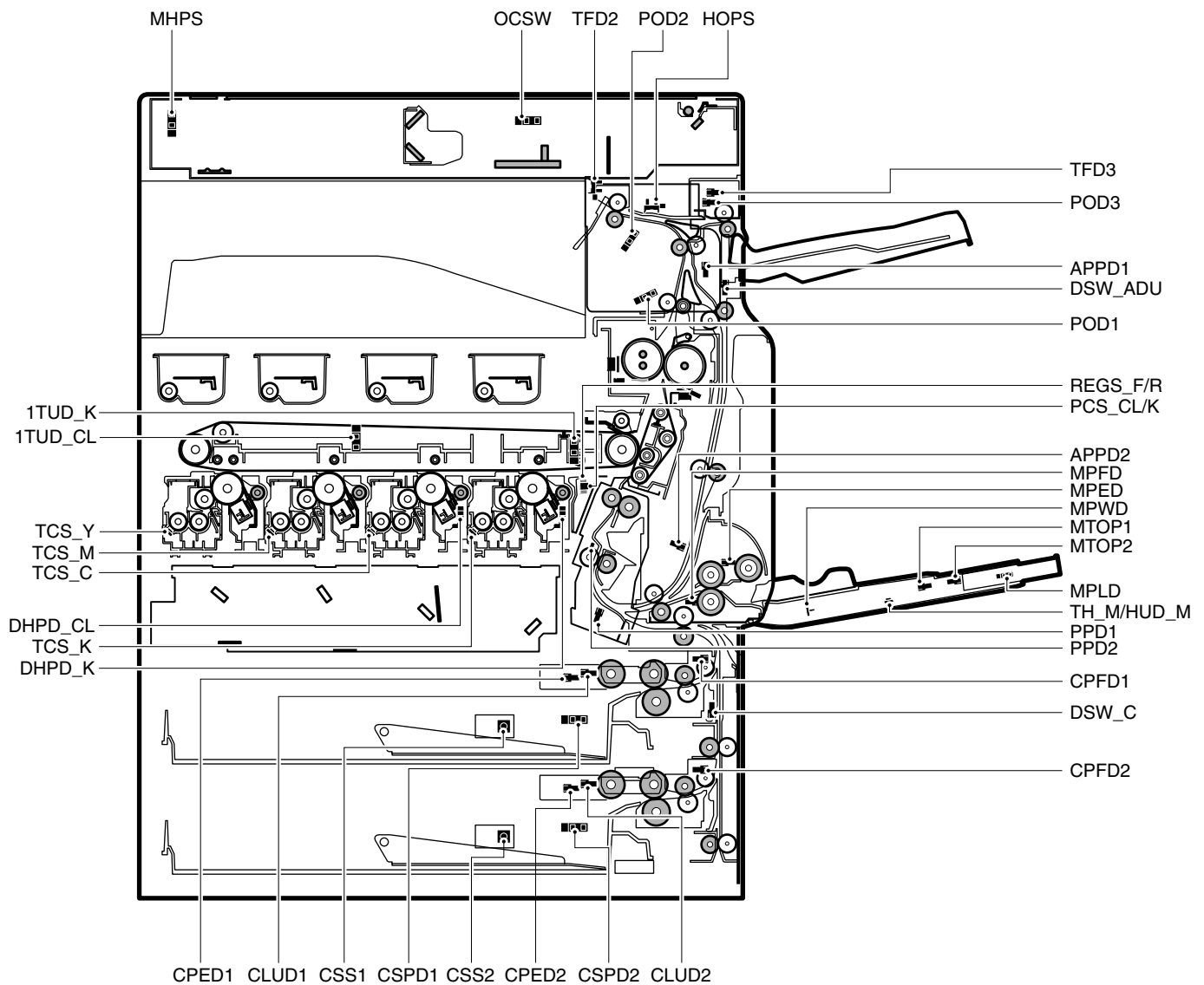
NOTE: The indicators of the operation panel may differ depending on the country and region.

## F. Print and send status (Job status)



No.	Name	Function/Operation	Note
1	Paper empty display	Supply paper. If the status display indicates "Paper empty," the specified size paper is empty. In this case, if paper is not supplied, the output is reserved and the job data in standby state which can be outputted are outputted in priority. (When, however, paper is exhausted during outputting, the priority output of another job data is not made.) To select another paper size for outputting because the specified size paper cannot be supplied immediately, touch the key of the job in the job list and touch "8. [DETAIL] key," and the paper size specification can be changed.	
2	Job list	<ul style="list-style-type: none"> <li>The list of jobs reserved, during execution, or completed is displayed. When [PRINT] key is touched with the mode select key, the display of the job status screen select key is changed over to display the list of "SPOOL". The list indicates the job outline and the status.</li> <li>When a print job during spooling or an encrypted PDF is directly printed, the job is displayed on the "SPOOL" screen. If there is a list of encrypted PDF files, touch the job key and enter the password, and the selected job is shifted to the list of [Reserve/Executing], and the job enters the standby state.</li> </ul>	
3	Job status screen select key	The job list display is switched to one of "SPOOL" job, "JOB QUEUE" job, or "COMPLETE" job. "SPOOL": When an encrypted PDF is printed directly, the print job list is displayed. Can be displayed when the print job is displayed. "JOB QUEUE": The job list which is reserved or executing is displayed. "COMPLETE": The job list which completed is displayed.	
4	Mode select key	Used to select the print mode, the scanner mode, the Fax mode, or the internet FAX mode. <ul style="list-style-type: none"> <li>[PRINT JOB] key displays the list of copy, printer, Fax receive, internet Fax receive, and the self print.</li> <li>[SCANNER] key displays the send list of the scanner function.</li> <li>[FAX JOB] key displays the send list of the Fax and the PC-Fax functions.</li> <li>[INTERNET FAX] key displays the send list of the internet Fax and the PC-Internet Fax function.</li> </ul>	
5	[↓] [↑] keys	Selects the page of the displayed job list.	
6	[STOP/DELETE] key	Used to stop or delete the job which is executing or to delete a selected or reserved job. However, the FAX receive print job and the internet Fax receive print job cannot be stopped or deleted.	
7	[PRIORITY] key	When a job is selected in the reserved jobs displayed in the job list of "JOB QUEUE" screen and the key is touched, the job reservation priority is changed to the top priority. For a print job, select a priority job and touch this key, and the previous copying or printing is interrupted and the selected job copy or print is started. After completion of the selected job, the interrupted job is resumed from the interrupted point.	
8	[DETAIL] key	Used to display the details of the selected job. When the automatic temporal save of the document filing function or filing is executed, or when sequential broadcasting send is executed with the FAX/image send function, the key display is made in the complete job status screen. When this key is touched, the details of the completed jobs are displayed and reprint or resend of the job can be executed by touching [CALL] key.	
9	[CALL] key	When the displayed key is touched on the complete job status screen and [CALL] key is touched, the operation (reprint or resend) of the touched job is executed. Same as when [DETAIL] key is touched and [CALL] key is touched.	

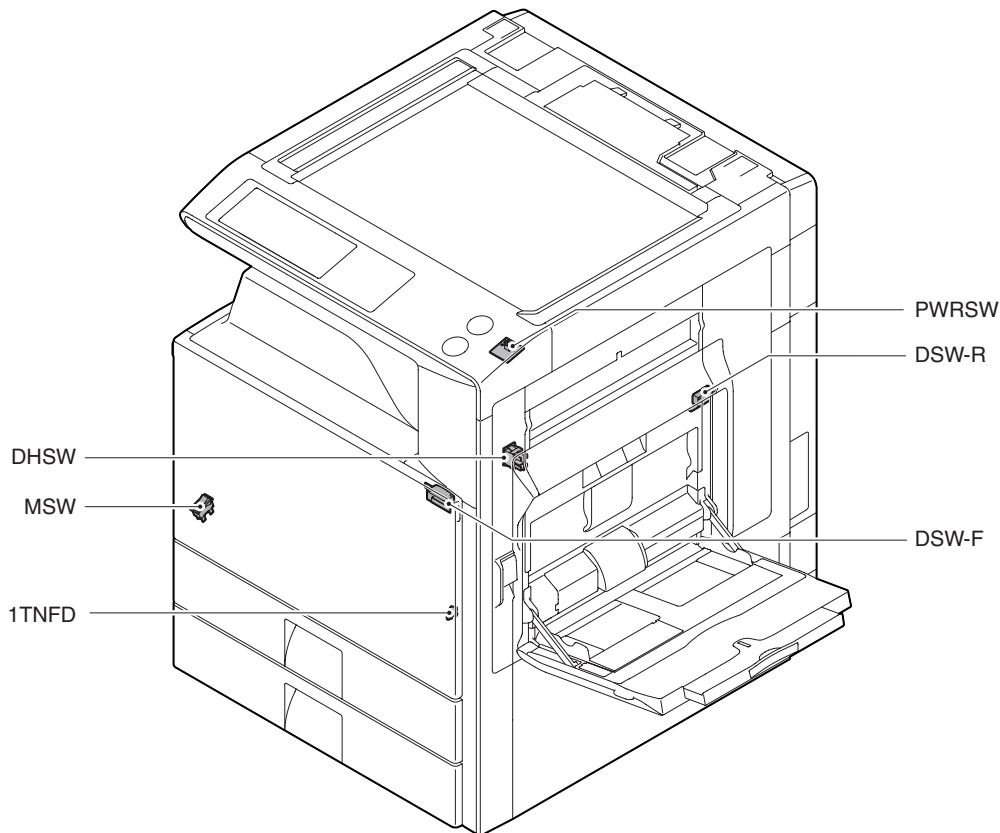
## G. Sensors



Signal name	Name	Function/Operation	Type	NOTE
1TUD_CL	Transfer belt separation CL detection	Detects the transfer belt separation CL.		
1TUD_K	Transfer belt separation BK detection	Detects the transfer belt separation BK.		
APPD1	ADU transport path detection 1	Detects the duplex (ADU) upstream paper pass.	Transmission type	
APPD2	ADU transport path detection 2	Detects the duplex (ADU) midstream paper pass.	Transmission type	
CLUD1	Tray 1 upper limit detection (Lift HP detection)	Detects tray 1 upper limit.	Transmission type	
CLUD2	Tray 2 upper limit detection (Lift HP detection)	Detects tray 2 upper limit.	Transmission type	
CPED1	Tray 1 paper empty detection	Detects tray 1 paper empty.	Transmission type	
CPED2	Tray 2 paper empty detection	Detects tray 2 paper empty.	Transmission type	
CPFD1	Tray 1 transport detection (Paper entry detection)	Detects tray 1 paper pass.	Transmission type	
CPFD2	Tray 2 transport detection (Paper entry detection)	Detects tray 2 paper pass.	Transmission type	
CSPD1	Tray 1 paper remaining quantity detection	Detects tray 1 paper remaining quantity.		
CSPD2	Tray 2 paper remaining quantity detection	Detects tray 2 paper remaining quantity.		
CSS1	Tray 1 installation detection	Detects the tray 1.		
CSS2	Tray 2 installation detection	Detects the tray 2.		
DHPD_CL	CL phase detection	Detects the CL phase.		
DHPD_K	BK phase detection	Detects the BK phase.		
DSW_ADU	ADU transport open/close detection	Detects the duplex (ADU) cover open/close.	Transmission type	
DSW_C	Tray 1 and 2 transport cover open/close detection	Detects the tray 1 and 2 transport cover open/close.		
HOPS	Shifter home position detection	Detects the shifter home position.		
MHPS	Scanner home position sensor	Detects the scanner home position.	Transmission type	
MPED	Manual feed paper empty detection	Detects the manual feed paper empty.	Transmission type	

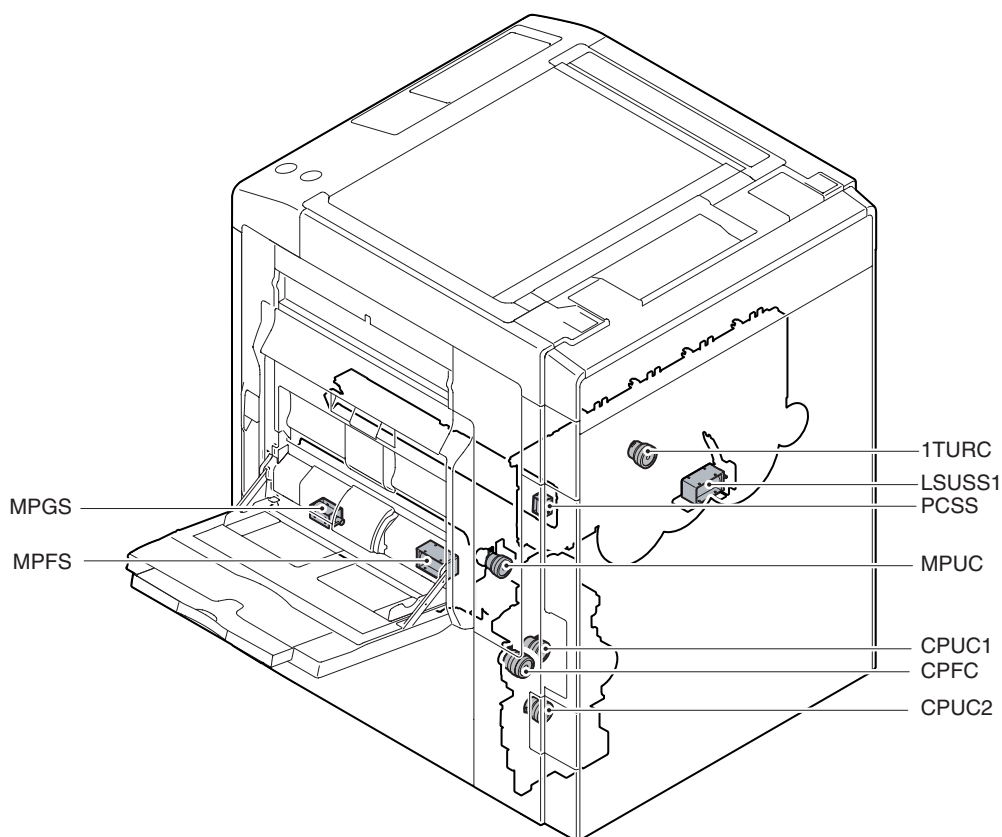
Signal name	Name	Function/Operation	Type	NOTE
MPFD	Manual feed paper entry detection	Detects the manual feed paper entry.	Transmission type	
MPLD	Manual feed paper length detector	Detects the manual paper feed tray paper length.		Manual paper feed unit
MPWD	Manual paper feed tray paper width detector	Detects the manual paper feed tray paper width.	Volume resistor	
MTOP1	Manual paper feed tray pull-out position detector 1	Detects the manual paper feed tray paper pull-out position (storing position).	Transmission type	Manual paper feed unit
MTOP2	Manual paper feed tray pull-out position detector 1	Detects the manual paper feed tray paper pull-out position (pull-out position).	Transmission type	Manual paper feed unit
OCSW	Original cover SW	Document size detection trigger.	Transmission type	
PCS_CL/K	Process control sensor	Detects the toner patch density.	Reflection type	
POD1	Fusing after-detection	Detects the paper exit from fusing.	Transmission type	
POD2	Paper exit detection	Detects the paper from paper exit.	Transmission type	
POD3	Right tray paper exit detection	Detects the paper exit to right tray.		
PPD1	Registration pre-detection	Detects the paper in front of resist roller.	Transmission type	
PPD2	Registration detection	Detects the paper in rear of resist roller.		
REGS_F/R	Resist sensor	Detects the resist shift.	Reflection type	
TCS_C	Toner density sensor	Detects the toner density (C).	Magnetic sensor	
TCS_K	Toner density sensor	Detects the toner density (K).	Magnetic sensor	
TCS_M	Toner density sensor	Detects the toner density (M).	Magnetic sensor	
TCS_Y	Toner density sensor	Detects the toner density (Y).	Magnetic sensor	
TFD2	Paper exit full detection	Detects the face down paper exit tray full	Transmission type	
TFD3	Right tray paper exit full detection	Detects the right tray paper exit full.		
TH_M/HUD_M	Temperature/humidity detection	Detects the temperature/humidity.		

## H. Switches



Signal name	Name	Type	Function/Operation	Note
1TNFD	Waste toner full detection switch	Mechanical switch	Detects the waste toner full.	
DHSW (Japan only)	Dehumidifier heater switch	Seesaw switch	Turns ON/OFF the power lone of the dehumidifier heaters provided in the scanner (reading) section and the paper feed section.	
DSW-F	Front door open/close switch	Micro switch	Detects open/close of the front door, and turns ON/OFF the power line of the fusing motor and the LSU laser.	
DSW-R	Right door open/close switch	Micro switch	Detects open/close of the right door, and turns ON/OFF the power line of the fusing motor and the LSU laser.	
MSW	Main SW	Seesaw switch	Turns ON/OFF the main DC power source.	
PWRSW	Operation panel power switch	Push switch	Outputs the ON/OF control signal of the DC power source.	

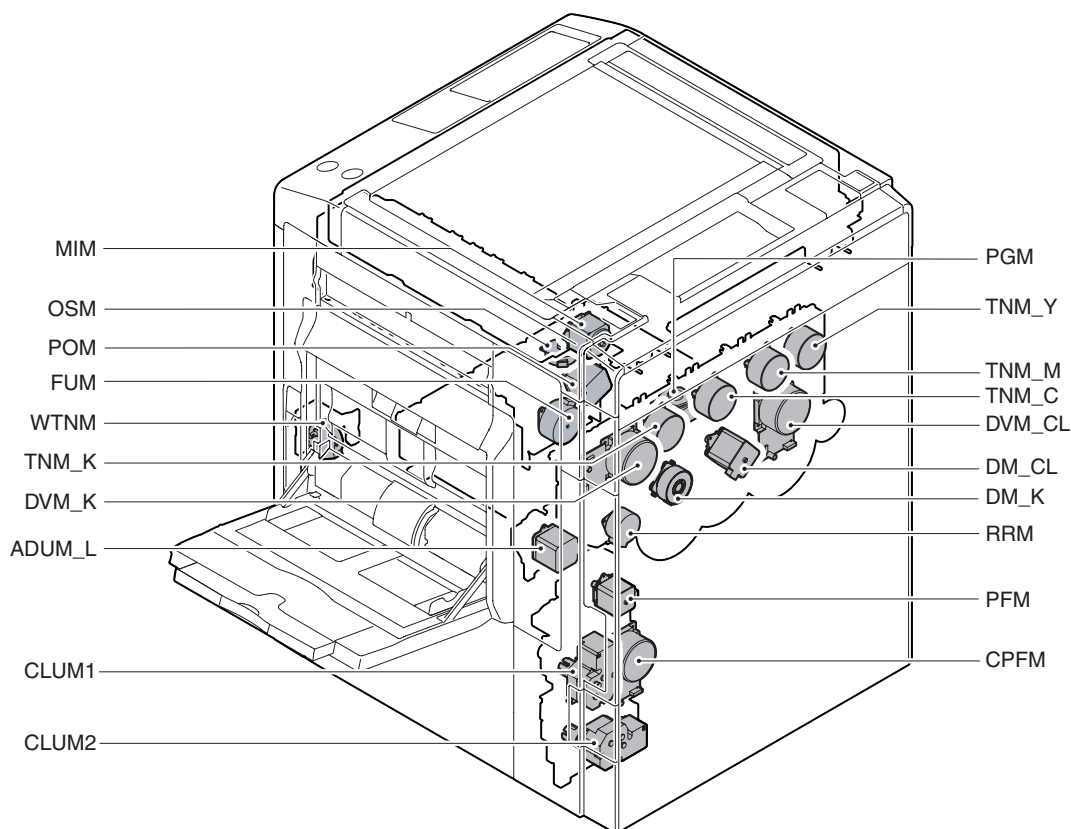
## I. Clutches and solenoids



Signal name	Name	Type	Function/Operation	Note
1TURC	Primary transfer separation clutch	Electromagnetic clutch	Controls the primary transfer separation mode.	
CPFC	Tray vertical transport clutch	Electromagnetic clutch	Controls ON/OFF of the paper transport roller in the paper feed tray section.	
CPUC1	Paper feed clutch (Paper feed tray 1)	Electromagnetic clutch	Controls ON/OFF of the roller in the paper feed tray 1 section.	
CPUC2	Paper feed clutch (Paper feed tray 2)	Electromagnetic clutch	Controls ON/OFF of the roller in the paper feed tray 2 section.	
LSUSS1	LSU shutter solenoid	Electromagnetic solenoid	Opens/closes the LSU shutter.	
MPFS	Paper pickup solenoid (Manual paper feed)	Electromagnetic solenoid	Paper pickup solenoid (Manual paper feed)	
MPGS	Manual paper feed gate solenoid	Electromagnetic solenoid	Controls open/close of the manual paper feed gate solenoid.	
MPUC	Manual paper feed clutch	Electromagnetic clutch	Controls ON/OFF of the manual paper feed roller in the manual paper feed section.	
PCSS	Process control shutter solenoid	Electromagnetic solenoid	Opens/closes the shutter of the process control and the registration sensor.	

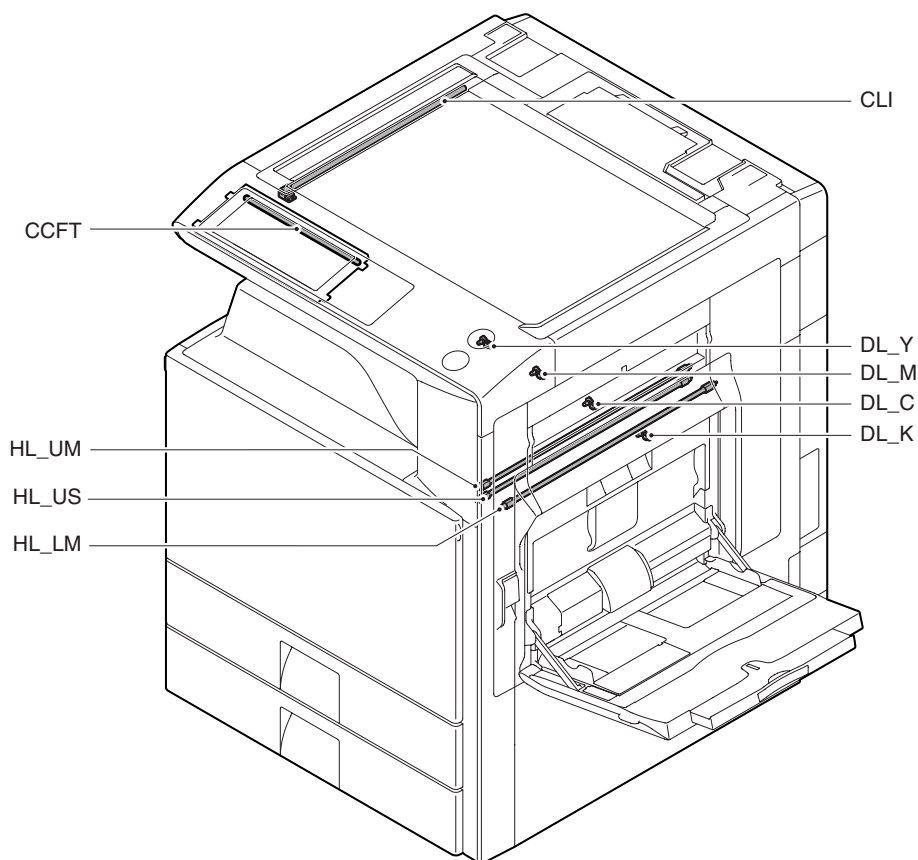


## J. Drive motors



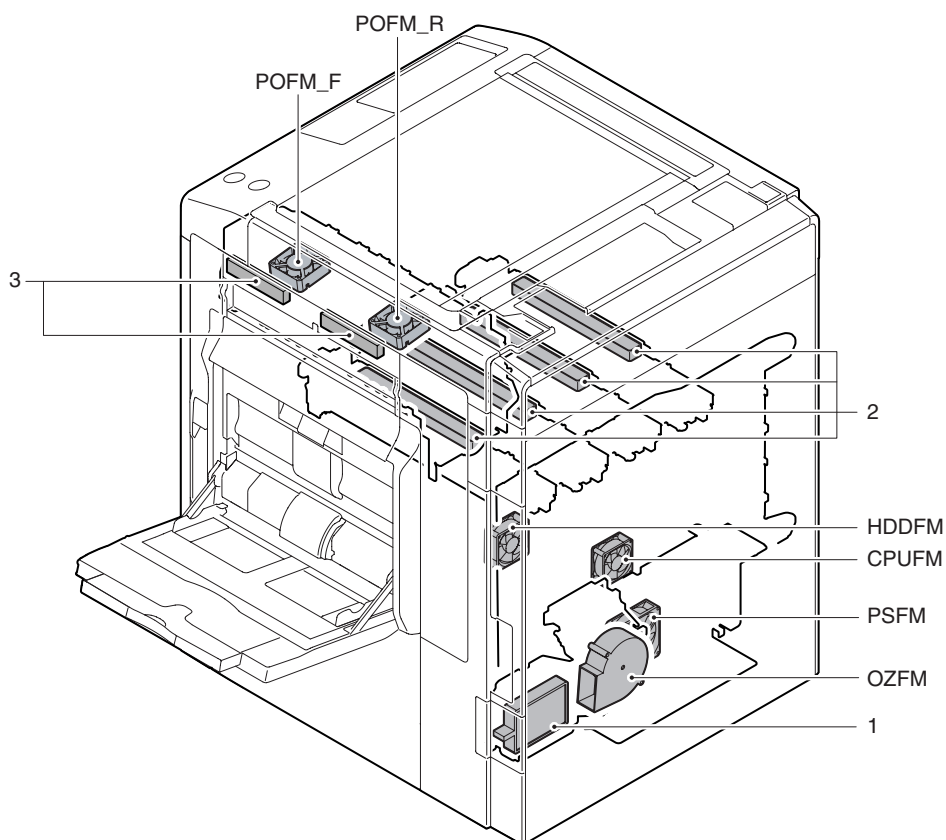
Signal name	Name	Type	Function/Operation	Note
ADUM_L	ADU motor lower	Stepping motor	Drives the right door section.	
CLUM1	Paper tray lift-up motor (Paper feed tray 1)	DC brush-less motor	Drives the lift plate of the paper feed tray.	
CLUM2	Paper tray lift-up motor (Paper feed tray 2)	DC brush-less motor	Drives the lift plate of the paper feed tray.	
CPFM	Paper feed motor	Brush-less motor	Drives the paper feed section.	
DM_CL	Drum motor (CL)	Stepping motor	Drives the color OPC drum unit.	
DM_K	Drum motor (K)	Stepping motor	Drives the black OPC drum unit.	
DVM_CL	Developing drive motor (CL)	Brush-less motor	Drives the developing section (CL).	
DVM_K	Developing drive motor (K)	Brush-less motor	Drives the developing section/transfer section (K).	
FUM	Fusing drive motor	Stepping motor	Drives the fusing unit.	
MIM	Scanner motor	Stepping motor	Drives the scanner (reading) section.	
OSM	Shifter motor	Stepping motor	Performs offset of paper.	
PFM	PS front motor	Stepping motor	Drives transport between the resist roller and the paper feed section, transport between the resist roller and the right door section.	
PGM	Polygon motor	DC brushless motor	Scans the laser beam	
POM	Paper exit drive motor	Stepping motor	Drives the paper exit roller.	
RRM	Registration motor	Stepping motor	Drives the resist roller and controls ON/OFF.	
TNM_C	Toner motor C	Synchronous motor	Transports toner from the toner cartridge to the developing unit.	
TNM_K	Toner motor K	Synchronous motor	Transports toner from the toner cartridge to the developing unit.	
TNM_M	Toner motor M	Synchronous motor	Transports toner from the toner cartridge to the developing unit.	
TNM_Y	Toner motor Y	Synchronous motor	Transports toner from the toner cartridge to the developing unit.	
WTNM	Waste toner drive motor	Synchronous motor	Stirs waste toner.	

## K. Lamps



Signal name	Name	Type	Function/Operation	Note
CCFT	LCD backlight	CCFT cool cathode ray tube	Backlight for the CCD	
CLI	Scanner lamp	Xenon lamp	Radiates lights onto a document for the CCD to scan document images.	
DL_C	Discharge lamp C	LED	Discharges electric charges on the OPC drum.	
DL_K	Discharge lamp K	LED	Discharges electric charges on the OPC drum.	
DL_M	Discharge lamp M	LED	Discharges electric charges on the OPC drum.	
DL_Y	Discharge lamp Y	LED	Discharges electric charges on the OPC drum.	
HL_LM	Heater lamp lower main		Heats the lower heat roller. (Main)	
HL_UM	Heater lamp upper main		Heats the upper heat roller. (Main)	
HL_US	Heater lamp upper sub		Heats the upper heat roller. (Sub)	

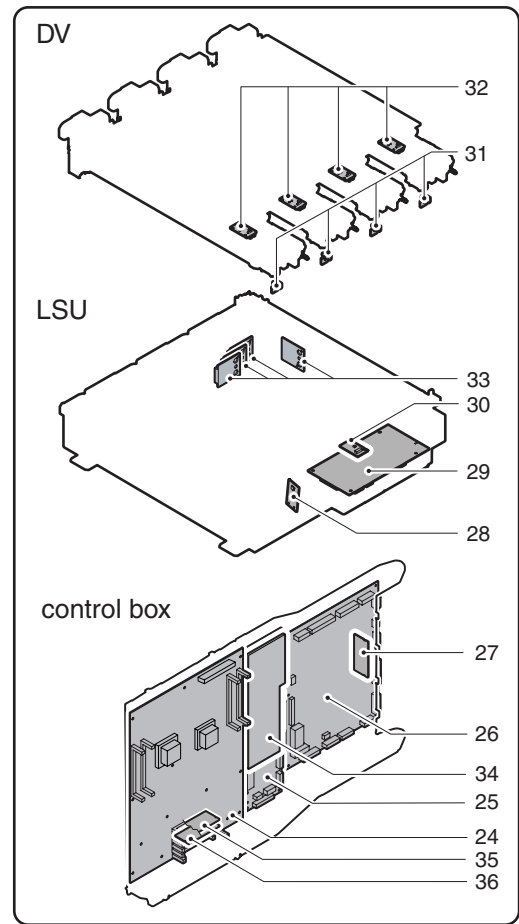
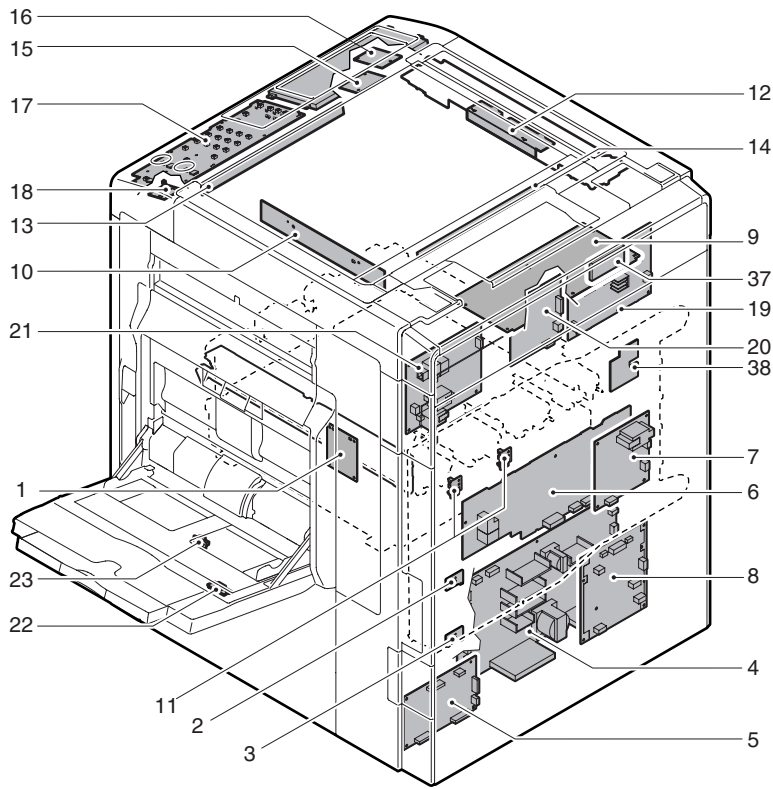
## L. Fans and filters



Signal name	Name	Function/Operation	Note
CPUFM	Controller cooling fan motor	Cools the controller PWB.	
HDDFM	HDD cooling fan motor	Cools the HDD.	
OZFM	Ozone fan motor	Exhausts ozone.	
POFM_F	Paper exit cooling fan motor (F side)	Cools the fusing unit.	
POFM_R	Paper exit cooling fan motor (R side)	Cools the fusing unit.	
PSFM	Power cooling fan motor	Cools the power unit.	

No.	Name	Function/Operation	Note
1	Ozone filter	Absorbs ozone generated in the image process section.	
2	Toner filter	Prevents dispersing of toner.	
3	Paper exit filter		

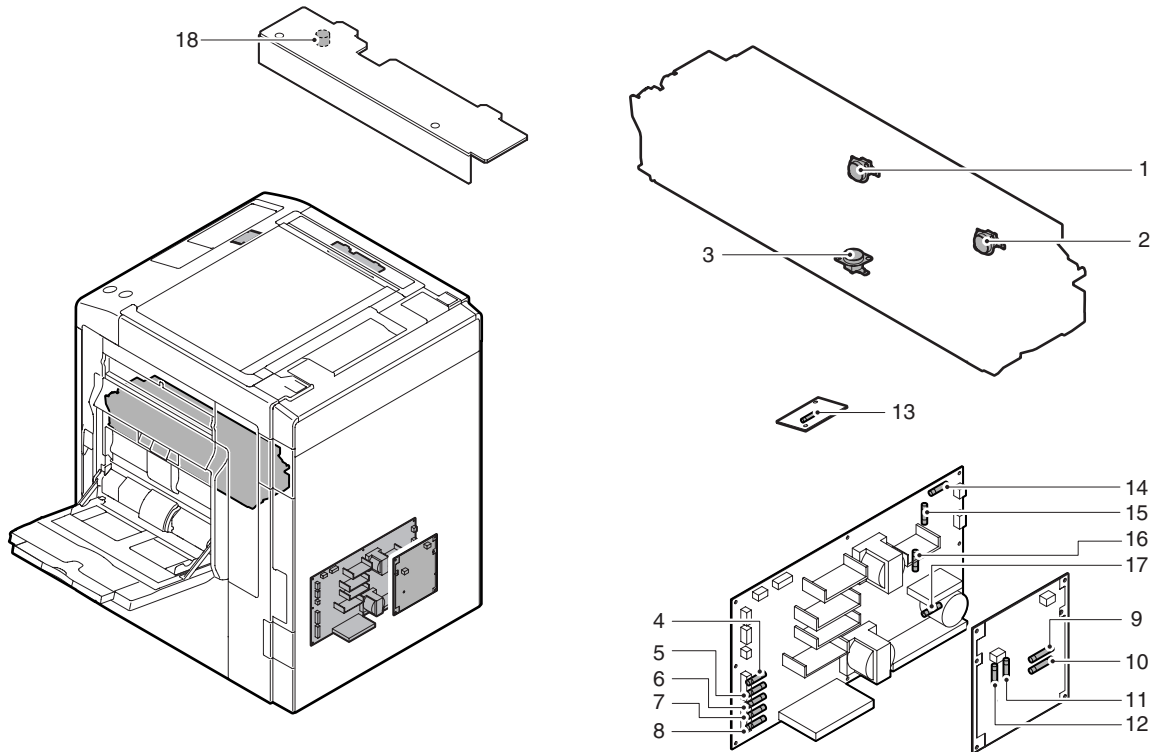
## M. PWB



No.	Name	Function/Operation	Note
1	RD I/F PWB	Detects the sensors in the right door unit.	
2	Tray 1 detection PWB	Detects the tray 1.	
3	Tray 2 detection PWB	Detects the tray 2.	
4	DC power PWB	Outputs the secondary side voltage.	
5	Driver main PWB	Drives the transport motor and related sections.	
6	MC PWB	Generates the high voltage for the main charger and the developing bias voltage.	
7	Primary transfer PWB	Generates the primary transfer voltage.	
8	AC power PWB	Controls the primary side power source.	
9	Scanner control PWB	Controls the scanner section.	
10	CCD PWB	Scans the document images.	
11	Phase detection PWB	Adjusts the BL/CL drum phase.	
12	CL inverter PWB	Drives the xenon lamp.	
13	Document detection light receiving PWB	Outputs the document size detection signal.	
14	Document detection light emitting PWB	Emits the document size detection LED lights.	
15	LCD INV PWB	Generates the high voltage for the LCD backlight.	
16	LVDS PWB	Converts the display signal and outputs to the LCD.	
17	MFP OPE-P PWB	Outputs the key operation signal.	
18	Power SW PWB	Outputs the ON/OFF control signal of the DC power source.	
19	HL PWB	Controls the heater lamp.	
20	Driver sub PWB	Drives the process motor and related sections.	
21	Secondary transfer PWB	Generates the secondary transfer voltage and the transfer belt cleaning voltage.	
22	Temperature/humidity sensor PWB	Detects the ambient temperature and humidity.	
23	Manual paper feed width detection PWB	Detects the manual paper feed tray paper width.	
24	MFPcnt PWB	Controls images and the whole machine.	
25	Mother PWB	Interfaces the MFPcnt PWB and other PWB.	
26	PCU PWB	Controls the engine section.	
27	PCU Flash ROM PWB	Controls the PCU PWB.	
28	BD PWB	Detects laser and outputs the synchronous signal.	
29	LSU CNT PWB	Controls the LSU.	
30	LSU thermistor	Measures the temperature in the LSU.	
31	DL PWB	Discharges electric charges on the OPC drum.	
32	DV initial PWB	Detects the DV model.	
33	LD PWB	Controls laser lighting.	
34	DOCC PWB	Recognizes the document control pattern.	Option

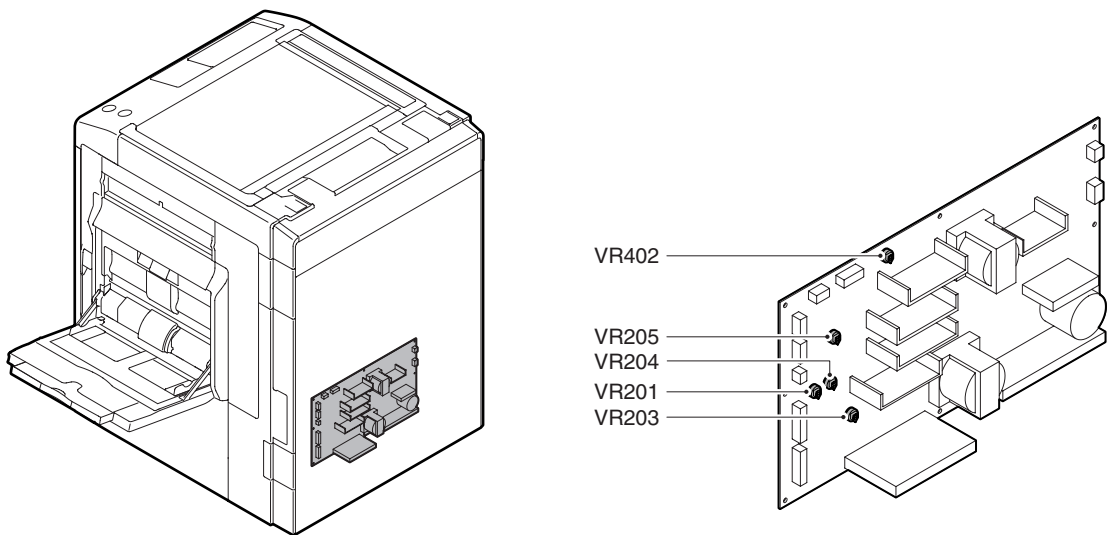
No.	Name	Function/Operation	Note
35	BOOT ROM PWB	Stores the program to boot the printer controller.	
36	PROGRAM ROM PWB	Stores the program.	
37	SCN Flash ROM PWB	Stores the scanner control program.	
38	HVR PWB	Divides the primary transfer electrode for each color to improve the transfer capability.	

## N. Fuses/Thermostats



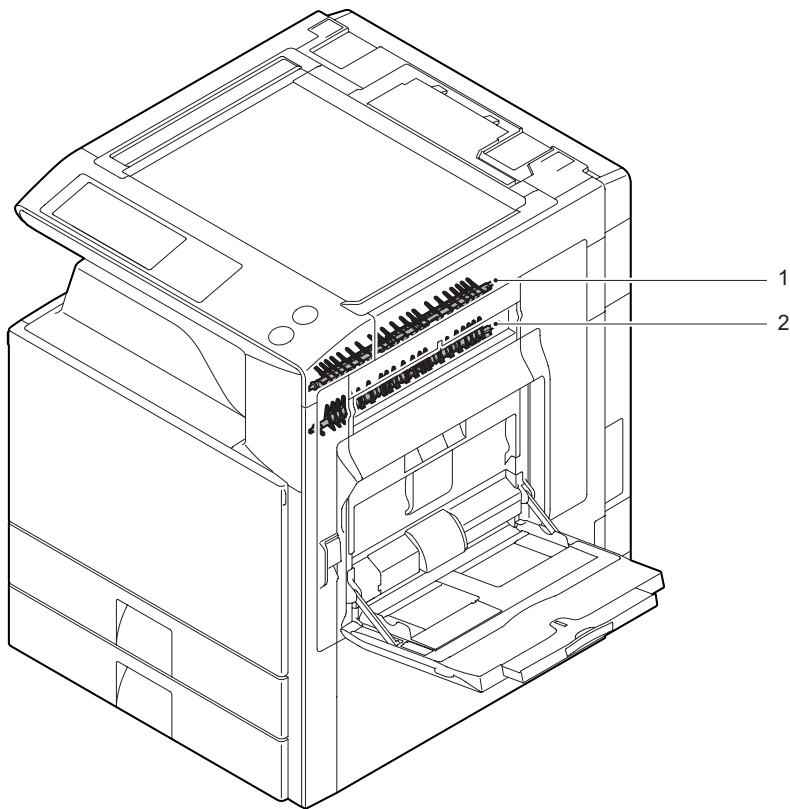
No.	Signal name	Name	Specifications	Section
1	HLTS1	Thermostat	Prevents against overheating of the fusing roller.	Fusing unit
2	HLTS2	Thermostat	Prevents against overheating of the fusing roller.	Fusing unit
3	HLTS3	Thermostat	Prevents against overheating of the fusing roller.	Fusing unit
4	F201	Fuse	T6.3AH250V	DC power PWB
5	F202	Fuse	T6.3AH250V	DC power PWB
6	F203	Fuse	T6.3AH250V	DC power PWB
7	F204	Fuse	T6.3AH250V	DC power PWB
8	F205	Fuse	T6.3AH250V	DC power PWB
9	F1	Fuse	20A 125V	AC power PWB
10	F2	Fuse	20A 125V	AC power PWB
11	F3	Fuse	T2AH250V	AC power PWB
12	F4	Fuse	T2AH250V	AC power PWB
13	F1	Fuse	200mA 250V	LCD INV PWB
14	F101	Fuse	125V 12A	DC power PWB
15	F102	Fuse	T1AH250V	DC power PWB
16	F103	Fuse	T8AH250V	DC power PWB
17	F301	Fuse	T5AH250V	DC power PWB
18	F1	Fuse	1.25A250V	CL inverter PWB

O. Adjustment volumes



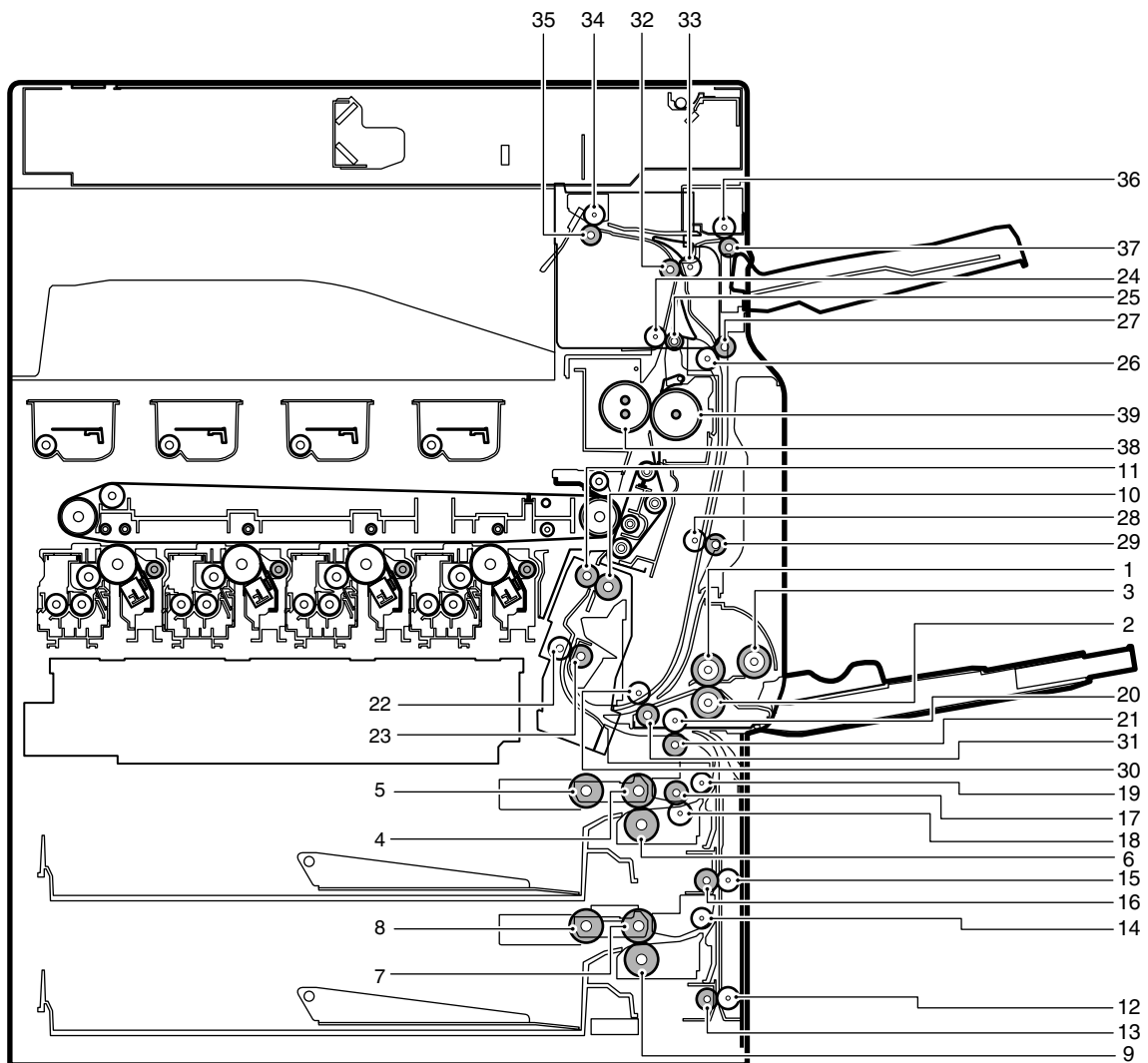
Signal name	Function/ Operation	Section	Note
VR201	+12V output adjustment	DC power PWB	
VR203	+24V output adjustment	DC power PWB	
VR204	+5VN output adjustment	DC power PWB	
VR205	+3.3V output adjustment	DC power PWB	
VR402	+5VO, +5VL output adjustment	DC power PWB	

P. Gate



No.	Name	Function/ Operation	Note
1	ADU reverse gate	Switches the paper route: discharged to the inner tray or discharged to the right tray.	
2	ADU gate lower	Switches the transport route by switchback when paper is transported to the duplex (ADU) section.	

## Q. Rollers



No.	Name	Function/ Operation	Note
1	Paper feed roller (Manual paper feed tray)	Feeds paper to the paper transport section.	
2	Separation roller (Manual paper feed tray)	Separate paper to prevent against double feed.	
3	Paper pickup roller (Manual paper feed tray)	Feeds paper to the paper feed roller.	
4	Paper feed roller (No. 1 paper feed tray)	Feeds paper to the paper transport section.	
5	Paper pickup roller (No. 1 paper feed tray)	Feeds paper to the paper feed roller.	
6	Separation roller (No. 1 paper feed tray)	Separates paper to prevent against double feed.	
7	Paper feed roller (No. 2 paper feed tray)	Feeds paper to the paper transport section.	
8	Paper pickup roller (No. 2 paper feed tray)	Feeds paper to the paper feed roller.	
9	Separation roller (No. 2 paper feed tray)	Separates paper to prevent against double feed.	
10	Resist roller (Drive)	Transports paper to the transfer section. Controls the paper transport timing to adjust relative relations between images and paper.	
11	Resist roller (Idle)	Applies a pressure to paper and the resist roller to give paper the transport power of the transport roller.	
12	Transport roller 1 (Idle)	Applies a pressure to paper and the resist roller to give paper the transport power of the transport roller.	
13	Transport roller 1 (Drive)	Transports paper from No. 3 and No. 4 paper feed tray to the transport roller 4.	
14	Transport roller 3 (Idle)	Reduces friction between paper and the paper guide.	
15	Transport roller 4 (Idle)	Applies a pressure to paper and the transport roller to give paper the transport power of the transport roller.	
16	Transport roller 4 (Drive)	Transports paper from the transport roller 1 and paper feed roller (No. 2 paper feed tray) to the transport roller 7.	
17	Transport roller 5 (Drive)	Transports paper from the paper feed tray 1 to the transport roller 7.	
18	Transport roller 5 (Idle)	Applies a pressure to paper and the transport roller to give paper the transport power of the transport roller.	
19	Transport roller 6 (Idle)	Reduces friction between paper and the paper guide.	
20	Transport roller 7 (Idle)	Applies a pressure to paper and the transport roller to give paper the transport power of the transport roller.	

No.	Name	Function/ Operation	Note
21	Transport roller 7 (Drive)	Transports paper from the paper feed tray 1, 2, 3, and 4 to the transport roller 8.	
22	Transport roller 8 (Idle)	Applies a pressure to paper and the transport roller to give paper the transport power of the transport roller.	
23	Transport roller 8 (Drive)	Transports paper to the resist roller.	
24	Transport roller 9 (Idle)	Applies a pressure to paper and the transport roller to give paper the transport power of the transport roller.	
25	Transport roller 9 (Drive)	Transports paper from the fusing roller to the transport roller 13.	
26	Transport roller 10 (Idle)	Applies a pressure to paper and the transport roller to give paper the transport power of the transport roller.	
27	Transport roller 10 (Drive)	Transports paper from the transport roller 13 to the transport roller 11.	
28	Transport roller 11 (Idle)	Applies a pressure to paper and the transport roller to give paper the transport power of the transport roller.	
29	Transport roller 11 (Drive)	Transports paper from the transport roller 10 to the transport roller 12.	
30	Transport roller 12 (Idle)	Applies a pressure to paper and the transport roller to give paper the transport power of the transport roller.	
31	Transport roller 12 (Drive)	Transports paper from the transport roller 11 to the transport roller 8. / Transports the paper from the manual paper feed tray to the transport roller 8.	
32	Transport roller 13 (Drive)	Transports paper from the transport roller 9 to the transport roller 1. / Transport paper to the duplex (ADU) section.	
33	Transport roller 13 (Idle)	Applies a pressure to paper and the transport roller to give paper the transport power of the transport roller.	
34	Paper exit roller 1 (Idle)	Applies a pressure to paper and the transport roller to give paper the transport power of the transport roller.	
35	Paper exit roller 1 (Drive)	Discharges paper. Transports paper to the right paper exit tray. Transport paper to the duplex (ADU) section.	
36	Paper exit roller 2 (Idle)	Applies a pressure to paper and the transport roller to give paper the transport power of the transport roller.	
37	Paper exit roller 2 (Drive)	Discharges paper.	
38	Fusing roller (Heating)	Heats toner on paper, and fuses it onto paper.	
39	Fusing roller (Pressing)	Applies a pressure to the fusing roller (heating).	



## [6] ADJUSTMENTS

### 1. General

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

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

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

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

### 2. Adjustment item list

Job No.	Adjustment item list			Simulation
ADJ 1	Developing doctor gap adjustment			
ADJ 2	Developing roller main pole position adjustment			
ADJ 3	Toner density reference control level setting			
ADJ 4	High voltage adjustments	ADJ 4A	Main charger grid voltage adjustment	8-2
		ADJ 4B	Developing bias voltage adjustment	8-1
		ADJ 4C	Transfer voltage adjustment	8-6
ADJ 5	Image density sensor, image registration sensor adjustment	ADJ 5A	Color image density sensor calibration	44-13
		ADJ 5B	Color image density sensor, black image density sensor, image registration sensor adjustment	44-2
ADJ 6	Image skew adjustment (LSU unit)			64-1/61-4
ADJ 7	OPC drum phase adjustment	ADJ 7A	OPC drum phase adjustment (Auto adjustment)	50-22
		ADJ 7B	OPC drum phase adjustment (Manual adjustment)	44-31
ADJ 8	Print engine image magnification ratio adjustment (BK) (Main scanning direction) (Print engine section)	ADJ 8A	Print engine image magnification ratio adjustment (BK) (Main scanning direction) (Print engine section) (Manual adjustment)	50-10
ADJ 9	Image off-center adjustment (Print engine section)			50-10
ADJ 10	Image registration adjustment (Print engine section)	ADJ 10A	Image registration adjustment (Main scanning direction, sub scanning direction) (Auto adjustment)	50-22
		ADJ 10B	Image registration adjustment (Main scanning direction) (Manual adjustment)	50-20
		ADJ 10C	Image registration adjustment (Sub scanning direction) (Manual adjustment)	50-21
ADJ 11	Scan image distortion adjustment	ADJ 11A	Scanner (reading) unit parallelism adjustment	
		ADJ 11B	Scan image (sub scanning direction) distortion adjustment	
		ADJ 11C	Scan image (main scanning direction) distortion adjustment	
		ADJ 11D	Scan image distortion adjustment (Whole scanner)	
ADJ 12	Scan image focus adjustment (CCD unit position adjustment)			
ADJ 13	Scan image skew adjustment (RSPF) (Refer to MX-RPX1 SM.)			
ADJ 14	Scan image magnification ratio adjustment (Document table mode)	ADJ 14A	Scan image magnification ratio adjustment (Main scanning direction) (Document table mode)	48-1
		ADJ 14B	Scan image magnification ratio adjustment (Sub scanning direction) (Document table mode)	48-1
ADJ 15	Scan image magnification ratio adjustment (RADF mode) (Refer to the MX-RPX1 SM.)	ADJ 15A	Scan image magnification ratio adjustment (Main scanning direction) (RSPF mode) (Refer to the MX-RPX1 SM.)	48-1
		ADJ 15B	Scan image magnification ratio adjustment (Sub scanning direction) (RSPF mode) (Refer to the MX-RPX1 SM.)	48-1
ADJ 16	Scan image off-center adjustment	ADJ 16A	Scan image off-center (Document table mode)	50-12
		ADJ 16B	Scan image off-center (RSPF mode) (Refer to the MX-RPX1 SM.)	50-12
ADJ 17	Print area (Void area) adjustment (Print engine section)			50-10/50-1
ADJ 18	Copy image position, image loss adjustment	ADJ 18A	Copy image position, image loss adjustment (Document table mode)	50-1 (50-2)
		ADJ 18B	Copy image position, image loss adjustment (RSPF mode) (Refer to the MX-RPX1 SM.)	50-6 (50-7)
ADJ 19	Print lead edge image position adjustment (Printer mode) (Print engine section)			50-5
ADJ 20	Copy color balance/density adjustment	ADJ 20A	CCD gamma adjustment (CCD calibration) (Normal document copy mode)	63-3 (63-5)
		ADJ 20B	Copy color balance adjustment (Auto adjustment)	46-24
		ADJ 20C	Copy color balance adjustment (Manual adjustment)	46-21
		ADJ 20D	Copy density adjustment (Each color copy mode) (Whole adjustment) (Normally unnecessary to adjust)	46-1
		ADJ 20E	Copy density adjustment (each monochrome copy mode) (Whole adjustment) (Normally unnecessary to adjust)	46-2
		ADJ 20F	Copy color balance adjustment (Color balance adjustment at each density level in each color copy mode) (Normally not required)	46-10
		ADJ 20G	Monochrome copy density adjustment (Density adjustment at each density level in each monochrome copy mode) (Normally not required)	46-16
		ADJ 20H	Gamma/density adjustment in the text image edge section (Normally not required)	46-27

Job No.	Adjustment item list			Simulation
ADJ 20	Copy color balance/density adjustment	ADJ 20I	Copy color balance adjustment (Single color copy mode) (Normally not required)	46-25
		ADJ 20J	Auto color balance adjustment by the user (Copy color balance auto adjustment enable setting and adjustment)	26-53
		ADJ 20K	Background process condition setting in the color auto copy mode	46-33
		ADJ 20L	Color document identification level (ACS operation) setting	46-33
ADJ 21	Printer color balance/density adjustment	ADJ 21A	Printer color balance adjustment (Auto adjustment)	67-24
		ADJ 21B	Printer color balance adjustment (Manual adjustment)	67-25
		ADJ 21C	Auto color balance adjustment by the user (Copy color balance auto adjustment ENABLE setting and adjustment)	26-54
ADJ 22	Fusing paper guide position adjustment			
ADJ 23	Document size sensor adjustment	ADJ 23A	Document size sensor detection point adjustment	41-2
		ADJ 23B	Document size sensor sensitivity adjustment	41-2
ADJ 24	Manual paper feed tray paper size (width) sensor adjustment			40-2
ADJ 25	RSPF tray paper size (width) sensor adjustment (Refer to the MX-RPX1 SM.)			53-7
ADJ 26	Touch panel coordinate setting			65-1
ADJ 27	Image loss, void area, image off-center, image magnification ratio auto adjustment with SIM50-28	ADJ 27A	Print image main scanning direction image magnification ratio automatic adjustment	50-28
		ADJ 27B	Image off-center automatic adjustment	50-28
		ADJ 27C	Copy lead edge image reference position adjustment, image off-center, sub scanning direction image magnification ratio automatic adjustment	50-28
		ADJ 27D	SPF mode image off-center, image lead edge position, sub scanning direction image magnification ratio automatic adjustment	50-28

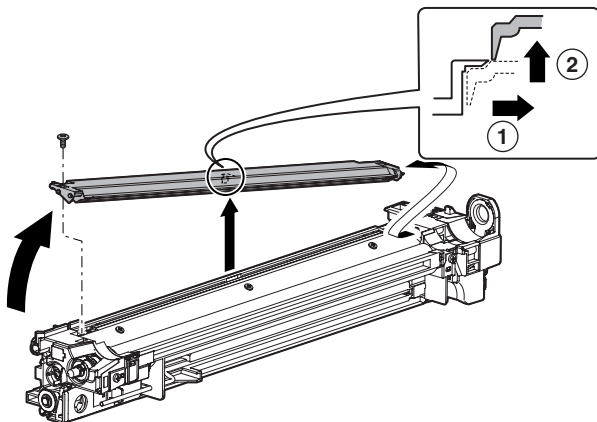
### 3. Details of adjustment

#### ADJ 1 Developing doctor gap adjustment

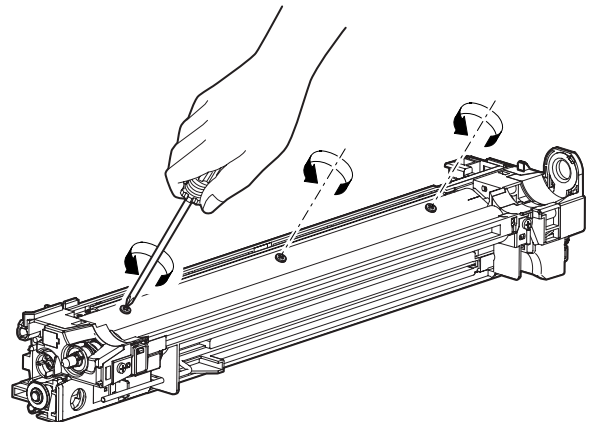
This adjustment must be executed in the following cases:

- \* When the developing unit is disassembled.
- \* When the print image density is low.
- \* When there is a blur on the print image.
- \* When there is unevenness in the print image density.
- \* There is abnormally much toner dispersion.

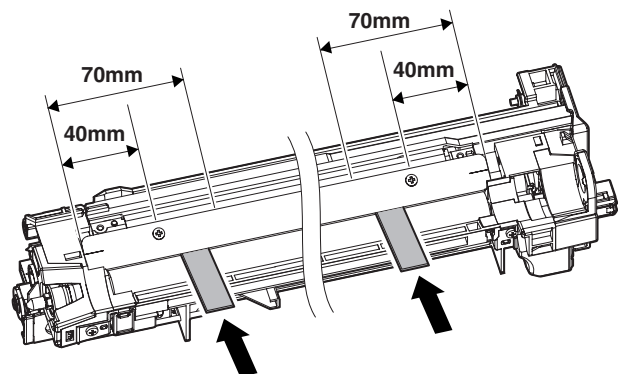
- 1) Remove the developing unit from the main unit, and remove the developing unit upper cover and the developing doctor cover.



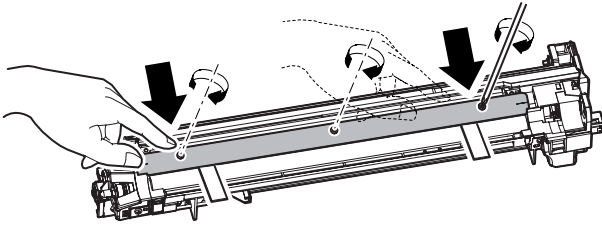
- 2) Loosen the developing doctor fixing screw.



- 3) Insert a thickness gauge of 0.40mm between 40mm – 70mm from the edge of the developing doctor.

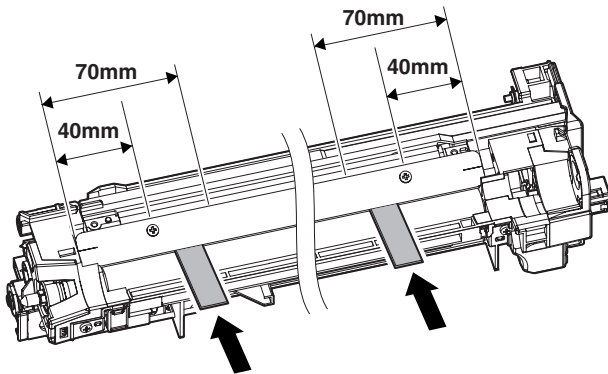


- 4) Push the developing doctor in the arrow direction, and tighten the fixing screw of the developing doctor. (Perform the similar procedure for the front frame and the rear frame.)



- 5) Check that the doctor gaps at two positions in 40mm – 70mm from the both sides of the developing doctor are in the range of  $0.40 \pm 0.05\text{mm}$ .

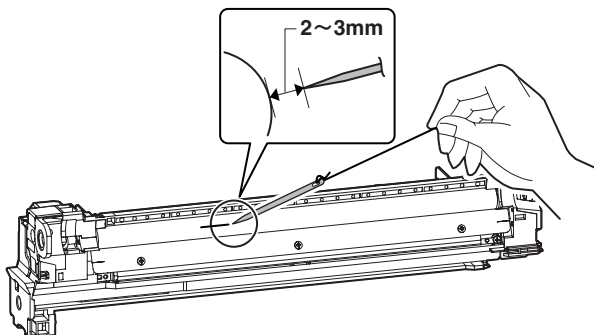
\* When inserting a thickness gauge, be careful not to scratch the developing doctor and the developing roller.



## ADJ 2 Developing roller main pole position adjustment

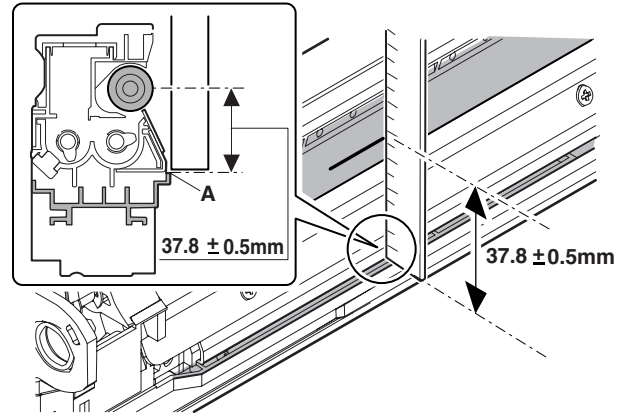
This adjustment must be executed in the following cases:

- \* When the developing unit is disassembled.
  - \* When the print image density is low.
  - \* When there is a blur on the print image.
  - \* When there is unevenness in the print image density.
  - \* There is abnormally much toner dispersion.
- 1) Remove the developing doctor cover, and place the developing unit on a flat surface.
  - 2) Attach a thread to a needle or a pin.
  - 3) Hold the thread and bring the needle near the developing roller. (Do not use a paper clip because it will not provide a correct position.)
  - 4) Mark the developing roller surface on the extension line of the needle with the needle at 2 – 3mm from the developing roller surface. (Never touch the needle tip with the developing roller.)

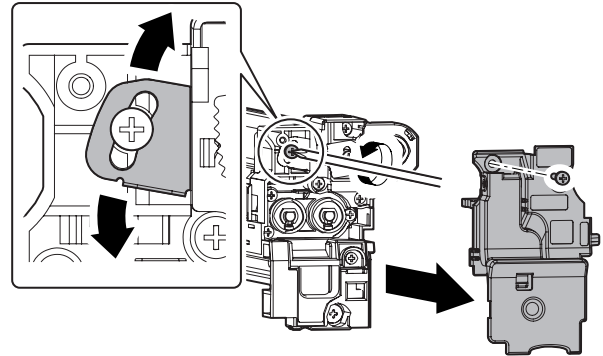


- 5) Measure the distance between the marking position and position A of the developing unit frame, and check that it is  $37.8 \pm 0.5\text{mm}$ .

If the distance is not within the above range, adjust the developing roller main pole position in the following procedures.



- 6) Remove the developing unit front cover, loosen the fixing screw of the developing roller main pole adjustment plate, and move the adjustment plate in the arrow direction to adjust.



Repeat procedures 3) – 6) until the developing roller main pole position comes to the specified range.

- 7) After completion of the adjustment of the developing roller main pole position, fix the developing roller main pole adjustment plate with the fixing screw.

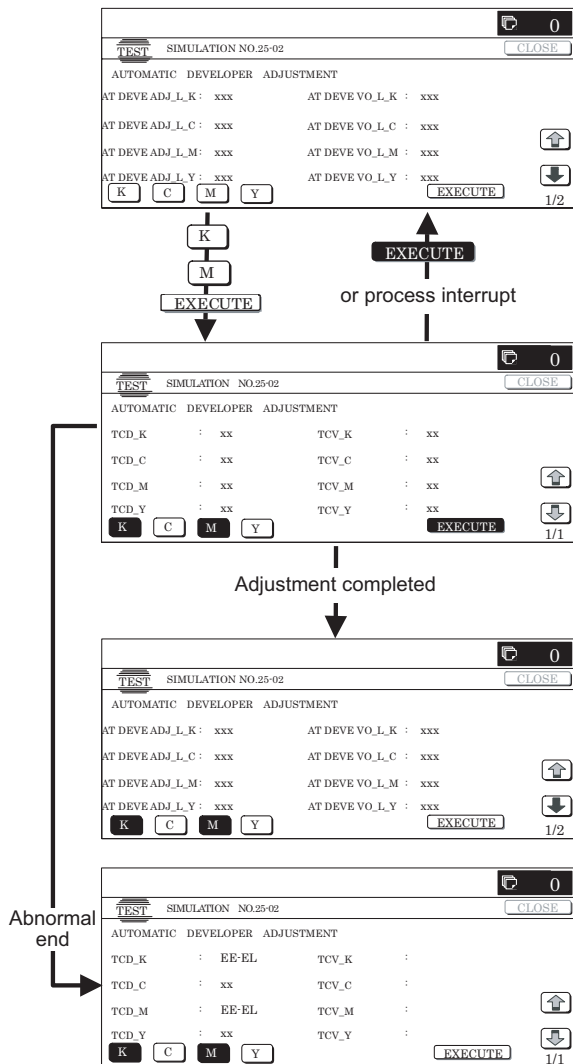
## ADJ 3 Toner density reference control level setting

This adjustment must be executed in the following cases:

- \* 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 SIM25-2.



- 2) Close the front cabinet.
- 3) Select a developing unit to be adjusted.
- 4) When [EXECUTE] key is touched, it is highlighted. The developing roller rotates, and the toner sensor detects toner density, and the output value is displayed.

The above operation is executed for 3 minutes, 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, [EXECUTE] key display returns to normal from highlight. This makes you know whether the adjustment operation is completed or not.

The above operation is executed each of the lower speed mode and the middle speed mode, and the reference toner density control value is set for each of them.

NOTE: If the operation is interrupted within 3 minutes, the adjustment result is not reflected (enabled).

When [EXECUTE] key is touched during rotation, the operation is stopped and [EXECUTE] key returns to the normal display.

If [EE-EU], [EE-EL], or [EE-EG] is displayed, setting of the reference toner density control value is not completed normally.

Error display	Error name	Detail of error
EE-EL	EL abnormality	Sensor output level, 1.5V or below; control voltage, 8.0V or above
EE-EU	EU abnormality	Sensor output level, 3.45V or above; control voltage, 2.0V or below
EE-EC	EC abnormality	Sensor output level, other than $2.5V \pm 0.2V$

- 5) Use SIM24-5 to clear the developer counter.
- 6) Use SIM44-27 to clear the half-tone correction data.

NOTE:

- a) When replacing developer, always replace all the three colors of Yellow, Magenta, and Cyan.

If only one color is replaced, color balance may be adversely affected. Black developer can be replaced individually.

- b) After replacement of developer or the photoconductor, be sure to execute SIM44-27 to clear the half-tone correction data.

If the above procedure is neglected, the half-tone correction may not be performed correctly.

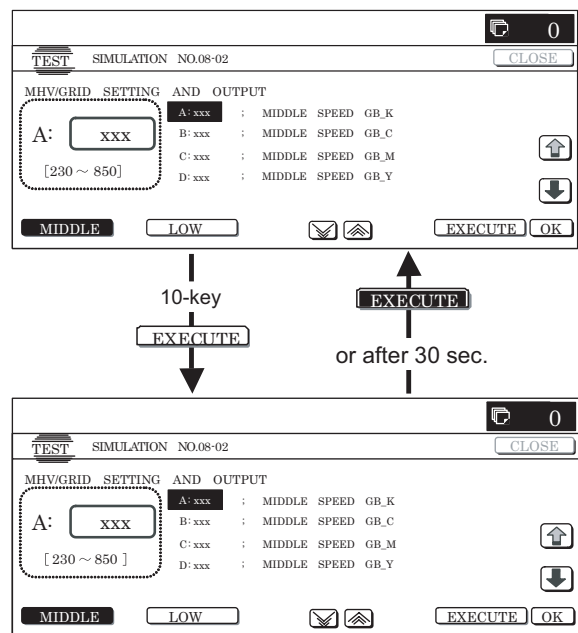
## ADJ 4 High voltage adjustments

### 4-A Main charger grid voltage adjustment

This adjustment must be executed in the following cases:

- \* When the MC/DV high voltage power PWB is replaced.
- \* When U2 trouble occurs.
- \* When the PCU PWB is replaced.
- \* When EEPROM on the PCU PWB is replaced.

- 1) Enter SIM8-2 mode.

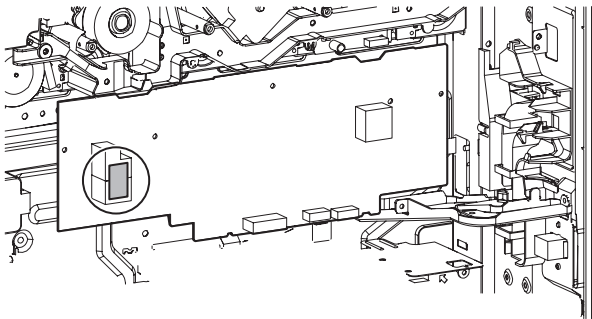


- 2) Select an output mode to be adjusted with the mode key and the scroll key.
- 3) Enter the adjustment value (specified value) of the middle speed mode and touch [OK] key.

Item					Adjustment value		Monitor (MC/DV high voltage PWB)			Actual voltage
					Adjustment range	Default value	Monitor voltage (Specified value)	Connector	Pin No.	
MIDDLE	A	MIDDLE SPEED GB_K	K	Main charger grid voltage (Middle speed mode)	230 – 850	615	$53.6 \pm 1.61V$	CNMON	8	-615V
	B	MIDDLE SPEED GB_C	C	Main charger grid voltage (Middle speed mode)	230 – 850	615	$53.6 \pm 1.61V$	CNMON	6	-615V
	C	MIDDLE SPEED GB_M	M	Main charger grid voltage (Middle speed mode)	230 – 850	615	$53.6 \pm 1.61V$	CNMON	4	-615V
	D	MIDDLE SPEED GB_Y	Y	Main charger grid voltage (Middle speed mode)	230 – 850	615	$53.6 \pm 1.61V$	CNMON	2	-615V
LOW	A	LOW SPEED GB_K	K	Main charger grid voltage (Low speed mode)	230 – 850	605	$52.7 \pm 1.58V$	CNMON	8	-605V
	B	LOW SPEED GB_C	C	Main charger grid voltage (Low speed mode)	230 – 850	605	$52.7 \pm 1.58V$	CNMON	6	-605V
	C	LOW SPEED GB_M	M	Main charger grid voltage (Low speed mode)	230 – 850	605	$52.7 \pm 1.58V$	CNMON	4	-605V
	D	LOW SPEED GB_Y	Y	Main charger grid voltage (Low speed mode)	230 – 850	605	$52.7 \pm 1.58V$	CNMON	2	-605V

**Remark: By setting the default value, the specified voltage is normally outputted.**

The adjustment value of each color mode is specified on the label attached to the MC/DV high voltage power PWB. Enter that value.



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

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

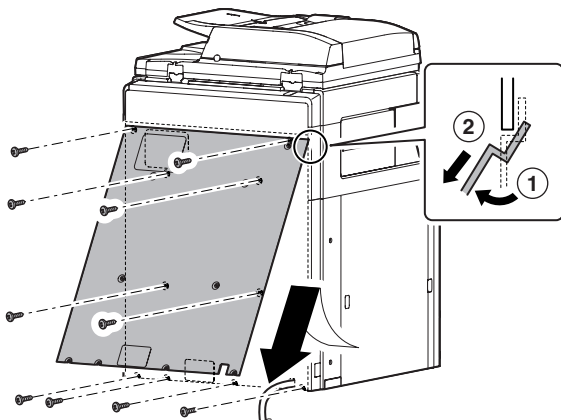
To adjust all the modes individually, first adjust the middle speed mode, and then adjust the other mode.

If the middle speed mode is adjusted after adjustment of all the modes individually, the adjustment values of the other modes are automatically changed. Use care for that.

Therefore, unless there may be an abnormality in the output voltage, there is no need to check the output value.

If it must be checked that the normal voltage is outputted or if an adjustment is required by referring to the output voltage, follow the procedures below.

- 1) Remove the main unit rear cover.



- 2) Open the PWB holder.
- 3) Enter SIM8-2 mode.
- 4) Select an output mode to be adjusted with the mode key and the scroll key.
- 5) Check the relationship between the pin No. of the connector CNMON on the MC/DV high voltage PWB and each adjustment mode.
- 6) Apply a digital multi-meter to the connector CNMON pin on the MC/DV high voltage PWB corresponding to the adjusted mode.
- 7) Touch [EXECUTE] key.

The main charger grid voltage is outputted for 30sec.

If this procedure is executed for a long time, the OPC drum and the developing roller may be adversely affected. Use this procedure as short as possible.

If possible, it is recommendable to use an unnecessary developing unit and an unnecessary OPC drum for this adjustment.

- 8) Check the monitor voltage with the digital multi-meter.

If the monitor voltage is not in the range of the specified values shown in the table above, change the adjustment value and adjust again. If the specified value voltage is not obtained even though the adjustment value is changed, the following parts may be defective.

MC/DV high voltage PWB

PCU PWB

Developing unit

OPC drum unit

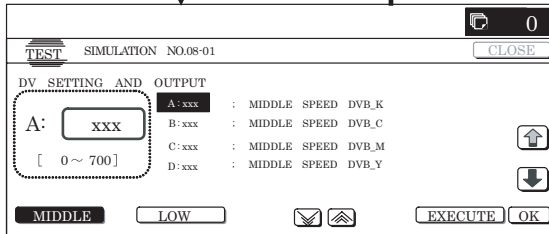
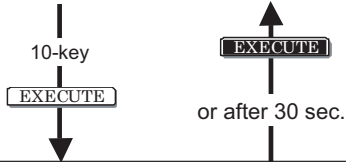
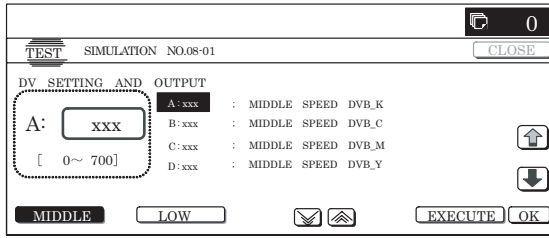
High voltage circuit electrode

#### 4-B Developing bias voltage adjustment

This adjustment must be executed in the following cases:

- \* When MC/DV high voltage power PWB is replaced.
- \* When U2 trouble occurs.
- \* When PCU PWB is replaced.
- \* When EEPROM on the PCU PWB is replaced.

1) Enter SIM8-1 mode.

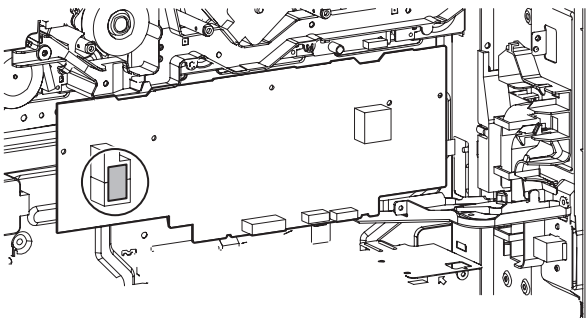


- 2) Select an output mode to be adjusted with the mode key and the scroll key.
- 3) Enter the adjustment value (specified value) of the middle speed mode and touch [OK] key.

Item			Mode		Adjustment value		Monitor (MC/DV high voltage PWB)			Actual voltage
					Adjustment range	Default value	Monitor voltage (Specified value)	Connector	Pin No.	
MIDDLE	A	MIDDLE SPEED DVB_K	K	Developing bias voltage (Middle speed mode)	0 – 700	450	12.1 ± 0.36V	CNMON	7	–450V
	B	MIDDLE SPEED DVB_C	C	Developing bias voltage (Middle speed mode)	0 – 700	450	12.1 ± 0.36V	CNMON	5	–450V
	C	MIDDLE SPEED DVB_M	M	Developing bias voltage (Middle speed mode)	0 – 700	450	12.1 ± 0.36V	CNMON	3	–450V
	D	MIDDLE SPEED DVB_Y	Y	Developing bias voltage (Middle speed mode)	0 – 700	450	12.1 ± 0.36V	CNMON	1	–450V
LOW	A	LOW SPEED DVB_K	K	Developing bias voltage (Low speed mode)	0 – 700	430	11.4 ± 0.34V	CNMON	7	–430V
	B	LOW SPEED DVB_C	C	Developing bias voltage (Low speed mode)	0 – 700	430	11.4 ± 0.34V	CNMON	5	–430V
	C	LOW SPEED DVB_M	M	Developing bias voltage (Low speed mode)	0 – 700	430	11.4 ± 0.34V	CNMON	3	–430V
	D	LOW SPEED DVB_Y	Y	Developing bias voltage (Low speed mode)	0 – 700	430	11.4 ± 0.34V	CNMON	1	–430V

**Remark: By setting the default value, the specified voltage is normally outputted.**

The adjustment value of each color mode is specified on the label attached to the MC/DV high voltage power PWB. Enter that value.



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

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

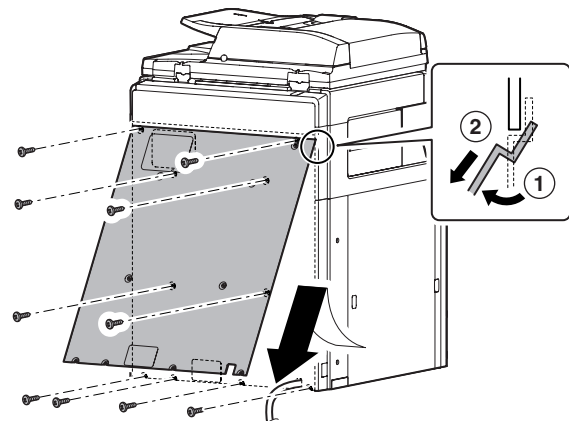
To adjust all the modes individually, first adjust the middle speed mode, then adjust the other mode.

If the middle speed mode is adjusted after adjustment of all the modes individually, the adjustment values of the other modes are automatically changed. Use care for that.

Therefore, unless there may be an abnormality in the output voltage, there is no need to check the output value.

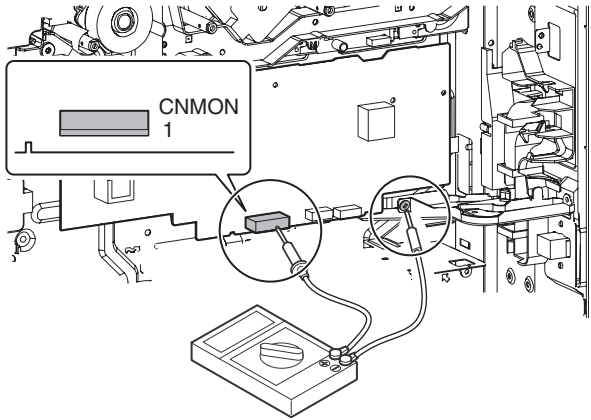
If it must be checked that the normal voltage is outputted or if an adjustment is required by referring to the output voltage, follow the procedures below.

- 1) Remove the main unit rear cover.





- 2) Open the PWB frame.
- 3) Enter SIM8-1 mode.
- 4) Select an output mode to be adjusted with the mode key and the scroll key.
- 5) Check the relationship between the pin No. of the connector CNMON on the MC/DV high voltage PWB and each adjustment mode.



- 6) Apply a digital multi-meter to the connector CNMON pin on the MC/DV high voltage PWB corresponding to the adjusted mode.
- 7) Touch [EXECUTE] key.
- 8) Check the monitor voltage with the digital multi-meter.

The developing bias voltage is outputted for 30sec.

If the monitor voltage is not in the range of the specified values shown in the table above, change the adjustment value and adjust again. If the specified value voltage is not obtained even though the adjustment value is changed, the following parts may be defective.

MC/DV high voltage PWB  
PCU PWB  
Developing unit  
OPC drum unit  
High voltage circuit electrode

#### 4-C Transfer voltage adjustment

This adjustment must be executed in the following cases:

- \* When the TC high voltage power PWB is replaced.
- \* When U2 trouble occurs.
- \* When the PCU PWB is replaced.
- \* When EEPROM on the PCU PWB is replaced.

- 1) Enter SIM8-6 mode.

TEST SIMULATION NO.08-06
0

CLOSE

THV SETTING AND OUTPUT

A: xxx  
[ 0~255]

A:xxx : TC1 LOW SPEED CL K  
B:xxx : TC1 MIDDLE SPEED CL K  
C:xxx : TC1 LOW SPEED CL CMY  
D:xxx : TC1 MIDDLE SPEED CL CMY

EXECUTE OK

10-key

EXECUTE

or after 30 sec.

TEST SIMULATION NO.08-06
0

CLOSE

THV SETTING AND OUTPUT

A: xxx  
[ 0~255]

A:xxx : TC1 LOW SPEED CL K  
B:xxx : TC1 MIDDLE SPEED CL K  
C:xxx : TC1 LOW SPEED CL CMY  
D:xxx : TC1 MIDDLE SPEED CL CMY

EXECUTE OK

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

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

When [EXECUTE] key is touched, the transfer voltage is outputted.

Item	Display	Content				Setting range	Default value	Actual output setting range	Default value Actual output value
A	TC1 LOW SPEED CL K	Primary transfer bias reference value	COLOR	K	Low speed	0 to 255	232	-500V to 5000V	4500V
B	TC1 MIDDLE SPEED CL K				Middle speed	0 to 255	232	-500V to 5000V	4500V
C	TC1 LOW SPEED CL CMY			CMY	Low speed	0 to 255	139	-500V to 5000V	2500V
D	TC1 MIDDLE SPEED CL CMY				Middle speed	0 to 255	139	-500V to 5000V	2500V
E	TC1 LOW SPEED BW K		BLACK	K	Low speed	0 to 255	232	-500V to 5000V	4500V
F	TC1 MIDDLE SPEED BW K				Middle speed	0 to 255	232	-500V to 5000V	4500V
G	TC2 PLAIN CL SPX	Secondary transfer bias reference value	COLOR	Normal paper	Front surface	51 to 255	100	2μA to 45μA	12.5μA
H	TC2 PLAIN CL DPX				Back surface	51 to 255	100	2μA to 45μA	12.5μA
I	TC2 PLAIN BW SPX		BLACK		Front surface	51 to 255	90	2μA to 45μA	10μA
J	TC2 PLAIN BW DPX				Back surface	51 to 255	90	2μA to 45μA	10μA
K	TC2 HEAVY1 CL SPX		COLOR	Heavy paper		51 to 255	69	2μA to 45μA	6μA
L	TC2 HEAVY1 BW SPX			BLACK		51 to 255	69	2μA to 45μA	6μA
M	TC2 OHP CL		COLOR	OHP		51 to 255	60	2μA to 45μA	4μA
N	TC2 OHP BW			BLACK		51 to 255	60	2μA to 45μA	4μA
O	TC2 ENVELOPE CL		COLOR	Envelope		51 to 255	184	2μA to 45μA	30μA
P	TC2 ENVELOPE BW			BLACK		51 to 255	184	2μA to 45μA	30μA
Q	TC2 CLEANING			Cleaning process			51 to 255	79	2μA to 45μA
R	TC2 CLEAN LOW SPD	Secondary transfer cleaning bias reference value	Low speed print			51 to 255	72	-50V to -1500V	-200V
S	TC2 CLEAN MIDDLE SPD		Middle speed print			51 to 255	72	-50V to -1500V	-200V
T	TC2 CLEAN CLEANING		Cleaning			51 to 255	156	-50V to -1500V	-800V

## ADJ 5 Image density sensor, image registration sensor adjustment

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

This adjustment must be executed in the following cases:

- \* When the image density sensor is replaced.
- \* When the image resist sensor is replaced.
- \* When U2 trouble occurs.
- \* When the PCU PWB is replaced.
- \* When EEPROM on the PCU PWB is replaced.

The targets of the adjustment are the color image density sensor, the black image density sensor, and the image registration sensor. There are following adjustment methods.

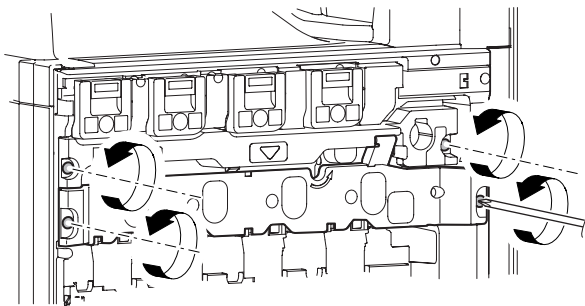
- \* Color image density sensor adjustment (Calibration with the adjustment jig) SIM44-13
- \* Black image density sensor and the image registration sensor adjustment SIM44-2

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

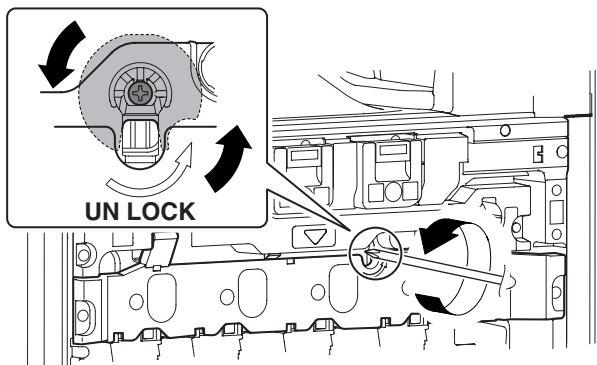
- \* Check to confirm that the color image density sensor, the black image density sensor, and the image registration sensor are clean.
- \* Check to confirm that the image density sensor calibration plate is clean.
- \* Check to confirm that the transfer belt is clean and free from scratches.

### 5-A Color image density sensor calibration

- 1) Open the front cabinet of the main unit, and remove the waste toner box.
- 2) Remove the primary transfer unit fixing screw.

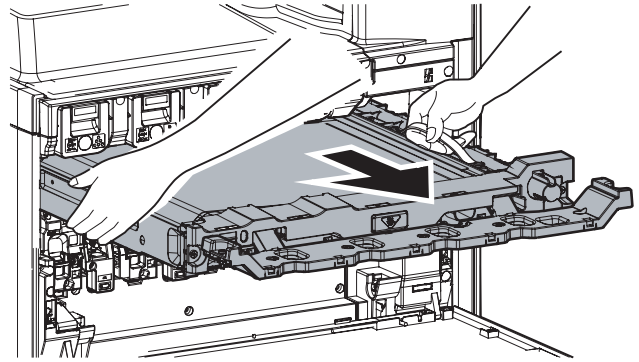


- 3) Turn to the transfer belt tension release cam and release the primary transfer belt tension.

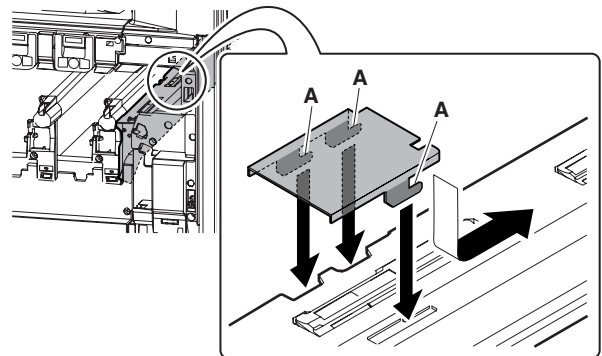


**NOTE:** When the transfer belt tension of the primary transfer unit is released manually, turn on the power again after completion of the work. (Power OFF-ON) This procedure initializes the transfer roller to return it to the home position.

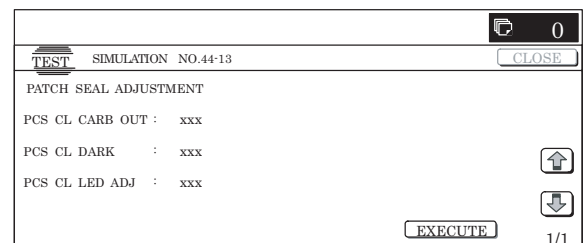
- 4) Open the right cover unit (secondary transfer unit section).
- 5) Open the process front cover, and pull out the primary transfer belt unit.



- 6) Install the image density sensor calibration jig (UKOG-0318FCZZ) to the sensor housing section. Engage the pawl (A) in the sensor housing groove, and slide it to the rear frame side.



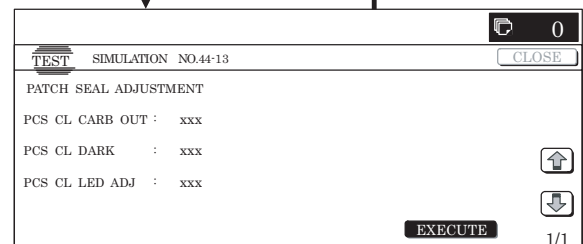
- 7) Turn on the power and enter SIM44-13 mode.



EXECUTE

EXECUTE

or when the color sensor adjustment is completed



- 8) Close the right cover unit (secondary transfer unit section).
- 9) Install the waste toner bottle to the main unit.
- 10) Close the front cabinet.
- 11) Touch [EXECUTE] key.

Color image sensor calibration is automatically executed. When the operation is completed, the adjustment result is displayed and [EXECUTE] key returns to the normal display.



Display/Item	Content	Adjustment value range	Default value
A PCS_CL CARB OUT	Color image density sensor LED current adjustment target value	1 – 255	108
B PCS_CL DARK	Color image density sensor dark-voltage level	0 – 255	0
C PCS_CL LED ADJ	Color image density sensor LED current adjustment target value (PCS CL CARB OUT) registered LED current level	1 – 255	21

If the adjustment is not completed normally, "ERROR" is displayed.  
In that case, check the following sections for any abnormality. If any abnormality is found, repair and adjust again.

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

- \* Color image density sensor
- \* PCU PWB
- \* Image sensor calibration jig (standard reflection sheet dirt, scratch, discoloration)

NOTE: Store the image sensor calibration jig under low temperature, low humidity and dark place.

## 5-B Color image density sensor, black image density sensor, image registration sensor adjustment

- 1) Enter SIM44-2 mode.

- 2) Touch [EXECUTE] key.

The color image density sensor, the black image density sensor, and the image registration sensor are automatically adjusted.

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

	Display/Item	Content	Adjustment value range	Default value
PRO CON	A PCS_CL LED ADJ	Color image density sensor light emitting quantity adjustment value	1 – 255	21
	B PCS_K LED ADJ	Black image density sensor light emitting quantity adjustment value	1 – 255	21
	C PCS_CL DARK	Color image sensor dark voltage	0 – 255	0
	D PCS_K DARK	Black image density sensor dark voltage	0 – 255	0
	E PCS_K GRND	Belt base detection level when completion of Item B adjustment	0 – 255	0
	F PCS_K BELT MAX	Belt base detection level (Max.)	0 – 255	0
	G PCS_K BELT MIN	Belt base detection level (Min.)	0 – 255	0
	H PCS_K BELT DIF	Belt base detection level difference (Item F – Item G)	0 – 255	0
REGIST	I REG_F LED ADJ	Image registration sensor light emitting quantity adjustment value F	1 – 255	56
	J REG_R LED ADJ	Image registration sensor light emitting quantity adjustment value R	1 – 255	56
	K REG_F DARK	Image registration sensor dark voltage F	0 – 255	0
	L REG_R DARK	Image registration sensor dark voltage R	0 – 255	0
	M REG_F GRND	Belt base detection level when completion of Item I adjustment	0 – 255	0
	N REG_R GRND	Belt base detection level when completion of Item J adjustment	0 – 255	0
	O REG_F BELTMAX	Belt base detection level (Max.) F	0 – 255	0
	P REG_F BELT MIN	Belt base detection level (Min.) F	0 – 255	0
	Q REG_F BELT DIF	Belt base detection level difference (Item O – Item P)	0 – 255	0
	R REG_R BELT MAX	Belt base detection level (Max.) R	0 – 255	0
	S REG_R BELT MIN	Belt base detection level (Min.) R	0 – 255	0
	T REG_R BELT DIF	Belt base detection level difference (Item R – Item S)	0 – 255	0
	U REG_F PATCH (K)	Patch detection level F (K)	0 – 255	0
	V REG_F PATCH (C)	Patch detection level F (C)	0 – 255	0
	W REG_F PATCH (M)	Patch detection level F (M)	0 – 255	0
	X REG_F PATCH (Y)	Patch detection level F (Y)	0 – 255	0
	Y REG_R PATCH (K)	Patch detection level R (K)	0 – 255	0
	Z REG_R PATCH (C)	Patch detection level R (C)	0 – 255	0
	AA REG_R PATCH (M)	Patch detection level R (M)	0 – 255	0
	AB REG_R PATCH (Y)	Patch detection level R (Y)	0 – 255	0

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

In that case, check the following sections for any abnormality.

If any abnormality is found, repair and adjust again.

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

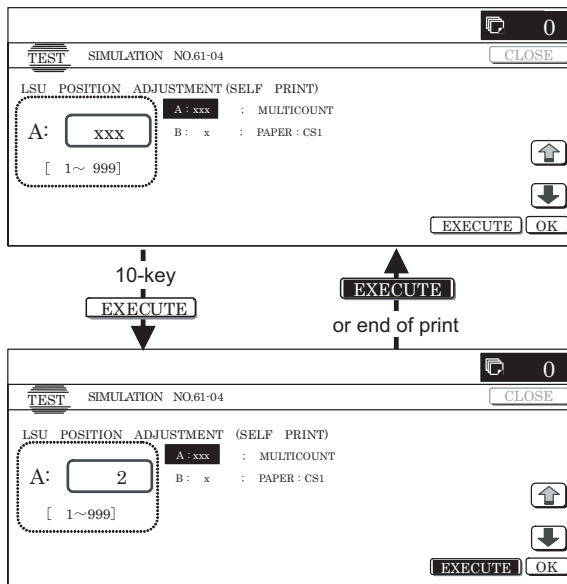
- \* Color image density sensor
- \* Black image density sensor
- \* Image registration sensor
- \* PCU PWB
- \* Transfer belt (dirt, scratch)
- \* Transfer belt cleaner

## ADJ 6 Image skew adjustment (LSU unit)

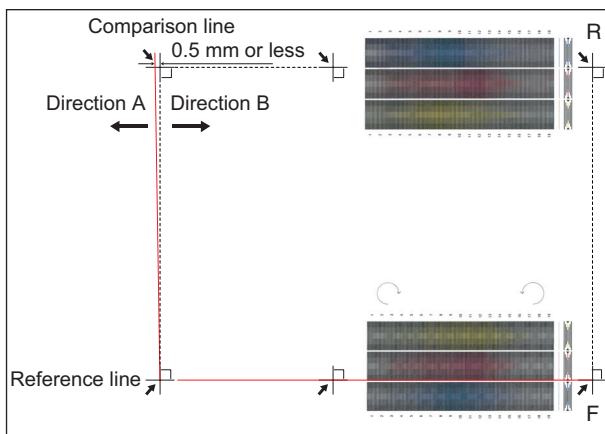
This adjustment must be executed in the following cases:

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

1) Enter SIM61-4 mode.



- 2) Select the paper feed tray with A3 (11 x 17) paper in it by changing the value of set item B.
- 3) Touch [EXECUTE] key.  
The check pattern is printed out.



- 4) Check the printed black image for any skew (right angle). Measure the right angle level by using the six cross patterns printed in black.
- There are following two methods of checking the black image for any skew (right angle).

Method 1: Measure the length of the diagonal lines from the cross point of the cross pattern. Check the difference in the length of the diagonal lines for judgment of good or no good.

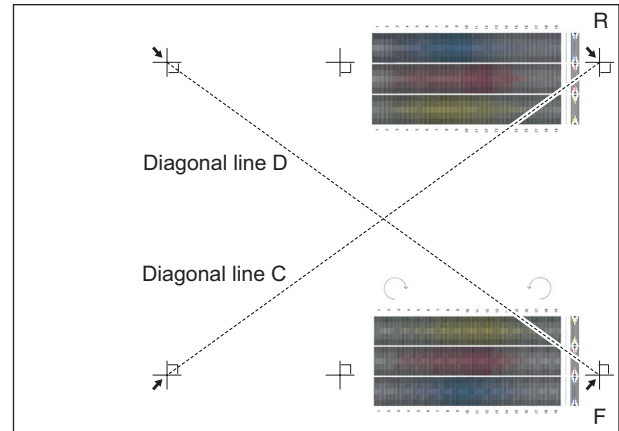
Method 2: Use the right angle sides of A3 or 11 x 8.5 paper for judgment of good or no good.

NOTE:

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

(Method 1)

- a) Measure the length of the diagonal lines from the cross point of the outside cross pattern.



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

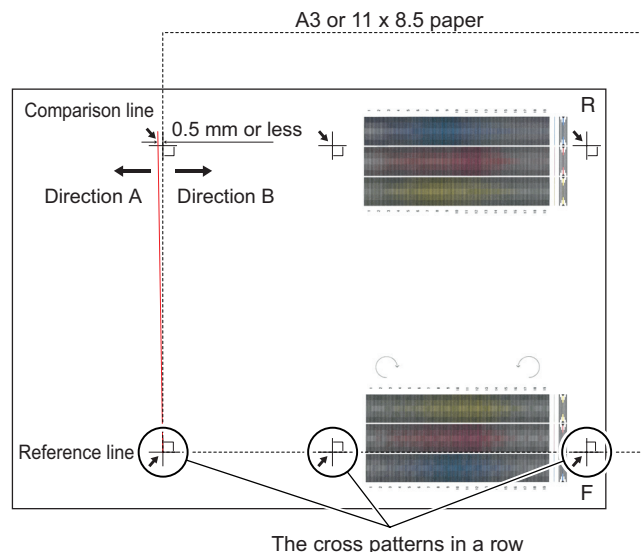
- c) Check to insure that the difference between C and D is in the following range.

$$C - D = \pm 0.8\text{mm}$$

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

(Method 2)

- a) Fit the three cross points of the cross patterns in a row with the side of A3 or 11 x 8.5 paper for checking for any skew (right angle).



- b) Measure the shortest distance between the cross pattern on the extended line of the vertical line and the paper side. If the above distance is 0.5mm or less, there is no need to adjust.

If not, execute the following procedures.

- 5) Open the front cabinet, and remove the waste toner box.

- 6) Loosen the LSU (writing) unit fixing screws (2 pcs.) and shift the skew adjustment screw in the arrow direction to adjust the LSU (writing) unit skew.

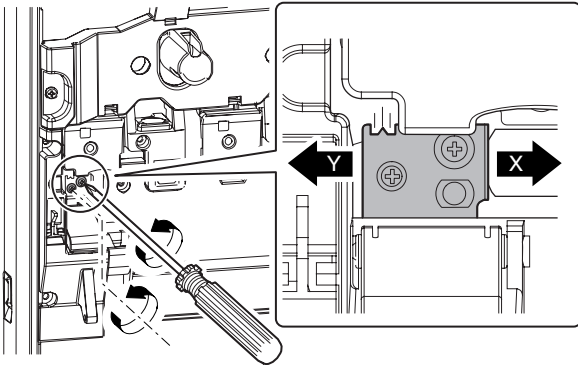
(When Method 1 is used to check the black image for any skew (right angle) in procedure 4)

When the lengths of the diagonal line are  $C > D$ , shift the adjustment screw in the direction of Y.

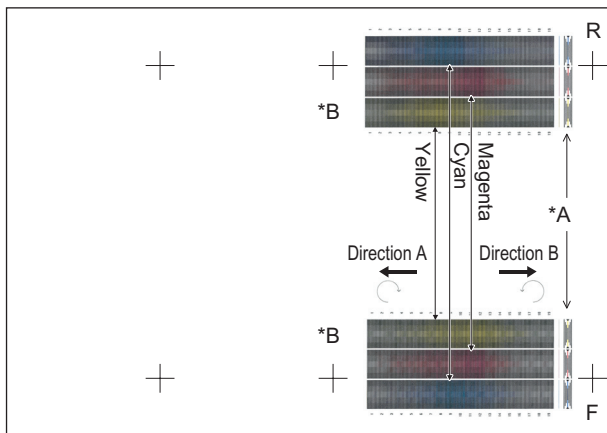
When the lengths of the diagonal line are  $C < D$ , shift the adjustment screw in the direction of X.

(When Method 2 is used to check the black image for any skew (right angle) in procedure 4)

If the image is skewed in the arrow direction of A, shift the adjustment screw to X direction. If the image is skewed in the arrow direction of B, shift the adjustment screw to Y direction.



- 7) Install the waste toner box, and close the front cabinet.
- 8) Execute procedures 3) – 4).  
(Repeat procedures 5) – 8) until a satisfactory result is obtained.)
- 9) If the adjustment result reaches the satisfactory level, tighten the adjustment screw.  
(The black image skew adjustment is completed with the above.)
- 10) In the above black image skew adjustment, check the color image skew pattern printed when completion of the adjustment.



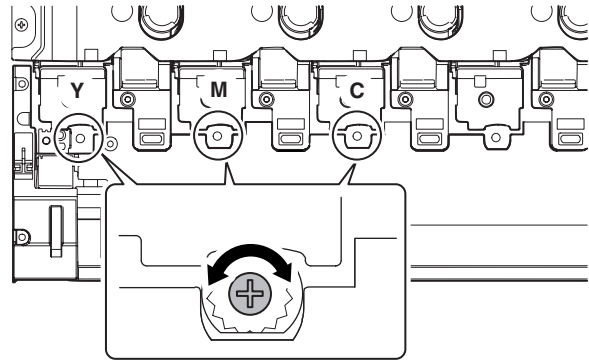
\*A: Rough adjustment pattern  
\*B: Fine adjustment pattern

In each Y/M/C color print pattern printed separately in the front frame direction and in the rear frame direction, note the same print color pattern and check to confirm that the difference in the highest density sections is within  $\pm 1$  step.

(Compare the front and the rear frame positions of the same-color print color patterns. All the highest density sections of all the print color patterns may not be aligned on a line. Compare only the same-color patterns.)

If the above condition is not satisfied, execute the procedures below.

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



**When each adjustment screw is turned, it clicks. Turn it by 5 – 6 clicks and the check pattern is changed by 1 step (1 dot size).**

When the image skew pattern on the front frame side is skewed in the arrow direction of A (to the smaller character) from the rear frame side, turn the adjustment screw counter-clockwise. When the image is skewed in the arrow direction of B (to the larger character), turn the adjustment screw clockwise.

- 12) Print the check pattern.
- 13) Check the color image skew pattern.

Repeat procedures 11) – 13) until a satisfactory result is obtained.

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

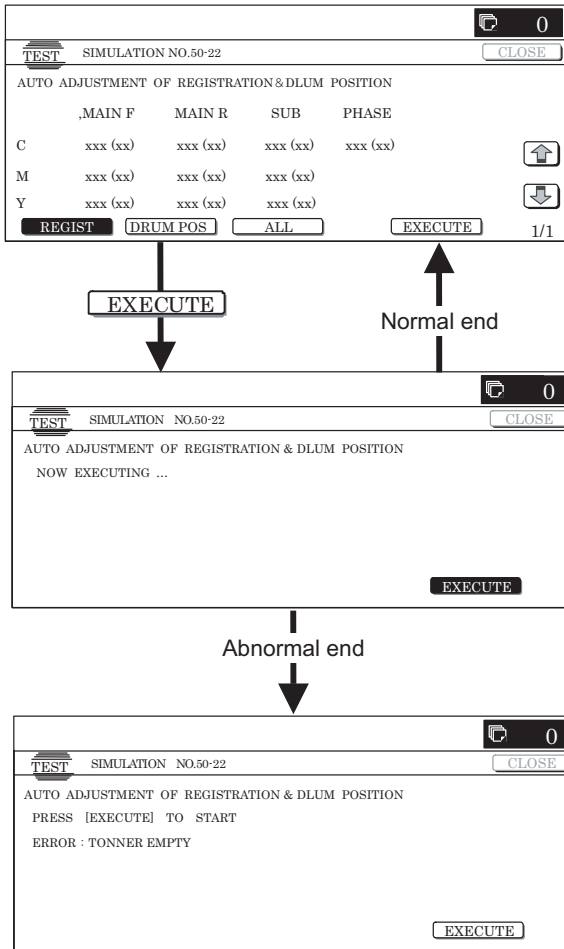
## ADJ 7 OPC drum phase adjustment

This adjustment must be executed in the following cases:

- \* When the OPC drum is replaced.
- \* When the OPC drum is removed from the main unit.
- \* When the OPC drum drive section is disassembled.
- \* When the OPC drum drive unit is replaced.
- \* When U2 trouble occurs.
- \* When the PCU MAIN PWB is replaced.
- \* When EEPROM on the PCU MAIN PWB is replaced.

## 7-A OPC drum phase adjustment (Auto adjustment)

- 1) Enter SIM50-22 mode.



- 2) Touch [ALL] key.

(The machine enters the OPC drum phase adjustment mode/ image registration adjustment (auto adjustment) mode, and both adjustments are executed simultaneously in this mode.)

The OPC drum phase adjustment and the image registration adjustment can be individually executed by [REGIST] button and [DRUM POS] button. Since, however, the image registration adjustment must be executed when the OPC drum phase adjustment is completed, both adjustment are executed in this adjustment simultaneously.

- 3) Touch [EXECUTE] key.

The OPC drum phase adjustment and the image registration adjustment are executed automatically.

- \* After completion of the adjustment, the drum motor stops and [EXECUTE] button returns to the normal display and the adjustment result is displayed.

MAIN, SUB: Image regist adjustement value is displayed.

( ) is the difference from the previous adjustment value.

Example: This time 105.0, previous time 103.0: 105.0 (+2)

PHASE: OPC drum phase adjustment value is displayed.

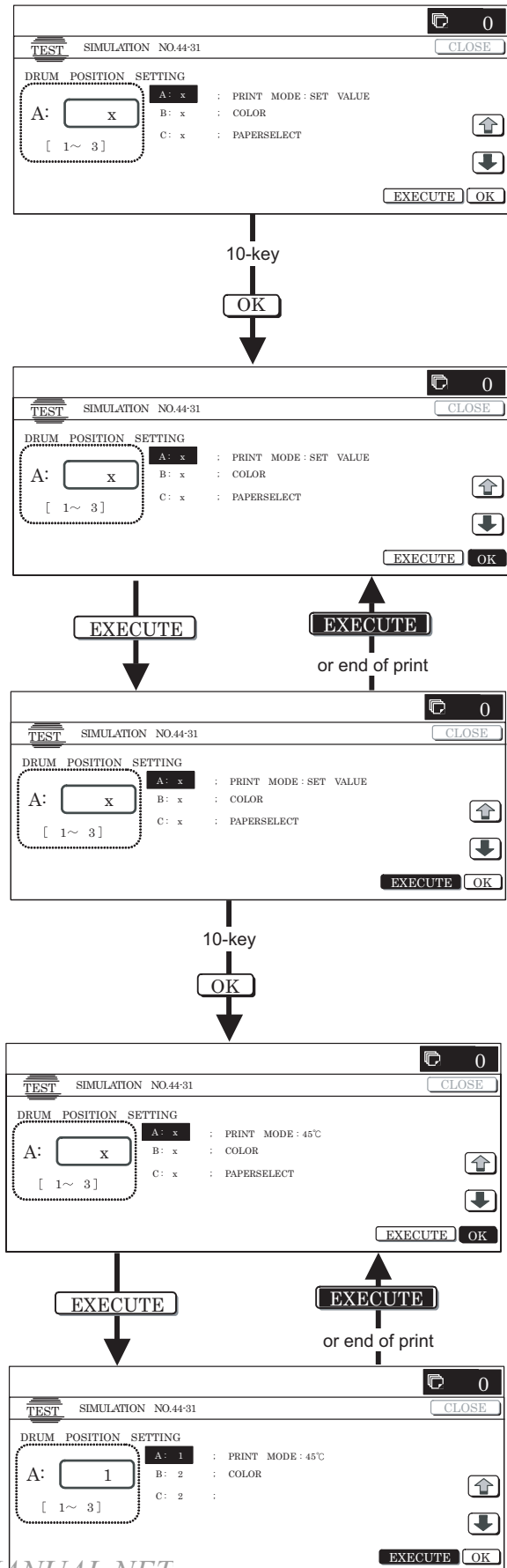
( ) is the previous adjustment value.

Example: This time 90°, previous time 45°: 3 (2)

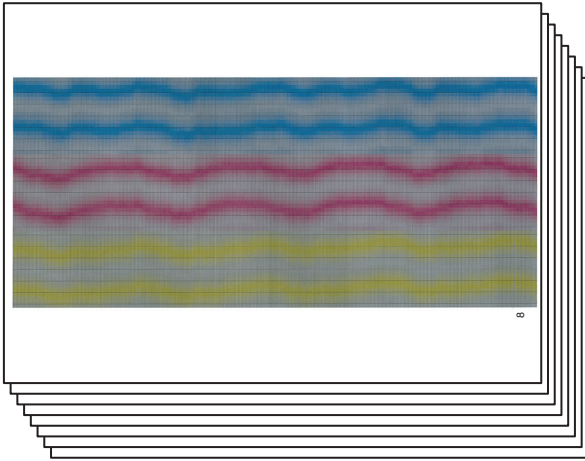
- \* In case of an error, "ERROR" is displayed with the details.

## 7-B OPC drum phase adjustment (Manual adjustment)

- 1) Enter SIM44-31 mode.

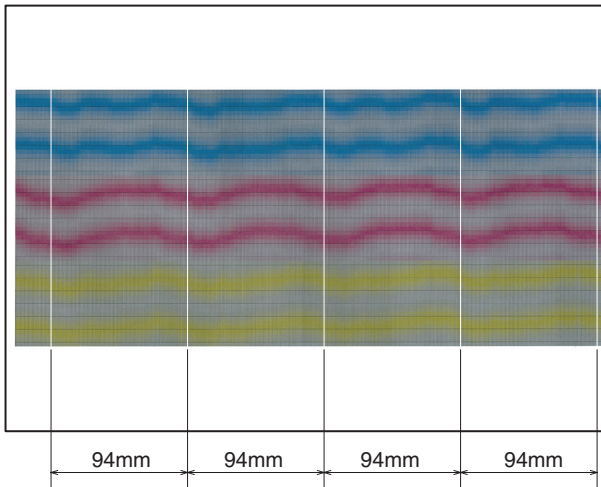


- 2) Enter "1" with 10-key in the PRINT MODE of set item A, and touch [OK] key.
- 3) Select the paper feed stage with A3 (or 11 x 17) in it with PAPER SELECT of set item C, and touch [OK] key.
- 4) Touch [EXECUTE] key.  
The adjustment patterns (8 pages) are printed.



Each identification number ("1" – "8") is printed on each printed page of 8 adjustment patterns.

- 5) Check the deflection in 94mm pitch cycle of each C/M/Y print pattern. Select a print pattern of the smallest deflection for each color of C/M/Y, and use the pattern identification number as the adjustment value, and enter it to set item B. Touch [OK] key.



NOTE: If there is a peculiar deflection other than the drum cycle (94mm pitch), check the following conditions.

- \* OPC drum drive section
- \* Transfer belt drive section
- \* Paper feed drive section
- \* Each motor speed set value (Set value of SIM48-6)

## ADJ 8 Print engine image magnification ratio adjustment (BK) (Main scanning direction) (Print engine section)

### 8-A Print engine image magnification ratio adjustment (BK) (Main scanning direction) (Print engine section) (Manual adjustment)

This adjustment must be executed in the following cases:

- \* When the LSU (writing) unit is replaced.
- \* When U2 trouble occurs.
- \* When the PCU PWB is replaced.
- \* When EEPROM on the PCU PWB is replaced.

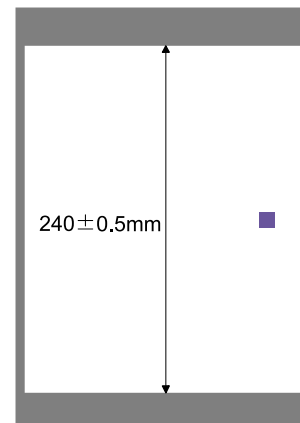
- 1) Enter SIM50-10 mode.

EXECUTE

EXECUTE

end of print

- 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) Touch [EXECUTE] key.  
The check pattern is printed.
- 5) Check that the inside dimension of the printed half tone is  $240 \pm 0.5\text{mm}$ .



If the above condition is not satisfied, execute the procedures below.



- 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.

## ADJ 9 Image off-center adjustment (Print engine section)

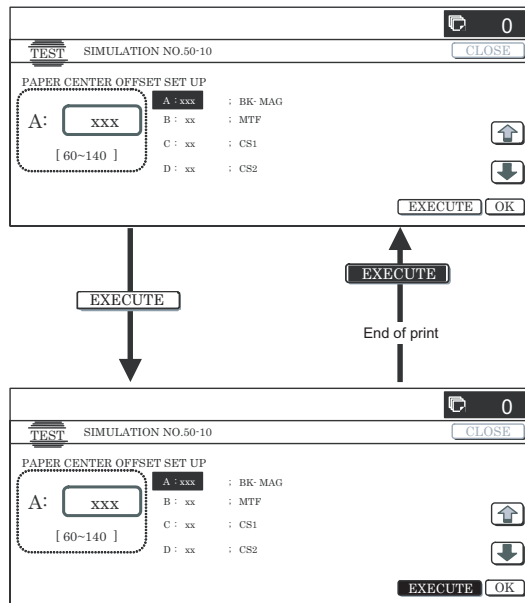
This adjustment must be executed in the following cases:

- \* When the LSU is replaced or removed.
- \* When [ADJ8] print engine image magnification ratio (BK) (main scanning direction) is performed.
- \* When a paper tray is replaced.
- \* When the paper tray section is disassembled.
- \* When the manual feed tray is replaced.
- \* When the manual feed tray is disassembled.
- \* When the duplex section is disassembled.
- \* When the duplex section is installed or replaced.
- \* When the large capacity paper feed tray is installed or replaced.
- \* When the large capacity paper feed tray section is disassembled.
- \* When the regist roller section is disassembled.
- \* When U2 trouble occurs.
- \* When the PCU PWB is replaced.
- \* When EEPROM on the PCU PWB is replaced.

(Caution)

- \* Before execution of this adjustment, check the following item.
- \* Check to insure that the print engine image magnification ratio adjustment (BK) (main scanning direction) has been properly adjusted.

- 1) Enter SIM50-10 mode.



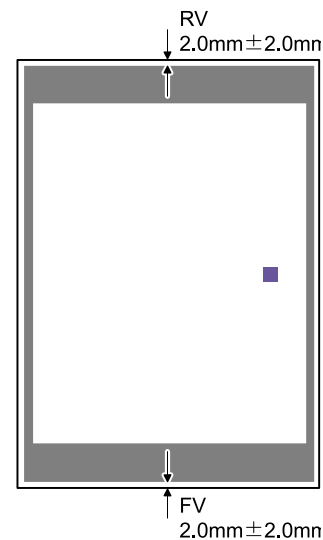
- 2) Select set item J with the scroll key and enter the value corresponding to the paper feed tray to be adjusted.

Display/Item		Content	Set range	Default value
A	BK-MAG	Main scan print magnification ratio BK	60 – 140	100
B	MFT	Print off-center adjustment value (Manual feed tray)	1 – 99	50

Display/Item			Content		Set range	Default value
C	CS1		Print off-center adjustment value (Paper feed tray 1)		1 – 99	50
D	CS2		Print off-center adjustment value (Paper feed tray 2)		1 – 99	50
E	CS3		Print off-center adjustment value (Paper feed tray 3)		1 – 99	50
F	CS4		Print off-center adjustment value (Paper feed tray 4)		1 – 99	50
G	LCC		Print off-center adjustment value (LCC)		1 – 99	50
H	ADU		Print off-center adjustment value (ADU) Note: Before execution of this adjustment, check to insure that the adjustment items A – G have been properly adjusted. If not, this adjustment cannot be made properly.		1 – 99	50
I	MULTI COUNT		Print quantity		1 – 999	1
J	PAPER	MFT	Paperfeed tray select	Manual paper feed tray	1	2 (CS 1)
CS 1		Paper feed tray 1		2		
CS 2		Paper feed tray 2		3		
CS 3		Paper feed tray 3		4		
CS 4		Paper feed tray 4		5		
LCC		LCC		6		
K		DUPLEX		YES	Duplex print select	
		NO		Not selected	1	

- 3) Set A4 (11 x 8.5) paper in the paper feed tray selected in procedure 2).
- 4) Touch [EXECUTE] key.  
The adjustment pattern is printed.
- 5) Check the adjustment pattern image 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  
RV = 2.0 ± 2.0mm  
FV = 2.0 ± 2.0mm

If the above conditions are not satisfied, execute the procedures below.

6) Select the paper feed mode adjustment item (B – H) to be adjusted with the scroll key.

7) Change the adjustment value.

Enter the adjustment value and touch [OK] or [EXECUTE] key. When [EXECUTE] key is touched, the adjustment pattern is printed.

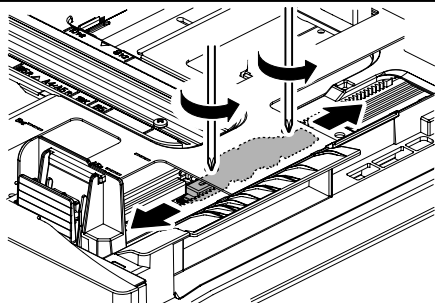
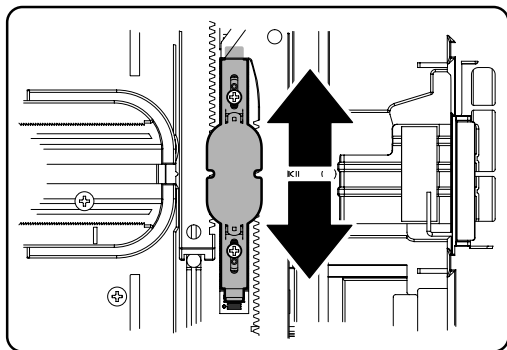
When the adjustment value is increased, the adjustment pattern is shifted to the front frame side. When it is decreased, the adjustment pattern is shifted to the rear frame side.

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

Repeat procedures 3) – 7) 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.

8) Loosen the paper feed tray off-center adjustment screws (2 pcs.) at the center section of the lift plate of the paper feed tray, and change the gear unit position in the front/back frame direction. Repeat the adjustment procedures from 4).



## ADJ 10 Image registration adjustment (Print engine section)

This adjustment must be executed in the following cases:

- \* When the LSU (writing) unit is replaced.
- \* When the LSU (writing) unit is removed from the main unit.
- \* When the color image registration mistake in the main scanning direction occurs.
- \* When the color image registration mistake in the sub scanning direction occurs.
- \* When the unit is installed or when the installing place is changed.
- \* When maintenance is executed. (Replacement of the OPC drum, the OPC cartridge, the transfer unit, the transfer belt, etc.)
- \* When [ADJ8] print engine image magnification ratio (BK) (main scanning direction) is performed.
- \* When U2 trouble occurs.
- \* When the PCU PWB is replaced.
- \* When EEPROM on the PCU PWB is replaced.

### ■ Note before adjustment

(Before execution of this adjustment, all the following adjustments must have been completed.)

- \* Image skew adjustment (LSU (writing) unit)

\* Print engine image magnification ratio adjustment (BK) (Main scanning direction) (Print engine section)

## 10-A Image registration adjustment (Main scanning direction, sub scanning direction) (Auto adjustment)

In this adjustment, the image registration adjustment in the main scanning direction and that in the sub scanning direction are executed simultaneously and automatically.

1) Enter SIM50-22 mode.

EXECUTE

Normal end

Abnormal end

- 2) Touch [REGIST] key to select the image registration adjustment auto adjustment mode.
- 3) Touch [EXECUTE] key.

[EXECUTE] key is highlighted and the image registration auto adjustment is started. After completion of the adjustment, [EXECUTE] key returns to the normal display and the adjustment result is displayed.

It takes about 40 sec to complete the adjustment.

Display/Item			Content	Adjustment value range	Default value
REGIST	MAIN F	C	Image registration adjustment value (Main scanning direction) (Cyan) (F side)	1.0 – 199.0	100
		M	Image registration adjustment value (Main scanning direction) (Magenta) (F side)	1.0 – 199.0	100
		Y	Image registration adjustment value (Main scanning direction) (Yellow) (F side)	1.0 – 199.0	100

Display/Item			Content	Adjustment value range	Default value
REGIST	MAIN R	C	Image registration adjustment value (Main scanning direction) (Cyan) (R side)	1.0 – 199.0	100
		M	Image registration adjustment value (Main scanning direction) (Magenta) (R side)	1.0 – 199.0	100
		Y	Image registration adjustment value (Main scanning direction) (Yellow) (R side)	1.0 – 199.0	100
	SUB	C	Image registration adjustment value (Sub scanning direction) (Cyan)	1.0 – 199.0	100
		M	Image registration adjustment value (Sub scanning direction) (Magenta)	1.0 – 199.0	100
		Y	Image registration adjustment value (Sub scanning direction) (Yellow)	1.0 – 199.0	100

MAIN, SUB: The entered value after adjustment is displayed.

( ): Difference from the previous value.

Example: This time 105, previous time 103: 105 (+2)

\* In case of an error, "ERROR" is displayed with the details.

**To check the auto adjustment result, use the manual image registration adjustment mode below.**

\* Image registration adjustment (Main scanning direction) (Manual adjustment) (SIM50-20)

\* Image registration adjustment (Sub scanning direction) (Manual adjustment) (SIM50-21)

## 10-B Image registration adjustment (Main scanning direction) (Manual adjustment)

1) Enter SIM50-20 mode.

10-key

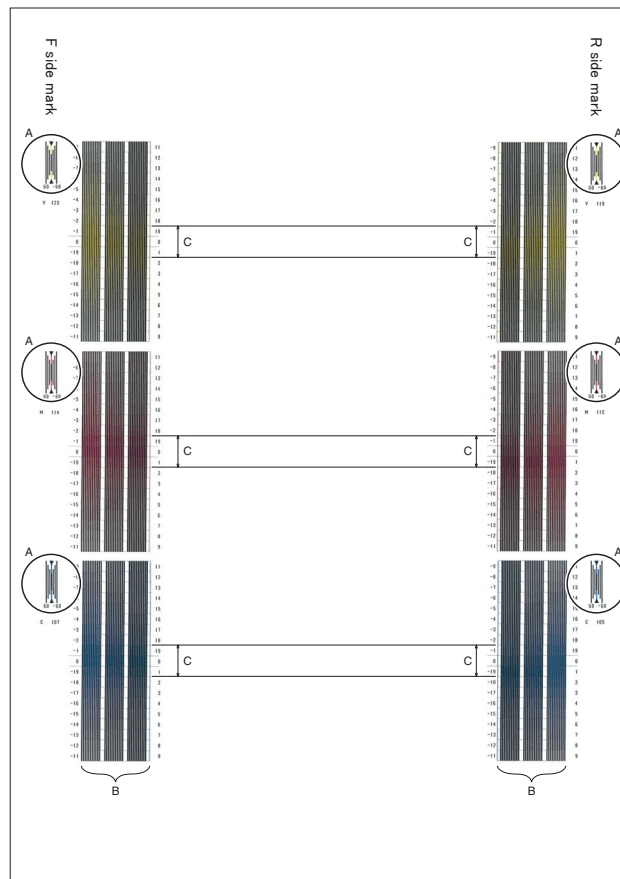
EXECUTE

EXECUTE

End of print

- 2) Select the paper feed tray with A3 (11 x 17) paper in it by changing the value of set item H.
- 3) Touch [EXECUTE] key.

The image registration adjustment pattern in the main scanning direction is printed.



A: Rough adjustment pattern

B: Fine adjustment pattern

C: Adjustment range (0 ± 1)



- 4) Check the rough adjustment and the fine adjustment print pattern positions of each color in the front frame and the rear frame sides.

Use the visually highest color density section as the center, and measure the shift amount.

The front frame registration and the rear frame registration are adjusted independently.

To check the image registration, therefore, check the front frame side and the rear frame side individually.

Rough adjustment print pattern check:	Check that the rough adjustment print pattern is at the center for the rough adjustment reference pattern.
Fine adjustment print pattern check:	Check that the fine adjustment print pattern is at the center for the fine adjustment reference pattern.

(If the fine adjustment print pattern is located in the range of  $0 \pm 1$  from the fine adjustment reference pattern scale, the adjustment is not required.)

If the above condition is not satisfied, select the color mode adjustment item A – F to be adjusted with the scroll key and change the adjustment value to adjust.

Display/Item	Content	Adjustment value range	Default value
A CYAN (FRONT)	Image registration adjustment value (Main scanning direction) (Cyan) (F side)	1 – 199	100
B CYAN (REAR)	Image registration adjustment value (Main scanning direction) (Cyan) (R side)	1 – 199	100
C MAGENTA (FRONT)	Image registration adjustment value (Main scanning direction) (Magenta) (F side)	1 – 199	100
D MAGENTA (REAR)	Image registration adjustment value (Main scanning direction) (Magenta) (R side)	1 – 199	100
E YELLOW (FRONT)	Image registration adjustment value (Main scanning direction) (Yellow) (F side)	1 – 199	100
F YELLOW (REAR)	Image registration adjustment value (Main scanning direction) (Yellow) (R side)	1 – 199	100

Repeat procedures 3) – 4) until a satisfactory result is obtained.

For measurement of the shift amount and the calculation of the adjustment value, refer to the table below.

#### (Measurement of the shift amount and the calculation of the adjustment value)

##### a) Measurement of the shift amount

###### \* Measurement of the fine adjustment pattern

The visually highest color density section is regarded as the center, and used as the measurement value.

(Example)

The measurement value of the figure is "7."

###### \* Measurement of the rough adjustment pattern

Check that the color line is positioned in the plus direction or in the minus direction and judge the polarity from that.

The center black line is scaled as 0, the first line mark as 20, the second line mark as 40, the third line mark as 60. The interval between the rough adjustment marks corresponds to 20.

(Example)

In the case of the figure, it is between 20 – 40 of the plus polarity, and the measurement is "20."

- \* The actual shift amount is the sum of the rough adjustment reference shift amount and the fine adjustment shift amount.

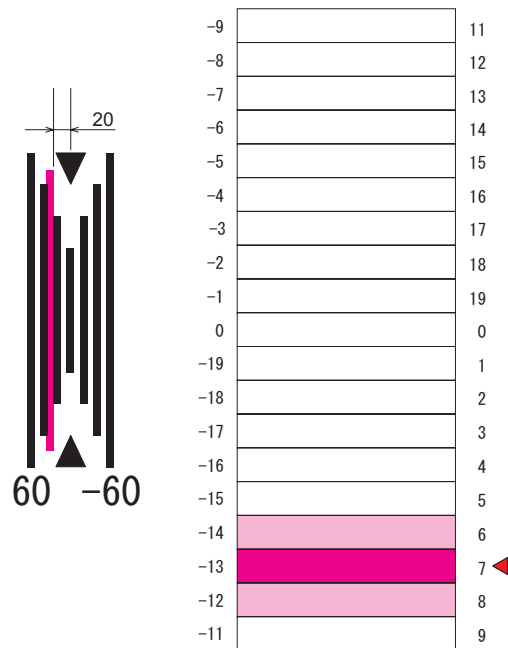
Shift amount (correction value) = Rough adjustment shift amount + Fine adjustment shift amount

When calculating, be careful of the plus polarity and the minus polarity.

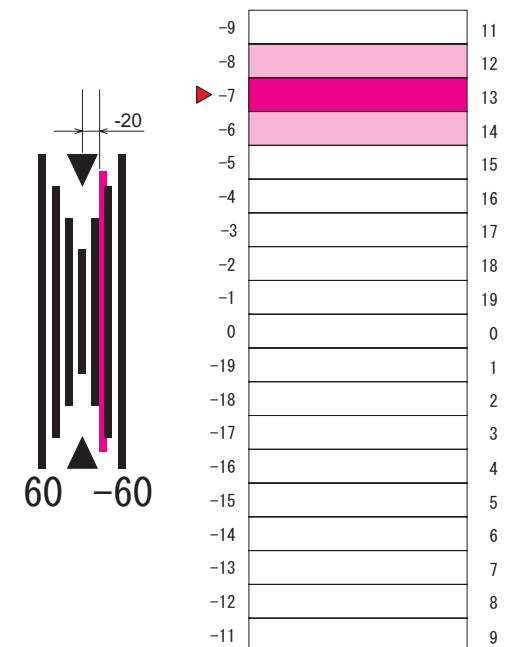
(Example)

In the case of the figure, the total shift amount is 27.

**Measurement value: 27 (= 20 + 7)**



**Measurement value: -27 (= -20 - 7)**



The shift amount from the adjustment reference position is calculated for each of six kinds of adjustment items A – F.

##### b) Adjustment value calculation

Add or subtract the shift amount calculated above to or from the current adjustment value, and the result value is used as the new adjustment value.

Adjustment value = Current adjustment value + Shift amount (correction value)

(When the shift amount (correction value) is plus)

Adjustment value = Current adjustment value – Shift amount (correction value)

(When the shift amount (correction value) is minus)



-9		11
-8		12
-7		13
-6		14
-5		15
-4		16
-3		17
-2		18
-1		19
0		0
-19		1
-18		2
-17		3
-16		4
-15		5
-14		6
-13		7
-12		8
-11		9



-9		11
-8		12
-7		13
-6		14
-5		15
-4		16
-3		17
-2		18
-1		19
0		0
-19		1
-18		2
-17		3
-16		4
-15		5
-14		6
-13		7
-12		8
-11		9



-9		11
-8		12
-7		13
-6		14
-5		15
-4		16
-3		17
-2		18
-1		19
0		0
-19		1
-18		2
-17		3
-16		4
-15		5
-14		6
-13		7
-12		8
-11		9



-9		11
-8		12
-7		13
-6		14
-5		15
-4		16
-3		17
-2		18
-1		19
0		0
-19		1
-18		2
-17		3
-16		4
-15		5
-14		6
-13		7
-12		8
-11		9



-9		11
-8		12
-7		13
-6		14
-5		15
-4		16
-3		17
-2		18
-1		19
0		0
-19		1
-18		2
-17		3
-16		4
-15		5
-14		6
-13		7
-12		8
-11		9



-9		11
-8		12
-7		13
-6		14
-5		15
-4		16
-3		17
-2		18
-1		19
0		0
-19		1
-18		2
-17		3
-16		4
-15		5
-14		6
-13		7
-12		8
-11		9

(Example)

Previous value before adjustment	New adjustment value
A: 100	A: 93 (= 100 - 7)
B: 112	B: 100 (= 112 - 12)
C: 95	C: 96 (= 95 + 1)
D: 98	D: 109 (= 98 + 11)
E: 102	E: 109 (= 102 + 7)
F: 96	F: 118 (= 96 + 22)

NOTE: If either of front or rear adjustment value is changed, the other adjustment print pattern position may be varied. Be careful of that.

## 10-C Image registration adjustment (Sub scanning direction) (Manual adjustment)

- 1) Enter SIM50-21 mode.

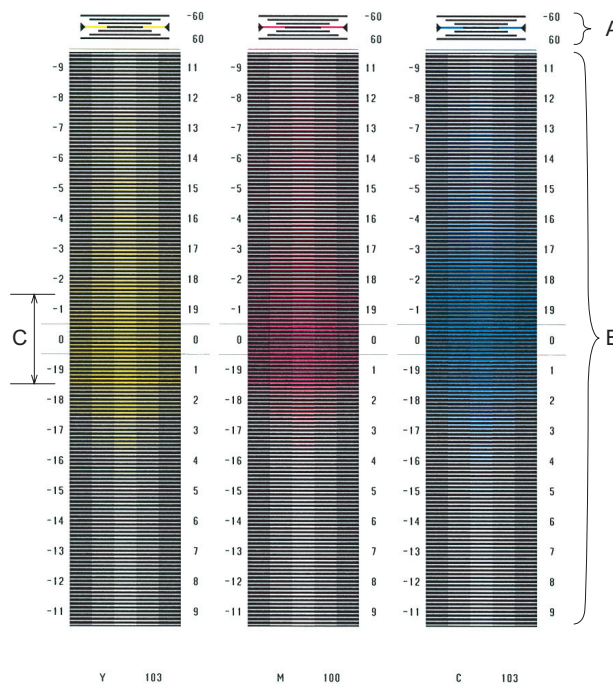
10-key

EXECUTE

EXECUTE  
or end of print

- 2) Select the paper feed tray with A4 (11 x 8.5) or A3 (11 x 17) paper in it by changing the value of set item H.
- 3) Touch [EXECUTE] key.

The sub scanning direction image registration adjustment pattern is printed.



- A: Rough adjustment pattern  
B: Fine adjustment pattern  
C: Adjustment range

- 4) Check the rough adjustment and the fine adjustment print pattern positions of each color.

The visually highest color density section is regarded as the center, and used as the measurement value.

Rough adjustment print pattern check:	Check that the rough adjustment print pattern is at the center for the rough adjustment reference pattern.
Fine adjustment print pattern check:	Check that the fine adjustment print pattern is at the center for the fine adjustment reference pattern.

(If the fine adjustment print pattern is positioned in the range of  $0 \pm 1$  for the fine adjustment reference pattern scale, the adjustment is not required.)

If the above condition is not satisfied, select the color mode adjustment item A – C to be adjusted with the scroll key, and change the adjustment value to adjust.

Display/Item	Content	Adjustment value range	Default value
A CYAN	Image registration adjustment value (Sub scanning direction) (Cyan)	1 – 199	100
B MAGENTA	Image registration adjustment value (Sub scanning direction) (Magenta)	1 – 199	100
C YELLOW	Image registration adjustment value (Sub scanning direction) (Yellow)	1 – 199	100

Repeat procedures 3) – 4) until a satisfactory result is obtained.

For measurement of the shift amount and calculation of the adjustment value, refer to the table below.

**(Measurement of the shift amount and calculation of the adjustment value)**

a) Measurement of the shift amount

\* Measurement of the fine adjustment pattern

The visually highest color density section is regarded as the center, and used as the measurement value of the shift amount.

(Example)

The measurement value of the figure is "7."

\* Measurement of the rough adjustment pattern

Check that the color line is positioned in the plus direction or in the minus direction and judge the polarity from that.

The center black line mark is scaled as 0, the first line mark as 20, the second line mark as 40, the third line mark as 60. The interval between the rough adjustment marks corresponds to 20.

(Example)

In the case of the figure, it is between 20 – 40 of the plus polarity, and the measurement is "20."

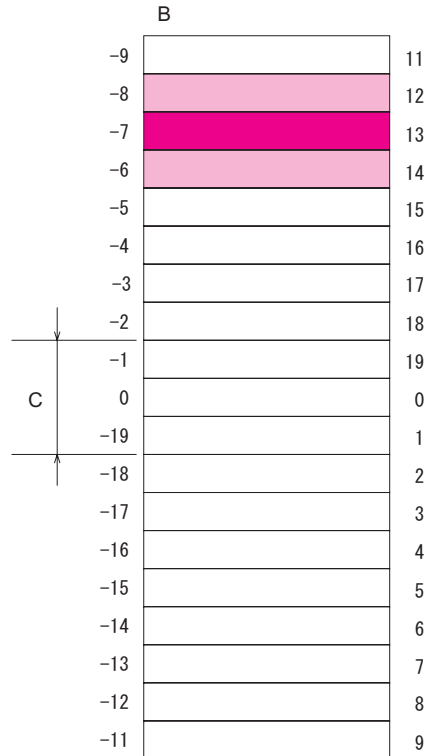
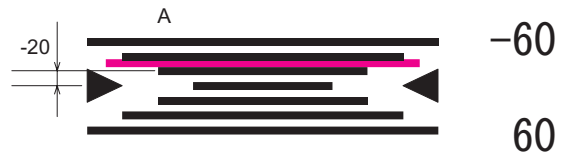
A: Rough adjustment pattern

B: Fine adjustment pattern

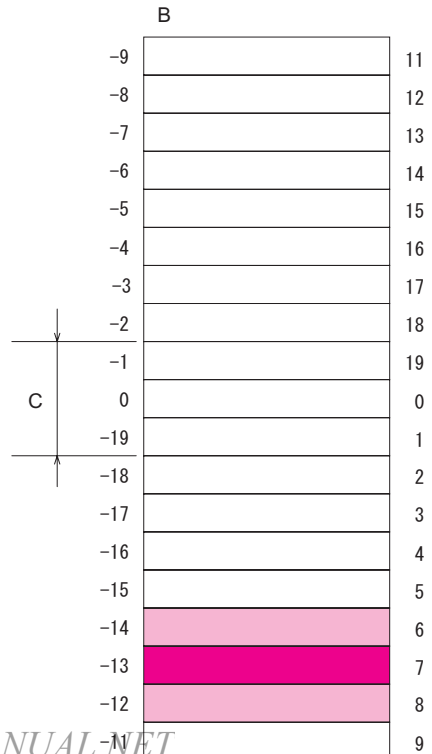
C: Adjustment range

The shift amount is calculated from the adjustment reference position for each of the three adjustment items A – C.

Measurement value:  $-27 (= -20 - 7)$



Measurement value:  $27 (= 20 + 7)$



b) Adjustment value calculation

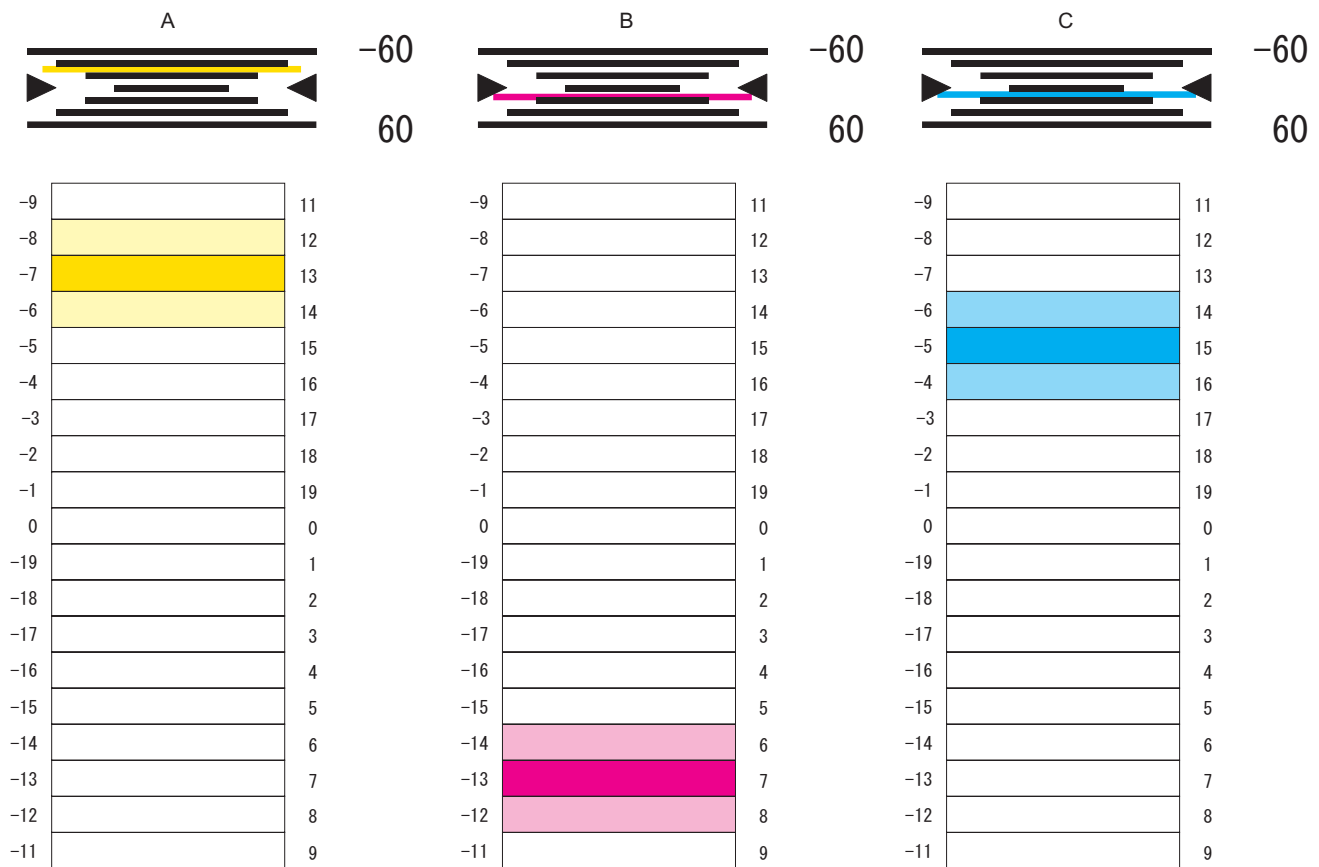
Add or subtract the shift amount calculated above to or from the current adjustment value, and the result value is used as the new adjustment value.

Adjustment value = Current adjustment value + Shift amount (correction value)

(When the shift amount (correction value) is plus)

Adjustment value = Current adjustment value – Shift amount (correction value)

(When the shift amount (correction value) is minus)



## ADJ 11 Scan image distortion adjustment

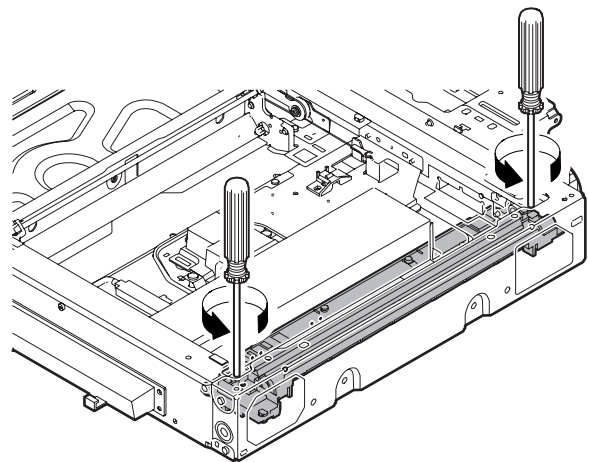
This adjustment is required in the following cases:

- \* When the scanner (reading) section is disassembled.
- \* When the copy image is distorted.

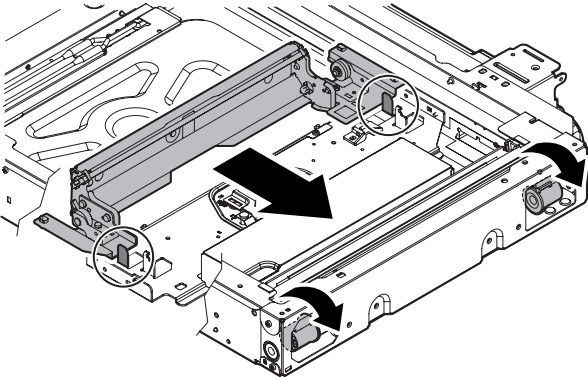
### 11-A Scanner (reading) unit parallelism adjustment

Before execution of this adjustment, remove the document table glass. (For details, refer to Chapter [C]-3.)

- 1) Loosen the fixing screws of the scanner unit A and the drive wire, and remove the scanner unit A from the drive wire.

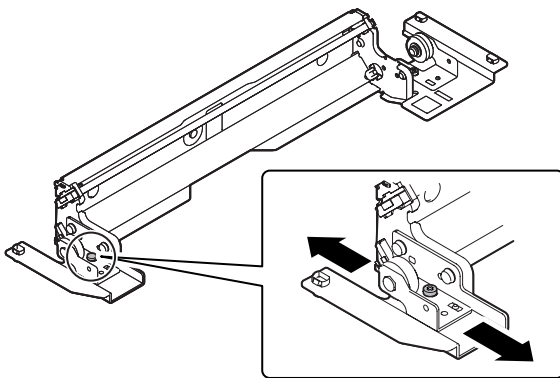


- 2) Turn the scanner drive pulley manually and shift the scanner unit B to bring it into contact with the stopper. When the scanner unit B is in contact with the two stoppers on the front and the rear frames simultaneously, the parallelism is proper.



If not, perform the following procedures.

- 3) Loosen the fixing screw of the pulley angle on the front frame side of the scanner unit.

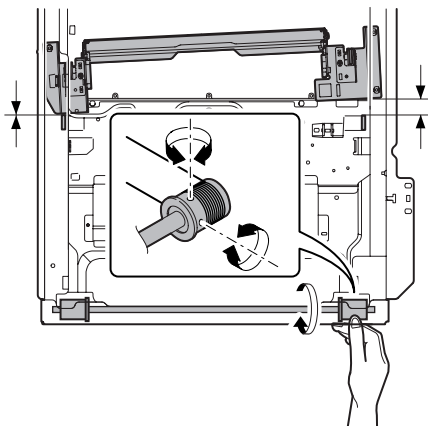


- 4) Adjust the position of the pulley angle on the front frame side of the scanner unit B so that it is in contact with two stoppers simultaneously.
- 5) Fix the pulley angle on the front frame side of the scanner unit B.

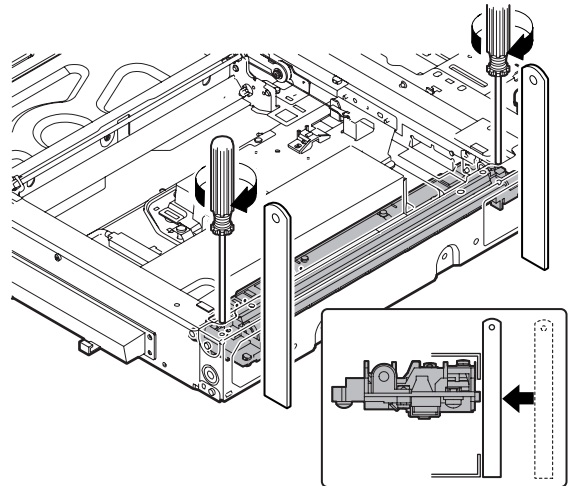
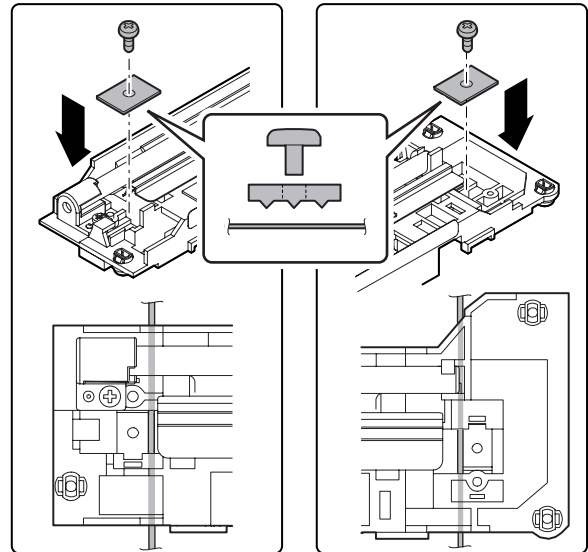
If a satisfactory result is not obtained from the above procedures, perform the following procedures.

Loosen the fixing screw of the scanner unit drive pulley which is not in contact.

Without moving the scanner unit drive shaft, turn the scanner unit drive pulley manually and adjust so that the scanner unit B is in contact with both stoppers on the front frame and the rear frame simultaneously. (Change the relative position of the scanner unit drive pulley and the drive shaft.) Fix the scanner unit drive pulley fixing screw.

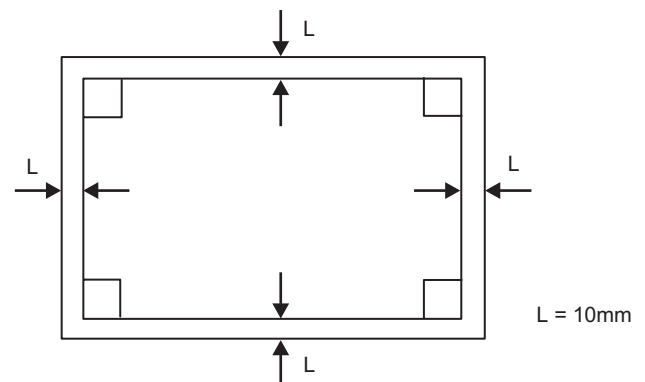


- 6) With the scanner unit B in contact with both stoppers, fit the edge of the scanner unit A with the right edge of the frame, and fix the scanner unit A with the fixing screw.

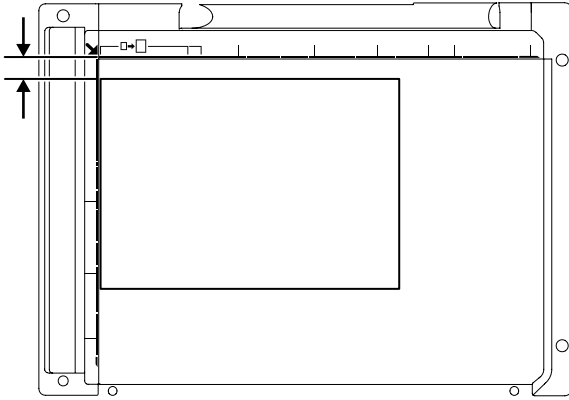


### 11-B Scan image (sub scanning direction) distortion adjustment

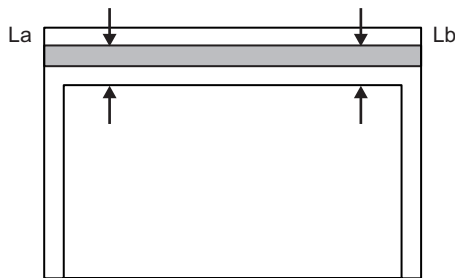
- 1) Make a test chart with A3 (11" x 17") paper as shown below. (Draw a rectangular with four right angles.)



- 2) Set the test chart prepared in the procedure 1) on the document table. (Shift the test chart edge 30mm from the reference position as shown below.) With the document cover open, make a copy on A3 (11" x 17") paper.

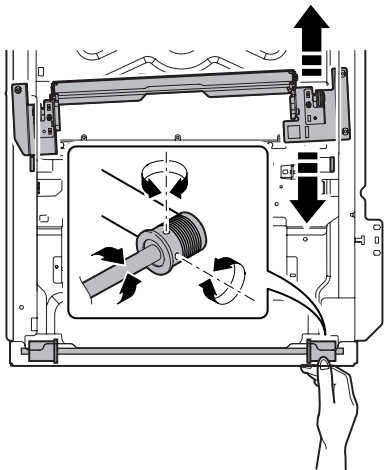


- 3) Check for distortion in the sub scanning direction.  
If  $L_a = L_b$ , there is no distortion.



If there is any distortion in the sub scanning direction, perform the following procedures.

- 4) Loosen either one of the fixing screws of the scanner unit drive pulley. (Either one on the front frame or on the rear frame will do.)



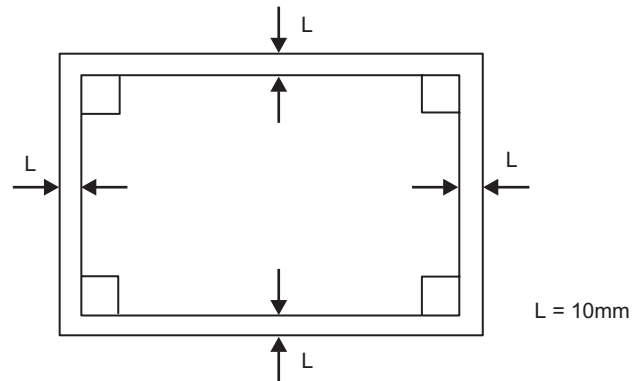
- 5) Without moving the scanner unit drive shaft, manually turn the scanner unit drive pulley to change the parallelism of the scanner unit A and B. (Change the relative position of the scanner unit drive pulley and the drive shaft.)
- 6) Tighten the scanner unit drive pulley fixing screw.

Repeat the procedures 2) – 6) until the condition of the procedure 3) is satisfied.

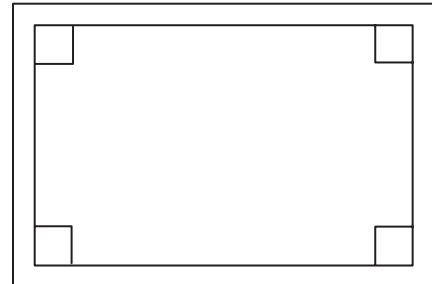
If the distortion in the sub scanning direction cannot be deleted with the above procedures, perform "ADJ 11D Scan image distortion adjustment (whole scanner unit)."

## 11-C Scan image (main scanning direction) distortion adjustment

- 1) Make a test chart on A3 (11" x 17") paper. (Draw a rectangular with four right angles.)

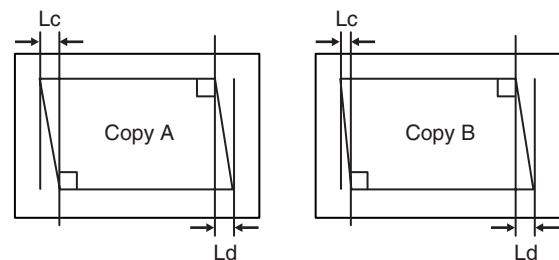


- 2) Set the test chart prepared in the procedure 1) on the document table, and make a copy on A3 (11"x 17") paper.
- 3) Check for distortion in the main scanning direction.  
If the four angles of the copy image are right angles, there is no distortion. (Completion of the adjustment)



If there is any distortion in the main scanning direction, perform the following procedure.

- 4) Check the difference (distortion balance) between the image distortions on the right and the left.



There is no difference between the distortion on the right and that on the left.  
 $L_c = L_d$

There is some difference between the distortion on the right and that on the left.  
 $L_c \neq L_d$

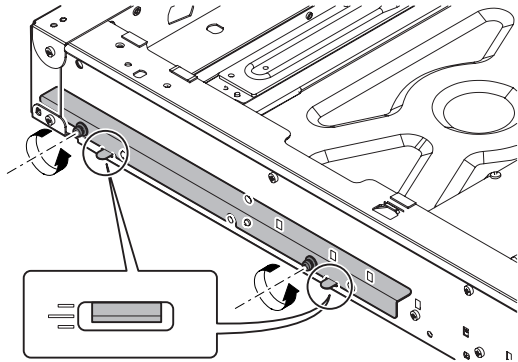
If  $L_c = L_d$ , there is no difference between the right and the left image distortions.

If the above condition is satisfied, go to the procedure 6).

If not, perform the following procedures.



- 5) Change the height balance of the scanner rail on the front frame side.



Remove the lower cabinet of the operation panel. Loosen the scanner rail fixing screw to change the balance between the right and the left heights of the scanner rail.

Repeat the procedures 2) – 5) until the difference between the image distortions (distortion balance) is deleted.

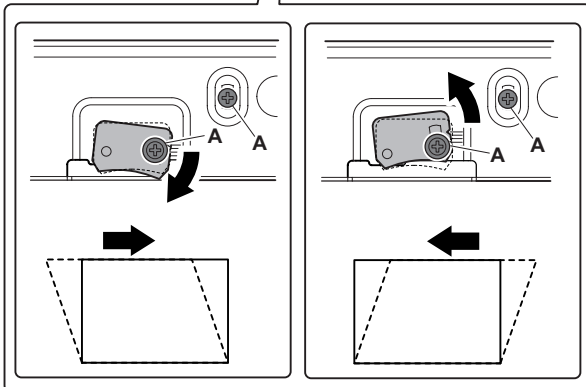
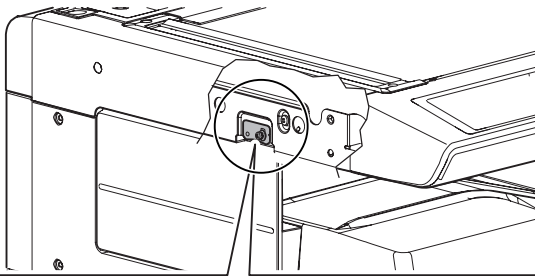
- 6) Without changing the balance of the scanner rail on the front frame side, change the overall height.
- 7) Set the test chart prepared in the procedure 1) and make a copy on A3 (11" x 17") paper. Check that the distortion in the main scanning direction is within the specified range.  
Repeat the procedures 6) and 7) until the distortion in the main scanning direction is in the specified range.  
If the distortion in the sub scanning direction cannot be deleted with the above procedures, perform "ADJ 11D Scan image distortion adjustment (Whole scanner)."

## 11-D Scan image distortion adjustment (Whole scanner)

This adjustment is executed when scan image distortion cannot be adjusted with ADJ 11A, ADJ 11B, and ADJ 11C related to the scan image distortion adjustment.

Change the upper and lower positions of the scanner unit distortion adjustment plate on the right edge of the scanner unit so that the scan image distortion is minimized. By adjusting the distortion of the whole scanner unit, the scan image distortion is adjusted.

- 1) Loosen the fixing screw (A).
- 2) Adjust the scanner unit distortion adjustment plate.

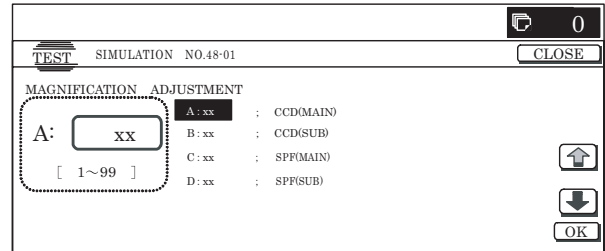


## ADJ 12 Scan image focus adjustment (CCD unit position adjustment)

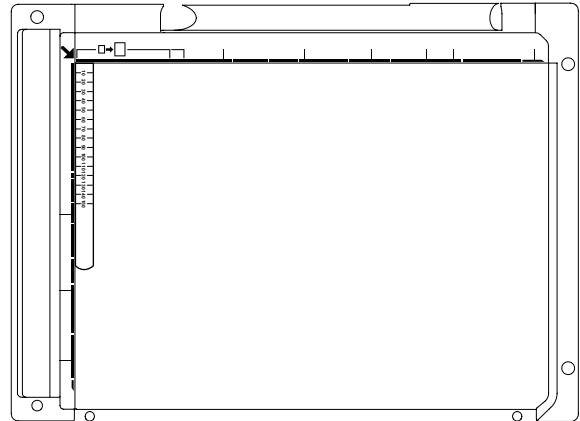
This adjustment is required in the following cases:

- \* When the CCD unit is removed from the machine.
- \* When the CCD unit is replaced.
- \* When the copy image focus is not properly adjusted.
- \* When the copy magnification ratio in the copy image main scanning direction is not properly adjusted.
- \* When a U2 trouble occurs.

- 1) Enter the simulation 48-1 mode.

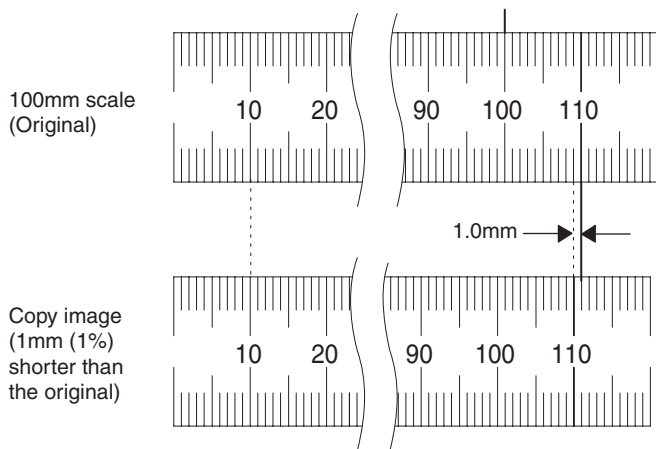


- 2) Set the adjustment item CCD (MAIN) to 50 (default value).  
Select the adjustment item with the scroll key, and enter the adjustment value with 10-key and touch [OK] key.
- 3) Place a scale on the document table as shown in the figure below.



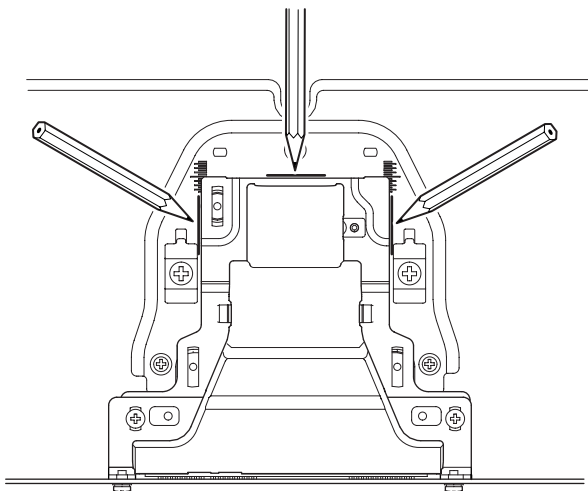
- 4) Make a normal copy on A4 paper.  
Touch [CLOSE] key to shift from the simulation mode to the copy mode, and make a copy.
- 5) Compare the scale length with the scale image length on the copy paper.
- 6) Obtain the copy magnification ratio correction ratio in the main scanning direction from the following formula.  
Main scanning direction copy magnification ratio correction ratio = (Original size – Copy image size) / Original size x 100%  
Example: Compare the scale of 10mm with the scale of 10mm on the copy image.  
Main scanning direction copy magnification ratio correction ratio = (100 – 99) / 100 x 100 = 1





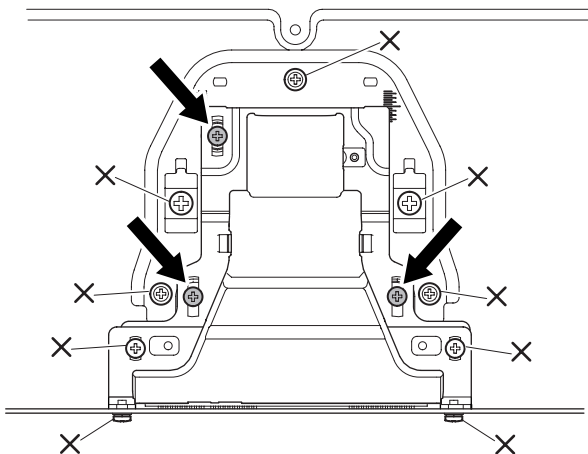
If the copy magnification ratio is not satisfactory, perform the following procedures.

- 7) Remove the document table glass.
- 8) Remove the dark box cover.
- 9) To prevent against shift of the CCD unit optical axis, mark the CCD unit base as shown below.



\* This procedure must be executed also when the CCD unit is replaced.

- 10) Loosen the CCD unit fixing screws.



\* **Never loosen the screws marked with X.**

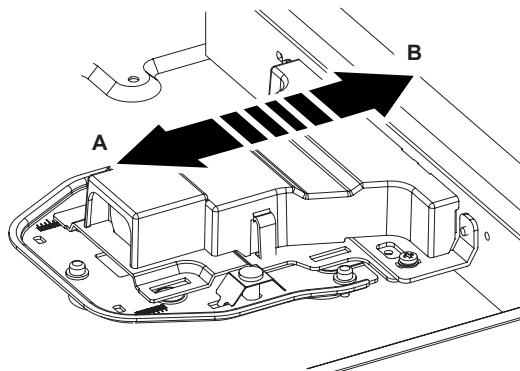
If any one of these screws is loosened, the position and the angle of the CCD unit base may be changed to cause a problem, which cannot be adjusted in the market. In that case, the whole scanner unit must be replaced.

- 11) Slide the CCD unit in the arrow direction (CCD sub scanning direction) to change the installing position.

When the copy image is longer than the original scale, shift the CCD unit in the direction B. When the copy image is shorter than the original scale, shift the CCD unit in the direction A. One scale of mark-off line corresponds to 0.2%.

At that time, fix the CCD unit so that it is in parallel with the scale on the front and the rear side of the CCD unit base.

\* Fix the CCD unit so that it is in parallel with the line marked in procedure 9).



- 12) Make a copy and check the copy magnification ratio again.

If the copy magnification ratio is not in the range of  $100 \pm 1\%$ , repeat the procedures of 9) – 11) until the condition is satisfied.

NOTE: By changing the CCD unit fixing position with the simulation 48-1 adjustment value at 50, the copy magnification ratio is adjusted within the specified range ( $100 \pm 1.0\%$ ) and the specified resolution is obtained based on the optical system structure.

## ADJ 13 Scan image skew adjustment (RSPF) (Refer to MX-RPX1 SM.)

## ADJ 14 Scan image magnification ratio adjustment (Document table mode)

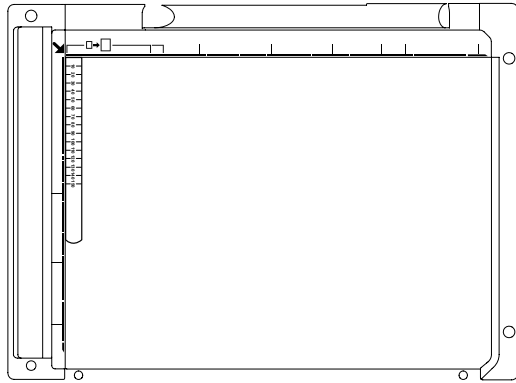
This adjustment is required in the following cases:

- \* When the copy image magnification ration in the sub scanning direction is not properly adjusted.
- \* When the scanner motor is replaced.
- \* When a U2 trouble occurs.
- \* When the scanner control PWB is replaced.
- \* When the EEPROM on the scanner control PWB is replaced.

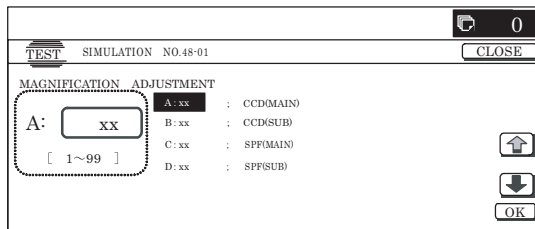
Before this adjustment, the focus adjustment (CCD unit installing position adjustment) must have been completed.

## 14-A Scan image magnification ratio adjustment (Main scanning direction) (Document table mode)

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



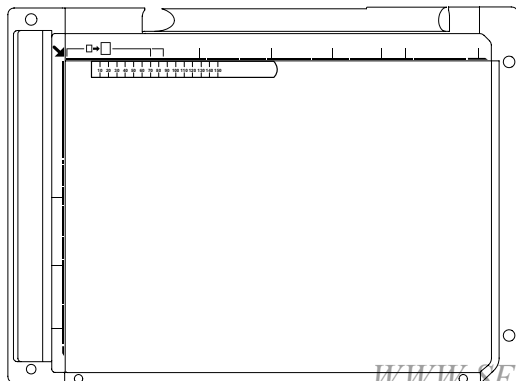
- 2) Enter the simulation 48-1 mode.



