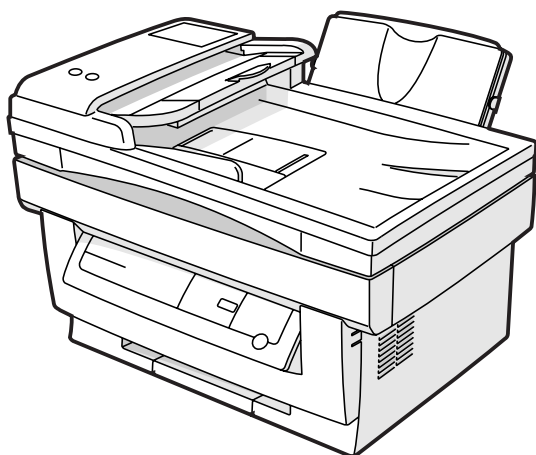


# SHARP SERVICE MANUAL

CODE: 00ZFO380USF1E



## DIGITAL LASER MULTIFUNCTION

### MODEL **FO-3800M**

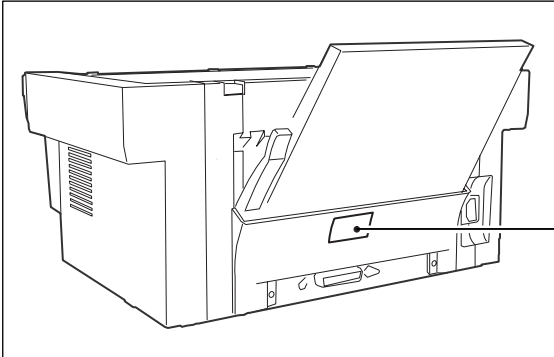
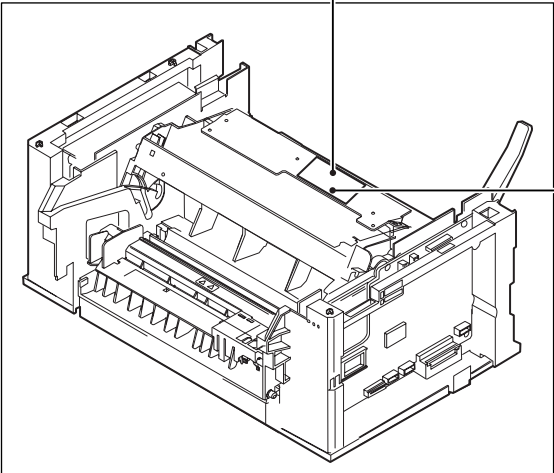
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Parts marked with "△" is important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

At the production line, the output power of the scanner unit is adjusted to 0.33 MILLI-WATT PLUS 20 PCTS and is maintained constant by the operation of the Automatic Power Control (APC). Even if the APC circuit fails in operation for some reason, the maximum output power will only be 15 MILLI-WATT 0.1 MICRO-SEC. giving an acceptable emission level of 42 MICRO-WATT which is still-less than the limit of CLASS-1 laser product.

- ⚠ Caution**
- The fusing unit is hot. Exercise care when inspecting it.
  - Do not switch the printer rapidly on and off. After turning the printer off, wait 10 to 15 seconds before turning it back on.
  - Printer power must be turned off before installing any supplies.



The foregoing is applicable only to the 220V model, 230V model and 240V model.

Laserstrahl

**CAUTION** INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED AVOID EXPOSURE TO BEAM.

**VORSICHT** UNSICHTBARE LASERSTRAHLUNG WENN ABDECKUNG GEÖFFNET UND SICHERHEITSVERRIEGELUNG ÜBERBRÜCKT. NICHT DEM STRAHL AUSSETZEN.

**ADVARSEL** USYNLIG LASERSTRÅLNING VED ÅBNING. NÅR SIKKERHEDSBRYD-ERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FØR STRÅLNING.

**ADVERSEL** USYNLIG LASERSTRÅLNING NÅR DEKSEL ÅPNES OG SIKKERHEDSLÅS BRYTES. UNNGÅ EKSPONERING FØR STRÅLEN.

**VARNING** OSYNLIG LASERSTRÅLNING NÅR DENNA DEL ÅR ÖPPNAD OCH SPÄRRAR ÅR URKOPPLADE. STRÅLEN ÅR FARLIG. BETRAKTA EJ STRÅLEN.

**VARO!** AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA NÄKYMÄTÖNTÄ LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESSEEN.

VAROITUS! LAITTEEN KÄYTTÄMINEN MUULLA KUIN TÄSSÄ KÄYTTÖOHJEESSA MAINITULLA TAVALLA SAATTAA ALTISTAA KÄYTTÄJÄN TURVALLISUUSLUOKAN 1 YLITTÄVÄLLE NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE.

VARNING - OM APPARATEN ANVÄNDS PÅ ANNAT SÄTT ÄN I DENNA BRUKSANVISNING SPECIFICERATS, KAN ANVÄNDAREN UTSÄTTAS FÖR OSYNLIG LASERSTRÅLNING, SOM ÖVERSKRIDER GRÄNSEN FÖR LASERKLASS 1.

**CLASS 1  
LASER PRODUCT  
LASER KLASSE 1**

**LUOKAN 1 LASERLAITE  
KLASS 1 LASER APPARAT**

**Caution**  
This product contains a low power laser device. To ensure continued safety do not remove any cover or attempt to gain access to the inside of the product. Refer all servicing to qualified personnel.

Wave length	780 ± 15nm
Pulse times	(9.3 ± 2µs)/7mm
Output Power	0.4mW ± 0.05mW

## Contents

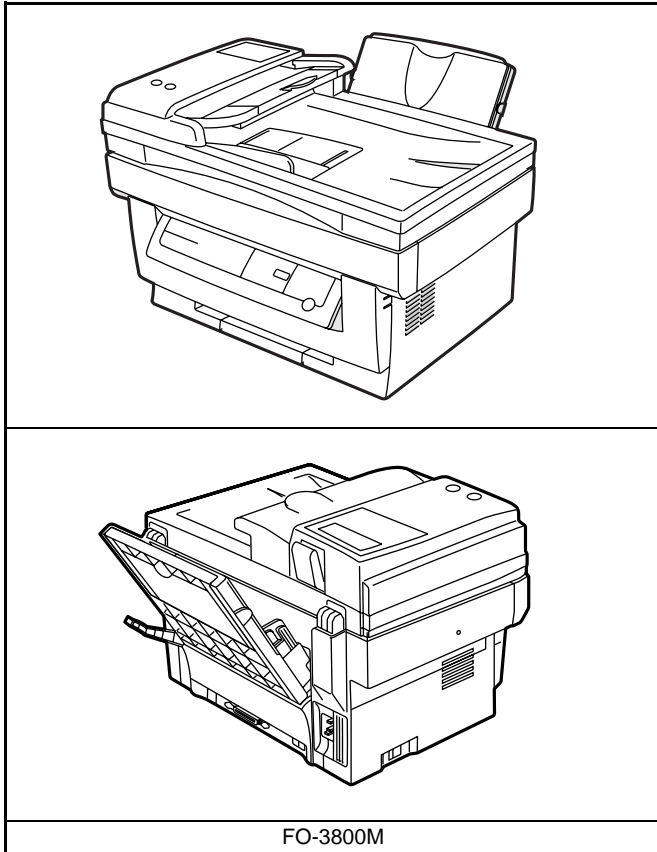
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# [1] SYSTEM CONFIGURATION

## 1. LINEUP

### A. Main Unit

#### (1) Appearance

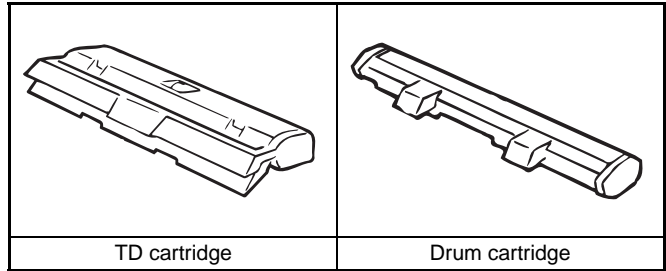


#### (2) Function/Equipment

Item		FO-3800M	Notes
Function/ Equipment	Copy (SPF)	Yes	
	FAX (SPF)	Yes	
	Printer	Yes	

## B. Supplies

### (1) Appearance



### (2) Supplies List

Items	Model/Parts code
Drum cartridge	FO-29DR
TD cartridge	FO-29ND

## C. Accessories

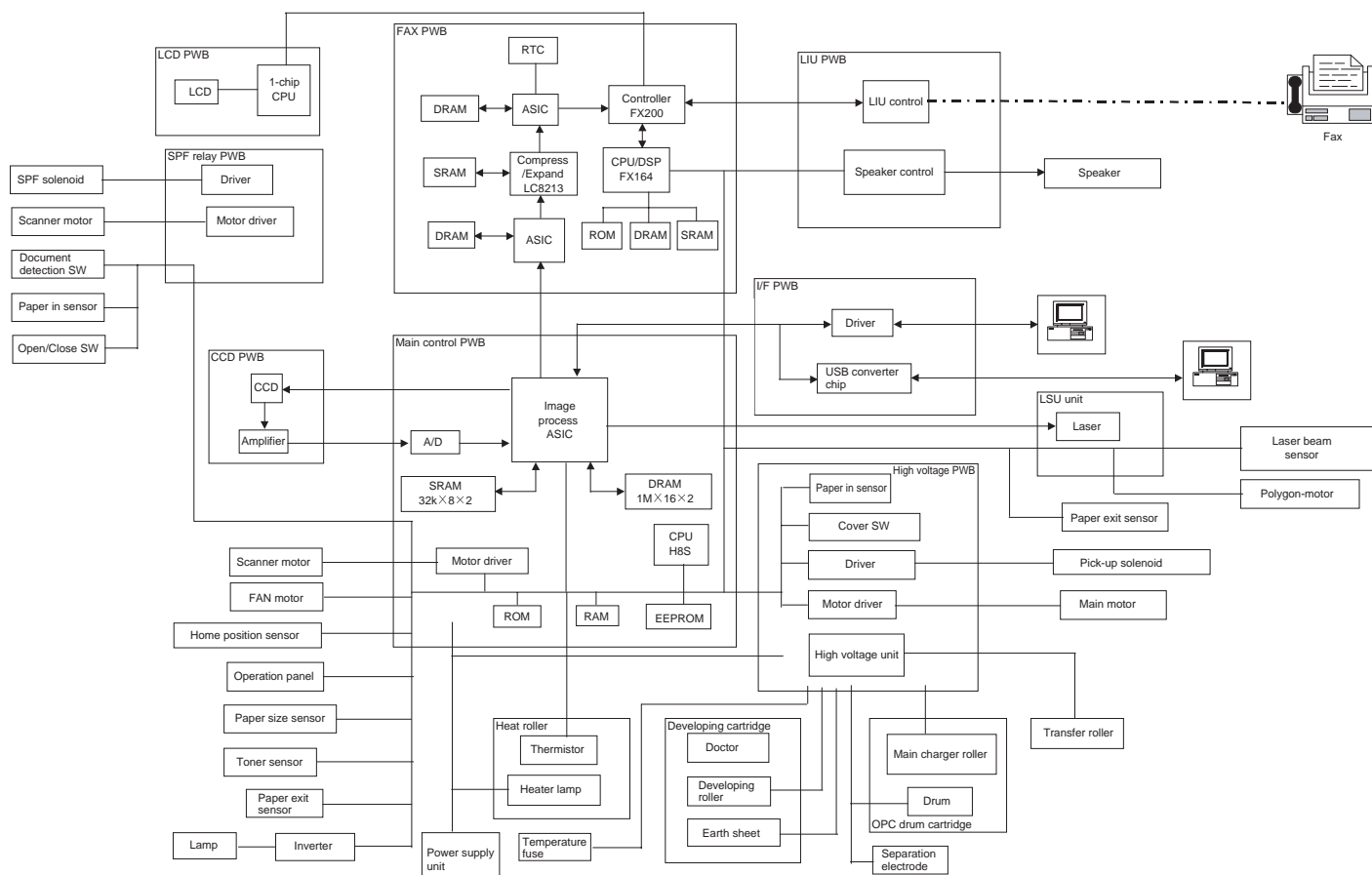
### Accessories list

Model		FO-3800M
Tray (Universal)		Included
Drum cartridge		Installed
TD cartridge (1.5K)		Included
Original cover		Included
AC power cord		Included UL, CSA PLG
Printer cable	IEEE1284	Included
	USB	N/A
Phone cable		Included
Driver soft		CD-ROM
Operation manual	Copier	Included (SEC*)
	Printer	Included (SEC*)
	FAX	Included
Warranty card (Registration card)		Included (SEC*) in manual
MSDS sheets		Included
POP label		N/A
Dust cover		N/A
User card (Aiyousya card)		N/A
Digital logo		N/A

## 2. STRUCTURE

### A. Hardware

#### Block diagram



## 3. SOFTWARE

Items	Contents	Media
GDI Printer driver	Printer driver	CD-ROM
Twain driver	Scanner driver	

## 4. OPERATING ENVIRONMENT

### (1) System requirements

Host computer	Operating system	Emulation	Plug and play	Network
IBM PC/AT or 100% compatible (Supported ECP mode)	MS-DOS 3.3 + MS-Windows 3.1X or later MS-Windows 95/98 MS-Windows NT 4.0	Sleek type GDI (Printer) Twain (Scanner)	Supported	Not supported

\* MS-DOS 3.3 + (Printer only)

### (2) Interface

Type	Host computer	Operating system	Protocol
IEEE1284P × 1	IBM PC/AT or 100% compatible	MS-DOS 3.3 + MS-Windows 3.1X or later MS-Windows 95 MS-Windows NT 4.0	Peppy Nibble ECP

## [2] SPECIFICATIONS

### 1. BASIC SPECIFICATIONS

#### (1) Types

Model type	Desktop type
Scanning type	SPF/Flat bed/Monochrome type
Printing type (Emulation type)	Electronic photographic type
	GDI
FAX type	G3

#### (2) Target users

Print Volume	
Average	600 sheet/month
Maximum	1,000 sheet/month

#### (3) Operating environment

##### Printer mode

##### <1> System requirements

Host computer	Operating system	Emulation	Network
IBM PC/AT or 100% compatible	MS-DOS 3.3 + MS-Windows 3.1X or later MS-Windows 95/98 MS-Windows NT 4.0	Sleek type GDI Twain	Not supported

##### <2> Interface

Type	Host computer	Operating system	Protocol
IEEE1284 P (1 ports)	IBM PC/AT or 100% compatible	MS-DOS 3.3 + MS-Windows 3.1X or later MS-Windows 95/98 MS-Windows NT 4.0	Peppy Nibble ECP

\* MS-DOS 3.3 + (Printer only)

#### (4) Outer dimensions

Machine	460 × 425 × 307 mm (18.2" × 16.8" × 12.1")
---------	--

#### (5) Weight

Packaged	15.10 Kg
Machine	13.30 Kg

#### (6) Machine life

60K prints or 5 years

## 2. OPERATION (PERFORMANCE)

### A. Common operation

#### Warm-up/Jam recovery

##### a. Warm-up time

Warm-up time after power ON	0 sec
Recovery time from power save mode	0 sec
Jam recovery time	0 sec

##### b. Jam recovery time

### B. Copy mode

#### (1) Max. original size

8-1/2" × 14", A4 (210 × 356 mm) (SPF mode)
8-1/2" × 11", A4 (210 × 297 mm) (Platen mode)

#### (2) Exposure mode

Exposure mode	Steps for exposure	Toner save mode
Automatic	—	Available
Manual	5 steps	Available
Photo	5 steps	Non

#### (3) Copy ratio

Copy ratio	Zoom ratio range/fixed ratio
Zoom mode	50% to 200% (151 steps in 1% increments)
Fixed ratio mode (AB system)	50, 70, 86, 100, 141, 200%
Fixed ratio mode (Inch system)	50, 64, 78, 100, 129, 200%

Zooming accuracy	Same size copying: 100% ± 1.0% Enlargement copying : Set copy ratio ± 1.0% Reduction copying: Set copy ratio ± 1.0%
------------------	---

#### (4) Job speed

##### a. First copy time

Mode	SPF mode	Platen mode
Normal mode	13 sec	10 sec
Preheat mode	21 sec	21 sec
Auto power shut-off mode	23 sec	23 sec

##### b. Copying speed for each paper size and reduction/enlargement (CPM)

Paper size	Copy ratio		
	Same size	Reduction (50% to 99%)	Enlargement (101% to 200%)
A4 (Short edge feed)	8 CPM	8 CPM	8 CPM
B5 (Short edge feed)	8 CPM	8 CPM	8 CPM
8-1/2" × 14" (Short edge feed)	7 CPM	7 CPM	7 CPM
8-1/2" × 11" (Short edge feed)	8 CPM	8 CPM	8 CPM

#### (5) Max. number of continuous copies

50 copies

#### (6) Exposure

##### a. Exposure mode/Processing

Exposure mode	Function
Automatic	Error diffusion
Manual	Error diffusion
Photo	Error diffusion

##### b. Toner save

Yield of Toner save mode	5% area coverage (When using 3K toner cartridge)
--------------------------	---

##### c. Zooming type

Main scanning direction	Software computation
Sub scanning direction	Scanning speed/Document feed speed

##### d. Resolution

\* Scanning

Main scanning direction			Sub scanning direction		
Standard resolution	Virtual resolution		Standard resolution	Virtual resolution	
Scanner	400 dpi	—	Scanner	600 dpi	—
Copier	600 dpi	—	Copier	600 dpi	—

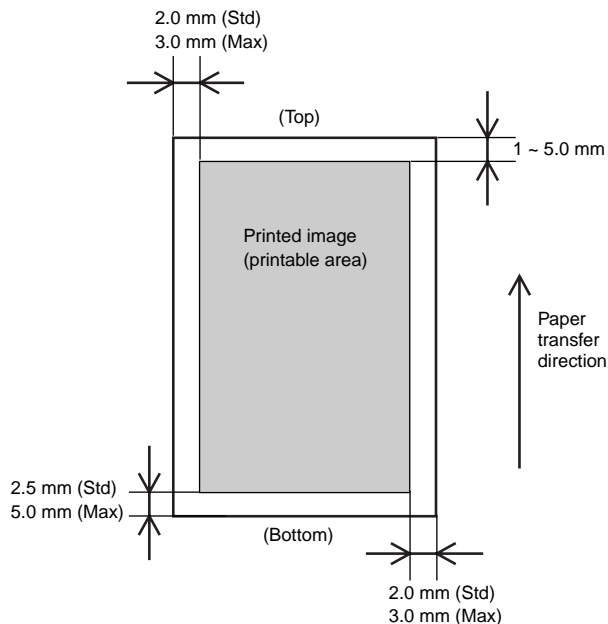
\* Printing

Main scanning direction		Sub scanning direction	
Standard resolution	Virtual resolution	Standard resolution	Virtual resolution
600 dpi	—	600 dpi	—

Copy ratio	Position	
	Center	Corner
Same size	5.0 line/mm	4.5 line/mm
Enlargement (101% to 200%)	5.0 line/mm	4.5 line/mm
Reduction (50% to 99%)	4.0 line/mm	4.0 line/mm

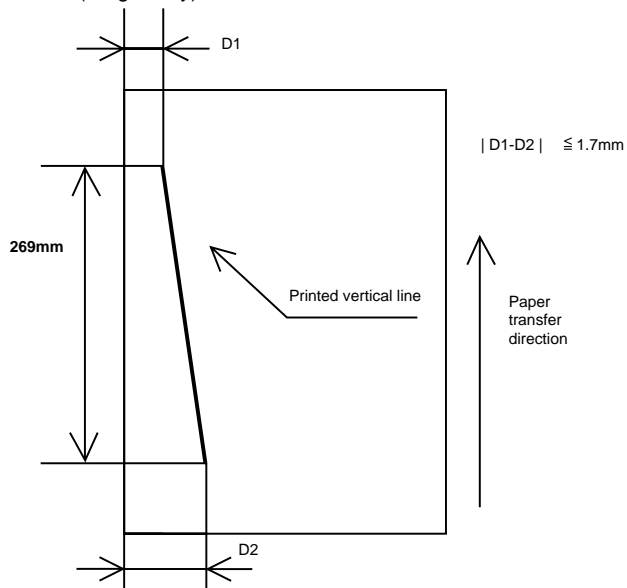
- e. Exposure gradient  
Error diffusion method.
- f. Copy (Print) Area



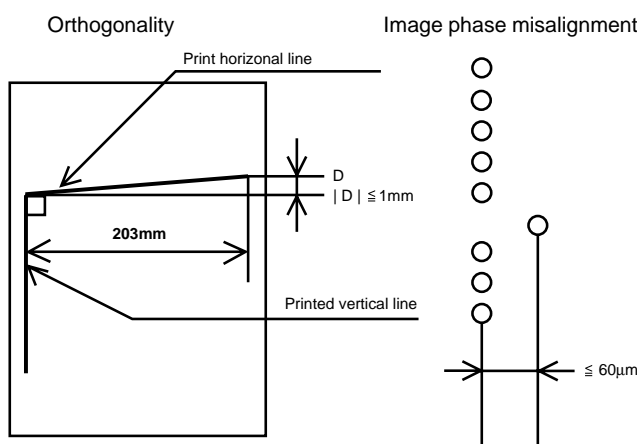
g. Image misalignment

Off center	$0 \pm 2.0$ mm or below
Horizontal misalignment	$0 \pm 2.0$ mm or below

h. Skew (Diagonality)



i. Distortion



j. Original size

	Minimum	Maximum
AB system	A6 (105 × 148.5 mm)	A4 (210 × 297 mm)
Inch system	3-7/8" × 5-7/8"	8-1/2" × 14" (SPF mode) 8-1/2" × 11" (Platen mode)

k. Paper size

	Minimum	Maximum
AB system	A6 (105 × 148.5 mm)	A4 (210 × 297 mm)
Inch system	3-7/8" × 5-7/8"	8-1/2" × 14" (SPF mode) 8-1/2" × 11" (Platen mode)

C. Printer mode

(1) System requirements

a. Operating conditions

Host computer	Operating system	Emulation	Driver	Plug and play	Network
IBM PC/AT or 100% compatible	MS-DOS 3.3 + MS-Windows 3.1X or later MS-Windows 95/98 MS-Windows NT 4.0	Sleek type GDI	GDI printer driver	Supported	Not supported

b. Interface

Type	Host computer	Operating system	Protocol
IEEE1284 P × 1	IBM PC/AT or 100% compatible	MS-DOS 3.3 + MS-Windows 3.1X or later MS-Windows 95/98 MS-Windows NT 4.0	Peppy Nibble

**(2) Job speed**

a. First print time

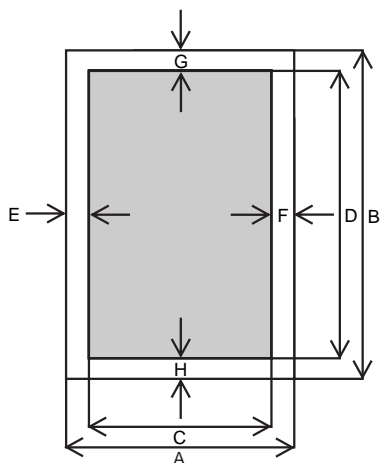
Mode	Paper feed mode
Normal	20 sec
Power save	20 sec

(A4 (8-1/2" × 11")), Not including the communication time to the host PC and the set up time of polygon mirror)

b. Print speed

Paper size
8 ppm (A4, 8-1/2" × 11", Sharp standard paper)

e. Print area  
(Portrait)



Physical Page Logical Page

Paper size	Value							
	A	B	C	D	E	F	G	H
LETTER	2550/5100	3300/6600	2456/4904	3200/6400	50/100	44/96	50/100	50/100
LEGAL	2550/5100	4200/8400	2456/4904	4100/8200	50/100	44/96	50/100	50/100
EXECUTIVE	2175/4350	3150/6300	2080/4152	3050/6100	50/100	45/98	50/100	50/100
A4	2480/4960	3507/7015	2384/4760	3407/6815	50/100	46/100	50/100	50/100
A5	1748/3496	2480/4960	1648/3296	2380/4760	50/100	50/100	50/100	50/100
COM-10	1236/2473	2850/5700	1136/2280	2750/5500	50/100	50/93	50/100	50/100
MONARCH	1161/2323	2250/4500	1064/2128	2150/4300	50/100	47/95	50/100	50/100
C5	1912/3825	2703/5407	1816/3632	2603/5207	50/100	46/93	50/100	50/100
DL	1299/2598	2598/5196	1200/2400	2498/4996	50/100	49/98	50/100	50/100
B5	2149/4299	3035/6070	2056/4104	2935/5870	50/100	43/95	50/100	50/100
FOOLSCAP	2550/5100	3720/7440	2456/4904	3620/7240	50/100	44/96	50/100	50/100
FOLIO	2550/5100	3900/7800	2456/4904	3800/7600	50/100	44/96	50/100	50/100
Government Printed Postcard	1181/2362	1748/3496	1088/2168	1648/3296	50/100	43/94	50/100	50/100
Japanese Envelop (Choukei 3)	1417/2834	2775/5551	1320/2640	2675/5351	50/100	47/94	50/100	50/100

- A. Physical page width
- B. Physical page height
- C. Logical page width
- D. Width difference between Physical page and HP-GL-2 picture frame

**(3) Image quality**

a. Resolution

\* Printing

Main scanning direction		Sub scanning direction	
Standard resolution	Virtual resolution	Standard resolution	Virtual resolution
600 dpi*	—	600 dpi*	—

\* 300 dpi selectable

b. Gradient

Gradient
Binary (Dither pattern method)

c. Image treatment

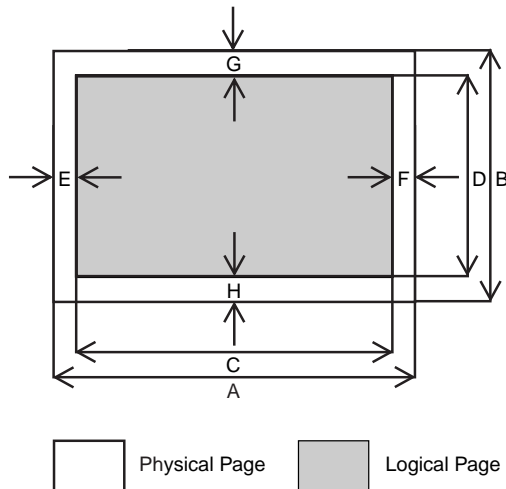
Image treatment
Dither pattern method

d. Toner save

Yield of toner save mode	5% area coverage
--------------------------	------------------



(Landscape)



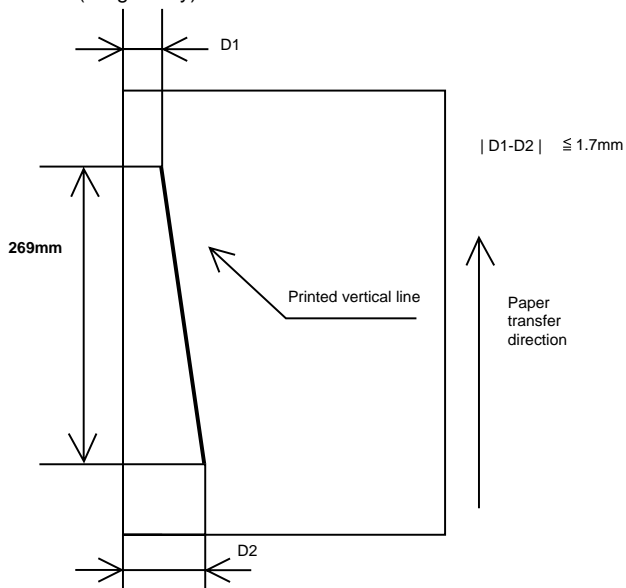
Paper size	Value							
	A	B	C	D	E	F	G	H
LETTER	3300/6600	2550/5100	3200/6400	2456/4904	50/100	50/100	50/100	44/96
LEGAL	4200/8400	2550/5100	4100/8200	2456/4904	50/100	50/100	50/100	44/96
EXECUTIVE	3150/6300	2175/4350	3050/6100	2080/4152	50/100	50/100	50/100	45/98
A4	3507/7015	2480/4960	3407/6815	2384/4760	50/100	50/100	50/100	46/100
A5	2480/4960	1748/3496	2380/4760	1648/3296	50/100	50/100	50/100	50/100
COM-10	2850/5700	1236/2473	2750/5500	1136/2280	50/100	50/100	50/100	50/93
MONARCH	2250/4500	1161/2323	2150/4300	1064/2128	50/100	50/100	50/100	47/95
C5	2703/5407	1912/3825	2603/5207	1816/3632	50/100	50/100	50/100	46/93
DL	2598/5196	1299/2598	2498/4996	1200/2400	50/100	50/100	50/100	49/98
B5	3035/6070	2149/4299	2935/5870	2056/4104	50/100	50/100	50/100	43/95
FOOLSCAP	3720/7440	2550/5100	3620/7240	2456/4904	50/100	50/100	50/100	44/96
FOLIO	3900/7800	2550/5100	3800/7600	2456/4904	50/100	50/100	50/100	44/96
Government Printed Postcard	1748/3496	1181/2362	1648/3296	1088/2168	50/100	50/100	50/100	43/94
Japanese Envelope (Choukei 3)	2775/5551	1417/2834	2675/5351	1320/2640	50/100	50/100	50/100	47/94

- A. Physical page width
- B. Physical page height
- C. Logical page width
- D. Width difference between Physical page and HP-GL-2 picture frame
- E. Height difference between Physical page and Logical page
- F. Height difference between Physical page and HP-GL-2 picture frame
- G. Printable width
- H. Distance between Top edge and Bottom edge in Physical page

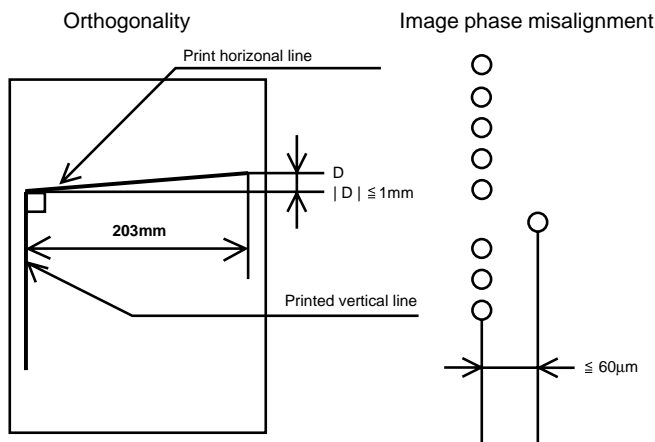
f. Image misalignment

Off center	$0 \pm 2.0$ mm or below
Horizontal misalignment	$0 \pm 2.0$ mm or below

g. Skew (Diagonality)



h. Distortion



i. Paper size

	Minimum	Maximum
AB system	A6 (105 × 148.5 mm)	A4 (210 × 297 mm)
Inch system	3-7/8" × 8-7/8"	8-1/2" × 14"

**D. Scanner mode**

**(1) System requirements**

a. Operating conditions

Host computer	Operating system	Software/Driver	Plug and play	Network
IBM PC/AT or compatible (Supported ECP mode)	Windows 3.1x	Twain driver	Supported	Not supported
	Windows 95/98			
	Windows nt 4.0			

b. Interface

Type	Host computer	Operating	Protocol
IEEE 1284 P	IBM PC/AT or compatible	Windows 3.1x	ECP
		Windows 95/98	
		Windows nt 4.0	

**(2) Image quality**

\* Resolution

Main scanning direction	300/400/600	600 dpi (Vertical)
Sub scanning	300/400/600	—

\* Scanning mode

Monochrome	8 bit Scan	1 bit Output to
------------	------------	-----------------

Image density adjustment	5 levels
--------------------------	----------

	Scan mode	Image process
Scan mode and Image process	Text & Picture	Error diffusion method
	Text	Error diffusion method
	Picture	Error diffusion method

\* Scan size

8.5" × 14" (SPF mode only)
8.5" × 11"
A4
B5
A5

**3. Basic specifications of facsimile**

Large Item	Middle Item	Small Item	Sub Item	Spec.
Communication system	Transmission method	Transmission time		Approx. 6 sec. (G3 ECM/14,400bps)
		Transmission Method		V17, V29, V27TER, V33 (Only Receiving)
		Compression method		MH, MR, MMR
		Modem speed		14,400bps → 2,400bps automatic fall back
		Mutual transmission		G3
		Line used		Public Switched Telephone Network (PSTN), Private Branch exchange (PBX),
		Number of lines used		1 line (cannot be added)
Scanning system	Document size	ECM		YES
		Max. document width		OC: 210mm SPF: 216mm
		Unscannable region		Leading edge 1 to 4 mm, trailing edge: 4mm max., left end + right end: either 4mm max.
		Transmitted document size		SPF: Max. 8.5" × 14" Min. 8.5" × 5.5" (Inch System) 210 × 148mm (AB System)
		Document designation		YES
		Two-sided document designation		NO
		Long document		14"
	Automatic document detection	SPF		YES
		OC		NO
	Transmission mode	SPF/OC transmission changeover		NO
	Document loading capacity, scanning cycle (SPF performance)	Continuous, automatic feed compatibility		NO
		Document loading capacity		SPF: 30 sheets (MAX)
		Document scanning cycle		8 sheets/min. (Standard mode, A4R memory transmission)

Large Item	Middle Item	Small Item	Sub Item	Spec.	
Image processing system	Half tone reproduction	Half tone (photo mode)		Equivalent to 256 scales	
			Resolution	8 dot /mm × 7.7 line / mm (Fixed)	
	Contrast adjustment	Contrast selection		Manual in 3 stages (AE)	
	Resolution selection	Standard		8 dot / mm × 3.85 line / mm	
		Fine		8 dot / mm × 7.7 line / mm	
		Super fine		8 dot / mm × 15.4 line / mm	
		Finest		NO	
Printer section resolution			600dpi		
Print system	Printing size	Max. printing width		215.9 mm	
		Print paper size detection		YES (Only width): A4/Letter or small size	
		Printing size		Letter/Legal (Inch System) A4 (AB System)	
	Print paper	Cassette capacity		250 × 1	
		Print paper absence detection		By failing paper pick up	
		Exit Paper Tray Full censor		NO	
		Feed		Paper cassette	
Transmission function system	Easy dialing function	Rapid key dialing		20 other parties	
	Easy dialing function	Speed dialing		100 other parties	
		Group dialing		20 groups (including the other parties registered to rapid key dialing)	
		Phonebook transmission		By using the SEARCH key: Any other parties registered to speed dialing and rapid key dialing can be searched for using the first letter.	
		Chain dialing		YES	
		Redialing		The last number dialed is saved	
		Program		NO	
		Mode recall		NO	
	Time designation function	Time specified transmission/polling		Time of day specified for transmission or polling. Max.3	
	Recall mode	Automatic recall mode when other party is busy	Intervals		1 to 15 minutes
			Count		1 to 14 times/0: no re-transmission
		Recall mode when communication error occurs	Intervals		1 to 15 minutes
			Count		1 to 14 times/0: no re-transmission
			Transmitted Pages		Beginning with the page where error occurred
Number of transmissions counted in recall mode simultaneously				Max. 20 transmissions	
Subsequent transmission reservation override in recall mode			YES		

Large Item	Middle Item	Small Item	Sub Item	Spec.		
Transmission function system	Memory Transmission/direct transmission	Memory transmission	Memory Transmission	YES		
			Number of transmission Reservations that can be made	Max. 20		
			Processing when memory is full	Transmission is cancelled when using Timer, Group or Broadcast function. Only scanned' data is transmitted. * The number of pages to be actually sent does not always correspond to the one passing through the SPF in case of communication error. * The transmission is cancelled when communication error occurs. * If the reverse sending is selected, the transmission is cancelled.		
					Setting change After Transmission Setting	NO
				Direct transmission		YES
		Default setting		By Memory All Clear		
		Line sound monitoring function	Dialing confirmation monitoring		YES (Service Man diagnostic.)	
		Broadcast function	Broadcast transmission	Number of destinations	50 destinations (Including the Group Dial)	
	Transmission method			Broadcast key, group key		
	Usable numbers			Rapid or Speed keys		
			Group dialing		Transmitted to group registered to rapid keys or speed dial.	
			Relay transmission	Instructing Station	NO	
				Relay station	NO	
				Multiple relay	NO	
		Number of relay groups		NO		
			Number of Receiving stations that may be Specified per Group	NO		
		Confidential function	Confidential transmission	Other party's Station	NO	
		Batch transmission function	Batch transmission		NO	
		Priority function	Transmission reservation interrupt		NO	
			Broadcast interrupt		YES	
			Recall mode interrupt		YES	
		Multiple message transmission function	Multiple message transmission		NO	
		Rotational Transmission	Rotational transmission	Paper size	NO	
		Book document transmission	Book document transmission	Transmission method	YES (From OC mode)	

Large Item	Middle Item	Small Item	Sub Item	Spec.	
Transmission function system	Book document transmission	Book document transmission	Consecutive page transmission (page splitting)	NO	
	OK stamp		OK stamp	NO	
	Remote transmission (polling transmission function)	Protective function	Remote transmission (Memory Polling)	Remote Transmission	YES (From Memory)
			Check by other Party's number		NO
			Check by Matching of System number (user's own machine) and ID number (other party's Machine) (between Sharp machines only)		NO
Reverse sending				YES	
Receiving function system	Receiving mode	Default setting		Automatic receiving (can be switched to A.M mode or manual receiving in key operator program)	
		Automatic receiving	Number of calls	0 to 9 times (factory-set to twice: can be changed in key operator program) - The external telephone rings once if set the number of calls for automatic receiving to 0 times.	
			Automatic phone/fax switching	NO	
		Manual receiving	Manual receiving setting	YES	
	Receiving mode	Manual receiving	Number of Switching calls to automatic Receiving in manual receiving mode	OFF/1 to 9 times	
		Telephone message receiver connection	Answering Machine mode	YES	
			Automatically switch to automatic receive	ON / OFF	
	Quiet detect time		OFF/ 1 to 10 sec.		
	Receiving mode timer switching			NO	
	Variable scale factor receiving	Reduction	Reduction made within Regular size	YES (ON/OFF in key operator program)	
			By received data print size Designation	YES	
		Enlargement		NO	
	Memory receiving function	Substitute receiving into memory	Substitute Receiving into Memory	Only when data cannot be output	
Forced memory receiving			NO		
Received data override Output			NO		

Large Item	Middle Item	Small Item	Sub Item	Spec.	
Receiving function system	Transfer	Transfer at occurrence of trouble		YES	
	Number specified receiving	Receiving of only specified number enabled		NO	
		Anti junk fax mode		YES (ON/OFF) 10 group, 20 letters	
	Confidential function	Confidential receiving	Sender		NO
			Mailbox		NO
			Mailbox name		NO
			Confidential ID code		NO
	Rotational receiving				NO
	Split receiving	Split size			YES
		Split receiving setting			YES (according to paper selection condition in key operator program)
	Two-sided document receiving				NO
	2-in-1 receiving				NO
Transmission request (polling receiving function)	Transmission request	Transmission Request		YES	
		Resolution at transmission Request		Depends on the Sending Machine.	
Turnaround transmission				NO	
Registration system	Number registration	Speed dialing	Number of other parties	100 other parties	
			Number of other party's Number digits	20 digits	
		Speed dialing	Registered name	20 letters (may be omitted)	
			Searched letters	Up to 1 letter	
			User tag Classification	NO	
			International communication mode setting	NO	
			Transmission method	Speed dialing key + (00 to 99) + start key	
		Rapid key dialing	Number of other parties	20 other parties	
			Number of other party's Number digits	20 digits	
			Registered name	20 letters (may be omitted)	
			Searched letters	Up to 1 letter	
			User tag Classification	NO	
			International communication mode setting	NO	
		Transmission method	Rapid key dialing		

Large Item	Middle Item	Small Item	Sub Item	Spec.
Registration system	Number registration	Group dialing	Registration keys	Rapid keys
			Max. number of registered other parties per group	50 other parties
			Registrable Number	Numbers registered to speed dialing and rapid key dialing.
			Registered name	20 letters (may be omitted)
			Searched letters	NO
			User tag Classification	NO
			Transmission method	Group dialing
		Program	Number of programs	NO
			Registerable item	NO
			Registered name	NO
			Calling method	NO
			Setting change After calling	NO
		Batch	Registration key	NO
			Number of other parties	NO
			Registration method	NO
	Sender Registration	Sender registration	Sender's name	24 letters, registered in key operator program
			Sender's number	20 digits, registered in key operator program
	Transmission request/remote transmission enable number registration	Transmission request enable number	Transmission Request source Number Registration	NO
	Transmission request/remote transmission enable number registration	System number	System number Registration	NO
		ID number	ID number Registration	NO
	Letter input	Input method	Key input	YES
		Letters that may be input	Characters	Alphanumeric characters, symbols
	Registered data read-out, read-in			NO
	Date & time adjustment			Registered in key operator program Support terms is from 1990 to 2089.
	Date indication change			NO
	Backup	Registered data backup at power failure		SRAM used, built-in battery-backed
	Telephone Function System	Handset		NO
		On-hook		YES
		Hold		NO
		Pause		YES (2 second fixed)
Phone transmission at power failure			NO	
Ringer volume			Adjusted in key operator program	
Speaker volume			Adjusted by pressing arrow keys on the fax control panel	
Tone pulse switching			Switched between 10 pps and TONE in key operator program (North America)	

Large Item	Middle Item	Small Item	Sub Item	Spec.	
Telephone Function System	External telephone connection			YES	
		Remote receiving switching		YES (switching number in 1 digit +**) 0 to 9	
	Automatic telephone/fax switching			NO	
		Audio response		NO	
		Response voice recording		NO	
Fax Memory	Memory capacity	Standard		2MB (Approx. 120 pages/A4)	
		Option		NO	
	Memory Back up			NO	
	Memory Contents (transmission reservation) confirmation	LCD indication			NO
Print out				YES	
	Memory remain indication			YES (Memory available percent display 3 digits in % on LCD)	
Additional information printing function for transmission	Page counter			NO	
	Date printing			YES (Year: month: day/ year in 4 digits) LCD: 2 digits / Print: 4 digits	
		Date indication change			NO
	Cover function	Cover item	Other party's name		YES
			Other party's number		YES
			Sender's name		YES
			Sender's number		YES
			Transmission message		YES
	Transmission message	Regular message			NO MESSAGE/URGENT/ IMPORTANT/CONFIDENTIAL/PLS.DISTRIBUTE/PLS. CALL BACK
		User message			NO
Sender printing function	Sender's number			20 digits	
	Sender's name			24 letters	
Additional printing function for receiving	Index printing			YES	
Record table system	Communication record function	Communication record table size		A4: AB System LETTER, Legal: Inch System (not output if size setting is not A4, LETTER, legal or larger)	
		Communication record memory capacity		50 communications for transmission/receiving respectively	
		Communication record table	Number of communications		50 communications for transmission/receiving respectively
			Time-specified output		YES 5 kinds, Every day, Each 2 day, Each 4 day, Once a week, OFF The print time is fixed at 00:00.
			When recording Memory is full		NO
			Printing sequence		FIRST IN FIRSTOUT
			Department-by-department output		NO
			Time-specified communication table		
		Confidential receiving confirmation table			NO



Large Item	Middle Item	Small Item	Sub Item	Spec.	
Record table system	Communication result report function	Communication result table (transmission)		YES (ALWAYS PRINT, ERROR/ TIMER, SEND ONLY, NEVER PRINT, ERROR ONLY)	
		Broadcast transmission report		YES (ALWAYS PRINT, ERROR ONLY, NEVER PRINT)	
		Communication result table (receiving)		YES	
		Document image printing when memory transmission is not yet made		NO	
	Other report/list	Rapid key dialing list		YES (output as telephone number list)	
		Speed dialing list		YES (output as telephone number list)	
		Group dialing list		YES	
		Transmission activity list		YES	
		ID/sender list		NO	
		Batch transmission confirmation list		NO	
		Confidential ID list		NO	
		Option setting list		YES	
		Telephone list		YES	
		Timer list		YES	
		Anti junk fax number list		YES	
Receptions activity List		YES			
Memory image erasure list		NO			
Others	Other party confirmation function	Other party confirmation display		NO	
	CSI function	CSI		YES	
	Department management	Department-by-department user restriction			NO
		Number of set departments			NO
	Department management	Department-by-department charge management function		NO	
	Operation panel display	LCD		20 letters by 2 lines	
	Auto startup mode			NO	
	Distinctive Ring (Only North America and Australia)			YES	
	FAST (Only for U.S.A.)			YES	
	Power consumption	Energy star compatibility		YES	
	Automatic Summer Set (Only Europe)			YES	
PBX setting (Only Europe)			YES		

## 4. ENGINE SPECIFICATION

### A. Operation/display section

Display type	LED display/LCD display (FAX section)
Operation type	Button/switch

### B. Paper feed/transfer/finishing

#### (1) Details of paper feed section

AB system

Paper size	Capacity	Paper weight	Special paper	Notes
A4, B5, A5, B6, A6	250 sheets	56–80g/m <sup>2</sup>	—	Paper guide are to be changed by user.
	200 sheets	81–90g/m <sup>2</sup> Standard condition	—	
	1 sheet	52–130 g/m <sup>2</sup> (104 ~ 130 g/m <sup>2</sup> is available for A4 size or smaller.)	Recycled paper/ Transparency film/ Label sheet/Envelope	

Inch system

Paper size	Capacity	Paper weight	Special paper	Notes
8-1/2" × 14" 8-1/2" × 11" 8-1/2" × 5-1/2"	250 sheets	15–21 lbs.	—	Paper guide are to be changed by user.
	200 sheets	22–24 lbs. Standard condition	—	
	1 sheet	14–34 lbs. (28 ~ 34.5 lbs. is available for Letter size or smaller.)	Recycled paper/ Transparency film/ Label sheet/Envelope	

#### (2) Details of finishing

Paper receiving tray

Paper size	Paper weight	Capacity
A4 (8-1/2" × 11")	52–80g/m <sup>2</sup> (15–21 lbs.)	50 sheets
	81–90g/m <sup>2</sup> (22–24 lbs.)	40 sheets

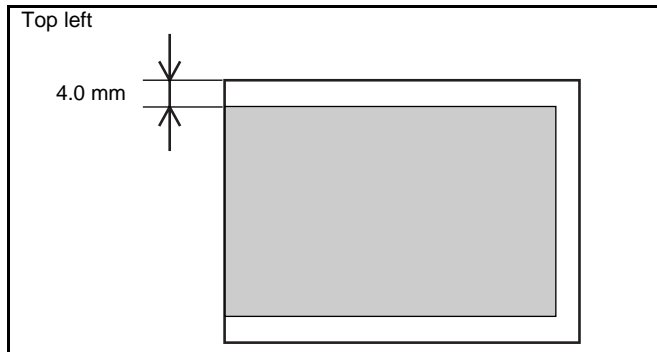
Under standard condition

### C. Scanner (reading) section

#### (1)

Type	Flat bed and SPF type/Monochrome
------	----------------------------------

#### (2) Original positioning



#### (3) Resolution

Main scanning direction		Sub scanning direction	
Standard resolution	Virtual resolution	Standard resolution	Virtual resolution
400 dpi	—	600 dpi (*)	—

#### (4) Gradient

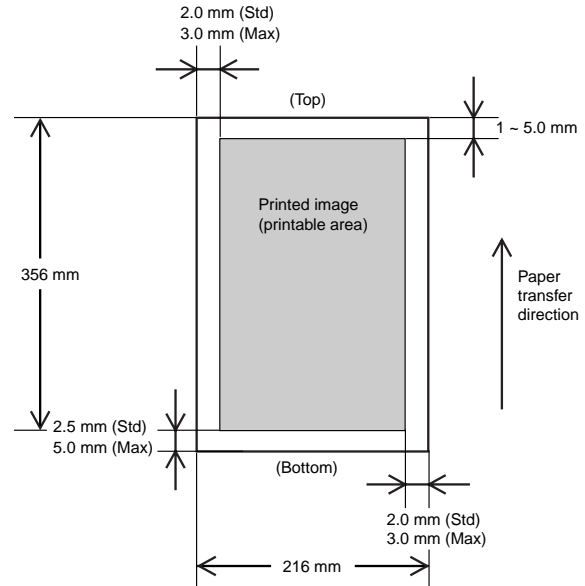
Scan (8 bit)	Output (1 bit)
--------------	----------------

#### (5) Readable area/size

- a. Maximum readable size  
(210 × 356 mm)

AB system	A4
Inch system	8-1/2" × 14"

- b. Scanning area



#### (6) Scanning speed

Copy ratio	Scanning
	Speed
100%	50 mm/sec.

#### (7) Light source (Lamp)

Power voltage	AC 800 V (rms) 48 kHz
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**(8) Scanning sensor**

Type	Reduction optical image sensor (CCD)
	Monochrome

**D. Scanner (Exposure) section****(1) Type****(2) Resolution**

Main scanning direction	Sub scanning direction
600 dpi	600 dpi

**(3) Gradient**

2 steps
---------

**(4) Details of Laser unit**

Revolution	11,811 rpm
Number of mirrors	6
Laser power	0.35 mw
Laser beam size	75 × 65 μm
Laser wave length	785 nm

**E. Imaging process section****(1) Imaging speed**

50 mm/sec.
------------

**(2) Photoconductor (Drum)**

Type	OPC (φ 24 mm)
Life time	20,000 sheets

**(3) Toner**

Type	Developer cartridge color: black
Capacity/Life time	3,000 sheets (1,500 sheets with initially installed cartridge) (A4 5% cover ratio)

**(4) Charging**

Method	Brush charging method
Voltage	DC-850 V AC 600 V (P-P)

**(5) Transfer**

Method	Transfer roller method
Voltage	DC+3.5 kV AC 600 V (P-P)

**(6) Exposure**

Method	Semiconductor laser method
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**(7) Develop**

Method	Mono component non-magnetic method
Voltage	-310 V

**(8) Separation**

Method	Separation charger type/method
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**(9) Discharge (Japan only)**

Method	Discharge brush type
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**(10) Cleaning**

Method	By developing roller
Voltage	+200 V

**F. Fusing****(1)**

Method	Quick heat-up with pressure roller method
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**(2) Lamp**

Type	Main unit power supply	Voltage	Power consumption
Fluorescent lamp	100/120/230 V	100/120/230 V	500 W

**(3) Fusing temperature**

Ready mode/ Print mode	Power save mode	Print mode (after 20th sheet in the multi print mode)
160°C	80°C	155°C

**(4) Heat roller**

Type	Teflon coated roller
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**(5) Pressure roller**

Type	Silicone rubber roller
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**(6) Separation method**

Forced separation by separation pawl
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**G. Power drive**

Stepping motor (Main motor)
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**H. Engine control MCU (PCU)**

Processor	CPU (H8S2350FP) ASIC (HG73C025FD)
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**I. FAX control**

Processor	ASIC (LZ9FH19) CPU (FX164) Controller (FX200) ASIC (SG46533N)
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**J. Memory**

Type	Capacity	Contents	Location
ROM (EPROM)	2 M bit	Program	MCU (PCU) PWB
DRAM	16 M bit × 3	Copy image data	MCU (PCU) PWB
EEPROM	2 K bit	Control data	MCU (PCU) PWB
SRAM	32 K bytes × 2	Line image data	MCU (PCU) PWB
RAM	265 K bit × 2	Work memory	MCU (PCU) PWB
DRAM	16 M bit × 3	Image data/for Work RAM	FAX control PWB
SRAM	256 K M bit × 2	Line image data	FAX control PWB
ROM	8 M bit	Program	FAX control PWB

**K. Interface**

Type	Items	Operating system
IEEE1284P	Protocol	Peppy/Nibble/ECP
	Data transfer speed	3 Mbit/sec (Max)
	Connector type	—

**L. Power supply**

Type	Output		
	Voltage	Current	Notes
DC power supply	+24 V	2.0 A	
	+12 V	0.13 A	
	+5 V	1.1 A	
	+3.3 V	0.25 A	
High voltage power supply	DC -310 V (+200 V) DC +3.5 KV (AC 600 V P-P) DC -850 V (AC 600 V P-P)	—	

**M. Operating voltage/power consumption**

Sub-sidiaries	Power supply voltage/frequency	Power consumption				
		Power save mode	Ready mode	Power shut-down mode	Average (during printing)	Max.
—	120V 50/60Hz	29 Wh/h	55 Wh/h	17 Wh/h	171 Wh/h	600 W
—	220–240V 50/60Hz	35 Wh/h	64 Wh/h	18 Wh/h	175 Wh/h	600 W

(Within Rated voltage ± 10% and Rated frequency ± 2%)

**N. Safety/environmental standard**

**(1) Safety/environmental standard**

Item	Standard name	Country
Safety standard	SEMKO	Sweden
	NEMKO	Norway
	DEKRA (GS MARK)	Germany
	BSI	U.K
	CUL UL	USA/Canada
	FDA	USA
Radio wave noise standard	CE MARK	Europe
	C-TICK	Australia
	FCC	USA/CANADA
Energy standard	ENERGY STAR	World wide (Printer only)
Environmental standard	—	—

**(2) Ozon level**

Very low (unmeasurable level)

**(3) Noise level**

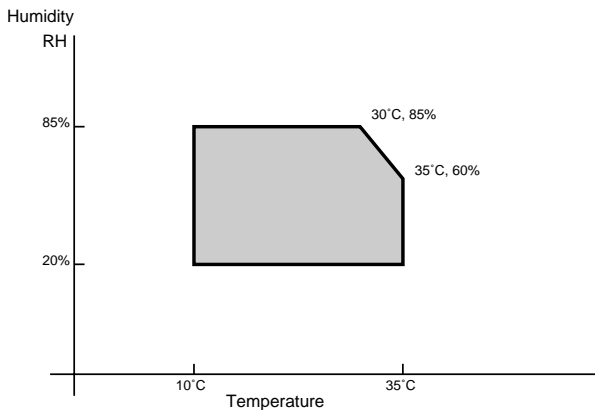
Noise mode	Individual		
	Operating mode	Ready mode	Power shut-down mode
Sound power level	66	40	0 dB
Sound pressure level	54.8 dB	—	0 dB

**O. Ambient conditions**

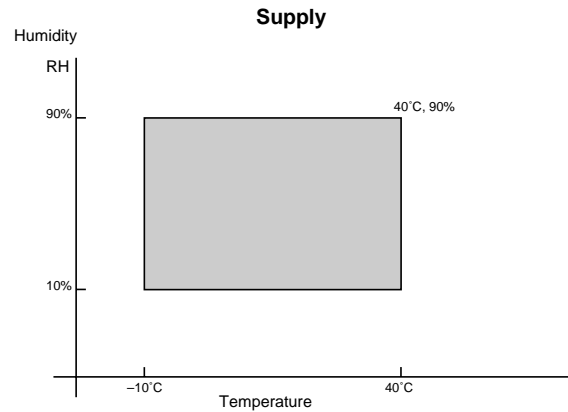
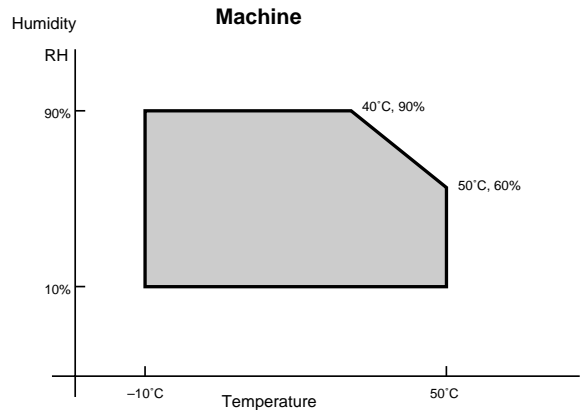
**(1) Occupied area**

Main unit	460 × 650 mm (18.2 × 29.53 in.)
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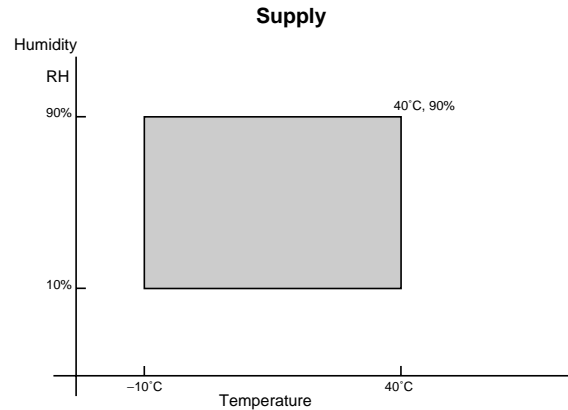
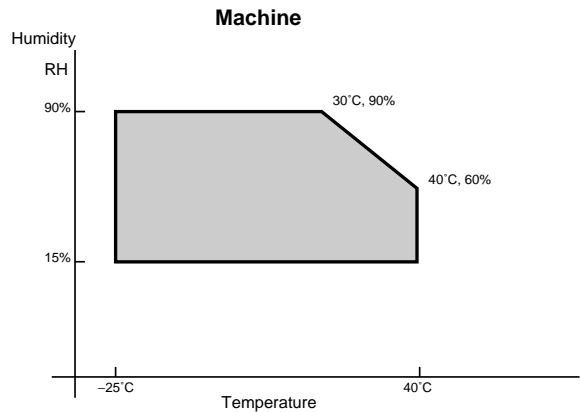
**(2) Operating conditions**



**(3) Storage conditions (packed in the packing material)**



**(4) Transport condition (packed in the packing material)**



**(5) Atmospheric pressure**

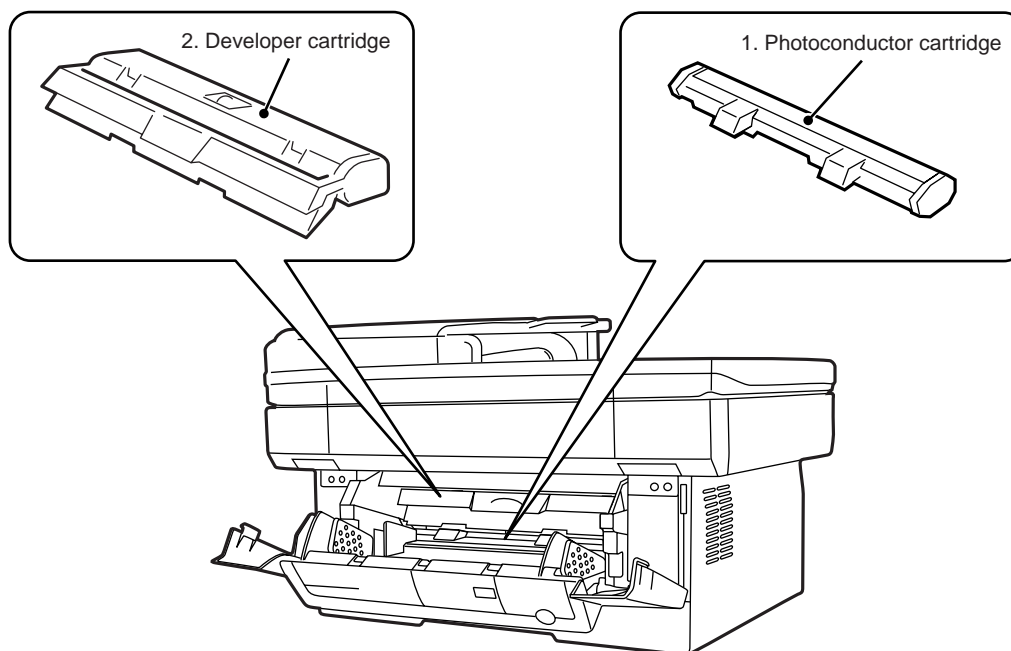
595 mmHg or above

**(6) Standard condition**

20 to 25°C 65±5% RH, Rating for different countries
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## [3] CONSUMABLE PARTS

### 1. Configuration



No.	Part name (Item)
1	Photoconductor cartridge
2	Developer cartridge

### 2. List

#### A. Consumable parts for exclusive use

No.	Part name (Item)	(Single form)				(Compound form)		Note
		Model name	Content			Model name	Q'ty	
			Parts item	Q'ty	Life			
1	Photoconductor cartridge	FO-29DR	Photoconductor cartridge	1	20K		10	
2	Developer cartridge	FO-29ND	Developer cartridge	1	3K		10	

### 3. Details

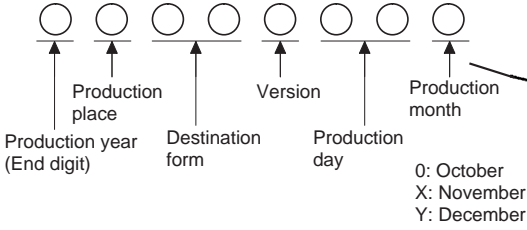
#### (1) Photoconductor drum

Item	Specifications/Descriptions		
Part name	Photoconductor cartridge		
Model name (Single unit)	FO-29DR	Quantity	1
Model name (Compound form)	—	Quantity	10
Photo (Picture)			
Type (Kind)	OPC		
Form	Cartridge		

Item	Specifications/Descriptions					
Life	Print quantity	20K				
	Effective use period	36 months from production when sealed, or 20 months when unsealed. (Shorter one, max. 36 months)				
Weight/Capacity/ Quantity	Weight	Single unit	Weight (g/kg)	241 g	Weight (lbs)	
		Compound form	Wright (g/kg)		Weight (lbs)	
	Quantity	Single unit				
		Compound form				
Capacity	(Litter)					
Applied model	AL-800/840					
Compatibility information						
Product No. content	<p>Ver. ○    ○    ○    ○    ○    ○    ○</p> <p>↑    ↑    ↑    ↑    ↑    ↑    ↑</p> <p>Version    Production year (End digit)    Fixed to 1.    Form    Serial No. in each production month    Production month</p> <p>0: October X: November Y: December</p>					
Guarantee period	(Month)	24	Counted from the production month. Stored under storage environment conditions (sealed).			
Note						

**(2) Developer cartridge**

Item	Specifications/Descriptions					
Part name	Developer cartridge					
Model name (Single unit)	FO-29ND			Quantity	1	
Model name (Compound form)	—			Quantity	10	
Photo (Picture)						
Type (Kind)	Mono-component toner					
Form	Cartridge					
Life	Print quantity	3K (A4, 5% cover ratio)				
	Effective use period	24 months from the production month when sealed, or 12 months when unsealed. (Shorter one, max. 24 months)				
	Others					
Weight/Capacity/ Quantity	Weight	Single unit	Weight (g/kg)	473 g	Weight (lbs)	
		Compound form	Wright (g/kg)		Weight (lbs)	
	Quantity	Single unit				
		Compound form				
Capacity		90 g				
Applied model	FO-3800M					
Compatibility information						

Item	Specifications/Descriptions		
Product No. content			
Guarantee period	(Month)	24	Counted from the production month. Stored under the storage environment conditions (sealed).
Note	* Replace when print density becomes low.		

## 4. Paper specifications

To assure print quality and normal paper handling, the following specifications of paper should be satisfied.

### (1) Paper

#### Standard and Applicable Paper

Item	Standard paper	Applicable paper
Weight	60 – 90 g/m <sup>2</sup>	60 – 120 g/m <sup>2</sup>
Smoothness	face; ≥ 20 s back; ≥ 20 s (BEKK method)	face; ≥ 20 s back; ≥ 18 s (BEKK method)
Porosity	≥ 7 s (BEKK method)	same as left
Opacity	≥ 77%	same as left
Surface resistivity	$1 \times 10^{10} - 5 \times 10^{10}$ (20 ± 1°C)	65 ± 2% RH)
Stiffness	vertical; ≥ 17 cm horizontal; ≥ 13 cm (CLARK method)	same as left
Moisture content	4.5% – 7.0%	same as left
Thickness	75 μm – 110 μm	same as left
Dimension	B5 (182 ± 1 × 257 ± 1mm) B6 (128 ± 1 × 182 ± 1mm) A4 (210 ± 1 × 297 ± 1mm) A5 (148 ± 1 × 210 ± 1mm) A6 (105 ± 1 × 148 ± 1mm) 8.5" ± 5/128 × 14" ± 5/128" 8.5" ± 5/128 × 11" ± 5/128" 5.5" ± 5/128 × 8.5" ± 5/128" 8.5" ± 5/128 × 13" ± 5/128"	same as left

#### (Paper Types That Should Not be Used)

Paper that has any of the following should not be used for printing.

- Paper with special coating on the surface
- Paper with particularly rough or smooth surface
- Paper which has been glued together and which could become separated.
- Paper with tears, folds, embossing, dryness, moisture or curl
- Paper with metal tabs or clips
- Paper with holes, windows or perforations
- Paper which has been pre-printed using a laser printer or photocopier

(Note) Before printing, try one of the pieces of paper to be used and confirm that it can be printed successfully.

(Values at 20 ± 1°C, 65 ± 2% RH)

### (2) Envelope

Size	Dimensions	Weight
International DL	110 × 220 mm	60 g/m <sup>2</sup> (16 lbs.) to 90 g/m <sup>2</sup> (24 lbs.)
International C5	162 × 229 mm	Same as above
Monarch	3-7/8" × 7-1/2"	Same as above
Commercial 10 (business)	4-1/8" × 9-1/2" (104.78 × 241.3 mm)	Same as above

#### Envelopes

Do not use envelopes which have any of the following.

- Metal tabs, snaps, strings, perforations, windows or holes
- Open flaps on which adhesive is exposed
- Glossy surfaces
- A particularly rough texture or embossing
- Envelopes made from recycled paper
- Envelopes that are not flat due to damage, folds or bending, or which are not straight with square corners
- Envelopes which are curled
- Two or more flaps
- Labels that have already been attached
- Flaps that have not been folded
- Creases or folds on the leading edge
- Adhesive that sticks without moisture when pressed closed
- Envelopes that stick together due to exposed adhesive
- Envelopes that have already been printed on in a laser printer
- Envelopes that expand or shrink without fine creases
- Envelopes which are inflated with air

### (3) OHP film

A4 (210 × 297 mm) Letter size (8.5" × 11")

## 5. Standard density sample

The ratio of the image area for the total area of paper is 5%.  
The life of every consumable part is based on this ratio.

