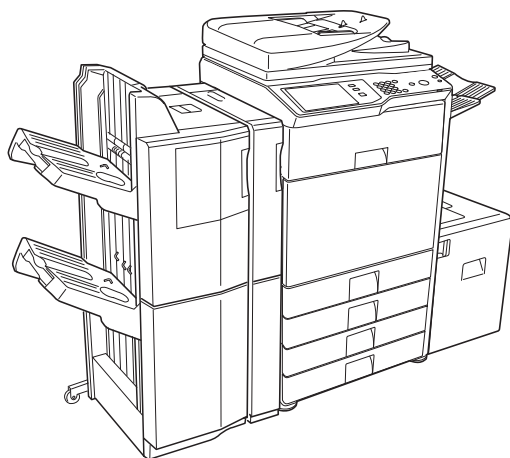


# SHARP SERVICE MANUAL

CODE: 00ZMXM503/S4E

## DIGITAL MULTIFUNCTIONAL SYSTEM

**MX-M283 N****MX-M363 N/U****MX-M453 N/U****MX-M503 N/U****MX-M282N/M362N****MODEL****MX-M452N/M502N** ⚠

### CONTENTS

**NOTE FOR SERVICING**

[1] PRODUCT OUTLINE. ....	1-1
[2] CONSUMABLE PARTS. ....	2-1
[3] EXTERNAL VIEW AND INTERNAL STRUCTURE. ....	3-1
[4] ADJUSTMENTS AND SETTINGS. ....	4-1
[5] SIMULATION. ....	5-1
[6] SELF DIAG AND TROUBLE CODE. ....	6-1
[7] FIRMWARE UPDATE. ....	7-1
[8] MAINTENANCE. ....	8-1
[9] VARIOUS STORAGE DATA HANDLING. ....	9-1
[10] SERVICE WEB PAGE. ....	10-1
[11] SPECIFICATIONS. ....	11-1
[12] ELECTRICAL SECTION. ....	12-1
[13] TOOL LIST. ....	13-1

**● DETAILS OF EACH SECTION**

[A] EXTERIOR. ....	A-1
[B] OPERATION PANEL. ....	B-1
[C] DSPF/RSPF SECTION. ....	C-1
[D] SCANNER SECTION. ....	D-1
[E] PAPER FEED SECTION. ....	E-1
[F] PAPER TRANSPORT SECTION. ....	F-1
[G] LSU SECTION. ....	G-1
[H] PHOTO-CONDUCTOR SECTION. ....	H-1
[I] TONER SUPPLY SECTION. ....	I-1
[J] DEVELOPING SECTION. ....	J-1
[K] TRANSFER SECTION. ....	K-1
[L] FUSING SECTION. ....	L-1
[M] DUPLEX/PAPER EXIT SECTION. ....	M-1
[N] DRIVE SECTION. ....	N-1
[O] PWB SECTION. ....	O-1
[P] FAN SECTION. ....	P-1
[Q] SENSOR/SWITCH SECTION. ....	Q-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
4. Note for handling PWB and electronic parts . . . . . ii
5. Note for repairing/replacing the LSU . . . . . iii
6. Note for handling the drum unit, the transfer unit,  
the developing unit, and the fusing unit . . . . . iii
7. Screw tightening torque . . . . . iii

## [1] PRODUCT OUTLINE

1. System configuration . . . . . 1-1
2. Machine configuration . . . . . 1-2
3. Combination of options . . . . . 1-2

## [2] CONSUMABLE PARTS

1. Supply system table . . . . . 2-1
2. Maintenance parts list . . . . . 2-2
3. Definition the developer/drum life end . . . . . 2-3
4. Production number identification . . . . . 2-4

## [3] EXTERNAL VIEW AND INTERNAL STRUCTURE

1. Identification of each section and functions . . . . . 3-1

## [4] ADJUSTMENTS AND SETTINGS

1. General . . . . . 4-1
2. Adjustment item list . . . . . 4-1
3. Details of adjustment . . . . . 4-2

## [5] SIMULATION

1. General (Including basic operations) . . . . . 5-1
2. List of simulation codes . . . . . 5-3
3. Details of simulation . . . . . 5-7

## [6] SELF DIAG AND TROUBLE CODE

1. Self diag . . . . . 6-1
2. Trouble code list . . . . . 6-4
3. Details of trouble code . . . . . 6-6
4. Paper JAM code . . . . . 6-22

## [7] FIRMWARE UPDATE

1. Outline . . . . . 7-1
2. Update procedure . . . . . 7-1

## [8] MAINTENANCE

1. Necessary execution items in maintenance and  
servicing . . . . . 8-1
2. Contents of the maintenance codes  
(Relationship between various counters values and  
display messages) . . . . . 8-2
3. Maintenance list (parts) and details of works . . . . . 8-4

## [9] VARIOUS STORAGE DATA HANDLING

1. HDD partition and data contents . . . . . 9-1
2. Necessary works when replacing the PWB and  
the HDD . . . . . 9-2
3. Counter list . . . . . 9-5

## [10] SERVICE WEB PAGE

1. General . . . . . 10-1
2. Details and operation procedures . . . . . 10-1

## [11] SPECIFICATIONS

1. Basic specifications . . . . . 11-1

## [12] ELECTRICAL SECTION

1. Block diagram . . . . . 12-1
2. Actual wiring chart . . . . . 12-10
3. Signal list . . . . . 12-26

## [13] TOOL LIST

1. Exclusive-use tools list . . . . . 13-1

## ● DETAILS OF EACH SECTION

### [A] EXTERIOR

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

### [B] OPERATION PANEL

1. Electrical and mechanical relation diagram . . . . . B-1
2. Operational descriptions . . . . . B-6
3. Disassembly and assembly . . . . . B-6

### [C] DSPF/RSPF SECTION

1. Electrical and mechanical relation diagram . . . . . C-1
2. Operational descriptions . . . . . C-5
3. Disassembly and assembly . . . . . C-10

### [D] SCANNER SECTION

1. Electrical and mechanical relation diagram . . . . . D-1
2. Operational descriptions . . . . . D-3
3. Disassembly and assembly . . . . . D-4

### [E] PAPER FEED SECTION

1. Electrical and mechanical relation diagram . . . . . E-1
2. Operational descriptions . . . . . E-4
3. Disassembly and assembly . . . . . E-5

### [F] PAPER TRANSPORT SECTION

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

### [G] LSU SECTION

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

### [H] PHOTO-CONDUCTOR SECTION

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

### [I] TONER SUPPLY SECTION

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

### [J] DEVELOPING SECTION

1. Electrical and mechanical relation diagram . . . . . J-1
2. Operational descriptions . . . . . J-2
3. Disassembly and assembly . . . . . J-2

### [K] TRANSFER SECTION

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

### [L] FUSING SECTION

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

### [M] DUPLEX/PAPER EXIT SECTION

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

### [N] DRIVE SECTION

1. Disassembly and assembly . . . . . N-1

### [O] PWB SECTION

1. Disassembly and assembly . . . . . O-1

### [P] FAN SECTION

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

### [Q] SENSOR/SWITCH SECTION

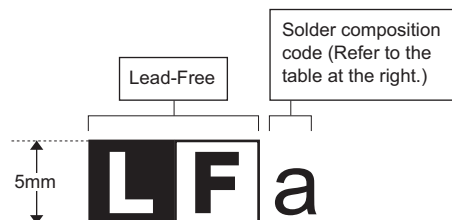
1. Disassembly and assembly . . . . . Q-1



## 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 recommended.

### (2) NOTE FOR SOLDERING WORK

Since the melting-point of lead-free solder is about 220°C, which is about 40°C higher than that of conventional lead solder, and its soldering capacity is inferior to conventional one, it is apt to keep the soldering iron in contact with the PWB for longer time. This may cause land separation or may exceed the heat-resistive temperature of components. Use enough care to separate the soldering iron from the PWB when completion of soldering is confirmed.

Since lead-free solder includes a greater quantity of tin, the iron tip may corrode easily. Turn ON/OFF the soldering iron power frequently.

If different-kind solder remains on the soldering iron tip, it is melted together with lead-free solder. To avoid this, clean the soldering iron tip after completion of soldering work.

If the soldering iron tip is discolored black during soldering work, clean and file the tip with steel wool or a fine filer.

#### CAUTION FOR BATTERY REPLACEMENT

(Danish)

ADVARSEL !

Lithiumbatteri – Eksplosionsfare ved fejlagtig håndtering.

Udskiftning må kun ske med batteri

af samme fabrikat og type.

Levér det brugte batteri tilbage til leverandoren.

(English)

Caution !

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type

recommended by the manufacturer.

Dispose of used batteries according to manufacturer's instructions.

(Finnish)

VAROITUS

Paristo voi räjähtää, jos se on virheellisesti asennettu.

Vaihda paristo ainoastaan laitevalmistajan suosittelemaan

tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden

mukaisesti.

(French)

ATTENTION

Il y a danger d'explosion s' il y a remplacement incorrect

de la batterie. Remplacer uniquement avec une batterie du

même type ou d'un type équivalent recommandé par

le constructeur.

Mettre au rebut les batteries usagées conformément aux

instructions du fabricant.

(Swedish)

VARNING

Explosionsfara vid felaktigt batteribyte.

Använd samma batterityp eller en ekvivalent

typ som rekommenderas av apparattillverkaren.

Kassera använt batteri enligt fabrikantens

instruktion.

(German)

Achtung

Explosionsgefahr bei Verwendung 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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# CONTENTS

## NOTE FOR SERVICING

1. Precautions for servicing . . . . . i
2. Warning for servicing . . . . . i
3. Note for installing site . . . . . i
4. Note for handling PWB and electronic parts . . . . . ii
5. Note for repairing/replacing the LSU . . . . . iii
6. Note for handling the drum unit, the transfer unit,  
the developing unit, and the fusing unit . . . . . iii
7. Screw tightening torque . . . . . iii

## [1] PRODUCT OUTLINE

1. System configuration . . . . . 1-1
2. Machine configuration . . . . . 1-2
3. Combination of options . . . . . 1-2

## [2] CONSUMABLE PARTS

1. Supply system table . . . . . 2-1
2. Maintenance parts list . . . . . 2-2
3. Definition the developer/drum life end . . . . . 2-3
4. Production number identification . . . . . 2-4

## [3] EXTERNAL VIEW AND INTERNAL STRUCTURE

1. Identification of each section and functions . . . . . 3-1

## [4] ADJUSTMENTS AND SETTINGS

1. General . . . . . 4-1
2. Adjustment item list . . . . . 4-1
3. Details of adjustment . . . . . 4-2

## [5] SIMULATION

1. General (Including basic operations) . . . . . 5-1
2. List of simulation codes . . . . . 5-3
3. Details of simulation . . . . . 5-7

## [6] SELF DIAG AND TROUBLE CODE

1. Self diag . . . . . 6-1
2. Trouble code list . . . . . 6-4
3. Details of trouble code . . . . . 6-6
4. Paper JAM code . . . . . 6-22

## [7] FIRMWARE UPDATE

1. Outline . . . . . 7-1
2. Update procedure . . . . . 7-1

## [8] MAINTENANCE

1. Necessary execution items in maintenance and  
servicing . . . . . 8-1
2. Contents of the maintenance codes  
(Relationship between various counters values and  
display messages) . . . . . 8-2
3. Maintenance list (parts) and details of works . . . . . 8-4

## [9] VARIOUS STORAGE DATA HANDLING

1. HDD partition and data contents . . . . . 9-1
2. Necessary works when replacing the PWB and  
the HDD . . . . . 9-2
3. Counter list . . . . . 9-5

## [10] SERVICE WEB PAGE

1. General . . . . . 10-1
2. Details and operation procedures . . . . . 10-1

## [11] SPECIFICATIONS

1. Basic specifications . . . . . 11-1

## [12] ELECTRICAL SECTION

1. Block diagram . . . . . 12-1
2. Actual wiring chart . . . . . 12-10
3. Signal list . . . . . 12-26

## [13] TOOL LIST

1. Exclusive-use tools list . . . . . 13-1

## ● DETAILS OF EACH SECTION

### [A] EXTERIOR

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

### [B] OPERATION PANEL

1. Electrical and mechanical relation diagram . . . . . B-1
2. Operational descriptions . . . . . B-6
3. Disassembly and assembly . . . . . B-6

### [C] DSPF/RSPF SECTION

1. Electrical and mechanical relation diagram . . . . . C-1
2. Operational descriptions . . . . . C-5
3. Disassembly and assembly . . . . . C-10

### [D] SCANNER SECTION

1. Electrical and mechanical relation diagram . . . . . D-1
2. Operational descriptions . . . . . D-3
3. Disassembly and assembly . . . . . D-4

### [E] PAPER FEED SECTION

1. Electrical and mechanical relation diagram . . . . . E-1
2. Operational descriptions . . . . . E-4
3. Disassembly and assembly . . . . . E-5

### [F] PAPER TRANSPORT SECTION

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

### [G] LSU SECTION

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

### [H] PHOTO-CONDUCTOR SECTION

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

### [I] TONER SUPPLY SECTION

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

### [J] DEVELOPING SECTION

1. Electrical and mechanical relation diagram . . . . . J-1
2. Operational descriptions . . . . . J-2
3. Disassembly and assembly . . . . . J-2

### [K] TRANSFER SECTION

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

### [L] FUSING SECTION

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

### [M] DUPLEX/PAPER EXIT SECTION

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

### [N] DRIVE SECTION

1. Disassembly and assembly . . . . . N-1

### [O] PWB SECTION

1. Disassembly and assembly . . . . . O-1

### [P] FAN SECTION

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

### [Q] SENSOR/SWITCH SECTION

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

# CONTENTS

## NOTE FOR SERVICING

1. Precautions for servicing . . . . . i
2. Warning for servicing . . . . . i
3. Note for installing site . . . . . i
4. Note for handling PWB and electronic parts . . . . . ii
5. Note for repairing/replacing the LSU . . . . . iii
6. Note for handling the drum unit, the transfer unit,  
the developing unit, and the fusing unit . . . . . iii
7. Screw tightening torque . . . . . iii

## [1] PRODUCT OUTLINE

1. System configuration . . . . . 1-1
2. Machine configuration . . . . . 1-2
3. Combination of options . . . . . 1-2

## [2] CONSUMABLE PARTS

1. Supply system table . . . . . 2-1
2. Maintenance parts list . . . . . 2-2
3. Definition the developer/drum life end . . . . . 2-3
4. Production number identification . . . . . 2-4

## [3] EXTERNAL VIEW AND INTERNAL STRUCTURE

1. Identification of each section and functions . . . . . 3-1

## [4] ADJUSTMENTS AND SETTINGS

1. General . . . . . 4-1
2. Adjustment item list . . . . . 4-1
3. Details of adjustment . . . . . 4-2

## [5] SIMULATION

1. General (Including basic operations) . . . . . 5-1
2. List of simulation codes . . . . . 5-3
3. Details of simulation . . . . . 5-7

## [6] SELF DIAG AND TROUBLE CODE

1. Self diag . . . . . 6-1
2. Trouble code list . . . . . 6-4
3. Details of trouble code . . . . . 6-6
4. Paper JAM code . . . . . 6-22

## [7] FIRMWARE UPDATE

1. Outline . . . . . 7-1
2. Update procedure . . . . . 7-1

## [8] MAINTENANCE

1. Necessary execution items in maintenance and  
servicing . . . . . 8-1
2. Contents of the maintenance codes  
(Relationship between various counters values and  
display messages) . . . . . 8-2
3. Maintenance list (parts) and details of works . . . . . 8-4

## [9] VARIOUS STORAGE DATA HANDLING

1. HDD partition and data contents . . . . . 9-1
2. Necessary works when replacing the PWB and  
the HDD . . . . . 9-2
3. Counter list . . . . . 9-5

## [10] SERVICE WEB PAGE

1. General . . . . . 10-1
2. Details and operation procedures . . . . . 10-1

## [11] SPECIFICATIONS

1. Basic specifications . . . . . 11-1

## [12] ELECTRICAL SECTION

1. Block diagram . . . . . 12-1
2. Actual wiring chart . . . . . 12-10
3. Signal list . . . . . 12-26

## [13] TOOL LIST

1. Exclusive-use tools list . . . . . 13-1

## ● DETAILS OF EACH SECTION

### [A] EXTERIOR

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

### [B] OPERATION PANEL

1. Electrical and mechanical relation diagram . . . . . B-1
2. Operational descriptions . . . . . B-6
3. Disassembly and assembly . . . . . B-6

### [C] DSPF/RSPF SECTION

1. Electrical and mechanical relation diagram . . . . . C-1
2. Operational descriptions . . . . . C-5
3. Disassembly and assembly . . . . . C-10

### [D] SCANNER SECTION

1. Electrical and mechanical relation diagram . . . . . D-1
2. Operational descriptions . . . . . D-3
3. Disassembly and assembly . . . . . D-4

### [E] PAPER FEED SECTION

1. Electrical and mechanical relation diagram . . . . . E-1
2. Operational descriptions . . . . . E-4
3. Disassembly and assembly . . . . . E-5

### [F] PAPER TRANSPORT SECTION

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

### [G] LSU SECTION

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

### [H] PHOTO-CONDUCTOR SECTION

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

### [I] TONER SUPPLY SECTION

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

### [J] DEVELOPING SECTION

1. Electrical and mechanical relation diagram . . . . . J-1
2. Operational descriptions . . . . . J-2
3. Disassembly and assembly . . . . . J-2

### [K] TRANSFER SECTION

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

### [L] FUSING SECTION

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

### [M] DUPLEX/PAPER EXIT SECTION

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

### [N] DRIVE SECTION

1. Disassembly and assembly . . . . . N-1

### [O] PWB SECTION

1. Disassembly and assembly . . . . . O-1

### [P] FAN SECTION

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

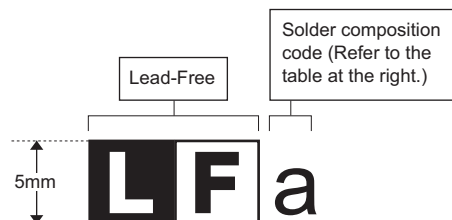
### [Q] SENSOR/SWITCH SECTION

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

### (2) NOTE FOR SOLDERING WORK

Since the melting-point of lead-free solder is about 220°C, which is about 40°C higher than that of conventional lead solder, and its soldering capacity is inferior to conventional one, it is apt to keep the soldering iron in contact with the PWB for longer time. This may cause land separation or may exceed the heat-resistive temperature of components. Use enough care to separate the soldering iron from the PWB when completion of soldering is confirmed.

Since lead-free solder includes a greater quantity of tin, the iron tip may corrode easily. Turn ON/OFF the soldering iron power frequently.

If different-kind solder remains on the soldering iron tip, it is melted together with lead-free solder. To avoid this, clean the soldering iron tip after completion of soldering work.

If the soldering iron tip is discolored black during soldering work, clean and file the tip with steel wool or a fine filer.

#### CAUTION FOR BATTERY REPLACEMENT

(Danish)

ADVARSEL !

Lithiumbatteri – Eksplosionsfare ved fejlagtig håndtering.

Udskiftning må kun ske med batteri

af samme fabrikat og type.

Levér det brugte batteri tilbage til leverandoren.

(English)

Caution !

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type

recommended by the manufacturer.

Dispose of used batteries according to manufacturer's instructions.

(Finnish)

VAROITUS

Paristo voi räjähtää, jos se on virheellisesti asennettu.

Vaihda paristo ainoastaan laitevalmistajan suosittelemaan

tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden

mukaisesti.

(French)

ATTENTION

Il y a danger d'explosion s' il y a remplacement incorrect

de la batterie. Remplacer uniquement avec une batterie du

même type ou d'un type équivalent recommandé par

le constructeur.

Mettre au rebut les batteries usagées conformément aux

instructions du fabricant.

(Swedish)

VARNING

Explosionsfara vid felaktigt batteribyte.

Använd samma batterityp eller en ekvivalent

typ som rekommenderas av apparattillverkaren.

Kassera använt batteri enligt fabrikantens

instruktion.

(German)

Achtung

Explosionsgefahr bei Verwendung 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 your 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 your 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.

CAUTION  
DOUBLE POLE/NEUTRAL FUSING

(200V series only)

### 2. Warning for servicing

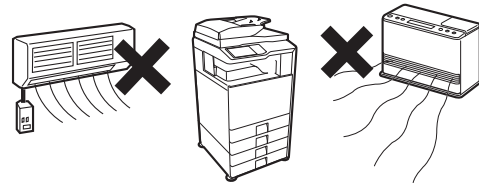
- 1) Be sure to connect the power cord only to a power outlet that meets the specified voltage and current requirements.  
Avoid complex wiring, which may lead to a fire or an electric shock.  
It may cause a fire or an electric shock.
- 2) If there is any abnormality such as a smoke or an abnormal smell, 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.

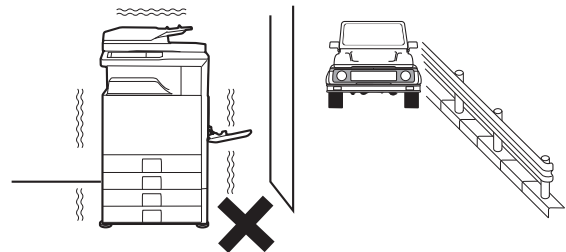
### 3. Note for installing site

Do not install the machine at the following sites.

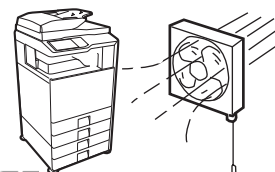
- 1) **Place of high temperature, high humidity, low temperature, low humidity, place under an extreme change in temperature and humidity.**  
Paper may get damp and form dews inside the machine, causing paper jam or copy dirt.  
For operating and storing conditions, refer to the specifications described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



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



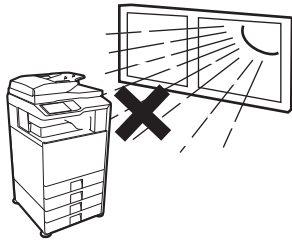
- 3) **Poorly ventilated place**  
An electrostatic type copier will produce ozone inside it.  
The quantity of ozone produced is designed to a low level so as not to affect human bodies. However, continuous use of such a machine may produce a smell of ozone. Install the machine in a well ventilated 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 photo-conductor (OPC) drum used in the machine may undergo qualitative change due to organic gases such as ammonium.

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



6) **Place of much dust**

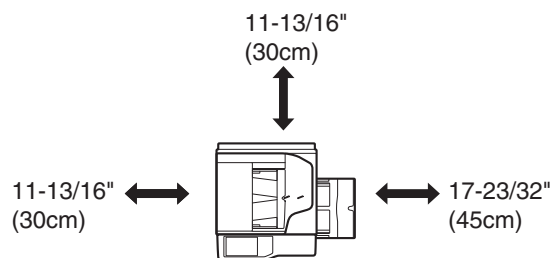
When dusts enter the machine, it may cause a breakdown or copy dirt.



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.

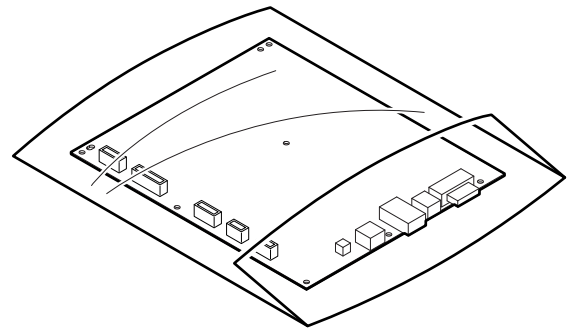
If there are optional paper desk and the copier desk specified, it is recommendable to use them.

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

## 4. Note for handling PWB and electronic parts

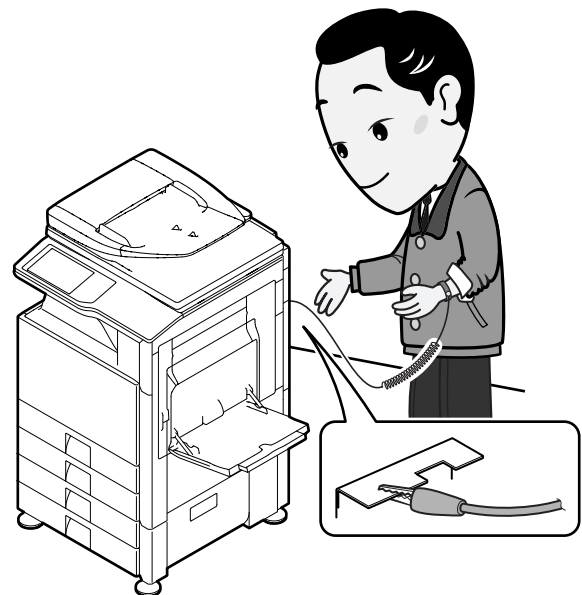
When handling the PWB and the electronic parts, be sure to observe the following precautions in order to prevent against damage by static electricity.

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



- 2) When and after removing the parts from an anti-static bag (case), use an earth band as shown below:

- Put an earth band to your arm, and connect it to the machine.



- When repairing or replacing an electronic part, perform the procedure on an anti-static mat.



## 5. Note for repairing/replacing the LSU

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

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

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

## 6. Note for handling the drum unit, the transfer unit, the developing unit, and the fusing unit

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

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

(Drum unit)

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

(Transfer unit)

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

(Developing unit)

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

(Fusing unit)

- 1) Be careful not to put fingerprints, oil, grease, or other foreign material on the fusing roller and the external heating belt.
- 2) Do not leave the fusing roller in contact state for a long time.

## 7. Screw tightening torque

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

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

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

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

However, for the other conditions of tightening screws than specified on this table, or when a special care is required, the details are described on the separate page. Refer to the descriptions on such a case.

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

### Screw kinds and tightening torques

#### Normal screws, set screws (including step screws)

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

#### Tapping screws (for iron)

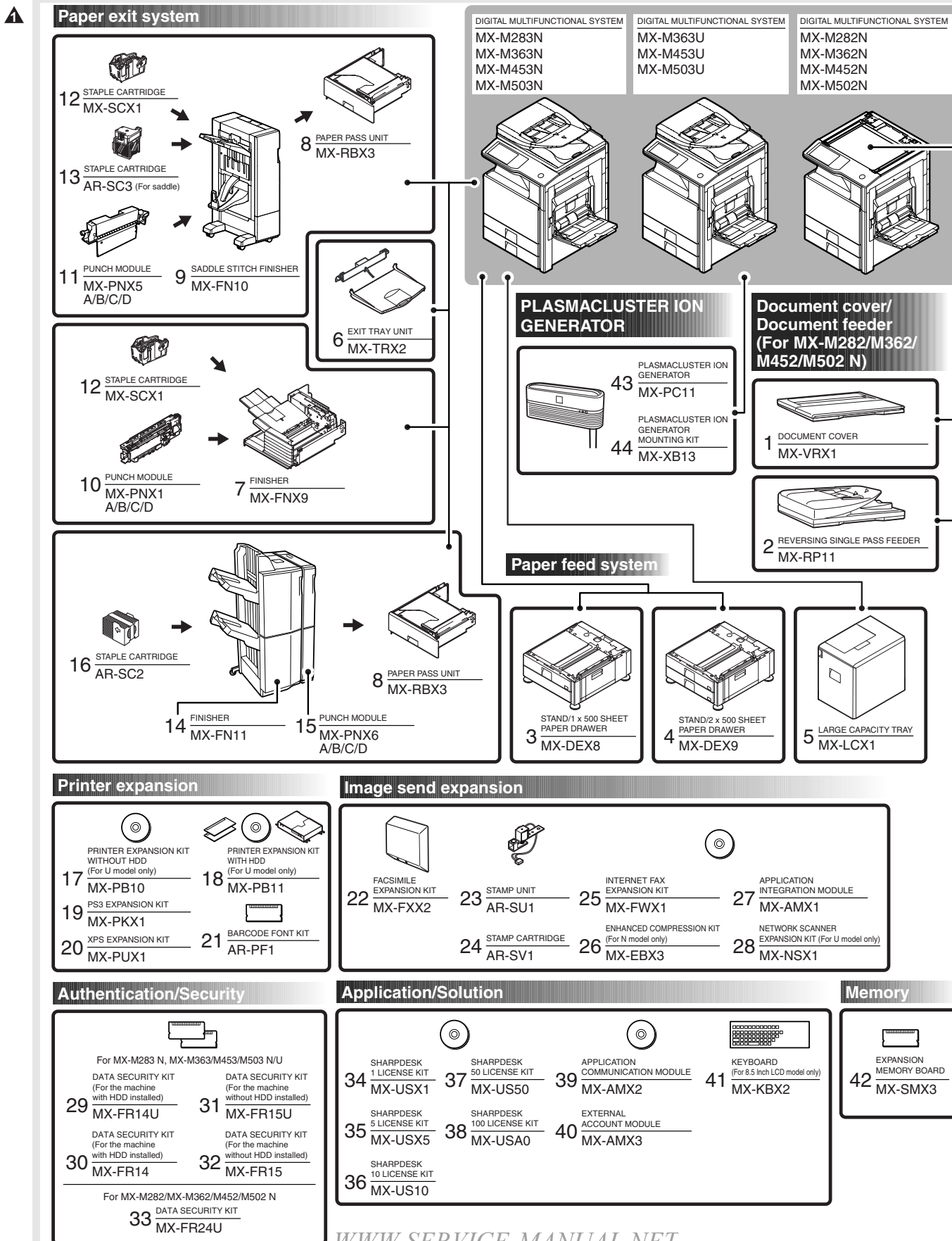
Screw diameter	Material to be fixed	Tightening torque (N·m)	Tightening torque (kgf·cm)	Tightening torque (lbft)
M3	Steel plate (Plate thickness 0.8mm or above)	1.0 - 1.2	10 - 12	0.7 - 0.9
M4	Steel plate (Plate thickness 0.8mm or above)	1.6 - 1.8	16 - 18	1.2 - 1.3
M3	Steel plate (Plate thickness less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

#### Tapping screw (for plastic)

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

# [1] PRODUCT OUTLINE

## 1. System configuration



## 2. Machine configuration

	MX-M363N/M453N/M503N	MX-M283N	MX-M363U/M453U/M503U	MX-M282N/M362N/M452N/M502N
Copier	STD		STD	STD
PCL printer	STD		OPT*1	STD
PS printer	OPT*1		OPT*1	OPT*1
Main body LCD	COLOR WVGA 8.5"		MONOCHROME HVGA 8.1"	COLOR WVGA 7.0"
FAX	OPT		OPT	OPT
Scanner	STD		OPT*1	STD
Filing (Print hold function)	STD		OPT*1	STD
HDD	STD		OPT*1	STD
DSPF	STD	—	—	—
RSPF	—	STD	STD	OPT
OC (Document cover)	—		—	OPT
Automatic duplex	STD		STD	STD
Security	OPT*1		OPT*1	OPT*1
Internet Fax	OPT*1		OPT*1	OPT*1

STD: Standard provision. OPT: Option. OPT\*1: Product key target. —: Cannot be connected.

## 3. Combination of options

Section		Name	Model name	MX-M283N MX-M363N MX-M453N MX-M503N	MX-M363U MX-M453U MX-M503U	MX-M282N MX-M362N MX-M452N MX-M502N	Product key target	Remarks
Document cover/ Document feeder	1	DOCUMENT COVER	MX-VRX1	—	—	○		
	2	REVERSING SINGLE PASS FEEDER	MX-RP11	STD/—*5	STD	○		
Paper feed system	3	STAND/1 x 500 SHEET PAPER DRAWER	MX-DEX8	○	○	○		
	4	STAND/2 x 500 SHEET PAPER DRAWER	MX-DEX9	○	○	○		
	5	LARGE CAPACITY TRAY	MX-LCX1	○	○	○		A4
Paper exit system	6	EXIT TRAY UNIT	MX-TRX2	○	○	○		
	7	FINISHER	MX-FNX9	○	○	○		Inner finisher
	8	PAPER PASS UNIT	MX-RBX3	○	○	○		
	9	SADDLE STITCH FINISHER	MX-FN10	○	○	○		
	10	PUNCH MODULE	MX-PNX1A/B/C/D	○	○	○		For inner finisher
	11	PUNCH MODULE	MX-PNX5A/B/C/D	○	○	○		For saddle stitch finisher
	12	STAPLE CARTRIDGE	MX-SCX1	○	○	○		For finisher (MX-FNX9)/ For saddle stitch finisher (MX-FN10)
	13	STAPLE CARTRIDGE	AR-SC3	○	○	○		For saddle
	14	FINISHER	MX-FN11	○	○	○		
	15	PUNCH MODULE	MX-PNX6A/B/C/D	○	○	○		For finisher (MX-FN11)
Printer expansion	16	STAPLE CARTRIDGE	AR-SC2	○	○	○		For finisher (MX-FN11)
	17	PRINTER EXPANSION KIT WITHOUT HDD	MX-PB10	—	○	—	○	
	18	PRINTER EXPANSION KIT WITH HDD	MX-PB11	STD	○	STD	○	
	19	PS3 EXPANSION KIT	MX-PKX1	○	○	○	○	
	20	XPS EXPANSION KIT	MX-PUX1	○*3	○*3	○*3	○	The expansion memory board (MX-SMX3) is required.
Image send expansion	21	BARCODE FONT KIT	AR-PF1	○	○	○		
	22	FACSIMILE EXPANSION KIT	MX-FXX2	○*1	○*1	○*1		
	23	STAMP UNIT	AR-SU1	○	○	○		
	24	STAMP CARTRIDGE	AR-SV1	○	○	○		
	25	INTERNET FAX EXPANSION KIT	MX-FWX1	○	○*4	○	○	
	26	ENHANCED COMPRESSION KIT	MX-EBX3	○	—	○		
	27	APPLICATION INTEGRATION MODULE	MX-AMX1	○	○*4	○	○	
	28	NETWORK SCANNER EXPANSION KIT	MX-NSX1	STD	○	STD	○	

Section		Name	Model name	MX-M283N MX-M363N MX-M453N MX-M503N	MX-M363U MX-M453U MX-M503U	MX-M282N MX-M362N MX-M452N MX-M502N	Product key target	Remarks
Authentication/ Security	29	DATA SECURITY KIT (For the machine with HDD installed)	MX-FR14U	○	○*4	—	○	Commercial version
	30	DATA SECURITY KIT (For the machine with HDD installed)	MX-FR14	○	○*4	—	○	Authentication version
	31	DATA SECURITY KIT (For the machine without HDD installed)	MX-FR15U	—	○	—	○	Commercial version
	32	DATA SECURITY KIT (For the machine without HDD installed)	MX-FR15	—	○	—	○	Authentication version
	33	DATA SECURITY KIT	MX-FR24U	—	—	○	○	Commercial version
Application/ Solution	34	SHARPDESK 1 LICENSE KIT	MX-USX1	○	○	○		
	35	SHARPDESK 5 LICENSE KIT	MX-USX5	○	○	○		
	36	SHARPDESK 10 LICENSE KIT	MX-US10	○	○	○		
	37	SHARPDESK 50 LICENSE KIT	MX-US50	○	○	○		
	38	SHARPDESK 100 LICENSE KIT	MX-USA0	○	○	○		
	39	APPLICATION COMMUNICATION MODULE	MX-AMX2	STD/○*2	○*4	○	○	For North America, the SharpOSA Utility CD-ROM is not provided.
	40	EXTERNAL ACCOUNT MODULE	MX-AMX3	○	○*4	○	○	
Memory	41	KEYBOARD	MX-KBX2	STD/○*2	—	—		
	42	EXPANSION MEMORY BOARD	MX-SMX3	○	○	○		This is required in case of short in the memory capacity due to print data. When the XPS expansion kit is installed, it is required inevitably.
PLASMACLUSTER ION GENERATOR	43	PLASMACLUSTER ION GENERATOR	MX-PC11	○	○	○		
	44	PLASMACLUSTER ION GENERATOR MOUNTING KIT	MX-XB13	○	○	○		

STD: Standard provision. ○: Installable. —: Cannot be connected.

\*1: No support for some destinations.

\*2: Standard for North America.

\*3: Memory expansion are required.

\*4: The printer expansion kit with hard drive (MX-PB11) is required.

\*5: MX-M283N includes this as standard equipment. Other models of MX-M283N includes DSPF as standard equipment.

## [2] CONSUMABLE PARTS

### 1. Supply system table

#### A. USA/Canada/South and Central America (MX-M283N/M363N/M363U/M453N/M453U/M503N/M503U)

No.	Item	Content		Life		Model Name	Quantity in collective package	Remarks
				28 CPM model	36/45/50 CPM model			
1	Toner Cartridge (Black)	Toner Cartridge with IC Chip (Toner: Net 930g)	x 1	40K		MX-500NT	10	Life: A4/Letter 6% document
2	Developer (Black)	Developer (Developer: Net 310g)	x 1	150K	200K	MX-500NV	10	
3	Drum	OPC Drum	x 1	150K	200K	MX-500NR	10	

#### B. MPE (MX-M283N/M363N/M363U/M453N/M453U/M503N/M503U)

No.	Item	Content		Life		Model Name	Quantity in collective package	Remarks
				28 CPM model	36/45/50 CPM model			
1	Toner Cartridge (Black)	Toner Cartridge with IC Chip (Toner: Net 930g)	x 1	40K		MX-500BT	10	Life: A4/Letter 6% document
2	Developer (Black)	Developer (Developer: Net 310g)	x 1	150K	200K	MX-500NV	10	
3	Drum	OPC Drum	x 1	150K	200K	MX-500NR	10	

#### C. Asia/SRH

#### (MX-M283N/M363N/M453N/M503N, MX-M363U/M453U/M503U, MX-M282N/M362N/M452N/M502N)

No.	Item	Content		Life		Model Name	Quantity in collective package	Remarks
				28 CPM model	36/45/50 CPM model			
1	Toner Cartridge (Black)	Toner Cartridge with IC Chip (Toner: Net 930g)	x 1	40K		MX-500AT	10	Life: A4/Letter 6% document
2	Developer (Black)	Developer (Developer: Net 310g)	x 1	150K	200K	MX-500AV	10	
3	Drum	OPC Drum	x 1	150K	200K	MX-500AR	10	

#### D. Europe/Australia/New Zealand

#### (MX-M283N/M363N/M453N/M503N, MX-M363U/M453U/M503U, MX-M282N/M362N/M452N/M502N)

No.	Item	Content		Life		Model Name	Quantity in collective package	Remarks
				28 CPM model	36/45/50 CPM model			
1	Toner Cartridge (Black)	Toner Cartridge with IC Chip (Toner: Net 930g)	x 1	40K		MX-500GT	10	Life: A4/Letter 6% document
2	Developer (Black)	Developer (Developer: Net 310g)	x 1	150K	200K	MX-500GV	10	
3	Drum	OPC Drum	x 1	150K	200K	MX-500GR	10	

#### E. SMEF/Taiwan/Africa/Israel/Philippines

#### (MX-M283N/M363N/M453N/M503N, MX-M363U/M453U/M503U, MX-M282N/M362N/M452N/M502N)

No.	Item	Content		Life		Model Name	Quantity in collective package	Remarks
				28 CPM model	36/45/50 CPM model			
1	Toner Cartridge (Black)	Toner Cartridge with IC Chip (Toner: Net 930g)	x 1	40K		MX-500FT	10	Life: A4/Letter 6% document
2	Developer (Black)	Developer (Developer: Net 310g)	x 1	150K	200K	MX-500AV	10	
3	Drum	OPC Drum	x 1	150K	200K	MX-500AR	10	

#### F. SESC (MX-M363N/M363U/M453N/M453U/M503N/M503U)

No.	Item	Content		Life	Model Name	Quantity in collective package	Remarks
1	Toner Cartridge (Black)	Toner Cartridge with IC Chip (Toner: Net 930g)	x 1	40K	MX-500CT	10	Life: A4/Letter 6% document
2	Developer (Black)	Developer (Developer: Net 310g)	x 1	200K	MX-500CV	10	
3	Drum	OPC Drum	x 1	200K	MX-500CR	10	

## 2. Maintenance parts list

### A. USA/Canada/South and Central America/Asia/Agency/Middle East

▲

No.	Item	Model name	Content	Quantity	Life		Package	Remarks
					28 CPM model	36/45/50 CPM model		
1	Heat roller kit (200K kit)	MX-503HK	Lower heat roller	1	150K	200K	5	
			Upper separation pawl/pawl spring	4				
			Lower separation pawl/pawl spring	2				
			Upper heat roller	1				
			Upper pressure roller bearing	2				
			Pressure roller	1				
			Web roller	1				
2	Transfer kit	MX-503TU	Transfer roller	1	150K	200K	10	
			Discharge plate	1				
3	DV seal kit	MX-503DS	DV seal	1	150K	200K	10	
			DV side seal F/R	1 pair				
			TN filter UN	2				
4	Main charger kit	MX-503MK	Cleaner blade	1	150K	200K	10	
			Toner reception seal	1				
			Side seal F/R	1 pair				
			Drum separation pawl unit	4				
			MC unit	1				
			Side sheet F/R for toner reception seal	2				
			Molt cushion for side seal F/R	2				
5	Toner collection box	MX-503HB	Toner collection box	1	80K		5	
6	Paper dust removing unit	MX-503PD	Paper dust removing unit	1	150K	200K	10	
7	Filter kit	MX-503FL	Ozone filter	1	300K	400K	10	
8	Staple cartridge	AR-SC2	Staple cartridge	3	5000 times x 3		20	For finisher (MX-FN11)
9	Staple cartridge	AR-SC3	Staple cartridge	3	2000 times x 3		40	For saddle stitch finisher (MX-FN10)
10	Staple cartridge	MX-SCX1	Staple cartridge	3	5000 times x 3		20	For inner finisher/ saddle stitch finisher (MX-FNX9/FN10)
11	Finish stamp cartridge	AR-SV1	Finish stamp cartridge	2	—		20	



## B. Europe/Australia/New Zealand

▲

No.	Item	Model name	Content	Quantity	Life		Package	Remarks
					28 CPM model	36/45/50 CPM model		
1	Upper heat roller kit (200K kit)	MX-503UH	Upper heat roller	1	150K	200K	10	
			Upper separation pawl/pawl spring	4				
2	Lower heat roller kit (200K kit)	MX-503LH	Lower heat roller	1	150K	200K	10	
			Lower separation pawl/pawl spring	2				
3	Web cleaning kit	MX-503WC	Upper pressure roller bearing	2	150K	200K	10	
			Pressure roller	1				
			Web roller	1				
4	Transfer kit	MX-503TU	Transfer roller	1	150K	200K	10	
			Discharge plate	1				
5	DV seal kit	MX-503DS	DV seal	1	150K	200K	10	
			DV side seal F/R	1 pair				
			TN filter UN	2				
6	Main charger kit	MX-503MK	Cleaner blade	1	150K	200K	10	
			Toner reception seal	1				
			Side seal F/R	1 pair				
			Drum separation pawl unit	4				
			MC unit	1				
			Side sheet F/R for toner reception seal	2				
			Molt cushion for side seal F/R	2				
7	Toner collection box	MX-503HB	Toner collection box	1	80K		5	
8	Paper dust removing unit	MX-503PD	Paper dust removing unit	1	150K	200K	10	
9	Filter kit	MX-503FL	Ozone filter	1	300K	400K	10	
10	Staple cartridge	AR-SC2	Staple cartridge	3	5000 times x 3		20	For finisher (MX-FN11)
11	Staple cartridge	AR-SC3	Staple cartridge	3	2000 times x 3		40	For saddle stitch finisher (MX-FN10)
12	Staple cartridge	MX-SCX1	Staple cartridge	3	5000 times x 3		20	For inner finisher/ saddle stitch finisher (MX-FNX9/FN10)
13	Finish stamp cartridge	AR-SV1	Finish stamp cartridge	2	—		20	

### 3. Definition the developer/drum life end

When the developer/drum counter reaches the specified level.

When the developer/drum rpm reaches the specified level.

When either of the above reached the specified level, it is judged as life end.

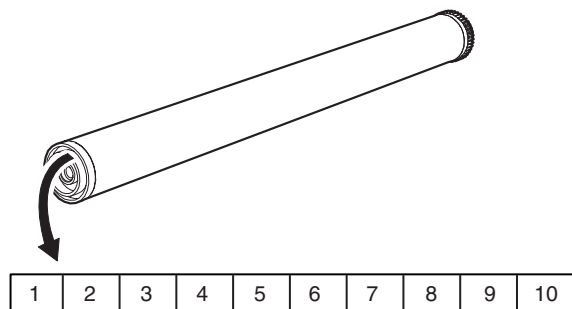
In an actual case, when correction or warm-up operation is performed as well as output operation, the developer and the drum rotates. Therefore, the developer/drum consuming level cannot be determined only by the copy/print quantity. When, therefore, the rpm reaches the specified level, it is judged as life end.

To check the drum life, use SIM22-1/22-13.

	Developer/drum counter		Developer/drum rpm
	28 CPM model	36/45/50 CPM model	
Developer/drum	150K	200K	930K rotations

## 4. Production number identification

### A. Drum cartridge

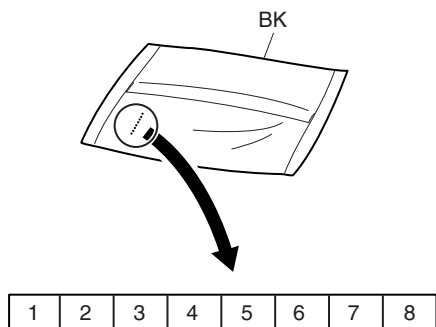


The lot number is of 10 digits. Each digit indicates the content as follows.

The number is printed on the flange on the front side.

- 1: Number  
For this model, this digit is 2.
- 2: Alphabet  
Indicates the model conformity code.
- 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  
Indicates the day of the production date.
- 7: Number  
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 packing date.
- 10: Alphabet  
Indicates the production factory.

### B. Developer



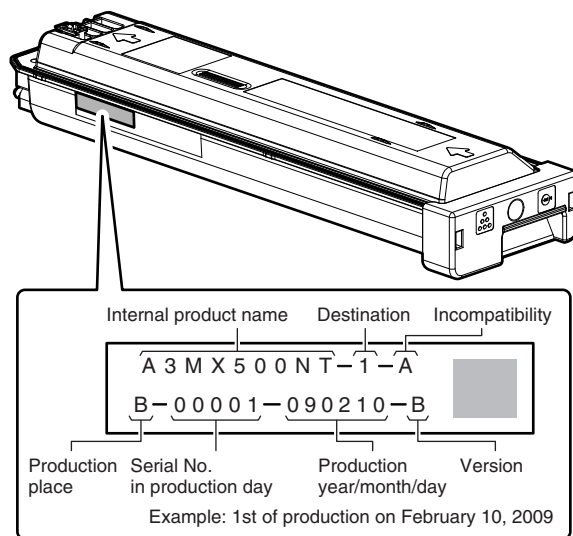
The lot number is of 8 digits. Each digit indicates the content as follows.

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

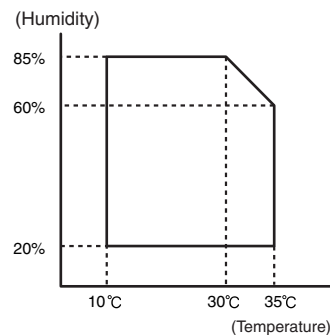
- 1: Alphabet  
Indicates the production factory.
- 2: Number  
Indicates the production year.
- 3/4: Number  
Indicates the production month.
- 5/6: Number  
Indicates the production day.
- 7: Hyphen
- 8: Number  
Indicates the production lot.

### C. Toner cartridge

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



### D. Environmental conditions

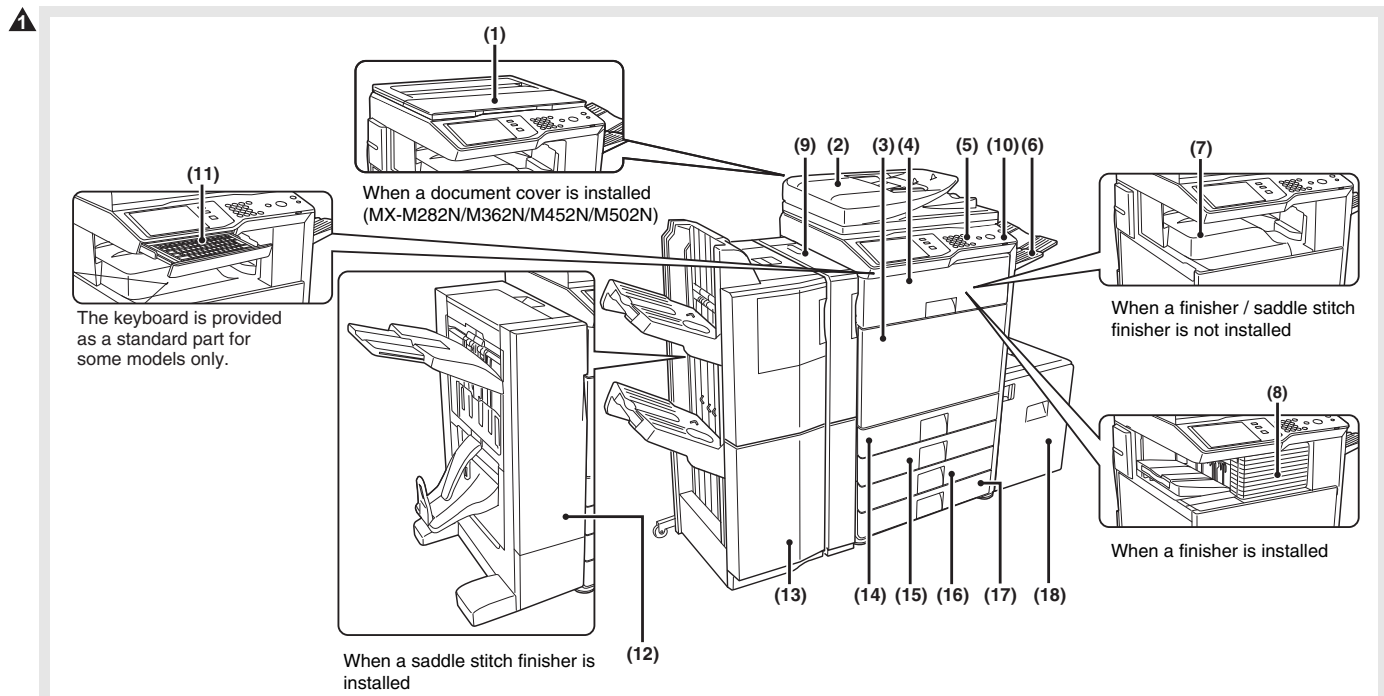


Standard environmental conditions	Temperature	20 – 25 °C
	Humidity	65 ± 5 %RH
Usage environmental conditions	Temperature	10 – 35 °C
	Humidity	20 – 85 %RH
Storage period	Toner/Developer: 24 months from the manufactured month (Production lot) under unsealed state Drum: 36 months from the manufactured month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

## [3] EXTERNAL VIEW AND INTERNAL STRUCTURE

### 1. Identification of each section and functions

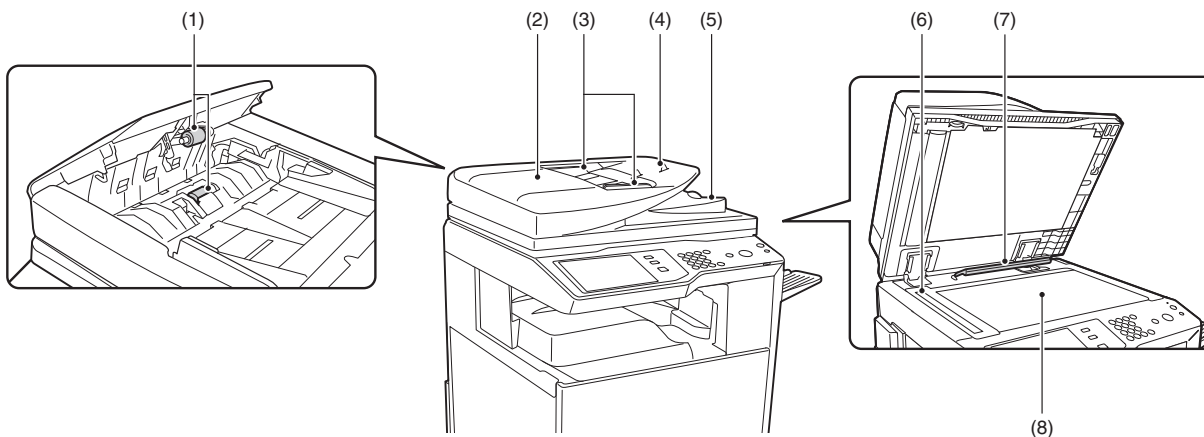
#### A. External view



No.	Name	Function/Operation	NOTE
1	Document cover*	Place an original on the document glass and close the document cover before copying starts.	
2	Automatic document feeder <ul style="list-style-type: none"> <li>RSPF MX-M282N/M362N/M452N/M502N: option MX-M283N/M363U/M453U/M503U: standard </li> <li>DSPF MX-M363N/M453N/M503N: standard </li> </ul>	This automatically feeds and scans multiple originals. Both sides of 2-sided originals can be automatically scanned.	
3	Front cover	Open this cover to switch the main power switch to "On" or "Off" or to replace a toner cartridge.	
4	Paper pass unit*	This transfers output to the finisher (large capacity) or the saddle stitch finisher.	
5	Operation panel	This is used to select functions and enter the number of copies.	
6	Right tray*	When installed, output can be delivered to this tray.	
7	Output tray (center tray)	Output is delivered to this tray.	
8	Finisher*	This can be used to staple output. A punch module can also be installed to punch holes in output.	
9	Punch module*	This is used to punch holes in output. Requires the finisher (large capacity).	
10	USB connector (A type)	Supports USB 2.0. This is used to connect a USB device such as USB memory to the machine. For the USB cable, use a shielded cable.	When using the USB port, be careful of the total current consumption not to exceed 500mA.
11	Keyboard*	This is a keyboard that is incorporated into the machine. When not used, it can be stored under the operation panel.	A standard part or an option depending on the model and the destination.
12	Saddle stitch finisher*	This can be used to staple output. The saddle stitch function for folding and stapling output and the fold function for folding output in half are also available. A punch module can also be installed to punch holes in output.	
13	Finisher (large capacity)*	This can be used to staple output.	
14	Tray 1	This holds paper.	
15	Tray 2	This holds paper.	
16	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.	
17	Tray 4 (when a stand/2 x 500 sheet paper drawer is installed)*	This holds paper.	
18	Tray 5 (when a large capacity tray is installed)*	This holds paper.	

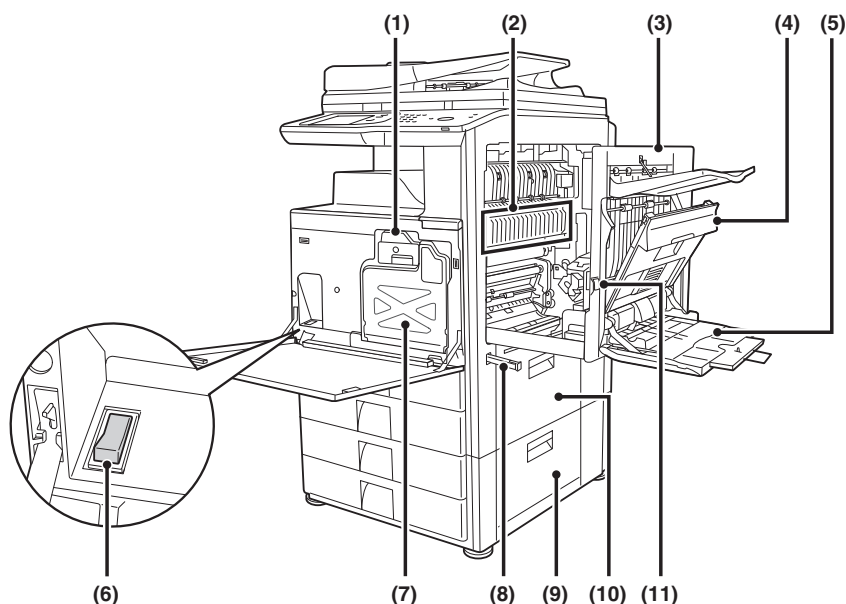
\*: Peripheral device.

## [Automatic document feeder and document glass]



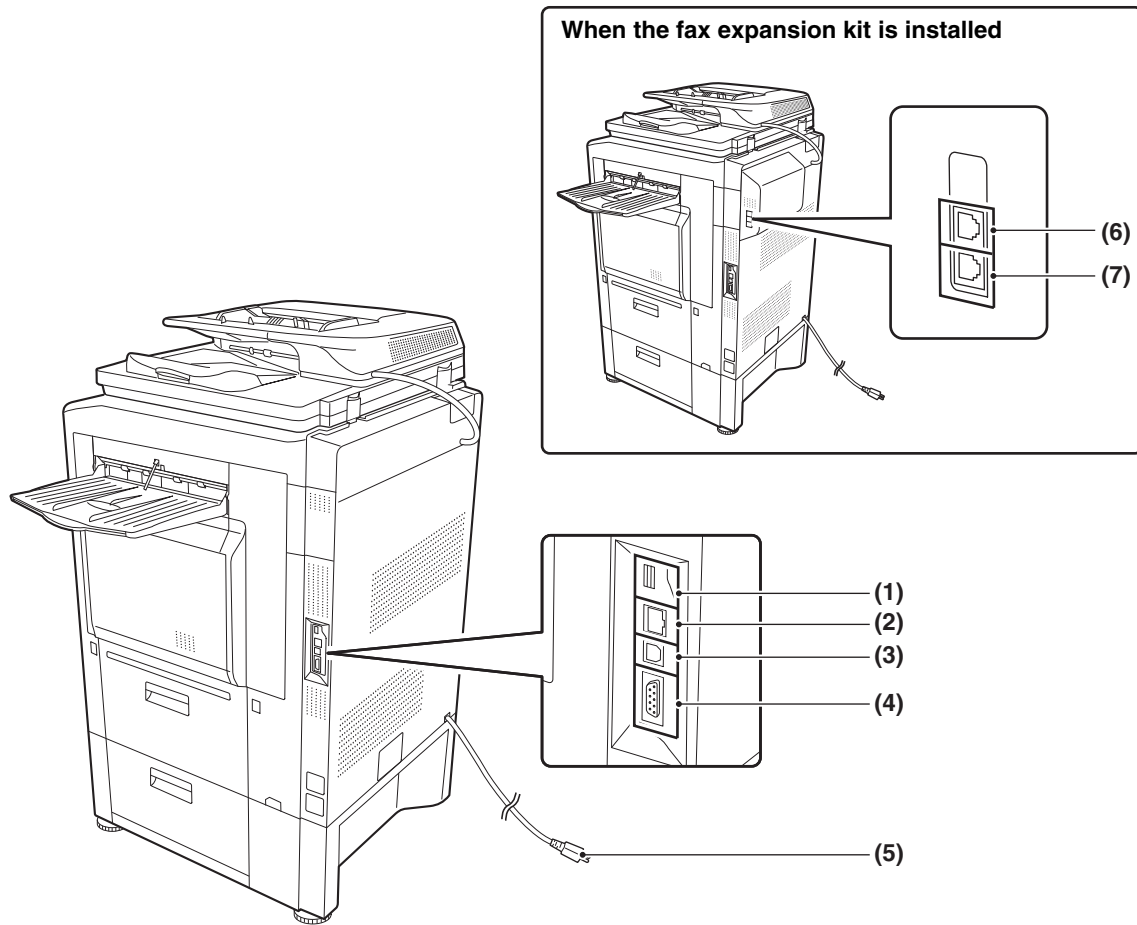
No.	Name	Function/Operation
1	Paper feed roller	This roller rotates to automatically feed the original.
2	Document feeding area cover	Open this cover to remove an original mis-feed or clean the paper feed roller.
3	Original guides	These help ensure that the original is scanned correctly. Adjust the guides 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	Document glass	Use this to scan a book or other thick original that cannot be fed through the automatic document feeder.

## B. Internal operation parts



No.	Name	Function/Operation
1	Toner cartridges	These contain toner for printing. When the toner runs out in a cartridge, the cartridge of the color that ran out must be replaced.
2	Fusing unit	Heat is applied here to fuse the transferred image onto the paper.
3	Right side cover	Open this cover to remove a paper mis-feed.
4	Paper reversing section cover	This is used when 2-sided printing is performed. Open this cover to remove a paper mis-feed.
5	Bypass tray	Use this tray to feed paper manually. When loading paper larger than 8-1/2" x 11"R or A4R, be sure to pull out the bypass tray extension.
6	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.
7	Waste toner box	This collects excess toner that remains after printing.
8	Handle	Pull this out and grasp it when moving the machine.
9	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 mis-feed in tray 3 or tray 4.
10	Paper tray right side cover	Open this to remove a paper mis-feed in tray 1 or tray 2.
11	Right side cover release lever	To remove a paper mis-feed, pull and hold this lever up to open the right side cover.

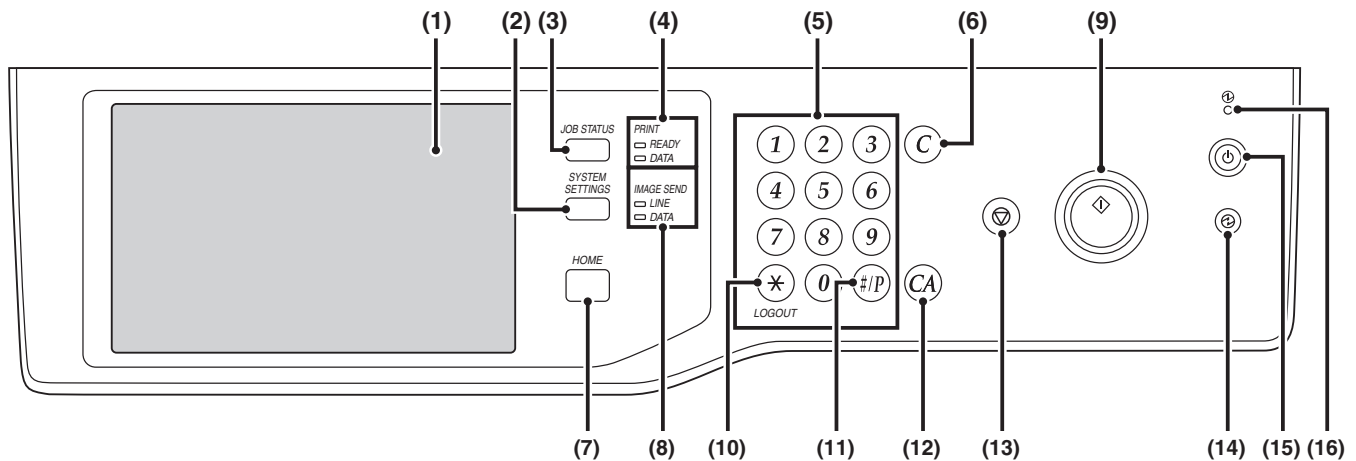
## C. Connectors



No.	Name	Function/Operation	NOTE
1	USB connector (A type)	Supports USB 2.0. This is used to connect a USB device such as USB memory to the machine. This connector cannot be used under the factory setting. The connector on the front section can be used under the factory setting. When the keyboard is installed to the machine, an exclusive connection is enabled. (Simultaneous connection is disabled.)	When using the USB port, be careful of the total current consumption not to exceed 500mA.
2	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.	
3	USB connector (B type)	Supports USB 2.0. A computer can be connected to this connector to use the machine as a printer. For the USB cable, use a shielded cable.	
4	Service-only connector	CAUTION: This connector is for use only by service technicians. 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 118" (3 m) in length.	
5	Power plug		
6	Extension phone socket	When the fax function of the machine is used, an extension phone can be connected to this socket.	
7	Telephone line socket	When the fax function of the machine is used, the telephone line is connected to this socket.	

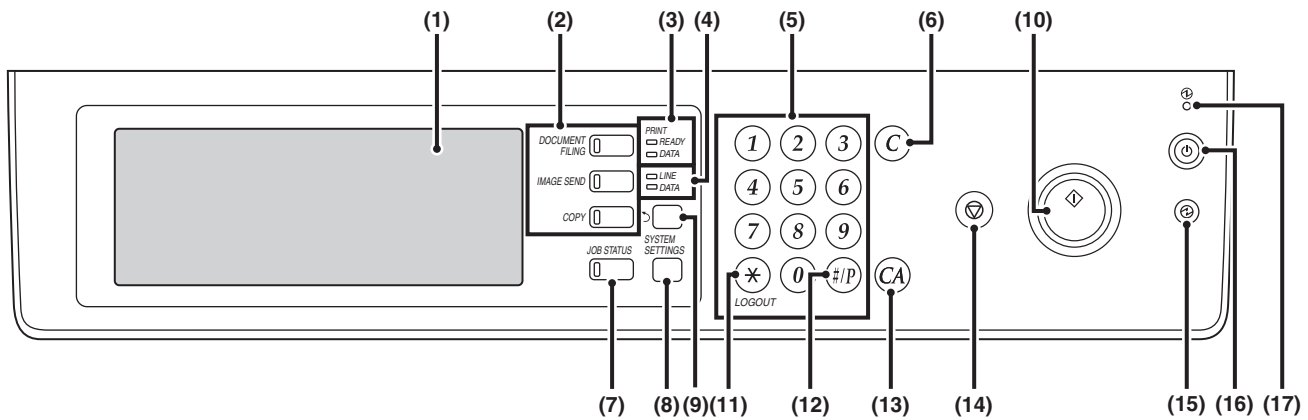
## D. Operation panel

### ▲ (1) N model



No.	Name	Function/Operation
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	[SYSTEM SETTINGS] key	Press this key to display the system settings menu screen. The system settings are used to configure paper tray settings, store addresses for transmission operations, and adjust parameters to make the machine easier to use.
3	[JOB STATUS] key	Press this key to display the job status screen. The job status screen is used to check information on jobs and to cancel jobs.
4	PRINT mode indicators	<ul style="list-style-type: none"> <li>READY indicator Print jobs 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>
5	Numeric keys	These are used to enter the number of copies, fax numbers, and other numerical values. These keys are also used to enter numeric value settings (except for the system settings).
6	[CLEAR] key ( C )	Press this key to return the number of copies to "0".
7	[HOME] key	Touch this key to display the home screen. Frequently used settings can be registered in the home screen to enable quick and easy operation of the machine.
8	IMAGE SEND mode indicators	<ul style="list-style-type: none"> <li>LINE indicator This lights up during transmission or reception of a fax or Internet fax. This also lights during transmission of an image in scan mode.</li> <li>DATA indicator This blinks when a received fax or Internet fax cannot be printed because of a problem such as out of paper. This lights up when there is a transmission job that has not been sent.</li> </ul>
9	[START] key	Press this key to copy or scan an original. This key is also used to send a fax in fax mode.
10	[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.
11	[# / P] key ( #/P )	When using the copy function, press this key to use a job program. When using the fax function, this key can be used when dialing.
12	[CLEAR ALL] key ( CA )	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.
13	[STOP] key ( ⊞ )	Press this key to stop a copy job or scanning of an original.
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.

▲ (2) U model

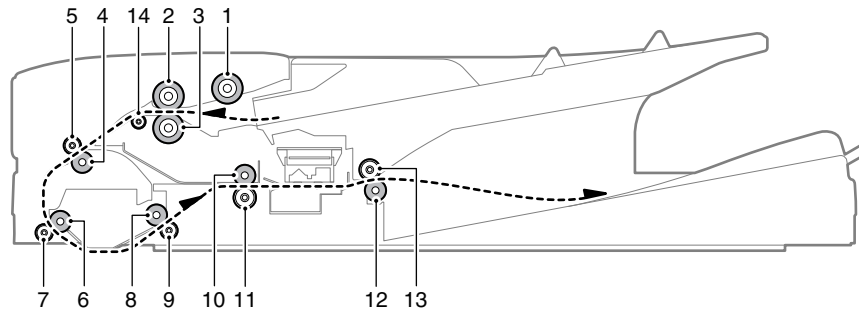


No.	Name	Function/Operation
1	Touch panel	Messages and keys appear in the touch panel display. Touch the displayed keys to perform a variety of operations. When a key is touched, a beep sounds and the selected item is highlighted. This provides confirmation as you perform an operation.
2	Mode select 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>• [PRINT] key / [DOCUMENT FILING] key The name and function of the key varies depending on the peripheral devices that are installed. When a hard drive is not installed in the machine, this key is the [PRINT] key. Press this key to select print mode when printing data that uses the print hold function. When a hard drive is installed in the machine, this key is the [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>• [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	<ul style="list-style-type: none"> <li>• READY indicator Print jobs 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	IMAGE SEND mode indicators	<ul style="list-style-type: none"> <li>• LINE indicator This lights up during transmission or reception of a fax or Internet fax. This also lights during transmission of an image in scan mode.</li> <li>• DATA indicator This blinks when a received fax or Internet fax cannot be printed because of a problem such as out of paper. This lights up when there is a transmission job that has not been sent.</li> </ul>
5	Numeric keys	These are used to enter the number of copies, fax numbers, and other numerical values. These keys are also used to enter numeric value settings (except for the system settings).
6	[CLEAR] key ( C )	Press this key to return the number of copies to "0".
7	[JOB STATUS] key	Press this key to display the job status screen. The job status screen is used to check information on jobs and to cancel jobs.
8	[SYSTEM SETTINGS] key	Press this key to display the system settings menu screen. The system settings are used to configure paper tray settings, store addresses for transmission operations, and adjust parameters to make the machine easier to use.
9	Function key	To use the Sharp OSA function, press this key to switch to Sharp OSA mode.
10	[START] key	Press this key to copy or scan an original. This key is also used to send a fax in fax mode.
11	[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.
12	[#/P] key ( #/P )	When using the copy function, press this key to use a job program. When using the fax function, this key can be used when dialing.
13	[CLEAR ALL] key ( CA )	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.
14	[STOP] key ( Ⓢ )	Press this key to stop a copy job or scanning of an original.
15	[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.
16	[POWER] key ( Ⓢ )	Use this key to turn the machine power on and off.
17	Main power indicator	This lights up when the machine's main power switch is in the "on" position.



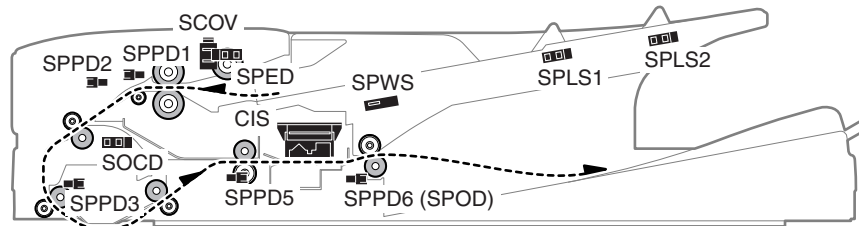
## E. DSPF

### (1) Internal structure



No.	Name	Function/Operation
1	Pickup roller	Picks up a document and feeds it to the paper feed roller.
2	Paper feed roller	Performs the paper feed operation of documents.
3	Separation roller	Separate a document to prevent against double-feed.
4	Resist roller (Drive)	Performs resist of document transport.
5	Resist roller (Idle)	Applied a pressure to document and the resist roller, and provides transport power of the resist roller to document.
6	Transport roller 1 (Drive)	Transports document from resist roller to transport roller 2.
7	Transport roller 1 (Idle)	Applied a pressure to document and the transport roller, and provides the transport power of the transport roller to document.
8	Transport roller 2 (Drive)	Transports document to the transport 3 roller.
9	Transport roller 2 (Idle)	Applied a pressure to document and the transport roller, and provides the transport power of the transport roller to document.
10	Transport roller 3 (Drive)	Transports document from the transport roller 2 to the paper exit roller.
11	Transport roller 3 (Idle)	Applied a pressure to document and the transport roller, and provides the transport power of the transport roller to document.
12	Paper exit roller (Drive)	Discharges document.
13	Paper exit roller (Idle)	Applies a pressure to document and the paper exit roller and provides transport power of the paper exit roller to document.
14	Transport auxiliary roller	Helps to transport document smoothly.

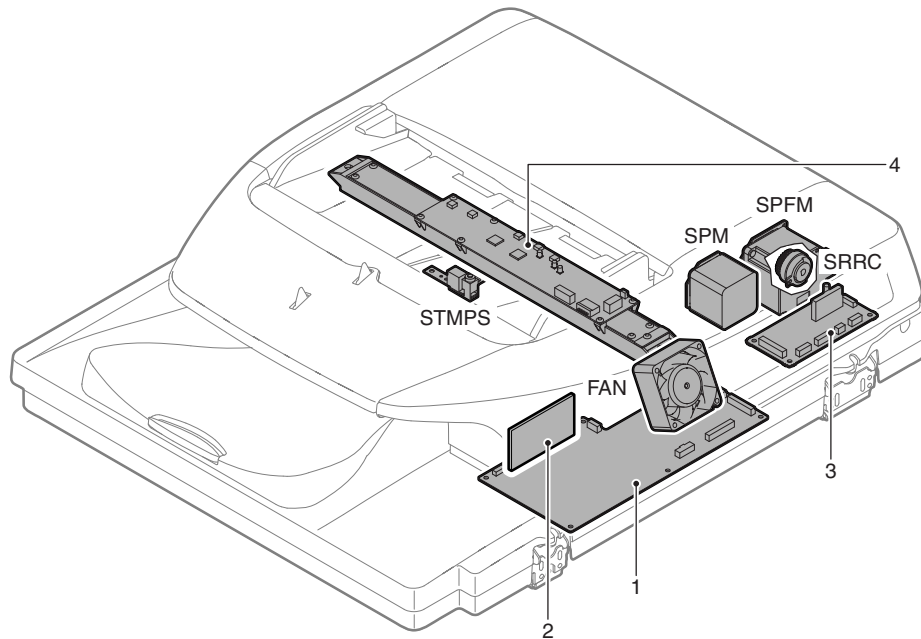
### (2) Sensors and Switches



Signal name	Name	Type	Function/Operation
CIS	CIS unit	CIS	Converts document images (optical signals) into electrical signals.
SCOV	DSPF upper cover open/close sensor	Micro switch	Detects open/close of the DSPF upper cover.
SOCD	DSPF open/close sensor	Transmission type	Detects open/close of the DSPF unit.
SPED	DSPF document sensor	Transmission type	Detects document empty in the DSPF paper feed tray.
SPLS1	DSPF document length sensor (short)	Transmission type	Detects the document length in the DSPF paper feed tray.
SPLS2	DSPF document length sensor (long)	Transmission type	Detects the document length in the DSPF paper feed tray.
SPPD1	DSPF document pass sensor 1	Transmission type	Detects pass of the document.
SPPD2	DSPF document pass sensor 2	Transmission type	Detects pass of the document.
SPPD3	DSPF document pass sensor 3	Transmission type	Detects pass of the document.
SPPD5	DSPF document pass sensor 5	Transmission type	Detects pass of the document.
SPPD6 (SPOD)	DSPF document exit sensor	Transmission type	Detects pass of the document.
SPWS	DSPF document width sensor	Volume resistor	Detects the document width in the DSPF paper feed tray.



### (3) Motors, clutches, solenoids, PWB and lamps

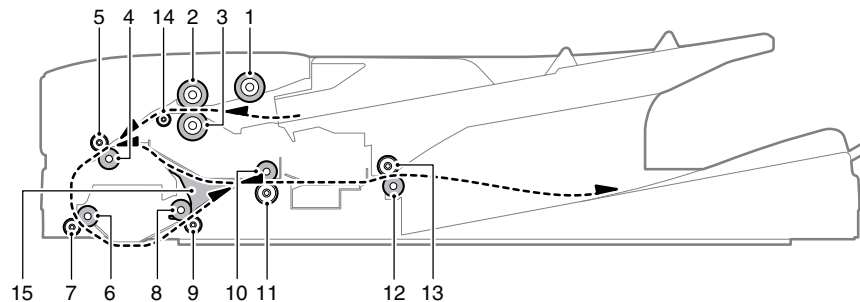


Signal name	Name	Type	Function/Operation
FAN	Cooling fan motor	DC motor	Cools the CIS unit and the motor.
SPFM	Transport motor	Stepping motor	Drives the transport roller.
SPM	Paper feed motor	Stepping motor	Drives the roller in the paper feed section.
STMPs	Stamp solenoid	Electromagnetic solenoid	Drives the stamp.
SRRC	PS clutch	Electromagnetic clutch	Controls ON/OFF of resist roller.

No.	Name	Function/Operation
1	DSPF control PWB	Controls the DSPF section.
2	DSPF flash ROM PWB	Program ROM for DSPF
3	DSPF driver PWB	Drives the motor and the clutch in the DSPF section.
4	DSPF CIS unit	Reads document images. (CIS PWB: CIS control, LED: Light source)

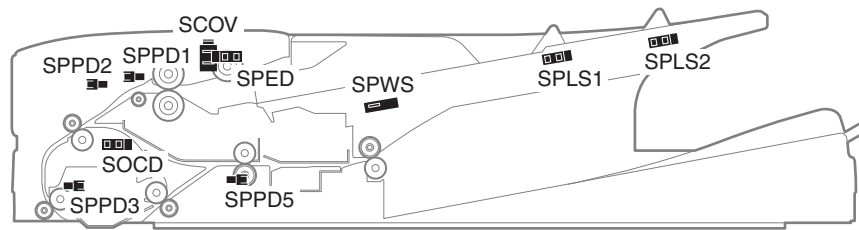
## F. RSPF

### (1) Internal structure



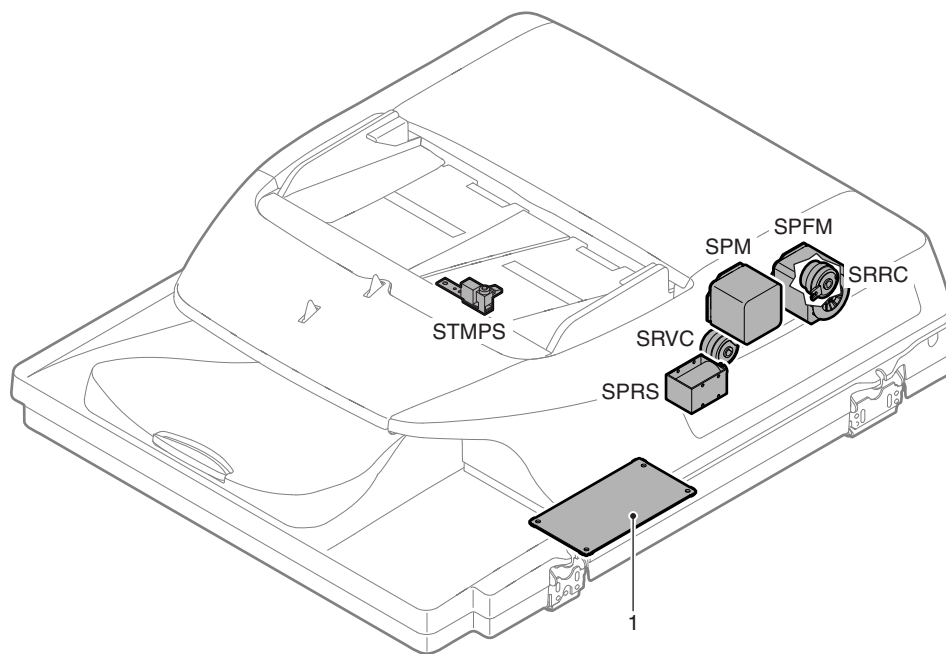
No.	Name	Function/Operation
1	Pickup roller	Picks up a document and feeds it to the paper feed roller.
2	Paper feed roller	Performs the paper feed operation of documents.
3	Separation roller	Separate a document to prevent against double-feed.
4	Resist roller (Drive)	Performs resist of document transport.
5	Resist roller (Idle)	Applied a pressure to document and the resist roller, and provides transport power of the resist roller to document.
6	Transport roller 1 (Drive)	Transports document from resist roller to transport roller 2.
7	Transport roller 1 (Idle)	Applied a pressure to document and the transport roller, and provides the transport power of the transport roller to document.
8	Transport roller 2 (Drive)	Transports document to the transport 3 roller.
9	Transport roller 2 (Idle)	Applied a pressure to document and the transport roller, and provides the transport power of the transport roller to document.
10	Transport roller 3 (Drive)	Transports document from the transport roller 2 to the paper exit roller. / Transports document to the resist roller when reversing the document.
11	Transport roller 3 (Idle)	Applied a pressure to document and the transport roller, and provides the transport power of the transport roller to document.
12	Paper exit roller (Drive)	Discharges document.
13	Paper exit roller (Idle)	Applies a pressure to document and the paper exit roller and provides transport power of the paper exit roller to document.
14	Transport auxiliary roller	Helps to transport document smoothly.
15	Reverse gate	Reverses a document to scan the back surface of the document.

## (2) Sensors and Switches



Signal name	Name	Type	Function/Operation
SCOV	RSPF upper cover open/close sensor	Micro switch	Detects open/close of the RSPF upper cover.
SOCD	RSPF open/close sensor	Transmission type	Detects open/close of the RSPF unit.
SPED	RSPF document sensor	Transmission type	Detects document empty in the RSPF paper feed tray.
SPLS1	RSPF document length sensor (short)	Transmission type	Detects the document length in the RSPF paper feed tray.
SPLS2	RSPF document length sensor (long)	Transmission type	Detects the document length in the RSPF paper feed tray.
SPPD1	RSPF document pass sensor 1	Transmission type	Detects pass of the document.
SPPD2	RSPF document pass sensor 2	Transmission type	Detects pass of the document.
SPPD3	RSPF document pass sensor 3	Transmission type	Detects pass of the document.
SPPD5	RSPF document pass sensor 5	Transmission type	Detects pass of the document.
SPWS	RSPF document width sensor	Volume resistor	Detects the document width in the RSPF paper feed tray.

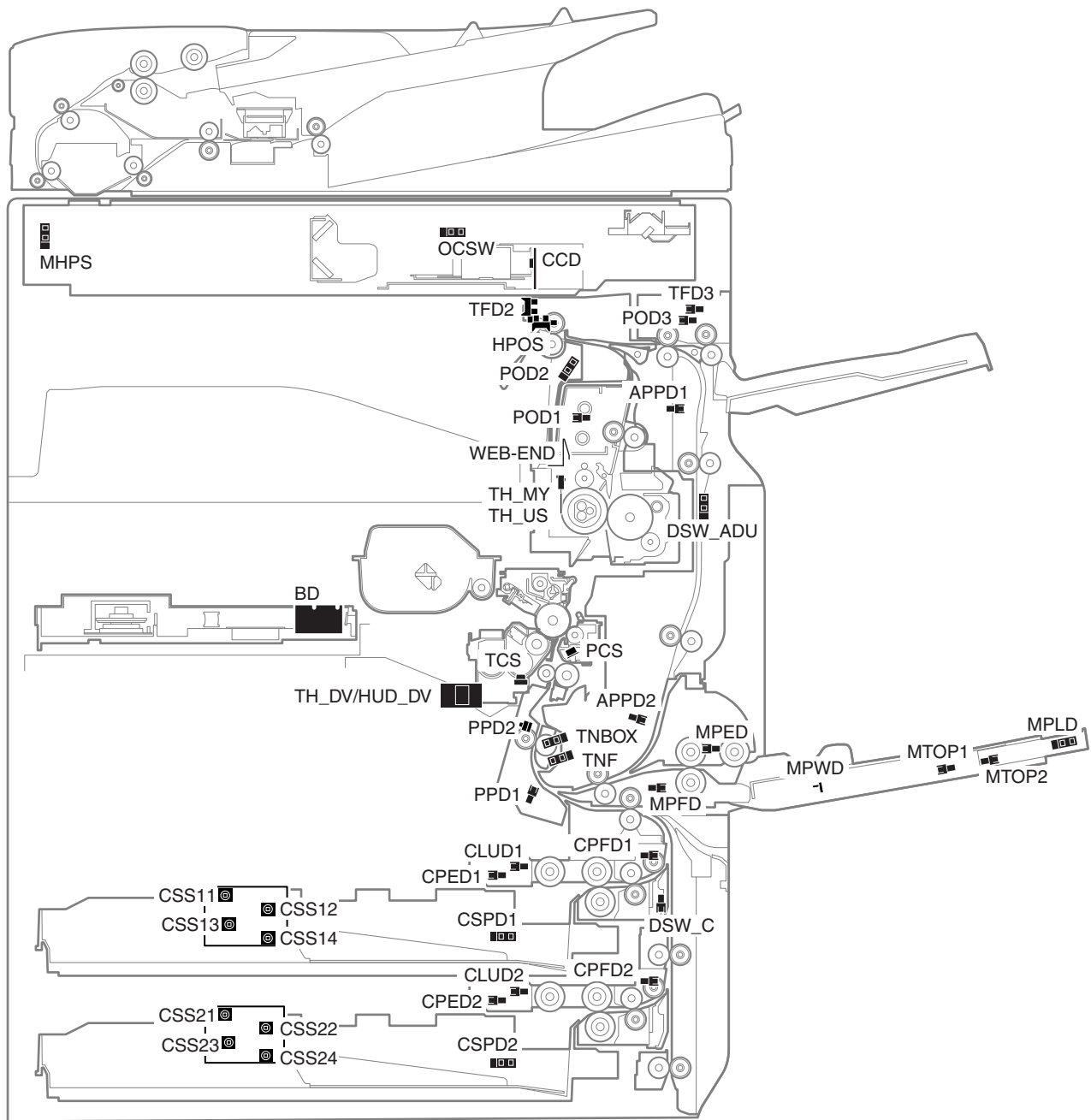
## (3) Motors, clutches, solenoids, PWB



Signal name	Name	Type	Function/Operation
SPFM	Transport motor	Stepping motor	Drives the transport roller.
SPM	Paper feed motor	Stepping motor	Drives the roller in the paper feed section.
SPRS	Pressure release solenoid	Electromagnetic solenoid	Releases the pressure of the transport roller 3 when reversing a document and transporting it to the resist roller.
SRRC	PS clutch	Electromagnetic clutch	Controls ON/OFF of resist roller.
SRVC	Reverse clutch	Electromagnetic clutch	Controls ON/OFF of the transport power of the transport roller 3 and the paper exit roller when discharging a document and reversing it to transport to the resist roller.
STMPs	Stamp solenoid	Electromagnetic solenoid	Drives the stamp.

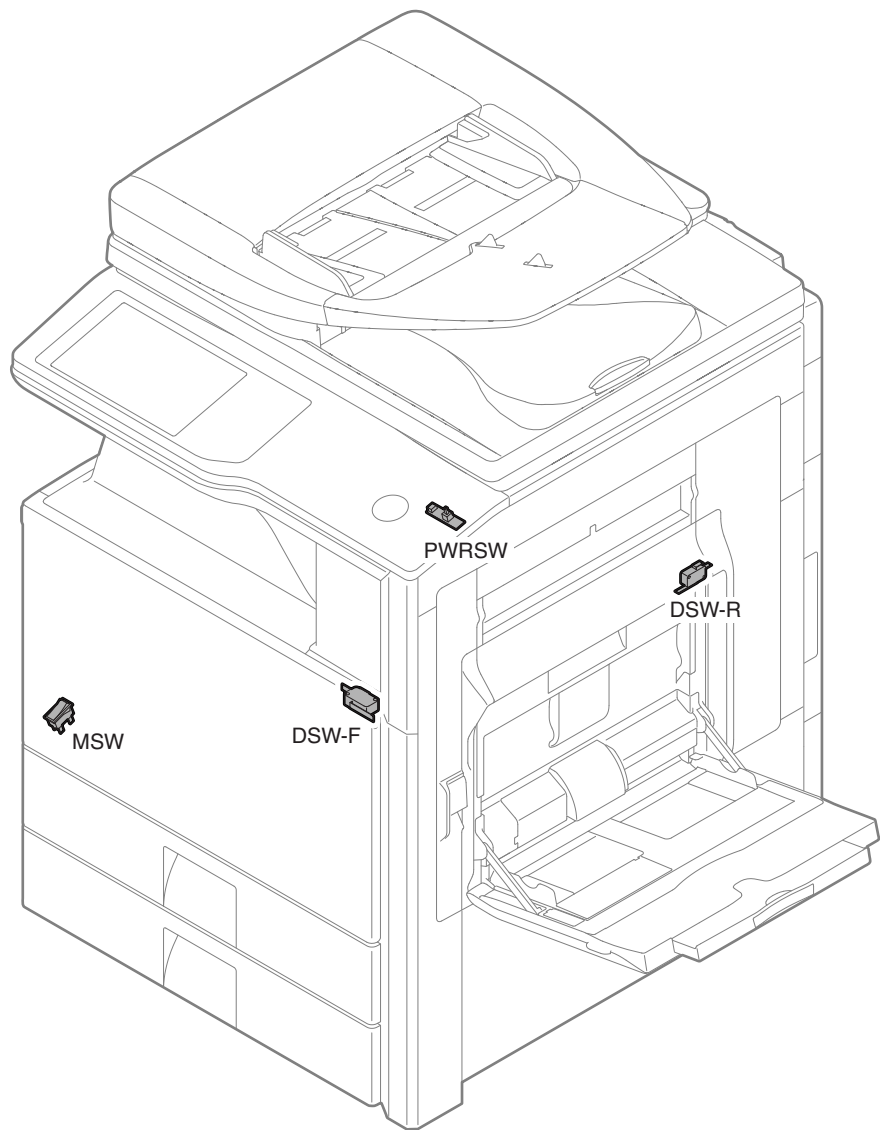
No.	Name	Function/Operation
1	RSPF driver PWB	Drives the motor and the clutch in the RSPF section.

## G. Sensors



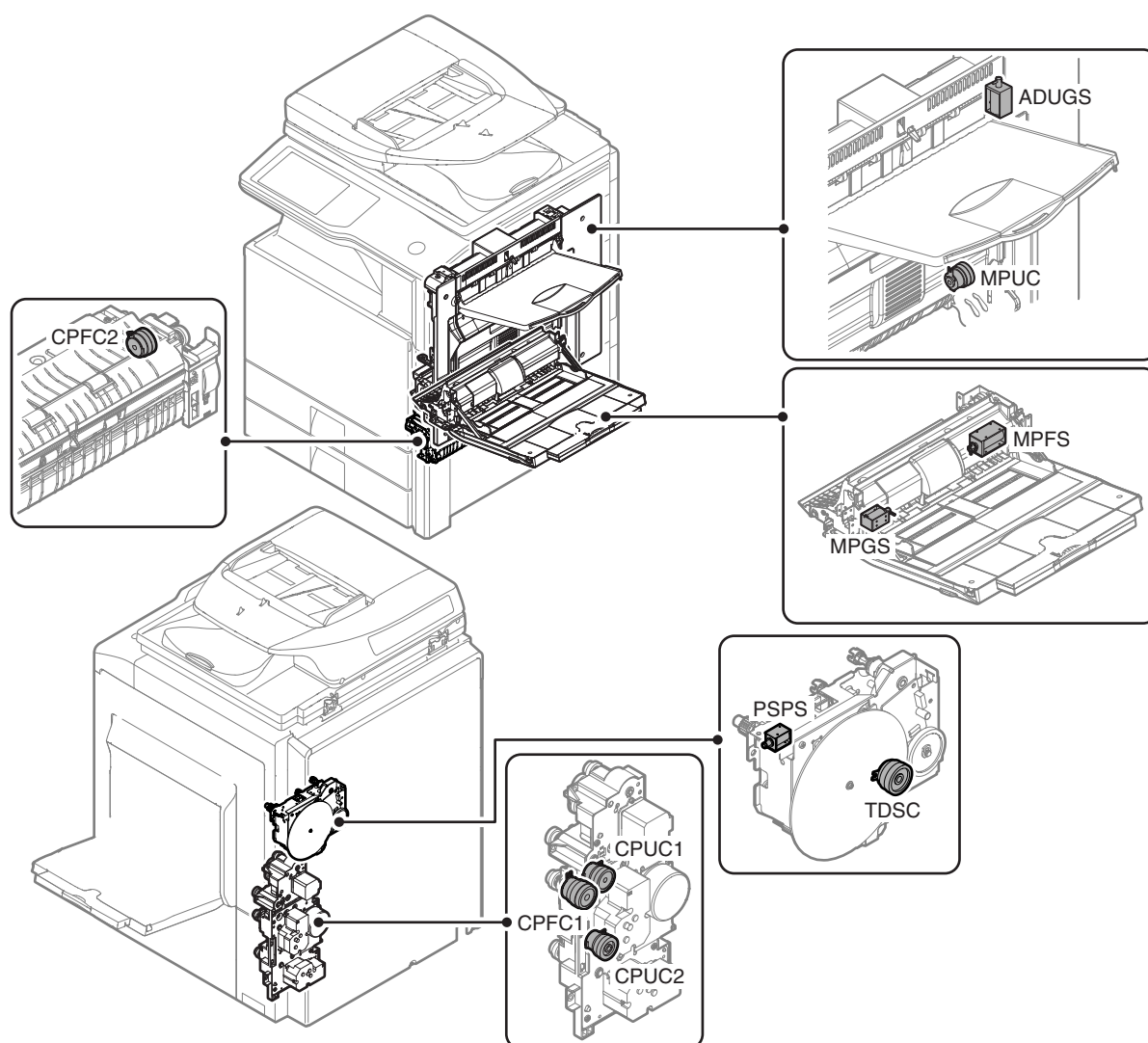
Signal name	Name	Function/Operation	Type
APPD1	ADU transport path detection 1	Detects the duplex (ADU) upstream paper pass.	Transmission type
APPD2	ADU transport path detection 2	Detects the duplex (ADU) midstream paper pass.	Transmission type
BD	Laser beam detection	Detects the laser scan start timing.	
CCD	CCD unit	Converts document images (optical signals) into electrical signals.	
CLUD1	Tray 1 upper limit detection (Lift HP detection)	Detects the tray 1 upper limit.	Transmission type
CLUD2	Tray 2 upper limit detection (Lift HP detection)	Detects the tray 2 upper limit.	Transmission type
CPED1	Tray 1 paper empty detection	Detects the tray 1 paper empty.	Transmission type
CPED2	Tray 2 paper empty detection	Detects the 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 the tray 1 paper remaining quantity.	
CSPD2	Tray 2 paper remaining quantity detection	Detects the tray 2 paper remaining quantity.	
CSS11	Tray 1 rear edge detection 1	Insertion of the tray is detected by detecting either of tray 1 rear edge detection 1 - 4. The paper size of tray 1 is detected.	Duct switch
CSS12	Tray 1 rear edge detection 2		Duct switch
CSS13	Tray 1 rear edge detection 3		Duct switch
CSS14	Tray 1 rear edge detection 4		Duct switch
CSS21	Tray 2 rear edge detection 1	Insertion of the tray is detected by detecting either of tray 2 rear edge detection 1 - 4. The paper size of tray 2 is detected.	Duct switch
CSS22	Tray 2 rear edge detection 2		Duct switch
CSS23	Tray 2 rear edge detection 3		Duct switch
CSS24	Tray 2 rear edge detection 4		Duct switch
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.	
HPOS	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
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.	
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
MTOP2	Manual paper feed tray pull-out position detector 2	Detects the manual paper feed tray paper pull-out position (pull-out position).	Transmission type
OCSW	Original cover SW	Detects the trigger for document size.	Transmission type
POD1	Fusing rear 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	Resist pre-detection	Detects the paper in front of resist roller.	Transmission type
PPD2	Resist detection	Detects the paper in rear of resist roller.	Reflection type
PCS	Image density sensor	Detects toner patch density.	Reflection type
TCS	Toner density sensor	Detects the toner density (K).	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_DV/HUD_DV	Temperature/humidity detection	Detects the temperature and the humidity in the process section.	
TH_MY	Main thermistor	Fusing temperature detection (main)	Thermistor
TH_US	Sub thermistor	Fusing temperature detection (sub)	Thermistor
TNF	Waste toner box remaining quantity detection	Detects installation of the waste toner box. Detects the waste toner near end and the waste toner full.	Transmission type
TNBOX	Waste toner box remaining quantity detection	Detects installation of the waste toner box. Detects the waste toner near end and the waste toner full.	Transmission type
WEB-END	Web end detection	Detects life end of the web cleaner.	Electrode switch

H. Switches



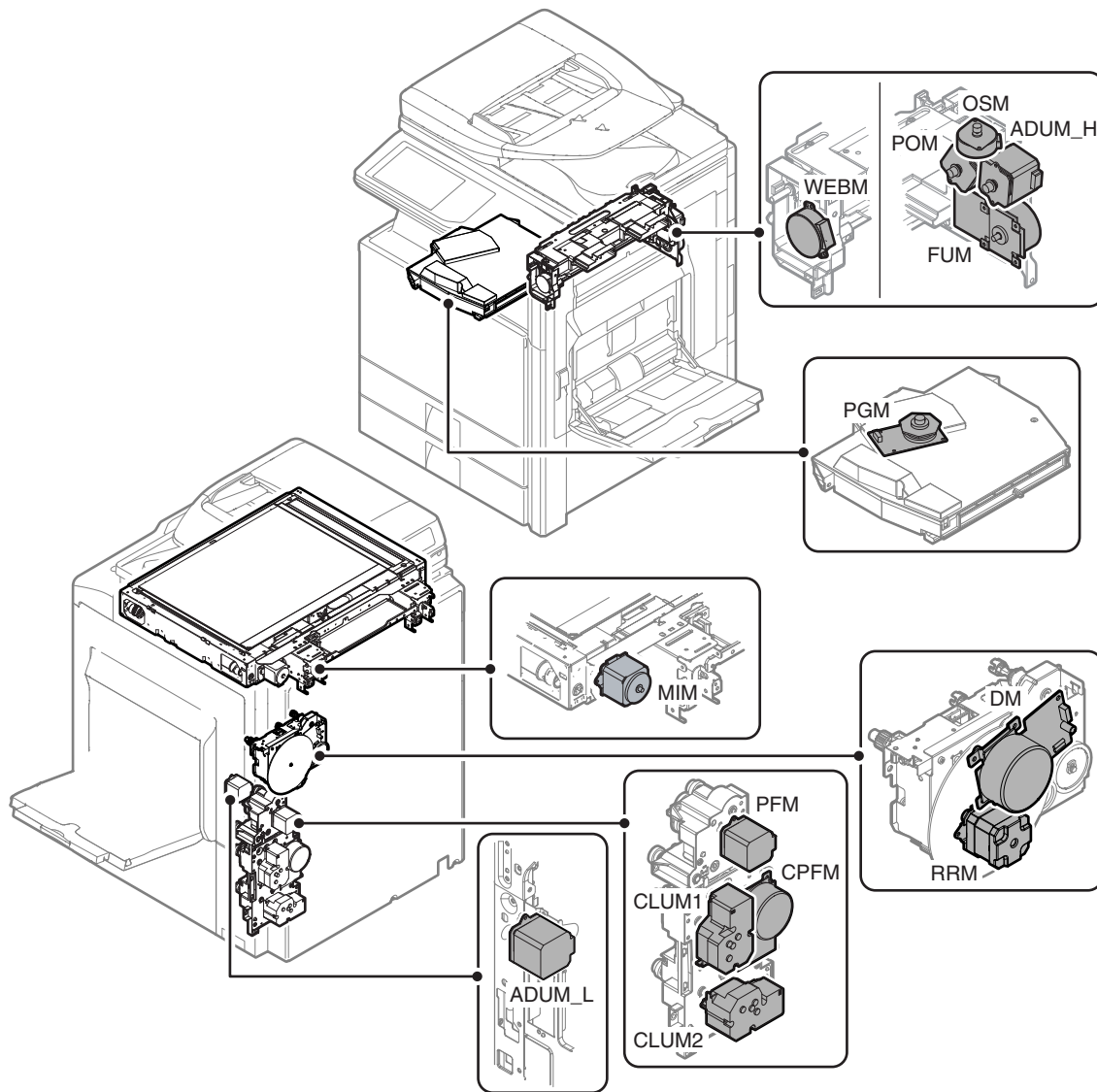
Signal name	Name	Type	Function/Operation
DSW-F	Front door open/close switch	Micro switch	Detects open/close of the front door, and turns ON/OFF the power line of the fusing, motor and the LSU laser.
DSW-R	Right door open/close switch	Micro switch	Detects open/close of the right door, and turns ON/OFF the power line of the fusing, motor and the LSU laser.
MSW	Main switch	Seesaw switch	Turns ON/OFF the DC power source.
PWRSW	Operation panel power switch	Push switch	Controls ON/OFF of the DC power source.

## I. Clutches and solenoids



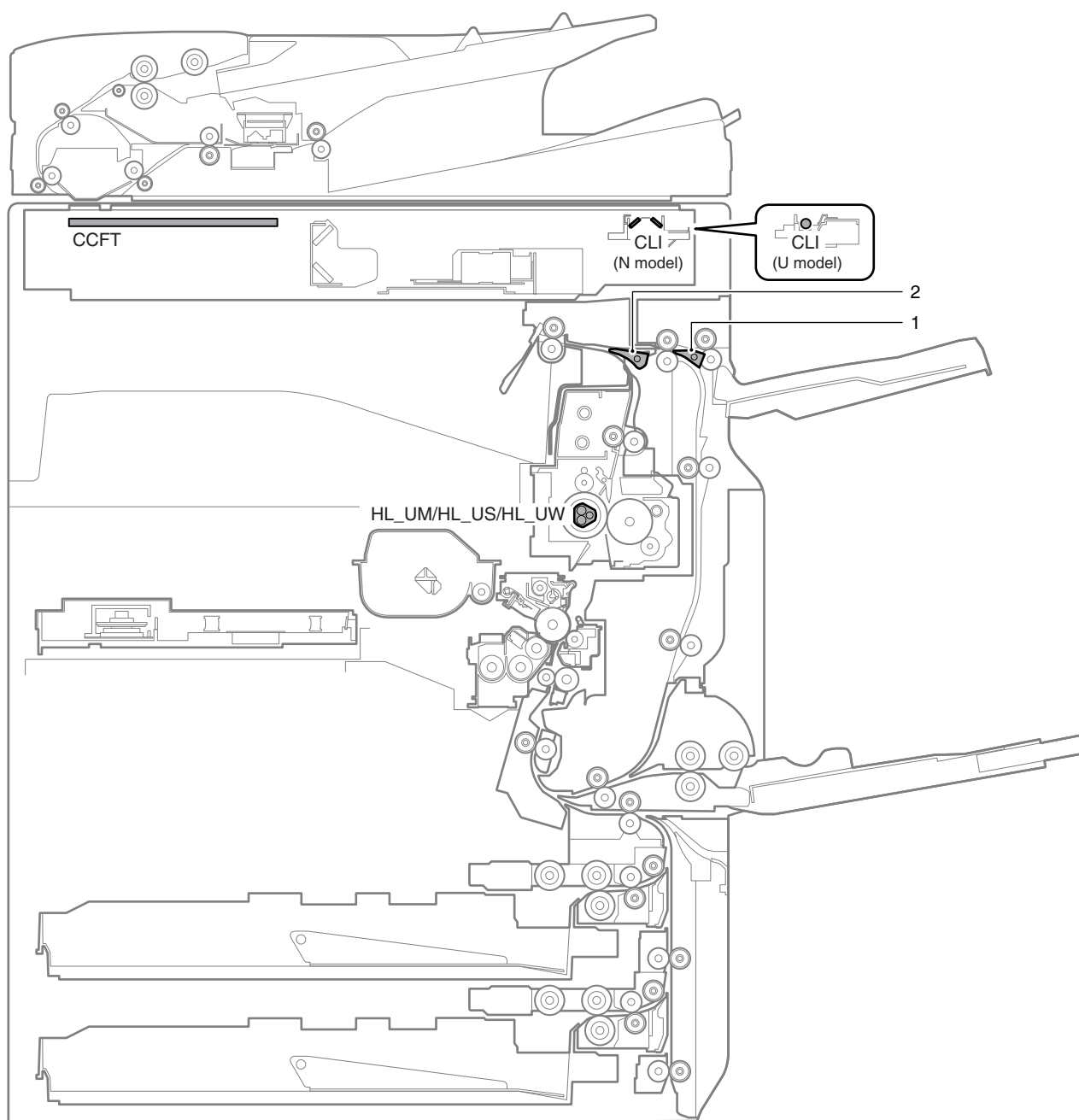
Signal name	Name	Type	Function/Operation
ADUGS	ADU gate solenoid	Electromagnetic solenoid	Controls the ADU gate.
CPFC1	Paper transport clutch 1	Electromagnetic clutch	Controls ON/OFF of the paper transport roller 7.
CPFC2	Paper transport clutch 2	Electromagnetic clutch	Controls ON/OFF of the paper transport roller in the paper transport section of 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.
MPFS	Paper pickup solenoid (Manual paper feed)	Electromagnetic solenoid	Paper pickup solenoid (Manual paper feed)
MPGS	Manual paper feed gate solenoid	Electromagnetic solenoid	Controls the manual paper feed gate Open/Close.
MPUC	Manual paper feed clutch	Electromagnetic clutch	Controls the manual paper feed section paper feed roller ON/OFF.
PSPS	Separation solenoid	Electromagnetic solenoid	Separates paper from the OPC drum.
TDSC	Toner supply clutch	Electromagnetic clutch	Controls ON/OFF of toner supply.

## J. Drive motor



Signal name	Name	Type	Function/Operation
ADUM_H	ADU motor upper	Stepping motor	Drives the transport roller 13.
ADUM_L	ADU motor lower	Stepping motor	Drives the paper transport roller in the right door section.
CLUM1	Paper tray lift-up motor (Paper feed tray 1)	DC brush motor	Drives the lift plate of the paper feed tray.
CLUM2	Paper tray lift-up motor (Paper feed tray 2)	DC brush motor	Drives the lift plate of the paper feed tray.
CPFM	Paper feed motor	Brush-less motor	Drives the paper feed section.
DM	Drum motor	Brush-less motor	Drives the OPC drum and the developing unit.
FUM	Fusing drive motor	Brush-less motor	Drives the fusing unit.
MIM	Scanner motor	Stepping motor	Drives the scanner (reading) unit.
OSM	Shifter motor	Stepping motor	Performs offset of paper.
PFM	Transport motor	Stepping motor	Drives the transport roller which is between the resist roller and the paper feed section. Drives the transport roller which is between the resist roller and the right door section.
PGM	Polygon motor	DC brush-less motor	Scans the laser beam.
POM	Paper exit drive motor	Stepping motor	Drives the paper exit roller.
RRM	Resist motor	Stepping motor	Drives the resist roller and controls ON/OFF.
WEBM	Fusing web cleaning motor	Synchronous motor	Drives the fusing web cleaning paper.

## K. Lamps and gates

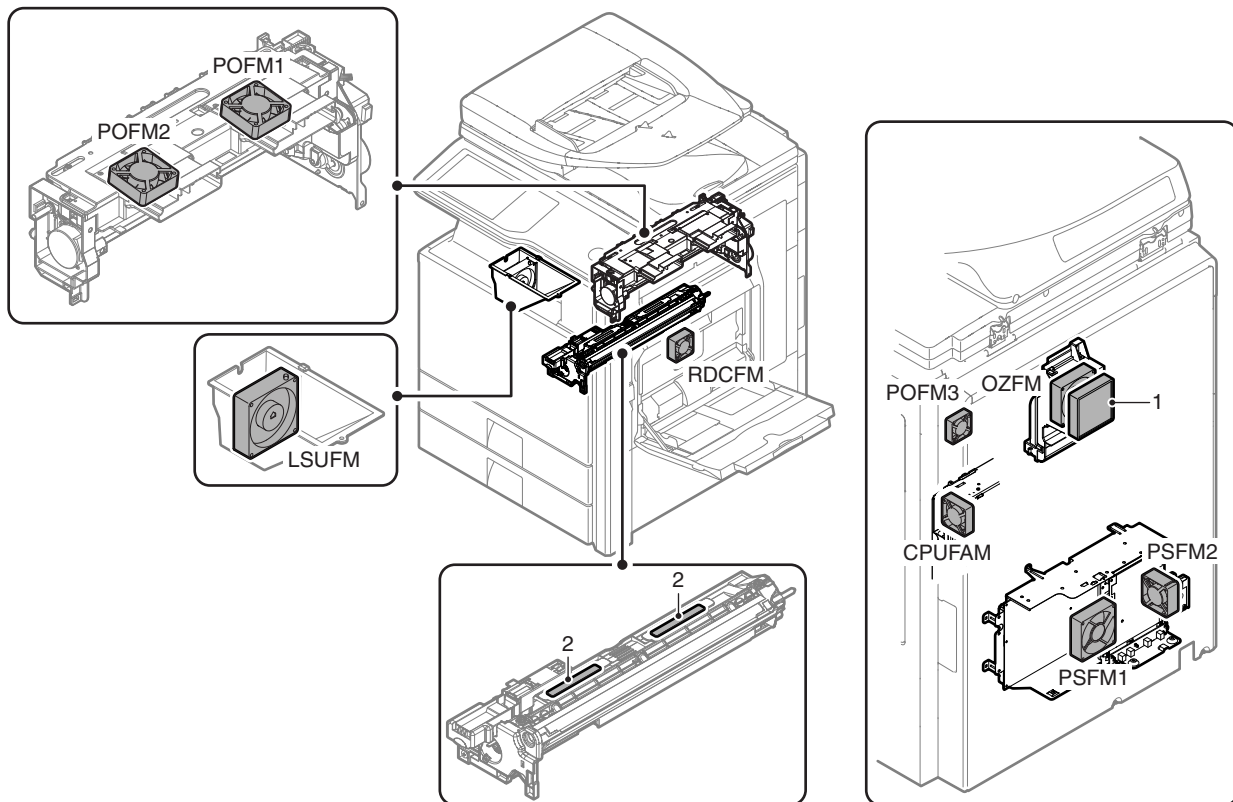


Signal name	Name	Type	Function/Operation
CCFT	LCD back-light	Cold Cathode Fluorescent Tube	Back-light for LCD
CLI	Scanner lamp	N model: LED U model: Xenon lamp	Radiates lights onto a document for the CCD to scan the document image.
HL_UM	Heater lamp (main)		Heats the heat roller (main).
HL_US	Heater lamp (sub)		Heats the heat roller (sub).
HL_UW	Heater lamp (for warm-up)		Heats up supplementarily when warming-up.

No.	Name	Type	Function/Operation
1	Right paper exit gate		Selects the paper path to transport paper to the duplex (ADU) section or to discharge paper to the right tray.
2	ADU reverse gate		Switches the transport route of paper to the duplex (ADU) section.



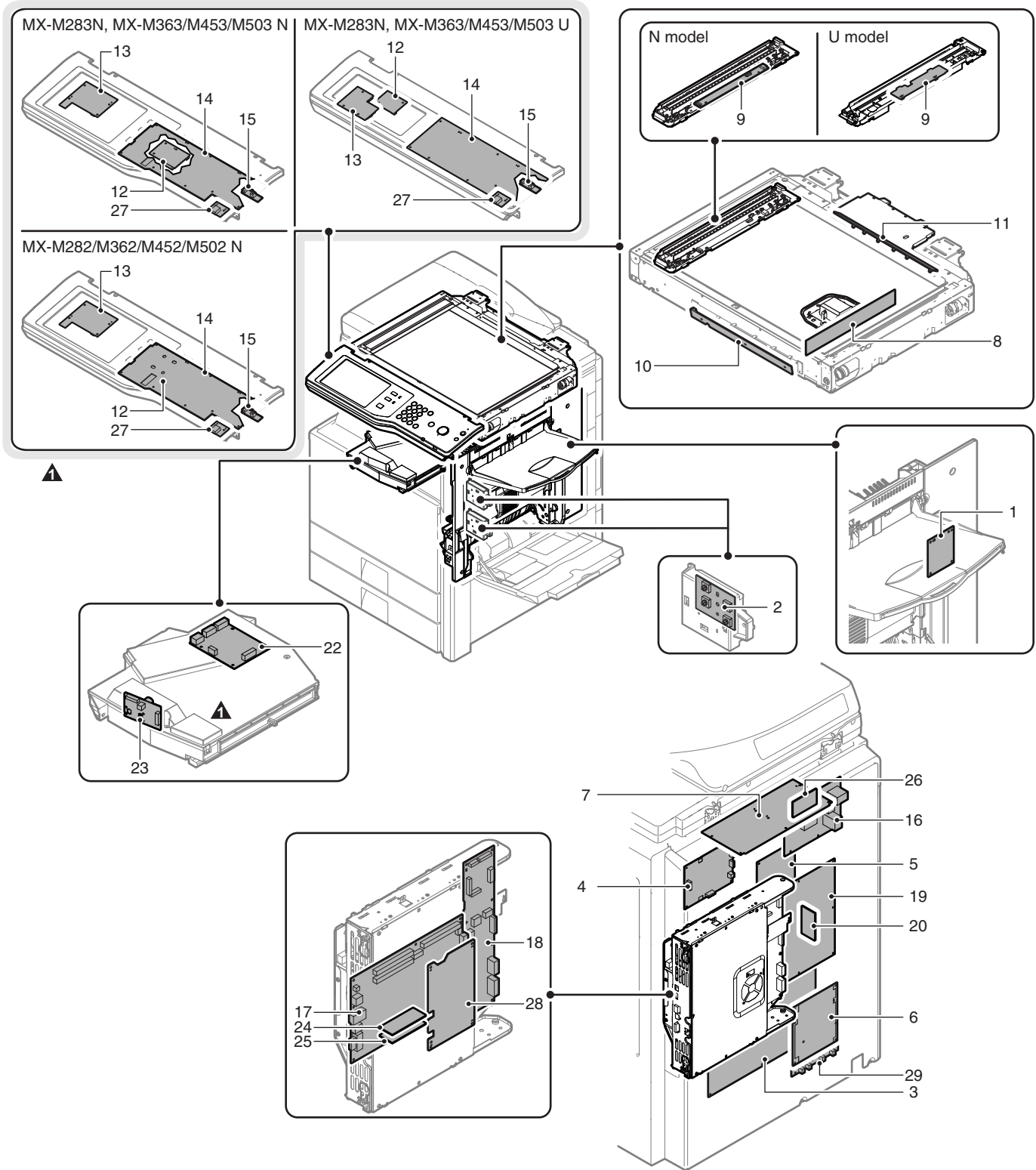
## L. Fans and filters



Signal name	Name	Function/Operation
CPUFAM	MFP PWB cooling fan	Cools the MFP PWB.
LSUFM	LSU cooling fan	Cools the LSU section.
OZFM	Ozone fan	Exhausts ozone.
PSFM1	Power cooling fan 1	Cools the power unit.
PSFM2	Power cooling fan 2	Cools the power unit.
POFM1	Paper exit cooling fan 1	Cools the fusing and the paper exit section.
POFM2	Paper exit cooling fan 2	Cools the fusing and the paper exit section.
POFM3	Paper exit cooling fan 3	Cools the fusing and the paper exit section.
RDCFM	Suction fan	Stabilizes paper transport.

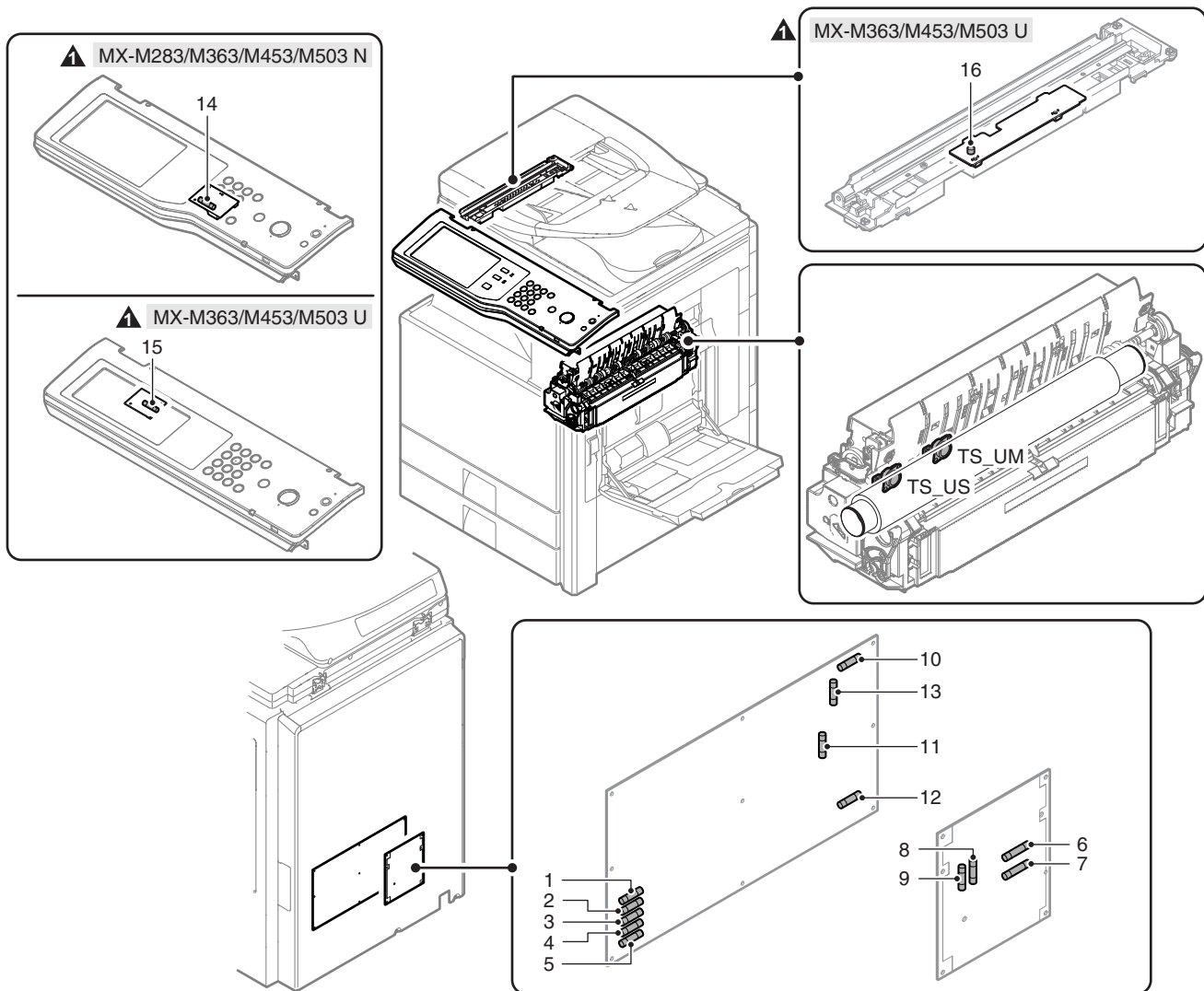
No.	Name	Function/Operation
1	Ozone filter	Absorbs ozone generated in the image process section.
2	Toner filter	Prevents dispersing of toner.

# M. PWB



No.	Name	Function/Operation
1	RD I/F PWB	Interfaces each sensor signal in the right door unit section.
2	Paper size detection PWB	Detects the paper size in the paper feed tray.
3	DC power PWB	Generates a DC voltage.
4	Motor drive PWB	Drives each motor in the paper transport section.
5	HV PWB	Generates the main charger voltage, the developing bias voltage, and the transfer voltage.
6	AC power PWB	Controls the power source in the primary side.
7	Scanner control PWB	Controls the scanner and the operation panel section.
8	CCD PWB	Scans document images.
9	LED drive PWB (N model) / Inverter PWB (U model)	Drives the scanner lamp.
10	Document detection light collector PWB	Outputs the document size detection signal.
11	Document detection light emitting PWB	Drives the document size detection LED.
▲ 12	LCD INV PWB (MX-M283N, MX-M363/M453/M503 N/U)	Generates the high voltage for the LCD back-light.
13	LVDS PWB	Converts display signals into LCD display signals.
14	MFP OPE PWB	Outputs the key operation signal.
15	Power SW PWB	Controls ON/OFF of the DC power source.
16	HL PWB	Controls the heater lamp.
17	MFP PWB	Controls data related to images, and controls the whole machine.
18	Mother PWB	Interfaces signals of the MFP PWB and another PWB.
19	PCU PWB	Controls the engine section.
20	PCU Flash ROM PWB	The ROM PWB that control the PCU PWB.
▲		
22	LSU PWB	Controls the LSU.
23	LD PWB	Controls laser lighting.
24	PROG1 ROM PWB	Program ROM PWB for booting the printer controller
25	PROG2 ROM PWB	MFP PWB program ROM PWB
26	SCN Flash ROM PWB	Scanner control program ROM PWB
27	USB I/F PWB	USB I/F
28	Scanner function expansion PWB (Option for N model)	Controls compression and decompression of image data.
29	WH PWB (Service kit: Dehumidifier heater)	Controls the dehumidifier heater.

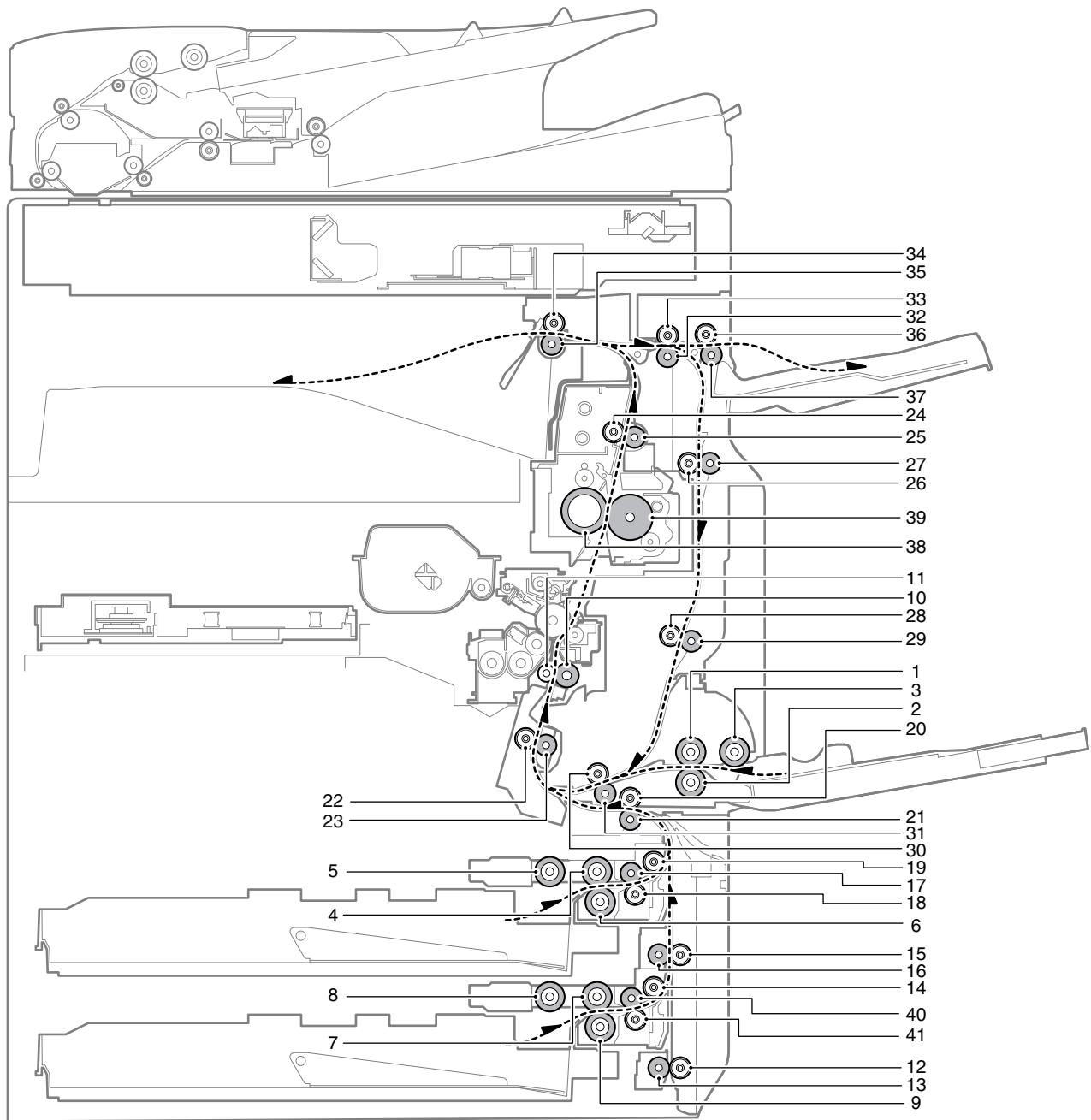
## N. Fuses/Thermostats



Signal name	Name	Specifications	Section
TS UM	Thermostat	Fusing roller overheat protection	Fusing unit
TS US	Thermostat	Fusing roller overheat protection	Fusing unit

No.	Signal name	Name	Specifications	Section
1	F201	Fuse	T6.3AH 250V	DC power PWB
2	F202	Fuse	T6.3AH 250V	DC power PWB
3	F203	Fuse	T6.3AH 250V	DC power PWB
4	F204	Fuse	T6.3AH 250V	DC power PWB
5	F205	Fuse	T6.3AH 250V	DC power PWB
6	F1	Fuse	15A 250V (100V) / T10AH 250V(200V)	AC power PWB
7	F2	Fuse	T10AH250V (200V only)	AC power PWB
8	F3	Fuse	T2AH 250V	AC power PWB
9	F4	Fuse	T2AH 250V (200V only)	AC power PWB
10	F101	Fuse	12A 125V (100V) / T6.3AH 250V (200V)	DC power PWB
11	F102	Fuse	T1AH 250V (100V) / T3.15AH 250V (200V)	DC power PWB
12	F103	Fuse	T8AH 250V (100V) / T5AH 250V (200V)	DC power PWB
13	F301	Fuse	T5AH 250V (100V) / T3.15AH 250V (200V)	DC power PWB
14	F1	Fuse	T0.8A 250V	LCD INV PWB (MX-M283/M363/M453/M503 N)
15	F1	Fuse	200mA 250V	LCD INV PWB (MX-M363/M453/M503 U)
16	F1	Fuse	1.25A 250V	CL inverter PWB (MX-M363/M453/M503 U)

## O. Rollers



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)	Sends 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)	Sends paper to the paper feed roller.
6	Separation roller (No. 1 paper feed tray)	Separates paper to prevent 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)	Sends paper to the paper feed roller.
9	Separation roller (No. 2 paper feed tray)	Separates paper to prevent 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 the transport power of the transport roller to the paper.
12	Transport roller 1 (Idle)	Applies a pressure to paper and the transport roller to give the transport power of the transport roller to the paper.
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 the transport power of the transport roller to the paper.
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 the transport power of the transport roller to the paper.
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 the transport power of the transport roller to the paper.
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 the transport power of the transport roller to the paper.
23	Transport roller 8 (Drive)	Transports the paper to resist roller.
24	Transport roller 9 (Idle)	Applies a pressure to paper and the transport roller to give the transport power of the transport roller to the paper.
25	Transport roller 9 (Drive)	Transports paper from the fusing roller to the transport roller 1.
26	Transport roller 10 (Idle)	Applies a pressure to paper and the transport roller to give the transport power of the transport roller to the paper.
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 the transport power of the transport roller to the paper.
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 the transport power of the transport roller to the paper.
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 to the duplex (ADU) section. / Transports paper to the paper exit roller 2.
33	Transport roller 13 (Idle)	Applies a pressure to paper and the transport roller to give the transport power of the transport roller to the paper.
34	Paper exit roller 1 (Idle)	Applies a pressure to paper and the paper exit roller to give the transport power of the paper exit roller to the paper.
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 paper exit roller to give the transport power of the paper exit roller to the paper.
37	Paper exit roller 2 (Drive)	Discharges paper.
38	Fusing roller (Heating)	Heat and press toner onto paper to fuse images.
39	Fusing roller (Pressing)	Applies a pressure to the fusing roller (heating).
40	Transport roller 14 (Drive)	Transports paper from the paper feed tray 2 to the transport roller 4.
41	Transport roller 14 (Idle)	Applies a pressure to paper and the transport roller to give the transport power of the transport roller to the paper.

## [4] ADJUSTMENTS AND SETTINGS

### 1. General

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

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

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

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

### 2. Adjustment item list

Job No	Adjustment item list			Simulation
ADJ 1	Adjust the developing unit	1A	Adjust the developing doctor gap	
		1B	Adjust the developing roller main pole position	
		1C	Toner density control reference value setting	25-2
ADJ 2	Adjusting high voltage values	2A	Adjust the main charger grid voltage	8-2
		2B	Adjust the developing bias voltage	8-1
		2C	Transfer current and voltage adjustment	8-6
		2D	Transfer separation bias voltage adjustment	8-17
ADJ 3	Print engine image skew, image position, image magnification ratio, void area adjustments (Manual adjustments)	3A	Print engine image skew adjustment (LSU parallelism adjustment)	64-2
		3B	Print engine image magnification ratio adjustment (Main scanning direction)	50-10
		3C	Print engine print area (void area) adjustment	50-10/50-1
		3D	Print engine image off-center adjustment	50-10
ADJ 4	Scan image distortion adjustment (OC mode)	4A	Scanner (reading) unit parallelism adjustment	
		4B	Scan image sub scanning direction distortion adjustment	
		4C	Scan image main scanning direction distortion adjustment	
		4D	Scan image distortion adjustment (Whole scanner unit)	
ADJ 5	Scanner image skew adjustment (DSPF/RSPF mode)	5A	DSPF/RSPF parallelism adjustment	
		5B	DSPF/RSPF skew adjustment (Front surface mode)	64-2
		5C	DSPF skew adjustment (Back surface mode)	64-2
ADJ 6	Scan image focus adjustment	6A	Image focus adjustment (Document table mode/DSPF/RSPF front surface mode)	48-1
		6B	Image focus adjustment (DSPF back surface mode)	
ADJ 7	Scan image magnification ratio adjustment (Manual adjustment)	7A	Main scanning direction image magnification ratio adjustment (Document table mode)	48-1
		7B	Sub scanning direction image magnification ratio adjustment (Document table mode)	48-1/48-5
		7C	Main scanning direction image magnification ratio adjustment (DSPF/RSPF mode)	48-1
		7D	Sub scanning direction image magnification ratio adjustment (DSPF/RSPF mode)	48-1
ADJ 8	Scan image off-center adjustment (Manual adjustment)	8A	Scan image off-center adjustment (Document table mode)	50-12
		8B	Scan image off-center adjustment (DSPF/RSPF mode)	50-12/50-6
ADJ 9	Print lead edge image position, void area adjustment (Printer mode)			50-5
ADJ 10	Copy image position, image loss, and void area adjustment (Manual adjustment)	10A	Copy image position, image loss, void area adjustment (Document table mode)	50-1
		10B	Document scan position adjustment (DSPF/RSPF mode scanner scan position adjustment)	53-8
		10C	Copy mode image loss adjustment (DSPF/RSPF mode)	50-6
ADJ 11	CCD calibration	11A	CCD gamma adjustment (CCD calibration) (Document table mode)	63-3/63-5
		11B	CIS gamma adjustment (CIS calibration) (DSPF mode) (DSPF-installed machine only)	63-3
		11C	Shading adjustment (Calibration) (DSPF mode) (DSPF-installed machine only)	63-2
ADJ 12	Copy quality adjustment (Auto printer density and gradation adjustment)	12A	Auto copy density and gradation adjustment, and auto printer density and gradation adjustment	46-24
		12B	Manual copy density and gradation adjustment	46-16
		12C	Copy density in each copy mode (Overall density adjustment) (Normally unnecessary to adjust)	46-2
		12D	Density and gradation adjustment in each copy mode (Normally not required)	46-10
		12E	Document background density reproducibility adjustment in the auto copy mode (Normally unnecessary to adjust)	46-32
		12F	Color document reproducibility adjustment in the copy mode (Normally unnecessary to adjust) (N model only)	46-37
		12G	Copy density and gradation adjustment (DSPF mode) (Individual adjustment of the low density area and the high density area) (In the case of DSPF)	46-9
		12H	Copy density and gradation adjustment (RSPF mode) (Individual adjustment of the low density area and the high density area) (In the case of RSPF)	46-9
		12I	Automatic copy and printer density and gradation adjustment by the user (Setting of ENABLE/DISABLE of the automatic copy density and gradation adjustment, and the adjustment)	
ADJ 13	Printer quality adjustment (Printer density and gradation adjustment)	13A	Manual printer density and gradation adjustment	67-25
ADJ 14	Automatic setting of exposure mode	operating conditions in copy, scan, and FAX		46-19
ADJ 15	Paper size detection adjustment	15A	Manual paper feed tray paper width sensor adjustment	40-2
		15B	DSPF/RSPF paper feed tray paper width sensor adjustment	53-6
ADJ 16	Document size detection adjustment (Document table mode)	16A	Document size sensor detection point adjustment	41-1
		16B	Adjust the sensitivity of the original size sensor	41-2

Job No	Adjustment item list			Simulation
ADJ 17	Touch panel coordinate setting			65-1
ADJ 18	Image lead edge position, image off-center, image magnification ratio adjustment (Automatic adjustment)	18A	Print image main scanning direction image magnification ratio automatic adjustment (Document table mode)	50-28
		18B	Image off-center automatic adjustment (Each paper feed tray)	50-28
		18C	Copy lead edge image reference position adjustment, image off-center, sub scanning direction image magnification ratio automatic adjustment (Document table mode)	50-28
		18D	Copy image off-center, image lead edge position, sub scanning direction image magnification ratio automatic adjustment (DSPF/RSPF mode)	50-28
ADJ 19	Fusing paper guide position adjustment			

### 3. Details of adjustment

#### ADJ 1 Adjust the developing unit

##### 1-A Adjust the developing doctor gap

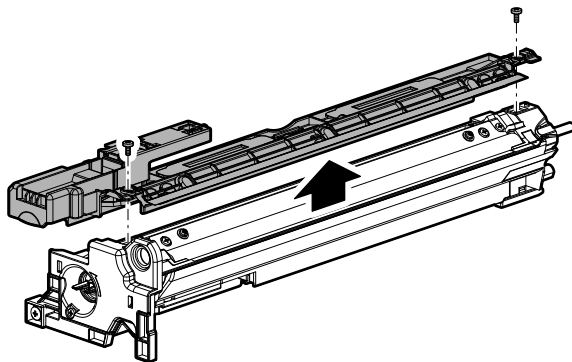
This adjustment is needed in the following situations:

- \* The developing unit has been 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.
- \* The toner is excessively dispersed.

NOTE: Be careful not to put fingerprints, oil, grease, or foreign materials on the roller during the work.

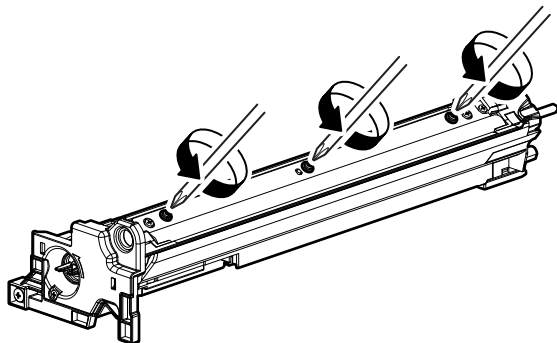
NOTE: Do not hold the adjacent section of the MG roller strongly.

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

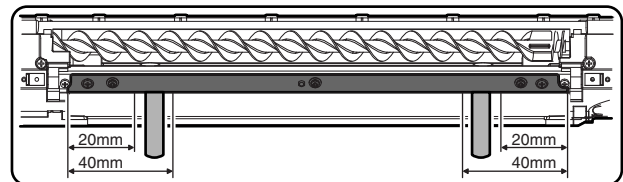


NOTE: All DV material must be removed before beginning step 2.

- 2) Loosen the developing doctor fixing screw.



- 3) Insert a thickness gauge of 0.40mm in between 20mm - 40mm 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 20mm - 40mm from the both sides of the developing doctor are in the range of  $0.40 \pm 0.02\text{mm}$ .
- \* When inserting a thickness gauge, be careful not to scratch the developing doctor and the developing roller.



Note for use of a thickness gauge

- Do not insert the gauge diagonally.
- The gauge must pass freely.
- The advisable point of measurement is the MIN point of the MG roller oscillation.

##### 1-B Adjust the developing roller main pole position

This adjustment is needed in the following situations:

- \* The developing unit has been 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.
- \* The toner is excessively dispersed.

NOTE: Be careful not to put fingerprints, oil, grease, or foreign materials on the roller during the work.

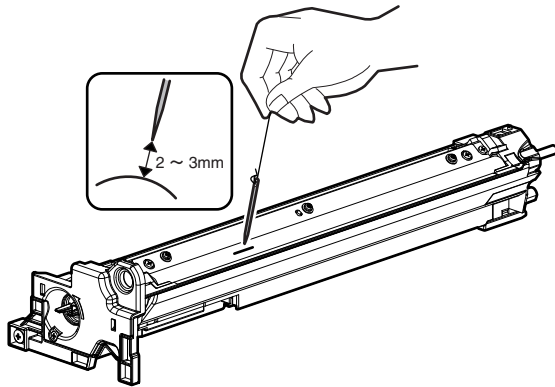
- 1) Remove the developing doctor cover, and place the developing unit on a flat surface.

NOTE: All DV material must be removed before beginning step 2.

- 2) Attach a piece of string to a sewing needle or pin.

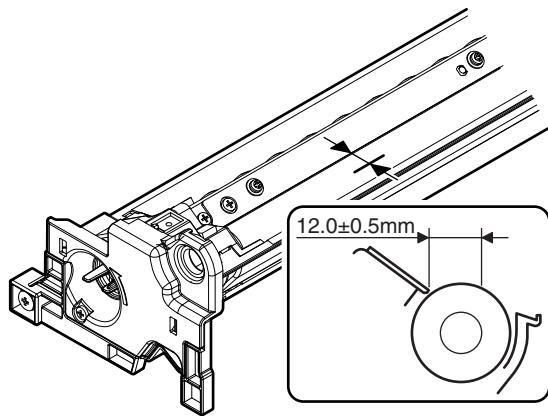


- 3) Hold the thread and bring the needle near the developing roller. (Do not use a paper clip because too heavy. It will not provide a correct position.)
- 4) Mark the developing roller surface on the extension line of the needle with the needle at 2 - 3mm from the developing roller surface. (Never touch the needle tip with the developing roller.)

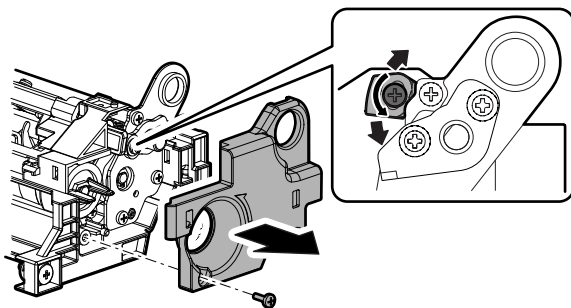


- 5) Measure the distance between the marking position and the doctor tip of the developing unit, and check that it is  $12.0 \pm 0.5\text{mm}$ .

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.

## 1-C Toner density control reference value setting

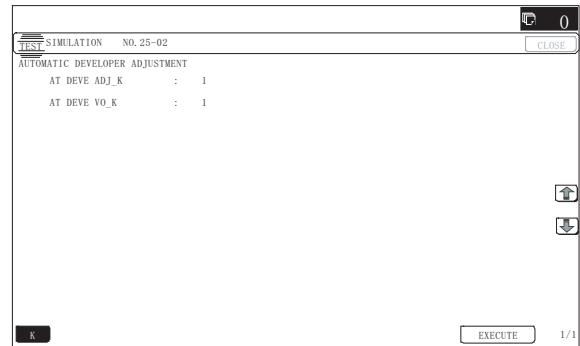
This adjustment is needed in the following situations:

- \* When developer is replaced.

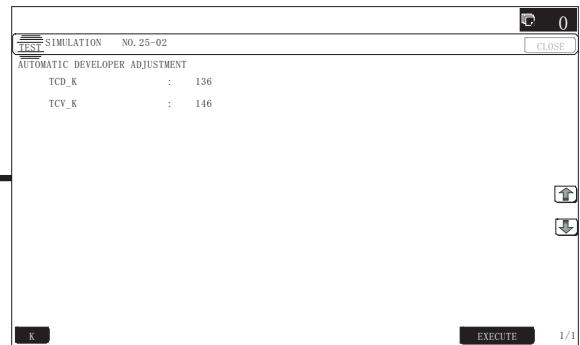
NOTE: Be sure to execute this adjustment only when developer is replaced. Never execute it in the other cases.

- 1) With the front cabinet open, enter SIM 25-2.

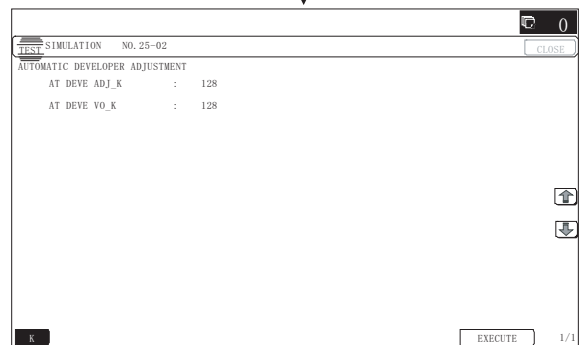
When setting the toner density control reference value, pull out the toner cartridge in advance.



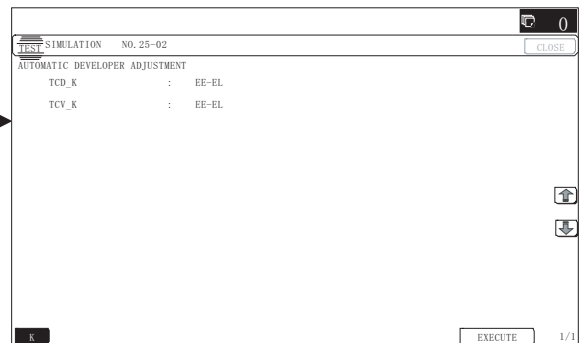
- 2) Close the front cabinet and press [EXECUTE] button.



Adjustment completed



Abnormal end



- After completion of the adjustment of the toner density control reference value, insert the toner cartridge.
- Close the front cabinet.
- When [EXECUTE] key is pressed, it is highlighted. The developing roller rotates, and the toner density sensor detects toner density, and the output value is displayed.

The above operation is executed for 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 returns to normal from highlight. This makes known about whether the adjustment operation is completed or not.

**NOTE:**

If the operation is interrupted within 3 minutes, the adjustment result is not reflected.

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

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

Error display	Content	Details of content
EE-EL	EL abnormality	Sensor output level less than 67, or sensor control voltage level over 197
EE-EU	EU abnormality	Sensor output level over 154, or sensor control voltage level less than 49
EE-EC	EC abnormality	Sensor output level less than 95, or sensor control voltage level over 105

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

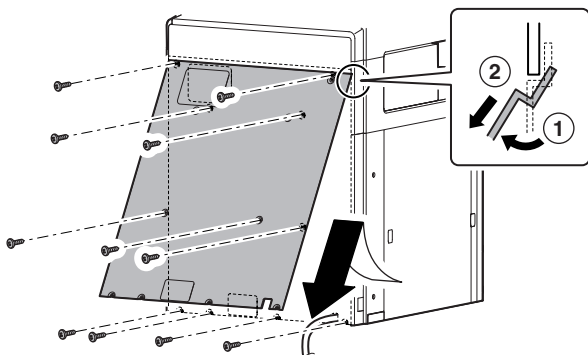
## ADJ 2 Adjusting high voltage values

### 2-A Adjust the main charger grid voltage

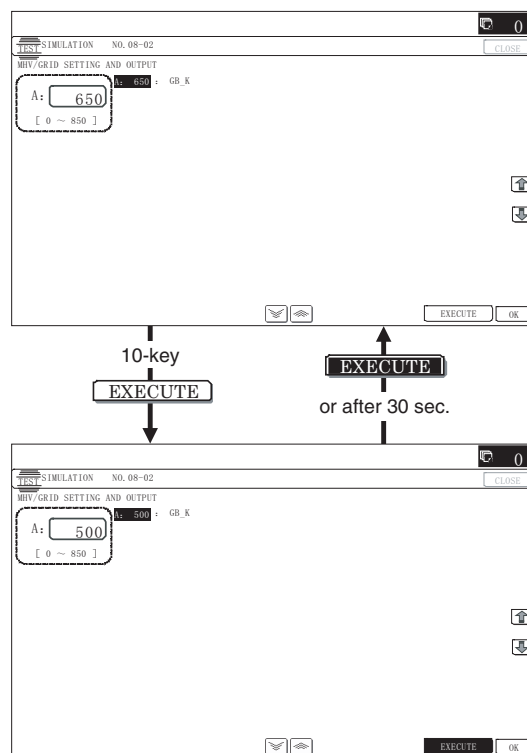
This adjustment is needed in the following situations:

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

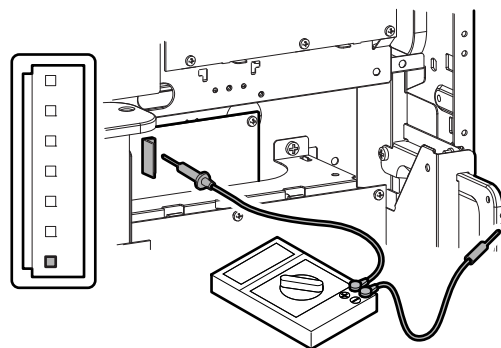
- Remove the rear cover of the machine.



- Enter the SIM 8-2 mode.



- Apply a digital multi-meter between the check pin 1 of the high voltage PWB and the GND.



- Press [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, use a old developer unit and OPC drum for this adjustment.
- Check the monitor voltage with the digital multi-meter.  
If the monitor voltage is not in the range of the specified values, change the adjustment value and adjust.

Item/Display	Content	Adjustment value (Monitor voltage)	Setting range	Default value
A	GB_K K charging/grid bias set value	31.22 ± 0.26V	0 - 850	650

If the specified value voltage is not obtained even though the adjustment value is changed, the following parts may be defective.

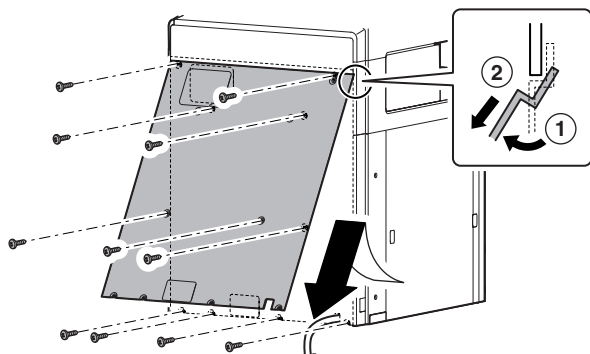
- High voltage PWB
- PCU PWB
- MC unit
- OPC drum unit
- High voltage circuit electrode

## 2-B Adjust the developing bias voltage

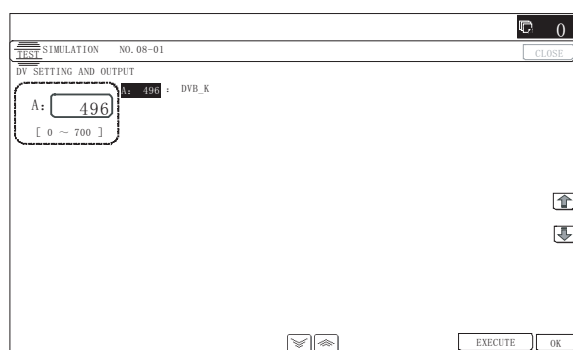
This adjustment is needed in the following situations:

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

1) Remove the rear cover of the machine.



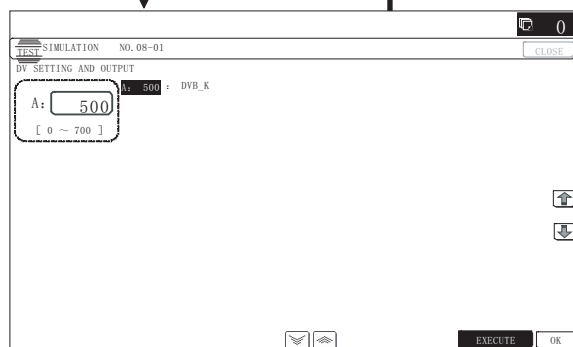
2) Enter the SIM 8-1 mode.



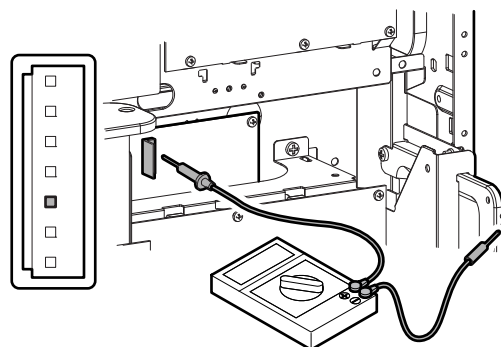
10-key

EXECUTE

or after 30 sec.



3) Apply a digital multi-meter between the check pin 3 of the high voltage PWB and the GND.



4) Press [EXECUTE] key.

The main charger voltage is outputted for 30sec.

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

Item/Display		Content	Adjustment value (Monitor voltage)	Setting range	Default value
A	DVB_K	K developing bias set value	0.84 ± 0.02V	0 - 700	496

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

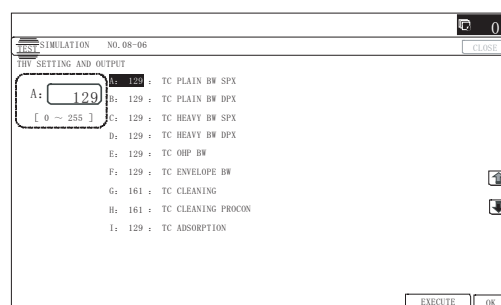
- High voltage PWB
- PCU PWB
- Developing unit
- High voltage circuit electrode

## 2-C Transfer current and voltage adjustment

This adjustment is needed in the following situations:

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

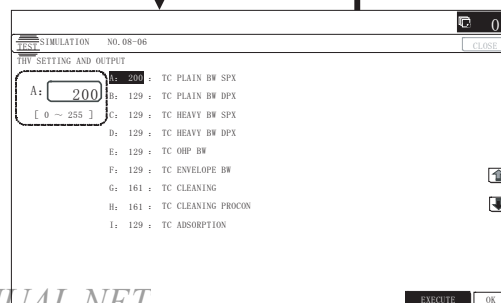
1) Enter the SIM 8-6 mode.



10-key

EXECUTE

or after 30 sec.



- 2) Select a mode to be adjusted with the scroll key.
- 3) Enter an adjustment value (specified value) and press [OK] key.  
By setting the default value, the specified voltage is outputted.  
When [EXECUTE] key is pressed, the transfer voltage is outputted.

Item/Display		Content				Setting range	Default value	
							28/36 PPM model	45/50 PPM model
A	TC PLAIN BW SPX	Transfer current	Black/ White	Standard paper mode	Front surface	0 - 255	113	129
B	TC PLAIN BW DPX				Back surface	0 - 255	113	129
C	TC HEAVY BW SPX			Heavy paper mode	Front surface	0 - 255	113	129
D	TC HEAVY BW DPX				Back surface	0 - 255	113	129
E	TC OHP BW			OHP mode		0 - 255	113	129
F	TC ENVELOPE BW			Envelope mode		0 - 255	113	129
G	TC CLEANING	Transfer cleaning bias voltage	Cleaning in the normal operation mode			0 - 255	161	161
H	TC CLEANING PROCON		Cleaning in the process control mode			0 - 255	161	161
I	TC ADSORPTION	Transfer current between paper				0 - 255	113	129

## 2-D Transfer separation bias voltage adjustment

This adjustment is needed in the following situations:

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

- 1) Enter the SIM 8-17 mode.

10-key  
EXECUTE

EXECUTE  
or after 30 sec.

- 2) Select a mode to be adjusted with the scroll key.
- 3) Enter an adjustment value (specified value) and press [OK] key.  
By setting the default value, the specified voltage is outputted.  
When [EXECUTE] key is pressed, the transfer separation bias voltage is outputted.

Item/Display	Content	Setting range	Default value
A	PLV (FACE)	0 - 255	170
B	PLV (BACK)	0 - 255	170

## ADJ 3 Print engine image skew, image position, image magnification ratio, void area adjustments (Manual adjustments)

### 3-A Print engine image skew adjustment (LSU parallelism adjustment)

This adjustment is needed in the following situations:

- \* When the LSU unit is replaced.
- \* When the LSU unit is removed from the main unit.

- 1) Enter the SIM 64-2 mode.

- 2) Set the set items to the values shown below.

Item	Setting value
A	1
B	1
C	254
D	255

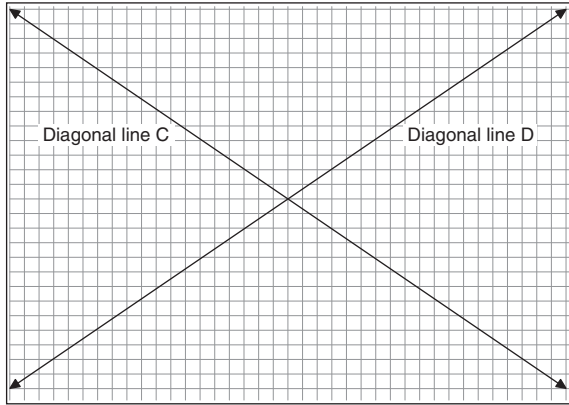
- 3) Select the paper feed tray with A3 (11" x 17") paper in it by changing the value of G.
- 4) Press [EXECUTE] key.  
The check pattern is printed out.
- 5) Check the printed image for any skew.  
Measure the right angle level by using the printed cross pattern.  
There are following two methods of checking the image for any skew (right angle).  
Method 1:  
Measure the maximum length of the diagonal lines of the rectangle print pattern. Check the difference in the length of the diagonal lines for judgment of good or no good.  
Method 2:  
Compare the right angle of vertical side and the horizontal side of the rectangle print pattern with the right angle 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 of the rectangle print pattern.



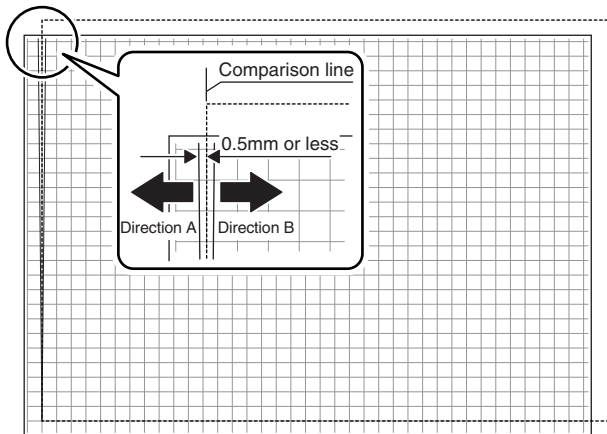
b) Calculate the difference between the measured lengths C and D of the diagonal lines.

c) Check to insure that the difference between C and D is in the following range.  $C - D = \pm 0.8\text{mm}$

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

**(Method 2)**

a) Fit the side of A3 or 11" x 17" paper to the long side of the rectangle print pattern.

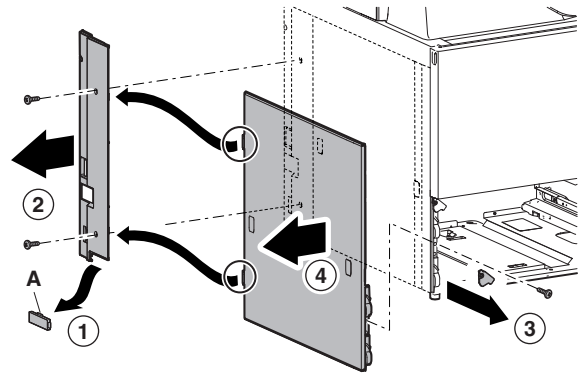


b) Measure the shift distance between vertical side of paper and side of the rectangle print pattern.

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

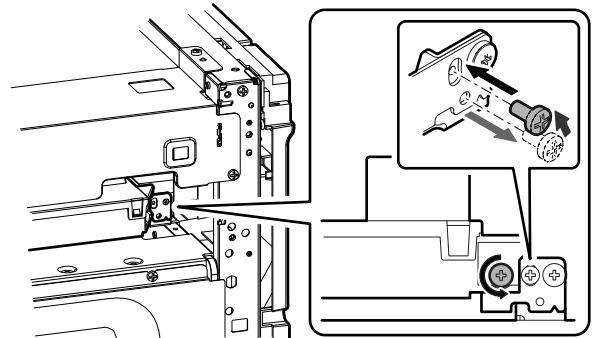
If not, execute the following procedures.

6) Remove the left cover and the paper exit tray cabinet.



7) When the LSU unit fixing screw is attached to the hole position on the lower side, remove the fixing screw and attach it to the hole on the upper side.

Loosen the fixing screw which is attached to the adjustment hole position on the upper side. Loosen the LSU fixing screw (left).



8) Move the LSU front frame side up and down to adjust.

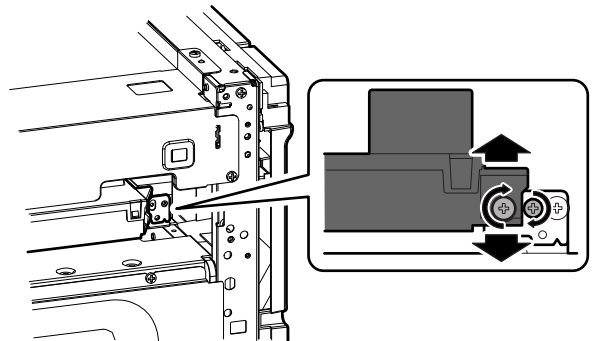
(When Method 1 is used to check the image for any skew (right angle) in procedure 5 in advance)

When  $C > D$  (the lengths of the diagonal lines), the LSU is shifted upward.

When  $C < D$  (the lengths of the diagonal lines), the LSU is shifted downward.

(When Method 2 is used to check the image for any skew (right angle) in procedure 5 in advance)

If the image is skewed in the arrow direction of A, to shift the LSU upward. If the image is skewed in the arrow direction of B, to shift the LSU downward.



9) Execute procedures 4) and 5).

(Repeat procedures 4), 5), 7) and 8) until a satisfactory result is obtained.)

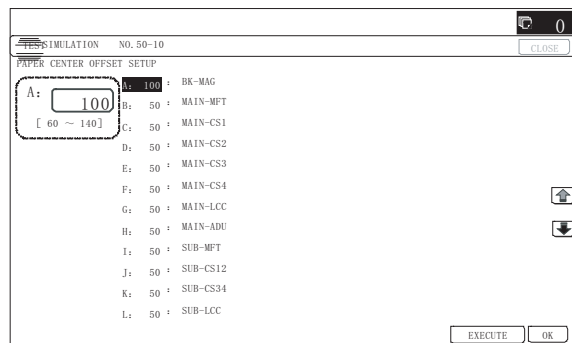
10) When the adjustment result reaches a satisfactory level, tighten the LSU unit fixing screws (at the left and at the center).

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

This adjustment is needed in the following situations:

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

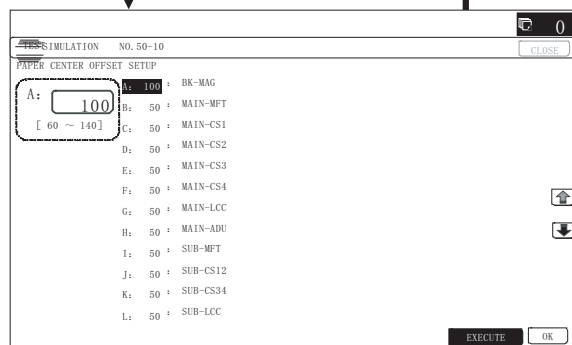
1) Enter the SIM 50-10 mode.



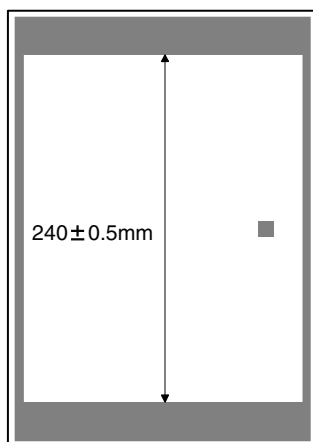
EXECUTE

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



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

6) Change the set value of set item A.

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

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

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

### 3-C Print engine print area (void area) adjustment

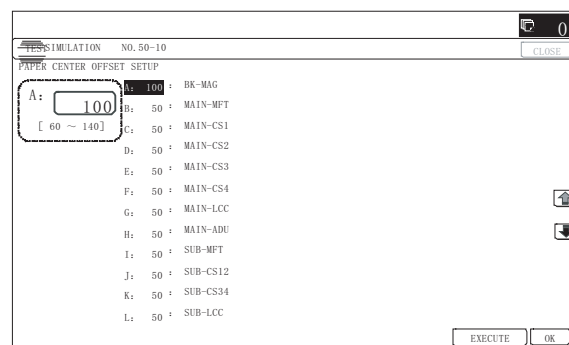
This adjustment is needed in the following situations:

- \* When the LSU is replaced or removed.
- \* When a paper tray is replaced.
- \* When the paper tray section is disassembled.
- \* When the manual feed tray is replaced.
- \* When the manual feed tray is disassembled.
- \* When the duplex 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 registration roller section is disassembled.
- \* U2 trouble has occurred.
- \* The PCU PWB has been replaced.
- \* The EEPROM of the PCU PWB has been replaced.

(Note)

Before executing this adjustment, be sure to execute ADJ 3B print engine image magnification ratio adjustment (Main scanning direction) in advance.

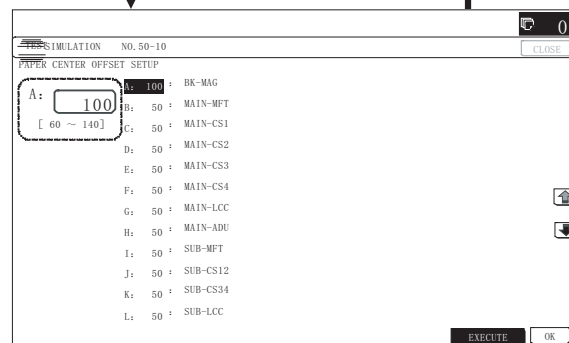
1) Enter the SIM 50-10 mode.



EXECUTE

EXECUTE

End of print

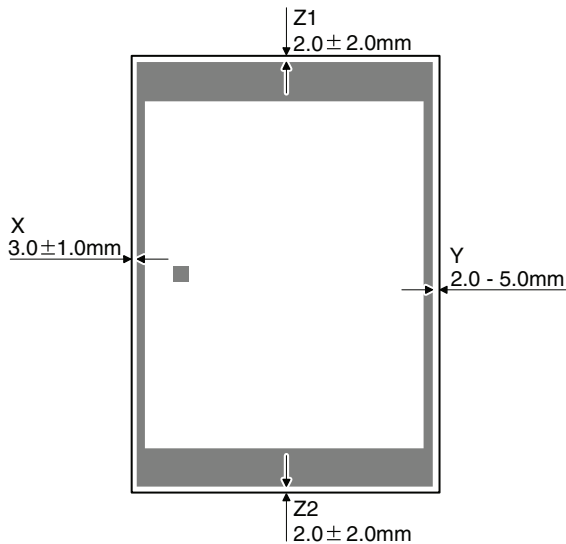


- 2) Set A4 (11" x 8.5") paper to all the trays, and select the set item J with the scroll key. Enter the value corresponding to the adjustment target paper feed tray.
- 3) Press [EXECUTE] key.  
The adjustment pattern is printed.



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

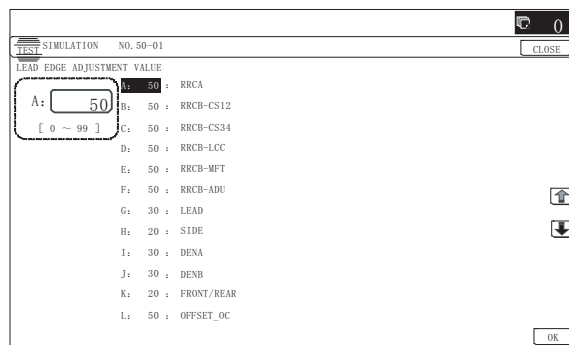
	Content	Standard adjustment value
X	Lead edge void area	$3.0 \pm 1.0\text{mm}$
Y	Rear edge void area	2.0 - 5.0mm
Z1/Z2	FRONT/REAR void area	$2.0 \pm 2.0\text{mm}$



If the above condition is not satisfied, or if it is set to a desired condition, execute the simulation 50-1.

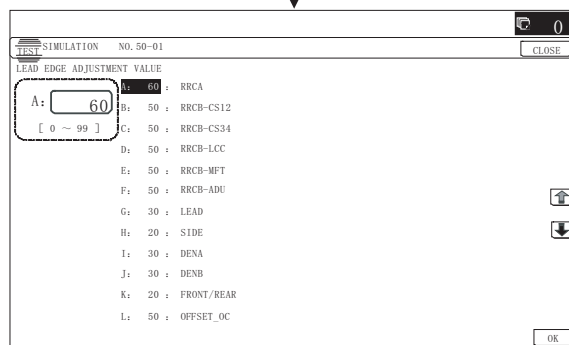
(Note) Feed paper from all the paper feed trays to confirm.

- 5) Enter the SIM 50-1 mode.



10-key

OK



- 6) Select the adjustment item I, J, K with the scroll key, and enter the adjustment value and press [OK] key.

Item/Display			Content	Setting range	Default value
A	Lead edge adjustment value	RRCA	Document lead edge reference position (OC)	0 - 99	50
B		RRCB-CS12	Resist motor ON timing adjustment	1 - 99	50
C		RRCB-CS34	Standard Tray	1 - 99	50
D		RRCB-LCC	Desk	1 - 99	50
E		RRCB-MFT	LCC	1 - 99	50
F		RRCB-ADU	Manual paper feed	1 - 99	50
G	Image loss area setting value	LEAD	Lead edge image loss area setting	0 - 99	30
H		SIDE	Side image loss area adjustment	0 - 99	20
I	Void area adjustment	DENA	Lead edge void area adjustment	1 - 99	30
J		DENB	Rear edge void area adjustment	1 - 99	30
K		FRONT/REAR	FRONT/REAR void area adjustment	1 - 99	20
L	Off-center adjustment	OFFSET_OC	OC document off-center adjustment	1 - 99	50
M	Magnification ratio correction	SCAN_SPEED_OC	SCAN sub scanning magnification ratio adjustment (CCD)	1 - 99	50
N	Sub scanning direction	DENB-MFT	Manual feed correction value	1 - 99	50
O	print area correction value	DENB-CS1	Tray 1 correction value	1 - 99	50
P		DENB-CS2	Tray 2 correction value	1 - 99	50
Q		DENB-CS3	Tray 3 correction value	1 - 99	50
R		DENB-CS4	Tray 4 correction value	1 - 99	50
S		DENB-LCC	LCC correction value	1 - 99	50
T		DENB-ADU	ADU correction value	1 - 99	66

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

NOTE: When the amount of the rear edge void is different between each paper feed tray, change the adjustment value of item N, O, P, Q, R, S, T (DENB-XXX) in SIM50-1 and adjust.

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

That is, adjustment value of item N, O, P, Q, R, S, T (DENB-XXX) fine adjusts to adjustment item J (DENB) for each paper tray.

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

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

Repeat the above procedures until a satisfactory result is obtained.

### 3-D Print engine image off-center adjustment

This adjustment is needed in the following situations:

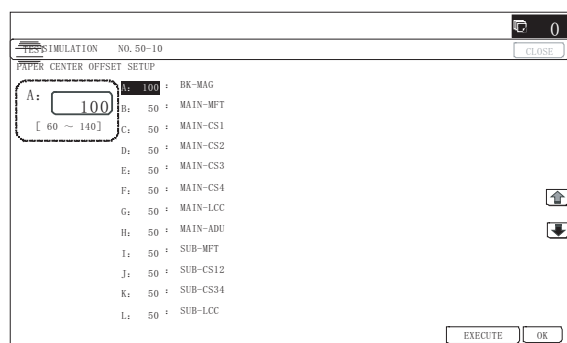
- \* When the LSU is replaced or removed.
- \* When a paper tray is replaced.
- \* When the paper tray section is disassembled.
- \* When ADJ 3B Print engine image magnification ratio adjustment (Main scanning direction) is performed.
- \* When the manual feed tray is replaced.
- \* When the manual feed tray is disassembled.
- \* When the duplex section is disassembled.
- \* When the duplex section is installed or replaced.
- \* When the large capacity paper feed tray is installed or replaced.
- \* When the large capacity paper feed tray section is disassembled.
- \* When the registration roller section is disassembled.
- \* U2 trouble has occurred.
- \* The PCU PWB has been replaced.
- \* The EEPROM of the PCU PWB has been replaced.

(Note)

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

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

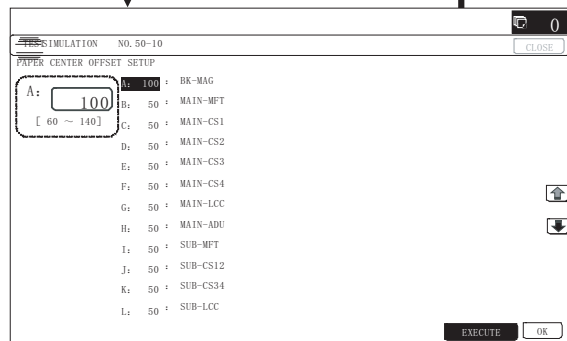
- 1) Enter SIM 50-10 mode.



EXECUTE

EXECUTE

End of print



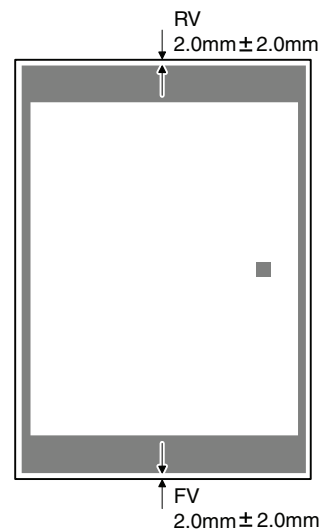
- 2) Use the scroll key to select a paper feed tray which is to be adjusted. (Items B - H)

Item/Display		Content	Setting range	Default value
A	BK-MAG	Main scan print magnification ratio BK	60 - 140	100
B	MAIN-MFT	Print off center adjustment value (Manual paper feed)	1 - 99	50
C	MAIN-CS1	Print off center adjustment value (Tray 1)	1 - 99	50
D	MAIN-CS2	Print off center adjustment value (Tray 2)	1 - 99	50

Item/Display			Content	Setting range	Default value		
E	MAIN-CS3		Print off center adjustment value (Tray 3)	1 - 99	50		
F	MAIN-CS4		Print off center adjustment value (Tray 4)	1 - 99	50		
G	MAIN-LCC		Print off center adjustment value (LCC)	1 - 99	50		
H	MAIN-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	SUB-MFT		Registration motor ON	Manual paper feed	1 - 99	50	
J	SUB-CS12		Timing adjustment	Standard tray	1 - 99	50	
K	SUB-CS34			DESK	1 - 99	50	
L	SUB-LCC			LCC	1 - 99	50	
M	SUB-ADU			ADU	1 - 99	50	
N	MULTI COUNT		Number of print		1 - 999	1	
O	PAPER	MFT	Tray selection	Manual paper feed	1 - 6	1	2 (CS1)
		CS1		Tray 1		2	
		CS2		Tray 2		3	
		CS3		Tray 3		4	
		CS4		Tray 4		5	
		LCC		LCC		6	
		P		DUPLEX		YES	
	NO	No	No	1			

- 3) Set A4 (11" x 8.5") paper in the paper feed tray selected in procedure 2).
- 4) Press [EXECUTE] key.  
The adjustment pattern is printed.
- 5) Check that the adjustment pattern image is printed in the correct position.

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



RV: REAR VOID AREA  
FV: FRONT VOID AREA  
RV + FV ≤ 4.0mm  
RV = 2.0 ± 2.0mm  
FV = 2.0 ± 2.0mm

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



- 6) Change the adjustment value.

Enter the adjustment value and press the [OK] key or the [EXECUTE] key.

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

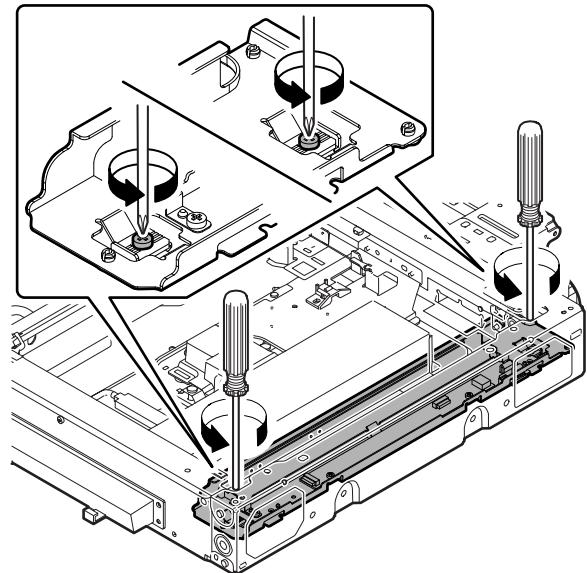
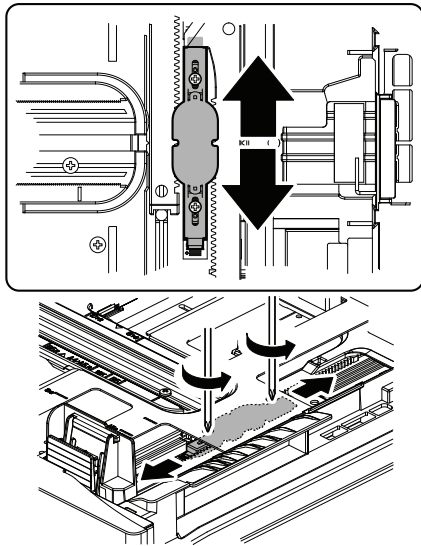
When the adjustment value is increased, the adjustment pattern is shifted to the front frame side. When it is decreased, the adjustment pattern is shifted to the rear frame side.

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

Repeat procedures 3) - 6) until the conditions of procedure 5) are satisfied.

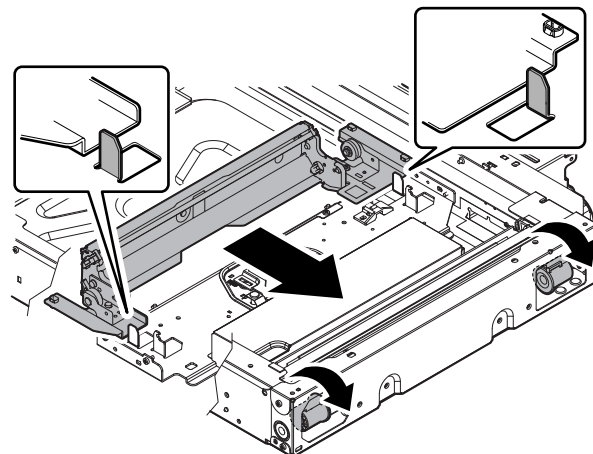
In case a satisfactory result cannot be obtained by repeating the above procedures, perform the following procedure.

- 7) 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/rear frame direction. Repeat the adjustment procedures from 4).



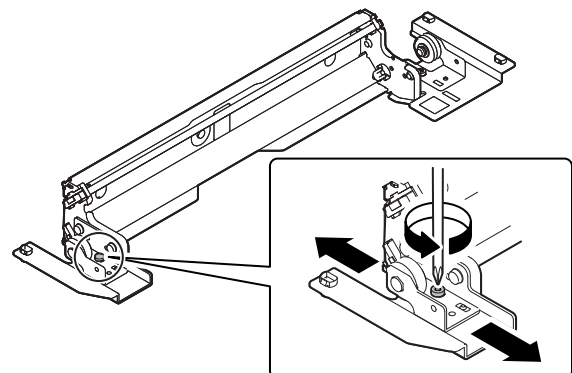
- 2) Turn the scanner drive pulley manually and shift the scanner unit B to bring it into contact with the stopper.

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 this requirement is not met, do the following steps.

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



- 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 on the front and the rear frames simultaneously.

## ADJ 4 Scan image distortion adjustment (OC mode)

This adjustment is needed in the following situations:

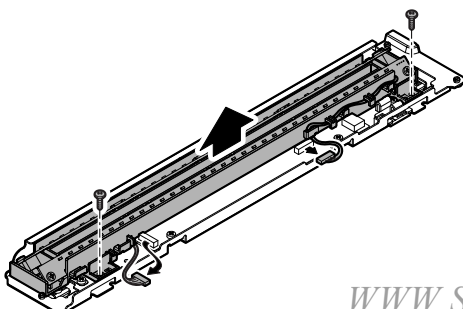
- \* When the scanner (reading) section is disassembled.
- \* When the copy image is distorted.

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

Before execution of this adjustment, remove the document table glass.

#### N model

- 1) Remove the LED lamp unit, and then loosen the screws which are fixing the scanner unit A and the drive wire. Release the scanner unit A from the drive wire.

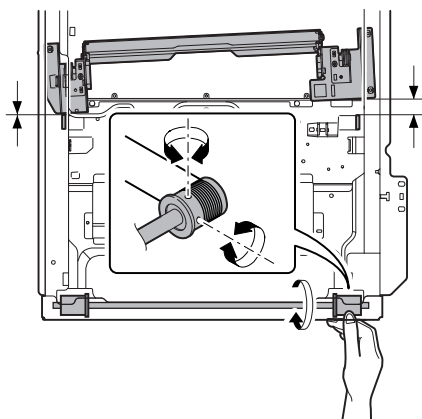


- 5) Fix the pulley angle on the front frame side of the scanner unit B.

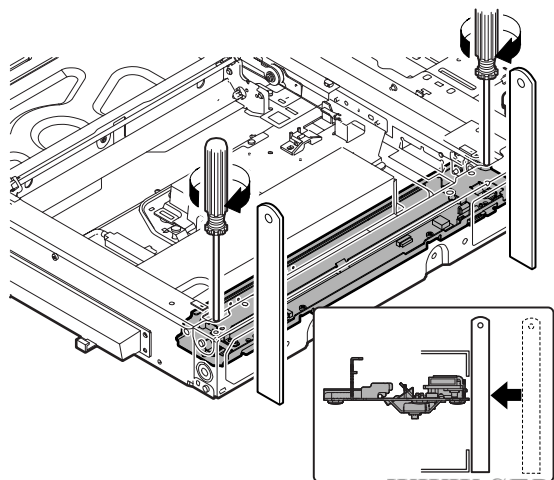
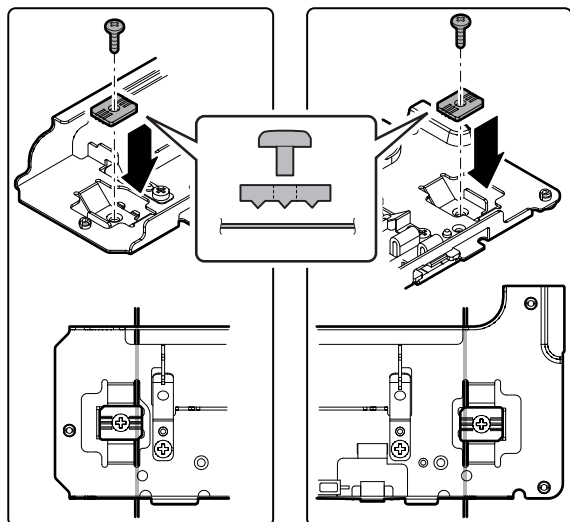
If a satisfactory result is not obtained from the above procedures, perform the following procedures.

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.

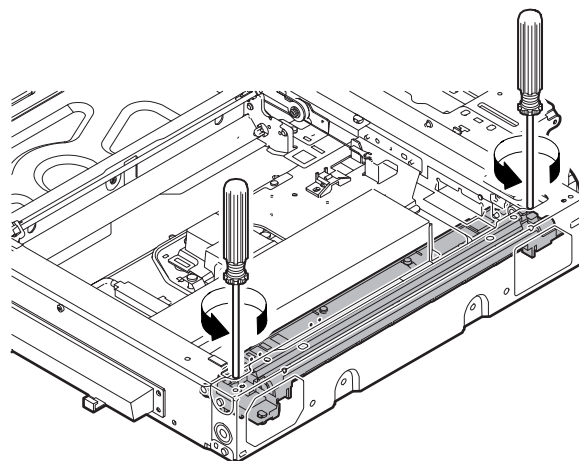


- 6) With the scanner unit B in contact with both stoppers, fit the edge of the scanner unit A with the right edge of the frame, and fix the scanner unit A with the fixing screw.



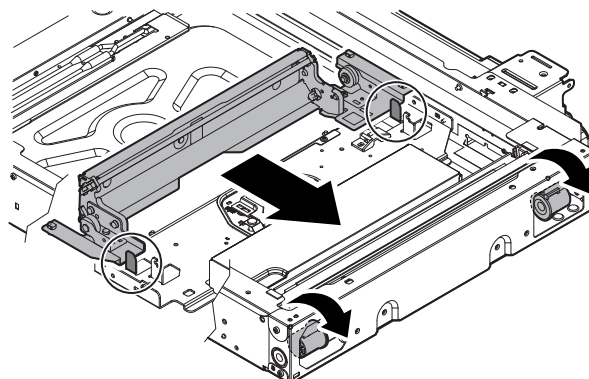
## U model

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



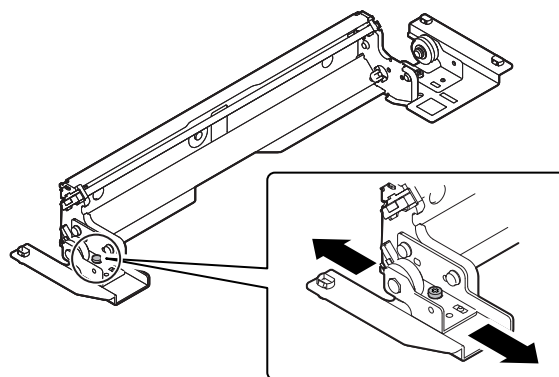
- 2) Turn the scanner drive pulley manually and shift the scanner unit B to bring it into contact with the stopper.

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 this requirement is not met, do the following steps.

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



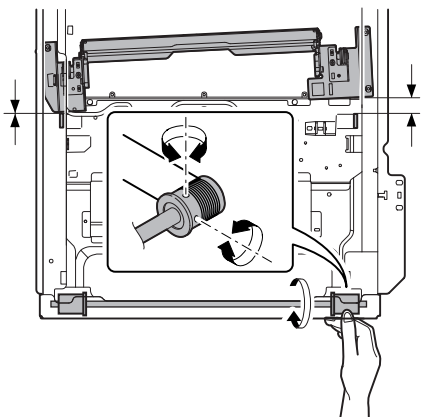
- 4) Adjust the position of the pulley angle on the front frame side of the scanner unit B so that it is in contact with two stoppers on the front and the rear frames simultaneously.

- 5) Fix the pulley angle on the front frame side of the scanner unit B.

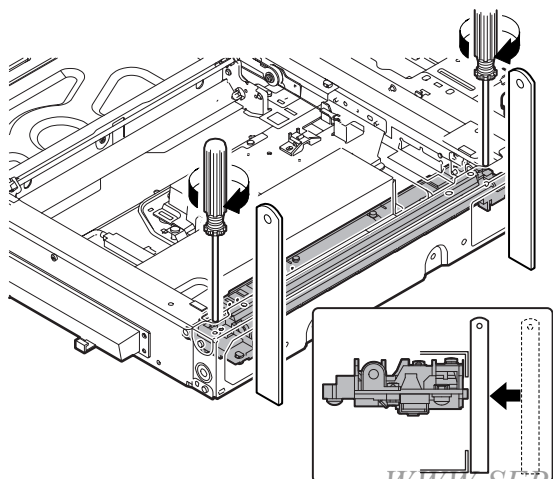
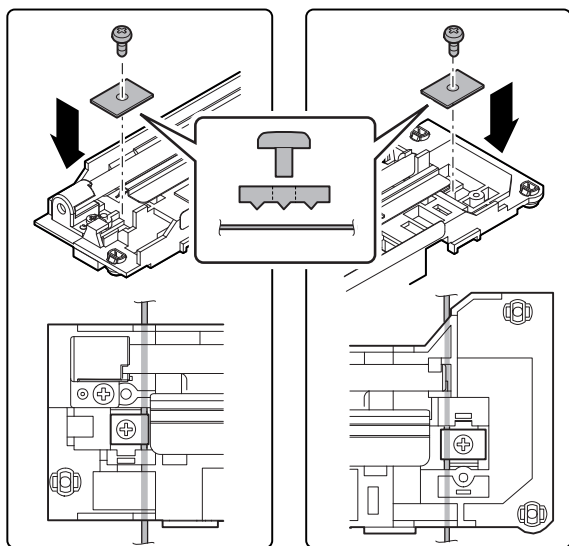
If a satisfactory result is not obtained from the above procedures, perform the following procedures.

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.

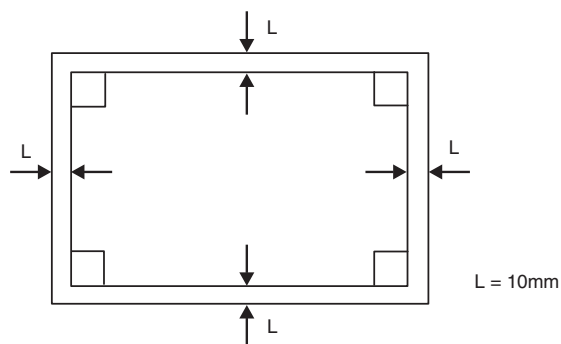


- 6) With the scanner unit B in contact with both stoppers, fit the edge of the scanner unit A with the right edge of the frame, and fix the scanner unit A with the fixing screw.

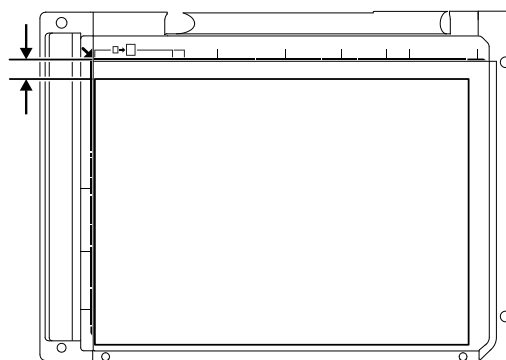


#### 4-B Scan image sub scanning direction distortion adjustment

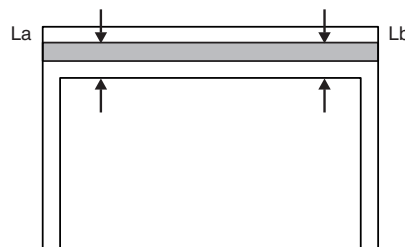
- 1) Make a test chart on A3 (11" x 17") paper as shown below. (Draw a rectangular with four right angles.)



- 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.

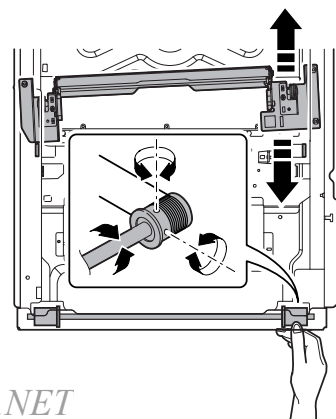


- 3) Check for distortion in the sub scanning direction. If  $L_a = L_b$ , there is no distortion.



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.)



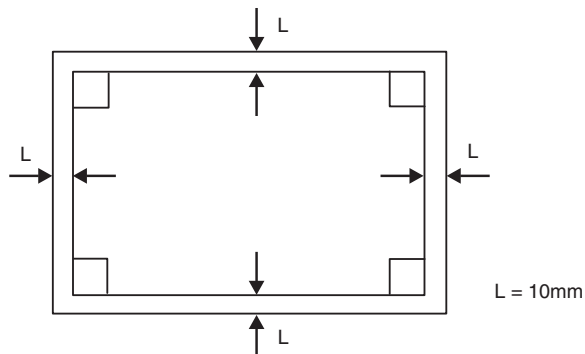
- 5) Without moving the scanner unit drive shaft, manually turn the scanner unit drive pulley to change the parallelism of the scanner unit A and B. (Change the relative position of the scanner unit drive pulley and the drive shaft.)
- 6) Tighten the scanner unit drive pulley fixing screw.

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

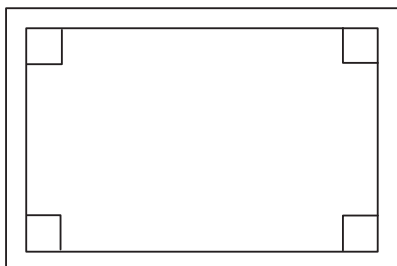
If the distortion in the sub scanning direction cannot be deleted with the above procedures, perform ADJ 4D Scan image distortion adjustment (Whole scanner unit).

#### 4-C Scan image main scanning direction distortion adjustment

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

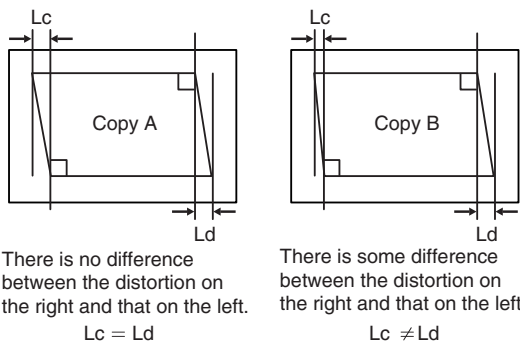


- 2) Set the test chart prepared in the procedure 1) on the document table, and make a copy on A3 (11" x 17") paper.
- 3) Check for distortion in the main scanning direction. If the four angles of the rectangle of the copy image are right angles, it is judged that there is no distortion. (The work is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



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

- 4) Check the difference (distortion balance) between left-hand and right-hand side images distortions.

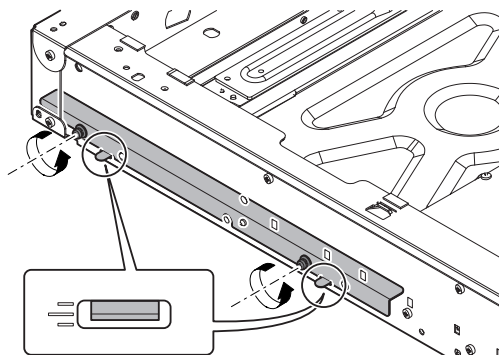


If  $L_c = L_d$ , the distortion on the left is equal to that on the right. (The distortions are balanced.)

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

If not, perform the following procedures. [WWW.SERVICE-MANUAL.NET](http://WWW.SERVICE-MANUAL.NET)

- 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) on the document table, 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.

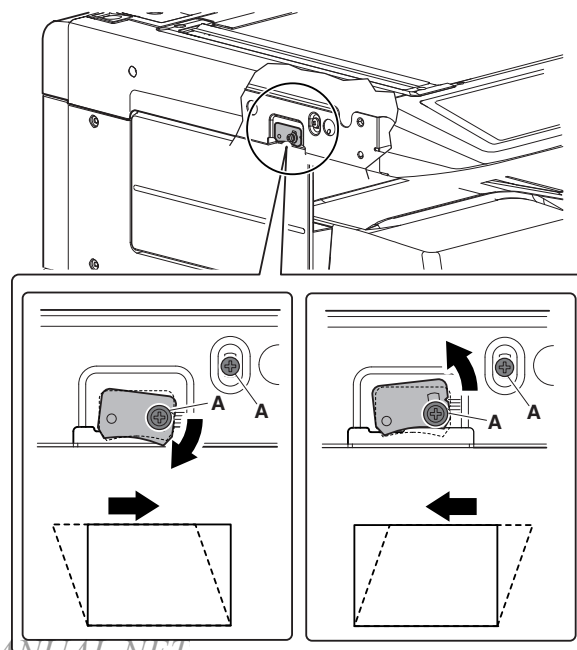
If the distortion in the sub scanning direction cannot be deleted with the above procedures, perform ADJ 4D Scan image distortion adjustment (whole scanner unit).

#### 4-D Scan image distortion adjustment (Whole scanner unit)

This adjustment is executed when scan image distortion cannot be adjusted with ADJ 4A, ADJ 4B, and ADJ 4C 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.

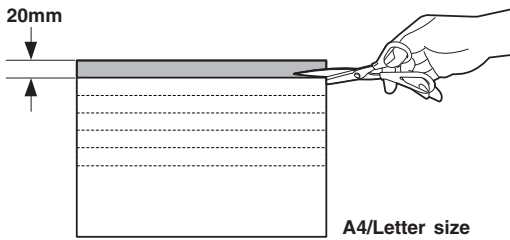
- 1) Loosen the fixing screw (A).
- 2) Adjust the scanner unit distortion adjustment plate.



## ADJ 5 Scanner image skew adjustment (DSPF/RSPF mode)

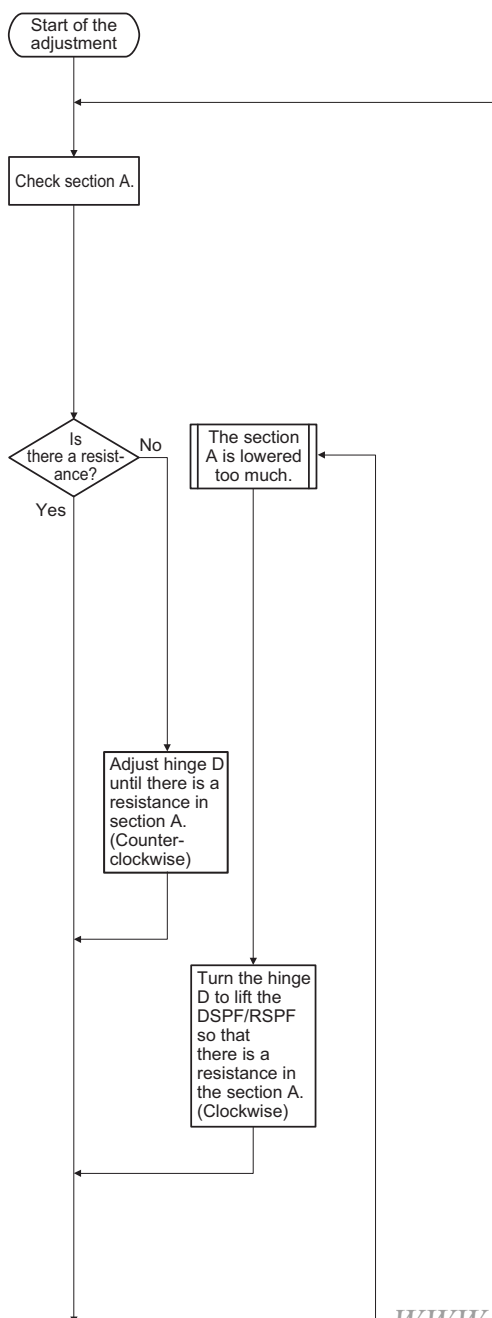
### 5-A DSPF/RSPF parallelism adjustment

- 1) Make a DSPF/RSPF parallelism adjustment sheet.  
Cut copy paper in the longitudinal direction.



- 2) Perform the adjustment according to the flowchart below.

<Flow chart>



<Work procedure>

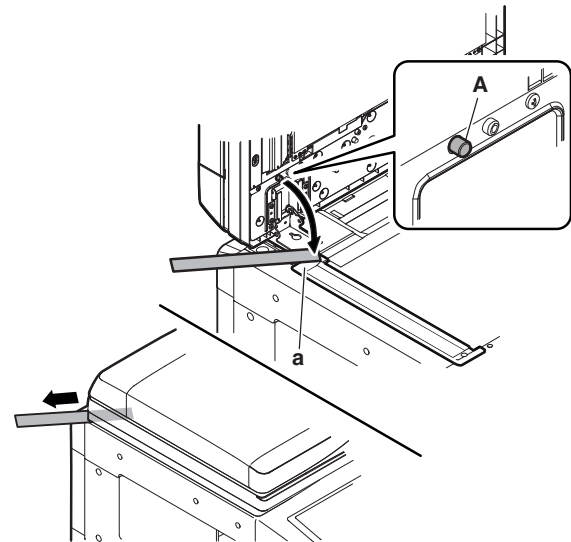
- a) Check section A.

Place the DSPF/RSPF height adjustment sheet between section A and the DSPF/RSPF glass height adjustment resin surface (a), and close the DSPF/RSPF unit.

Slowly pull out the DSPF/RSPF height adjustment sheet.

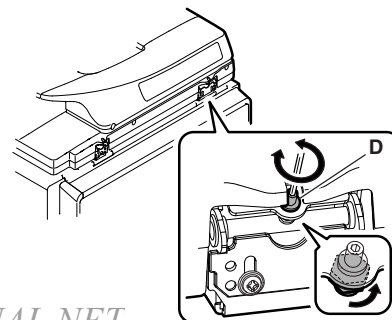
Check to insure that a slight resistance is felt when pulling out the DSPF/RSPF height adjustment sheet.

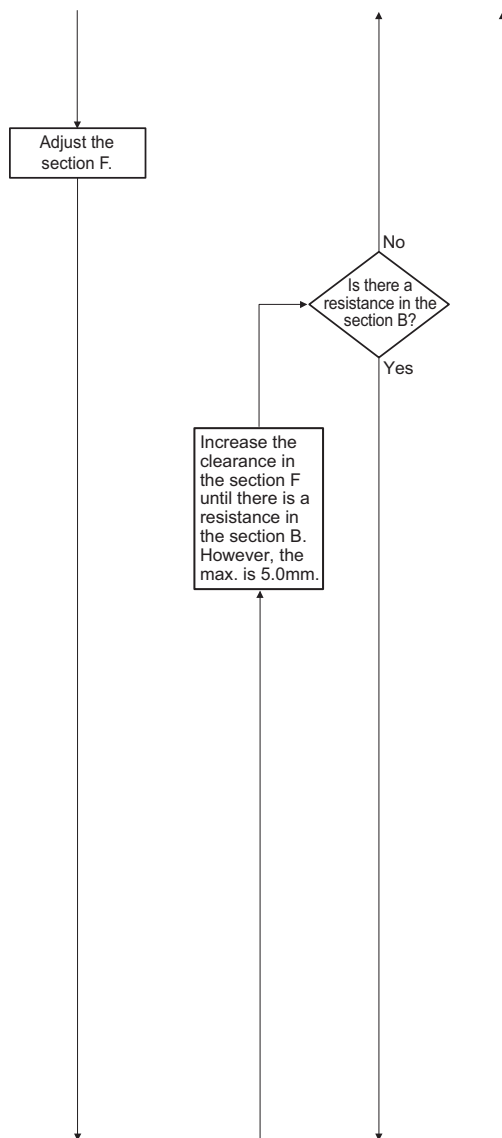
\* Be careful not to cover the convex section of the glass holding resin surface with the height adjustment sheet.



- b) If it cannot be pulled out, loosen the fixing nut and turn the section D clockwise to lift the DSPF/RSPF unit, and make an adjustment.

If it can be pulled out without resistance, loosen the fixing nut and turn the section D counterclockwise to move down the DSPF/RSPF unit, and make an adjustment.



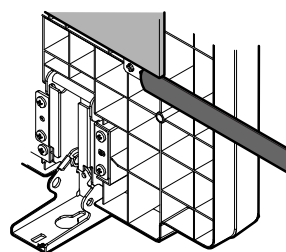
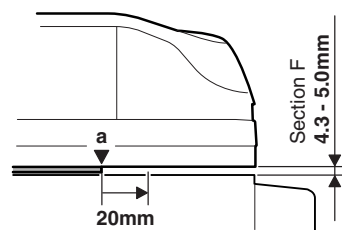


c) Adjust the section F.

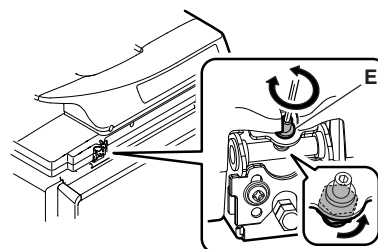
Use a clearance gauge to check to confirm that the clearance in the section F is 4.3mm - 5.0mm.

If not, loosen the fixing nut and turn the section E to adjust.

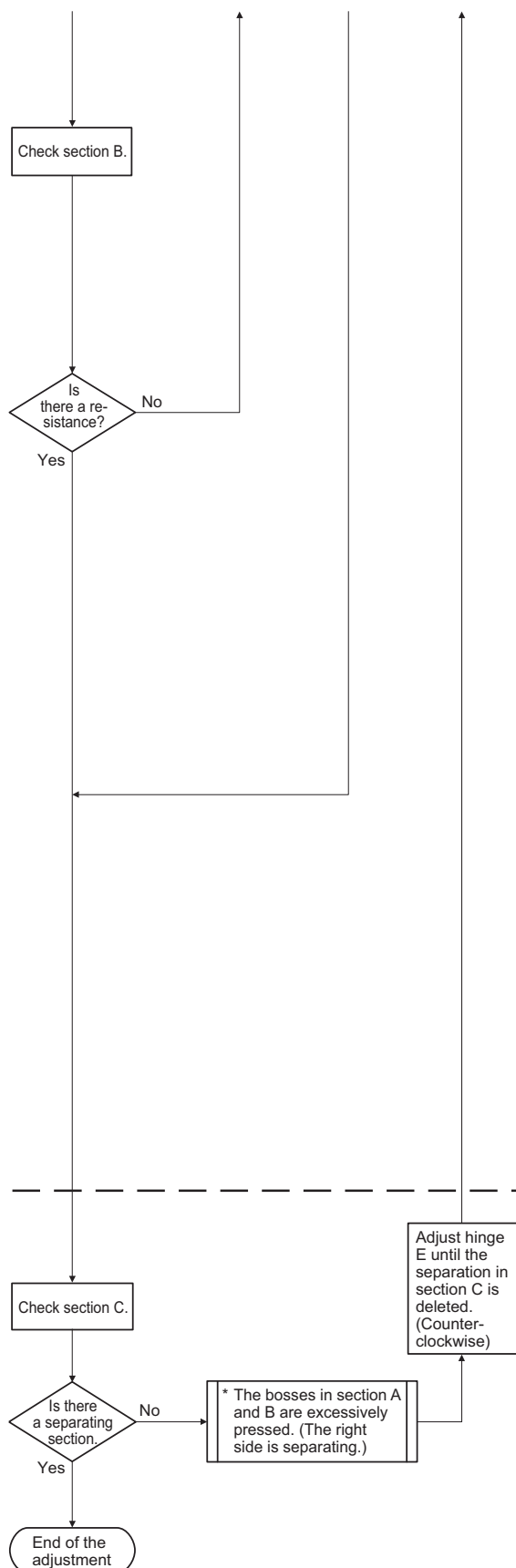
\* Insert a clearance gauge in the range of 20mm from the edge (a) of the OC mat.



\* Turn section E clockwise to lift the DSPF/RSPF unit. Turn it counterclockwise to move down the DSPF/RSPF unit.







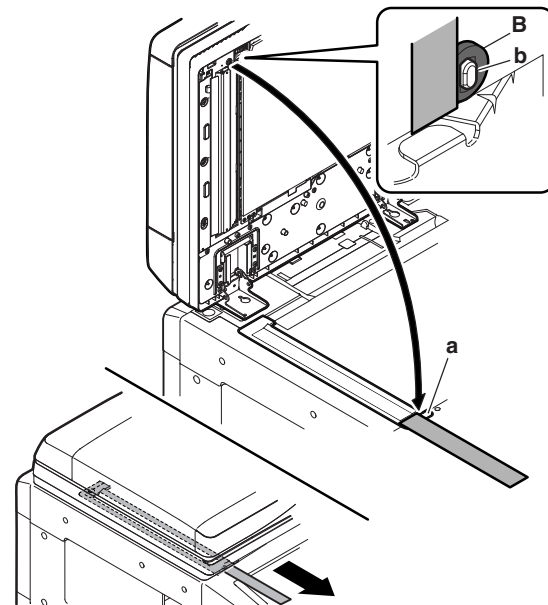
d) Check section B.

Place the DSPF/RSPF height adjustment sheet between section B and the DSPF/RSPF glass height adjustment resin surface (a), and close the DSPF/RSPF unit.

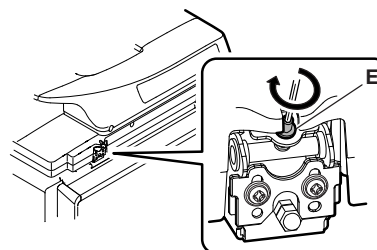
Slowly pull out the DSPF/RSPF height adjustment sheet.

Check to insure that a slight resistance is felt when pulling out the DSPF/RSPF height adjustment sheet. (If the boss in section B is in contact, it is O.K.)

\* Be careful not to put the book sensor (b) on the height adjustment sheet.

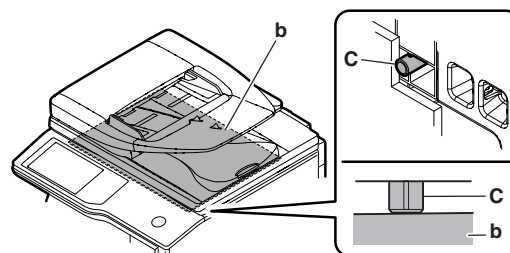


e) If it can be pulled out without resistance, turn the hinge in section E clockwise to adjust.



f) Check section C.

Check to confirm that the projection in section C in the right front side of the DSPF/RSPF bottom is in contact with the glass surface (b).