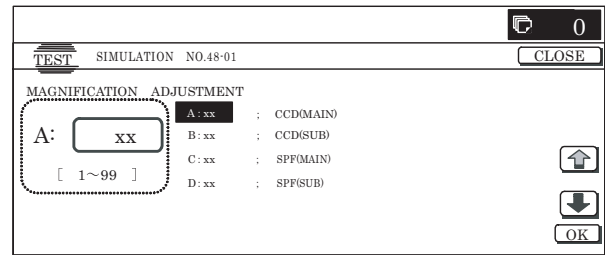
- 3) Make a normal copy and obtain the copy magnification ratio.  
Touch [CLOSE] key and shift from the simulation mode to the copy mode and make a copy.
- 4) Check that the copy magnification ratio is within the specified range ( $100 \pm 1.0\%$ ).  
If the copy magnification ratio is within the specified range ( $100 \pm 1.0\%$ ), 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 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 ( $100 \pm 1.0\%$ ).

## 14-B Scan image magnification ratio adjustment (Sub scanning direction) (Document table mode)

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



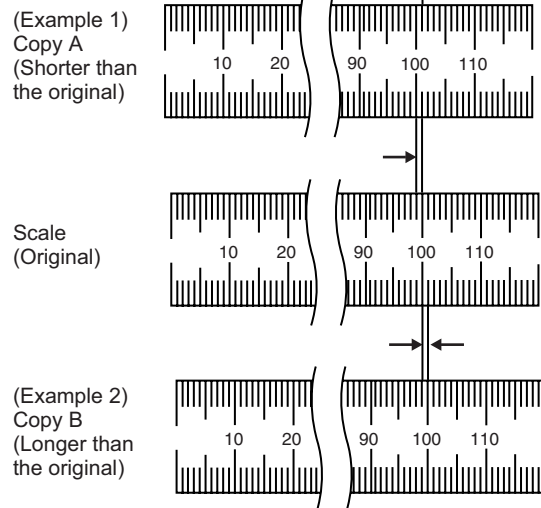
- 2) Enter the simulation 48-1 mode.



- 3) Make a normal copy and obtain the copy magnification ratio.  
Touch [CLOSE] key and shift from the simulation mode to the copy mode and make a copy.

Copy magnification ratio

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



- 4) Check that the copy magnification ratio is within the specified range ( $100 \pm 1.0\%$ ).  
If the copy magnification ratio is within the specified range ( $100 \pm 1.0\%$ ), 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 ( $100 \pm 1.0\%$ ).

## ADJ 15 Scan image magnification ratio adjustment (RSPF mode) (Refer to the MX-RPX1 SM.)

### 15-A Scan image magnification ratio adjustment (Main scanning direction) (RSPF mode) (Refer to the MX-RPX1 SM.)

### 15-B Scan image magnification ratio adjustment (Sub scanning direction) (RSPF mode) (Refer to the MX-RPX1 SM.)

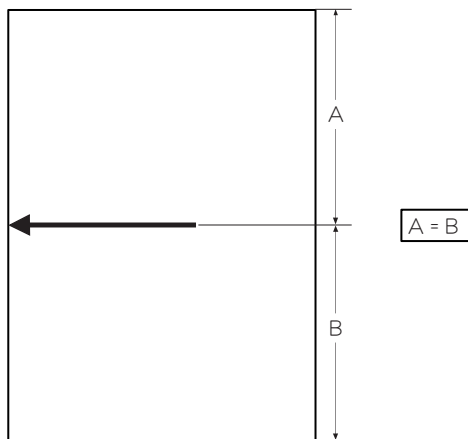
## ADJ 16 Scan image off-center adjustment

This adjustment is required in the following cases:

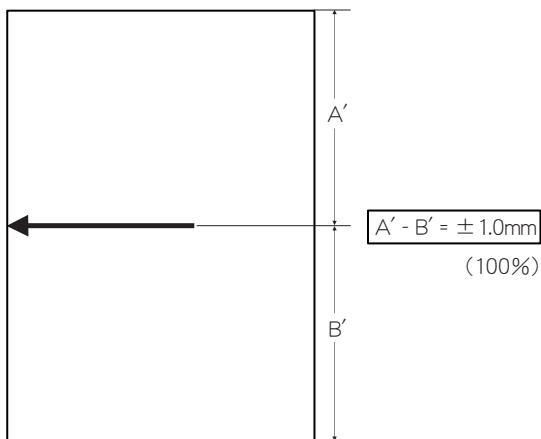
- \* When the scanner (reading) section is disassembled.
- \* When the scanner (reading) unit is replaced.
- \* When the RSPF section is disassembled.
- \* When the RSPF unit is installed.
- \* When the RSPF unit is replaced.
- \* When a U2 trouble occurs.
- \* When the scanner control PWB is replaced.
- \* When the EEPROM on the scanner control PWB is replaced.

### 16-A Scan image off-center (Document table mode)

- 1) Make a copy of the adjustment chart (made by your self) in the adjustment mode (document table or RSPF).

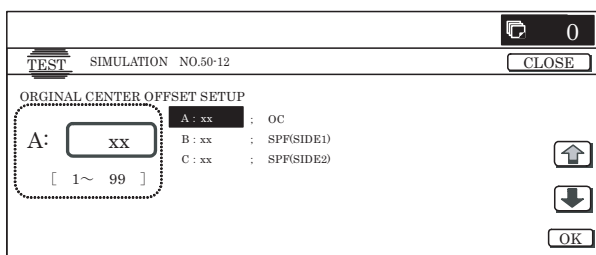


- 2) Check the copy image center position.  
If  $A - B = \pm 1.0\text{mm}$ , the adjustment is not required.



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

- 3) Enter the simulation 50-12 mode.



- 4) Select the adjustment mode OC with the scroll key.
- 5) Enter the adjustment value with 10-key, and touch [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) Touch [CLOSE] key and shift from the simulation mode to the copy mode and make a copy.  
Repeat the procedures of 2) – 6) until the above condition is satisfied.

### 16-B Scan image off-center (RSPF mode) (Refer to the MX-RPX1 SM.)

## ADJ 17 Print area (Void area) adjustment (Print engine section)

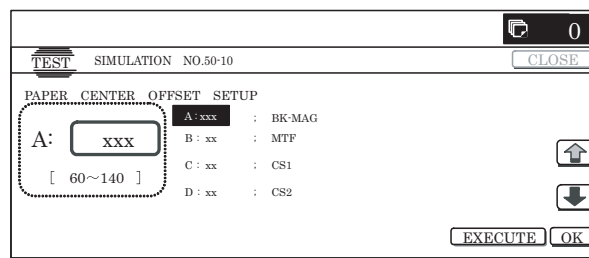
This adjustment is required in the following cases:

- \* When the LSU is replaced or removed.
- \* When the paper tray is replaced.
- \* When the paper tray section is disassembled.
- \* When the manual paper feed tray is replaced.
- \* When the manual paper feed tray is disassembled.
- \* When the duplex section is disassembled.
- \* When the duplex section is installed or replaced.
- \* When the large capacity paper feed tray is installed or replaced.
- \* When the large capacity paper feed tray section is disassembled.
- \* When the resist roller section is disassembled.
- \* When a U2 trouble occurs.
- \* When the PCU PWB is replaced.
- \* When the EEPROM on the PCU PWB is replaced.

(Caution)

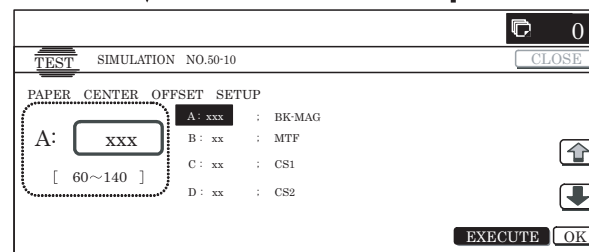
Before executing this adjustment, be sure to execute ADJ 8 Print image magnification ratio adjustment (BK) (Main scanning direction) (Print engine section) in advance.

- 1) Enter the simulation 50-10 mode.



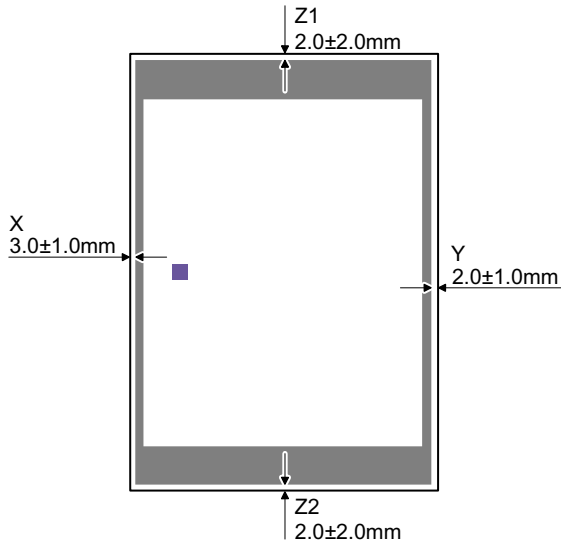
EXECUTE

End of print



- 2) Set A4 (11 x 8.5) paper to all the trays, and select the set item J with the scroll key. Enter the value corresponding to the adjustment target paper feed tray.
- 3) Touch [EXECUTE] key.  
The adjustment pattern is printed.
- 4) Check the adjustment pattern to confirm that the items below are in the range of the standard values.

	Content	Standard adjustment value
X	Lead edge void area	$3.0 \pm 1.0\text{mm}$
Y	Rear edge void area	$2.0 \pm 1.0\text{mm}$
Z1/Z2	FRONT/REAR void area	$2.0 \pm 2.0\text{mm}$



(Note) Feed paper from all the paper feed trays to confirm.  
If the above condition is not satisfied, or if it is set to a desired condition, execute the simulation 50-1.

- 5) Enter the simulation 50-1 mode.

0

TEST SIMULATION NO.50-01
CLOSE

LEAD EDGE ADJUSTMENT VALUE

A: xx  
[ 0 ~ 99 ]

A: xx : RRCA  
B: xx : RRCB-CS12  
C: xx : RRCB-CS34  
D: xx : RRCB-LCC

↑  
↓  
OK

10-key

OK

0

TEST SIMULATION NO.50-01
CLOSE

LEAD EDGE ADJUSTMENT VALUE

A: xx  
[ 0 ~ 99 ]

A: xx : RRCA  
B: xx : RRCB-CS12  
C: xx : RRCB-CS34  
D: xx : RRCB-LCC

↑  
↓  
OK

- 6) Select the adjustment item with the scroll key, and enter the adjustment value and touch [OK] key.

Display/ Item	Content		Adjustment range	Default value	Standard adjustment value
DENA	Void are amount adjustment	Lead edge void area adjustment	1 – 99	30	3.0 ± 1.0mm
DENB		Rear edge void area adjustment	1 – 99	20	2.0 ± 1.0mm
FRONT/ REAR		FRONT/ REAR void area adjustment	1 – 99	20	2.0 ± 2.0mm

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

(Note)

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

Adjustment value/10 = Actual void area

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

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

Display item	Content			Adjustment range	Default value
RRCB-CS12	Image lead edge position adjustment value	Resist motor ON timing adjustment	Standard cassette	1 – 99	50
RRCB-CS34			Desk	1 – 99	50
RRCB-LCC			LCC	1 – 99	50
RRCB-MFT			Manual feed	1 – 99	50
RRCB-ADU			ADU	1 – 99	50

Repeat the above procedures until a satisfactory result is obtained.

## ADJ 18 Copy image position, image loss adjustment

### 18-A Copy image position, image loss adjustment (Document table mode)

This adjustment is required in the following cases:

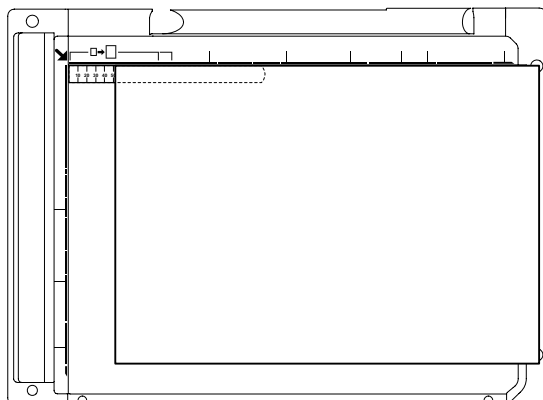
- \* When the scanner (reading) section is disassembled.
- \* When the scanner (reading) unit is replaced.
- \* When the LSU is replaced or removed.
- \* When the resist roller section is disassembled.
- \* When a U2 trouble occurs.
- \* When the PCU PWB is replaced.
- \* When the EEPROM on the PCU PWB is replaced.
- \* When the scanner control PWB is replaced.
- \* When the EEPROM on the scanner control PWB is replaced.

NOTE: Before executing this adjustment, be sure to confirm that the ADJ 17 Print area (Void area) adjustment (Print engine section) 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 simulation 50-1 mode.

TEST SIMULATION NO.50-01

LEAD\_EDGE ADJUSTMENT VALUE

A:  [ 0 ~ 99 ]

B: xx : RRCB-CS12

C: xx : RRCB-CS34

D: xx : RRCB-LCC

OK

10-key

OK

TEST SIMULATION NO.50-01

LEAD\_EDGE ADJUSTMENT VALUE

A:  [ 0 ~ 99 ]

B: xx : RRCB-CS12

C: xx : RRCB-CS34

D: xx : RRCB-LCC

OK

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

Item	Display item	Content		Adjustment range	Default value
A	RRCA	Image lead edge position adjustment value	Document lead edge reference position (OC)	0 - 99	50
B	RRCB-CS12		Resist motor ON timing adjustment	1 - 99	50
C	RRCB-CS34			1 - 99	50
D	RRCB-LCC			1 - 99	50
E	RRCB-MFT			1 - 99	50
F	RRCB-ADU			1 - 99	50
G	LEAD	Image loss adjustment	Lead edge image loss adjustment	0 - 99	30
H	SIDE		Side image loss adjustment	0 - 99	20
I	DENA	Void area amount adjustment	Lead edge void area adjustment	1 - 99	30
J	DENB		Rear edge void area adjustment	1 - 99	20
K	FRONT/REAR		FRONT/REAR void area adjustment	1 - 99	20

- 4) Perform the image lead edge reference position adjustment.

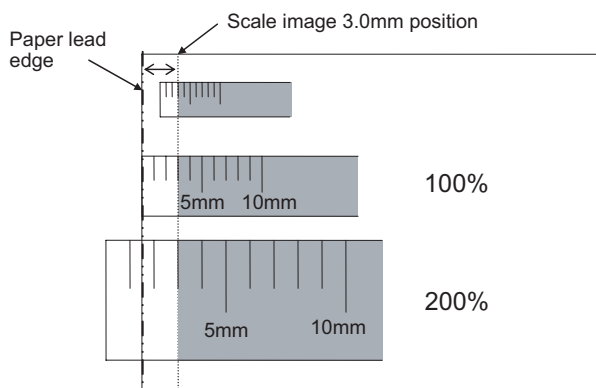
Touch [CLOSE] key, and shift from the simulation mode to the copy mode and make a copy in 100% mode and in 200% mode.

When the adjustment value of RRCA is proper, the lead edge image from 3.0mm is not copied in either of 100% and 200% copy scale.

If not, change and adjust the RRCA value.

(Adjust so that the lead edge image from 3.0mm is not copied in either of different copy magnification ratios.)

Repeat the above procedures until a satisfactory result is obtained.

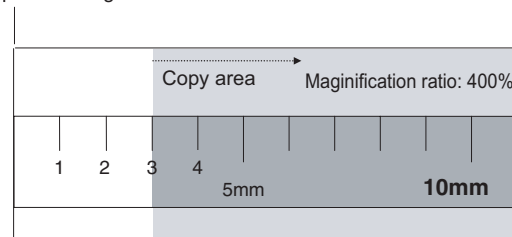


- 5) Image loss adjustment

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 above standard state, or when it is set to a desired value, change these adjustment items.

Paper lead edge



Void area: 3.0mm, Image loss: 3.0mm

Display/Item	Content		Adjustment range	Default value	Standard adjustment value
LEAD	Image loss adjustment value	Lead edge image loss adjustment	0 - 99	30	3.0 ± 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 image loss is changed by 0.1mm.

## 18-B Copy image position, image loss adjustment (RSPF mode) (Refer to the MX-RPX1 SM.)

### ADJ 19 Print lead edge image position adjustment (Printer mode) (Print engine section)

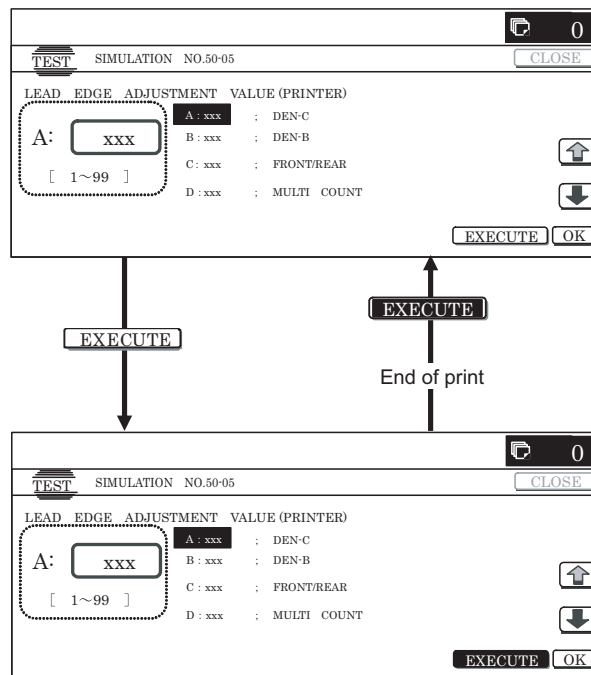
This adjustment is required in the following cases:

- \* When the resist roller section is disassembled.
- \* When the LSU is replaced or removed.
- \* When a U2 trouble occurs.
- \* When the PCU PWB is replaced.
- \* When the EEPROM on the PCU PWB is replaced.

(Caution)

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.

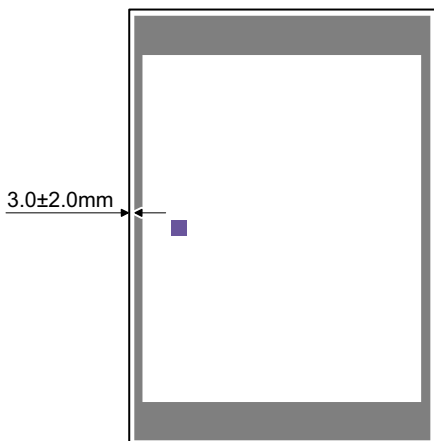
- 1) Enter the simulation 50-05 mode.



- 2) Select the set item E with the scroll key, and enter the value corresponding to the paper feed tray with A4 (11 x 8.5) paper in it.

Display/Item		Content		Adjustment range		Default value	Standard adjustment value
A	DEN-C	Printer print image lead edge adjustment		1 – 99		30	3.0 ± 2.0mm
D	MULTI COUNT	Print quantity		1 – 999		1	—
E	PAPER	MFT	Cassette select	1 – 6	1	2 (CS1)	
		CS1	Manual feed		2		
		CS2	Cassette 1		3		
		CS3	Cassette 2		4		
		CS4	Cassette 3		5		
		LCC	Cassette 4		6		
F	DUPLEX	YES	Duplex print select	0 – 1	0	1 (NO)	

- 3) Touch [EXECUTE] key.  
The adjustment pattern is printed.
- 4) Measure the distance from the paper lead edge the adjustment pattern to the image lead edge, and check to confirm that it is in the standard adjustment value range.  
Standard adjustment value: 3.0 ± 2.0mm



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

- 5) Select the adjustment target of the paper feed mode adjustment item DENC with the scroll key.
- 6) Change the adjustment value.  
Enter the adjustment value and touch [OK] or [EXECUTE] key.  
When [EXECUTE] key is touched, the adjustment pattern is printed.  
When the adjustment value is increased, the distance from the paper lead edge to the image lead edge is increased. When the adjustment value is decreased, the distance is decreased.  
When the set value is changed by 1, the distance is changed by about 0.1mm.  
Repeat the procedures 4) – 6) until the condition of 4) is satisfied.

### ADJ 20 Copy color balance/density adjustment

- (1) Note before execution of the copy color balance/density adjustment

- \* After completion of this adjustment, the printer color balance/density adjustment must be executed.
- \* Requisite conditions before execution of the copy color balance/density adjustment

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

The importance levels of them are shown below.

(The following items affect the copy color balance/density adjustment, and must be checked and adjusted before execution of the image quality adjustments.)

1) The following adjustment items must be adjusted properly.

Job No	Adjustment item			Simulation to be used
ADJ 5	Image density sensor, image registration sensor adjustment	ADJ 5A	Color image sensor calibration	44-13
		ADJ 5B	Color image density sensor, black image density sensor, image registration sensor adjustment	44-2
ADJ 6	Image skew adjustment (LSU (writing) unit)			64-1/61-4
ADJ 7	OPC drum phase adjustment	ADJ 7A	OPC drum phase adjustment (Auto adjustment)	50-22
		ADJ 7B	OPC drum phase adjustment (Manual adjustment)	44-31
ADJ 10	Image registration adjustment (Print engine section)	ADJ 10A	Image registration adjustment (Main scanning direction, sub scanning direction) (Auto adjustment)	50-22
		ADJ 10B	Image registration adjustment (Main scanning direction) (Manual adjustment)	50-20
		ADJ 10C	Image registration adjustment (Sub scanning direction) (Manual adjustment)	50-21

2) The set values of the following simulations must be set to the default values.

SIM No	Adjustment/setting item	Default value
46-1	A – U	50
46-2	A – L	50
46-10	A – O	500
46-16	A – O	500

3) The following items (correction functions) of SIM 44-1 must be set to ENABLE (default).

Display	Content	Set range	Default value
HV	Normal operation high-density process control YES/NO setting	Normal (Inhibit: 1: NO) Highlighted (Allow: 0: YES)	Allow
HT	Normal operation half-tone process control YES/NO setting		Allow
TC	Transfer output correction YES/NO setting		Allow
MD VG	Membrane decrease grid voltage correction YES/NO setting		Allow
MD LD	Membrane decrease laser power voltage correction YES/NO setting		Inhibit
MD EV	Membrane decrease environment grid voltage correction YES/NO setting		Allow
MD DL	Membrane decrease discharge light quantity correction YES/NO setting		Allow
MD DL EV	Membrane decrease environment discharge light quantity correction YES/NO setting		Inhibit
TN_HUM	Toner density humidity correction YES/NO setting		Allow
TN_AREA	Toner density area correction YES/NO setting		Allow

Display	Content	Set range	Default value
TN_LIFE	Toner density life correction YES/NO setting	Normal (Inhibit: 1: NO) Highlighted (Allow: 0: YES)	Allow
TN_COV	Toner density print rate correction YES/NO setting		Allow
TN_PROCON	Toner density process control correction YES/NO setting		Allow
TN_ENV	Toner density environment correction YES/NO setting		Allow
TN_DRIP	Toner density correction, unconditional supply YES/NO setting		Allow
TN_SPEND	Toner compulsory consumption mode YES/NO setting		Allow
PHT	1Pixel half-tone process control correction YES/NO setting		Inhibit
AR_AUTO	Auto resist adjustment YES/NO setting		Allow
AR_ERROR	Error check YES/NO setting during auto resist adjustment		Allow
DM_PHASE	Drum phase alignment YES/NO setting		Allow
SENSITIVITY	Toner density correction YES/NO setting		Inhibit
PRT_HT	Half tone process control printer correction feedback Enable/Disable setting		Allow

(The following items affect the copy color balance/density adjustment, but it is not required to adjust them frequently. When, however, a trouble occurs, check and adjust them.)

1) The following items must be adjusted properly.

Job No	Adjustment item			Simulation to be used
ADJ 1	Developing doctor gap adjustment			
ADJ 2	Developing roller main pole position adjustment			
ADJ 4	High voltage adjustment	ADJ 4A	Main charger grid voltage adjustment	8-2
		ADJ 4B	Developing bias voltage adjustment	8-1
		ADJ 4C	Transfer voltage adjustment	8-6
ADJ 12	Scan image focus adjustment (CCD unit position adjustment)			

(Relationship between the servicing job contents and the copy color balance/density adjustment)

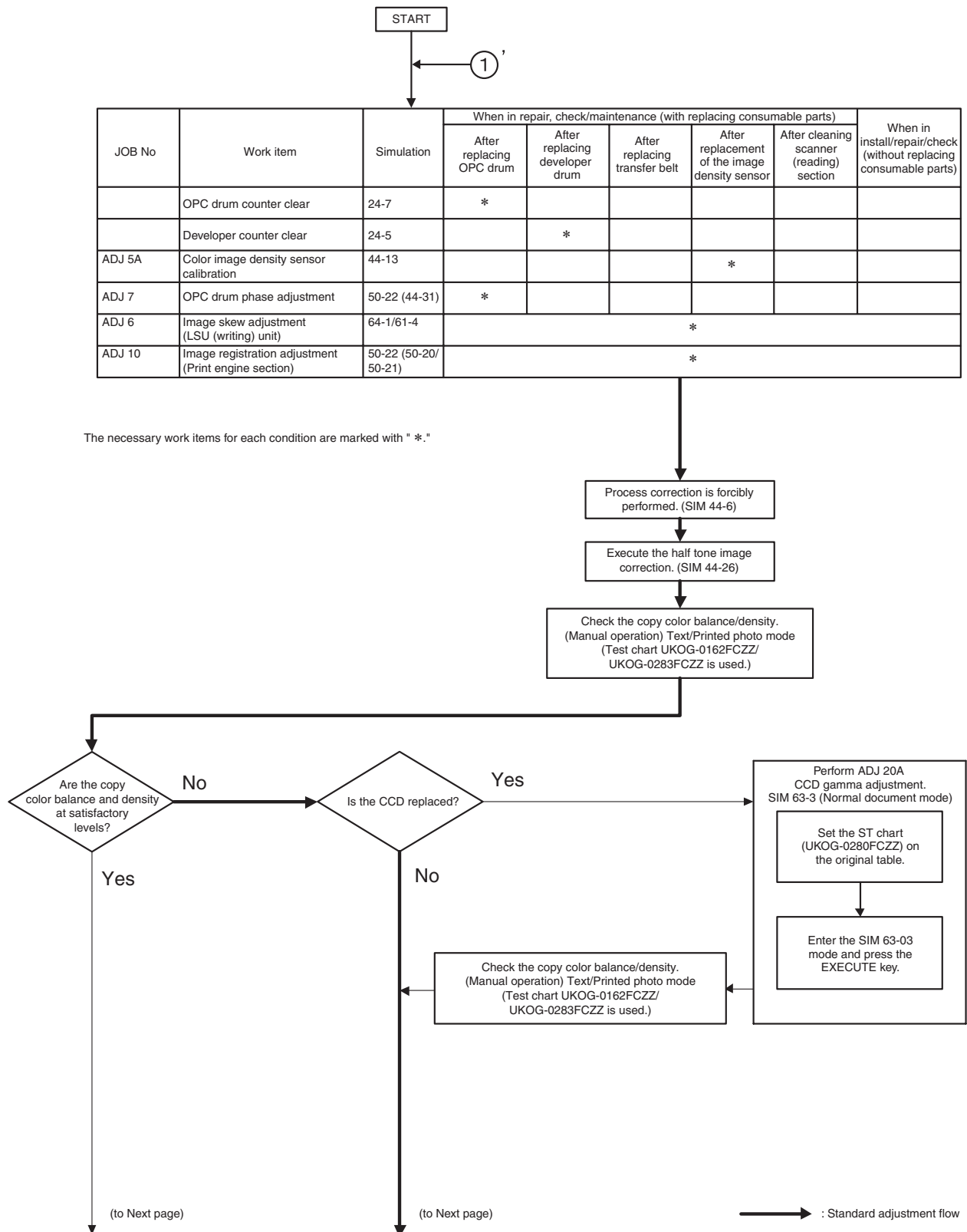
Note that the preliminary jobs before execution of the copy color balance/density adjustment depend on the machine status and the servicing conditions.

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

There are following four, major cases.

- 1) When installing the machine.
- 2) When the periodic maintenance is performed.
- 3) When a repair, an inspection, or a maintenance is performed. (When a consumable part is replaced.)
- 4) When a repair, an inspection, or a maintenance is performed. (Without replacement of a consumable part)

## (2) Flowchart of the copy color balance/density adjustment procedures







### (3) Copy color balance and density check

(Note)

Before checking the copy color 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)

Make a copy of the gray test chart (UKOG-0162FCZZ) and a copy of the servicing color test chart (UKOG-0283FCZZ), and check that they are proper.

a. Note for execution of the color balance and density check in the color copy mode

To check the copy color balance and density, use the gray test chart (UKOG-0162FCZZ) and the servicing color test chart (UKOG-0283FCZZ). Set the copy density level to "3" in the Text/Printed Photo mode (Manual), and make a copy.

At that time, all the color balance adjustments in the user adjustment mode must be set to the default (center).

In addition, be sure to use the specified paper for color.

b. Note for checking the monochrome copy mode density

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

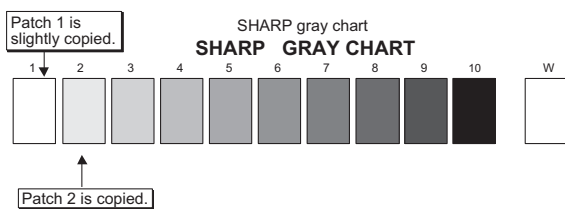
In addition, all the color balance adjustments in the user adjustment mode must be set to the default (center).

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

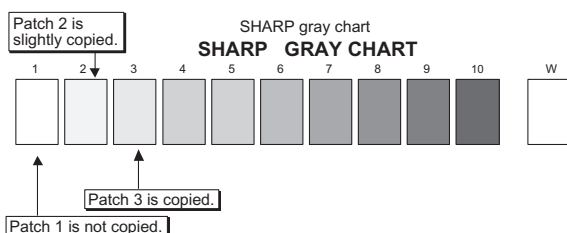
In the copy density check with the gray test chart, check to insure the following conditions.

NOTE: For the color (gray) balance, use the servicing color test chart (UKOG-0283FCZZ) to check.

(Color copy)



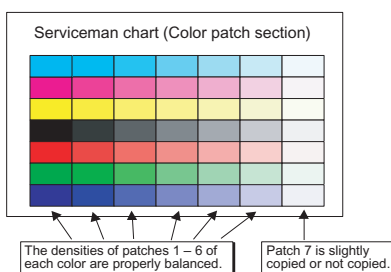
(Black-and-white copy)



- Check with the servicing color test chart (UKOG-0283FCZZ)

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

(Color copy)



## 20-A CCD gamma adjustment (CCD calibration) (Normal document copy mode)

This adjustment is required in the following cases:

- \* When the CCD unit is replaced.
- \* When a U2 trouble occurs.
- \* When the scanner control PWB is replaced.
- \* When the EEPROM on the scanner control PWB is replaced.

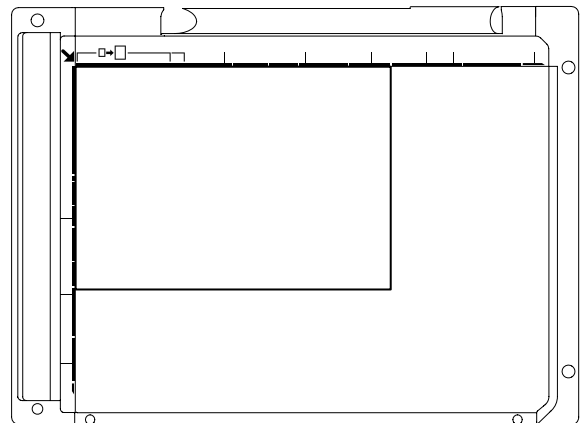
### (1) Note before adjustment

- 1) Check that the table glass, No. 1, 2, 3 mirrors, and the lens surface are free from dirt and dust. (If there is some dust and dirt, wipe and clean with alcohol.
- 2) Check to confirm that the patches in BK1 and BK2 arrays of the SIT chart (UKOG-0280FCZZ or UKOG-0280FCZ1) are free from dirt and scratches.  
If they are dirty, clean them.  
If they are scratched or streaked, replace with new one.

### (2) Adjustment procedures

- 1) Set the SIT chart (UKOG-0280FCZZ or UKOG-0280FCZ1) to the reference position on the left rear frame side of the document table.

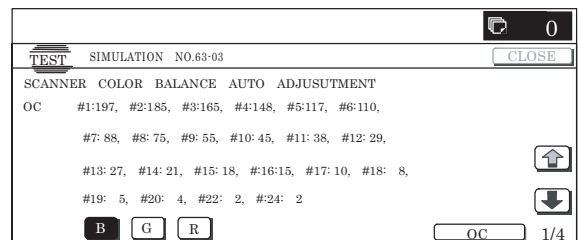
Set the chart so that the lighter density side of the patch is on the left side.



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

NOTE:

- Check to insure that the SIT chart (UKOG-0280FCZZ or UKOG-0280FCZ1) is in close contact with the document table.
  - UKOG-0280FCZZ is equivalent to UKOG-0280FCZ1.
- 2) Enter the SIM 63-03 mode and touch [EXECUTE] key.
- The automatic adjustment is started. During the adjustment, [EXECUTE] key is highlighted. After completion of the adjustment, [EXECUTE] key returns to the normal display.



NOTE:

Since the SIT chart (UKOG-0280FCZZ) is easily discolored by sunlight (especially ultraviolet rays) and humidity and temperature, put it in a bag such as a clear file) and store in a dark place of low temperature and low humidity.

## 20-B Copy color balance adjustment (Auto adjustment)

This adjustment is required in the following cases:

- \* When a consumable part (developer, OPC drum, transfer belt) is replaced.
- \* When the CCD unit is replaced.
- \* When a U2 trouble occurs.
- \* When the MFP PWB is replaced.
- \* When the EEPROM on the MFP PWB is replaced.
- \* When the scanner control PWB is replaced.
- \* When the EEPROM on the scanner control PWB is replaced.

### a. General

The color balance adjustment (auto adjustment) is used to adjust the copy density of Cyan, Magenta, Yellow, and Black with SIM 46-24 or the user program automatically.

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

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

- 1) Auto color balance adjustment by the serviceman (SIM 46-24 is used.)
- 2) Auto color balance adjustment by the user (The user program mode is used.) (The color balance target is the service target.)  
The auto color balance adjustment by the user is provided to reduce the number of service calls.

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

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

On the other hand, the auto color balance adjustment by the serviceman functions to recover the normal color balance though the machine environment is greatly changed. If the machine has a fatal problem, repair and adjust it for obtaining the normal color balance.

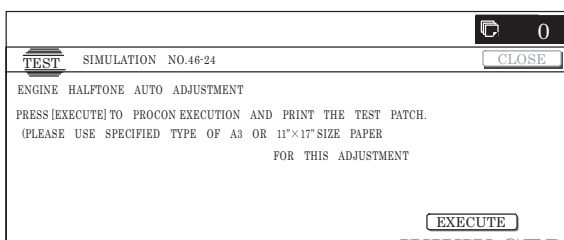
To perform the adjustment, the above difference must be fully understood.

### b. Note for executing the color balance adjustment (Auto adjustment)

- 1) The print engine section must have been adjusted properly.
- 2) The CCD gamma adjustment must have been adjusted properly.
- 3) Be sure to use the specified paper for color.
- 4) Before execution of the image quality check and the image quality adjustment, be sure to execute the following corrections forcibly to set the image forming section to the optimum state.
  - \* Execute the high density image correction (Process correction) forcibly. (SIM44-6)
  - \* Execute the half tone image correction forcibly. (SIM 44-26)

### c. Adjustment procedure (Auto color balance adjustment by the serviceman)

- 1) Enter the SIM 46-24 mode.

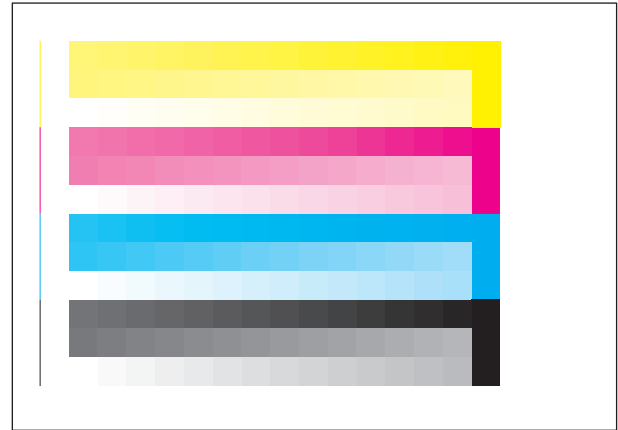


- 2) Touch [EXECUTE] key. (A3 or 11" x 17" paper is automatically selected.)

The color patch image (adjustment pattern) is printed out.

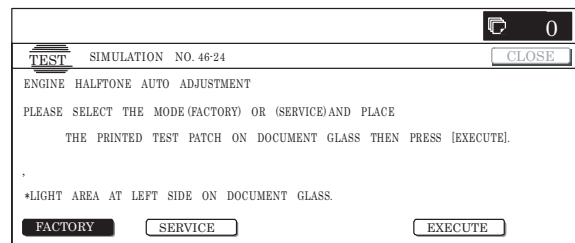
- 3) Set the color patch image (adjustment pattern) paper printed in procedure 2) on the document table.

Place the printed color patch image (adjustment pattern) paper so that the thin lines on the paper are on the left side. Place 5 sheets of white paper on the printed color patch image (adjustment pattern) paper.



- 4) Touch [FACTORY] key on the operation panel, and touch [EXECUTE] key.

When the color balance is customized with the manual color balance adjustment (SIM 46-21) according to the user's request and the color balance is registered as the service target with SIM 63-7, if the color balance is adjusted to that color balance, select the service target.



The copy color balance adjustment (step 1) is automatically executed to print the color balance check patch image. Wait until the operation panel shown in procedure 5) is displayed.

Remark:

(Descriptions on FACTORY key and SERVICE key in the color balance auto adjustment menu.)

There are two kinds of the gamma target for the color balance auto adjustment; Factory and Service.

FACTORY key and SERVICE key are used to select one of the above two.

Factory target color balance: Standard color balance (It can be selected from the three kinds of fixed color balances with SIM 63-11.)

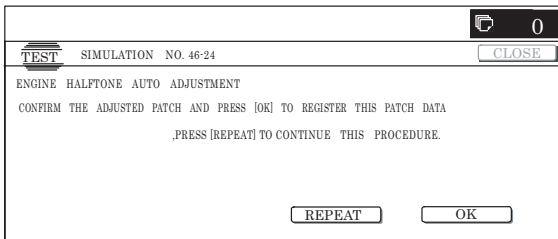
Service target color balance: The color balance can be customized according to the user's request. (Variable)

When shipping, the service target gamma data and the factory target gamma data are the same. Both are set to the standard color balance when shipping.

For the service target, the customized color balance gamma can be registered with SIM 63-7.

- 5) Touch [OK] key on the operation panel.

According to data of this adjustment, the initial setting of the half tone image correction is performed.

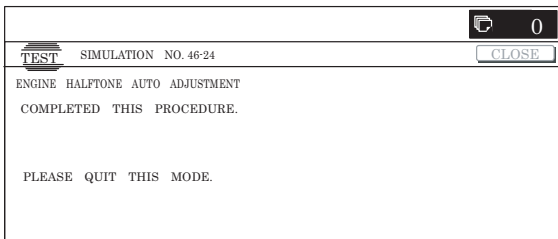


Remark:

After touching [OK] key, the initial setting of the half tone image correction is started. During the operation, "NOW REGISTERING THE NEW TARGET OF HALFTONE PROCON." is displayed. This operation takes several minutes.

After completion of the operation, "Please quit this mode" is displayed.

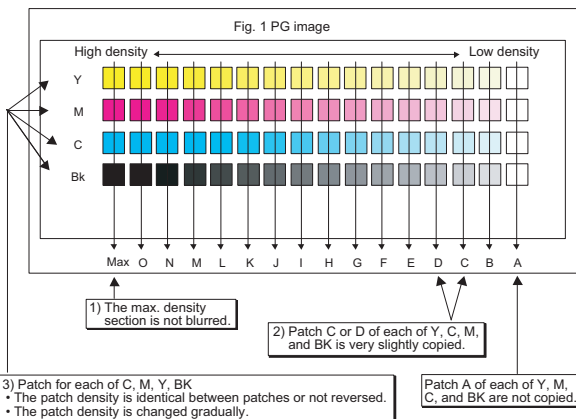
Do not cancel the simulation until "Please quit this mode" is displayed.



- 6) Check the color balance and density.

(Method 1)

Check to insure that the printed color balance check patch image is within the following specifications.



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

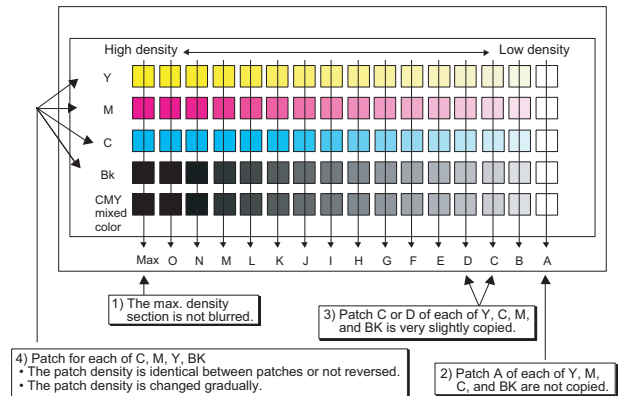
The density level of each color must be almost at the same level.

Patch B may not be copied.

Patch A must not be copied.

(Method 2)

By printing the color balance adjustment sheet with SIM 46-21 and comparing each process (CMY) black patch color balance with the black patch, the color balance adjustment can be checked more precisely.



(Method 3)

Use the servicing color test chart (UK0G-0283FCZZ) in the Text/Printed Photo mode (Manual) to check the copy color balance and density. (Refer to the item of the copy color balance and density check.)

When satisfactory color balance and density are not obtained from the automatic adjustment by selecting the factory target in procedure 4), change the factory color balance target with SIM 63-11 and repeat the procedures from 1).

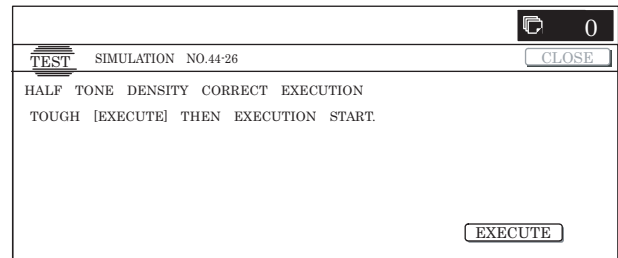
If a satisfactory result is not obtained with the above procedure, perform the manual color balance adjustment (ADJ 20C).

Also when the service target is selected in procedure 4) to execute the automatic adjustment and a satisfactory result is not obtained, perform the manual color balance adjustment (ADJ 20C).

- 7) Use SIM 44-26 to execute the half tone image correction. (Forcible execution)

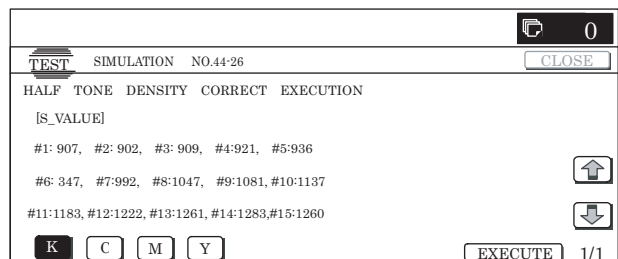
Enter the SIM 44-26 mode and touch [EXECUTE] key.

[EXECUTE] key is highlighted and the operation is started.

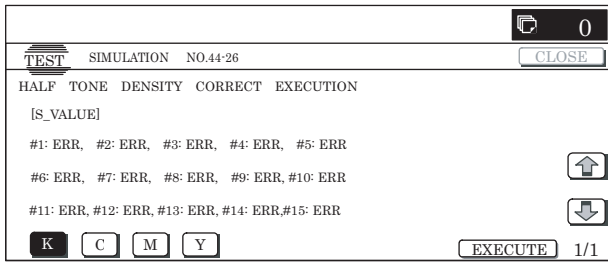


It takes several minutes to complete the operation. After completion of the operation, "COMPLETE" is displayed.

(Normal end (Auto transition))



(Abnormal end (Auto transition))



After completion of the operation, the simulation is canceled.

- 8) Use the servicing color test chart (UK0G-0283FCZZ) in the Text/Photo mode (Manual) to check the copy color balance/density. (Refer to the item of the copy color balance/density check.)  
If the copy color balance and density are not satisfactory, perform the following procedures.
- 9) Execute the initial setting of the half tone image correction. (SIM 44-21)
- 10) Execute the half tone image correction. (Forcible execution) (SIM44-26)
- 11) Use the servicing color test chart (UK0G-0283FCZZ) in the Text/Printed Photo mode (Manual) to check the copy color balance/density. (Refer to the item of the copy color balance/density check.)

Repeat the procedures 9) – 11) until a satisfactory result is obtained.

However, the number of times of repeat is limited to 3 times. If the copy color balance and density are not adjusted to the specified level by repeating the procedures 3 times, there may be another cause.

Troubleshoot the cause and repair or perform proper treatments, and try all the procedures of the print image adjustment from the beginning.

If the automatic adjustment cannot obtain satisfactory results of the copy color balance and density, use SIM 46-21 (ADJ M19C) (Manual adjustment).

## 20-C Copy color balance adjustment (Manual adjustment)

This adjustment is required in the following cases:

- \* When a consumable part (developer, OPC drum, transfer belt) is replaced.
- \* When the CCD is replaced.
- \* When a U2 trouble occurs.
- \* When the MFP PWB is replaced.
- \* When the EEPROM on the MFP PWB is replaced.
- \* When the scanner control PWB is replaced.
- \* When the EEPROM on the scanner control PWB is replaced.

### a. General

The color balance adjustment (Manual adjustment) is used to adjust the copy density (15 pts for each color) of CMYK according to a request from the user for changing (customizing) the color balance because the automatic adjustment stated above is resulted in an unsatisfactory result or a fine adjustment is required.

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

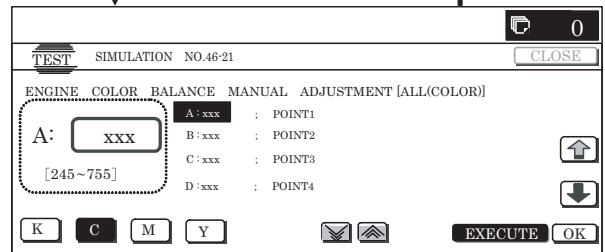
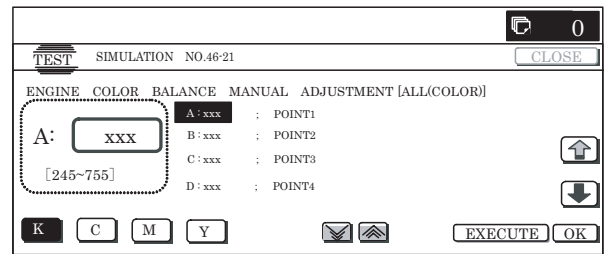
If the color balance is improper, execute the automatic color balance adjustment in advance, and execute this adjustment for better efficiency.

### b. Note for the color balance adjustment (Manual adjustment)

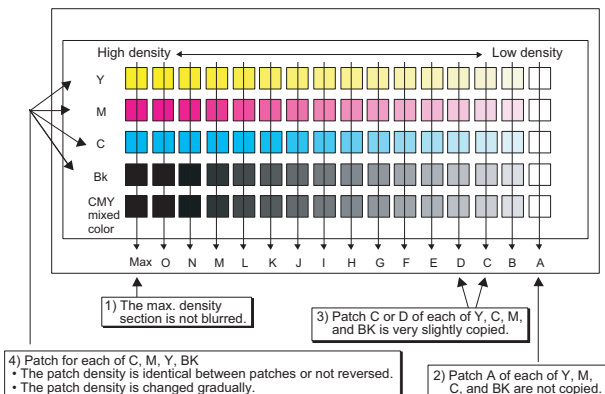
- 1) The print engine section must have been adjusted properly.
- 2) The CCD gamma adjustment must have been adjusted properly.
- 3) Set the color patch image adjustment patten on the document table, and place 5 sheet of white paper on it.
- 4) Be sure to use the specified paper for color.
- 5) Before execution of the image quality check and adjustment, be sure to execute the following corrections to set the image forming section to the optimum state.
  - \* Execute the high density image correction (process correction) forcibly. (SIM 44-6)
  - \* Execute the half tone image correction forcibly. (SIM 44-26)

### c. Adjustment procedure

- 1) Enter the SIM 46-21 mode.



- 2) Touch [EXECUTE] key. (A3 or 11" x 17" paper is automatically selected.)  
The color balance adjustment pattern is printed.
- 3) Check that the following specification is satisfied or the color balance is satisfactory.  
If not, execute the following procedures.



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

The density level of each color must be almost at the same level.

Patch B may not be copied.

Patch A must not be copied.

When, however, the color balance is adjusted according to a request from the user, there is no need to set to the standard color balance stated above.

- 4) Select the color to be adjusted with the color select key, and select the adjustment point with the scroll key.

- 5) Enter the adjustment value with 10-key and touch [OK] key.

The adjustment value is set in the range of 245 – 755 (1 – 999). When SIM 46-24 is used to adjust the automatic color balance and density, all the set values of this simulation are set to 500.

To increase the density, increase the adjustment value. To decrease the density, decrease the adjustment value.

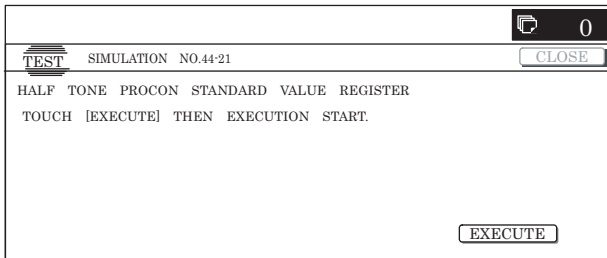
Repeat procedures of 2) – 5) until the condition of 3) is satisfied.

When the overall density is low, or when the density is high and patch A is copied, use the arrow key to adjust all the adjustment values of A – O to a same level collectively.

Then, adjust each patch density individually. This is an efficient way of adjustment.

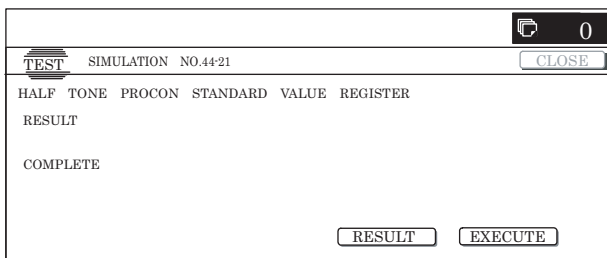
Referring to the black and gray patches, adjust so that each process (CMY) black/gray patch color balance of A – O approaches the black/gray patch level as far as possible.

- 6) Make a copy of the servicing color test chart (UK0G-0283FCZZ) and a user's document according to necessity in the normal copy mode, the text/Printed Photo mode (Manual) to check the adjustment result. (Refer to the item of the copy color balance/density check.)
- 7) Execute SIM 44-21. (Execute the initial setting of the half tone image correction.)

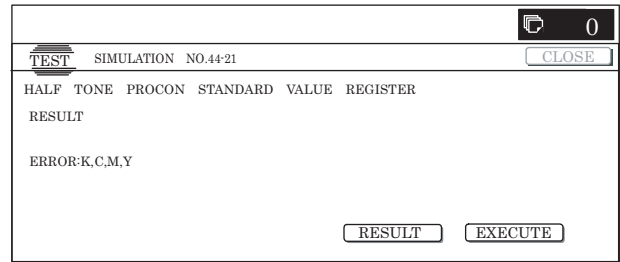


It takes several minutes to complete the operation. After completion of the operation, "COMPLETE" is displayed.

(Normal end (Auto transition))



(Abnormal end (Auto transition))



After completion of the operation, cancel the simulation.

This procedure is to save the copy color balance adjustment data as the reference data for the half tone correction.

Immediately after execution of ADJ 20C (Color balance adjustment, Manual) with SIM 46-21, be sure to execute this procedure.

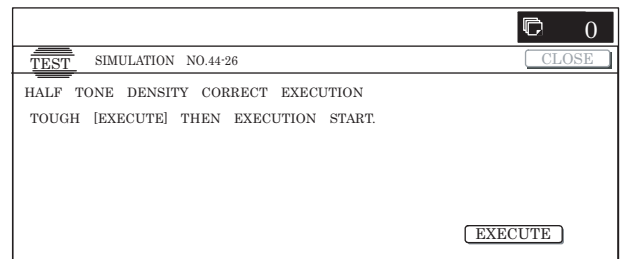
When ADJ 20B (Color balance adjustment, Auto) is executed with SIM 46-24, this procedure is automatically executed.

When [EXECUTE] key is touched, it is highlighted and the operation is started.

- 8) Execute SIM 44-26 to perform the half tone image correction. (Forcible execution)

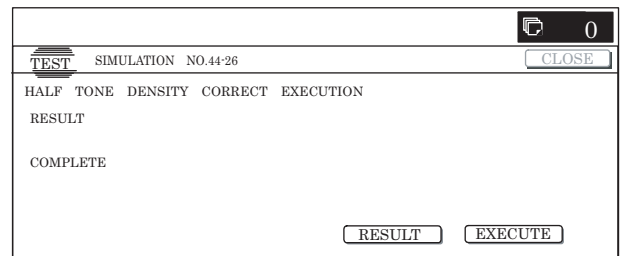
Enter the SIM 44-26 mode and touch [EXECUTE] key.

[EXECUTE] key is highlighted and the operation is started.

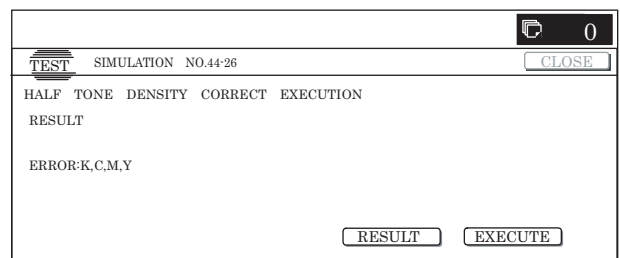


It takes several minute to complete the operation. After completion of the operation, "COMPLETE" is displayed.

(Normal end (Auto transition))



(Abnormal end (Auto transition))



After completion of the operation, cancel the simulation.



- 9) Make a copy of the servicing color test chart (UK0G-0283FCZZ) and a user's document according to necessity in the Text/Printed Photo mode (Manual) and check the adjustment result again. (Refer to the item of the copy color balance/density check.)

If the copy color balance and density are not in the specified level, repeat procedures of 7) – 9) until they are in the specified range.

The number of repeat is, however, limited to 3 times.

If the copy color balance and density are not adjusted to the specified level by repeating the procedures 3 times, there may be another cause.

Troubleshoot the cause, and repair or perform proper treatments, and try all the procedures of the print image adjustment from the beginning.

(NOTE)

If the color balance is customized, use SIM 63-7 to register the color balance as the service target.

If the color balance is not customized, this procedure is not required.

If the customized color balance is registered as the service target, the automatic color balance adjustment can be made in the next color balance adjustment.

In the next color balance adjustment, select the service target color balance in the automatic color balance adjustment mode to make an adjustment to the similar color balance as the registered color balance.

#### (Auto color balance adjustment target gamma setting)

##### a. General

When the automatic color balance adjustment is executed, a certain color balance (gamma) is used as the target.

There are following three kinds of the target.

- Factory color balance (gamma) target
- Service color balance (gamma) target
- User color balance (gamma) target

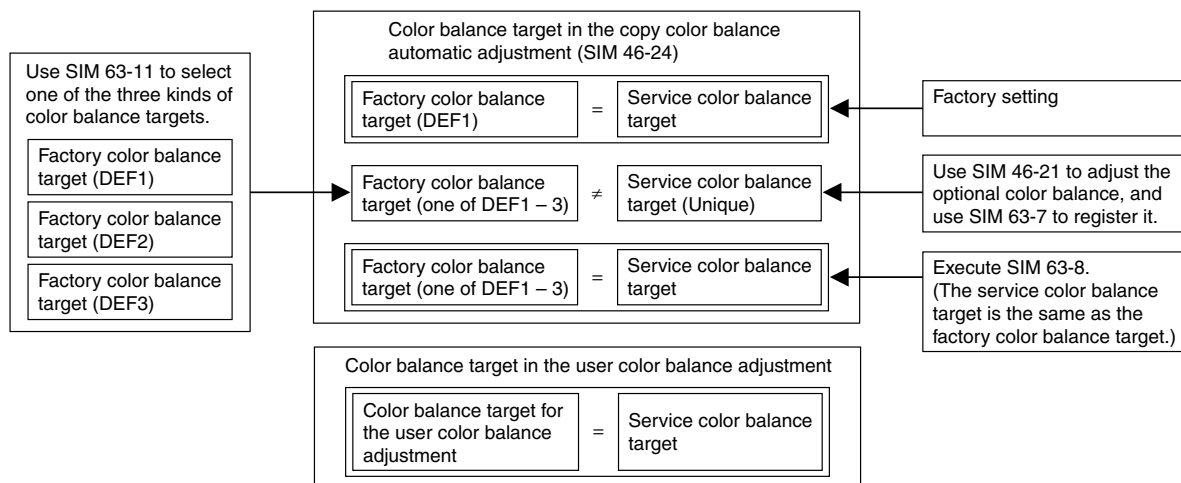
In the above three, only the service color balance target can be set to a desired level.

This adjustment is required in the following cases:

- \* When the copy color balance/density adjustment (manual adjustment) is executed with SIM 46-21).
- \* When a U2 trouble occurs.
- \* When the MFP PWB is replaced.
- \* When the EEPROM on the MFP PWB is replaced.
- \* When the scanner control PWB is replaced.
- \* When the EEPROM on the scanner control PWB is replaced.
- \* When the user requests for customizing the color balance.
- \* When the service color balance target gamma is judged as improper.
- Each color balance target for the copy color balance adjustment

Kind	Descriptions
A	Factory color balance (gamma) target There are three kinds of the color balance target, and each of them is specified according to the machine design. Use SIM 63-11 to select one of them as the factory target. The default setting (factory setting) is the color balance (DEF1) which emphasizes color reproduction.
B	Service color balance (gamma) target This target is used when the user requests to customize the color balance to user's desired level. In advance, the user's unique color balance must be registered as the service color balance target. The above registration (setting) is made by the serviceman with SIM 46-21 to adjust the color balance and with SIM 63-7 to register it. This color balance target is used when the user executes the color balance adjustment. When, therefore, the service color balance target is changed, the color balance target of the user's color balance adjustment is also changed. When, however, SIM 63-8 is executed, the color balance is set to the factory color balance target set with SIM 63-11. The default setting (factory setting) of the color balance is same as the factory color balance target. (Emphasized on color reproduction (DEF1)) If the user does not request for customizing the color balance, be sure to use SIM 63-8 to set the color balance to the factory color balance target.
C	User color balance (gamma) target Same color balance as the service color balance (gamma) target When the service color balance target is changed, this color balance target is also changed accordingly.

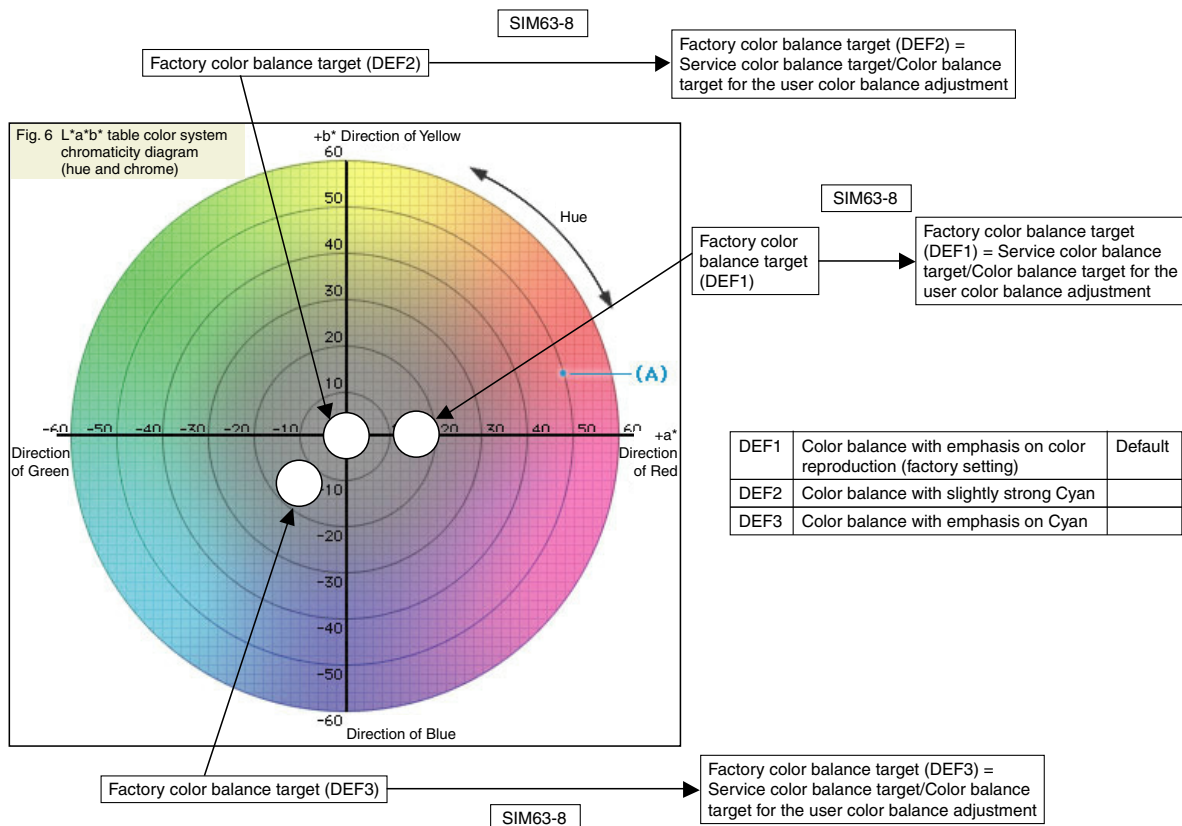
- Relationship between the factory target and the service target and the color balance target for the user color balance adjustment in the copy color balance adjustment (SIM 46-24)



- Factory target in the copy color balance adjustment (SIM 46-24)

By use of SIM 63-11, one of the following color balances can be set as the factory color balance target.

Each of the three color balances cannot be changed. (Fixed)



- Service color balance target in the copy color balance adjustment (SIM 45-24).

For the service color balance target, an optional color balance can be adjusted with SIM 46-21 and registered with SIM 63-7. When, however, SIM 63-8 is executed, the color balance is set to the same balance as the factory color balance target set with SIM 63-11.

- Color balance target in the user color balance adjustment

This color balance is same as the service color balance target in the copy color balance adjustment (SIM 46-24). When, therefore, the service color balance target is changed, this target is also changed accordingly.

#### (Meaning of the service color balance target gamma data and the purpose of registration)

This procedure must be executed only when the color balance is customized with SIM 46-21.

If the color balance is not customized, this procedure is not required.

After completion of the customized color balance adjustment (Manual) with SIM 46-21 according to the user's request, use SIM 63-7 to register the service color balance target data by use of the printed adjustment pattern.

By this procedure, the service color balance target is revised.

It is recommendable to keep the printed adjustment pattern with SIM 46-21. This adjustment pattern can be used to register the same color balance target to another machine.

It is also useful to register the service color balance target data.

Do not fold it and keep it under the circumstances which protect it from discoloration and dirt.

The service color balance target data are basically registered immediately after the color balance adjustment (Manual) with SIM 46-21.

If a considerable time has passed after completion of the color balance adjustment (Manual) with SIM 46-21, the color balance of the adjustment pattern at the time of adjustment differs from the color balance of the adjustment pattern printed after a considerable time. Never use such a pattern for the adjustment.

The correctness of the service color balance target data can be judges as follows.

Select the service color balance target with SIM 46-24 and execute the color valance adjustment (Auto), and check the adjustment result. When the result is unsatisfactory or abnormal, the registered service target data for the color balance adjustment (Auto) may be improper.

This may be caused when an improper or abnormal color balance adjustment pattern was used to register the service color balance target data for the color balance adjustment with SIM 63-7.

The color balance adjustment pattern used in registration was made and printed by the color balance adjustment (Manual) with SIM 46-21. This procedure may have been executed erroneously.

#### b. Setting procedure

##### (Setting procedure of an optional color balance (gamma) as the service color balance target)

- 1) Use SIM 46-21 (Copy color balance adjustment (manual adjustment) mode) to print two sheets of the color patch image (adjustment pattern).

If the color balance is shifted from the standard, an adjustment is required. If not, an adjustment is not required. When an optional color balance is requested by the user, make an adjustment.



- 2) Enter the SIM 63-7 mode.

- 3) Touch [SETUP] key.
- 4) Set the color patch image (adjustment pattern) correctly adjusted and printed in the copy color balance adjustment (Manual adjustment) (SIM 46-21) (ADJ 20C) on the document table.

The color patch image (adjustment pattern) printed with SIM 64-2 can be used instead. In this case, however, check that the printed pattern is normal.

(When the color patch image (adjustment pattern) is printed by SIM 64-2, set the item B (PROC ADJ) to "0 (YES)" and touch [EXECUTE] key to print.)

A color patch image (adjustment pattern) printed by another machine can be used.

Set the pattern so that the light density side is on the left side. Place 5 sheets of white paper on the color patch image (adjustment pattern).

If the color balance could not be adjusted satisfactorily with SIM 46-21 (Color balance adjustment (Manual)), do not execute SIM 63-7 to register the service color balance target data.

- 5) Touch [EXECUTE] key.

The color patch image (adjustment pattern) is read.

- 6) Touch [REPEAT] key, set the second color patch image (adjustment pattern), and execute the procedure 5) again.

The color balance (gamma) target set level of each color (KCMY) can be checked with K/C/M/Y keys.

Check that the set level is increased in the sequence of B – O. If there is no variation or variation is reversed, it is judged as abnormal.

In case of an abnormality, settle the problem and try again.

- 7) Touch [OK] key.
- The color balance (gamma) of the color patch image (adjustment pattern) used in the procedure 5) is set as the service target.

**(Procedures to set the service color balance target and the color balance target for the user color balance adjustment to the same color balance as the factory color balance target)**

This procedure must not be executed when the copy color balance was adjusted with SIM 46-21 to a unique color balance requested by the user and it was registered as the service color balance target with SIM 63-7.

- \* When the factory color balance target is changed with SIM 63-11, be sure to execute this procedure.

- 1) Enter the SIM 63-8 mode.

- 2) Touch [EXECUTE] key.
- 3) Touch [YES] key.

The service color balance target and the color balance target for the user color balance adjustment are set to the same color balance as the factory color balance target.

## 20-D Copy density adjustment (Each color copy mode) (Whole adjustment) (Normally unnecessary to adjust)

This adjustment is required in the following cases.

- \* When a U2 trouble occurs.
- \* When the MFP PWB is replaced.
- \* When the EEPROM on the MFP PWB is replaced.

The density is adjusted in each copy mode individually. Normally individual adjustments are not required. When there is a request from the user, execute this adjustment.

- 1) Enter the SIM 46-1 mode.

10-key

OK

- 2) Select the copy mode to be adjusted with the scroll key.

Display/Item (Copy mode)			Adjustment value range	Default value
A	AUTO	Auto	1 – 99	50
B	TEXT	Text	1 – 99	50
C	TEXT/PRINTED PHOTO	Text/Printed Photo	1 – 99	50
D	TEXT/PHOTO	Text/Photograph	1 – 99	50
E	PRINTED PHOTO	Printed Photo	1 – 99	50
F	PHOTOGRAPH	Photograph	1 – 99	50
G	MAP	Map	1 – 99	50
H	LIGHT	Light document	1 – 99	50
I	TEXT (COPY TO COPY)	Text (Copy document)	1 – 99	50
J	TEXT/PRINTED PHOTO (COPY TO COPY)	Text/Printed Photo (Copy document)	1 – 99	50
K	PRINTED PHOTO (COPY TO COPY)	Printed Photo (Copy document)	1 – 99	50
L	TEXT (COLOR TONE ENHANCEMENT)	Text (Color tone enhancement)	1 – 99	50
M	TEXT/PRINTED PHOTO (COLOR TONE ENHANCEMENT)	Text/Printed Photo (Color tone enhancement)	1 – 99	50
N	TEXT/PHOTO (COLOR TONE ENHANCEMENT)	Text/Photograph (Color tone enhancement)	1 – 99	50
O	PRINTED PHOTO (COLOR TONE ENHANCEMENT)	Printed Photo (Color tone enhancement)	1 – 99	50
P	PHOTOGRAPH (COLOR TONE ENHANCEMENT)	Photograph (Color tone enhancement)	1 – 99	50
Q	MAP (COLOR TONE ENHANCEMENT)	Map (Color tone enhancement)	1 – 99	50
R	SINGLE COLOR	Single color	1 – 99	50
S	SINGLE COLOR (COPY TO COPY)	Single color (Copy document)	1 – 99	50
T	TWO COLOR	Two-color (Red/Black) copy	1 – 99	50
U	TWO COLOR (COPY TO COPY)	Two-color (Red/Black) copy (Copy document)	1 – 99	50

- 3) Enter the adjustment value with 10-key and touch [OK] key.
- 4) Touch [CLOSE] key in this simulation mode to jump to the normal copy mode. Make a copy and check the adjustment result. Switch the simulation mode and the normal copy mode alternately, and adjust and check the adjustment result. Repeat switching the adjustment mode (SIM 46-1) and the normal copy mode and changing the adjustment value and checking the adjustment result until a satisfactory result is obtained. To increase the density, increase the adjustment value. To decrease the density, decrease the adjustment value.

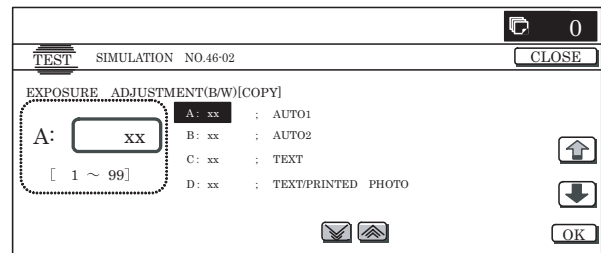
## 20-E Copy density adjustment (each monochrome copy mode) (Whole adjustment) (Normally unnecessary to adjust)

This adjustment is required in the following cases.

- \* When a U2 trouble occurs.
- \* When the MFP PWB is replaced.
- \* When the EEPROM on the MFP PWB is replaced.

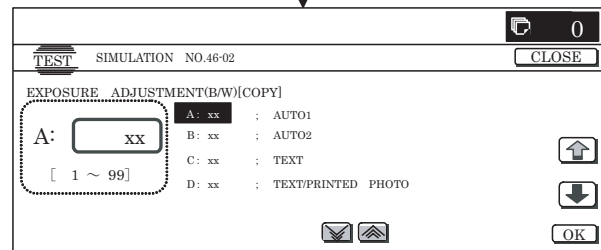
The density is adjusted in each copy mode individually. Normally individual adjustments are not required. This adjustment is executed when there is a request from the user.

- 1) Enter the SIM 46-2 mode.



10-key

OK



- 2) Select the copy mode to be adjusted with the scroll key.

Display/Item (Copy mode)			Adjustment value range	Default value
A	AUTO1	Auto 1	1 – 99	50
B	AUTO2	Auto 2	1 – 99	50
C	TEXT	Text	1 – 99	50
D	TEXT/PRINTED PHOTO	Text/Printed Photo	1 – 99	50
E	TEXT/PHOTO	Text/Photograph	1 – 99	50
F	PRINTED PHOTO	Printed Photo	1 – 99	50
G	PHOTOGRAPH	Photograph	1 – 99	50
H	MAP	Map	1 – 99	50
I	TEXT (COPY TO COPY)	Text (Copy document)	1 – 99	50
J	TEXT/PRINTED PHOTO (COPY TO COPY)	Text/Printed Photo (Copy document)	1 – 99	50
K	PRINTED PHOTO (COPY TO COPY)	Printed Photo (Copy document)	1 – 99	50
L	LIGHT	Light density document	1 – 99	50

- 3) Enter the adjustment value with 10-key and touch [OK] key.
- 4) Touch [CLOSE] key in this simulation mode to jump to the normal copy mode. Make a copy and check the adjustment result. Switch the simulation mode and the normal copy mode alternately, and adjust and check the adjustment result. Repeat switching the adjustment mode (SIM 46-1) and the normal copy mode and changing the adjustment value and checking the adjustment result until a satisfactory result is obtained.

To increase the density, increase the adjustment value. To decrease the density, decrease the adjustment value.

## 20-F Copy color balance adjustment (Color balance adjustment at each density level in each color copy mode) (Normally not required)

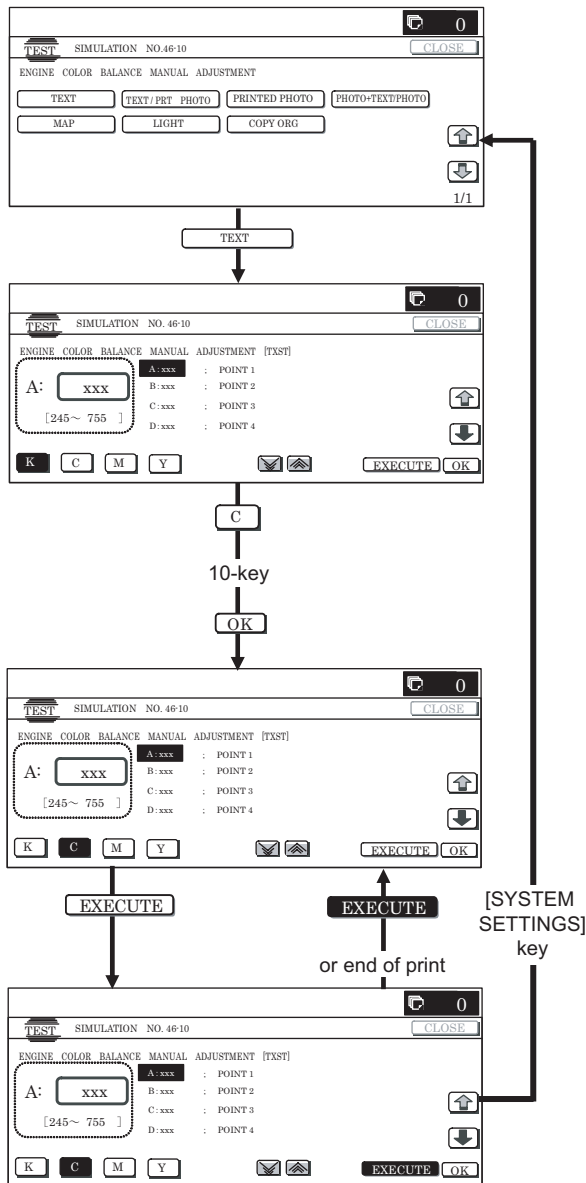
This adjustment is required in the following cases.

- \* When a U2 trouble occurs.
- \* When the MFP PWB is replaced.
- \* When the EEPROM on the MFP PWB is replaced.

This is to adjust the color balance at each density level in each color copy mode.

Normally individual adjustments are not required. This adjustment is executed when there is a request from the user.

- 1) Enter the SIM 46-10 mode.



- 2) Select the copy mode to be adjusted with the mode key.
- 3) Select a color to change the adjustment value with the color key.
- 4) Select the density level (point) to be adjusted with the scroll key.

Item/Display	Density level (Point)	Adjustment value range	Default value
A	POINT1	Point 1	245 – 755
B	POINT2	Point 2	245 – 755
C	POINT3	Point 3	245 – 755
D	POINT4	Point 4	245 – 755
E	POINT5	Point 5	245 – 755
F	POINT6	Point 6	245 – 755
G	POINT7	Point 7	245 – 755
H	POINT8	Point 8	245 – 755
I	POINT9	Point 9	245 – 755
J	POINT10	Point 10	245 – 755
K	POINT11	Point 11	245 – 755
L	POINT12	Point 12	245 – 755
M	POINT13	Point 13	245 – 755
N	POINT14	Point 14	245 – 755
O	POINT15	Point 15	245 – 755

- 5) Enter the adjustment value with 10-key and touch [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 touched, the color densities selected with the color keys 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 [EXECUTE] key is touched, the adjustment pattern is printed out.

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

## 20-G Monochrome copy density adjustment (Density adjustment at each density level in each monochrome copy mode) (Normally not required)

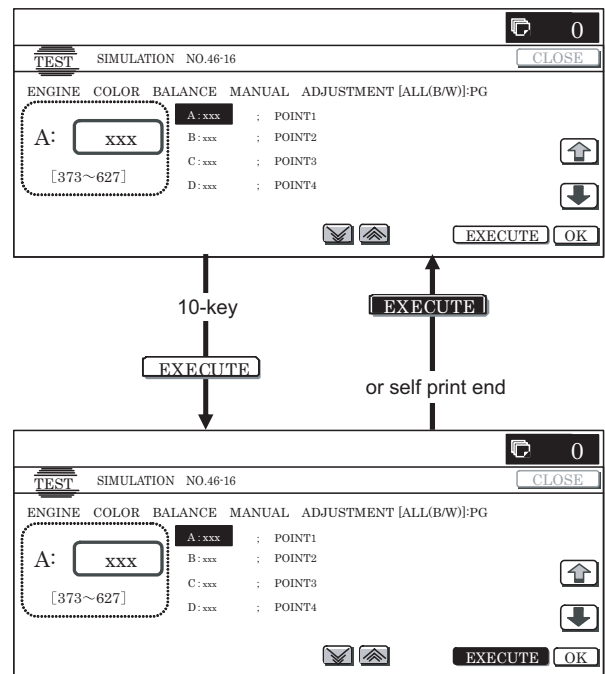
This adjustment is required in the following cases.

- \* When a U2 trouble occurs.
- \* When the MFP PWB is replaced.
- \* When the EEPROM on the MFP PWB is replaced.

This is to adjust each density level in each monochrome copy mode.

Normally individual adjustments are not required. This adjustment is executed when there is a request from the user.

- 1) Enter the SIM 46-16 mode.



- 2) Select the density level (point) to be adjusted with the scroll key.
- 3) Enter the adjustment value with 10-key and touch [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 touched, the selected 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 [EXECUTE] key is touched, 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 practically to make a cop and check it.

## 20-H Gamma/density adjustment in the text image edge section (Normally not required)

This adjustment is used to change the reproduction level of text and outline to an optional level by changing the gamma and the density at the edge section of text image. The thickness of fine text and fine lines is changed by this adjustment.

The adjustment result must be checked in the Text/Printed Photo copy mode (Manual).

This adjustment is enabled only in the Text mode, the Text/Printed Photo mode, and the Text/Photograph copy mode.

When the default adjustment value is changed, this adjustment is required in the following cases.

- \* When a U2 trouble occurs.
- \* When the MFP PWB is replaced.
- \* When the EEPROM on the MFP PWB is replaced.

1) Enter the SIM 46-27 mode.

10-key

2) Select an adjustment item with the scroll key.

Display/Item (Copy mode)	Content	Adjustment range	Default value
A BLACK TEXT (SLOPE)	Black text edge area engine $\gamma$ curve calculation coefficient (slope) setting	1 – 99	50
B BLACK TEXT (INTERCEPT)	Black text edge area engine $\gamma$ curve calculation coefficient (density) setting	1 – 99	50
C COLOR TEXT (SLOPE)	Color text edge area engine $\gamma$ curve calculation coefficient (slope) setting	1 – 99	50
D COLOR TEXT (INTERCEPT)	Color text edge area engine $\gamma$ curve calculation coefficient (density) setting	1 – 99	50
E ED TEXT (SLOPE)	Error diffusion edge area engine $\gamma$ curve calculation coefficient (slope) setting	1 – 99	50
F ED TEXT (INTERCEPT)	Error diffusion edge area engine $\gamma$ curve calculation coefficient (density) setting	1 – 99	50

3) Enter the adjustment value with 10-key.

When the adjustment value of item A, C, or E is changed, the gamma at the edge area of text and lines is changed.

When the adjustment value is increased, the image contrast at the edge area of text and lines is increased. When the adjustment value is decreased, the contrast is decreased.

When the adjustment value of item B, D, or F is increased, the image density at the edge area of text and lines is increased. When the value is decreased, the density is decreased.

4) Touch [OK] key.

5) Touch [CLOSE] key to exit from the simulation.

6) Make a copy in the TEXT/Printed Photo copy mode (Manual), and check the copy.

Use a document with fine text and line images for copying and checking.

If a satisfactory result is not obtained, return to the SIM 46-27 mode and change the adjustment value.

Repeat the above procedures until a satisfactory result is obtained.

## 20-I Copy color balance adjustment (Single color copy mode) (Normally not required)

This adjustment is used to set the color balance and the density in the single color copy mode to the user's request.

The adjustment is made by changing YMC components of each color.

This adjustment is not required normally, but executed when there is a request from the user.

When the default adjustment value is changed, this adjustment is required in the following cases.

- \* When the CCD unit is replaced.
- \* When a U2 trouble occurs.
- \* When the MFP PWB is replaced.
- \* When the EEPROM on the MFP PWB is replaced.

### a. Adjustment procedures

1) Enter the SIM 46-25 mode.

10-key

2) Select the color to be adjusted with the scroll key.

3) Select the color (YMC) to be adjusted with the color key.

- 4) Enter the adjustment value with 10-key.

Display/Item		Adjustment value	Default value		
			C	M	Y
A	RED	0 – 255	0	255	255
B	GREEN	0 – 255	255	0	255
C	BLUE	0 – 255	255	255	0
D	YELLOW	0 – 255	0	0	255
E	MAGENTA	0 – 255	0	255	0
F	CYAN	0 – 255	255	0	0

- 5) Touch [OK] key.
- 6) Touch [CLOSE] key to exit from the simulation.
- 7) Make a copy in the single color copy mode and check the copy.

If a satisfactory result is not obtained, return to the SIM 46-25 mode and change the adjustment value. Repeat the above procedures until a satisfactory result is obtained.

## 20-J Auto color balance adjustment by the user (Copy color balance auto adjustment enable setting and adjustment)

### a. General

In the user program mode, the user can execute the auto color calibration (auto adjustment of the copy color balance and density). This adjustment is to set Enable/Disable of the above user operation with SIM 26-53.

**NOTE:** This setting must be set to ENABLE only when the user's understanding on the automatic adjustment of the copy color balance and density and the user's operational ability are judged enough to execute the adjustment.

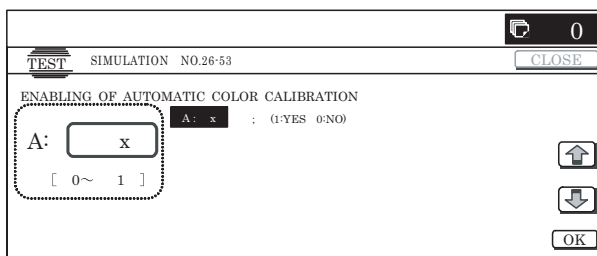
When set to ENABLE, give enough explanations on the operating procedures, notes, and operations to the user.

This adjustment is required in the following cases.

- \* When a U2 trouble occurs.
- \* When the MFP PWB is replaced.
- \* When the EEPROM on the MFP PWB is replaced.
- \* When the PCU PWB is replaced.
- \* When the EEPROM on the PCU PWB is replaced.

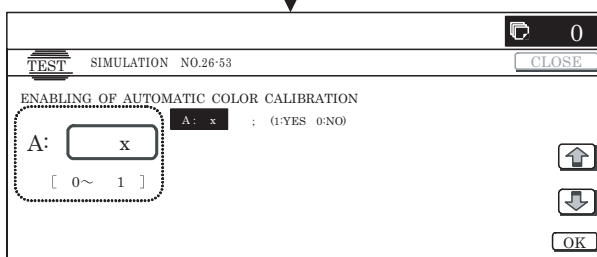
### b. Setting procedure

- 1) Enter the SIM 26-53 mode.



10-key

OK

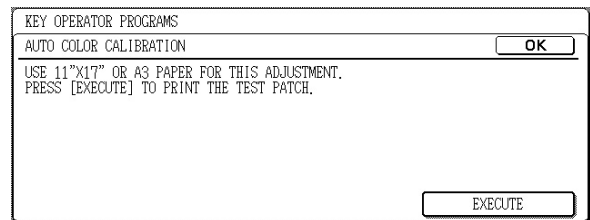


- 2) Select ENABLE or DISABLE with 10-key.  
When disabling, set to "0" (NO).  
When enabling, set to "1" (Yes).
- 3) Touch [OK] key.  
When set to DISABLE, the menu of the user auto color calibration (automatic adjustment of copy color balance and density) is not displayed in the user program mode.

### (Auto color calibration by the user (Auto color balance adjustment))

**Remark:** This adjustment is based on the service target color balance set with SIM 63-7 and SIM 63-8. If, therefore, the above settings are not properly performed, this adjustment cannot be made properly.

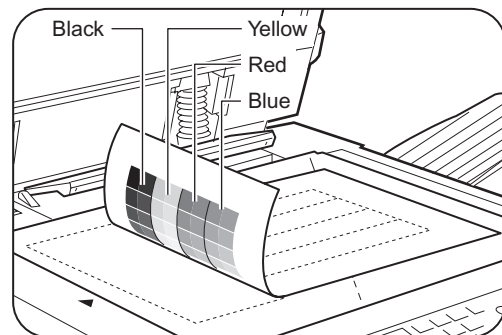
- 1) Enter the system setting mode.
- 2) Enter the copy setting mode.
- 3) Touch the auto color calibration key.
- 4) Touch [EXECUTE] key.



The color patch image (adjustment pattern) is printed out.

- 5) Set the color patch image (adjustment pattern) printed in procedure 4) on the document table. Set the patch image so that the light density area is on the left side.

At that time, place 5 sheets of white paper on the above color patch image (adjustment pattern).



- 6) Touch [EXECUTE] key, and the copy color balance adjustment is executed automatically. After completion of the adjustment, the display returns to the original operation screen.

## 20-K Background process condition setting in the color auto copy mode

When the adjustment value is changed from the default adjustment value, this adjustment is required in the following cases.

- \* When a U2 trouble occurs.
- \* When the MFP PWB is replaced.
- \* When the EEPROM on the MFP PWB is replaced.
- \* When the user request for the adjustment.

This adjustment is used to set the condition for inhibiting copy of the background depending on the document image kind and state.

The setting is applied to the color auto copy mode.



- 1) Enter the SIM 46-33 mode.

- 2) Select COLOR AE mode with [NEXT] and [BACK] key.
- 3) Select the setting mode with the scroll key.

Display/Item				Content	Adjustment range	Default value
COLOR AE	A	SW_MODE1	ON	Auto mode: Text document background detection	0 – 1	1
			OFF			
	B	SW_MODE2	ON	Auto mode: Text mesh document background detection	0 – 1	1
			OFF			
	C	SW_MODE3	ON	Auto mode: Text-on-mesh document background detection	0 – 1	1
			OFF			
	D	SW_MODE4	ON	Auto mode: Mesh document background detection	0 – 1	0
			OFF			
	E	SW_MODE5	ON	Auto mode: Photo document background detection	0 – 1	0
			OFF			
	F	SW_MODE6	ON	Auto mode: text document background detection	0 – 1	0
			OFF			
	G	SW_MODE7	ON	Auto mode: Other document background detection	0 – 1	0
			OFF			
H	TH_MAX_MONO		Monochrome background detection threshold value	0 – 32	17	
I	TH_MAX_COLOR		Color background detection threshold value	0 – 32	17	
J	SW_NEWS		Newspaper background forcible delete switch	0 – 1	0	
K	SW_MODE_SCR1		Mesh area background judgment switch	1 – 3	3	
L	SW_MODE_SCR2		Mesh area background delete select switch	0 – 1	0	
M	SW_MODE_MIX		Auto other document background detection switch	1 – 2	2	
N	SW_HOSEI		Correction table correction	0 – 8 (–4 – +4)	4	
A	TH_MODE_SCR		Mesh ratio threshold value	0 – 10000	3000	
B	TH_SITAJI_SCR		Background mesh threshold value	0 – 10000	3000	

#### Set item A (SW\_MODE1) – G (SW\_MODE7):

Used to set Enable/Disable of the background delete function for various kinds of documents.

When the value of the set item corresponding to the document kind is set to 1, the background delete function of the document kind is enabled.

To reproduce the document colors directly, set this setting to OFF (0).

After entering the set value, touch [OK] key to save the entered value to the memory.

#### Set item H (TH\_MAX\_MONO):

Used to set the density level at which the background delete function is enabled for monochrome background documents.

Set to the range of 0 – 32.

To delete the background of light-density documents: Increase the set value.

To delete the background of dark-density documents: Decrease the set value.

After entering the set value, touch [OK] key to save the set value to the memory.

#### Set item I (TH\_MAX\_COLOR):

Used to set the density level at which the background delete function is enabled for color background documents.

Set to the range of 0 – 32.

To delete the background of light-density documents: Increase the set value.

To delete the background of dark-density documents: Decrease the set value.

After entering the set value, touch [OK] key to save the set value to the memory.

#### Set item J (SW\_NEWS):

Used to set Enable/Disable of the newspaper (monochrome) background delete function.

It is not affected by the set item H.

For newspapers of color background, this setting is invalid.

After entering the set value, touch [OK] key to save the set value to the memory.

#### Set item A (TH\_MODE\_SCR):

Used to set the mesh area level at which the background delete function is enabled for printed documents with mesh images.

To delete background of documents with much mesh area: Increase the set value.

To delete background of documents with less mesh area: Decrease the set value.

Select TH\_MODE\_SCR, enter the set value, and touch [SET] key to save the entered value to the memory.

#### (NOTE)

Enable/Disable of the background delete operation is determined by AND condition of A (SW\_MODE1) – G (SW\_MODE7), H (TH\_MAX\_MONO), I (TH\_MAX\_COLOR), and A (TH\_MODE\_SCR). For newspapers documents, however, it is determined by the set item J (SW\_NEWS) only.

Except for the above set items, do not change the setting in the market. Set them to the default values.

## 20-L Color document identification level (ACS operation) setting

When the machine is used with some adjustment values changed from the default values, this adjustment is required in the following cases.

- \* When a U2 trouble occurs.
- \* When the MFP PWB is replaced.
- \* When the EEPROM on the MFP PWB is replaced.
- \* When the user requests for the adjustment.

This setting is used to set the recognition level of a color image in a document.

The actual ACS operation is executed according to the combination of the judgment reference value in the color auto mode set by the device and this setting.

When a monochrome document cannot be judged as a monochrome document or when a color document cannot be judged as a color document, change this setting. This setting is applied to the color auto copy mode.

- 1) Enter the SIM 46-33 mode.

- 2) Select the ACS mode with [NEXT] key and [BACK] key.
  - 3) Select the setting mode of "P/SIM LEVEL" with the scroll key.
- When a monochrome document is not recognized as a monochrome document, increase the set value.

When a color document is not recognized as a color document, decrease the set value.

After entering the set value, touch [OK] key to save the set value to the memory.

The figure in the table indicates the ACS setting level in the device setting.

The ACS setting level of the device setting (the judgment reference value in the color auto mode) is changed with the setting of SIM 46-33 ACS/P/SIM LEVEL.

The left and the upper area from the cross point of the device setting on the table and the ACS/P/SIM LEVEL setting serves as the ACS operation condition.

ACS color judgment setting		<div> <div>←</div> <div>Large hue area</div> <div>→</div> </div> <div>Small hue area</div> <div>Hue area (Device setting ACS setting level (Judgment reference set value in the color auto mode))</div>				
		Area level 5	Area level 4	Area level 3	Area level 2	Area level 1
		Can be set optionally. (30000 pixel or more)	About 10mm x 5mm (30000 pixel)	About 5mm x 5mm (15000 pixel)	About 3mm x 4mm (7000 pixel)	About 1mm x 3mm (1875 pixel)
<div>Large color area</div> <div>Hue level (ACS/P/SIM LEVEL)</div> <div>Small color area</div>	Hue level 5	⑤ C		④ C		
	Hue level 4	⑤ B		④ B	③ C	② C
	Hue level 3	⑤ A		④ A	③ B	② B ① C
	Hue level 2				③ A	① B ② A
	Hue level 1					② A

Device setting ACS setting level (Judgment reference set value in the color auto mode) (5 steps)

[Monochrome] 1 ← 2 ← 3 → 4 → 5 [Color]

SIM 46-33 ACS/P/SIM LEVEL (3 steps)

Weak hue [Monochrome] ↔ [Color] Strong hue

XC XB XA

\* Adjustment in 3 steps of device setting

(Example) When the ACS setting level of device setting (judgment reference set value in the color auto mode) is 2 and SIM 46-33 ACS/P/SIM LEVEL is set to 3, the following area serves as the ACS operating condition.

			← Large hue area		Small hue area →		
ACS color judgment setting			Hue area (Device setting ACS setting level (Judgment reference set value in the color auto mode))				
			Area level 5 Can be set optionally. (30000 pixel or more)	Area level 4 About 10mm x 5mm (30000 pixel)	Area level 3 About 5mm x 5mm (15000 pixel)	Area level 2 About 3mm x 4mm (7000 pixel)	Area level 1 About 1mm x 3mm (1875 pixel)
Hue level (SIM LEVEL)	Strong hue ↑	Hue level 5					
		Hue level 4					
		Hue level 3		④			
	Weak hue ↓	Hue level 2					
		Hue level 1					

(NOTE) Though the judgment reference in the color auto mode of device setting is set to "5: Monochrome," if a monochrome document is not recognized as a monochrome document, increase the set value of the set item A TH ACS5 ENLARGE (area level 5).

After entering the set value, touch [OK] key to save the set value to the memory.

Except for the above set item, do not change the setting in the market. Set it to the default value.

## ADJ 21 Printer color balance/density adjustment

### (1) Note before execution of the printer color balance/density adjustment

(Requisite condition before execution of the printer color balance/density adjustment)

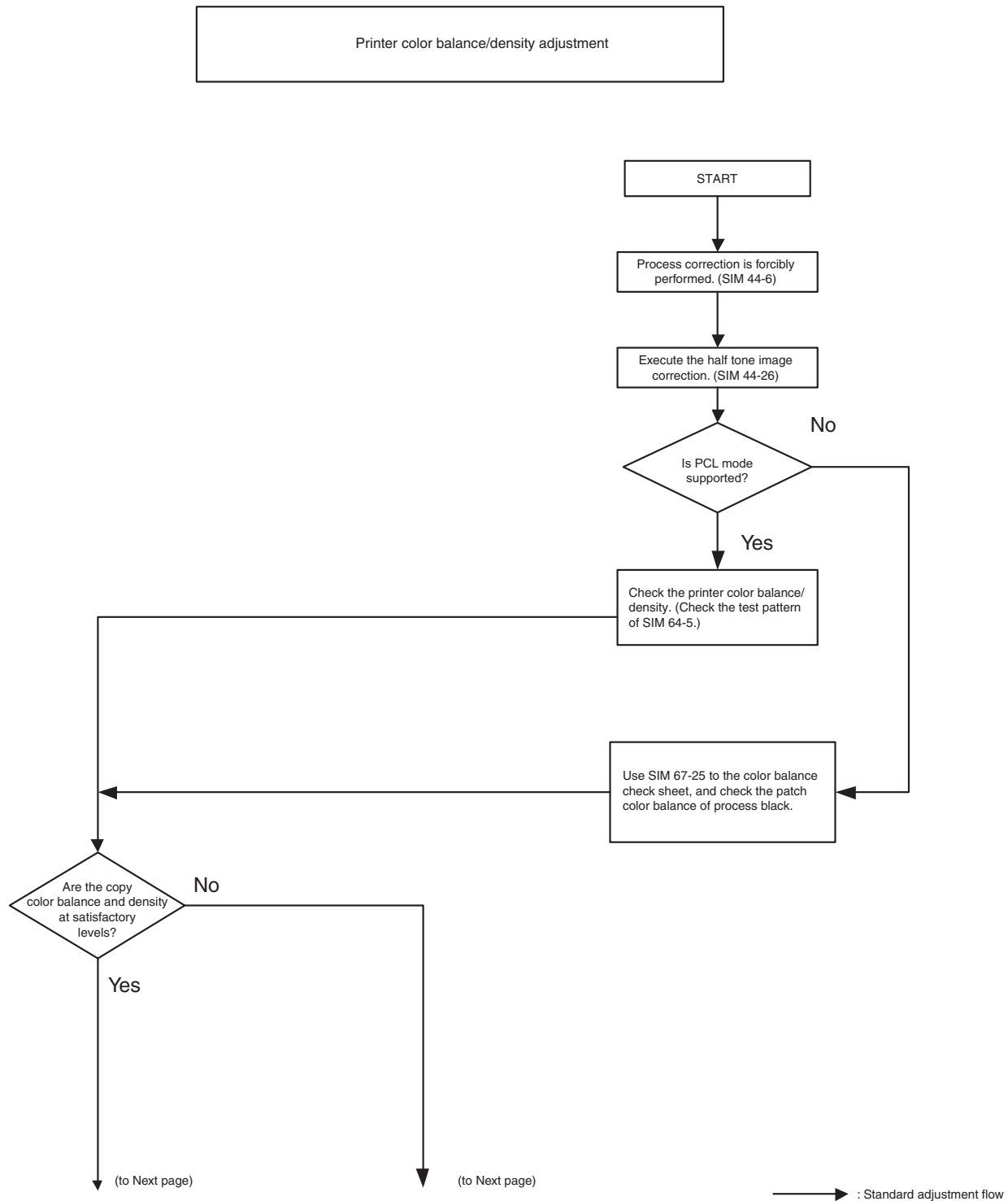
Before execution of the printer color balance/density adjustment, the copy color balance/density adjustment must have been completed properly.

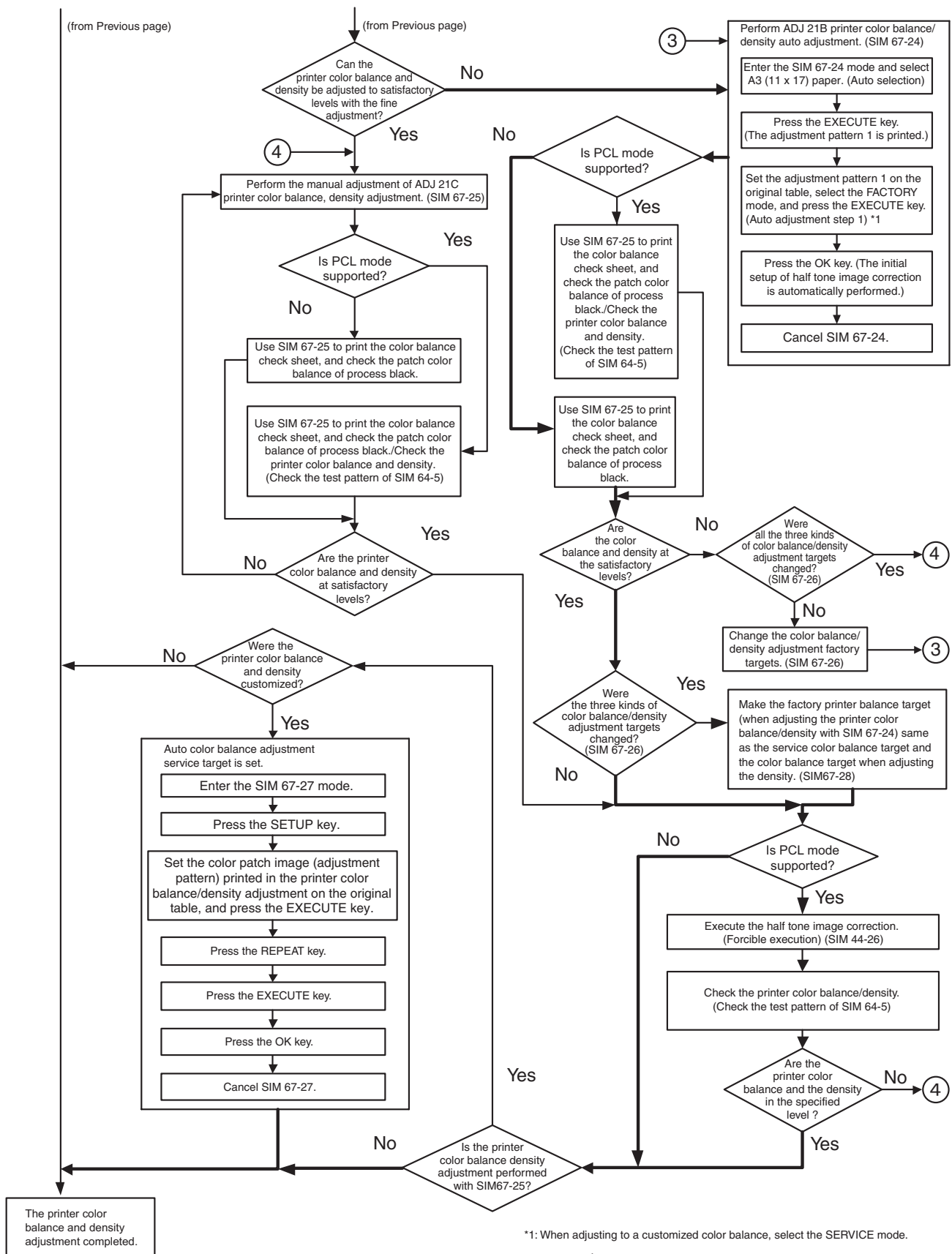
(This adjustment is required in the following cases.)

- \* Basically same as when the copy color balance/density adjustment is required. Refer to the page of the ADJ 20 print color balance/density adjustment.
- \* After the copy color balance/density adjustment.



## (2) Flow of printer color balance/density adjustment procedures





### (3) Printer color balance/density check

(Note)

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

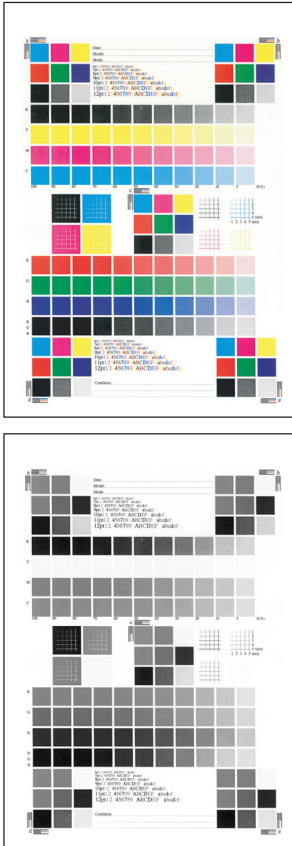
- \* Execute the high density image correction (process correction) forcibly. (SIM 44-6)
- \* Execute the half tone image correction forcibly. (SIM 44-26)

(Procedure)

a. When the PCL mode is supported:

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

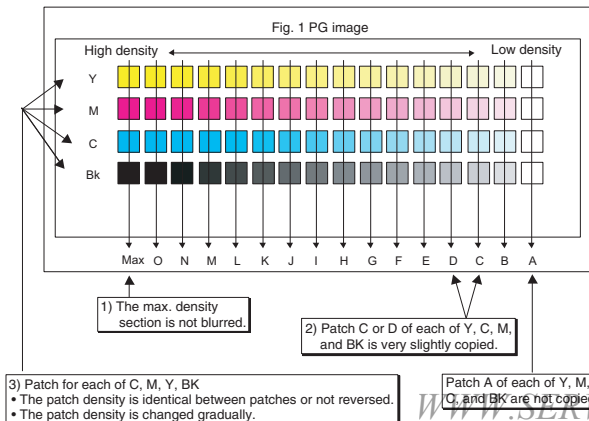
Set each set value to the default and touch [EXECUTE] key. The print test pattern is printed.



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

b. When the PCL mode is not supported: (In the case of GDI model)

Use SIM 67-25 to print the color balance adjustment sheet and compare each process (CMY) black patch color balance and the black patch to check the color balance.



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

The density level of each color must be almost at the same level.

Patch B may not be copied.

Patch A must not be copied.

## 21-A Printer color balance adjustment (Auto adjustment)

### a. General

The color balance adjustment (auto adjustment) is used to adjust the print density of each color (Cyan, Magenta, Yellow, Black) automatically with SIM 67-24 or the user program.

(When this adjustment is executed, the color balance adjustments of all the print modes are revised.)

There are following two modes of the automatic color balance adjustment.

- 1) Auto color balance adjustment by the serviceman (SIM 67-24 I used.)
- 2) Auto color balance adjustment by the user (The user program is used.) (The color balance target becomes the service target.)

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

If the print color balance is lost for some reasons, the user can use this color balance adjustment to recover the balance.

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

On the other hand, the auto color balance adjustment by the serviceman functions to recover the normal color balance though the machine environment is greatly changed. If the machine has a fatal problem, repair and adjust it for obtaining the normal color balance.

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

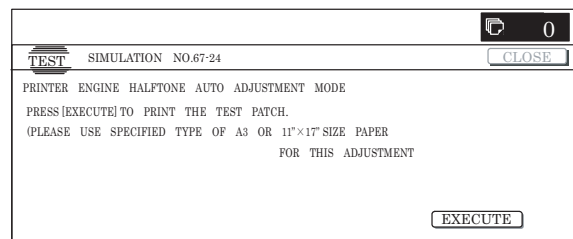
b. Note for execution of the color balance adjustment (Auto adjustment)

- 1) The copy color balance adjustment must have been completed properly.
- 2) Be sure to use the specified paper for color.
- 3) Before execution of the image quality check and the image quality adjustment, be sure to execute the following corrections forcibly to set the image forming section to the optimum state.
  - \* Execute the high density image correction (Process correction) forcibly. (SIM 44-6)
  - \* Execute the half tone image correction forcibly. (SIM 44-26)

c. Adjustment procedure

(Auto color balance adjustment by the serviceman)

- 1) Enter the SIM 67-24 mode.

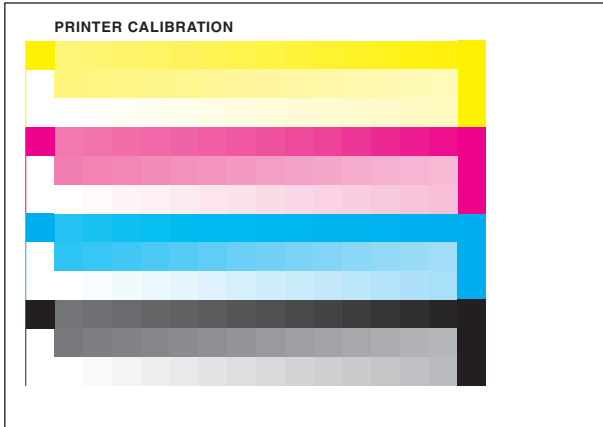


- 2) Touch [EXECUTE] key. (A3 or 11" x 17" paper is automatically selected.)

The color patch image (adjustment pattern) is printed out.

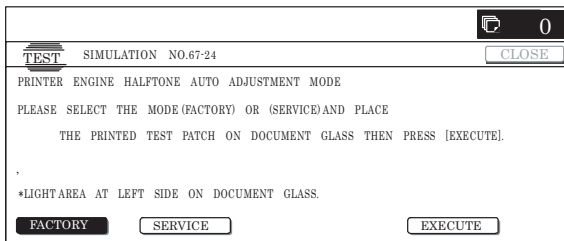
- 3) Set the color patch image (adjustment pattern) paper printed in procedure 2) on the document table.

Place the printed color patch image (adjustment pattern) paper so that the thin lines on the paper are on the left side. Place 5 sheets of white paper on the printed color patch image (adjustment pattern) paper.



- 4) Touch [FACTORY] key on the operation panel, and touch [EXECUTE] key.

When the color balance is customized with the manual color balance adjustment (SIM 67-25) according to the user's request and the color balance is registered as the service target with SIM 67-27, if the color balance is adjusted to that color balance, select the service target.



The print color balance adjustment (step 1) is automatically executed to print the color balance check patch image. Wait until the operation panel shown in procedure 5) is displayed.

Remark:

(Descriptions on FACTORY key and SERVICE key in the color balance auto adjustment menu.)

There are two kinds of the gamma target for the color balance auto adjustment; Factory and Service.

FACTORY key and SERVICE key are used to select one of the above two.

Factory target color balance: Standard color balance (It can be selected from the three kinds of fixed color balances with SIM 63-11.)

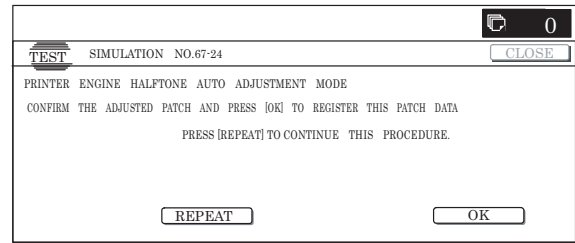
Service target color balance: The color balance can be customized according to the user's request. (Variable)

When shipping, the service target gamma data and the factory target gamma data are the same.

Both are set to the standard color balance when shipping.

For the service target, the customized color balance gamma can be registered with SIM 63-7.

- 5) Touch [OK] key on the operation panel.

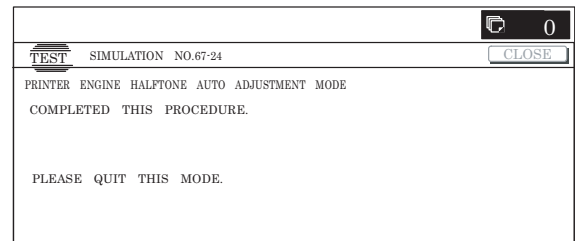


Remark:

After touching [OK] key, the initial setting of the half tone image correction is started. During the operation, "NOW REGISTERING THE NEW TARGET OF HALFTONE" is displayed. This operation takes several minutes.

After completion of the operation, "Please quit this mode" is displayed.

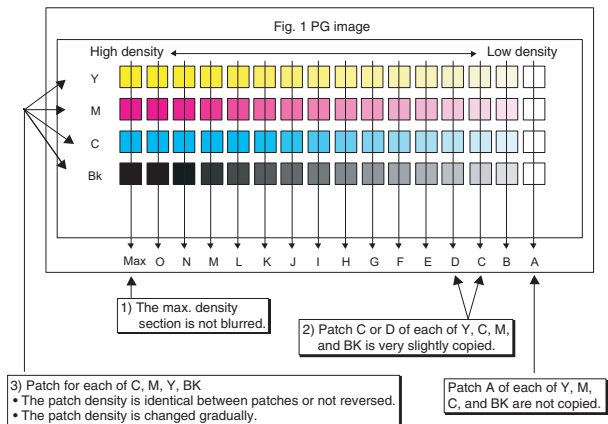
Do not cancel the simulation until "Please quit this mode" is displayed.



- 6) Check the color balance and density.

(Method 1)

Check to insure that the printed color balance check patch image is within the following specifications.



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

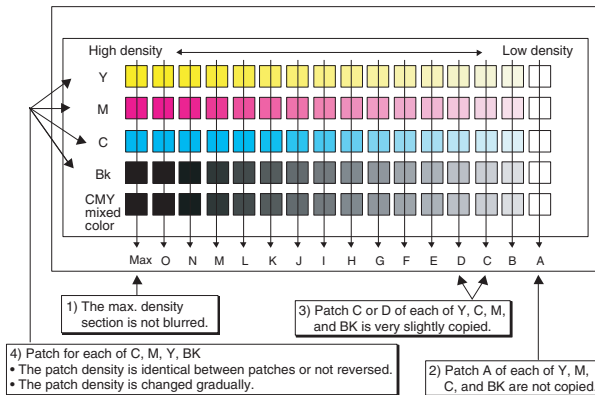
The density level of each color must be almost at the same level.

Patch B may not be copied.

Patch A must not be copied.

## (Method 2)

By printing the color balance adjustment sheet with SIM 67-25 and comparing each process (CMY) black patch color balance with the black patch, the color balance adjustment can be checked more precisely.



## (Method 3)

(This method cannot be used when the machine supports only the GDI mode.)

When the PCL mode is supported, use SIM 64-5 to print the print test pattern.

Set each set value to the default and touch [EXECUTE] key, and the print test pattern is printed out.

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

When the factory target is selected in the procedure 4) and the auto adjustment is executed but a satisfactory result is not obtained on the color balance and the density, use SIM 67-26 to change the factory color balance target and repeat the procedures from 1).

If a satisfactory result is not obtained with the above procedures, execute the manual color balance adjustment (ADJ 20C).

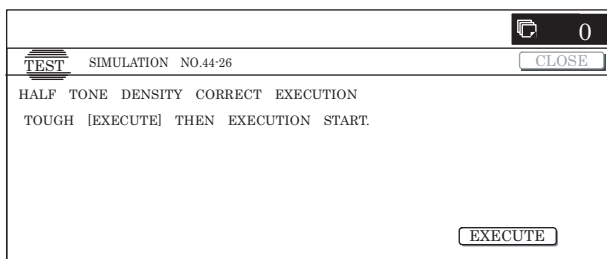
When the service target is selected in the procedure 4) and the auto adjustment is executed but a satisfactory result is not obtained, execute the manual color balance adjustment (ADJ 21C).

### 7) Cancel SIM 67-25.

For the machine which supports only the GDI mode, the adjustment is completed.

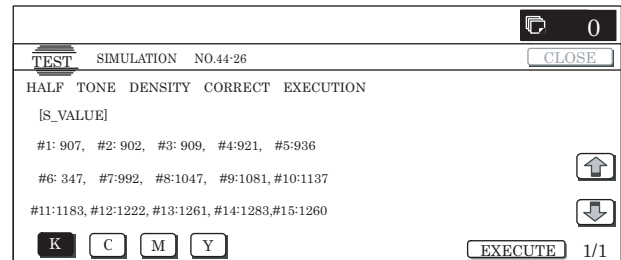
### 8) Use SIM 44-26 to execute the half tone image correction (forcible execution).

Enter the SIM 44-26 mode, and touch [EXECUTE] key. [EXECUTE] key is highlighted and the operation is started.

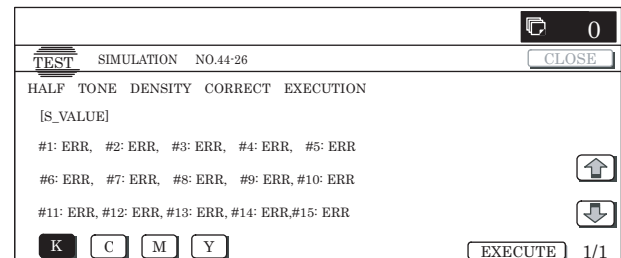


It takes several minutes to complete the operation. After completion of the operation, "COMPLETE" is displayed.

## (Normal end (Auto transition))



## (Abnormal end (Auto transition))



9) After completion of the operation, cancel SIM 44-26.

10) Use SIM 64-5 to print the print test pattern and check the print color balance and the density again.

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

If a satisfactory result on the print color balance and the density is not obtained with the automatic adjustment, execute the manual adjustment (SIM 67-25) (ADJ 21B).

## 21-B Printer color balance adjustment (Manual adjustment)

This adjustment is required in the following cases.

- \* When the copy color balance/density adjustment is required. Refer to the page of the ADJ print color balance/density adjustment.

- \* After execution of the copy color balance/density adjustment.

### a. General

The color balance adjustment (Manual adjustment) is used to adjust the copy density (15 points for each color) of each color (CMYK) manually when the automatic adjustment cannot obtain the specified result or when a fine adjustment is required or when the user requests to change (customize) the color balance.

In this adjustment, only the patch of each color is adjusted in the above case where the automatic adjustment cannot obtain the specified result.

When the color balance is lost, execute the automatic color balance adjustment in advance and execute this adjustment for better efficiency.

### b. Note for execution of the color balance adjustment (Manual adjustment)

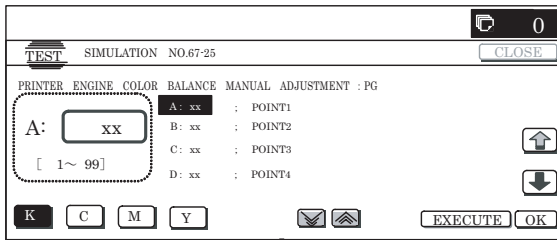
- 1) The copy color balance adjustment must have been completed properly.
- 2) When setting the color patch image adjustment pattern on the document table, place 5 sheets of white paper on the color patch image adjustment pattern.
- 3) Be sure to use the specified paper for color.
- 4) Before execution of the image quality check and the image quality adjustment, be sure to execute the following corrections forcibly to set the image forming section to the optimum state.

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

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

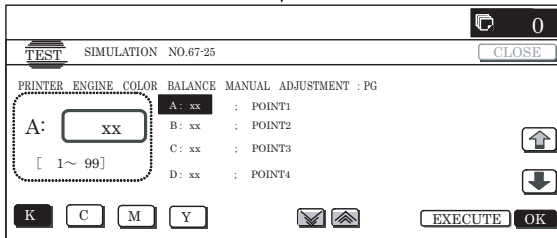
### c. Adjustment procedure

- 1) Enter the SIM 67-25 mode.



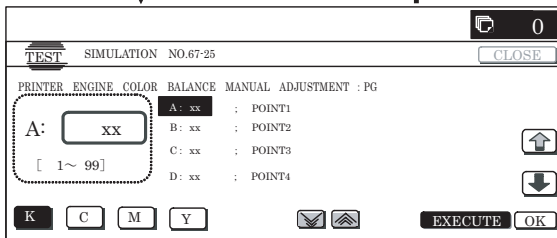
10-key

OK



EXECUTE

or self print end

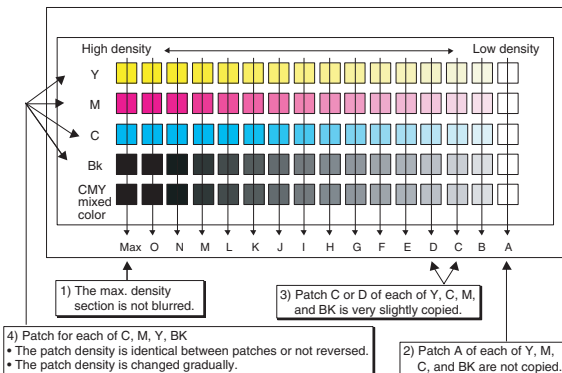


- 2) Touch [EXECUTE] key. (A3 or 11" x 17" paper is automatically selected.)

The color balance adjustment pattern is printed.

- 3) Check that the following specification is satisfied or the desired color balance is obtained.

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



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

The density level of each color must be almost at the same level.

Patch B may not be copied.

Patch A must not be copied.

When, however, the color balance is adjusted according to a request from the user, there is no need to set to the standard color balance stated above.

- 4) Select the color to be adjusted with the color select key, and select the adjustment point with the scroll key.

- 5) Enter the adjustment value with 10-key and touch [OK] key.

The adjustment value is set in the range of 245 – 755 (1 – 999). When SIM 67-24 is used to adjust the automatic color balance and density, all the set values of this simulation are set to 500.

To increase the density, increase the adjustment value. To decrease the density, decrease the adjustment value.

Repeat procedures of 2) – 5) until the condition of 3) is satisfied.

When the overall density is low, or when the density is high and patch A is copied, use the arrow key to adjust all the adjustment values of A – O to a same level collectively.

Then, adjust each patch density individually. This is an efficient way of adjustment.

Referring to the black and gray patches, adjust so that each process (CMY) black/gray patch color balance of A – O approaches the black/gray patch level as far as possible.

- 6) Cancel SIM 67-25.

(For the machine which supports only the GDI mode, the adjustment is completed.)

- 7) Use SIM 64-5 to print the print test pattern.

NOTE: Only for the machine which support the PCL mode. (For the machine which supports only the GDI mode, this procedure cannot be used.)

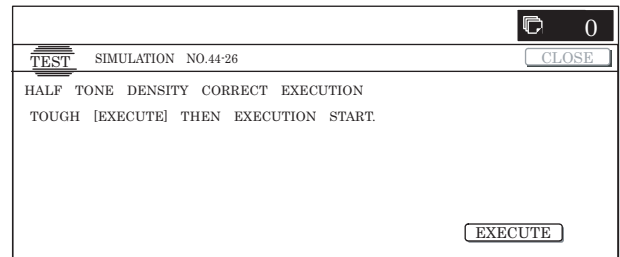
Set each set value to the default and touch [EXECUTE] key. The print test pattern is printed out.

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

- 8) Use SIM 44-26 to execute the half tone image correction (forcible execution).

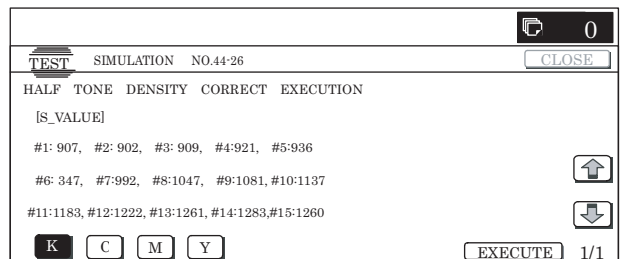
Enter the SIM 44-26 mode and touch [EXECUTE] key.

[EXECUTE] key is highlighted and the operation is started.



It takes several minutes to complete the operation. After completion of the operation, "COMPLETE" is displayed.

(Normal end (Auto transition))



(Abnormal end (Auto transition))

0

TEST SIMULATION NO.44-26
CLOSE

HALF TONE DENSITY CORRECT EXECUTION

[S\_VALUE]

#1: ERR, #2: ERR, #3: ERR, #4: ERR, #5: ERR

#6: ERR, #7: ERR, #8: ERR, #9: ERR, #10: ERR

#11: ERR, #12: ERR, #13: ERR, #14: ERR, #15: ERR

K
C
M
Y

EXECUTE
1/1

9) After completion of the operation, cancel SIM 44-26.

10) Use SIM 64-5 to print the print test pattern again.

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

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

If the color balance is customized, use SIM 67-27 to register the color balance as the service target.

If the color balance is not customized, this procedure is not required.

If the customized color balance is registered as the service target, the automatic color balance adjustment can be made in the next color balance adjustment.

In the next color balance adjustment, select the service target color balance in the automatic color balance adjustment mode to make an adjustment to the similar color balance as the registered color balance.

#### (Auto color balance adjustment service color balance target gamma setting)

##### a. General

When the automatic color balance adjustment is executed, a certain color balance (gamma) is used as the target.

There are following three kinds of the target.

- Factory color balance (gamma) target
- Service color balance (gamma) target
- User color balance (gamma) target

In the above three, only the service color balance target can be set to a desired level.

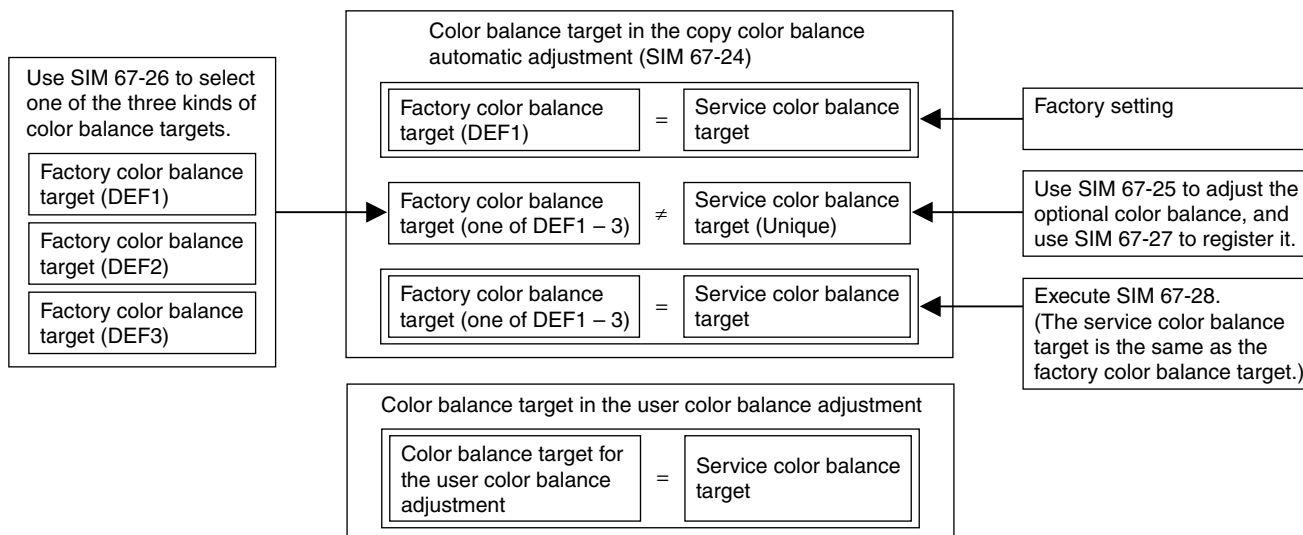
This adjustment is required in the following cases.

- \* When the copy color balance/density adjustment (manual adjustment) is executed with SIM 67-25.
- \* When a U2 trouble occurs.
- \* When the MFP PWB is replaced.
- \* When the EEPROM on the MFP PWB is replaced.
- \* When the user requests for customizing the color balance.
- \* When the service color balance target gamma is judged as improper.
- Color balance target for the printer color balance adjustment

Kind		Descriptions
A	Factory color balance (gamma) target	There are three kinds of the color balance target, and each of them is specified according to the machine design. Use SIM 67-26 to select one of them as the factory target. The default setting (factory setting) is the color balance (DEF1) which emphasizes color reproduction.
B	Service color balance (gamma) target	<p>This target is used when the user requests to customize the color balance to user's desired level. In advance, the user's unique color balance must be registered as the service color balance target.</p> <p>The above registration (setting) is made by the serviceman with SIM 67-25 to adjust the color balance and with SIM 67-27 to register it.</p> <p>This color balance target is used when the user executes the color balance adjustment.</p> <p>When, therefore, the service color balance target is changed, the color balance target of the user's color balance adjustment is also changed.</p> <p>When, however, SIM 67-28 is executed, the color balance is set to the factory color balance target set with SIM 67-26.</p> <p>The default setting (factory setting) of the color balance is same as the factory color balance target. (Emphasized on color reproduction (DEF1))</p> <p>If the user does not request for customizing the color balance, be sure to use SIM 67-28 to set the color balance to the factory color balance target.</p>
C	User color balance (gamma) target	<p>Same color balance as the service color balance (gamma) target</p> <p>When the service color balance target is changed, this color balance target is also changed accordingly.</p>

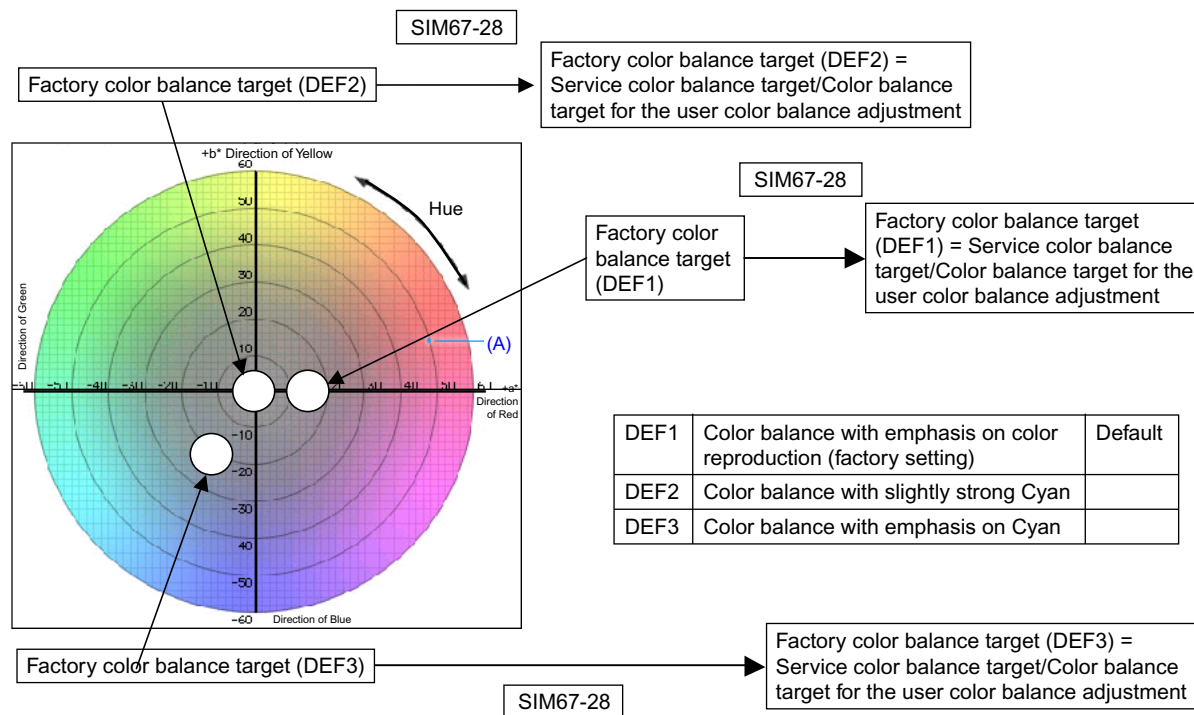


- Relationship between the factory target and the service target and the color balance target for the user color balance adjustment in the printer color balance adjustment (SIM 67-24)



- Factory target in the printer color balance adjustment (SIM 67-24)

By use of SIM 67-26, one of the following color balances can be set as the factory color balance target. Each of the three color balances cannot be changed. (Fixed)



- Service color balance target in the copy color balance adjustment (SIM 67-28).

For the service color balance target, an optional color balance can be adjusted with SIM 67-25 and registered with SIM 67-27. When, however, SIM 67-28 is executed, the color balance is set to the same balance as the factory color balance target set with SIM 67-26.

- Color balance target in the user color balance adjustment

This color balance is same as the service color balance target in the copy color balance adjustment (SIM 67-24). When, therefore, the service color balance target is changed, this target is also changed accordingly.

#### (Meaning of the service color balance target gamma data and the purpose of registration)

This procedure must be executed only when the color balance is customized with SIM 67-25.

If the color balance is not customized, this procedure is not required.

After completion of the customized color balance adjustment (Manual) with SIM 67-25 according to the user's request, use SIM 67-27 to register the service color balance target data by use of the printed adjustment pattern.

By this procedure, the service color balance target is revised.

It is recommendable to keep the printed adjustment pattern with SIM 67-25. This adjustment pattern can be used to register the same color balance target to another machine.

It is also useful to register the service color balance target data.

Do not fold it and keep it under the circumstances which protect it from discoloration and dirt.

The service color balance target data are basically registered immediately after the color balance adjustment (Manual) with SIM 67-25.



If a considerable time has passed after completion of the color balance adjustment (Manual) with SIM 67-25, the color balance of the adjustment pattern at the time of adjustment differs from the color balance of the adjustment pattern printed after a considerable time. Never use such a pattern for the adjustment.

The correctness of the service color balance target data can be judges as follows.

Select the service color balance target with SIM 67-24 and execute the color valance adjustment (Auto), and check the adjustment result. When the result is unsatisfactory or abnormal, the registered service target data for the color balance adjustment (Auto) may be improper.

This may be caused when an improper or abnormal color balance adjustment pattern was used to register the service color balance target data for the color balance adjustment with SIM 67-27.

The color balance adjustment pattern used in registration was made and printed by the color balance adjustment (Manual) with SIM 67-25. This procedure may have been executed erroneously.

#### b. Setting procedure

(Setting procedure of an optional color balance (gamma) as the service color balance target)

- 1) Use SIM 67-25 (Printer color balance adjustment (manual adjustment) mode) to print two sheets of the color patch image (adjustment pattern).

If the color balance is shifted from the standard, an adjustment is required. If not, an adjustment is not required. When an optional color balance is requested by the user, make an adjustment.

- 2) Enter the SIM 67-27 mode.

TEST SIMULATION NO.67-27

SCANNER TARGET OF PRINTER COLOR CALIB SETUP : SERVICE

BASE:8800

#B: 227, #C 624, #D: 908, #E: 1249, #F: 2074

#G: 3298, #H: 18951, #I: 76117, #J: 128495, #K: 165225

#L: 184155, #M: 189254, #N: 194377, #O: 197276

K C M Y REPEAT OK 1/1

- 3) Touch [SETUP] key.

- 4) Set the color patch image (adjustment pattern) correctly adjusted and printed in the printer color balance adjustment (Manual adjustment) (SIM 67-25) (ADJ 21C) on the document table.

A color patch image (adjustment pattern) printed by another machine can be used.

Set the pattern so that the light density side is on the left side. Place 5 sheets of white paper on the color patch image (adjustment pattern).

If the color balance could not be adjusted satisfactorily with SIM 67-25 (Color balance adjustment (Manual)), do not execute SIM 67-27 to register the service color balance target data.

- 5) Touch [EXECUTE] key.

TEST SIMULATION NO.67-27

SCANNER TARGET OF PRINTER COLOR CALIB SETUP : SERVICE

NOW CHART PATCH READING...

EXECUTE

The color patch image (adjustment pattern) is read.

- 6) Touch [REPEAT] key, set the second color patch image (adjustment pattern), and execute the procedure 5) again.

TEST SIMULATION NO.67-27

SCANNER TARGET OF PRINTER COLOR CALIB SETUP : SERVICE

BASE:8800

#B: 227, #C 624, #D: 908, #E: 1249, #F: 2074

#G: 3298, #H: 18951, #I: 76117, #J: 128495, #K: 165225

#L: 184155, #M: 189254, #N: 194377, #O: 197276

K C M Y REPEAT OK 1/1

The color balance (gamma) target set level of each color (KCMY) can be checked with K/C/M/Y keys.

Check that the set level is increased in the sequence of B – O. If there is no variation or variation is reversed, it is judged as abnormal.

In case of an abnormality, settle the problem and try again.

- 7) Touch [OK] key.

The color balance (gamma) of the color patch image (adjustment pattern) used in the procedure 5) is set as the service target.

#### (Procedures to set the service color balance target and the color balance target for the user color balance adjustment to the same color balance as the factory color balance target)

This procedure must not be executed when the copy color balance was adjusted with SIM 67-25 to a unique color balance requested by the user and it was registered as the service color balance target with SIM 67-27.

\* When the factory color balance target is changed with SIM 67-26, be sure to execute this procedure.

- 1) Enter the SIM 67-28 mode.

TEST SIMULATION NO.67-28

STANDARD SCANNER TARGET OF PRINTER COLOR CALIB : SERVICE

ARE YOU SURE? YES NO EXECUTE

- 2) Touch [EXECUTE] key.

- 3) Touch [YES] key.

The service color balance target and the color balance target for the user color balance adjustment are set to the same color balance as the factory color balance target.

## 21-C Auto color balance adjustment by the user (Copy color balance auto adjustment ENABLE setting and adjustment)

### a. General

In the user program mode, the user can execute the auto color calibration (auto adjustment of the copy color balance and density).

This adjustment is to set Enable/Disable of the above user operation with SIM 26-54.

NOTE: This setting must be set to ENABLE only when the user's understanding on the automatic adjustment of the copy color balance and density and the user's operational ability are judged enough to execute the adjustment.

When set to ENABLE, give enough explanations on the operating procedures, notes, and operations to the user.

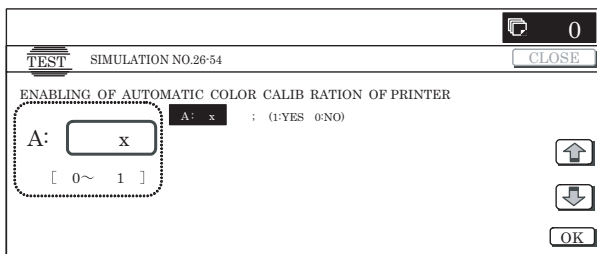
This adjustment is required in the following cases.

- \* When a U2 trouble occurs.
- \* When the PCU PWB is replaced.
- \* When the EEPROM on the PCU PWB is replaced.

- \* When the MFP PWB is replaced.
- \* When the EEPROM on the MFP PWB is replaced.

#### b. Setting procedure

- 1) Enter the SIM 26-54 mode.

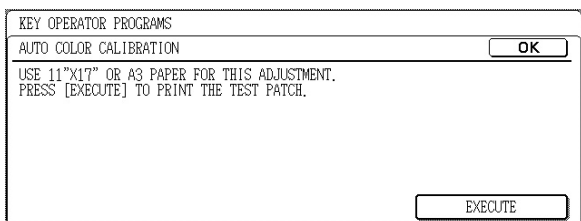


- 2) Select ENABLE or DISABLE with 10-key.  
When disabling, set to "0" (NO).  
When enabling, set to "1" (Yes).
- 3) Touch [OK] key.  
When set to DISABLE, the menu of the user auto color calibration (automatic adjustment of printer color balance and density) is not displayed in the user program mode.

#### (Auto color calibration by the user (Auto color balance adjustment))

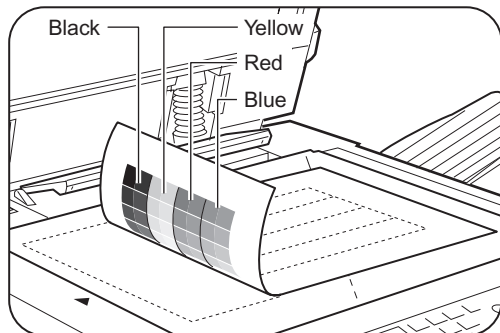
Remark: This adjustment is based on the service target color balance set with SIM 67-27 or SIM 67-28. If, therefore, the above settings are not properly performed, this adjustment cannot be made properly.

- 1) Enter the system setting mode.
- 2) Enter the printer setting mode.
- 3) Touch the auto color calibration key.
- 4) Touch [EXECUTE] key.



The color patch image (adjustment pattern) is printed out.

- 5) Set the color patch image (adjustment pattern) printed in procedure 4) on the document table. Set the patch image so that the light density area is on the left side.  
At that time, place 5 sheets of white paper on the above color patch image (adjustment pattern).

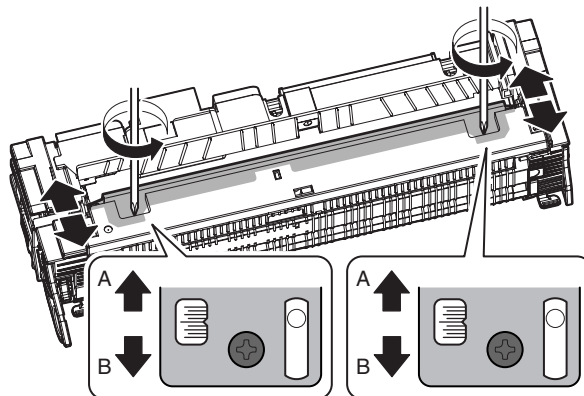


- 6) Touch [EXECUTE] key, and the copy color balance adjustment is executed automatically. After completion of the adjustment, the display returns to the original operation screen.

## ADJ 22 Fusing paper guide position adjustment

This adjustment must be executed in the following cases:

- \* When the fusing section is disassembled.
  - \* When a paper jam occurs in the fusing section.
  - \* When a wrinkle is made on paper in the fusing section.
  - \* When an image deflection or image blur occurs in the paper rear edge section.
- 1) Loosen the C fixing screw.
  - 2) Shift the fusing paper guide in the arrow direction A or B (up and down direction).



The standard fixing position is the center of the marking scale. Change the position depending on the situation.

- \* When a wrinkle is formed on paper, change the position upward (in the arrow direction A).
- \* When an image deflection or image blur occurs in the paper rear edge section, shift the position downward (in the arrow direction B).

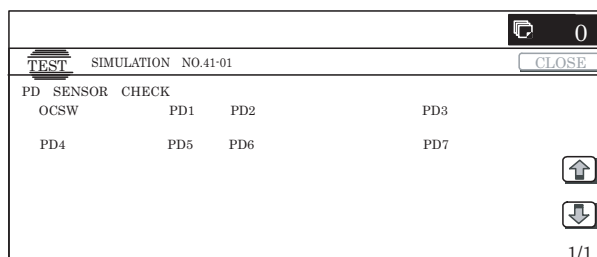
## ADJ 23 Document size sensor adjustment

This adjustment is required in the following cases:

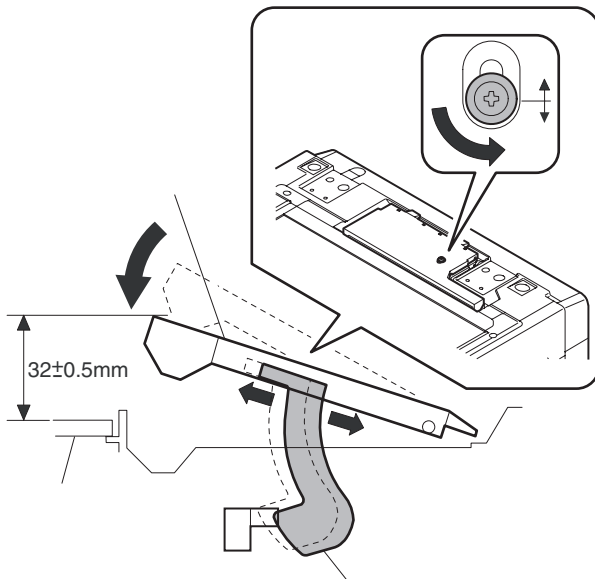
- \* When the document size sensor section is disassembled.
- \* When the document size sensor section is replaced.
- \* When a U2 trouble occurs.
- \* When the scanner control PWB is replaced.
- \* When the EEPROM on the scanner control PWB is replaced.

### 23-A Document size sensor detection point adjustment

- 1) Enter the SIM 41-1 mode.

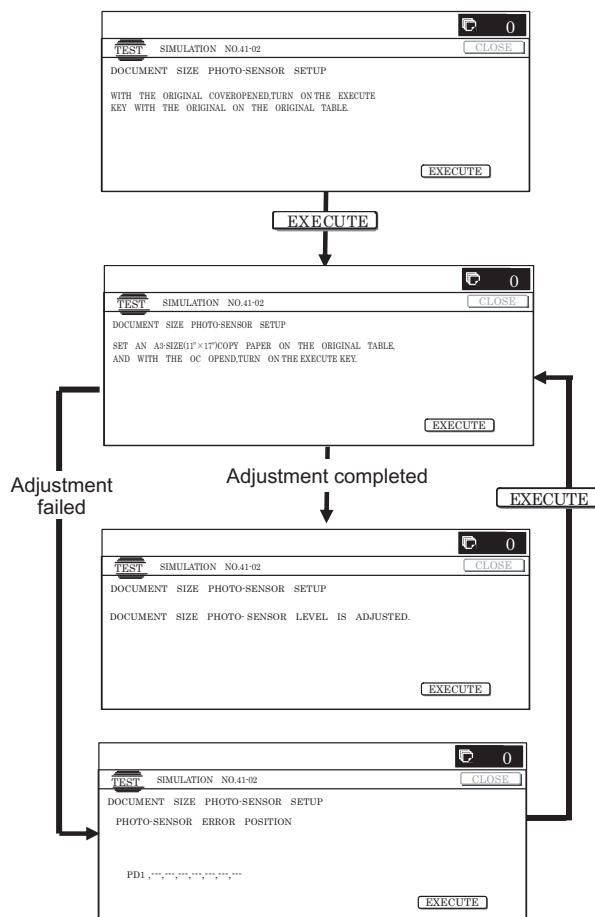


Slowly tilt the document detection arm unit in the arrow direction. Loosen the original cover switch actuator adjustment screw so that the display OCSW is returned to the normal display when the height of the arm unit top from the table glass is  $32 \pm 0.5\text{mm}$ . Slide the actuator position and adjust. (If the ON timing of the original cover switch is shifted, the document detection function may malfunction.)



## 23-B Document size sensor sensitivity adjustment

- 1) Enter the SIM41-2 mode.



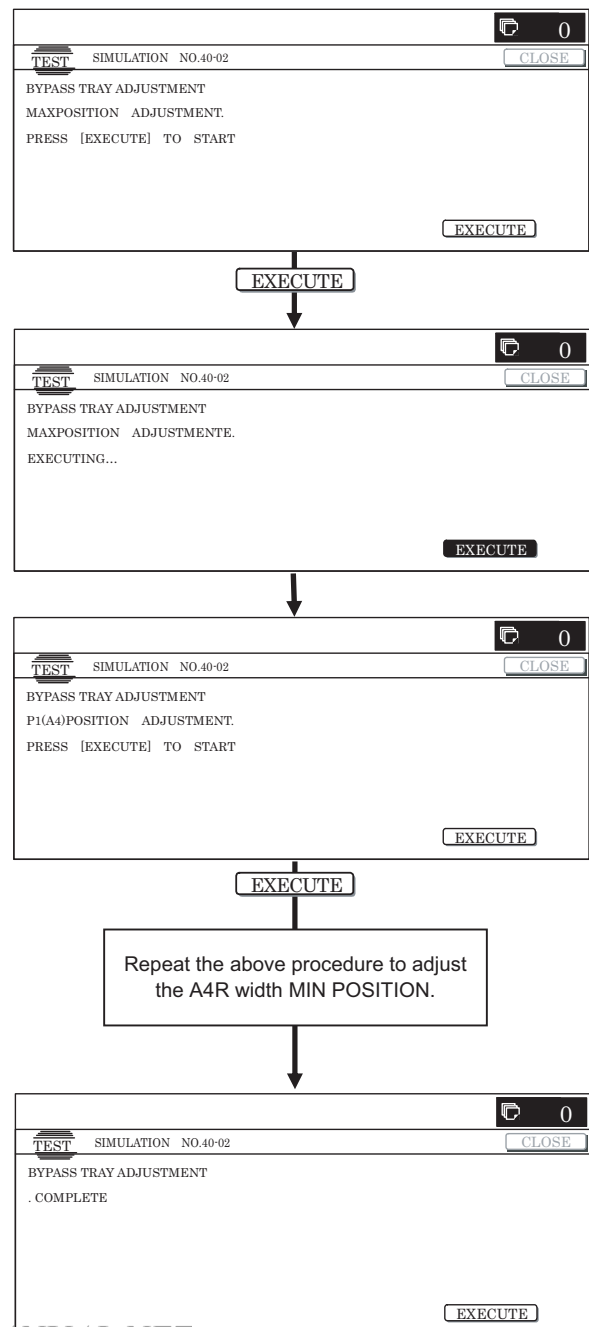
- 2) Execute the sensor adjustment without document.  
With the document cover open, without placing a document on the table glass, touch [EXECUTE] key.
- 3) Place A3 (11" x 17") paper on the document table and touch [EXECUTE] key.  
If the adjustment is completed normally, "DOCUMENT PHOTO SENSOR LEVEL IS ADJUSTED" is displayed.

## ADJ 24 Manual paper feed tray paper size (width) sensor adjustment

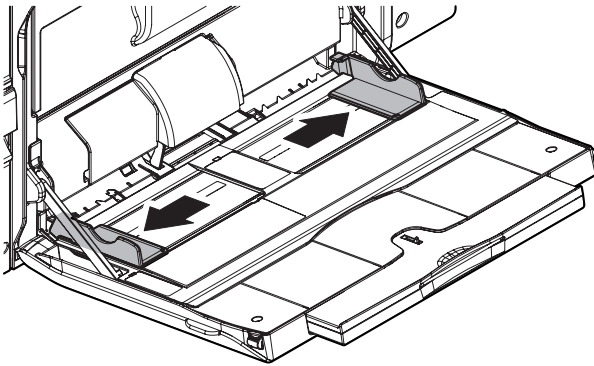
This adjustment is required in the following cases:

- \* When the manual paper feed tray section is disassembled.
- \* When the manual paper feed tray unit is replaced.
- \* When a U2 trouble occurs.
- \* When the PCU PWB is replaced.
- \* When the EEPROM on the PCU PWB is replaced.

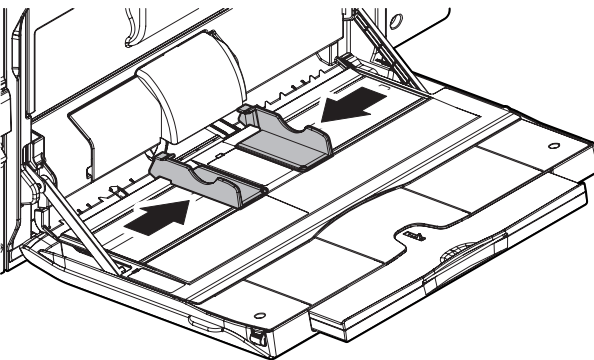
- 1) Enter the SIM 40-2 mode.



- 2) Set the manual paper feed guide to the maximum width position.



- 3) Touch [EXECUTE] key.  
[EXECUTE] key is highlighted. Then it returns to the normal display.  
The maximum width position detection level of the manual paper feed guide is recognized.
- 4) Set the manual paper feed guide to the A4 size.
- 5) Touch [EXECUTE] key.  
[EXECUTE] key is highlighted. Then it returns to the normal display.  
The A4 size width position detection level of the manual paper feed guide is recognized.
- 6) Set the manual paper feed guide to the A4R size width.
- 7) Touch [EXECUTE] key.  
[EXECUTE] key is highlighted. Then it returns to the normal display.  
The A4R size width position detection level of the manual paper feed guide is recognized.
- 8) Set the manual paper feed guide to the minimum width position.



- 9) Touch [EXECUTE] key.  
[EXECUTE] key is highlighted. Then it returns to the normal display.  
The minimum width position detection level of the manual paper feed guide is recognized.  
If the above operation is not completed normally, "ERROR" display is highlighted.  
When the operation is completed normally, the above data are saved to the memory and "COMPLETE" is displayed.

## ADJ 25 RSPF tray paper size (width) sensor adjustment (Refer to the MX-RPX1 SM.)

## ADJ 26 Touch panel coordinate setting

This adjustment is required in the following cases:

- \* When the operation panel is replaced.
  - When a U2 trouble occurs.
  - When the scanner control PWB is replaced.
  - When the EEPROM on the scanner control PWB is replaced.
- 1) Enter the SIM65-1 mode.



- 2) Precisely touch the cross mark points (4 positions).  
When the cross mark is touched precisely, a buzzer sounds and the display is reversed. When all the four points are touched and the touch panel adjustment is completed, the display returns to the simulation sub number entry screen.  
In case of an error, the display returns to the entry screen again.  
Check to confirm that there is no shift between the display frame and the detection position when the touch panel is touched.
- \* When touching the touch panel, never use a sharp tip (such as a needle or a pin).

## ADJ 27 Image loss, void area, image off-center, image magnification ratio auto adjustment with SIM50-28

The following adjustment items can be executed automatically with SIM50-28.

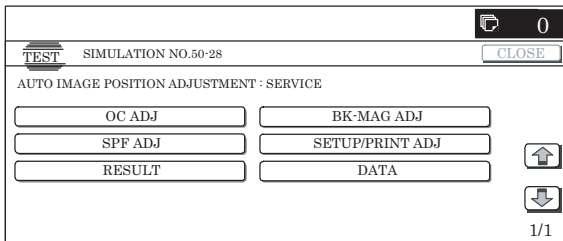
- \* ADJ 8 Print image magnification ratio adjustment (Main scanning direction) (Print engine section)
- \* ADJ 9 Image off-center adjustment (Print engine section)
- \* ADJ 14/15 Scan image magnification ratio adjustment
- \* ADJ 16 Scan image off-center adjustment
- \* ADJ 17 Print area (void area) adjustment (Print engine section)
- \* ADJ 18 Copy image position, image loss adjustment

(Menu in SIM50-28 mode)

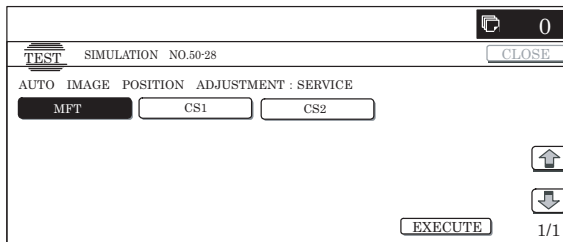
Display/Item	Content
OC ADJ	Image loss off-center sub scanning direction image magnification ratio adjustment (Document table mode)
BK-MAG ADJ	Main scanning direction image magnification ratio adjustment
SPF ADJ	Image loss off-center sub scanning direction image magnification ratio adjustment (RSPF mode)
SETUP/PRINT ADJ	Print lead edge adjustment, image off-center (each paper feed tray, duplex mode) adjustment
RESULT	Adjustment result display
DATA	Display of data used when an adjustment is executed

## 27-A Print image main scanning direction image magnification ratio automatic adjustment

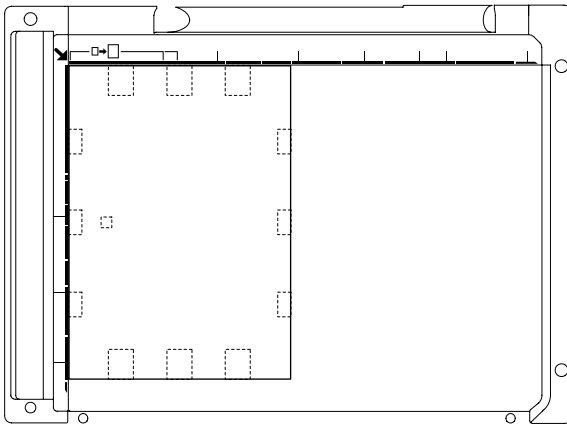
- 1) Enter the SIM50-28 mode.
- 2) Select [BK-MAG ADJ] with the key button.



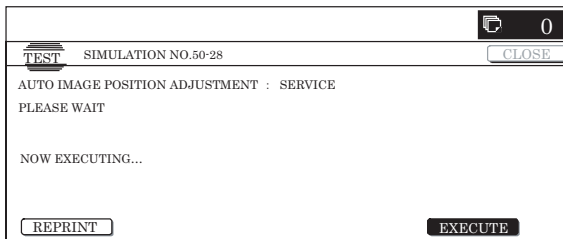
- 3) Select the paper feed tray with paper in it with the key button. (Any paper size will do.)



- 4) Touch [EXECUTE] key.  
The adjustment pattern is printed out.
- 5) Set the adjustment pattern on the document table. (Any direction)  
Note: Fit the adjustment pattern correctly with the document guide.



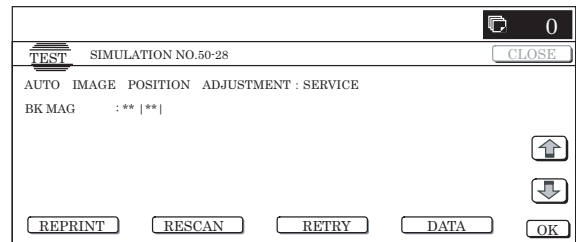
- 6) Touch [EXECUTE] key.



The following item is automatically adjustment.

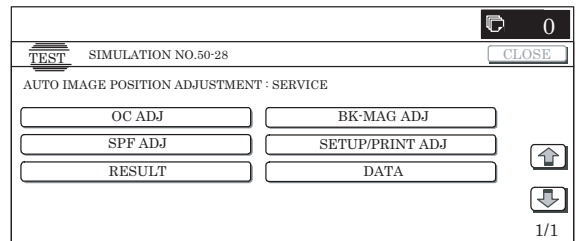
- \* Print image main scanning direction image magnification ratio

- 7) Touch [OK] key.  
The adjustment result becomes valid.

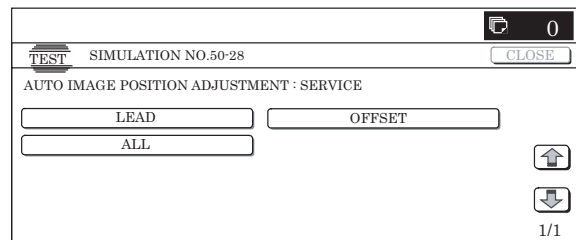


## 27-B Image off-center automatic adjustment

- 1) Enter the SIM50-28 mode.
- 2) Select [SETUP/PRINT] ADJ with the key button.



- 3) Select [ALL] with the key button.



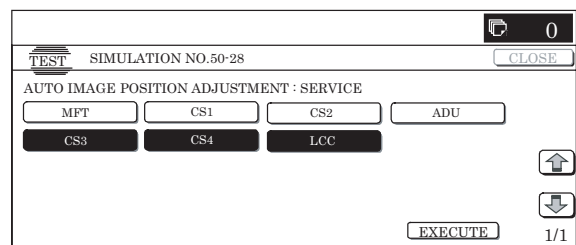
### (NOTE)

By touching [LEAD] or [OFFSET] button, the following items can be executed individually.

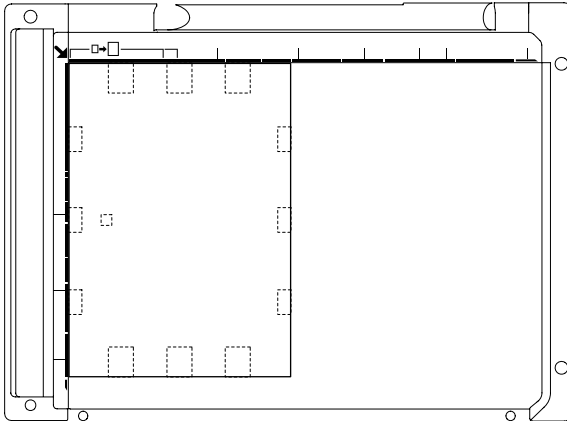
- \* [LEAD]: Print image lead edge image position adjustment
- \* [OFFSET]: Print image off-center adjustment

When [ALL] is selected, both of the above two items are executed simultaneously.

- 4) Select a paper feed tray to be adjusted.



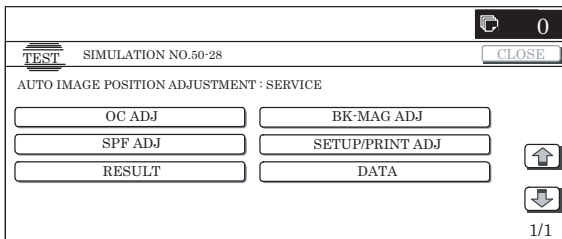
- 5) Touch [EXECUTE] key.  
The adjustment pattern is printed out.
- 6) Set the adjustment pattern on the document table. (Any direction)  
Note: Fit the adjustment pattern correctly with the document guide.



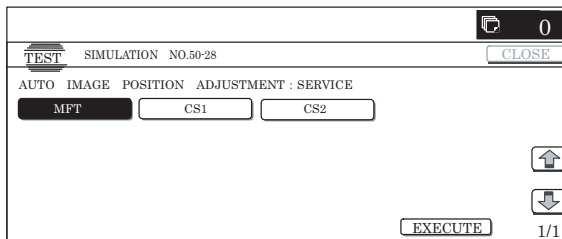
- 7) Touch [EXECUTE] key.  
The following items are automatically adjusted.
    - \* Print image lead edge image position adjustment
    - \* Print image off-center adjustment
  - 8) Touch [OK] key.  
The adjustment result becomes valid.
- Perform procedures 4) to 7) for each paper feed tray.

### 27-C Copy lead edge image reference position adjustment, image off-center, sub scanning direction image magnification ratio automatic adjustment

- 1) Enter the SIM50-28 mode.

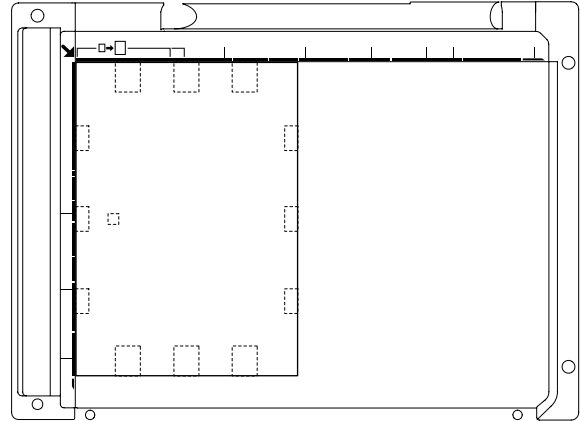


- 2) Select [OC ADJ] with the key button.
- 3) Select the paper feed tray with paper in it with the key button.  
(Any paper size will do.)

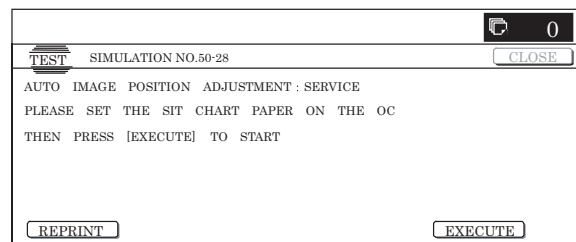


- 4) Touch [EXECUTE] key.  
The adjustment pattern is printed out.

- 5) Set the adjustment pattern on the document table. (Any direction)  
Note: Fit the adjustment pattern correctly with the document guide.



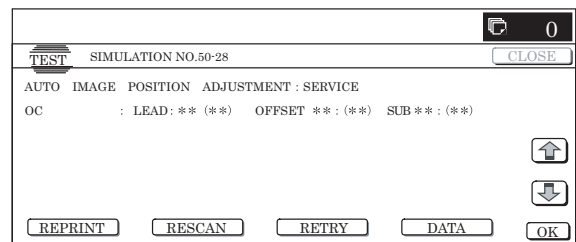
- 6) Touch [EXECUTE] key.



The following items are automatically adjusted.

**Copy lead edge image reference position adjustment, image off-center, sub scanning direction image magnification ratio automatic adjustment**

- 7) Touch [OK] key.  
The adjustment result becomes valid.



### 27-D SPF mode image off-center, image lead edge position, sub scanning direction image magnification ratio automatic adjustment

Refer to the RSPF (MX-RPX1) SM.

## [7] SIMULATION

### 1. General

There are the following simulation functions for grasping the machine operating conditions, troubleshooting, early detection of trouble causes, speedy setting and adjustments, and improvements in servicing.

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

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

#### A. Basic operation

##### (1) Starting the simulation

\* Entering the simulation mode

- 1) Copy mode key ON → Program key ON → Asterisk (\*) key ON → CLEAR key ON → Asterisk (\*) key ON → Ready for input of a 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 the scroll key and the item key.
- 5) The machine enters the mode corresponding to the selected item.

Press START key or EXECUTE key to start the simulation operation.

To cancel the current simulation mode or to change the main code and the sub code, press the user setup key.

\* Canceling the simulation mode to return to the normal mode

- 1) Press CA key.

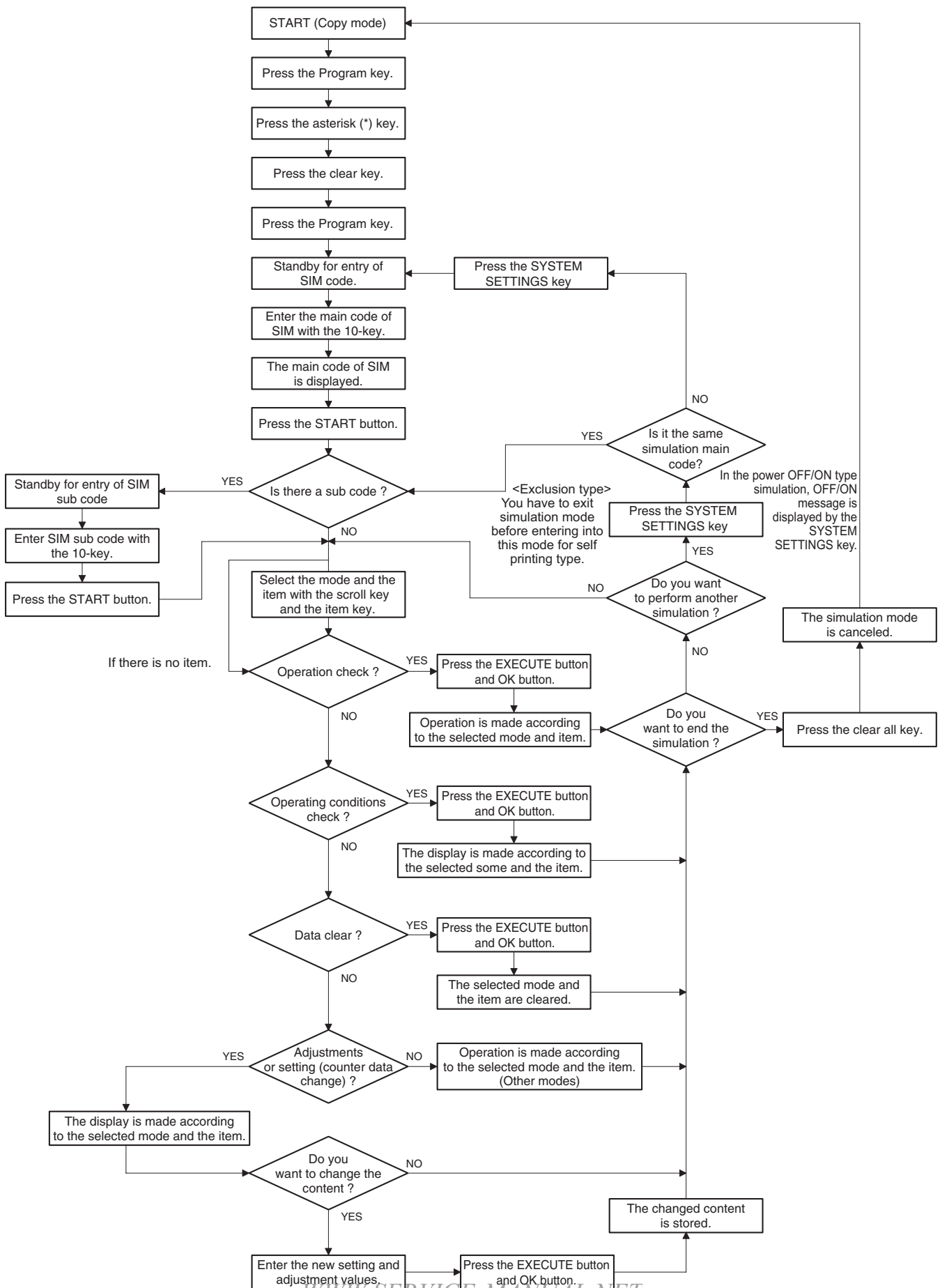
##### (Note for the simulation mode)

Do not turn OFF the power switch on the operation panel when the machine is in the simulation mode.