### Standard density sample

# SHARP

## TEST SHEET B

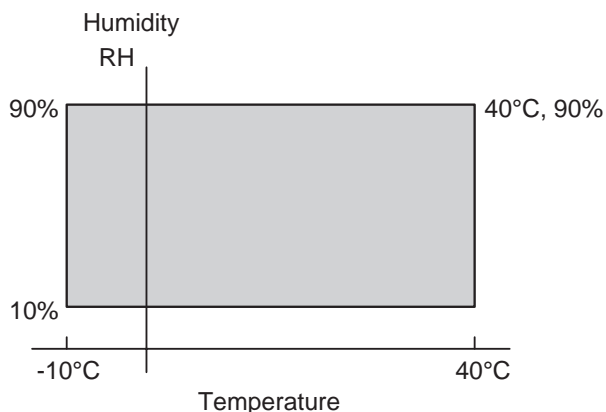
- 1912 Chairman Tokuji Hayakawa sets up business as a metal worker in Tokyo.
- 1924 New plant constructed at site of present Sharp head office to replace original Tokyo plant destroyed in great Kanto Earthquake of 1923.
- 1925 Sharp succeeds in assembling Japan's first crystal radio set.  
Radio broadcasting started in Japan.
- 1931 Sharp launches TV research. Initiates first step toward television in Japan.
- 1951 Japan's first television set manufactured with Sharp's advanced super-wave technology.
- 1960 Nara plant constructed as a base for producing electronic components and related industrial equipment in preparation for the electronic age. Mass-production of color television starts. Color television broadcasting starts in Japan.
- 1961 Central Research Laboratory completed. Serves as an impetus for the development of electronic technology.
- 1962 Sharp Electronics Corporation established in New Jersey as US subsidiary. Japan's first mass-production of microwave oven begins.
- 1964 World's first solid state electronic desk-top calculator "Compet" developed.
- 1966 World's first IC-applied electronic desk-top calculator developed. World's largest solar battery installed in unmanned lighthouse in Japan.
- 1968 Sharp Electronics (Europe) GmbH established in Hamburg.
- 1969 ELSI (Extra Large Scale Integration) developed for commercial application by Sharp through a technical tie-up with North American Rockwell.  
Sharp Electronics (U.K.) Ltd. established in the United Kingdom.
- 1970 Construction of Sharp Advanced Development and Planning Center (ELSI plant, Central Research Laboratory, Training Center and Guest House) completed.
- 1974 PPC (Plain Paper Copier) "SF-710" put on sale.  
Sharp Electronics of Canada Ltd. established in Canada.
- 1977 PPC "SF-730" with a single component toner and Pressure Fixing Process marketed.
- 1978 PPC "SF-810", capable of copying up to 11" x 17" or A3 size maximum at copying speed of 22 copies a minute (letter or A4 size), developed and marketed.



## 6. Environmental conditions

### (1) Transit environment (sealed)

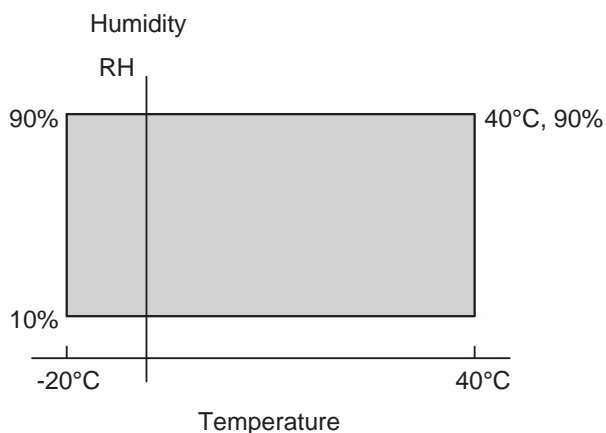
Max. change: Temperature 15°C/hour, Relative humidity 15%RH/hour, without dew



Temperature (min)	Humidity (min)	Temperature (mid)	Humidity (mid)	Temperature (max)	Humidity (max)	Period
-10°C	10%			40°C	90%	

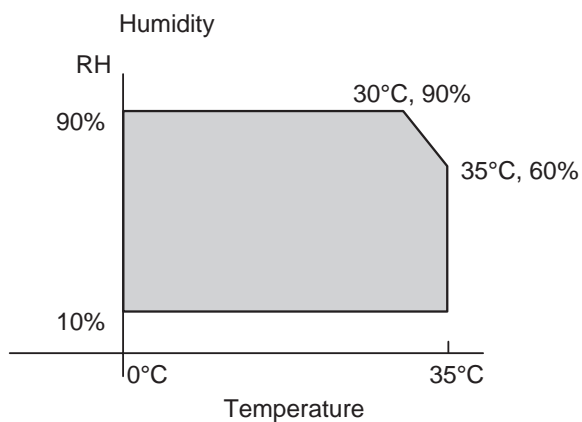
### (2) Storage environment (sealed)

Max. change: Temperature 15°C/hour, Relative humidity 15%RH/hour, without dew



Temperature (min)	Humidity (min)	Temperature (mid)	Humidity (mid)	Temperature (max)	Humidity (max)	Period
-10°C	10%			40°C	90%	

(Unsealed condition)



Temperature (min)	Humidity (min)	Temperature (mid)	Humidity (mid)	Temperature (max)	Humidity (max)	Period
0°C	10%	30°C	60%	35°C	90%	

## [4] SET UP

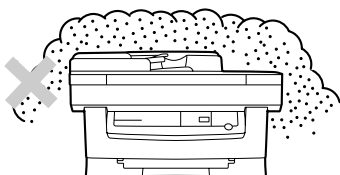
### 1. Installing conditions

Improper installation may damage the copier. Please note the following during initial installation and whenever the copier is moved.

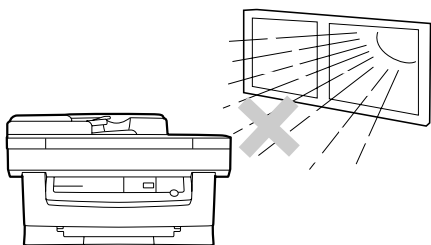
**CAUTION:** If the copier is moved from a cool place to a warm place, condensation may form inside the copier. Operation in this condition will cause poor copy quality and malfunctions. Leave the copier at room temperature for at least 2 hours before use.

**Do not install your copier in areas that are:**

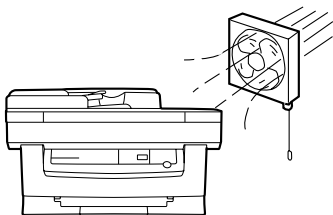
- damp, humid, or very dusty



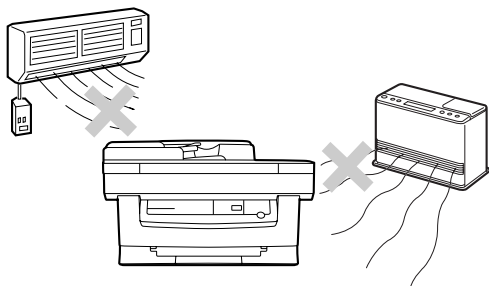
- exposed to direct sunlight



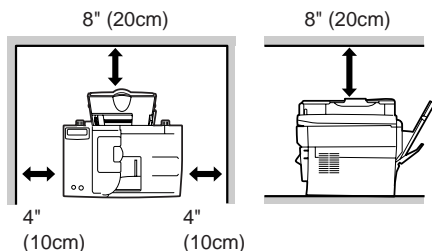
- poorly ventilated



- subject to extreme temperature or humidity changes, e.g., near an air conditioner or heater.



**Be sure to allow the required space around the machine for servicing and proper ventilation.**

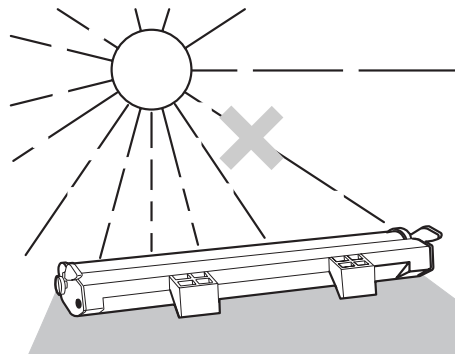


### CAUTIONS ON HANDLING

Be careful in handling the copier as follows to maintain the performance of this copier.

**Do not expose the drum cartridge to direct sunlight.**

Doing so will damage the surface (green portion) of the drum cartridge, causing smudges on copies.



**Store spare supplies such as drum cartridges and TD cartridges in a dark place without removing from the package before use.**

If they are exposed to direct sunlight, smudges on copies may result.

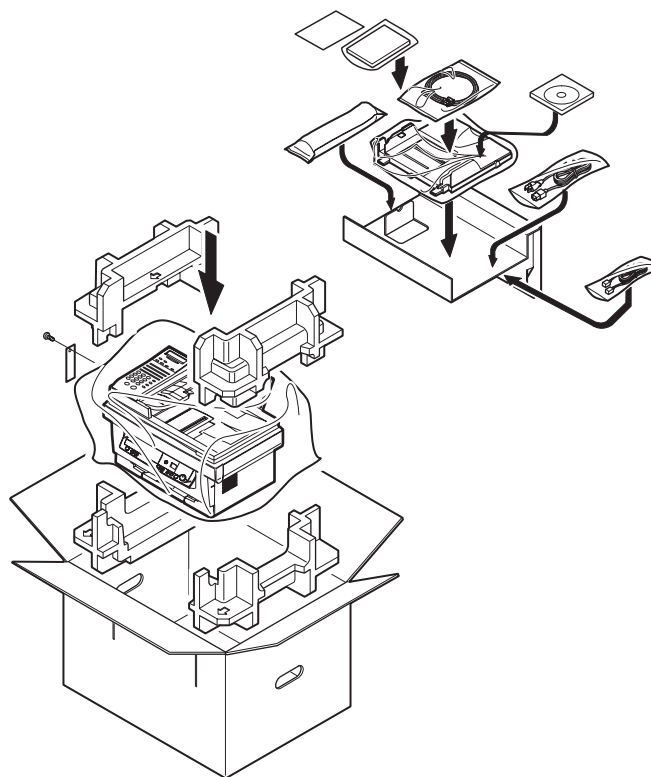
**Do not touch the surface (green portion) of the drum cartridge.**

Doing so will damage the surface of the cartridge, causing smudges on copies.

### 2. Unpacking

#### A. Packing list

Open the carton and check if the following components and accessories are included.



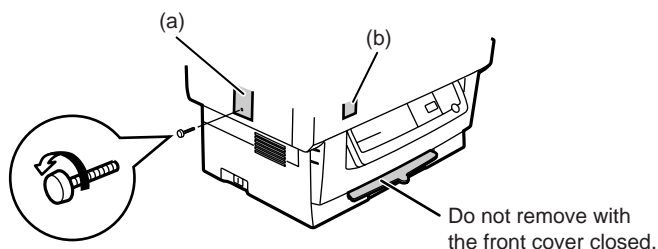
## Accessories list

Model		FO-3800M
Tray (Universal)		Included
Drum cartridge		Installed
TD cartridge (1.5K)		Included
Original cover		Included
AC power cord		Included UL, CSA PLG
Printer cable	IEEE1284	Included
	USB	N/A
Phone cable		Included
Driver soft		CD-ROM
Operation manual	Copier	Included (SEC*)
	Printer	Included (SEC*)
	FAX	Included
Warranty card (Registration card)		Included (SEC*) in manual
MSDS sheets		Included
POP label		N/A
Dust cover		N/A
User card (Aiyousya card)		N/A
Digital logo		N/A

## B. Releasing lock

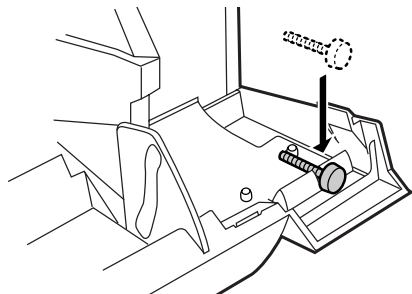
### REMOVING PROTECTIVE PACKING MATERIALS

- 1) Remove tape (a).
- 2) Turn and remove the lock screw in the arrow direction.
- 3) Remove the protective material (b).



Keep the fixing screw inside the front cover.

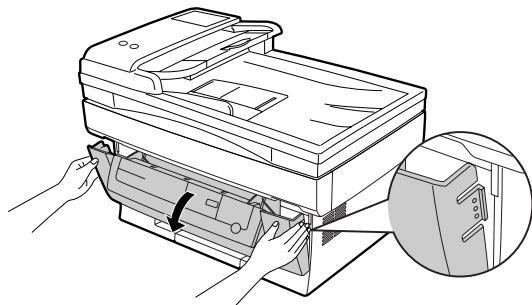
Store the lock screw at the right side inside the front cover.



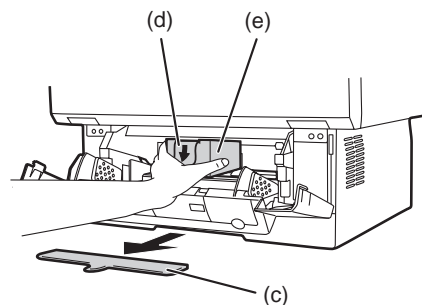
## 3. Parts and consumable parts setup

### (1) Developer cartridge

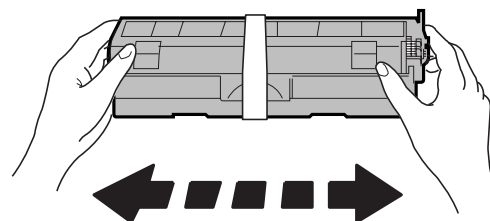
- 1) Push gently on both sides of the front cover to open the cover.



- 2) Remove the protective material (c), and slowly pull the protective sheet (d) and protective material (e) together toward you to remove. Be careful not to break the protective sheet (d) midway and not to remain torn part inside the machine.

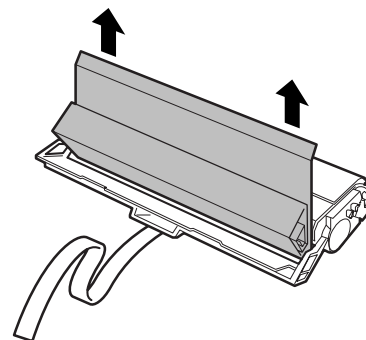


- 3) Remove the TD cartridge from the bag. Hold the cartridge on both sides and shake it horizontally four or five times.

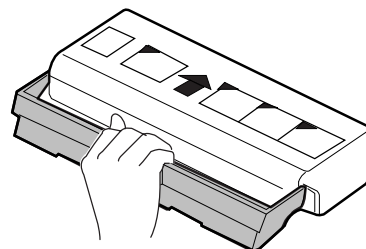


**CAUTION:** Be sure to remove the protective paper from the drum cartridge before installing the TD cartridge.

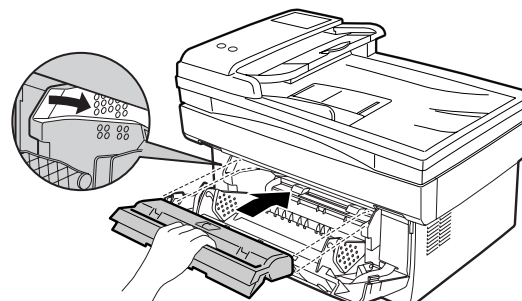
- 4) Remove the protective tape and then the protective cover.



- 5) Hold the handle of the TD cartridge so that the stamped marking on top of the cartridge are facing upward.

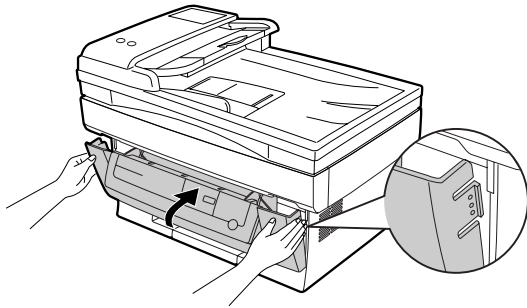


- 6) Gently insert the TD cartridge into the copier along the guides in the direction indicated by the arrow.



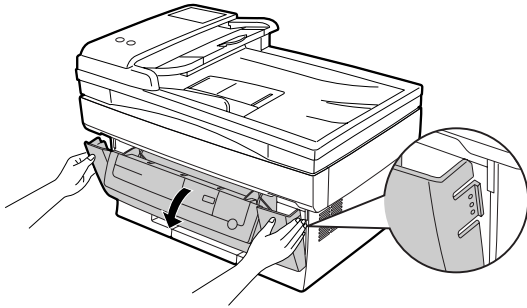
Align the projections on both sides with the guides.

7) Close the front cover.

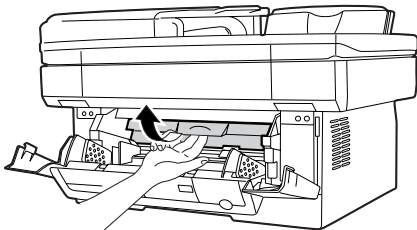


**(2) Photoconductor cartridge**

1) Gently press the both sides of the front cover and open it.



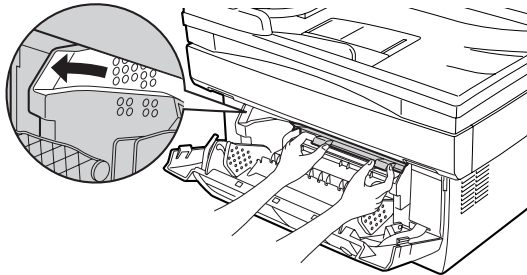
2) Slowly remove the developer cartridge from the copier.



3) Hold two knobs of the photoconductor cartridge with your fingers, and slowly pull out it.

**WARNING:** The fusing section is heated to a high temperature. When removing the photoconductor cartridge, be careful not to touch the fusing section to avoid a burn.

**CAUTION:** Dispose the photoconductor cartridge as an incombustible.

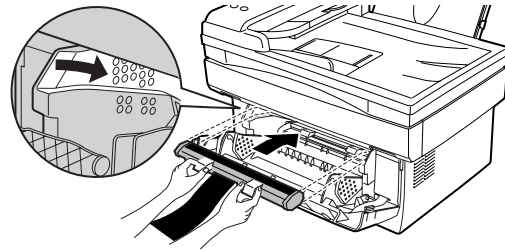


4) Remove a new photoconductor cartridge from the bag.

**CAUTION:**

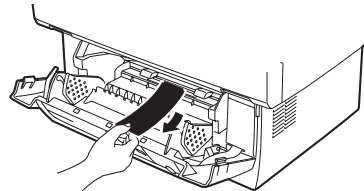
- A black protective sheet is attached to a new photoconductor cartridge in order to protect the cartridge from light. Install the cartridge in the copier with this black sheet attached to it. If it is removed, the cartridge surface (green section) may be damaged.
- Keep the photoconductor cartridge in a clean place. If it is stored in a dusty place, the cartridge surface (green section) may be damaged to cause a dirt on print paper.

5) Hold the two knobs of the photoconductor cartridge with your fingers, and slowly insert the projections on the both ends of the cartridge into the machine along the guides in the arrow direction.

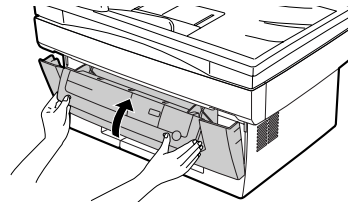
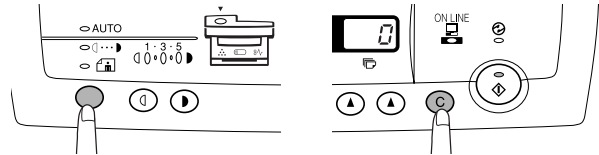


6) Remove the black protective sheet from the photoconductor cartridge.

**CAUTION:** If the black protective sheet is pulled forcibly, it may be broken. Be careful not to break the sheet and slowly remove it.

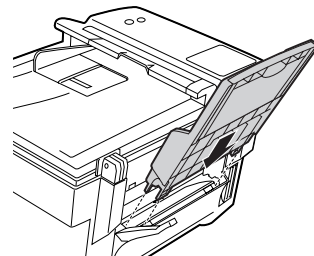


7) Install the developer cartridge.  
 8) Turn on the power switch. While pressing the copy mode select key and the clear key, open and close the operation panel section. (The photoconductor counter is reset by the above operation.)



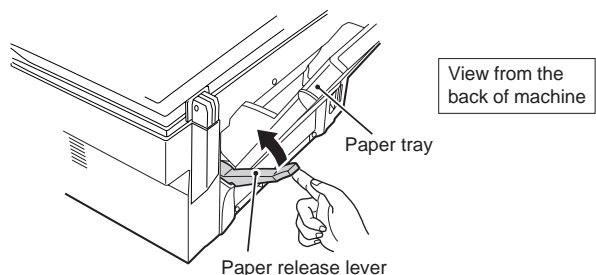
**(3) Paper tray**

1) Hold the paper tray so that the paper guide of the paper tray is facing front and then insert the paper tray into the copier's paper tray slots.

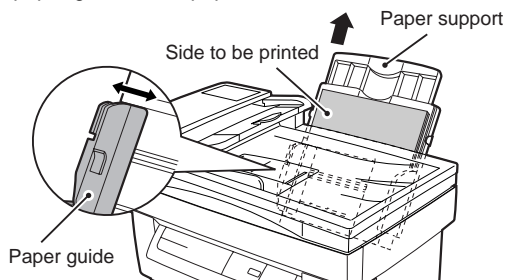


2) Pull the paper release lever at the right of the paper tray toward you.

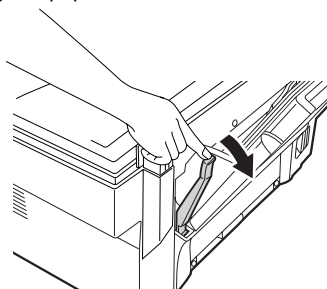
**CAUTION:** If the paper is inserted without doing this, paper misfeeds will occur.



- 3) If extra-long paper (such as legal size) is used, raise the paper support to support the paper. Fan the copy paper and place it into the paper tray with the side to be printed facing toward you. Position the paper along the right end of the paper tray. Then adjust the paper guide to the paper width.



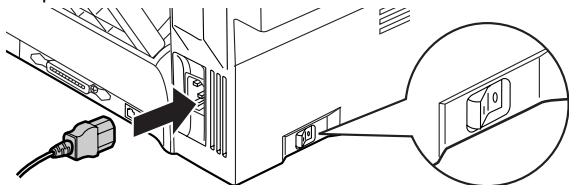
- 4) Make sure the paper release lever is pushed back. The paper will be clamped by the paper feed roller inside the copier.



## 4. Cable connection

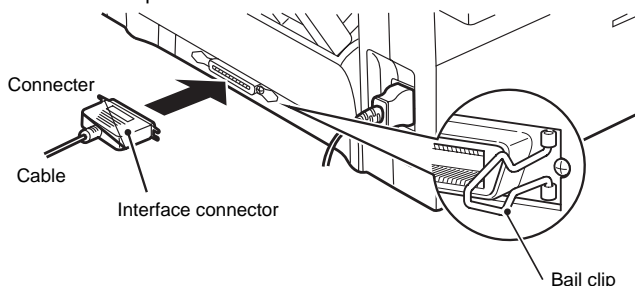
### (1) Power cable

Ensure that the power switch of the copier is in the OFF position. Insert the attached power cord into the power cord socket at the rear of the copier.



### (2) Interface cable

- 1) Check that the power switches of both the printer and the computer are in the OFF position.
- 2) Plug the parallel interface cable into one of the printer interface connectors (whichever connector you want to use). Fasten the two bail clips at the side of the printer connector to hold the interface connector in place.



- 3) Plug the other end of the cable into the parallel interface connector of your computer.

**CAUTION:** The printer sends and receives data bi-directionally and at high speed. Some switch boxes and pass-through devices cannot support high-speed, bi-directional transfer of data, and using them may cause printing errors.

**CAUTION:** Some printer selectors (which allows to use two or more computers and printers by selection) are not compatible to this machine.

## 5. Installing the printer and TWAIN (Scanner) driver software

### (1) Checking the hardware and software requirements

You will need the following hardware and software in order to install the printer driver.

#### Computer type

IBM PC/AT or compatible computer equipped with ECP mode-equivalent bi-directional parallel interface and CD-ROM drive

#### Windows type

Windows 3.1x, Windows 95, Windows 98, Windows NT 4.0

**CPU** 486DX 66MHz or better

#### Physical RAM

Windows 95, Windows 3.1x: 8MB (16MB or more is recommended.)

Windows NT 4.0: 12MB (16MB or more is recommended.)

Windows 98: 16MB (32MB or more is recommended.)

**Virtual storage (swap file)** 8MB or more

**Display** 640 x 480 dots (VGA) or better

**Hard disk free space** 11MB or more

**CAUTION:** The printer driver included in this product cannot be used under Windows NT 3.5x, OS/2, pure MS-DOS and other operating systems which are not described above.

### (2) Installing the printer driver

The software for your machine is provided on the CD-ROM which was packed with your machine.

Before installing the printer driver, be sure to check the following items.

- Is the machine connected properly to the computer?
- Does the machine have paper?
- Is there another GDI printer driver or Windows Printing System printer driver already installed? If installed, change the printer port setting.

#### a. Windows 95/Windows NT 4.0:

- 1) Load paper into the paper tray of the machine. For instructions on loading paper, see the section LOADING COPY PAPER in the copier operation manual.
- 2) Turn on the machine.
- 3) Turn on your computer and start Windows.

**NOTE:** Before installing the printer driver, be sure to close all other applications which may be open.

- 4) When using Windows 95 on a personal computer with plug & play, the "Update Device Driver Wizard" window will appear. Insert the installation CD-ROM into the CD-ROM drive. Click the Next button and follow the on-screen instructions. If the "Copying Files" window appears during this operation, enter R:\ (if the CD-ROM is designated as drive R), click the OK button and follow the on-screen instructions.



- If you use Windows 95 and the "New Hardware Found" window will appear, select Driver from Disk Provided by Hardware Manufacturer and then click the OK button. Proceed to step 6.

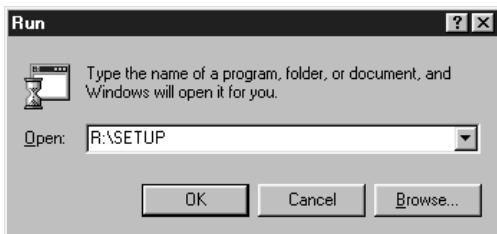
- If you use Windows 95 and the screen shown above or the "New Hardware Found" window does not appear, proceed to step 5.
- If you use Windows NT 4.0, proceed to step 5.

\* Plug & Play

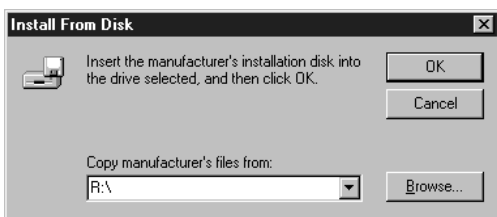
This feature is effective if both the computer and peripheral equipment are equipped with an IEEE 1284 compliant parallel interface.

NOTE: The screen displayed depends on the version of Windows you are using.

- 5) Insert the installation CD-ROM into the CD-ROM drive. Click the Start button and select Run. When the screen shown below appears, type R:\SETUP (if the CD-ROM is designated as drive R) and click the OK button. Follow the on-screen instructions.



- 6) The "Install From Disk" window will appear. Insert the installation CD-ROM into the CD-ROM drive. Type R:\ (if the CD-ROM is designated as drive R) and click the OK button. Follow the on-screen instructions.



NOTE: If you have any problem with the test print, see TROUBLESHOOTING on page 20 and check the symptoms and solutions. Print the test page again after removing the problem.

**b. Windows 98:**

- 1) Load paper into the paper tray of the machine. For instructions on loading paper, see the section LOADING COPY PAPER in the copier operation manual.
- 2) Turn on the machine.
- 3) Turn on your computer and start Windows.

NOTE: Before installing the printer driver, be sure to close all other applications which may be open.

- 4) When using Windows 98 on a personal computer with plug & play\*, the "Add New Hardware Wizard" window will appear. Click the Next button and follow the on-screen instructions.

- If the "Add New Hardware Wizard" window does not appear, proceed to step 8.

\* Plug & Play: For plug & play information, see page 6.

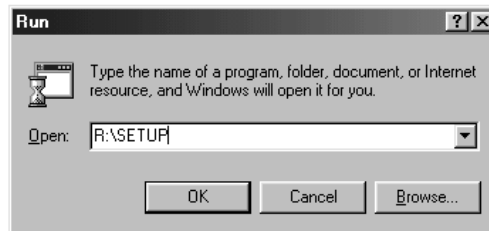


- 5) Select Search for the best driver for your device and click the Next button.
- 6) Insert the installation CD-ROM into the CD-ROM drive. Select CD-ROM drive and click the Next button.



- 7) Windows driver file search will find the device "SHARP FO-3800M". Click the Next button and follow the on-screen instructions.

- 8) Insert the installation CD-ROM into the CD-ROM drive. Click the Start button and select Run. When the window shown below appears, type R:\SETUP (if the CD-ROM is designated as drive R) and click the OK button. Follow the on-screen instructions.



NOTE: If you have any problem with the test print, see TROUBLESHOOTING on page 20.

**c. Windows 3.1x:**

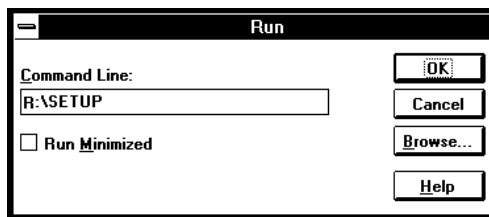
- 1) Load paper into the paper tray of the machine. For instructions on loading paper, see the section LOADING COPY PAPER in the copier operation manual.

- 2) Turn on the machine and then start Windows on your computer.

NOTE: Before installing the printer driver, be sure to close all other applications which may be open.

- 3) Insert the installation CD-ROM into the CD-ROM drive.
- 4) Choose File from the Menu bar in Program Manager, and then choose the Run... command.

- 5) Type R:\SETUP (if the CD-ROM is designated as drive R) in the command line box and then click the OK button.



- 6) Follow the on-screen instructions.

**d. "SHARP FO-3800M" printer driver group**

When the printer driver is installed, the SHARP FO-3800M printer driver group will be created. This group allows the following functions to be executed.

- DOS Emulation HELP
- DOS Emulation Setup



### Readme

The latest information on the printer driver and the TWAIN driver is included in this note. Read the Readme first.



### Status Monitor HELP



### Status Monitor

The printer state and information on current printing are displayed on the status monitor window. When printing starts, the status monitor screen will appear on the computer display.



### Uninstall FO-3800M

The printer driver and the TWAIN driver can be uninstalled. If the drivers are uninstalled, printing and scanning cannot be performed on the machine.

- NOTE:
- Be sure to read "Readme" found in the printer driver group before starting to print or scan from application programs.
  - If you uninstall the printer driver, the TWAIN driver is uninstalled at the same time.

## (3) Using other installed drivers

If you use another GDI printer or Windows Printing Systems printer, including the SHARP AL-800 series and AL-1000 series, interference between printers may occur and printing may not be performed properly.

To use another GDI printer or a Windows Printing System printer, you must change the port setting of the printer driver using the following procedure.

NOTE: If another printer does not operate properly when the FO-3800M printer driver is set to "FILE", uninstall the FO-3800M printer driver.

To uninstall the driver, see UNINSTALLING PRINTER DRIVER on page 23.

If after uninstalling the FO-3800M printer driver, the printer still does not operate properly, reinstall the printer driver you are using.

### a. Windows 95/Windows 98/Windows NT 4.0:

- 1) Click the Start button.
- 2) Select Settings and then click Printers.
- 3) Right-click the FO-3800M icon in the printer dialog box and then click Properties.

NOTE: For this description, it is assumed that the mouse is configured for right hand operation.

- 4) Click the Details tab (Ports tab – on Windows NT4.0) in the Properties dialog box, select FILE: in the Print to the following port list box, and click the OK button.
- 5) Right-click the icon of the printer to be used and click Properties.
- 6) Click the Details tab (Ports tab – on Windows NT4.0) in the Properties window, select LPT1 (or the currently used port), and click the OK button.

NOTE: To use the FO-3800M again, perform the same procedure but select the port to be used (for example, LPT1) in step 4.

### b. Windows 3.1x:

- 1) Double-click the Control Panel icon in the Main window of Program Manager.
- 2) Double-click the Printers icon. The Printers window will then open.
- 3) Select FO-3800M, and then click the Connect button.
- 4) Select File from the list of options in the Ports window, and then click the OK button.
- 5) Select the new printer you would like to use from the list in the Installed Printers window, and then click the Connect button.
- 6) Select the printer port to use for the new printer, and then click the OK button.
- 7) Click the Set As Default Printer button, and then click the Close button.

NOTE: To use the FO-3800M again, perform the same procedure but select the port to be used (for example, LPT1) in step 4.

## (4) Uninstalling drivers

If the printer driver and TWAIN driver are not installed correctly or if you no longer use this machine, uninstall the printer driver and TWAIN driver from your computer using the following procedure.

- 1) If using Windows 95/Windows 98/Windows NT 4.0, click Start, Program, SHARP FO-3800M, and Uninstall FO-3800M. If using Windows 3.1x, double-click the SHARP FO-3800M icon in Program Manager and double-click the Uninstall FO-3800M icon.
- 2) When the "Confirm File Deletion" window appears, click the Yes button.
- 3) When the "Remove Programs From Your Computer" window appears, click the OK button.

NOTE: The printer driver and the TWAIN driver are uninstalled at the same time.

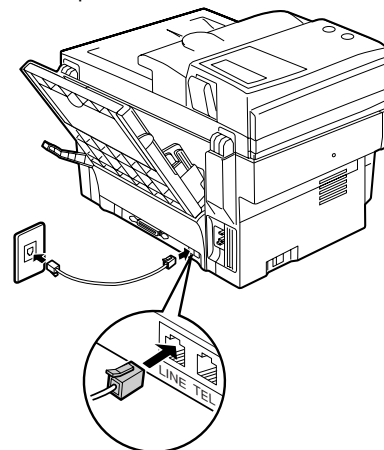
## 6. Setup FAX section

### A. Connecting the Telephone Line Cord

Plug one end of the telephone line cord into the jack on the machine marked "LINE."

Plug the other side into a standard (RJ11C) single-line telephone wall jack. Be sure not to plug this telephone line cord into the "TEL" jack. The "TEL jack" is used to attach an extension telephone or answering machine to the machine.

Note: If your area experiences a high incidence of lightning or power surges, we recommend that you install surge protectors for the power and telephone lines.



### B. Connecting Other Devices

If desired, an answering machine or external telephone can be connected to the machine through the telephone jack, labeled TEL, on the rear of the machine.

- Connecting an answering machine to the machine allows you to receive both voice and fax messages when you are out. To use this feature, first change the outgoing message of your answering machine, and then set the reception mode of the machine to "A.M." (Answering Machine mode) when you go out.

NOTE: If you are using distinctive ringing with an answering machine, you do not need to follow the procedure described below. (Please note that when distinctive ringing is used, the answering machine must be distinctive ring compatible.)

The outgoing message of your answering machine should be changed to inform callers who want to send a fax to press their **FAX START** key.

#### Comments:

1. It is advisable to keep the length of the message under 10 seconds. If it is too long, you may have difficulty receiving faxes sent by automatic dialing.
2. Your callers can even leave a voice message and send a fax message on the same call. Modify your outgoing message to explain that this can be done by pressing their **FAX START** key after leaving their voice message.

- You can connect an extension phone to the machine to make and receive calls like any other extension phone on your line. Even if you pick up the extension phone and hear a fax tone, the machine will automatically cut in and take over the line. Note, however, if you also have a PC modem on the same line, you must turn on the Remote Reception function, and deactivate the Fax Signal Receive function.

**Note:** The Remote Reception function is initially set to "ON".

**(1) Using the Machine with an Answering Machine**

**a. Quiet Detect Time**

Quiet Detect Time is the function that enables the machine to be used along with an answering machine for both phone messages and faxes. After the answering machine has answered, any duration of silence longer than a certain threshold time will prompt the machine to take over the line and prepare to receive a fax. The Quiet Detect Time can be set from 00 to 10 seconds, following the procedure below.

Factory setting: 05

Step	Press these keys	Comments
1	FUNCTION  TUV	"A.M. MODE" will appear in the display.
2		"QUIET DETECT TIME" will appear in the display.
3	to	Enter the Quiet Detect Time in seconds, from 00 to 10. (Setting "00" turns off Quiet Detect Time)
4		"STORED" will appear in the display.
5		Press the <b>STOP</b> key twice to exit.

**Notes:**

- The machine has been set at the factory for a Quiet Detect Time of 5 seconds, which gives the best performance for most answering machines. However, you may have to adjust the Quiet Detect Time depending on your answering machines disconnect time, the time before the machine disconnects the line after a period of silence. If your machine has a short disconnect time, you may have to shorten the Quiet Detect Time. However, if the machine is interrupting callers in the middle of messages, you should set a longer Quiet Detect Time.
- If there is a pause at the end of your answering machine message, make sure that the Quiet Detect Time is longer than this pause.
- Setting Quiet Detect Time to 00 turns the function off. However, the machine will not be able to receive faxes sent using manual dialing (picking up the receiver, dialing the number, and pressing the **FAX START** key when the fax tone is heard).

**b. If Quiet Detect Time is not working properly...**

With some answering machines, there is simply no Quiet Detect Time that will allow both reception of faxes and uninterrupted voice messages. Even in this case, however, you can set up the machine to receive both phone and fax messages from callers on touch-tone lines. Follow this procedure:

- Set the Quiet Detect Time to 00.
- Using the Remote Reception Number (factory set to 5) to start fax reception, change your answering machine message to include the following information. "If you want to send a fax press 5 and then press the ( \* ) key twice, after you hear the fax tone press your **FAX START** key".

**c. Answering Machine Backup**

There may be times when the tape on your answering machine becomes full, or when the answering machine itself malfunctions. It is still possible to receive faxes even under these conditions, however, by turning on the Auto Receive function. The machine will automatically answer all calls after five rings. To use this function, follow the procedure below.

Factory setting: 2 (OFF)

Step	Press these keys	Comments
1	FUNCTION  TUV	"A.M. MODE" will appear in the display.
2		"SELECT AUTO RECEIVE" will appear in the display.
3	or	Press 1 to turn Auto Receive on, or 2 to turn it off.
4		Press the <b>STOP</b> key twice to exit.

**Note:** If you are using Auto Receive, make sure that your answering machine is set to answer on four rings or less. Otherwise, the machine will take over all calls, preventing callers from leaving voice messages.

**(2) Setting Up the Machine for Use with a PC Modem**

The machine is set to automatically begin reception if you pick up from an extension telephone and the machine detects a fax tone. However, if you are using a modem on the same line, you must deactivate this function: otherwise the machine will mistakenly attempt to receive the transmission from your computer. To turn off the Fax Signal Receive function, follow the procedure below.

**Note:** If you turn off the Fax Signal Receive function, be sure to activate the Remote Reception function.

Factory setting: 1 (ON)

Step	Press these keys	Comments
1	FUNCTION  GH	"OPTION SETTING" will appear in the display.
2		"FAX SIGNAL RCV." will appear in the display.
3	or	Press 1 to turn Fax Signal Receive on, or 2 to turn it off.
4		Press the <b>STOP</b> key twice to exit.

**7. Note for transport**

When transporting this machine, follow the following packing procedures before moving.

- To transport this machine, be sure to use the original packing case and the protective material. If another packing case is used, the machine may be damaged.
- Be sure to remove the developer cartridge before transport.
  - Turn off the power switch and disconnect the power cord.
  - Remove the interface cable from the machine.
  - Gently press the both sides and open the front cover.
  - Remove the developer cartridge from the machine.
  - Remove paper from the paper feed tray.
  - Remove the paper feed tray from the machine.
  - Return the paper feed tray slowly to the bottom.
  - Attach the fixing screw (which is keep inside the machine) to the left side of the machine.
  - Close the front cover.
  - Attach the protective material and tapes which were removed when unpacking.
  - Put the machine in the packing case.



## [5] EXTERNAL VIEW AND INTERNAL STRUCTURE

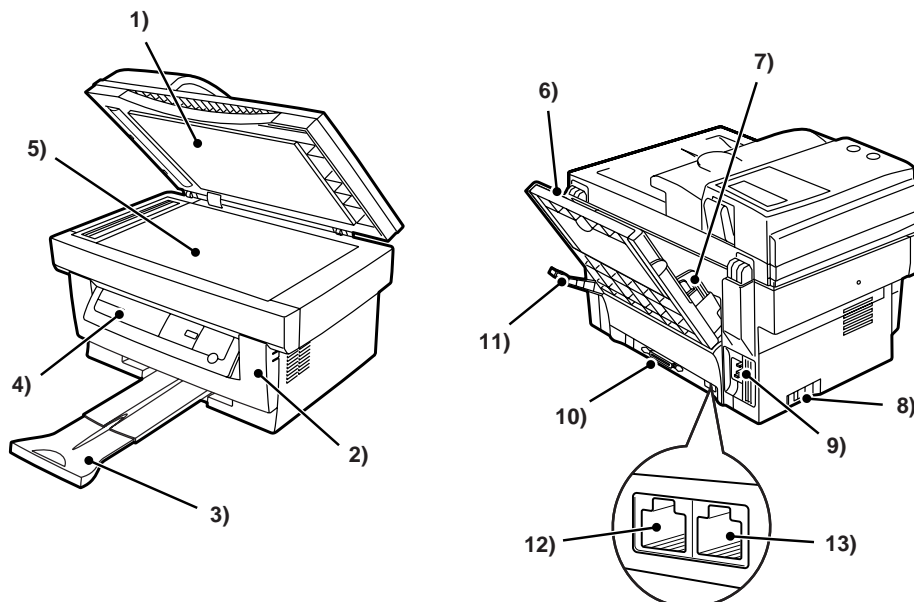
### 1. List

A	External, operation parts	(1)	External, operation parts				
		(2)	Internal operation parts				
		(3)	Operation, display parts				
B	Internal parts	(1)	Parts in each section	a	Operation section		
				b	Paper feed, transport section		
				c	Optical section	<1>	Scanner (reading) section
						<2>	Scanner (writing) section
				d	Image process section	<1>	OPC drum section
						<2>	Developing section
						<3>	Transfer, separation section
				e	Fusing, paper exit section		
				f	Drive section		
				g	Printer section		
h	FAX section						
i	Cross sectional view						
C	Lock position						
D	Functional parts	(1)	Sensor, detector				
		(2)	Switch				
		(3)	Clutch, solenoid				
		(4)	Motor	a	Drive motor		
				b	Fan (motor)		
		(5)	PWB				
		(6)	Fuse, thermostat				
		(7)	Lamp				
		(8)	Interface (connector)				
		(9)	Belt, wire				
		(10)	Power				
(11)	Adjustment volume						

### 2. Contents

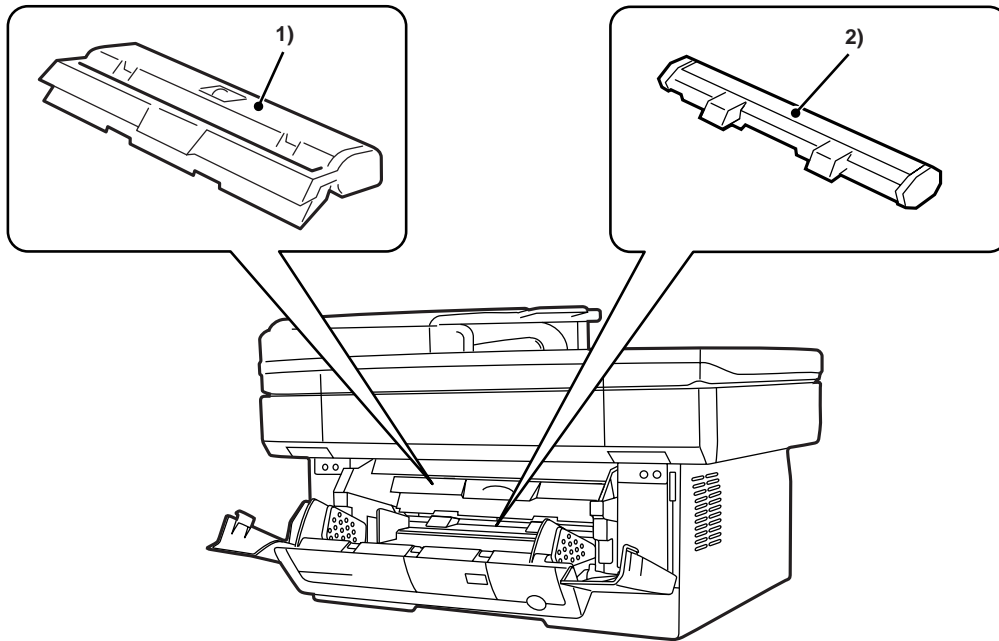
#### A. External, operation parts

##### (1) External, operation parts



No.	Parts		Model	Note
	Name	Function/Operation		
1	SPF unit (Document cover)			
2	Front cover	Opened when installing or removing the OPC cartridge and the developer cartridge or removing a paper jam.		
3	Paper exit tray	Receives printed paper.		
4	Operation panel	Allows various setting in the copy mode and test command operations.		
5	Document table	A document is set to the left corner reference.		
6	Paper feed tray	Sets print paper.		
7	Paper guide	Adjusts the paper width.		
8	Power switch	Turns on/off the main power.		
9	Power connector	Connects with the AC power cord.		
10	Printer interface connector	Connects with the host computer. (Parallel interface) (IEEE-1284)		Allows connection with two host computers.
11	Paper release lever	Put the lever straight when setting paper to release paper feed drive. Put the lever down to allow paper feed.		
12	LINE jack	Used to connect with the TEL line.		
13	TEL jack	Used to connect with the external TEL line.		

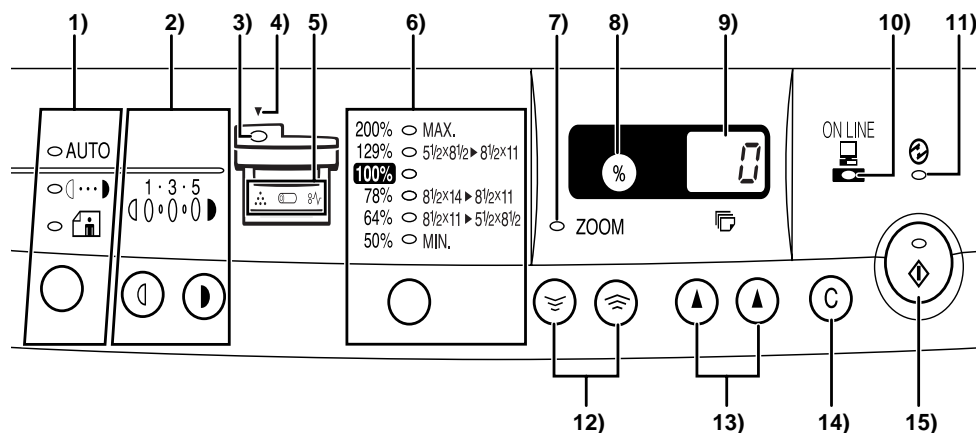
**(2) Internal operation parts**



No.	Parts		Model	Note
	Name	Function/Operation		
1	Developer cartridge	Converts latent electrostatic images into visible images (toner images).	Common	Life (3K print)
2	OPC cartridge	Forms latent electrostatic images.	Common	Life (20K print)

## (3) Operation, display parts

## a. Main body section



No.	Parts		Model	Note
	Name	Function/Operation		
1	Copy image mode select key/Copy image mode display lamp	Selects the copy image mode in auto, character, photo, toner save mode. Displays the copy image mode.		
2	Copy density adjustment key/Copy density level display lamp	Selects the copy density. Used to set the power save mode. Displays the copy density mode (level).		
3	SPF display lamp	Lights up when a document is set on the SPF document feed tray.		
4	SPF jam lamp	Lights up when a document jam or mis-feed occurs in the SPF section.		
5	Developer cartridge warning lamp	Turns on or blinks to show that the consumable part (developer cartridge) must be replaced.		Turns on when there is little toner, and blinks when there is no toner to disable printing.
	OPC cartridge warning lamp	Turns on or blinks to show that a consumable part (developer cartridge, OPC cartridge) or that there is a paper jam.		
	Paper jam warning lamp	Turns on or blinks when there is a paper jam.		
6	Copy magnification ratio select key/Copy magnification ration display lamp	Selects the copy magnification ratio.		
7	Zoom mode display lamp	Turns on when the zoom key is used to set the coy magnification ratio.		
8	Copy magnification display key	Used to display the copy magnification ratio set by the zoom key on the value display.		
9	Value, code display LED	Displays the value information (copy quantity, copy magnification ratio, etc.) and codes (error code, test command code and its information).		
10	On-line lamp	Turns on during operation in the printer mode. (Print data is received from the host in the printer enable state or during printing.)		
11	Pre-heat mode display lamp	Blinks in the pre-heat mode.		
12	Zoom key	Sets the copy magnification ratio in the range of 50% ~ 200% by the increment of 1%.		
13	Value setting key	Used to input various set values (copy quantity, test command setting, power save mode setting, etc.). Used to set the power save mode.		
14	Clear key	Cancels various setting and operations.		
15	Start key	Starts operations and stores various set data.		
	Ready lamp	Turns on when in print ready state.		

b. FAX section

**Left arrow key (←) and right arrow key (→)**  
 Press these keys to scroll through a menu. During input mode, these keys are also sometimes used to move the cursor.

**FUNCTION key**

Press this key to enter function mode.

**Liquid crystal display**

Shows various messages during fax operation and programming.

**BOOK SEND key**

Press this key to fax a original from the original table.

**RESOLUTION key**

Press this key to adjust the resolution before sending faxes.

**CONTRAST key**

Press this key to adjust the contrast before sending faxes.

**Rapid keys**

Press one of these keys to dial a fax or telephone number automatically. Press Rapid key 20 to start polling if programmed. (Note that you must attach the Rapid key labels.)

**Number keys**

Press these keys to dial numbers, and enter numbers and letters during number/name storing procedures.

**\*/#**

Press these keys to enter symbols during the name storing procedure. Press the "\*" key to change from pulse dialling to tone dialling mode.

**STOP key**

Press this key to stop an operation before it is completed, or to delete the number that was last input. This key is also used to close the line when manually dialling.

**FAX START key**

Press this key to begin sending a fax or manually receiving a fax.

**ENTER key**

Press this key to decide an item in a menu, or to enter numbers and letters you have typed in.

**AUTO light**

This light indicates that the machine will answer the machine automatically.

**MANUAL light**

This light indicates that the machine must be answered manually.

**A.M. light**

This light indicates the answering machine will answer the line if properly connected.

**RECEPTION MODE key**

Press this key to select the mode of reception.

**BROADCAST key**

Press this key to send originals to a group of receiving fax machines.

**DOCUMENT key**

Press this key to perform a direct send fax transmission.

**SPEED/SEARCH key**

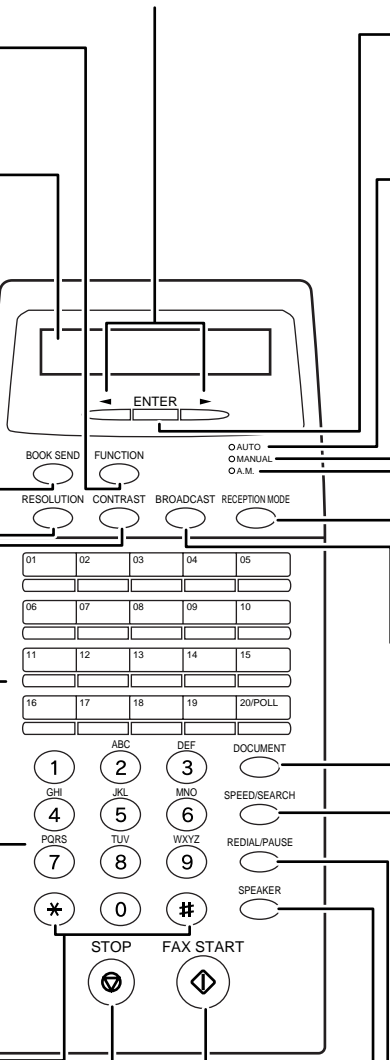
Press this key to dial a two digit Speed Dial number. During character inputting, use this key to delete an incorrect entry. Also, press this key twice to search for an automatic dialling number.

**REDIAL/PAUSE key**

Press this key to automatically redial the last number you dialed. Also, press this key to insert a pause when entering numbers.

**SPEAKER key**

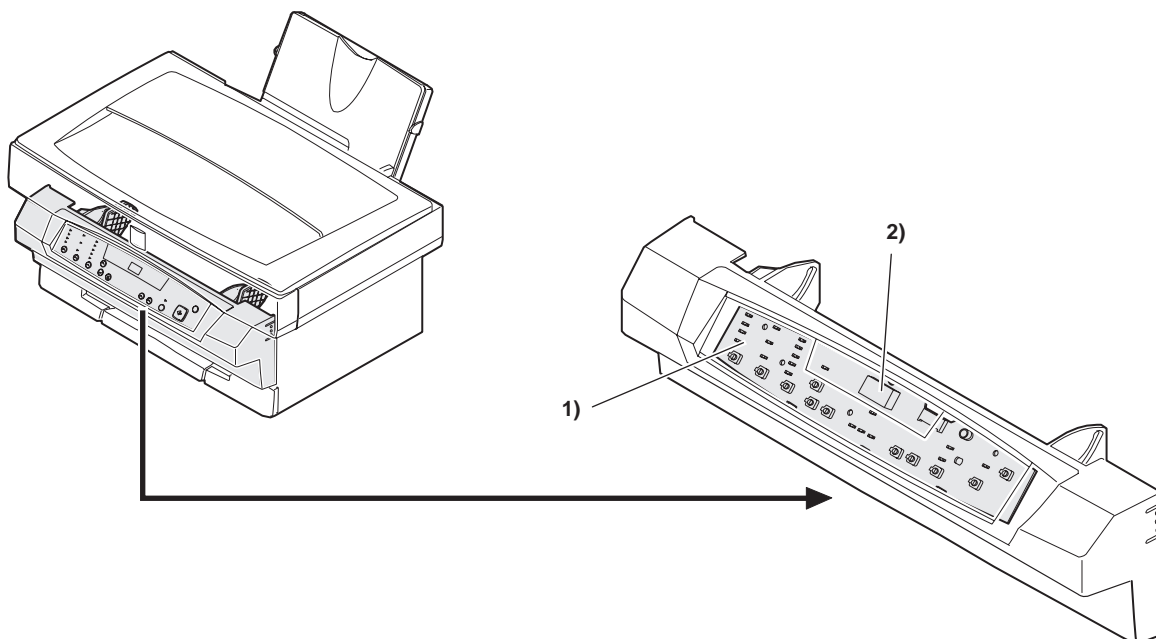
Press this key to begin manual dialling. (To close the line, press the SPEAKER key again.)



**B. Internal parts**

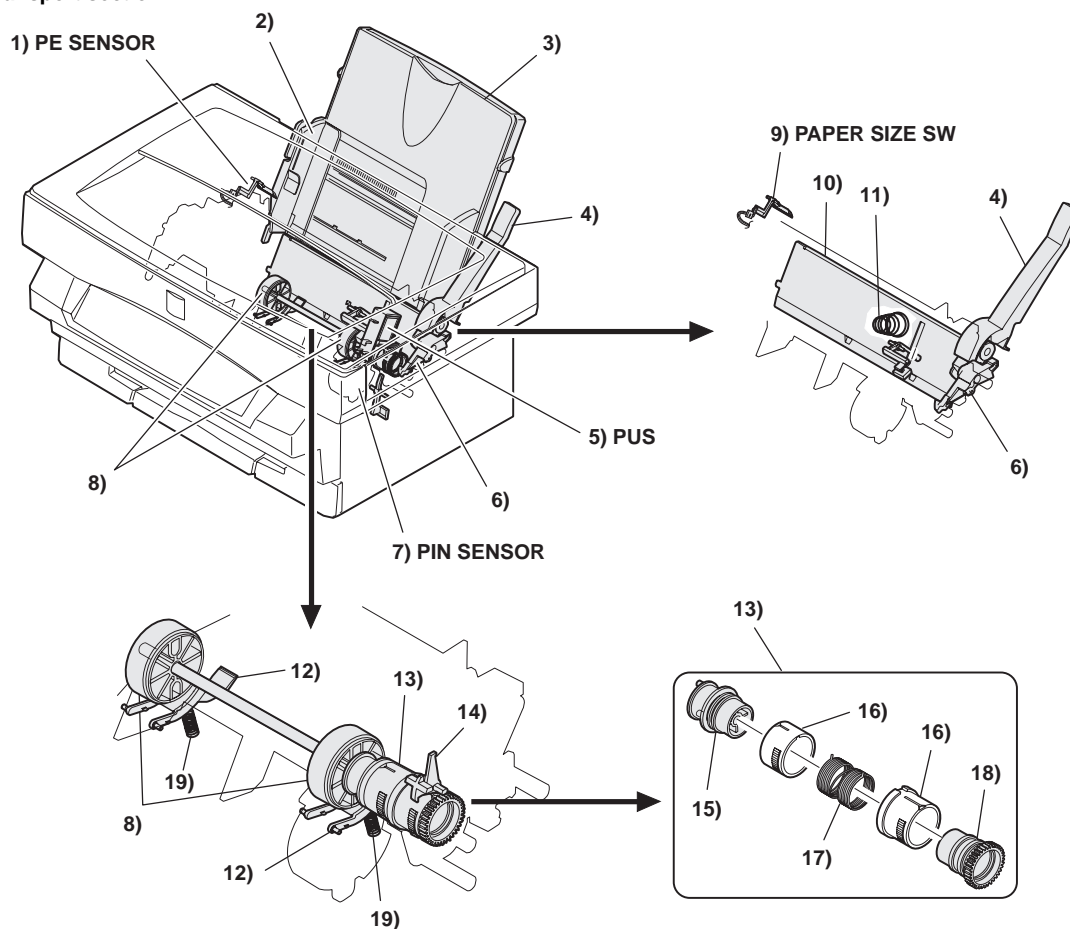
**(1) Parts in each section**

**a. Operation section**



No.	Parts		Model	Note
	Name	Function/Operation		
1	Operation control PWB	Displays various number information and messages. Outputs the key operation signal.		
2	Number display	Displays various value information and messages.		

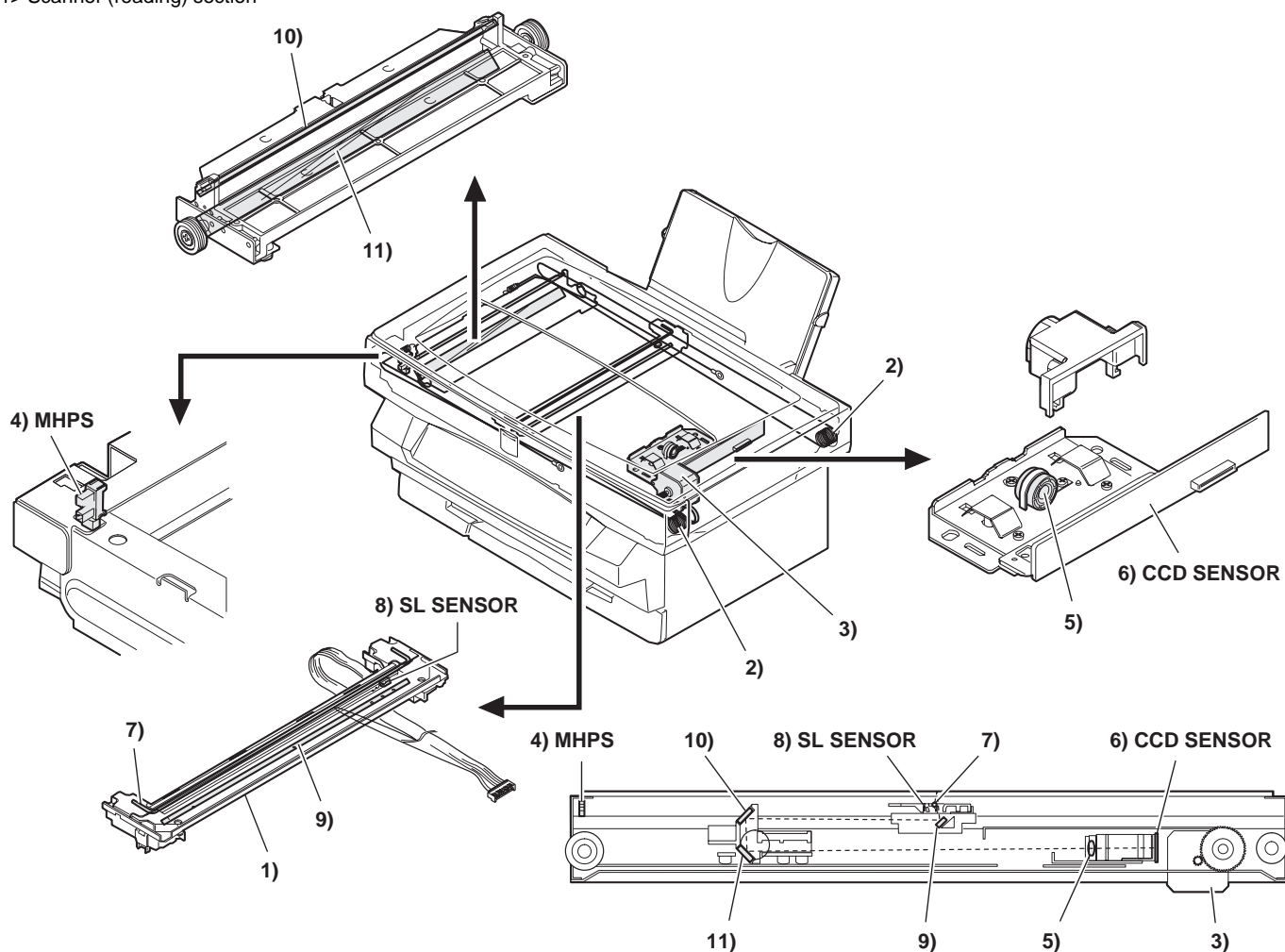
**b. Paper feed, transport section**



No.	Parts						Note
	Code	Signal name	Name	Type	Function/operation	Active condition	
1	PE SENSOR	PEMP IN	Paper empty detector	Photo transmission sensor	Detects paper on the paper tray.	LOW (0V) when paper is detected.	
2			Paper guide		Adjust the paper width.		
3			Paper feed tray		Sets the print paper. (Capacity: XXX sheets)		
4			Paper release lever		Put this lever straight to set paper to release paper feed. Put this lever down to enable paper feed.		
5	PUS	PUS	Paper feed clutch solenoid		Controls (on/off) the main motor drive for the paper feed roller.		
6			Paper feed release lever		When the paper feed lever is put straight, this lever releases paper feed solenoid drive. This lever reduces stress to the paper feed roller clutch in removing paper.		
7	PIN SENSOR	PIN	Paper in detector	Photo transmission sensor	Detects whether the fed paper is transported to the transfer position or not. By the timing of this detector signal, the relative positions of paper and print image are controlled.	LOW (0V) when paper is detected.	
8			Paper feed roller		Feeds paper.		
9	PAPER SIZE SW	PAPER SIZE IN	Paper width detector	Mechanical switch (Micro switch)	Detects the paper width. This signal controls the laser beam radiation area.	LOW (0V) when the max. width is detected.	
10			Paper pressure plate		Presses paper onto the paper feed roller.		
11			Paper pressure spring		Presses paper onto the paper feed roller.		
12			Paper separator		Separates paper in paper feed operation.		
13			Paper feed clutch	Mechanical spring type clutch	Controls ON/OFF of the paper feed roller. (The paper feed roller is driven by the paper feed clutch solenoid and the main motor.)		
14			Paper feed clutch lever		Driven by the paper feed clutch solenoid to control ON/OFF of the paper feed clutch. Prevents against reverse rotation of the paper feed roller.		
15			Paper feed clutch joint		Links the paper feed roller and the paper feed roller clutch.		
16			Paper feed clutch sleeve		Controls ON/OFF of the paper feed roller. (The paper feed roller is driven by the paper feed clutch solenoid and the main motor.)		
17			Paper feed clutch spring		Transmits the paper feed clutch rotation to the paper feed clutch sleeve.		
18			Paper feed clutch gear		Transmits the main motor power to the paper feed roller.		
19			Paper separator spring		Applies a proper pressure to the paper separator.		

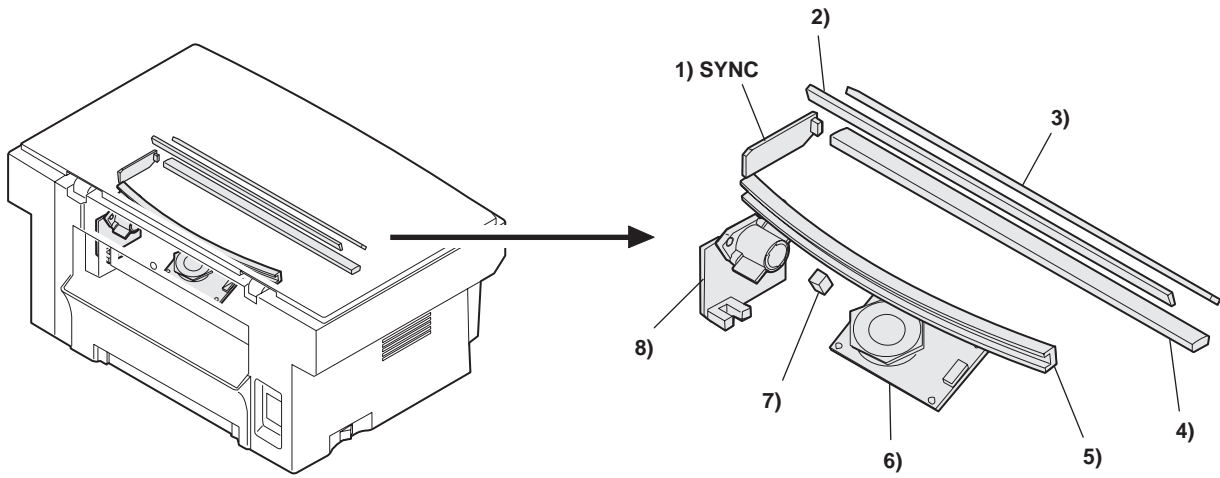
## c. Optical section

&lt;1&gt; Scanner (reading) section



No.	Parts						Note
	Code	Signal name	Name	Type	Function/operation	Active condition	
1			Scanner lamp control PWB		Drives the scanner lamp. Maintains the lamp light quantity at a constant level.		
2			Scanner drive wire		Transmits the scanner motor power to the scanner unit.		
3			Scanner motor		Drives the scanner unit.		
4	MHPS	MHPS	Scanner home position sensor	Photo transmission sensor	Detects the scanner home position. By this signal the image scanning operation is controlled.	HIGH (5V) when the home position is detected.	
5			Lens		Transfers the document image to CCD.		
6	CCD SENSOR	CCD OUT	CCD (Image) sensor	CCD	Scans the document images (photo signals) and converts them into electrical signals.	Digital signal (8Bit)	
7			Scanner lamp		Radiates light to the document to allow the CCD to scan the document images.		
8	SL SENSOR	PDA/PDK	Scanner lamp light quantity sensor	Photo diode	Detects the scanner lamp light quantity. This signal is inputted to the scanner lamp control PWB to control the scanner lamp drive voltage to maintain a constant level of light quantity.	Analog signal (0 ~ 0.5V)	
9			No. 1 mirror		Leads the document image to CCD.		
10			No. 2 mirror		Leads the document image to CCD.		
11			No. 3 mirror		Leads the document image to CCD.		