## 5-B DSPF/RSPF skew adjustment (Front surface mode)

This adjustment is needed in the following situations:

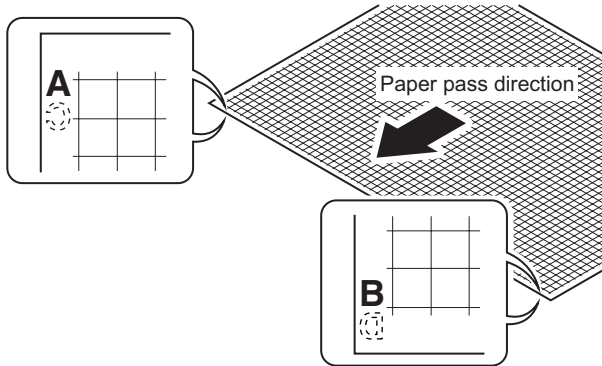
- \* The DSPF/RSPF section has been disassembled.
- \* When replacing the DSPF/RSPF unit.
- \* The DSPF/RSPF unit generates skewed scanned images.

- 1) Create an adjustment chart by printing in duplex mode the self-print pattern (grid pattern) specified in Simulation 64-2.

SIM 64-2 set values

A = 1, B = 1, C = 254, D = 255

Make sure that the print grid pattern is almost in parallel with the paper edges, and apply position marks 'A', 'B', 'C' and 'D' to the leading and trailing edges of the paper for both front and back sides of the paper.



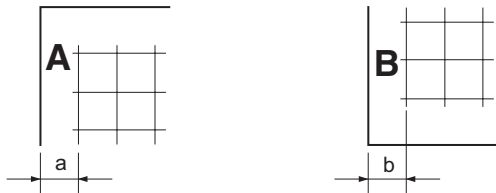
- 2) Copy the adjustment chart (created in step 1) to A3 (11" x 17") paper in DSPF/RSPF duplex mode, and then check the image for skews (Set in the DSPF/RSPF feed tray so that the mark on the adjustment chart is at the edge).

- Check with one of the following methods.

[Check Method 1]

(Front side)

Make sure that the output satisfies the condition:  $|a-b| \pm 1 \text{ mm}$



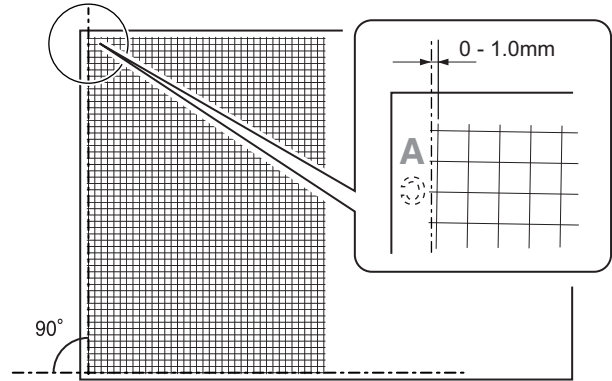
(Back side)

Make sure that the output satisfies the condition:  $|c-d| \pm 1 \text{ mm}$



[Check Method 2]

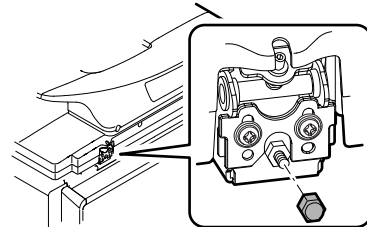
Check that the squareness of the main scanning direction print line for the longitudinal direction of paper is within 1.0mm.



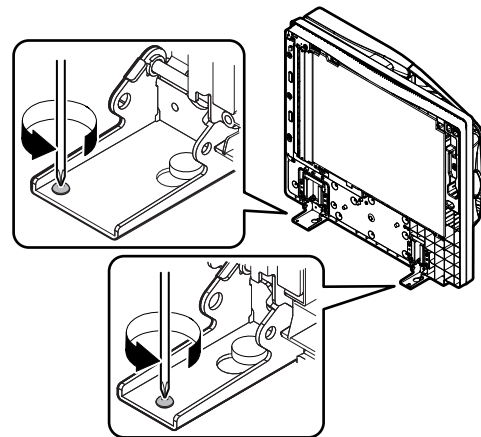
If the front surface copy image is as shown above and the back surface copy is not as shown above, go to the step 3) of "ADJ 5C DSPF skew adjustment (Back surface mode)".

If the above requirement is not met for the paper's front side, then do step 3).

- 3) Remove the hex nut cover in the DSPF/RSPF diagonal adjustment screw section.



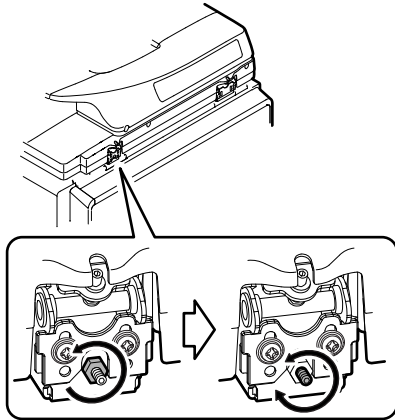
- 4) Raise the DSPF/RSPF unit upright, and loosen the fixing screw of the hinge.





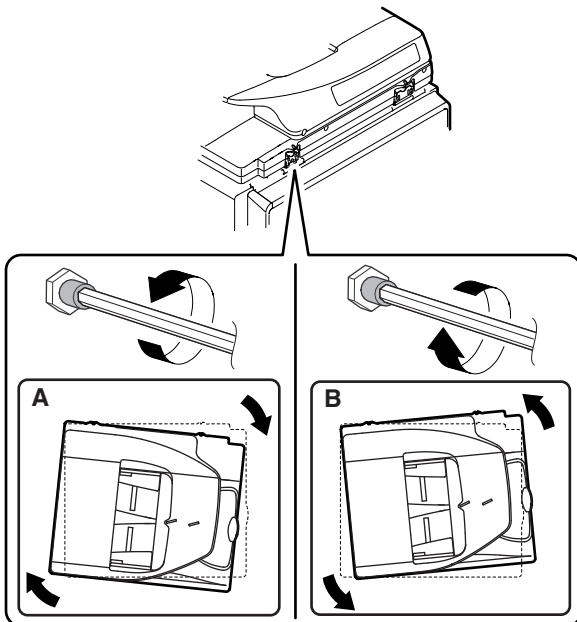
- 5) Close the DSPF/RSPF unit, and loosen the hex nut of the DSPF/RSPF diagonal adjustment screw section.

Turn the hex wrench of the DSPF/RSPF diagonal adjustment screw to adjust the alignment.

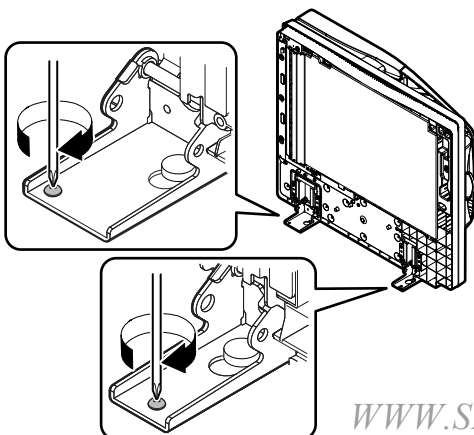


\* In the case of (A), turn the DSPF/RSPF diagonal adjustment screw counterclockwise.

In the case of (B), turn the DSPF/RSPF diagonal adjustment screw clockwise.



- 6) Make a copy again and measure (a) and (b) on the copied test chart. Repeat procedures 2) to 5) until the condition  $((a) - (b) = \pm 1\text{mm or less})$  is satisfied.
- 7) Tighten the hinge section fixing screw which was loosened in the procedure 4) to tighten the hinge section.



## 5-C DSPF skew adjustment (Back surface mode)

This adjustment is needed in the following situations:

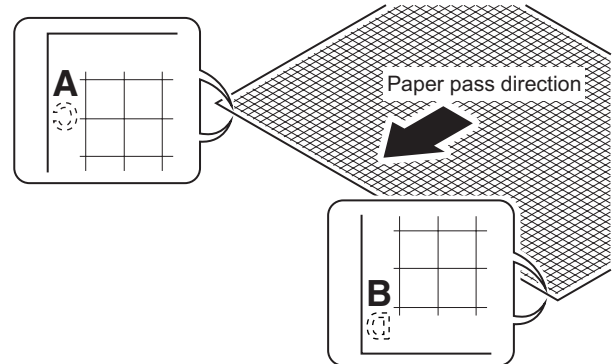
- \* The DSPF section has been disassembled.
- \* When replacing the DSPF unit.
- \* The DSPF unit generates skewed scanned images.

- 1) Create an adjustment chart by printing in duplex mode the self-print pattern (grid pattern) specified in Simulation 64-2.

SIM 64-2 set values

A = 1, B = 1, C = 254, D = 255

Make sure that the print grid pattern is almost in parallel with the paper edges, and apply position marks 'A', 'B', 'C' and 'D' to the leading and trailing edges of the paper for both front and back sides of the paper.



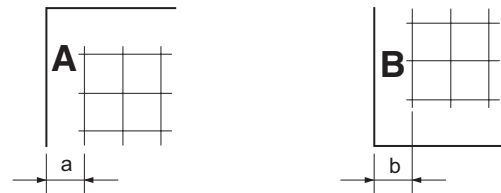
- 2) Copy the adjustment chart (created in step 1) to A3 (11" x 17") paper in DSPF duplex mode, and then check the image for skews (Set in the DSPF feed tray so that the mark on the adjustment chart is at the edge).

- Check with one of the following methods.

[Check Method 1]

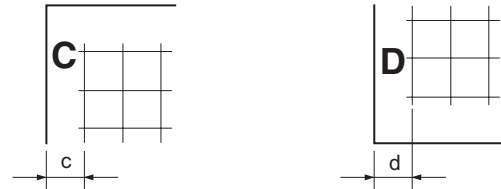
(Front side)

Make sure that the output satisfies the condition:  $|a-b| \pm 1\text{ mm}$



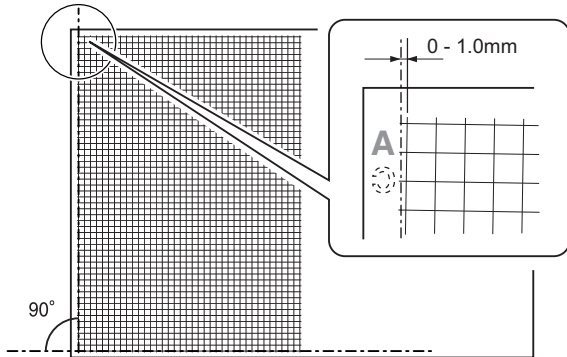
(Back side)

Make sure that the output satisfies the condition:  $|c-d| \pm 1\text{ mm}$



[Check Method 2]

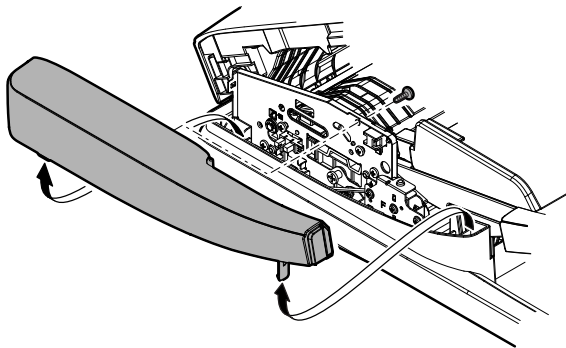
Check that the squareness of the main scanning direction print line for the longitudinal direction of paper is within 1.0mm.



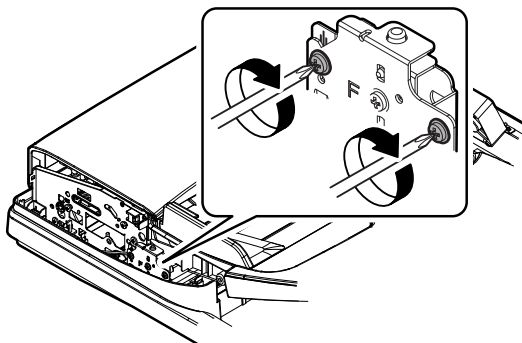
If the back surface copy image is as shown above and the front surface copy is not as shown above, go to the step 3) of "ADJ 5B DSPF skew adjustment (Front surface mode)".

If the back surface copy is not as shown above, perform the procedures of step 3) or later.

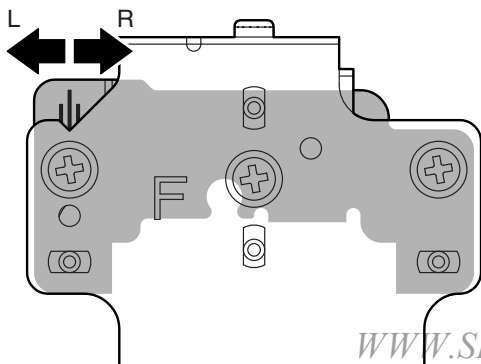
- 3) Remove the front frame cabinet of the DSPF.



- 4) Loosen the adjustment plate fixing screw. (On the front frame side)



- 5) Check the image skew state, and shift the CIS mounting plate to "L" or "R" direction to adjust.



[When the main scanning direction print line is shifted to the left]

(When  $c < d$ ): Shift the CIS mounting plate to "L" direction.

[When the main scanning direction print line is shifted to the right]

(When  $c > d$ ): Shift the CIS mounting plate to "R" direction.

Repeat steps 2) to 5) until an acceptable result is obtained.

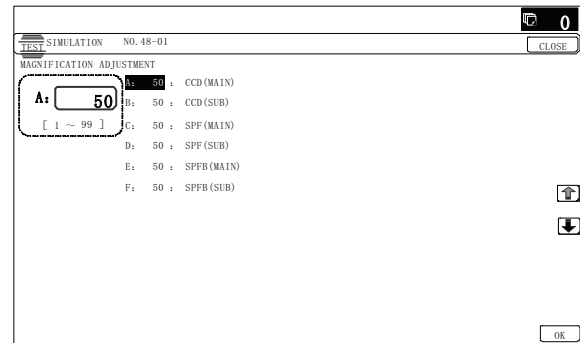
## ADJ 6 Scan image focus adjustment

### 6-A Image focus adjustment (Document table mode/DSPF/RSPF front surface mode)

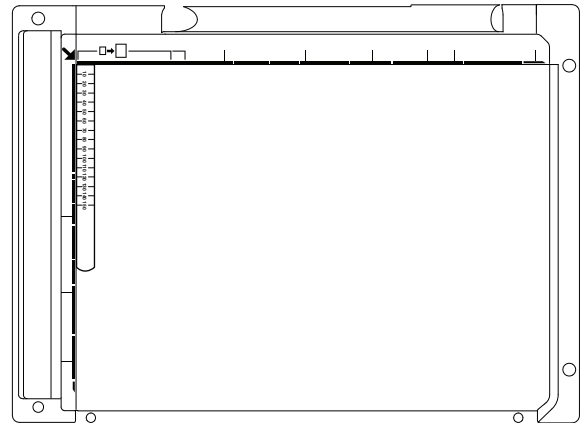
This adjustment is needed in the following situations:

- \* The CCD unit has been removed from the machine.
- \* The CCD unit has been 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.
- \* U2 trouble has occurred.

- 1) Enter the SIM 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 press [OK] key.
- 3) Place a scale on the original table as illustrated below.



- 4) Make a normal copy on A4 paper.  
Press [CLOSE] key to shift from the simulation mode to the copy mode, and make a copy.
- 5) Compare the copied image of the scale and the actual scale length in terms of length.

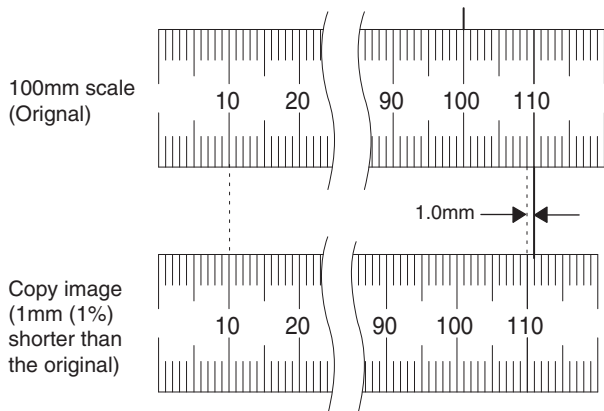
- 6) Obtain the copy magnification ratio correction ratio in the main scanning direction from the following formula.

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.

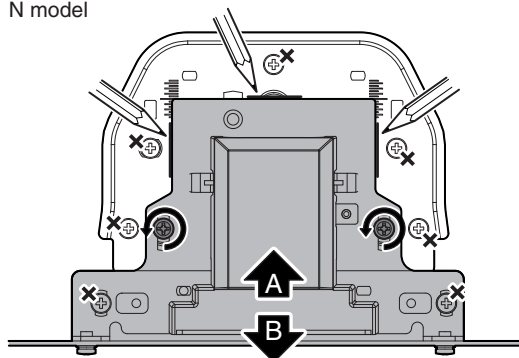
When the copy image is longer than the original scale, shift the CCD unit in the direction B. When the copy image is shorter than the original scale, shift the CCD unit in the direction A.

One scale of mark-off line corresponds to 0.2%.

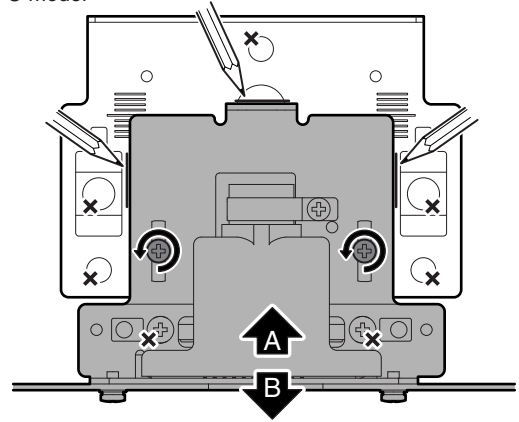
At that time, fix the CCD unit so that it is in parallel with the scale on the front and the rear side of the CCD unit base.

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

N model



U model



- 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.

## 6-B Image focus adjustment (DSPF back surface mode)

This adjustment is required in the following cases:

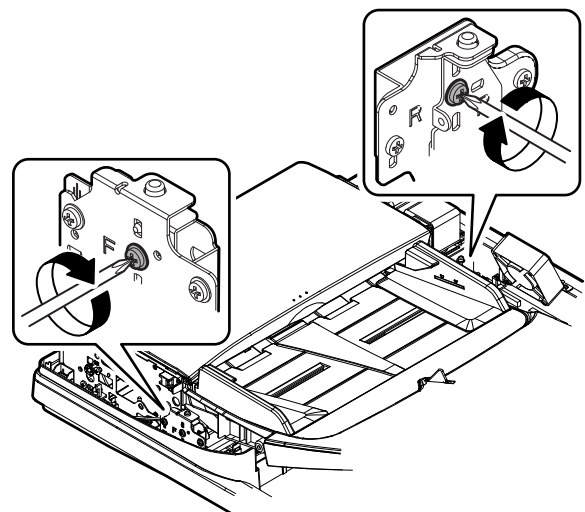
- \* When the CIS unit is replaced.
- \* When the CIS unit is replaced.
- \* When the COPY/SCAN/FAX image focus is not properly adjusted.
- \* When the DSPF unit is removed.
- \* When the DSPF unit is replaced.

- 1) Make a duplex copy in DSPF mode.
- 2) Make sure that the copied image on the back side of the paper is satisfactorily focused.

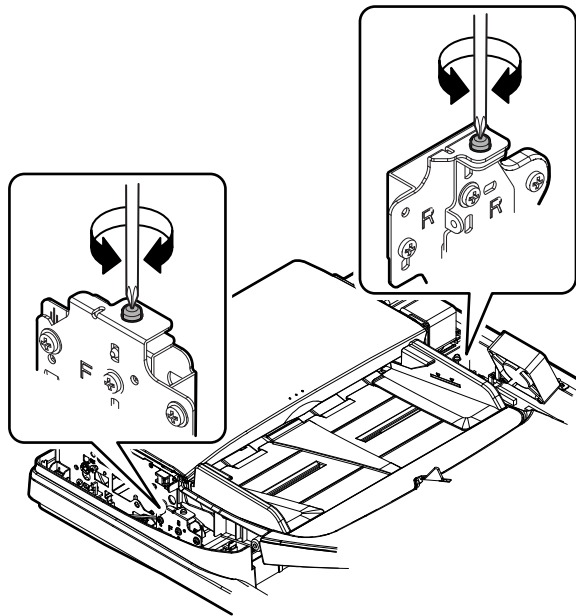
If the image is not satisfactorily focused, do the following steps.

- 3) Remove the rear frame and the front frame cabinet of the DSPF unit.
- 4) Loosen the fixing screw of the focus adjustment plate. (About one turn)

On the front frame side and the rear frame side.



- 5) Turn the CIS focus adjustment screws on the front and the rear frame sides to adjust the focus.



Repeat the above procedures until a satisfactory focus is obtained.

## ADJ 7 Scan image magnification ratio adjustment (Manual adjustment)

This manual adjustment is used when the automatic adjustment of SIM 50-28 cannot obtain a satisfactory result.

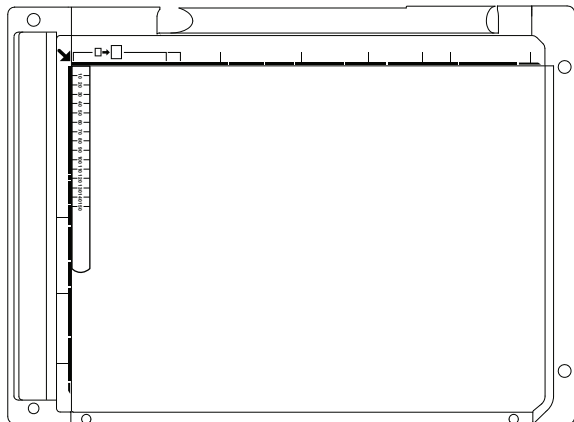
This adjustment is needed in the following situations:

- \* When the copy image magnification ratio 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.

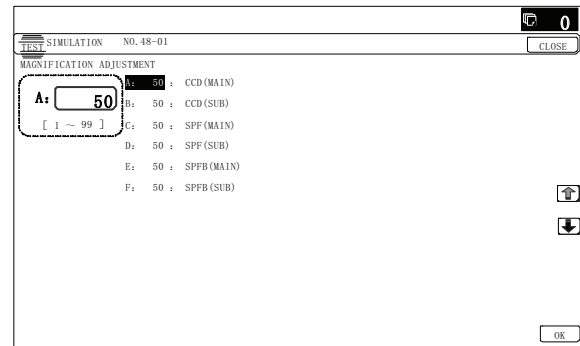
Before this adjustment, the focus adjustment (CCD unit installing position adjustment) must have been completed.

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

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



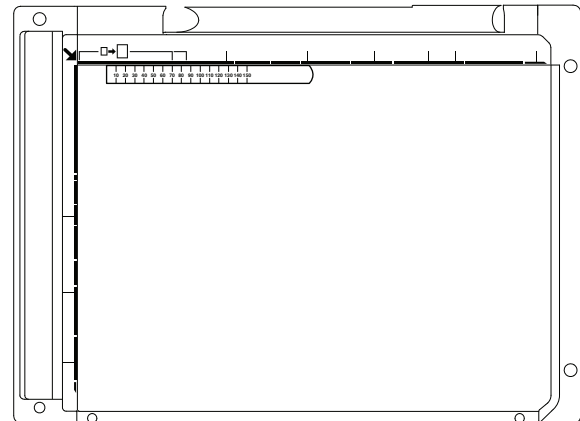
- 2) Enter the SIM 48-1 mode.



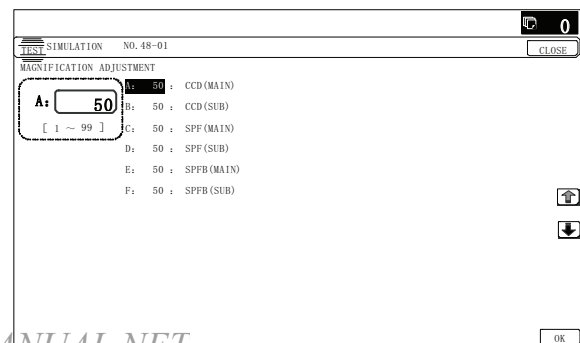
- 3) Make a normal copy and obtain the copy magnification ratio. Press [CLOSE] key to shift from the simulation mode to the copy mode, and make a copy.
- 4) Check that the copy magnification ratio is within the specified range ( $100 \pm 1.0\%$ ).  
If the copy magnification ratio is within the specified 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 is increased.  
When the adjustment value is changed by 1, the copy magnification ratio is changed by about 0.02%.  
Repeat the procedures 3) - 5) until the copy magnification ratio is within the specified range ( $100 \pm 1.0\%$ ).

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

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

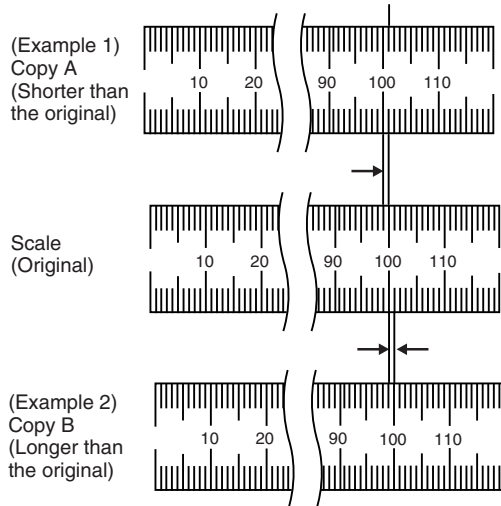


- 2) Enter the SIM 48-1 mode.



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

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



- 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 ( $100 \pm 1.0\%$ ).

## 7-C Main scanning direction image magnification ratio adjustment (DSPF/RSPF mode)

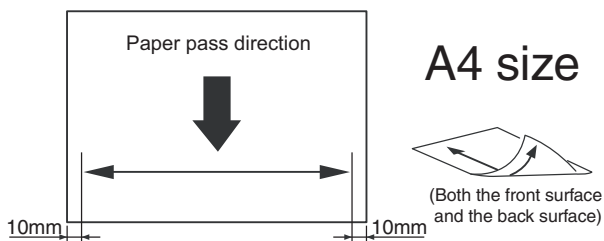
This adjustment must be performed in the following cases:

- \* When the scan control PWB is replaced.
- \* When the EEPROM on the scan control PWB is replaced.
- \* When U2 trouble occurs.
- \* When the copy magnification ratio is not matched.
- \* When the DSPF/RSPF is disassembled.

### a. Adjustment procedures

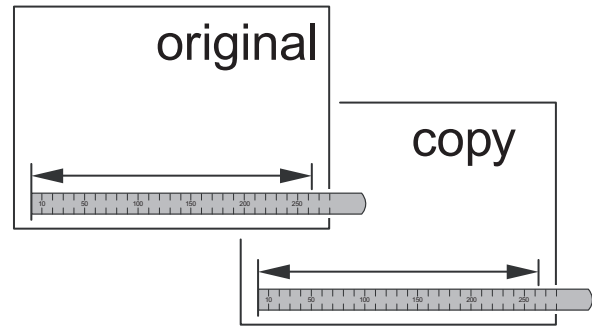
- 1) Place the duplex adjustment chart shown below on the document tray of the DSPF/RSPF.

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

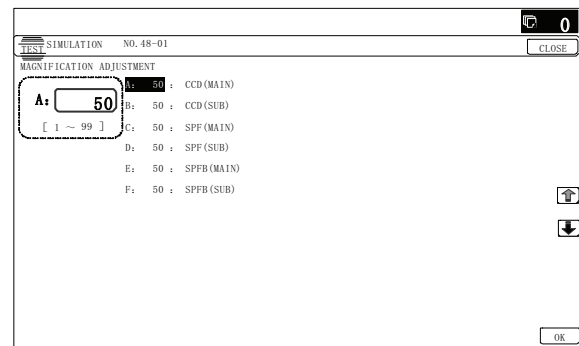


- 2) Make a duplex copy at the normal ratio on A4 paper.

- 3) Measure the images on the copy paper and the original images.



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



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

- \* Items A, C, E: When the set value is increased by 1, the magnification ratio is increased by 0.02%.
  - \* Items B, D, F: When the set value is increased by 1, the magnification ratio is increased by 0.1%.
  - \* It affects scanning (PC scanning, etc.) as well as copying.
- 6) Select an adjustment item of SPF (MAIN)/SPFB (MAIN) with the scroll key.

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

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

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

Repeat the procedures of 1) - 7) until a satisfactory result is obtained.

NOTE: When [CLOSE] key is pressed in this simulation mode, the machine goes into the normal operation mode. Under this state, copy check can be normally performed. When the system key is pressed, the machine returns to the simulation mode.

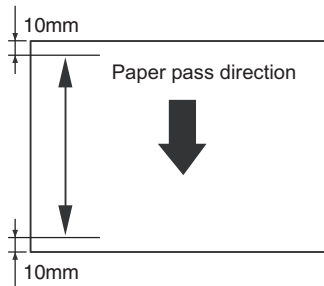
## 7-D Sub scanning direction image magnification ratio adjustment (DSPF/RSPF mode)

This adjustment must be performed in the following cases:

- \* When the scan control PWB is replaced.
- \* When the EEPROM on the scan control PWB is replaced.
- \* When U2 trouble occurs.
- \* When the copy magnification ratio is not matched.
- \* When the DSPF/RSPF is disassembled.

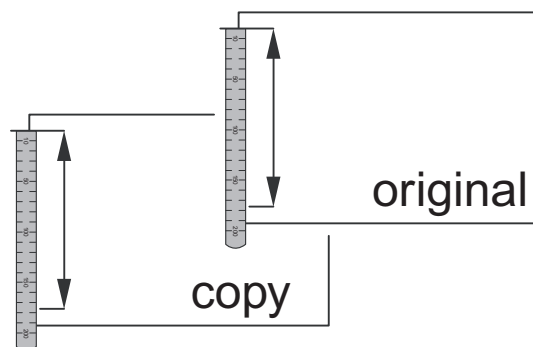
### a. Adjustment procedures

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



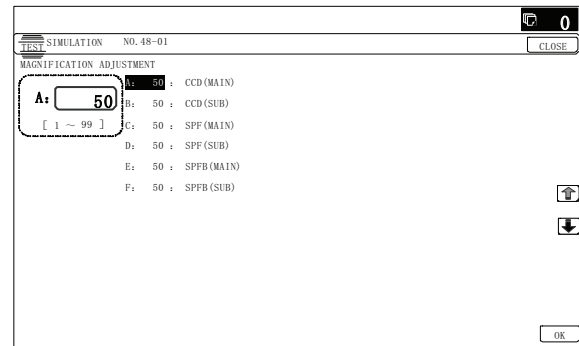
A4 size

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



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

- 5) Enter the SIM 48-1 mode.



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

- \* Items A, C, E: When the set value is increased by 1, the magnification ratio is increased by 0.02%.
- \* Items B, D, F: When the set value is increased by 1, the magnification ratio is increased by 0.1%.
- \* It affects scanning (PC scanning, etc.) as well as copying.

- 6) Select an adjustment item with the scroll key.

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

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

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

When the adjustment value is changed by 1, the image magnification ratio is changed by 0.01%.

Repeat the procedures of 1) - 7) until a satisfactory result is obtained.

NOTE: When [CLOSE] key is pressed in this simulation mode, the machine goes into the normal operation mode. Under this state, copy check can be normally performed. When the system key is pressed, the machine returns to the simulation mode.



## ADJ 8 Scan image off-center adjustment (Manual adjustment)

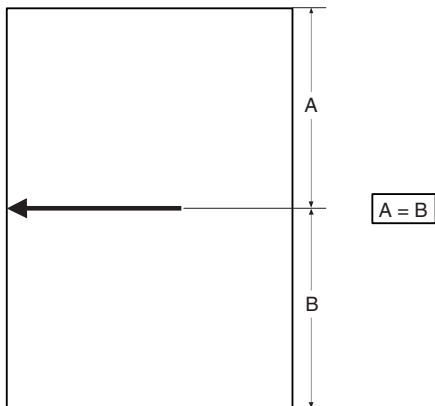
This manual adjustment is used when the automatic adjustment of SIM 50-28 cannot obtain a satisfactory result.

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

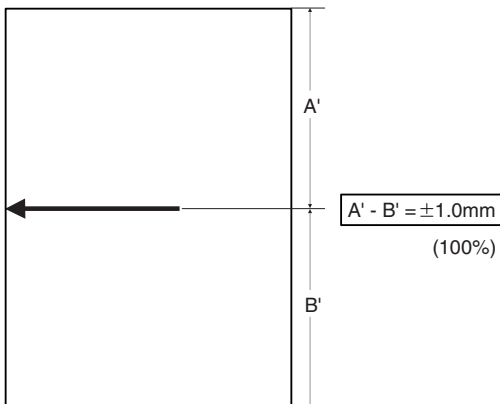
This adjustment is needed in the following situations:

- \* When the scanner (reading) section is disassembled.
- \* When the scanner (reading) 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) Make a copy of the adjustment chart (made by yourself) in the adjustment mode (document table).

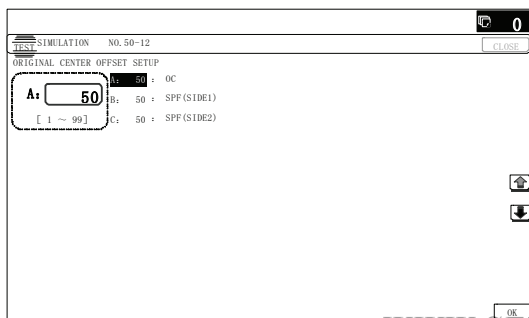


- 2) Check the copy image center position.  
If  $A' - B' = \pm 1.0\text{mm}$ , the adjustment is not required.



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

- 3) Enter the SIM 50-12 mode.



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

### 8-B Scan image off-center adjustment (DSPF/RSPF mode)

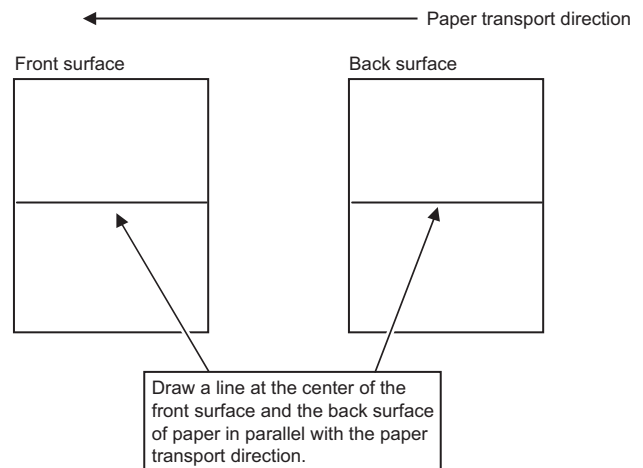
This adjustment must be performed in the following cases:

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

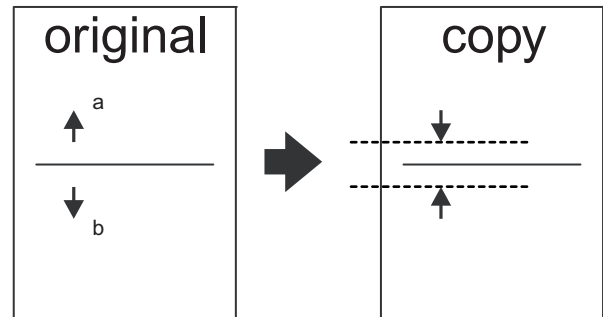
NOTE: To execute this adjustment, it is required that the ADJ 8A Scan image off-center adjustment (Document table mode) must have been properly adjusted.

#### a. Adjustment procedures

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



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

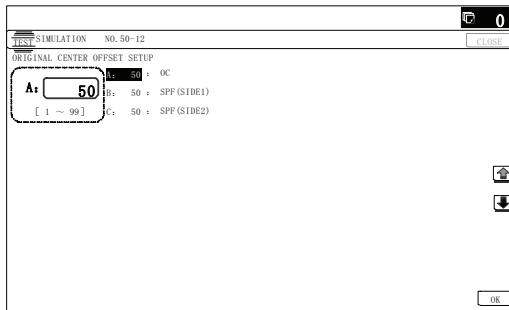


If the difference is within the range of  $0 \pm 2.7\text{mm}$  there is no need to perform the adjustment.

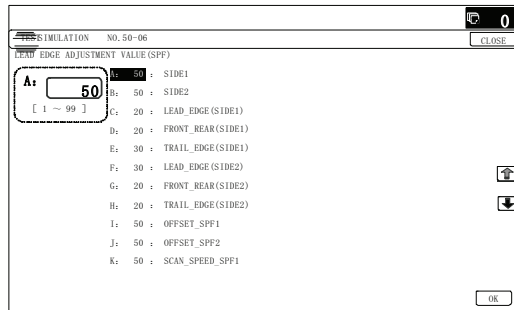
If the adjustment is required, perform the following procedures.

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

(SIM50-12)



(SIM50-6)



**SIM50-12**

Item	Display	Content	Setting range	Default value
A	OC	Document table image off-center adjustment	1 - 99	50
B	SPF(SIDE1)	SPF front surface image off-center adjustment	1 - 99	50
C	SPF(SIDE2)	SPF back surface image off-center adjustment	1 - 99	50

A - C: When the adjustment value is increased, the image position is shifted to the rear frame side.

1step = 0.1mm

**SIM50-6 (DSPF)**

Item/Display		Content	Setting range	Default value
A	SIDE1	Front surface document scan position adjustment (CCD)	1 - 99	50
B	SIDE2	Back surface document scan position adjustment (CIS)	1 - 99	50
C	Image loss amount setting SIDE1	LEAD_EDGE (SIDE1)	0 - 99	20
D		FRONT_REAR (SIDE1)	0 - 99	20
E		TRAIL_EDGE (SIDE1)	0 - 99	30
F		LEAD_EDGE (SIDE2)	0 - 99	30
G	Image loss amount setting SIDE2	FRONT_REAR (SIDE2)	0 - 99	20
H		TRAIL_EDGE (SIDE2)	0 - 99	20
I	OFFSET_SPF1	DSPF front surface document off-center adjustment	1 - 99	50

Item/Display		Content	Setting range	Default value
J	OFFSET_SPF2	DSPF back surface document off-center adjustment	1 - 99	50
K	SCAN_SPEED_SPF1	DSPF document front surface magnification ratio adjustment (Sub scan)	1 - 99	50

\* Item A, B: When the adjustment value is increased, the scan timing is delayed.

\* Item C - H: When the adjustment value is increased, the image loss is increased.

\* Item A - H: 1 step = 0.1mm change

\* The DSPF rear edge image loss setting is provided for countermeasures against the case when shades are produced.

**SIM50-6 (RSPF)**

Item/Display		Content	Setting range	Default value
A	SIDE1	Front surface document scan position adjustment (CCD)	1 - 99	50
B	SIDE2	Back surface document scan position adjustment (CCD)	1 - 99	50
C	Image loss amount setting SIDE1	LEAD_EDGE (SIDE1)	0 - 99	20
D		FRONT_REAR (SIDE1)	0 - 99	20
E		TRAIL_EDGE (SIDE1)	0 - 99	30
F	Image loss amount setting SIDE2	LEAD_EDGE (SIDE2)	0 - 99	20
G		FRONT_REAR (SIDE2)	0 - 99	20
H		TRAIL_EDGE (SIDE2)	0 - 99	30
I	OFFSET_SPF1	RSPF front surface document off-center adjustment	1 - 99	50
J	OFFSET_SPF2	RSPF back surface document off-center adjustment	1 - 99	50
K	SCAN_SPEED_SPF1	RSPF document front surface magnification ratio adjustment (Sub scan)	1 - 99	50
L	SCAN_SPEED_SPF2	RSPF document back surface magnification ratio adjustment (Sub scan)	1 - 99	50

\* Item A, B: When the adjustment value is increased, the scan timing is delayed.

\* Item C - H: When the adjustment value is increased, the image loss is increased.

\* Item A - H: 1 step = 0.1mm change

\* The RSPF rear edge image loss setting is provided for countermeasures against the case when shades are produced.



- 5) Select an adjustment mode with the scroll key.

#### (SIM50-12)

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

#### (SIM50-6)

OFFSET SPF1 Front surface mode  
OFFSET SPF2 Back surface mode

- 6) Enter an adjustment value with 10-key, and press [OK] key.  
(Change for change in the adjustment value: 0.1mm/step)  
(When the adjustment value is increased, the print image is shifted to the rear.)  
Repeat the procedures of 2) - 6) until a satisfactory result is obtained.

NOTE: When [CLOSE] key is pressed in this simulation mode, the machine goes into the normal operation mode. Under this state, copy check can be normally performed. When the system key is pressed, the machine returns to the simulation mode.

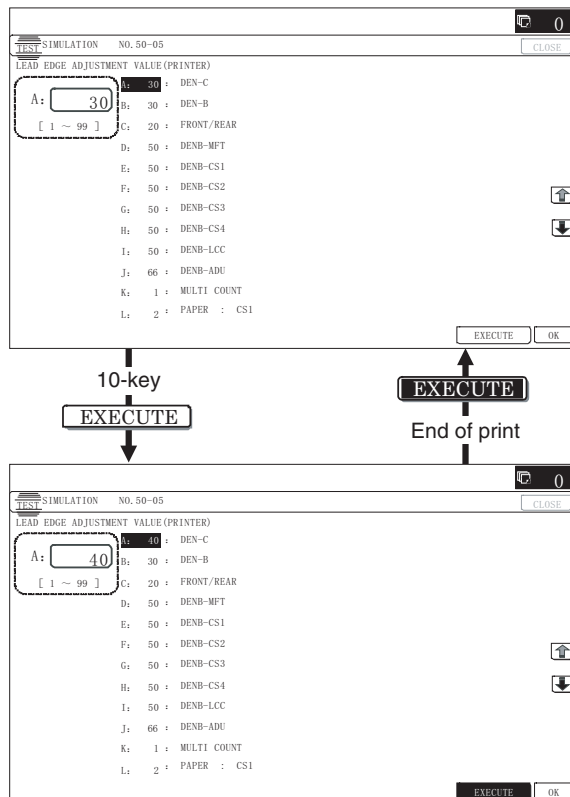
## ADJ 9 Print lead edge image position, void area adjustment (Printer mode)

This adjustment is needed in the following situations:

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

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

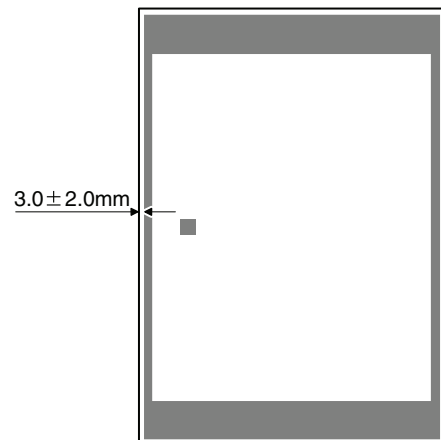
- 1) Enter the SIM 50-5 mode.



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

Item/Display			Content		Setting range		Default value
A	DEN-C		Used to adjust the print lead edge image position. (PRINTER MODE)		1 - 99		30
B	DEN-B		Rear edge void area adjustment		1 - 99		30
C	FRONT/REAR		FRONT/REAR void area adjustment		1 - 99		20
D	DENB-MFT		Manual feed rear edge void area adjustment correction value		1 - 99		50
E	DENB-CS1		Tray 1 rear edge void area adjustment correction value		1 - 99		50
F	DENB-CS2		Tray 2 rear edge void area adjustment correction value		1 - 99		50
G	DENB-CS3		Tray 3 rear edge void area adjustment correction value		1 - 99		50
H	DENB-CS4		Tray 4 rear edge void area adjustment correction value		1 - 99		50
I	DENB-LCC		LCC rear edge void aria adjustment correction value		1 - 99		50
J	DENB-ADU		ADU rear edge void aria adjustment correction value		1 - 99		66
K	MULTI COUNT		Number of print		1 - 999		1
L	PAPER	MFT	Tray selection	Manual paper feed	1 - 6	1	2 (CS1)
		CS1		Tray 1		2	
		CS2		Tray 2		3	
		CS3		Tray 3		4	
		CS4		Tray 4		5	
		LCC		LCC		6	
		M		DUPLEX		YES	
	NO		No	1			

- 3) Press [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:  $3.0 \pm 2.0\text{mm}$



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

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 press the [OK] key or the [EXECUTE] key.

When [EXECUTE] key is pressed, 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.

NOTE: To adjust the void area, change the adjustment values of items B and C.

## ADJ 10 Copy image position, image loss, and void area adjustment (Manual adjustment)

This manual adjustment is used when the automatic adjustment of SIM 50-28 cannot obtain a satisfactory result.

### 10-A Copy image position, image loss, void area adjustment (Document table mode)

This adjustment is needed in the following situations:

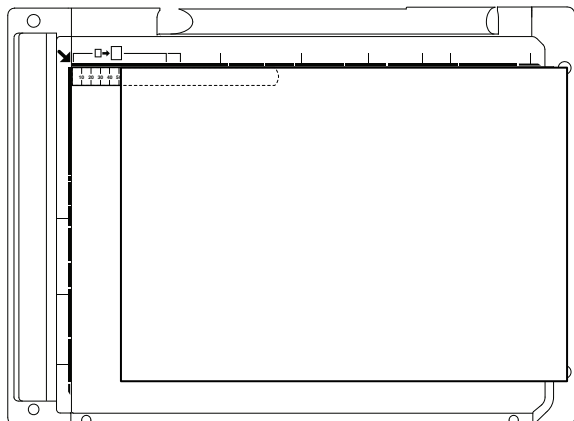
- \* When the scanner (reading) section is disassembled.
- \* When the scanner (reading) unit is replaced.
- \* When the LSU is replaced or removed.
- \* When the registration roller section is disassembled.
- \* U2 trouble has occurred.
- \* The PCU PWB has been replaced.
- \* The EEPROM of the PCU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

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

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

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

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



2) Enter the SIM 50-1 mode.

10-key

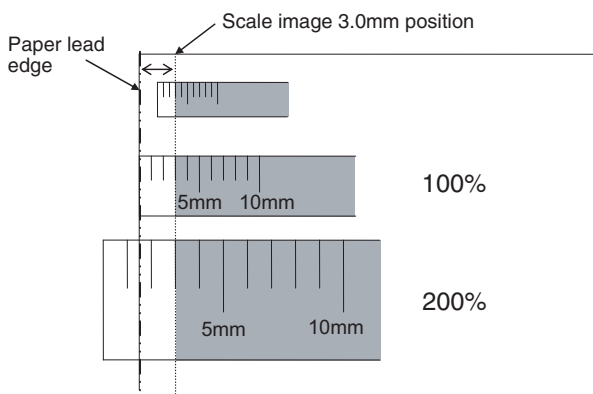
OK

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

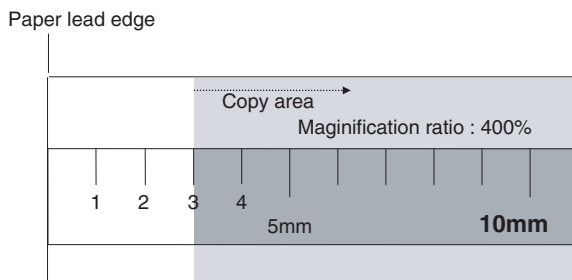
Item/Display			Content	Setting range	Default value
A	Lead edge adjustment value	RRCA	Document lead edge reference position (OC)	0 - 99	50
B		RRCB-CS12	Resist motor Standard Tray	1 - 99	50
C		RRCB-CS34	ON Desk	1 - 99	50
D		RRCB-LCC	timing LCC	1 - 99	50
E		RRCB-MFT	adjustment Manual paper feed	1 - 99	50
F		RRCB-ADU	ADU	1 - 99	50
G	Image loss area setting value	LEAD	Lead edge image loss area setting	0 - 99	30
H		SIDE	Side image loss area adjustment	0 - 99	20
I	Void area adjustment	DENA	Lead edge void area adjustment	1 - 99	30
J		DENB	Rear edge void area adjustment	1 - 99	30
K		FRONT/REAR	FRONT/REAR void area adjustment	1 - 99	20
L	Off-center adjustment	OFFSET_OC	OC document off-center adjustment	1 - 99	50
M	Magnification ratio correction	SCAN_SPEED_OC	SCAN sub scanning magnification ratio adjustment (CCD)	1 - 99	50
N	Sub scanning direction print area correction value	DENB-MFT	Manual feed correction value	1 - 99	50
O		DENB-CS1	Tray 1 correction value	1 - 99	50
P		DENB-CS2	Tray 2 correction value	1 - 99	50
Q		DENB-CS3	Tray 3 correction value	1 - 99	50

Item/Display			Content	Setting range	Default value
R	Sub scanning direction print area correction value	DENB-CS4	Tray 4 correction value	1 - 99	50
S		DENB-LCC	LCC correction value	1 - 99	50
T		DENB-ADU	ADU correction value	1 - 99	66

- 4) Perform the image lead edge reference position adjustment.  
Press [CLOSE] key, and shift from the simulation mode to the copy mode and make a copy in 100% mode and in 200% scale.
- 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 below standard state, or when it is set to a desired value, change these adjustment items.



Void area: 3.0mm, Image loss: 3.0mm

Item/Display	Content		Adjustment range	Default value	Standard adjustment value
LEAD	Image loss adjustment	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 void area is changed by 0.1mm.

## 10-B Document scan position adjustment (DSPF/RSPF mode scanner scan position adjustment)

This adjustment must be performed in the following cases:

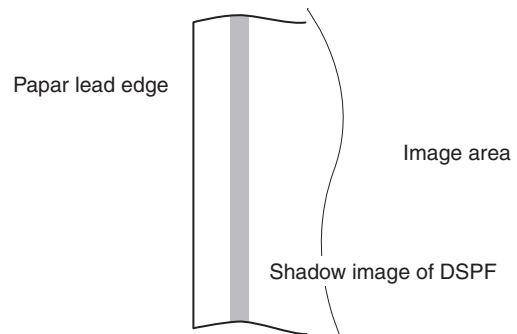
- \* When the scan control PWB is replaced.
- \* When the EEPROM on the scan control PWB is replaced.
- \* When the scanner (reading) section is disassembled.
- \* When the scanner (reading) section is replaced.
- \* When U2 trouble occurs.
- \* When the DSPF/RSPF section is disassembled.
- \* When the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

This simulation is to adjust the scanner reading position when scanning the front surface in the DSPF/RSPF mode.

If this adjustment is made improperly, the scanner stop position is shifted to the specified position and a shade of the document table may be reflected on the lead edge section of the scan image in the DSPF/RSPF (front surface) mode.

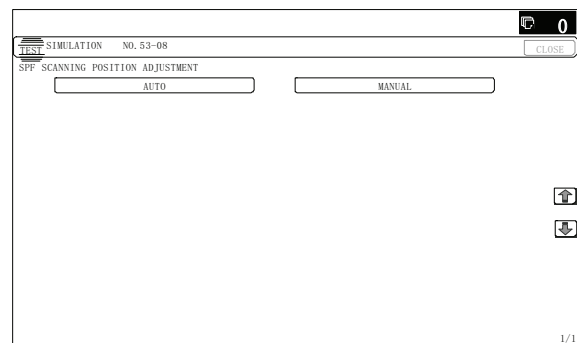
### a. Adjustment procedures

- 1) Make a copy in the DSPF/RSPF (front surface) mode, and check for any shade on the lead edge section of the copy image.



If there is any shade of the document table on the lead edge section of the copy image, perform the following procedures.

- 2) Enter the SIM 53-8 mode, and press [MANUAL] key.



- 3) Enter an adjustment value with 10-key, and press [OK] key.  
When the set value is increased, the distance from the home position to the DSPF/RSPF scanning position is increased. When the set value is changed by 1, the scanning position is changed by 0.1mm.

Perform the procedures of 1) - 3) until a satisfactory result is obtained.

NOTE: After execution of this adjustment, be sure to execute ADJ 10C Copy mode image loss adjustment (DSPF/RSPF mode).

## 10-C Copy mode image loss adjustment (DSPF/RSPF mode)

This adjustment must be performed in the following cases:

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

NOTE: To execute this adjustment, the following items must have been properly adjusted.

- ADJ 3C Print engine print area (void area) adjustment
- ADJ 7C Main scanning direction image magnification ratio adjustment (DSPF/RSPF mode)
- ADJ 7D Sub scanning direction image magnification ratio adjustment (DSPF/RSPF mode)
- ADJ 8B Scan image off-center adjustment (DSPF/RSPF mode)
- ADJ 10B Document scan position adjustment (DSPF/RSPF mode scanner scan position adjustment)

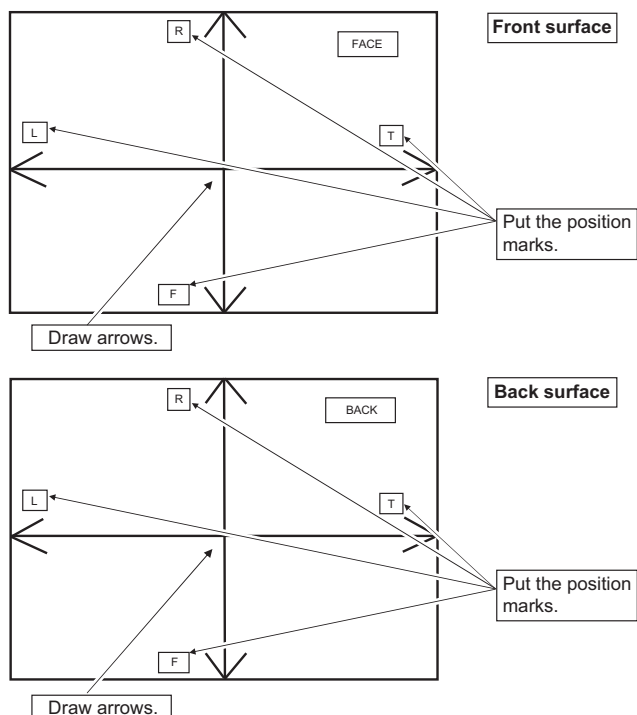
### a. Adjustment procedures

#### 1) Prepare the adjustment chart.

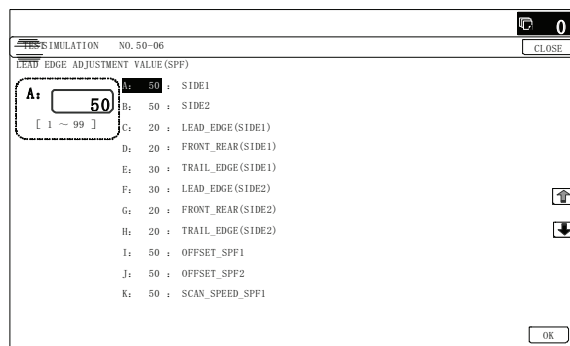
The adjustment chart can be made by the following procedures.

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

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



#### 2) Enter the SIM 50-6 mode.



### (DSPF)

Item	Display	Content	Setting range	Default value
A	SIDE1	Front surface document scan position adjustment (CCD)	1 - 99	50
B	SIDE2	Back surface document scan position adjustment (CIS)	1 - 99	50
C	Image loss amount setting SIDE1	LEAD_EDGE (SIDE1) Front surface lead edge image loss amount setting	0 - 99	20
D		FRONT_REAR (SIDE1) Front surface side image loss amount setting	0 - 99	20
E		TRAIL_EDGE (SIDE1) Front surface rear edge image loss amount setting	0 - 99	30
F	Image loss amount setting SIDE2	LEAD_EDGE (SIDE2) Back surface lead edge image loss amount setting	0 - 99	30
G		FRONT_REAR (SIDE2) Back surface side image loss amount setting	0 - 99	20
H		TRAIL_EDGE (SIDE2) Back surface rear edge image loss amount setting	0 - 99	20
I	OFFSET_SPF1	DSPF front surface document off-center adjustment	1 - 99	50
J	OFFSET_SPF2	DSPF back surface document off-center adjustment	1 - 99	50
K	SCAN_SPEED_SPF1	DSPF document front surface magnification ratio adjustment (Sub scan)	1 - 99	50

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

**(RSPF)**

Item/Display		Content	Setting range	Default value
A	SIDE1	Front surface document scan position adjustment (CCD)	1 - 99	50
B	SIDE2	Back surface document scan position adjustment (CCD)	1 - 99	50
C	Image loss amount setting SIDE1	LEAD_EDGE (SIDE1)	0 - 99	20
D		FRONT_REAR (SIDE1)	0 - 99	20
E		TRAIL_EDGE (SIDE1)	0 - 99	30
F	Image loss amount setting SIDE2	LEAD_EDGE (SIDE2)	0 - 99	20
G		FRONT_REAR (SIDE2)	0 - 99	20
H		TRAIL_EDGE (SIDE2)	0 - 99	30
I	OFFSET_SPF1	RSPF front surface document off-center adjustment	1 - 99	50
J	OFFSET_SPF2	RSPF back surface document off-center adjustment	1 - 99	50
K	SCAN_SPEED_SPF1	RSPF document front surface magnification ratio adjustment (Sub scan)	1 - 99	50
L	SCAN_SPEED_SPF2	RSPF document back surface magnification ratio adjustment (Sub scan)	1 - 99	50

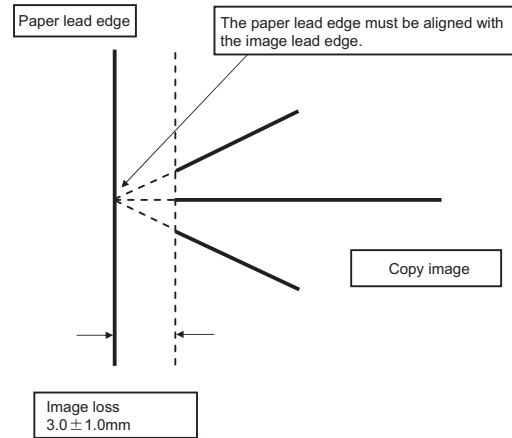
- \* Item A, B: When the adjustment value is increased, the scan timing is delayed.
- \* Item C - H: When the adjustment value is increased, the image loss is increased.
- \* Item A - H: 1 step = 0.1mm change
- \* The RSPF rear edge image loss setting is provided for counter-measures against the case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

NOTE: When [CLOSE] key is pressed in this simulation mode, the machine goes into the normal operation mode. Under this state, copy check can be normally performed. When the system key is pressed, the machine returns to the simulation mode.

**(Lead edge image loss adjustment)**

- Set the lead edge image loss adjustment values (LEAD EDGE (SIDE1/SIDE2)) on the front surface and the back surface to the following values.  
(Standard set value)  
LEAD EDGE(SIDE 1):  
20 Lead edge image loss set value (Front surface)  
LEAD EDGE(SIDE 2):  
30 Lead edge image loss set value (Back surface)  
(When the set value is increased, the lead edge image loss is increased.)  
(Change for change in the set value: 0.1mm/step)

- Make a duplex copy in 100% in the DSPF/RSPF mode. Check to confirm that the lead edge image loss is within  $3.0 \pm 1.0\text{mm}$  on the front surface and the back surface. The paper lead edge must be aligned with the presumed image lead edge.



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

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

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

SIDE1: Front surface lead edge scan position adjustment

SIDE2: Back surface lead edge scan position adjustment

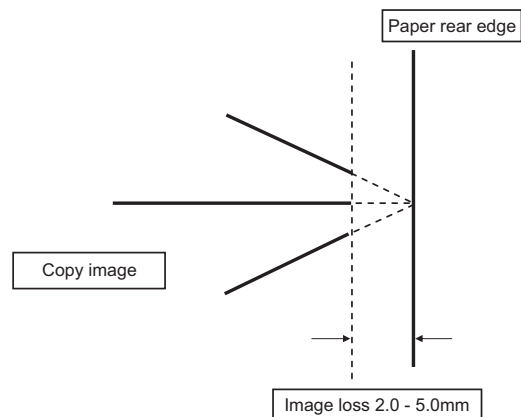
(When the adjustment value is increased, the print image position is shifted to the delaying direction for the paper.)

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

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

**(Rear edge image loss adjustment)**

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



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

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

TRAIL EDGE (SIDE 1):

Rear edge image loss adjustment value (Front surface)

TRAIL EDGE (SIDE 2):

Rear edge image loss adjustment value (Back surface)

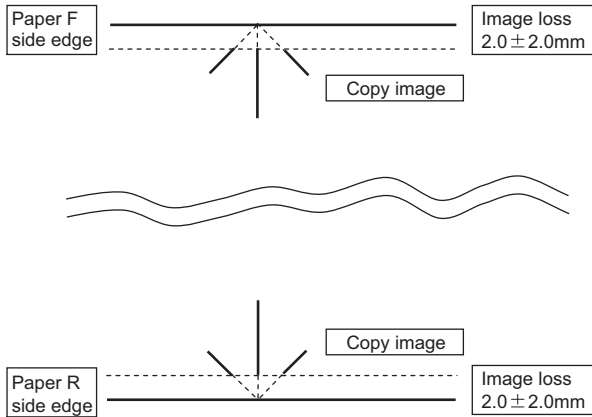
(When the adjustment value is increased, the rear edge image loss is increased.)

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

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

### (Front/rear frame direction image loss adjustment)

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



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

- 2) Enter the adjustment value of FRONT/REAR (SIDE 1) / FRONT/REAR (SIDE 2), and press [OK] key.

FRONT/REAR (SIDE 1):

Front/Rear image loss adjustment value (Front surface)

FRONT/REAR (SIDE 2):

Front/Rear image loss adjustment value (Back surface)

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

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

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

## ADJ 11 CCD calibration

### 11-A CCD gamma adjustment (CCD calibration) (Document table mode)

This adjustment is needed in the following situations:

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

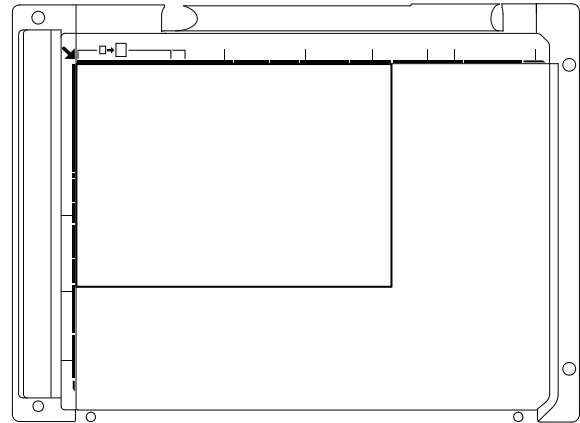
#### (1) Note before adjustment

- 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.



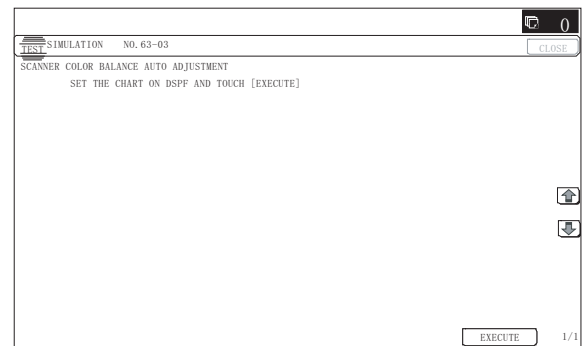
If the SIT chart is not available, execute SIM 63-5 to set the CCD gamma to the default. In this case, however, the adjustment accuracy is lower when compared with the adjustment method using the SIT chart.

NOTE: Check to insure that the SIT chart (UKOG-0280FCZZ or UKOG-0280FCZ1) is in close contact with the document table.

NOTE: UKOG-0280FCZZ is equivalent to UKOG-0280FCZ1.

- 2) Enter the SIM 63-3 mode.  
Select [OC] key, and press [EXECUTE] key.

The automatic operation is started. During the adjustment, [EXECUTE] is highlighted. After completion of the adjustment, [EXECUTE] returns to the normal display.



NOTE: Since the SIT chart (UKOG-0280FCZZ or UKOG-0280FCZ1) is easily discolored by sunlight (especially ultraviolet rays) and humidity and temperature, put it in a bag (such as a dark file) and store in a dark place of low temperature and low humidity.



## 11-B CIS gamma adjustment (CIS calibration) (DSPF mode) (DSPF-installed machine only)

This adjustment is required in the following cases:

- \* When the CIS 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

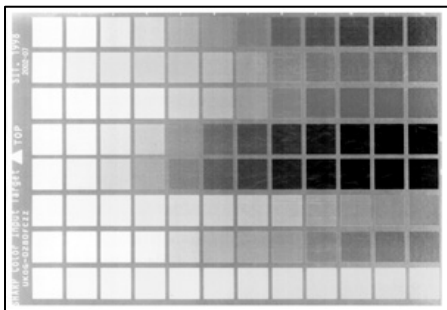
- 1) Check to insure that there is no dirt or dust on the DSPF scanning glass, the mirror, and the lens surface. (If there is, clean it with alcohol.)
- 2) Check to confirm that the patches in BK1 and BK2 arrays of the SIT chart (UKOG-0280FCZZ or UKOG-0280FCZ1) are free from dirt and scratches.

If they are dirty, clean them.

If they are scratched or streaked, replace with new one.

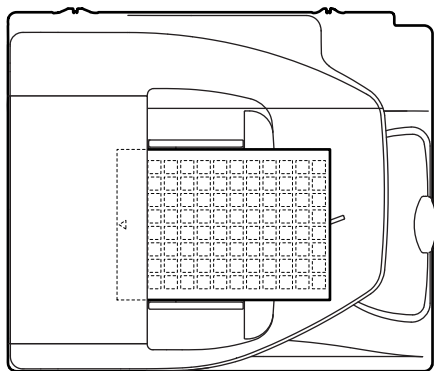
#### NOTE:

Since the SIT chart 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.



### (2) Adjustment procedures

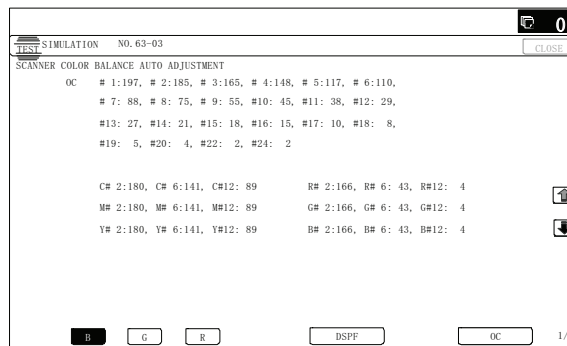
- 1) Set the SIT chart (UKOG-0280FCZZ or UKOG-0280FCZ1) face-down in the DSPF paper feed tray.



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

NOTE: UKOG-0280FCZZ is equivalent to UKOG-0280FCZ1.

- 2) Enter the SIM 63-3 mode.



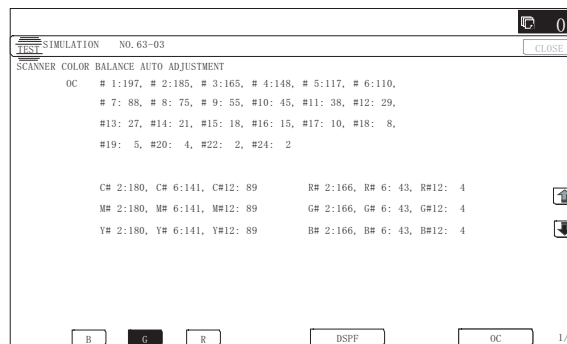
- 3) When a color button is selected, the adjustment value of the selected color is displayed.

\* When [B] (Blue), [G] (Green), or [R] (Red) button is selected, the selected button is highlighted and the adjustment value of the selected color is displayed.

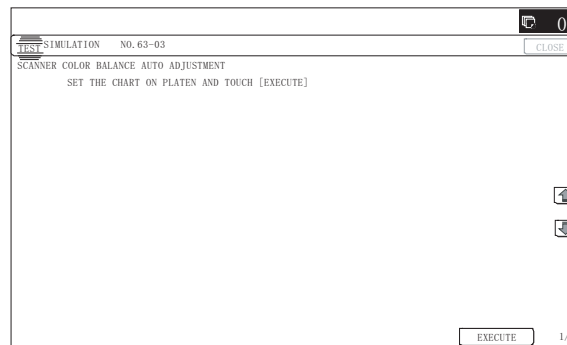
\* Only one color button can be selected, and the selected button is highlighted. In the initial state, [B] is selected.

\* If there is a page over [↑], an active display is shown and the page moves up. If there is no page upward, the display grays out and the operation is invalid.

If there is a page under [↓], an active display is shown and the page moves down. If there is no page downward, the display grays out and the operation is invalid.

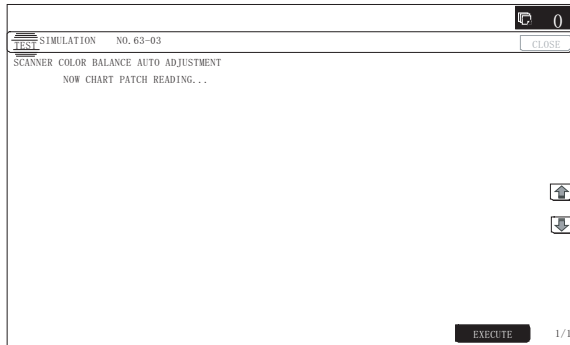


- 4) When [DSPF] button is pressed, it is highlighted, and the color automatic adjustment execution screen is displayed.



- 5) Press [EXECUTE] button and it is highlighted and the color auto adjustment is executed.

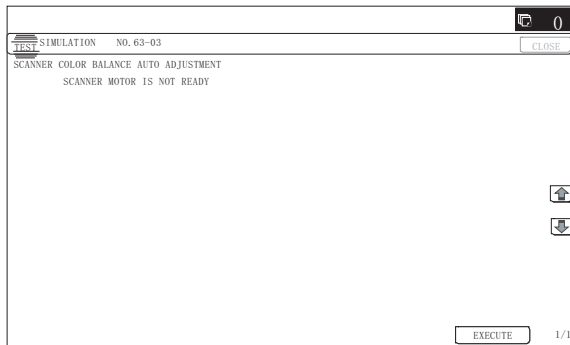
\* When [EXECUTE] button is pressed during the automatic adjustment, the automatic adjustment is interrupted.



- 6) After normal completion, the result of calculation is displayed in the initial screen.

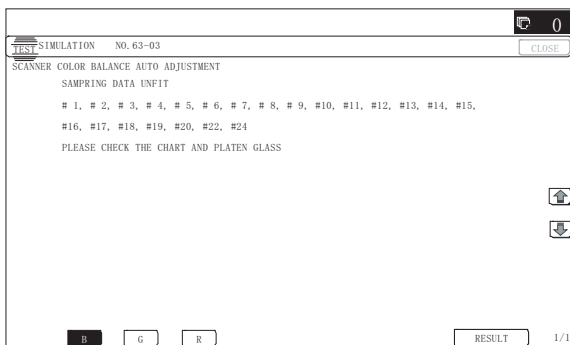
\* When an error occurs in execution, the following screen is displayed.

When [CA] key is pressed, the simulation is terminated. When [SYSTEM SETTINGS] key is pressed, the display returns to the sub number entry screen.

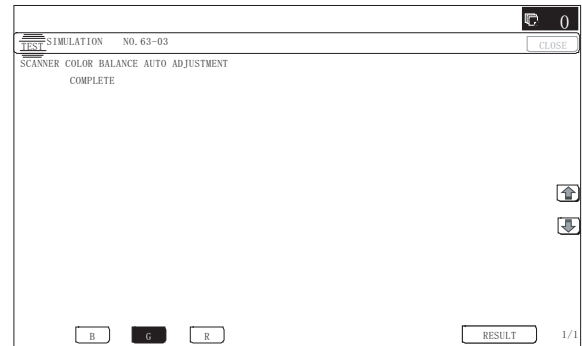


\* When an error occurs in the automatic adjustment, all the error patch numbers are displayed.

When [RESULT] button is pressed, the display returns to the initial screen. (The previous value is displayed)

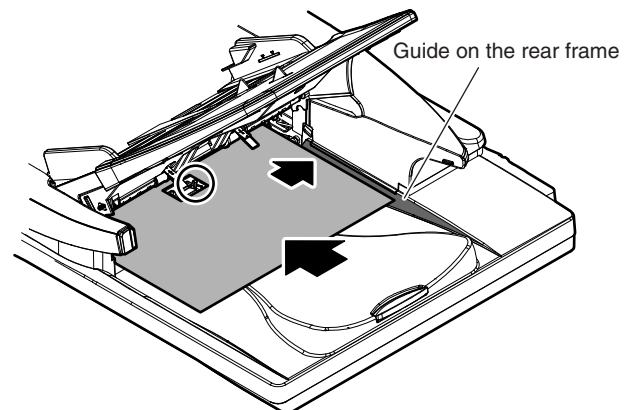


\* When the operation is completed normally, "COMPLETE" is displayed. When [RESULT] button is pressed, the display returns to the initial screen. (The calculation result of normal completion is displayed.)



## 11-C Shading adjustment (Calibration) (DSPF mode) (DSPF-installed machine only)

- 1) Open the DSPF paper exit section, and insert the white reference adjustment sheet (UKOG-0330FCZZ) along the guide on the rear frame until it makes contact with the paper exit roller.



\* When inserting the white reference adjustment sheet, insert it straight along the guide on the rear frame until the paper detection actuator can be seen through the cut-out section of the white reference adjustment sheet.

- 2) Close the DSPF paper exit section.
- 3) Enter the SIM 63-2 mode.
- 4) Select [DSPF SHADING].





- 5) When [EXECUTE] key is pressed, it is highlighted and shading is started.
  - \* The white reference adjustment sheet is transported in the paper exit direction, and shading data are obtained during transportation.
  - \* During execution, "SHADING EXECUTING..." is displayed.
  - \* When [EXECUTE] key is pressed during execution, the operation is interrupted.
  - \* When shading is completed normally, [EXECUTE] key returns to the normal display and "COMPLETED" is displayed.
  - \* When [SYSTEM SETTINGS] key is pressed during other than printing, the display returns to the sub number entry screen.

#### <Descriptions of keys>

Display	Content
OC SHADING	OC analog correction level correction, and shading correction data making (Document table mode)
DSPF SHADING	DSPF analog correction level correction, and shading correction data making (SPF mode)

#### <Result display>

Display	Content
COMPLETE	Normal completion
ERROR	Abnormal completion
INCOMPLETE	Incomplete, interruption

## ADJ 12 Copy quality adjustment (Auto printer density and gradation adjustment)

### (1) Note before execution of the copy density and gradation adjustment

- \* Requisite conditions before execution of the copy density and gradation adjustment

Before execution of the copy density and gradation adjustment, be sure to check to confirm that the related adjustments which will affect the copy density and gradation have been properly completed.

The importance levels of them are shown below.

**(Items which will affect the copy density and gradation but are not required to be adjusted frequently. However, they must be checked and adjusted when a trouble occurs.)**

- 1) The following items must be adjusted properly.

Job No	Adjustment item list			Simulation
ADJ 1	Adjust the developing unit	ADJ 1A	Adjust the developing doctor gap	
		ADJ 1B	Adjust the developing roller main pole position	
ADJ 2	Adjusting high voltage values	ADJ 2A	Adjust the main charger grid voltage	8-2
		ADJ 2B	Adjust the developing bias voltage	8-1
		ADJ 2C	Transfer current and voltage adjustment	8-6
ADJ 6	Scan image focus adjustment			
ADJ 11	CCD calibration	ADJ 11B	CIS gamma adjustment (CIS calibration) (DSPF mode)	63-3
		ADJ 11C	Shading adjustment (Calibration) (DSPF mode)	63-2

### (Relationship between the servicing job contents and the copy density and gradation adjustment)

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

Follow the flowchart of the copy density and gradation adjustment procedures depending on the actual conditions.

There are following four, major cases.

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

### (2) Copy density and gradation check

(Note)

Before checking the copy density and gradation, 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 check that it is proper.

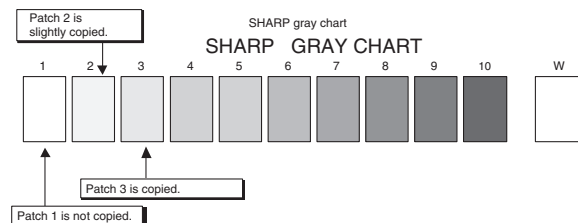
Note for checking the copy mode density

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

In addition, all the picture quality adjustment settings in the user adjustment mode must be set to the default (center).

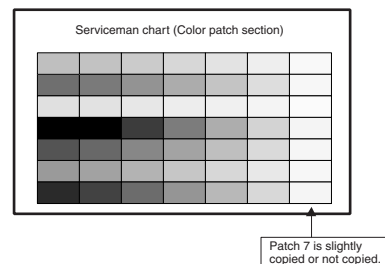
[Check with the gray test chart (UKOG-0162FCZZ)]

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



[Check with the servicing color test chart (UKOG-0317FCZZ/ UKOG-0317FC11 or UKOG-0326FCZZ/UKOG-0326FC11)]

Check to confirm that it is in the conditions shown below.



## 12-A Auto copy density and gradation adjustment, and auto printer density and gradation adjustment

This adjustment is needed in the following situations:

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

### a. General

There are following two modes in the auto copy density and gradation adjustment.

- 1) Auto copy density and gradation adjustment, and auto printer density and gradation adjustment by the serviceman (SIM 46-24 is used.)

SIM 46-24 allows simultaneous execution of the automatic copy density and gradation adjustment, and the automatic printer density and gradation adjustment.

There is no method to execute the automatic density and gradation adjustment separately in the copy mode and in the printer mode.

To execute the printer density and gradation adjustment automatically, use this method.

- 2) Auto copy density and gradation adjustment by the user (The user program mode is used.)

The auto copy density and gradation adjustment by the user is provided to reduce the number of service calls.

If the balance of the copy density or gradation is lost for some reason, the user can use this adjustment to recover the image quality.

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

On the other hand, the automatic copy density and gradation adjustment by the serviceman can be used to obtain normal picture quality even though the machine environment is greatly changed. In addition, if there is a fatal problem on the machine, repair and adjustment of the machine can provide normal images.

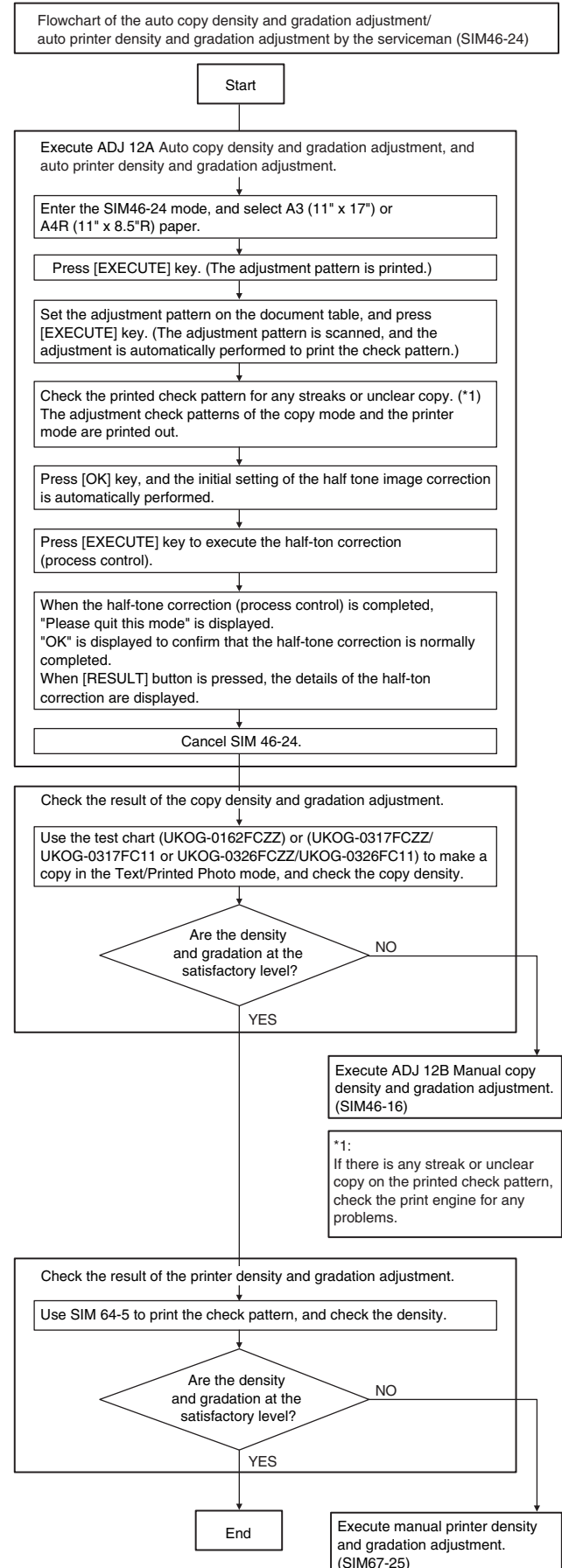
To perform the adjustment, the above difference must be fully understood.

### b. Note for execution of the auto copy density and gradation adjustment

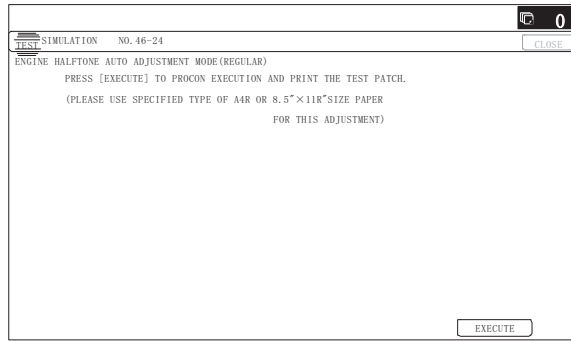
- 1) The print engine section must have been adjusted properly.
- 2) The CCD gamma adjustment must have been adjusted properly.
- 3) Set the adjustment pattern sheet on the document table, and place 5 sheet of white paper on the adjustment pattern sheet.

### c. Adjustment procedure

(Auto copy density and gradation adjustment, and auto printer density and gradation adjustment by the serviceman)



- 1) Enter the SIM 46-24 mode.



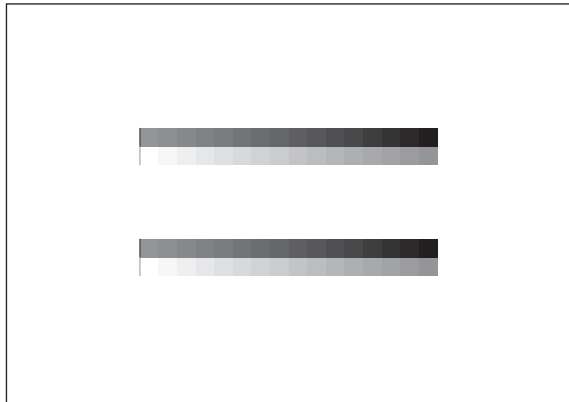
- 2) Press [EXECUTE] key. (A3 (11" x 17") or A4R (11" x 8.5"R) paper is selected.)

A4R (11" x 8.5"R) paper is selected by priority. If there is no A4R (11" x 8.5"R) paper, A3 (11" x 17") paper is selected.

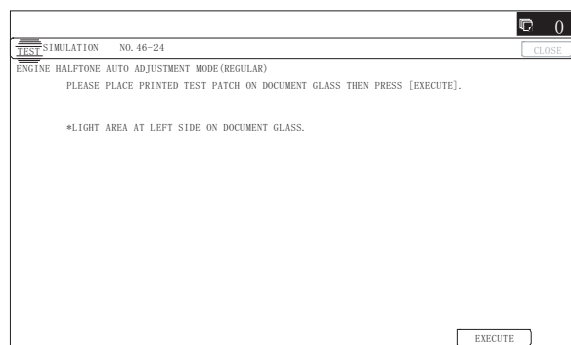
The patch image (adjustment pattern) is printed out.

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

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



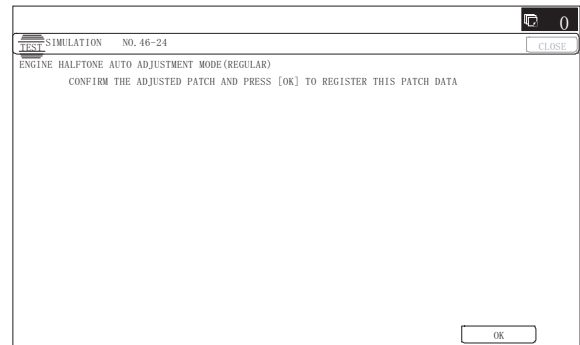
- 4) Press [EXECUTE] key.



The copy density and gradation adjustment and the printer density and gradation adjustment are automatically performed, and the copy check patch image and the printer check patch image are printed. (One for each) Wait until the operation panel shown in procedure 5) is displayed.

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

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



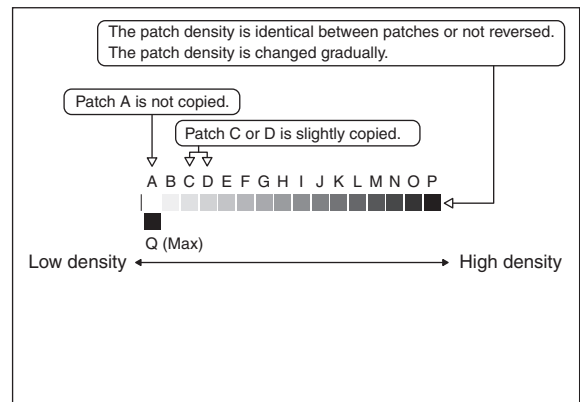
Remark:

After pressing [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.

- 6) Check the copy gradation and density.

(Method 1)

Check to insure that the printed copy 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.

Patch C or D is slightly copied.

Patch A must not be copied.

(Method 2)

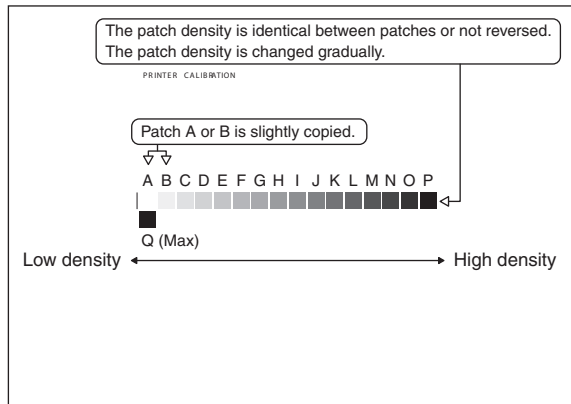
Use the gray test chart (UKOG-0162FCZZ) or the servicing color test chart (UKOG-0317FCZZ/UKOG-0317FC11 or UKOG-0326FCZZ/UKOG-0326FC11) in the Text/Photo mode (Manual) to check the copy density and gradation. (Refer to the item of the copy density and gradation check.)

If the automatic adjustment cannot obtain satisfactory copy density and gradation, use ADJ 12B manual adjustment (SIM 46-16).

NOTE: For the U model where no printer option is installed, the adjustment pattern for the printer is not printed.

7) Check the printer density and gradation.

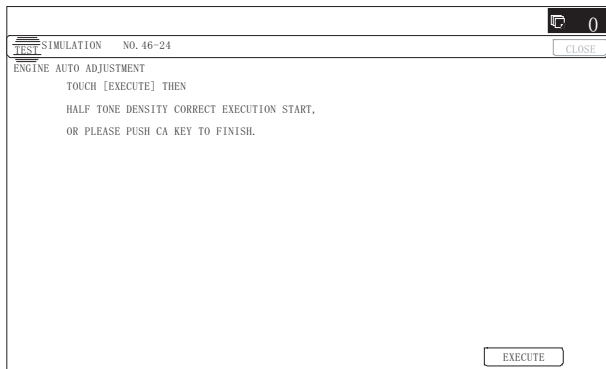
Check to insure that the printed printer check patch image is within the following specifications.



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

Patch A or B is slightly copied.

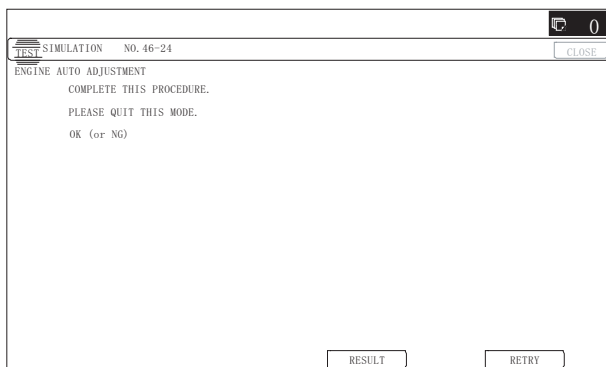
8) Press [EXECUTE] key to execute the half-tone correction (process control).



When the half-tone correction (process control) is completed, "Please quit this mode" is displayed.

"OK" is displayed to confirm that the half-tone correction is normally completed.

When [RESULT] button is pressed, the details of the half-tone correction are displayed.



Display	Content
COMPLETE	Normal completion
ERROR BLACK SENSOR ADJUSTMENT	Black sensor abnormality
[K]	Half-tone correction [K] abnormality
OTHER	Other errors

9) Cancel the simulation.

## 12-B Manual copy density and gradation adjustment

This adjustment is needed in the following situations:

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

### a. General

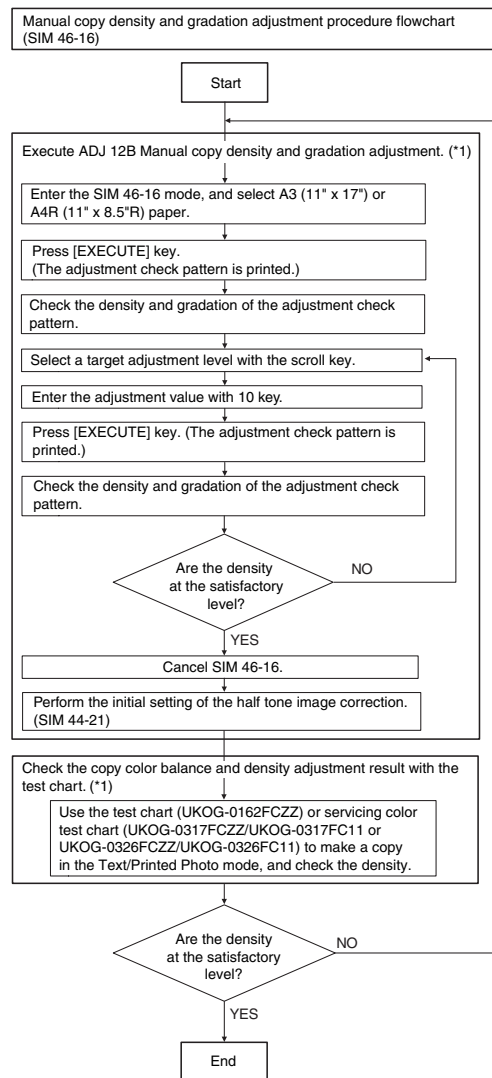
The manual copy density and gradation adjustment (manual adjustment) is used when the automatic adjustment previously stated cannot obtain the specified result or a fine adjustment is required and the user requests for customization.

Execute the automatic color balance adjustment in advance, and then execute this adjustment for better efficiency.

### b. Note for the copy density and gradation adjustment (Manual adjustment)

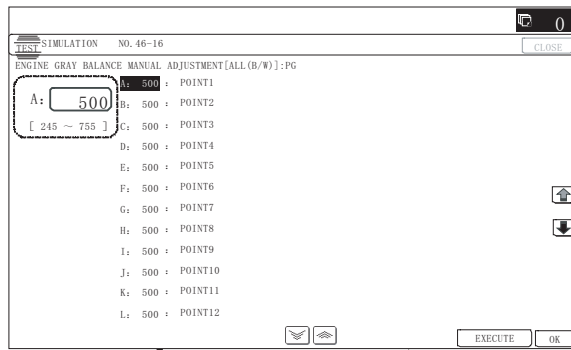
- 1) The print engine section must have been properly adjusted.

### c. Adjustment procedure



\*1: If satisfactory density is not obtained with the adjustment, check the print engine for any problems.

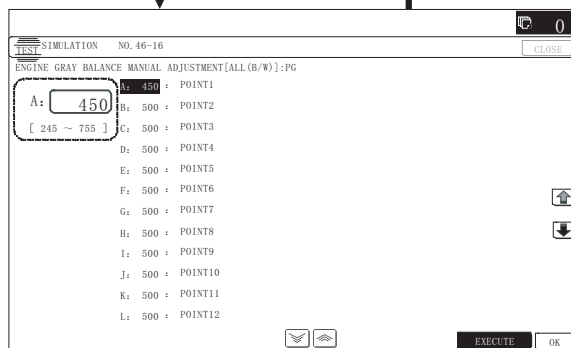
- 1) Enter the SIM46-16 mode.



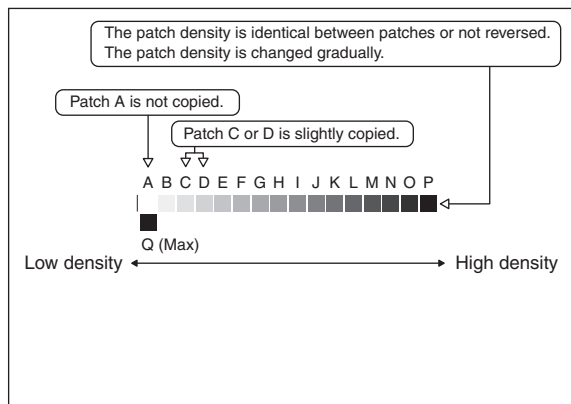
10-key

EXECUTE

EXECUTE  
or self print end



- 2) Press [EXECUTE] key. (A3 (11" x 17") or A4R (11" x 8.5"R) paper is selected.)  
A4R (11" x 8.5"R) paper is selected by priority. If there is no A4R (11" x 8.5"R) paper, A3 (11" x 17") paper is selected.  
The adjustment check pattern is printed.
- 3) Check that the following specification is satisfied or the density and gradation is satisfactory.



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

Patch C or D is slightly copied.

Patch A must not be copied.

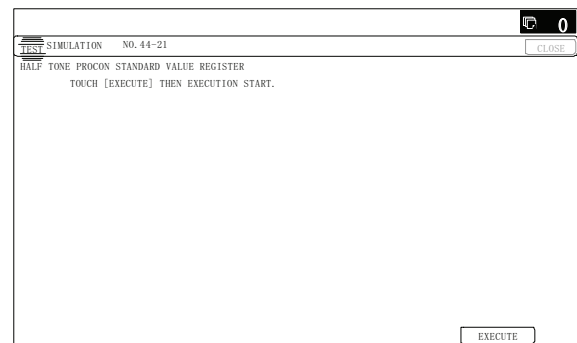
When, however, the color balance is adjusted on the request from the user, there is no need to set to the standard color balance stated above.

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

- 4) Select the point to be adjusted with the scroll key.

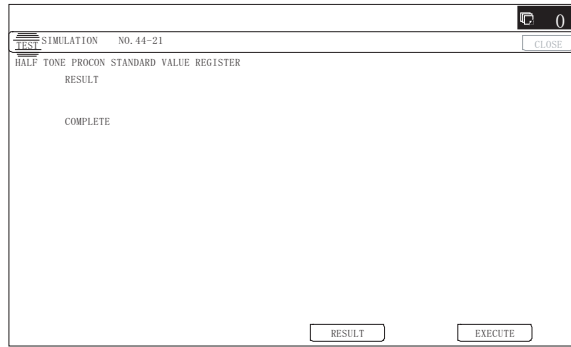
Item/Display		Density level (Point)	Adjustment value range	Default
A	POINT1	Point 1	245 - 755	500
B	POINT2	Point 2	245 - 755	500
C	POINT3	Point 3	245 - 755	500
D	POINT4	Point 4	245 - 755	500
E	POINT5	Point 5	245 - 755	500
F	POINT6	Point 6	245 - 755	500
G	POINT7	Point 7	245 - 755	500
H	POINT8	Point 8	245 - 755	500
I	POINT9	Point 9	245 - 755	500
J	POINT10	Point 10	245 - 755	500
K	POINT11	Point 11	245 - 755	500
L	POINT12	Point 12	245 - 755	500
M	POINT13	Point 13	245 - 755	500
N	POINT14	Point 14	245 - 755	500
O	POINT15	Point 15	245 - 755	500
P	POINT16	Point 16	245 - 755	500
Q	POINT17	Point 17	245 - 755	500

- 5) Enter the adjustment value with 10-key and press [OK] key.  
The adjustment value can be set in the range of 245 - 755. When SIM 46-24 is used to execute the automatic density and gradation adjustment, 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.
- 6) Check the density and gradation of the adjustment check pattern. (Refer to the item of the copy density and gradation check.)
- 7) Execute SIM 44-21. (Execute the initial setting of the half tone image correction.)  
When [EXECUTE] key is pressed, it 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.

This adjustment is required to memory the data as the reference data for half-tone correction.

Immediately after execution of ADJ 12B (Copy density and gradation adjustment (Manual)), be sure to execute this adjustment.

When ADJ 12A (Copy/printer density and gradation adjustment (Automatic)) is executed, this adjustment is automatically executed.

- 8) Make a copy of the gray test chart (UKOG-0162FCZZ) or the servicing color test chart (UKOG-0317FCZZ/UKOG-0317FC11 or UKOG-0326FCZZ/UKOG-0326FC11) 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 density and gradation check.)

If the copy density and gradation are not adjusted to the specified level, 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.

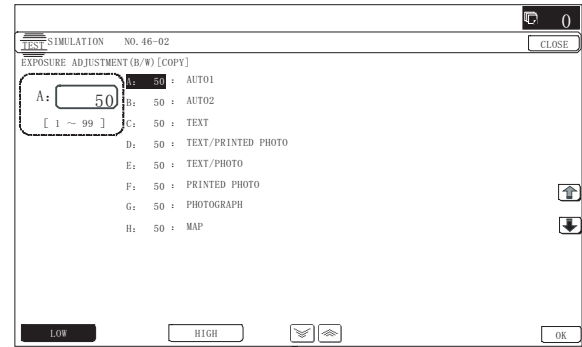
## 12-C Copy density in each copy mode (Overall density adjustment) (Normally unnecessary to adjust)

This adjustment is needed in the following situations:

- \* When there is necessity to change copy density of the low density and high density part at each copy mode individually.
- \* When there is necessity to change the density gradient of the copy by each the copy mode individually.
- \* When there is necessity to change all copy density by each the copy mode individually.
- \* U2 trouble has occurred.
- \* When the MFP PWB is replaced.
- \* When the EEPROM on the MFP PWB is replaced.

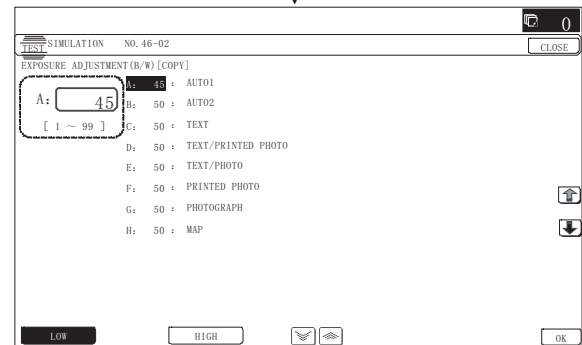
The density is adjusted in each copy mode individually. Normally individual adjustments are not required. When there is a request from the user, execute this adjustment.

- 1) Enter the SIM 46-2 mode.



10-key

OK



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

Item/Display	Content	Setting range	Default value
A AUTO1	Auto 1	LOW	1 - 99
		HIGH	1 - 99
B AUTO2	Auto 2	LOW	1 - 99
		HIGH	1 - 99
C TEXT	Text	LOW	1 - 99
		HIGH	1 - 99
D TEXT/PRINTED PHOTO	Text/Printed Photo	LOW	1 - 99
		HIGH	1 - 99
E TEXT/PHOTO	Text/Photograph	LOW	1 - 99
		HIGH	1 - 99
F PRINTED PHOTO	Printed Photo	LOW	1 - 99
		HIGH	1 - 99
G PHOTOGRAPH	Photograph	LOW	1 - 99
		HIGH	1 - 99
H MAP	Map	LOW	1 - 99
		HIGH	1 - 99

- 3) Enter the adjustment value with 10-key and press [OK] key.  
When adjusting the copy density on the low density part, select "LOW" mode and change the adjustment value. When adjusting the copy density on the high density part, select "HIGH" mode and change the adjustment value.  
When the adjustment value is increased, the copy density is increased. When the adjustment value is decreased, the copy density is decreased.
- 4) Press [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 46-2) 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.



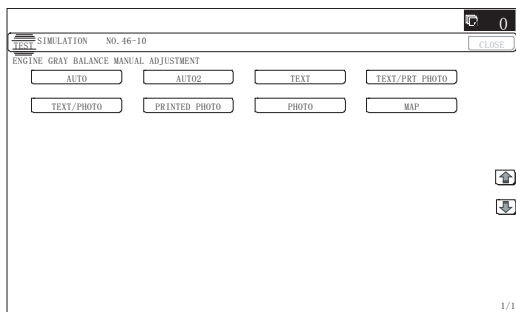
## 12-D Density and gradation adjustment in each copy mode (Normally not required)

This adjustment is needed in the following situations:

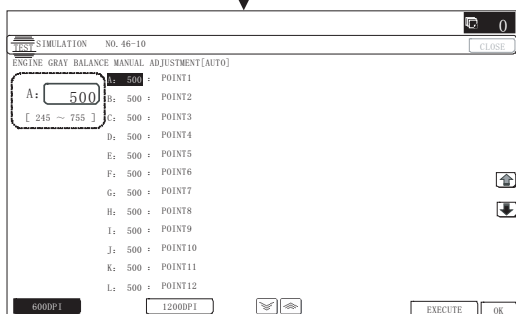
- \* When there is a necessity to change the density and gradation in each copy mode individually.
- \* U2 trouble has occurred.
- \* When the MFP PWB is replaced.
- \* When the EEPROM on the MFP PWB is replaced.

This is to adjust the density in each 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.

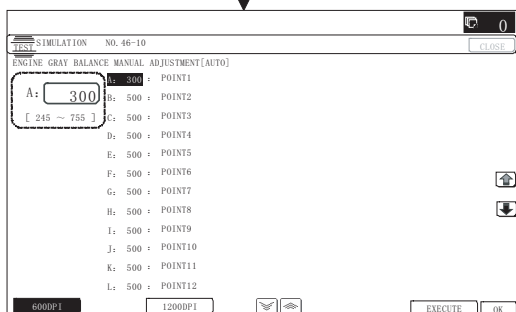


AUTO



10-key

OK

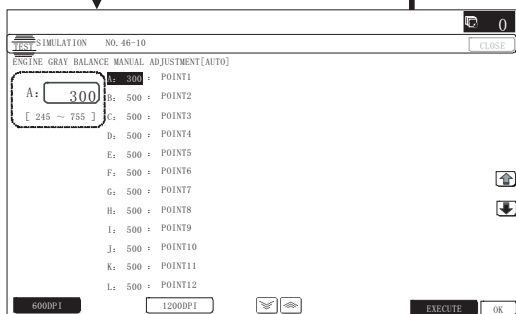


EXECUTE

EXECUTE

[SYSTEM SETTINGS] key

or end of print



- 2) Select the copy mode to be adjusted with the mode key.
- 3) 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	500
B POINT2	Point 2	245 - 755	500
C POINT3	Point 3	245 - 755	500
D POINT4	Point 4	245 - 755	500
E POINT5	Point 5	245 - 755	500
F POINT6	Point 6	245 - 755	500
G POINT7	Point 7	245 - 755	500
H POINT8	Point 8	245 - 755	500
I POINT9	Point 9	245 - 755	500
J POINT10	Point 10	245 - 755	500
K POINT11	Point 11	245 - 755	500
L POINT12	Point 12	245 - 755	500
M POINT13	Point 13	245 - 755	500
N POINT14	Point 14	245 - 755	500
O POINT15	Point 15	245 - 755	500
P POINT16	Point 16	245 - 755	500
Q POINT17	Point 17	245 - 755	500

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

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

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

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

A4R (11" x 8.5"R) paper is selected by priority. If there is no A4R (11" x 8.5"R) paper, A3 (11" x 17") paper is selected.

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

## 12-E Document background density reproducibility adjustment in the auto copy mode (Normally unnecessary to adjust)

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

This adjustment is required in the following cases.

- \* When there is a desire not to reproduce the background of the document. When there is a desire to reproduce the low density image of the document.
- \* U2 trouble has occurred.
- \* When the MFP PWB is replaced.
- \* When the EEPROM on the MFP PWB is replaced.
- \* When there is request from the user.

- 1) Enter the SIM 46-32 mode.

SIMULATION NO. 46-32

LIMIT OF AE REACTION SETTING

A: 196 [ 1 ~ 250 ]

B: 196 : COPY: DSPF (SIDE1)

C: 196 : COPY: DSPF (SIDE2)

D: 196 : SCAN: OC

E: 196 : SCAN: DSPF (SIDE1)

F: 196 : SCAN: DSPF (SIDE2)

G: 196 : FAX: OC

H: 196 : FAX: DSPF (SIDE1)

I: 196 : FAX: DSPF (SIDE2)

10-key  
OK

SIMULATION NO. 46-32

LIMIT OF AE REACTION SETTING

A: 200 [ 1 ~ 250 ]

B: 196 : COPY: DSPF (SIDE1)

C: 196 : COPY: DSPF (SIDE2)

D: 196 : SCAN: OC

E: 196 : SCAN: DSPF (SIDE1)

F: 196 : SCAN: DSPF (SIDE2)

G: 196 : FAX: OC

H: 196 : FAX: DSPF (SIDE1)

I: 196 : FAX: DSPF (SIDE2)

- 2) Select the adjusting mode "COPY: OC", "COPY: DSPF/RSPF" with the scroll key.
- 3) Enter the adjustment value with 10-key and press [OK] key.  
When the adjustment value is increased, reproducibility of the background and the low density image is increased. When the adjustment value is decreased, reproducibility of the background and the low density image is decreased.

#### (DSPF)

Item/Display	Content	Setting range	Default value
A	COPY: OC	Copy mode (for OC)	1 - 250
B	COPY: DSPF (SIDE1)	Copy mode (for DSPF front surface)	1 - 250
C	COPY: DSPF (SIDE2)	Copy mode (for DSPF back surface)	1 - 250
D	SCAN: OC	Scanner mode (for OC)	1 - 250
E	SCAN: DSPF (SIDE1)	Scanner mode (for DSPF front surface)	1 - 250
F	SCAN: DSPF (SIDE2)	Scanner mode (for DSPF back surface)	1 - 250
G	FAX: OC	FAX mode (for OC)	1 - 250
H	FAX: DSPF (SIDE1)	FAX mode (for DSPF front surface)	1 - 250
I	FAX: DSPF (SIDE2)	FAX mode (for DSPF back surface)	1 - 250

#### (RSPF)

Item/Display	Content	Setting range	Default value
A	COPY: OC	Copy mode (OC)	1 - 250
B	COPY: RSPF	Copy mode (RSPF)	1 - 250
C	SCAN: OC	Scanner mode (OC)	1 - 250
D	SCAN: RSPF	Scanner mode (RSPF)	1 - 250
E	FAX: OC	FAX mode (OC)	1 - 250
F	FAX: RSPF	FAX mode (RSPF)	1 - 250

## 12-F Color document reproducibility adjustment in the copy mode (Normally unnecessary to adjust) (N model only)

Use to adjust the reproducibility of the red image and the yellow image when copying a color document that includes the red/yellow images.

This adjustment is required in the following cases.

- \* When there is desire to change reproducibility of yellow/red image in case of making a color copy of the color document in copy mode.
  - \* U2 trouble has occurred.
  - \* When the MFP PWB is replaced.
  - \* When the EEPROM on the MFP PWB is replaced.
- 1) Enter the SIM 46-37 mode.

SIMULATION NO. 46-37

RAW IMAGE CREATE ADJUSTMENT

A: 303 [ 0 ~ 1000 ]

B: 303 : R-Ratio

G: 697 : G-Ratio

DEFAULT ARE YOU SURE? YES NO EXECUTE

10-key

DEFAULT

SIMULATION NO. 46-37

RAW IMAGE CREATE ADJUSTMENT

A: 80 [ 0 ~ 1000 ]

B: 80 : R-Ratio

G: 697 : G-Ratio

DEFAULT ARE YOU SURE? YES NO EXECUTE

EXECUTE

NO

SIMULATION NO. 46-37

RAW IMAGE CREATE ADJUSTMENT

A: 80 [ 0 ~ 1000 ]

B: 80 : R-Ratio

G: 697 : G-Ratio

DEFAULT ARE YOU SURE? YES NO EXECUTE

YES

SIMULATION NO. 46-37

RAW IMAGE CREATE ADJUSTMENT

A: 80 [ 0 ~ 1000 ]

B: 80 : R-Ratio

G: 697 : G-Ratio

DEFAULT ARE YOU SURE? YES NO EXECUTE



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

Item/Display	Content	Setting range	Default value
A	R-Ratio	Gray making setting (R)	0 - 1000
B	G-Ratio	Gray making setting (G)	0 - 1000

- 3) Enter the adjustment value with 10-key.  
 When [DEFAULT] key is pressed, the values are set to the initial values (Default).  
 When the adjustment value of the adjustment item A is increased, the copy density of red images is decreased. When the adjustment value is decreased, the density is increased.  
 When the adjustment value of the adjustment item B is increased, the copy density of yellow images is increased. When the adjustment value is decreased, the density is also decreased.
- 4) Press [OK] key.
- 5) Make a copy in text/printed photo copy mode (manual), check the copy.  
 If a satisfactory result is not obtained, return to the SIM 46-37 mode and change the adjustment value.  
 Repeat the above procedures until a satisfactory result is obtained.

## 12-G Copy density and gradation adjustment (DSPF mode) (Individual adjustment of the low density area and the high density area) (In the case of DSPF)

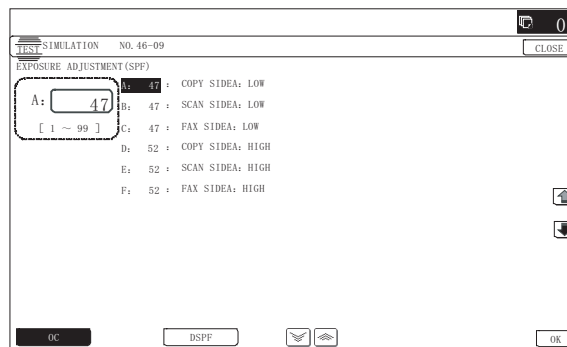
It is normally not necessary to perform this adjustment. In the following cases, however, this adjustment must be performed.

- \* When the copy density differs in the DSPF mode and in the document table mode.
- \* When the copy density differs on the front surface and on the back surface in the DSPF mode.
- \* When the copy density in the DSPF mode is too low or too high.
- \* When the DSPF unit is replaced.
- \* When the DSPF unit is disassembled.
- \* When the DSPF CIS unit is replaced.
- \* When U2 trouble occurs.

### a. Adjustment procedures

#### (Front surface copy density adjustment)

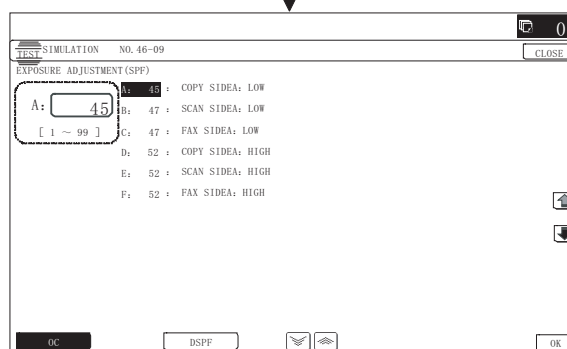
- 1) Enter the SIM 46-9 mode.



OC

10-key

OK



Item	Button	Display	Content	Setting range	Default value
A	OC	COPY SIDEA: LOW	DSPF copy mode exposure adjustment (Low density side)	1 - 99	47
B		SCAN SIDEA: LOW	DSPF scanner mode exposure adjustment (Low density side)	1 - 99	47
C		FAX SIDEA: LOW	DSPF FAX mode exposure adjustment (Low density side)	1 - 99	47
D		COPY SIDEA: HIGH	DSPF copy mode exposure adjustment (High density side)	1 - 99	52
E		SCAN SIDEA: HIGH	DSPF scanner mode exposure adjustment (High density side)	1 - 99	52
F		FAX SIDEA: HIGH	DSPF FAX mode exposure adjustment (High density)	1 - 99	52

Item	Button	Display	Content	Setting range	Default value
A	DSPF	COPY SIDE B: LOW	DSPF copy mode exposure adjustment (Low density side)	1 - 99	47
B		SCAN SIDE B: LOW	DSPF scanner mode exposure adjustment (Low density side)	1 - 99	47
C		FAX SIDE B: LOW	DSPF FAX mode exposure adjustment (Low density side)	1 - 99	47
D		COPY SIDE B: HIGH	DSPF copy mode exposure adjustment (High density side)	1 - 99	50
E		SCAN SIDE B: HIGH	DSPF scanner mode exposure adjustment (High density side)	1 - 99	50
F		FAX SIDE B: HIGH	DSPF FAX mode exposure adjustment (High density)	1 - 99	50
G		BALANCE SIDE B: R	DSPF color balance R	1 - 99	50
H		BALANCE SIDE B: G	DSPF color balance G	1 - 99	50
I		BALANCE SIDE B: B	DSPF color balance B	1 - 99	50

- Press [OC] key to select the front surface copy density adjustment mode.
  - Select an adjustment mode with the scroll key.  
To adjust the density in the low density area, select "COPY SIDE A LOW." To adjust the density in the high density area, select "COPY SIDE A HIGH."
  - Enter an adjustment value with 10-key.  
To increase the density, enter a greater number. To decrease the density, enter a smaller number.
  - Press [OK] key.
  - Press [CLOSE] key to exit the simulation mode.
  - Make a copy and check the copy density.
- Repeat the above procedures until a satisfactory result is obtained.

#### (Back surface copy density adjustment)

- Enter the SIM46-9 mode.

The screenshot shows the 'TEST SIMULATION NO. 46-09' window. Inside, the 'EXPOSURE ADJUSTMENT (SPF)' screen is active. It lists options A through I. Option A is selected, showing a value of 47. Below the list, there are buttons for 'OC', 'DSPF', and 'OK'. An arrow points from the 'DSPF' button to a '10-key' input field, which then points to an 'OK' button. This sequence of actions leads to the next screenshot where the value for option A has been changed to 45.

Item	Button	Display	Content	Setting range	Default value
A	OC	COPY SIDE A: LOW	DSPF copy mode exposure adjustment (Low density side)	1 - 99	47
B		SCAN SIDE A: LOW	DSPF scanner mode exposure adjustment (Low density side)	1 - 99	47
C		FAX SIDE A: LOW	DSPF FAX mode exposure adjustment (Low density side)	1 - 99	47
D		COPY SIDE A: HIGH	DSPF copy mode exposure adjustment (High density side)	1 - 99	52
E		SCAN SIDE A: HIGH	DSPF scanner mode exposure adjustment (High density side)	1 - 99	52
F		FAX SIDE A: HIGH	DSPF FAX mode exposure adjustment (High density)	1 - 99	52
A	DSPF	COPY SIDE B: LOW	DSPF copy mode exposure adjustment (Low density side)	1 - 99	47
B		SCAN SIDE B: LOW	DSPF scanner mode exposure adjustment (Low density side)	1 - 99	47
C		FAX SIDE B: LOW	DSPF FAX mode exposure adjustment (Low density side)	1 - 99	47
D		COPY SIDE B: HIGH	DSPF copy mode exposure adjustment (High density side)	1 - 99	50
E		SCAN SIDE B: HIGH	DSPF scanner mode exposure adjustment (High density side)	1 - 99	50
F		FAX SIDE B: HIGH	DSPF FAX mode exposure adjustment (High density)	1 - 99	50
G	DSPF	BALANCE SIDE B: R	DSPF color balance R	1 - 99	50
H		BALANCE SIDE B: G	DSPF color balance G	1 - 99	50
I		BALANCE SIDE B: B	DSPF color balance B	1 - 99	50

- Press [DSPF] key to select the back surface copy density adjustment mode.
  - Select an adjustment mode with the scroll key.  
To adjust the density in the low density area, select "COPY SIDE B LOW." To adjust the density in the high density area, select "COPY SIDE B HIGH."
  - Enter an adjustment value with 10-key.  
To increase the density, enter a greater number. To decrease the density, enter a smaller number.
  - Press [OK] key.
  - Press [CLOSE] key to exit the simulation mode.
  - Make a copy, and check the copy density.
- Repeat the above procedures until a satisfactory result is obtained.

## 12-H Copy density and gradation adjustment (RSPF mode) (Individual adjustment of the low density area and the high density area) (In the case of RSPF)

It is normally not necessary to perform this adjustment. In the following cases, however, this adjustment must be performed.

- \* When the copy density differs in the RSPF mode and in the document table mode.
- \* When the copy density in the RSPF mode is too low or too high.
- \* When the RSPF unit is replaced.
- \* When the RSPF unit is disassembled.
- \* When U2 trouble occurs.

### a. Adjustment procedures

#### (Front surface copy density adjustment)

- 1) Enter the SIM 46-9 mode.

10-key

OK

- 2) Select an adjustment mode with the scroll key.

To adjust the density in the low density area, select "COPY LOW." To adjust the density in the high density area, select "COPY HIGH."

Item	Display	Content	Setting range	Default value
A	COPY: LOW	RSPF copy mode exposure adjustment (Low density side)	1 - 99	48
B	SCAN: LOW	RSPF scanner mode exposure adjustment (Low density side)	1 - 99	48
C	FAX: LOW	RSPF FAX mode exposure adjustment (Low density side)	1 - 99	48
D	COPY: HIGH	RSPF copy mode exposure adjustment (High density side)	1 - 99	53
E	SCAN: HIGH	RSPF scanner mode exposure adjustment (High density side)	1 - 99	53
F	FAX: HIGH	RSPF FAX mode exposure adjustment (High density)	1 - 99	53

- 3) Enter an adjustment value with 10-key.  
To increase the density, enter a greater number. To decrease the density, enter a smaller number.
  - 4) Press [OK] key.
  - 5) Press [CLOSE] key to exit the simulation mode.
  - 6) Make a copy and check the copy density.
- Repeat the above procedures until a satisfactory result is obtained.

## 12-I Automatic copy and printer density and gradation adjustment by the user (Setting of ENABLE/DISABLE of the automatic copy density and gradation adjustment, and the adjustment)

### a. General

In the user program mode, the user can execute the automatic adjustment of the copy and the printer density and gradation.

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 and the printer density and gradation as well as the user's operational ability is judged enough to execute the adjustment.

When set to enable, operation procedures must be fully explained to the user.

This adjustment is required in the following cases.

- \* U2 trouble has occurred.
- \* When the MFP PWB is replaced.
- \* When the EEPROM on the MFP PWB is replaced.
- \* When the PCU PWB is replaced.
- \* When the EEPROM of 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) Press [OK] key.

When this is set to DISABLE, the menu of the automatic adjustment of the user copy color balance and density is not displayed in the user program mode.

(Automatic adjustment of the copy and the printer density and gradation)

Remark:

- 1) Enter the system setting mode.
- 2) Enter the copy setting mode.
- 3) Press the auto calibration key.
- 4) Press [EXECUTE] key.

The patch image (adjustment pattern) is printed out.

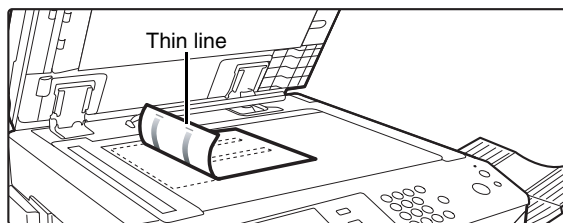
A4R (11" x 8.5"R) paper is selected by priority. If there is no A4R (11" x 8.5"R) paper, A3 (11" x 17") paper is selected.

- 5) Set the 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.

Place the adjustment pattern on the document table so that the adjustment pattern patch faces in the sub scanning direction. (When the adjustment pattern is printed on A4R or 11" x 8.5"R paper, place the adjustment pattern paper vertically on the document table.)

At that time, place 5 sheets of white paper on the above patch image (adjustment pattern).



- 6) Press [EXECUTE] key.  
The copy and the printer density and gradation adjustment is automatically executed. After completion of the adjustment, the display returns to the original operation screen.

## ADJ 13 Printer quality adjustment (Printer density and gradation adjustment)

NOTE: For the U model where no printer function is provided, this adjustment is not required.

(1) Note before execution of the printer density and gradation adjustment

(2) Printer density and gradation check

(Note)

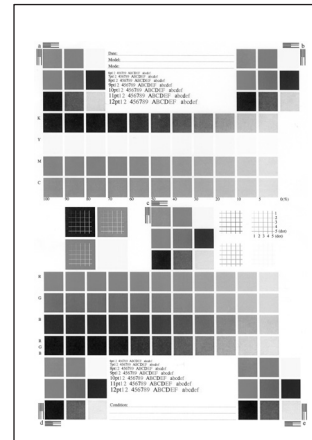
Before checking the printer density and gradation, be sure to execute the following procedures in advance.

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

(Method 1)

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

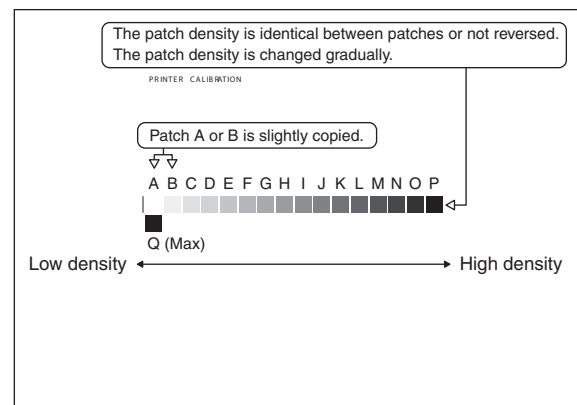
Set each set value to the default and press [EXECUTE] key. The print test pattern is printed.



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

(Method 2)

Execute SIM 67-25 to print the adjustment check pattern.



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

Patch A or B is slightly copied.

## 13-A Manual printer density and gradation adjustment

This adjustment is needed in the following situations:

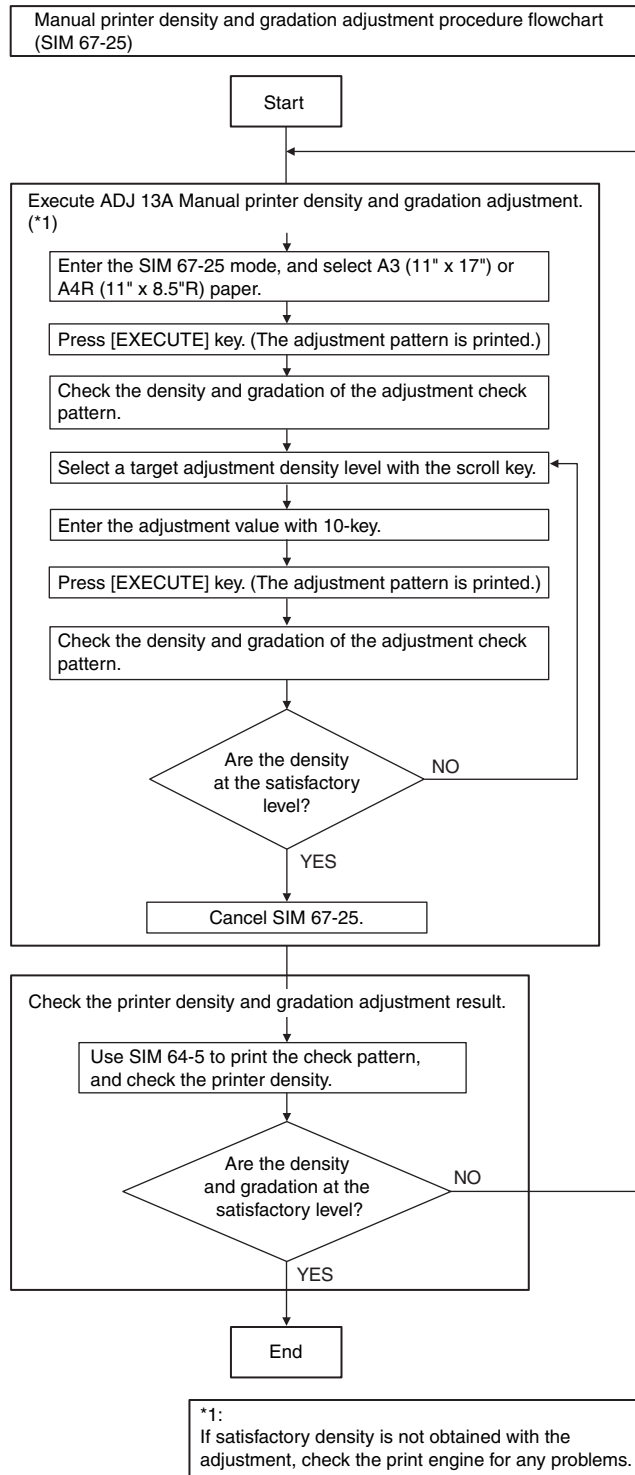
- \* When the copy density and gradation adjustment is required.

a. General

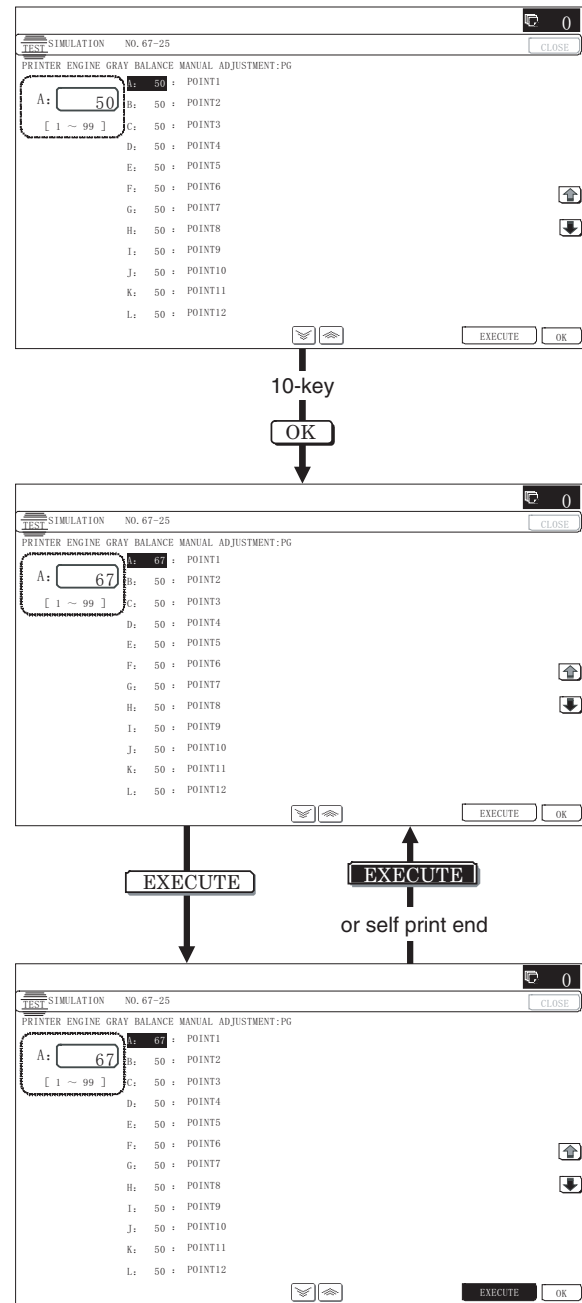
When the printer density and gradation are not within the specified range in the previous automatic adjustment of ADJ 12A, or when a fine adjustment is required, or when the user requests for customization, this adjustment is executed manually.

Execute the automatic adjustment of ADJ 12A in advance, and then execute this adjustment for better efficiency.

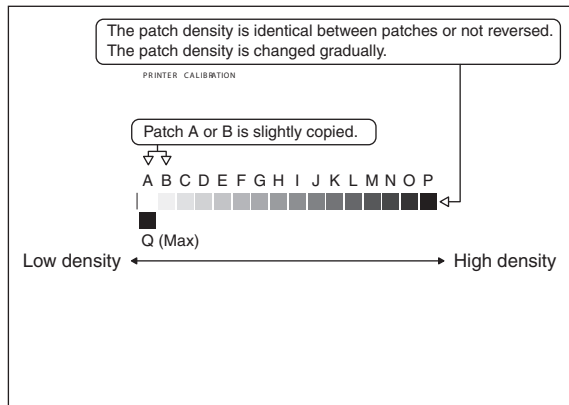
## b. Adjustment procedure



## 1) Enter the SIM 67-25 mode.



- 2) Press [EXECUTE] key. (A3 (11" x 17") or A4R (11" x 8.5") paper is selected.)  
A4R (11" x 8.5") paper is selected by priority. If there is no A4R (11" x 8.5") paper, A3 (11" x 17") paper is selected.  
The adjustment check pattern is printed.
- 3) Check that the following specification is satisfied or the density and the gradation are 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.

Patch A or B is slightly copied.

When, however, the density and the gradation are adjusted on the request by the user, there is no need to set to the standard density and gradation stated above.

- 4) Select the adjustment point with the scroll key.
- 5) Enter the adjustment value with 10-key and press [OK] key.  
The adjustment value is set in the range of 0 - 255 (1 - 99).  
When SIM 46-24 is used to adjust the automatic density, all the set values of this simulation are set to 50.  
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 - Q (MAX) to a same level collectively.  
Then, adjust each patch density individually. This is an efficient way of adjustment.
- 6) Cancel SIM 67-25.
- 7) Use SIM 64-5 to print the print test pattern and check the print density and gradation.  
Set each set value to the default and press [EXECUTE] key.  
The print test pattern is printed.

## ADJ 14 Automatic setting of exposure mode operating conditions in copy, scan, and FAX

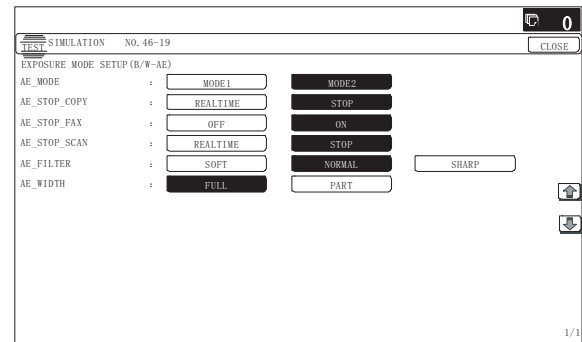
Use for setting the condition of read operation (Exposure) for document density in auto copy mode.

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

This adjustment is required in the following cases.

- \* When a copy with correct density is not obtained in auto mode.
- \* U2 trouble has occurred.
- \* When the MFP PWB is replaced.
- \* When the EEPROM on the MFP PWB is replaced.

- 1) Enter the SIM 46-19 mode.



- 2) Set REALTIME or STOP to adjustment item AE STOP COPY.  
For contents of each setting item, refer to below. Change the setting value of "AE WIDTH" item to "FULL" or "PART", in some cases.

Item/Display	Content	Set value	Default value
AE_MODE	Auto exposure mode	MODE1, MODE2	MODE2
AE_STOP_COPY	Auto B/W exposure Stop (for copy)	REALTIME/STOP	STOP
AE_STOP_FAX	Auto B/W exposure Stop (for FAX)	ON/OFF	ON
AE_STOP_SCAN	Auto B/W exposure Stop (for scanner)	REALTIME/STOP	STOP
AE_FILTER	Auto exposure filter setting	SOFT	NORMAL
		NORMAL	
		SHARP	
AE_WIDTH	AE exposure width	FULL/PART	FULL

NOTE: MODE1: High gamma (Improves the image contrast)

MODE2: Normal gamma

STOP:

Reads the density of 3 - 7 mm area from leading edge of document, decides the output image density according to the density of that part. (The output image density is constant at whole area.)

REALTIME:

Reads the density of width of the document one by one, decides the output image density according to the density of each part of the document. (The output image density may be not constant at whole area.)

AE WIDTH FULL:

Document density reading area in auto mode is 3 - 7 mm (leading edge of document) x Document width. No relationship to PRESCAN MODE

AE WIDTH PART:

Document density reading area in auto mode is 3 - 7 mm (leading edge of document) x 100 mm (width). No relationship to PRESCAN MODE

Operation in auto copy mode:

When the density of the document of the read area is light, output image density is increased by control. When the density of the document of the read area is dark, output image density is decreased by control.

Document table/DSPF mode

3 to 7mm

AE WIDTH = FULL

Document table mode

3 to 7mm

100mm

AE WIDTH = PART

DSPF mode

3 to 7mm

100mm

AE WIDTH = PART

Document density detection area

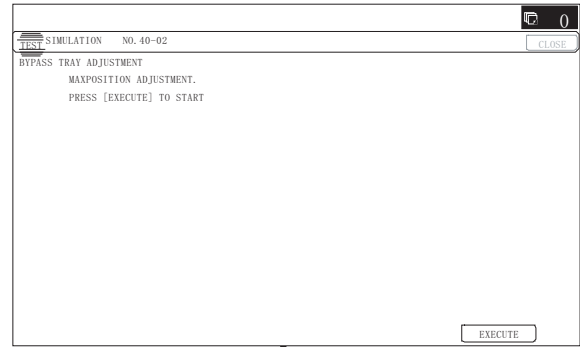
## ADJ 15 Paper size detection adjustment

### 15-A Manual paper feed tray paper width sensor adjustment

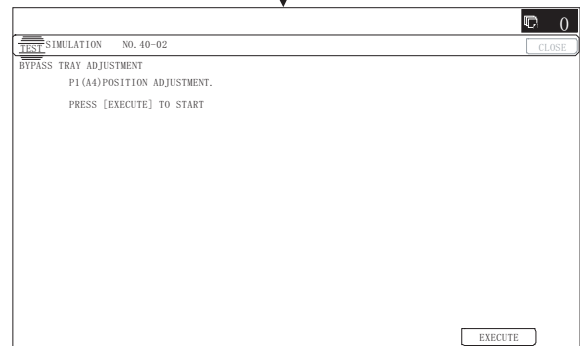
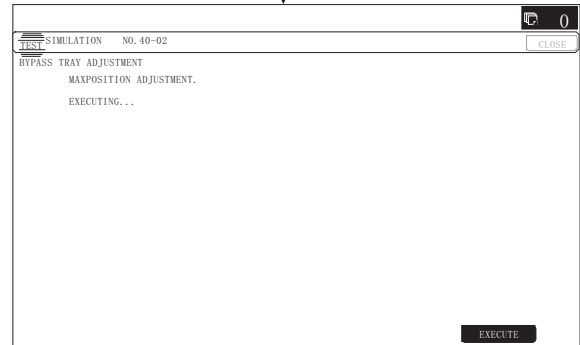
This adjustment is needed in the following situations:

- \* The manual paper feed tray section has been disassembled.
- \* The manual paper feed tray unit has been replaced.
- \* U2 trouble has occurred.
- \* The PCU PWB has been replaced.
- \* The EEPROM of the PCU PWB has been replaced.

1) Enter the SIM 40-2 mode.

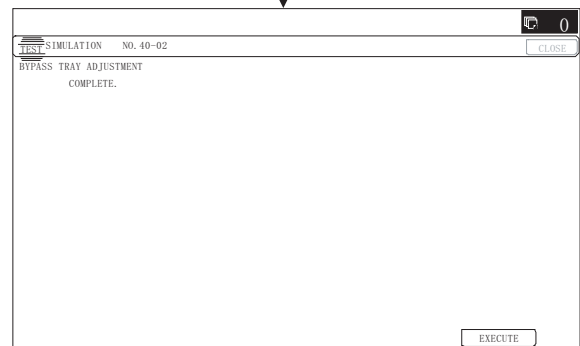


EXECUTE



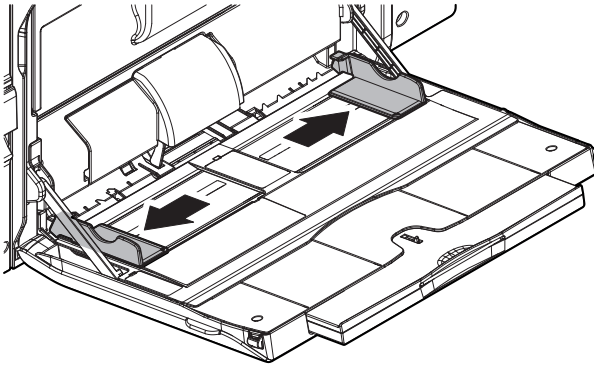
EXECUTE

Repeat the above procedure to adjust the A4R width MIN POSITION.

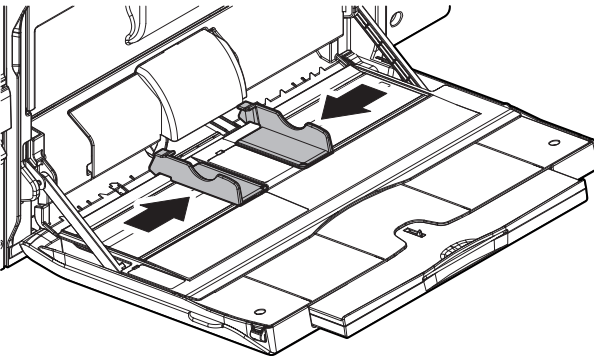




- 2) Open the manual paper feed guide to the maximum width position.



- 3) Press [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) Press [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 width for the A4R size.
- 7) Press [EXECUTE] key.  
[EXECUTE] key is highlighted. Then it returns to the normal display.  
Set the manual paper feed guide to the width for the A4R size.
- 8) Open the manual paper feed guide to the minimum width position.

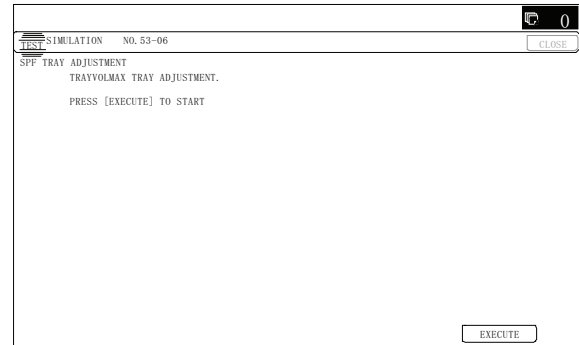


- 9) Press [EXECUTE] key.  
[EXECUTE] key is highlighted. Then it returns to the normal display.  
The minimum width position detection level of the manual paper feed guide is recognized.  
If the above operation is not completed normally, "ERROR" is displayed.  
When the operation is completed normally, the above data are saved to the memory and "COMPLETE" is displayed.

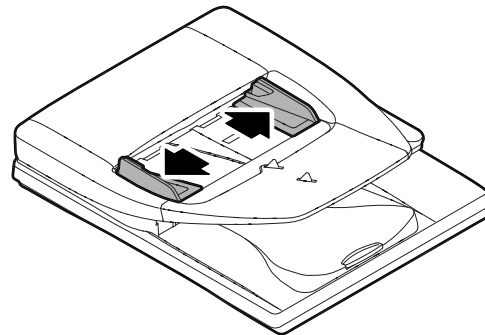
## 15-B DSPF/RSPF paper feed tray paper width sensor adjustment

This adjustment is needed in the following situations:

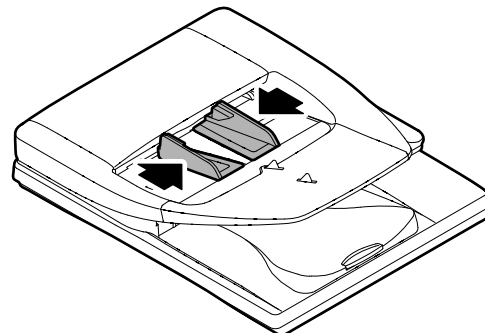
- \* The DSPF/RSPF paper feed tray section has been disassembled.
  - \* The DSPF/RSPF paper feed tray unit has been replaced.
  - \* When a U2 trouble occurs.
  - \* The scanner PWB has been replaced.
  - \* The EEPROM on the scanner PWB has been replaced.
- 1) Enter the SIM 53-6 mode.



- 2) Open the DSPF/RSPF paper feed guide to the maximum width position.



- 3) Press [EXECUTE] key.  
The maximum width detection level is recognized.
- 4) Open the DSPF/RSPF paper feed guide to the width for the A4R size.
- 5) Press [EXECUTE] key.  
The A4R width detection level is recognized.
- 6) Open the DSPF/RSPF paper feed guide to the width for the A5R size.
- 7) Press [EXECUTE] key.  
The A5R width detection level is recognized.
- 8) Open the DSPF/RSPF paper feed guide to the minimum width position.



- 9) Press [EXECUTE] key.  
The minimum width detection level is recognized.
- \* When each of the above operations has been completed, the "COMPLETE" message appears; when any of the operations has failed, the "ERROR" message appears.

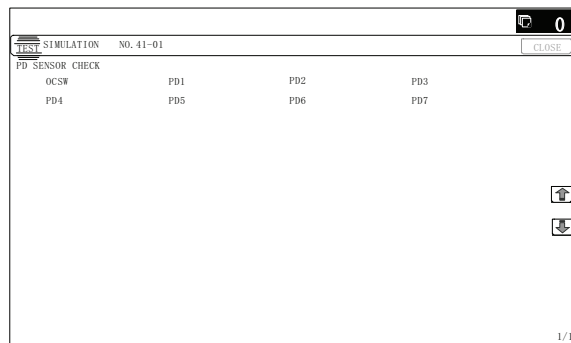
## ADJ 16 Document size detection adjustment (Document table mode)

This adjustment is needed in the following situations:

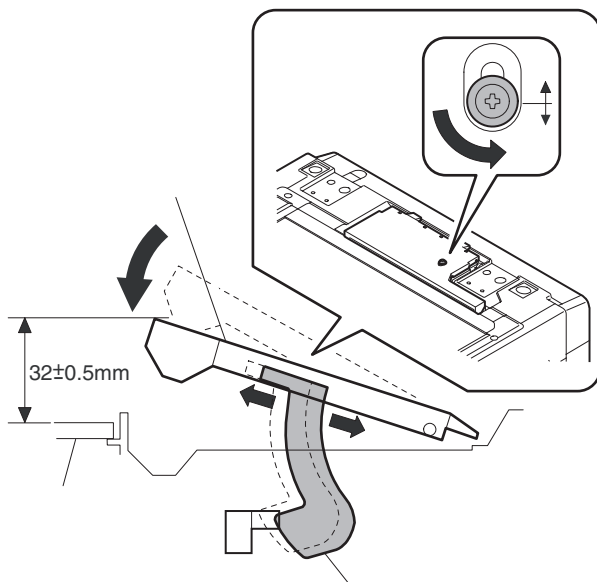
- \* When the original size sensor section has been disassembled.
- \* When the original size sensor section has been replaced.
- \* When U2 trouble has occurred.
- \* When the scanner control PWB is replaced.
- \* When the EEPROM on the scanner control PWB is replaced.

### 16-A Document size sensor detection point adjustment

- 1) Enter the SIM 41-1 mode.

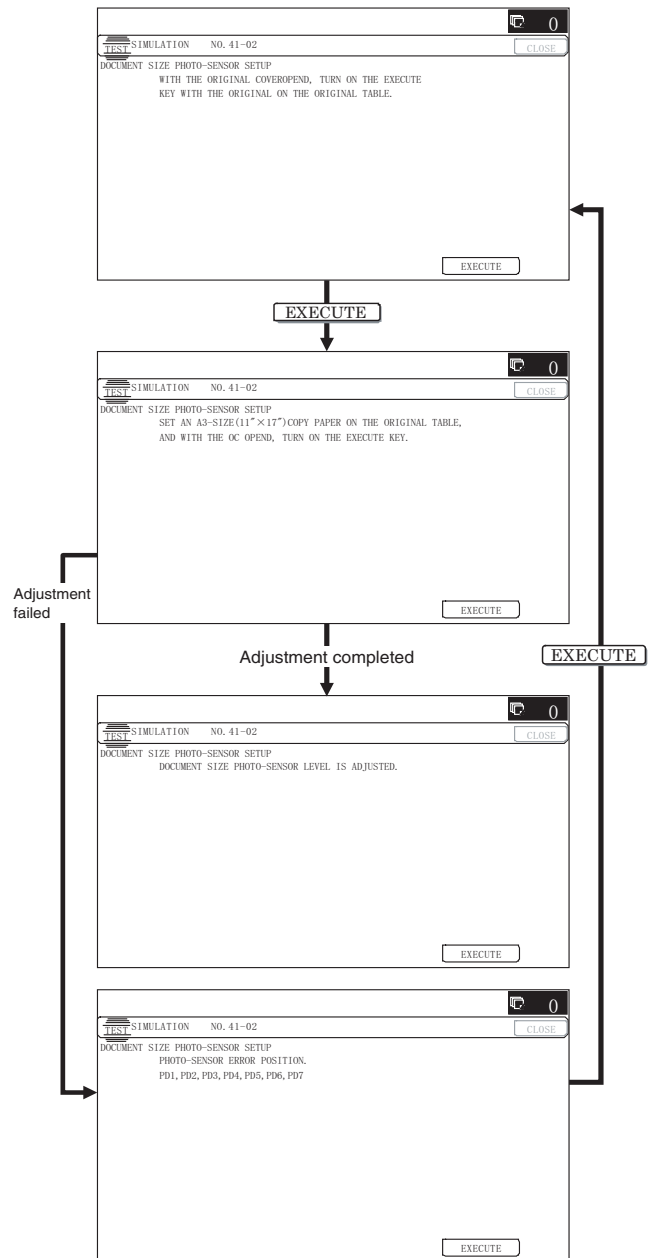


Loosen the original cover switch actuator adjustment screw and slide the actuator position so that the display OCSW is returned to the normal display when the height of the arm unit top from the table glass is  $32 \pm 0.5\text{mm}$  by slowly tilting the document detection arm unit in the arrow direction and adjust. (If the ON timing of the original cover switch is shifted, the document detection function may malfunction.)



### 16-B Adjust the sensitivity of the original size sensor

- 1) Enter the SIM 41-2 mode.



- 2) Execute the sensor adjustment without document.  
With the document cover open, without placing a document on the table glass, press [EXECUTE] key.
- 3) Place A3 (11" x 17") paper on the document table and press [EXECUTE] key.  
If the adjustment is completed normally, "DOCUMENT PHOTO SENSOR LEVEL IS ADJUSTED" is displayed.

## ADJ 17 Touch panel coordinate setting

This adjustment is needed in the following situations:

- \* The operation panel has been replaced.
- \* U2 trouble has occurred.
- \* The scanner control PWB has been replaced.
- \* The EEPROM on the scanner control PWB has been replaced.

- 1) Enter the SIM 65-1 mode.



- 2) Precisely press the cross mark points (4 positions).

When the cross mark is pressed precisely, a buzzer sounds and the display is reversed. When all the four points are pressed 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 pressed.

- \* When pressing the touch panel, never use a sharp tip (such as a needle or a pin).

## ADJ 18 Image lead edge position, image off-center, image magnification ratio adjustment (Automatic adjustment)

The following adjustment items can be executed automatically with SIM 50-28. It takes less time to use this adjustment than to use the following manual adjustments.

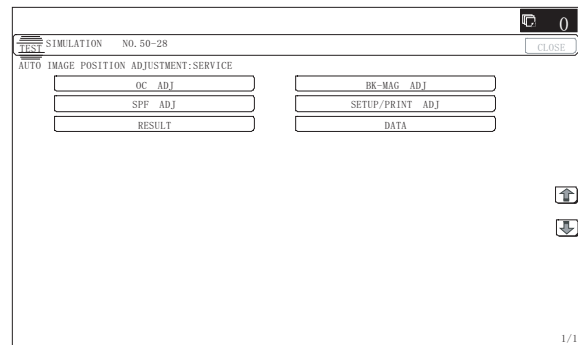
- \* ADJ 3B Print engine image magnification ratio adjustment (Main scanning direction)
- \* ADJ 3C Print engine print area (void area) adjustment
- \* ADJ 3D Print engine image off-center adjustment
- \* ADJ 7 Scan image magnification ratio adjustment (Manual adjustment)
- \* ADJ 10 Copy image position, image loss, and void area adjustment (Manual adjustment)

(Menu in SIM 50-28 mode)

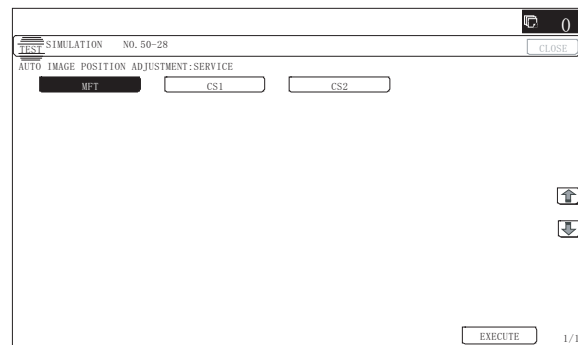
Item/Display	Content
OC ADJ	Image loss off-center sub scanning direction image magnification ratio adjustment (Document table mode)
BK-MAG ADJ	Main scanning direction image magnification ratio adjustment
SPF ADJ	Image loss off-center sub scanning direction image magnification ratio adjustment (DSPF mode)
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

## 18-A Print image main scanning direction image magnification ratio automatic adjustment (Document table mode)

- 1) Enter the SIM50-28 mode.

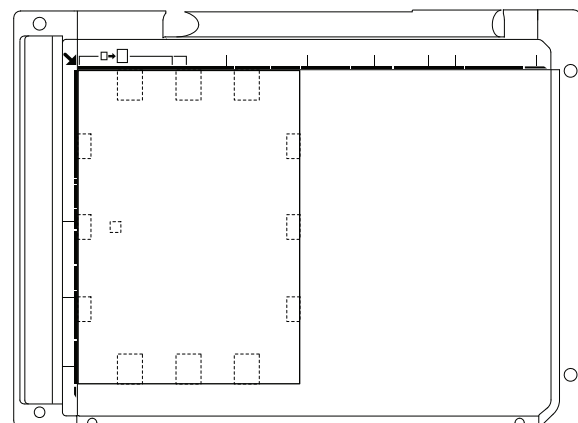


- 2) Select [BK-MAG ADJ] with the key button.
- 3) Select the paper feed tray with paper in it with the key button. (Any paper size will do.)

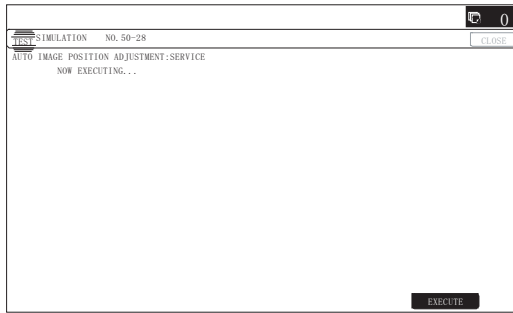


- 4) Press [EXECUTE] key.  
The patch image (adjustment pattern) is printed out.
- 5) Set the adjustment pattern on the document table. (Any direction)

NOTE: Fit the adjustment pattern correctly with the document guide.



- 6) Press [EXECUTE] key.

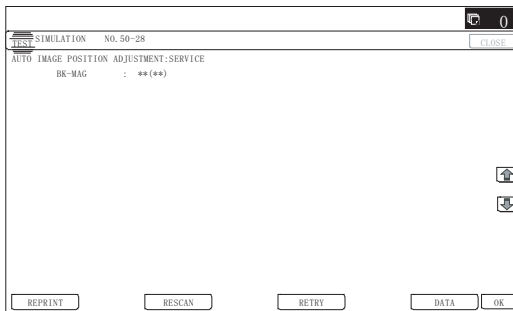


The following item is automatically adjustment.

- \* Print image main scanning direction image magnification ratio

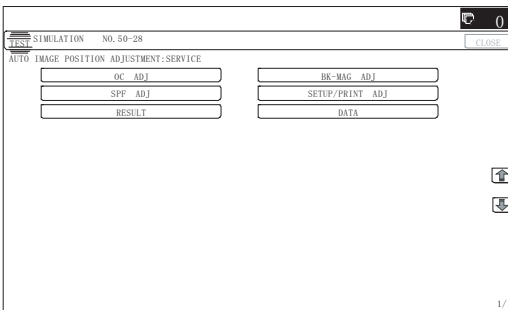
- 7) Press [OK] key.

The adjustment result becomes valid.

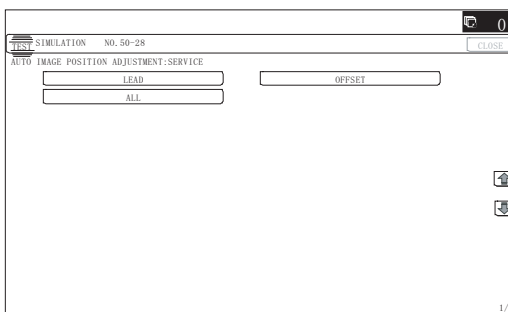


## 18-B Image off-center automatic adjustment (Each paper feed tray)

- 1) Enter the SIM50-28 mode.



- 2) Select [SETUP/PRINT] ADJ with the key button.  
3) Select [ALL] with the key button.



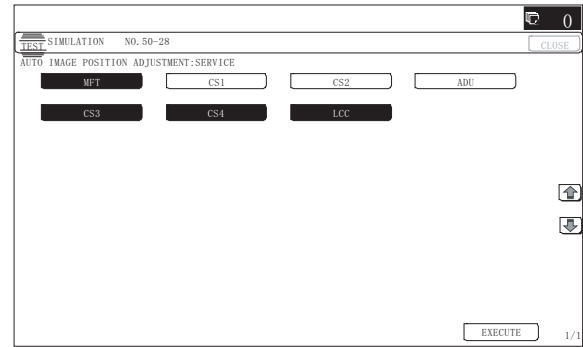
(Note)

By pressing [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.

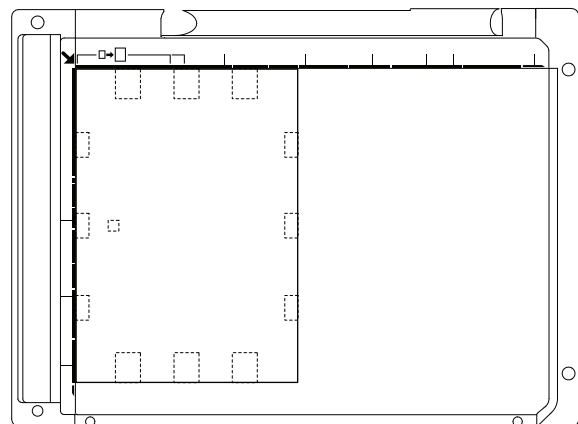


- 5) Press [EXECUTE] key.

The patch image (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) Press [EXECUTE] key.

The following item is automatically adjustment.

- \* Print image lead edge image position adjustment
- \* Print image off-center adjustment

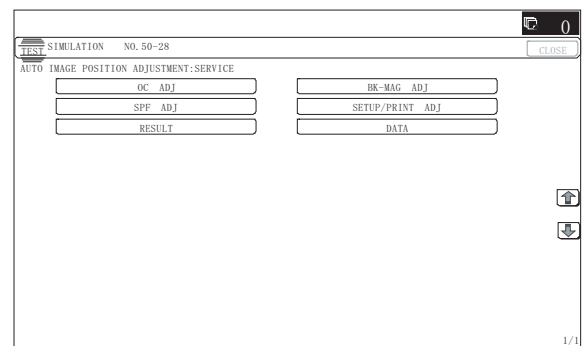
- 8) Press [OK] key.

The adjustment result becomes valid.

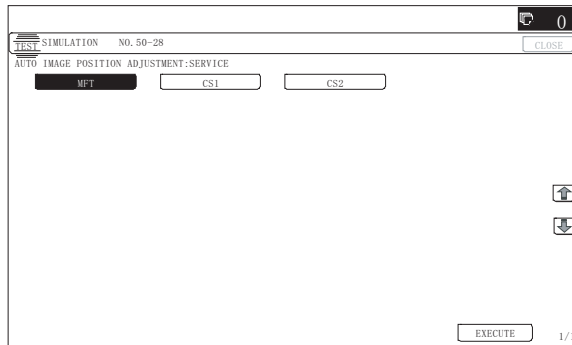
Perform procedures 4) to 7) for each paper feed tray.

## 18-C Copy lead edge image reference position adjustment, image off-center, sub scanning direction image magnification ratio automatic adjustment (Document table mode)

- 1) Enter the SIM50-28 mode.

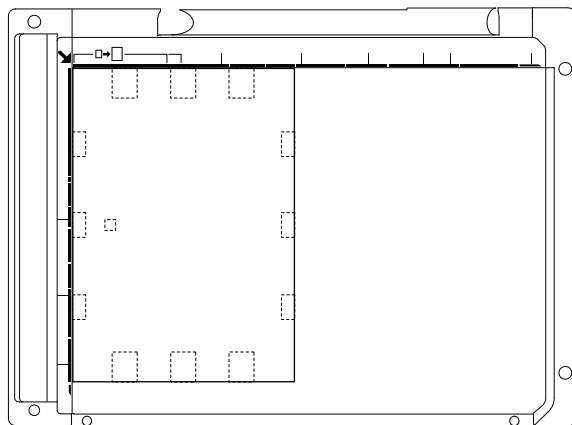


- 2) Select [OC ADJ] with the key button.
- 3) Select the paper feed tray with paper in it with the key button.  
(Any paper size will do.)



- 4) Press [EXECUTE] key.  
The patch image (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.



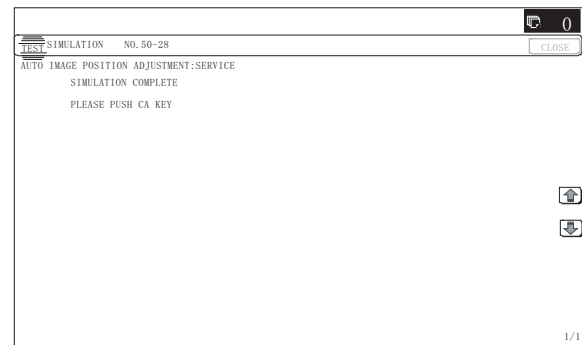
- 6) Press [EXECUTE] key.



The following item is automatically adjustment.

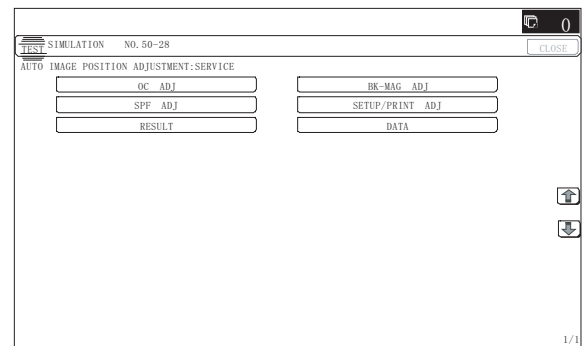
- \* Copy lead edge image reference position adjustment, image off-center, sub scanning direction image magnification ratio automatic adjustment

- 7) Press [OK] key.  
The adjustment result becomes valid.

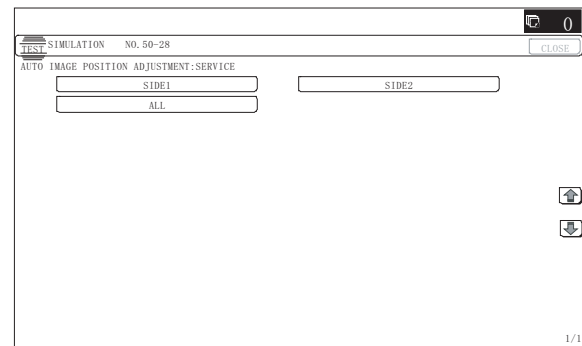


## 18-D Copy image off-center, image lead edge position, sub scanning direction image magnification ratio automatic adjustment (DSPF/RSPF mode)

- 1) Enter the SIM50-28 mode.



- 2) Press the [SPF ADJ] button.



- 3) Proceed to one of the three screens for selecting the cassette used to print DSPF/RSPF adjustment patterns by selecting the corresponding button.

Select [ALL] with the key button.

SIDE1: DSPF/RSPF adjustment for the front side

SIDE2: DSPF/RSPF adjustment for the back side

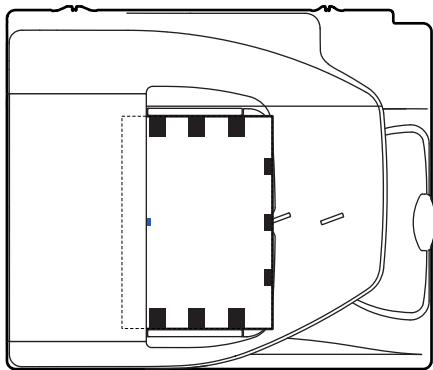
ALL: DSPF/RSPF adjustment for both the front and back sides

- 4) Select one of the cassettes that can be used to print DSPF/RSPF adjustment patterns. (Multiple selection is not allowed.)
- 5) Press the [EXECUTE] button, and the machine starts self-print of DSPF/RSPF adjustment patterns.

\* The screen shows a message indicating that the machine is self-printing DSPF/RSPF adjustment patterns.

When self-print finishes, the next screen appears where you can start DSPF/RSPF adjustments.

- 6) DSPF/RSPF adjustment patterns are loaded into the DSPF/RSPF.



\* By pressing the [REPRINT] button, you can return to the cassette selection screen and have the machine self-print DSPF/RSPF adjustment patterns again.

- 7) Press the [EXECUTE] button, and the machine starts reading DSPF/RSPF adjustment patterns (for the front side).

\* The screen shows a message indicating that the machine is reading and calculating DSPF/RSPF adjustment patterns (for the front side).

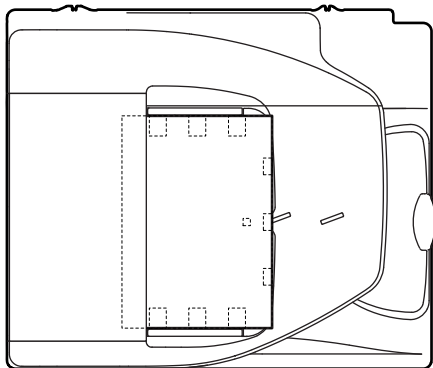
The machine starts calculating the adjustment amount (for the front side) after it has read the patterns for the front side.

After the machine has finished calculating the adjustment amount for the front side, the next screen appears where you can have the machine start reading DSPF/RSPF adjustment patterns (for the back side).

#### <Adjustment item list>

- DSPF/RSPF original leading edge adjustment (front side)
- DSPF/RSPF original off-center adjustment (front side)
- DSPF/RSPF sub-scan magnification ratio adjustment (front side)

- 8) DSPF/RSPF adjustment patterns are loaded into the DSPF/RSPF.



\* By pressing the [REPRINT] button, you can return to the cassette selection screen and have the machine self-print DSPF/RSPF adjustment patterns again.

- 9) Press the [EXECUTE] button, and the machine starts loading DSPF/RSPF adjustment patterns (for the back side).

\* The screen shows a message indicating that the machine is reading DSPF/RSPF adjustment patterns (for the back side).

The machine starts calculating the adjustment amount (for the back side) after it has read the patterns for the back side.

After the machine has finished calculating the adjustment amount for the back side, the next screen appears where you can view the results of the adjustments.

#### <Adjustment item list>

- DSPF/RSPF original leading edge adjustment (back side)
- DSPF/RSPF original off-center adjustment (back side)
- DSPF/RSPF sub-scan magnification ratio adjustment (back side)

- 10) The adjustment result screen appears.

This screen shows the current values along with the previous values in parentheses.

\* By pressing the [REPRINT] button, you can return to the cassette selection screen and have the machine self-print DSPF/RSPF adjustment patterns (for the front and back sides) again.

\* To have the machine start re-reading the DSPF/RSPF adjustment patterns (front and back sides), press the [RESCAN] button.

\* To return to the top menu without saving the adjustment values into EEPROM and RAM, press the [RETRY] button.

\* To display the data used for adjustment, press the [DATA] button.

- 11) To save the adjustment values into EEPROM and RAM and return to the top menu, press the [OK] button.

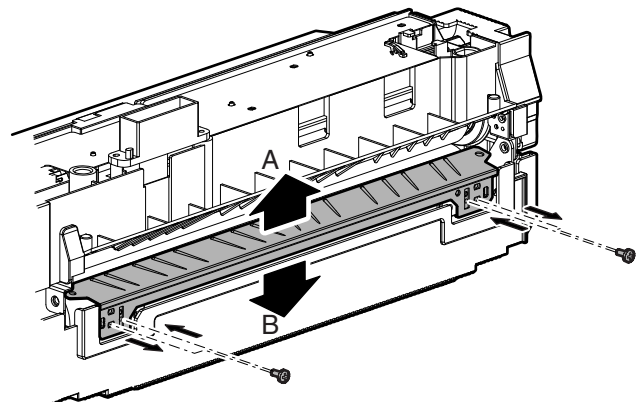
\* To return to the result screen, press the [BACK] button.

## ADJ 19 Fusing paper guide position adjustment

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

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

- 1) Loosen the fusing paper guide fixing screws which are on two position in the front/rear frame direction.
- 2) Use the fusing paper guide position scale as the reference to shift the paper guide in the arrow direction A or B.



The standard fixing position is one scale lower than the center of the marking scale. Change the actual fixing position according to the condition.

\* When wrinkles are generated on paper, change the position in the arrow direction B.

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

## [5] SIMULATION

### 1. General (Including basic operations)

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

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

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

#### A. 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.  
Or select a main code with the SIM key on the touch panel.
- 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.

When canceling the current simulation mode to change the main code and the sub code, press [SYSTEM SETTINGS] key.

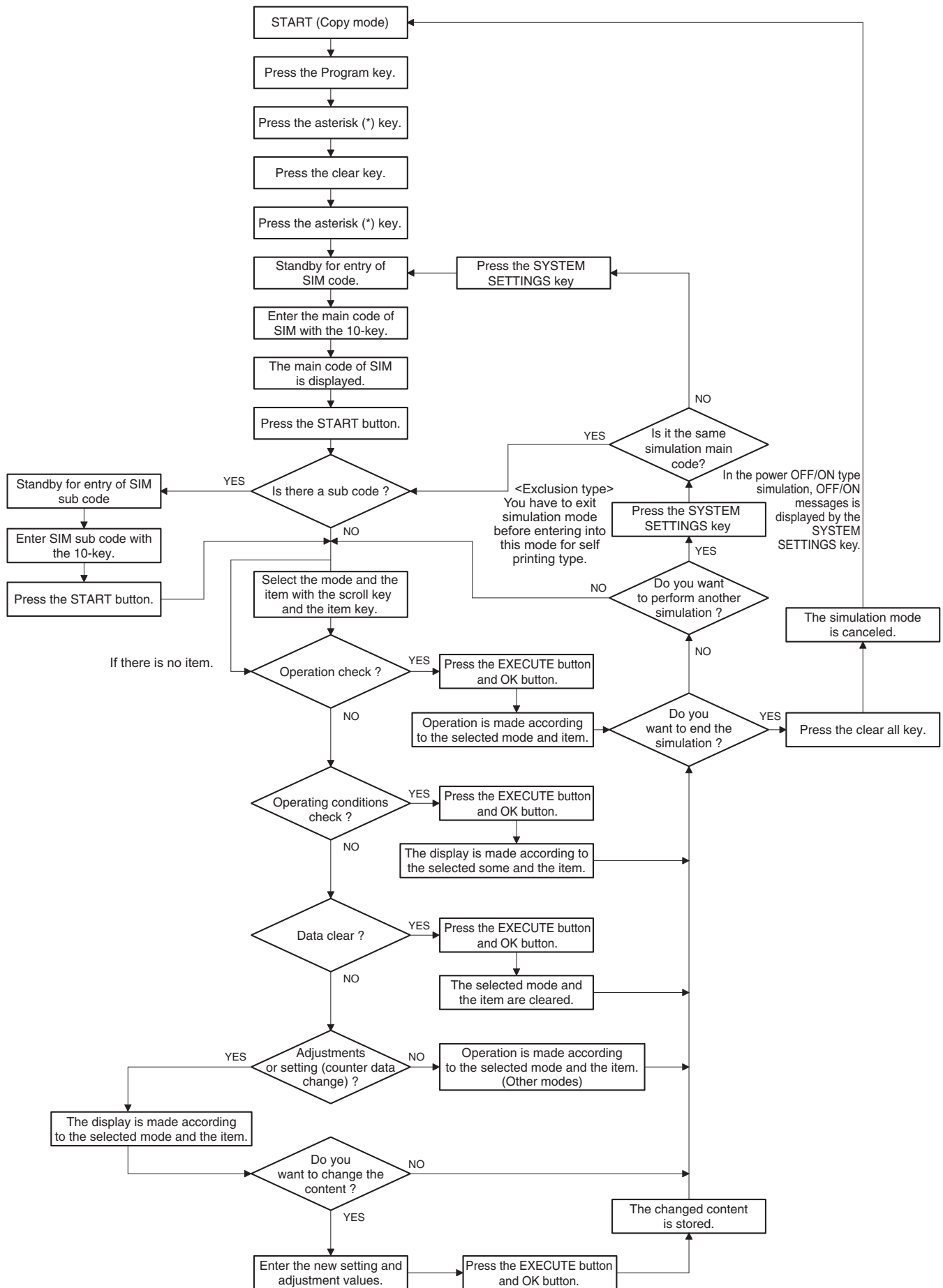
\* Canceling the simulation mode to return to the normal mode

- 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.





## 2. List of simulation codes

Main	Sub	Functions	Section
1	1	Used to check the operation of the scanner (reading) unit and the control circuit.	Scanner (reading)
	2	Used to check the sensors in the scanner (reading) section and the related circuits.	Scanner
	5	Used to check the operation of the scanner (reading) unit and the control circuit.	Scanner (reading)
2	1	Used to check the operations of the automatic document feed unit and the control circuit.	Automatic document feeder
	2	Used to check the operations of the sensors and the detectors in the document feed unit section and the control circuits.	Automatic document feeder
	3	Used to check the operations of the loads in the automatic document feed unit and the control circuit.	Automatic document feeder
3	2	Used to check the operations of the sensors and the detectors in the finisher and the control circuit.	Finisher
	3	Used to check the operation of the load in the finisher and the control circuit.	Finisher
	10	Used to adjust the finisher.	Finisher
4	2	Used to check the paper feed section (Desk/LCC) sensors and detectors and their control circuits.	Paper feed, paper reverse/transport
	3	Used to check the paper feed section (Desk/LCC) loads and their control circuits.	Paper feed, paper reverse/transport
	5	Used to check the operation of the paper transport clutch for the paper feed tray unit.	Paper feed, paper reverse/transport
5	1	Used to check the operation of the display, LCD in the operation panel, and control circuit.	Operation unit (Operation/Display Control PWB)
	2	Used to check the operation of the heater lamp and the control circuit.	Fusing
	3	Used to check the operation of the scanner lamp and the control circuit.	Scanner (reading)
6	1	Used to check the operations of the load in the paper transport system (clutches and solenoids) and the control circuits.	Paper feed, paper reverse/transport
	2	Used to check the operations of each fan and its control circuit.	Others
7	1	Used to set the operating conditions of aging.	
	6	Used to set the operating intermittent aging cycle.	
	8	Used to display the warm-up time.	Fusing
	12	The document reading number of sheets setting (for aging operation)	Automatic document feeder
8	1	Used to check and adjust the operations of the developing voltage in each print mode and the control circuit.	Toner supply, developing
	2	Used to check and adjust the operation of the main charger grid voltage in each printer mode and the control circuit.	Photo-conductor
	6	Used to check and adjust the operation of the transport voltage and the control circuit.	Transfer
	17	Used to check and adjust the operation of the separation bias voltage and the control circuit.	
9	2	Used to check the operation of the sensors and detectors in the switchback section (duplex section) and the control circuit.	Paper feed, paper reverse/transport
	3	Used to check the operations of the load in the paper reverse section (duplex section) and its control circuit.	Duplex
10	1	Used to check the operations of the toner supply mechanism (toner clutch) and the related circuit.	Toner supply, developing
13	-	Used to cancel the self-diag "U1" trouble.	MFP (ICU) PWB
14	-	Used to cancel the self-diag "H3, H4, H5" trouble.	Fusing
15	-	Used to cancel the self-diag "U6-09" trouble.	LCC
16	-	Used to cancel the self-diag "U2" trouble.	
17	-	Used to cancel the self-diag "PF" trouble.	Paper feed, paper reverse/transport
21	1	Used to set the maintenance cycle.	
22	1	Used to display the print count value of each section and the operation mode.	
	2	Used to display the number of total mis-feed and the number of troubles.	
	3	Used to display the mis-feed position and the number of mis-feed at the position.	
	4	Used to display the trouble (self diag) history.	
	5	Used to display the ROM version of each unit (section).	
	6	Used to print information on various settings, adjustments, counters, controls, and versions.	
	8	Used to display the number of operations (the counter value) of the finisher, the DSPF/RSPF, and scanning (reading).	
	9	Used to display the print quantity of each paper feed section.	Paper feed, paper reverse/transport
	10	Used to display the system configuration (options and internal hardware).	
	11	Used to display the use frequency of send/receive of FAX. (Only when FAX is installed.)	FAX unit (TEL/LIU, FAX control PWB)
	12	Used to display the mis-feed position of the DSPF/RSPF and the number of mis-feed at the position.	Automatic document feeder
	13	Used to display the use quantity of the process section (OPC drum, DV unit, toner cartridge).	Process
23	19	Used to display various counter values related to scan - image send.	
	90	Used to output the various set data lists.	
	2	Used to output the trouble history list of paper jam and mis-feed.	
	80	Used to output the operation data of paper feed and paper transport in the paper feed/transport section.	Paper feed, paper reverse/transport

Main	Sub	Functions	Section
24	1	Used to clear the jam counter, and the trouble counter.	
	2	Used to clear the number of use (the number of prints) of each paper feed section.	Paper feed, paper reverse/transport
	3	Used to clear the finisher, DSPF/RSPF, and the scan (reading) unit counter.	
	4	Used to clear the maintenance counter, the printer counters of the transfer unit and the fusing unit.	
	5	Used to clear the developer counter.	Toner supply, developing
	6	Used to clear the copy counter.	
	7	Used to clear the OPC drum counter.	Photoconductor
	9	Used clear the printer mode print counter and the self print mode print counter.	
	10	Used to clear the FAX counter. (Only when FAX is installed)	FAX unit (TEL/LIU, FAX control PWB)
	15	Used to clear the counters related to the scan mode and the image send.	
	30	Used to initialize the administrator password.	
25	31	Used to initialize the service mode (Web page) password.	
	1	Used to check the operations of the developing section, and to display the toner density detection level.	Toner supply, developing
26	2	Used to make the initial setting of toner density when replacing developer. (Automatic adjustment)	Toner supply, developing
	1	Used to set the paper exit operation from the right side.	Paper exit section
	2	Used to set the paper type and the weight type.	Paper feed, paper reverse/transport
	3	Used to set the specifications of the auditor.	Auditor
	5	Used to set the count mode in A3 (11" x 17") print.	
	6	Used to set the specifications of the destination.	
	10	Used to set the trial mode of the network scanner.	
	18	Used to set Disable/Enable of the toner save mode operation. (For the Japan and the UK versions.)	
	30	Used to set the operation mode corresponding to the CE mark (Europe safety standards).	
	35	Used to set the trouble history display mode.	
	38	Used to set "Print continue" or "Print stop" when the maintenance timing is reached or the consumable part life is over.	
	41	Used to set Enable/Disable of the magnification ratio automatic select function (AMS) in the center binding mode.	
	49	Used to set the print speed of postcards mode.	
	50	Used to set the operation specifications and functions.	
	52	Used to set whether non-printed paper (insertion paper, cover paper) is counted up or not.	
	53	Used to set Inhibit/Allow of the user auto calibration (gradation, density adjustment) in the copy mode.	
	65	Used to set the limit of the staple process.	
	69	Used to set the operating conditions for toner near end.	
	73	Used to adjust the image loss (shade removal amount) in the poster, the continuous enlargement copy, the card scan, and the A3 wide copy mode.	
	74	Used to set the OSA trial mode.	
	78	Used to set the password of the remote operation panel mode.	
27	1	Used to set non-detection of communication error (U7-00) with R/C. (FSS function)	
	2	Used to set the sender's registration number and the HOST server telephone number. (FSS function)	
	4	Used to set the initial call and toner order auto send. (FSS function)	
	5	Used to set the machine tag No. (FSS function)	
	6	Used to set of the manual service call. (FSS function)	
	7	Used to set of the enable, alert call out. (FSS function)	
	9	Used to set the paper transport time recording YES/NO threshold value and shading gain adjustment retry number. (FSS function)	
	10	Used to clear the trouble prediction history information. (FSS function)	
	11	Used to check the serial communication retry number and the scanner gain adjustment retry number history. (FSS function)	
	12	Used to check the high-density and the half-tone process control error history. (FSS Function)	
	13	Used to check the history of paper transport time between sensors. (FSS function)	
	14	Used to set the FSS function connection test mode.	
30	1	Used to check the operations of the sensors and the detectors in other than the paper feed section and the control circuits.	Paper feed, paper reverse/transport
	2	Used to check the operations of the sensors and the detectors in the paper feed section and the control circuits.	Paper feed, paper reverse/transport
33	1	Used to check the operations of the card reader sensor and the control circuit.	Others
	2	Used to delete the ID (IDM) information of card. (HDD-installed machine only)	Others
40	2	Manual paper feed tray paper width sensor adjustment.	Paper feed, paper reverse/transport
	7	Used to set the adjustment value of the manual paper feed tray paper width sensor.	Paper feed, paper reverse/transport
41	1	Used to check the operations of the document size sensor and the control circuit.	Others
	2	Used to adjust the document size sensor detection level.	Others
	3	Used to check the operations of the document size sensor and the control circuit.	Others

Main	Sub	Functions	Section
43	1	Used to make the fusing reference temperature setting 1 in each operation mode.	Fusing
	4	Used to set the fusing temperature 2 in each operation mode.	Fusing
	20	Used to set the environmental correction under low temperature and low humidity (L/L) for the fusing temperature setting (SIM 43-1) in each paper mode.	Fusing
	21	Used to set the environment correction under high temperature and high humidity (H/H) for the fusing temperature setting (SIM 43-1) in each paper mode.	Fusing
	22	Used to set the environmental correction under low temperature and low humidity (L/L) for the fusing temperature setting (SIM 43-4) in each paper mode.	Fusing
	23	Used to set the environment correction under high temperature and high humidity (H/H) for the fusing temperature setting (SIM 43-4) in each paper mode.	Fusing
	24	Used to set the correction of the temperature adjustment value of SIM 43-1 and 43-4.	Fusing
	31	Used to check the operation of the fusing web cleaning motor.	Fusing
44	32	Used to set various items related to the forcible operation of web cleaning when job end.	Fusing
	1	Used to set each correction operation function in the image forming (process) section.	Process
	2	Used to adjust the sensitivity of the image density sensor.	Process
	4	Used to set the conditions of the high density process control operation.	Process
	6	Used to execute the high density process control forcibly.	Process
	9	Used to display the result data of the high density process control operation.	Process
	12	Used to display the operation data of the high density process control and the image density sensor.	Process
	14	Used to display the output level of the temperature and humidity sensor.	
	16	Used to display the toner density control data.	Toner supply, developing
	21	Used to register the target value of the half-tone process control.	Process
	22	Used to display the toner patch density level in the half tone process control operation.	Process
	24	Used to display the correction target and the correction level in the half tone process control operation.	Process
	25	Used to set the calculating conditions of the correction value for the half tone process control.	Process
	26	Used to execute the half tone process control compulsory.	Process
	27	Used to clear the correction data of the half tone process control.	Process
	28	Used to set the process control execution conditions.	Process
	29	Used to set the operating conditions of the process control during a job.	Process
46	37	Used to set the development bias correction level in the continuous printing operation.	Toner supply, developing
	2	Used to adjust the copy density in each monochrome copy mode.	
	4	Used to adjust the density in the image send mode (color mode). (N model only)	
	5	Used to adjust the density in the image send mode (monochrome mode).	
	8	Used to adjust the image send mode color balance RGB. (N model only)	
	9	Used to adjust the SPF mode scan image density (copy, image send mode)	
	10	Used to adjust the copy density (in each copy mode).	
	16	Used to adjust the copy density manually.	
	19	Used to set the operating conditions of document density scanning (copy, image send mode).	Scanner
	23	Used to set the density correction of copy high density section (High density tone gap supported).	
	24	Copy and printer density adjustment (Auto adjustment)	
	32	Used to adjust the reproducibility of the document background density in the automatic copy mode.	
	37	Used to adjust the reproducibility of the scan image color document (copy, image send mode). (N model only)	
	39	Used to adjust the sharpness of FAX send images.	
	40	Used to adjust the FAX send image density. (Collective adjustment of all the modes)	
	41	Used to adjust the FAX send image density. (Normal)	
	42	Used to adjust the FAX send image density. (Fine)	
	43	Used to adjust the FAX send image density. (Super Fine)	
	44	Used to adjust the FAX send image density. (Ultra fine)	
	45	Used to adjust the FAX send image density. (600dpi).	
	47	Used to set the compression rate of copy and scan images (JPEG).	
	48	Used to set the output resolution in each copy mode. (MX-M283N/M363N/M453N/M503N only)	
	51	Used to adjust the gamma for the copy mode heavy paper mode and the image process mode (manual adjustment).	
	52	Used to set the gamma default for the copy mode heavy paper and the image process mode. (The set values of SIM46-51 are set to the default values.)	
	61	Used to adjust the area separation recognition level in the image send mode (color, gray, auto exposure mode). (N model only)	
	63	Used to adjust the density in the low density area of a scan image. (N model only)	
	64	Used to set the image process mode in each copy mode.	
	90	Used to set the process operation of high-compression PDF images. (N model only)	
48	1	Used to adjust the scan image magnification ratio (in the main scanning direction and the sub scanning direction).	Scanner
	5	Used to correction the scan image magnification ratio (in the sub scanning direction).	Scanner
	6	Used to adjust the rotation speed of each motor.	

Main	Sub	Functions	Section
49	1	Used to perform the firmware update.	
	3	Used to install and update the Operation Manual data stored in the HDD. (N model only)	
	5	Used to install and update the watermark data stored in the HDD.	
50	1	Copy image position, image loss adjustment	
	2	Used to adjust the copy image position and the image loss (simple adjustment).	
	5	Used to adjust the print lead edge image position. (PRINTER MODE)	
	6	Used to adjust the copy image position and the image loss (DSPF/RSPF mode).	
	7	Used to adjust the copy image position and the image loss (DSPF/RSPF mode) (simple adjustment).	
	10	Used to adjust the image off-center position. (The adjustment is made separately for each paper feed section.)	
	12	Used to perform the scan image off-center position adjustment. (The adjustment is made separately for each scan mode.)	
	27	Used to perform the image loss adjustment of scanned images in the FAX or image send mode.	
51	2	Used to adjust the contact pressure (deflection amount) on paper by the main unit and the DSPF/RSPF resist roller.	Paper feed, paper reverse/transport
	6	Used to adjust the detection level of the DSPF/RSPF document width.	
	7	Used to adjust the DSPF/RSPF document size width sensor.	Automatic document feeder
53	8	Used to adjust the document lead edge reference and the DSPF/RSPF mode document scan position.	Automatic document feeder
	1	Used to set the specifications of the engine control operations. (SOFT SW)	
	2	Used to set the specifications of the scanner control operation. (SOFT SW)	
55	3	Used to set the specifications of the controller operation. (SOFT SW)	
	1	Used to transport data between HDD - MFP PWB SRAM/EEPROM. (Used to repair the PWB.) (HDD-installed machine)	
	2	Used to backup the data in the EEPROM. SRAM, and HDD (including user authentication data and address data) to the USB memory. (HDD-installed machine)	
56	3	Used to backup the document filing data to the USB memory. (HDD-installed machine)	HDD
	4	Used to backup the JOB log data to the USB memory. (HDD-installed machine)	HDD
	1	Used to check the operations (read/write) of the MFP PWB memory.	MFP (ICU) PWB
60	2	Used to set the specifications of the MFP PWB on-board SDRAM.	MFP (ICU) PWB
	1	Used to check the LSU polygon motor rotation and laser detection.	LSU
61	3	Used to set the laser power	LSU
	1	Used to execute the hard disk format (except operation manual area). * If no HDD is installed, the MFP Flash memory is formatted.	HDD
	2	Used to check read/write of the hard disk (partial).	HDD
62	3	Used to check read/write of the hard disk (all areas).	HDD
	6	Used to perform the self diagnostics of the hard disk.	HDD
	7	Used to print the hard disk self diagnostics error log.	HDD
	8	Used to format the hard disk. (Excluding the system area and the operation manual area)	HDD
	10	Used to delete the job log data. (HDD-installed machine)	HDD
	11	Used to delete the document filing data. (HDD-installed machine)	HDD
	12	Used to set Enable/Disable of auto format in a hard disk trouble.	HDD
	13	Used to format the hard disk. (only the operation manual and watermark area)	HDD
	1	Used to display the shading correction result.	Scanner
	2	Used to perform shading.	Scanner
63	3	Used to perform scanner (CCD/CIS) color balance and gamma auto adjustment.	Scanner
	4	Used to display the SIT chart patch density.	Scanner
	5	Used to perform the scanner (CCD/CIS) color balance and gamma default setting.	Scanner
64	2	Test print. (Self print) (Monochrome mode)	
	4	Printer test print. (Self print) * This simulation functions only for the machines which are provided with the printer function.	
	5	Printer test print. (Self print) (PCL)	
	6	Printer test print. (Self print) (PS)	
65	1	Used to adjust the touch panel (LCD display section) detection coordinates.	Operation unit (Operation/Display control PWB)
	2	Used to display the touch panel (LCD display section) detection coordinates.	Operation unit (Operation/Display control PWB)
	5	Used to check the operation panel key input.	Operation unit (Operation/Display control PWB)
67	17	Printer controller reset	
	25	Printer density adjustment (Manual adjustment) * This simulation functions only for the machines which are provided with the printer option function.	
	31	Used to clear the printer calibration value (Half-tone process control data).	
	33	Used to adjust the gamma and the density in each printer screen. * This simulation functions only for the machines which are provided with the printer option function.	
	34	Used to set the density correction in the printer high density section. (Support for the high density section tone gap)	
	70	MFP PWB SRAM data clear	MFP (ICU) PWB

### 3. Details of simulation

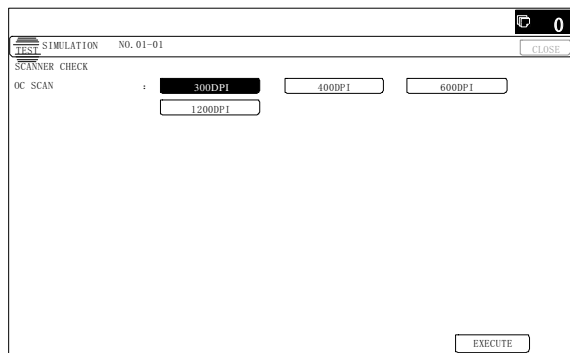
1

1-1	
<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operation of the scanner (reading) unit and the control circuit.
<b>Section</b>	Scanner (reading)

#### Operation/Procedure

- 1) Select the operation resolution (scan speed) with the touch panel key.
  - 2) Press [EXECUTE] key.
- Scanning is once performed at the speed corresponding to the scan resolution (operation speed).

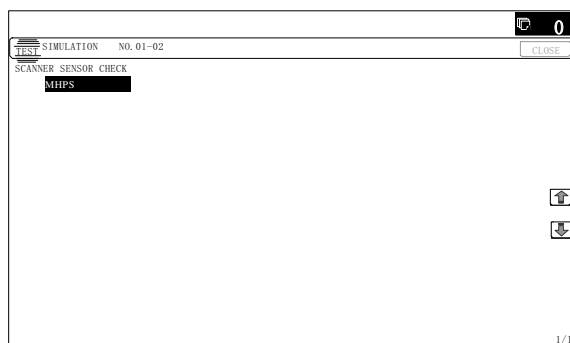
Item/Display	Operation mode	Default value
OC SCAN	300DPI	300DPI (346.0mm/s)
	400DPI	400DPI (259.5mm/s)
	600DPI	600DPI (173.0mm/s)
	1200DPI	1200DPI (86.5mm/s)



1-2	
<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the sensors in the scanner (reading) section and the related circuits.
<b>Section</b>	Scanner

#### Operation/Procedure

The operating status of the sensor is displayed.  
When "MHPS" is highlighted, the scanner unit is in the home position.



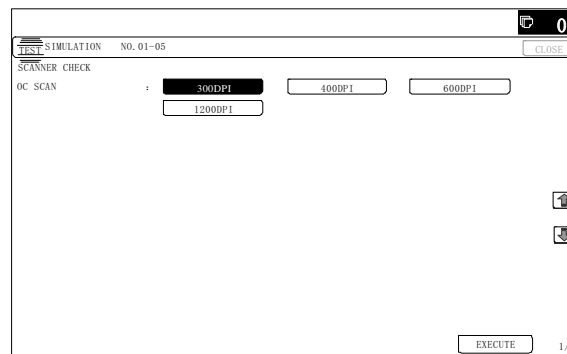
1-5

<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operation of the scanner (reading) unit and the control circuit.
<b>Section</b>	Scanner (reading)

#### Operation/Procedure

- 1) Select the operation speed with the touch panel key.
  - 2) Press [EXECUTE] key.
- Scanning is repeated at the speed corresponding to the scan resolution (operation speed).  
When [EXECUTE] key is pressed, the operation is terminated.

Item/Display	Operation mode	Default value
OC SCAN	300DPI	300DPI (346.0mm/s)
	400DPI	400DPI (259.5mm/s)
	600DPI	600DPI (173.0mm/s)
	1200DPI	1200DPI (86.5mm/s)



2

2-1

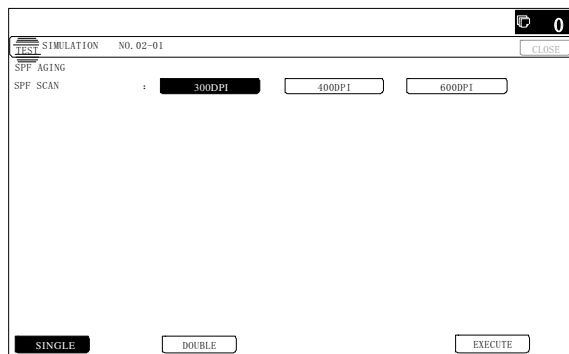
<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operations of the automatic document feed unit and the control circuit.
<b>Section</b>	Automatic document feeder

#### Operation/Procedure

- 1) Select the operation mode and the speed with the touch panel key.
  - 2) Press [EXECUTE] key.
- The DSPF/RSPF repeats paper feed, transport, and paper exit operations at the speed corresponding to the scan resolution (operation speed).  
When [EXECUTE] key is pressed, the operation is terminated.

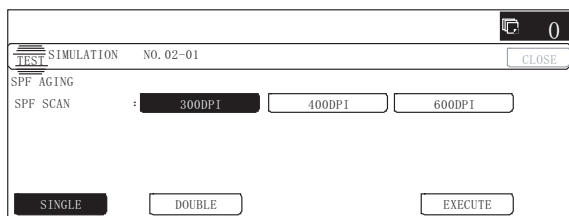
#### [DSPF]

Item/Display	Operation mode	Default value
(SINGLE)	300DPI	300DPI (346.0mm/s)
	400DPI	400DPI (259.5mm/s)
	600DPI	600DPI (173.0mm/s)
(DOUBLE)	300DPI	300DPI (346.0mm/s)
	400DPI	400DPI (259.5mm/s)
	600DPI	600DPI (173.0mm/s)



## [RSPF]

Item/Display	Operation mode		Default value
SPF SCAN (SINGLE (single face))	300DPI	300DPI (259.5mm/s)	300DPI (259.5mm/s)
	400DPI	400DPI (259.5mm/s)	
	600DPI	600DPI (173.0 mm/s)	
SPF SCAN (DOUBLE (double face))	300DPI	300DPI (259.5mm/s)	300DPI (259.5mm/s)
	400DPI	400DPI (259.5mm/s)	
	600DPI	600DPI (173.0 mm/s)	



## 2-2

<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operations of the sensors and the detectors in the document feed unit section and the control circuits.
<b>Section</b>	Automatic document feeder

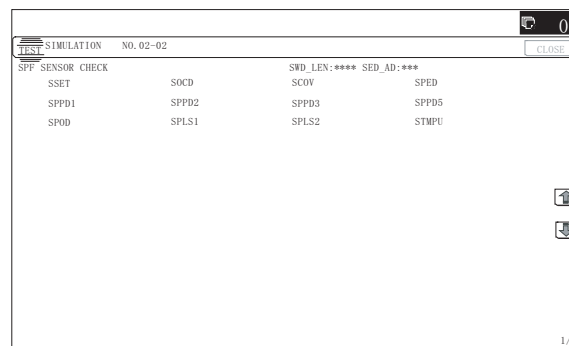
### Operation/Procedure

The operating conditions of the sensors and detectors are displayed.

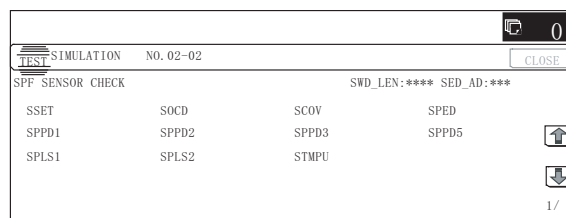
The code names of the sensors and the detectors which are active are highlighted.

SSET	DSPF/RSPF installation detector
SOC	DSPF/RSPF open/close detector
SCOV	DSPF/RSPF cover open/close detector
SPED1	DSPF/RSPF document detector 1
SPPD1	DSPF/RSPF document pass detector 1 (Paper entry detection)
SPPD2	DSPF/RSPF document pass detector 2 (Resist roller front document transport detection)
SPPD3	DSPF/RSPF document pass detector 3 (Document scanning front document transport detection)
SPPD5	DSPF/RSPF document pass detector 5 (DSPF: Document transport detection) (RSPF: Document transport detection/Document reverse rear document transport detection)
SPOD	DSPF paper exit detector (Only the DSPF)
SPLS1	DSPF/RSPF document length detector 1 (Short)
SPLS2	DSPF/RSPF document length detector (Long)
STMPU	DSPF/RSPF stamp unit installation detector
SWD_LEN	DSPF/RSPF guide plate position (Unit: 0.1mm)
SWD_AD	DSPF/RSPF document detection volume output AD value

## [DSPF]



## [RSPF]



## 2-3

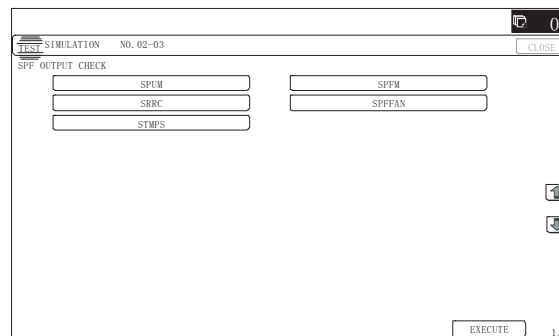
<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operations of the loads in the automatic document feed unit and the control circuit.
<b>Section</b>	Automatic document feeder

### Operation/Procedure

- 1) Select a target item of the operation check with the touch panel key.
- 2) Press [EXECUTE] key.  
The selected load performs the operation.  
When [EXECUTE] key is pressed, the operation is terminated.

### [DSPF-installed model]

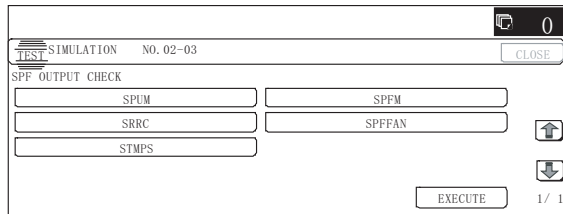
SPUM	DSPF paper feed motor
SPFM	DSPF transport motor
SRRC	DSPF resist roller clutch
SPFFAN	DSPF fan motor
STMP	Stamp solenoid (Displayed only when the finish stamp is installed.)



### [RSPF-installed model]

SPUM	RSPF paper feed motor
SPFM_F	RSPF paper feed reverse motor (normal rotation)
SPFM_R	RSPF paper feed reverse motor (reverse rotation)
SRRC	RSPF resist roller clutch
SRVC	RSPF reverse clutch
SPRS	RSPF pressure release solenoid
STMP	Finish stamp solenoid (Displayed only when the finish stamp is installed.)





### 3

#### 3-2

<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operations of the sensors and the detectors in the finisher and the control circuit.
<b>Section</b>	Finisher

#### Operation/Procedure

The operating conditions of the sensors and detectors are displayed.

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

#### <Inner finisher>

FED	Entry port paper detection (Status detection "1")
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 HP detection front
FRJHPD	Alignment 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
FPRPD	Punch rear position detection (Status detection "1")
FPUC	Punch unit connection detection
FPHPD	Punch HP detection
FPSHPD	Punch side resist HP 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
FPDD	Punch dust detection
FPPEND	Punch paper rear edge detection
FPDES1	Punch destination detection 1
FPDES2	Punch destination detection 2

#### <Saddle stitch finisher>

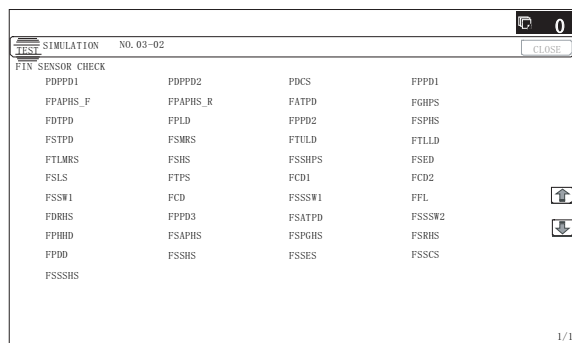
PDPPD1	FJPID	Paper pass paper transport detector 1
PDPPD2	FJPOD	Paper pass paper transport detector 2
PDCS	FJPDD	Paper pass cover Open/Close sensor
FPPD1	FED	Paper delivery detector 1
FPAPHS_F	FFJHPD	Paper alignment plate home position sensor F
FPAPHS_R	FRJHPD	Paper alignment plate home position sensor R
FATPD	FAD	Paper alignment tray paper detector
FGHPS	FGHPD	Gripper home position sensor

FDTDPD	EMPS	Delivery tray paper detector
FPLD	FSLD	Paper surface detector
FPPD2	FFPD	Paper transport detector 2
FSPHS	FFHPD	Saddle plate home position sensor
FSTPD	FFED	Saddle exit tray paper detector
FSMRS	FFE	Saddle motor rotation sensor
FTULD	FULD	Tray upper limit detector
FTLLD	FLLD	Tray lower limit detector
FTLMRS	FLE	Tray lift motor rotation sensor
FSHS	FSHPD	Staple home position sensor
FSSHPS	FSTHPD	Stapler shift home position sensor
FSED	FSD	Staple empty detector
FSLS	FSPD	Staple lead edge sensor
FTPS	FMLD	Tray position sensor
FCD1	FFDD	Cover detector 1
FCD2	FCD	Cover detector 2
FSSW1	FFDDW	Safety switch 1
FCD	FJSW	Finisher connection detector
FSSSW1	FSSSW	Staple safety switch
FFL	FFANLK	Fan lock signal
FDRHS	FNHPD	Delivery roller home position sensor
FPPD3	FSPD	Paper transport detector 3
FSATPD	FSDTPD	Saddle paper alignment tray paper detector
FSSSW2	FSJPD	Stapler safety switch 2
FPHHD	FPHHPD	Paper hold home position sensor
FSAPHS	FSJHPD	Saddle alignment plate home position sensor
FSPGHS	FAHPD	Saddle paper guide home position sensor
FSRHS	FSR3HPD	Saddle roller home position sensor
FPDD	FGED	Delivery detector
FSSHPS	FSSHHPD	Saddle staple home position sensor
FSES	FSSD	Saddle staple sensor
FSSCS	FSSDSW	Saddle staple cover sensor
FSSSHS	FSSTHPD	Finisher saddle stapler shift home position sensor
FPMRS	FPMCK	Punch motor rotation sensor
FPD	FPUC	Punch unit detection (connector)
FPCHPS	FPHPD	Punch home position sensor
FPDFS	FPDD	Punch dust sensor
FPHPS	FPSHPD	Punch unit home position sensor
FPTS	FPTD	Punch timing sensor
FPES1	FPD1	Punch paper edge sensor 1
FPES2	FPD2	Punch paper edge sensor 2
FPES3	FPD3	Punch paper edge sensor 3
FPES4	FPD4	Punch paper edge sensor 4
FPPS	FPPD	Punch paper position sensor

#### <4K finisher>

FJPID	Interface transport unit entry port detection
FJPOD	Interface transport unit exit port detection
FJPDD	Interface transport unit cover detection
FED	Entry port paper detection
FAED1	Tray 1 area detection 1
FAED2	Tray 1 area detection 2
FAED3	Tray 1 area detection 3
FFJHPD	Alignment plate HP detection front
FRJHPD	Alignment plate HP detection rear
FBED1	Tray 1 paper detection
FBED2	Tray 2 paper detection
FCCD	Tray approach detection
FSLD1	Tray 1 paper surface detection
FPDD1	Discharged paper detection
FSLD2	Tray 2 paper surface detection
FASHPD	Rear edge assist HP detection
FSWHPD	Oscillation guide HP detection
FSWOPD	Oscillation guide open detection
FSTPD	Staple tray paper detection
FSHPD	Staple drive HP detection
FSTHPD	Staple shift HP detection
FSD	Staple empty detection
FSTD	Needle lead edge position detection
FFANLK	Fan motor lock detection
FSJGCD	Stapler alignment interference detection

FSAD	Staple safety SW
FSHTD	Shutter open detection
FCD	Upper door open detection
FFDD	Front cover open detection
F24V	24V output interruption detection
FPSW1	PUSHSW1 detection
FPSW2	PUSHSW2 detection
FPSW3	PUSHSW3 detection
FAED21	Tray 2 area detection 1
FAED22	Tray 2 area detection 2
FAED23	Tray 2 area detection 3
FDSW1	DIPSW1 detection
FDSW2	DIPSW2 detection
FDSW3	DIPSW3 detection
FDSW4	DIPSW4 detection
FDSW5	DIPSW5 detection
FDSW6	DIPSW6 detection
FDSW7	DIPSW7 detection
FDSW8	DIPSW8 detection
FPE	Punch motor lock detection
FPUC	Punch unit connection detection
FPHPD	Punch HP detection
FPSHPD	Punch horizontal resist HP detection
FPFDD	Punch front door open detection
FPDD	Punch dust detection
FPUDSW	Punch upper cover open detection SW



### 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 operation checked with the touch panel key.
- 2) Press [EXECUTE] key.  
The selected load performs the operation.  
When [EXECUTE] key is pressed, the operation is terminated.

#### <Inner finisher>

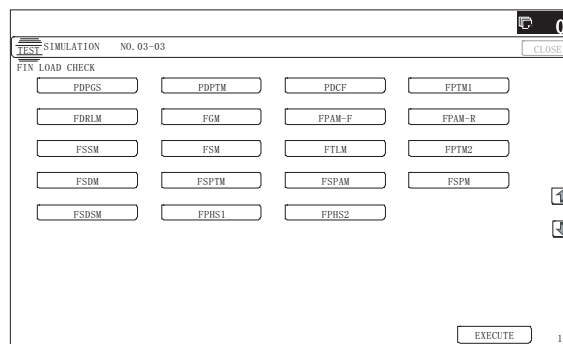
FINRPS	Entry port reverse pass solenoid
FSLS	Paper surface detection solenoid
FPDS	Paddle solenoid
FBRS	Belt separation solenoid
FRM	Registration motor
FSWM	Oscillation motor
FAM	Bundle exit paper exit motor
FFJM	Alignment motor front
FRJM	Alignment motor rear
FSM	Staple shift motor
FFSM	Staple motor
FTLM	Tray lift motor
FFANM	Fan motor
FPNM	Punch motor
FPSM	Punch side resist motor

#### <Saddle stitch finisher>

PDPGS	FINRPS	Paper pass paper gate solenoid
PDPTM	FJPM	Paper pass paper transport motor
PDCF	FJFM	Paper pass cooling fan
FPTM1	FFM	Paper transport motor 1
FDRLM	FNM	Finisher paper exit roller lift motor
FGM	FGM	Gripper motor
FPAM-F	FFJM	Paper alignment motor F
FPAM-R	FRJM	Paper alignment motor R
FSSM	FSM	Stapler shift motor
FSM	FFSM	Staple motor
FPTM2	FLM	Paper transport motor 2
FSDM	FFM2	Saddle motor
FSPTM	FTM	Saddle paper transport motor
FSPAM	FSR3M	Saddle paper alignment motor
FSPM	FSJM	Saddle positioning motor
FSDSM	FPPM	Saddle staple motor
FPHS1	FSSM	Paper holding solenoid 1
FPHS2	FPHS	Paper holding solenoid 2
FTLM	FPS	Tray lift motor
FPM	FPNM	Punch motor
FPSM	FPSM	Punch shift motor

#### <4K finisher is installed>

FINRPS	Interface paper gate solenoid
FJPM	Interface transport motor
FJFM	Interface transport fan motor
FFM	Entry port transport motor
FAM	Bundle paper exit motor
FFJM	Alignment motor front
FRJM	Alignment motor rear
FSM	Staple shift motor
FTLM1	Tray 1 lift motor
FTLM2	Tray 2 lift motor
FFSM	Staple motor
FSWM	Oscillation motor
FASM	Rear edge assist motor
FINRRS	Inlet port roller separation solenoid
FBRRS	Buffer roller separation solenoid
FFDRRS	Paper exit roller separation solenoid
FBES	Buffer rear edge holding solenoid
FSHC	Shutter open/close clutch
FAORC	Bundle exit lower roller clutch
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 an adjustment target item with [↑] [↓] key on the touch panel.
- 2) Enter the set value with 10-key.
- 3) Press [OK] key. (The set value is saved.)