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



### Basic operation flowchart





## 2. List of simulation codes

Code		Function (Purpose)	Section	Purpose
Main	Sub			
1	1	Used to check the operations of the scanner unit and its control circuit.	Optical (Image scanning)	Operation test/check
	2	Used to check the operation of sensor and detector in the scanning (read) section and the related circuit.	Optical (Image scanning)	Operation test/check
	5	Used to check the operations of the scanner unit.	Optical (Image scanning)	Operation test/check
2	1	Used to check the operations of the automatic document feeder unit and the control circuit.	RSPF	Operation test/check
	2	Used to check the operations of the sensors and detectors in the automatic document feeder unit and the related circuits.	RSPF	Operation test/check
	3	Used to check the operations of the loads in the automatic document feeder unit and the control circuits.	RSPF	Operation test/check
3	2	Used to check the operation of sensor and detector in the finisher and the related circuit.	Finisher	Operation test/check
	3	Used to check the operation of the load in the finisher and the control circuit.	Finisher	Operation test/check
	10	Used to adjust the finisher.	Finisher	Adjustment
4	2	Used to check the operations of the sensors and detectors in the desk and the related circuit.	Desk	Operation test/check
	3	Used to check the operations of the loads in the desk and the related circuit.	Desk	Operation test/check
	5	Used to check the operations of the clutches and the related circuits.	Desk	Operation test/check
5	1	Used to check the operation of the display, LCD in the operation panel, and control circuit.	Operation panel	Operation test/check
	2	Used to check the operation of the heater lamp and the control circuit.	Fusing	Operation test/check
	3	Used to check the operation of the scanner lamp and the circuit.	Optical (Image scanning)	Operation test/check
	4	Used to check the operation of the discharge lamp and the related circuit.	Process	Operation test/check
6	1	Used to check the operations of the paper transport system, the transfer system, the fusing system (clutches and solenoids) and the control circuits.	Paper transport section (Transport, paper exit)	Operation test/check
	2	Used to check the operations of each fan motor and its control circuit.	Other	Operation test/check
	3	Used to check the operations of the primary transfer unit and the related circuit.	Process (Transfer)	Operation test/check
7	1	Used to set the operating conditions of aging.	Other	Setting
	6	Used to set the intermittent aging cycle.	Other	Setting
	8	Used to display the warm-up time.	Fusing	Operation display
	9	Used to check printing in the color mode.	—	Operation test/check
8	1	Used to check and adjust the operations of the developing voltage of each color and the control circuit.	Process (Photoconductor/Developing/Transfer/Cleaning)	Operation test/Check/Adjustment
	2	Used to check and adjust the operation of the main charger grid voltage in each printer mode and the control circuit.	Process (Photoconductor/Developing/Transfer/Cleaning)	Operation test/Check/Adjustment
	6	Used to check and adjust the operation of the transfer voltage and the control circuit.	Process (Photoconductor/Developing/Transfer/Cleaning)/Transfer	Operation test/Check/Adjustment
9	2	Used to check the operations of the sensors and detectors in the duplex section and its control circuit.	Duplex	Operation test/check
	3	Used to check the operations of the loads in the duplex section and the control circuits.	Duplex	Operation test/check
10	1	Used to check the operations of the toner motor and the related circuit.	Process (Developing)	Operation test/check
13	--	Used to cancel the self-diag "U1" trouble.	FAX	Clear/cancel (Trouble etc.)
14	--	Used to cancel excluding the self-diag U1/U2/PF troubles.	—	Clear/cancel (Trouble etc.)
16	--	Used to cancel the self-diag U2 trouble.	MFPcnt PWB / PCU PWB / SCU PWB	Clear/cancel (Trouble etc.)
17	--	Used to cancel the self-diag PF.	Communication unit (RIC/MODEM)	Clear/cancel (Trouble etc.)
21	1	Used to set the maintenance cycle.	—	Setting
22	1	Used to check the print count value in each section and each operation mode. (Used to check the maintenance timing.)	—	Adjustment/Setup/Operation data check
	2	Used to check the total numbers of misfeed and troubles. (When the number of total jam is considerably great, it is judged as necessary for repair.)	—	Adjustment/Setup/Operation data check
	3	Used to check misfeed positions and the misfeed count of each position.	—	Adjustment/Setup/Operation data check
	4	Used to check the trouble (self diag) history.	—	Adjustment/Setup/Operation data check
	5	Used to check the ROM version of each unit (section).	—	Others
	6	Used to output the list of the setting and adjustment data (simulations, FAX soft switch, counters).	—	Adjustment/Setup/Operation data check
	8	Used to check the number of use of the finisher, the RSPF, and the scan (reading) unit.	—	Adjustment/Setup/Operation data check
	9	Used to check the number of use (print quantity) of each paper feed section.	Paper feed, ADU	Adjustment/Setup/Operation data check
	10	Used to check the system configuration (option, internal hardware).	—	Adjustment/Setup/Operation data check

Code		Function (Purpose)	Section	Purpose
Main	Sub			
22	11	Used to check the use frequency (send/receive) of FAX. (Only when FAX is installed)	FAX	Adjustment/Setup/Operation data check
	12	Used to check the RSPF misfeed positions and the number of misfeed at each position. (When the number of misfeed is considerably great, it can be judged as necessary for repair.)	RSPF	Adjustment/Setup/Operation data check
	13	Used to check the operating time of the process section (OPC drum, DV unit, toner cartridge).	—	Adjustment/Setup/Operation data check
	19	Used to check the values of the counters related to the scan mode and the internet FAX mode.	Scanner	Adjustment/Setup/Operation data check
	90	Used to output the various set data lists.	—	Adjustment/Setup/Operation data check
23	2	Used to check the trouble history of paper jam and misfeed. (If the number of misfeed and troubles is considerably great, it may be judged as necessary to repair.)	—	Adjustment/Setup/Operation data check
	80	Used to check the operations of the sensors and detectors in the paper feed and transport section.	Paper feed, transport	Operation test/Check
24	1	Used to clear the jam counter, and the trouble counter. (The counters are cleared after completion of maintenance.)	—	Data clear
	2	Used to clear the number of use (the number of prints) of each paper feed section.	—	Data clear
	3	Used to clear the number of use of the finisher, RSPF, and the scan (reading) unit.	—	Data clear
	4	Used to clear the maintenance counter, the printer counters of the transfer unit and the fusing unit. (After completion of maintenance, clear the counters.)	—	Data clear
	5	Used to clear the developer counter. (After replacement of developer, clear the counter.)	—	Data clear
	6	Used to clear the copy counter.	—	Data clear
	7	Used to clear the OPC drum counter. (After replacement of the OPC drum, clear the counter.)	—	Data clear
	9	Used clear the printer mode print counter and the self print mode print counter.	—	Data clear
	10	Used to clear the FAX counter. (Only when FAX is installed)	—	Data clear
	15	Used to clear the counters related to the image send.	—	Data clear
	30	Used to initialize the administrator password.	—	Data clear
	31	Used to initialize the service mode password.	—	Clear
25	1	Used to check the operations of the developing section.	Process (Developing section)	Operation test/Check
	2	Used to make the initial setting of toner concentration when replacing developer.	Process (Photoconductor/Developing/Transfer/Cleaning)	Setting
26	1	Used to set the paper exit tray (MX-TRX1).	Paper exit	Setting
	3	Used to set the specifications of the auditor.	Auditor	Setting
	5	Used to set the count mode of the total counter and the maintenance counter.	—	Setting
	6	Used to set the specifications (paper, fixed magnification ratio, etc.) of the destination.	—	Setting
	10	Used to set the trial mode of the network scanner.	—	Setting
	18	Used to set the toner save mode.	—	Setting
	30	Used to set allow/inhibit of HL slow-up control (CE mark support control).	—	Setting
	35	Used to set the display mode of Sim22-4 trouble history when a same trouble occurred repeatedly. There are two mode display as one trouble and display as several series of troubles.	—	Setting
	38	Used to set Continue/Stop of print when the developer life is reached.	Other	Setting
	41	Used to set YES/NO of AMS setting in the center binding mode.	—	Setting
	49	Used to set the copy speed mode.	—	Setting
	50	Used to set functions.	—	Setting
	52	Used to set whether non-printed paper (insertion paper, cover paper) is counted up or not.	—	Setting
	53	Used to set YES/NO of the auto color calibration.	—	Setting
	54	Used to set the printer calibration YES/NO.	Printer	Setting
	65	Used to set the finisher alarm mode.	—	Setting
	67	Used to set the summer time (switching timing to the summer time and the adjustment time (shift amount)) and the time zone (for switching to the summer time and the difference between the local time and GMT (UTC) for synchronization with the internet time server).	—	Setting
	69	Used to set whether the toner preparation message and the toner near end message are displayed or not when the toner quantity reaches 25%.	Process	Setting
27	1	Used to set whether the detection of communication error with RIC (U7-00) is disabled or not.	Communication (RIC/MODEM)	Operation test/Check
	12	Used to display the high-density, half-tone process control error history and the automatic register adjustment error history.	Process	Adjustment/Setup/Operation data output/Check (Display/Print)
	13	Used to display the history of paper feed time between sensors.	—	Adjustment/Setup/Operation data output/Check (Display/Print)

Code		Function (Purpose)	Section	Purpose
Main	Sub			
30	1	Used to check the operations of the sensors and detectors in the paper feed section, the paper transport section, and the paper exit section.	Paper feed	Operation test/Check
	2	Used to check the operations of the sensors and detectors of the paper feed section and the related circuits.	Paper feed	Operation test/Check
40	2	Used to adjust the detection level of the manual feed tray paper width detector.	Paper feed	Adjustment
	7	Used to set the adjustment value of the detection level of the manual paper feed tray paper width detector.	Paper feed	Setting
41	1	Used to display the operating state of the document sensor.	Other	Operation test/Check
	2	Used to adjust the detection level of the document size sensor.	Other	Operation test/Check
	3	Used to check the operation of the document size sensor and control circuit.	Other	Operation test/Check
43	1	Used to set the fusing temperature in each operation mode.	Fusing	Setting
	4	Used to set the fusing temperature in each operation mode. (Continued from 43-01.)	Fusing	Setting
	20	Used to correct the environments of low temperature and low humidity (L/L) for the fusing temperature setting 1 for each paper (SIM 43-0).	Fusing	Setting
	21	Used to perform correction of high temperature and high humidity (H/H) environment for the fusing temperature setting 1 (SIM 43-01) for each paper.	Fusing	Setting
	22	Used to perform L/L (low temperature, low humidity) correction for the fusing temperature setting 1 (SIM 43-04) for each paper.	Fusing	Setting
	23	Used to perform H/H (high temperature, high humidity) correction for the fusing temperature setting 1 (SIM 43-04) for each paper.	Fusing	Setting
	24	Used to enter the correction values for SIM 43-1 and SIM 43-4 temperature corrections.	Fusing	Setting
44	1	Used to set each correction operation function in the image forming (process) section.	—	Setting
	2	Image density sensor gain adjustment	Process	Adjustment
	4	Used to set the target density level in the image density/correction.	Process	(Do not use this function unless specially required)
	6	Used to execute the high density process correction compulsorily.	Process	Adjustment
	9	Used to check data of correction result in the image forming section.	Process	Adjustment/Setup/Operation data output/Check (Display/Print)
	12	Used to check the sampling toner image patch density data in the image density correction.	Process	Adjustment/Setup/Operation data output/Check (Display/Print)
	13	Color image density sensor adjustment (Adjustment by the jig)	Process	Adjustment
	14	Used to check the output level of the temperature/humidity sensor.	Process	Adjustment/Setup/Operation data output/Check (Display/Print)
	16	Used to check the toner density control data.	Process (Developing)	Adjustment/Setup/Operation data output/Check (Display/Print)
	21	Used to register the half tone process control reference value.	Process	Setting
	22	Used to check the toner patch image density level of each color in half tone image forming section correction.	Process	Adjustment/Setup/Operation data output/Check (Display/Print)
	24	(This simulation is not used in the market.) Used to display the process control result.	Process	Adjustment/Setup/Operation data output/Check (Display/Print)
	25	(This simulation is not used in the market)	Process	Adjustment/Setup/Operation data output/Check (Display/Print)
	26	Used to execute the half tone process control compulsorily.	Process	Adjustment
	27	Used to clear the half tone process control correction value.	Process	Data clear
	28	Used to set the process control execution timing.	Process	Setting
	29	Used to select the half tone correction during a job.	Process	(Do not use in the market)
	31	Used to adjust the phase of the photoconductor.	Process (OPC drum)	Adjustment
	37	Image density adjustment setting	—	Adjustment
	43	Used to display each developing unit installing state AD value.	Process (Developing)	Adjustment/Setup/Operation data output/Check (Display/Print)
	52	Used to check the toner patch image density level of each color in 1 pixel half tone correction.	Process	(This function is not used)
	54	Used to display 1 pixel half tone correction result.	Process	(This function is not used)
	56	1 pixel half tone correction is executed compulsorily	Process	(This function is not used)
	57	1 pixel half tone correction value is cleared	Process	(This function is not used)
46	1	Used to adjust the copy density in color copy mode.	Scanner	Adjustment
	2	Used to adjust the copy density in monochrome copy mode.	Scanner	Adjustment
	4	Used to adjust the density in color scanner mode.	Scanner	Adjustment
	5	Used to adjust the density in monochrome scanner mode.	Scanner	Adjustment
	8	Used to adjust the scanner color balance RGB adjustment.	Scanner	Adjustment
	9	Used to adjust copy density in copy mode.	RSPF	Adjustment
	10	Engine color balance manual adjustment	Engine	Adjustment
	16	Engine color balance manual adjustment (all modes for monochrome)	Engine	Adjustment
	19	Used to set monochrome auto exposure mode	Scanner	Adjustment
	21	Engine color balance manual adjustment for all modes in color	Engine	Adjustment
	23	Used to perform the half tone highest density correction.	—	Setting
	24	Used to perform the engine half tone auto density adjustment.	Engine	Adjustment
	25	Used to perform the color balance adjustment in the single color mode.	Image process (ICU)	Adjustment
	26	Used to perform the default setting of color balance in single color mode.	Image process (ICU)	Adjustment

Code		Function (Purpose)	Section	Purpose
Main	Sub			
46	27	Used to perform the engine/gamma calculation formula coefficient setting.	Image process (ICU)	Adjustment
	28	(Information on this simulation may be requested in some cases. However, this function is basically not used in the market.)	Image process (ICU)	Adjustment
	33	Used to perform the color auto mode adjustment.	Image process (ICU)	Setting
	36	2 color (Red, Black) copy adjustment	—	Adjustment
	37	Used to perform black image generation adjustment.	—	Adjustment
	39	Used to execute the image send sharpness adjustment. (Only when FAX is installed)	FAX	Adjustment
	40	Used to perform collective adjustment of all the FAX exposure modes.	MFP/FAX	Adjustment
	41	Used to perform the FAX exposure adjustment (normal character).	MFP/FAX	Adjustment
	42	Used to perform the FAX exposure adjustment (fine character).	MFP/FAX	Adjustment
	43	Used to perform the FAX exposure adjustment (super fine).	MFP/FAX	Adjustment
	44	Used to perform the FAX exposure adjustment (ultra fine).	MFP/FAX	Adjustment
	45	Used to perform the FAX exposure adjustment (600dpi).	FAX	Adjustment
	47	Used to perform JPEG compression rate setting in copying and scanning.	—	Setting
48	1	Used to perform copy magnification ratio adjustment (main/sub scanning direction).	RSPF/Scanner	Adjustment
	5	This adjustment is executed when a satisfactory result is not obtained when a different copy magnification ratio is specified and copying is made after adjustment of the sub scanning direction image magnification ratio with SIM 48-1. When there is an error in the copy magnification ratio in reduction copy, the adjustment value of high speed mode is adjusted. When there is an error in the copy magnification ratio in enlargement copy, the adjustment value of low speed mode is adjusted. This is the magnification ratio adjustment in the scan system.	RSPF/Scanner	Adjustment
	6	Used to adjust the rotating speed of each motor.	—	Adjustment
49	1	Used to execute the firmware update.	—	Version-up
	3	Used to update the operation manual in the HDD.	—	Version-up
50	1	Used to adjust the copy image position on print paper in the copy mode and to adjust the void area (image loss). (The similar adjustment can be executed with SIM50-05 and 50-02 (Simple method). (Document table mode))	—	Adjustment
	2	Used to adjust the copy image position on print paper and the void area (image loss) in the copy mode. (Similar to SIM50-1. This simulation provides the simpler method)	—	Adjustment
	5	Printer print lead edge adjustment	Printer	Adjustment
	6	Used to adjust the copy image position on the print paper in the copy mode and to adjust the void area (image loss). (The similar adjustment can be executed with SIM50-7 (Simple method).) (RSPF mode)	RSPF	Adjustment
	7	Used to adjust the copy image position on print paper in the copy mode and to adjust the void area (image loss). (The similar adjustment can be executed with SIM50-6 (Simple type).) (RSPF mode)	RSPF	Adjustment
	10	Used to adjust the print off-center position. (adjustment for each paper feed section)	—	Adjustment
	12	Used to execute the scan image off-center position adjustment. (Adjusted for each scan mode.)	—	Adjustment
	20	Used to perform the manual adjustment of the main scanning direction.	—	Adjustment
	21	Used to perform the manual adjustment of the sub scanning registration.	—	Adjustment
	22	Used to perform the main/sub scanning auto registration adjustment.	—	Adjustment
	24	Used display the auto registration adjustment result (SIM50-22).	—	(Do not use this function unless specially required.)
	27	Used to adjust the image loss of scanned image in the FAX/Scanner mode.	FAX/Scanner	Adjustment
	28	Used to perform the OC adjustment, the BK main scanning direction magnification ratio correction, RSPF adjustment and print position adjustment.	—	Adjustment
51	1	Used to adjust the ON/OFF timing of the transfer voltage and the separation bias voltage.	Process	Adjustment
	2	Used to perform the paper contact pressure adjustment for each section resist roller (main unit, each paper feed, duplex paper feed, DSPF paper feed) (When there is a considerable fluctuation in the print image position on print paper or paper jam occurs, this adjustment is required).	Paper transport	Adjustment
53	6	Used to perform the RSPF document size width detection level adjustment.	RSPF	Adjustment
	7	Used to perform RSPF document size width adjustment value setting.	RSPF	Adjustment
	8	Used to perform RSPF document scanning start position adjustment.	RSPF	Adjustment
55	1	Used to set the engine soft SW.	PCU	(Do not use this function unless specially required)
	2	Used to set the scanner soft SW	Scanner	(Do not use this function unless specially required)
	3	Used to set the controller soft SW.	MFP	(Do not use this function unless specially required)
56	1	Data transfer (Used for repair PWB)	MFP	Backup
	2	Used to backup the data (user authentication data, address book, etc.) of EEPROM, SRAM, or HDD to a USB memory and to restore the data.	Memory, HDD	Backup

Code		Function (Purpose)	Section	Purpose
Main	Sub			
60	1	Used to check the operation (read/write) of the MFP control (SDRAM).	—	Operation test/Check
	2	Used to set the data of onboard SDRAM.	—	(Do not use this function)
61	1	The polygon motor rotation and BD signal detection.	LSU	Operation test/Check
	3	Used to adjust laser power.	—	Setting
	4	Used to execute self-print of the LSU position adjustment.	LSU	Adjustment
62	1	Used to format the hard disc (Excluding the operation manual area).	MFP (HDD)	Data clear
	2	Used to check read/write of the hard disc (Partial).	MFP (HDD)	Operation test/Check
	3	Used to check read/write of the hard disc (All areas).	MFP (HDD)	Operation test/Check
	6	Used to perform the self-diagnostics of the hard disc.	MFP (HDD)	Operation test/Check
	7	Used to print the self-diagnostics error log.	MFP	Operation test/Check
	8	Used to format the hard disk excluding the system area and operation manual area.	MFP (HDD)	Data clear
	10	Used to delete the job log data.	MFP (HDD)	Data clear
	11	Used to delete the document filing data.	MFP (HDD)	Data clear
	12	Used to set Enable/Disable of auto format in HDD trouble.	MFP (HDD)	Data clear
	13	Used to format the hard disk (operation manual area only).	MFP (HDD)	Data clear
63	1	Used to check the shading correction result.	Scanner (Exposure)	Adjustment/Setup/Operation data output/Check (Display/Print)
	2	Used to execute shading forcibly.	Scanner	Adjustment
	3	Used to perform scanner color balance and color coefficient auto adjustment.	Scanner (scan)	Adjustment
	5	Used to reset the gamma correction and color correction parameters of the SCAN ASIC.	Scanner	Adjustment
	6	Used to scan the engine color balance auto adjustment pattern setting.	Image process (ICU)	Adjustment/Setup
	7	Used to perform the auto density adjustment scanner target value.	Image process (ICU)	Setting
	8	Used to perform the initial value reset of the engine auto adjustment scanner target value (Service).	Image process (ICU)	Setting
	11	Used to set the reference scanner target value for the engine auto density adjustment.	Scanner (Scanning)	Setting
64	1	Used to execute self-print (Color mode).	Printer	Operation test/Check
	2	Used to print the density adjustment pattern.	Printer	Operation test/check
	3	Used to execute self-print. (BW mode)	Printer	Operation test/Check
	4	Used to execute self-print.	Printer	Operation test/Check
	5	Used to execute self print (PCL).	Printer	Operation test/Check
	6	Used to execute the printer self print (PS).	Printer	Operation test/Check
65	1	Used to adjust the touch panel (LCD display section) detection position.	Operation panel	Adjustment
	2	Used to check the touch panel (LCD display section) detection position adjustment result.	Operation panel	Adjustment/Setup/Operation data output/Check (Display/Print)
67	17	Printer controller clear / Default value setting	—	Setting
	24	Use to execute the printer setting of auto color calibration.	Printer	Adjustment
	25	Used to set the manual correction of the printer engine color balance.	Printer	Adjustment
	26	Used to perform the reference scanner target value of the printer engine auto density adjustment.	Printer	Adjustment
	27	Used to perform the scanner target value of the printer engine auto density adjustment.	Printer	Adjustment
	28	Used to perform the standard scanner target value registration of the printer engine auto adjustment.	Scanner	Adjustment
	31	Used to clear the printer calibration value.	Printer	Data clear
	32	Used to perform screen/color select function setting for each object.	—	Setting
	33	Used to execute the gamma correction between printer screens. (for PCL)	Printer	Adjustment

### 3. Details of simulation

1

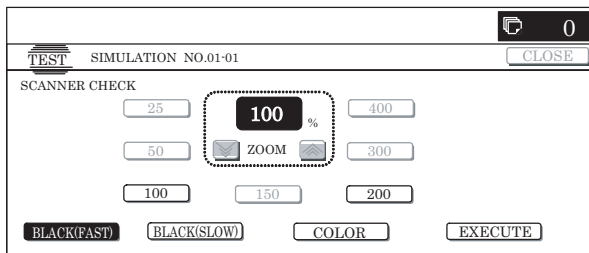
1-1

<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operations of the scanner unit and its control circuit.
<b>Section</b>	Optical (Image scanning)

#### Operation/Procedure

- 1) Select the operation mode with the keys on the touch panel.
  - 2) Select the magnification ratio with [ZOOM] key on the touch panel.
  - 3) Touch [EXECUTE] key.
- The scanner scans at the speed corresponding to the operation mode.

Key	Content	Selectable magnification ratios	Default value
50	Scan magnification ratio: 50%	COLOR: 50%, 100%, 200%	100%
100	Scan magnification ratio: 100%	BLACK (High speed): 100%, 200%	
200	Scan magnification ratio: 200%	BLACK (Low speed): 50%, 100%, 200%	



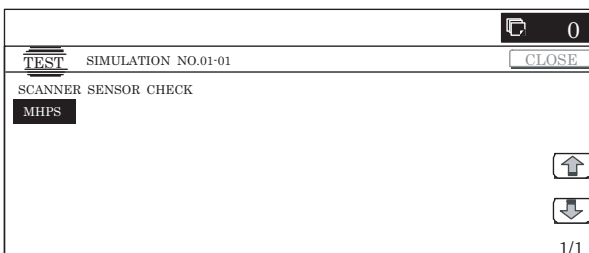
1-2

<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operation of sensor and detector in the scanning (read) section and the related circuit.
<b>Section</b>	Optical (Image scanning)

#### Operation/Procedure

The sensor and detector operation conditions are displayed.  
The active sensors and detectors are highlighted.

- The scanner (read) unit is in the home position.: "MHPS" section is highlighted.
- The scanner (read) unit is not in the home position.: "MHPS" is normally displayed.



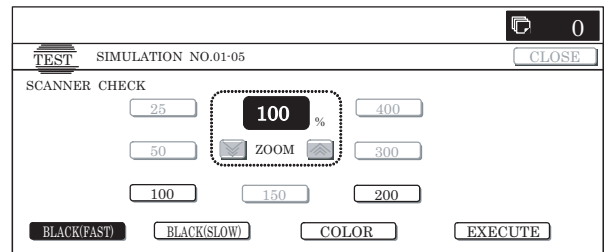
1-5

<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operations of the scanner unit.
<b>Section</b>	Optical (Image scanning)

#### Operation/Procedure

- 1) Select the operation mode with the keys on the touch panel.
  - 2) Select the magnification ratio with [ZOOM] key on the touch panel.
  - 3) Touch [EXECUTE] key.
- The scanner scans continuously at the speed corresponding to the operation mode.  
When [EXECUTE] key is pressed, the operation is terminated.

Key	Content	Selectable magnification ratio	Default value
50	Scan magnification ratio: 50%	COLOR: 50%, 100%, 200%	100%
100	Scan magnification ratio: 100%	BLACK (High speed): 100%, 200%	
200	Scan magnification ratio: 200%	BLACK (Low speed): 50%, 100%, 200%	



2

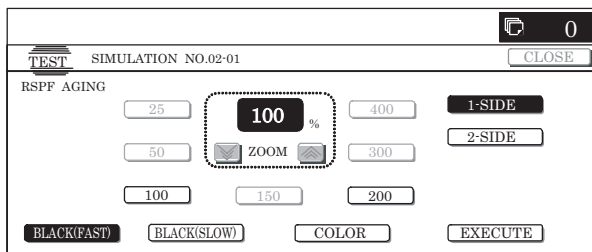
2-1

<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operations of the automatic document feeder unit and the control circuit.
<b>Section</b>	RSPF

#### Operation/Procedure

- 1) Select the operation mode with the keys on the touch panel.
  - 2) Select the aging mode with [1SIDE] and [2SIDE] keys on the touch panel.
  - 3) Select the magnification ratio with [ZOOM] key on the touch panel.
  - 4) Touch [EXECUTE] key.
- Aging is performed in the mode corresponding to the operation mode.  
\* When [EXECUTE] key is touched during aging, the operation is terminated and [EXECUTE] key returns to the original state.

Key	Content	Selectable magnification ratio	Default value
50	Scan magnification ratio: 50%	COLOR: 50%, 100%, 200%	100%
100	Scan magnification ratio: 100%	BLACK (High speed): 100%, 200%	
200	Scan magnification ratio: 200%	BLACK (Low speed): 50%, 100%, 200%	



2-2

<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operations of the sensors and detectors in the automatic document feeder unit and the related circuits.
<b>Section</b>	RSPF

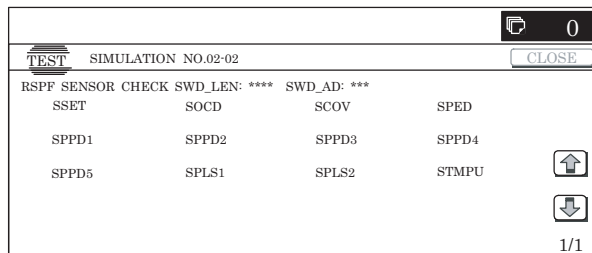
#### Operation/Procedure

The operating conditions of the sensors and detectors are displayed.

The active sensors and detectors are highlighted.

SSET	SPF installation detection
SOC	SPF open/close detection
SCOV	SPF cover SW
SPED	SPF document empty detection
SPPD1	SPF paper entry detection 1 and random detection (common)
SPPD2	SPF paper entry detection 2 PS front
SPPD3	SPF before-scan detection
SPPD4	SPF Reverse gate front detection
SPPD5	SPF Reverse rear detection
SPLS1	SPF Document length detection short
SPLS2	SPF Document length detection long
STMPU	SPF stamp unit installation detection
SWD_LEN	SPF guide plate position
SWD_AD	SPF document detection volume output

NOTE: SWD\_LEN and SWD\_AD are not ON/OFF display.



2-3

<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operations of the loads in the automatic document feeder unit and the control circuits.
<b>Section</b>	RSPF

#### Operation/Procedure

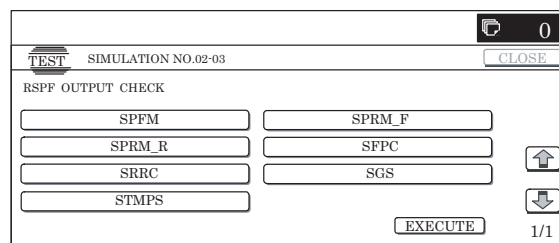
- 1) Select the item to be checked with the keys on the touch panel.
- 2) Touch [EXECUTE] key.  
The selected load operation is performed.  
When [EXECUTE] key is touched, the operation is terminated.

SPFM	SPF transport motor
SPRM_F	SPF paper feed reverse motor normal rotation
SPRM_R	SPF paper feed reverse motor reverse rotation
SPFC	SPF paper feed clutch
SRRC	SPF resist roller clutch
SGS	SPF document exit gate solenoid
STMPS	Finish stamp solenoid (*1)

\*1: Since the stamp solenoid is an option unit, it can be operated only when it is installed.

\* For the same loads displayed separately depending on normal rotation and rotation, if they are selected together, normal rotation is performed.

In addition, if the load is rotating, reverse rotation is not accepted until the operation is stopped.



3

3-2

<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operation of sensor and detector in the finisher and the related circuit.
<b>Section</b>	Finisher

#### Operation/Procedure

The operating conditions of the sensors and detectors are displayed.

The active sensors and detectors are highlighted.

#### <Inner finisher>

FED	Entry port paper detection
FBED	Tray paper detection
FULD	Tray upper limit detection
FMLLD	Tray intermediate lower limit detection
FLLD	Tray lower limit detection
FSLD1	Paper surface detection 1
FSLD2	Paper surface detection 2
FRLD	Roller up/down detection
FBRD	Belt separation detection
FFJHPD	Alignment plate HP detection front
FRJHPD	Alignment plate HP detection rear
FJPD	Alignment guide position detection
FSTPD	Staple tray paper detection
FSHPD	Staple drive HP detection
FSTHPD	Staple shift HP detection
FSD	Staple empty detection
FSTD	Staple lead edge position detection
FDSW	Door open detection
FFANLK	Fan motor lock detection

#### <Inner finisher punch unit>

FPRPD	Punch rear position detection
FPUC	Punch unit connection detection
FPHPD	Punch HP detection
FPSHPD	Punch horizontal resist HP detection
FPDD	Punch dust detection
FPPEND	Punch paper rear edge detection
FPPD1	Punch paper surface detection 1
FPPD2	Punch paper surface detection 2

FPPD3	Punch paper surface detection 3
FPPD4	Punch paper surface detection 4
FPPD5	Punch paper surface detection 5
FPPD6	Punch paper surface detection 6
FPDES1	Punch destination detection 1
FPDES2	Punch destination detection 2

3-3

<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operation of the load in the finisher and the control circuit.
<b>Section</b>	Finisher

#### Operation/Procedure

- 1) Select the item to be checked with the keys on the touch panel.
- 2) Touch [EXECUTE] key.  
The selected load operation is performed.  
When [EXECUTE] key is touched, the operation is terminated.

#### <When the inner finisher is installed>

FINRPS	Entry port reverse path solenoid
FSLS	Paper surface detection solenoid
FPDS	Paddle solenoid
FBRs	Belt separation solenoid
FRM	Resist motor
FSWM	Oscillation motor
FAM	Bundle paper exit motor
FFJM	Alignment motor front
FRJM	Alignment motor rear
FSM	Staple shift motor
FFSM	Staple motor
FTLM	Tray lift motor
FFANM	Fan motor

#### <Inner punch unit>

FPNM	Punch motor
FPSM	Punch horizontal resist motor

3-10

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the finisher.
<b>Section</b>	Finisher

#### Operation/Procedure

- 1) Select the item according to the adjustment content with [↑] [↓] keys.
- 2) Enter the adjustment value with 10-key.
- 3) Touch [OK] key. (The set value is saved.)

#### <Inner finisher>

Item	Display	Item	Set range	Default value
A	FRONT ADJUST	Alignment position adjustment (front)	2 to 18	10
B	REAR ADJUST	Alignment position adjustment (rear)	2 to 18	10
C	STAPLE REAR	Staple binding position adjustment (one position at the rear)	68 to 132	100
D	STAPLE FRONT	Staple binding position adjustment (one position in front)	68 to 132	100
E	STAPLE BOTH	Staple binding position adjustment (two positions at the center)	68 to 132	100
F	STAPLE PITCH	Staple binding position adjustment (two positions in pitch)	68 to 132	100
G	PUNCH CENTER	Punch center adjustment	37 to 63	50
H	PUNCH HOLE	Punch hole position adjustment	42 to 58	50

4

4-2

<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operations of the sensors and detectors in the desk and the related circuit.
<b>Section</b>	Desk

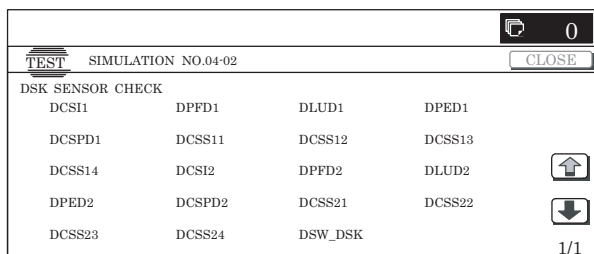
#### Operation/Procedure

The active sensors and detectors are highlighted.

#### <Desk sensor>

DCS1	Desk 1 installation detection
DPFD1	Desk 1 transport detection
DLUD1	Desk 1 upper limit detection
DPED1	Desk 1 paper empty detection
DCSPD1	Desk 1 remaining paper quantity detection
DCSS11	Desk 1 rear edge detection 1
DCSS12	Desk 1 rear edge detection 2
DCSS13	Desk 1 rear edge detection 3
DCSS14	Desk 1 rear edge detection 4
DCS2	Desk 2 installation detection
DPFD2	Desk 2 transport detection
DLUD2	Desk 2 upper limit detection
DPED2	Desk 2 paper empty detection
DCSPD2	Desk 2 remaining paper quantity detection
DCSS21	Desk 2 rear edge detection 1
DCSS22	Desk 2 rear edge detection 2
DCSS23	Desk 2 rear edge detection 3
DCSS24	Desk 2 rear edge detection 4
DSW_DSK	Desk transport cover open/close detection





4-3

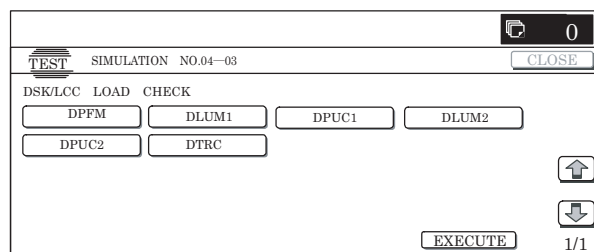
<b>Purpose</b>	Operation test
<b>Function (Purpose)</b>	Used to check the operations of the loads in the desk and the related circuit.
<b>Section</b>	Desk

#### Operation/Procedure

- 1) Select the item to be checked with the keys on the touch panel.
- 2) Touch [EXECUTE] key.  
The selected load operation is performed.  
When [EXECUTE] key is touched, the operation is terminated.

#### <Desk load item>

DPFM	Desk main motor
DLUM1	Desk 1 lift-up motor
DPUC1	Desk 1 paper feed clutch
DLUM2	Desk 2 lift-up motor
DPUC2	Desk 2 paper feed clutch
DTRC	Desk transport clutch



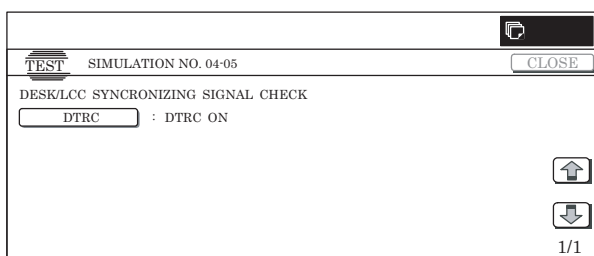
4-5

<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operations of the clutches and the related circuits.
<b>Section</b>	Desk

#### Operation/Procedure

Select the item to be checked with the keys on the touch panel.  
The selected clutch operation is performed.  
When the operation is normally completed, the key is highlighted.

DTRC	Desk transport clutch
------	-----------------------



5

5-1

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

#### Operation/Procedure

The LCD is changed as shown below. (The contrast changes every 2sec from the current level to MAX → MIN → the current level. During this period, each LED is lighted.)



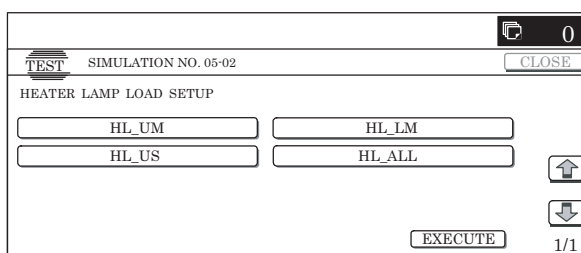
5-2

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

#### Operation/Procedure

- 1) Select the item to be checked with the keys on the touch panel.
- 2) Touch [EXECUTE] key.  
The selected heater lamp is operated.  
When [EXECUTE] key is touched, the operation is terminated.

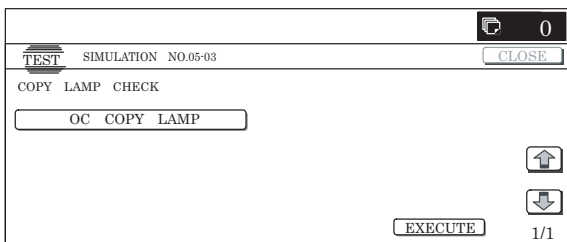
HL_UM	Heater lamp upper main
HL_LM	Heater lamp lower main
HL_US	Heater lamp upper sub
HL_ALL	All heater lamps ON



<b>5-3</b>	
<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operation of the scanner lamp and the circuit.
<b>Section</b>	Optical (Image scanning)

#### Operation/Procedure

- 1) Touch [OC COPY LAMP] key on the touch panel.
  - 2) Touch [EXECUTE] key.
- The target lamp is lighted for 10 sec.

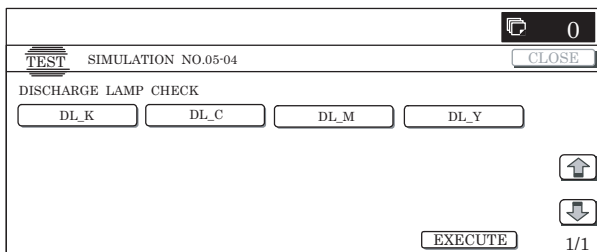


<b>5-4</b>	
<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operation of the discharge lamp and the related circuit.
<b>Section</b>	Process

#### Operation/Procedure

- 1) Select the item to be checked with the keys on the touch panel.
  - 2) Touch [EXECUTE] key.
- The selected discharge lamp is lighted.

DL_K	Discharge lamp K	Same control
DL_C	Discharge lamp C	
DL_M	Discharge lamp M	
DL_Y	Discharge lamp Y	



## 6

<b>6-1</b>	
<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operations of the paper transport system, the transfer system, the fusing system (clutches and solenoids) and the control circuits.
<b>Section</b>	Paper transport section (Transport, paper exit)

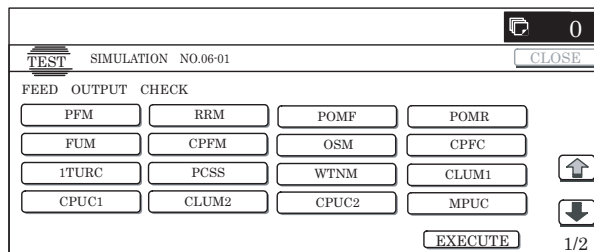
#### Operation/Procedure

- 1) Select the item to be checked with the keys on the touch panel.
  - 2) Touch [EXECUTE] key.
- The selected load operation is performed.
- When [EXECUTE] key is touched, the operation is terminated.

Transport/ imaging	PFM	Transport motor
	RRM	Resist motor
	POMF (*)	Paper exit motor normal rotation
	POMR (*)	Paper exit motor reverse rotation
	FUM	Fusing motor
	CPFM	Cassette paper feed motor
	OSM	Shifter motor
	WTNM	Waste toner drive motor
	CPFC	Cassette vertical transport clutch
	1TURC	Primary transfer separation clutch
	PCSS	Process control shutter solenoid
	LSUSS1	LSU shutter solenoid 1
Paper feed	LSUSS2	LSU shutter solenoid 2
	CLUM1	Cassette 1 lift-up motor
	CPUC1	Cassette 1 paper feed clutch
	CLUM2	Cassette 2 lift-up motor
	CPUC2	Cassette 2 paper feed clutch
	MPUC	Manual paper feed clutch
	MPFS	Manual feed take-up solenoid
	MPGS	Manual feed gate solenoid

(\*): For the same loads displayed separately depending on normal rotation and rotation, if they are selected together, normal rotation is performed.

In addition, if the load is rotating, reverse rotation is not accepted until the operation is stopped.

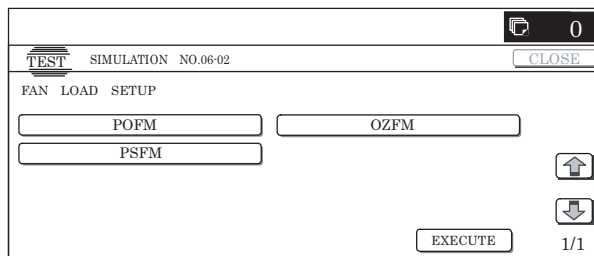


<b>6-2</b>	
<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operations of each fan motor and its control circuit.
<b>Section</b>	Other

#### Operation/Procedure

- 1) Select the item to be checked with the keys on the touch panel.
  - 2) Touch [EXECUTE] key.
- The selected load operation is performed.
- When [EXECUTE] key is touched, the operation is terminated.

POFM	Paper exit cooling fan motor (* POFM_U, POFM_F, and POFM_R are driven at the same time.)
OZFM	Ozone fan motor
PSFM	Power cooling fan motor



6-3

<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operations of the primary transfer unit and the related circuit.
<b>Section</b>	Process (Transfer)

**Operation/Procedure**

- 1) Touch [EXECUTE] key.
- 2) The load operation is started. (Separation operation: BLACK → COLOR → FREE Stops at each position for 5 sec.) During the operation, the current position is displayed.

BLACK	Black mode position	Black mode position
COLOR	COLOR mode position	→ COLOR mode position
FREE	Drum separation position	→ Drum separation position
		→ Shift to the black mode position is repeated.

7

7-1

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the operating conditions of aging.
<b>Section</b>	Other

**Operation/Procedure**

- 1) Select the target to be set with keys on the touch panel.
- 2) Touch [EXECUTE] key.  
The machine is rebooted in the aging mode.  
The contents set with this simulation are retained until the power is turned OFF.

AGING	Aging operation setup
INTERVAL	Intermittent setup
MISFEED DISABLE	JAM detection enable/disable setup
FUSING DISABLE	Fusing operation enable/disable setup
WARMUP DISABLE	Warm-up disable setup
DV CHECK DISABLE	DV unit detection enable/disable setup
SHADING DISABLE	Shading disable setup
CCD GAIN FREE	CCD gain adjustment free setup

7-6

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the intermittent aging cycle.
<b>Section</b>	Other

**Operation/Procedure**

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

Item	Item	Set range	Default value
A	CYCLE TIME(SEC)	1 to 900	3

7-8

<b>Purpose</b>	Operation display
<b>Function (Purpose)</b>	Used to display the warm-up time.
<b>Section</b>	Fusing

**Operation/Procedure**

- Touch [EXECUTE] key.  
Counting of the warm-up time is started.  
\* Interruption of counting by touching [EXECUTE] key is inhibited.

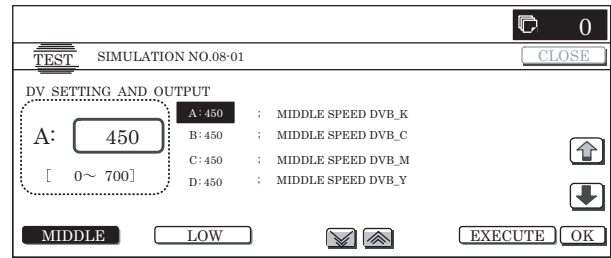
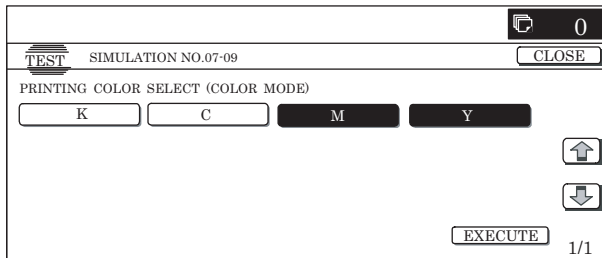
7-9

<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check printing in the color mode.
<b>Section</b>	—

**Operation/Procedure**

- 1) Select a print color with keys on the touch panel.
  - 2) Touch [EXECUTE] key.  
Printing is started in the selected color.
- \* If no color is specified, printing is made in all colors.

K	Setup/cancel of black
C	Setup/cancel of cyan
M	Setup/cancel of magenta
Y	Setup/cancel of yellow



## 8

### 8-1

<b>Purpose</b>	Operation test/Check/Adjustment
<b>Function (Purpose)</b>	Used to check and adjust the operations of the developing voltage of each color and the control circuit.
<b>Section</b>	Process (Photoconductor/Developing/Transfer/Cleaning)

#### Operation/Procedure

- 1) Select a speed with [MIDDLE] and [LOW] keys on the touch panel.
- 2) Select a target item to be adjusted with [↑] [↓] keys.
- 3) Enter the adjustment value with 10-key.
- 4) Touch [EXECUTE] key.

The set value is saved and the voltage corresponding to the set value is outputted for 30 sec.

\* The adjustment values of [MIDDLE] and [LOW] are related together.

\* When [EXECUTE] key is touched, the output is terminated.

Key	Item	Display	Content	Setting range	Default value
MIDDLE	A	MIDDLE SPEED DVB_K	K developing bias set value at middle speed	0 to 700	450
	B	MIDDLE SPEED DVB_C	C developing bias set value at middle speed	0 to 700	450
	C	MIDDLE SPEED DVB_M	M developing bias set value at middle speed	0 to 700	450
	D	MIDDLE SPEED DVB_Y	Y developing bias set value at middle speed	0 to 700	450
LOW	A	LOW SPEED DVB_K	K developing bias set value at low speed	0 to 700	430
	B	LOW SPEED DVB_C	C developing bias set value at low speed	0 to 700	430
	C	LOW SPEED DVB_M	M developing bias set value at low speed	0 to 700	430
	D	LOW SPEED DVB_Y	Y developing bias set value at low speed	0 to 700	430

### 8-2

<b>Purpose</b>	Operation test/Check/Adjustment
<b>Function (Purpose)</b>	Used to check and adjust the operation of the main charger grid voltage in each printer mode and the control circuit.
<b>Section</b>	Process (Photoconductor/Developing/Transfer/Cleaning)

#### Operation/Procedure

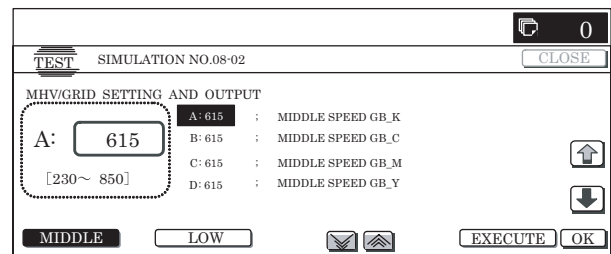
- 1) Select a speed with [MIDDLE] and [LOW] keys on the touch panel.
- 2) Select a target item to be adjusted with [↑] [↓] keys.
- 3) Enter the adjustment value with 10-key.
- 4) Touch [EXECUTE] key.

The set value is saved and the voltage corresponding to the set value is outputted for 30 sec.

\* The adjustment values of [MIDDLE] and [LOW] are related together.

\* When [EXECUTE] key is touched, the output is terminated.

Key	Item	Display	Content	Setting range	Default value
MIDDLE	A	MIDDLE SPEED GB_K	K charging/grid bias set value at middle speed	230 to 850	615
	B	MIDDLE SPEED GB_C	C charging/grid bias set value at middle speed	230 to 850	615
	C	MIDDLE SPEED GB_M	M charging/grid bias set value at middle speed	230 to 850	615
	D	MIDDLE SPEED GB_Y	Y charging/grid bias set value at middle speed	230 to 850	615
LOW	A	LOW SPEED GB_K	K charging/grid bias set value at low speed	230 to 850	605
	B	LOW SPEED GB_C	C charging/grid bias set value at low speed	230 to 850	605
	C	LOW SPEED GB_M	M charging/grid bias set value at low speed	230 to 850	605
	D	LOW SPEED GB_Y	Y charging/grid bias set value at low speed	230 to 850	605



<b>Purpose</b>	Operation test/Check/Adjustment
<b>Function (Purpose)</b>	Used to check and adjust the operation of the transfer voltage and the control circuit.
<b>Section</b>	Process (Photoconductor/Developing/Transfer/Cleaning)/Transfer

**Operation/Procedure**

- 1) Select a target item to be adjusted with [↑] [↓] keys.
- 2) Enter the adjustment value with 10-key.
- 3) Touch [EXECUTE] key.

The set value is saved and the voltage corresponding to the set value is outputted for 30 sec.

When [EXECUTE] key is touched, the output is terminated.

Item	Display	Content				Setting range	Default value	Actual output setting range	Default value Actual output value	
A	TC1 LOW SPEED CL K	Primary transfer bias reference value	COLOR	K	Low speed	0 to 255	232	-500V to 5000V	4500V	
B	TC1 MIDDLE SPEED CL K				Middle speed	0 to 255	232	-500V to 5000V	4500V	
C	TC1 LOW SPEED CL CMY			CMY	Low speed	0 to 255	139	-500V to 5000V	2500V	
D	TC1 MIDDLE SPEED CL CMY				Middle speed	0 to 255	139	-500V to 5000V	2500V	
E	TC1 LOW SPEED BW K		BLACK	K	Low speed	0 to 255	232	-500V to 5000V	4500V	
F	TC1 MIDDLE SPEED BW K				Middle speed	0 to 255	232	-500V to 5000V	4500V	
G	TC2 PLAIN CL SPX	Secondary transfer bias reference value	COLOR	Normal paper	Front surface	51 to 255	100	2μA to 45μA	12.5μA	
H	TC2 PLAIN CL DPX				Back surface	51 to 255	100	2μA to 45μA	12.5μA	
I	TC2 PLAIN BW SPX		BLACK		Front surface	51 to 255	90	2μA to 45μA	10μA	
J	TC2 PLAIN BW DPX				Back surface	51 to 255	90	2μA to 45μA	10μA	
K	TC2 HEAVY1 CL SPX		COLOR	Heavy paper		51 to 255	69	2μA to 45μA	6μA	
L	TC2 HEAVY1 BW SPX					51 to 255	69	2μA to 45μA	6μA	
M	TC2 OHP CL		COLOR	OHP		51 to 255	60	2μA to 45μA	4μA	
N	TC2 OHP BW		BLACK			51 to 255	60	2μA to 45μA	4μA	
O	TC2 ENVELOPE CL		COLOR	Envelope		51 to 255	184	2μA to 45μA	30μA	
P	TC2 ENVELOPE BW		BLACK			51 to 255	184	2μA to 45μA	30μA	
Q	TC2 CLEANING		Cleaning process				51 to 255	79	2μA to 45μA	8μA
R	TC2 CLEAN LOW SPD		Secondary transfer cleaning bias reference value	Low speed print			51 to 255	72	-50V to -1500V	-200V
S	TC2 CLEAN MIDDLE SPD			Middle speed print			51 to 255	72	-50V to -1500V	-200V
T	TC2 CLEAN CLEANING	Cleaning			51 to 255	156	-50V to -1500V	-800V		

TEST SIMULATION NO.08-06

THV SETTING AND OUTPUT

A: 232 [ 0-255] : TC1 LOW SPEED CL K

B: 232 : TC1 MIDDLE SPEED CL K

C: 139 : TC1 LOW SPEED CL CMY

D: 139 : TC1 MIDDLE SPEED CL CMY

EXECUTE OK

TEST SIMULATION NO.09-02

ADU SENSOR CHECK

DSW\_ADU APPD1 APPD2

1/1

<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operations of the sensors and detectors in the duplex section and its control circuit.
<b>Section</b>	Duplex

**Operation/Procedure**

The sensor and detector operation conditions are displayed.

The active sensors and detectors are highlighted.

DSW_ADU	ADU transport open/close detection
APPD1	ADU transport path detection 1
APPD2	ADU transport path detection 2

<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operations of the loads in the duplex section and the control circuits.
<b>Section</b>	Duplex

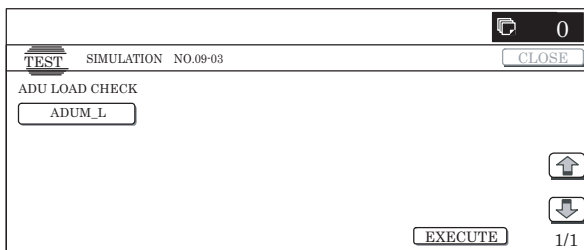
**Operation/Procedure**

- 1) Select the item to be operation tested with the keys on the touch panel.
- 2) Touch [EXECUTE] key.

The selected load operation is performed.

When [EXECUTE] key is touched, the output is terminated.

ADUM_L	ADU motor lower
--------	-----------------



## 10

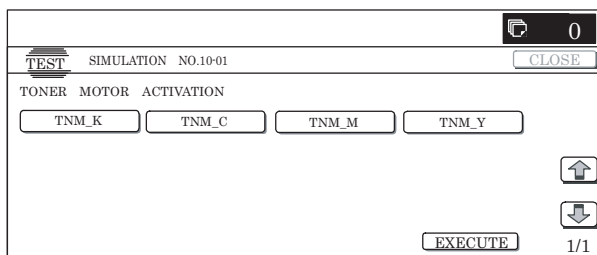
10-1

<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operations of the toner motor and the related circuit.
<b>Section</b>	Process (Developing)

### Operation/Procedure

- \* Before execution of this simulation, remove the toner cartridges.
- 1) Select the item to be checked with the keys on the touch panel.
- 2) Touch [EXECUTE] key.
  - \* The selected load operation is performed for 10 sec.
  - \* When [EXECUTE] key is touched, the operation is terminated.

TNM_K	Toner motor K
TNM_C	Toner motor C
TNM_M	Toner motor M
TNM_Y	Toner motor Y



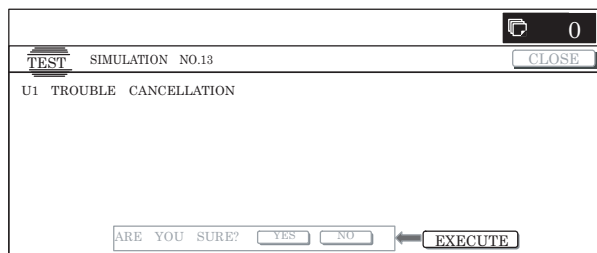
## 13

13--

<b>Purpose</b>	Clear/cancel (Trouble etc.)
<b>Function (Purpose)</b>	Used to cancel the self-diag "U1" trouble.
<b>Section</b>	FAX

### Operation/Procedure

- 1) Touch [EXECUTE] key.
- 2) Touch [YES] key to execute cancellation of the trouble.



## 14

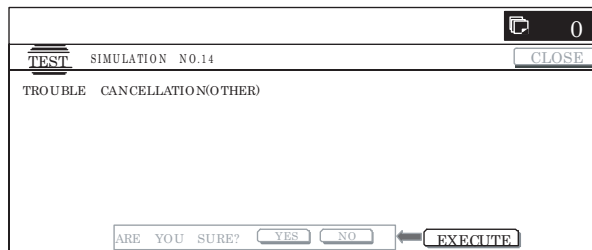
14--

<b>Purpose</b>	Clear/cancel (Trouble etc.)
<b>Function (Purpose)</b>	Used to cancel excluding the self-diag U1/ U2/PF troubles.

### Section

### Operation/Procedure

- 1) Touch [EXECUTE] key.
- 2) Touch [YES] key to execute cancellation of the trouble.



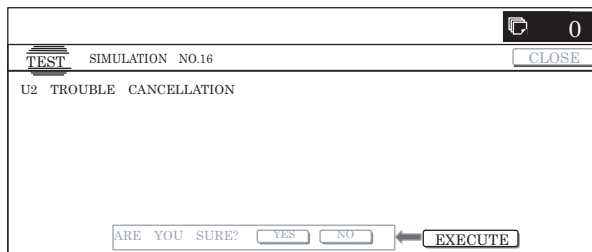
## 16

16--

<b>Purpose</b>	Clear/cancel (Trouble etc.)
<b>Function (Purpose)</b>	Used to cancel the self-diag U2 trouble.
<b>Section</b>	MFPcnt PWB / PCU PWB / SCU PWB

### Operation/Procedure

- 1) Touch [EXECUTE] key.
- 2) Touch [YES] key to execute cancellation of the trouble.



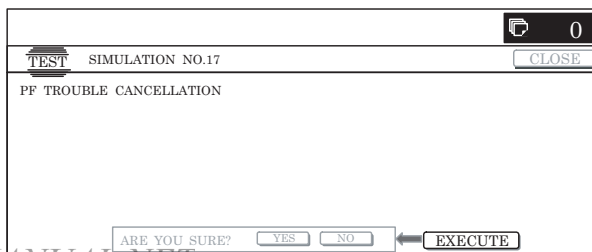
## 17

17--

<b>Purpose</b>	Clear/cancel (Trouble etc.)
<b>Function (Purpose)</b>	Used to cancel the self-diag PF.
<b>Section</b>	Communication unit (RIC/MODEM)

### Operation/Procedure

- 1) Touch [EXECUTE] key.
- 2) Touch [YES] key to execute cancellation of the trouble.



## 21

### 21-1

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the maintenance cycle.
<b>Section</b>	—

#### Operation/Procedure

- 1) Select an item corresponding to the set contents with [↑] [↓] keys.
- 2) Enter the value corresponding to the maintenance timing with 10-key.
- 3) Touch [OK] key to save the entered conditions in step 2).

Item	Display	Content	Set range	Default value
A	MAINTENANCE COUNTER (TOTAL)	Maintenance counter (total)	0: DEFAULT, 1 – 300: 1K – 300K 999: FREE	80K
B	MAINTENANCE COUNTER (COLOR)	Maintenance counter (color)	0: DEFAULT, 1 – 300: 1K – 300K 999: FREE	40K

## 22

### 22-1

<b>Purpose</b>	Adjustment/Setup/Operation data check
<b>Function (Purpose)</b>	Used to check the print count value in each section and each operation mode. (Used to check the maintenance timing.)

#### Section

#### Operation/Procedure

Change the display page with [↑] [↓] keys.

Touch [COLOR] or [BLACK] key to print.

TOTAL OUT(BW)	Total output quantity of black
TOTAL OUT(COL)	Total output quantity of color
TOTAL(BW)	Total use quantity of black
TOTAL(COL)	Total use quantity of color
TOTAL(2COL)	Total use quantity of 2-color
TOTAL(SGL_COL)	Total use quantity of single color
COPY(BW)	Black copy counter
COPY(COL)	Color copy counter
COPY(2COL)	2-color copy counter
COPY(SGL_COL)	Single color copy counter
PRINT(BW)	Black print counter
PRINT(COL)	Color print counter
DOC FIL(BW)	Black document filing print counter
DOC FIL(COL)	Color document filing print counter
DOC FIL(2COL)	2-color document filing print counter
DOC FIL(SGL_COL)	Single-color document filing print counter
OTHER(BW)	Black other counter
OTHER(COL)	Color other counter
MAINTENANCE ALL	Maintenance counter (Total)
MAINTENANCE COL	Maintenance counter (Color)
TC1 BELT	Primary transfer unit print counter

TC1 BELT RANGE	Primary transfer unit accumulated traveling distance (cm)
TC1 BELT DAY	Use day of primary transfer (Day)
TC2 BELT	Secondary transfer unit print counter
TC2 BELT RANGE	Secondary transfer unit accumulated traveling distance (cm)
TC2 BELT DAY	Use day of secondary transfer unit (Day)
FUSER UNIT	Fuser unit print counter
FUSER ACUM DAY	Use day of fuser unit (Day)
DRUM LIFE(K)	Accumulated number of drum rotations (K)
DRUM LIFE(C)	Accumulated number of drum rotations (C)
DRUM LIFE(M)	Accumulated number of drum rotations (M)
DRUM LIFE(Y)	Accumulated number of drum rotations (Y)
DEVE LIFE(K)	Accumulated number of developer rotations (K)
DEVE LIFE(C)	Accumulated number of developer rotations (C)
DEVE LIFE(M)	Accumulated number of developer rotations (M)
DEVE LIFE(Y)	Accumulated number of developer rotations (Y)

### 22-2

<b>Purpose</b>	Adjustment/Setup/Operation data check
<b>Function (Purpose)</b>	Used to check the total numbers of misfeed and troubles. (When the number of total jam is considerably great, it is judged as necessary for repair.)

#### Section

#### Operation/Procedure

The paper jam/trouble counter value is displayed.

Touch [COLOR] or [BLACK] key to print.

MACHINE JAM	Machine JAM counter
RSPF/DSPF JAM	SPF JAM counter
TROUBLE	Trouble counter

### 22-3

<b>Purpose</b>	Adjustment/Setup/Operation data check
<b>Function (Purpose)</b>	Used to check misfeed positions and the misfeed count of each position.

#### Section

#### Operation/Procedure

The history of paper jams and misfeed is displayed.

The above histories are displayed from the newest one to the oldest in this sequence. The max. 50 items are saved. (The oldest one is sequentially erased.)

\* List of JAM codes: Refer to "2. Paper JAM code" in the "[12] OTHERS."



TEST SIMULATION NO.22-03				CLOSE
JAM HISTORY	DATA DISPLAY			
PPD2_N1	CPFD2_S2	MFT	TRAY3	
PPD2_N1	CPFD2_S2	APPD3_S	DPFD2_S4	
LCC	PPD2_PRI	CPID2_S2	CPID2_S2	↑
CPFD1_N1	PPD2_PRI	TRAY3	APPD3_S	↓
TRAY2	MFT			

1/1

22-4

<b>Purpose</b>	Adjustment/Setup/Operation data check
<b>Function (Purpose)</b>	Used to check the trouble (self diag) history.
<b>Section</b>	—

#### Operation/Procedure

The trouble history is displayed.

The trouble history is displayed sequentially from the latest one. The max. 30 items can be stored. (The oldest one is deleted sequentially.)

Touch [COLOR] or [BLACK] key to print.

\* Trouble code list: Refer to "2. Trouble code list" in the "[8] SELF DIAG AND TROUBLE CODE".

TEST SIMULATION NO.22-04				CLOSE
TROUBLE CODE DATA DISPLAY				
E7-23	F9-20	F2-39	L4-31	
F1-50	L4-02	F2-39	F1-50	
F1-50	L4-02	F1-61	F1-50	
F1-50	F2-39	H5-01	E7-23	↑
U5-12	F2-39	L1-00	E7-23	↓

1/2

22-5

<b>Purpose</b>	Others
<b>Function (Purpose)</b>	Used to check the ROM version of each unit (section).
<b>Section</b>	—

#### Operation/Procedure

The ROM version can be checked with [↑] [↓] keys.

When there is any problem in the software, use this simulation to check the ROM version of each section and revise the version if necessary.

Touch [COLOR] or [BLACK] key to print.

S/N	Serial No.
ICU(MAIN)	ICU (Main section)
ICU(BOOT)	ICU (Boot section)
LANGUAGE	Language support data version
GRAPHIC	Graphic data for LCD
IMG DATA ROM	ImageASIC FlashROM data
COLOR PROFILE	Color profile
PCU	PCU
SCU	SCU
SPF	SPF
FAX1(MAIN)	FAX1 line (Main section)
DESK	Desk unit
FINISHER	Finisher
PUNCH	Punch unit
NIC	NIC
POWER-CON	Power controller
E-MANUAL	Operation manual (HDD storage)

TEST SIMULATION NO.22-05		CLOSE
S/N : *****		
ICU(MAIN)	: 00.00.00	COLOR PROFILE : 00.00.00
ICU(BOOT)	: 00.00.00	PCU : 00.00.00
LANGUAGE	: 00.00.00	SCU : 00.00.00
GRAPHIC	: 00.00.00	SPF : NONE
IMG DATA ROM	: 00.00.00	FAX1(MAIN) : NONE

1/2

22-6

<b>Purpose</b>	Adjustment/Setup/Operation data check
<b>Function (Purpose)</b>	Used to output the list of the setting and adjustment data (simulations, FAX soft switch, counters).
<b>Section</b>	—

#### 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 mode with 10-key.
- 2) Touch [EXECUTE] key.

The list print selected in step 1) is started.

\* When [C] key, [CA] key, [SYSTEM SETTINGS] key, or [EXECUTE] key is touched during printing, the operation is terminated.

Item	Display item & detail display	Description	Set range	Default value
A	DATA PATTERN	Data pattern selection 1: List print 2: List print (Sim50-24)	1 to 2	1

TEST SIMULATION NO.22-06		CLOSE
DATA PRINT MODE		
A: 1	A-1 : DATA PATTERN	↑
[ 1 ~ 2 ]		↓
		EXECUTE OK

22-8

<b>Purpose</b>	Adjustment/Setup/Operation data check
<b>Function (Purpose)</b>	Used to check the number of use of the finisher, the RSPF, and the scan (reading) unit.
<b>Section</b>	—

#### Operation/Procedure

The values of the finisher counter, the RSPF counter, and the scanner (read) related counters are displayed.

Touch [COLOR] or [BLACK] key to print.

RSPF/DSPF	Document feed quantity
SCAN	Number of scan
STAPLER	Staple counter
PUNCHER	Puncher counter
STAMP	Stamp counter
OC_OPEN	OC open/close counter
RSPF/DSPF_OPEN	RSPF/DSPF open/close counter
OC LAMP_TIME	Total lighting time of the lamp in OC section



22-9

<b>Purpose</b>	Adjustment/Setup/Operation data check
<b>Function (Purpose)</b>	Used to check the number of use (print quantity) of each paper feed section.
<b>Section</b>	Paper feed, ADU

#### Operation/Procedure

The values of the paper feed related counters are displayed.  
Touch [COLOR] or [BLACK] key to print.

TRAY1	Tray 1 paper feed counter
TRAY2	Tray 2 paper feed counter
TRAY3	Tray 3 paper feed counter
TRAY4	Tray 4 paper feed counter
MFT TOTAL	Manual paper feed counter (Total)
MFT HEAVY	Manual paper feed counter (Heavy paper)
MFT OHP	Manual paper feed counter (OHP)
MFT ENV	Manual paper feed counter (Envelope)
ADU	ADU paper feed counter

22-10

<b>Purpose</b>	Adjustment/Setup/Operation data check
<b>Function (Purpose)</b>	Used to check the system configuration (option, internal hardware).
<b>Section</b>	—

#### Operation/Procedure

- The system configuration is displayed. (The model names of the installed devices and options are displayed.)
- Change the display with [↑] [↓] keys.  
Touch [COLOR] or [BLACK] key to print.

Item display	Display content	Content
MACHINE	MX-1800N	Machine
RSPF/DSPF	MX-RPX1/STANDARD	Document feed unit
STAMP	AR-SU1	Finisher stamp
DESK	MX-DEX1	Desk unit
	MX-DEX2	
PUNCHER	MX-PNX1A	Punch unit
	MX-PNX1B	
FINISHER	MX-FNX1	Finisher
FAX1	MX-FXX1	FAX kit
NETWORK SCANNER	MX-NSX1	Network scanner expansion kit
PRINTER	MX-PBX1	Printer expansion kit
PS	MX-PKX1	PS expansion kit
SECURITY	MX-FRX1	Security kit
AIM	MX-AMX1	Application expansion kit

Item display	Display content	Content
SDRAM(SYS)	*****MB	SDRAM capacity
SDRAM(ICU)	*****MB	SDRAM capacity
HDD	*****MB	Hard disk capacity
NIC	STANDARD	NIC
INTERNET-FAX	MX-FWX1	Internet Fax expansion kit

22-11

<b>Purpose</b>	Adjustment/Setup/Operation data check
<b>Function (Purpose)</b>	Used to check the use frequency (send/receive) of FAX. (Only when FAX is installed)
<b>Section</b>	FAX

#### Operation/Procedure

The values of the FAX send counter and the FAX receive counter are displayed.  
Touch [COLOR] or [BLACK] key to print.

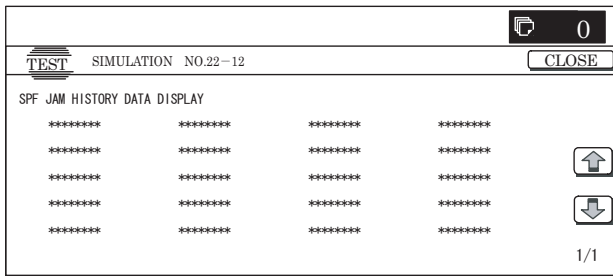
FAX OUTPUT	FAX print quantity counter (for line 1)
FAX SEND	FAX send counter
FAX RECEIVED	FAX receive counter
SEND IMAGES	FAX send quantity counter (for line 1)
SEND TIME	FAX send time
RECEIVED TIME	FAX receive time
ACR SEND	Number of carrier prefix adding communications

22-12

<b>Purpose</b>	Adjustment/Setup/Operation data check
<b>Function (Purpose)</b>	Used to check the RSPF misfeed positions and the number of misfeed at each position. (When the number of misfeed is considerably great, it can be judged as necessary for repair.)
<b>Section</b>	RSPF

#### Operation/Procedure

The history of paper jam and misfeed is displayed.  
The misfeed history is displayed sequentially from the latest one. The max. 50 items are recorded. (The oldest one is sequentially deleted.) This data can be used to identify the trouble position.  
Touch [COLOR] or [BLACK] key to print.  
List of JAM codes: Refer to "2. Paper JAM code" in the "[12] OTHERS".



22-13

<b>Purpose</b>	Adjustment/Setup/Operation data check
<b>Function (Purpose)</b>	Used to check the operating time of the process section (OPC drum, DV unit, toner cartridge).

**Section** —

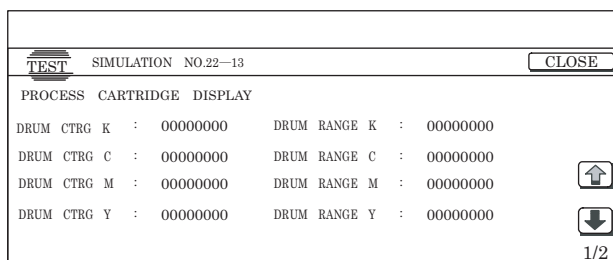
#### Operation/Procedure

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

Change the display with [↑] [↓] keys.

Touch [COLOR] or [BLACK] key to print.

DRUM CTRG K	Drum cartridge print counter (K)
DRUM CTRG C	Drum cartridge print counter (C)
DRUM CTRG M	Drum cartridge print counter (M)
DRUM CTRG Y	Drum cartridge print counter (Y)
DRUM RANGE K	Drum cartridge accumulated traveling distance (CM)(K)
DRUM RANGE C	Drum cartridge accumulated traveling distance (CM)(C)
DRUM RANGE M	Drum cartridge accumulated traveling distance (CM)(M)
DRUM RANGE Y	Drum cartridge accumulated traveling distance (CM)(Y)
DEVE CTRG K	Developer cartridge print counter (K)
DEVE CTRG C	Developer cartridge print counter (C)
DEVE CTRG M	Developer cartridge print counter (M)
DEVE CTRG Y	Developer cartridge print counter (Y)
DEVE RANGE K	Developer cartridge accumulated traveling distance (CM)(K)
DEVE RANGE C	Developer cartridge accumulated traveling distance (CM)(C)
DEVE RANGE M	Developer cartridge accumulated traveling distance (CM)(M)
DEVE RANGE Y	Developer cartridge accumulated traveling distance (CM)(Y)
TONER MOTOR K	Toner motor print counter (K)
TONER MOTOR C	Toner motor print counter (C)
TONER MOTOR M	Toner motor print counter (M)
TONER MOTOR Y	Toner motor print counter (Y)
TONER TURN K	Toner motor accumulated rotation time (SEC)(K)
TONER TURN C	Toner motor accumulated rotation time (SEC)(C)
TONER TURN M	Toner motor accumulated rotation time (SEC)(M)
TONER TURN Y	Toner motor accumulated rotation time (SEC)(Y)



22-19

<b>Purpose</b>	Adjustment/Setup/Operation data check
<b>Function (Purpose)</b>	Used to check the values of the counters related to the scan mode and the internet FAX mode.

**Section** Scanner

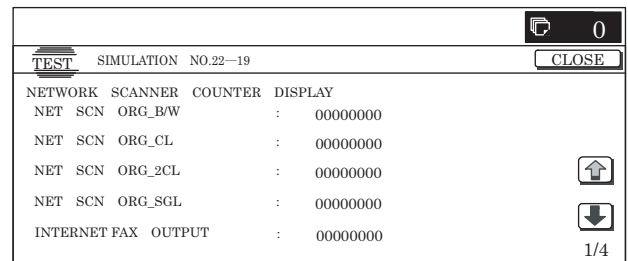
#### Operation/Procedure

Used to display the counter value related to the network scanner.

Change the display with [↑] [↓] keys.

Touch [COLOR] or [BLACK] key to print.

NET SCN ORG_B/W	Network scanner document read quantity counter (B/W) (B/W scan job)
NET SCN ORG_CL	Network scanner document read quantity counter (COLOR) (Color scan job)
NET SCN ORG_2CL	Network scanner document read quantity counter (2-COLOR) (2-Color scan job)
NET SCN ORG_SGL	Network scanner document read quantity counter (SINGLE) (Single-color scan job)
INTERNET FAX OUTPUT	Number of times of internet FAX output
INTERNET FAX SEND OUTPUT	Number of times of internet FAX send
INTERNET FAX RECEIVE	Number of times of internet FAX receive
INTERNET FAX SEND	Number of times of internet FAX send
MAIL COUNTER	Number of times of E-MAIL send
FTP COUNTER	Number of times of FTP send
SMB SEND	Number of times of SMB send
USB CNT	Number of times of USB storage
TRIAL MODE_B & C	Trial mode counter (B/W & COLOR scan job)
SCAN TO HDD_B/W	SCAN TO HDD record quantity (B/W)
SCAN TO HDD_CL	SCAN TO HDD record quantity (COLOR)
SCAN TO HDD_2CL	SCAN TO HDD record quantity (2-COLOR)
SCAN TO HDD_SGL	SCAN TO HDD record quantity (SINGLE color)



22-90

<b>Purpose</b>	Adjustment/Setup/Operation data check
<b>Function (Purpose)</b>	Used to output the various set data lists.

**Section** —

#### Operation/Procedure

Change the display with [↑] [↓] keys.

Select the print target with the keys on the touch panel.

Touch [EXECUTE] key to start self print.

\* When [C] key, [CA] key, [SYSTEM SETTINGS] key, or [EXECUTE] key is touched during printing, the operation is terminated.

All custom setting list	ALL CUSTOM SETTING LIST	All custom setting list
Printer test page	PCL SYMBOL SET LIST	PCL symbol set list
	PCL INTERNAL FONT LIST	PCL internal font list
	PCL EXTENDED FONT LIST	PCL extended font list
	PS FONT LIST	PS extended font list
	PS KANJI FONT LIST	PS kanji font list
	PS EXTENDED FONT LIST	PS extended font list
	NIC PAGE	NIC page
Address registration list	INDIVIDUAL LIST	One-touch address list
	GROUP LIST	Group list
	PROGRAM LIST	Program list
	MEMORY BOX LIST	Memory box list
	ALL SENDING ADDRESS LIST	All address registration list
Document filing folder list	DOCUMENT FILING FOLDER LIST	Folder list
System setting list	ADMIN. SETTINGS LIST (COPY)	Copy
	ADMIN. SETTINGS LIST (PRINT)	Printer
	ADMIN. SETTINGS LIST (IMAGE SEND)	FAX/Image send
	ADMIN. SETTINGS LIST (DOC FILING)	Document filing
	ADMIN. SETTINGS LIST (SECURITY)	Security
	ADMIN. SETTINGS LIST (COMMON)	Common
	ALL ADMINISTRATOR SETTINGS LIST	All system setting list
Receive rejection number table	ANTI JUNK FAX NUMBER LIST	Receive rejection number table
Receive rejection/allow address/domain table	ANTI JUNK MAIL/DOMAIN NAME LIST	Receive rejection/allow address/domain table
Transfer to Email table list	INBOUND ROUTING LIST	Transfer to Email table list
Transfer to Administrator list	DOCUMENT ADMIN LIST	Transfer to Administrator list
Web setting list	WEB SETTING LIST	Web setting list
Meta data set list	METADATA SET LIST	Meta data set list

## 23

### 23-2

<b>Purpose</b>	Adjustment/Setup/Operation data check
<b>Function (Purpose)</b>	Used to check the trouble history of paper jam and misfeed. (If the number of misfeed and troubles is considerably great, it may be judged as necessary to repair.)
<b>Section</b>	—

#### Operation/Procedure

Touch [EXECUTE] key to execute print of the list.

### 23-80

<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operations of the sensors and detectors in the paper feed and transport section.
<b>Section</b>	Paper feed, transport

#### Operation/Procedure

Touch [EXECUTE] key to execute print of the list.

\* When [C] key, [CA] key, [SYSTEM SETTINGS] key, or [EXECUTE] key is touched during printing, the operation is terminated.

## 24

### 24-1

<b>Purpose</b>	Data clear
<b>Function (Purpose)</b>	Used to clear the jam counter, and the trouble counter. (The counters are cleared after completion of maintenance.)

#### Section

#### Operation/Procedure

- 1) Select the item to be cleared with the keys on the touch panel.
- 2) Touch [EXECUTE] key.
- 3) Touch [YES] key.

The target counter is cleared.

MACHINE	Machine JAM counter
RSPF	RSPF JAM counter
TROUBLE	Trouble counter

<b>24-2</b>	
<b>Purpose</b>	Data clear
<b>Function (Purpose)</b>	Used to clear the number of use (the number of prints) of each paper feed section.
<b>Section</b>	—
<b>Operation/Procedure</b>	
1) Select the item to be cleared with the keys on the touch panel.	
2) Touch [EXECUTE] key.	
3) Touch [YES] key.	
The target counter is cleared.	

TRAY1	Tray 1 paper feed counter
TRAY2	Tray 2 paper feed counter
TRAY3	Tray 3 paper feed counter
TRAY4	Tray 4 paper feed counter
MFT TOTAL	Manual paper feed counter (Total)
MFT HEAVY	Manual paper feed counter (Heavy paper)
MFT OHP	Manual paper feed counter (OHP)
MFT ENV	Manual paper feed counter (Envelope)
LCC	Side LCC paper feed counter (A4LCC)
ADU	ADU paper feed counter

<b>24-3</b>	
<b>Purpose</b>	Data clear
<b>Function (Purpose)</b>	Used to clear the number of use of the finisher, RSPF, and the scan (reading) unit.
<b>Section</b>	—
<b>Operation/Procedure</b>	
1) Select the item to be cleared with the keys on the touch panel.	
2) Touch [EXECUTE] key.	
3) Touch [YES] key.	
The target counter is cleared.	

RSPF	SPF counter
SCAN	Scan counter
STAPLER	Staple counter
PUNCHER	Puncher counter
STAMP	Stamp counter
SADDLE STAPLER	Saddle staple counter
OC OPEN	OC open/close counter
RSPF OPEN	OPEN RSPF open/close counter
OC LAMP TIME	OC section lamp total lighting time

<b>24-4</b>	
<b>Purpose</b>	Data clear
<b>Function (Purpose)</b>	Used to clear the maintenance counter, the printer counters of the transfer unit and the fusing unit. (After completion of maintenance, clear the counters.)
<b>Section</b>	—
<b>Operation/Procedure</b>	
1) Select the item to be cleared with the keys on the touch panel.	
2) Touch [EXECUTE] key.	
3) Touch [YES] key.	
The target counter is cleared.	

MAINTENANCE ALL	Maintenance counter (Total)
MAINTENANCE COL	Maintenance counter (Color)
TC1 BELT	Primary transfer unit print counter
TC1 BELT RANGE	Primary transfer unit accumulated traveling distance (cm)
TC1 BELT DAY	Primary transfer unit use day (Day)
TC2 BELT	Secondary transfer unit print counter
TC2 BELT RANGE	Secondary transfer unit accumulated traveling distance (cm)
TC2 BELT DAY	Secondary transfer unit use day (Day)
FUSER UNIT	Fusing unit print counter
FUSER ACUM DAY	Fusing unit use day (Day)

<b>24-5</b>	
<b>Purpose</b>	Data clear
<b>Function (Purpose)</b>	Used to clear the developer counter. (After replacement of developer, clear the counter.)
<b>Section</b>	—
<b>Operation/Procedure</b>	
1) Select the item to be cleared with the keys on the touch panel.	
2) Touch [EXECUTE] key.	
3) Touch [YES] key.	
The target counter is cleared.	

K	Developer cartridge print counter (K)
	Developer cartridge accumulated traveling distance (cm) (K)
C	Developer cartridge print counter (C)
	Developer cartridge accumulated traveling distance (cm) (C)
M	Developer cartridge print counter (M)
	Developer cartridge accumulated traveling distance (cm) (M)
Y	Developer cartridge print counter (Y)
	Developer cartridge accumulated traveling distance (cm) (Y)

<b>24-6</b>	
<b>Purpose</b>	Data clear
<b>Function (Purpose)</b>	Used to clear the copy counter.
<b>Section</b>	—

#### Operation/Procedure

- 1) Select the item to be cleared with the keys on the touch panel.
  - 2) Touch [EXECUTE] key.
  - 3) Touch [YES] key.
- The target counter is cleared.

COPY BW	Copy (B/W) counter
COPY COL	Copy (COLOR) counter
SINGLE COLOR	Single color
2COLOR	2-color

<b>24-7</b>	
<b>Purpose</b>	Data clear
<b>Function (Purpose)</b>	Used to clear the OPC drum counter. (After replacement of the OPC drum, clear the counter.)
<b>Section</b>	—

#### Operation/Procedure

- 1) Select the item to be cleared with the keys on the touch panel.
  - 2) Touch [EXECUTE] key.
  - 3) Touch [YES] key.
- The target counter is cleared.

K	Drum cartridge print counter (K)
	Drum cartridge accumulated traveling distance (cm) (K)
C	Drum cartridge print counter (C)
	Drum cartridge accumulated traveling distance (cm) (C)
M	Drum cartridge print counter (M)
	Drum cartridge accumulated traveling distance (cm) (M)
Y	Drum cartridge print counter (Y)
	Drum cartridge accumulated traveling distance (cm) (Y)

\* The "accumulated number of drum rotation" counter of SIM22-01 is not displayed on the execution screen of this simulation, but it is cleared in connection with execution of this simulation.

<b>24-9</b>	
<b>Purpose</b>	Data clear
<b>Function (Purpose)</b>	Used clear the printer mode print counter and the self print mode print counter.
<b>Section</b>	—

#### Operation/Procedure

- 1) Select the item to be cleared with the keys on the touch panel.
  - 2) Touch [EXECUTE] key.
  - 3) Touch [YES] key.
- The target counter is cleared.

PRINT BW	Printer (B/W) counter
PRINT COL	Printer (COLOR) counter
OTHER BW	Other (B/W) counter
OTHER COL	Other (COLOR) counter

<b>24-10</b>	
<b>Purpose</b>	Data clear
<b>Function (Purpose)</b>	Used to clear the FAX counter. (Only when FAX is installed)
<b>Section</b>	—

#### Operation/Procedure

- 1) Select the item to be cleared with the keys on the touch panel.
  - 2) Touch [EXECUTE] key.
  - 3) Touch [YES] key.
- The target counter is cleared.

FAX OUTPUT	Print quantity counter (for line 1)
FAX SEND	Send counter
FAX RECEIVED	FAX receive counter
SEND IMAGES	FAX send quantity counter (for line 1)
SEND TIME	FAX send time
RECEIVED TIME	FAX receive time
ACR SEND	Number of carrier prefix attached communications

24-15

<b>Purpose</b>	Data clear
<b>Function (Purpose)</b>	Used to clear the counters related to the image send.

**Section** —

#### Operation/Procedure

- 1) Select the item to be cleared with the keys on the touch panel.
- 2) Touch [EXECUTE] key.
- 3) Touch [YES] key.

The target counter is cleared.

NET SCN ORG_B/W	Network scanner document read quantity counter (B/W) (B/W scan job)
NET SCN ORG_CL	Network scanner document read quantity counter (COLOR) (COLOR scan job)
NET SCN ORG_2CL	Network scanner document read quantity counter (2-color) (2-color scan job)
NET SCN ORG_SGL	Network scanner document read quantity counter (Single) (Single scan job)
INTERNET FAX OUTPUT	Internet FAX output quantity
INTERNET FAX SEND OUTPUT	Internet FAX send quantity
INTERNET FAX RECEIVE	Number of internet FAX receive
INTERNET FAX SEND	Number of internet FAX send
MAIL COUNTER	Number of E-Mail send
FTP COUNTER	Number of FTP send
SMB SEND	Numeric SMB send
USB CNT	Number of USB save
TRIAL MODE_B&C	Trial mode counter (B/W & COLOR scan job)
SCAN TO HDD_B/W	Scan to HDD record quantity (B/W)
SCAN TO HDD_CL	Scan to HDD record quantity (COLOR)
SCAN TO HDD_2CL	Scan to HDD record quantity (2-color)
SCAN TO HDD_SGL	Scan to HDD record quantity (Single color)

24-30

<b>Purpose</b>	Data clear
<b>Function (Purpose)</b>	Used to initialize the administrator password.

**Section** —

#### Operation/Procedure

- 1) Touch [EXECUTE] key.
- 2) Touch [YES] key.

The administrator password is initialized.

24-31

<b>Purpose</b>	Data clear
<b>Function (Purpose)</b>	Used to initialize the service mode password.

**Section** —

#### Operation/Procedure

- 1) Touch [EXECUTE] key.
- 2) Touch [YES] key.

The service mode password is initialized.

25

25-1

<b>Purpose</b>	Operation test/Check
<b>Function (Purpose)</b>	Used to check the operations of the developing section.

**Section** Process (Developing section)

#### Operation/Procedure

- 1) Select the process speed with [MIDDLE] and [LOW] keys.
- 2) Touch [EXECUTE] key.

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

TCD_K	Toner concentration sensor K
TCD_C	Toner concentration sensor C
TCD_M	Toner concentration sensor M
TCD_Y	Toner concentration sensor Y
TCV_K	Toner concentration control voltage K
TCV_C	Toner concentration control voltage C
TCV_M	Toner concentration control voltage M
TCV_Y	Toner concentration control voltage Y



<b>25-2</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to make the initial setting of toner concentration when replacing developer.
<b>Section</b>	Process (Photoconductor/Developing/Transfer/Cleaning)

#### Operation/Procedure

- 1) Select the adjustment target with the keys on the touch panel.
- 2) Touch [EXECUTE] key.  
The toner concentration sensor makes sampling of toner concentration to display the detection level.

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

Display items	Item descriptions	Display range	Default value
AT DEVE ADJ_L_K	Automatic developer adjustment value at low speed	1 – 255	128
AT DEVE ADJ_L_C		1 – 255	128
AT DEVE ADJ_L_M		1 – 255	128
AT DEVE ADJ_L_Y		1 – 255	128
AT DEVE ADJ_M_K	Automatic developer adjustment value at middle speed	1 – 255	128
AT DEVE ADJ_M_C		1 – 255	128
AT DEVE ADJ_M_M		1 – 255	128
AT DEVE ADJ_M_Y		1 – 255	128
AT DEVE VO_L_K	Automatic developer adjustment control voltage at low speed	1 – 255	128
AT DEVE VO_L_C		1 – 255	128
AT DEVE VO_L_M		1 – 255	128
AT DEVE VO_L_Y		1 – 255	128
AT DEVE VO_M_K	Automatic developer adjustment control voltage at middle speed	1 – 255	128
AT DEVE VO_M_C		1 – 255	128
AT DEVE VO_M_M		1 – 255	128
AT DEVE VO_M_Y		1 – 255	128

TCD_K	Toner concentration sensor K
TCD_C	Toner concentration sensor C
TCD_M	Toner concentration sensor M
TCD_Y	Toner concentration sensor Y
TCV_K	Toner concentration control K
TCV_C	Toner concentration control C
TCV_M	Toner concentration control M
TCV_Y	Toner concentration control Y

## 26

<b>26-1</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the paper exit tray (MX-TRX1).
<b>Section</b>	Paper exit

#### Operation/Procedure

- 1) Enter the set value with 10-key.
- 2) Touch [OK] key to save the entered content in step 1).

Item	Display	Content	Set range	Default
A	(0:YES 1:NO)	0	0 to 1	1 (NO)
		1		

<b>26-3</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the specifications of the auditor.
<b>Section</b>	Auditor

#### Operation/Procedure

Select the set target with the key on the touch panel.  
When a key is touched, the set content is saved.

Item	Key display	Content	Default
BUILT-IN AUDITOR	P10	Built-in auditor mode (standard mode) operation	P10
	EC1	The built-in auditor mode is changed to EC1.	
OUTSIDE AUDITOR	NONE	Normal operation	NONE
	P VENDOR1	Vendor mode for old-type coin vendor. Control in the copy mode only.	
	P OTHER	Vendor mode for the other external auditor connected to the coin vendor I/F	
DOC ADJ	ON	Document filing function enabled	OFF
	OFF	Document filing function disabled	
PF ADJ	ON	Continuous paper feed is performed.	OFF
	OFF	Continuous paper feed is not performed.	
VENDOR MODE (*)	MODE1	Vendor mode 1	MODE3
	MODE2	Vendor mode 2	
	MODE3	Vendor mode 3	
COUNTUP TIMING1	FUSER_IN	The charging timing is when passing the sensor paper lead edge after fusing.	EXIT_OUT
	FUSER_OUT	The charging timing is when passing the sensor paper rear edge after fusing.	
	EXIT_OUT	The charging timing is when passing the (machine, right) tray/after-process unit paper exit sensor paper rear edge.	

(\*): AR-C260 series VENDOR MODE is supported.

Diagnosis setting	The specified quantity is completed. Remainder of money left.	Insufficient money during copy job		The specified quantity is completed. No remainder of money.
		BLACK/COLOR (No remainder of money)	COLOR (Remainder of money left)	
	Condition 1	Condition 2	Condition 3	Condition 4
MODE1	Operation 1	Operation 2	Operation 2	Operation 1
MODE2	Operation 1	Operation 1	Operation 2	Operation 1
MODE3	Operation 1	Operation 3	Operation 2	Operation 3

Operation 1: Wait for auto clear setting time. Default, 60sec. Can be changed by the system setting.

Operation 2: Auto clear is not made.

Operation 3: Setting is immediately cleared. The display returns to the initial screen.

26-5

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the count mode of the total counter and the maintenance counter.
<b>Section</b>	—

#### Operation/Procedure

- 1) Select the set item with [↑] [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Touch [OK] key.

The set content in step 2) is saved. (Count-up number for A3 paper is 1 or 2.)

Item	Display	Content	Setting range *	Default
A	TOTAL (B/W)	Total counter (BLACK)	1 to 2	2
B	TOTAL (COL)	Total counter (COLOR)	1 to 2	2
C	MAINTENANCE (B/W)	Maintenance counter (BLACK)	1 to 2	2
D	MAINTENANCE (COL)	Maintenance counter (COLOR)	1 to 2	2
E	DEV (B/W)	Developer counter (BLACK)	1 to 2	2
F	DEV (COL)	Developer counter (COLOR)	1 to 2	2

\* 1 = Count up by 1

2 = Count up by 2

26-6

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the specifications (paper, fixed magnification ratio, etc.) of the destination.
<b>Section</b>	—

#### Operation/Procedure

- 1) Select the set target with the key on the touch panel.
- 2) Touch [EXECUTE] key.

The selected set content is saved.

U.S.A.	United States of America
CANADA	Canada
INCH	Inch series, other destinations
JAPAN	Japan
AB_B	AB series (B5 detection), other destinations
EUROPE	Europe
U.K.	United Kingdom
AUS.	Australia
AB_A	AB series (A5 detection), other destinations
CHINA	China

26-10

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the trial mode of the network scanner.
<b>Section</b>	—

#### Operation/Procedure

- 1) Enter the set value with 10-key.
- 2) Touch [OK] key to save the entered value.

Item	Display	Content	Setting range	Default value
A	TRIAL MODE (0:YES 1:NO)	0 Trial mode setting	0 to 1	1
		1 Trial mode cancel		



26-18

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the toner save mode.
<b>Section</b>	—

**Operation/Procedure**

- 1) Select the set item with [↑] and [↓] key.
- 2) Enter the set value with 10-key.
- 3) Touch [OK] key to save the entered value.

Item	Display	Content	Setting range	Default value
A	COPY (1:YES 0:NO)	0 Copy toner save mode is allowed	0 to 1	0
		1 Copy toner save mode is inhibited.		
B	PRINTER (1:YES 0:NO)	0 Printer toner save mode is allowed.	0 to 1	0
		1 Printer toner save mode is inhibited.		

26-30

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set allow/inhibit of HL slow-up control (CE mark support control).
<b>Section</b>	—

**Operation/Procedure**

- 1) Enter the set value with 10-key.
- 2) Touch [OK] key to save the entered value.

Item	Display	Content
A	(0:YES 1:NO)	0 CE mark control allowed
		1 CE mark control inhibited

26-35

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the display mode of Sim22-4 trouble history when a same trouble occurred repeatedly. There are two mode display as one trouble and display as several series of troubles.
<b>Section</b>	—

**Section****Operation/Procedure**

- 1) Enter the set value with 10-key.
- 2) Touch [OK] key to save the entered value.

Item	Display	Content	Default value
A	(0:ONCE 1:ANY)	0 Only once. If same as the previous one, it is not saved.	0
		1 Any time. Though same as the previous one, it is saved.	

26-38

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set Continue/Stop of print when the developer life is reached.
<b>Section</b>	Other

**Operation/Procedure**

- 1) Enter the set value with 10-key.
- 2) Touch [OK] key to save the entered value.

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

26-41

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set YES/NO of AMS setting in the center binding mode.

**Section****Operation/Procedure**

- 1) Enter the set value with 10-key.
- 2) Touch [OK] key to save the entered value.

Item	Display	Content	Default value
A	(0: YES 1: NO)	0 Center binding mode AMS setting	Refer to the list below.
		1 Center binding mode AMS cancel	

Destination	Setting value
U.S.A	0 (Cancel)
CANADA	0 (Cancel)
INCH	0 (Cancel)
JAPAN	0 (Cancel)
AB_B	0 (Cancel)
EUROPE	1 (Setting)
U.K	1 (Setting)
AUS.	0 (Cancel)
AB_A	0 (Cancel)
CHINA	0 (Cancel)

26-49

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the copy speed mode.

**Section****Operation/Procedure**

Select the set target with key.

Item	Set value	Content	Default value
POSTCARD	LOW	Postcard copy speed LOW	LOW
	HIGH	Postcard copy speed HIGH	

26-50

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set functions.

**Section****Operation/Procedure**

- 1) Select the set target with [↑] and [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Touch [OK] key to save the entered value.

Item	Display	Content description	Default value
A	BW REVERSE	1: Allowed 0: Inhibited	
B	COLOR MODE	2-color/Single color inhibit setting	Refer to the list below.
C	FINISHER FUNCTION	0: The number of discharge of special paper from the finisher is limited. 1: The number of discharge of special paper from finisher is not limited.	0 (YES)

Mode inhibit		When 2-color/ Single color inhibit	SIM setting
Single	2-color		
OFF	OFF	OFF	0
OFF	ON	OFF	1
ON	OFF	OFF	2
ON	ON	OFF	3
OFF	OFF	ON	4
OFF	ON	ON	5
ON	OFF	ON	6
ON	ON	ON	7

- \* OFF: Inhibit cancel state  
ON: Inhibit state

26-52

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set whether non-printed paper (insertion paper, cover paper) is counted up or not.

**Section****Operation/Procedure**

- 1) Enter the set value with 10-key.
- 2) Touch [OK] key to save the entered value.

Item	Content
A	0 White paper count up (Default)
	1 White paper not count up

<b>26-53</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set YES/NO of the auto color calibration.
<b>Section</b>	—

#### Operation/Procedure

- 1) Enter the set value with 10-key.
- 2) Touch [OK] key to save the entered value.

Item	Display	Content	Default value
A	(1:YES 0:NO)	1 Enable	1
		0 Disable	

<b>26-54</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the printer calibration YES/NO.
<b>Section</b>	Printer

#### Operation/Procedure

- 1) Enter the set value with 10-key.
- 2) Touch [OK] key to save the entered value.

Item	Display	Content	Default value
A	(1:YES 0:NO)	1 Enable	1
		0 Disable	

<b>26-65</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the finisher alarm mode.
<b>Section</b>	—

#### Operation/Procedure

Select the set target with the keys on the touch panel.

Item	Set value	Content	Setting range	Default value
LIMIT SHEETS	30	Staple limit sheets: 30 sheets	30 or 50	30
	50	Staple limit sheets: 50 sheets		
LIMIT COPIES	ON	Staple limit copies ON	ON or OFF	ON
	OFF	Staple limit copies OFF		

[Target paper size]

Staplable S-size paper described on the product specifications

A4, A4R, B5, B5R, 8.5 x 11, 8.5 x 11R, 16K, 16KR

\* 25 sheets for L-size paper (A3, B4, 11 x 17, 8.5 x 14, 8.5 x 13, 8K) regardless of setting

\* 25 sheets for mixed loading of a same width regardless of setting

<b>26-67</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the summer time (switching timing to the summer time and the adjustment time (shift amount)) and the time zone (for switching to the summer time and the difference between the local time and GMT (UTC) for synchronization with the internet time server).

#### Section

#### Operation/Procedure

- 1) Select a mode to be set with [TIME ZONE] [SUMMER TIME].
- 2) Select a set item with [↑] and [↓] keys.
- 3) Enter the set value with 10-key.
- 4) Touch [OK] key to save the entered value.

Category		Item	Display		Default value	
TIME ZONE		A	GMT +/-	+	1	
				—		
		B	GMT HOUR		*	
		C	GMT MINUTE		*	
SUMMER TIME		D	INTERNET	YES	*	
				NO		
		A	AUTO SUMMER TIME ADJ	ON	*	
				OFF		
		B	ADJ TIME HOUR		1	
		C	ADJ TIME MINUTE		*	
		Start time setting	D	START TIME MONTH		*
			E	START TIME DAY		*
			F	START TIME WEEK		*
			G	START TIME A DAY OF THE WEEK	MONDAY	*
					TUESDAY	
					WEDNESDAY	
					THURSDAY	
		FRIDAY				
		SATURDAY				
			SUNDAY			
H	START TIME HOUR		*			
I	START TIME MINUTE		*			
J	START MODE	DAY	*			
		WEEK & A DAY OF THE WEEK				
K	START UTC	YES	*			
		NO				

Category		Item	Display	Default value
SUMMER TIME	End time setting	L	END TIME MONTH	*
		M	END TIME DAY	*
		N	END TIME WEEK	*
		O	END TIME A DAY OF THE WEEK	*
			MONDAY	
			TUESDAY	
			WEDNESDAY	
			THURSDAY	
			FRIDAY	
			SATURDAY	
			SUNDAY	
		P	END TIME HOUR	*
		Q	END TIME MINUTE	*
		R	END MODE	*
			DAY	
		S	WEEK & A DAY OF THE WEEK	*
			YES	
			NO	

\* Refer to the initial value and set value listed below.

Setting value	Destination			
	U.S.A	CANADA	EUROPE	U.K.
Time zone correction value (hour)	-5 (Hour)	-5 (Hour)	0 (Hour)	0 (Hour)
Time zone correction value (minute)	0 (minute)	0 (minute)	0 (minute)	0 (minute)
Summer time enable/disable flag	Summer OFF	Summer OFF	Summer ON	Summer ON
Summer time start date (Month)	4 (Month)	4 (Month)	3 (Month)	3 (Month)
Summer time start date (Day)	1 (Day)	1 (Day)	1 (Day)	1 (Day)
Summer time start date (Hour)	2 (Hour)	2 (Hour)	1 (Hour)	1 (Hour)
Summer time start date (Minute)	0 (Minute)	0 (Minute)	0 (Minute)	0 (Minute)
Summer time start date (Week)	1 (Week)	1 (Week)	5 (Week)	5 (Week)
Summer time start date (Day of week)	0 (Sunday)	0 (Sunday)	0 (Sunday)	0 (Sunday)
Day of week specifying flag	0 (Day of week specifying)	0 (Day of week specifying)	0 (Day of week specifying)	0 (Day of week specifying)
UTC specifying flag	0 (UTC OFF)	0 (UTC OFF)	1 (UTC ON)	1 (UTC ON)
Summer time end date (Month)	10 (Month)	10 (Month)	10 (Month)	10 (Month)
Summer time end date (Day)	1 (Day)	1 (Day)	1 (Day)	1 (Day)
Summer time end date (Hour)	2 (Hour)	2 (Hour)	1 (Hour)	1 (Hour)
Summer time end	0 (minute)	0 (minute)	0 (minute)	0 (minute)
Week of summer time end	5th (week)	5th (week)	5th (week)	5th (week)
Day of week of summer time end	0 (Sunday)	0 (Sunday)	0 (Sunday)	0 (Sunday)
Flag to specify the day of week	0 (Day of week is specified)	0 (Day of week is specified)	0 (Day of week is specified)	0 (Day of week is specified)
Flag to specify UTC	UTC OFF	UTC OFF	UTC ON	UTC ON
Summer time correction value (Hour)	1 (Hour)	1 (Hour)	0 (Hour)	0 (Hour)
Summer time correction value (minute)	0 (minute)	0 (minute)	0 (minute)	0 (minute)
Flag to synchronize with the internet clock server	OFF	OFF	OFF	OFF

TEST

SIMULATION NO.26-67

CLOSE

SUMMER TIME&TIME ZONE ADJUSTMENT

A:

1

[ 0 ~ 1 ]

A: 1

B: 0

C: 0

D: 0

: GMT ±

: GMT HOUR

: GMT MINUTE

: INTERNET: YES

TIME ZONE

SUMMER TIME

↑

↓

OK

26-69

#### Purpose

Setting

#### Function (Purpose)

Used to set whether the toner preparation message and the toner near end message are displayed or not when the toner quantity reaches 25%.

#### Section

Process

#### Operation/Procedure

[The items which can be set by this simulation]

- Used to set whether the toner preparation message is displayed or not when the toner remaining quantity reaches 25% (set by item A).
  - Used to set whether the toner near end message is displayed or not when the toner remaining quantity reaches toner near end (set by item B).
  - Used to set whether the machine operation is allowed or not when the toner remaining quantity reaches toner end (set by item C).
  - Used to set whether the toner near end message is displayed and to set what number of sheets can be outputted (copy/print/FAX) when the toner remaining quantity reaches toner near end message with the set item B set to "0." (The set range is 0 - 200 sheets (set by item D)).
- Select an item to be set with [↑] and [↓] keys.
  - Enter the set value with 10-key.
  - When [OK] key is touched, the current set value is set.
- \* When [↑], [↓] key, [COLOR], or [BLACK] key is touched, the current set value is saved to EEPROM and RAM.

Display item		Content		Initial value
A	TONER PREPARATION (0:YESS 1:NO)	0	The toner preparation message is displayed.	0
		1	The toner preparation message is not displayed.	
B	TONER NEAREND (0:YESS 1:NO)	0	The toner near end message is displayed.	0
		1	The toner near end message is not displayed.	
C	TONER END	1	Operation enabled at TONER END	3
		2	Operation disabled at TONER END	
		3	Operation disabled at TONER END	
D	TONER END COUNT	1	0 sheet printable after TONER NEAR END *	1
		2	25 sheets printable after TONER NEAR END *	
		3	50 sheets printable after TONER NEAR END *	
		4	100 sheets printable after TONER NEAR END *	
		5	200 sheets printable after TONER NEAR END *	

\* The numbers of printable sheets specified above are calculated with A4 paper and print ratio 5% (The numbers, therefore, differ depending on the paper size and the print ratio.).

NOTE: When the set item B is set to "0" and the toner remaining quantity reaches toner near end, the toner near end message is displayed and the number of sheet set in item D can be outputted (copy/print/FAX). During this operation, insufficient density, blur, and failed color balance may be resulted depending on the user conditions.

To prevent against occurrence of those symptoms, set the set item D to "1." When the toner remaining quantity reaches toner near end, the toner near end display is not displayed and the toner end display is shown to disable copy/print/FAX, and toner cartridge replace is required.

**TEST** SIMULATION NO.26-69 **CLOSE**

TONER NEAR END SETTING

A: 0 : TONER PREPARATION (0: YES 1: NO)

B: 0 : TONER NEAR END (0: YES 1: NO)

C: 3 : TONER END

D: 1 : TONER END COUNT

[ 0 ~ 1 ]

OK

## 27

### 27-1

<b>Purpose</b>	Operation test/Check
<b>Function (Purpose)</b>	Used to set whether the detection of communication error with RIC (U7-00) is disabled or not.
<b>Section</b>	Communication (RIC/MODEM)

#### Operation/Procedure

- 1) Enter the set value with 10-key.
- 2) Touch [OK] key to save the entered value.

Item	Display	Content	Default value
A	DISABLE	0: YES 1: NO	0: Not detected YES NO

**TEST** SIMULATION NO.27-01 **CLOSE**

DISABLING OF U7-00 TROUBLE

A: 0 : DISABLE : NO

[ 0 ~ 1 ]

OK

### 27-12

<b>Purpose</b>	Adjustment/Setup/Operation data output/Check (Display/Print)
<b>Function (Purpose)</b>	Used to display the high-density, half-tone process control error history and the automatic register adjustment error history.
<b>Section</b>	Process

#### Operation/Procedure

**TEST** SIMULATION NO.27-12 **CLOSE**

TROUBLE PRECOGNITION RESULT(ADJUSTMENT\_ERROR)

DATE	ERROR CODE
HV ERR1 : 99/99/99 99 : 99 : 99	9999
HV ERR2 : 99/99/99 99 : 99 : 99	9999
HV ERR3 : 99/99/99 99 : 99 : 99	9999
HV ERR4 : 99/99/99 99 : 99 : 99	9999
HV ERR5 : 99/99/99 99 : 99 : 99	9999
H_TONE ERR1 : 99/99/99 99 : 99 : 99	9999

1/3

### 27-13

<b>Purpose</b>	Adjustment/Setup/Operation data output/Check (Display/Print)
<b>Function (Purpose)</b>	Used to display the history of paper feed time between sensors.
<b>Section</b>	—

#### Operation/Procedure

**TEST** SIMULATION NO.27-13 **CLOSE**

TROUBLE PRECOGNITION RESULT(FEED TIME)

DATE	SENSOR CODE	PASS TIME	STANDARD TIME
FEED TIME1 : 99/99/99 99:99:99	99999	99999	99999
FEED TIME2 : 99/99/99 99:99:99	99999	99999	99999
FEED TIME3 : 99/99/99 99:99:99	99999	99999	99999
FEED TIME4 : 99/99/99 99:99:99	99999	99999	99999
FEED TIME5 : 99/99/99 99:99:99	99999	99999	99999
FEED TIME6 : 99/99/99 99:99:99	99999	99999	99999

1/4

## 30

### 30-1

<b>Purpose</b>	Operation test/Check
<b>Function (Purpose)</b>	Used to check the operations of the sensors and detectors in the paper feed section, the paper transport section, and the paper exit section.
<b>Section</b>	Paper feed

#### Operation/Procedure

- \* When each sensor is turned ON, the corresponding sensor name is highlighted.

PPD1	Resist front detection
PPD2	Resist detection
POD1	Fusing after detection
POD2	Paper exit detection
POD3	Right tray paper exit detection
TFD2	Main unit paper exit full detection
TFD3	Right tray paper exit full detection
HPOS	Shifter home detection
DSW_R	Right door open/close detection
DSW_C	Cassette 1 transport cover open/close detection
DSW_F	Front cover open/close detection
DHPD_K	K phase detection
DHPD_CL	CL phase detection
1TNFD	Waste toner full detection
1TUD_CL	Primary transfer belt separation CL detection
1TUD_K	Primary belt separation BK detection

**TEST** SIMULATION NO.30-01 **CLOSE**

MAIN UNIT SENSOR CHECK

PPD1	PPD2	POD1	POD2
POD3	TFD2	TFD3	HPOS
DSW_R	DSW_C	DSW_F	DHPD_K
DHPD_CL	1TNFD	1TUD_CL	1TUD_K

1/1

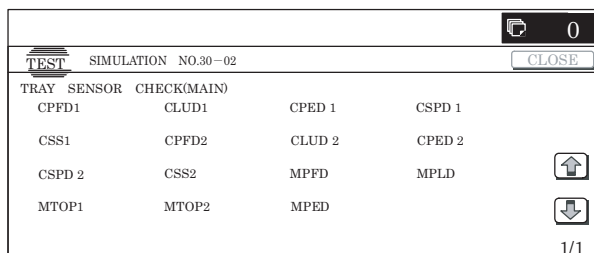
30-2

<b>Purpose</b>	Operation test/Check
<b>Function (Purpose)</b>	Used to check the operations of the sensors and detectors of the paper feed section and the related circuits.
<b>Section</b>	Paper feed

**Operation/Procedure**

\* When each sensor is turned ON, the corresponding sensor name is highlighted.

CPFD1	Cassette 1 transport detection
CLUD1	Cassette 1 upper limit detection
CPED1	Cassette 1 paper empty detection
CSPD1	Cassette 1 paper remaining quantity detection
CSS1	Cassette 1 presence detection
CPFD2	Cassette 2 transport detection
CLUD2	Cassette 2 upper limit detection
CPED2	Cassette 2 paper empty detection
CSPD2	Cassette 2 paper remaining quantity detection
CSS2	Cassette 2 presence detection
MPFD	Manual feed paper entry detection
MPLD	Manual feed paper length detection
MTOP1	Manual feed tray reduction detection
MTOP2	Manual feed tray extension detection
MPED	Manual feed paper empty detection



40

40-2

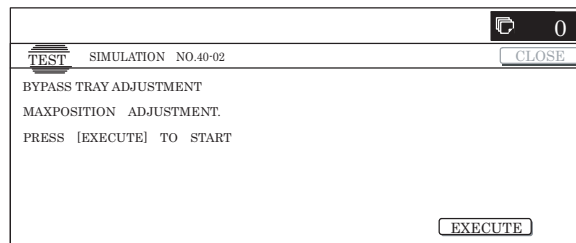
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the detection level of the manual feed tray paper width detector.
<b>Section</b>	Paper feed

**Operation/Procedure**

- 1) Set the manual paper feed guide to the maximum width (MAX).
- 2) Touch [EXECUTE] key.  
The maximum width (MAX) detection level is recognized.
- 3) Set the manual paper feed guide to the P1 width (A4).
- 4) Touch [EXECUTE] key.  
The P1 width (A4) detection level is recognized.
- 5) Set the manual paper feed guide to the P2 width (A4R).
- 6) Touch [EXECUTE] key.  
The P2 width (A4R) detection level is recognized.
- 7) Set the manual paper feed guide to the minimum width (MIN).
- 8) Touch [EXECUTE] key.  
The minimum width (MIN) detection level is recognized.

If the above procedure are not properly performed, "ERROR" is displayed. If properly performed, "COMPLETE" is displayed.

MAX POSITION	Manual feed max. width
P1 (A4) POSITION	Manual feed P1 position width (A4)
P2 (A4R) POSITION	Manual feed P2 position width (A4R)
MIN POSITION	Manual feed min. width



40-7

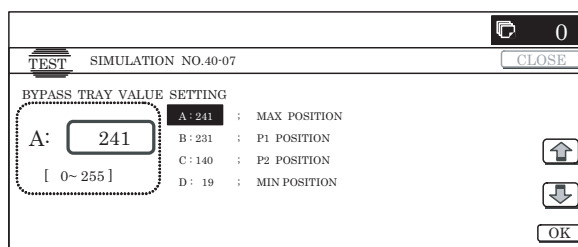
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the adjustment value of the detection level of the manual paper feed tray paper width detector.

<b>Section</b>	Paper feed
----------------	------------

**Operation/Procedure**

- 1) Select the set item with [↑] and [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Touch [OK] key to save entered value.

Item	Item	Item content	Default value
A	MAX POSITION	Manual feed max. width	241
B	P1 POSITION	Manual feed P1 position (A4)	231
C	P2 POSITION	Manual feed P2 position (A4R)	140
D	MIN POSITION	Manual feed min. width	19



41

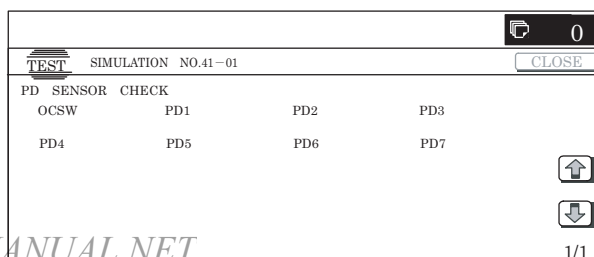
41-1

<b>Purpose</b>	Operation test/Check
<b>Function (Purpose)</b>	Used to display the operating state of the document sensor.
<b>Section</b>	Other

**Operation/Procedure**

\* When each sensor is turned ON, the corresponding sensor name is highlighted.

OCSW	Original cover SW
PD1	Document detection 1
PD2	Document detection 2
PD3	Document detection 3
PD4	Document detection 4
PD5	Document detection 5
PD6	Document detection 6
PD7	Document detection 7



<b>41-2</b>	
<b>Purpose</b>	Operation test/Check
<b>Function (Purpose)</b>	Used to adjust the detection level of the document size sensor.
<b>Section</b>	Other

#### Operation/Procedure

- 1) Open the document cover, and touch [EXECUTE] key without any document on the document table.  
The sensor level without document is recognized.
  - 2) Set A3 paper on the document table and touch [EXECUTE] key.  
The sensor level with a document is recognized.
- When the above operation is completed, it is displayed.

<b>41-3</b>	
<b>Purpose</b>	Operation test/Check
<b>Function (Purpose)</b>	Used to check the operation of the document size sensor and control circuit.
<b>Section</b>	Other

#### Operation/Procedure

The detection output level (A/D value) of OCSW and document detection sensors (PD1 to PD7) are displayed in real time.  
The range of PD1 to PD7 light reception (A/D value) is 1 to 255. (Default: 128)

## 43

<b>43-1</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the fusing temperature in each operation mode.
<b>Section</b>	Fusing

#### Operation/Procedure

- 1) Select the set item with [↑] and [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Touch [OK] key to save the entered value.

Item	Display	Content	Default value
A	HL_UM READY	TH_UM set value in READY standby	180
B	HL_LM READY	TH_LM set value in READY standby	105
C	HL_US READY	TH_US set value in READY standby	160
D	HL_UM PLAIN PAPER BW	BW normal paper TH_UM set value	175
E	HL_LM PLAIN PAPER BW	BW normal paper TH_LM set value	130
F	HL_US PLAIN PAPER BW	BW normal paper TH_US set value	180
G	HL_UM PLAIN PAPER CL	COLOR normal paper TH_UM set value	175
H	HL_LM PLAIN PAPER CL	COLOR normal paper TH_LM set value	130
I	HL_US PLAIN PAPER CL	COLOR normal paper TH_US set value	180
J	WARMUP FUMON HL_UM T	Fusing paper front rotation start TH_UM set value	145
K	WARMUP FUMOFF HL_LM T	Fusing paper front rotation start TH_LM set value	75
L	WARM UP END TIME	WARM UP complete time	76
M	HL_UM HEAVY PAPER	Heavy paper TH_UM set value	170
N	HL_LM HEAVY PAPER	Heavy paper TH_LM set value	140
O	HL_US HEAVY PAPER	Heavy paper TH_US set value	175
P	HL_UM OHP PAPER	OHP-TH_UM set value	170
Q	HL_LM OHP PAPER	OHP-TH_LM set value	145
R	HL_US OHP PAPER	OHP-TH_US set value	170
S	HL_UM ENV PAPER	Envelope TH_UM set value	180
T	HL_LM ENV PAPER	Envelope TH_LM set value	145
U	HL_US ENV PAPER	Envelope TH_US set value	180
V	HL_UM E-STAR	TH_UM set value when preheating	142
W	TH_US E-STAR	TH_US set value when preheating	130
X	PRE-JOB	TH_UM set value when resetting from preheating	160

TH_UM	Fusing upper thermister main
TH_LM	Fusing lower thermister main
TH_US	Fusing upper thermister sub
HL_UM	Heater lamp upper main
HL_LM	Heater lamp lower main
HL_US	Heater lamp upper sub



<b>43-4</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the fusing temperature in each operation mode. (Continued from 43-01.)
<b>Section</b>	Fusing

#### Operation/Procedure

- 1) Select the set item with [↑] and [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Touch [OK] key to save the entered value.

Item	Display	Content	Default value
A	HL_UM PLAIN PAPER BW DUP	BW plain paper duplex TH_UM set value	175
B	HL_LM PLAIN PAPER BW DUP	BW plain paper duplex TH_LM set value	100
C	HL_US PLAIN PAPER BW DUP	BW plain paper duplex TH_US set value	180
D	PLAIN PAPER BW DUP APP CNT	BW plain paper duplex applicable number of sheets	1
E	HL_UM PLAIN PAPER CL DUP	COLOR plain paper duplex TH_UM set value	175
F	HL_LM PLAIN PAPER CL DUP	COLOR plain paper duplex TH_LM set value	100
G	HL_US PLAIN PAPER CL DUP	COLOR plain paper duplex TH_US set value	175
H	PLAIN PAPER CL DUP APP CNT	COLOR plain paper duplex applicable number of sheets	1

TH_UM	Fusing upper thermister main
TH_LM	Fusing lower thermister main
TH_US	Fusing upper thermister sub
HL_UM	Heater lamp upper main
HL_LM	Heater lamp lower main
HL_US	Heater lamp upper sub

TEST SIMULATION NO.43-04

FUSER TEMP SETUP2 FOR PAPER

A: 170 [ 70~230 ]

A: 170 : HL\_UM PLAIN PAPER BW DUP

B: 100 : HL\_LM PLAIN PAPER BW DUP

C: 175 : HL\_US PLAIN PAPER BW DUP

D: 1 : PLAIN PAPER BW DUP APP CNT

OK

<b>43-20</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to correct the environments of low temperature and low humidity (LL) for the fusing temperature setting 1 for each paper (SIM 43-01).
<b>Section</b>	Fusing

#### Operation/Procedure

- 1) Select the set item with [↑] and [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Touch [OK] key to save the entered value.

Item	Display item	Item content	Default value
A	HL_UM READY LL	Correction value for TH_UM set value in Ready standby under LL environment	55
B	HL_LM READY LL	Correction value for TH_LM set value in Ready standby under LL environment	55
C	HL_US READY LL	Correction value for TH_US set value in Ready standby under LL environment	55

Item	Display item	Item content	Default value
D	HL_UM PLAIN BW LL	Correction value for BW plain paper TH_UM set value under LL environment	55
E	HL_LM PLAIN BW LL	Correction value for BW plain paper TH_LM set value under LL environment	55
F	HL_US PLAIN BW LL	Correction value for BW plain paper TH_US set value under LL environment	55
G	HL_UM PLAIN CL LL	Correction value for COLOR plain paper TH_UM set value under LL environment	55
H	HL_LM PLAIN CL LL	Correction value for COLOR plain paper TH_LM set value under LL environment	55
I	HL_US PLAIN CL LL	Correction value for COLOR plain paper TH_US set value under LL environment	55
J	WARMUP FUMON HL_UM T LL	Correction value for fusing motor front rotation start TH_UM set value under LL environment	60
K	WARMUP FUMOFF HL_LM T LL	Correction value for fusing motor front rotation start TH_LM set value under LL environment	55
L	WARMUP END TIME LL	Correction value for WARMUP complete time under LL environment	80
M	HL_UM HEAVY LL	Correction value for heavy paper TH_UM set value under LL environment	60
N	HL_LM HEAVY LL	Correction value for heavy paper TH_LM set value under LL environment	60
O	HL_US HEAVY LL	Correction value for heavy paper TH_US set value under LL environment	60
P	HL_UMOHP LL	Correction value for OHP TH_UM set value under LL environment	60
Q	HL_LM OHP LL	Correction value for OHP TH_LM set value under LL environment	60
R	HL_US OHP LL	Correction value for OHP TH_US set value under LL environment	60
S	HL_UM ENVELOPE LL	Correction value for ENVELOPE TH_UM set value under LL environment	60
T	HL_LM ENVELOPE LL	Correction value for ENVELOPE TH_LM set value under LL environment	60
U	HL_US ENVELOPE LL	Correction value for ENVELOPE TH_US set value under LL environment	60
V	HL_UM E-STAR LL	Correction value for preheating TH_UM set value under LL environment	60
W	HL_US E-STAR LL	Correction value for preheating TH_US set value under LL environment	60
X	PRE-JOB LL	Correction value for TH_UM set value when resetting from preheating under LL environment	60

TEST SIMULATION NO.43-20

FUSER TEMP ADJUSTMENT (LL)

A: 55 [ 1~99 ]

A: 55 : HL\_UM READY LL

B: 55 : HL\_LM READY LL

C: 55 : HL\_US READY LL

D: 55 : HL\_UM PLAIN BW LL

OK



43-21

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to perform correction of high temperature and high humidity (H/H) environment for the fusing temperature setting 1 (SIM 43-01) for each paper.
<b>Section</b>	Fusing

**Operation/Procedure**

- 1) Select the set item with [↑] and [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Touch [OK] key to save the entered value.

Item	Item display	Content of item	Default value
A	HL_UM READY HH	Correction value for TH_UM set value in READY standby under HH environment	45
B	HL_LM READY HH	Correction value for TH_LM set value in READY standby under HH environment	45
C	HL_US READY HH	Correction value for TH_US set value in READY standby under HH environment	45
D	HL_UM PLAIN BW HH	Correction value for BW plain paper TH_UM set value under HH environment	45
E	HL_LM PLAIN BW HH	Correction value for BW plain paper TH_LM set value under HH environment	45
F	HL_US PLAIN BW HH	Correction value for BW plain paper TH_US set value under HH environment	45
G	HL_UM PLAIN CL HH	Correction value for COLOR plain paper TH_UM set value under HH environment	45
H	HL_LM PLAIN CL HH	Correction value for COLOR plain paper TH_LM set value under HH environment	45
I	HL_US PLAIN CL HH	Correction value for COLOR plain paper TH_US set value under HH environment	45
J	WARMUP FUMON HL_UM T HH	Correction value for fusing motor front rotation start TH_UM set value under HH environment	50
K	WARMUP FUMOFF HL_LM T HH	Correction value for fusing motor front rotation end TH_UM set value under HH environment	50
L	WARMUP END TIME HH	Correction value for WARMUP end time under HH environment	50
M	HL_UM HEAVY HH	Correction value for heavy paper TH_UM set value under HH environment	50
N	HL_LM HEAVY HH	Correction value for heavy paper TH_LM set value under HH environment	50
O	HL_US HEAVY HH	Correction value for heavy paper TH_US set value under HH environment	50
P	HL_UM OHP HH	Correction value for OHP TH_UM set value under HH environment	50
Q	HL_LM OHP HH	Correction value for OHP TH_LM set value under HH environment	50
R	HL_US OHP HH	Correction value for OHP TH_US set value under HH environment	50
S	HL_UM ENVELOPE HH	Correction value for ENVELOPE TH_UM set value under HH environment	50
T	HL_LM ENVELOPE HH	Correction value for ENVELOPE TH_LM set value under HH environment	50
U	HL_US ENVELOPE HH	Correction value for ENVELOPE TH_US set value under HH environment	50

Item	Item display	Content of item	Default value
V	E-STAR HH	Correction value for preheating TH_UM set value under HH environment	50
W	HL_US E-STAR HH	Correction value for preheating TH_US set value under HH environment	50
X	PRE-JOB HH	Correction value for TH_UM set value when resetting from preheating under HH environment	50

TEST SIMULATION NO.43-21 CLOSE

FUSER TEMP ADJUSTMENT (HH)

A: 45 : HL\_UM READY HH

B: 45 : HL\_LM READY HH

C: 45 : HL\_US READY HH

D: 45 : HL\_UM PLAIN BW HH

[ 1 ~ 99]

OK

43-22

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to perform L/L (low temperature, low humidity) correction for the fusing temperature setting 1 (SIM 43-04) for each paper.
<b>Section</b>	Fusing

**Operation/Procedure**

- 1) Select the set item with [↑] and [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Touch [OK] key to save the entered value.

Item	Display item	Item content	Default value
A	HL_UM PLAIN BW DUP LL	Correction value for upper TH_UM BW plain paper duplex under LL environment	60
B	HL_LM PLAIN BW DUP LL	Correction value for lower TH_LM BW plain paper duplex under LL environment	60
C	HL_US PLAIN BW DUP LL	Correction value for upper TH_US BW plain paper duplex under LL environment	60
D	PLAIN BW DUP APP CNT LL	Correction value for BW plain paper duplex applicable number of sheets under LL environment	50
E	HL_UM PLAIN CL DUP LL	Correction value for upper TH_UM COLOR plain paper duplex under LL environment	60
F	HL_LM PLAIN CL DUP LL	Correction value for upper TH_LM COLOR plain paper duplex under LL environment	60
G	HL_US PLAIN CL DUP LL	Correction value for upper TH_US COLOR plain paper duplex under LL environment	60
H	PLAIN CL DUP APP CNT LL	Correction value for COLOR plain paper duplex applicable number of sheets under LL environment	50

TEST SIMULATION NO.43-22 CLOSE

FUSER TEMP ADJUSTMENT (LL-DUP)

A: 10 : HL\_UM PLAIN BW DUP LL

B: 60 : HL\_LM PLAIN BW DUP LL

C: 60 : HL\_US PLAIN BW DUP LL

D: 50 : PLAIN BW DUP APP CNT LL

[ 1 ~ 99]

OK

<b>43-23</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to perform H/H (high temperature, high humidity) correction for the fusing temperature setting 1 (SIM 43-04) for each paper.
<b>Section</b>	Fusing

#### Operation/Procedure

- 1) Select the set item with [↑] and [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Touch [OK] key to save the entered value.

Item	Display item	Item content	Default value
A	HL_UM PLAIN BW DUP HH	Correction value for TH_UM BW plain paper duplex under HH environment	45
B	HL_LM PLAIN BW DUP HH	Correction value for TH_LM BW plain paper duplex under HH environment	50
C	HL_US PLAIN BW DUP HH	Correction value for TH_US BW plain paper duplex under HH environment	45
D	PLAIN BW DUP APP CNT HH	Correction value for BW plain paper duplex applicable number of sheets under HH environment	50
E	HL_UM PLAIN CL DUP HH	Correction value for TH_UM COLOR plain paper duplex under HH environment	45
F	HL_LM PLAIN CL DUP HH	Correction value for TH_LM COLOR plain paper duplex under HH environment	50

Item	Display item	Item content	Default value
G	HL_US PLAIN CL DUP HH	Correction value for TH_US COLOR plain paper duplex under HH environment	45
H	PLAIN CL DUP APP CNT HH	Correction value for COLOR plain paper duplex applicable number of sheets under HH environment	50

TEST

SIMULATION NO.43-23

CLOSE

FUSER TEMP ADJUSTMENT (HH-DUP)

A: 45

A : 45 : HL\_UM PLAIN BW DUP HH

B : 50 : HL\_LM PLAIN BW DUP HH

C : 45 : HL\_US PLAIN BW DUP HH

D : 50 : PLAIN BW DUP APP CNT HH

[ 1 ~ 99]

↑

↓

OK

<b>43-24</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to enter the correction values for SIM 43-1 and SIM 43-4 temperature corrections.
<b>Section</b>	Fusing

#### Operation/Procedure

- 1) Select the set item with [↑] and [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Touch [OK] key to save the entered value.

Item	Display items	Item descriptions			Default value
A	NN_120_WUP_HL_UM & HL_US	WARMUP end temperature correction value	120°C or below when turning on the power under NN environment	Common to items HL_UM, HL_US	50
B	NN_120_WUP_HL_LM			Item HL_LM	50
C	LL_120_WUP_HL_UM & HL_US		120°C or below when turning on the power under LL environment	Common to items HL_UM, HL_US	50
D	LL_120_WUP_HL_LM			Item HL_LM	50
E	HH_120_WUP_HL_UM & HL_US		120°C or below when turning on the power under HH environment	Common to items HL_UM, HL_US	50
F	HH_120_WUP_HL_LM			Item HL_LM	50
G	ON_120_WUP_HL_UM	Temperature correction value immediately after completion of warm-up and during continuation of temperature correction	120°C or below when turning on the power	Item HL_UM	40
H	ON_120_WUP_HL_US			Item HL_US	55
I	NN_120_FUS_DUP_HL_UM & HL_US	Fusing temperature correction value	120°C or below when turning on the power under NN environment	Common to items HL_UM, HL_US	55
J	NN_120_FUS_DUP_HL_LM			Item HL_LM	50
K	LL_120_FUS_DUP_HL_UM & HL_US		120°C or below when turning on the power under LL environment	Common to items HL_UM, HL_US	60
L	LL_120_FUS_DUP_HL_LM			Item HL_LM	50
M	HH_120_FUS_DUP_HL_UM & HL_US		120°C or below when turning on the power under HH environment	Common to items HL_UM, HL_US	50
N	HH_120_FUS_DUP_HL_LM			Item HL_LM	50
O	NN_120_FUS_DUP_CNT	Fusing duplex paper exit count	Under NN environment		5
P	LL_120_FUS_DUP_CNT		Under LL environment		10
Q	HH_120_FUS_DUP_CNT		Under HH environment		5
R	COOL_DOWN_HEAVY	Cool-down time	Heavy paper		15
S	COOL_DOWN_OHP		OHP		30
T	COOL_DOWN_DEVELOP		Envelope		40
U	WUP DUP TIME	Temperature correction continuation time immediately after completion of warm-up	—		90

TH_UM	Fusing upper thermister MAIN center
TH_LM	Fusing lower thermister MAIN
TH_US	Fusing upper thermister SUB edge
HL_UM	Heater lamp upper MAIN
HL_LM	Heater lamp lower MAIN
HL_US	Heater lamp upper SUB

## 44

### 44-1

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set each correction operation function in the image forming (process) section.
<b>Section</b>	—

#### Operation/Procedure

- 1) Select set item with the touch panel.  
(The selected item is highlighted)
- 2) Touch [EXECUTE] key. (The set value is saved)

Display	Content	Default value
HV	Normal operation high-density process control YES/NO setting	Allow
HT	Normal operation half-tone process control YES/NO setting	Allow
TC	Transfer output correction YES/NO setting *1	Allow
MD_VG	Membrane decrease grid voltage correction YES/NO setting	Allow
MD_LD	Membrane decrease laser power voltage correction YES/NO setting	Inhibit
MD_EV	Membrane decrease environment grid voltage correction YES/NO setting	Allow
MD_DL	Membrane decrease discharge light quantity correction YES/NO setting	Allow
MD_DL_EV	Membrane decrease environment discharge light quantity correction YES/NO setting	Inhibit
TN_HUM	Toner density humidity correction YES/NO setting	Allow
TN_AREA	Toner density area correction YES/NO setting	Allow
TN_LIFE	Toner density life correction YES/NO setting	Allow
TN_COV	Toner density print rate correction YES/NO setting	Allow
TN_PROCON	Toner density process control correction YES/NO setting	Allow
TN_ENV	Toner density environment correction YES/NO setting	Allow
TN_DRIP	Toner density correction, unconditional supply YES/NO setting	Allow
TN_SPEND	Toner compulsory consumption mode YES/NO setting	Allow
PHT	1Pixel half-tone process control correction YES/NO setting	Inhibit
AR_AUTO	Auto resist adjustment YES/NO setting	Allow
AR_ERROR	Error check YES/NO setting during auto resist adjustment	Allow
DM_PHASE	Drum phase alignment YES/NO setting	Allow
SENSITIVITY	Toner density correction YES/NO setting	Inhibit
PRT_HT	Half tone process control printer correction feedback Enable/Disable setting	Allow

### 44-2

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Image density sensor gain adjustment
<b>Section</b>	Process

#### Operation/Procedure

When [EXECUTE] key is touched, the adjustment is executed automatically. After completion of the adjustment, the adjustment result is displayed.

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

Item	Display item	Content	Default value
A	PCS_CL LED ADJ	Color sensor light emitting quantity adjustment value	21
B	PCS_K LED ADJ	Black sensor light emitting quantity adjustment value	21
C	PCS_CL DARK	Color dark voltage	0
D	PCS_K DARK	Black dark voltage	0
E	PCS_K GRND	Belt surface when item B adjustment is completed.	0
F	PCS_K BELT MAX	Belt surface input max. value	0
G	PCS_K BELT MIN	Belt surface input min. value	0
H	PCS_K BELT DIF	Belt surface input difference (Item E – Item F)	0
I	REG_F LED ADJ	Registration sensor light emitting quantity adjustment value F	56
J	REG_R LED ADJ	Registration sensor light emitting quantity adjustment value R	56
K	REG_F DARK	Registration sensor dark voltage F	0
L	REG_R DARK	Registration sensor dark voltage R	0
M	REG_F GRND	Belt surface when completion of Item I adjustment	0
N	REG_R GRND	Belt surface when completion of Item J adjustment	0
O	REG_F BELT MAX	Belt surface input max. value (Front side)	0
P	REG_F BELT MIN	Belt surface input min. value (Front side)	0
Q	REG_F BELT DIF	Belt surface input difference (Item O – Item P)	0
R	REG_R BELT MAX	Belt surface input max. value (Rear side)	0
S	REG_R BELT MIN	Belt surface input min. value (Rear side)	0
T	REG_R BELT DIF	Belt surface input difference (Item R – Item S)	0
U	REG_F PATCH (K)	Patch light receiving potential F (K)	0
V	REG_F PATCH (C)	Patch light receiving potential F (C)	0
W	REG_F PATCH (M)	Patch light receiving potential F (M)	0
X	REG_F PATCH (Y)	Patch light receiving potential F (Y)	0
Y	REG_R PATCH (K)	Patch light receiving potential R (K)	0
Z	REG_R PATCH (C)	Patch light receiving potential R (C)	0

Item	Display item	Content	Default value
AA	REG_R PATCH (M)	Patch light receiving potential R (M)	0
AB	REG_R PATCH (Y)	Patch light receiving potential R (Y)	0

TEST

SIMULATION NO.44-02

CLOSE

PROCON GAIN ADJUSTMENT

PCS\_CL LED ADJ : 21

PCS\_K GRND : 0

PCS\_K LED ADJ : 21

PCS\_K BELT MAX : 0

PCS\_CL DARK : 0

PCS\_K BELT MIN : 0

PCS\_K DARK : 0

PCS\_K BELT DIF : 0

EXECUTE

1/4

44-4

**Purpose** (Do not use this function unless specially required)

**Function (Purpose)** Used to set the target density level in the image density/correction.

**Section** Process

#### Operation/Procedure

Item	Display content	Default value
A	PCS_CL TARGET	Color sensor target set value
B	PCS_K TARGET	Black sensor target set value
C	LED_CL OUTPUT	Color sensor light emitting quantity set value
D	LED_K OUTPUT	Black sensor light emitting quantity set value
E	PCS ADJUSTMENT LIMIT	Sensor adjustment target limit value
F	BELT GROUND DIF	Belt 1 lap, effective difference between upper and lower values
G	BIAS_CL STANDARD DIF	Bias (for color) reference calculating difference
H	BIAS_BK STANDARD DIF	Bias (for black) reference calculating difference
I	BIAS PATCH INTERVAL	Patch bias output interval
J	Y_PAT TARGET ID	Patch density standard value (YELLOW)
K	M_PAT TARGET ID	Patch density standard value (MAGENTA)
L	C_PAT TARGET ID	Patch density standard value (CYAN)
M	K_PAT TARGET ID	Patch density standard value (BLACK)
N	HV BK_GROUND LIMIT	Patch position surface light receiving effective range

TEST

SIMULATION NO.44-04

CLOSE

PROCON INITIAL DENSITY SETUP

A: 108

A : 108 : PCS\_C TARGET

B : 155 : PCS\_K TARGET

C : 21 : LED\_C OUTPUT

D : 21 : LED\_K OUTPUT

OK

44-6

**Purpose** Adjustment

**Function (Purpose)** Used to execute the high density process correction compulsorily.

**Section** Process

#### Operation/Procedure

Touch [EXECUTE] key.

In case of normal completion, the result is saved.

In case of abnormal completion, "ERROR" is displayed.  
(Refer to the table below)

CL_SEN_ADJ_ERR	Color sensor adjustment error
BK_SEN_ADJ_ERR	Black sensor adjustment error
K_HV_ERR	K high density process control error
C_HV_ERR	C high density process control error
M_HV_ERR	M high density process control error
Y_HV_ERR	Y high density process control error
TIMEOUT_ERR	Timeout

TEST

SIMULATION NO.44-06

CLOSE

PROCON COMPULSORY EXECUTION

PRESS [EXECUTE] TO START

EXECUTE

44-9

**Purpose** Adjustment/Setup/Operation data output/Check (Display/Print)

**Function (Purpose)** Used to check data of correction result in the image forming section.

**Section** Process

#### Operation/Procedure

Mode	Display item (*: correction value)	Content description	Default value
CPY/PRN	BLACK : GB ***/** DV ***/**	High density process control GB/DV data (KCMY)	GB: 630 DV: 430
	CYAN : GB ***/** DV ***/**		
	MAGENTA : GB ***/** DV ***/**		
	YELLOW : GB ***/** DV ***/**		
	BLACK : GB ***/** DV ***/**	High density normal (middle speed display) GB/DV data (KCMY)	GB: 630 DV: 430
	CYAN : GB ***/** DV ***/**		
	MAGENTA : GB ***/** DV ***/**		
	YELLOW : GB ***/** DV ***/**		
	BLACK : GB ***/** DV ***/**	High density normal (low speed display) GB/DV data (KCMY)	GB: 600 DV: 400
	CYAN : GB ***/** DV ***/**		
	MAGENTA : GB ***/** DV ***/**		
	YELLOW : GB ***/** DV ***/**		
OTHER	TN HUD AREA	Toner control display humidity area	9
	TN HUD DATA	Toner control display humidity AD value	0
	TC TMP AREA	Transfer display temperature area	4

Mode	Display item (*: correction value)	Content description	Default value
OTHER	TC TMP DATA	Transfer display temperature AD value	0
	TC HUD AREA	Transfer display humidity area	4
	TC HUD DATA	Transfer display humidity AD value	0
	MD HUD AREA	Membrane decrease display humidity area	9
	MD HUD DATA	membrane decrease display humidity AD value	0
	MD K STEP	Drum membrane decrease correction step display (KCMY)	0
	MD C STEP		
	MD M STEP		
	MD Y STEP		
	MD K DRUM COUNTER	Membrane decrease drum traveling distance area	0
	MD C DRUM COUNTER		
	MD M DRUM COUNTER		
	MD Y DRUM COUNTER		
	MD K REVISE(VG) : L *** M *** H***	Drum membrane decrease grid voltage correction display (KCMY)	0
	MD C REVISE(VG) : L *** M ***		
	MD M REVISE(VG) : L *** M ***		
	MD Y REVISE(VG) : L *** M ***		
	MD K REVISE(LD) : L *** M *** H***	Drum membrane decrease laser power voltage correction (KCMY)	0
	MD C REVISE(LD) : L *** M ***		
	MD M REVISE(LD) : L *** M ***		
	MD Y REVISE(LD) : L *** M ***		
	MD K REVISE(HV) : L *** M *** H***	High density membrane decrease environment GB correction display (KCMY)	0
	MD C REVISE(HV) : L *** M ***		
	MD M REVISE(HV) : L *** M ***		
	MD Y REVISE(HV) : L *** M ***		
	MD K REVISE(CP) : L *** M *** H***	Drum membrane decrease environment grid voltage correction display (KCMY)	0
	MD C REVISE(CP) : L *** M ***		
	MD M REVISE(CP) : L *** M ***		
	MD Y REVISE(CP) : L *** M ***		
	MD K REVISE COL (DL): L *** M ***	Drum membrane decrease discharge light quantity correction (%)	50
	MD C REVISE COL (DL): L *** M ***		
	MD M REVISE COL (DL): L *** M ***		
	MD Y REVISE COL (DL): L *** M ***		
	MD K REVISE COL (DL EV): L *** M***	Drum membrane decrease environment discharge light quantity correction (%)	0
	MD C REVISE COL (DL EV): L *** M***		
	MD M REVISE COL (DL EV): L *** M***		
	MD Y REVISE COL (DL EV): L *** M***		

Mode	Display item (*: correction value)	Content description	Default value
OTHER	DESTINATION	Machine side control CRUM destination	CRUM information
	MODEL TYPE	Machine model type	0
	CRUM DEST_K	CRUM destination	CRUM information
	CRUM DEST_C		
	CRUM DEST_M		
	CRUM DEST_Y		
	PROCON COUNT HV	Number of execution of high density process control	0
	PROCON COUNT HT	Number of execution of half tone process control	0

0

TEST SIMULATION NO.44-09 CLOSE

PROCON DATA DISP (PROCON/NORMAL(M))

BLACK : GB\_ 230/630 DV\_ 0/430    BLACK : GB\_ 230/600 DV\_ 0/400  
 CYAN : GB\_ 230/630 DV\_ 0/430    CYAN : GB\_ 230/600 DV\_ 0/400  
 MAGENTA : GB\_ 230/630 DV\_ 0/430    MAGENTA : GB\_ 230/600 DV\_ 0/400  
 YELLOW : GB\_ 230/630 DV\_ 0/430    YELLOW : GB\_ 230/600 DV\_ 0/400

CPY/PRN    OTHER

1/2

#### 44-12

**Purpose** Adjustment/Setup/Operation data output/Check (Display/Print)

**Function (Purpose)** Used to check the sampling toner image patch density data in the image density correction.

**Section** Process

#### Operation/Procedure

Display item	Content description	Default value
CARB DATA	Calibration plate sensor value	108
SEAL ADJ DATA	Jig patch seal sensor value	108
ADK_SL (K)	Developing characteristics gradient coefficient	0
ADK_INT (K)	Developing characteristics intercept coefficient	0
ID(K)	Sensor target value	0.00
ID(CMY)	Color sensor target set value	0.00
N-1	Patch data nth front patch (n = 1 to 10)	0
N-2	Patch data nth center patch (n = 1 to 10)	0
N-3	Patch data nth rear patch (n = 1 to 10)	0

0

TEST SIMULATION NO.44-12 CLOSE

PATCH/TARGET DATA DISPLAY

CARB DATA : 108    TARGET(K) : 0.00  
 SEAL ADJ DATA : 108    TARGET(C) : 0.00  
 ADK SL(K) : 0.00    TARGET(M) : 0.00  
 ADK INT(K) : 0.0    TARGET(Y) : 0.00

TARGET PATCH

1/1

44-13

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Color image density sensor adjustment (Adjustment by the jig)
<b>Section</b>	Process

**Operation/Procedure**

For detail of the procedure, refer to [ADJ5A] in [6] ADJUSTMENT.

Item	Display item	Description	Default value
A	PCS_CL CARB OUT	Calibration plate sensor value	108
B	PCS_CL DARK	Color dark voltage	0
C	PCS_CL LED ADJ	Color sensor light emitting quantity adjustment value	21

44-14

<b>Purpose</b>	Adjustment/Setup/Operation data output/ Check (Display/Print)
<b>Function (Purpose)</b>	Used to check the output level of the temperature/humidity sensor.
<b>Section</b>	Process

**Operation/Procedure**

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

TH_UM	Fusing upper thermister main A/D value (Temperature °C/AD value)
TH_UM_AD1	Fusing upper thermistor main compensation sensor temperature (°C) AD value (AD value)
TH_UM_AD2	Fusing upper thermistor main sensor AD value (AD value)
TH_LM	Fusing lower thermister main A/D value (Temperature °C/AD value)
TH_US	Fusing upper thermister sub A/D value (Temperature °C/AD value)
TEMPRATURE	Temperature thermister (Temperature/AD value)
HUMIDITY	Humidity sensor (Humidity/AD value)
TH1_LSU	Thermister 1 A/D value (Temperature °C/AD value)

44-16

<b>Purpose</b>	Adjustment/Setup/Operation data output/ Check (Display/Print)
<b>Function (Purpose)</b>	Used to check the toner density control data.
<b>Section</b>	Process (Developing)

**Operation/Procedure**

Display item	Item content	Default value
TONER DEN_LT(M)	Current toner density sensor output value (final value) at middle speed	129
TONER DEN_ST(M)	Current toner density reference value (including all the correction values) at middle speed	128
TONER DEN_LT(L)	Current toner density sensor output value (final value) at low speed	129
TONER DEN_ST(L)	Current toner density reference value (including all the correction values) at low speed	128

Display item	Item content	Default value
AUTO DEVE (M)	Automatic developer adjustment value (at middle speed)	128
ALL(M)	All correction reference value (at middle speed)	
AUTO DEVE (L)	Automatic developer adjustment value (at low speed)	
ALL(L)	All correction reference value (at low speed)	
AREA	Area correction value	0
HUD	Humidity correction value	
PRINT RATE	Print rate correction value	
PROCON	Process control correction value	
LIFE	Life correction value	500
SENSITIVITY	Sensitivity correction value	

Display item	Item content	Content description	Default value
AUTO DEVE VO (M)	Automatic developer adjustment control voltage (at middle speed)	Sensor control voltage value (at middle speed) after executing SIM 25-02	128
ALL VO (M)	All correction reference control voltage (at middle speed)	Control voltage reference value (at middle speed) used to calculate all the correction values for auto developer adjustment value	
AUTO DEVE VO (L)	Automatic developer adjustment control voltage (at low speed)	Sensor control voltage value (at low speed) after executing SIM 25-02	
ALL VO (L)	All correction reference control voltage (at low speed)	Control voltage reference value (at low speed) used to calculate all the correction values for auto developer adjustment value	
AREA VO	Area correction control voltage	Control voltage correction value for environment area	0
HUD VO	Humidity correction control voltage	Control voltage correction value for humidity change	
PRINT RATE VO	Print rate correction control voltage	Control voltage correction value for document print rate	
PROCON VO	Process control correction control voltage	Control voltage correction value for high density process control result	



Display item	Item content	Content description	Default value
LIFE VO	Life correction control voltage	Control voltage correction value for developer life	0
SENSITIVITY VO	Sensitivity correction control voltage	Control voltage correction value for toner density sensor sensitivity	500
ENV VO	Environment correction control voltage	Control voltage correction value under high temperature environment	0

Display item	Item content	Content description	Set range	Default value
AUTO DEVE AREA	Auto developer adjustment area	Auto developer adjustment humidity area display	1 to 14	8
AREA	Current area	Current humidity area display		

<b>44-21</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to register the half tone process control reference value.
<b>Section</b>	Process

#### Operation/Procedure

Touch [EXECUTE] key, the process control reference value is registered.

<b>44-22</b>	
<b>Purpose</b>	Adjustment/Setup/Operation data output/Check (Display/Print)
<b>Function (Purpose)</b>	Used to check the toner patch image density level of each color in half tone image forming section correction.
<b>Section</b>	Process

#### Operation/Procedure

<b>44-24</b>	
<b>Purpose</b>	Adjustment/Setup/Operation data output/Check (Display/Print)
<b>Function (Purpose)</b>	(This simulation is not used in the market.) Used to display the process control result.
<b>Section</b>	Process

#### Operation/Procedure

<b>44-25</b>	
<b>Purpose</b>	Adjustment/Setup/Operation data output/Check (Display/Print)
<b>Function (Purpose)</b>	(This simulation is not used in the market)
<b>Section</b>	Process

#### Operation/Procedure

<b>44-26</b>	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to execute the half tone process control compulsorily.
<b>Section</b>	Process

#### Operation/Procedure

Touch [EXECUTE] key.

The process control is started compulsorily.

For the result of process control, refer to the table below.

44-27

<b>Purpose</b>	Data clear
<b>Function (Purpose)</b>	Used to clear the half tone process control correction value.
<b>Section</b>	Process

**Operation/Procedure**

- 1) Touch [EXECUTE] key.
- 2) Touch [YES] key to clear the half tone process control correction value.

44-28

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the process control execution timing.
<b>Section</b>	Process

**Operation/Procedure**

- 1) Select the set item with [↑] and [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Touch [OK] key to save the entered value.

Item				Default value
A	SW ON	When the power is turned ON (When sleep is canceled)	0: Allow 1: Inhibit	0
B	24H	When 24 hours or more passed with READY condition (sleep setting)	0: Allow 1: Inhibit	0
C	HUM	When a change in temperature/humidity for each item L is greater than item M when compared with the previous process control execution	0: Allow 1: Inhibit	0
D	REV1	When the accumulated traveling distance of BK or M photoconductor has passed for a certain time after supplying the power	0: Allow 1: Inhibit	0
E	REV2	When the accumulated traveling distance of BK or M photoconductor has passed for a certain time after execution of the previous density correction	0: Allow 1: Inhibit	0
F	INITIAL	Warm-up after clearing counter of photoconductor and developer unit	0: Allow 1: Inhibit	0
G	PIX	When the toner consumption counter reached the specified accumulated count	0: Allow 1: Inhibit	1
H	HUM_LIMIT	The setting condition of item C is added to item A to G, I, V	0: Allow 1: Inhibit	1
I	REV2_REFRESH	When the accumulated traveling distance of the M position photoconductor unit exceeds a certain level in execution the REFRESH mode	0: Allow 1: Inhibit	0

Item				Default value
J	REFRESH MODE	Procon performance timing select between execution and non-execution of the REFRESH mode	0: Allow 1: Inhibit	1
K	BK ONLY	Monochrome print continuation BK process control execution inhibit/allow setting and number of repetitions	0: Allow Five times 1: Allow Once 2: Allow Twice 3: Allow Three times 4: Allow Four times 5: Allow Five times 6: Inhibit	5
L	HUM HOUR	Item C temperature/humidity monitoring time interval	1-24	2
M	HUM_DIF	Item C area difference specified value	1-9	2
N	BK_RATIO	Item E BK photoconductor specified accumulated rotation distance value	10: Equivalent to every 80 20: Equivalent to every 160 30: Equivalent to every 240	20
O	M_RATIO	Item E M photoconductor specified accumulated rotation distance value	10: Equivalent to every 80 20: Equivalent to every 160 30: Equivalent to every 240	20
P	PIX_RATIO	Item G toner consumption count specified accumulated value	1-999	100
Q	COLOR BORDER	M photoconductor traveling distance upper limit when executing BK process control	1-999	20
R	2TRAN_CLEAN_TIME1	Secondary transfer cleaning process time judgement threshold value 1	1-999	200
S	2TRAN_CLEAN_TIME2	Secondary transfer cleaning process time judgement threshold value 2	1-999	300
T	2TRAN_CLEAN_TIME3	Secondary transfer cleaning process time judgement threshold value 3	1-999	500
U	REFRESH_RATIO	M photoconductor accumulated travel distance value in REFRESH mode	1-999	20
V	DAY	After completion of a color job after passing the specified number of days in execution of the REFRESH mode, or when warming up if there is no color job	0-999	14



44-29

<b>Purpose</b>	(Do not use in the market)
<b>Function (Purpose)</b>	Used to select the half tone correction during a job.
<b>Section</b>	Process
<b>Operation/Procedure</b>	

Item	Display item	Set range	Default value
A	COPY	0: No execution	4
B	PRINTER	1: HV only	2
C	FAX	2: HV → PHT	2
D	SELF PRINT	3: HV → HT 4: HV → PHT → HT	4

44-31

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the phase of the photoconductor.
<b>Section</b>	Process (OPC drum)
<b>Operation/Procedure</b>	

NOTE: Since it is rather difficult to perform the manual photoconductor phase adjustment with this simulation, use SIM 50-22 to perform the automatic adjustment.

44-37

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Image density adjustment setting
<b>Section</b>	—
<b>Operation/Procedure</b>	

- 1) Select color target for adjustment with K, Y, M, C keys.
- 2) Select adjustment item with [↑] and [↓] keys.
- 3) Enter the value with 10-key.
- 4) Touch [OK] key to save the entered value.

Key	Item	Display	Content	Default
K	A	DV_ADJ_CL_K_L_DATA_1	Color print developing bias correction data 1 (low speed)	1
	B	DV_ADJ_CL_K_L_DATA_2	Color print developing bias correction data 2 (low speed)	2
	C	DV_ADJ_CL_K_L_DATA_3	Color print developing bias correction data 3 (low speed)	3
	D	DV_ADJ_CL_K_M_DATA_1	Color print developing bias correction data 1 (medium speed)	1
	E	DV_ADJ_CL_K_M_DATA_2	Color print developing bias correction data 2 (medium speed)	2
	F	DV_ADJ_CL_K_M_DATA_3	Color print developing bias correction data 3 (medium speed)	3
	G	DV_ADJ_BK_H_DATA_1	Black print developing bias correction data 1 (high speed)	1
	H	DV_ADJ_BK_H_DATA_2	Black print developing bias correction data 2 (high speed)	2
	I	DV_ADJ_BK_H_DATA_3	Black print developing bias correction data 3 (high speed)	3
	J	DV_ADJ_START_CL_K_L_1	Color print developing bias correction start position data 1 (less than 10s low speed)	6
	K	DV_ADJ_START_CL_K_L_2	Color print developing bias correction start position data 2 (more than 10s, less than 60s low speed)	5
	L	DV_ADJ_START_CL_K_L_3	Color print developing bias correction start position data 3 (more than 60s, less than 240s low speed)	3
	M	DV_ADJ_START_CL_K_L_4	Color print developing bias correction start position data 4 (less than 240s low speed)	1
	N	DV_ADJ_START_CL_K_M_1	Color print developing bias correction start position data 1 (less than 10s middle speed)	6
	O	DV_ADJ_START_CL_K_M_2	Color print developing bias correction start position data 2 (more than 10s, less than 60s middle speed)	5
	P	DV_ADJ_START_CL_K_M_3	Color print developing bias correction start position data 3 (more than 60s, less than 240s middle speed)	3
	Q	DV_ADJ_START_CL_K_M_4	Color print developing bias correction start position data 4 (more than 240s middle speed)	1
	R	DV_ADJ_START_BK_H_1	Black print developing bias correction start position data 1 (less than 10s high speed)	6
	S	DV_ADJ_START_BK_H_2	Black print developing bias correction start position data 2 (more than 10s, less than 60s high speed)	5
	T	DV_ADJ_START_BK_H_3	Black print developing bias correction start position data 3 (more than 60s, less than 240s high speed)	3
	U	DV_ADJ_START_BK_H_4	Black print developing bias correction start position data 4 (more than 240s high speed)	1

Key	Item	Display	Content	Default
C	A	DV_ADJ_CL_C_L_DATA_1	Developing bias correction data 1 (low speed)	1
	B	DV_ADJ_CL_C_L_DATA_2	Developing bias correction data 2 (low speed)	2
	C	DV_ADJ_CL_C_L_DATA_3	Developing bias correction data 3 (low speed)	3
	D	DV_ADJ_CL_C_M_DATA_1	Developing bias correction data 1 (middle speed)	1
	E	DV_ADJ_CL_C_M_DATA_2	Developing bias correction data 2 (middle speed)	2
	F	DV_ADJ_CL_C_M_DATA_3	Developing bias correction data 3 (middle speed)	3
	G	DV_ADJ_START_CL_C_L_1	Developing bias correction start position data 1 (less than 10s low speed)	6
	H	DV_ADJ_START_CL_C_L_2	Developing bias correction start position data 2 (more than 10s, less than 60s low speed)	5
	I	DV_ADJ_START_CL_C_L_3	Developing bias correction start position data 3 (more than 60s, less than 240s low speed)	3
	J	DV_ADJ_START_CL_C_L_4	Developing bias correction start position data 4 (more than 240s low speed)	1
	K	DV_ADJ_START_CL_C_M_1	Developing bias correction start position data 1 (less than 10s middle speed)	6
	L	DV_ADJ_START_CL_C_M_2	Developing bias correction start position data 2 (more than 10s, less than 60s middle speed)	5
	M	DV_ADJ_START_CL_C_M_3	Developing bias correction start position data 3 (more than 60s, less than 240s middle speed)	3
M	N	DV_ADJ_START_CL_C_M_4	Developing bias correction start position data 4 (more than 240s middle speed)	1
	A	DV_ADJ_CL_M_L_DATA_1	Developing bias correction data 1 (low speed)	1
	B	DV_ADJ_CL_M_L_DATA_2	Developing bias correction data 2 (low speed)	2
	C	DV_ADJ_CL_M_L_DATA_3	Developing bias correction data 3 (low speed)	3
	D	DV_ADJ_CL_M_M_DATA_1	Developing bias correction data 1 (middle speed)	1
	E	DV_ADJ_CL_M_M_DATA_2	Developing bias correction data 2 (middle speed)	2
	F	DV_ADJ_CL_M_M_DATA_3	Developing bias correction data 3 (middle speed)	3
	G	DV_ADJ_START_CL_M_L_1	Developing bias correction start position data 1 (less than 10s low speed)	6
	H	DV_ADJ_START_CL_M_L_2	Developing bias correction start position data 2 (more than 10s, less than 60s low speed)	5
	I	DV_ADJ_START_CL_M_L_3	Developing bias correction start position data 3 (more than 60s, less than 240s low speed)	3

Key	Item	Display	Content	Default
M	J	DV_ADJ_START_CL_M_L_4	Developing bias correction start position data 4 (more than 240s low speed)	1
	K	DV_ADJ_START_CL_M_M_1	Developing bias correction start position data 1 (less than 10s middle speed)	6
	L	DV_ADJ_START_CL_M_M_2	Developing bias correction start position data 2 (more than 10s, less than 60s middle speed)	5
	M	DV_ADJ_START_CL_M_M_3	Developing bias correction start position data 3 (more than 60s, less than 240s middle speed)	3
	N	DV_ADJ_START_CL_M_M_4	Developing bias correction start position data 4 (more than 240s middle speed)	1
Y	A	DV_ADJ_CL_Y_L_DATA_1	Developing bias correction data 1 (low speed)	1
	B	DV_ADJ_CL_Y_L_DATA_2	Developing bias correction data 2 (low speed)	2
	C	DV_ADJ_CL_Y_L_DATA_3	Developing bias correction data 3 (low speed)	3
	D	DV_ADJ_CL_Y_M_DATA_1	Developing bias correction data 1 (middle speed)	1
	E	DV_ADJ_CL_Y_M_DATA_2	Developing bias correction data 2 (middle speed)	2
	F	DV_ADJ_CL_Y_M_DATA_3	Developing bias correction data 3 (middle speed)	3
	G	DV_ADJ_START_CL_Y_L_1	Developing bias correction start position data 1 (less than 10s low speed)	6
	H	DV_ADJ_START_CL_Y_L_2	Developing bias correction start position data 2 (more than 10s, less than 60s low speed)	5
	I	DV_ADJ_START_CL_Y_L_3	Developing bias correction start position data 3 (more than 60s, less than 240s low speed)	3
	J	DV_ADJ_START_CL_Y_L_4	Developing bias correction start position data 4 (more than 240s low speed)	1
	K	DV_ADJ_START_CL_Y_M_1	Developing bias correction start position data 1 (less than 10s middle speed)	6
	L	DV_ADJ_START_CL_Y_M_2	Developing bias correction start position data 2 (more than 10s, less than 60s middle speed)	5
	M	DV_ADJ_START_CL_Y_M_3	Developing bias correction start position data 3 (more than 60s, less than 240s middle speed)	3
	N	DV_ADJ_START_CL_Y_M_4	Developing bias correction start position data 4 (more than 240s middle speed)	1

0

TEST SIMULATION NO.44-37

CLOSE

IMAGE DENSITY (DVB) ADJUSTMENT SETTING

A:

1

[ 0 ~ 5 ]

A:1

:

DV\_ADJ\_CL\_K\_L\_DATA\_1

B:2

:

DV\_ADJ\_CL\_K\_L\_DATA\_2

C:3

:

DV\_ADJ\_CL\_K\_L\_DATA\_3

D:1

:

DV\_ADJ\_CL\_K\_M\_DATA\_1

K

C

M

Y

OK

<b>44-43</b>	
<b>Purpose</b>	Adjustment/Setup/Operation data output/Check (Display/Print)
<b>Function (Purpose)</b>	Used to display each developing unit installing state AD value.
<b>Section</b>	Process (Developing)
<b>Operation/Procedure</b>	

Item	Item name	Item content
A	DVCH KIND K	K developing unit kind state
B	DVCH KIND C	C developing unit kind state
C	DVCH KIND M	M developing unit kind state
D	DVCH KIND Y	Y developing unit kind state
E	DVCH_AD_K	K developing unit installation AD value
F	DVCH_AD_C	C developing unit installation AD value
G	DVCH_AD_M	M developing unit installation AD value
H	DVCH_AD_Y	Y developing unit installation AD value

0

TEST SIMULATION NO.44-43 CLOSE

DEVELOPER UNIT AD MONITOR

DVCH KIND K : \*                      DVCH AD K : \*\*\*  
DVCH KIND C : \*                      DVCH AD C : \*\*\*  
DVCH KIND M : \*                      DVCH AD M : \*\*\*  
DVCH KIND Y : \*                      DVCH AD Y : \*\*\*

1/1

<b>44-52</b>	
<b>Purpose</b>	(This function is not used)
<b>Function (Purpose)</b>	Used to check the toner patch image density level of each color in 1 pixel half tone correction.
<b>Section</b>	Process
<b>Operation/Procedure</b>	

0

TEST SIMULATION NO.44-52 CLOSE

1 PIXEL HALF TONE CORRECT RESULT

PTK PTC PTM PTY                      PTK PTC PTM PTY  
ID 1 : 255 255 255 255              ID 4 : 255 255 255 255  
ID 2 : 255 255 255 255              ID 5 : 255 255 255 255  
ID 3 : 255 255 255 255              ID 6 : 255 255 255 255

1/3

<b>44-54</b>	
<b>Purpose</b>	(This function is not used)
<b>Function (Purpose)</b>	Used to display 1 pixel half tone correction result.
<b>Section</b>	Process
<b>Operation/Procedure</b>	

0

TEST SIMULATION NO.44-54 CLOSE

1 PIXEL HALF TONE RESULT DISPLAY

[EX-LOW] A: 01.000 , B: 100.000  
[LOW] A: -10.000 , B: -200.000 , C: 200.000  
[CONNECT] A: 10.000 , B: -150.000  
[MID] A: 05.000 , B: 200.000 , C: 150.000

K C M Y

NEXT 1/2

<b>44-56</b>	
<b>Purpose</b>	(This function is not used)
<b>Function (Purpose)</b>	1 pixel half tone correction is executed compulsorily
<b>Section</b>	Process
<b>Operation/Procedure</b>	

0

TEST SIMULATION NO.44-56 CLOSE

1PIXEL HALF TONE DENSITY CORRECT EXECUTION

TOUGH [EXECUTE] THEN EXECUTION START.

EXECUTE

<b>44-57</b>	
<b>Purpose</b>	(This function is not used)
<b>Function (Purpose)</b>	1 pixel half tone correction value is cleared
<b>Section</b>	Process
<b>Operation/Procedure</b>	

0

TEST SIMULATION NO.44-57 CLOSE

1 PIXEL HALF TONE ADJUSTMENT DATA CLEAR

ARE YOU SURE? YES NO

EXECUTE

## 46

<b>46-1</b>	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the copy density in color copy mode.
<b>Section</b>	Scanner
<b>Operation/Procedure</b>	

- 1) Select target item of the adjustment with [↑] and [↓] keys.
- 2) Enter the adjustment value with 10-key.
- 3) Touch [OK] key to save the entered value.

Item	Display	Description	Default value
A	AUTO	Auto	50
B	TEXT	Text	50
C	TEXT/PRINTED PHOTO	Text/Printed Photo	50
D	TEXT/PHOTO	Text/Photo	50
E	PRINTED PHOTO	Printed photo	50
F	PHOTOGRAPH	Photograph	50
G	MAP	Map	50
H	LIGHT	Light density document	50
I	TEXT (COPY TO COPY)	Text (Copy document)	50
J	TEXT/PRINTED PHOTO (COPY TO COPY)	Text/Print (Copy document)	50
K	PRINTED PHOTO (COPY TO COPY)	Printed photo (Copy document)	50
L	TEXT (COLOR TONE ENHANCEMENT)	Text (Color tone enhancement)	50

Item	Display	Description	Default value
M	TEXT/PRINTED PHOTO (COLOR TONE ENHANCEMENT)	Text/Print (Color tone enhancement)	50
N	TEXT/PHOTO (COLOR TONE ENHANCEMENT)	Text/Photograph (Color tone enhancement)	50
O	PRINTED PHOTO (COLOR TONE ENHANCEMENT)	Printed Photo (Color enhancement)	50
P	PHOTOGRAPH (COLOR TONE ENHANCEMENT)	Photograph (Color tone enhancement)	50
Q	MAP (COLOR TONE ENHANCEMENT)	Map (Color tone enhancement)	50
R	SINGLE COLOR	Single color	50
S	SINGLE COLOR (COPY TO COPY)	Single color (Copy document)	50
T	TWO COLOR	2-color (red/black) copy	50
U	TWO COLOR (COPY TO COPY)	2-color (red/black) copy (Copy document)	50

46-2

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the copy density in monochrome copy mode.
<b>Section</b>	Scanner

#### Operation/Procedure

- 1) Select target item of the adjustment with [↑] and [↓] keys.
- 2) Enter the adjustment value with 10-key.
- 3) Touch [OK] key to save the entered value.

Item	Display	Content	Default value
A	AUTO1	Auto1	50
B	AUTO2	Auto2	50
C	TEXT	Text	50
D	TEXT/PRINTED PHOTO	Text/Printed Photo	50
E	TEXT/PHOTO	Text/Photo	50
F	PRINTED PHOTO	Printed Photo	50
G	PHOTOGRAPH	Photograph	50
H	MAP	Map	50
I	TEXT (COPY TO COPY)	Text (Copy document)	50
J	TEXT/PRINTED PHOTO (COPY TO COPY)	Text/Printed Photo (Copy document)	50
K	PRINTED PHOTO (COPY TO COPY)	Printed Photo (Copy document)	50
L	LIGHT	Light density document	50

46-4

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the density in color scanner mode.
<b>Section</b>	Scanner

#### Operation/Procedure

- 1) Select target item of the adjustment with [↑] and [↓] keys.
- 2) Enter the adjustment value with 10-key.
- 3) Touch [OK] key to save the entered value.

Item	Display	Content	Default value
A	TEXT	Text	50
B	TEXT/PRINTED PHOTO	Text/Printed Photo	50
C	TEXT/PHOTO	Text/Photo	50
D	PRINTED PHOTO	Printed Photo	50
E	PHOTOGRAPH	Photograph	50
F	MAP	Map	50

46-5

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the density in monochrome scanner mode.
<b>Section</b>	Scanner

#### Operation/Procedure

- 1) Select target item of the adjustment with [↑] and [↓] keys.
- 2) Enter the adjustment value with 10-key.
- 3) Touch [OK] key to save the entered value.

Item	Display	Content	Default value
A	AUTO TEXT	Auto text	50
B	AUTO TEXT/PRINT PHOTO	Auto text/Print Photo	50
C	AUTO TEXT/PHOTO	Auto text/Photo	50
D	TEXT	Text	50
E	TEXT/PRINT PHOTO	Text/Print Photo	50
F	TEXT/PHOTO	Text/Photo	50
G	PRINTED PHOTO	Printed Photo	50
H	PHOTOGRAPH	Photograph	50
I	MAP	Map	50

<b>46-8</b>	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the scanner color balance RGB adjustment.
<b>Section</b>	Scanner

#### Operation/Procedure

- 1) Select adjustment target with [B] [G] [R] keys.
- 2) Select target item of the adjustment with [↑] and [↓] keys.
- 3) Enter the set value with 10-key.
- 4) Touch [OK] key to save the entered value.

Item	Display	Content	Default value
A	LOW DENSITY POINT	Low density side correction set value	50
B	HIGH DENSITY POINT	High density side correction set value	50

<b>46-9</b>	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust copy density in copy mode.
<b>Section</b>	RSPF

#### Operation/Procedure

- 1) Select adjustment target with [↑] and [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Touch [OK] key to save the entered value.

Item	Display	Content	Set range	Default value
A	COPY: LOW	RSPF copy mode exposure adjustment (low density side)	1 to 99	42
B	SCAN: LOW	RSPF scanner mode exposure adjustment (low density side)	1 to 99	42
C	FAX: LOW	RSPFFAX mode exposure adjustment (low density side)	1 to 99	42
D	COPY: HIGH	RSPF copy mode exposure adjustment (high density side)	1 to 99	53
E	SCAN: HIGH	RSPF scanner mode exposure adjustment (high density side)	1 to 99	53
F	FAX: HIGH	RSPFFAX mode exposure adjustment (high density side)	1 to 99	53

<b>46-10</b>	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Engine color balance manual adjustment
<b>Section</b>	Engine

#### Operation/Procedure

- 1) Select adjustment target mode with touch panel key.
- 2) Select color adjustment target with [K][C][M][Y] keys.
- 3) Select target item of the adjustment with [↑] and [↓] keys.
- 4) Enter the set value with 10-key.
- 5) Touch [OK] key to save the entered value.

<b>46-16</b>	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Engine color balance manual adjustment (all modes for monochrome)
<b>Section</b>	Engine

#### Operation/Procedure

- 1) Select target item of the adjustment with [↑] and [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Touch [OK] key to save the entered value.

<b>46-19</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set monochrome auto exposure mode.
<b>Section</b>	Scanner

#### Operation/Procedure

Select target item with touch panel.

When item is selected, it is highlighted and the setting change is saved.

Item	Content	Set value	Default value
AE_MODE	Auto exposure mode	MODE1, MODE2	MODE1
AE_STOP_COPY	Auto BLACK exposure STOP (for copy)	ON/OFF	ON
AE_STOP_FAX	Auto BLACK exposure STOP (for FAX)	ON/OFF	ON
AE_STOP_SCAN	Auto BLACK exposure STOP (for scanner)	ON/OFF	ON
AE_FILTER	Auto exposure filter setup	SOFT	NORMAL
		NORMAL	
		SHARP	

TEST SIMULATION NO.46-19

EXPOSURE MODE SETUP (B/W-AE)

AE\_MODE : **MODE1** **MODE2**

AE\_STOP COPY : **OFF** **ON**

AE\_STOP FAX : **OFF** **ON**

AE\_STOP SCAN : **OFF** **ON**

AE\_FILTER : **SOFT** **NORMAL** **SHARP** 1/1

46-21

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Engine color balance manual adjustment for all modes in color
<b>Section</b>	Engine

#### Operation/Procedure

- 1) Select color adjustment target with [K][C][M][Y] keys.
- 2) Select target item of the adjustment with [↑] and [↓] keys.
- 3) Enter the adjustment value with 10-key.
- 4) Touch [OK] key to save the entered value.

TEST SIMULATION NO.46-21

ENGINE COLOR BALANCE MANUAL ADJUSTMENT [ALL(COLOR)]

A: **500** [245~755]

B: 500 : POINT2

C: 500 : POINT3

D: 500 : POINT4

**K** **C** **M** **Y** **EXECUTE** **OK**

46-23

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to perform the half tone highest density correction.
<b>Section</b>	—

#### Operation/Procedure

- 1) Enter the set value with 10-key.  
\* 0: Allow 1: Inhibit
- 2) Touch [OK] key to save the entered value.

TEST SIMULATION NO.46-23

ENGINE MAXIMUM DENSITY ADJUSTMENT MODE

A: **0** [ 0 ~ 1 ] (0:ENABLE 1:DISABLE)

**EXECUTE** **OK**

46-24

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to perform the engine half tone auto density adjustment.
<b>Section</b>	Engine

#### Operation/Procedure

- 1) Touch [EXECUTE] key.  
The half tone auto density adjustment is performed and self print is outputted.

- 2) Place the outputted self print patch on the glass table, and select a process mode with [FACTORY] and [SERVICE] on the touch panel.
- 3) Touch [EXECUTE] key.  
The patch is scanned and 16 patch self print is outputted.
- 4) Touch [OK] key to save correction value and reference value.