<2> Scanner (writing) section

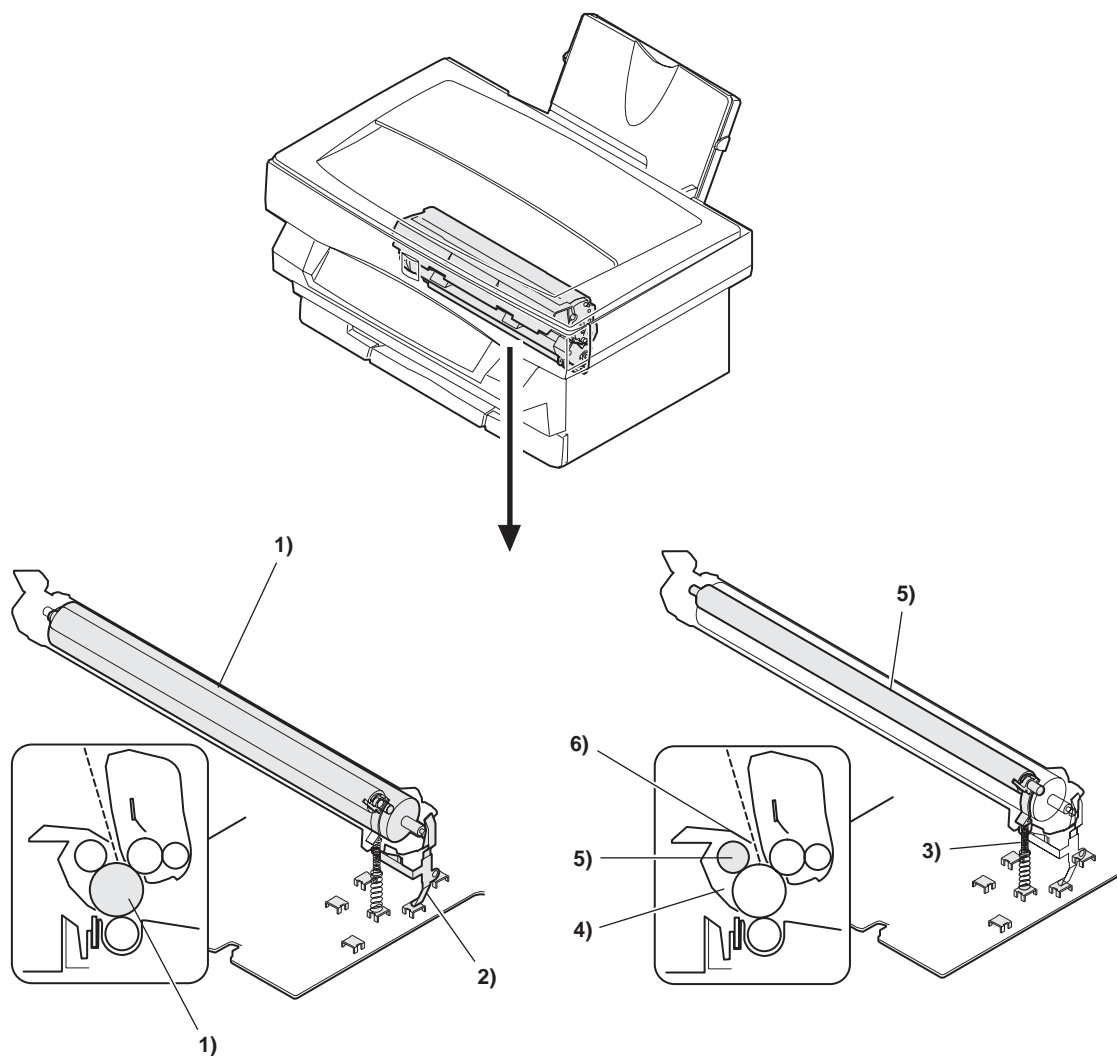


No.	Parts						Note
	Code	Signal name	Name	Type	Function/operation	Active condition	
1	SYNC	SYNC IN	Laser beam sensor	Bin diode	Detects the laser beam position. By this signal the left image print start position is controlled.	LOW (0V) when laser beam is detected.	
2			No. 1 mirror				
3			No. 3 mirror		Leads the laser beam to the OPC drum.		
4			Second cylindrical lens		Corrects the laser beam deflection by variations in the scanning mirror angle. Corrects the optical section dirt.		
5			Fθ mirror (No. 2 mirror)		Corrects the laser beam form and pitch.		
6			Scanning mirror (rotation mirror)		Scans the laser beam and performs imaging.		
7			No. 1 cylindrical lens		Adjust the direction of laser beam.		
8			Laser diode		Generates laser beam. (Controls ON/OFF for imaging)		



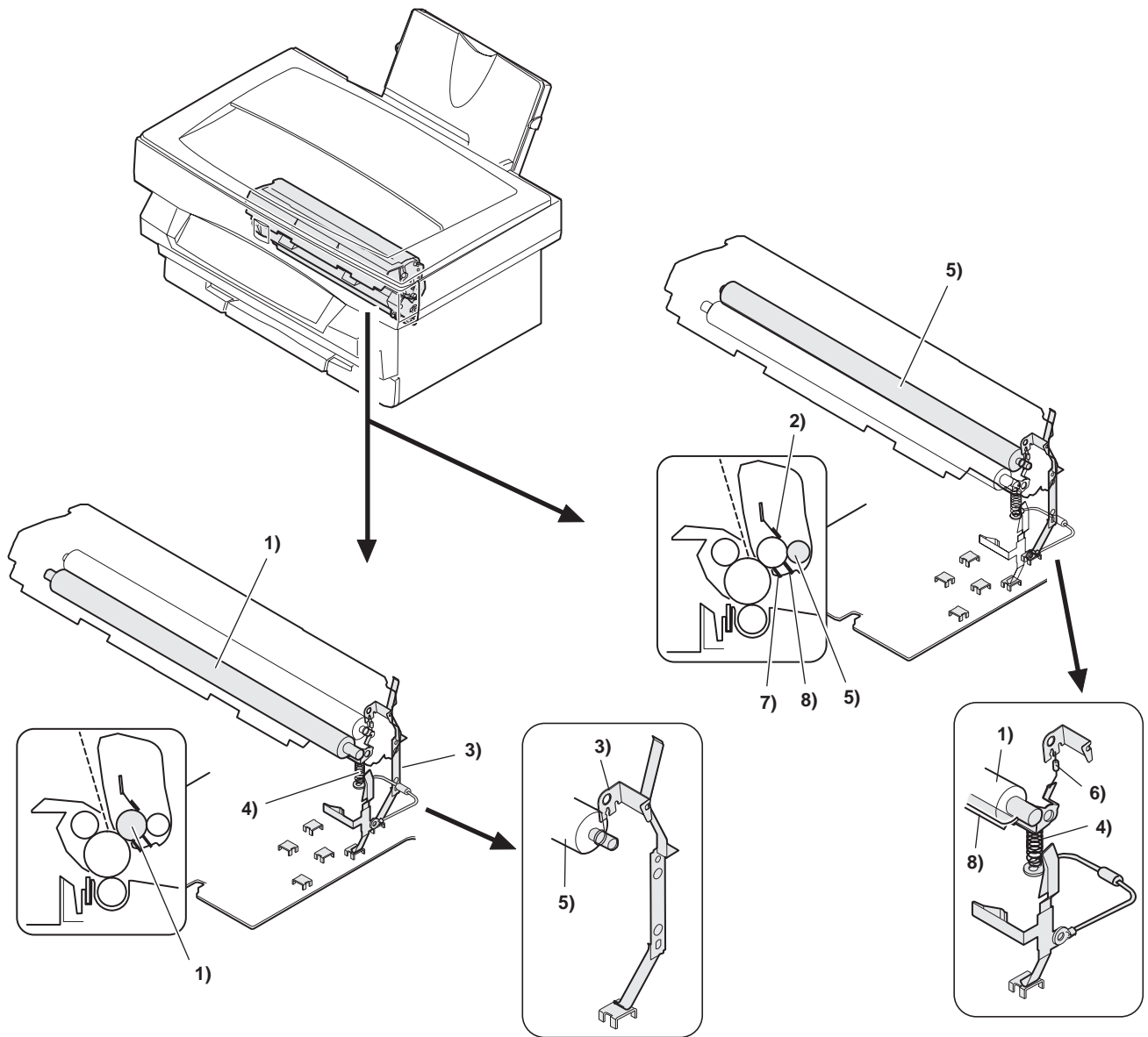
## d. Image process section

## &lt;1&gt; OPC drum section



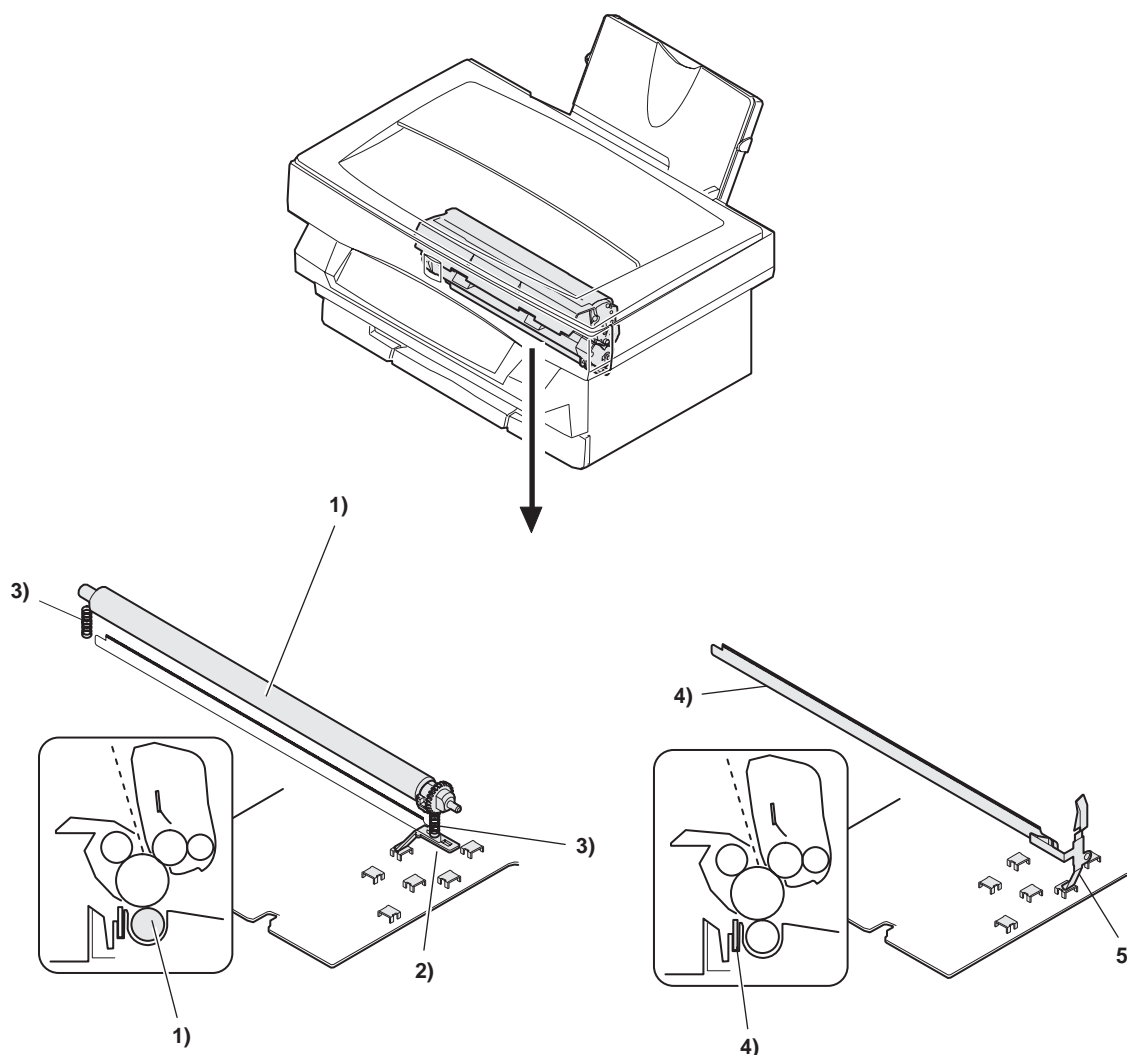
No.	Parts			Note
	Name	Type	Function/operation	
1	OPC drum	OPC	Forms latent electrostatic images.	
2	OPC drum earth electrode		Connects the OPC drum aluminum layer and the earth (high voltage PWB).	
3	Main charger electrode		Connects the main charger output (high voltage PWB) and the main charger brush.	
4	Discharge brush		Discharges (lower the potential of) the OPC drum surface.	Japan only
5	Main charger brush		Charges the OPC drum.	
6	Toner seal		Shield to prevent toner from leaking outside the OPC drum unit.	

<2> Developing section



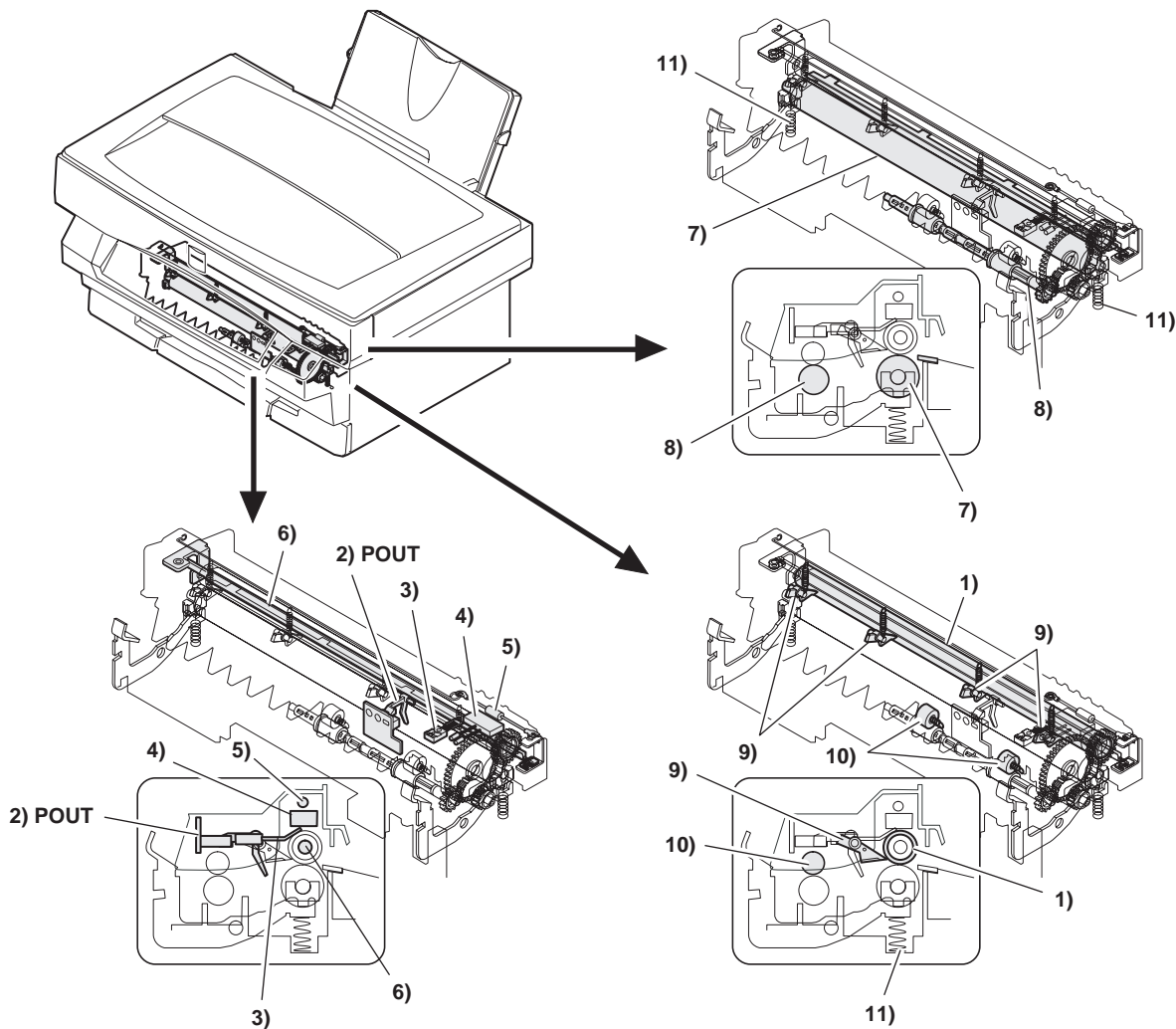
No.	Parts			Note
	Name	Type	Function/operation	
1	Developing roller		Attaches toner to the latent electrostatic images on the OPC drum to convert it into a visible image.	
2	Developing doctor		Controls toner quantity on the developing roller and charges toner.	
3	Developing bias electrode		Connects the developing roller and the bias voltage output (high voltage PWB).	
4	Potential control electrode		Connects the developing roller and the bias voltage output (high voltage PWB).	
5	Toner stirring roller		Lead toner to the developing roller and charges toner.	
6	Zenor diode		Maintains the potential between the developing roller and the toner stirring roller at a constant level.	
7	Toner seal		Shields toner from leaking outside the developing unit.	
8	Potential control sheet		Maintains the developing roller potential at a constant level.	

## &lt;3&gt; Transfer, separation section



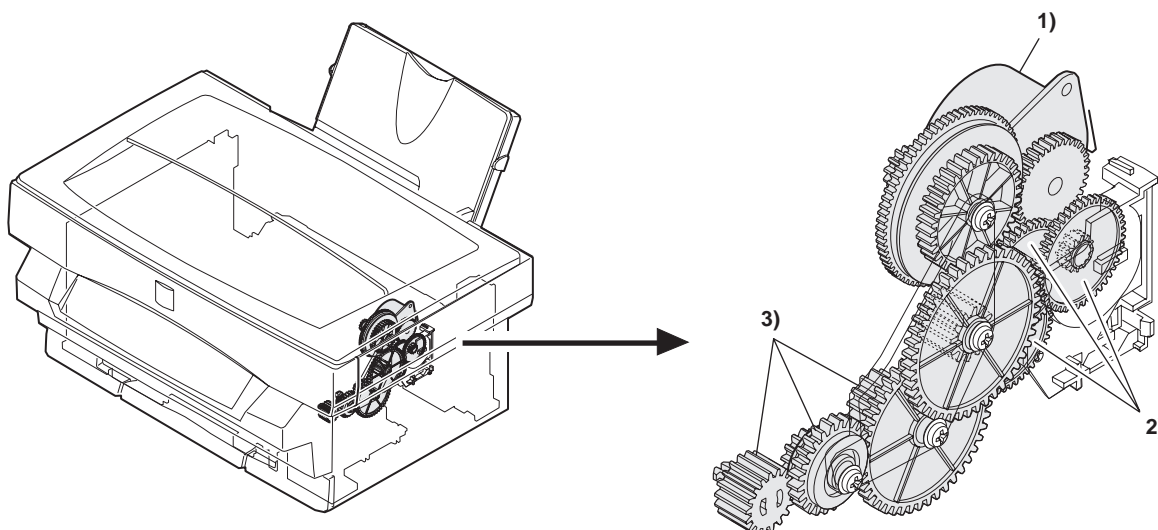
No.	Parts		Note
	Name	Function/operation	
1	Transfer roller	Transfers toner images on the OPC drum onto the paper.	
2	Transfer roller electrode	Connects the transfer roller and the transfer voltage output (high voltage PWB).	
3	Pressure spring	Applies pressure to the transfer roller, paper, and the OPC drum to improve transfer efficiency.	
4	Separation electrode	Reduces paper charging potential to facilitate separation of paper.	
5	Earth electrode	Connects the separation electrode and the earth (high voltage PWB).	

e. Fusing, paper exit section



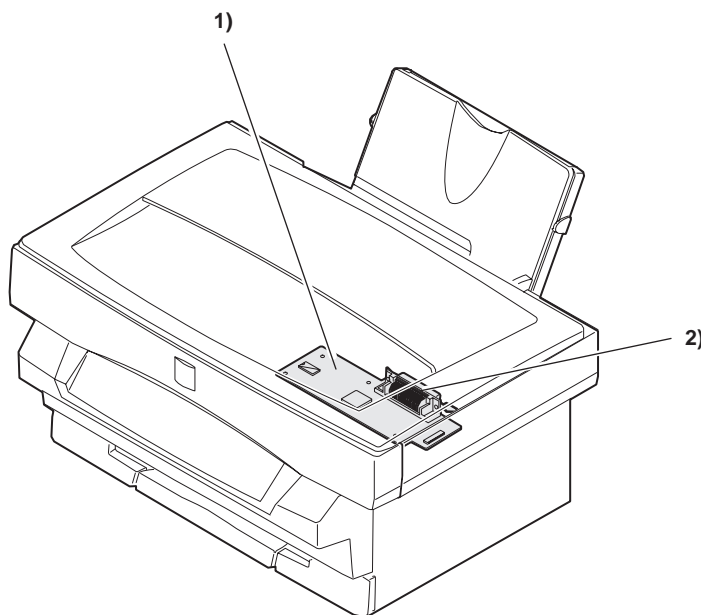
No.	Parts						MODEL	Note
	Code	Signal name	Name	Type	Function/operation	Active condition		
1			Heat roller		Heats toner on the paper and fuses onto the paper.	LOW (0V) when paper is detected.		
2	POUT	POUT IN	Paper exit detector	Photo transmission sensor	Detects paper exit.			
3		RTH IN	Fusing temperature sensor	Thermistor	Detects the heat roller surface temperature.			
4			Temperature fuse 1 (Fusing section)	Mold	Assures safety in overheating.			
5			Temperature fuse 2 (Fusing section)	Mold	Assures safety in overheating.			
6		HL	Heater lamp	Halogen lamp	Heats the heat roller.		100V series 120V series 200V series	10V 500W 120V 500W 230V 500W
7			Pressure roller		Applies a pressure to the heat roller and paper to improve fusing efficiency.			
8			Paper exit roller		Discharges paper after fusing.			
9			Separation pawl		Separates paper from the fusing roller mechanically.			
10			Paper exit roller		Discharges paper outside the machine after fusing.			
11			Pressure spring		Applies a pressure to the heat roller, paper, and pressure roller to improve transfer efficiency.			

## f. Drive section



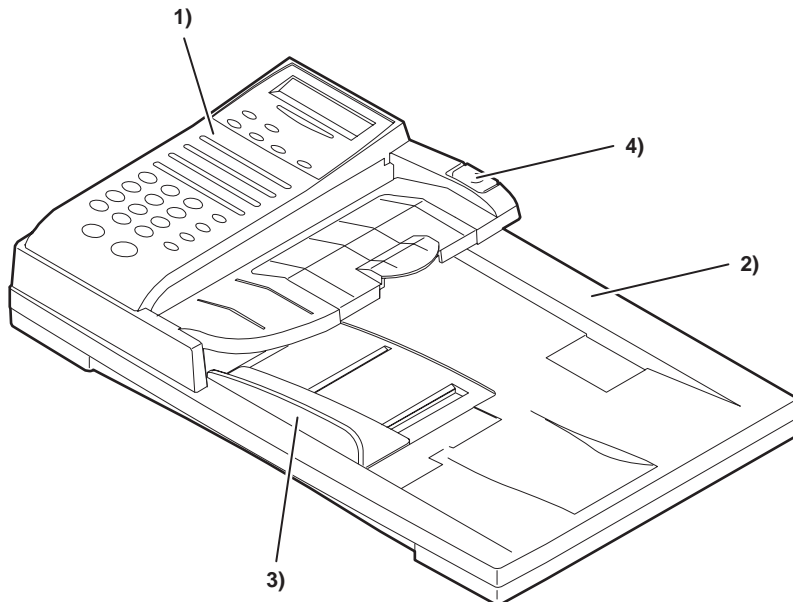
No.	Parts				Note
	Code	Signal name	Name	Type	
1	MM		Main motor	Stepping motor (+24V)	Drives the paper feed section, the paper transport section, the fusing section, and the image process section.
2			Paper feed section drive gear		Transmits the main motor power to the paper feed section.
3			Imaging process, fusing section drive gear		Transmits the main motor power to the imaging process section and the fusing section.

## g. Printer section



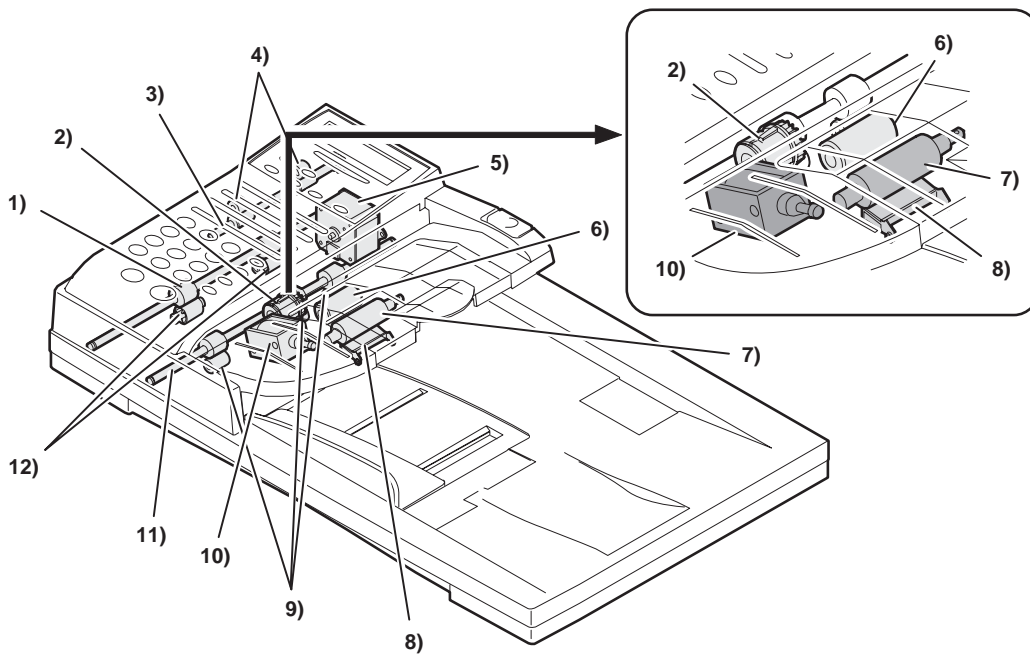
No.	Parts			MODEL	Note
	Name	Type	Function/operation		
1	ICU PWB		Converts print data sent from the host into bit image.		Printer models only
2	Printer interface connector	IEEE1284 parallel interface	Connects with the host computer (parallel interface)(IEEE1284)		Allows connection with two host computer(s). Printer models only

**h. FAX section**  
External View



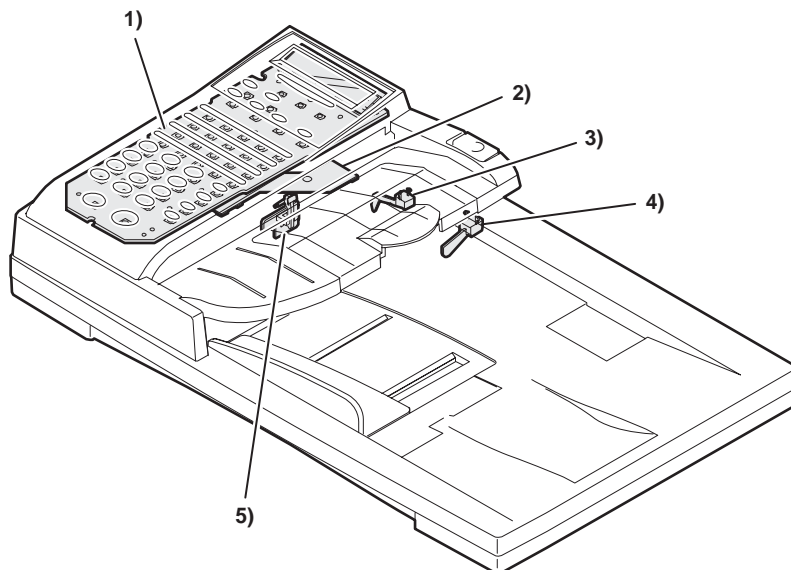
No.	Parts						Model	Note
	Code	Code name	Name	Type	Function/Operation	Active condition		
1			FAX operation panel		Performs FAX operations.			
2			Document tray		Documents are loaded to this tray.			
3			Document guide		Adjusts the document width.			
4			Roller pressure release button		When a paper jam occurs in the SPF paper feed section, release the roller pressure and remove the jam paper.			

Clutch, motor, solenoid, roller



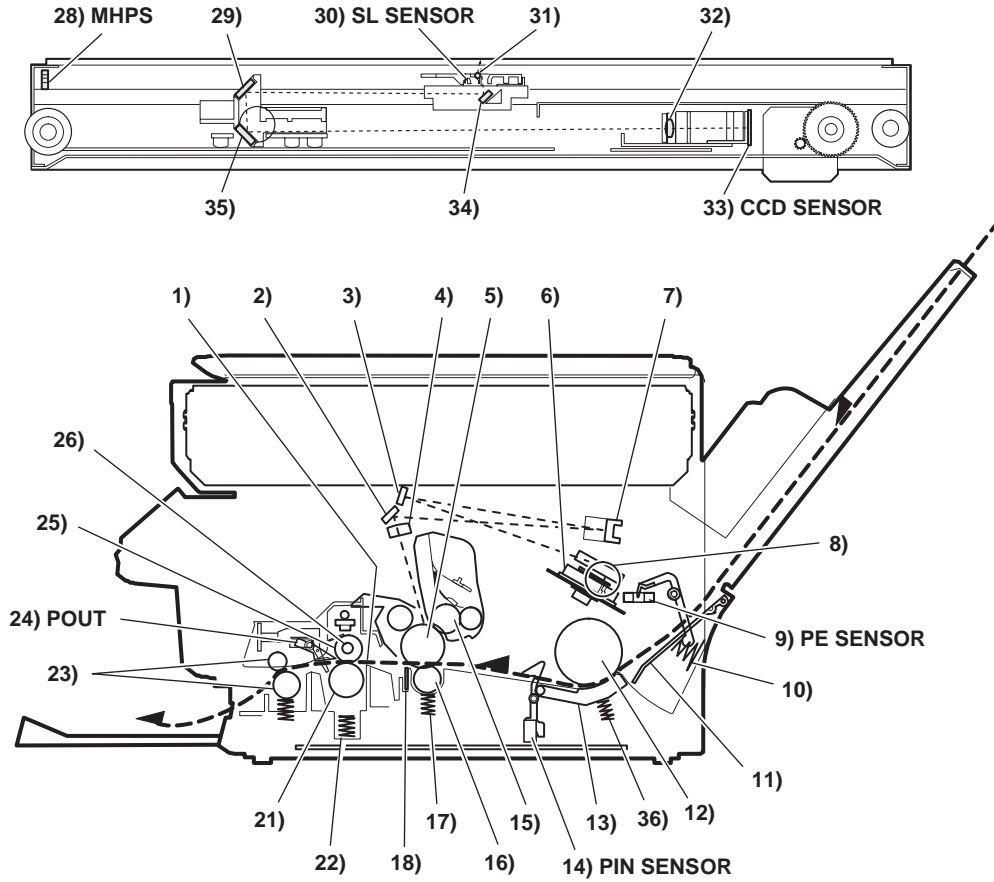
No.	Parts						Model	Note
	Code	Code name	Name	Type	Function/Operation	Active condition		
1			SPF transport roller		Transports documents.			
2			SPF paper feed clutch	Spring clutch	"Controls ON/OFF of the SPF paper feed roller. Controls power transmission of the SPF motor."			
3			SPF paper exit roller		Discharges documents.			
4			SPF paper exit follower roller		Discharges documents.			
5		SPF MOTOR	SPF motor	Stepping motor	Feeds and transports documents. (Drive motor for SPF)			
6			SPF paper feed roller		Feeds documents.			
7			Pickup roller		Picks up the top document to the paper feed roller.			
8			Separation unit		Separates documents in paper feed.			
9			SPF transport follower roller A		Transports documents.			
10	SPUS	SPF PUS	SPF paper feed solenoid		Control ON/OFF of the SPF paper feed roller.			
11			SPF resist roller		Controls the start timing of document transportation. (reading).			
12			SPF transport follower roller B		Transports documents.			

PWB, sensor



No.	Parts						Model	Note
	Code	Code name	Name	Type	Function/Operation	Active condition		
1			FAX operation control PWB		Controls key operations and displays of FAX function.			
2			SPF interface PWB		Drives the SPF motor. Outputs sensor and detector signals to the FAX control PWB.			
3		SW1	SPF document detector	Photo transmission	Detects documents on the SPF tray.	L level		
4		SW3	SPF open/close detector	Photo transmission	Detects open/close of the SPF unit.	L level		
5		SW2	SPF paper entry detector	Photo transmission	"Detects the lead edge of fed document, and outputs signals to control ON timing of the SPF resist roller."	L level		

i. Cross sectional view



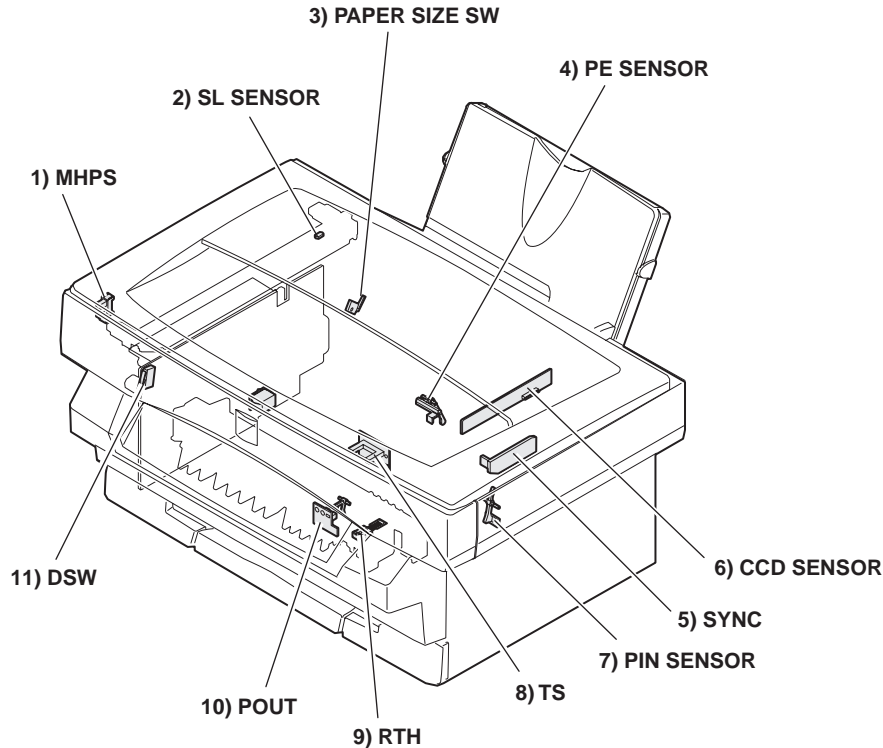
No.	Parts						Model	Note
	Code	Signal name	Name	Type	Function/operation	Active condition		
1			Fusing temperature sensor	Thermistor	Detects the heat roller surface temperature.	Analog signal (2.0 ~ 5.0V)		
2			No. 3 mirror (LSU)		Leads the laser beam to the OPC drum.			
3			No. 1 mirror (LSU)					
4			No. 2 cylindrical lens		Corrects the laser beam deflection caused by variations in the surface angle of the scanning mirror. Also prevents against dirt in the optical section.			
5			OPC drum	OPC	Forms latent electrostatic images.			
6			Laser scanner		Scans laser beams to perform imaging.			
7			irror (No. 2 mirror) (LSU)		Corrects the laser beam form and pitch.			
8			Laser diode		Generates the laser beam. (Controls ON/OFF for imaging.)			
9	PE SENSOR	PEMP IN	Paper empty detector	Photo transmission sensor	Detects paper on the paper tray.	LOW (0V) when paper is detected.		
10			Paper pressure spring		Presses paper onto the paper feed roller at a proper pressure.			
11			Paper pressure plate		Presses paper onto the paper feed roller at a proper pressure.			
12			Paper feed roller		Feeds paper.			
13			Paper separator		Separates paper in paper feed.			
14	PIN SENSOR	PIN	Paper in detector	Photo transmission sensor	Detects whether the fed paper is transported to the transfer position or not. By the timing of this detector signal, the relative positions of the paper and the print image are controlled.	LOW (0V) when paper is detected.		



No.	Parts				Model	Note	
15			Developing roller		Attaches toner to the latent electrostatic images on the OPC drum to convert them into visible images.		
16			Transfer roller		Transfers toner images on the OPC drum to paper.		
17			Transfer pressure spring		Applies a pressure to the transfer roller, paper, and the OPC drum to improve transfer efficiency.		
18			Separation electrode		Reduces the paper charging potential to facilitate separation of paper from the OPC drum.		
19			Temperature fuse 1 (fusing section)	Mold	Assures safety in overheating.		
20			Temperature fuse 2 (fusing section)	Mold	Assures safety in overheating.		
21			Pressure roller		Applies a pressure to the heat roller and paper to improve fusing efficiency.		
22			Fusing pressure spring		Applies a pressure to the heat roller paper, and the pressure roller to improve transfer efficiency.		
23			Paper exit roller		Discharges paper after fusing.		
24	POUT	POUT IN	Paper exit detector	Photo transmission sensor	Detects discharge of paper.	LOW (0V) when paper is detected.	
25		HL	Heater lamp	Halogen lamp	Heats the heat roller.	100V series	100V 500W
						120V series	120V 500W
						200V series	230V 500W
26			Heat roller		Toner on the paper is heated and fused onto the paper.		
27			Separation pawl		Separates paper from the fusing roller mechanically.		
28	MHPS	MHPS	Scanner home position sensor	Photo transmission sensor	Detects the scanner home position. By this signal the image scanning operation is controlled.	HIGH (5V) when the home position is detected.	
29			No. 2 mirror		Leads document images to CCD		
30	SL SENSOR	PDA/PDK	Scanner lamp light quantity sensor	Photo diode	Detects the scanner lamp light quantity. This signal is inputted to the scanner lamp control PWB to control the scanner lamp drive voltage to maintain a constant level of light quantity.	HIGH (5V) when the home position is detected.	
31			Scanner lamp		Radiates light necessary for the CCD to scan the document images.		
32			Lens		Transfers document images to CCD.		
33	CCD SENSOR	CCD OUT	CCD (image) sensor	CCD	Scans the document images (photo signals) and converts them into electrical signals.	Digital signal (8Bit)	
34			No. 1 mirror		Lead document images to CCD.		
35			No. 3 mirror		Lead document images to CCD.		
36			Paper separator spring		Applies a proper pressure to the paper separator		

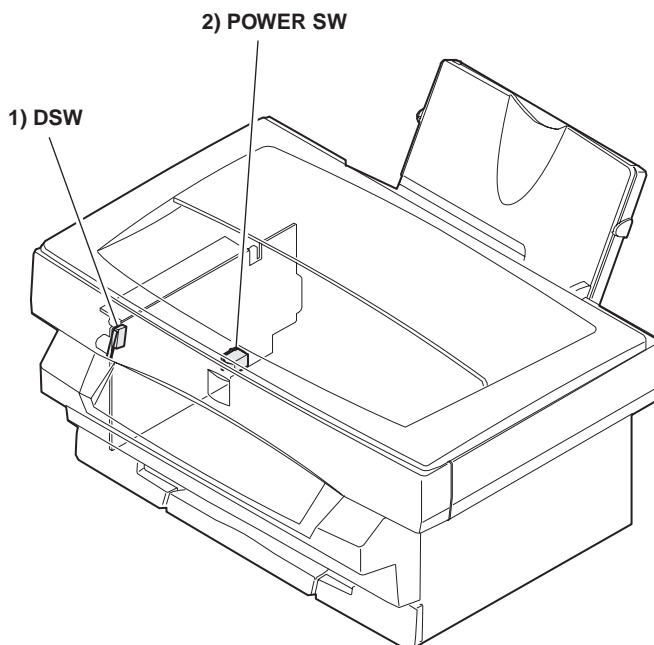
## C. Functional parts

### (1) Sensor, detector



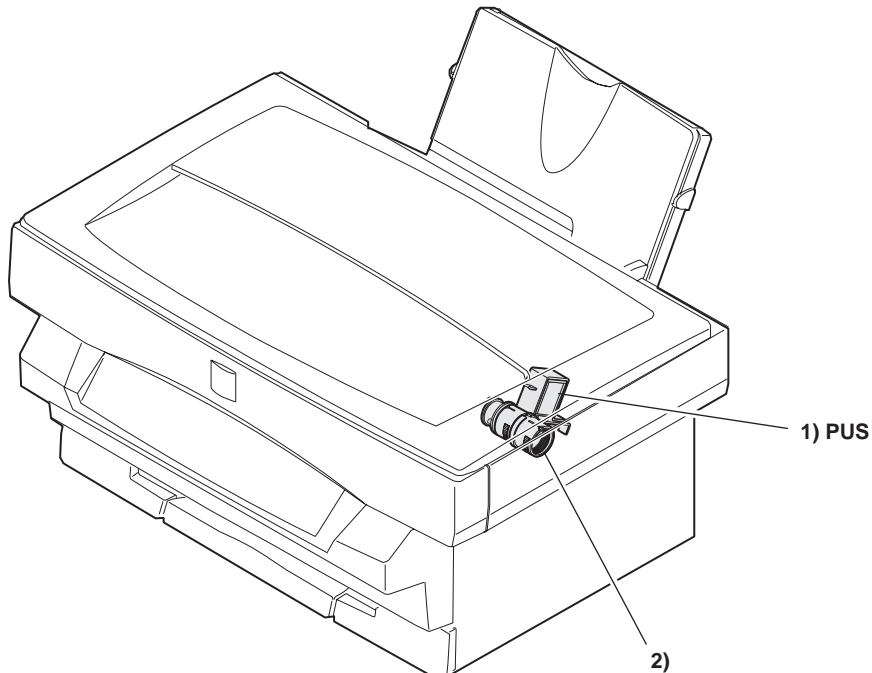
No.	Parts						Note
	Code	Signal name	Name	Type	Function/operation	Active condition	
1	MHPS	MHPS	Scanner home position sensor	Photo transmission sensor	Detects the scanner home position. This signal is used to control image scanning operation.	HIGH (5V) when the home position is detected.	
2	SL SENSOR	PDA/PDK	Scanner lamp light quantity sensor	Photo diode	Detects the scanner lamp light quantity. This signal is inputted to the scanner lamp control PWB to control the scanner lamp drive voltage to maintain a constant level of light quantity.	Analog signal (0 ~ 0.5V)	
3	PAPER SIZE SW	PAPER SIZE IN	Paper width detector	Mechanical switch (Micro switch)	Detects the paper width. This signal is used to control the laser beam radiation area.	LOW (0V) when the max. width is detected.	
4	PE SENSOR	PEMP IN	Paper empty detector	Photo transmission sensor	Detects paper on the paper tray.	LOW (0V) when paper is detected.	
5	SYNC	SYNC IN	Laser beam sensor	Bin diode	Detects the laser beam position. This signal is used to control the left image print start position.	LOW (0V) when laser beam is detected.	
6	CCD SENSOR	CCD OUT	CCD (image) sensor	CCD	Scans document images (photo signals) and converts them into electrical signals.	Digital signal (8Bit)	
7	PIN SENSOR	PIN	Paper in detector	Photo transmission sensor	Detects whether the fed paper is transported to the transfer position or not.	LOW (0V) when paper is detected.	
8	TS	TS IN	Toner empty sensor	Photo transmission sensor	Detects remaining toner in the developing cartridge.	HIGH (5V) when toner empty is detected.	
9	RTH	RTH IN	Fusing temperature sensor	Thermistor	Detects the fusing roller surface temperature.	Analog signal (2.0 ~ 5.0V)	
10	POUT	POUT IN	Paper exit detector	Photo transmission sensor	Detects discharge of paper.	LOW (0V) when paper is detected.	
11	DSW	DSW	Front cover open/close switch	Micro switch	Turns on/off the +24V power line (power source for the motor, the high voltage PWB, and solenoids) when opening/closing the front cover for safety. (Detects open/close of the front cover at the same time.)	Close	

(2) Switch



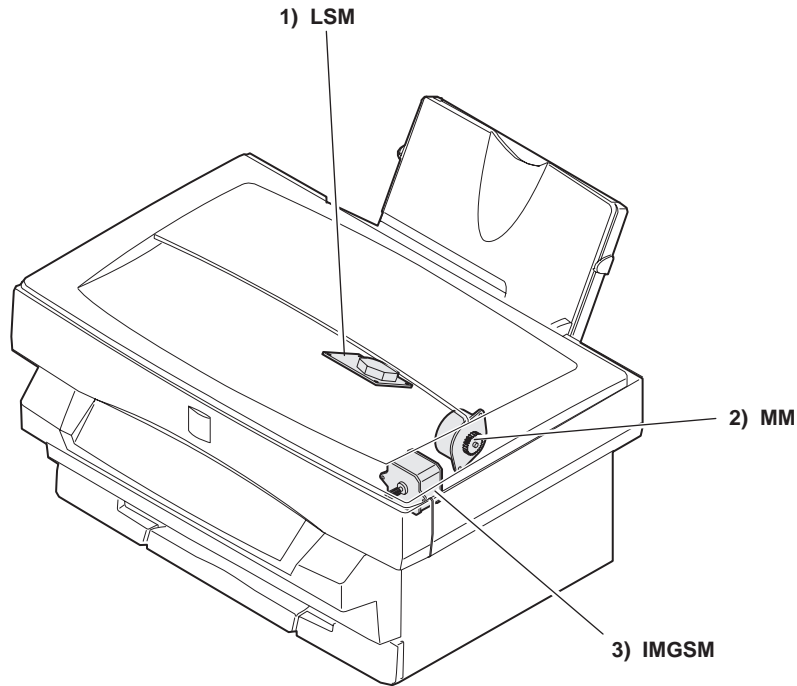
No.	Parts						Note
	Code	Signal name	Name	Type*	Function/operation	Active condition	
1	DSW	DSW	Front cover open/close switch	Micro switch	Turns on/off the +24V power line (power source for the motor, the high voltage PWB, and solenoids) when opening/closing the front cover for safety. (Detects open/close of the front cover at the same time.)	Close	
2	POWER SW		Main power switch	Seesaw switch	Turns on/off the main power line. (ON/OFF of all power)	Close	

(3) Clutch, solenoid



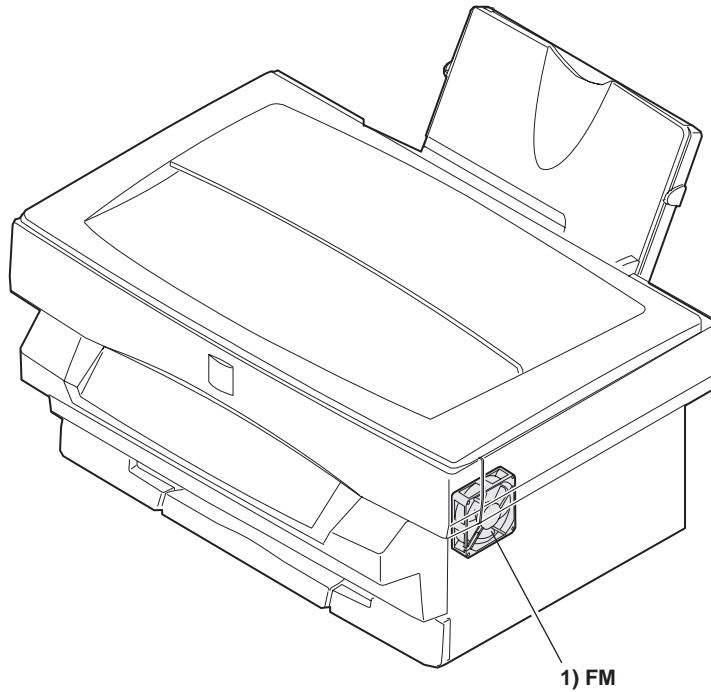
No.	Parts						MODEL	Note
	Code	Signal name	Name	Type*	Function/operation	Active condition		
1	PUS	PUS	Paper feed clutch solenoid	Solenoid	Controls ON/OFF of the paper feed roller. (The paper feed roller is driven by the paper feed clutch solenoid and the main motor.)	ON	Driven by +24V power.	
2			Paper feed clutch	Mechanical spring type clutch	Controls ON/OFF of the paper feed roller. (The paper feed roller is driven by the paper feed clutch solenoid and the main motor.)	ON		

**(4) Motor**  
**a. Drive motor**

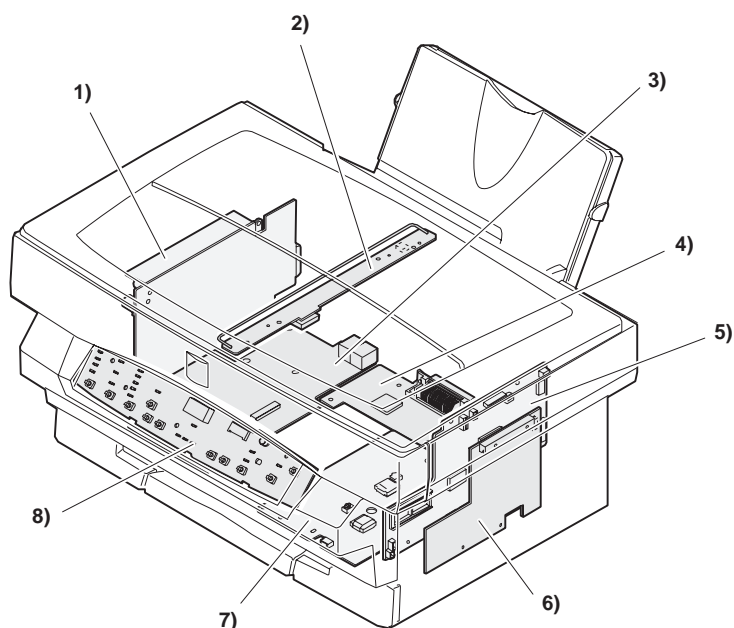


No.	Parts				Note
	Code	Name	Type	Function/operation	
1	LSM	Laser scanning motor	DC brushless motor (+24V)	Drives the scanning mirror.	
2	MM	Main motor	Stepping motor (+24V)	Drives the paper feed section, the paper transport section, and the image process section.	
3	IMGSM	Scanning motor	Stepping motor (+24V)	Drives the scanner (reading) unit.	

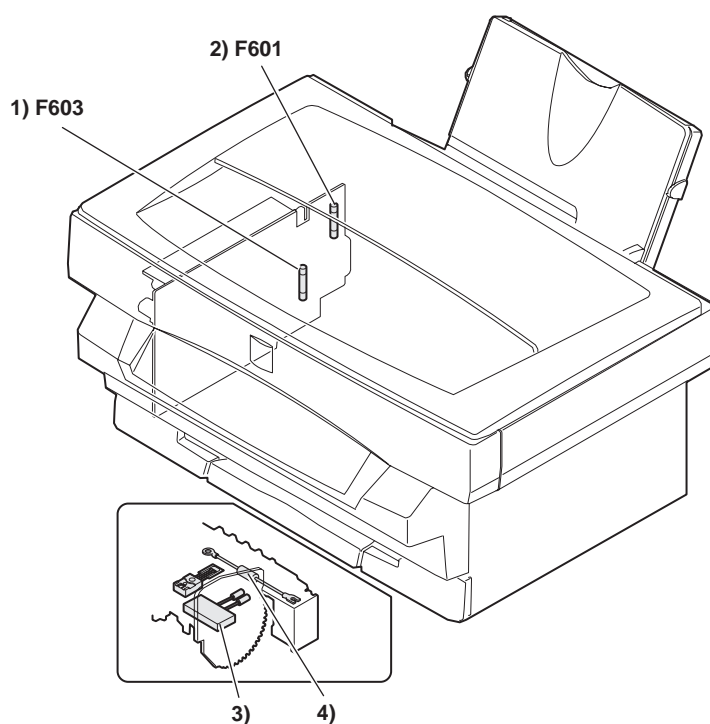
**b. Fan (motor)**



No.	Parts				Note
	Code	Name	Type	Function/operation	
1	FM	Cooling fan motor	Propel (DC brushless motor) (+24V)	Cools inside the machine (the fusing section and the image process section).	

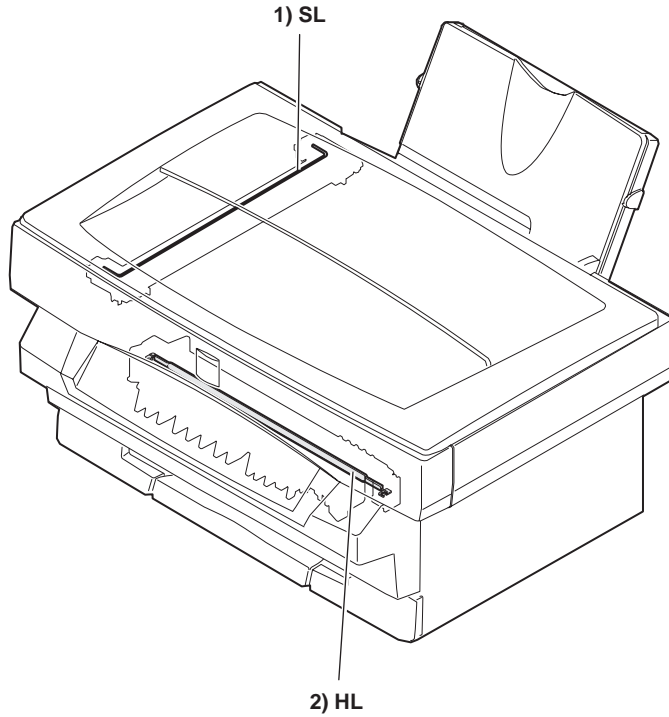
**(5) PWB**

No.	Parts		MODEL	Note
	Name	Function/operation		
1	Power PWB	Outputs DC power. Drives the heater lamp.		The voltage specification differs depending on the destination.
2	Scanner lamp drive PWB	Controls light quantity of the scanner lamp.		
3	LIU PWB	Performs send/receive control of the TEL line.		
4	ICU PWB	Converts print data set from the host and converts it into bit image data and send to the MCU.		Allows connection with two host computers. Printer models only
5	MCU (PCU) PWB	Controls the image process section and the engine section.		
6	FAX control PWB	Controls the operations relating to FAX. (Sends image data of the scanner to the LIU PWB. Sends received image data to the printer engine section. Performs communication control (analysis of the protocol control and data) for the opponent party.)		
7	High voltage power PWB	Outputs the high voltage for the image process section. Controls the main motor.		
8	Operation control PWB	Displays the value information. Outputs the key operation signal.		

**(6) Fuse, thermostat**

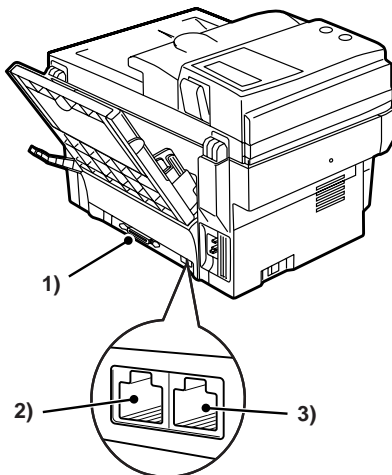
No.	Parts					Function/operation	MODEL	Note
	Code	Name	Form	Form	Specification			
1	F603	Power unit fuse	Mini	Normal	5A 125V	Protects the power unit primary side circuit against an overcurrent.	100V series	
					3.15A 250V		20V series	
2	F601	Power unit fuse	Mini	Normal	10A 125V	Protects the power unit primary side circuit against an over.	100V series	
					5A 250V		200V series	
3		Temperature fuse 1 (Fusing section)	Mold	Temperature fuse	132°C 250V 10A	Assures safety in overheating.		
4		Temperature fuse 2 (Fusing section)	Mold	Temperature fuse	187°C 125V 1.5A	Assures safety in overheating.		

**(7) Lamp**

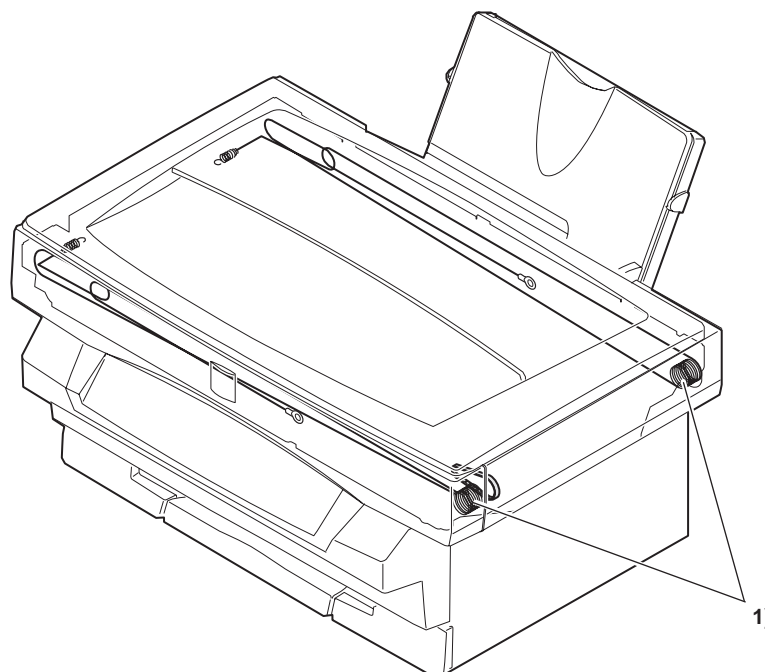


No.	Parts					Model	Note
	Code	Name	Type	Function/operation	Specification		
1	SL	Scanner lamp	Cool cathode ray tube (Xenon lamp)	Light source for scanning (reading)		Common	
2	HL	Heater lamp	Halogen lamp	Heating for the heat roller.	100V 500W	10V series	
					120V 500W	120V series	
					230V 500W	200V series	

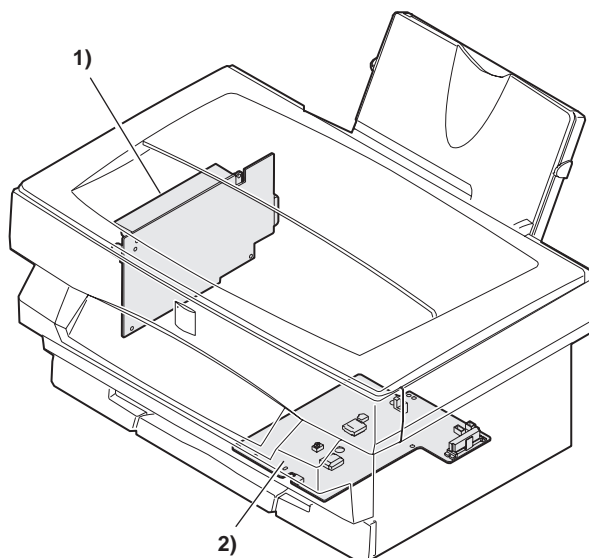
**(8) Interface (connector)**



No.	Parts				Model	Note
	Name	Type	Connector type (Type/pin no.)	Function/ operation		
1	Printer interface	IEE 1284 parallel interface	Anfenor 36 pin		AL-840	Allows connection with two personal computers. Printer models only.
2	LINE jack			Used to connect with the TEL line.		
3	TEL jack			Used to connect with the external TEL line.		

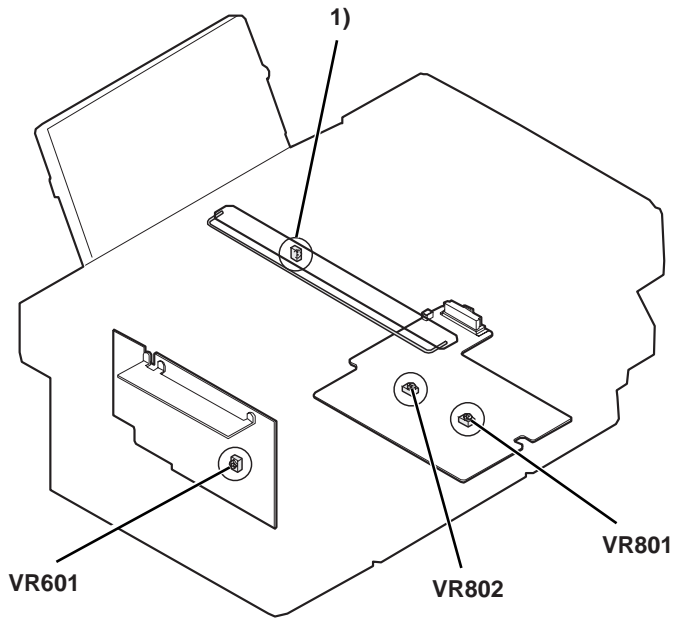
**(9) Belt, wire**

No.	Parts		Note
	Name	Function/operation	
1	Scanner drive wire	Transmits the scanner motor drive power to the scanner unit.	

**(10) Power**

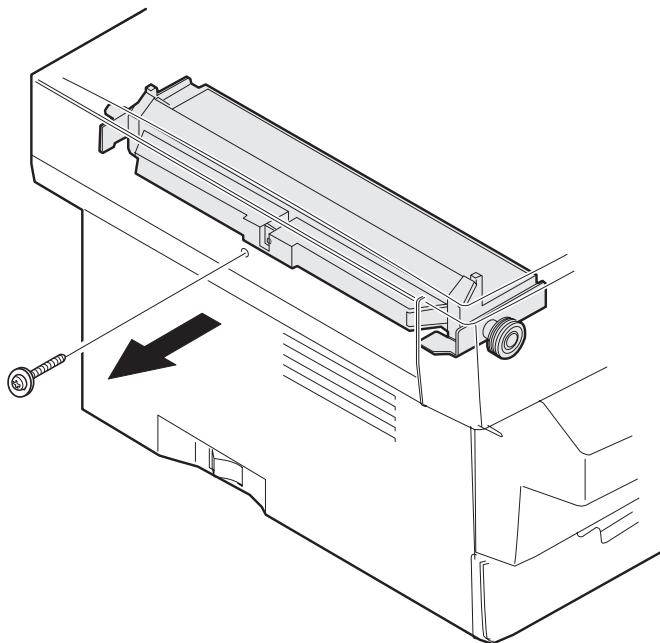
No.	Parts			Note
	Name	Specification *	Function/operation	
1	Power unit	DC +24V 2.0A/DC +5V 1.1A/DC +12V 0.13A/DC +3.3V 0.25A	Outputs the DC power. Drives the heater lamp. Outputs the power detection signal.	The voltage specification differs depending on the destination.
2	High voltage power unit	Main charger voltage, transfer charger voltage, developing bias voltage	The high voltage power output. (Supplies power to the image process section.)	

(11) Adjustment volume



No.	Parts			Note
	Code	Name	Function/operation	
1	VR1	Scanner lamp light quantity adjustment volume	Adjusts the scanner lamp light quantity.	
2	VR601	Output voltage adjustment volume	Adjust the DC output voltage (+24V).	
3	VR801	Main charger voltage adjustment volume	Adjusts the main charger voltage.	
4	VR802	Developing bias voltage adjustment volume	Adjusts the developing bias voltage.	

D. Lock position



No.	Parts		Note
	Name	Function/Operation	
1	Scanner lock screw	Locks the scanner unit.	Fixes the scanner unit with this screw when in transit.



## [6] MACHINE OPERATION

### (1) Operation mode

This machine has the following operation modes.

Mode	Content
Copy mode	During the copy mode, print data is received but not accepted. After completion of copying, print is automatically performed.
Print mode	Laser image data from the host is printed.
Power save mode	There are the pre-heat mode and the power shut down mode. In the pre-heat mode, fusing temperature is lowered. In the power shut down mode, all the sections excluding the control circuit are stopped.
Test command (Simulation)	This mode is used for servicing (various setting, adjustments, and checking of the operations).
User program mode	Used to set the operating specifications according to user's need.
Fax mode	FAX transmission/reception mode. Image data scanned by the scanner are transmitted. / Image data received from the other party is printed.
Scanner mode	Image data scanned by the scanner is sent to the host (PC).

### (2) Machine status and display

There are following machine status, and the operation and display are made for each status.

Machine status

Machine condition		READY LAMP	ON LINE LAMP	3 GREEN 7 SEGMENT LED	PRE-HEAT LAMP	JAM LAMP	TONER CERTRIDGE REPLACE-MENT LAMP	DRUM CERTRIDGE REPLACE-MENT LAMP	Copy lamp	NOTE	
Warm up	Warming up and initializing are performed in the fusing section, the image process section, the scanner section, and the electrical circuits.	OFF	—	—	—	—	—	—	ON		
READY	ONLINE	Print image is received and printing is allowed.	ON	ON	—	—	OFF	OFF	OFF	ON	Press the clear key twice to enter the online mode.
	OFFLINE	Only copying is allowed. (Printing is inhibited.)	ON	OFF	—	—	OFF	OFF	OFF	ON	
BUSY	Copying	OFF	OFF	—	—	—	—	—	ON	Interruption inhibited.	
	Printing	ON	BLINK	—	—	—	—	—	ON		
Power save	Pre-heat mode	The fusing temperature is lowered to reduce power consumption.	ON	ON	—	ON	—	—	OFF	When any key is pressed, warming up is started.	
	Power shut down mode	Conduction to the loads other than electrical circuits is inhibited, excluding the heater lamp and the copy lamp.	OFF	ON	OFF	ON	OFF	OFF	OFF	All lamps except for READY indicator are turned OFF. When any key is pressed, warming up is started.	
Machine trouble		The machine operation cannot continue operation, and copying or printing is forcibly stopped. (Conduction is stopped excluding the display section.) The error code is displayed and the error lamp is lighted.	OFF	OFF	The error code is displayed.	—	—	—	OFF	Requires repair work by a serviceman.	
	Paper jam		OFF	OFF	—	ON	BLINK	—	OFF		
	Mis-feed	Paper is not fed in the paper feed section.	OFF	OFF	P-BLINKING	—	OFF	—	—	The 3 green 7 segment LED displays blink "P."	
Consumable part empty	Photoconductor cartridge life (20K) over	OFF	OFF	—	—	—	—	BLINK	OFF	When the life is reached during copying or printing, the job is completed then the machine is stopped.	
	Photoconductor cartridge life (19K) near	ON	ON	—	—	—	—	ON	—		
	Toner empty (Near end)	ON	ON	—	—	—	BLINK(ON)	—	—	The machine operation is not stopped.	
	Paper empty	OFF	OFF	P-BLINKING	—	—	—	—	—	The input tray indicator blinks, 3 green 7 segment LED displays blink "P."	

Machine condition		READY LAMP	ON LINE LAMP	3 GREEN 7 SEGMENT LED	PRE-HEAT LAMP	JAM LAMP	TONER CERTRIDGE REPLACE-MENT LAMP	DRUM CERTRIDGE REPLACE-MENT LAMP	Copy lamp	NOTE
Printer operation	Data reception from the host	ON	ON	—	OFF	OFF	OFF	OFF	ON	
	Interruption copy during printing	ON/OFF	BLINK	—	OFF	OFF	OFF	OFF	ON	
	The printer cannot receive print data. (OFFLINE)	ON	OFF	—	OFF	OFF	OFF	OFF	ON	
	The printer can receive print data. (ONLINE)	ON	ON	—	OFF	OFF	OFF	OFF	ON	
	The printer is receiving print data.	ON	BLINK	—	OFF	OFF	OFF	OFF	ON	
Scanner operation	Scanning cannot be performed. (OFFLINE)	ON	OFF	—	OFF	OFF	OFF	OFF	ON	
	Scanning can be performed. (ONLINE)	ON	ON	—	OFF	OFF	OFF	OFF	ON	
	During scan/preview	OFF	ON	—	OFF	OFF	OFF	OFF	ON	
FAX operation	FAX key operating	ON	ON	—	OFF	OFF	OFF	OFF	ON	
	Transmission image data reading	OFF	OFF	—	OFF	OFF	OFF	OFF	ON	
	During transmission (direct)	OFF	OFF	—	OFF	OFF	OFF	OFF	ON	
	During transmission (memory)	ON	ON	—	OFF	OFF	OFF	OFF	ON	
	During reception (direct)	ON	OFF	—	OFF	OFF	OFF	OFF	ON	
	During reception (memory)	ON	ON	—	OFF	OFF	OFF	OFF	ON	
	FAX data printing	ON	OFF	—	OFF	OFF	OFF	OFF	ON	
	Telephoning	ON	ON	—	OFF	OFF	OFF	OFF	ON	

**(3) Relationship between the power save mode and the display and machine operations**

The power save mode is of two steps: the pre-heat mode and the power shut down mode. When the time set by user program 2 or 3 is passed from the non-operation state, the machine enters the pre-heat mode and the power shut down mode.