#### <Inner finisher>

Item/Display	Content	Setting range	Default value
A FRONT ADJUST	Alignment position adjustment (front)	2 - 18	10
B REAR ADJUST	Alignment position adjustment (rear)	2 - 18	10
C STAPLE REAR	Staple binding position adjustment (one position at the rear)	68 - 132	100
D STAPLE FRONT	Staple binding position adjustment (one position in front)	68 - 132	100
E STAPLE BOTH	Staple binding position adjustment (center position of two positions binding)	68 - 132	100
F STAPLE PITCH	Staple binding position adjustment (staple pitch of two positions binding)	68 - 132	100
G PUNCH CENTER	Punch center positioning sensor	37 - 63	50
H PUNCH HOLE	Punch hole adjustment (paper transport direction)	42 - 58	50

#### <Saddle stitch finisher>

Item/Display	Content	Setting range	Default value
A SADDLE POSITION	Saddle stitch position adjustment	25 - 75	50
B FOLDING POSITION	Saddle folding position adjustment	25 - 75	50
C FRONT ADJUST	Paper alignment position adjustment (Front)	35 - 65	50
D REAR ADJUST	Paper alignment position adjustment (Rear)	35 - 65	50
E STAPLE REAR	Staple binding position adjustment (one position at the rear) (When the paper width is greater than 232mm)	25 - 75	50
F STAPLE REAR R	Staple binding position adjustment (one position at the rear) (When the paper width is 232mm or less)	45 - 75	50
G STAPLE FRONT	Staple binding position adjustment (one position in front) (When the paper width is greater than 232mm)	25 - 75	50
H STAPLE FRONT R	Staple binding position adjustment (one position in front) (When the paper width is 232mm or less)	25 - 55	50
I STAPLE BOTH	Staple binding position adjustment (two positions at the center)	45 - 55	50
J STAPLE PITCH	Staple binding position adjustment (two positions in pitch)	35 - 62	50
K PUNCH CENTER	Punch center adjustment	35 - 65	50
L PUNCH HOLE	Punch hole position adjustment	30 - 60	50

Item/Display	Content	Setting range	Default value
M SADDLE_ADJUST_POS	Saddle alignment position adjustment	35 - 65	50
N GRIPPER_POS	Gripper exit position adjustment	35 - 65	50

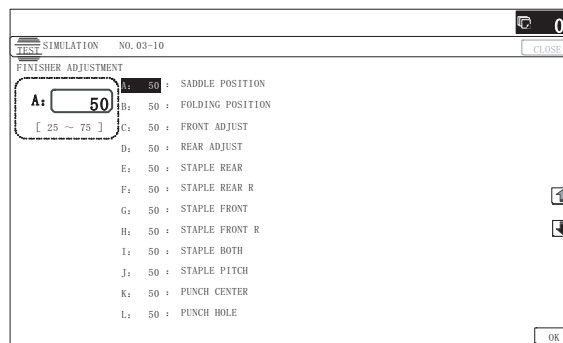
NOTE: "A: SADDLE POSITION (Saddle binding position adjustment)" and "B: FOLDING POSITION (Saddle folding position adjustment)"

The saddle binding position adjustment and the saddle folding position adjustment can be executed in the system setting menu. However, the adjustments in the system setting are based on the adjustment value of this simulation. If, therefore, the adjustment value of this simulation is set to an extreme level, the adjustment range in the system setting may be narrowed. (Adjustment range in the system setting  $\pm 5.0\text{mm}$ )

In general, when the saddle binding position and the saddle folding positions are adjusted to the center by this simulation, the above trouble will not occur.

#### <4K finisher>

Item	Display	Item	Set range	Default value
A	FRONT ADJUST	Alignment position adjustment (front)	0 - 20	10
B	STAPLE REAR	Staple binding position adjustment (one position at the rear)	94 - 106	100
C	STAPLE FRONT	Staple binding position adjustment (one position in front)	94 - 106	100
D	PUNCH CENTER	Punch center adjustment	30 - 70	50
E	PUNCH HOLE	Punch hole position adjustment	46 - 52	50



## 4

### 4-2

<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the paper feed section (Desk/LCC) sensors and detectors and their control circuits.
<b>Section</b>	Paper feed, paper reverse/transport

#### Operation/Procedure

The operating conditions of the sensors and detectors are displayed.

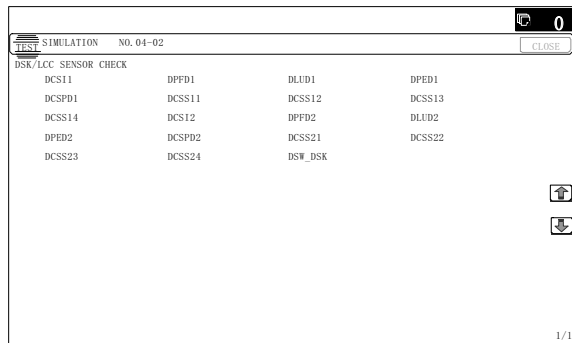
The code names of the sensors and the detectors which are active are highlighted.

#### <Desk>

DCS11	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
DCS12	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

#### <A4 LCC>

LPFD	LCC transport sensor
LUD	LCC tray upper limit sensor
LDD	LCC tray lower limit sensor
LPED	LCC tray paper empty sensor
LCD	LCC tray insertion detection
LDSW	LCC upper open/close detection SW
LRE	LCC lift motor encoder sensor
L24VM	LCC24V power monitor
LLSW	LCC upper limit SW
LTOD	LCC main unit connection detection



#### 4-3

<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the paper feed section (Desk/LCC) loads and their control circuits.
<b>Section</b>	Paper feed, paper reverse/transport

#### Operation/Procedure

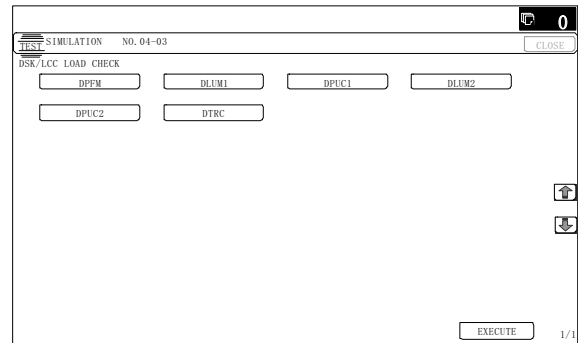
- 1) Select the load item that is required to operation check with the touch panel key.
- 2) Press [EXECUTE] key.  
The selected load performs the operation.  
When [EXECUTE] key is pressed, the operation is terminated.

#### <Desk>

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

#### <A4 LCC>

LPFM	LCC transport motor
LLM	LCC lift motor
LPFC	LCC paper feed clutch
LPFS	LCC paper feed solenoid
LTRC	LCC transport clutch



#### 4-5

<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operation of the paper transport clutch for the paper feed tray unit.
<b>Section</b>	Paper feed, paper reverse/transport

#### Operation/Procedure

[Check the ON operation]

Press the clutch button of the target of the ON operation check.

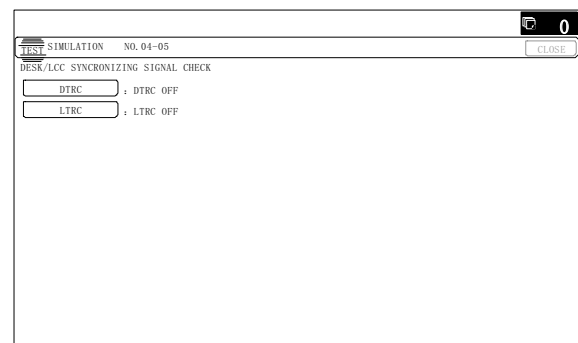
Checking is started. When the operation is normal, the button on the display is highlighted. When it is abnormal, the button is not highlighted.

[Check the OFF operation]

Press the highlighted button which is ON.

When the operation is normal, the highlighted button on the display returns to the normal display. When it is abnormal, the highlighted display is maintained.

button	Content
DTRC	Desk transport clutch
LTRC	LCC transport clutch



# 5

## 5-1

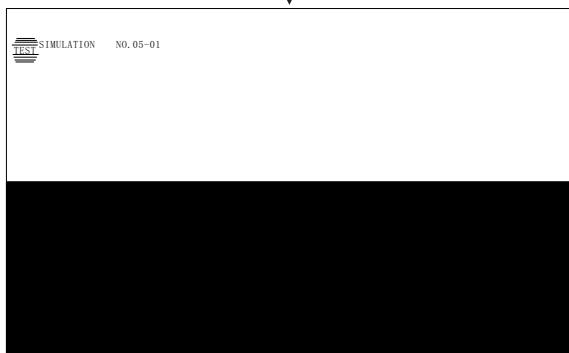
<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operation of the display, LCD in the operation panel, and control circuit.
<b>Section</b>	Operation unit (Operation/Display Control PWB)

### 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.

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



## 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

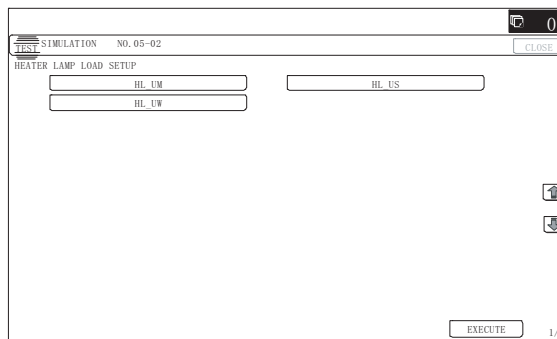
- 1) Select the item to be operation checked with the touch panel key.
- 2) Press [EXECUTE] key.  
The selected heater lamp repeats ON/OFF operations 10 times at the interval of 500ms.

When [EXECUTE] key is pressed, the operation is terminated.

Heater lamp operation check method:

Remove the rear cabinet, open the PWB holder, and the heater lamp lighting status can be checked from the clearance between the frames.

HL_UM	Main heater lamp (HL MAIN)
HL_US	Sub heater lamp (HL SUB)
HL_UW	Warm-up heater lamp (HL UW)



## 5-3

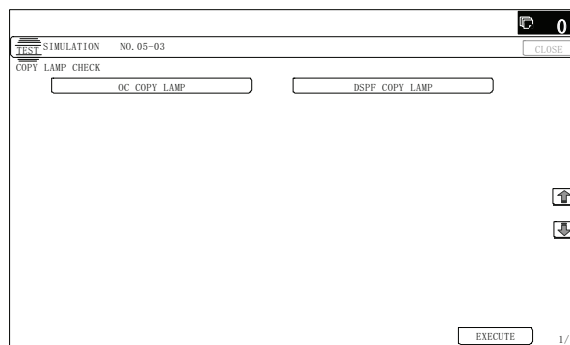
<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operation of the scanner lamp and the control circuit.
<b>Section</b>	Scanner (reading)

### Operation/Procedure

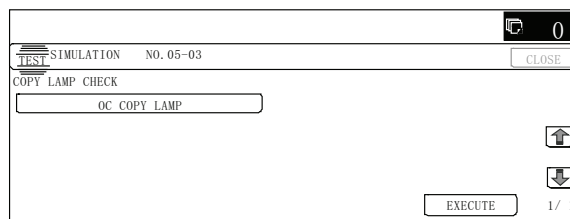
- 1) Select the item to be operation checked with the touch panel key.
- 2) Press [EXECUTE] key.  
The scanner lamp lights up for 10 sec.  
When [EXECUTE] key is pressed, the operation is terminated.

Display	Content
OC COPY LAMP	OC scanner lamp
DSPF COPY LAMP	DSPF scanner lamp (DSPF-installed model only)

### [DSPF-installed model]



### [RSPF-installed model]



## 6

### 6-1

<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operations of the load in the paper transport system (clutches and solenoids) and the control circuits.
<b>Section</b>	Paper feed, paper reverse/transport

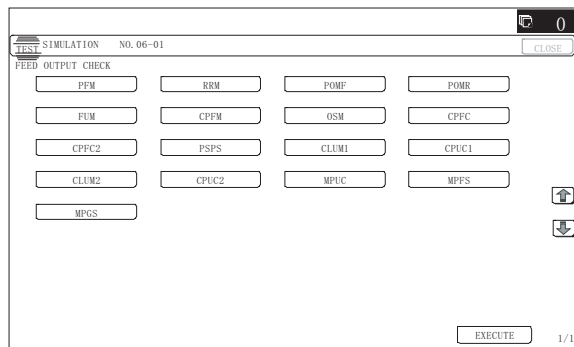
#### Operation/Procedure

- 1) Select the item to be operation checked with the touch panel key.
- 2) Press [EXECUTE] key.  
The selected load performs the operation.  
When [EXECUTE] key is pressed, the operation is terminated.

#### Load operation check method:

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

Section	Item/Display	Content
Transport/ process	PFM	Transport motor
	RRM	Registration motor
	POMF	Paper exit motor (normal rotation)
	POMR	Paper exit motor (reverse rotation)
	FUM	Fusing motor
	CPFM	Tray paper feed motor
	OSM	Shifter motor
	CPFC	Tray vertical transport clutch 1
	CPFC2	Tray vertical transport clutch 2
	PSPS	Separation solenoid
Paper feed	CLUM1	Tray 1 lift-up motor
	CPUC1	Tray 1 paper feed clutch
	CLUM2	Tray 2 lift-up motor
	CPUC2	Tray 2 paper feed clutch
	MPUC	Manual paper feed clutch
	MPFS	Manual feed take-up solenoid
	MPGS	Manual paper feed gate solenoid



### 6-2

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

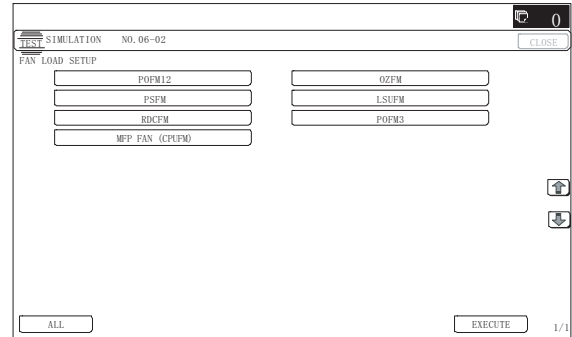
#### Operation/Procedure

- 1) Select the item to be operation checked with the touch panel key.
- 2) Press [EXECUTE] key.  
The selected load performs the operation.  
When [EXECUTE] key is pressed, the operation is terminated.  
Press [ALL] key to select all the fans collectively.

#### Load operation check method:

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

Item/Display	Content
POFM12	Paper exit cooling fan motor 12
OZFM	Ozone fan motor
PSFM	Power cooling fan motor
LSUFM	LSU cooling fan motor
RDCFM	Suction fan motor
POFM3	Paper exit cooling fan motor 3
MFP FAN (CPUFM)	Controller fan motor



## 7

### 7-1

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the operating conditions of aging.
<b>Section</b>	

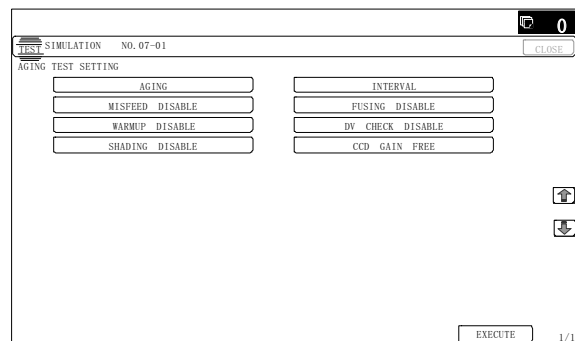
#### Operation/Procedure

- 1) Select the target to be set with the touch panel key.
- 2) Press [EXECUTE] key.

The machine is rebooted in the aging mode.

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

AGING	Aging operation setup
INTERVAL	Intermittent setup
MISFEED DISABLE	JAM detection enable/disable setup
FUSING DISABLE	Fusing operation enable/disable setup
WARMUP DISABLE	Warm-up skip setup
DV CHECK DISABLE	DV unit detection enable/disable setup
SHADING DISABLE	Shading disable setup
CCD GAIN FREE	No setting of the CCD gain adjustment



<b>7-6</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the operating intermittent aging cycle.
<b>Section</b>	

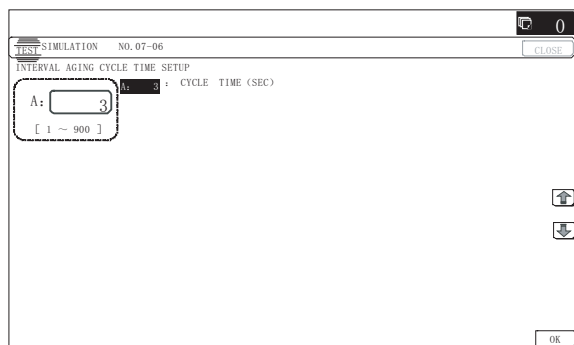
#### Operation/Procedure

- 1) Enter the intermittent aging operation cycle (unit: sec) with 10-key.
- 2) Press [OK] key.

The time entered in procedure 1) is set.

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

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



<b>7-8</b>	
<b>Purpose</b>	Information display/print
<b>Function (Purpose)</b>	Used to display the warm-up time.
<b>Section</b>	Fusing

#### Operation/Procedure

Press [EXECUTE] key.

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

\* Interruption of counting by pressing [EXECUTE] key is inhibited.

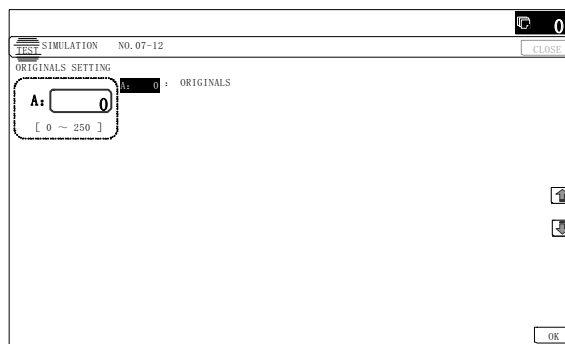


<b>7-12</b>	
<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	The document reading number of sheets setting (for aging operation)
<b>Section</b>	Automatic document feeder

#### Operation/Procedure

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

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



## 8

<b>8-1</b>	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to check and adjust the operations of the developing voltage in each print mode and the control circuit.

<b>Section</b>	Toner supply, developing
----------------	--------------------------

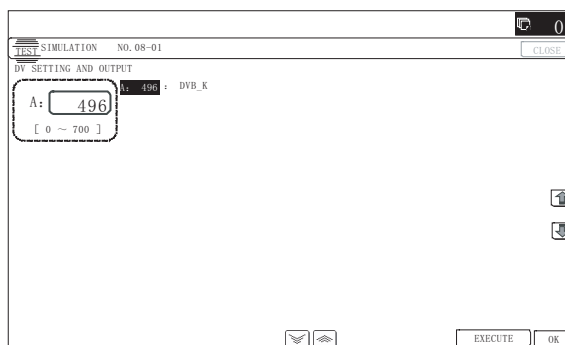
#### Operation/Procedure

- 1) Enter the setting value with 10-key.
- 2) Press [EXECUTE] key.

The entered voltage is outputted for 30 sec and the set value is saved.

When [EXECUTE] key is pressed during outputting, the operation is terminated.

Item/Display	Content	Setting range	Default value
A	DVB_K	K developing bias set value	0-700
			496





8-2	
<b>Purpose</b>	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>	Photo-conductor

#### Operation/Procedure

- 1) Enter the setting value with 10-key.
- 2) Press [EXECUTE] key.  
The entered voltage is outputted for 30 sec and the set value is saved.  
When [EXECUTE] key is pressed during outputting, the operation is terminated.

Item/Display		Content	Setting range	Default value
A	GB_K	K charging/grid bias set value	0 - 850	650

8-6	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to check and adjust the operation of the transport voltage and the control circuit.
<b>Section</b>	Transfer

#### Operation/Procedure

- 1) Select a target item to be adjusted with [↑] [↓] key.
- 2) Enter the set value with 10-key.  
Enter the default value specified on the following list.
- 3) Press [EXECUTE] key.  
The set value is saved and the voltage corresponding to the set value is output for 30 sec.  
When [EXECUTE] key is pressed during outputting, the operation is terminated.

Item/Display		Content				Setting range	Default value	
							28/36 CPM model	45/50 CPM model
A	TC PLAIN BW SPX	Transfer current	Black/White	Standard paper mode	Front surface	0 - 255	113	129
B	TC PLAIN BW DPX				Back surface	0 - 255	113	129
C	TC HEAVY BW SPX			Heavy paper mode	Front surface	0 - 255	113	129
D	TC HEAVY BW DPX				Back surface	0 - 255	113	129
E	TC OHP BW			OHP mode		0 - 255	113	129
F	TC ENVELOPE BW			Envelope mode		0 - 255	113	129
G	TC CLEANING	Transfer cleaning bias voltage	Cleaning in the normal operation mode			0 - 255	161	161
H	TC CLEANING PROCON		Cleaning in the process control mode			0 - 255	161	161
I	TC ADSORPTION	Transfer current between paper				0 - 255	113	129

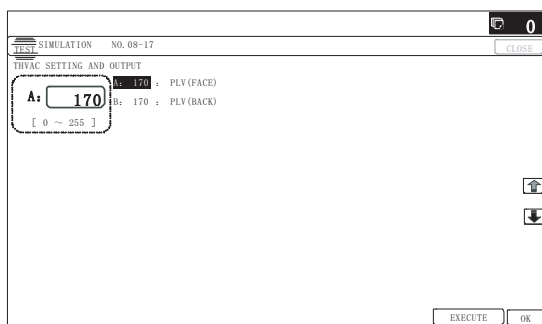
<b>8-17</b>	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to check and adjust the operation of the separation bias voltage and the control circuit.

### Section

#### Operation/Procedure

- 1) Select a target item to be adjusted with [↑] [↓] key.
- 2) Enter the set value with 10-key.  
Enter the default value specified on the following list.
- 3) Press [EXECUTE] key.  
The set value is saved and the voltage corresponding to the set value is output for 30 sec.  
When [EXECUTE] key is pressed during outputting, the operation is terminated.

Item/Display	Content	Setting range	Default value
A	PLV (FACE) Separation bias output (Front surface)	0 - 255	170
B	PLV (BACK) Separation bias output (Back surface)	0 - 255	170



## 9

<b>9-2</b>	
<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operation of the sensors and detectors in the switchback section (duplex section) and the control circuit.

### Section

Paper feed, paper reverse/transport

#### Operation/Procedure

The operating conditions of the sensors and detectors are displayed.

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

DSW_ADU	ADU transport open/close detection
APPD1	ADU transport detection 1
APPD2	ADU transport detection 2



<b>9-3</b>	
<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operations of the load in the paper reverse section (duplex section) and its control circuit.

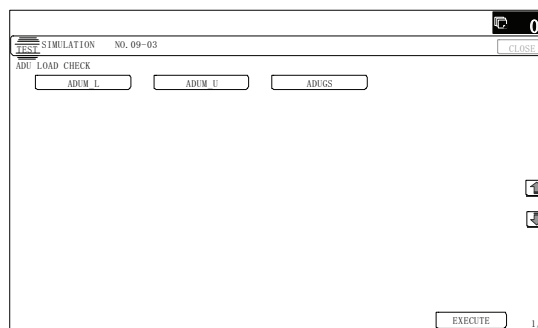
### Section

Duplex

#### Operation/Procedure

- 1) Select the item to be operation checked with the touch panel key.
- 2) Press [EXECUTE] key.  
The selected load performs the operation.  
When [EXECUTE] key is pressed during operation, the operation is terminated.

ADUM_L	ADU motor lower
ADUM_U	ADU motor upper
ADUGS	ADU gate solenoid



## 10

<b>10-1</b>	
<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operations of the toner supply mechanism (toner clutch) and the related circuit.

### Section

Toner supply, developing

#### Operation/Procedure

- 1) Press [EXECUTE] key.  
The selected load operation is performed for 10 sec.  
When [EXECUTE] key is pressed during operation, the operation is terminated.

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

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

If this simulation is erroneously executed with the toner cartridge installed, the over toner state may be canceled by making several background copies.



## 13

13--

<b>Purpose</b>	Cancel
<b>Function (Purpose)</b>	Used to cancel the self-diag "U1" trouble.
<b>Section</b>	MFP (ICU) PWB

### Operation/Procedure

- 1) Press [EXECUTE] key.
- 2) Press [YES] key to execute cancellation of the trouble.



## 14

14--

<b>Purpose</b>	Cancel
<b>Function (Purpose)</b>	Used to cancel the self-diag "H3, H4, H5" trouble.
<b>Section</b>	Fusing

### Operation/Procedure

- 1) Press [EXECUTE] key.
- 2) Press [YES] key to execute cancellation of the trouble.



## 15

15--

<b>Purpose</b>	Cancel
<b>Function (Purpose)</b>	Used to cancel the self-diag "U6-09" trouble.
<b>Section</b>	LCC

### Operation/Procedure

- 1) Press [EXECUTE] key.
- 2) Press [YES] key to execute cancellation of the trouble.



## 16

16--

<b>Purpose</b>	Cancel
<b>Function (Purpose)</b>	Used to cancel the self-diag "U2" trouble.
<b>Section</b>	

### Operation/Procedure

- 1) Press [EXECUTE] key.
- 2) Press [YES] key to execute cancellation of the trouble.



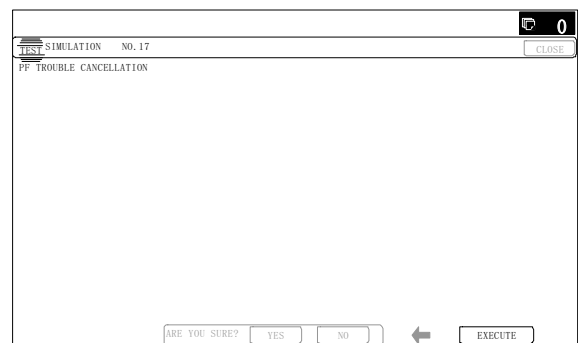
## 17

17--

<b>Purpose</b>	Cancel
<b>Function (Purpose)</b>	Used to cancel the self-diag "PF" trouble.
<b>Section</b>	Paper feed, paper reverse/transport

### Operation/Procedure

- 1) Press [EXECUTE] key.
- 2) Press [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

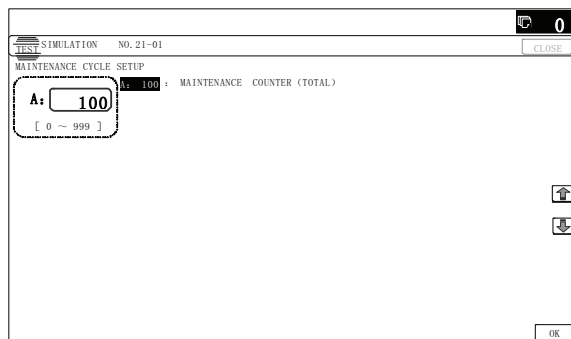
- 1) Select a target item of setting with [↑] [↓] key on the touch panel.
- 2) Enter the set value with 10-key.
- 3) Press [OK] key. (The set value is saved.)

Item/Display	Content	Setting range	Default value
A	MAINTENANCE COUNTER (TOTAL)	Maintenance counter (Total) 0 : Default 1 - 300: 1K - 300K 999 : Free	150K*1/ 200K*2

\*1: 28 CPM model \*2: 36/45/50 CPM model

Item	Default value			
	28 CPM model		36/45/50 CPM model	
	Group A	Group B	Group A	Group B
A	100	150	150	200

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



Target counter	Display	Content	Default value	Display range/ No. of digits
Document filing	DOC FIL (BW)	Black and white document filing print counter	0	Max. 8
Other	OTHER (BW)	Black and white other counter	0	Max. 8
Maintenance counter	MAINTENANCE ALL	Maintenance counter (Total)	0	Max. 8
Fuser unit	FUSER WEB SEND	Fuser web cleaning send counter	0	0 - 65535
	FUSER WEB UNIT	Fuser web print counter	0	Max. 8
	FUSER WEB DAY	Use day of fuser web unit	0	0 - 740
Drum life meter	DRUM LIFE (K)	Accumulated number of drum rotations (K)	0	0 - 100 (%) (±1% unit)
Developer life meter	DEVE LIFE (K)	Accumulated number of developer rotations (K)	0	0 - 100 (%) (±1% unit)

## 22

22-1	
<b>Purpose</b>	Information display
<b>Function (Purpose)</b>	Used to display the print count value of each section and the operation mode.
<b>Section</b>	

### Operation/Procedure

Target counter	Display	Content	Default value	Display range/ No. of digits
Total output quantity	TOTAL OUT (BW)	Total output quantity of black and white	0	Max. 8
Total use quantity	TOTAL (BW)	Total use quantity of black and white	0	Max. 8
Copy	COPY (BW)	Black and white copy counter	0	Max. 8
Print	PRINT (BW)	Black and white print counter	0	Max. 8

22-2	
<b>Purpose</b>	Information display
<b>Function (Purpose)</b>	Used to display the number of total mis-feed and the number of troubles.
<b>Section</b>	

### Operation/Procedure

The paper jam, trouble counter value is displayed.

Item/Display	Content
MACHINE JAM	Machine JAM counter
RSPF/DSPF JAM	SPFJAM counter
TROUBLE	Trouble counter

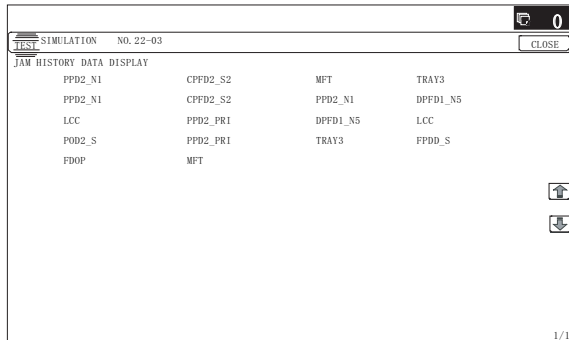
22-3

<b>Purpose</b>	Information display
<b>Function (Purpose)</b>	Used to display the mis-feed position and the number of mis-feed at the position.

**Section**

#### Operation/Procedure

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



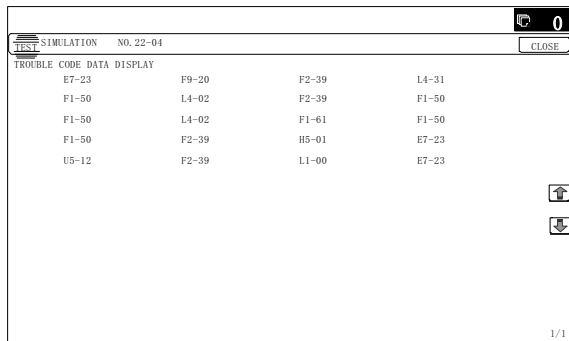
22-4

<b>Purpose</b>	Information display
<b>Function (Purpose)</b>	Used to display the trouble (self diag) history.

**Section**

#### Operation/Procedure

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



22-5

<b>Purpose</b>	Information display
<b>Function (Purpose)</b>	Used to display the ROM version of each unit (section).

**Section**

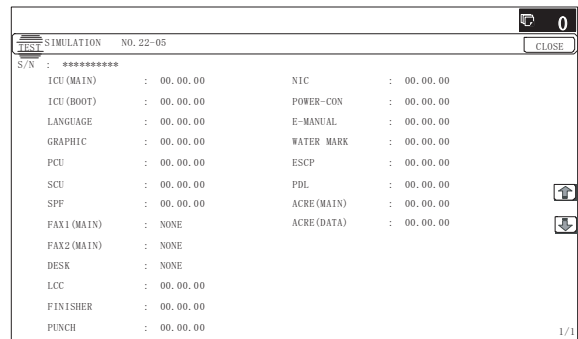
#### Operation/Procedure

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

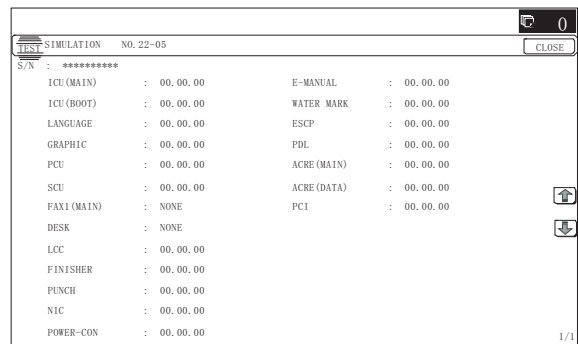
Item/Display	Content
S/N	Serial No. (The codes for November and December are "X" and "Y" respectively.)
ICU (MAIN)	ICU (Main section)
ICU (BOOT)	ICU (Boot section)
LANGUAGE	Language support data version
GRAPHIC	Graphic data for LCD
PCU	PCU
SCU	SCU

Item/Display	Content
SPF	DSPF/RSPF (MX-M283/M363/M453/M503 N)
FAX1 (MAIN)	FAX 1-Line (Main section)
DESK	Desk unit
LCC	Side LCC
FINISHER	Finisher
PUNCH	Punch unit
NIC	NIC
POWER-CON	Power controller
E-MANUAL	Operation manual (HDD storage)
WATER MARK	Watermark (HDD storage)
ESCP	ESCP font ROM
PDL	PDL font ROM
ACRE (MAIN)	ACRE (Main section) (N model only)
ACRE (DATA)	ACRE (Data section) (N model only)
PCI	PCI (MX-M282N/M362N/M452N/M502N)

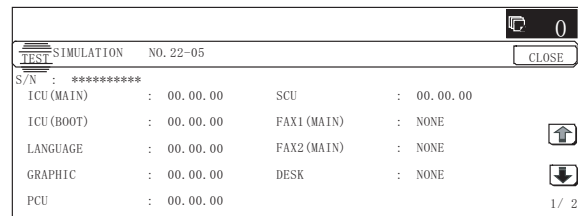
[N model (MX-M283/M363/M453/M503 N)]



[N model (MX-M282/M362/M452/M502 N)]



[U model]



<b>22-6</b>	
<b>Purpose</b>	Information print
<b>Function (Purpose)</b>	Used to print information on various settings, adjustments, counters, controls, and versions.

### Section

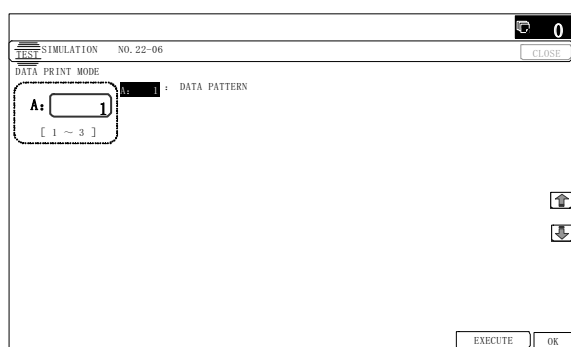
#### Operation/Procedure

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

- 1) Select the print list mode with 10-key.

Item/Display	Print list mode	Print content
A	1	Firmware version, counter data, etc.
	2	—
	3	Data related to the process control

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



<b>22-8</b>	
<b>Purpose</b>	Information display
<b>Function (Purpose)</b>	Used to display the number of operations (the counter value) of the finisher, the DSPF/RSPF, and scanning (reading).

### Section

#### Operation/Procedure

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

SPF	Document feed quantity
SCAN	Number of times of scan
STAPLER	Staple counter
PUNCHER	Puncher counter
STAMP	Stamp counter
SADDLE STAPLER	Saddle staple counter
SADDLE V FOLD	Saddle finisher V fold counter
COVER	Cover open/close counter
HP_ON	Number of scanner HP detection
OC LAMP TIME	Total lighting time of the lamp in OC section (* hour * minutes)
DSPF LAMP TIME	Total lighting time of the lamp in DSPF section (* hour * minutes) (DSPF-installed model only)

### [DSPF-installed model]

SIMULATION NO. 22-08		0	CLOSE
ORG./STAPLE COUNTER DISPLAY			
SPF	:	00000000	
SCAN	:	00000000	
STAPLER	:	00000000	
PUNCHER	:	00000000	
STAMP	:	00000000	
SADDLE STAPLER	:	00000000	
SADDLE V FOLD	:	00000000	
COVER	:	00000000	
HP_ON	:	00000000	
OC LAMP TIME	:	00000:00	
DSPF LAMP TIME	:	00000:00	
			1/1

### [RSPF-installed model]

SIMULATION NO. 22-08		0	CLOSE
ORG./STAPLE COUNTER DISPLAY			
SPF	:	00000000	SADDLE STAPLER : 00000000
SCAN	:	00000000	SADDLE V FOLD : 00000000
STAPLER	:	00000000	COVER : 00000000
PUNCHER	:	00000000	HP_ON : 00000000
STAMP	:	00000000	OC LAMP TIME : 00000:00
			1/1

<b>22-9</b>	
<b>Purpose</b>	Information display
<b>Function (Purpose)</b>	Used to display the print quantity of each paper feed section.
<b>Section</b>	Paper feed, paper reverse/transport

#### Operation/Procedure

The counter values related to paper feed are displayed.

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 (A4 LCC)
ADU	ADU paper feed counter (Paper reverse section)

SIMULATION NO. 22-09		0	CLOSE
PAPER FEED COUNTER DISPLAY			
TRAY1	:	00000000	
TRAY2	:	00000000	
TRAY3	:	00000000	
TRAY4	:	00000000	
MFT TOTAL	:	00000000	
MFT HEAVY	:	00000000	
MFT OHP	:	00000000	
MFT ENV	:	00000000	
LCC	:	00000000	
ADU	:	00000000	
			1/1

<b>22-10</b>	
<b>Purpose</b>	Information display
<b>Function (Purpose)</b>	Used to display the system configuration (options and internal hardware).

#### Section

#### Operation/Procedure

The system configuration is displayed.

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

#### [N model]

Device	Model name	Content
MACHINE	MX-M283N	Main unit
	MX-M363N	
	MX-M453N	
	MX-M503N	
	MX-M282N	
	MX-M362N	
	MX-M452N	
	MX-M502N	
SPF	MX-RP11/ STANDARD	Auto document feeder
STAMP	AR-SU1	Finish stamp
DESK	MX-DEX8	Stand/1x500 sheet paper drawer
	MX-DEX9	Stand/2x500 sheet paper drawer
LCC	MX-LCX1	A4 Large capacity tray (side LCC)
PUNCHER	MX-PNX1A	Punch module
	MX-PNX1B	
	MX-PNX1C	
	MX-PNX1D	
	MX-PNX5A	
	MX-PNX5B	
	MX-PNX5C	
	MX-PNX5D	
	MX-PNX6A	
	MX-PNX6B	
FINISHER	MX-FNX9	Inner finisher
	MX-FN10	Saddle stitch finisher (1K)
	MX-FN11	Finisher (4K)
FAX1	MX-FXX2	Facsimile expansion kit
NETWORK SCANNER	MX-NSX1/ STANDARD	Network scanner expansion kit
PRINTER	MX-PB11/ STANDARD	Printer expansion kit with hard drive
PS	MX-PKX1	PS expansion kit
XPS	MX-PUX1	XPS expansion kit
SECURITY (for MX-M283N, MX-M363/ M453/M503 N/U)	MX-FR14U	Data security kit (commercial version) (For the machine with HDD installed)
	MX-FR15U	Data security kit (authentication version) (For the machine without HDD installed)
	MX-FR14	Data security kit (authentication version) (For the machine with HDD installed)
SECURITY (for MX-M282N/ M362N/M452N/ M502N)	MX-FR24U	Data security kit (commercial version)
	MX-FR24	Data security kit (authentication version)
AIM	MX-AMX1	Application integration module
SDRAM (SYS)	*****MB	SDRAM capacity
SDRAM (ICU)	*****MB	SDRAM capacity
HDD	*****MB	Hard disk capacity
NIC	STANDARD	NIC
BARCODE	AR-PF1	Bar code font
INTERNET-FAX	MX-FWX1	Internet Fax expansion kit

Device	Model name	Content
ACM (*)	MX-AMX2 ("STANDARD" for North America)	Application communication module
EAM (*)	MX-AMX3	External account module
ACRE	MX-EBX3	Enhanced compression kit (ACRE)
PCI	CONNECT	Plasmacluster ion generator connection/not connection

(\*): Displayed in the OSA model only.

SIMULATION NO. 22-10			
MACHINE SYSTEM			
MACHINE	: MX-M503N	PS	: MX-PKX1
SPF	: STANDARD	XPS	: MX-PUX1
STAMP	: AR-SU1	SECURITY	: MX-FR14U
DESK	: MX-DEX8	AIM	: MX-AMX1
LCC	: MX-LCX1	SDRAM (SYS)	: *****MB
PUNCHER	: MX-PNX1A	SDRAM (ICU)	: *****MB
FINISHER	: MX-FNX9	HDD	: *****MB
FAX1	: MX-FXX2	NIC	: STANDARD
FAX2	: NONE	BARCODE	: AR-PF1
FAX MEMORY	: AR-MM9	FONT	: NONE
HAND SET	: NONE	INTERNET-FAX	: MX-FWX1
NETWORK SCANNER	: MX-NSX1	ACM (*)	: MX-AMX2
PRINTER	: MX-PB10	EAM (*)	: MX-AMX3

#### [U model]

Device	Model name	Content
MACHINE	MX-M363U	Main unit
	MX-M453U	
	MX-M503U	
SPF	STANDARD	Reversing single pass feeder
STAMP	AR-SU1	Finish stamp
DESK	MX-DEX8	Stand/1x500 sheet paper drawer
	MX-DEX9	Stand/2x500 sheet paper drawer
LCC	MX-LCX1	A4 Large capacity tray (side LCC)
PUNCHER	MX-PNX1A	Punch module
	MX-PNX1B	
	MX-PNX1C	
	MX-PNX1D	
	MX-PNX5A	
	MX-PNX5B	
	MX-PNX5C	
	MX-PNX5D	
	MX-PNX6A	
	MX-PNX6B	
FINISHER	MX-FNX9	Inner finisher
	MX-FN10	Saddle stitch finisher (1K)
	MX-FN11	Finisher (4K)
FAX1	MX-FXX2	Facsimile expansion kit
NETWORK SCANNER	MX-NSX1	Network scanner expansion kit
PRINTER	MX-PB10	Printer expansion kit
	MX-PB11	Printer expansion kit with hard drive
PS	MX-PKX1	PS expansion kit
XPS	MX-PUX1	XPS expansion kit
SECURITY	MX-FR14U	Data security kit (commercial version) (For the machine with HDD installed)
	MX-FR15U	Data security kit (Authentication version) (For the machine without HDD installed)
	MX-FR14	Data security kit (commercial version) (For the machine with HDD installed)
AIM	MX-AMX1	Application integration module
SDRAM (SYS)	*****MB	SDRAM capacity
SDRAM (ICU)	*****MB	SDRAM capacity





INTERNET FAX RECEIVE	Number of internet FAX receive
INTERNET FAX SEND	Number of internet FAX send
MAIL COUNTER	Number of times of E-MAIL send
FTP COUNTER	Number of FTP send
SMB SEND	Number 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) (N model only)

SIMULATION NO. 22-19	
NETWORK SCANNER COUNTER DISPLAY	
NET SCN ORG_B/W	: 00000000
NET SCN ORG_CL	: 00000000
INTERNET FAX OUTPUT	: 00000000
INTERNET FAX SEND OUTPUT	: 00000000
INTERNET FAX RECEIVE	: 00000000
INTERNET FAX SEND	: 00000000
MAIL COUNTER	: 00000000
FTP COUNTER	: 00000000
SMB SEND	: 00000000
USB CNT	: 00000000
TRIAL MODE_B&C	: 00000000
SCAN TO HDD_B/W	: 00000000
SCAN TO HDD_CL	: 00000000

22-90

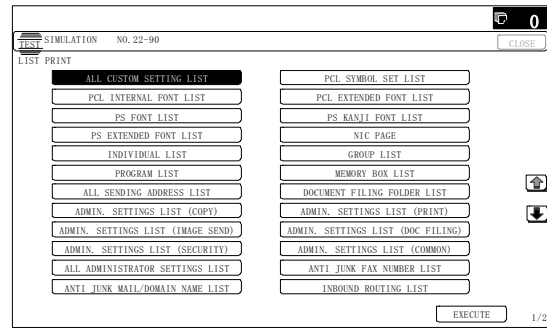
<b>Purpose</b>	Information print
<b>Function (Purpose)</b>	Used to output the various set data lists.
<b>Section</b>	

#### Operation/Procedure

- 1) Change the display with [↑] [↓] key.
- 2) Select the print target with the keys on the touch panel.
- 3) Press [EXECUTE] key to start self print of the list.

All setting list	ALL CUSTOM SETTING LIST
Printer test page	PCL SYMBOL SET LIST
	PCL INTERNAL FONT LIST
	PCL EXTENDED FONT LIST
	PS FONT LIST
	PS KANJI FONT LIST
	PS EXTENDED FONT LIST
	NIC PAGE
Address registration list (*)	INDIVIDUAL LIST
	GROUP LIST
	PROGRAM LIST
	MEMORY BOX LIST
	ALL SENDING ADDRESS LIST
Document filing list	DOCUMENT FILING FOLDER LIST
System setting list	ADMIN. SETTINGS LIST (COPY)
	ADMIN. SETTINGS LIST (PRINT)
	ADMIN. SETTINGS LIST (IMAGE SEND)
	ADMIN. SETTINGS LIST (DOC FILING)
	ADMIN. SETTINGS LIST (SECURITY)
	ADMIN. SETTINGS LIST (COMMON)
	ALL ADMINISTRATOR SETTINGS LIST
Receive YES/NO number table	ANTI JUNK FAX NUMBER LIST
Receive rejection/allow address domain table	ANTI JUNK MAIL/DOMAIN NAME LIST
To network Transfer table list	INBOUND ROUTING LIST
To administrator Transfer list	DOCUMENT ADMIN LIST
Web setting list	WEB SETTING LIST
Meta data set list	METADATA SET LIST

\* When the data list print of system setting is inhibition in DSK model, this setting is invalid.



23

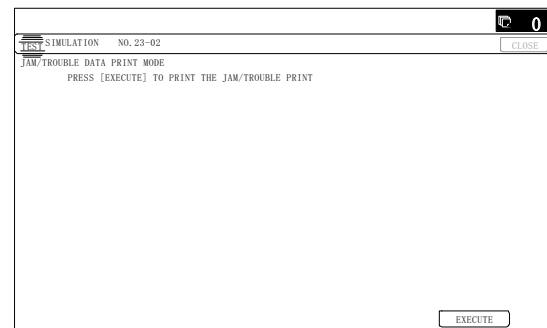
23-2

<b>Purpose</b>	Information print
<b>Function (Purpose)</b>	Used to output the trouble history list of paper jam and mis-feed.

#### Section

#### Operation/Procedure

Press [EXECUTE] key to execute print.  
The trouble history of paper jams and mis-feed is printed.



23-80

<b>Purpose</b>	Information print
<b>Function (Purpose)</b>	Used to output the operation data of paper feed and paper transport in the paper feed/transport section.

#### Section

Paper feed, paper reverse/transport

#### Operation/Procedure

When [EXECUTE] key is pressed, the timing list of paper feed and paper transport is outputted.

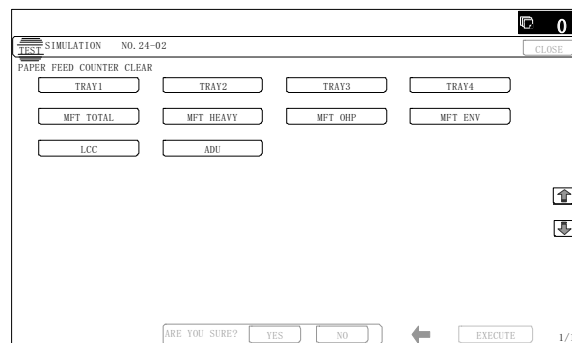
Used to print the operations timing list of the sensors and detectors in the paper feed and transport section.

The timing list of paper feed and paper transport operations of the latest job (copy or print) on the final paper is printed.

Since the paper feed and paper transport routes differ depending on the used paper feed tray and the print operation mode, the sensor and the detectors and the operation timing also differ.

SECTION	Operation content (Trigger name - Detection operation or load operation name)
STANDARD	Standard value (ms)
CURRENT (*1)	Operation timing (ms) of the latest job on the final paper
PREVIOUS (*1)	Operation timing (ms) of the second latest job on the final paper
MAXIMUM (*1)	Max. operation timing (ms) of all the jobs
MINIMUM (*1)	Min. operation timing (ms) of all the jobs

\*1: The value without unit on the left side of each item on the list has no relation to the operation timing. It is not used in the market.



## 24

### 24-1

<b>Purpose</b>	Data clear/Reset
<b>Function (Purpose)</b>	Used to clear the jam counter, and the trouble counter.

#### Section

#### Operation/Procedure

- 1) Select the item to be cleared with the touch panel key.
- 2) Press [EXECUTE] key.
- 3) Press [YES] key.

The target counter is cleared.

MACHINE	Machine JAM counter
SPF	DSPF/RSPF JAM counter
TROUBLE	Trouble counter



### 24-2

<b>Purpose</b>	Data clear/Reset
<b>Function (Purpose)</b>	Used to clear the number of use (the number of prints) of each paper feed section.

#### Section

Paper feed, paper reverse/transport

#### Operation/Procedure

- 1) Select the item to be cleared with the touch panel key.
- 2) Press [EXECUTE] key.
- 3) Press [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 (A4 LCC)
ADU	ADU paper feed counter

### 24-3

<b>Purpose</b>	Data clear/Reset
<b>Function (Purpose)</b>	Used to clear the finisher, DSPF/RSPF, and the scan (reading) unit counter.

#### Section

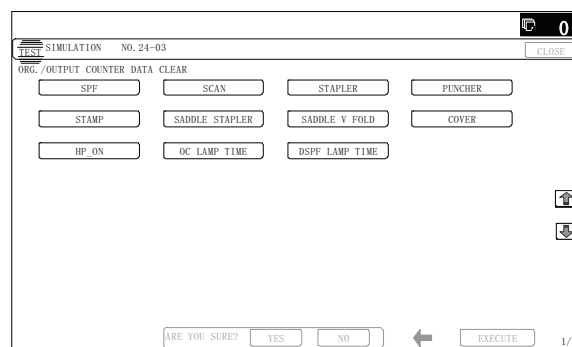
#### Operation/Procedure

- 1) Select the item to be cleared with the touch panel key.
- 2) Press [EXECUTE] key.
- 3) Press [YES] key.

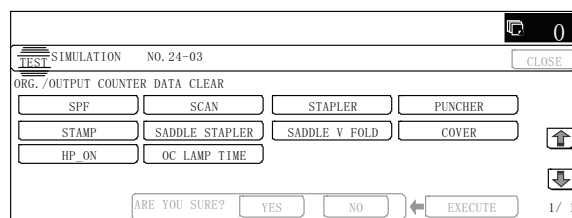
The target counter is cleared.

SPF	DSPF/RSPF document feed counter
SCAN	Scan counter
STAPLER	Staple counter
PUNCHER	Puncher counter
STAMP	Stamp counter
SADDLE STAPLER	Saddle staple counter
SADDLE V FOLD	Saddle finisher V fold counter
COVER	Cover open/close counter
HP_ON	HP detection count
OC LAMP TIME	OC section lamp total lighting time
DSPF LAMP TIME	DSPF section lamp total lighting time (DSPF-installed model only)

#### [DSPF-installed model]



#### [RSPF-installed model]



<b>24-4</b>	
<b>Purpose</b>	Data clear/Reset
<b>Function (Purpose)</b>	Used to clear the maintenance counter, the printer counters of the transfer unit and the fusing unit.

#### Section

#### Operation/Procedure

- 1) Select the item to be cleared with the touch panel key.
- 2) Press [EXECUTE] key.
- 3) Press [YES] key.

The target counter is cleared.

MAINTENANCE ALL	Maintenance counter (Total)
FUSER WEB SEND	Fuser web send counter
FUSER WEB	Fuser web print counter
FUSER WEB DAY	Fuser web unit use day



<b>24-5</b>	
<b>Purpose</b>	Data clear/Reset
<b>Function (Purpose)</b>	Used to clear the developer counter.
<b>Section</b>	Toner supply, developing

#### Operation/Procedure

- 1) Select the item to be cleared with the touch panel key.
- 2) Press [EXECUTE] key.
- 3) Press [YES] key.

The target counter is cleared.

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

Developer cartridge print counter (K)
Developer cartridge accumulated traveling distance (cm) (K)
Number of day that used developer (Day) K



<b>24-6</b>	
<b>Purpose</b>	Data clear/Reset
<b>Function (Purpose)</b>	Used to clear the copy counter.
<b>Section</b>	

#### Operation/Procedure

- 1) Select the item to be cleared with the touch panel key.
- 2) Press [EXECUTE] key.
- 3) Press [YES] key.

The target counter is cleared.

COPY BW	Copy counter (B/W)
---------	--------------------



<b>24-7</b>	
<b>Purpose</b>	Data clear/Reset
<b>Function (Purpose)</b>	Used to clear the OPC drum counter.
<b>Section</b>	Photoconductor

#### Operation/Procedure

- 1) Select the item to be cleared with the touch panel key.
- 2) Press [EXECUTE] key.
- 3) Press [YES] key.

The target counter is cleared.

Drum cartridge print counter (K)
Drum cartridge accumulated traveling distance (cm) (K)
Number of day that used drum (Day) K



<b>24-9</b>	
<b>Purpose</b>	Data clear/Reset
<b>Function (Purpose)</b>	Used clear the printer mode print counter and the self print mode print counter.

#### Section

#### Operation/Procedure

- 1) Select the item to be cleared with the touch panel key.
- 2) Press [EXECUTE] key.
- 3) Press [YES] key.

The target counter is cleared.

PRINT BW	Print counter (B/W)
OTHER BW	Other counter (B/W)



<b>24-10</b>	
<b>Purpose</b>	Data clear/Reset
<b>Function (Purpose)</b>	Used to clear the FAX counter. (Only when FAX is installed)

#### Section

#### Operation/Procedure

- 1) Select the item to be cleared with the touch panel key.
- 2) Press [EXECUTE] key.
- 3) Press [YES] key.

The target counter is cleared.

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



<b>24-15</b>	
<b>Purpose</b>	Data clear/Reset
<b>Function (Purpose)</b>	Used to clear the counters related to the scan mode and the image send.

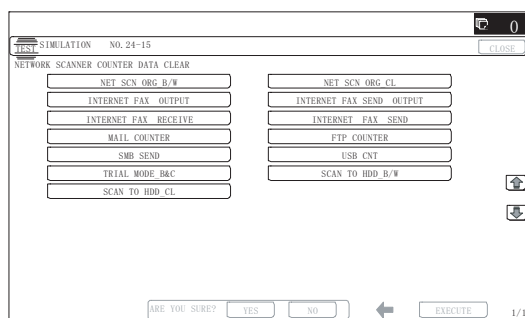
#### Section

#### Operation/Procedure

- 1) Select the item to be cleared with the touch panel key.
- 2) Press [EXECUTE] key.
- 3) Press [YES] key.

The target counter is cleared.

NET SCN ORG_B/W	Network scanner document read quantity counter (B/W scan job)
NET SCN ORG_CL	Network scanner document read quantity counter (COLOR scan job) (N model only)
INTERNET FAX OUTPUT	Number of internet FAX output
INTERNET FAX SEND OUTPUT	Number of internet FAX sending page
INTERNET FAX RECEIVE	Number of internet FAX receive
INTERNET FAX SEND	Number of internet FAX send
MAIL COUNTER	Number of times of E-MAIL send
FTP COUNTER	Number of FTP send
SMB SEND	Number 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) (N model only)



<b>24-30</b>	
<b>Purpose</b>	Data clear/Reset
<b>Function (Purpose)</b>	Used to initialize the administrator password.

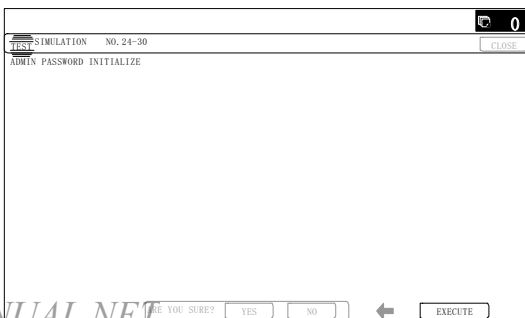
#### Section

#### Operation/Procedure

- 1) Press [EXECUTE] key.
- 2) Press [YES] key.

The administrator password is initialized.

If the administrator password of system setting and Web page is forgotten, execute this simulation to set the password to "admin" (default).



<b>24-31</b>	
<b>Purpose</b>	Data clear/Reset
<b>Function (Purpose)</b>	Used to initialize the service mode (Web page) password.

#### Section

#### Operation/Procedure

- 1) Press [EXECUTE] key.
- 2) Press [YES] key.

The service mode password is initialized.

If the password of Web page is forgotten, execute this simulation to set the password to "service" (default).



## 25

<b>25-1</b>	
<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operations of the developing section, and to display the toner density detection level.

#### Section

#### Operation/Procedure

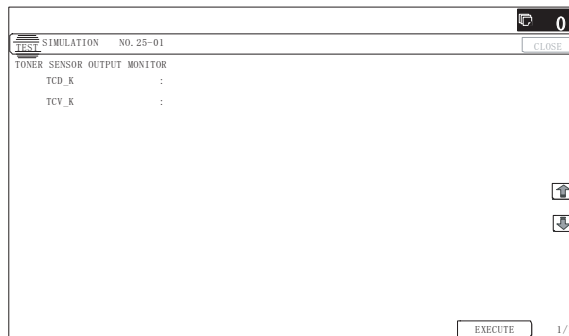
- 1) Press [EXECUTE] key.

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

TCD_K	Toner density detection level K
TCV_K	Toner density sensor output voltage level K

NOTE: The toner cartridge must be removed before executing this simulation.

If this simulation is executed with the toner cartridge installed, toner will be forcibly supplied to the developing unit, resulting in over toner and a trouble.



<b>25-2</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to make the initial setting of toner density when replacing developer. (Automatic adjustment)

#### Section

#### Operation/Procedure

- 1) Press [EXECUTE] key.

The developing motor rotates for 3 minutes, and the toner density sensor makes sampling of the toner density. The detected level is displayed.

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

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

Do not execute this simulation unless new Developer material has been installed. If it is executed in other cases, under toner or over-toner may occur, causing a trouble.

#### Adjustment result data display

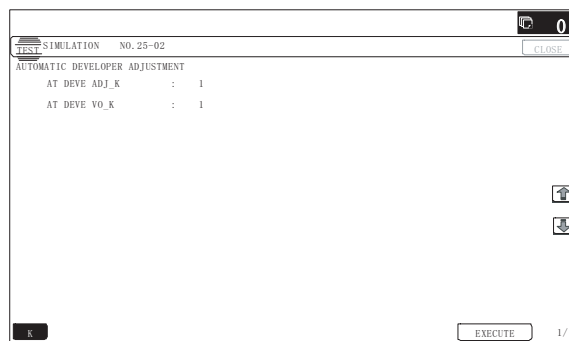
Item/Display	Content
AT DEVE ADJ_K	Toner density adjustment value
AT DEVE VO_K	Toner density sensor control voltage level

#### Data display during execution

Item/Display	Content
TCD_K	Toner density sensor detection level K
TCV_K	Toner density sensor control voltage level K

#### Display in case of an error

Error display	Content	Details of content
EE-EL	EL abnormality	Sensor output level less than 67, or sensor control voltage level over 197
EE-EU	EU abnormality	Sensor output level over 154, or sensor control voltage level less than 49
EE-EC	EC abnormality	The sampling level in the automatic toner density adjustment is outside of 100±5.



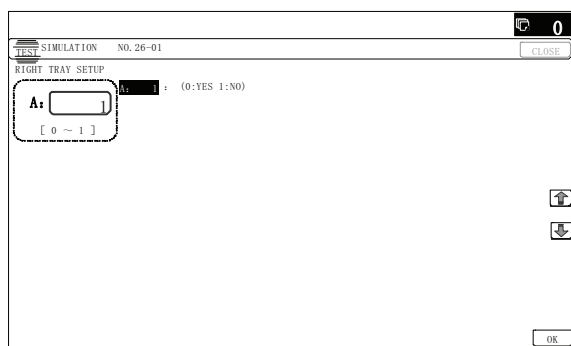
## 26-1

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the paper exit operation from the right side.
<b>Section</b>	Paper exit section

**Operation/Procedure**

- 1) Enter the set value with 10-key.
  - 2) Press [OK] key. (The set value is saved.)
- This setting is required to use the paper exit tray unit (MX-TRX1).

Item/Display			Content
A	0	YES	Paper exit tray: YES
	1	NO	Paper exit tray: NO



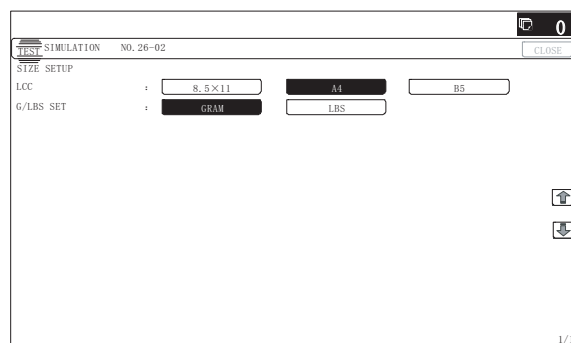
## 26-2

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the paper type and the weight type.
<b>Section</b>	Paper feed, paper reverse/transport

**Operation/Procedure**

Select a paper size to be changed with the touch panel.

LCC	0	8.5 x 11
	1	A4
	2	B5
G/LBS SET	0	GRAM
	1	LBS



## 26-3

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the specifications of the auditor. (Japan only)
<b>Section</b>	Auditor

**Operation/Procedure**

Select an item to be set with the touch panel.

Item/Display		Content	Default value
BUILT-IN AUDITOR	P10	Built-in auditor mode (standard mode) operation.	P10
	EC1	EC1 mode operation	
OUTSIDE AUDITOR	NONE	No external connection vendor is used.	NONE
	P VENDOR1	Coin vendor mode (Only the copy mode can be controlled.)	
	P VENDOR2	Vendor mode communicating with the parallel I/F (for DocuLyzer) (Japan only)	
	VENDOR-EX (*1)	Vendor I/F for EQUITRAC	
	VENDOR-EX (MULTI) (*1)	VENDOR-EX + Multi job cueing Enable mode	
	P OTHER	NOT USED	
	S_VENDOR	Serial vendor mode	
DOC ADJ	ON	Support for the auditor in document filing print	OFF
	OFF	No support for the auditor in document filing print	
PF ADJ	ON	Continuous printing is performed in the duplex print mode. If the remaining money expires during continuous printing, the sheets in the machine are discharged without being printed on the back surfaces.	OFF
	OFF	Continuous printing is not performed in the duplex print mode. (The remaining amount is checked for printing every surface in all the printing process.) If the remaining money expires during printing, the sheet is discharged without printing on the back surface.	
VENDOR MODE (*2)	MODE1	Vendor mode 1	MODE 3
	MODE2	Vendor mode 2	
	MODE3	Vendor mode 3	
COUNTUP TIMING	FUSER_IN	When the paper lead edge passes the fusing rear sensor.	EXIT_OUT
	FUSER_OUT	When the paper rear edge passes the fusing rear sensor.	
	EXIT_OUT	When the paper rear edge passes the paper exit sensor in the main unit, the right tray, and the after process unit.	
IMS CONTROL	ON	There is some restriction in the image send mode.	OFF
	OFF	There is no restriction in the image send mode.	



Item/Display		Content	Default value
PRINTER CONTROL	MODE1	PRINTER CONTROL MODE1 (All the items of OUTSIDE AUDITOR can be selected.)	MODE 1
	MODE2	PRINTER CONTROL MODE2 (The item of OUTSIDE AUDITOR must be the value of "P VENDOR 1" and the other buttons are gray out.)	
	MODE3	PRINTER CONTROL MODE3 (The item of OUTSIDE AUDITOR must be the value of "P OTHER" and the other buttons are gray out.)	

(\*1) Displayed only when EQUITRAC.

**(\*2) Details of the vendor mode**

VENDER MODE	Completion of the specified quantity. (Money remaining)	Insufficient money during copy job	Completion of the specified quantity. (No money remaining)
		No money remaining	
	Condition 1	Condition 2	Condition 3
MODE1	Operation 1	Operation 2	Operation 1
MODE2	Operation 1	Operation 1	Operation 1
MODE3	Operation 1	Operation 3	Operation 3

Operation 1:  
Standby during setting time of auto clear. Default is 60 seconds, which can be changed in the system setting.

Operation 2:  
Auto clear is not made.

Operation 3:  
The display is shifted to the initial screen.

<b>26-5</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the count mode in A3 (11" x 17") print.

**Section**

**Operation/Procedure**

- 1) Select an item to be set with [↑] [↓] keys.
- 2) Enter the setting value with 10-key  
1 = Count up by 1, 2 = Count up by 2
- 3) Press [OK] key.  
The set value in step 2) is saved.

Item/Display	Content	Default value
A	TOTAL (B/W)	Total counter (B/W)
B	MAINT (B/W)	Maintenance counter (B/W)
C	DEV (B/W)	Developer counter (B/W)

<b>26-6</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the specifications of the destination.

**Section**

**Operation/Procedure**

- 1) Select an item to be set with the touch panel.
- 2) Press [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

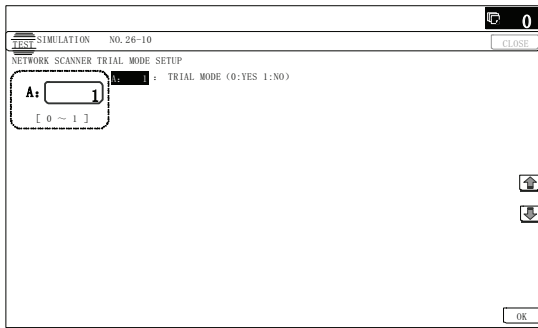
<b>26-10</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the trial mode of the network scanner.

**Section**

**Operation/Procedure**

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

TRIAL MODE (0: YES 1: NO)	0	Trial mode setting
	1	Trial mode cancel (Default)



26-18

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

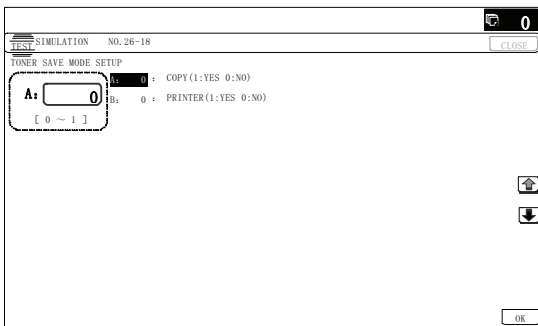
#### Section

#### Operation/Procedure

- 1) Select an item to be set with [↑] [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Press [OK] key.

The set value in step 2) is saved.

Item	Display	Content	Default value
A	COPY	0 Copy toner save mode is inhibited.	0
		1 Copy toner save mode is allowed	
B	PRINTER	0 Printer toner save mode is inhibited.	0
		1 Printer toner save mode is allowed.	



26-30

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the operation mode corresponding to the CE mark (Europe safety standards).

#### Section

#### Operation/Procedure

- 1) Enter the set value with 10-key.

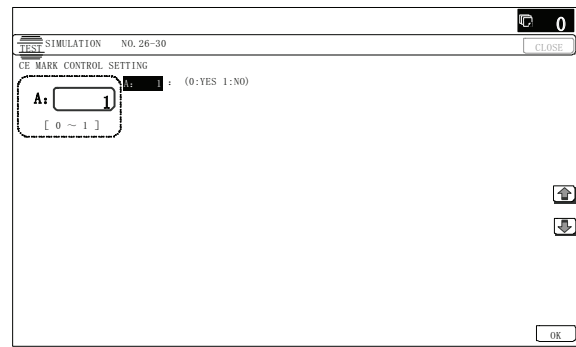
0	Control allowed
1	Control inhibited

- 2) Press [OK] key.

The set value in step 1) is saved.

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

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



26-35

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the trouble history display mode.

#### Section

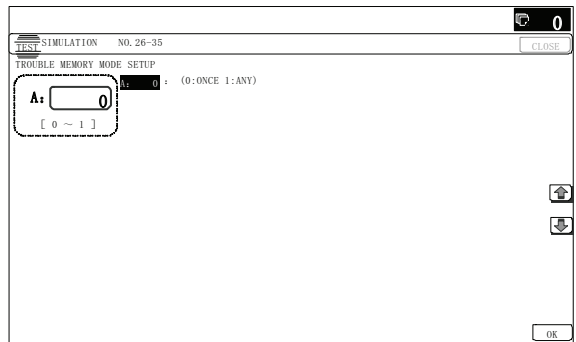
#### Operation/Procedure

- 1) Enter the set value with 10-key.

0	Only once display.
1	Any time display.

- 2) Press [OK] key.

The set value in step 1) is saved.



26-38

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set "Print continue" or "Print stop" when the maintenance timing is reached or the consumable part life is over.

#### Section

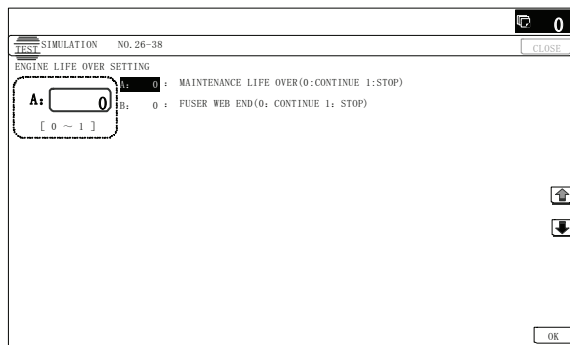
#### Operation/Procedure

- 1) Enter the set value with 10-key.

- 2) Press [OK] key.

The set value in step 1) is saved.

Item/Display		Content		Default value
A	MAINTENANCE LIFE OVER	0	Print continue	0
		1	Print stop	
B	FUSER WEB END (0: CONTINUE 1: STOP)	0	Continue/Stop setting of print when the fusing web is end (Print Continue)	0
		1	Continue/Stop setting of print when the fusing web is end (Print Stop)	

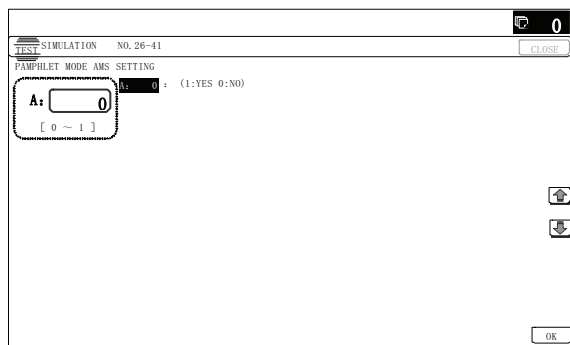


<b>26-41</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set Enable/Disable of the magnification ratio automatic select function (AMS) in the center binding mode.
<b>Section</b>	
<b>Operation/Procedure</b>	
1) Enter the set value with 10-key.	
0	AMS Disable
1	AMS Enable

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

**<Default value of each destination>**

U.S.A	0 (Disable)	EUROPE	1 (Enable)
CANADA	0 (Disable)	U.K.	1 (Enable)
INCH	0 (Disable)	AUS.	0 (Disable)
JAPAN	0 (Disable)	AB_A	0 (Disable)
AB_B	0 (Disable)	CHINA	0 (Disable)



<b>26-49</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the print speed of postcards mode.
<b>Section</b>	
<b>Operation/Procedure</b>	

Select the copy speed mode with the touch panel. (Default: LOW)  
When the setting is changed, the paper feed interval in print or copy in the postcard mode is changed and the job speed is changed accordingly.  
LOW: The paper feed interval is long. (Normal mode)  
HIGH: The paper feed interval is short. (when a paper jam occurs, the number of sheets of jam paper is greater than that in the LOW mode.)



<b>26-50</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the operation specifications and functions.
<b>Section</b>	
<b>Operation/Procedure</b>	
1) Select a target item of setting with [↑] [↓] key on the touch panel.	
2) Enter the set value with 10-key.	
3) Press [OK] key. (The set value is saved.)	

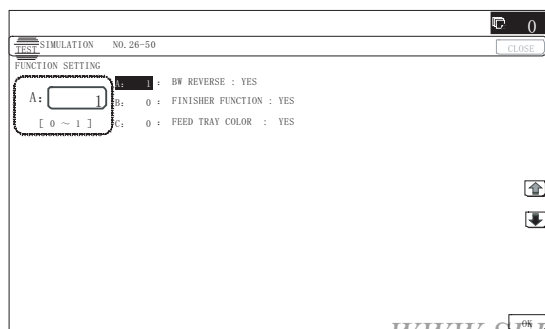
Item/Display		Content		Default value
A	BW REVERSE	0	BW reverse copy Disable	Refer to *1
		1	BW reverse copy Enable	
B	FINISHER FUNCTION	0	Finisher special paper The number of paper exit is limited.	0 Refer to *2
		1	Finisher special paper The number of paper exit is not limited.	
C	FEED TRAY COLOR	0	Paper feed tray color display ON during paper feed	0
		1	Paper feed tray color display OFF during paper feed	

**(\*1) Default values for each destination of item A**

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

(\*2)

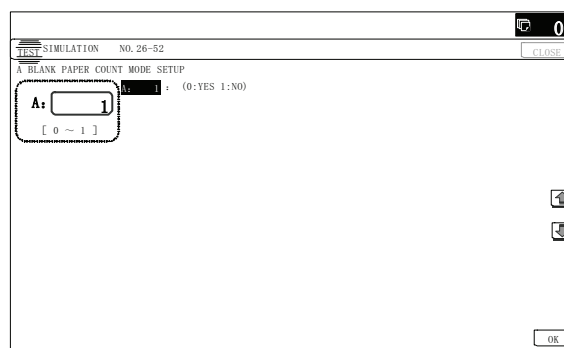
	Target paper	Target paper setting	
		0	1
1K saddle stitch finisher	Postcard, envelope	The operation is stopped when 30 sheets of a same kind are discharged continuously. When, however, different kinds of sheets are mixed and discharged and less than 30 sheets of a kind are continuously discharged, the operation is performed similarly to that of setting value "1".	The operation is stopped when the paper exit tray full, 500 sheets, or 94mm height of paper exit is detected.
	Label sheet, tab sheet, OHP	The operation is stopped when 100 sheets of a same kind are discharged continuously. When, however, different kinds of sheets are mixed and discharged and less than 100 sheets of a kind are continuously discharged, the operation is performed similarly to that of setting value "1".	
Inner finisher	Postcard, envelope	The operation is stopped when 10 sheets of a same kind are discharged continuously. When, however, different kinds of sheets are mixed and discharged and less than 10 sheets of a kind are continuously discharged, the operation is performed similarly to that of setting value "1".	The operation is stopped when the paper exit tray full, 250 sheets, or 33.5mm height of paper exit is detected.
	Label sheet, tab sheet, OHP	The operation is stopped when 100 sheets of a same kind are discharged continuously. When, however, different kinds of sheets are mixed and discharged and less than 100 sheets of a kind are continuously discharged, the operation is performed similarly to that of setting value "1".	
4K finisher	Postcard, envelope	The operation is stopped when 100 sheets of a same kind are discharged continuously. When, however, different kinds of sheets are mixed and discharged and less than 100 sheets of a kind are continuously discharged, the operation is performed similarly to that of setting value "1".	The operation is stopped when the paper exit tray full, 650 sheets, or 94mm height of paper exit is detected.
	Label sheet, tab sheet, OHP	The operation is stopped when 100 sheets of a same kind are discharged continuously. When, however, different kinds of sheets are mixed and discharged and less than 100 sheets of a kind are continuously discharged, the operation is performed similarly to that of setting value "1".	



<b>26-52</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set whether non-printed paper (insertion paper, cover paper) is counted up or not.
<b>Section</b>	
<b>Operation/Procedure</b>	
1) Enter the set value with 10-key.	
0	Count up
1	No count up

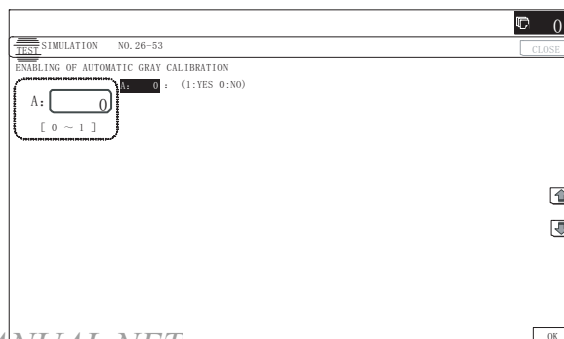
- 2) Press [OK] key.  
The set value in step 1) is saved.

Destination	Default
U.S.A	0 (Counted)
CANADA	0 (Counted)
INCH	0 (Counted)
JAPAN	1 (Not counted)
AB_B	0 (Counted)
EUROPE	0 (Counted)
U.K.	0 (Counted)
AUS.	1 (Not counted)
AB_A	0 (Counted)
CHINA	0 (Counted)



<b>26-53</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set Inhibit/Allow of the user auto calibration (gradation, density adjustment) in the copy mode.
<b>Section</b>	
<b>Operation/Procedure</b>	
1) Enter the set value with 10-key.	
0	Inhibit (Default)
1	Allow

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



<b>26-65</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the limit of the staple process.
<b>Section</b>	

#### Operation/Procedure

Use the touch key to set.

[Target paper size]

<LIMIT SHEETS>

A4, A4R, B5, B5R, 8.5 x 11, 8.5 x 11R, 16K, 16KR

<LIMIT SHEETS(L)>

(A3, B4, 11 x 17, 8.5 x 14, 8.5 x 13.5, 8.5 x 13.4, 8.5 x 13, 8K)

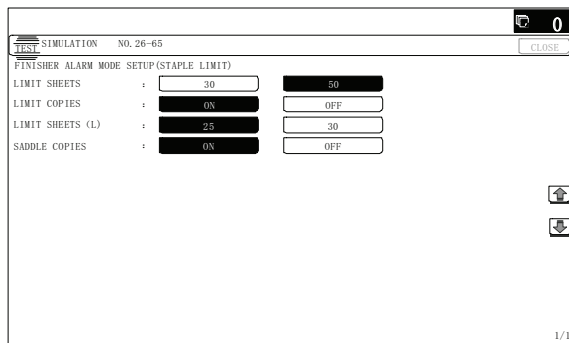
\* When mixed sizes of a same width are loaded, the setting conforms to the LIMIT SHEETS(L) setting.

Item	Set value	Content	Setting range	Default value
LIMIT SHEETS	30	Number of sheets of stapling: Max. 30	30 or 50	50
	50	Number of sheets of stapling: Max. 50		
LIMIT COPIES	ON	Inner finisher: 30 copies for all sizes 1K saddle finisher: 50 copies for all sizes 4K finisher: A4, B5, 8.5 x 11, 16K → 100 copies Other than the above → 50 copies	ON or OFF	ON
	OFF	Number of sets of stapling: Not Limited		
LIMIT SHEETS (L)	25	Number of sheets of stapling: Max. 25	25 or 30	25
	30	Number of sheets of stapling: Max. 30		
SADDLE COPIES	ON	Number of sets loaded in the saddle staple: Limited (*1)	ON or OFF	ON
	OFF	Number of sets loaded in the saddle staple: Not Limited		

\* LIMIT SHEETS: The 4K finisher is fixed to 50 sheets.

\* LIMIT SHEETS(L): Valid only for the 1K saddle finisher.  
The 4K finisher is fixed to 30 sheets.

\*1: 1-5sheets (20 sets) / 6-10 sheets (15 sets) /  
10-15 sheets (10 sets)



<b>26-69</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the operating conditions for toner near end.
<b>Section</b>	

#### Operation/Procedure

- 1) Select an item to be set with [↑] [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Press [OK] key.

The set value in step 2 is saved.

Item/Display		Content		Setting range	Default value
A	TONER PREPARATION (0: YES 1: NO)	0	The toner preparation message is displayed.	0 - 1	
		1	The toner preparation message is not displayed.		
B	TONER NEAR END (0: YES 1: NO)	0	The toner near end message is displayed.	0 - 1	
		1	The toner near end message is not displayed.		
C	TONER END	1	Operation Enable in TONER END	1 - 3	2
		2	Operation STOP in TONER END		
		3	Operation STOP in TONER END		
D	TONER END COUNT	Setting of the number of copy/print/FAX outputs Enable after TONER NEAR END.		1 - 5	3
E	TONER E-MAIL ALERT	0	Condition for Low status send of E-mail alert When the toner preparation message is displayed (in near toner end)	0 - 1	1
		1	Condition for Low status send of E-mail alert When near toner end		

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

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

(Contents of set items)

A: Enable/Disable setting of the toner preparation message display when the toner remaining quantity reaches 25%.

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

C: Enable/Disable setting of the machine operation when the toner end status is reached.

For except Japan, performs operation of set value "3" regardless of the setting value.

D: Setting of the allowable quantity of copy/print/FAX after displaying the message when item B is set to "0" (the message is displayed at toner near end). (Range: 0 - 200 sheets)

The number of output print allowed in item D is based on the assumption that the sheets are of A4 size with print ratio of 6%. (The number of outputs allowed differs depending on the paper size and the print ratio.)

Set values of Item D and the number of output print allowed

- 1: Print Disable after toner near end
- 2: 25 sheets print Enable after toner near end
- 3: 50 sheets print Enable after toner near end
- 4: 100 sheets print Enable after toner near end
- 5: 200 sheets print Enable after toner near end

NOTE: When item B is set to "0" and item D to a desired number, printing can be made after toner near end. However, insufficient density, thin spots, or improper color balance may be resulted depending on the using conditions. When item D is set to "1" printing is disabled after toner near end. this case, toner end display is made in the toner near end status, and copy/print/FAX outputs are disabled.

26-73

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to adjust the image loss (shade removal amount) in the poster, the continuous enlargement copy, the card scan, and the A3 wide copy mode.

**Section**

#### Operation/Procedure

- 1) Select an item to be set with [↑] [↓] keys.
  - 2) Enter the set value with 10-key.
  - 3) Press [OK] key.
- When the adjustment value is increased, the image loss (shade delete quantity) is increased.

Item/Display	Content	Setting range	Default value
A	DELETING SHADOW ADJ (M)	0 - 50	0 (Adjustment amount: 0.1mm/step)
B	DELETING SHADOW ADJ (S)	0 - 50	0 (Adjustment amount: 0.1mm/step)

26-74

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the OSA trial mode.
<b>Section</b>	

#### Operation/Procedure

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

Item/Display	Content	Setting range	Default value
A	OSA TRIAL MODE (0: YES 1: NO)	0	Used to set the OSA trial mode.
		1	OSA trial mode is canceled.

26-78

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the password of the remote operation panel mode.

**Section**

#### Operation/Procedure

- 1) Enter a password with 10-key. (5 - 8 digits)  
The entered password is displayed on the column of "NEW". In order to correct the entered password, press the [clear] key to delete the entered value one digit by one digit.
- 2) Press [SET] key.

27-1

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set non-detection of communication error (U7-00) with RIC. (FSS function)

**Section****Operation/Procedure**

- 1) Enter the set value with 10-key.

0	Not detection
1	Detection

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

27-2

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

**Section****Operation/Procedure**

- 1) Select an item to be set with touch panel.  
[USER FAX NO] [SERVA TEL NO]
- 2) Enter the set value with 10-key.
- 3) Press [SET] key.

The set value in step 2) is saved.

USER FAX_NO.	Sender registration number (Max. 16 digits)
SERVA TEL_NO.	Host server telephone number (Max. 16 digits) • If the connection process is not completed normally when registering the FSS, calling to the HOST may be continuously made every time when the power is turned ON (from OFF) or rebooted. In this case, enter "*****" to inhibit calling to the HOST.

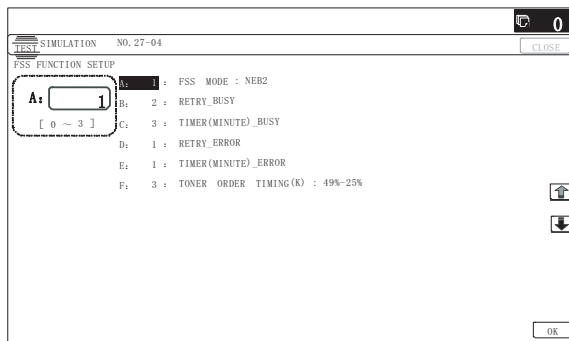
27-4

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the initial call and toner order auto send. (FSS function)

**Section****Operation/Procedure**

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

Item/Display			Content		Setting range		Default value	Remarks
A	FSS MODE	NEB1	Set the FSS MODE	Exclusive for send in NE-B mode	0 - 3	0	1	
		NEB2		Send/Receive in NE-B mode		1		
		NFB1		Exclusive for send in NE-F mode		2		
		NFB2		Send/Receive in NE-F mode		3		
B	RETRY_BUSY		Resend number setting when busy		0 - 15		2	* 0: No retry
C	TIMER (MINUTE)_BUSY		Resend timer setting (minute) when busy		1 - 15		3	
D	RETRY_ERROR		Resend number setting when error		0 - 15		1	* 0: No retry
E	TIMER (MINUTE)_ERROR		Resend timer setting (minute) when error		1 - 15		1	
F	TONER ORDER TIMING (K)	100% - 75%	Toner order auto send timing setting (K)	100% - 75%	0 - 5	5	3 (49%-25%)	
		74% - 50%		74% - 50%		4		
		49% - 25%		49% - 25%		3		
		LOWER 25		25% or less		2		
		NEAREND		NEAREND		1		
		EMPTY		EMPTY		0		



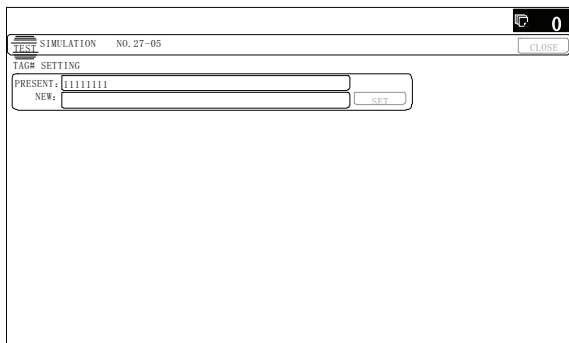
27-5

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the machine tag No. (FSS function)

#### Section

#### Operation/Procedure

- Enter the password (max. 8 digits) with 10-key.  
The entered password is displayed on the column of "NEW".  
In order to correct the entered password, press the [clear] key to delete the entered value one digit by one digit.
- Press [SET] key.



27-6

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set of the manual service call. (FSS function)

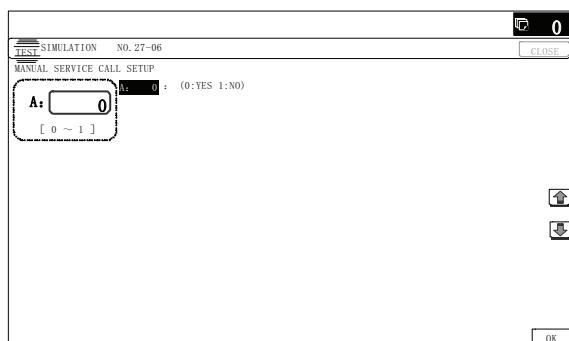
#### Section

#### Operation/Procedure

- Enter the set value with 10-key.

0	Allow (Default)
1	Inhibit

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



27-7

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set of the enable, alert call out. (FSS function)

#### Section

#### Operation/Procedure

- Select an item to be set with [↑] [↓] keys.
- Enter the set value with 10-key.
- Press [OK] key.

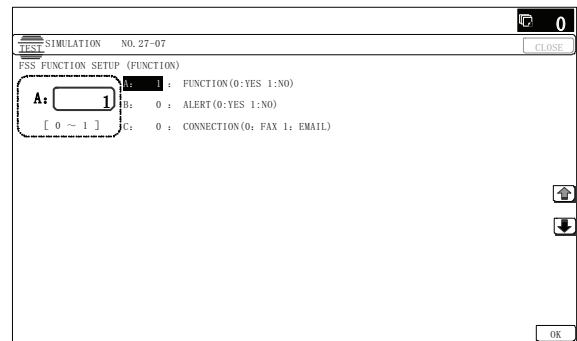
The set value in step 2) is saved.

A	FSS FUNCTION	0	FSS function enable
		1	FSS function disable (*1) (Default)
B	ALERT	0	Alert call enable (*2) (Default)
		1	Alert call disable
C	CONNECTION	0	FAX connection enable
		1	E-MAIL connection enable

\*1 The FSS function setting can be changed only from Disable to Enable. (Cannot be changed from Enable to Disable.)

\*2 Alert send timing

No alert cause	Initial state / Trouble / Continuous JAM alert
Maintenance	When the maintenance timing is reached.
Service call	When pressing Service call.
Toner send request	When the toner order automatic send setting is reached.
Toner collection request	Revision of the toner installation date (only for a new product)
Alert resend	



27-9

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the paper transport time recording YES/NO threshold value and shading gain adjustment retry number. (FSS function)

#### Section

#### Operation/Procedure

- Select an item to be set with [↑] [↓] keys.
- Enter the set value with 10-key.
- Press [OK] key.

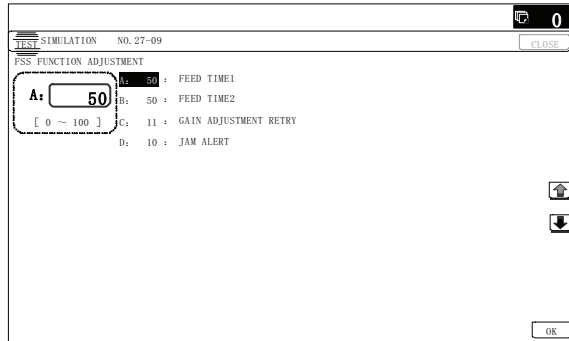
The set value in step 2) is saved.

A	FEED TIME 1	0 - 100	Threshold value of the paper transport time between sensors (Main unit) (50: Default)
B	FEED TIME 2	0 - 100	Threshold value of the paper transport time between sensors (DSPF/RSPF) (50: Default)
C	GAINADJUSTMENT RETRY	0 - 20	Threshold value of the gain adjustment retry number (11: Default)



D	JAM ALERT	1 - 100	Alert judgment threshold value for occurrence of continuous jams Alert judgment threshold value for occurrence of continuous jams (Setting of the number of times of continuous jams as the alert for continuous jams) (Default: 10 times)
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- \* Items A, B: 0%, standard passing time between sheets of paper; 100%, time for judgment as a jam between sheets of paper.
- \* Item C: Because of a trouble in shading operation, the number of retry is actually not registered.



## 27-10

<b>Purpose</b>	Data clear/Reset
<b>Function (Purpose)</b>	Used to clear the trouble prediction history information. (FSS function)

### Section

#### Operation/Procedure

- 1) Press [EXECUTE] key.
  - 2) Press [YES] key.
- The history information of trouble prediction is cleared.

Target history	Serial communication retry number history
	High density process control error history
	Half tone process control error history
	Scanner gain adjustment retry history
	DSPF gain adjustment retry history (DSPF model only)
	Paper transport time between sensors



## 27-11

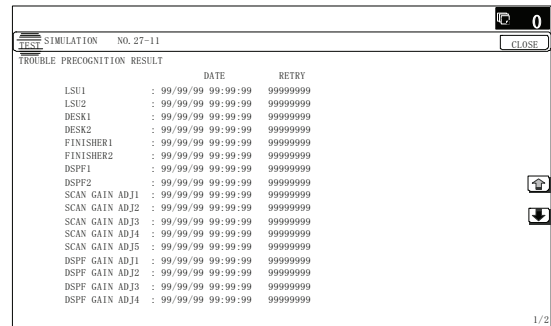
<b>Purpose</b>	Information display
<b>Function (Purpose)</b>	Used to check the serial communication retry number and the scanner gain adjustment retry number history. (FSS function)

### Section

#### Operation/Procedure

The serial communication retry number history and the scanner gain adjustment retry number history are displayed.

Display Item			Content
Item name	Occurrence date (Display)	Retry number	
LSU1	99/99/99 99:99:99	8 digits	Serial communication retry number history display * For DSPF1/DSPF2, only the DSPF model is displayed.
LSU2	99/99/99 99:99:99	8 digits	
DESK1	99/99/99 99:99:99	8 digits	
DESK2	99/99/99 99:99:99	8 digits	
DSPF1	99/99/99 99:99:99	8 digits	
DSPF2	99/99/99 99:99:99	8 digits	
FINISHER1	99/99/99 99:99:99	8 digits	Scanner gain adjustment retry history
FINISHER2	99/99/99 99:99:99	8 digits	
SCAN GAIN ADJ1	99/99/99 99:99:99	8 digits	
SCAN GAIN ADJ2	99/99/99 99:99:99	8 digits	
SCAN GAIN ADJ3	99/99/99 99:99:99	8 digits	
SCAN GAIN ADJ4	99/99/99 99:99:99	8 digits	DSPF gain adjustment retry history (Only the DSPF model is displayed.)
SCAN GAIN ADJ5	99/99/99 99:99:99	8 digits	
DSPF GAIN ADJ1	99/99/99 99:99:99	8 digits	
DSPF GAIN ADJ2	99/99/99 99:99:99	8 digits	
DSPF GAIN ADJ3	99/99/99 99:99:99	8 digits	
DSPF GAIN ADJ4	99/99/99 99:99:99	8 digits	
DSPF GAIN ADJ5	99/99/99 99:99:99	8 digits	



## 27-12

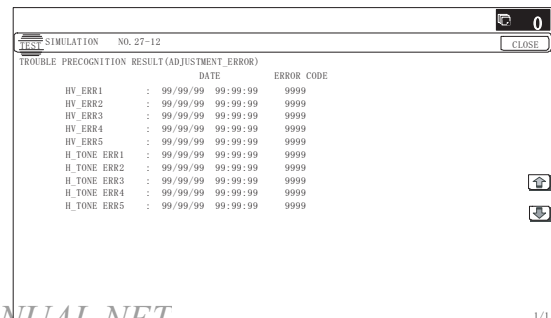
<b>Purpose</b>	Information display
<b>Function (Purpose)</b>	Used to check the high-density and the half-tone process control error history. (FSS Function)

### Section

#### Operation/Procedure

The high density and the half-tone process control error history are displayed.

HV_ERR1	High density error history 1
HV_ERR2	High density error history 2
HV_ERR3	High density error history 3
HV_ERR4	High density error history 4
HV_ERR5	High density error history 5
H_TONE_ERR1	Half tone error history 1
H_TONE_ERR2	Half tone error history 2
H_TONE_ERR3	Half tone error history 3
H_TONE_ERR4	Half tone error history 4
H_TONE_ERR5	Half tone error history 5



**Purpose**

Information display

**Function (Purpose)**

Used to check the history of paper transport time between sensors. (FSS function)

**Section****Operation/Procedure**

Change the display with [↑] [↓] key.

	Item/Display	Content	Occurrence date	Code between sensors	Passing time	Reference passing time
Main unit	FEED TIME1	History of paper transport time between sensors 1	99/99/99 99:99:99	5 digits	5 digits (ms)	5 digits (ms)
	FEED TIME2	History of paper transport time between sensors 2	99/99/99 99:99:99	5 digits	5 digits (ms)	5 digits (ms)
	FEED TIME3	History of paper transport time between sensors 3	99/99/99 99:99:99	5 digits	5 digits (ms)	5 digits (ms)
	FEED TIME4	History of paper transport time between sensors 4	99/99/99 99:99:99	5 digits	5 digits (ms)	5 digits (ms)
	FEED TIME5	History of paper transport time between sensors 5	99/99/99 99:99:99	5 digits	5 digits (ms)	5 digits (ms)
	FEED TIME6	History of paper transport time between sensors 6	99/99/99 99:99:99	5 digits	5 digits (ms)	5 digits (ms)
	FEED TIME7	History of paper transport time between sensors 7	99/99/99 99:99:99	5 digits	5 digits (ms)	5 digits (ms)
	FEED TIME8	History of paper transport time between sensors 8	99/99/99 99:99:99	5 digits	5 digits (ms)	5 digits (ms)
	FEED TIME9	History of paper transport time between sensors 9	99/99/99 99:99:99	5 digits	5 digits (ms)	5 digits (ms)
	FEED TIME10	History of paper transport time between sensors 10	99/99/99 99:99:99	5 digits	5 digits (ms)	5 digits (ms)
DSPF	FEED TIME1(SPF)	History of paper transport time between SPF sensors 1	99/99/99 99:99:99	5 digits	5 digits (ms)	5 digits (ms)
	FEED TIME2(SPF)	History of paper transport time between SPF sensors 2	99/99/99 99:99:99	5 digits	5 digits (ms)	5 digits (ms)
	FEED TIME3(SPF)	History of paper transport time between SPF sensors 3	99/99/99 99:99:99	5 digits	5 digits (ms)	5 digits (ms)
	FEED TIME4(SPF)	History of paper transport time between SPF sensors 4	99/99/99 99:99:99	5 digits	5 digits (ms)	5 digits (ms)
	FEED TIME5(SPF)	History of paper transport time between SPF sensors 5	99/99/99 99:99:99	5 digits	5 digits (ms)	5 digits (ms)
	FEED TIME6(SPF)	History of paper transport time between SPF sensors 6	99/99/99 99:99:99	5 digits	5 digits (ms)	5 digits (ms)
	FEED TIME7(SPF)	History of paper transport time between SPF sensors 7	99/99/99 99:99:99	5 digits	5 digits (ms)	5 digits (ms)
	FEED TIME8(SPF)	History of paper transport time between SPF sensors 8	99/99/99 99:99:99	5 digits	5 digits (ms)	5 digits (ms)
	FEED TIME9(SPF)	History of paper transport time between SPF sensors 9	99/99/99 99:99:99	5 digits	5 digits (ms)	5 digits (ms)
	FEED TIME10(SPF)	History of paper transport time between SPF sensors 10	99/99/99 99:99:99	5 digits	5 digits (ms)	5 digits (ms)
RSPF	FEED TIME1(SPF)	History of paper transport time between SPF sensors 1	99/99/99 99:99:99	5 digits	5 digits (ms)	5 digits (ms)
	FEED TIME2(SPF)	History of paper transport time between SPF sensors 2	99/99/99 99:99:99	5 digits	5 digits (ms)	5 digits (ms)
	FEED TIME3(SPF)	History of paper transport time between SPF sensors 3	99/99/99 99:99:99	5 digits	5 digits (ms)	5 digits (ms)
	FEED TIME4(SPF)	History of paper transport time between SPF sensors 4	99/99/99 99:99:99	5 digits	5 digits (ms)	5 digits (ms)
	FEED TIME5(SPF)	History of paper transport time between SPF sensors 5	99/99/99 99:99:99	5 digits	5 digits (ms)	5 digits (ms)
	FEED TIME6(SPF)	History of paper transport time between SPF sensors 6	99/99/99 99:99:99	5 digits	5 digits (ms)	5 digits (ms)
	FEED TIME7(SPF)	History of paper transport time between SPF sensors 7	99/99/99 99:99:99	5 digits	5 digits (ms)	5 digits (ms)
	FEED TIME8(SPF)	History of paper transport time between SPF sensors 8	99/99/99 99:99:99	5 digits	5 digits (ms)	5 digits (ms)
	FEED TIME9(SPF)	History of paper transport time between SPF sensors 9	99/99/99 99:99:99	5 digits	5 digits (ms)	5 digits (ms)
	FEED TIME10(SPF)	History of paper transport time between SPF sensors 10	99/99/99 99:99:99	5 digits	5 digits (ms)	5 digits (ms)

**[N model]**

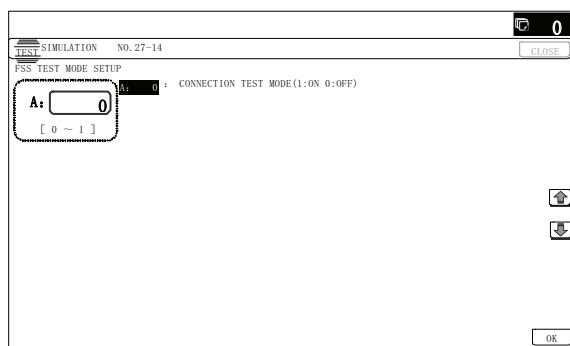
SIMULATION NO. 27-13					
TROUBLE PRECOGNITION RESULT (FEED TIME)					
	DATE	SENSOR CODE	PASS TIME	STANDARD TIME	
FEED TIME1	:99/99/99	99:99:99	99999	99999	
FEED TIME2	:99/99/99	99:99:99	99999	99999	
FEED TIME3	:99/99/99	99:99:99	99999	99999	
FEED TIME4	:99/99/99	99:99:99	99999	99999	
FEED TIME5	:99/99/99	99:99:99	99999	99999	
FEED TIME6	:99/99/99	99:99:99	99999	99999	
FEED TIME7	:99/99/99	99:99:99	99999	99999	
FEED TIME8	:99/99/99	99:99:99	99999	99999	
FEED TIME9	:99/99/99	99:99:99	99999	99999	
FEED TIME10	:99/99/99	99:99:99	99999	99999	
FEED TIME1 (SPF)	:99/99/99	99:99:99	99999	99999	
FEED TIME2 (SPF)	:99/99/99	99:99:99	99999	99999	
FEED TIME3 (SPF)	:99/99/99	99:99:99	99999	99999	
FEED TIME4 (SPF)	:99/99/99	99:99:99	99999	99999	
FEED TIME5 (SPF)	:99/99/99	99:99:99	99999	99999	
FEED TIME6 (SPF)	:99/99/99	99:99:99	99999	99999	
FEED TIME7 (SPF)	:99/99/99	99:99:99	99999	99999	

**[U model]**

SIMULATION NO. 27-13					
TROUBLE PRECOGNITION RESULT (FEED TIME)					
	DATE	SENSOR CODE	PASS TIME	STANDARD TIME	
FEED TIME1	:99/99/99	99:99:99	99999	99999	
FEED TIME2	:99/99/99	99:99:99	99999	99999	
FEED TIME3	:99/99/99	99:99:99	99999	99999	
FEED TIME4	:99/99/99	99:99:99	99999	99999	
FEED TIME5	:99/99/99	99:99:99	99999	99999	
FEED TIME6	:99/99/99	99:99:99	99999	99999	

<b>27-14</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the FSS function connection test mode.
<b>Section</b>	
<b>Operation/Procedure</b>	
1) Enter the set value with 10-key.	
0	Disable (Default)
1	Enable

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

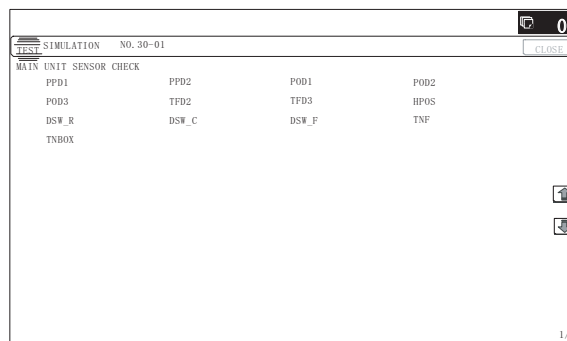


\* For setting the FSS function connection test mode, only DIS-ABLE to ENABLE can be made. (ENABLE to DISABLE cannot be made.)

## 30

<b>30-1</b>	
<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operations of the sensors and the detectors in other than the paper feed section and the control circuits.
<b>Section</b>	Paper feed, paper reverse/transport
<b>Operation/Procedure</b>	
The operating conditions of the sensors and detectors are displayed.	
The sensors and the detectors which are turned ON are high-lighted.	

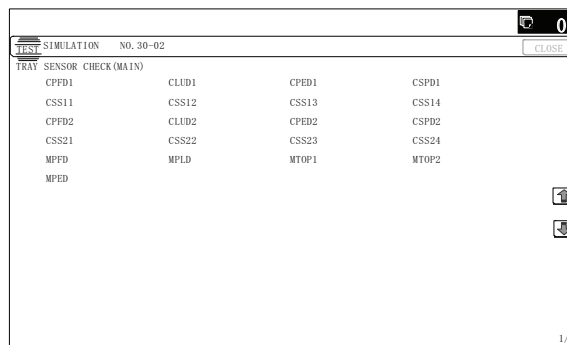
PPD1	Resist pre-detection
PPD2	Resist detection
POD1	Fusing rear detection
POD2	Main unit paper exit detection
POD3	Right tray paper exit detection
TFD2	Main unit paper exit full detection
TFD3	Right tray paper exit full detection
HPOS	Shifter home detection
DSW_R	Right door open/close detection
DSW_C	Tray 1 transport cover open/close detection
DSW_F	Front cover open/close detection
TNF	Waste toner full detection
TNBOX	Waste toner near end detection



<b>30-2</b>	
<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operations of the sensors and the detectors in the paper feed section and the control circuits.
<b>Section</b>	Paper feed, paper reverse/transport

**Operation/Procedure**  
The operating conditions of the sensors and detectors are displayed.  
The sensors and the detectors which are turned ON are high-lighted.

CPFD1	Tray 1 transport detection
CLUD1	Tray 1 upper limit detection
CPED1	Tray 1 paper empty detection
CSPD1	Tray 1 paper remaining quantity detection
CSS11	Tray 1 rear edge detection 1
CSS12	Tray 1 rear edge detection 2
CSS13	Tray 1 rear edge detection 3
CSS14	Tray 1 rear edge detection 4
CPFD2	Tray 2 transport detection
CLUD2	Tray 2 upper limit detection
CPED2	Tray 2 paper YES/NO detection
CSPD2	Tray 2 paper remaining detection
CSS21	Tray 2 rear edge detection 1
CSS22	Tray 2 rear edge detection 2
CSS23	Tray 2 rear edge detection 3
CSS24	Tray 2 rear edge detection 4
MPFD	Manual feed paper entry detection
MPLD	Manual feed paper length detection
MTOP1	Manual feed tray retraction detection
MTOP2	Manual feed tray extension detection
MPED	Manual feed paper empty detection



## 33

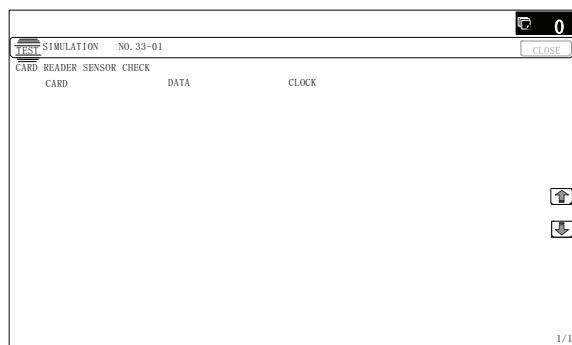
<b>33-1</b>	
<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operations of the card reader sensor and the control circuit.
<b>Section</b>	Others

### Operation/Procedure

The operating conditions of the sensors and detectors are displayed.

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

CARD	Card Yes/No detection
DATA	Card number signal detection
CLOCK	Reference clock signal detection



<b>33-2</b>	
<b>Purpose</b>	Data clear/Reset
<b>Function (Purpose)</b>	Used to delete the ID (IDM) information of card. (HDD-installed machine only)
<b>Section</b>	Others

### Operation/Procedure

- 1) Press [EXECUTE] key.
- 2) Press [YES] key.

The ID (IDM) information of Felica card in the HDD is deleted.



## 40

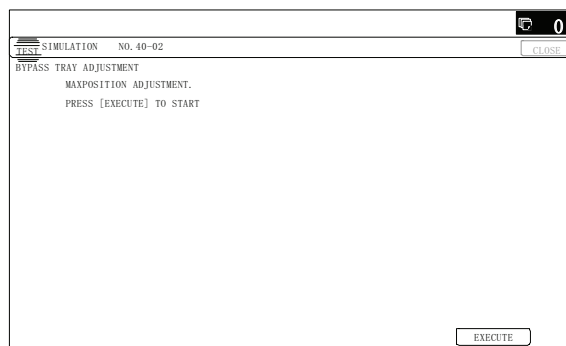
<b>40-2</b>	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Manual paper feed tray paper width sensor adjustment.
<b>Section</b>	Paper feed, paper reverse/transport

### Operation/Procedure

- 1) Open the manual paper feed guide to the max. width (MAX).
- 2) Press [EXECUTE] key.  
The max. width (MAX) detection level is recognized.
- 3) Open the manual paper feed guide to P1 width (A4).
- 4) Press [EXECUTE] key.  
The P1 width (A4) detection level is recognized.
- 5) Open the manual paper feed guide to P2 width (A4R).
- 6) Press [EXECUTE] key.  
The P2 width (A4R) detection level is recognized.
- 7) Open the manual paper feed guide to the min. width (MIN).
- 8) Press [EXECUTE] key.  
The min. width (MIN) detection level is recognized.

When the above operation is not performed normally, "ERROR" is displayed. When completed normally, "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

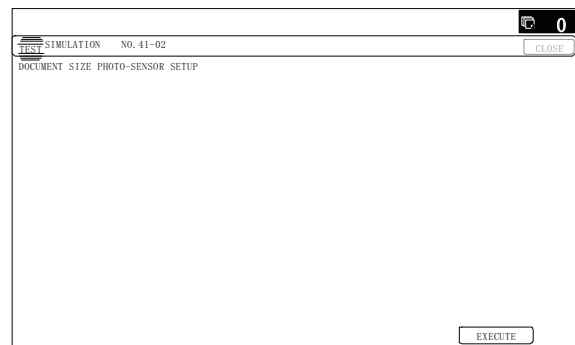
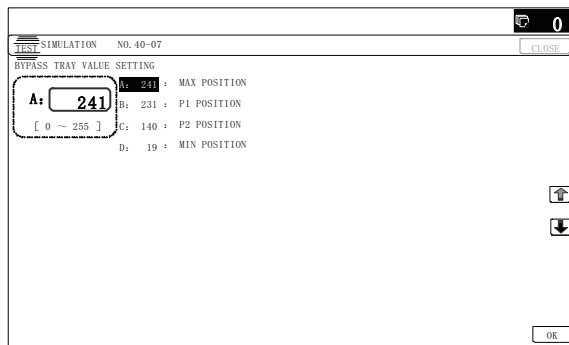


<b>40-7</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the adjustment value of the manual paper feed tray paper width sensor.
<b>Section</b>	Paper feed, paper reverse/transport

### Operation/Procedure

- 1) Select a target item to be adjusted with [↑] [↓] buttons.
- 2) Enter the set value with 10-key.
- 3) Press [OK] key.  
The set value in step 2) is saved.

	Item/Display	Content	Default value
A	MAX POSITION	Manual feed max. width	241
B	P1(A4) POSITION	Manual feed P1 position width (A4)	231
C	P2(A4R) POSITION	Manual feed P2 position width (A4R)	140
D	MIN POSITION	Manual feed min. width	19



## 41

### 41-1

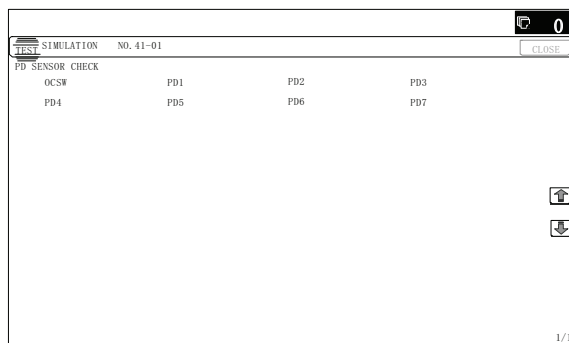
<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operations of the document size sensor and the control circuit.
<b>Section</b>	Others

#### Operation/Procedure

The operating conditions of the sensors and detectors are displayed.

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

OCSW	Document cover status	Open: Normal display Close: Highlighted
PD1 - 7	Document detection sensor status	No document: Normal display Document present: Highlighted



### 41-2

<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to adjust the document size sensor detection level.
<b>Section</b>	Others

#### Operation/Procedure

- Open the document cover, and press [EXECUTE] key without place a document on the document table.

The sensor level without document is recognized.

- Set A3 (11" x 17") paper on the document table, and press [EXECUTE] key.

The sensor level when detecting the document is displayed.

When the above operation is normally completed, it is displayed.

### 41-3

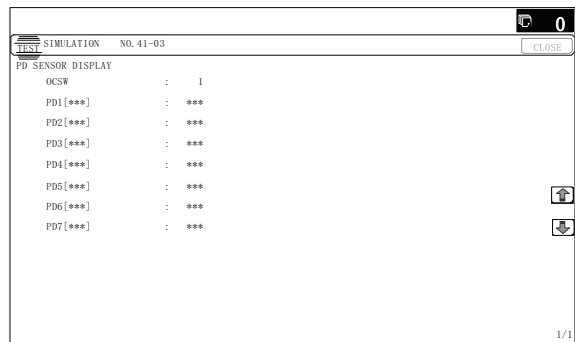
<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operations of the document size sensor and the control circuit.
<b>Section</b>	Others

#### Operation/Procedure

The detection output level (A/D value) of OCSW and the document sensor (PD1 - PD7) is displayed in real time.

The light receiving range of PD1 - PD7 is 1 - 255. (Default: 128)

Item/Display	Content	Detection level range
OCSW	Original cover SW	0-1 ("1" to Close)
PD1	Document detection 1	0 - 255
PD2	Document detection 2	0 - 255
PD3	Document detection 3	0 - 255
PD4	Document detection 4	0 - 255
PD5	Document detection 5	0 - 255
PD6	Document detection 6	0 - 255
PD7	Document detection 7	0 - 255



## 43

### 43-1

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to make the fusing reference temperature setting 1 in each operation mode.
<b>Section</b>	Fusing

#### Operation/Procedure

- Select an item to be set with [↑] [↓] keys.
- Enter the set value with 10-key.
- Press [OK] key.

The set value in step 2) is saved.

NOTE: The set value may be changed for a design change or an individual arrangement. Except for the above cases, however, the set value must not be changed. If it is changed, a trouble may occur.

Item	Display	Content	Setting range	Default value							
				28/36 CPM model				45/50 CPM model			
				Group A		Group B		Group A		Group B	
				SW-A	SW-B	SW-A	SW-B	SW-A	SW-B	SW-A	SW-B
A	HL_UM READY	TH_UM set value when ready standby	70 - 230	165	170	185	185	175	180	195	195
B	HL_US READY	TH_US set value when ready standby	70 - 230	165	170	185	185	175	180	195	195
C	HL_UM PLAIN PAPER BW	Black and white plain paper TH_UM set value	70 - 230	165	170	185	185	175	180	195	195
D	HL_US PLAIN PAPER BW	Black and white plain paper TH_US set value	70 - 230	165	170	185	185	175	180	195	195
E	WARMUP FUMON HL_UM T	Fusing motor previous rotation start TH_UM set value	30 - 200	155	155	165	165	165	165	175	175
F	WARMUP FUMOFF HL_UM T	Fusing motor previous rotation complete time	0 - 255	5							
G	WARM UP END TIME	Warm-up complete time	1 - 255	17							
H	HL_UM HEAVY PAPER	Heavy paper TH_UM set value	70 - 230	190				195			
I	HL_US HEAVY PAPER	Heavy paper TH_US set value	70 - 230	190				195			
J	HL_UM OHP PAPER	OHP-TH_UM set value	70 - 230	175				180			
K	HL_US OHP PAPER	OHP-TH_US set value	70 - 230	175				180			
L	HL_UM ENV PAPER	Envelope TH_UM set value	70 - 230	195							
M	HL_US ENV PAPER	Envelope TH_US set value	70 - 230	195							
N	HL_UM E-STAR	Preheating TH_UM set value	30 - 200	145	145	155	155	150	150	160	160
O	HL_US E-STAR	Preheating TH_US set value	30 - 200	145	145	155	155	150	150	160	160
P	PRE-JOB	Resetting from preheating TH_UM set value	30 - 200	165	165	185	185	175	175	195	195
Q	HL_UM WARMUP_120L	TH_UM set value when Warm-Up at 120°C or below	70 - 230	170	175	190	190	180	185	200	200
R	HL_US WARMUP_120L	TH_US set value when Warm-Up at 120°C or below	70 - 230	170	175	190	190	180	185	200	200
S	LO_WARMUP_TIME	Q - R applying time (Timer from completion of Ready)	0 - 255	5							
T	HL_UM WARMUP_120H	TH_UM set value when Warm-Up at 120°C or above	70 - 230	170	175	190	190	180	185	200	200
U	HL_US WARMUP_120H	TH_US set value when Warm-Up at 120°C or above	70 - 230	170	175	190	190	180	185	200	200
V	HI_WARMUP_TIME	T - U applying time (Timer from completion of Ready)	0 - 255	5							

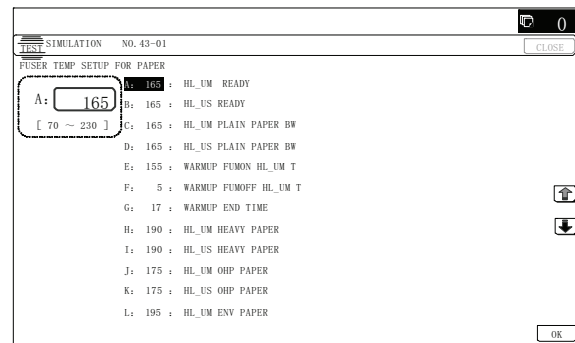
#### <Code descriptions>

TH_UM	Fusing upper thermistor main
TH_US	Fusing upper thermistor sub
HL_UM	Heater lamp upper main
HL_US	Heater lamp upper sub

#### <List of destination groups>

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

- SW-A Setting value when 60 - 79g/m<sup>2</sup> is selected in the system setting/device setting/fusing control setting.
- SW-B Set value when 80 - 105g/m<sup>2</sup> is selected in the system setting/device setting/fusing control setting.  
The set value displayed in this simulation differs depending on 60 - 79g/m<sup>2</sup> or 80 - 105g/m<sup>2</sup> which is selected in the system setting/device setting/fusing control setting.  
(Example) When 60 - 79g/m<sup>2</sup> is selected in the system setting/device setting/fusing control setting, the value of SW-A is displayed.



<b>43-4</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the fusing temperature 2 in each operation mode.
<b>Section</b>	Fusing

#### Operation/Procedure

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

NOTE: The set value may be changed for a design change or an individual arrangement. Except for the above cases, however, the set value must not be changed. If it is changed, a trouble may be occur.

Item	Display	Content	Setting range	Default value							
				28/36 CPM model				45/50 CPM model			
				Group A		Group B		Group A		Group B	
				SW-A	SW-B	SW-A	SW-B	SW-A	SW-B	SW-A	SW-B
A	HL_UM PLAIN PAPER BW DUP	Black and white plain paper duplex TH_UM set value	70 - 230	165	170	185	185	175	180	195	195
B	HL_US PLAIN PAPER BW DUP	Black and white plain paper duplex TH_US set value	70 - 230	165	170	185	185	175	180	195	195
C	PLAIN PAPER BW DUP APP CNT	Black and white plain paper duplex applying number of sheets	0 - 60	0							
D	HL_UM HEAVY PAPER BW DUP	Black and white heavy paper duplex TH_UM set value	70 - 230	190				195			
E	HL_US HEAVY PAPER BW DUP	Black and white heavy paper duplex TH_US set value	70 - 230	190				195			
F	HEAVY PAPER BW DUP APP CNT	Black and white heavy paper duplex applying number of sheets	0 - 60	0							

#### <Code descriptions>

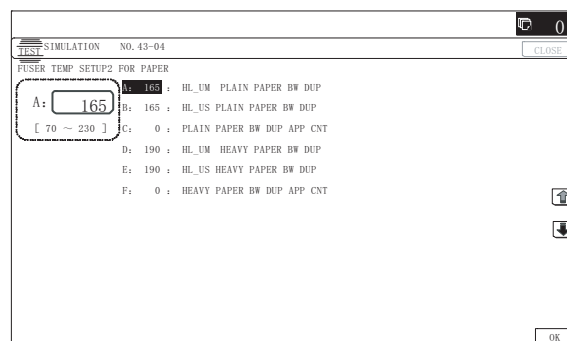
TH_UM	Fusing upper thermistor main
TH_US	Fusing upper thermistor sub
HL_UM	Heater lamp upper main
HL_US	Heater lamp upper sub

#### <List of destination groups>

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

SW-A Setting value when 60 - 79g/m<sup>2</sup> is selected in the system setting/device setting/fusing control setting.

SW-B Set value when 80 - 105g/m<sup>2</sup> is selected in the system setting/device setting/fusing control setting.  
The set value displayed in this simulation differs depending on 60 - 79g/m<sup>2</sup> or 80 - 105g/m<sup>2</sup> which is selected in the system setting/device setting/fusing control setting.  
(Example) When 60 - 79g/m<sup>2</sup> is selected in the system setting/device setting/fusing control setting, the value of SW-A is displayed.



<b>43-20</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the environmental correction under low temperature and low humidity (L/L) for the fusing temperature setting (SIM 43-1) in each paper mode.
<b>Section</b>	Fusing

#### Operation/Procedure

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

NOTE: The set value may be changed for a design change or an individual arrangement. Except for the above cases, however, the set value must not be changed. If it is changed, a trouble may be occur.

Correction value: -49 - +49, 1 Count = 1°C change/1sec change

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



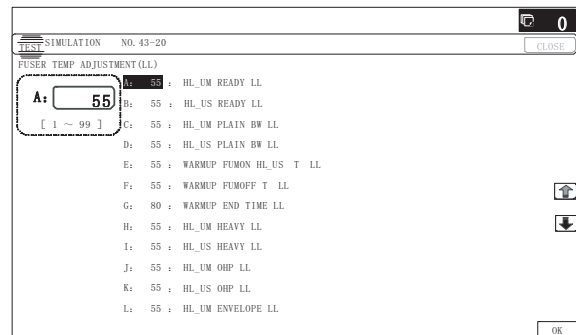
Item	Display	Content	Setting range	Default value	
				Group A	Group B
A	HL_UM READY LL	Correction value for TH_UM set value in ready standby under LL environment	1 - 99	55	55
B	HL_US READY LL	Correction value for TH_US set value in ready standby under LL environment	1 - 99	55	55
C	HL_UM PLAIN BW LL	Correction value for black and white plain paper TH_UM set value under LL environment	1 - 99	55	55
D	HL_US PLAIN BW LL	Correction value for black and white plain paper TH_US set value under LL environment	1 - 99	55	55
E	WARMUP FUMON HL_US T LL	Correction value for fusing motor previous rotation start TH_UM set value under LL environment	1 - 99	55	55
F	WARMUP FUMOFF T LL	Correction value for fusing motor previous rotation completion time under LL environment	1 - 99	55	55
G	WARMUP END TIME LL	Correction value for warm-up complete time under LL environment	1 - 99	80	80
H	HL_UM HEAVY LL	Correction value for heavy paper TH_UM set value under LL environment	1 - 99	55	55
I	HL_US HEAVY LL	Correction value for heavy paper TH_US set value under LL environment	1 - 99	55	55
J	HL_UM OHP LL	Correction value for OHP TH_UM set value under LL environment	1 - 99	55	55
K	HL_US OHP LL	Correction value for OHP TH_US set value under LL environment	1 - 99	55	55
L	HL_UM ENVELOPE LL	Correction value for envelope TH_UM set value under LL environment	1 - 99	55	55
M	HL_US ENVELOPE LL	Correction value for envelope TH_US set value under LL environment	1 - 99	55	55
N	HL_UM E-STAR LL	Correction value for preheating TH_UM set value under LL environment	1 - 99	55	55
O	HL_US E-STAR LL	Correction value for preheating TH_US set value under LL environment	1 - 99	55	55
P	PRE-JOB LL	Correction value for resetting from preheating TH_UM set value under LL environment	1 - 99	55	55
Q	HL_UM WARMUP_120L LL	Correction value for TH_UM set value in Warm-Up at 120°C or below under LL environment	1 - 99	55	55
R	HL_US WARMUP_120L LL	Correction value for TH_US set value in Warm-Up at 120°C or below under LL environment	1 - 99	55	55
S	LO_WARMUP_TIME_LL	Correction value for Q - R applying time (timer from Ready complete) under LL environment	1 - 99	50	50
T	HL_UM WARMUP_120H LL	Correction value for TH_UM set value in Warm-Up at 120°C or above under LL environment	1 - 99	55	55
U	HL_US WARMUP_120H LL	Correction value for TH_US set value in Warm-Up at 120°C or above under LL environment	1 - 99	55	55
V	HI_WU_TIME_LL	Correction value for T - U applying time (timer from Ready complete) under LL environment	1 - 99	50	50

#### <Code descriptions>

TH_UM	Fusing upper thermistor main
TH_US	Fusing upper thermistor sub
HL_UM	Heater lamp upper main
HL_US	Heater lamp upper sub

#### <List of destination groups>

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



43-21

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

#### Operation/Procedure

- 1) Select an item to be set with [↑] [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Press [OK] key.

The set value in step 2 is saved.

NOTE: The set value may be changed for a design change or an individual arrangement. Except for the above cases, however, the set value must not be changed. If it is changed, a trouble may be occur.

Correction value: -49 - +49, 1 Count = 1°C change/1sec change

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



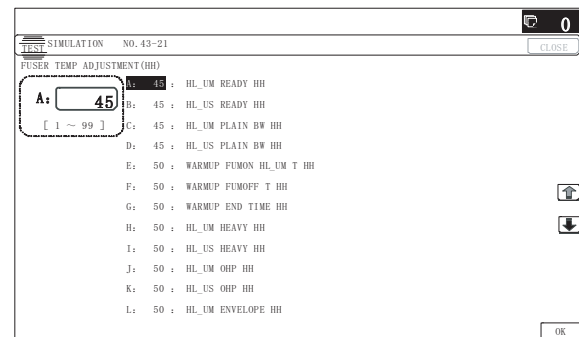
Item	Display	Content	Setting range	Default value	
				Group A	Group B
A	HL_UM READY HH	Correction value for TH_UM set value in ready standby under HH environment	1 - 99	45	45
B	HL_US READY HH	Correction value for TH_US set value in ready standby under HH environment	1 - 99	45	45
C	HL_UM PLAIN BW HH	Correction value for black and white plain paper TH_UM set value under HH environment	1 - 99	45	45
D	HL_US PLAIN BW HH	Correction value for black and white plain paper TH_US set value under HH environment	1 - 99	45	45
E	WARMUP FUMON HL_UM T HH	Correction value for fusing motor previous rotation start TH_UM set value under HH environment	1 - 99	50	50
F	WARMUP FUMOFF T HH	Correction value for fusing motor previous rotation completion time under HH environment	1 - 99	50	50
G	WARMUP END TIME HH	Correction value for warm-up complete time under HH environment	1 - 99	50	50
H	HL_UM HEAVY HH	Correction value for heavy paper TH_UM set value under HH environment	1 - 99	50	50
I	HL_US HEAVY HH	Correction value for heavy paper TH_US set value under HH environment	1 - 99	50	50
J	HL_UM OHP HH	Correction value for OHP TH_UM set value under HH environment	1 - 99	50	50
K	HL_US OHP HH	Correction value for OHP TH_US set value under HH environment	1 - 99	50	50
L	HL_UM ENVELOPE HH	Correction value for envelope TH_UM set value under HH environment	1 - 99	50	50
M	HL_US ENVELOPE HH	Correction value for envelope TH_US set value under HH environment	1 - 99	50	50
N	HL_UM E-STAR HH	Correction value for preheating TH_UM set value under HH environment	1 - 99	45	45
O	HL_US E-STAR HH	Correction value for preheating TH_US set value under HH environment	1 - 99	45	45
P	PRE-JOB HH	Correction value for resetting from preheating TH_UM set value under HH environment	1 - 99	45	45
Q	HL_UM WARMUP_120L HH	Correction value for TH_UM set value in Warm-Up at 120°C or below under HH environment	1 - 99	45	45
R	HL_US WARMUP_120L HH	Correction value for TH_US set value in Warm-Up at 120°C or below under HH environment	1 - 99	45	45
S	LO_WARMUP_TIME_HH	Correction value for Q - R applying time (timer from Ready complete) under HH environment	1 - 99	50	50
T	HL_UM WARMUP_120H HH	Correction value for TH_UM set value in Warm-Up at 120°C or above under HH environment	1 - 99	45	45
U	HL_US WARMUP_120H HH	Correction value for TH_US set value in Warm-Up at 120°C or above under HH environment	1 - 99	45	45
V	HI_WU_TIME_HH	Correction value for T - U applying time (timer from Ready complete) under HH environment	1 - 99	50	50

#### <Code descriptions>

TH_UM	Fusing upper thermistor main
TH_US	Fusing upper thermistor sub
HL_UM	Heater lamp upper main
HL_US	Heater lamp upper sub

#### <List of destination groups>

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



<b>43-22</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the environment correction under low temperature and low humidity (L/L) for the fusing temperature setting (SIM 43-4) in each paper mode.
<b>Section</b>	Fusing

#### Operation/Procedure

- 1) Select an item to be set with [↑] [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Press [OK] key.

The set value in step 2 is saved.

NOTE: The set value may be changed for a design change or an individual arrangement. Except for the above cases, however, the set value must not be changed. If it is changed, a trouble may be occur.

Correction value: -49 - +49, 1 Count = 1°C change

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

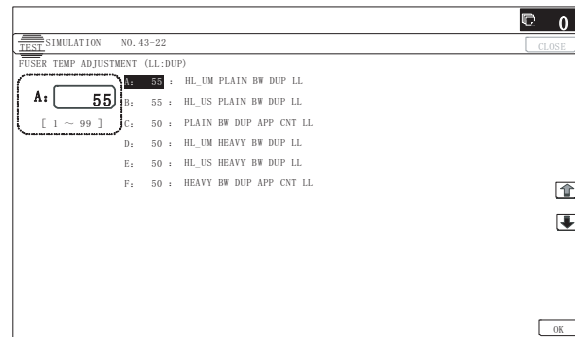
Item	Display	Content	Setting range	Default value	
				Group A	Group B
A	HL_UM PLAIN BW DUP LL	Correction value for TH_UM set value in black and white plain paper duplex under LL environment	1 - 99	55	55
B	HL_US PLAIN BW DUP LL	Correction value for TH_US set value in black and white plain paper duplex under LL environment	1 - 99	55	55
C	PLAIN BW DUP APP CNT LL	Correction value for applying number of sheets in black and white plain paper duplex under LL environment	1 - 99	50	50
D	HL_UM HEAVY BW DUP LL	Correction value for TH_UM set value in black and white heavy paper duplex under LL environment	1 - 99	55	55
E	HL_US HEAVY BW DUP LL	Correction value for TH_US set value in black and white heavy paper duplex under LL environment	1 - 99	55	55
F	HEAVY BW DUP APP CNT LL	Correction value for applying number of sheets in black and white heavy paper duplex under LL environment	1 - 99	50	50

#### <Code descriptions>

TH_UM	Fusing upper thermistor main
TH_US	Fusing upper thermistor sub
HL_UM	Heater lamp upper main
HL_US	Heater lamp upper sub

#### <List of destination groups>

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



<b>43-23</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the environment correction under high temperature and high humidity (H/H) for the fusing temperature setting (SIM 43-4) in each paper mode.
<b>Section</b>	Fusing

#### Operation/Procedure

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

NOTE: The set value may be changed for a design change or an individual arrangement. Except for the above cases, however, the set value must not be changed. If it is changed, a trouble may occur.

Correction value: -49 - +49, 1 Count = 1°C change

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

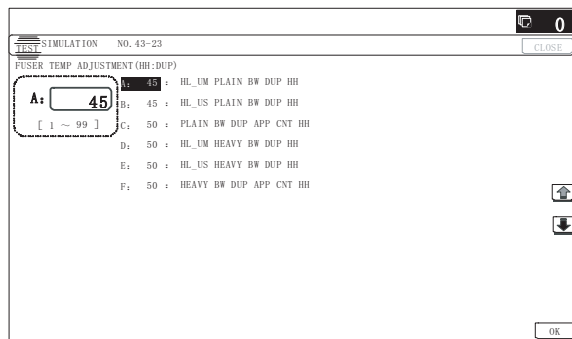
Item	Display	Content	Setting range	Default value	
				Group A	Group B
A	HL_UM PLAIN BW DUP HH	Correction value for TH_UM set value in black and white plain paper duplex under HH environment	1 - 99	45	40
B	HL_US PLAIN BW DUP HH	Correction value for TH_US set value in black and white plain paper duplex under HH environment	1 - 99	45	40
C	PLAIN BW DUP APP CNT HH	Correction value for applying number of sheets in black and white plain paper duplex under HH environment	1 - 99	50	50
D	HL_UM HEAVY BW DUP HH	Correction value for TH_UM set value in black and white heavy paper duplex under HH environment	1 - 99	50	50
E	HL_US HEAVY BW DUP HH	Correction value for TH_US set value in black and white heavy paper duplex under HH environment	1 - 99	50	50
F	HEAVY BW DUP APP CNT HH	Correction value for applying number of sheets in black and white heavy paper duplex under HH environment	1 - 99	50	50

#### <Code descriptions>

TH_UM	Fusing upper thermistor main
TH_US	Fusing upper thermistor sub
HL_UM	Heater lamp upper main
HL_US	Heater lamp upper sub

#### <List of destination groups>

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



43-24

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the correction of the temperature adjustment value of SIM 43-1 and 43-4.
<b>Section</b>	Fusing

#### Operation/Procedure

- 1) Select an item to be set with [↑] [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Press [OK] key.

The set value in step 2 is saved.

NOTE: The set value may be changed for a design change or an individual arrangement. Except for the above cases, however, the set value must not be changed. If it is changed, a trouble may be occur.

Correction value: -49 - +49, 1 Count = 1°C change

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

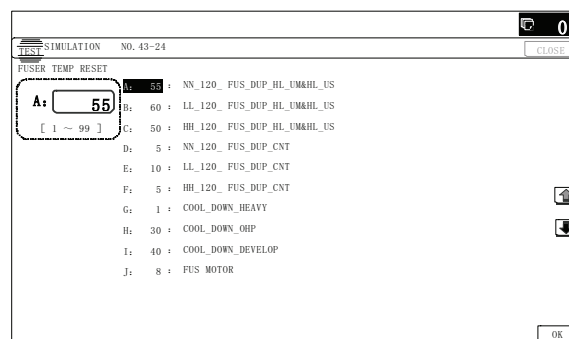
Item	Display	Content	Setting range	Default value
A	NN_120_FUS_DUP_HL_UM&HL_US	Fusing temperature correction value (When rising the power at less than 120°C under NN environment, common to items HL_UM and HL_US.) (when duplex)	1 - 99	55
B	LL_120_FUS_DUP_HL_UM&HL_US	Fusing temperature correction value (When rising the power at less than 120°C under LL environment, common to items HL_UM and HL_US.) (when duplex)	1 - 99	50
C	HH_120_FUS_DUP_HL_UM&HL_US	Fusing temperature correction value (When rising the power at less than 120°C under HH environment, common to items HL_UM and HL_US.) (when duplex)	1 - 99	50
D	NN_120_FUS_DUP_CNT	Fusing duplex paper exit count under NN environment	1 - 60	5
E	LL_120_FUS_DUP_CNT	Fusing duplex paper exit count under LL environment	1 - 60	10
F	HH_120_FUS_DUP_CNT	Fusing duplex paper exit count under HH environment	1 - 60	5
G	COOL_DOWN_HEAVY	Cool down time (heavy paper mode)	1 - 60	1
H	COOL_DOWN_OHP	Cool down time (OHP mode)	1 - 60	30
I	COOL_DOWN_DEVELOP	Cool down time (envelope mode)	1 - 60	40
J	FUS MOTOR	Fusing web motor operating interval	1 - 20	8

\* Each paper exit count: 1 count = 1 sheet change

\* Time setting: 1 count = 1sec change

#### <Code descriptions>

TH_UM	Fusing upper thermistor main
TH_US	Fusing upper thermistor sub
HL_UM	Heater lamp upper main
HL_US	Heater lamp upper sub



<b>43-31</b>	
<b>Purpose</b>	Adjustment/Setup
<b>Function (Purpose)</b>	Used to check the operation of the fusing web cleaning motor.
<b>Section</b>	Fusing

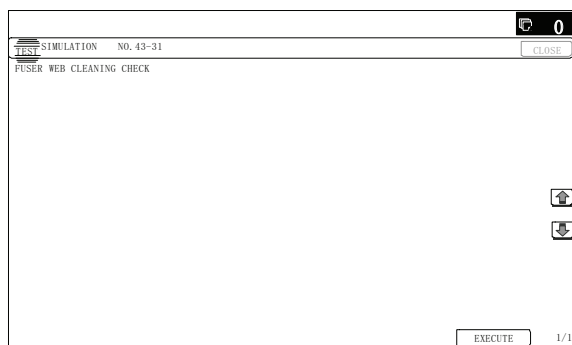
#### Operation/Procedure

- 1) Press [EXECUTE] key.  
Perform the fusing web cleaning motor drive.
- 2) When driving the fusing web cleaning motor is completed, "COMPLETE" is displayed.

NOTE: The set value may be changed for a design change or an individual arrangement. Except for the above cases, however, the set value must not be changed. If it is changed, a trouble may be occur.

Fusing web unit installation detection state	Operation	Remark
Fusing web unit installed	Not operate	* During this operation, the fusing web cleaning feed counter is not counted up.
Fusing web unit not installed	10sec continuous rotation	

\* The fusing web unit is used by installing to the fusing unit. For checking the fusing web cleaning motor rotation, remove the whole fusing unit and check with the door open.



<b>43-32</b>	
<b>Purpose</b>	Adjustment/Setup
<b>Function (Purpose)</b>	Used to set various items related to the forcible operation of web cleaning when job end.
<b>Section</b>	Fusing

#### Operation/Procedure

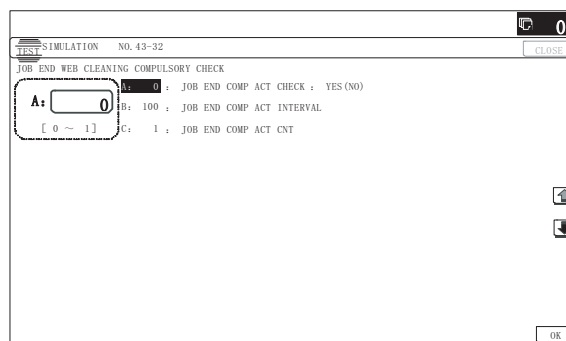
- 1) Select an item to be set with [↑] [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Press [OK] key.

The set value in step 2 is saved.

NOTE: The set value may be changed for a design change or an individual arrangement. Except for the above cases, however, the set value must not be changed. If it is changed, a trouble may be occur.

Item	Display	Item	Setting range	Default value
A	JOB END COMP ACT CHECK	Fusing web motor forcible operation condition when job end	0 - 1 0 1	1
B	JOB END COMP ACT INTERVAL	Interval of the print quantity of compulsory action of the fusing web motor at job end	1 - 200	110

Item	Display	Item	Setting range	Default value
C	JOB END COMP ACT CNT	Number of forcible operations of the fusing web motor when job end	1 - 5	1



## 44

<b>44-1</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set each correction operation function in the image forming (process) section.
<b>Section</b>	Process

#### Operation/Procedure

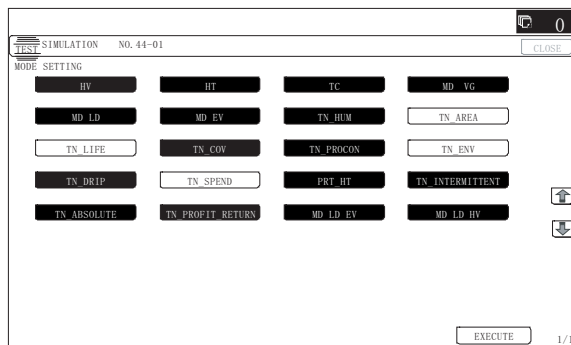
- 1) Select an item to be set with the touch panel.  
(The selected item is highlighted.)
- 2) Press [EXECUTE] key. (The set value is saved.)

NOTE: The set value may be changed for a design change or an individual arrangement. Except for the above cases, however, the set value must not be changed. If it is changed, a trouble may be occur.

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

Item/Display	Content	Setting range	Default value
HV	Enable/Disable setting of the high density process control in normal operation	Normal (Disable: 0: NO) Reverse (Enable: 1: YES)	Enable
HT	Enable/Disable setting of the medium density process control in normal operation		Enable
TC	Enable/Disable setting of the transfer output correction		Enable
MD VG	Enable/Disable setting of the membrane decrease grid voltage correction		Enable
MD LD	Enable/Disable setting of the membrane decrease laser power voltage correction		Enable
MD EV	Enable/Disable setting of the membrane decrease environment grid voltage correction		Enable
TN_HUM	Enable/Disable setting of the toner density humidity correction		Enable
TN_AREA	Enable/Disable setting of the toner density area correction		Disable

Item/Display	Content	Setting range	Default value
TN_LIFE	Enable/Disable setting of the toner density life correction	Normal (Disable: 0: NO) Reverse (Enable: 1: YES)	Disable
TN_COV	Enable/Disable setting of the toner density print ratio correction		Enable
TN_PROCON	Enable/Disable setting of the toner density process control correction		Enable
TN_ENV	Enable/Disable setting of the toner density environment correction		Disable
TN_DRIP	Enable/Disable setting of the toner density correction unconditional supply		Enable
TN_SPEND	Enable/Disable setting of toner compulsory consumption mode		Disable
PRT_HT	Enable/Disable setting of the half-tone process control printer correction feedback		Enable
TN_INTERMITTENT	Enable/Disable setting of the intermittent supply		Enable
TN_ABSOLUTE	Enable/Disable setting of the unconditional supply		Enable
TN_PROFIT_RETURN	Enable/Disable setting of the differential return correction		Enable
MD LD EV	Enable/Disable setting of the environment laser power correction for the OPC drum membrane decrease correction	Enable	Enable
MD LD HV	Enable/Disable setting of the process control laser power correction		Enable



44-2

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the sensitivity of the image density sensor.
<b>Section</b>	Process

#### Operation/Procedure

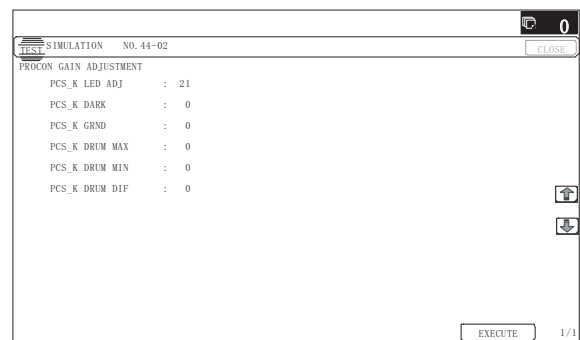
When [EXECUTE] key is pressed, the adjustment is executed automatically.

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

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

Item/Display	Content	Setting range	Default value
A PCS_K LED ADJ	Image density sensor sensitivity (light quantity) adjustment value	1 - 255	21
B PCS_K DARK	Image density sensor dark voltage	0 - 255	0
C PCS_K GRND	Belt surface detection level when the adjustment of item A is completed	0 - 255	0
D PCS_K DRUM MAX	OPC drum surface detection level Max. value	0 - 255	0
E PCS_K DRUM MIN	OPC drum surface detection level Min. value	0 - 255	0
F PCS_K DRUM DIF	OPC drum surface detection level differential (Item D - Item E)	0 - 255	0

Error name	Error content
Sensor adjustment abnormality	PCS_K LED ADJ error The adjustment target level is not reached by three times of retry operations.
Surface scanning abnormality	PCS_K GRND error The difference between the max. value and the min. value of the OPC drum surface detection level is out of the specified range in detection of one circle of the OPC drum surface.



44-4

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the conditions of the high density process control operation.
<b>Section</b>	Process

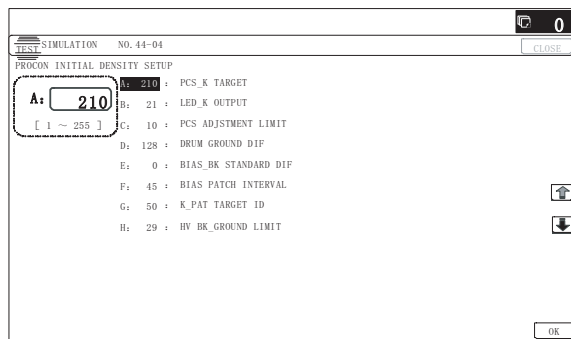
#### Operation/Procedure

- 1) Select an item to be set with [↑] [↓] keys.
- 2) Enter the set value with 10-key.
- 3) Press [OK] key.

NOTE: The set value may be changed for a design change or an individual arrangement. Except for the above cases, however, the set value must not be changed. If it is changed, a trouble may be occur.

Item/Display	Content	Setting range	Default value
A PCS_K TARGET	Image density sensor sensitivity adjustment target value	1 - 255	210
B LED_K OUTPUT	Initial current level black sensor LED light emitting quantity set value in the image density sensor adjustment	1 - 255	21

Item/Display	Content	Setting range	Default value
C	PCS ADJUSTMENT LIMIT	Adjustment error allowance level in the sensor sensitivity adjustment	1 - 255 10
D	DRUM GROUND DIF	The difference between the max. value and the min. value of the OPC drum surface detection level is in the allowable range in detection of one circle of the OPC drum surface.	0 - 255 128
E	BIAS_BK STANDARD DIF	Developing bias reference value in the high density process control	0 - 255 0
F	BIAS PATCH INTERVAL	Patch-forming developing bias voltage interval (voltage difference) in the high density process control	1 - 255 45
G	K_PAT TARGET ID	Toner patch density target value (black) in the high density process control	1 - 255 50
H	HV BK_GROUND LIMIT	Error judgment criterion for the difference between the max. level and the min. level of the OPC drum surface detection	1 - 255 29



44-6

**Purpose**

Operation test/check

**Function (Purpose)**

Used to execute the high density process control forcibly.

**Section**

Process

**Operation/Procedure**

Press [EXECUTE] key.

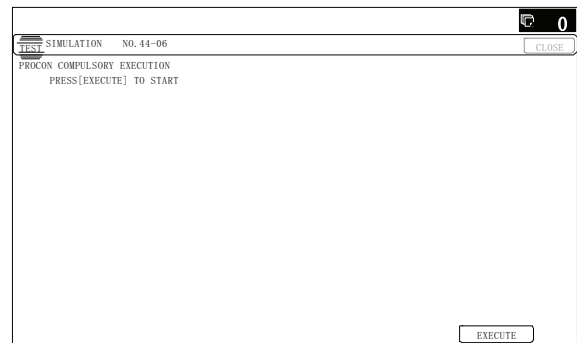
In case of a normal completion, the result is saved.

In case of an abnormal completion, "ERROR" is displayed. (Refer to the table below.)

In case of an ERROR, the previous correction data are saved.

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

Details of error display	Content description
BK_SEN_ADJ_ERR	Image density sensor sensitivity adjustment error
K_HV_ERR	Density process control operation error
TIMEOUT_ERR	Density process control operation time-out



44-9

**Purpose**

Information display

**Function (Purpose)**

Used to display the result data of the high density process control operation.

**Section**

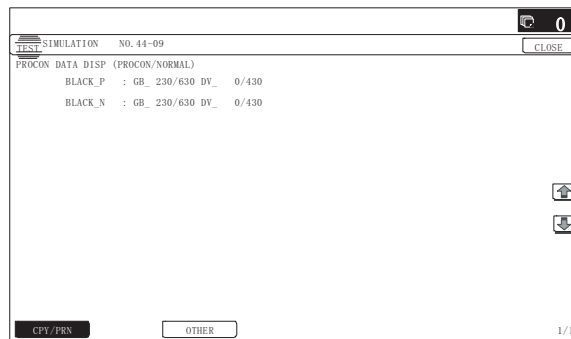
Process

**Operation/Procedure**

Select a target display mode with [CPY/PRN],[OTHER] keys.

Mode	Item/Display (*: Correction value)	Content	Display range	Default value
CPY/PRN	P (PROCON)	BLACK : GB ***/* DV ***/*	High density process control mode GB/DV data (K) (Actual output voltage level / Base voltage level)	GB: 230 - 850 DV: 0 - 700
	N (NORMAL)	BLACK : GB ***/* DV ***/*	Actual operation mode GB/DV data (K) (Actual output voltage level / Base voltage level)	GB: 230 - 850 DV: 0 - 700
OTHER	TN/TC	TN HUD AREA	Toner density correction humidity area	1 - 14 9
		TN HUD DATA	Toner density correction humidity AD value	0 - 1023 0
		TC TMP AREA	Transfer voltage correction temperature area	1 - 9 4
		TC TMP DATA	Transfer voltage correction temperature AD value	0 - 1023 0
		TC HUD AREA	Transfer voltage correction humidity area	1 - 9 4
		TC HUD DATA	Transfer voltage correction humidity AD value	0 - 1023 0
		MD HUD AREA	OPC drum membrane decrease correction humidity area	1 - 14 9
		MD HUD DATA	OPC drum membrane decrease correction humidity AD value	0 - 1023 0

Mode	Item/Display (*: Correction value)		Content	Display range	Default value
OTHER	DRUM	MD K STEP	OPC drum membrane decrease correction STEP number display (K)	0 - 4	0
		MD K DRUM COUNTER	OPC drum membrane decrease correction counter (rotation distance)	0 - 20	0
	VG	MD K REVISE(VG)	Display of MC correction voltage for OPC drum membrane decrease	0 - 255	0
	LD	MD K REVISE(LD)	OPC drum membrane decrease laser power correction display	0 - 255	0
	LD EV	MD K REVISE(LD EV)	Display of drum membrane decrease environment laser power correction	-128 - 128	0
	LD HV	MD K REVISE(LD HV)	Display of high-density process control laser power correction	-128 - 128	0
	LD ALL	MD K REVISE(LD ALL)	Display of laser power total correction amount	-128 - 128	0
	HV	MD K REVISE(HV)	OPC drum membrane environment MC correction voltage display	0 - 255	0
	CP	MD K REVISE(CP)	OPC drum membrane / Environment MC correction voltage display	0 - 255	0
	CRUM	DESTINATION	CRUM destination data stored in the PCU PWB of the machine		
		MODEL TYPE	Model type of the machine	0 - 1	0
		CRUM DEST_K	Crum destination data		
	CNT	PROCON COUNT HV	High density process control execution number	0 - 99999999	0
		PROCON COUNT HT	Half-tone process control execution number	0 - 99999999	0



#### 44-12

<b>Purpose</b>	Information display
<b>Function (Purpose)</b>	Used to display the operation data of the high density process control and the image density sensor.
<b>Section</b>	Process

#### Operation/Procedure

Select a display mode with [TARGET] [PATCH] keys.

Item/Display	Content	Display range	Default value
ADK_SL (K)	Development characteristics gradient coefficient (High density process control operation)	-9.99 - 9.99	0
ADK_INT(K)	Development characteristics intercept level (High density process control operation 0V)	-999.9 - 999.9	0
TARGET (K)	High density process control target density level (K)	0.00 - 255.00	0
n-1	High density process control nth time patch density level 1 (n=1-5)	0 - 255	0
n-2	Patch data nth time patch 2 (n=1-5)	0 - 255	0
n-3	Patch data nth time patch 3 (n=1-5)	0 - 255	0
n-4	Patch data nth time patch 4 (n=1-5) • BK only	0 - 255	0
n-1	Patch data nth time patch 1 (n=6-10)	0 - 255	0
n-2	Patch data nth time patch 2 (n=6-10)	0 - 255	0
n-3	Patch data nth time patch 3 (n=6-10)	0 - 255	0
n-4	Patch data nth time patch 4 (n=6-10) • BK only	0 - 255	0



#### 44-14

<b>Purpose</b>	Information display
<b>Function (Purpose)</b>	Used to display the output level of the temperature and humidity sensor.

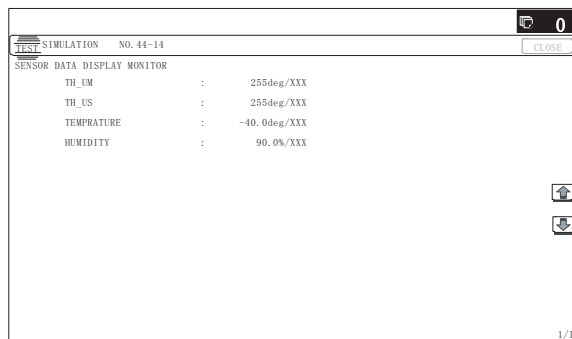
#### Section

#### Operation/Procedure

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

Item/Display	Content	Display range
TH_UM	Fusing upper thermistor main A/D value, temperature	Temperature: 0 - 255°C (±1°C) AD value: 0 - 1023
TH_US	Fusing upper thermistor sub A/D value, temperature	Temperature: 0 - 255°C (±1°C) AD value: 0 - 1023
TEMPRATURE	Temperature thermistor A/D value, temperature (for process control)	Temperature: -40.0 - 60.0°C (±0.1°C) AD value: 0 - 1023
HUMIDITY	Humidity sensor A/D value, humidity (for process control)	Humidity: 5.0 - 90.0% (±0.1%) AD value: 0 - 1023





44-16

<b>Purpose</b>	Information display
<b>Function (Purpose)</b>	Used to display the toner density control data.
<b>Section</b>	Toner supply, developing
<b>Operation/Procedure</b>	
1) The toner density control data are displayed.	

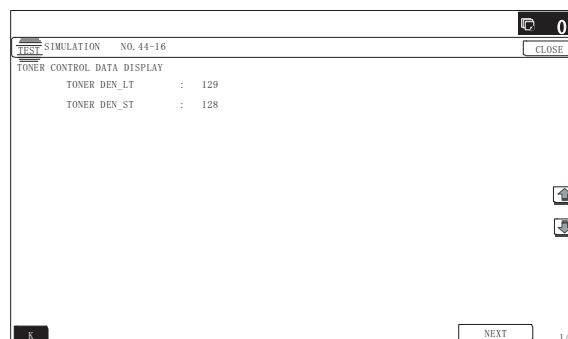
Item/Display	Content	Setting range	Default value
TONER DEN_LT	Current toner density sensor output value (final value)	1 - 255	129
TONER DEN_ST	Current toner density control reference value display (the value including all the correction values)		128

Item/Display	Content	Setting range	Default value
AUTO DEVE	Toner density sensor output value when SIM25-02 is executed and completed.	1 - 255	128
ALL	Actual toner density control value (including all the correction factors)		
AREA	Toner density control correction value for the temperature and the humidity	-127 - 127	0
HUD	Toner density control correction value for a change in the humidity		
PRINT RATE	Toner density control correction value for the document print ratio		
PROCON	Toner density control correction value for the result of the high density process control		
LIFE	Toner density control correction value for the developer life		
SENSITIVITY	Toner density sensor sensitivity correction value	1 - 999	500

Item/Display	Content	Setting range	Default value
AUTO DEVE VO	Toner density sensor control voltage value when SIM25-02 is executed and completed.	1 - 255	128
ALL VO	Actual toner density sensor control voltage value (including all the correction factors)		

Item/Display	Content	Setting range	Default value
AREA VO	Toner density sensor control voltage correction value for the temperature and the humidity	-127 - 127	0
HUD VO	Toner density sensor control voltage correction value for a change in the temperature and the humidity		
PRINT RATE VO	Toner density sensor control voltage correction value for the document print ratio		
PROCON VO	Toner density sensor control voltage correction value for the high density process control result		
LIFE VO	Toner density sensor control voltage correction value for the developer life	1 - 999	500
SENSITIVITY VO	Toner density sensor sensitivity correction control voltage correction value		
ENV VO	Toner density sensor control voltage correction value for the environment with a high humidity	-127 - 127	0

Item/Display	Content		Setting range	Default value
AUTO DEVE AREA	Area in the auto development adjustment	Display of the humidity area when SIM25-2 is executed	1 - 14	8
AREA	Current area	Current humidity area display		



44-21

<b>Purpose</b>	Registration
<b>Function (Purpose)</b>	Used to register the target value of the half-tone process control.
<b>Section</b>	Process

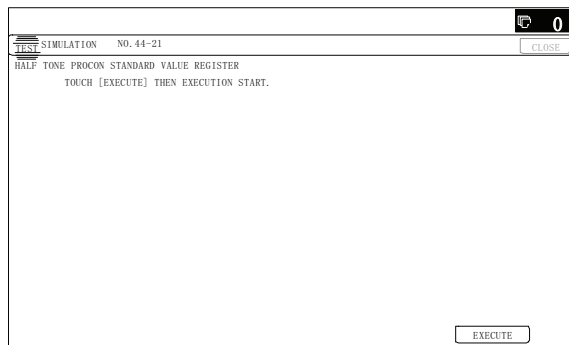
#### Operation/Procedure

Press [EXECUTE] key.

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

Display	Content
COMPLETE	Normal complete
ERROR BLACK SENSOR ADJUSTMENT	Image density sensor sensitivity adjustment error
[K]	High density process control error
OTHER	Other errors





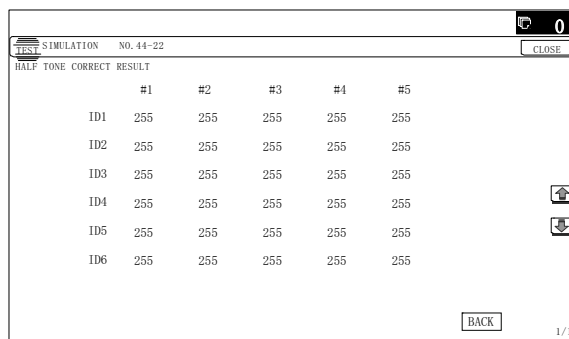
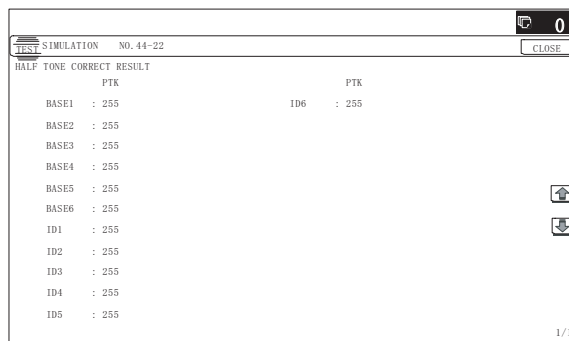
44-22

<b>Purpose</b>	Information display
<b>Function (Purpose)</b>	Used to display the toner patch density level in the half tone process control operation.
<b>Section</b>	Process

#### Operation/Procedure

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

Item/Display	Content
BASE_n	Belt substrate data (n = 1 - 6)
ID_n	Patch data display (n = 1 - 6)



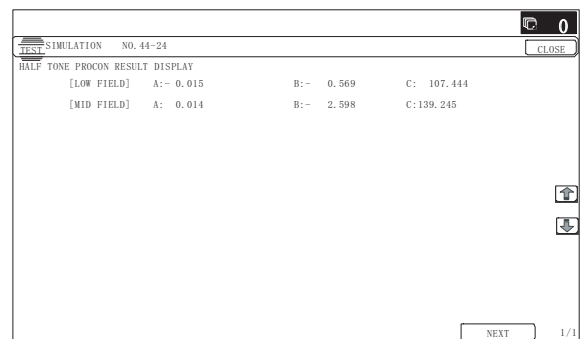
44-24

<b>Purpose</b>	Information display
<b>Function (Purpose)</b>	Used to display the correction target and the correction level in the half tone process control operation.
<b>Section</b>	Process

#### Operation/Procedure

- 1) Select the display category with [NEXT] key.

Category	Item/Display	Content
Coefficient	[LOW FIELD]	Coefficient value of the approximate equation in the low density area
	[MID FIELD]	Coefficient value of the approximate equation in the medium density area
Reference value	[SENSOR_TARGET]	Half tone process control reference value
Correction value	[S_VALUE]	Half tone process control correction value
For printer	[PRINTER_S_VALUE]	Printer half tone process control correction value
	[PRINTER_BASE_DITHER_VALUE]	Printer half tone process control reference dither value
	[PRINTER_AUTO_HT_VALUE]	Printer auto density adjustment correction value
Previous correction value	[BEFORE S_VALUE]	Previous half tone process control value



44-25

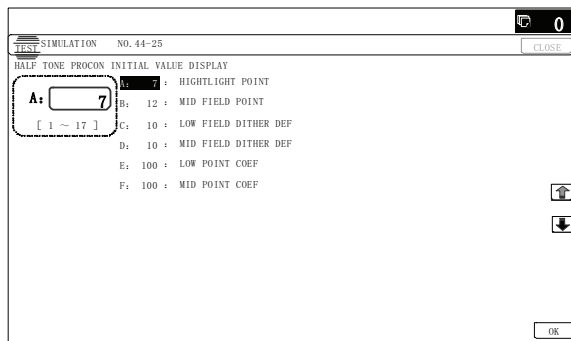
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the calculating conditions of the correction value for the half tone process control.
<b>Section</b>	Process

#### Operation/Procedure

- 1) Select a target adjustment density level with [↑] [↓] key on the touch panel.
- 2) Enter the set value with 10-key.
- 3) Press [OK] key.

NOTE: The set value may be changed for a design change or an individual arrangement. Except for the above cases, however, the set value must not be changed. If it is changed, a trouble may be occur.

	Item/Display	Content	Setting range	Default value
A	HIGHLIGHT POINT	Correction point in the low density area	1 - 17	7
B	MID FIELD POINT	Correction point in the medium density area	1 - 17	12
C	LOW FIELD DITHER DEF	Input dither difference in the low density area	0 - 255	10
D	MID FIELD DITHER DEF	Input dither difference in the medium density area	0 - 255	10
E	LOW POINT COEF	Correction amount low density point correction coefficient	0 - 100	100
F	MID POINT COEF	Correction amount medium density point correction coefficient	0 - 100	100



44-26

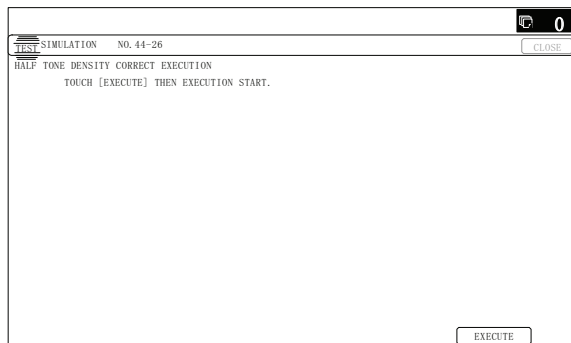
<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to execute the half tone process control compulsory.
<b>Section</b>	Process

#### Operation/Procedure

Press [EXECUTE] key.

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

COMPLETE	Normal complete
ERROR BLACK SENSOR ADJUSTMENT	Image density sensor sensitivity adjustment error
[K]	High density process control error
OTHER	Other errors



44-27

<b>Purpose</b>	Data clear/Reset
<b>Function (Purpose)</b>	Used to clear the correction data of the half tone process control.
<b>Section</b>	Process

#### Operation/Procedure

- 1) Press [EXECUTE] key.
- 2) Press [YES] key.

The correction data of the half tone process control are cleared.



44-28

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the process control execution conditions.
<b>Section</b>	Process

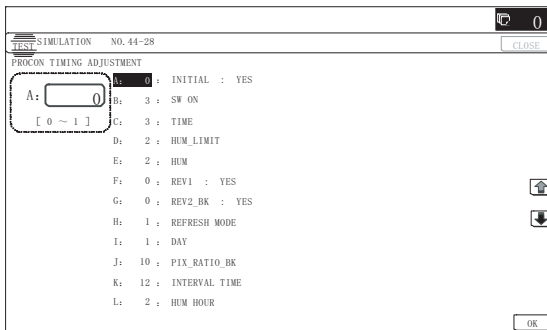
#### Operation/Procedure

- 1) Select a target item of setting with [↑] [↓] key on the touch panel.
- 2) Enter the set value with 10-key.
- 3) Press [OK] key. (The set value is saved.)

NOTE: The set value may be changed for a design change or an individual arrangement. Except for the above cases, however, the set value must not be changed. If it is changed, a trouble may be occur.

Mode	Item/Display			Content		Setting range		Default value
Process control Enable/Disable setting	A	INITIAL	YES	When warm-up after clearing the counter of the OPC drum and the developer unit	Enable	0 - 1	0	0
			NO		Disable		1	
	B	SW ON		When supplying the power (when clearing shut-off.)	Process control Disable	1 - 3	1	3
					BK process control Enable		2	
					Pixel count judgment (Judgement is based on the setting value of item K, L.)		3	
	C	TIME		After passing the specified time from leaving READY continuously (Time can be changed by INTERVAL TIME)	Process control Disable	1 - 3	1	3
					BK process control Enable		2	
					Pixel count judgment (Judgement is based on the setting value of item I.)		3	
	D	HUM_LIMIT		HUM judgment is made when turning ON the power and after passing TIME.	Process control Disable	1 - 2	1	2
					BK process control Enable		2	

Mode	Item/Display		Content		Setting range		Default value
Process control Enable/Disable setting	E	HUM	The temperature and humidity in side the machine are monitored only during a job for every 2hours (set by item L). When the changes in the temperature and the humidity are greater than the specified level (the set value of item L) in comparison with the previous process control.	Process control Disable	1 - 2	1	2
				BK process control Enable		2	
	F	REV1	When the accumulated rotation time of the OPC drum unit reaches a certain level after supply the power.	Enable	0 - 1	0	0
				Inhibit		1	
	G	REV2_BK	When the accumulated rotation time of the BK position OPC drum unit reaches a certain level after execution of the previous density correction.	Enable	0 - 1	0	0
				Inhibit		1	
	H	REFRESH MODE	YES/NO setting of the display of the manual process control key by key operations	Key operation display YES	0 - 1	0	1
				Key operation display NO		1	
Process control conditions setting	I	DAY	When the next warm-up if there is no job after a job after passing the specified days from execution of the previous process control	0: Disable of the specified days judgment	0 - 999	0	1
				1 - 999: 1 - 999 days passing		1 - 999	
	J	PIX_RATIO_BK	Magnification ratio setting (%) of the BK toner count specified value entry of 100 corresponds to 1k of A4 5% print.		1 - 999		10
	K	INTERVAL TIME	Passing time setting of "TIME" (h: hour)		1-255 (1-255: 1-255h passed)		12
	L	HUM HOUR	Interval setting of the temperature and humidity monitoring time of "HUM" (h: hour)		1 - 24		2
	M	HUM_DIF	Area difference specified value when compared with the execution of the previous process control of "HUM"		1 - 9		2
	N	BK_RATIO	Magnification ratio setting (%) of the specified value of the BK position OPC drum traveling distance of "REV2_BK"		1 - 999 (Entry of 20 corresponds to 100,000mm.)		30
	O	HT_DIF	Bias variation difference value used for HT process control execution judgment		1-255		60



44-29

#### Purpose

Setting

#### Function (Purpose)

Used to set the operating conditions of the process control during a job.

#### Section

Process

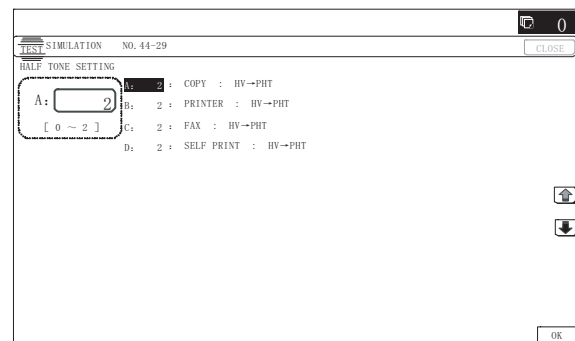
#### Operation/Procedure

- 1) Select a target item of setting with [↑] [↓] key on the touch panel.
- 2) Enter the set value with 10-key.
- 3) Press [OK] key.

Item/Display	Content	Setting range	Default value
A	COPY	0 - 2 0: No execution 1: HV only 2: HV → HT	2
B	PRINTER		2
C	FAX		2
D	SELF PRINT		2

HV: High density process control

HT: Half tone process control



<b>44-37</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the development bias correction level in the continuous printing operation.
<b>Section</b>	Toner supply, developing

#### Operation/Procedure

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

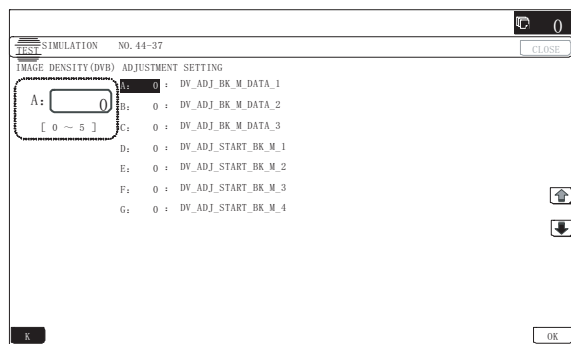
#### NOTE:

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

		Item/Display	Default value	Variable range
Current DV Bias voltage	less than 300[v]	A	0	0-5 (*1)
	300[v] or more, less than 450[v]	B	0	
	450[v] or more	C	0	
Time (T) from termination of continuous outputs to start of the next output operation	Less than 10 [sec] & after process control JOB	D	0	0-12 (*2)
	10 [sec] or more, less than 60 [sec]	E	0	
	60 [sec] or more, less than 240 [sec]	F	0	
	240 [sec] or more	G	0	

#### <Use example>

- (\*1) The default of A/B/C is "0" and this function is set to OFF.  
When 10 sheets are printed in the multi copy and the 10th output is lighter than the first sheet, set the values of 1 - 5.  
The greater the value is, the darker the density of the 10th sheet or later.
- (\*2) The correction amount is adjusted by the length of the leaving time.  
When (\*1) is 1 - 5, the greater the value of (\*2) is, the greater the density of printing is.



**46**

<b>46-2</b>	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the copy density in each monochrome copy mode.
<b>Section</b>	

#### Operation/Procedure

- 1) Select an adjustment target item with [↑] [↓] key on the touch panel.
- 2) Enter the set value with 10-key.

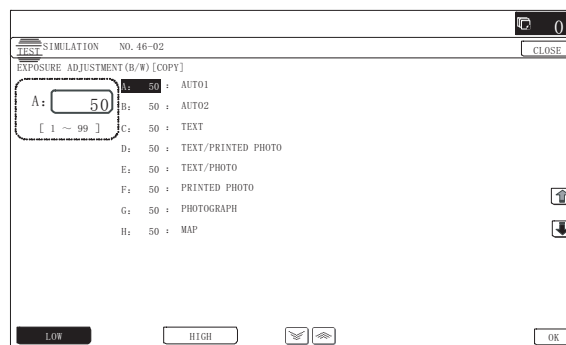
\* When the △ ▽ key is pressed, the setting value of each item can be changed with 1up (1down) collectively.

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

To adjust the copy density in the low density area, select the "LOW" mode and change the adjustment value. To adjust the copy density in the high density area, select the "HIGH" mode and change the adjustment value.

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

	Item/Display	Content	Setting range	Default value
A	AUTO1	Auto 1	LOW	1 - 99
			HIGH	1 - 99
B	AUTO2	Auto 2	LOW	1 - 99
			HIGH	1 - 99
C	TEXT	Text	LOW	1 - 99
			HIGH	1 - 99
D	TEXT/PRINTED PHOTO	Text/Printed Photo	LOW	1 - 99
			HIGH	1 - 99
E	TEXT/PHOTO	Text/Photograph	LOW	1 - 99
			HIGH	1 - 99
F	PRINTED PHOTO	Printed Photo	LOW	1 - 99
			HIGH	1 - 99
G	PHOTOGRAPH	Photograph	LOW	1 - 99
			HIGH	1 - 99
H	MAP	Map	LOW	1 - 99
			HIGH	1 - 99



**46-4**

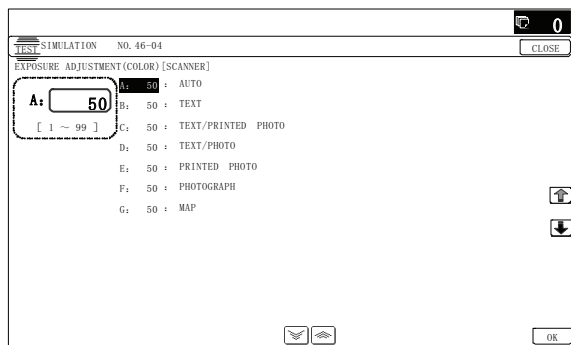
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the density in the image send mode (color mode). (N model only)
<b>Section</b>	

#### Operation/Procedure

- 1) Select an adjustment target item with [↑] [↓] key on the touch panel.
- 2) Enter the set value with 10-key.  
\* When the △ ▽ key is pressed, the setting value of each item can be changed with 1up (1down) collectively.
- 3) Press [OK] key. (The set value is saved.)

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

	Item/Display	Content	Setting 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



46-5

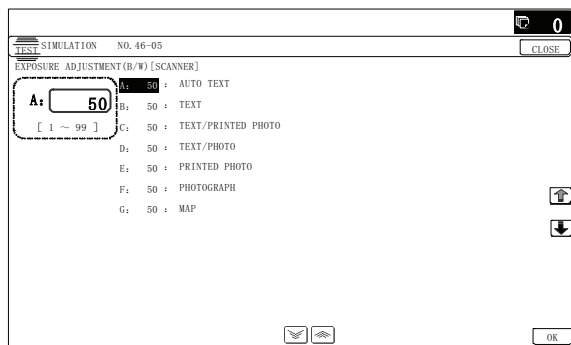
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the density in the image send mode (monochrome mode).
<b>Section</b>	

#### Operation/Procedure

- 1) Select an adjustment target item with [↑] [↓] key on the touch panel.
- 2) Enter the set value with 10-key.
  - \* When the △ ▽ key is pressed, the setting value of each item can be changed with 1up (1down) collectively.
- 3) Press [OK] key. (The set value is saved.)

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

Item/Display	Content	Setting range	Default value
A	AUTO TEXT	Automatic/Text	1 - 99
B	TEXT	Text	1 - 99
C	TEXT/PRINTED PHOTO	Text/Printed Photo	1 - 99
D	TEXT/PHOTO	Text/Photograph	1 - 99
E	PRINTED PHOTO	Printed Photo	1 - 99
F	PHOTOGRAPH	Photograph	1 - 99
G	MAP	Map	1 - 99



46-8

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the image send mode color balance RGB. (N model only)
<b>Section</b>	

#### Operation/Procedure

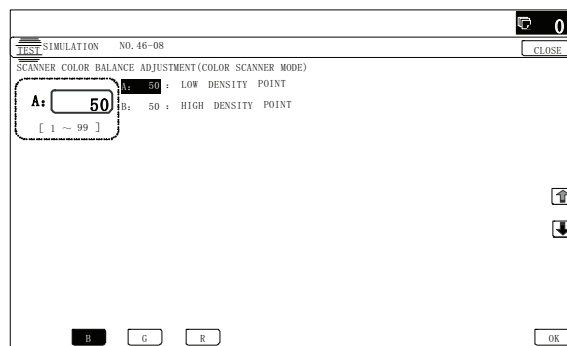
- 1) Select an adjustment target with [R] [G] [B] keys on the touch panel.
- 2) Select an adjustment target item with [↑] [↓] key on the touch panel.
- 3) Enter the set value with 10-key.

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

The color balance can be adjusted separately for the low density area and the high density area.

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

Item/Display	Content	Default value
A	LOW DENSITY POINT	Low density correction amount
B	HIGH DENSITY POINT	High density correction amount



46-9

<b>Purpose</b>	Adjustment (DSPF/RSPF mode)
<b>Function (Purpose)</b>	Used to adjust the SPF mode scan image density (copy, image send mode)

#### Section

#### Operation/Procedure

- 1) Select an adjustment target mode with [OC] and [DSPF] keys on the touch panel. (DSPF-installed model only)
- 2) Select an adjustment target item with [↑] [↓] key on the touch panel.
- 3) Enter the set value with 10-key.
  - \* When the △ ▽ key is pressed, the setting value of each item can be changed with 1up (1down) collectively.
- 4) Press [OK] key. (The set value is saved.)

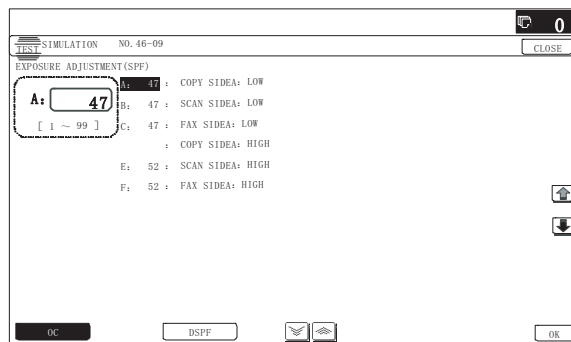
This adjustment result affects the image send mode, the copy mode, and the fax mode.

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

#### [DSPF-installed model]

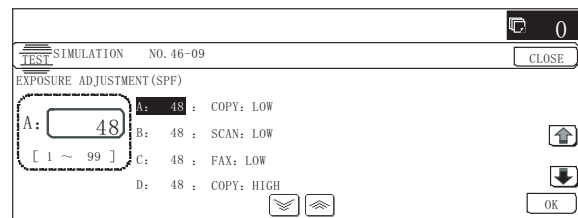
Item	Button	Display	Content	Setting range	Default value
A	OC	COPY SIDEA: LOW	DSPF copy mode exposure adjustment (Low density side)	1 - 99	47
B		SCAN SIDEA: LOW	DSPF scanner mode exposure adjustment (Low density side)	1 - 99	47
C		FAX SIDEA: LOW	DSPF FAX mode exposure adjustment (Low density side)	1 - 99	47
D		COPY SIDEA: HIGH	DSPF copy mode exposure adjustment (High density side)	1 - 99	52
E		SCAN SIDEA: HIGH	DSPF scanner mode exposure adjustment (High density side)	1 - 99	52
F		FAX SIDEA: HIGH	DSPF FAX mode exposure adjustment (High density)	1 - 99	52

Item	Button	Display	Content	Setting range	Default value
A	DSPF	COPY SIDE: LOW	DSPF copy mode exposure adjustment (Low density side)	1 - 99	47
B		SCAN SIDE: LOW	DSPF scanner mode exposure adjustment (Low density side)	1 - 99	47
C		FAX SIDE: LOW	DSPF FAX mode exposure adjustment (Low density side)	1 - 99	47
D		COPY SIDE: HIGH	DSPF copy mode exposure adjustment (High density side)	1 - 99	50
E		SCAN SIDE: HIGH	DSPF scanner mode exposure adjustment (High density side)	1 - 99	50
F		FAX SIDE: HIGH	DSPF FAX mode exposure adjustment (High density)	1 - 99	50
G		BALANCE SIDE: R	DSPF color balance R	1 - 99	50
H		BALANCE SIDE: G	DSPF color balance G	1 - 99	50
I		BALANCE SIDE: B	DSPF color balance B	1 - 99	50



#### [RSPF-installed model]

Item/Display	Content	Setting range	Default value
A COPY: LOW	RSPF copy mode exposure adjustment (Low density side)	1 - 99	48
B SCAN: LOW	RSPF scanner mode exposure adjustment (Low density side)	1 - 99	48
C FAX: LOW	RSPF FAX mode exposure adjustment (Low density side)	1 - 99	48
D COPY: HIGH	RSPF copy mode exposure adjustment (High density side)	1 - 99	53
E SCAN: HIGH	RSPF scanner mode exposure adjustment (High density side)	1 - 99	53
F FAX: HIGH	RSPF FAX mode exposure adjustment (High density)	1 - 99	53



#### 46-10

**Purpose** Adjustment

**Function (Purpose)** Used to adjust the copy density (in each copy mode).

#### Section

#### Operation/Procedure

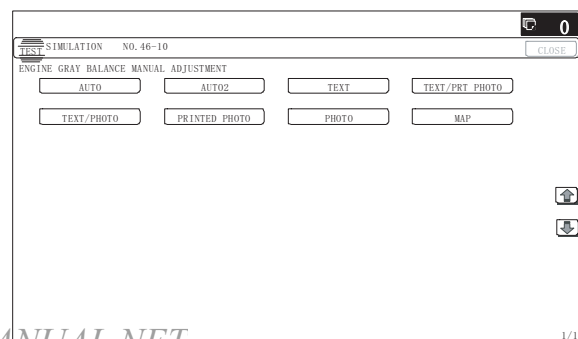
- 1) Select an adjustment target mode with the touch panel key.
- 2) Select 600dpi or 1200dpi with the resolution select button.
- 3) Enter the set value with 10-key.
  - \* When the  $\triangle$   $\nabla$  key is pressed, the setting value of each item can be changed with 1up (1down) collectively.
- 4) Press [OK] key. (The set value is saved.)

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

A4R (11" x 8.5"R) paper is selected by priority. If there is no A4R (11" x 8.5"R) paper, A3 (11" x 17") paper is selected.

Item	Content
AUTO1	Automatic 1
AUTO2	Automatic 2
TEXT	Text
TEXT/PRT PHOTO	Text/Printed Photo
TEXT/PHOTO	Text/Photograph
PRINTED PHOTO	Printed Photo
PHOTO	Photograph
MAP	Map

Item/Display	Density level (Point)	Setting range	Default value
A POINT1	Point 1	245 - 755	500
B POINT2	Point 2	245 - 755	500
C POINT3	Point 3	245 - 755	500
D POINT4	Point 4	245 - 755	500
E POINT5	Point 5	245 - 755	500
F POINT6	Point 6	245 - 755	500
G POINT7	Point 7	245 - 755	500
H POINT8	Point 8	245 - 755	500
I POINT9	Point 9	245 - 755	500
J POINT10	Point 10	245 - 755	500
K POINT11	Point 11	245 - 755	500
L POINT12	Point 12	245 - 755	500
M POINT13	Point 13	245 - 755	500
N POINT14	Point 14	245 - 755	500
O POINT15	Point 15	245 - 755	500
P POINT16	Point 16	245 - 755	500
Q POINT17	Point 17	245 - 755	500



<b>46-16</b>	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the copy density manually.
<b>Section</b>	

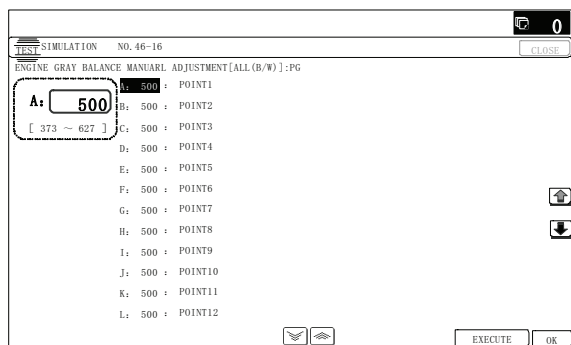
#### Operation/Procedure

- 1) Select an adjustment target item with [↑] [↓] key on the touch panel.
- 2) Enter the set value with 10-key.
  - \* When the △ ▽ key is pressed, the setting value of each item can be changed with 1up (1down) collectively.
- 3) Press [OK] key. (The set value is saved.)

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

A4R (11" x 8.5"R) paper is selected by priority. If there is no A4R (11" x 8.5"R) paper, A3 (11" x 17") paper is selected.

Item/Display	Density level (Point)	Setting 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
P	POINT16	Point 16	245 - 755
Q	POINT17	Point 17	245 - 755



<b>46-19</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the operating conditions of document density scanning (copy, image send mode).
<b>Section</b>	Scanner

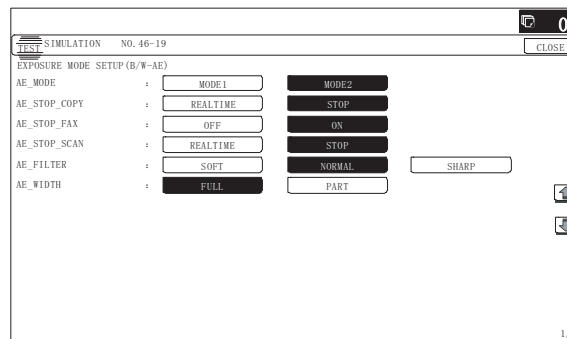
#### Operation/Procedure

Select an item to be set with touch panel.

When an item is selected, it is highlighted and the setting change is saved.

Item/Display	Content	Set value	Default value
AE_MODE	Auto exposure mode	MODE1, MODE2	MODE2
AE_STOP_COPY	Auto B/W exposure Stop (for copy)	REALTIME/ STOP	STOP
AE_STOP_FAX	Auto B/W exposure Stop (for FAX)	ON/OFF	ON

Item/Display	Content	Set value	Default value
AE_STOP_SCAN	Auto B/W exposure Stop (for scanner)	REALTIME/ STOP	STOP
AE_FILTER	Auto exposure filter setting	SOFT NORMAL SHARP	NORMAL
AE_WIDTH	AE exposure width	FULL/PART	FULL



#### NOTE:

MODE 1	High gamma (high contrast images)
MODE 2	Normal gamma
STOP	The image density in 3 - 7mm area at the lead edge is scanned, and the output image density is determined according to the scanned density. (The output image density is even for all the surface.)
REALTIME	The densities of the document width are scanned sequentially, and the output image density is determined according to the density in each area of document. (The output image density may not be even for all the surface.)
AE WIDTH FULL	The document density scan area in the monochrome auto mode is 3 - 7mm at the document lead edge x the document width. This is not related to the PRESCAN mode.
AE WIDTH PART	The document density scan area in the monochrome auto mode is 3 - 7mm at the document lead edge x 100mm width. This is not related to the PRESCAN mode.

<b>46-23</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the density correction of copy high density section (High density tone gap supported).
<b>Section</b>	

#### Operation/Procedure

- 1) Enter the set value with 10-key.

0	Enable
1	Inhibit

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

Item/Display	Content	Setting range	Default value
A	K (0: ENABLE 1: DISABLE)	0 K engine highest density correction mode: Enable 1 K engine highest density correction mode: Disable	0 - 1 1

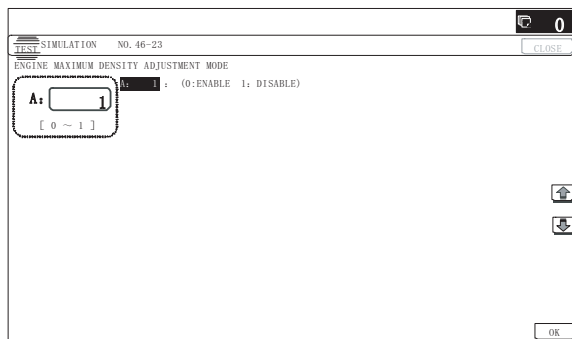
\* When tone gap is generated in the high density area, set item A to "0".

The density of high density part decreases. However, the tone gap is better.

\* To increase the density in the high density area further, set item A to "1".

The tone gap may occur in high density part.





46-24

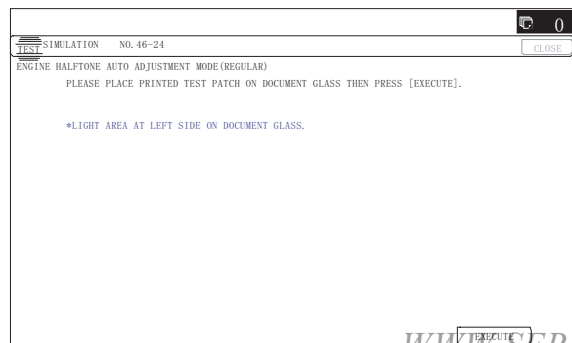
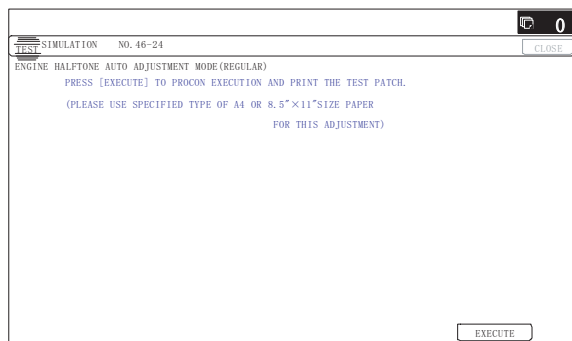
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Copy and printer density adjustment (Auto adjustment)

### Section

#### Operation/Procedure

- 1) Press [EXECUTE] key.  
The adjustment pattern is printed out.
- 2) Press [EXECUTE] key.  
The automatic adjustment of copy and printer density is executed, and then the adjustment result pattern of the copy mode as well as that of the printer mode is printed.
- 3) Press [OK] key.  
The half tone correction target registration is processed.
- 4) The half-tone correction execution menu is displayed. Press [EXECUTE] key.  
Half-tone correction is executed. When [RESULT] button is pressed after completion of correction, the data of the half-tone correction can be checked.

Display	Content
COMPLETE	Normal completion
ERROR BLACK SENSOR ADJUSTMENT	Black sensor abnormality
[K]	Half-tone correction [K] abnormality
OTHER	Other errors



46-32

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the reproducibility of the document background density in the automatic copy mode.

### Section

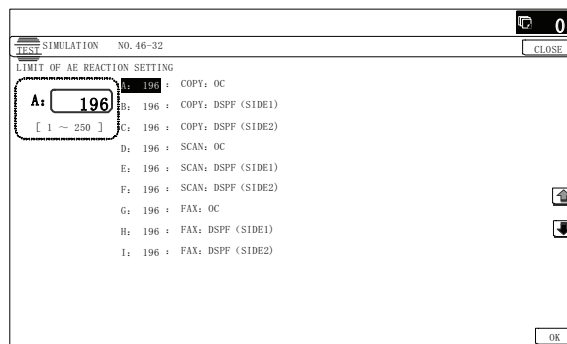
#### Operation/Procedure

- 1) Select a target item of setting with [↑] [↓] key on the touch panel.
- 2) Enter the set value with 10-key.
- 3) Press [OK] key. (The set value is saved.)

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

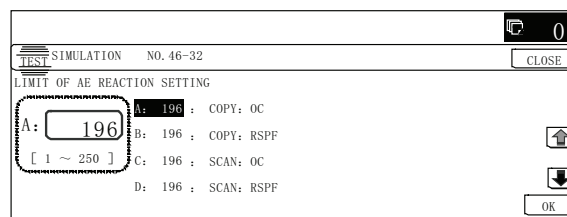
#### [DSPF-installed model]

Item	Display	Content	Setting range	Default value
A	COPY: OC	Copy mode (for OC)	1 - 250	196
B	COPY: DSPF (SIDE1)	Copy mode (for DSPF front surface)	1 - 250	196
C	COPY: DSPF (SIDE2)	Copy mode (for DSPF back surface)	1 - 250	196
D	SCAN: OC	Scanner mode (for OC)	1 - 250	196
E	SCAN: DSPF (SIDE1)	Scanner mode (for DSPF front surface)	1 - 250	196
F	SCAN: DSPF (SIDE2)	Scanner mode (for DSPF back surface)	1 - 250	196
G	FAX: OC	FAX mode (for OC)	1 - 250	196
H	FAX: DSPF (SIDE1)	FAX mode (for DSPF front surface)	1 - 250	196
I	FAX: DSPF (SIDE2)	FAX mode (for DSPF back surface)	1 - 250	196



#### [RSPF-installed model]

Item	Display	Content	Setting range	Default value
A	COPY: OC	Copy mode (OC)	1 - 250	196
B	COPY: RSPF	Copy mode (RSPF)	1 - 250	196
C	SCAN: OC	Scanner mode (OC)	1 - 250	196
D	SCAN: RSPF	Scanner mode (RSPF)	1 - 250	196
E	FAX: OC	FAX mode (OC)	1 - 250	196
F	FAX: RSPF	FAX mode (RSPF)	1 - 250	196



46-37

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the reproducibility of the scan image color document (copy, image send mode). (N model only)

**Section**

#### Operation/Procedure

- 1) Select a target item with [↑] [↓] keys on the touch panel.
- 2) Enter the set value with 10-key.
- 3) Press [EXECUTE] key.
- 4) Press [YES] key.

This simulation is used to adjust the reproducibility of red and yellow images when copy a color document of red and yellow images in the monochrome mode.

Item/Display		Content	Setting range	Default value	
				MX-M283/ M363/ M453/M503	MX-M282/ M362/ M452/M502
A	R-Ratio	Gray making setting (R)	0 - 1000	303	293
B	G-Ratio	Gray making setting (G)	0 - 1000	697	663

\* B-Ratio: The value of gray making setting (B) is obtained from the formula below.

$$1000 - R\text{-Ratio} - G\text{-Ratio}$$

When [DEFAULT] key is pressed, the values are set to the initial values (default).

When the adjustment values of items A and B are decreased, the copy density of yellow images is increased. When the adjustment values are increased, the density is decreased.

When the adjustment value of item A is decreased and the adjustment value of item B is increased, the copy density of red images is increased. When the adjustment value of item A is increased and the adjustment value of item B is decreased, the copy density is decreased.

46-39

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the sharpness of FAX send images.

**Section**

#### Operation/Procedure

- 1) Select a target item with [↑] [↓] keys on the touch panel.
- 2) Enter the set value with 10-key.
- 3) Press [OK] key. (The set value is saved.)

Input large numeric value to obtain crispy image. Input small numeric value to decrease moire.

Item/Display	Content	Setting range	Default value
A	200 x 100 [DPI] OFF	200 x 100 [DPI] half tone OFF	0 - 2 1
B	200 x 200 [DPI] OFF	200 x 200 [DPI] half tone OFF	0 - 2 1
C	200 x 200 [DPI] ON	200 x 200 [DPI] half tone ON	0 - 2 1
D	200 x 400 [DPI] OFF	200 x 400 [DPI] half tone OFF	0 - 2 1
E	200 x 400 [DPI] ON	200 x 400 [DPI] half tone ON	0 - 2 1
F	400 x 400 [DPI] OFF	400 x 400 [DPI] half tone OFF	0 - 2 1
G	400 x 400 [DPI] ON	400 x 400 [DPI] half tone ON	0 - 2 1
H	600 x 600 [DPI] OFF	600 x 600 [DPI] half tone OFF	0 - 2 1
I	600 x 600 [DPI] ON	600 x 600 [DPI] half tone ON	0 - 2 1

46-40

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the FAX send image density. (Collective adjustment of all the modes)

**Section**

#### Operation/Procedure

- 1) Set the original on the original table.
  - 2) Enter the set value with 10-key.
  - 3) Press [EXECUTE] key, or [OK] key
- When [EXECUTE] key is pressed, the adjustment value is set and the scanned document image is outputted.

Item/Display		Content	Setting range	Default value	
				MX-M283/ M363/ M453/ M503	MX-M282/ M362/ M452/ M502
A	EXPOSURE LEVEL(ALL)	Used to adjust the FAX send image density. (Collective adjustment of all the modes)	1 - 99	50	45

46-41

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the FAX send image density. (Normal)

**Section****Operation/Procedure**

- 1) Set the original on the original table.
- 2) Enter the set value with 10-key.
- 3) Press [EXECUTE] key, or [OK] key

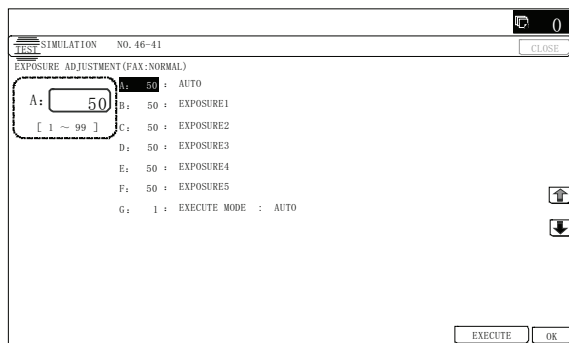
When [EXECUTE] key is pressed, the adjustment value is set and the scanned document image is outputted.

Item/Display		Content	Setting range	Default value	
				*1	*2
A	AUTO	Auto	1 - 99	50	45
B	EXPOSURE1	Exposure 1	1 - 99	50	45
C	EXPOSURE2	Exposure 2	1 - 99	50	45
D	EXPOSURE3	Exposure 3	1 - 99	50	45
E	EXPOSURE4	Exposure 4	1 - 99	50	45
F	EXPOSURE5	Exposure 5	1 - 99	50	45
G	EXECUTE MODE	AUTO	Print mode	Auto	1 (AUTO)
		EXP1		Exposure 1	
		EXP2		Exposure 2	
		EXP3		Exposure 3	
		EXP4		Exposure 4	
		EXP5		Exposure 5	

\*1: MX-M283/M363/M453/M503

\*2: MX-M282/M362/M452/M502

To check the adjustment density level of items A - F, set the document and set the setting value of item G according to items A - F, and press [EXECUTE] key.



46-42

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the FAX send image density. (Fine)

**Section****Operation/Procedure**

- 1) Set the original on the original table.
- 2) Enter the set value with 10-key.
- 3) Press [EXECUTE] key, or [OK] key

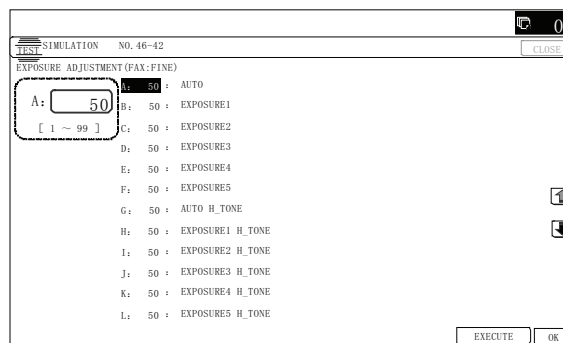
When [EXECUTE] key is pressed, the adjustment value is set and the scanned document image is outputted.

Item/Display		Content	Setting range	Default value	
				*1	*2
A	AUTO	Fine/Automatic	1 - 99	50	45
B	EXPOSURE1	Fine/Exposure 1	1 - 99	50	45
C	EXPOSURE2	Fine/Exposure 2	1 - 99	50	45
D	EXPOSURE3	Fine/Exposure 3	1 - 99	50	45
E	EXPOSURE4	Fine/Exposure 4	1 - 99	50	45
F	EXPOSURE5	Fine/Exposure 5	1 - 99	50	45
G	AUTO H_TONE	Fine/Automatic/ Half tone	1 - 99	50	45
H	EXPOSURE1 H_TONE	Fine/Exposure 1/ Half tone	1 - 99	50	45
I	EXPOSURE2 H_TONE	Fine/Exposure 2/ Half tone	1 - 99	50	45
J	EXPOSURE3 H_TONE	Fine/Exposure 3/ Half tone	1 - 99	50	45
K	EXPOSURE4 H_TONE	Fine/Exposure 4/ Half tone	1 - 99	50	45
L	EXPOSURE5 H_TONE	Fine/Exposure 5/ Half tone	1 - 99	50	45
M	EXECUTE MODE	AUTO	Print mode	Fine/Auto	1 (AUTO)
		EXP1		Fine/ Exposure 1	
		EXP2		Fine/ Exposure 2	
		EXP3		Fine/ Exposure 3	
		EXP4		Fine/ Exposure 4	
		EXP5		Fine/ Exposure 5	
		AUTO H_TONE		Fine/ Automatic/ half tone	
		EXP1 H_TONE		Fine/ Exposure 1 /Half tone	
		EXP2 H_TONE		Fine/ Exposure 2 /Half tone	
		EXP3 H_TONE		Fine/ Exposure 3 /Half tone	
		EXP4 H_TONE		Fine/ Exposure 4 /Half tone	
		EXP5 H_TONE		Fine/ Exposure 5 /Half tone	

\*1: MX-M283/M363/M453/M503

\*2: MX-M282/M362/M452/M502

To check the adjustment density level of items A - L, set the document and set the setting value of item M according to items A - L, and press [EXECUTE] key.



<b>46-43</b>	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the FAX send image density. (Super Fine)

#### Section

#### Operation/Procedure

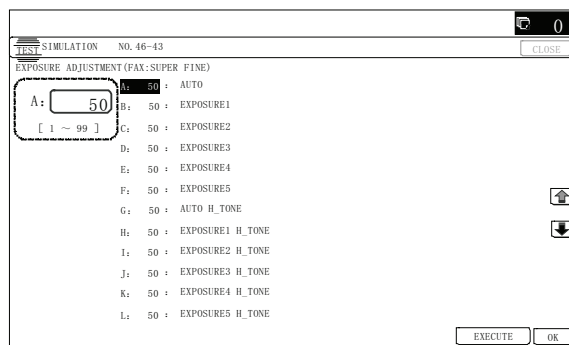
- 1) Set the original on the original table.
- 2) Enter the set value with 10-key.
- 3) Press [EXECUTE] key, or [OK] key  
When [EXECUTE] key is pressed, the adjustment value is set and the scanned document image is outputted.

Item/Display		Content	Setting range		Default value	
					*1	*2
A	AUTO	Super Fine/Auto	1 - 99	50	45	
B	EXPOSURE1	Super Fine/Exposure 1	1 - 99	50	45	
C	EXPOSURE2	Super Fine/Exposure 2	1 - 99	50	45	
D	EXPOSURE3	Super Fine/Exposure 3	1 - 99	50	45	
E	EXPOSURE4	Super Fine/Exposure 4	1 - 99	50	45	
F	EXPOSURE5	Super Fine/Exposure 5	1 - 99	50	45	
G	AUTO H_TONE	Super Fine /Auto/Half tone	1 - 99	50	45	
H	EXPOSURE1 H_TONE	Super Fine/Exposure 1 /Half tone	1 - 99	50	45	
I	EXPOSURE2 H_TONE	Super Fine/Exposure 2 /Half tone	1 - 99	50	45	
J	EXPOSURE3 H_TONE	Super Fine/Exposure 3 /Half tone	1 - 99	50	45	
K	EXPOSURE4 H_TONE	Super Fine/Exposure 4 /Half tone	1 - 99	50	45	
L	EXPOSURE5 H_TONE	Super Fine/Exposure 5 /Half tone	1 - 99	50	45	
M	EXECUTE MODE	Print mode	1 - 12	1	1 (AUTO)	
		AUTO				
		EXP1			2	
		EXP2			3	
		EXP3			4	
		EXP4			5	
		EXP5			6	
		AUTO H_TONE			7	
		EXP1 H_TONE			8	
		EXP2 H_TONE			9	
		EXP3 H_TONE			10	
		EXP4 H_TONE			11	
		EXP5 H_TONE			12	

\*1: MX-M283/M363/M453/M503

\*2: MX-M282/M362/M452/M502

To check the adjustment density level of items A - L, set the document and set the setting value of item M according to items A - L, and press [EXECUTE] key.



<b>46-44</b>	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the FAX send image density. (Ultra fine)

#### Section

#### Operation/Procedure

- 1) Set the original on the original table.
- 2) Enter the set value with 10-key.
- 3) Press [EXECUTE] key, or [OK] key  
When [EXECUTE] key is pressed, the adjustment value is set and the scanned document image is outputted.

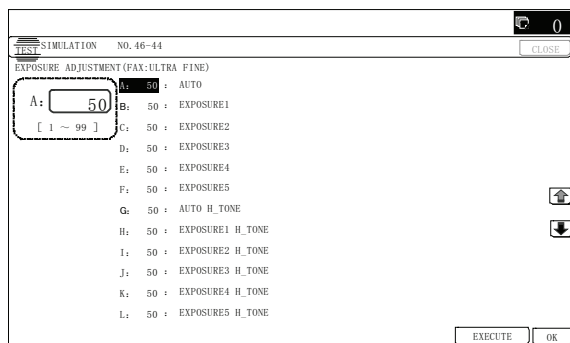
Item/Display		Content	Setting range		Default value	
					*1	*2
A	AUTO	Ultra Fine/Auto	1 - 99	50	45	
B	EXPOSURE1	Ultra Fine/Exposure 1	1 - 99	50	45	
C	EXPOSURE2	Ultra Fine/Exposure 2	1 - 99	50	45	
D	EXPOSURE3	Ultra Fine/Exposure 3	1 - 99	50	45	
E	EXPOSURE4	Ultra Fine/Exposure 4	1 - 99	50	45	
F	EXPOSURE5	Ultra Fine/Exposure 5	1 - 99	50	45	
G	AUTO H_TONE	Ultra Fine/Auto/Half tone	1 - 99	50	45	
H	EXPOSURE1 H_TONE	Ultra Fine/Exposure 1/Half tone	1 - 99	50	45	
I	EXPOSURE2 H_TONE	Ultra Fine/Exposure 2/Half tone	1 - 99	50	45	
J	EXPOSURE3 H_TONE	Ultra Fine/Exposure 3/Half tone	1 - 99	50	45	
K	EXPOSURE4 H_TONE	Ultra Fine/Exposure 4/Half tone	1 - 99	50	45	
L	EXPOSURE5 H_TONE	Ultra Fine/Exposure 5/Half tone	1 - 99	50	45	

Item/Display			Content		Setting range		Default value	
							*1	*2
M	EXECUTE MODE	AUTO	Print mode	Ultra Fine/ Auto	1 - 12	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		

\*1: MX-M283/M363/M453/M503

\*2: MX-M282/M362/M452/M502

To check the adjustment density level of items A - L, set the document and set the setting value of item M according to items A - L, and press [EXECUTE] key.



46-45

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the FAX send image density. (600dpi).