(Initial screen)

TEST SIMULATION NO.46-24

ENGINE HALFTONE AUTO ADJUSTMENT

PRESS [EXECUTE] TO PROCON EXECUTION AND PRINT THE TEST PATCH.  
(PLEASE USE SPECIFIED TYPE OF A3 OR 11"x17" SIZE PAPER FOR THIS ADJUSTMENT)

**EXECUTE**

(Output patch read (FACTORY))

TEST SIMULATION NO.46-24

ENGINE HALFTONE AUTO ADJUSTMENT

PLEASE SELECT THE MODE (FACTORY) OR (SERVICE) AND PLACE THE PRINTED TEST PATCH ON DOCUMENT GLASS THEN PRESS [EXECUTE].

\*LIGHT AREA AT LEFT SIDE ON DOCUMENT GLASS.

**FACTORY** **SERVICE** **EXECUTE**

46-25

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to perform the color balance adjustment in the single color mode.
<b>Section</b>	Image process (ICU)

#### Operation/Procedure

- 1) Select color adjustment target with [C][M][Y] keys.
- 2) Select target item of the adjustment with [↑] and [↓] keys.
- 3) Enter set value with 10-key.
- 4) Touch [OK] key to save the entered value.

Item	Description	Default value		
		C	M	Y
A	RED	0	255	255
B	GREEN	255	0	255
C	BLUE	255	255	0
D	YELLOW	0	0	255
E	MAGENTA	0	255	0
F	CYAN	255	0	0

TEST SIMULATION NO.46-25

SINGLE COLOR MODE COLOR BALANCE SETUP

A: **255** [ 0 ~ 255 ]

B: 255 : GREEN

C: 0 : BLUE

D: 255 : YELLOW

**C** **M** **Y** **EXECUTE** **OK**



46-26

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to perform the default setting of color balance in single color mode.
<b>Section</b>	Image process (ICU)

**Operation/Procedure**

- 1) Touch [EXECUTE] key.
- 2) Touch [YES] key.

The color balance setting in single color mode is returned to the default value.

46-27

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to perform the engine/gamma calculation formula coefficient setting.
<b>Section</b>	Image process (ICU)

**Operation/Procedure**

- 1) Select set item with [ $\uparrow$ ] and [ $\downarrow$ ] keys.
- 2) Enter the set value with 10-key.
- 3) Touch [OK] key to save the entered value.

Item	Display	Set range	Default value
A	BLACK TEXT (SLOPE)	Black text edge area engine $\gamma$ curve calculating coefficient (slope) setting	50
B	BLACK TEXT (INTERCEPT)	Black text edge area engine $\gamma$ curve calculating coefficient (intercept) setting	50
C	COLOR TEXT (SLOPE)	Color text edge area engine $\gamma$ curve calculating coefficient (slope) setting	50
D	COLOR TEXT (INTERCEPT)	Color text edge area engine $\gamma$ curve calculating coefficient (intercept) setting	50
E	ED TEXT (SLOPE)	Error diffusion edge area engine $\gamma$ curve calculating coefficient (slope) setting	50
F	ED TEXT (INTERCEPT)	Error diffusion edge area engine $\gamma$ curve calculating coefficient (intercept) setting	50

46-28



<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	(Information on this simulation may be requested in some cases. However, this function is basically not used in the market.)
<b>Section</b>	Image process (ICU)

**Operation/Procedure**

Category	Detail of category	Display		Content	
ACS (Auto recognition of Color document/ Monochrome document)	RESULT (Judgment result)	COL/MONO	COLOR MONO	2 kinds (COLOR document, Monochrome document)	COLOR BLACK
	STATISTICS (Image process statistic amount)	ACSCONT		ACS judgment counter value	
COLOR AE (Color auto exposure)	RESULT (Judgment result)	SITAJI_JUDGE		Base division detection result	
	STATISTICS (Image process statistic amount)	RATE_SCR		Mesh ratio	
		SHITAJI		Base number judgment result	
		BEAT_JUDGE		Background judgment result	
		SUM_SITAJI_SCR		Base area mesh number	
ORG RECOG (Document type auto recognition)	RESULT (Judgment result)	ORIGINAL	TXT	Document	Auto text
			TXT/HT		Auto text mesh
			HT		Auto mesh
			TXT/PIC		Auto text/photo
			PIC		Auto photo
			TXT ON HT		Auto text on dot
			OHT		Other auto
		BACKGROUND	–	Base	None
			GR		Gray
			WH		White
			NE		Newspaper
			WH_GR		White gray
			WH_NE		White newspaper
			WH_CO		White color
			CO		Color
			IM		Image



Category	Detail of category	Display		Content	
ORG RECOG (Document type auto recognition)	RESULT (Judgment result)	MESH	–	Mesh	No mesh
			IMAGE		Image mesh
			BASE		Base mesh (Non-image mesh)
		HTFE	HIGH	Line	High number of lines
			LOW		Low number of lines
	STATISTICS (Image process statistic amount)	HTCNT		Mesh counter value	
		PHOTOCNT		Photographic paper counter value	
		STRCNT		Text counter value	
		FLATCNT		Background counter value	
		PREHTCNT		Document type judgment mesh counter value	
		HTXTCNT		Text on mesh counter value	
		SUMF		Flat mesh counter value	
		SUMM_L		Total of Max. reverse numbers (lower 32bit)	
		SUMM_H		Total of Max. reverse numbers (Upper 4bit)	
		SUMFM_L		Total of flat section max. reverse number (lower 32bit)	
		SUMFM_H		Total of flat section max. reverse number (Upper 4bit)	
		FHSTDR		Background pixel histogram value (RED)	
		FHSTDG		Background pixel histogram value (GREEN)	
		FHSTDB		Background pixel histogram value (BLUE)	
		HTHSTDR		Mesh pixel histogram value (RED)	
		HTHSTDG		Mesh pixel histogram value (GREEN)	
		HTHSTDB		Mesh pixel histogram value (BLUE)	
		LHSTD		L component histogram value other than mesh	
		MDHSTD		Max. difference histogram value other than mesh	
		OHSTDR		Pixel histogram value other than mesh (RED)	
		OHSTDG		Pixel histogram value other than mesh (GREEN)	
		OHSTDB		Pixel histogram value other than mesh (BLUE)	
		SUM_BETA_RGB		Total of high-level division number in background pixel histogram	
		EREA_BETA_RGB		Number of high-level division areas in background pixel histogram (for base)	
		SUM_BETA_PHOTORGB		Number of high-level division areas in background pixel histogram (for photographic paper)	
		RATE_BETA		Background ratio	
		SHITAJI		Base number judgment result	
		BETA_JUDGE		Background judgment result	
		RATE_SCR		Mesh ratio	
		RATE_SCR2		Mesh judgment ratio	
		RATE_TSCR		Text-on-mesh ratio	
		HTFE_JUDGE		Line number judgment result	
		SCR_HIST_JUDGE		Mesh histogram judgment result	
		SCR_CNT_JUDGE		Mesh counter value judgment result	
		TSCR_JUDGE		Text-on-mesh counter value judgment result	
		SCR_JUDGE		Mesh judgment result	
		RATE_OTHER		Other ratio	
		TEXT_JUDGE		Text judgment result	
		PHOTO_CNT_JUDGE		Photographic paper pixel counter value judgment result	
		OTHER_JUDGE		Other pixel counter value judgment result	
		PHOTO_JUDGE		Photographic paper judgment result	
		TH_BETA2		Threshold value to detect high-level division in background pixel histogram	
		TH_BETA_PHT2		Threshold value to detect high-level division in background pixel histogram (photographic paper)	
		TH_SCR2		Mesh high-level threshold value	
		TH_SCR_CNT2		Threshold value for the mesh counter value	
		TH_TSCR_CNT2		Threshold value for the text-on-mesh counter value	
		TH_TEXT2		Text judgment threshold value	
		TH_PHOTO2		Photographic paper judgment threshold value	
		ALLCNT		Total pixel number of judgment area	
		HTFE RESULT	HIGH2	Number of mesh lines	High number of lines 2 (htfe_out = 3)
			HIGH1		High number of lines 1 (htfe_out = 2)
			LOW1		Low number of lines 1 (htfe_out = 1)
			LOW2		Low number or lines 2 (htfe_out = 0)
		REVERSE AVE		Max. reverse average	
		REVERSE AVE(FLAT)		Flat section max. reverse average	
		FLAT SELECT	YES	Flat section mesh pixel comparison	When flatr > THflatr
			NO		When other than flatr > THflatr

 SIMULATION NO.46-28		 0
AUTO EXPOSURE/ORG AUTO RECOG/MESH LINE RECOG OF CONFIRM PRESS [EXECUTE] TO SCAN START		
EXECUTE		

46-33

**Purpose**

Setting

**Function (Purpose)**

Used to perform the color auto mode adjustment.

**Section**

Image process (ICU)

**Operation/Procedure**

NOTE: Unless a special change is required, keep the default values except for the following items. For the following items, change the set values according to the necessity.

COLOR AE (SW MODE 1 - 7 / TH MAX MONO / TH MAX COLOR / SW NEWS / TH MODE SCR)

ACS (SIM LEVEL)

- 1) Select target category with [NEXT] and [BACK] keys.
- 2) Select target item with [↑] and [↓] keys.
- 3) Enter adjustment value with 10-key.
- 4) Touch [OK] key to save the entered value.

Category	Item	Display	Content		Set range/Number of digits		Default value
ACS	4 digits or less setting	A	THCLMK_1		Pixel judgment threshold value (1)		7
		B	THCLBK_1		Final pixel judgment threshold value (1)		2
		C	ACSMASK_1		ACS mask size select (1)		0
		D	THCLMK_2		Pixel judgment threshold value (2)		7
		E	THCLBK_2		Final pixel judgment threshold value (2)		2
		F	ACSMASK_2		ACS mask size select (2)		0
		G	THCLMK_3		Pixel judgment threshold value (3)		7
		H	THCLBK_3		Final pixel judgment threshold value (3)		2
		I	ACSMASK_3		ACS mask size select (3)		0
		J	THCLMK_4		Pixel judgment threshold value (4)		7
		K	THCLBK_4		Final pixel judgment threshold value (4)		2
		L	ACSMASK_4		ACS mask size select (4)		0
		M	THCLMK_5		Pixel judgment threshold value (5)		7
		N	THCLBK_5		Final pixel judgment threshold value (5)		2
		O	ACSMASK_5		ACS mask size select (5)		0
		P	SIM_LEVEL		ACS judgment select switch (density difference)		2
	5 digits or less setting	Q	TH_ACS5_RT		TH_ACS5: Calculation ratio of the threshold value for reduction		50
COLOR AE	4 digits or less setting	A	SW_MODE1	ON	Base detection of auto text document	1	1
				OFF		0	
		B	SW_MODE2	ON	Base detection of auto text mesh document	1	1
				OFF		0	
		C	SW_MODE3	ON	Base detection of auto text-on-mesh document	1	1
				OFF		0	
		D	SW_MODE4	ON	Base detection of auto mesh document	1	0
				OFF		0	
		E	SW_MODE5	ON	Base detection of auto photo document	1	0
				OFF		0	
		F	SW_MODE6	ON	Base detection of auto text/photo document	1	0
				OFF		0	
		G	SW_MODE7	ON	Base detection of auto other document	1	0
				OFF		0	
		H	TH_MAX_MONO		Monochrome base detection threshold value		17
		I	TH_MAX_COLOR		Color base detection threshold value		17
		J	SW_NEWS		Newspaper base forcible removal switch		0
		K	SW_MODE_SCR1		Mesh area base judgment switch		3
		L	SW_MODE_SCR2		Mesh area base removal select switch		0
		M	SW_MODE_MIX		Auto other document base detection switch		2
		N	SW_HOSEI		Correction table correction		4
	5 digits or less setting	A	TH_MODE_SCR		Mesh ratio threshold value		03000
		B	TH_SITAJI_SCR		Base mesh threshold value		03000

Category	Item	Display	Content		Set range/Number of digits			Default value
ORG RECOG	4 digits or less setting	A	MVSTRSEL REDUCE		Text pixel judgment result select register (for reduction)			0
		B	MVSTRSEL ENLARGE		Text pixel judgment result select register (for enlargement)			0
		C	PSEL1 REDUCE		Photographic paper judgment table select register for each signal (for reduction)			0
		D	PSEL1 ENLARGE		Photographic paper judgment table select register for each signal (for enlargement)			0
		E	PSEL2 REDUCE		Photographic paper pixel final judgment table select register (for reduction)			0
		F	PSEL2 ENLARGE		Photographic paper pixel final judgment table select register (for enlargement)			0
		G	BUSYSEL REDUCE		Frequency comparison value select register (for reduction)			1
		H	BUSYSEL ENLARGE		Frequency comparison value select register (for enlargement)			1
		I	HTSEL REDUCE	AREA	Mesh judgment result select (for reduction)	Area separation mesh judgment result	0	1
				ORG		Document discrimination mesh judgment result	1	
		J	HTSEL ENLARGE	AREA	Mesh judgment result select (for enlargement)	Area separation mesh judgment result	0	1
				ORG		Document discrimination mesh judgment result	1	
		K	ASEL REDUCE		Integrated judgment priority select register (for reduction)			16
		L	ASEL ENLARGE		Integrated judgment priority select register (for enlargement)			16
		M	HSTSEL REDUCE		Histogram division fluctuation register (for reduction)			0
		N	HSTSEL ENLARGE		Histogram division fluctuation register (for enlargement)			0
		O	HSTSEL2 REDUCE		Max. density difference histogram division fluctuation register (for reduction)			3
		P	HSTSEL2 ENLARGE		Max. density difference histogram division fluctuation register (for enlargement)			3
		Q	TH_SUM_BETARGB		Threshold value of all divisions of background high level number (for base)			6
		R	TH_BETA_SUB		Monochrome base judgment threshold value			5
		S	TH_WHITE_BETA		White base judgment threshold value			25
		T	TH_GRAY_BETA1		Gray base judgment threshold value 1			18
		U	TH_GRAY_BETA2		Gray base judgment threshold value 2			25
		V	TH_NOISE REDUCE		Mesh noise threshold value (for reduction)			10
		W	TH_NOISE ENLARGE		Mesh noise threshold value (for enlargement)			10
		X	SW_SCR1		Mesh ratio judgment switch			0
		Y	SW_SCR2		Mesh judgment switch			0
		Z	TH_HTFE		Threshold value of high number of lines			0
		AA	SW_TSCR		Text-on-mesh judgment switch			1
		AB	TH_SUM_PHOTO_RGB		Threshold value of all divisions of background high level number (photographic paper)			15
		AC	TH_BETA_RT		TH_BETA: Calculation ratio of the threshold value for reduction			50
		AD	TH_SCR_RT		TH_SCR: Calculation ratio of the threshold value for reduction			50
		AE	TH_SCR_CNT_RT		TH_SCR_CNT: Calculation ratio of the threshold value for reduction			50
		AF	TH_TSCR_CNT_RT		TH_TSCR_CNT: Calculation ratio of the threshold value for reduction			50
		AG	TH_TEXT_RT		TH_TEXT: Calculation ratio of the threshold value for reduction			50

Category	Item	Display	Content	Set range/Number of digits	Default value
ORG RECOG	4 digits or less setting	AH	TH_PHOTO_RT	TH_PHOTO: Calculation ratio of the threshold value for reduction	50
		AI	TH_BETA_PHT_RT	TH_BETA_PHT: Calculation ratio of the threshold value for reduction	50
	5 digits or less setting	A	TH_BETA ENLARGE	Threshold value to detect high level number division in background pixel histogram (base) (for enlargement)	1000000
		B	TH_SCR ENLARGE	Mesh high level number threshold value (for enlargement)	20000
		C	TH_SCR_RATE	Threshold value for mesh ratio	04500
		D	TH_SCR_CNT EL	Threshold value (for enlargement) for the mesh dot counter value	000800000
		E	TH_MANSEN_RATE	Ten-thousand line/print area judgment threshold value	1500
		F	TH_TSCR_RATE	Threshold value for ratio of text on mesh dots	00300
		G	TH_TSCR_CNT EL	Threshold value for counter value of text on mesh (for enlargement)	000010000
		H	TH_TEXT ENLARGE	Threshold value of text judgment (for enlargement)	000050000
		I	TH_PHOTO ENLARGE	Threshold value of photography judgment (for enlargement)	000050000
		J	TH_BETA_RATE	Background ratio threshold value	03000
		K	TH_BETA_PHT_EL	Threshold value to detect high density section in background pixel histogram (photograph) (for enlargement)	100000
		L	TH_OTHER	Text judgment threshold value (for reduction)	07000
SCR RECOG	4 digits or less setting	A	THBAVEM1 REDUCE	Threshold value 1 for 13 x 7 mask average value (for reduction)	170
		B	THBAVEM1 ENLARGE	Threshold value 1 for 13 x 7 mask average value (for enlargement)	170
		C	THBAVEM2 REDUCE	Threshold value 2 for 13 x 7 mask average value (for reduction)	105
		D	THBAVEM2 ENLARGE	Threshold value 2 for 13 x 7 mask average value (for enlargement)	105
		E	THBAVEM3 REDUCE	Threshold value 3 for 13 x 7 mask average value (for reduction)	50
		F	THBAVEM3 ENLARGE	Threshold value 3 for 13 x 7 mask average value (for enlargement)	50
		G	CMSUB1 REDUCE	Adjustment value 1 for 13 x 7 mask average value (for reduction)	55
		H	CMSUB1 ENLARGE	Adjustment value 1 for 13 x 7 mask average value (for enlargement)	55
		I	CMSUB2 REDUCE	Adjustment value 2 for 13 x 7 mask average value (for reduction)	0
		J	CMSUB2 ENLARGE	Adjustment value 2 for 13 x 7 mask average value (for enlargement)	0
		K	MREVSEL REDUCE	High line number judgment method select (for reduction)	0
		L	MREVSEL ENLARGE	High line number judgment method select (for enlargement)	0
		M	MSDSEL REDUCE	Output select when MREVSEL=3 (for reduction)	0
		N	MSDSEL ENLARGE	Output select when MREVSEL=3 (for enlargement)	0
		O	THAVEFM1 REDUCE	THAVEFM1 for reduction	65
		P	THAVEFM1 ENLARGE	THAVEFM1 for enlargement	96
		Q	THAVEFM2 REDUCE	THAVEFM2 for reduction	54
		R	THAVEFM2 ENLARGE	THAVEFM2 for enlargement	80
		S	THAVEFM3 REDUCE	THAVEFM3 for reduction	48
		T	THAVEFM3 ENLARGE	THAVEFM3 for enlargement	70
		U	THAVEM1 REDUCE	THAVEM1 for reduction	65
		V	THAVEM1 ENLARGE	THAVEM1 for enlargement	96
		W	THAVEM2 REDUCE	THAVEM2 for reduction	54
		X	THAVEM2 ENLARGE	THAVEM2 for enlargement	80
		Y	THAVEM3 REDUCE	THAVEM3 for reduction	48
		Z	THAVEM3 ENLARGE	THAVEM3 for enlargement	70

Category		Item	Display	Content		Set range/Number of digits			Default value
SEGMENT	4 digits or less setting	Text-on-mesh ON/OFF (auto/manual mode)	A	MESH_TXT ON HT		(Auto) text on mesh		0 (THROUGH)	0 (THROUGH)
			B	MESH_TXT/HT1		(Auto) text mesh (Under 1, Line 1)		1 (OFF)	
			C	MESH_TXT/HT2		(Auto) text mesh (Under 2, Line 1)		2 (ON1)	
			D	MESH_TXT/PR		(Manual) test print		3 (ON2)	
		Print document text detection level	E	PR_TXT ON HT		(Auto) Text on mesh		0 (THROUGH)	0
			F	PR_TXT/HT1		(Auto) text mesh (Under 1, Line 1, 2)		1(ON1)	
			G	PR_TXT/HT2		(Auto) text mesh (Under 1, Line 1, 2)		2 (ON2)	
			H	PR_TXT/PR		(Manual) Text print		3 (ON3)	
			I	PR_CHECK1 (*2)	ON	Check key for investigation [(Auto) text on mesh]	0	0	
					OFF		1		
			J	PR_CHECK2 (*2)	ON	Check key for investigation [(Auto) Text mesh (Under 2, Line 1, 2)]	0	0	
					OFF		1		
			K	PR_CHECK3 (*2)	ON	Check key for investigation [(Auto) Text mesh (Under 2, Line 1, 2)]	0	0	
					OFF		1		
			L	PR_CHECK4 (*2)	ON	Check key for investigation [(Manual) text print]	0	0	
					OFF		1		
			M	THWMAX (*2)		THWMAX (Print document text detection level)		220	
			N	THWMIN (*2)		THWMIN (Print document text detection level)		153	
		Chroma saturation/ No Chroma saturation judgment level	O	COLOR_PRINT MODE		Print mode	0 (THROUGH)	0 (THROUGH)	
							1 (OFF)		
			P	COLOR_PHOTO MODE		Photographic paper mode	2 (ON1)	0	
							3 (ON2)		
			Q	COLOR_CHECK1 (*3)	ON	Check key for investigation (Print mode)	0	0	
					OFF		1		
			R	COLOR_CHECK2 (*3)	ON	Check key for investigation (Photographic paper mode)	0	0	
					OFF		1		
			S	THILVC (*3)		THILVC (Chromatic/Achromatic judgment level print system mode)		166	
			T	THACOLL (*3)		THACOLL (Chromatic/Achromatic judgment level print system mode)		21	
			U	THACOLH (*3)		THACOLH (Chromatic/Achromatic judgment level print system mode)		18	
			V	THILVG (*3)		THILVG (Chromatic/Achromatic judgment level print system mode)		118	
			W	THAGRYL (*3)		THAGRYL (Chromatic/Achromatic judgment level print system mode)		14	
			X	THAGRYH (*3)		THAGRYH (Chromatic/Achromatic judgment level print system mode)		20	
		Color auto document recognition filter emphasis setting	Y	SCREEN FILTER LEVEL	H	Filter emphasis setting	Heavy emphasis		3 (Auto)
					L		Light emphasis		
					AUTO		Auto		
		Specification mode area separate (ON/OFF setting)	Z	SEG_ACT_A_OTR	ON	(Auto) Other mode		1	1
					OFF			0	
			AA	SEG_ACT_M_PRT1	ON	(Manual) Print document mode (Text)	1	1	
					OFF		0		
			AB	SEG_ACT_M_PRT2	ON	(Manual) Print document mode (Text/Print)	1	1	
					OFF		0		
		INDEX direct appointment	AC	SEG_DS_A_TOH		(Auto) Text on mesh			0
			AD	SEG_DS_M_TPP		(Manual) Text print			

Category		Item	Display	Content		Set range/Number of digits		Default value		
SEGMENT	4 digits or less setting	Quantity of detection adjustment	AE	SEG_ADJ_TPP_BK1		Text print system, Black text 1		10		
			AF	SEG_ADJ_TPP_BK2		Text print system, Black text 2		10		
			AG	SEG_ADJ_TPP_CL		Text print system, Color text		10		
			AH	SEG_ADJ_TPP_PR		Text print system, Chromatic/Achromatic		10		
			AI	SEG_ADJ_TPP_MESH		Text print system, Mesh		10		
			AJ	SEG_ADJ_TXT_BK1		Text system, Black text 1		10		
			AK	SEG_ADJ_TXT_BK2		Text system, Black text 2		10		
			AL	SEG_ADJ_TXT_CL		Text system, Color text		10		
			AM	SEG_ADJ_TXT_PR		Text system, Chromatic/Achromatic		10		
			AN	SEG_ADJ_TXT_MESH		Text system, Mesh		10		
			AO	SEG_ADJ_OTR_BK1		Other, Black text 1		10		
			AP	SEG_ADJ_OTR_BK2		Other, Black text 2		10		
			AQ	SEG_ADJ_OTR_CL		Other, Color text		10		
			AR	SEG_ADJ_OTR_PR		Other, Chromatic/Achromatic		10		
			AS	SEG_ADJ_OTR_MESH		Other, Mesh		10		
			AT	BKUCR_ACTM (- 99%)	THROUGH	- 99%	0	0		
					OFF				1	
					ON				2	
			AU	BKUCR_ACTM (100% - 199%)	THROUGH	100% - 199%	0	0		
					OFF				1	
					ON				2	
			AV	BKUCR_ACTM (200% -)	THROUGH	200% -	0	0		
					OFF				1	
					ON				2	
			AW	BKUCR_ACTA (- 99%)	THROUGH	- 99%	0	0		
					OFF				1	
					ON				2	
			AX	BKUCR_ACTA (100% - 199%)	THROUGH	100% - 199%	0	0		
					OFF				1	
					ON				2	
			AY	BKUCR_ACTA (200% -)	THROUGH	200% -	0	0		
					OFF				1	
					ON				2	
	5 digits or more setting	Text on mesh ON/OFF (Auto/Manual mode)	A	MESH_CHECK1	ON	Check key for investigation [(Auto) text on mesh]	0	0		
					OFF		1			
			B	MESH_CHECK2	ON	Check key for investigation [(Auto) Text mesh (Under 1, Line 1)]	0	0		
					OFF		1			
			C	MESH_CHECK3	ON	Check key for investigation [(Auto) Text mesh (Under 2, Line 1)]	0	0		
					OFF		1			
			D	MESH_CHECK4	ON	Check key for investigation [(Auto) text print]	0	0		
					OFF		1			
			E	THED3A (*1)		THED3A (Text on mesh ON/OFF)				1000
			F	THED3B (*1)		THED3B (Text on mesh ON/OFF)				1000

TEST

SIMULATION NO.46-33

CLOSE

COLOR AUTO MODE ADJUSTMENT(ACS · 4DIGIT UNDER)

A: 0

[ 0 ~ 9 ]

A: 0 ; THCLMK\_1

B: 0 ; THCLBK\_1

C: 0 ; ACSMSK\_1

D: 0 ; THCLMK\_2

BACK

NEXT

OK

46-36

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	2 color (Red, Black) copy adjustment
<b>Section</b>	—

#### Operation/Procedure

- 1) Select target category for the adjustment with [RANGE] and [COEFFICIENT] keys.
- 2) Select target item of the adjustment with [↑] and [↓] keys.
- 3) Enter the set value with 10-key.
- 4) Touch [OK] key to save the entered value.

Category	Item	Display	Content	Default value		
				C	M	Y
RANGE (Red judgment range)	A	PARAMETER O	Red adjustment coefficient O	3		
	B	PARAMETER M	Red adjustment coefficient M	3		
	C	PARAMETER INTENSITY	Chroma saturation emphasis coefficient	3		
COEFFICIENT (Output color coefficient)	A	RED	R output color	0	255	255
	B	GREEN	G output color	255	0	255
	C	BLUE	B output color	255	255	0
	D	CYAN	C output color	255	0	0
	E	MAGENTA	M output color	0	255	0
	F	YELLOW	Y output color	0	0	255

TEST SIMULATION NO.46-36 CLOSE

RED/BLACK COLOR COPY ADJUSTMENT

A: 3 [ 0 ~ 6 ]

A: 3 ; PARAMETER O  
B: 3 ; PARAMETER M  
C: 3 ; PARAMETER INTENSITY

RANGE COEFFICIENT OK

46-37

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to perform black image generation adjustment.

**Section**

**Operation/Procedure**

- 1) Select target item with [↑] and [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Touch [YES] key to save the entered value.

TEST SIMULATION NO.46-37 CLOSE

B&W IMAGE CREATE ADJUSTMENT

A: 35 [ 0 ~ 99 ]

A: 35 ; R/G  
B: 0 ; B/G

DEFAULT ARE YOU SURE? YES NO EXECUTE

46-39

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to execute the image send sharpness adjustment. (Only when FAX is installed)

**Section**

FAX

**Operation/Procedure**

- 1) Select target item with [↑] and [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Touch [OK] key to save the entered value.

Item	Display	Content	Default value
A	200 x 100[DPI] OFF	200 x 100[DPI] half tone OFF	1
B	200 x 200[DPI] OFF	200 x 200[DPI] half tone OFF	1
C	200 x 200[DPI] ON	200 x 200[DPI] half tone ON	1
D	200 x 400[DPI] OFF	200 x 400[DPI] half tone OFF	1
E	200 x 400[DPI] ON	200 x 400[DPI] half tone ON	1
F	400 x 400[DPI] OFF	400 x 400[DPI] half tone OFF	1
G	400 x 400[DPI] ON	400 x 400[DPI] half tone ON	1
H	600 x 600[DPI] OFF	600 x 600[DPI] half tone OFF	1
I	600 x 600[DPI] ON	600 x 600[DPI] half tone ON	1

TEST SIMULATION NO.46-39 CLOSE

IMAGE SEND SHARPNESS ADJUSTMENT

A: 1 [ 0 ~ 2 ]

A: 1 ; 200×100 [DPI] OFF  
B: 1 ; 200×200 [DPI] OFF  
C: 1 ; 200×200 [DPI] ON  
D: 1 ; 200×400 [DPI] OFF

OK EXECUTE

46-40

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to perform collective adjustment of all the FAX exposure modes.

**Section**

MFP/FAX

**Operation/Procedure**

- 1) Enter the set value with 10-key.
- 2) Touch [EXECUTE] key to save the entered value.

Item	Display item & Detail of display	Content	Set range	Default value
A	EXPOSURELEVEL (ALL)	Exposure data value (Collective)	1 to 99	50

TEST SIMULATION NO.46-40 CLOSE

EXPOSURE ADJUSTMENT(FAX : ALL)

A: 50 [ 1 ~ 99 ]

EXECUTE OK

46-41

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to perform the FAX exposure adjustment (normal character).

**Section**

MFP/FAX

**Operation/Procedure**

- 1) Select target item with [↑] and [↓] keys.
- 2) Select the set value with 10-key.
- 3) Touch [EXECUTE] key to save the entered value.

Item	Display item & Detail of display	Content	Set range	Default value
A	AUTO	Auto	1 to 99	50
B	EXPOSURE1	Exposure 1	1 to 99	50
C	EXPOSURE2	Exposure 2	1 to 99	50
D	EXPOSURE3	Exposure 3	1 to 99	50
E	EXPOSURE4	Exposure 4	1 to 99	50
F	EXPOSURE5	Exposure 5	1 to 99	50
G	AUTO	Auto	1	1 (AUTO)
	EXP1	Exposure 1	2	
	EXP2	Exposure 2	3	
	EXP3	Exposure 3	4	
	EXP4	Exposure 4	5	
	EXP5	Exposure 5	6	

TEST SIMULATION NO.46-41 CLOSE

EXPOSURE ADJUSTMENT(FAX : NORMAL)

A: 50 [ 1 ~ 99 ]

A: 50 ; AUTO  
B: 50 ; EXPOSURE1  
C: 50 ; EXPOSURE2  
D: 50 ; EXPOSURE3

EXECUTE OK



46-42

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to perform the FAX exposure adjustment (fine character).
<b>Section</b>	MFP/FAX

**Operation/Procedure**

- 1) Select target item with [↑] and [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Touch [EXECUTE] key to save the entered value.

Item	Display item & Detail of display	Content	Set range	Default value
A	AUTO	Fine/Auto	1 to 99	50
B	EXPOSURE1	Fine/Exposure 1	1 to 99	50
C	EXPOSURE2	Fine/Exposure 2	1 to 99	50
D	EXPOSURE3	Fine/Exposure 3	1 to 99	50
E	EXPOSURE4	Fine/Exposure 4	1 to 99	50
F	EXPOSURE5	Fine/Exposure 5	1 to 99	50
G	AUTO H_TONE	Fine/Auto/Half tone	1 to 99	50
H	EXPOSURE1 H_TONE	Fine/Exposure 1/ Half tone	1 to 99	50
I	EXPOSURE2 H_TONE	Fine/Exposure 2/ Half tone	1 to 99	50
J	EXPOSURE3 H_TONE	Fine/Exposure 3/ Half tone	1 to 99	50
K	EXPOSURE4 H_TONE	Fine/Exposure 4/ Half tone	1 to 99	50
L	EXPOSURE5 H_TONE	Fine/Exposure 5/ Half tone	1 to 99	50
M	AUTO	Fine/Auto	1	1 (AUTO)
	EXP1	Fine/Exposure 1	2	
	EXP2	Fine/Exposure 2	3	
	EXP3	Fine/Exposure 3	4	
	EXP4	Fine/Exposure 4	5	
	EXP5	Fine/Exposure 5	6	
	AUTO H_TONE	Fine/Auto/Half tone	7	
	EXP1 H_TONE	Fine/Exposure 1/Half tone	8	
	EXP2 H_TONE	Fine/Exposure 2/Half tone	9	
	EXP3 H_TONE	Fine/Exposure 3/Half tone	10	
	EXP4 H_TONE	Fine/Exposure 4/Half tone	11	
	EXP5 H_TONE	Fine/Exposure 5/Half tone	12	

TEST SIMULATION NO.46-42 CLOSE

EXPOSURE ADJUSTMENT(FAX : FFINE)

A: 50 A: 50 : AUTO

[ 1 ~ 99] B: 50 : EXPOSURE1

C: 50 : EXPOSURE2

D: 50 : EXPOSURE3

EXECUTE OK

46-43

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to perform the FAX exposure adjustment (super fine).
<b>Section</b>	MFP/FAX

**Operation/Procedure**

- 1) Select set item with [↑] and [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Touch [EXECUTE] key to save the entered value.

Item	Display item & Detail of display	Content	Set range	Default value
A	AUTO	Super Fine/Auto	1 to 99	50
B	EXPOSURE1	Super Fine/Exposure 1	1 to 99	50
C	EXPOSURE2	Super Fine/Exposure 2	1 to 99	50
D	EXPOSURE3	Super Fine/Exposure 3	1 to 99	50
E	EXPOSURE4	Super Fine/Exposure 4	1 to 99	50
F	EXPOSURE5	Super Fine/Exposure 5	1 to 99	50
G	AUTO H_TONE	Super Fine/Auto/ Half tone	1 to 99	50
H	EXPOSURE1 H_TONE	Super Fine/ Exposure 1/Half tone	1 to 99	50
I	EXPOSURE2 H_TONE	Super Fine/ Exposure 2/Half tone	1 to 99	50
J	EXPOSURE3 H_TONE	Super Fine/ Exposure 3/Half tone	1 to 99	50
K	EXPOSURE4 H_TONE	Super Fine/ Exposure 4/Half tone	1 to 99	50
L	EXPOSURE5 H_TONE	Super Fine/ Exposure 5/Half tone	1 to 99	50
M	AUTO	Super Fine/Auto	1	1 (AUTO)
	EXP1	Super Fine/Exposure 1	2	
	EXP2	Super Fine/Exposure 2	3	
	EXP3	Super Fine/Exposure 3	4	
	EXP4	Super Fine/Exposure 4	5	
	EXP5	Super Fine/Exposure 5	6	
	AUTO H_TONE	Super Fine/Auto/ Half tone	7	
	EXP1 H_TONE	Super Fine/ Exposure 1/Half tone	8	
	EXP2 H_TONE	Super Fine/ Exposure 2/Half tone	9	
	EXP3 H_TONE	Super Fine/ Exposure 3/Half tone	10	
	EXP4 H_TONE	Super Fine/ Exposure 4/Half tone	11	
	EXP5 H_TONE	Super Fine/ Exposure 5/Half tone	12	

TEST SIMULATION NO.46-43 CLOSE

EXPOSURE ADJUSTMENT(FAX : SUPER FINE)

A: 50 A: 50 : AUTO

[ 1 ~ 99] B: 50 : EXPOSURE1

C: 50 : EXPOSURE2

D: 50 : EXPOSURE3

EXECUTE OK

46-44

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to perform the FAX exposure adjustment (ultra fine).
<b>Section</b>	MFP/FAX

**Operation/Procedure**

- 1) Select target item with [↑] and [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Touch [OK] key to save the entered value.

Item	Display item & Detail of display	Content	Set range	Default value
A	AUTO	Ultra Fine/Auto	1 to 99	50
B	EXPOSURE1	Ultra Fine/Exposure 1	1 to 99	50
C	EXPOSURE2	Ultra Fine/Exposure 2	1 to 99	50
D	EXPOSURE3	Ultra Fine/Exposure 3	1 to 99	50
E	EXPOSURE4	Ultra Fine/Exposure 4	1 to 99	50
F	EXPOSURE5	Ultra Fine/Exposure 5	1 to 99	50
G	AUTO H_TONE	Ultra Fine/Auto/Half tone	1 to 99	50
H	EXPOSURE1 H_TONE	Ultra Fine/Exposure 1/ Half tone	1 to 99	50
I	EXPOSURE2 H_TONE	Ultra Fine/Exposure 2/ Half tone	1 to 99	50
J	EXPOSURE3 H_TONE	Ultra Fine/Exposure 3/ Half tone	1 to 99	50
K	EXPOSURE4 H_TONE	Ultra Fine/Exposure 4/ Half tone	1 to 99	50
L	EXPOSURE5 H_TONE	Ultra Fine/Exposure 5/ Half tone	1 to 99	50
M	AUTO	Ultra Fine/Auto	1	1 (AUTO)
	EXP1	Ultra Fine/Exposure 1	2	
	EXP2	Ultra Fine/Exposure 2	3	
	EXP3	Ultra Fine/Exposure 3	4	
	EXP4	Ultra Fine/Exposure 4	5	
	EXP5	Ultra Fine/Exposure 5	6	
	AUTO H_TONE	Ultra Fine/Auto/Half tone	7	
	EXP1 H_TONE	Ultra Fine/Exposure 1/ Half tone	8	
	EXP2 H_TONE	Ultra Fine/Exposure 2/ Half tone	9	
	EXP3 H_TONE	Ultra Fine/Exposure 3/ Half tone	10	
	EXP4 H_TONE	Ultra Fine/Exposure 4/ Half tone	11	
	EXP5 H_TONE	Ultra Fine/Exposure 5/ Half tone	12	

46-45

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to perform the FAX exposure adjustment (600dpi).
<b>Section</b>	FAX

**Operation/Procedure**

- 1) Select target item with [↑] and [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Touch [OK] key to save the entered value.

Item	Display item & Detail of display	Content	Set range	Default value
A	AUTO	600dpi/Auto	1 to 99	50
B	EXPOSURE1	600dpi/Exposure 1	1 to 99	50
C	EXPOSURE2	600dpi/Exposure 2	1 to 99	50
D	EXPOSURE3	600dpi/Exposure 3	1 to 99	50
E	EXPOSURE4	600dpi/Exposure 4	1 to 99	50
F	EXPOSURE5	600dpi/Exposure 5	1 to 99	50
G	AUTO H_TONE	600dpi/Auto/Half tone	1 to 99	50
H	EXPOSURE1 H_TONE	600dpi/Exposure 1/ Half tone	1 to 99	50
I	EXPOSURE2 H_TONE	600dpi/Exposure 2/ Half tone	1 to 99	50
J	EXPOSURE3 H_TONE	600dpi/Exposure 3/ Half tone	1 to 99	50
K	EXPOSURE4 H_TONE	600dpi/Exposure 4/ Half tone	1 to 99	50
L	EXPOSURE5 H_TONE	600dpi/Exposure 5/ Half tone	1 to 99	50
M	AUTO	600dpi/Auto	1	1 (AUTO)
	EXP1	600dpi/Exposure 1	2	
	EXP2	600dpi/Exposure 2	3	
	EXP3	600dpi/Exposure 3	4	
	EXP4	600dpi/Exposure 4	5	
	EXP5	600dpi/Exposure 5	6	
	AUTO H_TONE	600dpi/Auto/Half tone	7	
	EXP1 H_TONE	600dpi/Exposure 1/ Half tone	8	
	EXP2 H_TONE	600dpi/Exposure 2/ Half tone	9	
	EXP3 H_TONE	600dpi/Exposure 3/ Half tone	10	
	EXP4 H_TONE	600dpi/Exposure 4/ Half tone	11	
	EXP5 H_TONE	600dpi/Exposure 5/ Half tone	12	

46-47

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to perform JPEG compression rate setting in copying and scanning.
<b>Section</b>	—

**Operation/Procedure**

- 1) Select target item with [↑] and [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Touch [OK] key to save the entered value.

Item	Display		Content	Set range	Default value
A	COPY (C)	LOW	Low compression (Color)	0	0 (LOW)
		MIDDLE	Middle compression (Color)	1	
		HIGH	High compression (Color)	2	
B	COPY (G)	LOW	Low compression (Gray)	0	0 (LOW)
		MIDDLE	Middle compression (Gray)	1	
		HIGH	High compression (Gray)	2	
C	SCAN (C)	MIDDLE1	Middle compression mode 1, for compression, Q table (for brightness, color difference)	0	0 (MIDDLE1)
			Middle compression mode 1, for decompression, Q table (for brightness, color difference)		
		MIDDLE2	Middle compression mode 2, for compression, Q table (for brightness, color difference)	1	
			Middle compression mode 2, for decompression, Q table (for brightness, color difference)		
		MIDDLE3	Middle compression mode 3, for compression, Q table	2	
			Middle compression mode 3, for decompression, Q table		
D	SCAN (G)	MIDDLE1	Middle compression mode 1, for compression, Q table	0	0 (MIDDLE1)
			Middle compression mode 1, for decompression, Q table		
		MIDDLE2	Middle compression mode 2, for compression, Q table	1	
			Middle compression mode 2, for decompression, Q table		
		MIDDLE3	Middle compression mode 3, for compression, Q table	2	
			Middle compression mode 3, for decompression, Q table		

TEST

SIMULATION NO.46-47

CLOSE

COPY · SCAN · COMPRESS RATE ADJUSTMENT

A: 0

[ 0 ~ 2 ]

A: 0 : COPY(C) : LOW

B: 0 : COPY(G) : LOW

C: 0 : SCAN(C) : MIDDLE 1

D: 0 : SCAN(G) : MIDDLE 1

↑

↓

OK

## 48

48-1

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to perform copy magnification ratio adjustment (main/sub scanning direction).

<b>Section</b>	RSPF/Scanner
----------------	--------------

### Operation/Procedure

- 1) Select target item of the adjustment with [↑] and [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Touch [OK] key to save the entered value.

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

\* Item A, C, E: When the set value is increased by 1, the magnification ratio is increased by 0.02%.

\* Item B, D, F: When the set value is increased by 1, the magnification ratio is increased by 0.01%.

\* This adjustment affects PC scanning and other scanning other than copy.

0

TEST

SIMULATION NO.48-01

CLOSE

MAGNIFICATION ADJUSTMENT

A: 50

[ 1 ~ 99 ]

A: 50 : CCD(MAIN)

B: 50 : CCD(SUB)

C: 50 : SPF(MAIN)

D: 50 : SPF(SUB)

↑

↓

OK

48-5

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	This adjustment is executed when a satisfactory result is not obtained when a different copy magnification ratio is specified and copying is made after adjustment of the sub scanning direction image magnification ratio with SIM 48-1.

When there is an error in the copy magnification ratio in reduction copy, the adjustment value of high speed mode is adjusted. When there is an error in the copy magnification ratio in enlargement copy, the adjustment value of low speed mode is adjusted. This is the magnification ratio adjustment in the scan system.

<b>Section</b>	RSPF/Scanner
----------------	--------------

### Operation/Procedure

- 1) Select target item of the adjustment with [↑] and [↓] keys.
- 2) Enter the adjustment value with 10-key.
- 3) Touch [OK] key to save the entered value.

Item	Display	Content	Default value
A	MR (HI)	Scanner motor (High speed)	50
B	MR (MID)	Scanner motor (Reference speed)	50
C	MR (LO)	Scanner motor (Low speed)	50
D	RSPF (HI)	Document feed (SPF) motor (High speed)	50
E	RSPF (MID)	Document feed (SPF) motor (Reference speed)	50
F	RSPF (LO)	Document feed (SPF) motor (Low speed)	50

#### <Reference speed>

HI=248mm/sec

MID=157mm/sec

LO=78.5mm/sec

48-6

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the rotating speed of each motor.
<b>Section</b>	—

#### Operation/Procedure

- 1) Select target mode with [COLOR][MONO] and [HEAVY] keys.
- 2) Select the set item with [↑] and [↓] keys.
- 3) Enter the set value with 10-key.
- 4) Touch [OK] key to save the entered value.

Item	Display	Content	Mode select	Default value
A	RRM	Resist motor correction value	Color	50
			Monochrome	
			Heavy paper	
B	DVM_K/BTM	Developing K motor correction value	Color	45
			Monochrome	
			Heavy paper	
C	FSM	Fusing motor correction value	Color	37
			Monochrome	
			Heavy paper	
D	DM_K	Drum K motor correction value	Color	43
			Monochrome	
			Heavy paper	
E	DM_CL	Drum CL motor correction value	Color	43
			Heavy paper	
F	PFM	Transport motor correction value		50
G	POM	Paper exit motor correction value		50
F	FUSER SETTING	Fusing speed switch timing		50

\* Since the belt is driven in cooperation with the developing K motor (DVM-K) in this machine, the DVM-K also serves as the belt motor (BTM).

\* Adjustment value

The greater the correction value is, the higher the speed is, and vice versa. When the value is changed by 1, the speed is changed by about 0.1%.

\* Paper size detection method for fusing motor (FSM) normal paper

A3W, A3, WLT, EXTRA, USER EXTRA (420mm or above) are large sizes.

49

49-1

<b>Purpose</b>	Version-up
<b>Function (Purpose)</b>	Used to execute the firmware update.
<b>Section</b>	—

#### Operation/Procedure

NOTE: To update the firmware, set DIP SW 2 on the MFP control PWB to ON.

- 1) Save the firmware to a USB memory device.
- 2) Insert USB memory into the machine.
- 3) Select target firmware to be updated with touch panel.
- 4) Touch [ALL] key.
- 5) Touch [EXECUTE] key.
- 6) Touch [YES] key.

The selected firmware is updated.

When the operation is completed normally, "COMPLETE" is display. In case of error, "ERROR" and the firmware where the error occurred are displayed.

Display item	Item description	Number of digits
CONFIG	Configuration data	8 digits
ICU (MAIN)	ICU main section former half	8 digits
ICU (BOOTM)	ICU boot section main	8 digits
ICU (BOOTS)	ICU boot section sub	8 digits
LANGUAGE	Language support data program (Generic name)	8 digits
GRAPHIC	Graphic data for L-LCD	8 digits
SLIST	SLIST data for L-LCD	8 digits
PCU (BOOT)	PCU boot section	8 digits
PCU (MAIN)	PCU main section	8 digits
DESK (BOOT)	Desk unit boot section	8 digits
DESK (MAIN)	Desk unit main section	8 digits
FIN (BOOT)	Inner finisher boot section	8 digits
FIN (MAIN)	Inner finisher main section	8 digits
SCU (BOOT)	SCU	8 digits
SCU (MAIN)	Main section	8 digits
FAX1 (BOOT)	FAX1 line (Boot section)	8 digits
FAX1 (MAIN)	FAX1 line (Main section)	8 digits
ESCP_FONT	ESC/P fonts	8 digits
PDL_FONT	PDL fonts	8 digits
ANIMATION	Animation data	8 digits
IMAGE_DATA	Image ASIC data	8 digits
COLOR PROFILE	Color profile	8 digits

49-3	
<b>Purpose</b>	Version-up
<b>Function (Purpose)</b>	Used to update the operation manual in the HDD.
<b>Section</b>	—

#### Operation/Procedure

- 1) Save the operation manual data to a USB memory.
- 2) Insert the USB memory into the machine.
- 3) Select the update target data of operation manual with the touch panel.
- 4) Touch [EXECUTE] key.
- 5) Touch [YES] key.

The selected data of the operation manual is updated.

When the operation is completed normally, "COMPLETE" is displayed. In case of error, "ERROR" is displayed.

TEST SIMULATION NO.49-03

CLOSE

E-MANUAL UPDATE/usbdd00

<DIR> MANUAL2

<DIR> MANUAL3

↑

↓

1/1

50

50-1	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the copy image position on print paper in the copy mode and to adjust the void area (image loss). (The similar adjustment can be executed with SIM50-05 and 50-02 (Simple method). (Document table mode))

#### Section

#### Operation/Procedure

- 1) Select target item of the adjustment with [↑] and [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Touch [OK] key to save the entered value.

Item	Display item	Description	Default value
A	Lead edge adjustment value	RRCA Document lead edge reference position (OC) The timing from start of document scan to recognition of the image lead edge is adjusted. (0.1mm/step) * The smaller the set value is, the faster the timing is. The greater the set value is, the slower the timing is.	50
B		RRCB-CS12 Resist motor ON timing adjustment	Standard cassette 50
C		RRCB-CS34 The timing to turn ON the resist roller from reception of the resist signal is adjusted. (0.1mm/step)	Desk 50
D		RRCB-LCC * The smaller the set value is, the faster the timing is. The greater the set value is, the slower the timing is.	LCC 50
E		RRCB-MFT	Manual feed 50
F		RRCB-ADU	ADU 50
G	Image loss quantity set value	LEAD Lead edge image loss quantity setting The lead edge image loss quantity is specified. The difference between the document lead edge scan start position and the document lead edge (0.1mm/step) * The greater the value is, the greater the image loss is.	30
H		SIDE Side image loss quantity setting The side image loss quantity is specified. (Document width – Document edge scan range) / 2 (0.1mm/step) (The rear edge image loss quantity is fixed to 0. (Without adjustment)) * The greater the value is, the greater the image loss is.	20
I	Void amount setting	DENA Print lead edge adjustment The void quantity formed at the paper lead edge is specified. (0.1mm/step) * The greater the value is, the greater the void is.	30
J		DENB Sub scan direction print range adjustment The void quantity formed at the paper rear edge is specified. (0.1mm/step) * The greater the value is, the greater the void is.	20
K		FRONT/REAR FRONT/REAR void amount adjustment The void quantities formed at the right and left edges are adjusted. (0.1mm/step) * The greater the value is, the greater the void is.	20

TEST SIMULATION NO.50-01

CLOSE

LEAD\_EDGE\_ADJUSTMENT\_VALUE

A: 50

A: 50 ; RRCA

B: 50 ; RRCB-CS12

C: 50 ; RRCB-CS34

D: 50 ; RRCB-LCC

↑

↓

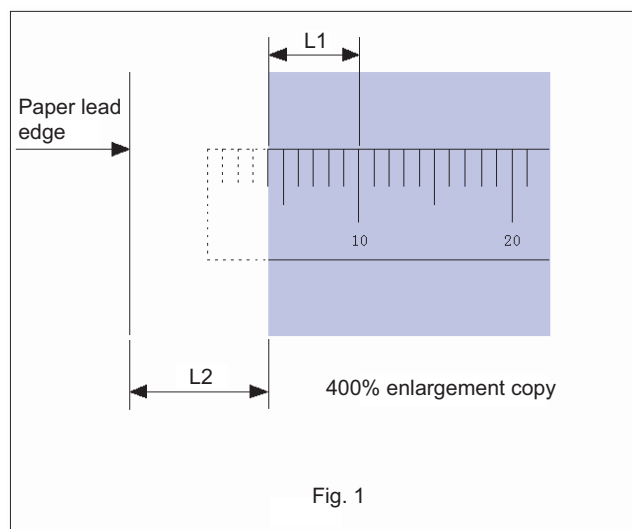
OK

50-2	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the copy image position on print paper and the void area (image loss) in the copy mode. (Similar to SIM50-1. This simulation provides the simpler method)
<b>Section</b>	—

#### Operation/Procedure

Be sure to perform the sub scanning direction magnification ratio (SIM48-1) in advance.

- 1) Set L1 of item A and L2 of item B to 0.
- 2) Touch [EXECUTE] key.
- 3) Place a ruler on the left edge of the document table, and make a black copy in 400%.
- 4) Measure the distances L1 and L2 on the copied image in the unit of 0.1mm, and multiple the distance values with 10, and enter the obtained values. (Be sure to enter L1 and L2 together.)
  - L1: Distance between the copy image lead edge position and the scale of 10mm.
  - L2: Distance between the paper lead edge and the copy image lead edge position.



- 5) Touch [EXECUTE] key to save the set value.
- 6) Make a copy at the magnification ratio of 100%, and adjust the rear edge void.

Item	Display item	Description	Default value
A	Actual measured value	L1	Distance between the image lead edge and the scale of 10mm (Platen 400%, unit of 0.1mm)
B		L2	Distance between the paper lead edge and the image lead edge (unit of 0.1mm)

Item	Display item	Description	Default value
C	Image loss quantity set value	LEAD Lead edge image loss quantity setting The lead edge image loss quantity is specified. Difference between the document lead edge scan start position and the document lead edge * The greater the value is, the greater the image loss is.	30
D		SIDE Side image loss quantity setting The side image loss (SIDE) is specified. (Document width – Document edge scan range / 2 (The rear edge image loss quantity is fixed to 0. (Without adjustment)) * The greater the value is, the greater the image loss is.	20
E	Void quantity setting	DENA Print lead edge adjustment The void quantity at the paper lead edge is specified. * The greater the value is, the greater the void is.	30
F		DENB Sub scanning direction print range adjustment The void quantity at the paper rear edge is specified. * The greater the value is, the greater the void is.	20
G		FRONT/ REAR FRONT/REAR void quantity adjustment The void quantities at the left and right edges of paper are specified. * The greater the value is, the greater the void is.	20

A to G: 1step = 0.1mm

A. Document lead edge reference position: (L1), B. Paper lead edge positions

Except for A and B, same as the item adjusted with SIM50-01.

The values adjusted with A and B are reflected to the document lead edge reference position (RRC-A) and all the paper lead edge positions (RRCB-\*\*).

TEST

SIMULATION NO.50-02

CLOSE

LEAD EDGE ADJUSTMENT VALUE(CALC)

A: 60

[ 0 ~ 999 ]

A : 60 : L1

B : 0 : L2

C : 30 : LEAD

D : 15 : SIDE

EXECUTE

50-5	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Printer print lead edge adjustment
<b>Section</b>	Printer

#### Operation/Procedure

- 1) Select target item of the adjustment with [↑] and [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Touch [EXECUTE] key.  
The set value is saved and adjustment print is outputted.
- 4) Used to measure the void area size on the printed adjustment pattern in the right and the left frame direction, and to check to confirm that the sizes are as shown below.

If DEN-C=3.0 ± 2.0mm and DEN-B=3.0 ± 2.0mm, there is no need to adjust. If not, go to the procedure 5.



- 5) Change the adjustment value of the adjustment item A (DEN-C) and the adjustment item B (DEN-B).

When the adjustment value of the adjustment item A (DEN-C) is decreased by 1, the print start position in the sub scanning direction is shifted to the paper lead edge by 0.1mm.

When the adjustment value of the adjustment item B (DEN-B) is decreased by 1, the print range in the paper transport direction is increased toward the rear edge side by 0.1mm.

- 6) Repeat procedure 1 - 5 until the condition of procedure 4 is satisfied.

Item	Display item & Detail of display		Description of item	Set range	Default value
A	DEN-C		Printer print lead edge adjustment	1 to 99	30
B	DEN-B		Sub scanning direction print range adjustment	1 to 99	20
C	FRONT/REAR		FRONT/REAR void quantity adjustment	1 to 99	20
D	MULTI COUNT		Print quantity	1 to 99	1
E	PAPER	MFT	Cassette select	Manual feed	2 (CS1)
		CS1		Cassette 1	
		CS2		Cassette 2	
		CS3		Cassette 3	
		CS4		Cassette 4	
		LCC		LCC	
F	DUPLEX	YES	Duplex print select	Selected	1 (NO)
		NO		Not selected	

TEST

SIMULATION NO.50-05

CLOSE

LEAD EDGE ADJUSTMENT VALUE (PRINTER)

A: 30

A: 30 : DEN-C

B: 20 : DEN-B

C: 20 : FRONT/REAR

D: 1 : MULTI COUNT

EXECUTE

OK

## 50-6

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the copy image position on the print paper in the copy mode and to adjust the void area (image loss). (The similar adjustment can be executed with SIM50-7 (Simple method).) (RSPF mode)

<b>Section</b>	RSPF
----------------	------

### Operation/Procedure

- 1) Select target item of the adjustment with [↑] and [↓] keys.
- 2) Enter set value with 10-key.
- 3) Touch [OK] key to save the entered value.

Item	Display item		Description	Default value
A	SIDE1		Front surface document scan start position adjustment (CCD)	50
B	SIDE2		Back surface document scan start position adjustment (CCD)	50
C	Image loss quantity setting SIDE1	LEAD_EDGE (SIDE1)	Front surface image loss quantity setting	20
D		FRONT_REAR (SIDE1)	Front surface side image loss quantity setting	20
E		TRAIL_EDGE (SIDE1)	Front surface rear edge image loss quantity adjustment	30

Item	Display item		Description	Default value
F	Image loss quantity setting SIDE2	LEAD_EDGE (SIDE2)	Back surface image loss quantity setting	20
G		FRONT_REAR (SIDE2)	Back surface side image loss quantity setting	20
H		TRAIL_EDGE (SIDE2)	Back surface rear edge image loss quantity adjustment	30

TEST

SIMULATION NO.50-06

CLOSE

LEAD EDGE ADJUSTMENT VALUE(SPF)

A: 50

A: 50 : SIDE1

B: 50 : SIDE2

C: 20 : LEAD\_EDGE

D: 20 : FRONT\_REAR

OK

## 50-7

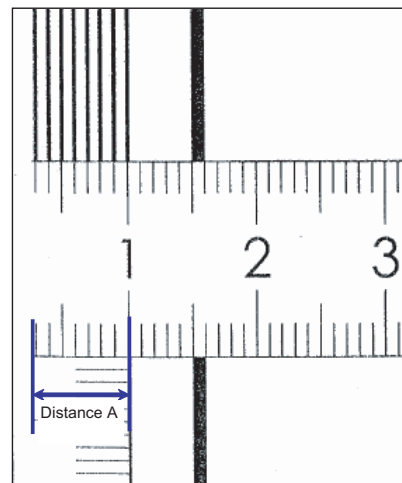
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the copy image position on print paper in the copy mode and to adjust the void area (image loss). (The similar adjustment can be executed with SIM50-6 (Simple type).) (RSPF mode)

<b>Section</b>	RSPF
----------------	------

### Operation/Procedure

Be sure to perform the sub scanning direction magnification ratio (SIM48-1) in advance.

- 1) Select target item of the adjustment with [↑] and [↓] keys.
- 2) Set item A (L4) and item B (L5) to 0.
- 3) Set the magnification ratio to 200%, and press [COLOR] or [BLACK] key to make a print.
- 4) Measure the printed image, and input the distance (RSPF) to L4 and L5 in the unit of 0.1mm.
  - L4: Distance A (RSPF front surface 200%) (Unit : 0.1mm)
  - L5: Distance A (RSPF back surface 200%) (Unit : 0.1mm)
- 5) Touch [EXECUTE] key to save the entered value.





Item	Display item	Description of item	Default value
A	L4	Distance from the front surface image lead edge to the scale of 10mm (SPF 200%, unit 0.1mm)	—
B	L5	Distance from the back surface image lead edge to the scale of 10mm (SPF 200%, unit 0.1mm)	—
C	LEAD_EDGE (SIDE1)	Image loss quantity setting SIDE1	20
D	FRONT_REAR (SIDE1)		20
E	TRAIL_EDGE (SIDE1)		30
F	LEAD_EDGE (SIDE2)	Image loss quantity setting SIDE2	20
G	FRONT_REAR (SIDE2)		20
H	TRAIL_EDGE (SIDE2)		30

#### <Calculation formula>

SIDE1 adjustment value:  $\text{Old set value} - \left( \frac{L4 - \text{Correction value}^{*1}}{2^{*2}} \right)$

SIDE2 adjustment value:  $\text{Old set value} + \left( \frac{L5 - \text{Correction value}^{*1}}{2^{*2}} \right)$

\*1: Correction value = (Measurement reference 10mm – Lead edge image loss set value) x 10 x (Magnification ratio/100)

Example of calculation:  $140 = (100 - 30) \times 10 \times (200\%/100)$

\*2:  $2 = (\text{Magnification ratio } 200\%/100)$

If L4 = 0, do not make calculation of SIDE1, but adjust the value of L5.

If L5 = 0, do not make calculation of SIDE2, but adjust the value of L4.

If L4 = L5 = 0, the adjustment values of SIDE1 and SIDE2 are the default values.

50-10

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the print off-center position. (adjustment for each paper feed section)
<b>Section</b>	—

#### Operation/Procedure

- 1) Select target item of the adjustment with [↑] and [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Touch [EXECUTE] key to save the entered value.

Item	Display item & Detail of display		Item content		Set range	Default value
A	BK-MAG		Main scan print magnification ratio BK		60 to 140	100
B	MFT		Print off-center adjustment value (manual feed)		1 to 99	50
C	CS1		Print off-center adjustment value (Cassette 1)		1 to 99	50
D	CS2		Print off-center adjustment value (Cassette 2)		1 to 99	50
E	CS3		Print off-center adjustment value (Cassette 3)		1 to 99	50
F	CS4		Print off-center adjustment value (Cassette 4)		1 to 99	50
G	LCC		Print off-center adjustment value (LCC)		1 to 99	50
H	ADU		Print off-center adjustment value (ADU)		1 to 99	50
I	MULTI COUNT		Print quantity		1 to 999	1
J	PAPER	MFT	Cassette select	Manual feed	1	2 (CS1)
		CS1		Cassette 1	2	
		CS2		Cassette 2	3	
		CS3		Cassette 3	4	
		CS4		Cassette 4	5	
		LCC		LCC	6	
K	DUPLEX	YES	Duplex print select	Selected	0	1 (NO)
		NO		Not selected	1	

50-12

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to execute the scan image off-center position adjustment. (Adjusted for each scan mode.)

#### Section

#### Operation/Procedure

- 1) Select target item of the adjustment with [↑] and [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Touch [OK] key to save the entered value.

Item	Display item	Content	Default value
A	OC	OC document off-center adjustment	50
B	SPF (SIDE1)	SPF front surface off-center adjustment	50
C	SPF (SIDE2)	SPF back surface off-center adjustment	50

<b>50-20</b>	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to perform the manual adjustment of the main scanning direction.
<b>Section</b>	—

#### Operation/Procedure

- 1) Select target item of the adjustment with [↑] and [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Touch [EXECUTE] key to save the entered value.

Item	Display item & Detail of display	Description of item	Set range	Default value
A	CYAN (FRONT)	Registration adjustment value main scanning direction (Cyan laser writing position F side)	1 to 199	100
B	CYAN (REAR)	Registration adjustment value main scanning direction (Cyan laser writing position R side)	1 to 199	100
C	MAGENTA (FRONT)	Registration adjustment value main scanning direction (Magenta laser writing position F side)	1 to 199	100
D	MAGENTA (REAR)	Registration adjustment value main scanning direction (Magenta laser writing position R side)	1 to 199	100
E	YELLOW (FRONT)	Registration adjustment value main scanning direction (Yellow laser writing position F side)	1 to 199	100
F	YELLOW (REAR)	Registration adjustment value main scanning direction (Yellow laser writing position R side)	1 to 199	100
G	MULTICOUNT	Print quantity	1 to 999	1
H	PAPER	MFT	Cassette select	Manual feed
		CS1		Cassette 1
		CS2		Cassette 2
		CS3		Cassette 3
		CS4		Cassette 4
		LCC		LCC
I	DUPLEX	YES	Duplex print select	Selected
		NO		Not selected

TEST

SIMULATION NO.50-20

CLOSE

REGISTRATION ADJUSTMENT : FRONT-REAR DIRECTION

A: 100

A : 100 : CYAN(FRONT)

B : 100 : CYAN(REAR)

C : 100 : MAGENTA(FRONT)

D : 100 : MAGENTA(REAR)

[ 1~199 ]

EXECUTE OK

<b>50-21</b>	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to perform the manual adjustment of the sub scanning registration.
<b>Section</b>	—

#### Operation/Procedure

- 1) Select target item of the adjustment with [↑] and [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Touch [EXECUTE] key to save the entered value.

Item	Display item & Detail of display	Description	Set value	Default value
A	CYAN	Registration adjustment value sub scanning direction (Cyan drum → Black drum)	1 to 199	100
B	MAGENTA	Registration adjustment value sub scanning direction (Magenta drum → Black drum)	1 to 199	100
C	YELLOW	Registration adjustment value sub scanning direction (Yellow drum → Black drum)	1 to 199	100
D	MULTICOUNT	Print quantity	1 to 999	1
E	PAPER	MFT	Cassette select	Manual feed
		CS1		Cassette 1
		CS2		Cassette 2
		CS3		Cassette 3
		CS4		Cassette 4
		LCC		LCC
F	DUPLEX	YES	Duplex print select	Selected
		NO		Not selected

TEST

SIMULATION NO.50-21

CLOSE

REGISTRATION ADJUSTMENT : SCANNING DIRECTION

A: 100

A : 100 : CYAN

B : 100 : MAGENTA

C : 100 : YELLOW

D : 1 : MULTICOUNT

[ 1~199 ]

EXECUTE OK

<b>50-22</b>	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to perform the main/sub scanning auto registration adjustment.
<b>Section</b>	—

#### Operation/Procedure

- 1) Select target item for the adjustment with [REGIST] [DRUM POS] and [ALL] keys.
  - 2) Touch [EXECUTE] key.
- All the drum motors are operated to start the adjustment.

Key		Display		Content	Default value
ALL (All execution (Both of the auto registration adjustment and the auto phase adjustment are executed.)	REGIST (Auto registration adjustment is executed.)	MAIN F	C	Registration adjustment value main scan direction (Cyan laser writing position F side)	100.0
			M	Registration adjustment value main scan direction (Magenta laser writing position F side)	100.0
			Y	Registration adjustment value main scan direction (Yellow laser writing position F side)	100.0
		MAIN R	C	Registration adjustment value main scan direction (Cyan laser writing position R side)	100.0
			M	Registration adjustment value main scan direction (Magenta laser writing position R side)	100.0
			Y	Registration adjustment value main scan direction (Yellow laser writing position R side)	100.0
		SUB	C	Registration adjustment value sub scan direction (Cyan drum → Black drum)	100.0
			M	Registration adjustment value sub scan direction (Magenta drum → Cyan drum)	100.0
			Y	Registration adjustment value sub scan direction (Yellow drum → Magenta drum)	100.0
	DLUM POS (Auto phase adjustment is executed.)	PHASE	Phase adjustment value BK → CL	Angle step 0° (1) → 45° (2) → 90° (3) → 135° (4) → 180° (5) → 225° (6) → 270° (7) → 315° (8)	2

	Error code	Error display	Detail of content
Compulsory end error	-	SUSPENDE	Door open during operation
	-	SUSPENDE	Pressing [CA] key during operation
	-	-	Unconfirmed operation (power OFF) during operation
Basic error	1	TONER EMPTY	BK or all colors toner empty detection
	2	TONER BEFORE BEHAVIOR	Other conditions
	4	SENSOR CALIBRATION	With 3 times of retry of F or R, the target is not reached.
	5	TIME OVER	Data is not acquired for 90sec from data acquisition
	7	PROCESS CONTROL	Process control error detection
Sub scan adjustment error	10	MAIN BLACK FRONT	The number of pitch data is not the specified number.
	11	MAIN BLACK FRONT	The pitch data is not in the specified allowable range.
	15	SUB BLACK REAR	The number of pitch data is not in the specified range.
	16	SUB BLACK REAR	The pitch data is not in the specified allowable range.
	20	SUB CYAN FRONT	The number of pitch data is not the specified number.
	21	SUB CYAN FRONT	The pitch data is not in the specified allowable range.
	22	SUB CYAN FRONT	The calculation result value is not in the specified allowable range.
	23	SUB CYAN FRONT	The variation of the calculation result value is over the specified allowable range.
	25	SUB CYAN REAR	The number of pitch data is not the specified number.
	26	SUB CYAN REAR	The pitch data is not in the specified allowable range.
	27	SUB CYAN REAR	The calculation result value is not in the specified allowable range.
	28	SUB CYAN REAR	The variation of the calculation result value is over the specified allowable range.
	30	SUB MAGENTA FRONT	The number of pitch data is not the specified number.
	31	SUB MAGENTA FRONT	The pitch data is not in the specified allowable range.

	Error code	Error display	Detail of content
Sub scan adjustment error	32	SUB MAGENTA FRONT	The calculation result value is not in the specified allowable range.
	33	SUB MAGENTA FRONT	The variation of the calculation result value is over the specified allowable range.
	35	SUB MAGENTA REAR	The number of pitch data is not the specified number.
	36	SUB MAGENTA REAR	The pitch data is not in the specified allowable range.
	37	SUB MAGENTA REAR	The calculation result value is not in the specified allowable range.
	38	SUB MAGENTA REAR	The variation of the calculation result value is over the specified allowable range.
	40	SUB YELLOW FRONT	The number of pitch data is not the specified number.
	41	SUB YELLOW FRONT	The pitch data is not in the specified allowable range.
	42	SUB YELLOW FRONT	The calculation result value is not in the specified allowable range.
	43	SUB YELLOW FRONT	The variation of the calculation result value is over the specified allowable range.
	45	SUB YELLOW REAR	The number of pitch data is not the specified number.
	46	SUB YELLOW REAR	The pitch data is not in the specified allowable range.
	47	SUB YELLOW REAR	The calculation result value is not in the specified allowable range.
	48	SUB YELLOW REAR	The variation of the calculation result value is over the specified allowable range.
Main scan adjustment error	50	MAIN BLACK FRONT	The number of pitch data is not the specified number.
	51	MAIN BLACK FRONT	The pitch data is not in the specified allowable range.
	55	MAIN BLACK REAR	The number of pitch data is not in the specified range.
	56	MAIN BLACK REAR	The pitch data is not in the specified allowable range.
	60	MAIN CYAN FRONT	The number of pitch data is not the specified number.
	61	MAIN CYAN FRONT	The pitch data is not in the specified allowable range.

	Error code	Error display	Detail of content
Main scan adjustment error	62	MAIN CYAN FRONT	The calculation result value is not in the specified allowable range.
	63	MAIN CYAN FRONT	The variation of the calculation result value is over the specified allowable range.
	65	MAIN CYAN REAR	The number of pitch data is not the specified number.
	66	MAIN CYAN REAR	The pitch data is not in the specified allowable range.
	67	MAIN CYAN REAR	The calculation result value is not in the specified allowable range.
	68	MAIN CYAN REAR	The variation of the calculation result value is over the specified allowable range.
	70	MAIN MAGENTA FRONT	The number of pitch data is not the specified number.
	71	MAIN MAGENTA FRONT	The pitch data is not in the specified allowable range.
	72	MAIN MAGENTA FRONT	The calculation result value is not in the specified allowable range.
	73	MAIN MAGENTA FRONT	The variation of the calculation result value is over the specified allowable range.
	75	MAIN MAGENTA REAR	The number of pitch data is not the specified number.
	76	MAIN MAGENTA REAR	The pitch data is not in the specified allowable range.
	77	MAIN MAGENTA REAR	The calculation result value is not in the specified allowable range.
	78	MAIN MAGENTA REAR	The variation of the calculation result value is over the specified allowable range.
	80	MAIN YELLOW FRONT	The number of pitch data is not the specified number.
	81	MAIN YELLOW FRONT	The pitch data is not in the specified allowable range.
	82	MAIN YELLOW FRONT	The calculation result value is not in the specified allowable range.
	83	MAIN YELLOW FRONT	The variation of the calculation result value is over the specified allowable range.
	85	MAIN YELLOW REAR	The number of pitch data is not the specified number.
	86	MAIN YELLOW REAR	The pitch data is not in the specified allowable range.
	87	MAIN YELLOW REAR	The calculation result value is not in the specified allowable range.
	88	MAIN YELLOW REAR	The variation of the calculation result value is over the specified allowable range.
Other error	99	OTHER	Other error

(Initial screen or when in normal end)

TEST SIMULATION NO.50-22				
AUTO ADJUSTMENT OF REGISTRATION&DLUM POSITION				
	MAIN F	MAIN R	SUB	PHASE
C	105.0 (+0.2)	110.0 (-0.1)	103.0 (+0.4)	4 (3)
M	100.0 (+0.0)	99.0 (-0.2)	99.0 (+0.2)	
Y	98.0 (+0.3)	98.0 (+0.1)	105.0 (+0.0)	

1/1

(Adjustment screen)

TEST SIMULATION NO.50-22	
AUTO ADJUSTMENT OF REGISTRATION&DLUM POSITION NOW EXECUTING...	
<input type="button" value="EXECUTE"/>	

(Error end screen)

TEST SIMULATION NO.50-22	
AUTO ADJUSTMENT OF REGISTRATION&DLUM POSITION PRESS [EXECUTE] TO START ERROR : TONNER EMPTY 01	
<input type="button" value="EXECUTE"/>	

50-24

**Purpose** (Do not use this function unless specially required.)

**Function (Purpose)** Used display the auto registration adjustment result (SIM50-22).

**Section** —

**Operation/Procedure**

TEST SIMULATION NO. 50-24	
AUTO REGISTRATION DATA DISPLAY REG_EXE_CNT : 00000000 REG_SUC_CNT : 00000000 REG_CNT : 00000000	
<input type="button" value="K"/> <input type="button" value="C"/> <input type="button" value="M"/> <input type="button" value="Y"/> <input type="button" value="BACK"/> <input type="button" value="NEXT"/> 1/1	

50-27

**Purpose** Adjustment

**Function (Purpose)** Used to adjust the image loss of scanned image in the FAX/Scanner mode.

**Section** FAX/Scanner

**Operation/Procedure**

- 1) Select target mode for the adjustment with [FAX] and [SCANNER] keys.
- 2) Select target item of the adjustment with [↑] and [↓] keys.
- 3) Enter the set value with 10-key.
- 4) Touch [OK] key to save the entered value.

	Item	Display item	Description	Default value
FAX send	A	Image loss setting OC	LEAD_EDGE (OC)	OC lead edge image loss setting
	B		FRONT_REAR (OC)	OC side image loss setting
	C		TRAIL_EDGE (OC)	OC rear edge image loss setting
	D	Image loss setting SPF SIDE1	LEAD_EDGE (SPF_SIDE1)	Front surface lead edge image loss setting
	E		FRONT_REAR (SPF_SIDE1)	Front surface side image loss setting
	F		TRAIL_EDGE (SPF_SIDE1)	Front surface rear edge image loss setting
	G	Image loss setting SPF SIDE2	LEAD_EDGE (SPF_SIDE2)	Back surface lead edge image loss setting
	H		FRONT_REAR (SPF_SIDE2)	Back surface side image loss setting
	I		TRAIL_EDGE (SPF_SIDE2)	Back surface rear edge image loss setting
SCANNER mode (FAX, other than COPY)	A	Image loss setting OC	LEAD_EDGE(OC)	OC lead edge image loss setting
	B		FRONT_REAR(OC)	OC side image loss setting
	C		TRAIL_EDGE(OC)	OC rear edge image loss setting
	D	Image loss setting SPF SIDE1	LEAD_EDGE(SPF_SIDE1)	Front surface lead edge image loss setting
	E		FRONT_REAR(SPF_SIDE1)	Front surface side image loss setting
	F		TRAIL_EDGE(SPF_SIDE1)	Front surface rear edge image loss setting
	G	Image loss setting SPFSIDE2	LEAD_EDGE(SPF_SIDE2)	Back surface lead edge image loss setting
	H		FRONT_REAR(SPF_SIDE2)	Back surface side image loss setting
	I		TRAIL_EDGE(SPF_SIDE2)	Back surface rear edge image loss setting

<b>50-28</b>	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to perform the OC adjustment, the BK main scanning direction magnification ratio correction, RSPF adjustment and print position adjustment.

<b>Section</b>	—
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#### Operation/Procedure

##### <Adjustment items>

Adjustment item	Description
(1) OC ADJ	OC document lead edge, off-center, sub scanning direction magnification ratio adjustment.
(2) BK-MAG ADJ	BK main scanning direction magnification ratio adjustment.
(3) SPF ADJ	RSPF (front/back) document lead edge, off-center, sub scanning direction magnification ratio adjustment.
(4) SETUP/PRINT ADJ	Print lead edge adjustment, all trays print off-center (each paper feed tray, duplex unit) adjustment.
(5) RESULT	Adjustment result content display
(6) DATA	Data used in execution of the adjustment are displayed.

#### (1) OC document lead edge, off-center, sub scanning direction magnification ratio adjustment.

- 1) Select [OC ADJ] on the touch panel.
- 2) Select the tray for the OC adjustment pattern self print.
- 3) Touch [EXECUTE] key to start self printing of OC adjustment pattern.
- 4) Set OC adjustment pattern on the OC by the corner reference and cover the OC adjustment pattern with the blank background chart.
  - Set the adjustment pattern in landscape (A4). Check to confirm that there is no clearance between the adjustment pattern and the document guide.

- Black chart kind and size.

Prepare in 310 x 470, equivalent to cutting sheet No.791 (black).

- 5) Touch [EXECUTE] key to start scanning OC adjustment pattern.

- 6) When [OK] key is touched, adjustment value is saved.

#### (2) BK main scanning direction magnification ratio adjustment.

- 1) Select [BK-MAG ADJ] on the touch panel.
- 2) Select the tray for printing BK magnification ratio adjustment pattern.
- 3) Touch [EXECUTE] key to start self print of BK magnification ratio adjustment pattern.
- 4) Set BK magnification ratio adjustment pattern on the OC.
- 5) Touch [EXECUTE] key to start scanning of BK magnification ratio adjustment pattern.
- 6) When [OK] key is touched, the adjustment value is saved.

#### (3) RSPF (front/back) document lead edge, off-center, sub scanning direction magnification ratio adjustment.

- 1) Select [SPF ADJ] on the touch panel.
- 2) Touch the key of the adjustment target item and select the tray for self printing of RSPF adjustment pattern.
- 3) Touch [EXECUTE] key to start self printing of RSPF adjustment pattern.
- 4) Set RSPF adjustment pattern on the RSPF.
- 5) Touch [EXECUTE] key to start scanning of RSPF adjustment pattern.
- 6) When [OK] key is touched, the adjustment value is saved.

#### (4) Print lead edge adjustment, all trays print off-center (each paper feed tray, duplex unit) adjustment.

- 1) Select [SETUP/PRINT ADJ] on the touch panel.
- 2) Touch the key of the adjustment target item and select the tray for self printing of the print position adjustment pattern.
- 3) Touch [EXECUTE] key to start scanning of the print position adjustment pattern.
- 4) Set the print position adjustment pattern on the OC.
- 5) Touch [EXECUTE] key to start scanning of the print position adjustment pattern.
- 6) When [OK] key is touched, the adjustment value is saved.

#### (5) Adjustment result content display

#### (6) Data used in execution of the adjustment are displayed.

TEST SIMULATION NO.50-28 CLOSE

AUTO IMAGE POSITION ADJUSTMENT : SERVICE

OC ADJ BK-MAG ADJ

SPF ADJ SETUP/PRINT ADJ

RESULT DATA

1/1

## 51

### 51-1

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the ON/OFF timing of the transfer voltage and the separation bias voltage.

<b>Section</b>	Process
----------------	---------

#### Operation/Procedure

- 1) Select target item of the adjustment with [↑] and [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Touch [OK] key to save the entered value.

Item	Display item	Description of content	Default value
A	TC2 ON TIMING	Secondary transfer voltage ON timing setting	40
B	TC2 OFF TIMING	Secondary transfer voltage OFF timing setting	60

TEST SIMULATION NO.51-01 CLOSE

TRANSCRIPTION TIMING SETUP

A: 40 : TC2 ON TIMING

B: 60 : TC2 OFF TIMING

[ 1 ~ 99 ]

OK

### 51-2

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to perform the paper contact pressure adjustment for each section resist roller (main unit, each paper feed, duplex paper feed, DSPF paper feed) (When there is a considerable fluctuation in the print image position on print paper or paper jam occurs, this adjustment is required).

<b>Section</b>	Paper transport
----------------	-----------------

#### Operation/Procedure

- 1) Select adjustment target mode with [SIDE1] [SIDE2] [ENGIN] keys.
- 2) Select set item with [↑] and [↓] keys.
- 3) Enter set value with 10-key.
- 4) Touch [OK] key to save the entered value.

Item	Key	Display item	Description of item (Mode, document, paper feed speed)	Default value
A	SIDE1	NORMAL_PLAIN_HIGH	RSPF front surface document, deflection quantity adjustment value (normal, plain paper, HIGH)	50
B		NORMAL_PLAIN_LOW	RSPF front surface document, deflection quantity adjustment value (normal, plain paper, LOW)	50
C		NORMAL_THIN_HIGH	RSPF front surface document, deflection quantity adjustment value (normal, thin paper, HIGH)	50
D		NORMAL_THIN_LOW	RSPF front surface document, deflection quantity adjustment value (normal, thin paper, LOW)	50
E		RANDOM_PLAIN_LOW	RSPF front surface document, deflection quantity adjustment value (random, plain paper, LOW)	50
F		RANDOM_THIN_LOW	RSPF front surface document, deflection quantity adjustment value (random, thin paper, LOW)	50
A	SIDE2	NORMAL_PLAIN_HIGH_1	RSPF back surface document, deflection quantity adjustment value 1 (normal, plain paper, HIGH)	50
B		NORMAL_PLAIN_LOW_1	RSPF back surface document, deflection quantity adjustment value 1 (normal, plain paper, LOW)	50
C		NORMAL_PLAIN_HIGH_2	RSPF back surface document, deflection quantity adjustment value 2 (normal, plain paper, HIGH)	50
D		NORMAL_PLAIN_LOW_2	RSPF back surface document, deflection quantity adjustment value 2 (normal, plain paper, LOW)	50
A	ENGIN	TRAY1 (S)	Main unit cassette 1 (upper stage), deflection adjustment value (small size)	40
B		TRAY1 (L)	Main unit cassette 1 (upper stage), deflection adjustment value (large size)	40
C		TRAY2 (S)	Main unit cassette 1 (upper stage), deflection adjustment value (small size)	40
D		TRAY2 (L)	Main unit cassette 1 (upper stage), deflection adjustment value (large size)	40
E		MANUAL PLAIN PAPER (S)	Manual tray, deflection adjustment value (plain paper, small size)	40
F		MANUAL PLAIN PAPER (L)	Manual tray, deflection adjustment value (plain paper, large size)	40
G		MANUAL HEAVY PAPER1 (S)	Manual feed tray, deflection adjustment value (Heavy paper, small size)	25
H		MANUAL HEAVY PAPER1 (L)	Manual feed tray, deflection adjustment value (Heavy paper, large size)	25
I		MANUAL OHP1	Manual feed tray, deflection adjustment value (OHP)	40
J		MANUAL ENV	Manual feed tray, deflection adjustment value (Envelope)	40
K		ADU PLAIN PAPER (S)	ADU, deflection adjustment value (Plain paper, small size)	40
L		ADU PLAIN PAPER (L)	ADU, deflection adjustment value (Plain paper, large size)	40



Item	Key	Display item	Description of item (Mode, document, paper feed speed)	Default value
M	ENGIN	ADU HEAVY PAPER1 (S)	ADU, deflection adjustment value (Heavy paper, small size)	25
N		ENGIN ADU HEAVY PAPER1 (L)	ADU, deflection adjustment value (Heavy paper, large size)	25
O		DESK(S)	DESK, deflection adjustment value (Plain paper, small size)	40
P		DESK(L)	DESK, deflection adjustment value (Plain paper, large size)	40
Q		A4LCC	A4LCC, Deflection adjustment value	40

53

53-6

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to perform the RSPF document size width detection level adjustment.
<b>Section</b>	RSPF

#### Operation/Procedure

- 1) Set the RSPF paper feed guide to maximum width.
- 2) Touch [EXECUTE] key.  
The maximum width detection level is recognized.
- 3) Set RSPF paper feed guide to A4R width.
- 4) Touch [EXECUTE] key.  
The A4R width detection level is recognized.
- 5) Set RSPF paper feed guide to A5R width.
- 6) Touch [EXECUTE] key.  
The A5R width detection level is recognized.
- 7) Set RSPF paper feed guide to the minimum width.
- 8) Touch [EXECUTE] key.  
The minimum width detection level is recognized.

When the above operation is not performed normally, "ERROR" is displayed. When the above operation is completed normally, "COMPLETE" is displayed.

53-7

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to perform RSPF document size width adjustment value setting.
<b>Section</b>	RSPF
<b>Operation/Procedure</b>	<ol style="list-style-type: none"> <li>1) Select target item of the adjustment with [↑] and [↓] keys.</li> <li>2) Enter the set value with 10-key.</li> <li>3) Touch [OK] key to save the entered value.</li> </ol>

Item	Display item	Guide plate position	Default value
A	AD_MAX	Maximum position	948
B	AD_P1	Middle position (L)	517
C	AD_P2	Middle position (S)	219
D	AD_MIN	Minimum position	68

53-8

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to perform RSPF document scanning start position adjustment.
<b>Section</b>	RSPF

#### Operation/Procedure

- 1) Enter the set value with 10-key.
- 2) Touch [OK] key to save the entered value.

Item	Display item	Description	Default value
A	ADJUST VALUE	SPF scan position adjustment	50

55

55-1

<b>Purpose</b>	(Do not use this function unless specially required)
<b>Function (Purpose)</b>	Used to set the engine soft SW.
<b>Section</b>	PCU
<b>Operation/Procedure</b>	



55-2

<b>Purpose</b>	(Do not use this function unless specially required)
<b>Function (Purpose)</b>	Used to set the scanner soft SW
<b>Section</b>	Scanner

**Operation/Procedure**

55-3

<b>Purpose</b>	(Do not use this function unless specially required)
<b>Function (Purpose)</b>	Used to set the controller soft SW.
<b>Section</b>	MFP

**Operation/Procedure**
**56**

56-1

<b>Purpose</b>	Backup
<b>Function (Purpose)</b>	Data transfer (Used for repair PWB)
<b>Section</b>	MFP

**Operation/Procedure**

- 1) Select target content of data transfer.
- 2) Touch [EXECUTE] key then touch [YES] key.  
Data transfer of the item selected in procedure 1 is executed. "COMPLETE" is displayed when the operation is finished normally. In case of abnormal end, "ERROR" is displayed.

Target data	Content
ALL → HDD	All memory contents are transferred to HDD.
HDD → ALL	The contents of HDD are transferred to all the memories.
EEPROM → HDD	Transfer from EEPROM to HDD
HDD → EEPROM	Transfer from HDD to EEPROM
SRAM → HDD	Transfer from SRAM to HDD. If, however, a FAX memory or an option memory (memory for FAX) is installed, the data are transferred to HDD together with the contents of the memory for FAX.
HDD → SRAM	Transfer from HDD to SRAM. If, however, a FAX memory or an option memory (memory for FAX)* is installed, the data are transferred to HDD together with the contents of the memory for FAX.

56-2

<b>Purpose</b>	Backup
<b>Function (Purpose)</b>	Used to backup the data (user authentication data, address book, etc.) of EEPROM, SRAM, or HDD to a USB memory and to restore the data.
<b>Section</b>	Memory, HDD

**Operation/Procedure**

- 1) Insert USB memory into the machine.
- 2) Select target item for transfer with the touch panel.
- 3) Touch [EXECUTE] key then touch [YES] key.  
Data transfer of the item selected in procedure 2 is executed. "COMPLETE" is displayed when the operation is finished normally. In case of abnormal end, "ERROR" is displayed.

**60**

60-1

<b>Purpose</b>	Operation test/Check
<b>Function (Purpose)</b>	Used to check the operation (read/write) of the MFP control (SDRAM).
<b>Section</b>	—

**Operation/Procedure**

- 1) Touch [EXECUTE] key. Test is started.

**<Result display>**

Result display	Detail
OK	Success
NG	Fail
NG (SDRAM IS NOT IN SLOT4)	Fail: SLOT4 (standard) is unconnected and SLOT3 (option) is connected.
NONE	Not installed (including DIMM trouble)

**<SLOT descriptions>**

SLOT	Descriptions
SLOT1	Memory connected to the MFP controller. Since it is of only the system area, it is excluded from the targets of Read/Write check.
SLOT2	Memory connected to the MFP controller. Read/Write check is executed for some memory area.
SLOT3	<ul style="list-style-type: none"> <li>Option memory connected to the ICU-ASIC.</li> <li>Since SLOT4 (standard) memory is not installed, Read/Write check cannot be executed.</li> </ul>
SLOT4	Standard memory connected to the ICU-ASIC

TEST

SIMULATION NO.60-01

CLOSE

SDRAM READ/WRITE TEST

PRESS[EXECUTE] TO START

EXECUTE

60-2

<b>Purpose</b>	(Do not use this function)
<b>Function (Purpose)</b>	Used to set the data of onboard SDRAM.
<b>Section</b>	—

**Operation/Procedure**

TEST

SIMULATION NO.60-02

CLOSE

SDRAM SETTING

A: 0

A: 0

[ 0 ~ 1 ]

A: 0

B: 2

C: 2

D: 1

: SETTING ENABLE: DISABLE

: NUMBER OF ROW: 13BIT

: NUMBER OF COLUMN: 10BIT

: TWR SETTING VALUE: 3CLOCK

↑

↓

OK

61

61-01

<b>Purpose</b>	Operation test/Check
<b>Function (Purpose)</b>	The polygon motor rotation and BD signal detection.
<b>Section</b>	LSU

**Operation/Procedure**

Touch [EXECUTE] key. LSU check is started.

**<Error list>**

Display	Content
LSU TESTRESULT NG: PG	LSU check polygon mirror is abnormal
LSU TESTRESULT NG: K	LSU check K-colored LD emission of light is abnormal
LSU TESTRESULT NG: CL	LSU check CL-colored LD emission of light is abnormal

TEST

SIMULATION NO.61-01

CLOSE

LSU TEST

PRESS[EXECUTE] TO START

↑

↓

EXECUTE

1/1

61-3

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to adjust laser power.
<b>Section</b>	—

**Operation/Procedure**

- 1) Select set item with [↑] and [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Touch [OK] key to save the entered value.

Category	Item	Display name	Content	Default value
COPY	A	LASER POWER MIDDLE (K)	Laser power setting middle speed/Black	85
	B	LASER POWER MIDDLE (C)	Laser power setting middle speed/Cyan	85
	C	LASER POWER MIDDLE (M)	Laser power setting middle speed/Magenta	85
	D	LASER POWER MIDDLE (Y)	Laser power setting middle speed/Yellow	85
	E	LASER POWER LOW (K)	Laser power setting low speed/Black	85
	F	LASER POWER LOW (C)	Laser power setting low speed/Cyan	85
	G	LASER POWER LOW (M)	Laser power setting low speed/Magenta	85
	H	LASER POWER LOW (Y)	Laser power setting low speed/Yellow	85
	I	LASER POWER MIDDLE (B/W)	Laser power setting middle speed/B/W	85
	J	LASER POWER LOW (B/W)	Laser power setting low speed/B/W	100
	K	LASER LUT MIDDLE (K)	Laser LUT selection middle speed/Black	16
	L	LASER LUT MIDDLE (C)	Laser LUT selection middle speed/Cyan	12
	M	LASER LUT MIDDLE (M)	Laser LUT selection middle speed/Magenta	12
	N	LASER LUT MIDDLE (Y)	Laser LUT selection middle speed/Yellow	12
	O	LASER LUT LOW (K)	Laser LUT selection low speed/Black	16
	P	LASER LUT LOW (C)	Laser LUT selection low speed/Cyan	12
	Q	LASER LUT LOW (M)	Laser LUT selection low speed/Magenta	12
	R	LASER LUT LOW (Y)	Laser LUT selection low speed/Yellow	12
	S	LASER LUT MIDDLE (B/W)	Laser LUT selection middle speed/B/W	0
	T	LASER LUT LOW (B/W)	Laser LUT selection low speed/B/W	0
PRINT/ FAX	A	LASER POWER PRINTER MIDDLE (K)	Laser power setting (for printer) middle speed/Black	85
	B	LASER POWER PRINTER MIDDLE (C)	Laser power setting (for printer) middle speed/Cyan	85
	C	LASER POWER PRINTER MIDDLE (M)	Laser power setting (for printer) middle speed/Magenta	85
	D	LASER POWER PRINTER MIDDLE (Y)	Laser power setting (for printer) middle speed/Yellow	85
	E	LASER POWER PRINTER LOW (K)	Laser power setting (for printer) low speed/Black	85
	F	LASER POWER PRINTER LOW (C)	Laser power setting (for printer) low speed/Cyan	85
	G	LASER POWER PRINTER LOW (M)	Laser power setting (for printer) low speed/Magenta	85
	H	LASER POWER PRINTER LOW (Y)	Laser power setting (for printer) low speed/Yellow	85
	I	LASER POWER PRINTER MIDDLE (B/W)	Laser power setting (for printer) middle speed/B/W	85
	J	LASER POWER PRINTER LOW (B/W)	Laser power setting (for printer) low speed/B/W	100

Category	Item	Display name	Content	Default value
PRINT/ FAX	K	LASER PRINTER LUT MIDDLE (K)	Laser printer LUT selection middle speed/Black	16
	L	LASER PRINTER LUT MIDDLE (C)	Laser printer LUT selection middle speed/Cyan	12
	M	LASER PRINTER LUT MIDDLE (M)	Laser printer LUT selection middle speed/Magenta	12
	N	LASER PRINTER LUT MIDDLE (Y)	Laser printer LUT selection middle speed/Yellow	12
	O	LASER PRINTER LUT LOW (K)	Laser printer LUT selection low speed/Black	16
	P	LASER PRINTER LUT LOW (C)	Laser printer LUT selection low speed/Cyan	12
	Q	LASER PRINTER LUT LOW (M)	Laser printer LUT selection low speed/Magenta	12
	R	LASER PRINTER LUT LOW (Y)	Laser printer LUT selection low speed/Yellow	12
	S	LASER PRINTER LUT MIDDLE (BW)	Laser printer LUT selection middle speed/B/W	0
	T	LASER PRINTER LUT LOW (BW)	Laser printer LUT selection low speed/B/W	0

61-4

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to execute self-print of the LSU position adjustment.
<b>Section</b>	LSU

#### Operation/Procedure

- 1) Select target item with [↑] and [↓] keys.
- 2) Enter set value with 10-key.
- 3) Touch [EXECUTE] key.

Item	Display item & Detail of display	Description of item	Set range	Default value
A	MULTICOUNT	Print quantity	1 to 999	1
B	PAPER	MFT	Cassette	Manual feed
		CS1	Cassette select	1
		CS2	Cassette 1	2
		CS3	Cassette 2	3
		CS4	Cassette 3	4
		LCC	Cassette 4	5
		LCC	LCC	6

62

62-1

<b>Purpose</b>	Data clear
<b>Function (Purpose)</b>	Used to format the hard disc (Excluding the operation manual area).
<b>Section</b>	MFP (HDD)

#### Operation/Procedure

- 1) Touch [EXECUTE] key.
- 2) Touch [YES] key.

Formatting hard disc is started.

62-2

<b>Purpose</b>	Operation test/Check
<b>Function (Purpose)</b>	Used to check read/write of the hard disc (Partial).
<b>Section</b>	MFP (HDD)

#### Operation/Procedure

- 1) Touch [EXECUTE] key.
- 2) Touch [YES] key.

Read/write test is started.

62-3

<b>Purpose</b>	Operation test/Check
<b>Function (Purpose)</b>	Used to check read/write of the hard disc (All areas).
<b>Section</b>	MFP (HDD)

#### Operation/Procedure

- 1) Touch [EXECUTE] key.
- 2) Touch [YES] key.

Read/write test is started.

<b>62-6</b>	
<b>Purpose</b>	Operation test/Check
<b>Function (Purpose)</b>	Used to perform the self-diagnostics of the hard disc.
<b>Section</b>	MFP (HDD)

#### Operation/Procedure

- 1) Select target item of the self-diagnostics.
- 2) Touch [EXECUTE] key.

Target data	Content
SHORT S.T	Partial check
EXTENDED S.T	All areas check

TEST SIMULATION NO.62-06

SMART OFFLINE TEST

SHORT S.T : ENABLE

EXTENDED S.T : DISABLE

EXECUTE 1/1

<b>62-7</b>	
<b>Purpose</b>	Operation test/Check
<b>Function (Purpose)</b>	Used to print the self-diagnostics error log.
<b>Section</b>	MFP

#### Operation/Procedure

Touch [EXECUTE] key.  
Error log print is started.

TEST SIMULATION NO.62-07

SMART ERROR LOG PRINT OUT

PRESS [EXECUTE] TO PRINT THE SMART ERROR PRINT

EXECUTE

<b>62-8</b>	
<b>Purpose</b>	Data clear
<b>Function (Purpose)</b>	Used to format the hard disk excluding the system area and operation manual area.
<b>Section</b>	MFP (HDD)

#### Operation/Procedure

- 1) Touch [EXECUTE] key.
- 2) Touch [YES] key.

TEST SIMULATION NO.62-08

HDD FORMAT(EXCEPT SYSTEM AREA)

ARE YOU SURE? YES NO EXECUTE

<b>62-10</b>	
<b>Purpose</b>	Data clear
<b>Function (Purpose)</b>	Used to delete the job log data.
<b>Section</b>	MFP (HDD)

#### Operation/Procedure

- 1) Touch [EXECUTE] key.
- 2) Touch [YES] key.

TEST SIMULATION NO.62-10

JOB COMPLETE DATA CLEAR(WITH JOB LOG DATA)

ARE YOU SURE? YES NO EXECUTE

<b>62-11</b>	
<b>Purpose</b>	Data clear
<b>Function (Purpose)</b>	Used to delete the document filing data.
<b>Section</b>	MFP (HDD)

#### Operation/Procedure

- 1) Touch [EXECUTE] key.
- 2) Touch [YES] key.

TEST SIMULATION NO.62-11

DOCUMENT FILING DATA CLEAR

ARE YOU SURE? YES NO EXECUTE

<b>62-12</b>	
<b>Purpose</b>	Data clear
<b>Function (Purpose)</b>	Used to set Enable/Disable of auto format in HDD trouble.
<b>Section</b>	MFP (HDD)

#### Operation/Procedure

- 1) Enter set value with 10-key.
- 2) Touch [OK] key to save the entered value.

Item	Content	Default value
A	(0: YES, 1: NO)	
	0 Auto format Enable	1 (Disable)
	1 Auto format Disable	

TEST SIMULATION NO.62-12

AUTO FORMAT SETTING (HDD TROUBLE)

A: 1

[ 0 ~ 1 ]

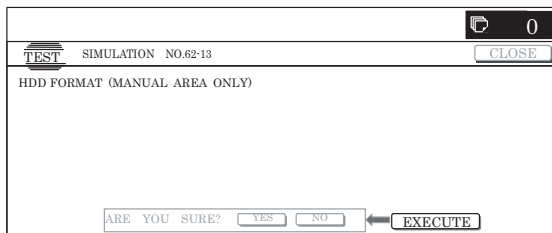
OK

62-13

<b>Purpose</b>	Data clear
<b>Function (Purpose)</b>	Used to format the hard disk (operation manual area only).
<b>Section</b>	MFP (HDD)

**Operation/Procedure**

- 1) Touch [EXECUTE] key.
- 2) Touch [YES] key.



63

63-1

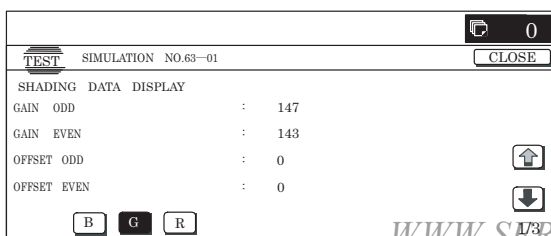
<b>Purpose</b>	Adjustment/Setup/Operation data output/ Check (Display/Print)
<b>Function (Purpose)</b>	Used to check the shading correction result.
<b>Section</b>	Scanner (Exposure)

**Operation/Procedure**

Select color target with [R][G][B] keys.

**<Display item and description>**

Display item	Description	Remark
GAIN ODD	Gain adjustment value (ODD)	
GAIN EVEN	Gain adjustment value (EVEN)	
OFFSET ODD	Offset value (ODD)	
OFFSET EVEN	Offset value (EVEN)	
SMP AVE ODD	Reference plat sampling average value (ODD)	
SMP AVE EVEN	Reference plat sampling average value (EVEN)	
TARGET VALUE	Target value	
BLACK LEVEL	Black output level	
ERROR CODE	Error code (0, 1 to 4)	0: No error 1: STAGE1. Over the loop number 2: STAGE2. The target value is less than the specified level. 3: STAGE3. The gain set value is negative. 4: END is not asserted.
RSPF WHITE LEVEL 1ST	First scan, RSPF white reference level	
RSPF WHITE LEVEL 2ND	Second and later scan, RSPF white reference level	



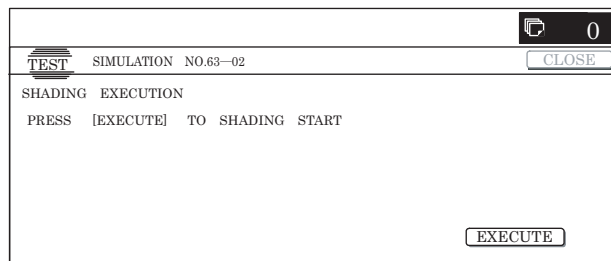
63-2

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to execute shading forcibly.
<b>Section</b>	Scanner

**Operation/Procedure**

Touch [EXECUTE] key.

Shading is started.

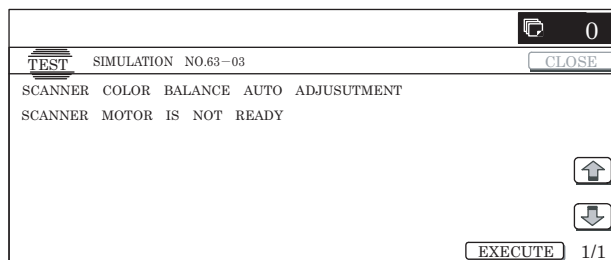


63-3

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to perform scanner color balance and color coefficient auto adjustment.
<b>Section</b>	Scanner (scan)

**Operation/Procedure**

- 1) Select adjustment target with [R][G][B] keys.
- 2) Touch [OC] key.
- 3) Touch [EXECUTE] key.



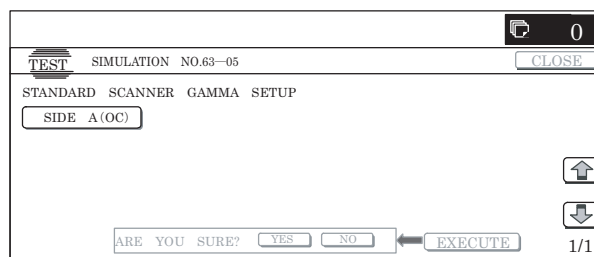
63-5

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to reset the gamma correction and color correction parameters of the SCAN ASIC.
<b>Section</b>	Scanner

**Operation/Procedure**

- 1) Touch [SIDE A(OC)] key.
- 2) Touch [EXECUTE] key.
- 3) Touch [YES] key.

SIDE A (OC)	Copy gamma correction 1 and color correction coefficient
	TWAIN gamma correction 1 and color correction coefficient
	Auto adjustment gamma correction 1 and color correction coefficient



<b>63-6</b>	
<b>Purpose</b>	Adjustment/Setup
<b>Function (Purpose)</b>	Used to scan the engine color balance auto adjustment pattern setting.
<b>Section</b>	Image process (ICU)

#### Operation/Procedure

- 1) Place the chart self printed with Sim46-21 on the glass table.
- 2) Touch [EXECUTE] key.

<b>63-7</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to perform the auto density adjustment scanner target value.
<b>Section</b>	Image process (ICU)

#### Operation/Procedure

- 1) Touch [SETUP] key.
- 2) Place the chart self printed with Sim46-21 on the glass table.
- 3) Touch [EXECUTE] key.
- 4) Touch [OK] key.

Display data	Display content
B	Point B target value
C	Point C target value
D	Point D target value
E	Point E target value
F	Point F target value
G	Point G target value
H	Point H target value
I	Point I target value
J	Point J target value
K	Point K target value
L	Point L target value
M	Point M target value
N	Point N target value
O	Point O target value
BASE	Base sampling value

<b>63-8</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to perform the initial value reset of the engine auto adjustment scanner target value (Service).
<b>Section</b>	Image process (ICU)

#### Operation/Procedure

- 1) Touch [EXECUTE] key.
- 2) Touch [YES] key.

<b>63-11</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the reference scanner target value for the engine auto density adjustment.
<b>Section</b>	Scanner (Scanning)

#### Operation/Procedure

Select target item with touch panel.

Item	Set value	Content	Default value
Target value table select	DEF1	DEF1 mode setting	DEF1
	DEF2	DEF2 mode setting	
	DEF3	DEF3 mode setting	

## 64

<b>64-1</b>	
<b>Purpose</b>	Operation test/Check
<b>Function (Purpose)</b>	Used to execute self-print (Color mode).
<b>Section</b>	Printer

#### Operation/Procedure

- 1) Select color target for self print with [K] [C] [M] [Y] keys.
- 2) Select the set item with [↑] and [↓] keys.
- 3) Enter the set value with 10-key.
- 4) Touch [EXECUTE] key.

Item	Display item		Description of item		Set range		Default value
A	PRINT PATTERN (1, 2, 9 ~ 11, 14 ~ 19)		Print pattern specification (* For details, refer to the following.)		1 to 20 (Only 1, 2, 9 to 11, and 14 to 19 can be printed.)		1
B	DOT1 (DOT1>=2 IF A : 2, 11)		Print dot number setting (Self print patter: m by n)		Pattern 2, 11: 2 to 255 Other than above: 1 to 255		1
C	DOT2 (DOT2>=2 IF A : 2, 11)		Empty dot number setting (Self print patter: m by n)		Pattern 2, 11: 2 to 255 Other than above: 0 to 255		254
D	DENSITY (FIXED"255" IF A : 9)		Print gradation specifications		Pattern 9: 255 (fixed) Other than above: 1 to 255		255
E	MULTI COUNT		Print quantity		1 to 999		1
F	EXPOSURE (2 ~ 8 IF A : 14 ~ 19)	THROUGH	Exposure mode specifications	No process (Through)	Pattern 14 to 19: 2 to 8 Other than above: 1 to 8	1	8 (STANDARD DITCH)
		CHAR/PIC		Text/Printed Photo		2	
		CHAR/PRPIC		Text/Photograph		3	
		CHAR		Text		4	
		PRINT PIC		Printed Photo		5	
		PRINT PAPER		Photograph		6	
		MAP		Map		7	
		STANDARD DITCH		Dither without correction		8	
G	PAPER	MFT	Cassette select	Manual feed	1 to 6	1	2 (CS1)
		CS1		Cassette 1		2	
		CS2		Cassette 2		3	
		CS3		Cassette 3		4	
		CS4		Cassette 4		5	
		LCC		LCC		6	
H	DUPLEX	YES	Duplex print select	Select	0 to 1	0	1 (NO)
		NO		Not select		1	
I	PAPER TYPE	PLAIN	Paper type	Plain paper	1 to 4	1	1 (PLAIN)
		HEAVY		Heavy paper		2	
		OHP		OHP		3	
		ENVELOPE		Envelope		4	

**<Detailed descriptions of print pattern at item A>**

NO.	Content	Pattern size	Pattern forming section	Color select		Gradation select	Exposure select	M parameter		N parameter		Remark	
				Condition	When NO			Enable/Disable	Default value	Enable/Disable	Default value		
1	Grid pattern	All surface	LSU-ASIC	○	K only	○	×	○	1	○	254	• All colors are selected in the print width of 100 or more (Print in 3 colors (CMY), print is started at 4mm from the paper lead edge.	
2	Mesh print			○	K only	○	×	○	2	○	2		—
3	16 gradations: sub scan	Sub fixed		○ (up to 3 colors)	K only	No	×	×		×		• When all colors are selected, print is made in CMY. • 16-gradation print • Gradation change for every 256dot.	
4	16 gradations: main scan	Main fixed		○ (Up to 3 colors)	K only	No	×	×		×			
5	Even pitch pattern (MBYN): sub scan	All surface		○	K only	○	×	○	1	○	4	—	
6	Even pitch pattern (MBYN): main scan												
7	4-color overlap even pitch pattern (MBYN): sub scan				×	—	○	×	○	1	○	4	—
8	4-color overlap even pitch pattern (MBYN): main scan												

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NO.	Content	Pattern size	Pattern forming section	Color select		Gradation select	Exposure select	M parameter		N parameter		Remark
				Condition	When NO			Enable/Disable	Default value	Enable/Disable	Default value	
9	Each color 10% area (A4/4R) density print	Fixed range	LSU-ASIC	×	—	○	×	○	10	×		<ul style="list-style-type: none"> <li>Each interval is 41.86MM (989dot)</li> <li>When M is outside 1 to 13%, it is rounded.</li> <li>[K] print is started at 17mm from the paper lead edge.</li> </ul>
10	8-color band print			×	—	○	×	×		×		—
11	4-color mesh print	All surface (Each color 1/4)		×	—	○	×	○	2	○	2	<ul style="list-style-type: none"> <li>Each color print is made for every 1/4 of sub scan paper size.</li> <li>When N=0, 4-color all surface print.</li> </ul>
12	—	—	Input process (IMG-ASIC preprocess)	—	K only (For through/default, C only.)	—	—	—	—	—	—	—
13	—	—		—		—	—	—	—	—	—	—
14	256 gradations: sub scan	Sub fixed	IMG-ASIC	○ (up to 3 colors)	K only	No	○	×		×		<ul style="list-style-type: none"> <li>When all colors are selected, print is made in CMY.</li> <li>Print is made from 255 gradations in the range of 0 to 254 gradations.</li> <li>Print in 256 gradations.</li> <li>Print is started at 5mm from the paper lead edge.</li> </ul>
15	16 gradations +MBYN (Center gradation section only): sub scan	Sub fixed		○ (up to 3 colors)		No	○	○	2	○	2	<ul style="list-style-type: none"> <li>When all colors are selected, print is made in CMY.</li> <li>Print in 16 gradations.</li> <li>Gradation is changed for every 256dot.</li> </ul>
16	16 gradations +MBYN (Center gradation section only): main scan	Main fixed		○ (up to 3 colors)		No	○	○	2	○	2	

NO.	Content	Pattern size	Pattern forming section	Color select		Gradation select	Exposure select	M parameter		N parameter		Remark
				Condition	When NO			Enable/Disable	Default value	Enable/Disable	Default value	
17	All background (Half tone)	All surface	Half tone (IMG-ASIC after-process)	○ (up to 3 colors)	K only	○	○	×		×		• When all colors are selected, print is made in CMY.
18	256-gradation pattern (Other dither)	Fixed range		○ (up to 3 colors)	K only	No	○	×		×		• When all colors are selected, print is made in CMY.
19	256-gradation pattern (Dither for text)	Fixed range		× (up to 3 colors)	K only	No	○	×		×		• Print is made for 16 gradations in the main scan direction, and for the next 16 gradations, in return. (16 x 16 patch print) • Print is started at 5mm from the paper lead edge. • Print is started from 255 gradation in the range of 0 to 254 gradations.
20	4-color grid pattern (Cross): main/sub scan	All surface	Controller (memory)	× (4-color fixed)	—	×	×	×	×	×	117	—

TEST SIMULATION NO.64-01 CLOSE

SELF PRINT(COLOR) : SERVICE

A: 1 ; PRINT PATTERN (1,2,9-11, 14-19)

B: 1 ; DOT1 (DOT1>=2 IF A:2,11)

C: 254 ; DOT2 (DOT2>=2 IF A:2,11)

D: 255 ; DENSITY (FIXED"255" IF A:9)

[ 1 ~ 20 ]

K C M Y

EXECUTE OK

TEST SIMULATION NO.64-02 CLOSE

ENGINE COLOR BALANCE PATCH PRINT MODE

A: 1 ; COPIES

B: 1 ; PROC ADJ:NO

[ 1~999 ]

EXECUTE OK

64-2	
<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to print the density adjustment pattern.
<b>Section</b>	Printer

#### Operation/Procedure

- 1) Select target item with [↑] and [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Touch [EXECUTE] key.

Item	Display item & Detail of display		Content	Default value
A	COPIES		Print quantity	1
B	PROC ADJ	YES	0 The half tone process control correction value is added.	1
		NO	1 The half tone process control correction value is not added.	

64-3	
<b>Purpose</b>	Operation test/Check
<b>Function (Purpose)</b>	Used to execute self-print. (BW mode)
<b>Section</b>	Printer

#### Operation/Procedure

- 1) Select target item with [↑] and [↓] keys.
- 2) Touch [EXECUTE] key.

Item	Display item & Detail of display		Description of item		Set range		Default value
A	PRINT PATTERN (1,2,9 ~ 11, 14 ~ 19)		Print pattern specification (* For details, refer to below.)		1 to 20 (Only 1, 2, 9 to 11, and 14 to 19 can be printed.)		1
B	DOT1 (DOT1>=2 IF A : 2, 11)		Print dot number setting (Self print pattern: for M BY N)		Pattern 2, 11: 2 to 255 Other than above: 1 to 255		1
C	DOT2 (DOT2>=2 IF A : 2, 11)		Space dot number setting (Self print pattern: for M BY N)		Pattern 2, 11: 2 to 255 Other than above: 0 to 255		254
D	DENSITY (FIXED"255" IF A : 9)		Print gradation specification		Pattern 9: 255 (fixed) Other than above: 1 to 255		255
E	MULTI COUNT		Print quantity		1 to 999		1
F	EXPOSURE (2 ~ 8 IF A : 14 ~ 19)	THROUGH Exposure mode specification	No process (Through)		Pattern 14 to 19: 2 to 8 Other than above: 1 to 8	1	8 (STANDARD DITCH)
		CHAR/PIC	Text/Printed Photo			2	
		CHAR/PRPIC	Text/Photograph			3	
		CHAR	Text			4	
		PRINT PIC	Printed Photo			5	
		PRINT PAPER	Photograph			6	
		MAP	Map			7	
		STANDARD DITCH	Dither without correction			8	
G	PAPER	MFT	Paper feed tray select	Manual feed	1 to 6	1	2 (CS1)
		CS1		Cassette 1		2	
		CS2		Cassette 2		3	
		CS3		Cassette 3		4	
		CS4		Cassette 4		5	
		LCC		LCC		6	
H	DUPLEX	YES	Duplex print select	Selected	0 to 1	0	1 (NO)
		NO		Not selected		1	
I	PAPER TYPE	PLAIN	Paper kind select	Plain paper	1 to 4	1	1 (PLAIN)
		HEAVY		Heavy paper		2	
		OHP		OHP		3	
		ENVELOPE		Envelope		4	

**<Detailed description on each print pattern of item A>**

NO.	Content	Pattern size	Pattern forming section	Gradation select	Exposure select	M parameter		N parameter		Remark
						Enable/Disable	Default value	Enable/Disable	Default value	
1	Grid pattern	All surface	LSU-ASIC	○	×	○	1	○	254	<ul style="list-style-type: none"><li>When all colors are selected in the print width of 100 or more, print is made in CMY (3 colors).</li><li>Print is started at 4mm from the paper lead edge.</li></ul>
2	Mesh print	All surface		○	×	○	2	○	2	—
3	16 gradations: sub scan	Sub fixed		No	×	×		×		<ul style="list-style-type: none"><li>When all colors are selected, print is made in CMY.</li><li>Print for 16 gradations.</li><li>Gradation is changed for every 256 dots.</li></ul>
4	16 gradations: main scan	Main fixed		No	×	×		×		
5	Even pitch pattern (MBYN): sub scan	All surface		○	×	○	1	○	4	—
6	Even pitch pattern (MBYN): main scan									
7	4-color overlap Even pitch pattern (MBYN): sub scan	All surface		○	×	○	1	○	4	—
8	4-color overlap Even pitch pattern (MBYN): main scan									
9	Each color 10% area (A4/4R) density print	Fixing range		○	×	○	10	×		<ul style="list-style-type: none"><li>Each interval is 41.86mm(989dot)</li><li>When M is other than 1 to 13%, it is rounded.</li><li>K print is started at 17mm from the paper lead edge.</li></ul>
10	8-color band print	Fixing range		○	×	×		×		—
11	4-color Mesh print	All surface (Each color 1/4)		○	×	○	2	○	2	<ul style="list-style-type: none"><li>Each color print is made for every 1/4 of sub scan paper size.</li><li>When N=0, 4-color all surface print.</li></ul>

NO.	Content	Pattern size	Pattern forming section	Gradation select	Exposure select	M parameter		N parameter		Remark
						Enable/Disable	Default value	Enable/Disable	Default value	
12	—	—	Input process (IMG-ASIC preprocess)	—	—	—	—	—	—	—
13	—	—		—	—	—	—	—	—	—
14	256 gradations: sub scan	Sub fixed		No	○	×		×		<ul style="list-style-type: none"><li>• When all colors are selected, print is made in CMY.</li><li>• Print is started at 255 gradation in the range of 0 to 254 gradations.</li><li>• Print in 256 gradations.</li><li>• Print is started at 5mm from the paper lead edge.</li></ul>
15	16 gradations+M byN (Center gradation section only): sub scan	Sub fixed	IMG-ASIC	No	×	○	2	○	2	<ul style="list-style-type: none"><li>• When all colors are selected, print is made in CMY.</li><li>• Print in 256 gradations.</li><li>• Gradation is changed for every 256 dot.</li></ul>
16	16 gradations+M byN (Center gradation section only): main scan	Main fixed		No	×	○	2	○	2	
17	All background (Half tone)	All surface	Half tone (IMG-ASIC after-process)	○	○	×		×		<ul style="list-style-type: none"><li>• When all colors are selected, print is made in CMY.</li></ul>
18	256 gradation pattern (Other dither)	Fixing range		No	○	×		×		<ul style="list-style-type: none"><li>• When all colors are selected, print is made in CMY.</li><li>• Print is made for 16 gradations in the main scan direction, and for the next 16 gradations, in return. (16 x 16 patch print).</li><li>• Print is started at 5mm from the paper lead edge.</li><li>• Print is started at 255 gradation in the range of 0 to 254 gradations.</li></ul>
19	256 gradation pattern (Dither for text)	Fixing range		No	○	×		×		
20	Frame cross pattern	All surface	Controller (Memory)	×	×	×	×	×	×	—

TEST SIMULATION NO.64-03

CLOSE

SELF PRINT(BW)

A: 1

B: 1

C: 254

D: 255

PRINT PATTERN

DOT1

DOT2

DENSITY

[ 1 ~ 20 ]

EXECUTE

OK

#### 64-4

<b>Purpose</b>	Operation test/Check
<b>Function (Purpose)</b>	Used to execute self-print.
<b>Section</b>	Printer

#### Operation/Procedure

- 1) Select color target with [K] [C] [M] [Y] keys.
- 2) Select the set item with [↑] and [↓] keys.
- 3) Enter the set value with 10-keys.
- 4) Touch [EXECUTE] key.

Item	Display item & Detail of display		Description of item		Set range	Default value
A	PRINT PATTERN		Print pattern specification (* For details, refer to below.)		1 to 5	3
B	DENSITY		Print gradation specification		1 to 255	128
C	MULTI CONUT		Print quantity		1 to 999	1
D	PAPER	MFT	Paper feed tray select	Manual feed	1	2 (CS1)
		CS1		Cassette 1	2	
		CS2		Cassette 2	3	
		CS3		Cassette 3	4	
		CS4		Cassette 4	5	
		LCC			6	
E	HALFTONE	PHOTO	Half tone	Photo	0	0 (PHOTO)
		TEXT/GRAPHICS		Text/Graphic	1	
		CAD		Design	2	
F	BIT DEPTH	1BIT	Bit number	1 bit	0	1 (4BIT)
		4BIT		4 bit	1	
G	DITHER	STRAIGHT	Dither correction specification	Straight	1	2 (CALIB)
		CALIB		Calibration	2	

<Detailed description for each print in item A>

NO.	Content	Remark
1	256 gradation pattern (COLOR)	C only/ M only/ Y only/ K only/ C & M/ C & Y/ M & Y are executable. For the other, rounded to K only.
2	256 gradation pattern (B/W)	Rounded to K only regardless of COLOR SELECT status.
3	256 gradation pattern (COLOR) (Y-M-C-K continuous)	4 pages are continuously printed in the sequence of Y only, M only, C only, and K only.
4	Half tone pattern (COLOR)	C only/ M only/ Y only/ K only/ C & M/ C & Y/ M & Y/ C & M & Y are executable. For the other, rounded to K only.
5	Half tone pattern (B/W)	Rounded to K only regardless of COLOR SELECT status.

64-5

<b>Purpose</b>	Operation test/Check
<b>Function (Purpose)</b>	Used to execute self print (PCL).
<b>Section</b>	Printer

**Operation/Procedure**

- 1) Select color target with [K][Y][M][C] keys.
- 2) Select the set item with [↑] and [↓] keys.
- 3) Enter the set value with 10-key.
- 4) Touch [EXECUTE] key.

Item	Display item & Detail of display		Description of item		Set range	Default value
A	PRINT PATTERN		Print pattern specification (*For details, refer to below.)		1 to 3	3
B	DITHER	STRAIGHT	Dither correction specification	Straight	1	2
		CALIB		Calibration	2	
C	MULTI COUNT		Print quantity		1 to 999	1
D	PAPER	MFT	Paper feed tray select	Manual feed	1	2 (CS1)
		CS1		Cassette 1	2	
		CS2		Cassette 2	3	
		CS3		Cassette 3	4	
		CS4		Cassette 4	5	
		LCC		LCC	6	
E	HALFTONE	PHOTO	Half tone	Photo	0	0 (PHOTO)
		TEXT/GRAPHICS		Text/Picture	1	
		CAD		Design	2	
F	BIT DEPTH	1BIT	Bit number	1 bit	0	1 (4BIT)
		4BIT		4 bit	1	
G	INTENT	SHARP COLOR	Rendering indent	Sharp color	0	0 (SHARP COLOR)
		PERCEPTUAL		Perceptual	1	
		COLORIMETRIC		Color metric	2	
		SATURATION		Saturation	3	
		CAD		CAD	4	
H	GRAY COMPENSATION	K	Gray compensation	K only	0	0 (K)
		KCMY		KCMY	1	
I	TONER SAVE MODE	ON	Toner save mode	Setting	0	1 (OFF)
		OFF		No setting	1	

<Detailed description for each print pattern in item A>

NO.	Content	Remark
1	PCL process inspection pattern (COLOR)	
2	PCL process inspection pattern (B/W)	Rounded to K only regardless of COLOR SELECT state. Print is made at the B/W mode process speed.
3	PCL process inspection pattern (COLOR/B/W continuous)	Continuous printing is made at the default setting in the sequence of COLOR and B/W. B/W printing is made at the B/W mode process speed.

<b>Purpose</b>	Operation test/Check
<b>Function (Purpose)</b>	Used to execute the printer self print (PS).
<b>Section</b>	Printer

**Operation/Procedure**

- 1) Select color target with [K][C][M][Y] keys.
- 2) Select the set item with [↑] and [↓] keys.
- 3) Enter the set value with 10-key.
- 4) Touch [EXECUTE] key.

Item	Display item & Detail of display		Description of item		Set range	Default value
A	PRINT PATTERN		Print pattern specification (* For details, refer to below.)		1 to 2	1
B	DITHER	STRAIGHT	Dither correction specification	Straight	1	2
		CALIB		Calibration	2	
C	MULTI CONUT		Print quantity		1 to 999	1
D	PAPER	MFT	Paper feed tray select	Manual feed	1	2 (CS1)
		CS1		Cassette 1	2	
		CS2		Cassette 2	3	
		CS3		Cassette 3	4	
		CS4		Cassette 4	5	
		LCC		LCC	6	
E	HALFTONE	PHOTO	Half tone	Photo	0	0 (PHOTO)
		TEXT/GRAPHICS		Text/Graphic	1	
		CAD		Design	2	
F	BIT DEPTH	1BIT	Bit number	1 bit	0	1 (4BIT)
		4BIT		4 bit	1	
G	INTENT	SHARP COLOR	Rendering intent	Sharp color	0	0 (SHARP COLOR)
		PERCEPTUAL		Perceptual	1	
		COLORIMETRIC		Color metric	2	
		SATURATION		Saturation	3	
		CAD		CAD	4	
H	GRAY COMPENSATION	K	Gray compensation	K only	0	0 (K)
		KCMY		KCMY	1	
I	INK SIMULATION	OFF	Ink simulation	OFF	0	0 (OFF)
		SWOP		SWOP	1	
		EURO		EURO	2	
		JAPAN COLOR		JAPAN COLOR	3	

**<Detailed description for each print pattern in item A>**

NO.	Content	Remark
1	PS inspection pattern (COLOR)	
2	PS inspection pattern (B/W)	Rounded to K only regardless of COLOR SELECT status. Print is made at the B/B mode process speed.

TEST

SIMULATION NO.64-06

CLOSE

PRINTER SELF PRINT (PS)

A: 1

A: 1 ; PRINT PATTERN

B: 2

B: 2 ; DITHER : CALIB

C: 1

C: 1 ; MULTI COUNT

D: 2

D: 2 ; PAPER : CS1

[ 1 ~ 2 ]

↑

↓

K

C

M

Y

EXECUTE

OK

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the touch panel (LCD display section) detection position.
<b>Section</b>	Operation panel

**Operation/Procedure**

Touch the center of the cross mark at the four corners of the screen. When all the four points are touched, the sampled correction value is saved.



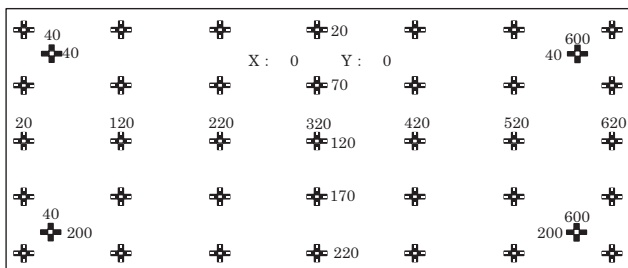
<b>65-2</b>	
<b>Purpose</b>	Adjustment/Setup/Operation data output/Check (Display/Print)
<b>Function (Purpose)</b>	Used to check the touch panel (LCD display section) detection position adjustment result.
<b>Section</b>	Operation panel

#### Operation/Procedure

Touch the touch panel.

The coordinates of the current touched position are displayed in real time.

\* X (horizontal) and Y (vertical)

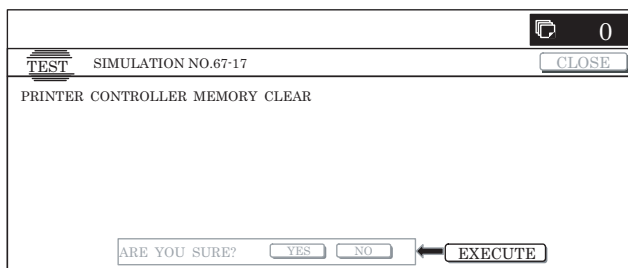


## 67

<b>67-17</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Printer controller clear / Default value setting
<b>Section</b>	—

#### Operation/Procedure

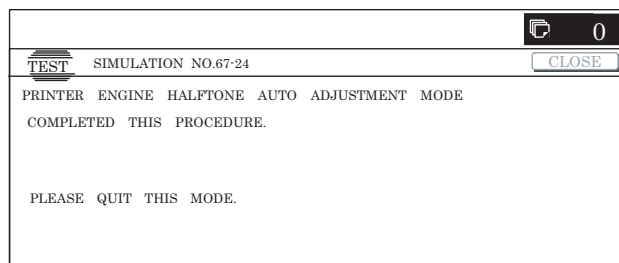
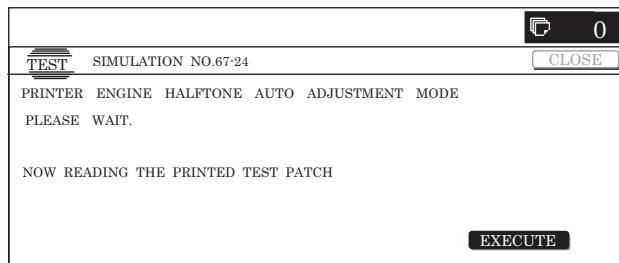
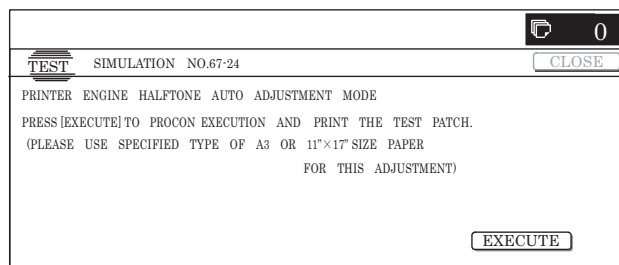
- 1) Touch [EXECUTE] key.
- 2) Touch [YES] key.



<b>67-24</b>	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Use to execute the printer setting of auto color calibration.
<b>Section</b>	Printer

#### Operation/Procedure

- 1) Touch [EXECUTE] key.
- 2) Place the printed pattern on the glass table.
- 3) Touch [FACTORY] or [SERVICE] keys.



<b>67-25</b>	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to set the manual correction of the printer engine color balance.
<b>Section</b>	Printer

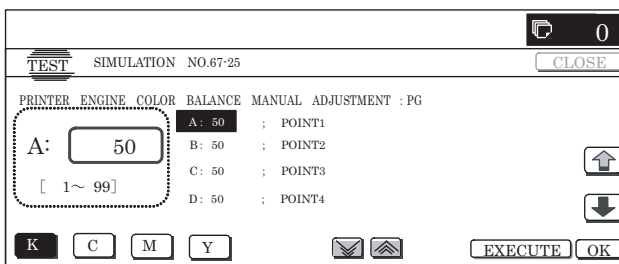
#### Operation/Procedure

- 1) Select color adjustment target with [K][C][M][Y] keys.
- 2) Select the set item with [↑] and [↓] keys.
- 3) Enter the set value with 10-key.
- 4) Touch [OK] key to save the entered value.

\* To change the color balance, change each color set value as below.

User request	Black	Cyan	Magenta	Yellow
Cyan-rich	—	(increase)	decrease	decrease
Magenta-rich	—	decrease	(increase)	decrease
Yellowish	—	decrease	decrease	(increase)
Reddish	—	decrease	decrease	(increase)
Greenish	—	(increase)	decrease	(increase)
Blueish	—	(increase)	decrease	decrease

Usually change the value 5 steps as standard.





<b>67-26</b>	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to perform the reference scanner target value of the printer engine auto density adjustment.
<b>Section</b>	Printer

#### Operation/Procedure

Select target item with touch panel.

Item content	Set value	Target setting
Target value table setting	DEF1	Standard adjustment setting (Default)
	DEF2	5% reduced red setting (Color balance with slightly strong Cyan)
	DEF3	10% reduced red setting (Color balance with emphasis on Cyan)

TEST SIMULATION NO.67-26

STANDARD SCANNER TARGET SELECT OF PRT ENGINE HALFTONE AUTO ADJ

TARGET TBL : DEF1 DEF2 DEF3

1/1

<b>67-27</b>	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to perform the scanner target value of the printer engine auto density adjustment.
<b>Section</b>	Printer

#### Operation/Procedure

- 1) Select color adjustment target with [K][C][M][Y] keys.
- 2) Touch [SETUP] key.
- 3) Place the self print patch output with Sim67-25 on the glass table and touch [EXECUTE] key.
- 4) Touch [OK] key.

Display data	Display content
B	Point B target value
C	Point C target value
D	Point D target value
E	Point E target value
F	Point F target value
G	Point G target value
H	Point H target value
I	Point I target value
J	Point J target value
K	Point K target value
L	Point L target value
M	Point M target value
N	Point N target value
O	Point O target value
BASE	Base sampling value

TEST SIMULATION NO.67-27

SCANNER TARGET OF PRINTER COLOR CALIB SETUP : SERVICE

#B: 91, #C: 2944, #D: 3227, #E: 5822, #F: 8600

#G: 28935, #H: 54344, #I: 86968, #J: 122678, #K: 151198

#L: 169731, #M: 195950, #N: 201249, #O: 207112

K C M Y SETUP 1/1

<b>67-28</b>	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to perform the standard scanner target value registration of the printer engine auto adjustment.
<b>Section</b>	Scanner

#### Operation/Procedure

- 1) Touch [EXECUTE] key.
- 2) Touch [YES] key.

TEST SIMULATION NO.67-28

STANDARD SCANNER TARGET OF PRINTER COLOR CALIB : SERVICE

ARE YOU SURE? YES NO EXECUTE

<b>67-31</b>	
<b>Purpose</b>	Data clear
<b>Function (Purpose)</b>	Used to clear the printer calibration value.
<b>Section</b>	Printer

#### Operation/Procedure

- 1) Touch [EXECUTE] key.
- 2) Touch [YES] key.

TEST SIMULATION NO.67-31

PRINTER CALIBRATION DATA CLEAR

ARE YOU SURE? YES NO EXECUTE

<b>67-32</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to perform screen/color select function setting for each object.
<b>Section</b>	—

#### Operation/Procedure

- 1) Select target item with [↑] and [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Touch [OK] key to save the entered value.

Item	Display	Content	Default value
A	SCREEN (0:YES 1:NO)	0 Change of screen for each object is allowed.	0 (YES)
		1 Change of screen for each object is inhibited.	
B	COLOR (0:YES 1:NO)	0 Change of color for each object is allowed.	0 (YES)
		1 Change of color for each object is inhibited.	

0

TEST SIMULATION NO.67-32
CLOSE

MODE  

A: 0

A : 0 : SCREEN(0:YES 1:NO)  
B : 0 : COLOR(0:YES 1:NO)

[ 0 ~ 1 ]

↑

↓

OK

67-33

**Purpose**

Adjustment

**Function (Purpose)**

Used to execute the gamma correction between printer screens. (for PCL)

**Section**

Printer

**Operation/Procedure**

- 1) Select color adjustment target with [K][Y][M][C] keys.
- 2) Select target item with [SCREEN] key.
- 3) Select the set item with [↑] and [↓] keys.
- 4) Enter the set value with 10-key.
- 5) Touch [OK] key to save the entered value.

**<Set range and default value of each setup>**

Item	Display	Default value					
		SCREEN 1 – 9 (KCMY)	SCREEN 10, 11 (K)	SCREEN4			
				K	C	M	Y
A	POINT1	128	127	128	128	128	128
B	POINT2	128	125	128	128	128	127
C	POINT3	128	124	127	127	128	127
D	POINT4	128	124	127	128	128	127
E	POINT5	128	122	127	127	126	126
F	POINT6	128	120	127	126	127	126
G	POINT7	128	114	123	124	124	123
H	POINT8	128	105	119	122	122	123
I	POINT9	128	95	111	116	117	121
J	POINT10	128	82	112	113	112	117
K	POINT11	128	70	106	108	115	116
L	POINT12	128	64	110	113	110	115
M	POINT13	128	57	120	112	117	118
N	POINT14	128	62	110	119	120	118
O	POINT15	128	75	110	119	121	116

**<Selectable items on the screen>**

Display	Content
SCREEN1	4bit_LOW (Photo)
SCREEN2	4bit_HIGH (Graphic)
SCREEN3	1bit_LOW (Photo)
SCREEN4	1bit_HIGH (Graphic)
SCREEN5	4bit_CAD
SCREEN6	Mono (600 x 600) (*)
SCREEN7	Mono (1200 x 600) (*)
SCREEN8	Toner save 1bit_LOW (Photo)
SCREEN9	Toner save 1bit_HIGH (Graphic)
SCREEN10	Toner save Mono (600 x 600) (*)
SCREEN11	Toner save Mono (1200 x 600) (*)

0

TEST SIMULATION NO.67-33
CLOSE

PRINTER\_SCREEN\_GAMMA\_ADJUSTMENT(SCREEN 1)

A: 128

A : 128 : POINT1  
B : 128 : POINT2  
C : 128 : POINT3  
D : 128 : POINT4

[ 0 ~ 255 ]

K

C

M

Y

SCREEN

OK

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MX-1800N SIMULATION 7 – 86

## [8] SELF DIAG AND TROUBLE CODE

### 1. Self diag

When an error occurs in the machine or when the life of a consumable is nearly expired or expired, the machine detects and displays the particular issue on the operation panel. This allows the service person to take suitable action to resolve the issue. In case of a trouble code, the machine logs the error and stops the machine to minimize damage.

#### A. Function and purpose

- 1) Securing machine safety. (The machine is stopped on detection of a problem)
- 2) The damage to the machine is minimized. (The machine is stopped on detection of a problem.)
- 3) By displaying the area of trouble, the trouble position can be quickly identified. (This allows service person to perform an accurate repair, improving the repair efficiency)
- 4) Advance warning of consumable end of part of life avoids stopping of the machine due to consumable life end and allows for ordering the proper parts for installation.

#### B. 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.)
	Serviceman	Warning of troubles which can be recovered only by a serviceman. (Motor trouble, maintenance, etc.)
	Other	—
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.
	Other	—

### C. Self diag operation and related work flow

The machine always monitors its state of operation.

When the machine recognizes a problem, it stops the operation and displays the trouble message.

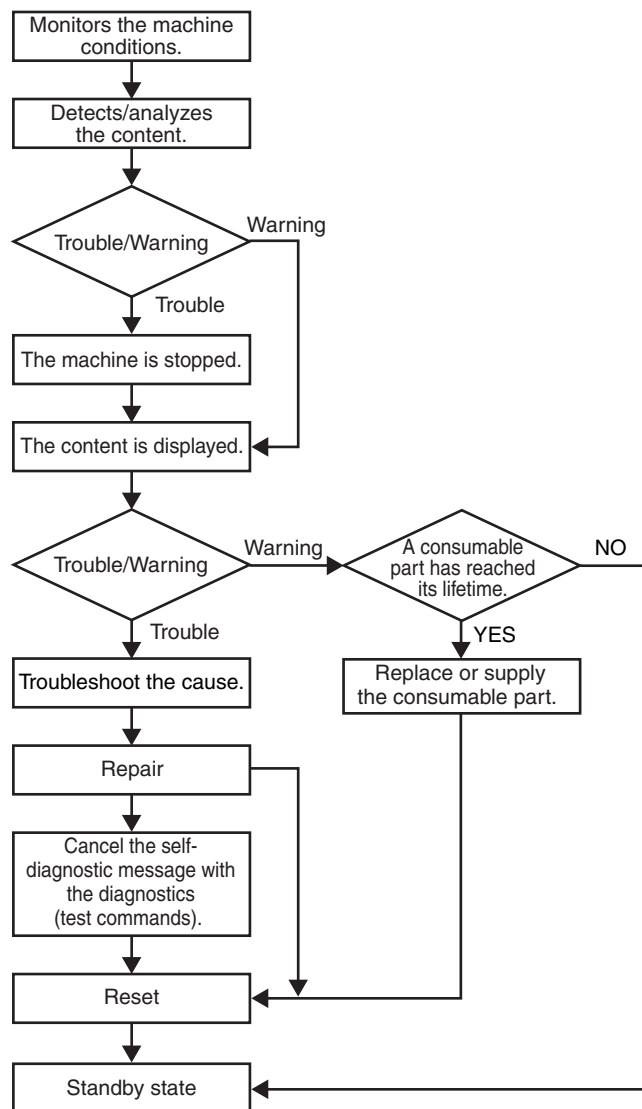
A warning message is displayed when a consumable part life is nearly expired or is expired.

When a warning message is displayed, the machine may or may not stop depending upon the situation.

The trouble messages and the warning messages are displayed by the LCD.

Some trouble messages are automatically cleared when the trouble is repaired. Some other trouble message must be cleared by a simulation.

Some warning messages of consumable parts are automatically cleared when the consumable is replaced. Some other warning message must be cleared by a simulation.



## D. Breakdown sequence

### (1) Breakdown mode list

There are following cases of the breakdown mode.

Kind of trouble	Judgment block	Trouble code	Operatable mode								
			Copy scan (including interruption)	Scan push	Scan pull	Scan To HDD	FAX send	FAX print	Print	List print	Notification to FAST host
FAX board trouble (1 line)	ICU	F6	○	○	○	○	△ 1	△ 1	○	○	△ 1
HDD trouble		E7 (03)	×	×	×	×	×	×	×	×	○
SCU communication trouble		E7 (80), A0-02	×	×	×	×	×	○	○	○	○
PCU communication trouble		E7 (90), A0-01 L8-20	×	×	×	×	×	×	×	×	○
Backup battery voltage fall		U1 (01)	×	×	×	×	×	×	×	×	○
Controller fan motor trouble		L4-30	×	×	×	×	×	×	×	×	×
Connection trouble (ICU detection)		E7 (60 – 65), A0 (10 – 12, 20)	×	×	×	×	×	×	×	×	×
Serial number discrepancy		U2 (30)	×	×	×	×	×	×	×	×	×
Memory error (included not installed the expansion RAM)		U2 (00, 05, 10, 11, 22, 23, 24, 25)	×	×	×	×	×	×	×	×	○
HDD registration data sum error		U2 (50)	×	×	×	×	×	×	×	×	○
Image memory trouble, decode error		E7 (00, 01, 05, 06, 08, 09)	×	×	×	×	×	×	×	×	○
Network error		CE	○	○ Operatable but send NG	○ Operatable but send NG	○	○	○	○	○	×
Process control trouble (Only history is left.) (ICU detection)		F2 (80 – 87)	○	○	○	○	○	○	○	○	○
Laser trouble	PCU	E7 (20, 28, 29), L6 (10)	×	×	×	×	×	×	×	×	○
Connection trouble (PCU detection)		E7 (50, 55), A0 (21)	×	×	×	×	×	×	×	×	×
PCU section troubles (motor, fusing, etc.)		H2, H3, H4, H5, L4 (excluding L4-30), U2 (90, 91), F2 (40, 64, 70, 74), L8 (01, 02)	×	×	×	×	×	×	×	×	○
PCU color system troubles		E7 (21), F2 (41 – 43, 65 – 67, 71 – 73, 75 – 77)	×	×	×	×	×	×	×	×	○
Paper feed tray 1 trouble		F3-12	△ 2	○	○	○	○	△ 2	△ 2	△ 2	○
Paper feed tray 2 trouble		F3-22	△ 2	○	○	○	○	△ 2	△ 2	△ 2	○
Paper feed tray 3 trouble		U6-01	△ 2	○	○	○	○	△ 2	△ 2	△ 2	○
Paper feed tray 4 trouble		U6-02	△ 2	○	○	○	○	△ 2	△ 2	△ 2	○
Paper feed tray other troubles		U6 (00, 10, 50)	△ 8	○	○	○	○	△ 8	△ 8	△ 8	○
Staple trouble		F1 (10)	△ 3	△ 3	△ 3	△ 3	△ 3	△ 3	△ 3	△ 3	○
After-process trouble		F1 (excluding 10)	△ 3	△ 3	△ 3	△ 3	△ 3	△ 3	△ 3	△ 3	○
Other troubles		EE (EL, EU, EC)	○	○	○	○	○	○	○	○	○
Process control trouble (PCU detection)		F2 (39, 44, 45, 49, 51, 58, 78)	○	○	○	○	○	○	○	○	○
Connection trouble (SCU detection)	SCU	E7 (70, 75), A0 (22)	×	×	×	×	×	×	×	×	×
SCU color system troubles		UC (02)	×	×	×	×	×	○	○	○	○
Document control trouble		UC (20)	×	×	×	×	×	○	○	○	○
EEPROM system		U2 (80, 81)	×	×	×	×	×	○	○	○	○
Scanner section troubles (mirror motor, lens, copy lamp)		L1, L3	×	×	×	×	×	○	○	○	○
CCD troubles (shading, etc.)		E7 (10, 11, 14)	×	×	×	×	×	○	○	○	○

Kind of trouble	Judgment block	Trouble code	Operatable mode								
			Copy scan (including interruption)	Scan push	Scan pull	Scan To HDD	FAX send	FAX print	Print	List print	Notification to FAST host
Process control trouble (Only history is left.) (ICU detection)	MFP	F2 (80 – 87, 90)	○	○	○	○	○	○	○	○	○
Process control trouble (Only history is left.) (PCU detection)	PCU	F2 (91 – 94)	○	○	○	○	○	○	○	○	○

○: Operation enabled, ×: Operation disabled

△ 1: The operation is enabled in a line other than the trouble line.

△ 2: When detected during other than a job, the operation is enabled with a tray other than the trouble tray.

△ 3: When detected during other than a job, the operation is enabled in a section other than the trouble paper exit section. \* When, however, the right tray is set.

△ 4: When detected during other than a job, the operation is enabled in the OC mode.

\* 5: Cannot be shifted to the nighttime mode/power saving function. The power cannot be turned OFF with the power SW on the operation panel.

\* 6: When the color mode is set to Disable in the "Color mode disable setting" of the system setting, the operation is enabled in the Black mode.

\* 7: Since communication is enabled, reception can be transferred.

△ 8: When detected during other than a job, the operation is enabled in other than the DESK.

\* 9: Trouble display message is displayed in 2 lines. (Example: Ready to copy. F2 trouble)

\* Trouble mode process

• Machine operation enabled under some conditions.

The operations excluding the trouble mode are enabled (READY). For the mode where operations are disabled, only setting is enabled and the operation disable message is made.

(NOT READY)

(Display) A dialog is displayed when a trouble occurs. For the mode where operations are enabled, [OK] button is added to the message. When operations are disabled, [OK] button is not displayed, and the message is displayed until the trouble is cancelled.

\* For △ 2, 3, 4, 8, perform the following procedures. (In order to avoid patent interference.)

• When a trouble is detected during a job, the machine operation is terminated. (Trouble display/without [OK] key)

• When a trouble is detected during other than a JOB, the trouble display is not made and the trouble position cannot be selected. (The display is not turned off. Machine/Button)

• Troubles which disable the machine operations

The trouble display is always made, and all the modes cannot be set.

• Writing to the trouble memory

Writing of a same trouble to the trouble memory can be selected with SIM 26-35. When this simulation is set, any trouble is written to the trouble memory unconditionally.

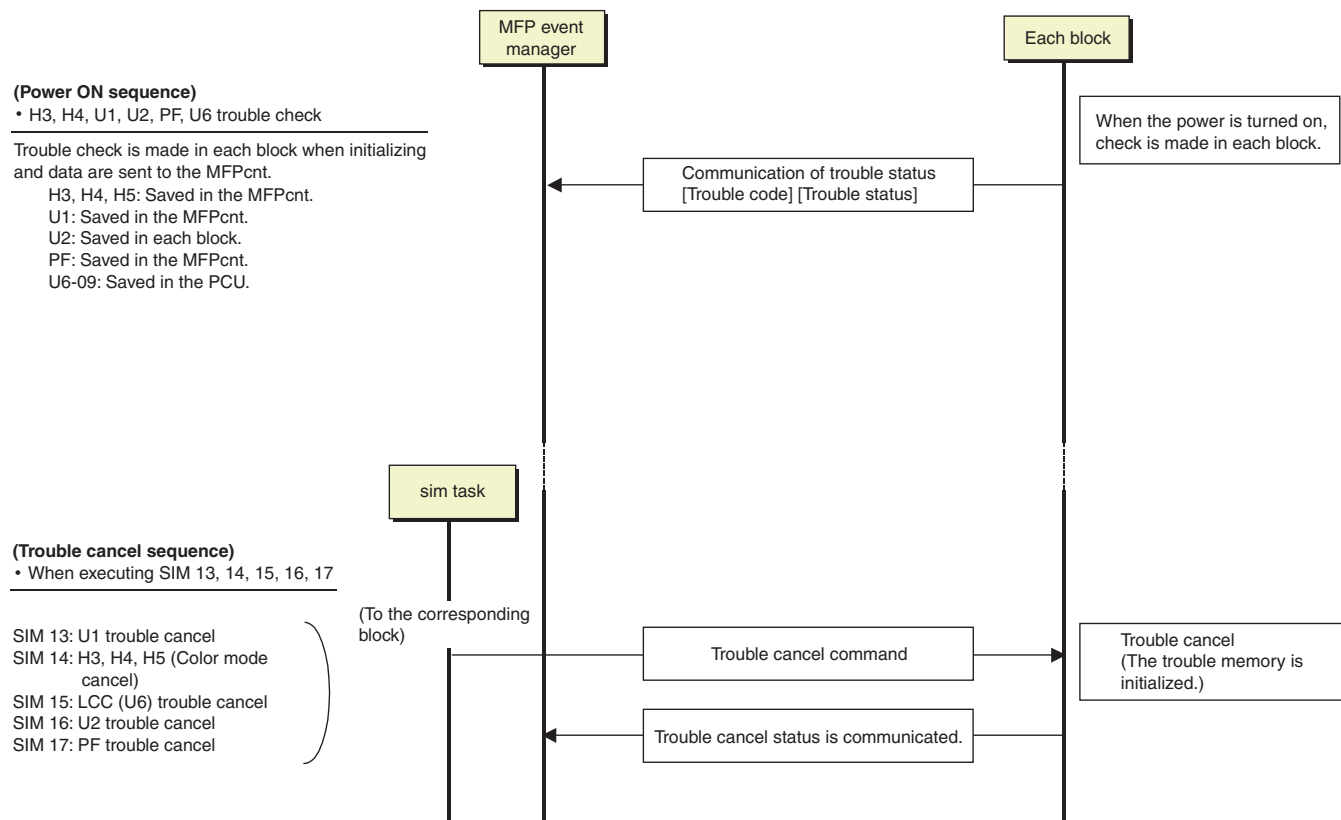
(Sim.26-35)

0: Only once. If same as the previous one, it is not saved. (Default)

1: Any time. Though same as the previous one, it is saved.

## (2) Power ON trouble detection sequence.

- When the power is turned ON and each trouble of H3, H4, H5, U1, U2, PF, U6 (09) is stored, it is judged as a trouble immediately.



## 2. Trouble code list

Trouble code		Trouble code content	Remarks	Trouble detection	Mechanism	Option	Electricity	FAX	Supply
Main code	Sub code								
A0	01	PCU ROM abnormality		PCU			●		
	02	SCU ROM abnormality		Scanner			●		
	10	Controller ROM error		MFP			●		
	11	IF version discrepancy (CTL-PCU)		MFP			●		
	12	IF version discrepancy (CTL-SCU)		MFP			●		
	20	Machine level error (CTL detection)		MFP			●		
	21	Machine level error (PCU detection)		PCU			●		
	22	Machine level error (SCU detection)		Scanner			●		
CE	00	Communication error other than CE-01 – 08		MFP			●		
	01	Network controller trouble		MFP			●		
	02	Not-specified mail/FTP server error		MFP			●		
	03	Communication error in image send		MFP			●		
	04	FTP server account name or authentication password input error		MFP			●		
	05	FTP server directory input error		MFP			●		
	06	POP3 server access error		MFP			●		
	07	POP3 server authentication check error		MFP			●		
	08	POP3 server timeout error		MFP			●		
E7	00	System memory access error		MFP			●		
	01	System data trouble		MFP			●		
	03	HDD trouble		MFP			●		
	05	Local memory access error		MFP			●		
	06	Decode error trouble: Compression decode error (A compression file cannot decompressed.)		MFP			●		
	08	Local memory specifications error		MFP			●		
	09	Local memory combination error		MFP			●		
	10	Shading trouble (Black correction)		Scanner			●		
	11	Shading trouble (White correction)		Scanner			●		
	14	SCAN-ASIC trouble		Scanner			●		
	20	LSU BD detection trouble		PCU			●		
	21	LSU LD deterioration trouble		PCU			●		

Trouble code		Trouble code content	Remarks	Trouble detection	Mechanism	Option	Electricity	FAX	Supply
Main code	Sub code								
E7	28	LSU control ASIC connection abnormality		PCU			●		
	29	LSU-ASIC frequency abnormality		PCU			●		
	50	Engine connection trouble		PCU			●		
	55	PWB information sum error (Engine detection)		PCU			●		
	60	Controller connection trouble (Engine detection)		MFP			●		
	61	Controller connection trouble (Engine)		MFP			●		
	62	Controller connection trouble (Scanner)		MFP			●		
	65	PWB information sum error (Controller detection)		MFP			●		
	70	Scanner connection trouble		SCU			●		
	75	PWB information sum error (Scanner detection)		SCU			●		
	80	Communication trouble between the controller and the scanner		MFP			●		
	90	Communication trouble between the controller and the engine		MFP			●		
EE	EC	Auto developer adjustment trouble (The sample level for every rotation is other than $128 \pm 10$ .)		PCU			●		
	EL	Auto developer adjustment trouble (overtoner error)		PCU			●		
	EU	Auto development adjustment trouble (Under-toner abnormality)		PCU			●		
F1	00	Finisher communication trouble (Machine side detection)		PCU			●		
	03	Finisher swing motor trouble (MX-FNX1)		PCU		●			
	08	Finisher stapler shift motor trouble		PCU		●			
	10	Finisher staple motor abnormality		PCU		●			
	15	Finisher tray lift motor abnormality		PCU		●			
	19	Finisher pre-alignment motor abnormality		PCU		●			
	20	Finisher after-alignment motor abnormality		PCU		●			
	21	Finisher fan motor abnormality (MX-FNX1)		PCU		●			
	33	Finisher punch shift motor trouble		PCU		●			
	34	Finisher punch motor trouble		PCU		●			
	37	Finisher backup RAM trouble		PCU		●			
	50	Finisher incompatibility trouble		PCU		●			
F2	39	Process thermistor trouble		PCU					●
	40	Toner empty sensor abnormality (BLACK)		PCU					●
	41	Toner empty sensor abnormality (CYAN)		PCU					●
	42	Toner empty sensor abnormality (MAGENTA)		PCU					●
	43	Toner empty sensor abnormality (YELLOW)		PCU					●
	44	Black exclusive image density sensor trouble (Transfer belt surface reflection ratio abnormality)		PCU					●
	45	Color exclusive image density sensor trouble (Calibration plate surface reflection ratio abnormality)		PCU					●
	49	LSU thermistor trouble		PCU					●
	50	K phase sensor sensing trouble		PCU					●
	51	CL phase sensor sensing trouble		PCU					●
	58	Process humidity sensor trouble		PCU					●
	64	Toner supply abnormality error (BLACK)		PCU					●
	65	Toner supply abnormality error (CYAN)		PCU					●
	66	Toner supply abnormality error (MAGENTA)		PCU					●
	67	Toner supply abnormality error (YELLOW)		PCU					●
	70	Toner cartridge improper cartridge detection (BLACK)		PCU					●
	71	Toner cartridge improper cartridge detection (CYAN)		PCU					●
	72	Toner cartridge improper cartridge detection (MAGENTA)		PCU					●
	73	Toner cartridge improper cartridge detection (YELLOW)		PCU					●
	74	Toner cartridge CRUM error (BLACK)		PCU					●
	75	Toner cartridge CRUM error (CYAN)		PCU					●
	76	Toner cartridge CRUM error (MAGENTA)		PCU					●
	77	Toner cartridge CRUM error (YELLOW)		PCU					●
	78	Registration exclusive image density sensor trouble (Transfer belt surface reflection ratio abnormality)		PCU					●
	80	Half tone process control 1st patch reference value trouble (BLACK)		PCU					●
	81	Half tone process control 1st patch reference value trouble (CYAN)		PCU					●
	82	Half tone process control 1st patch reference value trouble (MAGENTA)		PCU					●
	83	Half tone process control 1st patch reference value trouble (YELLOW)		PCU					●



Trouble code		Trouble code content	Remarks	Trouble detection	Mechanism	Option	Electricity	FAX	Supply
Main code	Sub code								
F2	84	Half tone process control 2nd patch reference value trouble (BLACK)		PCU					●
	85	Half tone process control 2nd patch reference value trouble (CYAN)		PCU					●
	86	Half tone process control 2nd patch reference value trouble (MAGENTA)		PCU					●
	87	Half tone process control 2nd patch reference value trouble (YELLOW)		PCU					●
	92	High-density process control density correction error (CYAN)		PCU					●
	93	High-density process control density correction error (MAGENTA)		PCU					●
	94	High-density process control density correction error (YELLOW)		PCU					●
F3	12	Main unit tray 1 lift-up trouble		PCU	●				
	22	Main unit tray 2 lift-up trouble		PCU	●				
F6	00	Communication trouble between the ICU and the FAX	Refer to FAX manual for details						
	01	FAX board EEPROM read/write error							
	04	FAX MODEM operation trouble							
	21	Combination error between the TEL/LIU PWB and the FAX soft switch							
	30	Access error to power controller on the FAX board (FAX detection)							
	97	FAX PWB incompatibility trouble							
	98	Combination error between the FAX-BOX PWB destination information and the machine destination information.							
H2	00	Non-contact thermistor detection thermistor open (TH_UM_AD2)		PCU	●				
	01	Lower thermistor open (TH_LM)		PCU	●				
	02	Sub thermistor open (TH_US)		PCU	●				
	03	Non-contact thermistor compensation thermistor open (TH_UM_AD1)		PCU	●				
H3	00	Fusing section high temperature trouble (TH_UM)		PCU	●				
	01	Fusing section high temperature trouble (TH_LM)		PCU	●				
	02	Sub thermistor fusing section high temperature trouble (TH_US)		PCU	●				
H4	00	Fusing section low temperature trouble (TH_UM_AD2)		PCU	●				
	01	Fusing section low temperature trouble (TH_LM)		PCU	●				
	02	Sub thermistor fusing section low temperature trouble (TH_US)		PCU	●				
	30	Thermistor differential input trouble (TH_UM)		PCU	●				
H5	01	5 continuous detection of POD1 not-reached jam		PCU	●				
L1	00	Mirror feed trouble		Scanner	●				
L3	00	Mirror return trouble		Scanner	●				
L4	02	Paper feed motor lock trouble		PCU			●		
	04	Developing motor trouble (BLACK)		PCU			●		
	05	Developing motor trouble (COLOR)		PCU			●		
	06	Transfer belt separation position sensor trouble		PCU			●		
	11	Shift motor trouble		PCU			●		
	30	Controller fan/HDD fan motor trouble		MFP			●		
	31	Paper exit cooling fan trouble		PCU			●		
	32	Power cooling fan/ozone exhaust fan trouble		PCU			●		
L6	10	Polygon motor lock detection		LSUcnt			●		
L8	01	No full wave signal		PCU			●		
	02	Full wave signal width abnormality		PCU			●		
	20	Power controller communication trouble		MFP			●		
PC	--	Personal counter not installed		MFP	●				
U1	01	Battery trouble		MFP			●		
U2	00	EEPROM read/write error (MFP detection)		MFP			●		
	05	HDD/Flash/EEPROM data discrepancy		MFP			●		
	10	SRAM user authentication index check sum error		MFP			●		
	11	EEPROM check sum error (MFP detection)		MFP			●		
	22	SRAM memory check sum error		MFP			●		
	23	MFPC section SRAM memory individual data check sum error		MFP			●		
	24	SRAM memory user authentication counter check sum error		MFP			●		
	25	Flash memory user authentication counter check sum error		MFP			●		
	30	Serial number data discrepancy (MFP <=> PCU)		MFP			●		

Trouble code		Trouble code content	Remarks	Trouble detection	Mechanism	Option	Electricity	FAX	Supply
Main code	Sub code								
U2	50	HDD section individual data check sum error		MFP			●		
	80	EEPROM read/write error (SCU detection)		Scanner			●		
	81	Adjustment value check sum error (SCU detection)		Scanner			●		
	90	EEPROM read/write error (PCU detection)		PCU			●		
	91	EEPROM (PCU) check sum error		PCU			●		
U6	00	Desk communication trouble		PCU			●		
	01	Tray 1 lift-up trouble		PCU	●				
	02	Tray 2 lift-up trouble		PCU	●				
	10	Desk transport motor trouble		PCU	●				
	50	Desk incompatibility trouble		PCU	●				
UC	02	CPT-ASIC abnormality		Scanner			●		
	20	Document control module trouble		Scanner			●		

### 3. Details of trouble code

#### A0-01 PCU ROM abnormality

Trouble content		PCU ROM content trouble
Section		PCU
Case 1	Cause	Firmware upgrade is not made properly due to power OFF, etc.
	Check and remedy	Use SIM49-1 to upgrade the firmware.

#### A0-02 SCU ROM abnormality

Trouble content		SCU ROM content trouble
Section		Scanner
Case 1	Cause	Some part of SFU is not upgraded during upgrading of the firmware.
	Check and remedy	Use SIM49-1 to execute the firmware.

#### A0-10 Controller ROM error

Trouble content		SFU combination error in the controller
Section		MFP
Case 1	Cause	SFU upgrade was not properly made when upgrading the firmware.
	Check and remedy	Controller firmware upgrade

#### A0-11 IF version discrepancy (CTL-PCU)

Trouble content		Combination error between CTL and PCU
Section		MFP
Case 1	Cause	Combination error between CTL and PCU
	Check and remedy	Check the firmware combination between CTL and PCU.

#### A0-12 IF version discrepancy (CTL-SCU)

Trouble content		Combination error between CTL and SCU
Section		MFP
Case 1	Cause	Combination error between CTL and SCU
	Check and remedy	Check the firmware combination between CTL and SCU.

#### A0-20 Machine level error (CTL detection)

Trouble content		Combination error between the machine production/remodeling and the firmware
Section		MFP
Case 1	Cause	Combination error between the machine production/remodeling and the firmware
	Check and remedy	Check the combination between the machine production/remodeling and the firmware.

#### A0-21 Machine level error (PCU detection)

Trouble content		Combination error between the machine production/remodeling and the firmware
Section		PCU
Case 1	Cause	Combination error between the machine production/remodeling and the firmware
	Check and remedy	Check the combination between the machine production/remodeling and the firmware.

#### A0-22 Machine level error (SCU detection)

Trouble content		Combination error between the machine production/remodeling and the firmware
Section		Scanner
Case 1	Cause	Combination error between the machine production/remodeling and the firmware
	Check and remedy	Check the combination between the machine production/remodeling and the firmware.

#### CE-00 Communication error other than CE-01 – 08

Trouble content		Another communication error occurs.
Section		MFP
Case 1	Cause	Network cable connection trouble
	Check and remedy	Check to insure that the network cable is securely connected.

**CE-01 Network controller trouble**

Trouble content		Network controller and its peripheral circuit trouble
Section		MFP
Case 1	Cause	Network controller and its peripheral circuit trouble
	Check and remedy	1) Check the network controller and its peripheral circuit. 2) Output the NIC Config Page and check the NIC version. 3) Replace the MFPcnt PWB.

**CE-02 Not-specified mail/FTP server error**

Trouble content		The specified mail server, FTP server, and SMB server are not found
Section		MFP
Case 1	Cause	Network cable connection trouble
	Check and remedy	Check to insure that the network cable is securely connected.
Case 2	Cause	Network setup trouble
	Check and remedy	1) Check that the connected network supports TCP/IP protocol. 2) Check from Web page that the Primary/Secondary E-mail Server Address or the FTP server/Desktop PC/SMB server address as the destination is properly set. 3) When the above address is described with the Hostname, check that the DNS server is properly set or not.
Case 3	Cause	SMTP server/FTP server/NST/SMB server trouble
	Check and remedy	Check the SMTP server/FTP server/NST/SMB server for any trouble.

**CE-03 Communication error in image send**

Trouble content		The specified server does not respond during image send.
Section		MFP
Case 1	Cause	Network cable connection trouble
	Check and remedy	Check to insure that the network cable is securely connected.
Case 2	Cause	SMTP server/FTP server/NST/SMB server trouble
	Check and remedy	Check the SMTP server/FTP server/NST/SMB server for any trouble.

**CE-04 FTP server account name or authentication password input error**

Trouble content		The entered FTP server account name or the authentication password is invalid. The entered SMB server log-in name or the password is invalid.
Section		MFP
Case 1	Cause	Network cable connection trouble
	Check and remedy	Check to insure that the network cable is securely connected.
Case 2	Cause	The FTP server account name registered as the destination or the password for the account is incorrect.
	Check and remedy	Check to insure that the FTP server account name registered as the destination or the password for the account is correct.
Case 3	Cause	The SMB server account name registered as the destination or the password for the account is incorrect.
	Check and remedy	Check to insure that the SMB server account name registered as the destination or the password for the account is correct.

**CE-05 FTP server directory input error**

Trouble content		The entered FTP server directory is invalid. The entered SMB server folder is invalid.
Section		MFP
Case 1	Cause	Network cable connection trouble
	Check and remedy	Check to insure that the network cable is securely connected.
Case 2	Cause	The FTP server account name registered as the destination or the password for the account is incorrect.
	Check and remedy	Check to insure that there exists the FTP server directory registered as the destination.
Case 3	Cause	The SMB server account name registered as the destination or the password for it is incorrect.
	Check and remedy	Check to insure that there exists the SMB server folder registered as the destination.

**CE-06 POP3 server access error**

Trouble content		The specified mail server (POP3) is not found. (POP3 server access error)
Section		MFP
Case 1	Cause	Network cable connection trouble
	Check and remedy	Check to insure that the network cable is securely connected.
Case 2	Cause	Network setup error
	Check and remedy	1) Check that the connected network supports TCP/IP protocol. 2) Check the Web page to insure that the POP3 server address is correctly set. 3) If the above address is described in Hostname, check to insure that the DNS server is correctly set.
Case 3	Cause	POP3 server trouble
	Check and remedy	Check the POP3 server for any trouble.

**CE-07 POP3 server authentication check error**

Trouble content		The entered POP3 server account name or the authentication password is invalid. (POP3 server authentication check error)
Section		MFP
Case 1	Cause	Network cable connection trouble
	Check and remedy	Check to insure that the network cable is securely connected.
Case 2	Cause	The POP3 server account name or the password registered for the account is incorrect.
	Check and remedy	Check to insure that the POP3 server account name or the password for the account is correct.

**CE-08 POP3 server timeout error**

Trouble content		The specified mail server (POP3) does not respond. (POP3 server timeout error)
Section		MFP
Case 1	Cause	Network cable connection trouble
	Check and remedy	Check to insure that the network cable is securely connected.
Case 2	Cause	POP3 server trouble
	Check and remedy	Check the POP3 server for any trouble.

## E7-00 System memory access error

Trouble content		System memory trouble (Tandem memory cannot be guaranteed.) Access to system memory cannot be made.
Section		MFP
Case 1	Cause	Expansion memory installation error
	Check and remedy	Check installation of the system expansion memory.
Case 2	Cause	Garbled data
	Check and remedy	1) Use SIM60-01 to check memory read/write 2) Replace the expansion memory (if installed.) 3) Replace the MFPcnt PWB.
Case 3	Cause	Dirt on the memory pin
	Check and remedy	Clean the memory pin with alcohol.

\* When E7-00 is in the following combination where system memory Slot 2 (inside) and Slot 1 (outside) operate normally but a hard error occurs. (Combination of system memory (slot 1, slot 2))

No.	System memory		Operation guarantee		When turning on the power
	Slot2 (Inside)	Slot1 (Outside)	Hard	Soft	
1	—	—	×	×	Since the machine is not booted, the trouble display is not made.
2	256MB	—	○	○	Normal operation
3	512MB	—	○	○	Normal operation
4	256MB	256MB	○	○	Normal operation
5	512MB	256MB	○	○	Normal operation
6	256MB	512MB	○	○	Normal operation
7	512MB	512MB	○	○	Normal operation
8	—	256MB	○	○	Normal operation
9	—	512MB	○	○	Normal operation

## E7-01 System data trouble

Trouble content		ICU data trouble occurs.
Section		MFP
Case 1	Cause	ICU image transfer trouble
	Check and remedy	1) Check the connection state of the MFPcnt PWB connector. 2) Replace the MFPcnt PWB.

## E7-03 HDD trouble

Trouble content		HDD connection trouble File control area data trouble (when FAT is broken)
Section		MFP
Case 1	Cause	The HDD is not properly installed to the MFPcnt PWB
	Check and remedy	1) Check installation of the HDD of the MFPcnt PWB. 2) Check connection of the harness of the MFPcnt PWB. 3) Use SIM62-2 and -3 to check read/write from/to the HDD.
Case 2	Cause	The HDD does not work properly.
	Check and remedy	Replace the HDD.
Case 3	Cause	MFPcnt PWB trouble
	Check and remedy	Replace the MFPcnt PWB.

## E7-05 Local memory access error

Trouble content		Local memory cannot be accessed.
Section		MFP
Case 1	Cause	Local memory installation abnormality
	Check and remedy	Check the installing state of the local memory.
Case 2	Cause	Dirt on local memory pin
	Check and remedy	Clean the local memory pin with alcohol.
Case 3	Cause	Garbled data
	Check and remedy	1) Use SIM60-01 to check memory read/write. 2) Replace the memory. 3) Replace the MFPcnt PWB.

\* Combination where local memory Slot 4 (inside) and Slot 3 (outside) operate normally (Refer to E7-09) but a hard error occurs.

## E7-06 Decode error trouble: Compression decode error (A compression file cannot be decompressed.)

Trouble content		A decode error occurs when forming an image.
Section		MFP
Case 1	Cause	Compression data abnormality
	Check and remedy	1) Check the installing state of the PWB. (PCI bus) 2) When an error occurs during a FAX job, check the installation of the FAX PWB. In the other cases, check the installation of the MFPcnt PWB and HDD. 3) Replace the MFPcnt PWB.
Case 2	Cause	HDD connection abnormality
	Check and remedy	Check the HDD connection.
Case 3	Cause	Data are garbled in image compression/send.
	Check and remedy	1) Check the installation of the PWB. (PCI bus) 2) When an error occurs during a FAX job, check the installation of the FAX PWB. In the other cases, check the installation of the MFPcnt PWB and HDD. 3) Replace the MFPcnt PWB.
Case 4	Cause	MFPcnt PWB abnormality
	Check and remedy	Replace the MFPcnt PWB.
Case 5	Cause	Local memory access trouble
	Check and remedy	Check and execute remedy similarly to E7-05.

## E7-08 Local memory specifications error

Trouble content		DIMM of different specification is detected in the local memory slot.
Section		MFP
Case 1	Cause	DIMM of different specification is installed to the local memory slot.
	Check and remedy	Check the installed DIMM.

\* The error occurs when a DIMM which is not recommended by Sharp.