Machine condition		READY LAMP	OTHER LAMPS & LEDS	FUSING SECTION CONTROL	FAN	Copy lamp	Other load
Ready (Machine idle)		ON	Current state indicated (No change)	160°C	ON	ON	Normal operation
Power save	Pre-heat mode	ON	Current state indicated (No change)	80°C	ON	OFF	OFF
	Power shut down mode	OFF	OFF	OFF	OFF	OFF	OFF

**(4) Consumable parts life and operation**

When consumable parts life is approached, a warning display is made. When the photoconductor drum life is reached, the machine is forcibly stopped.

Machine condition		READY LAMP	3 GREEN 7 SEGMENT LED	TONER CARTRIDGE REPLACEMENT LAMP	DRUM CARTRIDGE REPLACEMENT LAMP	NOTE
Consumable part empty	Photoconductor cartridge life (20K) over	OFF	—	—	BLINK	When the life is reached during copying or printing, the job is completed and then the machine is stopped.
	Photoconductor cartridge life (19K) near	ON	—	—	ON	
	Toner empty	ON	—	ON/BLINK	—	The machine operation is not stopped. (However, the print density is lowered.)
	Paper empty	OFF	P-BLINKING	—	—	3 GREEN 7 SEGMENT LED show "P."

## (5) Selection between the ON LINE mode and the OFF LINE mode

In the ON LINE mode, the ON LINE lamp lights up to show that the machine is ready for receiving print data from the host.

During copying, the machine is in the OFF line mode and the ON LINE lamp goes off.

During printing, when copy interruption is made, printing is interrupted and the ON LINE lamp blinks.

When a certain time passes after completion of copying, the machine goes back to the ON LINE mode and printing is resumed.

In any case, copying takes priority over printing.

The timing of going back to the ON LINE mode after completion of copying can be set by the user program.

When the clear key is pressed twice, the machine goes into the ON LINE mode immediately.

## (6) Paper width detection and machine operation

This machine is designed to detect only the following two sizes:

Max. paper size and Min. paper size shown in the table below.

Imaging (main scanning direction void area and image length) is performed according to the paper size the machine detects. Therefore, if the SIM 26-6 set value is not matched with the paper specification, the image position on the paper is shifted to cause a trouble.

Destination code		Detectable paper size		
Set value	Destination	Paper type	Paper width detector ON (Max. paper size)	Paper width detector OFF (Min. paper size)
0		Inch series	11 × 8.5/14 × 8.5	8.5 × 5.5/8.5 × 5.5
1	EX Japan	AB series	A4 (210 × 356mm)	A5
2	Japan	AB series	A4 (210 × 356mm)	B5


## (7) Auto copy function

The copy conditions can be set after turning on the power or during resume operation from the energy save mode. Pressing the start key allows copy reservation. After making a copy reservation, when the copier warmup is completed, copy is started.


Once a copy reservation is made, the copy conditions cannot be canceled unless the clear key is pressed.

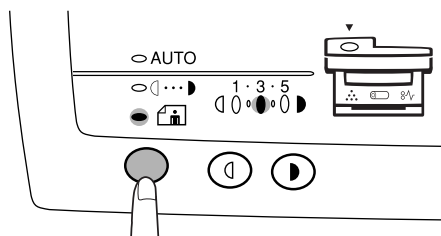
## (8) AE level adjustment procedure

The automatic exposure level can be adjusted to suit your copying needs. This level is set for copying from the original table and copying from the SPF respectively.


- When adjusting the automatic exposure level for copying from the SPF, place an original in the document feeder tray and make sure that the SPF (  ) indicator lights up.

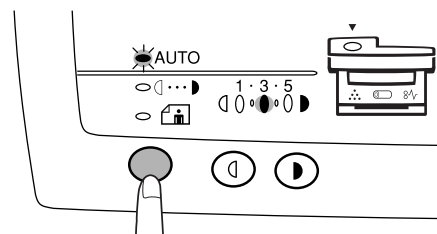
When adjusting the level for copying from the original table, make sure that no original is left in the document feeder tray.



- Press the exposure mode selector key to select the photo (  ) mode.



- Press and hold down the exposure mode selector key for approximately 5 seconds.

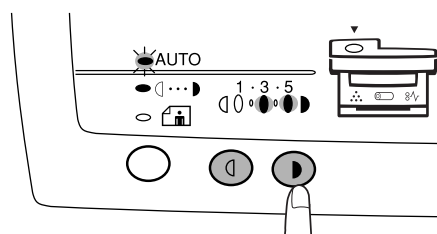
The photo (  ) indicator will go out and the AUTO indicator will begin to blink. One or two exposure indicators corresponding to the automatic exposure level which has been selected will light up.



- Press the light (  ) or dark (  ) key to lighten or darken the automatic exposure level as desired.

If exposure level 2 is selected, the two left-hand indicators will light up simultaneously.

Also, if level 4 is selected, the two right-hand indicators will light up simultaneously.



- Press the exposure selector key. The AUTO indicator will stop blinking and light up steadily.

NOTE: This automatic exposure level will remain in effect until you change it again by this procedure.

## (9) Toner save mode setup and cancel

Select MANUAL with the copy mode select key and press and hold the key again for 5 sec. The mode display will change from MANUAL to PHOTO blinking, and the currently set condition will be displayed in the exposure level. Under this state, operate the density adjustment key to set or cancel the toner save mode.

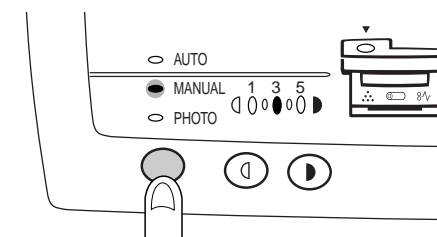
Press the left key: Level display "1" ON. Toner save mode is set.

Press the write key: Level display "5" ON. Toner save mode is canceled.

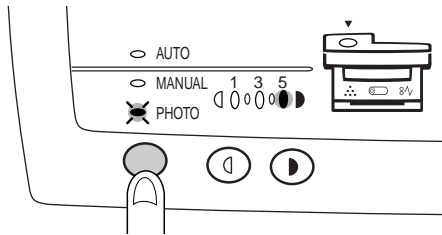
After adjustment, press the copy mode select key, and the mode display will change from blinking to lighting. The setup is completed.



\* The toner save mode is applicable to the auto and the manual copy mode.

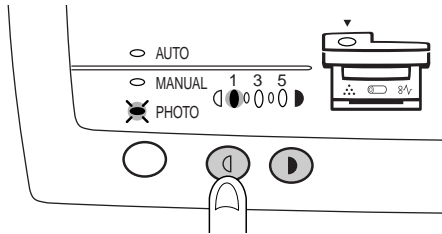
- Press the copy mode select key to light the manual lamp.



- 2) Keep pressing the copy mode select key again for 5 sec, and the PHOTO lamp will blinks and the density adjustment lamp of "5" will light up.



- 3) Press the copy density adjustment key (  ) once. To cancel the toner save mode, press the density adjustment key (  ) to light the lamp of "5."



- 4) Press the copy mode select key, then copying is allowed.

### (10) Operation mode and priority

Priority level	Operation mode
Level 1	Copy mode
	Transmission document reading mode (FAX)
	Direct transmission mode (FAX)
	Scanner mode
Level 2	Print mode (Printer)
	Print mode (FAX reception)
	Print mode (FAX direct reception)

### (11) Multi access operation table

Following job Current job	Ready state	Copy	Printer	FAX transmission			FAX reception			External telephone		Scanner
		Copy job	Print data output	Direct transmission	Transmission document scanning	Memory transmission	Direct reception	FAX data output	Memory reception	Calling	Called	During scanning/preview
Ready state	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Copying	During copy job	<input checked="" type="radio"/>	<input checked="" type="radio"/> (Spooled and outputted under a certain condition after completion of the copy job.)	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/> (The mode is changed to the memory reception mode, and data are outputted under a certain condition after the copy job.)	<input checked="" type="radio"/> (Outputted under a certain condition after the copy job.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Printer	During print data output	<input type="radio"/> (Pressing the START key interrupts print data output and the copy job is started.)	<input checked="" type="radio"/> (Spooled and outputted after previous print data are outputted.)	<input type="radio"/> (FAX job can be performed after printing the current print data.)	<input type="radio"/> (FAX job can be performed after printing the current print data.)	<input type="radio"/>	<input type="radio"/> (The mode is changed to the memory reception mode, and data are outputted after current print data output.)	<input type="radio"/> (Outputted after the current print data output.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
FAX	During FAX key input	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	During dialing	<input checked="" type="radio"/>	<input checked="" type="radio"/> (Spooled and outputted after direct transmission.)	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/> However, enable after scanning the original.
	During scanning of transmission document	<input checked="" type="radio"/>	<input checked="" type="radio"/> (Spooled and outputted after scanning direct transmission document.)	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
	During memory transmission	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
	During direct transmission	<input type="radio"/> (Pressing the START key interrupts direct reception and the copy job is started and memory reception is performed.)	<input checked="" type="radio"/> (Spooled and outputted after direct reception.) However, enable before printing FAX data.	<input checked="" type="radio"/>	<input type="radio"/> (The currently printing data is switched to memory reception.)	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/> (Outputted after completion of direct reception.) However, the user can print the list.	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/> However, enable before printing after reception. Outputted under a certain condition after direct reception.

Following job Current job		Ready state	Copy	Printer	FAX transmission			FAX reception			External telephone		Scanner
			Copy job	Print data output	Direct transmission	Transmission document scanning	Memory transmission	Direct reception	FAX data output	Memory reception	Calling	Called	During scanning/preview
FAX	During FAX data output	○	○ (Pressing the START key interrupts direct output and the copy job is started.)	X (Spooled and outputted after FAX data output.)	○	○	○	X (The mode is changed to the memory reception mode, and data are outputted after FAX data output.)	X (Outputted after printing the previous reception data.)	○	○	○	X
	During memory reception	○	○	○	X	○	X	X	○	X	X	X	○
TEL	During telephoning	○	○	○	(Disabled in the line under communication.)	○	X	X	○	X	X	X	○
Scanner	During scanning	○	X	X	X	X	○	X	X	○	○	○	X

○: Enable

X: Disable

## (12) Machine errors and operations in each operation mode

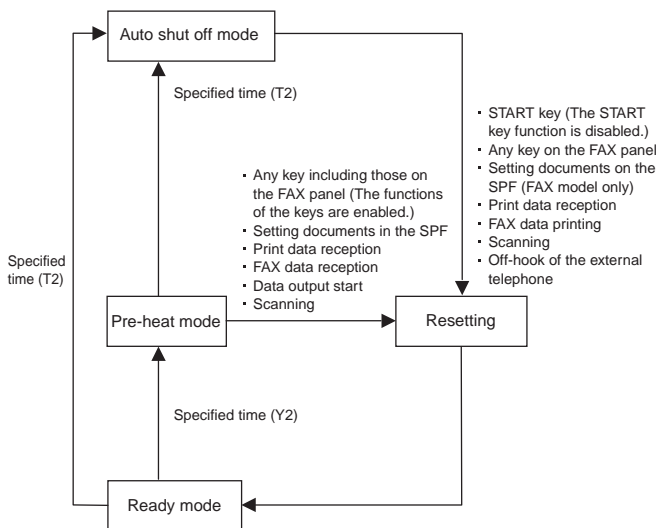
Error Operation mode	Paper empty	Toner empty	Drum replacement	Toner near empty	Drum near replacement	Jam
During print data output	The output is interrupted, and the paper empty indication is displayed on the copy quantity set section of the copier.	The output is interrupted and the toner empty LED blinks.	The output is interrupted and the drum replacement LED blinks.	The output is continued and the toner empty LED lights up.	The output is interrupted and the drum replacement LED lights up.	The output is interrupted and the jam LED blinks.
During FAX data output	The output is interrupted, and the paper empty indication is displayed on the FAX LCD. The indication is displayed also on the copier side.	The output is interrupted and the toner empty LED blinks. The error message is displayed also on the LCD of the FAX side.	The output is interrupted and the drum replacement LED blinks.	The output is continued and the toner empty LED lights up.	The output is interrupted and the drum replacement LED lights up.	The output is interrupted and the jam LED blinks. The error display is made also on the LCD of the FAX side.
During direct reception	The output is interrupted, and the mode is changed to the memory reception and the paper empty indication is displayed on the LCD. The indication is displayed also on the copy quantity set section of the copier.	The output is interrupted and the mode is changed to the memory reception mode. The message is displayed on the LCD of the FAX side and the toner empty LED blinks on the copier side.	The output is interrupted and the mode is changed to the memory reception mode. The message is displayed on the LCD of the FAX side and the drum replacement LED blinks on the copier side.	The output is continued and the toner empty LED lights up.	The output is interrupted and the drum replacement LED lights up.	The output is interrupted and the mode is changed to the memory reception mode and the jam LED blinks. The message is displayed on the LCD of the FAX side.
During transmission document scanning	Enable	Enable	Enable	Enable	Enable	Disable
During scanning	Enable	Enable	Enable	Enable	Enable	Disable

Error Operation mode	FAX SPF jam
During scanning of transmission document	<ul style="list-style-type: none"> <li>Scanning of document is interrupted and the jam LED blinks. The message is also displayed on the FAX side LCD.</li> <li>After removing the jam, the job is cancelled and resumed.</li> </ul>
During direct transmission	<ul style="list-style-type: none"> <li>Direct transmission is completed and the jam LED blinks. The message is displayed on the FAX side LCD.</li> <li>After removing the jam, the job is not resumed.</li> </ul>
During print data output, FAX data output, direct reception	<ul style="list-style-type: none"> <li>The output job is paused after completion of one job.</li> </ul>

Operation mode	Error
	Paper size error
During FAX data output	The output is interrupted and the paper size error is displayed on the FAX side LCD. The received data are stored in memory. When the proper paper is loaded, printing is resumed
Other jobs	Enable

Operation mode	Error
	Scanner PSF jam
During scan/preview	<ul style="list-style-type: none"> <li>Scanning of document is interrupted and the jam LED blinks.</li> <li>After removing the jam, the job is cancelled and resumed.</li> </ul>
During print data output, FAX data output, direct reception	<ul style="list-style-type: none"> <li>The output job is continued.</li> </ul>

### (13) Pre-heat mode, shut off mode operations



Shifting conditions:

- No key operation
- No job generating
- Not in the simulation mode.
- Not in a service call error
- Not in cover open
- Not in a jam error
- No drum replacement (CRU model) occurred.
- No external telephone is used. (In the preheat mode, however, shift is made even during use of the external telephone.)

T1: Time until the machine enters the pre-heat mode. (Set with the user program.)  
 T2: Time until the machine enters the shut off mode. (Set with the user program.)

### (Note)

#### Memory

Your machine has a memory area that can be used to store both incoming and outgoing originals.

- Approximately 120 pages of average content can be held in memory for transmission. Less can be held if any of the pages were scanned using fine or superfine resolution.

#### Memory Backup

- The machine uses a lithium-ion battery to keep automatic dialing numbers and other programmed data in memory when the power is turned off (when the machine is unplugged). Battery power is consumed primarily when the power is turned off. With the power kept continuously off, the life of the battery is about 5 years. If the battery life expires, have your dealer or retailer replace it. Do not try to replace it yourself.

#### Substitute Reception into Memory

This is a back-up function that is automatically activated if your fax runs out of paper, the TD cartridge needs replacement (See the copier operation manual.), or the paper jams.

The message "FAX RCVD IN MEMORY" will only appear in the display at the time the original is initially received into memory. After reception is complete, one of the following messages, "PAPER OUT(XXX)," "CAN NOT PRINT," or "PAPER JAM" will appear in the display. When you add paper (and set the paper size), replace the TD cartridge, or clear the jam, the stored originals will automatically be printed out.

- If you received originals in memory because the fax ran out of paper, be sure to add paper which is the same size as the paper previously used. If not, the original print-out size may not match the size of the printing paper.

#### Caution!

- If originals received in memory are lost due to a power failure or other interruption in the power supply, a POWER FAIL REPORT will be printed out when the power is restored. This gives available information about the faxes lost, including the fax numbers of the transmitting machines.

### (14) Others

#### a. Void area function

A void area is provided in the main scanning direction and in the sub scanning direction to prevent against dirt on the transfer roller by toner.

#### b. Special function of the key

When the clear key is kept pressing for 5 sec or more, the total copy (print) counter value is displayed.

## [7] ADJUSTMENTS, SETTING

### 1. List

Content			Preliminary work JOB No	After-work JOB No
SET M1	Specification setting	SET 1 Destination setting SET 2 CE mark standard conformity setting		
SET M2	Counter setting	SET 1 Photoconductor counter reset		
ADJ M1	Copy (print) density adjustment	ADJ 1 Auto mode ADJ 2 Manual mode ADJ 3 Photo mode ADJ 4 Auto (toner save) mode ADJ 5 Manual (toner save) mode ADJ 6 Print density adjustment (FAX mode)(Uniform adjustment for all image modes) ADJ 7 Print density adjustment (FAX mode)(Normal mode) ADJ 8 Print density adjustment (FAX mode)(Small character mode) ADJ 9 Print density adjustment (FAX mode)(Fine mode) ADJ 10 Print density adjustment (FAX mode)(Super fine mode) ADJ 11 SPF mode image density adjustment	ADJ M9 ADJ M6 CHI M1	
ADJ M2	Copy distortion adjustment	ADJ 1 Scanner unit parallelism adjustment (Mechanical adjustment) ADJ 2 Copy sub scanning direction distortion adjustment ADJ 3 Copy main scanning direction distortion adjustment	ADJ M2/ ADJ 2 ADJ M2/ ADJ 1 ADJ M2/ ADJ 2	ADJ M2/ ADJ 2 ADJ M3/ ADJ 3
ADJ M3	Copy magnification ratio adjustment	ADJ 1 Main scanning direction magnification ratio (focus, resolution) adjustment ADJ 2 Sub scanning direction copy magnification ratio adjustment	ADJ M2/ ADJ 3 ADJ M3/ ADJ 1	ADJ M3/ ADJ 2
ADJ M4	Copy image position adjustment (Main scanning direction)			ADJ M5
ADJ M5	Copy image area (image loss, void area) adjustment	ADJ 1 Image loss, void area (lead edge tail edge) adjustment ADJ 2 Void area (left/right) adjustment		
ADJ M6	Image process (high voltage) power adjustment	ADJ 1 Charging voltage adjustment ADJ 2 Developing bias voltage adjustment/check		ADJ M1 ADJ M1
CHI M1	Transfer charger (voltage) check			
ADJ M7	Fusing temperature adjustment	ADJ 1 Fusing temperature adjustment within 20 sheets of continuous print		

Content				Preliminary work JOB No	After-work JOB No
ADJ M7	Fusing temperature adjustment	ADJ 2	Fusing temperature adjustment after 20 sheets of continuous print		
ADJ M8	Power voltage adjustment				
ADJ M9	Copy lamp light quantity adjustment				ADJ M1

### 2. Details

#### SET M1 Specifications setting

Content			
SET M1	Specification setting	SET 1 Destination setting SET 2 Power save mode setting SET 3 CE mark standard conformity setting	

#### SET 1 Destination (paper specifications) setting

##### \* Program used

Test command (Simulation)	MODE	Normal
	MAIN CODE	26
	SUB CODE	6

##### \* Enforcement conditions

Enforcement time	JOB No	Content
	S 009/Ua 002	When replacing MCU PWB
		In case of U2 trouble
		When installing
		When the paper specification is changed.
Cycle		—
Conditions		—

##### \* Job content

- Enter the simulation 26-6 mode.  
(The currently set code (value) of the destination is displayed.)
- Enter the desired code (value) of the destination and paper specification, and press the start button.

Destination code set value	Destination	Paper		
		Paper type	Max. size	Min. size
0		Inch series	14 × 8.5/ 11 × 8.5	8.5 × 5.5/ 14 × 5.5
1	EX Japan	AB series	A4 (210 × 356 mm)	A5
2	Japan	AB series	A4 (210 × 356 mm)	B5

When the adjustment value is changed, the paper size specification, the fixed magnification ratios, and enlargement copy magnification ratios are changed.

##### \* Troubles caused by improper work

- If the set value does not correspond to the actual paper size (small size), the transfer roller is dirtied with toner and as a result the print paper edge is dirtied with toner.

#### SET 2 CE mark standard conformity setting (Flicker)

##### \* Adjustment value

Default	—
---------	---

##### \* Program used

Test command (Simulation)	MODE	Normal
	MAIN CODE	26
	SUB CODE	30

**\* Enforcement conditions (time)**

Enforcement time	JOB No	Content
	S 009/Ua 002	When replacing MCU PWB. In case of U2 trouble
	When installing	
	When the fluorescent lamp flickers during operation of the copier.	
Cycle	—	
Condition	—	

**\* Job content**

- 1) Enter the simulation 26-30 mode.  
(The currently set code of the CE mark conformity operation (protecting against flicker) is displayed.)
- 2) Enter the desired code (value) of the CE mark conformity operation (protecting against flicker), and press the start button.

Set code	CE mark conformity operation (Protecting against flicker)
0	YES
1	NO

If the fluorescent lamp flickers when the power of the copier is turned on, set this adjustment value to 1 to reduce or eliminate this phenomenon.

**SET M2 Counter setting**

**SET 1 Photoconductor counter reset**

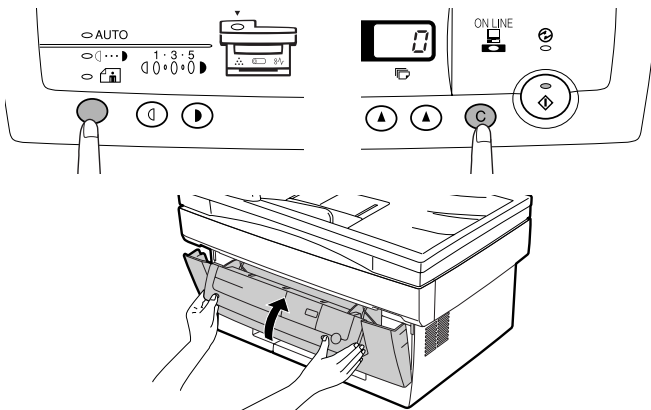
**\* Enforcement condition (time)**

Enforcement time	JOB No	Content
	S 009/Ua 002	When replacing MCU PWB
		In case of U2 trouble
Cycle	20 K	
Condition	—	

**\* Job content**

- 1) Turn on the power.
- 2) Open the operation section. (The cabinet switch is turned off.)
- 3) While pressing the copy mode select key (left and side) and the clear key simultaneously, close the operation section. (The cabinet switch is turned on.) (This state is maintained for 5 sec.)

With the above operation, the photoconductor counter is reset.



**ADJ M1 Copy density adjustment**

**\* Execution condition (time)**

Enforcement time	JOB No	Content
	S 004	When any part of the scanner (reading) section is disassembled, replaced, or cleaned.
S 009/Ua 002	When replacing MCU PWB	
	In case of U2 trouble	
S 009/Ua 004	When replacing the high voltage power/motor drive PWB	
ADJ M6	When adjusting the high voltage power voltage	
	When servicing	
Cycle	—	
Conditions	Normal copy exposure is not obtained.	

**\* Necessary condition**

- 1) The scanner (reading) section must be free from dust.
- 2) The image process section must be normal.
  - ★ The high voltage power voltage must be normal.
  - ★ The photoconductor cartridge, the developer cartridge are normal (free from dirt and damage).
  - ★ The transfer roller must be free from dirt and damage.
- 3) The fusing section must be normal (free from dirt).
- 4) The paper transport section must be normal.
- 5) The scan (writing) section must be free from dirt.

**\* Adjustment value (Common to all the adjustment items)**

(Test command (Set value))

Range (MIN)	0
Range (MAX)	99
Standard value	50
Default	50

**ADJ 1 Auto copy mode copy density adjustment**

**ADJ 2 Manual copy mode copy density adjustment**

**ADJ 3 Photo copy mode copy density adjustment**

**ADJ 4 Auto (Toner save) copy mode copy density adjustment**

**ADJ 5 Manual (Toner save) copy mode copy density adjustment**

(Copy density level)

Adjustment mode	Mode display lamp	Density adjustment level	SHARP gray chart (UKOG-0062FCZZ) adjustment level
Auto copy mode	Auto copy mode lamp		"3" of the gray scale is copied.
Test copy mode	Text copy mode lamp	Center (3)	"3" of the gray scale is copied.
Photo copy mode	Photo copy mode lamp	Center (3)	"2" of the gray scale is copied.
Auto (Toner save) copy mode	Auto copy mode lamp		"3" of the gray scale is copied.
	Photo copy mode lamp		
Manual (Toner save) copy mode	Manual copy mode lamp	Center (3)	Gray scale "3" is copied.
	Photo copy mode lamp		

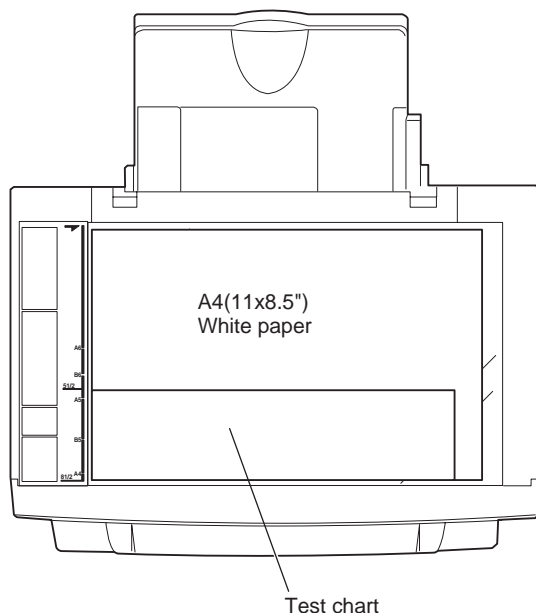


## \* Program used

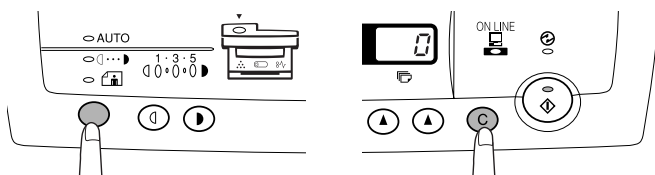
Test command (Simulation)	MODE	Normal
	MAIN CODE	46
	SUB CODE	1

## \* Work content

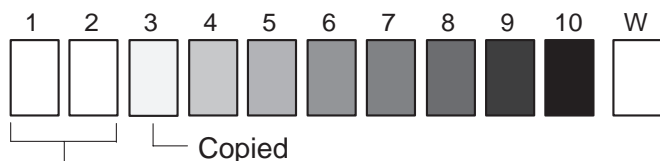
- 1) Set the test chart with three sheets of A4 (11 × 8.5) paper on the document table as shown below and close the document cover.



- 2) Set the copy density level of the manual copy mode and the photo copy mode to the center.  
(Select the photo mode with the copy mode key and press and hold the key for 5 sec or more, and the auto copy mode display lamp will blink. Under this state, use the copy density adjustment key to set the copy density level to the center. When the copy mode key is pressed after this, the adjusted level is set and the copy mode display lamp will change from blinking to lighting and the machine will return to the normal mode.)
- 3) Enter the test command (simulation) 46-1 mode.
- 4) Select the copy mode to be adjusted with the copy picture quality mode select key.  
(The currently set copy density adjustment level is displayed on the copy quantity display.)



- 5) Change and adjust the set value so that the following copy density copy is made.



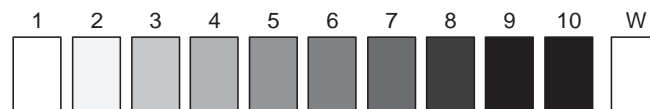
To change the copy density, change the adjustment value and press the start button.

(The adjustment value is stored and a copy is made)

To decrease the copy density, decrease the adjustment value. To increase the copy density, increase the adjustment value. When the exposure level of the center density level is adjusted, the copy density in the other density level is automatically calculated and adjusted.

The adjustment value can be set in the range of 0 ~ 99.

Perform procedures 4) ~ 6) for each copy mode.



(Test chart comparison table)

UKOG-0162FCZZ DENSITY No	1	2	3	4	5	6	7	8	9	10	W
UKOG-0089CSZZ DENSITY No	0.1		0.2		0.3				0.5	1.9	0
KODAK GRAY SCALE		1		2		3		4		19	A

### ADJ 6 Print density adjustment (FAX mode) (Uniform adjustment for image modes)

This method is used to adjust the print density in all image modes of the FAX mode uniformly.

When this adjustment is executed, the increment of this adjustment is added to the print density in each image mode of the FAX mode.

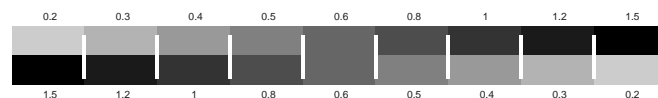
To adjust the print density in each image mode of the FAX mode individually, use ADJ7 ~ ADJ10.

#### \* Program to be used and the adjustment reference (Print density level)

Test command		Adjustment item	Adjustment reference (Print density level)
MAIN CODE	SUB CODE		
46	12	Print density adjustment (FAX mode) (All the picture quality modes are adjusted uniformly.)	Gray pattern 0.3 of the FAX mode print density adjustment test chart (TPAP-2109SCZZ) is slightly copied and gray pattern 0.2 is not copied.

## \* Work content

- 1) Set the FAX mode print density adjustment test chart (TPAP-2109SCZZ) on the document table.
- 2) Enter the test command (simulation) 46-12 mode.
- 3) Press the START button and make a copy.
- 4) Check that gray pattern 0.3 of the FAX mode print density adjustment test chart (TPAP-2109SCZZ) is slightly copied and gray pattern 0.2 is not copied.



To change the print density, change the adjustment value with the figure UP-DOWN key and press the START button.

A copy is made in the density according to the entered adjustment value and the adjustment value is stored.

(Adjustment range: 0 ~ 99, Center value: 50)

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

### ADJ 7 Print density adjustment (FAX mode) (Normal mode)

### ADJ 8 Print density adjustment (FAX mode) (Small character mode)

### ADJ 9 Print density adjustment (FAX mode) (Fine mode)

### ADJ 10 Print density adjustment (FAX mode) (Super fine mode)

**\* Program to be used and the adjustment reference (Print density level)**

Test command		Adjustment item	Adjustment reference (Print density reference)
MAIN CODE	SUB CODE		
46	13	Print density mode (FAX mode)(Normal mode)	Gray pattern 0.2 of the FAX mode print density adjustment test chart (TPAP-2109SCZZ) is slightly copied.
	14	Print density mode (FAX mode)(Small character mode)(TEXT mode)	
		Print density mode (FAX mode)(Small character mode)(PHOTO mode)	
	15	Print density mode (FAX mode)(Fine mode)	Gray pattern 0.3 of the FAX mode print density adjustment test chart (TPAP-2109SCZZ) is slightly copied and gray pattern 0.2 is not copied.
16	Print density mode (FAX mode)(Super fine mode)		

**\* Work content**

Adjust in the same manner as ADJ 6.

(NOTE)

Be careful of that the test command (simulation) and the adjustment reference used for adjustment differ depending on the image mode.

In ADJ8 print density adjustment (FAX mode) (Small character mode), there are two modes: the TEXT mode and the PHOTO mode.

The modes can be selected with the copy image select key. When selected, the set value of the selected mode is displayed on the copy quantity display.

The selected image mode is indicated by the lamps as follows:

Mode	Display lamp (monitor)
TEXT document mode	AE mode lamp
PHOTO document mode	PHOTO mode lamp

**ADJ 11 SPF mode image density adjustment**

This adjustment is executed so that the document table copy mode density and the SPF mode copy density are the same.

**\* Program to be used and the adjustment reference (Print density level)**

Test command		Adjustment item	Print density level
MAIN CODE	SUB CODE		
51	6	SPF mode image density adjustment	The document table copy mode density and the SPF mode copy density are the same.

**\* Work content**

- 1) Set the FAX mode print density adjustment test chart (TPAP-2109SCZZ) on the document table.
- 2) Use the document table and make a copy in the TEXT copy mode (with the density level at the center).
- 3) Enter the test command (simulation) 51-6 mode.
- 4) Set the FAX mode print density adjustment test chart (TPAP-2109SCZZ) on the SPF.
- 5) Press the START button to make a copy.
- 6) Check that the copy density of procedure 2) and that of procedure 5) are in the same level.

To change the print density, change the adjustment value with the figure UP-DOWN key and press the START button.

A copy is made in the density according to the entered adjustment value and the adjustment value is stored.

(Adjustment range: 0 ~ 99, Center value: 50)

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

**\* Preliminary work**

JOB No	Content
S 004	Scanner (reading) section cleaning
S 006	Image process section cleaning
S 007	Fusing section cleaning

**\* Necessary tools**

One of the following test charts is required.

Name	Gray scale chart
Parts code/Price rank	UKOG-0162FCZZ

Name	SHARP original test chart
Parts code/Price rank	UKOG-0089FCZZ

Name	KODAK gray scale chart
Parts code/Price rank	Commercially available

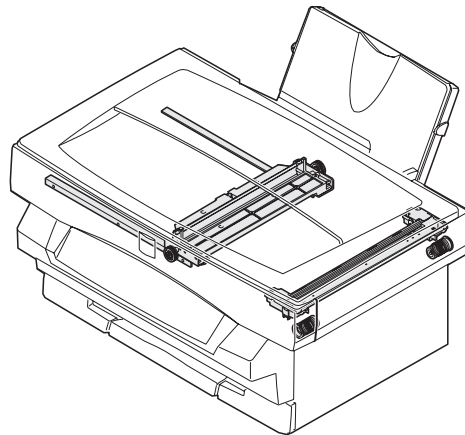
Name	FAX mode print density adjustment test chart
PARTS CODE/PRICERANK	TPAP-2109SCZZ

**ADJ M2 Copy image distortion adjustment**

Content				Preliminary work	After-work
				JOB No	JOB No
ADJ M2	Copy distortion adjustment	ADJ 1	Scanner unit parallelism adjustment (Mechanical adjustment)		ADJ M2/ADJ 2
		ADJ 2	Copy sub scanning direction distortion adjustment	ADJ M2/ADJ 1	ADJ M2/ADJ 3
		ADJ 3	Copy main scanning direction distortion adjustment	ADJ M2/ADJ 2	ADJ M3

**ADJ 1 Scanner unit parallelism adjustment**

**\* Location**



**\* Execution condition (time)**

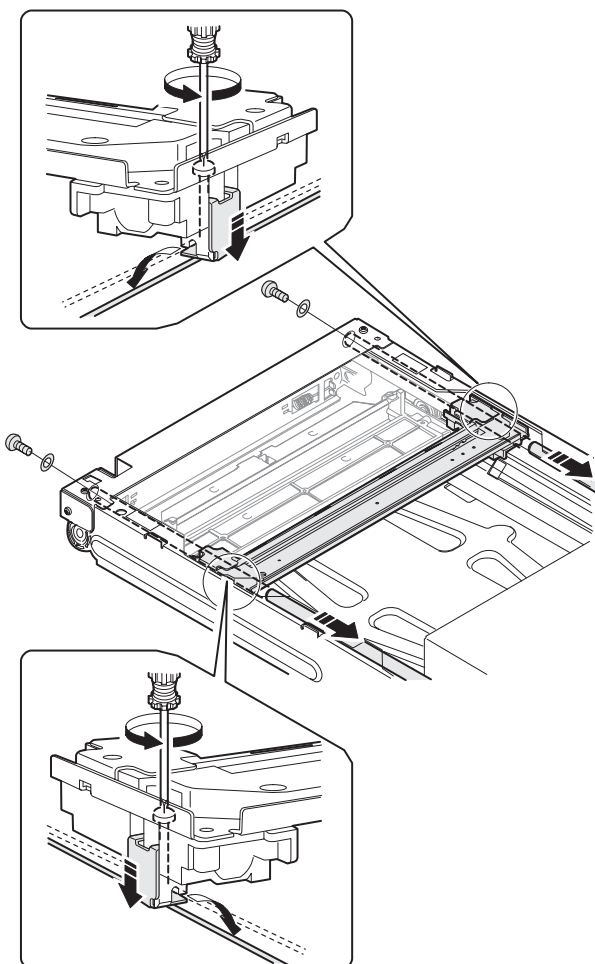
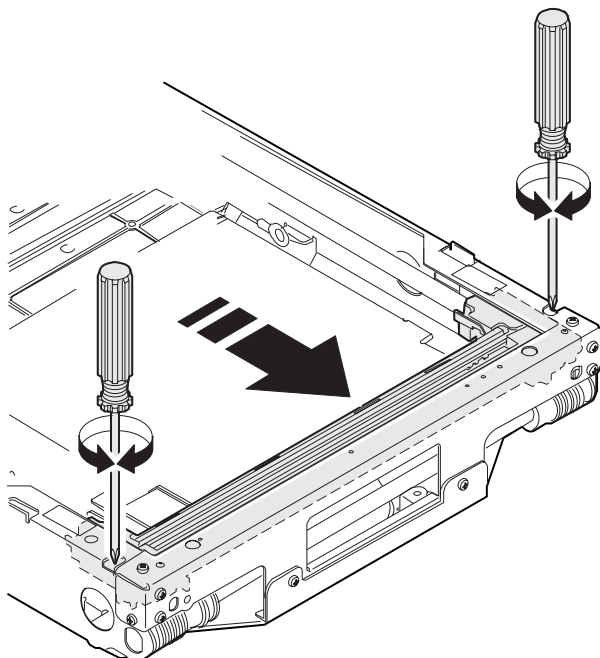
Enforcement time	JOB No	Content
	S 004	When any part in the scanner (reading) section is disassembled or replaced.
Cycle	—	
Condition	When the copy image distortion is outside the allowable range.	

\* **Necessary condition**

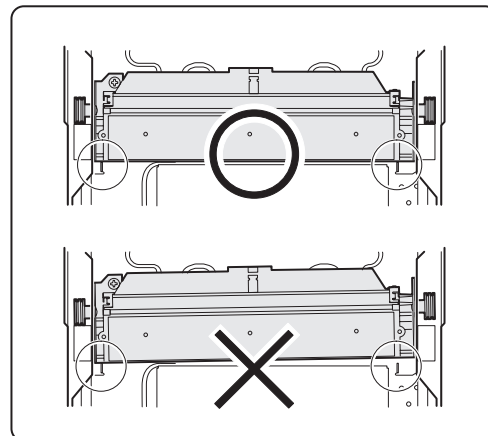
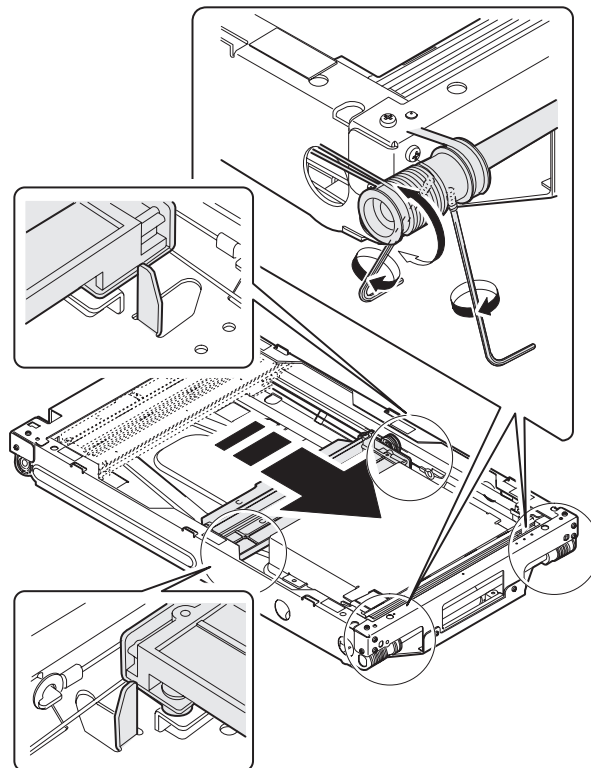
- 1) The scanner drive wire tension must be normal.

\* **Work content**

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



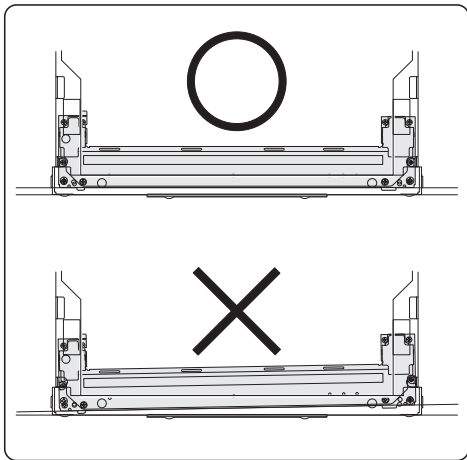
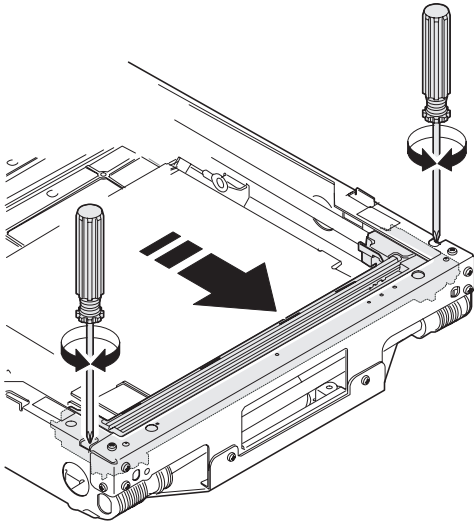
- 2) Manually turn the scanner drive gear to bring the scanner unit B into contact with the stopper, At that time, if the scanner unit B makes contact with both the stoppers in the front and the rear frames at the same time, the parallelism of the scanner unit B is proper. If not, perform the following procedures to adjust.



Do not move the scanner unit manually.

- 3) Loosen the fixing screw of the scanner unit drive pulley which is not in contact with the stopper of the scanner unit B.  
 4) Without moving the scanner unit drive shaft, manually turn the scanner unit drive pulley so that the scanner unit B makes contact with both the stoppers at the same time. (Change the relative positions of the scanner unit drive pulley and the drive shaft.)  
 5) Fix the scanner unit drive pulley fixing screw which was loosened in procedure 3).  
 6) Execute procedure 2).  
 Repeat procedures 3) - 6) until the parallelism of the scanner unit B is proper.

- 7) With the scanner unit B in contact with both the stoppers in the rear and the front frames, slide the scanner unit A until it makes contact with the right edge of the frame, and fix the scanner unit A and the drive wire.



**\* Troubles caused by improper work**

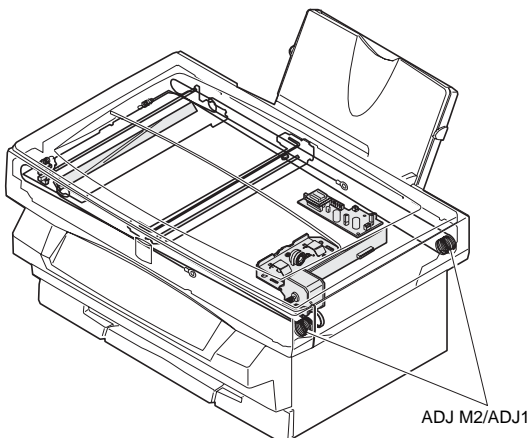
- 1) Scanner motor trouble

**\* After-work**

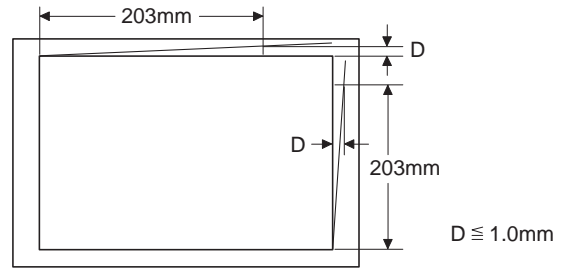
JOB No.	Content
ADJ M2/ADJ 2	Sub scanning direction copy distortion adjustment

**ADJ 2 Sub scanning direction distortion adjustment**

**\* Location**



**\* Adjustment value**



**\* Execution condition (time)**

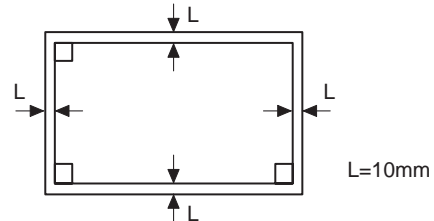
Enforcement time	JOB No	Content
	S 004	When any part in the scanner (reading) section is disassembled or replaced.
	ADJ M2/ADJ 1	When the scanner unit parallelism adjustment is performed.
Cycle	—	
Condition	When the copy image distortion is outside the specified range.	

**\* Necessary condition**

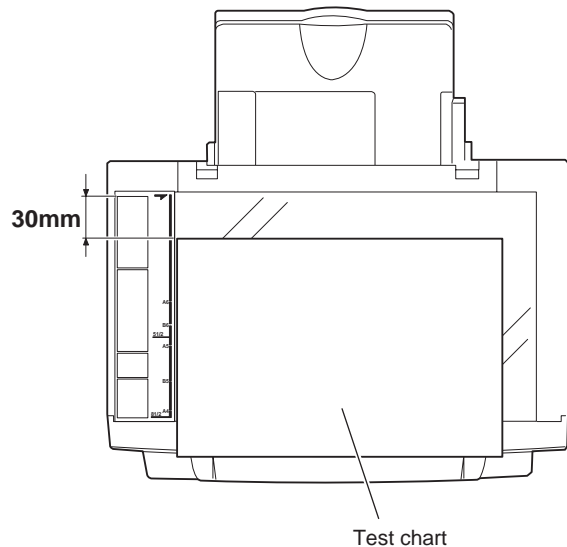
- 1) The scanner unit parallelism adjustment (mechanical adjustment) is completed.
- 2) The scanner drive wire tension is proper.

**\* Work content**

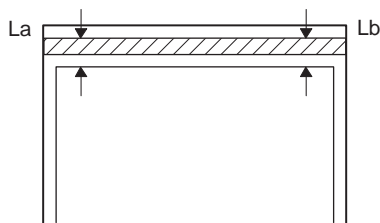
- 1) Make a test chart on A4 (11" × 8.5") paper as shown below. (Draw a rectangular with four right angles.)



- 2) Set the test chart which was made in procedure 1) on the document table, and make a copy on A4 (11" × 8.5") paper with the document cover open.

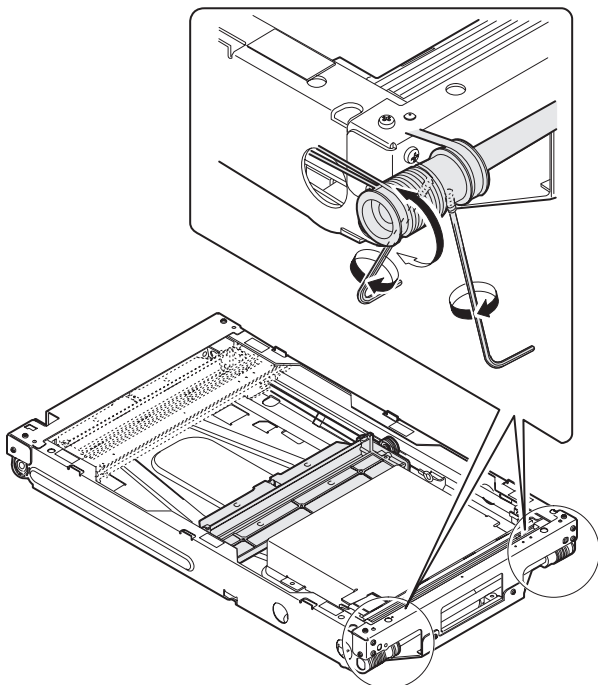


- 3) Check the sub scanning direction distortion.  
If  $La = Lb$ , there is no distortion.



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

- 4) Loosen either one of the two fixing screws of the scanner unit drive pulley.



- 5) Without moving the scanner unit drive shaft, manually turn the scanner unit drive pulley to adjust the parallelism of the scanner unit A. (Change the relative positions of the scanner unit drive pulley and the drive shaft.)
- 6) Tighten the scanner unit drive pulley fixing screw.  
Repeat procedures 2) ~ 6) until the condition of procedure 3) is satisfied.

**\* Preliminary work**

JOB No.	Content
ADJ M2/ADJ 1	Scanner unit parallelism adjustment (mechanical adjustment)

**\* After-work**

JOB No.	Content
ADJ M2/ADJ 3	Main scanning direction copy distortion adjustment

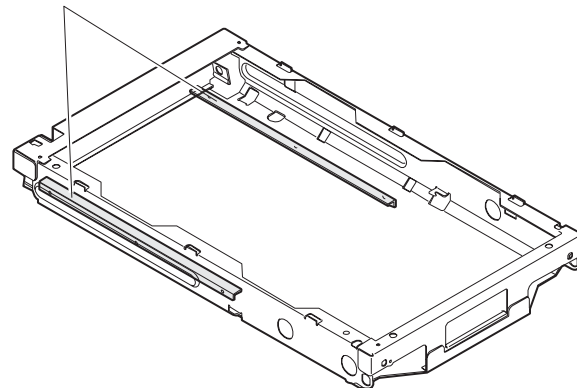
**\* Necessary tool**

Name	Scale
Parts code/Price rank	—

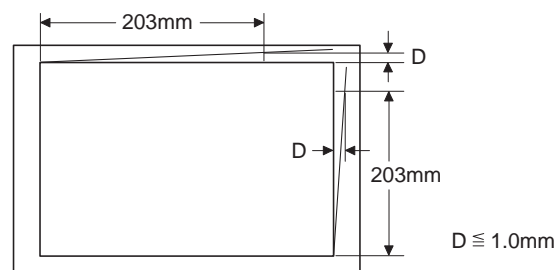
### ADJ 3 Copy main scanning direction distortion adjustment

**\* Location**

ADJM2/ADJ3



**\* Adjustment value**



**\* Execution condition (time)**

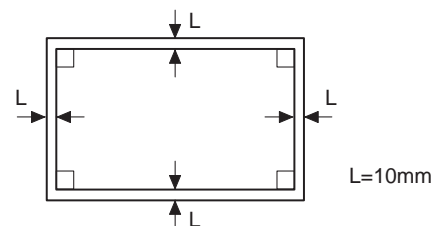
Enforcement time	JOB No	Content
	S 004	When any part in the scanner (reading) section is disassembled or replaced.
	ADJ M2/ADJ 2	When the sub scanning direction distortion is performed.
Cycle	—	
Condition	When the copy image distortion is not within the specified range.	

**\* Necessary condition**

- 1) The scanner unit parallelism adjustment (mechanical adjustment) is completed.
- 2) The scanner drive wire tension is proper.
- 3) The sub scanning direction copy distortion is within the specified range.

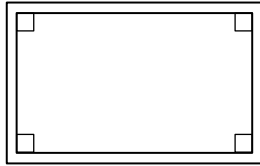
**\* Work content**

- 1) Make a test chart on A4 (11" × 8.5") paper as shown below. (Draw a rectangular with four right angles.)



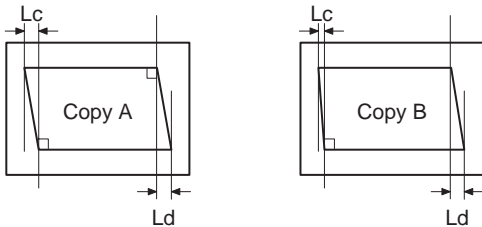
- 2) Set the test chart which was made in procedure 1) on the document table, and make a copy on A4 (11" × 8.5") paper with the document cover open.

- 3) Check the main scanning direction distortion.  
If the four angles of the copy are right angles, there is no distortion.



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

- 4) Check the distortion difference (distortion balance) between the right and the left sides.



Though there is some distortion, there is no difference between the right and the left distortions.

$L_c = L_d$

There is some difference between the right and the left distortions

$L_c \neq L_d$

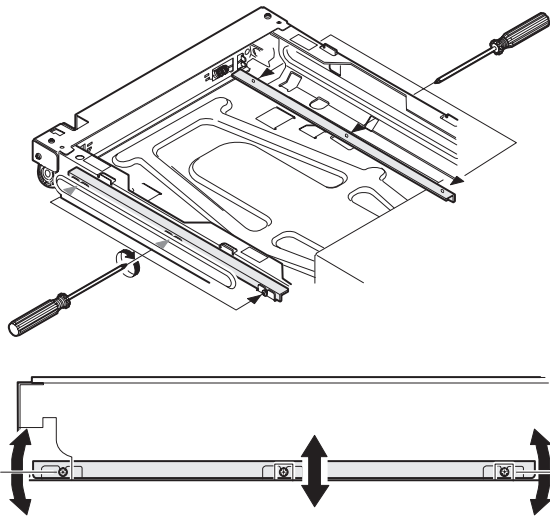
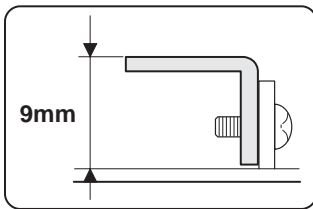
If  $L_c = L_d$ , the image distortions of the right and the left sides are equal to each other.

If the above condition is satisfied go to procedure 9).

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

- 5) Check the height of the scanner rail on the rear frame side.

If the scanner rail heights (on the right and the left sides) from the scanner chassis level are not 9.0mm, adjust so that they are 9.0mm.



- 6) Set the test chart made in procedure 1) on the document table, and make a copy on A4 (11" × 8.5") paper.

- 7) Check the distortion difference (distortion balance) between the right and the left sides.

If  $L_c = L_d$ , the image distortions of the right and the left sides are equal to each other.

If the above condition is satisfied go to procedure 9).

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

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

Repeat procedures 6) ~ 8) until the image distortion difference (distortion balance) becomes zero.

- 9) If the image distortion difference becomes zero, change the overall height of the front frame side scanner rail.

- 10) Set the test chart made in procedure 1) on the document table and make a copy on A4 (11" × 8.5") paper. Check that the main scanning direction distortion is within the specified range.

Repeat procedures 9) ~ 10) until the main scanning direction distortion is within the specified range.

**\* Preliminary work**

JOB No.	Content
ADJ M2/ADJ 2	Copy sub scanning direction distortion

**\* After-work**

JOB No.	Content
ADJ M3	Copy magnification ratio adjustment

**\* Necessary tool**

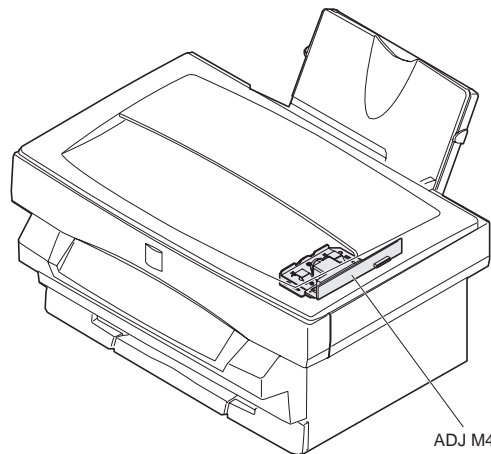
Name	Scale
Parts code/Price rank	—

**ADJ M3 Copy magnification ratio adjustment**

Content			Preliminary work	After-work
			JOB No	JOB No
ADJ M3	Copy magnification ratio adjustment	ADJ 1	ADJ M3/ADJ 3	ADJ M4/ADJ 2
		ADJ 2	ADJ M4/ADJ 1	

**ADJ 1 Copy focus (resolution), main scanning direction copy magnification ratio adjustment**

**\* Location**



### \* Adjustment value

(Test command (set value))

Range (MIN)	0
Range (MAX)	99
Standard value	50
Default	50

(Copy resolution, main scanning direction copy magnification ratio)

Copy image position	Copy resolution
Center	5.0 line/mm
Corner	4.5 line/mm

Copy magnification ratio display value	Actual copy magnification ratio
100%	Within $\pm 1.0\%$ of the displayed copy magnification ratio

### \* Program used

Test command (Simulation)	MODE	Normal
	MAIN CODE	48
	SUB CODE	1

### \* Execution condition (time)

Enforcement time	JOB No	Content
	S 004	When any part in the scanner (reading) section is disassembled or replaced.
	S 009/Ua 002	When replacing the MCU PWB In case of U2 trouble
Cycle	—	
Condition	When the main scanning direction copy magnification ratio and resolution are not in the specified range.	

### \* Necessary condition

- 1) The copy image distortion is within the specified range.
- 2) The copy image is free from deflection.
- 3) The copy image density is within the specified range.

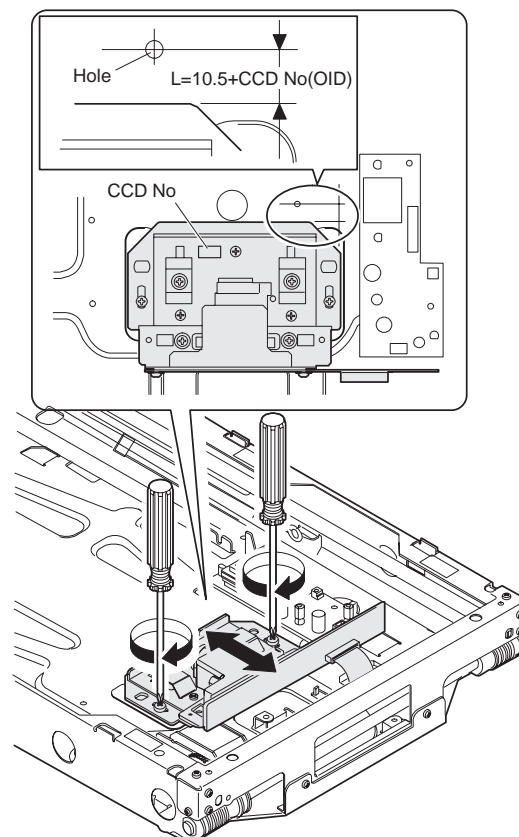
### \* Work content

- 1) Enter the simulation 48-1 mode.
- 2) Select the main scanning direction (manual) adjustment mode with the copy picture quality mode select key.  
(The currently set copy magnification ratio adjustment value is displayed on the copy quantity display.)

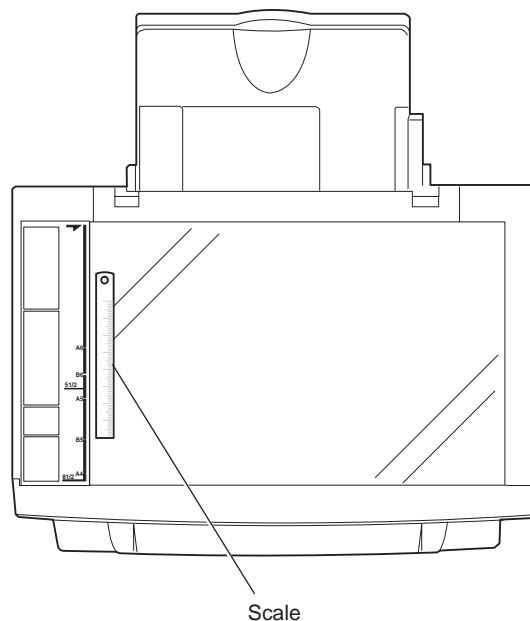
Adjustment mode		Adjustment mode (Lighting)	Note
Main scanning direction	Auto	Auto copy mode lamp	The adjustment is made automatically by the software.
	Manual	Manual copy mode lamp	The adjustment is made manually.
Sub scanning direction	Manual	Photo copy mode lamp	The adjustment is made by changing the scanning speed.

- 3) Set the adjustment value to 50 and press the start button.  
(The adjustment value is stored and a copy is made at the copy magnification ratio corresponding to the adjustment value.)  
The adjustment value can be set in the range of 0 ~ 99.
- 4) Turn off the power.

- 5) Check the CCD unit No. (OID) specified on the CCD unit.

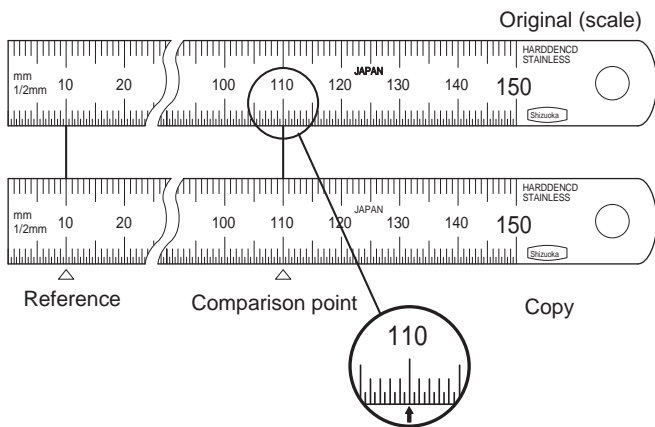


- 6) Loosen the CCD unit fixing screw.
- 7) Set the dimension (L) from the CCD edge to the center of the hole in the scanner (reading) unit to the value calculated from the following formula, and fix it.  
 $L = 10.5 + \text{CCD unit No. (OID)}$
- 8) Place the scale on the document table as shown below, and make a copy in the text copy mode at 100% in the proper density.



9) Measure the length of the copied scale image and calculate the main scanning direction magnification ratio.

(When a 100mm scale is used as the original)



Note: To minimize the reading error, measure at scale of 110 with

Main scanning direction magnification ratio = Copy image dimension/Original dimension × 100%

10) Check if the copy magnification ratio is within the specified range (100 ± 1%).

If the copy magnification ratio is within the specified range, the adjustment is completed.

If not, perform the following procedures.

(When the copy magnification ratio is over 100 ± 1.0% with SIM 48-1 main scanning direction (manual) adjustment mode copy magnification ratio is 50)

11) Change the CCD unit fixing position and repeat procedures 7) ~ 11).

**\* Troubles caused by improper work**

1) Never touch the other screws than the CCD unit fixing screw.

If the other screws are touched, insufficient resolution, image distortion, etc. may be resulted, which cannot be adjusted.

**\* Preliminary work**

JOB No	Content
ADJ M2/ADJ3	Copy sub scanning direction distortion adjustment

**\* After-work**

JOB No	Content
ADJ M3/ADJ 2	Sub scanning direction copy magnification ratio

**\* Necessary tools**

Name	Scale
Parts code/Price rank	—

Name	Test chart (resolution check chart)
Parts code/Price rank	UKOG-0089CSZZ

**\* Note**

With the SIM 48-1 adjustment value set to 50, change the CCD unit fixing position. If the copy magnification ratio is adjusted within the specified range (100 ± 1.0%), focus is adjusted as a result. (The specified resolution is obtained.)

If the copy magnification ratio is within the specified range (100 ± 1.0%) with the SIM 48-1 adjustment value set to 50, but if the specified resolution is not obtained, perform the following procedures.

1) Set the SIM 48-1 adjustment value to 50.

2) Change the CCD unit fixing position so that the specified resolution is obtained.

At that time, the main scanning direction copy magnification ratio may be outside the specified range (100 ± 1.0%).

3) Change the adjustment value of SIM 48-1 to adjust so that the main scanning direction copy magnification ratio is in the specified range (100 ± 1.0%).

**ADJ 2 Sub scanning direction copy magnification ratio adjustment**

**\* Adjustment value**

(Test command (et value))

Range (MIN)	0
Range (MAX)	99
Standard value	50
Default	50

(Sub scanning direction copy magnification ratio)

Copy magnification ratio display value	Actual copy magnification ratio
100%	Within ± 1.0% of the displayed copy magnification ratio

**\* Program used**

Test command (Simulation)	MODE	Normal
	MAIN CODE	48
	SUB CODE	1

**\* Execution condition (time)**

Enforcement time	JOB No	Content
	S 004	When any part in the scanner (reading) section is disassembled or replaced.
	ADJ M3/ADJ 1	When the main scanning direction copy magnification ratio is adjusted.
	S 009/Ua 002	When the MCU PWB is replaced
		In case of U2 trouble
Cycle	—	
Condition	When the sub scanning direction copy magnification ratio is not within the specified range.	

**\* Necessary condition**

- 1) The copy image distortion is within the specified range.
- 2) The copy image is free from deflection.
- 3) The copy image density is within the specified range.
- 4) The main scanning direction copy magnification ratio is within the specified range.

**\* Work content**

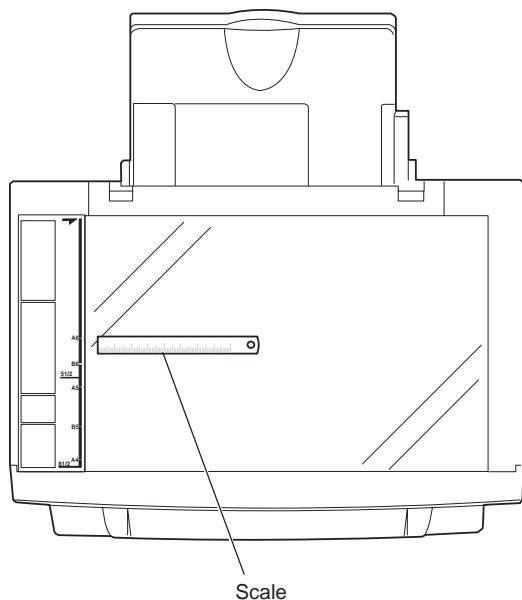
- 1) Enter the simulation 48-1 mode.
- 2) Select the sub scanning direction adjustment mode with the copy picture quality mode select key.

(The currently set copy magnification ratio adjustment value is displayed on the copy quantity display.)

Adjustment mode	Adjustment mode (Lighting)	Note	
Main scanning direction	Auto	Auto copy mode lamp	The adjustment is made automatically by the software.
	Manual	Manual copy mode lamp	The adjustment is made manually.
Sub scanning direction	Manual	Photo copy mode lamp	The adjustment is made by changing the scanning speed.

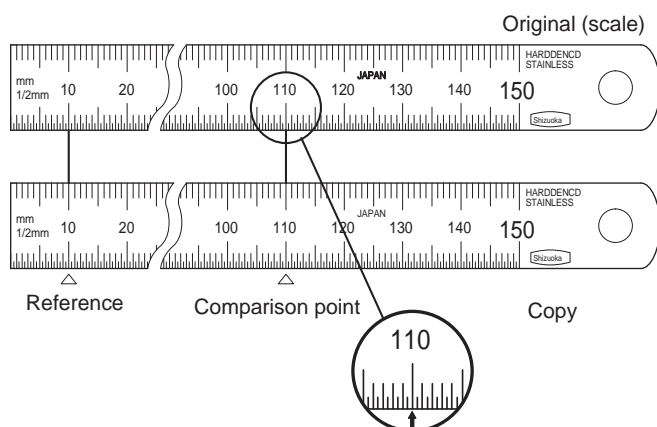


- 3) Place the scale on the document table as shown below, and make a copy in the text copy mode (100%) (Display) at a proper density.



- 4) Measure the copied scale length and calculate the sub scanning direction copy magnification ratio.