#### Section

#### Operation/Procedure

- 1) Set the original on the original table.
- 2) Enter the set value with 10-key.
- 3) Press [EXECUTE] key, or [OK] key

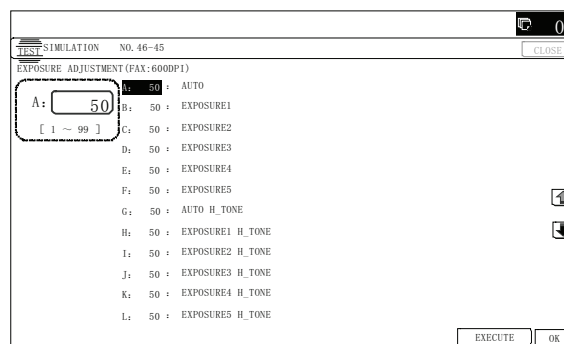
When [EXECUTE] key is pressed, the adjustment value is set and the scanned document image is outputted.

Item/Display			Content	Setting range		Default value	
						*1	*2
A	AUTO		600dpi/Auto	1 - 99	50	45	
B	EXPOSURE1		600dpi/Exposure 1	1 - 99	50	45	
C	EXPOSURE2		600dpi/Exposure 2	1 - 99	50	45	
D	EXPOSURE3		600dpi/Exposure 3	1 - 99	50	45	
E	EXPOSURE4		600dpi/Exposure 4	1 - 99	50	45	
F	EXPOSURE5		600dpi/Exposure 5	1 - 99	50	45	
G	AUTO H_TONE		600dpi/Auto /Half tone 1	1 - 99	50	45	
H	EXPOSURE1 H_TONE		600dpi/Exposure 1 /Half tone	1 - 99	50	45	
I	EXPOSURE2 H_TONE		600dpi/Exposure 2 /Half tone	1 - 99	50	45	
J	EXPOSURE3 H_TONE		600dpi/Exposure 3 /Half tone	1 - 99	50	45	
K	EXPOSURE4 H_TONE		600dpi/Exposure 4 /Half tone	1 - 99	50	45	
L	EXPOSURE5 H_TONE		600dpi/Exposure 5 /Half tone	1 - 99	50	45	
M	EXECUTE MODE	AUTO	Print mode	600dpi/Auto	1 - 12	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	

\*1: MX-M283/M363/M453/M503

\*2: MX-M282/M362/M452/M502

To check the adjustment density level of items A - L, set the document and set the setting value of item M according to items A - L, and press [EXECUTE] key.



<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the compression rate of copy and scan images (JPEG).

**Section****Operation/Procedure**

- 1) Select a target item with [↑] [↓] keys on the touch panel.
- 2) Enter the set value with 10-key.
- 3) Press [OK] key.

The set value is saved.

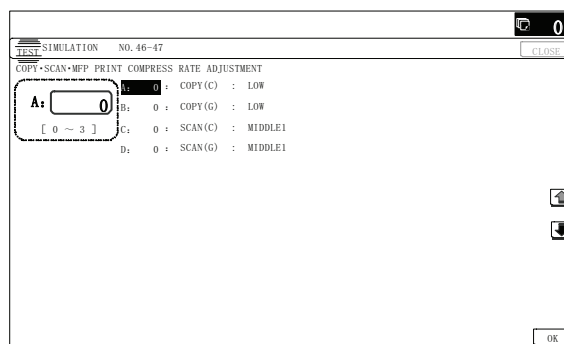
**[N model]**

Operation mode	Item/Display		Content	Setting range	Default value
(COLOR) (Document filing (COLOR mode))	A	COPY (C)	LOW	0	0 (LOW)
			MIDDLE	1	
			HIGH	2	
			LOWER	3	
COPY (GRAY) (Copy/Document filing (Monochrome half-tone mode))	B	COPY (G)	LOW	0	0 (LOW)
			MIDDLE	1	
			HIGH	2	
			LOWER	3	
PUSH SCAN (COLOR) (Scanner (Color mode))	C	SCAN (C) (*1)	MIDDLE 1	0	0 (MIDDLE 1)
			MIDDLE 2	1	
			MIDDLE 3	2	

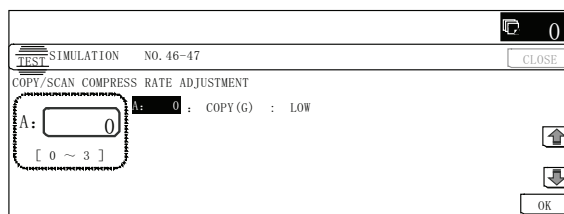
Operation mode	Item/Display		Content	Setting range	Default value
PUSH SCAN (GRAY) (Scanner (Monochrome half-tone mode))	D	SCAN (G) (*1)	MIDDLE 1	0	0 (MIDDLE 1)
			MIDDLE 2	1	
			MIDDLE 3	2	

\*1: Setting of compression rate for images when the image compression rate is set to "Medium" in the user mode.

NOTE: When the compression rate is increased, the HDD capacity in the document filing mode is decreased. On the other hand, however, the image quality of some documents may be remarkably reduced.

**[U model] (Enable when the HDD is installed)**

Operation mode	Item/Display		Content	Setting range	Default value
COPY (GRAY) (Copy gray) (Scanner (Monochrome half-tone mode))	A	COPY (G)	LOW	0	0 (LOW)
			MIDDLE	1	
			HIGH	2	
			LOWER	3	



<b>46-48</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the output resolution in each copy mode. (MX-M283N/M363N/M453N/M503N only)

#### Section

#### Operation/Procedure

- 1) Select the output resolution of each copy mode with the key.  
In order to change the reproducibility of line images, change this setting.

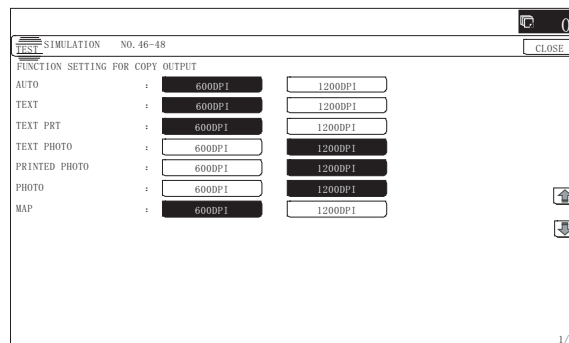
600dpi mode: Line images becomes thicker. The reproducibility of line images is increased.

1200dpi mode: Line images are reproduced finer than 600dpi mode.

Item	Button display	Content	Default value
AUTO	600DPI	Automatic	600DPI
	1200DPI*		
TEXT	600DPI	Text	600DPI
	1200DPI*		
TEXT PRT	600DPI	Text printed photo	600DPI
	1200DPI*		

Item	Button display	Content	Default value
TEXT PHOTO	600DPI	Text photograph	1200DPI
	1200DPI*		
PRINTED PHOTO	600DPI	Printed photo	1200DPI
	1200DPI*		
PHOTO	600DPI	Photograph	1200DPI
	1200DPI*		
MAP	600DPI	Map	600DPI
	1200DPI*		

\* The 1200dpi mode is available only for the MX-M283N/M363N/M453N/M503N.



<b>46-51</b>	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the gamma for the copy mode heavy paper mode and the image process mode (manual adjustment).

#### Section

#### Operation/Procedure

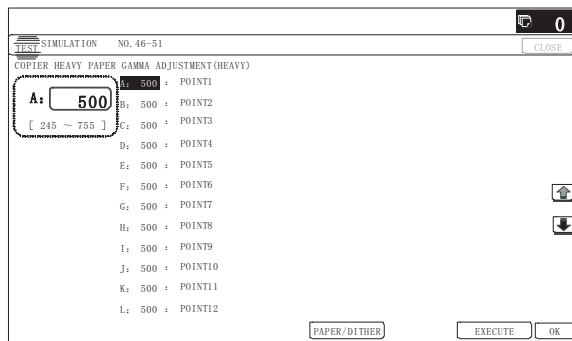
- 1) Select a target adjustment mode with the touch panel key [PAPER/DITHER].
- 2) Select a target adjustment density level with [↑] [↓] key on the touch panel.
- 3) Enter the set value with 10-key.
- 4) Press [EXECUTE] key, or [OK] key.  
When [EXECUTE] key is pressed, the self print image is out-putted.  
A4R (11" x 8.5"R) paper is selected by priority. If there is no A4R (11" x 8.5"R) paper, A3 (11" x 17") paper is selected.

When the image density is insufficient or a background copy is made in heavy paper copy, change this adjustment value to adjust the image density.

Item/Display	Content	
HEAVY	Heavy paper	
600ED	Error diffusion (600dpi)	
1200ED (MX-M283N/M363N/M453N/M503N only)	Error diffusion (1200dpi)	
DITH1	600dpi Dither	For PRINTED PHOTO / PHOTO MODE
DITH2 (MX-M283N/M363N/M453N/M503N only)	1200dpi dither	For TEXT PRINTED PHOTO / TEXT PHOTO / PRINTED PHOTO MODE
DITH3 (MX-M283N/M363N/M453N/M503N only)	1200dpi dither	For PHOTO MODE

Item/Display	Density level (Point)	Setting range	HEAVY	600ED	1200ED	DITH1	DITH2	DITH3
A POINT1	Point 1	245 - 755	500	500	500	500	500	500
B POINT2	Point 2	245 - 755	500	500	507	500	517	514
C POINT3	Point 3	245 - 755	500	501	526	499	523	525
D POINT4	Point 4	245 - 755	500	501	537	499	525	527
E POINT5	Point 5	245 - 755	500	502	564	498	533	531
F POINT6	Point 6	245 - 755	500	503	579	498	540	532
G POINT7	Point 7	245 - 755	500	508	594	498	549	529
H POINT8	Point 8	245 - 755	500	513	579	508	526	506
I POINT9	Point 9	245 - 755	500	489	522	519	481	473
J POINT10	Point 10	245 - 755	500	465	451	532	459	491
K POINT11	Point 11	245 - 755	500	451	398	528	483	522
L POINT12	Point 12	245 - 755	500	437	357	546	492	555
M POINT13	Point 13	245 - 755	500	416	325	567	474	543
N POINT14	Point 14	245 - 755	500	410	306	558	449	511
O POINT15	Point 15	245 - 755	500	408	303	536	425	477
P POINT16	Point 16	245 - 755	500	500	500	500	500	500
Q POINT17	Point 17	245 - 755	500	500	500	500	500	500





46-52

#### Purpose

Data clear/Reset

#### Function (Purpose)

Used to set the gamma default for the copy mode heavy paper and the image process mode. (The set values of SIM46-51 are set to the default values.)

#### Section

#### Operation/Procedure

- 1) Select an item to be set to the default with the touch panel key.  
To reset the adjustment values of all the items, select [ALL].
- 2) Press [EXECUTE] key.
- 3) Press [YES] key.
- 4) Press [EXECUTE] key.

Item/Display	Content	
HEAVY	Heavy paper	
600ED	Error diffusion (600dpi)	
1200ED (MX-M283N/M363N/M453N/M503N only)	Error diffusion (1200dpi)	
DITH1	600dpi Dither	For PRINTED PHOTO / PHOTO MODE
DITH2 (MX-M283N/M363N/M453N/M503N only)	1200dpi dither	For TEXT PRINTED PHOTO / TEXT PHOTO / PRINTED PHOTO MODE
DITH3 (MX-M283N/M363N/M453N/M503N only)	1200dpi dither	For PHOTO MODE



46-61

#### Purpose

Adjustment

#### Function (Purpose)

Used to adjust the area separation recognition level in the image send mode (color, gray, auto exposure mode). (N model only)

#### Section

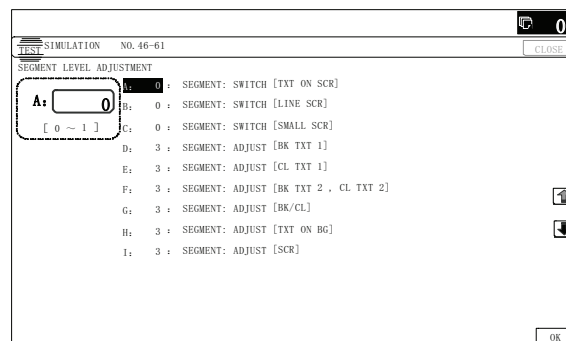
#### Operation/Procedure

- 1) Select a target adjustment item with [↑] [↓] key on the touch panel.
- 2) Enter the adjustment value using the 10-key.
- 3) Press [OK] key.

NOTE: The set value may be changed for a design change or an individual arrangement. Except for the above cases, however, the set value must not be changed. If it is changed, a trouble may be occur.

When the adjustment value is changed greatly from the initial value, an image quality trouble may occur.

	Item/Display	Content	Setting range	Default value
A	SEGMENT: SWITCH [TXT ON SCR]	Detection ON/OFF: Text on dot	0 - 1	0
B	SEGMENT: SWITCH [LINE SCR]	Detection ON/OFF: line screen	0 - 1	0
C	SEGMENT: SWITCH [SMALL SCR]	Detection ON/OFF: Dot in a small area	0 - 1	0
D	SEGMENT: ADJUST [BK TXT 1]	Detection level adjustment: Black text 1	1 - 5	3
E	SEGMENT: ADJUST [CL TXT 1]	Detection level adjustment: Color text 1	1 - 5	3
F	SEGMENT: ADJUST [BK TXT 2, CL TXT 2]	Detection level adjustment: Black text 2, Color text 2	1 - 5	3
G	SEGMENT: ADJUST [BK/CL]	Detection level adjustment: Chroma/Achroma judgment	1 - 5	3
H	SEGMENT: ADJUST [TXT ON BG]	Detection level adjustment: Text on background	1 - 5	3
I	SEGMENT: ADJUST [SCR]	Detection level adjustment: Dot	1 - 5	3



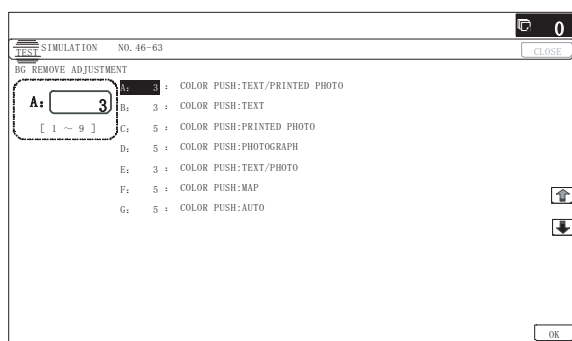
<b>46-63</b>	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the density in the low density area of a scan image. (N model only)
<b>Section</b>	

#### Operation/Procedure

- 1) Select a target adjustment item with [↑] [↓] key on the touch panel.
- 2) Enter the adjustment value using the 10-key.
- 3) Press [OK] key.

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

Item/Display	Content	Setting range	Default value
A	COLOR PUSH: TEXT/PRINTED PHOTO	Text print (Color PUSH)	1 - 9 3
B	COLOR PUSH: TEXT	Text (Color PUSH)	1 - 9 3
C	COLOR PUSH: PRINTED PHOTO	Printed photo (Color PUSH)	1 - 9 5
D	COLOR PUSH: PHOTOGRAPH	Photograph (Color PUSH)	1 - 9 5
E	COLOR PUSH: TEXT/PHOTO	Text photograph (Color PUSH)	1 - 9 3
F	COLOR PUSH: MAP	Map (Color PUSH)	1 - 9 5
G	COLOR PUSH: AUTO	Automatic (Color PUSH)	1 - 9 5

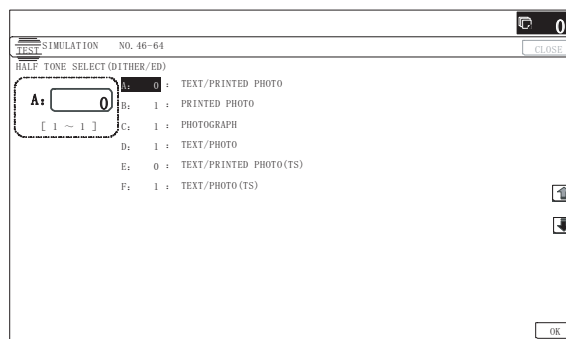


<b>46-64</b>	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to set the image process mode in each copy mode.
<b>Section</b>	

#### Operation/Procedure

- 1) Select a target mode of setting with [↑] [↓] key on the touch panel.
  - 2) Enter the set value with 10-key.
  - 3) Press [OK] key.
- 0: Error diffusion process      1: Dither pattern process

Item/Display	Content	Setting range	Default value
A	TEXT/PRINTED PHOTO	Text print	0 - 1 0
B	PRINTED PHOTO	Printed photo	0 - 1 1
C	PHOTOGRAPH	Photograph	0 - 1 1
D	TEXT/PHOTO	Text photograph	0 - 1 1
E	TEXT/PRINTED PHOTO (TS)	Text print: Toner save	0 - 1 0
F	TEXT/PHOTO (TS)	Text photograph: Toner save	0 - 1 1



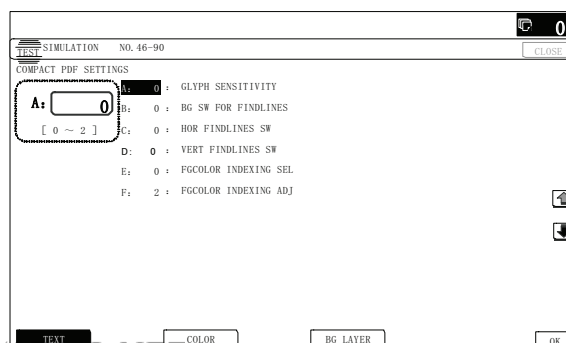
<b>46-90</b>	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to set the process operation of high-compression PDF images. (N model only)
<b>Section</b>	

#### Operation/Procedure

- 1) Select a target adjustment mode with [TEXT], [COLOR] and [BG LAYER] keys.
- 2) Select a target adjustment item with [↑] [↓] key.
- 3) Enter the set value with 10-key.
- 4) Press [OK] key.

The set value is saved.

Item	Button	Display	Content	Setting range	Default value
A	TEXT	GLYPH SENSITIVITY	Text handling selection	0 - 2	0
B		BG SW FOR FINDLINES	Line handling selection	0 - 1	0
C		HOR FINDLINES SW	Line detection SW (H)	0 - 2	0
D		VERT FINDLINES SW	Line detection SW (V)	0 - 2	0
E		FGCOLOR INDEXING SEL	Text color number adjustment SW	0 - 3	0
F		FGCOLOR INDEXING ADJ	Text color adjustment	0 - 4	2
A	COLOR	LUMINANCE ADJUSTMENT	Luminance adjustment	0 - 4	2
B		CHROMA INTENT	Chroma selection	0 - 2	1
C		NEUTRAL ADJUSTMENT	Neutral adjustment	0 - 2	0
D		R-RATIO ADJUSTMENT	Gray scale adjustment (R)	0 - 1000	299
E		G-RATIO ADJUSTMENT	Gray scale adjustment (G)	0 - 1000	587
A	BG LAYER	BG LAYER INTENT 1	Speed priority setting	0 - 2	1
B		BG LAYER INTENT 2	Image quality priority setting	0 - 2	1



48-1

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the scan image magnification ratio (in the main scanning direction and the sub scanning direction).

<b>Section</b>	Scanner
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**Operation/Procedure**

- 1) Select a target adjustment item with [↑] [↓] key on the touch panel.
- 2) Enter the set value with 10-key.
- 3) Press [OK] key.

The set value is saved.

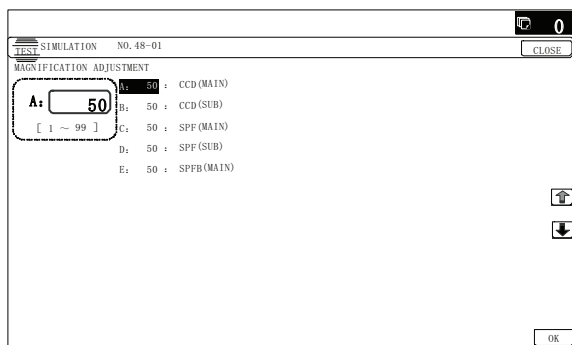
When the adjustment value is increased, the image magnification ratio is increased.

A change of "1" in the adjustment value of item A, C or E corresponds to a change of about 0.02% in the copy magnification ratio.

A change of "1" in the adjustment value of item B, D or F corresponds to a change of about 0.1% in the copy magnification ratio.

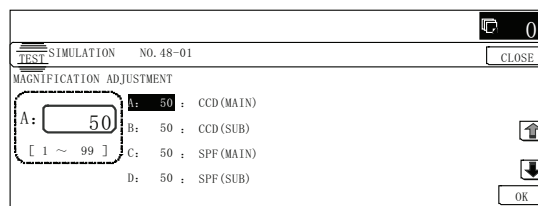
**[DSPF-installed model]**

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

**[RSPF-installed model]**

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

Item/Display	Content	Setting range	Default value
E	SPFB(MAIN)	RSPF document back surface magnification ratio adjustment (Main scan)	1 - 99
F	SPFB(SUB)	RSPF document back surface magnification ratio adjustment (Sub scan)	1 - 99



48-5

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to correction the scan image magnification ratio (in the sub scanning direction).
<b>Section</b>	Scanner

**Operation/Procedure**

- 1) Select a target adjustment item with [↑] [↓] key on the touch panel.
- 2) Enter the set value with 10-key.
- 3) Press [OK] key.

The set value is saved.

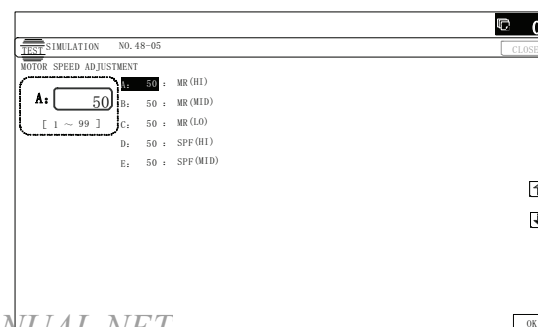
When the image magnification ratio in the sub scanning direction is adjusted with SIM48-1, and a different magnification ratio is specified, and the image magnification ratio is not satisfactory, perform this adjustment.

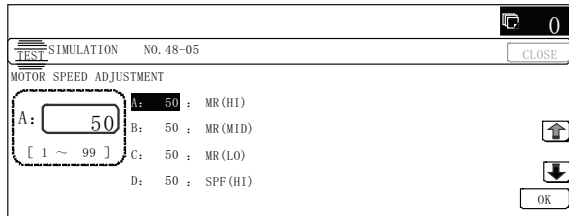
When there is an error in the image magnification ratio in reduction, change the adjustment value in the high speed mode. When there is an error in the image magnification ratio in enlargement, change the adjustment value in the low speed mode.

Item/Display	Content	Setting range	Default value
A	MR (HI)	Scanner motor (High speed)	1 - 99
B	MR(MID)	Scanner motor (Reference speed)	1 - 99
C	MR(LO)	Scanner motor (Low speed)	1 - 99
D	SPF(HI)	Document feed (SPF) motor (High speed)	1 - 99
E	SPF(MID)	Document feed (SPF) motor (Reference speed)	1 - 99

**Scan speed**

Unit	Reference speed		
	HI	MID	LO
OC	346.0mm/s	173.0mm/s	86.5mm/s
RSPF	259.5mm/s	173.0mm/s	—
DSPF	346.0mm/s	173.0mm/s	—

**[DSPF-installed model]**



48-6

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the rotation speed of each motor.
<b>Section</b>	

**Operation/Procedure**

- 1) Select a target adjustment item with [↑] [↓] key on the touch panel.
- 2) Enter the set value with 10-key.
- 3) Press [OK] key.  
The set value is saved.

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

Item/Display	Content	Setting range	Default value
A RRM	Resist motor correction value	1 - 99	47
B DVM_K (DM)	Developing K motor correction value	1 - 99	41
C FSM (FUM)	Fusing motor correction value	1 - 99	56
D PFM	Paper transport motor correction value	1 - 99	50
E POM	Paper exit motor correction value	1 - 99	51
F FUSER SETTING	Fusing speed select timing	1 - 99	50
G RRM START	RRM speed increasing start timing	0 - 255	0
H RRM END	RRM speed increasing end timing	0 - 255	38

NOTE: This must be set to the default unless any change is specially required.

When the adjustment value is set to a value greatly different from the default value, a jam, paper wrinkle, or image quality trouble may occur.



49-1

<b>Purpose</b>	Version upgrade
<b>Function (Purpose)</b>	Used to perform the firmware update.
<b>Section</b>	

**Operation/Procedure**

- 1) Save the firmware to the USB memory.
- 2) Insert the USB memory into the main unit. (Use USB I/F of the operation panel section.)
- 3) Select a target firmware file for update with the touch panel.
- 4) Select a target firmware.  
Press [ALL] key to select all the Firmware collectively.
- 5) Press [EXECUTE] key.
- 6) Press [YES] key.

The selected firmware is updated.

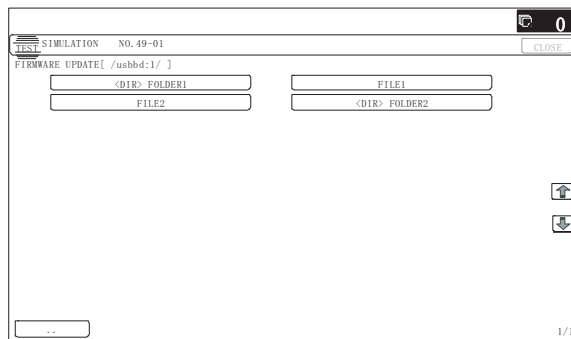
When the operation is normally completed, "COMPLETE" is displayed. When terminated abnormally, "ERROR" is displayed.

Item/Display	Content
CONFIG	Configuration data
ICU (MAIN)	ICU Main section former half
ICU (BOOTM)	ICU Boot section main
ICU (BOOTCN)	ICU Boot section CN
LANGUAGE	Language support data program (General term)
GRAPHIC	Graphic data for L-LCD
SLIST	SLIST data for L-LCD
PCU (BOOT)	PCU Boot section
PCU (MAIN)	PCU Main section
DESK (BOOT)	Desk unit BOOT section
DESK (MAIN)	Desk unit MAIN section
A4LCC (BOOT)	Side LCC (A4) Boot section
A4LCC (MAIN)	Side LCC (A4) main section
FIN (BOOT)	Inner finisher BOOT section
FIN (MAIN)	Inner finisher MAIN section
1KFIN (BOOT)	1K finisher Boot section
1KFIN (MAIN)	1K finisher Main section
4KFIN (BOOT)	4K finisher Boot section
4KFIN (MAIN)	4K finisher Main section
1KPUNCH (BOOT)	Punch unit Boot section for 1K finisher
1KPUNCH (MAIN)	Punch unit Main section for 1K finisher
4KPUNCH (BOOT)	Punch unit Boot section for 4K finisher
4KPUNCH (MAIN)	Punch unit Main section for 4K finisher
SCU (BOOT)	SCU Boot section
SCU (MAIN)	SCU Main section
DSPF (BOOT)	DSPF Boot section (DSPF-installed model only)
DSPF (MAIN)	DSPF Main section (DSPF-installed model only)
FAX (BOOT)	FAX1 Boot section
FAX (MAIN)	FAX1 Main section
ESCP_FONT	ESC/P font
PDL_FONT	PDL font
ANIMATION	Animation data
IMAGE_DATA	MFP ASIC data
WEB_HELP	WEB help
UNICODE	UNICODE table
ACRE (BOOT)	ACRE Boot section (N model only)
ACRE (MAIN)	ACRE Main section (N model only)
ACRE_DATA	ACRE table (N model only)

List of error displays in case of abnormal end

Item/Display	Content
CONF	Configuration data
ICUM	ICU Main section former half
ICUBM	ICU Boot section main
ICUCN	ICU Boot section CN
LANG	Language support data program (General term)

Item/Display	Content
GRAPH	Graphic data for L-LCD
SLIST	SLIST data for L-LCD
PCUB	PCU Boot section
PCUM	PCU Main section
DESKB	Desk unit BOOT section
DESKM	Desk unit MAIN section
LCC4B	Side LCC (A4) Boot section
LCC4M	Side LCC (A4) main section
FINB	Inner finisher BOOT section
FINM	Inner finisher MAIN section
FIN1B	1K finisher Boot section
FIN1M	1K finisher Main section
FIN4B	4K finisher Boot section
FIN4M	4K finisher Main section
1PUNB	Punch unit Boot section for 1K finisher
1PUNM	Punch unit Main section for 1K finisher
4PUNB	Punch unit Boot section for 4K finisher
4PUNM	Punch unit Main section for 4K finisher
SCUB	SCU Boot section
SCUM	SCU Main section
DSPFB	DSPF Boot section (DSPF-installed model only)
DSPFM	DSPF Main section (DSPF-installed model only)
FAXB	FAX1 Boot section
FAXM	FAX1 Main section
ESCP	ESC/P font
PDL	PDL font
ANIME	Animation data
IMGDT	Image ASIC data
WEBHP	WEB help
UNICD	UNICODE table
ACREB	ACRE Boot section (N model only)
ACREM	ACRE Main section (N model only)
ACRED	ACRE table (N model only)



49-3

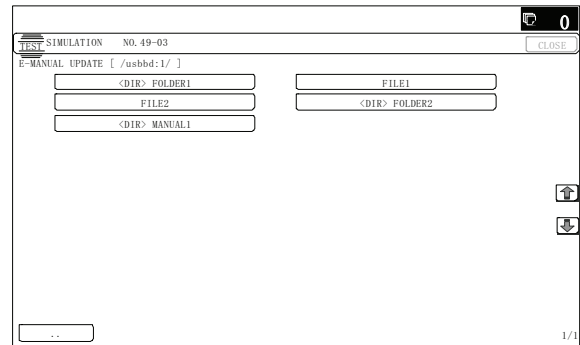
<b>Purpose</b>	Install
<b>Function (Purpose)</b>	Used to install and update the Operation Manual data stored in the HDD. (N model only)

#### Section

#### Operation/Procedure

- 1) Insert the USB memory into the main unit.  
\* When the USB is not inserted, "INSERT A STORAGE E-MANUAL STORED ON" is displayed. When [OK] key is pressed, the display is shifted to the folder select menu 1.
- 2) Press the folder button of the operation manual data. (The display is shifted to the operation manual update menu.)  
The current version and the update version are displayed.
- 3) Press [EXECUTE] key.  
[EXECUTE] key is highlighted, and [YES] [NO] keys becomes active from gray out.
- 4) When [YES] key is pressed, the selected operation manual is updated.

When update is completed normally, "COMPLETE" is displayed. When terminated abnormally, "ERROR" is displayed.



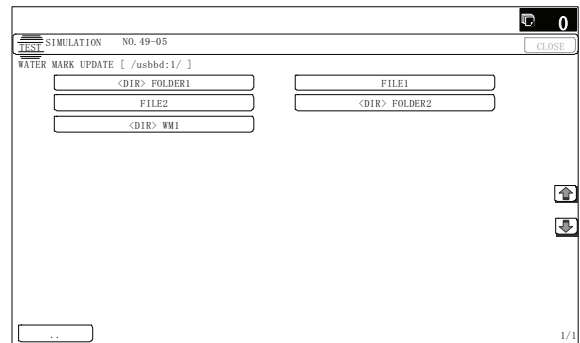
49-5

<b>Purpose</b>	Install
<b>Function (Purpose)</b>	Used to install and update the watermark data stored in the HDD.

#### Section

#### Operation/Procedure

- 1) Insert the USB memory into the main unit.
- 2) Select the button of the folder to perform the watermark update.
- 3) The current version and the update version are displayed.
- 4) Press [EXECUTE] key.
- 5) Press [YES] key.  
The selected watermark is updated.



50

50-1

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Copy image position, image loss adjustment

#### Section

#### Operation/Procedure

- 1) Select an adjustment target item with [↑] [↓] key on the touch panel.
- 2) Enter the set value with 10-key.  
Set the items other than RRCA, LEAD, and SIDE to the default.  
RRCA: Image lead edge reference position adjustment  
LEAD: Lead edge image loss adjustment  
SIDE: Side image loss adjustment
- 3) Press [OK] key. (The set value is saved.)

Item/Display		Content	Setting range	Default value
A	Lead edge adjustment value	RCCA	Document lead edge reference position (OC)	0 - 99
B		RRCB-CS12	Resist motor ON	1 - 99
C		RRCB-CS34	Desk	1 - 99
D		RRCB-LCC	LCC	1 - 99
E		RRCB-MFT	Manual paper feed	1 - 99
F		RRCB-ADU	ADU	1 - 99
G	Image loss area setting value	LEAD	Lead edge image loss area setting	0 - 99
H		SIDE	Side image loss area adjustment	0 - 99
I	Void area adjustment	DENA	Lead edge void area adjustment	1 - 99
J		DENB	Rear edge void area adjustment	1 - 99
K		FRONT/REAR	FRONT/REAR void area adjustment	1 - 99
L	Off-center adjustment	OFFSET_OC	OC document off-center adjustment	1 - 99
M	Magnification ratio correction	SCAN_SPEED_OC	SCAN sub scanning magnification ratio adjustment (CCD)	1 - 99
N	Sub scanning direction print area correction value	DENB-MFT	Manual feed correction value	1 - 99
O		DENB-CS1	Tray 1 correction value	1 - 99
P		DENB-CS2	Tray 2 correction value	1 - 99
Q		DENB-CS3	Tray 3 correction value	1 - 99
R		DENB-CS4	Tray 4 correction value	1 - 99
S		DENB-LCC	LCC correction value	1 - 99
T		DENB-ADU	ADU correction value	1 - 99

A. (RRC-A) Timing from starting document scanning to specifying the image lead edge reference is adjusted. (0.1mm/step)

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

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

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

G. (LEAD) The lead edge image loss amount is adjusted. (0.1mm/step)

- \* When the value is increased, the image loss is increased.

H. (SIDE) The side image loss amount is adjusted.

- \* When the value is increased, the image loss is increased. (0.1mm/step)

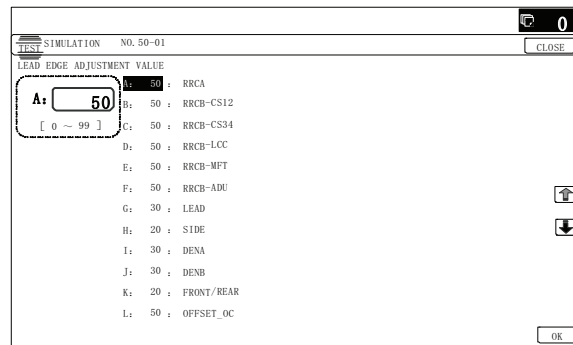
I. (DEN-A) The paper lead edge void amount is adjusted. (0.1mm/step)

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

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

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

K. (FRONT/REAR) The void amount on the right and left edges of paper is adjusted. (0.1mm/step)



## 50-2

### Purpose

Adjustment

### Function (Purpose)

Used to adjust the copy image position and the image loss (simple adjustment).

### Section

#### Operation/Procedure

- 1) Set item A (L1) and item B (L2) to 0.
- 2) Place a rule on the left edge of the document table, and make a copy at a magnification ratio of 400%.
- 3) Measure the length of L1 and L2 on the copied image in the unit of 0.1mm (referring to the figure below). Enter the adjustment values of L1 x 10 and L2 x 10. Be sure to enter the both adjustment values of L1 and L2.

L1: Distance from the lead edge of the copied image to 10mm scale.

L2: Distance from the paper lead edge to the copy image lead edge.

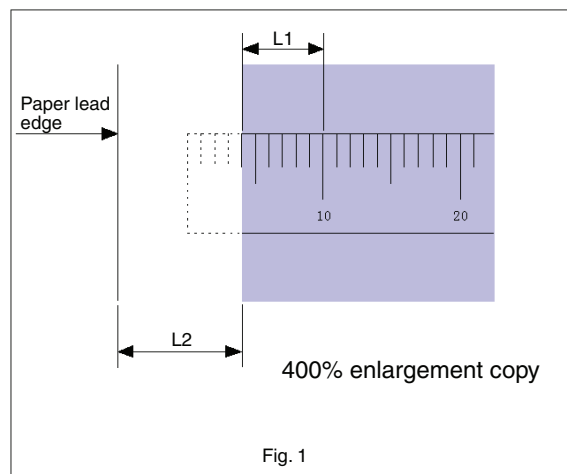


Fig. 1

- 4) Press [EXECUTE] key. (The set value is saved.)
- 5) Make a copy at the magnification ratio of 100%, and adjust the rear edge void.

Item/Display		Description	Setting range	Default value
A	Actual measurement value	L1	Distance from the image lead edge to the scale of 10mm. (Platen 400%, 0.1mm increment)	0 - 999
B		L2	Distance from the paper lead edge to the image lead edge (0.1mm increment)	0

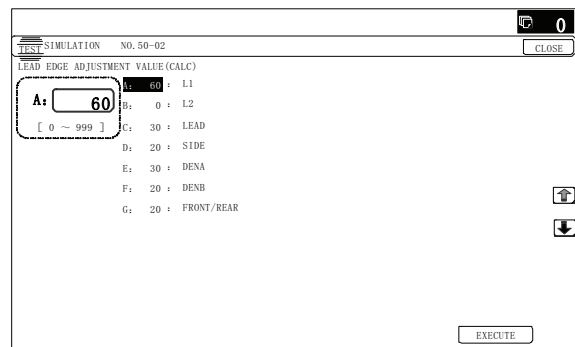


Item/Display			Description	Setting range	Default value
C	Image loss area setting value	LEAD	Lead edge image loss amount setting (When the adjustment value is increased, the image loss is increased.)	0 - 99	30
D		SIDE	Side edge image loss amount setting (When the adjustment value is increased, the image loss is increased.)	0 - 99	20
E	Void area adjustment	DENA	Lead edge void area adjustment (When the adjustment value is increased, the void is increased.)	1 - 99	30
F		DENB	Rear edge void area adjustment (When the adjustment value is increased, the void is increased.)	1 - 99	30
G		FRONT/REAR	FRONT/REAR void amount adjustment (When the adjustment value is increased, the void is increased.)	1 - 99	20

Same as the adjusted items of SIM50-01 except for A and B.

The values adjusted with A and B are reflected to the document lead edge reference position (RRC-A) of SIM50-01 and all the paper lead edge positions (RRCB-\*\*).

All adjustment items: 1 step = 0.1mm change



#### 50-5

#### Purpose

Adjustment

#### Function (Purpose)

Used to adjust the print lead edge image position. (PRINTER MODE)

#### Section

#### Operation/Procedure

- 1) Select a target adjustment item (DEN-C) with [↑] [↓] key on the touch panel.
- 2) Enter the adjustment value using the 10-key.
- 3) Press [EXECUTE] key.

The set value is saved, and the adjustment check pattern is printed.

- 4) Measure the distance from the paper lead edge the adjustment pattern to the image lead edge, and check to confirm that it is in the standard adjustment value range.

Standard reference value:  $3.0 \pm 2.0\text{mm}$

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

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

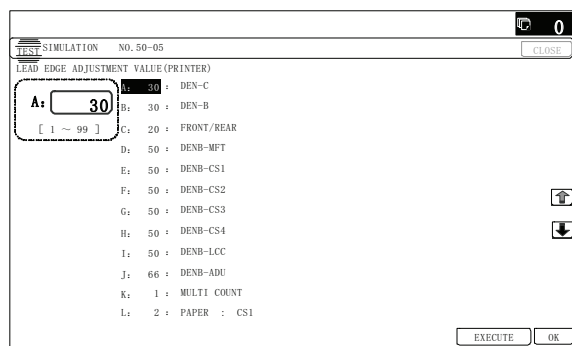
Item/Display		Content	Setting range	Default value	NOTE
A	DEN-C	Used to adjust the print lead edge image position. (PRINTER MODE)	1 - 99	30	Adjustment value too align the print lead edge for the printer. When the adjustment value of this item is decreased by 1, the printer print start position in the paper transport direction is shifted to the lead edge by 0.1mm.
B	DEN-B	Rear edge void area adjustment	1 - 99	30	Void amount generated at the paper rear edge. When the adjustment value of item B (DEN-B) is decreased by 1, the print area adjustment value in the sub scanning direction for the paper transport direction is decreased by 0.1mm.
C	FRONT/REAR	FRONT/REAR void area adjustment	1 - 99	20	Adjustment of the void amount generated on the left and right edges of paper. When the adjustment value is increased, the void amount is increased.
D	DENB-MFT	Manual feed rear edge void area adjustment correction value	1 - 99	50	Fine adjustment value of each paper feed source for the adjustment value of DEN-B
E	DENB-CS1	Tray 1 rear edge void area adjustment correction value	1 - 99	50	
F	DENB-CS2	Tray 2 rear edge void area adjustment correction value	1 - 99	50	
G	DENB-CS3	Tray 3 rear edge void area adjustment correction value	1 - 99	50	
H	DENB-CS4	Tray 4 rear edge void area adjustment correction value	1 - 99	50	
I	DENB-LCC	LCC rear edge void aria adjustment correction value	1 - 99	50	



Item/Display		Content		Setting range	Default value	NOTE
J	DENB-ADU	ADU rear edge void area adjustment correction value		1 - 99	66	
K	MULTI COUNT	Number of print		1 - 999	1	Adjustment pattern print conditions setting
L	PAPER	MFT	Tray selection	1 - 6	1	2 (CS1)
		CS1	Manual paper feed		2	
		CS2	Tray 1		3	
		CS3	Tray 2		4	
		CS4	Tray 3		5	
		LCC	Tray 4		6	
M	DUPLEX	YES	Duplex print selection	0 - 1	0	1 (NO)
		NO	No		1	

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

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



Item/Display			Content	Setting range	Default value
F	Image loss amount setting SIDE2	LEAD_EDGE (SIDE2)	Back surface lead edge image loss amount setting	0 - 99	30
G		FRONT_REAR (SIDE2)	Back surface side image loss amount setting	0 - 99	20
H		TRAIL_EDGE (SIDE2)	Back surface rear edge image loss amount setting	0 - 99	20
I	OFFSET_SPF1		DSPF front surface document off-center adjustment	1 - 99	50
J	OFFSET_SPF2		DSPF back surface document off-center adjustment	1 - 99	50
K	SCAN_SPEED_SPF1		DSPF document front surface magnification ratio adjustment (Sub scan)	1 - 99	50

50-6	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the copy image position and the image loss (DSPF/RSPF mode).
<b>Section</b>	

#### Operation/Procedure

- 1) Select an adjustment target item with [↑] [↓] key on the touch panel.
- 2) Enter the set value with 10-key.
- 3) Press [OK] key. (The set value is saved.)

#### [DSPF-installed model]

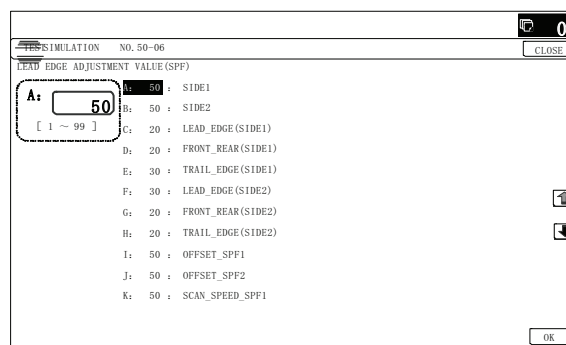
Item/Display		Content	Setting range	Default value
A	SIDE1	Front surface document scan position adjustment (CCD)	1 - 99	50
B	SIDE2	Back surface document scan position adjustment (CCD)	1 - 99	50
C	Image loss amount setting SIDE1	LEAD_EDGE (SIDE1)	0 - 99	20
D		FRONT_REAR (SIDE1)	0 - 99	20
E		TRAIL_EDGE (SIDE1)	0 - 99	30

Item A, B: When the adjustment value is increased, the scan timing is delayed.

Item C - H: When the adjustment value is increased, the image loss is increased.

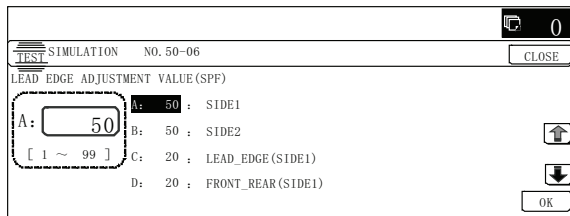
Item E - H: When a shadow image appears on the rear edge, increase the adjustment value to delete the shadow.

All adjustment items: 1 step = 0.1mm change



# [RSPF-installed model]

Item/Display		Content	Setting range	Default value
A	SIDE1	Front surface document scan position adjustment (CCD)	1 - 99	50
B	SIDE2	Back surface document scan position adjustment (CCD)	1 - 99	50
C	Image loss amount setting SIDE1	LEAD_EDGE (SIDE1)	0 - 99	20
D		FRONT_REAR (SIDE1)	0 - 99	20
E		TRAIL_EDGE (SIDE1)	0 - 99	30
F	Image loss amount setting SIDE2	LEAD_EDGE (SIDE2)	0 - 99	20
G		FRONT_REAR (SIDE2)	0 - 99	20
H		TRAIL_EDGE (SIDE2)	0 - 99	30
I	OFFSET_SPF1	RSPF front surface document off-center adjustment	1 - 99	50
J	OFFSET_SPF2	RSPF back surface document off-center adjustment	1 - 99	50
K	SCAN_SPEED_SPF1	RSPF document front surface magnification ratio adjustment (Sub scan)	1 - 99	50
L	SCAN_SPEED_SPF2	RSPF document back surface magnification ratio adjustment (Sub scan)	1 - 99	50



50-7

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the copy image position and the image loss (DSPF/RSPF mode) (simple adjustment).

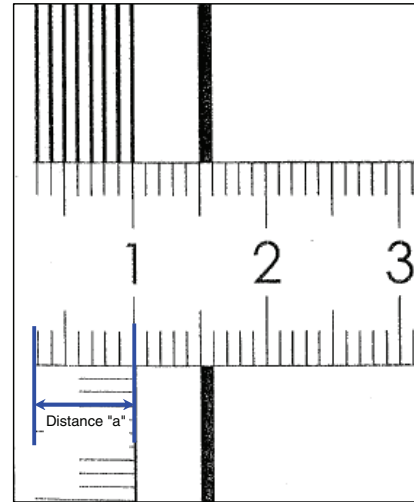
## Section

### Operation/Procedure

- 1) Select an adjustment target item with [ $\uparrow$ ] [ $\downarrow$ ] key on the touch panel.
- 2) Set item A (L4) and item B (L5) to 0.
- 3) Set the magnification ratio to 200%, and make a copy in the DSPF/RSPF duplex mode.
- 4) Measure the size of the printed image. Enter the actual measurement value of distance a (DSPF/RSPF) to L4 and L5 in the unit of 0.1mm.  
(Adjustment value "1" for 0.1mm)

L4: Distance a (DSPF/RSPF front surface: 200%) (unit: 0.1mm)

L5: Distance a (DSPF/RSPF back surface: 200%) (unit: 0.1mm)



- 5) Press [EXECUTE] key. (The set value is saved.)

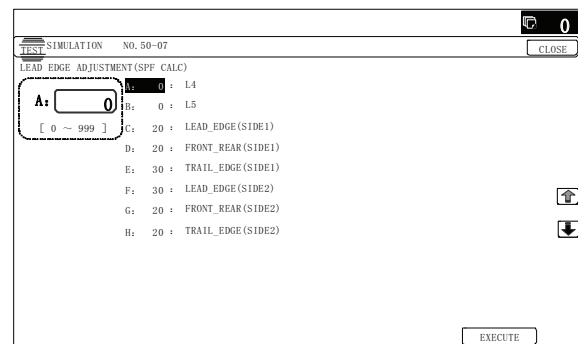
Item/Display		Content	Setting range	Default value
A	L4	Distance (SPF 200%, 0.1mm unit) from the front surface image lead edge to the scale of 10mm.	0 - 999	-
B	L5	Distance (SPF 200%, 0.1mm unit) from the back surface image lead edge to the scale of 10mm.	0 - 999	-
C	LEAD_EDGE (SIDE1)	Front surface lead edge image loss amount setting	0 - 99	20
D	FRONT_REAR (SIDE1)	Front surface side image loss amount setting	0 - 99	20
E	TRAIL_EDGE (SIDE1)	Front surface rear edge image loss amount setting	0 - 99	30
F	LEAD_EDGE (SIDE2)	Back surface lead edge image loss amount setting	0 - 99	DSPF: 30 RSPF: 20
G	FRONT_REAR (SIDE2)	Back surface side image loss amount setting	0 - 99	20
H	TRAIL_EDGE (SIDE2)	Back surface rear edge image loss amount setting (RSPF only)	0 - 99	DSPF: 20 RSPF: 30

Item C - H: When the adjustment value is increased, the image loss is increased.

All adjustment items: 1 step = 0.1mm change

Items C - H are linked with items C - H of SIM50-06.

### [DSPF-installed model]



[RSPF-installed model]

50-10

**Purpose**

Adjustment

**Function (Purpose)**

Used to adjust the image off-center position. (The adjustment is made separately for each paper feed section.)

**Section**

**Operation/Procedure**

- 1) Select an adjustment target item with [↑] [↓] key on the touch panel.
- 2) Enter the set value with 10-key.
- 3) Press [EXECUTE] key. (The set value is saved.)

Item/Display			Content		Setting range		Default value	NOTE
A	BK-MAG		Main scan print magnification ratio BK		60 - 140		100	Adjustment Item List
B	MAIN-MFT		Print off center adjustment value (Manual paper feed)		1 - 99		50	
C	MAIN-CS1		Print off center adjustment value (Tray 1)		1 - 99		50	
D	MAIN-CS2		Print off center adjustment value (Tray 2)		1 - 99		50	
E	MAIN-CS3		Print off center adjustment value (Tray 3)		1 - 99		50	
F	MAIN-CS4		Print off center adjustment value (Tray 4)		1 - 99		50	
G	MAIN-LCC		Print off center adjustment value (Large capacity tray)		1 - 99		50	
H	MAIN-ADU		Print off center adjustment value (Duplex) (NOTE) If the adjustment items A - G are not properly adjusted, this adjustment cannot be executed properly.		1 - 99		50	Adjustment Item List
I	SUB-MFT		Resist motor ON timing adjustment	Manual paper feed	1 - 99		50	
J	SUB-CS12			Standard cassette	1 - 99		50	
K	SUB-CS34			DESK	1 - 99		50	
L	SUB-LCC			LCC	1 - 99		50	
M	SUB-ADU			ADU	1 - 99		50	
N	MULTI COUNT		Number of print		1 - 999		1	Adjustment pattern print conditions setting
O	PAPER	MFT	Tray selection	Manual paper feed	1 - 6	1	2 (CS1)	
		CS1		Tray 1		2		
		CS2		Tray 2		3		
		CS3		Tray 3		4		
		CS4		Tray 4		5		
		LCC		LCC		6		
P	DUPLEX	YES	Duplex print selection	Yes	0 - 1	0	1 (NO)	
		NO	No	1				

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

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

All adjustment items: 1 step = 0.1mm change

<b>50-12</b>	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to perform the scan image off-center position adjustment. (The adjustment is made separately for each scan mode.)

### Section

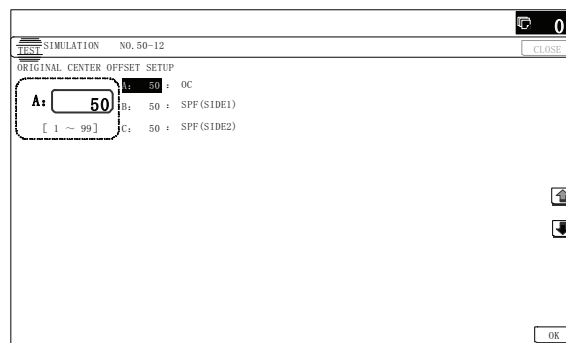
#### Operation/Procedure

- 1) Select an adjustment target item with [↑] [↓] key on the touch panel.
- 2) Enter the set value with 10-key.
- 3) Press [OK] key. (The set value is saved.)

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

1step = 0.1mm

Item/Display	Content	Setting range	Default value
A	OC	Document table image off-center adjustment	1 - 99
B	SPF(SIDE1)	SPF front surface image off-center adjustment	1 - 99
C	SPF(SIDE2)	SPF back surface image off-center adjustment	1 - 99



<b>50-27</b>	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to perform the image loss adjustment of scanned images in the FAX or image send mode.

### Section

#### Operation/Procedure

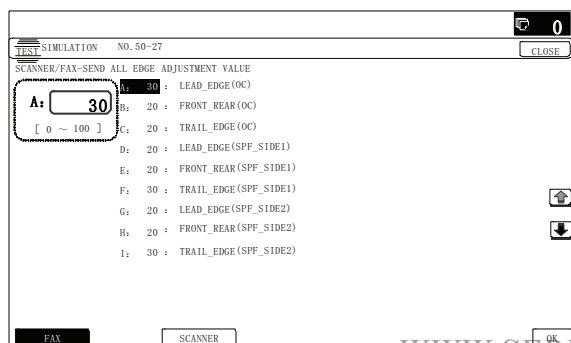
- 1) Select a target adjustment mode with [FAX] or [SCANNER] key.
- 2) Select an adjustment target item with [↑] [↓] key on the touch panel.
- 3) Enter the set value with 10-key.
- 4) Press [OK] key. (The set value is saved.)

Item/Display		Content	Setting range	Default value
FAX send	A	Image loss amount setting	LEAD_EDGE (OC)	OC lead edge image loss amount setting
	B	Image loss amount setting	FRONT_REAR (OC)	OC side image loss amount setting
	C	Image loss amount setting	TRAIL_EDGE (OC)	OC rear edge image loss amount setting
	D	Image loss amount setting	LEAD_EDGE (SPF_SIDE1)	Front surface lead edge image loss amount setting
	E	Image loss amount setting	FRONT_REAR (SPF_SIDE1)	Front surface side image loss amount setting
	F	Image loss amount setting	TRAIL_EDGE (SPF_SIDE1)	Front surface rear edge image loss amount setting
	G	Image loss amount setting	LEAD_EDGE (SPF_SIDE2)	Back surface lead edge image loss amount setting
	H	Image loss amount setting	FRONT_REAR (SPF_SIDE2)	Back surface side image loss amount setting
	I	Image loss amount setting	TRAIL_EDGE (SPF_SIDE2)	Back surface rear edge image loss amount setting
When image send mode (Except for FAX and copy)	A	Image loss amount setting	LEAD_EDGE (OC)	OC lead edge image loss amount setting
	B	Image loss amount setting	FRONT_REAR (OC)	OC side image loss amount setting
	C	Image loss amount setting	TRAIL_EDGE (OC)	OC rear edge image loss amount setting
	D	Image loss amount setting	LEAD_EDGE (SPF_SIDE1)	Front surface lead edge image loss amount setting
	E	Image loss amount setting	FRONT_REAR (SPF_SIDE1)	Front surface side image loss amount setting
	F	Image loss amount setting	TRAIL_EDGE (SPF_SIDE1)	Front surface rear edge image loss amount setting
	G	Image loss amount setting	LEAD_EDGE (SPF_SIDE2)	Back surface lead edge image loss amount setting
	H	Image loss amount setting	FRONT_REAR (SPF_SIDE2)	Back surface side image loss amount setting
	I	Image loss amount setting	TRAIL_EDGE (SPF_SIDE2)	Back surface rear edge image loss amount setting

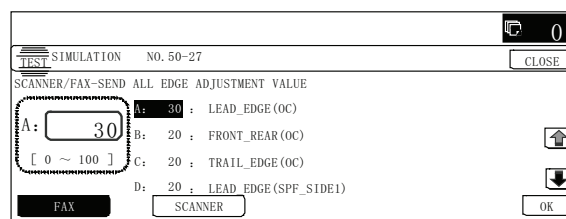
A-I: When the adjustment value is increased, the image loss is increased.

1step = 0.1mm

[DSPF-installed model]



[RSPF-installed model]



50-28

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to automatically adjust the image loss, void area, image off-center, and image magnification ratio.

**Section****Operation/Procedure**

The following adjustment items can be executed automatically with SIM50-28.

- \* Print image magnification ratio adjustment (Main scanning direction) (Print engine section)
- \* Image off-center adjustment (Print engine section)
- \* Scan image magnification ratio adjustment
- \* Scan image off-center adjustment
- \* Print area (void area) adjustment (Print engine section)
- \* Copy image position, image loss adjustment

Item/Display	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 (DSPF/RSPF mode)
SETUP/PRINT ADJ	Print lead edge adjustment, image off-center (each paper feed tray, duplex mode) adjustment
RESULT	Adjustment result display
DATA	Adjustment operation data display

**(1) Image loss off-center sub scan direction image magnification ratio adjustment (Document table mode)**

- 1) Select [OC ADJ] on the touch panel.
- 2) Select the paper tray to be used for the adjustment pattern print.
- 3) Press [EXECUTE] key, and the adjustment pattern is printed.
- 4) Set the adjustment pattern on the document table.
- 5) Press [EXECUTE] key, and the adjustment pattern is scanned.
- 6) Press [OK] key.

**(2) Main scan direction image magnification ration adjustment**

- 1) Select [BK-MAG ADJ] on the touch panel.
- 2) Select the paper tray to be used for the adjustment pattern print.
- 3) Press [EXECUTE] key, and the adjustment pattern is printed.
- 4) Set the adjustment pattern on the document table.
- 5) Press [EXECUTE] key, and the adjustment pattern is scanned.
- 6) Press [OK] key.

**(3) Image loss off-center sub scan direction image magnification ratio adjustment (DSPF/RSPF mode)**

- 1) Select [SPF ADJ] on the touch panel.
- 2) Select the adjustment mode; SIDE 1 (Front surface) or SIDE 2 (Back surface) or ALL (Both modes).
- 3) Select the paper tray to be used for the adjustment pattern print.
- 4) Press [EXECUTE] key, and the adjustment pattern is printed.
- 5) Set the adjustment pattern on the DSPF/RSPF.
- 6) Press [EXECUTE] key, and the adjustment pattern is scanned.  
When ALL is selected in the procedure 2), perform procedures 5) and 6) for both of the front surface and the back surface.
- 7) Press [OK] key.

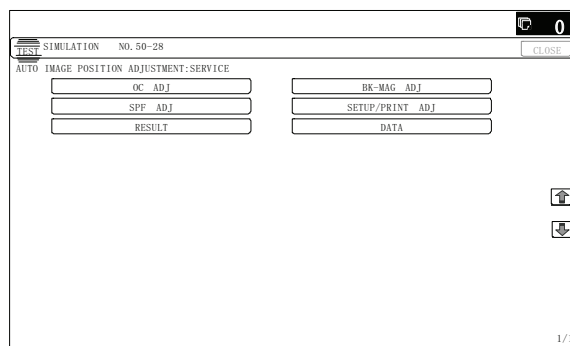
**(4) Print lead edge adjustment image off-center (Each paper feed tray, duplex mode) adjustment**

- 1) Select [SETUP/PRINT ADJ] on the touch panel.
- 2) Select the adjustment mode; LEAD (print lead edge adjustment) or OFF SET (image off-center) or ALL (both modes).
- 3) Select the paper feed tray for the adjustment pattern print. (Two or more trays can be selected.)
- 4) Press [EXECUTE] key, and the adjustment pattern is printed.
- 5) Set the adjustment pattern on the document table.
- 6) Press [EXECUTE] key, and the adjustment pattern is scanned.  
When two or more paper feed trays are selected in the procedure 3), perform procedures 5) and 6) for the adjustment pattern printed with each paper.
- 7) Press [OK] key.

RESCAN: The adjustment pattern is scanned.

REPRINT: The adjustment pattern is printed again.

RETRY: Shifts to the top menu.



51

51-2

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the contact pressure (deflection amount) on paper by the main unit and the DSPF/RSPF resist roller.

**Section**

Paper feed, paper reverse/transport

**Operation/Procedure**

- 1) (When DSPF model)  
Select a target adjustment mode with [REG11] or [REG12] or [ENGINE] keys.  
(When RSPF model)  
Select a target adjustment mode with [SIDE1] or [SIDE2] or [ENGINE] keys.
- 2) Select a target item to be adjusted with [↑] [↓] buttons.
- 3) Enter the set value with 10-key.
- 4) Press [OK] key. (The set value is saved.)

Display/Item			Content		Setting range	Default value
A	REGI1 (DSPF)	NORMAL_PLAIN_HIGH	DSPF deflection amount adjustment value 1 (Normal/Plain paper/HIGH)	-	1 - 99	50
B		NORMAL_PLAIN_LOW	DSPF deflection amount adjustment value 1 (Normal/Plain paper/LOW)	-	1 - 99	50
C		NORMAL_THIN_HIGH	DSPF deflection amount adjustment value 1 (Normal/Thin paper/HIGH)	-	1 - 99	50
D		NORMAL_THIN_LOW	DSPF deflection amount adjustment value 1 (Normal/Thin paper/LOW)	-	1 - 99	50
E		RANDOM_PLAIN_HIGH	DSPF deflection amount adjustment value 1 (Random/Plain paper/HIGH)	-	1 - 99	50
F		RANDOM_PLAIN_LOW	DSPF deflection amount adjustment value 1 (Random/Plain paper/LOW)	-	1 - 99	50
G		RANDOM_THIN_HIGH	DSPF deflection amount adjustment value 1 (Random/Thin paper/HIGH)	-	1 - 99	50
H		RANDOM_THIN_LOW	DSPF deflection amount adjustment value 1 (Random/Thin paper/LOW)	-	1 - 99	50
A	SIDE1 (RSPF)	NORMAL_PLAIN_HIGH	RSPF deflection amount adjustment value 1 (Normal/Plain paper/HIGH)	-	1 - 99	50
B		NORMAL_PLAIN_LOW	RSPF deflection amount adjustment value 1 (Normal/Plain paper/LOW)	-	1 - 99	50
C		NORMAL_THIN_HIGH	RSPF deflection amount adjustment value 1 (Normal/Thin paper/HIGH)	-	1 - 99	50
D		NORMAL_THIN_LOW	RSPF deflection amount adjustment value 1 (Normal/Thin paper/LOW)	-	1 - 99	50
E		RANDOM_PLAIN_HIGH	RSPF deflection amount adjustment value 1 (Random/Plain paper/HIGH)	-	1 - 99	50
F		RANDOM_PLAIN_LOW	RSPF deflection amount adjustment value 1 (Random/Plain paper/LOW)	-	1 - 99	50
G		RANDOM_THIN_HIGH	RSPF deflection amount adjustment value 1 (Random/Thin paper/HIGH)	-	1 - 99	50
H		RANDOM_THIN_LOW	RSPF deflection amount adjustment value 1 (Random/Thin paper/LOW)	-	1 - 99	50
A	SIDE2 (RSPF)	NORMAL_PLAIN_HIGH_1	RSPF back surface document deflection amount adjustment value 1 (Normal/Plain paper/HIGH)	-	1 - 99	50
B		NORMAL_PLAIN_LOW_1	RSPF back surface document deflection amount adjustment value 1 (Normal/Plain paper/LOW)	-	1 - 99	50
A	ENGINE	TRAY1(S)	Main unit cassette 1 (Upper stage)/deflection adjustment value (Plain paper/Small size)	LT size (216mm) or less	1 - 99	30
B		TRAY1(L)	Main unit cassette 1 (Upper stage)/deflection adjustment value (Plain paper/Large size)	LT size (216mm) or above	1 - 99	30
C		TRAY1 HEAVY PAPER(S)	Main unit cassette 1 (Upper stage)/deflection adjustment value (Heavy paper/Small size)	LT size (216mm) or less	1 - 99	60
D		TRAY1 HEAVY PAPER(L)	Main unit cassette 1 (Upper stage)/deflection adjustment value (Heavy paper/Large size)	LT size (216mm) or above	1 - 99	60
E		TRAY2(S)	Main unit cassette 2 (Lower stage)/deflection adjustment value (Plain paper/Small size)	LT size (216mm) or less	1 - 99	30
F		TRAY2(L)	Main unit cassette 2 (Lower stage)/deflection adjustment value (Plain paper/Large size)	LT size (216mm) or above	1 - 99	30
G		TRAY2 HEAVY PAPER(S)	Main unit cassette 2 (Upper stage)/deflection adjustment value (Heavy paper/Small size)	LT size (216mm) or less	1 - 99	60
H		TRAY2 HEAVY PAPER(L)	Main unit cassette 2 (Upper stage)/deflection adjustment value (Heavy paper/Large size)	LT size (216mm) or above	1 - 99	60
I		MANUAL PLAIN PAPER(S)	Manual feed tray/deflection adjustment value (Plain paper/Small size)	LT size (216mm) or less	1 - 99	30
J		MANUAL PLAIN PAPER(L)	Manual feed tray/deflection adjustment value (Plain paper/Large size)	LT size (216mm) or above	1 - 99	30
K		MANUAL HEAVY PAPER(S)	Manual feed tray/deflection adjustment value (Heavy paper/Small size)	LT size (216mm) or less	1 - 99	60
L		MANUAL HEAVY PAPER(L)	Manual feed tray/deflection adjustment value (Heavy paper/Large size)	LT size (216mm) or above	1 - 99	60
M		MANUAL OHP	Manual feed tray/deflection adjustment value (OHP)	-	1 - 99	70
N		MANUAL ENV	Manual feed tray/deflection adjustment value (Envelope)	-	1 - 99	70
O		ADU PLAIN PAPER(S)	ADU/deflection adjustment value (Plain paper/Small size)	LT size (216mm) or less	1 - 99	30
P		ADU PLAIN PAPER(L)	ADU/deflection adjustment value (Plain paper/Large size)	LT size (216mm) or above	1 - 99	30
Q		ADU HEAVY PAPER(S)	ADU/deflection adjustment value (Heavy paper/Small size)	LT size (216mm) or less	1 - 99	60
R		ADU HEAVY PAPER(L)	ADU/deflection adjustment value (Heavy paper/Large size)	LT size (216mm) or above	1 - 99	60
S		DESK(S)	DESK/deflection adjustment value (Plain paper/Small size)	LT size (216mm) or less	1 - 99	30
T		DESK(L)	DESK/deflection adjustment value (Plain paper/Large size)	LT size (216mm) or above	1 - 99	30
U		DESK HEAVY PAPER(S)	DESK/deflection adjustment value (Heavy paper/Small size)	LT size (216mm) or less	1 - 99	60
V		DESK HEAVY PAPER(L)	DESK/deflection adjustment value (Heavy paper/Large size)	LT size (216mm) or above	1 - 99	60
W		A4LCC	A4LCC/deflection adjustment value	-	1 - 99	30

<Small size, Large size>

Small size: The paper length in the transport direction is shorter than the LT size (216mm).

Large size: The paper length in the transport direction is longer than the LT size (216mm).

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

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

#### [DSPF-installed model]

#### [RSPF-installed model]

## 53

### 53-6

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the detection level of the DSPF/RSPF document width.
<b>Section</b>	

#### Operation/Procedure

- 1) Open the DSPF/RSPF paper feed guide to the maximum width.
- 2) Press [EXECUTE] key.  
The maximum width detection level is recognized.
- 3) Open the DSPF/RSPF paper feed guide to the A4R width.
- 4) Press [EXECUTE] key.  
The A4R width detection level is recognized.
- 5) Open the DSPF/RSPF paper feed guide to the A5R width.
- 6) Press [EXECUTE] key.  
The A5R width detection level is recognized.
- 7) Open the DSPF/RSPF paper feed guide to the minimum width.
- 8) Press [EXECUTE] key.  
The minimum width detection level is recognized.

When the above operation is not performed normally, "ERROR" is displayed and. When the above operation is completed normally, "COMPLETE" is displayed.

1	TRAYVOLMAX	Tray size volume maximum value
2	TRAYVOLA4R	Tray volume A4R size adjustment value
3	TRAYVOLA5R	Tray volume A5R size adjustment value
4	TRAYVOLMIN	Tray size volume minimum value

#### [DSPF-installed model]

#### [RSPF-installed model]

### 53-7

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the DSPF/RSPF document size width sensor.
<b>Section</b>	Automatic document feeder

#### Operation/Procedure

- 1) Select an adjustment target item with [↑] [↓] key on the touch panel.
- 2) Enter the set value with 10-key.
- 3) Press [OK] key. (The set value is saved.)

Item/Display			Setting range	Default value
A	AD_MAX	Max. width position	0 - 1023	84
B	AD_P1	A4R width position	0 - 1023	509
C	AD_P2	A5R width position	0 - 1023	808
D	AD_MIN	Min. width position	0 - 1023	961

#### [DSPF-installed model]



[RSPF-installed model]

53-8

**Purpose**

Adjustment

**Function (Purpose)**

Used to adjust the document lead edge reference and the DSPF/RSPF mode document scan position.

**Section**

Automatic document feeder

**Operation/Procedure**

Select an adjustment item with [AUTO] [MANUAL] key.

<AUTO: Document lead edge reference (RRCA) adjustment>  
(Auto adjustment)

- 1) Set a sheet of black paper of A4 or 11"x 8.5" on the document table.
- 2) Press [EXECUTE] key. (The adjustment is performed and the adjustment value is saved.)

Item/Display	Content	Setting range	Default value
MEASUREMENT DISTANCE	Document lead edge measurement distance	0-255 (0.1mm unit)	-
RRCA	Document lead edge reference position	0 - 99	50

NOTE: The AUTO mode must not be used.

<MANUAL: DSPF/RSPF mode document scan position adjustment>

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

Item/Display	Content	Setting range	Default value
A	ADJUST VALUE	DSPF/RSPF mode document scan position adjustment (Scanner stop position adjustment)	1 - 99 5

- When the adjustment value is increased, the scanner stop position in the DSPF/RSPF mode is shifted to the right.
- When the adjustment value is changed by 1, the position is shifted by 0.1mm.

55

55-1

**Purpose**

Setting

**Function (Purpose)**

Used to set the specifications of the engine control operations. (SOFT SW)

**Section**

**Operation/Procedure**

55-2

**Purpose**

Setting

**Function (Purpose)**

Used to set the specifications of the scanner control operation. (SOFT SW)

**Section**

**Operation/Procedure**

55-3

**Purpose**

Setting

**Function (Purpose)**

Used to set the specifications of the control operation. (SOFT SW)

**Section**

**Operation/Procedure**

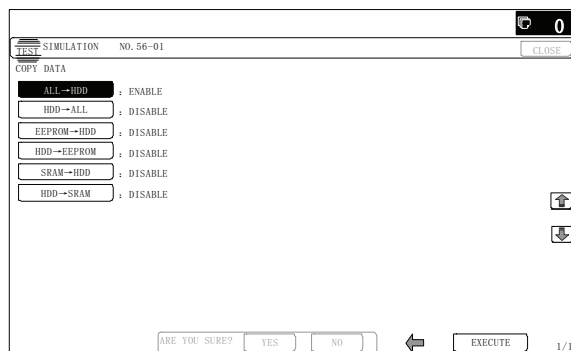
<b>56-1</b>	
<b>Purpose</b>	Data transfer
<b>Function (Purpose)</b>	Used to transport data between HDD - MFP PWB SRAM/EEPROM. (Used to repair the PWB.) (HDD-installed machine)

### Section

#### Operation/Procedure

- 1) Select a target content of data transfer.
- 2) Press [EXECUTE] key and press [YES] key.  
Data transfer of the item selected in procedure 1) is executed.  
When the operation is completed normally, "COMPLETE" is displayed. In case of an abnormal end, "ERROR" is displayed.

ALL → HDD	All the memory contents are transferred to the HDD.
HDD → ALL	The HDD contents are transferred to all the memories.
EEPROM → HDD	Transfer from EEPROM to HDD
HDD → EEPROM	Transfer from HDD to EEPROM
SRAM → HDD	Data transfer from SRAM to HDD. (Including the FAX memory) When the FAX memory or an option memory (memory for FAX) is installed, the contents in the memory for FAX are also transferred to HDD.
HDD → SRAM	Transfer from HDD to SRAM (including the FAX memory) When the FAX memory or an option memory (memory for FAX) is installed, the contents of the FAX memory are also transferred to HDD.



NOTE: The backup data must not be installed to another machine. If installed, the adjustment data will be overwritten and a trouble may be generated.

<b>56-2</b>	
<b>Purpose</b>	Data backup
<b>Function (Purpose)</b>	Used to backup the data in the EEPROM, SRAM, and HDD (including user authentication data and address data) to the USB memory. (HDD-installed machine)

### Section

#### Operation/Procedure

- 1) Insert the USB memory into the main unit.
- 2) Select a target transfer item with the touch panel.  
<IMPORT>  
From USB MEMORY DEVICE To EEPROM, SRAM, HDD  
<EXPORT>  
From EEPROM, ESRAM, HDD To USB MEMORY
- 3) Press [EXECUTE] key, and press [YES] key.  
Data transfer selected in the procedure 2) is performed  
When the operation is completed normally, "COMPLETE" is displayed. In case of an abnormal end, "ERROR" is displayed.

(Machine with the DSK installed)

- 1) Insert the USB memory into the main unit.
- 2) Select a target transfer item with the touch panel.  
<IMPORT>  
From USB MEMORY DEVICE to EEPROM, SRAM, HDD  
<EXPORT>  
From EEPROM, SRAM, HDD to USB MEMORY DEVICE
- 3) Enter the password with 10-key.
- 4) Press [SET] key.
- 5) Press [EXECUTE] key, and press [YES] key.

Data transfer selected in the procedure 2) is performed.

When the operation is completed normally, "COMPLETE" is displayed. In case of an abnormal end, "ERROR" is displayed.

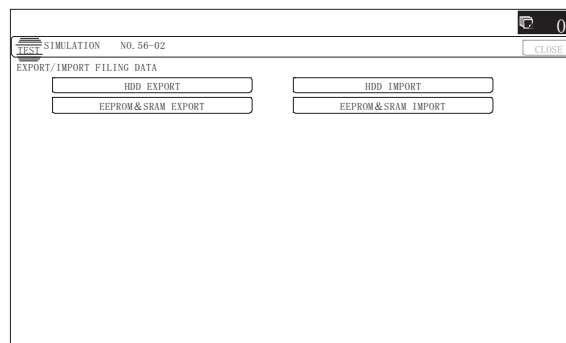
<Data list outside the backup targets>

(EEPROM/SRAM)

PWB Type	Content	NOTE
Controller	Machine serial No.	
	Product key information	
	Various counter	Copy counter/FAX send counter etc.
	Trouble history	
PCU	Machine serial No.	
	Various counter	Maintenance counter
	Machine adjustment execute history	
	Trouble history	
SCU	Various counter	Maintenance counter
	Trouble history	

(HDD)

Classification	Content	NOTE
Japanese FEP	User dictionary	
Job end list	Job end list display data (The image send series include the preserved job list.)	
Log	Job log	Read from WEB is enable.
New N/A	<ul style="list-style-type: none"> <li>• Print history information</li> <li>• JAM history information</li> <li>• Trouble history information</li> <li>• Same position continuous jam count value</li> <li>• Charging information</li> <li>• Life information</li> </ul>	
Operation manual	E-manual	
Document filing	Document filing data	



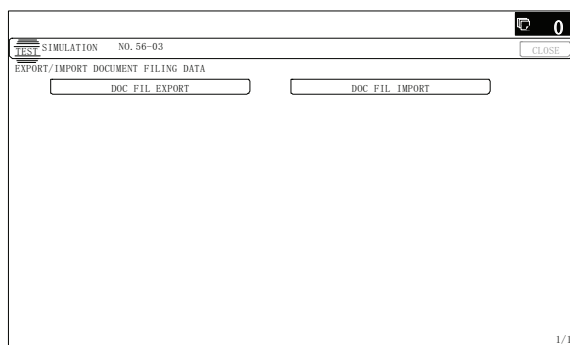
NOTE: The backup data must not be installed to another machine. If installed, the adjustment data will be overwritten and a trouble may be generated.

56-3

<b>Purpose</b>	Data backup
<b>Function (Purpose)</b>	Used to backup the document filing data to the USB memory. (HDD-installed machine)
<b>Section</b>	HDD

**Operation/Procedure**

- 1) Insert the USB memory into the main unit.
- 2) Select a target transfer item with the touch panel.  
 <IMPORT>  
 From USB MEMORY DEVICE To EEPROM, SRAM, HDD  
 <EXPORT>  
 From EEPROM, SRAM, HDD To USB MEMORY DEVICE
- 3) Press [EXECUTE] key, and press [YES] key.  
 Data transfer selected in the procedure 2) is performed.  
 When the operation is completed normally, "COMPLETE" is displayed. In case of an abnormal end, "ERROR" is displayed.

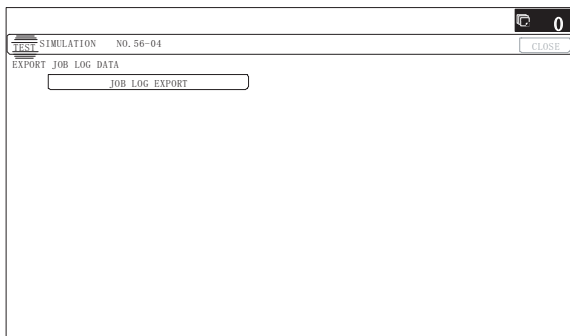


56-4

<b>Purpose</b>	Data backup
<b>Function (Purpose)</b>	Used to backup the JOB log data to the USB memory. (HDD-installed machine)
<b>Section</b>	HDD

**Operation/Procedure**

- 1) Insert the USB memory into the main unit.
- 2) Press [JOB LOG EXPORT] key.
- 3) Press [EXECUTE] key, and press [YES] key.  
 Data transfer selected in the procedure 2) is performed.  
 When the operation is completed normally, "COMPLETE" is displayed. In case of an abnormal end, "ERROR" is displayed.



60

60-1

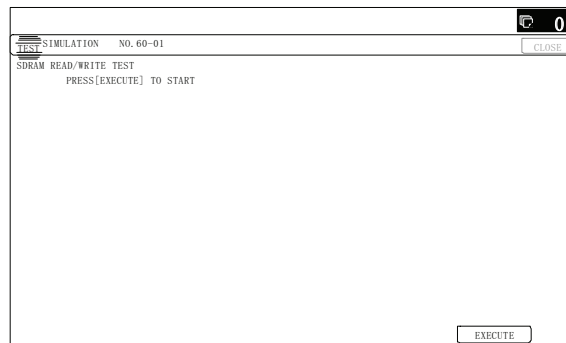
<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operations (read/write) of the MFP PWB memory.
<b>Section</b>	MFP (ICU) PWB

**Operation/Procedure**

- 1) Press [EXECUTE] key.  
 Start the test.

Result display	Description
OK	Success
NG	Fail
NONE	Not installed (Including DIMM trouble)
INVALID	Execution disable

SLOT	Description	
SLOT1	System memory (expansion)	DIMM1
SLOT2	System memory (standard)	DIMM2
SLOT3	Local memory (MFP expansion)	DIMM3
SLOT4	Local memory (MX-EBX3 standard)	—



60-2

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the specifications of the MFP PWB on-board SDRAM.
<b>Section</b>	MFP (ICU) PWB

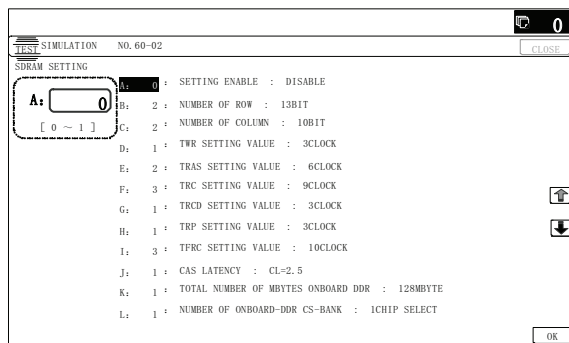
**Operation/Procedure**

- 1) Select a target item of setting with [↑] [↓] key on the touch panel.
- 2) Enter the set value with 10-key.
- 3) Press [OK] key.

NOTE: Set to the default value.

Item/Display			Content		Setting range		Default value
A	SETTING ENABLE	DISABLE	SDRAM setting change flag	DDR setting of On-board SPD	0 - 1	0	0
		ENABLE		DDR setting of B or later		1	
B	NUMBER OF ROW	11BIT	ROW address width		0 - 2	0	2
		12BIT				1	
		13BIT				2	

Item/Display			Content	Setting range	Default value
C	NUMBER OF COLUMN	8BIT	COLUMN address width	0 - 4	2
		9BIT			
		10BIT			
		11BIT			
		12BIT			
D	TWR SETTING VALUE	2CLOCK	TWR set value	0 - 3	1
		3CLOCK			
		4CLOCK			
		5CLOCK			
E	TRAS SETTING VALUE	4CLOCK	TRAS set value	0 - 3	2
		5CLOCK			
		6CLOCK			
		7CLOCK			
F	TRC SETTING VALUE	6CLOCK	TRC set value	0 - 4	3
		7CLOCK			
		8CLOCK			
		9CLOCK			
		10CLOCK			
G	TRCD SETTING VALUE	2CLOCK	TRCD set value	0 - 3	1
		3CLOCK			
		4CLOCK			
		5CLOCK			
H	TRP SETTING VALUE	2CLOCK	TRP set value	0 - 3	1
		3CLOCK			
		4CLOCK			
		5CLOCK			
I	TFRC SETTING VALUE	7CLOCK	TFRC set value	0 - 13	3
		8CLOCK			
		-			
		20CLOCK			
J	CAS LATENCY	CL=2	CAS latency	0 - 2	1
		CL=2.5			
		CL=3			
K	TOTAL NUMBER OF MBYTES ON BOARD DDR	NONE	On-board DDR total capacity	0 - 2	1
		128M BYTE			
		256M BYTE			
L	NUMBER OF ON BOARD-DDR CS-BANK	NONE	On-board DDR bunk number	0 - 2	1
		1CHIP SELECT			
		2CHIP SELECT			



## 61

### 61-1

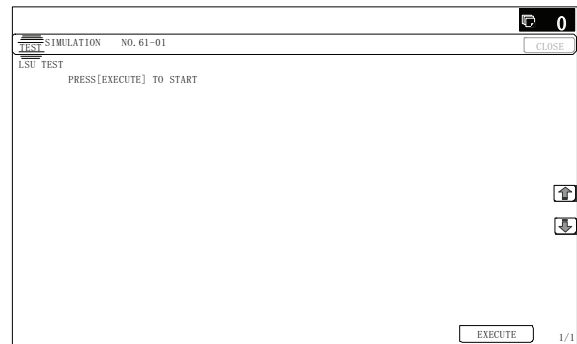
<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the LSU polygon motor rotation and laser detection.

<b>Section</b>	LSU
----------------	-----

#### Operation/Procedure

- Press [EXECUTE] key.  
When the operation is completed normally, [OK] is displayed.  
In case of an abnormal end, [NG] is displayed.

Display	Content
LSU TESTRESULT NG: PG	Polygon mirror rotation abnormality
LSU TESTRESULT NG: K	Laser abnormality (K)



### 61-3

<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the laser power
<b>Section</b>	LSU

#### Operation/Procedure

- Select a target mode for adjustment with [COPY], [PR600/FAX] and [PR1200] on the touch panel.
- Select an adjustment target item with [↑] [↓] key on the touch panel.
- Enter the adjustment value using the 10-key.
- Press [OK] key. (The set value is saved.)

When the laser power and the DUTY adjustment value are increased, the print density is increased and the line width of line images are increased.

Item/Display		Content	Setting range
COPY 600dps	A	LASER POWER (BW1)	Laser power setting/BW1
	B	LASER POWER (BW2)	Laser power setting/BW2
	C	LASER DUTY (BW)	Laser DUTY select/BW
COPY 1200dpi (MX-M363/M453/M503 N only)	A	LASER POWER (BW1)	Laser power setting/BW1
	B	LASER POWER (BW2)	Laser power setting/BW2
	C	LASER DUTY (BW)	Laser DUTY select/BW
PR600/FAX	A	LASER POWER (BW1)	Laser power setting/BW1
	B	LASER POWER (BW2)	Laser power setting/BW2
	C	LASER DUTY (BW)	Laser DUTY select/BW

Item/Display			Content	Setting range
PR1200 (MX-M363/ M453/M503 N only)	A	LASER POWER (BW1)	Laser power setting/BW1	0 - 255
	B	LASER POWER (BW2)	Laser power setting/BW2	0 - 255
	C	LASER DUTY (BW)	Laser DUTY select/BW	0 - 255

**[MX-M363/M453/M503 N]**

Category	Item	Default value	
		36PPM	45/50PPM
COPY 600dpi	A	89	111
	B	89	111
	C	0	0
COPY 1200dpi	A	89	111
	B	89	111
	C	0	0
PR600/FAX	A	89	111
	B	89	111
	C	40	40
PR1200	A	89	111
	B	89	111
	C	0	0

**[U model, MX-M283/M282/M362/M452/M502 N]**

Category	Item	Default value	
		28/36PPM	45/50PPM
COPY 600dpi	A	89	111
	B	89	111
	C	0	0
PR600/FAX	A	89	111
	B	89	111
	C	40	40

**62**

**62-1**

<b>Purpose</b>	Data clear/Reset
<b>Function (Purpose)</b>	Used to execute the hard disk format (except operation manual area). * If no HDD is installed, the MFP Flash memory is formatted.
<b>Section</b>	HDD

**Operation/Procedure**

- 1) Press [EXECUTE] key.
- 2) Press [YES] key.

Used to execute the hard disk format. Used to execute the MFP PWB flash memory format.

When the operation is completed, [EXECUTE] key returns to the normal display.

**62-2**

<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check read/write of the hard disk (partial).
<b>Section</b>	HDD

**Operation/Procedure**

- 1) Press [EXECUTE] key.
- 2) Press [YES] key.

**62-3**

<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check read/write of the hard disk (all areas).
<b>Section</b>	HDD

**Operation/Procedure**

- 1) Press [EXECUTE] key.
- 2) Press [YES] key.

Read/write operations are performed.



<b>62-6</b>	
<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to perform the self diagnostics of the hard disk.
<b>Section</b>	HDD

#### Operation/Procedure

- 1) Select the self diag area.
- 2) Press [EXECUTE] key.

The self diag operation is performed.

#### NOTE:

E7-03 error occurs. If there may be a trouble in the HDD, use this simulation to check the HDD.

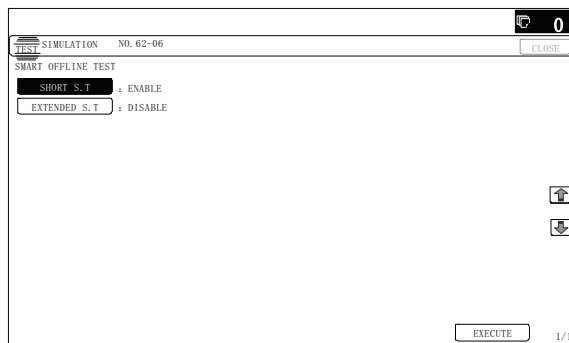
SHORT S.T	Partial area diag
EXTENDED S.T	All area diag

When the operation is completed, [EXECUTE] key returns to the normal display.

Normal completion → "OK(RERESULT:0)" is displayed.

Abnormal end → "NG(RERESULT: Other than 0)" is displayed.

\* If the simulation cannot be executed or terminated abnormally for some reason, "ERROR" is displayed on the corresponding section.



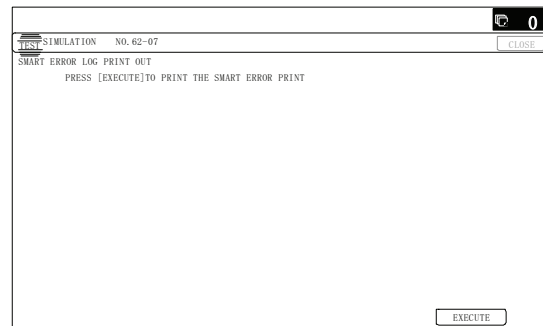
<b>62-7</b>	
<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to print the hard disk self diagnostics error log.
<b>Section</b>	HDD

#### Operation/Procedure

- 1) Press [EXECUTE] key.

ERROR LOG SECTOR of the SMART function is executed, and the result is printed.

When the operation is completed, [EXECUTE] key returns to the normal display.



<b>62-8</b>	
<b>Purpose</b>	Data clear/Reset
<b>Function (Purpose)</b>	Used to format the hard disk. (Excluding the system area and the operation manual area)
<b>Section</b>	HDD

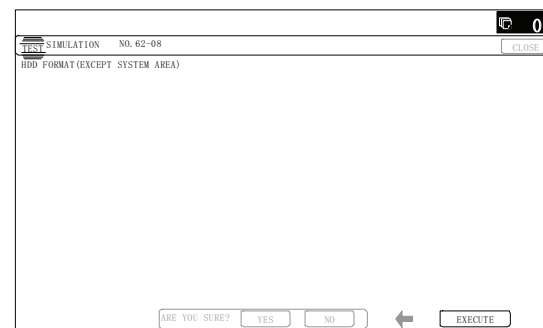
#### Operation/Procedure

- 1) Press [EXECUTE] key.
- 2) Press [YES] key.

Used to execute the hard disk format.

When the operation is completed, [EXECUTE] key returns to the normal display.

\* When the HDD formatting (except for the system area) is not completed normally, "HDD FORMAT (EXCEPT SYSTEM AREA) NG" is displayed.



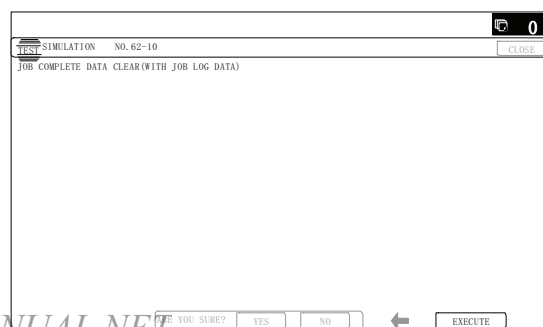
<b>62-10</b>	
<b>Purpose</b>	Data clear/Reset
<b>Function (Purpose)</b>	Used to delete the job log data. (HDD-installed machine)
<b>Section</b>	HDD

#### Operation/Procedure

- 1) Press [EXECUTE] key.
- 2) Press [YES] key.

Used to delete the job log data.

When the operation is completed, [EXECUTE] key returns to the normal display.



<b>62-11</b>	
<b>Purpose</b>	Data clear/Reset
<b>Function (Purpose)</b>	Used to delete the document filing data. (HDD-installed machine)
<b>Section</b>	HDD

#### Operation/Procedure

- 1) Press [EXECUTE] key.
- 2) Press [YES] key.

Used to delete the document filing data.

When the operation is completed, [EXECUTE] key returns to the normal display.



<b>62-12</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set Enable/Disable of auto format in a hard disk trouble.
<b>Section</b>	HDD

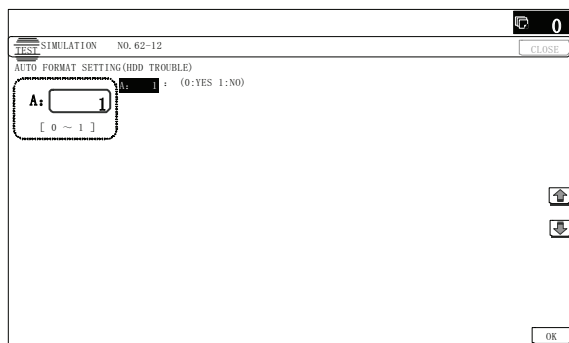
#### Operation/Procedure

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

The set value is saved.

When it is set to Enable, if a read error of HDD occurs in the system data storage area (FAX/device cloning data, etc.), only the system data storage area is cleared.

A	0	Enable
	1	Disable (Default)



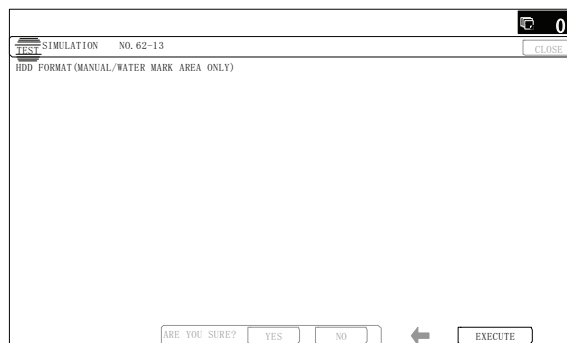
<b>62-13</b>	
<b>Purpose</b>	Data clear/Reset
<b>Function (Purpose)</b>	Used to format the hard disk. (only the operation manual and watermark area)
<b>Section</b>	HDD

#### Operation/Procedure

- 1) Press [EXECUTE] key.
- 2) Press [YES] key.

The operation manual data are deleted.

When the operation is completed, [EXECUTE] key returns to the normal display.



## 63

<b>63-1</b>	
<b>Purpose</b>	Information display
<b>Function (Purpose)</b>	Used to display the shading correction result.
<b>Section</b>	Scanner

#### Operation/Procedure

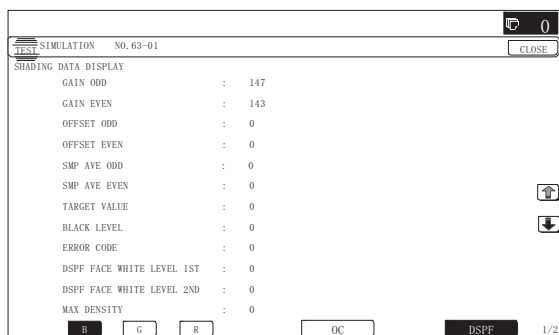
- 1) Select a mode.
- 2) Select a target color to display with [R] [G] [B] key on the touch panel. (For the U model, the key operations can be made but the displayed data of each color is the same.)

Item/Display	Content	NOTE
GAIN ODD	Gain adjustment value (odd number)	
GAIN EVEN	Gain adjustment value (Even number)	
OFFSET ODD	Offset value (odd number)	
OFFSET EVEN	Offset value (even number)	
SMP AVE ODD	Reference plate sampling average value (ODD)	
SMP AVE EVEN	Reference plate sampling average value (EVEN)	
TARGET VALUE	Target value	
BLACK LEVEL	Black output level	

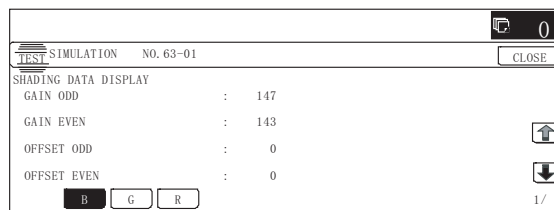


ERROR CODE	Error code (0, 1 - 14) (for debug)	0	No error
		1	STAGE1: Loop number over
		2	STAGE2: The target value is under the specified value.
		3	STAGE3: The gain set value is negative.
		4	END is not asserted. (Gain adjustment)
		5	(reserve)
		6	STAGE2: Underflow
		7	Black shading error
		8	Other error
		9	END is not asserted. (White shading)
		10	END is not asserted. (Black shading)
		11	END is not asserted. (Light quantity correction)
		12	END is not asserted. (Scan)
		13	Register check error. (When booting/Gain)
		14	Register check error. (Before light quantity correction)
DSPF FACE WHITE LEVEL 1ST	First scan DSPF front surface/back surface white reference level	when DSPF	
DSPF FACE WHITE LEVEL 2ND	DSPF front/back surface white reference level of the second or later scanning		
MAX DENSITY	Max. density judgment value		
MAX POSITION	Max. density position		
LED DA	LED DA adjustment value		
LED DA MEMORY	LED DA adjustment save value		
GAIN MEMORY	Gain adjustment save value		
TARGET MEMORY	Target save value		
RATIO	White plate scan ratio		
BLACK OFFSET 1-12	Black offset set value (1-12 area)		
RSPF WHITE LEVEL 1ST	First scan RSPF white reference level	when RSPF	
RSPF WHITE LEVEL 2ND	RSPF white reference level of the second or later scanning		

#### [N model]



#### [U model]



#### 63-2

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to perform shading.
<b>Section</b>	Scanner

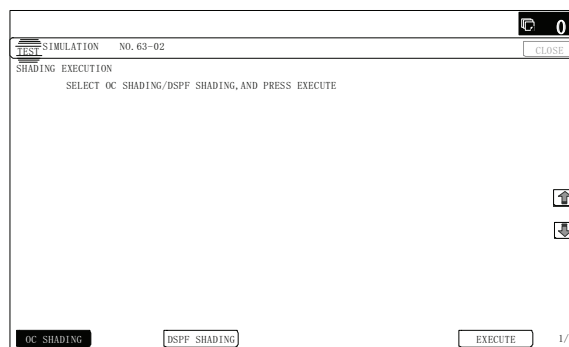
#### Operation/Procedure

DSPF-installed model

- 1) Select [OC SHADING] key or [DSPF SHADING] key, and press [EXECUTE] key.

Used to perform shading.

When the operation is completed, [EXECUTE] key returns to the normal display.

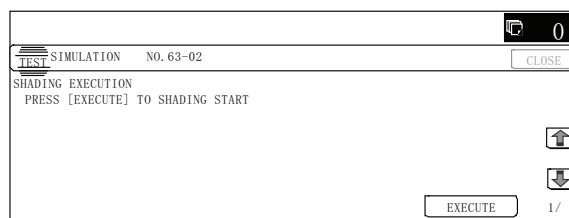


RSPF-installed model

- 1) Press [EXECUTE] key.

Used to perform shading.

When the operation is completed, [EXECUTE] key returns to the normal display.



#### 63-3

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to perform scanner (CCD/CIS) color balance and gamma auto adjustment.
<b>Section</b>	Scanner

#### Operation/Procedure

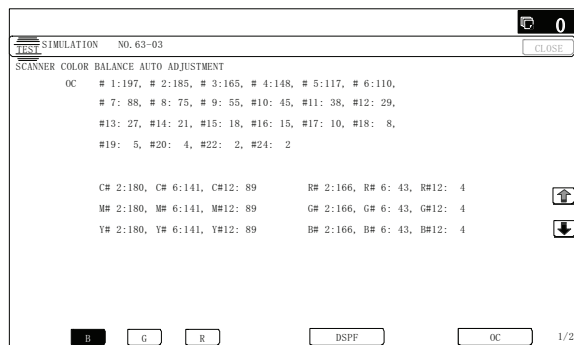
- 1) Place the SIT chart (UKOG-0280FCZZ or UKOG-0280FCZ1) on the reference position of the left rear frame side of the document table. For the DSPF mode, put the SIT chart backside up on the DSPF tray.
- 2) Select [OC] key or [DSPF] key.
- 3) Press [EXECUTE] key.

The scanner (CCD/CIS) color balance automatic adjustment is performed. (For the U model, only the automatic gamma adjustment is executed.)

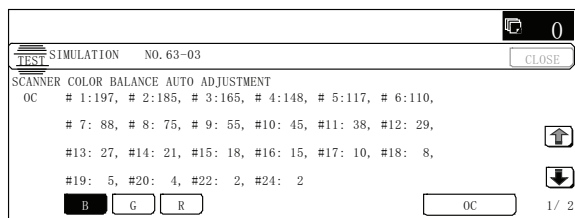
When the operation is completed, [EXECUTE] key returns to the normal display.

After completion of the operation, press [RESULT] key, and the adjustment data are displayed. At that time, the target color of data display can be selected with [R] [G] [B] key. (For the U model, the key operations can be made but the displayed data of each color is the same.)

#### [N model]



#### [U model]



63-4	
<b>Purpose</b>	Information display
<b>Function (Purpose)</b>	Used to display the SIT chart patch density.
<b>Section</b>	Scanner

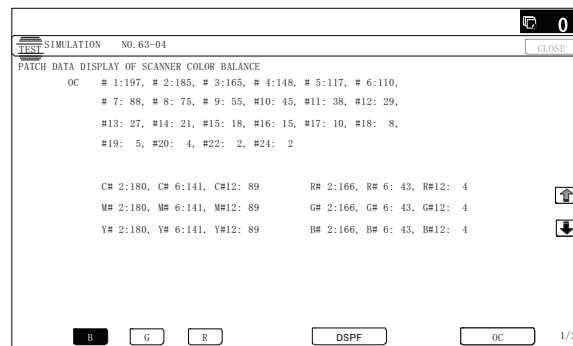
#### Operation/Procedure

- Set the SIT chart (UKOG-0280FCZZ or UKOG-0280FCZ1) to the reference position on the left rear frame side of the document table. For the DSPF mode, put the SIT chart backside up on the DSPF tray.
- Select [OC] key or [DSPF] key.
- Press [EXECUTE] key.  
The patch of the SIT chart is scanned.  
When the operation is completed, [EXECUTE] key returns to the normal display.
- Select a data display mode.

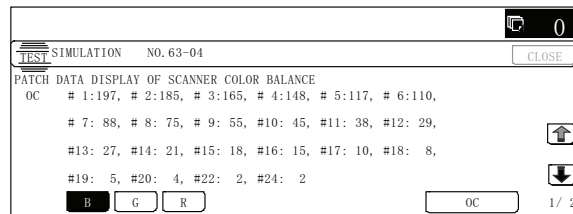
THROUGH GAMMA	SIT chart scan data
COPY GAMMA	Copy mode gamma process data of the SIT chart scan data
SCANNER GAMMA	Image send mode gamma process data of the SIT chart scan data

Select an target display color with [R] [G] [B] keys. (For the U model, the key operations can be made but the displayed data of each color is the same.)

#### [N model]



#### [U model]



63-5	
<b>Purpose</b>	Data clear/Reset
<b>Function (Purpose)</b>	Used to perform the scanner (CCD/CIS) color balance and gamma default setting.
<b>Section</b>	Scanner

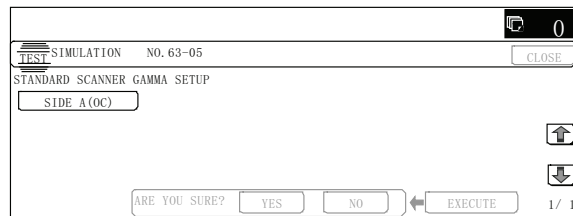
#### Operation/Procedure

- Select [SIDE A(OC)] key or [SIDE B(DSPF)] key. (For the RSPF-installed model, only the [SIDE A (OC)] key is displayed.)
- Press [EXECUTE] key, and press [OK] key  
The scanner (CCD/CIS) color balance and gamma are set to the default. (For the U model, only the gamma is set.)

#### ▲ [DSPF-installed model]



#### ▲ [RSPF-installed model]



# 64

64-2	
<b>Purpose</b>	Self print
<b>Function (Purpose)</b>	Test print. (Self print) (Monochrome mode)
<b>Section</b>	

## Operation/Procedure

- Set the print conditions.  
Select an item to be print condition with [↑] [↓] keys.  
Set the print conditions with 10-key.
- Press [EXECUTE] key.  
The test print (self print) is performed.

⚠

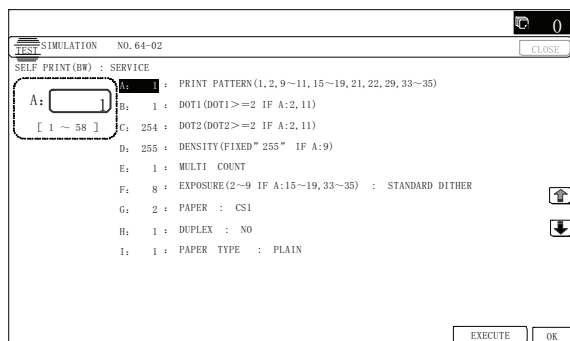
Item/Display			Content		Setting range		Default value
A	PRINT PATTERN (1,2,9 - 11,15 - 19, 21, 22, 29, 33 - 35) (MX-M283/M363/M453/M503 N only 29, 33, 34, 35)		Print pattern specification (* For details, refer to the description below.)		1 - 58 (Printable only 1, 2, 9 - 11, 15 - 19, 21, 22, 29, 33 - 35) (MX-M283/M363/M453/M503 N only 29, 33, 34, 35)		1
B	DOT1 (DOT1>=2 IF A:2,11)		Setting of print dot number (M parameter) (Self print pattern: m by n)		1-255 (Pattern 2,11: 2-255 except above: 1-255)		1
C	DOT2 (DOT2>=2 IF A:2,11)		Setting of blank dot number (N parameter) (Self print pattern: m by n)		0-255 (Pattern2,11: 2-255 except above: 0-255)		254
D	DENSITY (FIXED "255" IF A: 9)		Used to specify the print gradation.		1-255 (Pattern 9: 255 Fixed except above:1-255)		255
E	MULTI COUNT		Number of print		1 - 999		1
F	EXPOSURE (2 - 9 IF A: 15 - 19, 33 - 35) (MX-M283/M363/M453/M503 N only 33 - 35)	THROUGH	Exposure mode specification	No process (through)	(Pattern 15 - 19, 33 - 35: 2 - 9 except above:1 - 9) (MX-M283/M363/M453/M503 N only 33 - 35) Other pattern: 1 - 9	1	8 (STANDARD DITHER)
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 DITHER		Dither without correction		8			
AUTO		Automatic		9			
G	PAPER	MFT	Tray selection	Manual paper feed	1 - 6	1	2 (CS1)
CS1		Tray 1		2			
CS2		Tray 2		3			
CS3		Tray 3		4			
CS4		Tray 4		5			
LCC		LCC		6			
H		DUPLEX		YES		Duplex print selection	
NO	No		1				
I	PAPER TYPE	PLAIN	Paper type	Standard paper	1 - 4	1	1 (PLAIN)
HEAVY		Heavy paper		2			
OHP		OHP		3			
ENVELOPE		Envelope		4			

⚠

## <Print pattern of Item A>

Pattern No.	Content	Pattern generating section	NOTE
1	Grid pattern	LSU-ASIC	
2	Dot print		-
9	10% area (A4/A4R) density print		
10	Belt print		
11	Dot print (sub scan)		
15	16 gradations + M by N (center gradations only): Sub scan)	MFP ASIC	<ul style="list-style-type: none"> <li>16 gradations print</li> <li>The gradation is changed for every 256 dots.</li> </ul>
16	16 gradations + M by N (center gradations only): Main scan)		
17	Halftone pattern (all over the page)	Controller (Memory)	-
18	256 gradations pattern (Other dither)		-
19	256 gradations pattern (straight) 600dpi		-
20	-		-
21	4-point dot print (main scan)	LSU-ASIC	
22	Slant line		
29	Dot print 1200dpi		MX-M283/M363/M453/M503 N only

Pattern No.	Content	Pattern generating section	NOTE
33	Halftone pattern 1200dpi (all over the page)	Controller (Memory)	MX-M283/M363/M453/M503 N only
34	256 gradation pattern 1200dpi		MX-M283/M363/M453/M503 N only
35	256 gradation pattern (straight) 1200dpi		MX-M283/M363/M453/M503 N only



64-4

<b>Purpose</b>	Self print
<b>Function (Purpose)</b>	Printer test print. (Self print) * This simulation functions only for the machines which are provided with the printer function.

### Section

#### Operation/Procedure

- 1) Set the print conditions.  
Select an item to be print condition with [↑] [↓] keys.  
Set the print conditions with 10-key.
- 2) Press [EXECUTE] key.
- 3) The test print (self print) is performed.

Item/Display			Content	Setting range		Default value
A	PRINT PATTERN		Specification of the print pattern (* For details, refer to the description below.)	1 - 3		3
B	DENSITY		Used to specify the print gradation.	1 - 255		128
C	MULTI COUNT		Number of print	1 - 999		1
D	PAPER	MFT	Paper feed tray selection	1 - 6	1	3 (CS2)
		CS1			2	
		CS2			3	
		CS3			4	
		CS4			5	
		LCC			6	
E	QUALITY	STANDARD	Image quality setting	0 - 1	0	0 (STANDARD)
		FINE (MX-M283/M363/M453/M503 N only)			1	
F	DITHER	STRAIGHT	Specification of dither correction	1 - 2	1	2 (CALIB)
		CALIB			2	
G	PAPER TYPE	PLAIN	Paper type	0 - 1	0	0
		HEAVY			1	

#### <Print pattern of Item A>

Pattern No.	Content
1	256 gradations pattern (B/W)
2	Half tone pattern (B/W)
3	Dot, background (BW)

64-5	
<b>Purpose</b>	Self print
<b>Function (Purpose)</b>	Printer test print. (Self print) (PCL)
<b>Section</b>	

#### Operation/Procedure

- 1) Set the print conditions.  
Select an item to be print condition with [↑] [↓] keys.  
Set the print conditions with 10-key.
- 2) Press [EXECUTE] key.  
The test print (self print) is performed.

Item/Display			Content		Setting range	Default value
A	PRINT PATTERN		Specification of the print pattern		1	1
B	DITHER	STRAIGHT	Specification of dither correction	Straight	1 - 2	2
		CALIB		Calibration		
C	MULTI COUNT		Number of print		1 - 999	1
D	PAPER	MFT	Paper feed tray selection	Manual paper feed	1 - 6	2 (CS1)
		CS1		Tray 1		
		CS2		Tray 2		
		CS3		Tray 3		
		CS4		Tray 4		
		LCC		LCC		
E	QUALITY	STANDARD	Image quality setting	Standard (600dpi, 1bit)	0 - 1	0 (STANDARD)
		FINE		Ultra Fine (1200dpi, 1bit) (MX-M283/M363/M453/M503 N only)		
F	TONER SAVE MODE	ON	Toner save mode	set.	0 - 1	1 (OFF)
		OFF		not set.		
G	PAPER TYPE	PLAIN	Paper type	Standard paper	0 - 1	0 (PLAIN)
		HEAVY		Heavy paper		

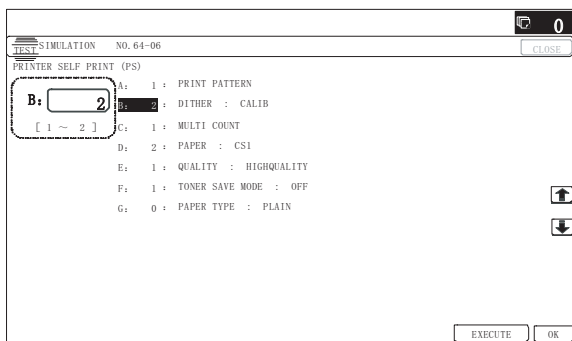
64-6

<b>Purpose</b>	Self print
<b>Function (Purpose)</b>	Printer test print. (Self print) (PS)
<b>Section</b>	

#### Operation/Procedure

- 1) Set the print conditions.  
Select an item to be print condition with [↑] [↓] keys.  
Set the print conditions with 10-key.
- 2) Press [EXECUTE] key.  
The test print (self print) is performed.

Item/Display			Content		Setting range		Default value
A	PRINT PATTERN		Specification of the print pattern		1		1
B	DITHER	STRAIGHT	Specification of dither correction	Straight	1 - 2	1	2
		CALIB		Calibration		2	
C	MULTI COUNT		Number of print		1 - 999		1
D	PAPER	MFT	Paper feed tray selection	Manual paper feed	1 - 6	1	2 (CS1)
		CS1		Tray 1		2	
		CS2		Tray 2		3	
		CS3		Tray 3		4	
		CS4		Tray 4		5	
		LCC		LCC		6	
E	QUALITY	STANDARD	Image quality setting	Standard (600dpi, 1bit)	0 - 1	0	0 (STANDARD)
		FINE		Ultra Fine (1200dpi, 1bit) (MX-M283/M363/M453/ M503 N only)		1	
F	TONER SAVE MODE	ON	Toner save mode	set.	0 - 1	0	1 (OFF)
		OFF		not set.		1	
G	PAPER TYPE	PLAIN	Paper type	Standard paper	0 - 1	0	0 (PLAIN)
		HEAVY		Heavy paper		1	



65

65-1

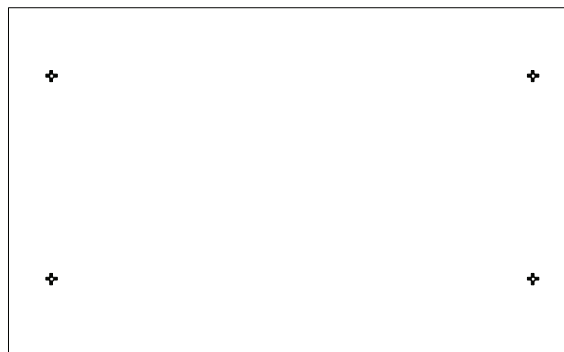
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the touch panel (LCD display section) detection coordinates.
<b>Section</b>	Operation unit (Operation/Display control PWB)

#### Operation/Procedure

Touch the center of the cross mark at the four corners of the screen.

When the adjustment is completed normally, the screen shifts to the simulation sub number entry menu.

In case of an error, the screen returns to the adjustment menu.

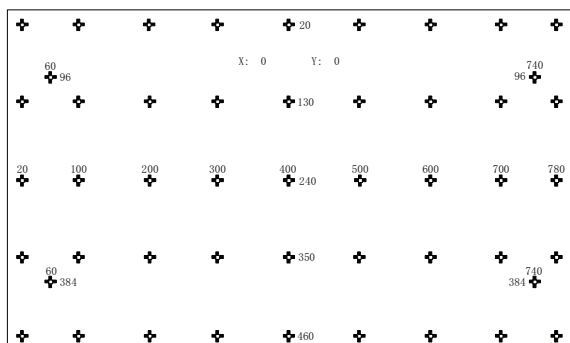


<b>65-2</b>	
<b>Purpose</b>	Information display
<b>Function (Purpose)</b>	Used to display the touch panel (LCD display section) detection coordinates.
<b>Section</b>	Operation unit (Operation/Display control PWB)

#### Operation/Procedure

Touch the touch panel.

The coordinates X (horizontal direction) and Y (vertical direction) of the touched position is displayed in real time.



<b>65-5</b>	
<b>Purpose</b>	Operation test/check
<b>Function (Purpose)</b>	Used to check the operation panel key input.
<b>Section</b>	Operation unit (Operation/Display control PWB)

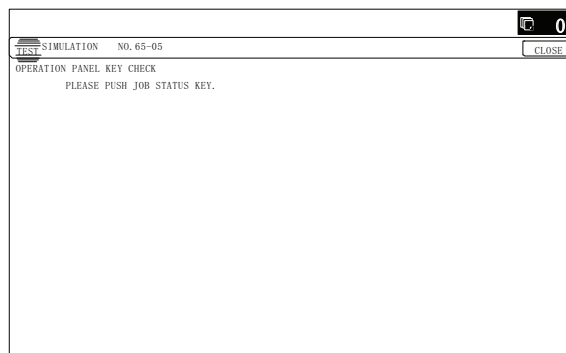
#### Operation/Procedure

Press the keys sequentially according to the guidance displayed on the screen.

If the key entry is effective, the guidance for pressing the next key is displayed. When all the key entries are completed, "COMPLETE" is displayed.

<Check target key>

Operation panel
JOB STATUS
SYSTEM SETTINGS
HOME
1
2
3
4
5
6
7
8
9
AUDIT CLEAR
0
PROGRAM
CLEAR
STOP
CLEAR ALL/RESET
START (MONO)



## 67

<b>67-17</b>	
<b>Purpose</b>	Data clear/Reset
<b>Function (Purpose)</b>	Printer controller reset
<b>Section</b>	

#### Operation/Procedure

- 1) Press [EXECUTE] key.
- 2) Press [YES] key.  
The set data related to the printer are initialized. (Including the NIC setting.)

When the operation is completed, [EXECUTE] key returns to the normal display.



<b>67-25</b>	
<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Printer density adjustment (Manual adjustment) * This simulation functions only for the machines which are provided with the printer option function.

#### Section

#### Operation/Procedure

- 1) Select a target adjustment density level with [↑] [↓] key on the touch panel.
- 2) Enter the set value with 10-key.  
\* When the △ ▽ key is pressed, the setting value of each item can be changed with 1up (1down) collectively.
- 3) Press [OK] key. (The set value is saved.)

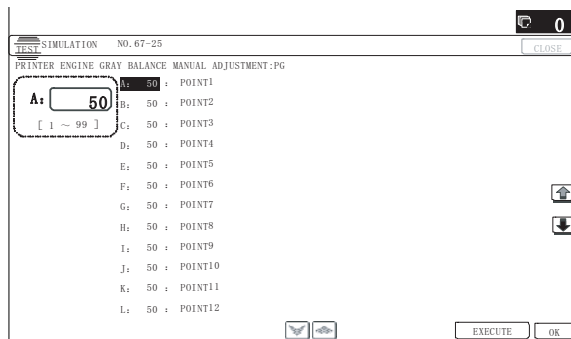
When the adjustment value is increased, the image density is increased, and vice versa.

When [EXECUTE] key is pressed, the check pattern is printed in the density corresponding to the adjustment value.

A4R (11" x 8.5"R) paper is selected by priority. If there is no A4R (11" x 8.5"R) paper, A3 (11" x 17") paper is selected.



Item/Display		Setting range	Default value
A	POINT1	1 - 99	50
B	POINT2	1 - 99	50
C	POINT3	1 - 99	50
D	POINT4	1 - 99	50
E	POINT5	1 - 99	50
F	POINT6	1 - 99	50
G	POINT7	1 - 99	50
H	POINT8	1 - 99	50
I	POINT9	1 - 99	50
J	POINT10	1 - 99	50
K	POINT11	1 - 99	50
L	POINT12	1 - 99	50
M	POINT13	1 - 99	50
N	POINT14	1 - 99	50
O	POINT15	1 - 99	50
P	POINT16	1 - 99	50
Q	POINT17	1 - 99	50



67-31

<b>Purpose</b>	Data clear/Reset
<b>Function (Purpose)</b>	Used to clear the printer calibration value (Half-tone process control data). * This simulation functions only for the machines which are provided with the printer option function.

### Section

#### Operation/Procedure

- 1) Press [EXECUTE] key.
- 2) Press [YES] key.

The printer calibration data (Half tone correction data) are cleared.  
(The printer density correction is canceled.)



67-33

<b>Purpose</b>	Adjustment
<b>Function (Purpose)</b>	Used to adjust the gamma and the density in each printer screen. * This simulation functions only for the machines which are provided with the printer option function.

### Section

#### Operation/Procedure

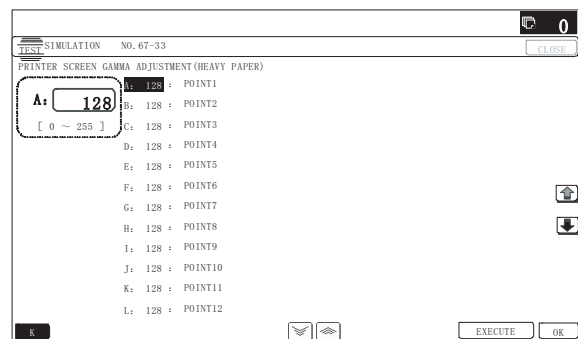
- 1) Select a target screen with [SCREEN] key.
- 2) Select a target adjustment density level with [↑] [↓] key.
- 3) Enter the set value with 10-key.
- 4) Press [OK] key. (The set value is saved.)

When [EXECUTE] key is pressed, the check pattern in printed in the density corresponding to the adjustment value.

A4R (11" x 8.5"R) paper is selected by priority. If there is no A4R (11" x 8.5"R) paper, A3 (11" x 17") paper is selected.

Screen	Content
HEAVY PAPER	Heavy paper mode
SCREEN1	600dpi 1bit screen
SCREEN2	1200dpi 1 bit screen (MX-M283/M363/M453/M503 N only)
SCREEN3	Toner Save mode

Item/Display		Content	Setting range	Default value
A	POINT1	Point 1	0 - 255	128
B	POINT2	Point 2	0 - 255	128
C	POINT3	Point 3	0 - 255	128
D	POINT4	Point 4	0 - 255	128
E	POINT5	Point 5	0 - 255	128
F	POINT6	Point 6	0 - 255	128
G	POINT7	Point 7	0 - 255	128
H	POINT8	Point 8	0 - 255	128
I	POINT9	Point 9	0 - 255	128
J	POINT10	Point 10	0 - 255	128
K	POINT11	Point 11	0 - 255	128
L	POINT12	Point 12	0 - 255	128
M	POINT13	Point 13	0 - 255	128
N	POINT14	Point 14	0 - 255	128
O	POINT15	Point 15	0 - 255	128
P	POINT16	Point 16	0 - 255	128
Q	POINT17	Point 17	0 - 255	128



<b>67-34</b>	
<b>Purpose</b>	Setting
<b>Function (Purpose)</b>	Used to set the density correction in the printer high density section. (Support for the high density section tone gap)

#### Section

#### Operation/Procedure

1) Enter the set value with 10-key.

0	Enable
1	Disable (Default)

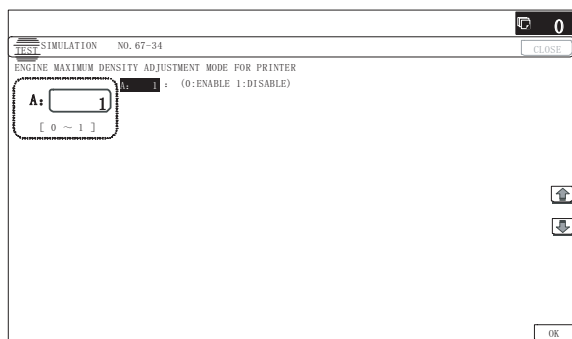
2) Press [OK] key. (The set value is saved.)

- When tone gap is generated in the high density section, set to "0".

The density in the high density section is decreased, but tone gap is reduced.

- To increase the density in the high density section further, set to "1".

The tone gap may occur in high density part.



<b>67-70</b>	
<b>Purpose</b>	Data clear/Reset
<b>Function (Purpose)</b>	MFP PWB SRAM data clear
<b>Section</b>	MFP (ICU) PWB

#### Operation/Procedure

1) Press [EXECUTE] key.

2) Press [YES] key.

MFP PWB SRAM data is cleared.

When the operation is completed, [EXECUTE] key returns to the normal display.

NOTE: When the MFP PWB is replaced, execute this simulation.



## [6] SELF DIAG AND TROUBLE CODE

### 1. Self diag

When a trouble occurs in the machine or when the life of a consumable part is nearly expired or when the life is expired, the machine detects and displays it on the display section. This allows the user and the serviceman to take the suitable action. In case of a trouble, this feature notifies the occurrence of a trouble and stops the machine to minimize the damage.

#### A. Function and purpose

- 1) Securing safety. (The machine is stopped on detection of a trouble.)
- 2) The damage to the machine is minimized. (The machine is stopped on detection of a trouble.)
- 3) By displaying the trouble content, the trouble position can be quickly identified. (This allows to perform an accurate repair, improving the repair efficiency.)
- 4) Preliminary warning of running out of consumable parts allows to arrange for new parts in advance of running out. (This avoids stopping of the machine due to running out the a consumable part.)

#### 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.)
	Service	Warning of troubles which can be recovered only by a serviceman. (Motor trouble, maintenance, etc.)
	Others	-
Class 2	Warning	Warning to the user, not a machine trouble (Preliminary warning of life expiration of a consumable part, etc.)
	Trouble	Warning of a machine trouble. The machine is stopped.
	Others	-

### C. Self diag operation

#### (1) Self diag operation and related work flow

The machine always monitors its own state.

When the machine recognizes a trouble, it stops the operation and displays the trouble message.

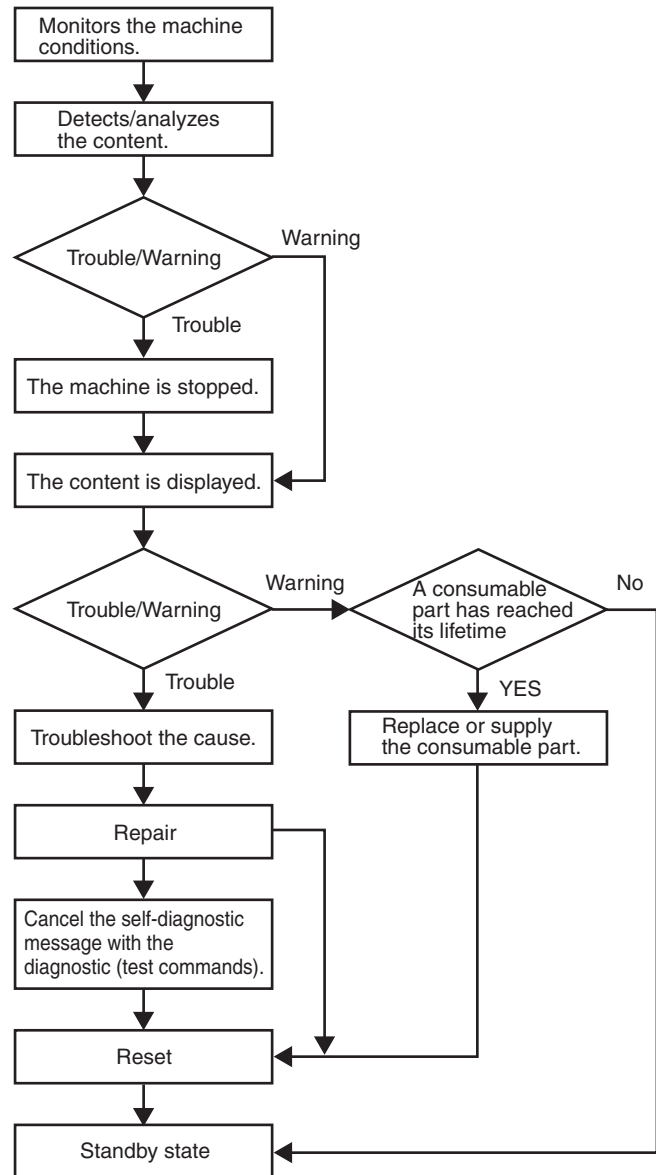
A warning message is displayed when a consumable part life is nearly expired or is expired.

When a warning message is displayed, the machine may be or may not be stopped.

The trouble messages and the warning messages are displayed by the LCD and lamp.

Some trouble messages are automatically cleared when the trouble is repaired. Some other troubles must be cleared by a simulation.

Some warning messages of consumable parts are automatically cleared when the trouble is repaired. Some other warning messages must be cleared by a simulation.



## D. Breakdown sequence

### (1) Breakdown mode processing

Kind of trouble	Judgment block	Trouble code	Operatable mode								
			Copy scan (including interruption)	Scan (Push)	Scan (Pull)	Scan- To HDD	Print	List print	FAX Send	FAX print	FAST Notification to host
FAX board trouble	MFP	F6 (00, 01, 04, 21, 30, 97, 98)	○	○	○	○	○	○	×	×	×
HDD trouble		E7 (03)	×	×	×	×	×	×	×	×	×
HDD-ASIC trouble		E7 (04)	×	×	×	×	×	×	×	×	×
SCU communication trouble		E7 (80) A0 (02)	×	×	×	×	○	○	×	○	○
PCU communication trouble		E7 (90) A0 (01)	×	×	×	×	×	×	×	×	○
ACU communication trouble		A0 (04)	×	×	×	×	×	×	×	×	○
Backup battery voltage fall		U1 (01)	×	×	×	×	×	×	×	×	○
Controller fan motor trouble		L4 (30)	×	×	×	×	×	×	×	×	×
External communication disable (RIC)		U7 (50, 51)	×	×	×	×	×	×	×	×	○
Memory error (included not installed the expansion RAM)		U2 (00, 05, 10, 11, 22, 23, 24)	×	×	×	×	×	×	×	×	△ 10
Connection trouble (MFP detection)		E7 (60, 61, 65) A0 (10, 11, 12, 15, 20)	×	×	×	×	×	×	×	×	×
Serial number discrepancy		U2 (30)	×	×	×	×	×	×	×	×	×
HDD registration data sum error If the HDD is not installed, data check sum error of the Flash memory for setting and registration.		U2 (50)	×	×	×	×	×	×	×	×	○
Image memory trouble, decode error		E7 (01, 05, 06, 08, 09)	×	×	×	×	×	×	×	×	○
Image memory trouble, decode error (ACRE-related 1)		E7 (42, 46, 48)	×	△ 11	×	×	×	○	○	○	○
Image memory trouble, decode error (ACRE-related 2)		E7 (49)	×	○	×	×	×	○	○	○	○
Personal counter installation trouble		PC (00)	×	×	×	×	×	×	×	×	○
Power controller trouble		L8 (20)	×	×	×	×	×	×	×	×	○
Special function error		U2 (60)	○	○	○	○	○	○	○	○	○
MFP Flash memory access error		E7 (31)	×	×	×	×	×	×	×	×	○
Laser trouble	PCU	E7 (20, 21, 28, 29), L6 (10)	×	×	×	×	×	×	×	×	○
Connection trouble (PCU detection)		E7 (50, 55) A0 (21) F1 (50)	×	×	×	×	×	×	×	×	×
PCU section troubles (motor, fusing, etc.)		C1 (10), F2 (40, 64, 70, 74), H2 (00, 02), H3 (00, 02), H4 (00, 02), H5 (01), H7 (10, 12), L4 (02, 03, 04, 11, 31, 32, 34, 43, 58, 59), L8 (01, 02), U2 (90, 91),	×	×	×	×	×	×	×	×	○
Paper feed tray 1 trouble		F3 (12)	△ 2	○	○	○	△ 2	△ 2/7	○	△ 2	○
Paper feed tray 2 trouble		F3 (22)	△ 2	○	○	○	△ 2	△ 2/7	○	△ 2	○
Paper feed tray 3 trouble		U6 (01)	△ 2	○	○	○	△ 2	△ 2/7	○	△ 2	○
Paper feed tray 4 trouble		U6 (02)	△ 2	○	○	○	△ 2	△ 2/7	○	△ 2	○
Paper feed tray 5 trouble		U6 (09, 20, 21, 22, 51)	△ 2	○	○	○	△ 2	△ 2/7	○	△ 2	○
Paper feed tray other troubles		U6 (00, 10, 50)	△ 8	○	○	○	△ 8	△ 7/8	○	△ 8	○
Staple trouble		F1 (08, 10)	△ 3	△ 3	△ 3	△ 3	△ 3	△ 3/7	△ 3	△ 3	○
Saddle stitch section trouble		F1 (31, 41, 43, 45, 47)	△ 3	△ 3	△ 3	△ 3	△ 3	△ 3/7	△ 3	△ 3	○

Kind of trouble	Judgment block	Trouble code	Operatable mode								
			Copy scan (including interruption)	Scan (Push)	Scan (Pull)	Scan-To HDD	Print	List print	FAX Send	FAX print	FAST Notification to host
After-process trouble	PCU	F1 (00, 03, 11, 15, 19, 20, 21, 22, 23, 32, 33, 34, 36, 37, 38, 39)	△ 3	△ 3	△ 3	△ 3	△ 3	△ 3/7	△ 3	△ 3	○
Other troubles		EE (EC, EL, EU)	○	○	○	○	○	○	○	○	○
Process control trouble (PCU detection)		F2 (31, 39, 58)	○ △ 9	○	○	○	○	○	○	○	○
Connection trouble (SCU detection)	SCU	A0 (22)	×	×	×	×	×	×	×	×	×
SCU color system troubles (SCU detection)		UC (02)	△ 6	△ 6	△ 6	△ 6	○	○	△ 6	○	○
Anti copy system		UC (20)	×	×	×	×	○	○	×	○	○
EEPROM faction		U2 (80, 81)	×	×	×	×	○	○	×	○	○
Scanner section troubles (mirror motor, lens, copy lamp)		L1 (00), L3 (00)	×	×	×	×	○	○	×	○	○
CCD troubles (shading, etc.)		E7 (10, 11, 14)	×	×	×	×	○	○	×	○	○
DSPF/DF trouble		U5 (00, 16, 40)	△ 4	△ 4	△ 4	△ 4	○	○	△ 4	○	○
General troubles in the DSPF back surface scanning section		E6 (10, 11, 14)	△ 5	△ 5	△ 5	△ 5	○	○	△ 5	○	○

○ : Operation enabled, × : Operation disabled

△ 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.

\* However, it is valid only when the escape tray setting has been made.

△ 4 : When detected during other than a job, the operation is enabled in the OC mode.

△ 5 : When detected during other than a job, the operation is enabled in the OC mode and the simplex scanning mode.

△ 6 : When detected during other than a job, the operation is enabled in the black and white mode.

△ 7 : Since communication is enabled, reception can be transferred.

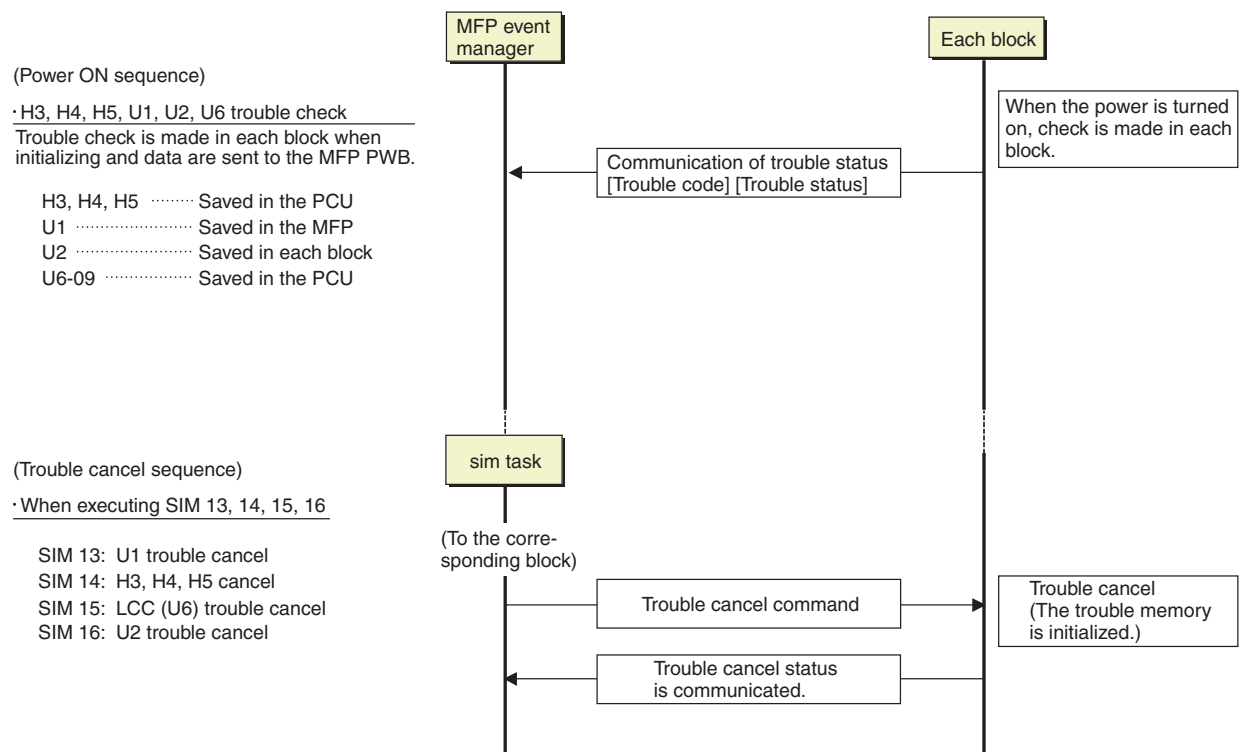
△ 8 : When detected during other than a job, the operation is enabled in other than the DESK.

△ 9 : Trouble display is message of 2 lines. (Example: Ready to copy. F2 trouble)

△ 10 : In case of U2-22, the trouble cannot be notified. In case of U2-23, if either of the FAX soft SW data or the FAST data cannot be restored, the trouble cannot be notified.

△ 11 : Execution of a job is enabled only for the format other than the high-compression PDF related ones.

## (2) Power ON trouble detection sequence.



## 2. Trouble code list

Trouble code		Trouble code content	Trouble detection	Mechanism	Option	Electricity	FAX	Supply
Main code	Sub code							
C1	10	Main charger trouble	PCU			○		
E6	10	DSPF (CIS) shading error (Black correction)	SCU			○		
	11	DSPF (CIS) shading error (White correction)	SCU			○		
	14	CIS-ASIC error	SCU			○		
E7	01	MFP image data error	MFP			○		
	03	HDD trouble	MFP			○		
	04	HDD-ASIC error	MFP			○		
	05	Standard/Extension memory R/W error (MFP PWB) (Local memory)	MFP			○		
	06	Image data decode error	MFP			○		
	08	MFP memory compatibility error (MFP PWB) (Local memory)	MFP			○		
	09	Standard/Extension memory size (MFP PWB) (Local memory)	MFP			○		
	10	Shading error (Black correction)	SCU			○		
	11	Shading error (White correction)	SCU			○		
	14	CCD-ASIC error	SCU			○		
	20	LSU laser detection error	PCU			○		
	21	LSU laser deterioration trouble	PCU			○		
	28	LSU-PCU connection error	PCU			○		
	29	LSU ASIC frequency error	PCU			○		
	31	MFP Flash memory access error	MFP			○		
	42	Data error (ACRE ASIC)	MFP			○		
	46	Decode error (ACRE ASIC)	MFP			○		
	48	Memory error (ACRE ASIC)	MFP			○		
	49	Water Mark data error	MFP			○		
	50	Engine connection trouble	PCU			○		
	55	PWB information sum error (Engine detection)	PCU			○		
	60	Combination error between the MFP PWB and other PWB, firmware	MFP			○		
	61	Combination error between the MFP PWB and the PCU PWB	MFP			○		
	65	MFP EEPROM sum check error	MFP			○		
	80	MFP-SCU PWB communication error	MFP			○		
	90	MFP-PCU PWB communication error	MFP			○		
EE	EC	Automatic toner density adjustment error (Sampling level 67-94/106-154)	PCU			○		
	EL	Automatic toner density adjustment error (Over toner)	PCU			○		
	EU	Automatic toner density adjustment error (Under toner)	PCU			○		
F1	00	Finisher - PCU PWB communication error	PCU		○			
	03	Finisher paper exit roller lifting operation trouble	PCU		○			
	08	Stapler shift trouble	PCU		○			
	10	Staple operation trouble	PCU		○			
	11	Finisher grip operation trouble	PCU		○			
	15	Finisher paper exit tray lift operation trouble	PCU		○			
	19	Finisher alignment operation trouble F	PCU		○			
	20	Finisher alignment operation trouble R	PCU		○			
	21	Finisher fan trouble	PCU		○			
	22	Finisher assist motor trouble	PCU		○			
	23	Finisher shutter trouble	PCU		○			
	31	Saddle paper folding trouble	PCU		○			
	32	Finisher - Punch unit communication error	PCU		○			
	33	Punch unit shift operation trouble	PCU		○			
	34	Punch operation trouble	PCU		○			
	36	Punch paper edge detection error	PCU		○			
	37	Finisher data backup RAM error	PCU		○			
	38	Punch data backup RAM error	PCU		○			
	39	Punch paper dust sensor error	PCU		○			
	41	Saddle paper positioning operation trouble	PCU		○			
	43	Saddle alignment operation trouble	PCU		○			
	45	Saddle staple trouble	PCU		○			
	47	Saddle paper transport motor trouble	PCU		○			
	50	Main unit - Finisher combination error	PCU		○			
F2	31	Image density sensor trouble (OPC drum surface reflection ratio abnormality)	PCU					○
	39	Process thermistor trouble	PCU					○
	40	Toner density sensor trouble	PCU					○
	58	Process humidity sensor trouble	PCU					○
	64	Toner supply operation trouble	PCU					○
	70	Improper toner cartridge detection	PCU					○
	74	Toner cartridge CRUM error	PCU					○
F3	12	Paper feed tray 1 lift operation trouble	PCU	○				
	22	Paper feed tray 2 lift operation trouble	PCU	○				

Trouble code		Trouble code content	Trouble detection	Mechanism	Option	Electricity	FAX	Supply
Main code	Sub code							
F6	00	MFP-FAX communication trouble	MFP				○	
	01	FAX board EEPROM read/write error	FAX				○	
	04	FAX MODEM operation trouble	FAX				○	
	21	Combination error between the TEL/LIU PWB and the FAX soft switch	FAX				○	
	30	Access error to 1-chip microprocessor on the FAX board (FAX detection)	FAX				○	
	97	The FAX PWB does not match with the machine model.	FAX				○	
	98	Combination error between the FAX-BOX destination information and the machine destination information.	FAX				○	
H2	00	Thermistor open trouble (TH_UM)	PCU	○				
	02	Thermistor open trouble (TH_US)	PCU	○				
H3	00	Fusing section high temperature trouble (TH_UM)	PCU	○				
	02	Fusing section high temperature trouble (TH_US)	PCU	○				
H4	00	Fusing section low temperature trouble (TH_UM)	PCU	○				
	02	Fusing section low temperature trouble (TH_US)	PCU	○				
H5	01	5 times continuous POD1 not-reach jam	PCU	○				
H7	10	Recovery error from low fuser temp. (TH_UM_AD2)	PCU	○				
	12	Recovery error from low fuser temp. (TH_US)	PCU	○				
L1	00	Scanner feed trouble	SCU	○				
L3	00	Scanner return trouble	SCU	○				
L4	02	Paper feed motor trouble	PCU			○		
	03	Fusing motor trouble	PCU			○		
	04	Drum motor trouble	PCU			○		
	11	Shift motor trouble	PCU			○		
	30	MFP fan motor trouble	MFP			○		
	31	Paper exit cooling fan (POFM1/2) trouble	PCU			○		
	32	Power source cooling fan trouble	PCU			○		
	34	LSU cooling fan trouble	PCU			○		
	43	Paper exit cooling fan (POFM3) trouble	PCU			○		
	58	Ozone exhaust fan trouble	PCU			○		
L6	10	Polygon motor trouble	PCU			○		
	01	Full wave signal detection error	PCU			○		
L8	02	Full wave signal error	PCU			○		
	20	Communication error of MFP PWB/Mother board	MFP			○		
PC	-	Personal counter not detected	MFP	○				
U1	01	Battery trouble	MFP			○		
U2	00	MFP EEPROM read/write error	MFP			○		
	05	HDD/MFP PWB SRAM contents inconsistency	MFP			○		
	10	MFP PWB SRAM user authentication index check sum error	MFP			○		
	11	MFP PWB EEPROM counter check sum error	MFP			○		
	22	MFP PWB SRAM memory check sum error	MFP			○		
	23	MFP PWB SRAM memory individual data check sum error	MFP			○		
	24	MFP PWB SRAM memory user authentication counter check sum error	MFP			○		
	30	MFP PWB and PCU PWB manufacturing No. data inconsistency	MFP			○		
	50	HDD/Flash memory registration data check sum error	MFP			○		
	60	Water Mark check error	MFP					
	80	SCU PWB EEPROM read/write error	SCU			○		
	81	SCU PWB EEPROM check sum error	SCU			○		
	90	PCU PWB EEPROM read/write error	PCU			○		
	91	PCU PWB EEPROM check sum error	PCU			○		
U5	00	Document feed unit communication error	SCU			○		
	16	Document feed unit fan motor trouble	SCU			○		
	40	Document feed unit installation trouble	SCU			○		
U6	00	Communication error of PCU PWB/Desktop paper feed unit	PCU			○		
	01	Desk paper feed tray 1 lift trouble	PCU		○			
	02	Desk paper feed tray 2 lift trouble	PCU		○			
	09	LCC lift trouble	PCU		○			
	10	Desk paper feed unit paper transport motor trouble	PCU		○			
	20	PCU PWB - LCC communication error	PCU		○			
	21	LCC paper transport motor trouble	PCU		○			
	22	LCC 24V power trouble	PCU		○			
	50	Desk - Main unit combination trouble	PCU		○			
	51	LCC - Main unit combination trouble	PCU		○			
U7	50	MFP PWB - Vendor machine communication error	MFP			○		
	51	Vendor machine error	MFP			○		
UC	02	IPD/DOCC ASIC IPD section error (N model only)	SCU			○		
	20	IPD/DOCC ASIC DOCC section error (N model only)	SCU			○		



Trouble code		Trouble code content	Trouble detection	Mechanism	Option	Electricity	FAX	Supply
Main code	Sub code							
A0	01	PCU PWB ROM error	MFP			○		
	02	SCU PWB ROM error	MFP			○		
	04	ACU PWB ROM error (when scanner expansion kit is installed)	MFP			○		
	10	MFP PWB ROM error	MFP			○		
	11	Firmware version inconsistency (MFP - PCU)	MFP			○		
	12	Firmware version inconsistency (MFP - SCU)	MFP			○		
	15	DSK BOOT version disagreement	MFP			○		
	20	Conflict firmware and EEPROM data version (MFP)	MFP			○		
	21	Conflict firmware and EEPROM data version (PCU)	PCU			○		
	22	Conflict firmware and EEPROM data version (SCU)	SCU			○		

### 3. Details of trouble code

#### C1-10 Main charger trouble

Trouble content	
Detail	PCU
Cause	The main charger unit is not installed properly. There is an abnormality in the main charger unit. Disconnection of the high voltage PWB connector. MC/DV high voltage PWB trouble. PCU PWB trouble
Check & Remedy	Check the output of the main charger with SIM8-2. Check disconnection of the main charger./Replace. Check disconnection of the high voltage PWB connector./Replace. Replace the MC/DV high voltage PWB. Replace the PCU PWB.

#### E6-10 DSPF (CIS) shading error (Black correction)

Trouble content	
Detail	SCU
Cause	Installation error of the CIS unit harness. CIS unit trouble. DSPF PWB trouble.
Check & Remedy	Check the installing state of the harness to the CIS unit. Check the CIS unit. Check the DSPF PWB.

#### E6-11 DSPF (CIS) shading error (White correction)

Trouble content	
Detail	SCU
Cause	Installation error of the CIS unit harness. Copy lamp lighting trouble. Dirt on the reference white plate. CIS unit trouble. DSPF PWB trouble. Shading adjustment error
Check & Remedy	Check the installing state of the harness the CIS unit. Clean the reference white plate. Check the CIS unit. Check the DSPF PWB.

#### E6-14 CIS-ASIC error

Trouble content	
Detail	SCU
Cause	DSPF PWB trouble.
Check & Remedy	Replace the DSPF PWB.

#### E7-01 MFP image data error

Trouble content	
Detail	MFP
Cause	Image data transfer error in the MFP PWB. MFP PWB trouble.
Check & Remedy	Check connection of the connector and the harness of the MFP PWB. Replace the MFP PWB.

#### E7-03 HDD trouble

Trouble content	
Detail	MFP
Cause	Connector, harness connection trouble in the MFP PWB and HDD. HDD error file management area data abnormality (FAT breakage). MFP PWB trouble.
Check & Remedy	Check connection of the connector and the harness of the MFP PWB and HDD. Use SIM62-2,3 to check read/write operations of the HDD. Replace the HDD. Replace the MFP PWB.

#### E7-04 HDD-ASIC error

Trouble content	
Detail	MFP
Cause	HDD-ASIC trouble. An error occurs in the HDD-ASIC self test when booting.
Check & Remedy	Replace the MFP PWB.

#### E7-05 Standard/Extension memory R/W error (MFP PWB) (Local memory)

Trouble content	
Detail	MFP
Cause	Improper insertion of the memory. Garbled memory data. The memory capacity is not the specified level.
Check & Remedy	Check insertion of the memory. Use SIM60-1 to check the read/write operations of the memory. Replace the expansion memory. Replace the MFP PWB.

**E7-06 Image data decode error**

Trouble content	
Detail	MFP
Cause	Compressed image data abnormality. HDD connection trouble when HDD is installed. Image data compression/transfer data garble. MFP PWB trouble.
Check & Remedy	If the job at an occurrence of an error is a FAX job, check the FAX PWB. Check connection of the MFPC PWB and the HDD. Replace the MFPC PWB.

**E7-08 MFP memory compatibility error (MFP PWB) (Local memory)**

Trouble content	
Detail	MFP
Cause	A DIMM of different specifications is installed to the MFP memory slot. DIMM trouble.
Check & Remedy	Check the installed DIMM. Replace the DIMM.

**E7-09 Standard/Extension memory size (MFP PWB) (Local memory)**

Trouble content	
Detail	MFP
Cause	A DIMM which is not 512MB is inserted. DIMM trouble. Insufficient memory size.
Check & Remedy	Replace the DIMM.

**E7-10 Shading error (Black correction)**

Trouble content	
Detail	SCU
Cause	Abnormality in the CCD black scan level when the scanner lamp is turned OFF. Improper installation of the harness to the CCD unit. CCD unit abnormality. SCU PWB abnormality.
Check & Remedy	Check connection of the harness to the CCD unit. Check the CCD unit. Check the SCU PWB.

**E7-11 Shading error (White correction)**

Trouble content	
Detail	SCU
Cause	Abnormality in the CCD white reference plate scan level when the scanner lamp is turned ON. Improper installation of the harness to the CCD unit. Dirt on the mirror, lens, and the reference white plate. Scanner lamp lighting trouble. CCD unit abnormality. SCU PWB abnormality.
Check & Remedy	Check connection of the harness to the CCD unit. Check connection of the harness to the scanner lamp unit. Clean the mirror, the lens, and the reference white plate. Check the CCD unit. Check the SCU PWB.

**E7-14 CCD-ASIC error**

Trouble content	
Detail	SCU
Cause	SCU PWB trouble.
Check & Remedy	Check the SCU PWB. Replace the SCU PWB.

**E7-20 LSU laser detection error**

Trouble content	
Detail	PCU
Cause	Optical axis shift. Reduced laser power, lighting error, laser diode trouble. Harness and connector trouble between the LD/BD PWB and the LSU control PWB.
Check & Remedy	Use SIM61-1 to check the operation of the LSU. Check the PWB and connection of the harness in the LSU. Replace the LSU.

**E7-21 LSU laser deterioration trouble**

Trouble content	
Detail	PCU
Cause	Power reduction due to laser deterioration. Harness and connector disconnection/insertion trouble between the LD PWB and the LSU control PWB.
Check & Remedy	Use SIM61-1 to check the operation of the LSU. Check the PWB and connection of the harness in the LSU. Replace the LSU.

**E7-28 LSU-PCU connection error**

Trouble content	
Detail	PCU
Cause	Communication error between the CPU in the PCU PWB and the LSU control ASIC. Improper connection of the communication connector between the PCU PWB and the LSU control PWB (interface PWB). Harness trouble between the PCU PWB and the LSU control PWB (interface PWB) PCU PWB or LSU control PWB (interface PWB) trouble
Check & Remedy	Check connection of the connector and the harness between the PCU PWB and the LSU control PWB (interface PWB). Replace the LSU control PWB. Replace the PCU PWB.

**E7-29 LSU ASIC frequency error**

Trouble content	
Detail	PCU
Cause	Oscillation abnormality of the external oscillator and the internal oscillating circuit used in the LSU ASIC. LSU ASIC abnormality on the LSU ASIC PWB.
Check & Remedy	Replace the LSU control PWB.

**E7-31 MFP Flash memory access error**

Trouble content	MFP Flash memory access error
Detail	MFP
Cause	Read/write error for the MFP Flash memory Target data <ul style="list-style-type: none"> <li>Address book data</li> <li>Part of the key operator program</li> <li>Copy job program</li> <li>Part of the user authentication data</li> <li>Sender record, etc.</li> </ul> MFP Flash memory error MFP Flash memory contact error Malfunctions caused by noises Saved data are garbled.
Check & Remedy	Check the following data for any abnormality. If there is any abnormality, reset and register the content. <ul style="list-style-type: none"> <li>Part of the key operator program</li> <li>Copy job program</li> <li>Part of the user authentication data</li> <li>Image send series registration data (Sender record)</li> </ul> Replace the MFP PWB. When the main power is turned OFF/ON in a machine without HDD installed, if an error occurs again, execute SIM62-01. If the trouble is not canceled by this procedure, replace the MFP PWB.

**E7-42 Data error (ACRE ASIC)**

Trouble content	
Detail	MFP
Cause	Image transfer trouble.
Check & Remedy	Check the connection state of the ACRE ASIC PWB connector. Replace the ACRE ASIC PWB.

**E7-46 Decode error (ACRE ASIC)**

Trouble content	
Detail	MFP
Cause	Compression data abnormality. Garbled data are produced in image compression/transmission. ACRE ASIC PWB trouble.
Check & Remedy	Check the installation state of the PWB. Check connection of the ACRE ASIC PWB. Replace the ACRE ASIC PWB.

**E7-48 Memory error (ACRE ASIC)**

Trouble content	
Detail	MFP
Cause	DIMM trouble, memory slot trouble. DIMM insertion trouble, different DIMM inserted.
Check & Remedy	DIMM trouble. Replace the PWB.

**E7-49 Water Mark data error**

Trouble content	
Detail	MFP
Cause	Watermark data trouble
Check & Remedy	Use SIM49-5 to upload the watermark data. Replace the HDD.

**E7-50 Engine connection trouble**

Trouble content	
Detail	PCU
Cause	A PWB, or firmware, or LSU which is not supported by the machine specifications is detected in the PCU PWB. PCU PWB trouble. LSU trouble.
Check & Remedy	Check the kind and the version of the firmware. Check the LSU, and replace it if necessary. Check the PCU PWB, and replace it if necessary.

**E7-55 PWB information sum error (Engine detection)**

Trouble content	PCU EEPROM PWB information sum error
Detail	PCU
Cause	PCU EEPROM sum check error. PCU EEPROM trouble. PCU EEPROM contact trouble. Malfunction due to noises
Check & Remedy	Replace the PCU PWB. Replace the PCU EEPROM.

**E7-60 Combination error between the MFP PWB and other PWB, firmware**

Trouble content	
Detail	MFP
Cause	A PWB or firmware which is not supported by the machine specifications is detected in the MFP PWB. MFP PWB trouble. The PWB/firmware which is not supported by the machine specifications is connected.
Check & Remedy	Check the kind and the version of the firmware. Check the MFP PWB, and replace it if necessary.

**E7-61 Combination error between the MFP PWB and the PCU PWB**

Trouble content	
Detail	MFP
Cause	Combination error between the MFP PWB and the PCU PWB. MFP PWB trouble. PCU PWB trouble.
Check & Remedy	Check the combination between the MFP PWB and the PCU PWB. Replace the MFP PWB. Replace the PCU PWB.

**E7-65 MFP EEPROM sum check error**

Trouble content	
Detail	MFP
Cause	MFP PWB EEPROM device breakdown. Contact trouble of the MFP EEPROM device. Malfunction due to noises.
Check & Remedy	Replace the MFP PWB. Replace the MFP PWB EEPROM.

**E7-80 MFP-SCU PWB communication error**

Trouble content	
Detail	MFP
Cause	SCU PWB connector connection trouble. SCU PWB - MFP PWB connection trouble. SCU PWB mother board connection trouble. SCU PWB trouble. MFP PWB trouble. Mother board trouble.
Check & Remedy	Check connection of the SCU PWB, the MFP PWB, and the mother board. Check the ground. Replace the SCU PWB. Replace the MFP PWB. Replace the mother board.

**E7-90 MFP - PCU PWB communication error**

Trouble content	
Detail	MFP
Cause	PCU PWB connector connection trouble. PCU PWB - MFP PWB connection trouble. PCU PWB trouble. MFP PWB trouble. Mother board trouble.
Check & Remedy	Check connection of the PCU PWB, the MFP PWB, and the mother board. Check the ground. Replace the PCU PWB. Replace the MFP PWB. Replace the mother board.

**EE-EC Automatic toner density adjustment error (Sampling level 67-94/106-154)**

Trouble content	The sampling level in the automatic toner density adjustment is outside of 100±5.
Detail	PCU
Cause	Toner density sensor trouble. Developing unit trouble. PCU PWB trouble.
Check & Remedy	Replace the toner density sensor. Replace the developing unit. Replace the PCU PWB.

**EE-EL Automatic toner density adjustment error (Over toner)**

Trouble content	The sampling level in the automatic toner density adjustment is 66 or less or the control voltage is 198 or above.
Detail	PCU
Cause	Toner density sensor trouble. Charging voltage/ developing voltage trouble, toner density trouble, or developing unit trouble. PCU PWB trouble.
Check & Remedy	Replace the toner density sensor. Replace the developing unit. Replace the PCU PWB.

**EE-EU Automatic toner density adjustment error (Under toner)**

Trouble content	The sampling level in the automatic toner density adjustment is 155 or above or the control voltage is 48 or less.
Detail	PCU
Cause	Toner density sensor trouble. Charging voltage/ developing voltage trouble, toner density trouble, or developing unit trouble. PCU PWB trouble.
Check & Remedy	Replace the toner density sensor. Replace the developing unit. Replace the PCU PWB.

**F1-00 Finisher - PCU PWB communication error**

Trouble content	
Detail	PCU
Cause	Connection trouble of the connector and the harness between the finisher and the PCU PWB. Finisher control PWB trouble. PCU PWB trouble. Strong external noises.
Check & Remedy	Check the connector and the harness between the finisher and the PCU PWB. Replace the finisher control PWB. Replace the PCU PWB.

**F1-03 Finisher paper exit roller lifting operation trouble**

Trouble content	
Detail	PCU
Cause	Finisher paper exit roller lift motor trouble. Harness and connector connection trouble. Home position sensor trouble. Finisher control PWB trouble.
Check & Remedy	Use SIM3-3 to check the operation of the paper exit roller lift motor. Replace the paper exit roller lift motor. Check connection of the connector and the harness. Replace the home position sensor. Replace the finisher control PWB.

**F1-08 Stapler shift trouble**

Trouble content	
Detail	PCU
Cause	Stapler shift motor trouble. Finisher control PWB trouble. Home position sensor trouble.
Check & Remedy	Use SIM3-3 to check the operation of the stapler shift motor. Replace the stapler shift motor. Check connection of the connector and the harness. Replace the home position sensor. Replace the finisher control PWB.

**F1-10 Staple operation trouble**

Trouble content	
Detail	PCU
Cause	Staple motor trouble. Finisher control PWB trouble. Home position sensor trouble.
Check & Remedy	Use SIM3-3 to check the operation of the staple motor. Replace the staple motor. Check connection of the connector and the harness. Replace the home position sensor. Replace the finisher control PWB.

**F1-11 Finisher grip operation trouble**

Trouble content	
Detail	PCU
Cause	Grip motor trouble. Finisher control PWB trouble. Grip arm trouble. Home position sensor trouble.
Check & Remedy	Use SIM3-3 to check the operation of the grip motor. Replace the grip motor. Replace the finisher control PWB. Replace the grip arm. Replace the home position sensor.

**F1-15 Finisher paper exit tray lift operation trouble**

Trouble content	Lift motor trouble.
Detail	PCU
Cause	Paper exit tray lift motor trouble. Finisher control PWB trouble.
Check & Remedy	Use SIM3-3 to check the operation of the paper exit tray lift motor. Replace the finisher control PWB. Replace the paper exit tray lift motor.

**F1-19 Finisher alignment operation trouble F**

Trouble content	
Detail	PCU
Cause	Finisher paper alignment motor lock. Motor speed abnormality. Over-current to the motor. Finisher control PWB trouble.
Check & Remedy	Use SIM3-3 to check the operation of the paper alignment motor F. Replace the finisher control PWB. Replace the paper alignment motor F.

**F1-20 Finisher alignment operation trouble R**

Trouble content	
Detail	PCU
Cause	Finisher paper alignment motor lock. Motor speed abnormality. Over-current to the motor. Finisher control PWB trouble.
Check & Remedy	Use SIM3-3 to check the operation of the paper alignment motor R. Replace the finisher control PWB. Replace the paper alignment motor R.

**F1-21 Finisher fan trouble**

Trouble content	
Detail	PCU
Cause	Finisher fan motor trouble. Finisher control PWB trouble. Harness and connector connection trouble.
Check & Remedy	Use SIM3-3 to check the operation of the fan motor. Check connection between the finisher control PWB and the fan. Replace the fan. Replace the finisher control PWB.

**F1-22 Finisher assist motor trouble**

Trouble content	
Detail	PCU
Cause	Motor harness short/open trouble. Control PWB trouble. Connection harness/connector connection trouble
Check & Remedy	Check the operation of the rear edge assist motor with SIM3-3. Check connection from the control PWB to the motor. Replace the control PWB.

**F1-23 Finisher shutter trouble**

Trouble content	
Detail	PCU
Cause	Motor lock trouble. Control PWB trouble, home position sensor trouble. Connection harness/connector connection trouble.
Check & Remedy	Check the operation of the rear edge assist motor with SIM3-3. Check connection from the control PWB to the motor. Replace the control PWB.

**F1-31 Saddle paper folding trouble**

Trouble content	
Detail	PCU
Cause	Motor lock trouble. Control PWB trouble, home position sensor trouble. Connection harness/connector connection trouble.
Check & Remedy	Check the operation of the saddle motor with SIM3-3. Check connection from the control PWB to the motor. Replace the control PWB. Replace the sensor.

**F1-32 Finisher - Punch unit communication error**

Trouble content	
Detail	PCU
Cause	Connector/harness connection trouble or disconnection between the finisher and the punch unit. Finisher control PWB trouble. PCU PWB trouble. Malfunction due to noises. The punch unit is in the adjustment mode.
Check & Remedy	Check the connector and the harness between the finisher and the punch unit. Replace the finisher control PWB. Replace the PCU PWB. Cancel the adjustment mode of the punch unit.

**F1-33 Punch unit shift operation trouble**

Trouble content	
Detail	PCU
Cause	Punch shift motor trouble. Finisher control PWB trouble. Home position sensor trouble. Harness and connector connection trouble.
Check & Remedy	Use SIM3-3 to check the operation of the punch shifting. Replace the punch shift motor. Replace the finisher control PWB. Replace the home position sensor. Check connection of the connectors and the harness.

**F1-34 Punch operation trouble**

Trouble content	
Detail	PCU
Cause	Punch motor trouble. Finisher control PWB trouble. Home position sensor trouble. Harness and connector connection trouble.
Check & Remedy	Check the punch operation. Replace the punch motor. Replace the finisher control PWB. Replace the home position sensor. Check connection of the connectors and the harness.

**F1-36 Punch paper edge detection error**

Trouble content	
Detail	PCU
Cause	Punch paper edge sensor trouble. Harness disconnection. Finisher control PWB trouble. Punch control PWB trouble.
Check & Remedy	Use SIM3-2 to check the operation of the sensor. Replace the punch paper edge sensor. Replace the finisher control PWB. Replace the punch control PWB.

**F1-37 Finisher data backup RAM error**

Trouble content	
Detail	PCU
Cause	Finisher control PWB trouble. Malfunction due to noises
Check & Remedy	Replace the finisher control PWB. Readjust the finisher. (Use SIM3-10, Finisher control PWB DIP SW adjustment.)

**F1-38 Punch data backup RAM error**

Trouble content	
Detail	PCU
Cause	Punch control PWB trouble. Malfunction due to noises
Check & Remedy	Replace the punch control PWB. Set the punch unit specifications, and adjust the sensor. (Punch unit control PWB DIP SW adjustment.)

**F1-39 Punch paper dust sensor error**

Trouble content	
Detail	PCU
Cause	Punch dust sensor trouble. Harness and connector connection trouble. Finisher control PWB trouble. Punch unit control PWB trouble.
Check & Remedy	Use SIM3-2 to check the operation of the sensor. Check connection of the connectors and the harness. Replace the punch dust sensor. Replace the finisher control PWB. Replace the punch unit control PWB.

**F1-41 Saddle paper positioning operation trouble**

Trouble content	Abnormality in the folding positioning guide motor in the saddle section.
Detail	PCU
Cause	Saddle paper positioning guide drive motor trouble. Finisher control PWB trouble. Home position sensor trouble. Harness and connector connection trouble.
Check & Remedy	Use SIM3-3 to check the operation of the saddle paper positioning motor. Check connection from the control PWB to the motor. Turn OFF/ON the power. Replace the control PWB. Replace the sensor.

**F1-43 Saddle alignment operation trouble**

Trouble content	
Detail	PCU
Cause	Saddle alignment motor trouble. Finisher control PWB trouble. Home position sensor trouble. Harness and connector connection trouble.
Check & Remedy	Use SIM3-3 to check the operation of the Saddle alignment motor (FSPAM). Check connection from the control PWB to the motor. Turn OFF/ON the power. Replace the control PWB. Replace the sensor.

**F1-45 Saddle staple trouble**

Trouble content	Abnormality of the staple unit drive motor in the saddle section.
Detail	PCU
Cause	Saddle staple motor trouble. Finisher control PWB trouble. Home position sensor trouble. Harness and connector connection trouble.
Check & Remedy	Use SIM3-3 to check the operation of the saddle staple motor. Check connection from the control PWB to the motor. Turn OFF/ON the power. Replace the control PWB. Replace the sensor.

**F1-47 Saddle paper transport motor trouble**

Trouble content	Abnormality in the drive roller oscillation motor in the finisher saddle transport section.
Detail	PCU
Cause	Saddle paper transport motor trouble. Finisher control PWB trouble. Harness and connector connection trouble. Fuse blown (24V line).
Check & Remedy	Use SIM3-3 to check the operation of the saddle paper transport motor. Check connection from the control PWB to the motor. Replace the control PWB. Replace the sensor.

**F1-50 Main unit - Finisher combination error**

Trouble content	
Detail	PCU
Cause	The finisher which is not supported by the main unit model is installed. Finisher control PWB trouble.
Check & Remedy	Install a proper finisher. Replace the finisher control PWB.

**F2-31 Image density sensor trouble (OPC drum surface reflection ratio abnormality)**

Trouble content	
Detail	PCU
Cause	Before execution of the process control, a document is scanned by the image density sensor and the sensor gain is adjusted so that the output is at a fixed level. Though, however, the sensor gain is changed, the output does not become a fixed level. Image density sensor trouble Connection trouble of the harness between the PCU PWB and the image density sensor Image density sensor dirt
Check & Remedy	Use SIM44-2 to execute the gain adjustment of the process control sensor. When there are some troubles, "Error" is displayed. Check the sensor and the harness at that time.

**F2-39 Process thermistor trouble**

Trouble content	
Detail	PCU
Cause	Process thermistor trouble. Process thermistor harness connection trouble. PCU PWB trouble
Check & Remedy	Replace the process thermistor. Check connection of the harness and the connector. Replace the PCU PWB.

**F2-40 Toner density sensor trouble**

Trouble content	
Detail	PCU
Cause	Toner density sensor output abnormality (Sample level 25 or less, or 201 or above) Connection trouble of the connector and the harness. Developing unit trouble. PCU PWB trouble.
Check & Remedy	Replace the toner density sensor. Check connection of the connector and the harness. Replace the developing unit. Replace the PCU PWB.

**F2-58 Process humidity sensor trouble**

Trouble content	
Detail	PCU
Cause	Process humidity sensor trouble. Harness and connector connection trouble. PCU PWB trouble.
Check & Remedy	Replace the process humidity sensor. Check connection of the connectors and the harness. Replace the PCU PWB.

**F2-64 Toner supply operation trouble**

Trouble content	
Detail	PCU
Cause	Toner clutch trouble. Toner density sensor trouble. Connector/harness trouble. PCU PWB trouble. Toner cartridge trouble. Developing unit trouble.
Check & Remedy	Replace the toner clutch. Replace the toner density sensor. Connector and harness check. Replace the PCU PWB. Replace the toner cartridge. Replace the developing unit.

**F2-70 Improper toner cartridge detection**

Trouble content	
Detail	PCU
Cause	An improper toner cartridge is inserted. (The main unit detects a toner cartridge of a different specification.) Toner cartridge trouble. PCU PWB trouble
Check & Remedy	Replace the toner cartridge. Replace the PCU PWB.

**F2-74 Toner cartridge CRUM error**

Trouble content	
Detail	PCU
Cause	Toner cartridge (CRUM) trouble. PCU PWB trouble. Connector/harness trouble.
Check & Remedy	Replace the toner cartridge. Replace the PCU PWB. Connector and harness check.

**F3-12 Paper feed tray 1 lift operation trouble**

Trouble content	
Detail	PCU
Cause	LUD1 is not turned ON within the specified time. CLUD1 sensor trouble Paper feed tray 1 lift unit trouble. PCU PWB trouble. Harness and connector connection trouble.
Check & Remedy	Check connection of the harness and the connector of LUD1. Replace the lift-up unit. Replace the PCU PWB.

**F3-22 Paper feed tray 2 lift operation trouble**

Trouble content	LUD2 does not turn ON within the specified time.
Detail	PCU
Cause	LUD2 does not turn ON within the specified time. CLUD2 sensor trouble. Paper feed tray 2 lift unit trouble. PCU PWB trouble. Harness and connector connection trouble.
Check & Remedy	Check the harness and the connector of LUD2. Replace the lift-up unit. Replace the PCU PWB.

**F6-00 MFP-FAX communication trouble**

Trouble content	Communication establishment error/Framing/Parity/Protocol error				
Section	MFP				
Case 1	<table border="1"> <tr> <td>Cause</td><td>FAX unit PWB connector connection error</td></tr> <tr> <td>Check and remedy</td><td>Check the connector connection between the FAX unit PWB and the MFPcnt PWB.</td></tr> </table>	Cause	FAX unit PWB connector connection error	Check and remedy	Check the connector connection between the FAX unit PWB and the MFPcnt PWB.
Cause	FAX unit PWB connector connection error				
Check and remedy	Check the connector connection between the FAX unit PWB and the MFPcnt PWB.				
Case 2	<table border="1"> <tr> <td>Cause</td><td>FAX unit PWB - MFPcnt PWB harness trouble</td></tr> <tr> <td>Check and remedy</td><td>Check the connector harness between the FAX unit PWB and the MFPcnt PWB.</td></tr> </table>	Cause	FAX unit PWB - MFPcnt PWB harness trouble	Check and remedy	Check the connector harness between the FAX unit PWB and the MFPcnt PWB.
Cause	FAX unit PWB - MFPcnt PWB harness trouble				
Check and remedy	Check the connector harness between the FAX unit PWB and the MFPcnt PWB.				
Case 3	<table border="1"> <tr> <td>Cause</td><td>FAX unit PWB mother board connector pin breakage</td></tr> <tr> <td>Check and remedy</td><td>Check the machine grounding.</td></tr> </table>	Cause	FAX unit PWB mother board connector pin breakage	Check and remedy	Check the machine grounding.
Cause	FAX unit PWB mother board connector pin breakage				
Check and remedy	Check the machine grounding.				
Case 4	<table border="1"> <tr> <td>Cause</td><td>FAX unit ROM trouble/ROM pin breakage</td></tr> <tr> <td>Check and remedy</td><td>Check the FAX unit PWB ROM.</td></tr> </table>	Cause	FAX unit ROM trouble/ROM pin breakage	Check and remedy	Check the FAX unit PWB ROM.
Cause	FAX unit ROM trouble/ROM pin breakage				
Check and remedy	Check the FAX unit PWB ROM.				

**F6-01 FAX board EEPROM read/write error**

Trouble content	EEPROM access error (read/write)				
Section	FAX				
Case 1	<table border="1"> <tr> <td>Cause</td><td>EEPROM trouble</td></tr> <tr> <td>Check and remedy</td><td>Check that no trouble occurs after replacement of EEPROM. Execute the memory check of SIM66-3 to insure that EEPROM can be accessed.</td></tr> </table>	Cause	EEPROM trouble	Check and remedy	Check that no trouble occurs after replacement of EEPROM. Execute the memory check of SIM66-3 to insure that EEPROM can be accessed.
Cause	EEPROM trouble				
Check and remedy	Check that no trouble occurs after replacement of EEPROM. Execute the memory check of SIM66-3 to insure that EEPROM can be accessed.				
Case 2	<table border="1"> <tr> <td>Cause</td><td>FAX PWB EEPROM access circuit trouble</td></tr> <tr> <td>Check and remedy</td><td>Replace the PWB. In this case, not need to execute the simulation.</td></tr> </table>	Cause	FAX PWB EEPROM access circuit trouble	Check and remedy	Replace the PWB. In this case, not need to execute the simulation.
Cause	FAX PWB EEPROM access circuit trouble				
Check and remedy	Replace the PWB. In this case, not need to execute the simulation.				

**F6-04 FAX MODEM operation trouble**

Trouble content	FAX PWB MODEM chip operation trouble				
Section	FAX				
Case 1	<table border="1"> <tr> <td>Cause</td><td>FAX PWB MODEM chip operation trouble</td></tr> <tr> <td>Check and remedy</td><td>Replace the FAX PWB MODEM chip.</td></tr> </table>	Cause	FAX PWB MODEM chip operation trouble	Check and remedy	Replace the FAX PWB MODEM chip.
Cause	FAX PWB MODEM chip operation trouble				
Check and remedy	Replace the FAX PWB MODEM chip.				
Case 2	<table border="1"> <tr> <td>Cause</td><td>The FAX PWB MODEM chip cannot be accessed.</td></tr> <tr> <td>Check and remedy</td><td>Replace the FAX PWB.</td></tr> </table>	Cause	The FAX PWB MODEM chip cannot be accessed.	Check and remedy	Replace the FAX PWB.
Cause	The FAX PWB MODEM chip cannot be accessed.				
Check and remedy	Replace the FAX PWB.				

**F6-21 Combination error between the TEL/LIU PWB and the FAX soft switch**

Trouble content	Combination error between the TEL/LIU PWB and the FAX PWB information (soft switch)				
Section	FAX				
Case 1	<table border="1"> <tr> <td>Cause</td><td>The destination of the installed TEL/LIU PWB differs.</td></tr> <tr> <td>Check and remedy</td><td>Check the destination of the installed TEL/LIU PWB.</td></tr> </table>	Cause	The destination of the installed TEL/LIU PWB differs.	Check and remedy	Check the destination of the installed TEL/LIU PWB.
Cause	The destination of the installed TEL/LIU PWB differs.				
Check and remedy	Check the destination of the installed TEL/LIU PWB.				
Case 2	<table border="1"> <tr> <td>Cause</td><td>The FAX PWB information (soft switch) differs.</td></tr> <tr> <td>Check and remedy</td><td>Check the FAX PWB information (soft switch).</td></tr> </table>	Cause	The FAX PWB information (soft switch) differs.	Check and remedy	Check the FAX PWB information (soft switch).
Cause	The FAX PWB information (soft switch) differs.				
Check and remedy	Check the FAX PWB information (soft switch).				
Case 3	<table border="1"> <tr> <td>Cause</td><td>TEL/LIU PWB trouble</td></tr> <tr> <td>Check and remedy</td><td>Replace the TEL/LIU PWB.</td></tr> </table>	Cause	TEL/LIU PWB trouble	Check and remedy	Replace the TEL/LIU PWB.
Cause	TEL/LIU PWB trouble				
Check and remedy	Replace the TEL/LIU PWB.				

**F6-30 Access error to 1-chip microprocessor on the FAX board (FAX detection)**

Trouble content	Access error (read/write) to 1-chip microprocessor on the FAX board				
Section	FAX				
Case 1	<table border="1"> <tr> <td>Cause</td><td>Program writing error (or no writing) to the 1-chip microprocessor</td></tr> <tr> <td>Check and remedy</td><td>Use SIM66-24 to rewrite the 1-chip microprocessor program.</td></tr> </table>	Cause	Program writing error (or no writing) to the 1-chip microprocessor	Check and remedy	Use SIM66-24 to rewrite the 1-chip microprocessor program.
Cause	Program writing error (or no writing) to the 1-chip microprocessor				
Check and remedy	Use SIM66-24 to rewrite the 1-chip microprocessor program.				
Case 2	<table border="1"> <tr> <td>Cause</td><td>1-chip microprocessor trouble</td></tr> <tr> <td>Check and remedy</td><td>Replace the 1-chip microprocessor chip. When replacing, use SIM66-42 to rewrite the 1-chip microprocessor program.</td></tr> </table>	Cause	1-chip microprocessor trouble	Check and remedy	Replace the 1-chip microprocessor chip. When replacing, use SIM66-42 to rewrite the 1-chip microprocessor program.
Cause	1-chip microprocessor trouble				
Check and remedy	Replace the 1-chip microprocessor chip. When replacing, use SIM66-42 to rewrite the 1-chip microprocessor program.				
Case 3	<table border="1"> <tr> <td>Cause</td><td>FAX PWB 1-chip microprocessor access circuit trouble</td></tr> <tr> <td>Check and remedy</td><td>Replace the FAX PWB.</td></tr> </table>	Cause	FAX PWB 1-chip microprocessor access circuit trouble	Check and remedy	Replace the FAX PWB.
Cause	FAX PWB 1-chip microprocessor access circuit trouble				
Check and remedy	Replace the FAX PWB.				

**F6-97 The FAX PWB does not match with the machine model.**

Trouble content	The FAX PWB identification model does not match with the machine model.				
Section	FAX				
Case 1	<table border="1"> <tr> <td>Cause</td><td>An improper type of FAX PWB is installed to the machine.</td></tr> <tr> <td>Check and remedy</td><td>Replace the FAX PWB with a proper one.</td></tr> </table>	Cause	An improper type of FAX PWB is installed to the machine.	Check and remedy	Replace the FAX PWB with a proper one.
Cause	An improper type of FAX PWB is installed to the machine.				
Check and remedy	Replace the FAX PWB with a proper one.				

**F6-98 Combination error between the FAX-BOX destination information and the machine destination information.**

Trouble content	Combination error between the FAX PWB destination information and the machine destination information.				
Section	FAX				
Case 1	<table border="1"> <tr> <td>Cause</td><td>Combination error between the destination information written in EEPROM on the FAX PWB and the destination information of the machine (set with SIM26-6).</td></tr> <tr> <td>Check and remedy</td><td>           1) Check the destination of the FAX PWB.            2) Check the destination of the machine. (SIM26-6)            3) Use a proper combination of the machine and the FAX PWB.         </td></tr> </table>	Cause	Combination error between the destination information written in EEPROM on the FAX PWB and the destination information of the machine (set with SIM26-6).	Check and remedy	1) Check the destination of the FAX PWB. 2) Check the destination of the machine. (SIM26-6) 3) Use a proper combination of the machine and the FAX PWB.
Cause	Combination error between the destination information written in EEPROM on the FAX PWB and the destination information of the machine (set with SIM26-6).				
Check and remedy	1) Check the destination of the FAX PWB. 2) Check the destination of the machine. (SIM26-6) 3) Use a proper combination of the machine and the FAX PWB.				



**H2-00 Thermistor open trouble (TH\_UM)**

Trouble content	
Detail	PCU
Cause	Thermistor trouble. PCU PWB trouble Connection trouble of the connector and the harness. Fusing unit not installed.
Check & Remedy	Replace the thermistor. Replace the PCU PWB. Check connection of the connector and the harness.

**H2-02 Thermistor open trouble (TH\_US)**

Trouble content	
Detail	PCU
Cause	Thermistor trouble. PCU PWB trouble. Connection trouble of the connector and the harness. Fusing unit not installed.
Check & Remedy	Replace the thermistor. Replace the PCU PWB. Check connection of the connector and the harness.

**H3-00 Fusing section high temperature trouble (TH\_UM)**

Trouble content	
Detail	PCU
Cause	The fusing temperature exceeds the specified level. Thermistor trouble. PCU PWB trouble Connection trouble of the fusing section connector and the harness. HL PWB trouble.
Check & Remedy	Use SIM5-2 to check the flashing operation of the heater lamp. Use SIM14 to cancel the trouble. Replace the thermistor. Replace the PCU PWB. Check connection of the connector and the harness. Replace the HL PWB.

**H3-02 Fusing section high temperature trouble (TH\_US)**

Trouble content	
Detail	PCU
Cause	The fusing temperature exceeds the specified level. Thermistor trouble. PCU PWB trouble. HL PWB trouble. Fusing section connector connection trouble. HL PWB trouble.
Check & Remedy	Use SIM5-2 to check the flashing operation of the heater lamp. Use SIM14 to cancel the trouble. Check connection of the thermistor and the harness. Check the PCU PWB thermistor input circuit section. (When the lamp is ON:) Check the HL PWB and the PCU PWB lamp circuit. Replace the thermistor, the HL PWB, and the PCU PWB.

**H4-00 Fusing section low temperature trouble (TH\_UM)**

Trouble content	
Detail	PCU
Cause	The fusing temperature does not reach the specified level within the specified time from turning ON the power relay. Thermistor trouble. Heater lamp trouble. PCU PWB trouble. Thermostat trouble. Connector, harness connection trouble. HL PWB trouble. Interlock switch trouble.
Check & Remedy	Replace the thermistor. Replace the heater lamp. Replace the PCU PWB. Replace the thermostat. Check connection of the connector and the harness. Replace the HL PWB. Replace the interlock switch. Use SIM5-2 to check the flashing operation of the heater lamp. Use SIM14 to cancel the trouble.

**H4-02 Fusing section low temperature trouble (TH\_US)**

Trouble content	
Detail	PCU
Cause	The fusing temperature does not reach the specified level within the specified time from turning ON the power relay. Thermistor trouble. Heater lamp trouble. PCU PWB trouble Thermostat trouble. Connector, harness connection trouble. HL PWB trouble. Interlock switch trouble.
Check & Remedy	Replace the thermistor. Replace the heater lamp. Replace the PCU PWB. Replace the thermostat. Check connection of the connector and the harness. Replace the HL PWB. Replace the interlock switch. Use SIM5-2 to check the flashing operation of the heater lamp. Use SIM14 to cancel the trouble.

**H5-01 5 times continuous POD1 not-reach jam**

Trouble content	
Detail	PCU
Cause	A fusing jam is not canceled completely. (A jam paper remains.) POD1 sensor trouble. Fusing unit installation trouble. Connector, harness connection trouble. PCU PWB trouble
Check & Remedy	Replace the POD1 sensor. Check the installing position of the fusing unit. Replace the fusing unit. Check connection of the connector and the harness. Replace the PCU PWB. Use SIM14 to cancel the trouble.

## H7-10 Recovery error from low fuser temp. (TH\_UM\_AD2)

Trouble content	
Detail	PCU
Cause	The fusing temperature does not reach the specified level within the specified time from stopping a job due to fall in the fusing temperature. Thermistor trouble. Heater lamp trouble. PCU PWB trouble. Thermostat trouble. Connector, harness connection trouble. HL PWB trouble.
Check & Remedy	Replace the thermistor. Replace the heater lamp. Replace the PCU PWB. Replace the thermostat. Check connection of the connector and the harness. Replace the HL PWB. Use SIM5-2 to check the flashing operation of the heater lamp.

## H7-12 Recovery error from low fuser temp. (TH\_US)

Trouble content	
Detail	PCU
Cause	The fusing temperature does not reach the specified level within the specified time from stopping a job due to fall in the fusing temperature. Thermistor trouble. Heater lamp trouble. PCU PWB trouble. Thermostat trouble. Connector, harness connection trouble. HL PWB trouble.
Check & Remedy	Replace the thermistor. Replace the heater lamp. Replace the PCU PWB. Replace the thermostat. Check connection of the connector and the harness. Replace the HL PWB. Use SIM5-2 to check the flashing operation of the heater lamp.

## L1-00 Scanner feed trouble

Trouble content	
Detail	SCU
Cause	Scanner feed is not completed within the specified time. Scanner unit trouble. SCU PWB trouble. Scanner control PWB trouble. Harness and connector connection trouble. Scanner home position sensor trouble. Scanner motor trouble.
Check & Remedy	Use SIM1-1 to check the scan operation. Replace the scanner unit. Replace the SCU PWB. Check connection of the connectors and the harness. Replace the scanner home position sensor. Replace the scanner motor.

## L3-00 Scanner return trouble

Trouble content	
Detail	SCU
Cause	Scanner return is not completed within the specified time. Scanner unit trouble. SCU PWB trouble. Scanner control PWB trouble. Harness and connector connection trouble. Scanner home position sensor trouble. Scanner motor trouble.
Check & Remedy	Use SIM1-1 to check the scan operation. Replace the scanner unit. Replace the SCU PWB. Check connection of the connectors and the harness. Replace the scanner home position sensor. Replace the scanner motor.

## L4-02 Paper feed motor trouble

Trouble content	
Detail	PCU
Cause	A lock signal is detected during ON period of the paper feed motor in warming up or canceling a jam. Paper feed motor trouble. Harness and connector connection trouble. PCU PWB trouble.
Check & Remedy	Use SIM6-1 to check the operation of the paper feed motor. Replace the paper feed motor. Check connection of the connectors and the harness. Replace the PCU PWB.

## L4-03 Fusing motor trouble

Trouble content	
Detail	PCU
Cause	The motor lock signal is detected during rotation of the fusing motor. Fusing motor trouble. Connection trouble of the connector and the harness. PCU PWB trouble.
Check & Remedy	Use SIM6-1 to check the operation of the fusing motor. Replace the Fusing motor. Check connection of the connectors and the harness. Replace the PCU PWB.

## L4-04 Drum motor trouble

Trouble content	
Detail	PCU
Cause	The motor lock signal is detected during rotation of the drum motor. Drum motor trouble. Drum unit trouble. Harness and connector connection trouble. PCU PWB trouble. Developing unit trouble.
Check & Remedy	Use SIM25-1 to check the operation of the drum motor. Replace the drum motor. Check connection of the connectors and the harness. Replace the PCU PWB. Replace the drum unit. Replace the developing unit.

**L4-11 Shift motor trouble**

Trouble content	
Detail	PCU
Cause	No change in the shifter home position sensor signal is detected in the operation of the shifter initializing. Shift motor trouble. PCU PWB trouble. Connection trouble of the connector and the harness. Shifter home position sensor trouble.
Check & Remedy	Use SIM6-1 to check the shift operation. Use SIM30-1 to check the operation of the shifter home position sensor. Replace the shift motor. Replace the PCU PWB. Check connection of the connector and the harness. Replace the shifter home position sensor.

**L4-30 MFP fan motor trouble**

Trouble content	
Detail	MFP
Cause	Fan motor trouble. MFP PWB trouble.Harness and connector connection trouble. PCU PWB trouble
Check & Remedy	Use SIM6-2 to check the operation of the fan motor. Replace the fan motor. Replace the MFP PWB. Check connection of the connector and the harness. Replace the PCU PWB.

**L4-31 Paper exit cooling fan (POFM1/2) trouble**

Trouble content	
Detail	PCU
Cause	The fan operation signal is not detected within the specified time in the paper exit cooling fan operation. Paper exit cooling fan trouble. PCU PWB trouble Connection trouble of the connector and the harness.
Check & Remedy	Check connection of the connectors and the harness. Use SIM6-2 to check the rotating operation of the fan. Replace the paper exit cooling fan. Replace the PCU PWB.

**L4-32 Power source cooling fan trouble**

Trouble content	
Detail	PCU
Cause	The fan operation signal is not detected within the specified time in the power cooling fan operation. Power cooling fan trouble. PCU PWB trouble. Connection trouble of the connector and the harness.
Check & Remedy	Use SIM6-2 to check the operation of the fan motor. Replace the power cooling fan. Replace the PCU PWB. Check/replace the connector or the harness.

**L4-34 LSU cooling fan trouble**

Trouble content	
Detail	PCU
Cause	When the LSU cooling fan is operated, the fan operation signal is not detected within the specified time. LSU cooling fan trouble. PCU PWB trouble. Connection trouble of the connector and the harness.
Check & Remedy	Use SIM6-2 to check the operation of the fan motor. Replace the LSU cooling fan. Replace the PCU PWB. Replace the LSU control PWB. Check connection of the connector and the harness.

**L4-43 Paper exit cooling fan (POFM3) trouble**

Trouble content	
Detail	PCU
Cause	The fan operation signal is not detected within the specified time in the paper exit cooling fan operation. Paper exit cooling fan trouble. PCU PWB trouble Connection trouble of the connector and the harness.
Check & Remedy	Check connection of the connector and the harness. Use SIM6-2 to check the operation of the fan motor. Replace the paper exit cooling fan. Replace the PCU PWB.

**L4-58 Ozone exhaust fan trouble**

Trouble content	
Detail	PCU
Cause	The fan operation signal is not detected within the specified time in the ozone exhaust fan operation. Ozone exhaust fan trouble. PCU PWB trouble. Connection trouble of the connector and the harness.
Check & Remedy	Check that the fan is rotating after turning ON the power. Replace the ozone exhaust fan. Replace the PCU PWB. Check connection of the connector and the harness.

**L4-59 Suction fan trouble**

Trouble content	
Detail	PCU
Cause	The fan operation signal is not detected within the specified time in the suction fan operation. Suction fan trouble. PCU PWB trouble. Connection trouble of the connector and the harness.
Check & Remedy	Check that the fan is rotating after turning ON the power. Replace the suction fan. Replace the PCU PWB. Check connection of the connector and the harness.

**L6-10 Polygon motor trouble**

Trouble content	
Detail	PCU
Cause	The motor does not reach the specified rpm in 8 sec after starting rotation of the polygon motor. Polygon motor trouble. LSU control PWB trouble. Connection trouble of the connector and the harness.
Check & Remedy	Use SIM61-1 to check the operation of the polygon motor. Check connection of the connector and the harness. Replace the polygon motor. Replace the LSU. Replace the LSU control PWB.

**L8-01 Full wave signal detection error**

Trouble content	
Detail	PCU
Cause	No full wave signal is detected. PCU PWB trouble Power unit trouble. Connection trouble of the connector and the harness.
Check & Remedy	Replace the PCU PWB. Replace the power unit. Check connection of the connector and the harness.

**L8-02 Full wave signal error**

Trouble content	
Detail	PCU
Cause	An abnormality in the full wave signal frequency is detected. (The frequency is detected as 65Hz or above, or 45Hz or less.) PCU PWB trouble. Power unit trouble. Connection trouble of the connector and the harness. Power frequency, waveform abnormality.
Check & Remedy	Replace the PCU PWB. Replace the power unit. Check connection of the connector and the harness. Check the power waveform.

**L8-20 Communication error of MFP PWB/ Mother board**

Trouble content	
Detail	MFP
Cause	Mother board PWB - MFP PWB connection trouble. MFP PWB trouble. Mother trouble.
Check & Remedy	Check connection between the mother board and the MFP PWB. Check the ground of the main unit. Replace the MFPC PWB. Replace the mother board.

**PC-- Personal counter not detected**

Trouble content	
Detail	MFP
Cause	The personal counter is not installed. The personal counter is not detected.
Check & Remedy	Check connection of the connectors and the harness. Replace the SCU PWB.

**U1-01 Battery trouble**

Trouble content	Backup SRAM battery voltage fall.
Detail	MFP
Cause	Battery life Battery circuit abnormality
Check & Remedy	Check to confirm that the battery voltage is about 2.0V or above.

**U2-00 MFP EEPROM read/write error**

Trouble content	
Detail	MFP
Cause	MFP PWB EEPROM trouble. EEPROM socket contact trouble. MFP PWB trouble. Strong external noises.
Check & Remedy	Replace the MFP PWB EEPROM. Replace the MFP PWB. Check the power environment.

**U2-05 HDD/MFP PWB SRAM contents inconsistency**

Trouble content	
Detail	MFP
Cause	The HDD or the MFP PWB which differs from that before turning OFF the power is installed. HDD trouble. MFP PWB trouble.
Check & Remedy	Use SIM16 to cancel the error. If there is backup data (export data by device cloning), import it.

**U2-10 MFP PWB SRAM user authentication index check sum error**

Trouble content	
Detail	MFP
Cause	SRAM user index information (user authentication basic data) check sum error. MFP PWB SRAM trouble. Strong external noises.
Check & Remedy	Use SIM16 to cancel the error. Transfer the user index information data in the HDD to the SRAM. Replace the MFP PWB.

**U2-11 MFP PWB EEPROM counter check sum error**

Trouble content	
Detail	MFP
Cause	MFP PWB EEPROM trouble. EEPROM socket contact trouble. MFP PWB trouble. Strong external noises.
Check & Remedy	Use SIM16 to cancel the error. Replace the MFP PWB.

## U2-22 MFP PWB SRAM memory check sum error

Trouble content	
Detail	MFP
Cause	The identifier which controls the communication management table stored in the SRAM and the FAX soft switch is not detected correctly. MFP PWB SRAM trouble. MFP PWB trouble. Strong external noises.
Check & Remedy	Since the data of the communication management table and the FAX soft switch stored in the SRAM are initialized when an error occurs, register the deleted data again individually. Use SIM16 to cancel the error. Replace the MFP PWB.

## U2-23 MFP PWB SRAM memory individual data check sum error

Trouble content	MFP PWB SRAM memory individual data check sum error.
Detail	MFP
Cause	The check sum value for individual data of the communication table and the sender registration does not match. MFP PWB SRAM trouble. MFP PWB trouble. Strong external noises.
Check & Remedy	Turn OFF/ON the power to initialize the data related to the content of check sum error. Since the registered contents are deleted, register the deleted contents again. Use SIM16 to cancel the error. Replace the MFP PWB.

## U2-24 MFP PWB SRAM memory user authentication counter check sum error

Trouble content	
Detail	MFP
Cause	MFP PWB SRAM trouble. MFP PWB trouble. Strong external noises.
Check & Remedy	Use SIM16 to cancel the error.

## U2-30 MFP PWB and PCU PWB manufacturing No. data inconsistency

Trouble content	
Detail	MFP
Cause	Inconsistency between the manufacturing No. saved in the PCU PWB and that in the MFP PWB. When replacing the PCU PWB or the MFP PWB, the EEPROM which was mounted on the PWB before replacement is not mounted on the new PWB. MFP PWB trouble. PCU PWB trouble
Check & Remedy	Check that the EEPROM is properly set. Check to confirm that the EEPROM which was mounted on the PWB before replacement is mounted on the new PWB. Replace the MFP PWB. Replace the PCU PWB.

## U2-50 HDD/Flash memory registration data check sum error

Trouble content	HDD/MFP Flash data check sum error (MFP PWB detection)
Detail	MFP
Cause	HDD/MFP PWB Flash memory data check sum error (when HDD is not installed) <ul style="list-style-type: none"> <li>Address book</li> <li>Image send series registration data (Sender record, meta data, etc.)</li> <li>Job end list (FAX/Internet FAX/scanner job only), etc.</li> </ul> Error in write/read circuit to HDD or MFP Flash memory Malfunctions caused by noises MFP PWB HSS access circuit error
Check & Remedy	Use SIM16 to cancel the U2 trouble. Check the following data for any abnormality. If there is any abnormality, reset and register the content. <ul style="list-style-type: none"> <li>Address book</li> <li>Image send series registration data (Sender record, meta data, etc.)</li> <li>Job end list (FAX/Internet FAX/scanner job only), etc.</li> </ul> Replace the HDD. Replace the MFP PWB.

## U2-60 Water Mark check error

Trouble content	
Detail	MFP
Cause	Watermark data trouble
Check & Remedy	Use SIM49-5 to upload the watermark data.

## U2-80 SCU PWB EEPROM read/write error

Trouble content	
Detail	SCU
Cause	SCU PWB EEPROM trouble. SCU PWB trouble. EEPROM socket contact trouble.
Check & Remedy	Replace the SCU PWB EEPROM. Replace the SCU PWB. Check contact of the EEPROM socket. Put down the counter/adjustment values in the simulation to prevent against loss of the counter data and the adjustment values. Use SIM16 to cancel the trouble.

## U2-81 SCU PWB EEPROM check sum error

Trouble content	
Detail	SCU
Cause	SCU PWB EEPROM trouble. Installation of non-initialized EEPROM. SCU PWB trouble. EEPROM socket contact trouble.
Check & Remedy	Replace the SCU PWB EEPROM. Replace the SCU PWB. Check contact of the EEPROM socket. Put down the counter/adjustment values in the simulation to prevent against loss of the counter data and the adjustment values. Use SIM16 to cancel the trouble.

**U2-90 PCU PWB EEPROM read/write error**

Trouble content	
Detail	PCU
Cause	PCU PWB EEPROM trouble. Installation of non-initialized EEPROM. PCU PWB trouble EEPROM socket contact trouble.
Check & Remedy	Replace the PCU PWB EEPROM. Replace the PCU PWB. Check contact of the EEPROM socket. Put down the counter/adjustment values in the simulation to prevent against loss of the counter data and the adjustment values. Use SIM16 to cancel the trouble.

**U2-91 PCU PWB EEPROM check sum error**

Trouble content	
Detail	PCU
Cause	PCU PWB EEPROM trouble. Installation of non-initialized EEPROM. PCU PWB trouble EEPROM socket contact trouble.
Check & Remedy	Replace the PCU PWB EEPROM. Replace the PCU PWB. Check contact of the EEPROM socket. Put down the counter/adjustment values in the simulation to prevent against loss of the counter data and the adjustment values. Use SIM16 to cancel the trouble.

**U5-00 Document feed unit communication error**

Trouble content	
Detail	SCU
Cause	Connector, harness connection trouble. SCU PWB trouble. DSPF PWB trouble.
Check & Remedy	Turn OFF/ON the power. Check connection of the connector and the harness. Replace the SCU PWB. Replace the DSPF PWB.

**U5-16 Document feed unit fan motor trouble**

Trouble content	
Detail	SCU
Cause	Fan motor trouble. Connection trouble of the connector and the harness.
Check & Remedy	Use SIM2-3 to check the operation. Check the DSPF PWB and the driver PWB connection of the connector and the harness.

**U5-40 Document feed unit installation trouble**

Trouble content	
Detail	SCU
Cause	When two or more document feed units are detected. Connection trouble of the connector and the harness. Document feeder trouble.
Check & Remedy	Check connection of the connector and the harness.

**U6-00 Communication error of PCU PWB/ Desk paper feed unit**

Trouble content	
Detail	PCU
Cause	Error when testing the communication line after turning ON the power or canceling the simulation. Connector, harness connection trouble. Desk control PWB trouble. PCU PWB trouble Strong external noises.
Check & Remedy	Turn OFF/ON the power to cancel. Check the connector and the harness in the communication line. Replace the desk control PWB. Replace the PCU PWB.

**U6-01 Desk paper feed tray 1 lift trouble**

Trouble content	
Detail	PCU
Cause	DLUD1 does not turn ON within the specified time when lift-up operation. DLUD1 sensor trouble. Desk control PWB trouble. Lift unit trouble. Connection trouble of the connector and the harness. PCU PWB trouble
Check & Remedy	Replace the DLUD1 sensor. Replace the desk control PWB. Replace the lift unit. Check connection of the connector and the harness. Replace the PCU PWB.

**U6-02 Desk paper feed tray 2 lift trouble**

Trouble content	
Detail	PCU
Cause	DLUD2 does not turn ON within the specified time when lift-up operation. DLUD2 sensor trouble. Desk control PWB trouble. Lift unit trouble. Connection trouble of the connector and the harness. PCU PWB trouble
Check & Remedy	Replace the DLUD2 sensor. Replace the desk control PWB. Replace the lift unit. Check connection of the connector and the harness. Replace the PCU PWB.

**U6-09 LCC lift trouble**

Trouble content	
Detail	PCU
Cause	No change in the lift motor rotation sensor signal is detected within the specified time after outputting the lift motor ON signal. The lift motor rotation sensor signal varies though the lift motor is stopped. Lift motor rotation sensor trouble. LCC control PWB trouble. Lift mechanism trouble. Lift motor trouble. Connection trouble of the connector and the harness.
Check & Remedy	Use SIM4-2 and 4-3 to check the operation of the sensor and the lift motor. Replace the lift motor rotation sensor. Replace the LCC control PWB. Replace the lift mechanism. Replace the lift motor. Check connection of the connector and the harness. Use SIM15 to cancel the trouble.

**U6-10 Desk paper feed unit paper transport motor trouble**

Trouble content	
Detail	PCU
Cause	Desk paper feed motor trouble (motor lock, motor rpm abnormality, over-current to the motor). Desk control PWB trouble. Connection trouble of the connector and the harness.
Check & Remedy	Use SIM4-3 to check the operation of the desk transport motor. Replace the desk control PWB. Replace the desk paper feed motor. Check connection of the connector and the harness.

**U6-20 PCU PWB - LCC communication error**

Trouble content	
Detail	PCU
Cause	Error when testing the communication line after turning ON the power or canceling the simulation. LCC control PWB trouble. PCU PWB trouble. Connector, harness connection trouble. Strong external noises. Improper combination between the main unit and the LCC.
Check & Remedy	Cancel the error by turning OFF/ON the power. Check the connector and the harness in the communication line. Replace the LCC control PWB. Replace the PCU PWB.

**U6-21 LCC paper transport motor trouble**

Trouble content	
Detail	PCU
Cause	No change in the paper transport motor rotation sensor signal is detected within the specified time after outputting the paper transport motor ON signal. The paper transport motor rotation sensor signal varies though the paper transport motor is stopped. Paper transport motor rotation sensor trouble. LCC control PWB trouble. Mechanism trouble. Paper transport motor trouble. Connection trouble of the connector and the harness.
Check & Remedy	Use SIM4-3 to check the operation of the paper transport motor. Replace the paper transport motor. Replace the LCC control PWB. Replace the mechanism. Replace the paper transport motor. Check connection of the connector and the harness.

**U6-22 LCC 24V power trouble**

Trouble content	
Detail	PCU
Cause	The DC24V power is not supplied from the main unit to the LCC. Connector, harness connection trouble. LCC control PWB trouble. Power source unit trouble.
Check & Remedy	Check the connector and the harness in the power line. Replace the power unit. Replace the LCC control PWB.

**U6-50 Desk - Main unit combination trouble**

Trouble content	
Detail	PCU
Cause	Improper combination between the main unit and the desk. Desk control PWB trouble.
Check & Remedy	Install a desk which is proper for the main unit mode. Replace the desk control PWB.

**U6-51 LCC - Main unit combination trouble**

Trouble content	
Detail	PCU
Cause	Improper combination between the main unit and the LCC. LCC control PWB trouble.
Check & Remedy	Install a LCC which is proper for the main unit mode. Replace the LCC control PWB.

### U7-50 MFP PWB - Vendor machine communication error

Trouble content	Communication error between the MFP and the serial vendor.
Detail	MFP
Cause	Improper setting of the vendor machine specifications (SIM26-3). Vendor machine trouble. MFP PWB trouble. Connector, harness connection trouble. Strong external noises.
Check & Remedy	Cancel the error by turning OFF/ON the power. Check the connector and the harness in the communication line. Change the specifications of the vendor machine (SIM26-3). Replace the MFP PWB.

### U7-51 Vendor machine error

Trouble content	
Detail	MFP (Notification of a trouble from the serial vendor)
Cause	Serial vendor machine trouble. Connector, harness connection trouble.
Check & Remedy	"Err.XX" is displayed on the operation panel of the vendor. (XX is the detail code.) Repair the vendor machine referring to the detail code. Check the connector and the harness in the communication line.

### UC-02 IPD/DOCC ASIC IPD section error (N model only)

Trouble content	
Detail	SCU
Cause	SCU PWB trouble (IPD/DOCC ASIC trouble).
Check & Remedy	Replace the SCU PWB.

### UC-20 IPD/DOCC ASIC DOCC section error (N model only)

Trouble content	
Detail	SCU
Cause	SCU PWB trouble (IPD/DOCC ASIC trouble).
Check & Remedy	Replace the SCU PWB.

### A0-01 PCU PWB ROM error

Trouble content	
Detail	MFP
Cause	The firmware version-up is not completed properly by interruption of the power during the version-up operation, etc. ROM trouble.
Check & Remedy	Use SIM49-1 to perform the version-up procedure again. Replace the ROM.

### A0-02 SCU PWB ROM error

Trouble content	
Detail	MFP
Cause	The firmware version-up is not completed properly by interruption of the power during the version-up operation, etc. ROM trouble.
Check & Remedy	Use SIM49-1 to perform the version-up procedure again. Replace the ROM.

### A0-04 ACU PWB ROM error (when scanner expansion kit is installed)

Trouble content	
Detail	MFP
Cause	The firmware update is failed because of turning OFF the power during the firmware update operation, etc. ROM trouble.
Check & Remedy	Use SIM49-1 to execute update of the firmware. Replace the ROM.

### A0-10 MFP PWB ROM error

Trouble content	
Detail	MFP
Cause	Firmware combination error between the MFP and the image ROM (color correction ROM).
Check & Remedy	Upgrade the firmware versions of the MFP and the image ROM (color correction ROM).

### A0-11 Firmware version inconsistency (MFP - PCU)

Trouble content	
Detail	MFP
Cause	Firmware combination error between the MFP and the PCU.
Check & Remedy	Check the combination between the MFP and the PCU.

### A0-12 Firmware version inconsistency (MFP - SCU)

Trouble content	
Detail	MFP
Cause	Firmware combination error between the MFP and the SCU.
Check & Remedy	Check the combination between the MFP and the SCU.

### A0-15 DSK BOOT version disagreement

Trouble content	
Detail	MFP
Cause	Firmware combination error between the DSK and the BOOT.
Check & Remedy	Check the combination between the DSK and the BOOT.



## A0-20 Conflict firmware and EEPROM data version (MFP)

Trouble content	
Detail	MFP
Cause	Inconsistency between the MFP firmware version and the EEPROM data version.
Check & Remedy	Check the combination of the firmware.

## A0-22 Conflict firmware and EEPROM data version (SCU)

Trouble content	
Detail	SCU
Cause	Inconsistency between the SCU firmware version and the EEPROM data version.
Check & Remedy	Check the combination of the firmware.

## A0-21 Conflict firmware and EEPROM data version (PCU)

Trouble content	
Detail	PCU
Cause	Inconsistency between the PCU firmware version and the EEPROM data version.
Check & Remedy	Check the combination of the firmware.