**E7-09 Local memory combination error**

Trouble content		Local memory slot combination error
Section		MFP
Case 1	Cause	DIMM of other than 256MB is installed to the default slot.
	Check and remedy	Check the combination of installed DIMM.
Case 2	Cause	DIMM of other than 256MB is installed to the expansion slot.
	Check and remedy	Check the combination of installed DIMM.

\* When the following combination (E7-09) where operation is not performed properly is used. Local memory (slot 3, slot 4) combination

No.	Local memory		Operation guarantee		When turning on the power
	Slot 4 (Inside)	Slot 3 (Outside)	Hard	Soft	
1	—	—	×	×	E7-09
2	256MB	—	○	○	Normal operation
3	512MB	—	○	×	E7-09
4	256MB	256MB	○	×	E7-09
5	512MB	256MB	○	×	E7-09
6	256MB	512MB	○	○	Normal operation
7	512MB	512MB	○	×	E7-09
8	—	256MB	×	×	E7-09
9	—	512MB	×	×	E7-09

**E7-10 Shading trouble (Black correction)**

Trouble content		CCD black scan level abnormality when the copy lamp is turned off.
Section		Scanner
Case 1	Cause	Installation error of the CCD unit flat cable
	Check and remedy	Check the installing state of the flat cable to the CCD unit.
Case 2	Cause	CCD unit abnormality
	Check and remedy	Check the CCD unit.
Case 3	Cause	SCU PWB abnormality
	Check and remedy	Check the SCU PWB.

**E7-11 Shading trouble (White correction)**

Trouble content		CCD white scan level abnormality when the copy lamp is on.
Section		Scanner
Case 1	Cause	Installation error of the CCD unit flat cable
	Check and remedy	Check the installing state of the flat cable to the CCD unit.
Case 2	Cause	Dirt on the mirror, the lens, or the reference white plate.
	Check and remedy	Clean the mirror, the lens, or the reference white plate.
Case 3	Cause	Copy lamp lighting trouble
	Check and remedy	Check the installing state of the flat cable to the copy lamp unit.
Case 4	Cause	CCD unit abnormality
	Check and remedy	Check the CCD unit.
Case 5	Cause	SCU PWB abnormality
	Check and remedy	Check the SCU PWB.

**E7-14 SCAN-ASIC trouble**

Trouble content		Written register value cannot be read correctly
Section		Scanner
Case 1	Cause	SCU PWB abnormality
	Check and remedy	Check the SCU PWB.

**E7-20 LSU BD detection trouble**

Trouble content		LSU BD signal is not detected.
Section		PCU
Case 1	Cause	Disconnection or improper connection of harness and connector between LD/BD PWB and LSUcnt PWB
	Check and remedy	Check connection of the harness of each PWB inside the LSU.
Case 2	Cause	1) Optical axis shift 2) BK laser deterioration, power reduction 3) BD PWB trouble
	Check and remedy	1) Use SIM61-1 to check the LSU operation. 2) Replace the LSUcnt/BD PWB. 3) If the trouble cannot be removed by the above 1) to 2), replace the LSU.

**E7-21 LSU LD deterioration trouble**

Trouble content		The color laser does not light up normally.
Section		PCU
Case 1	Cause	Disconnection or improper connection of harness and connector between LD PWB and LSUcnt PWB
	Check and remedy	Check connection of the harness of each PWB inside the LSU.
Case 2	Cause	Y/M/C laser deterioration
	Check and remedy	1) Use SIM61-1 to check the LSU operation. 2) Replace the LSUcnt PWB. 3) If the trouble cannot be removed by the above 1) to 2), replace the LSU.

**E7-28 LSU control ASIC connection abnormality**

Trouble content		Access error between the CPU of the PCU PWB and the LSU control ASIC
Section		PCU
Case 1	Cause	<When this trouble occurs in the initial process on turn on the power> Communication connector trouble between the PCU PWB and the LSUcnt PWB (interface PWB). Harness trouble.
	Check and remedy	Check the connector connection between the PCU PWB and the LSUcnt PWB (interface PWB). Check the harness. If the trouble cannot be removed, replace the LSUcnt PWB or the PCU PWB.
Case 2	Cause	<When this trouble occurs on starting printing/ during printing, and SIM61-1 is used to check the LSU unit operation for each of B/W and COLOR and the judgment is NG.> Connected the connector between the PCU PWB and the LSUcnt PWB (interface PWB) / Harness trouble
	Check and remedy	Check the harness between the PCU PWB and the LSUcnt PWB (interface PWB). If the trouble cannot be removed, replace the LSUcnt PWB or the PCU PWB.
Case 3	Cause	PCU PWB or LSUcnt PWB (interface PWB) trouble
	Check and remedy	Replace the PCU PWB or the LSUcnt PWB (interface PWB).

**E7-29 LSU-ASIC frequency abnormality**

Trouble content		Oscillation trouble of the external oscillator used in LSU-ASIC and the internal oscillation circuit
Section		PCU
Case 1	Cause	Trouble of the oscillator on the LSU-ASIC PWB, the resistor and capacitor for the oscillation circuit, and the LSU-ASIC itself.
	Check and remedy	Replace the LSUcnt PWB.

**E7-50 Engine connection trouble**

Trouble content		Unknown PWB identification information is detected in the PCU PWB.
Section		PCU
Case 1	Cause	A PWB which is incompatible with the machine specifications is connected.
	Check and remedy	1) Replace the PCU PWB. 2) Replace the LSU PWB.
Case 2	Cause	A firmware which is incompatible with the machine specifications is used.
	Check and remedy	Check the kind and the version of the firmware.

**E7-55 PWB information sum error (Engine detection)**

Trouble content		EEPROM PWB information sum error
Section		PCU
Case 1	Cause	1) EEPROM device error 2) EEPROM device contact failure 3) Device access error due to noises
	Check and remedy	Replace the PCU PWB.

**E7-60 Controller connection trouble (Engine detection)**

Trouble content		Unknown PWB kind information is detected in the MFPcnt PWB. A PWB/firmware which is not compatible with the machine specifications is connected.
Section		MFP
Case 1	Cause	Controller PWB trouble
	Check and remedy	Replace the controller PWB.
Case 2	Cause	A firmware which is not compatible with the machine specifications is applied.
	Check and remedy	Check the kind and the version of the firmware.

**E7-61 Controller connection trouble (Engine)**

Trouble content		MFPcnt PWB connection trouble Compatibility trouble between the controller and the engine
Section		MFP
Case 1	Cause	Combination trouble of the controller PWB and the engine
	Check and remedy	Check the controller PWB. Check the combination between the controller PWB and the engine.

**E7-62 Controller connection trouble (Scanner)**

Trouble content		Controller connection trouble Compatibility trouble between the controller and the scanners
Section		MFP
Case 1	Cause	Combination trouble between the controller PWB and the engine
	Check and remedy	Replace the controller PWB. Check the combination between the controller PWB and the engine.

**E7-65 PWB information sum error (Controller detection)**

Trouble content		EEPROM PWB information sum error
Section		MFP
Case 1	Cause	1) EEPROM device trouble 2) EEPROM device contact failure 3) Device access error due to noises
	Check and remedy	Replace the MFPcnt PWB.

**E7-70 Scanner connection trouble**

Trouble content		Unknown identification information is detected in the SCU PWB.
Section		SCU
Case 1	Cause	SCU PWB trouble
	Check and remedy	Replace the SCU PWB.
Case 2	Cause	A firmware which is incompatible with the machine specifications is connected.
	Check and remedy	Check the kind and the version of the firmware.

**E7-75 PWB information sum error (Scanner detection)**

Trouble content		EEPROM PWB information sum error
Section		SCU
Case 1	Cause	1) EEPROM device trouble 2) EEPROM device contact failure 3) Device access error due to noises
	Check and remedy	Replace the scanner control PWB.

**E7-80 Communication trouble between the controller and the scanner**

Trouble content		Communication trouble between the MFP and the scanner MFP detection Communication establishment error/Framing/Parity/Protocol error
Section		MFP
Case 1	Cause	SCU PWB connector connection trouble
	Check and remedy	Check the connector connection between the SCU PWB and the MFPcnt PWB.
Case 2	Cause	Harness trouble between the SCU PWB and the MFPcnt PWB
	Check and remedy	Check the harness between the SCU PWB and the MFPcnt PWB.
Case 3	Cause	Broken connector pin of the SCU PWB mother board
	Check and remedy	Check grounding of the machine.

## **E7-90** Communication trouble between the controller and the engine

Trouble content		Communication trouble between the MFP and the PCU (MFP detection) Communication establishment error/Framing/Parity/Protocol error
Section		MFP
Case 1	Cause	PCU PWB connector connection trouble
	Check and remedy	Check the connector connection between the PCU PWB and the MFPcnt PWB.
Case 2	Cause	Harness trouble between the PCU PWB and the MFPcnt PWB
	Check and remedy	Check the harness between the PCU PWB and the MFPcnt PWB.
Case 3	Cause	Broken connector pin of the PCU PWB mother board
	Check and remedy	Check grounding of the machine.

## **EE-EC** Auto developer adjustment trouble (The sample level for every rotation is other than $128 \pm 10$ ).

Trouble content		Auto developer adjustment trouble (The sample level for every rotation is other than $128 \pm 10$ .) <Detection only with SIM25-2, no trouble memory, only display>
Section		PCU
Case 1	Cause	Toner density sensor trouble, charging voltage/developing voltage trouble, toner density trouble, developing unit trouble, PCU PWB trouble
	Check and remedy	Use SIM25-2 to execute the auto development adjustment.

## **EE-EL** Auto developer adjustment trouble (overtoner error)

Trouble content		The sample level is 76 or below, or the control voltage is 208V or above. <Detection only with SIM25-2, no trouble memory, only display>
Section		PCU
Case 1	Cause	Toner density sensor trouble, charging voltage/developing voltage trouble, toner density trouble, developing unit trouble, PCU PWB trouble
	Check and remedy	Use SIM25-2 to execute the auto development adjustment.

## **EE-EU** Auto development adjustment trouble (Under-toner abnormality)

Trouble content		The sample level is 178 or above, or the control voltage is 51V or below. <Detection only with SIM25-2, no trouble memory, only display>
Section		PCU
Case 1	Cause	Toner density sensor trouble, charging voltage/developing voltage trouble, toner density trouble, developing unit trouble, PCU PWB trouble
	Check and remedy	Use SIM25-2 to execute the auto development adjustment.

## **F1-00** Finisher communication trouble (Machine side detection)

Trouble content		Communication line test error when turning on the power or after canceling an exclusion simulation. Communication error with the finisher
Section		PCU
Case 1	Cause	Malfunction due to noises
	Check and remedy	Turn OFF/ON the power to cancel.
Case 2	Cause	PCU finisher connector or harness connection error or disconnection
	Check and remedy	Check the connector and harness in the communication line.
Case 3	Cause	Finisher control PWB trouble
	Check and remedy	Replace the finisher control PWB.
Case 4	Cause	Control PWB (PCU) trouble
	Check and remedy	Replace the PCU PWB.

## **F1-03** Finisher swing motor trouble (MX-FNX1)

Trouble content		Swing motor operation trouble (MX-FNX1)
Section		PCU
Case 1	Cause	Motor lock, motor RPM abnormality, motor overvoltage, finisher control PWB trouble
	Check and remedy	Use SIM3-3 to check the operation of the motor (FSWM). Replace the finisher control PWB.

## **F1-08** Finisher stapler shift motor trouble

Trouble content		Stapler shift motor operation trouble
Section		PCU
Case 1	Cause	Motor lock, motor RPM abnormality, motor overvoltage, finisher control PWB trouble
	Check and remedy	Use SIM3-3 to check the operation of the staple motor (FSM). Replace the finisher control PWB.

## **F1-10** Finisher staple motor abnormality

Trouble content		Staple operation trouble
Section		PCU
Case 1	Cause	Motor lock, motor RPM abnormality, motor overvoltage, saddle finisher control PWB trouble
	Check and remedy	Use SIM3-3 to check the operation of the staple motor (FFSM). Replace the finisher control PWB.

## **F1-15** Finisher tray lift motor abnormality

Trouble content		Lift motor trouble
Section		PCU
Case 1	Cause	Motor lock, motor RPM abnormality, motor overvoltage, finisher control PWB trouble
	Check and remedy	Use SIM3-3 to check the operation of the tray lift motor (FTLM). Replace the finisher control PWB.



### F1-19 Finisher pre-alignment motor abnormality

Trouble content		Pre-alignment motor trouble
Section		PCU
Case 1	Cause	Motor lock, motor RPM abnormality, motor overvoltage, saddle finisher control PWB trouble
	Check and remedy	Use SIM3-3 to check the operation of the pre-alignment motor (FFJM). Replace the finisher control PWB.

### F1-20 Finisher after-alignment motor abnormality

Trouble content		After-alignment motor trouble
Section		PCU
Case 1	Cause	Motor lock, motor RPM abnormality, motor overvoltage, finisher control PWB trouble
	Check and remedy	Use SIM3-3 to check the operation of the after-alignment motor (FRJM). Replace the finisher control PWB.

### F1-21 Finisher fan motor abnormality (MX-FNX1)

Trouble content		Cooling fan motor trouble (MX-FNX1)
Section		PCU
Case 1	Cause	Motor lock, motor RPM abnormality, motor overvoltage, finisher control PWB trouble
	Check and remedy	Use SIM3-3 to check the operation of the fan motor (FFANM). Replace the finisher control PWB.

### F1-33 Finisher punch shift motor trouble

Trouble content		Punch shift motor operation abnormality
Section		PCU
Case 1	Cause	Motor lock, motor RPM abnormality, motor overvoltage, finisher control PWB trouble, punch control PWB trouble
	Check and remedy	Use SIM3-3 to check the operation of the punch shift motor (FPSM). Replace the finisher punch unit (Replace the punch control PWB.).

### F1-34 Finisher punch motor trouble

Trouble content		Punch motor operation abnormality
Section		PCU
Case 1	Cause	Motor lock, motor RPM abnormality, motor overvoltage, finisher control PWB trouble, punch control PWB trouble
	Check and remedy	Use SIM3-3 to check the operation of the punch motor (FPNW). Replace the finisher punch unit (Replace the punch control PWB.).

### F1-37 Finisher backup RAM trouble

Trouble content		Backup RAM data garbled
Section		PCU
Case 1	Cause	Finisher control PWB trouble, malfunction due to electrical noises
	Check and remedy	Replace the finisher control PWB.

### F1-50 Finisher incompatibility trouble

Trouble content		Detection of finisher incompatible with MX-1800
Section		PCU
Case 1	Cause	Connection of the AR-F13, etc. which is incompatible with MX-1800 is detected.
	Check and remedy	Connect the MX-FNX1.

### F2-39 Process thermistor trouble

Trouble content		Process thermistor open
Section		PCU
Case 1	Cause	Process thermistor harness connection trouble
	Check and remedy	Check the connection of the harness, connector of the process thermistor.
Case 2	Cause	Process thermistor trouble
	Check and remedy	Check the connection of the process thermistor.
Case 3	Cause	PCU PWB trouble
	Check and remedy	Check the PCU PWB.

### F2-40 Toner empty sensor abnormality (BLACK)

Trouble content		Toner empty sensor output abnormality. Sample level 25 or less or 231 or above.
Section		PCU
Case 1	Cause	The connector is not installed.
	Check and remedy	Check the connection of the connector harness to the PCU PWB. Check the connection of the toner empty sensor.
Case 2	Cause	Connector harness trouble
	Check and remedy	Check the harness disconnection.
Case 3	Cause	Cartridge trouble
	Check and remedy	Check the cartridge connection.

### F2-41 Toner empty sensor abnormality (CYAN)

Trouble content		Toner empty sensor output abnormality. Sample level 25 or less or 231 or above.
Section		PCU
Case 1	Cause	The connector is not installed.
	Check and remedy	Check the connection of the connector harness to the PCU PWB. Check the connection of the toner empty sensor.
Case 2	Cause	Connector harness trouble
	Check and remedy	Check the harness disconnection.
Case 3	Cause	Cartridge trouble
	Check and remedy	Check the cartridge connection.

## F2-42 Toner empty sensor abnormality (MAGENTA)

Trouble content		Toner empty sensor output abnormality. Sample level 25 or less or 231 or above.
Section		PCU
Case 1	Cause	The connector is not installed.
	Check and remedy	Check the connection of the connector harness to the PCU PWB. Check the connection of the toner empty sensor.
Case 2	Cause	Connector harness trouble
	Check and remedy	Check the harness disconnection.
Case 3	Cause	Cartridge trouble
	Check and remedy	Check the cartridge connection.

## F2-43 Toner empty sensor abnormality (YELLOW)

Trouble content		Toner empty sensor output abnormality. Sample level 25 or less or 231 or above.
Section		PCU
Case 1	Cause	The connector is not installed.
	Check and remedy	Check the connection of the connector harness to the PCU PWB. Check the connection of the toner empty sensor.
Case 2	Cause	Connector harness trouble
	Check and remedy	Check the harness disconnection.
Case 3	Cause	Cartridge trouble
	Check and remedy	Check the cartridge connection.

## F2-44 Black exclusive image density sensor trouble (Transfer belt surface reflection ratio abnormality)

Trouble content		The transfer belt surface is scanned by the image density sensor before starting the process control, and adjust the sensor gain so that the output is kept at a certain level. However, the output is not within the specified range though the sensor gain is adjusted.
Section		PCU
Case 1	Cause	Image density sensor trouble, harness connection trouble between PCU PWB and the image density sensor, image density sensor dirt, transfer belt cleaning trouble, calibration plate solenoid operation trouble
	Check and remedy	Use SIM44-2 to execute the process control sensor gain adjustment. If "ERROR" is displayed, check the sensor, the harness, the calibration plate solenoid operation for any trouble. If the adjustment is completed, check the transfer belt surface state.

## F2-45 Color exclusive image density sensor trouble (Calibration plate surface reflection ratio abnormality)

Trouble content		The calibration plate surface is scanned by the image density sensor before starting the process control, and adjust the sensor gain so that the output is kept at a certain level. However, the output is not within the certain level though the sensor gain is adjusted.
Section		PCU
Case 1	Cause	Image density sensor trouble, harness connection trouble between PCU PWB and the image density sensor, image density sensor dirt, calibration plate dirt, calibration plate solenoid operation trouble
	Check and remedy	Use SIM44-2 to execute the process control gain adjustment. If "ERROR" is displayed, check the sensor and the harness. If the adjustment is completed, check the calibration plate solenoid operation.

## F2-49 LSU thermistor trouble

Trouble content		The detection temperature is out of the range of -28°C to 78°C.
Section		PCU
Case 1	Cause	LSU thermistor harness connection trouble
	Check and remedy	Check the connection of the LSU thermistor harness and connector. If the trouble cannot be removed, replace the LSU thermistor or the PCU PWB.
Case 2	Cause	LSU thermistor trouble, PCU PWB trouble
	Check and remedy	Check the PCU PWB. If the trouble cannot be removed, replace the LSU thermistor or the PCU PWB.

## F2-50 K phase sensor sensing trouble

Trouble content		Detection is made by interruption of light in the sensor section of the projection rib on the drum drive gear to control the BK drum phase. The detection signal cannot be acquired and phase control cannot be made.
Section		PCU
Case 1	Cause	Sensor connector connection trouble
	Check and remedy	Check the sensor connector connection.
Case 2	Cause	Dirt on the sensor light emitting section, or installation trouble
	Check and remedy	Check for dirt on the sensor or check the installation state.
Case 3	Cause	Drum drive gear upper rib breakage, sensor trouble
	Check and remedy	If there is no trouble in the rib, replace the sensor. (Use SIM30-1 "DHPD_K" to check interruption or transmission of light.)

**F2-51 CL phase sensor sensing trouble**

Trouble content		Detection is made by interruption of light in the sensor section of the projection rib on the drum drive gear to control the phases of all the color drums. The detection signal cannot be acquired and phase control cannot be made.
Section		PCU
Case 1	Cause	Sensor connector connection trouble
	Check and remedy	Check the sensor connector connection.
Case 2	Cause	Dirt on the sensor light emitting section, or installation trouble
	Check and remedy	Check for dirt on the sensor or check the installation state.
Case 3	Cause	Drum drive gear upper rib breakage, sensor trouble
	Check and remedy	If there is no trouble in the rib, replace the sensor. (Use SIM30-1 "DHPD_CL" to check interruption or transmission of light.)

**F2-58 Process humidity sensor trouble**

Trouble content		Process humidity sensor open
Section		PCU
Case 1	Cause	Process humidity sensor harness connection trouble
	Check and remedy	Check the harness and connector connection of the process humidity sensor.
Case 2	Cause	Process humidity sensor trouble
	Check and remedy	Check the process humidity sensor.
Case 3	Cause	PCU PWB trouble
	Check and remedy	Check the PCU PWB.

**F2-64 Toner supply abnormality (BLACK)**

Trouble content		Toner end with the remaining quantity of 50% or more. The toner supply time exceeds 3 times as much as the specified time.
Section		PCU
Case 1	Cause	Toner motor section connector harness trouble
	Check and remedy	Check the connector connection of the toner motor section. Check the connector harness (TM) connection to the main PWB.
Case 2	Cause	Toner motor and toner density sensor trouble
	Check and remedy	Check the toner density sensor output. (SIM25-1) Check that the toner transport pipe is not clogged between the toner cartridge and the developing unit. Replace the toner cartridge (CRUM) if necessary. If replacement of the toner cartridge (CRUM) does not clear the trouble, check the developing unit.

**F2-65 Toner supply abnormality (CYAN)**

Trouble content		Toner end with the remaining quantity of 50% or more. The toner supply time exceeds 3 times as much as the specified time.
Section		PCU
Case 1	Cause	Toner motor section connector harness trouble
	Check and remedy	Check the connector connection of the toner motor section. Check the connector harness (TM) connection to the main PWB.
Case 2	Cause	Toner motor and toner density sensor trouble
	Check and remedy	Check the toner density sensor output. (SIM25-1) Check that the toner transport pipe is not clogged between the toner cartridge and the developing unit. Replace the toner cartridge (CRUM) if necessary. If replacement of the toner cartridge (CRUM) does not clear the trouble, check the developing unit.

**F2-66 Toner supply abnormality (MAGENTA)**

Trouble content		Toner end with the remaining quantity of 50% or more. The toner supply time exceeds 3 times as much as the specified time.
Section		PCU
Case 1	Cause	Toner motor section connector harness trouble
	Check and remedy	Check the connector connection of the toner motor section. Check the connector harness (TM) connection to the main PWB.
Case 2	Cause	Toner motor and toner density sensor trouble
	Check and remedy	Check the toner density sensor output. (SIM25-1) Check that the toner transport pipe is not clogged between the toner cartridge and the developing unit. Replace the toner cartridge (CRUM) if necessary. If replacement of the toner cartridge (CRUM) does not clear the trouble, check the developing unit.

**F2-67 Toner supply abnormality (YELLOW)**

Trouble content		Toner end with the remaining quantity of 50% or more. The toner supply time exceeds 3 times as much as the specified time.
Section		PCU
Case 1	Cause	Toner motor section connector harness trouble
	Check and remedy	Check the connector connection of the toner motor section. Check the connector harness (TM) connection to the main PWB.
Case 2	Cause	Toner motor and toner density sensor trouble
	Check and remedy	Check the toner density sensor output. (SIM25-1) Check that the toner transport pipe is not clogged between the toner cartridge and the developing unit. Replace the toner cartridge (CRUM) if necessary. If replacement of the toner cartridge (CRUM) does not clear the trouble, check the developing unit.

**F2-70 Toner cartridge improper cartridge detection (BLACK)**

Trouble content		Improper data are detected in the CRUM contents when the normal CRUM of the cartridge is detected.
Section		PCU
Case 1	Cause	An improper cartridge is inserted. Toner cartridge trouble
	Check and remedy	Replace the toner cartridge.

**F2-71 Toner cartridge improper cartridge detection (CYAN)**

Trouble content		Improper data are detected in the CRUM contents when the normal CRUM of the cartridge is detected.
Section		PCU
Case 1	Cause	An improper cartridge is inserted. Toner cartridge trouble
	Check and remedy	Replace the toner cartridge.

**F2-72 Toner cartridge improper cartridge detection (MAGENTA)**

Trouble content		Improper data are detected in the CRUM contents when the normal CRUM of the cartridge is detected.
Section		PCU
Case 1	Cause	An improper cartridge is inserted. Toner cartridge trouble
	Check and remedy	Replace the toner cartridge.

**F2-73 Toner cartridge improper cartridge detection (YELLOW)**

Trouble content		Improper data are detected in the CRUM contents when the normal CRUM of the cartridge is detected.
Section		PCU
Case 1	Cause	An improper cartridge is inserted. Toner cartridge trouble
	Check and remedy	Replace the toner cartridge.

**F2-74 Toner cartridge CRUM error (BLACK)**

Trouble content		CRUM cannot be read or written.
Section		PCU
Case 1	Cause	Connection trouble or disconnection of the connector and the harness between the PCU and the toner cartridge.
	Check and remedy	Check the connector and the harness between the PCU and the toner cartridge.
Case 2	Cause	CRUM trouble
	Check and remedy	Replace the toner cartridge.
Case 3	Cause	Control PWB (PCU) trouble
	Check and remedy	Replace the PCU PWB.

**F2-75 Toner cartridge CRUM error (CYAN)**

Trouble content		CRUM cannot be read or written.
Section		PCU
Case 1	Cause	Connection trouble or disconnection of the connector and the harness between the PCU and the toner cartridge.
	Check and remedy	Check the connector and the harness between the PCU and the toner cartridge.
Case 2	Cause	CRUM trouble
	Check and remedy	Replace the toner cartridge.
Case 3	Cause	Control PWB (PCU) trouble
	Check and remedy	Replace the PCU PWB.

**F2-76 Toner cartridge CRUM error (MAGENTA)**

Trouble content		CRUM cannot be read or written.
Section		PCU
Case 1	Cause	Connection trouble or disconnection of the connector and the harness between the PCU and the toner cartridge.
	Check and remedy	Check the connector and the harness between the PCU and the toner cartridge.
Case 2	Cause	CRUM trouble
	Check and remedy	Replace the toner cartridge.
Case 3	Cause	Control PWB (PCU) trouble
	Check and remedy	Replace the PCU PWB.

**F2-77 Toner cartridge CRUM error (YELLOW)**

Trouble content		CRUM cannot be read or written.
Section		PCU
Case 1	Cause	Connection trouble or disconnection of the connector and the harness between the PCU and the toner cartridge.
	Check and remedy	Check the connector and the harness between the PCU and the toner cartridge.
Case 2	Cause	CRUM trouble
	Check and remedy	Replace the toner cartridge.
Case 3	Cause	Control PWB (PCU) trouble
	Check and remedy	Replace the PCU PWB.

## **F2-78 Registration exclusive image density sensor trouble (Transfer belt surface reflection ratio abnormality)**

Trouble content		The transfer belt surface is scanned by the image density sensor before starting the registration, and adjust the sensor gain so that the output is kept at a certain level. However, the output is not within the specified range though the sensor gain is adjusted.
Section		PCU
Case 1	Cause	Image density sensor trouble, harness connection trouble between PCU PWB and the image density sensor, image density sensor dirt, transfer belt cleaning trouble, calibration plate solenoid operation trouble
	Check and remedy	Check the sensor and the harness. Check the calibration plate solenoid operation and the transfer belt surface state. If the trouble is not cleared, replace the image sensor exclusively used for registration, replace the transfer belt, replace the calibration plate, replace the solenoid, or replace the PCU PWB according to the check result.

## **F2-80 Half tone process control 1st patch reference value trouble (BLACK)**

Trouble content		The low-density rising point or the high-density saturation point cannot be calculated because of a calculation error in the primary approximation formula of the sensor output ratio for the LSU PWM value obtained from the first step patch print result when executing the half tone process control in BLACK.
Section		PCU
Case 1	Cause	Image density sensor trouble, harness connection trouble between PCU sub PWB and the image density sensor, image density sensor dirt, transfer belt cleaning trouble
	Check and remedy	Use SIM44-2 to execute the process control gain adjustment. If "ERROR" is displayed, check the sensor and the harness. If the adjustment is completed, check the drum surface state and the belt surface state.

## **F2-81 Half tone process control 1st patch reference value trouble (CYAN)**

Trouble content		The low-density rising point or the high-density saturation point cannot be calculated because of a calculation error in the primary approximation formula of the sensor output ratio for the LSU PWM value obtained from the first step patch print result when executing the half tone process control in CYAN.
Section		PCU
Case 1	Cause	Image density sensor trouble, harness connection trouble between PCU sub PWB and the image density sensor, image density sensor dirt, transfer belt cleaning trouble
	Check and remedy	Use SIM44-2 to execute the process control gain adjustment. If "ERROR" is displayed, check the sensor and the harness. If the adjustment is completed, check the drum surface state and the belt surface state.

## **F2-82 Half tone process control 1st patch reference value trouble (MAGENTA)**

Trouble content		The low-density rising point or the high-density saturation point cannot be calculated because of a calculation error in the primary approximation formula of the sensor output ratio for the LSU PWM value obtained from the first step patch print result when executing the half tone process control in MAGENTA.
Section		PCU
Case 1	Cause	Image density sensor trouble, harness connection trouble between PCU sub PWB and the image density sensor, image density sensor dirt, transfer belt cleaning trouble
	Check and remedy	Use SIM44-2 to execute the process control gain adjustment. If "ERROR" is displayed, check the sensor and the harness. If the adjustment is completed, check the drum surface state and the belt surface state.

## **F2-83 Half tone process control 1st patch reference value trouble (YELLOW)**

Trouble content		The low-density rising point or the high-density saturation point cannot be calculated because of a calculation error in the primary approximation formula of the sensor output ratio for the LSU PWM value obtained from the first step patch print result when executing the half tone process control in YELLOW.
Section		PCU
Case 1	Cause	Image density sensor trouble, harness connection trouble between PCU sub PWB and the image density sensor, image density sensor dirt, transfer belt cleaning trouble
	Check and remedy	Use SIM44-2 to execute the process control gain adjustment. If "ERROR" is displayed, check the sensor and the harness. If the adjustment is completed, check the drum surface state and the belt surface state.

## **F2-84 Half tone process control 2nd patch reference value trouble (BLACK)**

Trouble content		The low-density section output is greater than the middle-density section output when connecting the low-density section approximation formula and the middle-density section approximation formula (formula of the sensor output ratio for the LSU PWM value) from the second step patch print result when executing the half tone process control in BLACK.
Section		PCU
Case 1	Cause	Image density sensor trouble, harness connection trouble between PCU sub PWB and the image density sensor, image density sensor dirt, transfer belt cleaning trouble, transfer belt cleaning trouble
	Check and remedy	Use SIM44-2 to execute the process control gain adjustment. If "ERROR" is displayed, check the sensor and the harness. If the adjustment is completed, check the drum surface state and the belt surface state.

## F2-85 Half tone process control 2nd patch reference value trouble (CYAN)

Trouble content		The low-density section output is greater than the middle-density section output when connecting the low-density section approximation formula and the middle-density section approximation formula (formula of the sensor output ratio for the LSU PWM value) from the second step patch print result when executing the half tone process control in CYAN.
Section		PCU
Case 1	Cause	Image density sensor trouble, harness connection trouble between PCU sub PWB and the image density sensor, image density sensor dirt, transfer belt cleaning trouble
	Check and remedy	Use SIM44-2 to execute the process control gain adjustment. If "ERROR" is displayed, check the sensor and the harness. If the adjustment is completed, check the drum surface state and the belt surface state.

## F2-86 Half tone process control 2nd patch reference value trouble (MAGENTA)

Trouble content		The low-density section output is greater than the middle-density section output when connecting the low-density section approximation formula and the middle-density section approximation formula (formula of the sensor output ratio for the LSU PWM value) from the second step patch print result when executing the half tone process control in MAGENTA.
Section		PCU
Case 1	Cause	Image density sensor trouble, harness connection trouble between PCU sub PWB and the image density sensor, image density sensor dirt, transfer belt cleaning trouble
	Check and remedy	Use SIM44-2 to execute the process control gain adjustment. If "ERROR" is displayed, check the sensor and the harness. If the adjustment is completed, check the drum surface state and the belt surface state.

## F2-87 Half tone process control 2nd patch reference value trouble (YELLOW)

Trouble content		The low-density section output is greater than the middle-density section output when connecting the low-density section approximation formula and the middle-density section approximation formula (formula of the sensor output ratio for the LSU PWM value) from the second step patch print result when executing the half tone process control in YELLOW.
Section		PCU
Case 1	Cause	Image density sensor trouble, harness connection trouble between PCU sub PWB and the image density sensor, image density sensor dirt, transfer belt cleaning trouble
	Check and remedy	Use SIM44-2 to execute the process control gain adjustment. If "ERROR" is displayed, check the sensor and the harness. If the adjustment is completed, check the drum surface state and the belt surface state.

## F2-92 High-density process control density correction error (CYAN)

Trouble content		The patch density value is not in the range of the density correction reference density value (STD value) $\pm 30\%$ at the upper limit or the lower limit bias voltage when executing the high density process control.
Section		PCU
Case 1	Cause	Image density sensor trouble, harness connection trouble between PCU PWB-image density sensor, dirt on image density sensor, transfer belt cleaning trouble
	Check and remedy	<ol style="list-style-type: none"> <li>1) Use SIM44-2 to execute the process control sensor gain adjustment.</li> <li>2) If an error occurs, check the sensors and the harnesses.</li> <li>3) If the adjustment of 1) is completed, check the drum surface state, the belt surface state, etc.</li> </ol>

## F2-93 High-density process control density correction error (MAGENTA)

Trouble content		The patch density value is not in the range of the density correction reference density value (STD value) $\pm 30\%$ at the upper limit or the lower limit bias voltage when executing the high density process control.
Section		PCU
Case 1	Cause	Image density sensor trouble, harness connection trouble between PCU PWB-image density sensor, dirt on image density sensor, transfer belt cleaning trouble
	Check and remedy	<ol style="list-style-type: none"> <li>1) Use SIM44-2 to execute the process control sensor gain adjustment.</li> <li>2) If an error occurs, check the sensors and the harnesses.</li> <li>3) If the adjustment of 1) is completed, check the drum surface state, the belt surface state, etc.</li> </ol>

## F2-94 High-density process control density correction error (YELLOW)

Trouble content		The patch density value is not in the range of the density correction reference density value (STD value) $\pm 30\%$ at the upper limit or the lower limit bias voltage when executing the high density process control.
Section		PCU
Case 1	Cause	Image density sensor trouble, harness connection trouble between PCU PWB-image density sensor, dirt on image density sensor, transfer belt cleaning trouble
	Check and remedy	<ol style="list-style-type: none"> <li>1) Use SIM44-2 to execute the process control sensor gain adjustment.</li> <li>2) If an error occurs, check the sensors and the harnesses.</li> <li>3) If the adjustment of 1) is completed, check the drum surface state, the belt surface state, etc.</li> </ol>

**F3-12 Main unit tray 1 lift-up trouble**

Trouble content		LUD1 does not turn ON within the specified time.
Section		PCU
Case 1	Cause	LUD1 sensor trouble, harness connection trouble between PCU PWB, the lift-up unit, and the paper feed unit.
	Check and remedy	Check the harness and the connector of LUD1.
Case 2	Cause	Tray 1 lift-up motor trouble
	Check and remedy	Check the lift-up unit.

**F3-22 Main unit tray 2 lift-up trouble**

Trouble content		LUD2 does not turn ON within the specified time.
Section		PCU
Case 1	Cause	LUD2 sensor trouble, harness connection trouble between PCU PWB, the lift-up unit, and the paper feed unit.
	Check and remedy	Check the harness and the connector of LUD2.
Case 2	Cause	Tray 2 lift-up motor trouble
	Check and remedy	Check the lift-up unit.

**H2-00 Non-contact thermistor detection thermistor open (TH\_UM\_AD2)**

Trouble content		Thermistor open
Section		PCU
Case 1	Cause	Thermistor trouble, control PWB trouble, fusing section connector connection trouble, AC power source trouble, fusing unit not-installed
	Check and remedy	Check the harness and the connector from the thermistor to the control PWB.

**H2-01 Lower thermistor open (TH\_LM)**

Trouble content		Thermistor open
Section		PCU
Case 1	Cause	Thermistor trouble, control PWB trouble, fusing section connector connection trouble, AC power source trouble, fusing unit not-installed
	Check and remedy	Check the harness and the connector from the thermistor to the control PWB.

**H2-02 Sub thermistor open (TH\_US)**

Trouble content		Thermistor open
Section		PCU
Case 1	Cause	Thermistor trouble, control PWB trouble, fusing section connector connection trouble, AC power source trouble, fusing unit not-installed
	Check and remedy	Check the harness and the connector from the thermistor to the control PWB.

**H2-03 Non-contact thermistor compensation thermistor open (TH\_UM\_AD1)**

Trouble content		Thermistor open
Section		PCU
Case 1	Cause	Thermistor trouble, control PWB trouble, fusing section connector connection trouble, AC power source trouble
	Check and remedy	Check the harness and the connector from the thermistor to the control PWB.

**H3-00 Fusing section high temperature trouble (TH\_UM)**

Trouble content		The fusing temperature inside the PWB exceeds the specified level.
Section		PCU
Case 1	Cause	Thermistor trouble, control PWB trouble, fusing section connector connection error, AC power source trouble
	Check and remedy	<ol style="list-style-type: none"> <li>1) Use SIM5-2 to check blinking of the heater lamp.</li> <li>2) If it blinks normally, check the thermistor and the harness. Check the control PWB thermistor input circuit section.</li> <li>3) If the heater lamp keep lighting, check the AC PWB and the control PWB lamp control circuit.</li> <li>4) Use SIM14 to cancel the trouble.</li> </ol>

**H3-01 Fusing section high temperature trouble (TH\_LM)**

Trouble content		The fusing temperature inside the PWB exceeds the specified level.
Section		PCU
Case 1	Cause	Thermistor trouble, control PWB trouble, fusing section connector connection error, AC power source trouble
	Check and remedy	<ol style="list-style-type: none"> <li>1) Use SIM5-2 to check blinking of the heater lamp.</li> <li>2) If it blinks normally, check the thermistor and the harness. Check the control PWB thermistor input circuit section.</li> <li>3) If the heater lamp keep lighting, check the AC PWB and the control PWB lamp control circuit.</li> <li>4) Use SIM14 to cancel the trouble.</li> </ol>



### H3-02 Sub thermistor fusing section high temperature trouble (TH\_US)

Trouble content		The fusing temperature inside the PWB exceeds the specified level.
Section		PCU
Case 1	Cause	Thermistor trouble, control PWB trouble, fusing section connector connection error, AC power source trouble
	Check and remedy	<ol style="list-style-type: none"> <li>1) Use SIM5-2 to check blinking of the heater lamp.</li> <li>2) If it blinks normally, check the thermistor and the harness. Check the control PWB thermistor input circuit section.</li> <li>3) If the heater lamp keep lighting, check the AC PWB and the control PWB lamp control circuit.</li> <li>4) Use SIM14 to cancel the trouble.</li> </ol>

### H4-00 Fusing section low temperature trouble (TH\_UM\_AD2)

Trouble content		The temperature does not reach the specified level within the specified time after turning on the power relay.
Section		PCU
Case 1	Cause	Thermistor trouble, heater lamp trouble, PCU PWB trouble, thermostat trouble, AC power source trouble, interlock switch trouble
	Check and remedy	<ol style="list-style-type: none"> <li>1) Use SIM5-2 to check blinking of the heater lamp.</li> <li>2) If it blinks normally, check the thermistor and the harness. Check the control PWB thermistor input circuit section.</li> <li>3) If it is not lighted, check for the heater lamp disconnection and the thermostat breakage. Check the interlock switch. Check the AC PWB and the PCU PWB lamp control circuit.</li> <li>4) Use SIM14 to cancel the trouble.</li> </ol>

### H4-01 Fusing section low temperature trouble (TH\_LM)

Trouble content		The temperature does not reach the specified level within the specified time after turning on the power relay.
Section		PCU
Case 1	Cause	Thermistor trouble, heater lamp trouble, PCU PWB trouble, thermostat trouble, AC power source trouble, interlock switch trouble
	Check and remedy	<ol style="list-style-type: none"> <li>1) Use SIM5-2 to check blinking of the heater lamp.</li> <li>2) If it blinks normally, check the thermistor and the harness. Check the control PWB thermistor input circuit section.</li> <li>3) If it is not lighted, check for the heater lamp disconnection and the thermostat breakage. Check the interlock switch. Check the AC PWB and the PCU PWB lamp control circuit.</li> <li>4) Use SIM14 to cancel the trouble.</li> </ol>

### H4-02 Sub thermistor fusing section low temperature trouble (TH\_US)

Trouble content		The temperature does not reach the specified level within the specified time after turning on the power relay.
Section		PCU
Case 1	Cause	Thermistor trouble, heater lamp trouble, PCU PWB trouble, thermostat trouble, AC power source trouble, interlock switch trouble
	Check and remedy	<ol style="list-style-type: none"> <li>1) Use SIM5-2 to check blinking of the heater lamp..</li> <li>2) If it blinks normally, check the thermistor and the harness. Check the control PWB thermistor input circuit section.</li> <li>3) If it is not lighted, check for the heater lamp disconnection and the thermostat breakage. Check the interlock switch. Check the AC PWB and the PCU PWB lamp control circuit.</li> <li>4) Use SIM14 to cancel the trouble.</li> </ol>

### H4-30 Thermistor differential input trouble (TH\_UM)

Trouble content		TH_UM_AD1 and TH_UM_AD2 do not exceed the specified level (50 count with the AD value) within 1minute after HL_UM is turned on.
Section		PCU
Case 1	Cause	HL_UM does not turn on. Thermistor trouble, harness trouble, PCU PWB trouble
	Check and remedy	<ol style="list-style-type: none"> <li>1) Use SIM5-2 to check blinking of the heater lamp.</li> <li>2) If it blinks normally, check the thermistor and the harness. Check the PCU PWB thermistor input circuit section.</li> <li>3) If it is not lighted, check for the heater lamp disconnection and the thermostat breakage. Check the interlock switch. Check the AC PWB and the PCU PWB lamp control circuit.</li> <li>4) Use SIM14 to cancel the trouble.</li> </ol>

### H5-01 5 continuous detection of POD1 not-reached jam

Trouble content		5 continuous detection of POD1 not-reached jam
Section		PCU
Case 1	Cause	The fusing jam is not removed completely. (Jam paper remains.)
	Check and remedy	Check the fusing section for jam paper. (winding, etc.)
Case 2	Cause	POD1 sensor trouble or harness connection trouble
	Check and remedy	Check the POD1 sensor harness. Use SIM14 to cancel the trouble.
Case 3	Cause	Fusing unit installation trouble
	Check and remedy	Check the fusing unit installation.

### L1-00 Mirror feed trouble

Trouble content		Mirror feed is not completed within the specified time.
Section		Scanner
Case 1	Cause	Mirror unit trouble, mirror wire disengagement
	Check and remedy	Use SIM1-1 to check the mirror operation.

### L3-00 Mirror return trouble

Trouble content		Mirror return is not completed within the specified time.
Section		Scanner
Case 1	Cause	Mirror unit trouble, mirror wire disengagement
	Check and remedy	Use SIM1-1 to check the mirror operation.

### L4-02 Paper feed motor lock trouble

Trouble content		When the paper feed motor is rotated in warming up or in canceling a jam and the lock signal is not detected within 1sec.
Section		PCU
Case 1	Cause	Paper feed motor trouble, harness connection trouble between PCU PWB and paper feed motor, control circuit trouble
	Check and remedy	Use SIM6-1 to check the paper feed motor operation. Check the harness and the connector between the PCU PWB and the paper feed motor.

### L4-04 Developing motor trouble (BLACK)

Trouble content		The motor lock signal is detected during rotation of the developing motor.
Section		PCU
Case 1	Cause	Harness connection trouble between the PCU PWB and the developing motor.
	Check and remedy	Check the harness and the connector between the PCU PWB and the developing motor.
Case 2	Cause	Developing motor trouble, control circuit trouble
	Check and remedy	Use SIM25-1 to check the operation of the developing motor.

### L4-05 Developing motor trouble (COLOR)

Trouble content		The motor lock signal is detected during rotation of the developing motor.
Section		PCU
Case 1	Cause	Harness connection trouble between the PCU PWB and the developing motor.
	Check and remedy	Check the harness and the connector between the PCU PWB and the developing motor.
Case 2	Cause	Developing motor trouble, control circuit trouble
	Check and remedy	Use SIM25-1 to check the operation of the developing motor.

### L4-06 Transfer belt separation position sensor trouble

Trouble content		When separating the primary transfer belt unit, change in the separation position sensor characteristics is not detected within the specified time.
Section		PCU
Case 1	Cause	Harness connection trouble between the PCU PWB and the separation position sensor
	Check and remedy	Check the harness between the PCU PWB and the separation position sensor.
Case 2	Cause	The belt position sensor is not interrupted or it is always interrupted. Belt separation clutch operation trouble
	Check and remedy	Use SIM6-3 to check the belt separation operation.
Case 3	Cause	The primary transfer belt unit is not installed.
	Check and remedy	Install the primary transfer belt.

### L4-11 Shift motor trouble

Trouble content		When the shift motor is initialized, no characteristics change of the shifter home position sensor is not detected within the specified time.
Section		PCU
Case 1	Cause	Shift motor trouble
	Check and remedy	Use SIM6-1 to check the operation of the shift motor.
Case 2	Cause	Harness connection trouble between the PCU PWB and the shift motor, control circuit trouble
	Check and remedy	Use SIM30-1 to check the shifter home position sensor. Check the harness and the connector between the PCU PWB and the shift motor.
Case 3	Cause	When the finisher is installed with the finisher connector disconnected and when the finisher communication trouble occurs.
	Check and remedy	Connect the finisher connector. When the communication trouble occurs between the PCU and the finisher, refer to the content of F1-00.

### L4-30 Controller fan/HDD fan motor trouble

Trouble content		1) The motor lock signal is detected during rotation of the controller fan motor. 2) The motor lock signal is detected during rotation of the HDD fan motor.
Section		MFP
Case 1	Cause	Fan motor trouble
	Check and remedy	Use SIM6-2 to check the operation of the fan motor.
Case 2	Cause	Harness connection trouble between the mother PWB and the fan motor.
	Check and remedy	Check the harness and the connector between the mother PWB and the fan motor.
Case 3	Cause	Control circuit trouble
	Check and remedy	Replace the controller PWB.
Case 4	Cause	Mother PWB trouble.
	Check and remedy	Replace the mother PWB.

### L4-31 Paper exit cooling fan trouble

Trouble content		When the paper exit cooling fan is operated, the fan operation signal is not detected within the specified time.
Section		PCU
Case 1	Cause	Fan connector disconnection
	Check and remedy	Check the harness and the connector between the PCU PWB and the fan.
Case 2	Cause	Fan does not rotate because of other trouble.
	Check and remedy	Use SIM6-2 to check that the fan is rotation actually.

### L4-32 Power cooling fan/ozone exhaust fan trouble

Trouble content		When the power cooling fan/ozone exhaust fan is operated, the fan operation signal is not detected within the specified time.
Section		PCU
Case 1	Cause	Power cooling fan or ozone exhaust fan connector disconnection
	Check and remedy	Check the harness and the connector between the PCU PWB and the fan.
Case 2	Cause	Fan does not rotate because of other trouble
	Check and remedy	Use SIM6-2 to check that the fan is actually rotating.

**L6-10 Polygon motor lock detection**

Trouble content		It is judged that the LSU polygon motor lock signal is not outputted, and the lock signal is checked after 7 sec from starting rotation of the polygon motor and it is judged that the polygon motor does not rotate properly.
Section		LSU
Case 1	Cause	Disconnection of the LSU connector or the LSU inside harness, or breakage
	Check and remedy	Check connection of the harness and the connector. If the trouble cannot be removed, replace the LSUcnt PWB or the LSU.
Case 2	Cause	Polygon motor trouble, LSU PWB trouble
	Check and remedy	Use SIM61-1 to check the operation of the polygon motor. If the trouble cannot be removed, replace the LSUcnt PWB or the LSU.

**L8-01 No full wave signal**

Trouble content		No full wave signal is detected.
Section		PCU
Case 1	Cause	Harness trouble
	Check and remedy	Check connection of the harness and the connector.
Case 2	Cause	Power unit trouble
	Check and remedy	Replace the power unit.
Case 3	Cause	PCU PWB trouble
	Check and remedy	Replace the PCU PWB.

**L8-02 Full wave signal width abnormality**

Trouble content		The full wave signal is judged as frequency abnormality. (The detection frequency is judged as 65Hz or above or 45Hz or less.)
Section		PCU
Case 1	Cause	Harness trouble
	Check and remedy	Check the harness and the connector connection.
Case 2	Cause	Power unit trouble
	Check and remedy	Replace the power unit.
Case 3	Cause	PCU PWB trouble
	Check and remedy	Replace the PCU PWB.

**L8-20 Power controller communication trouble**

Trouble content		Communication establishment error/Framing/Parity/Protocol error
Section		MFP
Case 1	Cause	Connector connection trouble between the mother board PWB and the MFPcnt PWB. MFPcnt PWB mother board connector pin breakage
	Check and remedy	Check the connector connection between the mother board PWB and the MFPcnt PWB. Check grounding of the machine.
Case 2	Cause	Mother PWB trouble
	Check and remedy	Replace the mother PWB.
Case 3	Cause	Mother PWB jumper error
	Check and remedy	Set the mother PWB jumper to the Default side.

**PC--- Personal counter not installed**

Trouble content		The personal counter is not installed.
Section		MFP
Case 1	Cause	The personal counter is not installed.
	Check and remedy	Install the personal counter.

**U1-01 Battery trouble**

Trouble content		Backup SRAM battery voltage fall
Section		MFP
Case 1	Cause	1) Battery life 2) Battery circuit abnormality
	Check and remedy	Check that the battery voltage is about 2.5V or above.

**U2-00 EEPROM read/write error (MFP detection)**

Trouble content		EEPROM device read/write error
Section		MFP
Case 1	Cause	EEPROM device trouble
	Check and remedy	Replace the EEPROM device.
Case 2	Cause	EEPROM device contact failure
	Check and remedy	Check that EEPROM device is properly inserted.
Case 3	Cause	Device access error due to electrical noises
	Check and remedy	Replace the MFPcnt PWB.

**U2-05 HDD/Flash/EEPROM data discrepancy**

Trouble content		A HDD or Flash memory for user authentication different from that used before turn off the power is installed.
Section		MFP
Case 1	Cause	HDD replacement or Flash memory replacement
	Check and remedy	Initialize the authentication information with SIM16, and import the backup data (exported data) if any.

**U2-10 SRAM user authentication index check sum error**

Trouble content		User index information (basic data of user authentication) check sum error on the SRAM
Section		MFP
Case 1	Cause	1) SRAM trouble 2) Hang-up of the control circuit due to electrical noises 3) MFPcnt PWB SRAM access circuit trouble
	Check and remedy	Use SIM16 to cancel U2 trouble.

**U2-11 EEPROM check sum error (MFP detection)**

Trouble content		Counter information check sum error on the EEPROM
Section		MFP
Case 1	Cause	1) EEPROM device trouble 2) EEPROM device contact failure 3) Device access error due to electrical noises
	Check and remedy	Use SIM16 to cancel U2 trouble.

**U2-22 SRAM memory check sum error**

Trouble content		MFPcnt PWB SRAM memory check sum error
Section		MFP
Case 1	Cause	SRAM trouble
	Check and remedy	1) Initialize the communication management table registered in SRAM and the FAX soft switch. 2) Since the registered contents have been deleted, register them again.
Case 2	Cause	Control circuit hang-up due to electrical noises
	Check and remedy	Use SIM16 to cancel U2 trouble.
Case 3	Cause	MFPcnt PWB SRAM access circuit trouble
	Check and remedy	Replace the MFPcnt PWB.

**U2-23 MFPC section SRAM memory individual data check sum error**

Trouble content		MFPcnt PWB SRAM memory individual data check sum error (Communication management table, sender registration data, etc.)
Section		MFP
Case 1	Cause	SRAM trouble
	Check and remedy	1) Turn OFF/ON the power to initialize the data related to the check sum error automatically. 2) Since the registered contents have been deleted, register them again.
Case 2	Cause	Control circuit hang-up due to electrical noises
	Check and remedy	Use SIM16 to cancel U2 trouble.
Case 3	Cause	MFPcnt PWB SRAM access circuit trouble
	Check and remedy	Replace the MFPcnt PWB.

**U2-24 SRAM memory user authentication counter check sum error**

Trouble content		Check sum error of the user counter on SRAM
Section		MFP
Case 1	Cause	1) SRAM trouble
		2) Control circuit hang-up due to electrical noises
		3) MFPcnt PWB SRAM access circuit trouble
	Check and remedy	Use SIM16 to cancel U2 trouble.

**U2-25 Flash memory user authentication counter check sum error**

Trouble content		Check sum error of the user authentication counter on FLASH
Section		MFP
Case 1	Cause	Flash trouble. Control circuit hang-up due to electrical noises MFPcnt PWB FLASH access circuit trouble.
	Check and remedy	Use SIM16 to recalculate the check sum of the user counter and save the normal sum value.

**U2-30 Serial number data discrepancy (MFP ↔ PCU)**

Trouble content		The serial number stored in the PCU differs from that stored in the MFP.
Section		MFP
Case 1	Cause	EEPROM is not changed when the PCU/MFPcnt PWB is replaced.
	Check and remedy	1) Check that EEPROM is properly set. 2) Check that EEPROM on the previous PWB is inserted to the newly installed PWB.

**U2-50 HDD section individual data check sum error**

Trouble content		MFPcnt HDD individual data check sum error (One-touch, group, program, etc.)
Section		MFP
Case 1	Cause	Write/read error to/from HDD
	Check and remedy	1) Turn OFF/ON the power to initialize the data related to the check sum error contents. 2) Since the registered contents have been deleted, register them again. 3) If the trouble is not canceled, replace the HDD.
Case 2	Cause	Control circuit hang-up due to electrical noises
	Check and remedy	Use SIM16 to cancel U2 trouble.
Case 3	Cause	MFPcnt PWB HDD access circuit trouble
	Check and remedy	Replace the MFPcnt PWB.

**U2-80 EEPROM read/write error (SCU detection)**

Trouble content		1) EEPROM version error 2) Write error to EEPROM
Section		Scanner
Case 1	Cause	EEPROM trouble, installation of EEPROM which is not initialized
	Check and remedy	Check that EEPROM is properly set.
Case 2	Cause	SCU PWB EEPROM access circuit trouble
	Check and remedy	To avoid deletion of the counter data/adjustment data, use the simulation to save the counter/adjustment values. (If there is a printer option, execute SIM22-1 to save the counter data and the adjustment values.) Replace the SCU PWB. Use SIM16 to cancel the trouble.

**U2-81 Adjustment value check sum error (SCU detection)**

Trouble content		EEPROM (SCU) check sum error
Section		Scanner
Case 1	Cause	Control circuit hang-up due to electrical noises
	Check and remedy	Use SIM16 to cancel U2 trouble.
Case 2	Cause	EEPROM trouble
	Check and remedy	To avoid deletion of the counter data/adjustment data, use the simulation to save the counter/adjustment values. (If there is a printer option, execute SIM22-1 to save the counter data and the adjustment values.) Replace the SCU PWB. Use SIM16 to cancel the trouble.
Case 3	Cause	SCU PWB EEPROM access circuit trouble
	Check and remedy	Check that EEPROM is properly set.

## U2-90 EEPROM read/write error (PCU detection)

Trouble content		EEPROM version error, write error to EEPROM
Section		PCU
Case 1	Cause	EEPROM trouble, installation of EEPROM which is not initialized
	Check and remedy	Check that EEPROM is properly set.
Case 2	Cause	PCU PWB EEPROM access circuit trouble
	Check and remedy	To avoid deletion of the counter data/adjustment data, use the simulation to save the counter/adjustment values. (If there is a printer option, execute SIM22-1 to save the counter data and the adjustment values.) Replace the PCU PWB. Use SIM16 to cancel the trouble.

## U2-91 EEPROM (PCU) check sum error

Trouble content		Check sum error of adjustment value (PCU)
Section		PCU
Case 1	Cause	Control circuit hang-up due to electrical noises
	Check and remedy	Use SIM16 to cancel the trouble.
Case 2	Cause	EEPROM trouble.
	Check and remedy	Check that EEPROM is properly set.
Case 3	Cause	PCU PWB EEPROM access circuit trouble
	Check and remedy	To avoid deletion of the counter data/adjustment data, use the simulation to save the counter/adjustment values. (If there is a printer option, execute SIM22-1 to save the counter data and the adjustment values.) Replace the PCU PWB.

## U6-00 Desk communication trouble

Trouble content		Desk communication error, communication line test error after turning on the power or canceling the exclusive simulation
Section		PCU
Case 1	Cause	Connector and harness connection trouble or disconnection, desk control PWB trouble, control PWB (PCU) trouble, malfunction due to electrical noises
	Check and remedy	Cancel the trouble by turning OFF/ON. Check the connector and the harness of the communication line.

## U6-01 Tray 1 lift-up trouble

Trouble content		DLUD1 does not turn ON within the specified time.
Section		PCU
Case 1	Cause	DLUD1 sensor trouble, tray 1 lift-up motor trouble, desk PWB, lift-up unit, paper feed unit harness connection trouble
	Check and remedy	Check DLUD1 and its harness and connector. Check the lift-up unit.

## U6-02 Tray 2 lift-up trouble

Trouble content		DLUD2 does not turn ON within the specified time.
Section		PCU
Case 1	Cause	DLUD2 sensor trouble, tray 2 lift-up motor trouble, desk PWB, lift-up unit, paper feed unit harness connection trouble
	Check and remedy	Check DLUD2 and its harness and connector. Check the lift-up unit.

## U6-10 Desk transport motor trouble

Trouble content		Desk transport motor operation trouble
Section		PCU
Case 1	Cause	Motor lock, motor RPM abnormality, overcurrent to the motor, console finisher control PWB trouble
	Check and remedy	Use SIM 4-3 to check the operation of the desk transport motor.

## U6-50 Desk incompatibility trouble

Trouble content		Detection of desk connection incompatible with the MX-1800
Section		PCU
Case 1	Cause	Connection of a desk which is incompatible with the MX-1800 is detected.
	Check and remedy	Connect the MX-DEX1/DEX2.

## UC-02 CPT-ASIC abnormality

Trouble content		CPT-ASIC access error (When the ASIC does not operate normally.)
Section		Scanner
Case 1	Cause	CPT-ASIC abnormality, SCU PWB abnormality
	Check and remedy	Turn OFF/ON the power several times. If the trouble still occurs, replace the SCU PWB or the CPT-ASIC.

## UC-20 Document control module trouble

Trouble content		Communication error between SCU and DOCC Communication line test error when turning on the power or after canceling an exclusion simulation.
Section		Scanner
Case 1	Cause	Connector or harness connection error or disconnection
	Check and remedy	Check the connector and harness in the communication line.
Case 2	Cause	Control PWB (SCU) trouble, DOCC PWB trouble.
	Check and remedy	Replace the SCU PWB or the DOCC PWB.
Case 3	Cause	Malfunction due to electrical noises.
	Check and remedy	Turn OFF/ON the power to electrical cancel the trouble.

## [9] MAINTENANCE

### 1. Maintenance system table

×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate □: Shift the position.

#### (Color supply)

Unit name	Part name	When calling	40 K	80 K	120 K	160 K	200 K	240 K	280 K	320 K	360 K	400 K	~	1200 K	Remark/Refer to the Parts Guide. Block/Item No. (Only the replacement parts are described.)
Drum peripheral (Color)	Drum		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Cleaning blade		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [24]-14)
	Main charger unit		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [24]-2)
	Toner stirring sheet		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [24]-42)
	Toner stirring plate		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [24]-45)
	Side seal F/R	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Toner reception seal	×	×	×	×	×	×	×	×	×	×	×	×	×	
Developing section	Developer (C/M/Y)		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	DV blade N kit (C/M/Y)		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [22]-22)
	DV side seal F/R (C/M/Y)		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [23]-26, [23]-15)
	Toner filter unit		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [22]-37)
	Toner cartridge (C/M/Y)	User replacement for every toner empty (or the specified traveling distance).													
	Bias pin/Connector	×	×	×	×	×	×	×	×	×	×	×	×	×	

#### (Monochrome supply/Mechanical parts)

Unit name	Part name	When calling	80 K	160 K	240 K	320 K	400 K	480 K	560 K	640 K	720 K	800 K	~	1200 K	Remark/Refer to the Parts Guide. Block/Item No. (Only the replacement parts are described.)
Drum peripheral	Drum		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Cleaning blade		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [24]-14)
	Main charger unit		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [24]-2)
	Toner stirring sheet		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [24]-42)
	Toner stirring plate		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [24]-45)
	Side seal F/R	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Toner reception seal	×	×	×	×	×	×	×	×	×	×	×	×	×	
LSU	Waste toner box	×	×	×	×	×	×	×	×	×	×	×	×	×	Each color 5% coverage, color ratios 25%
	Dust proof glass	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Cleaning base	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Developer		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	DV blade N kit		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [22]-22)
	DV side seal F/R		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [23]-15, [23]-26)
	Toner filter unit		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [22]-37)
Transfer section	Toner cartridge	User replacement for every toner empty (or the specified traveling distance).													
	Bias pin/Connector	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Intermediate transfer belt	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [26]-3)
	Primary transfer coat roller	×	○	○	▲	○	○	▲	○	○	▲	○	○/▲	▲	(P/G No.: [27]-9, [28]-27)
	Primary transfer blade	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [25]-19)
	Belt drive gear	×	×	×	▲	×	×	▲	×	×	▲	×	×	▲	(P/G No.: [27]-13)
	Primary transfer conduction collar	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [27]-8, [28]-25)
Transfer section	TC roller bearing	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [27]-39)
	Transfer drive roller		○	○	○	○	○	○	○	○	○	○	○	○	
	Transfer follower roller		○	○	○	○	○	○	○	○	○	○	○	○	
	Tension roller		○	○	○	○	○	○	○	○	○	○	○	○	
	Roller CL brush		×	×	×	×	×	×	×	×	×	×	×	×	
	Y auxiliary roller		○	○	○	○	○	○	○	○	○	○	○	○	
	Resist backup roller		×	×	×	×	×	×	×	×	×	×	×	×	
	Cleaner seal	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Cleaner seal R	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Transfer drive roller		○	○	○	○	○	○	○	○	○	○	○	○	
	Transfer follower roller		○	○	○	○	○	○	○	○	○	○	○	○	
	Tension roller		○	○	○	○	○	○	○	○	○	○	○	○	
	Roller CL brush		×	×	×	×	×	×	×	×	×	×	×	×	

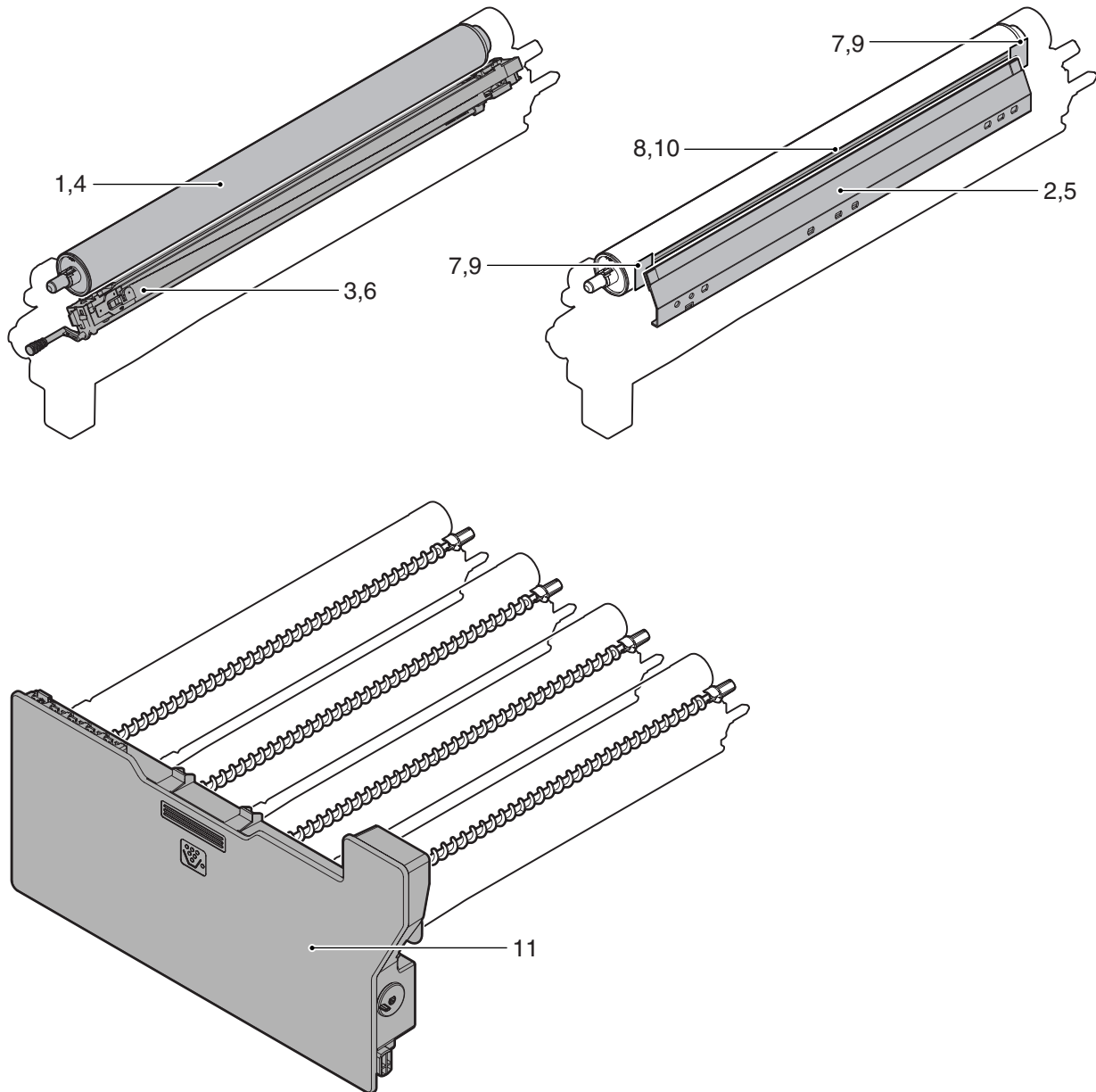
Unit name	Part name	When calling	80 K	160 K	240 K	320 K	400 K	480 K	560 K	640 K	720 K	800 K	~	1200 K	Remark/Refer to the Parts Guide. Block/Item No. (Only the replacement parts are described.)
Transfer section	Transfer toner reception seal	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Secondary transfer belt	×	×	×	▲	×	×	▲	×	×	▲	×	× / ▲	×	(P/G No.: [30]-21)
	Secondary transfer roller	×	×	×	▲	×	×	▲	×	×	▲	×	× / ▲	×	(P/G No.: [30]-6)
	Secondary belt drive roller		×	×	○	×	×	○	×	×	○	×	× / ○	×	
	Secondary belt tension roller		×	×	○	×	×	○	×	×	○	×	× / ○	×	
	Secondary belt follower roller		×	×	○	×	×	○	×	×	○	×	× / ○	×	
	Secondary transfer idle gear	×	×	×	▲	×	×	▲	×	×	▲	×	× / ▲	×	(P/G No.: [29]-6)
	Sensors (Process control resist sensor)	×	○	○	○	○	○	○	○	○	○	○	○	○	
Fusing section	Upper heat roller unit	×	×	▲	×	▲	×	▲	×	▲	×	▲	× / ▲	▲	(P/G No.: [32]-32)
	Lower heat roller unit	×	×	▲	×	▲	×	▲	×	▲	×	▲	× / ▲	▲	(P/G No.: [33]-15)
	Upper separation pawl	×	×	▲	×	▲	×	▲	×	▲	×	▲	× / ▲	▲	(P/G No.: [32]-11)
	Lower separation pawl	×	×	▲	×	▲	×	▲	×	▲	×	▲	× / ▲	▲	(P/G No.: [33]-100)
	Upper thermistor (Non-contact type)	×	×	×	▲	×	×	▲	×	×	▲	×	× / ▲	▲	(P/G No.: [32]-37)
	Upper thermistor (Contact type)	×	×	▲	×	▲	×	▲	×	▲	×	▲	× / ▲	▲	(P/G No.: [32]-18)
	Lower thermistor	×	×	▲	×	▲	×	▲	×	▲	×	▲	× / ▲	▲	(P/G No.: [33]-20)
	Gears	×	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	
Filters	Ozone filter PA	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [47]-40)
	Paper exit filter	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [37]-100)
Paper feed section	Pickup roller	×	○	○	○	○	○	○	○	○	○	○	○	○	Replacement reference: Replace every 100K counts for each paper feed.
	Paper feed roller	×	○	○	○	○	○	○	○	○	○	○	○	○	
	Separation roller	×	○	○	○	○	○	○	○	○	○	○	○	○	
	Torque limiter	×	×	×	×	×	×	×	×	×	×	×	×	×	Replacement reference: Replace every 100K counts for each paper feed.
Transport section/ Paper exit reverse section	PS follower roller	×	○	○	○	○	○	○	○	○	○	○	○	○	
	Transport rollers	×	○	○	○	○	○	○	○	○	○	○	○	○	
	Transport paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Discharge brush	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Gears	×	×	×	×	×	×	×	×	×	×	×	×	×	When checking, apply to the necessary positions (specified positions). (P/G No.: [26]-100)
	PS paper dust removal unit	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
Drive section	Gears (Grease)	×	×	×	×	×	×	×	×	×	×	×	×	×	When checking, apply to the necessary positions (specified positions).
	Shaft earth sections (Conduction grease)	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Belts	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	
Optical section	Mirror/Lens/Reflector/CCD	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Table glass/SPF glass	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Scanner lamp	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Rails	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Drive belt/Drive wire	×	×	×	×	×	×	×	×	×	×	×	×	×	

## 2. Details of maintenance

### A. Drum peripheral

×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate □: Shift the position.

No.	Part name	Monochrome supply/ Mechanical parts	When calling	80 K	160 K	240 K	320 K	400 K	480 K	560 K	640 K	720 K	800 K	~	1200 K	Remark/Refer to the Parts Guide. Block/Item No. (Only the replacement parts are described.)
		Color supply		40 K	80 K	120 K	160 K	200 K	240 K	280 K	320 K	360 K	400 K	~	1200 K	
1	Drum (BK)	Monochrome supply		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
2	Cleaning blade (BK)			▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [24]-14)
3	Main charger unit (BK)			▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [24]-2)
4	Drum (C)	Color supply		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
5	Cleaning blade (C)			▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [24]-14)
6	Main charger unit (C)			▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [24]-2)
7	Side seal F/R (BK)	Mechanical parts	×	×	×	×	×	×	×	×	×	×	×	×	×	
8	Toner reception seal (BK)		×	×	×	×	×	×	×	×	×	×	×	×	×	
9	Side seal F/R (C)		×	×	×	×	×	×	×	×	×	×	×	×	×	
10	Toner reception seal (C)		×	×	×	×	×	×	×	×	×	×	×	×	×	
11	Waste toner box		×	×	×	×	×	×	×	×	×	×	×	×	×	Each color 5% coverage, color ratios 25%





The PM cycle means the replacement timing of periodic replacement consumable parts which are required for maintaining the performance.

The PM cycle is specified only for B/W output. For color output, it is used as a reference value.

[Reason] Since the ratio of B/W to color differs depending on the user's operation scene which varies every day, the PM cycle cannot be specified in a certain cycle for color output.

Replacement of a PM item at the recommended life is performed by the dealer's judgment or at PM call or at EM call.

#### Life end definition of a drum

When the drum counter exceeds the specified level of 100% black output or 100% full color output, it is judged as life end.

However in practice, the number of rotations specifies quality assurance policy of the tandem engine, where its wear cannot be solely defined by the number of sheets but other operating conditions including increased slip rotations depending on the ratio of B/W to color and/or B/W printing in the color mode using the ACS. The guaranteed number of rotations for the MX-1800 series drum is 840K.

The drum life is affected by the number of sheets of one print job. This is because the actual life is determined by rotations of the drum. If the number of sheets of one print job is less than 2 sheets, the number of rotations for page is increased. As shown in the figure below, therefore, the number of sheets of drum life varies depending on the number of sheets of one print job.

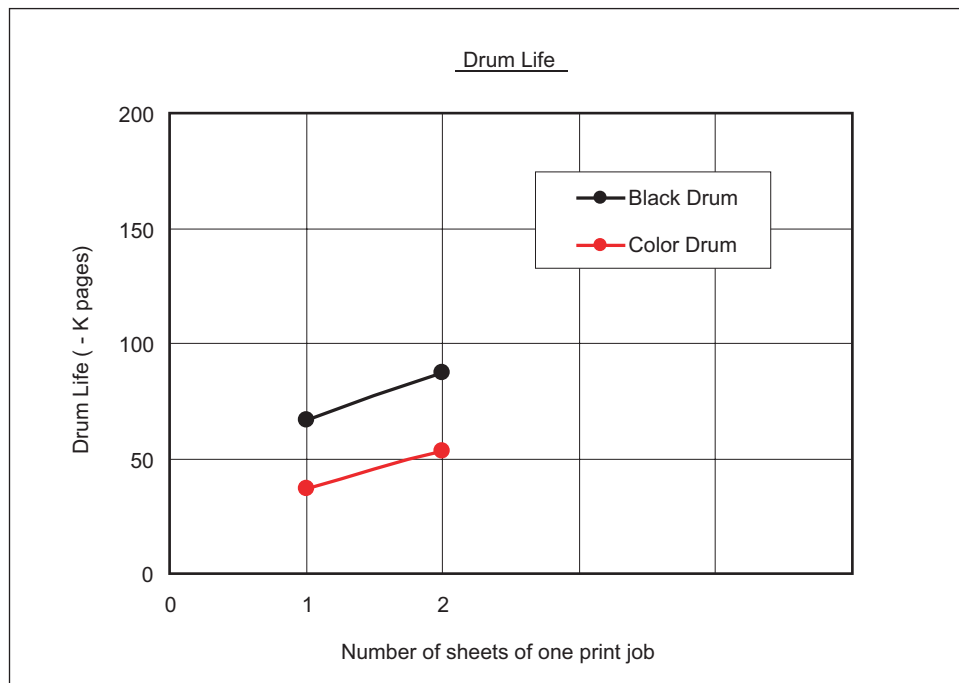
As a reference of the drum life, "Life meter" can be checked with SIM22-1 from the accumulated number of rotations of each drum. "Life meter" indicates the remained life (%) of the drum with the entire drum life as 100%.

(Example) If the used number of rotations is 588K:

$$588 \text{ (K rotations)} / 840 \text{ (K rotations)} \times 100 = 070 \text{ (\%)}$$

	Drum counter		Number of rotations of drum	
	B/W	Full color	B/W	Full color
Drum	80K	40K	840K rotations	840K rotations

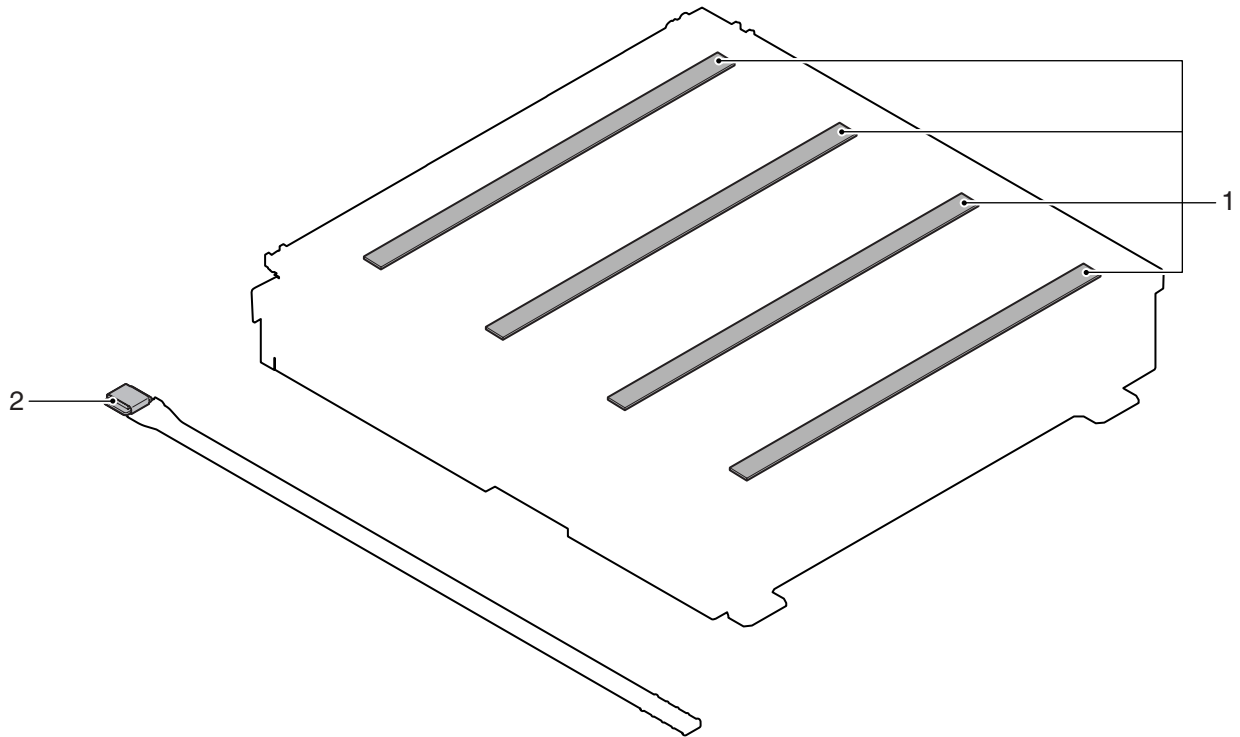
\* For 100% full color output by the user, the life of the black drum is 40K similarly to the life of the color drums.



## B. LSU

×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate □: Shift the position.

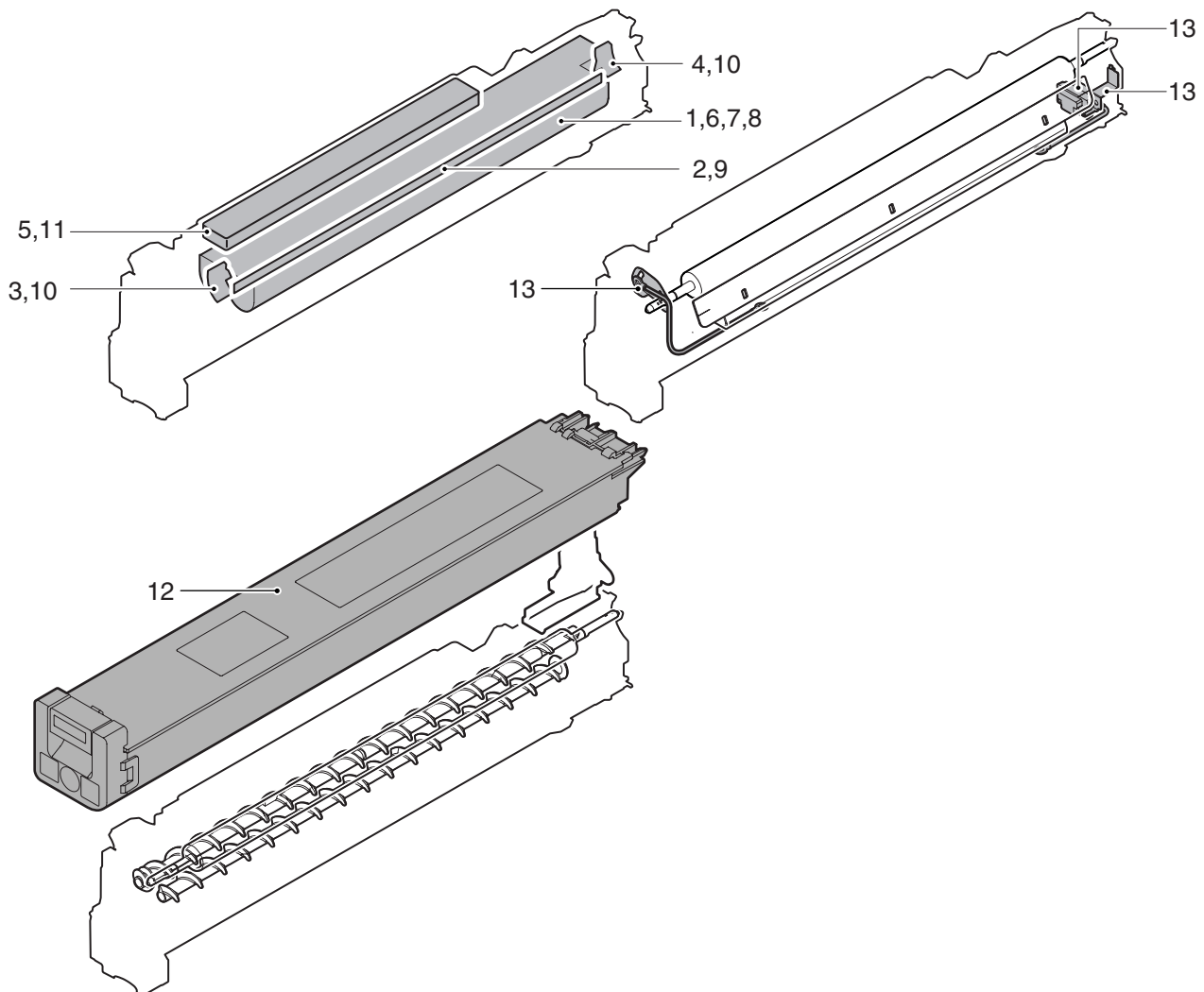
No.	Part name	Monochrome supply/ Mechanical parts	When calling	80 K	160 K	240 K	320 K	400 K	480 K	560 K	640 K	720 K	800 K	~	1200 K	Remark
1	Dust proof glass	Mechanical parts	○	○	○	○	○	○	○	○	○	○	○	○	○	
2	Cleaning base		×	×	×	×	×	×	×	×	×	×	×	×	×	



## C. Developing section

×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate □: Shift the position.

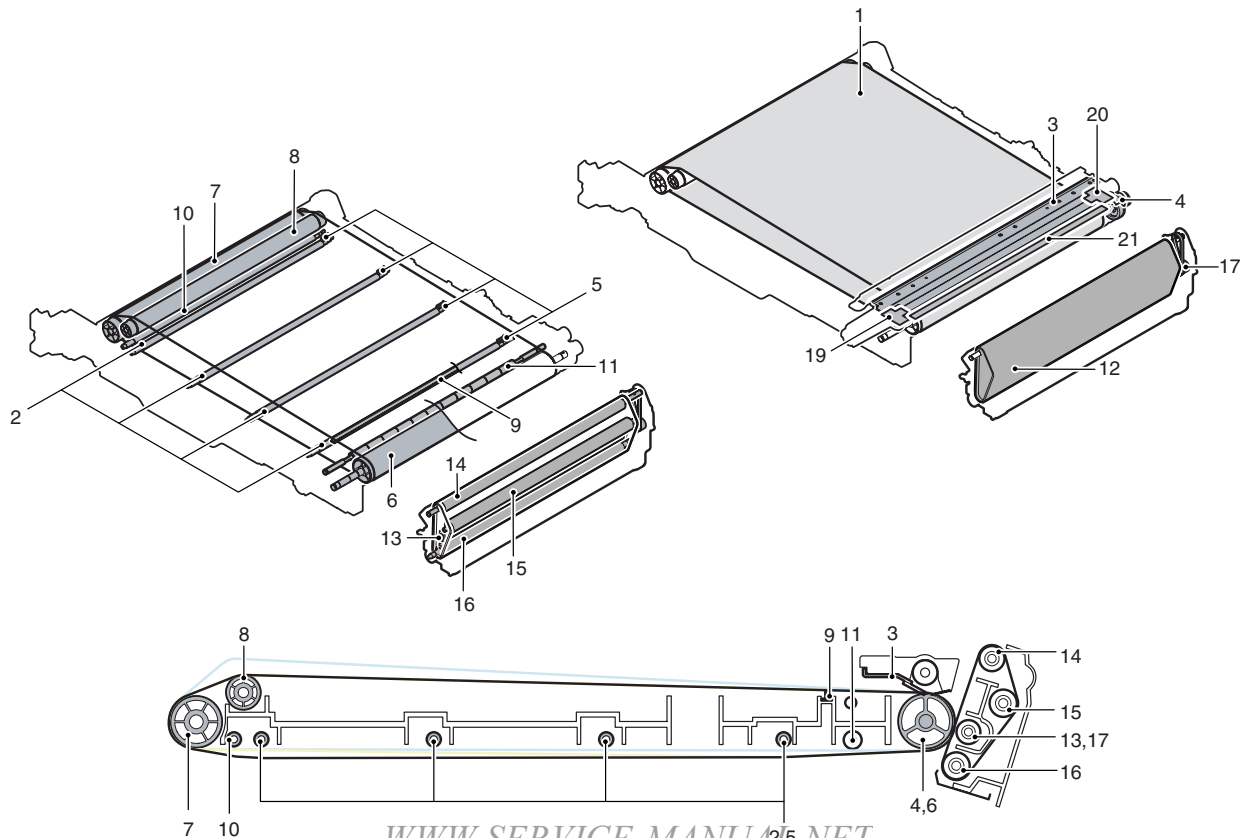
No.	Part name	Monochrome supply/ Mechanical parts	When calling	80 K	160 K	240 K	320 K	400 K	480 K	560 K	640 K	720 K	800 K	~	1200 K	Remark/Refer to the Parts Guide. Block/Item No. (Only the replacement parts are described.)
		Color supply		40 K	80 K	120 K	160 K	200 K	240 K	280 K	320 K	360 K	400 K	~	1200 K	
1	Developer (BK)	Monochrome supply		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
2	DV blade N kit (BK)			▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [22]-22)
3	DV side seal F (BK)			▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [23]-26)
4	DV side seal R (BK)			▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [23]-15)
5	Toner filter unit	Color supply		▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [22]-37)
6	Developer (C)			▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
7	Developer (M)			▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
8	Developer (Y)			▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
9	DV blade N kit (C/M/Y)			▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [22]-22)
10	DV side seal F/R (C/M/Y)			▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [23]-26, [23]-15)
11	Toner filter unit			▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [22]-37)
12	Toner cartridge (BK/C/M/Y)	Monochrome/Color supply	User replacement for every toner empty (or the specified traveling distance).													
13	Bias pin/Connector	Mechanical parts	×	×	×	×	×	×	×	×	×	×	×	×	×	



## D. Transfer section

×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate □: Shift the position.

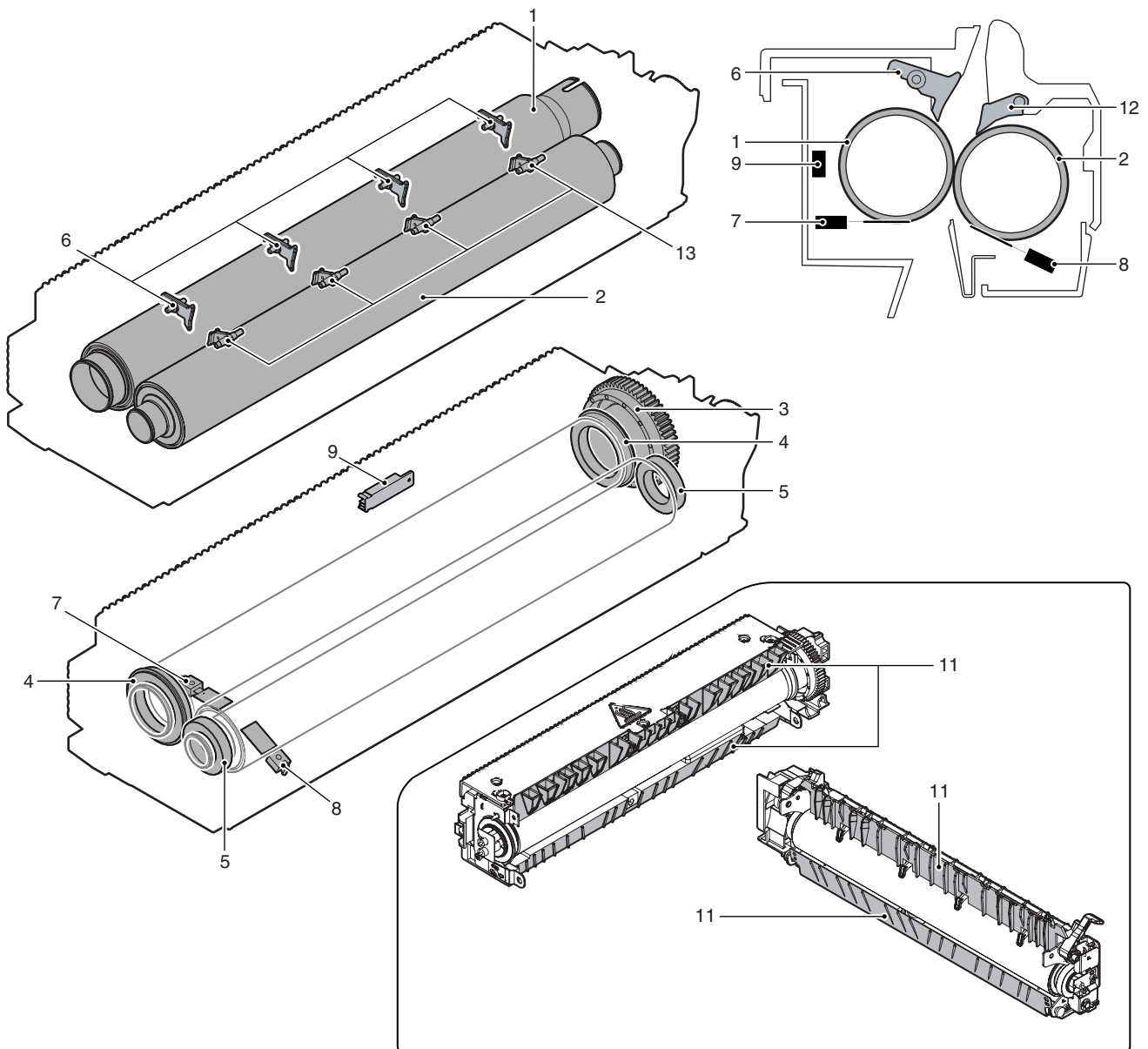
No.	Part name	Monochrome supply/ Mechanical parts	When calling	80 K	160 K	240 K	320 K	400 K	480 K	560 K	640 K	720 K	800 K	~	1200 K	Remark/Refer to the Parts Guide. Block/Item No. (Only the replacement parts are described.)
1	Intermediate transfer belt	Mechanical parts	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [26]-3)
2	Primary transfer coat roller		×	○	○	▲	○	○	▲	○	○	▲	○	○/▲	▲	(P/G No.: [27]-9, [28]-27)
3	Primary transfer blade		×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [25]-19)
4	Belt drive gear		×	×	×	▲	×	×	▲	×	×	▲	×	×/▲	▲	(P/G No.: [27]-13)
5	Primary transfer conduction collar		×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [27]-8, [28]-25)
6	Transfer drive roller			○	○	○	○	○	○	○	○	○	○	○	○	
7	Transfer follower roller			○	○	○	○	○	○	○	○	○	○	○	○	
8	Tension roller			○	○	○	○	○	○	○	○	○	○	○	○	
9	Roller CL brush			×	×	×	×	×	×	×	×	×	×	×	×	
10	Y auxiliary roller			○	○	○	○	○	○	○	○	○	○	○	○	
11	Resist backup roller			×	×	×	×	×	×	×	×	×	×	×	×	
12	Secondary transfer belt		×	×	×	▲	×	×	▲	×	×	▲	×	×/▲	×	(P/G No.: [30]-21)
13	Secondary transfer roller		×	×	×	▲	×	×	▲	×	×	▲	×	×/▲	×	(P/G No.: [30]-6)
14	Secondary belt drive roller			×	×	○	×	×	○	×	×	○	×	×/○	×	
15	Secondary belt tension roller			×	×	○	×	×	○	×	×	○	×	×/○	×	
16	Secondary belt follower roller			×	×	○	×	×	○	×	×	○	×	×/○	×	
17	Secondary transfer idle gear		×	×	×	▲	×	×	▲	×	×	▲	×	×/▲	×	(P/G No.: [29]-6)
18	Sensors (Process control resist sensors)		×	○	○	○	○	○	○	○	○	○	○	○	○	
19	Cleaner seal		×	×	×	×	×	×	×	×	×	×	×	×	×	
20	Cleaner seal R		×	×	×	×	×	×	×	×	×	×	×	×	×	
21	Transfer toner reception seal		×	×	×	×	×	×	×	×	×	×	×	×	×	



## E. Fusing section

×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate □: Shift the position.

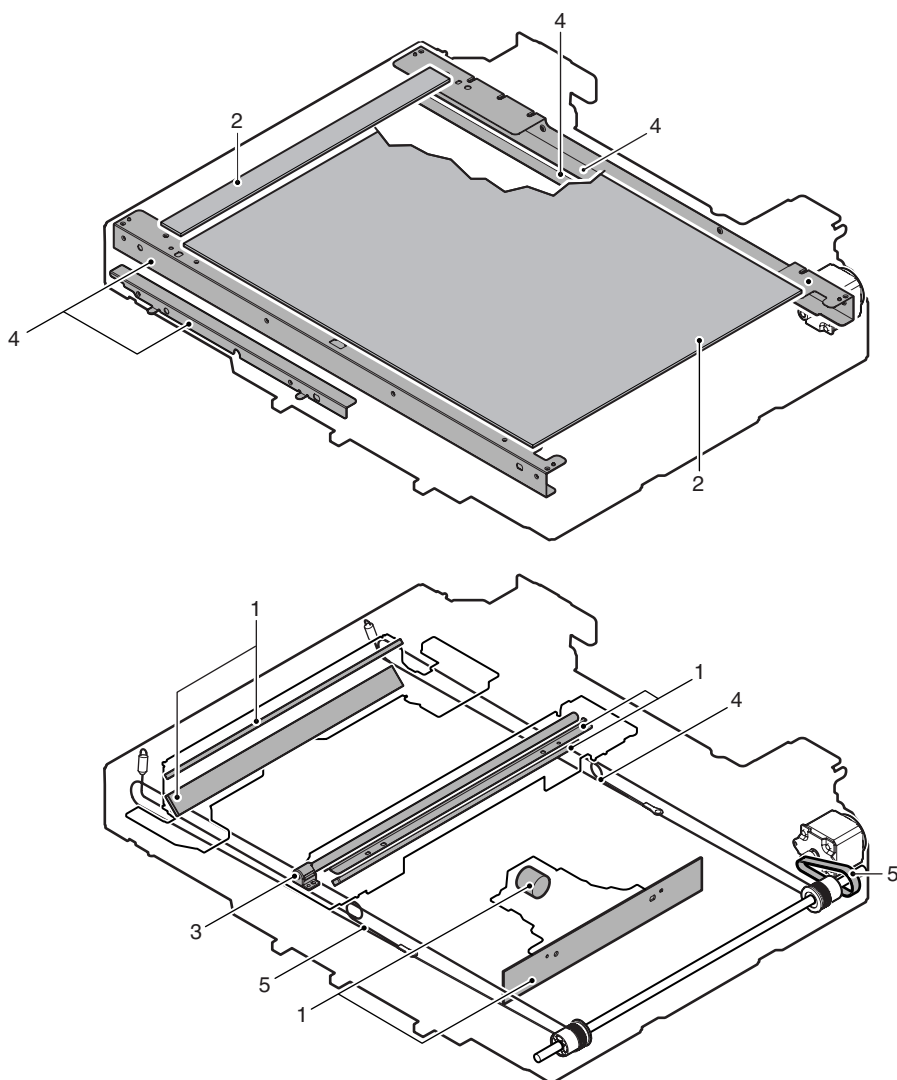
No.	Part name	Monochrome supply/ Mechanical parts	When calling	80 K	160 K	240 K	320 K	400 K	480 K	560 K	640 K	720 K	800 K	~	1200 K	Remark/Refer to the Parts Guide. Block/Item No. (Only the replacement parts are described.)
1	Upper heat roller unit	Mechanical parts	×	×	▲	×	▲	×	▲	×	▲	×	▲	×/▲	▲	(P/G No.: [32]-32)
2	Lower heat roller unit		×	×	▲	×	▲	×	▲	×	▲	×	▲	×/▲	▲	(P/G No.: [33]-15)
3	Fusing gear		×	×	▲	×	▲	×	▲	×	▲	×	▲	×/▲	▲	
4	Upper heat roller bearing		×	×	▲	×	▲	×	▲	×	▲	×	▲	×/▲	▲	
5	Lower heat roller bearing		×	×	▲	×	▲	×	▲	×	▲	×	▲	×/▲	▲	
6	Upper separation pawl		×	×	▲	×	▲	×	▲	×	▲	×	▲	×/▲	▲	(P/G No.: [32]-11)
7	Upper thermistor (Contact type)		×	×	▲	×	▲	×	▲	×	▲	×	▲	×/▲	▲	(P/G No.: [32]-18)
8	Lower thermistor		×	×	▲	×	▲	×	▲	×	▲	×	▲	×/▲	▲	(P/G No.: [33]-20)
9	Upper thermistor (Non-contact type)		×	×	×	▲	×	×	▲	×	×	▲	×	×/▲	▲	(P/G No.: [32]-37)
10	Gears		×	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
11	Paper guides		○	○	○	○	○	○	○	○	○	○	○	○	○	
12	Lower separation pawl		×	×	▲	×	▲	×	▲	×	▲	×	▲	×/▲	▲	(P/G No.: [33]-100)



## F. Optical section

×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate □: Shift the position.

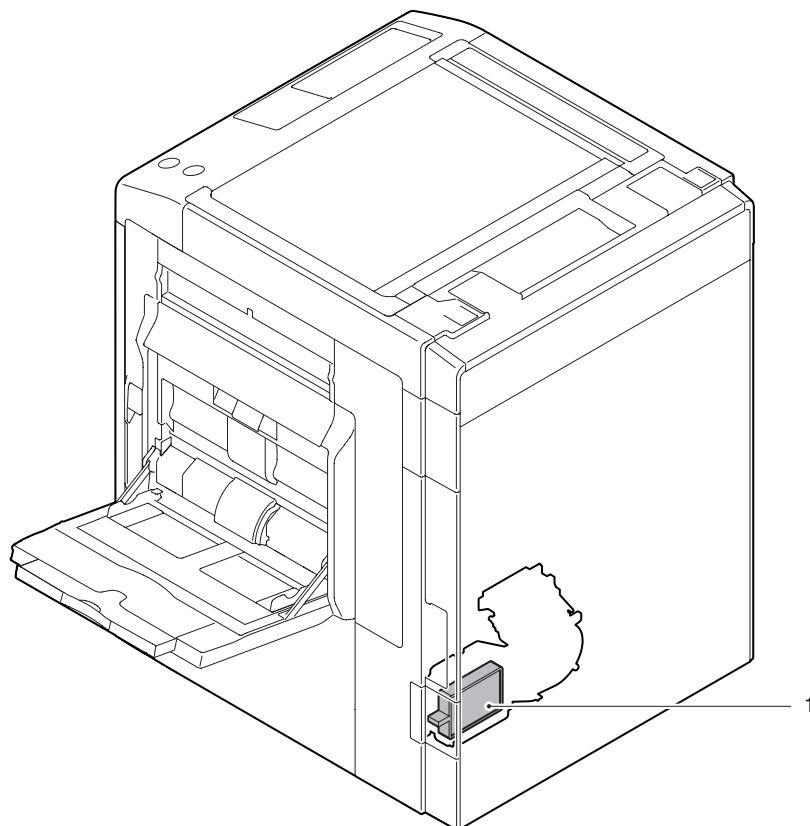
No.	Part name	Monochrome supply/ Mechanical parts	When calling	80 K	160 K	240 K	320 K	400 K	480 K	560 K	640 K	720 K	800 K	~	1200 K	Remark
1	Mirror/Lens/ Reflector/CCD	Mechanical parts	○	○	○	○	○	○	○	○	○	○	○	○	○	
2	Table glass/ SPF glass		○	○	○	○	○	○	○	○	○	○	○	○	○	
3	Scanner lamp		○	○	○	○	○	○	○	○	○	○	○	○	○	
4	Rails		☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
5	Drive belt/ Drive wire		×	×	×	×	×	×	×	×	×	×	×	×	×	



## G. Filters

×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate □: Shift the position.

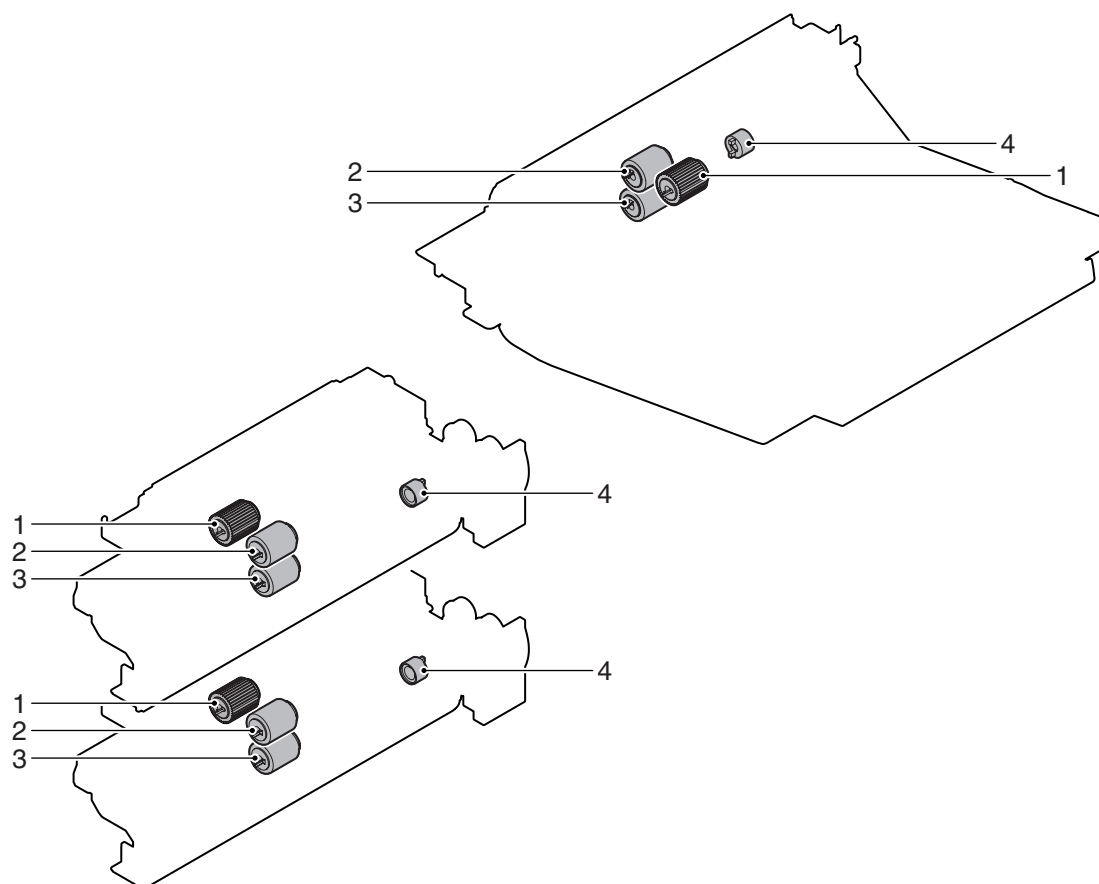
No.	Part name	Monochrome supply/ Mechanical parts	When calling	80 K	160 K	240 K	320 K	400 K	480 K	560 K	640 K	720 K	800 K	~	1200 K	Remark/Refer to the Parts Guide. Block/Item No. (Only the replacement parts are described.)
1	Ozone filter PA	Mechanical parts	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [47]-40)



## H. Paper feed section

×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate □: Shift the position.

No.	Part name	Monochrome supply/ Mechanical parts	When calling	80 K	160 K	240 K	320 K	400 K	480 K	560 K	640 K	720 K	800 K	~	1200 K	Remark
1	Pickup roller	Mechanical parts	×	○	○	○	○	○	○	○	○	○	○	○	○	Replacement reference: Replace every 100K counts for each paper feed.
2	Paper feed roller		×	○	○	○	○	○	○	○	○	○	○	○	○	
3	Separation roller		×	○	○	○	○	○	○	○	○	○	○	○	○	
4	Torque limiter		×	×	×	×	×	×	×	×	×	×	×	×	×	

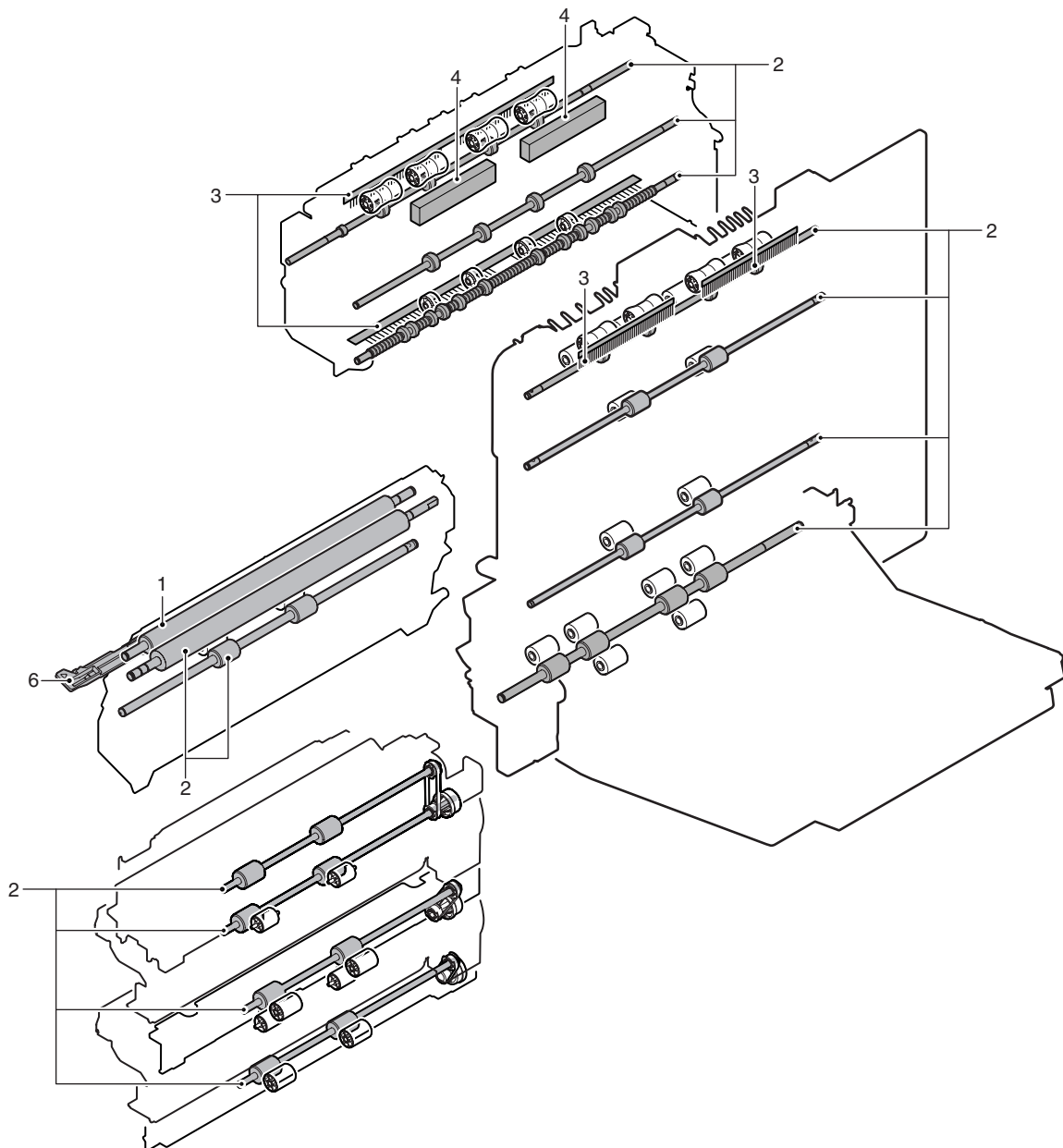




## I. Transport section/Paper exit reverse section

×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate □: Shift the position.

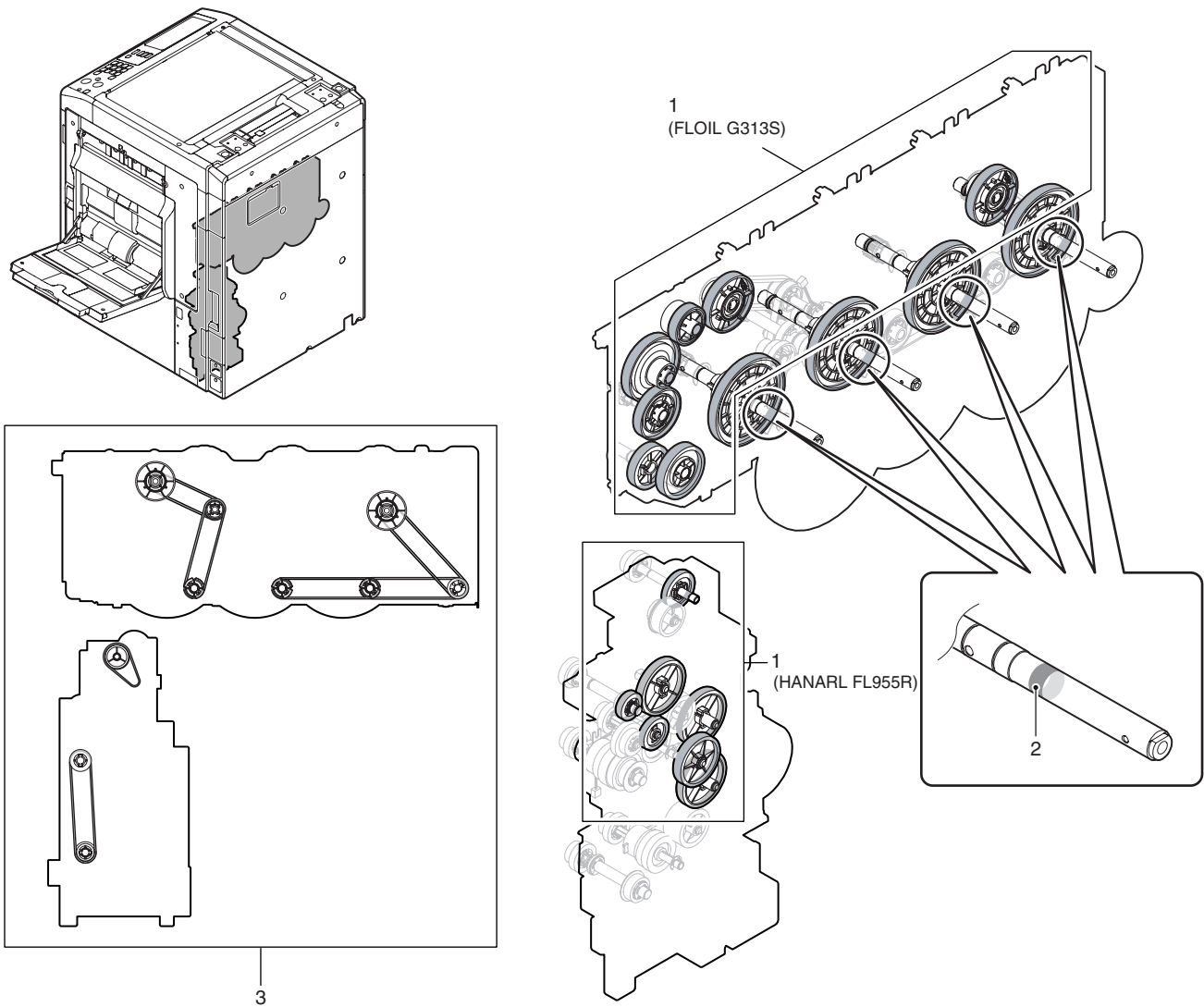
No.	Part name	Monochrome supply/ Mechanical parts	When calling	80 K	160 K	240 K	320 K	400 K	480 K	560 K	640 K	720 K	800 K	~	1200 K	Remark/Refer to the Parts Guide. Block/Item No. (Only the replacement parts are described.)
1	PS follower roller	Mechanical parts	×	○	○	○	○	○	○	○	○	○	○	○	○	
2	Transport rollers		×	○	○	○	○	○	○	○	○	○	○	○	○	
3	Discharge brush		×	×	×	×	×	×	×	×	×	×	×	×	×	
4	Paper exit filter		×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [37]-100)
5	Gears		×	×	×	×	×	×	×	×	×	×	×	×	×	When checking, apply to the necessary positions (specified positions).
6	PS paper dust removal unit		×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	(P/G No.: [26]-100)



J. Drive section

×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate □: Shift the position.

No.	Part name	Monochrome supply/ Mechanical parts	When calling	80 K	160 K	240 K	320 K	400 K	480 K	560 K	640 K	720 K	800 K	~	1200 K	Remark
1	Gears (Grease)	Mechanical parts	×	×	×	×	×	×	×	×	×	×	×	×	×	When checking, apply to the necessary positions (specified positions).
2	Shaft earth sections (Conduction grease)		×	×	×	×	×	×	×	×	×	×	×	×	×	
3	Belts		×	×	×	×	×	×	×	×	×	×	×	×	×	



### 3. Other related items

#### A. Maintenance timing display

The message of maintenance execution timing is displayed when each counter reaches the set value. The relationship between the messages and the counters is shown below.

##### (1) (Maintenance timing) (Frameless)

###### a. Maintenance counters

Code	Content	Print job Enable/Disable
TA	The maintenance counters (total) reaches 90% of the set value of SIM21-1, or they reaches the set value of SIM21-1 but SIM26-38 is set to Print Enable.	Enable
CA	The maintenance counters (color) reaches 90% of the set value of SIM21-1, or they reaches the set value of SIM21-1 but SIM26-38 is set to Print Enable.	Enable
AA	The maintenance counters (both of total and color) reaches 90% of the set value of SIM21-1, or they reaches the set value of SIM21-1 but SIM26-38 is set to Print Enable.	Enable

- After completion of the maintenance, execute SIM 24-4 (Maintenance counters (total, color) clear).

###### b. Transfer unit system counters

Code	Content	Print job Enable/Disable
TK1	The primary transfer unit print counter reaches 80,000 sheets.	Enable
TK2	The secondary transfer unit print counter reaches 240,000 sheets.	Enable

- After completion of the maintenance, execute SIM 24-4 (Primary and secondary transfer unit counters (number of the transfer unit print counter, accumulated traveling distance of the transfer unit, days of use of the transfer unit) clear).

###### c. Fusing unit counter

Code	Content	Print job Enable/Disable
FK1	The fusing unit print counter reaches 160,000 sheets.	Enable

- After completion of the maintenance, execute SIM 24-4 (Fusing unit counters (number of the fusing unit print counter, days of use of the fusing unit) clear).

###### d. Drum cartridge system counters

Code	Content	Print job Enable/Disable
DK	The drum cartridge print counter (K) reaches 80,000 sheets, or the accumulated number of rotations of the drum (K) reaches 840K.	Enable
DC	The drum cartridge print counter (C) reaches 40,000 sheets, or the accumulated number of rotations of the drum (C) reaches 840K.	Enable
DM	The drum cartridge print counter (M) reaches 40,000 sheets, or the accumulated number of rotations of the drum (M) reaches 840K.	Enable
DY	The drum cartridge print counter (Y) reaches 40,000 sheets, or the accumulated number of rotations of the drum (Y) reaches 840K.	Enable

- After completion of the maintenance, execute SIM 24-7 (Drum counters (number of the drum print counter, accumulated traveling distance of the drum) clear).

###### e. Developer cartridge system counters

Code	Content	Print job Enable/Disable
VK	The developer print counter (K) reaches 80,000 sheets, or the accumulated number of rotations of the developer (K) reaches 840K.	Enable
VC	The developer print counter (C) reaches 40,000 sheets, or the accumulated number of rotations of the developer (C) reaches 840K.	Enable
VM	The developer print counter (M) reaches 40,000 sheets, or the accumulated number of rotations of the developer (M) reaches 840K.	Enable
VY	The developer print counter (Y) reaches 40,000 sheets, or the accumulated number of rotations of the developer (Y) reaches 840K.	Enable

- After completion of the maintenance, execute SIM 24-5 (Developer counters (number of the developer print counter, accumulated traveling distance of the developer) clear).

##### (2) [Maintenance timing] (Framed)

###### a. Maintenance counters

Code	Content	Print job Enable/Disable
TA	The maintenance counters (total) reaches the set value of SIM21-1, and SIM26-38 is set to Print Disable.	Disable
CA	The maintenance counters (color) reaches the set value of SIM21-1, and SIM26-38 is set to Print Disable.	Disable
AA	The maintenance counters (both of total and color) reaches the set value of SIM21-1, and SIM26-38 is set to Print Disable.	Disable

- After completion of the maintenance, execute SIM 24-4 (Maintenance counters (total, color) clear).

##### (3) [Check the waste toner box.] (Framed)

Code	Content	Print job Enable/Disable
—	Waste toner full	Disable

- After detection of the waste toner full, reset the full detection by opening/close of the front door.

## [10] ROM VERSION-UP

### 1. General

#### A. Cases where version-up is required

ROM version-up is required in the following cases:

- 1) When there is a necessity to upgrade the performance.
- 2) When installing a new spare ROM to the machine for repair.
- 3) When installing a new spare PWB unit with ROM installed to it.
- 4) When there is a trouble in the programs in ROM and it must be repaired.

#### B. Notes for version-up

##### (1) Relationship between each ROM and version-up

Before execution of ROM version-up, check combinations with ROM's installed in the other PWB's including options.

Some combinations of versions may cause malfunctions of the machine.

### C. Update procedures and kinds of firmware

There are following methods of downloading of the firmware.

- 1) Firmware download using media
- 2) Firmware download using FTP
- 3) Firmware download using Web page

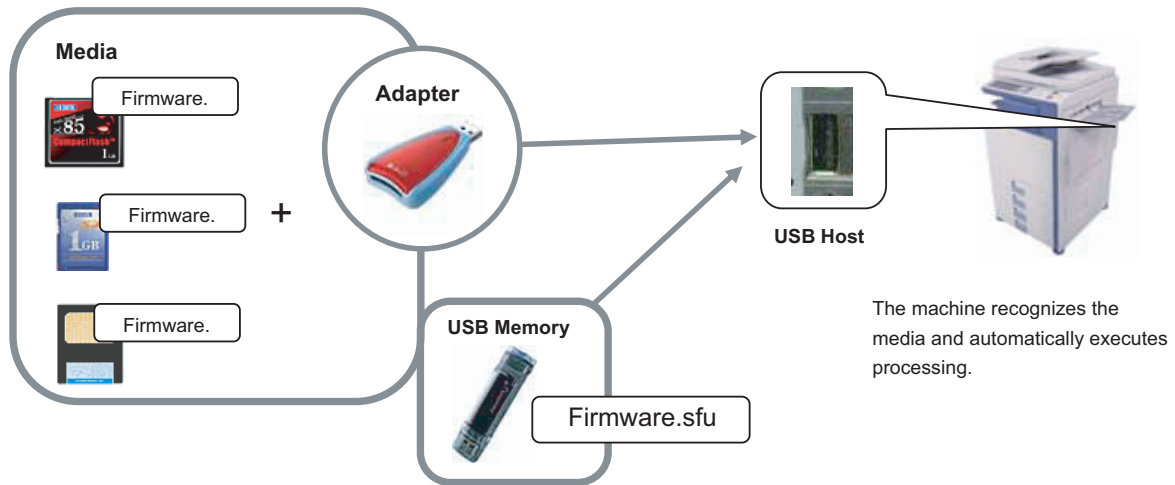
• Firmware types

	Flash ROM	Contents
Machine	ALL	Includes all contents shown below.
	ICU(BOOT)	ANIME
		BOOTSUB
		CONFIG
		ESCP FONT
		GRPH
		LANG
		SPDL
		XIO FONT
		PROFILE
	ICU(MAIN)	MAIN
	IMG-ASIC	IMG DATA ROM
Option	SCU	SCU(MAIN)
	PCU	PCU(MAIN)
	FAX1	FAX1(MAIN)
	INNER FINISHER	FINISHER_INNER(MAIN)
	DESK	DESK(MAIN)

NOTE: If the MFPcnt PWB DIP SW No. 2 is not set to ON, an error occurs.

### 2. Version-up procedure

#### A. Firmware download using USB device



##### (1) Firmware update from USB memory device

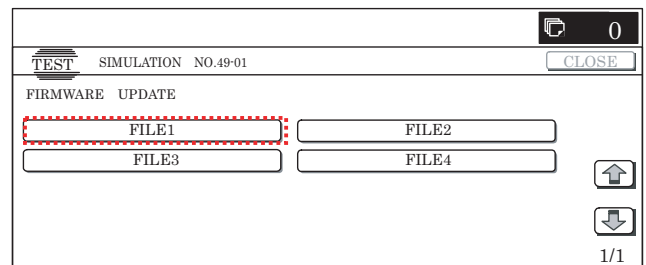
First you must install the firmware file (xxx.sfu) to the root of a USB jump drive.

- If the firmware is in a folder, Simulation 49-01 cannot open the folder.
- Secure Jumpdrive will not work.
- Must have a minimum of 32MB of storage capacity to load the firmware onto it.

- 1) Insert the USB memory device into the main unit.
- 2) Enter the 49-01 screen. Press the button of the file to be updated. The screen transfers to the update screen.

(In this screen, [FILE 1] is selected)

\* The number of button changes depending on the number of the file in the USB memory device inserted.



- 3) Current version number and the version number to be updated will be shown for each firmware respectively.

Following key-codes will be changed;

NOW → CURRENT

NEXT → UPDATED TO

- 4) Select the button of the firmware to be updated. The button will be highlighted. (In this screen, [ICU(MAIN)] and [LANGUAGE] are selected.) At the same time, [EXECUTE] button appears.
- \* Press the selected button again to release the selection.
  - \* Press [ALL] button to select all items.

- 5) Press [EXECUTE] button. "ARE YOU SURE? [YES] [NO]" becomes clear. If no button is selected, [EXECUTE] button is gray out and cannot be pressed. Press [YES] to start the update.

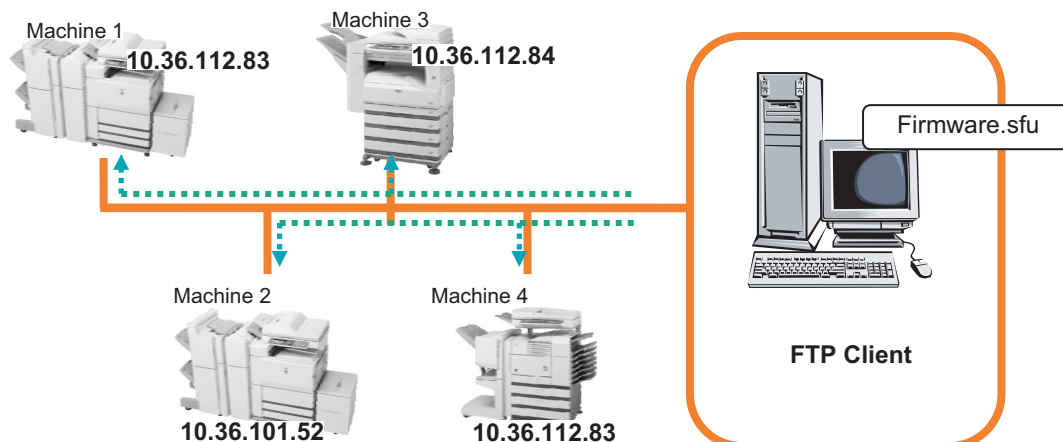
- 6) At the completion of the upgrade, the display will change to: "COMPLETE: PLEASE TOUCH [OK] TO FINISH" Press OK. The Imager will reboot at this time.

- 7) Go to Simulation 22-05 and confirm the firmware has upgraded successfully.

**Note:** If the Imager locks up or loses power during the upgrade, it could corrupt the firmware, preventing the imager from booting up normally. If this occurs, you can "rescue" the firmware using the following procedure:

- Rename the firmware file on the USB device to emup-date.sfu
- Power off the imager (both switches) and insert the USB device (Jumpdrive) into the USB port of the imager.
- Power on the imager
- The Imager will boot up into emergency update mode. When finished, the display will read "update completed"
- Power off the imager, and remove the USB device
- Reboot the imager, and go simulation 22-05 to confirm firmware has upgraded successfully.

## B. Firmware download using FTP



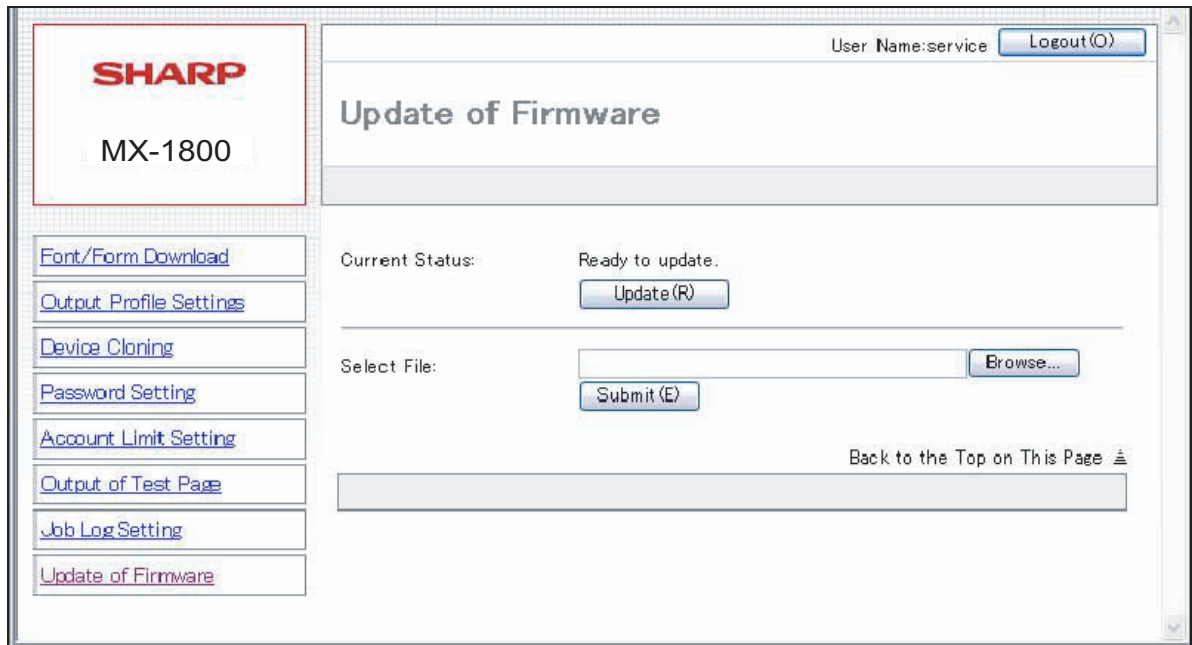
FTP software is used to transfer the firmware data (extension ".sfu") from the PC to the machine. The controller recognizes the firmware identifier and the machine automatically switches to firmware write mode. After the firmware is updated, the machine automatically resets.

### C. Firmware download using the Web page

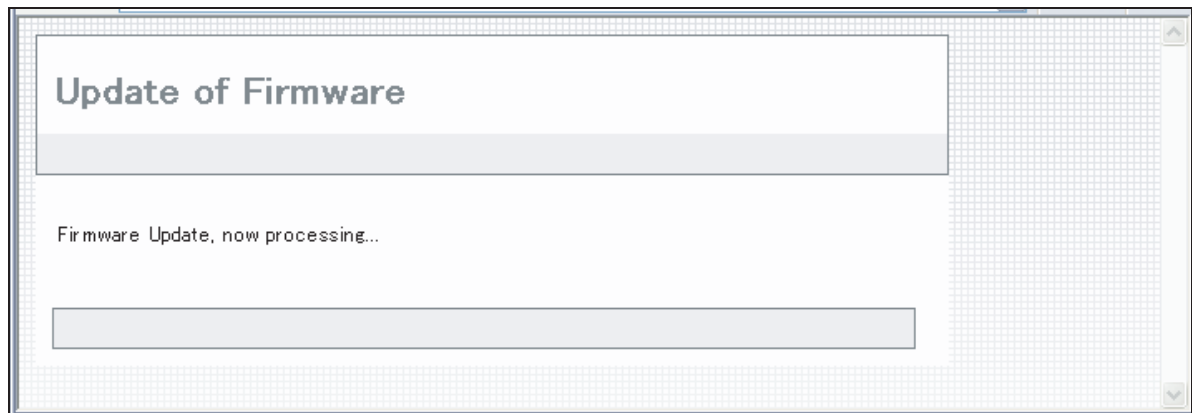
A Web browser (service technician's Web page) is used to update the firmware.

Update procedure

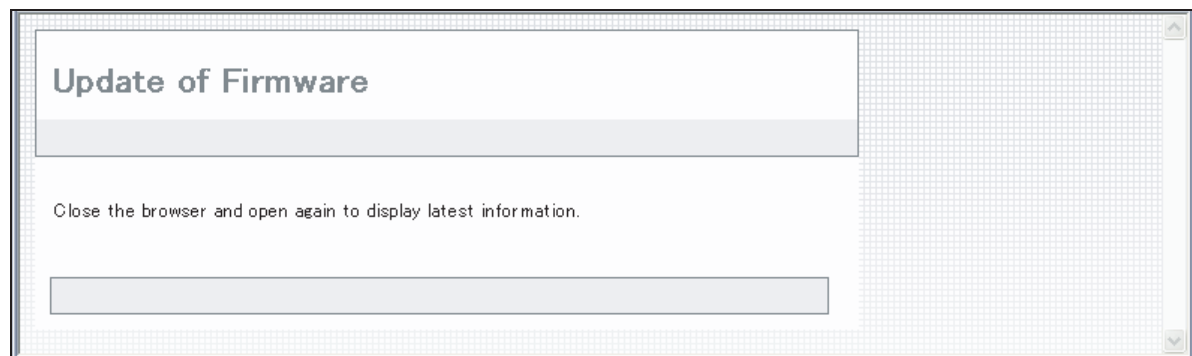
- 1) Start the Web browser on a PC and enter the specified URL. A special firmware upgrade page appears.
- 2) Click the "Update of Firmware" button in the Web page. Click the "Browse" button and select the firmware for the update.



- 3) After selecting the file, click the "Submit" button to send the firmware to the Renaissance machine.  
Update processing begins. While processing takes place, "Firmware Update, now processing..." appears.



- 4) When the firmware update is finished, "Firmware Update completed. Please reboot the MFP." appears. Pressing the [Reboot] key, the machine will restart to complete the update. The browser will shift to the following screen.



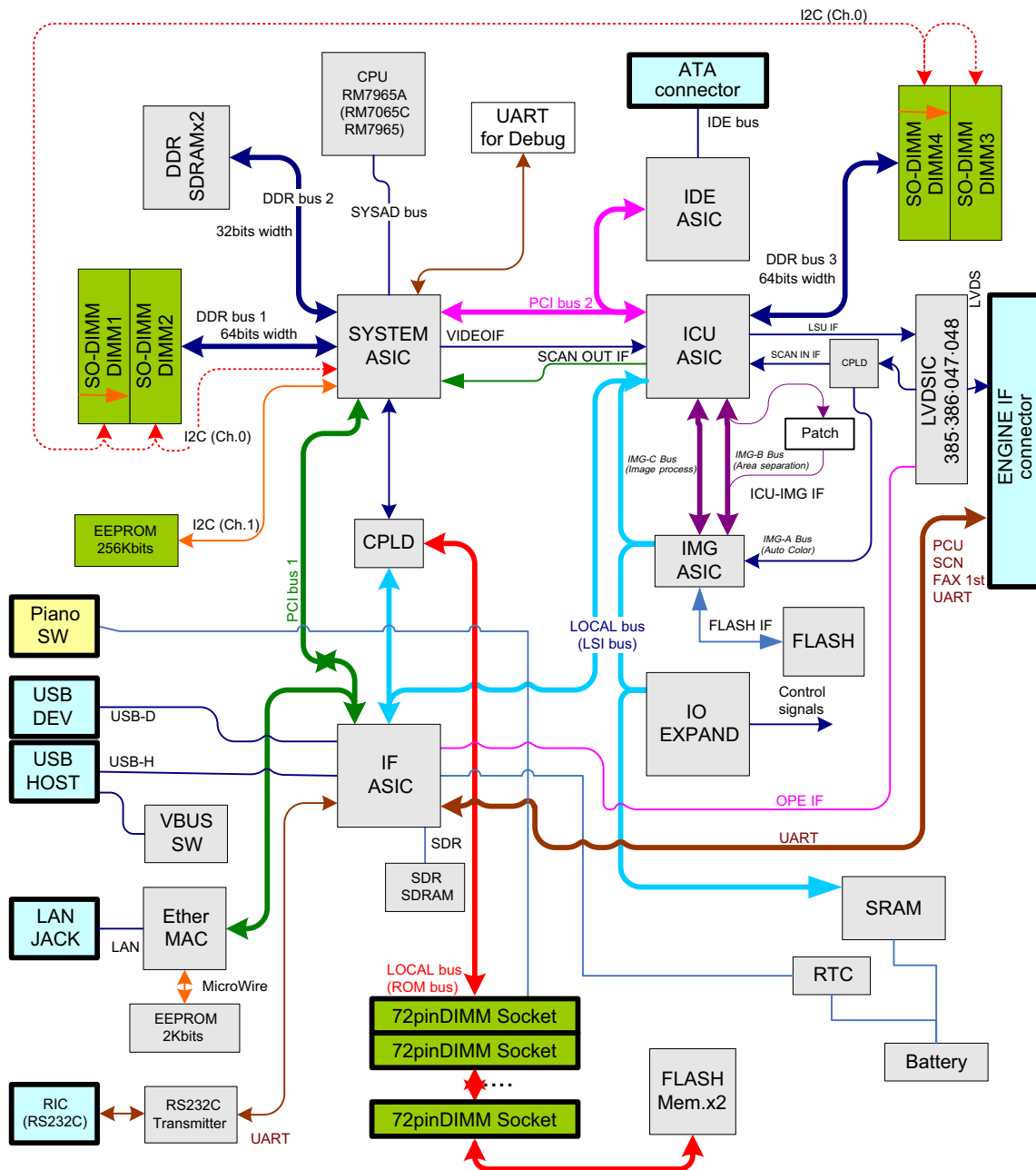
"Close the browser and open again to display latest information." will be displayed.

- 5) Update is completed with the above procedures.

### A. System block diagram

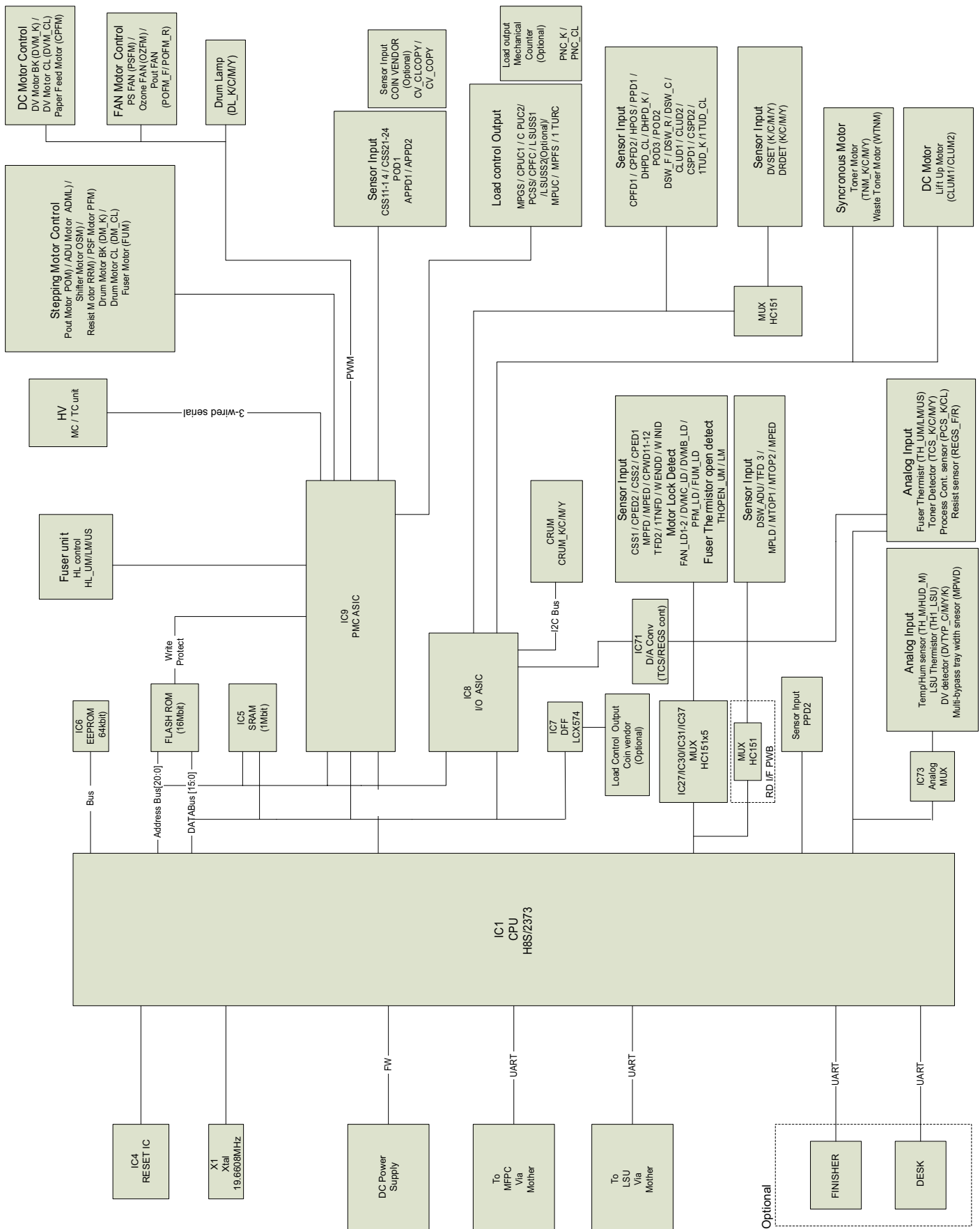


## B. MFP controller PWB

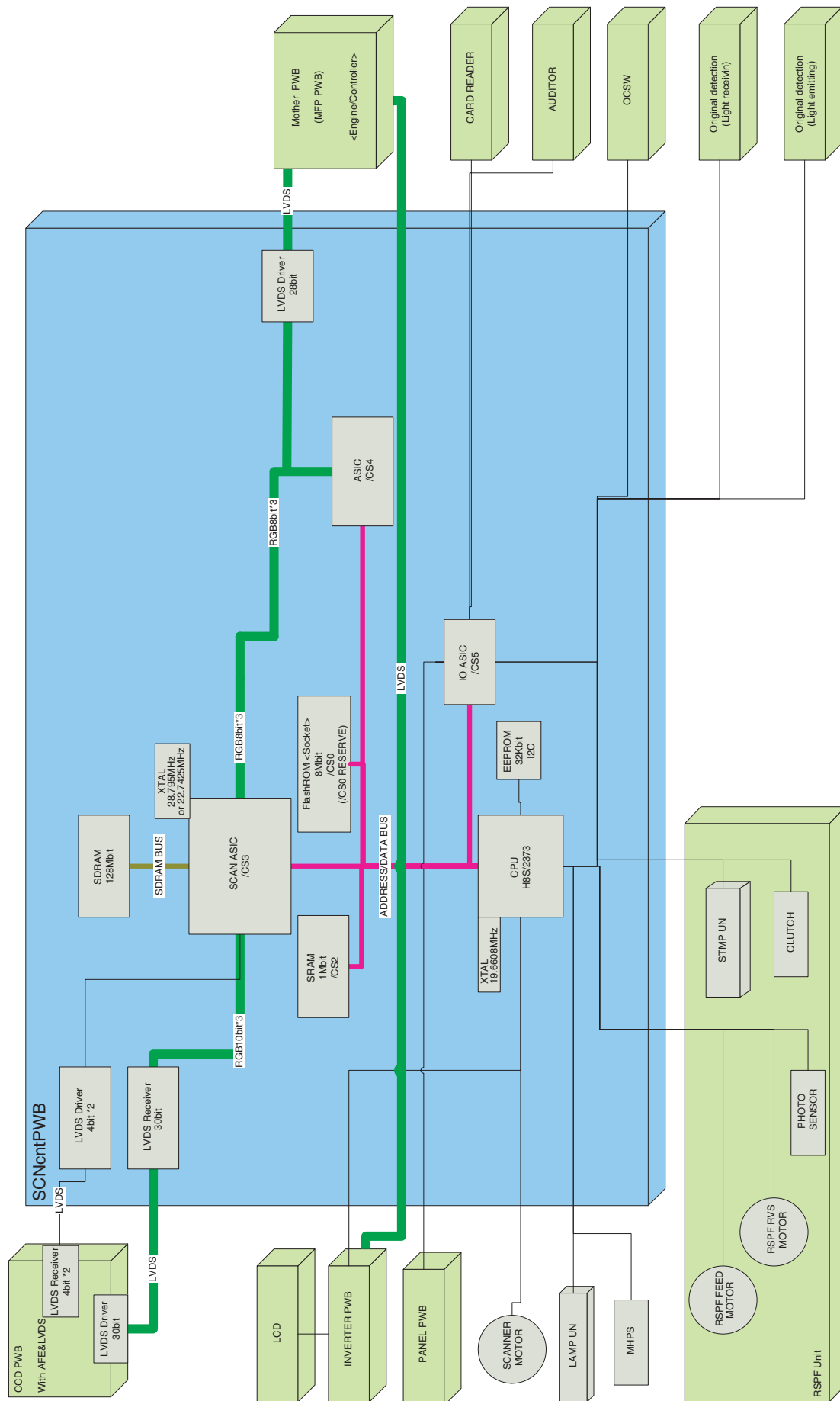




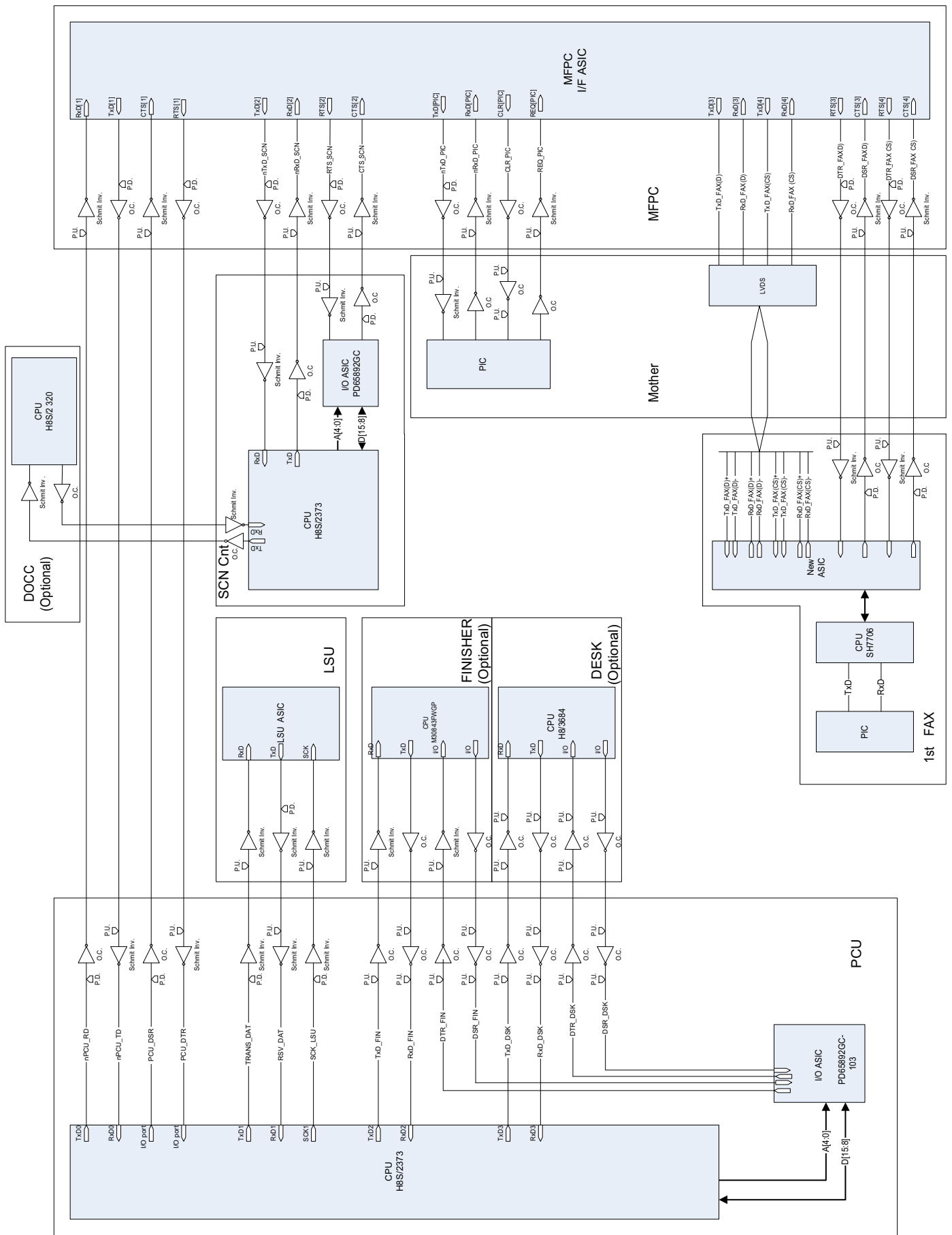
## C. PCU PWB



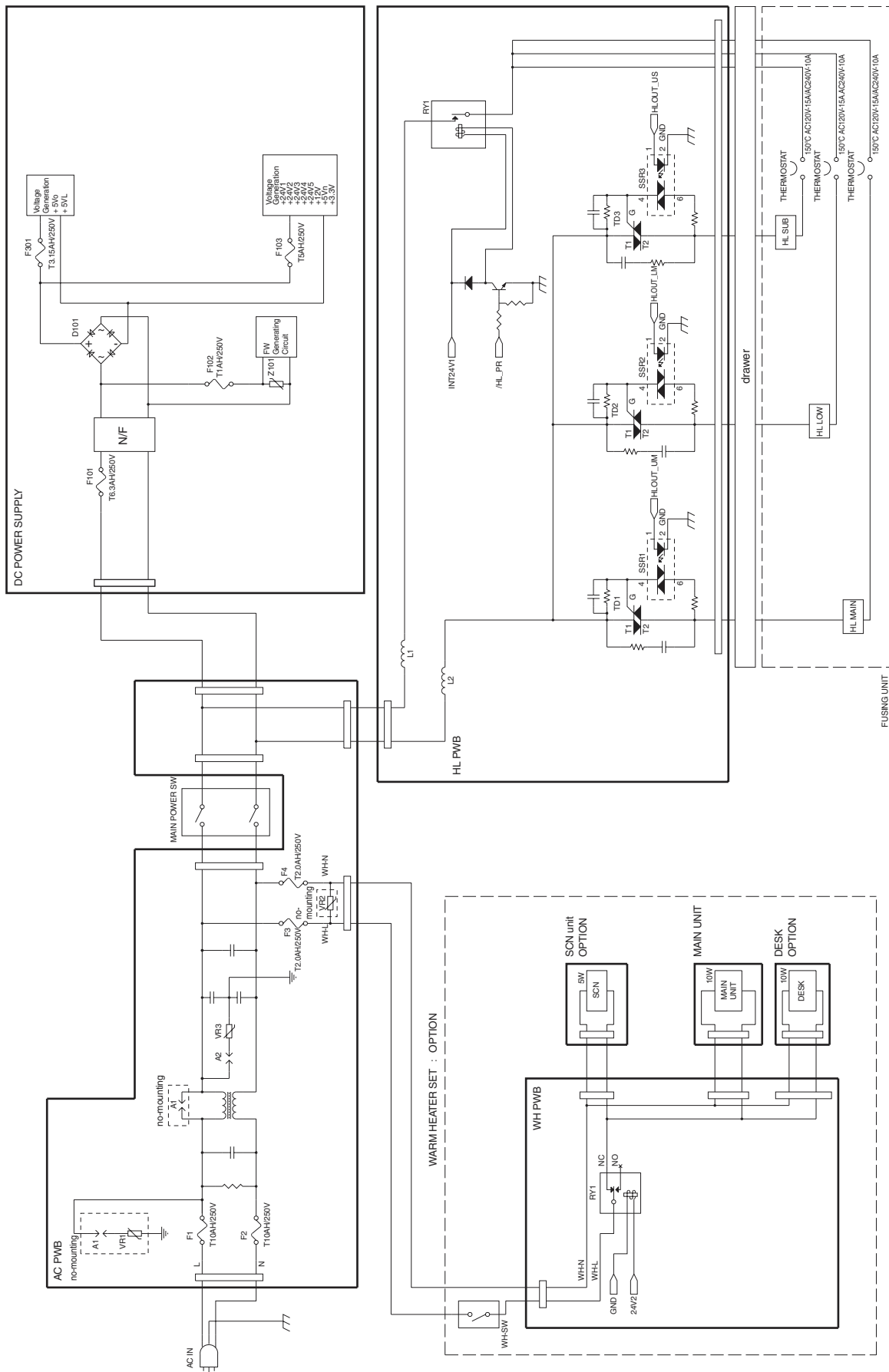
## D. Scanner control PWB



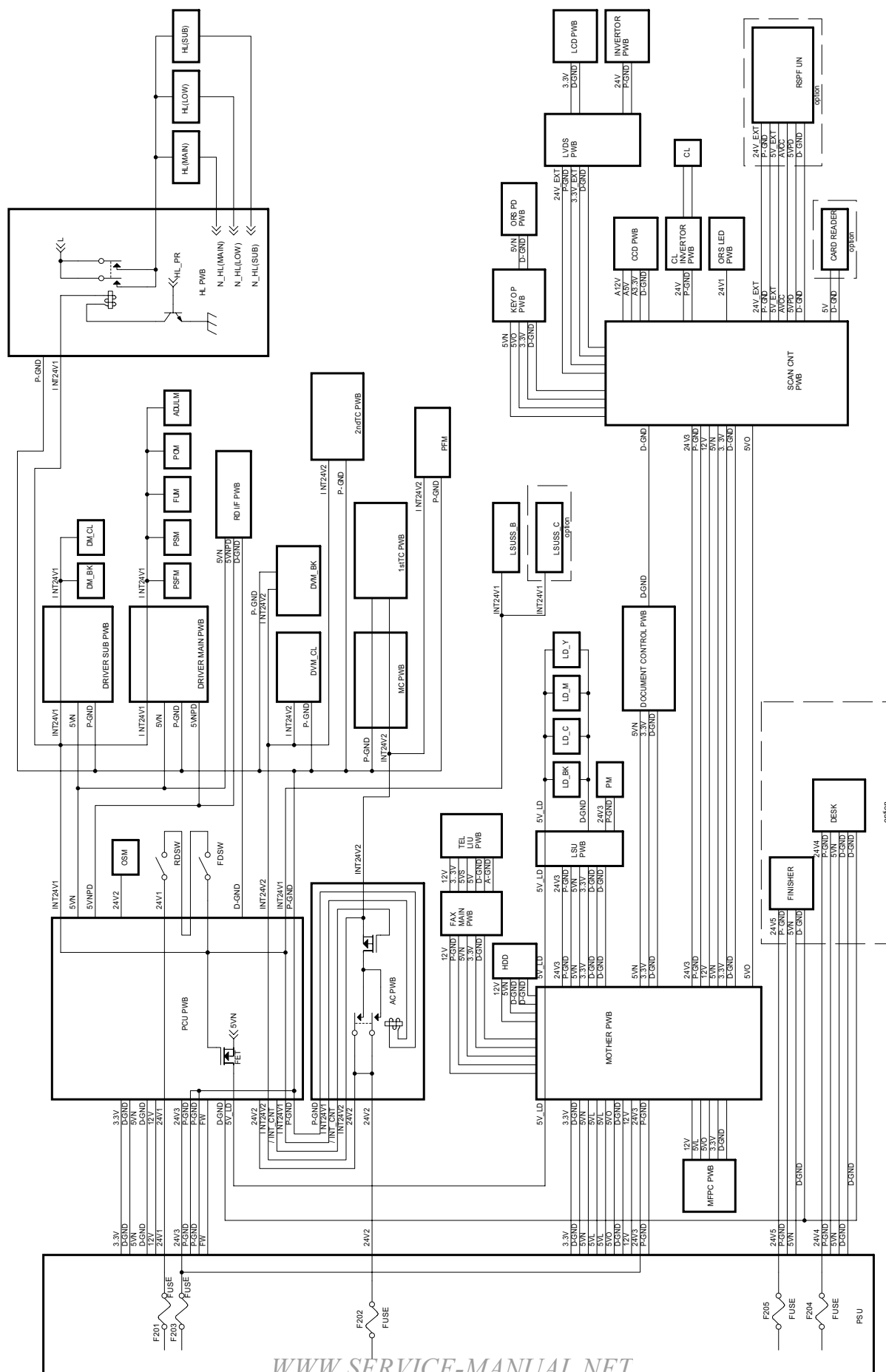
### E. Serial communication



## F. AC power line diagram

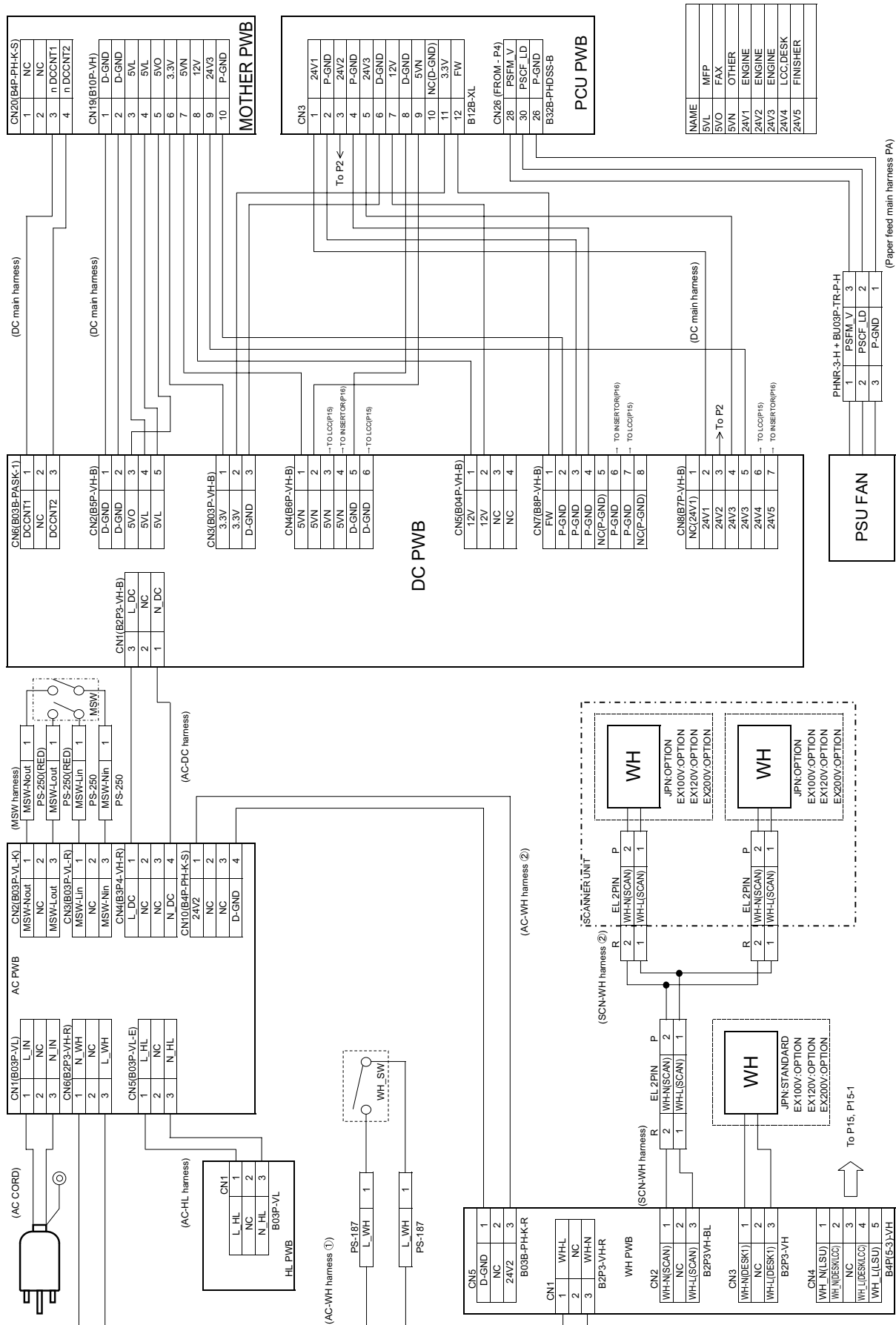


### G. DC power line diagram

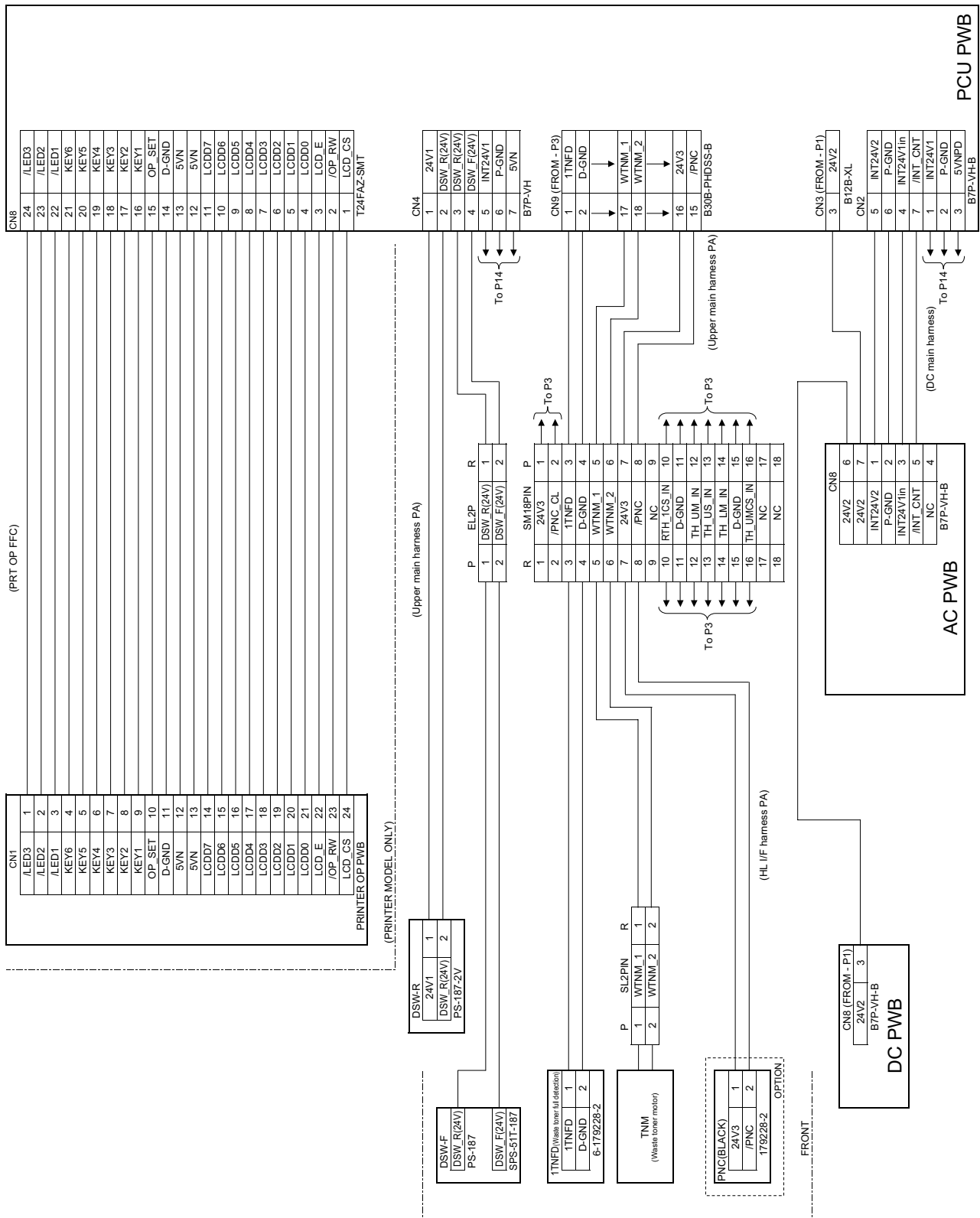


## 2. Actual wiring chart

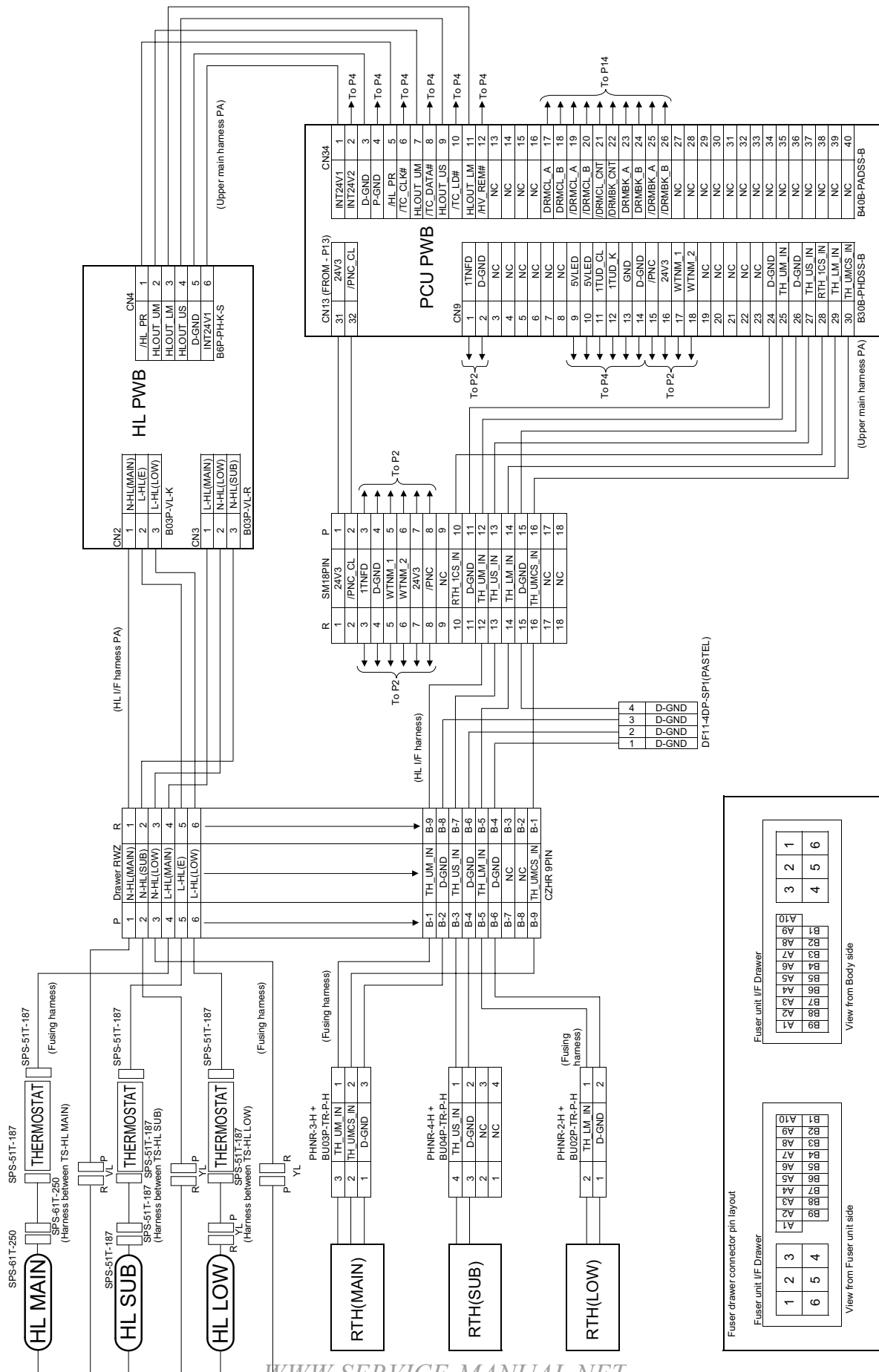
### A. Power supply section (P1)