(When a 100mm scale is used as the original)



Note: To minimize the reading error, measure at scale of 110 with  
 Main scanning direction copy magnification ratio = Copy image dimension / Original dimension × 100%

- 5) 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 not, perform the following procedures.

- 6) Change the adjustment value of SIM 48-1 sub scanning direction copy magnification ratio.

When the adjustment value is increased by "1", the main scanning direction copy magnification ratio is increased by 0.1%.

Repeat procedures 3) ~ 6) until the copy magnification ratio is within the specified range ( $100 \pm 1.0\%$ ).

#### \* Preliminary work

JOB No	Content
ADJ M3/ADJ 1	Main scanning direction copy magnification ratio adjustment

#### \* Necessary tools

Name	Scale
Parts code/Price rank	—

#### \* Note

- 1) If this adjustment is performed when the main scanning direction copy magnification ratio is not in the specified range ( $100\% \pm 0.1\%$ ) the proper copy magnification ratio cannot be obtained.

### ADJ M4 Copy image position adjustment (Main scanning direction)

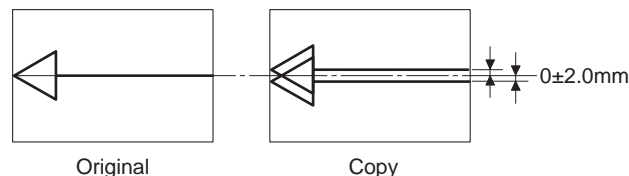
#### \* Adjustment value

(Test command (Simulation) (Set value))

Range (MIN)	0
Range (MAX)	99
Standard value	50
Default	50

(Copy image position (Main scanning direction))

When the copy image position is compared with the original image position, the shift must be within  $0 \pm 2.0\text{mm}$ .



#### \* Program used

Test command (Simulation)	MODE	Normal
	MAIN CODE	50
	SUB CODE	10

#### \* Execution condition (time)

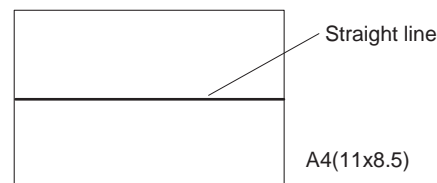
Enforcement time	JOB No	Content
	S 004	When any part of the scanner section (reading) is disassembled and replaced.
—	S 009/Ua 002	When replacing MCU PWB
	—	In case of U2 trouble
Cycle	—	
Condition	When the copy image position (main scanning direction) is not in the specified range.	

#### \* Necessary conditions

- 1) The copy image distortion is within the specified range.
- 2) The main scanning direction copy magnification ratio is within the specified range.
- 3) When the paper guide position is fit with the paper width.

#### \* Work content

- 1) Make a test sheet.  
 Draw a line in the longitudinal direction (paper transport direction) on A4 (11 × 8.5") paper.



- 2) Fit the check sheet with the original guide mark (reference position).
- 3) Enter the simulation 50-10 mode.  
 And select the adjustment mode copy image position adjustment. (Main scanning direction) with the copy picture quality mode select key (Photo copy mode lamp is ON).

Adjustment mode	Adjustment mode display (Lighting)	Note
Main scanning direction image position	Photo copy mode lamp	
Main scanning direction image position (SPF mode)	Auto/Photo/Text copy mode lamp	
Left void area	Auto copy mode lamp	
Right void area	Text copy mode lamp	

(The currently set copy image position adjustment value in the main scanning direction (back-forth direction) is displayed on the copy quantity display.

- Make a copy on A4 (11 × 8.5") paper.
- Fit the original (check sheet) tip with the copy paper tip to check that the image position shift is within 0 ± 2.0mm.  
If not, change the adjustment value of SIM 50-10 and repeat procedures 4) and 5) until the shift is within the specified range.  
The adjustment value can be set in the range of 0 ~ 99.  
When the adjustment value is changed by 1, the copy image position is shifted by 0.1mm in the main scanning direction.

**\* After work**

JOB No	Content
ADJ M6	Copy image area (image loss, void area, adjustment)

**\* Necessary tools**

Name	Check sheet (Self-made)
Parts code/Price rank	—

**\* Note**

If the copy image position in the main scanning direction cannot be adjusted within the specified range with this adjustment, check the paper feed operation.

**ADJ M5 Copy image area (Image loss, void area) adjustment**

**ADJ 1 Image loss, void area (lead edge, tail edge) adjustment**

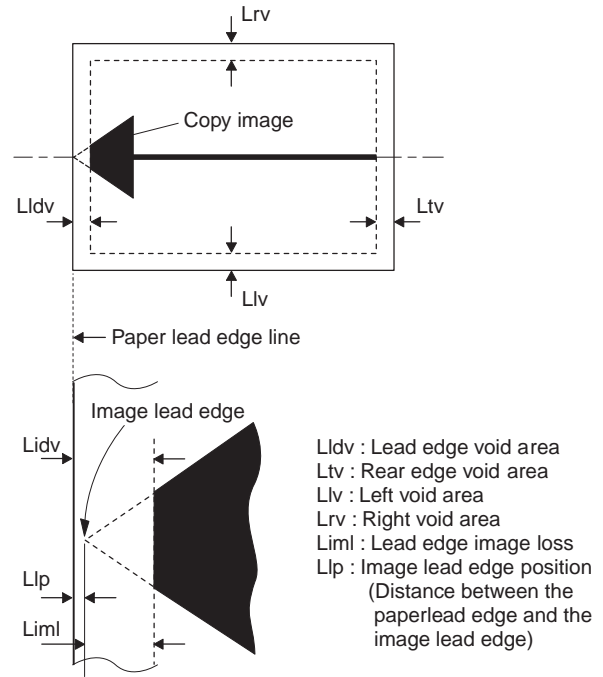
**\* Adjustment value**

(Simulation djustment value)

	Image lead edge position	Image scanning start position	Lead edge void area	Trail edge void area
Range (MIN)	0	0	0	0
Range (MAX)	99	99	99	99
Standard value	50	50	50	50
Default	50	50	50	50

(Image loss, void area adjustment value)

	Image lead edge position	Lead edge image loss	Lead edge void area	Trail edge void area
Range (MIN)	—	—	1.0mm	1.0mm
Range (MAX)	—	—	5.0mm	5.0mm
Standard value	0mm	2.5mm	2.5mm	2.5mm



**\* Program used**

Test command (Simulation)			Adjustment item
MAIN CODE	SUB CODE	Adjustment mode display lamp (ON)	
50	1	Auto copy mode lamp	Image lead edge position (Print start position) adjustment (Document table mode)
		Photo copy mode lamp	Image lead edge reference position (Print scan start position) adjustment (Document table mode)
		Manual copy mode lamp	Image lead edge void area (image loss) adjustment (Document table mode)
		Auto/manual copy mode lamp	SPF mode image lead edge reference position (image scan start position) adjustment
26	44		SPF copy mode copy rear edge void area adjustment
	47		FAX SPF mode copy rear edge void area adjustment

**\* Execution condition (time)**

Enforcement time	JOB No	Content
	S 004	When any part in the scanner (reading) section is disassembled or replaced.
Cycle	S 009/Ua 002	When the MCU PWB is repalced.
		In case of U2 trouble
Conditions	When the copy image area (image loss, void area) is not within the specified range.	

**\* Necessary condition**

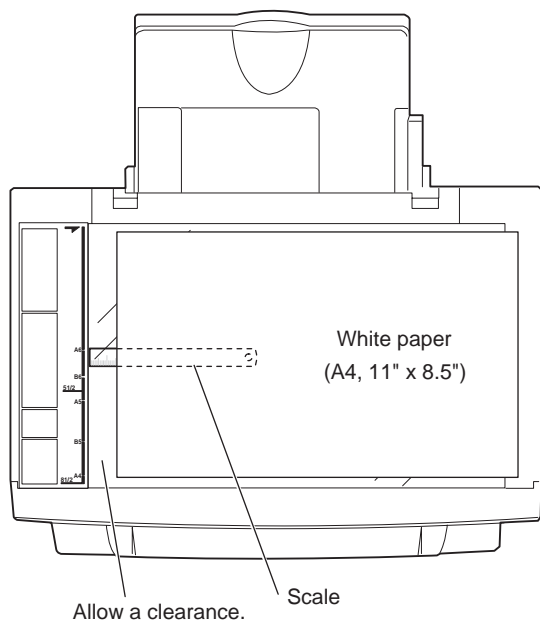
- The copy magnification ratio is within the specified range.
- The copy distortion is within the specified range.

**\* Work content**

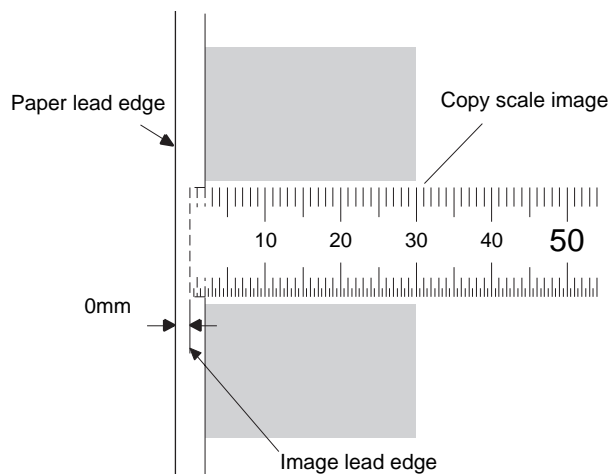
- Enter the SIM 50-1 mode.
- Select the adjustment mode image lead edge position (print start position) with the copy picture quality mode select key.

(The currently set adjustment value is displayed on the copy quantity display.)

- 3) Set the value to "50" and press the start button.  
(the adjustment value is stored and a copy is made.)  
When the set value is increased, the image lead edge position is shifted forward for the paper lead edge position.  
When the set value is decreased, the image lead edge position is shifted backward for the paper lead edge position.
- 4) Place the scale at the document table lead edge reference in the sub scanning direction, and place a white paper (A4, 11" × 8.5") at a slightly shifted position to the right of the scale.



- 5) Select the adjustment mode image lead edge reference position (image scan start position) with the copy picture quality mode select key.  
(The currently set adjustment value is displayed on the copy quantity display.)
- 6) Press the start button. (Make a copy with the document cover open.)  
(A copy is made.)
- 7) Measure the distance between the paper lead edge position and the copy image lead edge reference position (scale image lead edge).  
If the scale image is cut halfway, assume the virtual lead edge of the scale image for measurement.



If the distance between the paper lead edge and the image lead edge is not  $0 \pm 1.5\text{mm}$ , change the set value and press the start button.

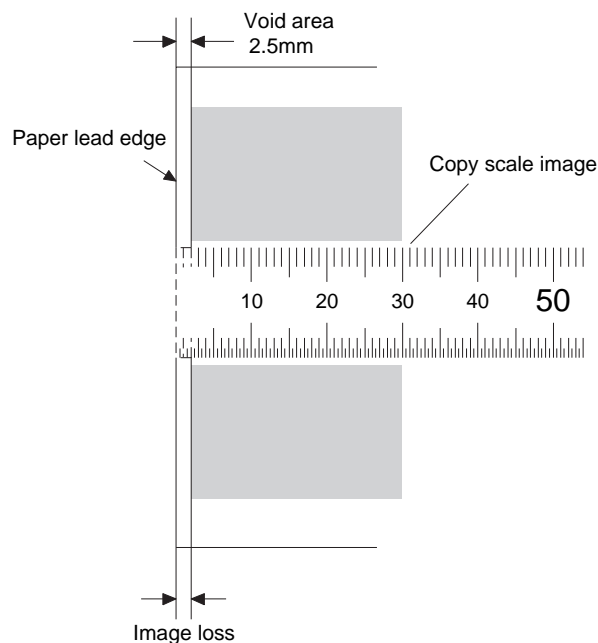
(the adjustment value is stored and a copy is made.)

When the set value is increased, the image lead edge position is shifted forward for the paper lead edge position.  
When the set value is decreased, the image lead edge position is shifted backward for the paper lead edge position.

(Note)

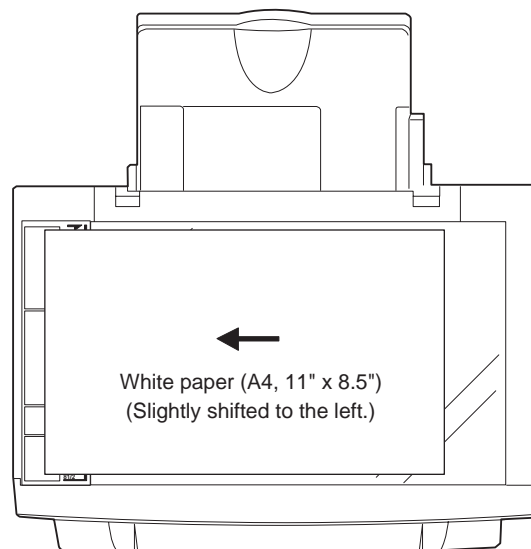
If this adjustment value is improper, the copy image lead edge position varies when the copy magnification ratio is changed.

- 8) Select the adjustment mode lead edge void area (image loss) with the copy picture quality mode select key.  
(The currently set adjustment value is displayed on the copy quantity display.)
- 9) Press the start button.  
(A copy is made.)
- 10) Measure the lead edge void area (image loss).



If the distance between the paper lead edge and the copy image lead edge is not  $2.5 \pm 15\text{mm}$ , change the set value and press the start button.

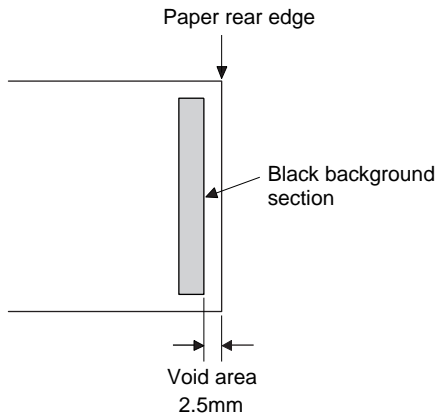
- 11) Place a white paper (A4, 11" × 8.5") at a slightly shifted position to the left of the scale.



- 12) Select the adjustment mode rear edge void area with the copy picture quality mode select key.

(The currently set adjustment value is displayed on the copy quantity display.)

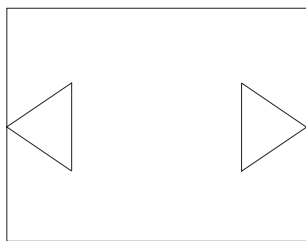
- 13) Press the start button. (Make a copy with the document cover open.)  
(A copy is made.)
- 14) Measure the rear edge void area.



If the distance between the paper rear edge and the copy image rear edge is not  $2.5 \pm 1.5$ mm, change the set value and press the start button.

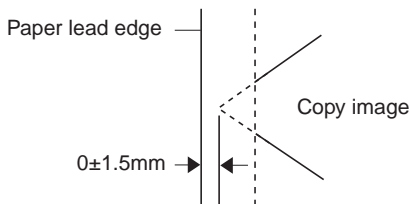
The adjustment value can be set in the range of 0 ~ 99.

- 15) Use A4(11 × 8.5) paper to make a test chart as shown below.



- 16) Set the test chart made in procedure 15) on the SPF tray.
- 17) Use the copy image mode select key to select the SPF mode image lead edge reference position (image scan start position) adjustment mode. (The auto/manual copy mode lamp lights up.)
- 18) Press the START button. (A copy is made.)
- 19) Measure the distance between the paper lead edge and the copy image lead edge.

If the copy image lead edge is cut away, suppose the virtual image and measure the distance.



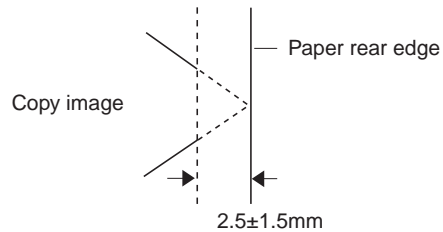
If the distance between the paper lead edge and the copy image lead edge is not within  $0 \pm 1.5$ mm, change the adjustment value and perform procedures 16) ~ 19) again.

- 20) Cancel the simulation 50-1 mode.

(The following procedures are for SPF mode copy rear edge void area adjustment.)

- 21) Set the test chart made in procedure 15) on the SPF tray.
- 22) Make a copy in the SPF copy mode. Check the copy rear edge void area.

(Check that the distance between the paper rear edge and the copy image rear edge is  $2.5 \pm 1.5$ .)



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

- 23) Enter the simulation 26-44 mode.
- 24) To change the print density, change the adjustment value with the figure UP-DOWN key and press the START button. (The adjustment value is stored.)

(Adjustment range: 0 ~ 8, Default: 4)

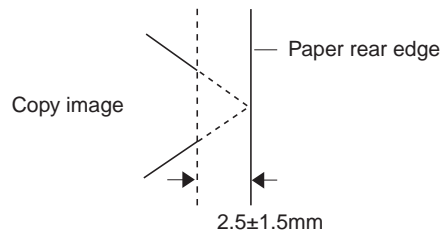
When the adjustment value is changed by 1, the distance is changed by about 1mm.

- 25) Cancel the simulation 26-44.
- Repeat procedures 21) ~ 25) until the specification in procedure 22) is satisfied.

(The following procedures are for the FAX SPF mode copy rear edge void area adjustment.)

- 26) Set the test chart made in procedure 15) on the SPF tray.
- 27) Enter the simulation 46-12 mode.
- 28) Make a copy in the FAX SPF print mode and check the void area.

(Check that the distance between the paper rear edge and the copy image rear edge is  $2.5 \pm 1.5$  mm.)



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

- 29) Enter the simulation 26-47 mode.
- 30) To change the print density, change the adjustment value with the figure UP-DOWN key and press the START button. (The adjustment value is stored.)

When the adjustment value is increased, the copy rear edge void area is increased.

(Adjustment range: 0 ~ 8, Default: 4)

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

- 31) Cancel the simulation 26-47.
- Repeat procedures 26 ~ 31) until the specification of procedure 28) is satisfied.

(Note)

Use SIM 50-10 to adjust the main scanning direction image position

**\* Troubles caused by improper work**

- 1) If the void area is less than the specified level, the transfer roller, the fusing roller, the separation pawl, and the paper transport section are dirtied with toner.

As a result, print paper is dirtied and paper jams are generated.

**\* Necessary tools**

Name	Scale
Parts code/Price rank	—

## ADJ 2 Void area (left/right) adjustment

### \* Adjustment value

(Simulation adjustment value)

	Left void area	Right void area
Range (MIN)	0	0
Range (MAX)	99	99
Standard value	50	50
Default	50	50

(Image loss, void area adjustment)

	Left void area	Right void area
Range (MIN)	1.0mm	1.0mm
Range (MAX)	3.0mm	3.0mm
Standard value	2.0mm	2.0mm

### \* Program used

Test command (Simulation)	MODE	Normal
	MAIN CODE	50
	SUB CODE	10

### \* Execution condition (time)

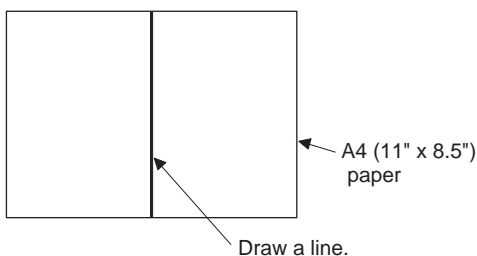
Enforcement time	JOB No	Content
	S 004	When any part in the scanner (reading) section is disassembled or replaced.
S 009/Ua 002	When the MCU PWB is replaced.	
	In case of U2 trouble	
Cycle	—	
Conditions	When the copy image area (image loss, void area) is not within the specified range.	

### \* Necessary condition

- 1) The copy magnification ratio is within the specified range.
- 2) The copy distortion is within the specified range.

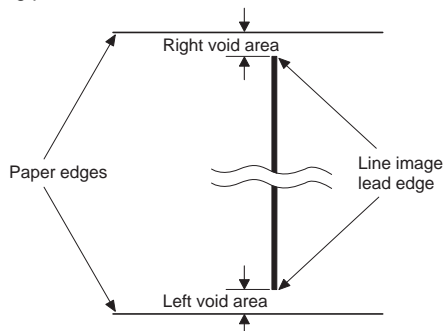
### \* Work content

- 1) Make a test chart as shown below.



- 2) Enter the SIM 50-10 mode.
- 3) Set the test chart made in procedure 1) on the document table.
- 4) Make a copy and measure the left and the right void areas. (Measure the distance from the left/right edge to the image lead edge.)

If the void area is not within the specified range, perform the following procedure.



Standard value: 2.0<sub>-0.5</sub><sup>0.5</sup>mm

- 5) Select the left void area adjustment with the copy picture quality mode select key.

(The currently set adjustment value is displayed on the copy quantity display.)

Adjustment mode	Adjustment mode display (Lighting)	Note
Main scanning direction image position	Photo copy mode lamp	
Main scanning direction image position (SPF mode)	Auto/Photo/Text copy mode lamp	
Left void area	Auto copy mode lamp	
Right void area	Manual copy mode lamp	

- 6) Change the set value and press the start button. (The adjustment value is stored and a copy is made.)  
When the set value is increased, the void area is increased.  
When the set value is decreased, the void area is decreased.  
When the void area is changed by 1, the void area is changed by 0.1 mm.  
Repeat procedures 4) ~ 6) until the left void area is within the specified range.

- 7) Select the right void area adjustment with the copy picture quality mode select key.

(The currently set adjustment value is displayed on the copy quantity display.)

Adjust the right void area in the same manner as the left void area adjustment.

### \* Troubles caused by improper work

- 1) If the void area is less than the specified level, the transfer roller, the fusing roller, the separation pawl, and the paper transport section are dirtied with toner.  
As a result, print paper is dirtied and paper jams are generated.

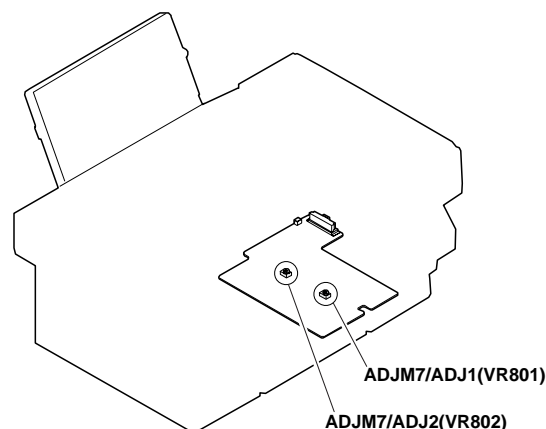
### \* Necessary tools

Name	Scale
Parts code/Price rank	—

## ADJ M6 Image process (high voltage) power adjustment

Content		Preliminary work	After-work
		JOB No	JOB No
ADJ M6 Image process (high voltage) power adjustment	ADJ 1 Charging voltage adjustment		ADJ M1
	ADJ 2 Developing bias voltage adjustment/check		ADJ M1

### \* Location



### ADJ 1 Charging (main charger) voltage adjustment

**\* Adjustment value**

Range (MIN)	-1050 V
Range (MAX)	-1200 V
Standard value	-1100 V
Default	-1100 V

**\* Program used**

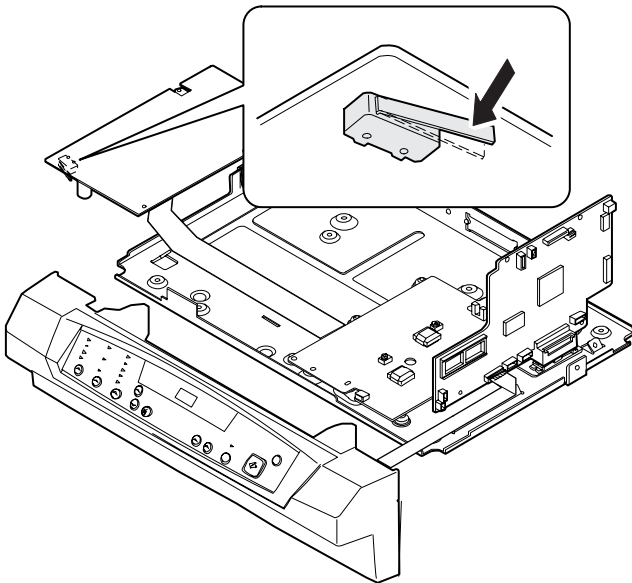
Test command (Simulation)	MODE	Normal
	MAIN CODE	8
	SUB CODE	2

**\* Execution condition (time)**

Enforcement time	JOB No	Content
	S 009/Ua 004	When replacing the High voltage/motor drive PWB unit
Cycle	—	
Condition	Print (copy) density is too dark or too light. Though copy density adjustment is executed with the Test command (simulation) 46-1, satisfactory density cannot be obtained.	

**\* Work content**

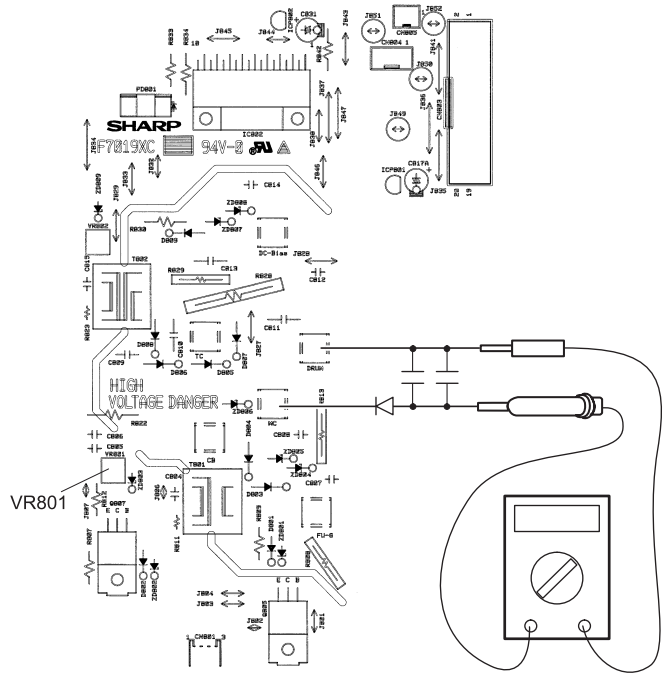
- 1) Connect between the power PWB and the MCU PWB, the high voltage/motor drive PWB unit and the operation unit with harnesses.



- 2) Manually turn on the cover switch and turn on the power.
- 3) Execute SIM 8-2. (The charging voltage (main charer) is out-putted.)

- 4) Measure the charging (main charger) voltage with a digital multi-meter (effective value meter, input impednce 1000MΩ or above). Adjust VR801 so that the output voltage is -1050 ~ -1200 V.

Before measurement, connect the capacitor and the diode to the tip of the digital multi-meter as shown below.



**\* Troubles caused by improper work**

- 1) Copy (print) defective (Insufficient density, background copy, dirt, etc.)
- 2) The copy density cannot be adjusted in the proper range with SIM 46-1.
- 3) The photoconductor is damaged.

**\* After-work**

JOB No.	Content
ADJ M1	Copy density adjustment

**\* Necessary tools**

Name	Digital multi-meter/High voltage probe
Parts code/Price rank	—
Note	Internal impedance 1000 or above, effective value measurement Recommendable unit: (FLUKE 87/FLUKE 80K-40)

Name	Diode
Parts code/Price rank	VHDSV03///-1
Note	Other type withstand voltage of 2KV or above can be used instead.

Name	Capacitor
Parts code/Price rank	VCKYQ3FB102K
Note	Other type withstand voltage of 3KV with 1000pF can be used instead.

**\* Note**

- 1) Use a digital multi-meter (effective value meter, internal impedance of 1000MΩ or above).  
Connect the capacitor and the diode to the tip of the digital multi-meter for measurement. If the above condition are not satisfied, the proper measurement of voltage cannot be made.
- 2) Since a high voltage is outputted, be careful of electric shock.

## ADJ 2 Developing bias voltage adjustment

### \* Adjustment value

Range (MIN)	-305 V
Range (MAX)	-315 V
Standard value	-310 V
Default	-310 V

### \* Program used

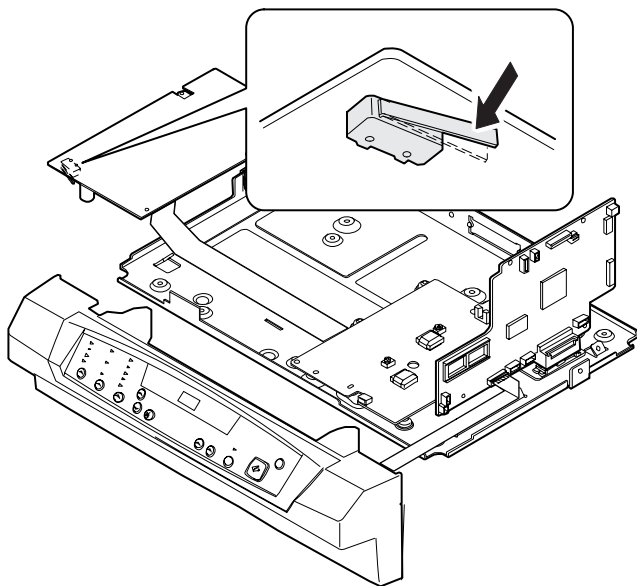
Test command (Simulation)	MODE	Normal
	MAIN CODE	8
	SUB CODE	2

### \* Execution condition (time)

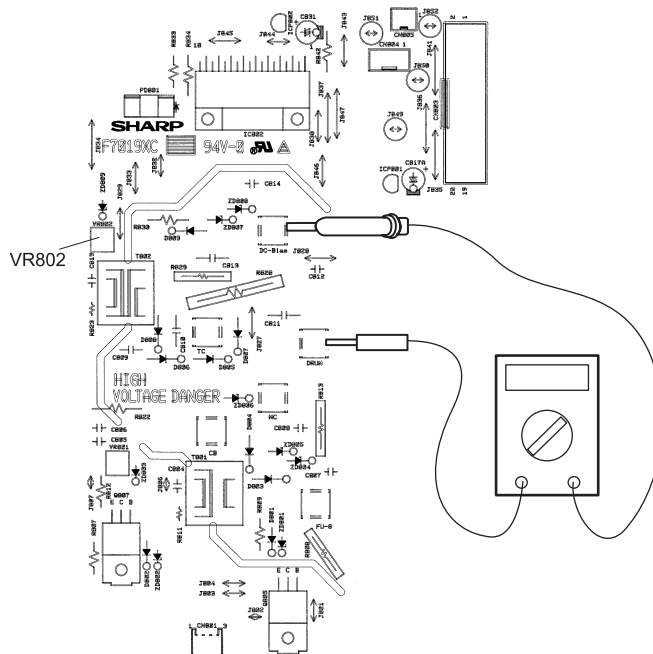
Enforcement time	JOB No	Content
	S 009/Ua 004	When replacing the high voltage/motor drive PWB unit
Cycle		
Condition		
1) Print (copy) density is too dark or too light. Though copy density adjustment is executed with the Test command (simulation) 46-1, satisfactory density cannot be obtained. 2) Ghost is generated.		

### \* Work content

- 1) Connect between the power PWB and the MCU PWB, the high voltage/motor drive PWB unit and the operation unit with harnesses.



- 2) Manually turn on the cover switch and turn on the power.
- 3) Execute SIM 8-2. (The developing bias voltage is outputted.)
- 4) Measure the developing bias voltage with the digital multi-meter (effective value meter).  
Adjust VR802 so that the output voltage is  $-310 \pm 5V$ .



### \* Troubles caused by improper work

- 1) Copy (print) defective  
(Insufficient density, background copy, dirt, etc.)  
(Ghost)
- 2) The copy density cannot be adjusted with SIM 46-1.
- 3) Photoconductor damage

### \* After-work

JOB No.	Content
ADJ M1	Copy density adjustment

### \* Necessary tools

Name	Digital multi-meter/High voltage probe
Parts code/Price rank	—
Note	Internal impedance of 1000M $\Omega$ or above, effective value measurement (Recommendable unit: FLUKE 87/FLUKE 80K-40)

### \* Note

- 1) Use a digital multi-meter (effective value meter, internal impedance of 1000M $\Omega$  or above).  
Connect the capacitor and the diode to the tip of the digital multi-meter for measurement. If the above condition are not satisfied, the proper measurement of voltage cannot be made.
- 2) Since a high voltage is outputted, be careful of electric shock.

## CHI M1 Image process (high voltage) power check

### \* Specified values

Range (MIN)	+3200V
Range (MAX)	+3700V
Standard value	+3500V
Default	+3500V

### \* Program used

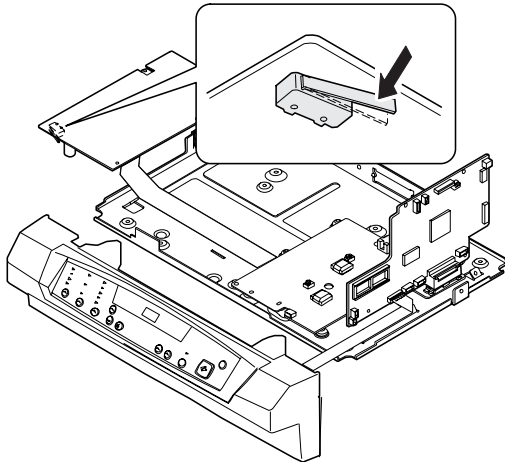
Test command (Simulation)	MODE	Normal
	MAIN CODE	8
	SUB CODE	2

**\* Execution condition (time)**

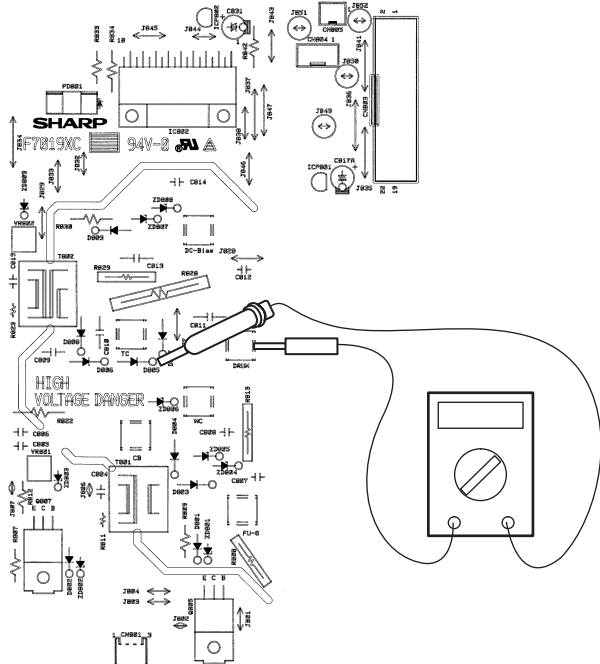
Enforcement time	JOB No	Content
	S 009/Ua004	When replacing the high voltage/motor drive PWB unit
Cycle	—	
Condition	1) Print (copy) density is too dark or too light. Though copy density adjustment is executed with the Test command (simulation) 46-1, satisfactory density cannot be obtained. 2) Ghost is generated.	

**\* Work content**

- 1) Connect between the power PWB and the MCU PWB, the high voltage/motor drive PWB unit and the operation unit with harnesses.



- 2) Manually turn on the cover switch and turn on the power.
  - 3) Execute SIM 8-2.  
(The transfer charger voltage is outputted.)
  - 4) Measure the transfer charger voltage (D805) with the digital multi-meter (effective value meter).
- Check that the output voltage is +3200 ~ +3700V. If it is not in the range, replace the high voltage/motor drive PWB unit.



**\* Troubles caused by improper work**

- 1) Copy (print) defective  
(Insufficient density, background copy, dirt, etc.)  
(Ghost)
- 2) The copy density cannot be adjusted with SIM 46-1.

**\* Necessary tools**

Name	Digital multi-meter/High voltage probe
Parts code/Price rank	—
Note	Internal impedance of 1000MΩ or above, effective value measurement (Recommendable unit: FLUKE 87/FLUKE 80K-40)

**\* Note**

- 1) Use a digital multi-meter (effective value meter, internal impedance of 1000MΩ or above).  
If the above condition are not satisfied, the proper measurement of voltage cannot be made.
- 2) Since a high voltage is outputted, be careful of electric shock.

**ADJ M7 Fusing temperature adjustment**

Content			
ADJ M7	Fusing temperature adjustment	ADJ 1	Fusing temperature adjustment within 20 sheets of continuous print
		ADJ 2	Fusing temperature adjustment after 20 sheets of continuous print

**ADJ 1 Fusing temperature adjustment within 20 sheets of continuous printing**

**ADJ 2 Fusing temperature adjustment after 20 sheets of continuous printing**

**\* Adjustment value**

(Test command (simulation) adjustment value)

Fusing temperature adjustment within 20 sheets of continuous printing

Range (MIN)	1 (155°C)
Range (MAX)	5 (175°C)
Standard value	0 (160°C)
Default	0 (160°C)

Fusing temperature adjustment after 20 sheets of continuous printing

Range (MIN)	1 (150°C)
Range (MAX)	5 (175°C)
Standard value	2 (155°C)
Default	2 (155°C)

**(Adjustment value)**

Fusing temperature adjustment within 20 sheets of continuous printing

Adjust to 160°C.

Fusing temperature adjustment after 20 sheets of continuous printing

Adjust to 155°C.

**\* Program used**

Fusing temperature adjustment within 20 sheets of continuous printing

Test command (Simulation)	MODE	Normal
	MAIN CODE	43
	SUB CODE	1



Fusing temperature adjustment after 20 sheets of continuous printing

Test command (Simulation)	MODE	Normal
	MAIN CODE	43
	SUB CODE	4

**\* Execution time**

Enforcement time	JOB No	Content
	S 009/Ua 002	When replacing MCU PWB In case of U2 trouble
Cycle		—
Condition		—

**\* Job content**

(Fusing temperature adjustment within 20 sheets of continuous printing)

1) Enter SIM 43-1 mode.

(The currently set code of the fusing temperature adjustment within 20 sheets of continuous printing is displayed.)

2) Set the adjustment value to 0 (160°C) and press the start button.

**(Fusing temperature adjustment after 20 sheets of continuous printing)**

1) Enter SIM 43-4 mode.

(The currently set code of the fusing temperature adjustment after 20 sheets of continuous printing is displayed.)

2) Set the adjustment value to 1 (155°C) and press the start button.

**\* Trouble caused by improper work**

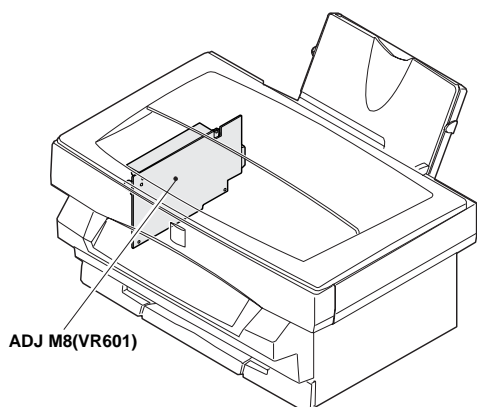
- 1) Fusing abnormality
- 2) Fusing section parts damage
- 3) Paper jam

**\* Note**

Be sure to set to the standard value. If not a trouble may occur.

## ADJ M8 Power voltage adjustment

**\* Location**



**\* Adjustment value**

Range (MIN)	23.5V
Range (MAX)	24.5V
Standard value	24V

**\* Execution time**

Enforcement time	JOB No	Content
	S 009/Ua 001	When replacing a power in the PWB unit.

**\* Necessary condition**

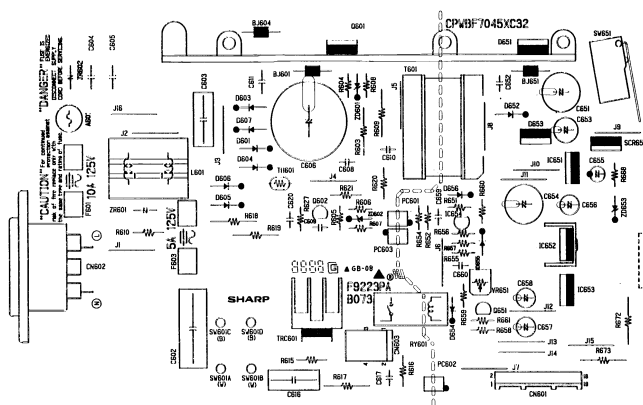
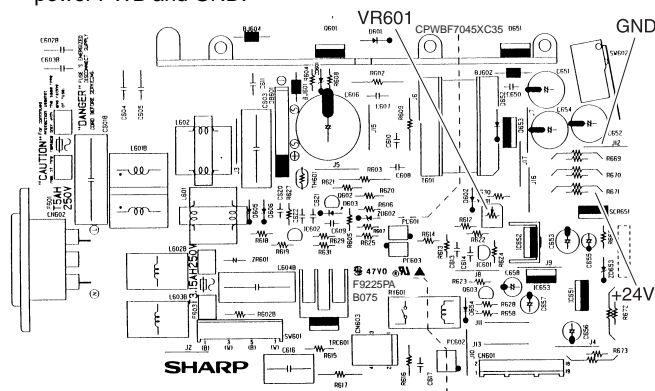
1) Adjust with the AC power voltage in the specified range (90 ~ 110% of the standard power voltage).

**\* Job content**

1) Manually turn on the cabinet switch.

2) Turn on the power.

3) Put a digital multi-meter between the check point (24V) on the power PWB and GND.



4) Turn the adjustment volume (VR601) on the power PWB and adjust the 24V output to 24 ± 0.5V.

**\* Trouble caused by improper job**

- 1) Circuit malfunction
- 2) Circuit parts damage

**\* Necessary tool**

Name	Digital multi-meter
Parts code/Price rank	—

## ADJ M9 Copy lamp light quantity adjustment

**\* Location value**

Range (MIN)	3.9 V
Range (MAX)	4.1 V
Standard value	4.0 V
Default	4.0 V

**\* Program used**

Test command (Simulation)	MODE	Normal
	MAIN CODE	63
	SUB CODE	1

**\* Enforcement time**

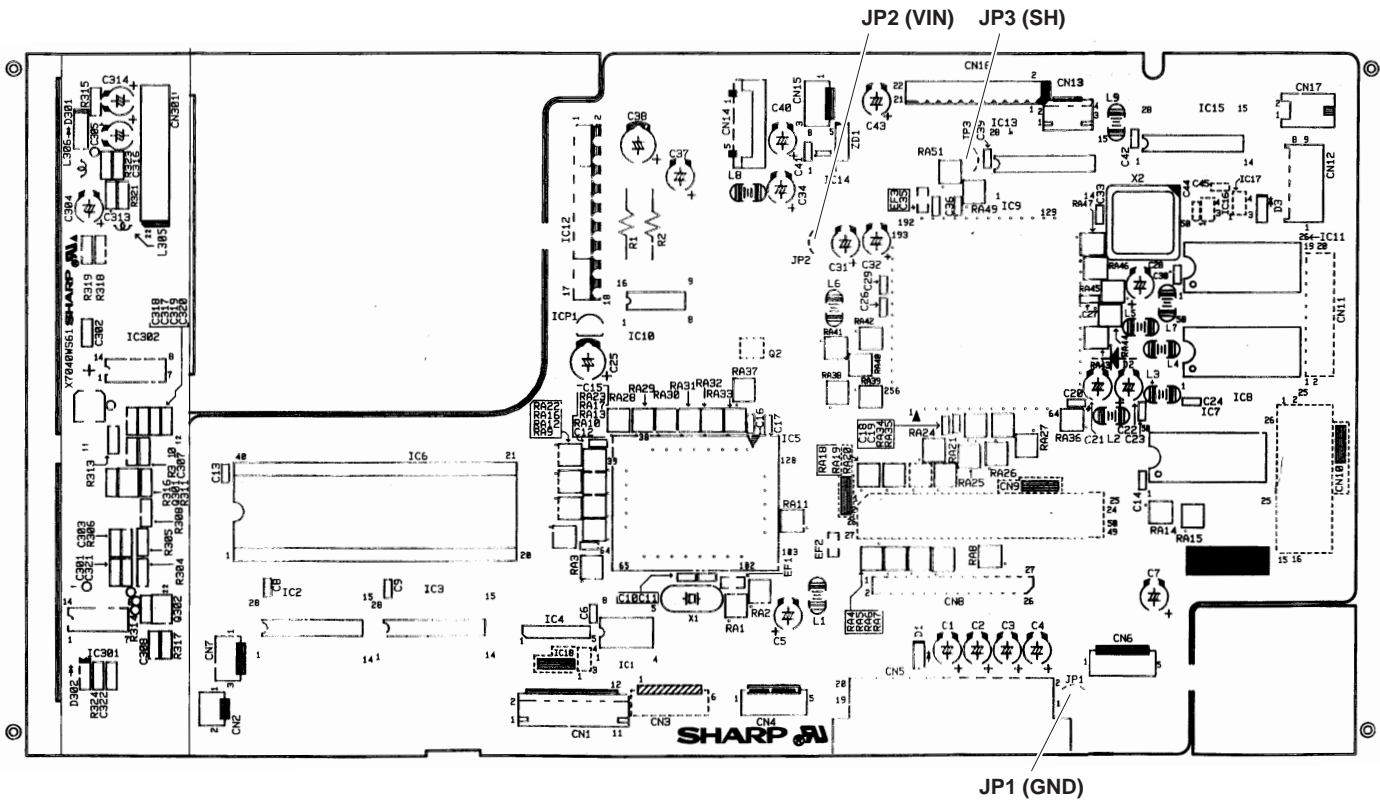
Enforcement time	JOB No	Content
	S 004/Ua 001/ P 002	When replacing the scanner (copy) lamp control PWB
		When replacing the copy lamp
		In case of E7 (05) trouble
		In case of E7 (04) trouble
		In case of E7 (12) trouble In case of E7 (15) trouble
Cycle		—
Condition		Normal copy exposure is not obtained.

**\* Necessary condition**

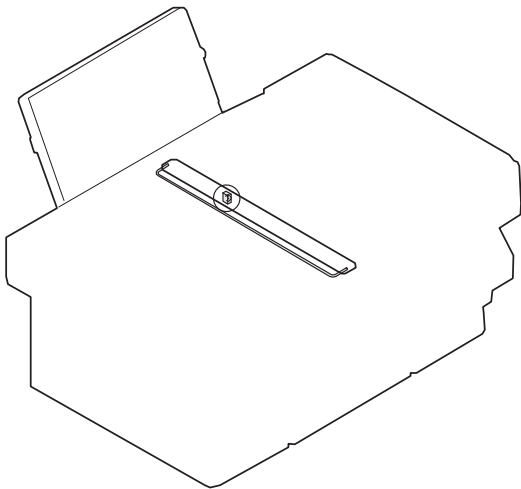
- 1) The scanner section must be clean.

**\* Job content**

- 1) Put an oscilloscope between the check point JP2 (VIN) on the MCU (PCU) PWB and GND.  
At that time, trigger with the SH (JP3) signal to see the waveform correctly.



- 2) Execute simulation 63-1. (The copy lamp lights up in the scanner unit home position.)
- 3) Turn and adjust the volume on the copy lamp drive PWB so that the CCD output waveform max. value is  $4.0 \pm 0.1$  V.



**\* Trouble caused by improper operation**

- 1) E7 (05) trouble
- 2) E7 (04) trouble
- 3) E7 (12) trouble
- 4) E7 (15) trouble
- 5) Copy exposure cannot be adjusted.
- 6) Copy exposure abnormality

**\* Preliminary work**

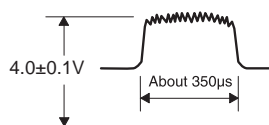
JOB No	Content
S 004	Scanner (reading) section cleaning

**\* After-work**

JOB No	Content
ADJ M1	Copy exposure adjustment

**\* Necessary tools**

Name	Oscilloscope
Parts code/Price rank	—



## [8] SIMULATION (Test Command) · USER PROGRAM

### 1. Simulation

#### A. Outline and purpose

The simulation function is provided to perform the following items. It is used to grasp the machine operations, trouble positions, early detection of trouble causes and to make various setting and quick servicing.

- 1) Various setting
- 2) Setting of specifications and functions
- 3) Trouble cancel
- 4) Operation check
- 5) Check, setting, clear of the counters
- 6) Check and clear of the machine operation state (operation history) data.
- 7) Transfer of data of adjustments, setting, operation, counters

The operating procedure and the display differs depending on the operation section type of each machine.

There are following typical types.

- 1) Code system: Numeric keys and functions keys are used to enter values and to select the mode.
- 2) Switch system: Simulation content is selected by combination of switch setting.
- 3) Selection system: Values and modes are selected with functions keys. As a special case, a jumper wire is used to connect check points on the PWB to select the mode.

#### B. Code system simulation

##### (1) Operating procedure and operation

\* Entering the simulation mode

- 1) Clear key ON → Exposure mode select key ON → Clear key ON  
→ Exposure mode select key ON  
(The machine is ready for entry of the main code of simulation.)
- 2) Main code input by 10-key → Start key ON
- 3) Sub code input by 10-key → Start key ON

The machine enters the selected simulation mode.

Press the start key to start the operation of the selected simulation.

\* Canceling the simulation and returning to the normal mode

- 1) Press the clear key.



## (2) Simulation list

Code		Function (Purpose)	Purpose	Section		Item	
Main	Sub						
1	1	Used to check the operations of the scanner (reading) unit and its control circuit.	Operation test/check	Optical (Image scanning)		Operation	
2	2	Used to check the operations of the sensors and detectors in the SPF unit and the related circuit.	Operation test/check	ADF/RADF/UDH/SPF		Operation	
	3	Used to check the operations of the RADF/ADF/SPF unit motors and their control circuits.	Operation test/check	ADF/RADF/UDH/SPF		Operation	
	4	Used to check the operations of the loads (solenoids) in the RADF/ADF/SPF units and their control circuits.	Operation test/check	ADF/RADF/UDH/SPF		Operation	
5	1	Used to check the operations of the operation panel display lamps and their control circuits.	Operation test/check	Operation (Display/Operation key)		Operation	
	2	Used to check the operations of the heater lamp and the control circuit. Used to check the operations of the fan motor and the control circuit.	Operation test/check	Fixing (Fusing)		Operation	
	3	Used to check the operations of the copy lamp and the control circuit.	Operation test/check	Optical (Image scanning)		Operation	
6	1	Used to check the operations of the paper feed (clutch and solenoid) and the control circuits.	Operation test/check	Paper transport		Operation	
7	1	Used to check the warm-up time and the operations of all the units and to make copy aging. This allows to check the operation of each section during copying.	Operation test/check			Operation	
	6	Used to check the warm-up time and the operations of all the units and to make copy aging (intermittent operation). This allows to check the operation of each section during copying.	Operation test/check			Operation	
8	1	Used to check the operations of the developing bias voltage and the transfer charger voltage and their control circuits.	Operation test/check	Image process (Photoconductor/Developing/Transfer/Cleaning)			
	2	Used to check adjust the operations of the developing bias voltage, the main charger voltage, and the transfer charger voltage and their control circuits.	Adjustment/Operation test/check	Image process (Photoconductor/Developing/Transfer/Cleaning)			
	3	Used to check the operations of the main charger voltage and the control circuit.	Operation test/check	Image process (Photoconductor/Developing/Transfer/Cleaning)			
14	0	Used to cancel a self diag trouble other than U2 trouble.	Clear/Cancel (Trouble etc.)			Trouble	Error
16	0	Used to cancel the self diag trouble U2 trouble.	Clear/Cancel (Trouble etc.)	Memory		Trouble	Error
22	4	Used to check the number of total mis-feed (jam) in the machine.	Operation data output/Check (Display/Print)			Trouble	Misfeed
	5	Used to check the total count number.	User data output/Check (Display/Print)			Counter	Total
	8	Used to check the umber of use of the SPF.	Operation data output/Check (Display/Print)	ADF/RADF/UDH/SPF		Counter	ADF/RADF/UDH/SPF
	12	Used to check the print count number of the OPC drum.	Operation data output/Check (Display/Print)	Image process (Photoconductor/Developing/Transfer/Cleaning)	Photo conductor	Counter	
	14	Used to check the ROM version.	Others			Software	
	17	Used to check the copy count number.	Operation data output/Check (Display/Print)			Counter	Copier
	18	Used to check the print count number.	Operation data output/Check (Display/Print)			Counter	Printer
	20	Used to check the FAX print count number.	Operation data output/Check (Display/Print)	FAX		Counter	Printer
	21	Used to check the frequency of use (scanning) of the scanner (reading).	Operation data output/Check (Display/Print)	Optical (Image scanning)		Counter	Scanner
	22	Used to check the total mis-feed (jam) number of the SPF.	Operation data output/Check (Display/Print)	ADF/RADF/UDH/SPF		Trouble	Misfeed
23	23	Used to check the frequency of use of FAX (reception). (FAX model only)	Operation data output/Check (Display/Print)	FAX		Counter	Communication
	24	Used to check the frequency of use of FAX (transmission). (FAX model only)	Operation data output/Check (Display/Print)	FAX		Counter	
24	1	Used to clear the mis-feed (jam) counter in the machine.	Data clear			Counter	
	4	Used to clear the SPF counter.	Data clear	ADF/RADF/UDH/SPF		Counter	
	7	Used to clear the OPC drum counter.	Data clear	Image process (Photoconductor/Developing/Transfer/Cleaning)	Photo conductor	Counter	
	8	Used to clear the copy counter.	Data clear			Counter	Copier
	9	Used to clear the print counter.	Data clear			Counter	Printer

Code		Function (Purpose)	Purpose	Section		Item	
Main	Sub						
24	10	Used to clear the FAX transmission/reception counter. (FAX model only)	Data clear	FAX		Counter	Communication
	13	Used to clear the frequency of use (scanning) of the scanner (reading).	Data clear	Optical (Image scanning)		Counter	
	14	Used to clear the SPF mis-feed (jam) counter. (FAX model only)	Data clear	ADF/RADF/UDH/SPF		Counter	
25	1	Used to check the operations of the main drive section (excluding the scanner (reading) section).	Operation test/check	DRIVE		Operation	
	10	Used to check the operations of the scanner (writing) motor and the control circuit.	Operation test/check	Laser (Exposure)		Operation	
26	2	Used to set Enable/Disable of the SPF and the FAX functions. (When a trouble occurs in the SPF and the FAX section, disable those functions to allow only copying and scanning functions.)	Setting	ADF/RADF/UDH/SPF		Specifications	
	6	Used to set the specifications depending on destination.	Setting			Specifications	Destination
	7	Used to set the model (hardware) specifications.	Setting	PCU		Specifications	Operation mode (Common)
	20	Used to set the rear edge void area YES/NO (specification).	Setting			Specifications	Operation mode (Common)
	30	Used to set the operation mode conforming to the CE mark. (For flickers when driving the fusing heater lamp.)	Setting	Fixing (Fusing)		Specifications	Operation mode (Common)
	38	Used to set Enable/Disable of the operation when the OPC drum life is reached.	Setting			Specifications	Operation mode (Common)
	40	Used to set the scanner (writing) motor OFF timing.	Setting	Laser (Exposure)		Specifications	Operation mode (Common)
	44	Used to adjust the rear edge void area in the SPF copy mode. (AL/FO Series only)	Adjustment	ADF/RADF/UDH/SPF		Operation	Copier
30	1	Used to check the sensors and detectors in the paper feed/paper transport/paper exit sections, and their related circuits.	Operation test/check	Paper transport (Discharge/Switchback/Transport)		Operation	
	4	Used to set the fusing temperature for 20th sheet or later in multi print operation.	Setting	Fixing (Fusing)		Operation	
46	1	Used to adjust the copy density. (The overall print density (including all the specified density gradients) of each mode can be adjusted.)	Adjustment			Picture quality	Density
	12	Used to adjust the print density in all the FAX modes. (Used to adjust all the print densities in all the FAX modes collectively.)	Adjustment	FAX		Picture quality	Density
	13	Used to adjust the print density in the FAX normal mode. (Used when adjusting the print density in all the FAX mode collectively.)	Adjustment	FAX		Picture quality	Density
	14	Used to adjust the print density in the FAX small character mode. (Used when adjusting the print density in all the FAX mode collectively.)	Adjustment	FAX		Picture quality	Density
	15	Used to adjust the print density in the FAX fine mode. (Used when adjusting the print density in all the FAX mode collectively.)	Adjustment	FAX		Picture quality	Density
	16	Used to adjust the print density in the FAX super fine mode. (Used when adjusting the print density in all the FAX mode collectively.)	Adjustment	FAX		Picture quality	Density
48	1	Used to adjust the copy magnification ratio (main scanning direction and sub scanning direction).	Adjustment			Picture quality	Image size/ Magnification
50	1	Used to adjust the copy image position and the void area (image loss) on print paper in the copy mode.	Adjustment			Picture quality	Print area
	10	Used to adjust the main scanning direction print image position. (Main scanning direction void area adjustment)	Adjustment			Picture quality	Print area
51	6	Used to adjust the CCD sensitivity when scanning images in the SPF mode.	Adjustment	ADF/RADF/UDH/SPF		Picture quality	Density
61	3	Used to check the operations of the scanner (writing) section.	Operation test/check	Laser (Exposure)		Operation	
63	1	Used to check the result of shading correction. (The shading correction data is displayed.)	Operation data output/ Check (Display/Print)	Optical (Image scanning)		Operation	
	2	Used to check the result (dark component) of shading correction. (The shading correction data (dark component) is displayed.)	Operation data output/ Check (Display/Print)	Optical (Image scanning)		Operation	
64	1	Used to check the operations of the printer section. (Self print operation)	Operation test/check	Printer		Operation	
	2	Used to set Enable/Disable of the scanner (reading) section operation. (When the scanner (reading) section is in trouble, the scanner operation can be disabled by this simulation to allow the use as a printer only.)	Setting	Optical (Image scanning)		Operation	

**(3) Details of simulations****1****1 - 1**

Purpose	Operation test/check
Function (Purpose)	Used to check the operation of the scanner (reading) unit and its control circuit.
Section	Optical (Image scanning)
Item	Operation
Operation/ Procedure	Set the copy magnification ratio to any desired level and press the start button. The scanner scans (reads) once at the scanning speed corresponding to the set copy magnification ratio.

At that time, the operation of the scanner home position sensor (MHPS) can be checked with the photoconductor lamp.

When the scanner is at the home position, that is, when the scanner home position sensor (MHPS) detects the scanner, the photoconductor lamp lights up.

**2****2 - 2**

Purpose	Operation test/check
Function (Purpose)	Used to check the operations of the sensors and detectors in the SPF unit and the related circuit.
Section	ADF/RADF/UDH/SPF
Item	Operation
Operation/ Procedure	The operating status of detectors and sensors in the SPF unit is displayed with the lamps on the operation panel.

Display lamp	Detectors and sensors
Developing cartridge replacement lamp	SPF original detector (SPID)
Machine jam lamp	SPF original transport detector (SPPD)
SPF jam lamp	SPF open/close detector (SDSW)

**2 - 3**

Purpose	Operation test/check
Function (Purpose)	Used to check the operations of the RADF/ADF/SPF unit motors and their control circuits.
Section	ADF/RADF/UDH/SPF
Item	Operation
Operation/ Procedure	When the START button is pressed, the SPF motor rotates for 10 sec in the speed corresponding to the set copy magnification ratio.

**2 - 4**

Purpose	Operation test/check
Function (Purpose)	Used to check the operations of the loads (solenoids) in the RADF/ADF/SPF units and their control circuits.
Section	ADF/RADF/UDH/SPF
Item	Operation

**Operation/ Procedure**

When the START button is pressed, the SPF paper feed solenoid (SPUS) repeats ON (500ms) and OFF (500ms) 20 times.

**5****5 - 1**

Purpose	Operation test/check
Function (Purpose)	Used to check the operations of the operation panel display lamps and their control circuits.
Section	Operation (Display/Operation key)
Item	Operation
Operation/ Procedure	When the START button is pressed, the all lamps on the LCD are lighted and the total LCD display is made simultaneously.

**5 - 2**

Purpose	Operation test/check
Function (Purpose)	Used to check the operation of the heater lamp and its control circuit. Used to check the operation of the fan motor and its control circuit.
Section	Fixing (Fusing)
Item	Operation
Operation/ Procedure	The heater lamp repeat ON for 500msec and OFF for 500msec each 5 times. During this time, the fan motor rotates.

**5 - 3**

Purpose	Operation test/check
Function (Purpose)	Used to check the operation of the copy lamp and its control circuit.
Section	Optical (Image scanning)
Item	Operation
Operation/ Procedure	The copy lamp is lighted for 5 sec.

**6****6 - 1**

Purpose	Operation test/check
Function (Purpose)	Used to check the operation of the paper feed (clutch, solenoid and its control circuit).
Section	Paper transport
Item	Operation
Operation/ Procedure	The paper feed clutch solenoid repeats ON for 500msec and OFF for 500msec each 20 times.

**7****7** -1

Purpose	Operation test/check
Function (Purpose)	Used to check the warm up time and the operation of all the units and to make aging with copying. Each section can be checked during copying.
Section	Others
Item	Operation
Operation/ Procedure	1) After completion of simulation, warming up is started. 2) Counting is made every second and the count value is displayed. 3) After completion of warming up, counting is stopped and the ready lamp is lighted. 4) Press the clear key. (Once) 5) Set the copy quantity. 6) Press the start key. Copying is made repeatedly to make the set quantity of copy.

**7** -2

Purpose	Operation test/check
Function (Purpose)	Used to check the warm up time and the operation of all the units and to make aging with copying. Each section can be checked during copying. (In this simulation, the detection functions of paper presence/empty and a paper jam are disabled.)
Section	Others
Item	Operation
Operation/ Procedure	Basically the same operation is performed as SIM 7-1. However, paper empty or presence and paper jam are ignored.

**7** -6

Purpose	Operation test/check
Function (Purpose)	Used to check the warm up time and the operation of all the units and to make aging (intermittent operation) with copying. Each section can be checked during copying.
Section	Others
Operation/ Procedure	Basically the same operation is performed as SIM 7-1. Similarly with SIM 7-1, copying is made in the unit of the set quantity, however there is an 3sec interval between the set quantities.

**8****8** -1

Purpose	Operation test/check
Function (Purpose)	Used to check the developing bias voltage, the main charger voltage, and the transfer charger voltage and the operation of their control circuit.
Section	Image process (Photoconductor/Developing/Transfer/Cleaning)
Operation/ Procedure	The following high voltages are outputted for 30 sec. * Transfer charger voltage (DC component + AC component)

\* Main charger voltage (DC component + AC component)

**8** -2

Purpose	Adjustment/Operation test/check
Function (Purpose)	Used to adjust and check the operation of the developing bias voltage, the main charger voltage, and the transfer charger voltage, and their control circuit.
Section	Image process (Photoconductor/Developing/Transfer/Cleaning)
Operation/ Procedure	The following high voltages are outputted for 30 sec. * Transfer charger voltage (DC component + AC component) * Main charger voltage (DC component + AC component) * Developing bias voltage

**8** -3

Purpose	Operation test/check
Function (Purpose)	Used to check the operation of each voltage of the main charger and its control circuit.
Section	Image process (Photoconductor/Developing/Transfer/Cleaning)
Operation/ Procedure	The following high voltage is outputted for 30 sec. * Main charger voltage (Only the DC component is outputted.)

**14****14** -0

Purpose	Clear/Cancel (Trouble etc.)
Function (Purpose)	Used to cancel the self diag other than U2 trouble.
Item	Trouble <span style="float: right;">Error</span>

**16****16** -0

Purpose	Clear/Cancel (Trouble etc.)
Function (Purpose)	Used to cancel the self diag U2 trouble.
Item	Trouble <span style="float: right;">Error</span>

**22****22** -4

Purpose	Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the number of total mis-feed (jam) in the machine.
Item	Trouble <span style="float: right;">Misfeed</span>
Operation/ Procedure	The JAM counter value is displayed in 3 digits × 2 times. Display example: 12345

012 → Blank → 345 → Blank → 012  
0.7s    0.3s    0.7s    1.0s    0.7s



**22 - 5**

Purpose	User data output/Check (Display/Print)
Function (Purpose)	Used to check the total counter value.
Item	Counter <span style="float: right;">Total</span>
Operation/Procedure	The total print counter value is displayed in 3 digits of each two times. The display is made repeatedly and continuously.

(Example) Total print counter value = 12345

(Display content) 012 → Blank → 345 → Blank → 012

(Display time) 0.7sec 0.3sec 0.7sec 1.0sec 0.7sec  
(short) (long)

**22 - 8**

Purpose	Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the number of use of the SPF.
Section	ADF/RADF/UDH/SPF
Item	Counter <span style="float: right;">ADF/RADF/UDH/SPF</span>
Operation/Procedure	The display format and the method are same as SIM 22-5 (Total printer counter display).

**22 - 12**

Purpose	Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the print count value of the photoconductor.
Section	Image process <span style="float: right;">Photo conductor</span> (Photoconductor/Developing/Transfer/Cleaning)
Item	Counter
Operation/Procedure	The display system and the method are the same as those of SIM 22-5 (Total print counter display).

**22 - 14**

Purpose	Others
Function (Purpose)	Used to check the ROM version.
Section	PCU
Item	Software
Operation/Procedure	The ROM version on the MCU PWB is displayed in 3 digits on the copy quantity display. If any trouble occurs in the software operation, check the version with this simulation.

**22 - 17**

Purpose	Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the copy count number.
Item	Counter <span style="float: right;">Copier</span>
Operation/Procedure	The display format and the method are same as SIM 22-5 (Total printer counter display).

**22 - 18**

Purpose	Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the print count number.
Item	Counter <span style="float: right;">Printer</span>
Operation/Procedure	The display format and the method are same as SIM 22-5 (Total printer counter display).

**22 - 20**

Purpose	Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the FAX print count number.
Section	FAX
Item	Counter <span style="float: right;">Printer</span>
Operation/Procedure	The display format and the method are same as SIM 22-5 (Total printer counter display).

**22 - 21**

Purpose	Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the count of use (count of scanning) of the scanner (reading) unit.
Section	Optical (Image scanning)
Item	Counter
Operation/Procedure	The display system and the method are the same as those of SIM 22-5 (Total print counter display).

**22 - 22**

Purpose	Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the total mis-feed (jam) number of the SPF.
Section	ADF/RADF/UDH/SPF
Item	Trouble <span style="float: right;">Misfeed</span>
Operation/Procedure	The display format and the method are same as SIM 22-5 (Total printer counter display).

**22 - 23**

Purpose	Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the frequency of use of FAX (reception). (FAX model only)
Section	FAX
Item	Counter <span style="float: right;">Communication</span>
Operation/Procedure	The display format and the method are same as SIM 22-5 (Total printer counter display).

**22 - 24**

Purpose	Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the frequency of use of FAX (transmission). (FAX model only)
Section	FAX
Item	Counter
Operation/Procedure	The display format and the method are same as SIM 22-5 (Total printer counter display).

**24**

**24 - 7**

Purpose	Data clear
Function (Purpose)	Used to clear the photoconductor drum counter.
Section	Image process Photo conductor (Photoconductor/Developing/Transfer/Cleaning)
Item	Counter

**24 - 13**

Purpose	Data clear
Function (Purpose)	Used to clear the count of use (count of scanning) of the scanner (reading) unit.
Section	Optical (Image scanning)
Item	Counter

**25**

**25 - 1**

Purpose	Operation test/check
Function (Purpose)	Used to check the operation of the main drive (excluding the scanner (reading) section) section.
Section	DRIVE
Item	Operation
Operation/ Procedure	The main motor rotates for 30 sec. During the motor rotation, one of the following two operations is performed depending on installation of the developer cartridge.