## 4. Paper JAM code

### A. JAM cause code list

#### (1) Main unit

JAM code	JAM content	JAM detection method		Basic distance (A) [mm] *1	JAM margin distance (B) [mm] *1	JAM detection distance (A+B) [mm] *1
		JAM detection start trigger	JAM judgment condition			
TRAY2	Cassette 2 paper feed JAM (CPFD2 not-reached JAM)	CPUC2 ON	CPFD2 ON	95.1	65.0	160.1
CPFD2_N3	CPFD2 not-reached JAM (Desk 1 feed paper)	Reception of the paper feed start command from DESK (The paper lead edge is at 45mm from the last roller of DESK1.)	CPFD2 ON	23.6	65.0	88.6
CPFD2_N4	CPFD2 not-reached JAM (Desk 2 feed paper)	Reception of the paper feed start command from DESK (The paper lead edge is at 45mm from the last roller of DESK1.)	CPFD2 ON	23.6	65.0	88.6
TRAY1	Cassette 1 paper feed JAM (CPFD1 not-reached JAM)	CPUC1 ON	CPFD1 ON	95.1	65.0	160.1
CPFD1_N2	CPFD1 not-reached JAM (Cassette 2 feed paper)	CPFD2 ON	CPFD1 ON	109.6	65.0	174.6
CPFD1_N3	CPFD1 not-reached JAM (Desk 1 feed paper)	CPFD2 ON	CPFD1 ON	109.6	65.0	174.6
CPFD1_N4	CPFD1 not-reached JAM (Desk 2 feed paper)	CPFD2 ON	CPFD1 ON	109.6	65.0	174.6
MFT	Manual feed tray paper feed JAM (MPFD not-reached)	MPUC ON	MPFD ON	52.7	65.0	117.7
PPD2_N1	PPD2 not-reached JAM (Cassette 1 feed paper)	CPFD1 ON	PPD2 ON	193.6	65.0	258.6
PPD2_N2	PPD2 not-reached JAM (Cassette 2 feed paper)	CPFD1 ON	PPD2 ON	193.6	65.0	258.6
PPD2_N3	PPD2 not-reached JAM (Desk 1 feed paper)	CPFD1 ON	PPD2 ON	193.6	65.0	258.6
PPD2_N4	PPD2 not-reached JAM (Desk 2 feed paper)	CPFD1 ON	PPD2 ON	193.6	65.0	258.6
PPD2_NM	PPD2 not-reached JAM (Manual feed tray feed paper)	MPFD ON	PPD2 ON	161.1	65.0	226.1
PPD2_NL	PPD2 not-reached JAM (LCC feed paper)	Reception of the paper feed start command from LCC (The paper lead edge is at 29mm from the LCC paper feed port.)	PPD2 ON	196.8	65.0	261.8
PPD2_NA	PPD2 not-reached JAM (ADU refeed paper)	APPD2 ON	PPD2 ON	186.7	65.0	251.7
POD1_N	POD1 not-reached JAM	RRM ON	POD1 ON	234.7	50.0	284.7
POD2_N	POD2 not-reached JAM	POD1 ON	POD2 ON	93.2	65.0	158.2
POD3_N	POD3 not-reached JAM	Reversing start	POD3 ON	104.2	65.0	169.2
APPD1_N	APPD1 not-reached JAM	Reversing start	APPD1 ON	133.3	65.0	198.3
APPD2_N	APPD2 not-reached JAM	APPD1 ON	APPD2 ON	269.9	65.0	334.9

JAM code	JAM content	JAM detection method		Basic distance (A) [mm] *1	JAM margin distance (B) [mm] *1	JAM detection distance (A+B) [mm] *1
		JAM detection start trigger	JAM judgment condition			
CPFD2_S2	CPFD2 remaining JAM (Cassette 2 feed paper)	CPUC2 OFF	CPFD2 OFF	135.2	65.0	200.2
CPFD2_S3	CPFD2 remaining JAM (Desk 1 feed paper)	Reception of the paper feed end command from DESK (The last rear edge roller position of DSEK1)	CPFD2 OFF	68.3	65.0	133.3
CPFD2_S4	CPFD2 remaining JAM (Desk 2 feed paper)	Reception of the paper feed end command from DESK (The last rear edge roller position of DSEK1)	CPFD2 OFF	68.3	65.0	133.3
CPFD1_S1	CPFD1 remaining JAM (Cassette 1 feed paper)	CPUC1 OFF	CPFD1 OFF	135.2	65.0	200.2
CPFD1_S2	CPFD1 remaining JAM (Cassette 2 feed paper)	CPFD2 OFF	CPFD1 OFF	109.6	65.0	174.6
CPFD1_S3	CPFD1 remaining JAM (Desk 1 feed paper)	CPFD2 OFF	CPFD1 OFF	109.6	65.0	174.6
CPFD1_S4	CPFD1 remaining JAM (Desk 2 feed paper)	CPFD2 OFF	CPFD1 OFF	109.6	65.0	174.6
MPFD_S	MPFD remaining JAM	MPUC OFF	MPFD OFF	52.1	65.0	117.1
PPD2_S1	PPD2 remaining JAM (Cassette 1 feed paper)	CPFD1 OFF	PPD2 OFF	193.6	65.0	258.6
PPD2_S2	PPD2 remaining JAM (Cassette 2 feed paper)	CPFD1 OFF	PPD2 OFF	193.6	65.0	258.6
PPD2_S3	PPD2 remaining JAM (Desk 1 feed paper)	CPFD1 OFF	PPD2 OFF	193.6	65.0	258.6
PPD2_S4	PPD2 remaining JAM (Desk 2 feed paper)	CPFD1 OFF	PPD2 OFF	193.6	65.0	258.6
PPD2_SM	PPD2 remaining JAM (Manual feed tray feed paper)	MPFD OFF	PPD2 OFF	139.0	65.0	204.0
PPD2_SL	PPD2 remaining JAM (LCC feed paper)	Reception of the paper feed end command from LCC (Transport sensor "LTD" in LCC is OFF.)	PPD2 OFF	235.2	65.0	300.2
PPD2_SA	PPD2 remaining JAM (ADU refeed paper)	APPD2 OFF	PPD2 OFF	186.7	65.0	251.7
POD1_S	POD1 remaining JAM	PPD2 OFF	POD1 OFF	297.3	65.0	362.3
POD2_S	POD2 remaining JAM (When left paper exit)	POD1 OFF	POD2 OFF	93.8	65.0	158.8
	POD2 remaining JAM (When reversing (when ADU/ right paper exit))	Reversing start	POD2 OFF after starting reversing	Paper transport direction length - 6.8	65.0	Paper transport direction length - 6.8 + 65.0
POD3_S	POD3 remaining JAM	POD2 OFF after starting reversing	POD3 OFF	111.0	65.0	176.0
APPD1_S	APPD1 remaining JAM	POD2 OFF after starting reversing	APPD1 OFF	149.9	65.0	214.9
APPD2_S	APPD2 remaining JAM	APPD1 OFF	APPD2 OFF	269.2	65.0	334.2
PPD2_PRI	PPD2 JAM (Image preparation wait time-out)	Transmission of the IMAGE_PREPARE command from PCU to ICU	Reception of the END_IMAGE_PREPARE command from ICU (for 30 sec or more)	—	—	—
CPFD2_DESK	CPFD2 JAM (Desk communication abnormality detection)	Transmission of the preliminary paper feed request command from PCU to DESK	Reception of the preliminary paper feed start command from DESK to PCU (for 30 sec or more)	—	—	—
		Reception of the preliminary paper feed start command from DESK to PCU	Reception of the preliminary paper feed end command from DESK to PCU (for 30 sec or more)	—	—	—
		Transmission of the paper feed request command from PCU to DESK	Reception of the paper feed start command from DESK to PCU (for 30 sec or more)	—	—	—
		Reception of the paper feed start command from DESK to PCU	Reception of the paper feed end command from DESK to PCU (for 30 sec or more)	—	—	—

JAM code	JAM content	JAM detection method		Basic distance (A) [mm] *1	JAM margin distance (B) [mm] *1	JAM detection distance (A+B) [mm] *1
		JAM detection start trigger	JAM judgment condition			
PPD1_LCC	PPD1 JAM (LCC communication abnormality detection)	Transmission of the preliminary paper feed request command from PCU to LCC	Reception of the preliminary paper feed start command from LCC to PCU (for 30 sec or more)	—	—	—
		Reception of the preliminary paper feed start command from LCC to PCU	Reception of the preliminary paper feed end command from LCC to PCU (for 30 sec or more)	—	—	—
		Transmission of the paper feed request command from PCU to LCC	Reception of the paper feed start command from LCC to PCU (for 30 sec or more)	—	—	—
		Reception of the paper feed start command from LCC to PCU	Reception of the paper feed end command from LCC to PCU (for 30 sec or more)	—	—	—
PPD2_FIN	PPD2 JAM (Finisher communication abnormality detection)	Transmission of the paper attribute data command from PCU to FINISHER	Reception of the paper interval data command from FINISHER from PCU (for 30 sec or more)	—	—	—

\*1: The distance (length) divided by the process speed is the time.

Process speed    28/36 PPM Model    175mm/sec  
                          45/50 PPM Model    225mm/sec

## (2) DSPF

JAM code	JAM content	JAM detection method		Basic distance (A) [mm]	JAM margin distance (B) [mm]	JAM detection distance (A+B) [mm]
		JAM detection start trigger	JAM judgment condition			
SPPD1_N	SPPD1 not-reached JAM	Paper feed start (When the document width is more than B5 size.)	SPPD1 ON	51.5	450.0	501.5
SPPD2_N	SPPD2 not-reached JAM	Paper feed start (When the document width is less than B5 size.)	SPPD2 ON	90.2	450.0	540.2
		SPPD1 ON (When the document width is more than B5 size.)	SPPD2 ON	38.7	50.0	88.7
SPPD3_N	SPPD3 not-reached JAM	Restart at the temporal stop position	SPPD3 ON	23.7	50.0	73.7
SPPD5_N	SPPD5 not-reached JAM	SPPD3 ON	SPPD5 ON	149.8	50.0	199.8
SPOD_N	SPOD not-reached JAM	SPPD5 ON	SPOD ON	96.2	50.0	146.2
SPPD1_S	SPPD1 remaining JAM	SPPD1 ON (When the document width is more than B5 size.)	SPPD1 OFF	Normal mode: 431.8mm Long size mode: 1000.0mm	50.0	Normal mode: 481.8mm Long size mode: 1050.0mm
SPPD2_S	SPPD2 remaining JAM	SPPD2 ON (When the document width is less than B5 size.)	SPPD2 OFF	Normal mode: 431.8mm Long size mode: 1000.0mm	50.0	Normal mode: 481.8mm Long size mode: 1050.0mm
		SPPD1 OFF (When the document width is more than B5 size.)	SPPD2 OFF	37.8	50.0	87.8
SPPD3_S	SPPD3 remaining JAM	SPPD2 OFF	SPPD3 OFF	68.8	50.0	118.8
SPPD5_S	SPPD5 remaining JAM	SPPD3 OFF	SPPD5 OFF	149.0	50.0	199.0
SPOD_S	SPOD remaining JAM	SPPD5 OFF	SPOD OFF	95.4	50.0	145.4
SPSD_SCN	Exposure start notification timer end	Arrival at temporal stop position	Exposure start command from ICU to SCU no reception time-out (120 sec)	—	—	—
P_SHORT	Short size JAM	SPPD3 ON	When the document length is less than 120.0mm.	—	—	—
ICU_REQ	ICU factor stop JAM	—	Stop by a job stop request command from ICU to SCU	—	—	—
STOP_JAM	Emergency stop JAM	—	Trouble mode transition request from ICU to SCU Emergency stop by a command	—	—	—

### (3) RSPF

JAM code	JAM content	JAM detection method		Basic distance (A) [mm]	JAM margin distance (B) [mm]	JAM detection distance (A+B) [mm]
		JAM detection start trigger	JAM judgment condition			
SPPD1_N	SPPD1 not-reached JAM	Paper feed start (When the document width is more than B5 size.)	SPPD1 ON	51.5	450.0	501.5
SPPD2_N	SPPD2 not-reached JAM	Paper feed start (When the document width is less than B5 size.)	SPPD2 ON	90.2	450.0	540.2
		SPPD1 ON (When the document width is more than B5 size.)	SPPD2 ON	38.7	50.0	88.7
SPPD3_N	SPPD3 not-reached JAM	Restart at the temporal stop position	SPPD3 ON	23.7	50.0	73.7
SPPD5_N	SPPD5 not-reached JAM	SPPD3 ON	SPPD5 ON	149.8	50.0	199.8
SPPD2_NR	SPPD2 reverse not-reached JAM	Reversing start	SPPD2 ON	82.9	50.0	132.9
SPPD1_S	SPPD1 remaining JAM	SPPD1 ON (When the document width is more than B5 size.)	SPPD1 OFF	Normal mode: 431.8mm Long size mode: 1000.0mm	50.0	Normal mode: 481.8mm Long size mode: 1050.0mm
SPPD2_S	SPPD2 remaining JAM	SPPD2 ON (When the document width is less than B5 size.)	SPPD2 OFF	Normal mode: 431.8mm Long size mode: 1000.0mm	50.0	Normal mode: 481.8mm Long size mode: 1050.0mm
		SPPD1 OFF (When the document width is more than B5 size.)	SPPD2 OFF	37.8	50.0	87.8
SPPD3_S	SPPD3 remaining JAM	SPPD2 OFF	SPPD3 OFF	68.8	50.0	118.8
SPPD5_S	SPPD5 remaining JAM	SPPD3 OFF	SPPD5 OFF	149.0	50.0	199.0
SPPD2_SR	SPPD2 reverse remaining JAM	SPPD5 OFF	SPPD2 OFF	100.9	50.0	150.9
SPSD_SCN	Exposure start notification timer end	Arrival at temporal stop position	Exposure start command from ICU to SCU no reception time-out (120 sec)	—	—	—
P_SHORT	Short size JAM	SPPD3 ON	When the document length is less than 120.0mm.	—	—	—
ICU_REQ	ICU factor stop JAM	—	Stop by a job stop request command from ICU to SCU	—	—	—
STOP_JAM	Emergency stop JAM	—	Trouble mode transition request from ICU to SCU Emergency stop by a command	—	—	—

### (4) Option

	JAM code	Content	JAM detection method		
				JAM detection timer start trigger	JAM judge detector
FIN	PDPPD1_N	Interface inlet port not-reached JAM	1K	POD2 ON	PDPPD1 does not turn ON within the specified time.
			4K	POD2 ON	FJPID does not turn ON within the specified time.
	PDPPD1_S	Interface inlet port remaining JAM	1K	PDPPD1 ON	PDPPD1 does not turn OFF within the specified time.
			4K	FJPID ON	FJPID does not turn OFF within the specified time.
	PDPPD2_N	Interface outlet port not-reached JAM	1K	PDPPD1 ON	PDPPD2 does not turn ON within the specified time.
			4K	FJPID ON	FJPID does not turn ON within the specified time.
	PDPPD2_S	Interface outlet port remaining JAM	1K	PDPPD2 ON	PDPPD2 does not turn OFF within the specified time.
			4K	FJPID ON	FJPID does not turn OFF within the specified time.
	FPPD1_N	Finisher inlet port not-reached JAM	Inner	POD2 ON	FED does not turn ON within the specified time.
			1K	PDPPD2 ON	FPPD1 does not turn ON within the specified time.
			4K	FJPID ON	FJPID does not turn ON within the specified time.
	FPPD1_S	Finisher inlet port remaining JAM	Inner	FED ON	FED does not turn OFF within the specified time.
			1K	FPPD1 ON	FPPD1 does not turn OFF within the specified time.
			4K	FED ON	FED does not turn OFF within the specified time.
	FPPD2_N	Saddle section not-reached JAM	1K	Starting the switchback operation to the saddle transport section	FPPD2 does not turn ON within the specified time.
	FPPD2_S	Saddle section remaining JAM	1K	FPPD2 ON	FPPD2 does not turn OFF within the specified time.
	FPDD_S	Bundle exit remaining JAM	Inner	Starting the bundle exit operation	FSTPD does not turn OFF within the specified time.
			1K	1) Bundle exit operation start 2) —	1) FATPD does not turn OFF within the specified time. 2) FPDD turns OFF (when the bundle exit operation is ended.)

	JAM code	Content	JAM detection method		
				JAM detection timer start trigger	JAM judge detector
FIN	FSTPLJ	Staple JAM	Inner	FSHPD OFF	FSHPD does not turn ON within the specified time.
			1K	1) FSHS OFF 2) FSSH OFF (Saddle) 3) –	1) FSHS does not turn ON within the specified time. (It is, however, limited to the case when FSHS turns ON by the reversing operation after that.) 2) FSSH does not turn ON within the specified time. (It is, however, limited to the case when FSSH turns ON by the reversing operation after that.) 3) After stapling operation, cuing of staples is disabled. (including the saddle)
			4K	FSHPD OFF	FSHPD does not turn ON within the specified time. (It is, however, limited to the case when FSHPD turns ON by the reversing operation after that.)
	FPNCHJ	Punch JAM	1K	–	FPCHPS OFF (when punching is ended.)
			4K	Punching operation start (FPNM (punch motor) drive start)	FPE does not turn ON/OFF within the specified time (the specified number of times).
	FDOP	Finisher door open JAM	Inner	–	FDSW ON (during JOB)
			4K	–	FFDD ON or FCD ON or FJPDD ON (during JOB)
	FIN_TIME	Finisher paper early reaching JAM	Inner	FED ON (front paper)	FED turns ON earlier than the specified timing. (detection paper)
			1K	POD2 ON (front paper)	POD2 turns ON earlier than the specified timing. (detection paper)
			4K	POD2 ON (front paper)	POD2 turns ON earlier than the specified timing. (detection paper)
	FIN_PAOF	Paper attribute data reception overflow	1K	–	Reception of paper attribute data exceeds the allowable buffer limit (16 sheets).
	FPATPD_S	Saddle transport remaining JAM	1K	Folding transport start (The paper lead edge is at 18.2mm after passing the saddle exit roller.)	FSATPD does not turn OFF within the specified time.
	FPPD3_N	Saddle paper exit not-reached JAM	1K	1) Pushing operation start after completion of paper transport to the saddle process tray (FSDM (saddle motor) drive start) 2) –	1) FPPD3 does not turn ON within the specified time. 2) FPPD3 turns OFF. (When the paper lead edge reaches 18.2mm after passing the saddle exit roller.)
	FPPD3_S	Saddle paper exit remaining JAM	1K	Folding transport start (The paper lead edge is at 18.2mm after passing the saddle exit roller.)	FPPD3 does not turn OFF within the specified time.
	FSSMJ	Stapler shift motor JAM	1K	–	Stapler shift motor trouble detection (during JOB)
	FPDMJ	Paper exit motor JAM	1K	–	Paper exit motor trouble detection (during JOB)
	FSDMJ	Saddle motor JAM	1K	–	Saddle motor trouble detection (during JOB)
	FGMJ	Gripper motor JAM	1K	–	Gripper motor trouble detection (during JOB)
	FSPTMJ	Saddle paper transport motor JAM	1K	–	Saddle paper transport motor trouble detection (during JOB)
DESK	FHS_N	Paper exit not-reached JAM	4K	FED ON	FPDD does not turn ON within the specified time.
	FHS_S	Paper exit remaining JAM	Inner	FED OFF	FSTPD does not turn OFF within the specified time.
			4K	FPDD ON	FPDD does not turn OFF within the specified time.
	TRAY3	Cassette 3 (Desk 1) paper feed JAM		DPUC1 ON (paper feed start)	DPFD1 does not turn ON within the specified time.
	DPFD1_N4	DPFD1 not-reached JAM (Desk 2 feed paper)		DPFD2 ON	DPFD1 does not turn ON within the specified time.
	DPFD1_S3	DPFD1 remaining JAM (Desk 1 feed paper)		DPFD1 ON	DPFD1 does not turn OFF within the specified time.
	DPFD1_S4	DPFD1 remaining JAM (Desk 2 feed paper)		DPFD2 OFF	DPFD1 does not turn OFF within the specified time.
	DPFD2_S4	DPFD2 remaining JAM (Desk 2 feed paper)		DPFD2 ON	DPFD2 does not turn OFF within the specified time.
	TRAY4	Cassette 4 (Desk 2) paper feed JAM		DPUC2 ON (paper feed start)	DPFD2 does not turn ON within the specified time.
LCC	LCC	Side LCC paper feed JAM (LPFD not-reached)		LPFC ON (paper feed start)	LPFD does not turn ON within the specified time.
	LPFD_SL	LPFD remaining JAM (Side LCC feed paper)		LPFD ON	LPFD does not turn OFF within the specified time.

## [7] FIRMWARE UPDATE

### 1. Outline

#### A. Cases where update is required

ROM update is required in the following cases:

- 1) When there is a necessity to upgrade the performance.
- 2) When installing a new spare part ROM for repair to the machine.
- 3) When installing a new spare parts PWB unit (with ROM) for repair to the machine.
- 4) When there is a trouble in the ROM program and it must be repaired.

#### B. Notes for update

##### (1) Relationship between each ROM and update

Before execution of ROM update, check combinations with ROM's installed in the other PWB's including options. Some combinations of each ROM's versions may cause malfunctions of the machine.

#### C. Update procedures and kinds of firmware

There are following methods of update of the firmware.

- 1) Update method using SIM 49-1
- 2) Update method using FTP
- 3) Update method using the Web page
- 4) Update method using the CN update function (There are three methods.)

Normally, one of 1) - 3) is used to update the firmware.

When any one of 1) - 3) is interrupted by an error such as power-off during updating, etc., and when retries of these methods are failed, the method 4) is employed.

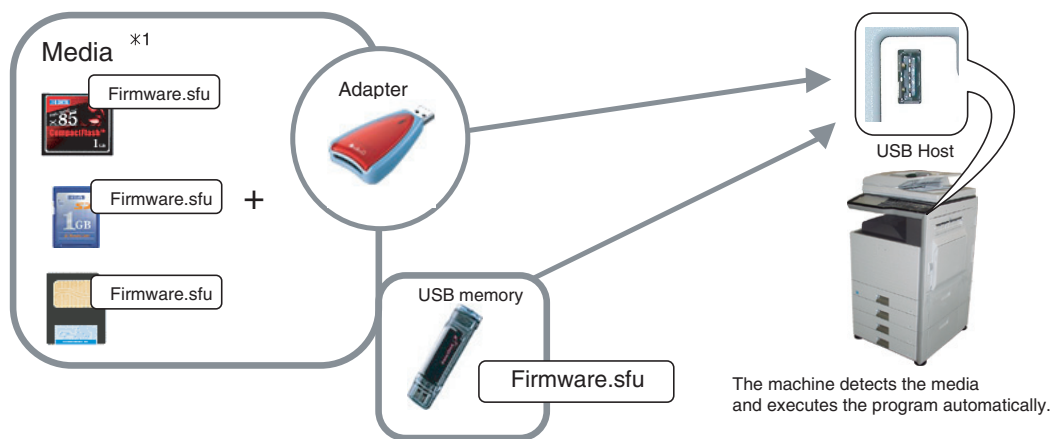
#### \*Firmware types

	Flash ROM	CONTENTS
MAIN BODY	ALL	The following All the contents
	ICU (PROG 1)	CONFIG
		XIO FONT
		GRAPHIC
		CNUPDATE
		BOOT MAIN
		LANG
		PDL
		WEBHELP
		ANIME
	ICU (PROG 2)	MAIN (NIC)
		UNI CODE
		ESCP FONT
	SCU	SCU (MAIN)
	PCU	PCU (MAIN)
	SPF	DSPF (MAIN)
	FAX1	FAX1 (MAIN)
OPTION	1K FINISHER	FINISHER_1K (MAIN)
	INNER FINISHER	FINISHER_INNER (MAIN)
	LCC A4	LCC_A4 (MAIN)
	DESK	DESK (MAIN)
	PUNCH	PUNCH (MAIN)
	4K FINISHER	4KFIN (MAIN)
	4K PUNCH	4KPUNCH (MAIN)
	ACRE	ACRE (MAIN)

### 2. Update procedure

#### A. Update method using SIM 49-1

For the update, connect the media or USB memory to the USB port that exists in the main body, and select the firmware data in the media or USB memory by simulation screen in the main unit.



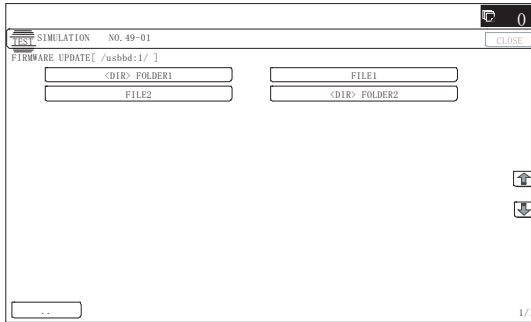
\*1:

- Store the firmware data (xxx .sfu) to the media or USB memory beforehand.
- The media used for the update must have an enough capacity for storing the firmware data.
- The USB memory equipped with the security (secure) function cannot be used.

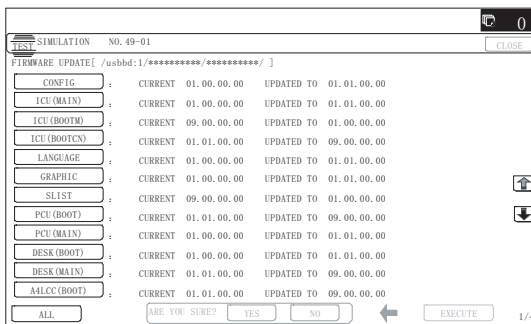
The firmware update executes by SIM49-01.

- 1) Insert the media or USB memory which stores the firmware into the main unit.
- 2) Enter the SIM49-01.

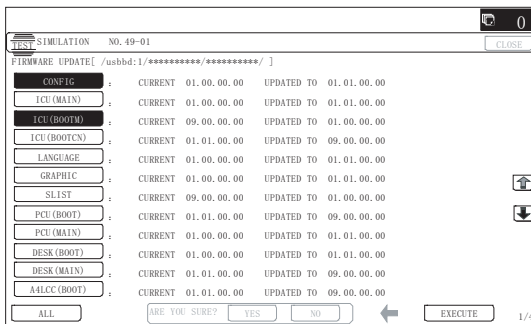
Press the key of the file to be updated. The screen transfers to the update screen.



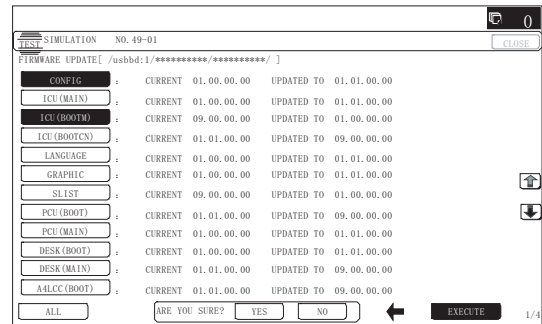
- \* The number of key changes according to the number of the sfu file in the media or USB memory inserted.
  - \* If the media or USB memory was not inserted when entry to the SIM49-01 screen, "INSERT A USB MEMORY DEVICE CONTAINING MFP FIRMWARE [OK]" is displayed on the screen. Insert the media or USB memory and push the [OK] key to open the file. If the media have not been inserted and [OK] key is pushed, the next screen does not appear and the screen waits the entry. Conversely, if the media or USB memory is pulled out on the file list screen, the error is detected by the [FILE] key pressing, and the first screen appears.
- 3) Current version number and the version number to be updated will be shown for each firmware respectively.



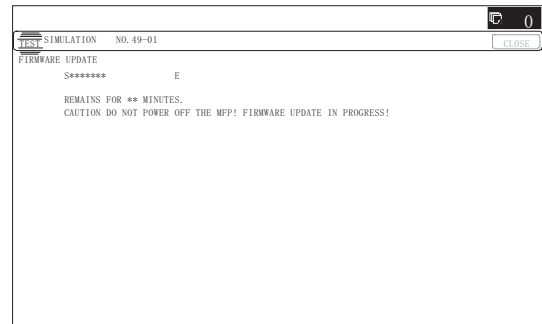
- 4) Select the key of the firmware to be updated. The key will be highlighted. (In this screen, [CONFIG] and [ICU (BOOTM)] are selected.) At the same time, [EXECUTE] key appears. If firmware's key is not selected, [EXECUTE] is gray out and cannot be pressed.



- \* Press the selected key again to release the selection.
  - \* Press [ALL] key to select all items.
- 5) Press [EXECUTE] key. "ARE YOU SURE? [YES] [NO]" becomes clear. Press [YES] to start the update of selected firmware.

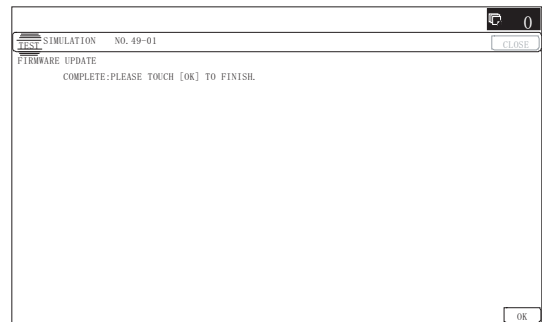


The progress is displayed on right side of "FIRMWARE UPDATE" title by 20 steps.



At this time, only the progress gauge is displayed on the screen, and the version and the firmware selection key are not displayed.

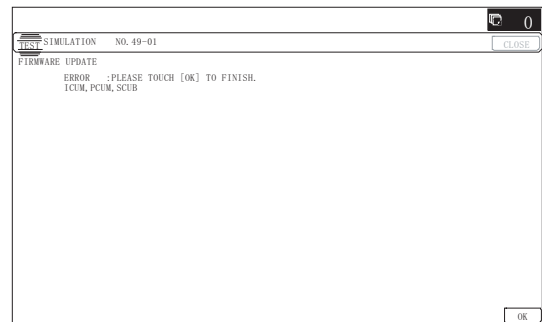
- 6) If the update is normal completion, following screen is displayed.



Exit the simulation mode and turn off the power.

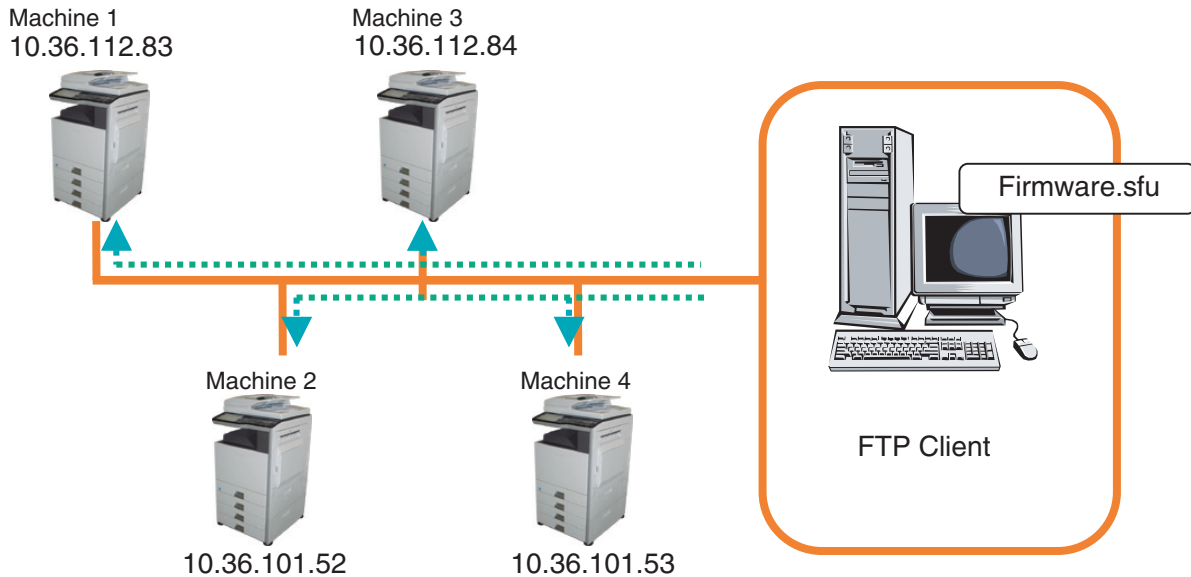
Go to SIM22-05 and confirm the firmware has upgraded successfully.

- 7) If the update is not normal completion, following screen is displayed.



## B. Firmware update using FTP

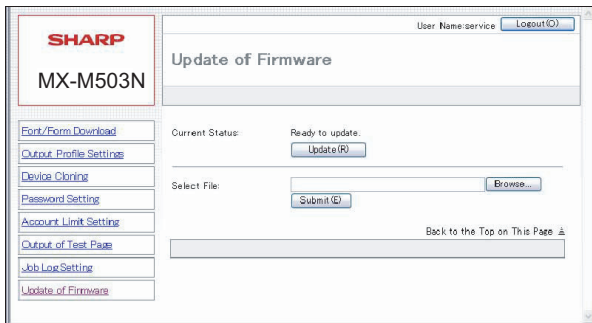
FTP software is used to transfer the firmware data (extension ".sfu") from the PC to the machine. The controller recognizes the firmware identifier and the machine automatically switches to firmware write mode. After the firmware is updated, the machine automatically resets.



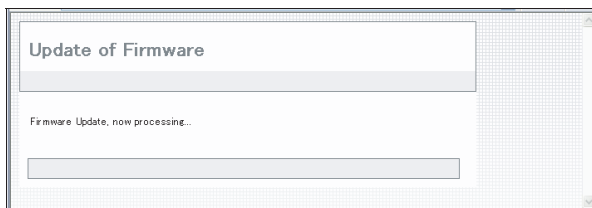
## C. Firmware update using the Web page

An Web browser (service technician's Web page) is used to update the firmware.

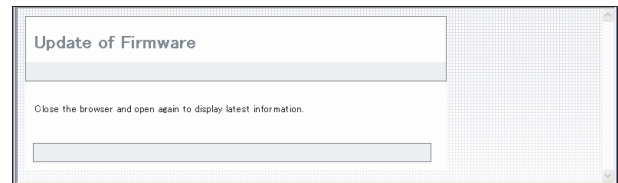
- 1) Start the Web browser on a PC and enter the specified URL. A special firmware upgrade page appears.
- 2) Click the "Update of Firmware" key in the Web page. Click the [Browse] key and select the firmware for the update.



- 3) After selecting the file, click the [Submit] key to send the firmware to the 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) Check the firmware version of machine again.

## D. Firmware update using the CN update function (There are three methods.)

### (1) Outline

The firmware update method using the MFP PWB ROM slot of the MFP PWB is called "CN update."

#### a. Function

There are the following five functions in the CN update mode.

- 1) ROM copy function 1  
(This is not used in the market, and therefore, not described in details in this manual.)
- 2) Firmware update function  
This function is used to update the firmware by transferring data from the PC which is connected to the MFP PWB, the SCU PWB, the PCU PWB, the FAX PWB, and various options by means of a USB memory or USB cable.

This is basically the same as SIM49-01, but differs in the following points:

When the power is shut down or an abnormality occurs in a section other than the boot program for some reasons during firmware update operation of other method than the CN update, this method can be used to update the firmware.



If, however, an abnormality occurs in the boot program, the Program ROM 1 must be replaced with a new one having the normal boot program.

If the boot animation is not displayed, there is an abnormality in the boot program (Program ROM 1).

If the boot animation is displayed but "Copying is enabled" is not displayed on the copier basic menu, there is an abnormality in the main program (Program ROM 2).

- 3) ROM copy function 2  
(This is not used in the market, and therefore, not described in details in this manual.)
- 4) Firmware version check function  
(The method to check the firmware version by using SIM22-5 is easier than this method. Therefore, it is not described in this manual.)
- 5) ROM making function  
(This function is not used in the market, and not described in this manual.)

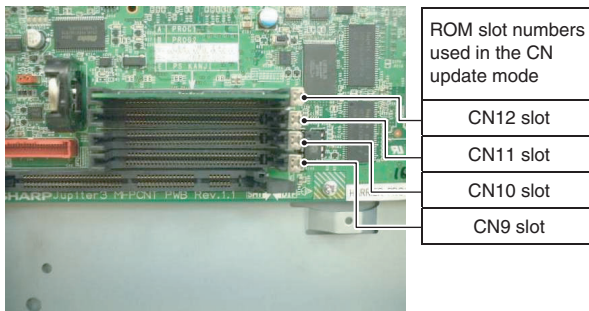
### b. Purpose

This function is used in the following cases:

- 1) When an error occurs during firmware update operation other than the CN update.  
When the power is shut down or an error occurs in a section other than the boot program for some reasons during firmware update operation of other method than the CN update, this method can be used to update the firmware.  
If, however, an abnormality occurs in the boot program, the Program ROM 1 must be replaced with a new one having the normal boot program.  
If an error occurs in the boot program, this method cannot be used. In such a case, the Program ROM 1 must be replaced with a new one having the normal boot program.

### c. ROM slot used in the CN update mode

The following ROM slots are used in the CN update mode.



### d. DIP-SW used in the CN update mode

To enter the CN update mode, set DIP-SW1 and DIP-SW2 on the MFP PWB as shown below:

DIP-SW1 ON: CN update mode

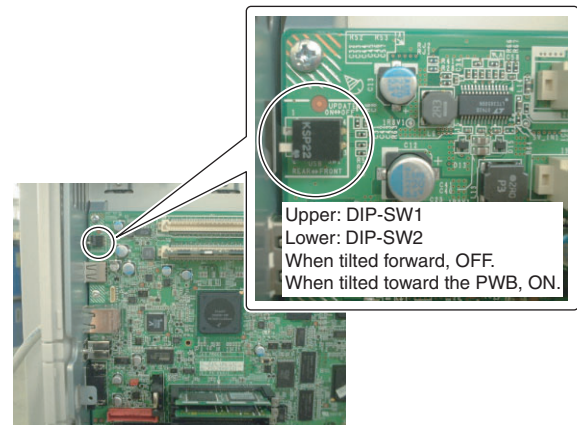
DIP-SW2 OFF: OFF in the normal mode

NOTE: Keep DIP-SW2 at OFF. DIP-SW2 is used to enable the USB port on the front side or the USB port on the rear side. When it is set to OFF, the USB port on the front side is enabled. When it is set to ON, the USB port on the rear side is enabled.

When the keyboard is installed to the machine, an exclusive connection is enabled. (Simultaneous connection is disabled.)

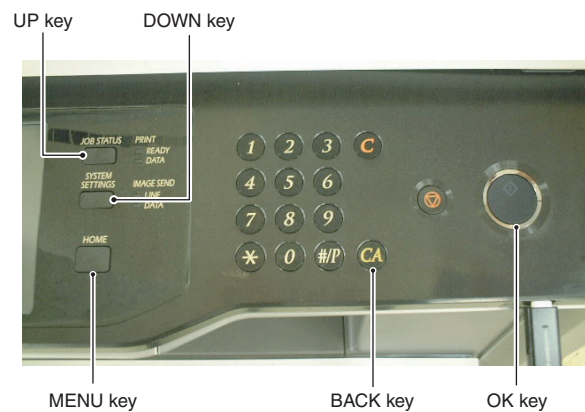
When terminating the CN update mode, reset DIP-SW1 to OFF (normal mode).

NOTE: When using the USB port, be careful of the total current consumption not to exceed 500mA.



### e. Keys used in the CN update mode

The following five keys are used for operations in the CN update mode. Be careful that the functions of the keys differ those in the normal mode.



Key name	Functions in the CN update mode
[OK] key	Executes the selected function or item.
[MENU] key	Selects a menu.
[BACK] key	Selects a menu. (Serves as a cancel key in the execution check screen.)
[UP] key	Selects an item.
[DOWN] key	Selects an item.

## f. Kinds of Flash ROM

There are following kinds of Flash ROM used in this machine.  
Take care that a different model number of Flash ROM cannot be used.

The Flash ROM model number is marked on the semiconductor chip on the Flash ROM.

The number of semiconductor chips differs depending on the Flash ROM model number: 1, 2, and 4.

This also helps identifying the model number of Flash ROM.

### Kinds of Flash ROM

Kinds	Normal installing position	Flash ROM model number	Number of semiconductor chips
MFP (PROGRAM1) ROM	MFP PWB CN12 slot	LHF64FK4*1	2
		MX29LV640EBTI-70G*2	2
MFP (PROGRAM2) ROM	MFP PWB CN11 slot	LHF64FK4*1	4
		MX29GL128ELT2I-90G*2	2
PCU ROM	PCU PWB	LHF00L28	1
SCU ROM	SCU PWB	LH28F800BJE - P TTL90	1
DSPF ROM	DSPF PWB	LH28F800BJE - P TTL90	1

\*1: MX-M283 N, MX-M363/M453/M503 N/U

\*2: MX-M282N/M362/M452/M502 N

## (2) Operating procedures

### a. Firmware update function

This function is used to copy the firmware data from a USB memory or the PC which is connected with a USB cable to the MFP PWB, the SCU PWB, the PCU PWB, the FAX PWB, or various options to update the firmware.

It is basically same as SIM 49-01, but differs in the following points.

- 1) The update target ROM is automatically selected.
- 2) When the power is shut down or an abnormality occurs in a section other than the boot program for some reasons during firmware update operation of other method than the CN update.

If, however, an abnormality occurs in the boot program, this method cannot be used. On that case, the Program ROM 1 must be replaced with a new one having the normal boot program.

When the power is shut down or an abnormality occurs in a section other than the boot program for some reasons during firmware update operation of other method than the CN update, this method can be used to update the firmware. If, however, an abnormality occurs in the boot program, the Program ROM 1 must be replaced with a new one having the normal boot program.

When the boot animation is not displayed, there is an abnormality in the boot program (Program ROM 1).

When the boot animation is displayed but "Copying is enabled" is not displayed on the copier basic menu, there is an abnormality in the main program (Program ROM 2).

### a-1. Necessary items

- 1) Machine (Insert the MFP (PROGRAM1) ROM into CN12 slot, and insert the MFP (PROGRAM2) ROM into CN11.)
- 2) USB memory with the firmware file (SFU) saved in it. (Save the firmware file in the main directory or in a one-level lower directory.)

### a-2. Procedures

- 1) Turn OFF the power, and remove the rear cabinet and the MFP PWB cover.
- 2) Set the MFP PWB DIP-SW1 to ON. (Tilt it to the PWB side.)
- 3) Install the USB memory into the USB port.



USB port

USB memory installing position

- 4) Turn ON the power.
- 5) Check to confirm that the machine starts booting. (It takes more than ten seconds to display the menu.)

Update Program Init  
Please wait



Version Check  
Conf : 00050000

Display when booting is completed

- 6) Select the firmware update mode.  
Select the update mode with [MENU] key and [BACK] key.

Firm Update  
From USB Memory

Display of the firmware update mode

- 7) Press [OK] key.  
The firmware file saved in the USB memory is retrieved, and the file selection menu is displayed.

Firm Update  
> F 0100P000.sfu

Display of file selection

- 8) Select the firmware file (SFU).  
Select the target firmware file (SFU) with [UP] key and [DOWN] key.  
When [OK] key is pressed with a directory name (the head: "> D") displayed, the menu goes to the one-stage lower directory.  
When [BACK] key is pressed in the lower-stage directory, the menu returns to the original upper directory.

- 9) Press [OK] key.

The selected firmware file (SFU) is read. It takes about one minute.



Display of file reading

- 10) After completion of reading, the firmware update process is continued.

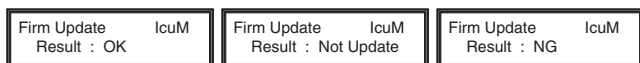


Display of the firmware update process

- \* The abbreviated name of the firmware which is under update process is indicated on the right upper corner of the display.
- \* During the update process, the display may flash instantaneously. It is a normal operation.

- 11) Check the update result.

Use [UP] key and [DOWN] key to display the results of all the firmware programs.



Display of the firmware update result

OK: Update is completed successfully.

NG: Update is failed.

Not Update: Update is not executed.

- 12) Turn OFF the power.
- 13) Set the MFP PWB DIP-SW1 to OFF. (Set the DIP-SW to the normal mode.)
- 14) Turn ON the power, and check to confirm that the machine boots up normally.
- Check to confirm that the boot animation is displayed.
- Check to confirm that "Copying is enabled" is displayed on the copier basic menu.
- 15) Check to confirm the version of each firmware with SIM22-5.
- 16) Attach the MFP PWB cover and the rear cabinet.

NOTE: If the CN update function does not work normally, refer to "Check items when the CN update function does not work normally" and fix the abnormal points.

## [8] MAINTENANCE

### 1. Necessary execution items in maintenance and servicing

#### A. Execution items before maintenance and servicing

To perform the procedures safely, refer to "NOTE FOR SERVICING" on the first page of this service manual.

Item	Simulation	
Check the developer counter value.	22	13
Check the OPC drum counter value.	22	13
Check the print count mode in each section and each operation mode.	22	1
Check the number of paper jam troubles.	22	2
Check the positions and contents of paper jams.	22	3
Check the positions and contents of paper jams (DSPF section).	22	12
Check the contents of troubles.	22	4
Print the setting values and the adjustment values.	22	6
Check the number of use of the DSPF, the scanner, the finisher, the stapler, and the punch.	22	8
Check the number of use of each paper feed section.	22	9
Check the ROM version.	22	5

#### B. Necessary execution items in maintenance and servicing

Perform the work items listed in the maintenance list (parts) and details of works as well as the items described below.

(The necessary execution items are marked with "O" in the table below.)

No.	JOB No.	Work item	Simulation	When repairing (replacing consumable parts) / maintenance						When repairing (without replacement of consumable parts) / inspecting
				Installation	When replacing the OPC drum	When replacing developer	When replacing the fuser web roller	After cleaning the scanner (read) section	Periodic maintenance	
1	—	Toner concentration reference control level setting	25-2			○				
2	—	The photo-conductor counter is cleared.	24-7		○					
3	—	Clear the fuser web cleaning send counter.	24-4				○			
4	ADJ12A	Copy/Printer image quality check and adjustment	46-24	○	○	○		○	○	

- The JOB No. indicates the title number of the adjustment item described in the chapter of the adjustments.
- Refer to the details based on this number according to necessity.

#### C. Execution items after maintenance and servicing

Item	Simulation	
The paper jam / trouble data are cleared.	24	1
The use quantity counter of each paper feed section is cleared.	24	2
The numbers of use of the RSPF/DSPF, the scanner, the finisher, the stapler, and the punch are cleared.	24	3
The maintenance counter is cleared. (Select MAINTENANCE ALL)	24	4
The list of setting values and adjustment values is printed.	22	6

## 2. Contents of the maintenance codes (Relationship between various counters values and display messages)

The message of maintenance execution timing is displayed when each counter reaches the specified value.

The relationships between the kinds of messages and counters are as shown below.

### A. Maintenance counter

Counter name	Near end conditions	Message when near end over	
		Sim.26-38A "0" Print Enable	Sim.26-38A "1" Print Stop
Maintenance counter (Total)	90% of Sim.21-1 set value		Message (1)

Counter name	End conditions	Message when end over	
		Sim.26-38A "0" Print Enable	Sim.26-38A "1" Print Stop
Maintenance counter (Total)	Sim.21-1 set value	Message (1)	Message (2)

Message No.	Message	Print job Enable/Disable
(1)	Maintenance required.Code: TA	Enable
(2)	Maintenance required.Code: TA (With parentheses)	Disable

- After completion of maintenance, clear the maintenance counter of SIM24-4.

### B. Transfer unit section counters

Counter name	Near end conditions	Message when near end over	
		Sim.26-38A "0" Print Enable	Sim.26-38A "1" Print Stop
Transfer unit print counter			
Transfer unit accumulated traveling distance		—	—
Transfer unit usage days		—	—
Waste toner	Twice ON of 200ms or above of waste toner near end detection signal	Message (3)	Message (3)

Counter name	End conditions	Message when end over	
		Sim.26-38A "0" Print Enable	Sim.26-38A "1" Print Stop
Waste toner	Twice ON of 200ms or above of waste toner end detection signal	Message (4)	Message (4)

Message No.	Message	Print job Enable/Disable
(3)	Please replace the toner collection container. (with OK key) (Displayed with parentheses)	Enable
(4)	Please replace the toner collection container. (Displayed with parentheses)	Disable

- After completion of maintenance, clear the transfer unit counter of SIM 24-4-1 (the transfer unit print counter, the transfer unit accumulated traveling distance, and the transfer unit usage days).

### C. Fusing section counters

Counter name	Near end conditions	Message when near end over	
		Sim.26-38B "0" Print Enable	Sim.26-38B "1" Print Stop
Fusing unit print counter	No criteria		
Fusing unit usage days	No criteria	—	—

Unit name	Not installed	Message when not installed	
		Sim.26-38B "0" Print Enable	Sim.26-38B "1" Print Stop
Fusing unit	Judged by the signal level of the fusing thermistor	Message (7)	Message (7)
Fusing web unit	No criteria		

Counter name	End conditions	Message when end over	
		Sim.26-38B "0" Print Enable	Sim.26-38B "1" Print Stop
Fusing web print counter	200,000 [sheets]	Message (5)	Message (6)
Fusing web cleaning feed counter	Judged by the fusing web life end detection signal, not by the fusing web cleaning feed counter.	Message (5)	Message (6)
Fusing web usage days	740 [days]	—	—

Judgment is made at the earlier timing of the fusing web print counter or the web life end detection.

Message No.	Message	Print job Enable/Disable
(5)	Maintenance required.Code: FK3	Enable
(6)	Maintenance required.Code: FK3 (Displayed with parentheses)	Disable
(7)	Install the fusing unit. (Displayed with parentheses)	Disable

- After completion of maintenance, clear the fusing unit counter of SIM24-4 (the fusing unit print counter, and the fusing unit usage days).

### D. OPC drum section counters

Counter name	Near end conditions	Message when near end over	
		Sim.26-38A "0" Print Enable	Sim.26-38A "1" Print Stop
Drum cartridge print counter (K)	No criteria		
Drum cartridge accumulated traveling distance (K)	No criteria	—	—
Drum cartridge usage days (K)	No criteria	—	—

Counter name	End conditions	Message when end over	
		Sim.26-38A "0" Print Enable	Sim.26-38A "1" Print Stop
Drum cartridge print counter (K)	36/45/50 CPM model: 200,000 [sheets] 28 CPM model: 150,000 [sheets]	Message (8)	Message (8)
Drum accumulated rotation number (K)	930K rotations	Message (8)	Message (8)
Drum cartridge usage days (K)	9999 days	—	—

Judgment is made at the earlier timing of the drum cartridge print counter or the drum rotations accumulated number counter.

Message No.	Message	Print job Enable/Disable
(8)	Maintenance required.Code: DK	Enable

- After completion of maintenance, clear the drum counter of SIM24-7 (the drum print counter and the drum accumulated traveling distance).

## E. Developer section counters

Counter name	Near end conditions	Message when near end over	
		Sim.26-38A "0" Print Enable	Sim.26-38A "1" Print stop
Developer cartridge print counter (K)	No criteria		
Developer cartridge accumulated traveling distance (K)	No criteria	—	—
Developer cartridge usage days (K)	No criteria	—	—

Counter name	End conditions	Message when end over	
		Sim.26-38A "0" Print Enable	Sim.26-38A "1" Print Stop
Developer cartridge print counter (K)	36/45/50 CPM model: 200,000 [sheets] 28 CPM model: 150,000 [sheets]	Message (9)	Message (9)
Developer accumulated rotation number (K)	930K rotations	Message (9)	Message (9)
Developer cartridge usage days (K)	9999 days	—	—

Judgment is made at the earlier timing of the developer print counter or the developer accumulated rotation number counter.

The developer rotation number is synchronized with the drum motor rotation number.

Message No.	Message	Print job Enable/Disable
(9)	Maintenance required.Code: VK	Enable

After replacement of developer, use SIM25-2 to set the toner density control level. By this setting, the developer counters (the developer print counter and the developer accumulated traveling distance counter) are cleared.

## F. Toner cartridge section counters

Sensor name	Near end conditions	Toner preparation message	
		Sim.26-69A "0" Displayed	Sim.26-69A "1" Not displayed
Toner remaining quantity sensor (K)	Total toner supply time (Equivalent to 25% or less of toner remaining quantity)	Message (10)	

Japan: Not displayed, EX Japan: Displayed

Sensor name	Near end conditions	Message when near end over	
		Sim.26-69B "0" Displayed	Sim.26-69B "1" Not displayed
Toner remaining quantity sensor (K)	When a low toner state continues for more than the specified time (*1)	Message (12)	

Japan: Not displayed, EX Japan: Displayed

Counter name	End conditions	Message when end over	
		Sim.26-38A "0" Print Enable	Sim.26-38A "1" Print Stop
Toner remaining quantity sensor (K)	When the pixel count value reaches the specified level from the near end condition. (*2)	Message (11)	Message (11)

Message No.	Message	Print job Enable/Disable
(10)	Prepare a new one	Enable
(11)	Change the toner cartridge. K (Displayed with parentheses)	Disable
(12)	K Toner supply is low.	Enable

\*1

- Near end conditions

- (1) When the toner density sensor output continues 0.14V greater than the toner density reference value for 30 sec.
- (2) When the toner density sensor output continues 1.00V greater than the toner density reference value for 2.5 sec.
- (3) When the toner density sensor output continues greater than the toner density reference value and smaller than the reference value + 0.14V for 120 sec.

\*2

- End conditions

When the specified toner consumption count value is reached from the near end state.

The specified value is determined by the setting of SIM26-69D.

- 1 0 sheet
- 2 25 sheets
- 3 50 sheets (Default)
- 4 100 sheets
- 5 200 sheets

(The above numbers of sheets are based on A4 and 6% conversion.)

### 3. Maintenance list (parts) and details of works

#### 36/45/50 CPM model

×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

Section	Part name	When calling	200 k	400 k	600 k	800 k	1000 k	1200 k	1400 k	1600 k	1800 k	2000 k	2200 k	2400 k	Remark
Photo-conductor section	Drum	–	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace even at the specified RPM. Storage period is 3 years. Replace after 2 years of use.
	Cleaner blade	–	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace at 200K of the drum counter or 2 years of use.
	Toner reception seal	–	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Toner reception side sheet F/R	–	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Toner reception lower molt	–	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Side seal F/R	–	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Drum separation pawl unit	–	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	MC unit	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Waste toner box	Replacement is made by the user every time when the waste toner box is full. When a serviceman calls, be sure to check.													Check when a serviceman calls. It is advisable to replace in advance if necessary.
Developing section	Developer	–	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace even at the specified RPM. Storage period is 2 years. Replace after 2 years of use.
	DV seal	–	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace at 200K of the developer counter or 2 years of use.
	DV side seal F/R	–	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Toner filter	–	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace at 200K of the developer counter or 2 years of use.
	Connector	–	×	×	×	×	×	×	×	×	×	×	×	×	
Toner supply section	Toner cartridge	User replacement for every toner empty.													Storage period is 2 years. Replace after 2 years of use.
LSU section	Dust-proof glass	○	×	×	×	×	×	×	×	×	×	×	×	×	
Transfer section	Transfer roller	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace at 200K or 2 years of use.
	Discharge plate	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Transfer roller bearing F and R	–	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Transfer roller collar	–	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Transfer rear star ring	–	×	×	×	×	×	×	×	×	×	×	×	×	
	Transfer roller gear	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Pre-transfer paper guide	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Process control sensor	×	○	○	○	○	○	○	○	○	○	○	○	○	Air cleaning

Section	Part name	When calling	200 k	400 k	600 k	800 k	1000 k	1200 k	1400 k	1600 k	1800 k	2000 k	2200 k	2400 k	Remark
Fusing section	Lower heat roller	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace with the lower heat roller unit. / Replace at 200K or 2 years of use.
	Lower heat roller bearing	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace with the lower heat roller unit. / Apply grease when assembling to the heat roller.
	Upper separation pawl	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	When a foreign material is attached, it must be cleaned away.
	Thermistor	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Lower separation pawl	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Web pressure roller bearing	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Web pressure roller	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Web roller	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Web 45T gear	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Fusing paper exit roller	×	○	○	○	○	○	○	○	○	○	○	○	○	
	Gears	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Upper heat roller	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace with the upper heat roller unit. / Replace at 200K or 2 years of use.
	Upper heat roller gear	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace with the upper heat roller unit.
	Upper heat roller bearing	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace with the upper heat roller unit. / Apply grease when assembling to the heat roller.
	Upper heat roller heat-insulation bush	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
Filter section	Ozone filter	×	×	▲	×	▲	×	▲	×	▲	×	▲	×	▲	
Paper feed section	Paper pick-up roller	×	○	○	○	○	○	○	○	○	○	○	○	○	Replacement reference: Replace according to each paper feed counter value. Paper feed tray 1, 2: Replace at 100K or 1 year of use. Manual feed: Replace at 100K or 1 year of use.
	Paper feed roller	×	○	○	○	○	○	○	○	○	○	○	○	○	
	Separation roller	×	○	○	○	○	○	○	○	○	○	○	○	○	
	Torque limiter	×	×	×	×	×	×	×	×	×	×	×	×	×	Replacement reference: Replace according to each paper feed counter value. Paper feed tray 1, 2: 100K Manual feed: 100K
	Transport rollers	×	○	○	○	○	○	○	○	○	○	○	○	○	
	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Transport paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	
Paper transport section	Resist roller (Idle)	×	○	○	○	○	○	○	○	○	○	○	○	○	
	Paper dust removing unit	○	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Transport rollers	×	○	○	○	○	○	○	○	○	○	○	○	○	
	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Transport paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	
Duplex/ paper exit section	Discharge brush	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Transport rollers	×	○	○	○	○	○	○	○	○	○	○	○	○	
	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Gears	×	×	×	×	×	×	×	×	×	×	×	×	×	When checking, apply to the necessary positions.
	Transport paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	
Drive section	Gears (Grease)	–	×	×	×	×	×	×	×	×	×	×	×	×	When checking, apply to the necessary positions.
	Shaft earth sections (Conduction grease)	–	×	×	×	×	×	×	×	×	×	×	×	×	
	Belts	–	×	×	×	×	×	×	×	×	×	×	×	×	



Section	Part name	When calling	200 k	400 k	600 k	800 k	1000 k	1200 k	1400 k	1600 k	1800 k	2000 k	2200 k	2400 k	Remark
Scanner section	Mirror/Lens/Reflection sheet/CCD	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Table glass/SPF glass	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Scanner lamp	N model: LED PWB	×	×	×	×	×	×	×	×	×	×	×	×	Air cleaning for the LED section
		U model: Xenon lamp	○	○	○	○	○	○	○	○	○	○	○	○	
	Rails	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Drive belt/drive wire	×	×	×	×	×	×	×	×	×	×	×	×	×	
DSPF section	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Paper feed roller	○	○	○	○	○	○	○	○	○	○	○	○	○	Replacement reference: Replace according to each paper feed counter value. SPF section roller: Replace at 100K or 1 year of use.
	Pickup roller	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Separation roller	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Torque limiter SPF (for separation)	×	×	×	×	×	×	×	×	×	×	×	×	×	Replacement reference: Replace according to each paper feed counter value. SPF section torque limiter: Replace at 400K or 2 years of use.
	Call-in torque limiter (for PIC)	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Transport rollers	○	○	○	○	○	○	○	○	○	○	○	○	○	
	No. 1 scanning plate	○	○	○	○	○	○	○	○	○	○	○	○	○	
	No. 2 scanning section, scanning glass	○	○	○	○	○	○	○	○	○	○	○	○	○	
	No. 2 scanning section, white reference glass	○	○	○	○	○	○	○	○	○	○	○	○	○	
	CIS unit	×	×	×	×	×	×	×	×	×	×	×	×	×	Air cleaning for the Selfoc lens section.
	Paper exit roller	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Discharge brush	×	×	×	×	×	×	×	×	×	×	×	×	×	
	OC mat	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Belts	×	×	×	×	×	×	×	×	×	×	×	×	×	
RSPF section	Paper feed roller	○	○	○	○	○	○	○	○	○	○	○	○	○	Replacement reference: Replace according to each paper feed counter value. SPF section roller: Replace at 100K or 1 year of use.
	Pickup roller	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Separation roller	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Torque limiter SPF (for separation)	×	×	×	×	×	×	×	×	×	×	×	×	×	Replacement reference: Replace according to each paper feed counter value. SPF section torque limiter: Replace at 400K or 2 years of use.
	Call-in torque limiter (for PIC)	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Transport rollers	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Scanning plate	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Paper exit roller	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Discharge brush	×	×	×	×	×	×	×	×	×	×	×	×	×	
	OC mat	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Belts	×	×	×	×	×	×	×	×	×	×	×	×	×	

## Option

×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

Section	Part name	When calling	200 k	400 k	600 k	800 k	1000 k	1200 k	1400 k	1600 k	1800 k	2000 k	2200 k	2400 k	Remark
Inner finisher/ Punch unit for Inner finisher	Transport rollers	×	○	○	○	○	○	○	○	○	○	○	○	○	
	Transport paper guides	×	○	○	○	○	○	○	○	○	○	○	○	○	
	Gears	×	×	×	×	×	×	×	×	×	×	×	×	×	When checking, apply to the necessary positions.
	Belts		×	×	×	×	×	×	×	×	×	×	×	×	
	Knurling belt	×	○	○	○	○	○	○	○	○	○	○	○	○	Replacement reference: Replace at every 1000K of the finisher paper exit count value.
	Paddle	×	○	○	○	○	○	○	○	○	○	○	○	○	
	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Discharge brush	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Stapler unit	Replacement reference: Replace the unit at every 200K staple.													
	Punch unit	Replacement reference: Replace the unit at every 1000K.													
	Staple cartridge	Replacement is made by the user at every 5,000 pcs.													
Saddle stitch finisher (1K)/Punch unit for Saddle stitch finisher (1K)	Transport rollers	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Transport paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Gears	×	×	×	×	×	×	×	×	×	×	×	×	×	When checking, apply to the necessary positions.
	Belts	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Knurling belt	×	○	○	○	○	○	○	○	○	○	○	○	○	Replacement reference: Replace at every 1000K of the finisher paper exit count value.
	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Discharge brush	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Stapler unit	Replacement reference: Replace the unit at every 200K staple.													
	Stapler unit (For saddle finisher)	Replacement reference: Replace the unit at every 100K staple.													
	Punch unit	Replacement reference: Replace the unit at every 1000K.													
Finisher (4K)/Punch unit for Finisher (4K)	Transport rollers	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Transport paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Gears	×	×	×	×	×	×	×	×	×	×	×	×	×	When checking, apply to the necessary positions.
	Belts	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Discharge brush	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Stapler unit	Replacement reference: Replace the unit at every 100K staple.													
	Punch unit	Replacement reference: Replace the unit at every 1000K.													
	Staple cartridge	Replacement is made by the user at every 5,000 pcs.													
	Staple cartridge (For saddle finisher)	Replacement is made by the user at every 2,000 pcs.													
Paper pass unit	Transport rollers	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Transport paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	
A4 large capacity tray	Pickup roller/ Paper feed rollers	×	○	○	○	○	○	○	○	○	○	○	○	○	Replacement reference: Replace according to each paper feed counter value.: 100K or 1 year of use
	Torque limiter	×	×	×	×	×	×	×	×	×	×	×	×	×	Replacement reference: Replace according to each paper feed counter value.: 100K
	Transport rollers	×	○	○	○	○	○	○	○	○	○	○	○	○	
	Transport paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Gears	×	×	×	×	×	×	×	×	×	×	×	×	×	When checking, apply to the necessary positions.
	Belts		×	×	×	×	×	×	×	×	×	×	×	×	
	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	

Section	Part name	When calling	200 k	400 k	600 k	800 k	1000 k	1200 k	1400 k	1600 k	1800 k	2000 k	2200 k	2400 k	Remark
Paper feed tray (Desk)	Pickup roller	×	○	○	○	○	○	○	○	○	○	○	○	○	Replacement reference: Replace according to each paper feed counter value.: 100K or 1 year of use
	Paper feed roller	×	○	○	○	○	○	○	○	○	○	○	○	○	
	Separation roller	×	○	○	○	○	○	○	○	○	○	○	○	○	
	Torque limiter	×	×	×	×	×	×	×	×	×	×	×	×	×	Replacement reference: Replace according to each paper feed counter value.: 100K
	Transport rollers	×	○	○	○	○	○	○	○	○	○	○	○	○	
	Transport paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Gears	×	×	×	×	×	×	×	×	×	×	×	×	×	

## 28 CPM model

×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

Section	Part name	When calling	150 k	300 k	450 k	600 k	750 k	900 k	1050 k	1200 k	1350 k	1500 k	1650 k	1800 k	Remark
Photo-conductor section	Drum	—	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace even at the specified RPM. Storage period is 3 years. Replace after 2 years of use.
	Cleaner blade	—	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Toner reception seal	—	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Toner reception side sheet F/R	—	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Toner reception lower molt	—	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Side seal F/R	—	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Drum separation pawl unit	—	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	MC unit	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Waste toner box	Replacement is made by the user every time when the waste toner box is full. When a serviceman calls, be sure to check.													Check when a serviceman calls. It is advisable to replace in advance if necessary.
Developing section	Developer	—	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace even at the specified RPM. Storage period is 2 years. Replace after 2 years of use.
	DV seal	—	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	DV side seal F/R	—	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Toner filter	—	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace at 150K of the developer counter or 2 years of use.
	Connector	—	×	×	×	×	×	×	×	×	×	×	×	×	
Toner supply section	Toner cartridge	User replacement for every toner empty.													Storage period is 2 years. Replace after 2 years of use.
LSU section	Dust-proof glass	○	×	×	×	×	×	×	×	×	×	×	×	×	
Transfer section	Transfer roller	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace at 150K or 2 years of use.
	Discharge plate	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Transfer roller bearing F and R	—	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Transfer roller collar	—	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Transfer rear star ring	—	×	×	×	×	×	×	×	×	×	×	×	×	
	Transfer roller gear	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Pre-transfer paper guide	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Process control sensor	×	○	○	○	○	○	○	○	○	○	○	○	○	Air cleaning

Section	Part name	When calling	150 k	300 k	450 k	600 k	750 k	900 k	1050 k	1200 k	1350 k	1500 k	1650 k	1800 k	Remark
Fusing section	Lower heat roller	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace with the lower heat roller unit. / Replace at 150K or 2 years of use.
	Lower heat roller bearing	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace with the lower heat roller unit. / Apply grease when assembling to the heat roller.
	Upper separation pawl	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	When a foreign material is attached, it must be cleaned away.
	Thermistor	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Lower separation pawl	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Web pressure roller bearing	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Web pressure roller	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Web roller	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Web 45T gear	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Fusing paper exit roller	×	○	○	○	○	○	○	○	○	○	○	○	○	
	Gears	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Upper heat roller	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace with the upper heat roller unit. / Replace at 150K or 2 years of use.
	Upper heat roller gear	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace with the upper heat roller unit.
	Upper heat roller bearing	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace with the upper heat roller unit. / Apply grease when assembling to the heat roller.
	Upper heat roller heat-insulation bush	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
Filter section	Ozone filter	×	×	▲	×	▲	×	▲	×	▲	×	▲	×	▲	
Paper feed section	Paper pick-up roller	×	○	○	○	○	○	○	○	○	○	○	○	○	Replacement reference: Replace according to each paper feed counter value. Paper feed tray 1, 2: Replace at 100K or 1 year of use. Manual feed: Replace at 100K or 1 year of use.
	Paper feed roller	×	○	○	○	○	○	○	○	○	○	○	○	○	
	Separation roller	×	○	○	○	○	○	○	○	○	○	○	○	○	
	Torque limiter	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Transport rollers	×	○	○	○	○	○	○	○	○	○	○	○	○	Replacement reference: Replace according to each paper feed counter value. Paper feed tray 1, 2: 100K Manual feed: 100K
	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Transport paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	
Paper transport section	Resist roller (Idle)	×	○	○	○	○	○	○	○	○	○	○	○	○	
	Paper dust removing unit	○	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
	Transport rollers	×	○	○	○	○	○	○	○	○	○	○	○	○	
	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Transport paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	
Duplex/ paper exit section	Discharge brush	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Transport rollers	×	○	○	○	○	○	○	○	○	○	○	○	○	
	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Gears	×	×	×	×	×	×	×	×	×	×	×	×	×	When checking, apply to the necessary positions.
	Transport paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	
Drive section	Gears (Grease)	—	×	×	×	×	×	×	×	×	×	×	×	×	When checking, apply to the necessary positions.
	Shaft earth sections (Conduction grease)	—	×	×	×	×	×	×	×	×	×	×	×	×	
	Belts	—	×	×	×	×	×	×	×	×	×	×	×	×	

Section	Part name	When calling	150 k	300 k	450 k	600 k	750 k	900 k	1050 k	1200 k	1350 k	1500 k	1650 k	1800 k	Remark
Scanner section	Mirror/Lens/Reflection sheet/CCD	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Table glass/SPF glass	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Scanner lamp (LED PWB)	×	×	×	×	×	×	×	×	×	×	×	×	×	Air cleaning for the LED section
	Rails	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Drive belt/drive wire	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	
RSPF section	Paper feed roller	○	○	○	○	○	○	○	○	○	○	○	○	○	Replacement reference: Replace according to each paper feed counter value. SPF section roller: Replace at 100K or 1 year of use.
	Pickup roller	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Separation roller	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Torque limiter SPF (for separation)	×	×	×	×	×	×	×	×	×	×	×	×	×	Replacement reference: Replace according to each paper feed counter value. SPF section torque limiter: Replace at 400K or 2 years of use.
	Call-in torque limiter (for PIC)	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Transport rollers	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Scanning plate	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Paper exit roller	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Discharge brush	×	×	×	×	×	×	×	×	×	×	×	×	×	
	OC mat	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Belts	×	×	×	×	×	×	×	×	×	×	×	×	×	

#### Option

×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

Section	Part name	When calling	150 k	300 k	450 k	600 k	750 k	900 k	1050 k	1200 k	1350 k	1500 k	1650 k	1800 k	Remark
Inner finisher/ Punch unit for Inner finisher	Transport rollers	×	○	○	○	○	○	○	○	○	○	○	○	○	
	Transport paper guides	×	○	○	○	○	○	○	○	○	○	○	○	○	
	Gears	×	×	×	×	×	×	×	×	×	×	×	×	×	When checking, apply to the necessary positions.
	Belts		×	×	×	×	×	×	×	×	×	×	×	×	
	Knurling belt	×	○	○	○	○	○	○	○	○	○	○	○	○	Replacement reference: Replace at every 1000K of the finisher paper exit count value.
	Paddle	×	○	○	○	○	○	○	○	○	○	○	○	○	
	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Discharge brush	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Stapler unit	Replacement reference: Replace the unit at every 200K staple.													
	Punch unit	Replacement reference: Replace the unit at every 1000K.													
	Staple cartridge	Replacement is made by the user at every 5,000 pcs.													
Saddle stitch finisher (1K)/Punch unit for Saddle stitch finisher (1K)	Transport rollers	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Transport paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Gears	×	×	×	×	×	×	×	×	×	×	×	×	×	When checking, apply to the necessary positions.
	Belts	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Knurling belt	×	○	○	○	○	○	○	○	○	○	○	○	○	Replacement reference: Replace at every 1000K of the finisher paper exit count value.
	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Discharge brush	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Stapler unit	Replacement reference: Replace the unit at every 200K staple.													
	Stapler unit (For saddle finisher)	Replacement reference: Replace the unit at every 100K staple.													
	Punch unit	Replacement reference: Replace the unit at every 1000K.													
	Staple cartridge	Replacement is made by the user at every 5,000 pcs.													
	Staple cartridge (For saddle finisher)	Replacement is made by the user at every 2,000 pcs.													

Section	Part name	When calling	150 k	300 k	450 k	600 k	750 k	900 k	1050 k	1200 k	1350 k	1500 k	1650 k	1800 k	Remark
Finisher (4K)/Punch unit for Finisher (4K)	Transport rollers	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Transport paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Gears	×	×	×	×	×	×	×	×	×	×	×	×	×	When checking, apply to the necessary positions.
	Belts	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Discharge brush	×	×	×	×	×	×	×	×	×	×	×	×	×	
	Stapler unit	Replacement reference: Replace the unit at every 100K staple.													
	Punch unit	Replacement reference: Replace the unit at every 1000K.													
	Staple cartridge	Replacement is made by the user at every 5,000 pcs.													
Paper pass unit	Transport rollers	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Transport paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	
A4 large capacity tray	Pickup roller/ Paper feed rollers	×	○	○	○	○	○	○	○	○	○	○	○	○	Replacement reference: Replace according to each paper feed counter value.: 100K or 1 year of use
	Torque limiter	×	×	×	×	×	×	×	×	×	×	×	×	×	Replacement reference: Replace according to each paper feed counter value.: 100K
	Transport rollers	×	○	○	○	○	○	○	○	○	○	○	○	○	
	Transport paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Gears	×	×	×	×	×	×	×	×	×	×	×	×	×	When checking, apply to the necessary positions.
	Belts		×	×	×	×	×	×	×	×	×	×	×	×	
	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	
Paper feed tray (Desk)	Pickup roller	×	○	○	○	○	○	○	○	○	○	○	○	○	Replacement reference: Replace according to each paper feed counter value.: 100K or 1 year of use
	Paper feed roller	×	○	○	○	○	○	○	○	○	○	○	○	○	
	Separation roller	×	○	○	○	○	○	○	○	○	○	○	○	○	
	Torque limiter	×	×	×	×	×	×	×	×	×	×	×	×	×	Replacement reference: Replace according to each paper feed counter value.: 100K
	Transport rollers	×	○	○	○	○	○	○	○	○	○	○	○	○	
	Transport paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	
	Gears	×	×	×	×	×	×	×	×	×	×	×	×	×	

## A. Photo-conductor section

### 36/45/50 CPM model

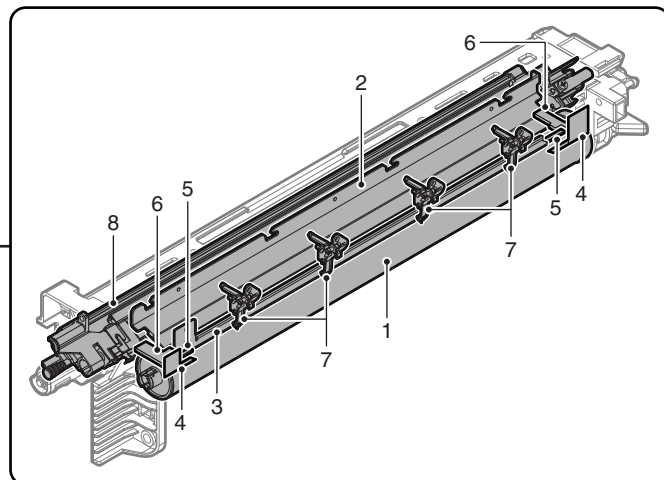
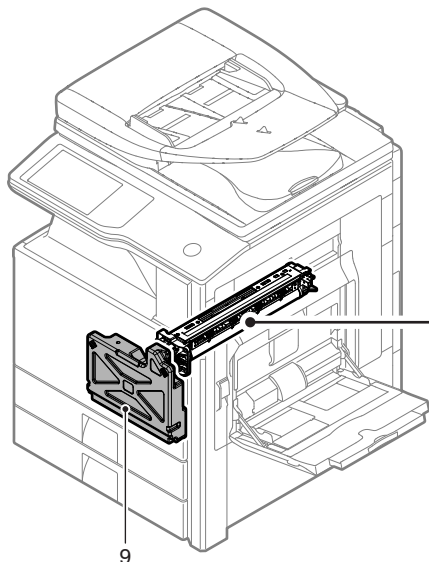
×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	200 k	400 k	600 k	800 k	1000 k	1200 k	1400 k	1600 k	1800 k	2000 k	2200 k	2400 k	Remark
1	Drum	—	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace even at the specified RPM. Storage period is 3 years. Replace after 2 years of use.
2	Cleaner blade	—	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace at 200K of the drum counter or 2 years of use.
3	Toner reception seal	—	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
4	Toner reception side sheet F/R	—	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
5	Toner reception lower molt	—	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
6	Side seal F/R	—	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
7	Drum separation pawl unit	—	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
8	MC unit	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
9	Waste toner box	Replacement is made by the user every time when the waste toner box is full. When a serviceman calls, be sure to check.													Check when a serviceman calls. It is advisable to replace in advance if necessary.

### 28 CPM model

×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	150 k	300 k	450 k	600 k	750 k	900 k	1050 k	1200 k	1350 k	1500 k	1650 k	1800 k	Remark
1	Drum	—	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace even at the specified RPM. Storage period is 3 years. Replace after 2 years of use.
2	Cleaner blade	—	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace at 150K of the drum counter or 2 years of use.
3	Toner reception seal	—	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
4	Toner reception side sheet F/R	—	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
5	Toner reception lower molt	—	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
6	Side seal F/R	—	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
7	Drum separation pawl unit	—	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
8	MC unit	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
9	Waste toner box	Replacement is made by the user every time when the waste toner box is full. When a serviceman calls, be sure to check.													Check when a serviceman calls. It is advisable to replace in advance if necessary.



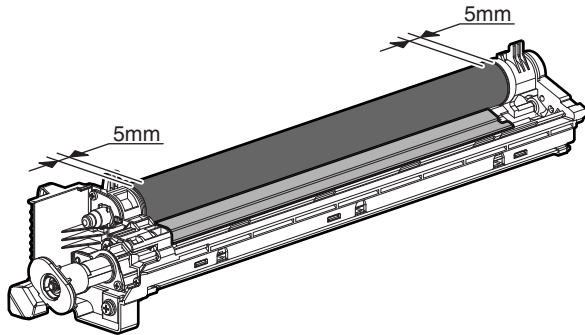
**(Note for servicing the OPC drums)**

**1. Prevention of oily dirt attachment**

[Note]

- Be careful not to attach fingerprints or oily dirt on the OPC drum surface. (Keep the unit away from oils and dust.)
- When replacing the OPC drum, cover the OPC drum with the protection sheet and hold the protection sheet.

If it is required to hold the OPC drum directly, use enough care not to touch the cleaning blade area, 5mm inside from both edges of the OPC drum. (If a fingerprint or oily dirt is attached to the cleaning blade area of the OPC drum, the cleaning blade may flip.)



[Countermeasures]

If a fingerprint is attached to the OPC drum surface erroneously, perform the following countermeasures.

- 1) Use dry cloth to clean and remove the dirt.
- 2) Apply KYNAR to prevent blade flip.

[Check method]

Check to confirm that the OPC drum is free from fingerprints or oily dirt and that the cleaning blade is completely cleaned by the following method.

- Make a print of a half tone image on all the surface of A4 (11" x 8.5") paper, and check the printed paper for any abnormality in the image.

**2. Prior exposure prevention**

[Note]

- Avoid servicing in a place where there is strong light.
- Do not expose the unit to light for a long time.
- Cover the OPC drum with light-blocking material. (When using paper, use about 10 sheets of paper to block light.)

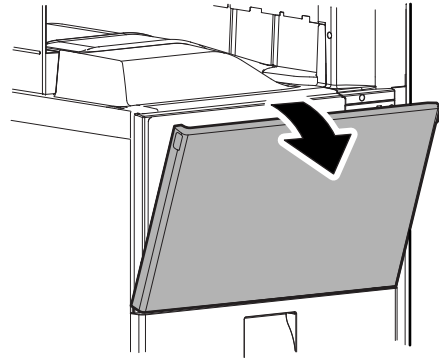
[Countermeasures]

If the OPC drum is erroneously exposed to light too much (prior exposure), perform the following countermeasures.

- 1) Print half tone images on the whole surface of A4 (11" x 8.5") paper, and check to confirm that there is no irregular density area in the previously exposed section.
- 2) Damages due to prior exposure may be recovered by keeping the OPC drum for several hours. If, however, image are not recovered, replace the OPC drum.

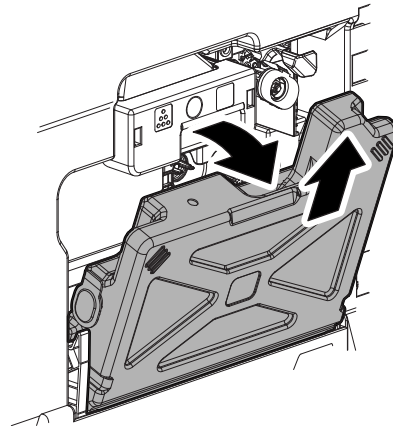
**(1) Waste toner box replacement**

- 1) Open the front cover.



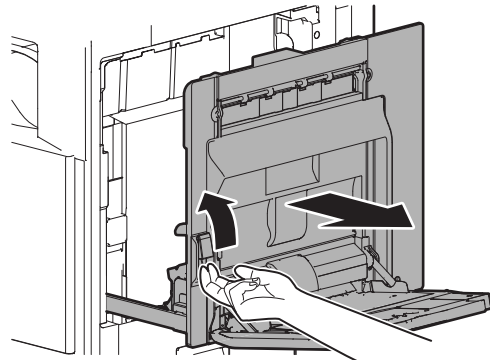
- 2) Tilt the waste toner box forward to remove it.

Maintenance: Replace the waste toner box with a new one every time when it is full (By the user). Check it every-time when a serviceman calls. (Replace it in advance if necessary.)



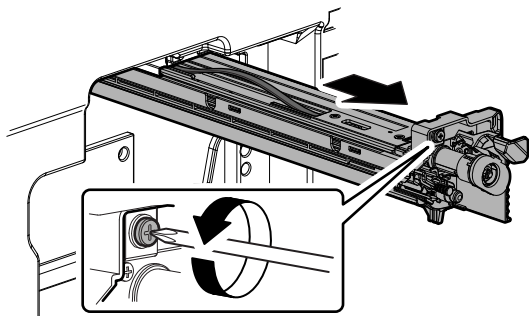
**(2) Photo-conductor unit removal**

- 1) Remove the toner cartridge.  
[Refer to "C. Toner supply section."]
- 2) Remove the developing unit.  
[Refer to "B. Developing section."]
- 3) Pull the lock lever, and open the right door.





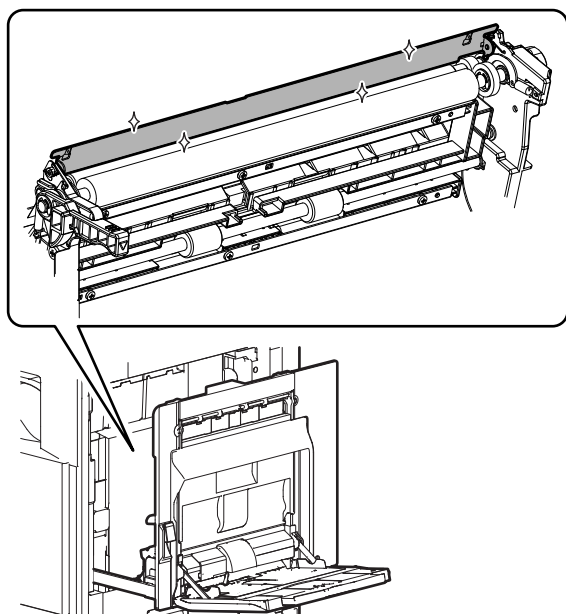
- 4) Remove the blue screw. Pull the photo-conductor unit, and hold the handle to remove the unit.



NOTE: Before installing the photo-conductor unit, clean the both surfaces of the resist unit paper guide.

Clean the metal section of the paper guide with alcohol, and clean the cushion section without alcohol.

At that time, be careful not to deform the paper guide.



### (3) MC unit replacement

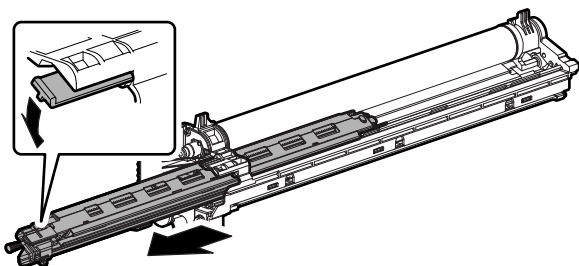
- 1) Disengage the pawl, and remove the MC unit.

- Maintenance

36/45/50 CPM model: Replace at every 200K.

28 CPM model: Replace at every 150K.

NOTE: When inserting the MC unit, be careful not to scratch the drum.



### (4) Drum replacement

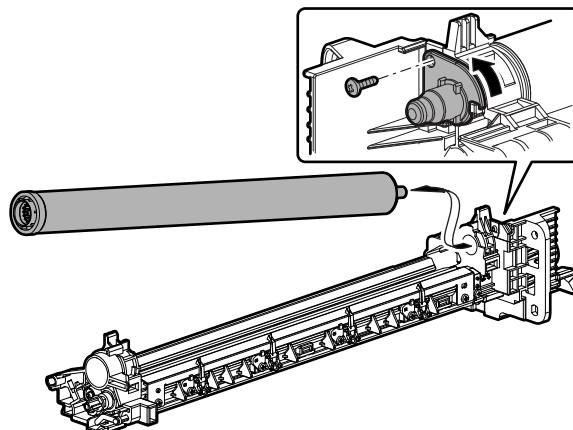
- 1) Remove the blue screw, and rotate the fixing shaft to remove. Slide the drum to the front side to remove.

- Maintenance

36/45/50 CPM model: Replace at every 200K.

28 CPM model: Replace at every 150K.

NOTE: When removing and installing, be careful not to scratch the drum by making it into contact with the separation pawl.



### (5) Drum separation pawl unit replacement

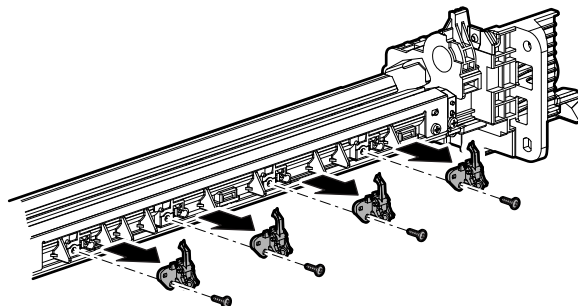
- 1) Remove the blue screw, and remove the drum separation pawl unit.

- Maintenance

36/45/50 CPM model: Replace at every 200K.

28 CPM model: Replace at every 150K.

NOTE: Be careful not to scratch or put dirt on the tip of the separation pawl.

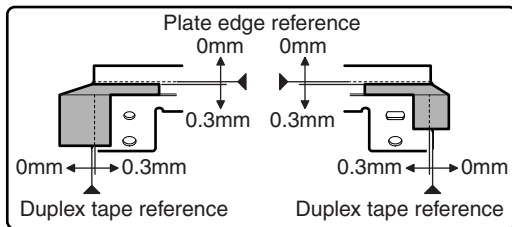
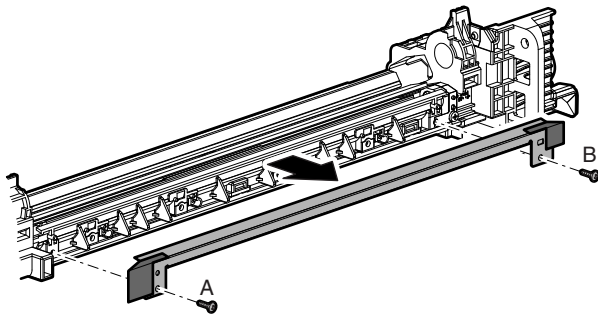


## (6) Toner reception seal, toner reception side sheets F and R replacement

- 1) Remove the blue screw, and remove the toner reception seal.
  - Maintenance
    - 36/45/50 CPM model: Replace at every 200K.
    - 28 CPM model: Replace at every 150K.

NOTE: When installing, tighten the blue screws in the sequence of A and B.

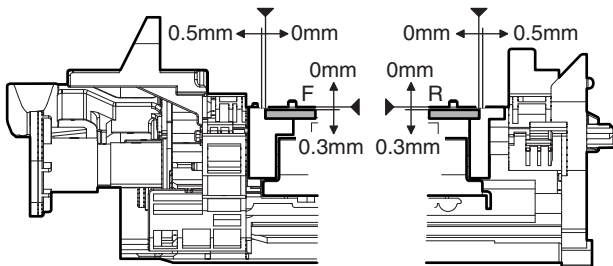
NOTE: Attach the toner reception side sheets F and R according to the reference.



## (7) Toner reception lower molt replacement

- 1) Remove the toner reception lower molt.
  - Maintenance
    - 36/45/50 CPM model: Replace at every 200K.
    - 28 CPM model: Replace at every 150K.

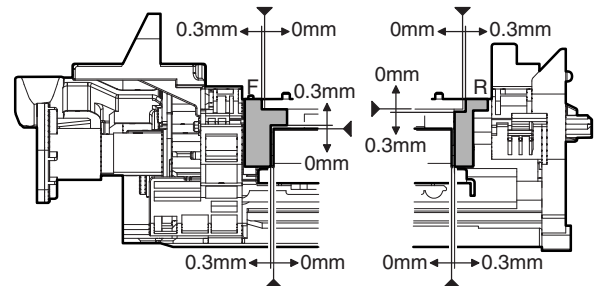
NOTE: Attach with the edges of the side seals F and R as the reference so that there is no clearance with the side seals F and R.



## (8) Side seals F and R replacement

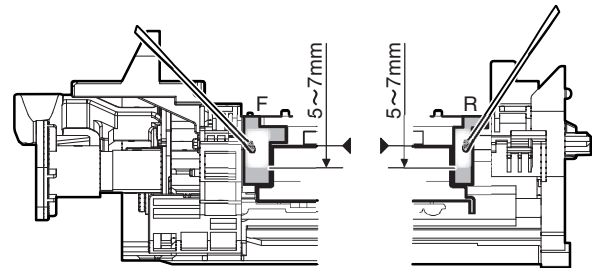
- 1) Remove the side seals F and R.
  - Maintenance
    - 36/45/50 CPM model: Replace at every 200K.
    - 28 CPM model: Replace at every 150K.

NOTE: Attach with the cleaner blade edge as the reference so that the clearance is within 0 - 0.3mm. Press to secure attachment.



- 2) After replacement of the side seals F and R, apply stearic acid (UKOG-0309FCZZ) evenly to the side seals F and R by using the micro-spatula (UKOG-0311FCZZ).

NOTE: Be careful not to apply excessively to the parts on the periphery.



## (9) Cleaner blade replacement

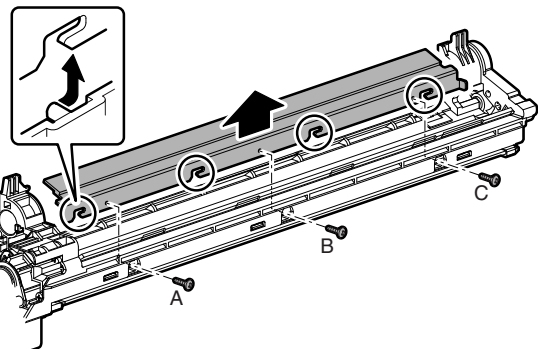
- 1) Remove the blue screw, and slide the cleaner blade to the rear side to remove.
  - Maintenance
    - 36/45/50 CPM model: Replace at every 200K.
    - 28 CPM model: Replace at every 150K.

NOTE: Before removing the cleaner blade, remove the side seals F and R in advance. When, therefore, the cleaner blade is replaced, replace the side seals F and R with new ones as well.

If this note is ignored, a trouble such as improper cleaning or toner leakage may occur.

NOTE: Be careful not to touch or scratch the tip of the cleaner blade.

NOTE: When installing, tighten the blue screws in the sequence of A → B → C.



## B. Developing section

### 36/45/50 CPM model

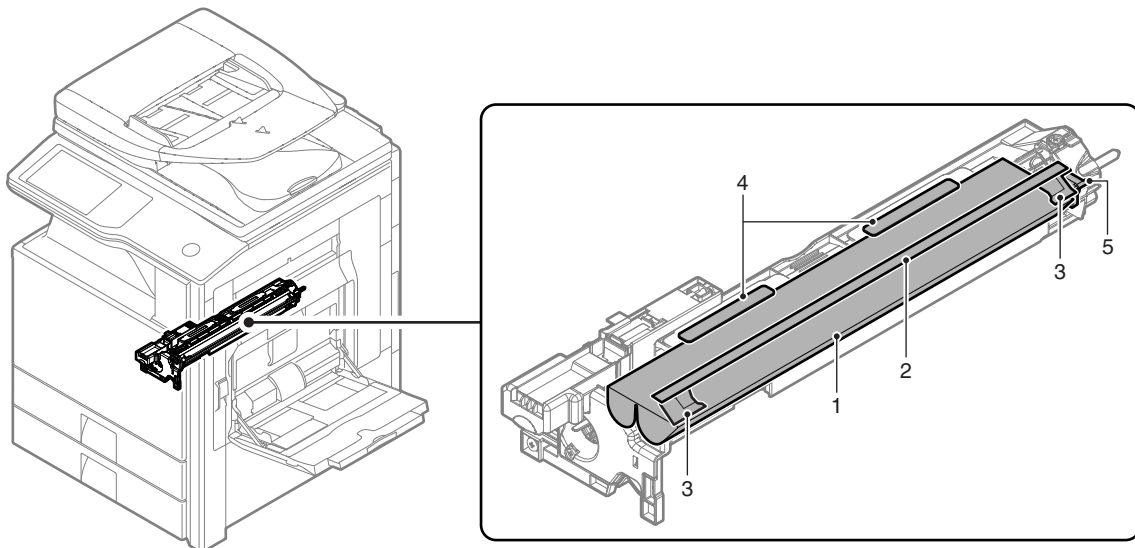
×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	200 k	400 k	600 k	800 k	1000 k	1200 k	1400 k	1600 k	1800 k	2000 k	2200 k	2400 k	Remark
1	Developer	–	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace even at the specified RPM. Storage period is 2 years. Replace after 2 years of use.
2	DV seal	–	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace at 200K of the developer counter or 2 years of use.
3	DV side seal F/R	–	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
4	Toner filter	–	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace at 200K of the developer counter or 2 years of use.
5	Connector	–	×	×	×	×	×	×	×	×	×	×	×	×	

### 28 CPM model

×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	150 k	300 k	450 k	600 k	750 k	900 k	1050 k	1200 k	1350 k	1500 k	1650 k	1800 k	Remark
1	Developer	–	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace even at the specified RPM. Storage period is 2 years. Replace after 2 years of use.
2	DV seal	–	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace at 150K of the developer counter or 2 years of use.
3	DV side seal F/R	–	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
4	Toner filter	–	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace at 150K of the developer counter or 2 years of use.
5	Connector	–	×	×	×	×	×	×	×	×	×	×	×	×	

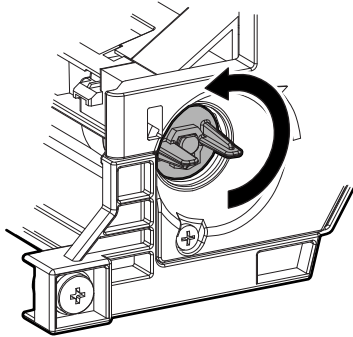


**(Note for servicing the DV roller)**

**1. Prevent roller contamination**

[Note]

- Be careful not to attach fingerprints or oily dirt on the DV roller surface.
- When rotating the DV roller manually, hold the drive gear section to rotate it.



[Countermeasures]

If a fingerprint is attached to the DV roller surface erroneously, perform the following countermeasures.

- 1) Remove developer material from the developer unit and the developer mag roller.
- 2) Remove oily dirt on the DV roller with alcohol.
- 3) When alcohol dries completely, supply developer and perform SIM 25-02.

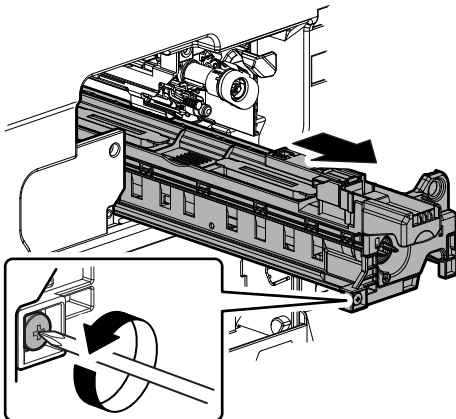
[Check method]

Check to confirm that the DV roller is free from fingerprints or oily dirt and that cleaning is completely executed or not by the following method.

- Make a print of a half tone image on all the surface of A4 (11" x 8.5") paper, and check the printed paper for any abnormality in the image.

**(1) Developing unit removal**

- 1) Remove the waste toner box. [Refer to "A. Photo-conductor section."]
- 2) Remove the toner cartridge. [Refer to "C. Toner supply section."]
- 3) Remove the blue screw, and pull the developing unit to remove.

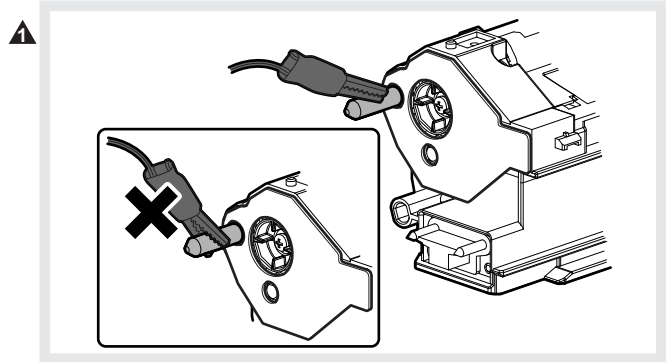


**(Note for cleaning the developing unit)**

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.

- \* 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 development unit as well as developer attached to the magnet roller as far as possible.

NOTE: Before cleaning with a vacuum, remove ground the magnet roller rear side cored bar as shown in the figure below and clean the unit with a vacuum. (Do not pinch the grounding wire with a crocodile clip connector in order to prevent against damage on the cored bar.)

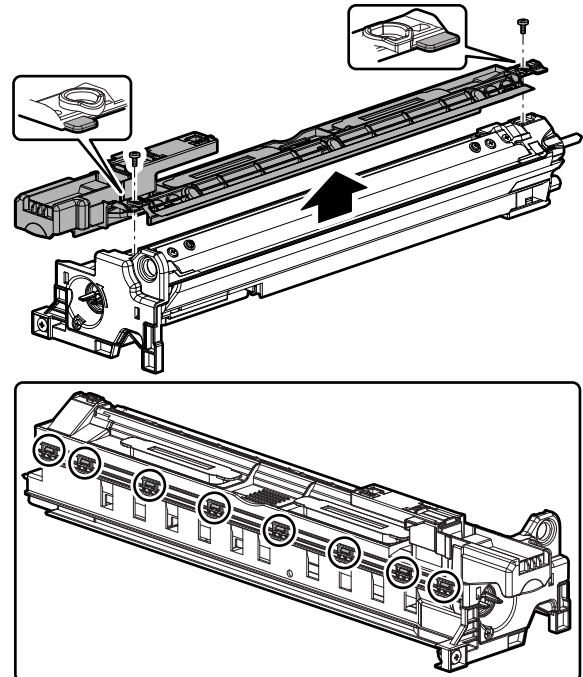


**(2) Developer replacement**

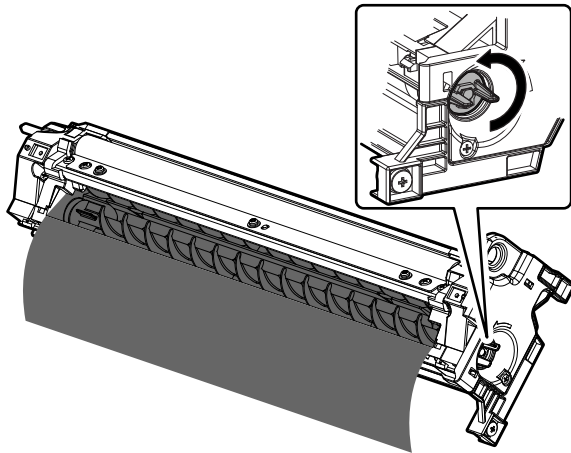
NOTE: Supply of developer must be performed after completion of all the maintenance works of the developing unit.

- 1) Remove the screw, and hold the rib to remove the cover.

NOTE: After installing, check to confirm that the cover is securely engaged with the frame pawl.



- 2) While rotating the mixing roller, discharge developer from the unit.



- 3) Supply new developer.

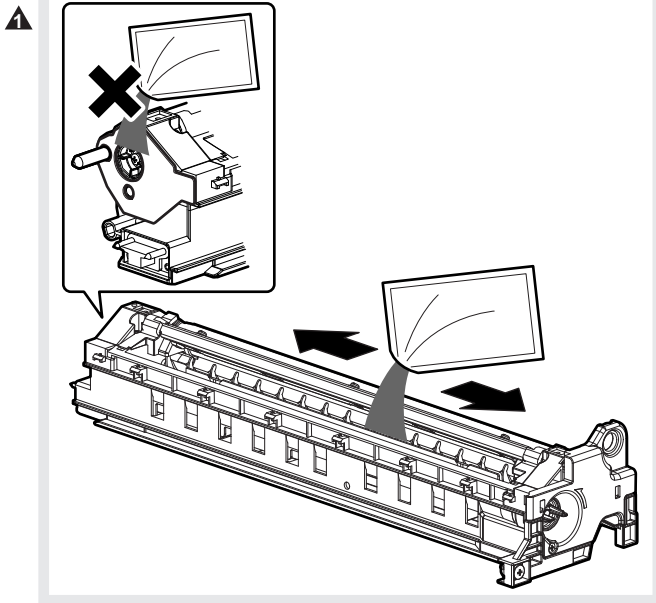
- Maintenance

36/45/50 CPM model: Replace at every 200K.

28 CPM model: Replace at every 150K.

NOTE: When supplying developer, use care not to spill it. Especially, take a great care not to spill developer on the drive section.

NOTE: After supplying developer, do not tilt the developing unit.



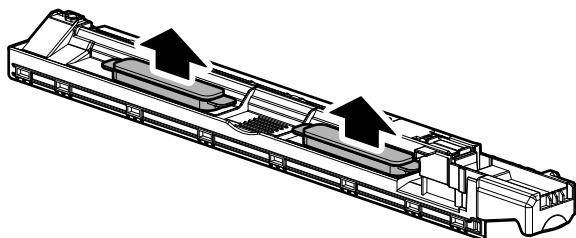
### (3) Toner filter replacement

- 1) Remove the toner filter.

- Maintenance

36/45/50 CPM model: Replace at every 200K.

28 CPM model: Replace at every 150K.



### (4) DV seal replacement

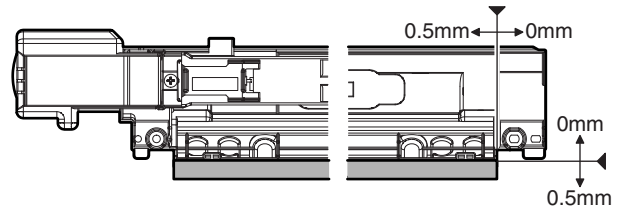
- 1) Remove the DV seal.

- Maintenance

36/45/50 CPM model: Replace at every 200K.

28 CPM model: Replace at every 150K.

NOTE: Attach the seal according to the reference, and press and hold securely after attachment.



### (5) DV side seal F and R replacement

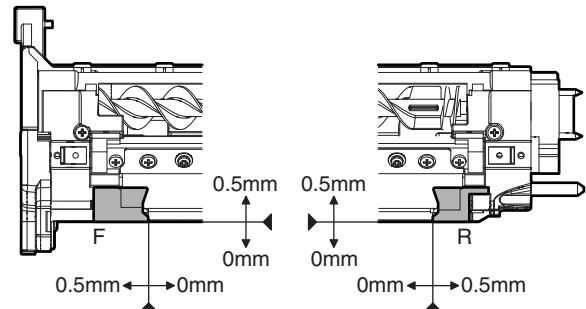
- 1) Remove the DV side seal F and R.

- Maintenance

36/45/50 CPM model: Replace at every 200K.

28 CPM model: Replace at every 150K.

NOTE: Attach the seal according to the reference, and press and hold securely after attachment.



## C. Toner supply section

### 36/45/50 CPM model

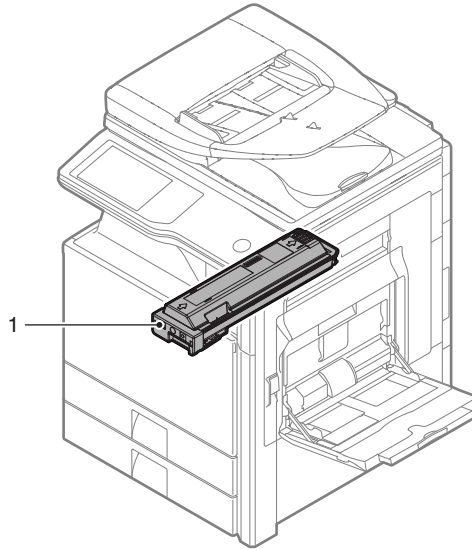
×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	200 k	400 k	600 k	800 k	1000 k	1200 k	1400 k	1600 k	1800 k	2000 k	2200 k	2400 k	Remark
1	Toner cartridge	User replacement for every toner empty.													Storage period is 2 years. Replace after 2 years of use.

### 28 CPM model

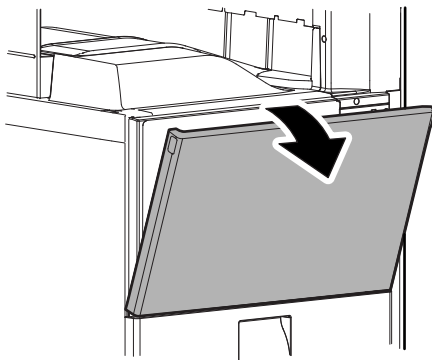
×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	150 k	300 k	450 k	600 k	750 k	900 k	1050 k	1200 k	1350 k	1500 k	1650 k	1800 k	Remark
1	Toner cartridge	User replacement for every toner empty.													Storage period is 2 years. Replace after 2 years of use.



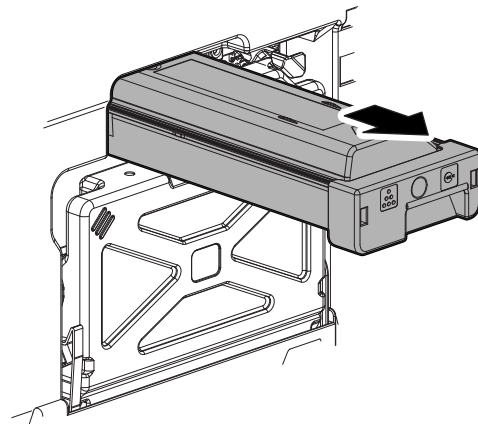
#### (1) Toner cartridge replacement

1) Open the front cover.



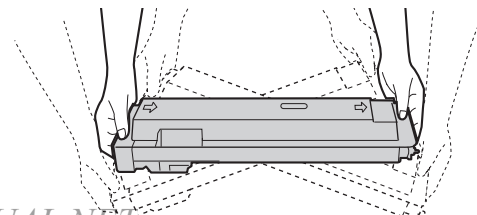
2) Pull out the toner cartridge to remove.

Maintenance: Replace every-time when toner empty. (By the user)



NOTE: When installing, hold the toner cartridge horizontally and inset it slowly.

NOTE: Shake the toner cartridge several times.





## D. LSU section

### 36/45/50 CPM model

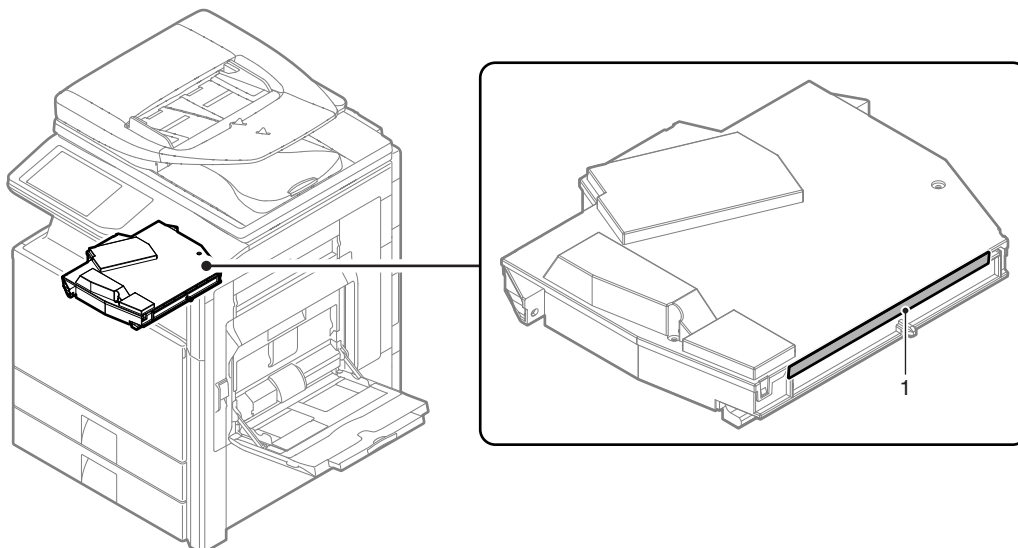
×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	200 k	400 k	600 k	800 k	1000 k	1200 k	1400 k	1600 k	1800 k	2000 k	2200 k	2400 k	Remark
1	Dust-proof glass	○	×	×	×	×	×	×	×	×	×	×	×	×	

### 28 CPM model

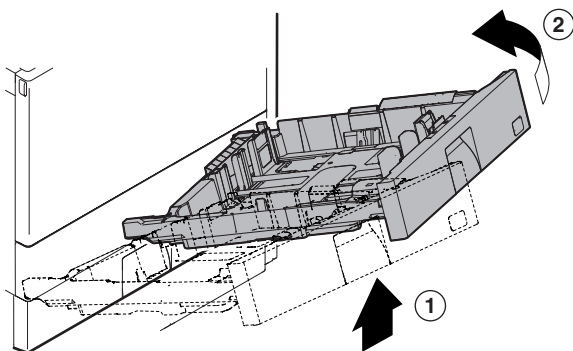
×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	150 k	300 k	450 k	600 k	750 k	900 k	1050 k	1200 k	1350 k	1500 k	1650 k	1800 k	Remark
1	Dust-proof glass	○	×	×	×	×	×	×	×	×	×	×	×	×	

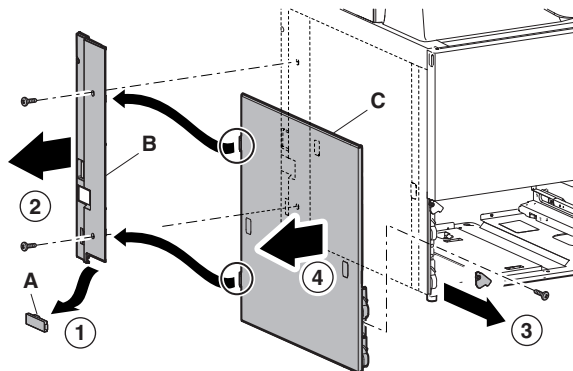


#### (1) LSU removal

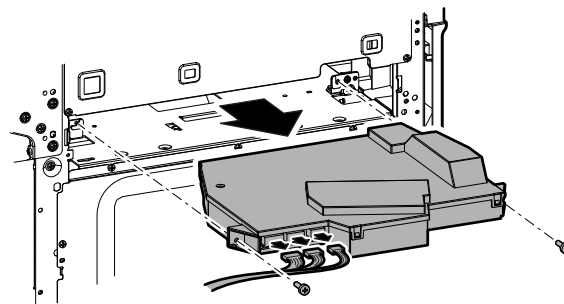
1) Remove the tray 1 and 2.



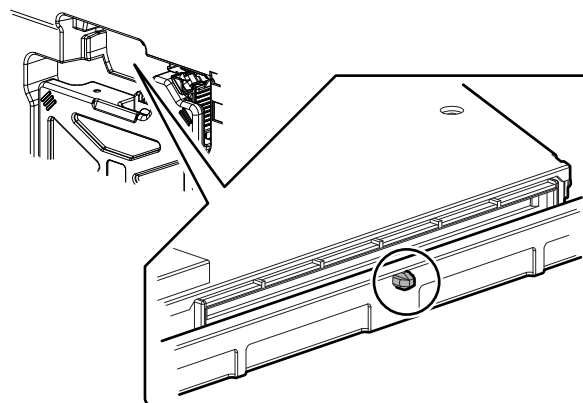
2) Remove the desk connection lid (A). Remove the screw, and remove the left cabinet rear lower (B) and the left cabinet (C).



3) Disconnect the connector. Remove the screw, and remove the LSU.



NOTE: Lift the LSU tip and insert it so that the LSU boss comes in the frame hole. After insertion, remove the toner cartridge and check.

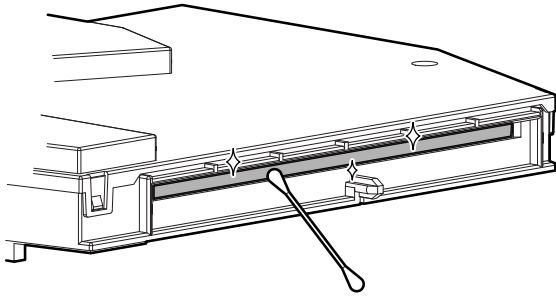


## (2) Dust-proof glass cleaning

1) Clean the dust-proof glass.

- Maintenance: Clean at calling.

NOTE: Do not touch the dust-proof glass with bare hands.



## E. Transfer section

### 36/45/50 CPM model

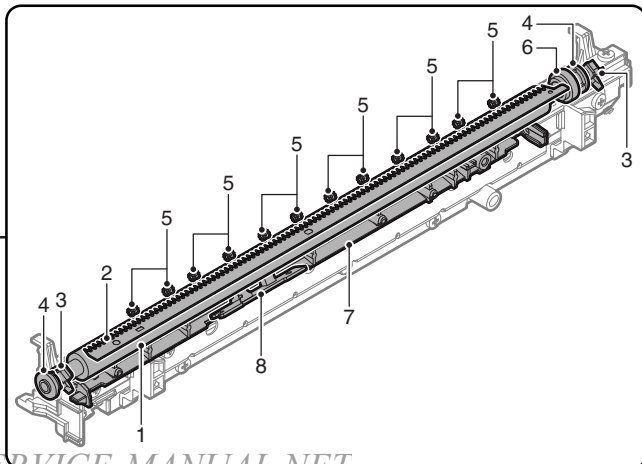
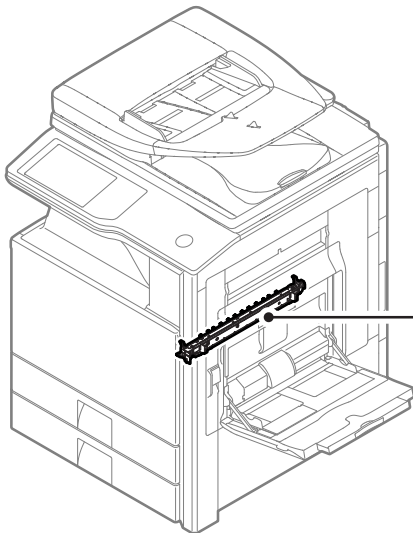
×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	200 k	400 k	600 k	800 k	1000 k	1200 k	1400 k	1600 k	1800 k	2000 k	2200 k	2400 k	Remark
1	Transfer roller	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace at 200K or 2 years of use.
2	Discharge plate	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
3	Transfer roller bearing F and R	–	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
4	Transfer roller collar	–	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
5	Transfer rear star ring	–	×	×	×	×	×	×	×	×	×	×	×	×	
6	Transfer roller gear	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
7	Pre-transfer paper guide	○	○	○	○	○	○	○	○	○	○	○	○	○	
8	Process control sensor	×	○	○	○	○	○	○	○	○	○	○	○	○	Air cleaning

### 28 CPM model

×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

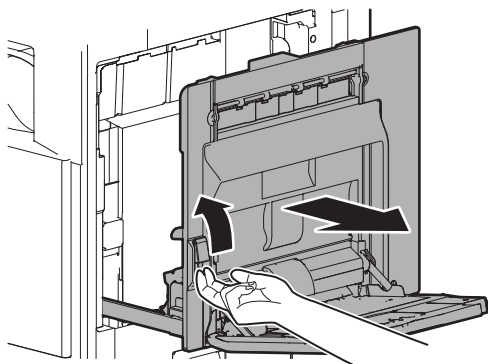
No.	Part name	When calling	150 k	300 k	450 k	600 k	750 k	900 k	1050 k	1200 k	1350 k	1500 k	1650 k	1800 k	Remark
1	Transfer roller	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace at 150K or 2 years of use.
2	Discharge plate	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
3	Transfer roller bearing F and R	–	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
4	Transfer roller collar	–	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
5	Transfer rear star ring	–	×	×	×	×	×	×	×	×	×	×	×	×	
6	Transfer roller gear	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
7	Pre-transfer paper guide	○	○	○	○	○	○	○	○	○	○	○	○	○	
8	Process control sensor	×	○	○	○	○	○	○	○	○	○	○	○	○	Air cleaning



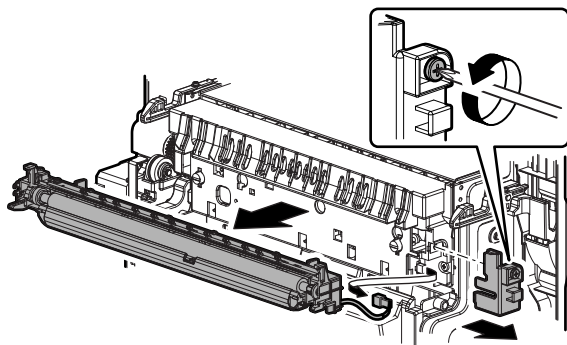


## (1) Transfer unit removal

- 1) Pull the lock lever, and open the right door.



- 2) Remove the blue screw, and remove the cover. Disconnect the connector, and remove the transfer unit.

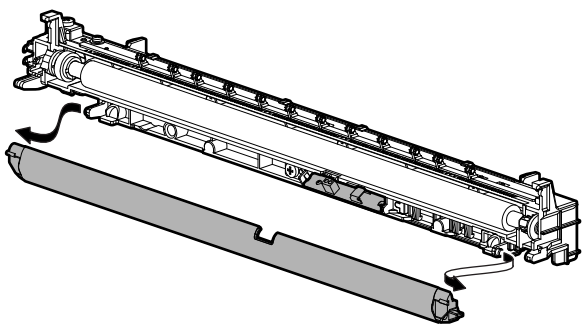


## (2) Pre-transfer paper guide and process control sensor cleaning

- 1) Remove the pre-transfer paper guide. Clean the pre-transfer paper guide and the process control sensor.

- Maintenance  
36/45/50 CPM model: Clean at every 200K.  
28 CPM model: Clean at every 150K.

NOTE: When installing, engage the boss in the rear side, and then engage the boss in the front side.



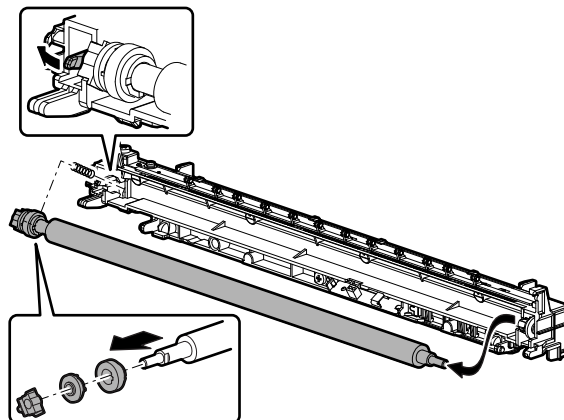
## (3) Transfer roller, transfer roller bearing F and R, transfer roller collar, and transfer roller gear replacement

- 1) Disengage the pawl, and remove the transfer roller. Remove the transfer roller bearing R, the transfer roller collar, and the transfer roller gear from the transfer roller.

- Maintenance  
36/45/50 CPM model: Replace at every 200K.  
28 CPM model: Replace at every 150K.

NOTE: When installing, be sure to insert the spring into the transfer roller bearing R and the holder boss securely.

NOTE: Be careful of the installing direction of the transfer roller gear and the transfer roller collar.

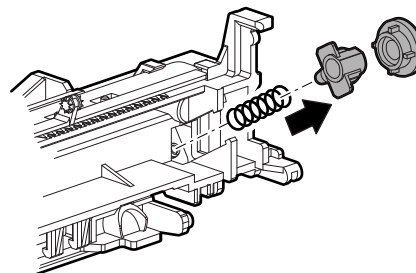


- 2) Remove the transfer roller collar and the transfer roller bearing F from the holder.

- Maintenance  
36/45/50 CPM model: Replace at every 200K.  
28 CPM model: Replace at every 150K.

NOTE: When installing, be sure to insert the spring into the transfer roller bearing F and the holder boss securely.

NOTE: Be careful of the installing direction of the transfer roller collar.

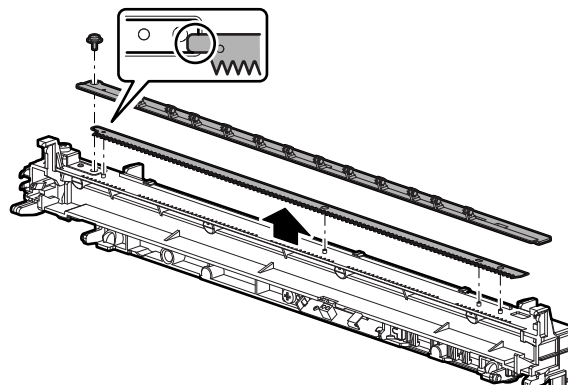


## (4) Discharge plate replacement

- 1) Remove the blue screw, and remove the discharge plate holder. Remove the discharge plate.

- Maintenance  
36/45/50 CPM model: Replace at every 200K.  
28 CPM model: Replace at every 150K.

NOTE: When installing, insert the discharge plate into the boss and check to confirm that it is securely on the ground electrode.



## F. Fusing section

### 36/45/50 CPM model

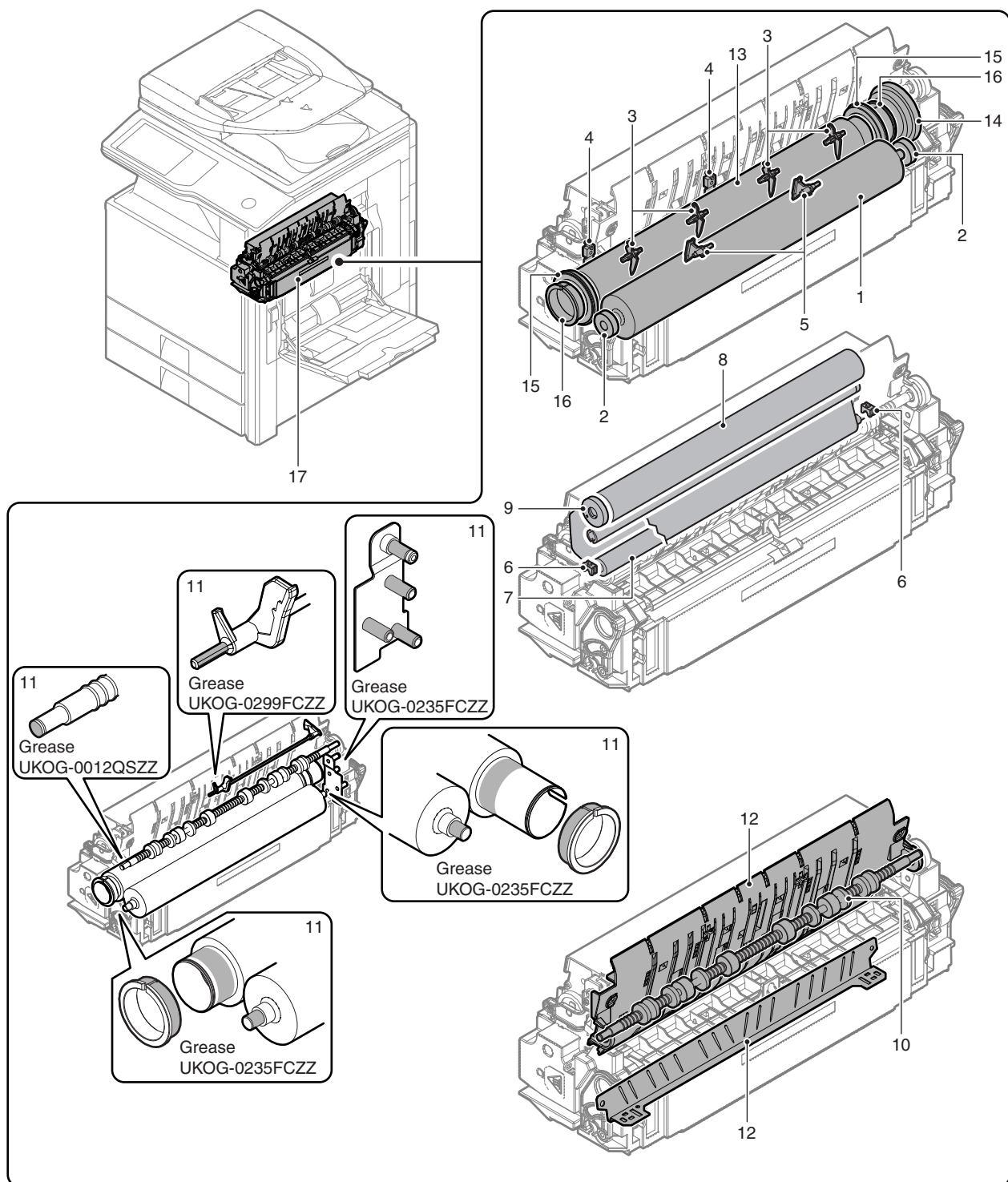
×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	200 k	400 k	600 k	800 k	1000 k	1200 k	1400 k	1600 k	1800 k	2000 k	2200 k	2400 k	Remark
1	Lower heat roller	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace with the lower heat roller unit. / Replace at 200K or 2 years of use.
2	Lower heat roller bearing	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace with the lower heat roller unit. / Apply grease when assembling to the heat roller.
3	Upper separation pawl	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	When a foreign material is attached, it must be cleaned away.
4	Thermistor	×	×	×	×	×	×	×	×	×	×	×	×	×	
5	Lower separation pawl	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
6	Web pressure roller bearing	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
7	Web pressure roller	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
8	Web roller	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
9	Web 45T gear	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
10	Fusing paper exit roller	×	○	○	○	○	○	○	○	○	○	○	○	○	
11	Gears	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
12	Paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	
13	Upper heat roller	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace with the upper heat roller unit. / Replace at 200K or 2 years of use.
14	Upper heat roller gear	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace with the upper heat roller unit.
15	Upper heat roller bearing	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace with the upper heat roller unit. / Apply grease when assembling to the heat roller.
16	Upper heat roller heat-insulation bush	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	

### 28 CPM model

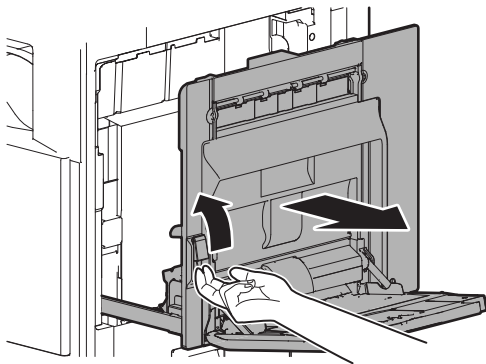
×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	150 k	300 k	450 k	600 k	750 k	900 k	1050 k	1200 k	1350 k	1500 k	1650 k	1800 k	Remark
1	Lower heat roller	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace with the lower heat roller unit. / Replace at 150K or 2 years of use.
2	Lower heat roller bearing	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace with the lower heat roller unit. / Apply grease when assembling to the heat roller.
3	Upper separation pawl	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	When a foreign material is attached, it must be cleaned away.
4	Thermistor	×	×	×	×	×	×	×	×	×	×	×	×	×	
5	Lower separation pawl	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
6	Web pressure roller bearing	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
7	Web pressure roller	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
8	Web roller	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
9	Web 45T gear	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
10	Fusing paper exit roller	×	○	○	○	○	○	○	○	○	○	○	○	○	
11	Gears	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
12	Paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	
13	Upper heat roller	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace with the upper heat roller unit. / Replace at 150K or 2 years of use.
14	Upper heat roller gear	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace with the upper heat roller unit.
15	Upper heat roller bearing	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	Replace with the upper heat roller unit. / Apply grease when assembling to the heat roller.
16	Upper heat roller heat-insulation bush	×	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	

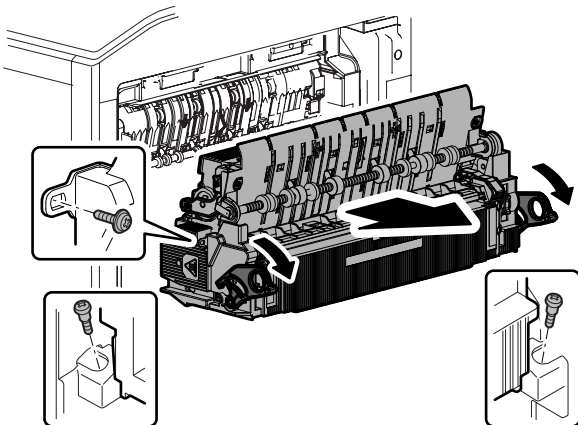


### (1) Fusing unit replacement

- 1) Pull the lock lever, and open the right door.

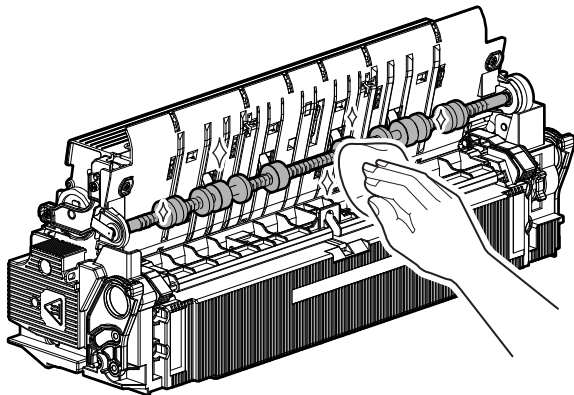


- 2) Remove the blue screw. Pull the lock lever and remove the fusing unit.



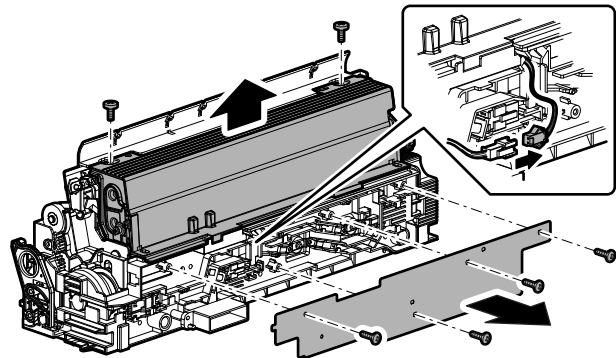
### (2) Fusing paper exit roller cleaning

- 1) Clean the fusing paper exit roller.
  - Maintenance  
36/45/50 CPM model: Clean at every 200K.  
28 CPM model: Clean at every 150K.



### (3) Web pressure roller bearing and web pressure roller replacement

- 1) Remove the screw, and remove the cover. Disconnect the connector, and remove the harness. Remove the blue screw, and remove the web unit.

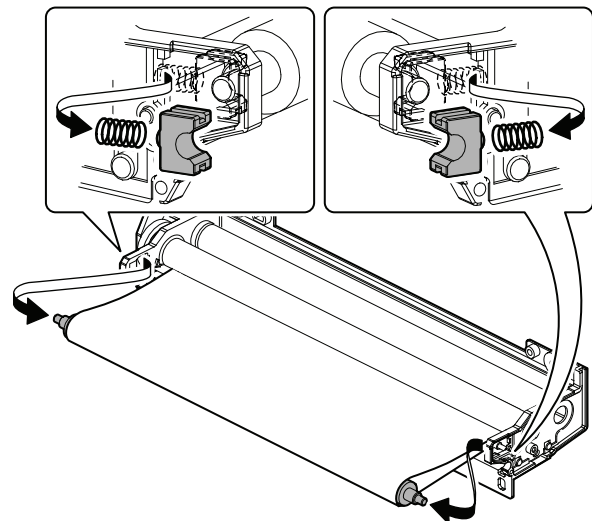


- 2) Remove the web spring, and remove the web pressure roller bearing. Remove the web pressure roller

- Maintenance

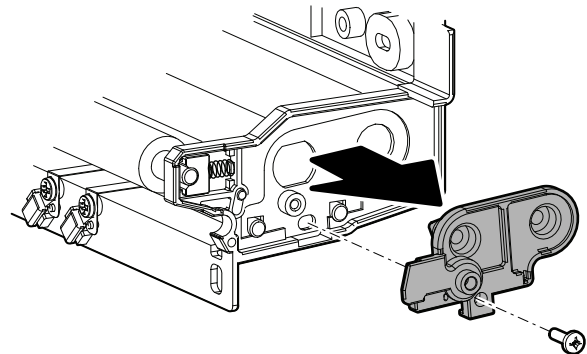
36/45/50 CPM model: Replace at every 200K.

28 CPM model: Replace at every 150K.

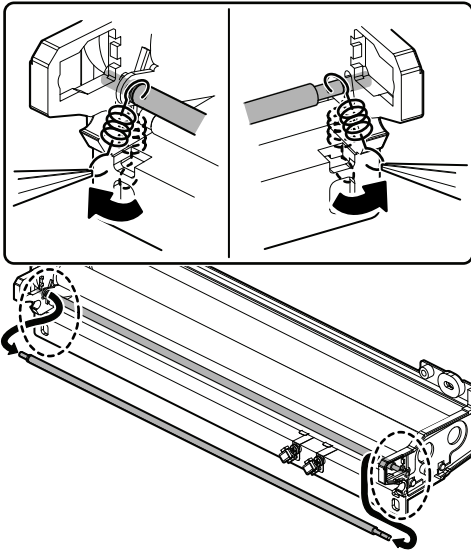


### (4) Web roller/Web 45T gear removal

- 1) Remove the screw, and remove the web roller bearing.



- 2) Remove the left and the right springs, and remove the web operation shaft.



- 3) Remove the web roller (on the winding side).

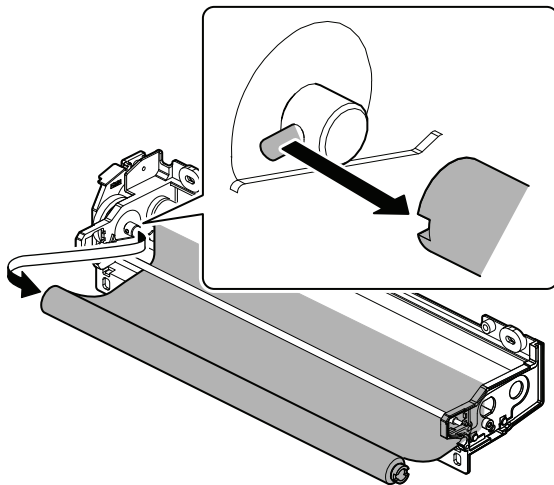
- Maintenance

36/45/50 CPM model: Replace at every 200K.

28 CPM model: Replace at every 150K.

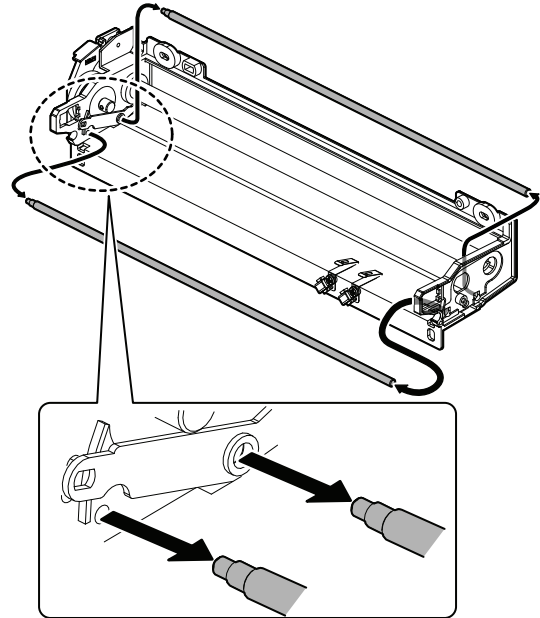
\* When installing, check to confirm that there are one concave section on the front side and two concave sections on the rear side, and be sure to engage them securely.

\* When installing, engage the concave section (one position) on the front side with the spring pin and two concave sections on the rear side with the web roller (on the feed side).



- 4) Remove two web tension shafts.

\* When installing, insert the rear side first. Note that the front side (gear side) of the shaft is narrower.



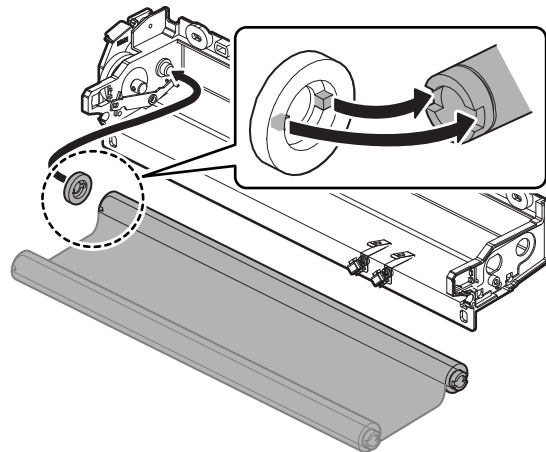
- 5) Remove the web roller (on the feed side) and the web 45T gear.

- Maintenance

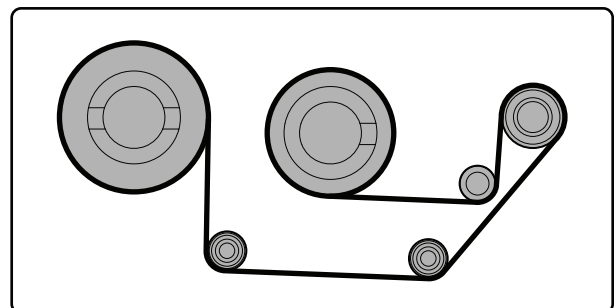
36/45/50 CPM model: Replace at every 200K.

28 CPM model: Replace at every 150K.

\* When installing, fit the concave section and the convex section of the gear on the front side to engage securely.



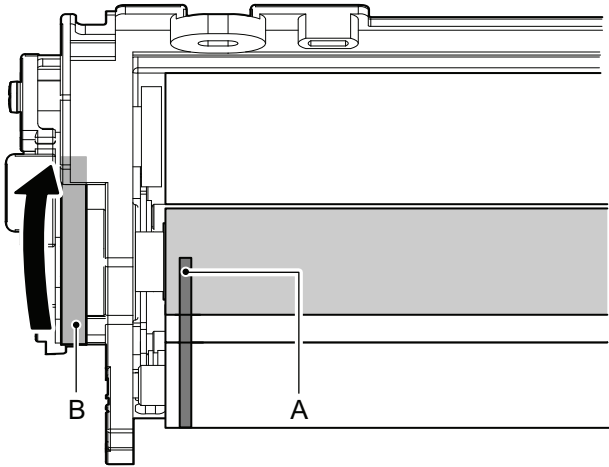
[Route diagram]





[Note for installation]

Turn the gear (B) in the arrow direction, and set so that the lead edge of the green line (A) of the web roller can be seen.



### (5) Thermistor replacement

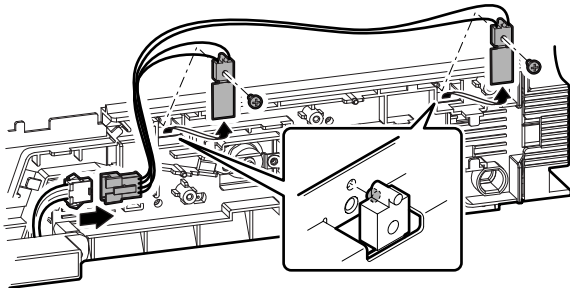
- 1) Disconnect the connector, and remove the harness. Remove the screw, and remove the thermistor.

- Maintenance

36/45/50 CPM model: Replace at every 300K.

28 CPM model: Replace at every 200K.

NOTE: When installing, be sure to insert into the thermistor boss.



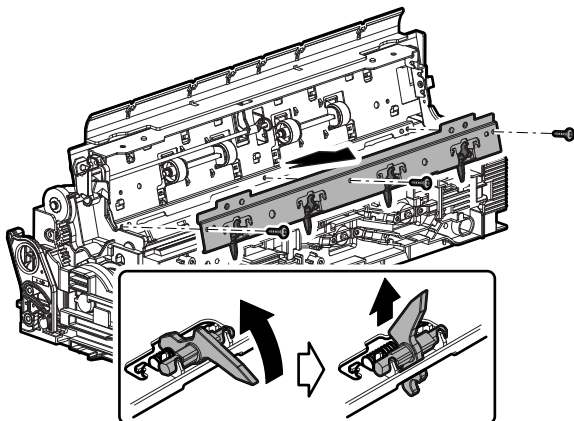
### (6) Upper separation pawl replacement

- 1) Remove the blue screw, and remove the upper separation pawl unit. Remove the upper separation pawl.

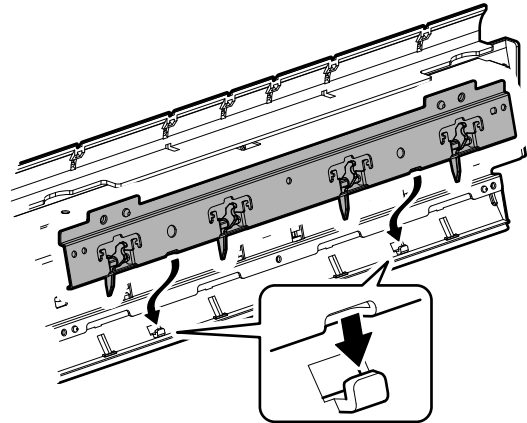
- Maintenance

36/45/50 CPM model: Replace at every 200K.

28 CPM model: Replace at every 150K.

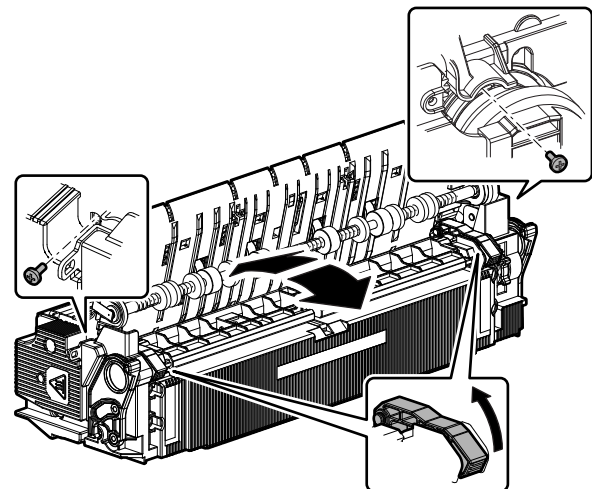


NOTE: When installing the separation pawl unit to the fusing unit, arrange so that the long hole of the unit is fit with the hook section of the fusing unit.



### (7) Lower separation pawl replacement

- 1) Lift the lever to cancel the pressure of the heat roller. Remove the blue screw, and open the fusing unit.



- 2) Open the paper guide. Release the spring edge on the paper guide side from the paper guide spring stopper. Precisely speaking, slide the spring edge and push it down to the back surface of the paper guide. In addition, disengage the lower separation pawl from the lower separation pawl shaft side where the spring is attached. Remove the spring from the lower separation pawl.

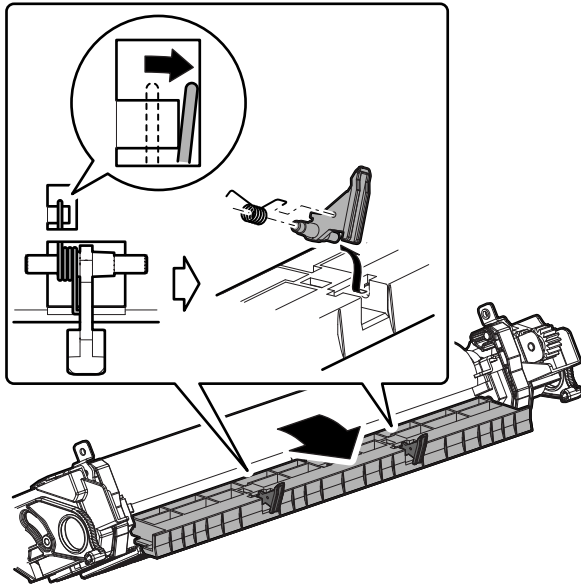
- Maintenance

36/45/50 CPM model: Replace at every 200K.

28 CPM model: Replace at every 150K.

NOTE: When installing the spring, pass the spring hook through the hole in the lower separation pawl.

NOTE: When installing the lower separation pawl, first install the shaft which is not provided with the spring to the paper guide.



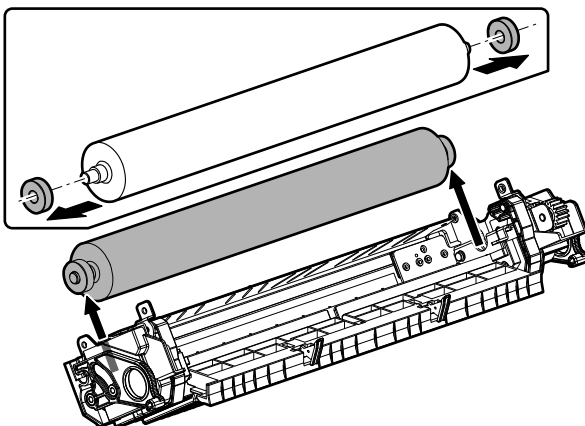
### (8) Lower heat roller and lower heat roller bearing replacement

- 1) Remove the lower heat roller unit. Remove the lower heat roller bearing from the lower heat roller.

- Maintenance

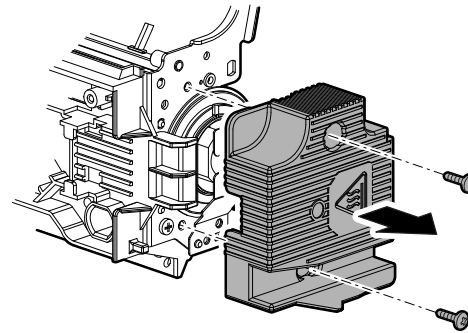
36/45/50 CPM model: Replace at every 200K.

28 CPM model: Replace at every 150K.

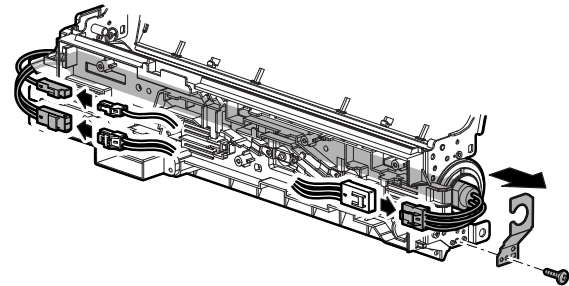


### (9) Upper heat roller, upper heat roller gear, upper heat roller insulation bush, and upper heat roller bearing replacement

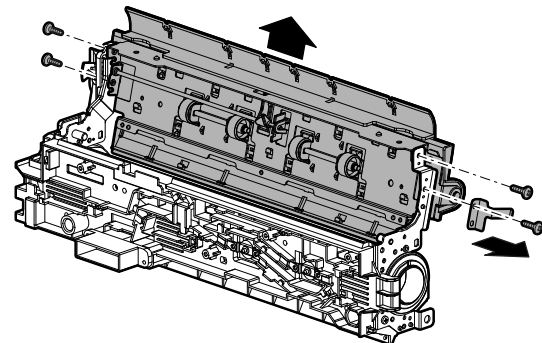
- 1) Remove the screw, and remove the cover.



- 2) Disconnect the connector. Remove the blue screw, and remove the fixing plate. Remove the heater lamp.

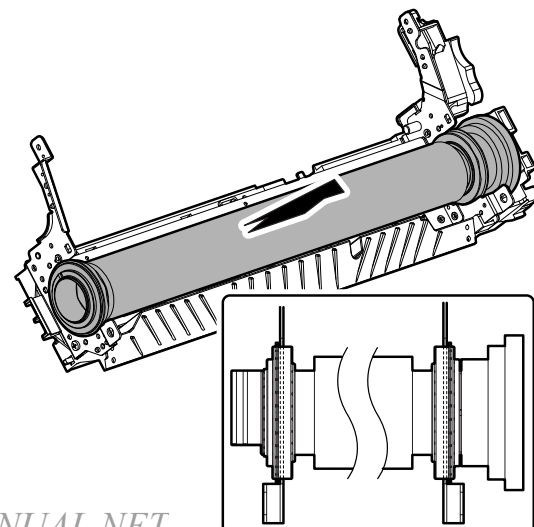


- 3) Remove the blue screw, the ground plate, and the paper guide unit.



- 4) Remove the upper heat roller unit.

NOTE: When installing, put the flange of the upper heat roller bearing on the outside of the frame.

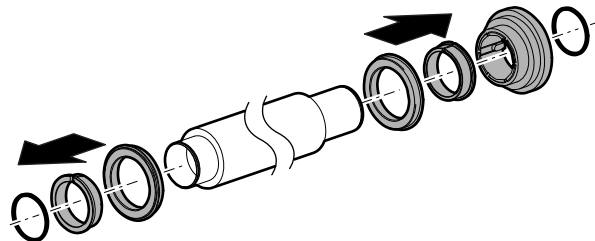


- 5) Remove the roller stopper from the upper heat roller, and remove the upper heat roller gear, the upper heat roller insulation bush, and the upper heat roller bearing.

- Maintenance

36/45/50 CPM model: Replace at every 200K.

28 CPM model: Replace at every 150K.



## G. Filter section

### 36/45/50 CPM model

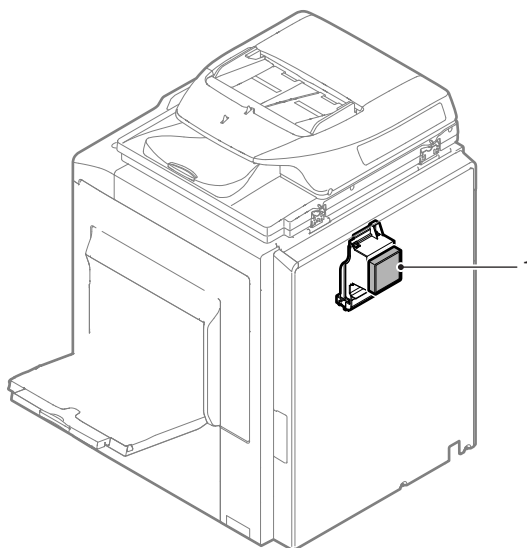
×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	200 k	400 k	600 k	800 k	1000 k	1200 k	1400 k	1600 k	1800 k	2000 k	2200 k	2400 k	Remark
1	Ozone filter	×	×	▲	×	▲	×	▲	×	▲	×	▲	×	▲	

### 28 CPM model

×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	150 k	300 k	450 k	600 k	750 k	900 k	1050 k	1200 k	1350 k	1500 k	1650 k	1800 k	Remark
1	Ozone filter	×	×	▲	×	▲	×	▲	×	▲	×	▲	×	▲	



#### (1) Ozone filter replacement

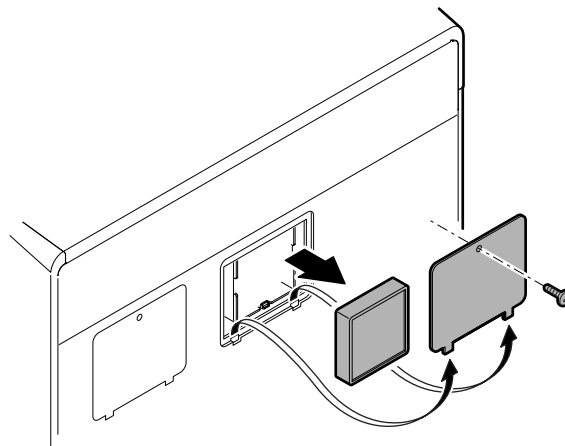
- 1) Remove the screw, and remove the cover. Remove the ozone filter.

- Maintenance

36/45/50 CPM model: Replace at every 400K.

28 CPM model: Replace at every 300K.

When installing the filter, be careful not to turn out the peripheral mold and to insert the filter straight.





## H. Paper feed section

### 36/45/50 CPM model

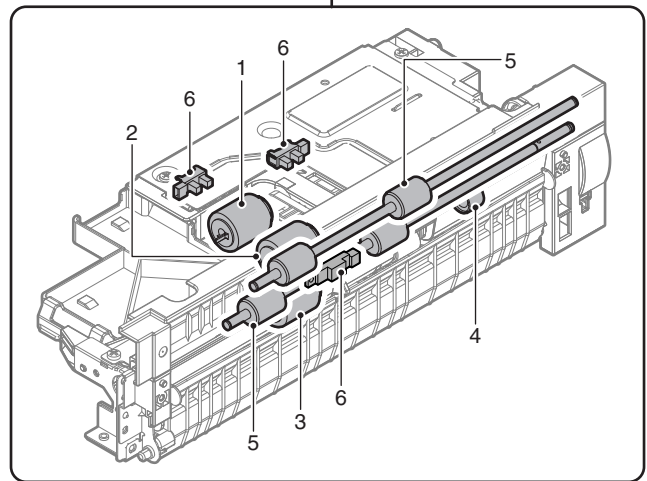
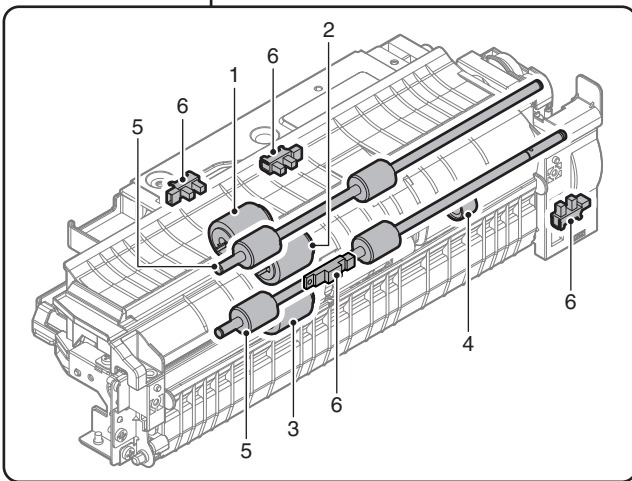
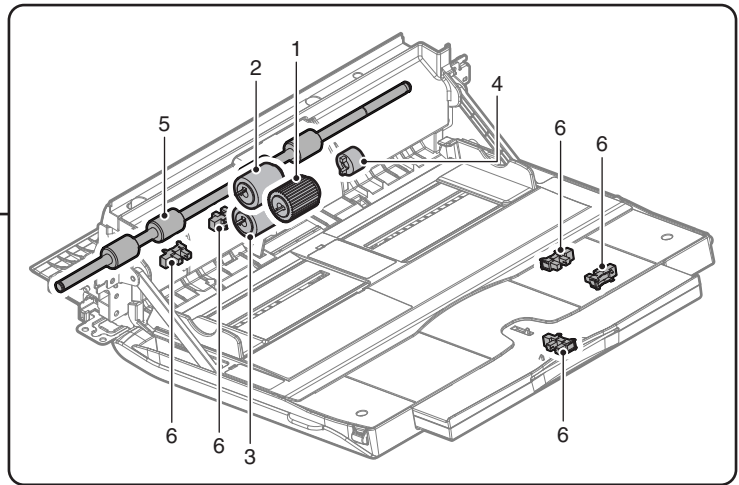
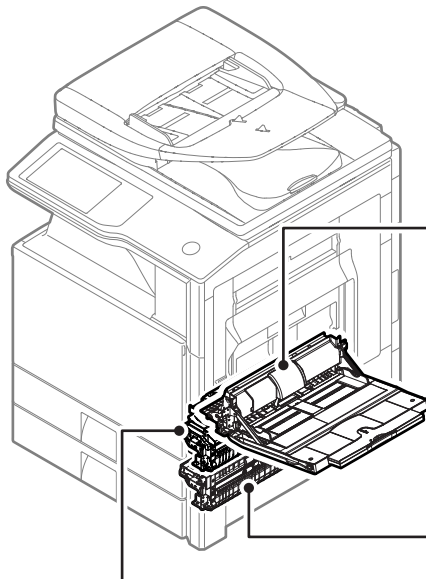
×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	200 k	400 k	600 k	800 k	1000 k	1200 k	1400 k	1600 k	1800 k	2000 k	2200 k	2400 k	Remark
1	Paper pick-up roller	×	○	○	○	○	○	○	○	○	○	○	○	○	Replacement reference: Replace according to each paper feed counter value. Paper feed tray 1, 2: Replace at 100K or 1 year of use. Manual feed: Replace at 100K or 1 year of use.
2	Paper feed roller	×	○	○	○	○	○	○	○	○	○	○	○	○	
3	Separation roller	×	○	○	○	○	○	○	○	○	○	○	○	○	
4	Torque limiter	×	×	×	×	×	×	×	×	×	×	×	×	×	Replacement reference: Replace according to each paper feed counter value. Paper feed tray 1, 2: 100K Manual feed: 100K
5	Transport rollers	×	○	○	○	○	○	○	○	○	○	○	○	○	
6	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	
7	Transport paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	

### 28 CPM model

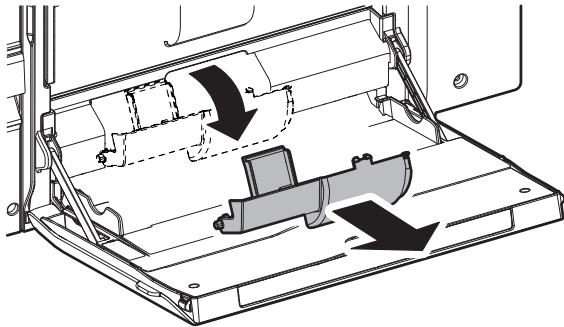
×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	150 k	300 k	450 k	600 k	750 k	900 k	1050 k	1200 k	1350 k	1500 k	1650 k	1800 k	Remark
1	Paper pick-up roller	×	○	○	○	○	○	○	○	○	○	○	○	○	Replacement reference: Replace according to each paper feed counter value. Paper feed tray 1, 2: Replace at 100K or 1 year of use. Manual feed: Replace at 100K or 1 year of use.
2	Paper feed roller	×	○	○	○	○	○	○	○	○	○	○	○	○	
3	Separation roller	×	○	○	○	○	○	○	○	○	○	○	○	○	
4	Torque limiter	×	×	×	×	×	×	×	×	×	×	×	×	×	Replacement reference: Replace according to each paper feed counter value. Paper feed tray 1, 2: 100K Manual feed: 100K
5	Transport rollers	×	○	○	○	○	○	○	○	○	○	○	○	○	
6	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	
7	Transport paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	



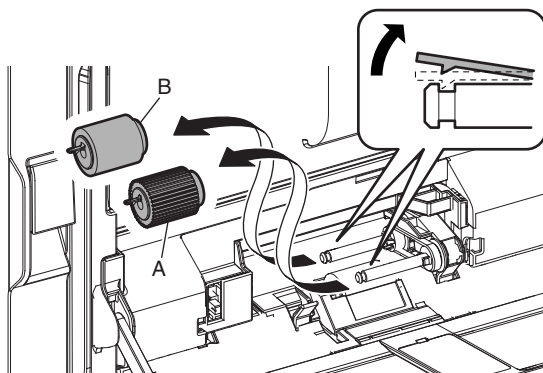
## (1) Manual paper feed unit paper pickup roller, paper feed roller, and separation roller replacement

- 1) Remove the pickup cover.

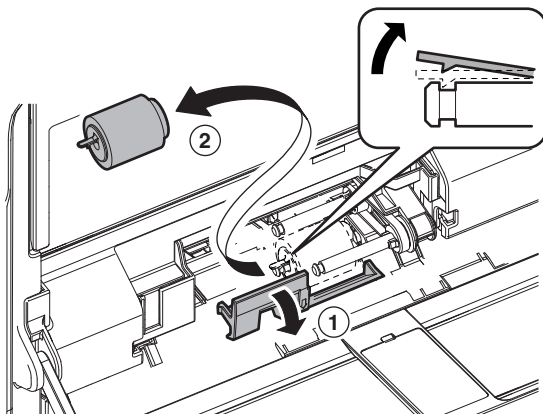


- 2) Remove the paper pickup roller (A) and the paper feed roller (B).

Maintenance: Replace at every 100K of each paper feed counter.

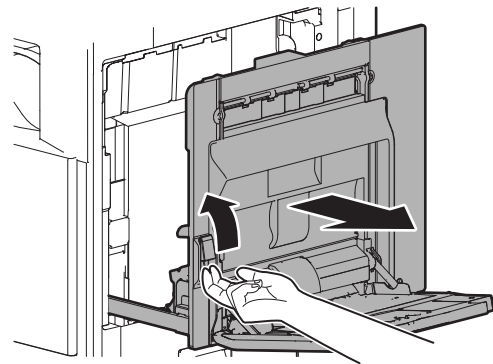


- 3) Open the maintenance cover, remove the separation roller.
- Maintenance: Replace at every 100K of each paper feed counter.

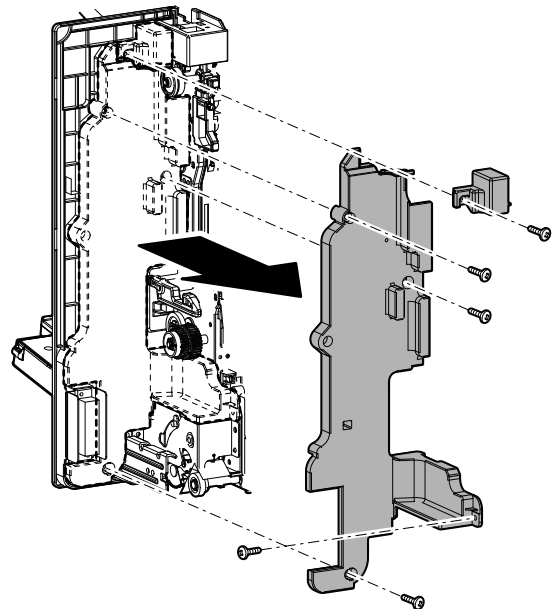


## (2) Manual paper feed unit torque limiter replacement

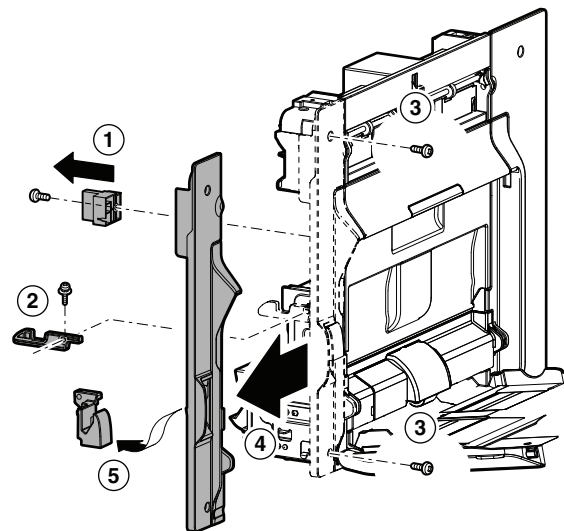
- 1) Pull the lock lever, and open the right door.



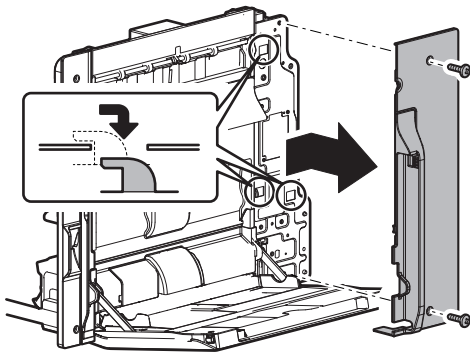
- 2) Remove the screw, and remove the connector cover. Remove the screw and remove the ADU inner cover.



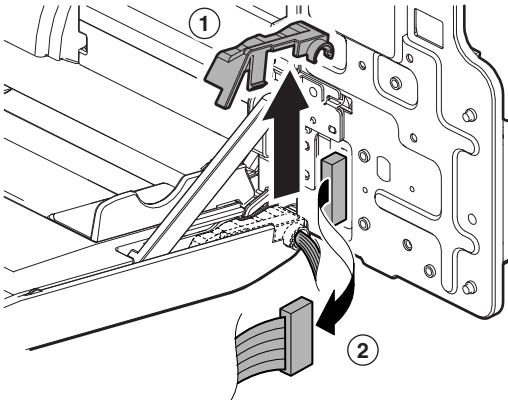
- 3) Remove the lock block. Disengage the right door lock pawl. Remove the ADU cabinet F, and the right door release lever.



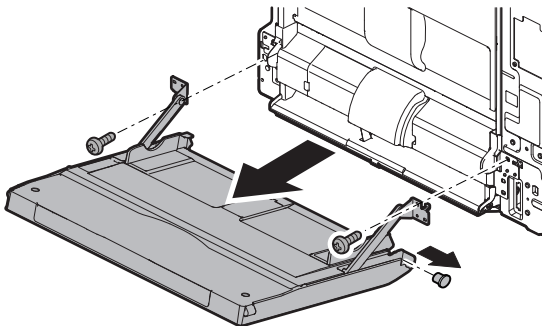
4) Remove the ADU cabinet R.



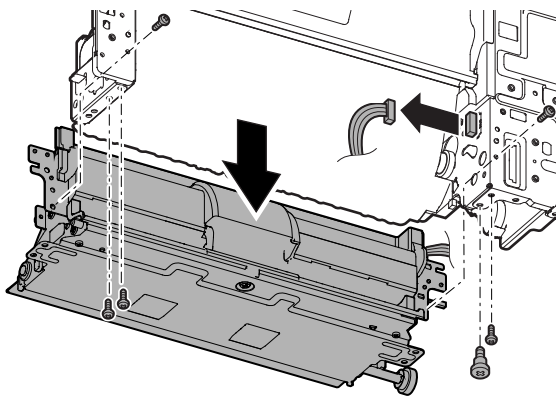
5) Remove the MF harness cover, and disconnect the connector.



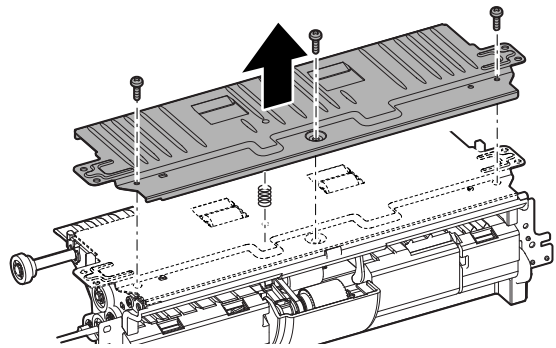
6) Remove the MF tray installing shaft, and remove the manual feed tray unit.



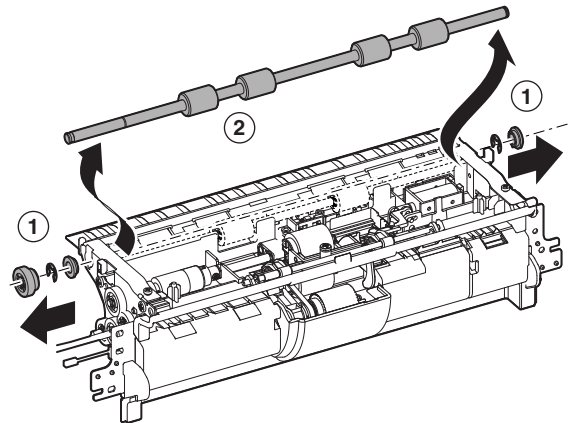
7) Disconnect the connector, and remove the manual paper feed unit.



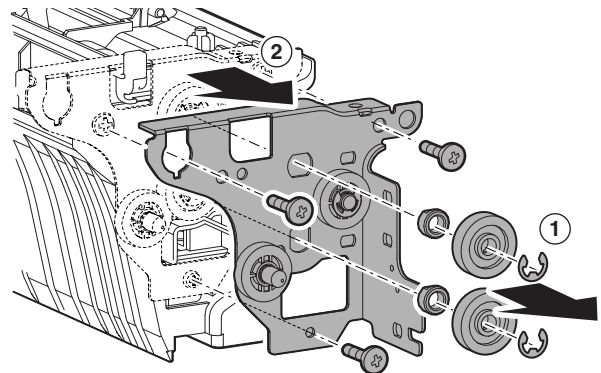
8) Remove the MF base guide supporting plate and the spring.



9) Remove each part, and remove the transport roller 12 (drive).

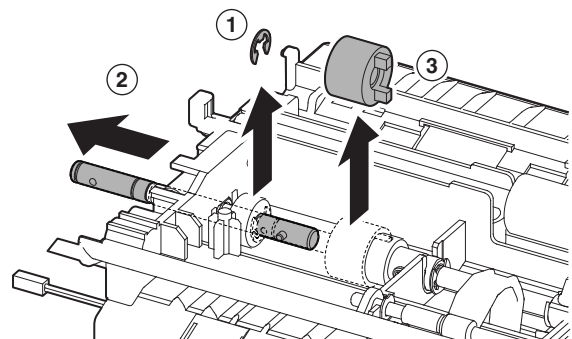


10) Remove each part, and remove the MF drive plate.



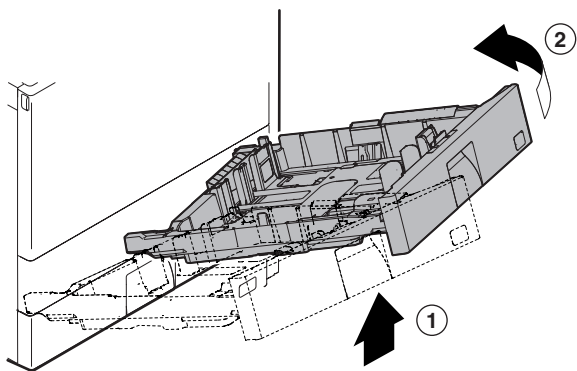
11) Remove the E-ring. Remove the shaft and remove the torque limiter.

Maintenance: Replace at every 100K of each paper feed counter.

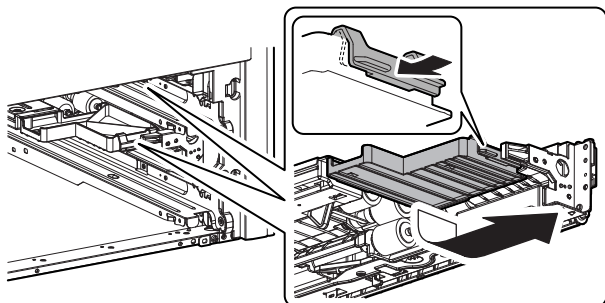


### (3) Tray paper feed unit paper pickup roller, paper feed roller, and separation roller replacement

- 1) Remove the tray 1 and 2.

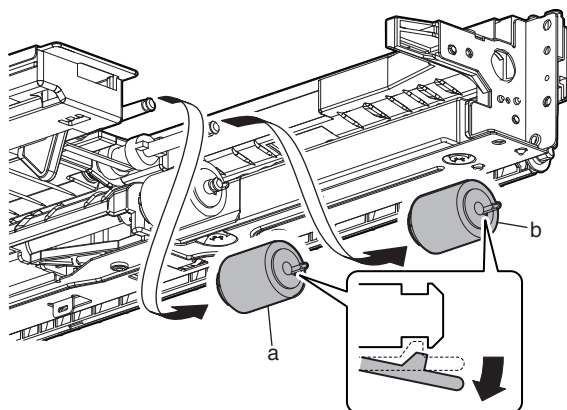


- 2) Remove the paper guide.



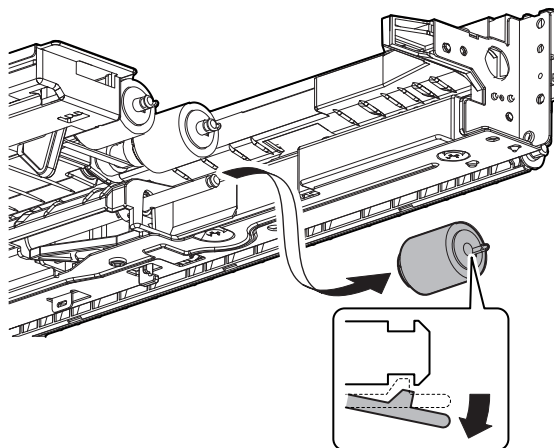
- 3) Remove the paper pickup roller (a) and the paper feed roller (b).

Maintenance: Replace at every 100K of each paper feed counter.



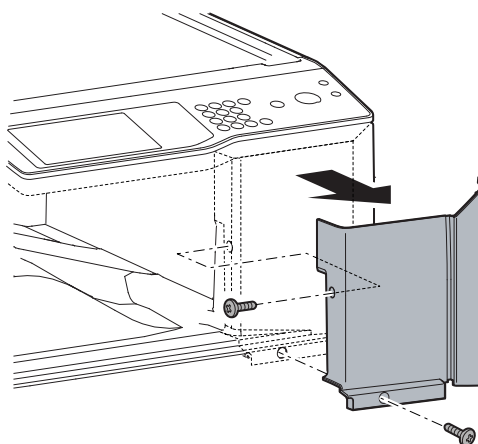
- 4) Remove the separation roller.

Maintenance: Replace at every 100K of each paper feed counter.

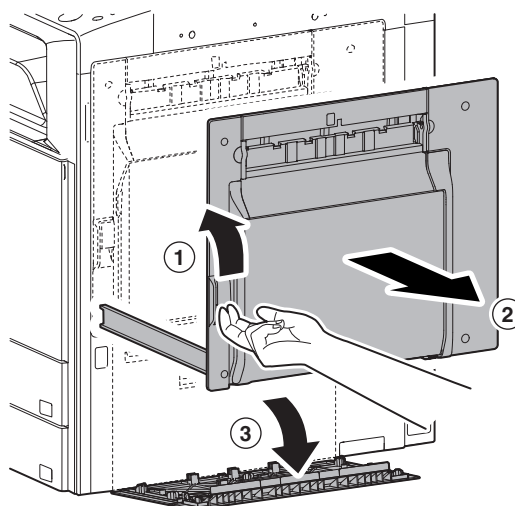


### (4) Tray paper feed unit torque limiter replacement

- 1) Open the front cabinet. Remove the screws, and remove the front cabinet upper.

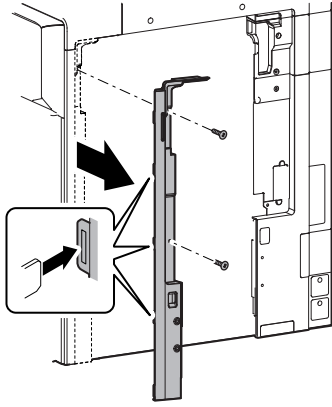


- 2) Open the right door and the right cabinet lower.

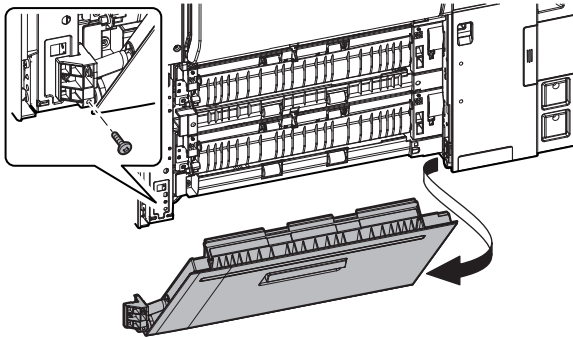




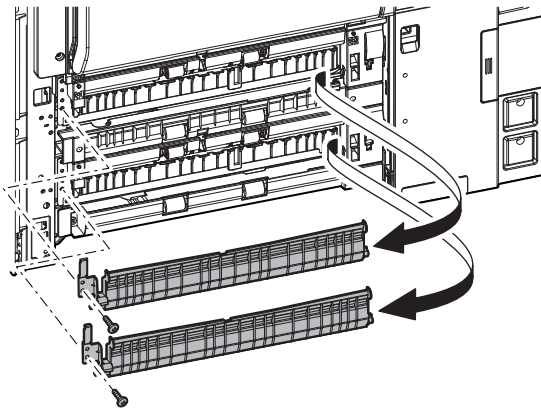
- 3) Remove the screw, and remove the right cabinet front.



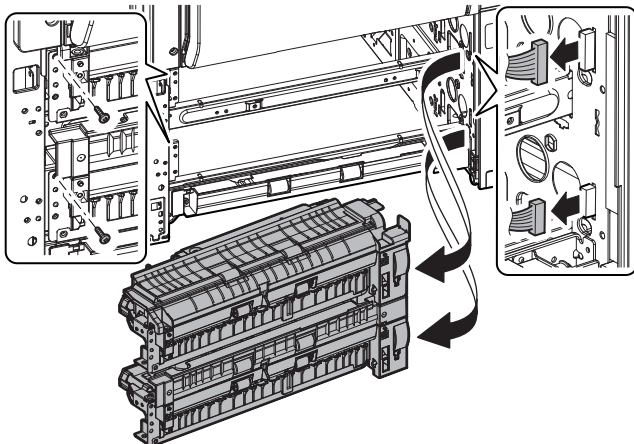
- 4) Remove the right lower door unit.



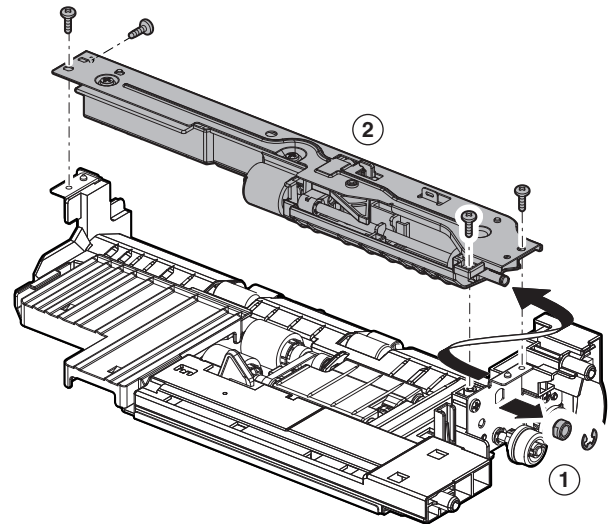
- 5) Remove the paper feed movable PG lower.



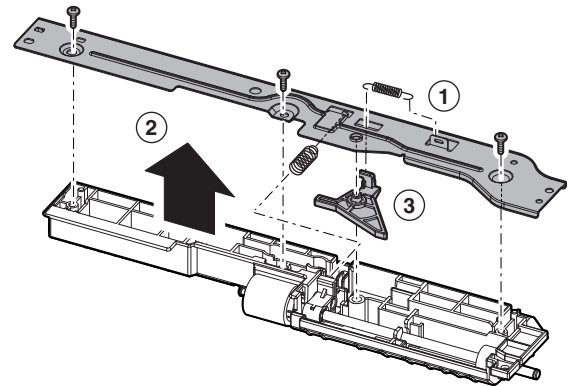
- 6) Remove the tray paper feed unit 1, 2.



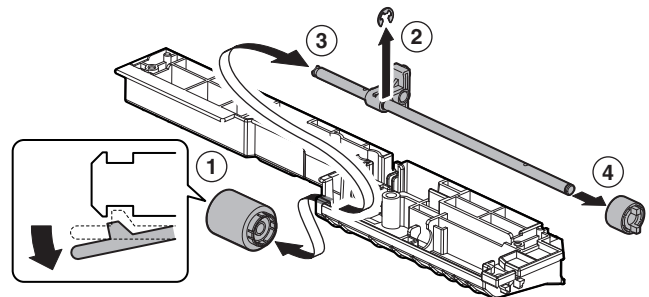
- 7) Remove the E-ring and the bearing, and remove the paper feed lower PG unit.



- 8) 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.



- 9) Remove the separation roller. Remove the E-ring and the separation shift. Remove the torque limiter.  
Maintenance: Replace at every 100K of each paper feed counter.



## I. Paper transport section

### 36/45/50 CPM model

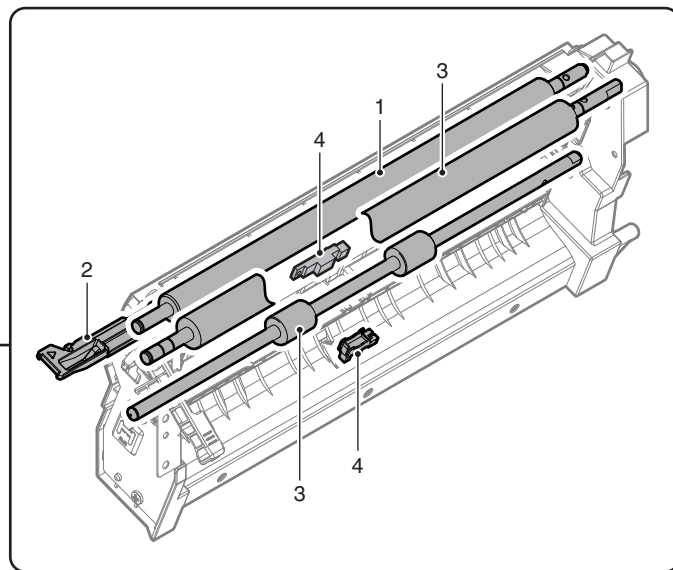
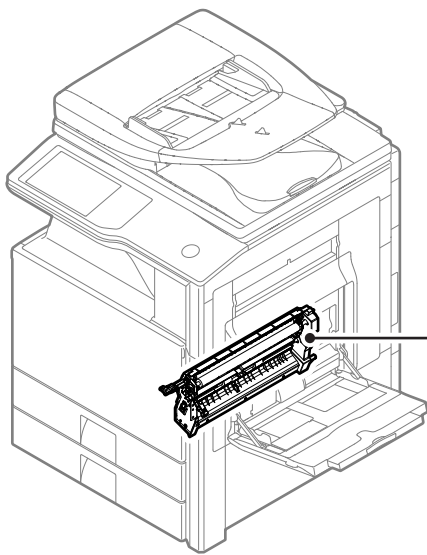
×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	200 k	400 k	600 k	800 k	1000 k	1200 k	1400 k	1600 k	1800 k	2000 k	2200 k	2400 k	Remark
1	Resist roller (Idle)	×	○	○	○	○	○	○	○	○	○	○	○	○	
2	Paper dust removing unit	○	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
3	Transport rollers	×	○	○	○	○	○	○	○	○	○	○	○	○	
4	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	
5	Transport paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	

### 28 CPM model

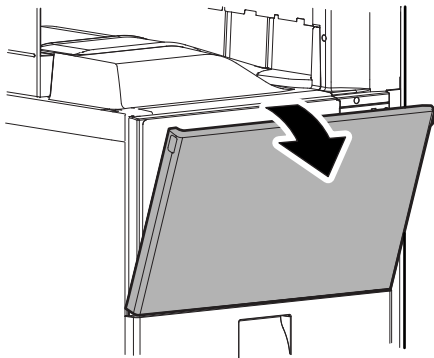
×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	150 k	300 k	450 k	600 k	750 k	900 k	1050 k	1200 k	1350 k	1500 k	1650 k	1800 k	Remark
1	Resist roller (Idle)	×	○	○	○	○	○	○	○	○	○	○	○	○	
2	Paper dust removing unit	○	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲	
3	Transport rollers	×	○	○	○	○	○	○	○	○	○	○	○	○	
4	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	
5	Transport paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	



#### (1) Resist roller (idle), and each transport roller cleaning

- 1) Open the right door.

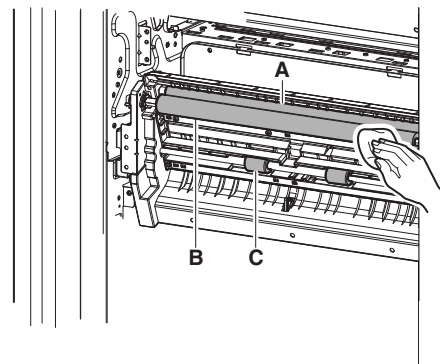


- 2) Clean the resist roller (Idle) (A), resist roller (Drive) (B) and the transport roller 8 (Drive) (C).

##### • Maintenance

36/45/50 CPM model: Clean at every 200K.

28 CPM model: Clean at every 150K.



## J. Duplex/Paper exit section

### 36/45/50 CPM model

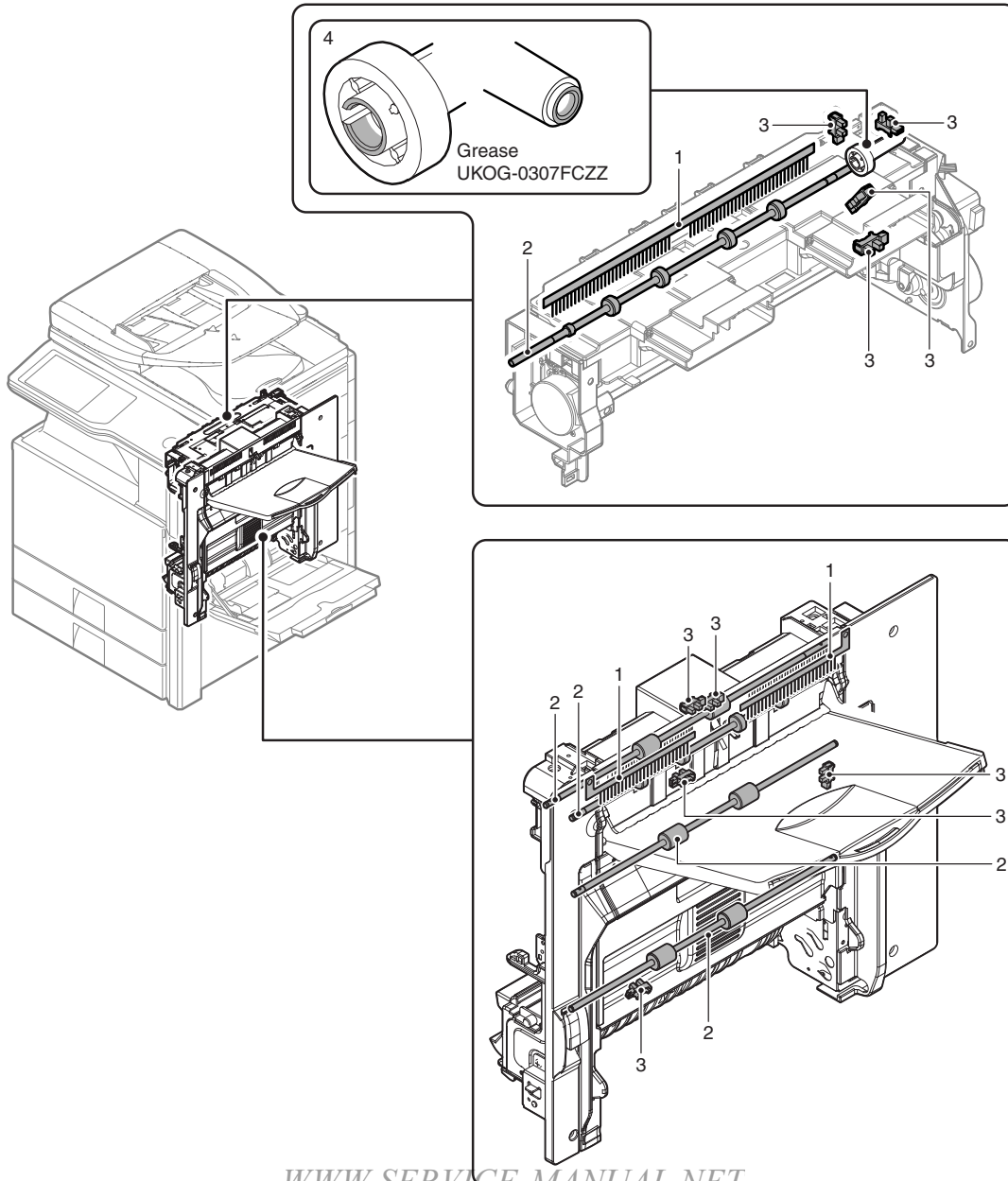
×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	200 k	400 k	600 k	800 k	1000 k	1200 k	1400 k	1600 k	1800 k	2000 k	2200 k	2400 k	Remark
1	Discharge brush	×	×	×	×	×	×	×	×	×	×	×	×	×	
2	Transport rollers	×	○	○	○	○	○	○	○	○	○	○	○	○	
3	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	
4	Gears	×	×	×	×	×	×	×	×	×	×	×	×	×	When checking, apply to the necessary positions.
5	Transport paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	

### 28 CPM model

×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

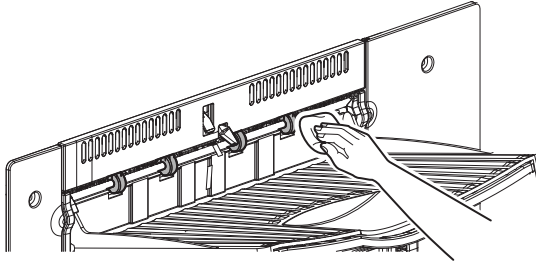
No.	Part name	When calling	150 k	300 k	450 k	600 k	750 k	900 k	1050 k	1200 k	1350 k	1500 k	1650 k	1800 k	Remark
1	Discharge brush	×	×	×	×	×	×	×	×	×	×	×	×	×	
2	Transport rollers	×	○	○	○	○	○	○	○	○	○	○	○	○	
3	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	
4	Gears	×	×	×	×	×	×	×	×	×	×	×	×	×	When checking, apply to the necessary positions.
5	Transport paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	



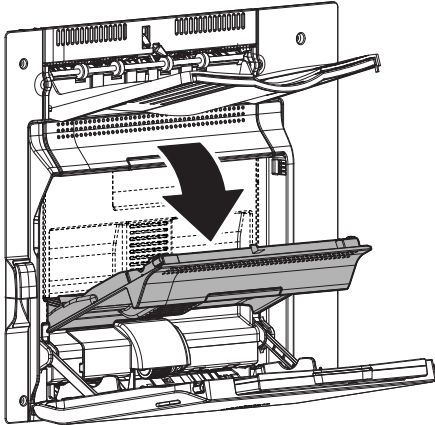


## (1) Each transport roller cleaning

- 1) Clean the paper exit roller 2 (Drive).
  - Maintenance
  - 36/45/50 CPM model: Clean at every 200K.
  - 28 CPM model: Clean at every 150K.

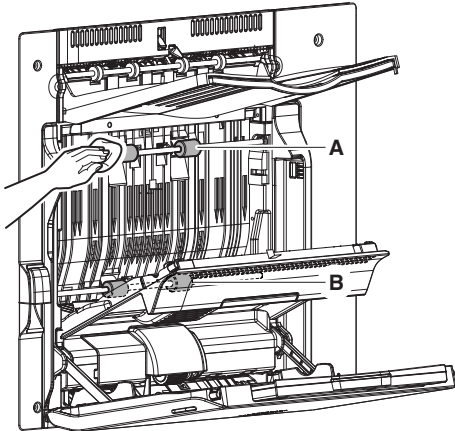


- 2) Open the ADU open/close door.

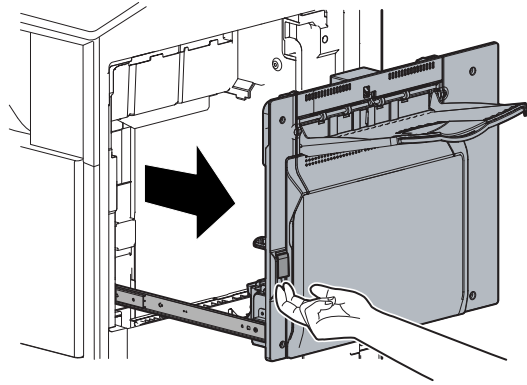


- 3) Clean the transport roller 10 (Drive) (A), and the transport roller 11 (Drive) (B).

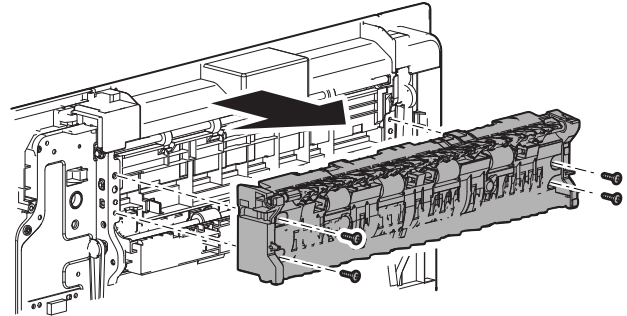
- Maintenance
- 36/45/50 CPM model: Clean at every 200K.
- 28 CPM model: Clean at every 150K.



- 4) Open the right door.

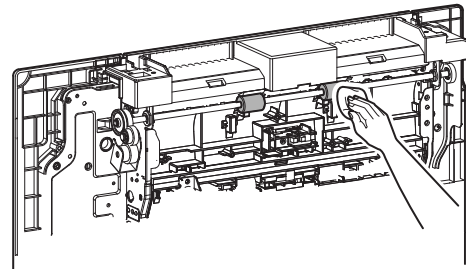


- 5) Remove the reverse PG unit.



- 6) Clean the transport roller 13 (Drive).

- Maintenance
- 36/45/50 CPM model: Clean at every 200K.
- 28 CPM model: Clean at every 150K.



## K. Drive section

### 36/45/50 CPM model

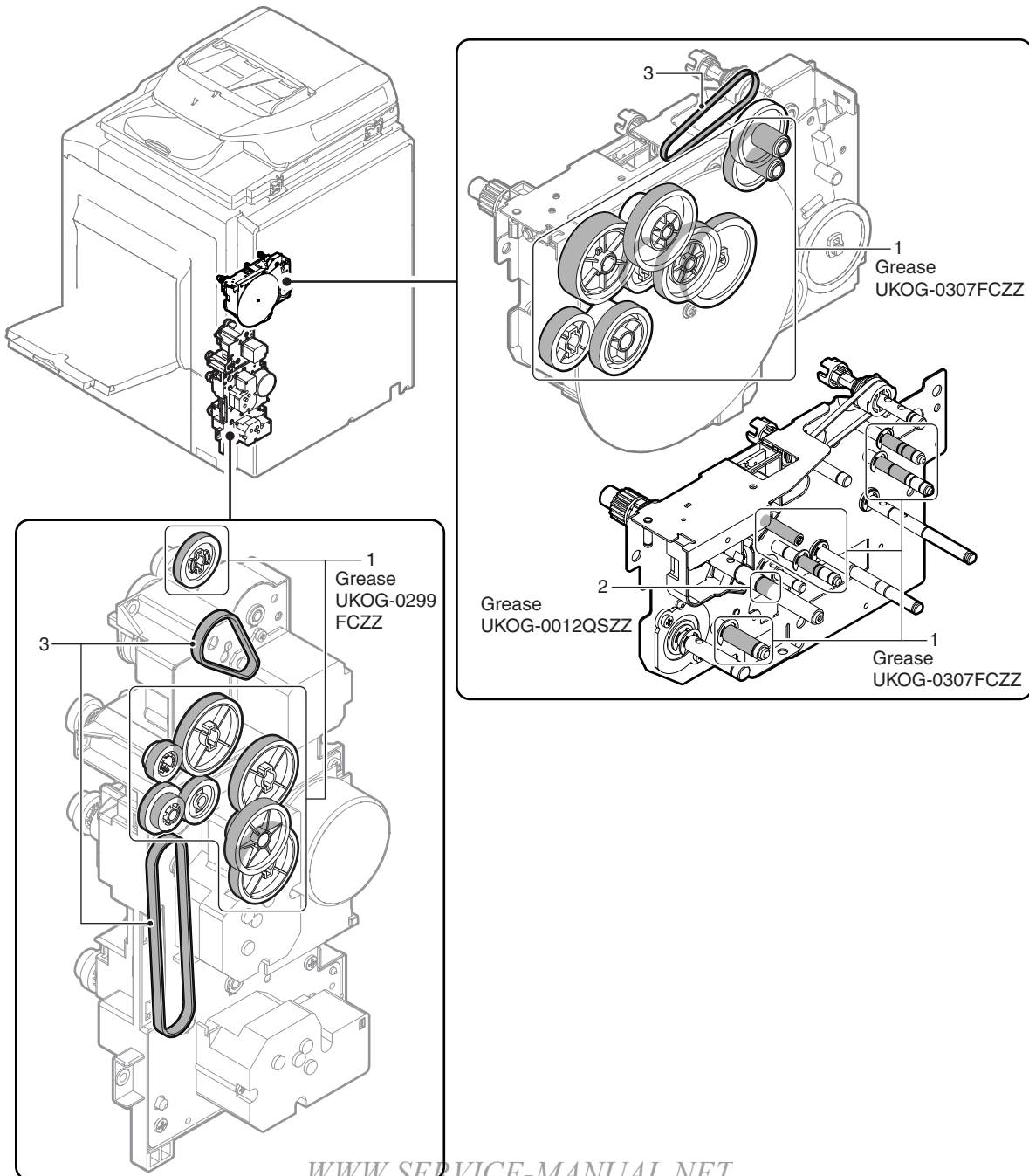
×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	200 k	400 k	600 k	800 k	1000 k	1200 k	1400 k	1600 k	1800 k	2000 k	2200 k	2400 k	Remark
1	Gears (Grease)	–	×	×	×	×	×	×	×	×	×	×	×	×	When checking, apply to the necessary positions.
2	Shaft earth sections (Conduction grease)	–	×	×	×	×	×	×	×	×	×	×	×	×	
3	Belts	–	×	×	×	×	×	×	×	×	×	×	×	×	

### 28 CPM model

×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	150 k	300 k	450 k	600 k	750 k	900 k	1050 k	1200 k	1350 k	1500 k	1650 k	1800 k	Remark
1	Gears (Grease)	–	×	×	×	×	×	×	×	×	×	×	×	×	When checking, apply to the necessary positions.
2	Shaft earth sections (Conduction grease)	–	×	×	×	×	×	×	×	×	×	×	×	×	
3	Belts	–	×	×	×	×	×	×	×	×	×	×	×	×	



## L. Scanner section

### 36/45/50 CPM model

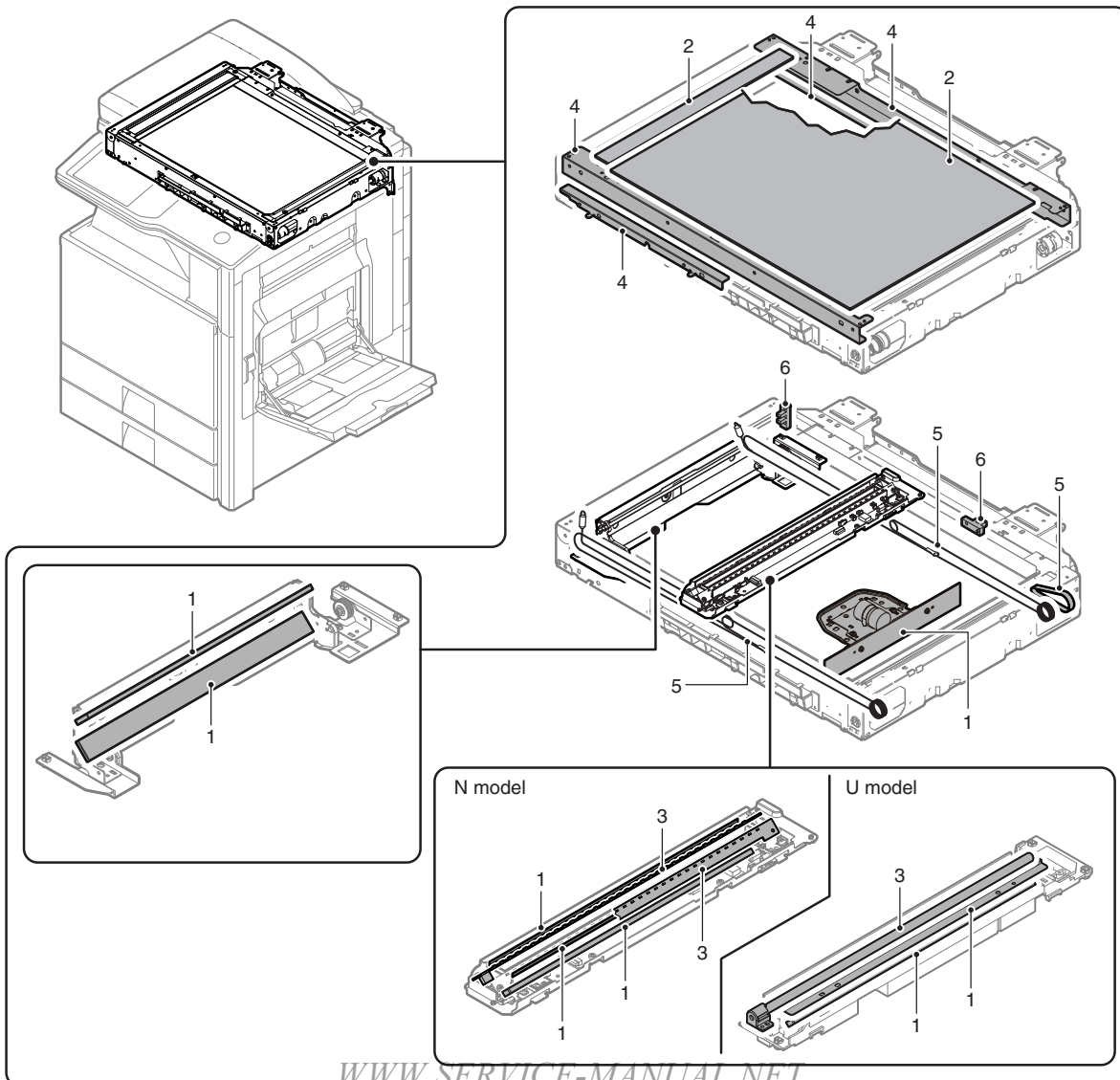
×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	200 k	400 k	600 k	800 k	1000 k	1200 k	1400 k	1600 k	1800 k	2000 k	2200 k	2400 k	Remark
1	Mirror/Lens/ Reflection sheet (Reflector)/CCD	○	○	○	○	○	○	○	○	○	○	○	○	○	
2	Table glass/SPF glass	○	○	○	○	○	○	○	○	○	○	○	○	○	
3	Scanner lamp														Air cleaning for the LED section
	N model: LED PWB	×	×	×	×	×	×	×	×	×	×	×	×	×	
	U model: Xenon lamp	○	○	○	○	○	○	○	○	○	○	○	○	○	
4	Rails	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
5	Drive belt/drive wire	×	×	×	×	×	×	×	×	×	×	×	×	×	
6	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	

### 28 CPM model

×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

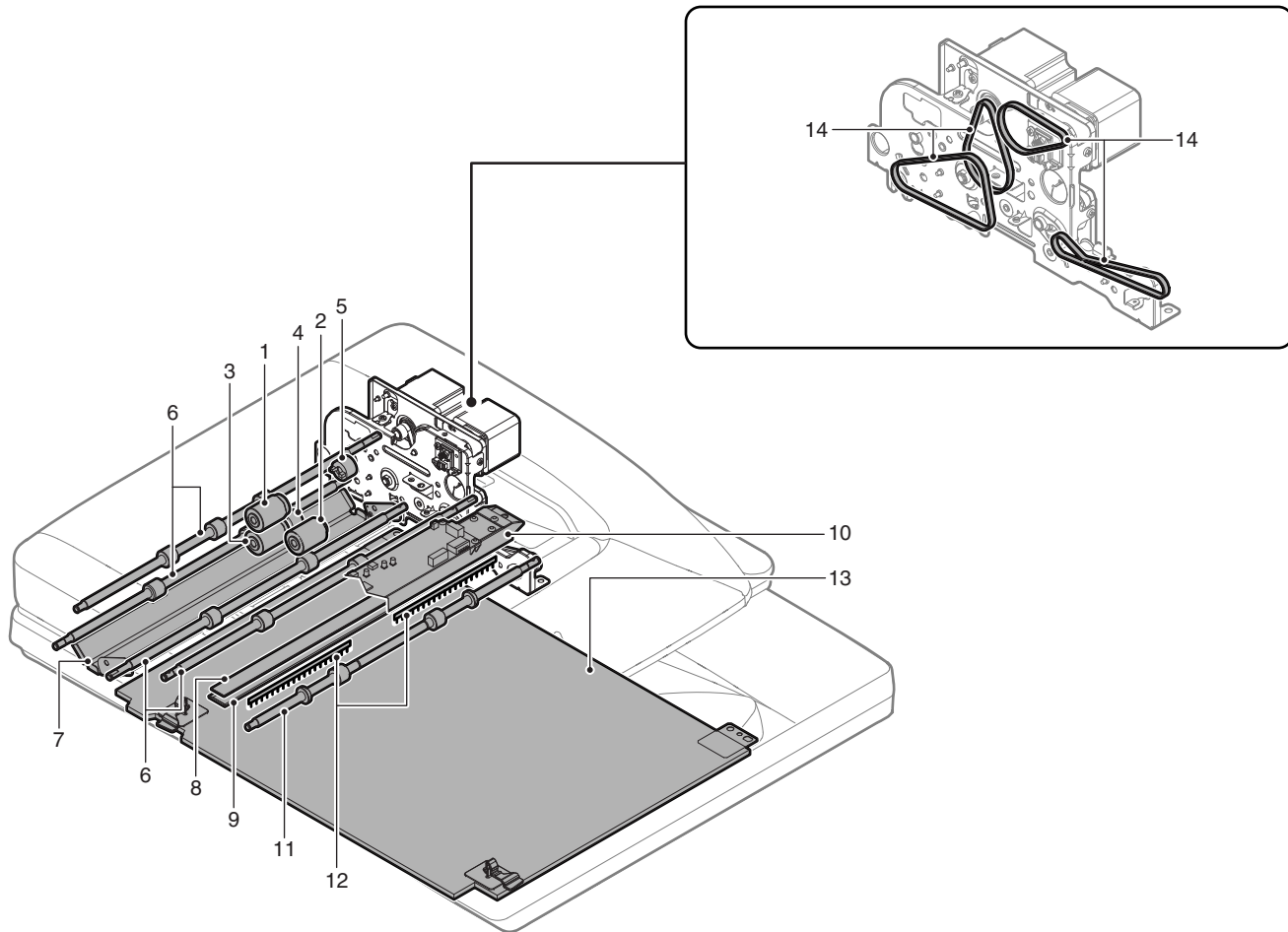
No.	Part name	When calling	150 k	300 k	450 k	600 k	750 k	900 k	1050 k	1200 k	1350 k	1500 k	1650 k	1800 k	Remark
1	Mirror/Lens/ Reflection sheet/CCD	○	○	○	○	○	○	○	○	○	○	○	○	○	
2	Table glass/SPF glass	○	○	○	○	○	○	○	○	○	○	○	○	○	
3	Scanner lamp (LED PWB)	×	×	×	×	×	×	×	×	×	×	×	×	×	Air cleaning for the LED section
4	Rails	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
5	Drive belt/drive wire	×	×	×	×	×	×	×	×	×	×	×	×	×	
6	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	



## M. DSPF section

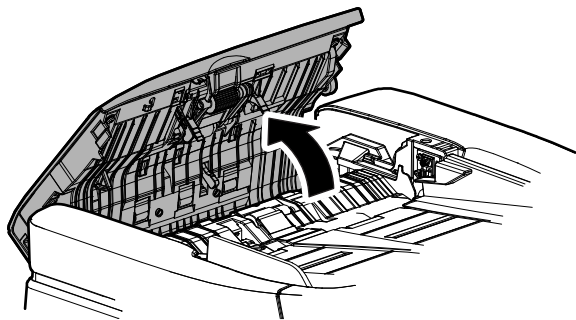
×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	200 k	400 k	600 k	800 k	1000 k	1200 k	1400 k	1600 k	1800 k	2000 k	2200 k	2400 k	Remark
1	Paper feed roller	○	○	○	○	○	○	○	○	○	○	○	○	○	Replacement reference: Replace according to each paper feed counter value. SPF section roller: Replace at 100K or 1 year of use.
2	Pickup roller	○	○	○	○	○	○	○	○	○	○	○	○	○	
3	Separation roller	○	○	○	○	○	○	○	○	○	○	○	○	○	
4	Torque limiter SPF (for separation)	×	×	×	×	×	×	×	×	×	×	×	×	×	Replacement reference: Replace according to each paper feed counter value. SPF section torque limiter: Replace at 400K or 2 years of use.
5	Call-in torque limiter (for PIC)	×	×	×	×	×	×	×	×	×	×	×	×	×	
6	Transport rollers	○	○	○	○	○	○	○	○	○	○	○	○	○	
7	No. 1 scanning plate	○	○	○	○	○	○	○	○	○	○	○	○	○	
8	No. 2 scanning section, scanning glass	○	○	○	○	○	○	○	○	○	○	○	○	○	
9	No. 2 scanning section, white reference glass	○	○	○	○	○	○	○	○	○	○	○	○	○	
10	CIS unit	×	×	×	×	×	×	×	×	×	×	×	×	×	Air cleaning for the Selfoc lens section.
11	Paper exit roller	○	○	○	○	○	○	○	○	○	○	○	○	○	
12	Discharge brush	×	×	×	×	×	×	×	×	×	×	×	×	×	
13	OC mat	○	○	○	○	○	○	○	○	○	○	○	○	○	
14	Belts	×	×	×	×	×	×	×	×	×	×	×	×	×	

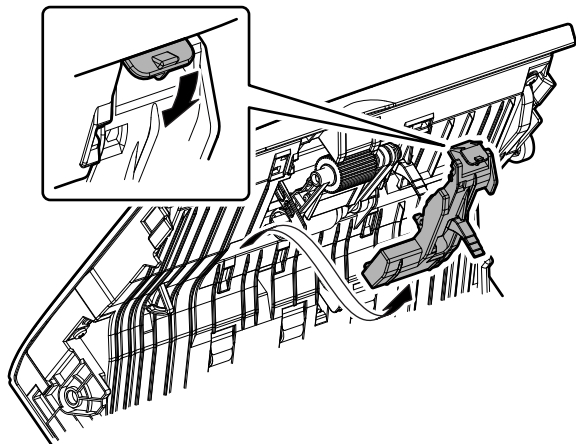


### (1) Pickup roller, paper feed roller replacement

- 1) Open the paper feed unit.