### B. Front section (P2)

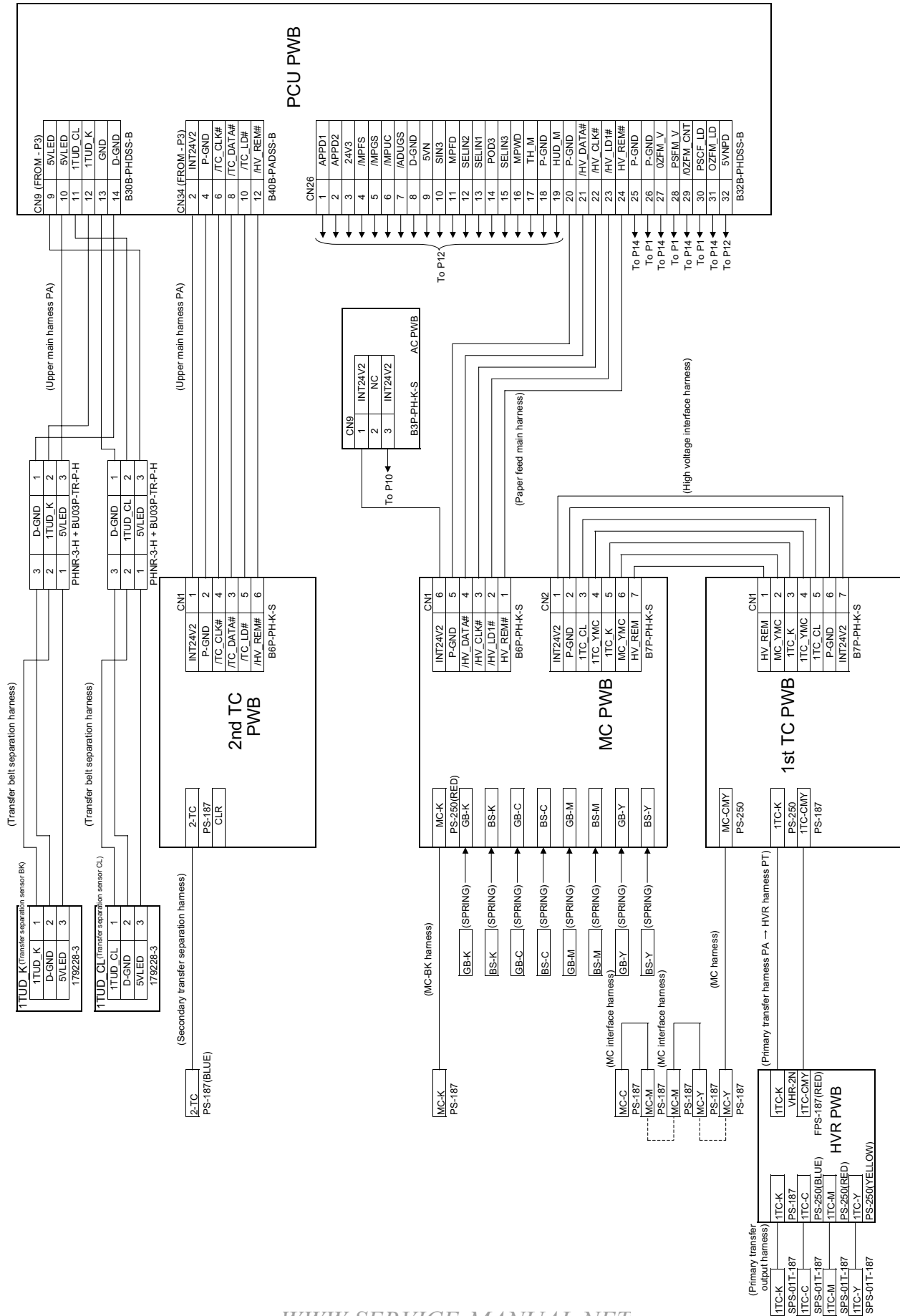


### C. Fusing unit section (P3)

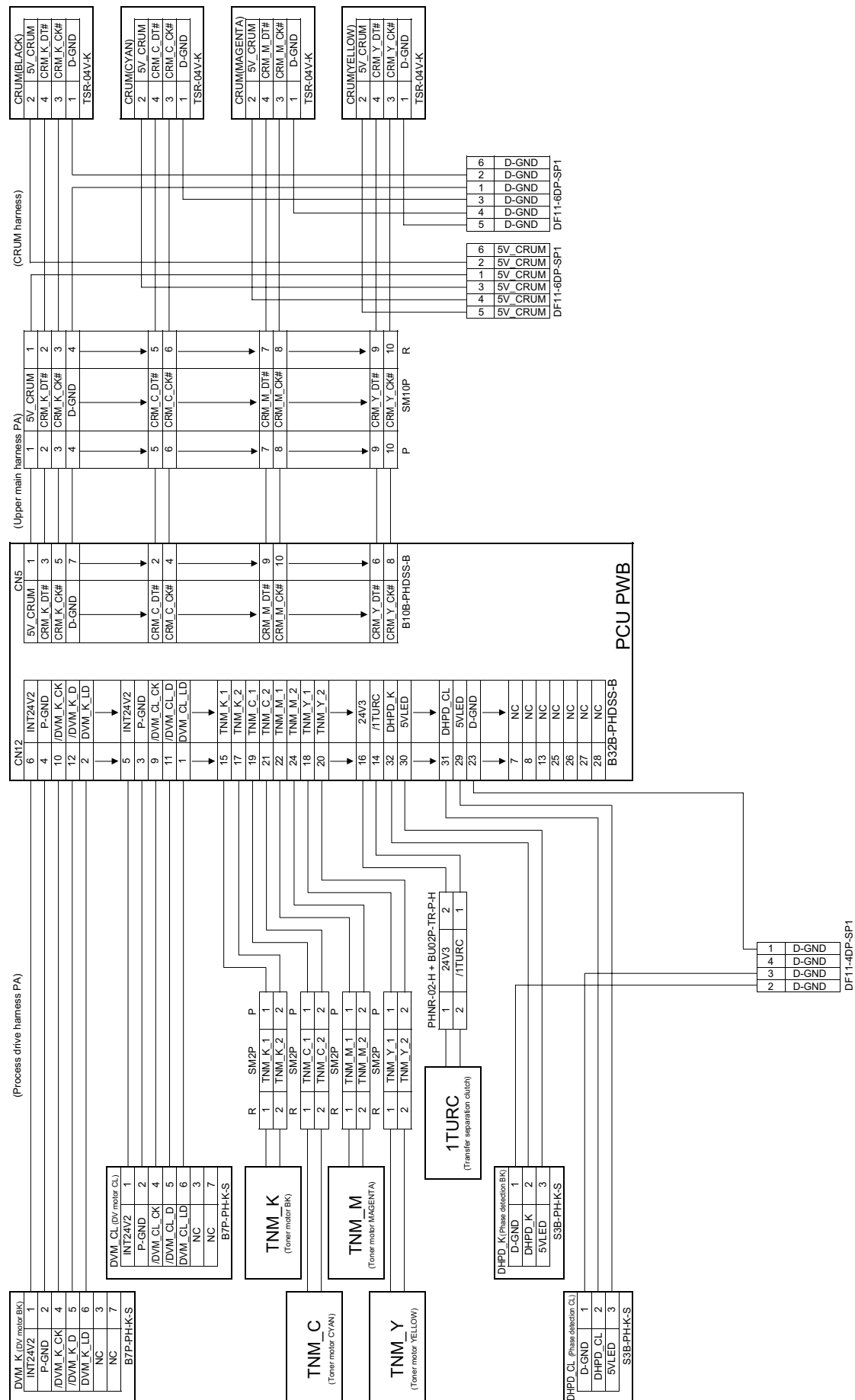




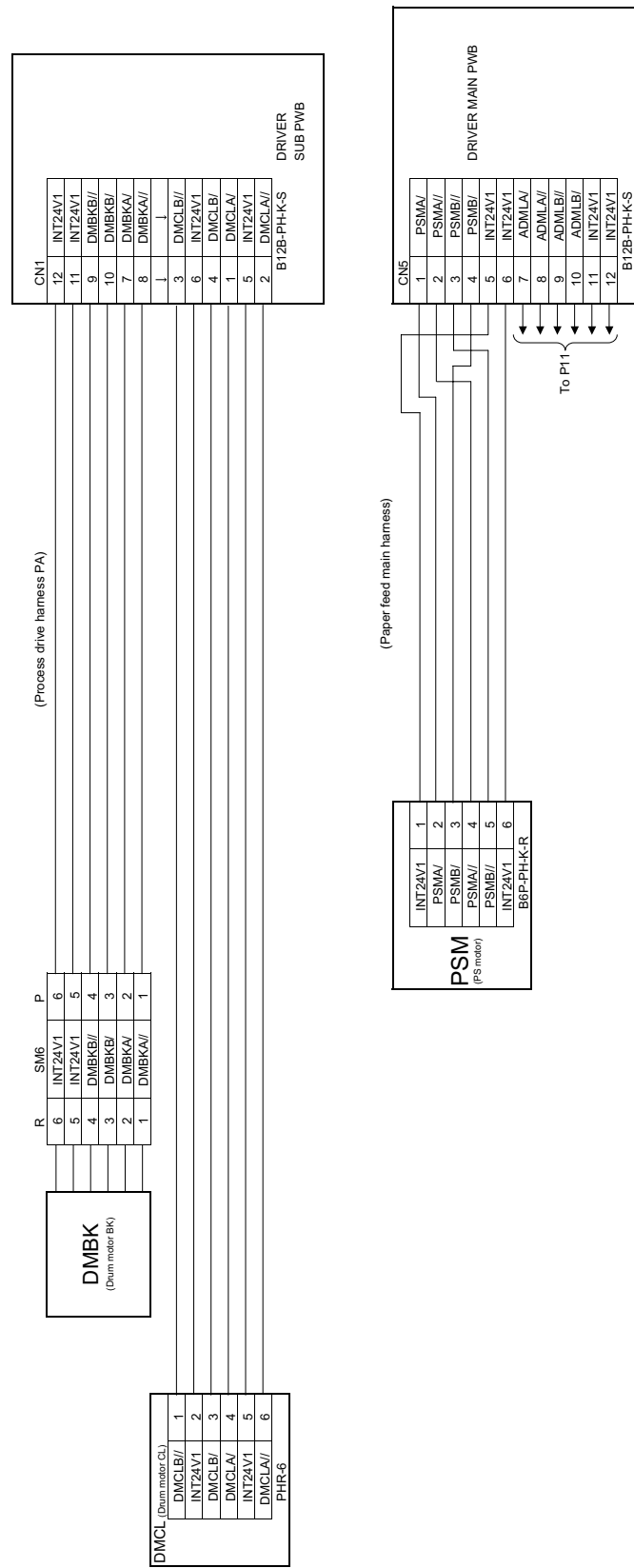
D. High voltage section (P4)



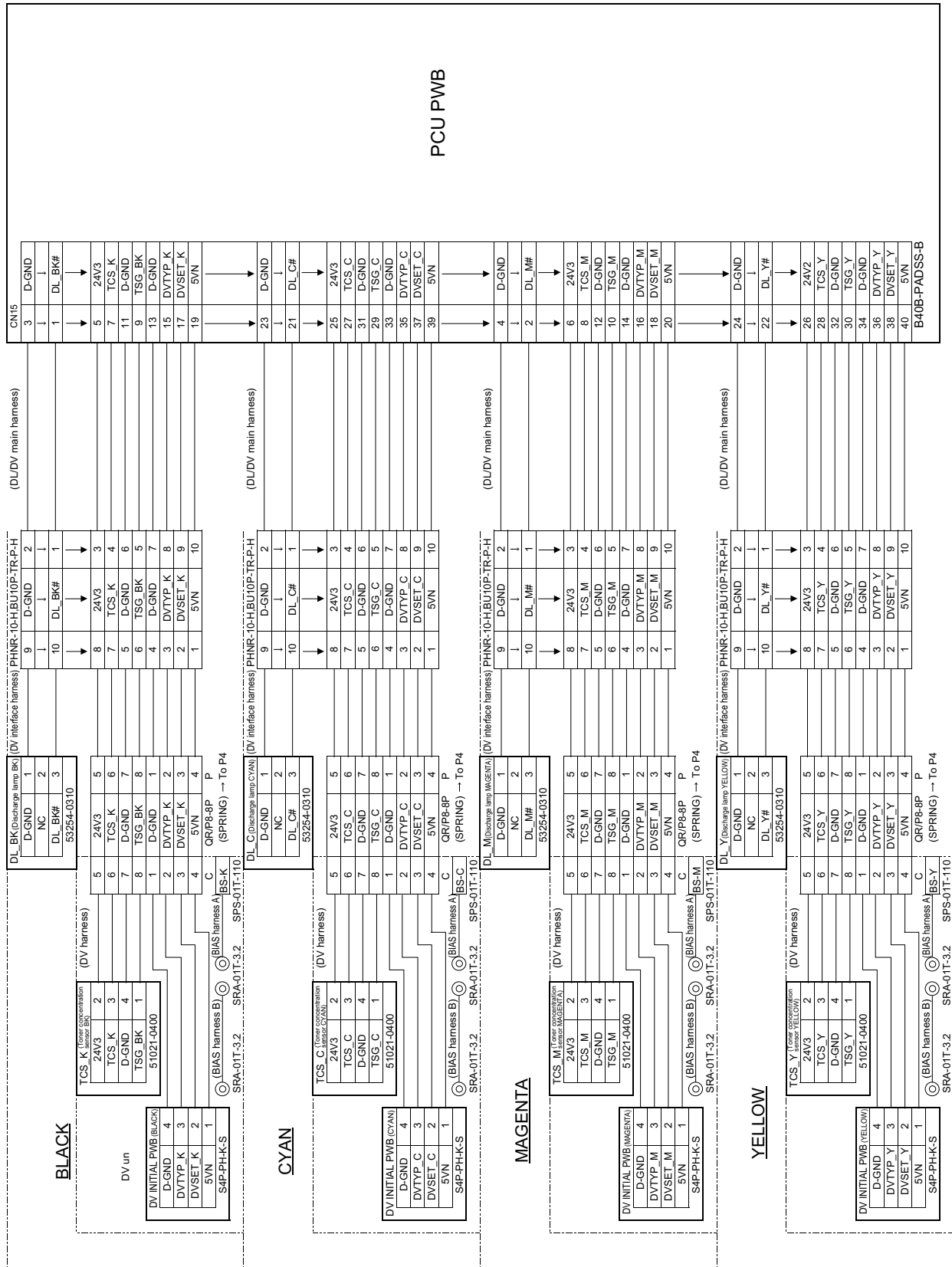
## E. Main drive unit section 1/2 (P5)



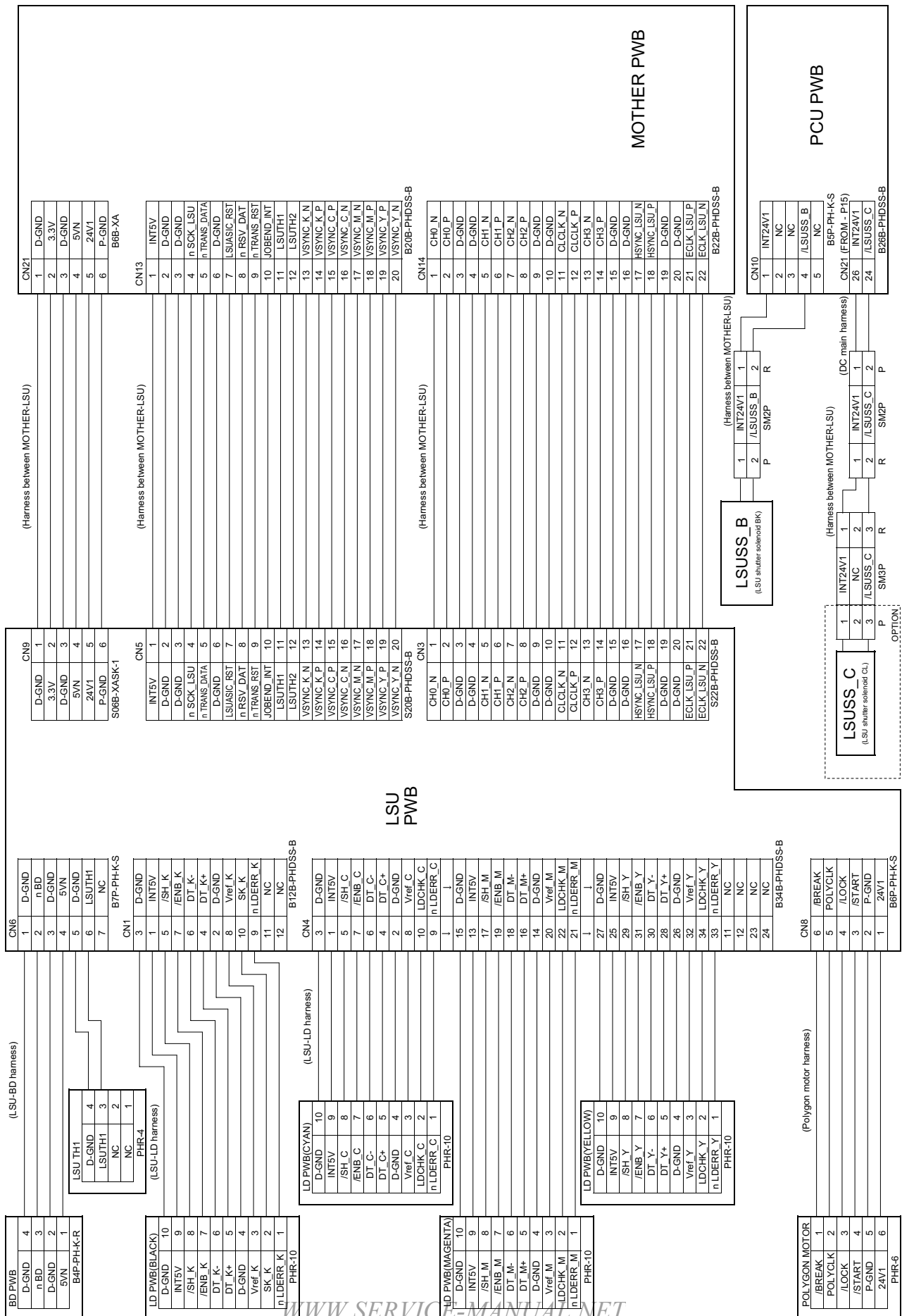
F. Main drive unit section 2/2 (P6)



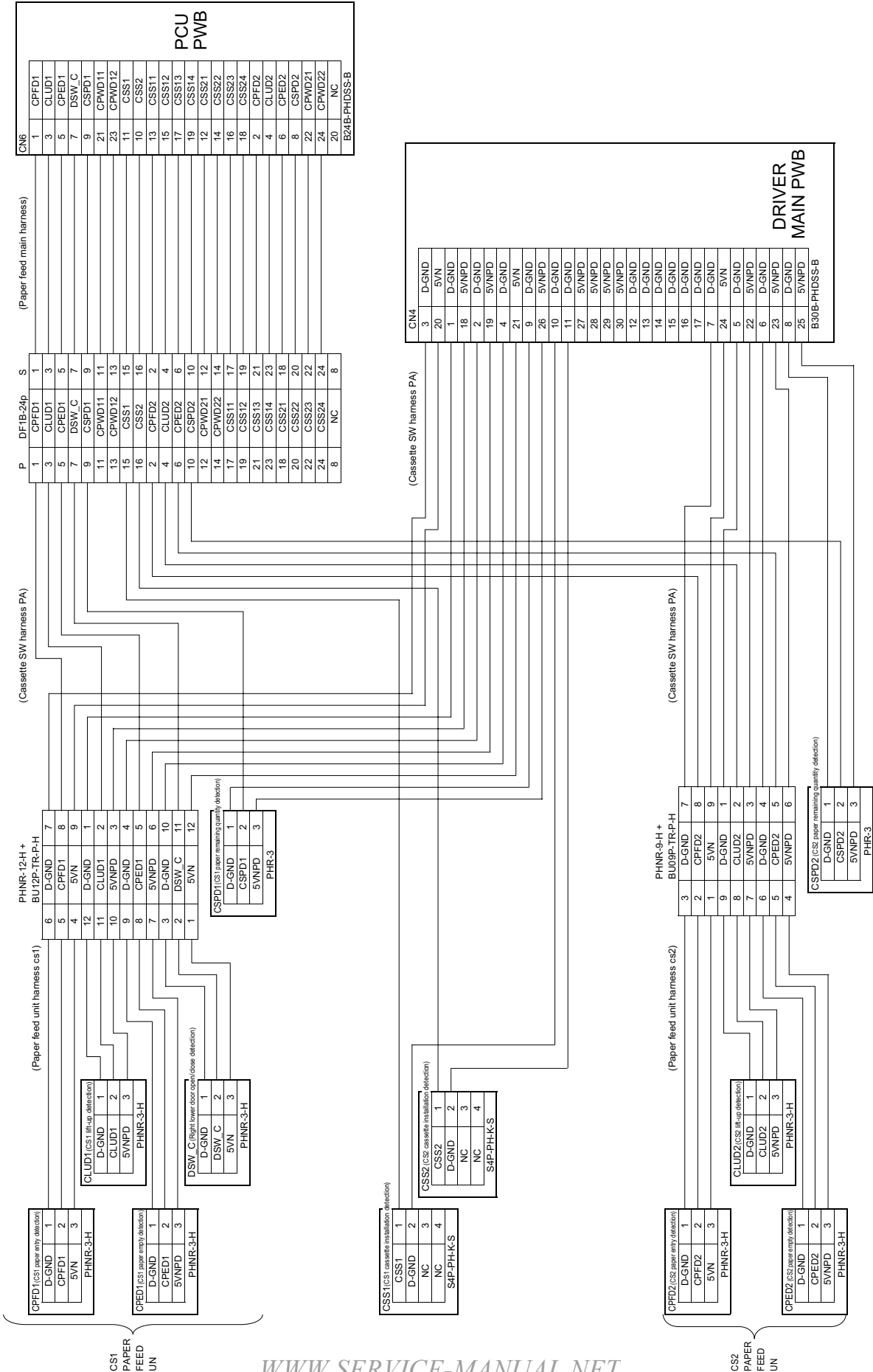
### G. DL & DV section (P7)



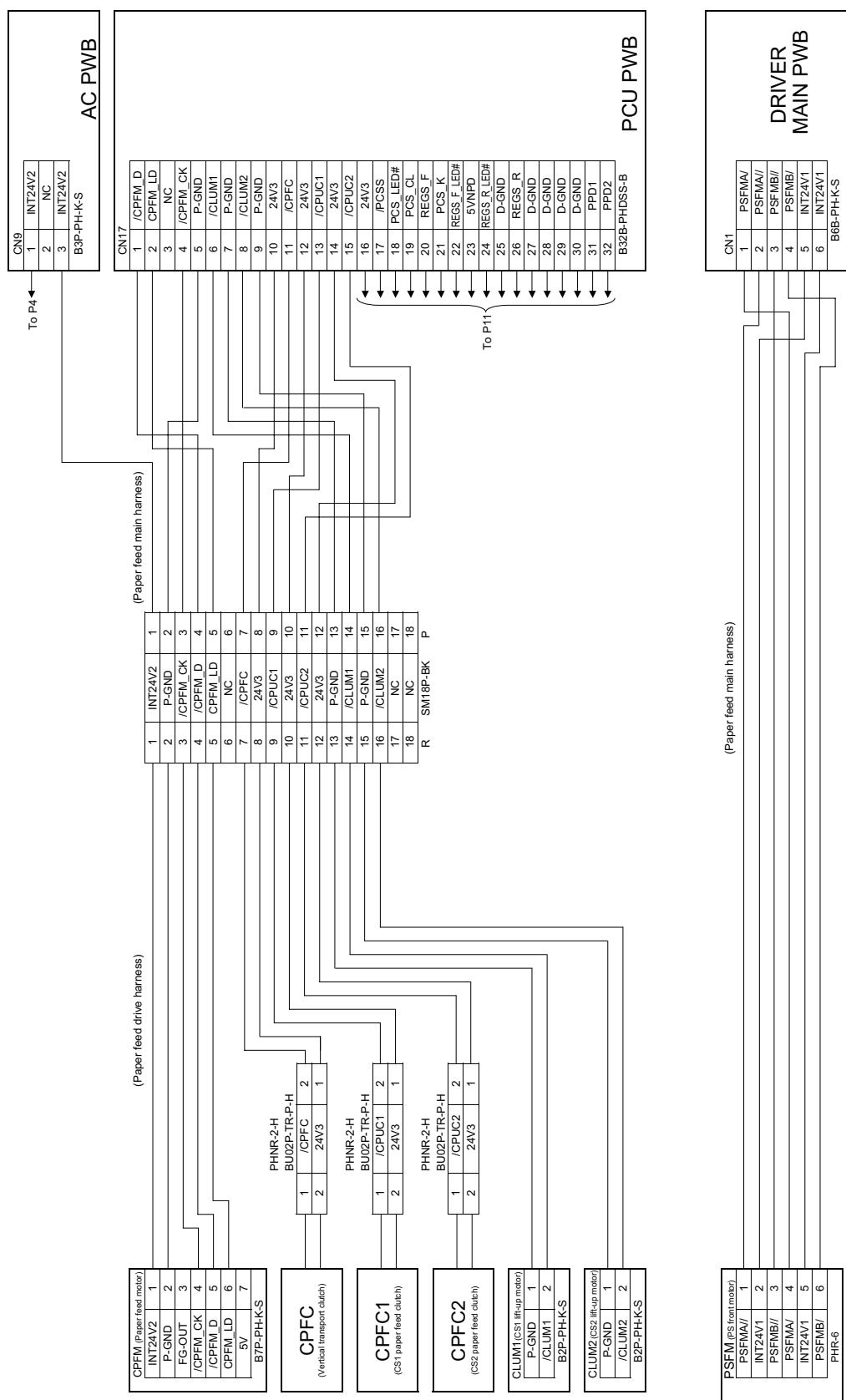
### H. LSU section (P8)



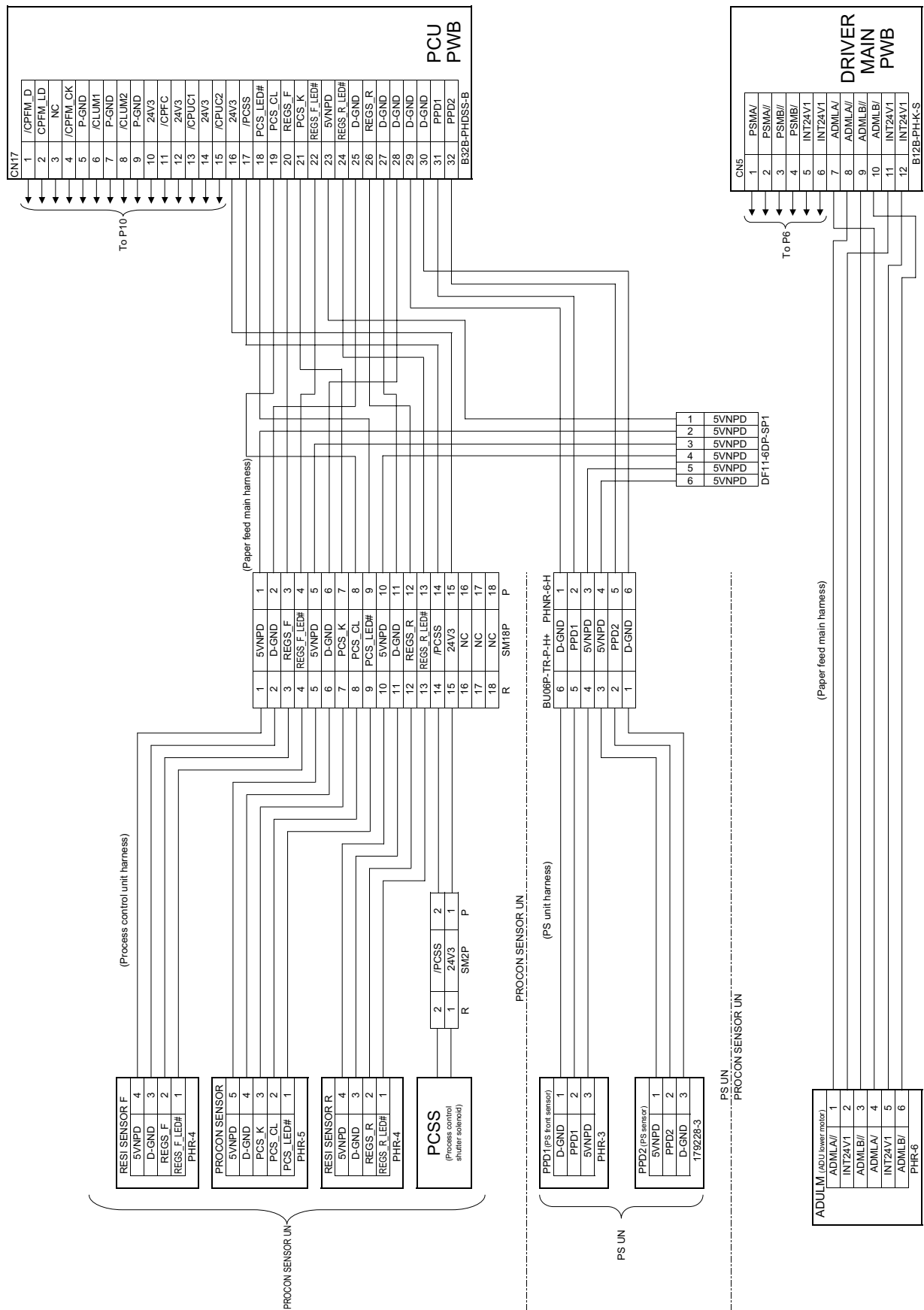
I. Paper feed unit section (P9)



## J. Paper feed drive unit section (P10)

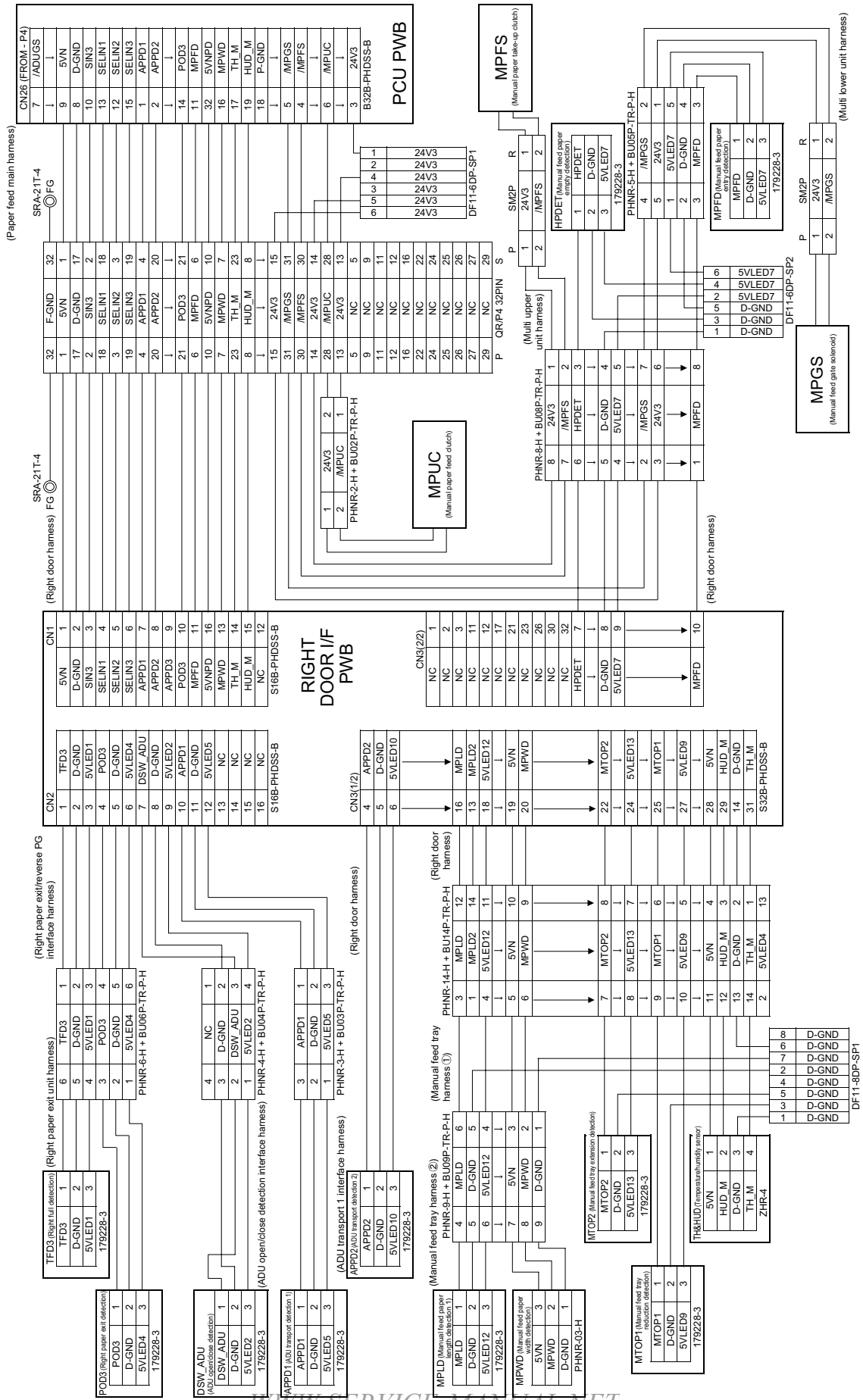


### K. PS unit & process control unit section (P11)

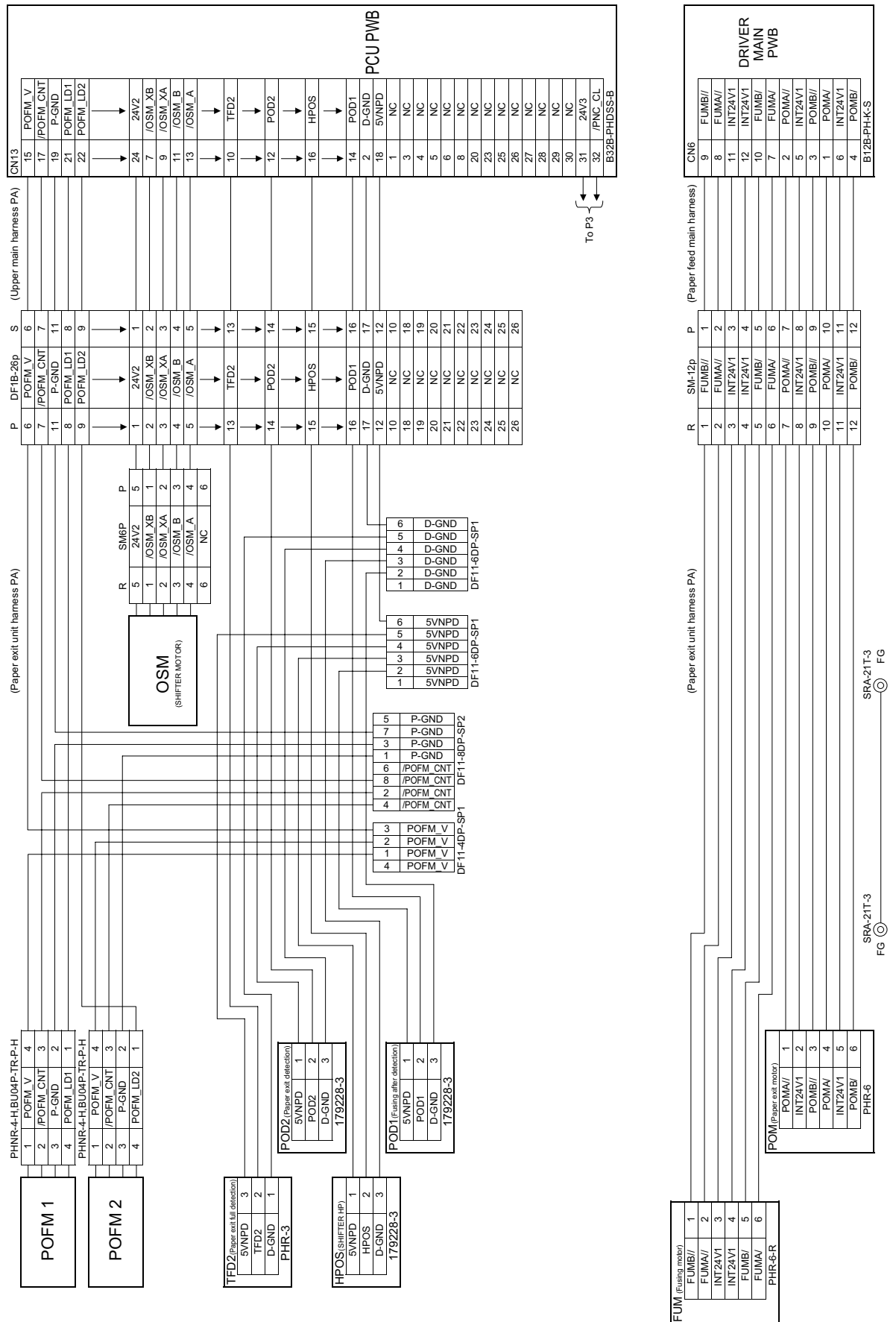




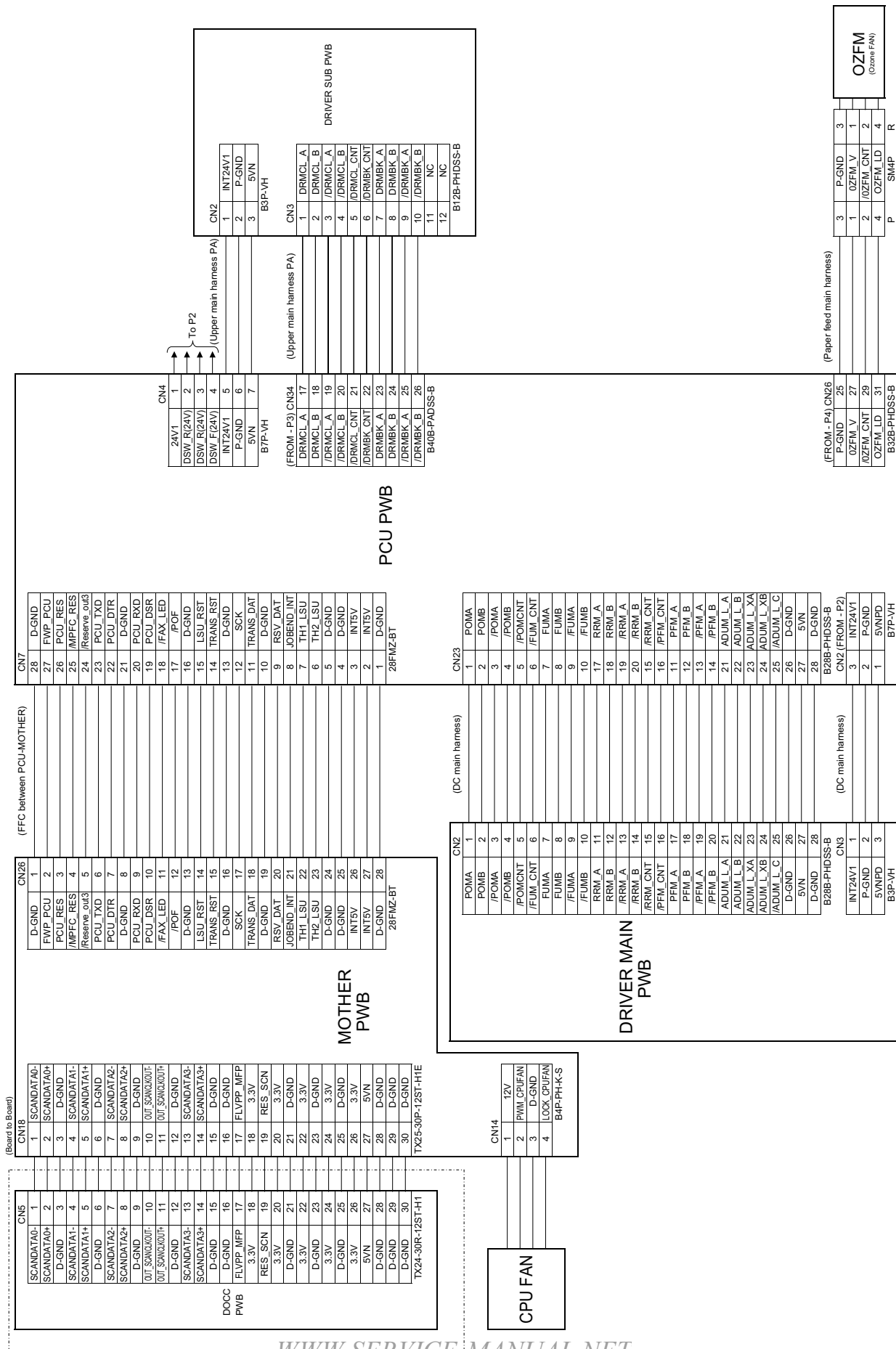
### L. Right door unit section (P12)



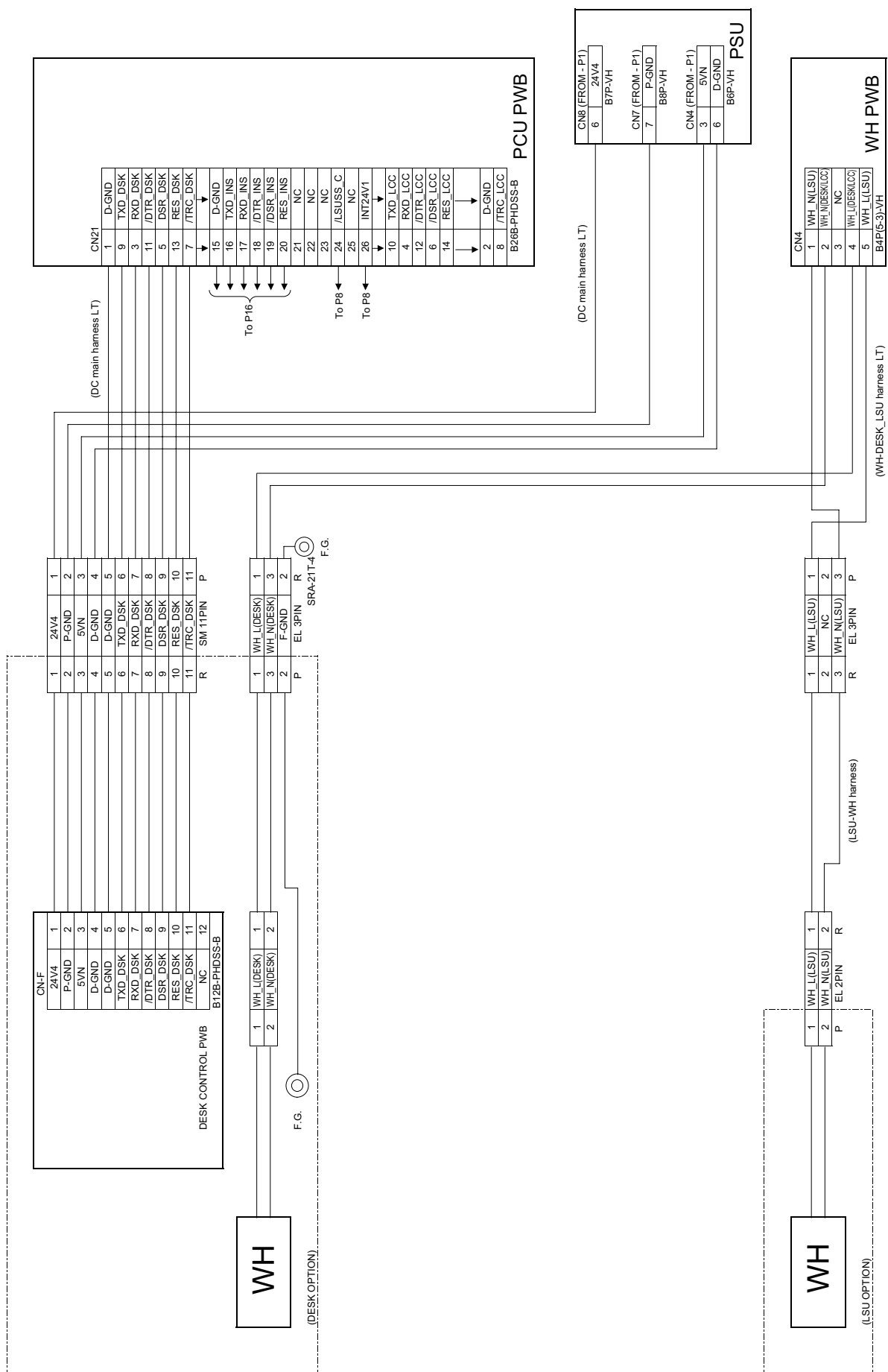
M. Paper exit unit section (P13)



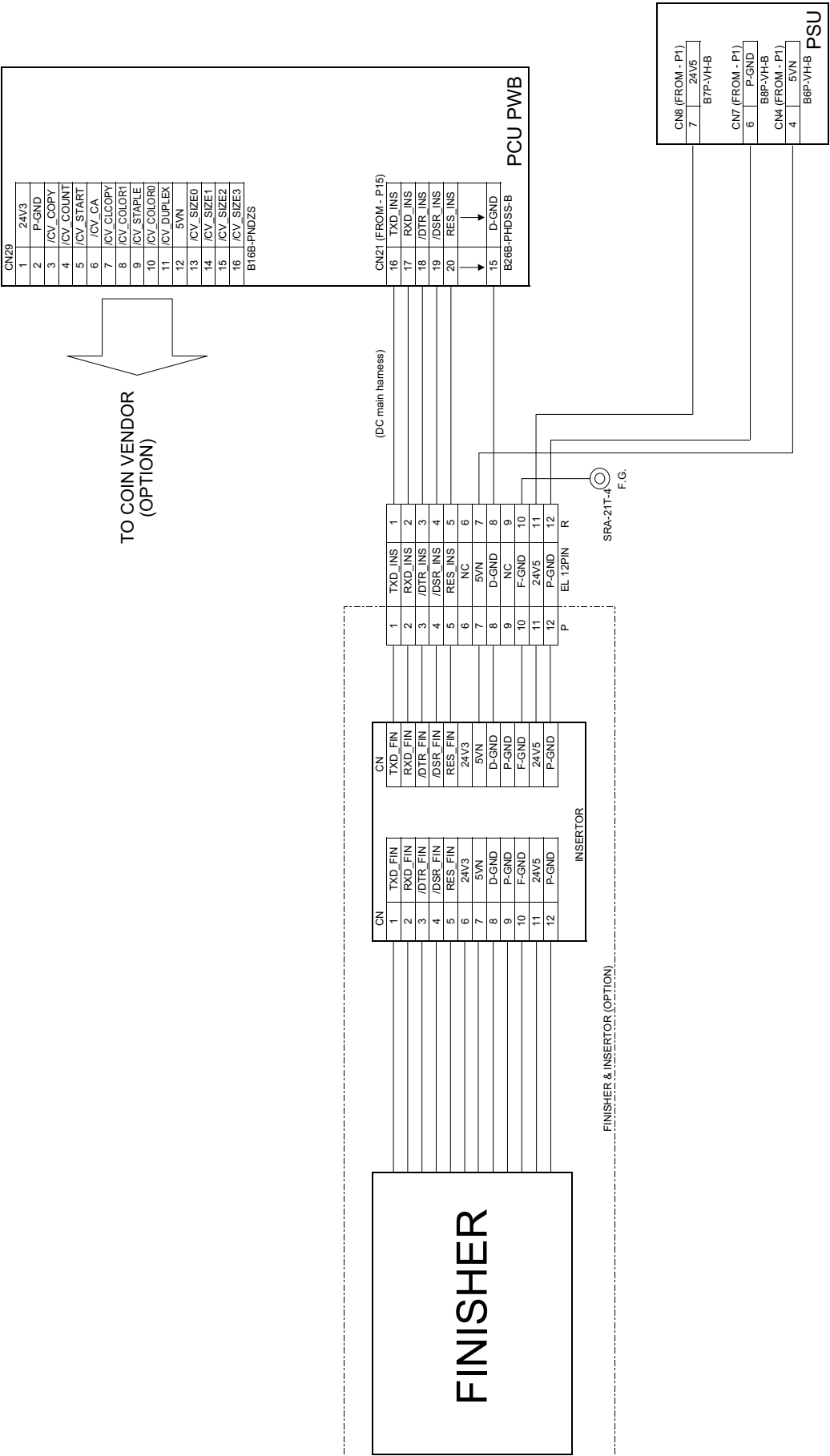
#### N. PCU PWB-other PWB (P14)



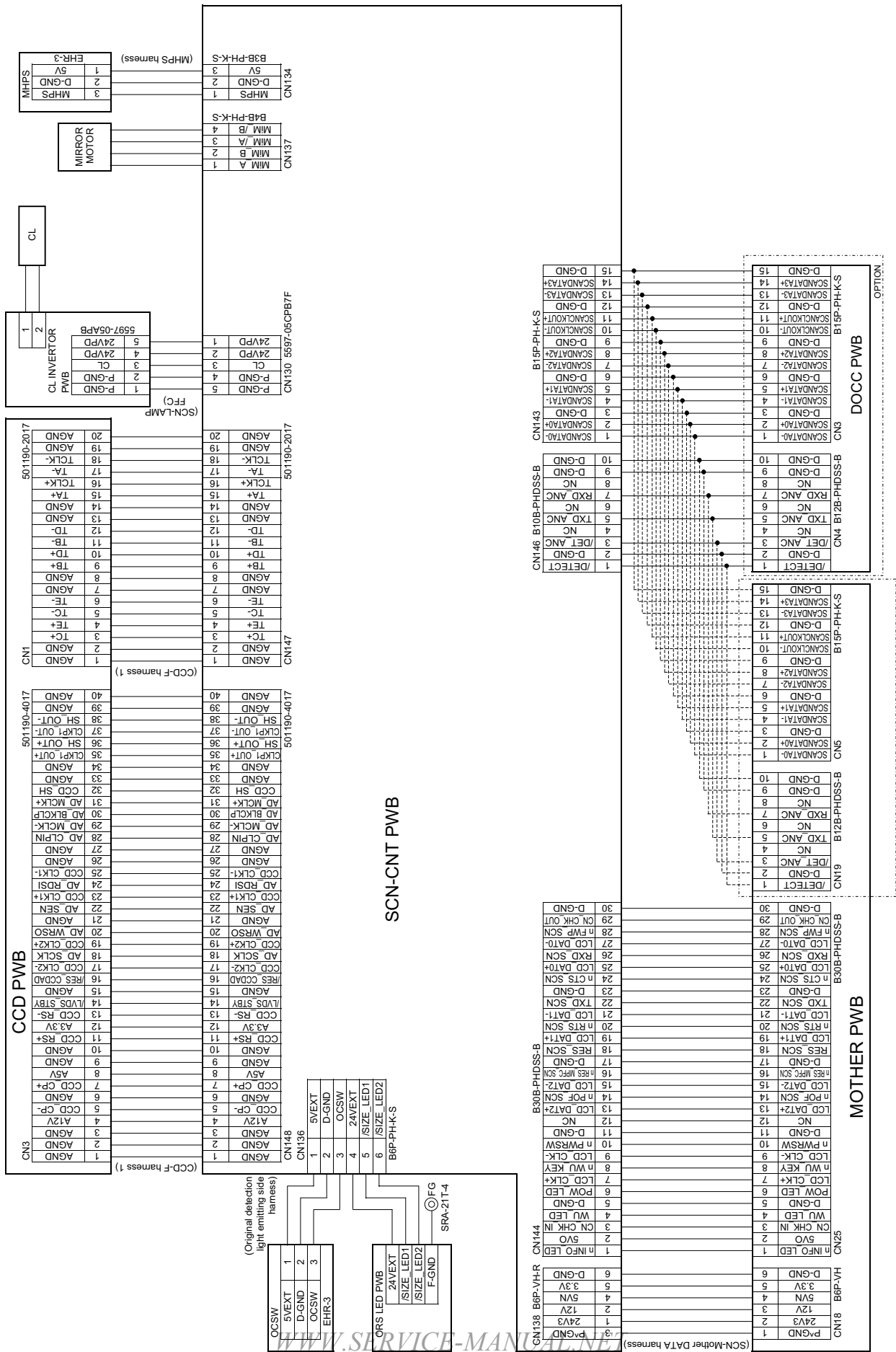
### O. DESK (P15)



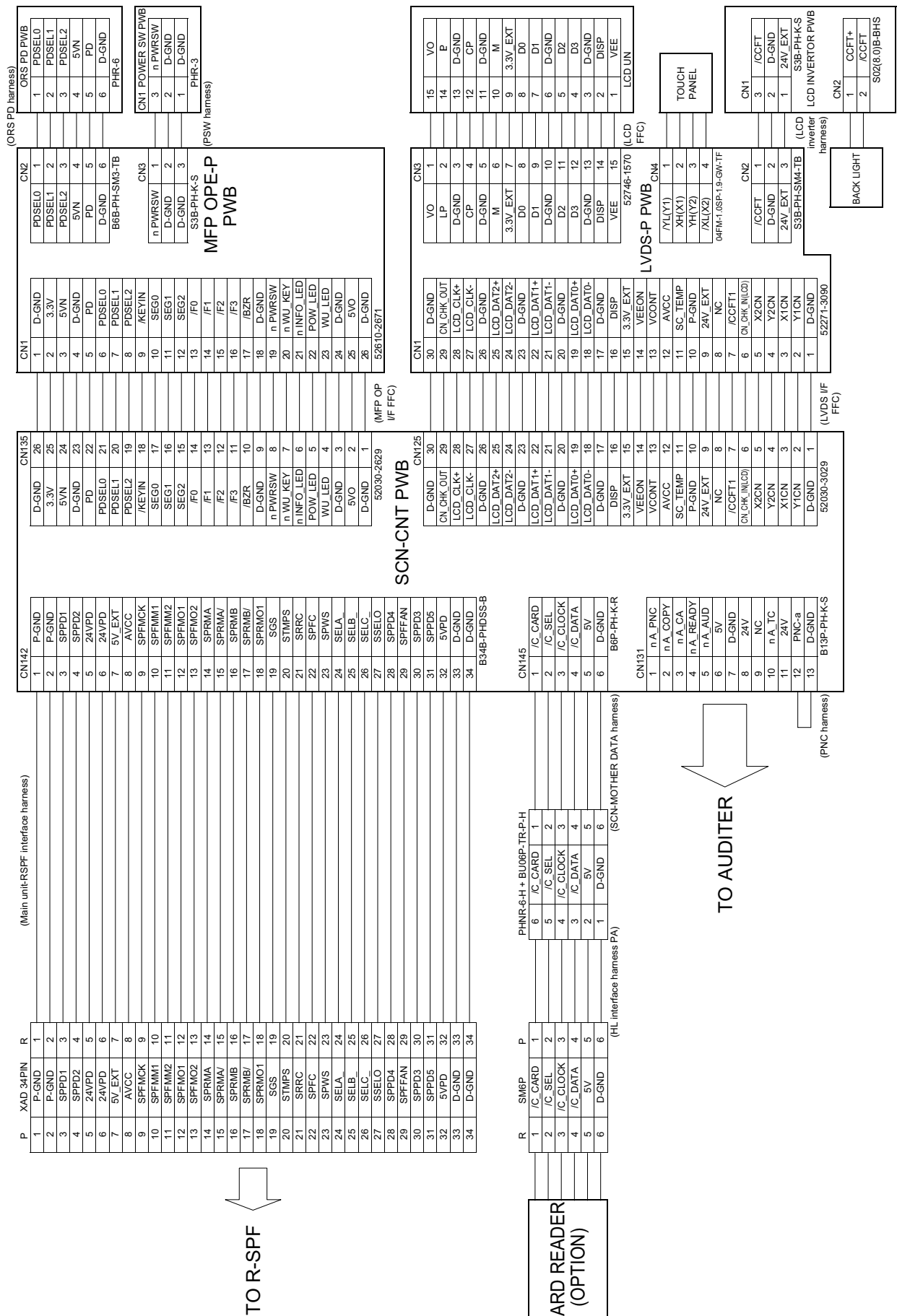
P. Finisher & coin vendor (P16)



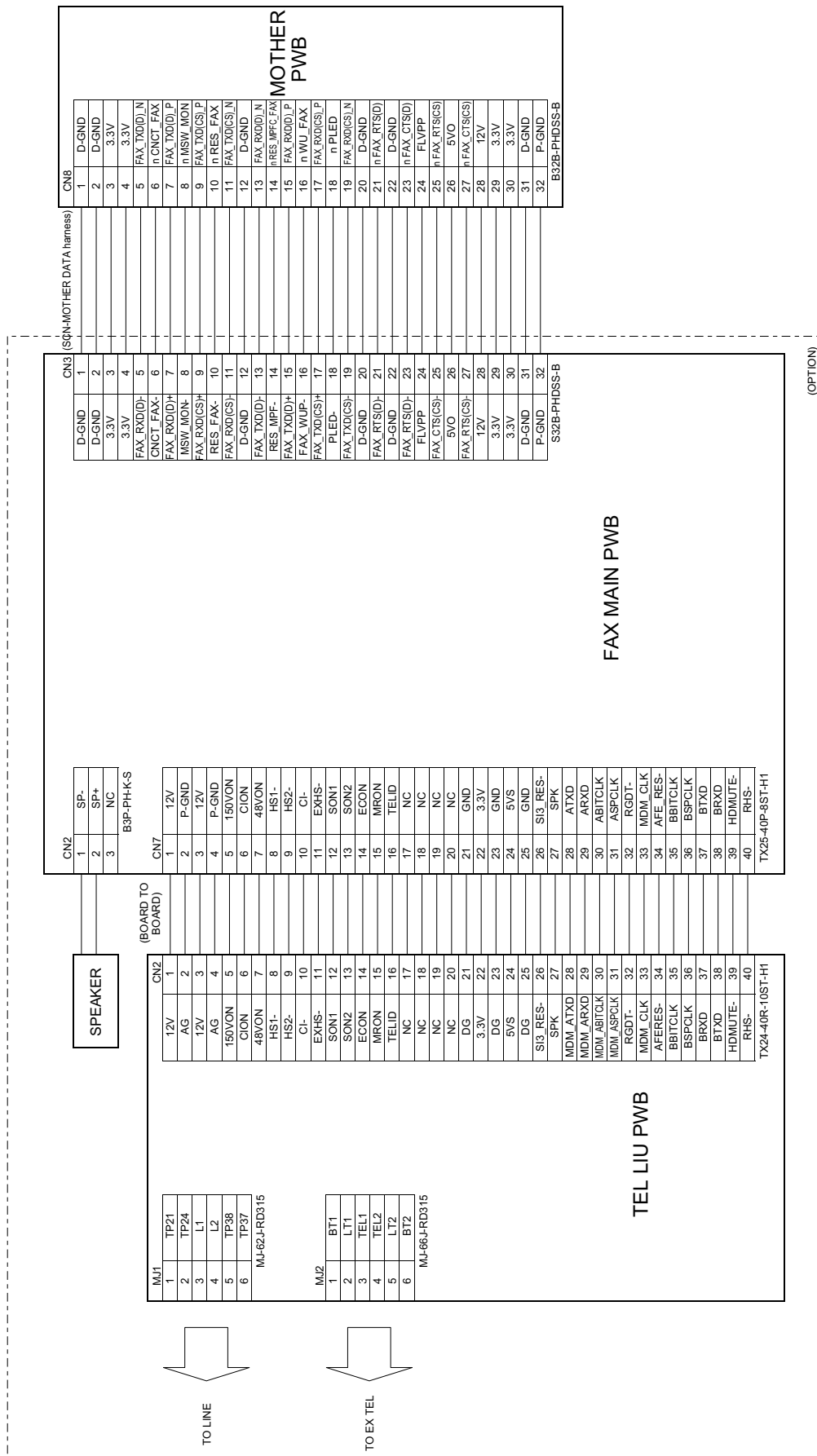
### Q. Scanner section 1/2 (P17)



### R. Scanner section 2/2 (P18)

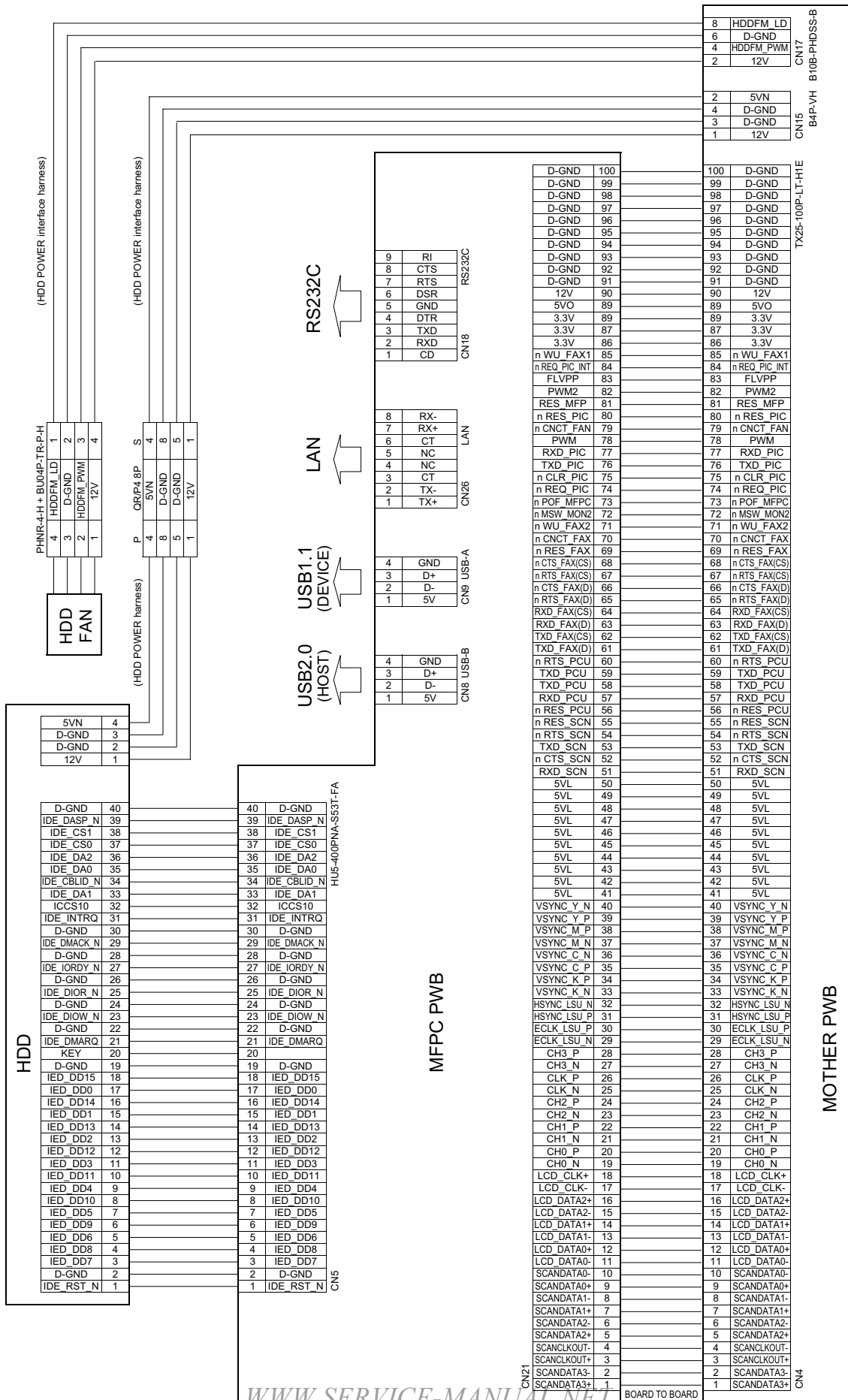


### S. FAX section (P19)





# T. MFP board section 1/2 (P20)



U. MFP board section 2/2 (P21)



CN19	
D-GND	1
D-GND	2
3.3V	3
3.3V	4
FAXD_TXD_N	5
n CNCT_FAX	6
FAXD_TXD_P	7
n MSW_MON	8
FAXCS_TXD_P	9
n RES_FAX	10
FAXCS_TXD_N	11
D-GND	12
FAXD_RXD_N	13
n RES_MFP	14
FAXD_RXD_P	15
n FAX_WUP	16
FAXCS_RXD_P	17
n PLED	18
FAXCS_RXD_N	19
D-GND	20
n FAXD_RTS	21
D-GND	22
n FAXD_CTS	23
FLVPP	24
n FAXCS_RTS	25
SVO	26
n FAXCS_CTS	27
12V	28
3.3V	29
3.3V	30
D-GND	31
D-GND	32
B32B-PHDS-B	

MFPC PWB

### 3. Signal list

Signal name	Name	Function/Operation	Connector level		Connector No.	Pin No.	PWB name	Note
			"L"	"H"				
1TNFD	Waste toner full detection switch [Mechanical switch]	Detects the waste toner full.	Empty	Full	CN9	1	CPU	
1TUD_CL	Transfer belt separation CL detection	Detects the transfer belt separation CL.	Separation	Contact	CN9	11	PCU	
1TUD_K	Transfer belt separation BK detection	Detects the transfer belt separation BK.	Separation	Contact	CN9	12	PCU	
1TURC	Primary transfer separation clutch [Electromagnetic clutch]	Controls the primary transfer separation mode.	Separation	Contact	CN12	14	PCU	
ADUM_L	ADU motor lower [Stepping motor]	Drives the right door section.	—	—	CN23	21, 22, 23, 24	PCU	Driven by pulse function of 4-phase
APPD1	ADU transport path detection 1 [Transmission type]	Detects the duplex (ADU) upstream paper pass.	Pass	—	CN26	1	PCU	
APPD2	ADU transport path detection 2 [Transmission type]	Detects the duplex (ADU) midstream paper pass.	Pass	—	CN26	2	PCU	
CCFT1	LCD backlight [CCFT cool cathode ray tube]	Backlight for the CCD	ON	OFF	CN125	7	SCU	
CLI	Scanner lamp [Xenon lamp]	Radiates lights onto a document for the CCD to scan document images.	ON	OFF	CN130	3	SCU	
CLUD1	Tray 1 upper limit detection (Lift HP detection) [Transmission type]	Detects tray 1 upper limit .	—	Upper Limit	CN6	3	PCU	
CLUD2	Tray 2 upper limit detection (Lift HP detection) [Transmission type]	Detects tray 2 upper limit.	—	Upper Limit	CN6	4	PCU	
CLUM1	Paper tray lift-up motor (Paper feed tray 1) [DC brush-less motor]	Drives the lift plate of the paper feed tray.	Motor Stop	Motor Drive	CN17	6	PCU	
CLUM2	Paper tray lift-up motor (Paper feed tray 2) [DC brush-less motor]	Drives the lift plate of the paper feed tray.	Motor Stop	Motor Drive	CN17	8	PCU	
CPED1	Tray 1 paper empty detection [Transmission type]	Detects tray 1 paper empty.	Exist	Empty	CN6	5	PCU	
CPED2	Tray 2 paper empty detection [Transmission type]	Detects tray 2 paper empty.	Exist	Empty	CN6	6	PCU	
CPFC	Tray vertical transport clutch [Electromagnetic clutch]	Controls ON/OFF of the paper transport roller in the paper feed tray section.	ON	OFF	C17	11	PCU	
CPFD1	Tray 1 transport detection (Paper entry detection) [Transmission type]	Detects tray 1 paper pass.	Pass	—	CN6	1	PCU	
CPFD2	Tray 2 transport detection (Paper entry detection) [Transmission type]	Detects tray 2 paper pass.	Pass	—	CN6	2	PCU	
CPFM	Paper feed motor [Brush-less motor]	Drives the paper feed section.	Motor Drive	Motor Stop	CN17	1	PCU	
CPFM LD	CPFM Lock detect	CPFM Lock detect	—	Motor Lock	CN17	2	PCU	
CPUC1	Paper feed clutch (Paper feed tray 1) [Electromagnetic clutch]	Controls ON/OFF of the roller in the paper feed tray 1 section.	ON	OFF	CN17	13	PCU	
CPUC2	Paper feed clutch (Paper feed tray 2) [Electromagnetic clutch]	Controls ON/OFF of the roller in the paper feed tray 2 section.	ON	OFF	CN17	15	PCU	
CPUFM	Controller cooling fan motor	Cools the controller PWB.						
CSPD1	Tray 1 paper remaining quantity detection	Detects tray 1 paper remaining quantity.	Remaining	—	CN6	9	PCU	During LiftUp
CSPD2	Tray 2 paper remaining quantity detection	Detects tray 2 paper remaining quantity.	Remaining	—	CN6	8	PCU	During LiftUp
CSS1	Tray 1 installation detection	Detects the tray 1.	Exist	None	CN6	11	PCU	
CSS2	Tray 2 installation detection	Detects the tray 2.	Exist	None	CN6	10	PCU	
DHPD_CL	CL phase detection	Detects the CL phase.	—	Standard	CN12	31	PCU	
DHPD_K	BK phase detection	Detects the BK phase.	—	Standard	CN12	32	PCU	
DL_C	Discharge lamp C [LED]	Discharges electric charges on the OPC drum.	OFF	ON	CN15	21	PCU	
DL_K	Discharge lamp K [LED]	Discharges electric charges on the OPC drum.	OFF	ON	CN15	1	PCU	

Signal name	Name	Function/Operation	Connector level		Connector No.	Pin No.	PWB name	Note
			"L"	"H"				
DL_M	Discharge lamp M [LED]	Discharges electric charges on the OPC drum.	OFF	ON	CN15	2	PCU	
DL_Y	Discharge lamp Y [LED]	Discharges electric charges on the OPC drum.	OFF	ON	CN15	22	PCU	
DL_K	Discharge lamp K [LED]	Discharges electric charges on the OPC drum.	OFF	ON	CN15	1	PCU	
DM_CL	Drum motor (CL) [Stepping motor]	Drives the color OPC drum unit.	—	—	CN34	17, 18, 19, 20	PCU	Driven by pulse function of 4-phase
DM_K	Drum motor (K) [Stepping motor]	Drives the black OPC drum unit.	—	—	CN34	23, 24, 25, 26	PCU	Driven by pulse function of 4-phase
DSW_ADU	ADU transport open/close detection [Transmission type]	Detects the duplex (ADU) cover open/close.	Open	Close	CN2	7	RD I/F	
DSW_C	Tray 1 and 2 transport cover open/close detection	Detects the tray 1 and 2 transport cover open/close.	Open	Close	CN6	5	PCU	
DSW-F	Front door open/close switch [Micro switch]	Detects open/close of the front door, and turns ON/OFF the power line of the fusing motor and the LSU laser.	Open	Close	CN4	4	PCU	
DSW-R	Right door open/close switch [Micro switch]	Detects open/close of the right door, and turns ON/OFF the power line of the fusing motor and the LSU laser.	Open	Close	CN4	3	PCU	
DVM_CL	Developing drive motor (CL) [Brush-less motor]	Drives the developing section (CL).	Motor Drive	Motor Stop	CN12	11	PCU	
DVM_CL LD	Detect motor lock	Detect motor lock	—	Motor Lock	CN12	1	PCU	
DVM_K	Developing drive motor (K) [Brush-less motor]	Drives the developing section/ transfer section (K).	Motor Drive	Motor Stop	CN12	12	PCU	
DVM_K LD	Detect motor lock	Detect motor lock	—	Motor Lock	CN12	2	PCU	
F1	Fuse (20A 125V)						AC power PWB	
F1	Fuse (200mA 250V)						LCD INV PWB	
F1	Fuse (1.25A250V)						CL inverter PWB	
F2	Fuse (20A 125V)						AC power PWB	
F3	Fuse (T2AH250V)						AC power PWB	
F4	Fuse (T2AH250V)						AC power PWB	
F101	Fuse (125V 12A)						DC power PWB	
F102	Fuse (T1AH250V)						DC power PWB	
F103	Fuse (T8AH250V)						DC power PWB	
F201	Fuse (T6.3AH250V)						DC power PWB	
F202	Fuse (T6.3AH250V)						DC power PWB	
F203	Fuse (T6.3AH250V)						DC power PWB	
F204	Fuse (T6.3AH250V)						DC power PWB	
F205	Fuse (T6.3AH250V)						DC power PWB	
F301	Fuse (T5AH250V)						DC power PWB	
FUM	Fusing drive motor [Stepping motor]	Drives the fusing unit.	—	—	CN23	7, 8, 9, 10	PCU	* Driven by pulse function of 4-phase
HDDFM	HDD cooling fan motor	Cools the HDD.						
HL_LM	Heater lamp lower main	Heats the lower heat roller. (Main)	OFF	ON	CN34	11	PCU	
HL_UM	Heater lamp upper main	Heats the upper heat roller. (Main)	OFF	ON	CN34	7	PCU	
HL_US	Heater lamp upper sub	Heats the upper heat roller. (Sub)	OFF	ON	CN34	9	PCU	
HLTS1	Thermostat (Fusing unit)	Prevents against overheating of the fusing roller.						

Signal name	Name	Function/Operation	Connector level		Connector No.	Pin No.	PWB name	Note
			"L"	"H"				
HLTS2	Thermostat (Fusing unit)	Prevents against overheating of the fusing roller.						
HLTS3	Thermostat (Fusing unit)	Prevents against overheating of the fusing roller.						
HOPS	Shifter home position detection	Detects the shifter home position.	—	Home position	CN13	16	PCU	
LSUSS1	LSU shutter solenoid [Electromagnetic solenoid]	Opens/closes the LSU shutter.	Open	Close	CN10	4	PCU	
MHPS	Scanner home position sensor [Transmission type]	Detects the scanner home position.	—	Home position	CN134	1	SCU	
MIM	Scanner motor [Stepping motor]	Drives the scanner (reading) section.	—	—	CN137	1, 2, 3, 4	SCU	
MPED	Manual feed paper empty detection [Transmission type]	Detects the manual feed paper empty.	Exist	Empty	CN3	7	RD I/F	
MPFD	Manual feed paper entry detection [Transmission type]	Detects the manual feed paper entry.	Pass	—	CN26	11	PCU	
MPFS	Paper pickup solenoid (Manual paper feed) [Electromagnetic solenoid]	Paper pickup solenoid (Manual paper feed)	Paper pick-up	—	CN26	4	PCU	
MPGS	Manual paper feed gate solenoid [Electromagnetic solenoid]	Controls open/close of the manual paper feed gate solenoid.	ON	OFF	CN26	5	PCU	
MPLD	Manual feed paper length detector	Detects the manual paper feed tray paper length.	Detect	—	CN3	16	RD I/F	Manual paper feed unit
MPUC	Manual paper feed clutch [Electromagnetic clutch]	Controls ON/OFF of the manual paper feed roller in the manual paper feed section.	ON	OFF	CN26	6	PCU	
MPWD	Manual paper feed tray paper width detector [Volume resistor]	Detects the manual paper feed tray paper width.	—	—	CN26	16	PCU	Analog detect
MSW	Main SW [Seesaw switch]	Turns ON/OFF the main DC power source.						
MTOP1	Manual paper feed tray pull-out position detector 1 [Transmission type]	Detects the manual paper feed tray paper pull-out position (storing position).	—	Store	CN3	25	RD I/F	Manual paper feed unit
MTOP2	Manual paper feed tray pull-out position detector 1 [Transmission type]	Detects the manual paper feed tray paper pull-out position (pull-out position).	—	Pullout	CN3	22	RD I/F	Manual paper feed unit
OCSW	Original cover SW [Transmission type]	Document size detection trigger.	Close	Open	CN136	3	SCU	
OSM	Shifter motor [Stepping motor]	Performs offset of paper.	—	—	CN13	7, 9, 11, 13	PCU	Driven by pulse function of 4-phase
OZFM	Ozone fan motor	Exhausts ozone.	Motor Stop	Motor Drive	CN26	27	PCU	
OZFM_CNT	OZFM speed control	OZFM speed control	—	—	CN26	29	PCU	Pulse (Duty) function
OZFM_LD	OZFM lock detect	OZFM lock detect	—	Motor Lock	CN26	31	PCU	
PCS_CL/K	Process control sensor [Reflection type]	Detects the toner patch density.	—	—	CN17	19, 21	PCU	Analog detect
PCSS	Process control shutter solenoid [Electromagnetic solenoid]	Opens/closes the shutter of the process control and the registration sensor.	Open	Close	CN17	17	PCU	
PFM	PS front motor [Stepping motor]	Drives transport between the resist roller and the paper feed section, transport between the resist roller and the right door section.	—	—	CN23	11, 12, 13, 14	PCU	Driven by pulse function of 4-phase
PGM	Polygon motor [DC brushless motor]	Scans the laser beam.						
POD1	Fusing after-detection [Transmission type]	Detects the paper exit from fusing.	—	Pass	CN13	14	PCU	
POD2	Paper exit detection [Transmission type]	Detects the paper from paper exit.	Pass	—	CN13	12	PCU	
POD3	Right tray paper exit detection	Detects the paper exit to right tray.	Pass	—	CN26	14	PCU	
POFM_F	Paper exit cooling fan motor (F side)	Cools the fusing unit.	Motor Stop	Motor Drive	CN13	15	PCU	
POFM_R	Paper exit cooling fan motor (R side)	Cools the fusing unit.	Motor Stop	Motor Drive	CN13	15	PCU	
POFM_CNT	PORM speed control	PORM speed control	—	—	CN13	17	PCU	Pulse (Duty) function

Signal name	Name	Function/Operation	Connector level		Connector No.	Pin No.	PWB name	Note
			"L"	"H"				
POFM LD1	POFM F Lock detect	POFM F Lock detect	—	Motor Lock	CN13	21	PCU	
POFM LD2	POFM R Lock detect	POFM R Lock detect	—	Motor Lock	CN13	22	PCU	
POM	Paper exit drive motor [Stepping motor]	Drives the paper exit roller.	—	—	CN23	1, 2, 3, 4	PCU	Driven by pulse function of 4-phase
PPD1	Registration pre-detection [Transmission type]	Detects the paper in front of resist roller.	Pass	—	CN17	31	PCU	
PPD2	Registration detection	Detects the paper in rear of resist roller.	Pass	—	CN17	32	PCU	
PSFM	Power cooling fan motor	Cools the power unit.	Motor Stop	Motor Drive	CN26	28	PCU	
PSCF LD	PSFM Lock detect	PSFM Lock detect	—	Motor Drive	CN26	30	PCU	
PWM	Controller cooling fan motor HDD cooling fan motor	Cools the controller PWB. Cools the HDD.	OFF	ON (PWM)	CN21	78	MFPC	
PWRSW	Operation panel power switch [Push switch]	Outputs the ON/OFF control signal of the DC power source.	ON	OFF	CN3	10	MOTHER	
REGS_F/R	Resist sensor [Reflection type]	Detects the resist shift.	—	—	CN17	20, 26	PCU	Analog detect
RRM	Registration motor [Stepping motor]	Drives the resist roller and controls ON/OFF.	—	—	CN23	17, 18, 19, 20	PCU	Driven by pulse function of 4-phase
TCS_C	Toner density sensor [Magnetic sensor]	Detects the toner density (C).	—	—	CN15	27	PCU	Analog detect
TCS_K	Toner density sensor [Magnetic sensor]	Detects the toner density (K).	—	—	CN15	7	PCU	Analog detect
TCS_M	Toner density sensor [Magnetic sensor]	Detects the toner density (M).	—	—	CN15	8	PCU	Analog detect
TCS_Y	Toner density sensor [Magnetic sensor]	Detects the toner density (Y).	—	—	CN15	28	PCU	Analog detect
TFD2	Paper exit full detection [Transmission type]	Detects the face down paper exit tray full	Full	—	CN13	10	PCU	
TFD3	Right tray paper exit full detection	Detects the right tray paper exit full.	Full	—	CN2	1	RD I/F	
TH_M/ HUD_M	Temperature/humidity detection	Detects the temperature/humidity.	—	—	CN26	17, 19	PCU	Analog detect
TH_UM IN	Thermistor upper main		—	—	CN9	25	PCU	Analog detect
TH_US IN	Thermistor upper sub		—	—	CN9	27	PCU	Analog detect
TH_LM IN	Thermistor lower main		—	—	CN9	29	PCU	Analog detect
TH_UMCS IN	Thermistor upper main in		—	—	CN9	30	PCU	Analog detect
TNM_C	Toner motor C [Synchronous motor]	Transports toner from the toner cartridge to the developing unit.	—	—	CN12	19, 21	PCU	Driven by pulse function of two port
TNM_K	Toner motor K [Synchronous motor]	Transports toner from the toner cartridge to the developing unit.	—	—	CN12	15, 17	PCU	Driven by pulse function of two port
TNM_M	Toner motor M [Synchronous motor]	Transports toner from the toner cartridge to the developing unit.	—	—	CN12	22, 24	PCU	Driven by pulse function of two port
TNM_Y	Toner motor Y [Synchronous motor]	Transports toner from the toner cartridge to the developing unit.	—	—	CN12	18, 20	PCU	Driven by pulse function of two port
VR201	Volume	+12V output adjustment					DC power PWB	
VR203	Volume	+24V output adjustment					DC power PWB	
VR204	Volume	+5VN output adjustment					DC power PWB	
VR205	Volume	+3.3V output adjustment					DC power PWB	
VR402	Volume	+5VO, +5VL output adjustment					DC power PWB	
WTNM	Waste toner drive motor [Synchronous motor]	Stirs waste toner.	—	—	CN9	17, 18	PCU	Driven by pulse function of two port

## [12] OTHERS

### 1. System settings

#### A. System settings (General)

##### (1) When User Authentication is not Enabled

- 1) Press the [SYSTEM SETTINGS] key.
- 2) Configure the desired system settings.
  - User authentication is initially disabled (factory default setting).

##### (2) When User Authentication is Enabled

###### a. Login by login name and password

- 1) Touch the [Login Name] key.
- 2) Select the user.
- 3) Enter a password.
  - (1) Touch the [Password] key.
  - (2) Enter a password on the text entry screen that will appear.
- 4) Touch the [OK] key.

###### b. Login by user number

- 1) Enter your user number with the numeric keys.
- 2) Touch the [OK] key.

##### (3) System Settings (General) List

Item	Factory default setting
■ Total Count	
● Job Count	-
● Device Count	-
■ Default Settings	
● Display Contrast	(Set to the centre value)
● Clock	
▶ Date Format	Varies depending on country and region
▶ Daylight Saving Time Setting	
● Keyboard Select	Varies depending on country and region
■ List Print (User)	
● All Custom Setting List	-
● Printer Test Page	
▶ PCL Symbol Set List	-
▶ PCL Internal Font List	-
▶ PCL Extended Font List	-
▶ PS Font List*1	-
▶ PS Extended Font List*1	-
▶ NIC Page	-
● Sending Address List	
▶ Individual List	-
▶ Group List	-
▶ Program List	-
▶ Memory Box List	-
▶ All Sending Address List	-
● Document Filing Folder List	-
■ Paper Tray Settings	
● Tray Settings	
▶ Tray 1	Plain, A4 (8-1/2" x 11")
▶ Tray 2	Plain, A3 (11" x 17")
▶ Tray 3	Varies depending on the machine configuration
▶ Tray 4	
▶ Bypass Tray	Plain, Auto-AB (Auto-Inch)
● Paper Type Registration	
▶ User Type 1	-
▶ User Type 2	-
▶ User Type 3	-
▶ User Type 4	-
▶ User Type 5	-
▶ User Type 6	-
▶ User Type 7	-
● Auto Tray Switching	Enable

Item	Factory default setting
■ Address Control	
● Direct Address / Program	
▶ Individual	
◆ E-mail	
● Search Number	-
● Name	-
● Initial	-
● Index	-
● Address	-
● Key Name	-
● File Format	-
◆ Internet Fax*2	
● Search Number	-
● Name	-
● Initial	-
● Index	-
● Address	-
● Key Name	-
● Compression	-
● Internet Fax Report	-
▶ Group	
◆ Search Number	-
◆ Group Name	-
◆ Initial	-
◆ Index	-
◆ Address	-
◆ Key Name	-
▶ Program	
◆ Program Name	-
◆ Settings	
● Address	-
● Resolution	-
● Exposure	-
● Special Modes	-
▶ Amend/Delete	-
● Custom Index	
▶ User 1	-
▶ User 2	-
▶ User 3	-
▶ User 4	-
▶ User 5	-
▶ User 6	-
■ Fax Data Receive/Forward	
● Internet Fax Manual Reception*2	
▶ Reception Start	-
▶ Manual Reception Key in Initial Screen	Enable
● Internet Fax Data Forward*2	-
■ Printer Condition Settings	
● Printer Default Settings	
▶ Copies	1
▶ Orientation	Portrait
▶ Default Paper Size	A4 (8-1/2" x 11")
▶ Default Output Tray*3	Varies depending on the machine configuration
▶ Default Paper Type	Plain Paper
▶ Line Thickness	5
▶ 2-Sided Print	1-Sided
▶ Colour Mode	Colour
▶ N-Up Print	1-Up
● PCL Settings	
▶ PCL Symbol Set Setting	3. PC-8
▶ PCL Font Setting	Internal Font, 0. Courier
▶ PCL Line Feed Code	0. CR=CR:LF=LF:FF=FF
▶ Wide A4	Disable
● Postscript Settings*1	
▶ Print PS Errors	Disable
■ Document Filing Control	
● Custom Folder Registration	
▶ Folder Name	-
▶ Initial	-

Item	Factory default setting
► Password	-
► User Name	-
● Amend/Delete Custom Folder	-
■ USB-Device Check	-
■ User Control*4	
● Amend User Information	-

Item	Factory default setting
■ Address Control	
● Direct Address/Program	
► Individual	
◆ Fax*5	
● Search Number	-
● Name	-
● Initial	-
● Index	-
● Fax No.	-
● Key Name	-
● Mode	-
● F-Code Memory Box*5	
► Store	
◆ Polling Memory	
● Box Name	-
● Sub Address	-
◆ Confidential	
● Box Name	-
● Sub Address	-
● Print PIN	-
◆ Relay Broadcast	
● Box Name	-
● Sub Address	-
● Recipients	-
► Amend/Delete	
◆ Polling Memory	-
◆ Confidential	-
◆ Relay Broadcast	-
■ Fax Data Receive/Forward	
● Fax Receive Settings*5	Auto Reception
► Multiple Set Print	Disable
► Staple*6	Disable
● Fax Data Forward*5	-

\*1: When the PS3 expansion kit is installed.

\*2: When the Internet fax expansion kit is installed.

\*3: When a right tray is installed.

\*4: When user authentication is enabled and a user without the authority to configure the system settings (administrator) has logged in. (Excluding factory stored users.)

\*5: When the facsimile expansion kit is installed.

\*6: When a finisher is installed.

## B. System settings (Administrator)

### (1) When User Authentication is not Enabled

- Press the [SYSTEM SETTINGS] key.
- Touch the [Admin Password] key.
- Log in.
  - Touch the [Password] key and enter the administrator password.
  - Touch the [OK] key.
- Configure the desired system settings.

### (2) Login by login name and password (and e-mail address\*)

- Touch the [Login Name] key.
 

\* If login name / password / e-mail address is selected for the login method, [E-mail Address] will appear under the [Login Name] key.
- Touch the [Admin Login] key.

- Touch the [Password] key and enter the administrator password.
- Touch the [OK] key.
- Press the [SYSTEM SETTINGS] key.
 

\* This step is not necessary if you are logging in after you pressed the [SYSTEM SETTINGS] key.
- Configure the desired system settings.

### (3) Login by user number

- Touch the [Admin Login] key.
- Touch the [Password] key and enter the administrator password.
- Touch the [OK] key.
- Press the [SYSTEM SETTINGS] key.
 

\* This step is not necessary if you are logging in after you pressed the [SYSTEM SETTINGS] key.
- Configure the desired system settings.
 

Touch the items that you wish to configure and select the desired settings.

### (4) System Settings (Administrator) List

Item	Factory default setting
■ User Control	
● User Authentication Setting	
► User Authentication	Disable
► Authentication Method Setting	Authenticate a User by Login Name and Password
► Device Account Mode Setting	
◆ Device Account Mode	Disable
◆ User Selection	-
● User Registration	
► Store	-
► Amend/Delete	-
► Delete All Users	-
● Pages Limit Group Registration	-
● Actions when the Limit of Pages for Output Jobs	Job is Stopped when the Limit of Pages is Reached
● Authority Group Registration	-
● Favourite Operation Group Registration	-
● User Count Display	-
● User Count Reset	-
● User Information Print	
► All User Information Print	-
► User List	-
► List of Number of Pages Used	-
► Page Limit Group List	-
► Authority Group List	-
► Favourite Operation Group List	-
● The Number of User Name Displayed Setting	8
● A Warning when Login Fails	Disable
● Disable Printing by Invalid User	Disable
● Default Network Authentication Server Setting	-
■ Energy Save	
● Toner Save in Printer Mode	Disable
● Toner Save in Copy Mode*1	Disable
● Auto Power Shut-Off	Enable
● Auto Power Shut-Off Timer	40 min.
● Preheat Mode Setting	15 min.
■ Operation Settings	
● Keys Touch Sound	
► Keys Touch Sound	Middle
► Keys Touch Sound at Initial Point	Disable
● Auto Clear Setting	60 sec.
► Cancel Timer	Disable
● Message Time Setting	6 sec.
● Display Language Setting	English
● Disabling of Job Priority Operation	Disable



Item	Factory default setting
● Disabling of Bypass Printing	Disable
● Key Operation Setting	0.0 sec.
▶ Disable Auto Key Repeat	Disable
● Disabling of Clock Adjustment	Disable
● Disabling of Covers/Inserts Mode	Disable
● Customize Key Setting	
▶ Copy	
◆ Customize 1	Special Modes
◆ Customize 2	File
◆ Customize 3	Quick File
▶ Scan	
◆ Customize 1	Special Modes
◆ Customize 2	File
◆ Customize 3	Quick File
▶ Internet Fax*2	
◆ Customize 1	Special Modes
◆ Customize 2	File
◆ Customize 3	Quick File
▶ Fax*3	
◆ Customize 1	Special Modes
◆ Customize 2	File
◆ Customize 3	Quick File
▶ USB Memory Scan	
◆ Customize 1	Special Modes
◆ Customize 2	Erase
◆ Customize 3	Suppress BG
▶ Data Entry	
◆ Customize 1	Special Modes
◆ Customize 2	File
◆ Customize 3	Quick File
■ Device Control	
● Original Size Detector Setting	
▶ Original Detection Size Combination	Varies depending on country and region
▶ Cancel Detection at Document Glass	Disable
● Disabling of Document Feeder	Disable
● Original Feeding Mode	All Disabled
● Disabling of Duplex	Disable
● Disabling of Optional Paper Drawer*4	Disable
● Disabling of Tray Setting	Disable
● Disabling of Finisher*5	Disable
● Disabling of Offset	Disable
● Disabling of Stapler*5	Disable
● Disabling of Punch*6	Disable
● Disabling of Colour Mode*7	Disable
● Auto Paper Selection Setting	Plain Paper
● Registration Adjustment	
▶ Auto Adjustment	-
● Optimization of the Hard Disk	-
● Tandem Connection Setting	
▶ IP Address of Slave Machine	0.0.0.0
▶ Port Number	50001
▶ Disabling of Master Machine Mode	Disable
▶ Disabling of Slave Machine Mode	Disable
● Clear All Job Log Data	-
● Detect Standard in Auto Colour Mode	3
■ Copy Settings	
● Initial Status Settings	
▶ Colour Mode	Full Colour
▶ Paper Tray	Varies depending on the machine configuration
▶ Exposure Type	Auto
▶ Copy Ratio	100%
▶ 2-Sided Copy	1-Side to 1-Side
▶ Output	-
● Exposure Adjustment	
▶ Colour	
◆ Document Glass	5
◆ Document Feeder	5
▶ B/W	

Item	Factory default setting
◆ Document Glass	5
◆ Document Feeder	5
● Rotation Copy Setting	Enable
● Add or Change Extra Preset Ratios	
▶ Reduction	-
▶ Enlargement	-
● Setting a Maximum Number of Copies	999
● Initial Margin Shift Setting	
▶ Side-1	10 mm (1/2")
▶ Side-2	
● Erase Width Adjustment	
▶ Edge	10 mm (1/2")
▶ Centre	
● Card Shot Settings	
▶ Original Size	X: 86 mm (3-3/8") Y: 54 mm (2-1/8")
▶ Fit to Page	Disable
● Initial Tab Copy Setting	10 mm (1/2")
● Disabling Deletion of Job Programs	Disable
● Disabling of Bypass-Tray in Duplex Copy	Disable
● Disabling of Auto Paper Selection	Disable
● Auto Selection Setting of Tray that is Supplied the Paper	Disable
● Initial Colour Balance Setting	Factory Default State
● Auto Colour Calibration	-
● B/W 600dpi x 600dpi Scanning Mode for Document Feeder	Disable
● B/W Quick Scan from Document Glass	Enable
■ Network Settings	
● IP Address Setting	DHCP
● Enable TCP/IP	Enable
● Enable NetWare	Enable
● Enable EtherTalk	Enable
● Enable NetBEUI	Enable
● Reset the NIC	-
● Ping Command	-
■ Printer Settings	
● Default Settings	
▶ Prohibit Notice Page Printing	Enable
▶ Prohibit Test Page Printing	Disable
▶ A4/Letter Size Auto Change	Varies depending on country and region.
▶ Print Density Level	
◆ Colour	3
◆ B/W	3
▶ Bypass Tray Settings	
◆ Enable Detected Paper Size in Bypass Tray	Disable
◆ Enable Selected Paper Type in Bypass Tray	Enable
◆ Exclude Bypass-Tray from Auto Paper Select	Disable
▶ Job Spool Queuing	Enable
● Interface Settings	
▶ Hexadecimal Dump Mode	Disable
▶ I/O Timeout	60 sec.
▶ Enable USB Port	Enable
▶ USB Port Emulation Switching	PCL (Auto*8)
▶ Enable Network Port	Enable
▶ Network Port Emulation Switching	PCL (Auto*8)
▶ Port Switching Method	Switch at End of Job
● Colour Adjustments	
▶ Auto Colour Calibration	-
■ Image Send Settings	
● Operation Settings	
▶ Default Display Setting	
◆ Mode	Scan (Fax*3)
◆ Hold settings for a while after scanning has been completed	Disable
◆ Switch Automatically to Copy Mode Screen	Disable

Item	Factory default setting
▶ Initial Resolution Setting	
◆ Apply the Resolution Set when Stored	Disable
◆ Scan	200x200dpi
◆ Internet Fax*2	200x100dpi
◆ Fax*3	Standard
▶ Default Exposure Settings	
◆ Exposure	Auto
◆ Original Image Type	Text
◆ Moiré Reduction	Disable
▶ Must Input Next Address Key at Broadcast Setting	Disable
▶ Scan Complete Sound Setting	Middle
▶ The Number of File Name/Subject/Body Keys Displayed Setting	6
▶ The Number of Direct Address Keys Displayed Setting	6
▶ Disable Switching of Display Order	Disable
▶ Hold Setting for Received Data Print	
◆ Received Data Hold	Disable
◆ Password Setting	-
▶ Settings to Disable the Registration of Destination	
◆ Disable Registering Destination from Operation Panel	
• Group	Disable
• E-mail	Disable
• Internet Fax	Disable
• Fax	Disable
◆ Disable Registering Destination on Web Page*9	
• Group	Disable
• E-mail	Disable
• FTP	Disable
• Desktop	Disable
• Network Folder	Disable
• Internet Fax	Disable
• Fax	Disable
◆ Disable Registration Using Network Scanner Tools*9	Disable
▶ Settings to Disable Transmission	
◆ Disable [Resend] on Fax/Image Send Mode	Disable
◆ Disable Selection from the Address Book	
• E-mail	Disable
• FTP	Disable
• Desktop	Disable
• Network Folder	Disable
• Internet Fax	Disable
• Fax	Disable
◆ Disable Direct Entry	
• E-mail	Disable
• Internet Fax	Disable
• Fax	Disable
◆ Disable PC-Internet Fax Transmission*2	Disable
◆ Disable PC-Fax Transmission*3	Disable
● Scan Settings	
▶ Default Sender Set	-
▶ Default Colour Mode Settings	
◆ Colour Mode	Auto, Greyscale
◆ B/W Mode	Mono 2
◆ Disable Change of B/W Setting in Auto Mode	Disable
▶ Initial File Format Setting	
◆ B/W	
• File Type	PDF
• Compression Mode	MMR (G4)
• Specified Pages per File	Disable
◆ Colour/Grey	
• File Type	PDF
• Compression Ratio	Medium
• Specified Pages per File	Disable
▶ Compression Mode at Broadcasting	
◆ Black & White	MH (G3)

Item	Factory default setting
◆ Colour/Greyscale	Medium
▶ Maximum Size of E-mail Attachments (E-mail)	Unlimited
▶ Maximum Size of Data Attachments (FTP/Desktop/Network Folder)	Disable
▶ Default Address Setting	Disable
▶ Bcc Setting	
◆ Enable Bcc	Disable
◆ Display Bcc Address on the Job Status Screen	Disable
▶ Disable Scan Function	
◆ PC Scan	Disable
◆ USB Memory Scan	Disable
▶ Pre-Setting Mail Signature	Disable
● Internet Fax Settings*2	
▶ Internet Fax Default Settings	
◆ Internet Fax Own Name and Address Set	-
◆ Auto Wake Up Print	Enable
◆ Internet Fax Speaker Volume Settings	
• Receive Signal	Middle
• Communication Error Signal	Middle
◆ Original Print on Transaction Report	Print Out Error Report Only
◆ Transaction Report Print Select Setting	
• Single Sending	Print Out Error Report Only
• Broadcasting	Print Out All Report
• Receiving	No Printed Report
◆ Activity Report Print Select Setting	
• Auto Print at Memory Full	Disable
• Print Daily at Designated Time	Disable
◆ Body Text Print Select Setting	Disable
◆ Pre-Setting Mail Signature	Disable
▶ Internet Fax Send Settings	
◆ Internet Fax Reception Report On/Off Setting	Disable
◆ Internet Fax Reception Report Request Timeout Setting	1 hour
◆ Number of Resend Times at Reception Error	2
◆ Maximum Size of E-mail Attachments (E-mail)	Unlimited
◆ Rotation Sending Setting	All Enable
◆ Printing Page Number at Receiver	Enable
▶ Internet Fax Receive Settings	
◆ Auto Receive Reduce Setting	Enable
◆ Duplex Reception Setting	Disable
◆ Set Address for Data Forwarding	-
◆ Letter Size RX Reduce Print	Disable
◆ POP3 Communication Timeout Setting	60 sec.
◆ Reception Check Interval Setting	5 min.
◆ Anti Junk Mail/Domain Name Setting	All Invalid
◆ Internet Fax Output Setting*10	Varies depending on the machine configuration
■ Document Filing Settings	
● Default Mode Settings	Sharing Mode
● Sort Method Setting	Date
● Document Output Options	
▶ Print	
◆ Copy	Enable
◆ Printer	Enable
◆ Scan Send	Disable
◆ Internet Fax Send (Incl. PC-Internet Fax)	Disable
◆ Fax Send (Incl. PC-Fax)	Disable
◆ Scan to HDD	Enable

Item	Factory default setting
▶ Scan Send	
◆ Copy	Disable
◆ Scan Send	Enable
◆ Internet Fax Send (Incl. PC-Internet Fax)	Disable
◆ Fax Send (Incl. PC-Fax)	Disable
◆ Scan to HDD	Enable
▶ Internet Fax Send*2	
◆ Copy	Disable
◆ Scan Send	Disable
◆ Internet Fax Send (Incl. PC-Internet Fax)	Enable
◆ Fax Send (Incl. PC-Fax)	Disable
◆ Scan to HDD	Disable
▶ Fax Send*3	
◆ Copy	Disable
◆ Scan Send	Disable
◆ Internet Fax Send (Incl. PC-Internet Fax)	Disable
◆ Fax Send (Incl. PC-Fax)	Enable
◆ Scan to HDD	Disable
● Administrator Authority Setting	
▶ Delete File	Disable
▶ Delete Folder	Disable
● Default Colour Mode Settings	
▶ Colour	Auto
▶ B/W	Mono 2
● Default Exposure Settings	
▶ Exposure	Auto
▶ Original Image Type	Text
▶ Moiré Reduction	Disable
● Initial Resolution Setting	600x600dpi
● Colour Data Compression Ratio Setting	Medium
● Default Output Tray*10	Varies depending on the machine configuration
● Scan Complete Sound Setting	Middle
● Delete All Quick Files	
▶ Delete	-
▶ Delete quick files at power up. (Protected file excluded)	Enable
● Disable Stamp for Reprinting	Disable
● Batch Print Settings	
▶ Selection of [All Users] is not allowed.	Enable
▶ Selection of [User Unknown] is not allowed.	Enable
● Default Display Setting*11	Doc. Filing
■ List Print (Administrator)	
● Administrator Settings List	
▶ Copy	-
▶ Print	-
▶ Image Send	-
▶ Document Filing	-
▶ Security	-
▶ Common	-
▶ All Administrator Settings List	-
● Image Sending Activity Report	
▶ Image Sending Activity Report (Scan)	-
▶ Image Sending Activity Report (Internet Fax)	-
▶ Image Sending Activity Report (Fax)	-
● Anti Junk Fax Number List*3	-
● Anti Junk Mail/Domain Name List*2	-
● Inbound Routing List*12	-
● Document Admin List*12	-
● Web Setting List*9	-
● Metadata Set List*13	-
■ Security Settings	
● SSL Settings	

Item	Factory default setting
▶ HTTPS	Disable
▶ IPP-SSL	Disable
■ Sharp OSA Settings*11, 14	
● Default Display Setting*11	Doc. Filing
● External Account Setting*14	
▶ Enable External Account Control	Disable
▶ Enable Authentication by External Server	Disable
■ Enable/Disable Settings	
● User Control	
▶ Disabling of Printing by Invalid User	Disable
● Operation Settings	
▶ Cancel Auto Clear Timer	Disable
▶ Disabling of Job Priority Operation	Disable
▶ Disabling of Bypass Printing	Disable
▶ Disable Auto Key Repeat	Disable
▶ Disabling of Clock Adjustment	Disable
▶ Disabling of Covers/Inserts Mode	Disable
● Device Control	
▶ Disabling of Document Feeder	Disable
▶ Disabling of Duplex	Disable
▶ Disabling of Optional Paper Drawer*4	Disable
▶ Disabling of Tray Setting	Disable
▶ Disabling of Finisher*5	Disable
▶ Disabling of Offset	Disable
▶ Disabling of Stapler*5	Disable
▶ Disabling of Punch*6	Disable
▶ Disabling of Colour Mode*7	Disable
▶ Disabling of Master Machine Mode	Disable
▶ Disabling of Slave Machine Mode	Disable
● Copy Settings	
▶ Disable Copy in Different Size/Direction	Disable
▶ Disabling Deletion of Job Programs	Disable
▶ Disabling of Bypass-Tray in Duplex Copy	Disable
▶ Disabling of Auto Paper Selection	Disable
● Printer settings	
▶ Prohibit Notice Page Printing	Enable
▶ Prohibit Test Page Printing	Disable
▶ Exclude Bypass-Tray from Auto Paper Select	Disable
● Image Send Settings	
▶ Disable Switching of Display Order	Disable
▶ Disable Scan Function	
◆ PC Scan	Disable
◆ USB Memory Scan	Disable
▶ Settings to Disable the Registration of Destination	
◆ Disable Registering Destination from Operation Panel	
● Group	Disable
● E-mail	Disable
● Internet Fax	Disable
● Fax	Disable
◆ Disable Registering Destination on Web Page*9	
● Group	Disable
● E-mail	Disable
● FTP	Disable
● Desktop	Disable
● Network Folder	Disable
● Internet Fax	Disable
● Fax	Disable
◆ Disable Registration Using Network Scanner Tools*9	Disable
▶ Settings to Disable Transmission	
◆ Disable [Resend] on Fax/Image Send Mode	Disable
◆ Disable selection from the Address Book	
● E-mail	Disable
● FTP	Disable
● Desktop	Disable
● Network Folder	Disable

Item	Factory default setting
• Internet Fax	Disable
• Fax	Disable
◆ Disable Direct Entry	
• E-mail	Disable
• Internet Fax	Disable
• Fax	Disable
◆ Disable PC-Internet Fax Transmission*2	Disable
◆ Disable PC-Fax Transmission*3	Disable
● Document Filing Settings	
▶ Disable Stamp for Reprinting	Disable
▶ Batch Print Settings	
◆ Selection of [All Users] is not allowed.	Enable
◆ Selection of [User Unknown] is not allowed.	Enable
■ Change Administrator Password	See "TO THE ADMINISTRATOR OF THE MACHINE" in the Safety Guide.
■ Product Key*15	
● PS3 Expansion Kit	-
● Internet Fax Expansion Kit	-
● E-mail Alert and Status	-
● Application Integration Module	-
● Application Communication Module	-
● External Account Module	-
● Serial Number	-
■ Storing/calling of System Settings	
● Restore Factory Defaults	-
● Store Current Configuration	-
● Restore Configuration	-

Item	Factory default setting
■ Image Send Settings	
● Fax Settings*3	
▶ Fax Default Settings	
◆ Fax Own Name and Number Set	-
◆ Dial Mode Setting*1	Tone
◆ Auto Wake Up Print	Enable
◆ Pause Time Setting	2 sec.
◆ Speaker Settings	
• Speaker	Volume: Middle
• Ringer Volume	Volume: Middle
• Line Monitor	Volume: Middle
• Fax Receive Complete Signal	Volume: Middle; Tone Pattern: 3; Transmission Complete Sound Time Setting: 3 sec.
• Fax Send Complete Signal	Volume: Middle; Tone Pattern: 3; Transmission Complete Sound Time Setting: 3 sec.
• Fax Communication Error Signal	Volume: Middle; Tone Pattern: 3; Transmission Complete Sound Time Setting: 0.3 sec.
◆ Remote Reception Number Setting	5
◆ Original Print on Transaction Report	Print Out Error Report Only
◆ Transaction Report Print Select Setting	
• Single Sending	Print Out Error Report Only
• Broadcasting	Print Out All Report
• Receiving	No Printed Report
• Confidential Reception	Print Out Notice Page
◆ Activity Report Print Select Setting	
• Auto Print at Memory Full	Disable
• Print Daily at Designated Time	Disable

Item	Factory default setting
◆ ECM	Enable
◆ Distinctive Ring Detection*1	Disable
▶ Fax Send Settings	
◆ Auto Reduction Sending Setting	Enable
◆ Rotation Sending Setting	All Enable
◆ Quick On Line Sending	Enable
◆ Printing Page Number at Receiver	Enable
◆ Date/Own Number Print Position Setting	Outside the Original Image
◆ Registration of Own Name Select	-
◆ Recall in Case of Line Busy	Varies depending on country and region
◆ Recall in Case of Communication Error	Varies depending on country and region
▶ Fax Receive Settings	
◆ Number of Calls in Auto Reception	2
◆ Duplex Reception Setting	Disable
◆ Auto Receive Reduce Setting	Enable
◆ Print Style Setting	Auto Size Select
◆ Set the Telephone Number for Data Forwarding	-
◆ Letter Size RX Reduce Print*1	Disable
◆ A3 RX Reduce*1	Disable
◆ Anti Junk Fax Setting	-
◆ Fax Output Settings	Varies depending on the machine configuration
▶ Fax Polling Security	
◆ Polling Security Setting	Enable
◆ Passcode Number Setting	-

\*1: This function is not available in some countries and regions.

\*2: When the Internet fax expansion kit is installed.

\*3: When the facsimile expansion kit is installed.

\*4: When a paper drawer is installed.

\*5: When a finisher is installed.

\*6: When a punch module is installed.

\*7: When a colour-related problem has occurred.

\*8: When the PS3 expansion kit is installed.

\*9: When network connection is enabled.

\*10: When a right tray is installed.

\*11: When the application communication module is installed.

\*12: When the facsimile expansion kit or the Internet fax expansion kit is installed.

\*13: When the application integration module is installed.

\*14: When the external account module is installed.

\*15: Depending on the peripheral devices installed, it may not be possible to use some settings.

## 2. Paper JAM code

### A. JAM cause code list

#### (1) PCU JAM cause

Code	Code content
NO_JAM_CAUSE	No JAM. Also used for JAM canceling.
NO_MATCH	Parameter no matching
STOP_JAM	Emergency stop request JAM (Controller request)
TRAY1	Cassette 1 paper feed JAM (CPFD1 not-reached JAM)
CPFD1_S1	CPFD1 remaining JAM (Cassette 1 feed paper)
CPFD1_N2	CPFD1 not-reached JAM (Cassette 2 feed paper)
CPFD1_N3	CPFD1 not-reached JAM (Desk 1 feed paper)
CPFD1_N4	CPFD1 not-reached JAM (Desk 2 feed paper)
CPFD1_S2	CPFD1 remaining JAM (Desk 2 feed paper)
CPFD1_S3	CPFD1 remaining JAM (Desk 1 feed paper)
CPFD1_S4	CPFD1 remaining JAM (Desk 2 feed paper)
TRAY2	Cassette 2 paper feed JAM (CPFD2 not-reached JAM)
CPFD2_N3	CPFD2 not-reached JAM (Desk 1 feed paper)
CPFD2_N4	CPFD2 Not-reached JAM (Desk 2 feed paper)
CPFD2_S2	CPFD2 remaining JAM (Cassette 2 feed paper)
CPFD2_S3	CPFD2 remaining JAM (Desk 1 feed paper)
CPFD2_S4	CPFD2 remaining JAM (Desk 2 feed paper)
PPD1_N1	PPD1 not-reached JAM (Cassette 1 feed paper)
PPD1_N2	PPD1 not-reached JAM (Cassette 2 feed paper)
PPD1_N3	PPD1 not-reached JAM (Desk 1 feed paper)
PPD1_N4	PPD1 not-reached JAM (Desk 2 feed paper)
PPD1_NM	PPD1 not-reached JAM (Manual feed tray feed paper)
PPD1_NA	PPD1 not-reached JAM (ADU refeed paper)
PPD1_S1	PPD1 remaining JAM (Cassette 1 feed paper)
PPD1_S2	PPD1 remaining JAM (Cassette 2 feed paper)
PPD1_S3	PPD1 remaining JAM (Desk 1 feed paper)
PPD1_S4	PPD1 remaining JAM (Desk 2 feed paper)
PPD1_SM	PPD1 remaining JAM (Manual 2 feed paper)
PPD1_SA	PPD1 remaining JAM (ADU refeed paper)
PPD2_N1	PPD2 not-reached JAM (Cassette 1 feed paper)
PPD2_N2	PPD2 not-reached JAM (Cassette 2 feed paper)
PPD2_N3	PPD2 not-reached JAM (Desk 1 feed paper)
PPD2_N4	PPD2 not-reached JAM (Desk 2 feed paper)
PPD2_NM	PPD2 not-reached JAM (Manual feed tray feed paper)
PPD2_NA	PPD2 not-reached JAM (ADU refeed paper)
PPD2_S1	PPD2 remaining JAM (Cassette 1 feed paper)
PPD2_S2	PPD2 remaining JAM (Cassette 2 feed paper)
PPD2_S3	PPD2 remaining JAM (Desk 1 feed paper)
PPD2_S4	PPD2 remaining JAM (Desk 2 feed paper)
PPD2_SM	PPD2 remaining JAM (Manual feed tray feed paper)
PPD2_SA	PPD2 remaining JAM (ADU refeed paper)
PPD2_PRI	PPD2 JAM (Image preparation wait timeout)
POD1_N	POD1 not-reached JAM
POD1_S	POD1 remaining JAM
POD2_N	POD2 not-reached JAM
POD2_S	POD2 remaining JAM
POD3_N	POD3 not-reached JAM
POD3_S	POD3 remaining JAM
APPD1_N	APPD1 not-reached JAM
APPD1_S	APPD1 remaining JAM
APPD2_N	APPD2 not-reached JAM
APPD2_S	APPD2 remaining JAM
TRAY3	Cassette 3 (Desk 1) paper feed JAM
DPPD1_N4	DPPD1 not-reached JAM (Desk 2 feed paper)
DPPD1_S3	DPPD1 remaining JAM (Desk 1 feed paper)
DPPD1_S4	DPPD1 remaining JAM (Desk 2 feed paper)
TRAY4	Cassette 4 (Desk 2) paper feed JAM
DPPD2_S4	DPPD2 remaining JAM (Desk 2 feed paper)
MFT	Manual feed tray paper feed JAM (MPFD not-reached)
MPFD_S	MPFD remaining JAM (Manual feed tray feed paper)
LCC	Side LCC paper feed JAM (LPFD1 not-reached)
SIZE_ILG	Size illegal JAM

Code	Code content
MTR_ILG	Motor driver trouble JAM
FJPID_N	Interface transport inlet port sensor not-reached JAM
FJPID_S	Interface transport inlet port sensor remaining JAM
FJPOD_N	Interface transport outlet sensor not-reached JAM
FJPOD_S	Interface transport outlet sensor remaining JAM
FED_N	Finisher inlet port sensor not-reached JAM
FED_S	Finisher inlet port sensor remaining JAM
FSTPL	Staple JAM
FPNCH	Punch JAM
FDOP	Finisher door open
FIN_TIME	Finisher paper clearance abnormality JAM

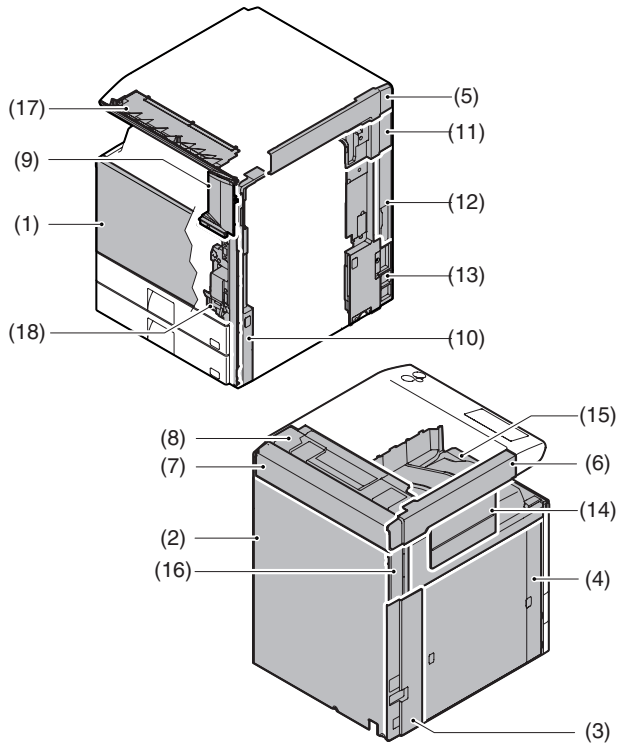
#### (2) SCU JAM cause

Code	Code content
NO_JAM_CAUSE	No JAM. Also used for JAM canceling.
NO_MATCH	Parameter no matching
STOP_JAM	Emergency stop request JAM (Controller request)
SPPD1_N	SPPD1 not-reached JAM
SPPD1_S	SPPD1 remaining JAM
SPPD2_N	SPPD2 not-reached JAM
SPPD2_S	SPPD2 remaining JAM
SPPD3_N	SPPD3 not-reached JAM
SPPD3_S	SPPD3 remaining JAM
SPPD4_N	SPPD4 not-reached JAM
SPPD4_S	SPPD4 remaining JAM
SPPD5_N	SPPD5 not-reached JAM
SPPD5_S	SPPD5 remaining JAM
SPOD_N	SPOD not-reached JAM
SPOD_S	SPOD remaining JAM
SPRDMD_S	SPRDMD remaining JAM
SPSD_SCN	Exposure start notification wait timeout
SPPD2_NR	SPPD2 reverse not-reached JAM
SPPD2_SR	SPPD2 reverse remaining JAM
ICU_REQ	ICU factor stop JAM

# [A] EXTERNAL OUTFIT

## 1. Disassembly and assembly

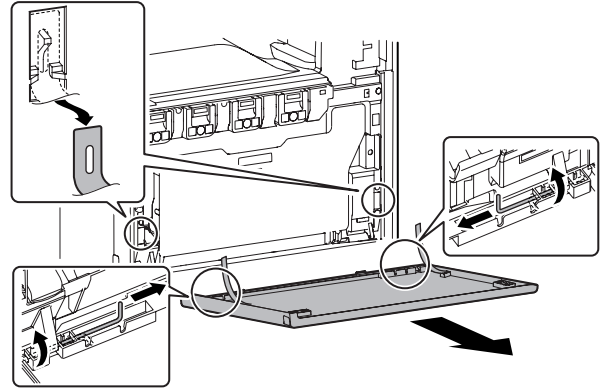
### A. Cabinet



Parts	
(1)	Front cabinet
(2)	Rear cabinet
(3)	Left cabinet rear lower
(4)	Left cabinet
(5)	Upper cabinet right
(6)	Upper cabinet left
(7)	Upper cabinet rear cover
(8)	Upper cabinet rear
(9)	Front cabinet upper
(10)	Right cabinet front
(11)	Right connection cabinet
(12)	Right cabinet rear cover
(13)	Right cabinet rear
(14)	Paper exit cover
(15)	Paper exit tray cabinet
(16)	Left cabinet rear
(17)	Operation panel base plate
(18)	Frame cover

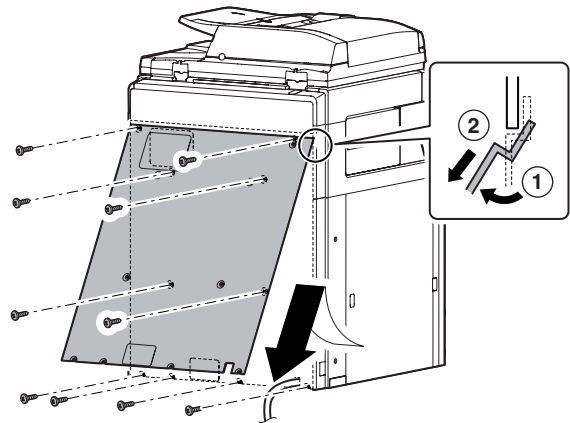
### (1) Front cabinet

- 1) Remove the front cabinet band and the front cabinet hinge, and remove the front cabinet.



### (2) Rear cabinet

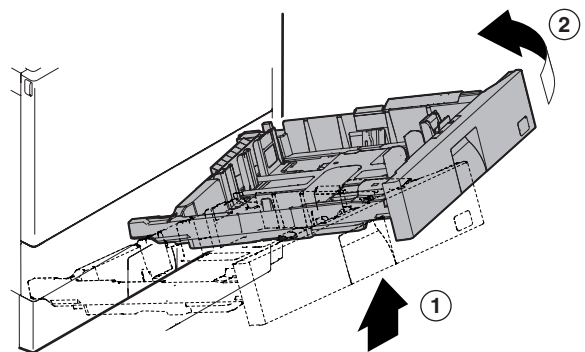
- 1) Remove the screws, and remove the rear cabinet.



### (3) Left cabinet rear lower /

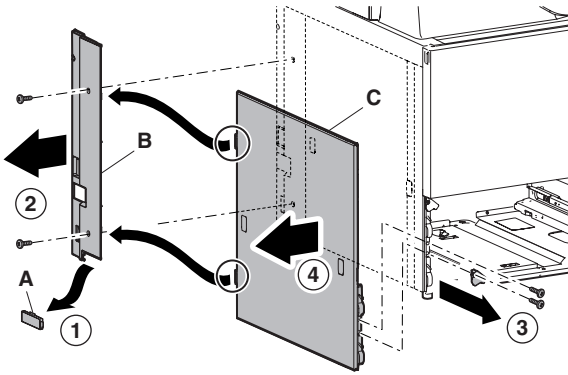
### (4) Left cabinet

- 1) Remove the paper feed tray 1 and 2.





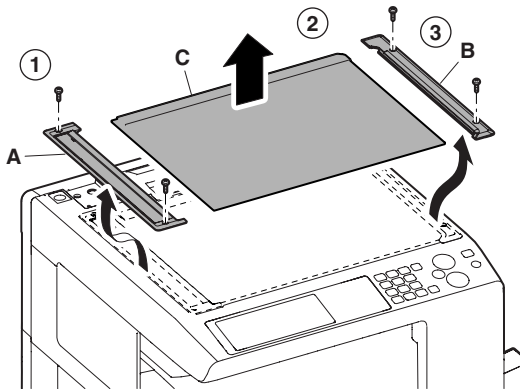
- 2) Remove the desk connection cover (A). Remove the screws, then remove the left cabinet rear lower (B) and the left cabinet (C).



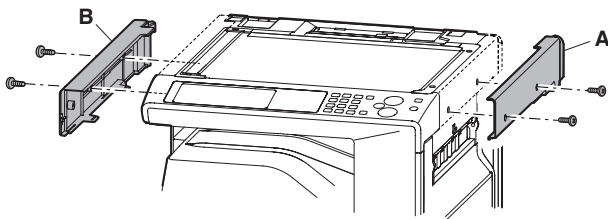
#### (5) Upper cabinet right /

#### (6) Upper cabinet left

- 1) Remove the SPF glass (A). Remove the glass holder (B) and the table glass (C).

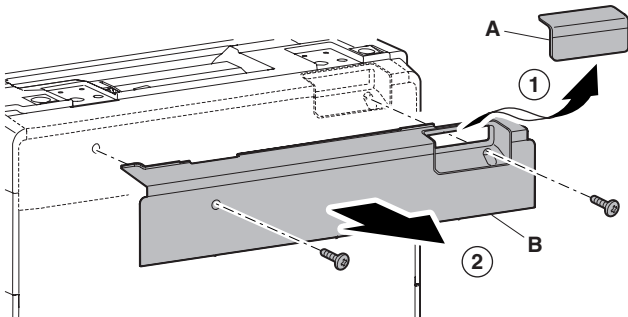


- 2) Remove the screws, and remove the upper cabinet right (A) and the upper cabinet left (B).



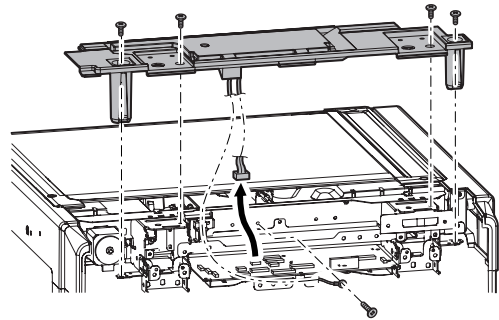
#### (7) Upper cabinet rear cover

- 1) Remove the upper cabinet rear cover lid (A). Remove the screws, and remove the upper cabinet rear cover (B).



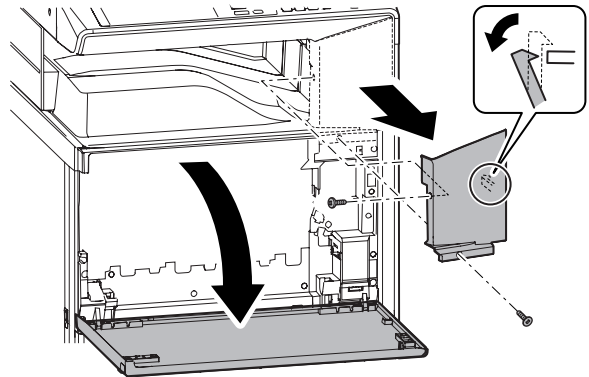
#### (8) Upper cabinet rear

- 1) Remove the upper cabinet rear cover.
- 2) Disconnect the connector. Remove the screws, and remove the grounding wire. Remove the screws, and remove the upper cabinet rear.



#### (9) Front cabinet upper

- 1) Open the front cabinet. Remove the screws, and remove the front cabinet upper.



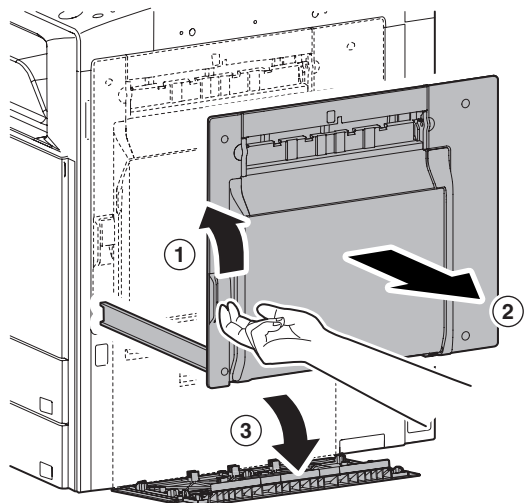
#### (10) Right cabinet front /

#### (11) Right connection cabinet /

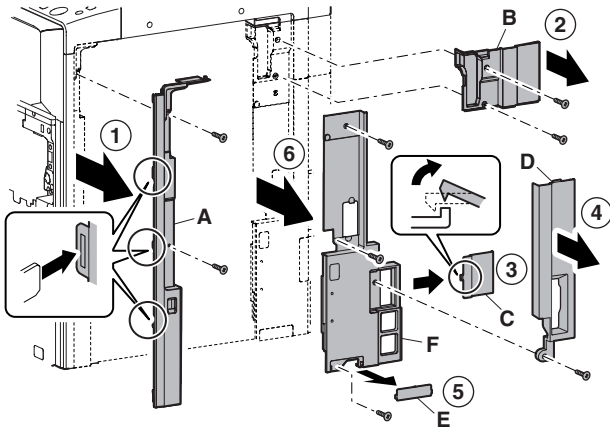
#### (12) Right cabinet rear cover /

#### (13) Right cabinet rear

- 1) Remove the front cabinet upper. (Refer to Front Cabinet Upper.)
- 2) Open the right door and the right cabinet lower.



- 3) Remove the screws, and remove the right cabinet front (A). Remove the screws, and remove the right connection cabinet (B). Remove the ozone filter cover (C). Remove the screws, and remove the right cabinet rear cover (D). Remove the desk connection cover (E). Remove the screws, and remove the right cabinet rear (F).

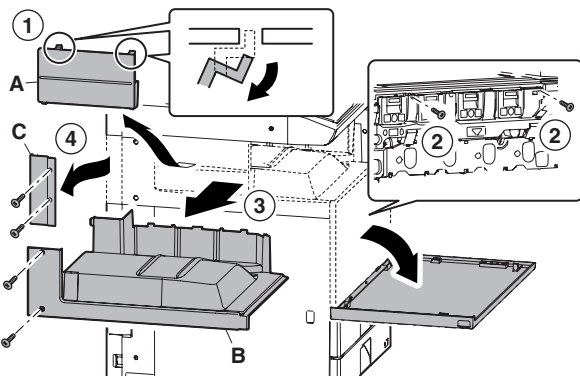


#### (14) Paper exit cover /

#### (15) Paper exit tray cabinet /

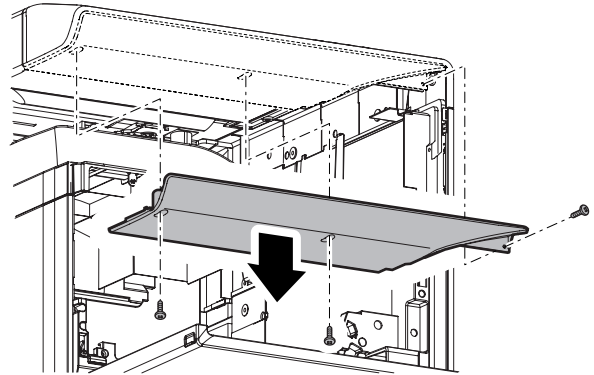
#### (16) Left cabinet rear

- 1) Remove the paper exit cover (A). Open the front cabinet and remove the screws.
- Remove the screws, and remove the paper exit tray cabinet (B).
- Remove the screws, and remove the left cabinet rear (C).



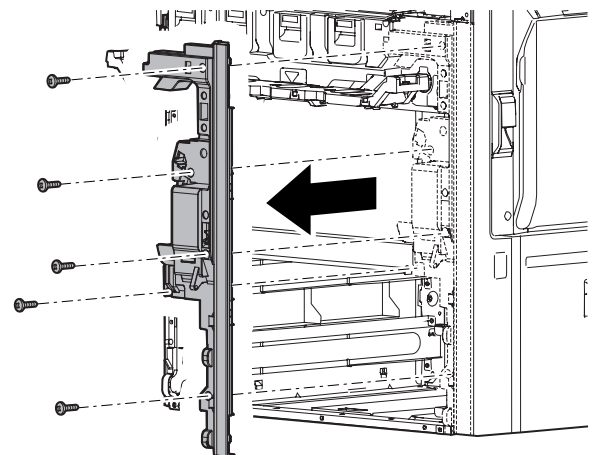
#### (17) Operation panel base plate

- 1) Remove the front cabinet upper. (Refer to Front Cabinet Upper.)
- 2) Remove the screws, and remove the operation panel base plate.



#### (18) Frame cover

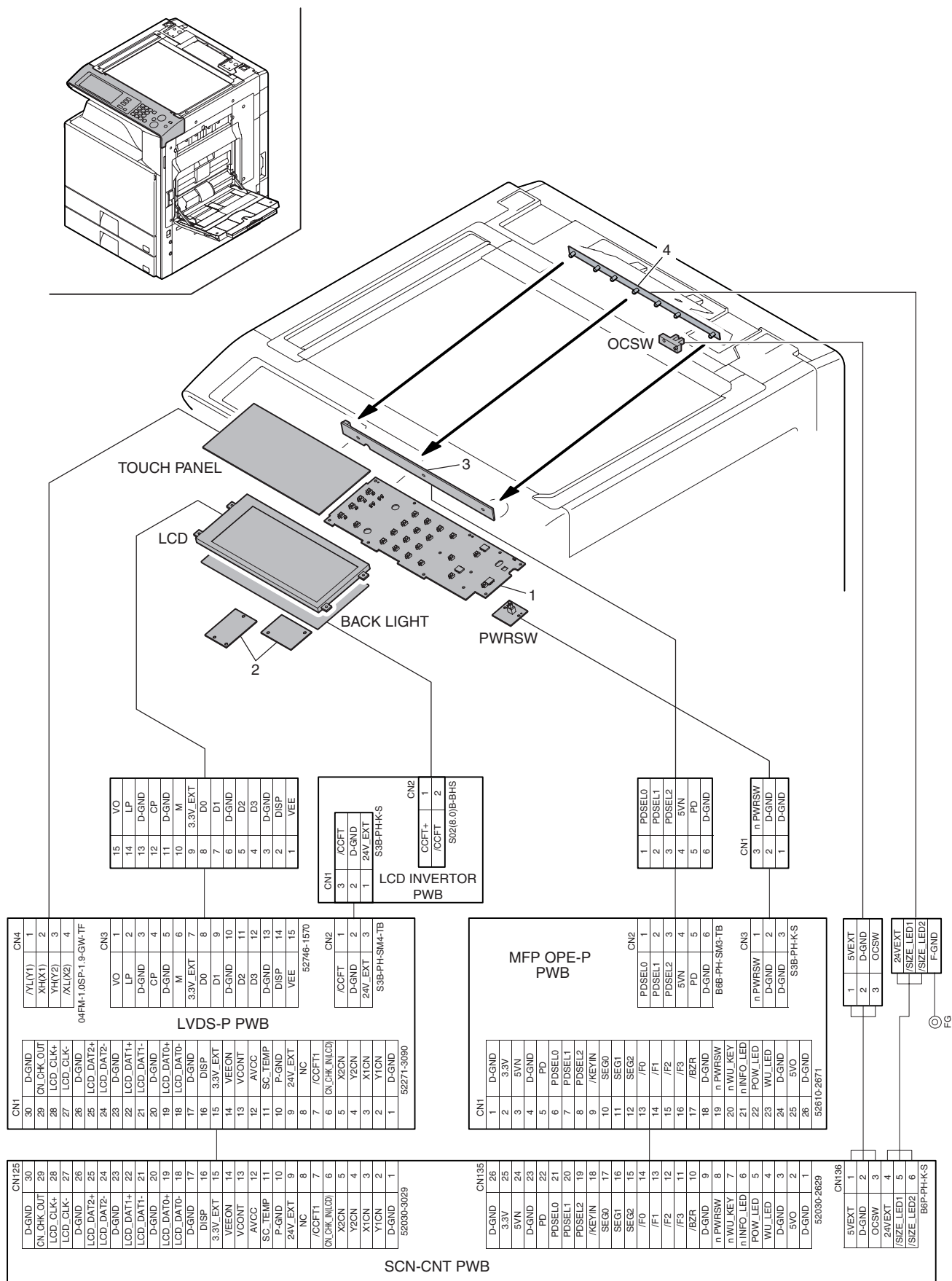
- 1) Remove the waste toner box, and open the drum positioning unit. (Refer to Process Drum Unit in Image Process Section.)
- 2) Remove the front cabinet. (Refer to Front Cabinet)
- 3) Remove the front cabinet upper. (Refer to Front Cabinet Upper.)
- 4) Remove the screws, and remove the frame cover.





# [B] OPERATION PANEL

## 1. Electrical and mechanism relation diagram



Signal	Name	Function/Operation
OCSW	Original cover SW	Timing switch for document size detection
PWRSW	Operaton panel power supply switch	Outputs the DC power supply ON/OFF control signal.

No.	Name	Function/Operation
1	MFP OPE-P PWB	Detects the key pressed on the operation panel.
2	LCD INV PWB/LVDS PWB	Drives LCD and the backlight, and controls the touch-panel.
3	Document detection light receiving PWB	Receives the light from the document detection light emitting PWB, and detects the document size.
4	Document detection light emitting PWB	Emits light for document size detection.

## 2. Operational descriptions

### A. Outline

The operation panel unit is composed of the MFP OPE-P PWB, the LCD INV PWB/LVDS PWB, the LCD unit, and the operation keys, and is used to operate the machine and to set and display the machine status.

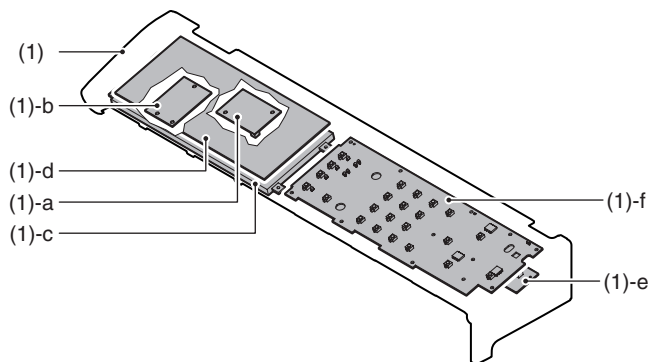
The MFP OPE-P PWB is connected to the document detection light receiving PWB for detecting the document size. It receives light from the document detection light emitting PWB attached to the rear frame, detecting the document size.

The power switch of the operation panel supplies the ON/OFF control signal of the DC power source.

## 3. Disassembly and assembly

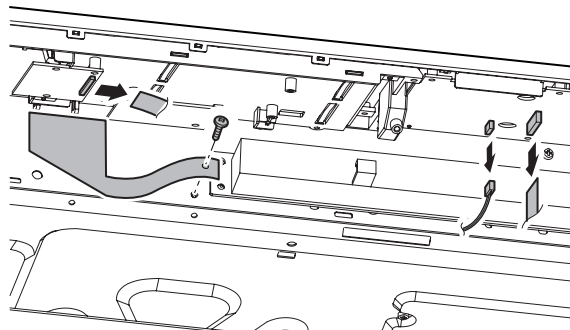
### A. Operation panel section

Unit	Parts
(1) Operation panel unit	a LCD INV PWB
	b LVDS PWB
	c LCD module
	d Touch panel
	e POWER SW PWB
	f MFP OPE-P PWB

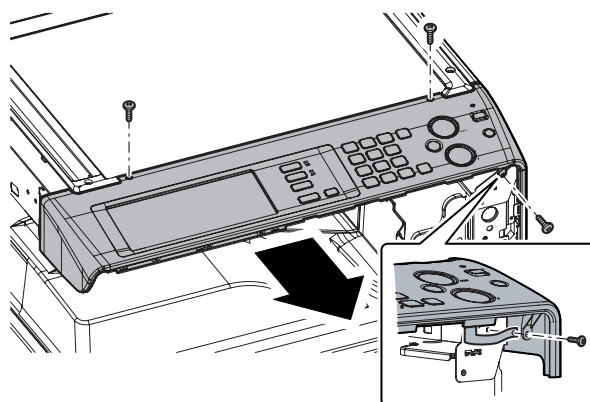


### (1) Operation panel unit

- 1) Remove the paper exit cover and the upper cabinet left.
- 2) Remove the front cabinet upper and the operation panel base plate.
- 3) Remove each cables and the grounding sheet.



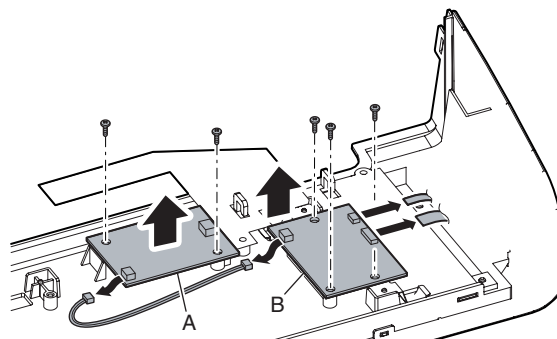
- 4) Remove the operation panel unit.



#### a. LCD INV PWB /

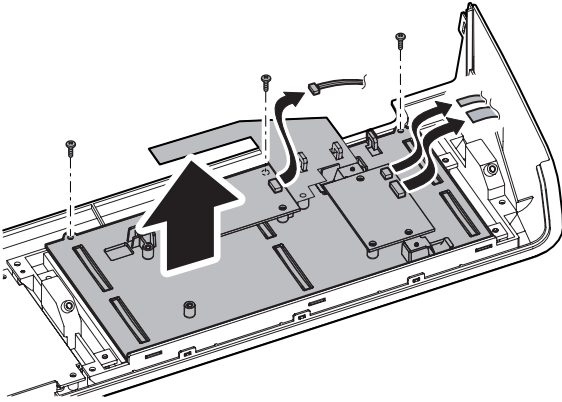
#### b. LVDS PWB

- 1) Remove the operation panel unit.
- 2) Remove the LCD INV PWB (A). Remove the LVDS PWB (B).

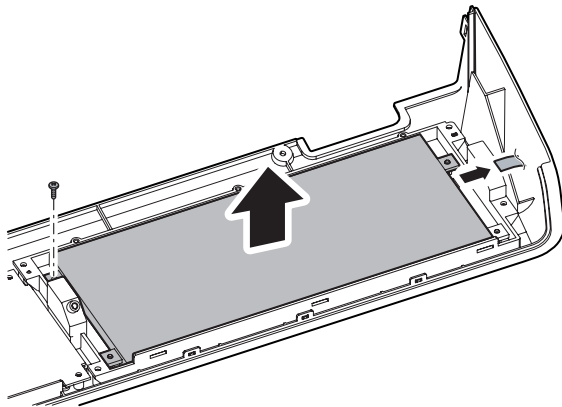


**c. LCD module**

- 1) Remove the operation panel unit.
- 2) Remove the LCD holder.

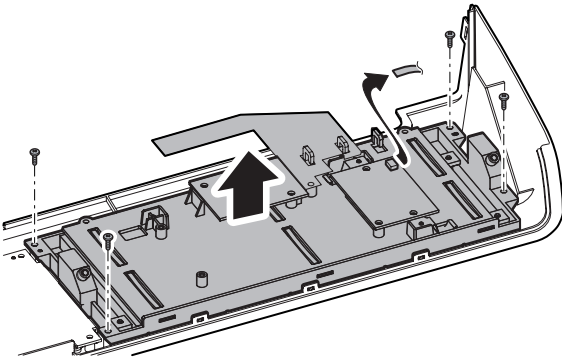


- 3) Remove the LCD module.

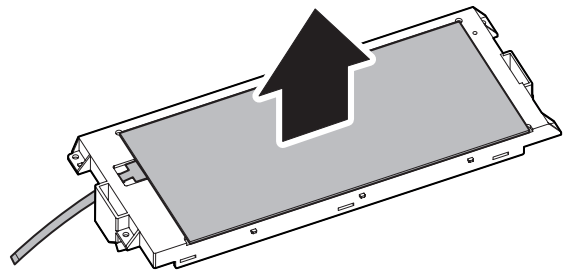


**d. Touch panel**

- 1) Remove the operation panel unit.
- 2) Remove the LCD unit. Remove the flat cable.

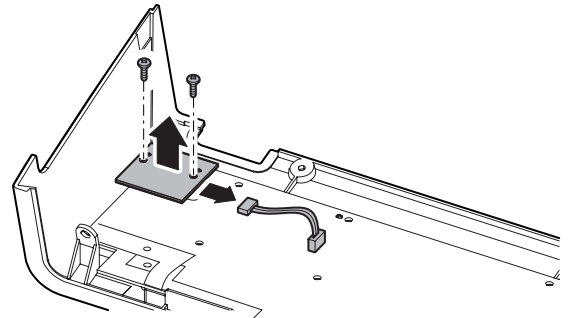


- 3) Remove the touch panel.



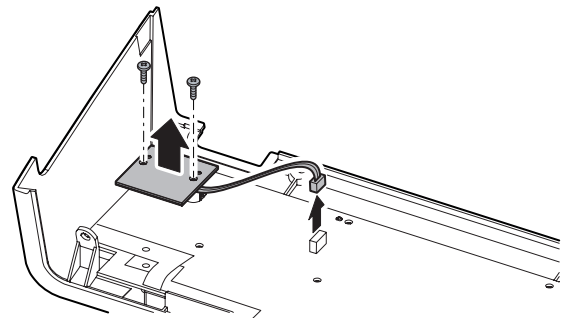
**e. POWER SW PWB**

- 1) Remove the operation panel unit.
- 2) Remove the POWER SW PWB.

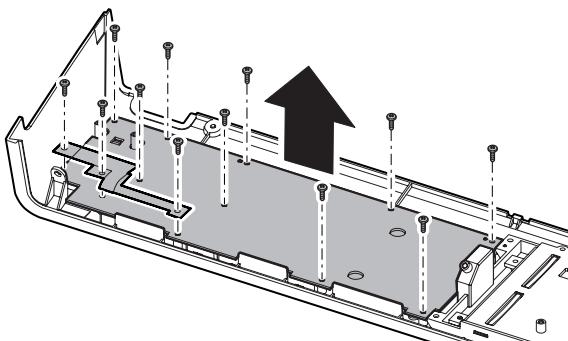


**f. MFP OPE-P PWB**

- 1) Remove the operation panel unit.
- 2) Remove the POWER SW PWB.

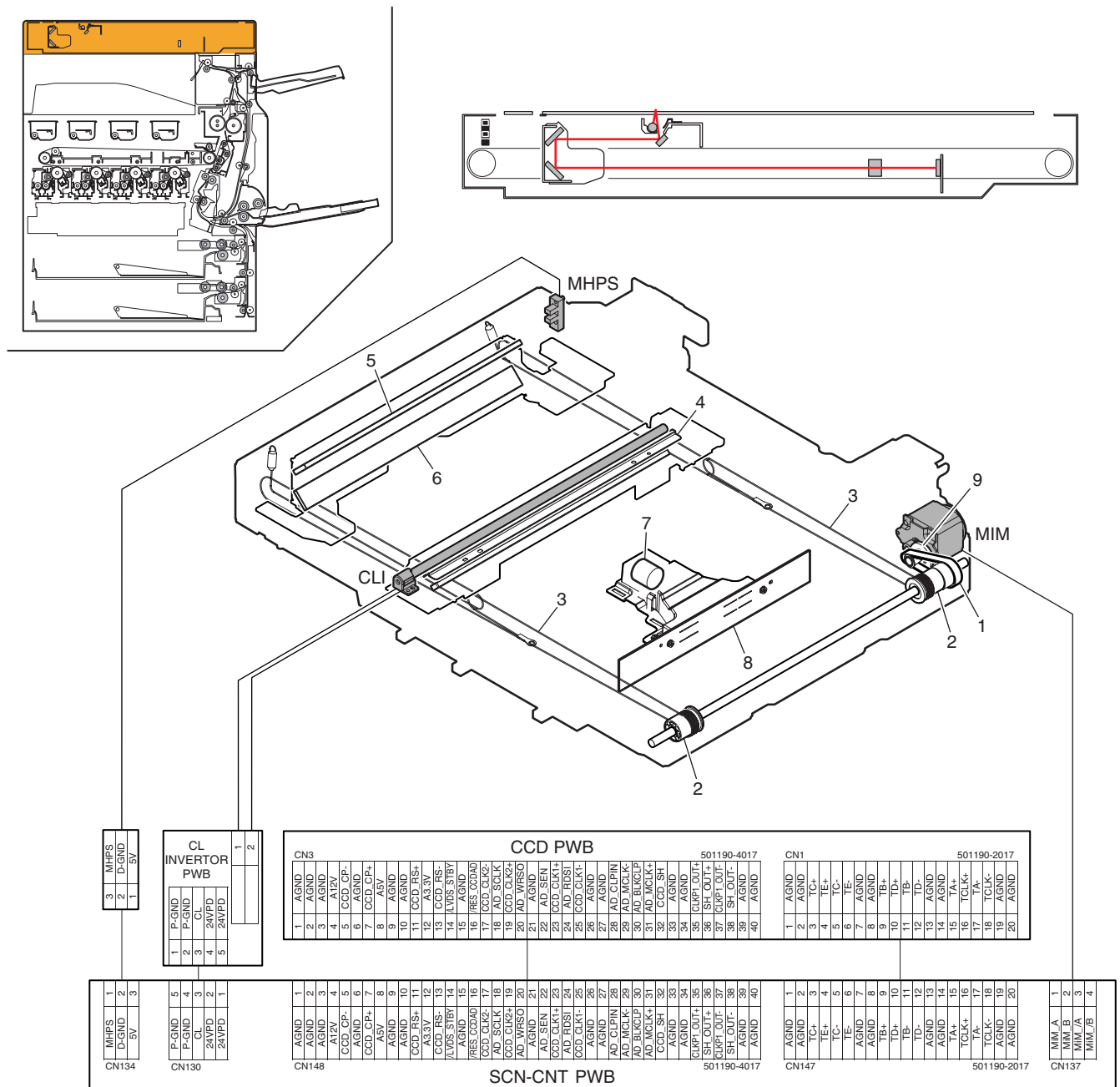


- 3) Remove the grounding sheet, and remove the MFP OPE-P PWB.



## [C] SCANNER SECTION

### 1. Electrical and mechanism relation diagram



Signal	Name	Function/Operation
CLI	Scanner lamp	Illuminates the document. (Xenon lamp)
MHPS	Scanner home position sensor	Detects the home position of the copy lamp unit.
MIM	Scanner motor	Drives the copy lamp unit and the mirror base unit.

No.	Name	Function/Operation
1	Pulley belt	Transmits the scanner motor power to the pulley.
2	Pulley	Drives the scanner drive wire.
3	Scanner drive wire	Transmits the scanner motor power to the copy lamp unit and the mirror base unit.
4	Reflector	Condenses the copy lamp light.
5	No. 2 mirror	Inducts the document image into the No.3 mirror.
6	No. 3 mirror	Inducts the document image into the lens.
7	Lens	Reduces the document image (light), and project it on CCD.
8	CCD PWB	Reads the document image (optical signal) and converts it into the electric signal.
9	Idle gear	Transmits the scanner motor power to the belt.

## 2. Operational descriptions

### A. Outline

This section functions and operates as follows:

- 1) The copy lamp radiates light onto the document, and the reflected light is scanned by the three line (RGB) CCD element and then converted into image signals (analog).
- 2) The image signals (analog) are converted into 10bit digital signals by the A/D converter.
- 3) The image signals (digital) are sent to the image process section (scanner control PWB).

### B. Detail description

#### (1) Optical section drive

The optical section drive power is transmitted from the scanner motor (MIM) through the belt, the drive pulley, and the wire to drive the copy lamp unit and the mirror base which are attached by the drive wires.

The scanner motor (MIM) is controlled by the drive signal sent from the scanner control PWB.

#### (2) Scanner lamp drive

The scanner lamp (CLI) is driven by the scanner lamp drive voltage generated in the CL inverter PWB according to the control signal sent from the scanner control PWB.

#### (3) Image scan/color separation

Light is radiated to a document by the scanner lamp, and the brightness of the reflected light is received by the three line (RGB) CCD element and converted into (analog) image signals.

Each color component of RGB is separately extracted from the document image by the three lines (RGB) of the CCD elements.

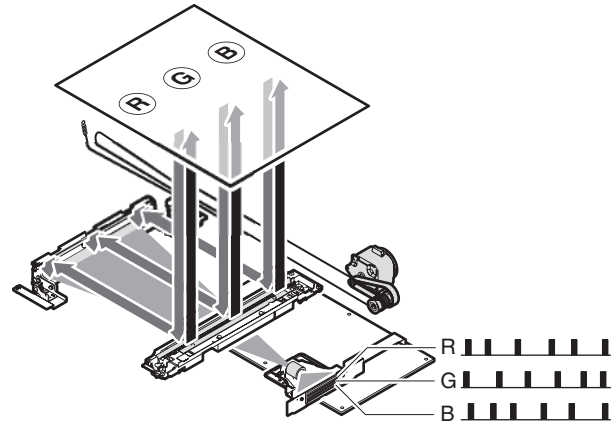
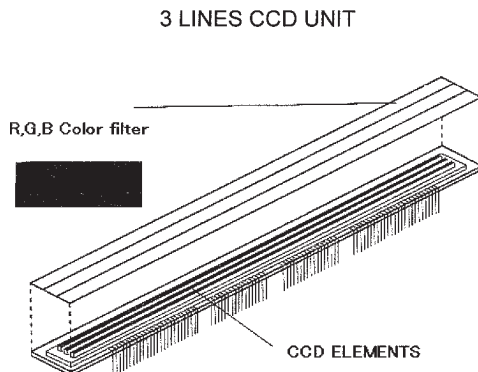
The red CCD extracts the red components from the document image, the green CCD the green components, and the blue CCD the blue components. This operation is called Color Separation.

The CCD element, appeared as one unit, but has three separate rows of CCD elements drive each for (RGB).

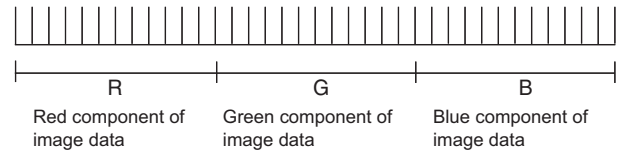
Scanning of a document in the main scanning direction is performed by the CCD elements. Scanning of a document in the sub scanning direction is performed by shifting the scanner unit position with the scanner motor.

Document images are optically reduced by the lens and projected to the CCD elements.

Scanning resolution is 600 dpi.

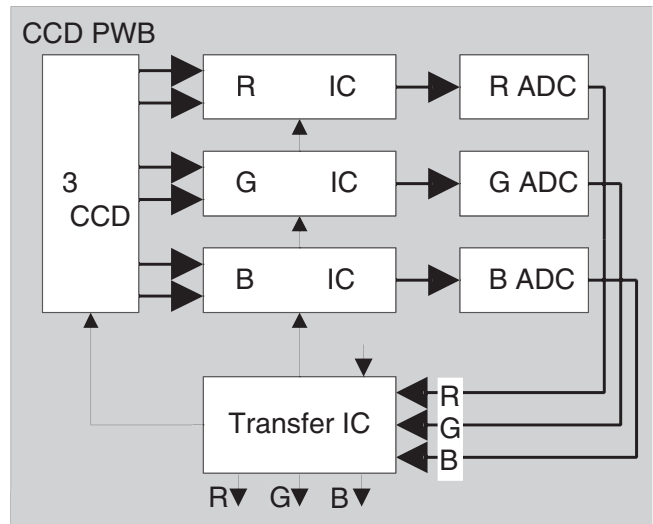


(Image data per 1 line)



#### (4) Image signal A/D conversion

- 1) Each image signal (analog) of RGB is converted into 10bit digital signal by the A/D converter. Each color pixel has 10bit information (256 gradations).
- 2) Each 10bit digital image signal of RGB is sent to the image process section.



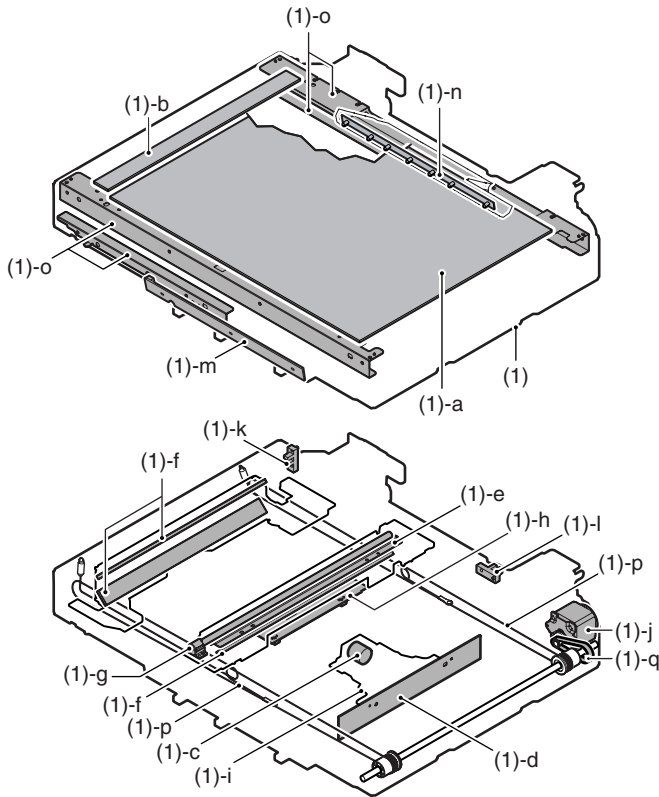
#### (5) Zooming operation

Zooming in the sub scanning direction is performed by changing the scanning speed in the sub scanning direction.

Zooming in the main scanning direction is not performed optically but by the image process technology (software).

### 3. Disassembly and assembly

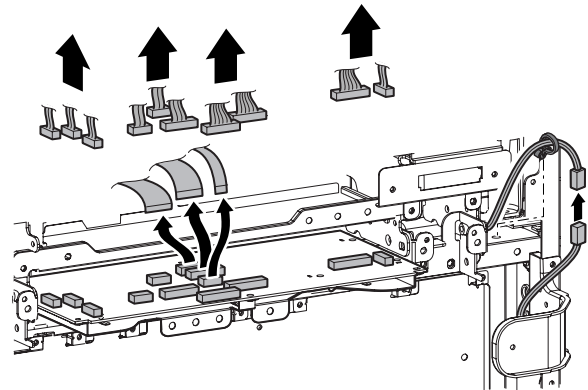
#### A. Optical system



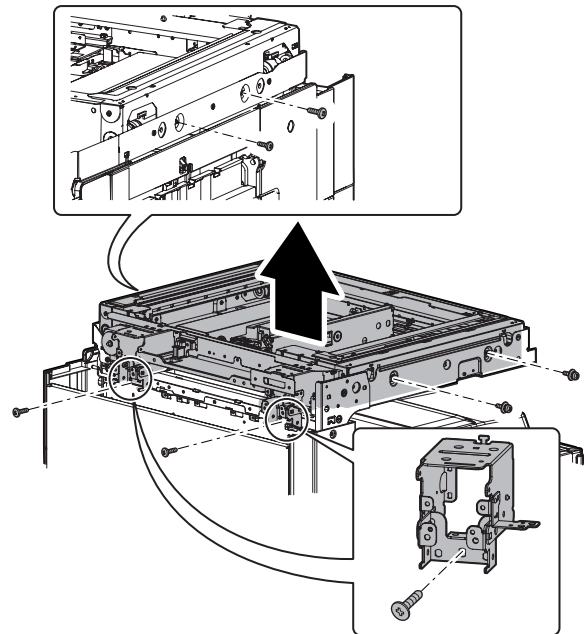
Unit	Parts	Maintenance
(1) Scanner unit	a Table glass	○
	b SPF glass	○
	c Lens	○
	d CCD	○
	e Reflector	○
	f Mirrors	○
	g Lamp	○
	h CL inverter PWB	
	i CCD unit	
	j Scanner motor	
	k Scanner home position sensor	
	l Original cover SW	
	m Document detection light receiving PWB	
	n Document detection light emitting PWB	
	o Rails	☆
	p Drive wire	×
	q Drive belt	×

#### (1) Scanner unit

- 1) Remove the upper cabinet rear cover and the upper cabinet rear.
- 2) Remove the table glass and the SPF glass.
- 3) Remove the upper cabinet right and the upper cabinet left.
- 4) Disconnect the connector and remove the snap band.



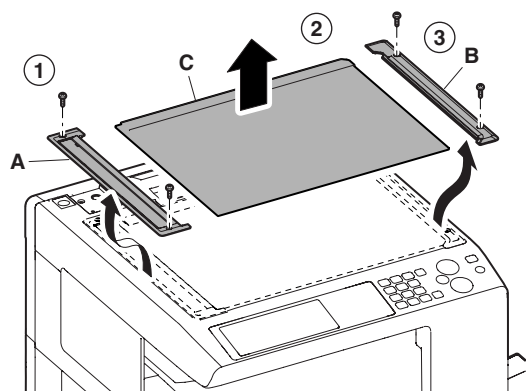
- 5) Remove the screws, and remove the scanner unit.



#### a. Table glass /

#### b. SPF glass

- 1) Remove the SPF glass (A). Remove the glass holder (B) and the table glass (C).

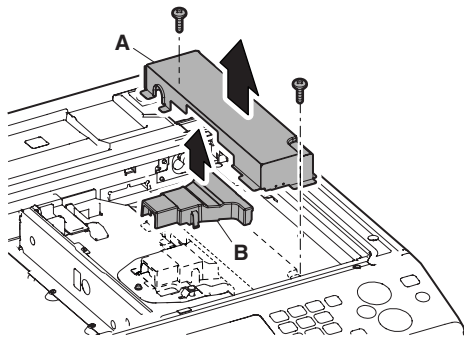




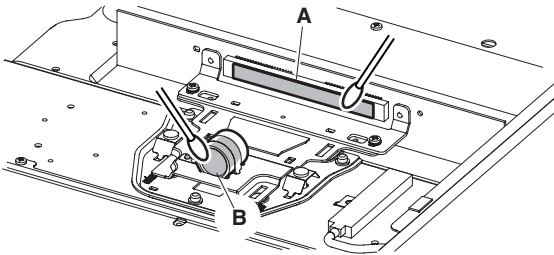
**c. Lens /**

**d. CCD**

- 1) Remove the glass holder and the table glass.
- 2) Remove the dark box cover (A) and the lens cover (B).



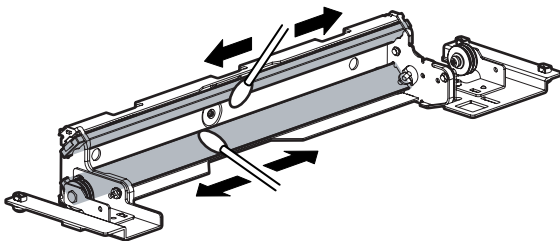
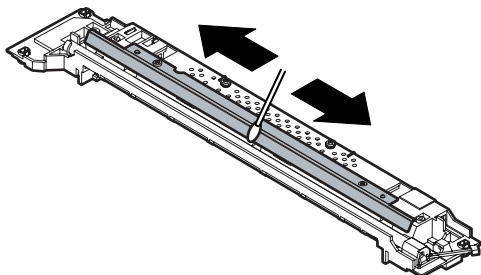
- 3) Clean the lens (A) and CCD (B).



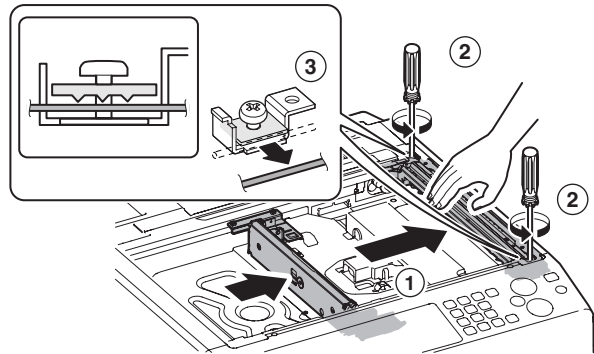
**e. Reflector /**

**f. Mirrors**

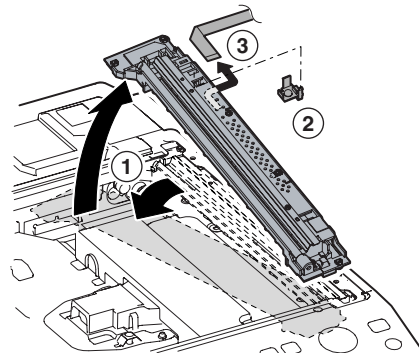
- 1) Remove the glass holder and the table glass.
- 2) Shift the lamp unit and the mirror unit.
- 3) Clean the reflector and No. 2 and 3 mirrors.



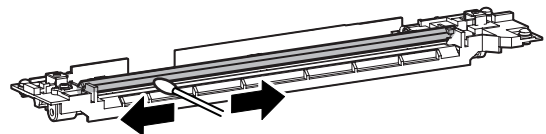
- 4) Shift the lamp unit to the right end. Loosen the screws and remove the wire.



- 5) While rotating the lamp unit, lift the lamp unit. Remove the harness holder and the flat cable. Remove the lamp unit.



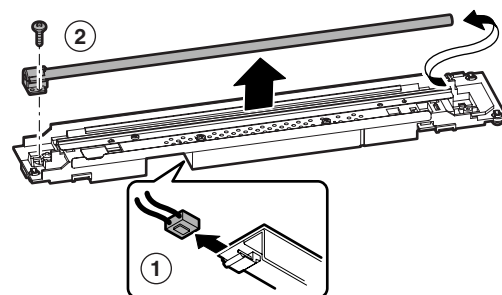
- 6) Clean the mirrors.



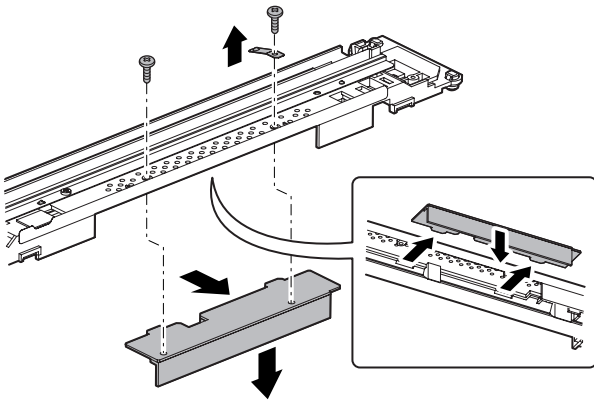
**g. Lamp /**

**h. CL inverter PWB**

- 1) Remove the table glass and the SPF glass.
- 2) Remove the lamp unit.
- 3) Disconnect the connector and remove the lamp.

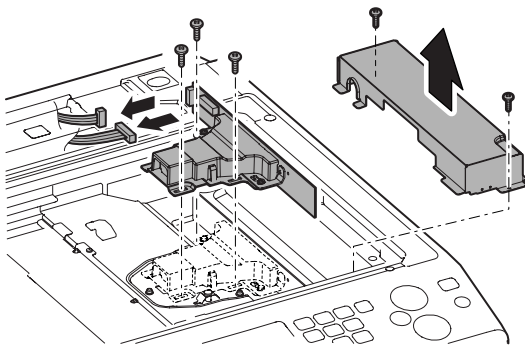


- 4) Remove the CL inverter PWB.



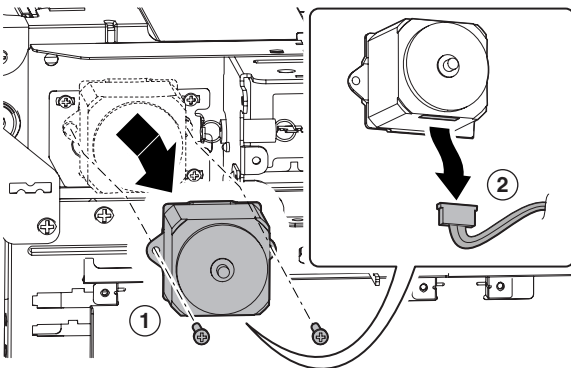
**i. CCD unit**

- 1) Remove the dark box. Disconnect the connector and remove the CCD unit.



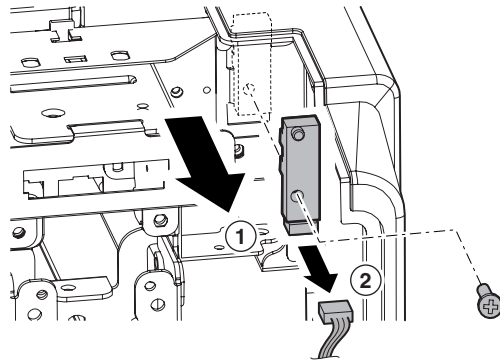
**j. Scanner motor**

- 1) Remove the upper cabinet rear cover and the upper cabinet rear.  
2) Disconnect the connector, and remove the scanner motor.



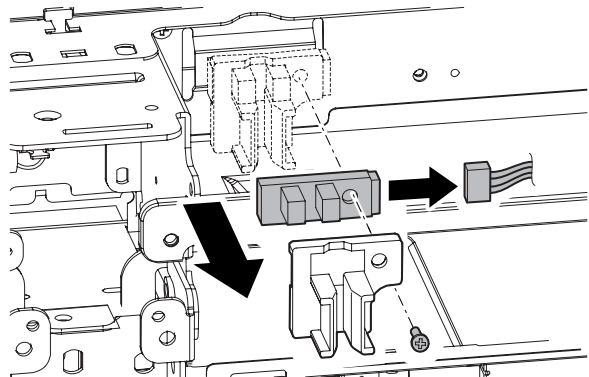
**k. Scanner home position sensor**

- 1) Remove the upper cabinet rear cover and the upper cabinet rear.  
2) Disconnect the connector, and remove the scanner home position sensor.



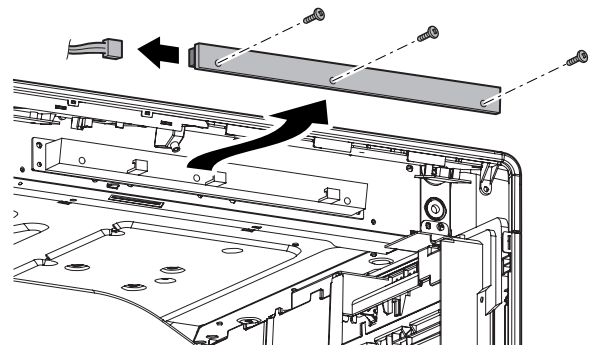
**l. Original cover SW**

- 1) Remove the upper cabinet rear cover and the upper cabinet rear.  
2) Disconnect the connector, and remove the document cover SW.



**m. Document detection light receiving PWB**

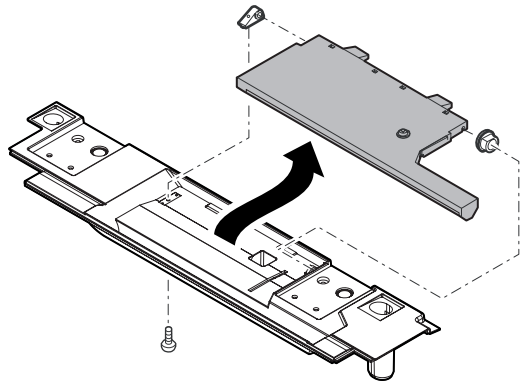
- 1) Remove the operation panel base plate.  
2) Disconnect the connector and remove the document detection light receiving PWB.



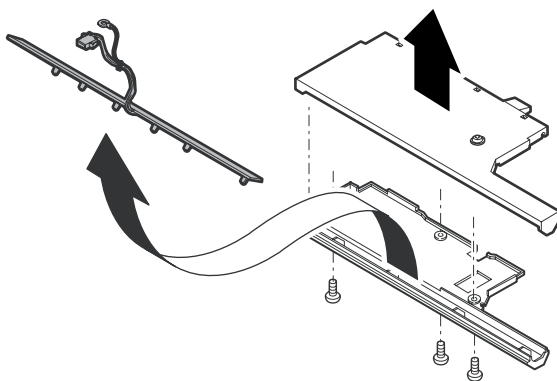


**n. Document detection light emitting PWB**

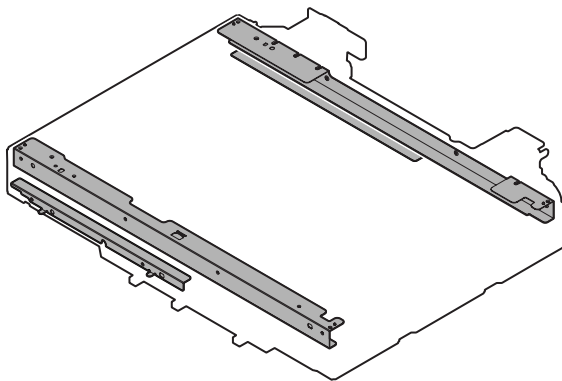
- 1) Remove the upper cabinet rear.
- 2) Remove the screws, and remove the light emitting unit.



- 3) Remove the document detection light emitting PWB



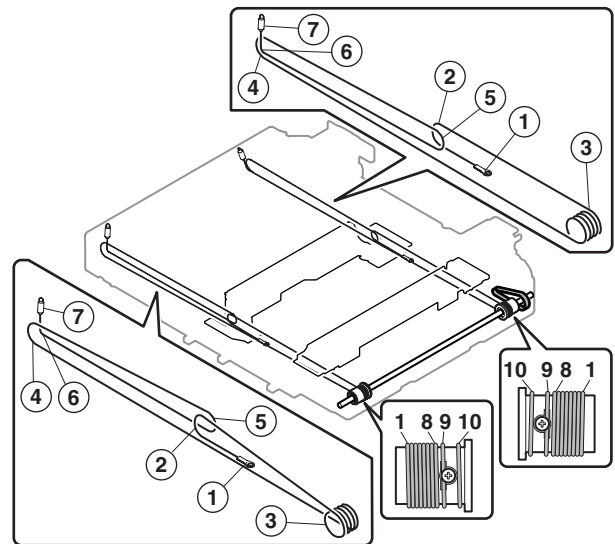
**o. Rails**



**p. Drive wire /**

**q. Drive belt**

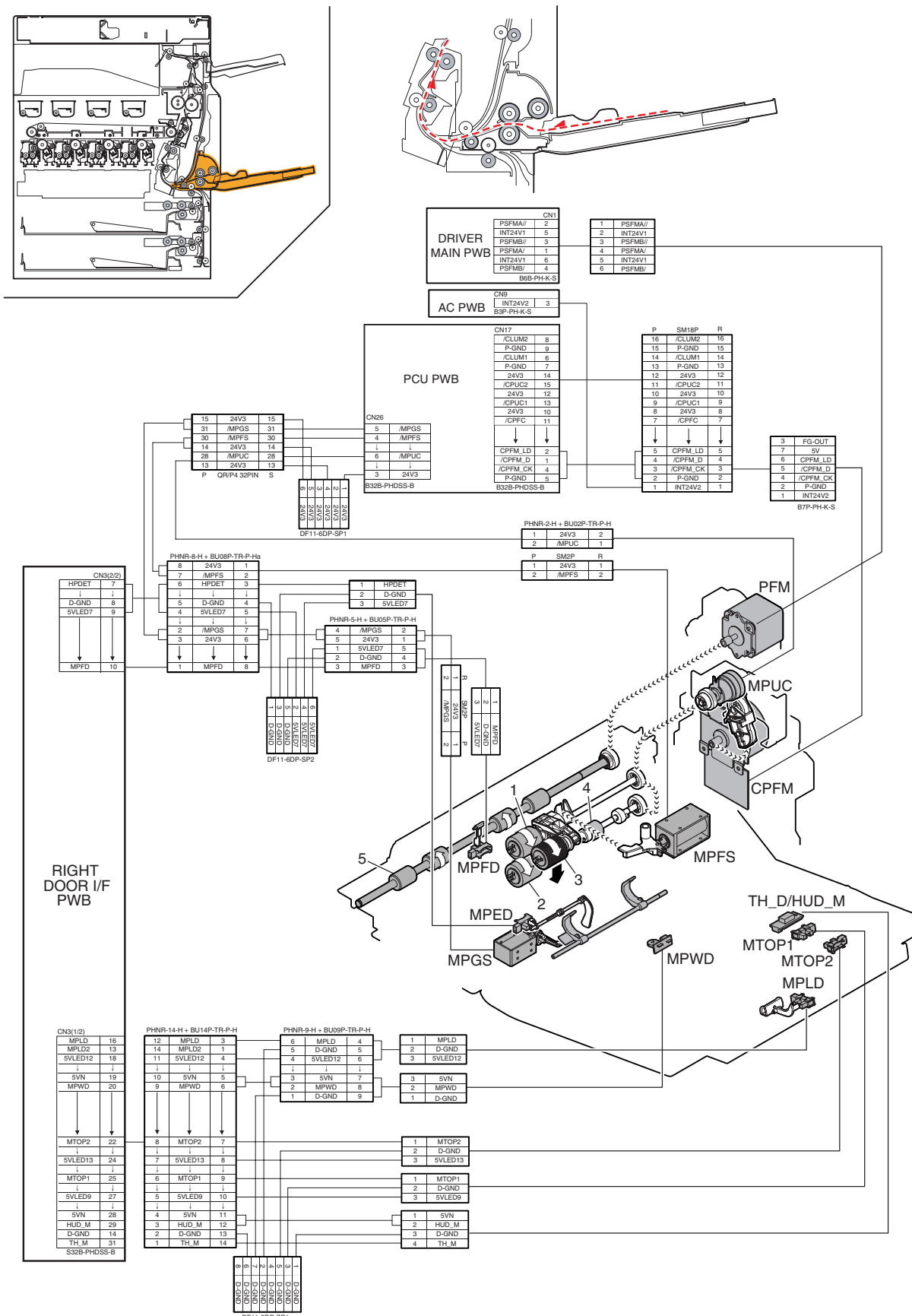
- \* Install the drive wire in the sequence shown in the figure below. Wind the drive wire 10 turns around the winding pulley. The 9th turn must be fixed with a screw.



When moving the copy lamp unit manually for cleaning or adjusting the scanner section and the mirror section, be sure to turn OFF the main power source (the power switch inside the front cover) and confirm that the power LED on the operation panel is OFF. If the copy lamp unit is manually moved with the main power ON, the trouble code "F6-30" may occur. If the trouble code "F6-30" is not canceled by turning OFF/ON the main power, refer to the Service Manual (FAX self diagnostics and the trouble codes).