- 1) When the developer cartridge is installed:  
(The following high voltages are outputted.)
  - \* Main charger voltage
  - \* Transfer charger voltage
  - \* Developer bias voltage
- 2) When the developer cartridge is not installed:  
The high voltage is not outputted and the main motor rotates only.

**25 - 10**

Purpose	Operation test/check
Function (Purpose)	Used to check the operation of the scanner (writing) motor and its control circuit.
Section	Laser (Exposure)
Item	Operation
Operation/ Procedure	The scanner (write) motor rotates for 30 sec.

**26**

**26 - 2**

Purpose	Setting
Function (Purpose)	Used to set Enable/Disable of the SPF and the FAX functions. (When a trouble occurs in the SPF and the FAX section, disable those functions to allow only copying and scanning functions.

Section	ADF/RADF/UDH/SPF
Item	Specifications
Operation/ Procedure	When this simulation is executed, the code of current setup of ENABLE/DISABLE of SPF/FAX function is displayed.
Enter the desired code number corresponding to Enable/Disable setup and press the Start button, and the setup will be effective.	
Set code number	SPF/FAX function
0	Disable
1	Enable

**26 - 6**

Purpose	Setting
Function (Purpose)	Used to set the destination.
Item	Specifications
Operation/ Procedure	1) The currently set code of the destination is displayed. 2) To change the set content, enter the code of your desired setting and press the start button.

Set value	Destination	Paper type	Detected paper size	
			Paper width detector ON	Paper width detector OFF
0		Inch series	11 X 8.5/ 14 X 8.5	8.5 X 5.5/ 8.5 X 11
1	EX Japan	AB series	A4 (210 X 356 mm)	A5
2	Japan	AB series	A4 (210 X 356 mm)	B5

When the set value is changed, the paper size specification and the fixed, enlarged, and reduced copy magnification ratios are changed.

**26 - 7**

Purpose	Setting
Function (Purpose)	Used to set the model (hardware) specifications.
Section	PCU
Item	Specifications Operation mode (Common)
Operation/ Procedure	When this simulation is executed, the monitor lamp corresponding to the model (hardware) is displayed.
Copy quantity display	Copy speed (CPM)
6	6cpm
6	8cpm

**26 - 20**

Purpose	Setting
Function (Purpose)	Used to set the rear void area YES/NO.
Item	Specifications Operation mode (Common)
Operation/ Procedure	1) The currently set code of the rear void area YES/NO is displayed. 2) To change the set content, enter the code of your desired setting and press the start button.
Set code	Rear edge void area
0	YES
1	NO

The rear edge void amount can be adjusted with SIM 50-1. Be sure to set to "0" (Rear edge void area YES).

**26 - 30**

Purpose	Setting
Function (Purpose)	Used to set the CE mark conforming operation mode. (For prevention against flicker when driving the fusing heater lamp)
Section	Fixing (Fusing)
Item	Specifications                      Operation mode (Common)
Operation/ Procedure	1) The currently set code of the CD mark conformity (Flicker prevention) is displayed.

- 2) To change the set content, enter the code of your desired setting and press the start button. The set content is stored.

Set code	CE mark conformity operation (Flicker prevention)
0	YES
1	NO

When the power of this machine is turned on, if any lamp flickers during printing, set this setting to "1" (YES). Then the phenomenon may be prevented or reduced.

**26 - 38**

Purpose	Setting
Function (Purpose)	Used to set the photoconductor drum operation inhibit YES/NO when the life is reached.
Item	Specifications                      Operation mode (Common)
Operation/ Procedure	1) The currently set code of the machine operation at photoconductor drum life is displayed.

- 2) To change the set content, enter the code of your desired setting and press the start button.

Set code	Machine operation at photoconductor life
0	Operation stop
1	Operation allowed

When this is set to "1," the copy/print operation can be performed even if the photoconductor drum reaches its life (20K). At that time, the copy/print operation can be performed regardless of the photoconductor drum counter value.

When set to "0," if the photoconductor drum counter reaches the life (20K), the copy/print operation cannot be performed.

If the photoconductor drum counter reaches the life (20K) during continuous copy/print operation, the machine completes its job before disabling the operation.

**26 - 40**

Purpose	Setting
Function (Purpose)	Used to set the scanner (writing) motor OFF timing.
Section	Laser (Exposure)
Item	Specifications                      Operation mode (Common)
Operation/ Procedure	1) The currently set code of the scanner (writing) motor OFF timing after completion of printing is displayed.

- 2) To change the set content, enter the code of your desired setting and press the start button.

Setting code	Scanner (writing) motor OFF timing
0	0 sec
1	30 sec
2	60 sec
3	90 sec

**26 - 44**

Purpose	Adjustment
Function (Purpose)	Used to adjust the rear edge void area in the SPF copy mode. (AL/FO Series only)
Section	ADF/RADF/UDH/SPF
Item	Operation    Copier
Operation/ Procedure	1) Enter the adjustment value and press the START button. (The adjustment value is stored.)

- 2) Check the copy rear edge void area in the normal copy mode. The greater the adjustment value is, the greater the rear edge void area is. The adjustment value input range is 0 ~ 8, and the default is 4. When the adjustment value is changed by 1, the image loss varies by about 1mm.

**26 - 47**

Purpose	Adjustment
Function (Purpose)	Used to adjust the rear edge void area adjustment in the FAX mode.
Section	ADF/RADF/UDH/SPF
Item	Operation    FAX
Operation/ Procedure	1) Enter the adjustment value and press the START button. (The adjustment value is stored.)

- 2) Check the copy rear edge image loss in the FAX mode. (Make a copy in the FAX print adjustment mode of SIM 46-12 and check the void area.)

The greater the adjustment value is, the greater the rear edge void area is. The adjustment value input range is 0 ~ 8, and the default is 4. When the adjustment value is changed by 1, the image loss varies by about 1mm.

**30****30 - 1**

Purpose	Operation test/check
Function (Purpose)	Used to check the operation of the sensors and detectors in the paper feed section, the paper transport section, and the paper exit section and their control circuit.
Item	Operation
Operation/ Procedure	The paper detectors operations can be checked with lighting of the lamps on the operation panel.

Detector name		Monitor lamp
Paper empty detector	PE SENSOR	Developer cartridge replacement lamp
Paper entry detector	PIN SENSOR	Paper jam lamp
Paper exit detector	POUT	Photoconductor cartridge replacement lamp
Paper size (width) detector	PAPER SIZE SW	Zoom lamp

**43**

**43 - 1**

Purpose	Setting
Function (Purpose)	Used to set the fusing temperature.
Section	Fixing (Fusing)
Item	Operation
Operation/ Procedure	1) The currently set code of the fusing temperature (normal state) is displayed.

- 2) To change to the standard set temperature, press the code corresponding to the standard set temperature and press the start button.

Be sure to set to "0" (160°C).  
If set to other than "1," a trouble may occur.

Set code	Fusing temperature (°C)
0	160
1	150
2	155
3	165
4	170
5	175

**43 - 4**

Purpose	Setting
Function (Purpose)	Used to set the fusing temperature after 20th sheet in the multi print mode.
Section	Fixing (Fusing)
Item	Operation
Operation/ Procedure	1) The currently set code of the fusing temperature (after 20th sheet of continuous printing) is displayed.

- 2) To change to the standard set temperature, press the code corresponding to the standard set temperature and press the start button.

Be sure to set to "2" (155°C).  
If set to other than "1," a trouble may occur.

Set code	Fusing temperature (°C)
0	160
1	150
2	155
3	165
4	170
5	175

**46**

**46 - 1**

Purpose	Adjustment
Function (Purpose)	Used to adjust the copy density. (The print density in each mode and the overall print density (overall setting of the specified density gradient) can be adjusted.
Item	Picture quality <span style="float: right;">Density</span>

**Operation/ Procedure** By adjusting the exposure level of the center density, the other copy density levels (density levels 1, 2, 4, 5) can be automatically calculated and adjusted.

The gamma curve (gradient) is fixed and cannot be changed. By changing the adjustment value, however, the gamma curve is shifted (with the fixed gradient).

Therefore, the overall copy density is changed.

The above adjustment is made for each copy mode.

Each copy mode and each copy density level (5 steps) have their own gamma curve (gradient). The adjustment value can be set in the range of 0 ~ 99.

- 1) Select the picture quality mode with the copy picture quality mode select key.  
(The currently set copy density adjustment level is displayed on the copy quantity display.)
- 2) To change the copy density, change the adjustment value and press the start button.  
(The adjustment value is stored and a copy is made.)  
To decrease the copy density, decrease the adjustment value, and vice versa.

Adjustment mode	Mode display lamp	Density level	Density (Test chart UKOG-0162FCZZ gray scale density level)
Auto copy mode	Auto copy mode lamp		Gray scale "3" is slightly copied.
Manual copy mode	Text copy mode lamp	3	Gray scale "3" is slightly copied.
Photo copy mode	Photo copy mode lamp	3	Gray scale "3" is slightly copied.
Auto (Toner save) copy mode	Auto copy mode lamp		Gray scale "3" is slightly copied.
	Photo copy mode lamp		
Manual (Toner save) copy mode	Manual copy mode lamp	3	Gray scale "3" is slightly copied.
	Photo copy mode lamp		

**46 - 12**

Purpose	Adjustment
Function (Purpose)	Used to adjust the print density in all the FAX modes. (Used to adjust all the print densities in all the FAX modes collectively.)
Section	FAX
Item	Picture quality <span style="float: right;">Density</span>
Operation/ Procedure	All the density adjustment values in the FAX modes are collectively set.

The current set value is displayed in two digits. (Center value: 50)  
Change the adjustment value with the UP-DOWN key and press the START button. A copy is made in the density corresponding to the entered adjustment value.

When the CLEAR key is pressed, the entered adjustment value is stored and the simulation is terminated.

Setup is allowed in the range of 0 ~ 99. Center value is 50.

**46 - 13**

Purpose	Adjustment
Function (Purpose)	Used to adjust the print density in the FAX normal mode. (Used when adjusting the print density in all the FAX mode collectively.)
Section	FAX
Item	Picture quality <span style="float: right;">Density</span>
Operation/Procedure	The operations and procedures are same as those of SIM 46-12.

**46 - 14**

Purpose	Adjustment
Function (Purpose)	Used to adjust the print density in the FAX small character mode. (Used when adjusting the print density in all the FAX mode collectively.)
Section	FAX
Item	Picture quality <span style="float: right;">Density</span>
Operation/Procedure	The operations and procedures are same as those of SIM 46-12.

This mode is divided into two modes: the TEXT mode and the PHOTO mode

Use the copy mode select key to select your desired mode, and the set value of the selected mode is displayed on the copy quantity display.

The selected mode is displayed with the lamps as follows:

Mode	Display lamp (Monitor)
TEXT mode	AE mode lamp
PHOTO mode	PHOTO mode lamp

**46 - 15**

Purpose	Adjustment
Function (Purpose)	Used to adjust the print density in the FAX fine mode. (Used when adjusting the print density in all the FAX mode collectively.)
Section	FAX
Item	Picture quality <span style="float: right;">Density</span>
Operation/Procedure	The operations and procedures are same as those of SIM 46-12.

**46 - 16**

Purpose	Adjustment
Function (Purpose)	Used to adjust the print density in the FAX super fine mode. (Used when adjusting the print density in all the FAX mode collectively.)
Section	FAX
Item	Picture quality <span style="float: right;">Density</span>
Operation/Procedure	The operations and procedures are same as those of SIM 46-12.

**48****48 - 1**

Purpose	Adjustment
Function (Purpose)	Used to adjust the copy magnification ratio (in the main scanning direction and the sub scanning direction).
Item	Picture quality
Operation/Procedure	There are following three copy magnification ratio adjustment modes.

Adjustment mode		Adjustment mode display (ON)	Note
Main scanning direction	Auto	Auto copy mode lamp	Automatically adjusted by the software.
	Manual	Manual copy mode lamp	Automatically adjusted by the software.
Sub scanning direction	Manual	Photo copy mode lamp	Adjustment is made by changing the scanning speed,

- 1) Select the adjustment mode with the copy picture quality mode select key.  
(The currently set copy density adjustment level is displayed on the copy quantity display.)
- 2) To change the copy magnification ratio, change the adjustment value and press the start button.  
(The adjustment value is stored and a copy is made at the copy magnification ratio corresponding to the value.)  
The adjustment value can be set in the range of 0 ~ 99.  
In the case of the main scanning direction copy magnification ratio adjustment (auto) mode, the adjustment is made automatically and there is no need to adjust. Without entering the adjustment value, press the start button.  
There are two marks on the shading correction plate, and the distance between the two marks is read by the CCD to adjust the main scanning direction copy magnification ratio automatically. In case of the mark reading error, "- -" is displayed on the copy quantity display.  
At that time, the main scanning direction image position adjustment is also made automatically.  
If, however, automatic adjustment is not made, manual adjustment must be made.

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

**50****50 - 1**

Purpose	Adjustment
Function (Purpose)	Used to adjust the copy image position on the print paper in the copy mode and to adjust the void area (image loss).
Item	Picture quality
Operation/Procedure	There are following four adjustment items. By changing the adjustment values of the items, the paper lead edge, the rear edge, image loss, and void area can be adjusted.

Adjustment item	Adjustment mode display (ON)	Note
Image lead edge position (print start position)	Auto copy mode lamp	Used to determine the relative positions of the paper and the image. The paper lead edge and the image lead edge reference position (image lead edge) are aligned. (It corresponds to the time from when the PIN detector detects the paper lead edge to when the scanner starts (printing is started).)
Image lead edge reference position (image scan start position)	Photo copy mode lamp	Used to determine the image lead edge reference position. (Used to determine the distance between the scanner home position to the document lead edge reference position.)
Lead edge void area	Manual copy mode lamp	Used to adjust the lead edge section effective image amount. The images scanned from starting the scanner to reaching the image lead edge reference position and during the time corresponding to this setting are made invalid (cut off) to make the image loss and the void area.
Rear edge void area	Auto/Photo/Manual copy mode lamp	Used to determine the cut timing of the print image (data). The PIN detector detects the paper length. The print image (data) cut timing is determined from the relationship between the calculated paper length and the sub scanning direction image length,

- 1) Select the adjustment mode image lead edge position (print start position) with the copy picture quality mode select key. (The currently set adjustment value is displayed on the copy quantity display.)
  - 2) Change the set value and press the start button. (The adjustment value is stored and a copy is made.)  
When the set value is made greater, the image lead edge position is shifted forward for the paper lead edge position.  
When the set value is made smaller, the image lead edge position is shifted backward for the paper lead edge position.
  - 3) Select the adjustment mode image lead edge position (image scanning start position) with the copy picture quality mode select key. (The currently set adjustment value is displayed on the copy quantity display.)
  - 4) Change the set value and press the start button.  
When the set value is made greater, the image lead edge reference position is shifted forward.  
When the set value is made smaller, the image lead edge reference position is shifted backward.
- (Note) If this adjustment is not made properly, when the copy magnification ratio is changed, the copy image position varies for the paper lead edge position.
- 5) Select the adjustment mode lead edge void area with the copy picture quality mode select key. (The currently set adjustment value is displayed on the copy quantity display.)
  - 6) Change the set value and press the start button.

- 7) Select the adjustment mode rear edge void area with the copy quality mode select key. (The currently set adjustment mode is displayed on the copy quantity display.)
- 8) Change the set value and press the start button. The adjustment value can be set in the range of 0 ~ 99.

Adjustment item	Adjustment mode display (Lighting)	NOTE
SPF mode image lead edge reference position (Image scanning start position)	Auto: Manual copy mode lamp	

To adjust the mode image lead edge reference position (image scanning start position) in the SPF mode, set an original in the SPF and perform the same procedures as 3) and 4).

**50 - 10**

Purpose	Adjustment
Function (Purpose)	Used to adjust the main scanning direction print image position. (Main scanning direction void area adjustment)
Section	ICU
Item	Picture quality
Operation/ Procedure	1) Select the adjustment item with the copy image mode select key.

Adjustment mode	Adjustment mode display (ON)	Note
Main scanning direction image position	Photo copy mode lamp	
Main scanning direction image position (SPF mode)	Auto/Photo/Manual copy mode lamp	
Left void area	Auto copy mode lamp	
Right void area	Manual copy mode lamp	

- 2) To change the copy image position in the main scanning direction for the paper in a copy mode (to change the main scanning direction void area), change the adjustment value and press the start button. (The adjustment value is stored and a copy is made corresponding to the setting.)  
The adjustment value can be set in the range of 0 ~ 99.  
When the adjustment value is changed by "1," the copy image position is shifted by 0.1mm in the main scanning direction for the paper.  
When the main scanning direction copy magnification ratio is adjusted with SIM 48-1 (auto mode), this adjustment is automatically performed and there is no need to enter the adjustment value with this simulation.  
If the adjustment is not made properly, use this simulation to make a manual adjustment. (Except for the SPF mode. In the case of the SPF mode, the adjustment with this simulation is required.)
- 3) To change the left and the right void areas, select the adjustment mode, change the adjustment value and press the start button. (The adjustment value is stored and a copy corresponding to the setting is made.)  
The adjustment value can be set in the range of 0 ~ 99.  
When the adjustment value is changed by "1," the void area is changed by 0.1mm.

**51****51** - 6

Purpose	Adjustment
Function (Purpose)	Used to adjust the CCD sensitivity when scanning images in the SPF mode.
Section	ADF/RADF/UDH/SPF
Item	Picture quality <span style="float: right;">Density</span>
Operation/ Procedure	1) The currently set adjustment value is displayed.

2) Enter the adjustment value with the 10-key and press the PRINT switch. The entered adjustment value is stored and copying is performed in the density corresponding to the entered adjustment value.

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

**61****61** - 3

Purpose	Operation test/check
Function (Purpose)	Used to check the operation of the scanner (writing) section.
Section	Laser (Exposure)
Item	Operation
Operation/ Procedure	While laser beams are outputted, the scanner(writing) motor rotates for 30 sec.

At that time, the zoom mode display lamp lights up for 100msec every time when the laser beam sensor detects laser beam.

**63****63** - 1

Purpose	Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the result of shading correction. (The shading correction data is displayed.)
Section	Optical (Image scanning)
Item	Operation
Operation/ Procedure	When the start button is pressed, the scanner unit is shifted to the shading sheet (white) position and the scanner lamp is lighted for 10 sec.

During the above operation, one pixel at the center of CCD detects the white level for every second and the value is displayed on the copy quantity display in real time.

The display value ranges from 0 to 255.

**63** - 2

Purpose	Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the result of shading correction (dark component). (The shading correction (dark component) data is displayed.)
Section	Optical (Image scanning)
Item	Operation

**64****64** - 1

Purpose	Operation test/check
Function (Purpose)	Used to check the operation (self print operation) of the printer section.
Section	Printer
Item	Operation
Operation/ Procedure	1) After completion of simulation, warming up is started.

2) After completion of warming up, the ready lamp is lighted.

3) Set the copy quantity.

4) Press the start key.

Print operation is made in the 1 by 2 mode (1-line print and 2-lines blank pattern) to make the set quantity of copy.

**64** - 2

Purpose	Operation data output/Check (Display/Print)
Function (Purpose)	Used to set the scanner (reading) section's operation ENABLE/DISABLE. In case of a breakdown of the scanner (reading) section, if this simulation is set to DISABLE, the machine can be used only as a printer.
Section	Optical (Image scanning)
Item	Operation

## 2. User program

### A. Outline

The user program is used to realize the machine conditions according to the user's own requirements.

### B. Operating procedure

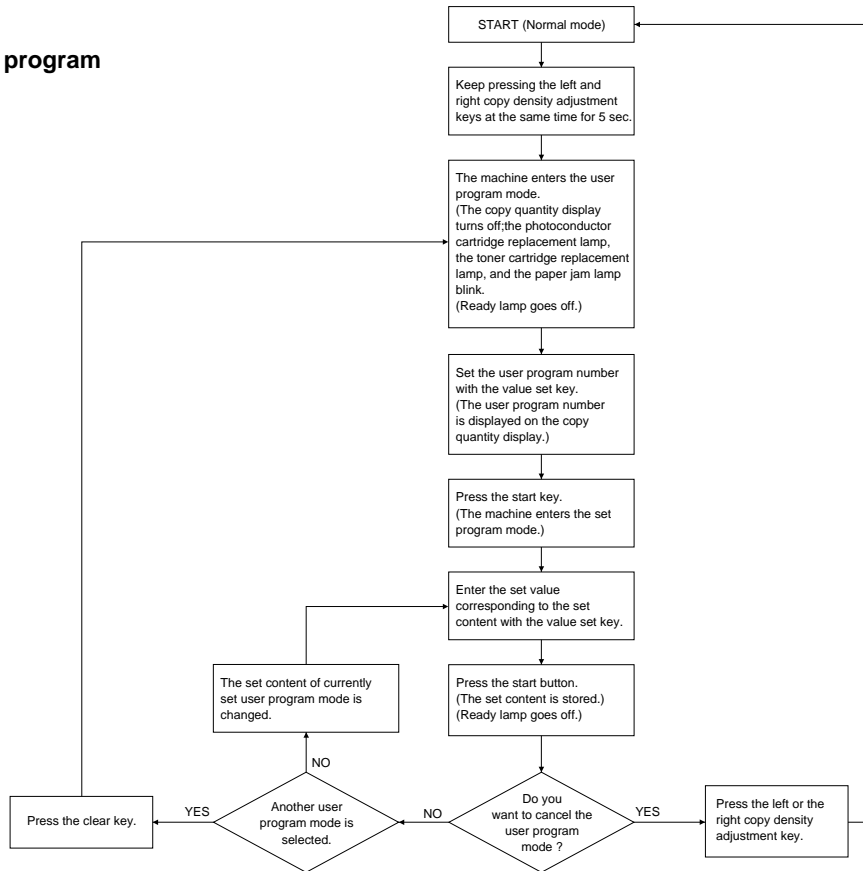
- 1) Keep pressing the left and right copy density adjustment keys at the same time for over 5 sec. (The copy quantity display turns off. The photoconductor cartridge replacement lamp, the toner cartridge replacement lamp, and the paper jam lamp blink. The machine enters the user program mode.) (Ready lamp OFF)

- 2) Set the user program number with the value set key (digit of 10). (The user program number is displayed on the copy quantity display.)
- 3) Press the start key. (The machine enters the program mode set in procedure 2).)
- 4) Use the value set key (digit of 1) to enter the desired set value. (The set value is displayed on the copy quantity display.)
- 5) Press the start button. (The content set in procedure 4) is stored.)

After entering a user program mode, press the clear key once, and the other user program numbers are ready to be selected.

To cancel the user program mode, press the left or right copy density adjustment key.

### Operation flow of user program







### C. Content

Program No	Set value	Content	
1	0	OFF	Auto clear time setting This setting is linked with the shift time from the off-line mode to the on-line mode. When the set value is "0," however, the time is 30 sec.
	1	30 sec	
	2	60 sec	
	3	90 sec	
	4	120 sec	
2	0	30 sec	Pre-heat mode shift time setting
	1	60 sec	
	2	90 sec	
3	0	2 min	Power shut down shift time setting
	1	5 min	
	2	15 min	
	3	30 min	
	4	60 min	
4	0	OFF	SPF stream mode setting
	1	ON	
5	0	YES	Power shut down YES/NO setting
	1	NO	
9	0	OFF	Paper width detection ON/OFF setting
	1	ON	



### 3. Printing Out Reports

Use the following procedure to print out reports:

Step	Press these keys	Comments
1	FUNCTION  ABC 	"LISTING MODE" will appear in the display.
2	 to 	The machine will then automatically print out the selected report.

The machine is capable of printing a range of reports on faxing activities as well as various settings you have made. The reports are described below.

#### (1) TRANSMISSIONS ACTIVITY REPORT:

Faxes sent from the machine.

```
*****
*                               ACTIVITY REPORT (SENDING)                               P. 01 *
*                                                                                   JUL-07-1999 WED 06:07 PM *
* #  DATE   START   RECEIVER          TX TIME  PAGES  TYPE  NOTE *
*-----*-----*-----*-----*-----*-----*-----*
* 01 JUL-01 03:56 PM GUYA DEVICES      42"    1  SEND  OK *
* 02 JUL-02 03:18 PM GUYA DEVICES      33"    1  SEND  OK *
* 03 JUL-06 11:24 PM GUYA DEVICES      31"    1  SEND  OK *
*-----*-----*-----*-----*-----*
*                               TOTAL : 1'46"    3 *
*****
```

#### (2) RECEPTIONS ACTIVITY REPORT:

Faxes received by the machine.

```
*****
*                               ACTIVITY REPORT (RECEIVING)                               P. 01 *
*                                                                                   JUL-07-1999 WED 03:25 PM *
* #  DATE   START   SENDER            RX TIME  PAGES  TYPE  NOTE *
*-----*-----*-----*-----*-----*-----*
* 01 JUL-07 10:26 AM 5551234567        37"    1  RECEIVE OK *
*-----*-----*-----*-----*-----*
*                               TOTAL :    37"    1 *
*****
```

#### (3) TIMER LIST:

ID numbers for timer operations.

```
*****
*                               TIMER LIST                               P. 01 *
*                                                                                   JUL-14-1999 WED 03:15 PM *
* #  TIMER OPERATION  RESERVED TIME  TYPE  RESOLUTION  PAGES  RECEIVER *
*-----*-----*-----*-----*-----*-----*
* 1  03:20 AM  FRI    SEND    STANDARD    1    GUYA DEVICES *
* 2 *
* 3 *
*-----*-----*-----*-----*
* REMOTE TX *
*-----*-----*-----*-----*
* REMOTE TX  TYPE  RESOLUTION  PAGES  TIMES *
*-----*-----*-----*-----*
* REMOTE TX  STANDARD  2    REPEAT *
*****
```

#### (4) FAX NUMBER LIST:

Fax numbers stored in the machine as either Rapid key or Speed Dial numbers.

```
*****
*                               FAX NUMBER LIST                               P. 01 *
*                                                                                   JUL-14-1999 WED 03:48 PM *
* #  RAPID/  NAME  FAX NUMBER  CHAIN DIAL *
*-----*-----*-----*-----*
* R01  ABC    777 555-1234 *
*****
```

#### (5) OPTIONAL SETTING LIST:

Currently activated optional settings.

```
*****
*                               OPTIONAL SETTING LIST                               P. 01 *
*                                                                                   JUL-21-1999 WED 05:23 PM *
* SW #  ITEM  SETTING *
*-----*-----*-----*
* 01  PRINT PAPER SIZE  LETTER *
* 02  FINE PRIORITY  OFF *
* 03  # OF RINGS AUTO RX  2 RINGS *
* 04  # OF RINGS MANUAL RX  OFF *
* 05  AUTO LISTING  OFF *
* 06  PRINT SELECTION  ERROR/TIMER *
* 07  BROADCAST LISTING  ALWAYS PRINT *
* 08  RECALL TIMES  2 TIMES *
* 09  RECALL INTERVAL  5 MINUTES *
* 10  FAX REMOTE NUMBER  5 *
* 11  REMOTE RECEPTION  ON *
* 12  FAX SIGNAL RECEIVE  ON *
* 13  AUTO COVER SHEET  OFF *
* 14  RECEIVE REDUCE  AUTO *
* 15  BEEP LENGTH  3 SECONDS *
* 16  BEEP VOLUME  MEDIUM *
* 17  KEY BEEPS  ON *
* 18  INCOMING RING VOLUME  MEDIUM *
* 19  DIAL MODE  TONE *
* 20  DISTINCTIVE RING  OFF *
* 21  BATCH INDEXING  OFF *
* 22  REVERSE SENDING  ON *
* 23  LANGU. SELECTION  ENGLISH *
*-----*-----*-----*
* NAME *
* NUMBER *
*****
```

#### (6) GROUP LIST:

Fax numbers stored under Group keys.

```
*****
*                               GROUP LIST                               P. 01 *
*                                                                                   JUL-21-1999 WED 07:07 PM *
* #  NAME  REMOTE STATION ID # *
*-----*-----*-----*
* G01  GROUP11  R01, R02, R03 *
*****
```

#### (7) ANTI JUNK FAX NUMBER LIST:

Fax numbers designated as Anti Junk Fax numbers.

```
*****
*                               ANTI JUNK FAX NUMBER LIST                               P. 01 *
*                                                                                   JUL-28-1999 WED 08:53 PM *
* #  ANTI JUNK FAX NUMBER *
*-----*-----*
* 01  5552062 *
*****
```

## 4. FAX simulations

### A. Entering the FAX simulation mode

There are following two ways of entering the Fax simulation mode. They differ only in the key sequence and the operations of the simulation are the same in either mode.

For key operations in the FAX simulation mode, use the LCD display and the FAX panel.

**During Fax operations, the Fax simulation cannot be entered.**

#### (1) From the FAX panel

	Procedure	Procedure Position	Operation
1	Press FUNCTION, 9, *, 8, #, 7.	Fax Panel	ROM version is displayed on the LCD.
2	Press ENTER.	Fax Panel	FAX enters the simulation mode. The machine is in the normal display.
3	Press ← / → proper times.	Fax Panel	Each mode name is displayed on the LCD sequentially.
4	Press ENTER.	Fax Panel	The mode is determined.
5	Procedure in each mode	Fax Panel	Operations in each mode

Instead of above procedures 3 and 4, press the code (2 digits) of the target mode to enter the mode directly.

#### (2) From the COPIER panel

	Procedure	Procedure Position	Operation
1	Press Clear, Exposure, Clear, Exposure.	Copier Panel	Waiting for simulation code. FAX is in the normal display.
2	Enter the main code of 66 with 10Up/1Up keys.	Copier Panel	"66" is displayed on 7SEG LED.
3	Press START key.	Copier Panel	The machine exits the simulation mode, and the FAX enters the simulation mode.
4	Press ← / → proper times.	Fax Panel	Each mode name is displayed on the LCD sequentially.
5	Press ENTER.	Fax Panel	The mode is determined.
6	Procedure in each mode	Fax Panel	Operations in each mode

Instead of above procedures 4 and 5, press the code number (2 digits) of the target mode to enter the mode directly.

### B. List of functions

Mode #	Mode	Details of functions	LCD display (Mode name)																																							
01	Soft switch setting mode	This mode is used to change the soft switch setup. The available soft switches are SW1 to SW30. The contents of soft switches are backed up. For details of soft switches, refer to "Software Switch for FAX."	01:SOFT SWITCH																																							
02	Soft switch clear mode (Only the setup is cleared.)	This mode is used to reset the soft switch setup (including the user option setup) to the default. Since, however, some of soft switches have the adjustment values, the area for the adjustment values is excluded from the targets.	02:SOFT SW CLEAR																																							
03	ROM & RAM check mode	This mode is used to perform ROM check sum and RAM read/write test. The result is shown with the buzzer and the LCD. No error: NO ERROR/ No buzzer ROM error : ROM ERROR / Buzzer once RAM error : RAM ERROR / Buzzer twice	03:ROM/RAM CHECK																																							
04	Signal send mode	This mode is used to send various signals to the line. The FAX signal is sent in the level set with the soft switch. There are the following kinds of signals: <table border="1"> <tbody> <tr> <td>1</td> <td>No signal ( OFF HOOK state)</td> <td></td> </tr> <tr> <td>2</td> <td>DTMF</td> <td>(0,1,2,3,4,5,6,7,8,9,*,#)</td> </tr> <tr> <td>3</td> <td>14400 bps (V.17)</td> <td>(00000000b, 11111111b, 01010101b)</td> </tr> <tr> <td>4</td> <td>12000 bps (V.17)</td> <td>(00000000b, 11111111b, 01010101b)</td> </tr> <tr> <td>5</td> <td>9600 bps (V.17)</td> <td>(00000000b, 11111111b, 01010101b)</td> </tr> <tr> <td>6</td> <td>7200 bps (V.17)</td> <td>(00000000b, 11111111b, 01010101b)</td> </tr> <tr> <td>7</td> <td>9600 bps (V.29)</td> <td>(00000000b, 11111111b, 01010101b)</td> </tr> <tr> <td>8</td> <td>7200 bps (V.29)</td> <td>(00000000b, 11111111b, 01010101b)</td> </tr> <tr> <td>9</td> <td>4800 bps (V27ter)</td> <td>(00000000b, 11111111b, 01010101b)</td> </tr> <tr> <td>10</td> <td>2400 bps (V27ter)</td> <td>(00000000b, 11111111b, 01010101b)</td> </tr> <tr> <td>11</td> <td>300 bps (FLAG)</td> <td>(00000000b, 11111111b, 01010101b)</td> </tr> <tr> <td>12</td> <td>2100 Hz (CED)</td> <td></td> </tr> <tr> <td>13</td> <td>1100 Hz (CNG)</td> <td></td> </tr> </tbody> </table>	1	No signal ( OFF HOOK state)		2	DTMF	(0,1,2,3,4,5,6,7,8,9,*,#)	3	14400 bps (V.17)	(00000000b, 11111111b, 01010101b)	4	12000 bps (V.17)	(00000000b, 11111111b, 01010101b)	5	9600 bps (V.17)	(00000000b, 11111111b, 01010101b)	6	7200 bps (V.17)	(00000000b, 11111111b, 01010101b)	7	9600 bps (V.29)	(00000000b, 11111111b, 01010101b)	8	7200 bps (V.29)	(00000000b, 11111111b, 01010101b)	9	4800 bps (V27ter)	(00000000b, 11111111b, 01010101b)	10	2400 bps (V27ter)	(00000000b, 11111111b, 01010101b)	11	300 bps (FLAG)	(00000000b, 11111111b, 01010101b)	12	2100 Hz (CED)		13	1100 Hz (CNG)		04:SIGNAL SEND
1	No signal ( OFF HOOK state)																																									
2	DTMF	(0,1,2,3,4,5,6,7,8,9,*,#)																																								
3	14400 bps (V.17)	(00000000b, 11111111b, 01010101b)																																								
4	12000 bps (V.17)	(00000000b, 11111111b, 01010101b)																																								
5	9600 bps (V.17)	(00000000b, 11111111b, 01010101b)																																								
6	7200 bps (V.17)	(00000000b, 11111111b, 01010101b)																																								
7	9600 bps (V.29)	(00000000b, 11111111b, 01010101b)																																								
8	7200 bps (V.29)	(00000000b, 11111111b, 01010101b)																																								
9	4800 bps (V27ter)	(00000000b, 11111111b, 01010101b)																																								
10	2400 bps (V27ter)	(00000000b, 11111111b, 01010101b)																																								
11	300 bps (FLAG)	(00000000b, 11111111b, 01010101b)																																								
12	2100 Hz (CED)																																									
13	1100 Hz (CNG)																																									

Mode #	Mode	Details of functions	LCD display (Mode name)
10	Image memory clear mode (Only the image data is cleared.)	This mode is used to clear the image data memory (DRAM).	10:IMAGE MEM CLEAR
14	Dial test / adjustment mode (Pulse 10 pps)	This mode is used to dial in dial pulse (10PPS) and to set the pulse make ratio adjustment value. The range of make ratio variable range: -8% ~ +7% The setup is reflected on the adjustment value area of the soft switch. The dialed number is fixed to "1590."	14:DIAL TEST 10 PPS
16	Dial test mode (Tone)	This mode is used to dial with DTMF. The number to be dialed is fixed to "123456789*0#".	16:DIAL TEST TONE
21	Print out soft switch mode	This mode is used to print the report on the current soft switch setup.	21:PRINT SOFT SW
42	FAX Panel check mode	This mode is used to check the keys and the LED on the FAX panel. When any key on the FAX panel other than the STOP key is pressed, the name of the pressed key is displayed on the LCD. The LED's on the FAX panel are lighted one by one sequentially. When any change is made on a sensor in the SPF section, the sensor name as well as its ON/OFF status is displayed on the LCD.	42:FAX PANEL TEST
43	Signal detect mode	This mode is used to detect signals in the line, and the detected signal name is displayed on the LCD. The signals to be detected are CNG, DTMF, and silent. The detection conditions conform to the soft switch setup.	43:SIG. DETECT
44	Long distance comm. Select mode	This mode is used to specify the other party FAX numbers registered in the one-touch/speed dial, with which communication errors occur frequently due to poor line conditions To the specified parties, the max. transmission speed is compulsorily reduced to stabilize the communication line. <b>The speed is available in 9600BPS and 4800BPS.</b>	44:LONG DIST COMM

### C. Operating procedures in each mode

#### (1) Soft SW change method

	Procedure	LCD	Operation
1	Press FUNCTION, 9, *, 8, #, 7.	DIAGNOSTIC MODE ROM VERSION = <version>	
2	Press ENTER.	DIAGNOSTIC MODE SELECT MENU(← →)	
3	Press 0, 1.	SW # =	
4	Enter the SW No. (2 digits) to be changed.	SW # = 10	
5	Press ← / → to shift the cursor to the bit to be changed. (The left edge is Bit No. 1.)	SW10 = 00010101 bit # = 12345678	
6	Press FUNCTION to highlight the bit in the cursor position.	SW10 = 10010101 bit # = 12345678	
7	Press ENTER to register.	SW # =	Return to Step 3. Press STOP to exit from the mode.

#### (2) Soft switch clear mode

	Procedure	LCD	Operation
1	Press FUNCTION, 9, *, 8, #, 7.	DIAGNOSTIC MODE ROM VERSION = <version>	
2	Press ENTER.	DIAGNOSTIC MODE SELECT MENU(← →)	
3	Press 0, 2.	02:SOFT SW CLEAR 1:OK 2:CANCEL	
4	Press 1.	DIAGNOSTIC MODE SELECT MENU(← →)	The soft switches setup is reset to the default, and this mode is terminated.

**(3) ROM & RAM check mode**

	Procedure	LCD	Operation
1	Press FUNCTION, 9, *, 8, #, 7.	DIAGNOSTIC MODE ROM VERSION = <version>	
2	Press ENTER.	DIAGNOSTIC MODE SELECT MENU(← →)	
3	Press 0, 3.	03:ROM/RAM CHECK	
4	(Normal case)	ROM/RAM OK	
	(RAM error)	RAM ERROR	Two short beeps
	(ROM error)	ROM ERROR	One short beep

**(4) Signal send mode**

	Procedure	LCD	Operation
1	Press FUNCTION, 9, *, 8, #, 7.	DIAGNOSTIC MODE ROM VERSION = <version>	
2	Press ENTER.	DIAGNOSTIC MODE SELECT MENU(← →)	
3	Press 0, 4.	04:SIGNAL SEND SELECT SIGNAL	
4	Press ← or → repeatedly to select the target signal.	<signal type> PRESS ENTER KEY	For <signal type>, refer to TABLE-3.
5	When the target signal is displayed, press ENTER.		mode # = 1 → 10 mode # = 2 → 20 mode # = 3 ~ 6 → 30 mode # = 7 → 40
10		1:NO SIGNAL	The relay is turned ON.
11	Press STOP.	04:SIGNAL SEND SELECT SIGNAL	The relay is turned OFF. "NO SIGNAL" mode is terminated.
12	(To terminate this mode) Press STOP.		This mode is terminated.
20		2:DTMF DTMF # =	
21	Press any NUM key(0 ~ 9) or * or #.	2:DTMF DTMF # = <pressed key>	The DTMF signal corresponding to the pressed key is sent.
22	Press STOP.	2:DTMF DTMF # =	
23	(To continue) Go to 21.		
	(To change the signal kind) Press STOP.	04:SIGNAL SEND SELECT SIGNAL	
	(To terminate this mode) Press STOP twice.		This mode is terminated.
30		<signal type> SELECT SPEED	
31	Press ← or → to select the target speed.	<signal speed> PRESS ENTER KEY	For <signal speed>, refer to TABLE-4.
32	When the target speed is displayed, press ENTER.	<signal speed> SELECT DATA	
33	Press ← or → to select the target data to be sent.	<data> PRESS ENTER KEY	For <data>, refer to TABLE-5.
34	When the target data is displayed, press ENTER.	<signal speed> <data>	The selected signal is sent.
35	Press STOP.	<signal speed> SELECT DATA	Signal send stop
36	(To change data only) Go to 33.		
	(To change speed) Press STOP.	<signal type> SELECT SPEED	
	(To change the signal kind) Press STOP twice.	04:SIGNAL SEND SELECT SIGNAL	
	(To terminate this mode) Press STOP 3 times.		This mode is terminated.

	Procedure	LCD	Operation
40		7:TONE SELECT FREQUENCY	
41	Press ← or → to select the target frequency.	<signal freq.> PRESS ENTER KEY	For <signal freq.>, refer to TABLE-4.
42	When the target frequency is displayed, press ENTER.	<signal freq.>	The selected signal is sent.
43	Press STOP.	7:TONE SELECT FREQUENCY	Signal send stop
44	(To change the frequency only) Go to 41.		
	(To change the signal kind) Press STOP.	04:SIGNAL SEND SELECT SIGNAL	
	(To terminate this mode) Press STOP twice.		This mode is terminated.

TABLE-3: Signals in the Signal send mode

MODE #	MENU	DISPLAY
1	No signal	1:NO SIGNAL
2	DTMF	2:DTMF
3	V.17	3:V.17
4	V.29	4:V.29
5	V27ter	5:V27ter
6	FLAG	6:FLAG
7	Tone (CED/CNG)	7:TONE

TABLE-4: Speed/Frequency in the Signal send mode

MODE #	MENU ITEM 1	MENU ITEM 2	MENU ITEM 3	MENU ITEM 4
3	1:V.17 14400BPS	2:V.17 12000BPS	3:V.17 9600BPS	4:V.17 7200BPS
4	1:V.29 9600BPS	2:V.29 7200BPS		
5	1:V27ter 4800BPS	2:V27ter 2400BPS		
6	1:FLAG 300BPS			
7	1:TONE 2100Hz	2:TONE 1100Hz		

TABLE-5: Data which is sent in the Signal send mode

MODE #	MENU (DATA)	DISPLAY
1	00000000b	1:00000000b
2	11111111b	2:11111111b
3	01010101b	3:01010101b

**(5) Image memory clear mode**

	Procedure	LCD	Operation
1	Press FUNCTION, 9, *, 8, #, 7.	DIAGNOSTIC MODE ROM VERSION = <version>	
2	Press ENTER.	DIAGNOSTIC MODE SELECT MENU(← →)	
3	Press 1, 0.	10:IMAGE MEM CLEAR 1:OK 2:CANCEL	
4	Press 1.	DIAGNOSTIC MODE SELECT MENU(← →)	The image data are cleared and this mode is terminated.

**(6) Dial test / adjustment mode (Pulse 10PPS)**

	Procedure	LCD	Operation
1	Press FUNCTION, 9, *, 8, #, 7.	DIAGNOSTIC MODE ROM VERSION = <version>	
2	Press ENTER.	DIAGNOSTIC MODE SELECT MENU(← →)	
3	Press 1, 4.	14:DIAL TEST 10 PPS MAKE RATIO = ##%	The current make ratio setup is displayed on ##.
4	Press ← or →. (If there is no need to adjust, no need to press.)	14:DIAL TEST 10 PPS MAKE RATIO = ##%	Press ← to decrease by 1%. Press → to increase by 1%.
5	Press ENTER.		"1590" is dialed.
6	(Adjustment/test end) Press STOP.  (To continue adjustment/test) Return to 4.		This mode is terminated.

**(7) Dial test mode (Tone)**

	Procedure	LCD	Operation
1	Press FUNCTION, 9, *, 8, #, 7.	DIAGNOSTIC MODE ROM VERSION = <version>	
2	Press ENTER.	DIAGNOSTIC MODE SELECT MENU(← →)	
3	Press 1, 6.	16:DIAL TEST TONE	"123456789*0#" is dialed. This mode is terminated.

**(8) Print out soft switch mode**

	Procedure	LCD	Operation
1	Press FUNCTION, 9, *, 8, #, 7.	DIAGNOSTIC MODE ROM VERSION = <version>	
2	Press ENTER.	DIAGNOSTIC MODE SELECT MENU(← →)	
3	Press 2, 1.	21:PRINT SOFT SW	The soft switch list is printed. This mode is terminated.

**(9) Panel check mode**

	Procedure	LCD	Operation
1	Press FUNCTION, 9, *, 8, #, 7.	DIAGNOSTIC MODE ROM VERSION = <version>	
2	Press ENTER.	DIAGNOSTIC MODE SELECT MENU(← →)	
3	Press 4, 2.	42:FAX PANEL TEST	
4	Press any key.	42:FAX PANEL TEST <key name>	The name of the pressed key is displayed in the lower stage of the LCD.
5	Press STOP.		This mode is terminated.

**(10) Signal detect mode**

	Procedure	LCD	Operation
1	Press FUNCTION, 9, *, 8, #, 7.	DIAGNOSTIC MODE ROM VERSION = <version>	
2	Press ENTER.	DIAGNOSTIC MODE SELECT MENU(← →)	
3	Press 4, 3.	43:SIG. DETECT	
4	(When DTMF signal is detected)	43:SIG. DETECT DTMF:<number>	
	(When CNG signal is detected)	43:SIG. DETECT CNG	
	(When QUIET signal is detected)	43:SIG. DETECT QUIET	
	(To terminate this mode) Press STOP.		This mode is terminated.

**(11) Long distance comm select mode**

	Procedure	LCD	Operation
1	Press FUNCTION, 9, *, 8, #, 7.	DIAGNOSTIC MODE ROM VERSION = <version>	
2	Press ENTER.	DIAGNOSTIC MODE SELECT MENU(← →)	
3	Press 4, 4.	44:LONG DIST COMM 1:SET 2:CLEAR	To terminate this mode, press STOP.
4	Select the mode.		To register → 10 To cancel registration → 20
10	Press 1.	SET ENTER # OR RAPID	
11	Press the desired one touch key or the speed dial (2 digits) to be registered.	SELECT SPEED 1:9600BPS 2:4800BPS	
12	Select the speed. (Press 1 or 2.)	<Name or Number> STORED	
13	Return to 3.		
20	Press 2.	CLEAR ENTER # OR RAPID	
21	Press the desired one-touch key or speed dial (2 digits) to be canceled.	<Name or Number> CLEARED	
22	Return to 3.		

Note:

- One-touch keys and speed dials which are not registered cannot be designated.
- When one-touch keys and speed dials which are registered are canceled, this setup is also canceled.
- The group key and the polling key cannot be designated.

**5. Software switch for FAX****A. Software Switch List**

This machine is provided with the following software switches for the use by a serviceman.

The setup items of SW21 and later correspond to user setup one-to-one.

Since SW17 ~ 20 are assigned to adjustment values, they are not cleared by Memory Clear.

SW No.	Bit No.	ITEM	Soft SW setting and function	Factory Setting																												
1	1	300dpi reception enable	Used to set enable/disable of 300 × 300dpi reception. 1 : Enable    0 : Disable	0																												
	2	200 × 400dpi reception enable	Used to set enable/disable of 200 × 400dpi reception. 1 : Enable    0 : Disable	1																												
	3 4 5	Max. modem speed in reception	Used to limit the max. reception speed of Modem to 14400bps, 12000bps, 9600bps, 7200bps, 4800bps, 2400bps. <table border="1"> <thead> <tr> <th>Bit No.</th> <th>14400 BPS</th> <th>12000 BPS</th> <th>9600 BPS</th> <th>7200 BPS</th> <th>4800 BPS</th> <th>2400 BPS</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>1</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>4</td> <td>1</td> <td>0</td> <td>1</td> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>5</td> <td>*</td> <td>*</td> <td>1</td> <td>0</td> <td>1</td> <td>0</td> </tr> </tbody> </table>	Bit No.	14400 BPS	12000 BPS	9600 BPS	7200 BPS	4800 BPS	2400 BPS	3	1	1	0	0	0	0	4	1	0	1	1	0	0	5	*	*	1	0	1	0	1 1 0
	Bit No.	14400 BPS	12000 BPS	9600 BPS	7200 BPS	4800 BPS	2400 BPS																									
	3	1	1	0	0	0	0																									
4	1	0	1	1	0	0																										
5	*	*	1	0	1	0																										
6 7 8	Max. modem speed in sending	Used to limit the max. sending speed of Modem to 14400bps, 12000bps, 9600bps, 7200bps, 4800bps, 2400bps. <table border="1"> <thead> <tr> <th>Bit No.</th> <th>14400 BPS</th> <th>12000 BPS</th> <th>9600 BPS</th> <th>7200 BPS</th> <th>4800 BPS</th> <th>2400 BPS</th> </tr> </thead> <tbody> <tr> <td>6</td> <td>1</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>7</td> <td>1</td> <td>0</td> <td>1</td> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>8</td> <td>*</td> <td>*</td> <td>1</td> <td>0</td> <td>1</td> <td>0</td> </tr> </tbody> </table>	Bit No.	14400 BPS	12000 BPS	9600 BPS	7200 BPS	4800 BPS	2400 BPS	6	1	1	0	0	0	0	7	1	0	1	1	0	0	8	*	*	1	0	1	0	1 1 0	
Bit No.	14400 BPS	12000 BPS	9600 BPS	7200 BPS	4800 BPS	2400 BPS																										
6	1	1	0	0	0	0																										
7	1	0	1	1	0	0																										
8	*	*	1	0	1	0																										

SW No.	Bit No.	ITEM	Soft SW setting and function	Factory Setting															
2	1 2 3 4	Silent detection threshold value	Used to set the threshold value of silent detection in the answering and recording mode.  Threshold = $8 \times \text{Bit1} + 4 \times \text{Bit2} + 2 \times \text{Bit3} + 1 \times \text{Bit4}$ Factory setting = 8	1 0 0 0															
	5 6 7 8		Used to set the silent detection start time in the answering and recording mode. The time set with this switch is that from connection of the line to silent detection start.  TIME = $8 \times \text{Bit5} + 4 \times \text{Bit6} + 2 \times \text{Bit7} + 1 \times \text{Bit8}$ sec Factory setting = $8 \times 0 + 4 \times 1 + 2 \times 0 + 1 \times 1 = 5$ sec	0 1 0 1															
3	1 2 3 4	CNG detection threshold value (AUTO, MANUAL mode)	Used to set the threshold value of CNG signal detection.  Threshold = $8 \times \text{Bit1} + 4 \times \text{Bit2} + 2 \times \text{Bit3} + 1 \times \text{Bit4}$ Factory setting = 7	0 1 1 1															
	5 6 7 8		Used to set the required number of times of CNG detection for recognition of CNG signal one time.  Threshold = $8 \times \text{Bit5} + 6 \times \text{Bit6} + 2 \times \text{Bit7} + 1 \times \text{Bit8}$ Factory setting = 3	0 0 1 1															
4	1 2	Silent detection end time	Used to set the silent detection end time in the answering and recording mode. The time set with this switch is that from the last call sound to the silent detection end.  <table border="1"> <thead> <tr> <th>Bit No.</th> <th>No limit</th> <th>60sec</th> <th>45sec</th> <th>30sec</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1</td> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>2</td> <td>1</td> <td>0</td> <td>1</td> <td>0</td> </tr> </tbody> </table>	Bit No.	No limit	60sec	45sec	30sec	1	1	1	0	0	2	1	0	1	0	0 1
	Bit No.		No limit	60sec	45sec	30sec													
	1	1	1	0	0														
	2	1	0	1	0														
	3 4	Number of times of CNG detection	Number of times = $2 \times \text{Bit3} + 1 \times \text{Bit4} + 1$ Factory setting = $2 \times 1 + 1 \times 0 + 1 = 3$ times	1 0															
	5		Reserved	0															
	6	Reserved		0															
	7	Reserved		0															
8	Answering and recording mode signal detection filter	Used to select the CNG signal detection filter in the answering and recording mode.  <table border="1"> <tr> <td>1 : Type 2</td> <td>0 : Type 1</td> </tr> </table>	1 : Type 2	0 : Type 1	0														
1 : Type 2	0 : Type 1																		
5	1	Max. reception length	Used to set or not to set the max. reception length of FAX documents. When this function is enabled, a reception length of 1.5m or above is treated as a communication error.  <table border="1"> <tr> <td>1 : No limit</td> <td>0 : 1.5 m</td> </tr> </table>	1 : No limit	0 : 1.5 m	0													
	1 : No limit		0 : 1.5 m																
	2	Reserved	0																
	3	Reserved	0																
	4 5	Line monitor	When this function is enabled, the sound of the line under FAX session can be heard.  <table border="1"> <thead> <tr> <th>Bit No.</th> <th>Always ON</th> <th>Error Only</th> <th>OFF</th> </tr> </thead> <tbody> <tr> <td>4</td> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>5</td> <td>*</td> <td>1</td> <td>0</td> </tr> </tbody> </table>	Bit No.	Always ON	Error Only	OFF	4	1	0	0	5	*	1	0	0 0			
	Bit No.		Always ON	Error Only	OFF														
	4	1	0	0															
5	*	1	0																
6	Protocol monitor (LCD)	When this function is enabled, the signal name under FAX session is displayed on the LCD in real time.  <table border="1"> <tr> <td>1 : ON</td> <td>0 : OFF</td> </tr> </table>	1 : ON	0 : OFF	0														
1 : ON	0 : OFF																		
7 8	Protocol monitor (Report)	When this function is enabled, the detailed report on communication is provided after completion of FAX sending or reception.  <table border="1"> <thead> <tr> <th>Bit No.</th> <th>Always ON</th> <th>Error Only</th> <th>OFF</th> </tr> </thead> <tbody> <tr> <td>7</td> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>8</td> <td>*</td> <td>1</td> <td>0</td> </tr> </tbody> </table>	Bit No.	Always ON	Error Only	OFF	7	1	0	0	8	*	1	0	0 0				
Bit No.		Always ON	Error Only	OFF															
7	1	0	0																
8	*	1	0																



SW No.	Bit No.	ITEM	Soft SW setting and function	Factory Setting																																													
6	1	Signal send level	<p>This mode is used to set the FAX signal send level. The effective set range is -1 dBm to -16 dBm. The values are mere estimation figures because they are affected by DAA.</p> <p>LEVEL = <math>-8 \times \text{Bit1} - 4 \times \text{Bit2} - 2 \times \text{Bit3} - 0 \times \text{Bit4} - 1</math> dBm            Factory setting = -9 dBm (Set for each destination)            (When modem speed <math>\geq</math> 7200 bps :            If setting is -1 or -2 dBm , the level is forced to -3 dBm.)</p>	1																																													
	2			0																																													
	3			0																																													
	4			0																																													
	5	Reserved		0																																													
6	Reserved		0																																														
7	7	Dial tone detection	<p>Used to set ON/OFF of dial tone detection before dialing for FAX sending. When this function is set to ON, dialing is started after detection of the dial tone. When this function is set to OFF, dialing is started after the set time of "Interval between OFF-HOOK and dial send" regardless of dial tone detection.</p> <table border="1"> <tr> <td>1 : ON</td> <td>0 : OFF</td> </tr> </table>	1 : ON	0 : OFF	1																																											
	1 : ON	0 : OFF																																															
	8	Busy tone detection	<p>Used to set ON/OFF of busy tone detection. When this function is set to ON, if busy tone is detected, transmission is interrupted and the machine enters the recall mode.</p> <table border="1"> <tr> <td>1 : ON</td> <td>0 : OFF</td> </tr> </table>	1 : ON	0 : OFF	1																																											
1 : ON	0 : OFF																																																
1	Reception sensitivity offset	<p>Used to set the FAX signal reception level offset. The set range is -8dBm to +7dBm. The values are mere estimation figures because they are affected by DAA. When "Auto reception sensitivity adjustment" is set to Enable, this setup is disabled.</p> <p>Sensitivity offset = <math>-8 \times \text{Bit1} + 4 \times \text{Bit2} + 2 \times \text{Bit3} + \text{Bit4}</math> dBm            Factory setting = 0 dBm</p>	0																																														
5	Auto reception sensitivity adjustment	<p>When this function is set to Enable, the Modem automatically adjusts the received signal gain.</p> <table border="1"> <tr> <td>1 : Enable</td> <td>0 : Disable</td> </tr> </table>	1 : Enable	0 : Disable	1																																												
1 : Enable	0 : Disable																																																
6	7	Transmission Line Equalizer	<p>Used to select the frequency characteristics in the signal send level. This function is provided to absorb the difference in frequency characteristics between lines. When communication errors occur frequently, another equalizer must be selected.</p> <p>Gain (dB) for 2000Hz</p> <table border="1"> <thead> <tr> <th>Frequency</th> <th>None</th> <th>Equalizer 1</th> <th>Equalizer 2</th> <th>Equalizer 3</th> </tr> </thead> <tbody> <tr> <td>500</td> <td>0</td> <td>+1.2</td> <td>-1.0</td> <td>-1.5</td> </tr> <tr> <td>1000</td> <td>0</td> <td>-0.4</td> <td>-1.1</td> <td>-4.1</td> </tr> <tr> <td>1500</td> <td>0</td> <td>-0.4</td> <td>-0.6</td> <td>-3.6</td> </tr> <tr> <td>2500</td> <td>0</td> <td>+0.7</td> <td>+0.9</td> <td>+2.4</td> </tr> <tr> <td>3000</td> <td>0</td> <td>+2.5</td> <td>+2.5</td> <td>+4.9</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Bit No.</th> <th>None</th> <th>Equalizer 1</th> <th>Equalizer 2</th> <th>Equalizer 3</th> </tr> </thead> <tbody> <tr> <td>6</td> <td>0</td> <td>0</td> <td>1</td> <td>1</td> </tr> <tr> <td>7</td> <td>0</td> <td>1</td> <td>0</td> <td>1</td> </tr> </tbody> </table>	Frequency	None	Equalizer 1	Equalizer 2	Equalizer 3	500	0	+1.2	-1.0	-1.5	1000	0	-0.4	-1.1	-4.1	1500	0	-0.4	-0.6	-3.6	2500	0	+0.7	+0.9	+2.4	3000	0	+2.5	+2.5	+4.9	Bit No.	None	Equalizer 1	Equalizer 2	Equalizer 3	6	0	0	1	1	7	0	1	0	1	0
			Frequency	None	Equalizer 1	Equalizer 2	Equalizer 3																																										
500	0	+1.2	-1.0	-1.5																																													
1000	0	-0.4	-1.1	-4.1																																													
1500	0	-0.4	-0.6	-3.6																																													
2500	0	+0.7	+0.9	+2.4																																													
3000	0	+2.5	+2.5	+4.9																																													
Bit No.	None	Equalizer 1	Equalizer 2	Equalizer 3																																													
6	0	0	1	1																																													
7	0	1	0	1																																													
7	1			1																																													
8	Reserved			0																																													

SW No.	Bit No.	ITEM	Soft SW setting and function	Factory Setting															
8	1	Non-modulation carrier send in V.29	Non-modulation carriers are not required for V.29 Modem transmission in ITU-TS standards. However, non-modulation carriers can be sent in advance to image signals. This function is effective to avoid communication troubles due to echoes in oversea communication. <table border="1" style="margin-left: auto; margin-right: auto;"><tr><td>1 : ON</td><td>0 : OFF</td></tr></table>	1 : ON	0 : OFF	0													
	1 : ON	0 : OFF																	
	2	CED tone signal interval	Used to set the time interval between the CED signal and the NSF signal. This function is effective to avoid communication troubles due to echoes in oversea communication. <table border="1" style="margin-left: auto; margin-right: auto;"><tr><td>1 : 500 msec</td><td>0 : 75 msec</td></tr></table>	1 : 500 msec	0 : 75 msec	0													
	1 : 500 msec	0 : 75 msec																	
	3	Communication error process when receiving RTN	Used to set the communication error process for received RTN when there is an error in transmitted image data and RTN is returned. <table border="1" style="margin-left: auto; margin-right: auto;"><tr><td>1 : Not transmission error</td><td>0 : Transmission error</td></tr></table>	1 : Not transmission error	0 : Transmission error	1													
	1 : Not transmission error	0 : Transmission error																	
	4	NSF receive acknowledge	Used to select between DIS signal recognition at 2-time reception of DIS signal and DIS signal recognition at DIS signal reception after NSF signal. This function is effective to avoid communication troubles due to echoes in oversea communication. <table border="1" style="margin-left: auto; margin-right: auto;"><tr><td>1 : Twice</td><td>0 : Once for NSF reception, Twice for DIS reception</td></tr></table>	1 : Twice	0 : Once for NSF reception, Twice for DIS reception	0													
	1 : Twice	0 : Once for NSF reception, Twice for DIS reception																	
5	EOL detection timer	Used to set the EOL (End of Life) detection time to 25sec or 13sec. This function is effective to avoid a communication error due to long EOL of certain models. <table border="1" style="margin-left: auto; margin-right: auto;"><tr><td>1 : 25 sec</td><td>0 : 5 sec</td></tr></table>	1 : 25 sec	0 : 5 sec	0														
1 : 25 sec	0 : 5 sec																		
6	Reserved		0																
7	Reserved		0																
8	ECM	Used to set ON/OFF of ECM. <table border="1" style="margin-left: auto; margin-right: auto;"><tr><td>1 : ON</td><td>0 : OFF</td></tr></table>	1 : ON	0 : OFF	1														
1 : ON	0 : OFF																		
9	1 2	Interval between OFF-HOOK and dial send	Used to set the delay from OFF-HOOK when starting dialing to actual send start of the dial signal. If the dial tone detection function is enabled, this setup is ignored. <table border="1" style="margin-left: auto; margin-right: auto;"><thead><tr><th>Bit No.</th><th>0.5sec</th><th>1sec</th><th>2sec</th><th>3sec</th></tr></thead><tbody><tr><td>1</td><td>0</td><td>0</td><td>1</td><td>1</td></tr><tr><td>2</td><td>0</td><td>1</td><td>0</td><td>1</td></tr></tbody></table>	Bit No.	0.5sec	1sec	2sec	3sec	1	0	0	1	1	2	0	1	0	1	1 1
	Bit No.	0.5sec	1sec	2sec	3sec														
	1	0	0	1	1														
	2	0	1	0	1														
	3	Reserved		0															
	4	Reserved		0															
	5	Reserved		0															
	6			1															
7	Reserved		0																
8			1																
10	1	Reserved		0															
	2	FAST	Used to set Enable/Disable of RMS (FAST) function. <table border="1" style="margin-left: auto; margin-right: auto;"><tr><td>1 : Enable</td><td>0 : Disable</td></tr></table>	1 : Enable	0 : Disable	0													
	1 : Enable	0 : Disable																	
	3	Reserved		1															
	4	Basic resolution	Used to select the basic resolution for scanning and printing. <table border="1" style="margin-left: auto; margin-right: auto;"><tr><td>1 : Inch series</td><td>0 : Metric series</td></tr></table>	1 : Inch series	0 : Metric series	0													
	1 : Inch series	0 : Metric series																	
	5	Reserved		0															
	6	Reserved		0															
7			0																
8			0																

SW No.	Bit No.	ITEM	Soft SW setting and function	Factory Setting																				
11	1	Header	Used to set the header attachment to the transmitting document. <table border="1"> <tr> <td>1 : Not attached</td> <td>0 : Attached</td> </tr> </table>	1 : Not attached	0 : Attached	0																		
	1 : Not attached	0 : Attached																						
	2	Header in data transfer	Used to set the header attachment to the transferring document. <table border="1"> <tr> <td>1 : Not attached</td> <td>0 : Attached</td> </tr> </table>	1 : Not attached	0 : Attached	0																		
	1 : Not attached	0 : Attached																						
	3	Training (EQM) threshold value	Used to select the threshold value to judge Success/Failure of training in reception of training. <table border="1"> <tr> <td>1 : Easy to fall back</td> <td>0 : Normal</td> </tr> </table>	1 : Easy to fall back	0 : Normal	0																		
	1 : Easy to fall back	0 : Normal																						
	4	Reserved		0																				
	5 6 7	Non ECM error judgement threshold value	<table border="1"> <thead> <tr> <th>Bit 5, 6, 7</th> <th>RTP</th> <th>RTN</th> </tr> </thead> <tbody> <tr> <td>000</td> <td>32</td> <td>64</td> </tr> <tr> <td>001</td> <td>16</td> <td>32</td> </tr> <tr> <td>010</td> <td>12</td> <td>24</td> </tr> <tr> <td>011</td> <td>8</td> <td>16</td> </tr> <tr> <td>100</td> <td>6</td> <td>12</td> </tr> <tr> <td>101</td> <td>4</td> <td>8</td> </tr> </tbody> </table>	Bit 5, 6, 7	RTP	RTN	000	32	64	001	16	32	010	12	24	011	8	16	100	6	12	101	4	8
Bit 5, 6, 7	RTP	RTN																						
000	32	64																						
001	16	32																						
010	12	24																						
011	8	16																						
100	6	12																						
101	4	8																						
8	Reserved		0																					
12	1 2 3 4 5	Activity Report Auto Listing time	Used to set the start time of Activity Report. Setup is made in the unit of one hour, and setup of minutes cannot be made.  Print start time = Bit1 × 16 + Bit2 × 8 + Bit3 × 4 + Bit4 × 2 + Bit5 hour 00 min Set range = 0 ~ 23 Factory Setting = 00:00	0 0 0 0 0																				
	6	Reserved		0																				
	7	Reserved		0																				
	8	Reserved		0																				
	13	1	Auto recall in direct sending transmission	Used to set whether auto recall is made similarly to memory transmission or not when direct transmission is failed. <table border="1"> <tr> <td>1: Valid</td> <td>0: Inhibited</td> </tr> </table>	1: Valid	0: Inhibited	0																	
1: Valid		0: Inhibited																						
2		Reserved		0																				
3		Reserved		0																				
4		Reserved		0																				
5		Reserved		0																				
6		Reserved		0																				
7 8		Compression method in receiving	Used to set the reception enable compression system. <table border="1"> <thead> <tr> <th></th> <th>MH, MR, MMR</th> <th>MH, MR</th> <th>MH, MMR</th> <th>MH</th> </tr> </thead> <tbody> <tr> <td>7</td> <td>0</td> <td>0</td> <td>1</td> <td>1</td> </tr> <tr> <td>8</td> <td>0</td> <td>1</td> <td>0</td> <td>1</td> </tr> </tbody> </table>		MH, MR, MMR	MH, MR	MH, MMR	MH	7	0	0	1	1	8	0	1	0	1	0 0					
	MH, MR, MMR	MH, MR	MH, MMR	MH																				
7	0	0	1	1																				
8	0	1	0	1																				
14	1	Reserved		0																				
	2	Reserved		0																				
	3	Reserved		0																				
	4	Reserved		0																				
	5	Reserved		0																				
	6	Reserved		0																				
	7	Reserved		0																				
	8	Reserved		0																				
15	1	Reserved		0																				
	2	Reserved		0																				
	3	Reserved		0																				