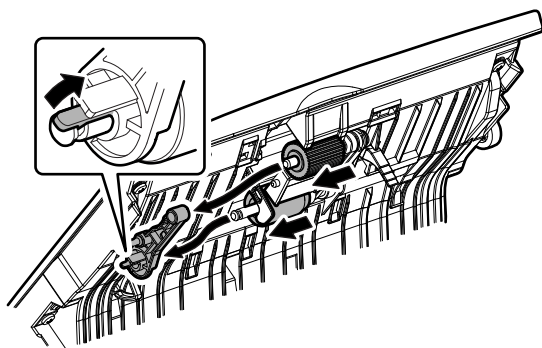


- 2) Disengage the pawl, and remove the paper guide.



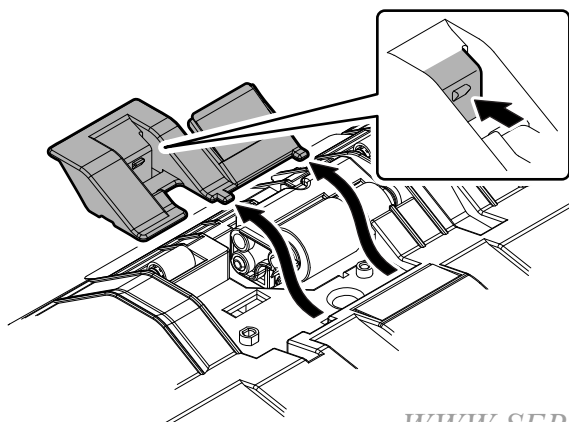
- 3) Disengage the pawl, and remove the holder guide. Remove the pickup roller and the paper feed roller.

Maintenance: Replace at every 100K of each paper feed counter.



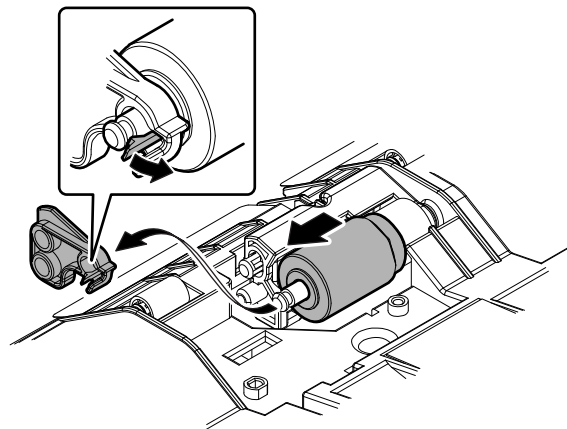
### (2) Separation roller replacement

- 1) Disengage the pawl, and remove the cover.



- 2) Disengage the pawl, and remove the holder. Remove the separation roller.

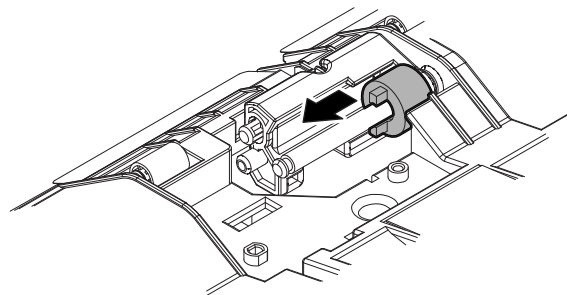
Maintenance: Replace at every 100K of each paper feed counter.



### (3) Torque limiter SPF replacement

- 1) Remove the torque limiter SPF.

Maintenance: Replace at every 400K of each paper feed counter.

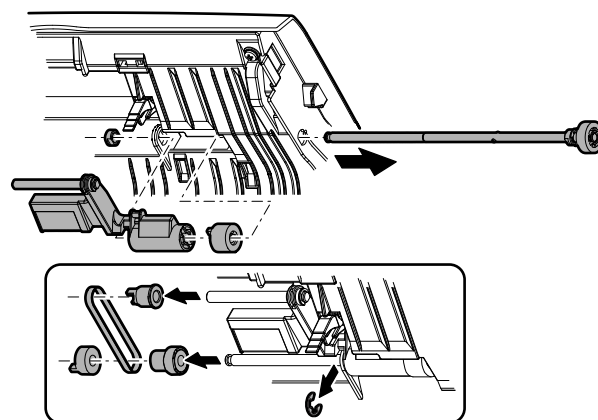


### (4) Take-up torque limiter replacement

- 1) Remove the one-way coupling, the belt, and the pulley. Remove the E-ring.

Pull out the shaft, and remove the bearing, the holder, and the take-up torque limiter.

Maintenance: Replace at every 400K of each paper feed counter.





## N. RSPF section

### 36/45/50 CPM model

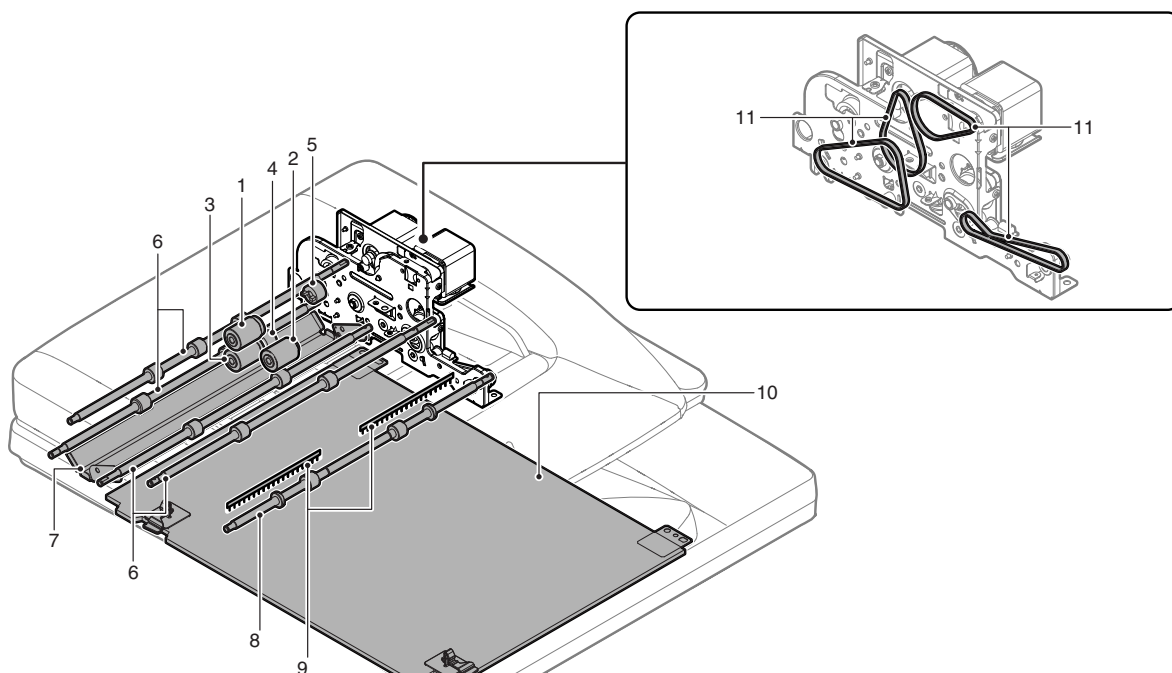
×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	200 k	400 k	600 k	800 k	1000 k	1200 k	1400 k	1600 k	1800 k	2000 k	2200 k	2400 k	Remark
1	Paper feed roller	○	○	○	○	○	○	○	○	○	○	○	○	○	Replacement reference: Replace according to each paper feed counter value. SPF section roller: Replace at 100K or 1 year of use.
2	Pickup roller	○	○	○	○	○	○	○	○	○	○	○	○	○	
3	Separation roller	○	○	○	○	○	○	○	○	○	○	○	○	○	
4	Torque limiter SPF (for separation)	×	×	×	×	×	×	×	×	×	×	×	×	×	Replacement reference: Replace according to each paper feed counter value. SPF section torque limiter: Replace at 400K or 2 years of use.
5	Call-in torque limiter (for PIC)	×	×	×	×	×	×	×	×	×	×	×	×	×	
6	Transport rollers	○	○	○	○	○	○	○	○	○	○	○	○	○	
7	Scanning plate	○	○	○	○	○	○	○	○	○	○	○	○	○	
8	Paper exit roller	○	○	○	○	○	○	○	○	○	○	○	○	○	
9	Discharge brush	×	×	×	×	×	×	×	×	×	×	×	×	×	
10	OC mat	○	○	○	○	○	○	○	○	○	○	○	○	○	
11	Belts	×	×	×	×	×	×	×	×	×	×	×	×	×	

### 28 CPM model

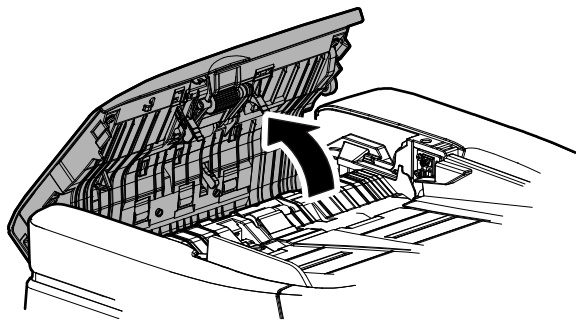
×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	150 k	300 k	450 k	600 k	750 k	900 k	1050 k	1200 k	1350 k	1500 k	1650 k	1800 k	Remark
1	Paper feed roller	○	○	○	○	○	○	○	○	○	○	○	○	○	Replacement reference: Replace according to each paper feed counter value. SPF section roller: Replace at 100K or 1 year of use.
2	Pickup roller	○	○	○	○	○	○	○	○	○	○	○	○	○	
3	Separation roller	○	○	○	○	○	○	○	○	○	○	○	○	○	
4	Torque limiter SPF (for separation)	×	×	×	×	×	×	×	×	×	×	×	×	×	Replacement reference: Replace according to each paper feed counter value. SPF section torque limiter: Replace at 400K or 2 years of use.
5	Call-in torque limiter (for PIC)	×	×	×	×	×	×	×	×	×	×	×	×	×	
6	Transport rollers	○	○	○	○	○	○	○	○	○	○	○	○	○	
7	Scanning plate	○	○	○	○	○	○	○	○	○	○	○	○	○	
8	Paper exit roller	○	○	○	○	○	○	○	○	○	○	○	○	○	
9	Discharge brush	×	×	×	×	×	×	×	×	×	×	×	×	×	
10	OC mat	○	○	○	○	○	○	○	○	○	○	○	○	○	
11	Belts	×	×	×	×	×	×	×	×	×	×	×	×	×	

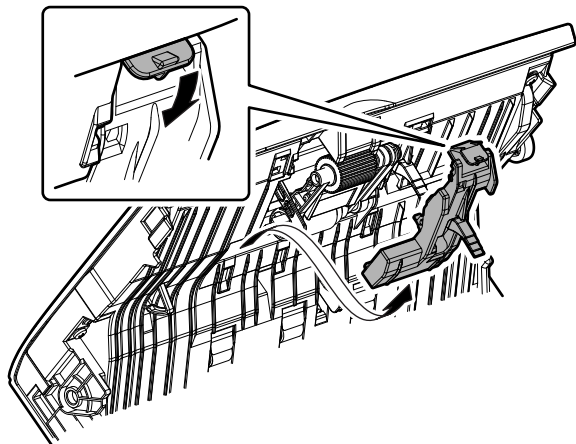


### (1) Pickup roller, paper feed roller replacement

- 1) Open the paper feed unit.

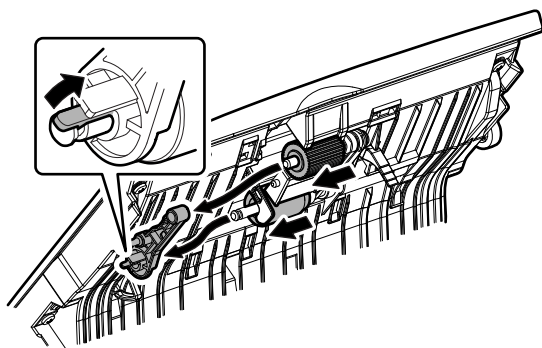


- 2) Disengage the pawl, and remove the paper guide.



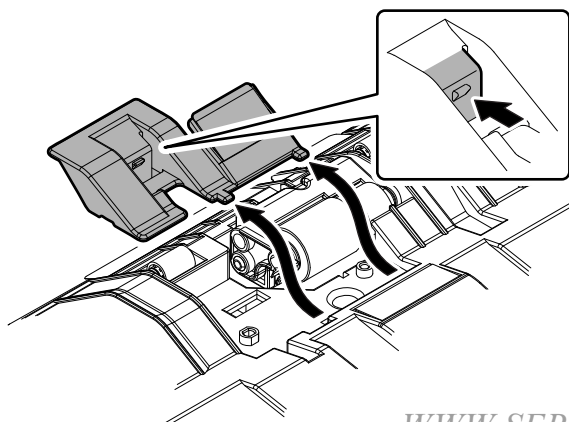
- 3) Disengage the pawl, and remove the holder guide. Remove the pickup roller and the paper feed roller.

Maintenance: Replace at every 100K of each paper feed counter.



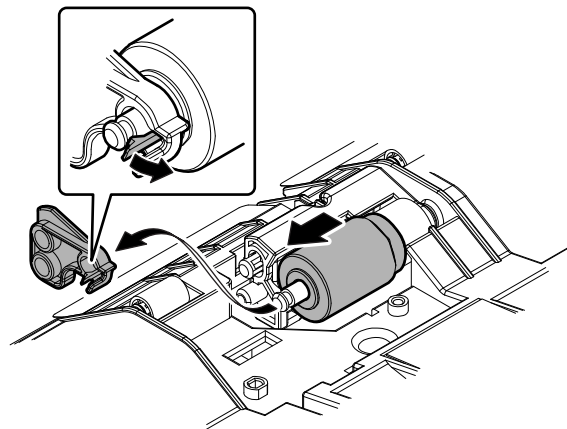
### (2) Separation roller replacement

- 1) Disengage the pawl, and remove the cover.



- 2) Disengage the pawl, and remove the holder. Remove the separation roller.

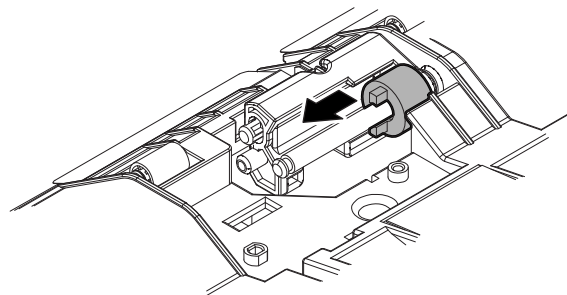
Maintenance: Replace at every 100K of each paper feed counter.



### (3) Torque limiter SPF replacement

- 1) Remove the torque limiter SPF.

Maintenance: Replace at every 400K of each paper feed counter.

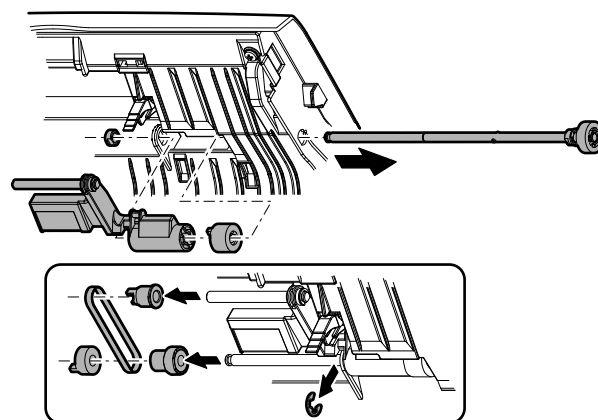


### (4) Take-up torque limiter replacement

- 1) Remove the one-way coupling, the belt, and the pulley. Remove the E-ring.

Pull out the shaft, and remove the bearing, the holder, and the take-up torque limiter.

Maintenance: Replace at every 400K of each paper feed counter.



## O. Inner finisher/Punch unit for Inner finisher

### 36/45/50 CPM model

×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

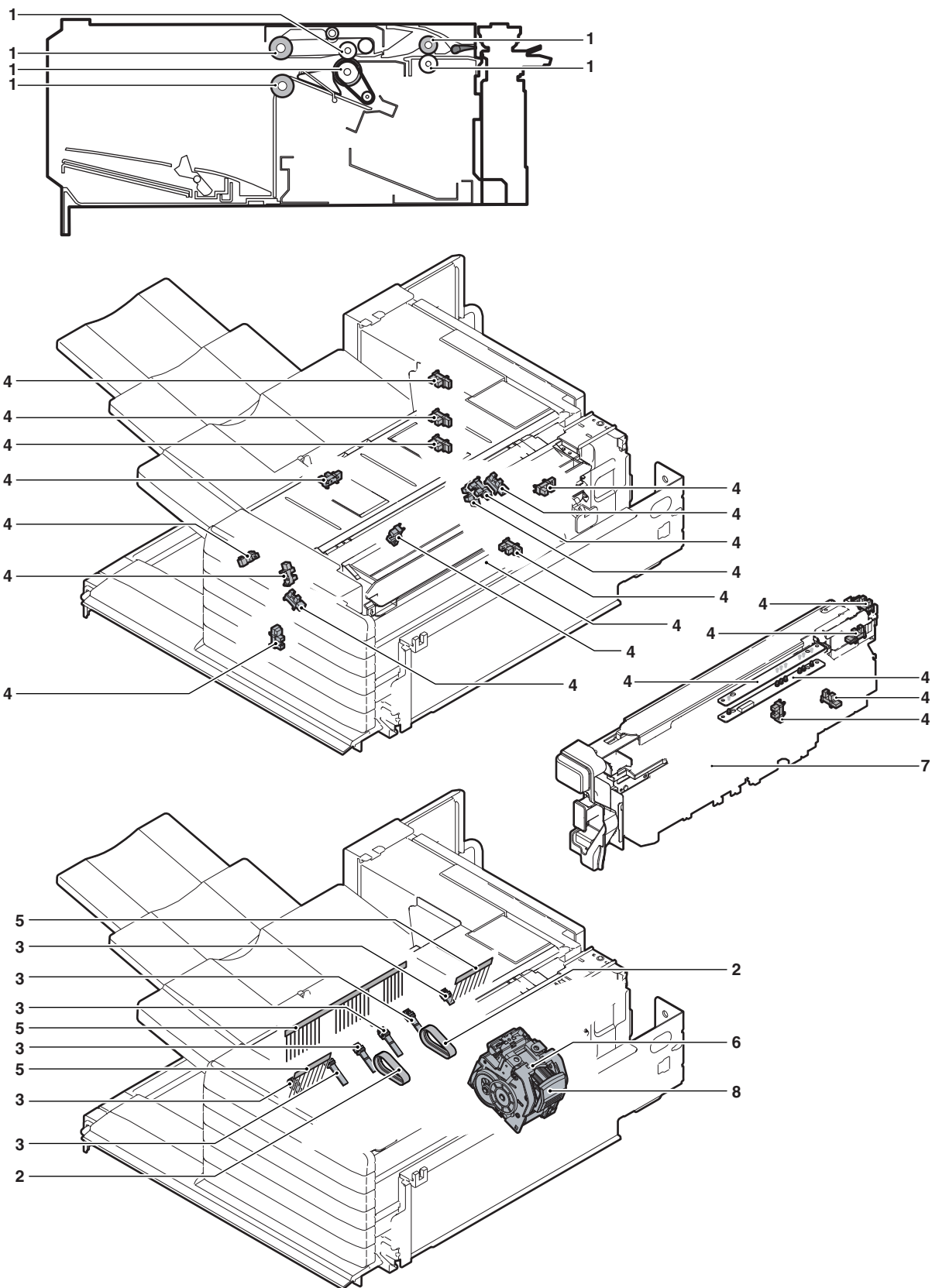
No.	Part name	When calling	200 k	400 k	600 k	800 k	1000 k	1200 k	1400 k	1600 k	1800 k	2000 k	2200 k	2400 k	Remark
1	Transport rollers	×	○	○	○	○	○	○	○	○	○	○	○	○	
–	Transport paper guides	×	○	○	○	○	○	○	○	○	○	○	○	○	
–	Gears	×	×	×	×	×	×	×	×	×	×	×	×	×	When checking, apply to the necessary positions.
–	Belts		×	×	×	×	×	×	×	×	×	×	×	×	
2	Knurling belt	×	○	○	○	○	○	○	○	○	○	○	○	○	Replacement reference: Finisher count value of 1000K.
3	Paddle	×	○	○	○	○	○	○	○	○	○	○	○	○	
4	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	
5	Discharge brush	×	×	×	×	×	×	×	×	×	×	×	×	×	
6	Stapler unit	Replacement reference: Replace the unit for every 200K stapling.													
7	Punch unit	Replacement reference: Replace the unit for every 1000K punching.													
8	Staple cartridge	User replacement for every use of 5,000 pcs.													

### 28 CPM model

×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	150 k	300 k	450 k	600 k	750 k	900 k	1050 k	1200 k	1350 k	1500 k	1650 k	1800 k	Remark
1	Transport rollers	×	○	○	○	○	○	○	○	○	○	○	○	○	
–	Transport paper guides	×	○	○	○	○	○	○	○	○	○	○	○	○	
–	Gears	×	×	×	×	×	×	×	×	×	×	×	×	×	When checking, apply to the necessary positions.
–	Belts		×	×	×	×	×	×	×	×	×	×	×	×	
2	Knurling belt	×	○	○	○	○	○	○	○	○	○	○	○	○	Replacement reference: Finisher count value of 1000K.
3	Paddle	×	○	○	○	○	○	○	○	○	○	○	○	○	
4	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	
5	Discharge brush	×	×	×	×	×	×	×	×	×	×	×	×	×	
6	Stapler unit	Replacement reference: Replace the unit for every 200K stapling.													
7	Punch unit	Replacement reference: Replace the unit for every 1000K punching.													
8	Staple cartridge	User replacement for every use of 5,000 pcs.													





## P. Saddle stitch finisher (1K)/Punch unit for Saddle stitch finisher (1K)

### 36/45/50 CPM model

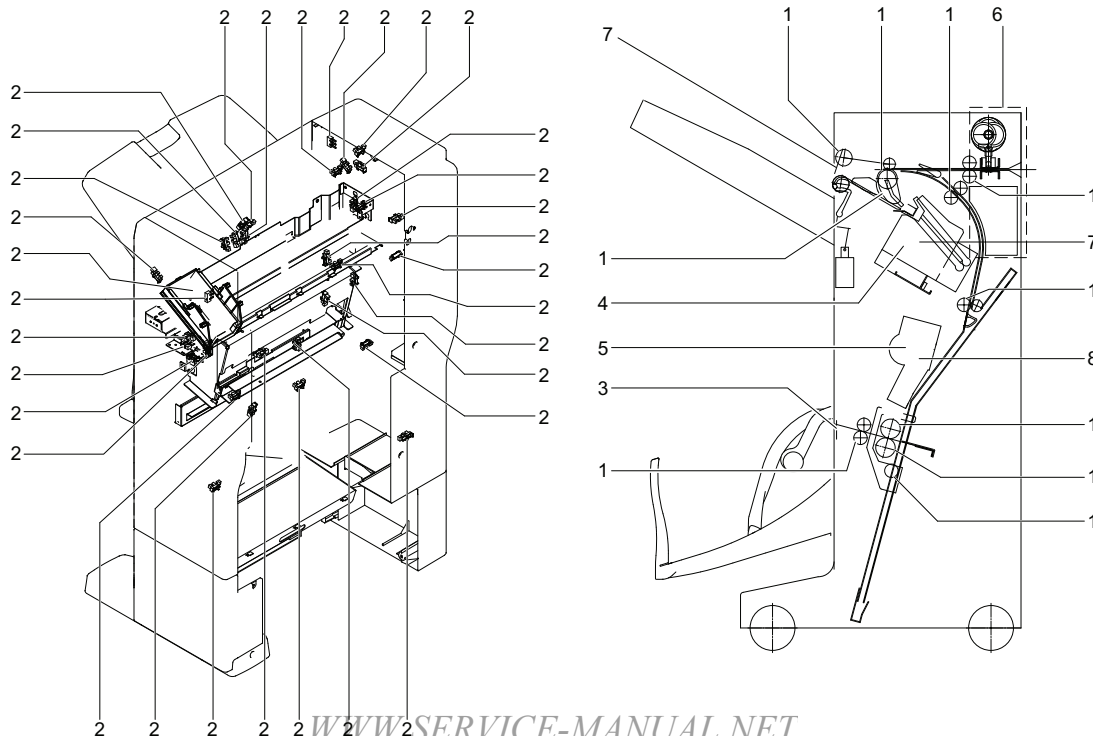
×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	200 k	400 k	600 k	800 k	1000 k	1200 k	1400 k	1600 k	1800 k	2000 k	2200 k	2400 k	Remark
1	Transport rollers	○	○	○	○	○	○	○	○	○	○	○	○	○	
–	Transport paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	
–	Gears	×	×	×	×	×	×	×	×	×	×	×	×	×	When checking, apply to the necessary positions.
–	Belts	×	×	×	×	×	×	×	×	×	×	×	×	×	
–	Knurling belt	×	○	○	○	○	○	○	○	○	○	○	○	○	Replacement reference: Replace at every 1000K of the finisher paper exit count value.
2	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	
3	Discharge brush	×	×	×	×	×	×	×	×	×	×	×	×	×	
4	Stapler unit	Replacement reference: Replace the unit at every 200K staple.													
5	Stapler unit for saddle	Replacement reference: Replace the unit at every 100K staple.													
6	Punch unit	Replacement reference: Replace the unit at every 1000K.													
7	Staple cartridge	User replacement for every 5000pcs.													
8	Staple cartridge for saddle	User replacement for every 2000pcs.													

### 28 CPM model

×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	150 k	300 k	450 k	600 k	750 k	900 k	1050 k	1200 k	1350 k	1500 k	1650 k	1800 k	Remark
1	Transport rollers	○	○	○	○	○	○	○	○	○	○	○	○	○	
–	Transport paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	
–	Gears	×	×	×	×	×	×	×	×	×	×	×	×	×	When checking, apply to the necessary positions.
–	Belts	×	×	×	×	×	×	×	×	×	×	×	×	×	
–	Knurling belt	×	○	○	○	○	○	○	○	○	○	○	○	○	Replacement reference: Replace at every 1000K of the finisher paper exit count value.
2	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	
3	Discharge brush	×	×	×	×	×	×	×	×	×	×	×	×	×	
4	Stapler unit	Replacement reference: Replace the unit at every 200K staple.													
5	Stapler unit for saddle	Replacement reference: Replace the unit at every 100K staple.													
6	Punch unit	Replacement reference: Replace the unit at every 1000K.													
7	Staple cartridge	User replacement for every 5000pcs.													
8	Staple cartridge for saddle	User replacement for every 2000pcs.													



## Q. Finisher (4K)/Punch unit for Finisher (4K)

### 36/45/50 CPM model

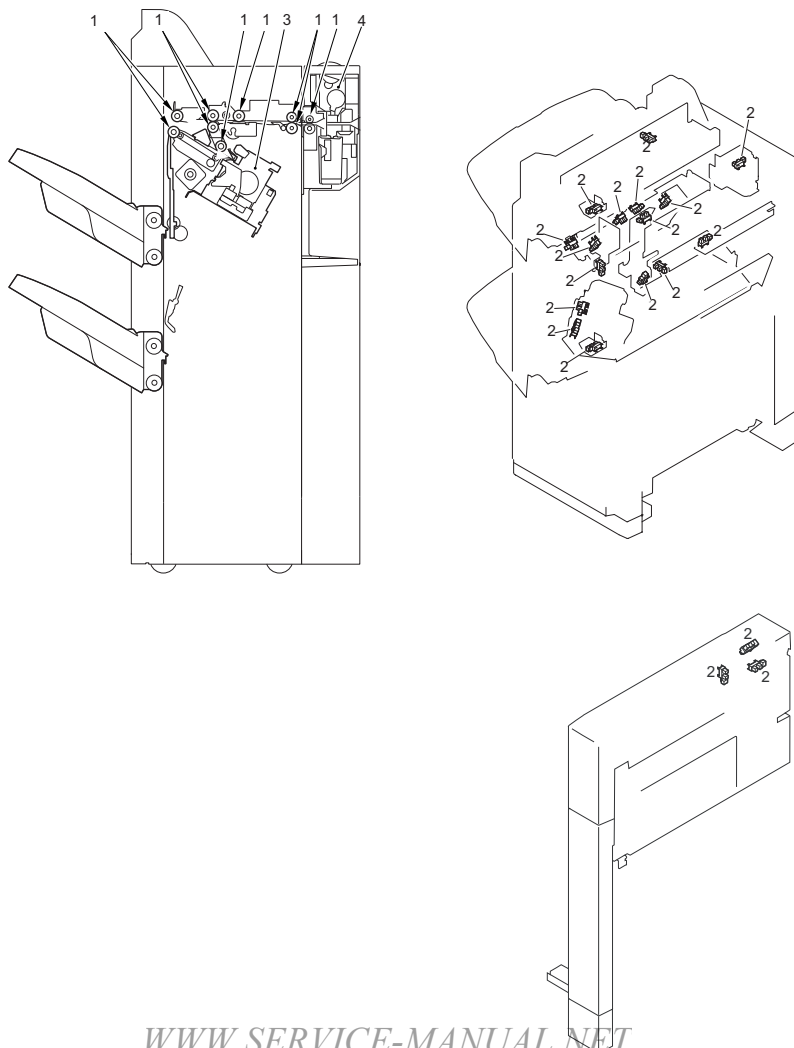
×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	200 k	400 k	600 k	800 k	1000 k	1200 k	1400 k	1600 k	1800 k	2000 k	2200 k	2400 k	Remark
1	Transport rollers	○	○	○	○	○	○	○	○	○	○	○	○	○	
–	Transport paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	
–	Gears	×	×	×	×	×	×	×	×	×	×	×	×	×	When checking, apply to the necessary positions.
–	Belts	×	×	×	×	×	×	×	×	×	×	×	×	×	
2	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	
–	Discharge brush	×	×	×	×	×	×	×	×	×	×	×	×	×	
3	Stapler unit	Replacement reference: Replace the unit at every 100K staple.													
4	Punch unit	Replacement reference: Replace the unit at every 1000K.													
–	Staple cartridge	Replacement is made by the user at every 5,000 pcs.													

### 28 CPM model

×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	150 k	300 k	450 k	600 k	750 k	900 k	1050 k	1200 k	1350 k	1500 k	1650 k	1800 k	Remark
1	Transport rollers	○	○	○	○	○	○	○	○	○	○	○	○	○	
–	Transport paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	
–	Gears	×	×	×	×	×	×	×	×	×	×	×	×	×	When checking, apply to the necessary positions.
–	Belts	×	×	×	×	×	×	×	×	×	×	×	×	×	
2	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	
–	Discharge brush	×	×	×	×	×	×	×	×	×	×	×	×	×	
3	Stapler unit	Replacement reference: Replace the unit at every 100K staple.													
4	Punch unit	Replacement reference: Replace the unit at every 1000K.													
–	Staple cartridge	Replacement is made by the user at every 5,000 pcs.													



## R. Paper pass unit

### 36/45/50 CPM model

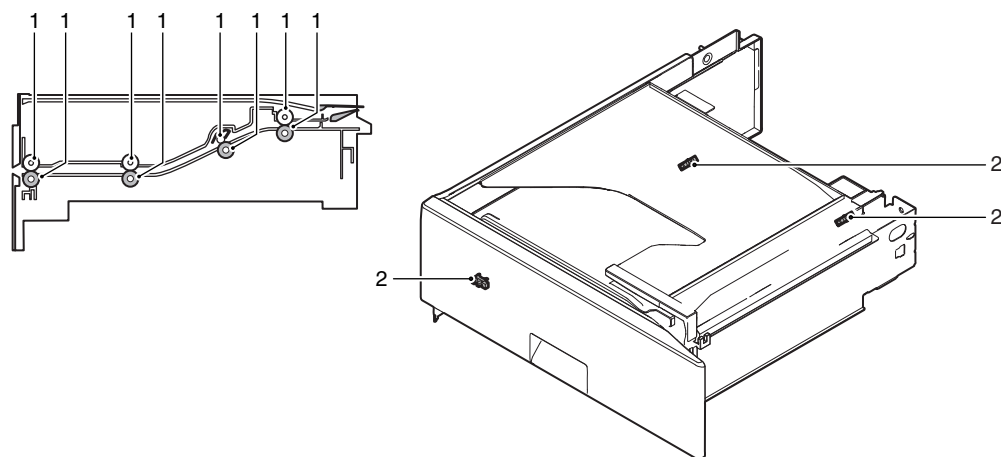
×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	200 k	400 k	600 k	800 k	1000 k	1200 k	1400 k	1600 k	1800 k	2000 k	2200 k	2400 k	Remark
1	Transport rollers	×	○	○	○	○	○	○	○	○	○	○	○	○	
–	Transport paper guides	×	○	○	○	○	○	○	○	○	○	○	○	○	
2	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	

### 28 CPM model

×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	150 k	300 k	450 k	600 k	750 k	900 k	1050 k	1200 k	1350 k	1500 k	1650 k	1800 k	Remark
1	Transport rollers	×	○	○	○	○	○	○	○	○	○	○	○	○	
–	Transport paper guides	×	○	○	○	○	○	○	○	○	○	○	○	○	
2	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	



## S. A4 large capacity tray

### 36/45/50 CPM model

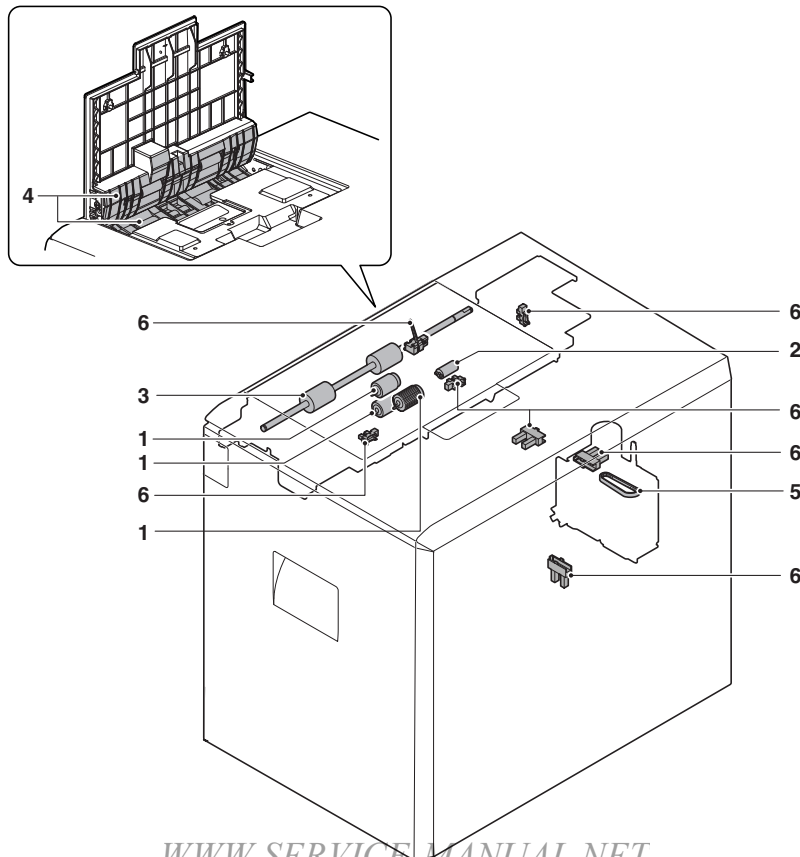
×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	200 k	400 k	600 k	800 k	1000 k	1200 k	1400 k	1600 k	1800 k	2000 k	2200 k	2400 k	Remark
1	Pickup roller/ Paper feed rollers	×	○	○	○	○	○	○	○	○	○	○	○	○	Replacement reference: Replace according to each paper feed counter value.: 100K or 1 year of use
2	Torque limiter	×	×	×	×	×	×	×	×	×	×	×	×	×	Replacement reference: Replace according to each paper feed counter value.: 100K
3	Transport rollers	×	○	○	○	○	○	○	○	○	○	○	○	○	
4	Transport paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	
–	Gears	×	×	×	×	×	×	×	×	×	×	×	×	×	When checking, apply to the necessary positions.
5	Belts		×	×	×	×	×	×	×	×	×	×	×	×	
6	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	

### 28 CPM model

×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	150 k	300 k	450 k	600 k	750 k	900 k	1050 k	1200 k	1350 k	1500 k	1650 k	1800 k	Remark
1	Pickup roller/ Paper feed rollers	×	○	○	○	○	○	○	○	○	○	○	○	○	Replacement reference: Replace according to each paper feed counter value.: 100K or 1 year of use
2	Torque limiter	×	×	×	×	×	×	×	×	×	×	×	×	×	Replacement reference: Replace according to each paper feed counter value.: 100K
3	Transport rollers	×	○	○	○	○	○	○	○	○	○	○	○	○	
4	Transport paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	
–	Gears	×	×	×	×	×	×	×	×	×	×	×	×	×	When checking, apply to the necessary positions.
5	Belts		×	×	×	×	×	×	×	×	×	×	×	×	
6	Sensors	×	×	×	×	×	×	×	×	×	×	×	×	×	



## T. Paper feed tray (Desk)

### 36/45/50 CPM model

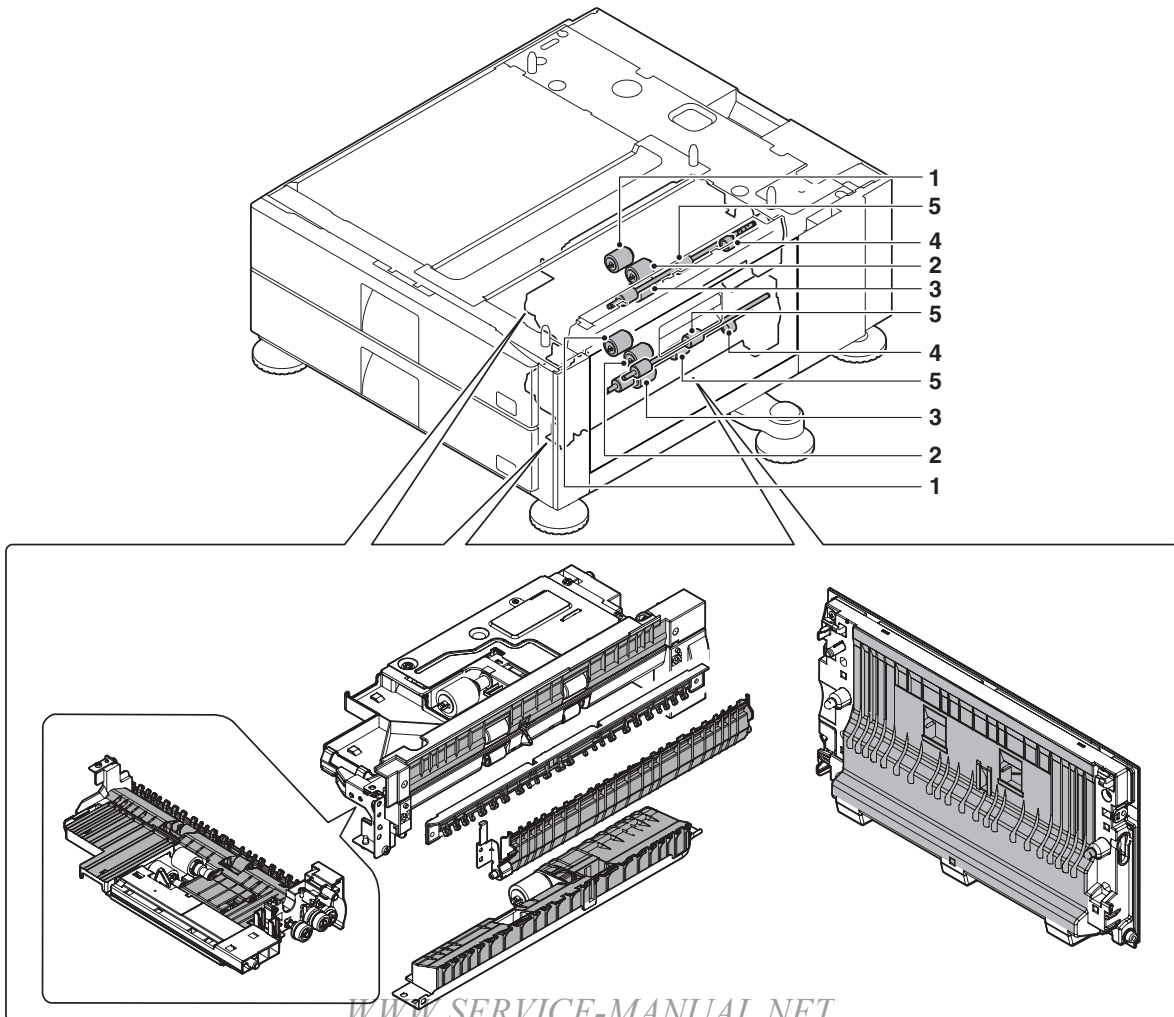
×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

No.	Part name	When calling	200 k	400 k	600 k	800 k	1000 k	1200 k	1400 k	1600 k	1800 k	2000 k	2200 k	2400 k	Remark
1	Pickup roller	×	○	○	○	○	○	○	○	○	○	○	○	○	Replacement reference: Replace according to each paper feed counter value.: 100K or 1 year of use
2	Paper feed roller	×	○	○	○	○	○	○	○	○	○	○	○	○	
3	Separation roller	×	○	○	○	○	○	○	○	○	○	○	○	○	
4	Torque limiter	×	×	×	×	×	×	×	×	×	×	×	×	×	Replacement reference: Replace according to each paper feed counter value.: 100K
5	Transport rollers	×	○	○	○	○	○	○	○	○	○	○	○	○	
–	Transport paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	
–	Gears	×	×	×	×	×	×	×	×	×	×	×	×	×	

### 28 CPM model

×: Check (Clean, replace, or adjust according to necessity.) ○: Clean ▲: Replace △: Adjust ☆: Lubricate

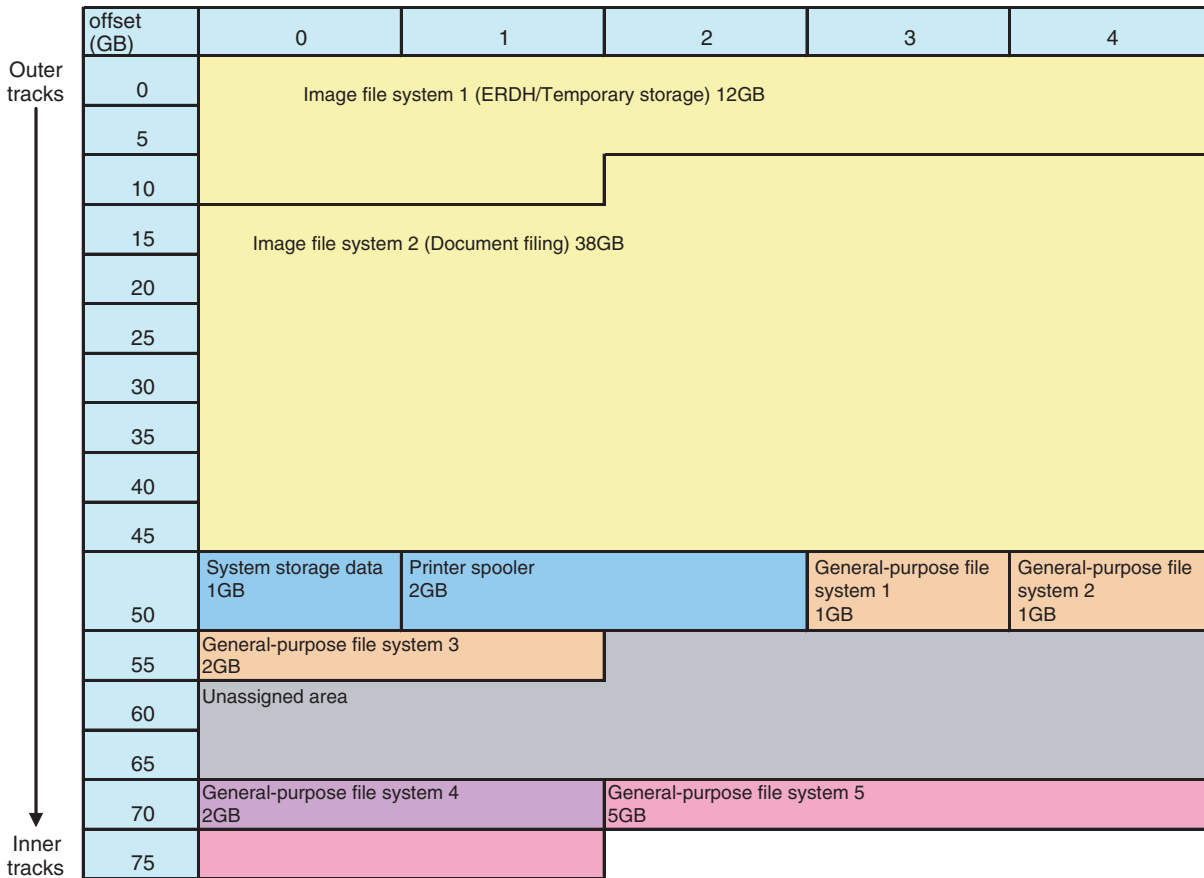
No.	Part name	When calling	150 k	300 k	450 k	600 k	750 k	900 k	1050 k	1200 k	1350 k	1500 k	1650 k	1800 k	Remark
1	Pickup roller	×	○	○	○	○	○	○	○	○	○	○	○	○	Replacement reference: Replace according to each paper feed counter value.: 100K or 1 year of use
2	Paper feed roller	×	○	○	○	○	○	○	○	○	○	○	○	○	
3	Separation roller	×	○	○	○	○	○	○	○	○	○	○	○	○	
4	Torque limiter	×	×	×	×	×	×	×	×	×	×	×	×	×	Replacement reference: Replace according to each paper feed counter value.: 100K
5	Transport rollers	×	○	○	○	○	○	○	○	○	○	○	○	○	
–	Transport paper guides	○	○	○	○	○	○	○	○	○	○	○	○	○	
–	Gears	×	×	×	×	×	×	×	×	×	×	×	×	×	



## [9] VARIOUS STORAGE DATA HANDLING

### 1. HDD partition and data contents

#### A. HDD map



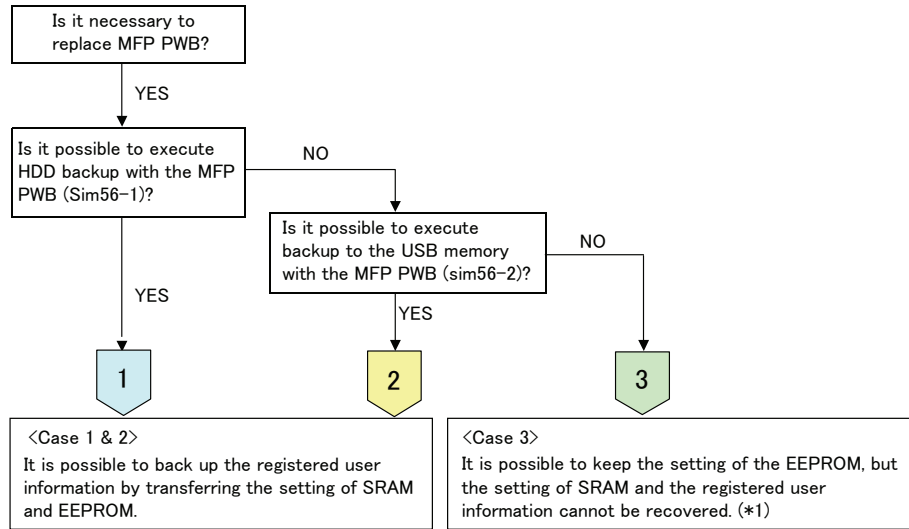
#### B. HDD storage data

Description of the area	Capacity	Stored data
Image file system 1	12 [GB]	Image data (ERDH/Temporary storage)
Image file system 2	38 [GB]	Image data (Document filing)
System storage data	1 [GB]	Image-send-related data such as an address book, FSS data
Printer spooler	2 [GB]	Spool area for printer
General-purpose file system 1	1 [GB]	User authentication data, FEP learning dictionary, download font, user profile
General-purpose file system 2	1 [GB]	Job log, job completion list
General-purpose file system 3	2 [GB]	Application work area
General-purpose file system 4	2 [GB]	Data escape area during transition of DSK
General-purpose file system 5	5 [GB]	e-manual

## 2. Necessary works when replacing the PWB and the HDD

### A. MFP substrate replacement procedure (work flow)

(Note) Registered user information will not be recovered if the MFP PWB is affected by U2-05 trouble. (\*1)



(Note) Never execute Sim16 even if "U2-05" trouble is indicated after turning on the power.  
The registered user information will be deleted.

1. Execute Sim56-01 (data transmission) before replacing the MFP PWB, execute "ALL→HDD," and transfer the SRAM data and the EEPROM data to HDD.

2. Attach the flash ROM, the memory, the EEPROM etc. of the MFP PWB on the service parts MFP PWB and install it to the mainunit.

Note: Ground your body with grounding band during the work.

At this timing, F6-21 may occur. Whether it may occur or not, go to execute procedure 3.

3. Execute "HDD→ALL" by Sim56-01 (data transmission) to return the data of SRAM and EEPROM in the HDD to the new MFP PWB.

\* Please be aware that if "ALL→HDD" is not executed by Sim56-01 (data transmission), blank data will be exported to the EEPROM when "HDD→ALL" is executed.

(Note) Never execute Sim16 even if "U2-05" trouble is indicated after turning on the power.  
The registered user information will be deleted.

1. Execute "EEPROM&SRAM EXPORT" by Sim56-02 (memory HDD data backup) before replacing the MFP PWB to transfer the data of SRAM and EEPROM to USB memory.

2. Attach the flash ROM, the memory, the EEPROM etc. of the MFP PWB on the service parts MFP PWB and install it to the mainunit.

Note: Ground your body with grounding band during the work.

At this timing, F6-21 may occur. Whether it may occur or not, go to execute procedure 3.

3. Execute SIM62-01. (For the U model, only when the HDD is not installed.)

4. Execute "EEPROM&SRAM IMPORT" by Sim56-02 (memory HDD data backup) to return the data of SRAM and EEPROM in the USB memory to the new MFP PWB.

1. Attach the flash ROM, the memory, the EEPROM etc. of the MFP PWB on the service parts MFP PWB and install it to the mainunit.

Note: Ground your body with grounding band during the work.

2. Execute SIM62-01. (For the U model, only when the HDD is not installed.)

3. Turn on the power, execute Sim16 to clear U2-05 trouble.

4. Set as follows after restarting the main unit.

At this timing, F6-21 may occur. Whether it may occur or not, go to execute procedure 1.

(1) Set the appropriate country code by Sim66-02 (clear the software switches related to FAX).

(Note) Make sure to execute even if the fax option is not installed on the machine.

(2) Use SIM67-70 to clear the contents of the MFP PWB SDRAM.

(3) Select "Printer environment setting" at System setting, select "Printer initial setting," open "Standard paper feed paper size" screen, and set A4 size if you use an AB-type machine and letter size if you use an inch-type machine.

(\*1) If you have backed up the data by storage backup (WEB) or device cloning (WEB for service) during normal use before the failure of MFP PWB, it is possible to return to the state when the data was backed up even if Sim16 is executed.

NOTE: The backup data must not be installed to another machine. If installed, the adjustment data will be overwritten and a trouble may be generated.



## B. Works and procedures necessary for HDD replacement

### Note for HDD replacement

- Data of the following list are saved in the HDD of the complex machine. If the HDD operates normally and data backup is possible before replacement, perform data backup and then replace the HDD.
- If the HDD does not operate normally, data cannot be backed up.
- The HDD replacement procedures with a broken HDD differs from that with a normal HDD.

### Contents of this chapter

- 1) HDD storage data and backup
- 2) Replacement procedures when HDD storage data can be backed up
- 3) Replacement procedures when HDD storage data cannot be backed up due to breakdown of HDD
- 4) Reinstall and update procedures of Operation Manual data saved in HDD
- 5) Reinstall and update procedures of watermark data.

### (1) HDD storage data and backup

Some HDD storage data can be backed up, and some other cannot. Some HDD storage data can be reinstalled, and some other cannot.

If the HDD operates normally before replacement and data can be backed up, back up the data before replacement of the HDD referring to the HDD storage data list. Then reinstall the data after replacement of the HDD.

#### a. HDD storage data list

No.	Data kind	Before installation (When shipping from the factory)	After installation (After use by users)	Enable/ Disable of data backup	Backup means	Enable/ Disable of data reinstall	Data reinstall procedures	Reinstall operator
1	e-Manual	Available	Available	Disable	*1	Enable	Sim49-3	Service
2	Address book	Not available	Available	Enable	Sim56-2 / Device cloning / Storage backup	Enable	Sim56-2 / Device cloning / Storage backup	Service
3	Image send series registration data (Sender's information, meta data, etc.)	Not available	Available	Enable	Sim56-2 / Device cloning / Storage backup	Enable	Sim56-2 / Device cloning / Storage backup	Service
4	User authentication	Not available	Available	Enable	Sim56-2 / Device cloning / Storage backup	Enable	Sim56-2 / Device cloning / Storage backup	Service
5	Japanese FEP dictionary (Learning)	Not available	Available	Disable	Not available	Disable		—
6	Chinese FEP dictionary (Learning)	Not available	Available	Disable	Not available	Disable		—
7	JOB LOG	Not available	Available	Enable	Perform with WEB PAGE.	Disable		—
8	JOB completion list	Not available	Available	Disable	Not available	Disable		—
9	New N/A (FSS) information	Not available	Available	Disable	Not available	Disable		—
10	User font (Added)	Not available	Available	Disable	Not available	Enable	Perform with WEB PAGE.	Service or User
11	User macro	Not available	Available	Disable	Not available	Enable	Perform with WEB PAGE.	
12	Document filing	Not available	Available	Enable	Perform with WEB PAGE.	Enable	Perform with WEB PAGE.	
13	Some of system setting data	Not available	Available	Enable	Sim56-2 / Device cloning / Storage backup	Enable	Sim56-2 / Device cloning / Storage backup	Service
14	Watermark	Available	Available	Disable	*2	Enable	Sim49-5	Service

\*1: The e-Manual cannot be backed up, but can be reinstalled by using Sim49-3 and USB memory.

\*2: Watermark data cannot be backed up, but can be reinstalled by using Sim49-5 and USB memory.

## (2) Replacement procedures when HDD data can be backed up

### a. Work contents and procedures

Procedures	When a new HDD (blank HDD, service part) is used, or when a HDD which is normal but a program error occurs in it is used.	When a used HDD (used in the same model) is used *
Step 1	Back up the HDD storage data before replacement. (Servicing) Use SIM56-2 or the device cloning, or the storage backup function to backup the data. (Back up the data to the USB memory.) (Backup enable data: HDD storage data list No. 2, 3, 4 (Address book, Image send series registration data, User authentication data))	
Step 2	Back up the HDD storage data before replacement. (User or servicing) Back up the data to PC with Web page. (Backup enable data: HDD storage data list No. 7, 10, 14 (Document filing data, JOB LOG data))	
Step 3	Replace the HDD.	
Step 4	Boot the complex machine. → Formatting is automatically performed.	Boot the complex machine.
Step 5		The trouble code, U2-05, is displayed. → Cancel with SIM16.
Step 6	Since a blank HDD is automatically formatted, there is no need to perform formatting procedure with SIM.	Use SIM62-1 to format the HDD.
Step 7	Use SIM66-10 to clear the FAX image memory. The memory is cleared in order to keep compliance between the HDD data and the image related memory and to prevent malfunctions. (The memory must be cleared not only in the FAX model but in the scanner and the Internet Fax models.)	
Step 8	Use SIM49-3 to install the manual data to the HDD.	
Step 9	The trouble code, U2-60, is displayed. → Use SIM49-5 to install the watermark data to the HDD. → After booting the machine, use SIM16 to cancel the "U2-60" trouble.	
Step 10	Import the data backed up in Step 1. Use SIM56-2, or the device cloning, or the storage backup to import. (Import enable data: HDD storage data list No. 2, 3, 4 (Address book, Image send series registration data, User authentication data))	
Step 11	Import the data backed up with the Web page function in Step 2. Import enable data: Document filing data, User font, Use macro (The JOB LOG data can be backed up but cannot be imported.)	

## (3) Replacement procedures when the HDD storage data cannot be backed up due to breakdown

### a. Display when HDD breakdown

When a trouble occurs in the HDD, the error code display of E7-03 is popped up.

In this case, the main power must be turned OFF and the HDD must be replaced.

### b. Work contents and procedures

Procedures	When a new HDD (blank HDD, service part) is used, or when a HDD which is normal but a program error occurs in it is used.	When a used HDD (used in the same model) is used *
Step 1	Install a HDD to the machine, and boot the complex machine. → Formatting is automatically performed.	Install a HDD to the machine, and boot the complex machine.
Step 2		The trouble code, U2-05, is displayed. → Cancel with SIM16.
Step 3	Since a blank HDD is automatically formatted, there is no need to perform formatting procedure with SIM.	Use Sim62-1 to format the HDD.
Step 4	Use SIM66-10 to clear the FAX image memory. The memory is cleared in order to keep compliance between the HDD data and the image related memory and to prevent malfunctions. (The memory must be cleared not only in the FAX model but in the scanner and the Internet Fax models.)	
Step 5	Use SIM49-3 to install the manual data to the HDD.	
Step 6	The trouble code, U2-60, is displayed. → Use SIM49-5 to install the watermark data to the HDD. → After booting the machine, use SIM16 to cancel the "U2-60" trouble.	

With the above procedures, the HDD is reset to the state of factory shipping.

## (4) Reinstall and update procedures of the HDD storage Operation Manual data

### 1) Obtain the Operation Manual data.

Download the Operation Manual data from the utility menu on the web site (Tech-DS home page).

Copy the downloaded files to the USB device without changing the file hierarchy.

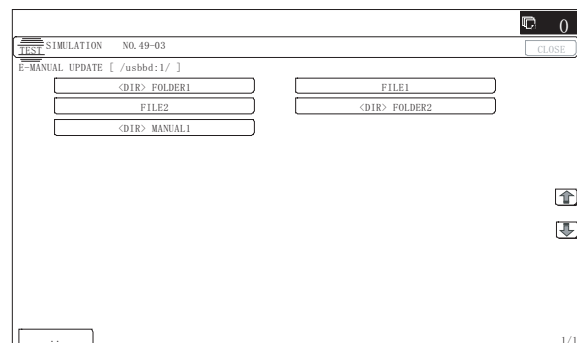
(To upload to the complex machine, files of "\*\*\*\_pdf\_fax.idx" and "\*\*\*\_pdf.idx" and "version.txt" as well as the Operation Manual data (\*.pdf) are required. When the downloaded files are copied without changing the file hierarchy, these files also are copied.)

#### NOTE:

When data are uploaded from the USB memory to the HDD, if there are some data in the HDD, the files in the memory are compared with the files in the HDD and only the files which satisfy the following conditions are written into the HDD.

- The file size is different.
- The time stamp is different.
- The file exists only in the USB memory.

### 2) Enter the SIM49-3 mode.

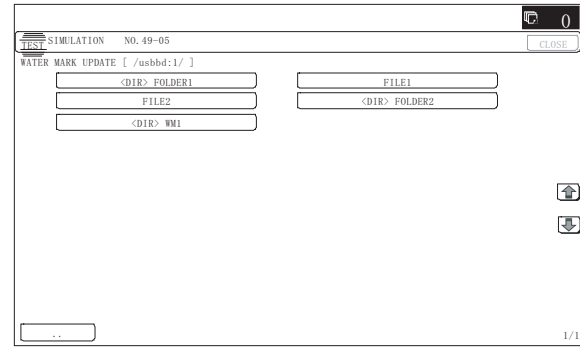


- 3) Insert the USB memory into the machine.
  - When the USB memory is not inserted, "INSERT A STORAGEEE-MANUAL STORED ON" is displayed. When [OK] button is pressed, the screen shifts to the folder select menu 1.
- 4) Select the folder of the Operation Manual data. (The screen shifts to the Operation Manual data install menu.)  
The current version and the update version are displayed.
- 5) Press [EXECUTE] button.  
[EXECUTE] button is highlighted, and [YES] and [NO] buttons are changed from gray-out to active display.
- 6) When [YES] button is pressed, the selected Operation Manual is installed.  
When install is completed, "COMPLETE" is displayed. In case of an abnormality, "ERROR" is displayed.

#### (5) Watermark data reinstall and update procedures

- 1) Obtain the watermark data.  
Download the watermark data from the utility menu on the web site (Tech-DS home page).  
Copy the downloaded files to the USB device without changing the file hierarchy. Or copy the watermark data from the accessory CD-ROM to the USB device.  
NOTE:  
When data are uploaded from the USB memory to the HDD, if there are some data in the HDD, the files in the memory are compared with the files in the HDD and only the files which satisfy the following conditions are written into the HDD.
  - The file size is different.
  - The time stamp is different.
  - The file exists only in the USB memory.

- 2) Enter the SIM49-5 mode.



- 3) Insert the USB memory into the machine.
  - When the USB memory is not inserted, "INSERT A STORAGEEE-MANUAL STORED ON" is displayed. When [OK] button is pressed, the screen shifts to the folder select menu 1.
- 4) Select the folder of the watermark data. (The screen shifts to the watermark data install menu.)  
The current version and the update version are displayed.
- 5) Press [EXECUTE] button.  
[EXECUTE] button is highlighted, and [YES] and [NO] buttons are changed from gray-out to active display.
- 6) When [YES] button is pressed, the selected watermark data are installed.  
When install is completed, "COMPLETE" is displayed. In case of an abnormality, "ERROR" is displayed.

## 3. Counter list

Display item	Descriptions	SIM			
		Setting	Display	Clear	Count-up condition setting
MAINTENANCE COUNTER (TOTAL)	Maintenance preset counter (Total)	21-01		—	
TOTAL OUT(BW)	Total output quantity of black and white		22-01	—	
TOTAL(BW)	Total use quantity of black and white		22-01	—	26-5
COPY(BW)	Black and white copy counter		22-01	24-06	
PRINT(BW)	Black and white print counter		22-01	24-09	
DOC FIL(BW)	Black and white document filing print counter		22-01	—	
OTHER(BW)	Black and white other counter		22-01	24-09	
MAINTENANCE ALL	Maintenance counter (Total)		22-01	24-04	26-5
FUSER WEB SEND	Fusing web cleaning send counter		22-01	24-04	
FUSER WEB UNIT	Fusing web print counter		22-01	24-04	
FUSER WEB DAY	Use day of fusing web unit		22-01	24-04	
DRUM LIFE(K)	Accumulated number of drum rotations K (%)		22-01	—	
DEVE LIFE(K)	Accumulated number of developer rotations K (%)		22-01	—	
MACHINE JAM	Machine JAM counter		22-02	24-01	
RSPF/DSPF JAM	SPF JAM counter		22-02	24-01	
TROUBLE	Trouble counter		22-02	24-01	
SPF	Document feed quantity		22-08	24-03	
SCAN	Number of times of scan		22-08	24-03	
STAPLER	Staple counter		22-08	24-03	
PUNCHER	Puncher counter		22-08	24-03	
STAMP	Stamp counter		22-08	24-03	
SADDLE STAPLER	Saddle staple counter		22-08	24-03	
SADDLE V FOLD	Saddle finisher V fold counter		22-08	24-03	
COVER	Cover open/close counter		22-08	24-03	
HP_ON	Number of scanner HP detection		22-08	24-03	
OC LAMP TIME	Total lighting time of the lamp in OC section (* hour * minutes)		22-08	24-03	
DSPF LAMP TIME	Total lighting time of the lamp in DSPF section (* hour * minutes)		22-08	24-03	
TRAY1	Tray 1 paper feed counter		22-09	24-02	

Display item	Descriptions	SIM			
		Setting	Display	Clear	Count-up condition setting
TRAY2	Tray 2 paper feed counter		22-09	24-02	
TRAY3	Tray 3 paper feed counter		22-09	24-02	
TRAY4	Tray 4 paper feed counter		22-09	24-02	
MFT TOTAL	Manual paper feed counter (Total)		22-09	24-02	
MFT HEAVY	Manual paper feed counter (Heavy paper)		22-09	24-02	
MFT OHP	Manual paper feed counter (OHP)		22-09	24-02	
MFT ENV	Manual paper feed counter (Envelope)		22-09	24-02	
LCC	Side LCC paper feed counter (A4 LCC)		22-09	24-02	
ADU	ADU paper feed counter (Paper reverse section)		22-09	24-02	
FAX OUTPUT	FAX print quantity counter		22-11	24-10	
FAX SEND	FAX send counter		22-11	24-10	
FAX RECEIVED	FAX receive counter		22-11	24-10	
SEND IMAGES	FAX send quantity counter		22-11	24-10	
SEND TIME	FAX send time		22-11	24-10	
RECEIVED TIME	FAX receive time		22-11	24-10	
ACR SEND	Number of carrier prefix adding communications		22-11	24-10	
DRUM CTRG K	Drum cartridge print counter (K)		22-13	24-07	
DRUM RANGE K	Drum cartridge accumulated traveling distance (cm) (K)		22-13	24-07	
DRUM TURN K	Drum cartridge accumulated rotation time (K)		22-13	—	
DRUM DAY K	Number of day that used drum (Day) (K)		22-13	24-07	
DEVE CTRG K	Developer cartridge print counter (K)		22-13	24-05	26-5
DEVE RANGE K	Developer cartridge accumulated traveling distance (cm) (K)		22-13	24-05	
DEVE TURN K	Developer cartridge accumulated rotation time (K)		22-13	—	
DEVE DAY K	Number of day that used developer (Day) (K)		22-13	24-05	
TONER MOTOR K	Toner motor print counter (K)		22-13	—	
TONER TURN K	Toner motor accumulated rotation time (sec) (K)		22-13	—	
NET SCN ORG_B/W	Network scanner document read quantity counter (B/W scan job)		22-19	24-15	
NET SCN ORG_CL	Network scanner document read quantity counter (Color scan job)		22-19	24-15	
INTERNET FAX OUTPUT	Number of internet FAX output		22-19	24-15	
INTERNET FAX SEND OUTPUT	Number of internet FAX sending page		22-19	24-15	
INTERNET FAX RECEIVE	Number of internet FAX receive		22-19	24-15	
INTERNET FAX SEND	Number of internet FAX send		22-19	24-15	
MAIL COUNTER	Number of times of E-MAIL send		22-19	24-15	
FTP COUNTER	Number of FTP send		22-19	24-15	
SMB SEND	Number of SMB send		22-19	24-15	
USB CNT	Number of times of USB storage		22-19	24-15	
TRIAL MODE_B&C	Trial mode counter (B/W & COLOR scan job)		22-19	24-15	
SCAN TO HDD_B/W	SCAN TO HDD record quantity (B/W)		22-19	24-15	
SCAN TO HDD_CL	SCAN TO HDD record quantity (COLOR)		22-19	24-15	

# [10] SERVICE WEB PAGE

## 1. General

The following functions are available on the Hidden Web Page exclusively used for the serviceman.

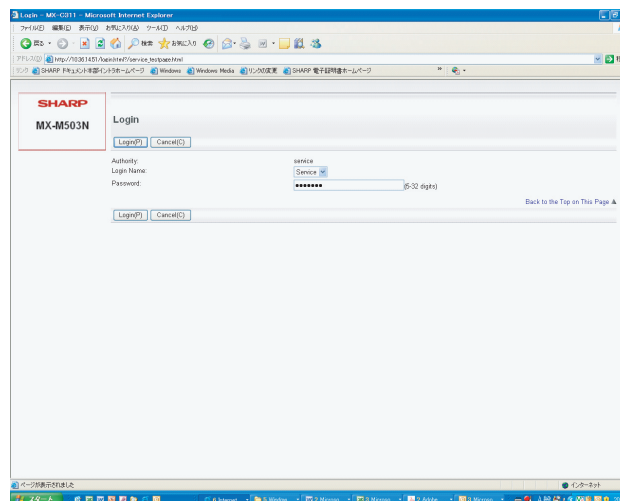
Menu/Item		Function and content
Password Setting		Used to set the password to enter the Hidden Web Page exclusively used for the serviceman.
Output of Test Page		Used to print out the test page (system setting contents).
Font/Form Download		Used to download Font/Form. Font/Form of PCL and PostScript, macro, and other resources are downloaded to the HDD and controlled. (PS, PCL5 only)
Device Cloning		Used to import/export the system setting information in XML format. By importing the export file to the other device, the setting values and setting contents of the device can be copied to another device. This function is useful to set the same setting to two or more machines efficiently.
Filing Data Backup		Used to import/export the document filing data in the unit of folder.
User Control		Used to shift to the user mode. After log in, the screen is shifted to the setting screen of user management.
User Control 2		Used to set the Pages Limit Group and the Favorite Operation Group by authority of the serviceman. (Select among preset items.)
Job Log	Save Job Log	Used to save the Job Log.
	View Job Log	Used to display the Job Log.
Update of Firmware		Used to update the firmware version.
Syslog *1	Administration Settings	Used to set the Log Type. (Set to the default.)
	Storage/Send Settings	Keep all the items selected.
	Save/ Delete Syslog	Used to save or delete the log data.
	View Syslog	Used to display the log data.

\*1: This may be useful for troubleshooting when a trouble occurs.  
When submission of the log data file is requested in order to troubleshoot, use the log file save mode to export the log data file to the client PC.

## 2. Details and operation procedures

### A. Procedures to enter the Hidden Web page exclusively used for the serviceman

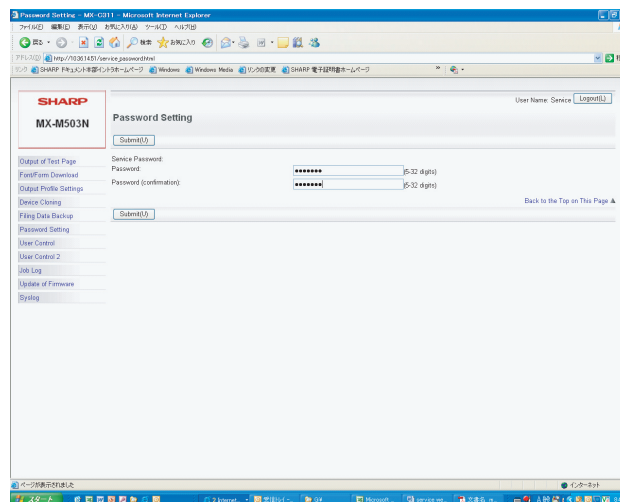
- 1) Boot a browser program.
- 2) Enter the specified URL ([http://xxx.xxx.xxx.xxx/service\\_login.html](http://xxx.xxx.xxx.xxx/service_login.html)) and enter the servicing page menu.  
Default password: "service"



NOTE: The password can be optionally changed in the Password Setting menu.

If the password is changed and forgotten, use SIM24-31 to reset the password to the default.

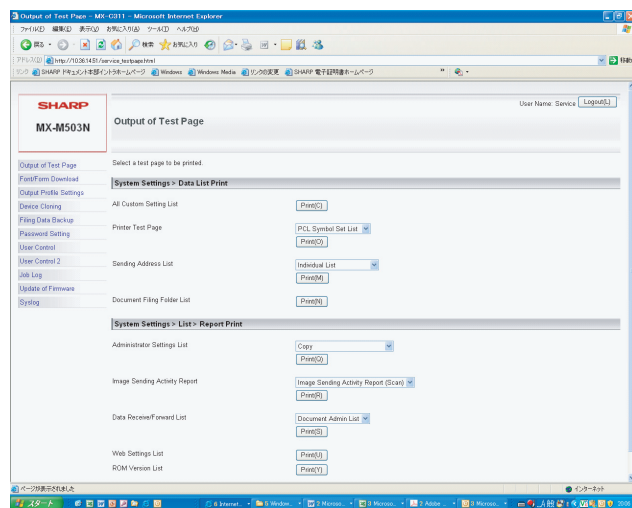
### B. Password Setting



\* The password can be optionally changed in the following procedures.

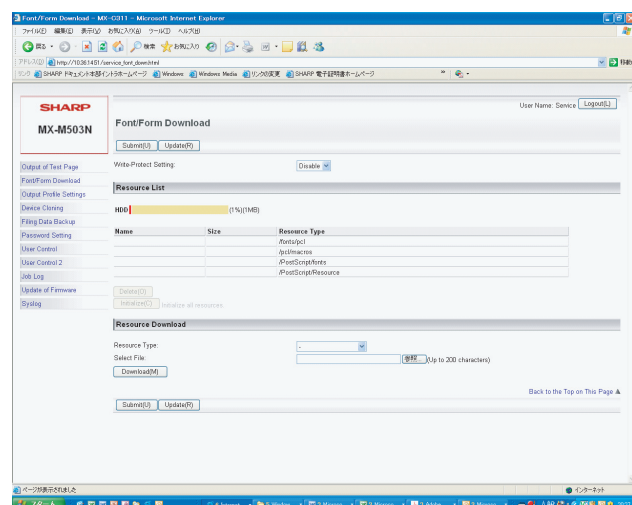
- 1) Enter a new password.
- 2) Enter the new password again to make confirmation.
- 3) Click "Submit" (registration) button.

## C. Output of Test Page



- 1) Click "Print" button of an item or report to be printed.  
When there is a list of items for selection, select one of the items in the pull-down menu list, and click "Print" button.  
The list is printed out.

## D. Font/Form Download



### (1) Download of Font, Form, and Macro

- 1) Select "Resource Type" from the pull-down menu list.  
(Example: PCL/PostScript Font/Form or Macro)
- 2) Click "Refer" button to select a target file.
- 3) Click "Download" button.
- 4) Click "Submit" (registration) button.  
The file is downloaded to the HDD.  
The list of the downloaded files and the use percentage of the HDD are displayed.

### (2) Delete of downloaded font (Procedures to delete a file separately)

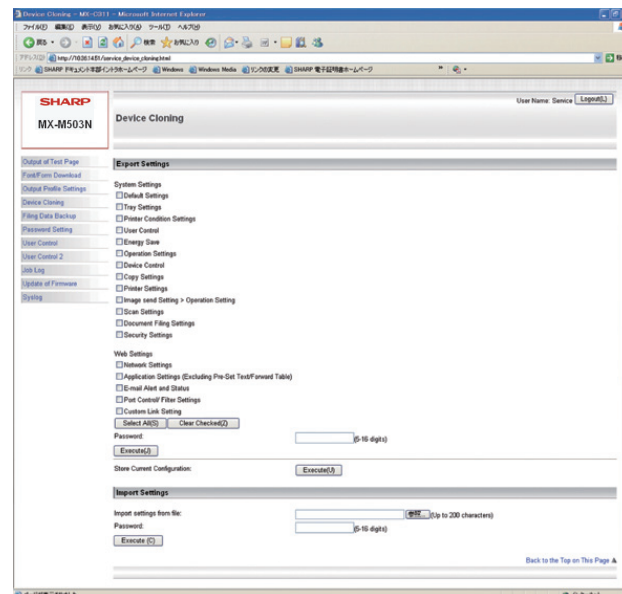
- 1) Select a file to be deleted from the list of the downloaded files, and click "Delete" button.
- 2) Check that the confirmation message is displayed, and press Yes key.
- 3) Click "Submit" (registration) button.  
The file in the HDD is deleted.

### (3) Procedures to delete all the files at a time

- 1) Click "Initialize" button.
- 2) Check that the confirmation message is displayed, and press OK key.
- 3) Click "Submit" (registration) button.

NOTE: By the Write-Protect Setting function, the downloaded files can be set to write protect.

## E. Device Cloning



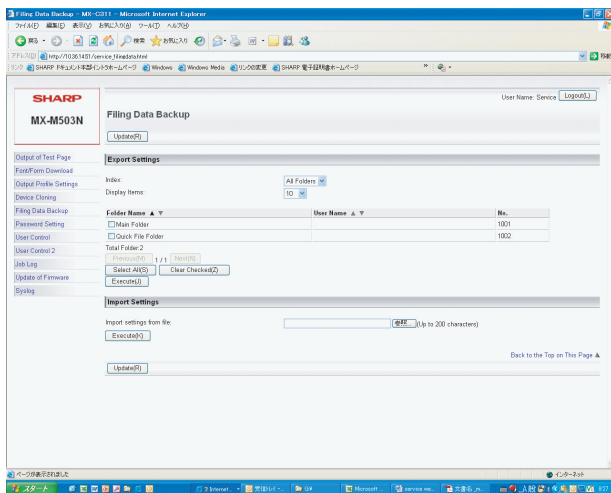
### (1) Export

- 1) Select an item to be backed up.
- 2) Click "Execute" button.  
Specify the save position of the file, and save the file.  
(File name: \*\*\*\*.bin)  
When the password is set, the set password must be entered when importing.

### (2) Import

- 1) Import from a file: Click "Refer" button to select the back-up file. (File name: \*\*\*\*.bin)
- 2) Click "Execute" button to execute import.  
If the password is set when exporting, the password must be entered.
- 3) Reboot the machine.

## F. Filing Data Backup



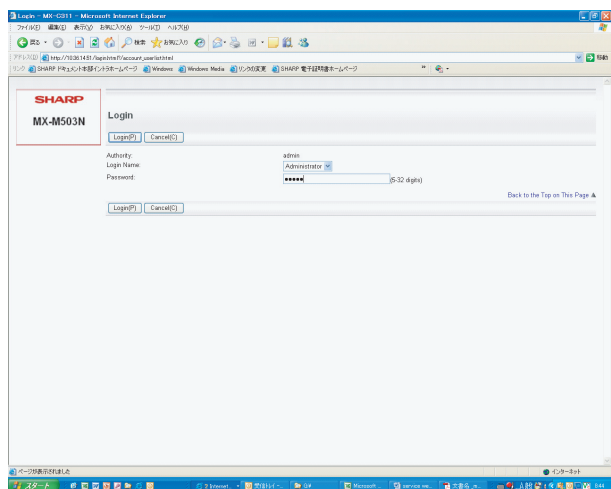
### (1) Export

- 1) Select the folder to be backed up.  
The list display conditions can be specified by changing the index and the number of display items on the pull-down menu.
- 2) Click "Execute" button.  
Specify the save position of the file, and save the file. (File name: \*\*\*\*\*.bin)
- 3) Click "Update" button.

### (2) Import

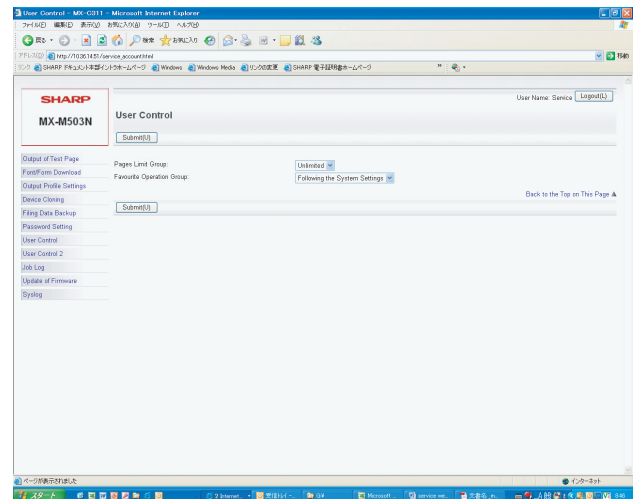
- 1) Click "Refer" button to select a target file. (File name: \*\*\*\*\*.bin)
- 2) Click "Execute" button.  
The target file is imported.
- 3) Click "Update" button.

## G. User Control



- 1) Enter the password to log in.  
Default Password: admin  
The screen is shifted to the setting menu of user management.

## H. User Control 2



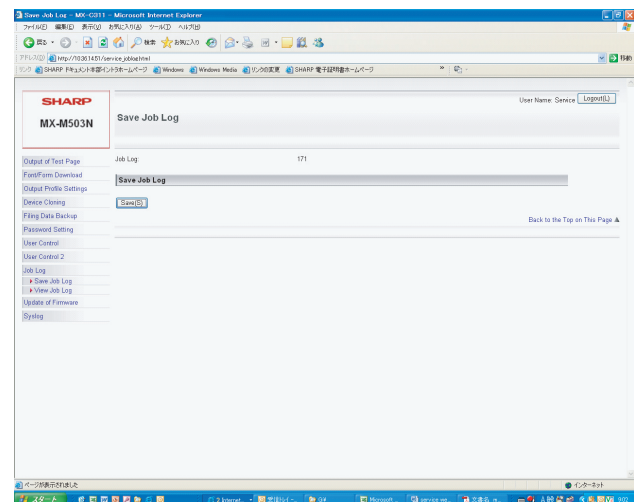
Select the Pages Limit Group and the Favorite Operation Group. (The Pages Limit Group and the Favorite Operation Group must be set in advance.)

(Example of use)

The use sets the conditions for servicing work by using the Pages Limit Group and the Favorite Operation Group functions in advance, and the serviceman selects the set conditions in this mode for servicing work.

## I. Job Log

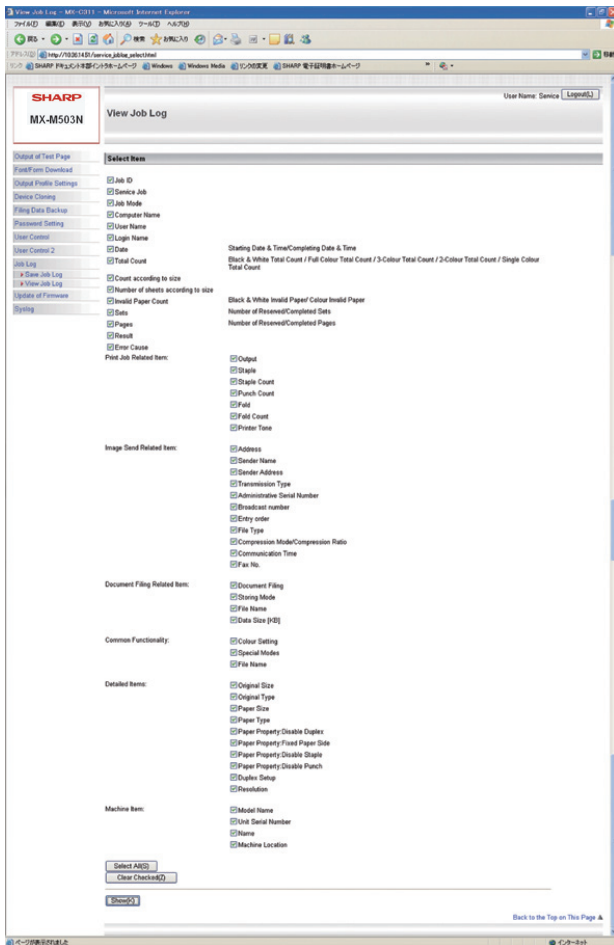
### (1) Save Job Log



- 1) Click "Save" button, and specify the save position of the Job Log to save it.

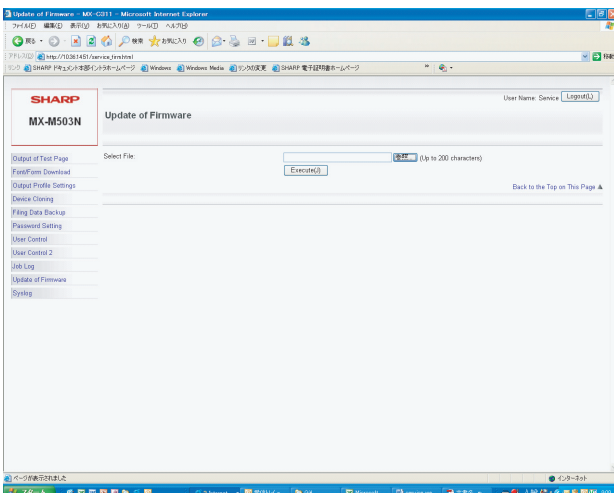


## (2) View Job Log



- 1) Select a Jog Log item to be displayed. (In the default setting, all the items are selected. Remove check marks of the items which are not to be displayed.)
- 2) Click "Show" (display) button.  
The Jog Log is displayed.

## J. Update of Firmware



- 1) Click "Refer" button to select a firmware file.
- 2) After selecting a firmware file, click "Execute" button.  
The firmware data are sent to the machine, and update of the firmware is processed.  
During the process, the message of "Firmware Update, now processing..." is displayed.

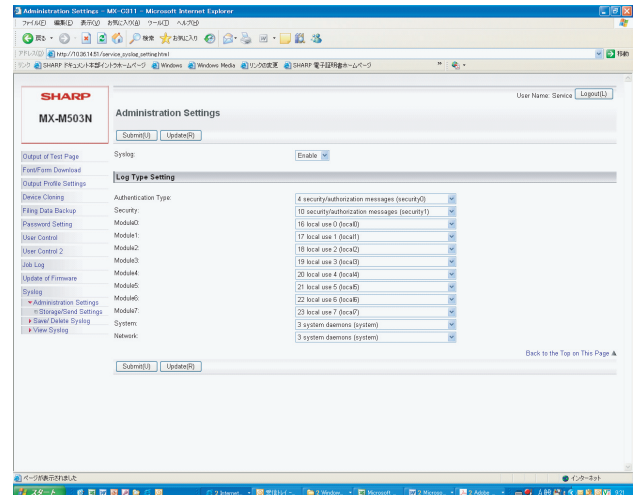
## K. Syslog

There are following functions in the Syslog mode.

This function is provided to acquire the detailed Syslog to trouble-shoot when a trouble occurs.

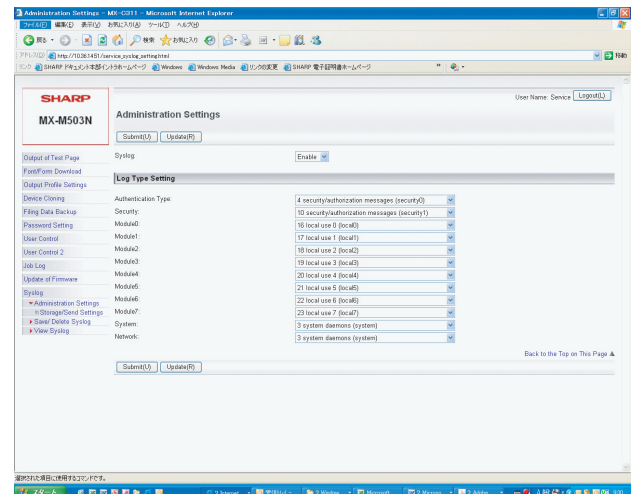
When submission of the log data file is requested for troubleshooting, use the log file save mode to export the log data file to the client PC.

Syslog	Administration Settings	Log Type Setting (Set to the default.)
	Storage/Send Settings	Set all the items selected.
	Save/ Delete Syslog	Log data save, delete
	View Syslog	Log data display



### (1) Administration Settings/ Log Type Setting

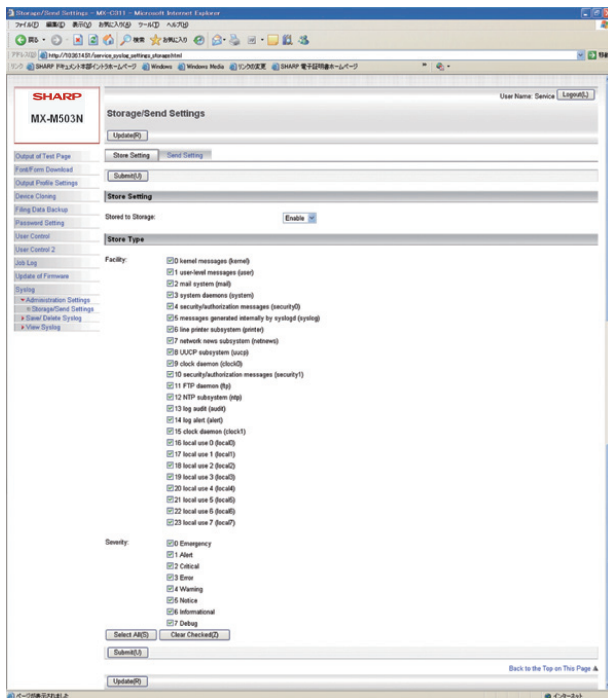
Set to the default.



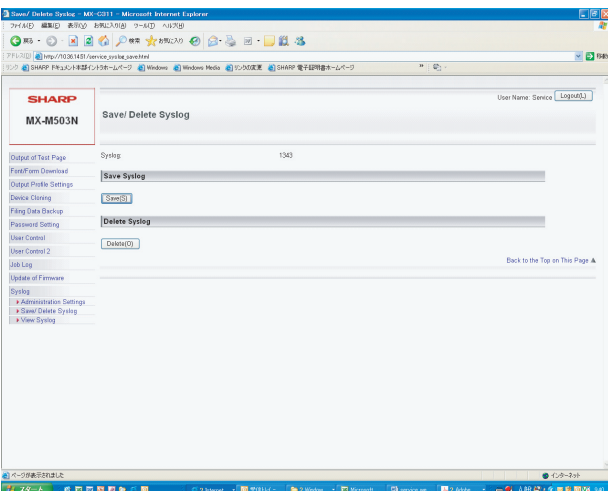


## (2) Storage/Send Settings

Keep all the items selected.



## (3) Save/ Delete Syslog

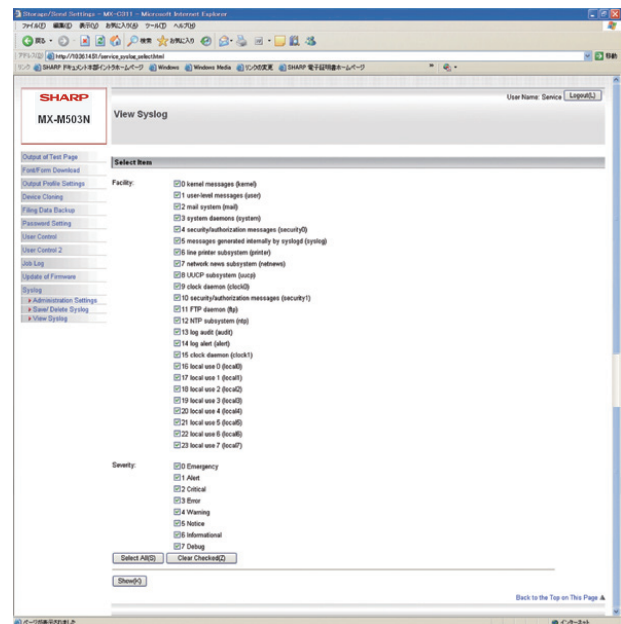


When saving the Syslog, click "Save" button and specify the save position and save it.

When deleting, click "Delete" button.

Check to confirm that the confirmation message is displayed, and press OK key.

## (4) View Syslog



1) Select a Syslog item to be displayed.

2) Click "Show" button.

The Syslog is displayed.

# [11] SPECIFICATIONS

## 1. Basic specifications

### A. Base engine

#### (1) Type

Type	Desktop
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#### (2) Engine composition

Photo-conductor kind	OPC (Drum diameter: $\phi$ 30mm)
Copying method	Electronic photo (Laser)
Developing system	Dry, 2-component magnetic brush development
Charging system	Charged saw-tooth method
Transfer system	Transfer roller
Cleaning system	Counter blade
Fusing system	Heat roller
Waste toner disposal	No toner recycling system / Waste toner bottle system

#### (3) Dimension / Weight

Outer dimension (W x D x H)	MX-M283/M363/M453/M503 N: 25-25/64 x 27-23/64 x 37-33/64 inch (645 x 695 x 953 mm) MX-M363/M453/M503 U: 25-25/64 x 26-3/8 x 37-33/64 inch (645 x 670 x 953 mm) MX-M282/M362/M452/M502 N: • RSPF system: 25-25/64 x 27-23/64 x 37-33/64 inch (645 x 695 x 953 mm) • OC sysem: 25-25/64 x 27-23/64 x 32-25/32 inch (645 x 695 x 833 mm)	
	Machine dimension with the bypass tray extended (W x D). N model: 38-13/16 x 27-23/64 inch (986 x 695 mm) U model: 38-13/16 x 26-3/8 inch (986 x 670 mm)	
Weight	Main unit (including photoreceptor) (not including consumables)	Approx. 209 lbs (95 kg)

#### (4) Warm-up

Warm-up time	20 seconds or less
Pre-heat	Yes

#### (5) First copy time

Engine	28 CPM model	36 CPM model		45/50 CPM model	
		N model	U model	N model	U model
Platen		4.6 second		3.9 second	
RSPF	10.1 second	—	10.1 second	—	9.3 second
DSPF	—	9.5 second	—	8.8 second	—

\* Measuring conditions: A4 (8.5" x 11")

## (6) Engine resolution

	MX-M283/M363/M453/M503 N	MX-M363/M453/M503 U, MX-M282/M362/M452/M502 N
Resolution	Writing Copy: 1200 x 1200dpi 600 x 600dpi *1 Print: 600 x 600dpi 1200 x 1200dpi	Writing Copy: 600 x 600dpi
Gradation	Writing Monochrome Copy: 1200 x 1200dpi *2 1bit 600 x 600dpi *2 1bit *1 Print: 600 x 600dpi *2 1bit 1200 x 1200dpi *2 1bit	Writing Monochrome Copy: 600 x 600dpi *2 1bit Print: 600 x 600dpi *2 1bit

\*1: Default resolution (Copy)

• Printed photo, Text/Photograph, Photograph: 1200dpi

• Automatic, Text, Text/Printed photo, Map: 600dpi

\*2: Equivalent to 256 gradation

## (7) Printable area

A3 Wide *	297 x 420mm	12" x 18" *	279 x 432mm
A3	293 x 413mm	11" x 17"	275 x 425mm
B4	253 x 357mm	8.5" x 14"	212 x 349mm
A4	206 x 290mm	8.5" x 13.5"	212 x 336mm
B5	178 x 250mm	8.5" x 13.4"	212 x 333mm
A5	144 x 203mm	8.5" x 13"	212 x 323mm
Postcard	96 x 141mm	Executive	180 x 260mm
8K	266 x 383mm	8.5" x 11"	212 x 272mm
16K	191 x 263mm	5.5" x 8.5"	136 x 209mm

\* The printable area for A3W/12" x 18" must be as large as the A3/11" x 17" page dimension (297 x 450mm) by PCL/PS driver.

Void area Image loss	Lead edge: 4mm or less Rear edge: 2 mm or more, and 5 mm or less Total of the lead edge and the rear edge: 8mm or less FR total: 4mm±2mm or less
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## (8) Engine speed (ppm)

### a. In case of tray (1-4, LCC) paper feeding

Paper type	Paper size	28 CPM model	36 CPM model	45 CPM model	50 CPM model
Plain paper	A3, 11" x 17", 8K	15	17	20	22
	B4, 8.5" x 14", 8.5" x 13", 8.5" x 13.4", 8.5" x 13.5"	17	20	23	25
	A4R, 8.5" x 11"R, 16KR	20	25	30	30
	B5R, 7.25" x 10.5"R				
	A5R, 5.5" x 8.5"R	18	18	22	22
	A4, B5, 8.5" x 11", 16K	28	36	45	50
	Extra, User-Extra: Paper width 150mm or less	14	16	19	21
	Extra, User-Extra: Paper width over 150mm				
	A3, 11" x 17", 8K	11	11	15	15
	B4, 8.5" x 14", 8.5" x 13", 8.5" x 13.4", 8.5" x 13.5"	14	14	17	17
Heavy paper	A4R, 8.5" x 11"R, 16KR	17	17	21	21
	B5R, 7.25" x 10.5"R				
	A5R, 5.5" x 8.5"R	18	18	22	22
	A4, B5, 8.5" x 11", 16K	28	30	35	35
	Extra, User-Extra: Paper width 150mm or less	11	11	14	14
	Extra, User-Extra: Paper width over 150mm				

## b. In case of manual paper feed tray paper feeding

Paper type	Paper size	28 CPM model	36 CPM model	45 CPM model	50 CPM model
Plain paper	A3, 11" x 17", 8K	15	17	20	22
	B4, 8.5" x 14", 8.5" x 13", 8.5" x 13.4", 8.5" x 13.5"	17	20	23	25
	A4, 8.5" x 11", 16K, B5	28	32	41	41
	B5R, 7.25" x 10.5"R	20	23	30	30
	A4R, 16KR, 8.5" x 11"R				
	A5R, 5.5" x 8.5"R	18	18	22	22
	12" x 18", A3W *1	14	16	19	21
	Extra, User-Extra: Paper width 150mm or less				
	Extra, User-Extra: Paper width over 150mm				
	Envelope	11	11	14	14
Heavy paper	A3, 11" x 17", 8K	11	11	15	15
	B4, 8.5" x 14", 8.5" x 13", 8.5" x 13.4", 8.5" x 13.5"	14	14	17	17
	A4, 8.5" x 11", 16K, B5	28	30	35	35
	B5R, 7.25" x 10.5"R	17	17	21	21
	A4R, 16KR, 8.5" x 11"R				
	A5R, 5.5" x 8.5"R	18	18	22	22
	12" x 18", A3W *1	11	11	14	14
	Extra, User-Extra: Paper width 150mm or less				
	Extra, User-Extra: Paper width over 150mm				
	Postcard HIGH *2	18	18	22	22
	Postcard LOW *2	11	11	14	14
	OHP (A4, 8.5" x 11")	28	30	35	35
	OHP (A4R, 8.5" x 11"R)	17	17	21	21

\*1: ppm when exiting to the finisher (A3W/12" x 18" cannot exit to the center tray)

\*2: Switched by the service simulation setting. Postcard is set Low before shipment.

## (9) Power source

NOTE: Check the shape of the power plug of the machine, and insert it into a power outlet of the acceptable shape.

	100V series	200V series
Voltage / Current	100 - 127V 12A	220 - 240V 8A
Frequency	50/60Hz	
Power source code	Fixed type (Direct connection)	Inlet
Power switch	2 switches (Primary switch: in the front cover; Secondary switch: the operation panel)	

## (10) Power consumption

	100V series	200V series
Max. Rated Power Consumption *1	1.44kW	1.84kW
TEC value	28 CPM model: 3.8 kWh 36 CPM model: 6.6 kWh 45 CPM model: 9.75 kWh 50 CPM model: 11.50 kWh	
Moving time to Pre-heat mode	10 minutes (default)	
Moving time to Sleep mode	1 minutes (default)	

\*1: When the power supply is turned on, when the dehumidification heater is OFF.

## B. Controller board

### (1) Controller board

CPU	Power QUICC II Pro MPC8377E	
Interface		
Ethernet	1 port	
	Interface	10Base-T, 100Base-TX, 1000Base-T
	Support Protocol	TCP/IP (IPv4, IPv6), IPX/SPX, NetBEUI, EtherTalk
USB 2.0 (Host) * Simultaneous connection is inhibited. The total current consumption must not exceed 500mA.	The ports on the front and on the side of the rear section cannot be used simultaneously. (Exclusive use)	
USB 2.0 (high speed) Device	1 port	
Scanner expansion I/F	Yes (N model only)	
Memory	Refer to the section on "(2) Memory, hard disk".	
Memory slot	2 slots (one is empty slot)	

### (2) Memory, hard disk

Memory capacity, HDD capacity

Copier memory (Local Memory)	Standard Memory	MX-M283/M363/M453/M503 N: 640MB *1 MX-M363/M453/M503 U: 320MB *2 MX-M282/M362/M452/M502 N: 576MB *3
	Expansion Memory	No
	Max.	MX-M283/M363/M453/M503 N: 640MB MX-M363/M453/M503 U: 320MB MX-M282/M362/M452/M502 N: 576MB
Printer memory (System Memory)	Standard Memory	1GB
	Expansion Memory	1GB
	Max.	2GB
HDD *5	80GB *4	

\*1: 128MB (on-board) + 512MB

\*2: 64MB (on-board) + 256MB

▲ \*3: 64MB (on-board) + 512MB

\*4: The HDD capacity may vary depending on the production date.

\*5: U model: Option (printer expansion kit with hard drive: MX-PB11)

## C. Operation panel

### (1) Display device

#### a. LCD

	MX-M283/M363/M453/M503 N	MX-M282/M362/M452/M502 N	U model
Size/resolution	8.5inch WVGA	7.0inch WVGA	8.1inch HVGA
Type	Dot matrix LCD, touch panel		
Display dot number	800 x 480 (WVGA)		640 x 240 (HVGA)
Color	Color		Monochrome
LCD drive display area (W x D)	184.8 x 110.88mm	152.4 x 91.44mm	192 x 72mm
LCD back-light	Fluorescent lamp back-light system	LED lamp back-light system	Fluorescent lamp back-light system
LCD brightness adjustment	Yes		

## D. Scanner section

### (1) Resolution/Gradation

Scanning Resolution (dpi)	Platen	600 x 600 dpi 600 x 400 dpi 600 x 300 dpi (Default)	
	RSPF	600 x 600 dpi 600 x 400 dpi (Default)	
	DSPF	600 x 600 dpi 600 x 400 dpi 600 x 300 dpi (Default)	
In sending Resolution (dpi)	Scanner	Internet Fax / Direct SMTP	Fax
	100dpi x 100dpi	200dpi x 100dpi (halftone not allowed)	Standard (203.2 x 97.8 dpi) (halftone not allowed)
	200dpi x 200dpi	200dpi x 200dpi	Fine (203.2 x 195.6 dpi)
	300dpi x 300dpi	200dpi x 400dpi	Super Fine (203.2 x 391 dpi)
	400dpi x 400dpi	400dpi x 400dpi	Ultra Fine (406.4 x 391 dpi)
	600dpi x 600dpi	600dpi x 600dpi	---
Exposure lamp		N model: White LED U model: Xenon	
Reading gradation		10bits	
Output gradation		B/W: 1bit Grayscale (N model only): 8bit Full color (N model only): RGB colors are 8bit each	

### (2) Document table

Type	Document table fixed system (Flat bed)
Scanning area	297 x 432mm
Original standard position	Left bottom reference
Detection	Yes
Detection size	Automatic detection
Dehumidifying heater (Scanner section)	Supplied as a service part

### (3) Automatic document feeder

▲ Type	<b>DSPF</b> (Duplex single pass feeder): MX-M363N/M453N/M503N <b>RSPF</b> (Reversing single pass feeder): MX-M283N/M363U/M453U/M503U, MX-RP11 (option)	
Scan speed	Monochrome (A4 / 8.5" x 11")	Color (A4 / 8.5" x 11") (N model only)
Copy	<b>DSPF</b> Single: 70-sheet/min. (600 x 300 dpi, 1bit) 50-sheet/min. (600 x 400 dpi, 1 bit) 36-sheet/min. (600 x 600 dpi, 1 bit) Duplex: 70-page/min. (600 x 300 dpi, 1bit) 50-page/min. (600 x 400 dpi, 1bit) 36-page/min. (600 x 600 dpi, 1bit)	N/A
	<b>RSPF</b> Single: 50-sheet/min. (600 x 400 dpi, 1 bit) 36-sheet/min. (600 x 600 dpi, 1 bit) Duplex: 20-page/min. (600 x 400 dpi, 1bit) 17-page/min. (600 x 600 dpi, 1bit)	
Fax / Internet Fax	<b>DSPF</b> Single: 70-sheet/min. (200 x 200 dpi, 1 bit) Duplex: 70-page/min. (200 x 200 dpi, 1 bit)	N/A
	<b>RSPF</b> Single: 50-sheet/min. (200 x 200 dpi, 1 bit) Duplex: 20-page/min. (200 x 200 dpi, 1 bit)	
Scanner	<b>DSPF</b> Single: 70-sheet/min. (200 x 200 dpi, 1 bit) Duplex: 70-page/min. (200 x 200 dpi, 1 bit)	<b>DSPF</b> Single: 70-sheet/min. (200 x 200 dpi, 8 bit) Duplex: 70-page/min. (200 x 200 dpi, 8 bit)
	<b>RSPF</b> Single: 50-sheet/min. (200 x 200 dpi, 1 bit) Duplex: 20-page/min. (200 x 200 dpi, 1 bit)	<b>RSPF (MX-M282/M283/M362N/M452/M502 N)</b> Single: 50-sheet/min. (200 x 200 dpi, 1 bit) Duplex: 20-page/min. (200 x 200 dpi, 1 bit)
Original setup direction	Upward standard (1 to N feeding standard)	
Original standard position	Center standard (Rear one-side standard for random feeding) Face Up (1 to N Feeding standard)	
Original transport method	Sheet-through method	
Original size	Standard size: (Refer to the "paper detection size") Long paper: 1000 mm (Monochrome binary only) Internet Fax 600 x 600 dpi: Max. 800 mm. When scan 400 dpi or more, long paper is not available. Mix paper feed (Same series, same width paper) enabled Random paper feed combination Mix feeding available. (same system, same width) Random feeding (feeding of different types / different widths) Only the following combinations of 2 size types are allowed: either A3 or A4 and either B4 or B5; either B4 or B5 and either A4R or A5 and 11-inch and 8.5-inch. AMS available. 2-sided scanning is disabled during random feeding (when the RSPF is used).	

Original copy weight	Single: (Thin paper) 9 - 13 lb bond (35 - 49 g/m <sup>2</sup> ), (plain paper) 13 - 32 lb bond (50 - 128 g/m <sup>2</sup> ) * Thin paper mode (19pages/minute (A4, 8.5" x 11", 600dpi)) is set up for the thin paper. Duplex: 13 - 28 lb bond (50 - 128 g/m <sup>2</sup> )																											
Max. loading capacity of documents	Max. 100 sheets (21lbs Bond, 80g/m <sup>2</sup> ), or Max. height: 1/2 inch, 13mm or less																											
Un-acceptable originals for feeding.	OHP, second original paper, tracing paper, carbon paper, thermal paper, paper with wrinkles, folds, or breakage, pasted paper, cutout document, document printed with ink ribbon, documents with perforation other than 2- or 3-holes (Perforated document by punch unit is allowed.)																											
Detection	Yes																											
Paper detection size (Platen/DSPF/RSPF)	Auto detection (Switching one type of detection unit) <table><tr><td rowspan="8">DSPF/ RSPF</td><td>Inch-1</td><td colspan="2">11" x 17", 8.5" x 14", 8.5" x 11", 8.5" x 11"R, 5.5" x 8.5", A3, A4</td></tr><tr><td>Inch-2</td><td colspan="2">11" x 17", 8.5" x 13", 8.5" x 11", 8.5" x 11"R, 5.5" x 8.5", A3, A4</td></tr><tr><td>Inch-3</td><td colspan="2">11" x 17", 8.5" x 13.4", 8.5" x 11", 8.5" x 11"R, 5.5" x 8.5", A3, A4</td></tr><tr><td>AB-1</td><td colspan="2">A3, B4, A4, A4R, B5, B5R, A5, 11" x 17", 8.5" x 14", 8.5" x 11"</td></tr><tr><td>AB-2</td><td colspan="2">A3, B4, A4, A4R, B5, B5R, A5, 11" x 17", 8.5" x 13", 8.5" x 11"</td></tr><tr><td>AB-3</td><td colspan="2">8K, 16K, 16KR, A3, B4, A4, A4R, A5, 11" x 17", 8.5" x 13", 8.5" x 11"</td></tr><tr><td>AB-4</td><td colspan="2">A3, B4, A4, A4R, B5, B5R, A5, 11" x 17", 8.5" x 13.4", 8.5" x 11"</td></tr><tr><td>AB-5</td><td colspan="2">A3, B4, A4, A4R, B5, B5R, A5, 11" x 17", 8.5" x 13.5", 8.5" x 11"</td></tr></table> * 5.5" x 8.5"R, A5R cannot be detected.			DSPF/ RSPF	Inch-1	11" x 17", 8.5" x 14", 8.5" x 11", 8.5" x 11"R, 5.5" x 8.5", A3, A4		Inch-2	11" x 17", 8.5" x 13", 8.5" x 11", 8.5" x 11"R, 5.5" x 8.5", A3, A4		Inch-3	11" x 17", 8.5" x 13.4", 8.5" x 11", 8.5" x 11"R, 5.5" x 8.5", A3, A4		AB-1	A3, B4, A4, A4R, B5, B5R, A5, 11" x 17", 8.5" x 14", 8.5" x 11"		AB-2	A3, B4, A4, A4R, B5, B5R, A5, 11" x 17", 8.5" x 13", 8.5" x 11"		AB-3	8K, 16K, 16KR, A3, B4, A4, A4R, A5, 11" x 17", 8.5" x 13", 8.5" x 11"		AB-4	A3, B4, A4, A4R, B5, B5R, A5, 11" x 17", 8.5" x 13.4", 8.5" x 11"		AB-5	A3, B4, A4, A4R, B5, B5R, A5, 11" x 17", 8.5" x 13.5", 8.5" x 11"	
DSPF/ RSPF	Inch-1	11" x 17", 8.5" x 14", 8.5" x 11", 8.5" x 11"R, 5.5" x 8.5", A3, A4																										
	Inch-2	11" x 17", 8.5" x 13", 8.5" x 11", 8.5" x 11"R, 5.5" x 8.5", A3, A4																										
	Inch-3	11" x 17", 8.5" x 13.4", 8.5" x 11", 8.5" x 11"R, 5.5" x 8.5", A3, A4																										
	AB-1	A3, B4, A4, A4R, B5, B5R, A5, 11" x 17", 8.5" x 14", 8.5" x 11"																										
	AB-2	A3, B4, A4, A4R, B5, B5R, A5, 11" x 17", 8.5" x 13", 8.5" x 11"																										
	AB-3	8K, 16K, 16KR, A3, B4, A4, A4R, A5, 11" x 17", 8.5" x 13", 8.5" x 11"																										
	AB-4	A3, B4, A4, A4R, B5, B5R, A5, 11" x 17", 8.5" x 13.4", 8.5" x 11"																										
	AB-5	A3, B4, A4, A4R, B5, B5R, A5, 11" x 17", 8.5" x 13.5", 8.5" x 11"																										
Paper feeding direction	Right hand feeding																											
Finish stamp	Option																											
Power source	Provided from main unit																											
Dimensions	W23-13/16 x D20-5/64 x H6-3/32 inch (W605 x D510 x H155 mm)																											

## E. Paper feed section

### (1) Type

Type	Standard: 2-stage paper feed tray + multi manual paper feed tray Full option: 4-stage paper feed tray + multi manual paper feed + LCC
Dehumidifying heater	Service parts (Supported by kit)

### (2) Tray 1, 2 (Main unit)

Paper capacity	Plain paper: 500 sheets (80 g/m <sup>2</sup> )
Paper size	A3, B4, A4, A4R, B5, B5R, A5R, 11" x 17", 8.5" x 14", 8.5" x 13.5", 8.5" x 13.4", 8.5" x 13", 8.5" x 11", 8.5" x 11"R, 7.25" x 10.5"R, 5.5" x 8.5"R, 8K, 16K, 16KR
Paper type	Plain paper, printed paper, recycled paper, letter head, punched paper, colored paper, heavy paper
Feedable Paper Weight	Plain paper: 16 - 28 lb bond (60 - 105g/m <sup>2</sup> ) Heavy paper: 28 lb bond - 110 lb index (106 - 209g/m <sup>2</sup> )
Paper size setting when shipping	AB series; Tray 1: A4, Tray 2: A3 Inch series; Tray 1: 8.5" x 11", Tray 2: 11" x 17"
Paper remaining detection	Yes (Paper empty and 3 levels)

### (3) Manual paper feed tray (main unit)

Paper capacity	Plain paper: 100 sheets (80 g/m <sup>2</sup> ) envelope/OHP: 20 sheets
Paper size	A3W, A3, B4, A4, A4R, B5, B5R, A5R, 12" x 18", 11" x 17", 8.5" x 14", 8.5" x 13.5", 8.5" x 13.4", 8.5" x 13", 8.5" x 11", 8.5" x 11"R, 7.25" x 10.5"R, 5.5" x 8.5"R, envelope, 8K, 16K, 16KR
Paper type	Plain paper, printed paper, recycled paper, letter head, punched paper, colored paper, heavy paper, thin paper, envelope, OHP, label sheet, tab paper
Feedable Paper Weight	Thin paper: 15 lb bond -16 lb bond (56 - 59g/m <sup>2</sup> ) Plain paper: 16 lb bond - 28 lb bond (60 - 105g/m <sup>2</sup> ) Heavy paper: 28 lb bond - 110 lb index (106 - 209g/m <sup>2</sup> )

### (4) Tray 3, 4 (2-stage paper feed tray)

Paper capacity	Plain paper: 500 sheets (80 g/m <sup>2</sup> ) x 2
Paper size	A3, B4, A4, A4R, B5, B5R, 11" x 17", 8.5" x 14", 8.5" x 13.5", 8.5" x 13.4", 8.5" x 13", 8.5" x 11", 8.5" x 11" R, 7.25" x 10.5"R, 8K, 16K, 16KR
Paper type	Plain paper, printed paper, recycled paper, letter head, punched paper, colored paper, heavy paper
Feedable Paper Weight	Plain paper: 16 lb bond - 28 lb bond (60 - 105g/m <sup>2</sup> ) Heavy paper: 28 lb bond - 110 lb index (106 - 209g/m <sup>2</sup> )
Paper size setting when shipping	Maximum position of paper guide width
Paper remaining detection	Yes (Paper empty and 3 levels)
Power consumption	20W (Power is supplied from main unit)
Dimensions (W x D x H)	with adjuster 28-22/64 x 11-15/16 inch, 720 x 670 x 303 mm without adjuster 24-13/64 x 26-3/8 x 11-15/16 inch, 615 x 670 x 303 mm

### (5) Tray 5 (LCC)

Type	3,500-Sheet Large Capacity Tray
Transport speed	124 mm/s - 360 mm/s
Paper size	A4, B5, 8.5" x 11"
Paper size setting	Simulation setup
Paper size setting when shipping	A4
Paper type setting	Yes
Allowable paper type and weight for paper feed	Plain paper, printed paper, recycled paper, letter head, punched paper, colored paper: 16 - 28 lb bond (60 - 105g/m <sup>2</sup> )
Paper capacity	3,500 sheets (80 g/m <sup>2</sup> ) Effective height: 385 mm
Paper remaining detection	Yes (5 levels: 100%, 75%, 50%, 25%, none)
Driving form	The transport motor (DC brush-less motor) and control PWB are built-in to LCC.
Off-center adjustment	± 3mm (Move the regulation plate F/R to adjustment)
Power consumption (without heater)	Normal operation : 26.4W During lift-up : 40.8W
Power source	5V±5% and 24V±5% are supplied from main unit

External dimensions (W x D x H)	14-9/16 x 21-21/32 x 20-15/32 inch, 370 x 550 x 520 mm
Dimensions occupied by Machine (W x D)	14-9/16 x 21-21/32 inch, 370 x 550 (mm) * Clearance with main unit: 235 mm
Weight	Approx. 66.1 lbs, 30 kg
Thermal heater	Standard equipment: AC power is supplied from main unit. And main unit can control ON/ OFF operation.
Optional detection	Auto detection system

## F. Paper exit section

### (1) Center tray of main unit

Paper exit section	Center section of the main unit	Right side paper exit section of the main unit
Paper exit system	Face-down paper exit system	
Paper exit capacity	400 sheets (When A4, 8.5" x 11")	100 sheets (When A4, 8.5" x 11")
Paper exit paper size/ weight	Thin paper: 15 lb bond - 16 lb bond (56 - 59g/m <sup>2</sup> ) Plain paper: 16 lb bond - 28 lb bond (60 - 105g/m <sup>2</sup> ) Heavy paper: 28 lb bond - 110 lb index (106 - 209g/m <sup>2</sup> ) Envelope: 20 - 24 lb bond (75 - 90g/m <sup>2</sup> )	
Shifter function	Yes	No
Paper exit detection	No	
Paper exit full detection	Yes	

### (2) Shifter

Paper weight	15 lb bond - 110 lb index (56 - 209g/m <sup>2</sup> )	
Paper size/type	Non-offset mode	Size: A3W and 12" x 18" are not acceptable Type: Glossy paper are not acceptable
	Offset mode	Size: A3W, 12" x 18", envelope and are not acceptable Type: Envelope, OHP, label paper, tab paper and glossy paper are not acceptable
Offset width	30 mm	
Integrity * In using the recommended paper, A4/8.5" x 11"	Non-offset mode	Getting out: It doesn't fall down from tray
	Offset mode	Getting out: within 50 mm FR shift: within $\pm 10$ mm JOB distance: 10 mm or more

### (3) Paper exit tray

Type	Exit tray unit
Paper exit position/ system	Paper exit to external in the right side of the main unit/Paper exits in face-down
Paper exit capacity	100 sheets (When A4/8.5" x 11")
Paper exit paper size/ type	All of allowable paper for paper feed except envelope, tab paper and gloss paper.
Shifter function	No
Paper exit paper full detection	Yes

## G. Copy functions

### (1) Copy magnification ratio

Copy magnification ratio	Normal ratio	1: 1 $\pm 0.8\%$
	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% (DSPF/RSPF: 25-200%)	
Preset magnification ratio	4 (Reduction 2/Enlargement 2)	
XY zoom	Yes	

### (2) Density/copy image quality process

Exposure mode	Automatic, Text, Text/Printed Photo, Map (600 dpi) Printed Photo, Text/Photograph, Photograph (1200 dpi) * U model: 600 dpi only
Number of manual steps	9 steps
Toner save mode	Yes * Available for Automatic (AE), Text/Printed Photo

### (3) Duplex

System	Non stack system
Paper size	11" x 17", 8.5" x 14" (216 x 356), 8.5" x 13.5" (216 x 343), 8.5" x 13.4" (216 x 340), 8.5" x 13" (216 x 330), 8.5" x 11", 8.5" x 11"R, 5.5" x 8.5"R, A3, B4, A4, A4R, B5, B5R, A5R, 8K, 16K, 16KR
Type and weight of paper which can be passed	Plain paper: 16 lb bond - 28 lb bond (60 - 105g/m <sup>2</sup> ) Heavy paper: 28 lb bond - 110 lb index (106 - 209 g/m <sup>2</sup> )
Paper type	Plain paper, recycled paper, colored paper, letter head, printed paper, punched paper, heavy paper

### (4) Copy functions

Functions	N model	U model
Automatic paper selection	Yes	
Automatic magnification ratio selection	Yes	
Paper type selection	Yes	
Paper type setting	Yes	
Auto tray switching	Yes	
Rotation copy	Yes	
Large rotated copy over A4 width	Yes	
Electronic sort	Yes	
Rotation sort	No	
Job reservation	Yes (99)	
Tray installation priority	Yes	
Program call / registration	Yes (48)	Yes (48)*1/(10)
Program name registration	Yes	
Document paper size input	Yes	
Document paper size registration	Yes	
Indeterminate paper size input	Yes	
Indeterminate paper size registration	Yes	
2-sided copy direction switch	Yes	
Preview function	Yes	

\*1: When the HDD (MX-PB11) is installed.

Special functions		N model	U model
Binding margin (Left and Right/Top)		Yes	
Erase (Edge/Center/center + edge/ side erase)		Yes	
2 in 1		Yes	
Center binding (Centering provided)		Yes	
Large volume document mode		Yes	
Setting change for each bunch		Yes	
Tandem copy * Available only between MX-M283/ M363/M453/M503 series or MX-M282/M362/M452/M502 series		Yes (via network)	Yes (via network) *1
Cover paper insertion		Yes	
Tab paper insertion * Tab Paper Insertion only. No copying on tabs allowed		Yes	
OHP insertion (Inserted paper is automatically selected.)		Yes	
Multi shot (2 in 1 / 4 in 1)		Yes	
Boundary line print		Yes	
Centering		Yes	
Page printing per original page		Yes	
Book copy		Yes	
Tab copy		Yes	
Card shot		Yes	
Stamp	Date print	Yes	
	Text print	Yes	
	Stamp	Yes	
	Page print	Yes	
	User stamp	No	
	Watermark	Yes	Yes*1
Image edit	Photo repeat	Yes	
	Multi-page enlargement	Yes Crop mark printing supported.	
	Mirror image	Yes	
	A3 full bleed	Yes	
	Centering	Yes	
	B/W reverse (B/W copy)	Yes (UK not supported)	
Sharpness		Yes	
Quick file		Yes	Yes*1
Filing		Yes	Yes*1
Proof copy		Yes	Yes*1
Original count		Yes	
Mixed original		Yes	
Random		Yes	
MIX		Yes	
Combination with APS		Yes	
Combination with AMS		Yes	
Slow scan		Yes	
Ignore blank paper		No	
Repeat layout		No	
Chapter inserts		No	
Book division		No	
Move		No	
Shading		No	
Document control (When the Data Security Kit is installed)		Yes	No

\*1: Only when the HDD (MX-PB11) is installed.

## H. Printer function

### (1) Platform

- IBM PC/AT
- Macintosh

### (2) Support OS

#### MX-M283N, MX-M363/M453/M503 N/U

OS		Custom PCL6	Custom PCL5e	Custom PS	PPD
Windows	98 / Me	Yes	Yes	Yes	Yes
	NT 4.0 SP5 or later	Yes	Yes	Yes	Yes
	2000	Yes	Yes	Yes	Yes
	XP	Yes	Yes	Yes	Yes
	XP x 64	Yes	No	Yes	Yes
	Server 2003	Yes	Yes	Yes	Yes
	Server 2003 x 64	Yes	No	Yes	Yes
	Server 2008	Yes	No	Yes	Yes
	Server 2008 x 64	Yes	No	Yes	Yes
	Server 2008R2	Yes	No	Yes	Yes
	Vista	Yes	Yes	Yes	Yes
	Vista x 64	Yes	No	Yes	Yes
	Windows 7	Yes	No	Yes	Yes
	Windows 7 x 64	Yes	No	Yes	Yes
Mac	9.0 - 9.2.2	No	No	No	Yes
	X 10.2.8	No	No	No	Yes
	X 10.3.9	No	No	No	Yes
	X 10.4.11	No	No	No	Yes
	X 10.5 - 10.5.5	No	No	No	Yes
	X 10.6 - 10.6.2	No	No	No	Yes

#### MX-M282/M362/M452/M502 N

OS		Custom PCL6	Custom PCL5e	Custom PS	PPD
Windows	2000	Yes	Yes	Yes	Yes
	XP	Yes	Yes	Yes	Yes
	XP x 64	Yes	No	Yes	Yes
	Server 2003	Yes	Yes	Yes	Yes
	Server 2003 x 64	Yes	No	Yes	Yes
	Server 2008	Yes	No	Yes	Yes
	Server 2008 x 64	Yes	No	Yes	Yes
	Server 2008R2	Yes	No	Yes	Yes
	Vista	Yes	Yes	Yes	Yes
	Vista x 64	Yes	No	Yes	Yes
Mac	9.0 - 9.2.2	No	No	No	Yes
	X 10.2.8	No	No	No	Yes
	X 10.3.9	No	No	No	Yes
	X 10.4.11	No	No	No	Yes
	X 10.5 - 10.5.8	No	No	No	Yes
	X 10.6 - 10.6.2	No	No	No	Yes

### (3) PDL emulation

PCL5e compatibility	Compatible with PCL of Hewlett-Packard.
PCL XL compatibility	Compatible with PCL of Hewlett-Packard.
PostScript 3 compatibility	Compatible with PS3 of Adobe Systems.

### (4) Font

Emulation	Built-in fonts	Option font
PCL5e compatibility, PCL6 compatibility	Roman outline fonts = 80 fonts Line printer font (BMP) = 1 font	Font for bar code = 28 fonts
PostScript 3 compatibility (Option)	—	Roman outline fonts = 136 fonts



## (5) Print channel

USB	USB 1.1: Windows 98*1/Me*1/2000/Server 2003/XP/Vista/7*2/server 2008 USB 2.0 (High Speed): Window 2000/XP/Vista/7*2/server 2008/server 2008R2*2
PSERVER / RPRINT for NetWare environment	Print channel to be used 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 Macintosh environment
FTP	Equipped with the function to print data received via built-in FTP server
NetBEUI	Microsoft NetBEUI compatible print channel
Raw Port (Port9100)	9100 TCP port (Raw Port) supported
HTTP (Web Submit Print)	
POP3 (E-Mail To Print)	

- ▲ \*1: MX-M282N/M362N/M452N/M502N: No support  
\*2: MX-M283N, MX-M363/M453/M503 N/U: No support  
IPP, HTTP and POP3 support SSL.

## (6) Environment setting

Setting item	General
Default setting	Basic settings for using the printer such as the number of copies and the print direction
PCL	Setting of the PCL symbol and fonts
PS	Setting of enabling/disabling of print in case of a PS error, setting of binary data outputting

## I. Image send function

### (1) Mode

Scanner	<ul style="list-style-type: none"> <li>Scan to e-mail</li> <li>Scan to Desktop</li> <li>Scan to FTP</li> <li>Scan to Folder (SMB)</li> <li>Scan to USB memory</li> <li>Scan to e-mail with Meta*1</li> <li>Scan to Desktop with Meta*1</li> <li>Scan to FTP with Meta*1</li> <li>Scan to SMB with Meta*1</li> <li>Scan to e-mail/FTP/Desktop/SMB (Document Admin)</li> </ul>
Fax	<ul style="list-style-type: none"> <li>Fax to Fax (Manual)</li> <li>Fax to e-mail/Internet Fax*1/Fax (Relay transfer)</li> <li>Fax to e-mail/FTP/Desktop/SMB (Inbound routing)*1</li> <li>Fax to e-mail/FTP/Desktop/SMB (Document Admin)</li> </ul>
Internet Fax*1	<ul style="list-style-type: none"> <li>Internet Fax to Internet Fax (Manual)</li> <li>Internet Fax to e-mail/FTP/Desktop/SMB (Inbound routing)*1</li> <li>Internet Fax to e-mail/FTP/Desktop/SMB (Document Admin)</li> </ul>

\*1: For the machine with HDD installed.

### (2) Support system

Mode	Scanner	Internet Fax *1 Direct SMTP *1	Fax
Corresponding server/protocol	SMTP FTP (TCP / IP) SMB HTTP/HTTPS	POP server SMTP server ESMTP server	N/A

\*1: For the machine with HDD installed.

## (3) Support image

Mode		Support image	
		N model	U model
Scanner	File format (Monochrome)	TIFF	
		PDF	
		Encrypted PDF	
		XPS	
	File format (Color/Grayscale)	Color TIFF	N/A
		JPEG	
		PDF	
		Encrypted PDF	
	Compression system (Monochrome)	XPS	N/A
		Non-compression	
		G3 (1-dimensional) = MH (Modified Huffman)	
Internet Fax Direct SMTP	File format (Monochrome)	G4 = MMR (Modified MR)	
		JPEG (High/Middle/Low)	N/A
		High compression PDF (When MX-EBX3 is installed)	
	Compression system (Monochrome)	TIFF-FX (TIFF-F, TIFF-S)*1	
		G3 (1-dimensional) = MH (Modified Huffman)*1	
		G4 = MMR (Modified MR)	
	Compression system (Color/Grayscale)	G3 (1-dimensional) = MH (Modified Huffman)*1	
		G4 = MMR (Modified MR)*1	
Fax	File format (Monochrome)	N/A	
	Compression system (Monochrome)	MH, MR, MMR, JBIG	

Conversion for each page to a file (Available to quantity specification)

\*1: Only when the HDD (MX-PB11) is installed.

### (4) Item number of registration items

Item	No. of registration items
One-touch/Group	1000*1 / 500*2 items Max. number of registration items for one group (500*1 / 300*2 items)
Program	48*1 / 8*2 items
Memory box	Total of bulletin board / confidential letter / relay and broadcast: 100*1 / 30*2 items (Fax)
Sender registration	Fax, Internet Fax*1: 1 item
User list (Return address list)	Scanner: 1,000*1 / 200*2 items
Transfer table list	Fax, Internet Fax*1: 1 item
Sender selection	18 items
Item name	30 items
File name	30 items
Polling allow number	Fax: 10 items

\*1: For the machine with HDD installed.

\*2: For the machine without HDD installed.



## (5) Image processing

Mode	Scanner	Internet Fax *1 Direct SMTP *1	Fax
Original scanning color	Black-white	Yes	Yes
	Grayscale	Yes*2	N/A
	Full color	Yes*2	N/A
	Auto Color Selection	N/A	
Halftone reproduction	Equivalent to 256 gradations levels	Equivalent to 256 gradations levels	
Density adjustment	Auto	Yes (Color/ Gray: Text/ Printed 3) *2	Yes
	Manual	5 steps	
Original document type (Selectable in manual mode)	Text	Yes	N/A
	Text/ Photograph	Yes	N/A
	Text/Printed photo	Yes	N/A
	Photograph	Yes	N/A
	Printed photo	Yes	N/A
	Map	Yes	N/A
Magical scan (Area division + Suppress Background)	N/A		
Selection of image quality	N/A	Halftone (Black-white only) ON/OFF	
Resolution (depends on file format/transmission method)	100 x 100dpi	200 x 100dpi (Halftone not allowed)	Normal text (203.2 x 97.8dpi) (Halftone not allowed)
	200 x 200dpi	200 x 200dpi	Fine (203.2 x 195.6dpi)
	300 x 300dpi	200 x 400dpi	Super Fine (203.2 x 391dpi)
	400 x 400dpi	400 x 400dpi	Ultra Fine (406.4 x 391dpi)
	600 x 600dpi	600 x 600dpi	N/A
Moire reduction mode	Yes	N/A	

\*1: For the machine with HDD installed.

\*2: N model only.

## (6) Specification of addresses

Mode	Scanner	Internet Fax *1 Direct SMTP *1	Fax
Scan to Me	In user authentication scan send, the e-mail address of the user who has logged in is used as the default address.		
Address setting	Setting by one-touch/group/direct address entry, entry from externally-connected keyboard and selection from LDAP server are available * Modes for direct address setting is allowed: e-mail / Internet Fax (including Direct SMTP)*1/ Fax/SMB*1		
Default address setting *2	Yes	N/A	
Number of one-touch address key registration	Total (number of key): Max. 1000*1/500*5 (Total registrable number for FTP/SMB/Desktop is 200*1/100*5 at max.)		
Number of Group (1 key) address registration	Max. 500*1/300*5		
Number of Group key registration of direct entry	5000*1/100*5 (Total address number included in 1000*1/500*5 key)		
Program	48*1/8*5 (Group/one-touch)		

Mode	Scanner	Internet Fax *1 Direct SMTP *1	Fax
Direct entry of addresses	• Entry using Soft keyboard or an external keyboard *1 • Yes (SMB: No) *5		Entry by 10-key, # key, * key
Directory walking (Refer/Search)	• Yes (SMB) *1 • No *5	N/A	
Chain dial	N/A		Yes (by pause key)
Resend	Call up nearest 8 addresses sent as a single destination. *3		
Destination confirmation	N/A		Yes
Shortcut for address selection (Quick key)	Use the 10-key to call up registered numbers of addresses.		
CC/BCC sending	Yes	N/A	
Subject	Select from the list /direct entry		N/A
Subject registration	30		N/A
Direct entry of subject	Yes		N/A
File name	Select from the list /direct entry		N/A
File name registration	30		N/A
Direct entry of file name	Yes		N/A
Reply-To	Select from the list/direct entry/ select from LDAP server	N/A	N/A
Transmission message (message body)	• Yes *1 • No *5		N/A
Transmission message selection	• Select from the list/direct entry *1 • No *5		N/A
Number of letters of transmission message	• Max. of 1800 half-width letters.*1 • No *5		N/A
Preset mail footer *4	Yes		N/A
Disable Registering Destination from Operation Panel	Yes		
Disable registration destination on Web page	Yes		
Disable registration using the network scanner tool	Yes	N/A	
Disable [Retry] on Fax/Image send mode	Yes		
Disable selection from the address book	Yes		
Disable direct entry	Yes		
Disable broadcast setting	No		
Disable PC-Internet Fax sending	N/A	Yes	N/A
Disable PC-Fax sending	N/A	N/A	Yes

\*1: For the machine with HDD installed.

\*2: The scanner mode allows setting the default address. To transmit data, users only have to set the original and press the start key.

\*3: Desktop, USB memory, SMB, FTP and broadcast are not included.

\*4: Function to set up a text message that will be added automatically to the message body upon e-mail transmission. Editing upon transmission is not allowed.

\*5: For the machine without HDD installed.

## (7) Specification of multiple addresses

Mode	Scanner	Internet Fax *1 Direct SMTP *1	Fax
Broadcast	Yes (e-mail/ FTP/Desktop/ SMB available)	Yes	
Number of Broadcast destinations	500*1/300*2 (For FTP/SMB/Desktop, max. 200*1/100*2 items)		
Request of serial transmission	N/A		Yes

\*1: For the machine with HDD installed.

\*2: For the machine without HDD installed.

## (8) Transmission functions

Mode	Scanner	Internet Fax *1 Direct SMTP *1	Fax
Memory transmission	94*1/47*2 destinations in all		
On-hook	N/A		Yes
Quick on-line transmission	N/A		Yes
Direct transmission (Switching: Memory transmission ↔ Direct transmission)	N/A		Yes
Manual transmission setting	N/A		No
Automatically reduced transmission	N/A		Yes
Rotated transmission	N/A	Yes	
Scaled transmission	Yes Enlargement/reduction is allowed only from a fixed size to another.		
Recall mode	Error	N/A	Yes
	Busy	N/A	Yes (Direct SMTP)
		N/A	Internet Fax: only number is set. Direct SMTP: Number/times set in the System Settings.
Long original transmission	Yes Max. of 1000mm (1-side only/black-white binary only) Internet Fax, 600 x 600dpi: Max. of 800mm (only for the machine with HDD installed) Scanner, 400dpi or more: impossible		
Change of the number of pages for each file	Yes	N/A	
Job partition through recognition of white paper.	No	N/A	
Ignore blank paper	No	N/A	
Restriction on transmission size	Yes (Direct SMTP doesn't have limitation)		No
Drop-out color	No	N/A	
Finish stamp function	Yes (option)		
Confidential transmission (Sharp mode)	N/A		No
Relay broadcast transmission (Sharp mode)	N/A		No
Job build mode	Yes		
Thin paper scan mode	Yes		
Mixed originals feeder	Yes (random + MIX)		
Default date sender transmission (ON only)	N/A	Yes	

Mode	Scanner	Internet Fax *1 Direct SMTP *1	Fax
Preview	Yes (N model only)		
Edge erase (Edge/Edge + center/ center/side)	Yes		
Original count	Yes		
Book division	No		
Fax destination confirmation (Preventing mistarnsmittion)	N/A		Yes

\*1: For the machine with HDD installed.

## (9) Reception function

Mode	Scanner	Internet Fax *1 Direct SMTP *1	Fax
Automatic reception	N/A	Yes	
Manual reception	N/A	Yes (Direct SMTP: No)	Yes Switching from manual reception to automatic reception. Allowed only for France.
Switching from manual reception to automatic reception	N/A		Yes (France only)
Fixed size reduced reception	N/A	Yes	
Specified size scaled reception	N/A	No	
Rotated reception	N/A	Yes	
Setting of received data print condition	N/A	N/A	Yes
2-sided reception	N/A	Yes	
2 in 1 reception	N/A	No	
A3 RX automatic reduce print (Inch type and Fax using destinations only)	N/A	Yes	
Letter Size RX automatic reduce print (AB type and Fax using destinations only)	N/A	Yes	
Allowing Address/Domain setting reception	N/A	Yes (50 domains)	N/A
Not allowing Address/Domain setting reception. (To be rejected)	N/A	Yes (50 domains)	N/A
Allowing reception from a specific number.	N/A		Specified numbers only (50*1 (30*2) numbers/ 20 digits)
Not allowing reception from a specific number. (To be rejected)	N/A		Specified numbers only (50*1 (30*2) numbers/ 20 digits)
Automatic switching of phone/Fax.	N/A		No
External phone connection remote	N/A		Yes
Answering phone connection	N/A		No
Dial-in	N/A		No
Confidential reception (Sharp mode)	N/A		No
Received data bypass output	N/A	Yes	

Mode	Scanner	Internet Fax *1 Direct SMTP *1	Fax
Reception confirmation cycle setting	N/A	Yes (Setting by 0-8 hours/each minute) (Direct SMTP: No)	N/A
POP3 communications time-out setting	N/A	Yes (Setting by 30-300/each 30 seconds) (Direct SMTP: No)	N/A
Index printing	N/A	No	
Body text print setting	N/A	Yes	N/A
Transfer function during output is disabled.	N/A	Yes (1 transfer receiver can be registered each.)	
Inbound routing (Internet Fax/Fax receive data network transfer)	N/A	Yes (only for the machine with HDD installed) 1) Formats can be selected. (PDF/Single TIFF/Multi TIFF/XPS) 2) Destinations: e-mail/FTP/SMB/Desktop 3) Information about the MFP that transfers the data is added to the transferred data. 4) Transmission table has timetable. 5) Transfer by judging the line kind is enabled. (Fax/Internet Fax) 6) When a communication error occurs in reception data file transfer, the file is transferred to the specified e-mail address.	
Exit tray setting	N/A	Yes	
Insertion of job Separator sheet	N/A	No	
Print number setting of received data	N/A	No	Yes
Staple function of received data	N/A		Yes
Auto wake up print	N/A	Yes	
Hold Setting for Received Data Print (ALL RX data into the Memory regardless)	N/A	Yes	
Foot print	N/A	Yes	
Image Check (Preview)	N/A	Yes (Users can check received data before printing it) (N model only)	
Alternative reception number	N/A	<ul style="list-style-type: none"> <li>• 100 (Total of Internet Fax and Fax)*1</li> <li>• 50*2</li> </ul>	

\*1: For the machine with HDD installed.

\*2: For the machine without HDD installed.

## (10) Report/list function

Mode	Scanner	Internet Fax *1 Direct SMTP *1	Fax
Communication report table	Yes Time-specified output/ Output when memory is full Scanner: only manual output * Maximum of 200*1/50*2 reports including both transmission and reception		
Communication result table	N/A	Yes	
Address/phone number table	Yes		
Group table	Yes		
Program table	Yes		
Memory box table (F code)	N/A		Yes
Notification table of clearing memory (During error)	<ul style="list-style-type: none"><li>• No *1</li><li>• Yes *2</li></ul>	N/A	

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Mode	Scanner	Internet Fax *1 Direct SMTP *1	Fax
Communication original contents print	N/A	Yes	
List of allowed or not allowed numbers for reception	N/A		Yes
List of allowed or not allowed addresses for reception	N/A	Yes	N/A
Inbound routing Table list	No	Yes (only for the machine with HDD installed)	
Document Admin list	Yes		
All settings list	Yes		
Web setting list	Yes		

\*1: For the machine with HDD installed.

\*2: For the machine without HDD installed.

## (11) Other functions

Mode	Scanner	Internet Fax *1 Direct SMTP *1	Fax
Time specification	<ul style="list-style-type: none"> <li>• Yes*1</li> <li>• No*2</li> </ul>	Yes	
Polling reception	N/A		Yes
Bulletin board transmission	N/A		Yes Up to 100*1/30*2 registrations allowed with bulletin board, confidential and relay broadcast all combined. (Free area: 1 registration) Setting of the number of transmission: 1/no limit.
Cover sheet function	N/A		
Transmission message	N/A		
Sender print	N/A	Yes	
Sender selection	N/A		Yes
Page number print	N/A	Yes	
Date print	N/A	Yes (Date indication can be changed)	
Polling protection function	N/A		Yes
Page partition transmission	Yes		
Page connection	No		
Confidential transmission	N/A		Yes (F code method)
Relay broadcast instruction Transmission	N/A		Yes (F code method)
Relay broadcast transmission (Fax to e-mail/ Internet Fax/ Fax (F code) *3	N/A		<ul style="list-style-type: none"> <li>• Yes *1</li> <li>• Yes (Fax to e-mail/ Internet Fax/ Fax only) *2</li> </ul>
2 in 1 transmission	No <ul style="list-style-type: none"> <li>• Allowed for Fax/Internet Fax broadcast *1</li> <li>• Allowed for Fax broadcast *2</li> </ul>	Yes	

Mode	Scanner	Internet Fax *1 Direct SMTP *1	Fax
Suppress background	Yes *1 (Only color and grayscale)	N/A	
Card shot	Yes (Magnification ratio 63-400%)		
Transmission confirmation	N/A	Yes Time-out time can be set from 1 minute - 240 hours by each minute (Direct SMTP: No)	N/A
Forwarding sent and received data (Document Admin)	Yes Forwarding data formats can be selected. (Single TIFF/ Multi TIFF/PDF/XPS) (Scan to e-mail/FTP/SMB/ Desktop/PC-Internet Fax*1/PC-Fax/Fax/Internet Fax*1 are also supported) Folder setting by each of send and receive is supported.		
Number of Job status indication	99*1/50*2		

\*1: For the machine with HDD installed.

\*2: For the machine without HDD installed.

\*3: Function that enables settings of e-mail/Internet Fax/Fax addresses as destinations of F-code broadcast.

## (12) Record size

Mode	Scanner	Internet Fax *1 Direct SMTP *1	Fax
Maximum record width	N/A	293mm	
Record size	N/A	A3 - A5/11" x 17" - 5.5" x 8.5"	

\*1: For the machine with HDD installed.

## (13) Registration-related setting

Mode	Scanner	Internet Fax *1 Direct SMTP *1	Fax
One-touch/group *1 e-mail/ FTP/ Desktop/ SMB/ Internet Fax (Direct SMTP)/ Fax	1000*3/500*4 destinations LDAP can be used.		
Maximum registration number per group dial	500*3/300*4 addresses		
One-touch name registration	36 characters in full and half size		
One-touch dial receiver number registration (Fax)	Up to 64 digits including receiver number, sub-address and passcode (including "f").		
Group name registration	36 characters in full and half size		
Address book registration from Resend screen	No		
Default address setup	Yes	N/A	
Desktop registration (Registration by using Web or NST (network scanner tool))	Yes	N/A	
SMB destination registration (Can be registered on the Web.)	Yes	N/A	
FTP destination registration (Can be registered on the Web.)	Yes	N/A	
Program Addresses (One-touch, groups), settings (density, image quality, resolution, original setting) and special functions can be registered in one set.	48*3/8*4		

Mode	Scanner	Internet Fax *1 Direct SMTP *1	Fax
Number of memory boxes (Including bulletin board/ confidential/relay broadcast)	N/A		100*3/30*4
Memory box registration name	N/A		Up to 18 characters in full and half size
Reply-To registration	1000*3/200*4 (user registration from Web)	N/A	
Number of sender registration	N/A	1 (20 characters) Only one sender is registered, and Internet Fax*3/ Fax addresses or phone numbers are registered in the name part. (40 characters in half size is available by soft switch setting)	
Number of sender selection registration	N/A	N/A	Total: 18 (20 characters) (In addition to default, 18 registrations available) (40 characters in half size is available by soft switch setting)
Registration of polling approval number	N/A		Yes 10 numbers/ 20 digits
Registration of Fax system number (Sharp mode)	N/A		No
Registration of Fax polling approval ID number (Sharp mode)	N/A		No
Fax relay ID registration (Sharp mode)	N/A		No
Quick key (short cut registration) *2	Yes (0001 - 1000*3 / 0001 - 500*4)		
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 (including Direct SMTP)/Fax uses the common address book, the number of addresses allowed for registration is the sum total of all modes.

\*2: Quick key is the function to select an address based on the registered number of each address within the book for address selection. Users can select a quick key number.

\*3: For the machine with HDD installed.

\*4: For the machine without HDD installed.

## (14) Sound settings

Mode	Item	Scanner	Internet Fax *7 Direct SMTP *7	Fax
On-hook sound	Sound volume setting		N/A	Yes*2
Sound volume for calling	Sound volume setting		N/A	Yes*6
Ring tone	Sound volume setting		N/A	N/A
Line monitor sound	Sound volume setting		N/A	Yes*6
Reception sound	Sound volume setting	N/A	Yes*1	No
Reception finish sound	Sound volume setting		N/A	Yes*6
	Sound pattern		N/A	Yes*3
	Time setting for communication ending sound		N/A	Yes*4
Transmission finish sound	Sound volume setting		N/A	Yes*6
	Sound pattern		N/A	Yes*3
	Time setting for communication ending sound		N/A	Yes*4
Transmission and reception error sound	Sound volume setting		N/A	Yes*6
	Sound pattern		N/A	Yes*3
	Time setting for communication ending sound		N/A	Yes*5
Communication error sound	Sound volume setting	N/A	Yes*1	No
Sound setting for end of original reading (image send)	Sound volume setting		Yes*1	

\*1: Setup by system setting.

\*2: 9 steps. Setup by system setting.

\*3: PATTERN 1/2/3/4. Setup by system setting.

Different sound should be selectable for each of reception/transmission success/transmission and reception error.

\*4: Setup by system setting. 5 steps of 2.0 - 4.0 seconds.

\*5: Setup by system setting. 2-steps setting by very 0.3 or 0.7 second.

\*6: 10 steps (including no sound). Setup by system setting.

\*7: For the machine with HDD installed.

## (15) Others

Mode	Scanner	Internet Fax *1 Direct SMTP *1	Fax
PC-Internet Fax	N/A	Yes	N/A
PC-Fax		N/A	Yes
FAST		N/A	Yes (North America only)
Network FAST		N/A	No
Distinctive ring detection		N/A	Setting for each destination
Trial mode	Scanner*2: Yes Meta data: Yes	No	N/A
Linearized PDF	Yes Supported with Net Scan Tool		N/A

\*1: For the machine with HDD installed.

\*2: U model: only for B/W scanner

## J. PC-Fax, PC-Internet Fax functions

### (1) Working environment

OS	<ul style="list-style-type: none"> <li>Windows 98 *1</li> <li>Windows Me *1</li> <li>Windows NT4.0 Workstation *1 (Service Pack5, IE4.0 or more)</li> <li>Windows 2000</li> <li>Windows XP</li> <li>Windows XP x 64</li> <li>Windows Server 2003</li> <li>Windows Server 2003 x 64</li> <li>Windows Server 2008</li> <li>Windows Server 2008 x 64</li> <li>Windows Vista</li> <li>Windows Vista x 64</li> <li>Windows 7</li> <li>Windows 7 x 64</li> </ul>
PC	IBM PC/AT compatible machine
CPU	Pentium II 300MHz or more
Monitor	Screen resolution: 640 X 480 pixel or above Number of colors: 256 colors or above
Memory	64 MB or more
HDD	Empty capacity of 50MB or above
Interface	USB 2.0 10BASE-T/100BASE-TX 1000BASE-T
Communication protocol	LPR / lp Port9100 (RAW) IPP USB2.0

▲ \*1: MX-M282N/M362N/M452N/M502N: No support

### (2) Functions

PC-Internet Fax send	Yes (Internet Fax expansion kit is required) Internet Fax address: max. 64 digits		
PC-Fax send	Yes (When Fax is installed) Fax number max. 64 digits (including sub-address and passcode)		
Resolution	200 x 100dpi / 200 x 200dpi / 200 x 400dpi / 400 x 400dpi / 600 x 600dpi* * Internet-Fax/Direct SMTP only Windows 2000 type is only supported.		
Send document size	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 system	MH / MMR		
Broadcast send	Yes (Mix of Fax and Internet Fax is available. Max. 500 items)		
F-code send	Yes	Sub address	Yes (Max. 20 digits)
		Pass code	Yes (Max. 20 digits)
Telephone book registration, Send function	Yes		
Use of MFP phone book	No		
Covering letter attachment function	Yes (Not allowed for broadcast transmission)		
Covering letter making function	Yes		
Sender print	Prints always		
Preview	Yes		
Delivery confirmation (Notification to PC by NJR)	Yes		
Document filing function	Filing (only for the machine with HDD installed)		
	Automatic temporary save (only for the machine with HDD installed)		
PC-Fax send log	Yes (Re-transmission not allowed)		
User authentication	Yes		
Timer	No (MX-M283N, MX-M363/M453/M503 N/U) / Yes (MX-M282N/M362N/M452N/M502N)		

## K. Document filing function/Print hold function

(\*1): Sharp Standard Chart/ binary monochrome

### (1) Basic function

#### Document filing (For the machine with HDD installed)




Number of files that can be saved in the standard folder/user folder	<b>38GB</b> • 20,000 pages or 3,000 files (*1)
Number of files that can be saved in temporary file folders.	<b>12GB</b> • 10,000 pages or 1,000 files (*2)
Number of folders that can be made as user folders.	Max. 1,000 folders
Number of users which can be registered	Same as that of account users of the main unit (1,000)

(\*1): When the standard document (binary) is used.

(\*2): When the standard document (gray) is used.

#### Print hold (For the machine without HDD installed)

Number of files that can be saved	512 pages or 512 files (*1)
Number of users which can be registered	Same as that of account users of the main unit (200)

	Color (N model only)	Gray	Monochrome (Binary mode)
Original	gregfruit 	test sheet C 	test sheet C 
38GB	2,500	5,500	20,000
12GB	800	1,700	10,000

### (2) Data operation by each function

Job	N model/U model + MX-PB11				U model	
	Each folder in the standard folder /user folder		Temporary folder		Print hold	
	Sharing storage	Confidential storage	Sharing storage	Confidential storage	Sharing storage	Confidential storage
Copy	Yes	Yes	Yes	No	N/A	N/A
Printer	Yes	Yes	Yes	No	Yes	Yes
Direct print (FTP pull)	No	No	Yes	No	Yes	No
Direct print (FTP push)	No	No	Yes	No	Yes	No
Direct print (USB pull)	No	No	Yes	No	N/A	N/A
Direct print (e-mail push)	Yes	No	Yes	No	Yes	No
Direct print (Web push)	No	No	Yes	No	Yes	No
Direct print (SMB pull)	No	No	Yes	No	Yes	No
Scan to e-mail/FTP	Yes	No	Yes	No	N/A	N/A
Scan to Desktop	Yes	No	Yes	No	N/A	N/A
Scan to SMB	Yes	No	Yes	No	N/A	N/A
Scan to USB memory	No	No	No	No	N/A	N/A
Scan to HDD	Yes	Yes	No	No	N/A	N/A
Internet Fax reception	No	No	No	No	N/A	N/A
Internet Fax send	Yes	No	Yes	No	N/A	N/A
Fax reception	No	No	No	No	N/A	N/A
Fax send	Yes	No	Yes	No	N/A	N/A
PC Fax / PC-Internet Fax send	Yes	Yes	Yes	No	N/A	N/A
Data input	Yes	No	Yes	No	N/A	N/A
Remote PC Scan	No	No	No	No	N/A	N/A

### (3) Data operation contents

Operation content		N model/U model + MX-PB11		U model	
		WEB	Operation panel	WEB	Operation panel
Reprint		Yes		No	Yes
Resend		Yes		No	
Delete		Yes		No	Yes
Shift		Yes		No	
Attribute change (Common/Confidential/Protection)		Yes		No	
Confidential file setting (Password: max. of 8 digit numbers)		Yes		No	Yes
Confidential folder setting (Password: max. of 8 digit numbers)		Yes		No	
File name change		Yes		No	
Creation of a folder		Yes		No	
File transfer to Local PC, FTP server (Data backup)		Yes	No	No	
Backup scheduling setting		No		No	
Auto backup upon obstruction at trouble		No		No	
Machine HDD occupying rate display		Yes		No	
Preview	Preview before storing in Scan to HDD	N/A	Yes*1	No	
	Checking stored image data	Yes*1 (The print data displays only the first page.)		No	
Retrieval		Yes		No	
Changing file format		Yes		No	
Collective print		Yes		No	
Delete with the time specified		Yes		Yes	
Connection of different files		No		No	
Multi file selection (print only)		Yes		No	

\* During the above setting on the operation panel, web access is disabled.

\*1: N model only

### (4) Reprint / resend limitation items for each job

User's selection section					Reprint (Monochrome only)		
Mode	Job kind	Selected color mode					
		N model	U model + MX-PB11	U model	N model	U model + MX-PB11	U model
Printer	Printer	No selection available			Yes		
Copy	Copy	No selection available			Yes		N/A
Image send	Scan send	Full color Grayscale Binary B/W	Binary B/W	N/A	Yes		N/A
	Internet Fax send	No selection available			Yes		N/A
	Fax send	No selection available			Yes		N/A
Document filing	Scan to HDD	<ul style="list-style-type: none"> <li>Full color</li> <li>Grayscale</li> <li>Binary B/W (Send allowed mode)</li> <li>Binary B/W (High capacity mode)</li> </ul>	<ul style="list-style-type: none"> <li>Binary B/W (Send allowed mode)</li> <li>Binary B/W (High capacity mode)</li> </ul>	N/A	Yes		N/A

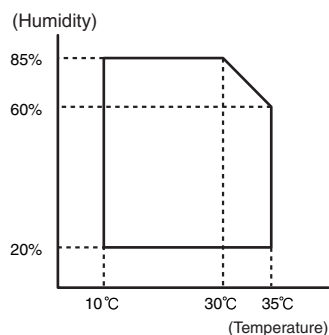
		N model/U model + MX-PB11	U model
Functional settings for reprint	Basic function	Number of copies, finishing, selecting paper, duplex	
	Special modes	Saddle stitch, 2 in 1/4 in1, margin shift, stamp, document control (when data security kit is installed: MX-MxxxN only), tandem print	N/A

User's selection section					Resend		
Mode	Job kind	Selected color mode					
		N model	U model + MX-PB11	U model	N model	U model + MX-PB11	U model
Printer	Printer	No selection available			N/A		
Copy	Copy	No selection available		N/A	Yes		N/A
Image send	Scan send	Full color	Binary B/W	N/A	Yes: Full color/ Binary B/W	Yes	N/A
		Grayscale			Yes: Grayscale		
		Binary B/W			Yes: Binary B/W		
	Internet Fax send	No selection available		N/A	Yes		N/A
	Fax send	No selection available		N/A	Yes		N/A
Document filing	Scan to HDD	Full color	Binary B/W (Send allowed mode)	N/A	Yes: Full color/ Binary B/W	Yes	N/A
		Grayscale			Yes: Grayscale		
		Binary B/W (Send allowed mode)			Yes		
		Binary B/W (High capacity mode)	No		No		

Functional settings for resend	Basic function	Format, resolution, image quality, transmission details settings, meta-data input
	Special modes	Time specification, sender print, sender selection, communication result table

## L. Ambient conditions

### (1) Working environment



Standard environmental conditions	Temperature	20 – 25 °C
	Humidity	65 ± 5 %RH
Usage environmental conditions	Temperature	10 – 35 °C
	Humidity	20 – 85 %RH
	Atmospheric pressure	590 – 1013 hPa (height: 0 – 2000m)
Storage period	Toner/Developer: 24 months from the manufactured month (Production lot) under unsealed state Drum: 36 months from the manufactured month under unsealed state	



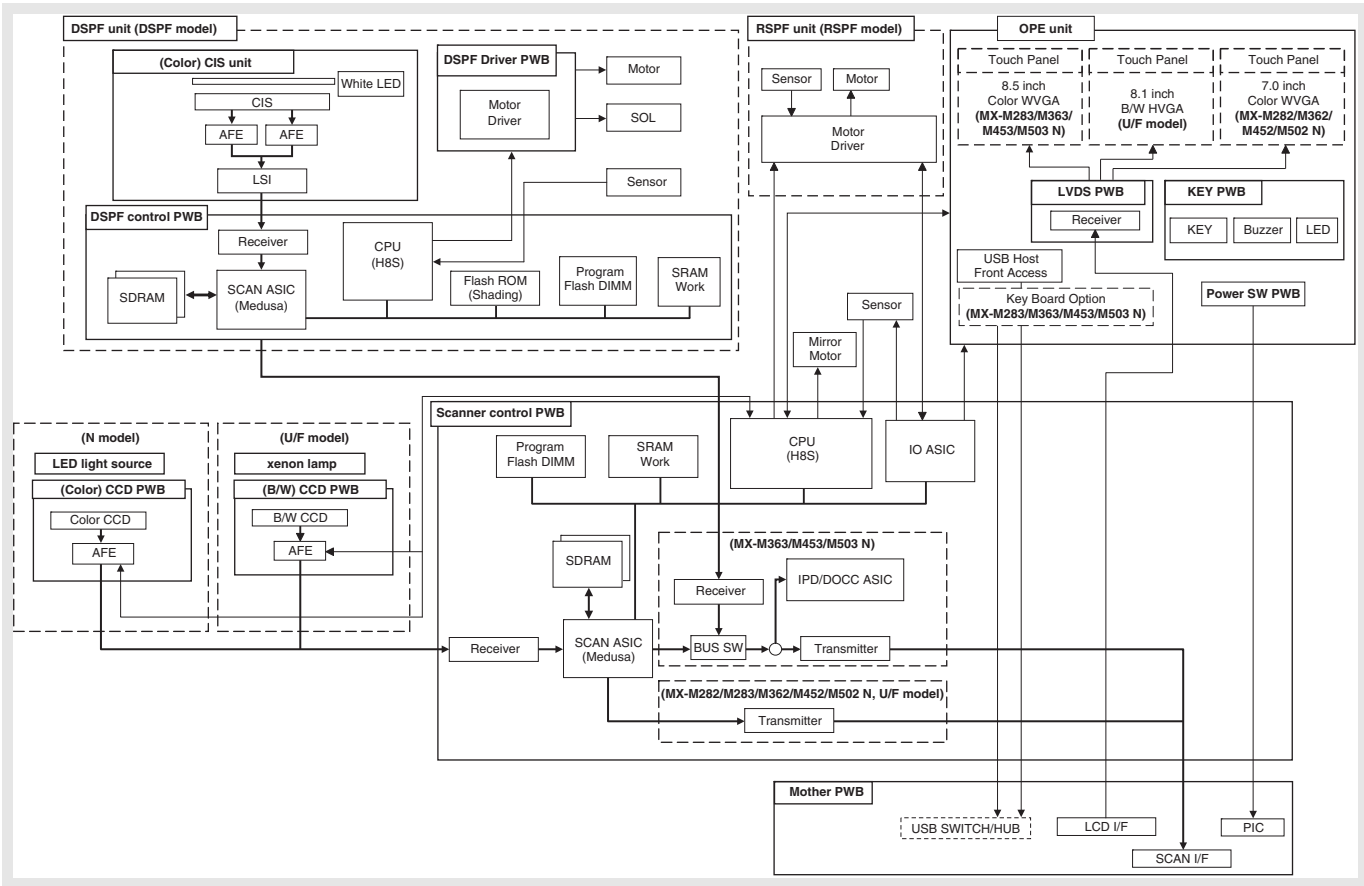
### A. System block diagram

[illegible]

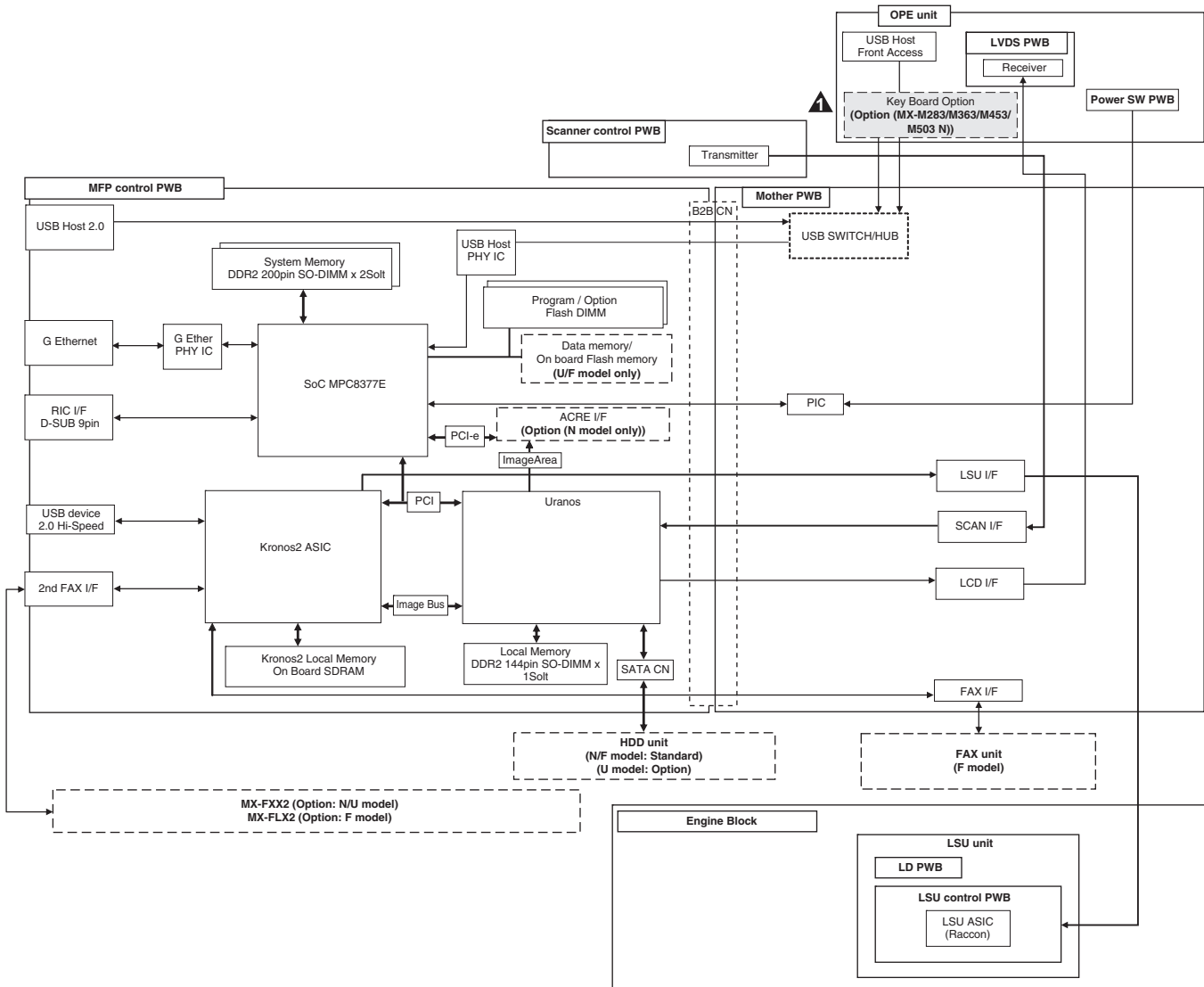
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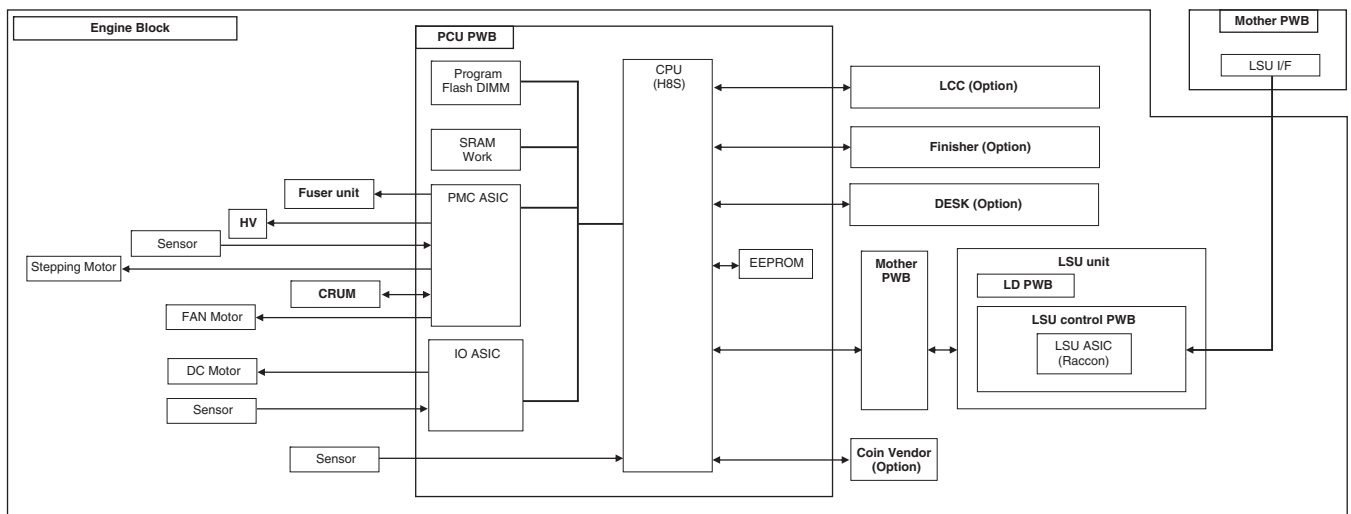
## B. DSPF/RSPF unit, Operation unit and Scanner control PWB



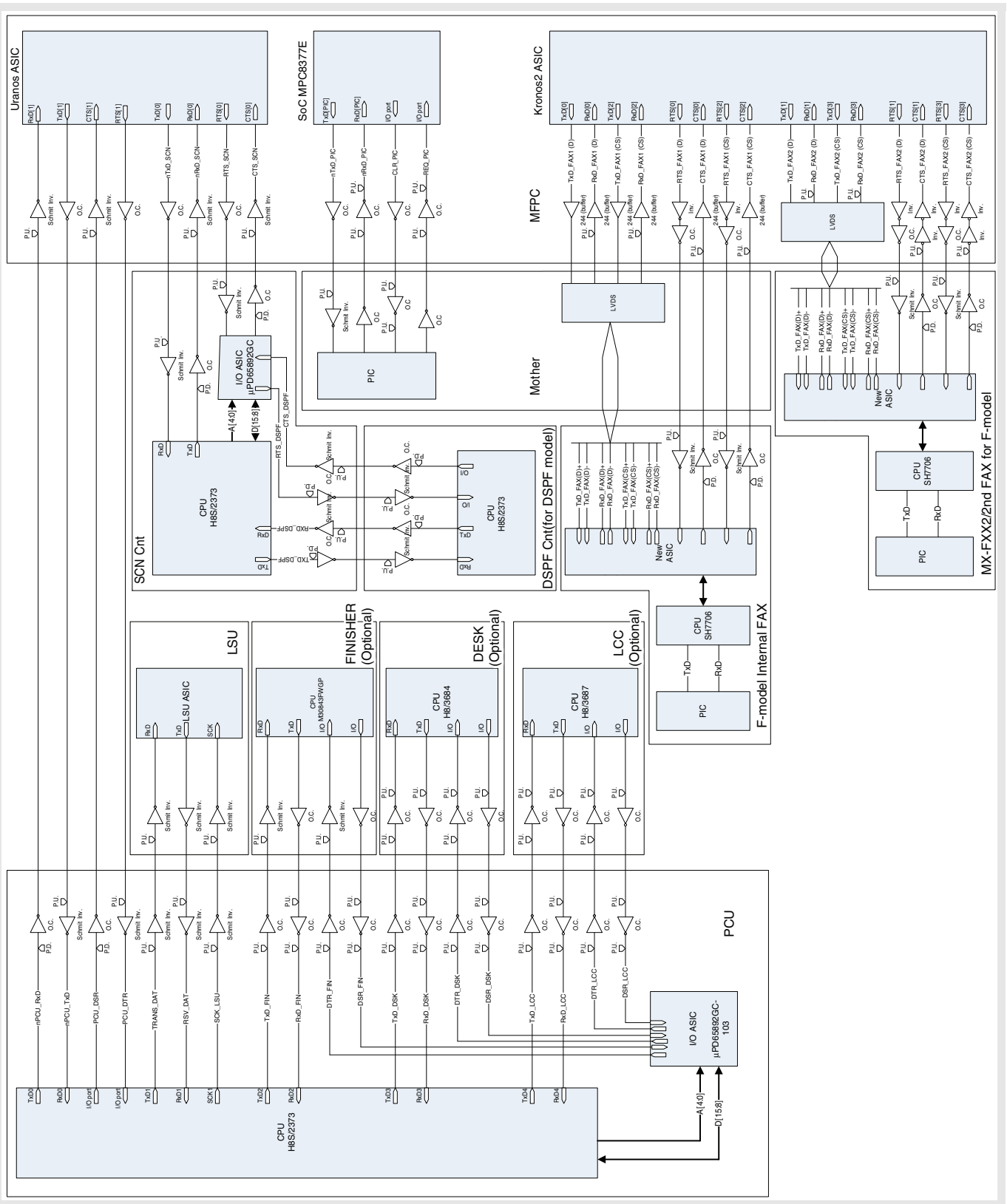
## C. MFP control PWB, Mother PWB



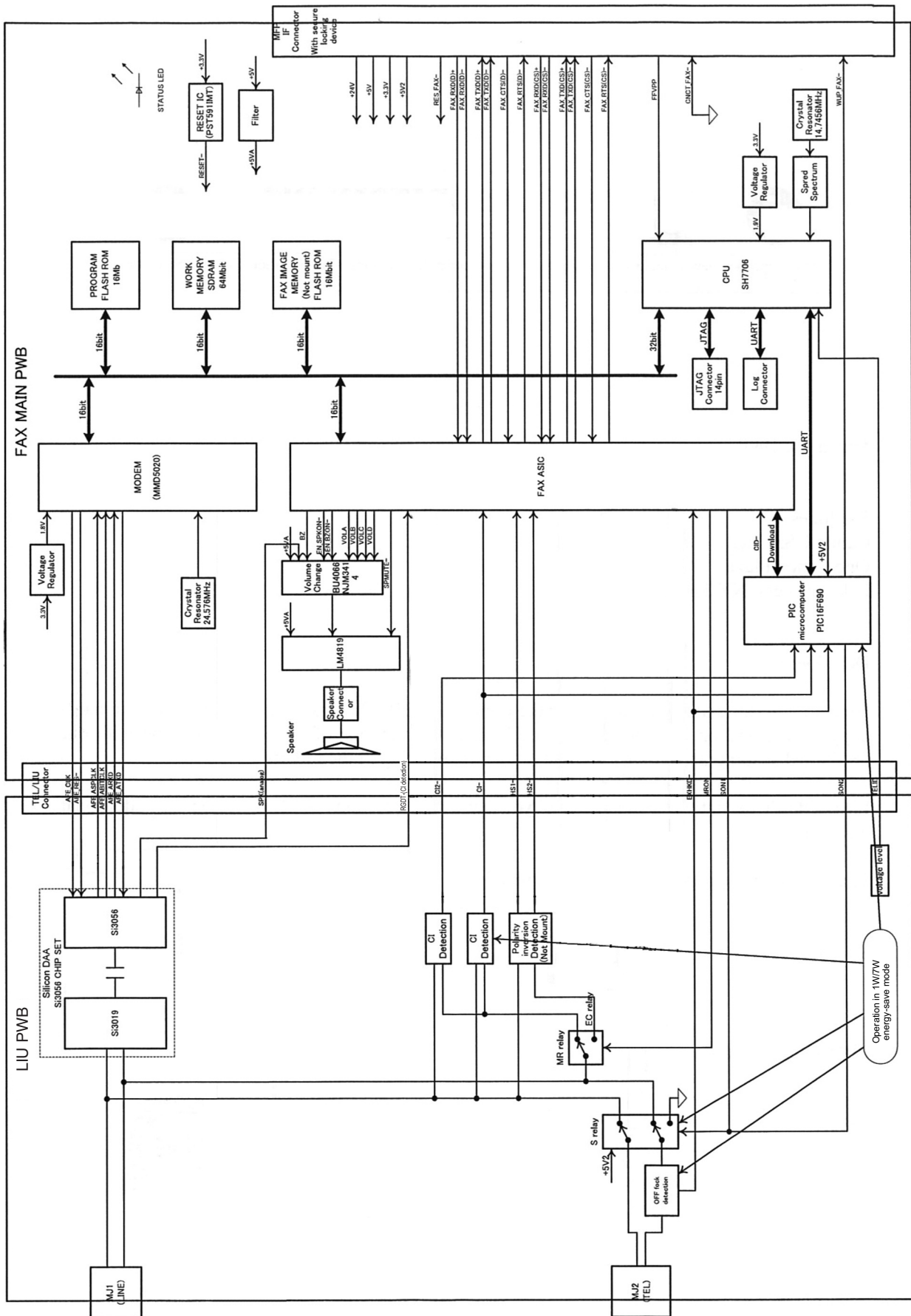
## D. Engine



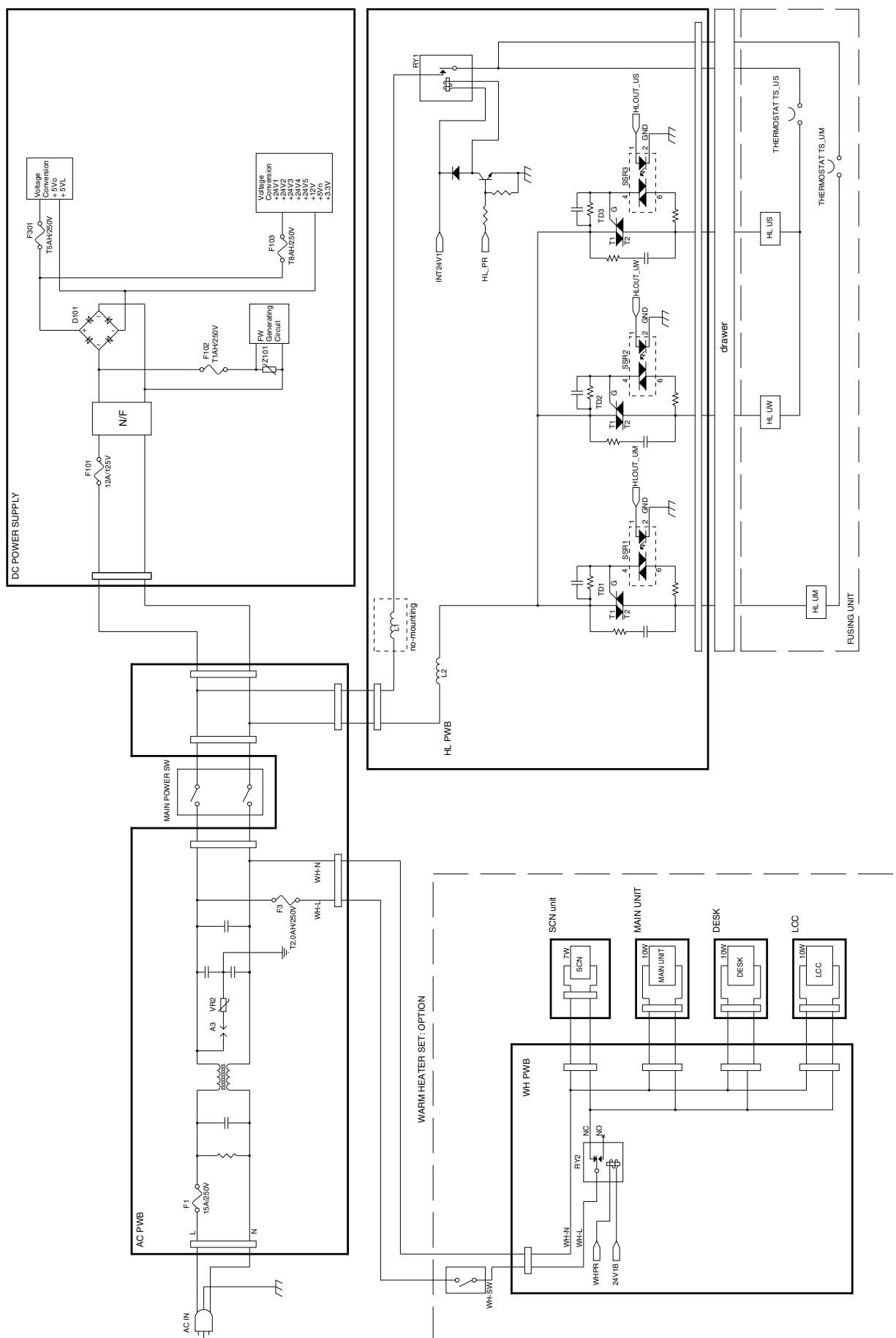
## E. Serial communication



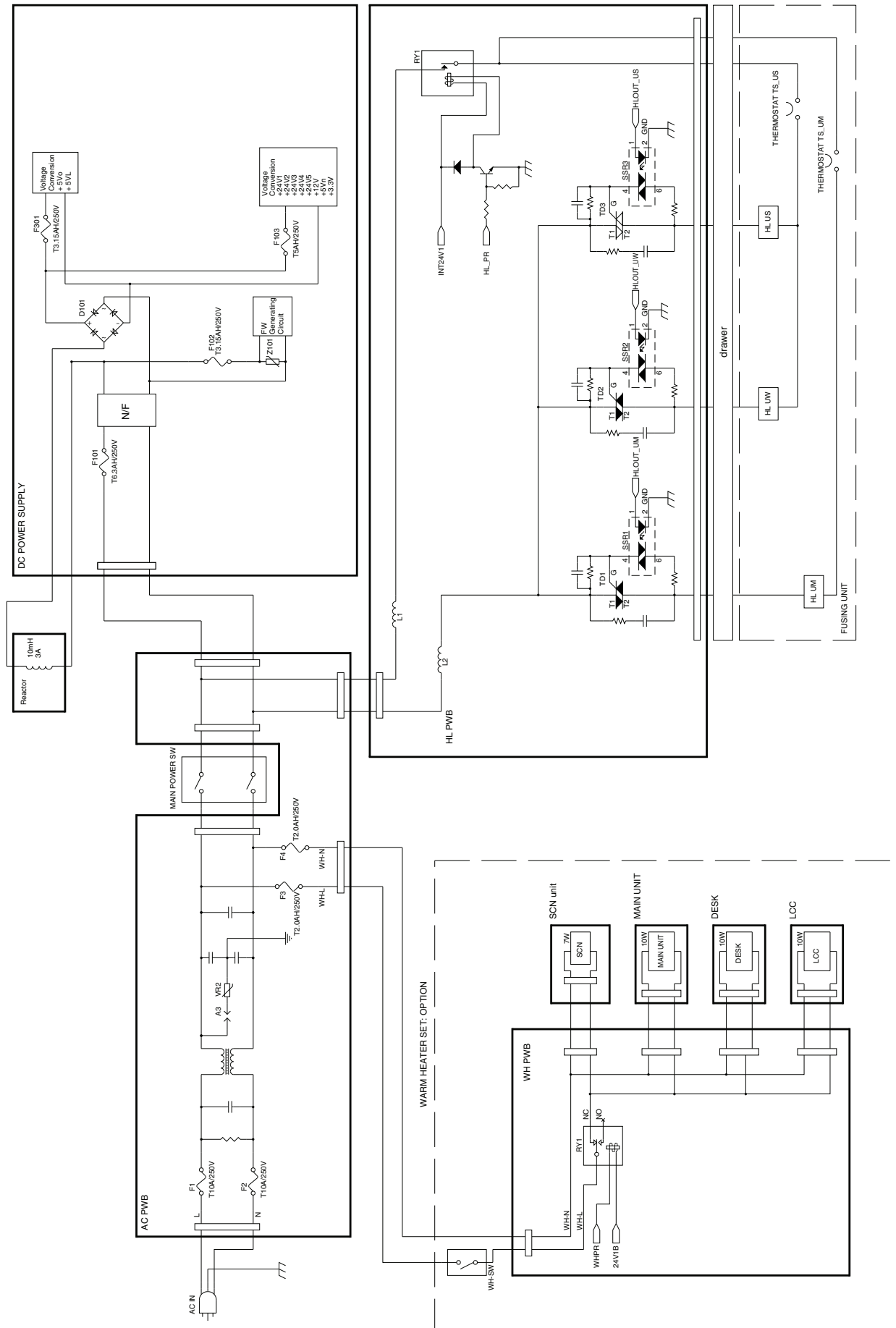
**F. FAX (Option: MX-FXX2)**



### G. AC power line diagram (100V)

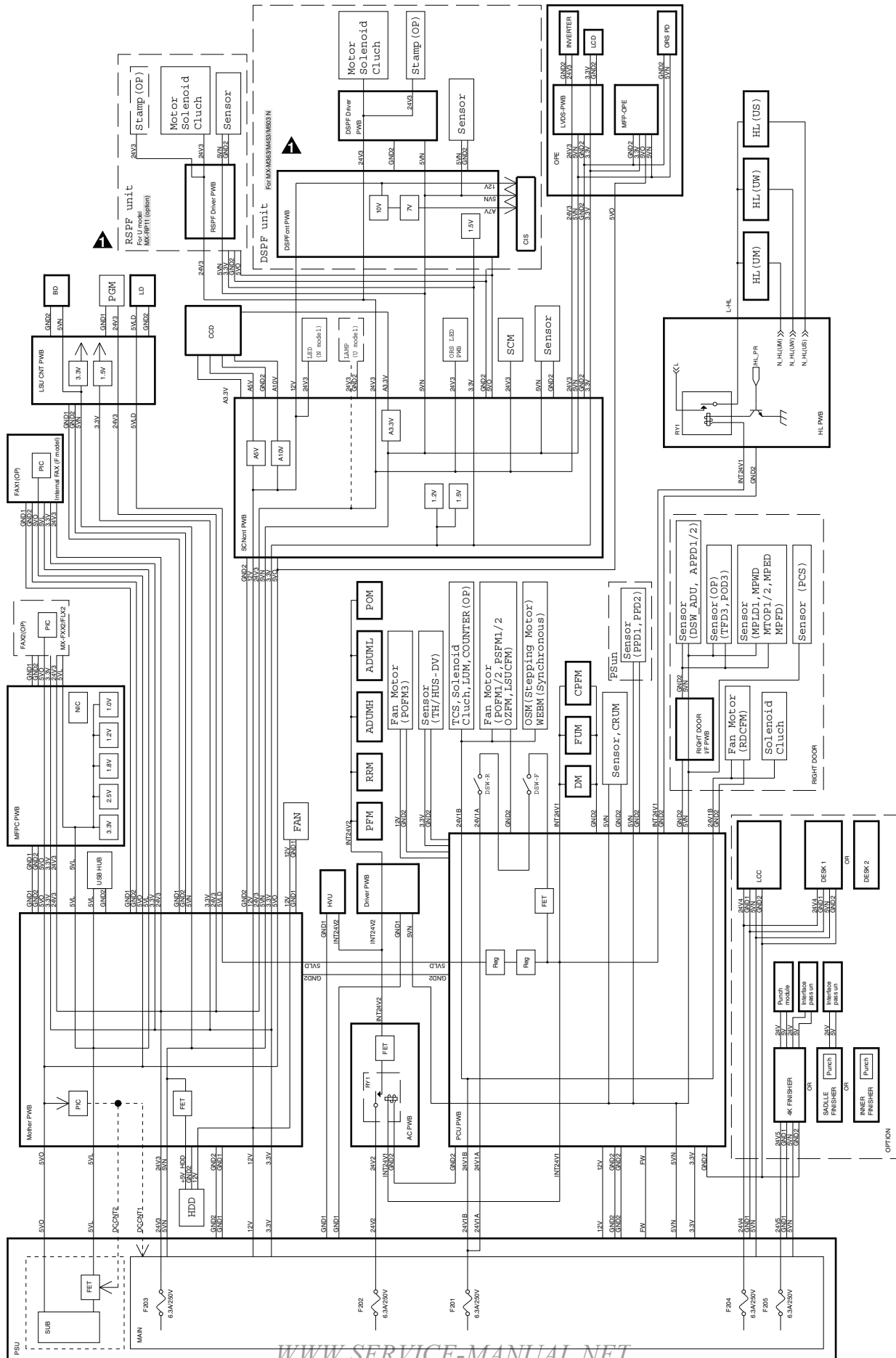


## H. AC power line diagram (200V)





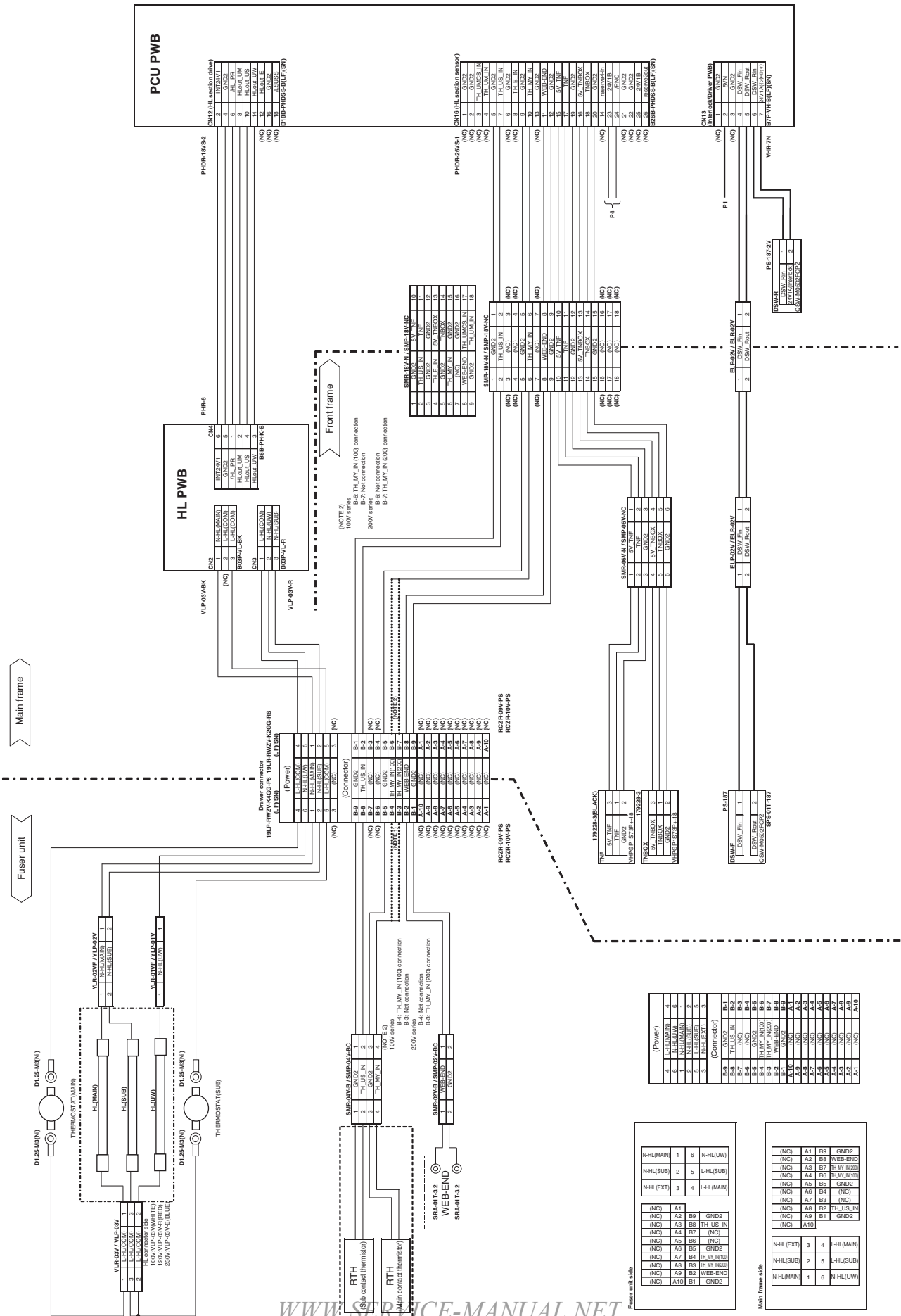
# I. DC power line diagram



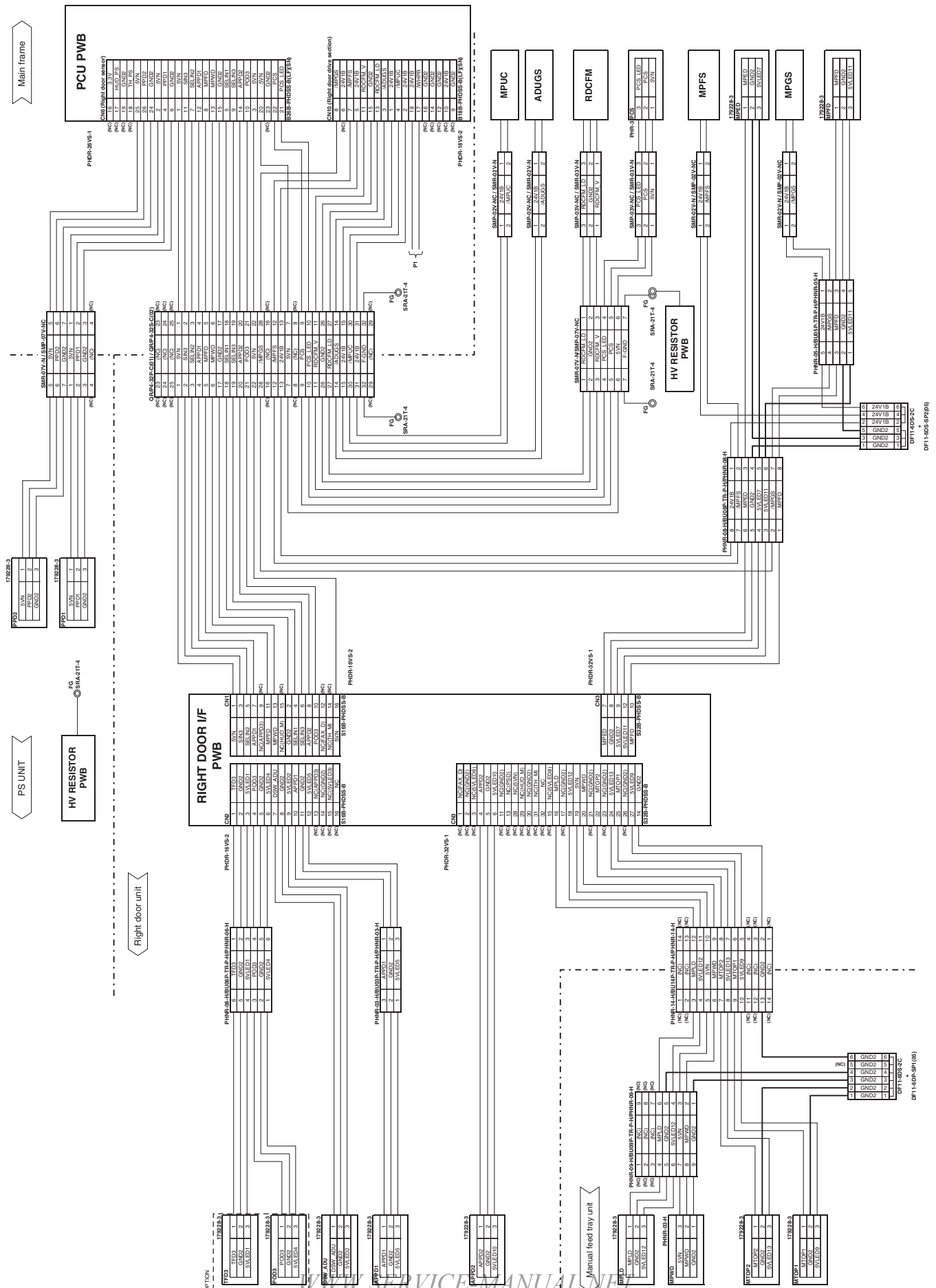




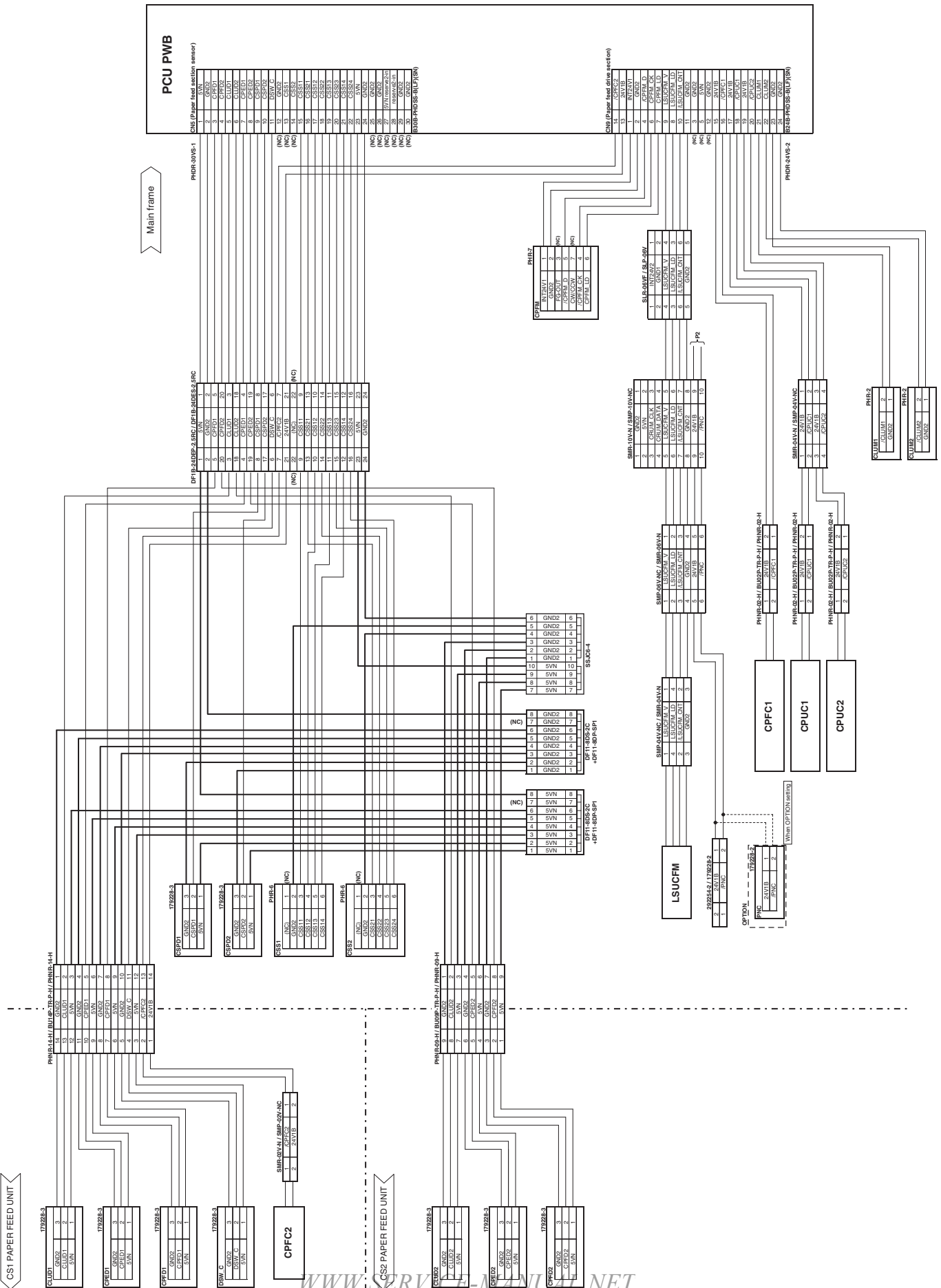
▲ C. Front section, Fuser unit section (MX-M282/M362/M452/M502 N) (P2B)



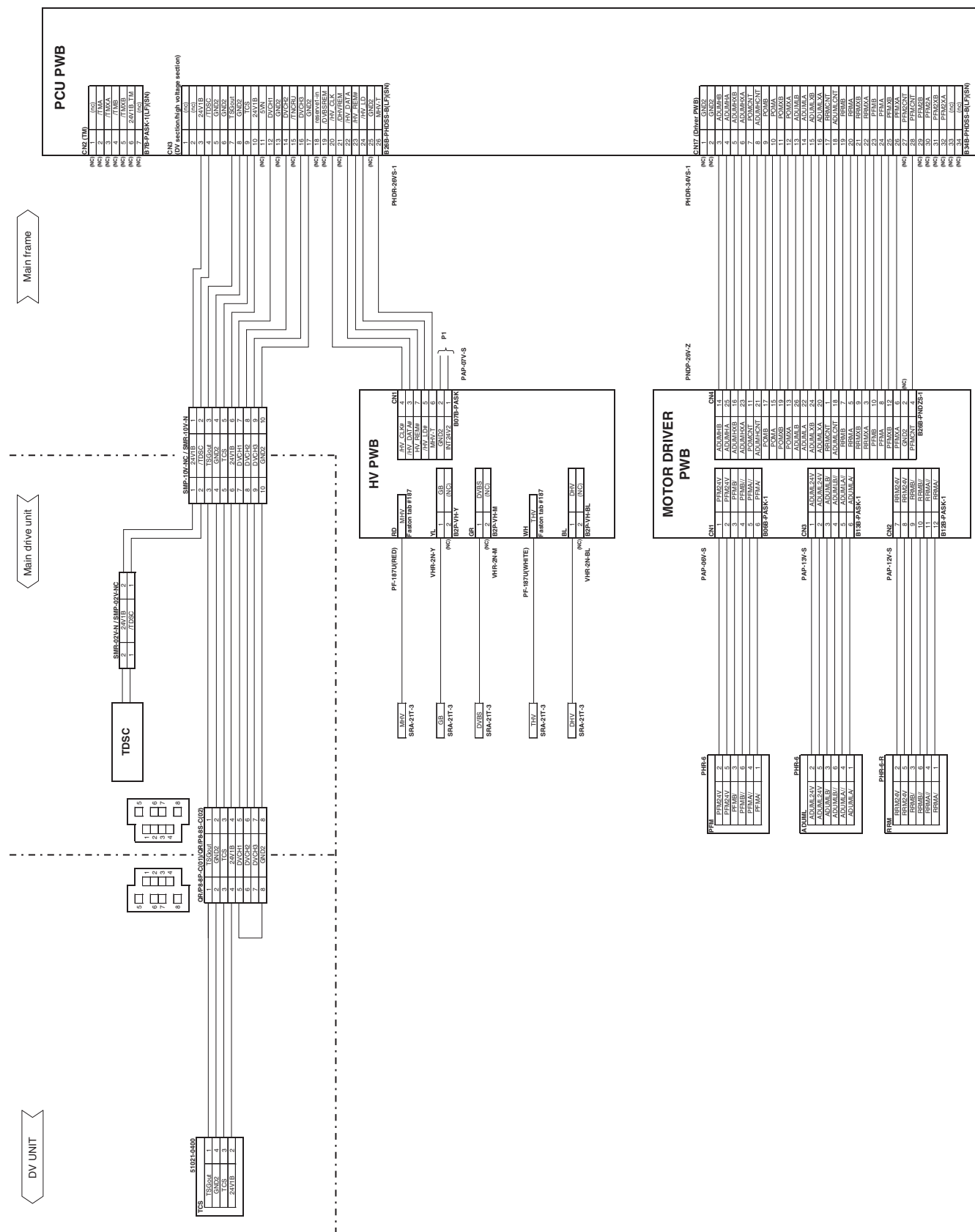
#### D. Right door unit section, PS unit section (P3)



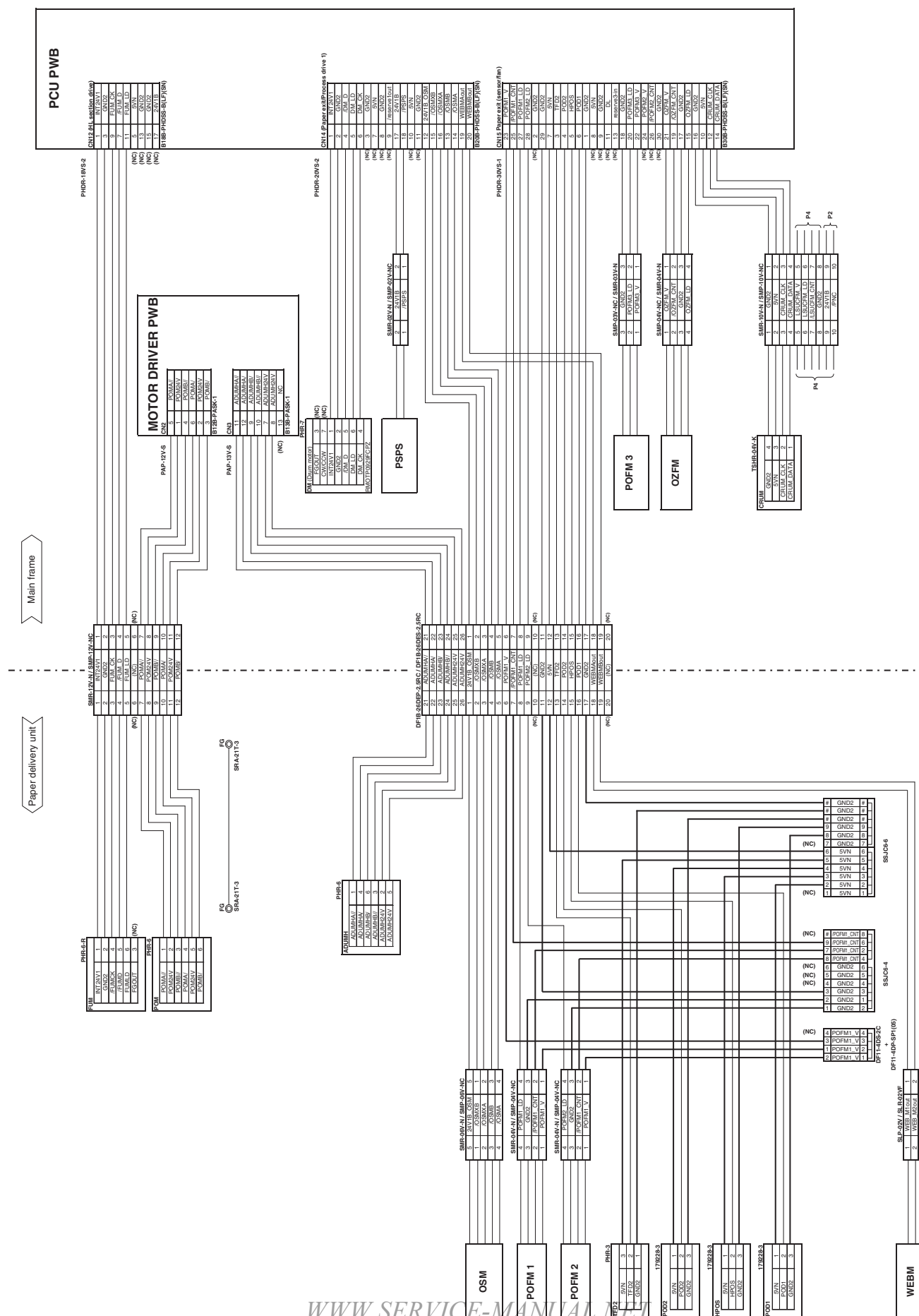
#### E. Paper feed unit section (P4)