# [D] MANUAL PAPER FEED SECTION

## 1. Electrical and mechanism relation diagram



Signal name	Name	Function/Operation
CPFM	Paper feed motor	Paper feed section drive
MPED	Manual feed paper empty detection	Manual paper feed tray paper empty detection
MPFD	Manual feed paper entry detection	Manual paper feed tray paper empty detection
MPDS	Paper pickup solenoid	Paper pickup solenoid (Manual paper feed)
MPGS	Manual paper feed gate solenoid	Controls the manual paper feed gate solenoid Open/Close.
MPLD	Manual feed paper length detector	Manual paper feed tray paper length detection
MPUC	Manual paper feed clutch	Controls the manual paper feed section paper feed roller ON/OFF.
MPWD	Manual paper feed tray paper width detector	Manual paper feed tray paper width detection
MTOP1	Manual paper feed tray pull-out position detector 1	Manual paper feed tray paper pull-out position detection (storage position)
MTOP2	Manual paper feed tray pull-out position detector 2	Manual paper feed tray paper pull-out position detection (pulling-out position)
PFM	Transport motor	Transport drive between the resist roller and the paper feed section. Transport drive between the resist roller and the right door section.
TH_M/HUD_M	Temperature/humidity detection	Detects temperature/humidity.

No.	Name	Function/Operation
1	Paper feed roller (Manual paper feed tray)	Feeds paper to the paper transport section.
2	Separation roller (Manual paper feed tray)	Separates paper to prevent Double Feed.
3	Paper pickup roller (Manual paper feed tray)	Feeds paper to the paper feed roller.
4	Torque limiter	A certain level of resistance force is supplied to the rotation of the separation roller to prevent double feed.
5	Transport roller 12 (Drive)	Transports paper transported from the transport roller 11 to the transport roller 8. Transports paper fed from the manual feed tray to the transport roller 8.

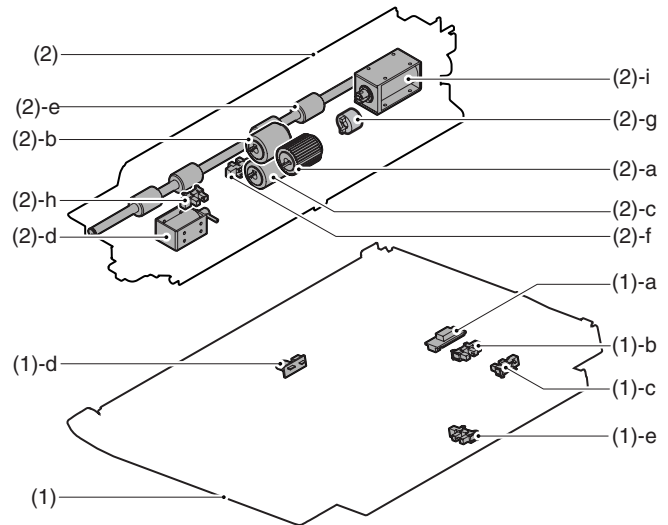
## 2. Operational descriptions

The paper pickup roller moves up and down to press paper and separates the top paper, which is fed to the paper feed roller.

The paper feed roller feeds paper to the paper transport section, and the separation roller prevents double feed.. ON/OFF control of the pickup roller and the paper feed roller is made by the manual paper feed clutch. Paper is transported to the resist roller by the manual paper transport roller.

## 3. Disassembly and assembly

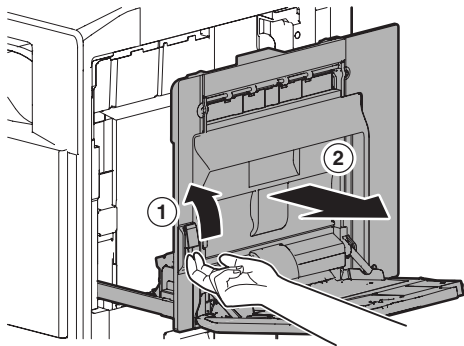
### A. Manual paper feed section



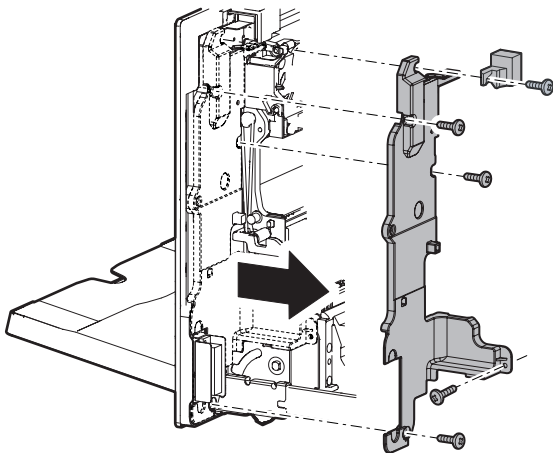
Unit	Parts	Maintenance
(1) Manual paper feed tray unit	a Temperature/humidity sensors	
	b Manual paper feed tray pull-out position detector 1	
	c Manual paper feed tray pull-out position detector 2	
	d Manual paper feed tray paper width detector	
	e Manual feed paper length detector	
(2) Manual paper feed unit	a Paper pickup roller	× ○
	b Paper feed roller	× ○
	c Separation roller	× ○
	d Manual paper feed gate solenoid	
	e Transport roller 12 (Drive)	
	f Manual feed paper entry detection	
	g Torque limiter	×
	h Manual feed paper empty detection	
	i Paper pickup solenoid	

## (1) Manual paper feed tray unit

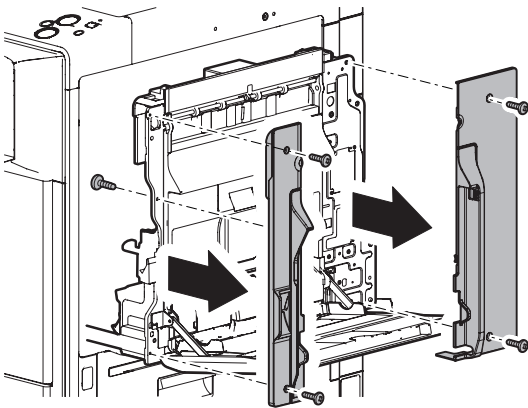
- 1) Open the right door unit.



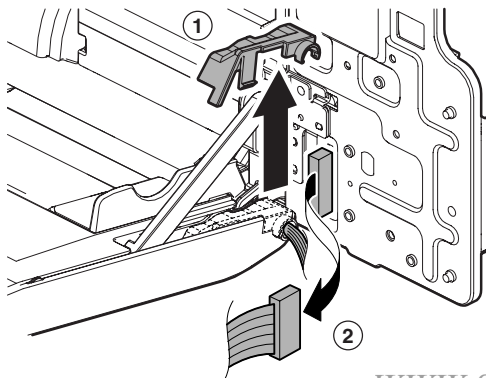
- 2) Remove the screws, and remove the connector cover. Remove the screws, then remove the ADU inner cover.



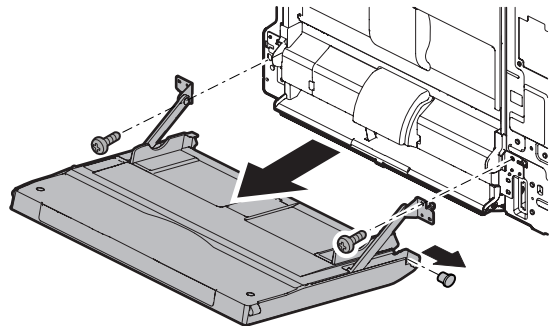
- 3) Remove the ADU cabinet F and the ADU cabinet R.



- 4) Remove the MF harness cover and disconnect the connector.



- 5) Remove the MF tray installing shaft, and remove the manual paper feed tray unit.



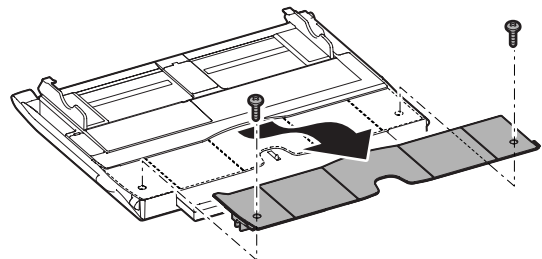
## a. Temperature/humidity sensors /

## b. Manual paper feed tray pull-out position detector 1 /

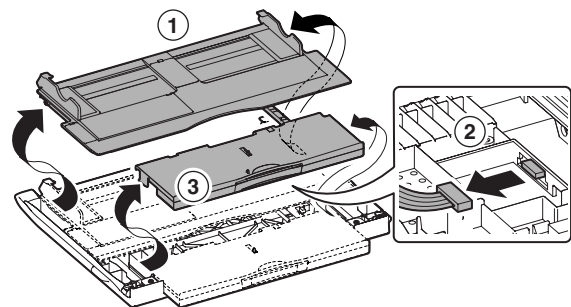
## c. Manual paper feed tray pull-out position detector 2 /

## d. Manual paper feed tray paper width detector

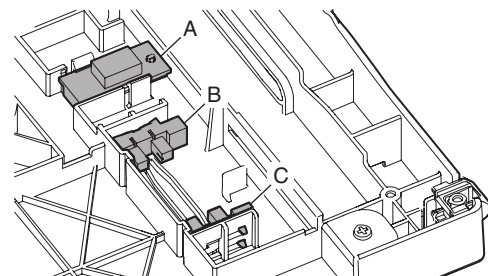
- 1) Remove the manual paper feed tray unit.
- 2) Remove the MF tray upper inside cover.



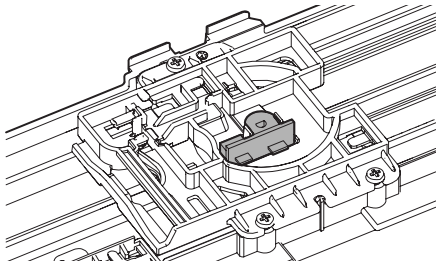
- 3) Disengage the pawl. Lift the MF tray upper and the MF tray 2, and disconnect the connector.



- 4) Temperature/humidity sensor (A), manual paper feed tray pull-out position detector 1 (B), manual paper feed tray pull-out position detector 2 (C)

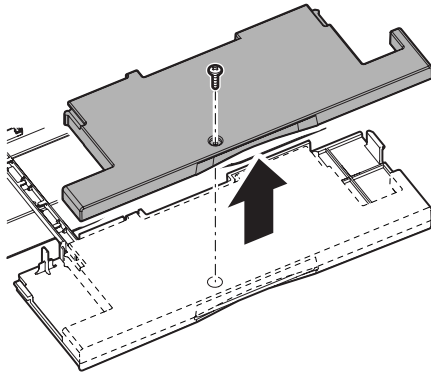


5) Manual paper feed tray paper width detector

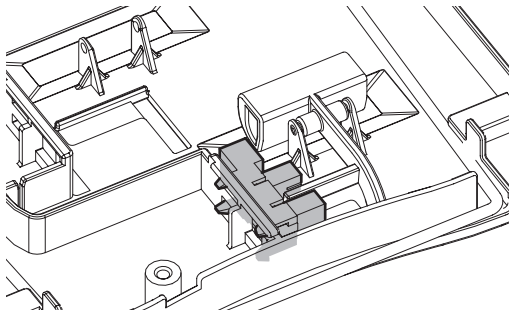


**e. Manual feed paper length detector**

- 1) Remove the manual paper feed tray unit.
- 2) Remove the MF tray 2.
- 3) Remove the MF tray 2 lower.

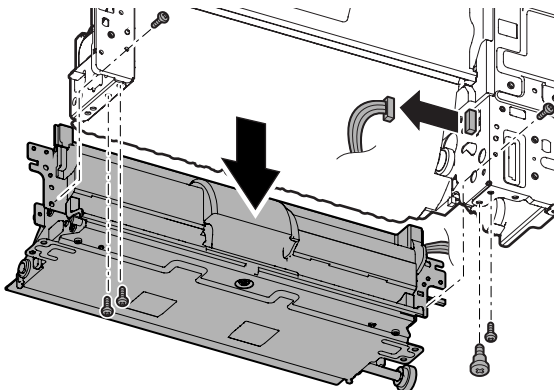


4) Manual feed paper length detector



**(2) Manual paper feed unit**

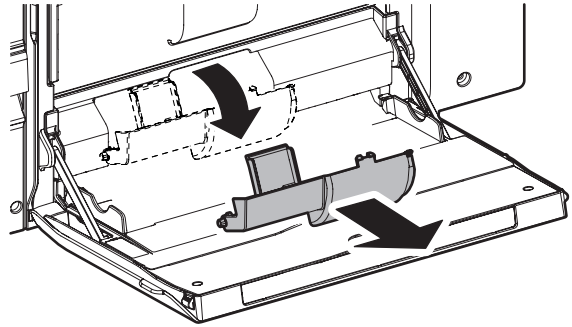
- 1) Open the right door unit.
- 2) Remove the manual paper feed tray unit.
- 3) Disconnect the connector, and remove the manual paper feed unit.



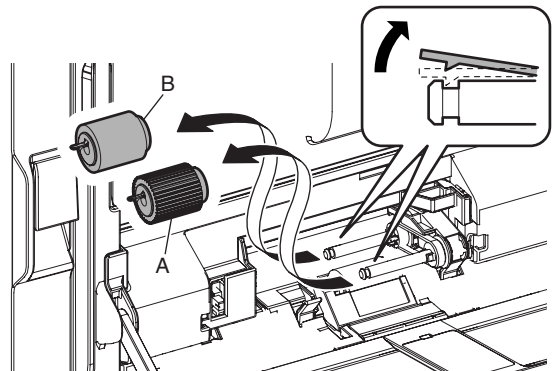
**a. Paper pickup roller /**

**b. Paper feed roller**

- 1) Remove the MF pickup cover.

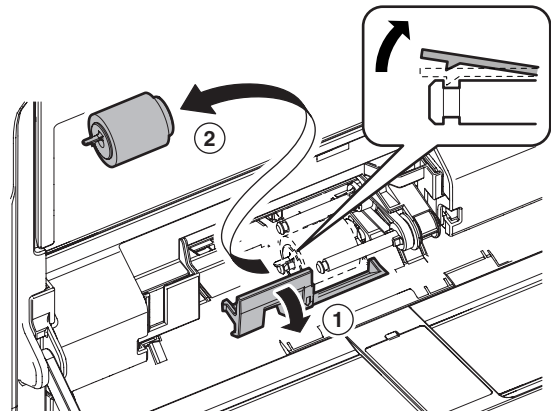


- 2) Remove the paper pickup roller (A) and the paper feed roller (B).



**c. Separation roller**

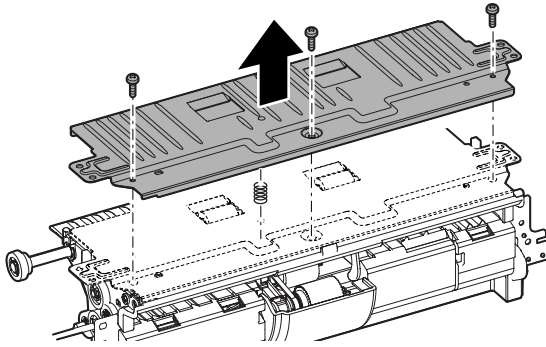
- 1) Remove the MF pickup cover.
- 2) Remove the paper pickup roller and the paper feed roller.
- 3) Open the MF lower maintenance cover, remove the separation roller.



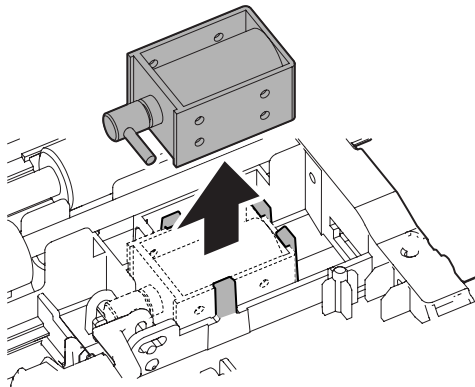


#### d. Manual paper feed gate solenoid

- 1) Remove the manual paper feed unit.
- 2) Remove the MF base guide supporting plate and the spring.

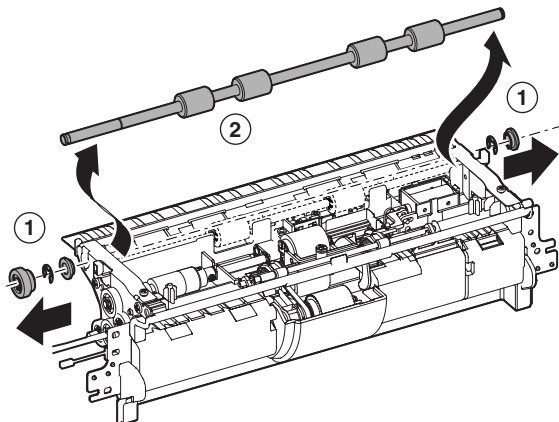


- 3) Disconnect the connector, and disengage the pawl. Remove the manual paper feed gate solenoid.



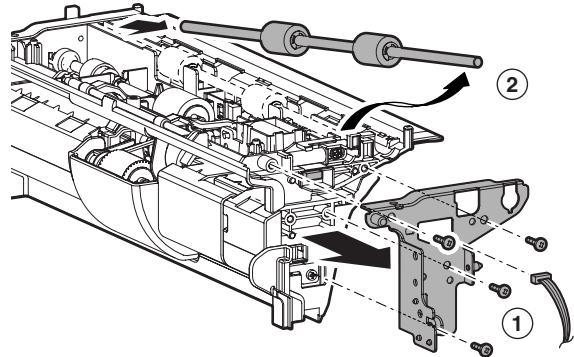
#### e. Transport roller 12 (Drive)

- 1) Remove the manual paper feed unit.
- 2) Remove the MF base guide supporting plate and the spring.
- 3) Remove the parts, and remove the transport roller 12 (Drive).

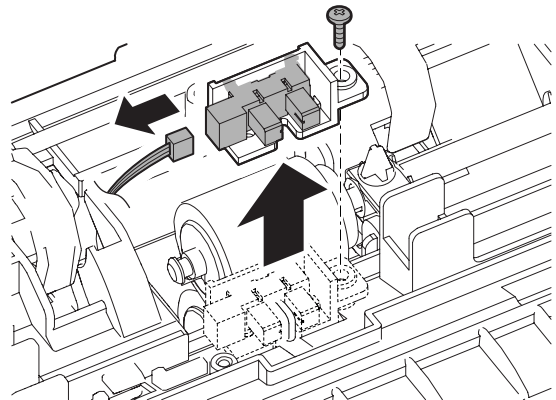


#### f. Manual feed paper entry detection

- 1) Remove the manual paper feed unit.
- 2) Remove the MF base guide supporting plate and the spring.
- 3) Remove the transport roller 12 (Drive).
- 4) Disconnect the connector, and remove the MF front plate. Remove the transport roller 7 (Idle) unit.

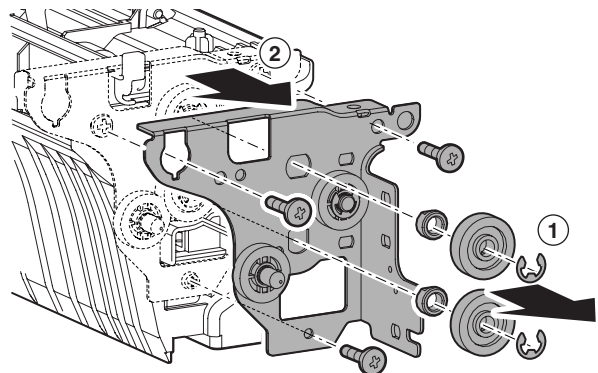


- 5) Disconnect the connector, and remove the sensor mounting plate.

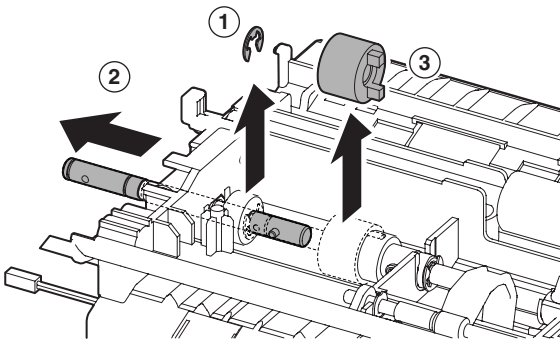


#### g. Torque limiter

- 1) Remove the manual paper feed unit.
- 2) Remove the MF base guide supporting plate and the spring.
- 3) Remove the transport roller 12 (Drive).
- 4) Remove the parts, and remove the MF drive plate.

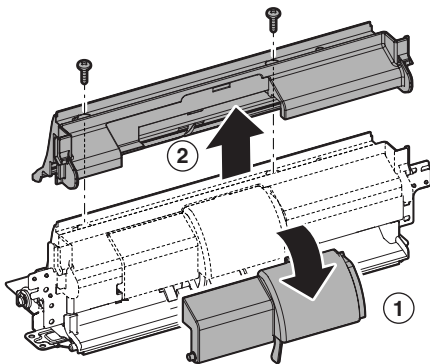


- 5) Remove the E-ring. Remove the shaft and remove the torque limiter.

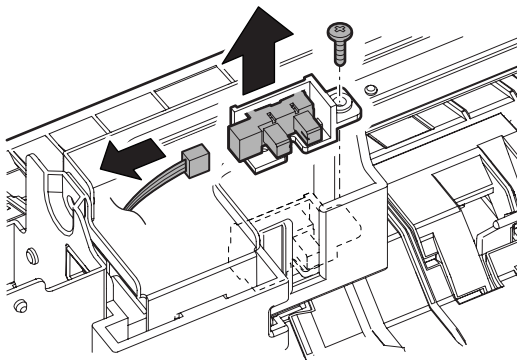


#### h. Manual feed paper empty detection

- 1) Remove the manual paper feed unit.
- 2) Remove the MF pickup cover and the MFADU paper guide.

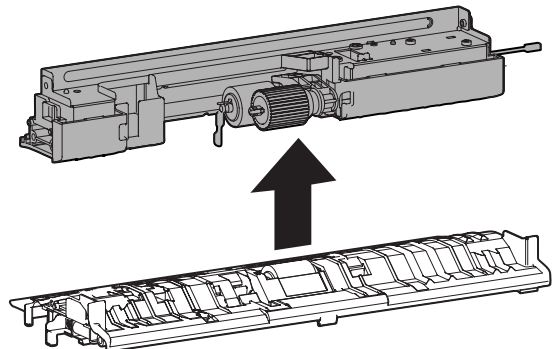


- 3) Disconnect the connector, and remove the sensor mounting plate.

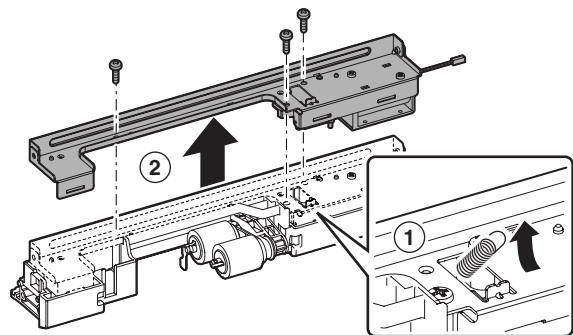


#### i. Paper pickup solenoid

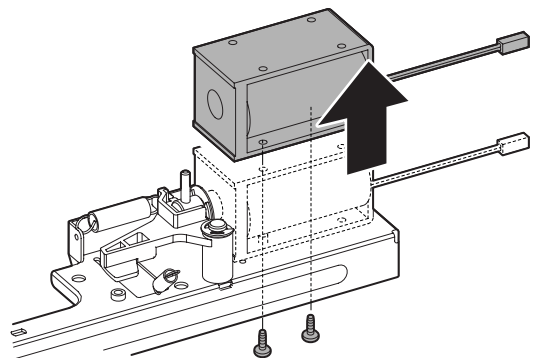
- 1) Remove the manual paper feed unit.
- 2) Remove the MF base guide supporting plate and the spring.
- 3) Remove the transport roller 12 (Drive).
- 4) Remove the MF drive plate.
- 5) Remove the MF front plate.
- 6) Remove the MF upper base paper guide unit.



- 7) Remove the MF upper guide supporting plate.

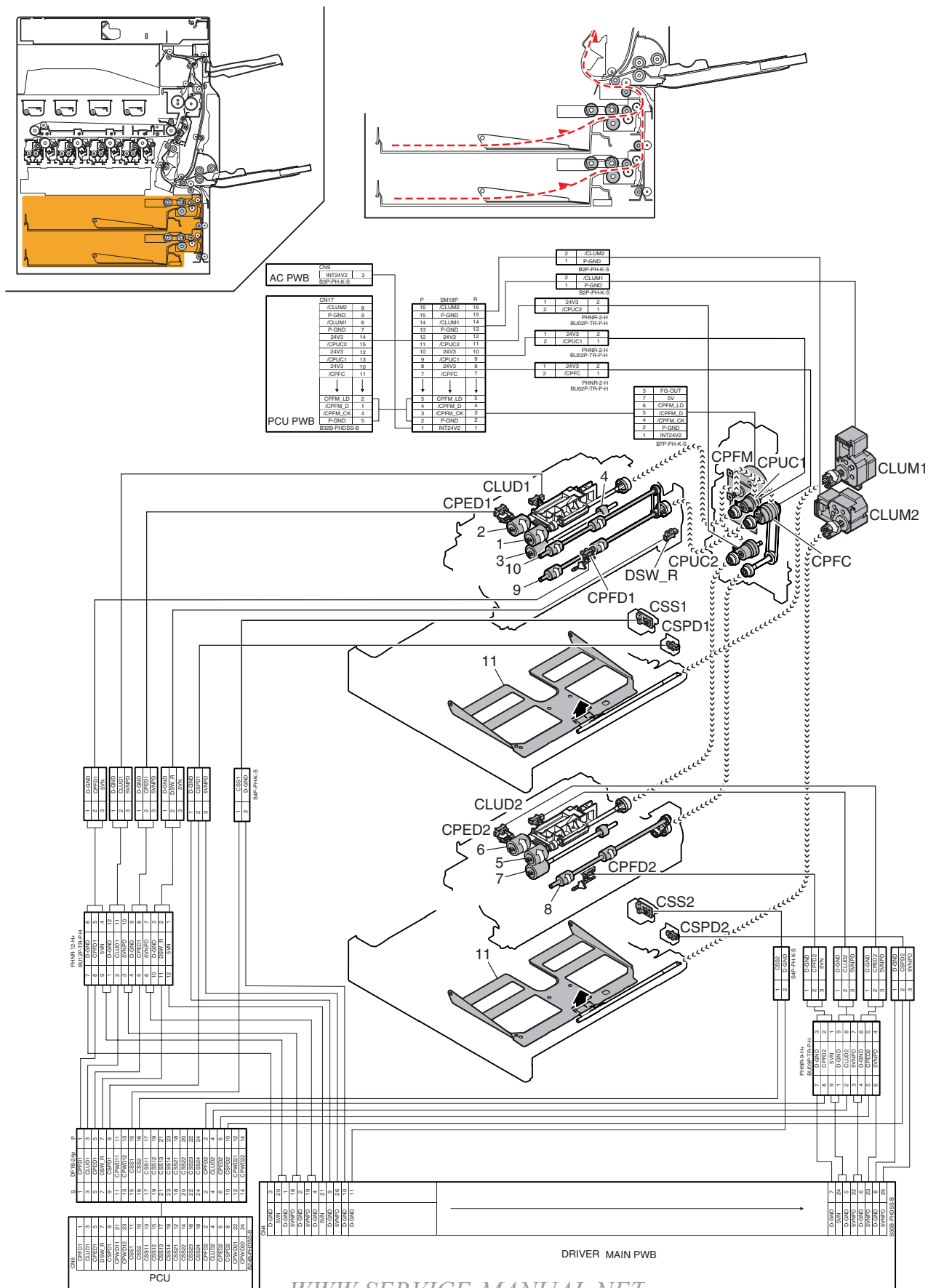


- 8) Remove the paper pickup solenoid.



# [E] TRAY PAPER FEED SECTION

## 1. Electrical and mechanism relation diagram





Signal name	Name	Function/Operation
CLUD1	Tray 1 upper limit detection (Lift HP detection)	Tray 1 upper limit detection
CLUD2	Tray 2 upper limit detection (Lift HP detection)	Tray 2 upper limit detection
CLUM1	Paper tray lift-up motor (Paper feed tray 1)	Drives the paper tray lift plate.
CLUM2	Paper tray lift-up motor (Paper feed tray 2)	Drives the paper tray lift plate.
CPED 1	Tray 1 paper empty detection	Tray 1 paper empty detection
CPED 2	Tray 2 paper empty detection	Tray 2 paper empty detection
CPFC	Tray vertical transport clutch	
CPFD1	Tray 1 transport detection (Paper entry detection)	Tray 1 paper pass detection
CPFD2	Tray 2 transport detection (Paper entry detection)	Tray2 paper pass detection
CPFM	Paper feed motor	Paper feed section drive
CPUC1	Paper feed clutch (Paper feed tray 1)	Controls the paper feed tray section roller ON/OFF.
CPUC2	Paper feed clutch (Paper feed tray 2)	Controls the paper feed tray section roller ON/OFF.
CSPD1	Tray 1 paper remaining quantity detection	Tray 1 paper remaining quantity detection
CSPD2	Tray 2 paper remaining quantity detection	Tray 2 paper remaining quantity detection
CSS1	Tray 1 presence detection	Detects the presence of the tray 1
CSS2	Tray 2 presence detection	Detects the presence of the tray 2
DSW_C	Tray 1, 2 transfer cover open/close detection	Detects opening of the tray 1, 2 transport cover.

No.	Name	Function/Operation
1	Paper feed roller (No.1 paper feed tray)	Feeds paper to the paper transport section.
2	Paper pickup roller (No. 1 paper feed tray)	Feeds paper to the paper feed roller.
3	Separation roller (No. 1 paper feed tray)	Separates paper to prevent Double Feed.
4	Torque limiter	A certain level of resistance force is supplied to the rotation of the separation roller to prevent double feed.
5	Paper feed roller (No. 1 paper feed tray)	Feeds paper to the paper transport section.
6	Paper pickup roller (No. 2 paper feed tray)	Feeds paper to the paper feed roller.
7	Separation roller (No. 2 paper feed tray)	Separates paper to prevent Double Feed.
8	Transport roller 4 (Drive)	Transports the paper transported from the transport roller 1 and paper feed roller (No. 2 paper feed tray) to the transport roller 7.
9	Transport roller 5 (Drive)	Transports the paper fed from the paper tray 1 to the transport roller 7.
10	Transport roller 7 (Drive)	Transports the paper fed from the paper feed tray 1, 2 or 3, 4 to the transport roller 8.
11	Rotation plate	Lifts up the paper to keep the paper feed position.

## 2. Operational descriptions

### A. Preliminary operation before paper feed

- When the paper is set and the paper feed tray is inserted, the pickup roller moves down and the paper feed tray sensor turns ON.
- The lift-up motor operates to lift the rotating plate.
- The paper upper limit sensor turns on to stop the rotating plate at the specified position.

### B. Paper feed operation

- When copy/print operation is started, the motor and the clutch are turned ON and the pickup roller is rotated in the paper pickup timing to feed paper.
- At the same time, the paper feed roller rotates to feed paper to the transport section. At that time, the separation roller rotates to prevent against double feed of paper.

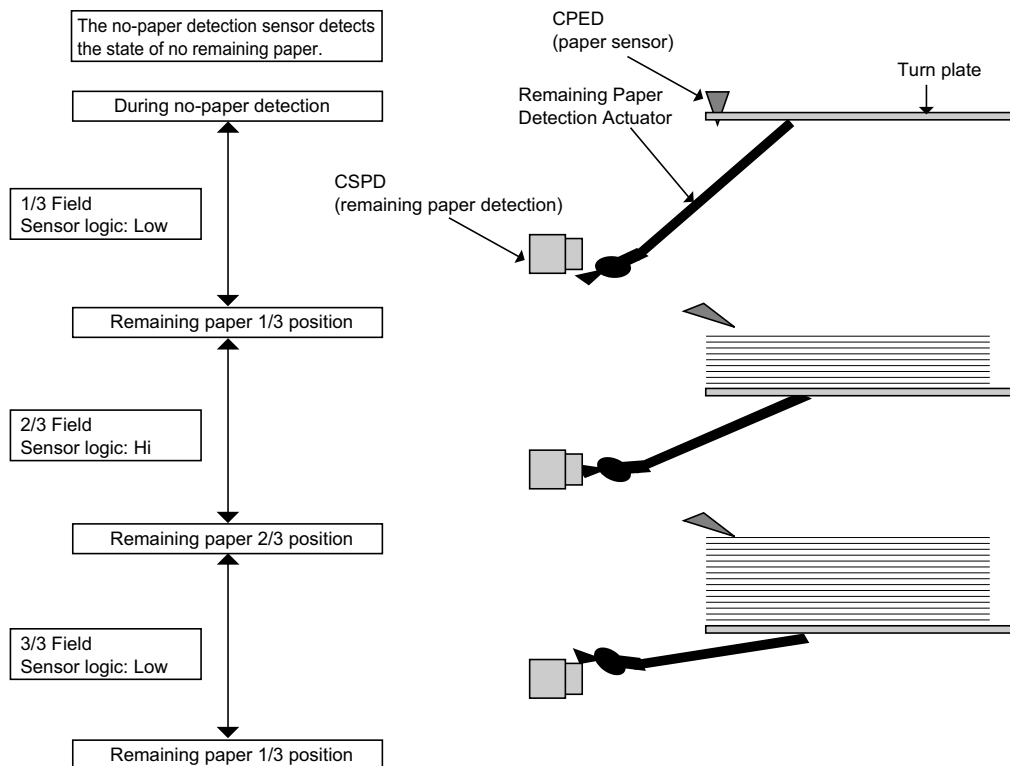
### C. Remaining paper detection

- Remaining paper detection is performed according to four stages, i.e. three stages with paper and one stage with no paper, and the result is displayed.

### D. Remaining paper detection method

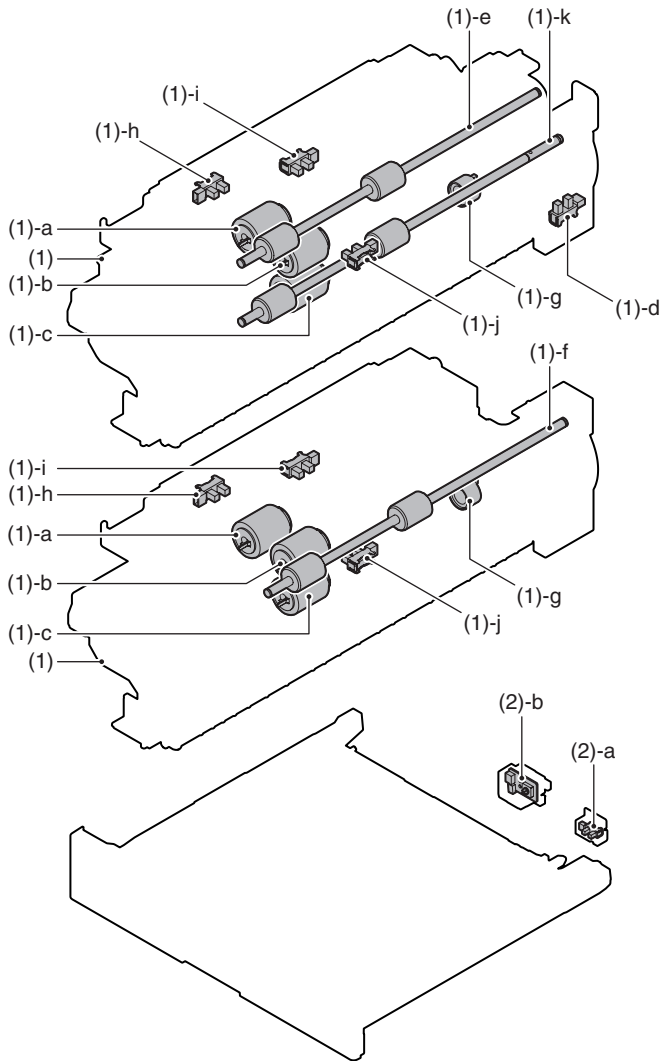
- The number of remaining sheets is determined according to the number of times the remaining paper sensor changes from the time the paper feed tray starts lifting up to the time when the upper detection sensor comes ON.

(Figure showing state transition of the remaining paper detection sensor during tray elevation and changes in status according to the number of remaining sheets)



### 3. Disassembly and assembly

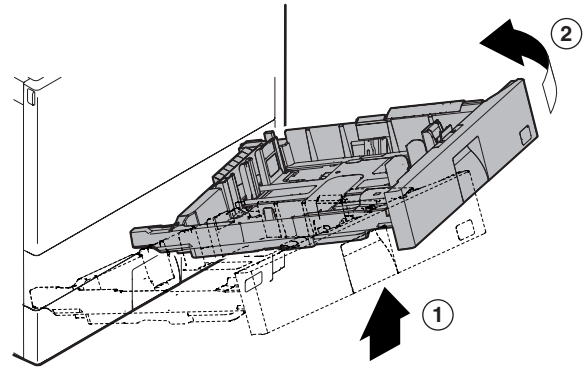
#### A. Tray paper feed section



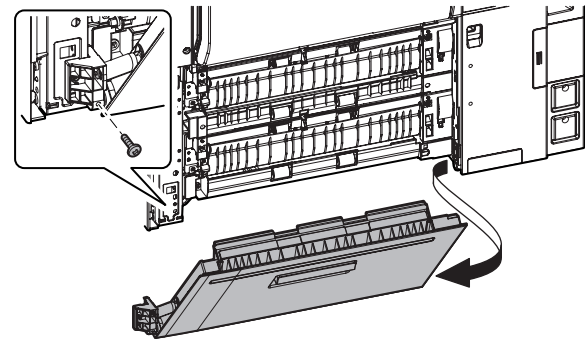
Unit		Parts	Maintenance
(1)	Tray paper feed unit 1, 2	a Paper pickup roller	×○
		b Paper feed roller	×○
		c Separation roller	×○
		d Tray 1 transport cover detection	
		e Transport roller 7 (Drive)	×○
		f Transport roller 4 (Drive)	×○
		g Torque limiter	×
		h Tray 1, 2 paper presence detection	
		i Tray 1, 2 upper limit detection	
		j Tray 1, 2 transport detection	
		k Transport roller 5 (Drive)	×○
(2)	Others	a Tray 1, 2 paper remaining quantity detection	
		b Tray 1, 2 presence detection	

#### (1) Remove the tray paper feed unit 1 and 2.

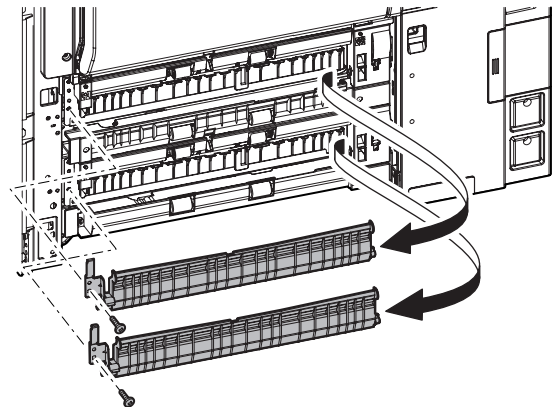
- 1) Remove the right cabinet front.
- 2) Remove the tray 1 and 2.



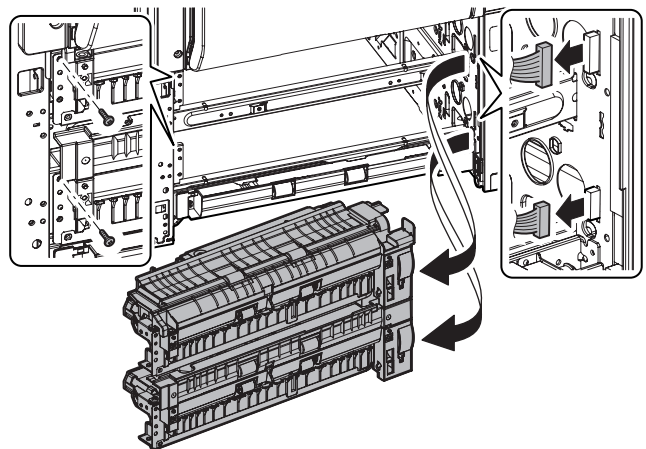
#### 3) Remove the right lower door unit.



#### 4) Remove the paper feed movable PG lower.



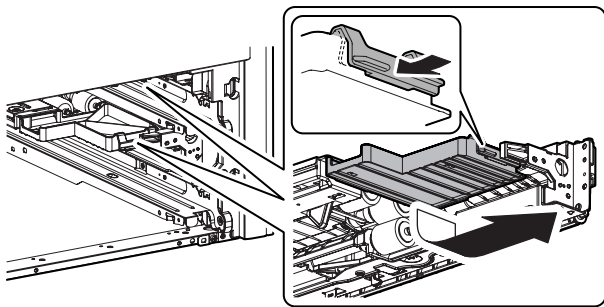
#### 5) Remove the paper feed unit 1, 2.



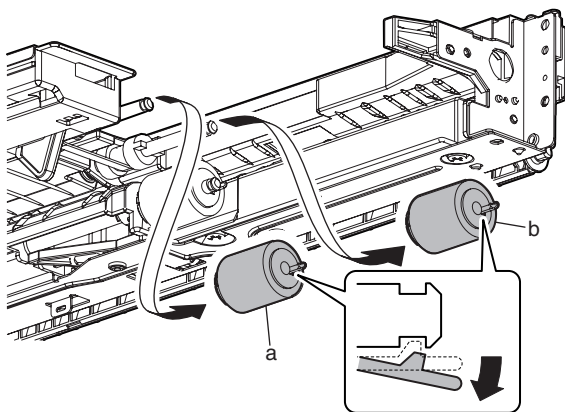
**a. Paper pickup roller /**

**b. Paper feed roller**

- 1) Remove the tray 1 and 2.
- 2) Remove the paper guide.

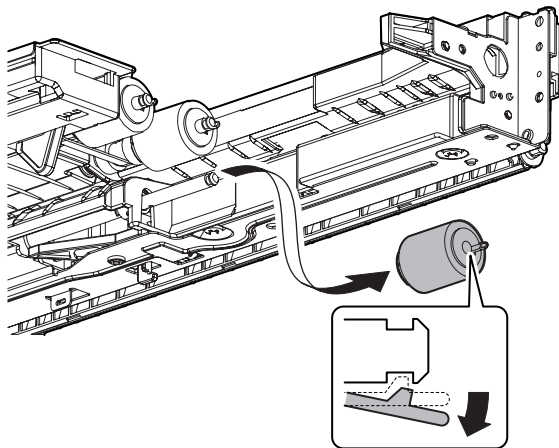


- 3) Remove the paper pickup roller (a) and the paper feed roller (b).



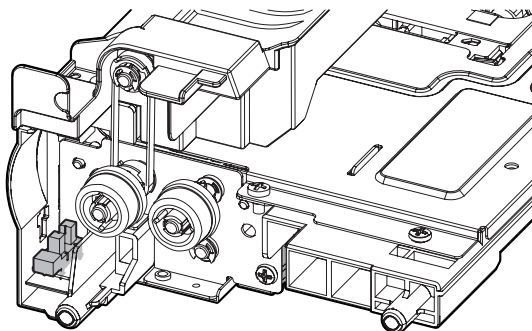
**c. Separation roller**

- 1) Remove the tray 1 and 2.
- 2) Remove the paper guide.
- 3) Remove the separation roller.



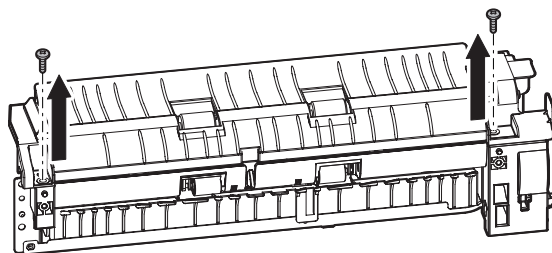
**d. Tray 1 transport cover opening detection**

- 1) Remove the tray paper feed unit 1.

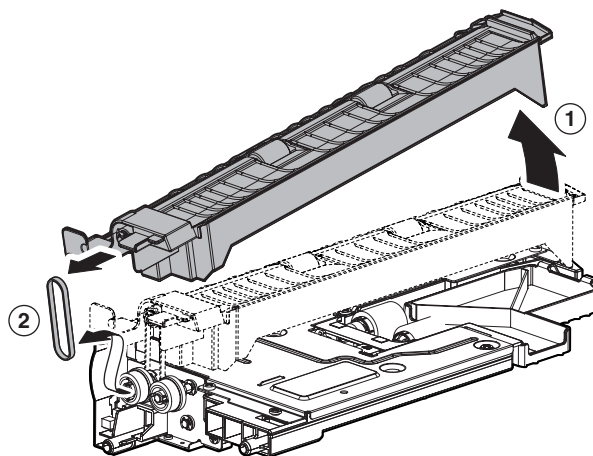


**e. Transport roller 7 (Drive)**

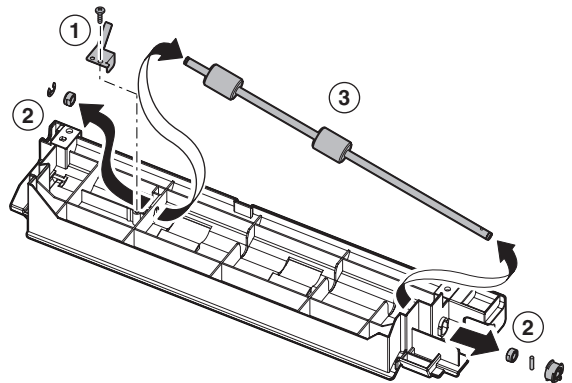
- 1) Remove the tray paper feed unit 1.
- 2) Remove the screws.



- 3) Remove the paper feed reverse PG unit, and remove the belt.

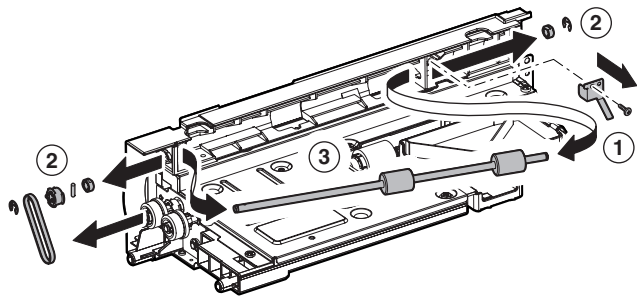


- 4) Remove the grounding plate. Remove the parts. Remove the transport roller 7 (drive).



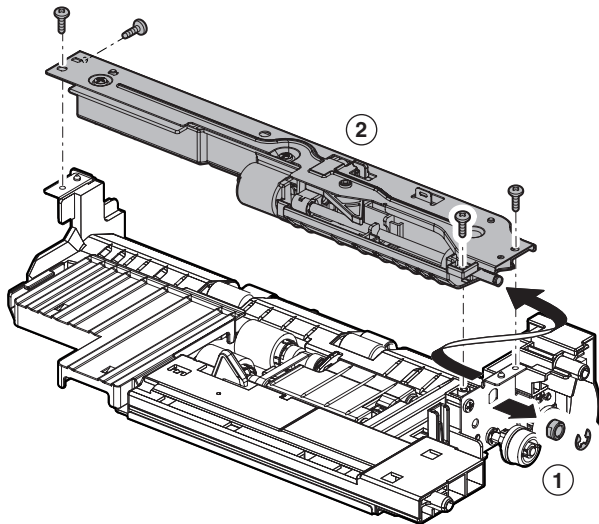
**f. Transport roller 4 (Drive)**

- 1) Remove the tray paper feed unit 2.
- 2) Remove the grounding plate. Remove the parts. Remove the transport roller 4 (drive).

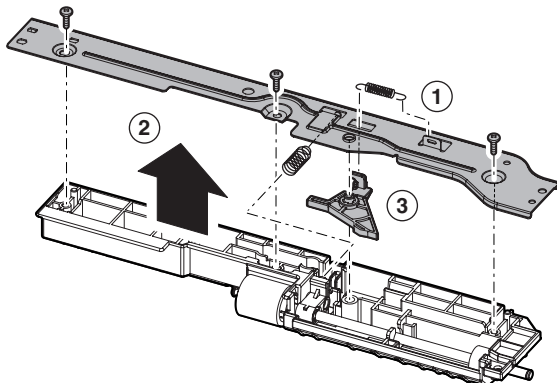


**g. Torque limiter**

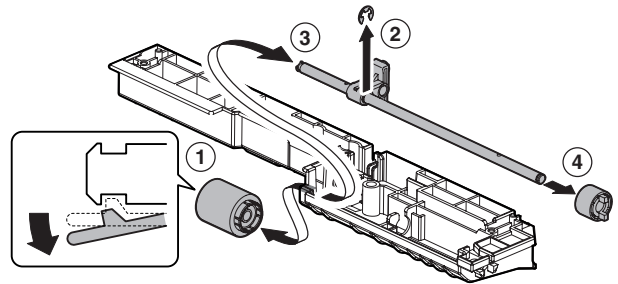
- 1) Remove the paper feed unit 1, 2.
- 2) Remove the E-ring and the bearing, and remove the paper feed lower PG unit.



- 3) Remove the pressure release spring, and remove the paper feed lower PG supporting plate. Remove the separation pressure spring, and the separation pressure release plate.



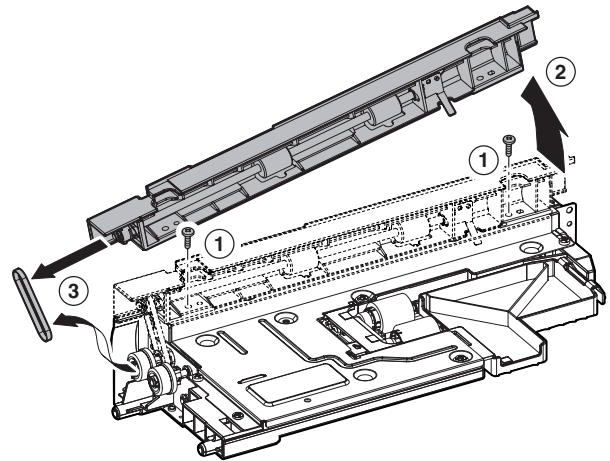
- 4) Remove the separation roller. Remove the E-ring and the separation shift. Remove the torque limiter.



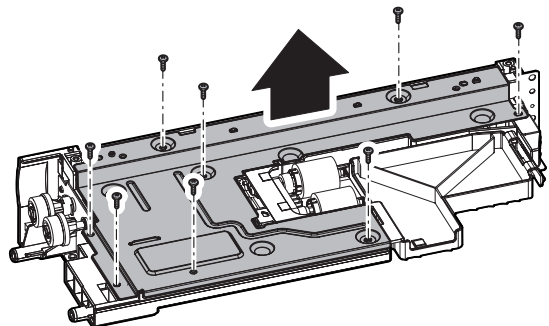
**h. Tray 1, 2 paper presence detection /**

**i. Tray 1, 2 upper limit detection sensor**

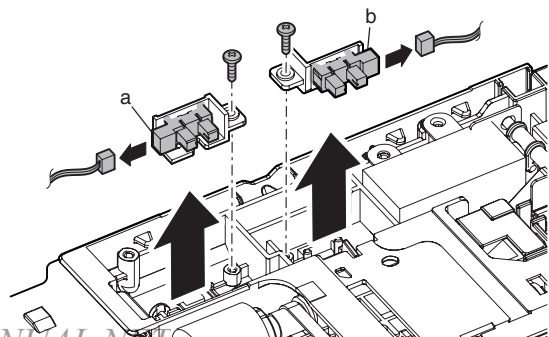
- 1) Remove the paper feed unit 1, 2.
- 2) Remove the paper feed reverse PG unit. (Tray paper feed unit 1 only)
- 3) Remove the paper feed vertical transport PG unit, then remove the belt. (Tray paper feed unit 2 only)



- 4) Remove the paper feed upper PG supporting plate.



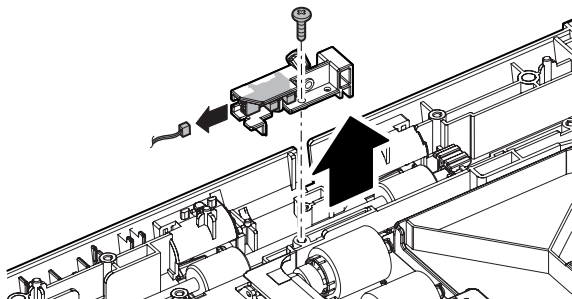
- 5) Remove the tray 1, 2 paper presence detector (a) and the tray 1, 2 upper limit detector (b).



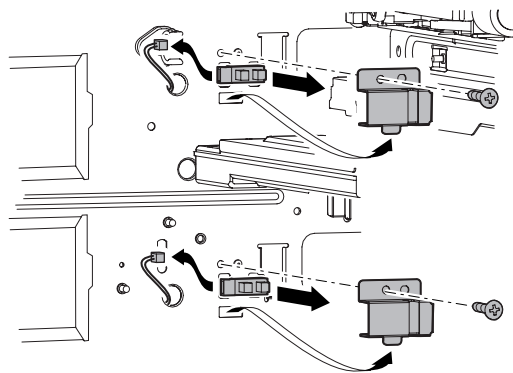


**j. Tray 1, 2 transport detection**

- 1) Remove the paper feed unit 1, 2.
- 2) Remove the paper feed reverse PG unit. (Tray paper feed unit 1 only)
- 3) Remove the paper feed vertical transport PG unit. (Tray paper feed unit 2 only)
- 4) Remove the paper feed upper PG supporting plate.
- 5) Remove the tray 1, 2 transport detector.

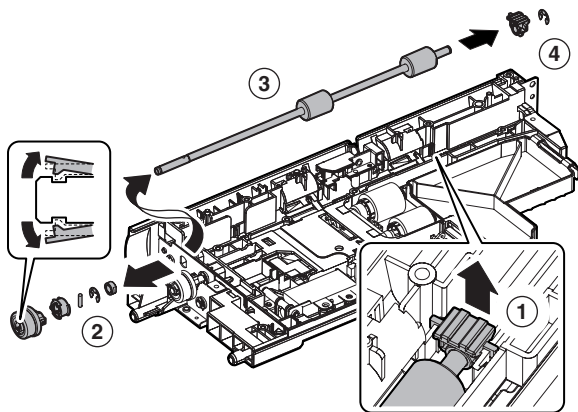


- 2) Remove the connector and the screws, then remove the tray 1, 2 paper remaining quantity detector.



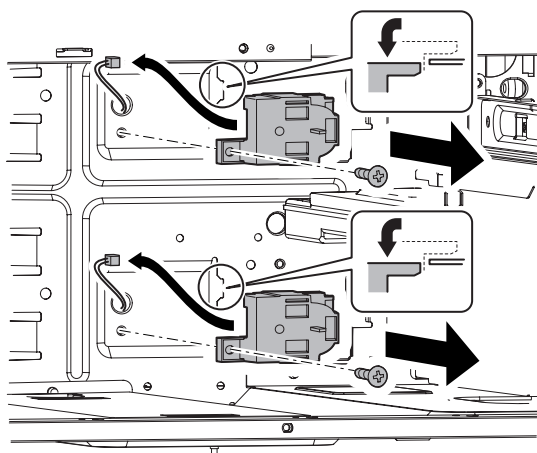
**k. Transport roller 5 (Drive)**

- 1) Remove the tray paper feed unit 1.
- 2) Remove the paper feed reverse PG unit.
- 3) Remove the paper feed upper PG supporting plate.
- 4) Remove the parts, and remove the transport roller 5 (Drive). Remove the E-ring and the bearing holder from the transport roller 5 (Drive).

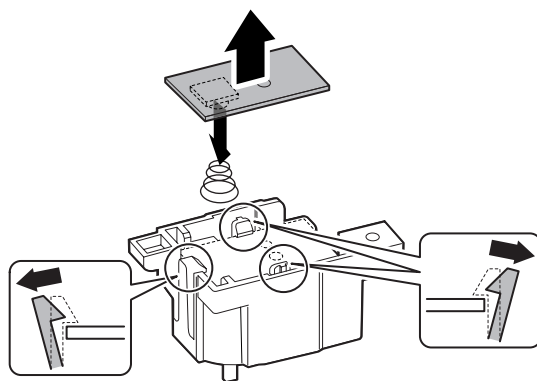


**b. Tray 1, 2 presence detection**

- 1) Remove the tray 1 and 2.
- 2) Remove the connector and the screws, then remove the tray 1, 2 presence detector.



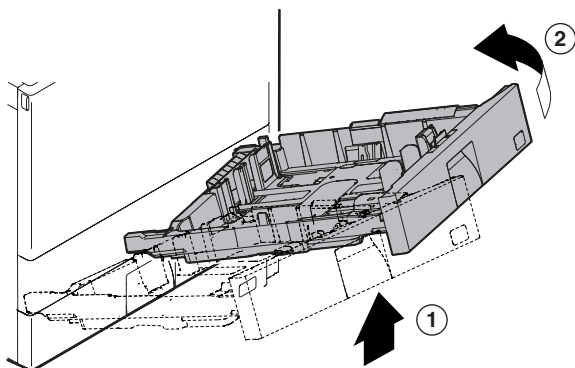
- 3) Release the pawl, and remove the tray 1, 2 detection unit. Remove the spring from the tray 1, 2 presence detector.



**(2) Others**

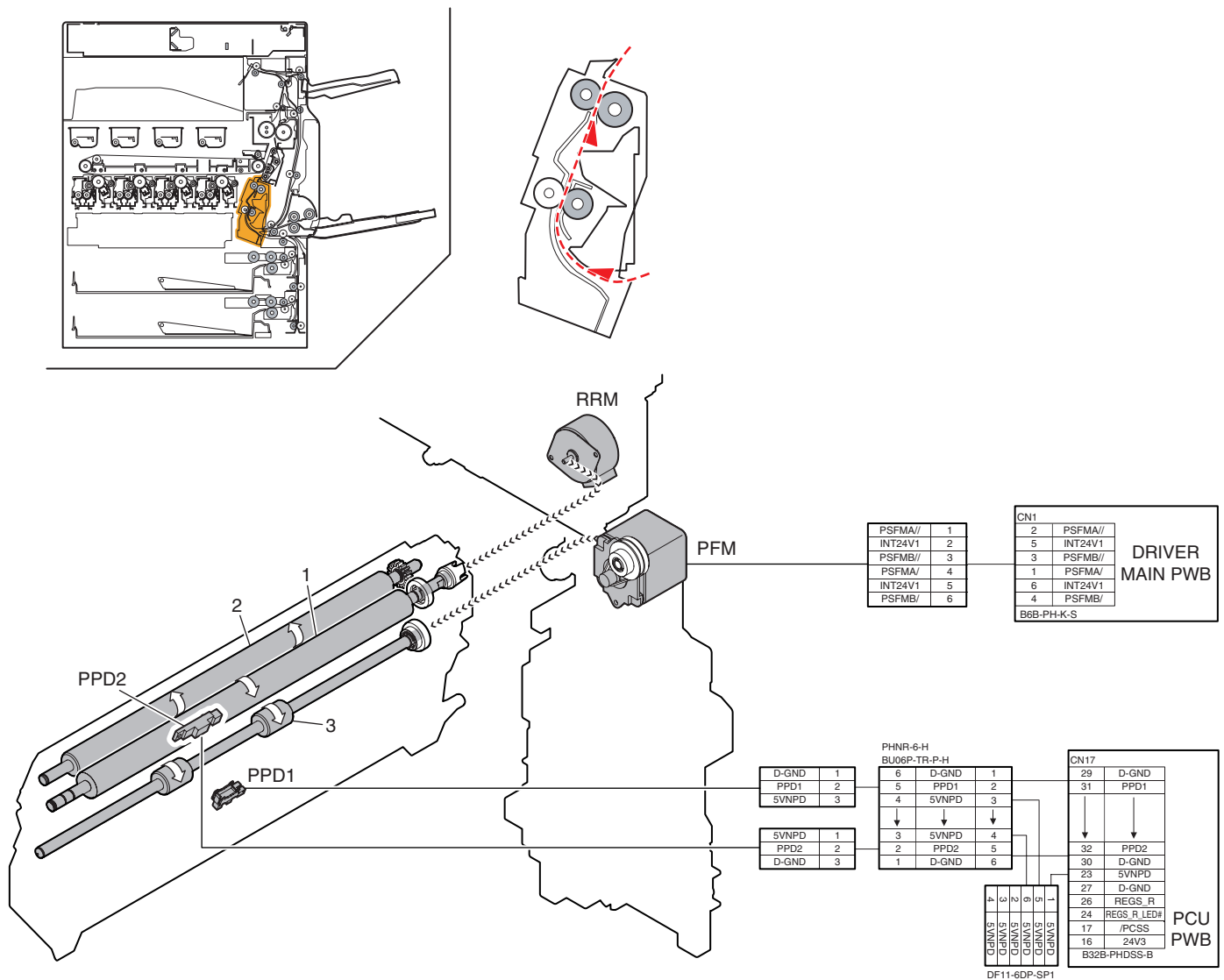
**a. Tray 1, 2 paper remaining quantity detection**

- 1) Remove the tray 1 and 2.



## [F] PAPER TRANSPORT SECTION

### 1. Electrical and mechanism relation diagram



Signal name	Name	Function/Operation
PFM	Transport motor	Transport drive between the resist roller and the paper feed section. Transport drive between the resist roller and the right door section.
PPD1	Resist front detection	Detects paper before the resist roller.
PPD2	Resist detection	Detects paper after the resist roller.
RRM	Resist motor	Controls the drive and ON/OFF of the resist roller.

No.	Name	Function/Operation
1	Resist roller (Drive)	Transport paper to the transfer section./ Controls the transport timing of paper and adjusts relationship between images and paper.
2	Resist roller (Idle)	Applies a pressure to paper and the resist roller to supply transport power of the transport roller to paper.
3	Transport roller 8 (Drive)	Transport the paper to the resist roller.

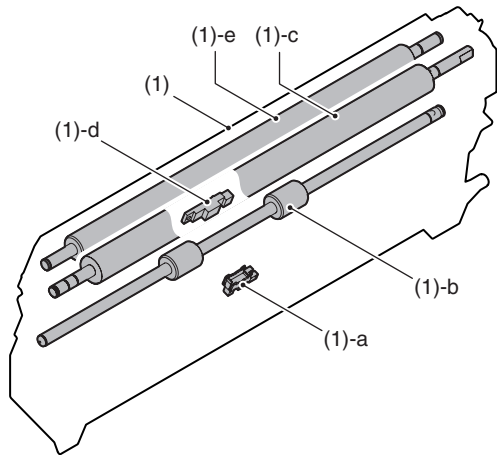
2. Operational descriptions

A. Paper transport section

Paper is fed from each paper feed section and transported to the resist roller by the transport rollers. ON/OFF control of each transport roller is made by the paper transport clutch. The resist roller controls the relative positions of transported paper and the transfer image. The resist roller is driven by the transport motor. The relative positions of paper and the transfer image are determined by the ON timing of the transport motor.

3. Disassembly and assembly

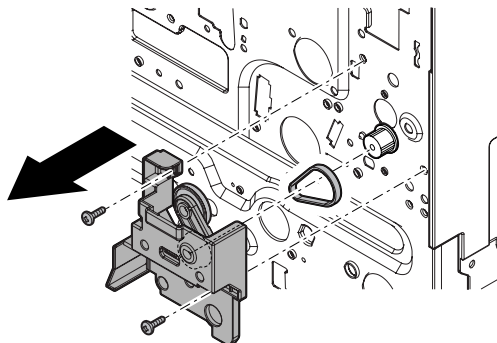
A. Paper transport section



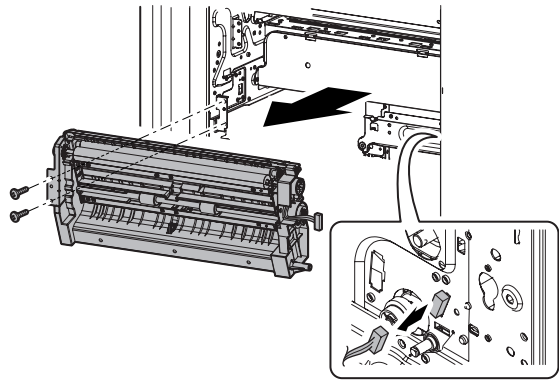
Unit		Parts		Maintenance
(1)	Resist roller unit	a	Resist front detection	
		b	Transport roller 8 (Drive)	×○
		c	Resist roller (Drive)	×○
		d	Resist detection	
		e	Resist roller (Idle)	×○

(1) Resist roller unit

- 1) Remove the developing unit (K).
- 2) Remove the drum unit (K).
- 3) Remove the primary transfer unit.
- 4) Remove the tray paper feed unit 1.
- 5) Remove the rear cabinet.
- 6) Remove the ADU connection drive.

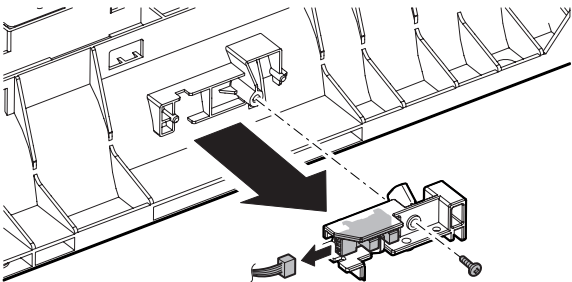


- 7) Remove the connector and the screws, then remove the resist roller unit.



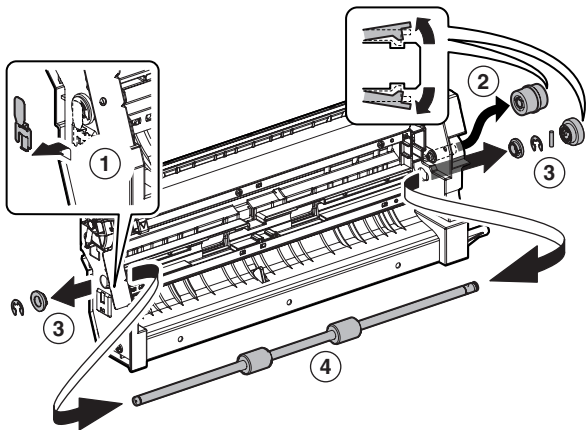
a. Resist front detection

- 1) Remove the resist roller unit.
- 2) Remove the sensor holder.



b. Transport roller 8 (Drive)

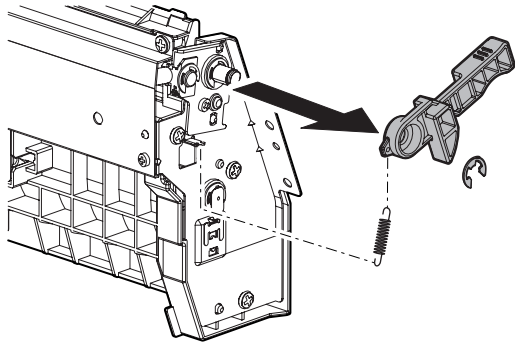
- 1) Remove the resist roller unit.
- 2) Remove the grounding plate. Remove the parts, and remove the transport roller 8 (Drive).



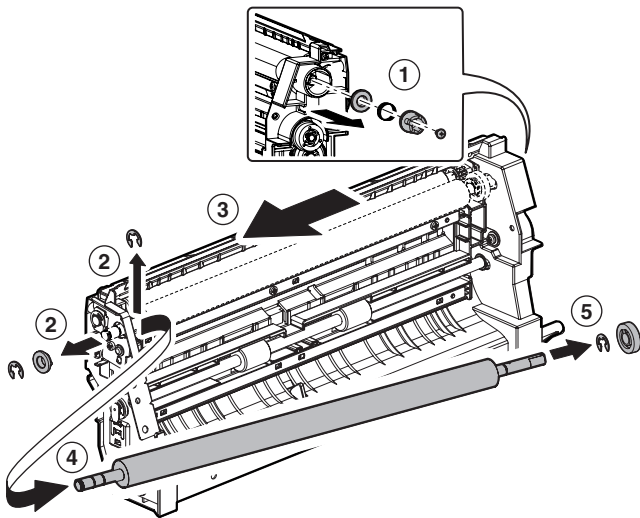


### c. Resist roller (Drive)

- 1) Remove the resist roller unit.
- 2) Remove the spring and the E-ring. Remove the JAM release handle.

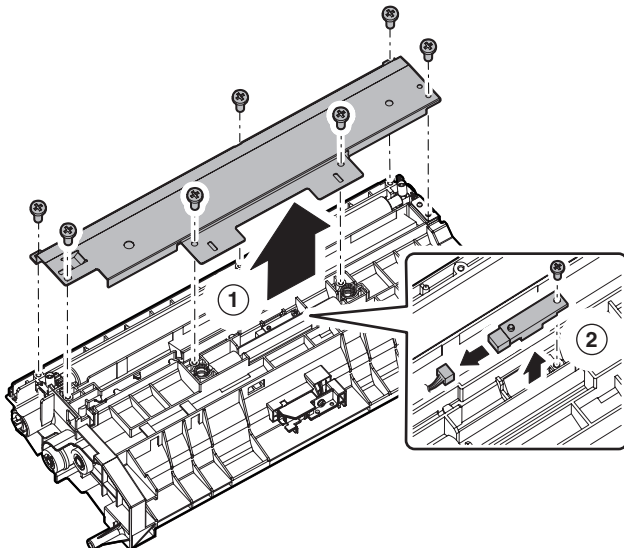


- 3) Remove the parts. Slide the resist roller (Drive) to the front side. Remove the parallel pin, the PS gear, and the E-ring from the resist roller (Drive).



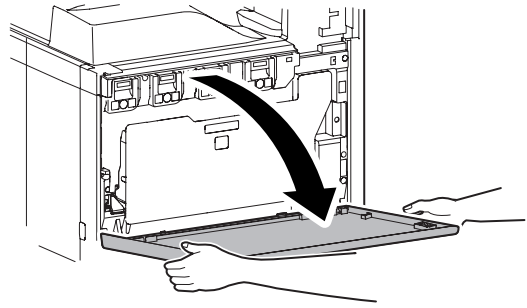
### d. Resist detection

- 1) Remove the resist roller unit.
- 2) Remove the PS stay, then remove the resist detector.

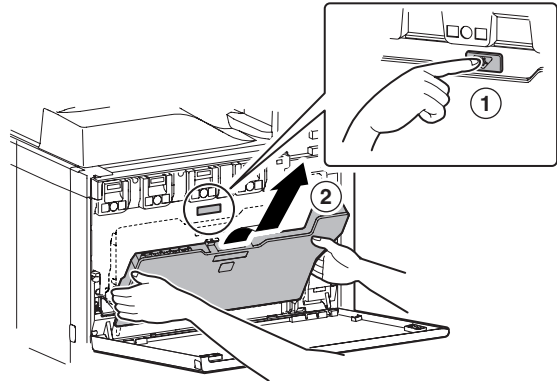


### e. Resist roller (Idle)

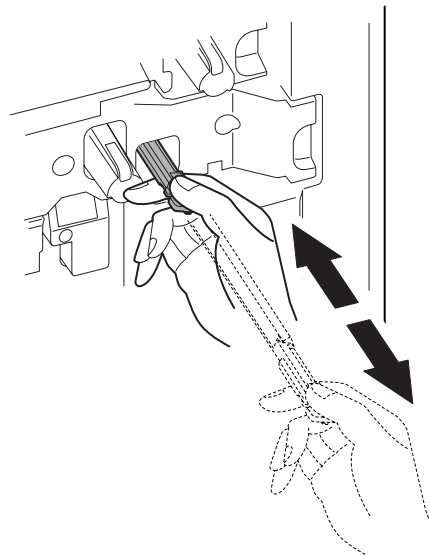
- 1) Open the front cabinet.



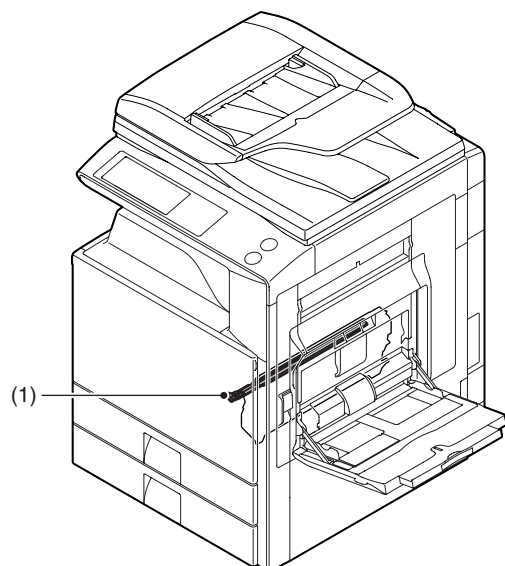
- 2) Remove the waste toner bottle unit.



- 3) Slide the paper dust removal unit back and forth to clean.

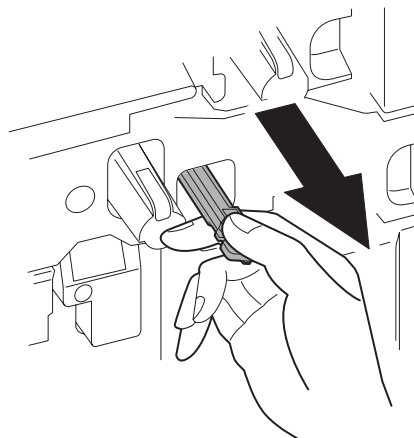


## B. Others



3) Remove the paper dust removal unit.

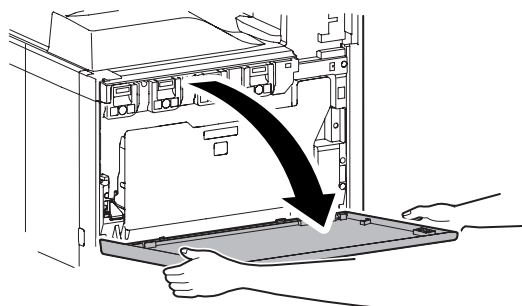
\* When installing, insert the paper dust removal unit until it locks.



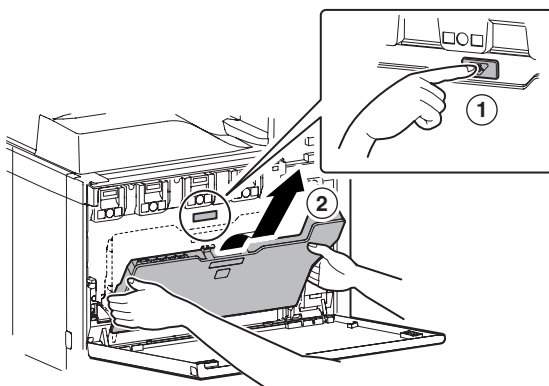
Parts		Maintenance
(1)	Paper dust removal unit	× ▲

### (1) Paper dust removal unit

1) Open the front cabinet.

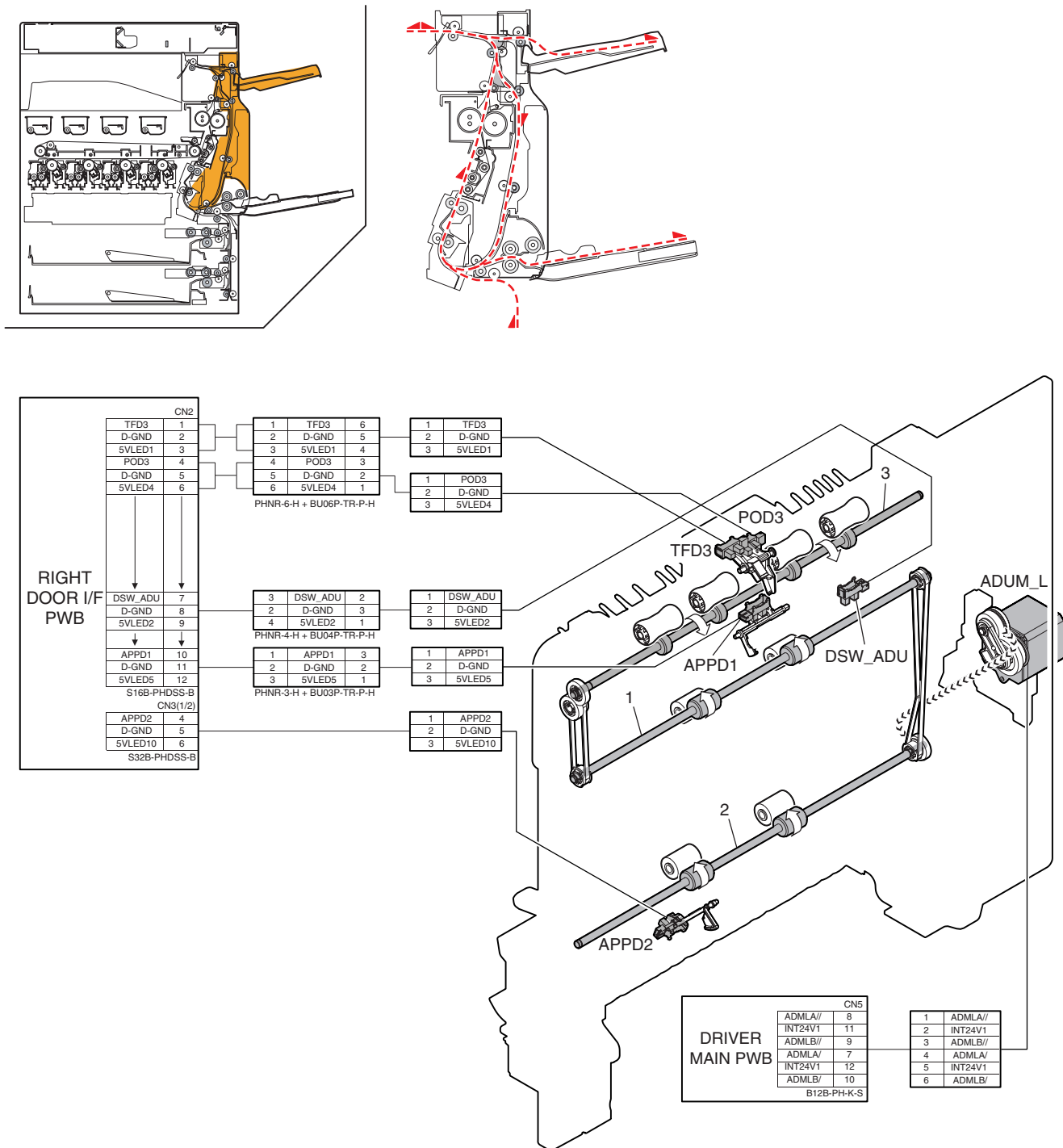


2) Remove the waste toner bottle unit.



# [G] DUPLEX SECTION

## 1. Electrical and mechanism relation diagram



Signal name	Name	Function/Operation
ADUM_L	ADU motor lower	Drives the right door section.
APPD1	ADU transport path detection 1	Detects paper pass in the upstream of the duplex (ADU).
APPD2	ADU transport path detection 2	Detects paper pass in the midstream of the duplex (ADU).
DSW_ADU	ADU transport open/close detection	Duplex (ADU) cover open/close detection
POD3	Right tray paper exit detection	Detects the paper exit into the right tray.
TFD3	Detects the right tray paper exit full.	Detects the right tray paper exit full.

No.	Name	Function/Operation
1	Transport roller 10 (Drive)	Transports the paper transported from the transport roller 13 to the transport roller 11.
2	Transport roller 11 (Drive)	Transports the paper transported from the transport roller 10 to the transport roller 12.
3	Paper exit roller 2 (Drive)	Used to discharge paper.

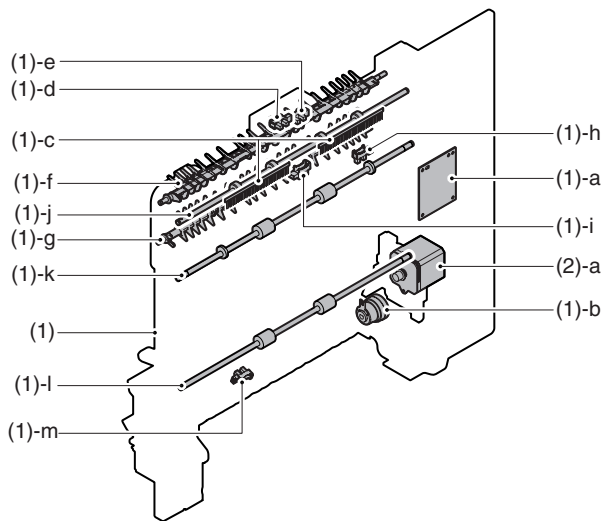
## 2. Operational descriptions

### A. Duplex section

- Paper is transported from the fusing section and sent to the transport roller 13 driven by the paper exit drive motor and to the paper exit roller 1.
- At that time, paper passes under the ADU reverse gate guide.
- After the specified time from detection of paper lead edge by POD1, the paper exit drive motor is rotated forward, and after the specified time, it is rotated reversely.
- At that time, paper passes the right side of the ADU gate guide by its own weight.
- The transport rollers 10 and 11 are driven by the ADU motor lower, and paper is transported to the duplex paper feed position.
- Paper is stopped at the duplex paper feed position, and transported to the inside of the machine again.

## 3. Disassembly and assembly

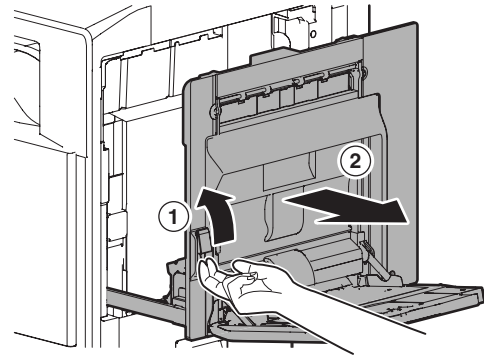
### A. Duplex section



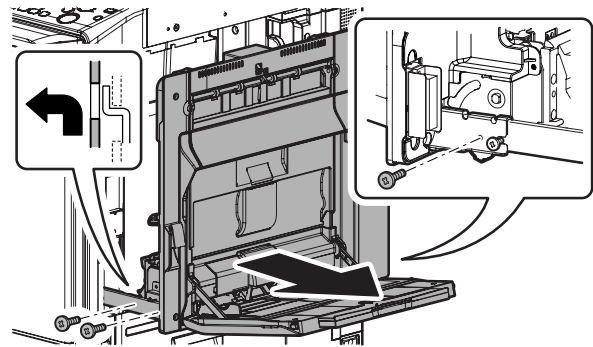
Unit	Parts	Maintenance
(1) Right door unit	a RD I/F PWB	
	b Manual paper feed clutch	
	c Discharge brush	×
	d Detects the right tray paper exit full	
	e Right tray paper exit detection	
	f ADU reverse gate	
	g ADU gate lower	
	h ADU transport open/close detection	
	i ADU transport path detection 1	
	j Paper exit roller 2 (Drive)	×○
	k Transport roller 10 (Drive)	×○
	l Transport roller 11 (Drive)	×○
	m ADU transport path detection 2	
(2) Others	a ADU motor lower	

### (1) Right door unit

- 1) Open the right door unit.

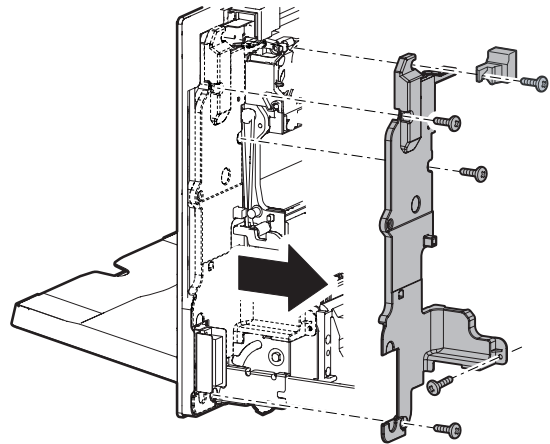


- 2) Remove the right door unit.

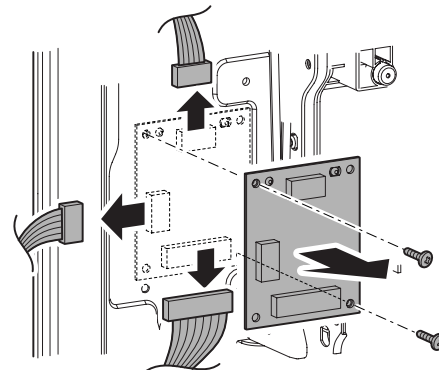


#### a. RD I/F PWB

- 1) Open the right door unit.
- 2) Remove the connector cover, and remove the ADU inner cover.

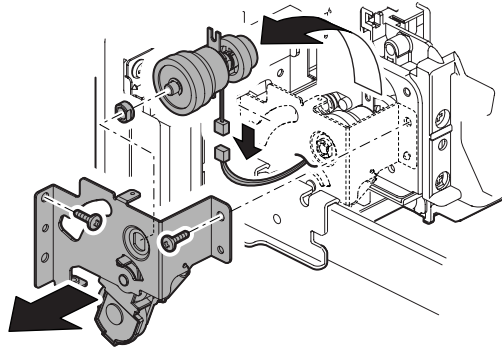


- 3) Remove the connector, and remove the RD I/F PWB.

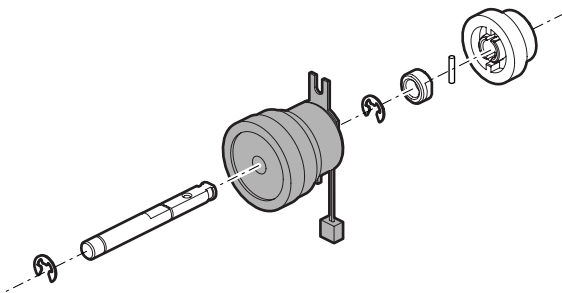


#### b. Manual paper feed clutch

- 1) Open the right door unit.
- 2) Remove the connector cover ADU inner cover.
- 3) Remove the MF drive connection plate. Disconnect the connector, then remove the manual paper feed clutch unit.



- 4) Remove the manual paper feed clutch.

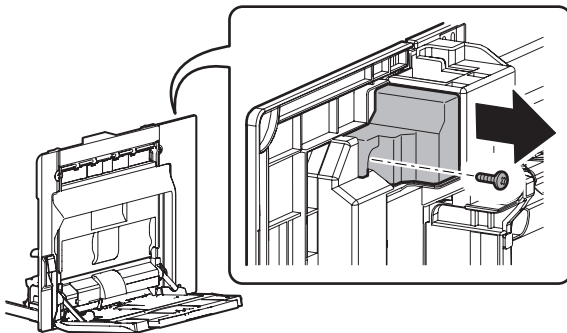


#### c. Discharge brush /

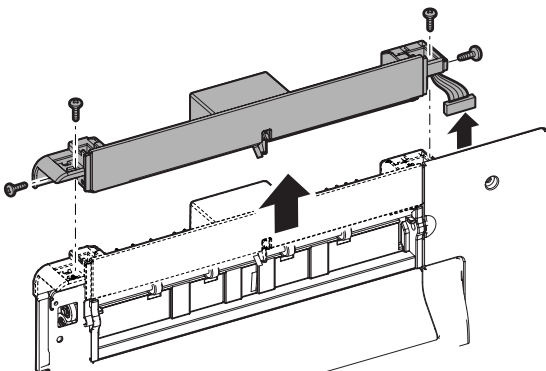
#### d. Detects the right tray paper exit full /

#### e. Right tray paper exit detection

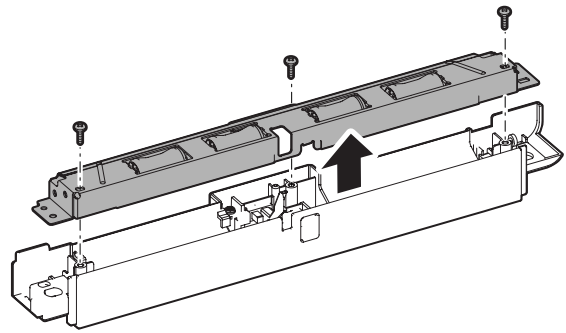
- 1) Open the right door unit.
- 2) Remove the connector cover.



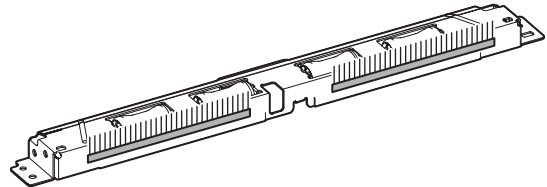
- 3) Remove the right paper exit upper cabinet unit, and disconnect the connector.



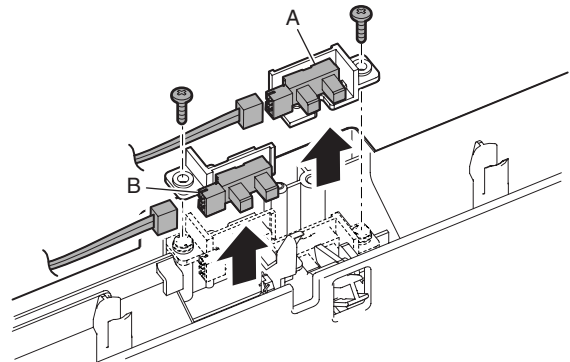
- 4) Remove the right paper exit PG upper.



- 5) Check the discharge brush.

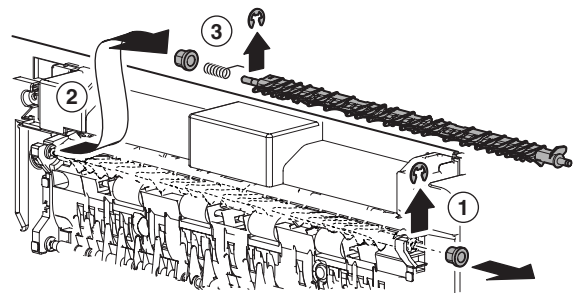


- 6) Remove each sensor mounting plate. Right tray paper exit full detection (A), right tray paper exit detection (B)



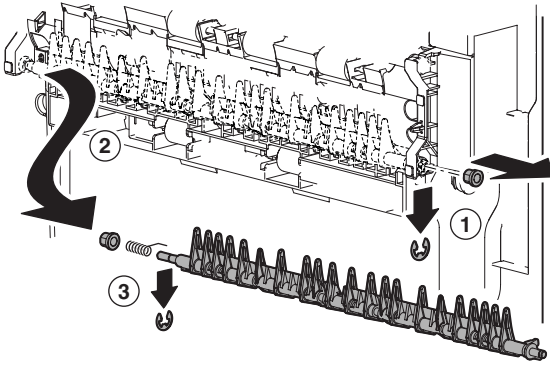
#### f. ADU reverse gate

- 1) Open the right door unit.
- 2) Remove the parts and remove the ADU reverse gate.



**g. ADU gate lower**

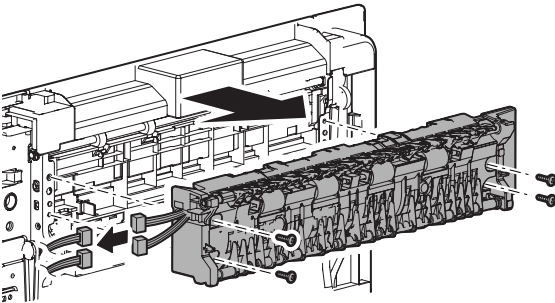
- 1) Open the right door unit.
- 2) Remove the parts, and remove the ADU gate lower.



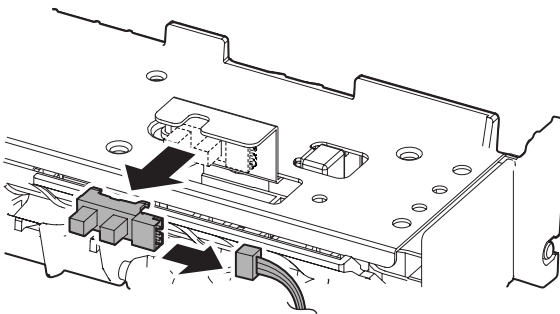
**h. ADU transport open/close detection /**

**i. ADU transport path detection 1**

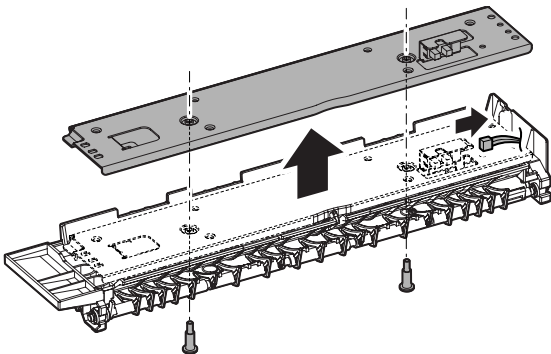
- 1) Open the right door unit.
- 2) Remove the ADU inner cover.
- 3) Disconnect the connector, and remove the reverse PG unit.



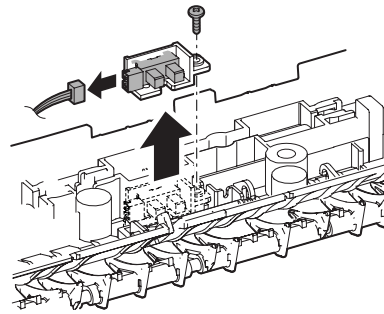
- 4) Remove the ADU transport open/close detector.



- 5) Remove the ADU stay upper unit.

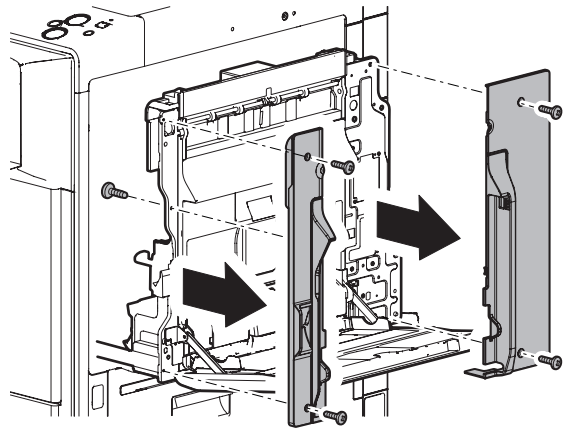


- 6) Remove the ADU transport path detector 1.

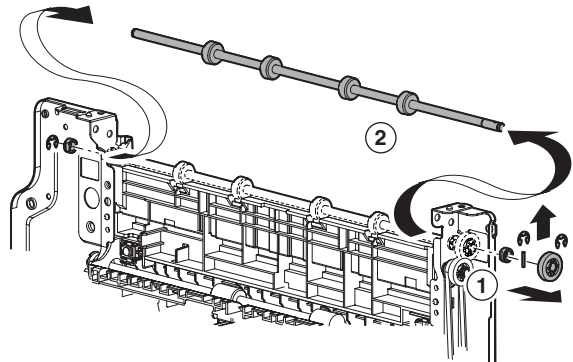


**j. Paper exit roller 2 (Drive)**

- 1) Open the right door unit.
- 2) Remove the connector cover ADU inner cover.
- 3) Remove the ADU cabinet F and the ADU cabinet R.



- 4) Remove the reverse PG unit.
- 5) Remove each parts, then remove the transport roller 2 (drive).

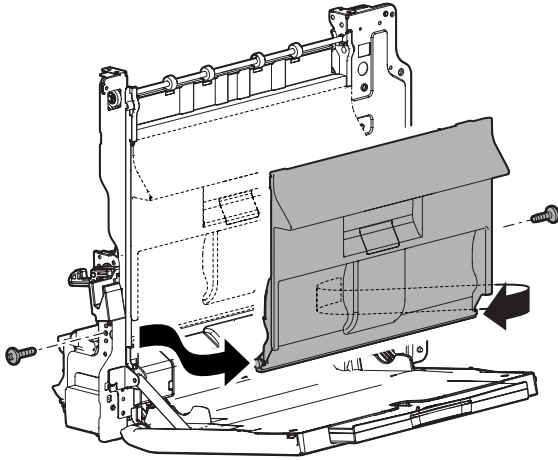




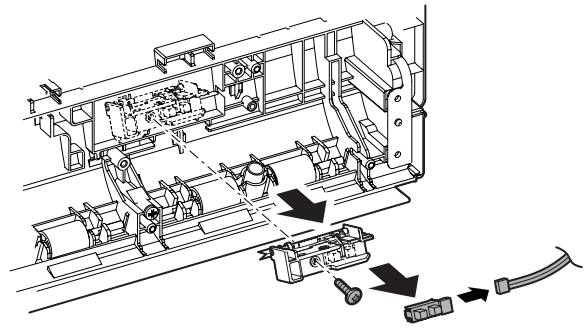
**k. Transport roller 10 (Drive) /**

**l. Transport roller 11 (Drive)**

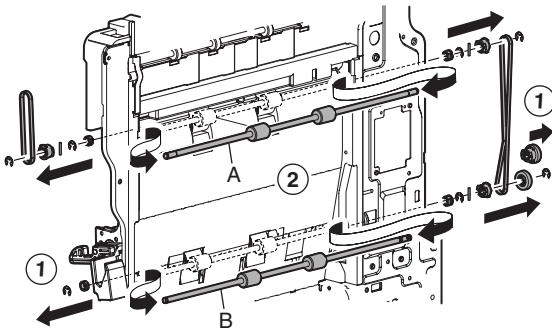
- 1) Open the right door unit.
- 2) Remove the connector cover ADU inner cover.
- 3) Remove the ADU cabinet F and the ADU cabinet R.
- 4) Remove the reverse PG unit.
- 5) Remove the upper transport fulcrum holder, and remove the ADU open/close door.



- 3) Remove the ADU transport path detector 2.

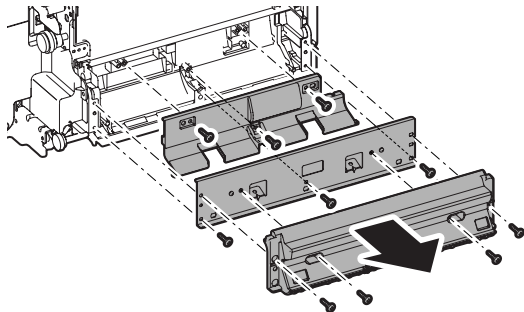


- 6) Remove each parts, and remove the transport roller 10 (drive) (A) and the transport roller 11 (drive) (B).

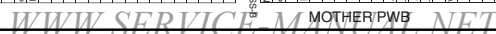


**m. ADU transport path detection 2**

- 1) Open the right door unit.
- 2) Remove the right door transport PG, the follower pressure plate, and the ADU waste toner cover.



## 1. Electrical and mechanism relation diagram





Signal name	Name	Function/Operation
PGM	Polygon motor	Laser beam is reflected at the constant speed rotation.

No.	Name	Function/Operation
1	LD PWB (K)	Controls laser beam flashing and the output value.
2	LD PWB (C)	
3	LD PWB (M)	
4	LD PWB (Y)	
5	Cylindrical lens	Converges laser beams and focus.
6	f $\theta$ lens 1	Laser beams are refracted so that the laser scan speed on the OPC drum is even in both ends and at the center.
7	f $\theta$ lens 2	
8	Reflection mirror	Secures the path for laser beams.
9	Cylindrical lens	Converges laser beams, and focus on the OPC drum.
10	OPC drum	Forms electrostatic latent images according to laser beams.
11	Convergence lens for BD	Converges laser beams to the BD PWB.
12	BD PWB	Detects the timing for starting laser scanning.
13	LSU CNT PWB	Laser beams are controlled and the polygon motor control signal is generated according to the PCU PWB control signal and image data.
14	LSU thermistor	Measures the temperature in LSU.

## 2. Operational descriptions

(Scan system)

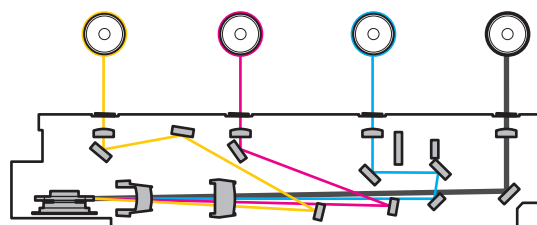
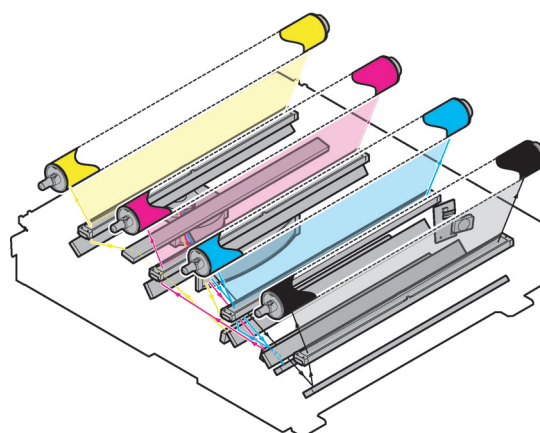
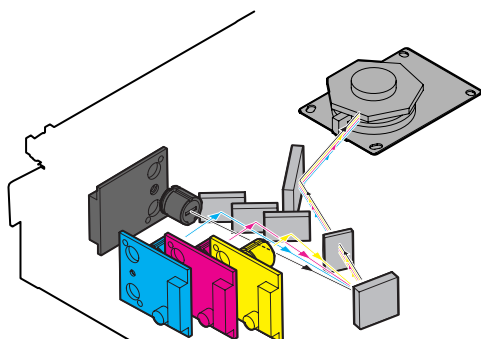
### A. LSU section

#### (1) Outline

Image data sent from the image process circuit through the mother are converted into laser beams to be radiated onto the OPC drum surface. The LSU unit is composed of the primary system including optical elements such as lasers and the polygon mirror and the mirror which assures the optical path and the scan system which includes the optical elements including the polygon mirror and the mirror which assures the optical path.

#### (2) Composition

(Primary system)



(On the polygon mirror)

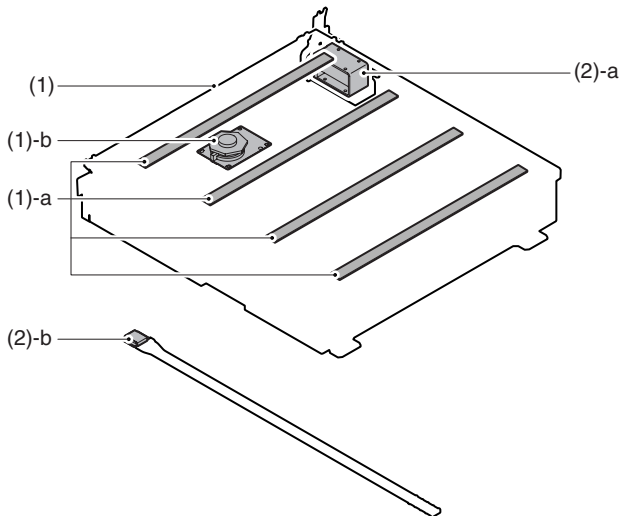
Model	Number of mirror surfaces	Rotating speed	Bearing	Remark
MX-1800N	7 surfaces	25106rpm	OIL	

#### (3) Outline of LSU specifications

Effective scan width:	307mm
Resolution:	600dpi
Beam diameter:	Main scan = 50 to 65 $\mu$ m, Sub scan = 60 to 75 $\mu$ m
Laser power:	Max. 0.65mW
LD wavelength:	770 to 795nm

### 3. Disassembly and assembly

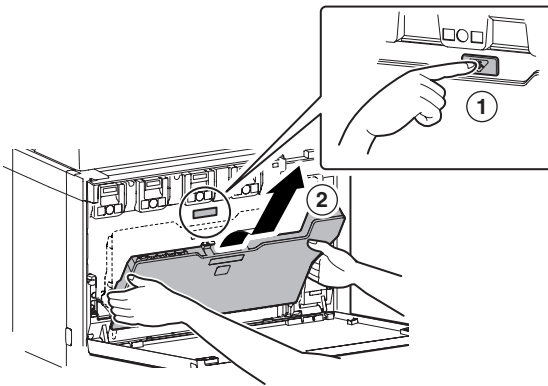
#### A. LSU section



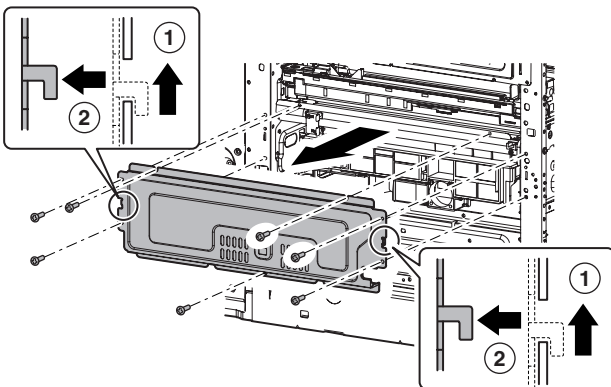
Unit	Parts	Maintenance
(1) LSU	a Dust-proof glass	○
	b Polygon motor	
(2) Others	a LSU shutter solenoid	
	b Cleaning base	×

#### (1) LSU

- 1) Remove the left cabinet rear lower and the left cabinet. (Refer to Left Cabinet Rear Lower and Left Cabinet in External Outfit Section.)
- 2) Remove the waste toner box.

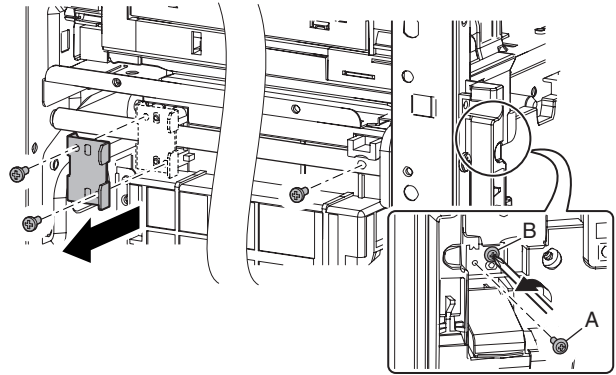


- 3) Remove the LSU left plate PA.

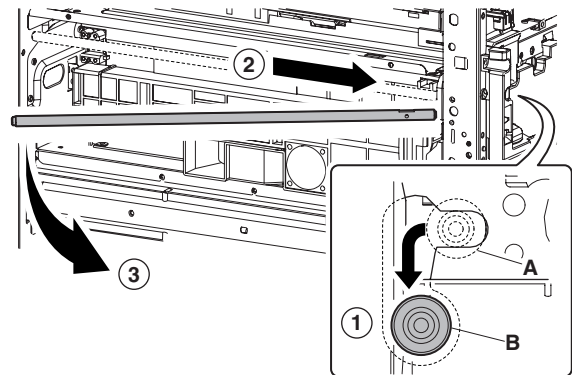


- 4) Remove the LSU slant adjustment plate screw (A), and loosen the screw (B).

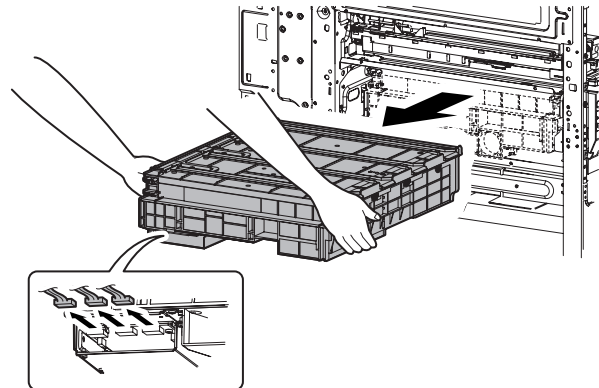
Remove the LSU shaft fixing plate. Remove the screws.



- 5) Shift the front side of the LSU shaft from (A) to (B), and remove the LSU shaft.

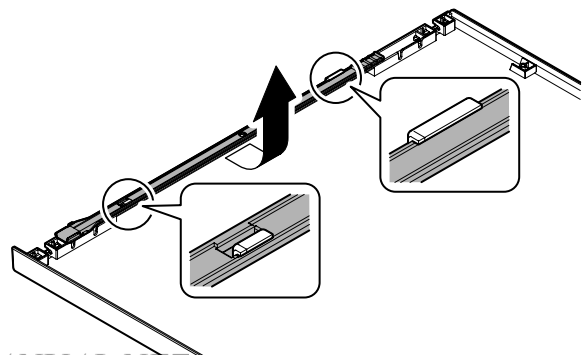


- 6) Disconnect the connector, and remove the LSU.

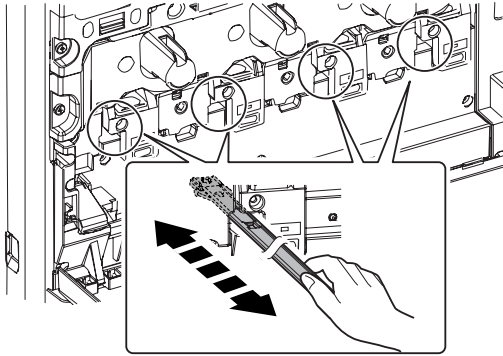


#### a. Dust-proof glass

- 1) Remove the waste toner box.
- 2) Remove the LSU cleaning stick from the front cover.

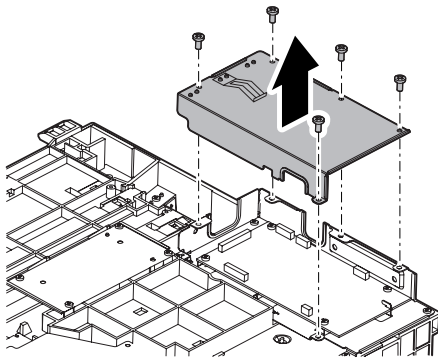


- 3) Insert the LSU cleaning rod and slide it back and forth a few times to clean the dust-proof glass.

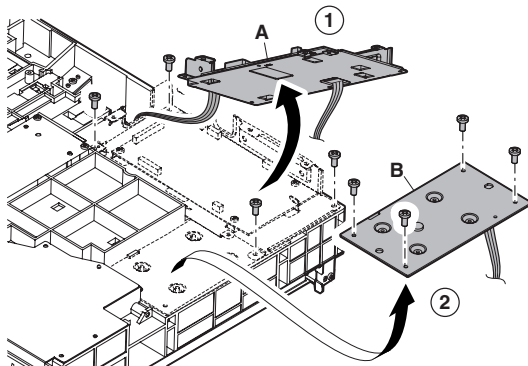


#### b. Polygon motor

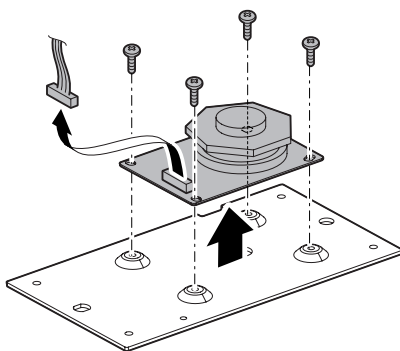
- 1) Remove the LSU.
- 2) Remove the screws, and remove the LSU CNT PWB cover R.



- 3) Remove the screws, then lift up the LSU CNT PWB cover F (A).  
Remove the screws, and lift up the polygon motor unit (B).



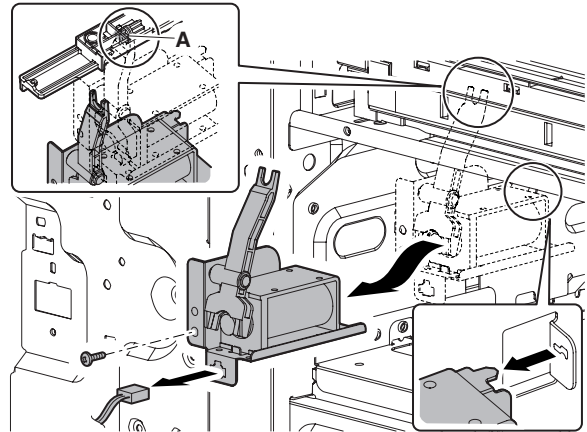
- 4) Remove the connector and the screws, then remove the polygon motor.  
\* When installing, do not touch the moving section of the polygon mirror and the mirror surface.



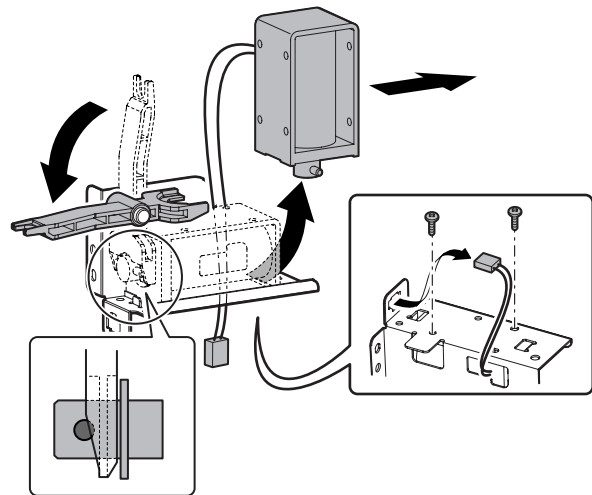
## (2) Others

### a. LSU shutter solenoid 1

- 1) Remove the LSU.
- 2) Remove the connector and the screws, then remove the LSU shutter solenoid unit.  
\* When installing, the shutter U-groove is engaged with the shutter lever arm shaft section (A).

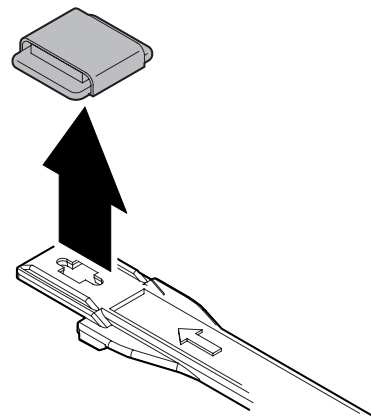


- 3) Remove the screws, and remove the LSU shutter solenoid 1.  
\* When installing, engage the solenoid pin with the shutter lever arm.



### b. Cleaning base

- 1) Remove the waste toner box.
- 2) Remove the LSU cleaning stick from the front cover.
- 3) Remove the cleaning base from the LSU cleaning rod.



## 1. Electrical and mechanism relation diagram



Signal name	Name	Function/Operation
DMCL	Drum motor (Color)	Color photoconductor drive
DMBK	Drum motor (Black)	Black photoconductor drive
DL	Discharge lamp (Y, M, C, BK)	Light is passed to the discharge lens to drive the OPC drum surface.
MC	Main charge (Y, M, C, K)	The OPC drum surface is charged negatively.
GB	Grid (Y, M, C, K)	The OPC drum surface potential is controlled.

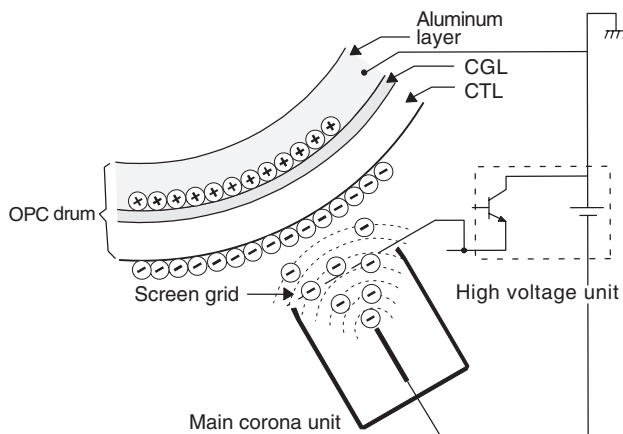
No.	Name	Function/Operation
1	OPC drum (Y, M, C, K)	Latent electrostatic images are formed.
2	Cleaning blade	Residual toner is cleaned and removed from the OPC drum surface.

## 2. Operational descriptions

### A. OPC drum section

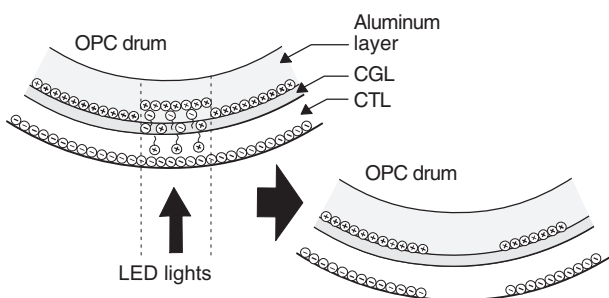
The OPC drum surface is negatively charged by the main charger. The laser beam images are radiated to the OPC drum surface by the laser (writing) unit to form latent electrostatic images.

- 1) The OPC drum surface is negatively charged by the main charger.



The main charger grid is provided with the screen grid. The OPC drum is charged at a voltage virtually same as the voltage applied to the screen grid.

- 2) LED lights are radiated to the OPC drum surface by the laser (writing) unit to form latent electrostatic images.



When LED lights are radiated to the OPC drum CGL, negative and positive charges are generated.

Positive charges generated in CGL are attracted to the negative charges on the OPC drum surface. On the other hand, negative charges are attracted to positive charges in the aluminum layer of the OPC drum.

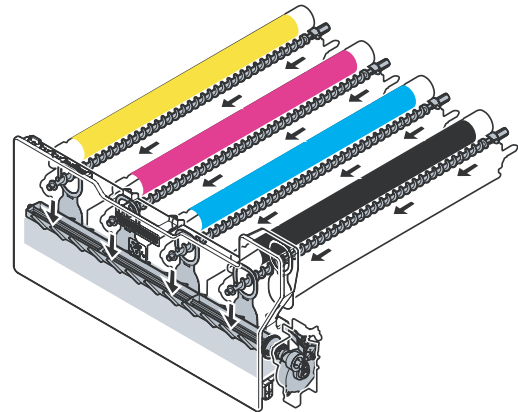
Therefore, positive charges and negative charges are balanced out on the OPC drum and in the aluminum layer, reducing positive and negative charges to decrease the OPC drum surface voltage.

Electric charges remain at a position where LED lights are not radiated.

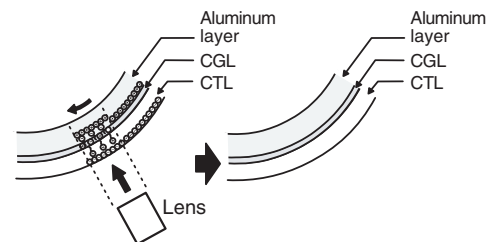
As a result, latent electrostatic images are formed on the OPC drum surface.

- 3) After transfer operation, remaining toner is removed by the cleaning blade.

Toner removed from the OPC drum surface is transported to the waste toner section by the waste toner transport screw.



- 4) The whole surface of the OPC drum is discharged.

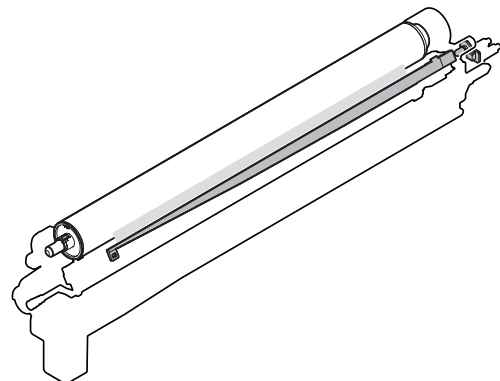


By radiating the discharge lamp light to the discharge lens, light is radiated through the lens to the OPC drum surface.

When the discharge lamp light is radiated to the OPC drum CGL, positive and negative charges are generated.

Positive charges generated in CGL are attracted to the negative charges on the OPC drum surface. On the other hand, negative charges are attracted to positive charges in the aluminum layer of the OPC drum.

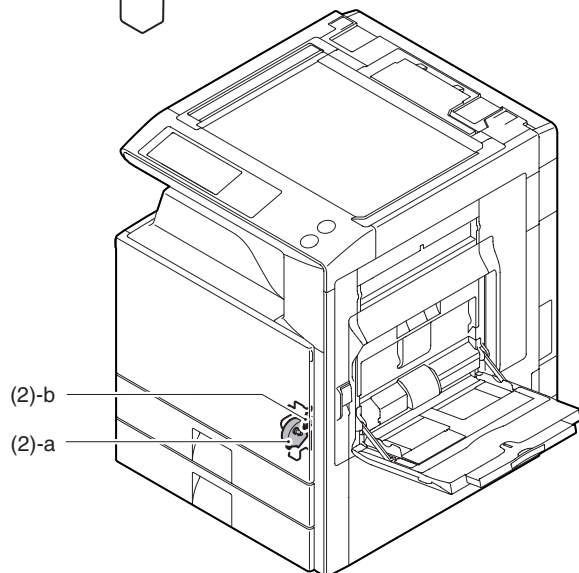
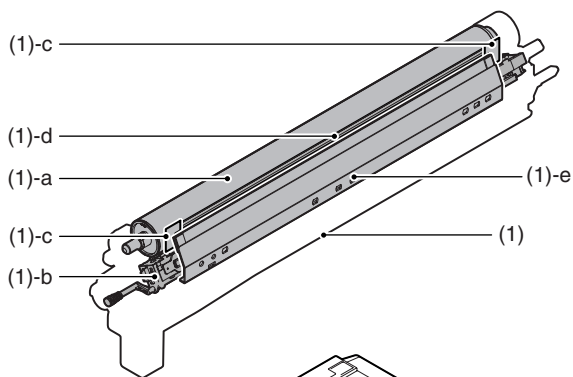
Therefore, positive and negative charges are balanced out on the OPC drum surface and in the aluminum layer, reducing positive and negative charged to decrease the surface voltage of the OPC drum.





### 3. Disassembly and assembly

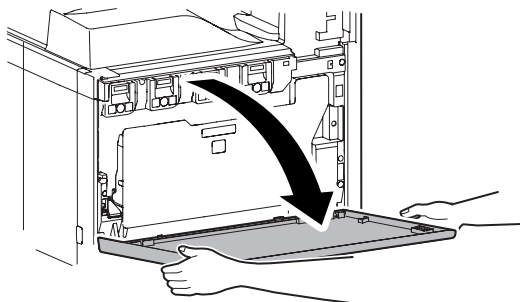
#### A. Process drum unit



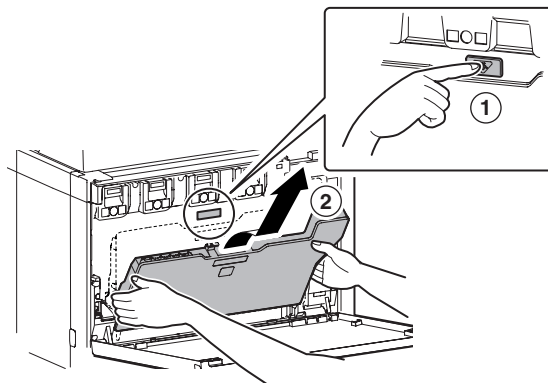
Unit		Parts		Maintenance
(1)	Drum unit	a	Drum	▲
		b	Main charger unit	▲
		c	Side seal F, R	×
		d	Toner reception seal	×
		e	Cleaner blade	▲
(2)	Others	a	Waste toner drive motor	
		b	Waste toner full detection switch	

#### (1) Each color drum unit

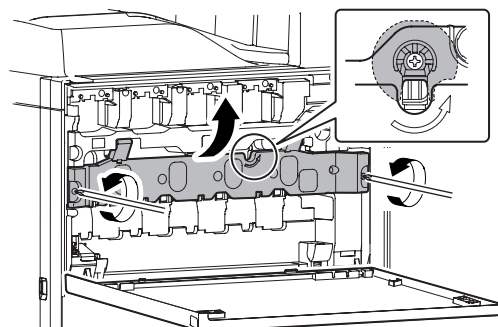
- 1) Open the front cover.



- 2) Remove the waste toner bottle unit.

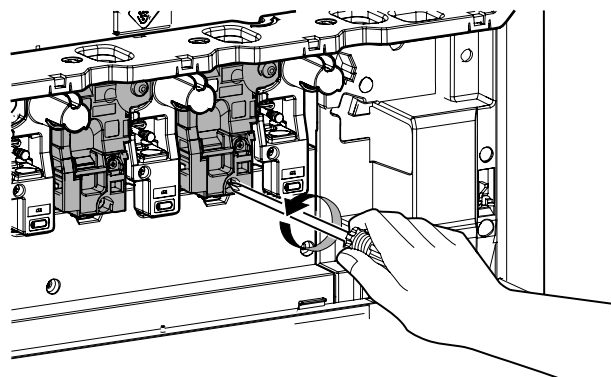


- 3) Loosen the blue screw. Check to confirm that lock is released, and open the drum positioning unit.

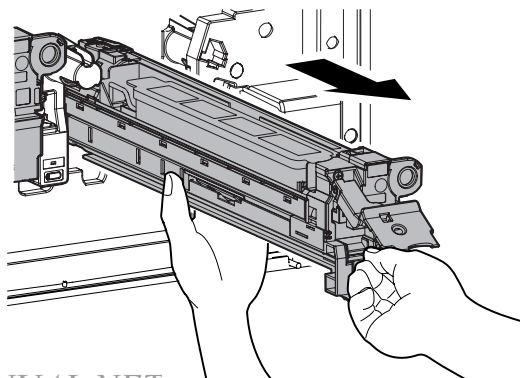


NOTE: When the transfer belt tension of the primary transfer unit is released manually, turn on the power again after completion of the work. (Power OFF-ON) This procedure initializes the transfer roller to return it to the home position.

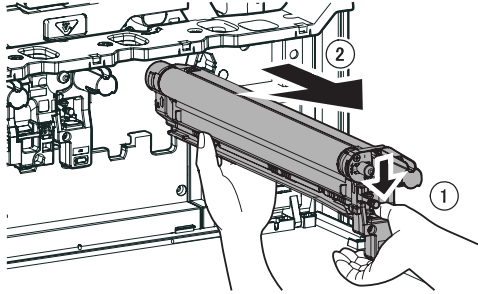
- 4) Loosen the fixing screw of the developing unit on the left side of each color drum unit.



- 5) Remove the developing unit with both hands.

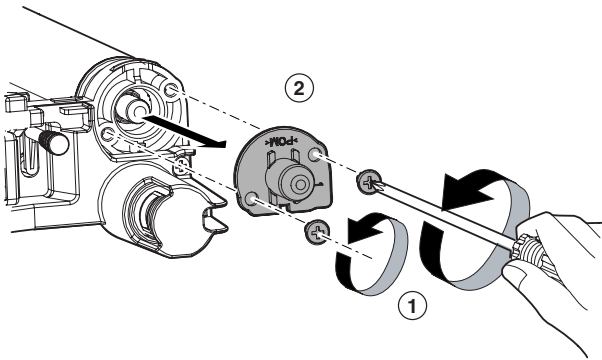


- 6) Hold the lock lever, and pull out each color drum unit slowly, and support the lower section of the unit with both hands to remove.

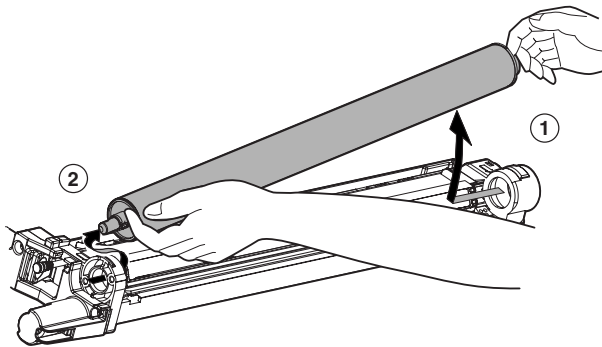


#### a. OPC drum

- 1) Remove each drum unit from the machine.
- 2) Remove the screws and remove the DR fixing shaft AS.

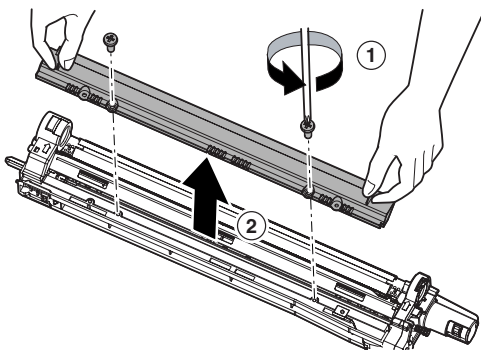


- 3) Slide the OPC drum to the front side, and lift the drum rear side, and remove the OPC drum from the hole in the front section.

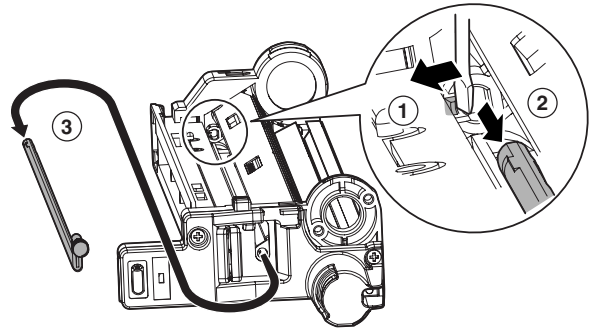


#### b. Main charger unit

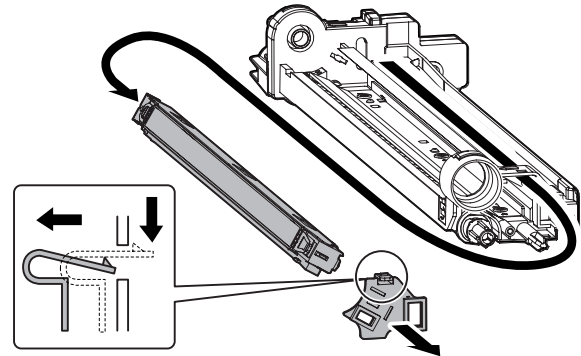
- 1) Remove each drum unit from the machine.
- 2) Remove the OPC drum.
- 3) Remove the screws, and remove the MC cover.



- 4) Disengage the lock pawl with a screwdriver, and remove the MC cleaner shaft.



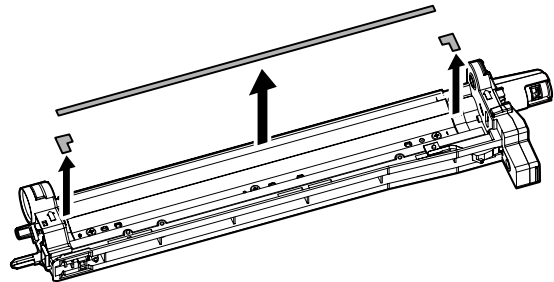
- 5) Release the pawl, and remove the process cover. Remove the Main charger unit.



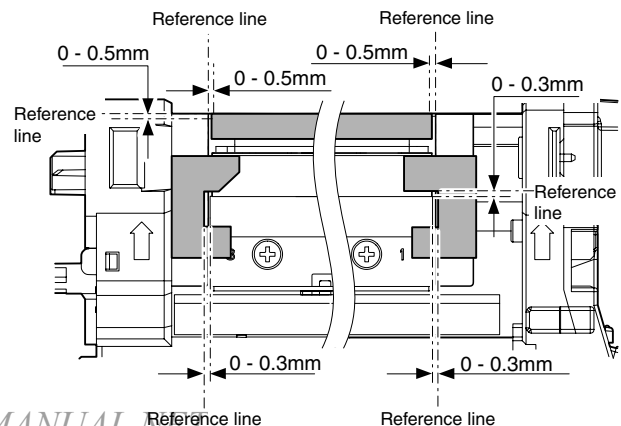
#### c. Side seal F, R /

#### d. Toner reception seal

- 1) Remove each drum unit from the machine.
- 2) Remove the OPC drum.
- 3) Remove the MC charger unit.
- 4) Remove the side seal F/R and the toner reception seal.

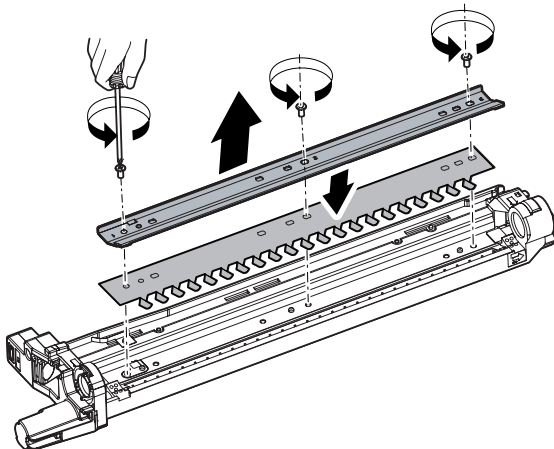


\* When attaching the side seal F/R and the toner reception seal, arrange so that they are in the ranges specified in the figure below.

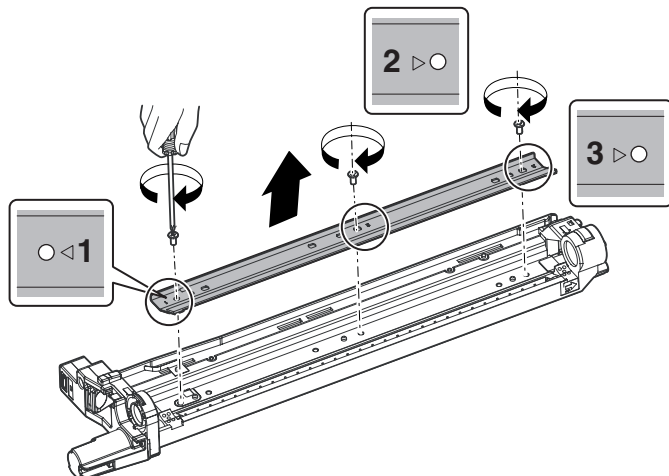


#### e. Cleaner blade

- 1) Remove each drum unit from the machine.
- 2) Remove the OPC drum.
- 3) Remove the MC charger unit.
- 4) Remove the side seal F/R and the toner reception seal.
- 5) Remove the screws, and remove the cleaner blade.
- 6) Remove the toner mixing sheet from the cleaner blade.



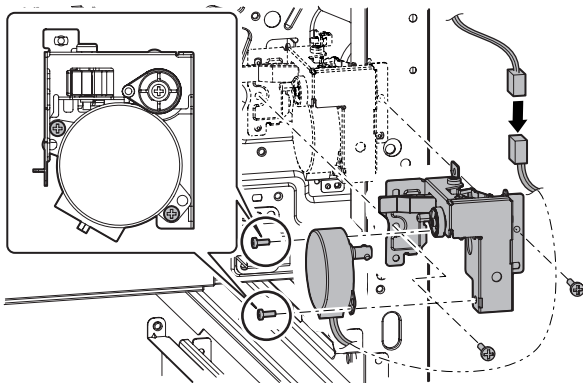
\* Tighten the screws according to the marks 1, 2, and 3.



#### (2) Others

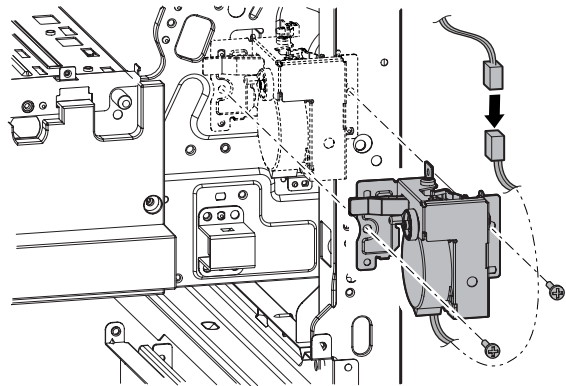
##### a. Waste toner drive motor

- 1) Remove the frame cover. (Refer to Frame Cover in External Outfit Section.)
- 2) Remove the connector and the screws, then remove the waste toner drive unit.  
Remove the screw, and remove the waste toner drive motor from the waste toner drive unit.

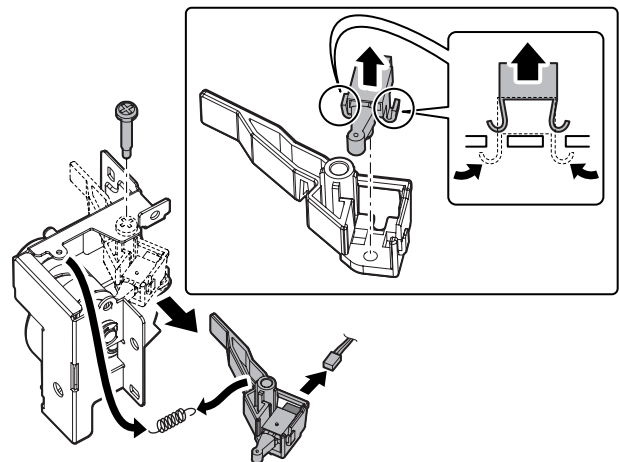


##### b. Waste toner full detection switch

- 1) Remove the frame cover. (Refer to Frame Cover in External Outfit Section.)
- 2) Remove the connector and the screws, then remove the waste toner drive unit.



- 3) Remove the screw and the spring, and remove the waste toner box empty lever.  
Disengage the connector and the pawl, and remove the waste toner full detection switch.

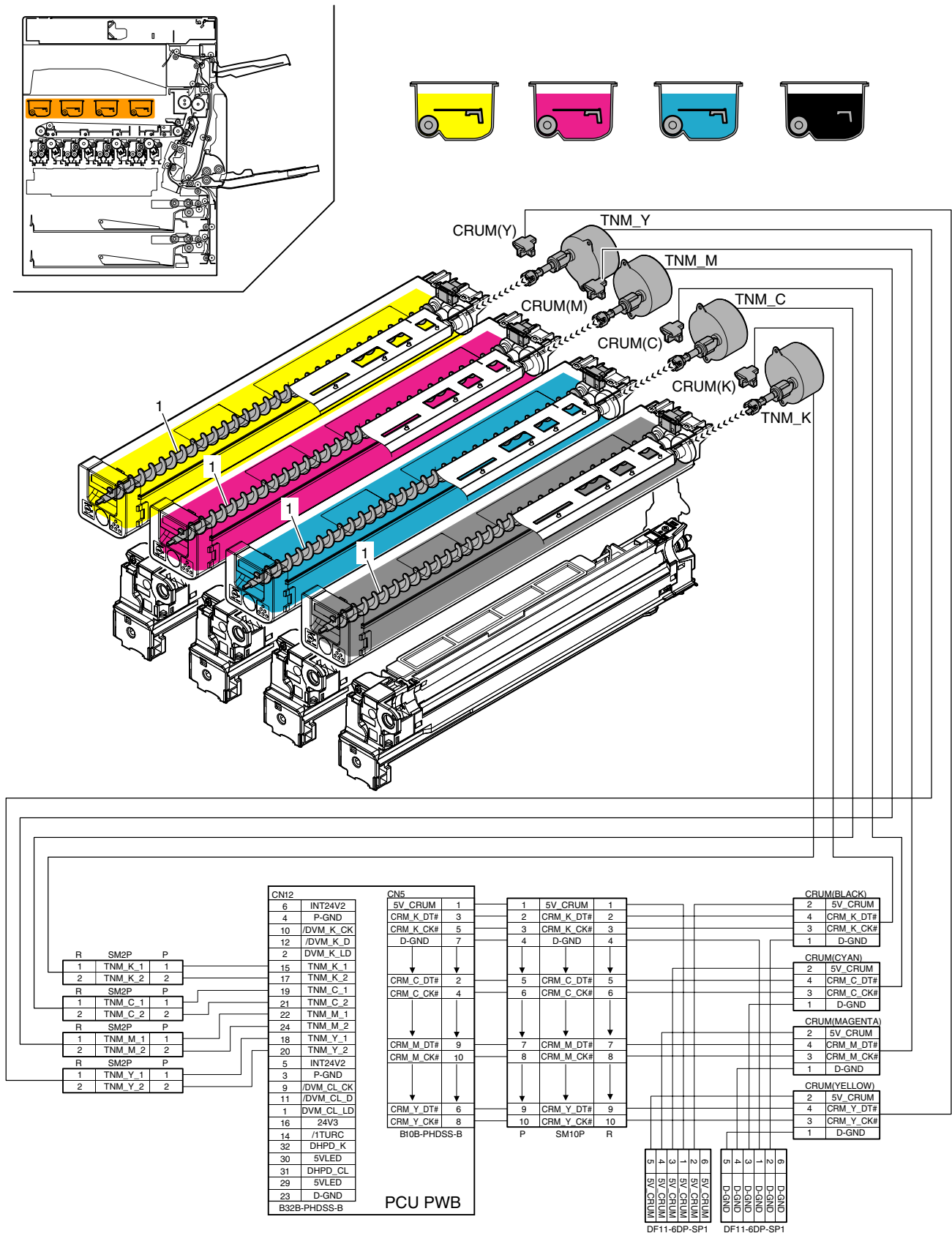




# [J] TONER SUPPLY SECTION

## 1. Electrical and mechanism relation diagram

### A. Toner supply section



Signal name	Name	Function/Operation
TNM	Toner motor (Y, M, C, K)	Toner supply motor to the developing unit
CRUM	CRUM (Y,M,C,K)	Data memory for the toner cartridge

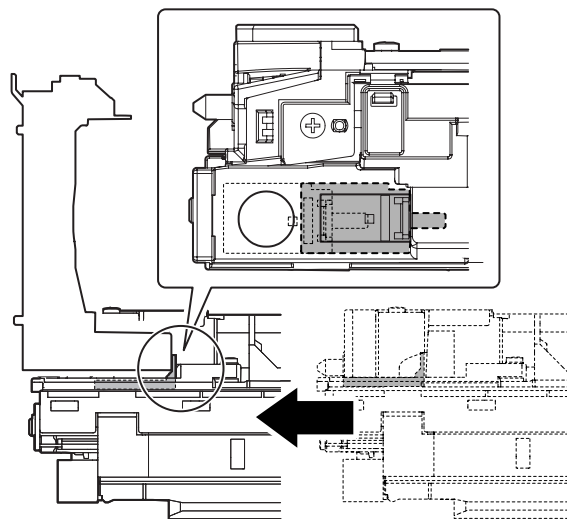
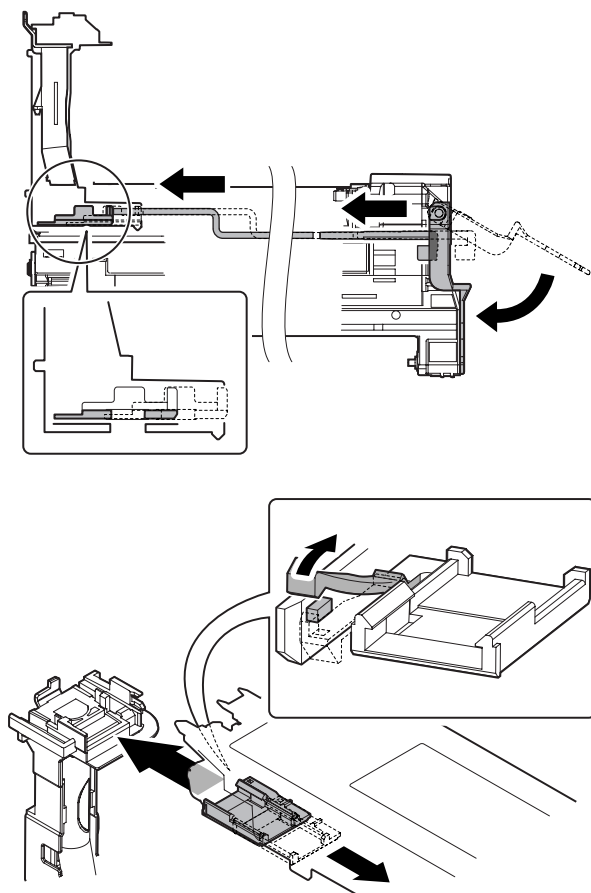
No.	Name	Function/Operation
1	Toner transport pipe	Toner supply pipe from the toner cartridge to the developing unit

## 2. Operational descriptions

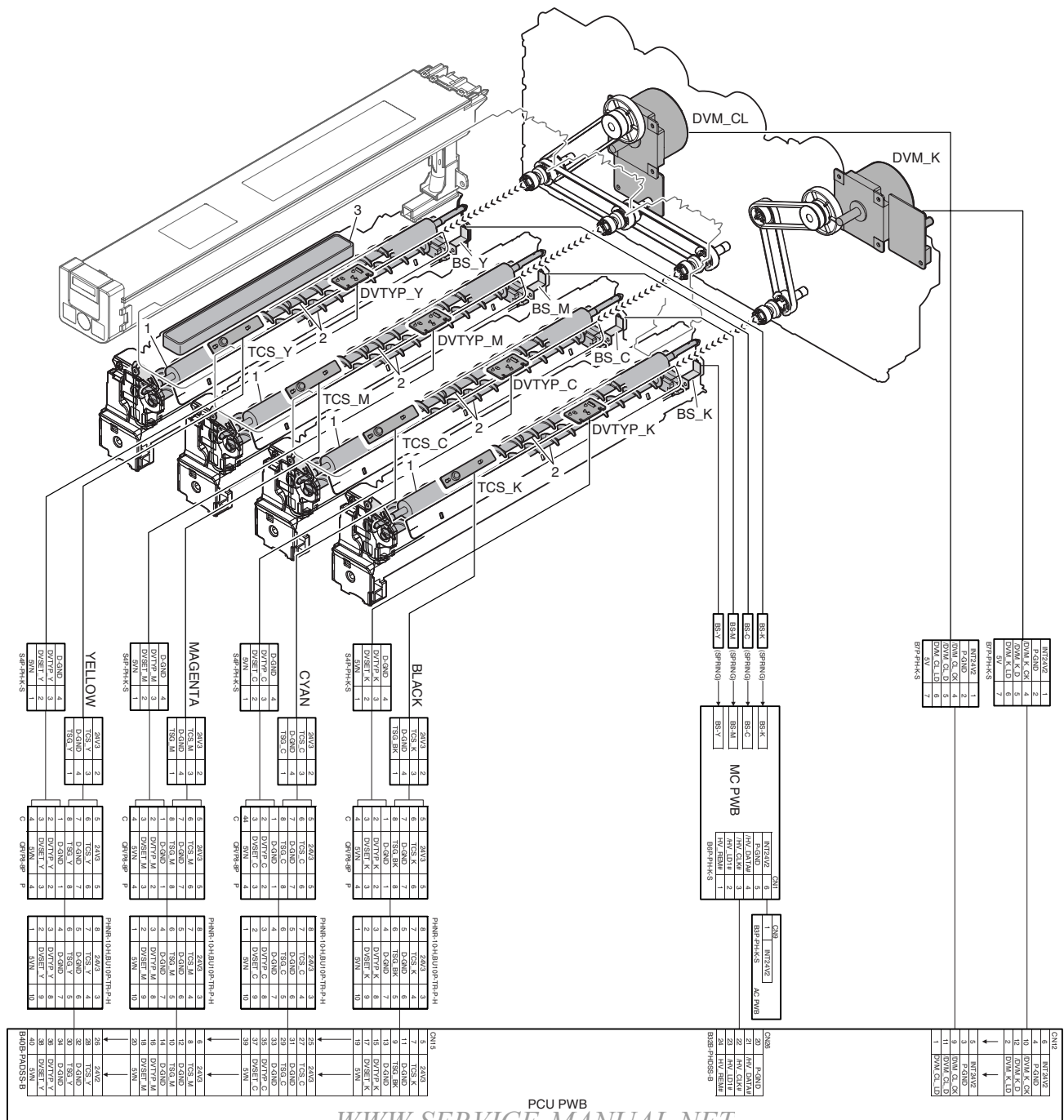
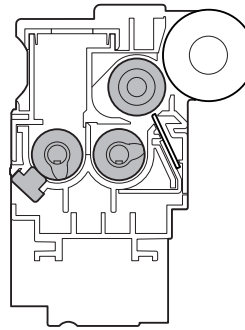
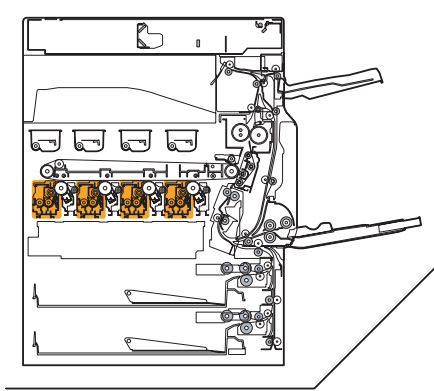
When the toner cartridge is inserted to the machine, the lock pawl is disengaged and the supply shutter is opened.

The transport pipe shutter is opened and closed by the shaft which is linked with the developing lever.

The toner supply section of the developing unit is opened and closed when the open/close lever on the unit hits the block on the machine.



## 1. Electrical and mechanism relation diagram

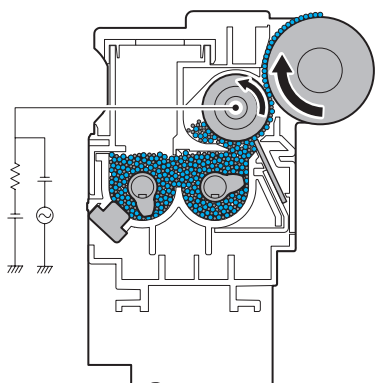


Signal name	Name	Function/Operation
DVM_CL	Developer motor (color)	Color developing unit drive
DVM_K	Developer motor (black)	Black developing unit drive
BS	Developer bias (Y, M, C, K)	Developer bias
TCS	Toner density sensor (Y, M, C, K)	Controls the toner density in the developing unit.
DVTYP	DV initial detection PWB (Y, M, C, K)	Detection of a new developing unit (machine exclusive for CRU)

No.	Name	Function/Operation
1	Developer roller	Latent electrostatic images on the OPC drum are changed to visible images.
2	Stirring roller	Stirring developer
3	Toner filter	Prevents dispersing of toner.

## 2. Operational descriptions

Electrostatic latent images generated on the OPC drum by the laser (writing) units (laser image ray) are converted into visible images by toner.



Toner and carrier in the developing unit are agitated and transported by the mixing roller.

By mixing and transporting, toner and carrier are negatively charged due to mechanical friction.

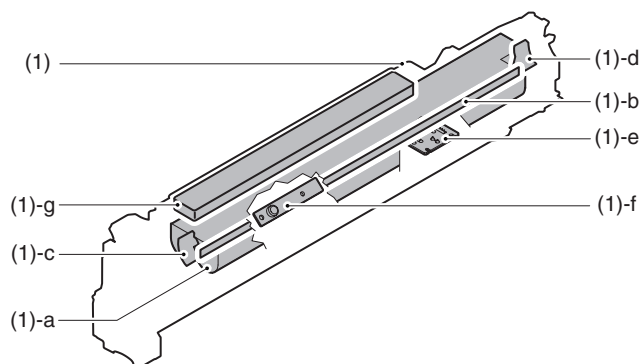
The developing bias voltage (AC component and negative DC component) is applied to the developing roller.

Negatively charged toner is attracted to the exposed section on the OPC drum where the negative potential falls due to 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.

## 3. Disassembly and assembly

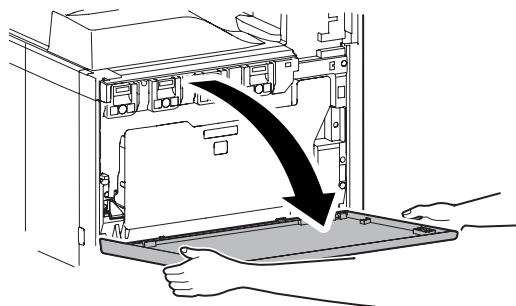
### A. Developing section



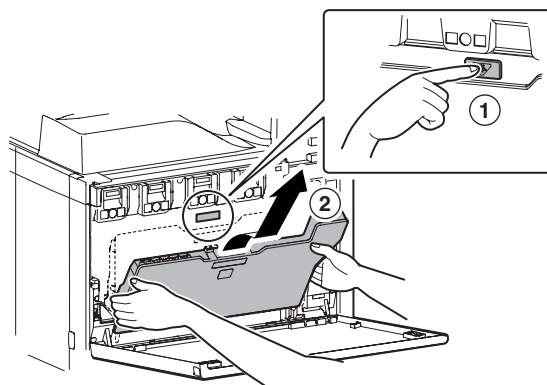
Unit	Parts	Maintenance
(1) Developing unit	a Developer	▲
	b DV seal	▲
	c DV side seal F	▲
	d DV side seal R	▲
	e DV initial PWB	
	f Density sensor	
	g Toner filter	▲

#### (1) Developing unit

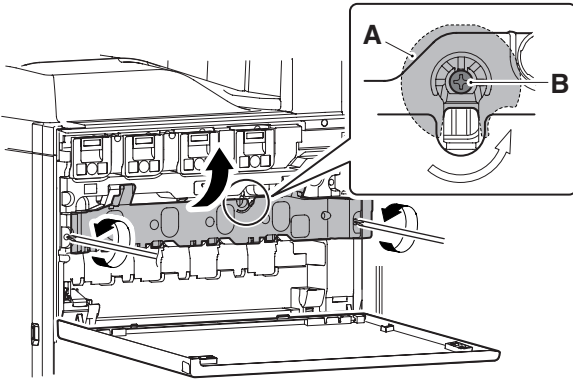
- 1) Open the front cabinet.



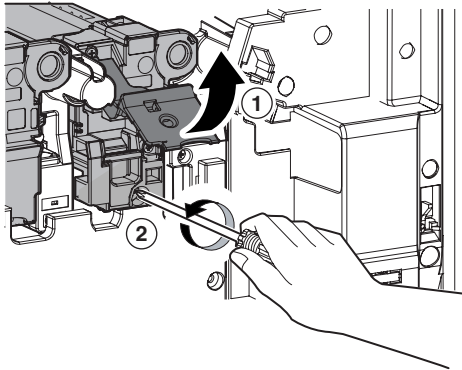
- 2) Remove the waste toner bottle unit.



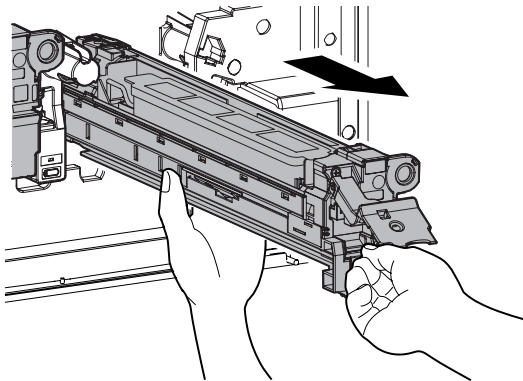
- 3) Check that the lock is released as shown in (A).  
Loosen the blue screw, and open the drum positioning unit.  
\* When the lock is not released, use a screwdriver to turn the screw (B) counterclockwise so that it is fit as (A).



- 4) Open the DV lock lever, and release the fixing screw. (1 position for each color)

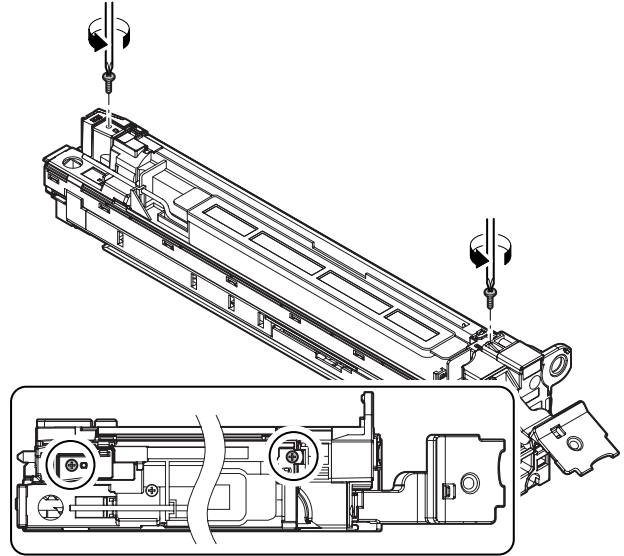


- 5) Pinch the knob and remove the development unit.

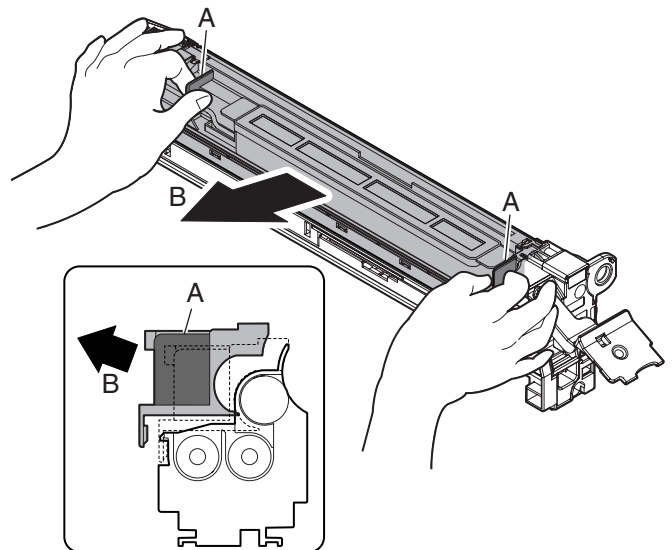


#### a. Developer

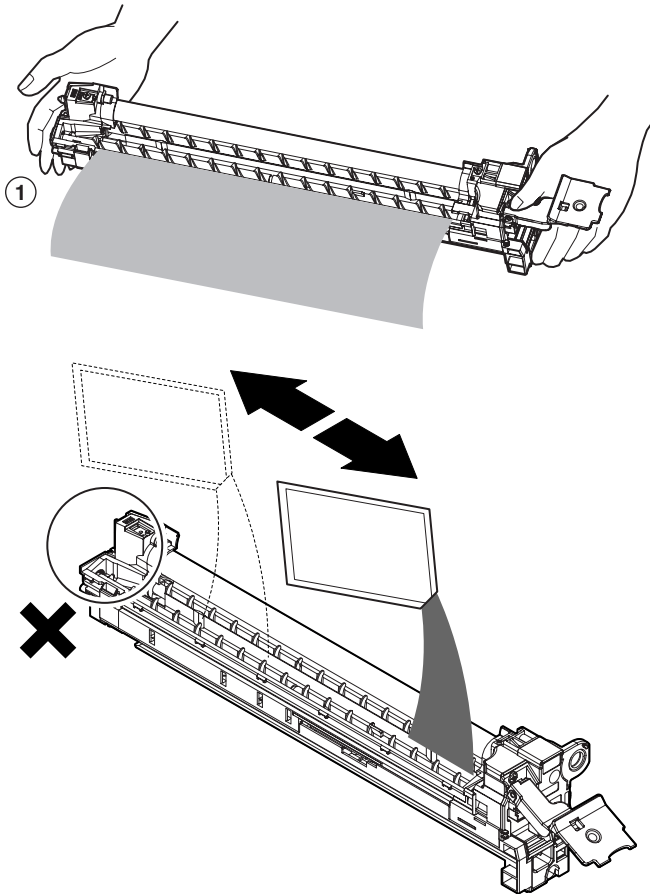
- 1) Remove the developing unit.
- 2) Remove two fixing screws of the DV cover.



- 3) Hold the sections A, and remove the DV cover in the arrow direction (B).



4) Take out the old developer, and insert the new developer.



\* When replacing developer, use an extreme care not to drop developer on the drive section (marked with O).

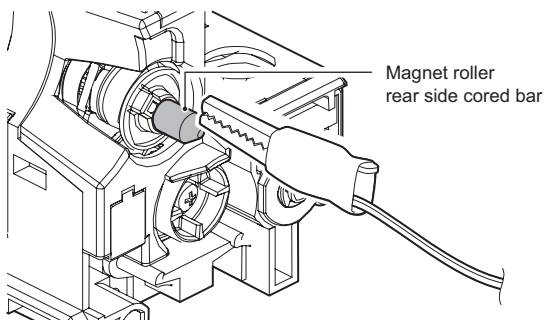
**(Note for cleaning the developing unit)**

If the developing unit is cleaned with a cleaner or an air blower with much developer in the developing unit, static electricity may be accumulated in the unit. In order to prevent against this, note the following items.

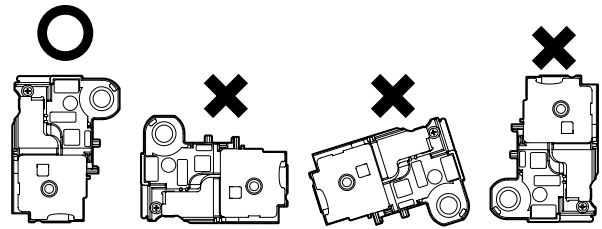
- \* If metal part is brought into contact with the magnet roller surface when transporting developer or removing foreign material from the magnet roller, developer may adhere to the magnet roller surface. Be careful to avoid this when handling the magnet roller.
- \* Remove developer in the developer unit as well as developer attached to the magnet roller as far as possible.

(When cleaning the developing unit with an air blower [duct])

- \* Before cleaning with an air duct, remove developer from the unit as far as possible, and ground the magnet roller rear side cored bar as shown in the figure below and clean the unit with an air blower. (Do not pinch the grounding wire with a crocodile clip connector in order to prevent against damage on the cored bar.)



\* When supplying developer, do not tilt the developing unit.

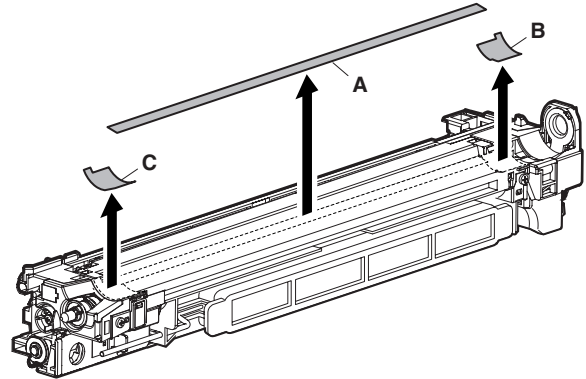


b. DV seal /

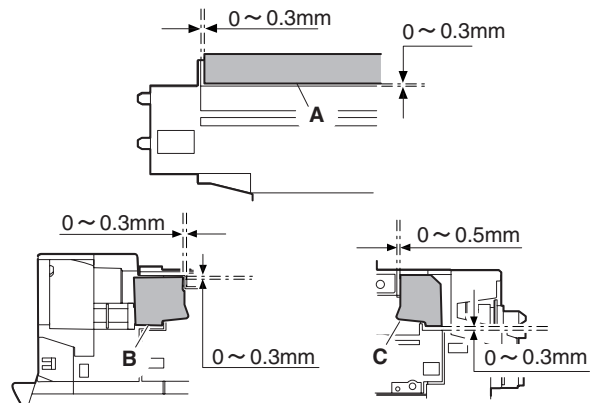
c. DV side seal F /

d. DV side seal R

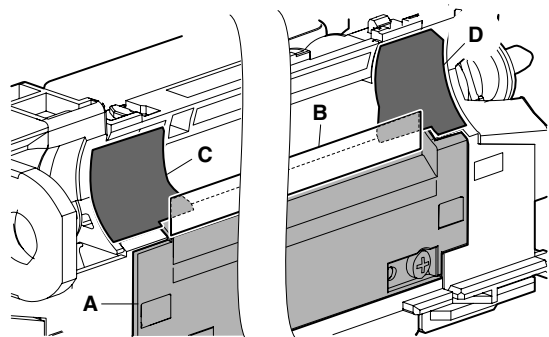
1) Remove the old DV seal (A), DV side seal F (B), R (C).



2) Attach the new DV seal (A), DV side seal F (B), DV side seal R (C) to the reference position.



\* When attaching, arrange so that the DV side seal F (C) and the DV side seal R (D) are placed between the DV cover R (A) and the DV blade (B).

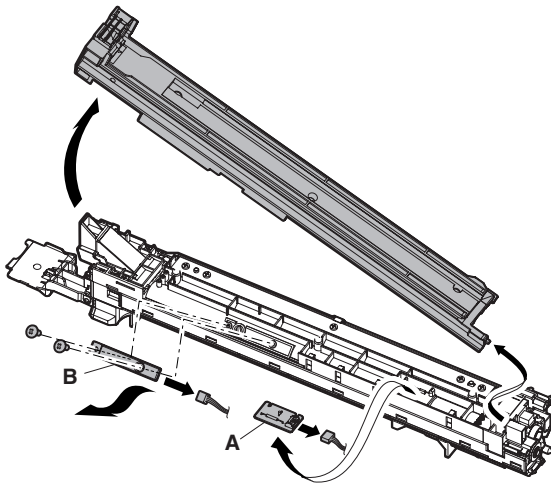




**e. DV initial PWB /**

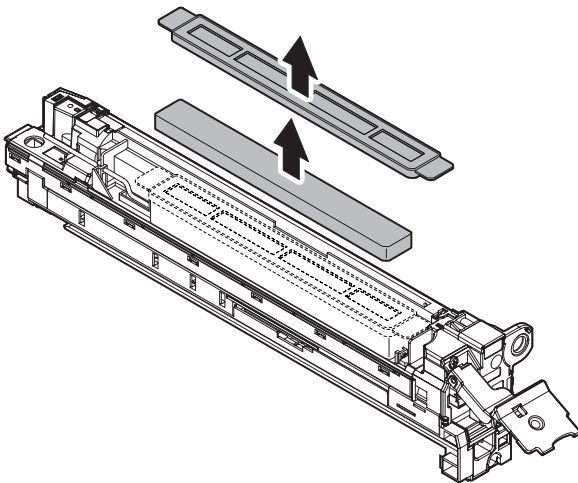
**f. Density sensor**

- 1) Remove the developing unit.
- 2) Remove the screw, and remove the DV guide. Disconnect the connector, and remove the DV initial PWB (A).  
Remove the screw, and disconnect the connector, and remove the density sensor (B).



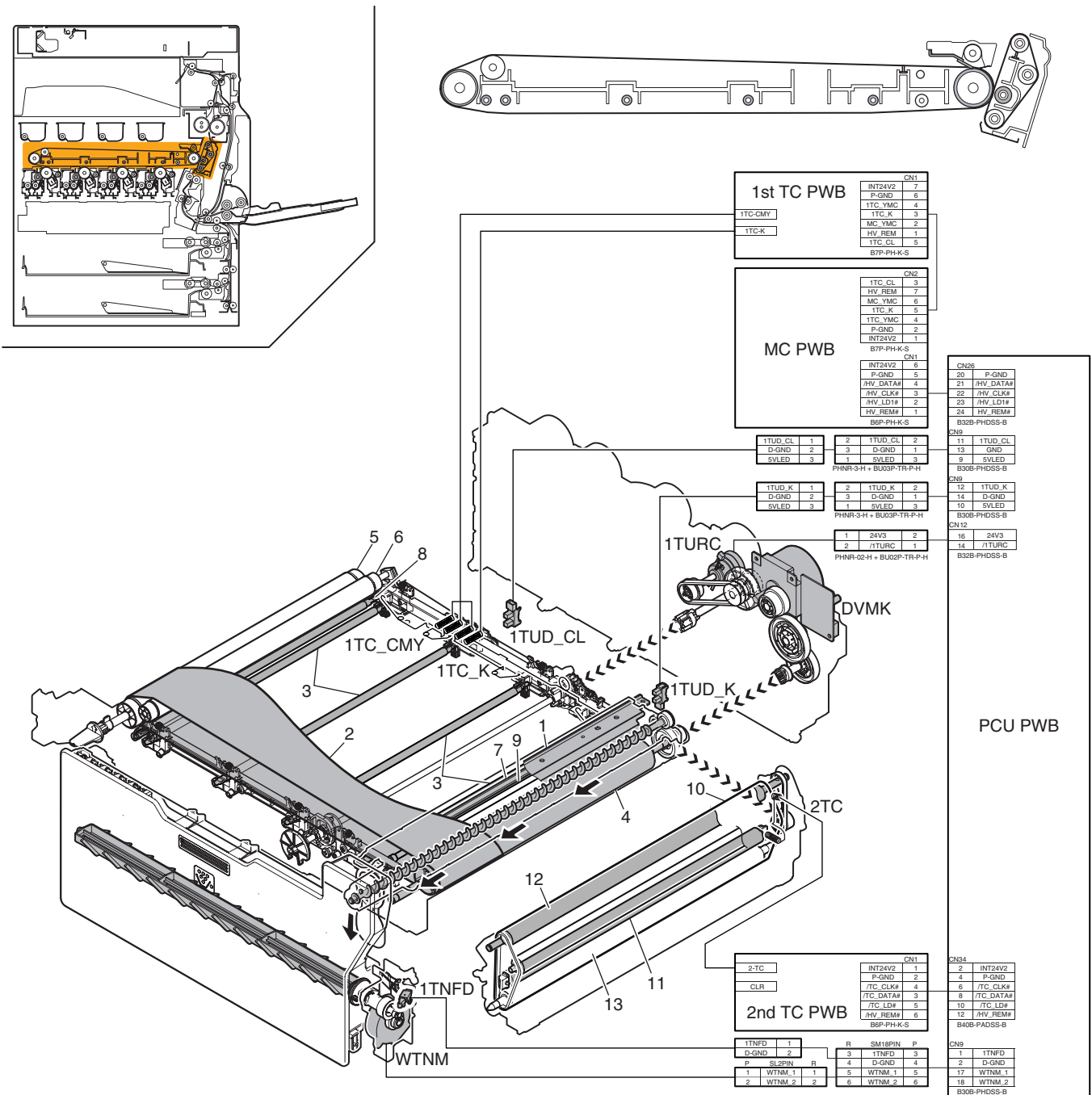
**g. Toner filter**

- 1) Remove the developing unit.
- 2) Remove the toner filter cover and the toner filter.



# [L] TRANSFER SECTION

## 1. Electrical and mechanism relation diagram



Signal name	Name	Functions and operations
1TC_CMY		Color transfer high voltage signal
1TC_K		B/W transfer high voltage signal
1TNFD	Waste toner full detection switch	Waste toner full detection
1TUD_CL	Transfer belt separation CL detection	Color transfer roller position detection signal
1TUD_K	Transfer belt separation BK detection	B/W transfer roller position detection signal
1TURC	Primary transfer separation clutch	Transfer roller separation control clutch
2TC		Secondary transfer high voltage signal
DVMK	Developer drive motor (K)	Transfer unit drive motor (Used together with the B/W developing drive roller)
WTNM	Waste toner drive motor	Stirs waste toner.