SW No.	Bit No.	ITEM	Soft SW setting and function	Factory Setting												
15	4	Reserved		0												
	5	Reserved		0												
	6	Reserved		0												
	7	Reserved		0												
	8	Reserved		0												
16	1	RING signal frequency check	Used to select the allowable frequency range of RING signal. Used to perform a communication test by using a simple switchboard in production process. <table border="1" style="margin-left: 20px;"> <tr> <td>1 : To be checked</td> <td>0 : Not to be checked</td> </tr> </table>	1 : To be checked	0 : Not to be checked	1										
	1 : To be checked	0 : Not to be checked														
	2	Reserved		0												
	3	Reserved		0												
	4	Reserved		0												
	5	Reserved		0												
	6	Reserved		0												
	7	Reserved		0												
8	Reserved		0													
17	1	Pulse dial signal make ratio adjustment (10PPS)	Used to adjust the make ratio of 10PPS pulse dial signal. The set range is -8% to +7%.  Offset = $-8 \times \text{Bit1} + 4 \times \text{Bit2} + 2 \times \text{Bit3} + 1 \times \text{Bit4} \%$ Factory setting = 0 %	0												
	2			0												
	3			0												
	4			0												
	5	Reserved		0												
	6			0												
	7			0												
	8			0												
18	1	Reserved		0												
	2	Reserved		0												
	3	Reserved		0												
	4	Reserved		0												
	5	Reserved		0												
	6	Reserved		0												
	7	Reserved		0												
	8	Reserved		0												
19	1	Reserved		0												
	2	Reserved		0												
	3	Reserved		0												
	4	Reserved		0												
	5	Reserved		0												
	6	Reserved		0												
	7	Reserved		0												
	8	Reserved		0												
20	1	Reserved		0												
	2	Reserved		0												
	3	Reserved		0												
	4	Reserved		0												
	5	Reserved		0												
	6	Reserved		0												
	7	Reserved		0												
	8	Reserved		0												
21	1	Record paper size	Used to set the reception document size and the report output paper size. <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Bit No.</th> <th>Letter</th> <th>Legal</th> <th>A4</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0</td> <td>0</td> <td>1</td> </tr> <tr> <td>2</td> <td>0</td> <td>1</td> <td>*</td> </tr> </tbody> </table>	Bit No.	Letter	Legal	A4	1	0	0	1	2	0	1	*	0
	Bit No.			Letter	Legal	A4										
1	0	0	1													
2	0	1	*													
2			0													

SW No.	Bit No.	ITEM	Soft SW setting and function	Factory Setting																								
21	3	Picture quality priority selection	Used to set the default resolution in sending. <table border="1" style="margin-left: auto; margin-right: auto;"><tr><td>1 : Fine</td><td>0 : Standard</td></tr></table>	1 : Fine	0 : Standard	0																						
	1 : Fine	0 : Standard																										
	4	Reserved		0																								
	5	Number of reception start calls	Used to set the number of calls before reception in the auto reception mode. The set range is 0 to 9 times.  Number = $8 \times \text{Bit5} + 4 \times \text{Bit6} + 2 \times \text{Bit7} + 1 \times \text{Bit8}$ rings Set range : 0 –9	0																								
6	0																											
7	1																											
8		0																										
22	1	Number of auto reception select	Used to set the number of calls before reception in the manual reception mode. This setup is used as a backup function when the external telephone does not respond. The set range is OFF and 1 to 9 times.  Number = $8 \times \text{Bit1} + 4 \times \text{Bit2} + 2 \times \text{Bit3} + 1 \times \text{Bit4}$ rings Set range : 0(= OFF), 1 –9	0																								
	2			0																								
	3			0																								
	4			0																								
5	Reserved			0																								
6	7	Result list print	Used to set the printing conditions of the result list after completion of communication. <table border="1" style="margin-left: auto; margin-right: auto;"><thead> <tr> <th>Bit No.</th> <th>Always</th> <th>Error/Timer transmission</th> <th>Send</th> <th>Never</th> <th>Error</th> </tr> </thead><tbody> <tr> <td>6</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> </tr> <tr> <td>7</td> <td>0</td> <td>0</td> <td>1</td> <td>1</td> <td>0</td> </tr> <tr> <td>8</td> <td>0</td> <td>1</td> <td>0</td> <td>1</td> <td>0</td> </tr> </tbody></table>	Bit No.	Always	Error/Timer transmission	Send	Never	Error	6	0	0	0	0	1	7	0	0	1	1	0	8	0	1	0	1	0	0
				Bit No.	Always	Error/Timer transmission	Send	Never	Error																			
				6	0	0	0	0	1																			
				7	0	0	1	1	0																			
8	0	1	0	1	0																							
8		1																										
23	1	Number of recall times	Used to set the number of times of recalls when sending is not normally completed due to busy status of the other party or a communication error. The set range is OFF and 1 to 14 times. For some causes of the communication error, however, the number of times of recalls must be set to a smaller level.  Recall Times = $8 \times \text{Bit1} + 4 \times \text{Bit2} + 2 \times \text{Bit3} + 1 \times \text{Bit4}$ times Set range : 0(= OFF), 1 –14	0																								
	2			0																								
	3			1																								
	4			0																								
5	Recall interval		Used to set the recall interval when a transmission is not normally completed due to busy status of the other party or a communication error. The set range is 1 to 15 minutes.  Recall Interval = $8 \times \text{Bit5} + 4 \times \text{Bit6} + 2 \times \text{Bit7} + 1 \times \text{Bit8}$ min Set range : 1 –15	0																								
6			1																									
7			0																									
8			1																									
24	1	Remote select number	Used to select the first digit of the select request signal when selecting from the external telephone to FAX reception. The set range is 0 to 9.  Number = $8 \times \text{Bit1} + 4 \times \text{Bit2} + 2 \times \text{Bit3} + 1 \times \text{Bit4}$ Set range : 0 – 9	0																								
	2			1																								
	3			0																								
	4			1																								
	5	Remote reception	Used to set whether "Remote select number" + ".*" from an external telephone is detected and switched to FAX reception or not. <table border="1" style="margin-left: auto; margin-right: auto;"><tr><td>1 : ON</td><td>0 : OFF</td></tr></table>	1 : ON	0 : OFF	1																						
1 : ON	0 : OFF																											
6	FAX signal reception	Used to set whether CNG signal is detected during OFF-HOOK and switched to FAX reception or not. <table border="1" style="margin-left: auto; margin-right: auto;"><tr><td>1 : ON</td><td>0 : OFF</td></tr></table>	1 : ON	0 : OFF	1																							
1 : ON	0 : OFF																											
7	Auto cover paper	Used to set whether a cover is attached to the last page in every transmission or not. <table border="1" style="margin-left: auto; margin-right: auto;"><tr><td>1 : ON</td><td>0 : OFF</td></tr></table>	1 : ON	0 : OFF	0																							
1 : ON	0 : OFF																											
8	Reserved			0																								

SW No.	Bit No.	ITEM	Soft SW setting and function	Factory Setting																																
25	1 2 3	Record list auto print	Used to set the interval of automatic printing of the record list. <table border="1"> <thead> <tr> <th>Bit No.</th> <th>OFF</th> <th>1 day</th> <th>2 days</th> <th>4 days</th> <th>1 week</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> </tr> <tr> <td>2</td> <td>0</td> <td>0</td> <td>1</td> <td>1</td> <td>0</td> </tr> <tr> <td>3</td> <td>0</td> <td>1</td> <td>0</td> <td>1</td> <td>0</td> </tr> </tbody> </table>	Bit No.	OFF	1 day	2 days	4 days	1 week	1	0	0	0	0	1	2	0	0	1	1	0	3	0	1	0	1	0	0 0 0								
	Bit No.	OFF	1 day	2 days	4 days	1 week																														
	1	0	0	0	0	1																														
	2	0	0	1	1	0																														
	3	0	1	0	1	0																														
4	Reserved			0																																
5	Reduction ratio in reception	Used to set the magnification ratio of printing received documents. When AUTO is selected, the ratio is automatically determined according to the received document size and the output paper. <table border="1"> <tr> <td>1 : 100%</td> <td>0 : AUTO</td> </tr> </table>	1 : 100%	0 : AUTO	0																															
1 : 100%	0 : AUTO																																			
6	Reserved			0																																
7 8	Communication end buzzer time	Used to set the time of buzzer sound to notify the end of communication. <table border="1"> <thead> <tr> <th>Bit No.</th> <th>3 Seconds</th> <th>1 Second</th> <th>No Beep</th> </tr> </thead> <tbody> <tr> <td>7</td> <td>0</td> <td>0</td> <td>1</td> </tr> <tr> <td>8</td> <td>0</td> <td>1</td> <td>0</td> </tr> </tbody> </table>	Bit No.	3 Seconds	1 Second	No Beep	7	0	0	1	8	0	1	0	0 0																					
	Bit No.	3 Seconds	1 Second	No Beep																																
7	0	0	1																																	
8	0	1	0																																	
26	1 2 3	Buzzer sound volume	Used to set the sound volumes of all buzzers except for call ring. <table border="1"> <thead> <tr> <th>Bit No.</th> <th>MAX</th> <th>HIGH</th> <th>MED</th> <th>LOW</th> <th>MIN</th> <th>OFF</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> <td>1</td> </tr> <tr> <td>2</td> <td>0</td> <td>0</td> <td>1</td> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>3</td> <td>0</td> <td>1</td> <td>0</td> <td>1</td> <td>0</td> <td>1</td> </tr> </tbody> </table>	Bit No.	MAX	HIGH	MED	LOW	MIN	OFF	1	0	0	0	0	1	1	2	0	0	1	1	0	0	3	0	1	0	1	0	1	0 1 0				
	Bit No.	MAX	HIGH	MED	LOW	MIN	OFF																													
	1	0	0	0	0	1	1																													
	2	0	0	1	1	0	0																													
	3	0	1	0	1	0	1																													
4	Key click sound	Used to set whether the click sound is made or not when pressing a key on the FAX panel. <table border="1"> <tr> <td>1 : ON</td> <td>0 : OFF</td> </tr> </table>	1 : ON	0 : OFF	1																															
1 : ON	0 : OFF																																			
5 6 7	Incoming Ring Volume	Used to set the sound volume of call ring. <table border="1"> <thead> <tr> <th>Bit No.</th> <th>MAX</th> <th>HIGH</th> <th>MED</th> <th>LOW</th> <th>MIN</th> <th>OFF</th> </tr> </thead> <tbody> <tr> <td>5</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> <td>1</td> </tr> <tr> <td>6</td> <td>0</td> <td>0</td> <td>1</td> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>7</td> <td>0</td> <td>1</td> <td>0</td> <td>1</td> <td>0</td> <td>1</td> </tr> </tbody> </table>	Bit No.	MAX	HIGH	MED	LOW	MIN	OFF	5	0	0	0	0	1	1	6	0	0	1	1	0	0	7	0	1	0	1	0	1	0 1 0					
Bit No.	MAX	HIGH	MED	LOW	MIN	OFF																														
5	0	0	0	0	1	1																														
6	0	0	1	1	0	0																														
7	0	1	0	1	0	1																														
8	Reserved			0																																
27	1 2 3	Distinctive Ring	Used to set the RING signal pattern to start FAX reception with Distinctive Ring. <table border="1"> <thead> <tr> <th>Bit No.</th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> <th>Standard</th> <th>OFF</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>2</td> <td>0</td> <td>0</td> <td>1</td> <td>1</td> <td>0</td> <td>0</td> <td>1</td> </tr> <tr> <td>3</td> <td>0</td> <td>1</td> <td>0</td> <td>1</td> <td>0</td> <td>1</td> <td>0</td> </tr> </tbody> </table>	Bit No.	1	2	3	4	5	Standard	OFF	1	0	0	0	0	1	1	1	2	0	0	1	1	0	0	1	3	0	1	0	1	0	1	0	1 1 0
	Bit No.	1	2	3	4	5	Standard	OFF																												
	1	0	0	0	0	1	1	1																												
	2	0	0	1	1	0	0	1																												
	3	0	1	0	1	0	1	0																												
	4	Reserved			0																															
5	Reserved			0																																
6	Reserved			0																																
7	Telephone line kind	Used to select the kind of telephone line (tone or pulse). <table border="1"> <tr> <td>1 : TONE</td> <td>0 : PULSE</td> </tr> </table>	1 : TONE	0 : PULSE	1																															
1 : TONE	0 : PULSE																																			
8	Reserved			0																																

SW No.	Bit No.	ITEM	Soft SW setting and function	Factory Setting																																				
28	1 2 3 4	Silent detection time	Used to set the silent detection time in the answering and recording mode. The set range is OFF and 1 to 10sec.  Time = 8 × Bit1 + 4 × Bit2 + 2 × Bit3 + 1 × Bit4 sec Effective : 0(= OFF), 1 –10  0 0 0 0 (OFF) 0 0 0 0 (1 sec)       1 0 1 0 (10 sec)	0 1 0 1																																				
	5	Answering and recording mode auto reception select	Used to set whether FAX reception is started or not after 6 call rings if the answering function does not work for some reasons in the answering and recording mode.  <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>1 : ON</td> <td>0 : OFF</td> </tr> </table>	1 : ON	0 : OFF	0																																		
	1 : ON	0 : OFF																																						
	6	Annoying FAX prevention function	Used to set ON/OFF of the annoying FAX prevention function.  <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>1 : ON</td> <td>0 : OFF</td> </tr> </table>	1 : ON	0 : OFF	0																																		
	1 : ON	0 : OFF																																						
7	Polling function	Used to set whether one-touch key "20" is used as the polling key or not.  <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>1 : ON</td> <td>0 : OFF</td> </tr> </table>	1 : ON	0 : OFF	0																																			
1 : ON	0 : OFF																																							
8	Page sequence reverse transmission	Used to set whether the page sequence scanned by the SPF is reversed for transmission or not.  <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>1 : ON</td> <td>0 : OFF</td> </tr> </table>	1 : ON	0 : OFF	1																																			
1 : ON	0 : OFF																																							
29	1 2	Reserved		0 0																																				
	3	Reserved		0																																				
	4 5	Reserved		0 0																																				
	6 7	Broadcast list print	Used to set whether broadcast transmission report is printed after completion of broadcast transmission or not.  <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Bit No.</th> <th>Always</th> <th>When error is occurred/ Timer transmission</th> <th>Never</th> </tr> </thead> <tbody> <tr> <td>6</td> <td>0</td> <td>0</td> <td>1</td> </tr> <tr> <td>7</td> <td>0</td> <td>1</td> <td>*</td> </tr> </tbody> </table>	Bit No.	Always	When error is occurred/ Timer transmission	Never	6	0	0	1	7	0	1	*	0 0																								
	Bit No.	Always	When error is occurred/ Timer transmission	Never																																				
6	0	0	1																																					
7	0	1	*																																					
8	Index print	Used to set whether marking is made to the lead edge of paper or not to identify the job when printing the received data.  <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>1 : ON</td> <td>0 : OFF</td> </tr> </table>	1 : ON	0 : OFF	1																																			
1 : ON	0 : OFF																																							
30	1 2 3	Language (USA only)	Used to select the language displayed on the LCD and the report. The correspondence between language N and the actual language differs depending on the destination.  <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Bit No.</th> <th>Language 1 (English)</th> <th>Language 2 (French)</th> <th>Language 3 (Spanish)</th> <th>Language 4</th> <th colspan="4">Reserved</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> <td>1</td> <td>1</td> <td>1</td> </tr> <tr> <td>2</td> <td>0</td> <td>0</td> <td>1</td> <td>1</td> <td>0</td> <td>0</td> <td>1</td> <td>1</td> </tr> <tr> <td>3</td> <td>0</td> <td>1</td> <td>0</td> <td>1</td> <td>0</td> <td>1</td> <td>0</td> <td>1</td> </tr> </tbody> </table>	Bit No.	Language 1 (English)	Language 2 (French)	Language 3 (Spanish)	Language 4	Reserved				1	0	0	0	0	1	1	1	1	2	0	0	1	1	0	0	1	1	3	0	1	0	1	0	1	0	1	0 0 0
	Bit No.	Language 1 (English)	Language 2 (French)	Language 3 (Spanish)	Language 4	Reserved																																		
	1	0	0	0	0	1	1	1	1																															
	2	0	0	1	1	0	0	1	1																															
	3	0	1	0	1	0	1	0	1																															
	4	Reserved		0																																				
	5	Reserved		0																																				
	6	Reserved		0																																				
	7	Reserved		0																																				
8	Reserved		0																																					

# [9] DISASSEMBLY, ASSEMBLY, MAINTENANCE

## 1. List

- OIL/GRE (Lubricate, grease up) CLN (Clean) ADJ (Adjust) REP (Replace, install)  
 CHP (Change position); (Clean, replace, lubricate, grease up according to necessity.) ASS (Assemble, disassemble)

Section		Unit				Part		JOB CODE	After-work	NOTE						
S No.	Part name	Ua No.	Unit name	Ub No.	Unit name	P No.	Part name	JOB No.								
S 001	External view (Cabinet/Cover)					P 001	Rear cabinet	ASS								
						P 002	Front upper cabinet	ASS								
						P 003	Right cabinet	ASS								
						P 004	Left cabinet	ASS								
								CLN								
						P 005	Front right lower cabinet	ASS								
						P 006	Front left lower cabinet	ASS								
						P 007	Document table glass	ASS								
								CLN								
P 008	Bottom base plate	ASS														
S 002	Operation	Ua 001	Operation unit			P 009	Paper reception tray	ASS								
						P 001	Hinge	ASS								
						P 002	Operation control PWB	ASS								
						P 003	Key top	ASS								
						S 003	Paper feed, paper transport					P 001	Paper width detector	ASS		
												P 002	Paper set lever	ASS		
												P 003	Paper pressure plate	ASS		
												P 004	Paper feed roller clutch spring	ASS		
														GRE		
P 005	Paper feed roller	ASS														
		CLN														
P 006	Paper feed clutch sleeve A	ASS														
		GRE														
P 007	Paper feed clutch sleeve B	ASS														
		GRE														
P 008	Paper feed clutch lever	ASS														
P 009	Paper separator	ASS														
		CLN														
S 004	Scanner (reading)	Ua 001	Scanner (reading) unit					ASS	ADJ M3							
						P 001	Scanner home position sensor	ASS								
						P 002	Scanner (copy) lamp drive PWB	ASS	ADJ M10	Adjustment is required when replace						
						P 003	Scanner motor	ASS								
						P 004	Scanner motor gear	GRE								
						P 005	CCD unit (CCD/lens)	ASS	ADJ M4							
								CLN								
						P 006	Scanner rail	GRE								
						P 007	Scanner shaft	ASS								
								GRE								
						P 008	Scanner drive wire	ASS	ADJ M2/M3							
						Ub 001	Scanner unit A			ASS	ADJ M3					
								P 001	Scanner (copy) lamp	ASS	ADJ M10	Adjustment is required when replace				
										CLN						
								P 002	No. 1 mirror	ASS						
						Ub 002	Scanner unit B			ASS						
P 001	No. 2 mirror	ASS														
		CLN														
P 002	No. 3 mirror	ASS														
		CLN														

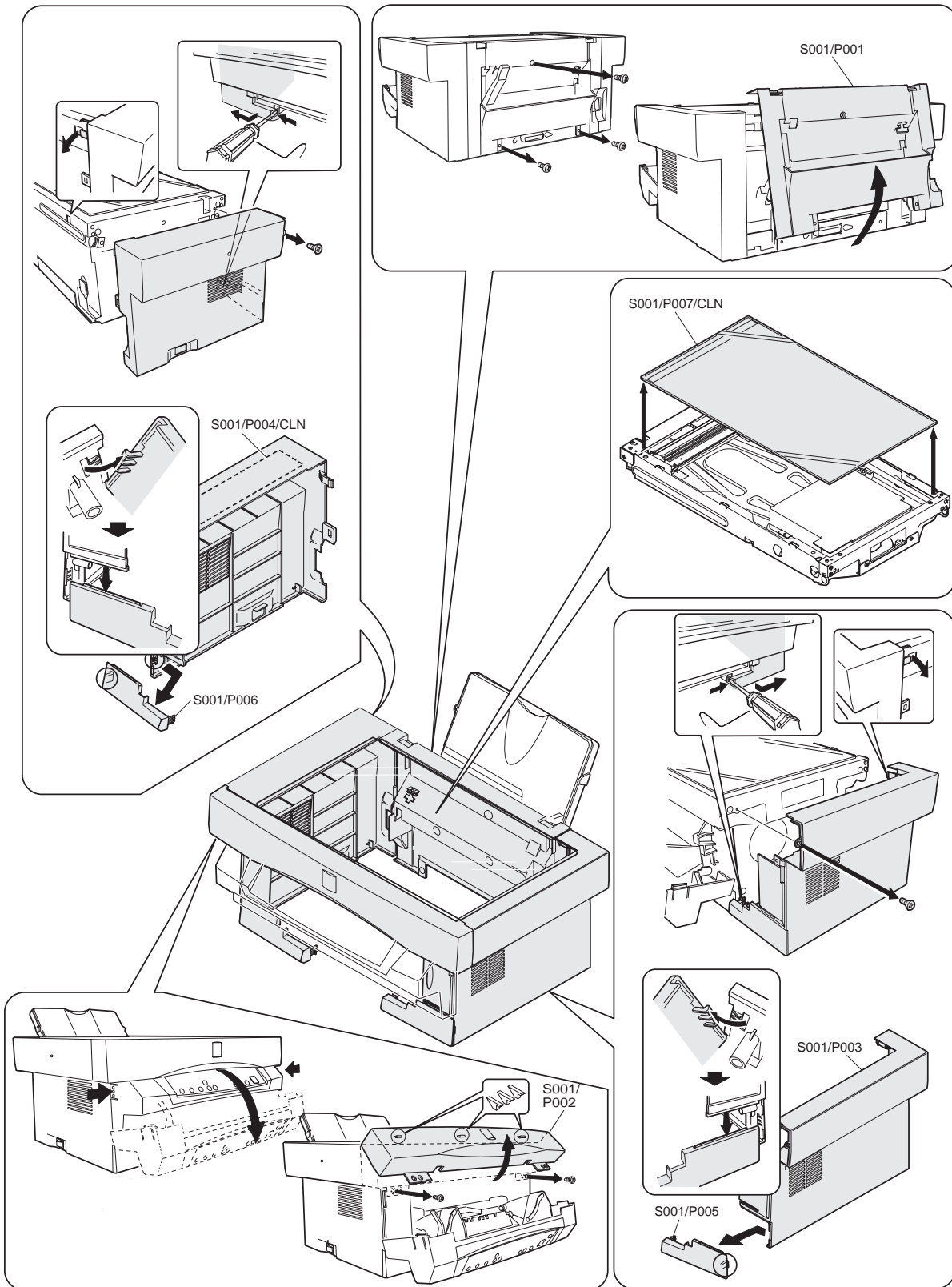


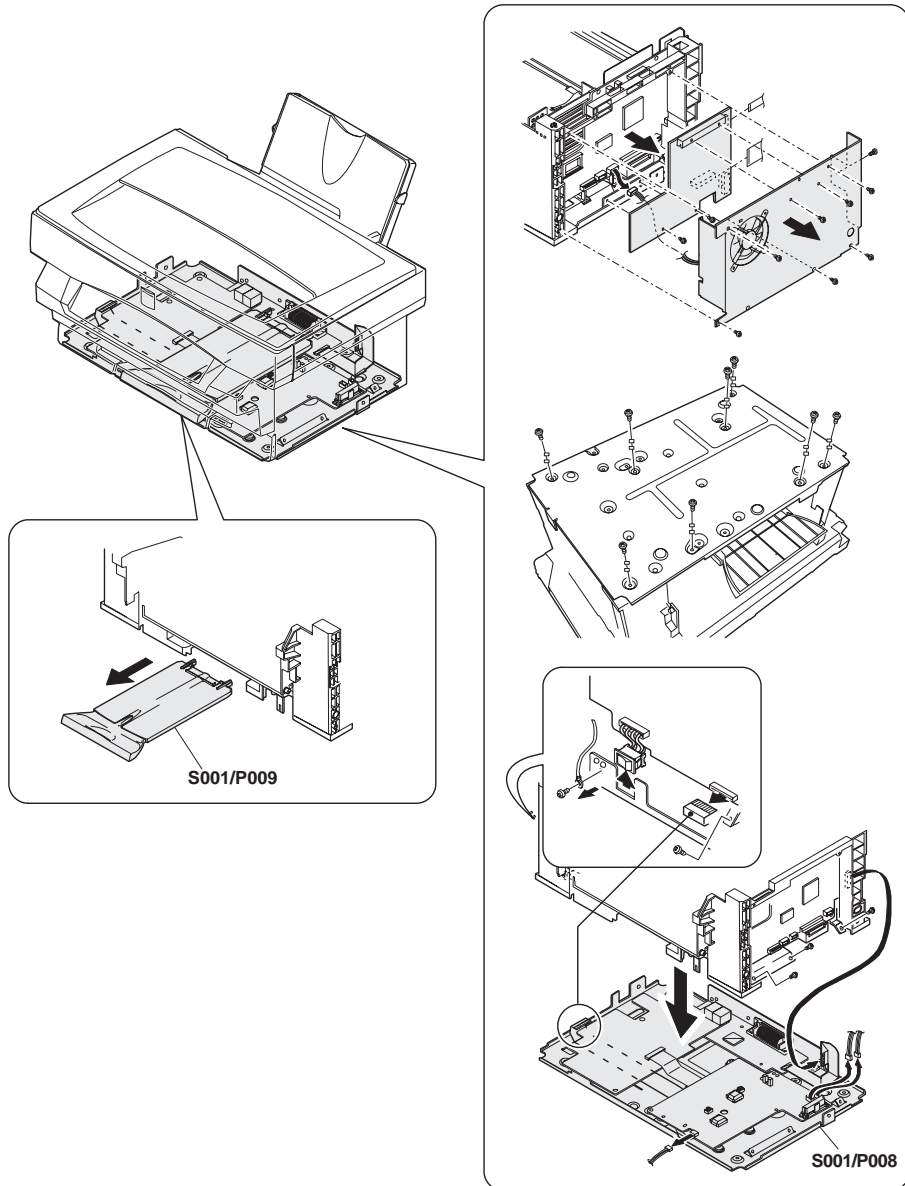
Section		Unit				Part		JOB	After-work	NOTE
S No.	Part name	Ua No.	Unit name	Ub No.	Unit name	P No.	Part name	CODE	JOB No.	
S 005	Scanner (writing)	Ua 001	Scanner (writing) unit					ASS		
						P 001	No. 1 mirror	CLN		
						P 002	No. 3 mirror	CLN		
						P 003	No. 2 cylindrical lens	CLN		
						P 004	f $\phi$ mirror (No. 2 mirror)	ASS		
								CLN		
						P 005	Scanning mirror (motor) unit	ASS		
								CLN		
						P 006	Laser unit	ASS		
						P 007	Laser beam sensor	ASS		
								CLN		
P 008	Paper feed solenoid	ASS								
P 009	Paper empty detector	ASS								
P 010	No. 1 cylindrical lens	CLN								
P 011	Toner empty sensor	ASS								
S 006	Image process					P 001	Toner cartridge	ASS		
						P 002	Photoconductor cartridge	ASS		
						P 003	Developing bias electrode	ASS		
								CLN		
						P 004	Photoconductor earth electrode	ASS		
								CLN		
						P 005	Transfer roller	ASS		
								CLN		
						P 006	Transfer charger electrode	ASS		
								CLN		
P 007	Developing bias electrode spring	ASS								
		CLN								
P 008	Separation electrode	ASS								
		CLN								
P 009	Main charger electrode SP	ASS								
		CLN								
P 010	Earth electrode SP	ASS								
		CLN								
S 007	Fusing, paper exit	Ua 001	Fusing unit					ASS		
						P 001	Pressure roller	ASS		
								CLN		
						P 002	Paper guide sheet	ASS		
								CLN		
						P 003	Paper exit roller L	ASS		
								CLN		
						P 004	Paper exit roller U	ASS		
								CLN		
						P 005	Paper exit detector	ASS		
						P 006	Fusing temperature sensor	ASS		
CLN										
P 007	Heat roller	ASS								
		CLN								
P 008	Heater lamp	ASS								
P 009	Separation pawl	ASS								
		CLN								
P 010	Temperature fuse A	ASS								
		CLN								
P 011	Temperature fuse B	ASS								
S 008	Drive					P 001	Gears	ASS		
						GRE				
P 002	Main motor	ASS								
		ASS								
S 009	Electrical	Ua 001	Power source, PWB unit					ASS		
						P 001	Power switch	ASS		
						P 002	Fuse	ASS		
		Ua 002	FAX control PWB					ASS		
		Ua 003	MCU (PCU) PWB unit					ASS	SET M1/M2 ADJ M1/ M4 ~ 6	Adjustment is required when replace
		Ua 004	ICU PWB/Interface PWB unit					ASS		
Ua 005	High voltage/motor drive PWB unit					ASS				
Ua 006	LIU PWB					ASS				

Section		Unit				Part		JOB	After-work	NOTE				
S No.	Part name	Ua No.	Unit name	Ub No.	Unit name	P No.	Part name	CODE	JOB No.					
S 010	SPF	Ua 001	FAX operation panel unit			P 001	FAX operation control PWB	ASS						
						P 002	Enter key	ASS						
						P 003	Function key	ASS						
						P 004	One-touch key	ASS						
						P 005	10-key	ASS						
						P 006	Start key	ASS						
						P 007	Stop key	ASS						
						P 008	SPF paper exit guide unit	ASS						
						P 009	SPF paper exit follower roller	ASS						
								CLN						
						P 010	Roller pressure release lever	ASS						
		P 011	Roller pressure release button	ASS										
		Ua 002	SPF transport/paper feed unit	Ub 001	SPF unit			P 001	SPF paper exit roller	ASS				
								P 002	Drive belt	ASS				
								P 003	SPF paper guide	ASS				
								P 004	SPF transport roller	ASS				
										GRE				
								P 005	SPF resist roller	ASS				
										GRE				
				P 006	SPF interface PWB	ASS								
				P 007	SPF motor	ASS								
						GRE								
				Ub 002						P 001	SPF paper feed solenoid	ASS		
										P 002	SPF document detector	ASS		
										P 003	SPF paper entry detector	ASS		
										P 004	SPF paper feed clutch boss	ASS		
		P 005	SPF paper feed clutch spring							ASS				
		P 006	SPF paper feed clutch sleeve							ASS				
		P 007	SPF paper feed clutch gear							ASS				
		P 008	Pickup roller							ASS				
										CLN				
		P 009	SPF paper feed roller	ASS										
		Ua 003						P 001	SPF open/close detector	ASS				
P 002	Separation unit							ASS						
P 003	Document mat							ASS						
								CLN						
P 004	SPF transport follower roller A							ASS						
P 005	SPF transport follower roller B	ASS												
		CLN												
S 011	Others					P 001	Fan motor	ASS						

**S001 External view section**

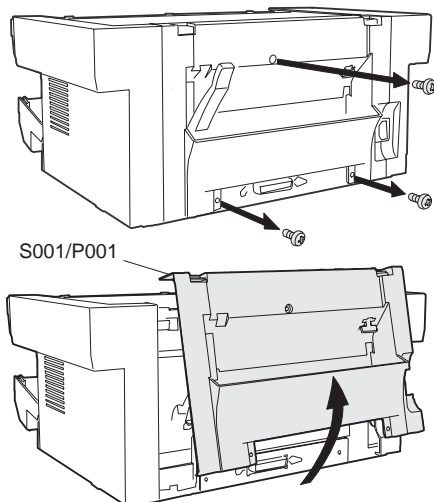
Section		Unit				Part		JOB	After-work	NOTE
S No.	Part name	Ua No.	Unit name	Ub No.	Unit name	P No.	Part name	CODE	JOB No.	
S 001	External view (Cabinet/Cover)					P 001	Rear cabinet	ASS		
						P 002	Front upper cabinet	ASS		
						P 003	Right cabinet	ASS		
						P 004	Left cabinet	ASS		
						P 005	Front right lower cabinet	ASS		
								CLN		
						P 006	Front left lower cabinet	ASS		
						P 007	Document table glass	ASS		
								CLN		
P 008	Bottom base plate	ASS								
P 009	Paper reception tray	ASS								





**S001/P001 Rear cabinet**

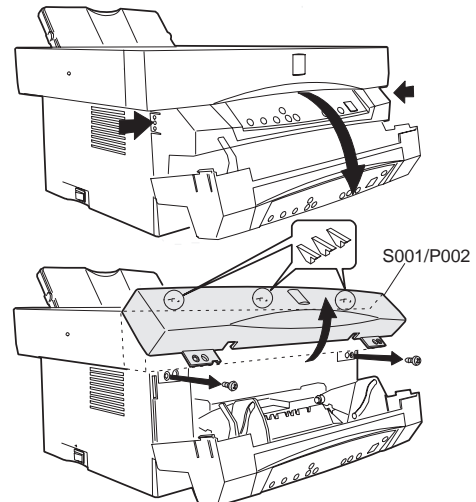
- (1) Remove the screw and remove the rear cabinet (S001/P001) in the arrow direction.



- \* Troubles caused by improper work**  
 1) Paper detector malfunction

**S001/P002 Front upper cabinet**

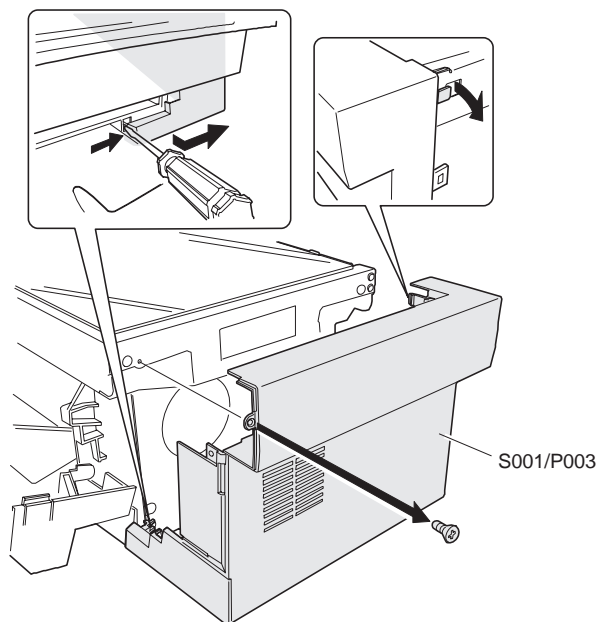
- (1) Open the operation unit and remove the screw. Remove the front upper cabinet (S001/P002) in the arrow direction.



- \* Troubles caused by improper work**  
 1) The operation unit cannot be closed completely.

**S001/P003 Right cabinet**

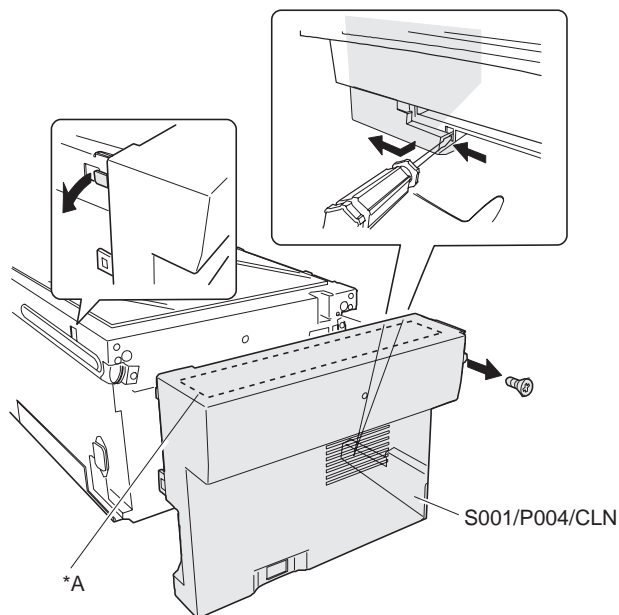
- (1) Remove the screw and release the hook, then remove the right cabinet (S001/P003).

**\* Note**

- 1) Be careful not to damage the right lower cabinet (S001/P005).

**S001/P004 Left cabinet**

- (1) Remove the screw and release the hook, then remove the right cabinet (S001/P004).

**\* Cleaning**

Clean the white sheet (\*A) inside the left cabinet with absolute alcohol.

**\* After-work**

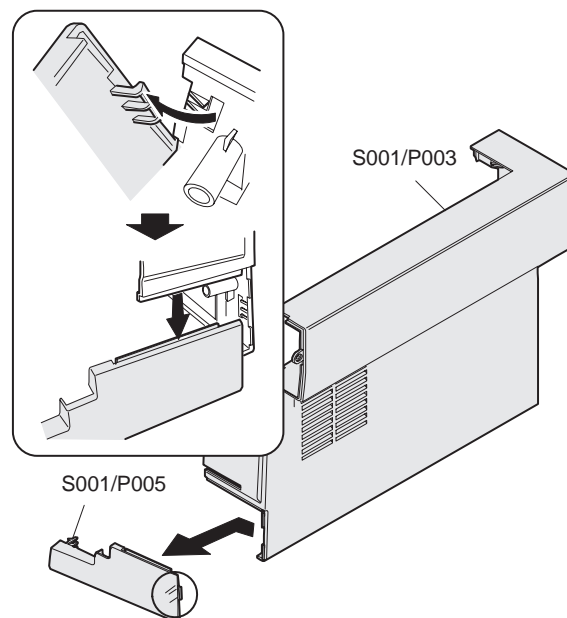
- 1) Copy density adjustment

**\* Troubles caused by improper work**

- 1) Shading correction error (E7-05/04/12/15)

**S001/P005 Front right lower cabinet**

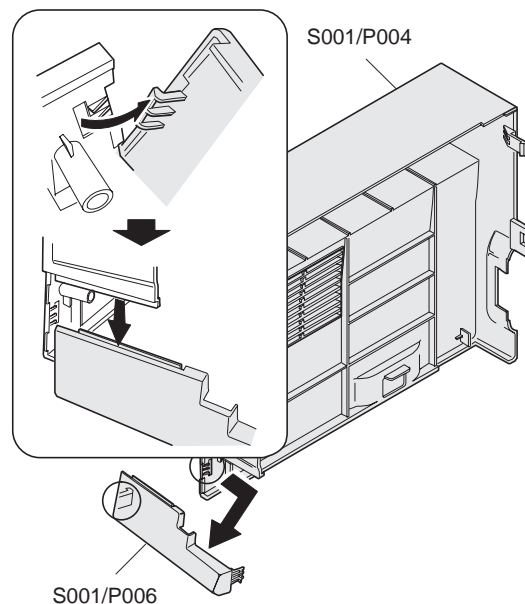
- (1) Release the hook, and remove the front right lower cabinet (S001/P005) from the right cabinet (S001/P003).

**\* Note**

- 1) Be careful not to break the hook, which is fragile.

**S001/P006 Front left lower cabinet**

- (1) Remove the front left lower cabinet (S001/P006) from the left cabinet (S001/P004).

**\* Note**

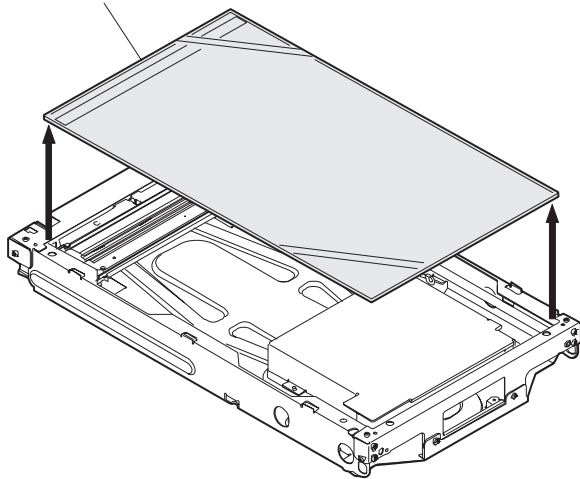
- 1) Be careful not to break the hook, which is fragile.

**S001/P007 Document table glass**

- (1) Remove the rear cabinet [S001/P001].  
 (2) Remove the front upper cabinet [S001/P002].  
 (3) Remove the right cabinet [S001/P003].  
 (4) Remove the left cabinet [S001/P004].

- (5) Lift and remove the document table glass (S001/P007).

S001/P007/CLN



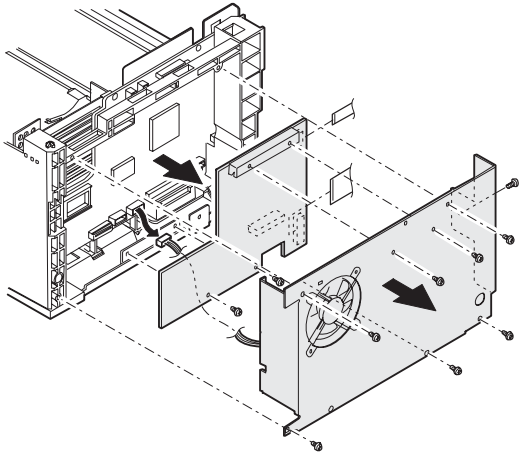
**\* Cleaning**

Use absolute alcohol to clean the document table glass.

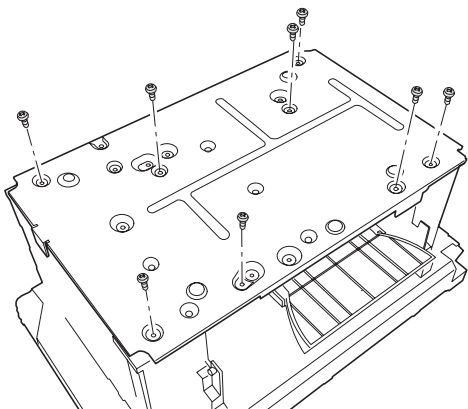
**S001/P008 Bottom base plate**

**S001/P009 Paper reception tray**

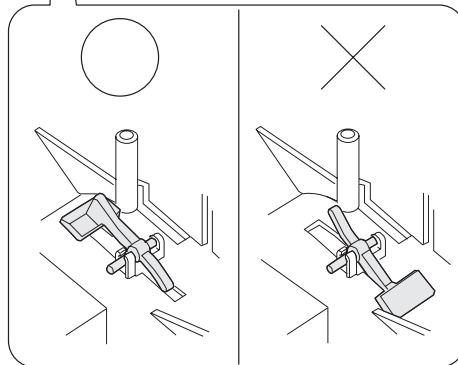
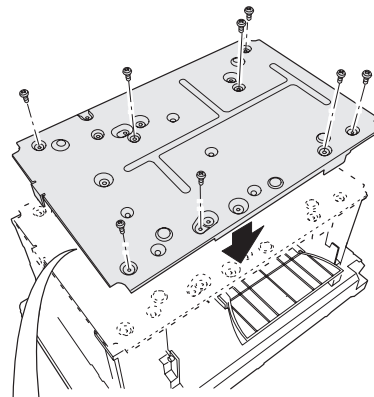
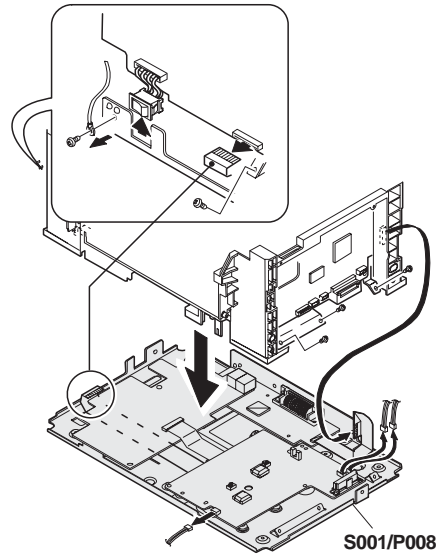
- (1) Remove the rear cabinet [S001/P001].
- (2) Remove the front upper cabinet [S001/P002].
- (3) Remove the right cabinet [S001/P003].
- (4) Remove the left cabinet [S001/P004].
- (5) Remove the FAX control PWB unit, the screw connector and remove the fan motor unit.



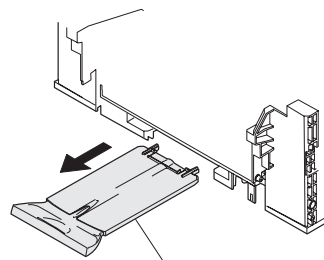
- (6) Reverse the machine and remove the screw.



- (7) Remove the connector earth and remove the bottom base plate (S001/P008).



- (8) Pull out the paper reception tray (S001/P009).



S001/P009

**\* Troubles caused by improper work**

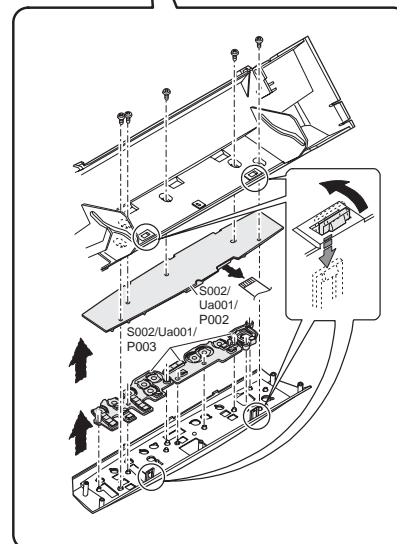
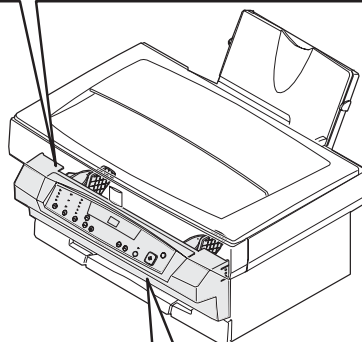
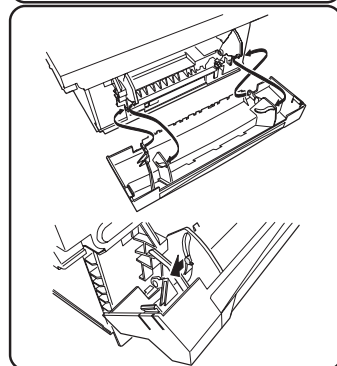
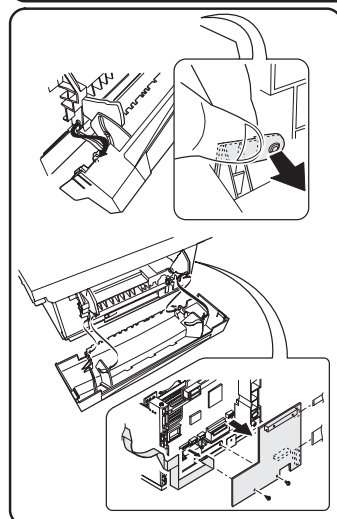
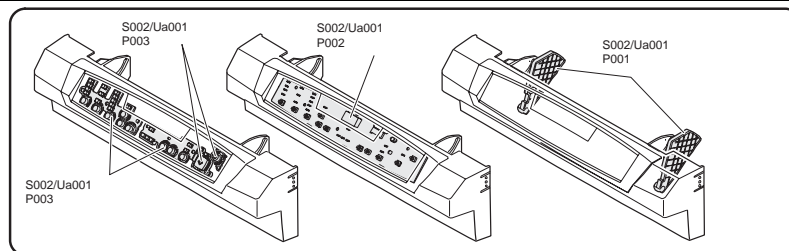
Paper entry detector malfunction

**\* Note**

Be careful not to mistake the installing direction of the paper entry detector when installing.

## S002 Operation section

Section		Unit				Part		JOB CODE	After-work JOB No.	NOTE
S No.	Part name	Ua No.	Unit name	Ub No.	Unit name	P No.	Part name			
S 002	Operation	Ua 001	Operation unit			P 001	Hinge	ASS		
						P 002	Operation control PWB	ASS		
						P 003	Key top	ASS		

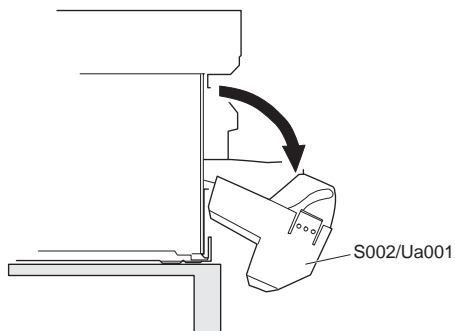


### S002/Ja001/P001 Hinge

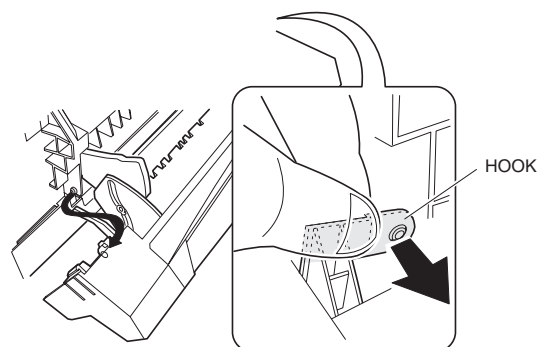
### S002/Ja001/P002 Operation control PWB

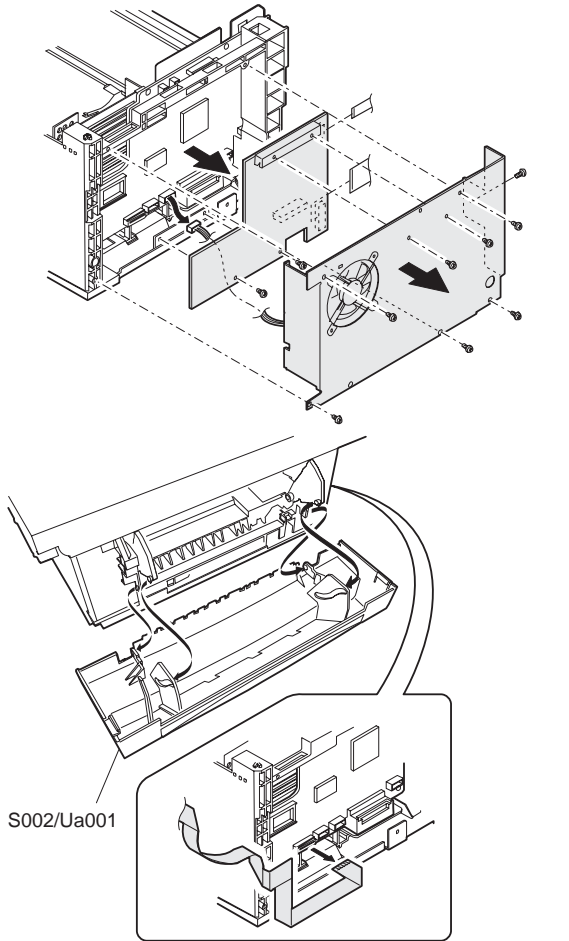
### S002/Ja001/P003 Key top

- (1) Remove the right cabinet [S001/P003].
- (2) Remove the screw and remove the fan motor unit [S010/P001].
- (3) Open the operation unit (S002/Ua001).

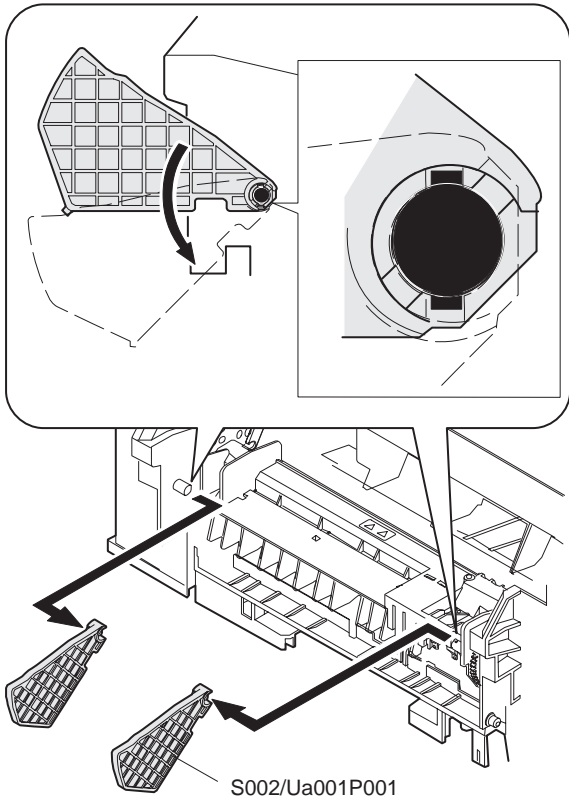


- (4) Remove the connector of the right cabinet side, remove the hook, and remove the operation unit (S002/Ua001).



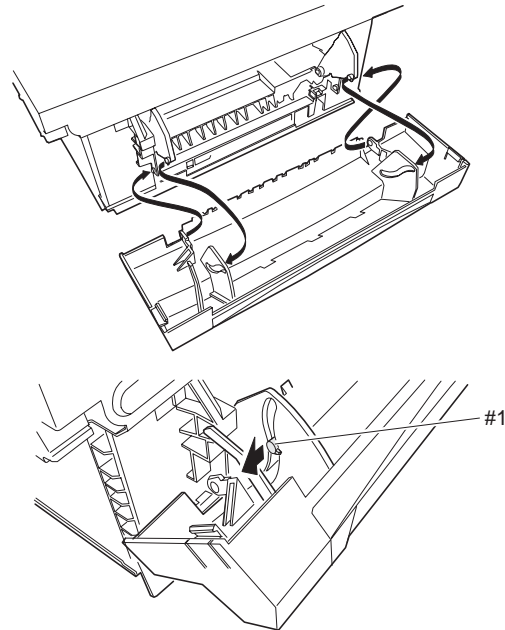


(5) Fit the hinge (S002/Ua001/P001) lock hole and pull it out.

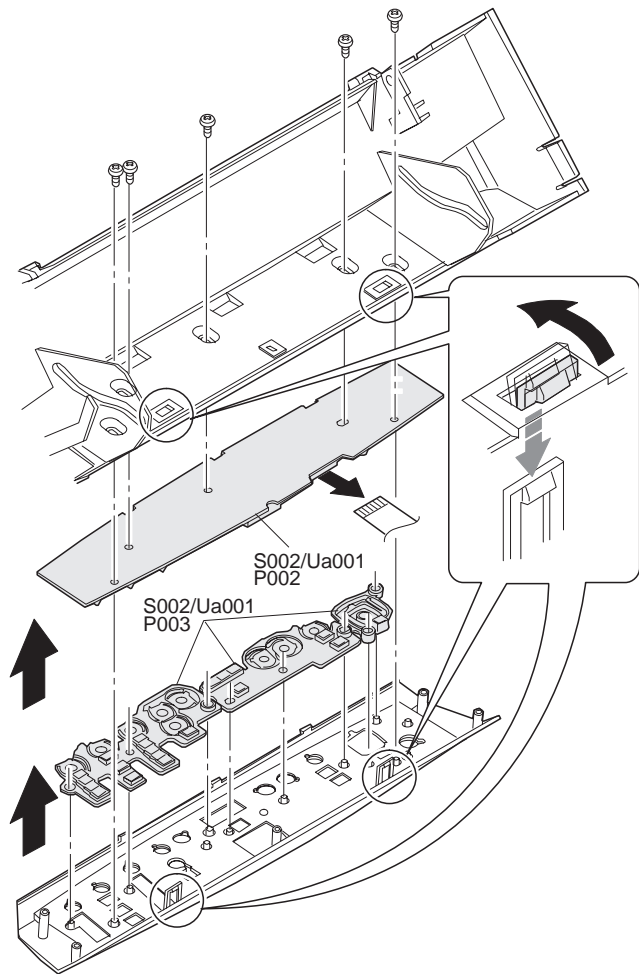


**\* Note for assembly**

#1. After installing the hook to the operation unit, bring the stopper section to the center of the long hole and push it in the arrow direction



(6) Remove the screw, remove the connector, and remove the operation control PWB (S002/Ua001/P002) and the key top (S002/Ua001/P003).



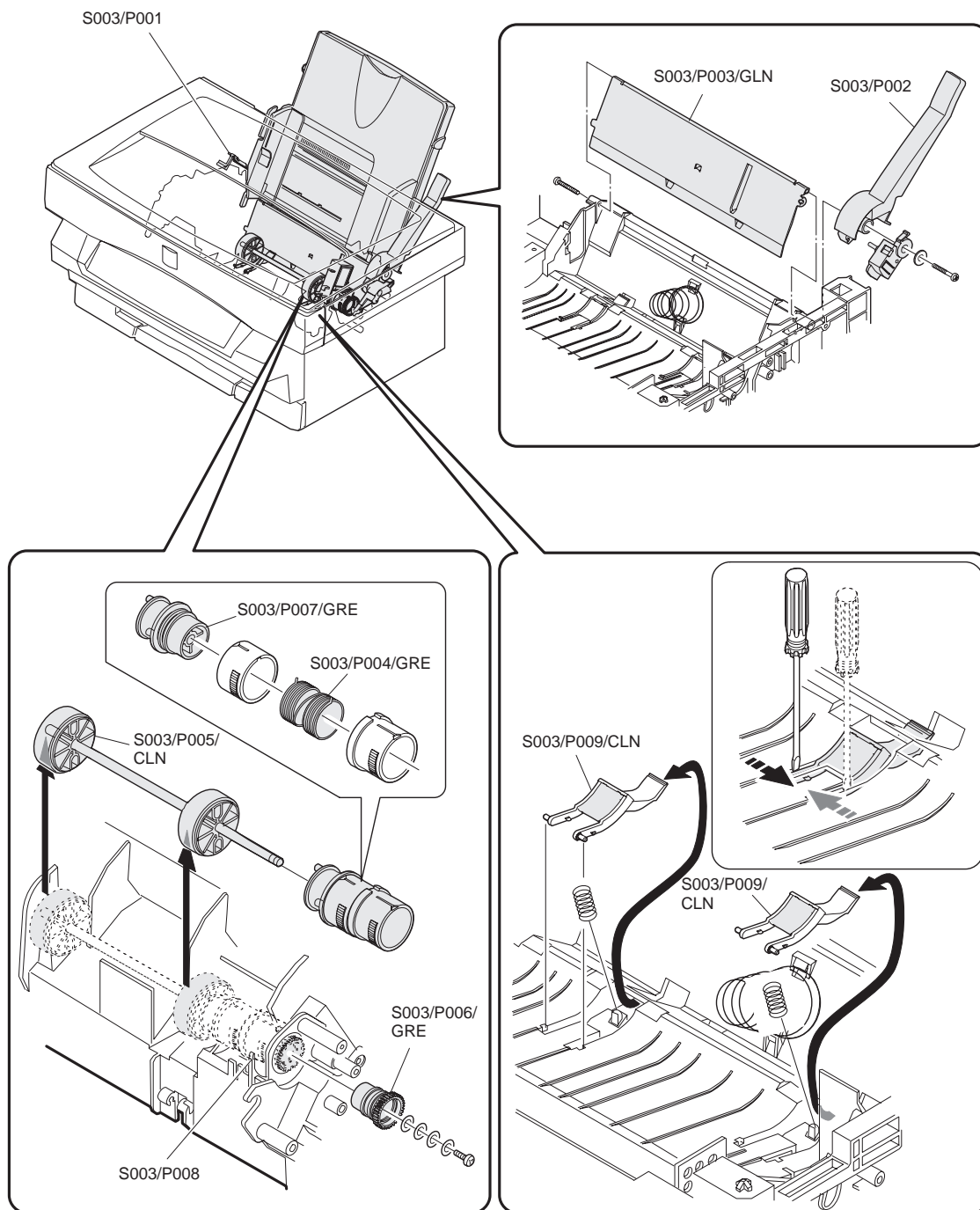
**\* Troubles caused by improper work**

- 1) Key operation trouble
- 2) Display trouble



## S003 Paper feed, paper transport section

Section		Unit				Part		JOB CODE	After-work	NOTE
S No.	Part name	Ua No.	Unit name	Ub No.	Unit name	P No.	Part name	JOB No.		
S 003	Paper feed, paper transport					P 001	Paper width detector	ASS		
						P 002	Paper set lever	ASS		
						P 003	Paper pressure plate	ASS		
						P 004	Paper feed roller clutch spring	ASS		
								GRE		
						P 005	Paper feed roller	ASS		
								CLN		
						P 006	Paper feed clutch sleeve A	ASS		
								GRE		
				P 007	Paper feed clutch sleeve B	ASS				
						GRE				
				P 008	Paper feed clutch lever	ASS				
				P 009	Paper separator	ASS				
						CLN				

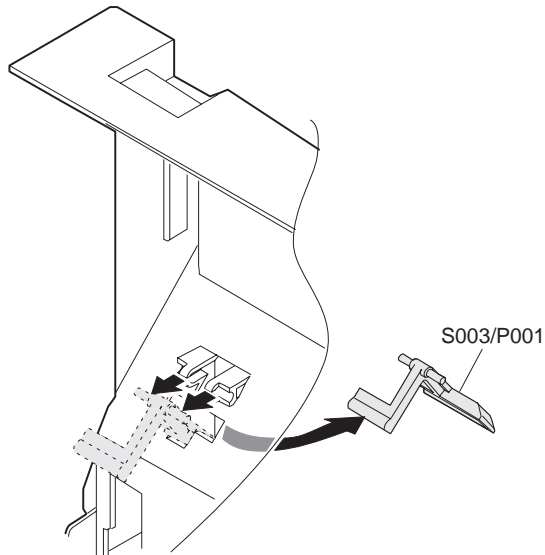


**S003/P001 Paper width detector**

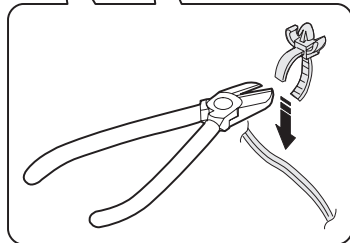
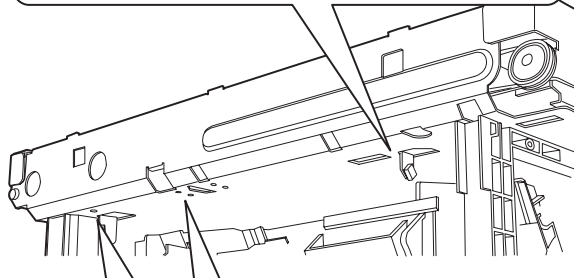
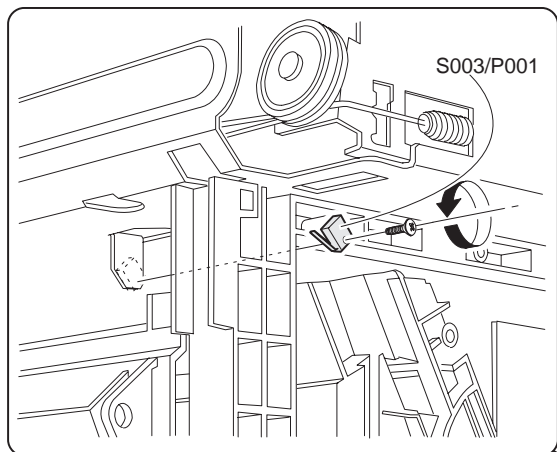
**S003/P002 Paper set lever**

**S003/P003 Paper pressure plate**

- (1) Remove the rear cabinet [S001/P001].
- (2) Remove the front upper cabinet [S001/P002].
- (3) Remove the left cabinet [S001/P004].
- (4) Pull and remove the paper width detector (actuator) (S003/P001) on one side from the back of the rear cabinet.

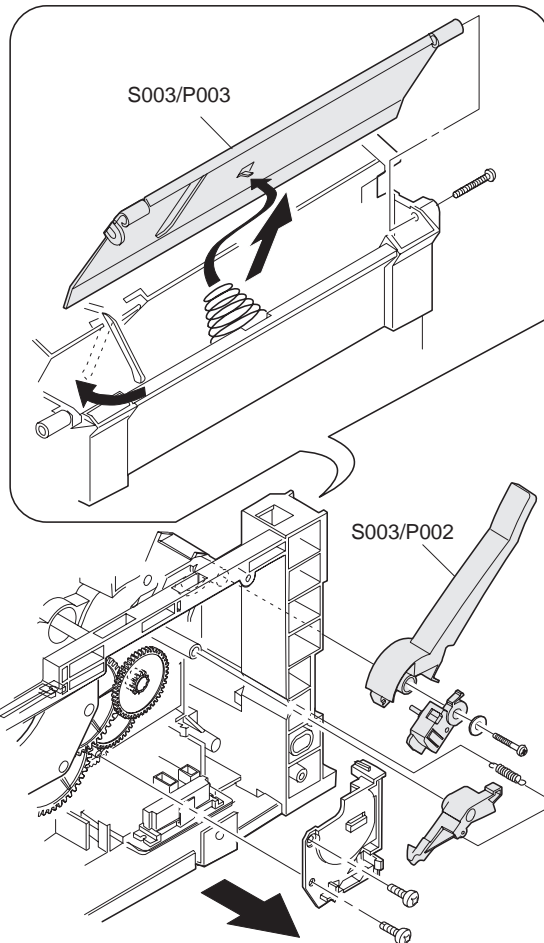


- (5) Cut the binding band, remove the connector and the screw, and remove the paper width detector (switch) (S003/P001).



**\* Troubles caused by improper work**

- 1) Right/left void areas defective
- 2) Image position defective
- 3) Transfer roller dirt  
(Copy dirt)  
(Paper jam)
- (6) Remove the right cabinet [S001/P003].
- (7) Remove the screw, and remove the paper set lever (S003/P002) and the paper pressure plate (S003/P003).



**\* Troubles caused by improper work**

- 1) Mis-feed
- 2) Paper jam
- 3) Paper skew

**S003/P004 Paper feed roller clutch spring**

**S003/P005 Paper feed roller**

**S003/P006 Paper feed clutch sleeve A**

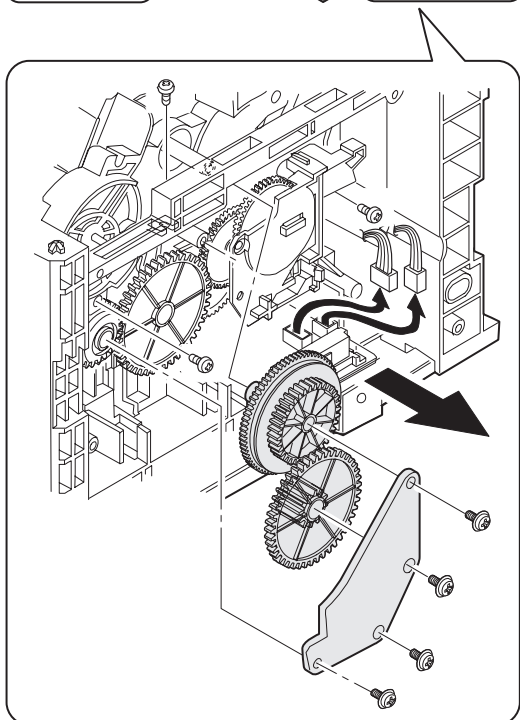
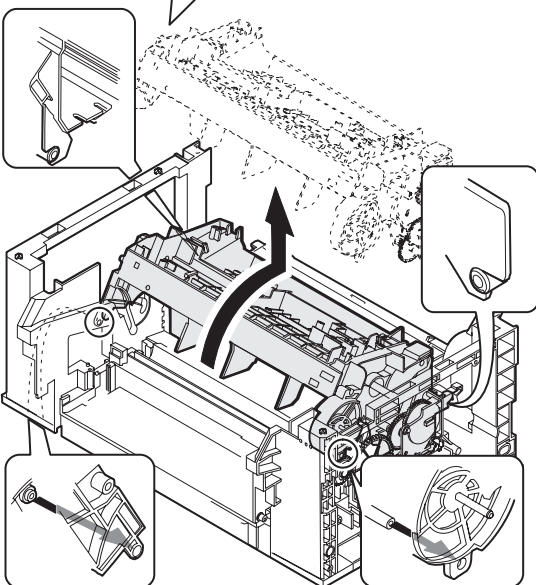
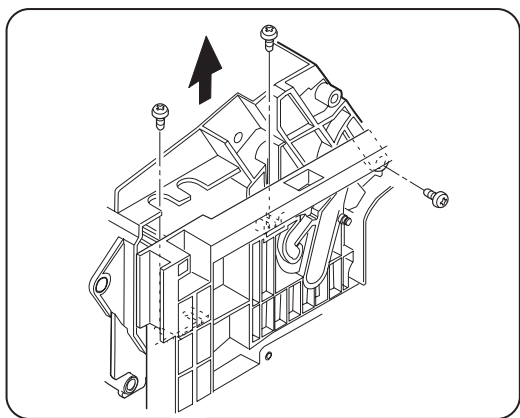
**S003/P007 Paper feed clutch sleeve B**

**S003/P008 Paper feed clutch lever**

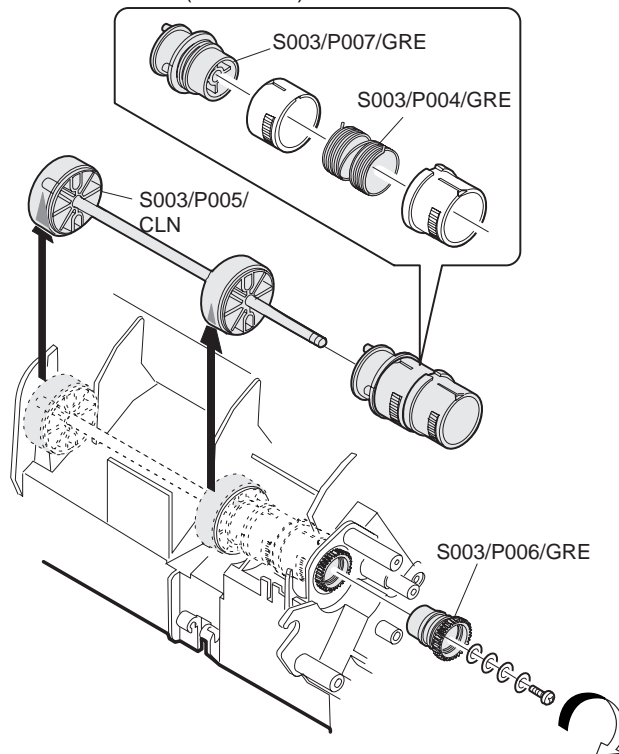
**S003/P009 Paper separator**

- (1) Remove the rear cabinet [S001/P001].
- (2) Remove the front upper cabinet [S001/P002].
- (3) Remove the right cabinet [S001/P003].
- (4) Remove the left cabinet [S001/P004].
- (5) Remove the document table glass [S001/P007].
- (6) Remove the fan motor unit [S010/P001].
- (7) Remove the FAX control PWB unit and the MCU (PCU) PWB unit [S009/Ua002] [S009/Ua003].
- (8) Remove the power PWB unit [S009/Ua001].