#### F. DV unit section, High voltage unit section, Stepping motor section (P5)



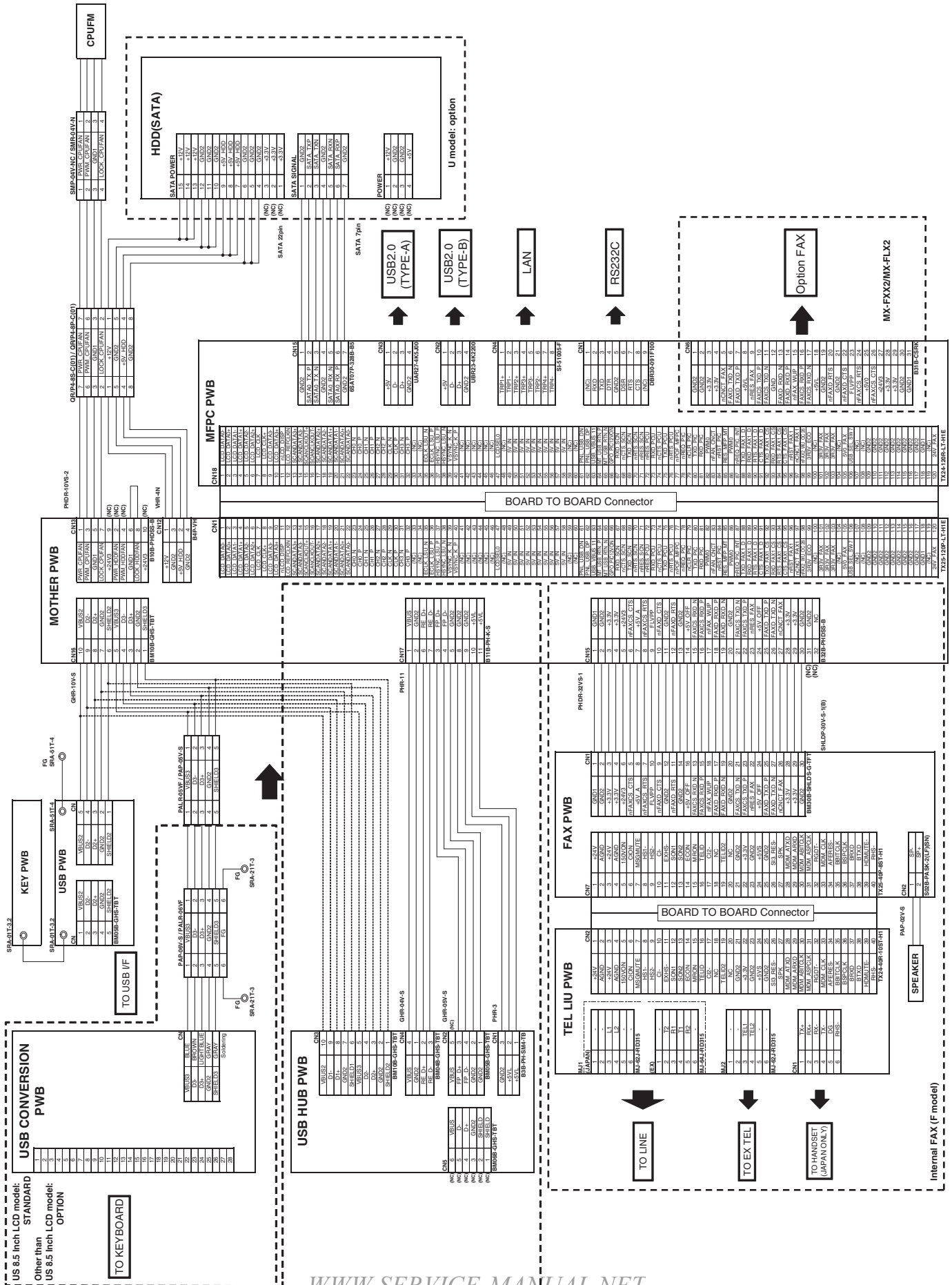
### G. Paper delivery unit section (P6)



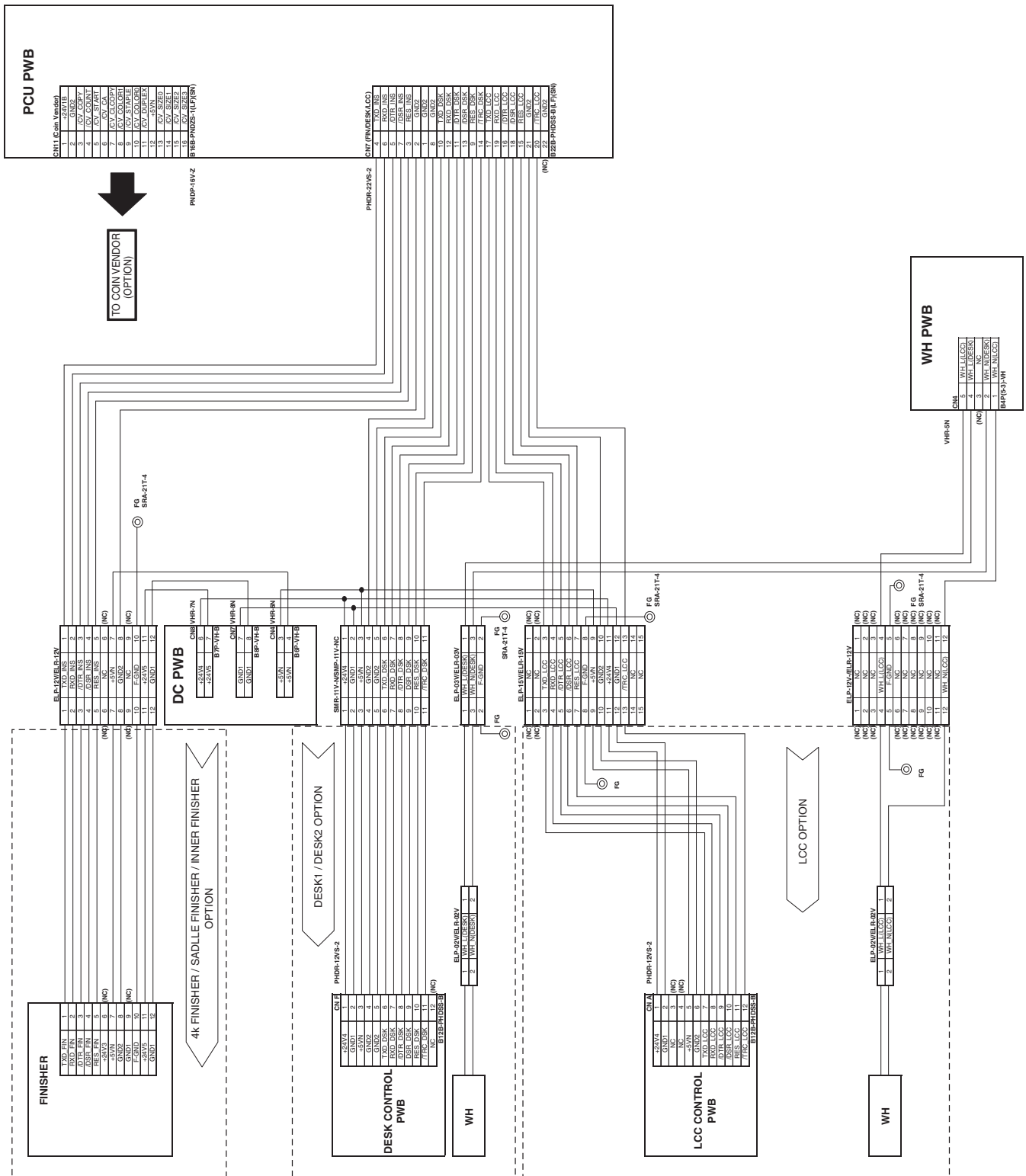




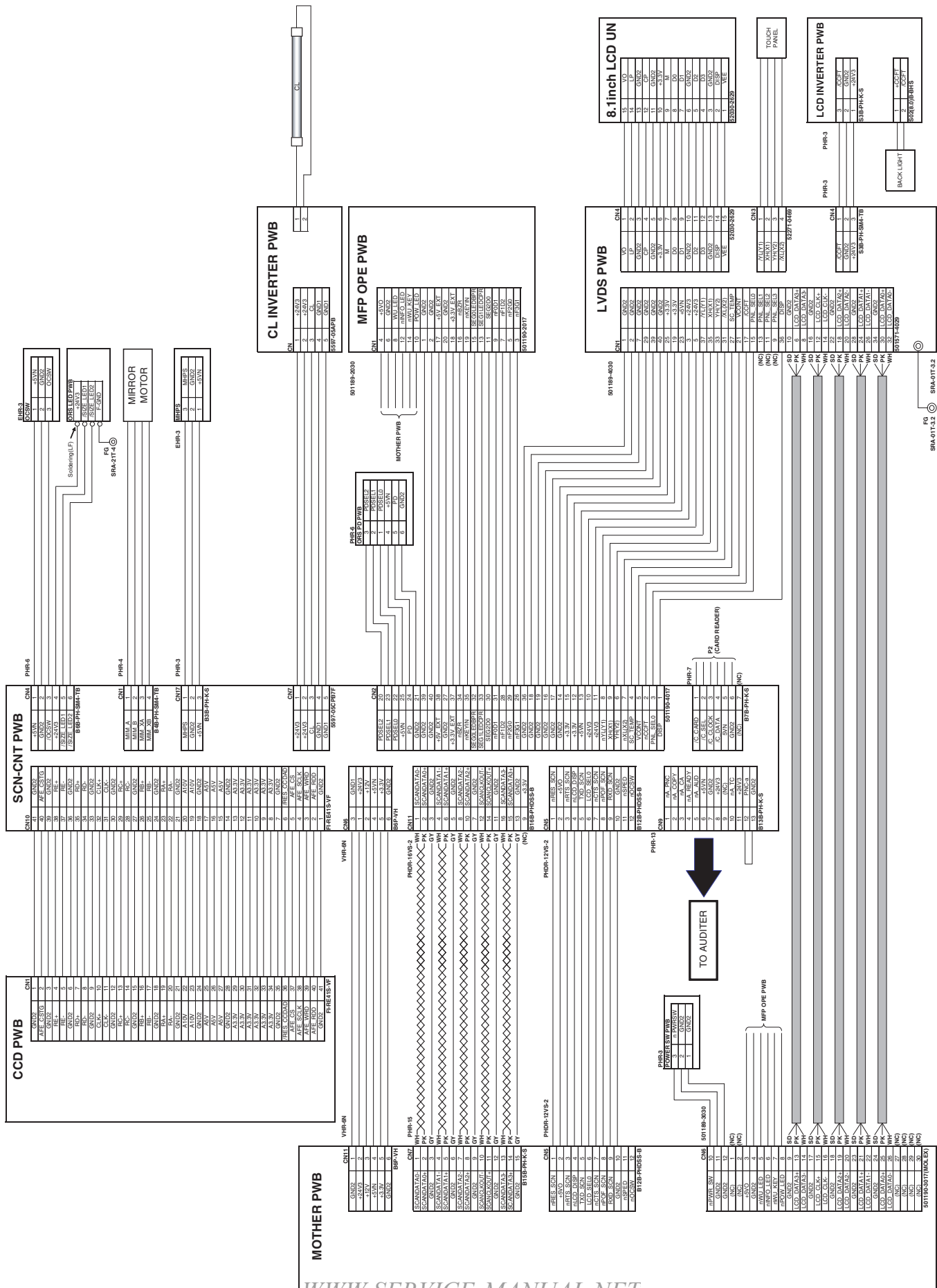
# I. FAX section, MFP section, HDD section (P8)



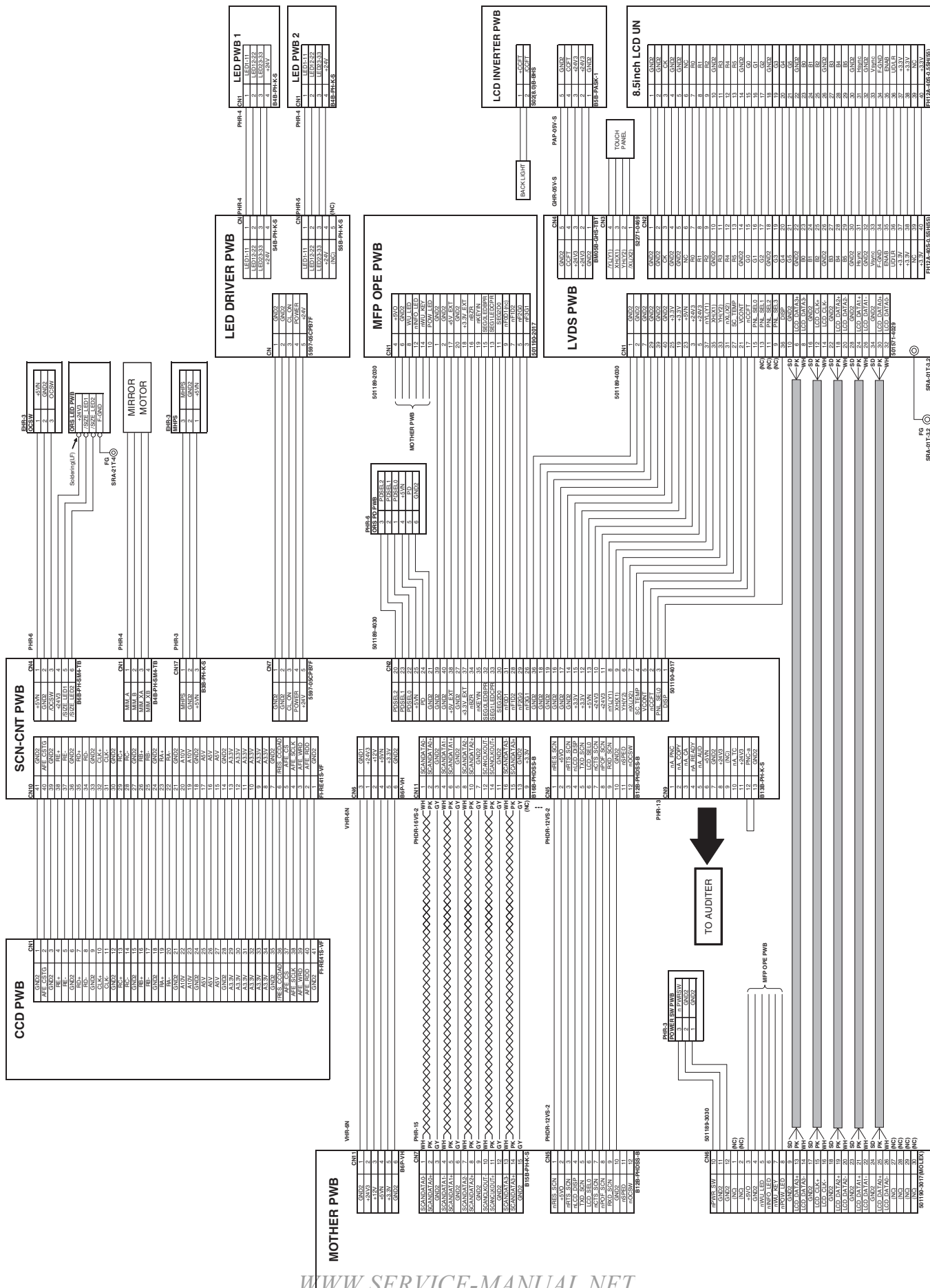
## J. Finisher, Desk, LCC, Coin vender section (P9)



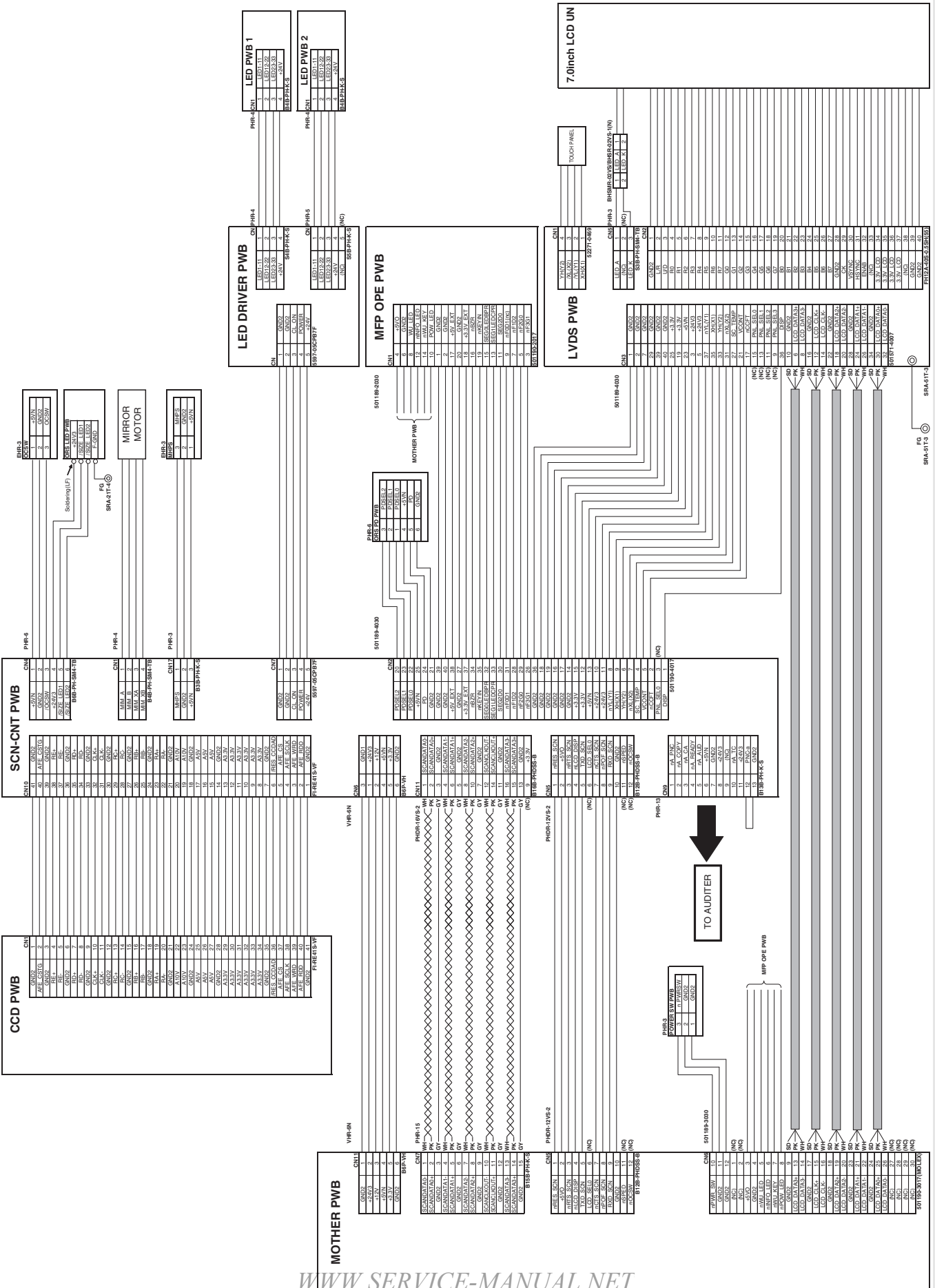
**K. Scanner, 8.1 inch operation system (P10A)**



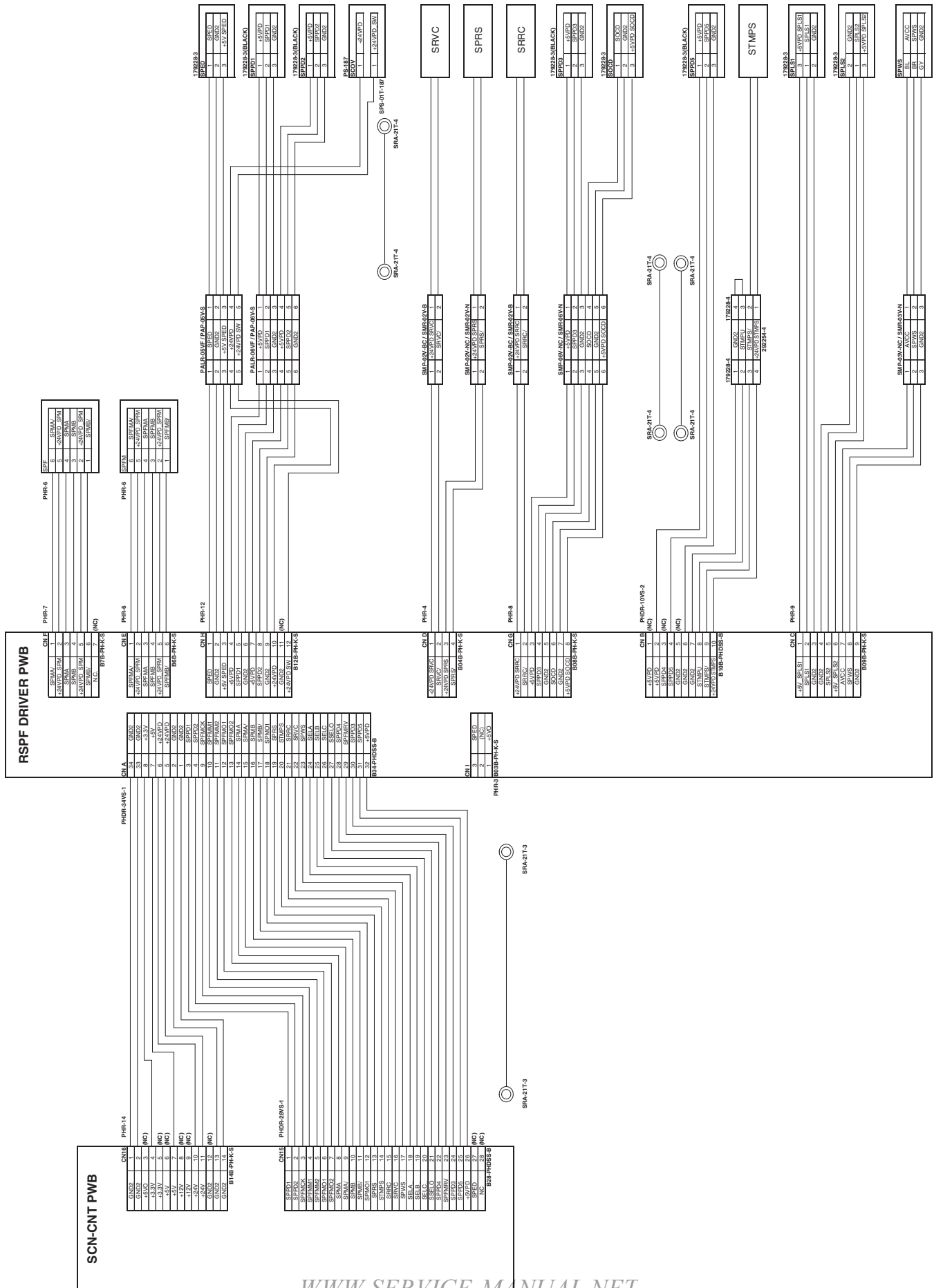
**L. Scanner, 8.5 inch operation system (P10B)**



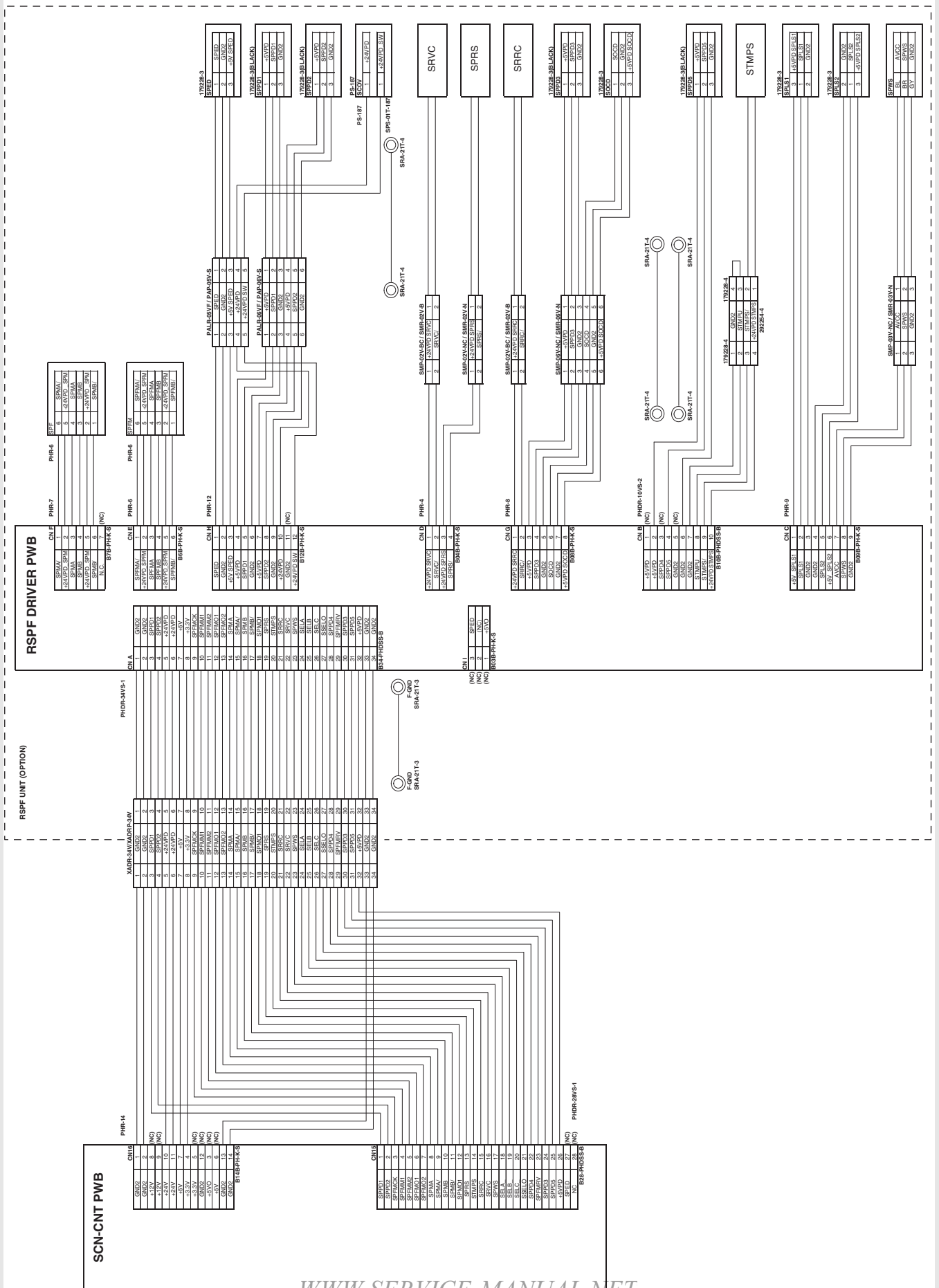
# M. Scanner, 7.0 inch operation system (P10C)



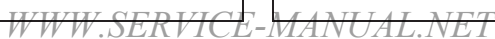
▲ N. RSPF unit section (MX-M363/M453/M503 U) (P11A)



# O. RSPF unit section (MX-M282/M362/M452/M502 N) (P11B)







### 3. Signal list

Signal name	Name [Type]	Function/Operation	Connector level		Connector No.	Pin No.	PWB name	NOTE
			"L"	"H"				
ADUGS	ADU gate solenoid [Electromagnetic solenoid]	Controls the ADU gate.	ON	OFF	CN10	3	PCU	
ADUMH	ADU motor upper [Stepping motor]	Drives the ADU upper section.	–	–	CN17	3,4,5,6	PCU	Drives with the 4-phase signal.
ADUMHCNT	ADU motor upper current select	Selects the ADU motor upper current.	Large current	Small current	CN17	8	PCU	
ADUML	ADU motor lower [Stepping motor]	Drives the ADU lower section.	–	–	CN17	13,14,15,16	PCU	Drives with the 4-phase signal.
ADUMLCNT	ADU motor lower current select	Selects the ADU motor lower current.	Large current	Small current	CN17	18	PCU	
APPD1	ADU transport path detection 1 [Transmission type]	Detects paper pass in the ADU upper stream section.	Pass	–	CN6	12	PCU	
APPD2	ADU transport path detection 2 [Transmission type]	Detects paper pass in the ADU medium stream section.	Pass	–	CN6	14	PCU	
CCFT	LCD backlight [CCFT cool cathode ray tube]	LCD backlight	ON	OFF	CN2	2	SCNcnt	
CL_ON	Scanner lamp	Radiates lights to the document for the CCD to scan the document images.	ON	OFF	CN7	3	SCNcnt	
CLUD1	Tray 1 paper upper limit detection [Transmission type]	Detects the tray 1 upper limit.	Upper limit	–	CN5	5	PCU	
CLUD2	Tray 2 paper upper limit detection [Transmission type]	Detects the tray 2 upper limit.	Upper limit	–	CN5	6	PCU	
CLUM1	Paper tray lift-up motor (Paper feed tray 1) [DC brush motor]	Drives the paper tray lift plate.	Stop	Drive	CN9	21	PCU	
CLUM2	Paper tray lift-up motor (Paper feed tray 2) [DC brush motor]	Drives the paper tray lift plate.	Stop	Drive	CN9	22	PCU	
CPED1	Tray 1 paper empty detection [Transmission type]	Detects paper empty in the tray 1.	YES	NO	CN5	7	PCU	
CPED2	Tray 2 paper empty detection [Transmission type]	Detects paper empty in the tray 2.	YES	NO	CN5	8	PCU	
CPFC1	Tray vertical transport clutch [Electromagnetic clutch]	Controls ON/OFF of the paper transport roller in the paper feed tray section.	ON	OFF	CN9	16	PCU	
CPFC2	Tray vertical transport clutch 2 [Electromagnetic clutch]	Controls ON/OFF of the paper transport roller 2 in the paper feed tray section.	ON	OFF	CN9	14	PCU	
CPFD1	Tray 1 transport detection (Paper entry detection) [Transmission type]	Detects paper pass in the tray 1.	Pass	–	CN5	3	PCU	
CPFD2	Tray 2 transport detection (Paper entry detection) [Transmission type]	Detects paper pass in the tray 2.	Pass	–	CN5	4	PCU	
CPFM_CK	Paper feed motor drive frequency [Brush-less motor]	Changes the paper feed section speed.	–	–	CN9	6	PCU	Pulse input
CPFM_D	Paper feed motor start/stop [Brush-less motor]	Drives the paper feed section.	Drive	Stop	CN9	4	PCU	
CPFM_LD	Paper feed motor lock detection	Detects the paper feed motor lock.	–	Lock detection	CN9	7	PCU	
CPUC1	Paper feed clutch (Paper feed tray 1) [Electromagnetic clutch]	Controls ON/OFF of the roller in the paper feed tray section.	ON	OFF	CN9	18	PCU	
CPUC2	Paper feed clutch (Paper feed tray 2) [Electromagnetic clutch]	Controls ON/OFF of the roller in the paper feed tray section.	ON	OFF	CN9	20	PCU	
CSPD1	Tray 1 remaining paper quantity detection	Detects the remaining paper quantity in the tray 1.	Remaining quantity	–	CN5	9	PCU	Detects during lifting up.
CSPD2	Tray 2 remaining paper quantity detection	Detects the remaining paper quantity in the tray 2.	Remaining quantity	–	CN5	10	PCU	Detects during lifting up.
CSS11	Tray 1 paper size detection 1	Tray 1 paper size detection 1	YES	NO	CN5	15	PCU	
CSS12	Tray 1 paper size detection 2	Tray 1 paper size detection 2	YES	NO	CN5	17	PCU	
CSS13	Tray 1 paper size detection 3	Tray 1 paper size detection 3	YES	NO	CN5	19	PCU	
CSS14	Tray 1 paper size detection 4	Tray 1 paper size detection 4	YES	NO	CN5	21	PCU	
CSS21	Tray 2 paper size detection 1	Tray 2 paper size detection 1	YES	NO	CN5	16	PCU	
CSS22	Tray 2 paper size detection 2	Tray 2 paper size detection 2	YES	NO	CN5	18	PCU	
CSS23	Tray 2 paper size detection 3	Tray 2 paper size detection 3	YES	NO	CN5	20	PCU	
CSS24	Tray 2 paper size detection 4	Tray 2 paper size detection 4	YES	NO	CN5	22	PCU	
DM_CK	Drum motor drive frequency [Brush-less motor]	Changes the drum section speed.	–	–	CN14	6	PCU	Pulse input
DM_D	Drum motor start/stop [Brush-less motor]	Drives the drum section.	Drive	Stop	CN14	4	PCU	
DM_LD	Drum motor lock detection	Detects the drum motor lock.	–	Lock detection	CN14	5	PCU	

Signal name	Name [Type]	Function/Operation	Connector level		Connector No.	Pin No.	PWB name	NOTE
			"L"	"H"				
DSW_ADU	ADU transport open/close detection [Transmission type]	Detects open/close of the ADU cover.	Open	Close	CN2	7	RD I/F	
DSW_C	Tray 1, 2 transport cover open/close detection	Detects open/close of the tray 1, 2 transport cover.	Open	Close	CN5	11	PCU	
DSW_F	Front door open/close switch [Micro switch]	Detects open/close of the front door, and fusing, motor, LSU laser power line.	Open	Close	CN13	4	PCU	
DSW_R	Right door open/close switch [Micro switch]	Detects open/close of the right door unit, and fusing, motor, LSU laser power line.	Open	Close	CN13	6	PCU	
DVCH1	Developing check 1	Detects the destination of the developing unit 1.	Detection	–	CN3	12	PCU	
DVCH2	Developing check 2	Detects the destination of the developing unit 2.	Detection	–	CN3	14	PCU	
DVCH3	Developing check 3	Detects the destination of the developing unit 3.	Detection	–	CN3	16	PCU	
FUM_CK	Fusing motor drive frequency [Brush-less motor]	Changes the fusing section speed.	–	–	CN12	9	PCU	Pulse input
FUM_D	Fusing motor start/stop [Brush-less motor]	Drives the fusing section.	Drive	Stop	CN12	7	PCU	
FUM_LD	Fusing motor lock detection	Detects the fusing motor lock.	–	Lock detection	CN12	11	PCU	
HL_PR	Heater lamp control relay	Turns ON/OFF the heater lamp control relay.	OFF	ON	CN12	6	PCU	
HLout_UM	Heater lamp main	Turns ON/OFF the heater lamp main.	OFF	ON	CN12	8	PCU	
HLout_US	Heater lamp sub	Turns ON/OFF the heater lamp sub.	OFF	ON	CN12	10	PCU	
HLout_UW	Heater lamp warm-up	Turns ON/OFF the warm-up operation of the heater lamp.	OFF	ON	CN12	14	PCU	
HPOS	Shifter home position detection	Detects the shifter home position.	–	Home position	CN15	5	PCU	
HUD_DV	Developing section humidity detection	Detects the developing section humidity.	–	–	CN1	20	PCU	Analog detection
INT_CNT	AC PWB interlock	Controls the AC PWB interlock.	Release	Lock	CN8	8	PCU	
LOCK_CPUFAN	Controller cooling fan lock detection		–	Lock detection	CN13	7	Mother	
LSUCFM_CNT	LSU cooling fan motor speed control	Adjusts the rotating speed of the LSU cooling fan motor.	–	–	CN9	10	PCU	Pulse (Duty) drive
LSUCFM_LD	LSUCFM lock detection	Detects the LSU cooling fan motor lock.	–	Lock detection	CN9	8	PCU	
LSUCFM_V	LSU cooling fan motor	Cools the LSU.	Stop	Drive	CN9	9	PCU	
MHPS	Scanner home position sensor [Transmission type]	Detects the scanner home position.	–	Home position	CN17	1	SCNcnt	
MIM_*	Scanner motor [Stepping motor]	Scanner (reading) section	–	–	CN1	1,2,3,4	SCNcnt	
MPED	Manual feed paper empty detection [Transmission type]	Detects paper empty in the manual paper feed tray.	YES	NO	CN3	7	RD I/F	Manual paper feed unit
MPFD	Manual feed paper entry detection [Transmission type]	Detects paper entry in the manual paper feed tray.	Pass	–	CN6	8	PCU	
MPFS	Paper pickup solenoid (Manual paper feed) [Electromagnetic solenoid]	Controls ON/OFF of the paper pickup roller.	Pickup	–	CN10	7	PCU	
MPGS	Manual feed gate solenoid [Electromagnetic solenoid]	Controls open/close of the manual paper feed gate solenoid.	ON	OFF	CN10	8	PCU	
MPLD	Manual feed paper length detector	Detects the paper length in the manual paper feed tray.	Detection	–	CN3	16	RD I/F	Manual paper feed unit
MPUC	Manual paper feed clutch [Electromagnetic clutch]	Controls ON/OFF of the paper feed roller in the manual paper feed section.	ON	OFF	CN10	4	PCU	
MPWD	Manual paper feed tray paper width detector [Volume resistance]	Detects the paper width in the manual paper feed tray.	–	–	CN6	13	PCU	Analog detection
MTOP1	Manual paper feed tray pull-out position detection 1	Detects the pull-out position of the manual paper feed tray. (Retraction position)	–	Storing position	CN3	25	RD I/F	Manual paper feed unit
MTOP2	Manual paper feed tray pull-out position detection 2	Detects the pull-out position of the manual paper feed tray. (Pull-out position)	–	Pull-out position	CN3	22	RD I/F	Manual paper feed unit
OCSW	Original cover SW [Transmission type]	Detects open/close of the document cover (document size detection trigger)	Close	Open	CN4	3	SCNcnt	

Signal name	Name [Type]	Function/Operation	Connector level		Connector No.	Pin No.	PWB name	NOTE
			"L"	"H"				
OSM	Shift motor [Stepping motor]	Offsets the paper.	–	–	CN14	13,14,15,16	PCU	Drives with the 4-phase signal.
OZFM_CNT	Ozone fan motor speed control	Adjusts the rotating speed of the ozone fan motor.	–	–	CN15	19	PCU	Pulse (Duty) drive
OZFM_LD	Ozone fan motor lock detection	Detects the ozone fan motor lock.	–	Lock detection	CN15	15	PCU	
OZFM_V	Ozone fan motor drive	Discharges the ozone.	Stop	Drive	CN15	21	PCU	
PCS	Process control sensor light reception [Reflection type]	Detects the toner patch density.	–	–	CN6	22	PCU	Analog detection
PCS-LED	Process control sensor light emitting [Reflection type]	Adjusts the light emitting amount of the process control sensor.	–	–	CN6	21	PCU	Analog detection
PFM	PS front transport motor [Stepping motor]	Transports and drives the registration front roller drive system.	–	–	CN17	23,24,25,26	PCU	Drives with the 4-phase signal.
PFMCNT	PS front transport motor current selection	Selects the PS front transport motor current.	Large current	Small current	CN17	28	PCU	
POD1	Fusing rear detection [Transmission type]	Detects the paper exit from fusing.	–	Pass	CN15	6	PCU	
POD2	Paper exit detection [Transmission type]	Detects the discharged paper.	Pass	–	CN15	4	PCU	
POD3	Right tray paper exit detection	Detects paper exit to the right tray.	Pass	–	CN6	10	PCU	
POFM1_CNT	Paper exit cooling fan motor 1 speed control	Controls the speed of the paper exit cooling fan motor 1.	–	–	CN15	25	PCU	Pulse (Duty) drive
POFM1_LD	POFM 1 lock detection	Detects the POFM 1 lock.	–	Lock detection	CN15	27	PCU	
POFM1_V	Paper exit cooling fan motor 1	Cools the fusing unit.	Stop	Drive	CN15	23	PCU	
POFM2_CNT	Paper exit cooling fan motor 2 speed control	Controls the speed of the paper exit cooling fan motor 2.	–	–	CN15	26	PCU	Pulse (Duty) drive
POFM2_LD	POFM 2 lock detection	Detects the POFM 2 lock.	–	Lock detection	CN15	28	PCU	
POFM2_V	Paper exit cooling fan motor 2	Cools the fusing unit.	Stop	Drive	CN15	24	PCU	
POFM3_LD	POFM 3 lock detection	Detects the POFM 3 lock.	–	Lock detection	CN15	20	PCU	
POFM3_V	Paper exit cooling fan motor 3	Cools the paper exit unit.	Stop	Drive	CN15	22	PCU	
POM	Paper exit drive motor [Stepping motor]	Drives the paper exit roller.	–	–	CN17	9,10,11,12	PCU	Drives with the 4-phase signal.
POMCNT	Paper exit drive motor current select	Selects the paper exit drive motor current.	Large current	Small current	CN17	7	PCU	
PPD1	Registration front detection [Transmission type]	Detects paper in front of the registration roller.	Pass	–	CN6	4	PCU	
PPD2	Registration detection [Reflection type]	Detects paper at the rear of the registration roller.	Pass	–	CN6	26	PCU	
PSFM1_LD	Power cooling fan motor 1 lock detection	Detects the power cooling fan motor 1 lock.	–	Lock detection	CN8	3	PCU	
PSFM1_V	Power cooling fan motor 1	Cools the power unit.	Stop	Drive	CN8	1	PCU	
PSFM2_LD	Power cooling fan motor 2 lock detection	Detects the power cooling fan motor 2 lock.	–	Lock detection	CN8	4	PCU	
PSFM2_V	Power cooling fan motor 2	Cools the power unit.	Stop	Drive	CN8	2	PCU	
PSPS	Separation solenoid [Electromagnetic solenoid]	Controls the separation solenoid.	ON	OFF	CN14	18	PCU	
PWM_CPUFAM	Controller cooling fan PWM control	Controller cooling fan.	–	–	CN13	3	Mother	Pulse (Duty) drive * Control is MFPC.
RDCFM_LD	RDCFM lock detection	Detects the RDCFM lock.	–	Lock detection	CN10	13	PCU	
RDCFM_V	Suction fan motor	Discharges air from the suction section.	Stop	Drive	CN10	11	PCU	
RRM	Registration motor transport motor [Stepping motor]	Transports and drives the registration roller drive system.	–	–	CN17	19,20,21,22	PCU	Drives with the 4-phase signal.
RRMCNT	Registration motor current select	Selects the registration motor current.	Large current	Small current	CN17	17	PCU	
SCOV	Upper cover open/close sensor	Detects the upper cover open/close.	–	Open	CN8	20	DSPFCnt	
SOCD	Cover open/close sensor	Detects the cover open/close.	Close	–	CN9	10	DSPFCnt	
SPED	Document empty sensor	Detects the document empty.	Detection	–	CN9	14	DSPFCnt	

Signal name	Name [Type]	Function/Operation	Connector level		Connector No.	Pin No.	PWB name	NOTE
			"L"	"H"				
SPFM*	Transport motor	Drives the transport motor.	—	—	CN8	6,7,8, 9,10, 11	DSPFcnt	
					CN15	3,4,5, 6,7,23	SCNcnt	U model, MX-M282/ M283/M362/ M452/M502 N
SPLS1	Document size sensor 1	Detects the document size.	Detection	—	CN7	2	DSPFcnt	
SPLS2	Document size sensor 2	Detects the document size.	Detection	—	CN7	5	DSPFcnt	
SPM*	Paper feed motor	Drives the paper feed motor.	—	—	CN8	12,13, 14,15, 16	DSPFcnt	
	Paper feed reverse motor	Drives the paper feed reverse motor.			CN15	8,9, 10,11, 12	SCNcnt	U model, MX-M282/ M283/M362/ M452/M502 N
SPOD	Paper exit sensor	Detects paper pass.	Detection	—	CN2	8	DSPFcnt	
SPPD1	No. 1 paper feed sensor	Detects paper pass.	Detection	—	CN9	3	DSPFcnt	
					CN15	1	SCNcnt	U model, MX-M282/ M283/M362/ M452/M502 N
SPPD2	No. 2 paper feed (PS front) sensor	Detects paper pass.	Detection	—	CN9	4	DSPFcnt	
					CN15	2	SCNcnt	U model, MX-M282/ M283/M362/ M452/M502 N
SPPD3	No. 1 (front surface) scanning front sensor	Detects paper pass.	Detection	—	CN9	9	DSPFcnt	
	Scanning front sensor				CN15	24	SCNcnt	U model, MX-M282/ M283/M362/ M452/M502 N
SPPD5	No. 2 (back surface) scanning front sensor	Detects paper pass.	Detection	—	CN2	4	DSPFcnt	
	Reverse rear sensor				CN15	25	SCNcnt	U model, MX-M282/ M283/M362/ M452/M502 N
SPRS	Pressure release solenoid	Controls the pressure release solenoid.	OFF	ON	CN15	13	SCNcnt	U model, MX-M282/ M283/M362/ M452/M502 N
SPWS	Document width sensor	Detects the document width.	—	—	CN7	8	DSPFcnt	Analog detection
					CN15	17	SCNcnt	U model, MX-M282/ M283/M362/ M452/M502 N, Analog detection
SRRC	PS clutch	Controls the PS clutch.	OFF	ON	CN8	18	DSPFcnt	
					CN15	15	SCNcnt	U model, MX-M282/ M283/M362/ M452/M502 N
SRVC	Reverse clutch	Controls the reverse clutch.	OFF	ON	CN15	16	SCNcnt	U model, MX-M282/ M283/M362/ M452/M502 N
STMPs	Stamp solenoid	Controls the finish stamp.	—	Stamping	CN8	17	DSPFcnt	
					CN15	14	SCNcnt	U model, MX-M282/ M283/M362/ M452/M502 N
TCS	Toner density sensor [Magnetic sensor]	Detects the toner density.	—	—	CN3	9	PCU	Analog detection
TDSC	Toner supply clutch [Electromagnetic clutch]	Controls toner supply.	ON	OFF	CN3	4	PCU	
TFD2	Paper exit full detection [Transmission type]	Detects the face-down paper exit tray full.	Full	—	CN15	3	PCU	
TFD3	Right tray paper exit full detection	Detects the paper exit full in the right tray.	Full	—	CN2	1	RD I/F	
TH_DV	Developing section temperature detection	Detects the temperature in the developing section.			CN1	22	PCU	Analog detection

Signal name	Name [Type]	Function/Operation	Connector level		Connector No.	Pin No.	PWB name	NOTE
			"L"	"H"				
TH_MY_IN	Main thermistor	Detects the temperature.	–	–	CN16	10	PCU	Analog detection
TH_US_IN	Sub thermistor	Detects the temperature.	–	–	CN16	8	PCU	Analog detection
TNBOX	Waste toner box remaining quantity detection	Detects the remaining quantity in the waste toner box.	–	–	CN16	18	PCU	"Detection pattern table" provided.
TNF	Waste toner box remaining quantity detection	Detects the remaining quantity in the waste toner box.	–	–	CN16	17	PCU	"Detection pattern table" provided.
TSGOUT	Toner density sensor control voltage [Magnetic sensor]	Controls the toner density.	–	–	CN3	7	PCU	Analog detection
WEB-END	Web end detection	Detects the web end.	End	–	CN16	11	PCU	
WEBM	Web motor (Synchronous motor)	Drives the fusing web cleaning paper.	–	–	CN14	19,20	PCU	Drives with the 2-phase signal.
WH_PR	Dehumidifying heater control	Turns ON/OFF the dehumidifying heater.	ON	OFF	CN10	17	PCU	ON: Relay open

## [13] TOOL LIST

### 1. Exclusive-use tools list

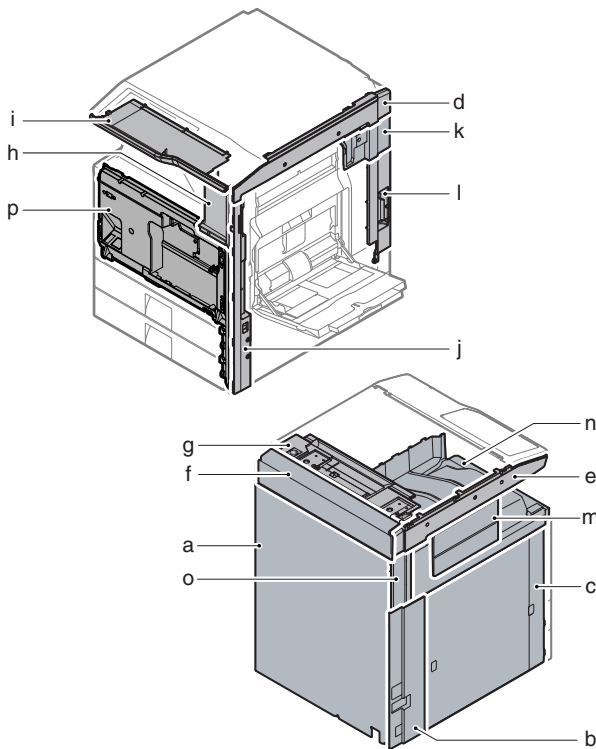
For repair or adjustments of this machine, the following tools are required.

Name	Parts code	Purpose
DSPF shading adjustment sheet	UKOG-0330FCZZ	DSPF CIS unit shading adjustment
Gray scale chart	UKOG-0162FCZZ	Copy density and gradation check
Color test chart (AB series)	UKOG-0326FCZZ	Copy density and gradation check / Void area and image loss check / Resolution check
Color test chart (Inch series)	UKOG-0326FC11	
SIT chart	UKOG-0280FCZZ or UKOG-0280FCZ1	CCD, DSPF CIS color balance and gamma adjustment
Stearic acid	UKOG-0309FCZZ	Apply to the side seal on the OPC drum cleaner section.

## [A] EXTERIOR

### 1. Disassembly and assembly

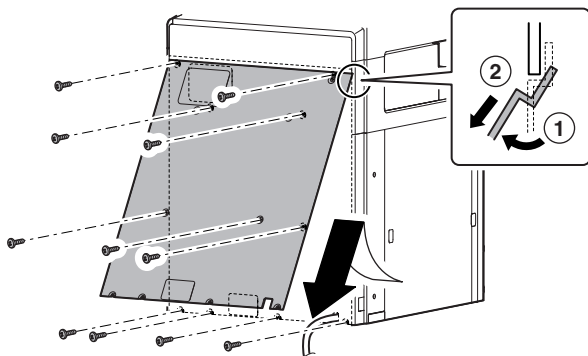
#### A. Cabinet



Parts	
a	Rear cabinet
b	Left cabinet rear lower
c	Left cabinet
d	Upper cabinet right
e	Upper cabinet left
f	Upper cabinet rear cover
g	Upper cabinet rear
h	Front cabinet upper
i	Operation panel base plate
j	Right cabinet front
k	Right connection cabinet
l	Right cabinet rear cover
m	Paper exit cover
n	Paper exit tray cabinet
o	Left cabinet rear
p	Front cover

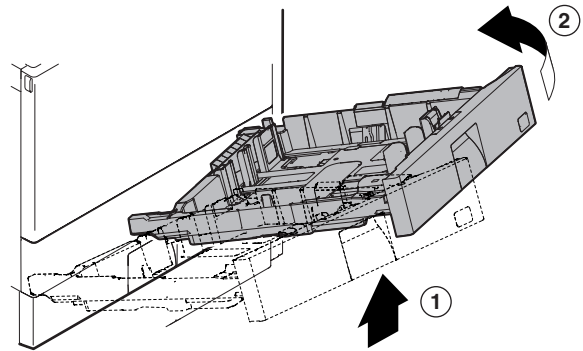
#### (1) Rear cabinet

- 1) Remove the screw, and remove the rear cabinet.

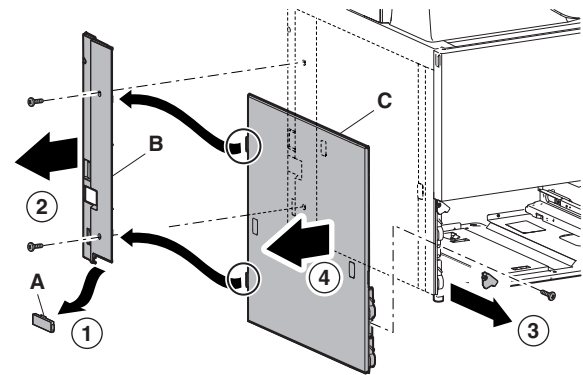


#### (2) Left cabinet rear lower/Left cabinet

- 1) Remove the tray 1 and 2.

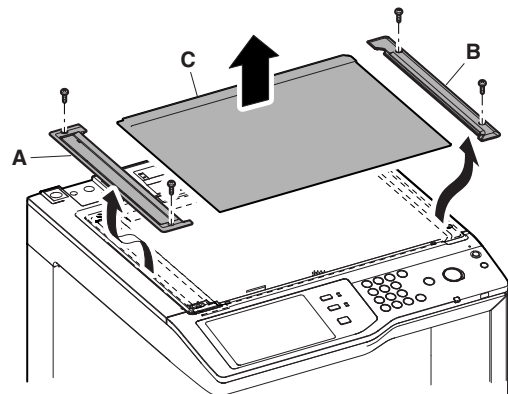


- 2) Remove the desk connection lid (A). Remove the screw, and remove the left cabinet rear lower (B) and the left cabinet (C).

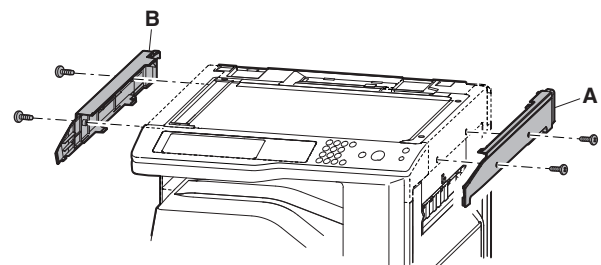


#### (3) Upper cabinet right/Upper cabinet left

- 1) Remove the SPF glass (A). Remove the glass holder (B) and the table glass (C).



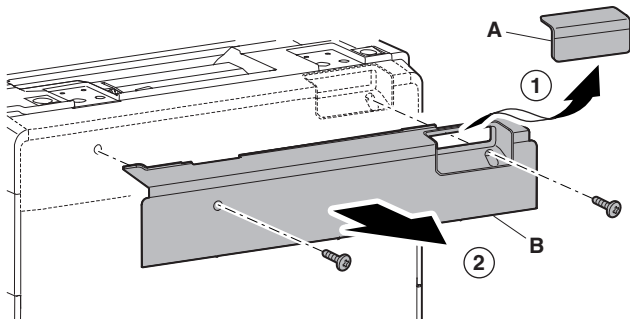
- 2) Remove the screw, and remove the upper cabinet right (A) and the upper cabinet left (B).



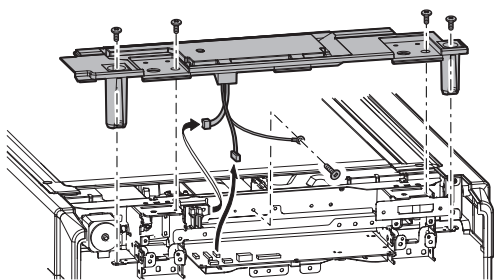


#### (4) Upper cabinet rear cover/Upper cabinet rear

- 1) Remove the upper cabinet rear cover lid (A). Remove the screw, and remove the upper cabinet rear cover (B).

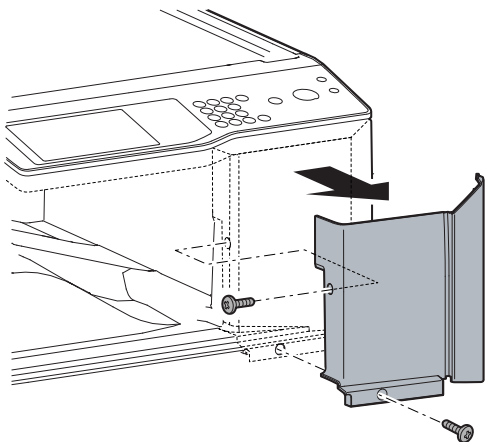


- 2) Disconnect the connector. Remove the screw, and remove the earth wire. Remove the screw, and remove the upper cabinet rear.

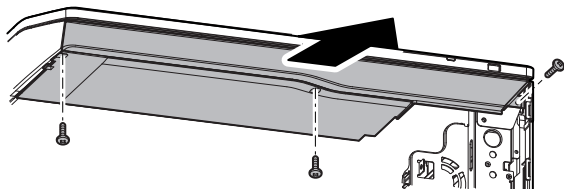


#### (5) Front cabinet upper/Operation panel base plate

- 1) Open the front cabinet. Remove the screws, and remove the front cabinet upper.

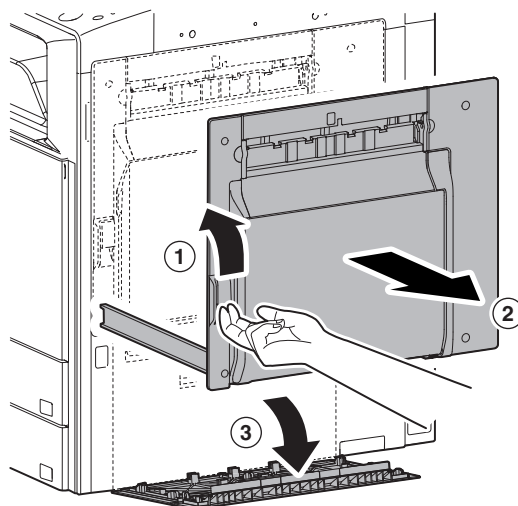


- 2) Remove the screw, and remove the operation panel base plate.

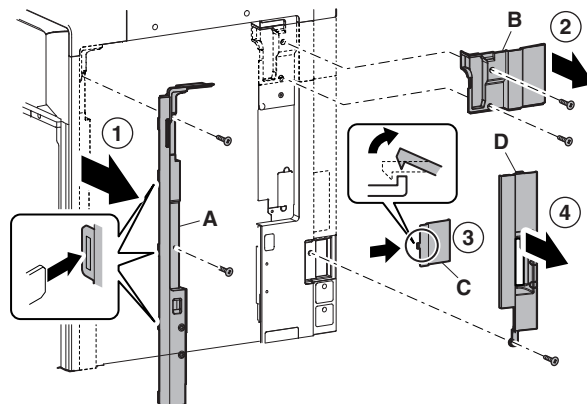


#### (6) Right cabinet front/Right connection cabinet/Right cabinet rear cover

- 1) Remove the front cabinet upper.
- 2) Open the right door and the right cabinet lower.

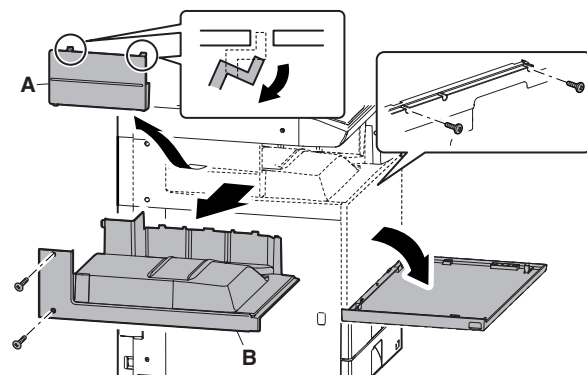


- 3) Remove the screw, and remove the right cabinet front (A). Remove the screw, and remove the right connection cabinet (B). Remove the ozone filter cover (C). Remove the screw, and remove the right cabinet rear cover (D).



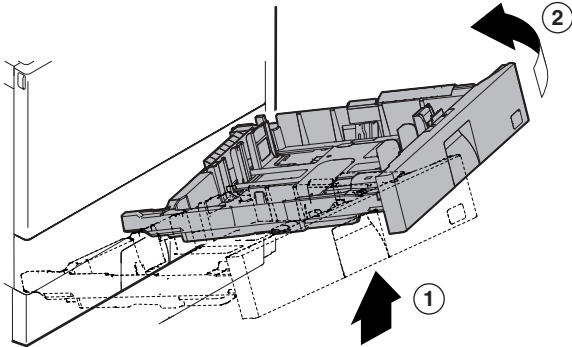
#### (7) Paper exit cover/Paper exit tray cabinet/Left cabinet rear

- 1) Remove the paper exit cover (A). Open the front cabinet, and remove the screw. Remove the screw, and remove the paper exit tray cabinet (B).

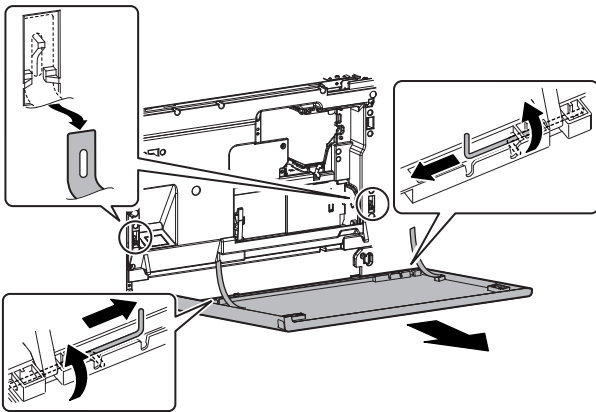


## (8) Front cover

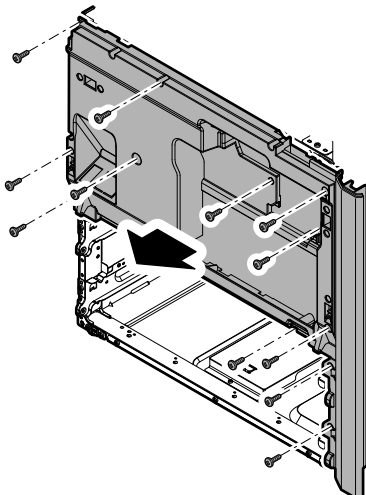
- 1) Remove the toner cartridge. [Refer to "[I] Toner supply section."]
- 2) Remove the developing unit. [Refer to "[J] DEVELOPING SECTION"]
- 3) Remove the photo-conductor unit. [Refer to "[H] PHOTO-CONDUCTOR SECTION"]
- 4) Remove the front cabinet upper and the paper exit tray cabinet.
- 5) Remove the tray 1 and 2.



- 6) Remove the band and the hinge, and remove the front cabinet.



- 7) Remove the screw, and remove the front cover.



### A. 8.5 inch operation panel



Signal	Name	Function/Operation
OCSW	Original cover SW	Document size detection timing switch
PWRSW	Operation panel power supply switch	Outputs the ON/OFF control signal of the DC power source.

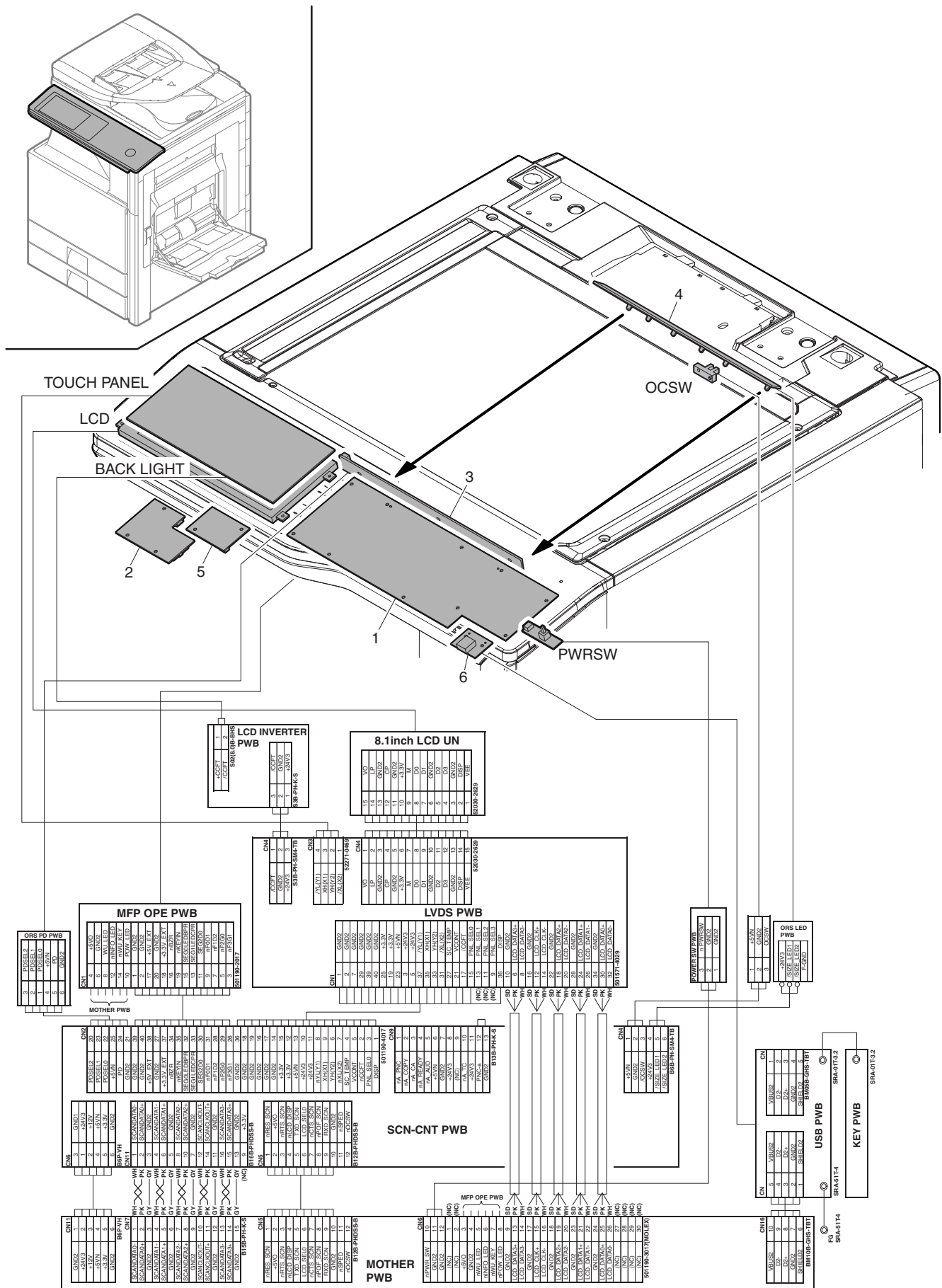
No.	Name	Function/Operation
1	MFP OPE-P PWB	Detects the pressed key on the operation panel.
2	LVDS PWB	Converts the display signal and outputs to the LCD.
3	Document detection light receiving PWB	Receives light from the document detection light emitting PWB to detect the document size.
4	Document detection light emitting PWB	Emits light for detection of the document size.
5	LCD INV PWB	Emits the document size detection LED lights.
6	USB connector PWB	For USB connecting



Signal	Name	Function/Operation
OCSW	Original cover SW	Document size detection timing switch
PWRSW	Operation panel power supply switch	Outputs the ON/OFF control signal of the DC power source.

No.	Name	Function/Operation
1	MFP OPE-P PWB	Detects the pressed key on the operation panel.
2	LVDS PWB	Converts the display signal and outputs to the LCD.
3	Document detection light receiving PWB	Receives light from the document detection light emitting PWB to detect the document size.
4	Document detection light emitting PWB	Emits light for detection of the document size.
5	USB connector PWB	For USB connecting

## C. 8.1 inch operation panel



Signal	Name	Function/Operation
OCSW	Original cover SW	Document size detection timing switch
PWRSW	Operaton panel power supply switch	Outputs the ON/OFF control signal of the DC power source.

No.	Name	Function/Operation
1	8.1 MFP OPE-P PWB	Detects the pressed key on the operation panel.
2	LVDS PWB	Converts the display signal and outputs to the LCD.
3	Document detection light receiving PWB	Receives light from the document detection light emitting PWB to detect the document size.
4	Document detection light emitting PWB	Emits light for detection of the document size.
5	LCD INV PWB	Emits the document size detection LED lights.
6	USB connector PWB	For USB connecting

## 2. Operational descriptions

### A. Outline

The operation panel is composed of the MFP OPE PWB, the LCD INV PWB, the LVDS PWB, the USB CN PWB, the LCD unit, and the operation key, and is used to operation the machine, to set and to display the status.

They are connected with the document detection light receiving PWB for detection of the document size. They receive light from the document detection light emitting PWB attached to the rear frame side, detecting the document size.

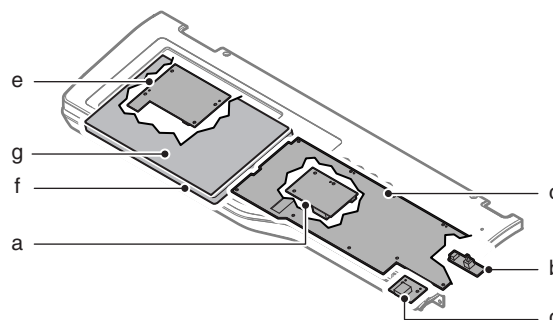
The power switch of the operation panel outputs the ON/OFF control signal of the DC power.

The USB connector can be connected with the USB memory, the USB keyboard, the IC card writer, the IC card reader, and the USB hub, sending the electronic data to the mother PWB.

Use of the keyboard in the lower section of the operation panel facilitates text inputs.

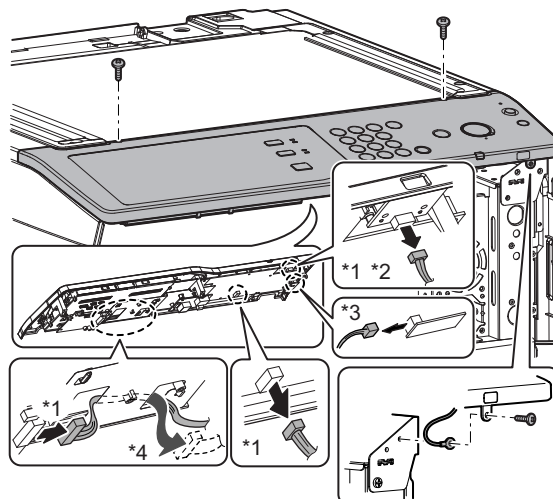
## 3. Disassembly and assembly

### ▲ A. 7.0/8.5 inch operation panel unit



Parts	
a	LCD INV PWB (For 8.5 inch LCD)
b	POWER SW PWB
c	7.0/8.5 MFP OPE PWB
d	USB connector PWB
e	LVDS PWB
f	LCD module
g	Touch panel

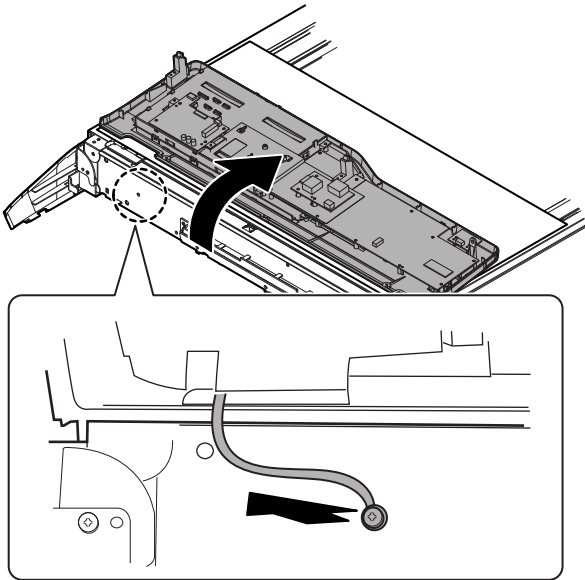
- 1) Remove the operation panel base plate.  
[Refer to "[A] EXTERIOR."]
- 2) Remove the screw and the earth wire. Disconnect four connectors.



- \*1: Since the lead wire is provided with the lock, do not pull the lead wire.  
Hold the connector and pull it out.
- \*2: Note that the lock is on the back surface.
- \*3: When disconnecting the connector, pull the lead wire slowly.
- \*4: Disconnect the connector from the Mylar.



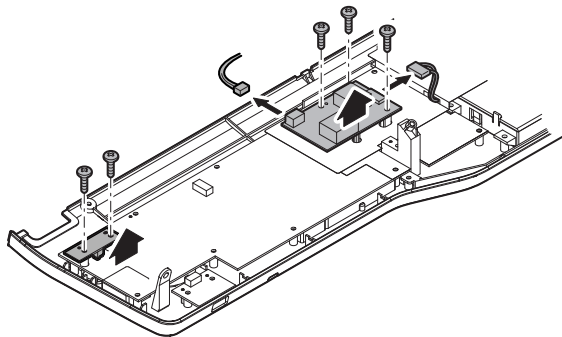
- 3) Remove the screw, remove the earth harness from the machine, and turn the operation panel back.



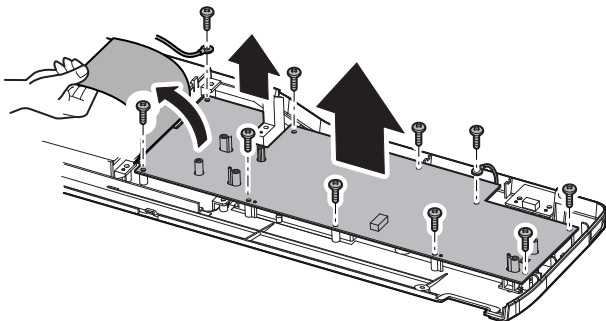
**(1) LCD INV PWB/POWER SW PWB/  
8.5 MFP OPE PWB/7.0 MFP OPE PWB**

- 1) Remove the operation panel unit.
- 2) Disconnect the connector and remove the screw. Remove the LCD INV PWB and the POWER SW PWB.

▲ \* Except for MX-M282N/M362N/M452N/M502N.

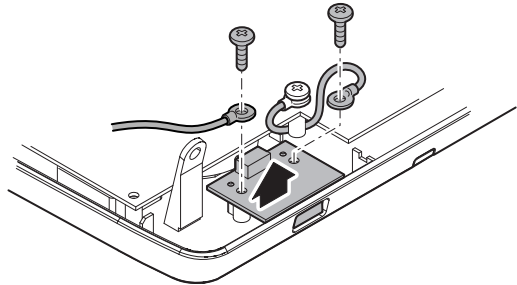


- 3) Remove the screw and the earth wire. Peel off the Mylar, and remove the earth sheet and the 8.5 MFP OPE PWB.



**(2) USB connector PWB**

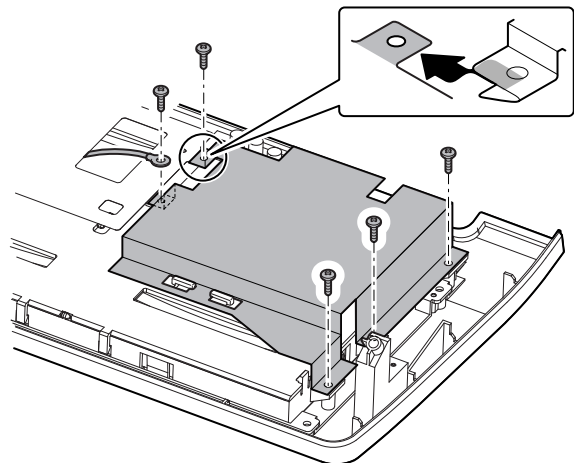
- 1) Remove the operation panel unit.
- 2) Remove the screw and the earth wire, and remove the USB connector PWB.



**(3) LVDS PWB**

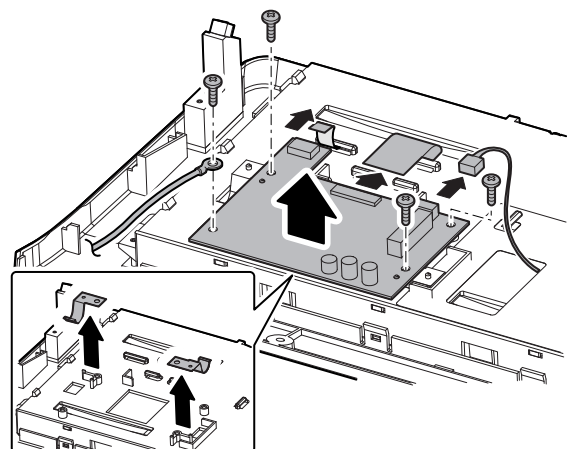
- 1) Remove the operation panel unit.
- 2) Remove the screw and the earth wire, and remove the LVDS shield sheet.

▲ \* Except for MX-M282N/M362N/M452N/M502N.



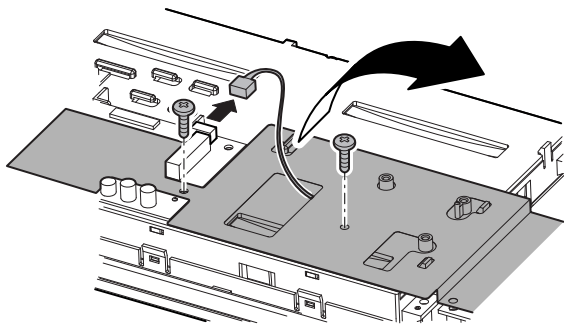
- 3) Disconnect the connector and remove the screw and the earth wire. Remove the LVDS PWB.

\* When the LVDS PWB is removed, the earth plate for the LCD is also removed. Be careful not to lose it.

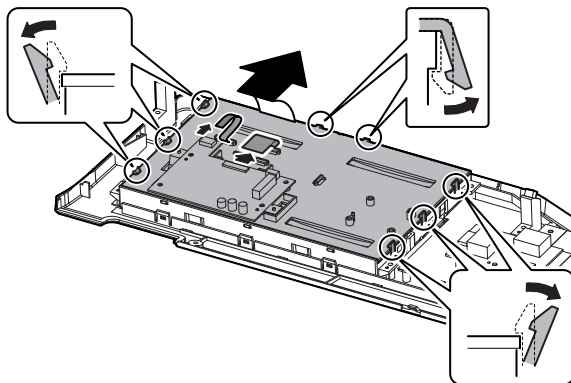


#### (4) LCD module

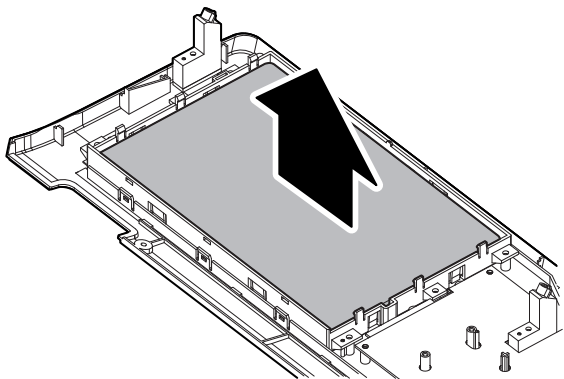
- 1) Remove the operation panel unit.
- 2) Remove the LVDS shield sheet.
- 3) Disconnect the connector and remove the screw. Remove the Mylar.



- 4) Disconnect the connector, and remove the LCD holder.

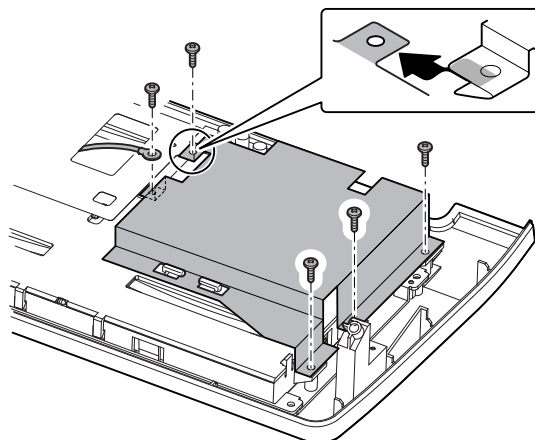


- 5) Remove the LCD module.

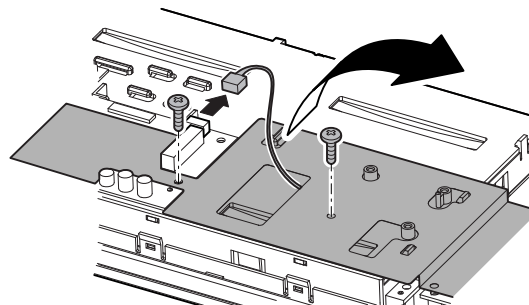


#### (5) Touch panel

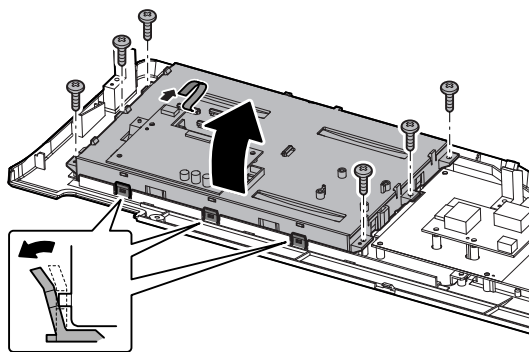
- 1) Remove the operation panel unit.
- 2) Remove the screw and the earth wire, and remove the LVDS shield sheet.



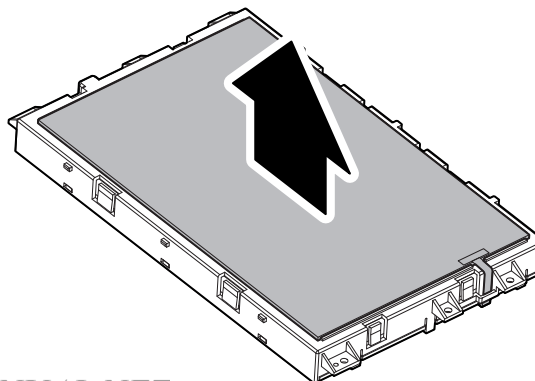
- 3) Disconnect the connector and remove the screw. Remove the Mylar.



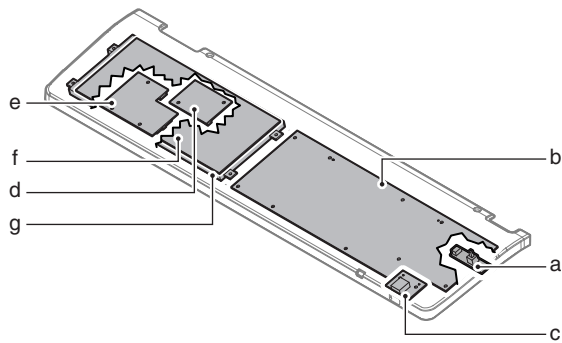
- 4) Disconnect the connector and remove the screw, and remove the LCD unit.



- 5) Remove the touch panel.

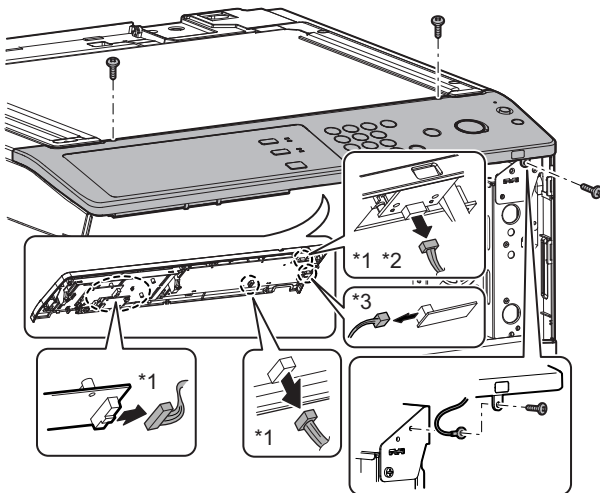


## B. 8.1 inch operation panel unit



Parts	
a	POWER SW PWB
b	MFP OPE-P PWB
c	USB connector PWB
d	LCD INV PWB
e	LVDS PWB
f	LCD module
g	Touch panel

- 1) Remove the operation panel base plate.  
[Refer to "[A] EXTERIOR."]
- 2) Remove the screw, and disconnect the connector.

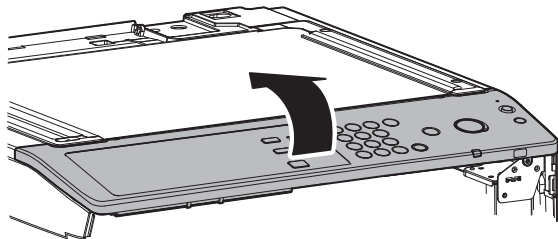


\*1: Since the lead wire is provided with the lock, do not pull the lead wire.  
Hold the connector and pull it out.

\*2: Note that the lock is on the back surface.

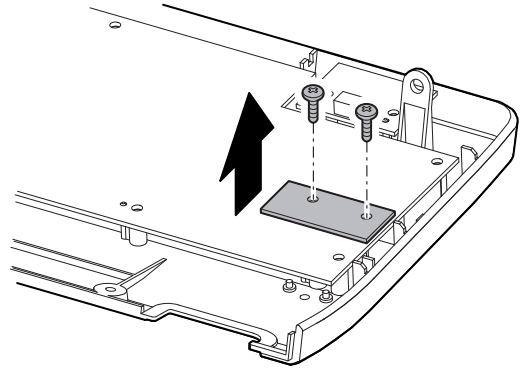
\*3: When disconnecting the connector, pull the lead wire slowly.

- 3) Put the operation panel upside down.

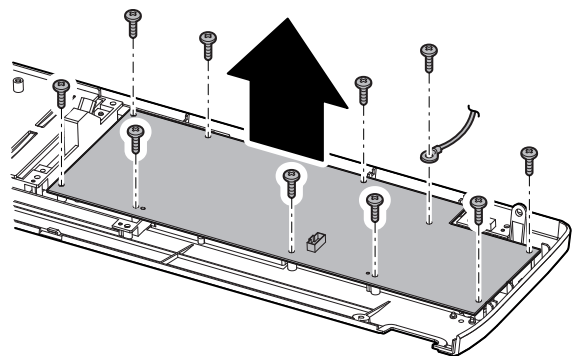


### (1) POWER SW PWB/MFP OPE-P PWB

- 1) Remove the operation panel unit.
- 2) Remove the screw, and remove the POWER SW PWB.

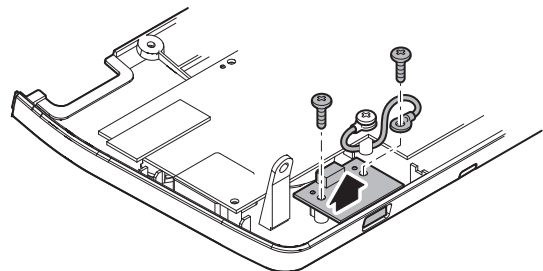


- 3) Remove the screw and the earth wire, and remove the MFP OPE-P PWB.



### (2) USB connector PWB

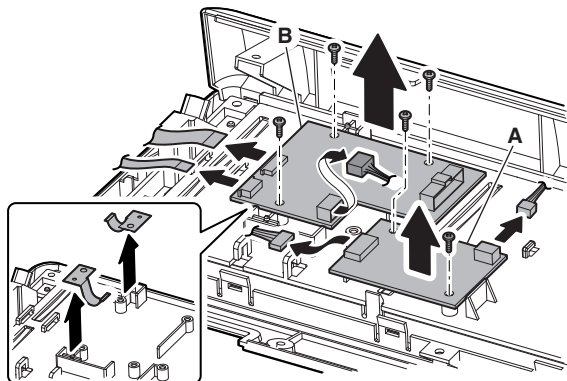
- 1) Remove the operation panel unit.
- 2) Remove the screw and the earth wire, and remove the USB connector PWB.



### (3) LCD INV PWB/LVDS PWB

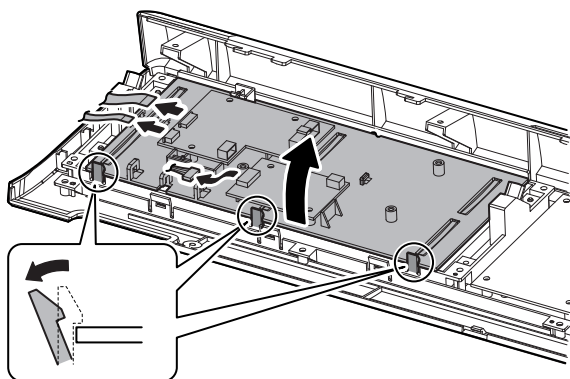
- 1) Remove the operation panel unit.
- 2) Disconnect the connector and remove the screw, and remove the LCD INV PWB (A) and the LVDS PWB (B).

\* When the LCD INV PWB and the LVDS PWB are removed, the earth wire for the LCD is also removed. Be careful not to lose it.

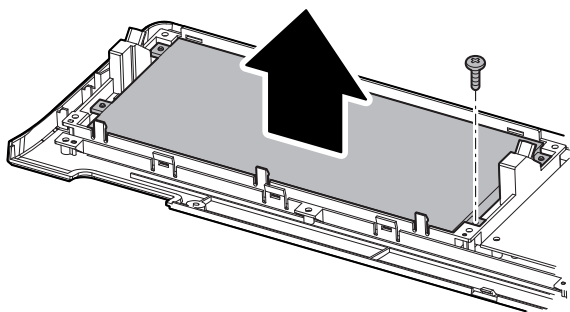


### (4) LCD module

- 1) Remove the operation panel unit.
- 2) Disconnect the connector, and remove the LCD holder.

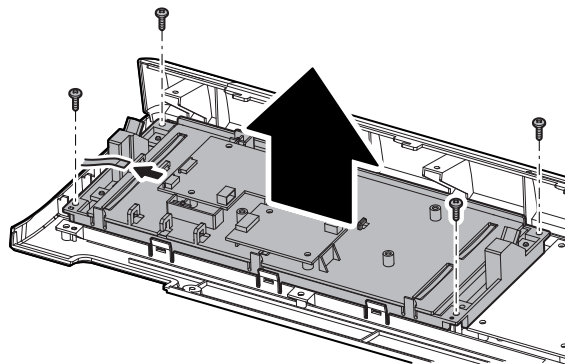


- 3) Remove the screw, and remove the LCD module.

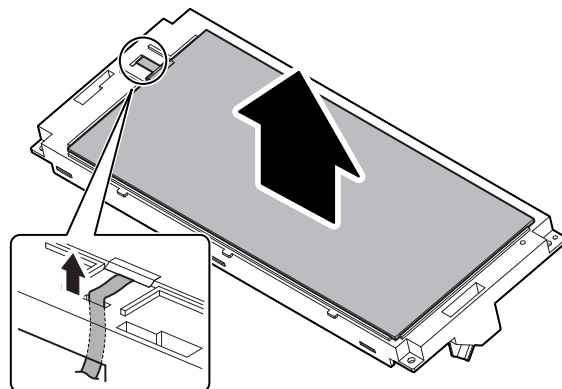


### (5) Touch panel

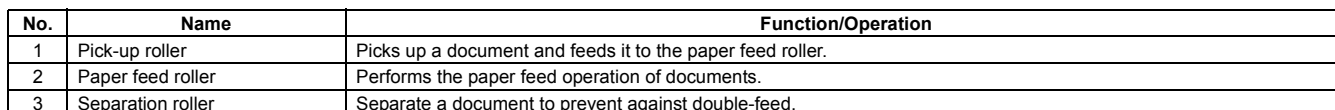
- 1) Remove the operation panel unit.
- 2) Disconnect the connector and remove the screw, and remove the LCD unit.



- 3) Remove the touch panel.



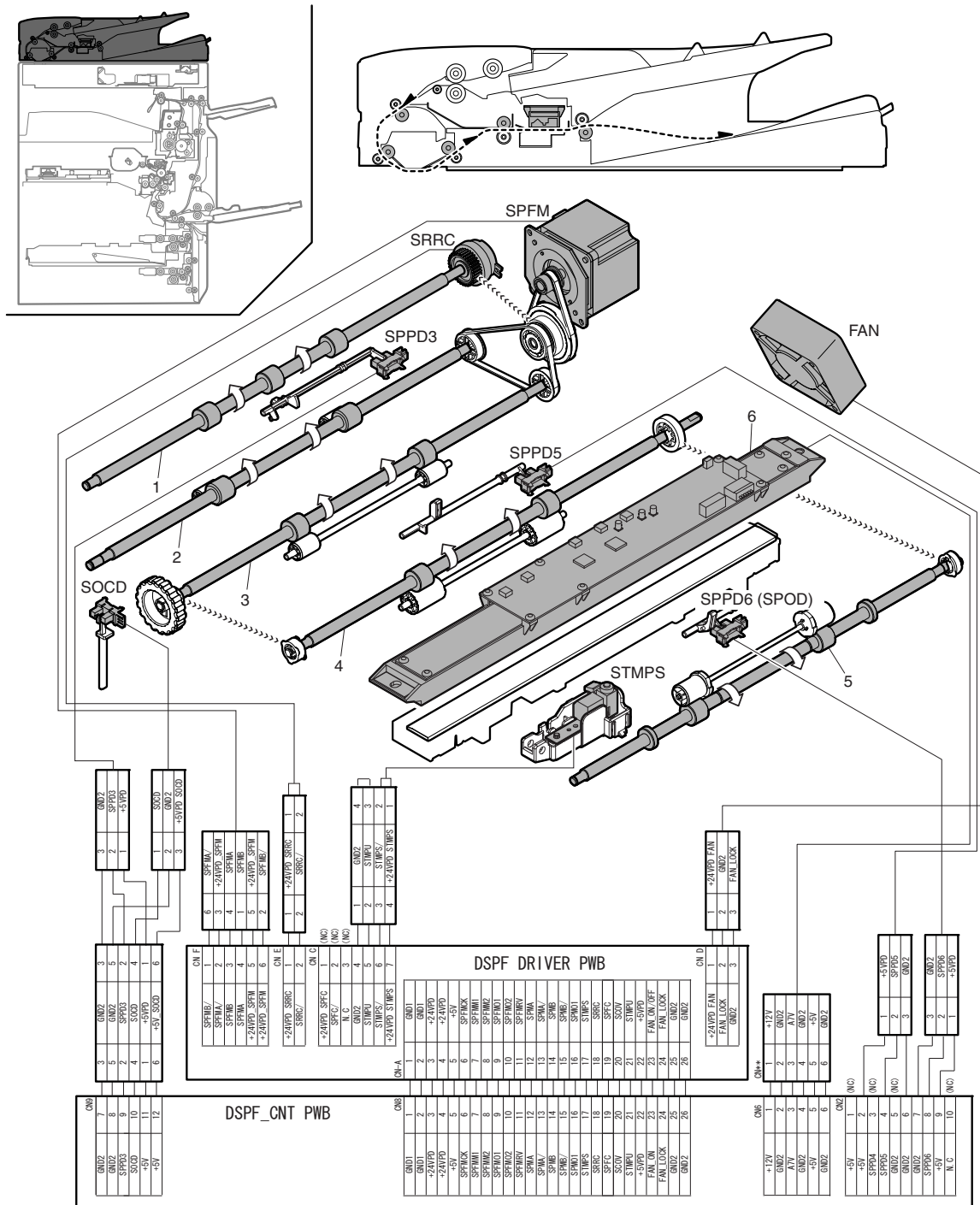
### (1) Paper feed section



Signal name	Name	Type	Function/Operation
SCOV	DSPF upper cover open/close sensor	Micro switch	Detects open/close of the DSPF upper cover.
SPED	DSPF document sensor	Transmission type	Detects document empty in the DSPF paper feed tray.
SPLS1	DSPF document length sensor (short)	Transmission type	Detects the document length in the DSPF paper feed tray.
SPLS2	DSPF document length sensor (long)	Transmission type	Detects the document length in the DSPF paper feed tray.
SPM	Paper feed motor	Stepping motor	Drives the rollers in the paper feed section.
SPPD1	DSPF paper pass sensor 1	Transmission type	Detects pass of the paper.
SPPD2	DSPF paper pass sensor 2	Transmission type	Detects pass of the paper.
SPWS	DSPF document width sensor	Volume resistor	Detects the document width in the DSPF paper feed tray.



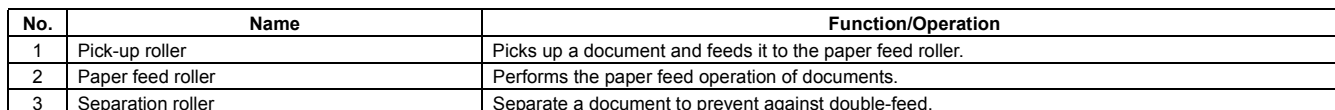
## (2) Transport section



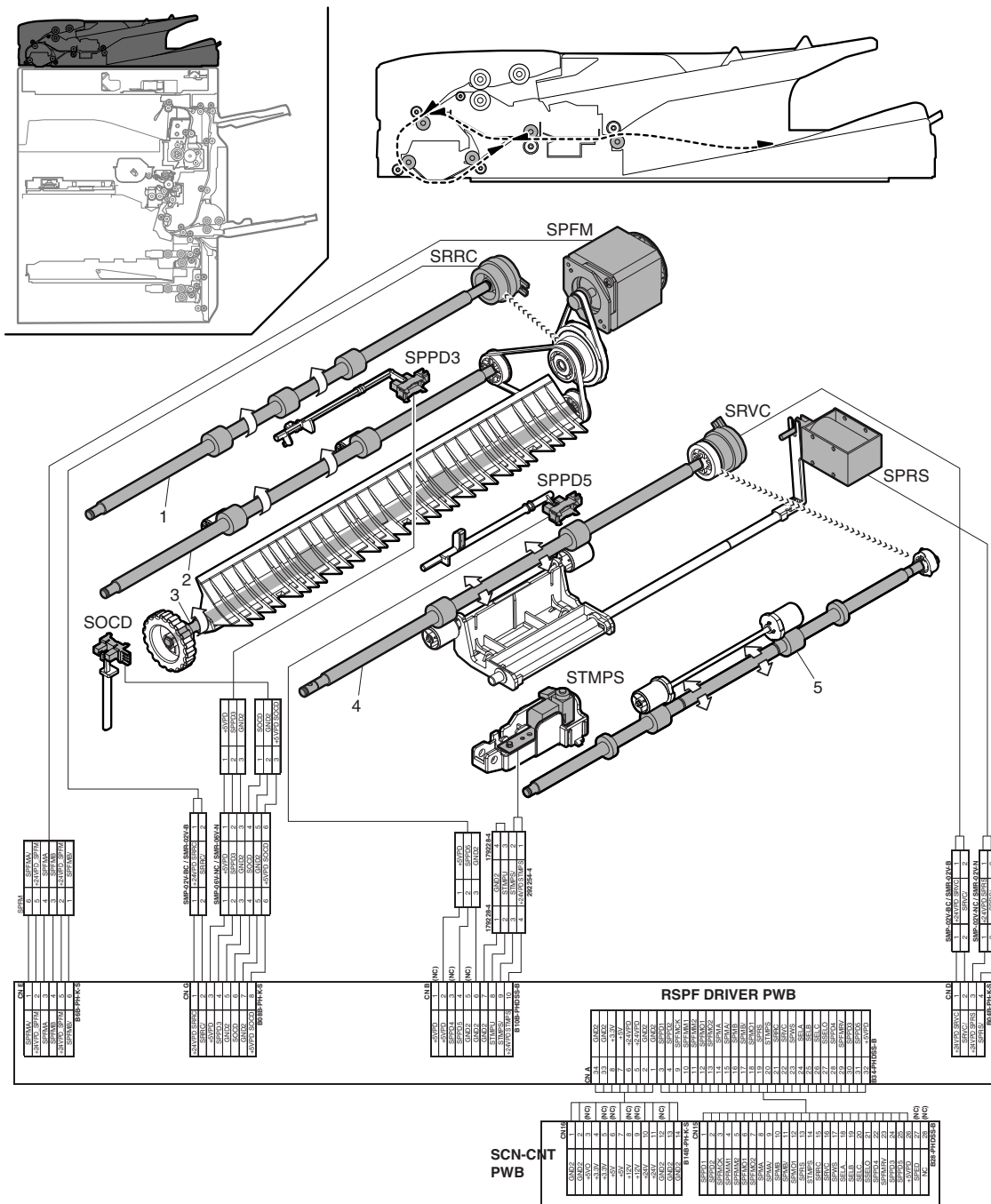
No.	Name	Function/Operation
1	Resist roller (Drive)	Performs resist of document transport.
2	Transport roller 1 (Drive)	Transports paper from resist roller to No. 2 resist roller.
3	Transport roller 2 (Drive)	Transports paper to the transport 3 roller.
4	Transport roller 3 (Drive)	Transports paper from the transport roller 2 to the paper exit roller.
5	Paper exit roller (Drive)	Discharges paper.
6	DSPF CIS unit	Reads document images. (CIS PWB: CIS control, LED: Light source)

Signal name	Name	Type	Function/Operation
FAN	Cooling fan motor	DC motor	Cools the CIS unit and the motor.
SOCD	DSPF open/close sensor	Transmission type	Detects open/close of the DSPF unit.
SPFM	Transport motor	Stepping motor	Drives the transport roller.
SPPD3	DSPF paper pass sensor 3	Transmission type	Detects pass of the paper.
SPPD5	DSPF paper pass sensor 5	Transmission type	Detects pass of the paper.
SPPD6 (SPOD)	DSPF paper exit sensor	Transmission type	Detects pass of the paper.
SRRC	PS clutch	Electromagnetic clutch	Controls ON/OFF of resist roller.
STMPs	Stamp solenoid	Electromagnetic solenoid	Drives the stamp.

### (1) Paper feed section

MX-M503N DSPF/RSPF SECTION C - 3

## (2) Transport section



No.	Name	Function/Operation
1	Resist roller (Drive)	Performs resist of document transport.
2	Transport roller 1 (Drive)	Transports paper from resist roller to No. 2 resist roller.
3	Transport roller 2 (Drive)	Transports paper to the transport 3 roller.
4	Transport roller 3 (Drive)	Transports paper from the transport roller 2 to the paper exit roller. / Transports document to the resist roller when reversing the document.
5	Paper exit roller (Drive)	Discharges paper.

Signal name	Name	Type	Function/Operation
SOCD	RSPF open/close sensor	Transmission type	Detects open/close of the RSPF unit.
SPFM	Transport motor	Stepping motor	Drives the transport roller.
SPPD3	RSPF paper pass sensor 3	Transmission type	Detects pass of the paper.
SPPD5	RSPF paper pass sensor 5	Transmission type	Detects pass of the paper.
SPRS	Pressure release solenoid	Electromagnetic solenoid	Releases the pressure of the transport roller 3 when reversing a document and transporting it to the resist roller.
SRRC	PS clutch	Electromagnetic clutch	Controls ON/OFF of resist roller.
SRVC	Reverse clutch	Electromagnetic clutch	Controls ON/OFF of the transport power of the transport roller 3 and the paper exit roller when discharging a document and reversing it to transport to the resist roller.
STMPs	Stamp solenoid	Electromagnetic solenoid	Drives the stamp.



## 2. Operational descriptions

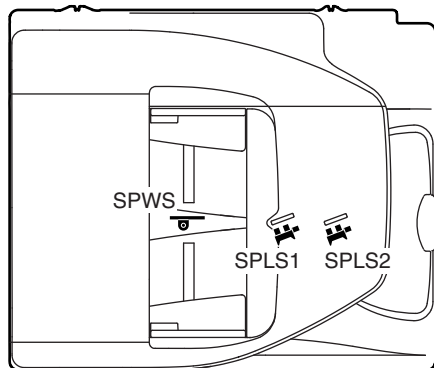
### A. Document size detection

Size detection on the document tray

The document width is detected by the document width sensor (SPWS), and the document length is detected by the document length sensors (SPLS1, SPLS2). The document size is judged from the document width and the document length as shown in the table below.

When, however, mixed sizes of documents are loaded on the tray, the maximum size is detected.

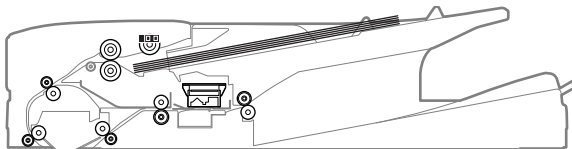
	Document size	Document length sensor	
		SPLS1	SPLS2
AB series	A5	OFF	OFF
	B5	OFF	OFF
	11" x 8.5"	OFF	OFF
	A4	OFF	OFF
	B5R	ON	OFF
	A4R	ON	OFF
	8.5" x 13"	ON	ON
	B4	ON	ON
	A3	ON	ON
	11" x 17"	ON	ON
Inch series	8.5" x 5.5"	OFF	OFF
	11" x 8.5"	OFF	OFF
	A4	OFF	OFF
	11" x 8.5"R	ON	OFF
	8.5" x 13"	ON	ON
	8.5" x 14"	ON	ON
	A3	ON	ON
	11" x 17"	ON	ON



### B. Paper feed and transport operations (DSPF)

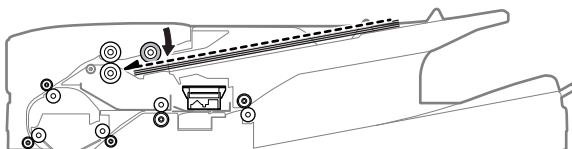
#### (1) Single face scanning

- 1) Document set (Document empty sensor ON)



- 2) Paper feed start (1st sheet)

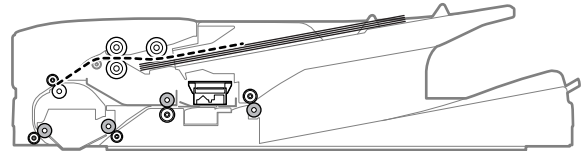
The pick-up roller descends. (The paper feed motor is booted.)  
(The transport motor is booted simultaneously.)



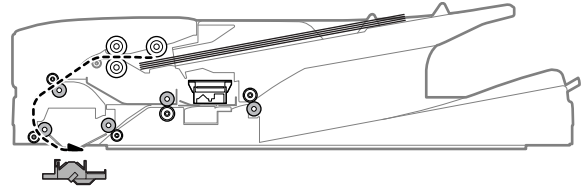
- 3) Resist operation (1st sheet)

(Resist clutch ON)

(When a certain time passes after turning ON the resist clutch, the paper feed motor is turned OFF.)

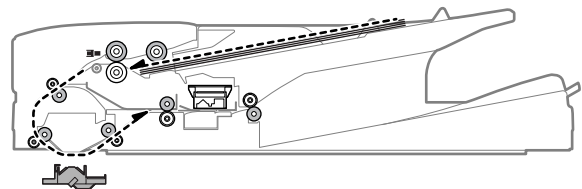


- 4) Scanning start (1st sheet)



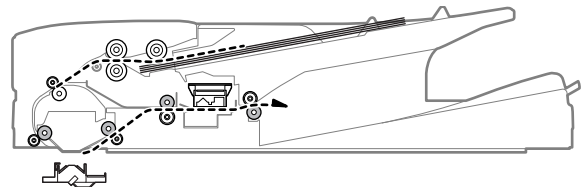
- 5) Paper feed start (2nd sheet)

(When the SPPD1 detects the rear edge of the previous document, the paper feed motor is booted.)

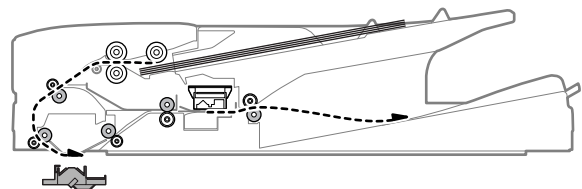


- 6) Scanning complete (1st sheet)/Resist operation (2nd sheet)

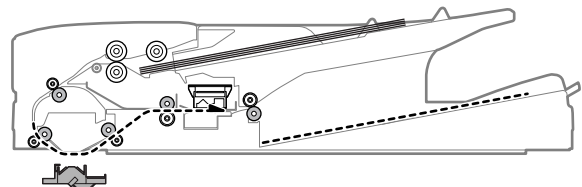
(When a certain time passes after turning ON the resist clutch, the paper feed motor is turned OFF.)



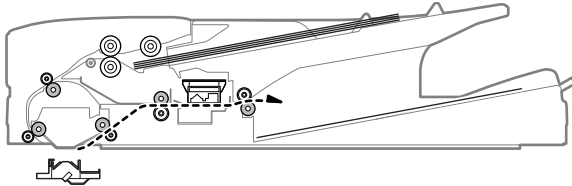
- 7) Scanning start (2nd sheet)



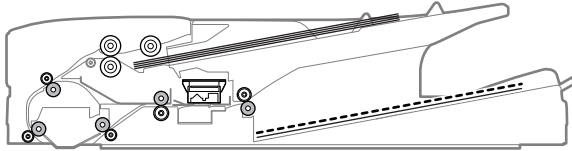
- 8) Paper exit complete (1st sheet)



9) Scanning complete (2nd sheet)

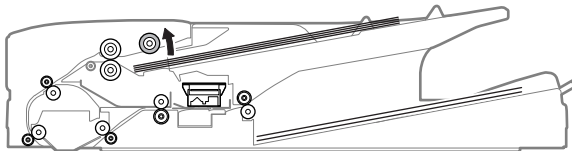


10) Paper exit complete (2nd sheet)



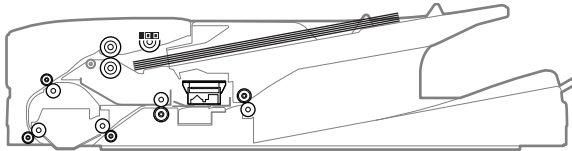
11) Pick-up roller lifting up

(After completion of a job, the paper feed motor is rotated reversely at a low speed for a certain time to lift the pickup roller.)

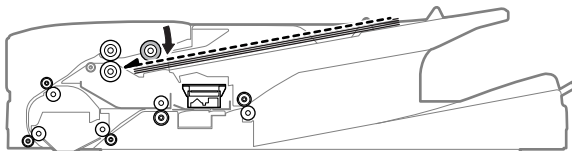


## (2) Duplex scanning

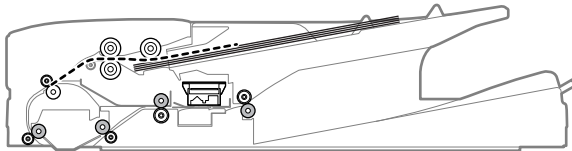
1) Document set (Document empty sensor ON)



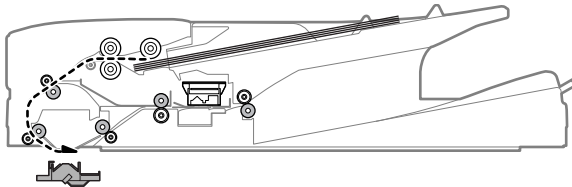
2) Paper feed start (1st sheet)  
Pick-up roller descending



3) Resist operation (1st sheet, front surface)

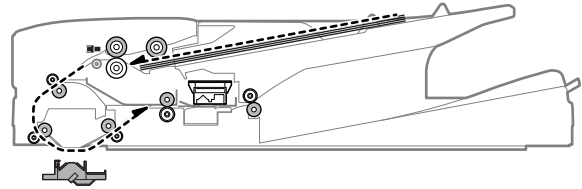


4) Scanning start (1st sheet, front surface)

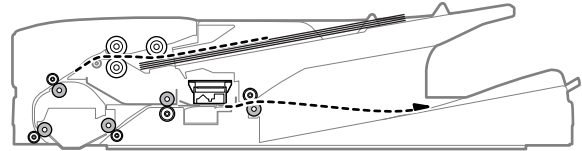


5) Preliminary paper feed start (2nd sheet)

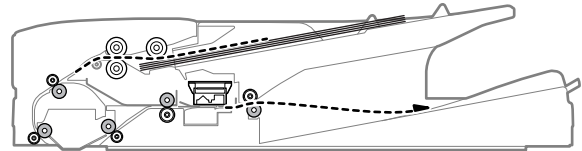
(When the SPPD1 detects the rear edge of the previous document, the paper feed motor is booted.)



6) Scanning start (1st sheet, back surface)/Preliminary paper feed complete (2nd sheet)



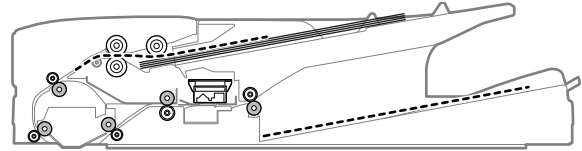
7) Scanning complete (1st sheet, back surface)



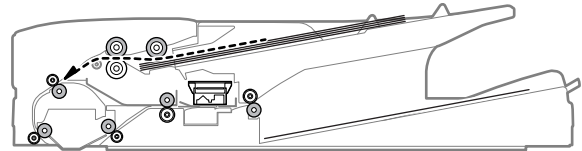
The paper feed transport operation is the same as single-surface scanning. Since, however, the next page surface must be scanned after scanning the back surface with the CIS, the next page is stopped temporarily at the resist roller section until scanning of the back surface and the process on the MFP side are completed.

Therefore, the paper interval becomes longer in duplex scanning.

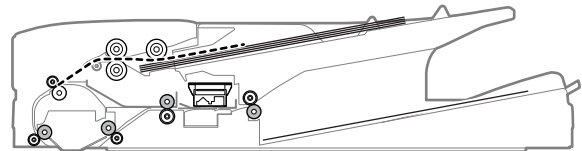
8) Paper exit complete (1st sheet)



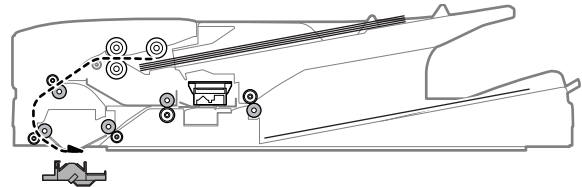
9) Paper feed start (2nd sheet)



10) Resist operation (2nd sheet, front surface)

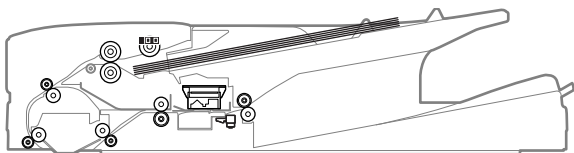


11) Scanning start (2nd sheet, front surface)

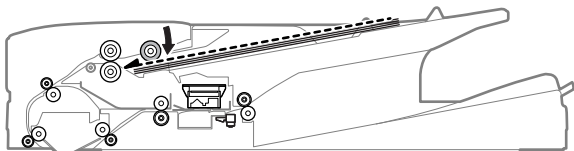


### (3) Stamp operation

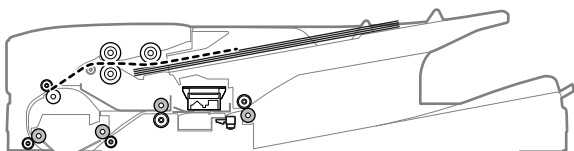
- 1) Document set (Document empty sensor ON)



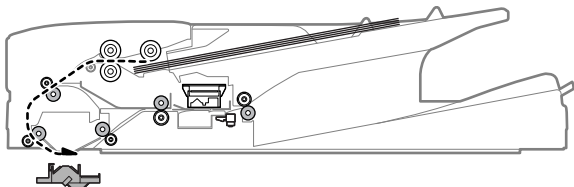
- 2) Paper feed start (1st sheet)  
Pick-up roller descending (The paper feed motor is booted.)  
(The transport motor is booted simultaneously.)



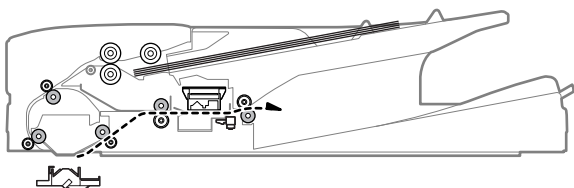
- 3) Resist operation (1st sheet)  
(Resist clutch ON)  
(When a certain time passes after turning ON the resist clutch, the paper feed motor is turned OFF.)



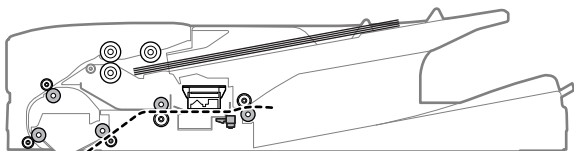
- 4) Scanning start (1st sheet)



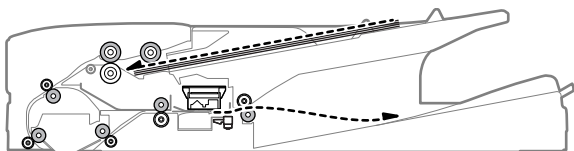
- 5) Scanning complete (1st sheet)



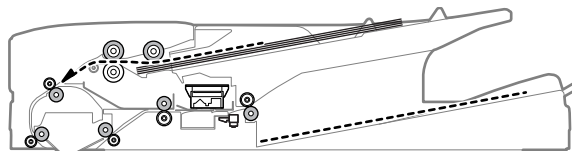
- 6) Stop at the stamp position/Stamp operation (1st sheet)  
(Stamp solenoid ON)



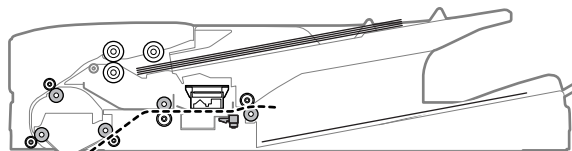
- 7) Paper exit start (1st sheet)/Preliminary paper feed start (2nd sheet)



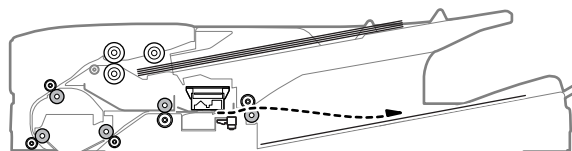
- 8) Paper exit complete (1st sheet)



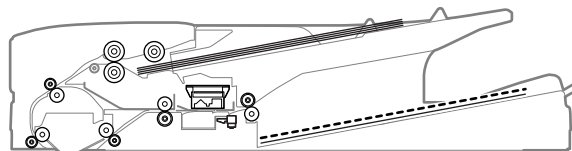
- 9) Stop at the stamp position/Stamp operation (2nd sheet)  
(Stamp solenoid ON)



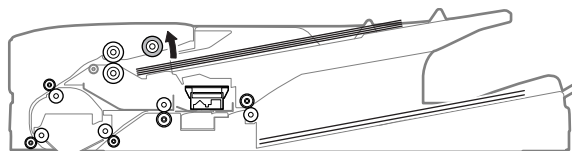
- 10) Paper exit start (2nd sheet)



- 11) Paper exit complete (2nd sheet)



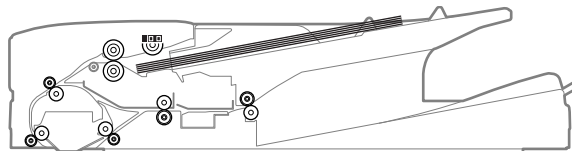
- 12) Pick-up roller lifting up  
(After completion of a job, the paper feed motor is rotated reversely at a low speed for a certain time to lift the pickup roller.)



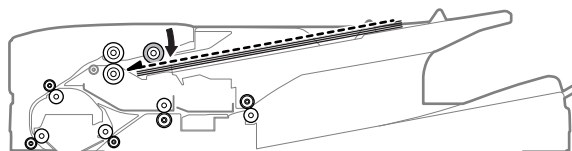
### C. Paper feed and transport operations (RSPF)

#### (1) Single face scanning

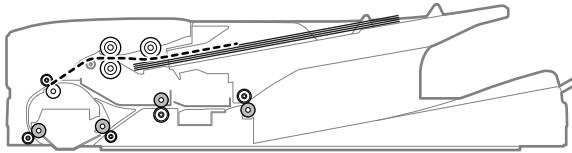
- 1) Document set (Document empty sensor ON)



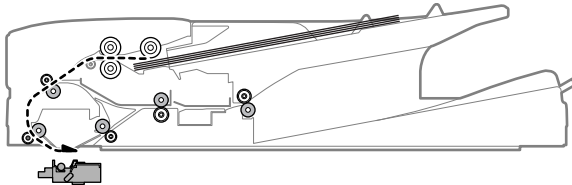
- 2) Paper feed start (1st sheet)  
The pick-up roller descends. (The paper feed motor is booted.)  
(The transport motor is booted simultaneously.)



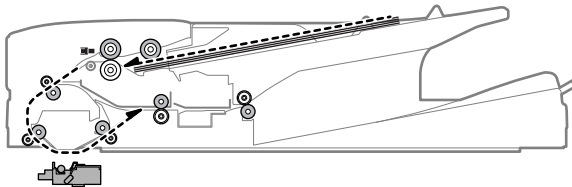
- 3) Resist operation (1st sheet)  
(Resist clutch ON)  
(When a certain time passes after turning ON the resist clutch, the paper feed motor is turned OFF.)



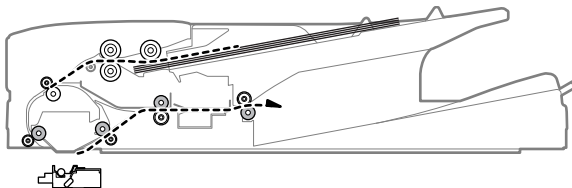
- 4) Scanning start (1st sheet)



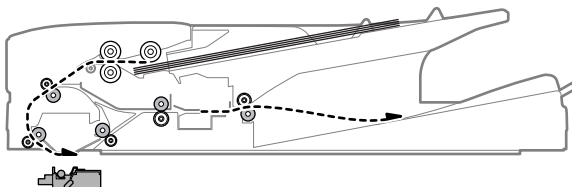
- 5) Paper feed start (2nd sheet)  
(When the SPPD1 detects the rear edge of the previous document, the paper feed motor is booted.)



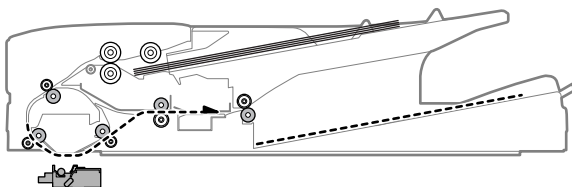
- 6) Scanning complete (1st sheet)/Resist operation (2nd sheet)  
(When a certain time passes after turning ON the resist clutch, the paper feed motor is turned OFF.)



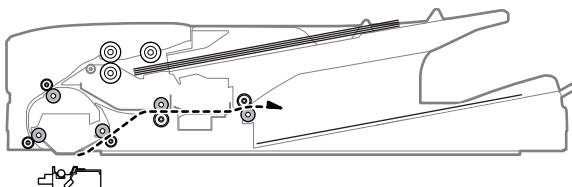
- 7) Scanning start (2nd sheet)



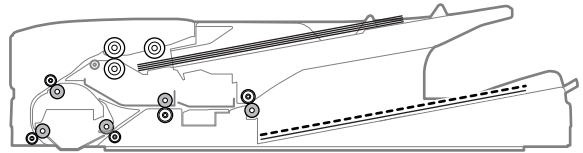
- 8) Paper exit complete (1st sheet)



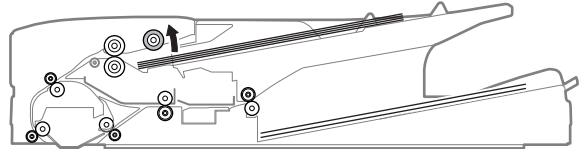
- 9) Scanning complete (2nd sheet)



- 10) Paper exit complete (2nd sheet)

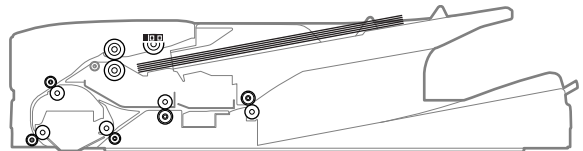


- 11) Pick-up roller lifting up  
(After completion of a job, the paper feed motor is rotated reversely at a low speed for a certain time to lift the pickup roller.)

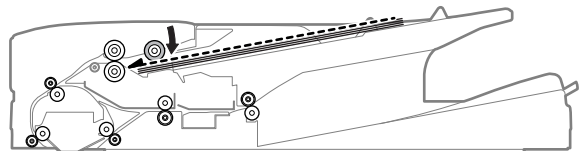


## (2) Duplex scanning

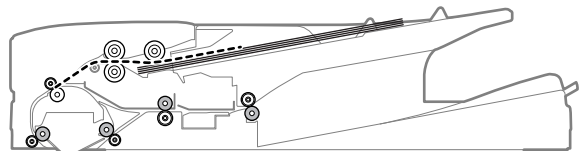
- 1) Document set (Document empty sensor ON)



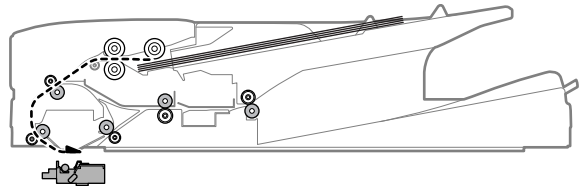
- 2) Paper feed start (1st sheet)  
Pick-up roller descending



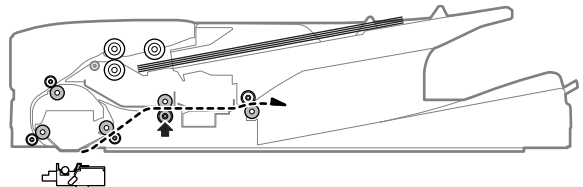
- 3) Resist operation (1st sheet, front surface)



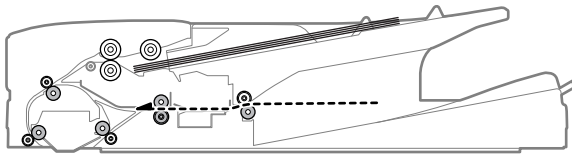
- 4) Scanning start (1st sheet, front surface)



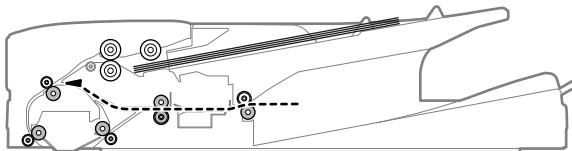
- 5) After completion of scanning, the reverse follower roller is pressed. (Solenoid ON)



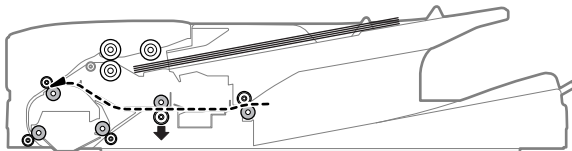
6) After stopping the operation, reversing is started.



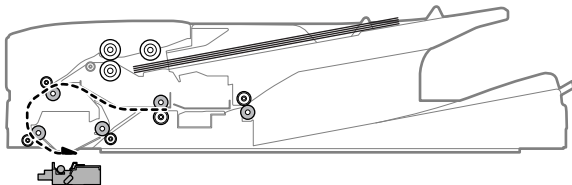
7) After reversing, resist operation is executed.



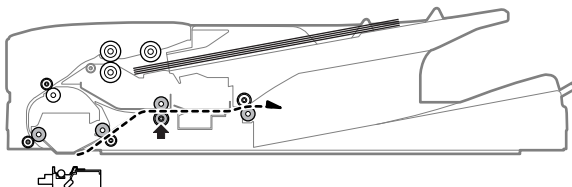
8) After turning ON the PS clutch, the reverse follower roller pressure is released.



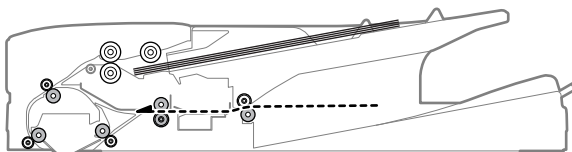
9) Scanning start (First sheet, back surface)



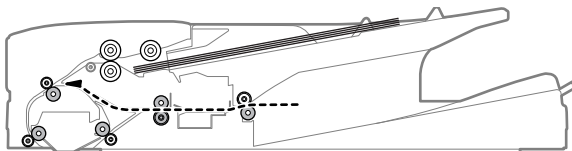
10) After completion of scanning, the reverse follower roller is pressed.



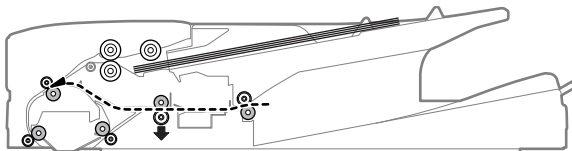
11) After stopping the operation, reversing is started.



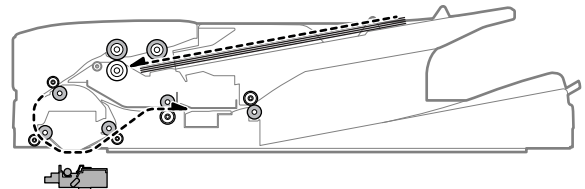
12) After reversing, resist operation is executed.



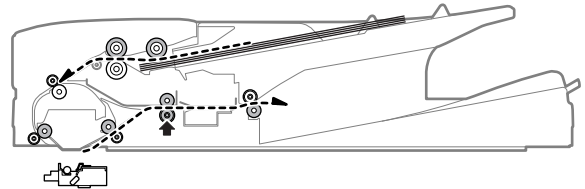
13) After turning ON the PS clutch, the reverse follower roller pressure is released.



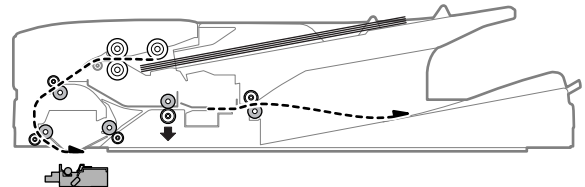
14) Scanning start (Second sheet)



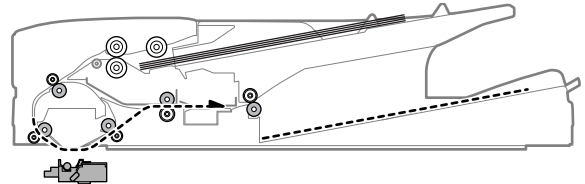
15) After passing the scanning section, the reverse follower roller is pressed.



16) The reverse follower roller pressure is released.

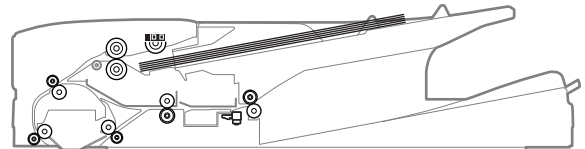


17) Discharge (First sheet)



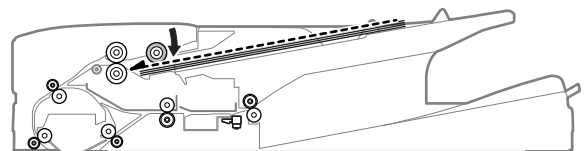
### (3) Stamp operation

1) Document set (Document empty sensor ON)



2) Paper feed start (1st sheet)

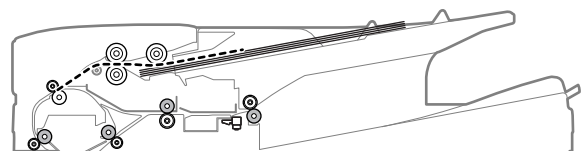
Pick-up roller descending (The paper feed motor is booted.)  
(The transport motor is booted simultaneously.)



3) Resist operation (1st sheet)

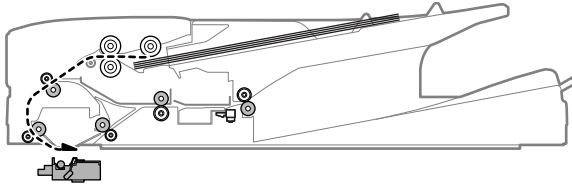
(Resist clutch ON)

(When a certain time passes after turning ON the resist clutch, the paper feed motor is turned OFF.)

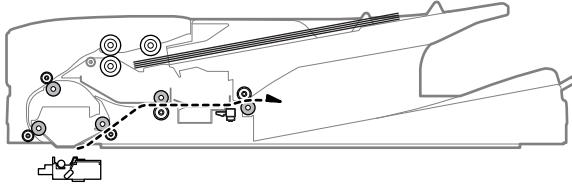




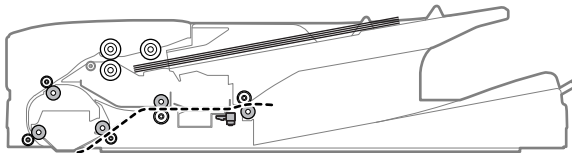
4) Scanning start (1st sheet)



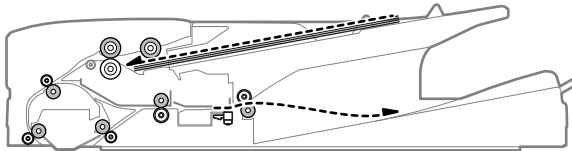
5) Scanning complete (1st sheet)



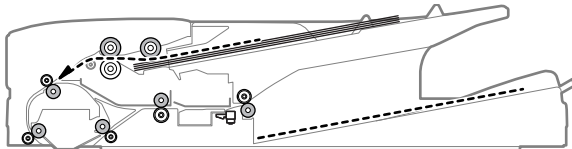
6) Stop at the stamp position/Stamp operation (1st sheet)  
(Stamp solenoid ON)



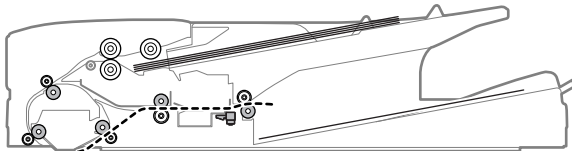
7) Paper exit start (1st sheet)/Preliminary paper feed start (2nd sheet)



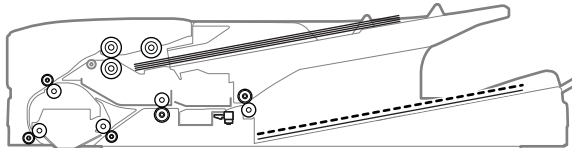
8) Paper exit complete (1st sheet)



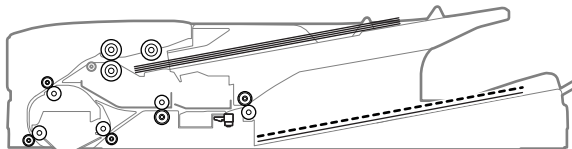
9) Stop at the stamp position/Stamp operation (2nd sheet)  
(Stamp solenoid ON)



10) Paper exit start (2nd sheet)

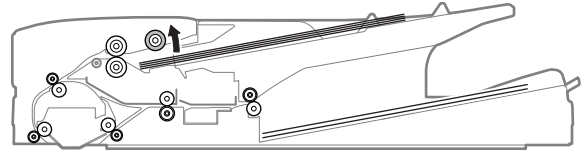


11) Paper exit complete (2nd sheet)



12) Pick-up roller lifting up

(After completion of a job, the paper feed motor is rotated reversely at a low speed for a certain time to lift the pickup roller.)



## D. Document feed, transport, scan, paper exit, and operating speed

The document fed by the pickup roller is sent through the paper feed roller and the transport roller to the resist roller section.

In the resist roller section, the document lead edge and the scan start position are synchronized.

The document is transported to the scan section. After being scanned, the document is discharged to the document exit tray by the paper exit roller.

The document transport speed depends on the resolution as shown below.

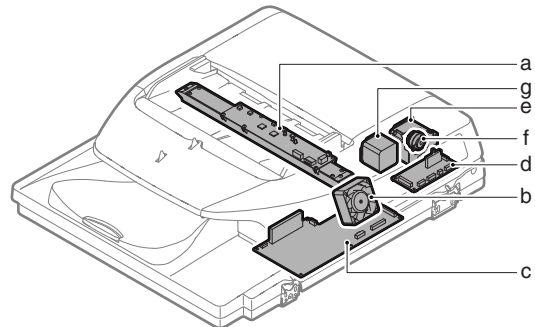
Resolution	Document transport speed	
	DSPF	RSPF
300dpi	346mm/sec.	—
400dpi	259mm/sec.	
600dpi	173mm/sec.	

## E. The original scan (DSPF)

The CIS (Contact Image Sensor) unit is the contact type image scan sensor, and is assembled to the DSPF to scan document images. The LED light in the CIS unit is radiated to a document, and the reflected light is passed through the lens to the photoelectric conversion elements to form images. (Pixel: 7196 pixels, resolution: 600dpi) The CIS and the CCD assembled in the lens unit allow simultaneous scan of duplex surfaces of a document.

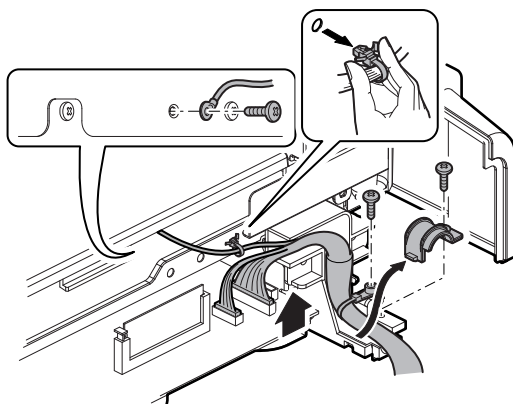
## 3. Disassembly and assembly

### A. DSPF unit

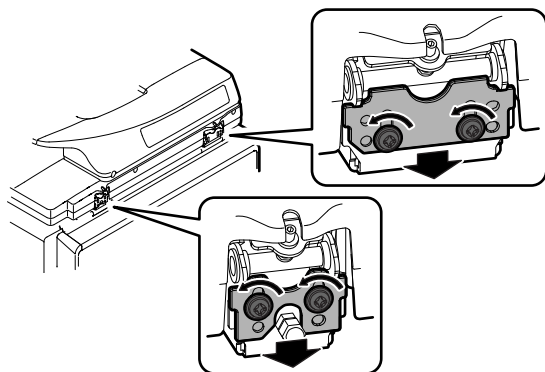


Parts	
a	DSPF CIS unit
b	Cooling fan motor
c	DSPF control PWB
d	DSPF driver PWB
e	Transport motor
f	PS clutch
g	Paper feed motor

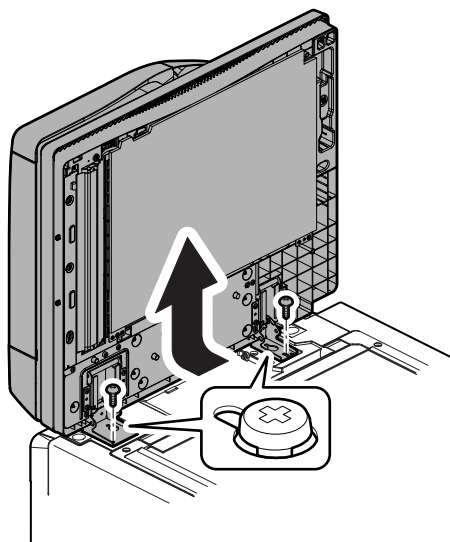
- 1) Remove the upper cabinet rear cover.  
[Refer to "[A] EXTERIOR."]
- 2) Disconnect the connector. Remove the screw, and remove the earth wire. Remove the snap band. Remove the screw, and remove the harness cover and the locking band.



- 3) Loosen the screw, and lower the angle adjustment plate.

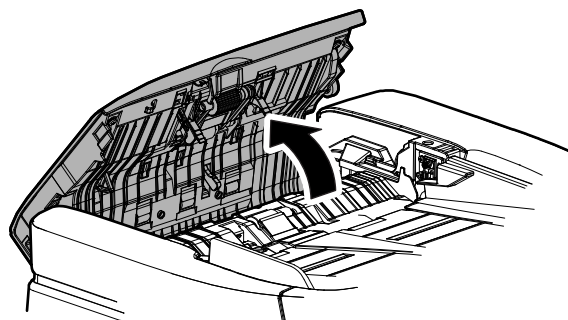


- 4) Open the DSPF unit until it is upright. Remove the screw, and slide the DSPF unit to the rear side. Fit the step screw with the key hole of the hinge and remove the DSPF unit.

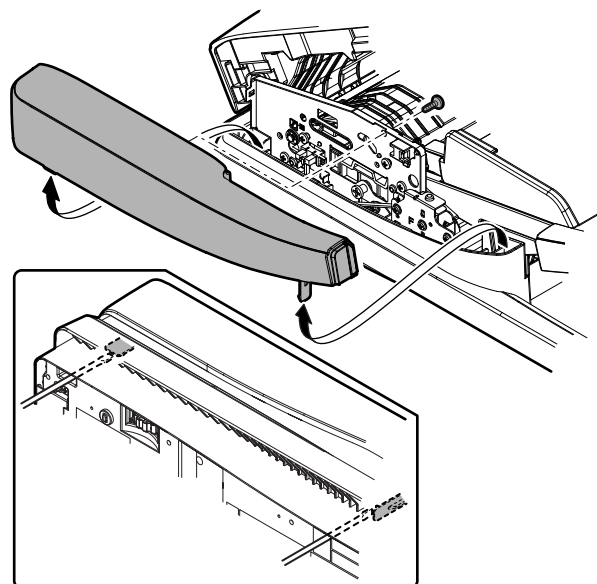


#### (1) DSPF CIS unit

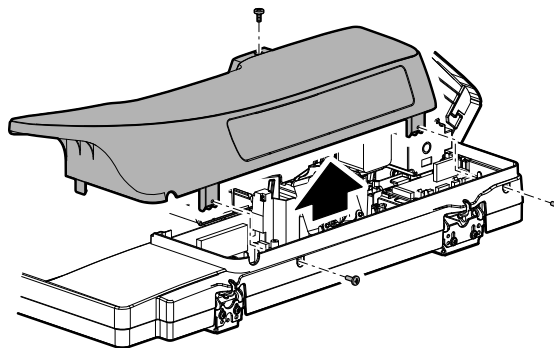
- 1) Open the paper feed unit.



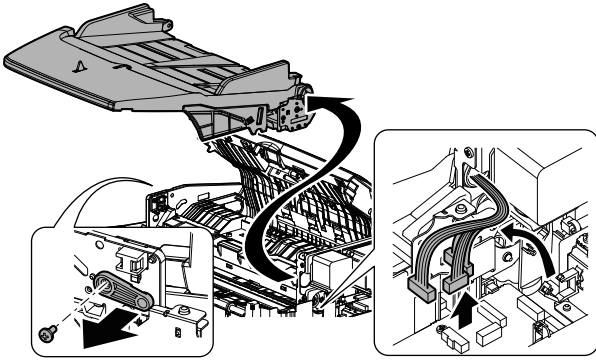
- 2) Remove the screw. Disengage the pawls (2 positions) of the front cabinet by inserting a minus screwdriver under the base tray, and remove the front cabinet.



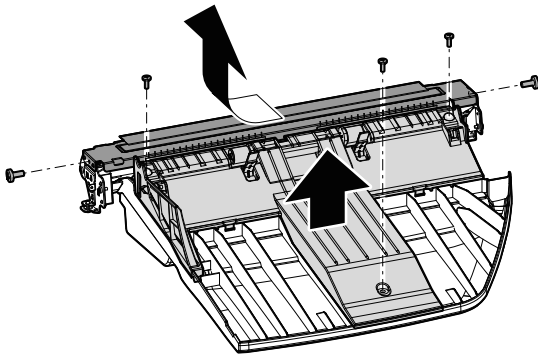
- 3) Remove the screw, and remove the rear cabinet.



- 4) Remove the harness from the wire saddle, and disconnect the connector. Remove the screw, and remove the holder. Remove the document tray.



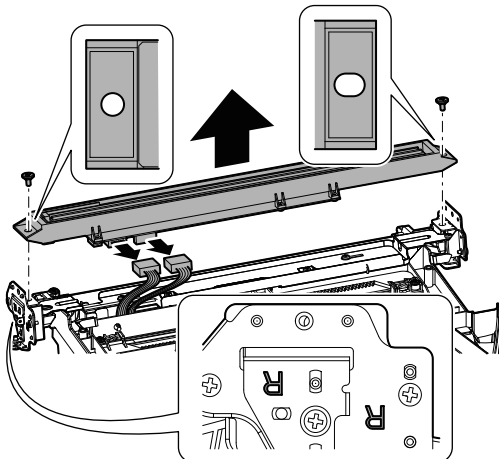
- 5) Remove the screw, and remove the document tray lower and the paper guide.



- 6) Remove the step screw. Remove the DSPF CIS unit. Disconnect the connector.

NOTE: Never touch the light source and the lens of the DSPF CIS unit.

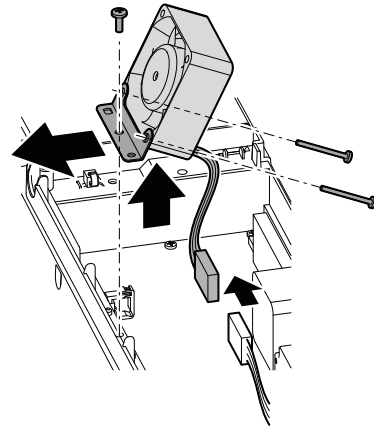
NOTE: Install so that the round hole of the DSPF CIS unit is on the rear side of the mark, and tighten the screws in the sequence of the round hole and then the long hole.



## (2) Cooling fan motor

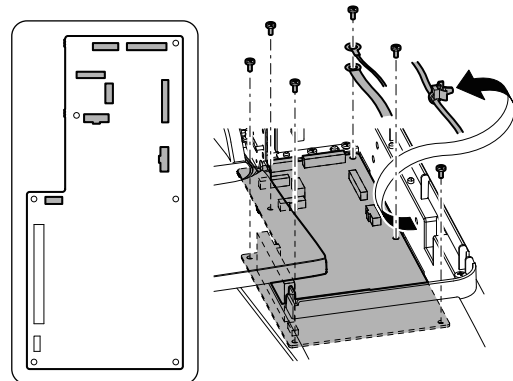
- 1) Remove the rear cabinet of the DSPF unit.
- 2) Disconnect the connector. Remove the screw, and remove the cooling fan motor. Remove the screw, and remove the mounting plate from the cooling fan motor.

NOTE: Be careful of the extending position of the harness. Be careful of the installing direction of the fan.



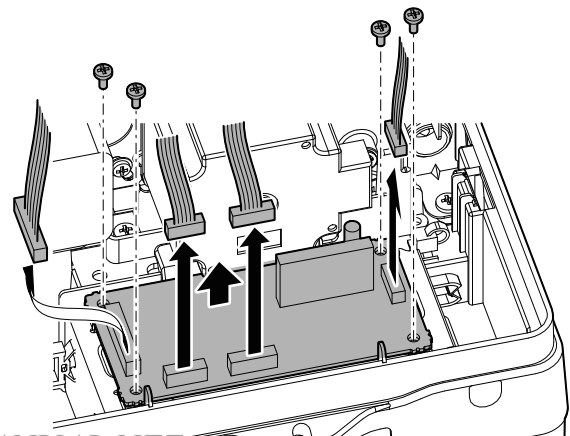
## (3) DSPF control PWB

- 1) Remove the rear cabinet of the DSPF unit.
- 2) Remove the cooling fan motor.
- 3) Remove the screw, and remove the earth wire. Remove the snap band. Disconnect the connector, remove the screw, and remove the DSPF control PWB.



## (4) DSPF driver PWB

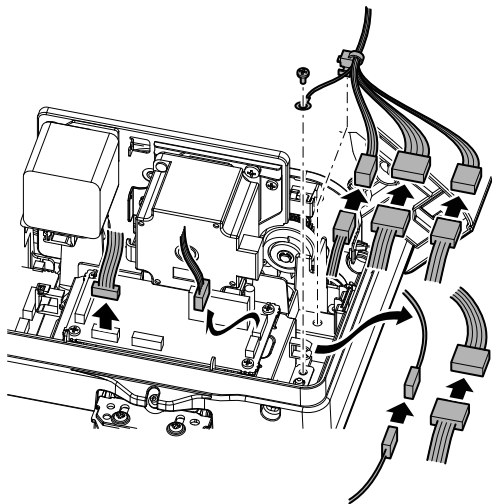
- 1) Remove the rear cabinet of the DSPF unit.
- 2) Disconnect the connector and remove the screw. Remove the DSPF driver PWB.



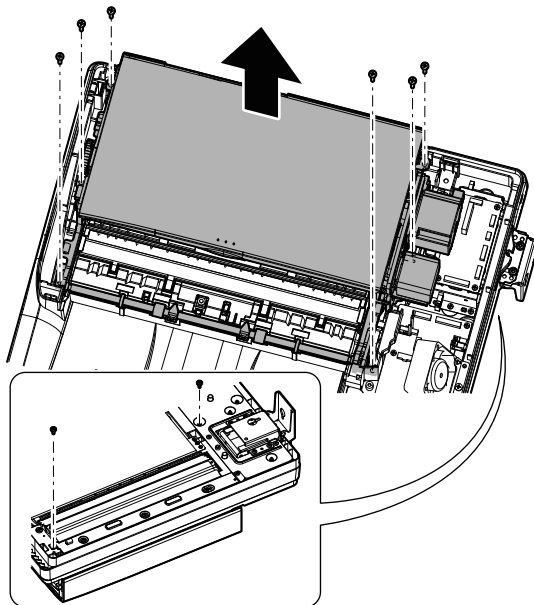


### (5) Transport motor

- 1) Remove the document tray.
- 2) Disconnect the connector, and remove the harness from the wire saddle. Remove the snap band. Remove the screw, and remove the earth wire.



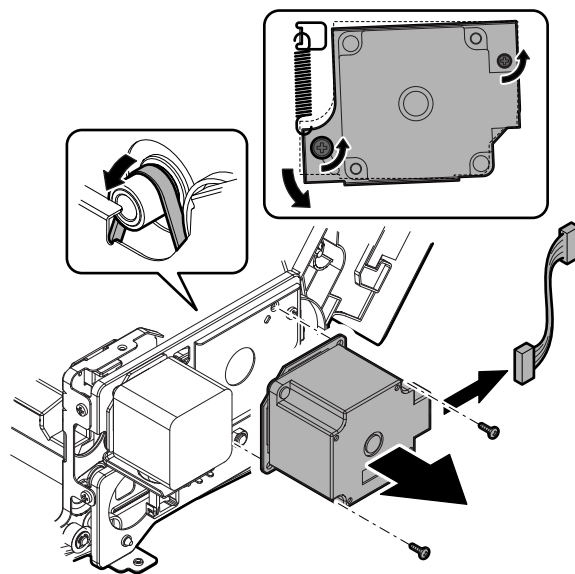
- 3) Remove the screw, and remove the transport unit.



- 4) Loosen the screw, and loosen the belt tension to remove the belt. Remove the screw, and remove the transport motor. Remove the harness from the transport motor.

NOTE: When ordering the DSPF motor as a service part, the harness is provided with the motor. Do not use this newly-provided harness, but use the one which was originally attached to the machine.

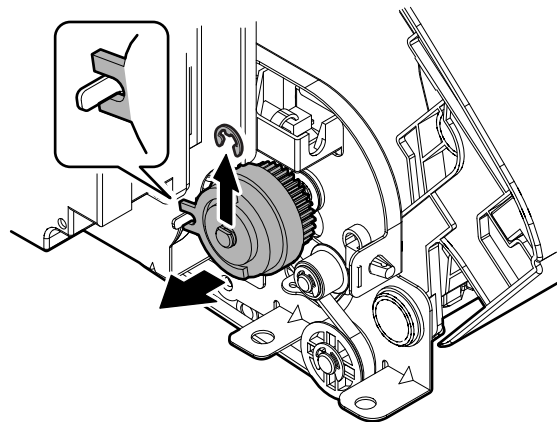
When replacement of the harness attached to the machine is required, refer to the Parts Guide and order one.



### (6) PS clutch

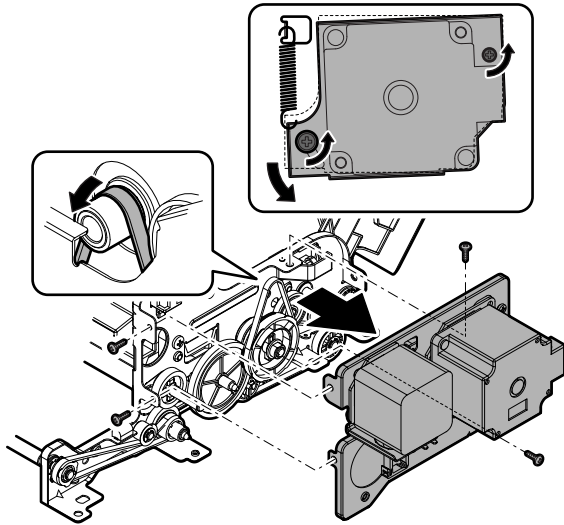
- 1) Remove the document tray.
- 2) Remove the transport unit.
- 3) Remove the E-ring, and remove the PS clutch.

NOTE: When installing, attach the rotation-stopper of the clutch to the frame.



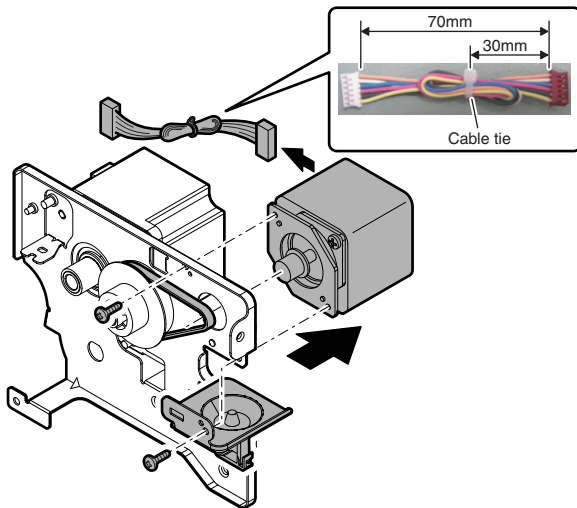
## (7) Paper feed motor

- 1) Remove the document tray.
- 2) Remove the transport unit.
- 3) Remove the PS clutch.
- 4) Loosen the belt tensioning screw to allow belt removal. Remove the screw, and remove the drive frame.

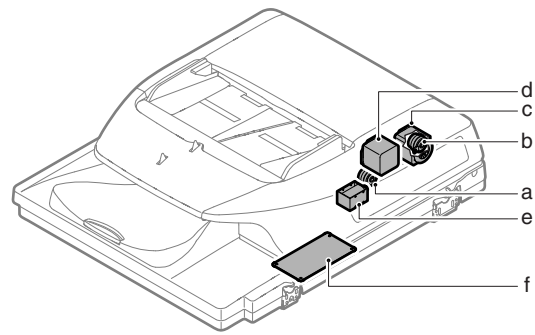


- 5) Remove the belt from the paper feed motor. Remove the screw, and remove the shield plate and the paper feed motor. Remove the harness from the paper feed motor.

**NOTE:** Do not use the attached harness. Use the original harness. If the motor harness needs replacement, order the harness shown in the parts guide.

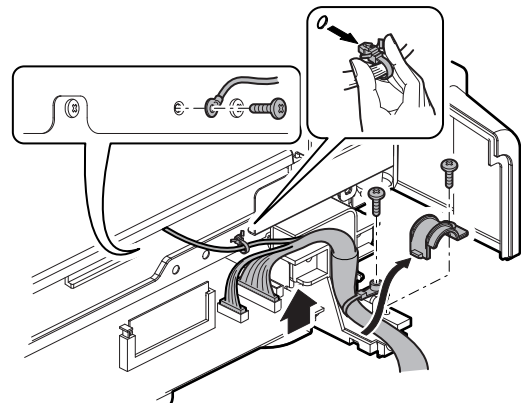


## B. RSPF unit

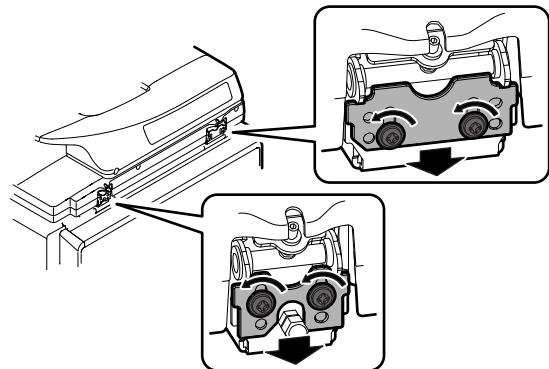


Parts	
a	Reverse clutch
b	PS clutch
c	Paper feed motor
d	Transport motor
e	Pressure release solenoid
f	RSPF driver PWB

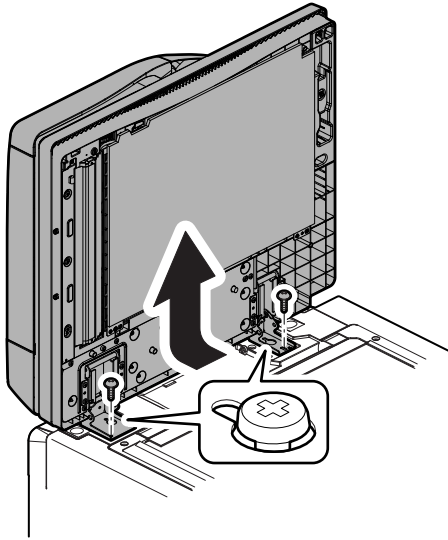
- 1) Remove the upper cabinet rear cover. [Refer to "[A] EXTERIOR."]
- 2) Disconnect the connector. Remove the screw, and remove the earth wire. Remove the snap band. Remove the screw, and remove the harness cover and the locking band.



- 3) Loosen the screw, and lower the angle adjustment plate.

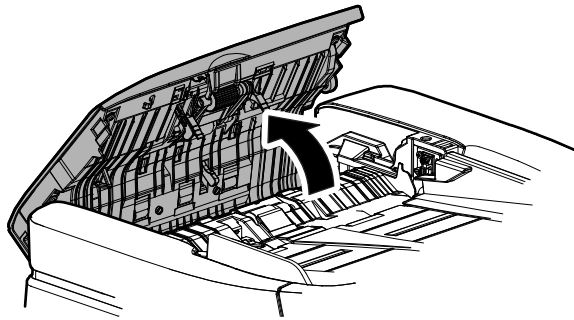


- 4) Open the RSPF unit until it is upright. Remove the screw, and slide the RSPF unit to the rear side. Fit the step screw with the key hole of the hinge and remove the RSPF unit.

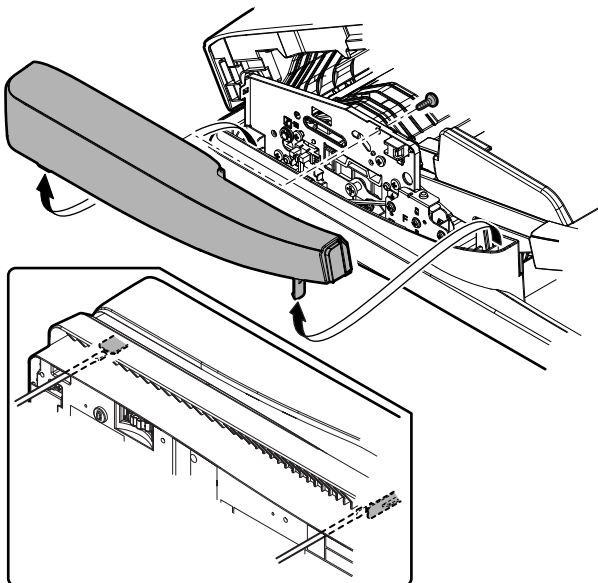


#### (1) Reverse clutch

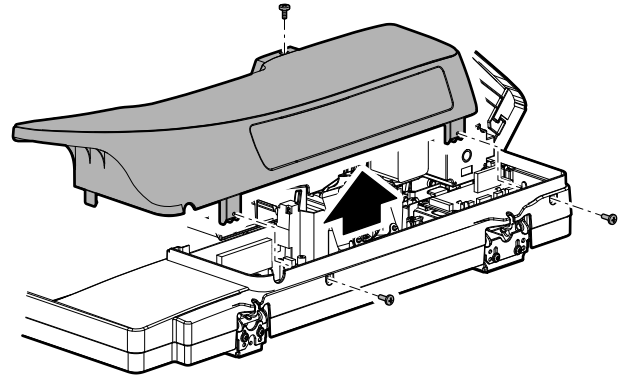
- 1) Open the paper feed unit.



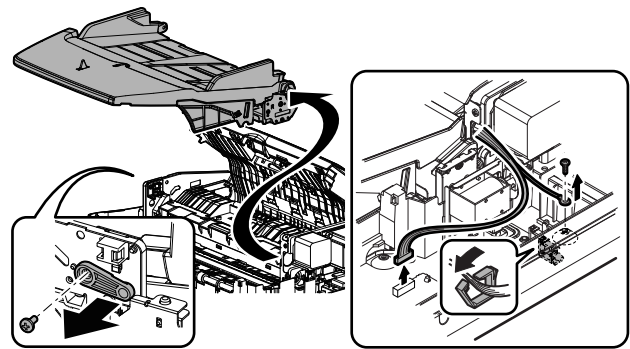
- 2) Remove the screw. Disengage the pawls (2 positions) of the front cabinet by inserting a minus screwdriver under the base tray, and remove the front cabinet.



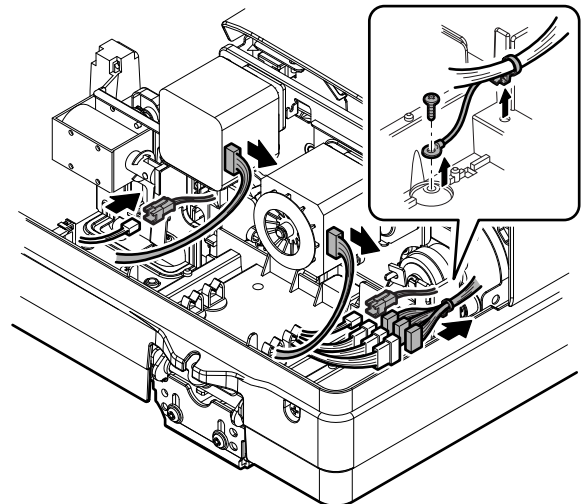
- 3) Remove the screw, and remove the rear cabinet.



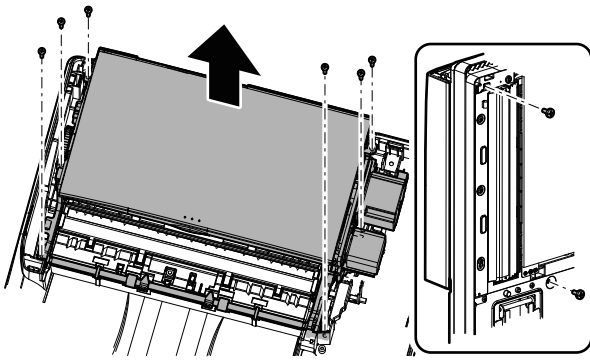
- 4) Remove the harness from the wire saddle, and disconnect the connector. Remove the screw, and remove the grounding wire. Remove the screw, and remove the holder. Remove the document tray.



- 5) Disconnect the connector, and remove the snap band. Remove the screw, and remove the earth wire.

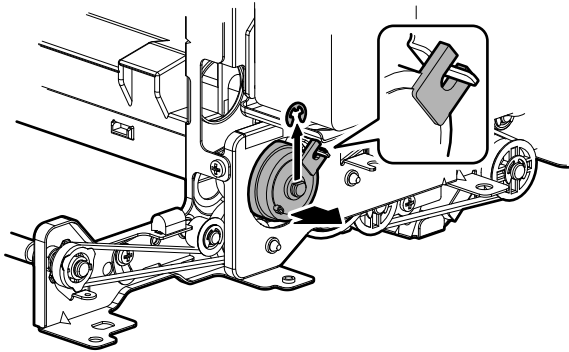


- 6) Remove the screw, and remove the transport unit.



- 7) Remove the E-ring, and remove the reverse clutch.

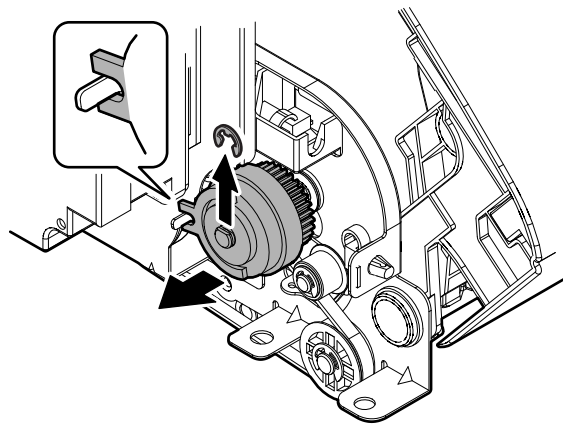
NOTE: When installing, engage the rotation-stopper of the clutch with the frame.



## (2) PS clutch

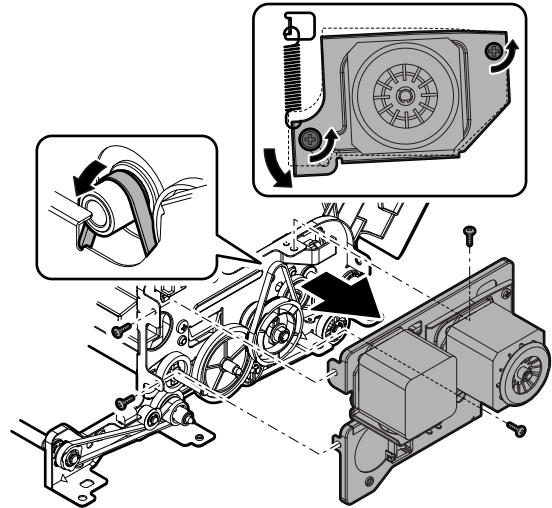
- 1) Remove the transport unit.
- 2) Remove the E-ring, and remove the PS clutch.

NOTE: When installing, attach the rotation-stopper of the clutch to the frame.



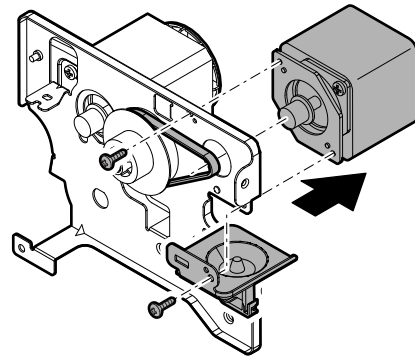
## (3) Paper feed motor

- 1) Remove the reverse clutch.
- 2) Remove the PS clutch.
- 3) Loosen the belt tensioning screw to allow belt removal. Remove the screw, and remove the drive frame.



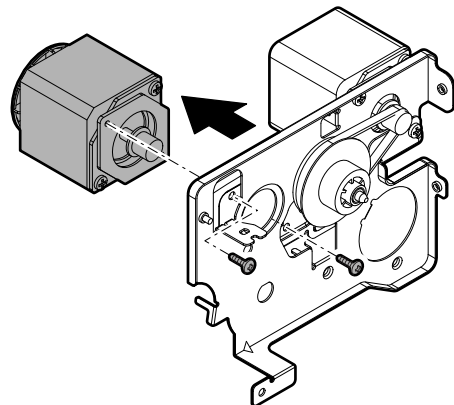
- 4) Remove the belt from the paper feed motor. Remove the screw, and remove the shield plate and the paper feed motor.

NOTE: Do not use the attached harness. Use the original harness. If the motor harness needs replacement, order the harness shown in the parts guide.



## (4) Transport motor

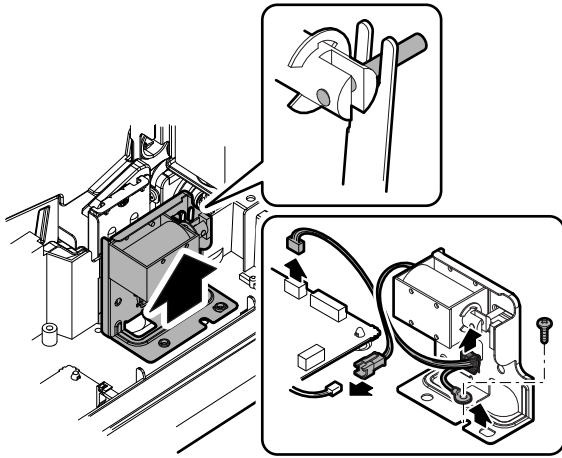
- 1) Remove the reverse clutch.
- 2) Remove the PS clutch.
- 3) Remove the drive frame.
- 4) Remove the screw, and remove the transport motor.



### (5) Pressure release solenoid

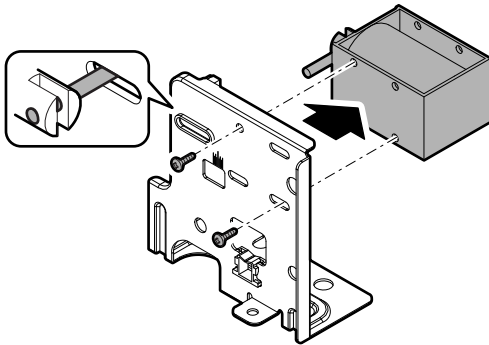
- 1) Remove the rear cabinet of the RSPF unit.
- 2) Disconnect the connector and remove the screw. Remove the harness from the edge saddle. Remove the solenoid unit.

NOTE: When installing, insert the solenoid pin into the slit of the lever.



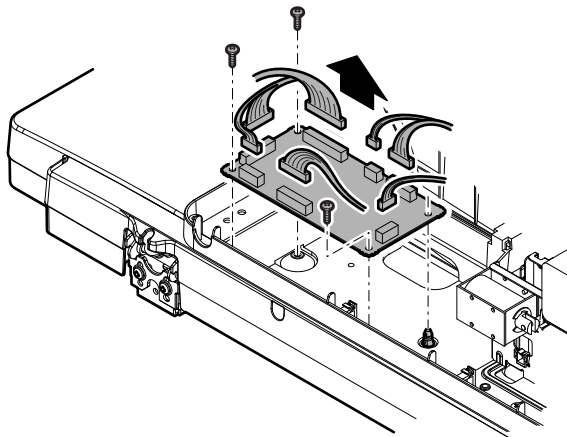
- 3) Remove the screw, and remove the pressure release solenoid.

NOTE: When installing, insert the solenoid pin into the long hole of the frame.



### (6) RSPF driver PWB

- 1) Remove the rear cabinet of the RSPF unit.
- 2) Disconnect the connector and remove the screw. Remove the PWB supporter. Remove the RSPF driver PWB.

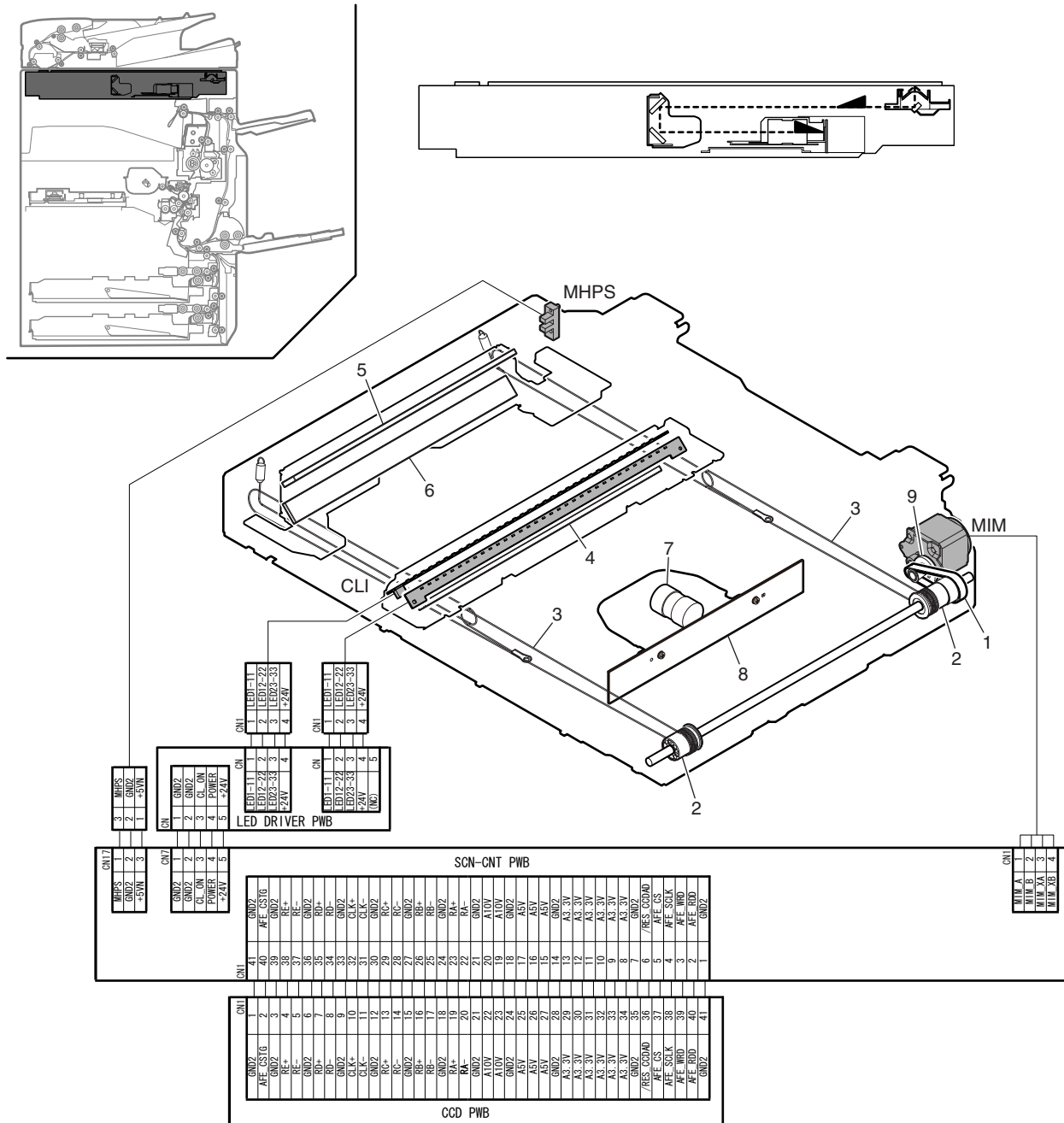




## [D] SCANNER SECTION

### 1. Electrical and mechanical relation diagram

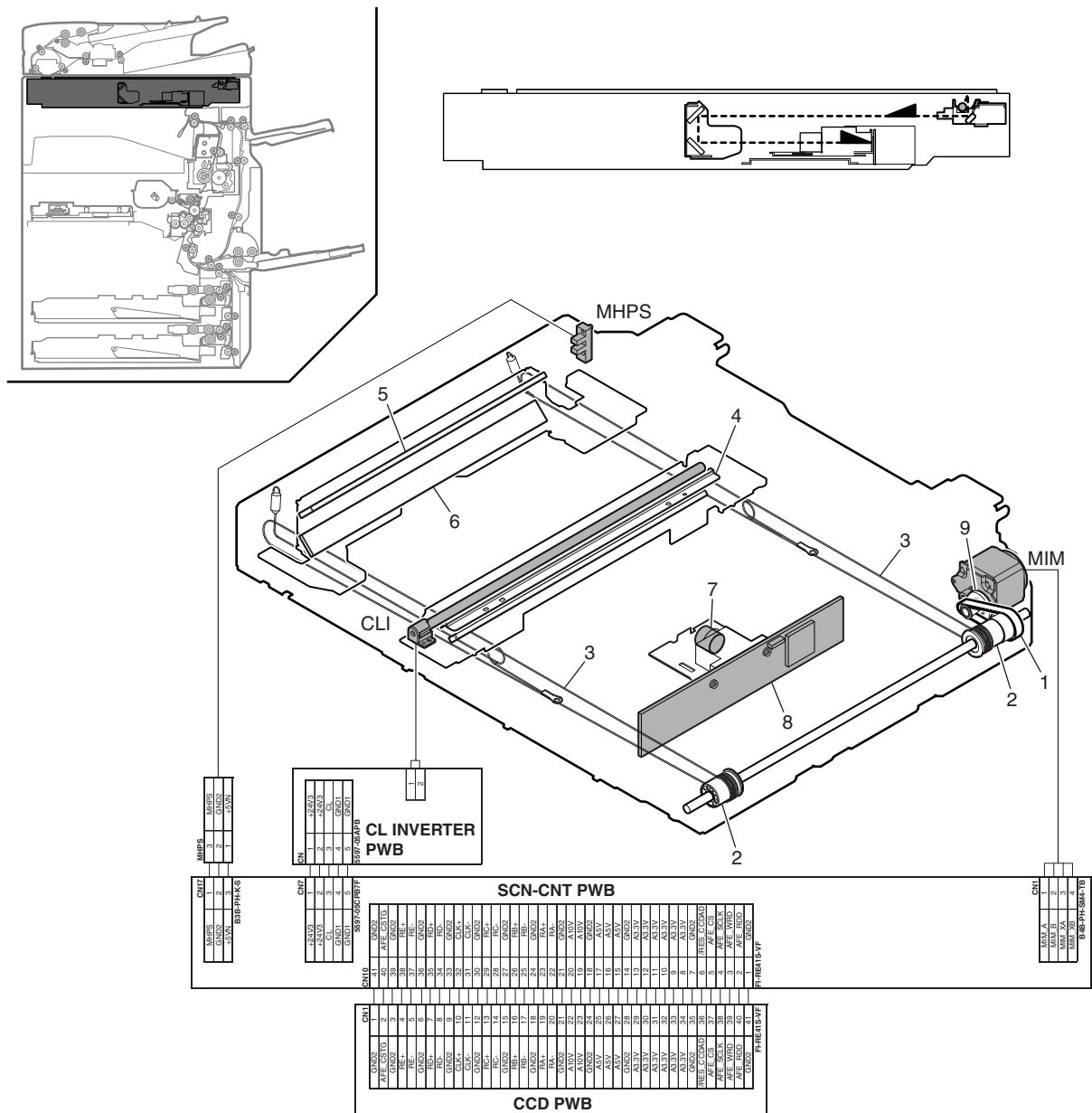
#### A. N model



Signal	Name	Function/Operation
CLI	LED lamp unit	Illuminates the document.
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 drive to the copy lamp unit and the mirror base unit.
4	No. 1 mirror	Reflects the document image into the No. 2 mirror.
5	No. 2 mirror	Reflects the document image into the No. 3 mirror.
6	No. 3 mirror	Reflects the document image into the lens.
7	Lens	Shrinking the image (light) of the document, 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 drive power to the belt.

## B. U model



Signal	Name	Function/Operation
CLI	Scanner lamp	Illuminates the document.
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 drive to the copy lamp unit and the mirror base unit.
4	No. 1 mirror	Reflects the document image into the No. 2 mirror.
5	No. 2 mirror	Reflects the document image into the No. 3 mirror.
6	No. 3 mirror	Reflects the document image into the lens.
7	Lens	Shrinking the image (light) of the document, 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 drive power to the belt.

## 2. Operational descriptions

### A. N model

#### (1) Outline

This section performs the following functions.

- 1) Light is radiated to the document by the LED lamp, and the contrast of the reflected light is read by the CCD elements of three lines of RGB to be converted into the image signal (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).

#### (2) Detail description

##### a. Optical section drive

The optical section drive power is transmitted from the scanner motor (MIM) to the drive pulley and the wire through the belt, 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.

##### b. LED lamp drive

The LED lamp (CLI) is driven by the LED lamp drive voltage generated in the LED drive PWB according to the control signal sent from the scanner control PWB.

##### c. Image scan/color separation

Light is radiated to the document by the LED lamp, and the contrast of the reflected light is read by the CCD elements of three lines of RGB to be converted into the image signal (analog).

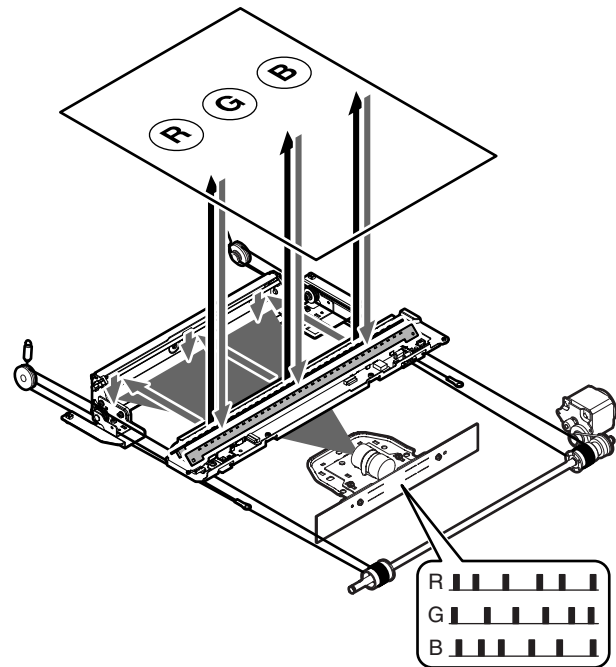
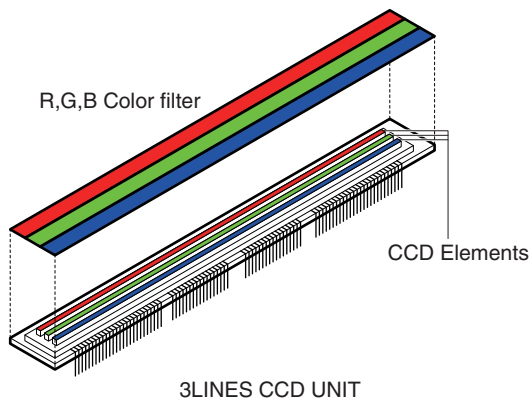
The color components of document images are extracted to R, G, and B separately by the three kinds of CCD elements (R,G,B).

The red CCD extracts the red component of document images, the green CCD green the components, and the blue CCD the blue components. This operation is called the color separation.

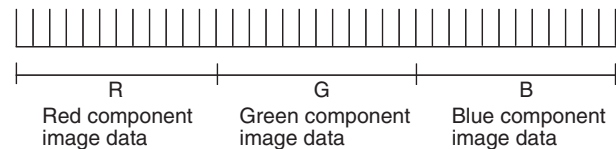
The CCD unit looks like one unit, but it includes three kinds of CCD elements, R, G, and B.

The document scan in the main scanning direction is performed by the CCD element. The document scan in the sub scanning direction is performed by shifting the scanner unit with the scanner motor. Document images are optically reduced by the lens and reflected to the CCD.

The scan resolution is 600 dpi.

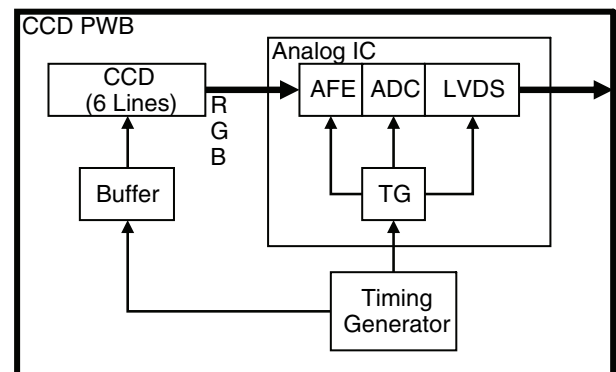


(Image data for 1 line)



##### d. Image signal A/D conversion

- 1) The image signal (analog) for each of R, G, and B is converted into 10bit digital signal by the A/D converter. Each color pixel has 10bit information.
- 2) The 10bit digital image signals of R, G, B are sent to the image process section.



##### e. 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 performed with the image process technology (by the software).



## B. U model

### (1) Outline

This section performs the following functions.

- 1) Light is radiated to the document by the xenon lamp, and the contrast of the reflected light is read by the CCD elements of monochrome to be converted into the image signal (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).

### (2) Detail description

#### a. Optical section drive

The optical section drive power is transmitted from the scanner motor (MIM) to the drive pulley and the wire through the belt, 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.

#### b. Xenon lamp drive

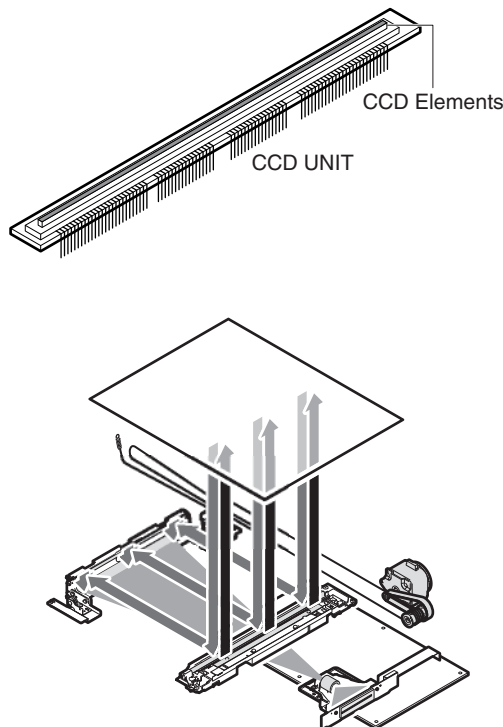
The xenon lamp (CLI) is driven by the xenon lamp drive voltage generated in the lamp drive PWB according to the control signal sent from the scanner control PWB.

#### c. Image scan/color separation

Light is radiated to the document by the xenon lamp, and the contrast of the reflected light is read by the CCD elements of three lines of RGB to be converted into the image signal (analog).

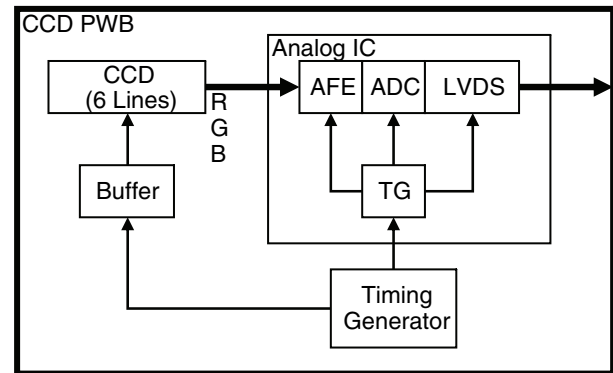
The document scan in the main scanning direction is performed by the CCD element. The document scan in the sub scanning direction is performed by shifting the scanner unit with the scanner motor. Document images are optically reduced by the lens and reflected to the CCD.

The scan resolution is 600 dpi.



### d. Image signal A/D conversion

- 1) The image signal (analog) is converted into 10bit digital signal by the A/D converter.
- 2) The 10bit digital image signals are sent to the image process section.



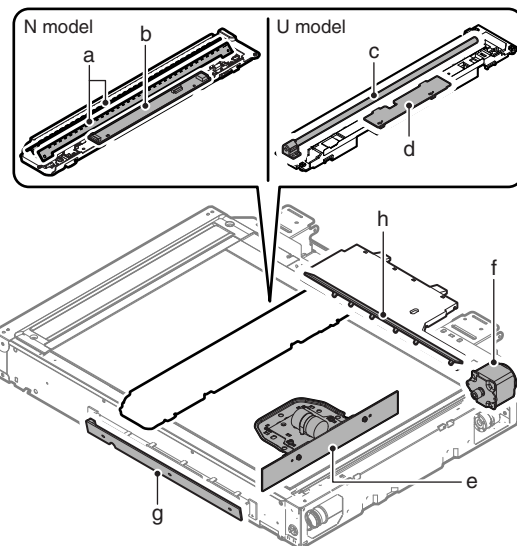
### e. Zooming operation

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 performed with the image process technology (by the software).

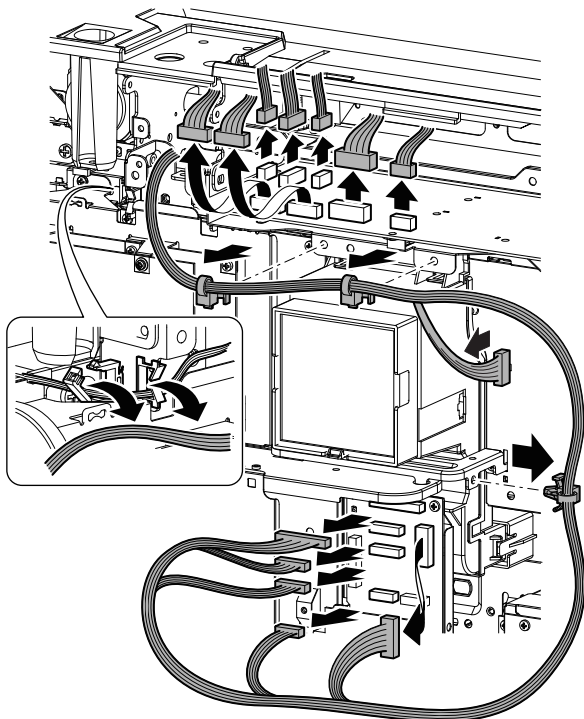
## 3. Disassembly and assembly

### A. Scanner unit

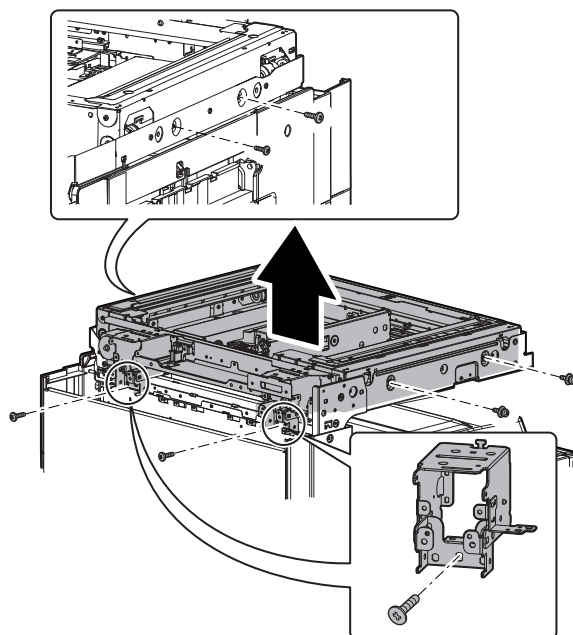


Parts	
a	LED lamp (N model)
b	LED drive PWB (N model)
c	Scanner lamp (U model)
d	CL inverter PWB (U model)
e	CCD unit
f	Scanner motor
g	Document detection light receiving PWB
h	Document detection light emitting PWB

- 1) Remove the upper cabinet rear cover. [Refer to "[A] EXTERIOR."]
- 2) Remove the DSPF/RSPF unit. [Refer to "[C] DSPF/RSPF SECTION."]
- 3) Remove the operation base plate. [Refer to "[A] EXTERIOR."]
- 4) Remove the operation panel unit. [Refer to "[B] OPERATION PANEL."]
- 5) Remove the upper cabinet rear, the upper cabinet right, the upper cabinet left, and the rear cabinet. [Refer to "[A] EXTERIOR."]
- 6) Disconnect the connector, remove the snap band, and remove the harness from the wire saddle.

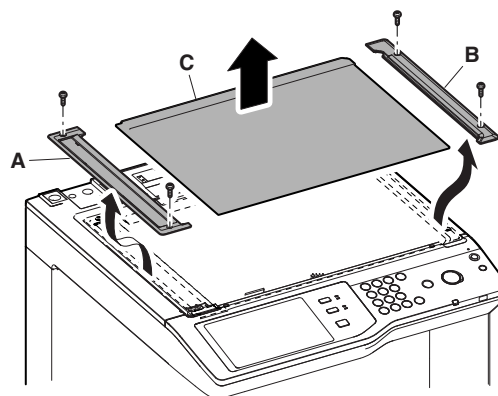


- 8) Remove the screw, and remove the scanner unit.

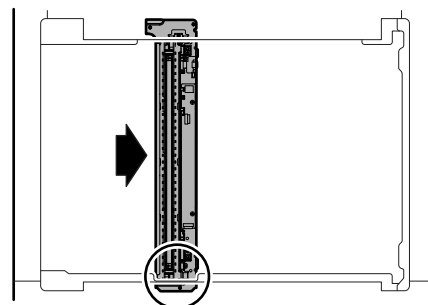


#### (1) LED lamp/LED drive PWB (N model)

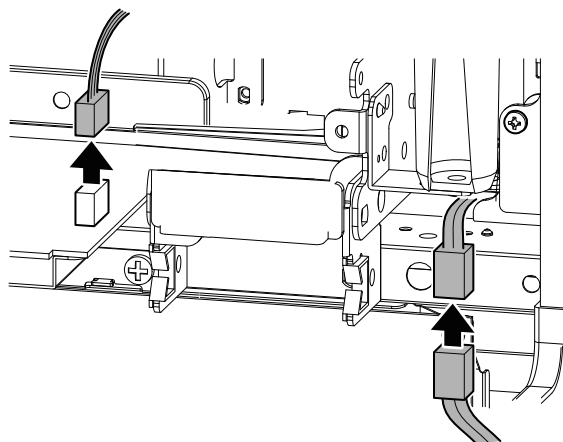
- 1) Remove the SPF glass (A). Remove the glass holder (B) and the table glass (C).



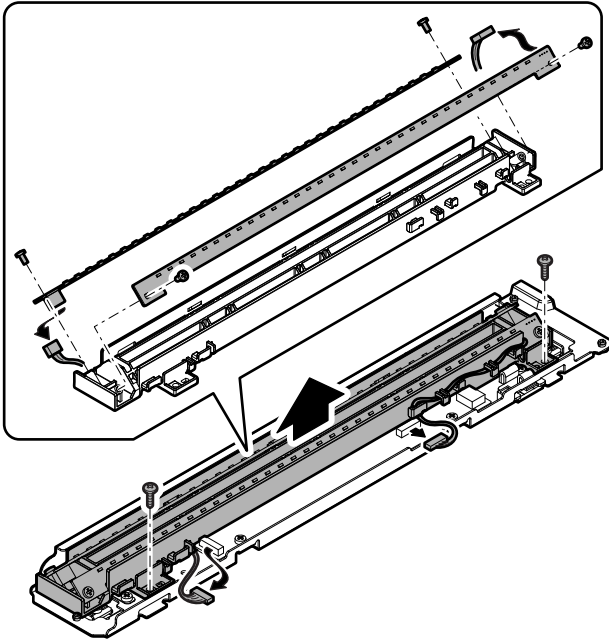
- 2) Move the LED lamp unit to the position where there are notches in the frame.



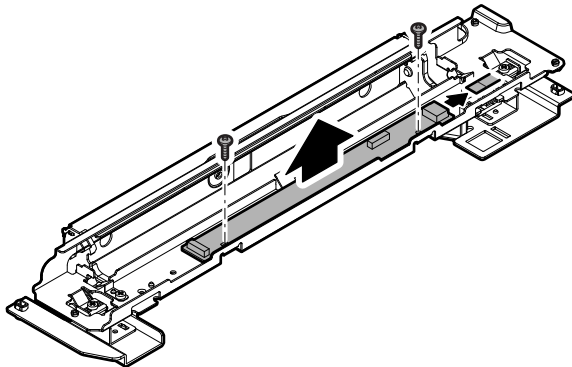
- ▲ 7) Disconnect the connector, and remove the harness from the wire saddle.



- 3) Disconnect the connector and remove the screw, and remove the LED lamp unit. Remove the LED lamp. Disconnect the connector.

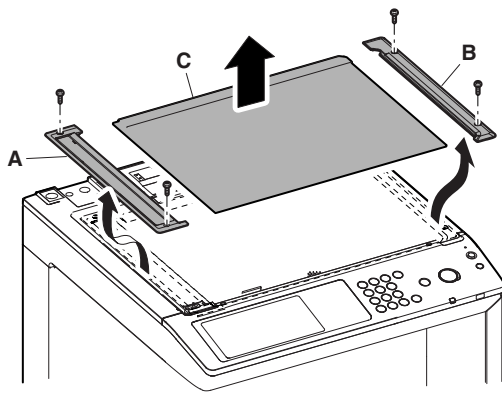


- 4) Disconnect the connector and remove the screw. Remove the LED drive PWB.

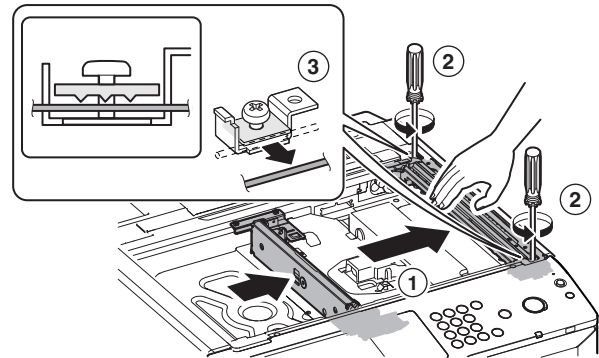


## (2) Scanner lamp/CL inverter PWB (U model)

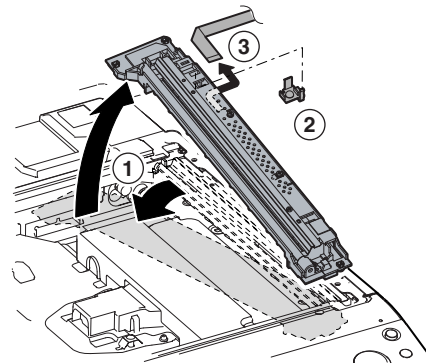
- 1) Remove the SPF glass (A). Remove the glass holder (B) and the table glass (C).



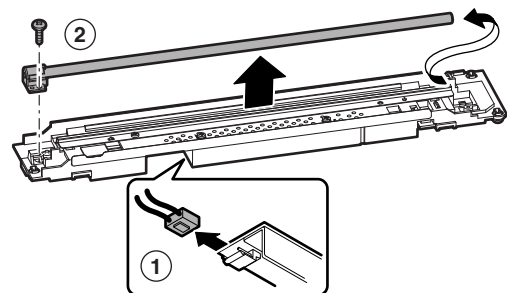
- 2) Shift the lamp unit to the right end. Loosen the screw, and remove the wire.



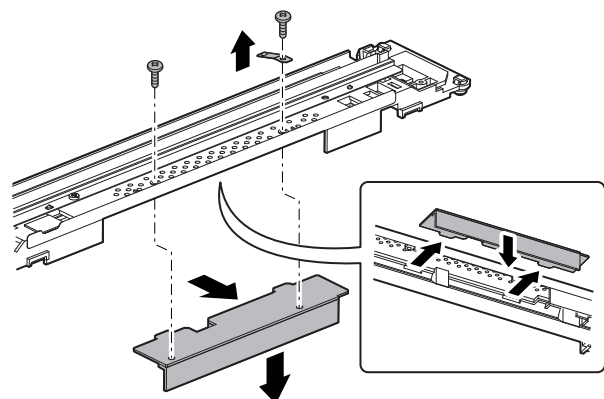
- 3) While rotating the lamp unit, lift it. Remove the harness holder and the flat cable, and remove the lamp unit.



- 4) Disconnect the connector, and remove the lamp.

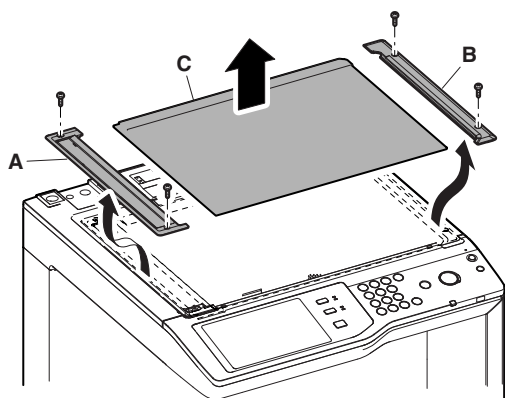


- 5) Remove the CL inverter PWB.



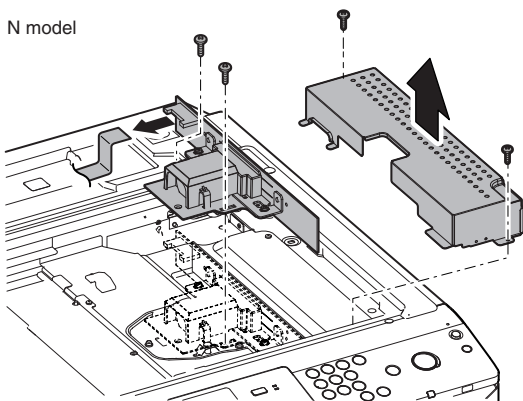
### (3) CCD unit

- 1) Remove the SPF glass (A). Remove the glass holder (B) and the table glass (C).

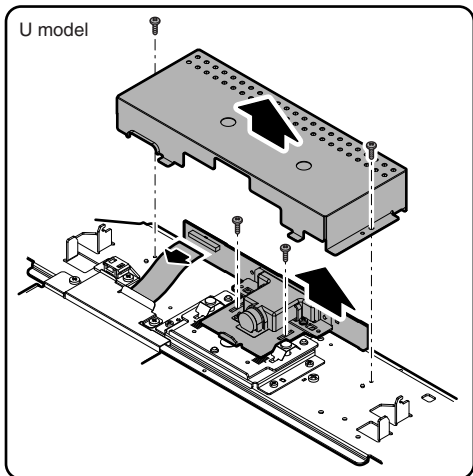


- 2) Remove the dark box cover. Disconnect the connector, and remove the CCD unit.

N model

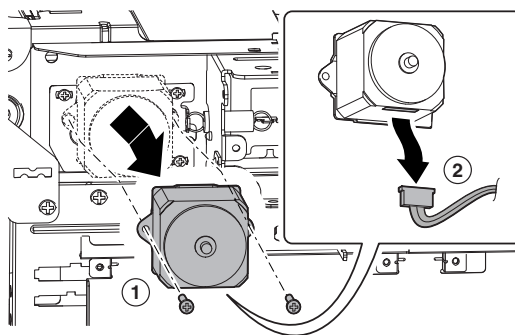


U model



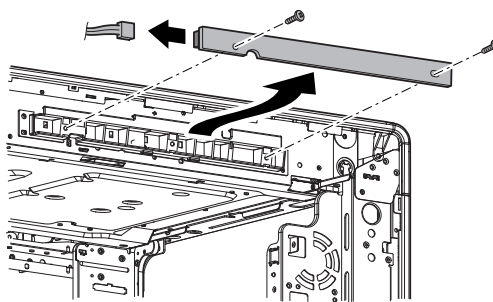
### (4) Scanner motor

- 1) Remove the upper cabinet rear cover and the upper cabinet rear. [Refer to "[A] EXTERIOR."]
- 2) Disconnect the connector and remove the scanner motor.



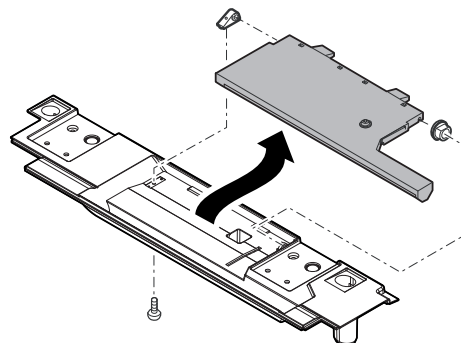
### (5) Document detection light receiving PWB

- 1) Remove the operation base plate. [Refer to "[A] EXTERIOR."]
- 2) Disconnect the connector, and remove the document detection light receiving PWB.

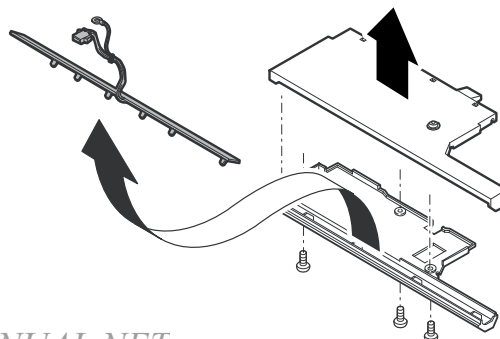


### (6) Document detection light emitting PWB

- 1) Remove the upper cabinet rear. [Refer to "[A] EXTERIOR."]
- 2) Remove the screw, and remove the light emitting unit.



- 3) Remove the document detection light emitting PWB.



### A. Manual paper feed section

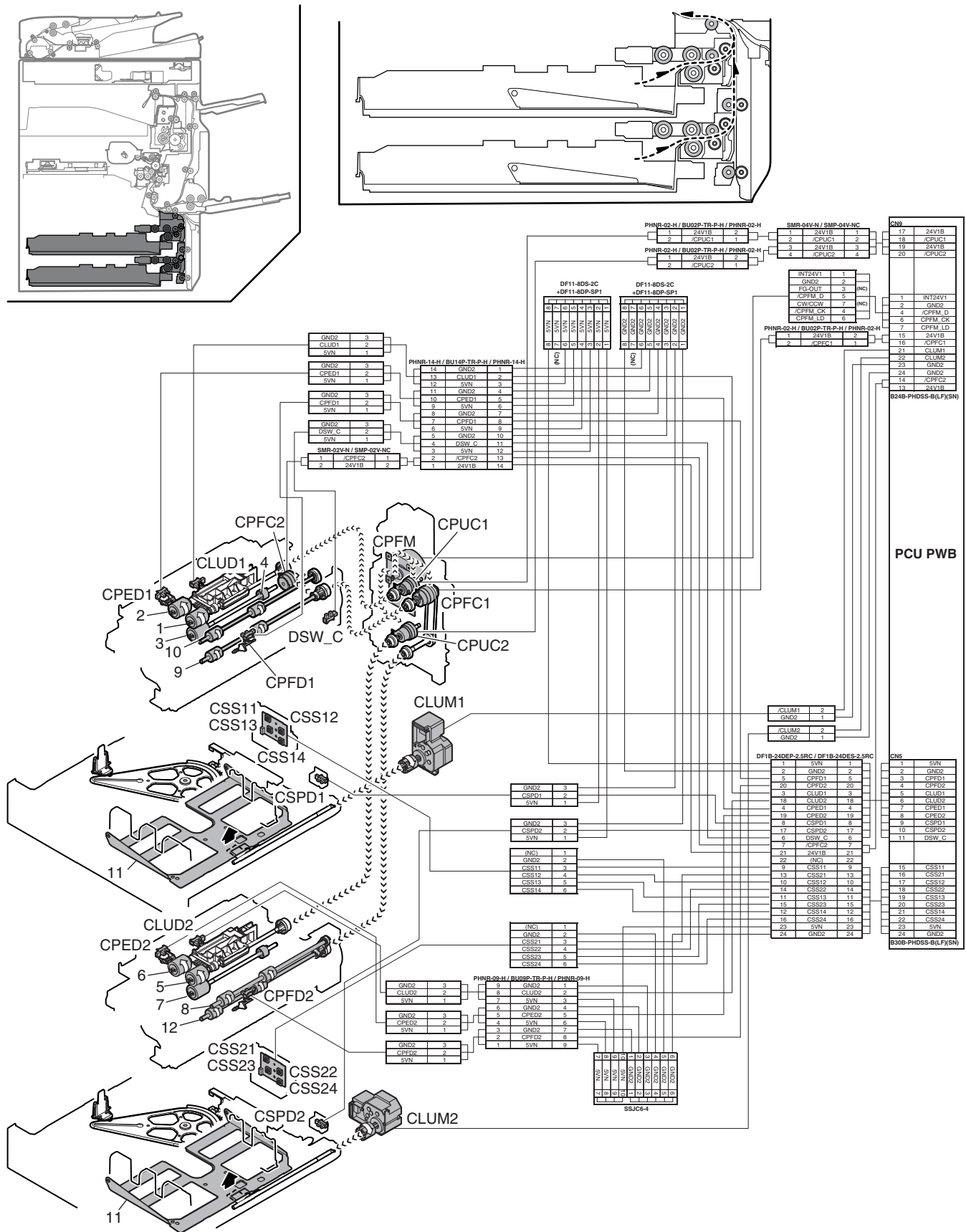


Signal name	Name	Function/Operation
CPFM	Paper feed motor	Drives the paper feed section.
MPED	Manual feed paper empty detection	Detects the manual feed paper empty.
MPFD	Manual feed paper entry detection	Detects the manual feed paper entry.
MPDS	Paper pickup solenoid	Paper pickup solenoid (Manual paper feed)
MPGS	Manual paper feed gate solenoid	Controls the manual paper feed gate Open/Close.
MPLD	Manual feed paper length detector	Detects the manual paper feed tray paper length.
MPUC	Manual paper feed clutch	Controls the manual paper feed section paper feed roller ON/OFF.
MPWD	Manual paper feed tray paper width detector	Detects the manual paper feed tray paper width.
MTOP1	Manual paper feed tray pull-out position detector 1	Detects the manual paper feed tray paper pull-out position (storing position).
MTOP2	Manual paper feed tray pull-out position detector 2	Detects the manual paper feed tray paper pull-out position (pull-out position).
PFM	Transport motor	Transports paper from the paper feed section to the transport motor drive system. Transports paper from the right door section to the transport motor drive system.