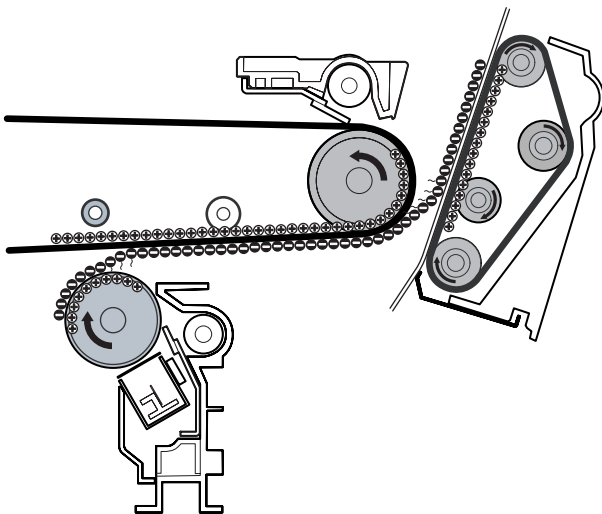


No.	Name	Functions and operations
1	Intermediate transfer blade	Cleans residual toner on the intermediate transfer belt.
2	Intermediate transfer belt	Transfers toner on the OPC drum to form toner images on the belt.
3	Primary transfer roller	Transfers toner images on the OPC drum to the intermediate transfer belt.
4	Transfer drive roller	Drives the transfer belt.
5	Transfer follower roller	Transfer belt follower drive
6	Tension roller	Applies a tension to the transfer belt.
7	Roller cleaning brush	Cleans the back surface of the transfer belt.
8	Y auxiliary roller	Retaining the belt position by separation of the Y transfer roller
9	Registration backup roller	Retaining the belt position in the process control and the registration section.
10	Secondary transfer belt	Transfers toner images on the intermediate transfer belt to paper.
11	Secondary transfer roller	Transfers toner images on the intermediate transfer belt to paper.
12	Secondary belt transfer roller	Drives the transfer belt.
13	Secondary belt tension roller	Applies a proper tension to the transfer belt.

## 2. Operational descriptions

### A. Outline

In this section, a high voltage is applied to transfer images to the intermediate transfer belt and toner images on the intermediate transfer belt are transferred to paper by the secondary transfer belt.

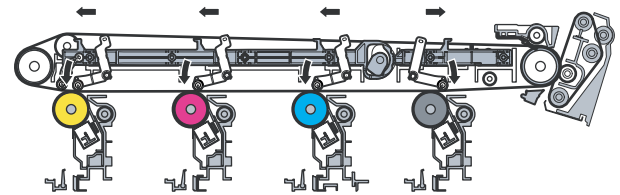


### B. Primary (intermediate) transfer roller separation mechanism and content

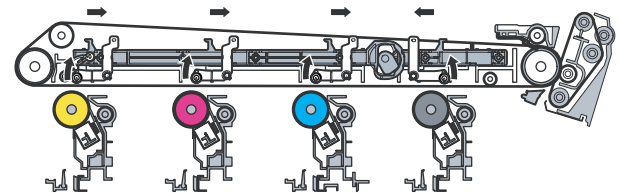
The primary transfer roller performs all pressure contact, all separation, and only black contact depending on the operation mode.

When the roller separation clutch (1TURC) is turned ON, the transfer cam rotates and the primary transfer link and the primary transfer arm which is linked with the cam are shifted in the arrow direction, performing separation of the roller.

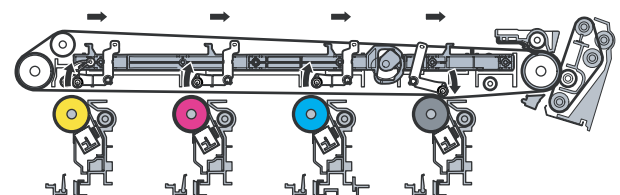
All pressure contact



All separation



Only black pressure contact



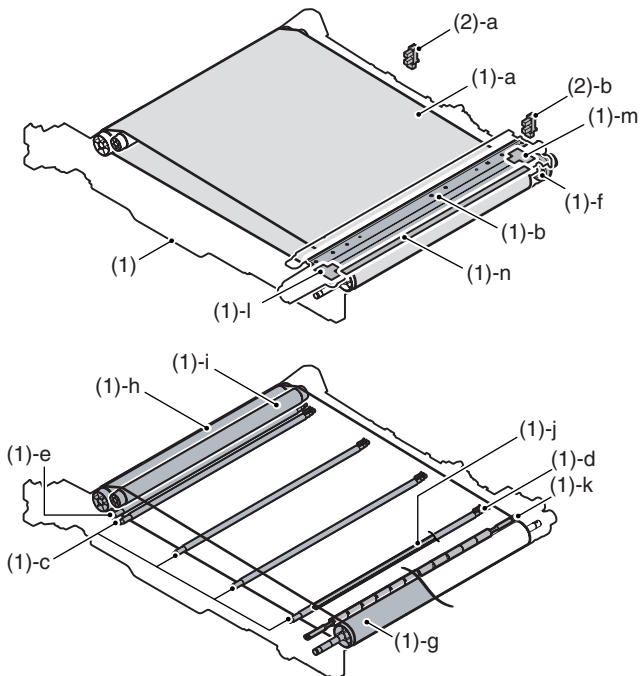
The arm performs all pressure contact, all separation, and only black contact.

	1TUD_CL	1TUD_K
All pressure contact	ON	OFF
All separation	OFF	ON
Only black contact	OFF	OFF

The primary transfer and the secondary transfer are driven together with the black developing motor.

### 3. Disassembly and assembly

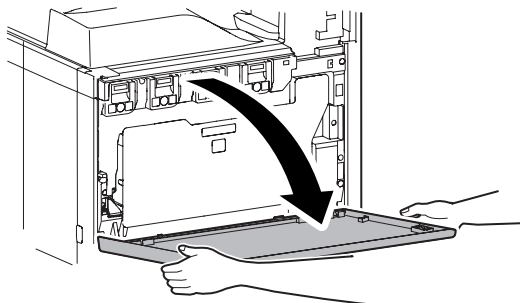
#### A. Primary transfer



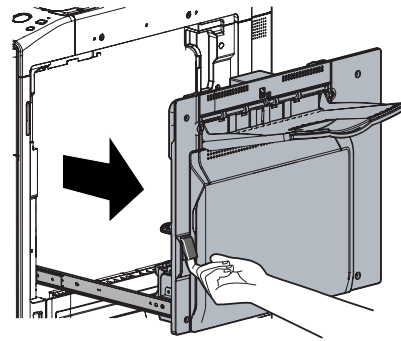
Unit	Parts	Maintenance
(1) Primary transfer unit	a Intermediate transfer belt	× ▲
	b Primary transfer blade	× ▲
	c Primary transfer coat roller	× ○ ▲
	d Primary transfer conduction collar	× ▲
	e Y auxiliary roller	○
	f Belt drive gear	× ▲
	g Transfer drive roller	○
	h Transfer follower roller	○
	i Tension roller	○
	j Roller cleaning brush	×
	k Registration backup roller	×
	l Cleaner seal	×
	m Cleaner seal R	×
	n Transfer toner reception seal	×
(2) Others	o TC roller bearing	× ▲
	a Transfer belt separation CL detection	
	b Transfer belt separation BK detection	

#### (1) Primary transfer unit

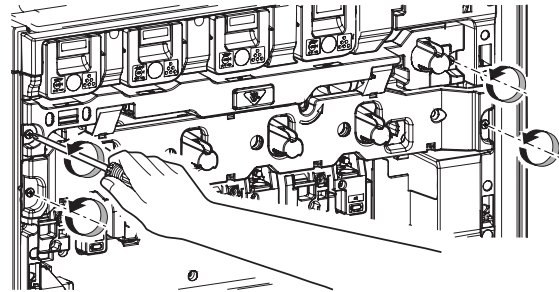
- 1) Open the front cover.



- 2) Open the right door unit.

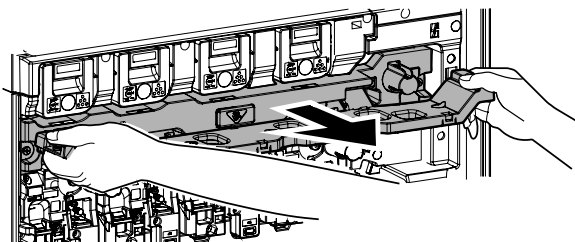
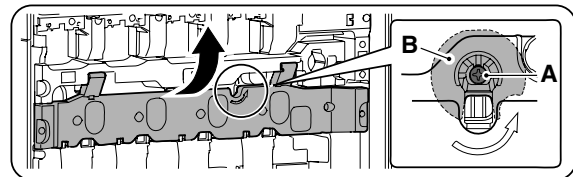


- 3) Loosen the blue screw.

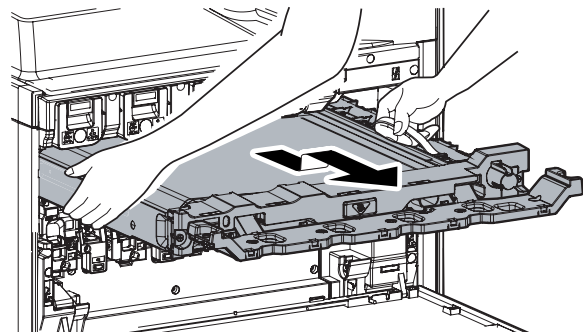


- 4) Turn the blue screw (A) counterclockwise. Making sure that the lock is released (B), open and then pull out the drum positioning unit.

\* Failure to complete this step may damage the intermediate transfer belt.



- 5) Hold the specified position, and remove the primary transfer unit.



#### (NOTE)

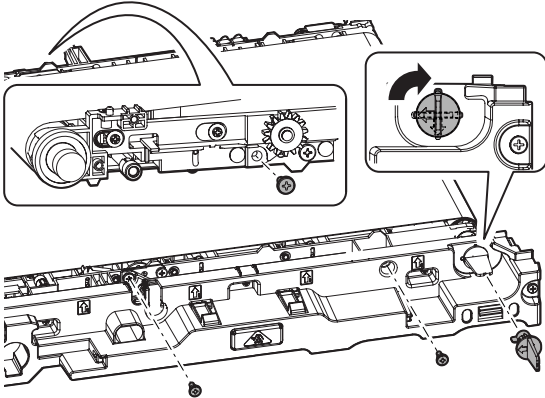
When the transfer belt tension of the primary transfer unit is released manually, turn on the power again after completion of the work. (Power OFF-ON) This procedure initializes the transfer roller to return it to the home position.

#### a. Intermediate transfer belt

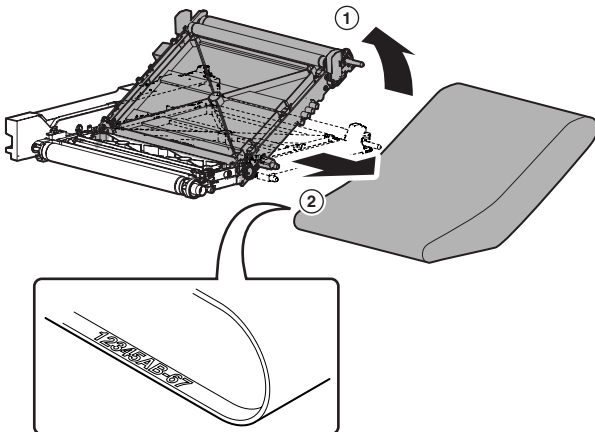
\* Do not replace the belt, and blade separately. When any of the three parts needs to be replaced, replace the other two parts as well.

\* When replacing the belt, be sure to apply titanium hydroxide and strontium titanate according to the instructions.

- 1) Remove the primary transfer unit.
- 2) Remove the transfer guide plate left unit.
- 3) Remove the parts.



- 4) Fold the CL section of the transfer frame and remove the intermediate transfer belt.



\* When installing, set the lot number inside the belt to the front side.

#### [Precautions for installation]

When replacing the belt, make sure not to scratch or fold it.

Do not touch the surface of the belt with bare hands.

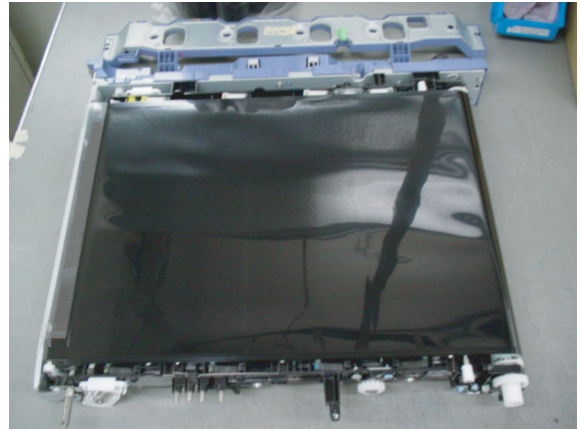
#### (Applying titanium hydroxide)

\* Titanium hydroxide is fine powder, and may disperse when removing from the bag. To prevent against dispersion, handle the bag of titanium hydroxide at a lower position.

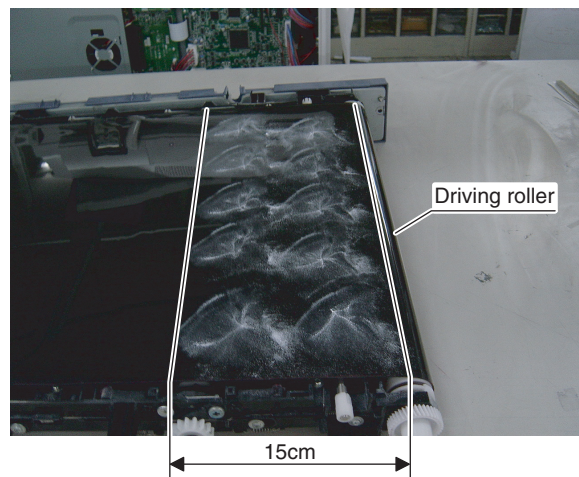
\* Pushing the bag lightly against the belt provides sufficient application of titanium hydroxide. Lift the bag from the application surface by 5 mm or less.

\* Apply titanium hydroxide before installing the cleaner unit.

- 1) Install the primary transfer UN with its backside facing upward and remove the cleaner frame UN.

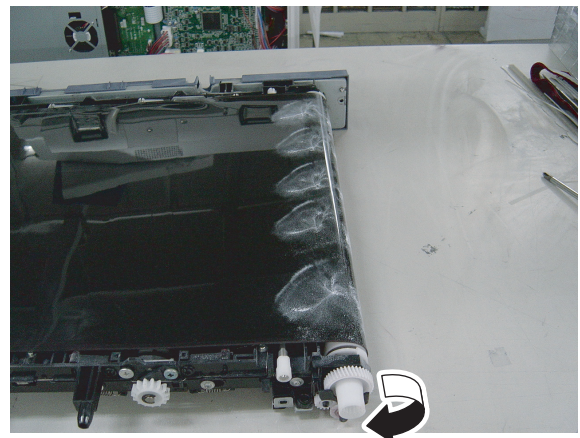


- 2) Apply titanium hydroxide to the belt within approx. 15 cm from the driving roller.



- 3) Rotate the belt by amount 10 cm to move the application part to the surface.

\* Till the applied powder reaches the cleaner installation location.



- 4) Mount the cleaner frame UN on the primary transfer UN.

- 5) Apply titanium hydroxide to the belt.

\* Apply titanium hydroxide to the belt 40 times (10 times in latitudinal direction x 4 times in longitudinal direction) for 4 faces (making two circuits of the belt).

\* Repeat half-around application and half-around rotation each 4 times.

\* Apply titanium hydroxide not to produce bias.





(Application amount)

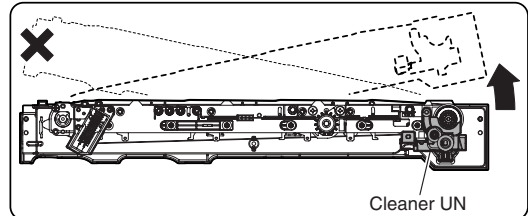


Little

Moderate  
amount

Much

- 6) Face the primary transfer UN upward.
  - \* Face the primary transfer UN upward from the cleaner UN side.
  - \* Take care that powders will not fly apart.

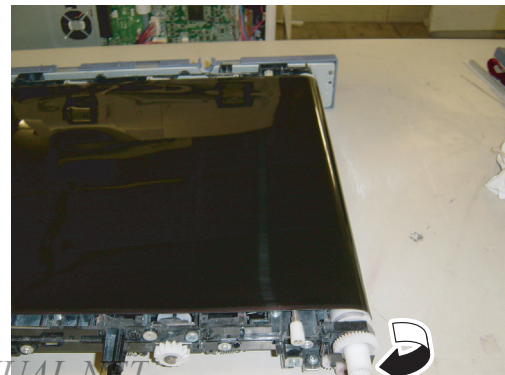
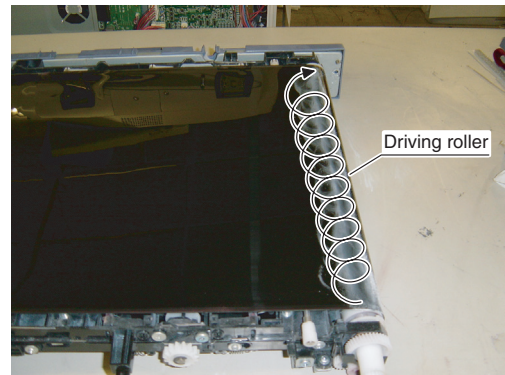


Cleaner UN

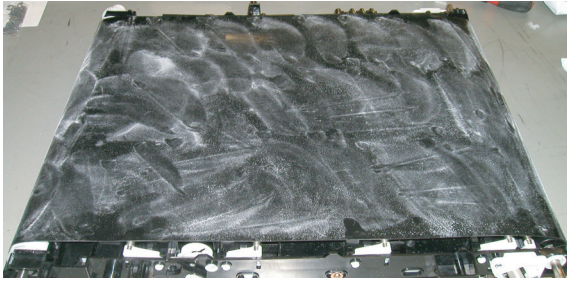
- 7) Mount the primary transfer UN on the machine and execute simulation 25-1 (3-minute belt idling) once.
- 8) Check omissions in characters, and if many omissions are found, execute simulation 25-1 once again.
- 9) If titanium hydroxide flies apart near the resist roller, clean it.

#### (Cleaning the belt)

- \* When print omission occurs, clean the primary transfer belt with strontium titanate.
  - \* Clean the belt with the cleaner frame UN demounted.
- 1) Rotate powder charged in the strontium titanate bag (white bag) and polish the belt circumference with the power.
    - \* Polish the belt at the driving roller location.
    - \* Polish the entire belt in the order of (polishing → rotation → polishing → rotation).

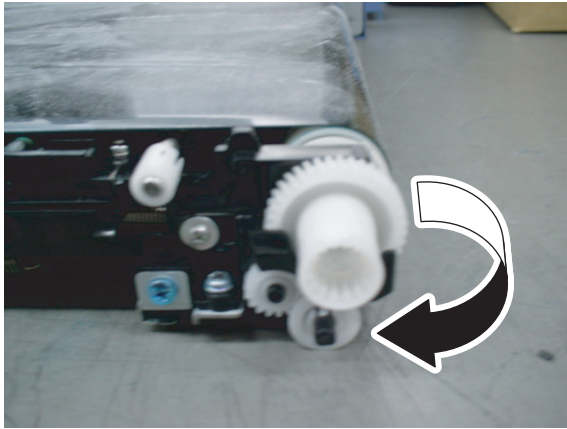


(After cleaning via polishing)



- 2) Mount the cleaner frame UN on the primary transfer UN.
- 3) Rotate the belt once to recover the strontium titanate applied to the belt to the cleaner frame UN.

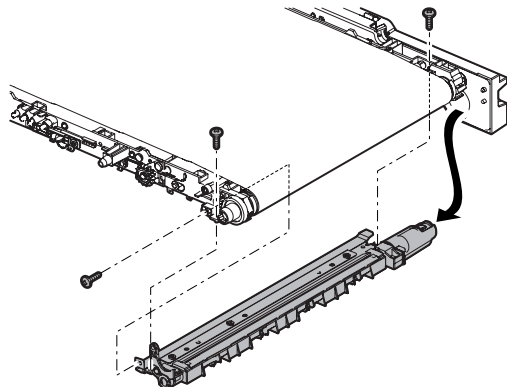
\* Even if you rotate the belt polished with strontium titanate once, the strontium titanate remains in the belt surface because it is not completely recovered to the cleaner frame UN. Mount the primary transfer UN on the machine and execute simulation 25-1 (3-minute belt idling) twice. This recovers the remaining strontium titanate to the cleaner frame UN. In this case, the belt is problem-free even if it tarnishes whitely.



- 4) Apply strontium titanate to the belt.

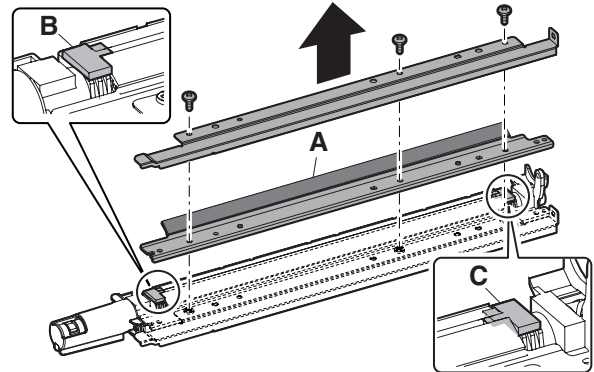
#### b. Primary transfer blade

- 1) Remove the primary transfer unit, and put it upside down.
- 2) Remove the cleaner unit.



- 3) Remove the transfer guide plate, and remove the primary transfer blade.

- \* When installing, apply stearic acid onto the primary transfer blade (A).
- \* Check the cleaner seal (B) and cleaner seal R (C). If any of them is laid on the blade, replace it. (See step m for the cleaner seal and step n for the cleaner seal R respectively.)

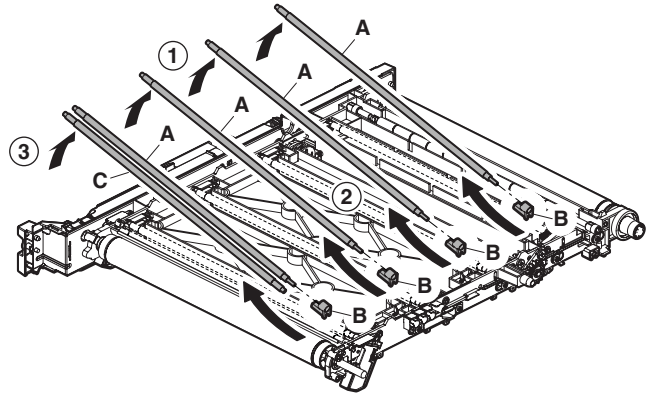


#### c. Primary transfer coat roller /

#### d. Primary transfer conduction collar /

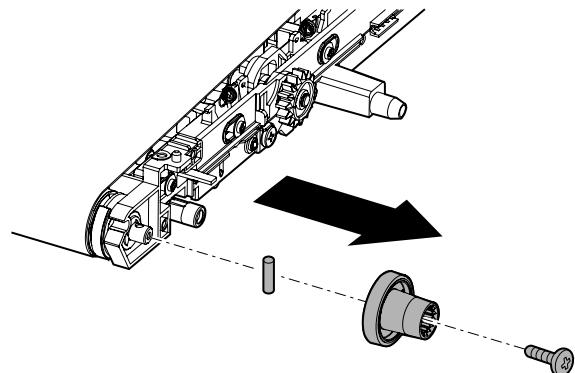
#### e. Y auxiliary roller

- 1) Remove the primary transfer unit.
- 2) Remove the cleaner unit.
- 3) Remove the intermediate transfer belt.
- 4) Disengage the engagement on the front side, and remove the primary transfer roller (A) and the primary transfer conduction collar (B). Remove the Y auxiliary roller (C).



#### f. Belt drive gear

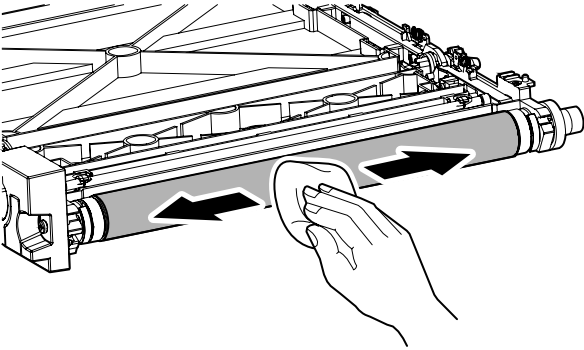
- 1) Remove the primary transfer unit.
- 2) Remove the cleaner unit.
- 3) Remove the screws, and remove the belt drive gear.





**g. Transfer drive roller**

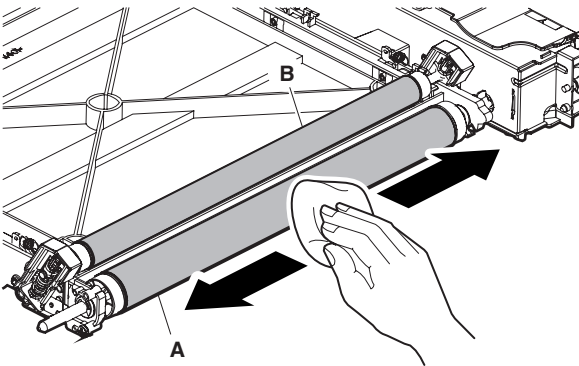
- 1) Remove the primary transfer unit.
- 2) Remove the cleaner unit.
- 3) Remove the intermediate transfer belt.
- 4) Clean the transfer drive roller.



**h. Transfer follower roller /**

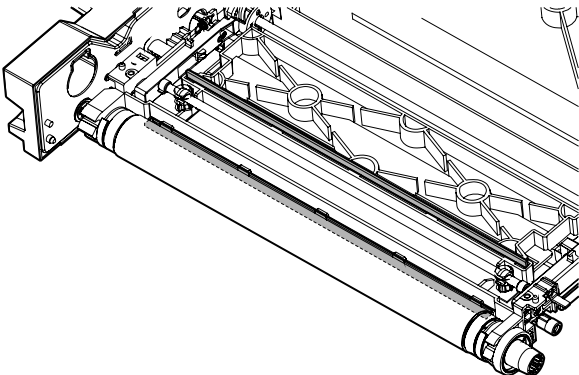
**i. Tension roller**

- 1) Remove the primary transfer unit.
- 2) Remove the cleaner unit.
- 3) Remove the intermediate transfer belt.
- 4) Clean the transfer follower roller (A) and the tension roller (B).



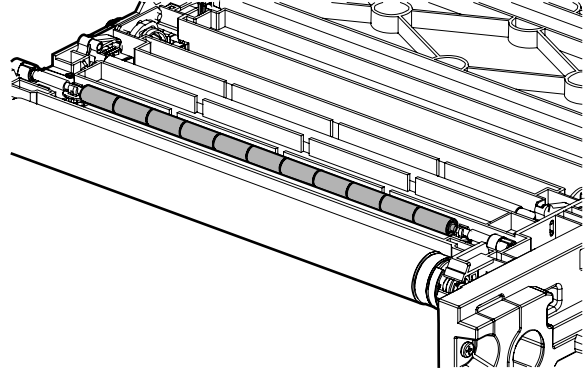
**j. Roller cleaning brush**

- 1) Remove the primary transfer unit.
- 2) Remove the cleaner unit.
- 3) Remove the intermediate transfer belt.
- 4) Check the roller CL brush.



**k. Registration backup roller**

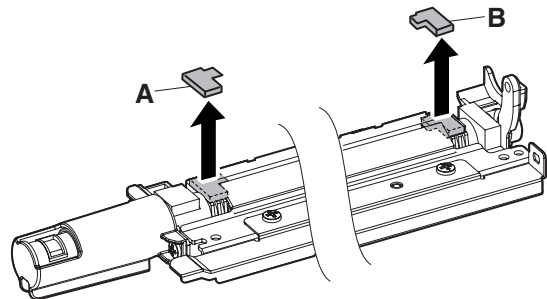
- 1) Remove the primary transfer unit.
- 2) Remove the cleaner unit.
- 3) Remove the intermediate transfer belt.
- 4) Check the registration backup roller.



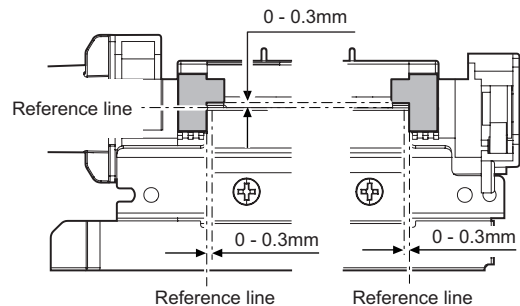
**l. Cleaner seal /**

**m. Cleaner seal R**

- 1) Remove the primary transfer unit.
- 2) Remove the cleaner unit.
- 3) Remove the cleaner seal (A) and the cleaner seal R (B).

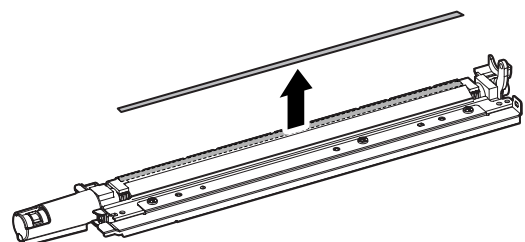


\* When attaching the seals, position the seals within the specified ranges, referring to the reference lines as indicated below.

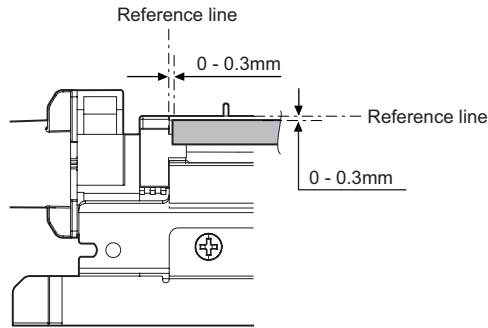


**n. Transfer toner reception seal**

- 1) Remove the primary transfer unit.
- 2) Remove the cleaner unit.
- 3) Remove the transfer toner reception seal.



- \* When attaching the transfer toner reception seal, position the seal within the specified ranges, referring to the reference lines as indicated below.

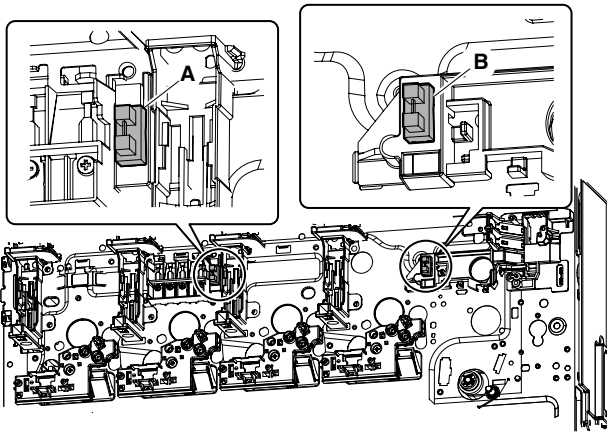


## (2) Others

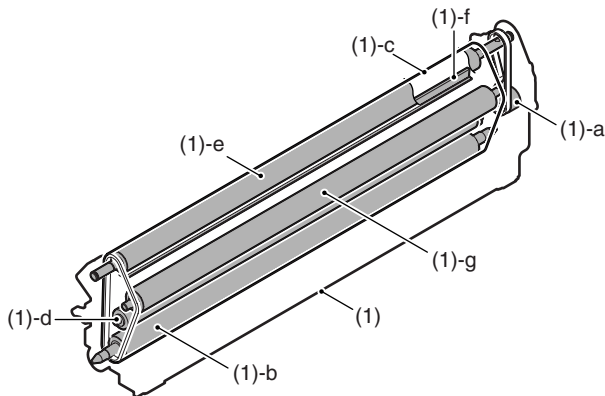
### a. Transfer belt separation CL detection /

### b. Transfer belt separation BK detection

- 1) Remove the primary transfer unit.
- 2) Remove the developing unit.
- 3) Remove the drum unit.
- 4) Check the transfer belt separation CL detection (A) and the transfer belt separation BK detection (B).



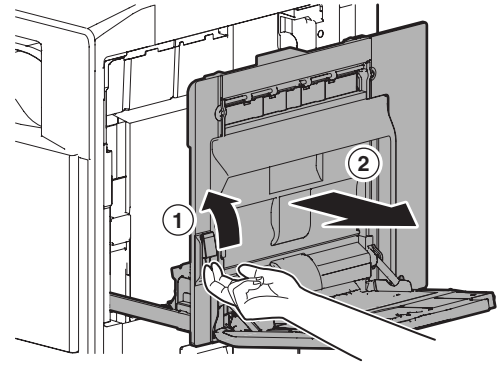
## B. Secondary transfer



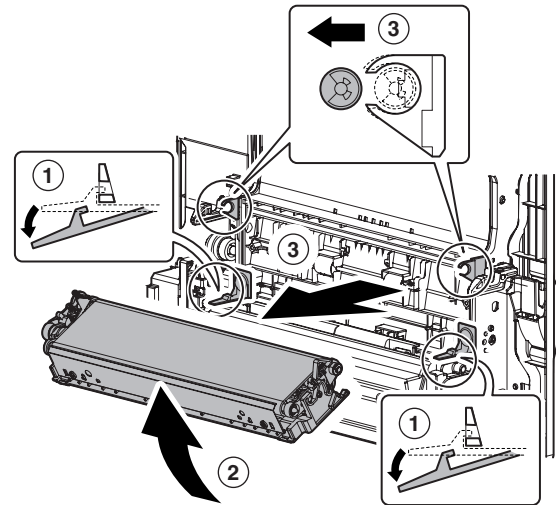
Unit	Parts	Maintenance
(1) Secondary transfer unit	a Secondary transfer idle gear	×▲
	b Secondary belt follower roller	×○
	c Secondary transfer belt	×▲
	d Secondary transfer roller	×▲
	e Secondary transfer belt drive roller	×○
	f Roller cleaning brush	×
	g Secondary belt tension roller	×○

## (1) Secondary transfer unit

- 1) Open the right door unit.



- 2) Release the pawl, and remove the secondary transfer unit.

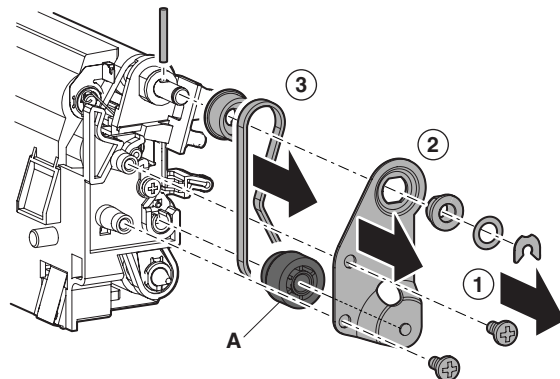


### a. Secondary transfer idle gear /

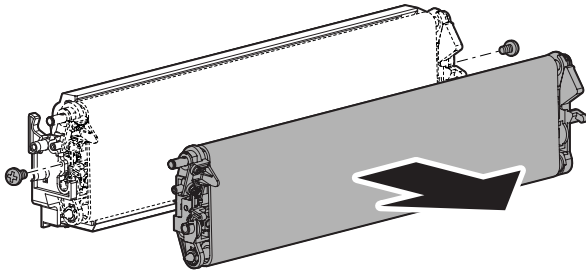
### b. Secondary belt follower roller /

### c. Secondary transfer belt

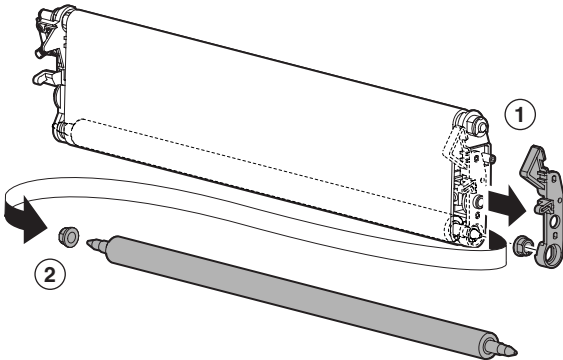
- 1) Remove the secondary transfer unit.
- 2) Remove each parts, and remove the secondary drive plate. Remove each parts, and remove the idle gear (A).



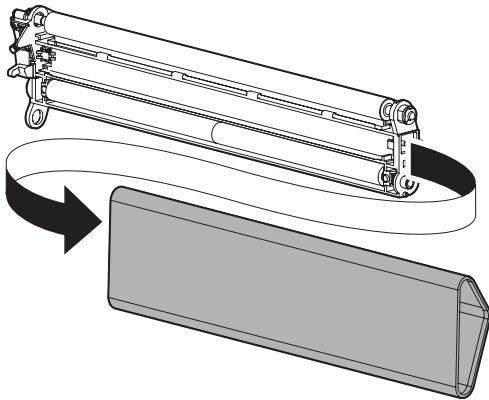
- 3) Remove the secondary belt transfer frame.



- 4) Remove each parts, and remove the secondary follower roller.

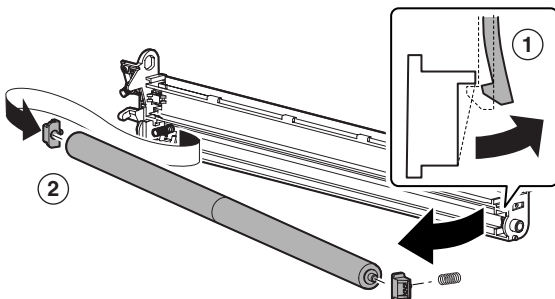


- 5) Remove the secondary transfer belt.



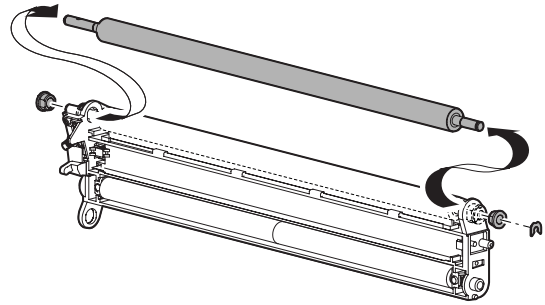
#### d. Secondary transfer roller

- 1) Remove the secondary transfer unit.
- 2) Remove the secondary transfer belt.
- 3) Remove the bearing on the front side, and remove the secondary transfer roller.



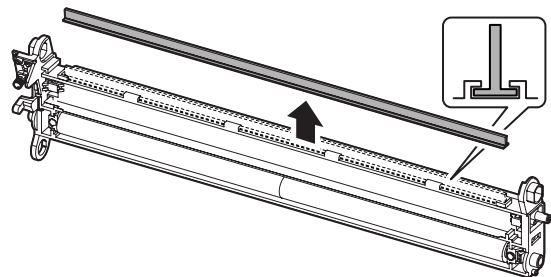
#### e. Secondary belt drive roller

- 1) Remove the secondary transfer unit.
- 2) Remove the secondary transfer belt.
- 3) Remove each parts, then remove the secondary belt drive roller.



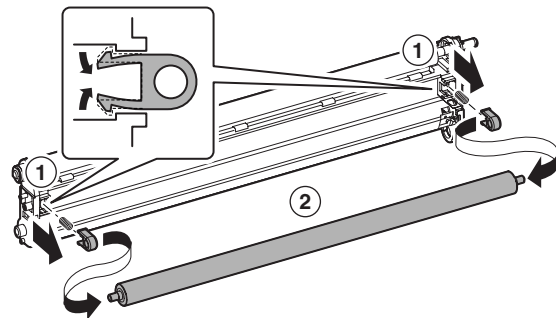
#### f. Roller cleaning brush

- 1) Remove the secondary transfer unit.
- 2) Remove the secondary transfer belt.
- 3) Remove the secondary belt drive roller.
- 4) Remove the roller CL brush.



#### g. Secondary belt tension roller

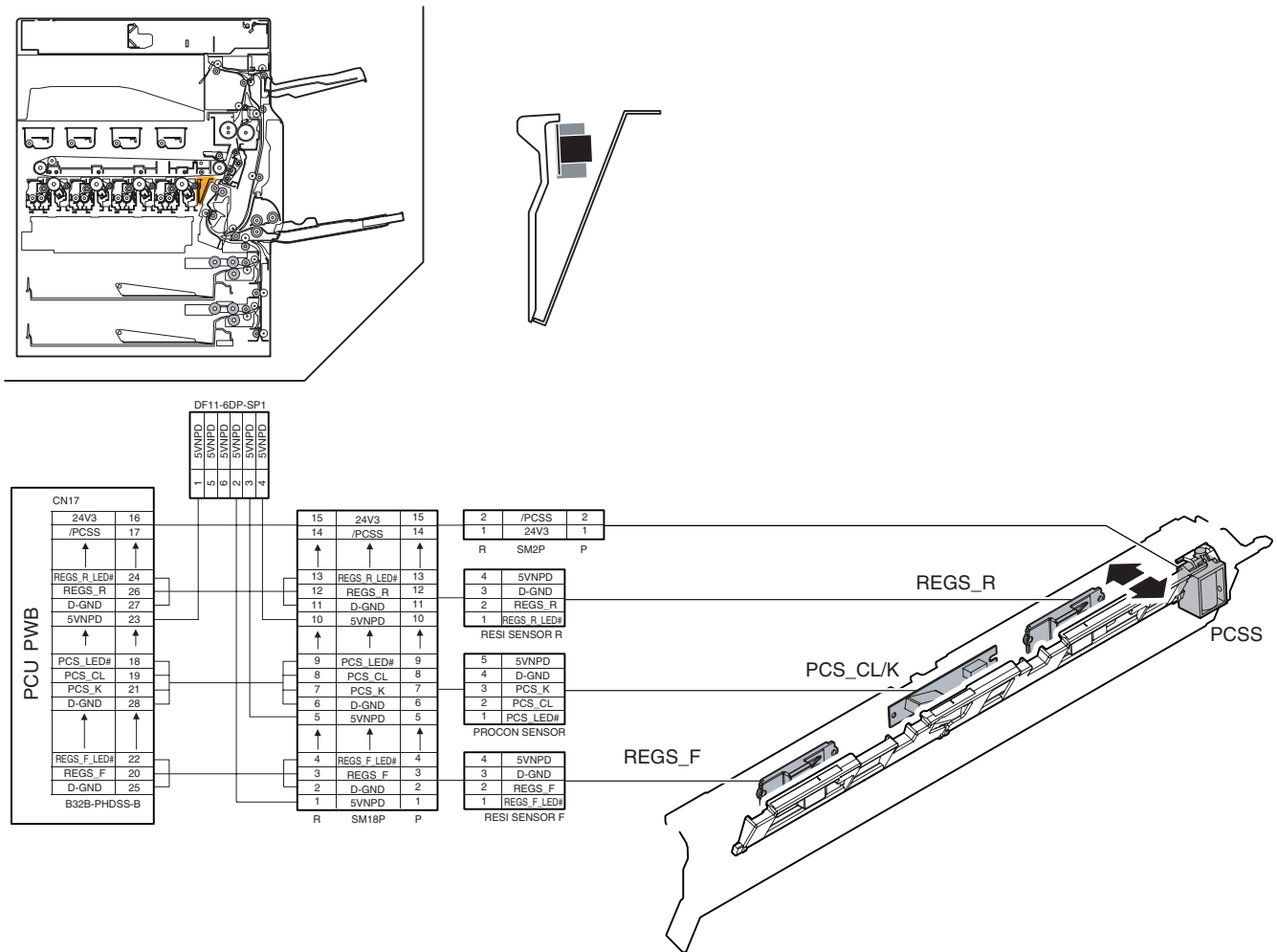
- 1) Remove the secondary transfer belt.
- 2) Release the pawl, and remove the secondary belt tension roller.





# [M] PROCESS CONTROL SENSOR, REGISTRATION SENSOR SECTION

## 1. Electrical and mechanism relation diagram



Signal name	Name	Function/Operation
PCS_CL/K	Process control sensor	Detects the toner patch density.
PCSS	Process control shutter solenoid	Opens/closes the shutter of the process control and the registration sensor.
REGS_F/R	Resist sensor	Detects the resist shift.

## 2. Operational descriptions

### A. Process control sensor control

The shutter is provided on the monochrome (PCS\_K) and color (PCS\_CL) process control sensor. When the shutter is opened (the image density is corrected), the toner patch formed on the transfer belt is scanned by the process control sensor and the information is passed to the PCU.

When the shutter is closed, the gray resin section on the back of the shutter is scanned to perform calibration of the sensor itself.

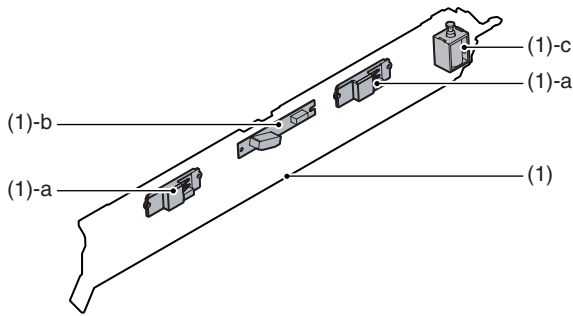
The shutter operation is controlled by the process control shutter solenoid (PCSS).

### B. Registration sensor control

The registration sensor is attached to the F side (REGS\_F) and the R side (REGS\_R). When the shutter is opened, the registration image formed on the transfer belt is scanned by the sensor and the information is passed to the PCU.

### 3. Disassembly and assembly

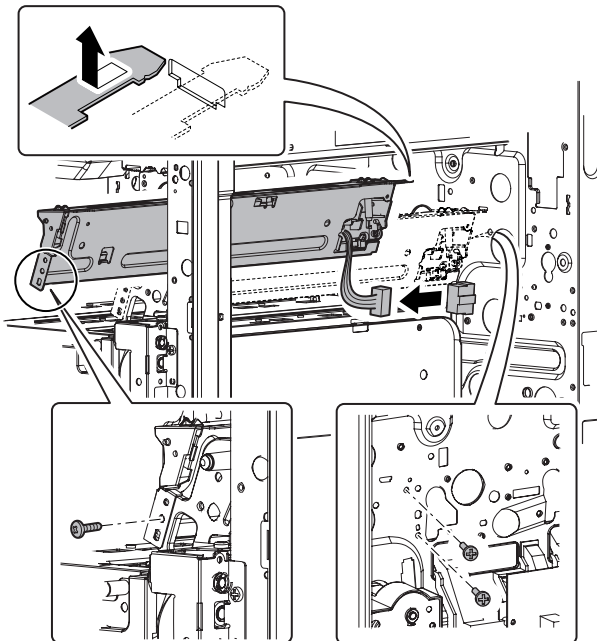
#### A. Process control sensor, registration sensor section



Unit		Parts	Maintenance
(1)	Process control sensor unit	a Resist sensor	×○
		b Process control sensor	×○
		c Process control shutter solenoid	

##### (1) Process control sensor unit

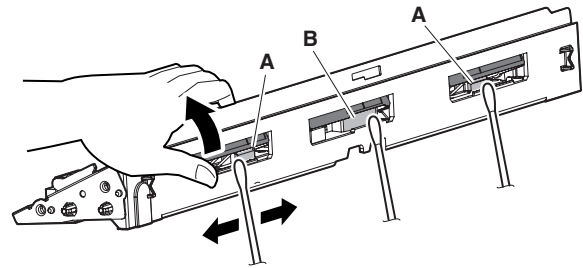
- 1) Remove the developing unit (K).
- 2) Remove the drum unit (K).
- 3) Remove the primary transfer unit.
- 4) Remove the paper feed tray 1.
- 5) Remove the rear cabinet.
- 6) Remove the ADU connection drive.
- 7) Remove the resist roller unit.
- 8) Disconnect the connector. Remove the screws. Release the pawl, then remove the process control sensor.



##### a. Resist sensor /

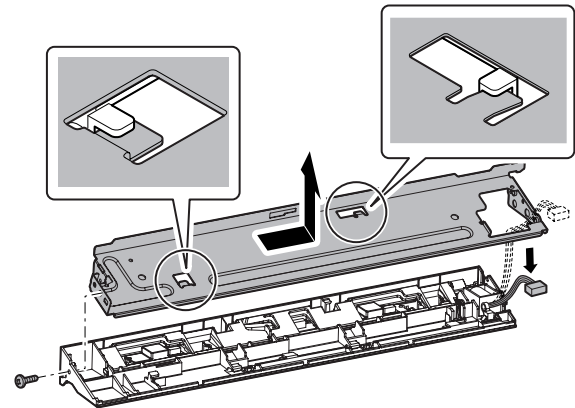
##### b. Process control sensor

- 1) Remove the process control sensor unit.
- 2) Push up the shutter operation plate, and clean the registration sensor (A) and the process control sensor (B).



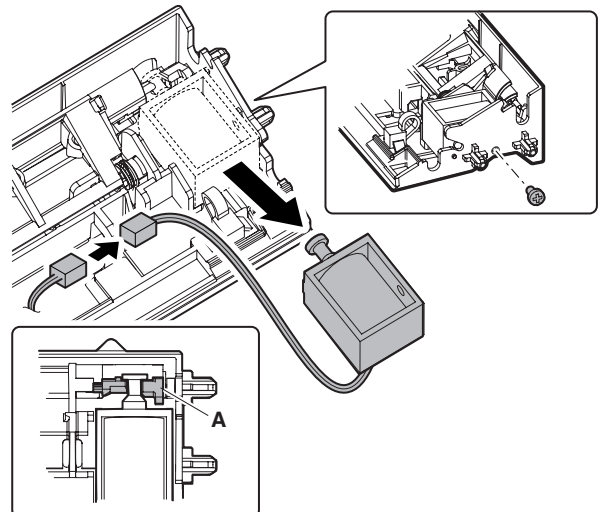
##### c. Process control shutter solenoid

- 1) Remove the process control sensor unit.
- 2) Remove the screw, slide the sensor mounting stay, and remove the sensor mounting stay.



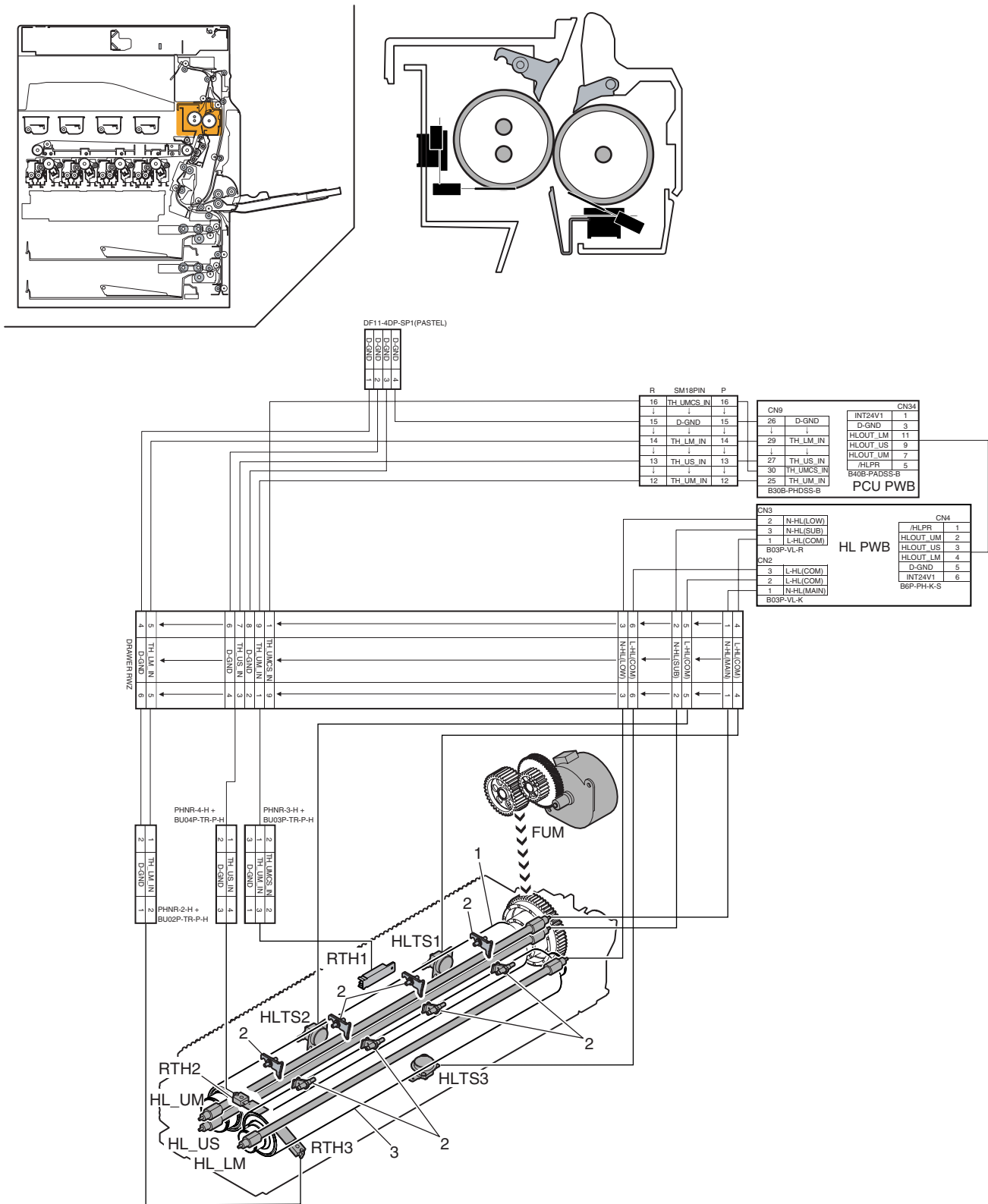
- 3) Remove the screws. Disconnect the connector, and remove the process control shutter solenoid.

\* When installing, engage the process control shutter solenoid with the groove in the shutter mounting plate (A).



[N] FUSING SECTION

1. Electrical and mechanism relation diagram



Signal name	Name	Function/Operation
RTH1	Fusing temperature sensor (1)	Detects the surface temperature of the fusing roller (heating). (Center section)
RTH2	Fusing temperature sensor (2)	Detects the surface temperature of the fusing roller (heating). (Edge section)
HLTS1	Thermostat (1)	Shuts conduction to the heater lamp when the temperature rises abnormally. [For the fusing roller (heating)]
HLTS2	Thermostat (2)	Shuts conduction to the heater lamp when the temperature rises abnormally. [For the fusing roller (heating)]
HL_UM	Heater lamp (1)	Heats the fusing roller (heating).

Signal name	Name	Function/Operation
HL_US	Heater lamp (2)	Heats the fusing roller (heating).
RTH3	Fusing temperature sensor (3)	Detects the surface temperature of the fusing roller (heating).
HLTS3	Thermostat (3)	Shuts conduction to the heater lamp when the temperature rises abnormally. [For the fusing roller (heating)]
HL_LM	Heater lamp (3)	Heats the fusing roller (heating).
FUM	Fusing motor	Drives the fusing unit.

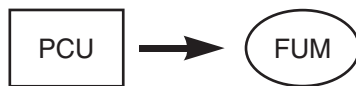
No.	Name	Function/Operation
1	Fusing roller (Heating)	Heat and presses toner on paper to fuse it on paper.
2	Pawl	Paper which was not separated naturally from the fusing roller (heating) is mechanically separated.
3	Fusing roller (pressing)	Heat and presses toner on paper to fuse it on paper.

## 2. Operational descriptions

### A. Fusing unit drive

To drive the fusing unit, the drive power is transmitted from the drive motor (FUM) through the connection gear to the upper heat roller gear.

The drive motor (stepping motor) is driven according to the control signal sent from the PCU.



### B. 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 lighting signal is sent from the PCU to the heater lamp drive circuit in the sub power 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.

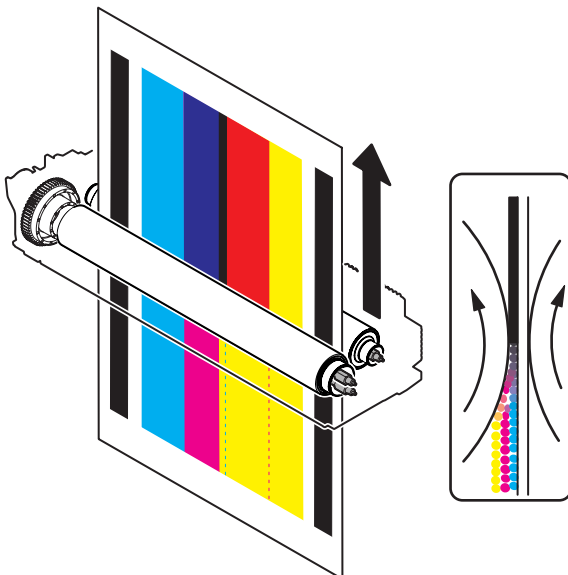
To prepare for an abnormally high temperature of the heat roller, the thermostat is provided for safety.

When the thermostat is opened, power supply (AC line) to the heater lamp is cut off.

### C. Fusing operation

Color toner of YMCK on paper is heated and pressed by the heat rollers to be fused on paper.

At that time, color toner of YMCK is mixed to reproduce nearly actual colors of document images.



The upper and the lower heat rollers are provided to heat from above and below.

This is because it is necessary to heat four layers of toner from above and below and right and left to fuse it on paper.

The upper and lower heat rollers are of silicon rubber.

This is because of the following reasons:

- 1) To provide a greater nip quantity and a higher heating capacity for paper.
- 2) The soft, flexible rollers press multi-layer toner without deformation to fuse on paper.
- 3) An even pressure is applied to an uneven surface of multi-layer toner.

### D. Fusing temperature control

The temperature sensors are provided at the center and the edges of the upper heat roller, and at the center of the lower heat roller.

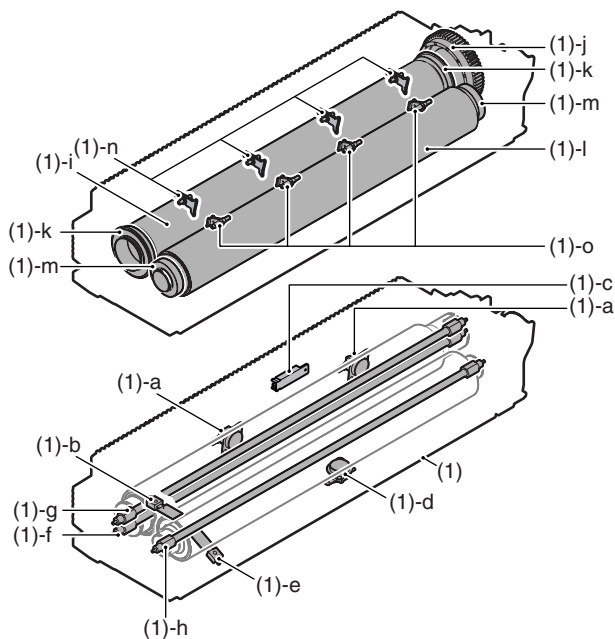
The heat roller temperature is detected by the temperature sensors to control the heater lamp so that the temperature is maintained at the specified level.

The fusing temperature is switched according to the machine condition and paper type selected.

Mode	Paper	Fusing roller center (heating) main	Fusing roller (heating) sub	Fusing roller (pressing)
Ready state Print mode	B/W normal paper	170	180	130
	Color normal paper	170	180	130
	Heavy paper	170	175	140
	OHP	170	170	145
	Envelope	180	180	145

### 3. Disassembly and assembly

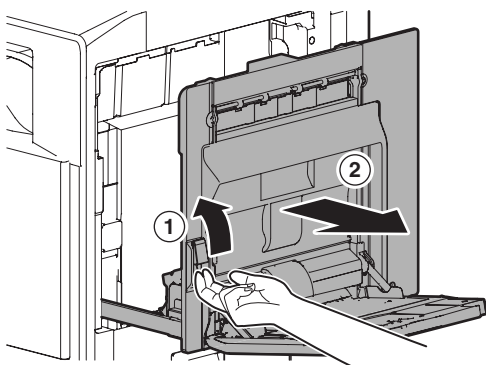
#### A. Fusing section



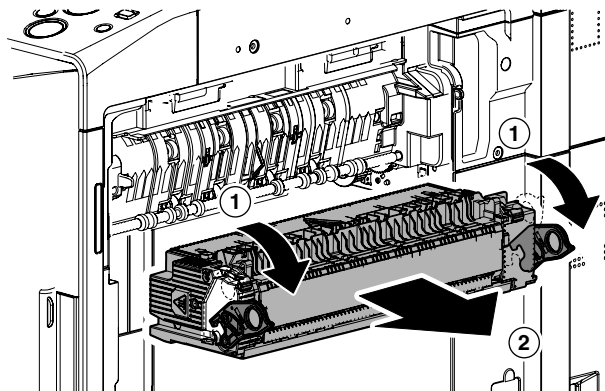
Unit	Parts	Maintenance
(1) Fusing unit	a Upper thermostat	
	b Upper thermistor (Contact type)	× ▲
	c Upper thermistor (Non-contact type)	×
	d Lower thermostat	
	e Lower thermistor	× ▲
	f Upper heater lamp main	
	g Upper heater lamp sub	
	h Lower heater lamp	
	i Upper heat roller	× ▲
	j Upper heat roller gear	× ▲
	k Upper heat roller bearing	× ▲
	l Lower heat roller gear	× ▲
	m Lower heat roller bearing	× ▲
	n Upper separation pawl	× ▲
	o Lower separation pawl	× ▲

#### (1) Fusing unit

- 1) Open the right door unit.

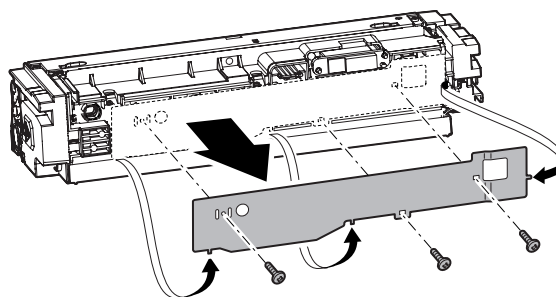


- 2) Release the lock lever, and remove the fusing unit.

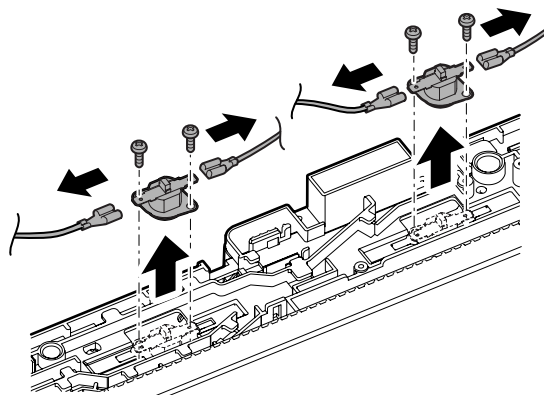


#### a. Upper thermostat

- 1) Remove the fusing unit.
- 2) Remove the screws and the fusing upper cover.

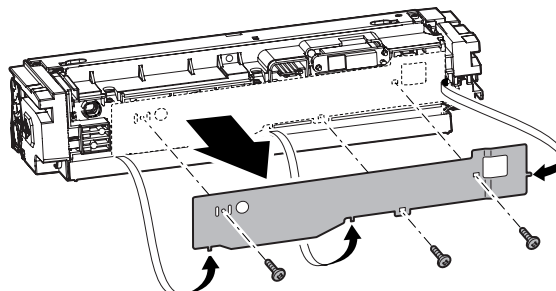


- 3) Disconnect the connector, and remove the upper thermostat.

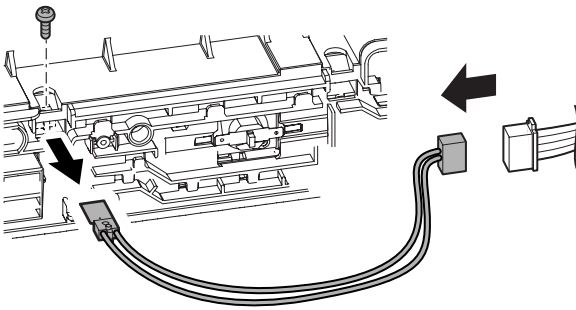


#### b. Upper thermistor (Contact type)

- 1) Remove the fusing unit.
- 2) Remove the screws and the fusing upper cover.

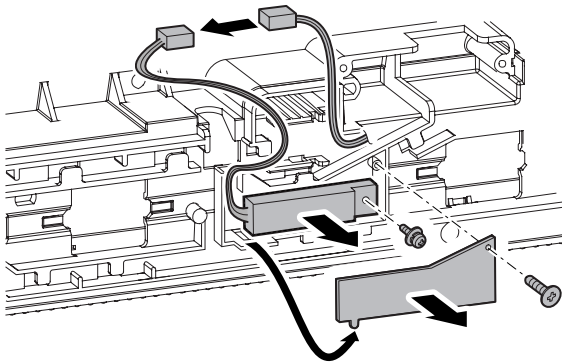


- 3) Disconnect the connector, and remove the upper thermistor.



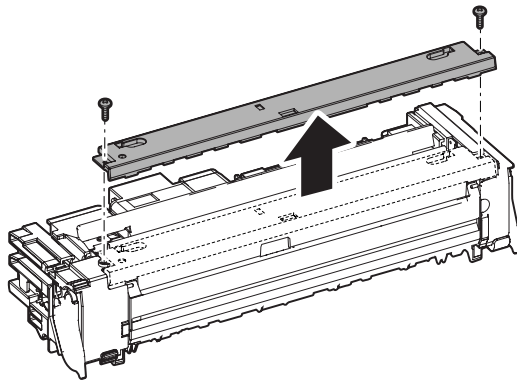
#### c. Upper thermistor (Non-contact type)

- 1) Remove the fusing upper cover.
- 2) Remove the screws, and remove the cover. Remove the connector and the screws, then remove the non-contact thermistor.

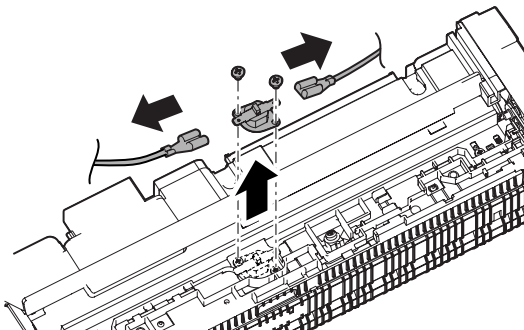


#### d. Lower thermostat

- 1) Remove the fusing unit.
- 2) Remove the fusing lower cover.

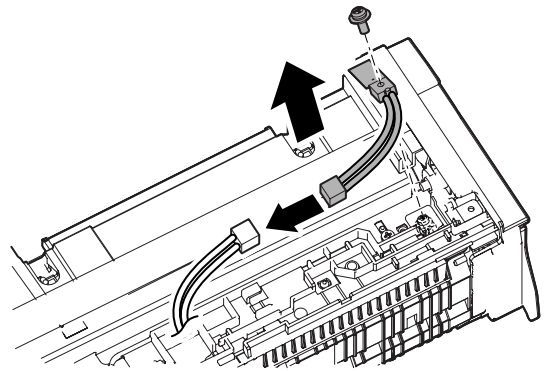


- 3) Disconnect the connector, and remove the lower thermostat.



#### e. Lower thermistor

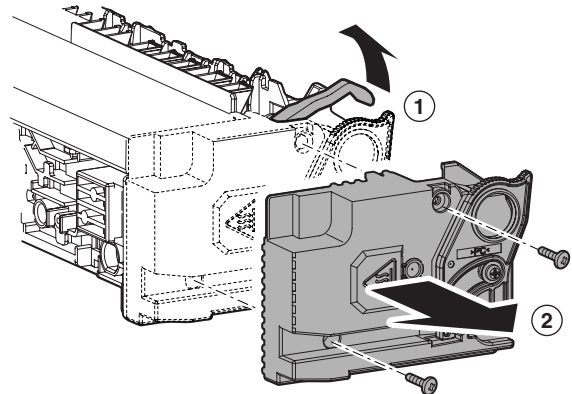
- 1) Remove the fusing unit.
- 2) Remove the fusing lower cover.
- 3) Disconnect the connector, and remove the lower thermistor.



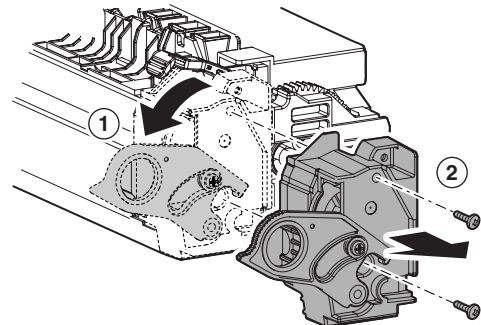
#### f. Upper heater lamp main /

#### g. Upper heater lamp sub

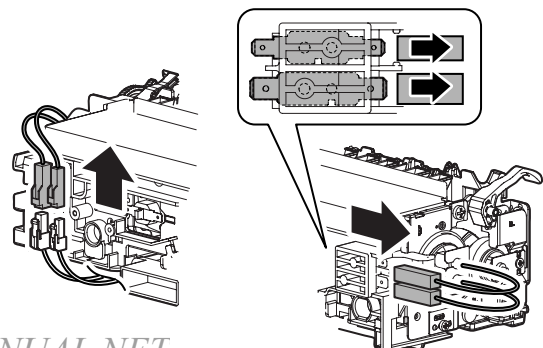
- 1) Remove the fusing unit.
- 2) Release the pressure release lever, and remove the fusing upper cover F.



- 3) Tilt the lock lever, and remove the fusing upper cover R.

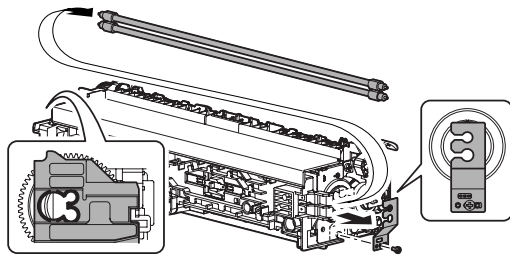


- 4) Disconnect the connector.



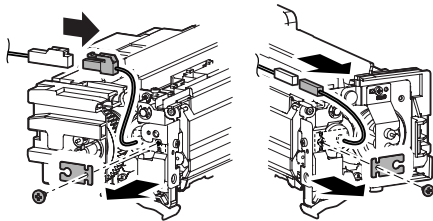


- 5) Remove the lamp holder, and remove the lamp.
- \* Since the connector shape on the front side differ from that on the rear side, be careful when installing.  
Install so that the red harness is on the rear side.

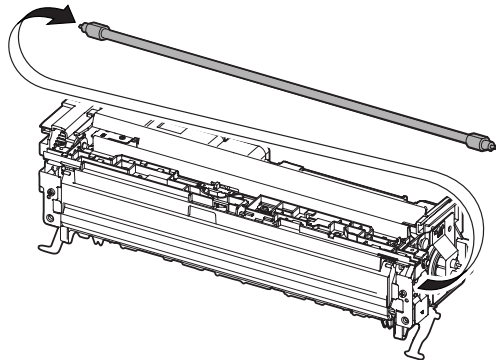


#### h. Lower heater lamp

- 1) Remove the fusing unit.
- 2) Remove the fusing upper cover F.
- 3) Remove the fusing upper cover R.
- 4) Disconnect the connector, and remove the lamp holder.



- 5) Remove the lower heater lamp.
- \* Since the connector shape on the front side differ from that on the rear side, be careful when installing.  
Install so that the red harness is on the rear side.

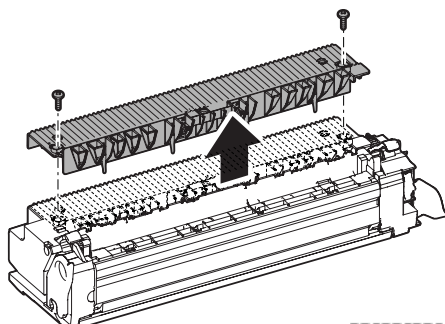


#### i. Upper heat roller /

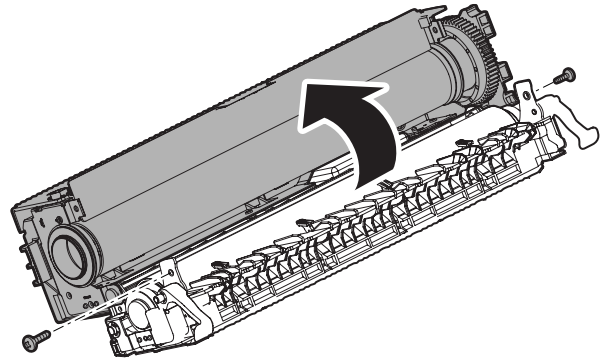
#### j. Upper heat roller gear /

#### k. Upper heat roller bearing

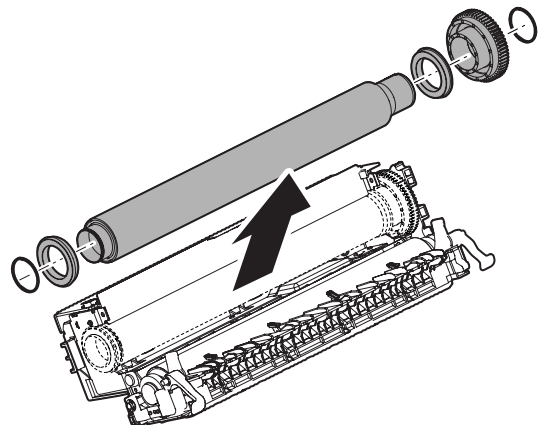
- 1) Remove the fusing unit.
- 2) Remove the upper heater lamp.
- 3) Remove the fusing rear upper PG.



- 4) Release the pressure.
- 5) Open the fusing unit.



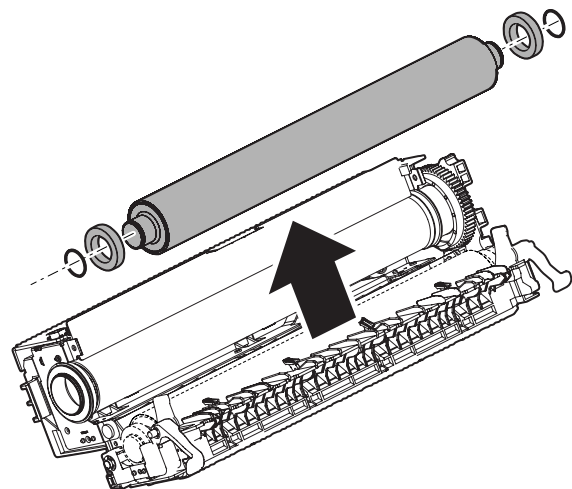
- 6) Remove the upper heat roller unit, and remove the parts.



#### l. Lower heat roller gear /

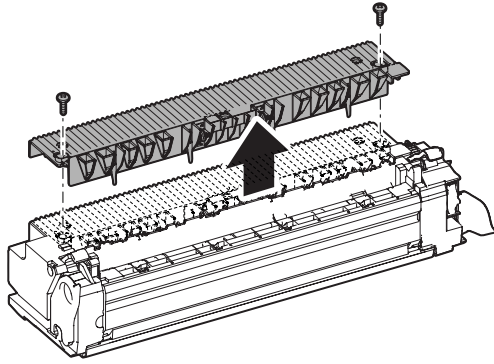
#### m. Lower heat roller bearing

- 1) Remove the fusing unit.
- 2) Remove the lower heater lamp.
- 3) Release the pressure, and open the fusing unit.
- 4) Remove the lower heat roller unit, and remove the parts

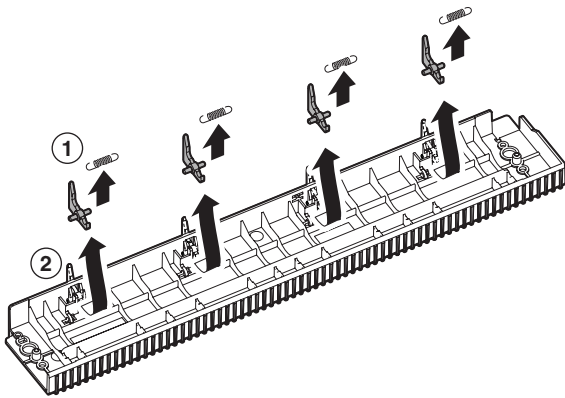


**n. Upper separation pawl**

- 1) Remove the fusing unit.
- 2) Remove the fusing rear upper PG.

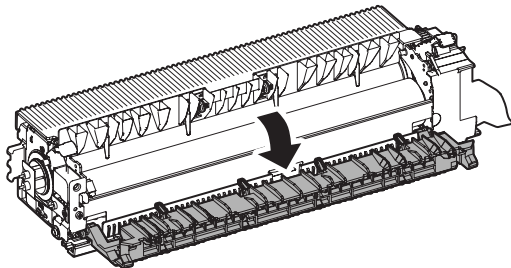


- 3) Remove the spring, and remove the upper separation pawl.

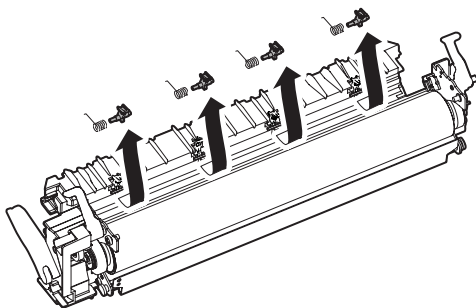


**o. Lower separation pawl**

- 1) Remove the fusing unit.
- 2) Open the fusing rear lower PG.



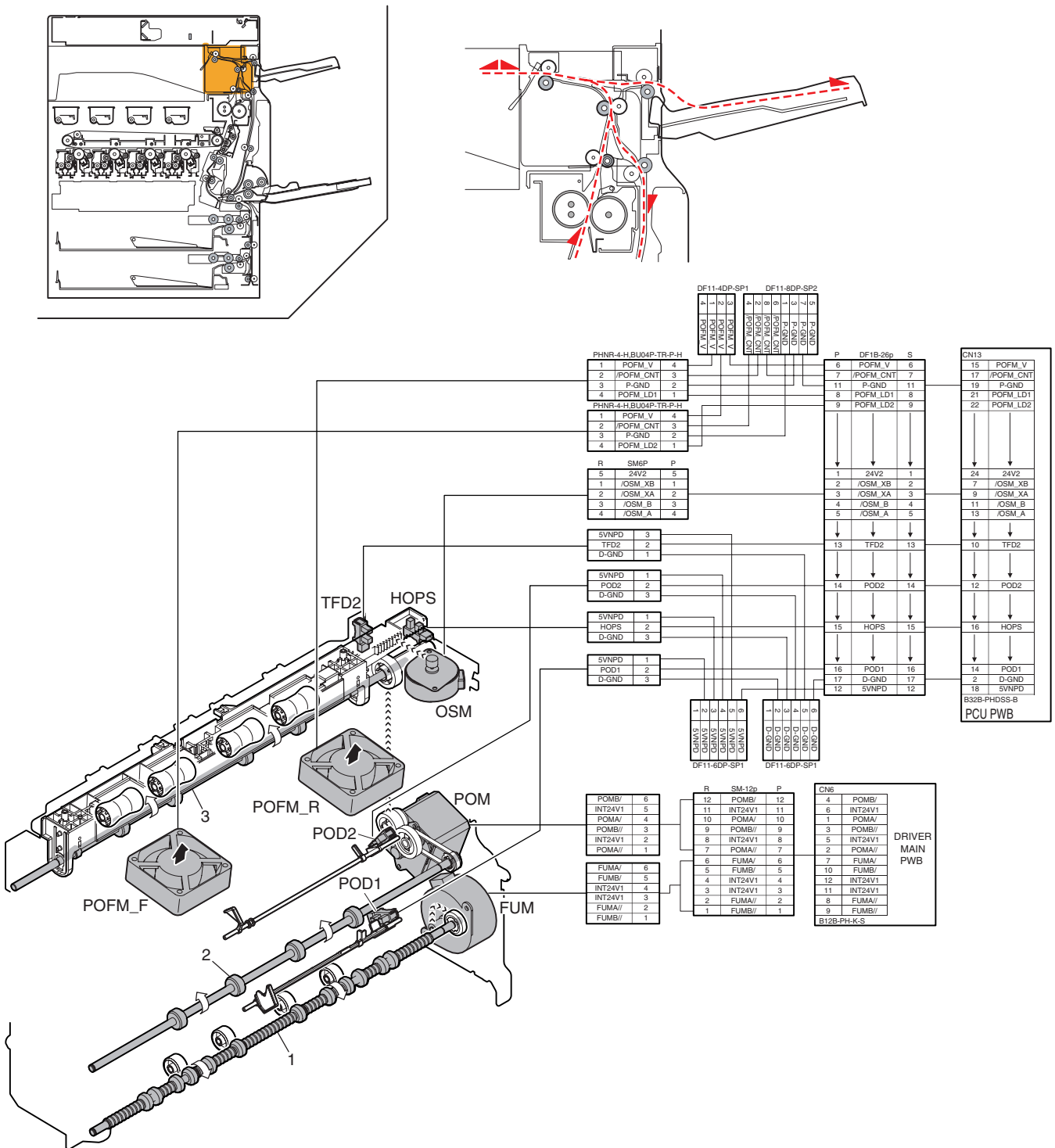
- 3) Remove the spring, and remove the lower separation pawl.





# [O] PAPER EXIT SECTION

## 1. Electrical and mechanism relation diagram



Signal name	Name	Function/Operation
FUM	Fusing drive motor	Drives the fusing unit.
HOPS	Shifter home position detection	Detects the shifter home position.
OSM	Shifter motor	Offsets the paper.
POD1	Fusing after detection	After fusing, paper exit from fusing section is detected.
POD2	Paper exit detection	Detects the exit paper.
POFM_F	Paper exit cooling fan motor (F side)	Cools the fusing unit.
POFM_R	Paper exit cooling fan motor (R side)	Cools the fusing unit.
POM	Paper exit drive motor	Drives the paper exit roller.
TFD2	Paper exit full detection	Detects face-down paper exit tray full.

No.	Name	Function/Operation
1	Transport roller 9 (Drive)	Transports the paper from the fixing roller to the transport roller 13.
2	Transport roller 13 (Drive)	Paper transported from the transport roller 9 is transported to the paper exit roller 1. / Paper is transported to the duplex (ADU) section.
3	Paper exit roller 1 (Drive)	Paper is discharged. / Paper is transported to the right paper exit tray. / Paper is transported to the duplex (ADU) section.

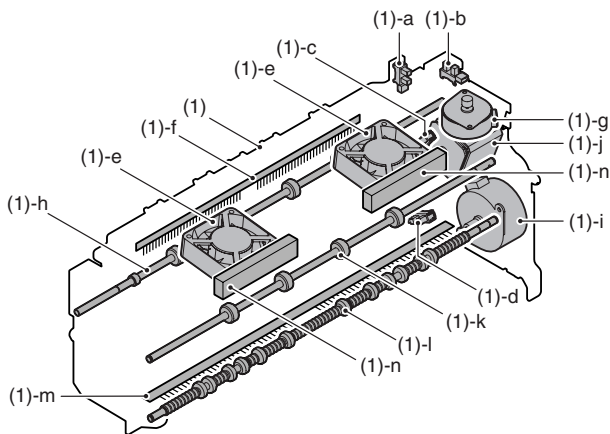
## 2. Operational descriptions

### A. Paper exit section

- Paper transported from the fusing section is passed to the transport roller 13 which is driven by the paper exit drive motor and to the paper exit roller 1, then discharged to the inner tray.
- When paper is discharged to the right tray, it is passed to the paper exit roller 1 and the paper exit drive motor is reversely rotated, and paper is passed over the ADU reverse gate and discharged to the right tray.

## 3. Disassembly and assembly

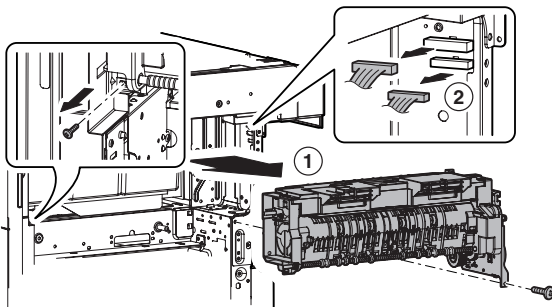
### A. Paper exit section



Unit	Parts	Maintenance
(1) Paper exit unit	a Exit paper full detection sensor	
	b Shifter home position detection sensor	
	c Paper exit detection sensor	
	d After-fusing sensor	
	e Paper exit cooling fan motor	
	f Discharge brush	×
	g Shifter motor	
	h Paper exit roller 1 (Drive)	× ○
	i Fusing drive motor	
	j Paper exit drive motor	
	k Transport roller 13 (Drive)	× ○
	l Transport roller 9 (Drive)	× ○
	m Discharge brush	×
	n Paper exit filter	

#### (1) Paper exit unit

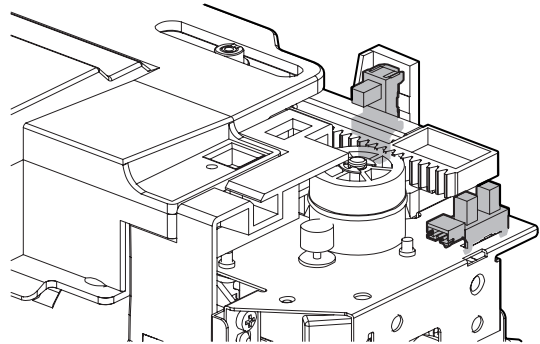
- 1) Remove the paper exit unit, and disconnect the connector.



#### a. Exit paper full detection sensor/

#### b. Shifter home position detection sensor

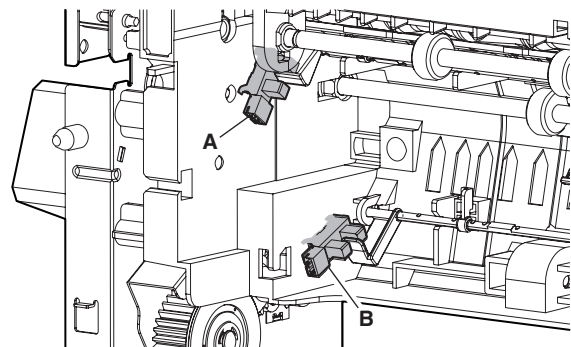
- 1) Remove the paper exit unit.



#### c. Paper exit detection sensor /

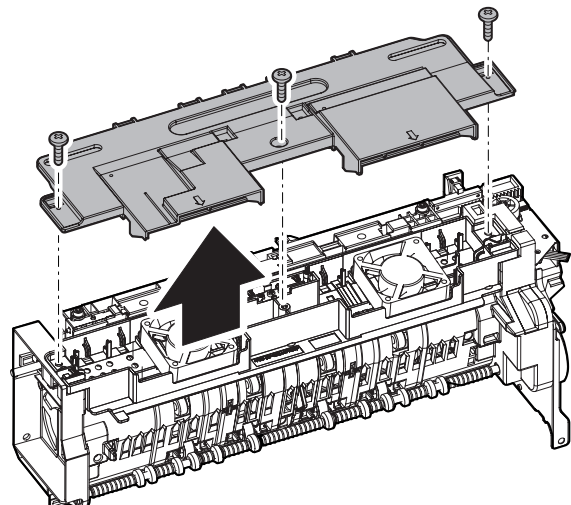
#### d. After-fusing sensor

- 1) Remove the paper exit unit.
- 2) Paper exit sensor (A), after-fusing sensor (B)

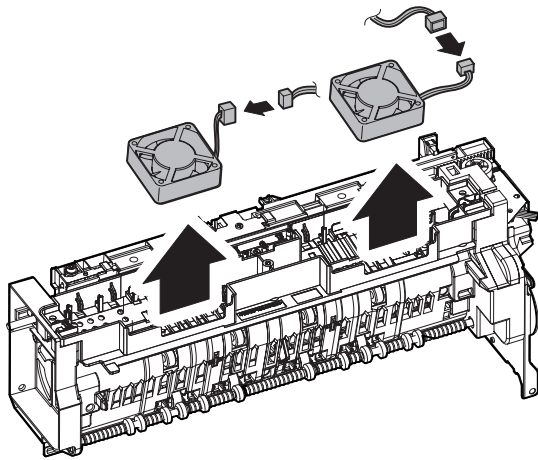


#### e. Paper exit cooling fan motor

- 1) Remove the paper exit unit.
- 2) Remove the exhaust fan duct.

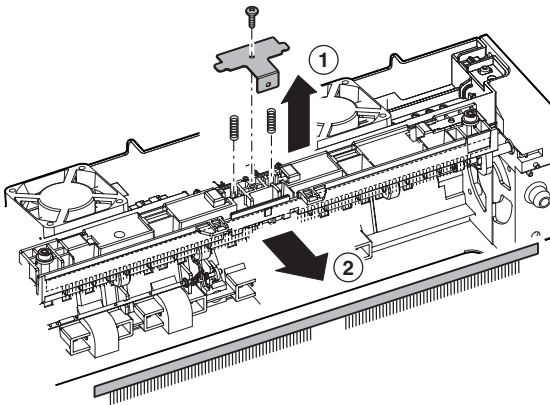


- 3) Remove the paper exit cooling fan motor.

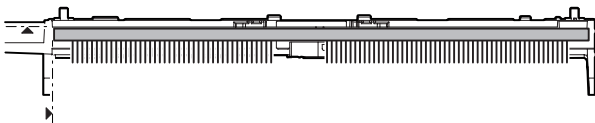


#### f. Discharge brush

- 1) Remove the paper exit unit.
- 2) Remove the exhaust fan duct.
- 3) Remove the discharge grounding plate, and remove the discharge brush.

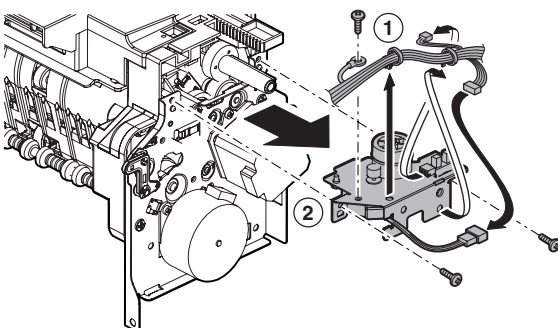


\* Discharge brush attachment reference  
When attaching the discharge brush, attach it along the shifter PG.

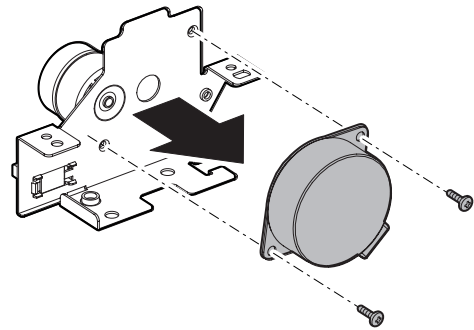


#### g. Shifter motor

- 1) Remove the paper exit unit.
- 2) Disconnect the connector and the grounding terminal, and remove the snap band. Remove the slide motor unit.

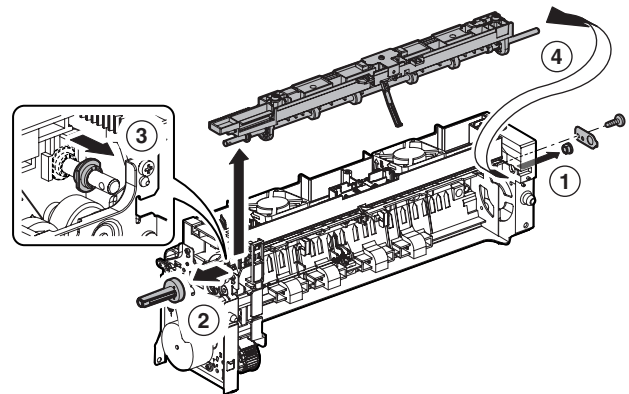


- 3) Remove the shifter motor.

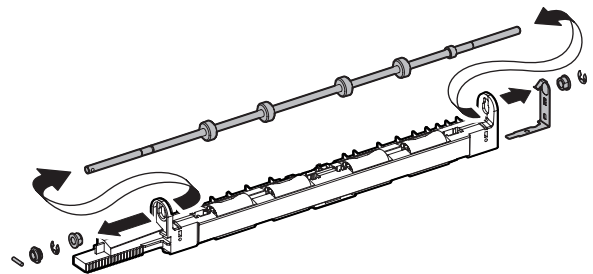


#### h. Paper exit roller 1 (Drive)

- 1) Remove the paper exit unit.
- 2) Remove the exhaust fan duct.
- 3) Remove the slide motor unit.
- 4) Remove the parts. Slide the bearing, and remove the shifter unit.

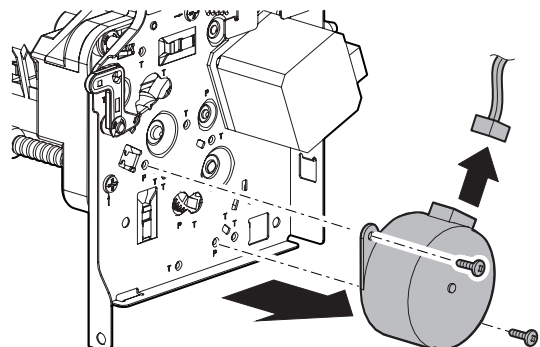


- 5) Remove the parts, and remove the paper exit roller 1 (drive).



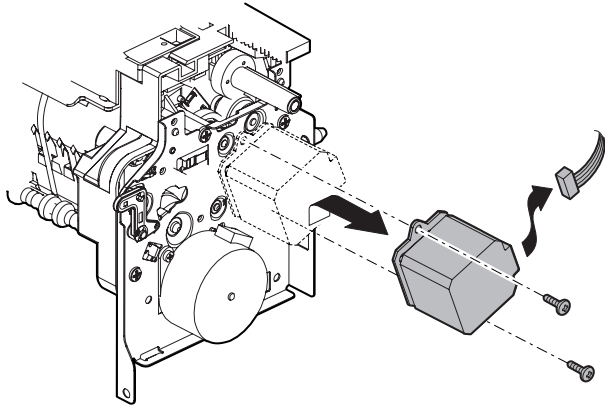
#### i. Fusing drive motor

- 1) Remove the paper exit unit.
- 2) Remove the fusing drive motor.



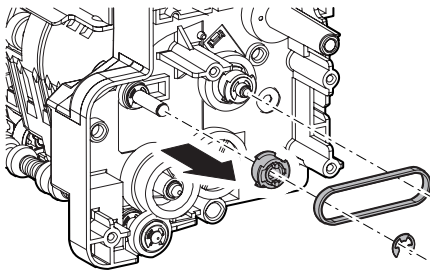
**j. Paper exit drive motor**

- 1) Remove the paper exit unit.
- 2) Remove the paper exit drive motor.

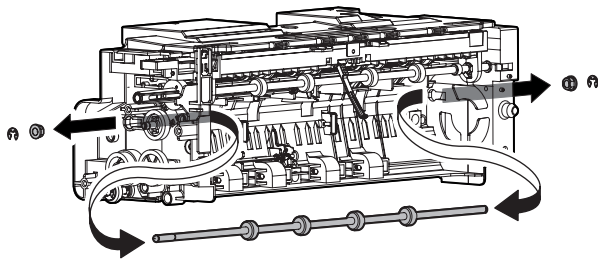


**k. Transport roller 13 (Drive)**

- 1) Remove the paper exit unit.
- 2) Remove the slide motor unit.
- 3) Remove the paper exit drive unit.
- 4) Remove the E-ring, the reverse drive belt, and the pulley.

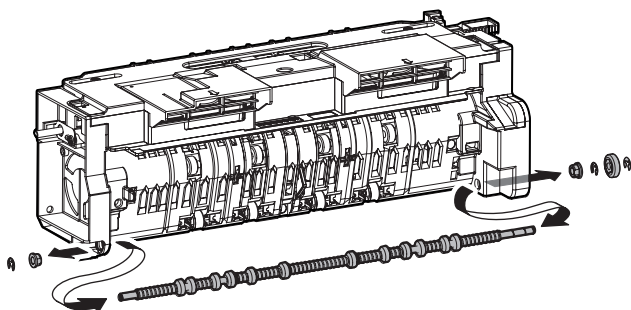


- 5) Remove the E-ring and the bearing, and remove the transport roller 13 (Drive).



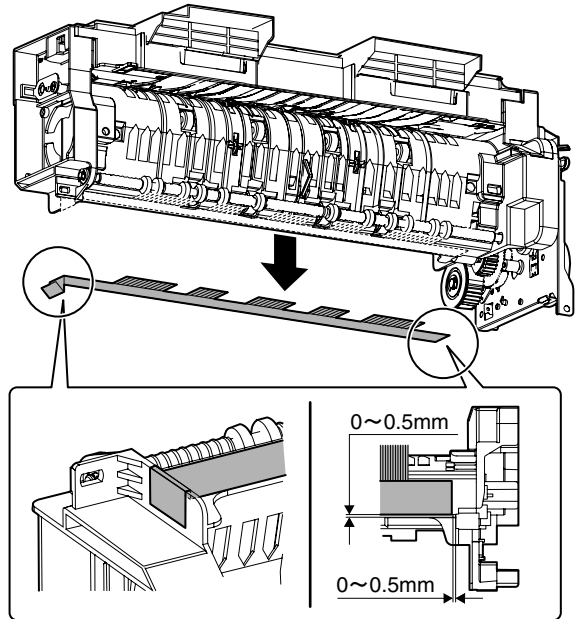
**l. Transport roller 9 (Drive)**

- 1) Remove the paper exit unit.
- 2) Remove the slide motor unit.
- 3) Remove the paper exit drive unit.
- 4) Remove the parts, and remove the transport roller 9 (Drive).



**m. Discharge brush**

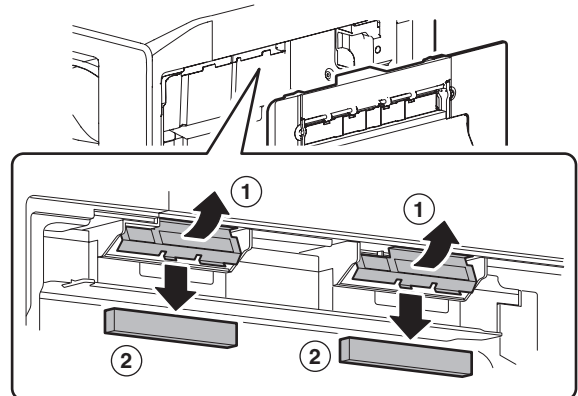
- 1) Remove the paper exit unit.
- 2) Remove the discharge brush.



\* When attaching the discharge brush, attach it to the attachment reference.

**n. Paper exit filter**

- 1) Open the right door.
- 2) Open the filter holding sheet, and remove the paper exit filter.

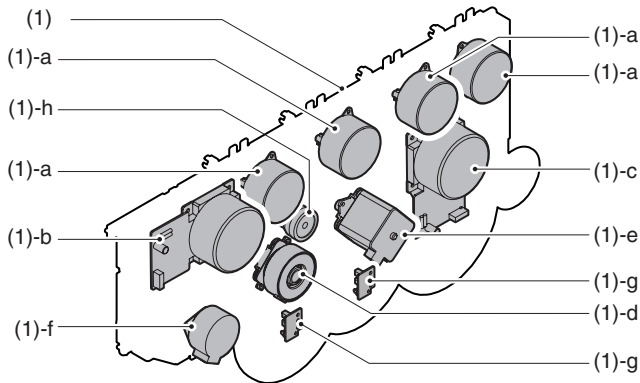




# [P] DRIVE SECTION

## 1. Disassembly and assembly

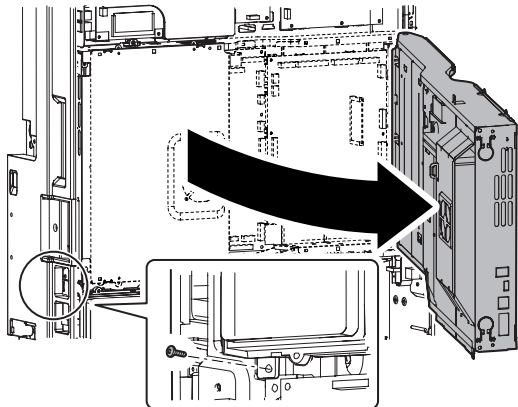
### A. Main drive section



Unit		Parts	
(1)	Main drive unit	a	Toner motor
		b	Developer drive motor (K)
		c	Developing drive motor (CL)
		d	Drum motor (K)
		e	Drum motor (CL)
		f	Resist motor
		g	Phase detection PWB
		h	Separation clutch

#### (1) Main drive unit

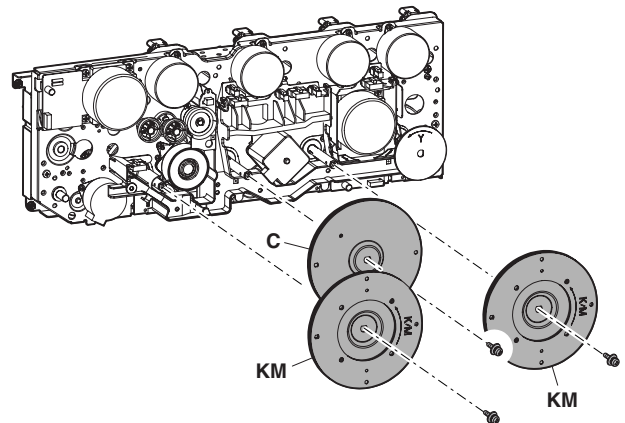
- 1) Remove the rear cabinet. (Refer to Rear Cabinet in External Outfit Section.)
- 2) Remove the screws, and open the control box.



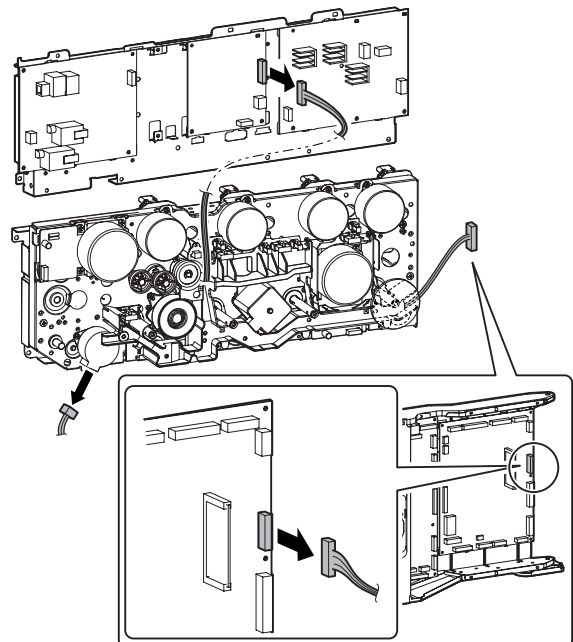
- 3) Remove the flywheel.

\* Installing sequence: (1) C → (2) KM → (3) KM (Each color is marked.)

\* After installation, check to confirm that it is not in contact with the harness, etc.

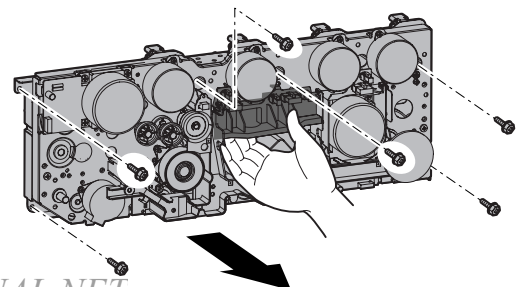
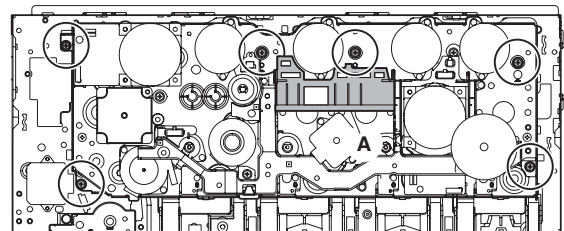


- 4) Remove the connectors.



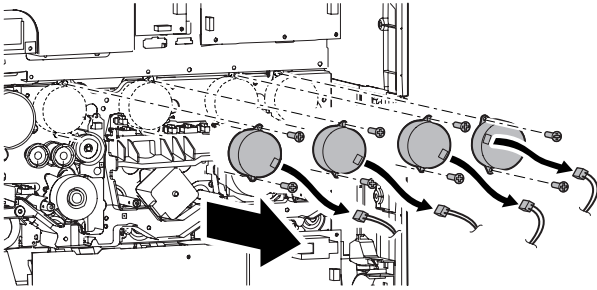
- 5) Remove the screws, and remove the main drive unit.

\* Hold section A and remove.



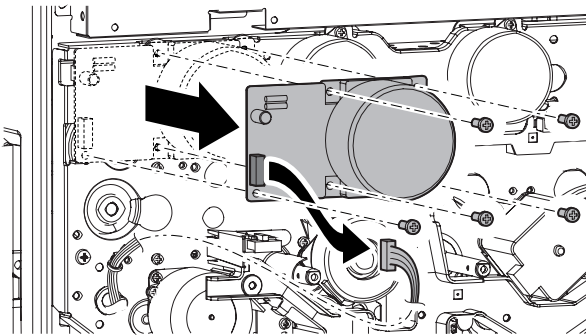
**a. Toner motor**

- 1) Remove the rear cabinet. (Refer to Rear Cabinet in External Outfit Section.)
- 2) Open the control box.
- 3) Remove the connector and the screws, then remove the toner motor.



**b. Developer drive motor (K)**

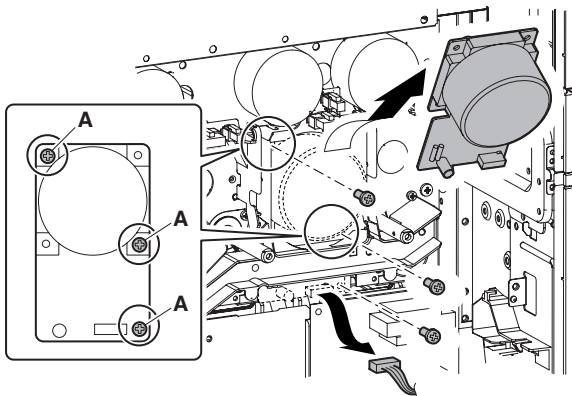
- 1) Remove the rear cabinet. (Refer to Rear Cabinet in External Outfit Section.)
- 2) Open the control box.
- 3) Remove the flywheel.
- 4) Remove the connector and the screws, then remove the developer drive motor (K).



**c. Developing drive motor (CL)**

- 1) Remove the rear cabinet. (Refer to Rear Cabinet in External Outfit Section.)
- 2) Open the control box.
- 3) Remove the flywheel.
- 4) Remove the connector and the screws, and remove the developer drive motor (CL).

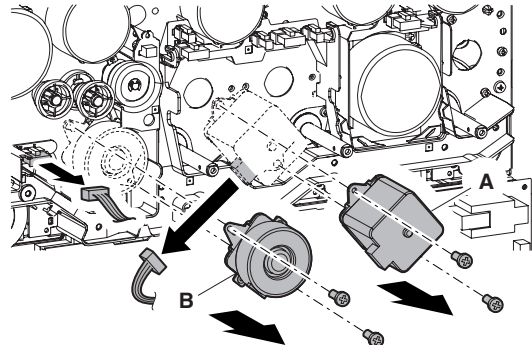
\* When installing, tighten the screws in section (A).



**d. Drum motor (K) /**

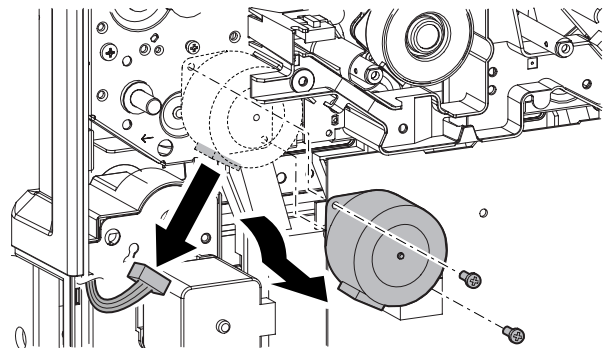
**e. Drum motor (CL)**

- 1) Remove the rear cabinet. (Refer to Rear Cabinet in External Outfit Section.)
- 2) Open the control box.
- 3) Remove the flywheel.
- 4) Remove the connector and the screws, then remove the drum motor (K) and the drum motor (CL).



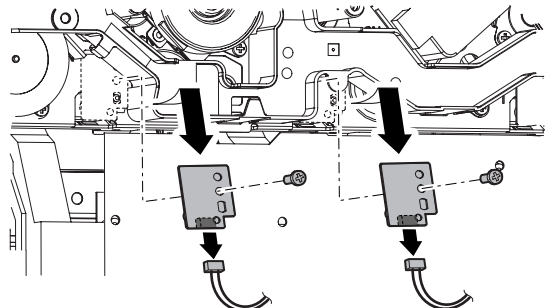
**f. Resist motor**

- 1) Remove the rear cabinet. (Refer to Rear Cabinet in External Outfit Section.)
- 2) Open the control box.
- 3) Remove the flywheel.
- 4) Remove the connector and the screws, then remove the resist motor.



**g. Phase detection PWB**

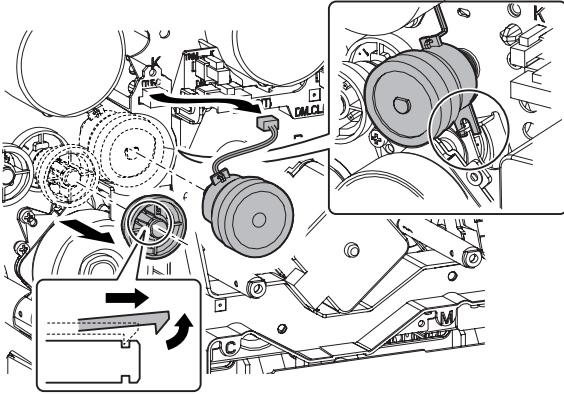
- 1) Remove the rear cabinet. (Refer to Rear Cabinet in External Outfit Section.)
- 2) Open the control box.
- 3) Remove the flywheel.
- 4) Remove the screws, and remove the phase detection PWB. Disconnect the connector.



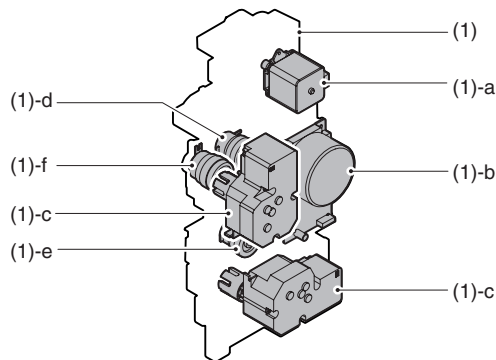
#### h. Separation clutch

- 1) Remove the rear cabinet. (Refer to Rear Cabinet in External Outfit Section.)
- 2) Open the control box.
- 3) Remove the flywheel.
- 4) Remove the gear, and remove the separation clutch. Then disconnect the connector.

\* When installing, check to insure that the clutch rotation-stop projection is engaged with the sub frame projection.



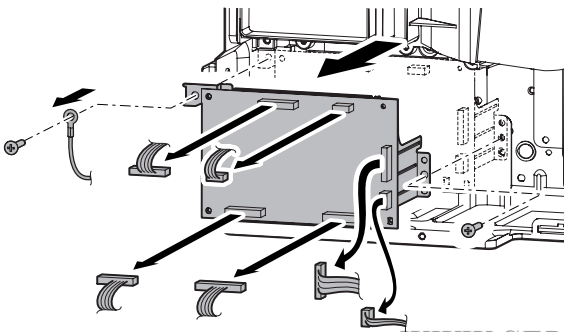
#### B. Paper feed drive section



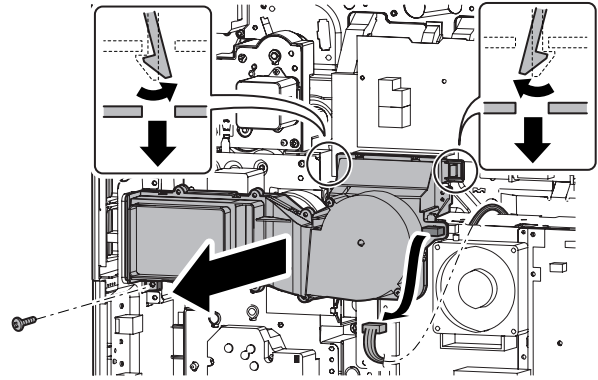
Unit		Parts	
(1)	Paper feed drive unit	a	Transport motor
		b	Paper feed motor
		c	Paper tray lift-up motor
		d	Paper feed clutch (Paper feed tray 1)
		e	Paper feed clutch (Paper feed tray 2)
		f	Tray vertical transport clutch

##### (1) Paper feed drive unit

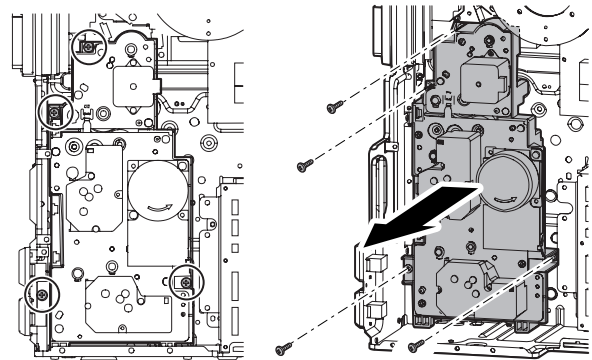
- 1) Remove the rear cabinet. (Refer to Rear Cabinet in External Outfit Section.)
- 2) Open the control box.
- 3) Remove the connector, the screws and the grounding terminal, then remove the driver main PWB unit.



- 4) Remove the connector and the screws. Release the pawl, then remove the filter box unit.

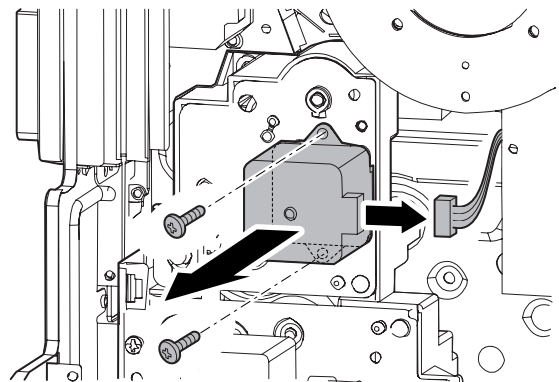


- 5) Remove the connector and remove the paper feed drive unit.



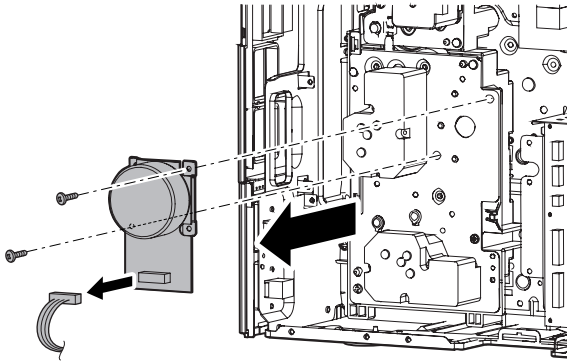
##### a. Transport motor

- 1) Remove the rear cabinet. (Refer to Rear Cabinet in External Outfit Section.)
- 2) Open the control box.
- 3) Remove the connector and the screws, then remove the transport motor.



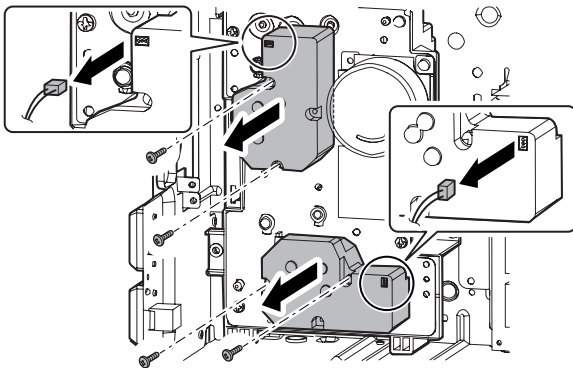
#### b. Paper feed motor

- 1) Remove the rear cabinet. (Refer to Rear Cabinet in External Outfit Section.)
- 2) Open the control box.
- 3) Remove the driver main PWB unit.
- 4) Remove the filter box unit.
- 5) Remove the connector and the screws, then remove the paper feed motor.

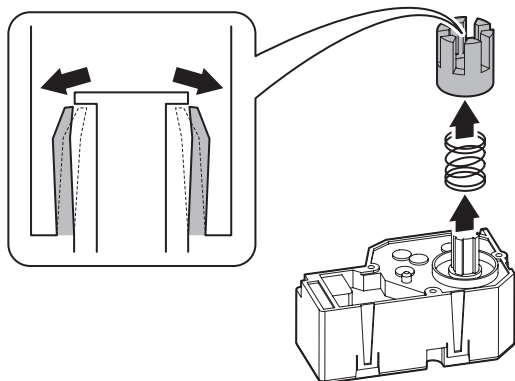


#### c. Paper tray lift-up motor

- 1) Remove the rear cabinet. (Refer to Rear Cabinet in External Outfit Section.)
- 2) Open the control box.
- 3) Remove the driver main PWB unit.
- 4) Remove the filter box unit.
- 5) Remove the connector and the screws, then remove the paper tray lift-up motor unit.

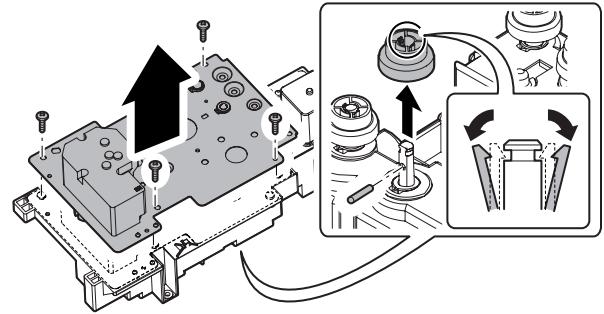


- 6) Disengage the pawl, and remove the lift-up coupling.

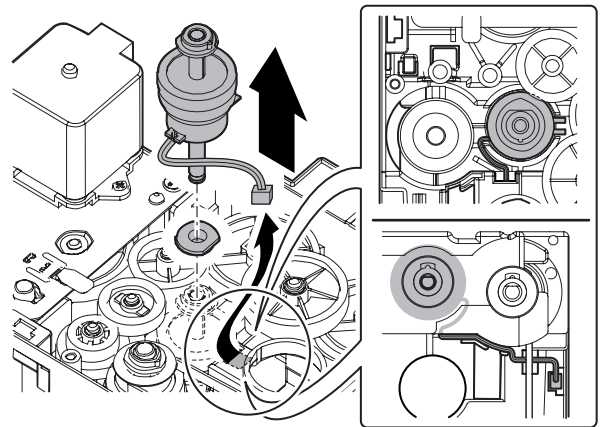


#### d. Paper feed clutch (Paper feed tray 1)

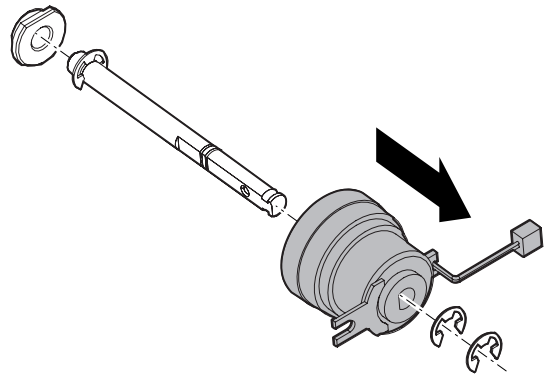
- 1) Remove the paper tray lift-up motor unit.
- 2) Remove the paper feed motor.
- 3) Remove the paper feed drive unit.
- 4) Remove the connection gear 21T. Remove the screws to detach the drive frame upper unit.



- 5) Disconnect the connector, and remove the paper feed clutch unit.



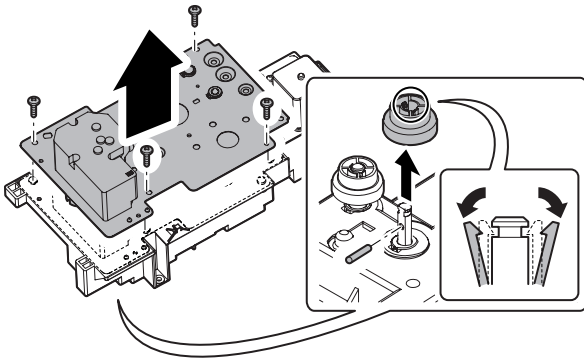
- 6) Remove the E-ring, and remove the paper feed clutch.



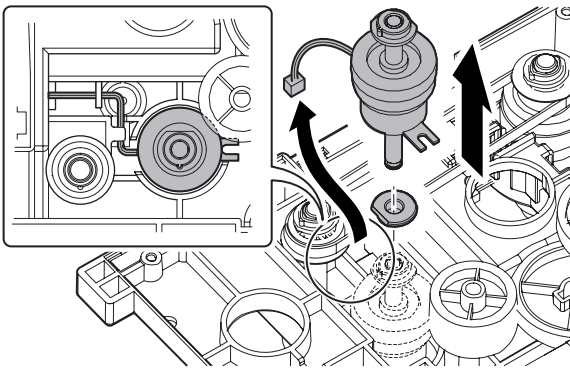


**e. Paper feed clutch (Paper feed tray 2)**

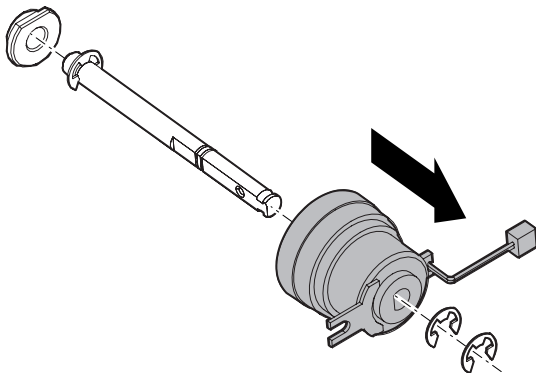
- 1) Remove the paper tray lift-up motor unit.
- 2) Remove the paper feed motor.
- 3) Remove the paper feed drive unit.
- 4) Remove the connection gear 21T. Remove the screws to detach the drive frame upper unit.



- 5) Disconnect the connector, and remove the paper feed clutch unit.

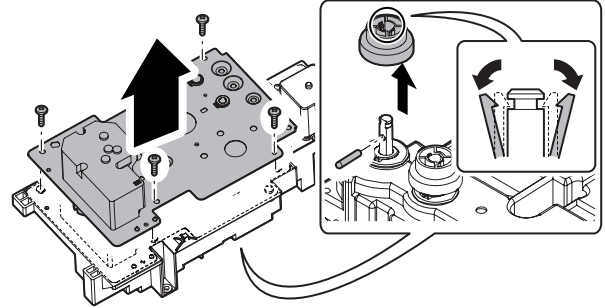


- 6) Remove the E-ring, and remove the paper feed clutch.

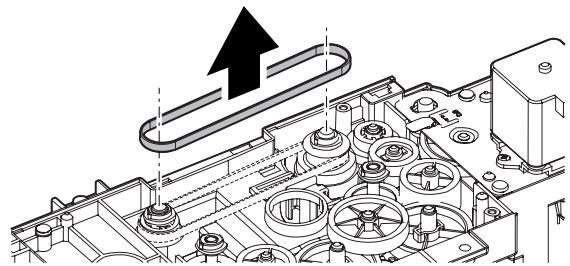


**f. Tray vertical transport clutch**

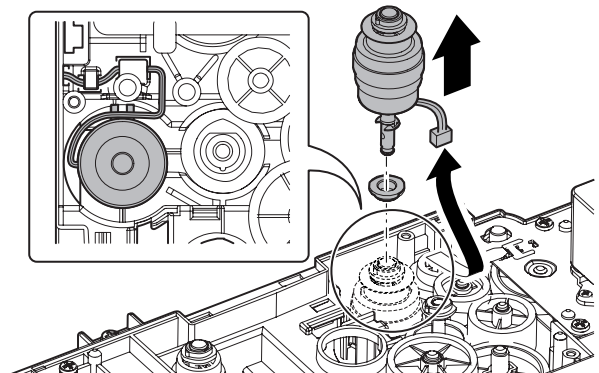
- 1) Remove the paper tray lift-up motor unit.
- 2) Remove the paper feed motor.
- 3) Remove the paper feed drive unit.
- 4) Remove the connection gear 21T. Remove the screws to detach the drive frame upper unit.



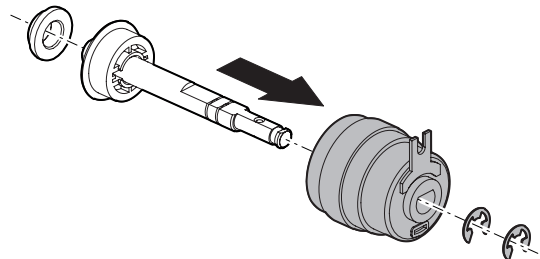
- 5) Remove the belt.



- 6) Remove the connector, then remove the tray vertical transfer clutch unit.



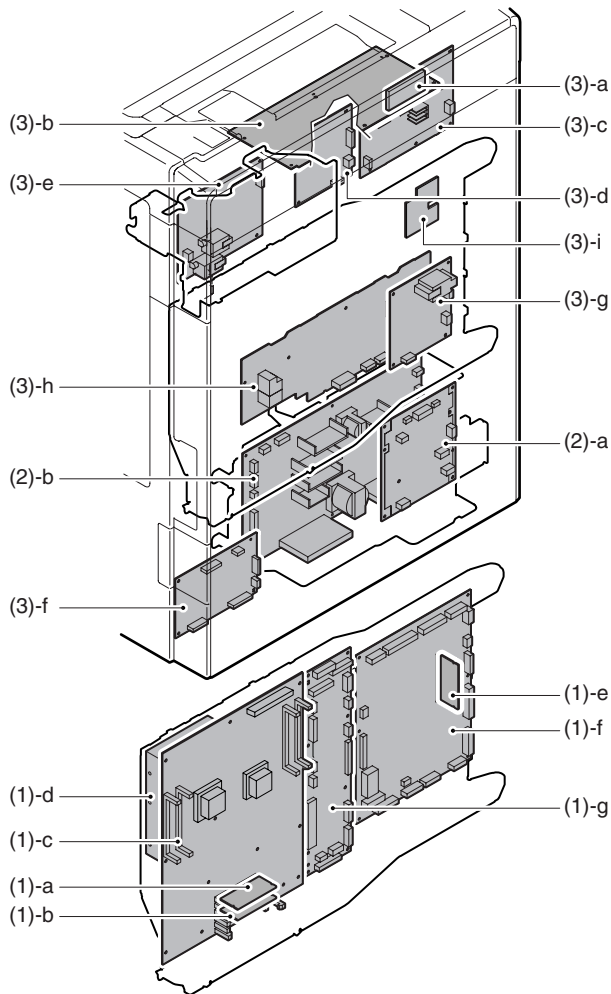
- 7) Remove the E-ring, then remove the tray vertical transfer clutch.



## [Q] PWB SECTION

### 1. Disassembly and assembly

#### A. PWB



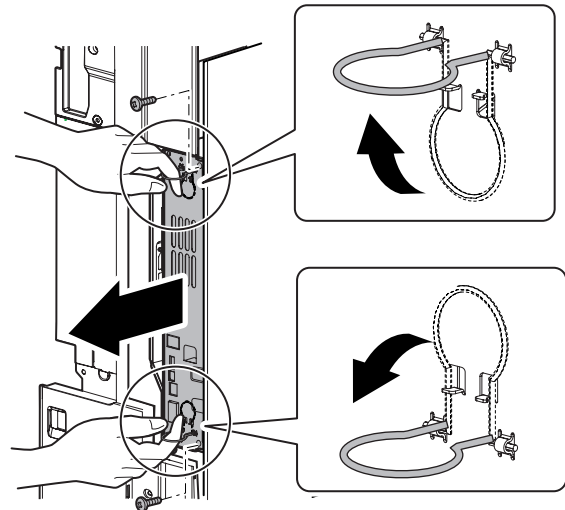
Unit	Parts
(1) Control Box	a BOOT ROM PWB
	b PROGRAM ROM PWB
	c MFP cht PWB
	d HDD
	e PCU Flash ROM PWB
	f PCU PWB
	g Mother PWB
(2) Power supply unit	a AC Power PWB
	b DC Power PWB
(3) Others	a SCN Flash ROM PWB
	b Scanner Control PWB
	c HL PWB
	d Driver Sub PWB
	e Secondary transfer PWB
	f Driver Main PWB
	g Primary transfer PWB
	h High Voltage MC PWB
	i HVR PWB

#### (1) Control Box

##### a. BOOT ROM PWB /

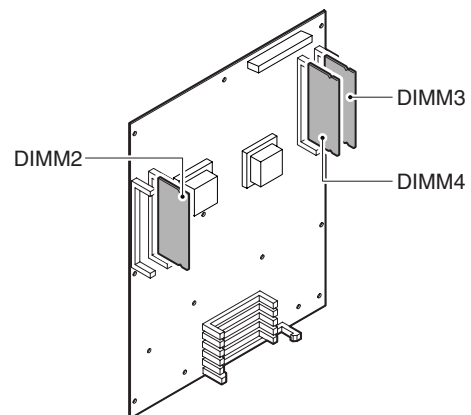
##### b. PROGRAM ROM PWB

- 1) Remove the right rear cabinet.
- 2) Remove the screws and pull out the MFP cnt PWB unit.



\* When placing the unit with the HDD upside, remove the DIMM memory or insert a spacer in order to protect the DIMM memory from pressure.

\* Insertion position and insertion procedure when removing the DIMM memory.

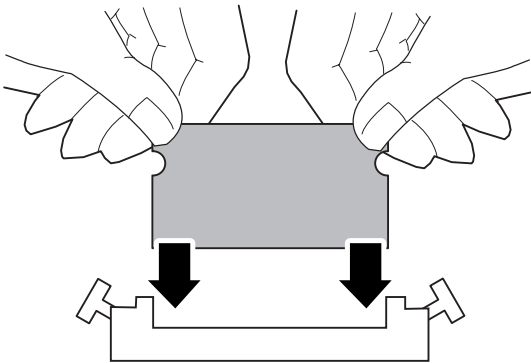


DIMM2	512MB
DIMM3	512MB
DIMM4	256MB

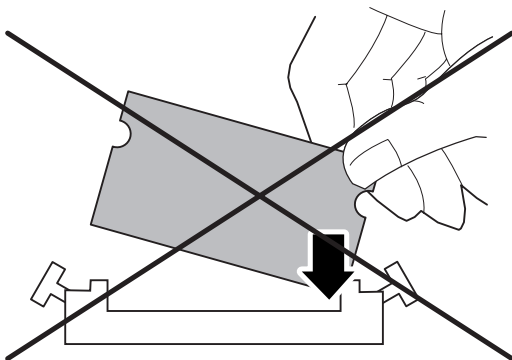
- a) Press the section (⇒) of the memory PWB with both hands.

\* When handling the memory PWB, do not touch the pins.

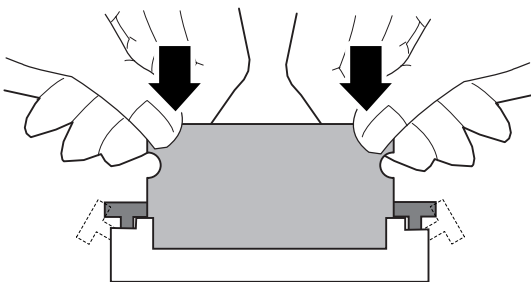
\* Insert temporarily and straightly until it is in contact with the contact.



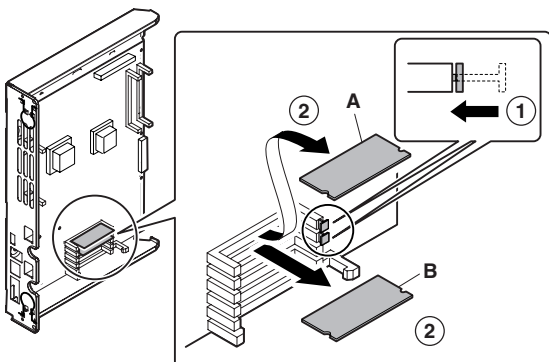
\* When inserting, be careful not to insert the memory PWB obliquely to the connector. Do not press the memory PWB pins with one hand.



- b) Press the section (⇒) of the memory PWB with both hands simultaneously until the right and the left buttons are locked.

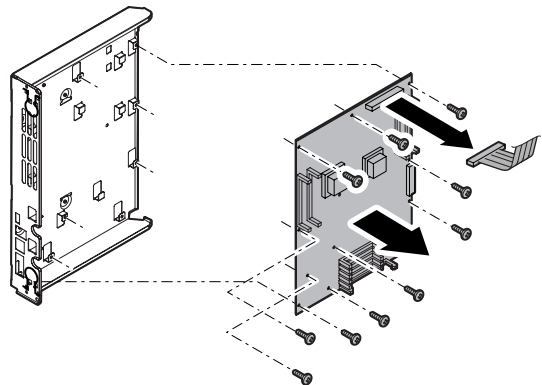


- 3) Release the lock, and remove the BOOT ROM PWB (A) and the PROGRAM ROM PWB (B).



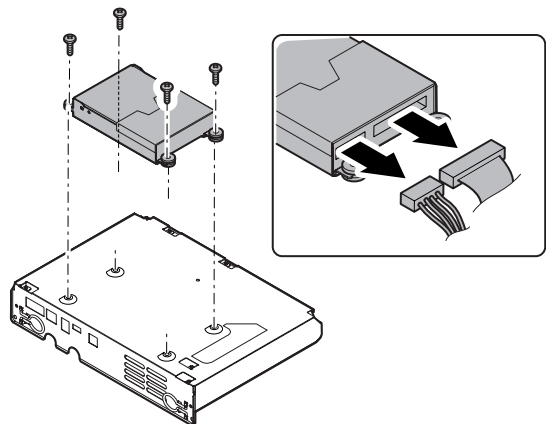
#### c. MFP cnt PWB

- 1) Remove the right rear cabinet.
- 2) Remove the BOOT ROM PWB and the PROGRAM ROM PWB.
- 3) Remove the screws and then remove the MFP cnt PWB.



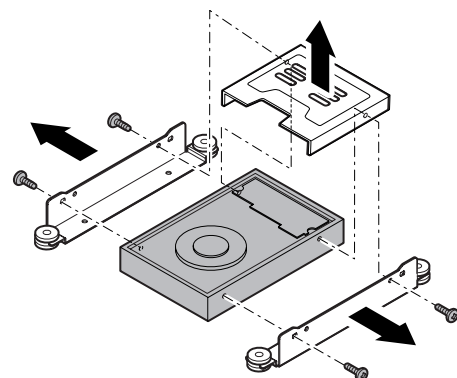
#### d. HDD

- 1) Remove the right rear cabinet.
- 2) Remove the screws and pull out the MFP cnt PWB unit.
- 3) Remove the connector and screws then remove the HDD unit.



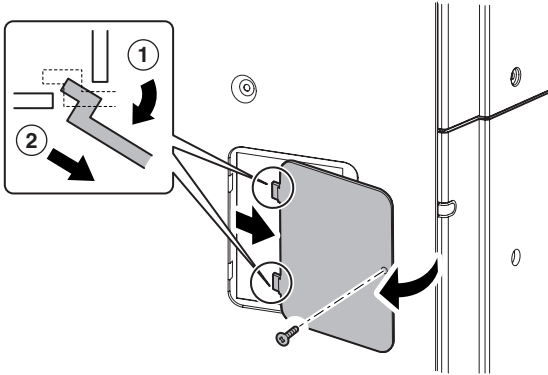
- 4) Remove the screws, and remove the angle from HDD.

\* Since the HDD is weak in shock, avoid hitting the corner, dropping, or other shocks.

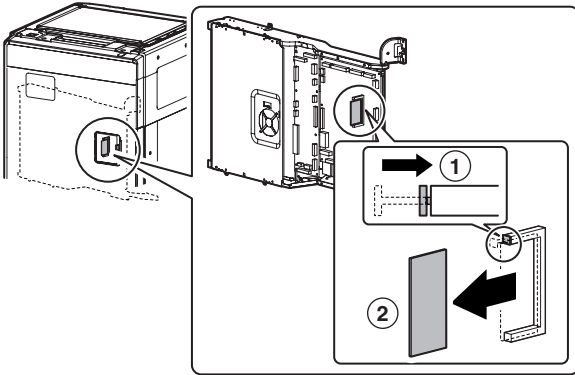


#### e. PCU Flash ROM PWB

- 1) Remove the screws, and remove the rear cabinet cover.

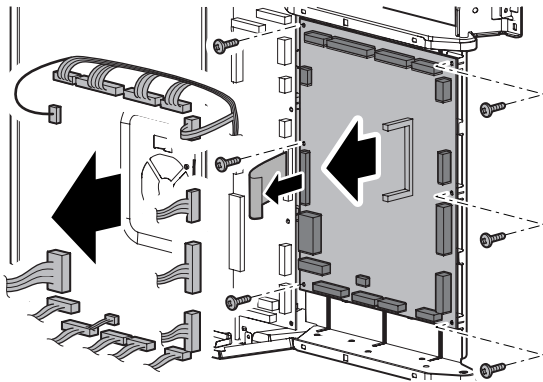


- 2) Remove the PCU Flash ROM PWB.



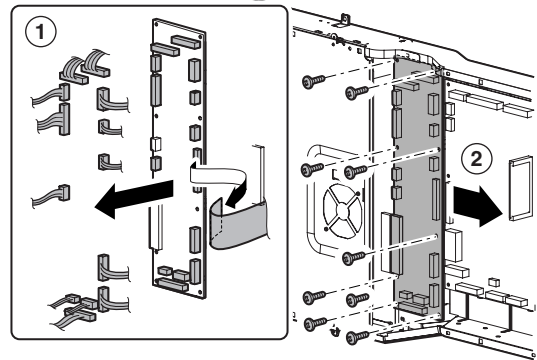
#### f. PCU PWB

- 1) Remove the rear cabinet.
- 2) Remove the PCU Flash ROM PWB.
- 3) Remove the connector and the screws, then remove the PCU PWB.



#### g. Mother PWB

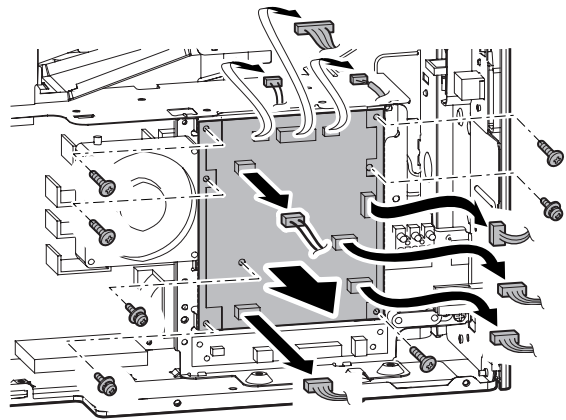
- 1) Remove the rear cabinet.
- 2) Remove the SCAN IN PWB.
- 3) Remove the connector and the screws, then remove the mother PWB.



#### (2) Power supply unit

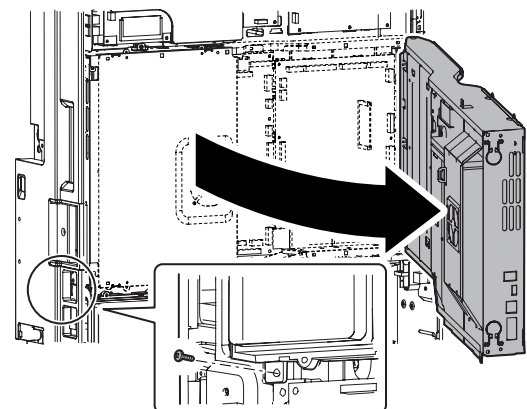
##### a. AC Power PWB

- 1) Remove the rear cabinet.
- 2) Remove the screws and the connector, and remove the AC power PWB.

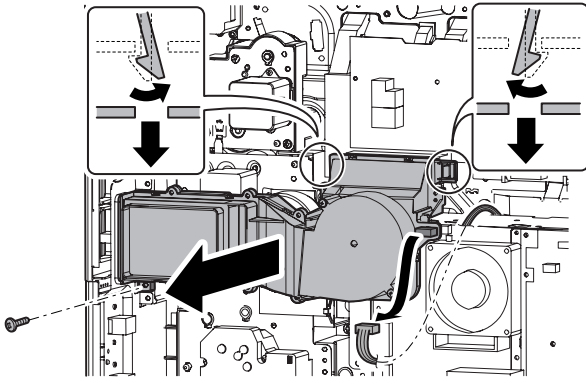


##### b. DC Power PWB

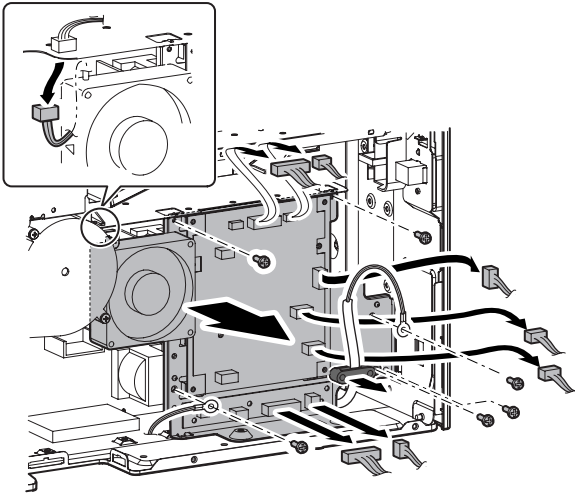
- 1) Remove the rear cabinet.
- 2) Open the control box.



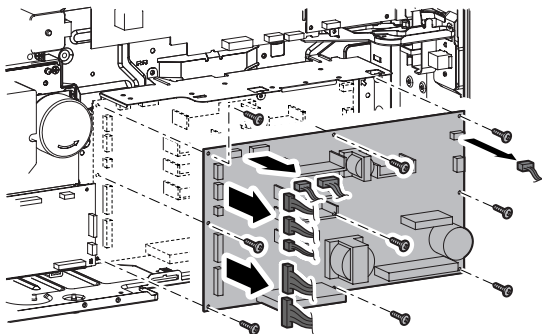
- 3) Remove the screws and the connector, and remove the filter box unit.



- 4) Remove the screws and the connector, then remove the AC power PWB unit.



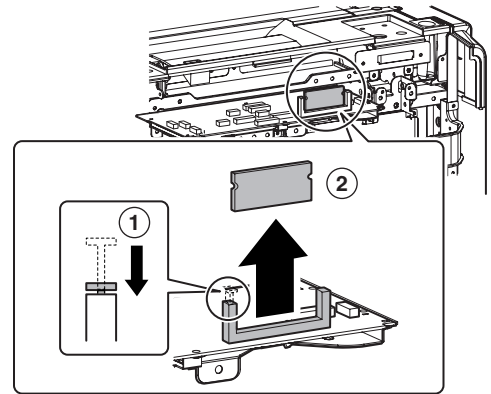
- 5) Remove the screws and the connector, then remove the DC power PWB.



### (3) Others

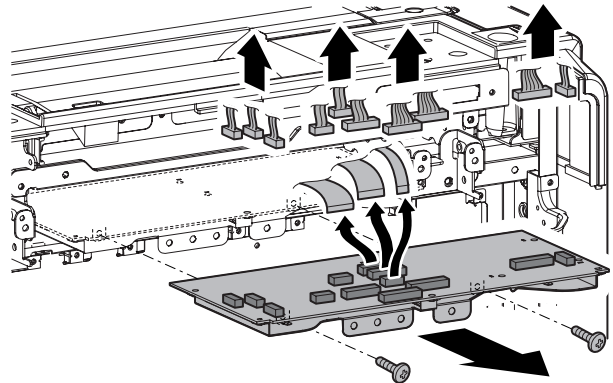
#### a. SCN Flash ROM PWB

- 1) Remove the upper cabinet rear cover.
- 2) Release the lock, and remove the SCN Flash ROM PWB.

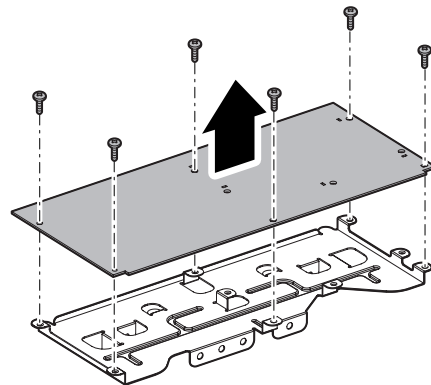


#### b. Scanner Control PWB

- 1) Remove the upper cabinet rear cover.
- 2) Remove the screws, and pull out the scanner control PWB unit. Then remove the connector.



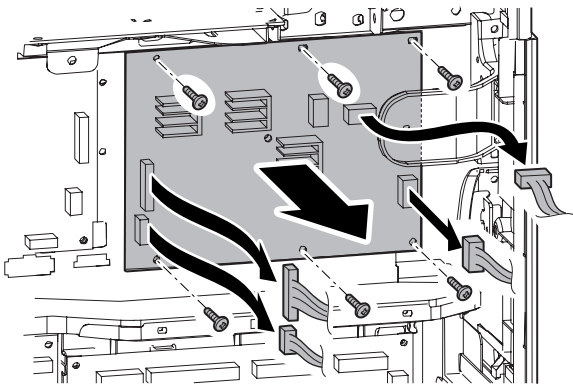
- 3) Remove the screws, and remove the scanner control PWB.





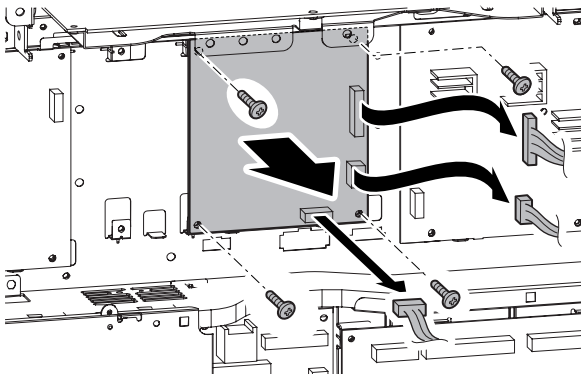
#### c. HL PWB

- 1) Remove the upper cabinet rear cover.
- 2) Remove the screws and the connector, and remove the HL PWB.



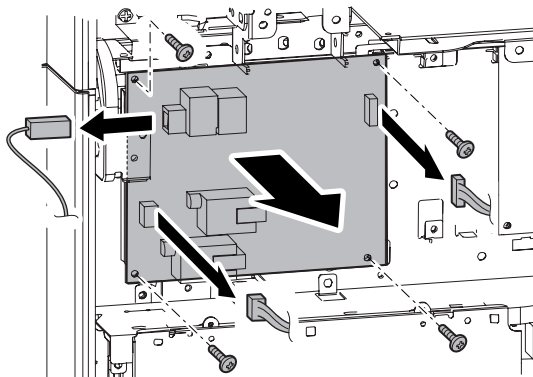
#### d. Driver Sub PWB

- 1) Remove the upper cabinet rear cover.
- 2) Remove the screws, and remove the driver sub PWB.



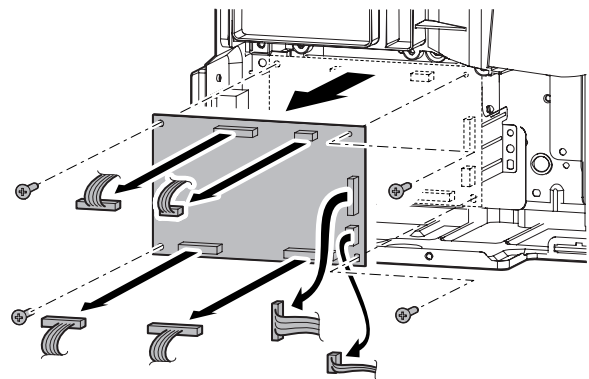
#### e. Secondary transfer PWB

- 1) Remove the upper cabinet rear cover.
- 2) Remove the screws and the connector, and remove the secondary transfer PWB.



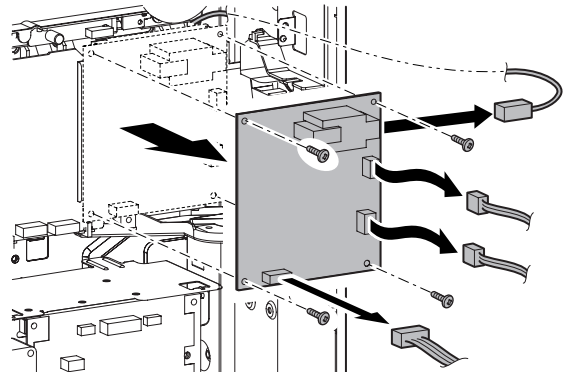
#### f. Driver Main PWB

- 1) Remove the rear cabinet.
- 2) Remove the screws and the connector, and remove the driver main PWB.



#### g. Primary transfer PWB

- 1) Remove the rear cabinet.
- 2) Open the control box.
- 3) Remove the screws and the connector, and remove the primary transfer PWB.

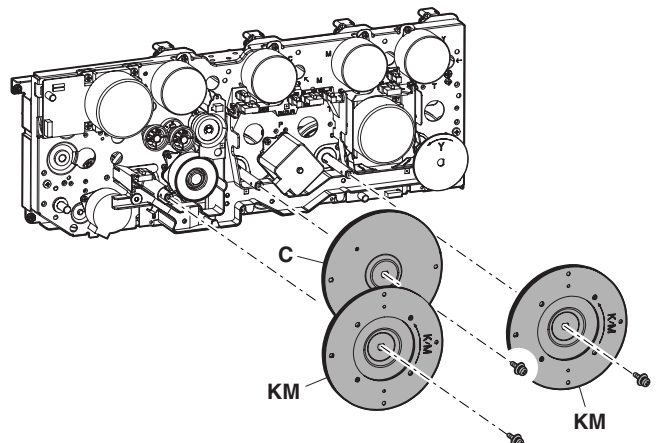


#### h. MC PWB

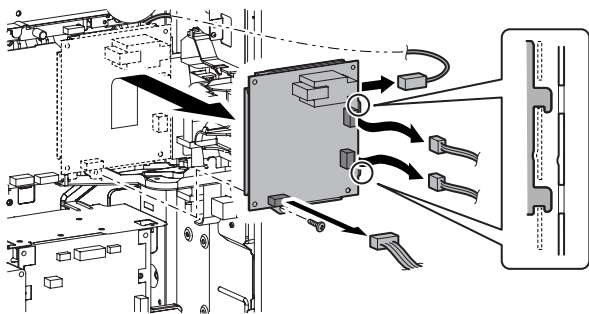
- 1) Remove the rear cabinet.
- 2) Open the control box.
- 3) Remove the screws, then remove the fly wheel.

\* Installing sequence: (1) C → (2) KM → (3) KM (Each color is marked.)

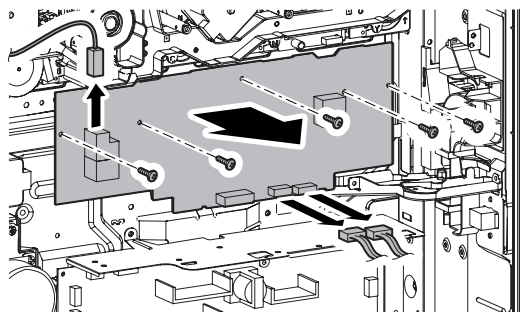
\* After installation, check to confirm that it is not in contact with the harness, etc.



- 4) Remove the screws and the connector, then remove the primary transfer PWB unit.

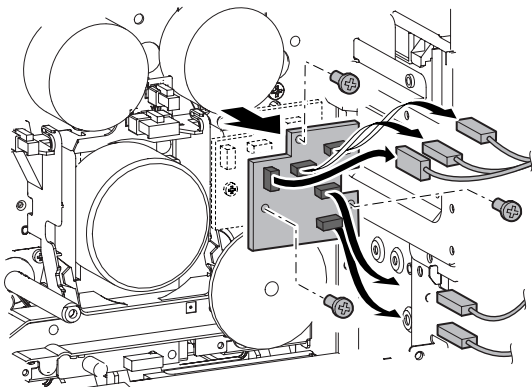


- 5) Remove the screws and the connector, then remove the MC PWB.



#### i. HVR PWB

- 1) Remove the rear cabinet.
- 2) Open the control box.
- 3) Remove the connector and the screws, and remove the HVR PWB.

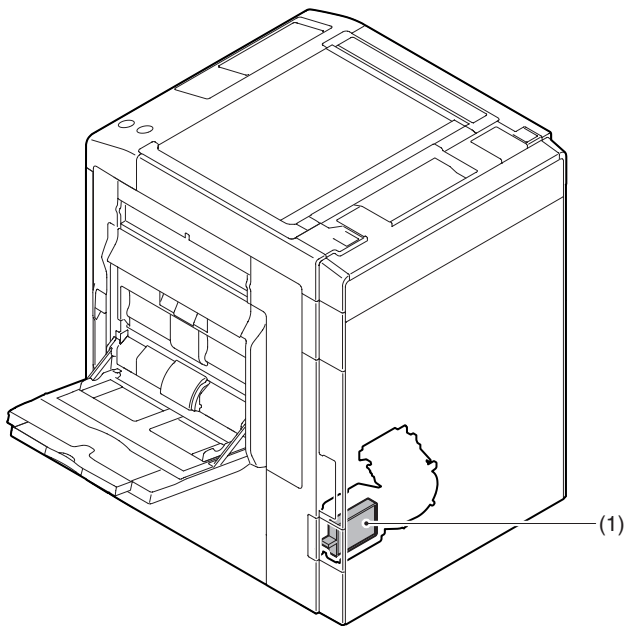




[R] FAN AND FILTER SECTION

1. Disassembly and assembly

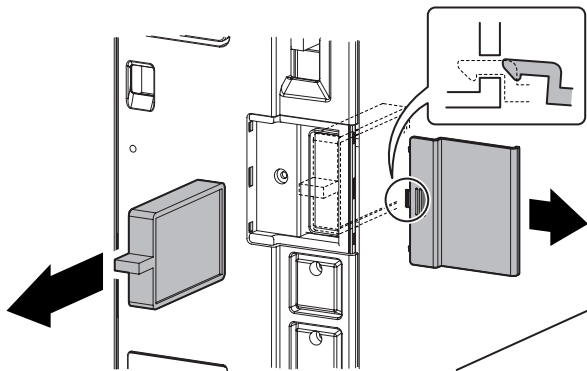
A. Filters



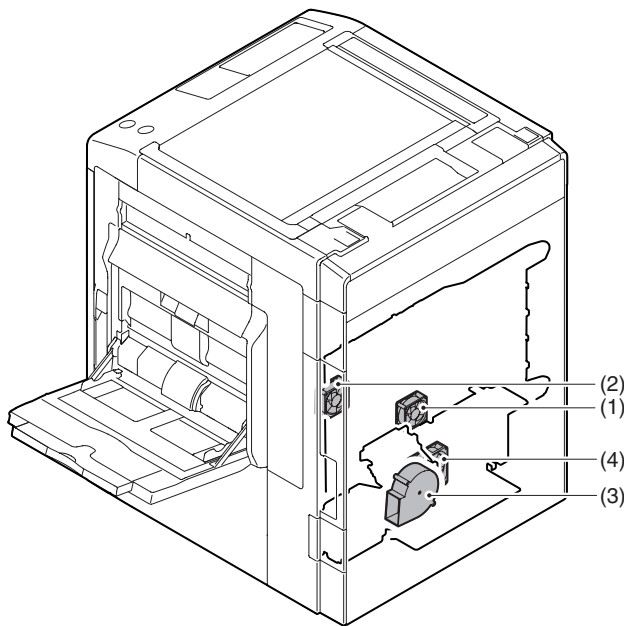
Parts		Maintenance
(1)	Ozone Filter PA	× ▲

(1) Ozone Filter PA

- 1) Remove the ozone filter cover, then remove the ozone filter PA.



B. Fans

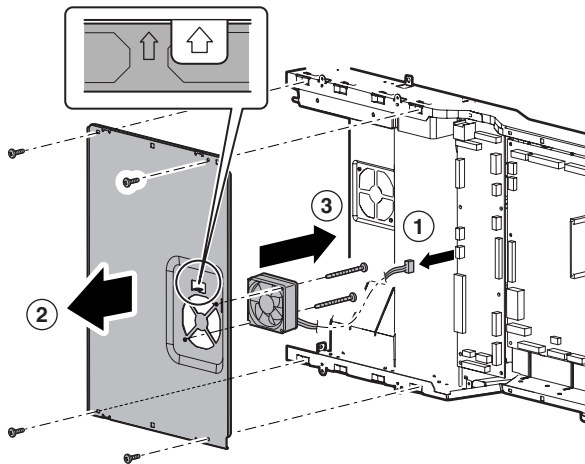


Parts		Maintenance
(1)	Controller cooling fan motor	
(2)	HDD cooling fan motor	
(3)	Ozone fan motor	
(4)	Power supply cooling fan motor	

(1) Controller cooling fan motor

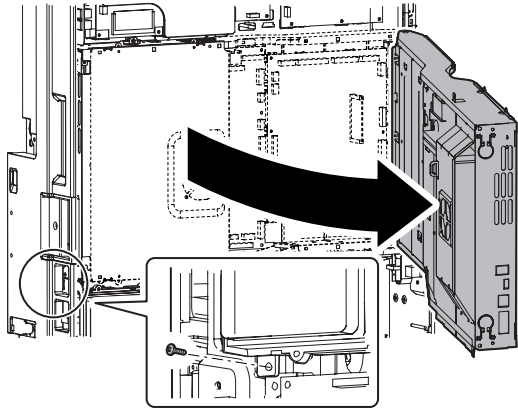
- 1) Remove the rear cabinet. (Refer to Rear Cabinet in External Outfit Section.)
- 2) Remove the connector. Remove the screws, and remove the MFP PWB shield upper. Remove the screws, and remove the controller cooling fan motor.

\* When installing, fit the arrow mark on the MFP PWB shield and the arrow mark of the controller cooling fan motor.

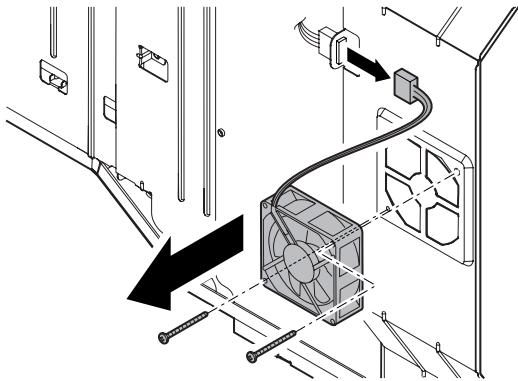


## (2) HDD cooling fan motor

- 1) Remove the rear cabinet. (Refer to Rear Cabinet in External Outfit Section.)
- 2) Open the control box.

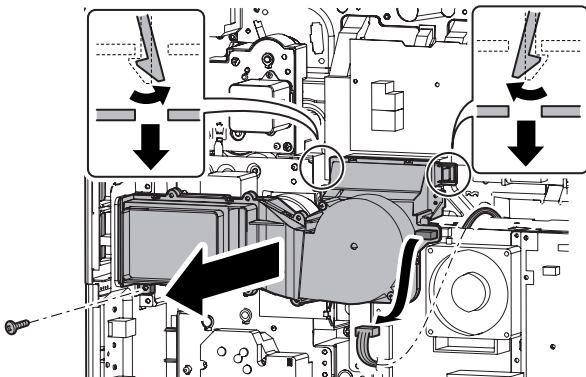


- 3) Remove the connector and the screws, then remove the HDD cooling fan motor.

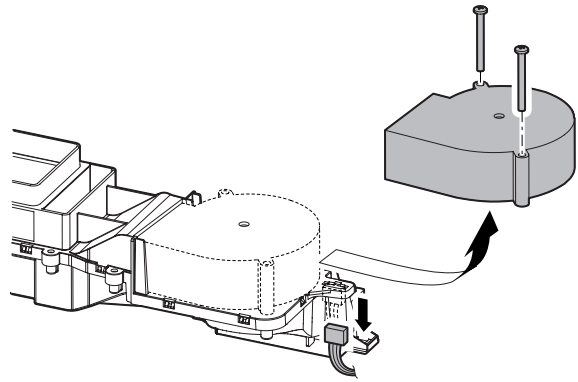


## (3) Ozone fan motor

- 1) Remove the rear cabinet. (Refer to Rear Cabinet in External Outfit Section.)
- 2) Open the control box.
- 3) Remove the filter box unit.

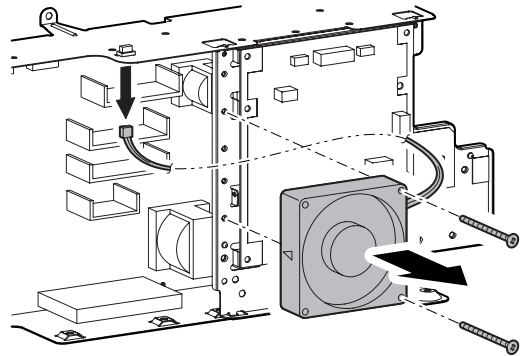


- 4) Remove the connector and the screws, and remove the ozone fan motor from the filter box unit.



## (4) Power supply cooling fan

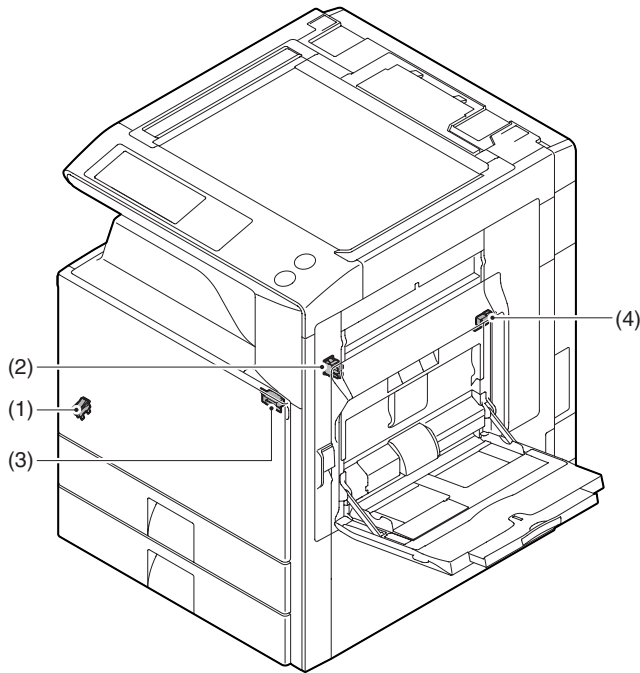
- 1) Remove the rear cabinet. (Refer to Rear Cabinet in External Outfit Section.)
- 2) Open the control box.
- 3) Remove the filter box unit.
- 4) Remove the connector and the screws, and remove the power supply cooling fan.



## [S] SENSOR, SWITCH SECTION

### 1. Disassembly and assembly

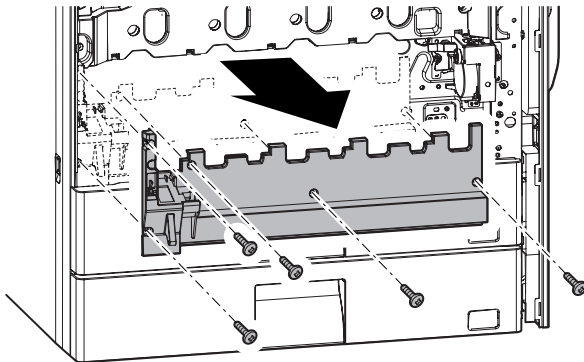
#### A. Sensors, Switches



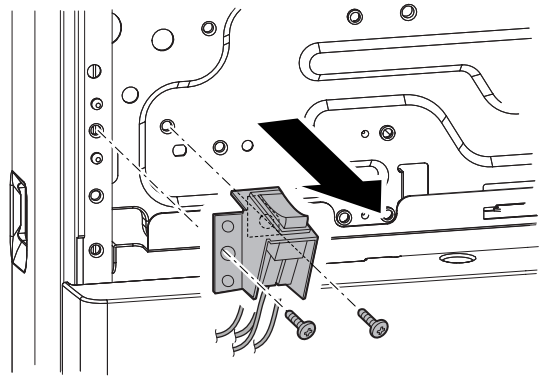
Parts	
(1)	Main Switch
(2)	Dehumidifier Heater Switch
(3)	Front Door Open/Close Switch
(4)	Right Door Open/Close Switch

#### (1) Main Switch

- 1) Remove the front cabinet. (Refer to Front Cabinet in External Outfit Section.)
- 2) Remove the screws, and remove the frame cover.

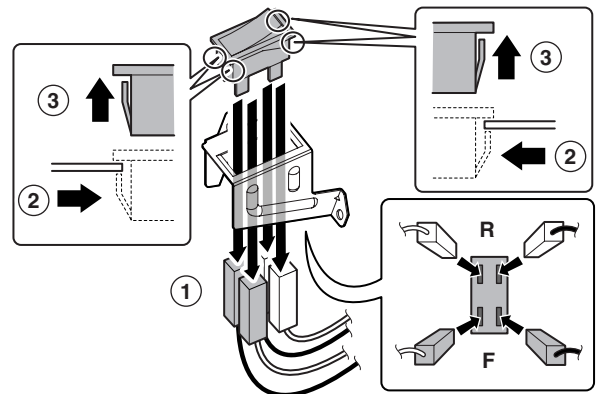


- 3) Remove the screws, then remove the main switch unit.



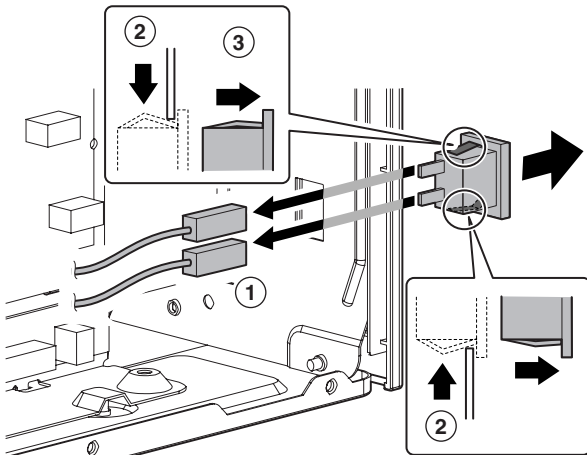
- 4) Remove the connector and the pawl, then remove the main switch.

\* Take care of connecting the connectors when installing.



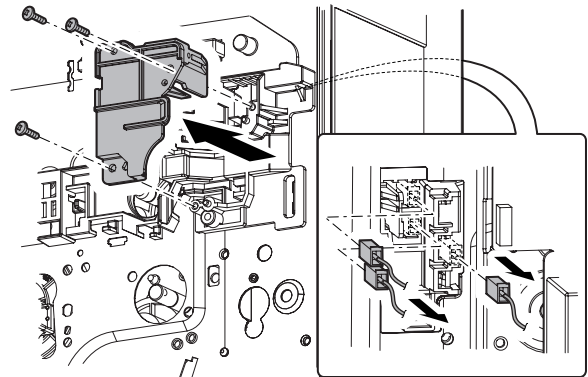
## (2) Dehumidifier Heater Switch

- 1) Remove the rear cabinet. (Refer to Rear Cabinet in External Outfit Section.)
- 2) Disconnect the connector. Release the pawl, and remove the dehumidifier heater switch.

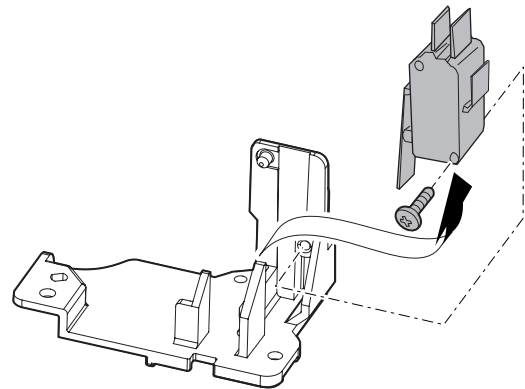
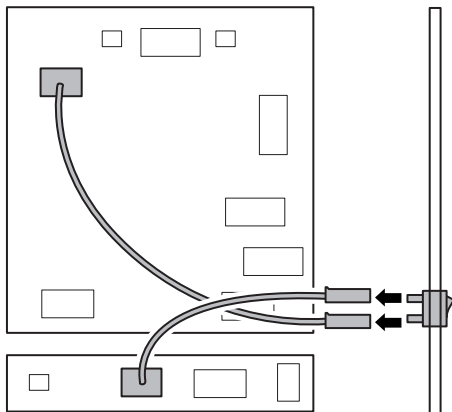


## (4) Right Door Open/Close Switch

- 1) Remove the rear cabinet.
- 2) Open the control box.
- 3) Open the right door unit.
- 4) Remove the resist roller unit.
- 5) Remove the connector and the screws, then remove the right door open/close switch cover unit.



- 6) Remove the right door open/close switch.



## (3) Front Door Open/Close Switch

- 1) Remove the frame cover. (Refer to Frame Cover in External Outfit Section.)
- 2) Remove the screws and then remove the front door open/close switch unit.

Remove the connector and the screws and then remove the front door open/close switch.