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)	Sends 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 from the transport roller 11 to the transport roller 8. / Transports the paper from the manual paper feed tray to the transport roller 8.



## B. Tray paper feed section



Signal name	Name	Function/Operation
CLUD1	Tray 1 upper limit detection (Lift HP detection)	Detects the tray 1 upper limit.
CLUD2	Tray 2 upper limit detection (Lift HP detection)	Detects the tray 2 upper limit.
CLUM1	Paper tray lift-up motor (Paper feed tray 1)	Drives the lift plate of the paper feed tray.
CLUM2	Paper tray lift-up motor (Paper feed tray 2)	Drives the lift plate of the paper feed tray.
CPED1	Tray 1 paper empty detection	Detects the tray 1 paper empty.
CPED2	Tray 2 paper empty detection	Detects the tray 2 paper empty.
CPFC1	Tray vertical transport clutch	Controls ON/OFF of the paper transport roller in the paper feed tray section.
CPFC2	Tray transport clutch 2	Controls ON/OFF of the transport roller 2 in the paper feed tray section.
CPFD1	Tray 1 transport detection (Paper entry detection)	Detects tray 1 paper pass.
CPFD2	Tray 2 transport detection (Paper entry detection)	Detects tray 2 paper pass.
CPFM	Paper feed motor	Drives the paper feed section.
CPUC1	Paper feed clutch (Paper feed tray 1)	Controls ON/OFF of the roller in the paper feed tray 1 section.
CPUC2	Paper feed clutch (Paper feed tray 2)	Controls ON/OFF of the roller in the paper feed tray 2 section.
CSPD1	Tray 1 paper remaining quantity detection	Detects the tray 1 paper remaining quantity.
CSPD2	Tray 2 paper remaining quantity detection	Detects the tray 2 paper remaining quantity.
CSS11	Tray 1 rear edge detection 1	Insertion of the tray is detected by detecting either of tray 1 rear edge detection 1 - 4. The paper size of tray 1 is detected.
CSS12	Tray 1 rear edge detection 2	
CSS13	Tray 1 rear edge detection 3	
CSS14	Tray 1 rear edge detection 4	
CSS21	Tray 2 rear edge detection 1	Insertion of the tray is detected by detecting either of tray 2 rear edge detection 1 - 4. The paper size of tray 2 is detected.
CSS22	Tray 2 rear edge detection 2	
CSS23	Tray 2 rear edge detection 3	
CSS24	Tray 2 rear edge detection 4	
DSW_C	Tray 1 and 2 transport cover open/close detection	Detects the tray 1 and 2 transport cover open/close.

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)	Sends 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. 2 paper feed tray)	Feeds paper to the paper transport section.
6	Paper pickup roller (No. 2 paper feed tray)	Sends 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 paper 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 paper from the paper feed tray 1 to the transport roller 7.
10	Transport roller 7 (Drive)	Transports paper from the paper feed tray 1, 2, 3, and 4 to the transport roller 8.
11	Rotating plate	Lifts up the paper, and always keeps constant the paper feed position.
12	Transport roller 14 (Drive)	Transports paper from the paper feed tray 2 to the transport roller 4.

## 2. Operational descriptions

### A. Bypass

The pickup roller moves up and down to press the paper surface, separating the paper on the top of the paper bundle and sending it to the paper feed roller section.

The paper feed roller feeds paper to the transport section to prevent against double feed with the separation roller. The manual paper feed clutch controls ON/OFF of the pickup roller and the paper feed roller. Paper is sent to the resist roller by the manual transport roller.

### B. Tray paper feed

#### (1) Paper feed front operation

- Set paper and insert the paper feed tray, and the pickup roller falls to turn ON the paper feed tray sensor.
- The lift-up motor drives the rotating plate to move it up.
- The paper upper limit sensor turns ON, and the rotation plate stops at the specified position.

#### (2) Paper feed operation

- When copy/print operation is started, the motor and the clutch are turned ON to rotate the pickup roller in the paper pickup timing, feeding paper.
- At the same time, the paper feed roller rotates to transport paper to the transport section. At that time, the separation roller rotates to prevent against double feed of paper.

#### (3) Paper remaining detection

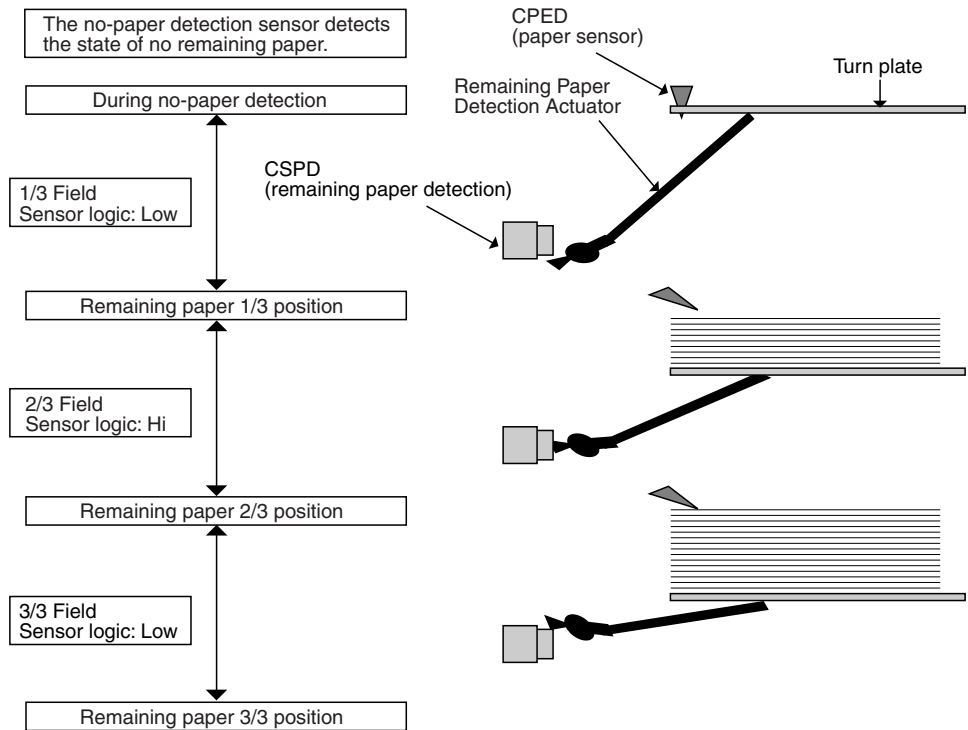
- The notifying levels of paper remaining quantity are 4 steps in total; 3 steps of paper remaining quantity and 1 step of paper empty. The result is displayed.

#### (4) Paper remaining quantity detection method

- The paper remaining quantity is judged from the number of rotations of the remaining quantity sensor from starting the lift-up operation of the paper feed tray to turning ON the upper limit sensor.



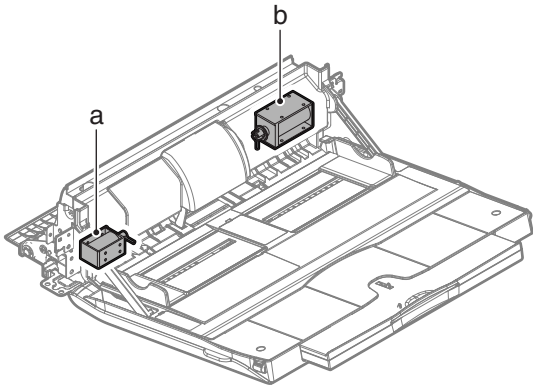
(Figure showing state transition of the remaining paper detection sensor during tray elevation and changes in status according to the number of remaining sheets)



### 3. Disassembly and assembly

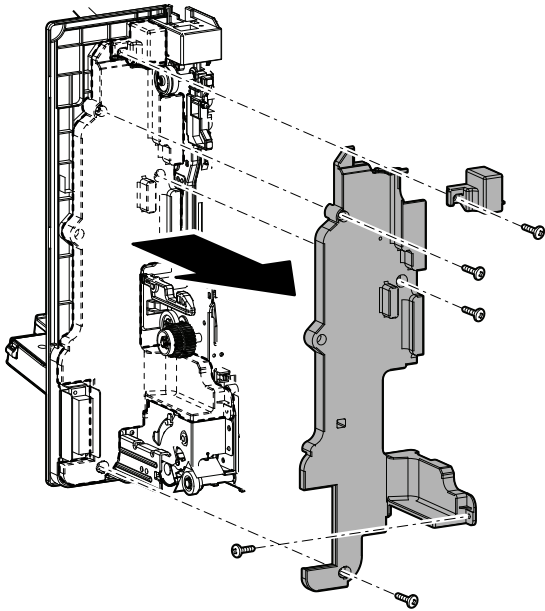
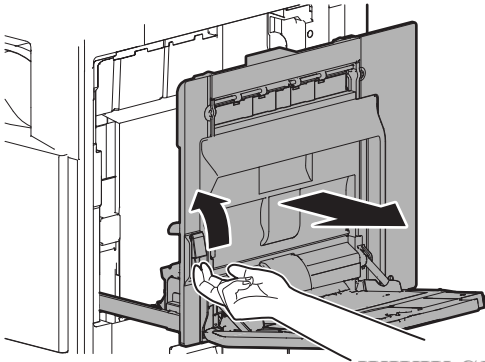
#### A. Manual paper feed unit

- 2) Remove the screw, and remove the connector cover. Remove the screw and remove the ADU inner cover.

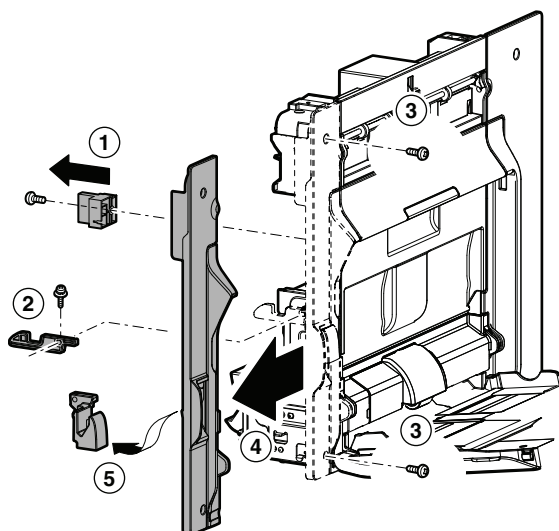


Parts	
a	Manual paper feed gate solenoid
b	Paper pickup solenoid

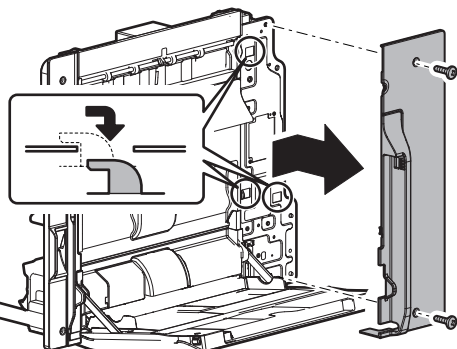
- 1) Pull the lock lever, and open the right door.



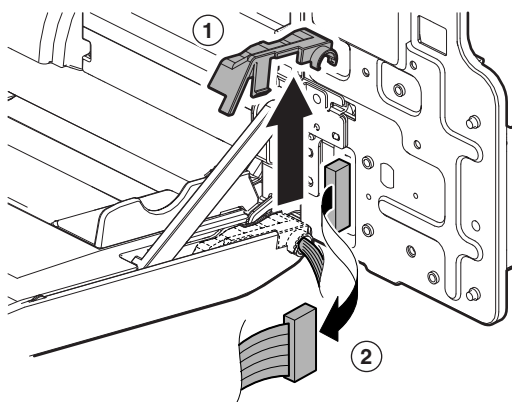
- 3) Remove the lock block. Disengage the right door lock pawl. Remove the ADU cabinet F, and the right door release lever.



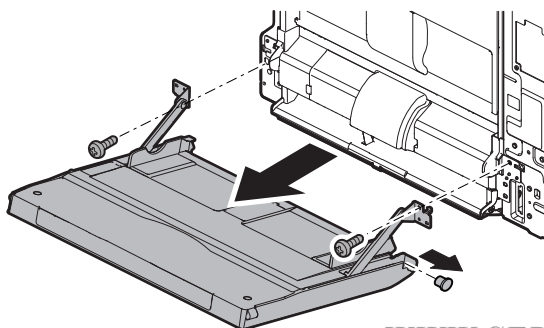
- 4) Remove the ADU cabinet R.



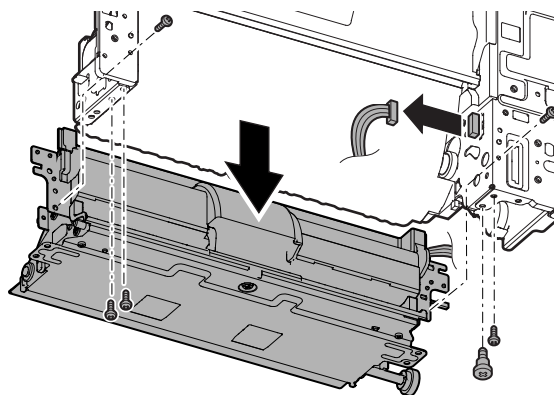
- 5) Remove the MF harness cover, and disconnect the connector.



- 6) Remove the MF tray installing shaft, and remove the manual feed tray unit.

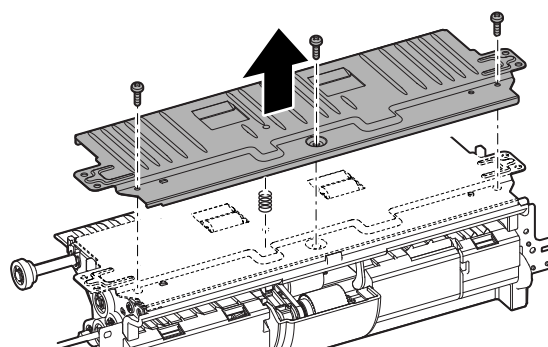


- 7) Disconnect the connector, and remove the manual paper feed unit.

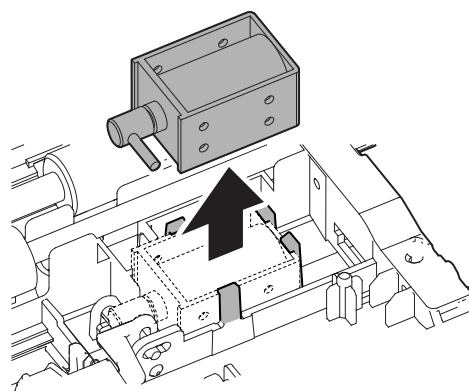


#### (1) Manual paper feed gate solenoid

- 1) Remove the manual paper feed unit.
- 2) Remove the MF base guide supporting plate and the spring.

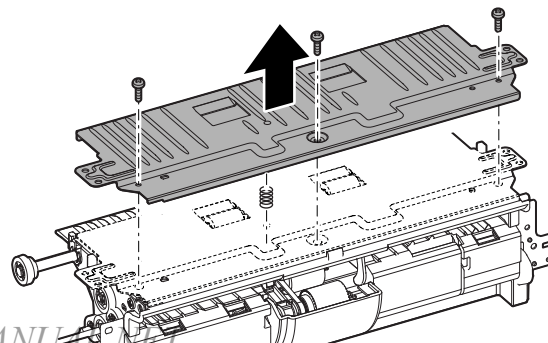


- 3) Disconnect the connector, and disengage the pawl, and remove the manual paper feed gate solenoid.

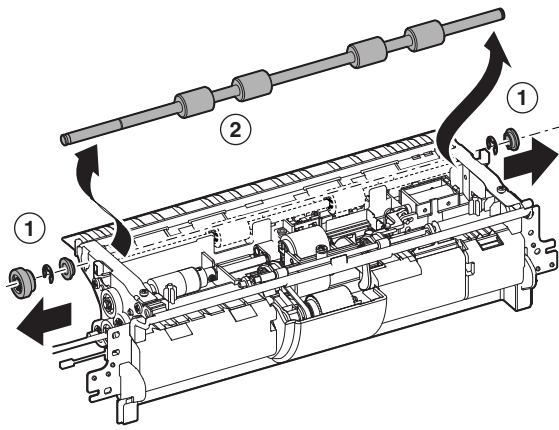


#### (2) Paper pickup solenoid

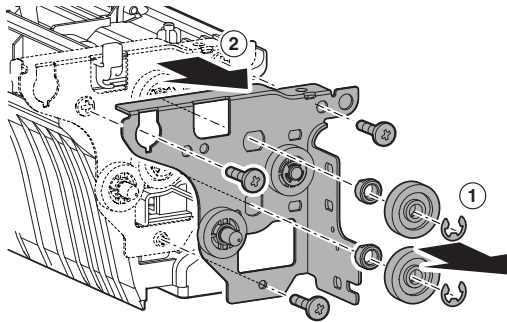
- 1) Remove the manual paper feed unit.
- 2) Remove the MF base guide supporting plate and the spring.



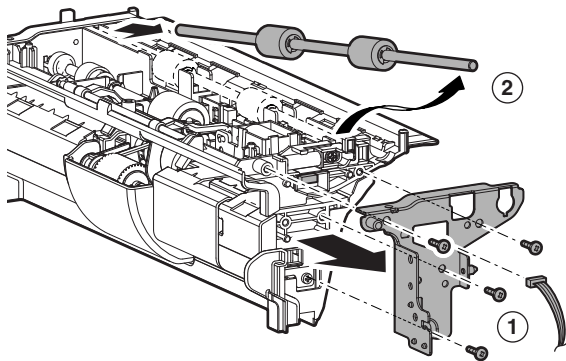
3) Remove each part, and remove the transport roller 12 (drive).



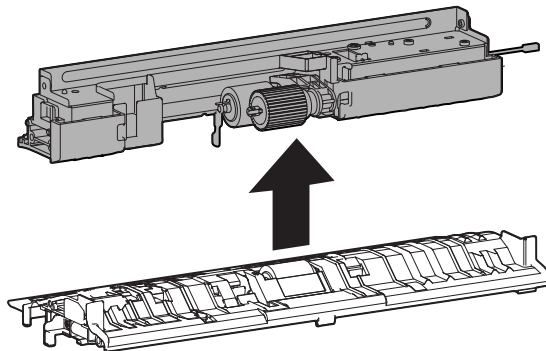
4) Remove each part, and remove the MF drive plate.



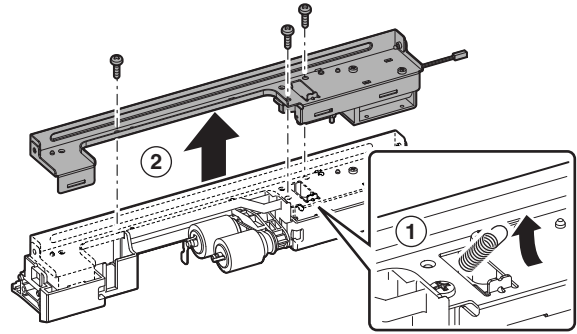
5) Disconnect the connector, and remove the MF front plate.



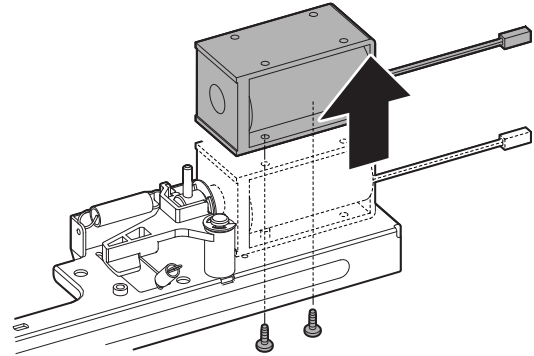
6) Remove the MF upper base paper guide unit.



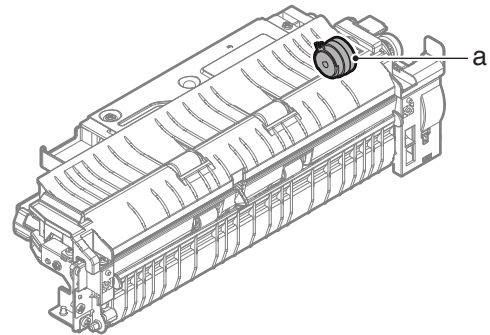
7) Remove the MF upper guide supporting plate.



8) Remove the paper pickup solenoid.



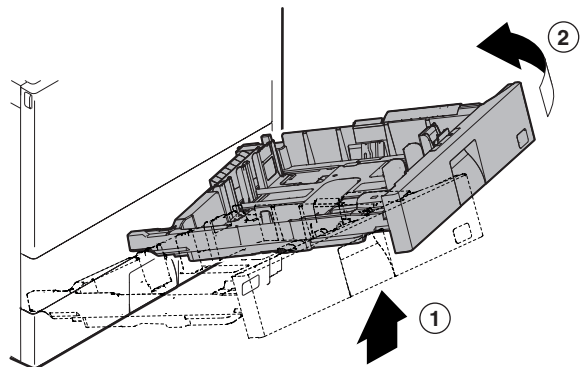
## B. Tray paper feed unit



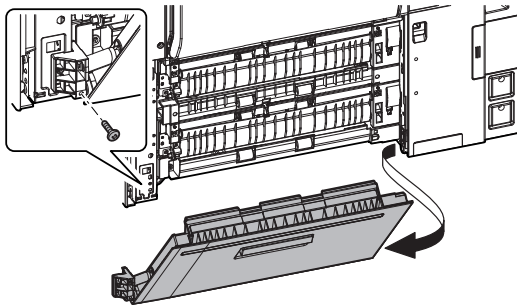
Parts	
a	Paper transport clutch 2

1) Remove the right cabinet front. [Refer to "[A] EXTERIOR."]

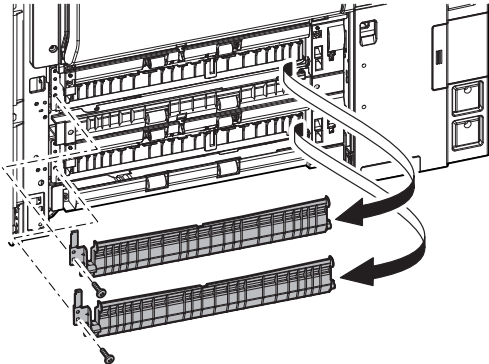
2) Remove the tray 1 and 2.



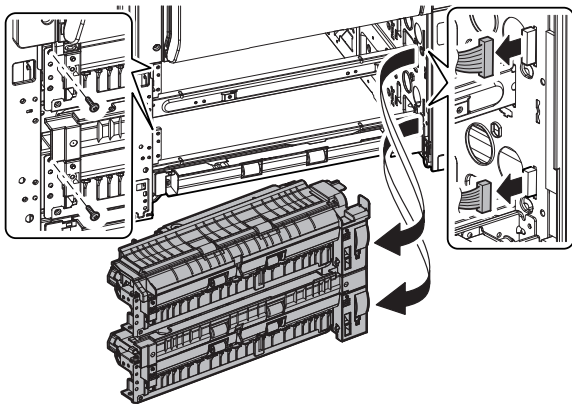
- 3) Remove the right lower door unit.



- 4) Remove the paper feed movable PG lower.



- 5) Remove the tray paper feed unit 1, 2.

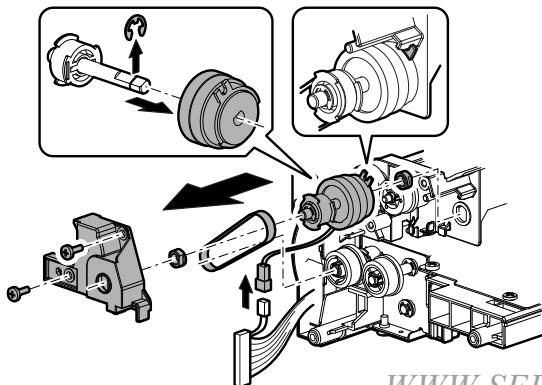


#### (1) Paper transport clutch 2

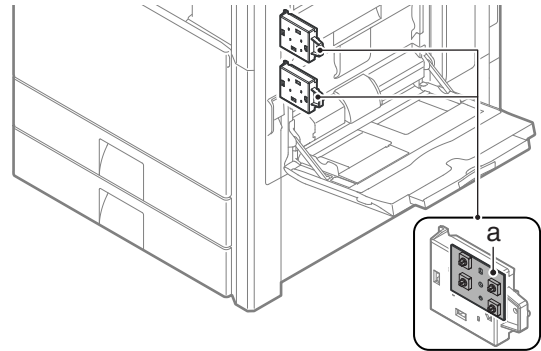
- 1) Remove the tray paper feed unit 1.
- 2) Disconnect the connector. Remove the screw, and remove the cover. Remove the bearing, the belt and the clutch unit.

Remove the E-ring, and remove the paper transport clutch 2.

NOTE: When installing, engage the rotation-stopper of the clutch with the frame.



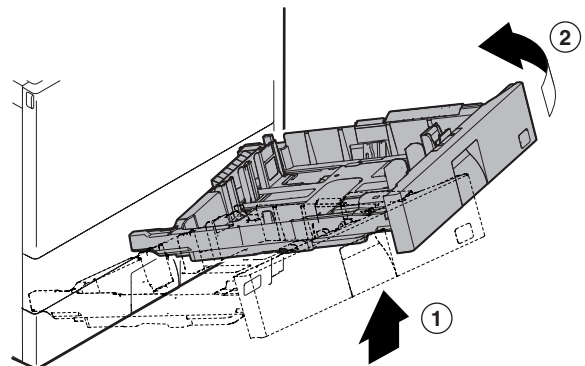
## C. Others



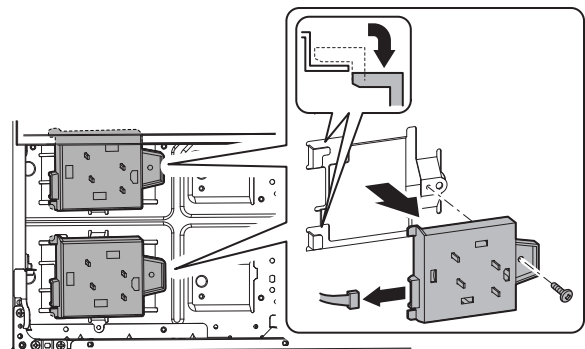
Parts	
a	Paper size detection PWB

#### (1) Paper size detection PWB

- 1) Remove the tray 1 and 2.

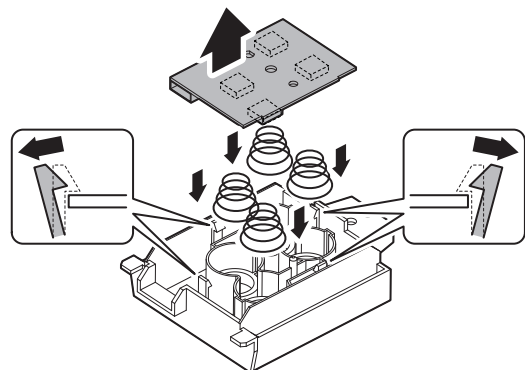


- 2) Disconnect the connector and remove the screw. Remove the paper size detection unit.



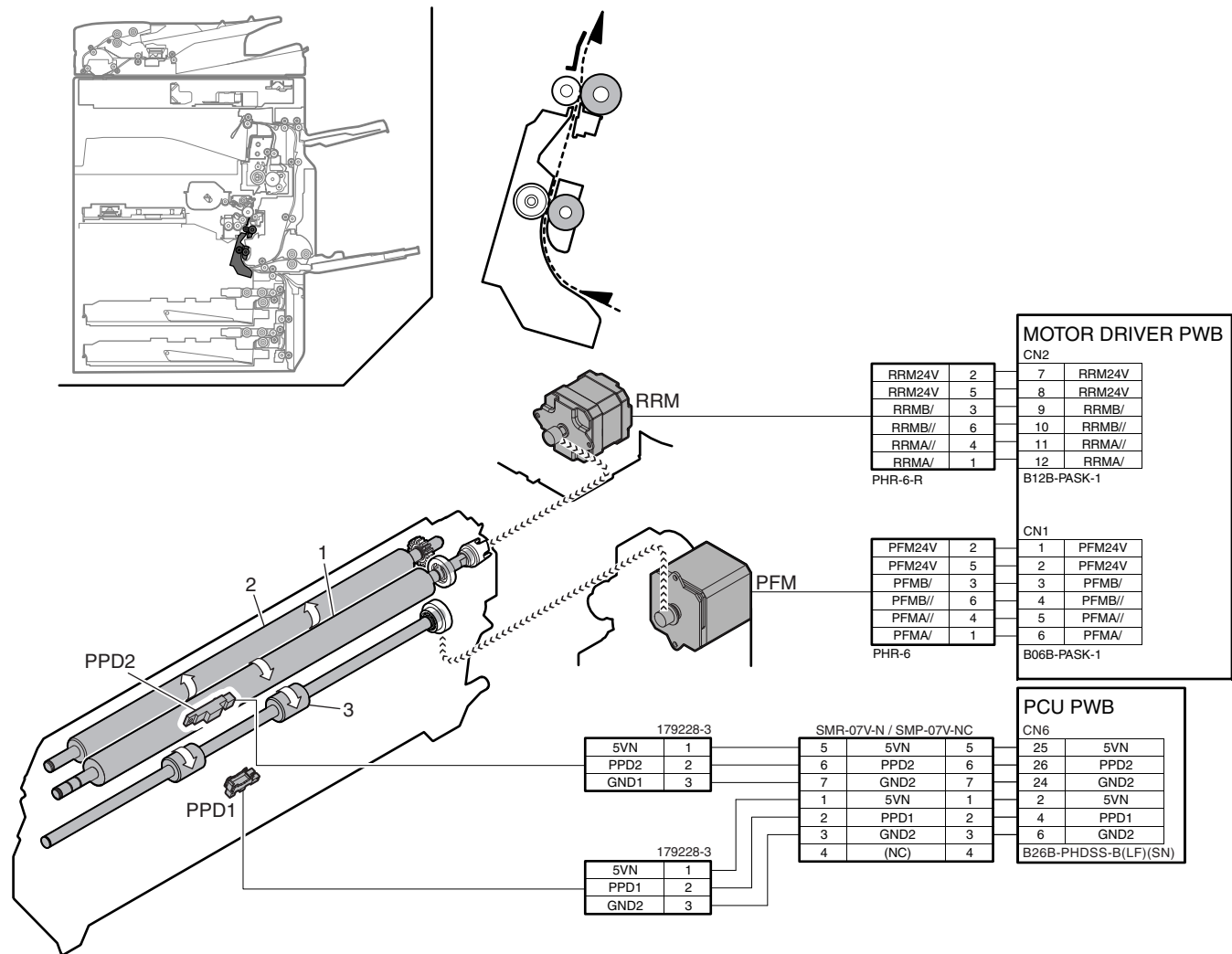
- 3) Disengage the pawl, and remove the paper size detection PWB.

Remove the spring from the paper size detection PWB.



## [F] PAPER TRANSPORT SECTION

### 1. Electrical and mechanical relation diagram



Signal name	Name	Function/Operation
PFM	Transport motor	Drives transport between the resist roller and the paper feed section, transport between the resist roller and the right door section.
PPD1	Resist pre-detection	Detects the paper in front of resist roller.
PPD1	Resist detection	Detects the paper in rear of resist roller.
RRM	Resist motor	Drives the resist roller and controls ON/OFF.

No.	Name	Function/Operation
1	Resist roller (Drive)	Transports paper to the transfer section. Controls the paper transport timing to adjust relative relations between images and paper.
2	Resist roller (Idle)	Applies a pressure to paper and the resist roller to give the transport power of the transport roller to the paper.
3	Transport roller 8 (Drive)	Transports the paper to resist roller.



## 2. Operational descriptions

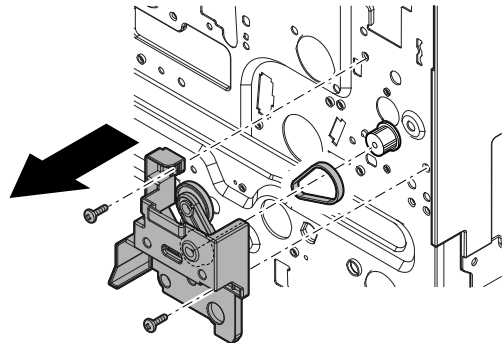
Transport paper from each paper feed section to the resist roller with two or more transport rollers. The paper transport clutch controls ON/OFF of each transport roller. The resist roller controls the relative positions of the transported paper and transfer images.

The resist roller controls the relative positions of the transported paper and transfer images. The resist roller is driven by the resist motor. The relative positions of the paper and the transfer images are determined by the ON timing of the transport motor.

## 3. Disassembly and assembly

### A. Resist roller unit

- 1) Remove the photo-conductor unit. [Refer to "[H] PHOTO-CONDUCTOR SECTION."]
- 2) Remove the tray paper feed unit 1. [Refer to "[E] PAPER FEED SECTION."]
- 3) Remove the rear cabinet. [Refer to "[A] EXTERIOR."]
- 4) Remove the ADU connection drive.



- 5) Disconnect the connector and remove the screw, and remove the resist roller unit.

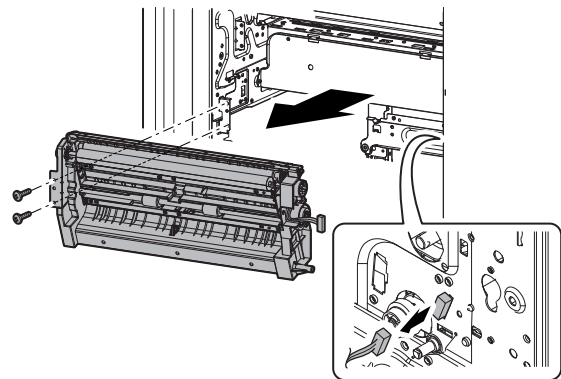
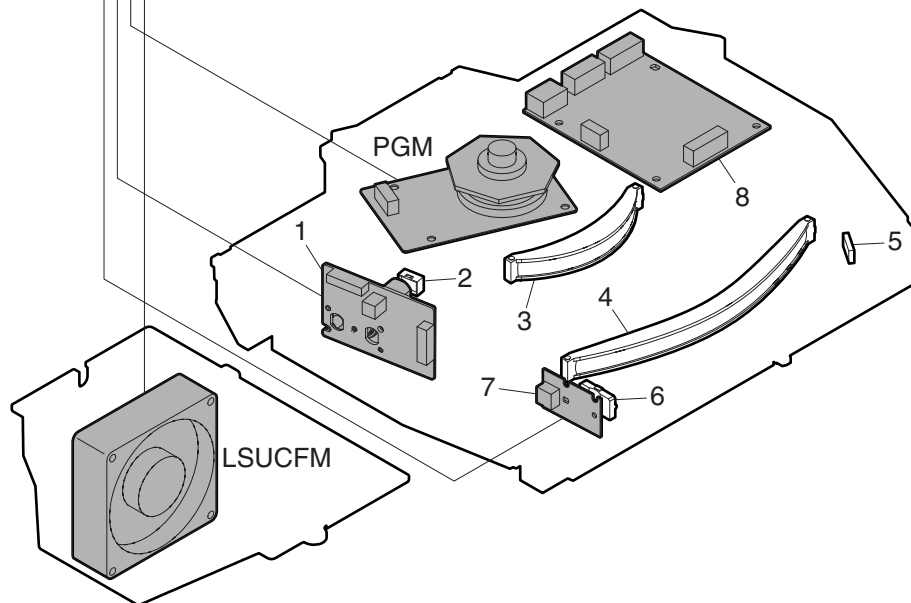


Figure 1: Mechanical drawing of the XASR-1(L)P (3R) showing the internal structure and connection points for the PSU, PSU DTR, and PSU DSR. The drawing includes a top view and a side view. The top view shows the internal components and the connection points for the PSU, PSU DTR, and PSU DSR. The side view shows the internal structure and the connection points for the PSU, PSU DTR, and PSU DSR. The drawing is labeled 'XASR-1(L)P (3R)' and 'Figure 1'.



No.	Name	Function/Operation
1	LD PWB	Controls flashing of laser beams and the output values.
2	Cylindrical lens	Converges laser beams to focus.
3	f $\theta$ lens 1	Laser beams are refracted so that the laser scanning speed at the both ends of the OPC drum is the same as that at the center.
4	f $\theta$ lens 2	
5	Reflection mirror for BD	Laser beams for BD are reflected to the BD PWB.
6	Collective lens for BD	Converges laser beams to the BD PWB.
7	BD PWB	Detects the timing for starting laser scanning.
8	LSU PWB	Laser beams are controlled and the polygon motor control signal is generated according to the PCU PWB control signal and the MFPC PWB image data.

## 2. Operational descriptions

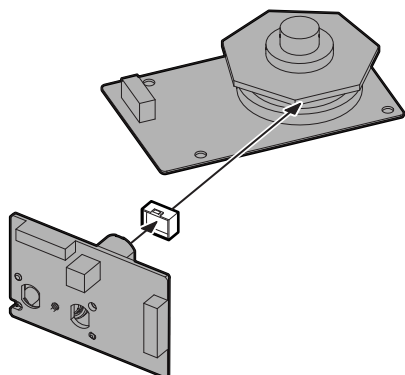
### A. Outline

Image data sent from the image process circuit are converted into laser beams which are radiated to the surface of the OPC drum.

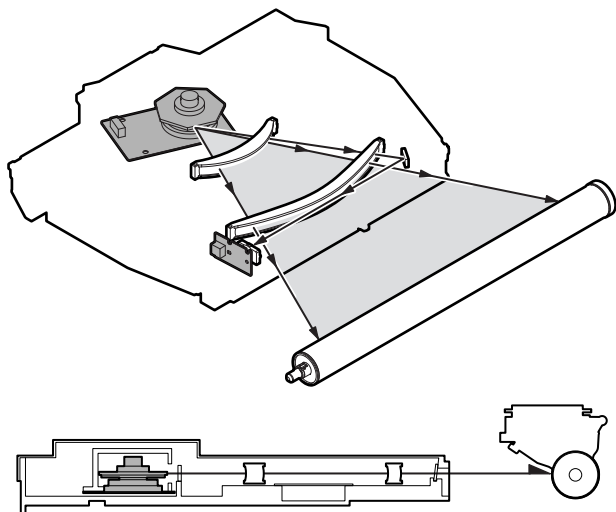
In this model, the 2-laser system is employed which radiates two laser beams. The LSU unit is composed of the primary system from the laser to the polygon mirror and the scanning system of the optical elements including the polygon mirror.

### B. Composition

(Primary system)



(Scanning system)



(On the polygon motor)

Model	Number of mirror surface	Rotating speed	Bearing
N 45/50 CPM model	7 surfaces	45556rpm	AIR
N 28/36 CPM model	7 surfaces	35433rpm	AIR
U 45/50 CPM model	7 surfaces	22778rpm	OIL
U 36 CPM model	7 surfaces	17716rpm	OIL

## C. Outline of LSU specifications

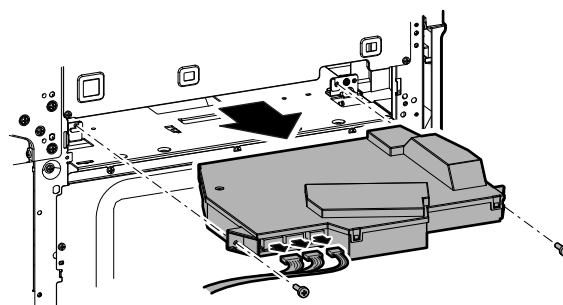
Process speed	45/50 CPM model: 225mm/sec 28/36 CPM model: 175mm/sec
Resolution	MX-M283/M363/M453/M503 N: 1200dpi MX-M363/M453/M503 U, MX-M282/M362/M452/M502 N: 600dpi
Laser beam	Twin beam
Laser power	Max. 0.255mW
Beam diameter	Main scan = 50 to 80 $\mu$ m, Sub scan = 60 to 90 $\mu$ m
Effective scan width	310mm
LD wavelength	780 to 800nm

## 3. Disassembly and assembly

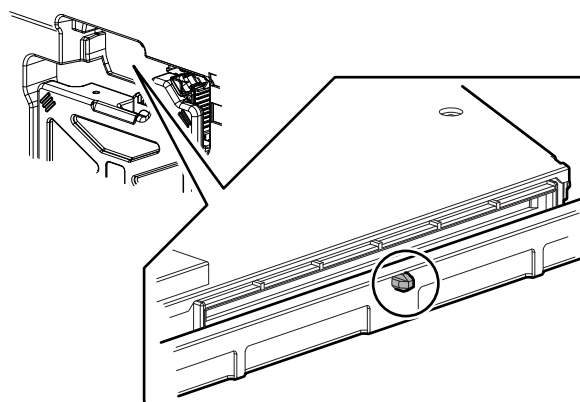
NOTE: Do not disassemble the LSU unit.

### A. LSU removal

- 1) Turn OFF the machine power, and disconnect the power plug from the power outlet.
- 2) Remove the left cabinet rear lower and the left cabinet. [Refer to "[A] EXTERIOR."]
- 3) Disconnect the LSU connectors, and remove the securing screws to remove the LSU.



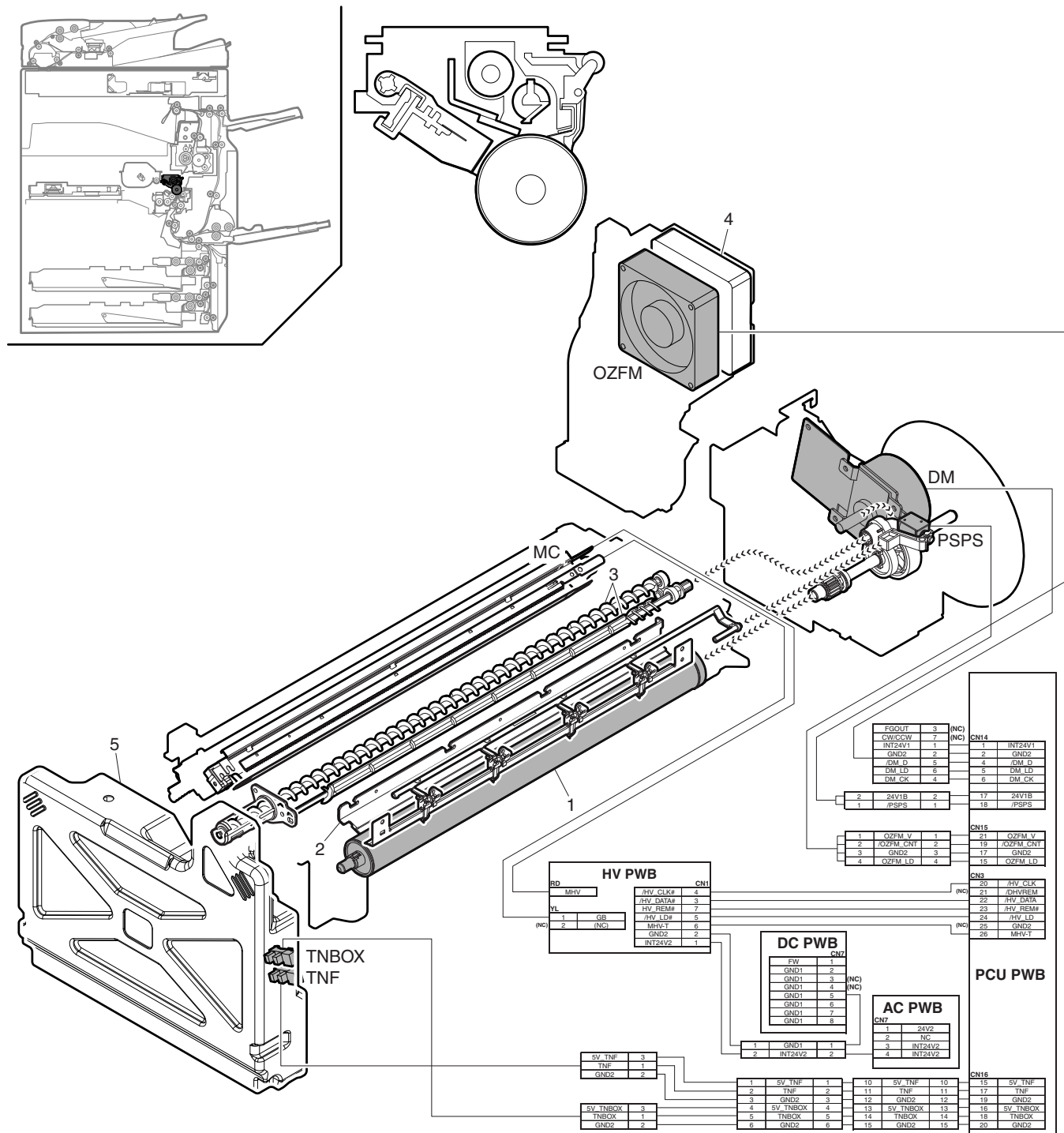
NOTE: Tip the LSU slightly to insert the alignment boss into the LSU alignment hole. To check for proper alignment, remove the toner cartridge to check.





# [H] PHOTO-CONDUCTOR SECTION

## 1. Electrical and mechanical relation diagram



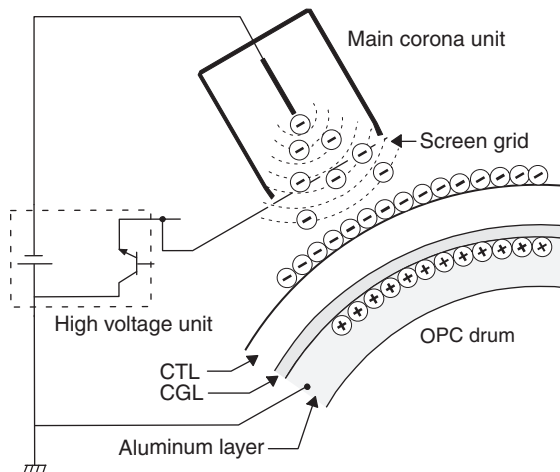
Signal name	Name	Function/Operation
DM	Drum motor	Drives the OPC drum and the developing unit.
MC	Main charger	Charges the OPC drum surface.
OZFM	Ozone fan	Discharges ozone generated in the machine.
PSPS	Separation solenoid	Separates paper from the OPC drum.
TNBOX	Waste toner box remaining quantity detection	Detects installation of the waste toner box. Detects the waste toner near end and the waste toner full.
TNF	Waste toner box remaining quantity detection	Detects installation of the waste toner box. Detects the waste toner near end and the waste toner full.

No.	Name	Function/Operation
1	OPC drum	Latent electrostatic images are formed.
2	Cleaning blade	Cleans and remove residual toner from the OPC drum surface.
3	Waste toner transport screw	Transports waste toner to the toner collection box.
4	Ozone filter	Removes ozone.
5	Waste toner collection box	Collects waste toner.

## 2. Operational descriptions

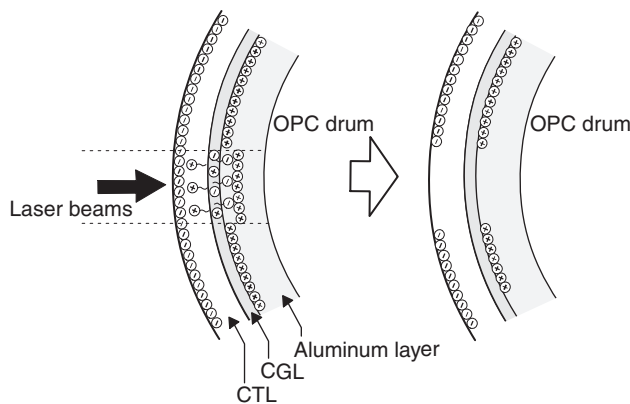
The OPC drum surface is negatively charged by the main charger. The laser beam images are radiated to the OPC drum surface by the laser (writing) unit to form latent electrostatic images.

- 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) Laser lights are radiated to the OPC drum surface by the laser (writing) unit to form latent electrostatic images.



When laser lights are radiated to the OPC drum CGL, negative and positive charges are generated.

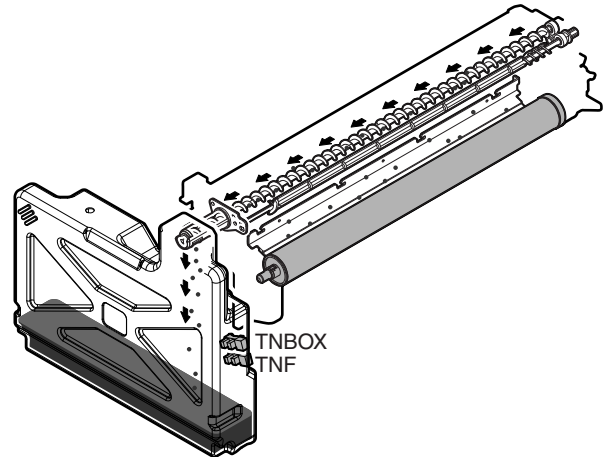
Positive charges generated on the CGL are attracted by the negative charges on the OPC drum surface. On the other hand, negative charges are attracted by the positive charges in the aluminum layer of the OPC drum.

Therefore, positive charges and negative charges are balanced out on the OPC drum and in the aluminum layer, reducing positive and negative charges to decrease the OPC drum surface voltage.

Electric charges remain at a position where laser lights are not radiated. As a result, latent electrostatic images are formed on the OPC drum surface.

- 3) 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.



Waste toner detection is performed by two sensors (TNBOX, TNF).

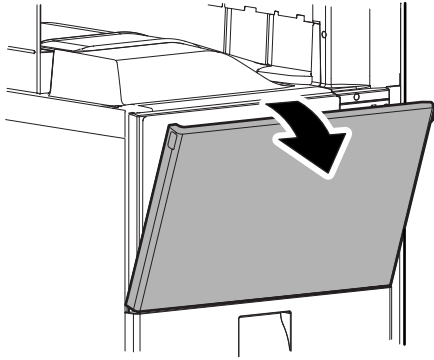
The following four statuses of the waste toner box are detected by the two sensors as shown below.

Pattern	Output level		Sensor status		Status
	TNBOX	TNF	TNBOX	TNF	
1	L	H	Transmitted	Interrupted	Waste toner box not provided
2	L	L	Transmitted	Transmitted	Waste toner box provided + Not full
3	H	L	Interrupted	Transmitted	Waste toner box provided + Near end
4	H	H	Interrupted	Interrupted	Waste toner box provided + Full

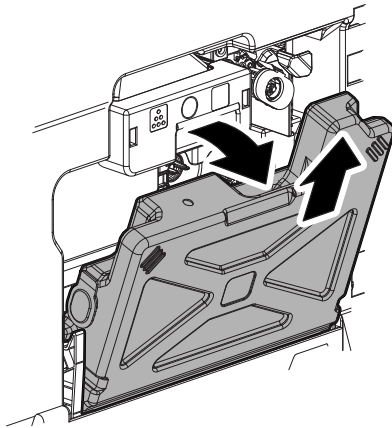
### 3. Disassembly and assembly

#### A. Photo-conductor unit

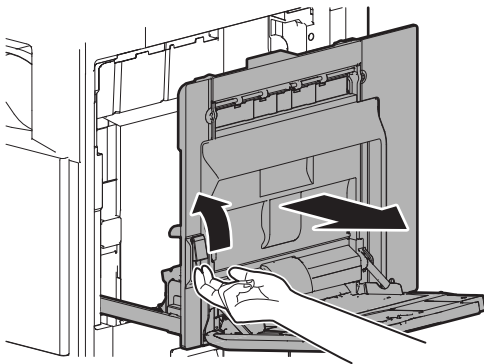
- 1) Open the front cover.



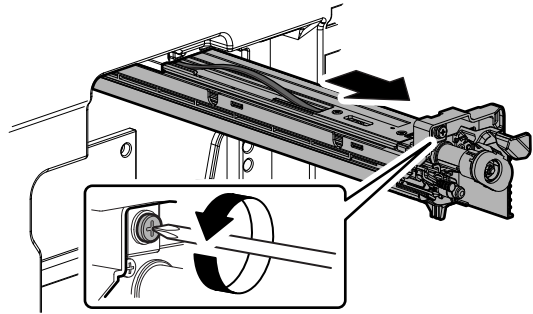
- 2) Tilt the waste toner box forward to remove it.



- 3) Remove the toner cartridge.  
[Refer to "[i] TONER SUPPLY SECTION."]
- 4) Remove the developing unit.  
[Refer to "[j] DEVELOPING SECTION."]
- 5) Pull the lock lever, and open the right door.

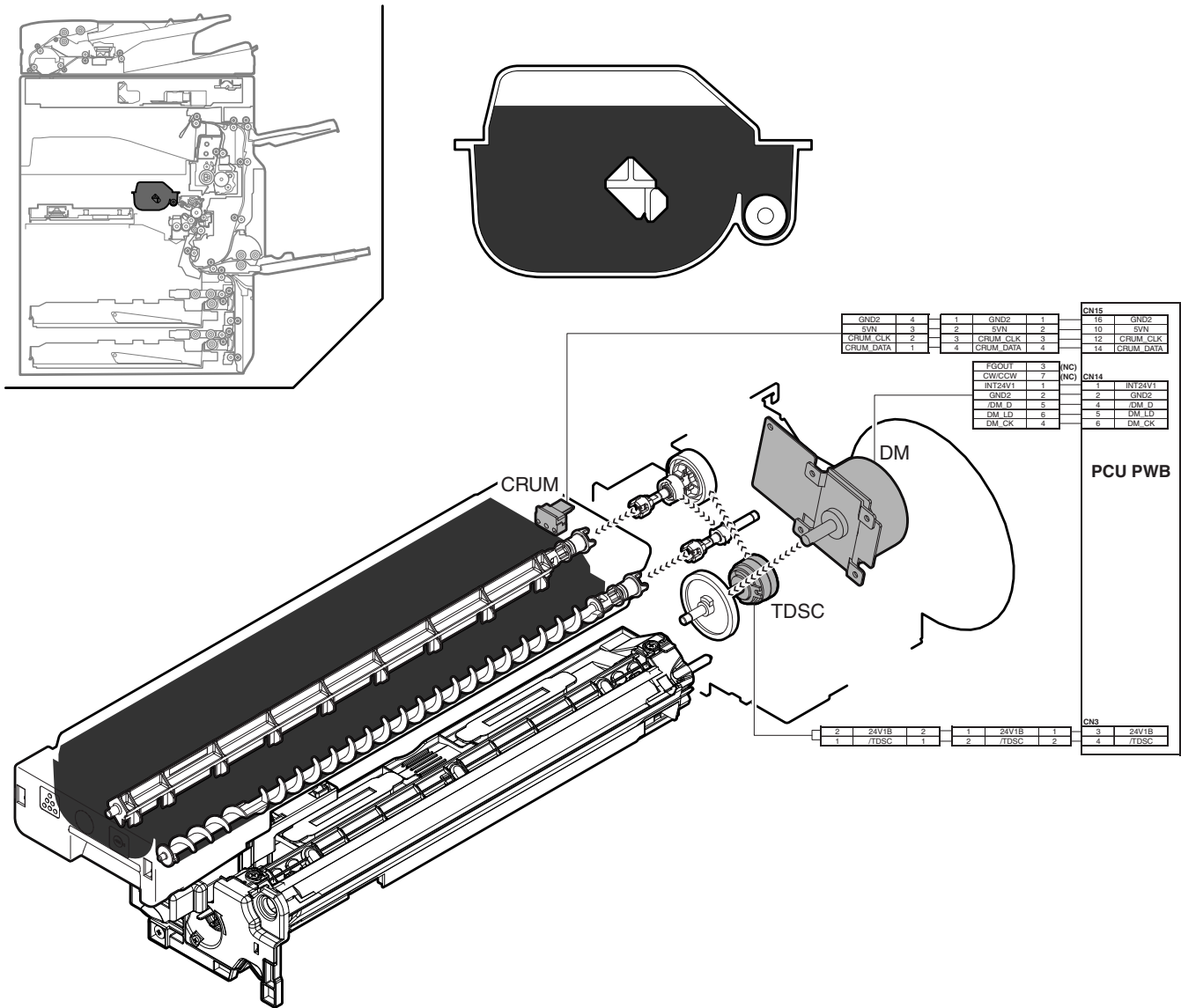


- 6) Remove the blue screw. Pull the photo-conductor unit, and hold the handle to remove the unit.



[i] TONER SUPPLY SECTION

1. Electrical and mechanical relation diagram



## 2. Operational descriptions

The toner transport screw in the toner cartridge is driven by the drum motor to supply toner to the developing unit.

The toner transport screw in the toner cartridge is turned ON/OFF by the toner supply clutch TDSC.

The toner density in the developing unit is detected by the toner density sensor. When the density falls below the specified level, the drum motor and the toner supply clutch TDSC are turned ON to supply toner in the toner cartridge to the developing unit.

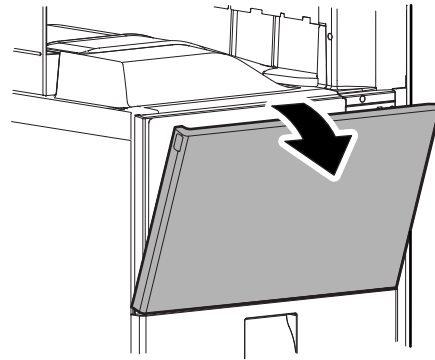
When the toner density reaches the specified level, TDSC turns OFF to stop supply of toner to the developing unit.

With the above process, the toner density in the developing unit is maintained at a fixed level.

## 3. Disassembly and assembly

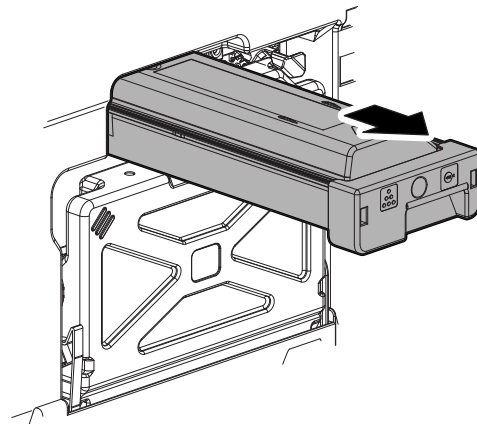
### A. Toner cartridge

- 1) Open the front cover.



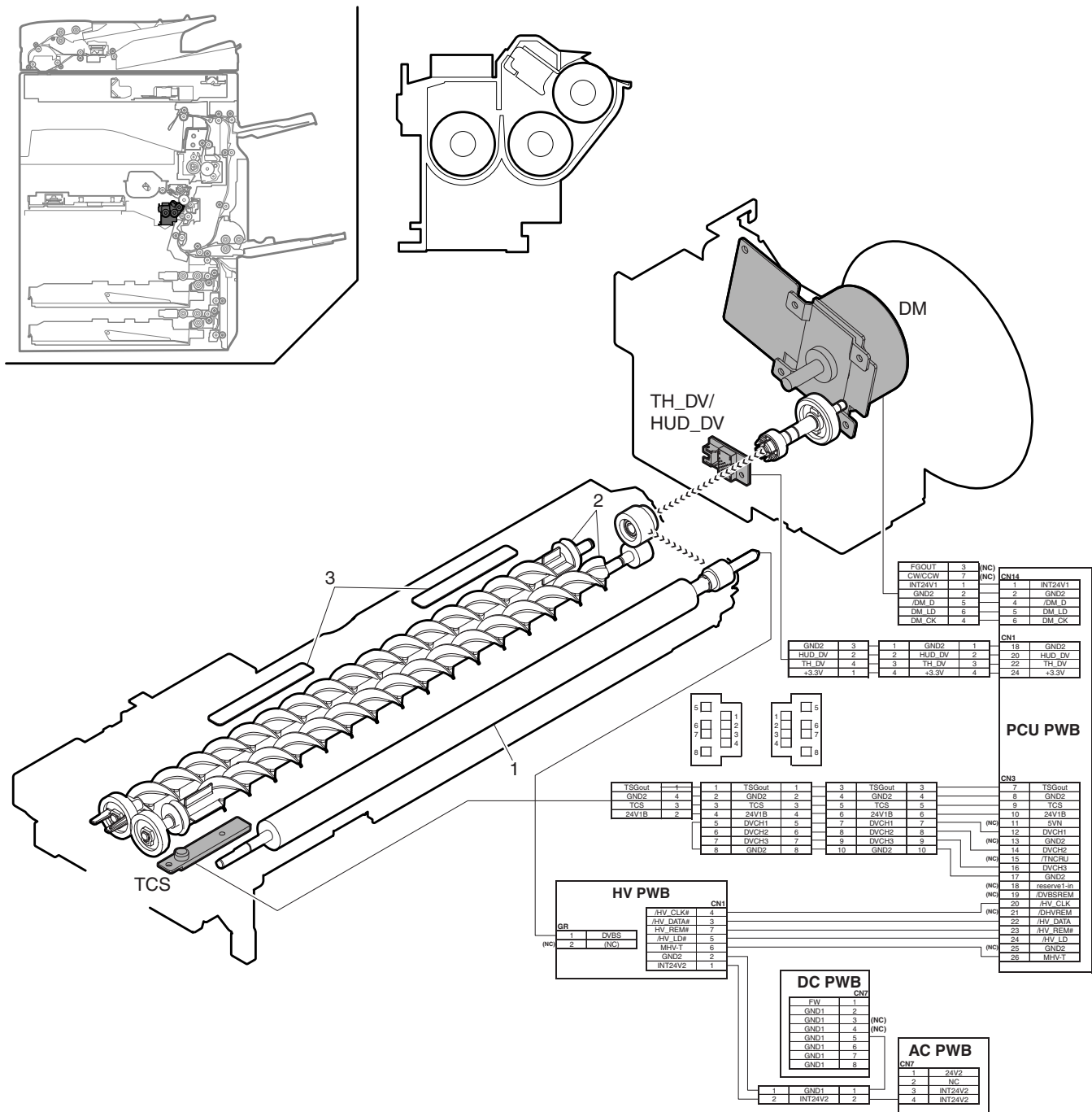
- 2) Pull and remove the toner cartridge slowly and horizontally.

NOTE: When installing, hold the toner cartridge horizontally and inset it slowly.



## [J] DEVELOPING SECTION

### 1. Electrical and mechanical relation diagram

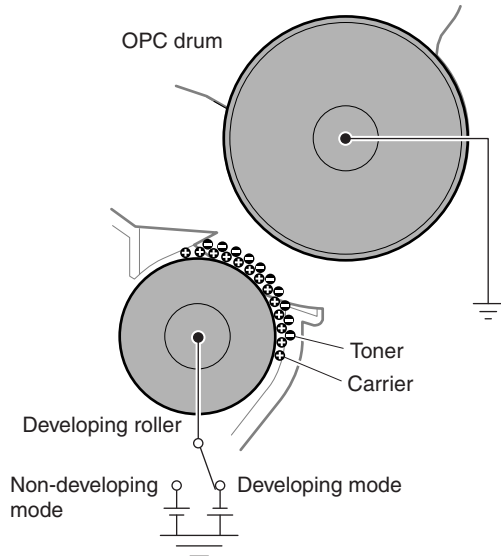


Signal name	Name	Function/Operation
DM	Drum motor	Drives the OPC drum and the developing unit.
TCS	Toner density sensor	Detects the toner density in the developing unit.
TH_DV/ HUD_DV	Temperature/humidity sensor	Detects the temperature and humidity of the process section for process control.

No.	Name	Function/Operation
1	Developing roller	Forms electrostatic latent images on the OPC drum into visible images.
2	Stirring roller	Stirs toner and developer to charge toner negatively by friction.
3	Toner filter	Prevents dispersing of toner.

## 2. Operational descriptions

This converts the electrostatic latent images on the OPC drum generated by the laser (writing) unit into visible images with toner.



Toner and carrier in the developing unit are stirred and transported by the mixing roller.

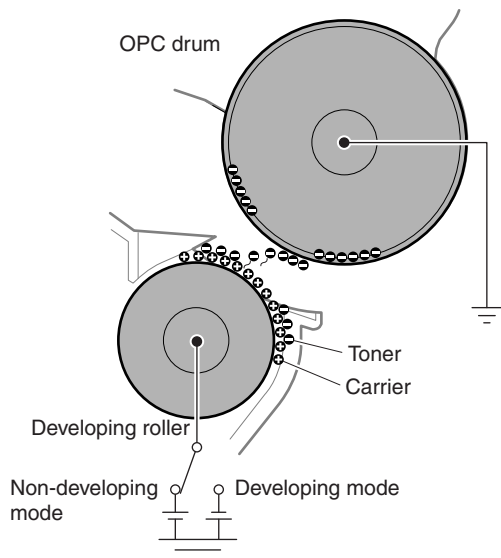
By mixing and transporting, toner and carrier are negatively charged due to mechanical friction.

The developing bias voltage (negative) 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 (negative).

If the OPC drum is not exposed, the negative potential is higher than the developing bias voltage, and toner is not attracted.

When rotation of the OPC drum is started and stopped, some area on the OPC drum is not charged negatively. To prevent toner from attaching to that area, a positive voltage is applied to the drum.



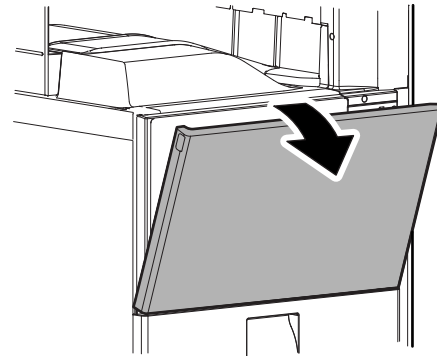
## 3. Disassembly and assembly

### A. Developing unit

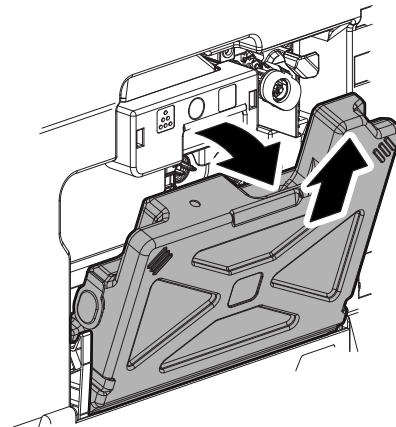
NOTE: Be careful not to attach fingerprints or oily dirt on the DV roller surface.

NOTE: Be careful not to hold the case adjacent to the developing roller strongly.

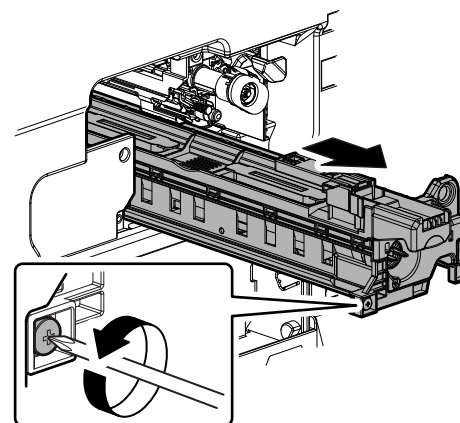
- 1) Open the front cover.



- 2) Tilt the waste toner box forward to remove it.



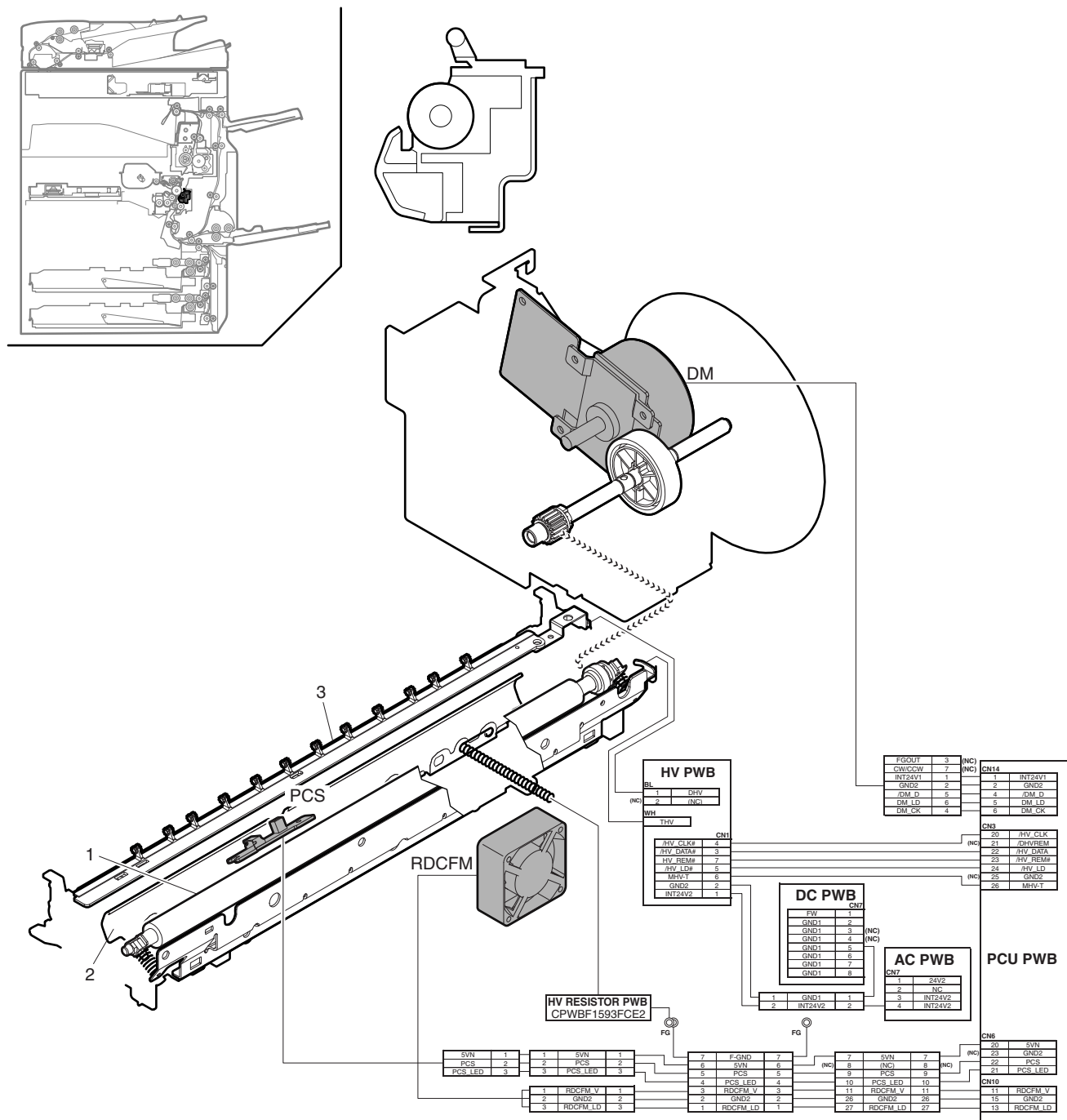
- 3) Remove the blue screw, and pull the developing unit to remove.





# [K] TRANSFER SECTION

## 1. Electrical and mechanical relation diagram



Signal name	Name	Function/Operation
DM	Drum motor	Drives the OPC drum, the developing unit, and the transfer unit.
PCS	Image density sensor	Detects the toner patch density on the OPC drum in process control.
RDCFM	Suction fan	Stabilizes paper transport.

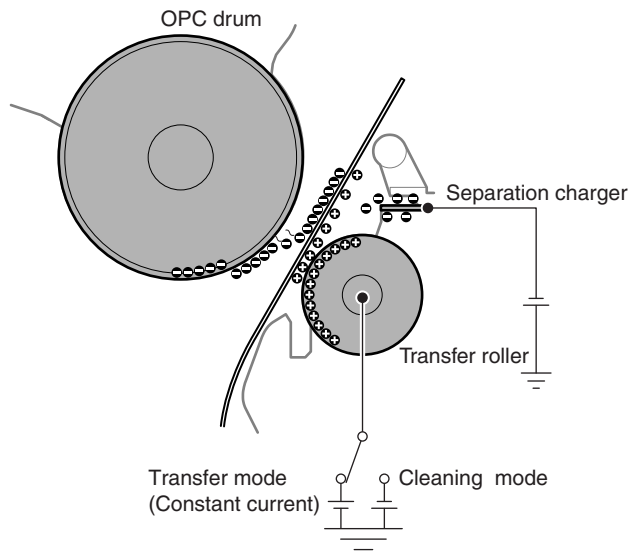
No.	Name	Function/Operation
1	Transfer roller	Transfers toner images from the OPC drum to paper.
2	Paper guide electrode	Connected to the ground through a high resistor to maintain the paper guide at a proper potential, stabilizing the transfer operation.
3	Separation charger	Applies a high negative voltage to the paper which was charged positively in the transfer process in order to discharge it.



## 2. Operational descriptions

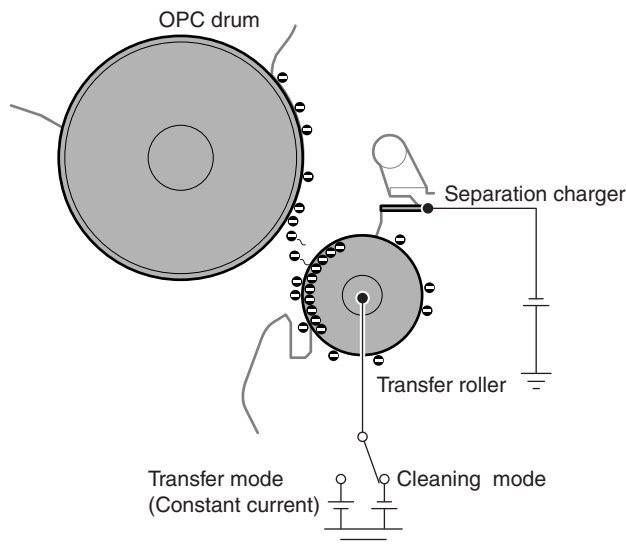
### A. Transfer operation

A positive high voltage is applied to the transfer roller to transfer the toner images from the OPC drum to paper.



### B. Cleaning operation

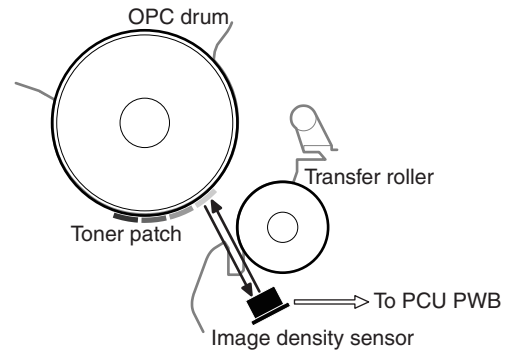
In the cleaning process, the polarity of the voltage applied to the transfer roller is made negative, and unnecessary toner on the transfer roller is sent to the OPC drum, cleaned with the cleaning blade, and transported to the waste toner section.



### C. Toner patch density detection in the process control

In the process control, the toner patch density on the OPC drum is detected with the image density sensor.

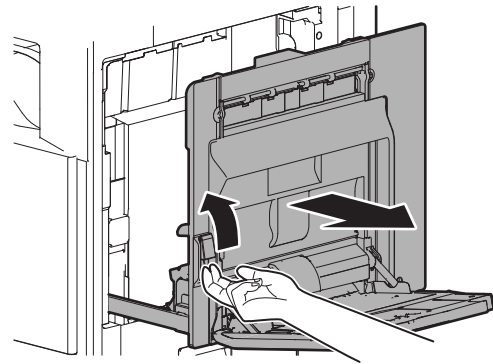
In addition, the sensitivity of the image density sensor is automatically performed by using reflection on the OPC drum surface.



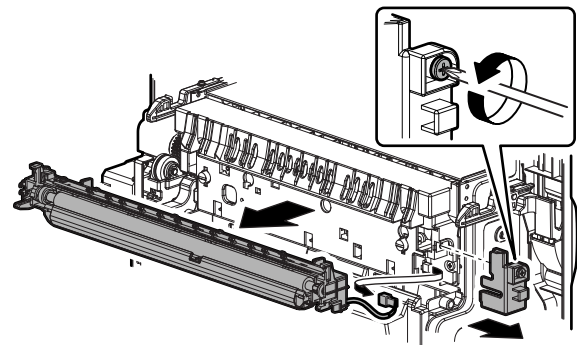
## 3. Disassembly and assembly

### A. Transfer unit

- 1) Pull the lock lever, and open the right door.

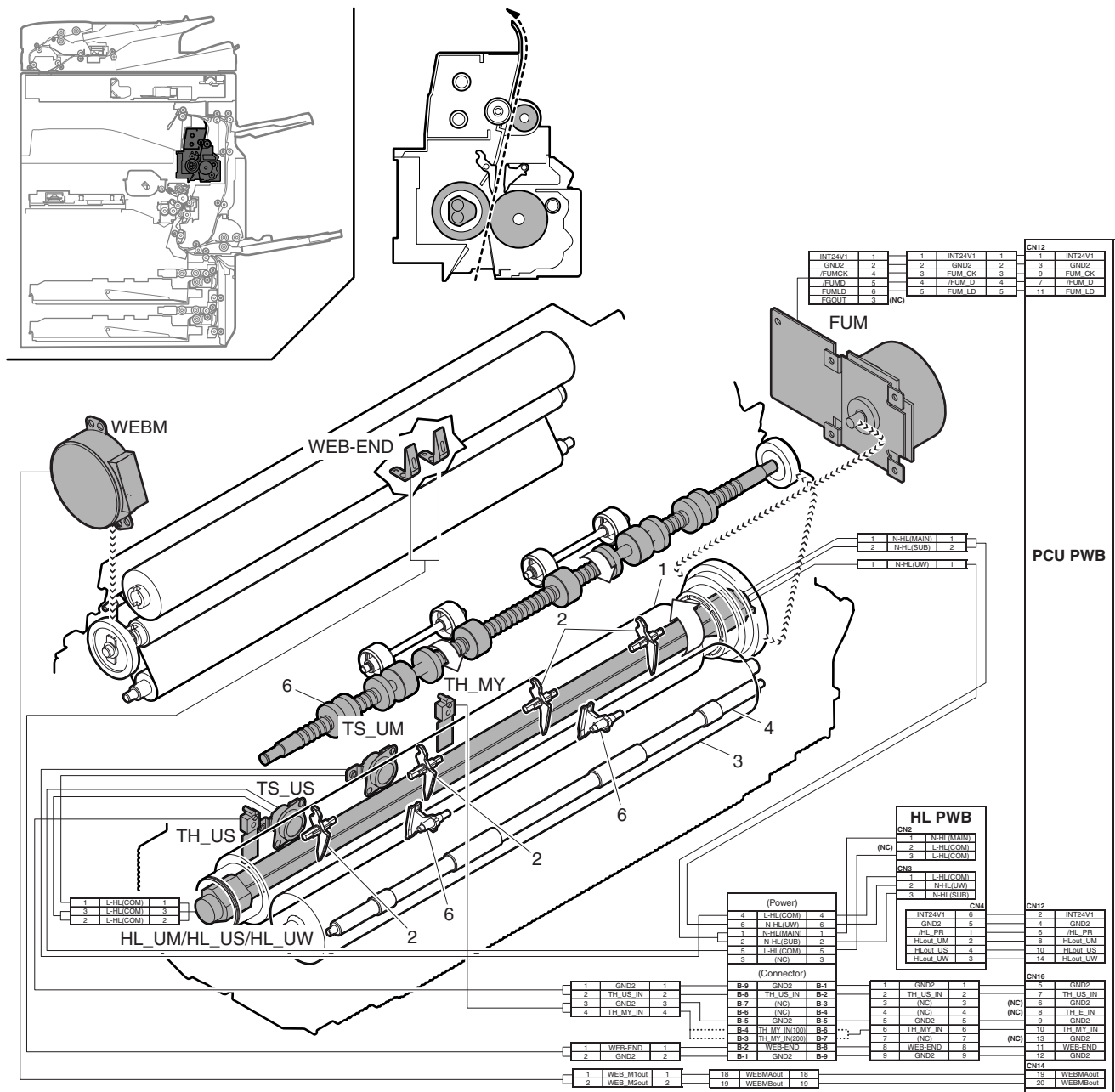


- 2) Remove the blue screw, and remove the cover. Disconnect the connector, and remove the transfer unit.



# [L] FUSING SECTION

## 1. Electrical and mechanical relation diagram



Signal name	Name [Type]	Function/Operation
FUM_CK	Fusing motor drive frequency [Brush-less motor]	Changes the fusing section speed.
FUM_D	Fusing motor start/stop [Brush-less motor]	Drives the fusing section.
FUM_LD	Fusing motor lock detection	Detects the fusing motor lock.
HLout_UM	Heater lamp main	Turns ON/OFF the heater lamp main.
HLout_US	Heater lamp sub	Turns ON/OFF the heater lamp sub.
HLout_UW	Heater lamp warm-up	Turns ON/OFF the warm-up operation of the heater lamp.
HL_PR	Heater lamp control relay	Turns ON/OFF the heater lamp control relay.
TH_MY_IN	Main thermistor	Detects the temperature.
TH_US_IN	Sub thermistor	Detects the temperature.
WEB-END	Web end detection	Detects the web end.
WEBM	Web motor (Synchronous motor)	Drives the fusing web cleaning paper.

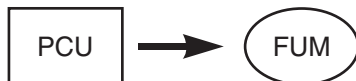
No.	Name	Function/Operation
1	Fusing roller (Heating)	Applies heat and pressure to toner on paper to fuse it on paper.
2	Upper separation pawl	Mechanically separates paper which was not naturally separated from the fusing roller (heating).
3	Fusing roller (Pressing)	Presses toner on paper to fuse.
4	Cleaning roller	Cleans the fusing roller (pressing).
5	Web roller	Cleans the fusing roller (heating).
6	Lower separation pawl	Mechanically separates paper which was not naturally separated from the fusing roller (pressing).
7	Thermostat (Main)	Shuts down the power to the heater lamp when the temperature rises abnormally.
8	Thermostat (Sub)	Shuts down the power to the heater lamp when the temperature rises abnormally.

## 2. Operational descriptions

### A. Fusing unit drive

For driving the fusing unit, the drive power is transmitted from the drive motor (FUM) through the connection gear to the upper heat roller gear.

Driving by the drive motor (DC Brush-less motor) is performed according to the control signal sent from the PCU.



### B. Heater lamp drive

The surface temperature of the heat roller detected by the thermostat is sent to the PCU. When the temperature is lower than the specified level, the heater lamp ON signal is sent from the PCU to the heater lamp drive circuit on the HL PWB.

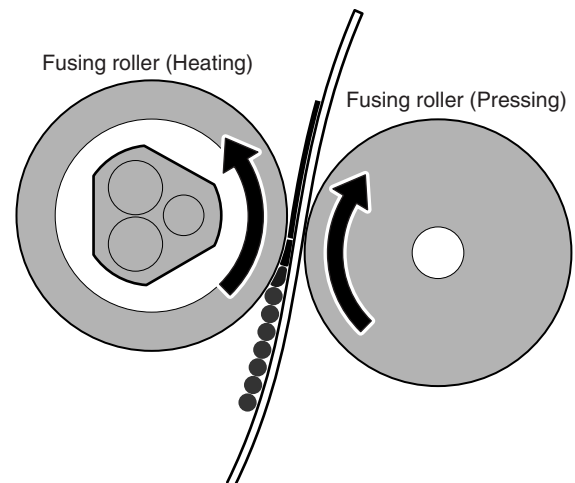
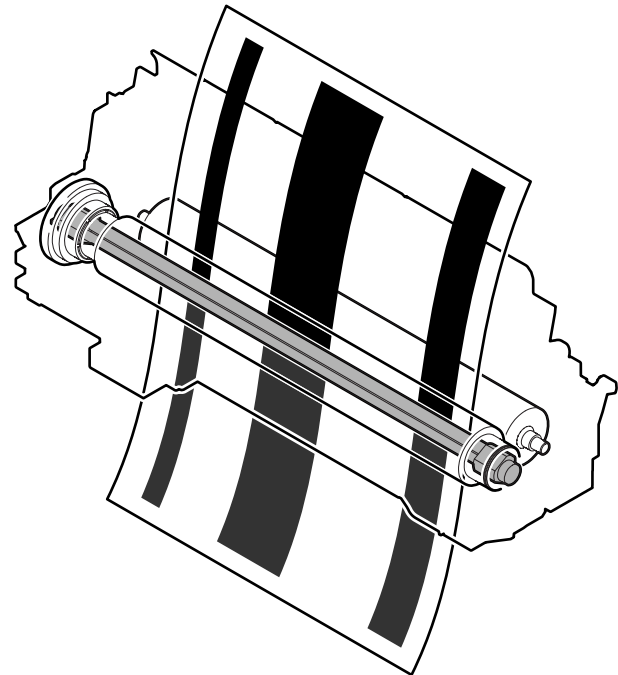
The power triac in the heater lamp drive circuit is turned on, and the AC power is supplied to the heater lamp, lighting the lamp and heating the heat roller.

To prepare for an abnormally high temperature of the heat roller, the thermostat is provided for safety.

When the thermostat is opened, the power supply (AC line) to the heater lamp is cut off.

### C. Fusing operation

Toner on paper is heated and pressed to be fused by the heat roller.



The fusing heat roller (heating) is provided with three heater lamps, which heat the fusing roller to fuse toner onto paper.

The fusing rollers (pressing) are made of silicon rubber because of the following reasons and purpose.

- 1) Paper is separated upward. (Since the fusing roller (heating) is of higher hardness, the fusing roller (pressing) is deformed to separate paper upward.)
- 2) The nip quantity is increased to increase heat capacity for paper.
- 3) By pressing paper with the flexible roller, toner is fused without deformation.

## D. Fusing temperature control

The temperature sensor is provided at the center of the fusing roller (heating).

The roller temperature is detected by the thermistor sensor, and the heater lamp is controlled so that the temperature is maintained at the specified level.

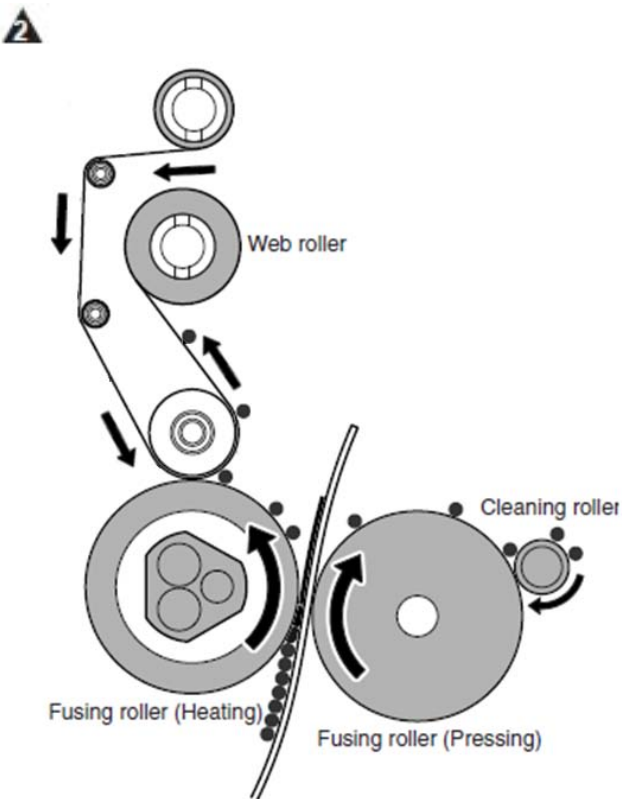
## E. Roller cleaning

The upper fusing roller is cleaned by the web. The lower fusing roller is cleaned by the cleaning roller.

- 1) Remaining toner on the upper fusing roller is cleaned by the web with silicon included.

The web unit is provided in the upper section of the upper fusing roller, and is composed of the feeding section of the web sheet, the winding section, and the backup roller which pressed the web sheet onto the upper fusing roller.

- 2) Remaining toner on the lower fusing roller is attached to the cleaning roller by the differences in the temperature, etc. between the lower fusing roller and the cleaning roller.



## F. Web end detection

The judgment of web end is made by the fusing web print counter or the web life end detection, whichever is earlier.

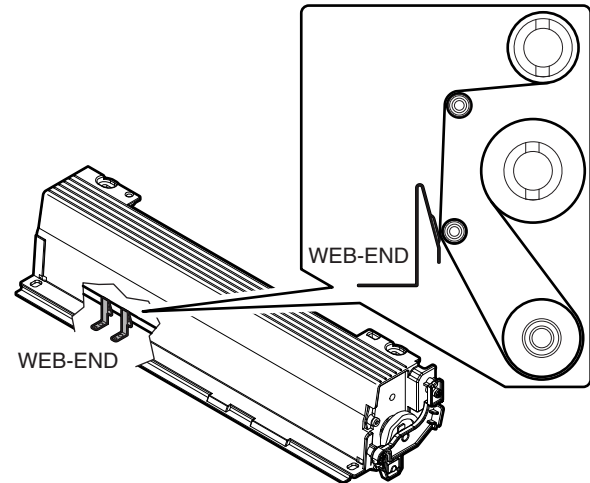
The web life end detection is made when the WEB-END sensor terminal is conducted by making contact with the roller shaft on the web supply side.

When the web life end is detected, the warning display is made, but the machine still continues the operation.

Warning display content: Maintenance required. Code: FK3

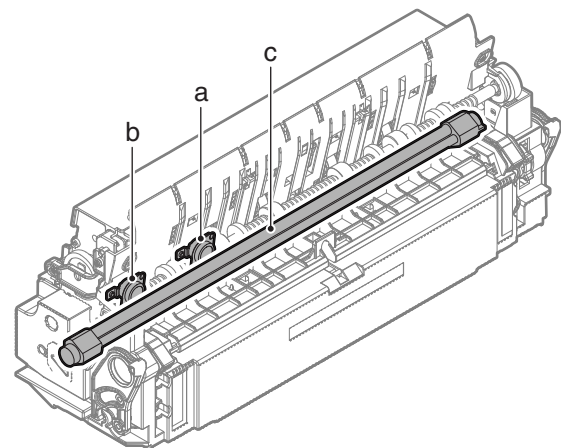
When the web is replaced with a new one and the web counter is cleared, the warning display disappears.

The new web is not automatically detected.



## 3. Disassembly and assembly

### A. Fusing unit

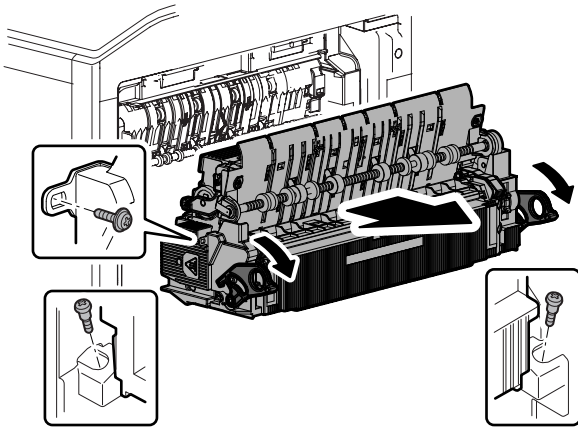


Parts	
a	Thermostat (main)
b	Thermostat (sub)
c	Heater lamp

- 1) Pull the lock lever, and open the right door.



- 2) Remove the blue screw. Pull the lock lever and remove the fusing unit.



### (1) Thermostat (main/sub)

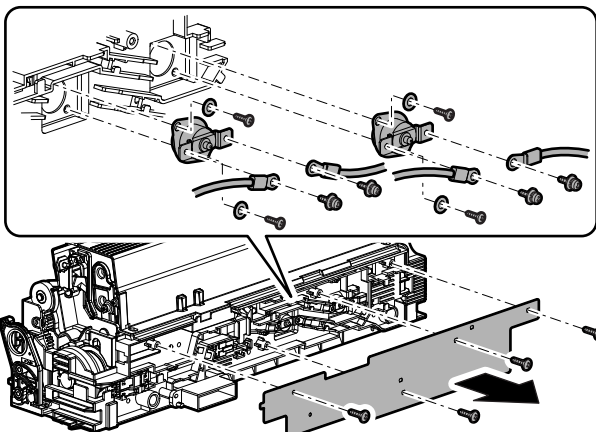
- 1) Remove the fusing unit.
- 2) Remove the screw, and remove the cover. Remove the screw, and remove the terminal. Remove the screw and the washer, and remove the thermostat.

NOTE: When fixing the thermostat and the harness, tighten the screws at the following torque:

1.0 - 1.2 N·m

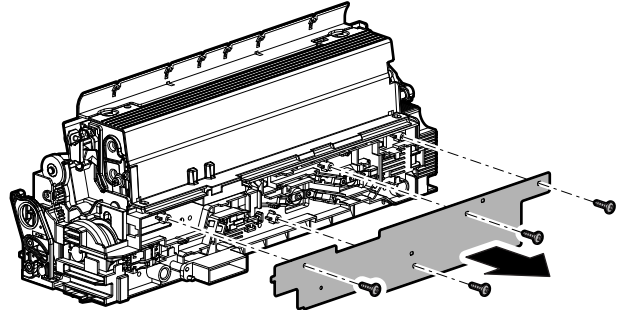
10 - 12 kgf·cm

0.7 - 0.9 lbft

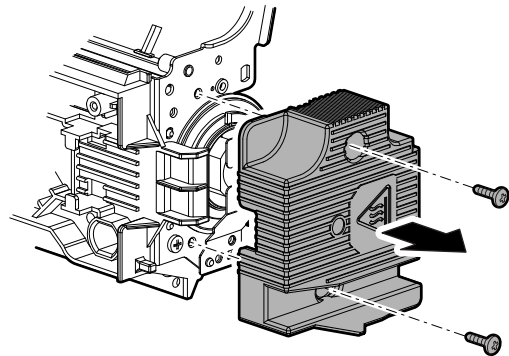


### (2) Heater lamp

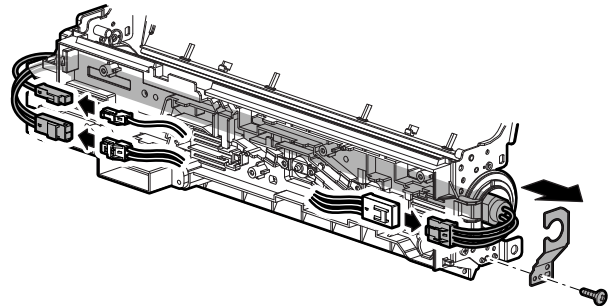
- 1) Remove the fusing unit.
- 2) Remove the screw, and remove the cover.



- 3) Remove the screw, and remove the cover.



- 4) Disconnect the connector. Remove the blue screw, and remove the fixing plate. Remove the heater lamp.

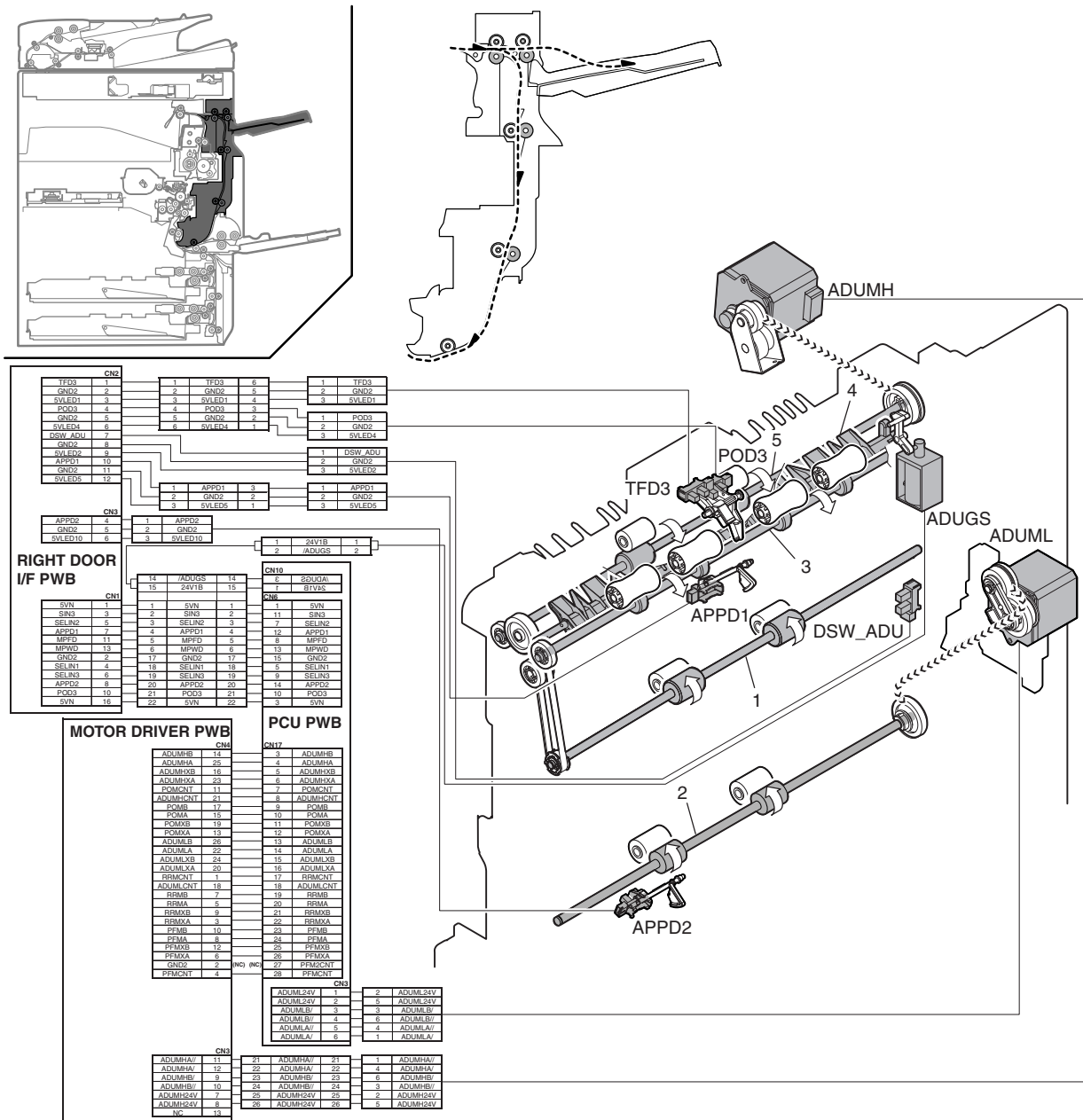




# [M] DUPLEX/PAPER EXIT SECTION

## 1. Electrical and mechanical relation diagram

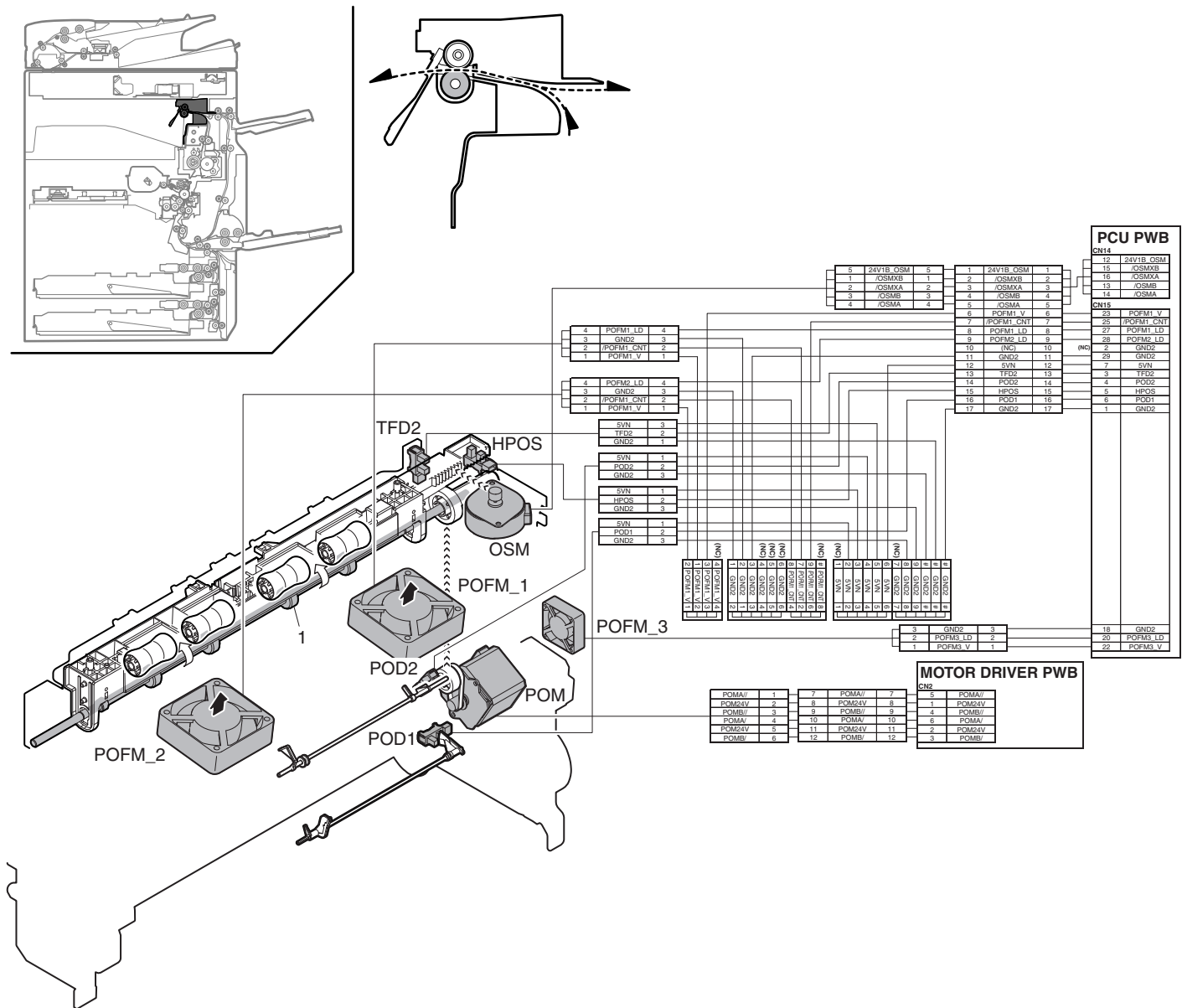
### A. Duplex section



Signal name	Name	Function/Operation
ADUGS	ADU gate solenoid	Controls the ADU gate.
ADUMH	ADU motor upper	Drive the transport roller 13.
ADUML	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.
4	Right paper exit gate	Selects the paper path to transport paper to the duplex (ADU) section or to discharge paper to the right tray.
5	Transport roller 13 (Drive)	Transports paper from the paper exit roller 1 to the paper exit roller 2. Transports paper to the duplex (ADU) section.

## B. Paper exit section



Signal name	Name	Function/Operation
HPOS	Shifter home position detection	Detects the shifter home position.
OSM	Shifter motor	Performs offset of paper.
POD1	Fusing rear detection	Detects paper exit from fusing after detection fusing.
POD2	Paper exit detection	Detects the exit paper.
POFM_1	Paper exit cooling fan motor (R side)	Cools the fusing unit.
POFM_2	Paper exit cooling fan motor (F side)	Cools the fusing unit.
POFM_3	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	Paper exit roller 1 (Drive)	Discharges paper. / Transports paper to the right paper exit tray. / Transport paper to the duplex (ADU) section.

## 2. Operational descriptions

### A. Duplex

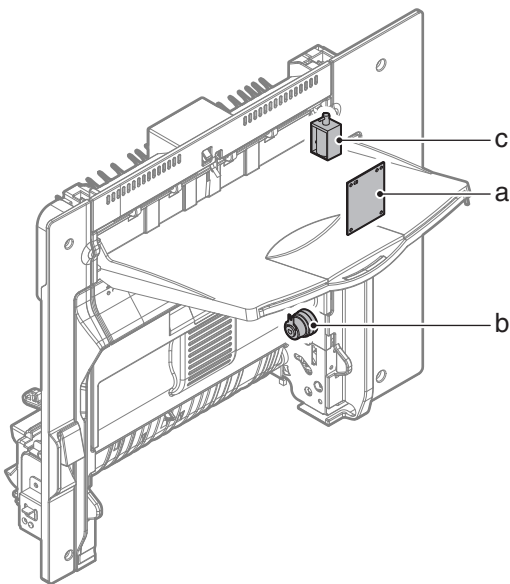
- Paper transported from the fusing section is sent from the transport roller 13 (which is driven by the paper exit drive motor) to the paper exit roller 1.
- At that time, paper is passed under the ADU reverse gate guide.
- When the specified time passes from detection of the paper lead edge by POD1, the paper exit drive motor rotates normally, and rotates reversely after the specified time.
- By the reverse rotation of the paper exit drive motor, paper is sent to the reverse section. At that time, paper passes on the upper side of the Ado gate which lowers by its own weight.
- The transport rollers 10 and 11 are driven by the ADU motor lower to transport paper to the duplex paper feed position.
- Paper is stopped at the duplex paper feed position, and then transported to the machine again.

### B. Paper exit

- Paper transported from the fusing section is sent from the transport roller 13 (which is driven by the paper exit drive motor) to the paper exit roller 1, and discharged to the inner tray.
- When paper is discharged to the right tray, paper is sent to the paper exit roller 1. The paper exit drive motor rotates reversely. Paper is passed through the right paper exit gate, and discharged to the right tray.

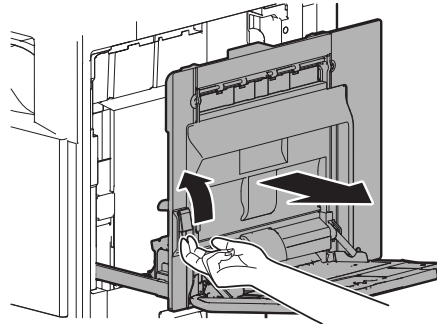
## 3. Disassembly and assembly

### A. Right door unit

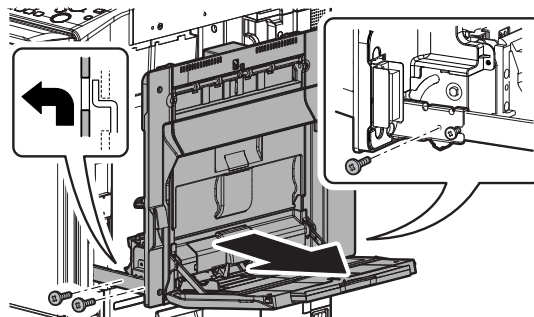


Parts	
a	RD I/F PWB
b	Manual paper feed clutch
c	ADU gate solenoid

- 1) Pull the lock lever, and open the right door.

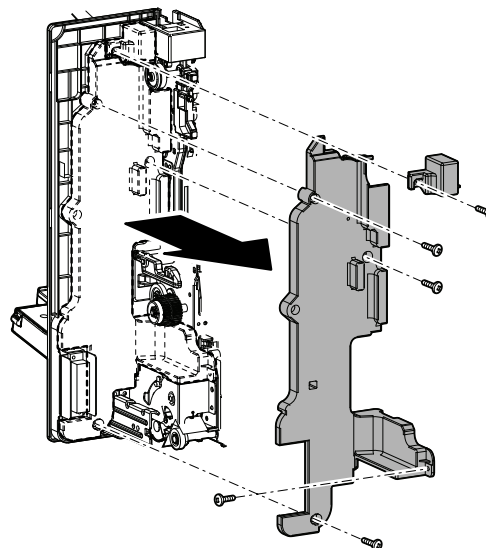


- 2) Remove the right door unit.

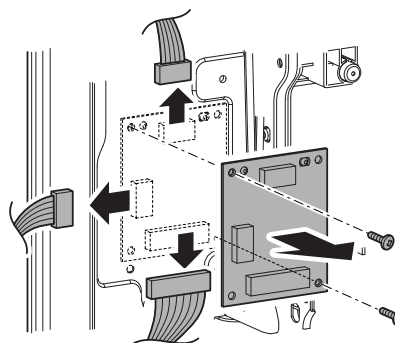


#### (1) RD I/F PWB

- 1) Open the right door.
- 2) Remove the connector cover. Remove the ADU inner cover.



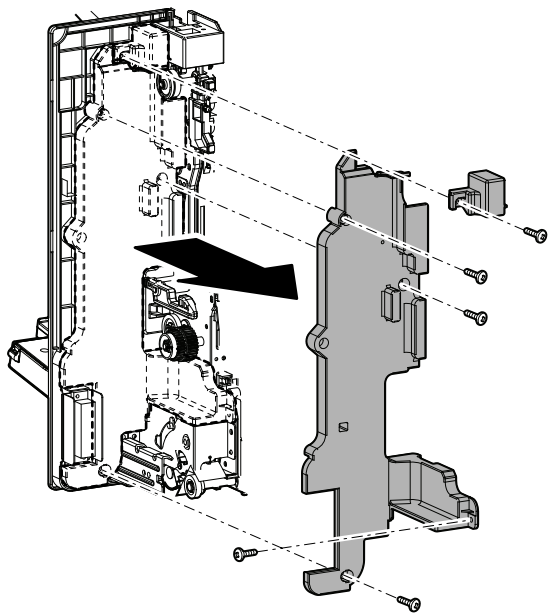
- 3) Disconnect the connector, and remove the RD I/F PWB.



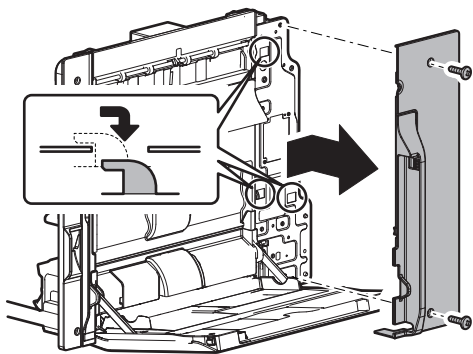


## (2) Manual paper feed clutch

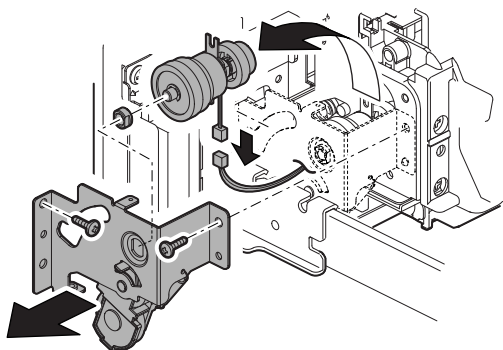
- 1) Open the right door.
- 2) Remove the connector cover, and remove the ADU inner cover.



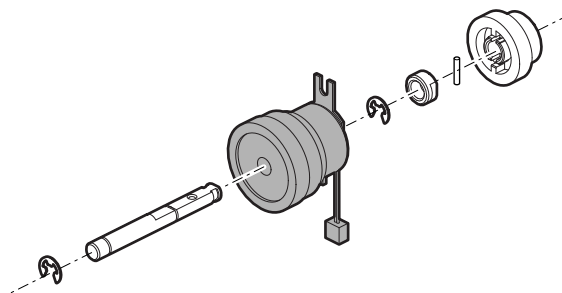
- 3) Remove the ADU cabinet R.



- 4) Remove the MF drive connection plate. Disconnect the connector. Remove the manual paper feed clutch unit.

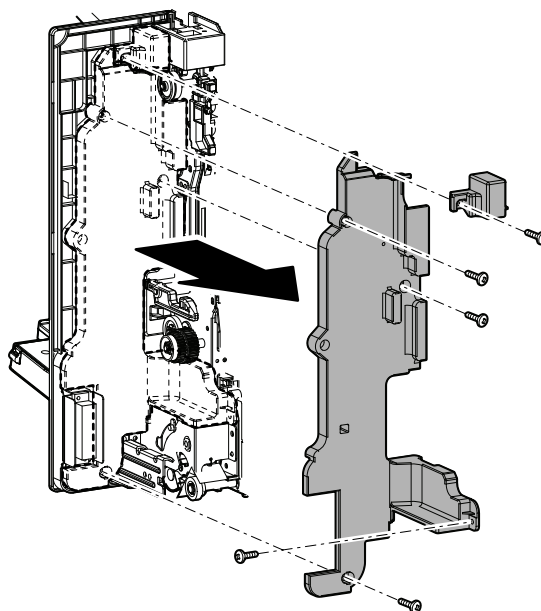


- 5) Remove the manual paper feed clutch.



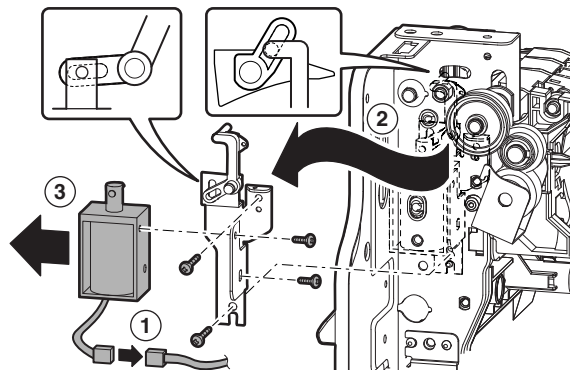
## (3) ADU gate solenoid

- 1) Open the right door.
- 2) Remove the connector cover, and remove the ADU inner cover.

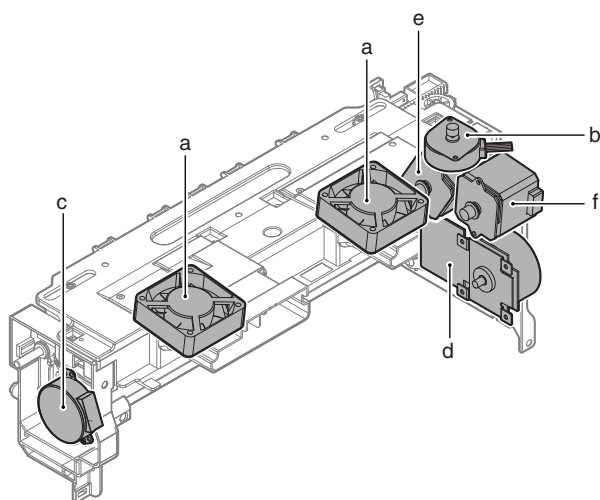


- 3) Disconnect the connector, and remove the ADU gate solenoid unit.

Remove the ADU gate solenoid.

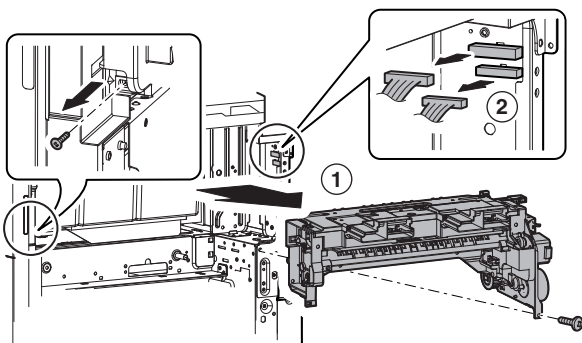


## B. Paper exit unit



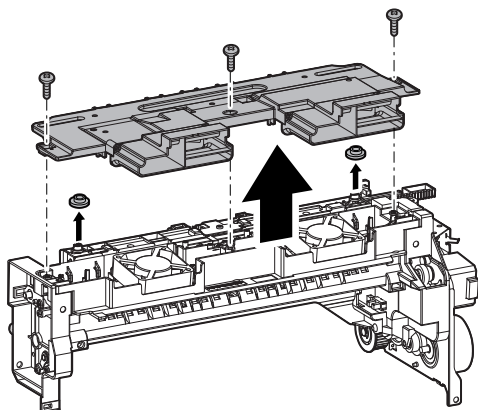
Parts	
a	Paper exit cooling fan motor
b	Shifter motor
c	Fusing web cleaning motor
d	Fusing drive motor
e	Paper exit drive motor
f	ADU motor upper

- 1) Remove the upper cabinet right and the right connecting cabinet. [Refer to "[A] EXTERIOR."]
- 2) Remove the fusing unit. [Refer to "[L] FUSING SECTION."]
- 3) Remove the screw, and remove the paper exit unit, and disconnect the connector.



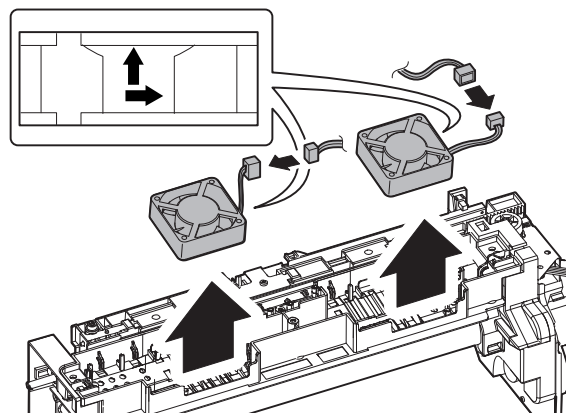
### (1) Paper exit cooling fan motor

- 1) Remove the paper exit unit.
- 2) Remove the exhaust fan duct.



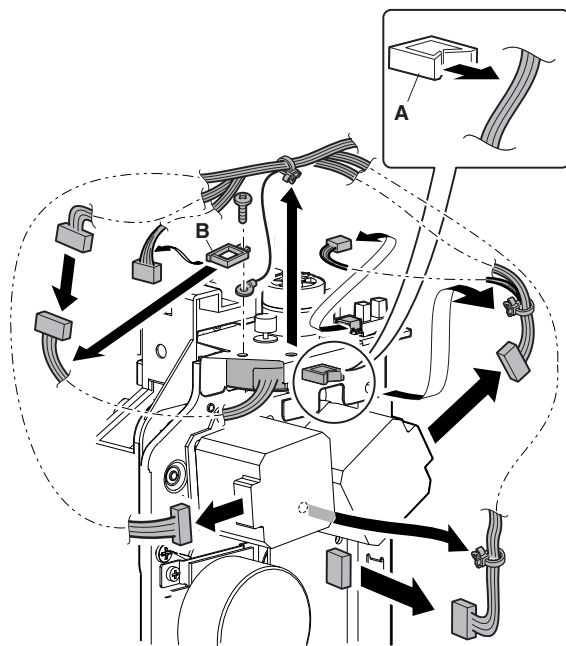
- 3) Disconnect the connector, and remove the paper exit cooling fan motor.

\* When installing, be sure to note the fan direction.

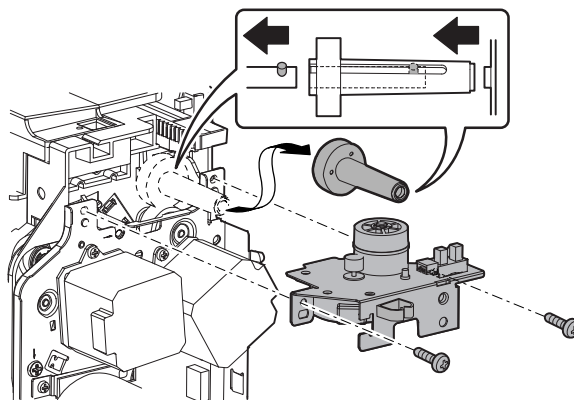


### (2) Shifter motor

- 1) Remove the paper exit unit.
- 2) Remove the harness from the saddle (A) and the saddle (B). Remove the screw, and remove the earth terminal. Disconnect the connectors and remove the snap band.



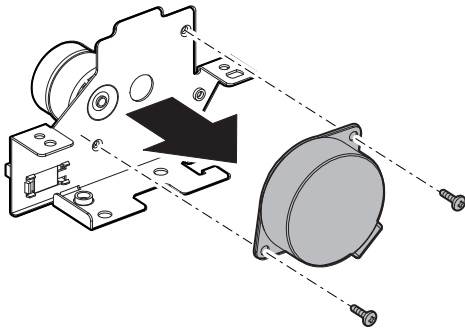
- 3) Remove the shifter motor unit. Remove the gear.



\* When installing, place the paper exit roller SP pin in the gear slit.

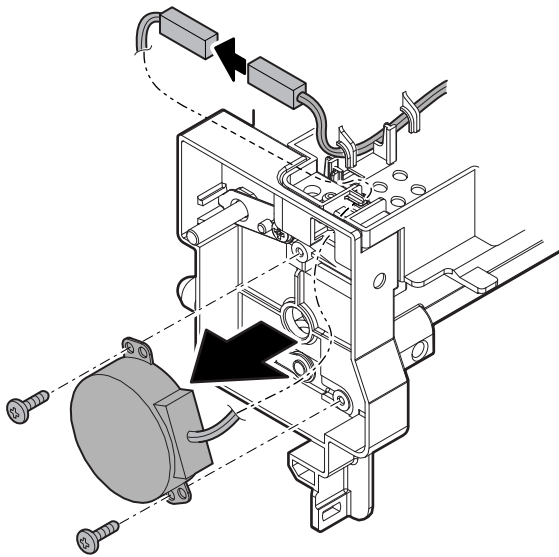
Engage the bar ring of the shifter motor unit with the gear.

- 4) Remove the screws, and remove the shifter motor.



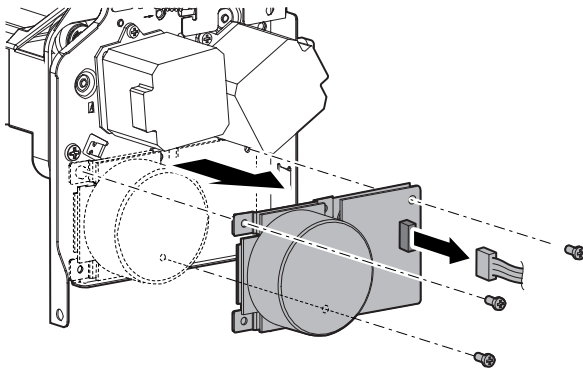
### (3) Fusing web cleaning motor

- 1) Remove the paper exit unit.
- 2) Remove the exhaust fan duct.
- 3) Disconnect the connector, and remove the screws, and then remove the fusing web cleaning motor.



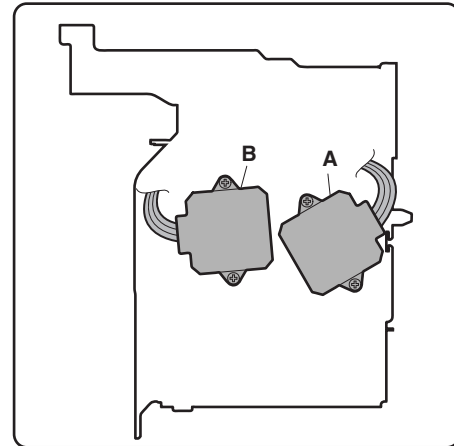
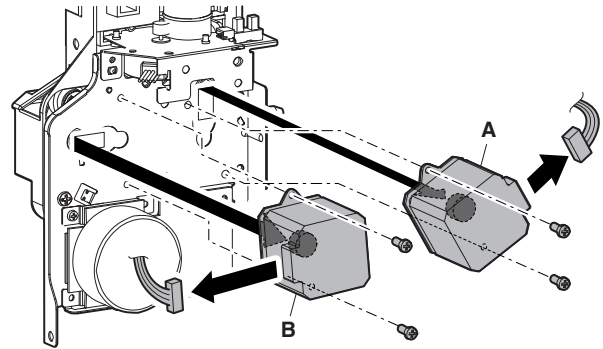
### (4) Fusing drive motor

- 1) Remove the paper exit unit.
- 2) Disconnect the connector, and remove the screws, and then remove the fusing drive motor.

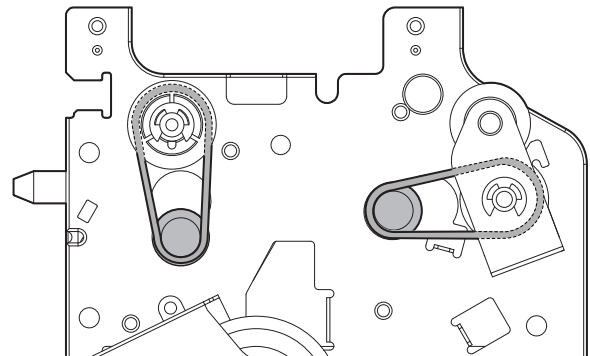


### (5) Paper exit drive motor/ADU motor upper

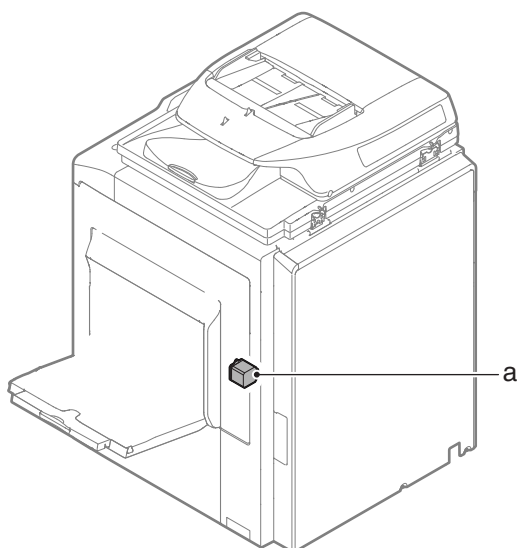
- 1) Remove the paper exit unit.
- 2) Disconnect the connector, and remove the screws, and remove the paper exit drive motor (A), and the ADU motor upper (B).



- \* Be careful to install the motors in the proper direction.
- \* When installing, attach the belt as shown below.



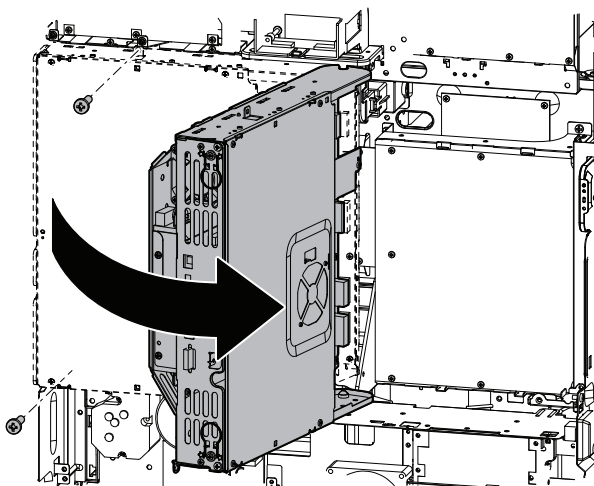
## C. Others



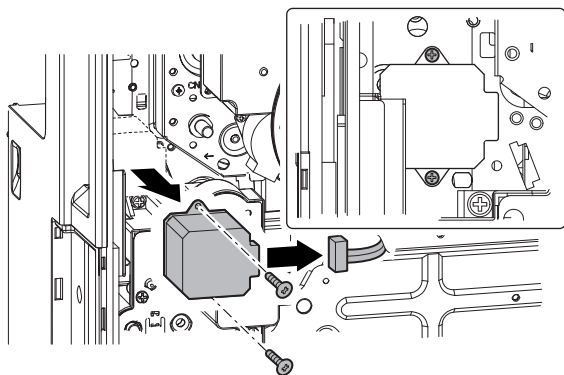
Parts	
a	ADU motor lower

### (1) ADU motor lower

- 1) Remove the rear cabinet. [Refer to "[A] EXTERIOR."]
- 2) Remove the screw, and open the control box.



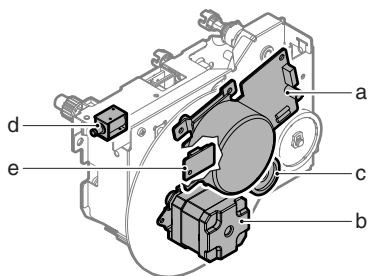
- 3) Disconnect the connector, and remove the ADU motor lower.



# [N] DRIVE SECTION

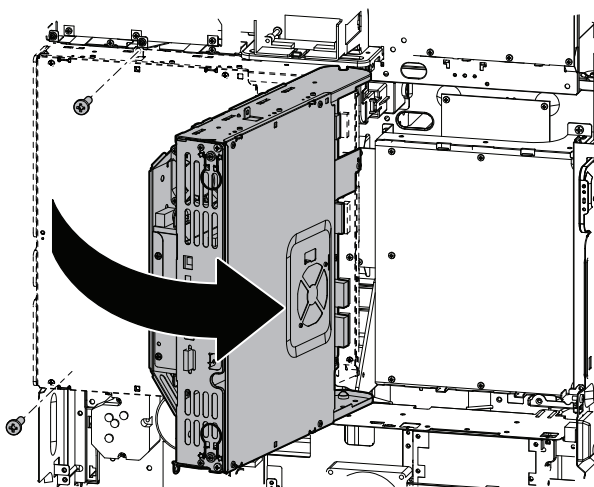
## 1. Disassembly and assembly

### A. Main drive unit

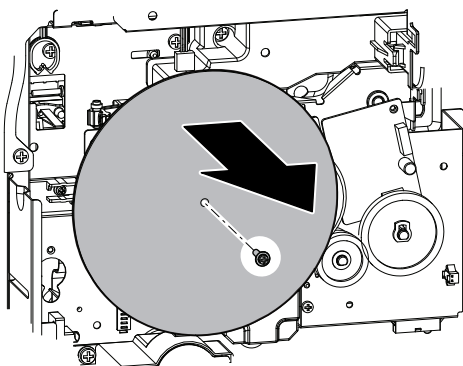


Parts	
a	Drum motor
b	Resist motor
c	Toner supply clutch
d	Separation solenoid
e	Temperature/humidity sensor

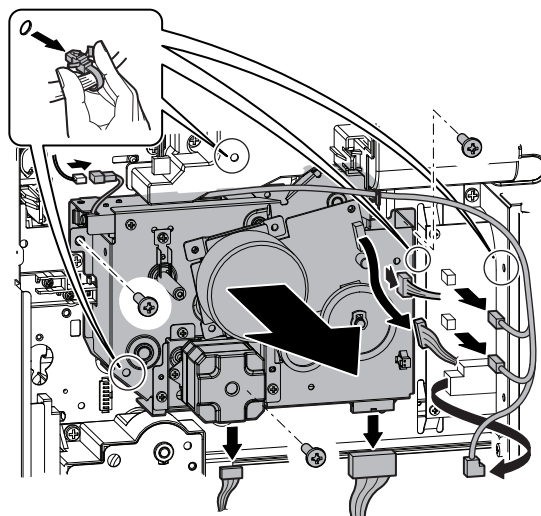
- 1) Remove the rear cabinet and the right cabinet rear cover. [Refer to "[A] EXTERIOR."]
- 2) Remove the screw, and open the control box.



- 3) Remove the flywheel.  
\* After installing, check to confirm that the flywheel is not in contact with the harness.

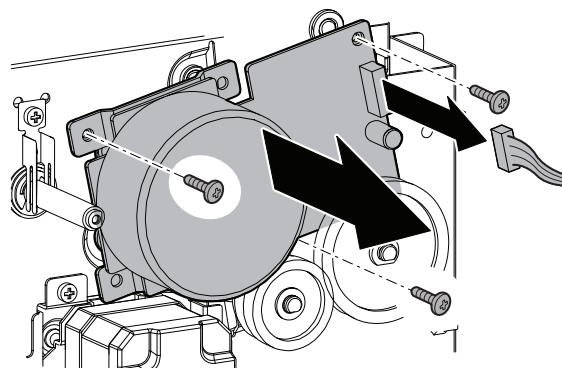


- 4) Disconnect the connector, remove the screw, and remove the main drive unit.



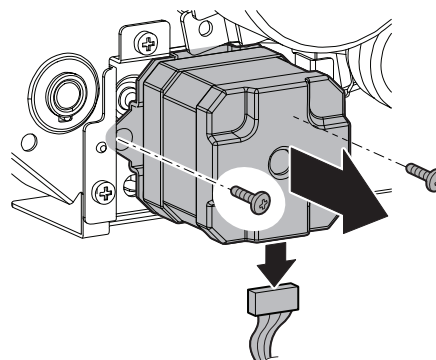
#### (1) Drum motor

- 1) Remove the rear cabinet and the right cabinet rear cover. [Refer to "[A] EXTERIOR."]
- 2) Open the control box.
- 3) Remove the flywheel.
- 4) Disconnect the connector, remove the screw, and remove the drum motor.



#### (2) Resist motor

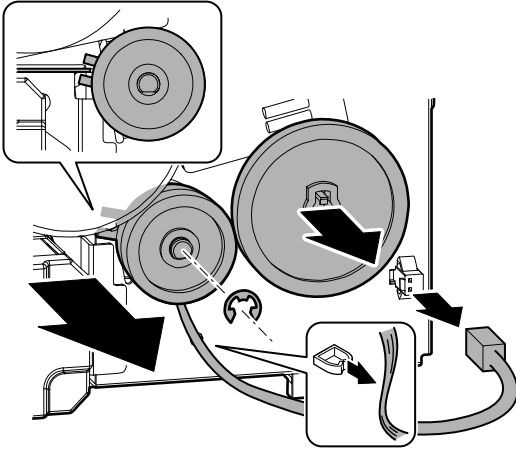
- 1) Remove the rear cabinet and the right cabinet rear cover. [Refer to "[A] EXTERIOR."]
- 2) Open the control box.
- 3) Remove the flywheel.
- 4) Disconnect the connector, remove the screw, and remove the resist motor.





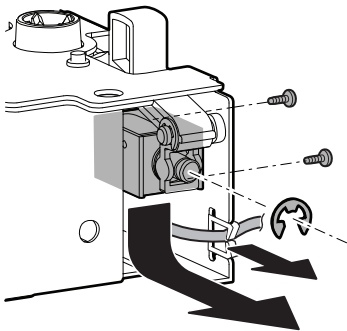
### (3) Toner supply clutch

- 1) Remove the rear cabinet and the right cabinet rear cover. [Refer to "[A] EXTERIOR."]
- 2) Open the control box.
- 3) Remove the flywheel.
- 4) Disengage the pawl, and remove the gear. Disconnect the connector, remove the E-ring, and remove the toner supply clutch.



### (4) Separation solenoid

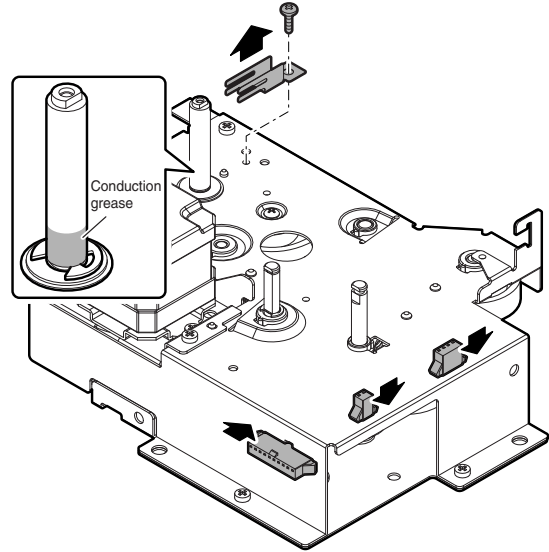
- 1) Remove the rear cabinet and the right cabinet rear cover. [Refer to "[A] EXTERIOR."]
- 2) Remove the main drive unit.
- 3) Remove the E-ring and the screw, and remove the separation solenoid.



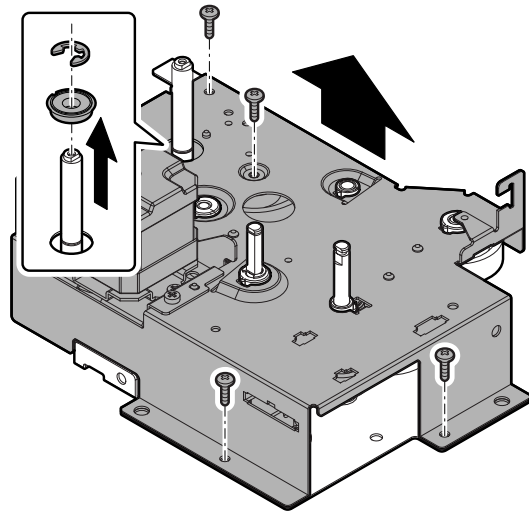
### (5) Temperature/humidity sensor

- 1) Remove the main drive unit.
- 2) Remove the drum motor and the toner supply clutch. [Refer to "(1) Drum motor", "(3) Toner supply clutch".]
- 3) Disconnect the connector from the frame. Remove the screw, and remove the grounding plate. Remove grease from the shaft.

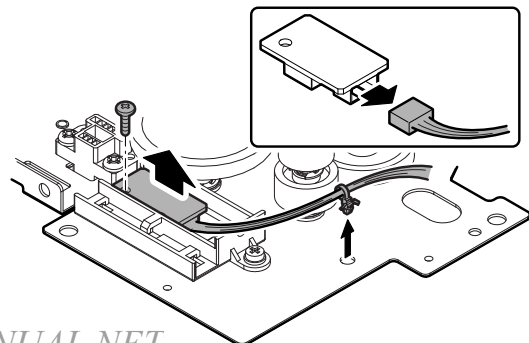
NOTE: When reassembling, apply conduction grease (UKOG-0012QSZZ).



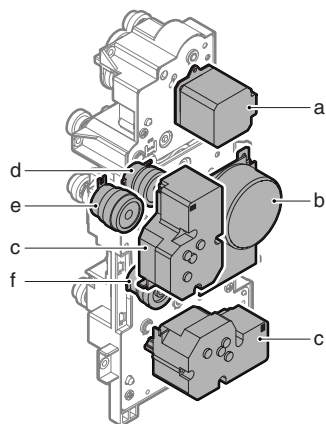
- 4) Remove the E-ring and the bearing. Remove the screw, and remove the frame.



- 5) Remove the snap band. Remove the screw, and remove the temperature/humidity sensor. Disconnect the connector from the temperature/humidity sensor.

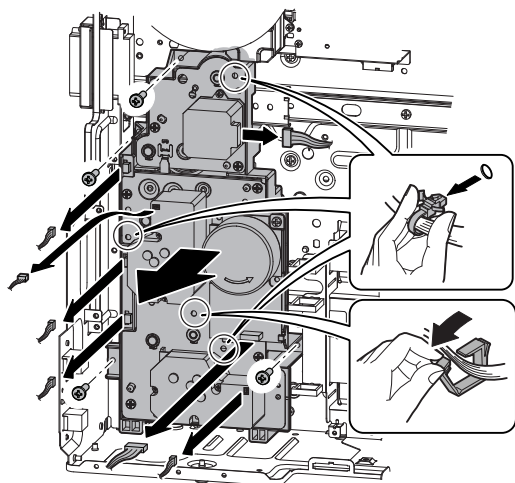


## B. Paper feed drive unit



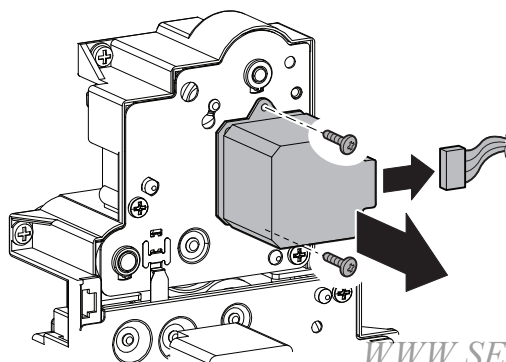
Parts	
a	Transport motor
b	Paper feed motor
c	Paper tray lift-up motor
d	Paper feed clutch (Paper feed tray 1)
e	Paper feed clutch (Paper feed tray 2)
f	Paper transport clutch

- 1) Remove the rear cabinet and the right cabinet rear cover. [Refer to "[A] EXTERIOR."]
- 2) Open the control box.
- 3) Disconnect the connector, and remove the paper feed drive unit.



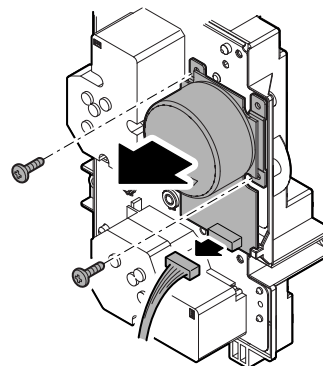
### (1) Transport motor

- 1) Remove the rear cabinet and the right cabinet rear cover. [Refer to "[A] EXTERIOR."]
- 2) Open the control box.
- 3) Disconnect the connector and remove the screw, and remove the transport motor.



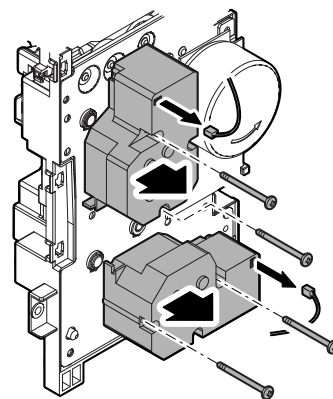
### (2) Paper feed motor

- 1) Remove the rear cabinet and the right cabinet rear cover. [Refer to "[A] EXTERIOR."]
- 2) Open the control box.
- 3) Disconnect the connector and remove the screw, and remove the paper feed motor.

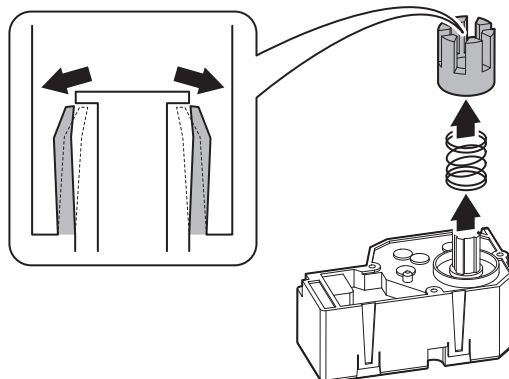


### (3) Paper tray lift-up motor

- 1) Remove the rear cabinet and the right cabinet rear cover. [Refer to "[A] EXTERIOR."]
- 2) Open the control box.
- 3) Disconnect the connector and remove the screw, and remove the paper tray lift-up motor unit.

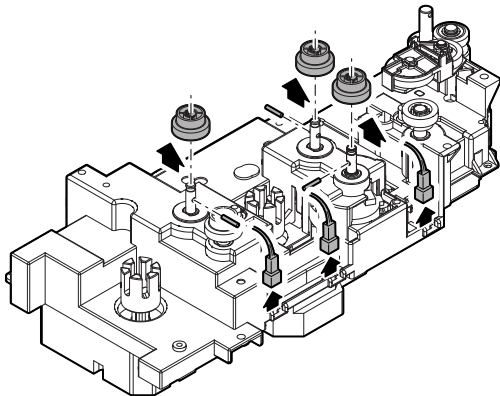


- 4) Disengage the pawl, and remove the lift-up coupling.

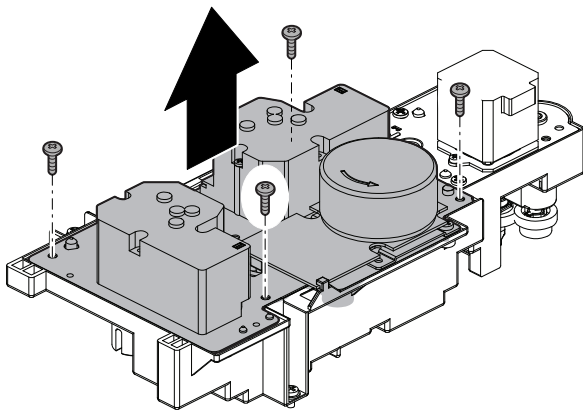


**(4) Paper feed clutch (Paper feed tray 1/  
Paper feed tray 2)/Paper transport clutch**

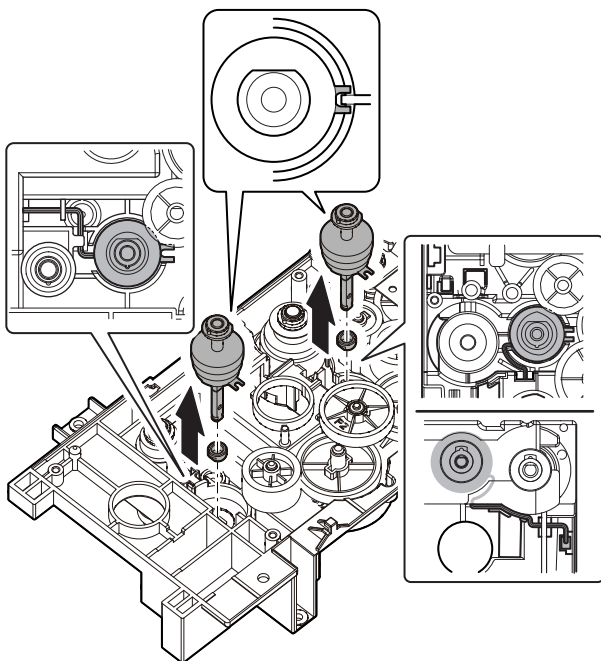
- 1) Remove the rear cabinet and the right cabinet rear cover.  
[Refer to "[A] EXTERIOR."]
- 2) Remove the paper feed drive unit.
- 3) Remove the gear and disconnect the connector.



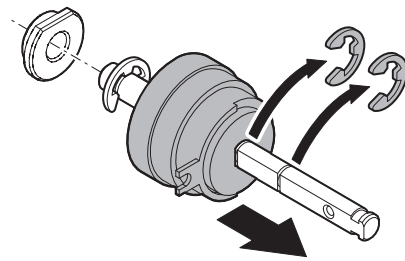
- 4) Remove the screw, and remove the drive frame upper unit.



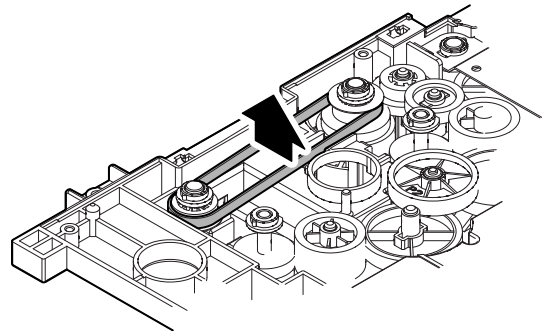
- 5) Remove the paper feed clutch unit.  
\* When installing, be careful of wiring process.



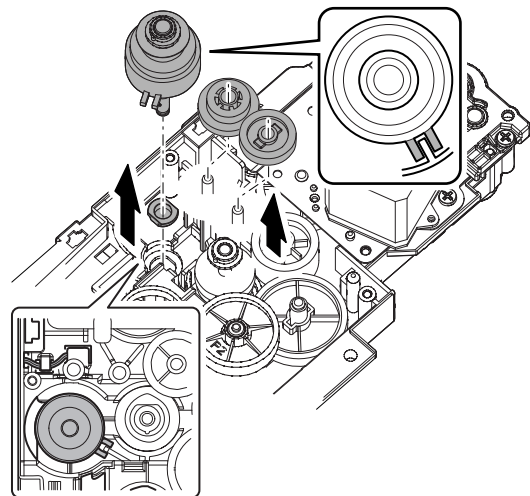
- 6) Remove the E-ring, and remove the paper feed clutch.



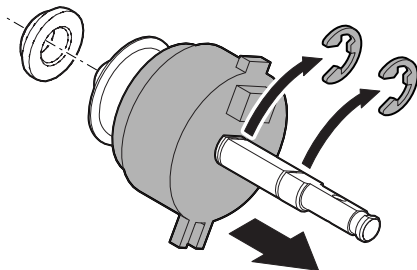
- 7) Remove the belt.



- 8) Remove the gear, and remove the paper transport clutch unit.  
\* When installing, be careful of wiring process.



- 9) Remove the E-ring, and remove the paper transport clutch 1.





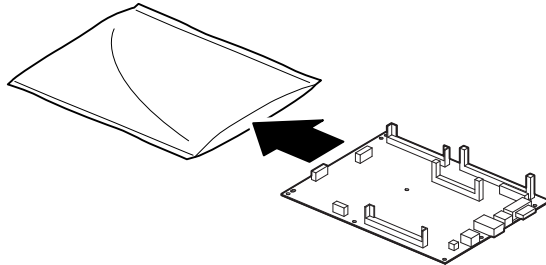
## [O] PWB SECTION

### 1. Disassembly and assembly

#### (Countermeasures against static electricity)

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

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

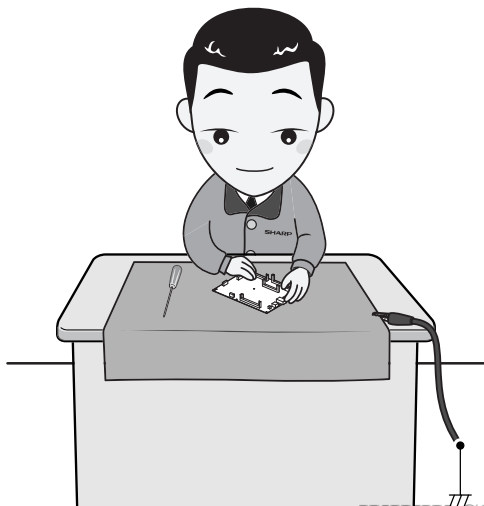


- 2) When and after removing the parts from an anti-static bag (case), use an earth band as shown below:

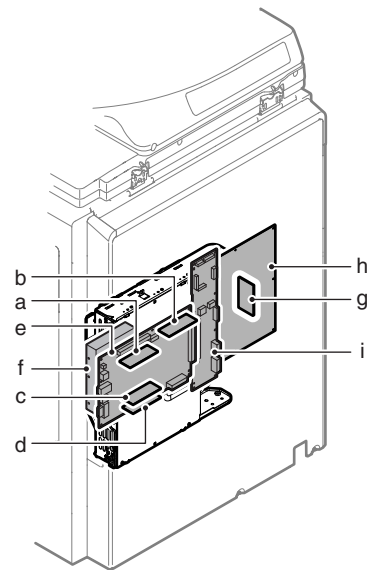
- Put an earth band to your arm, and connect it to the machine.



- When repairing or replacing an electronic part, perform the procedure on an anti-static mat.



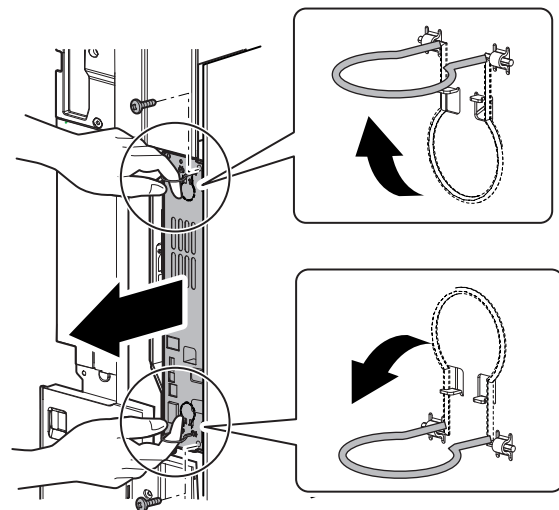
### A. Control box



Parts	
a	DIMM memory PWB (1GB)
b	DIMM memory PWB (N model: 512MB/U model 256MB)
c	PROG1 ROM PWB
d	PROG2 ROM PWB
e	MFP cnt PWB
f	HDD
g	PCU Flash ROM PWB
h	PCU PWB
i	Mother PWB

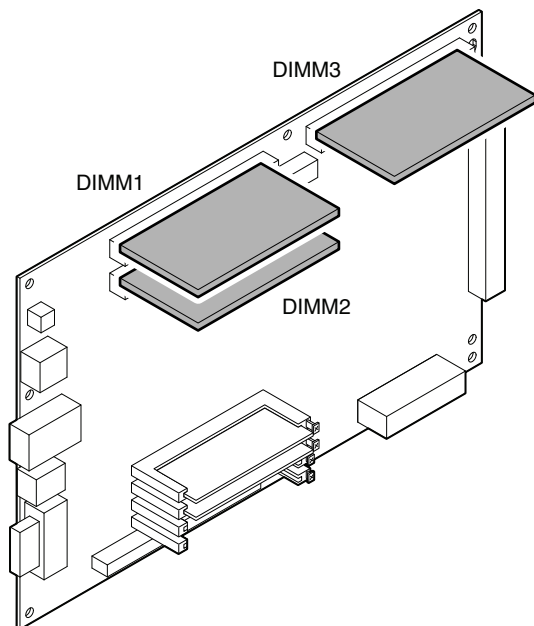
#### (1) DIMM memory PWB/PROG1 ROM PWB/PROG 2 ROM PWB/MFP cnt PWB

- 1) Remove the right cabinet rear cover.  
[Refer to "[A] EXTERIOR."]
- 2) Remove the screw, and pull out the MFP cnt PWB.



\* When placing the HDD on the upper side, do not apply an excessive force to the DIMM memory. So remove it or put a spacer.

\* Inserting position an inserting procedure when the DIMM memory is removed

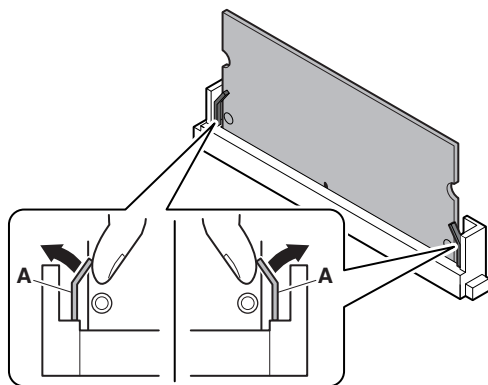


DIMM1: Option (200 pin)

DIMM2: 1GB (200 pin)

DIMM3: N model 512MB/U model 256MB (144 pin)

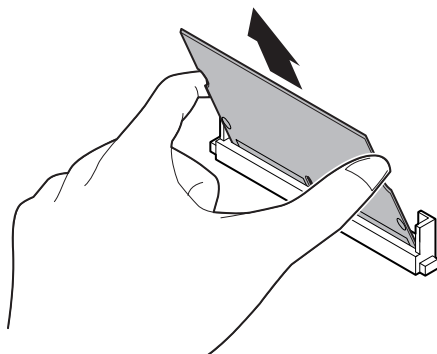
- 3) Push Stopper (A) with your finger to release the lock holding the memory PWB.



- 4) When the lock is released, the memory PWB tilts. Pull it out.

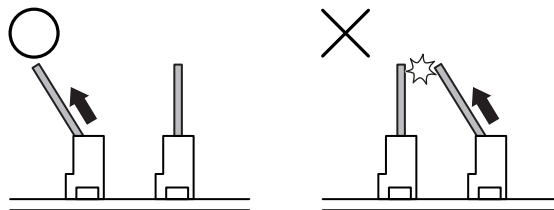
\* Be sure to release the lock before pulling it out.

\* Do not touch the IC on the memory PWB.



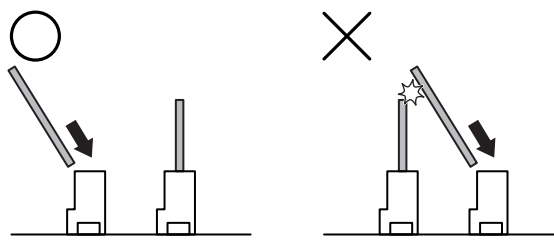
\* Note for removing procedure of the memory PWB

Remove the PWB inside the tilt of the memory PWB first. (Removing the IC outside the tilt will result in poor efficiency of work.)



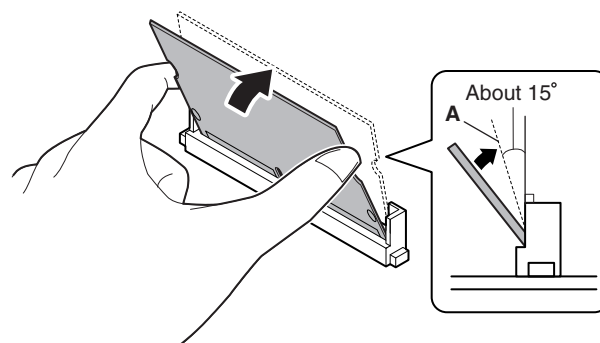
\* Note for installing procedure of the memory PWB

Install the PWB outside the tilt of the memory PWB first. (Installing the IC inside the tilt will result in poor efficiency of work.)



- a) Tilt the memory PWB and fit with the connector port. Put the memory PWB up to the line (A) in the figure.

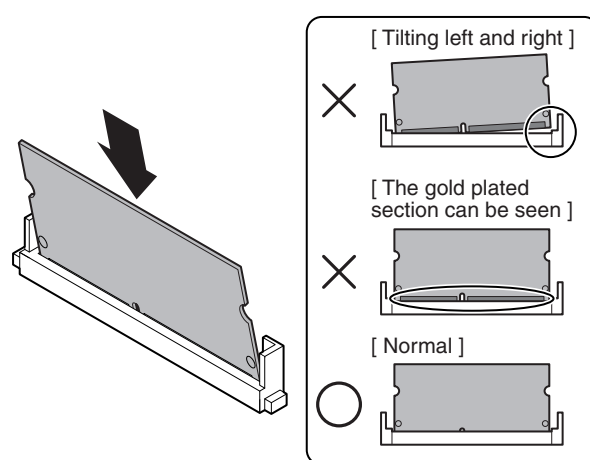
\* When inserting, be sure to hold the both ends and be sure not to touch the IC on the PWB.



- b) Push the memory PWB which is kept tilted fully to the bottom.

\* Be careful not to tilt left and right.

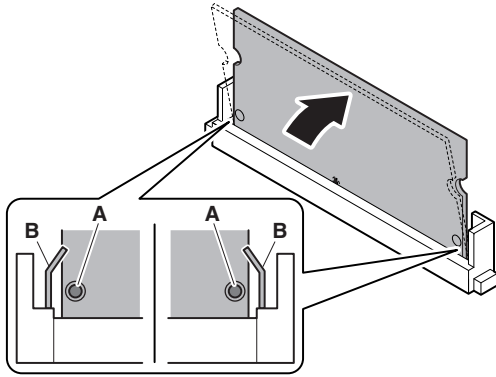
\* The gold plated section must be completely seated inside slot.



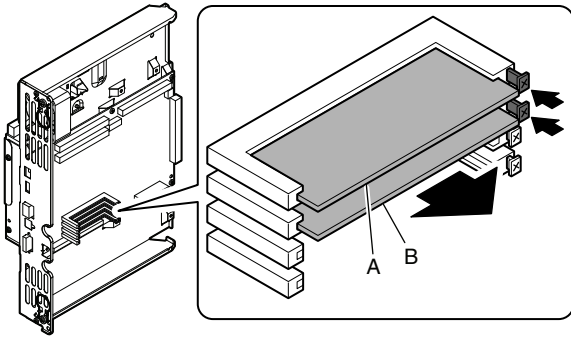
- c) Raise the memory PWB until the connector stopper clicks.

\* Check to confirm that the lock pin (A) is in the center of the lock hole.

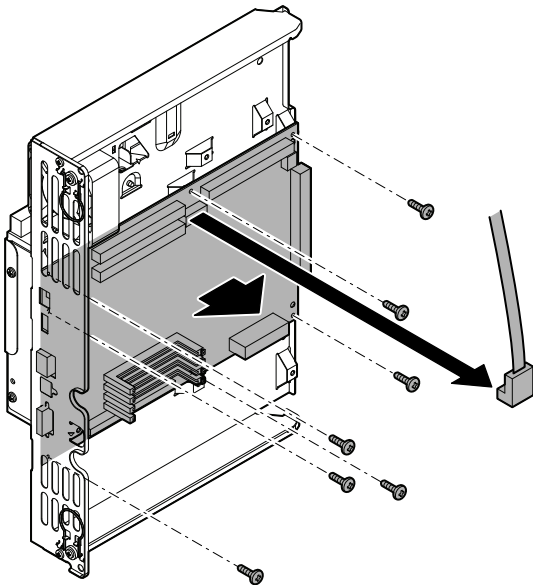
\* The stopper (B) must penetrate inside the PWB.



- 5) Release the lock, and remove the PROG1 ROM PWB (A) and the PROG2 ROM PWB (B).

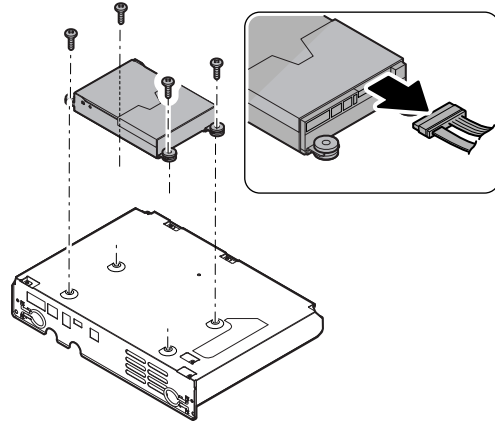


- 6) Disconnect the connector (when the HDD is installed to the machine) and remove the screw, and remove the MFP cnt PWB.

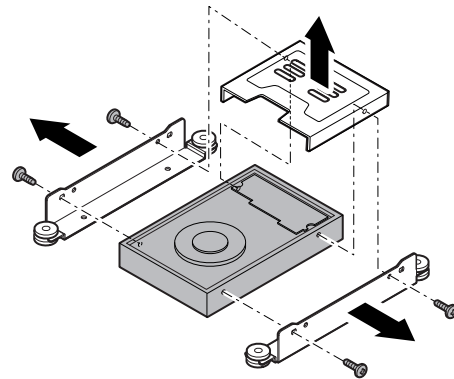


## (2) HDD (U model option)

- 1) Remove the right cabinet rear cover.  
[Refer to "[A] EXTERIOR."]
- 2) Remove the screw, and pull out the MFP cnt PWB.
- 3) Disconnect the connector and remove the screw, and remove the HDD unit.

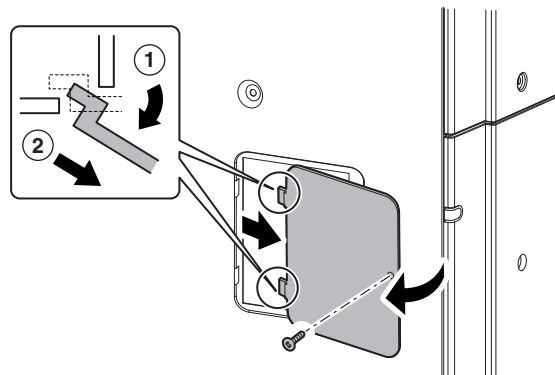


- 4) Remove the screw, and remove the angle from the HDD.  
\* The HDD is very fragile. Handle the HDD carefully so as not to damage the unit due to any external shock.

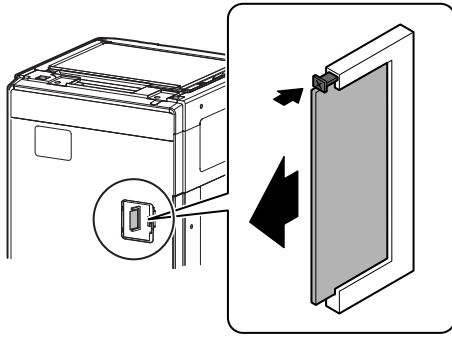


## (3) PCU Flash ROM PWB

- 1) Remove the screw, and remove the rear cabinet lid.

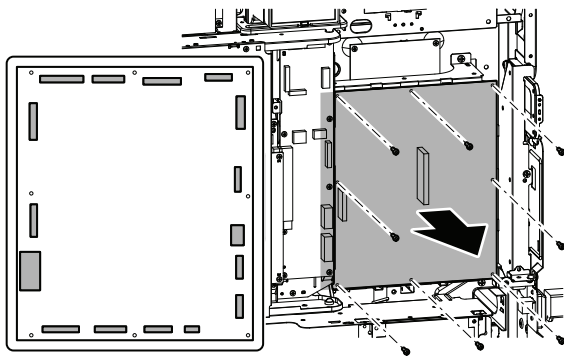


- 2) Remove the PCU Flash ROM PWB.



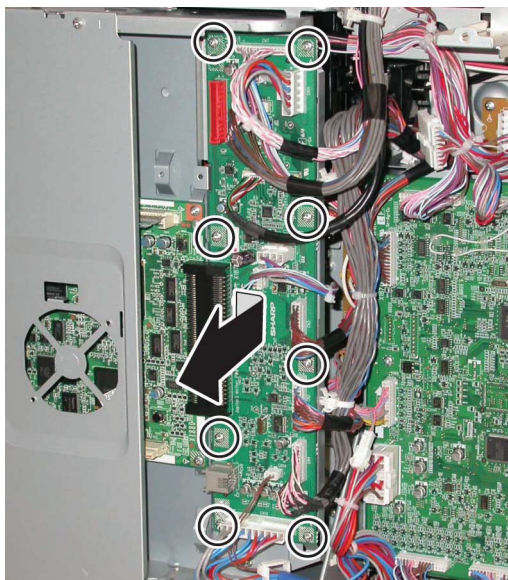
#### (4) PCU PWB

- 1) Remove the rear cabinet. [Refer to "[A] EXTERIOR."]
- 2) Remove the PCU Flash ROM PWB.
- 3) Disconnect the connector and remove the screw, and remove the PCU PWB.

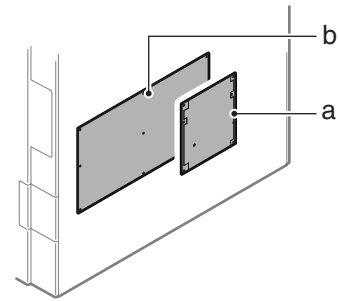


#### (5) Mother PWB

- 1) Remove the rear cabinet. [Refer to "[A] EXTERIOR."]
- 2) Disconnect the connector and remove the screw of the MFP PWB and the mother PWB. Remove the mother PWB.



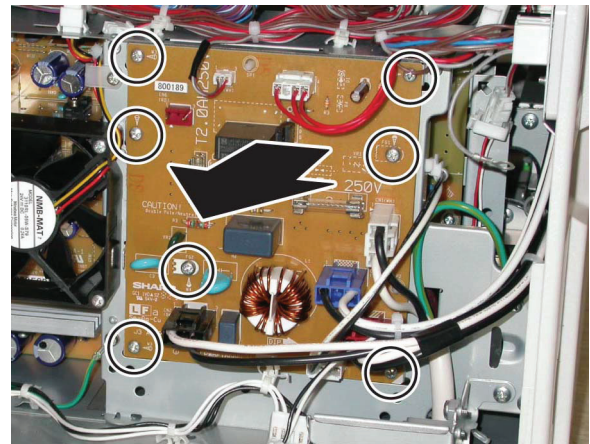
## B. Power unit



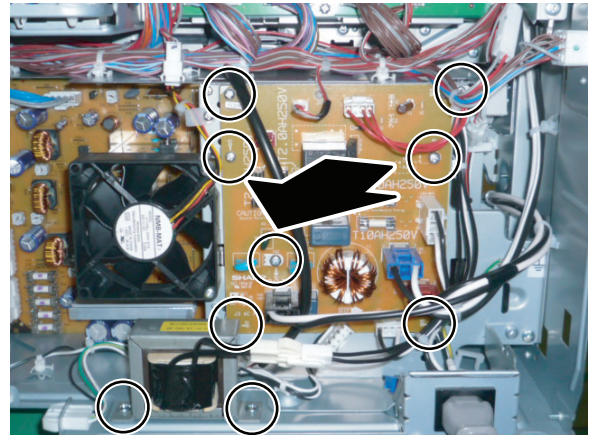
Parts	
a	AC power PWB
b	DC power PWB

#### (1) AC power PWB

- 1) Remove the rear cabinet. [Refer to "[A] EXTERIOR."]
- 2) Remove the screw, the reactor (200V only) and disconnect the connector, and remove the AC power PWB.
  - 100V series



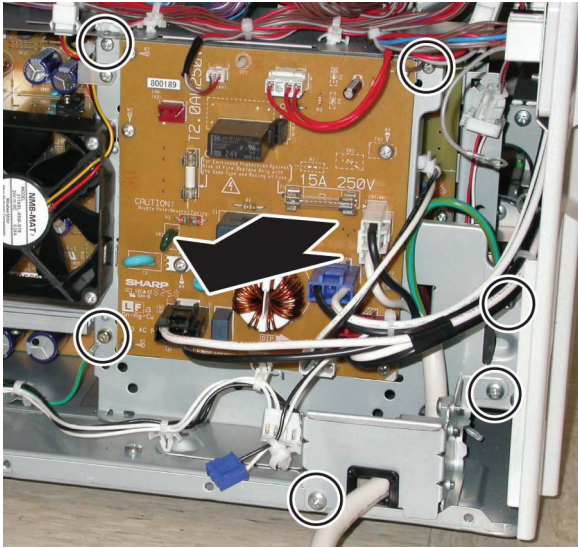
- 200V series



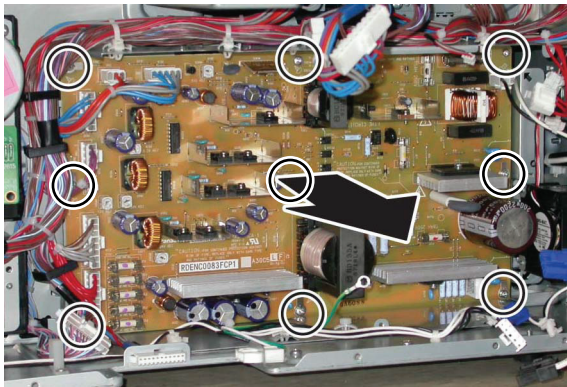


## (2) DC power PWB

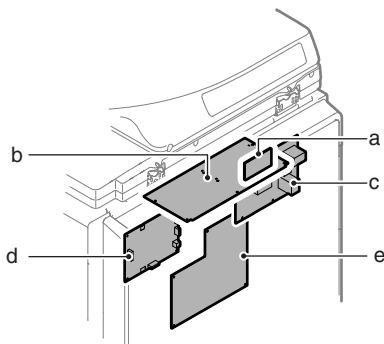
- 1) Remove the rear cabinet. [Refer to "[A] EXTERIOR."]
- 2) Remove the screw, the reactor and the AC cord unit and disconnect the connector, and remove the AC power PWB unit.



- 3) Remove the screw and disconnect the connector, and remove the DC power PWB.



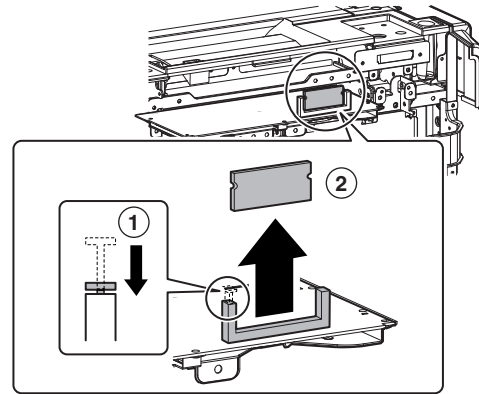
## C. Others



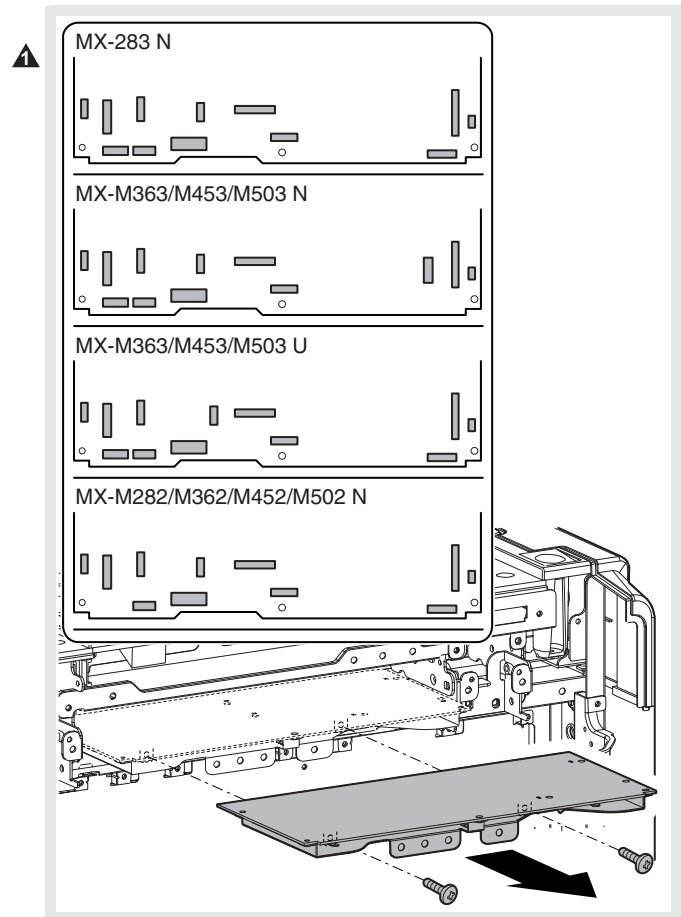
Parts	
a	SCN Flash ROM PWB
b	Scanner control PWB
c	HL PWB
d	Motor drive PWB
e	HV PWB (High voltage PWB)

## (1) SCN Flash ROM PWB/Scanner control PWB

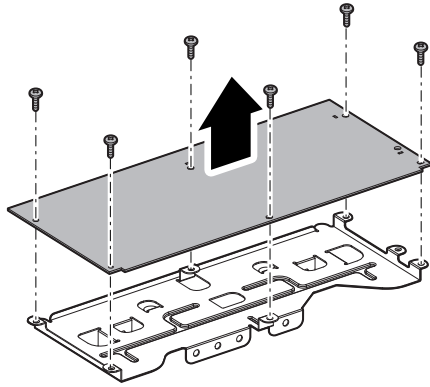
- 1) Remove the upper cabinet rear cover. [Refer to "[A] EXTERIOR."]
- 2) Release the lock, and remove the SCN Flash ROM PWB.



- 3) Remove the securing screws and slide out the scanner PWB. Disconnect the connector.

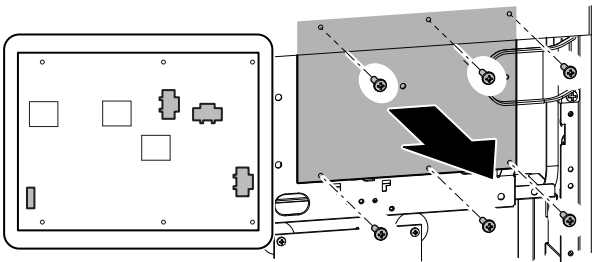


- 4) Remove the screw, and remove the scanner control PWB.



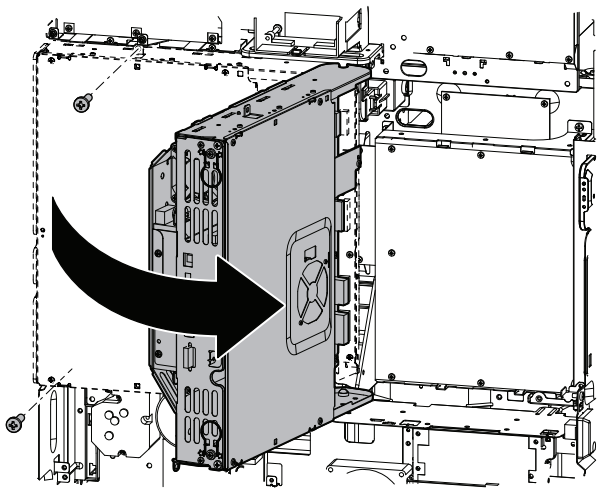
## (2) HL PWB

- 1) Remove the rear cabinet. [Refer to "[A] EXTERIOR."]
- 2) Remove the screw and disconnect the connector, and remove the HL PWB.

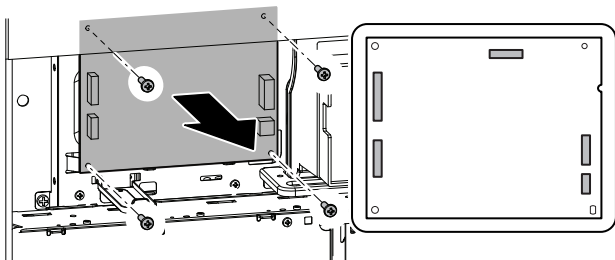


## (3) Motor drive PWB

- 1) Remove the rear cover. [Refer to "[A] EXTERIOR."]
- 2) Remove the screw, and open the control box.

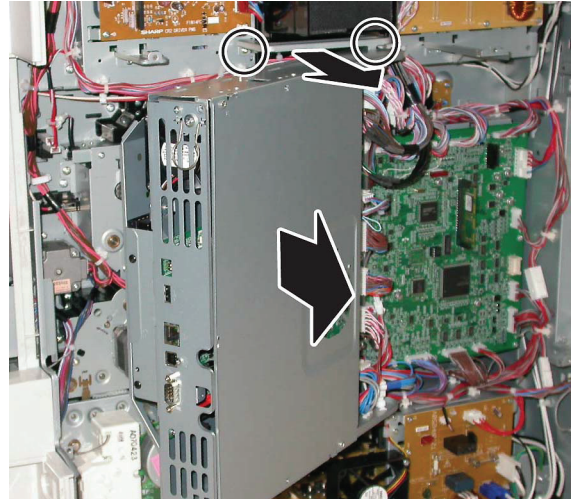


- 3) Disconnect the connector and remove the screw, and remove the motor drive PWB.

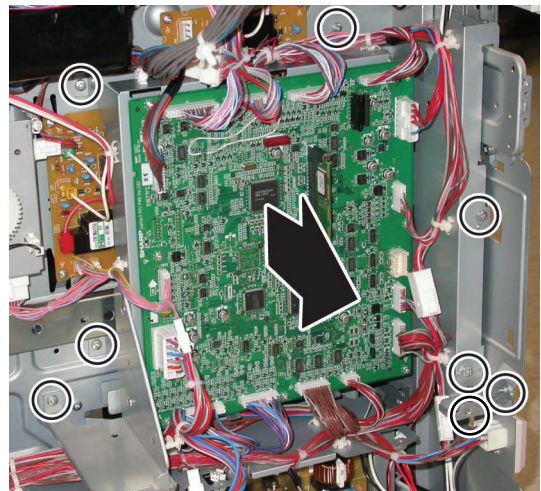


## (4) HV PWB (High voltage PWB)

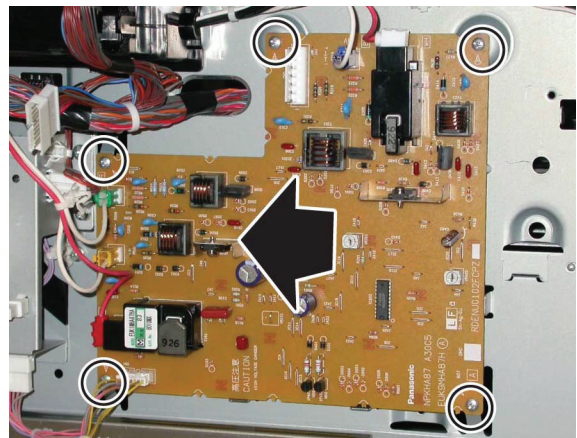
- 1) Remove the rear cabinet and the left cabinet rear lower. [Refer to "[A] EXTERIOR."]
- 2) Open the control box.
- 3) Disconnect the connector, remove the screw and the plate, and remove the control box.



- 4) Disconnect the connector, remove the screw, earth wire and the plate, and remove the PCU PWB.



- 5) Disconnect the connector and remove the screw, and remove the HV PWB.

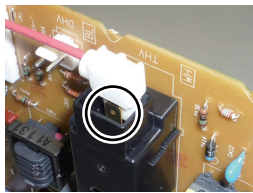




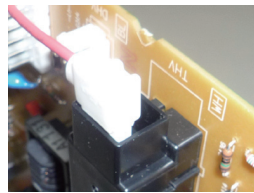
6) Note for assembly of the HV PWB (High voltage PWB)

When inserting the connector into the high voltage output terminal of the HV PWB (High voltage PWB), check to confirm that the connector is securely inserted into the high voltage output terminal as shown in the photo below.

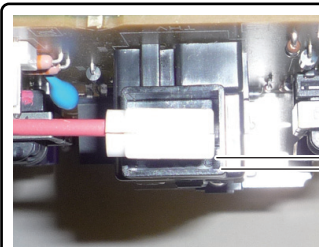
If the high voltage output terminal is on the outside of the connector, it is NG.



NG

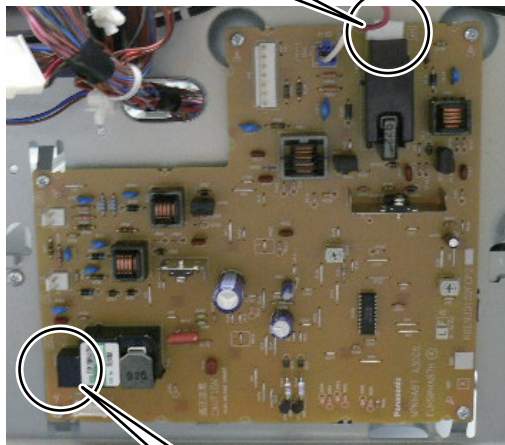


NG

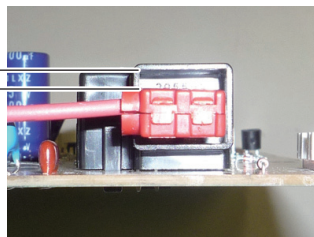


OK

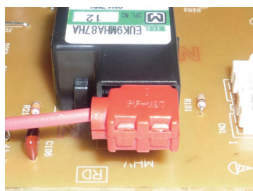
The clearance must be about 1mm.



The clearance must be about 2mm.



OK



NG

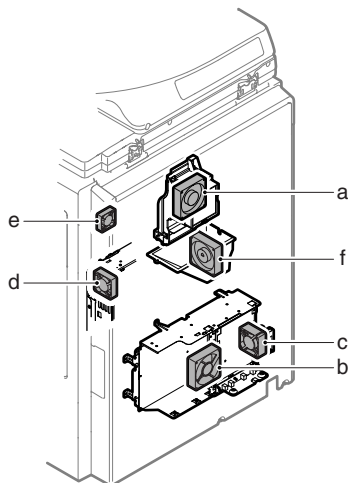


NG

## [P] FAN SECTION

### 1. Disassembly and assembly

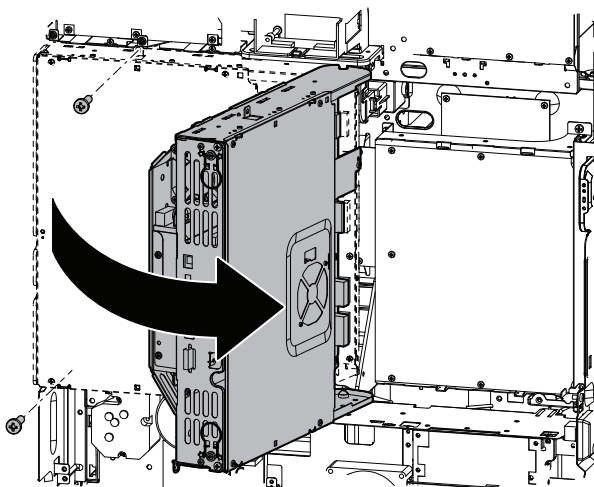
#### A. Fan motor



Parts	
a	Ozone fan
b	Power cooling fan 1
c	Power cooling fan 2
d	MFP PWB cooling fan
e	Paper exit cooling fan 3
f	LSU cooling fan

#### (1) Ozone fan

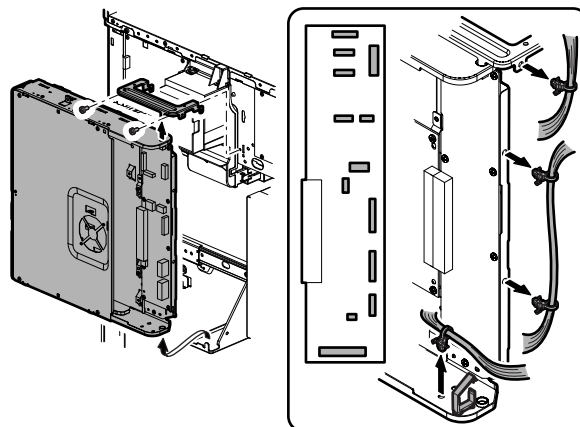
- 1) Remove the rear cabinet and the upper cabinet rear cover.  
[Refer to "[A] EXTERIOR."]
- 2) Remove the screw, and open the control box.



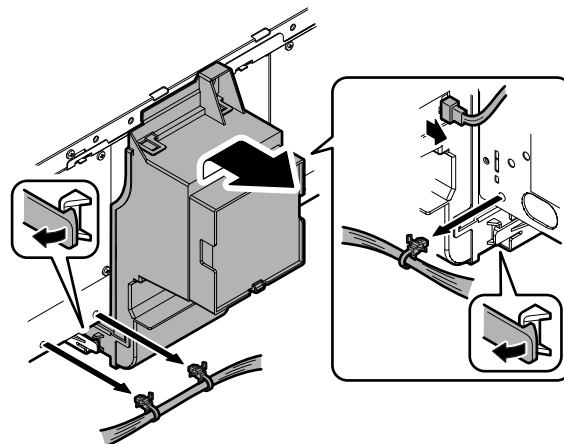
- 3) Disconnect the connector, remove the snap band, and remove the harness from the wire saddle.

Remove the screw, and remove the control box.

\* The HDD is very fragile. Handle the HDD carefully so as not to damage the unit due to any external shock.

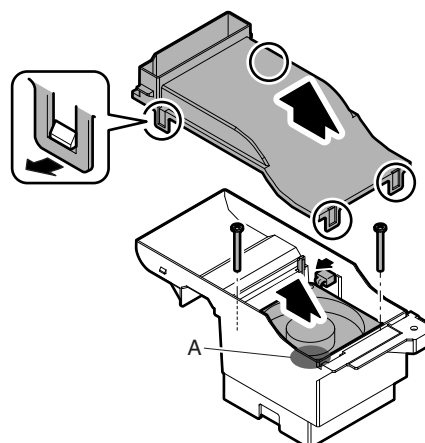


- 4) Remove the snap band. Disconnect the connector and remove the screw, and remove the duct.



- 5) Disengage the pawl, and remove the cover. Disconnect the connector, remove the screw, and remove the ozone fan.

\* When installing, arrange so that the fan label (A) faces outside.

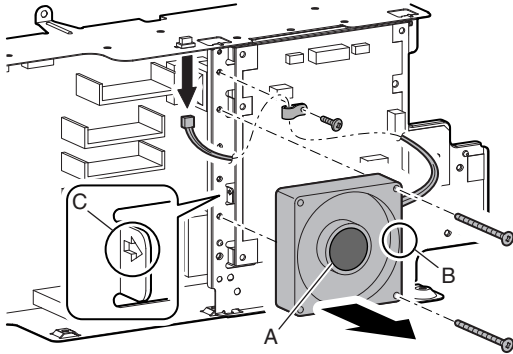




## (2) Power cooling fan 1

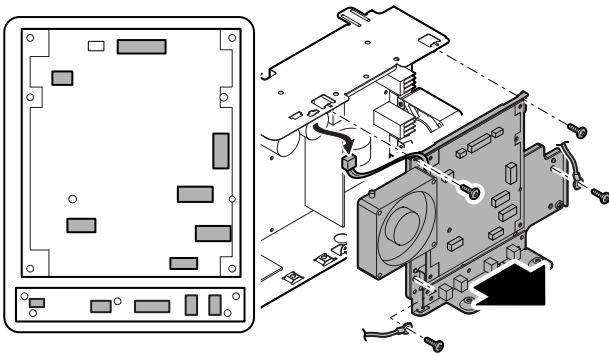
- 1) Remove the rear cabinet. [Refer to "[A] EXTERIOR."]
- 2) Remove the screw, and remove the clamp. Disconnect the connector and remove the screw, and remove the power cooling fan 1.

\* When installing, put the fan label (A) facing outside, and arrange the engraved mark (B) in the blowing direction with the arrow direction (C) of the metal plate.

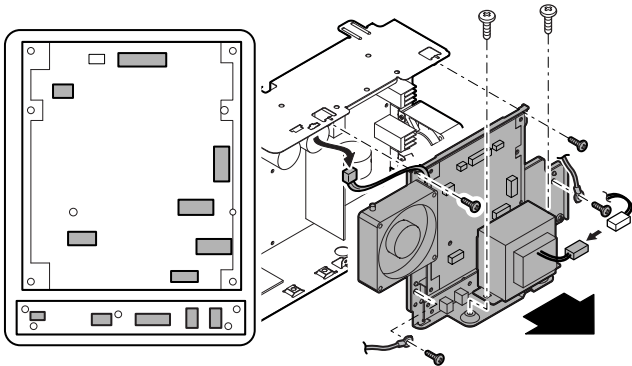


## (3) Power cooling fan 2

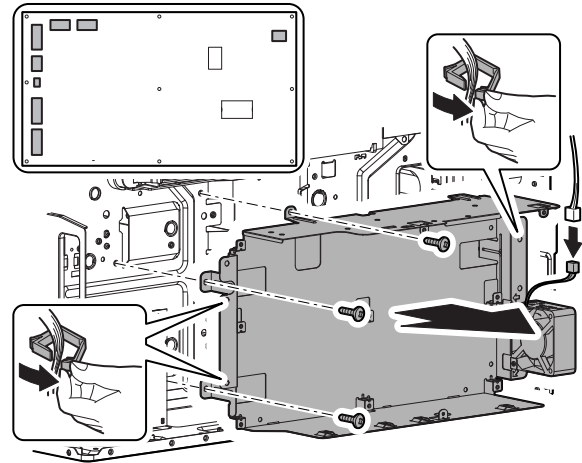
- 1) Remove the rear cabinet. [Refer to "[A] EXTERIOR."]
  - 2) Remove the screw, the reactor (200V only) and disconnect the connector, and remove the AC power PWB unit.
- 100V series



• 200V series

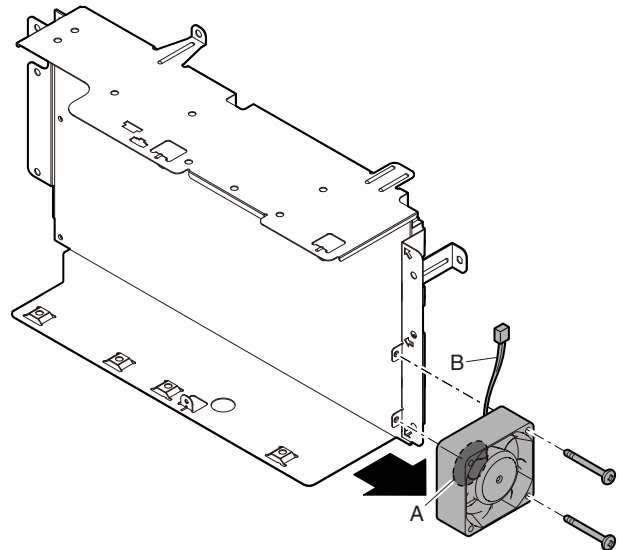


- 3) Disconnect the connector. Open the wire saddle, and remove the harness. Remove the screw, and remove the DC power unit.



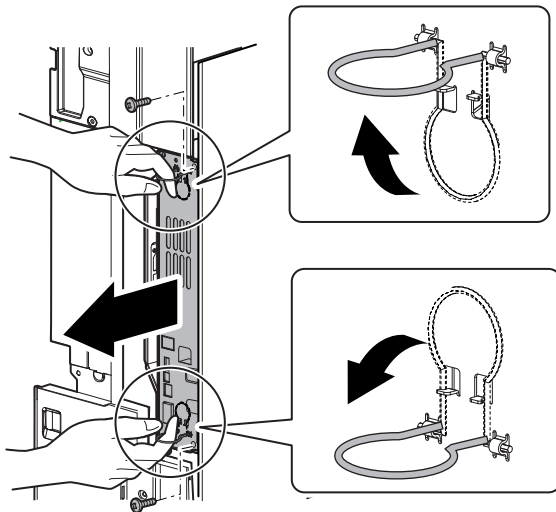
- 4) Remove the screw, and remove the power cooling fan 2.

\* When installing, put the fan label (A) facing inside, and the harness (B) facing upward.

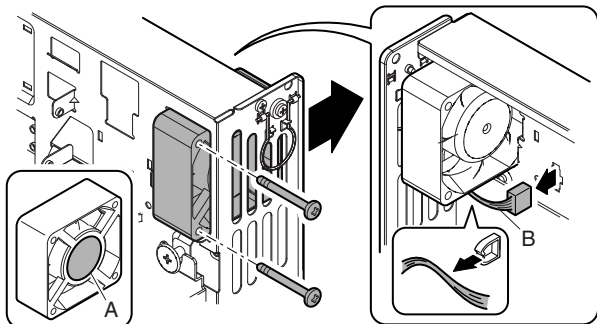


#### (4) MFP PWB cooling fan

- 1) Remove the right cabinet rear cover.  
[Refer to "[A] EXTERIOR."]
- 2) Remove the screw, and pull out the MFP cnt PWB.
  - \* The HDD is very fragile. Handle the HDD carefully so as not to damage the unit due to any external shock.

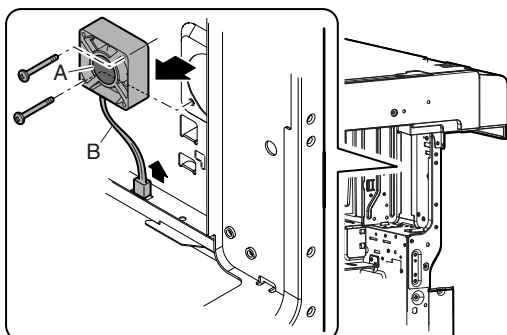


- 3) Disconnect the connector and remove the screw, and remove the MFP PWB cooling fan.
  - \* When installing, put the fan label (A) facing outside, and the harness (B) facing downward.



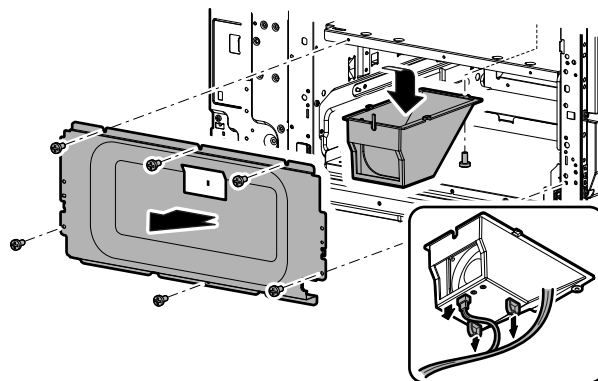
#### (5) Paper exit cooling fan 3

- 1) Remove the paper exit unit. [Refer to "[M] DUPLEX/PAPER EXIT SECTION."]
- 2) Remove the screw and disconnect the connector, and remove the paper exit cooling fan 3.
  - \* When installing, put the fan label (A) facing inside, and the harness (B) facing downward.

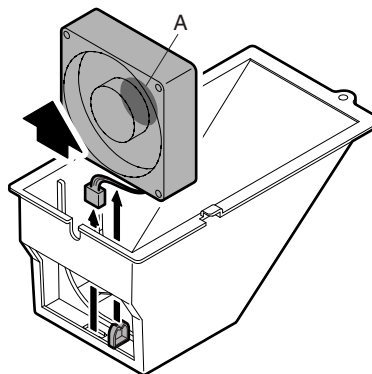


#### (6) LSU cooling fan

- 1) Remove the left cabinet. [Refer to "[A] EXTERIOR."]
- 2) Remove the screw, and remove the plate.  
Disconnect the connector, and remove the harness from the wire saddle.



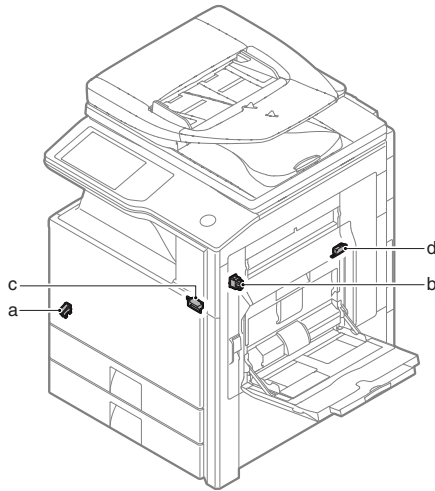
- 3) Disconnect the connector, and remove the harness from the wire saddle.
  - \* When installing, arrange so that the fan label (A) faces inside.



# [Q] SENSOR/SWITCH SECTION

## 1. Disassembly and assembly

### A. Sensor/Switch

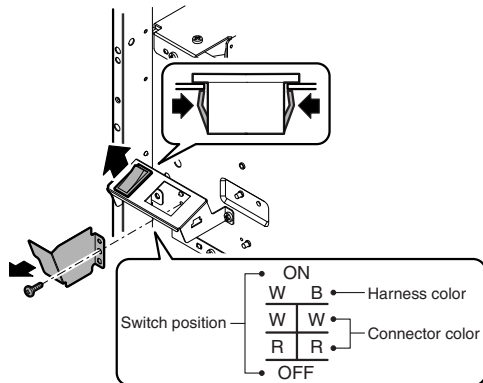


Parts	
a	Main switch
b	Front door open/close switch
c	Right door open/close switch

#### (1) Main switch

- 1) Remove the front cover. [Refer to "[A] EXTERIOR."]
- 2) Remove the screw, and remove the cover. Disconnect the connector, disengage the pawl, and remove the main switch.

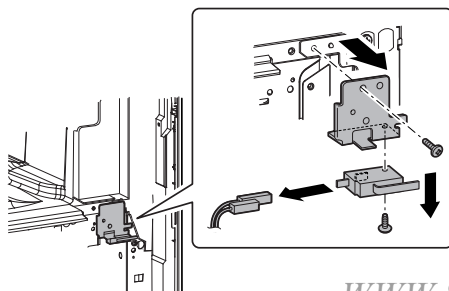
\* Attach the main switch and the harness so that they are fit with the marks on the back surface of the mounting plate.



#### (2) Front door open/close switch

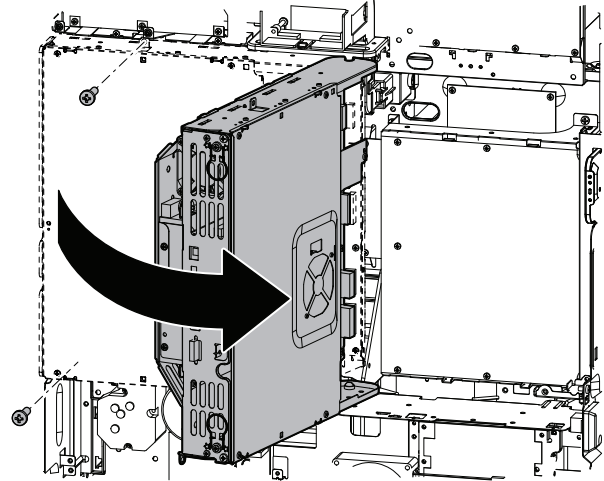
- 1) Remove the front cover. [Refer to "[A] EXTERIOR."]
- 2) Remove the screw, and remove the front door open/close switch unit.

Disconnect the connector and remove the screw, and remove the front door open/close switch.

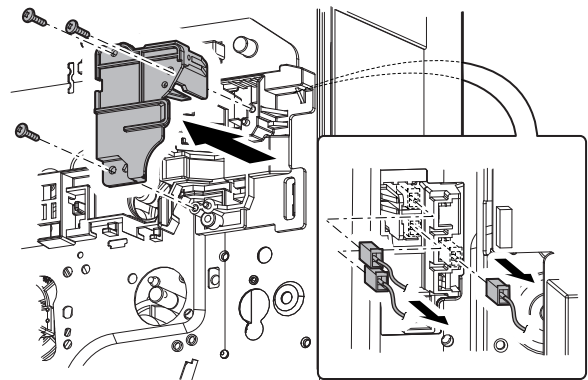


#### (3) Right door open/close switch

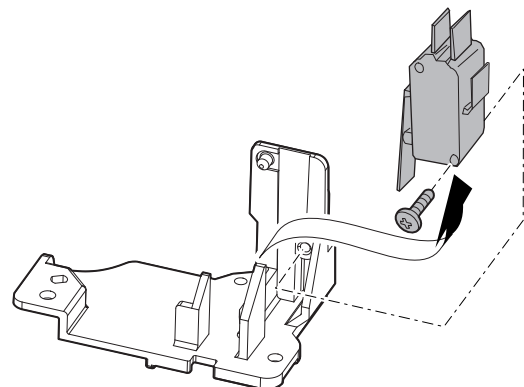
- 1) Remove the rear cabinet and the right cabinet rear cover. [Refer to "[A] EXTERIOR."]
- 2) Remove the resist roller unit. [Refer to "[F] PAPER TRANSPORT SECTION."]
- 3) Remove the screw, and open the control box.



- 4) Disconnect the connector and remove the screw, and remove the right door open/close switch cover unit.



- 5) Remove the right door open/close switch.



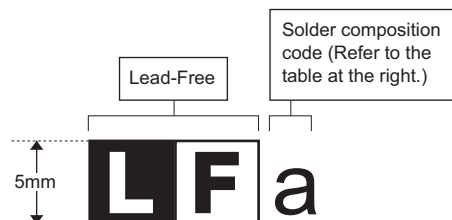
# Memo

This image shows a full page of primary-ruled paper. It features multiple sets of horizontal dashed lines spaced evenly down the page, providing a guide for handwriting practice. The lines are light gray and extend across the entire width of the page. There are no margins, text, or other markings present.

## LEAD-FREE SOLDER

The PWB's of this model employs lead-free solder. The "LF" marks indicated on the PWB's and the Service Manual mean "Lead-Free" solder. The alphabet following the LF mark shows the kind of lead-free solder.

### Example:



<Solder composition code of lead-free solder>

Solder composition	Solder composition code
Sn-Ag-Cu	a
Sn-Ag-Bi Sn-Ag-Bi-Cu	b
Sn-Zn-Bi	z
Sn-In-Ag-Bi	i
Sn-Cu-Ni	n
Sn-Ag-Sb	s
Bi-Sn-Ag-P Bi-Sn-Ag	p

### (1) NOTE FOR THE USE OF LEAD-FREE SOLDER THREAD

When repairing a lead-free solder PWB, use lead-free solder thread.

Never use conventional lead solder thread, which may cause a breakdown or an accident.

Since the melting-point of lead-free solder thread is about 40°C higher than that of conventional lead solder thread, the use of the exclusive-use soldering iron is recommended.

### (2) NOTE FOR SOLDERING WORK

Since the melting-point of lead-free solder is about 220°C, which is about 40°C higher than that of conventional lead solder, and its soldering capacity is inferior to conventional one, it is apt to keep the soldering iron in contact with the PWB for longer time. This may cause land separation or may exceed the heat-resistive temperature of components. Use enough care to separate the soldering iron from the PWB when completion of soldering is confirmed.

Since lead-free solder includes a greater quantity of tin, the iron tip may corrode easily. Turn ON/OFF the soldering iron power frequently.

If different-kind solder remains on the soldering iron tip, it is melted together with lead-free solder. To avoid this, clean the soldering iron tip after completion of soldering work.

If the soldering iron tip is discolored black during soldering work, clean and file the tip with steel wool or a fine filer.

#### CAUTION FOR BATTERY REPLACEMENT

(Danish)

ADVARSEL !

Lithiumbatteri – Eksplosionsfare ved fejlagtig håndtering.

Udskiftning må kun ske med batteri

af samme fabrikat og type.

Levér det brugte batteri tilbage til leverandoren.

(English)

Caution !

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type

recommended by the manufacturer.

Dispose of used batteries according to manufacturer's instructions.

(Finnish)

VAROITUS

Paristo voi räjähtää, jos se on virheellisesti asennettu.

Vaihda paristo ainoastaan laitevalmistajan suosittelemaan

tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden

mukaisesti.

(French)

ATTENTION

Il y a danger d'explosion s' il y a remplacement incorrect

de la batterie. Remplacer uniquement avec une batterie du

même type ou d'un type équivalent recommandé par

le constructeur.

Mettre au rebut les batteries usagées conformément aux

instructions du fabricant.

(Swedish)

VARNING

Explosionsfara vid felaktigt batteribyte.

Använd samma batterityp eller en ekvivalent

typ som rekommenderas av apparattillverkaren.

Kassera använt batteri enligt fabrikantens

instruktion.

(German)

Achtung

Explosionsgefahr bei Verwendung 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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