- (9) Remove the scanner unit **S004/Ua001**.
- (10) Remove the screw, the gear, and the hook, and remove the upper frame (Scanner (writing) unit) unit.



- (11) Remove the counter-screw, and remove the paper feed roller clutch spring (S003/P004), the paper feed roller (S003/P005), the paper feed clutch sleeve A (S003/P006), and the paper feed clutch sleeve B (S003/P007).



\* **Cleaning**

Use absolute alcohol to clean the paper feed roller.

\* **Grease**

Apply grease to the inside of the paper feed roller clutch spring, and to the surface of the paper feed clutch sleeve A and the paper feed clutch sleeve B.

\* **Note for assembly**

Be careful to the installing direction of each part. Be sure to set the rear edge of the paper feed roller clutch spring to the notch section of the paper feed clutch sleeves A/B.

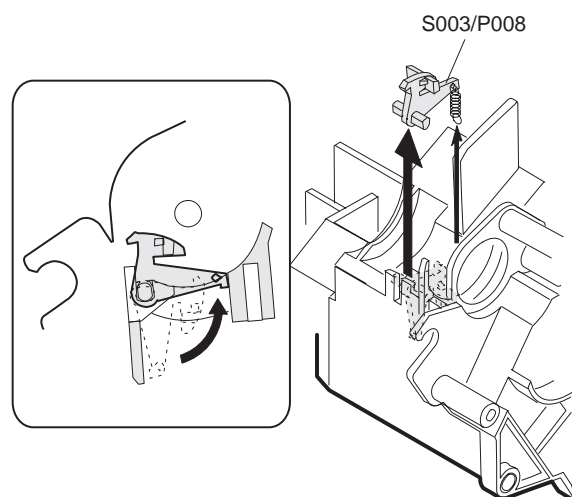
\* **Troubles caused by improper work**

- 1) Mis-feed, paper jam
- 2) Paper skew

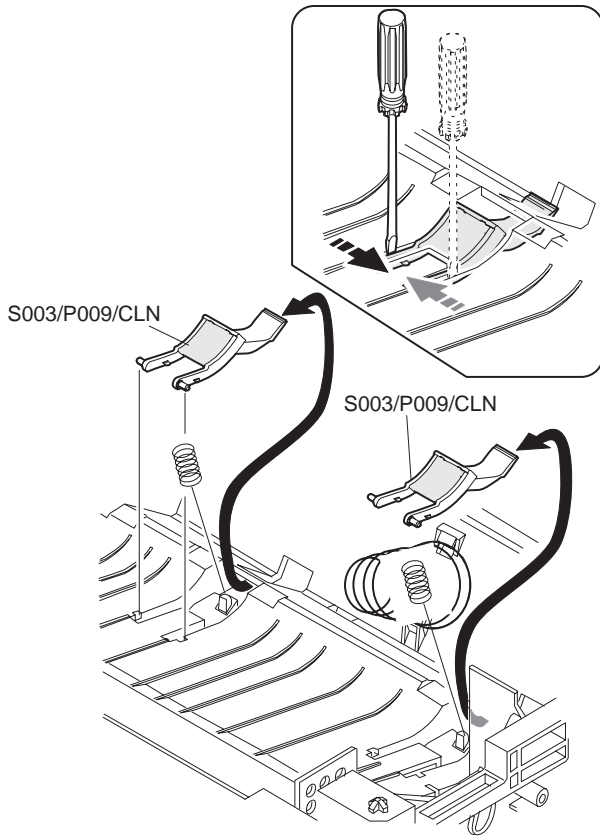
- (12) Remove the No. mirror (fθ mirror) **S005/Ua001/P004**.

- (13) Remove the paper feed solenoid **S005/Ua001/P010**.

- (14) Remove the paper feed clutch lever (S003/P008).



(15) As shown in the figure below, use a screwdriver to remove the paper separator (S003/P009).



**\* Cleaning**

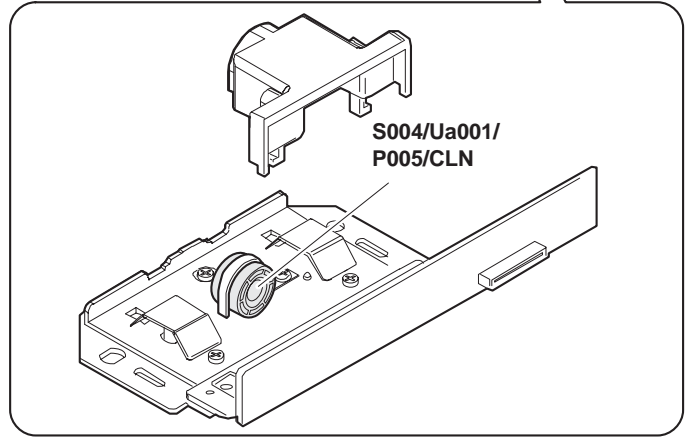
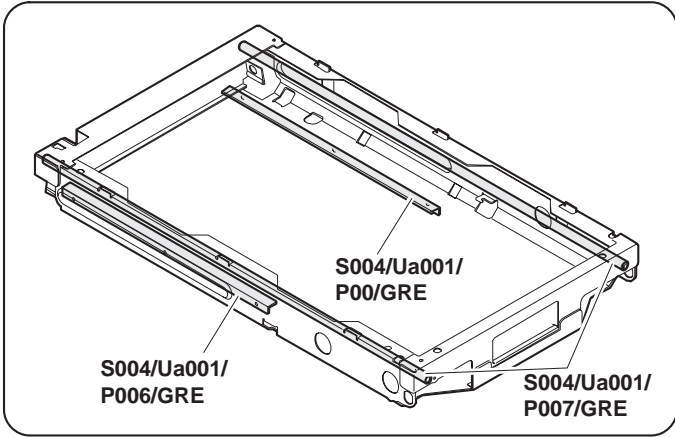
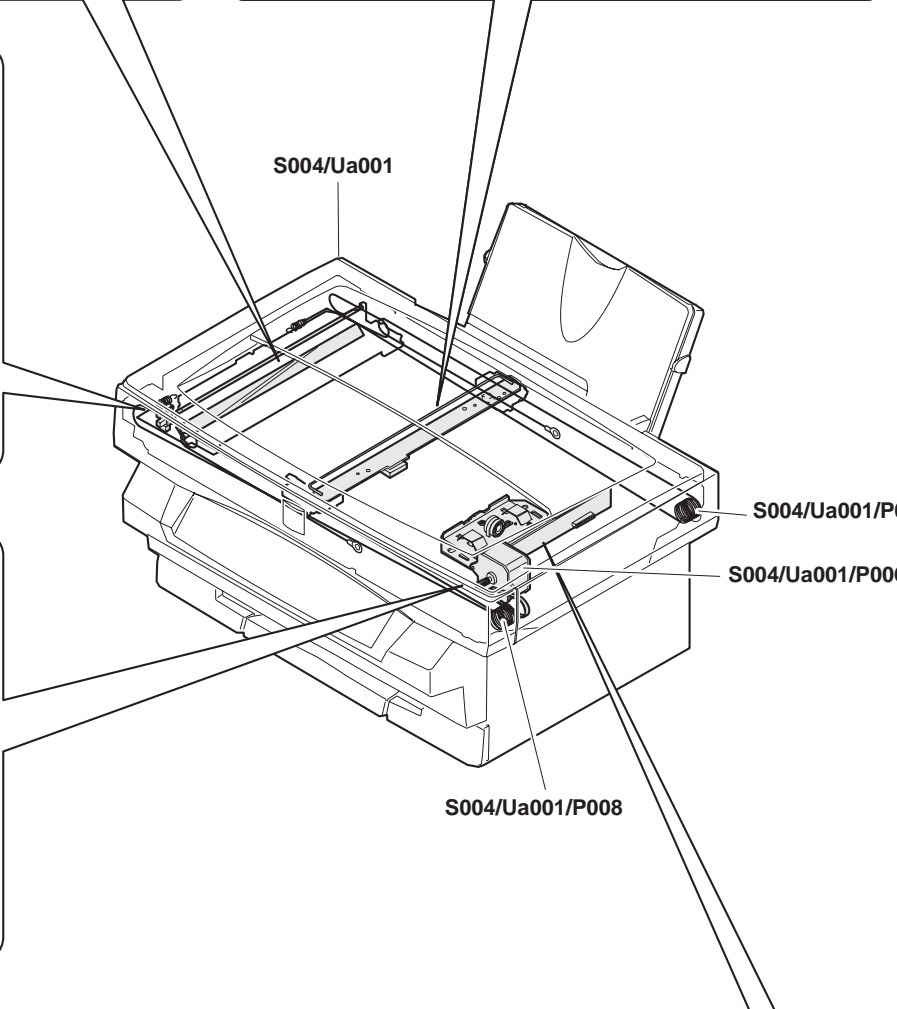
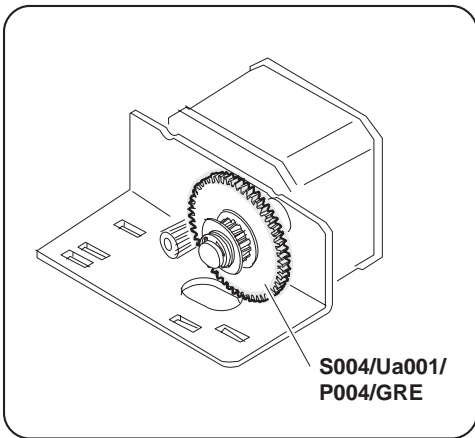
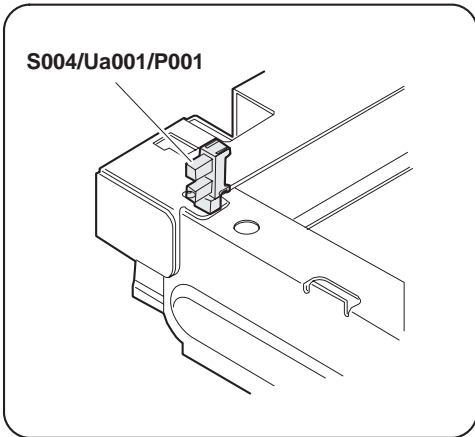
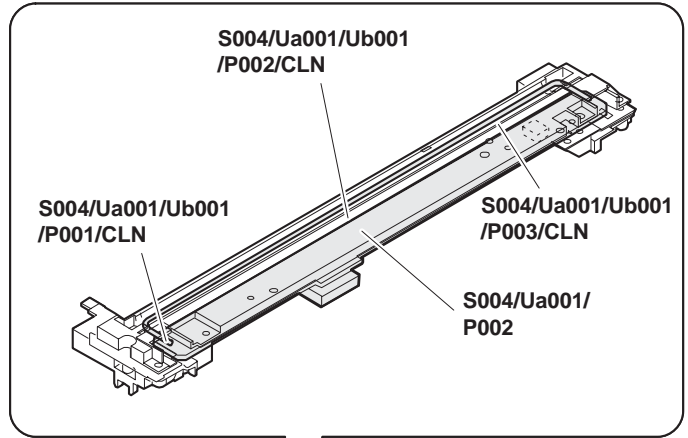
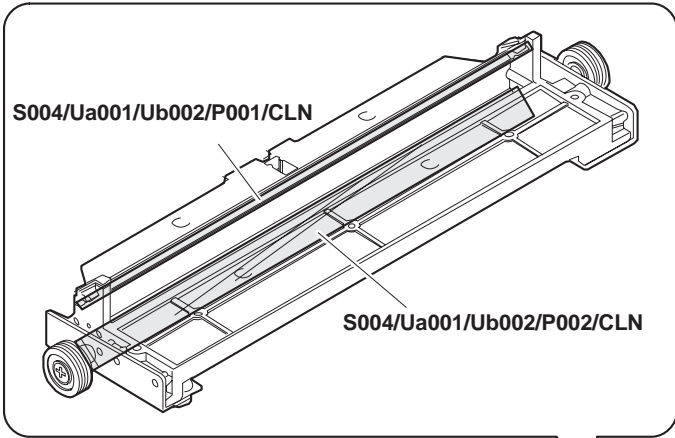
Use absolute alcohol to clean the paper separator.

**\* Troubles caused by improper work**

- 1) Mis-feed, paper jam
- 2) Paper skew

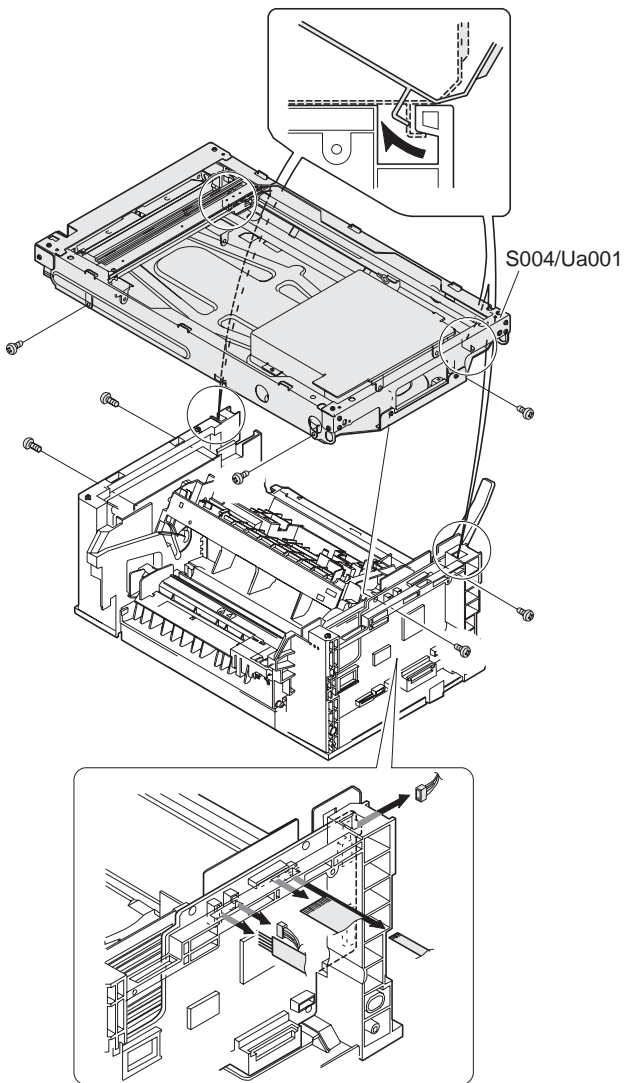
**S004 Scanner (Reading) section**

Section		Unit				Part		JOB CODE	After-work	NOTE						
S No.	Part name	Ua No.	Unit name	Ub No.	Unit name	P No.	Part name	CODE	JOB No.							
S 004	Scanner (reading)	Ua 001	Scanner (reading) unit					ASS	ADJ M3							
						P 001	Scanner home position sensor	ASS								
						P 002	Scanner (copy) lamp drive PWB	ASS	ADJ M10	Adjustment is required when replace						
						P 003	Scanner motor	ASS								
						P 004	Scanner motor gear	GRE								
						P 005	CCD unit (CCD/lens)	ASS	ADJ M4							
								CLN								
						P 006	Scanner rail	GRE								
						P 007	Scanner shaft	ASS								
								GRE								
						P 008	Scanner drive wire	ASS	ADJ M2/M3							
								Ub 001	Scanner unit A					ASS	ADJ M3	
												P 001	Scanner (copy) lamp	ASS	ADJ M10	Adjustment is required when replace
														CLN		
												P 002	No. 1 mirror	ASS		
								CLN								
						P 003	Scanner lamp light quantity sensor	CLN								
								ASS								
					Ub 002	Scanner unit B										
						P 001	No. 2 mirror	ASS								
								CLN								
						P 002	No. 3 mirror	ASS								
								CLN								

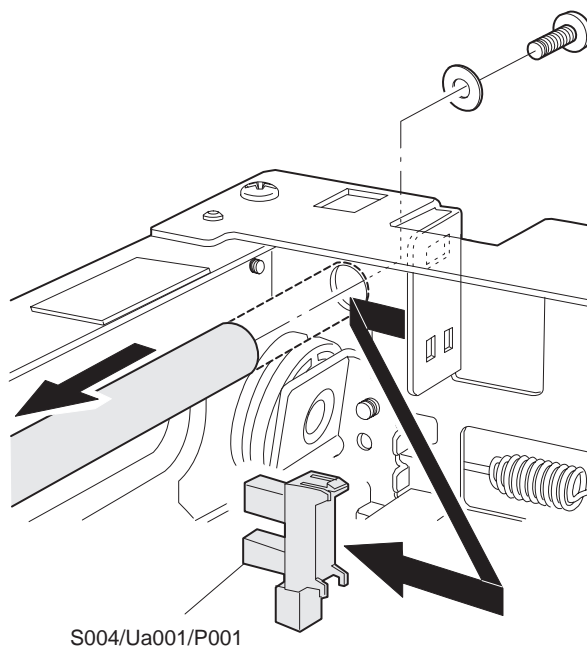


**S004/Ua001 Scanner unit**

- (1) Remove the rear cabinet [S001/P001].
- (2) Remove the front upper cabinet [S001/P002].
- (3) Remove the right cabinet [S001/P003].
- (4) Remove the left cabinet [S001/P004].
- (5) Remove the document table glass [S001/P007].
- (6) Remove the fan motor unit [S010/P001].
- (7) Remove the screw, the connector, and the hook, and remove the scanner unit (S004/Ua001).



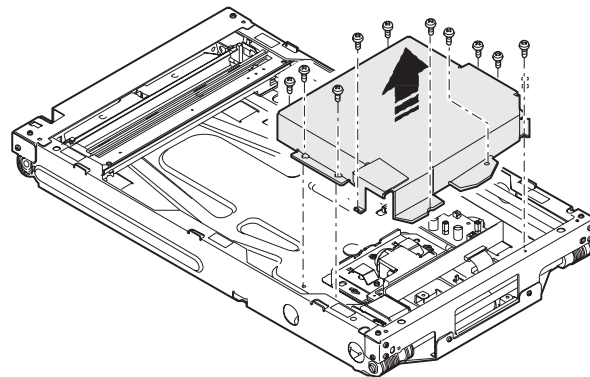
- (7) Remove the screw and remove the scanner shaft.



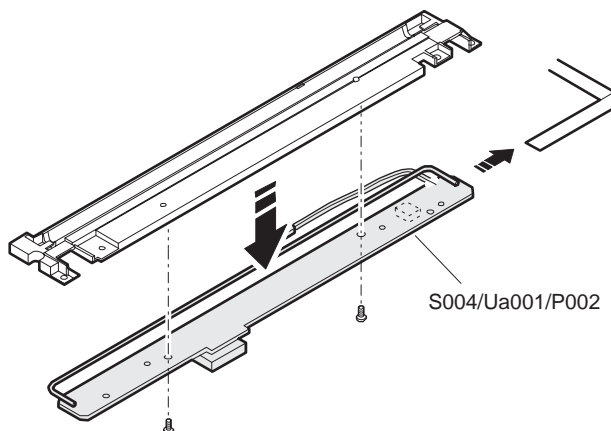
- (8) Release the hook, cut the binding band, and remove the scanner home position sensor (S004/Ua001/P001).

**\* Troubles caused by improper work**

- 1) L1-00 trouble
- 2) L3-00 trouble
- (9) Remove the screw and remove the dark box cover.



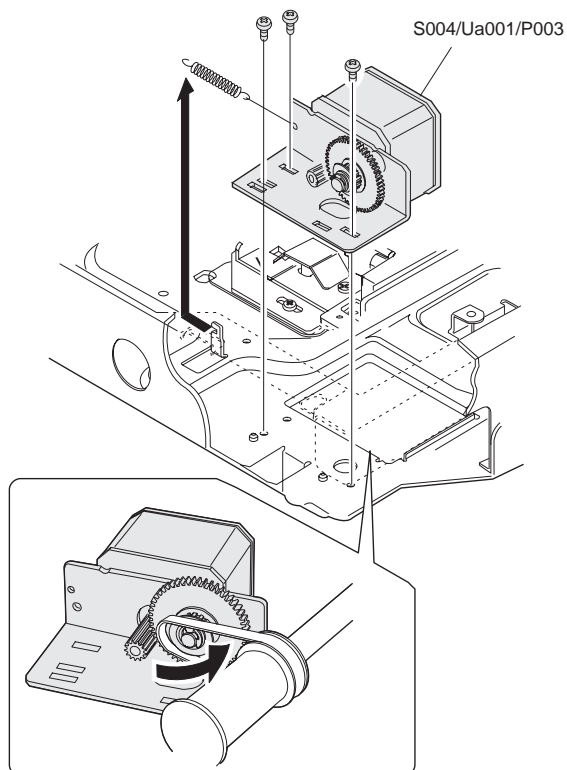
- (10) Remove the screw and the connector, and remove the scanner lamp drive PWB. (S004/Ua001/P002).



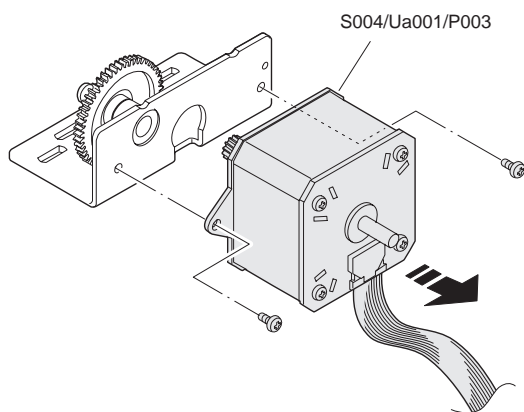
- S004/Ua001/P001 Scanner home positions sensor**
- S004/Ua001/P002 Scanner (copy) lamp drive PWB**
- S004/Ua001/P003 Scanner motor**
- S004/Ua001/P004 Scanner motor gear**
- S004/Ua001/P005 CCD unit**
- S004/Ua001/P006 Scanner rail**
- S004/Ua001/P007 Scanner shaft**
- S004/Ua001/P008 Scanner drive wire**

- (1) Remove the rear cabinet [S001/P001].
- (2) Remove the front upper cabinet [S001/P002].
- (3) Remove the right cabinet [S001/P003].
- (4) Remove the left cabinet [S001/P004].
- (5) Remove the document table glass [S001/P007].
- (6) Remove the fan motor unit [S010/P001].

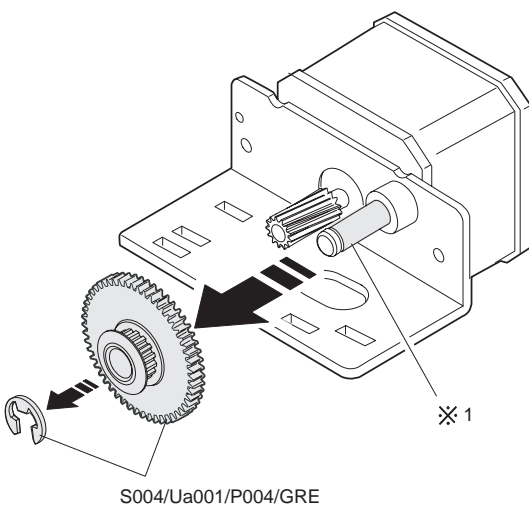
- (11) Remove the screw, the spring, and the belt, and remove the scanner motor unit.



- (12) Remove the screw and remove the scanner motor (S004/Ua001/P003).



- (13) Remove the E-ring, and remove the scanner motor gear (S004/Ua001/P004).

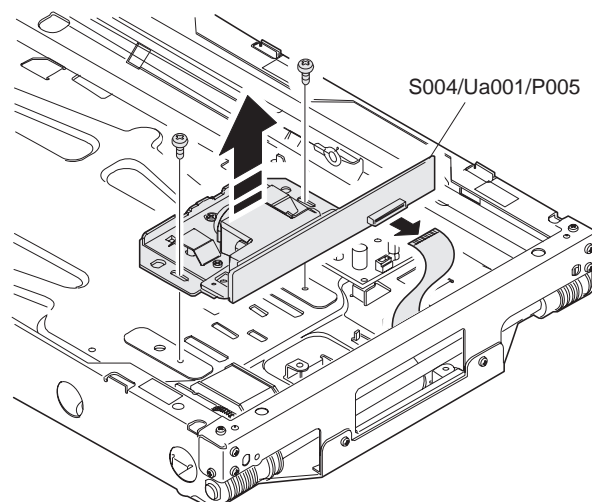


\* **Grease**

Apply grease to #1 position.

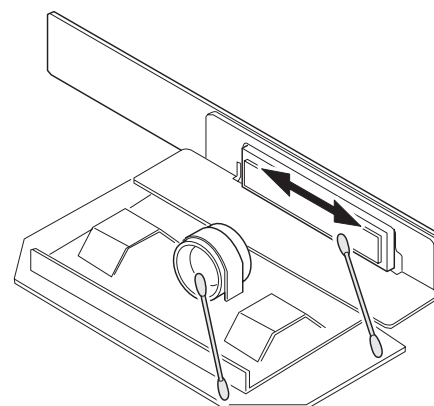
\* **Troubles caused by improper work**

- 1) L1-00 trouble
  - 2) L3-00 trouble
  - 3) Image deflection
- (14) Remove the screw and the connector, and remove the CCD unit (S004/Ua001/P005).  
(Never remove the other screws than the two screws shown below.)



\* **Cleaning**

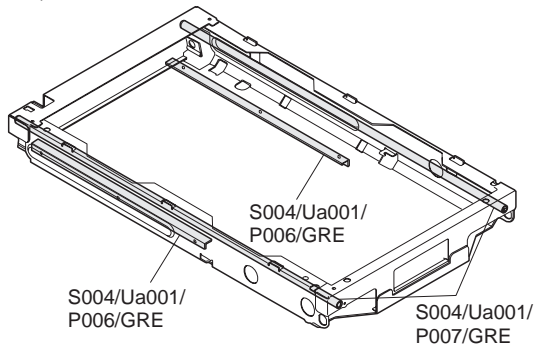
Remove the protection cover, and clean the CCD and the lens with absolute alcohol.



\* **Troubles caused by improper work**

- 1) E7-04 trouble
- 2) E7-05 trouble
- 3) E7-12 trouble
- 4) Copy image defect  
(Improper focusing)  
(Distortion)  
(Streaks in the sub scanning direction)

- (15) Remove the screw, and remove the scanner shaft (S004/Ua001/P007).



\* **Grease**

Apply grease to the scanner rail (S004/Ua001/P006).

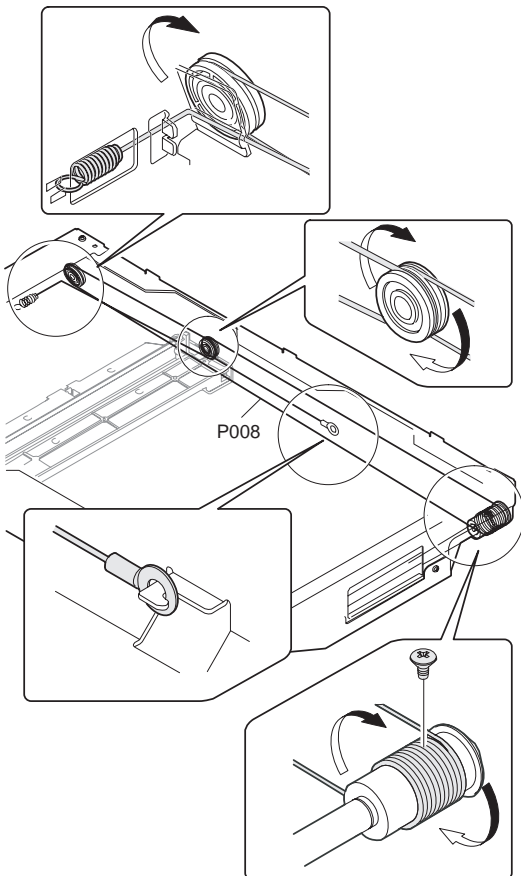
\* **Troubles caused by improper work**

- 1) Copy image defect  
(Image deflection)

- (16) Remove the scanner drive wire (S004/Ua001/P008).

\* **Assembly procedure**

- 1) Hang the scanner drive wire fixing metal on the scanner unit hook.
- 2) Pass the wire through the outside groove of the double pulley of the scanner unit B.
- 3) Hold the winding pulley groove upside, wind the wire 11 turns. Insert the 9th turn of wire into the winding pulley groove and fix it with the screw.
- 4) Wind the wire over the pulley through under the scanner unit B.
- 5) Pass the wire through the inside groove of the double pulley of the scanner unit B.
- 6) Hang the spring hook on the scanner unit.



\* **Note for assembly**

The wire on the front frame side is different from that on the rear frame side. Be careful not to mistake the wire colors.

\* **Troubles caused by improper work**

- 1) L1-00 trouble
- 2) L3-00 trouble
- 3) Copy image defect  
(Distortion)  
(Image deflection)

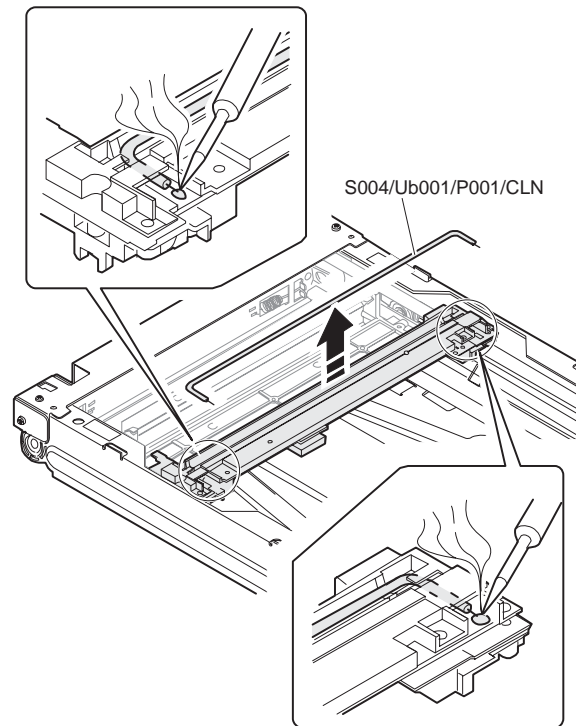
**S004/Ua001/Ub001 Scanner unit A**

**S004/Ua001/Ub001/P001 Scanner lamp**

**S004/Ua001/Ub001/P002 No. 1 mirror**

**S004/Ua001/Ub001/P003 Scanner lamp light quantity sensor**

- (1) Remove the rear cabinet [S001/P001].
- (2) Remove the front upper cabinet [S001/P002].
- (3) Remove the right cabinet [S001/P003].
- (4) Remove the left cabinet [S001/P004].
- (5) Remove the document table glass [S001/P007].
- (6) Remove the fan motor unit. [S010/P001].
- (7) Remove the lamp cover, lift the scanner lamp diagonally, and remove the scanner lamp (S004/Ua001/Ub001/P001).



\* **Cleaning**

Use absolute alcohol to clean the scanner lamp.

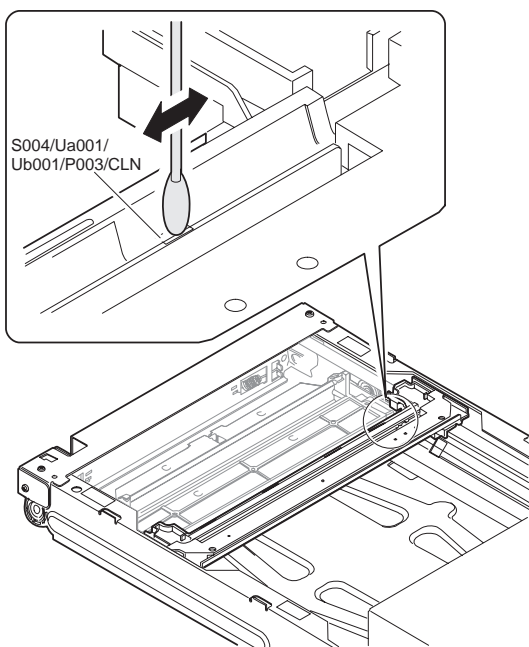
\* **Troubles caused by improper work**

- 1) Copy image defect  
(Streaks in the sub scanning direction)  
(Uneven density)



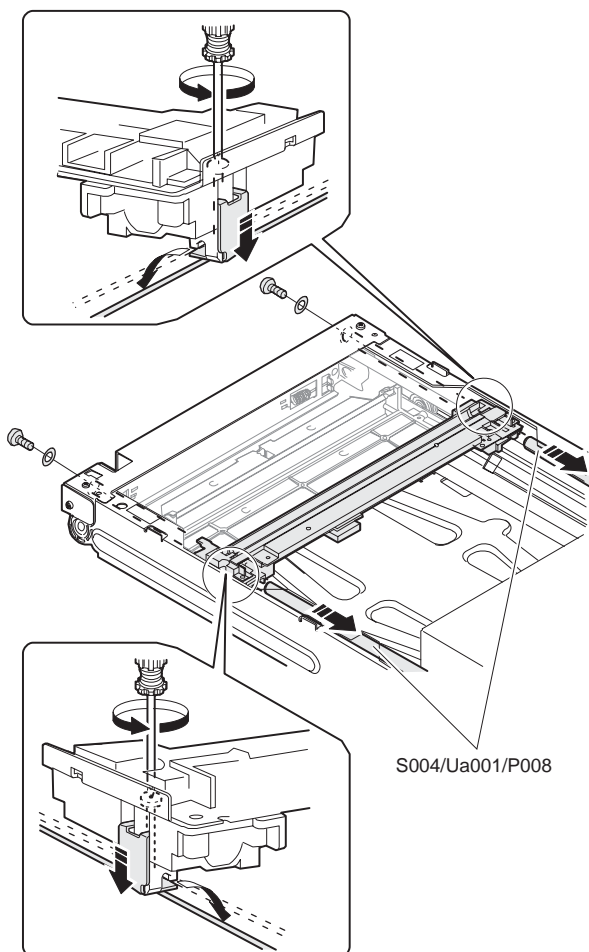
### \* Cleaning

Use absolute alcohol to clean the scanner lamp light quantity sensor as shown below.

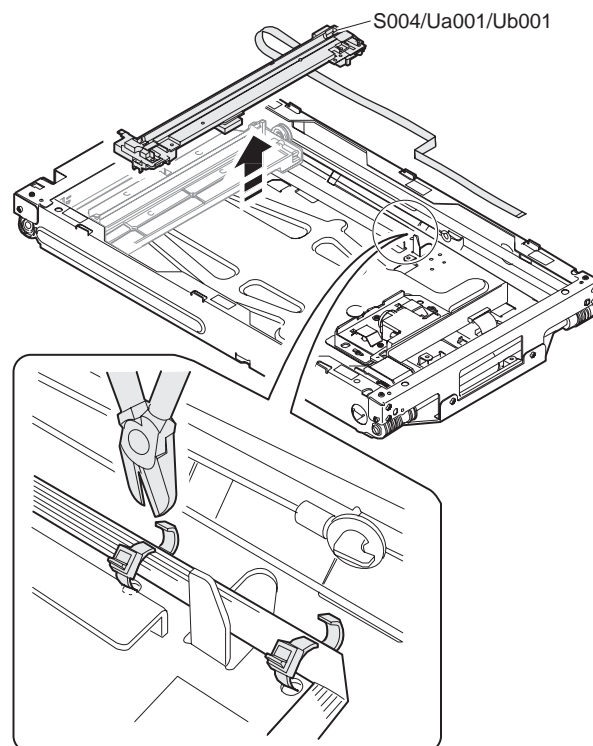


### \* Troubles caused by improper work

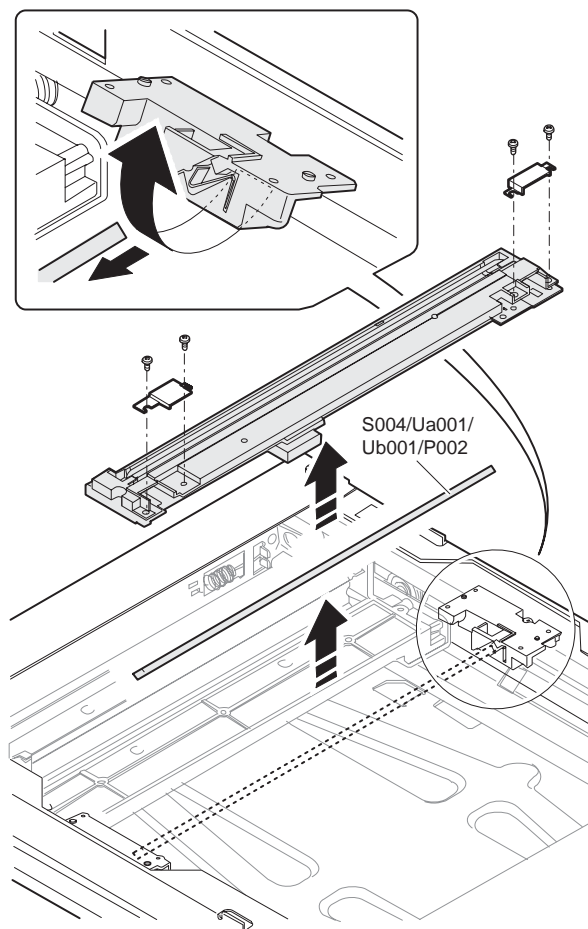
- 1) Improper copy density
- (8) Loosen the wire fixing screw of the scanner unit A (S004/Ua001/Ub001), and remove the wire.
- (9) Remove the screw, and remove the shaft.



- (10) Remove the connector, cut the binding band, and remove the scanner unit A (S004/Ua001/Ub001).

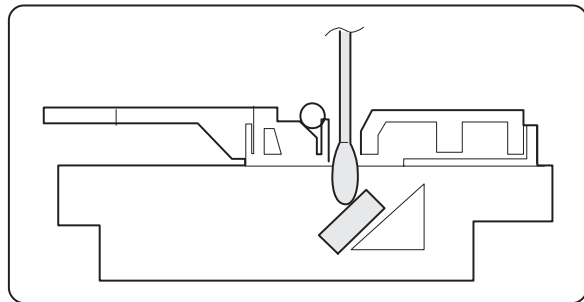
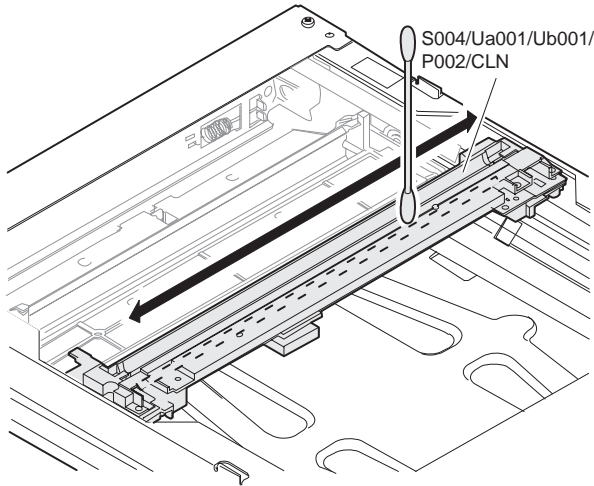


- (11) Remove the No. 1 mirror (S004/Ua001/Ub001/P002).



**\* Cleaning**

Use absolute alcohol to clean the No. 1 mirror as shown below.



**\* Troubles caused by improper work**

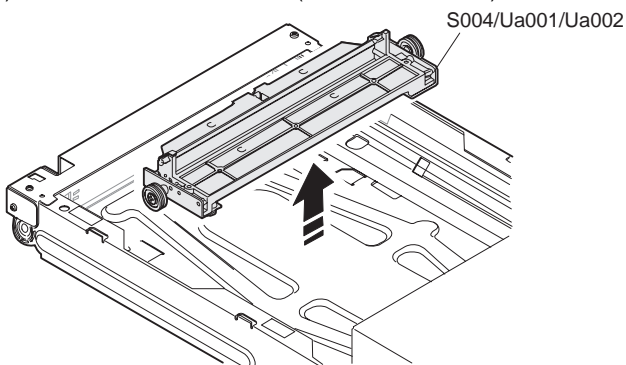
- 1) Copy image defect  
(Distortion)  
(Streaks in the sub scanning direction)  
(Uneven density)
- 2) L1-00 trouble
- 3) L3-00 trouble

**S004/Ua001/Ub002 Scanner unit B**

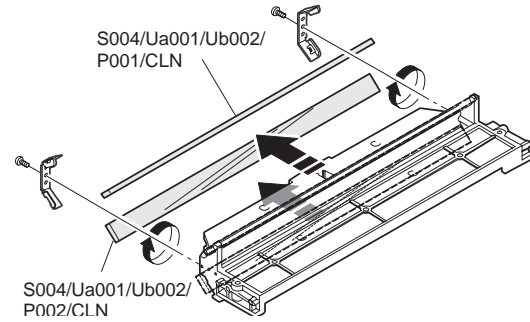
**S004/Ua001/Ub002/P001 No. 2 mirror**

**S004/Ua001/Ub002/P002 No. 3 mirror**

- (1) Remove the rear cabinet [S001/P001].
- (2) Remove the front upper cabinet [S001/P002].
- (3) Remove the right cabinet [S001/P003].
- (4) Remove the left cabinet [S001/P004].
- (5) Remove the document table glass [S001/P007].
- (6) Remove the fan motor unit. [S010/P001].
- (7) Remove the scanner drive wire [S004/Ua001/P008].
- (8) Remove the scanner unit B (S004/Ua001/Ub002).

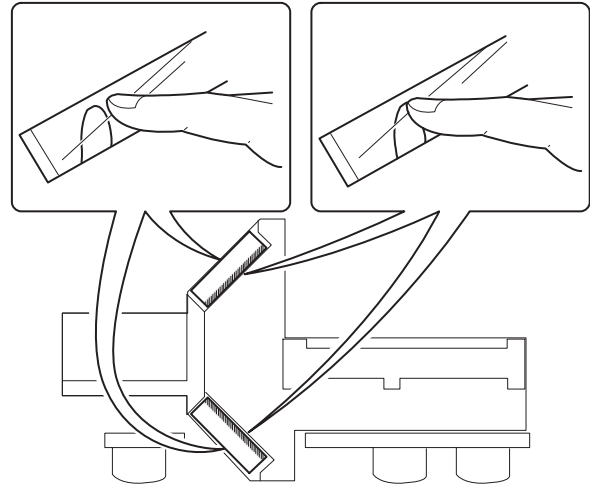


- (9) Remove the screw, and remove the No. 2 mirror (S004/Ua001/Ub002/P001) and the No. 3 mirror (S004/Ua001/Ub002/P002).



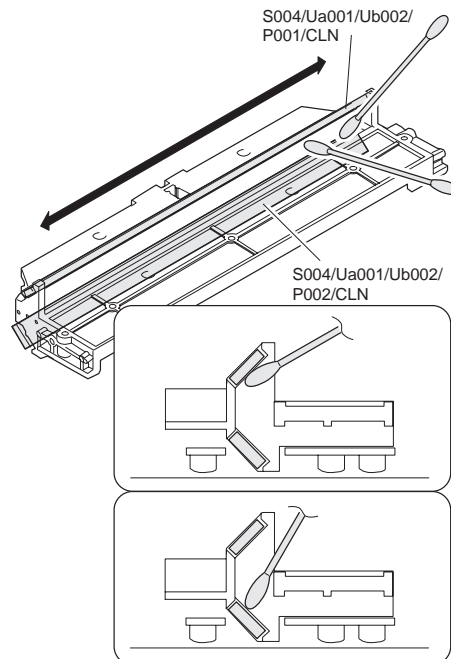
**\* Note for assembly**

Be careful not to mistake the front and the back sides of the no. 2 and No. 3 mirrors.



**\* Cleaning**

Use absolute alcohol to clean the No. 2 and No. 3 mirrors.

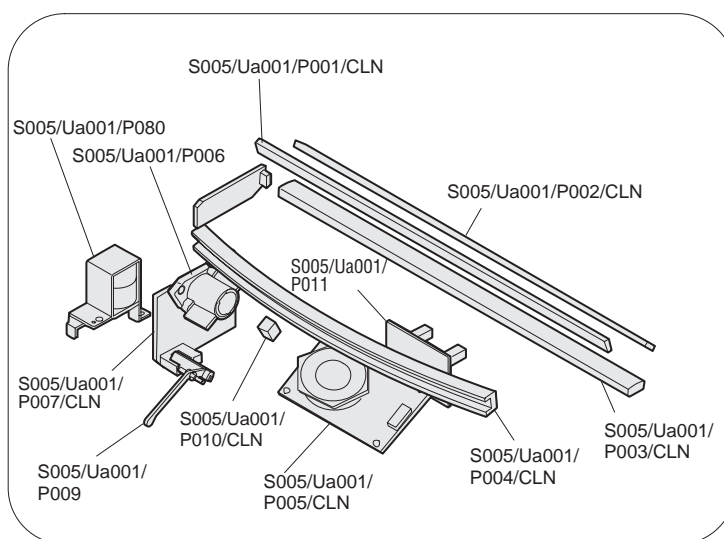
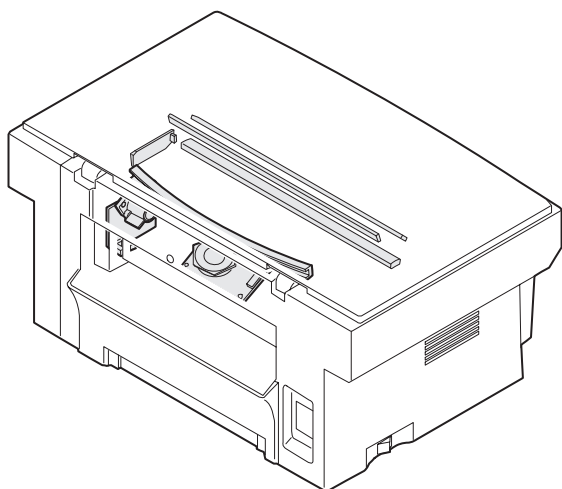


**\* Troubles caused by improper work**

- 1) Copy image defect  
(Distortion)  
(Streaks in the sub scanning direction)  
(Uneven density)
- 2) L1-00 trouble
- 3) L3-00 trouble

## S005 Scanner (writing) section

Section		Unit				Part		JOB CODE	After-work	NOTE
S No.	Part name	Ua No.	Unit name	Ub No.	Unit name	P No.	Part name	JOB No.		
S 005	Scanner (writing)	Ua 001	Scanner (writing) unit					ASS		
						P 001	No. 1 mirror	CLN		
						P 002	No. 3 mirror	CLN		
						P 003	No. 2 cylindrical lens	CLN		
						P 004	f $\theta$ mirror (No. 2 mirror)	ASS CLN		
						P 005	Scanning mirror (motor) unit	ASS CLN		
						P 006	Laser unit	ASS		
						P 007	Laser beam sensor	ASS CLN		
						P 008	Paper feed solenoid	ASS		
						P 009	Paper empty detector	ASS		
						P 010	No. 1 cylindrical lens	CLN		
						P 011	Toner empty sensor	ASS		



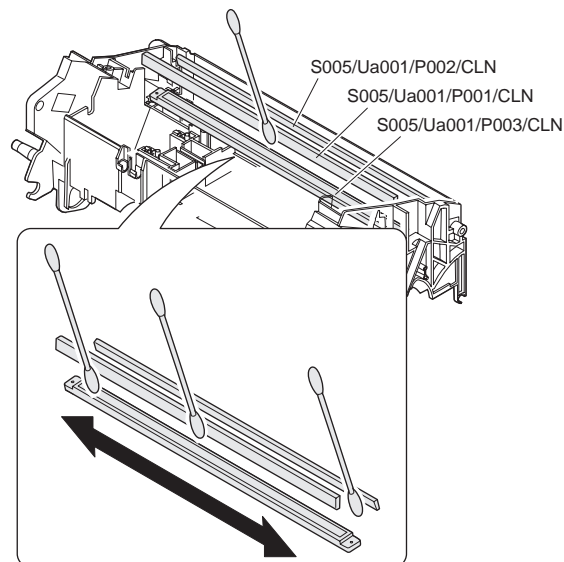
### S005/Ua001 Scanner unit

<b>S005/Ua001/P001</b>	<b>No. 1 mirror</b>
<b>S005/Ua001/P002</b>	<b>No. 3 mirror</b>
<b>S005/Ua001/P003</b>	<b>No. 2 cylindrical lens</b>
<b>S005/Ua001/P004</b>	<b>No. 2 mirror (f<math>\theta</math> mirror)</b>
<b>S005/Ua001/P005</b>	<b>Scanning mirror (motor) unit</b>
<b>S005/Ua001/P006</b>	<b>Laser unit</b>
<b>S005/Ua001/P007</b>	<b>Laser beam sensor PWB</b>
<b>S005/Ua001/P008</b>	<b>Paper feed solenoid</b>
<b>S005/Ua001/P009</b>	<b>Paper empty detector</b>
<b>S005/Ua001/P010</b>	<b>No. 1 cylindrical lens</b>
<b>S005/Ua001/P011</b>	<b>Toner empty sensor</b>

- (1) Remove the rear cabinet [S001/P001].
- (2) Remove the front upper cabinet [S001/P002].
- (3) Remove the right cabinet [S001/P003].
- (4) Remove the left cabinet [S001/P004].
- (5) Remove the document table glass [S001/P007].
- (6) Remove the fan motor unit [S010/P001].
- (7) Remove the scanner unit (reading) [S004/Ua001].

### \* Cleaning

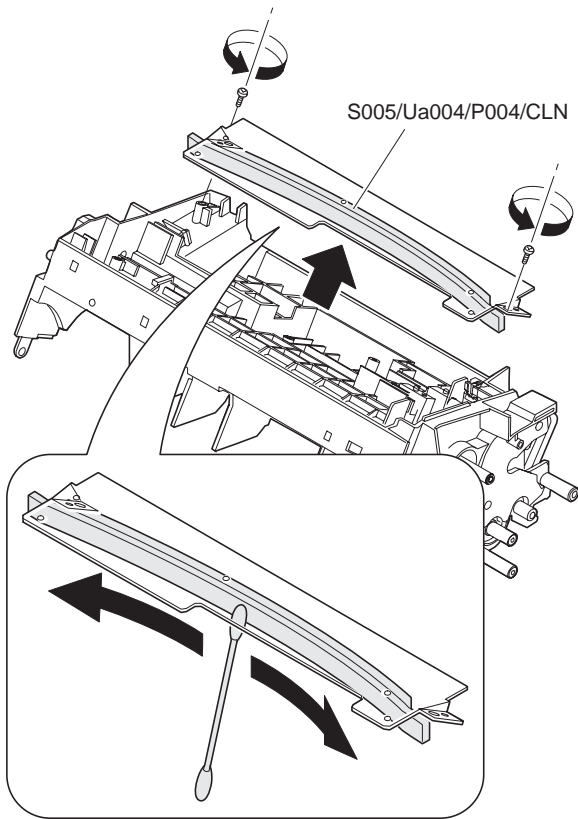
Use absolute alcohol to clean the No. 1 mirror (S005/Ua001/P001), No. 3 mirror (S005/Ua001/P002), and No. 2 cylindrical lens (S005/Ua001/P003).



### \* Note

Do not remove those mirrors.

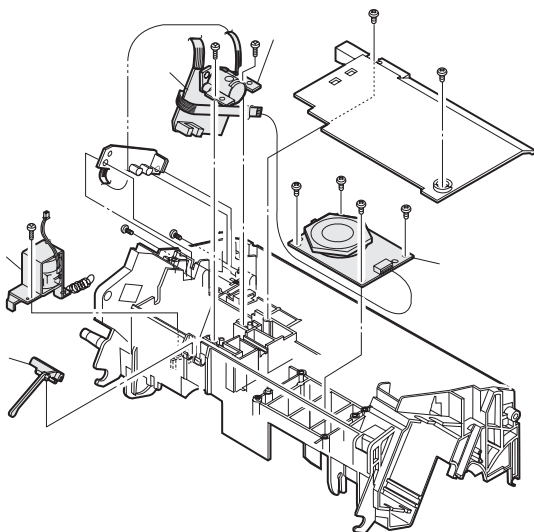
- (8) Remove the screw, and remove the no. 2 mirror (fθ mirror) (S005/Ua001/P004).



**\* Cleaning**

Use absolute alcohol to clean the concave surface of the no. 2 mirror (fθ mirror).

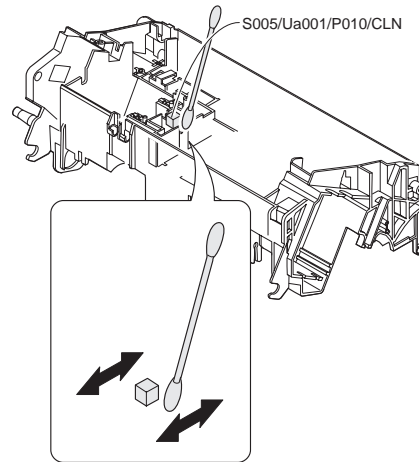
- (9) Remove the scanner cover.
- (10) Remove the screw and the connector, and remove the scanner mirror (motor) unit (S005/Ua001/P005).



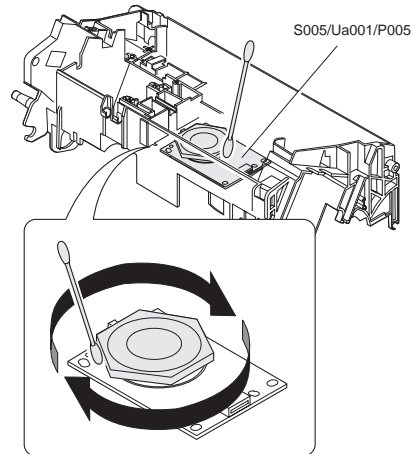
- (11) Remove the screw, and remove the laser unit (S005/Ua001/P006).
- (12) Remove the connector, and remove the laser beam sensor PWB (S005/Ua001/P007).
- (13) Remove the screw and the spring, and remove the paper feed solenoid (S005/Ua001/P080).
- (14) After removing the laser beam sensor PWB, remove the paper empty detector (S005/Ua001/P009) along the boss direction.

**\* Cleaning**

Use absolute alcohol to clean the No. 1 cylindrical lens (S005/Ua001/P010).

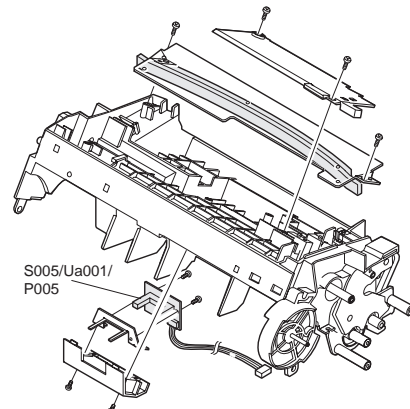


Use absolute alcohol to clean the scanner mirror (motor) unit, and the laser beam sensor. Clean the whole surface of the scanner mirror (motor) unit as shown in the figure below.



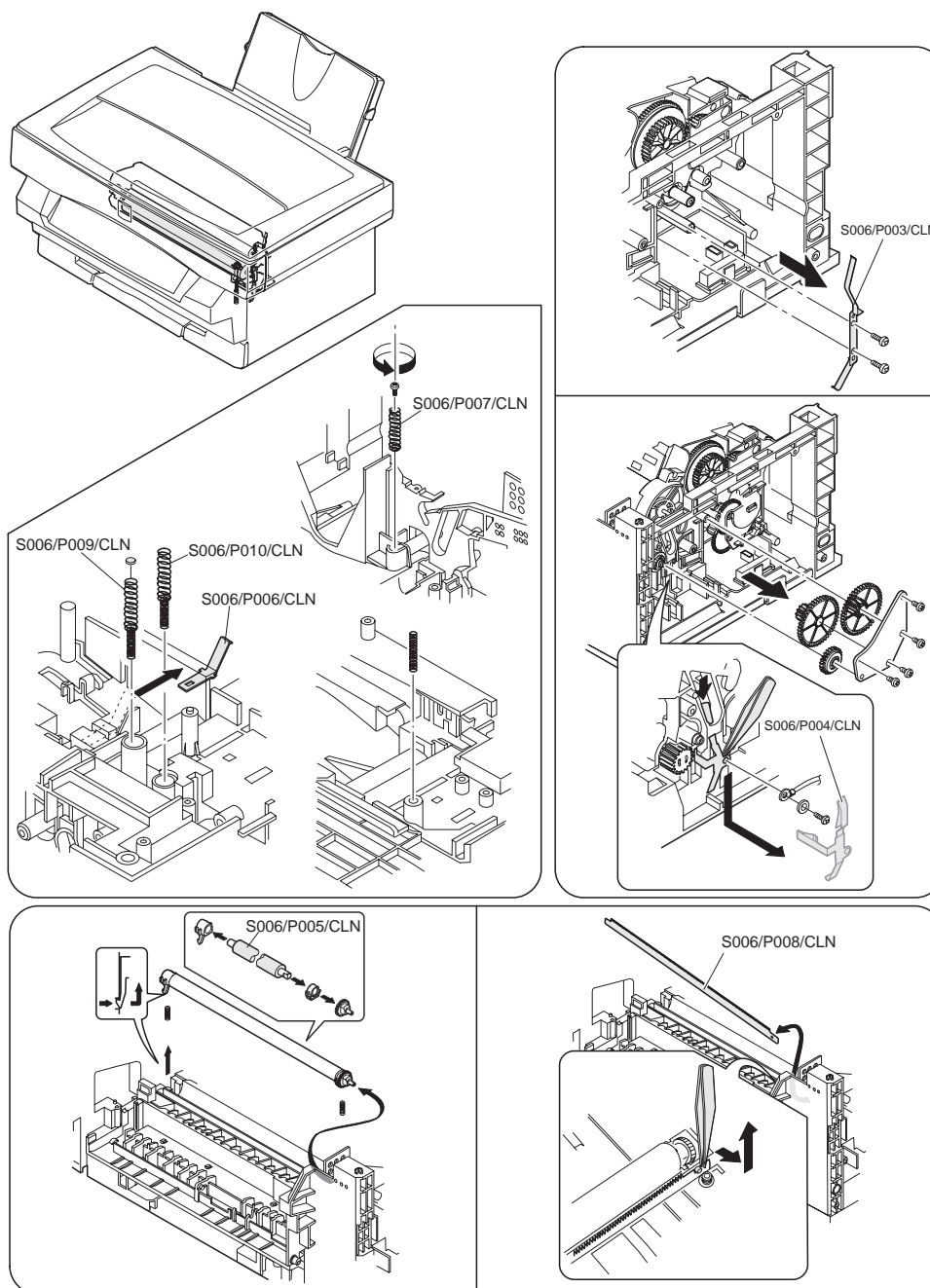
**\* Troubles caused by improper work**

- 1) Print image defect
  - (Insufficient print density)
  - (Streaks in the main scanning direction)
  - (Image lack)
  - (E7-03 error)
- (15) Remove the MCU (PCU) PWB [S009/Ua002].
- (16) Remove the power PWB unit. [S009/Ua001].
- (17) Remove the scanner (writing) unit. [S005/Ua001].
- (18) Remove the screw and the connector, and remove the toner empty sensor (S005/Ua001/P011).



**S006** Image process section

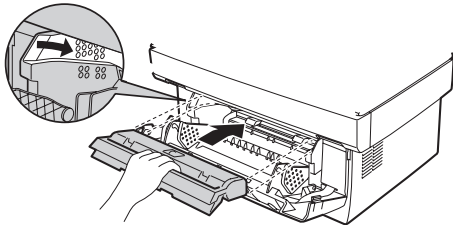
Section		Unit				Part		JOB CODE	After-work JOB No.	NOTE
S No.	Part name	Ua No.	Unit name	Ub No.	Unit name	P No.	Part name			
S 006	Image process					P 001	Toner cartridge	ASS		
						P 002	Photoconductor cartridge	ASS		
						P 003	Developing bias electrode	ASS		
								CLN		
						P 004	Photoconductor earth electrode	ASS		
								CLN		
						P 005	Transfer roller	ASS		
								CLN		
						P 006	Transfer charger electrode	ASS		
								CLN		
P 007	Developing bias electrode spring	ASS								
		CLN								
P 008	Separation electrode	ASS								
		CLN								
P 009	Main charger electrode SP	ASS								
		CLN								
P 010	Earth electrode SP	ASS								
		CLN								



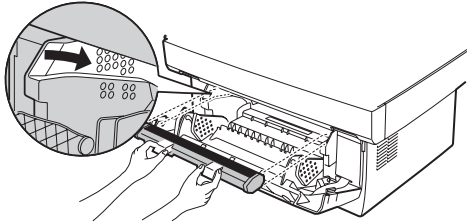
**S006/P001 Toner cartridge**

**S006/P002 Photoconductor cartridge**

- (1) Open the operation unit.
- (2) Remove the toner cartridge (S006/P001).



- (3) Remove the photoconductor cartridge (S006/P002).



**S006/P003 Developing bias electrode**

**S006/P004 Photoconductor earth electrode**

**S006/P005 Transfer roller**

**S006/P006 Transfer charger electrode**

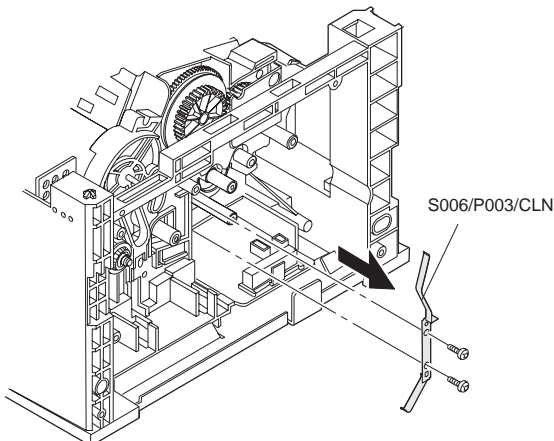
**S006/P007 Developing bias electrode SP**

**S006/P008 Separation electrode**

**S006/P009 Main charger electrode SP**

**S006/P010 Earth electrode SP**

- (1) Remove the rear cabinet [S001/P001].
- (2) Remove the front upper cabinet [S001/P002].
- (3) Remove the right cabinet [S001/P003].
- (4) Remove the left cabinet [S001/P004].
- (5) Remove the fan motor unit [S010/P001].
- (6) Remove the document table glass [S001/P007].
- (7) Remove the FAX control PWB unit and the MCU (PCU) PWB unit [S009/Ua002] [S009/Ua002].
- (8) Remove the power PWB unit [S009/Ua001].
- (9) Remove the scanner (reading) unit [S004/Ua001].
- (10) Remove the gear and the screw, and remove the developing bias electrode (S006/P003).

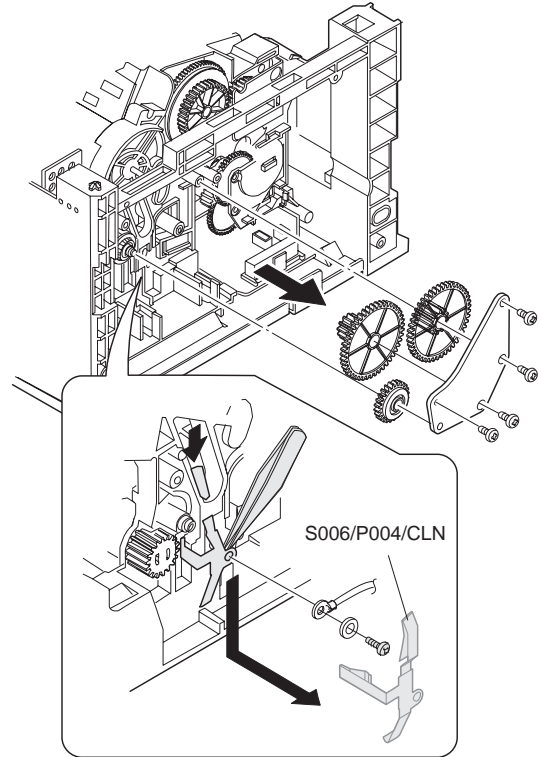


**\* Cleaning**

Use absolute alcohol to clean the developing bias electrode.

**\* Troubles caused by improper work**

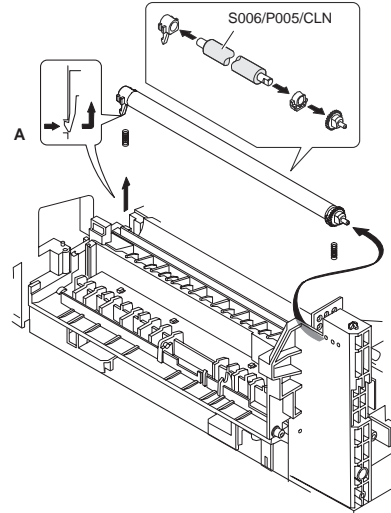
- 1) Print image trouble (Insufficient density, streaks in the main scanning direction)
  - 2) Toner dispersion
- (11) Remove the gear and the screw, and remove the photoconductor earth electrode (S006/P004).



**\* Cleaning**

Use absolute alcohol to clean the photoconductor earth electrode.

- (12) Release the hook from the section A in the figure, and remove the transfer roller (S006/P005).

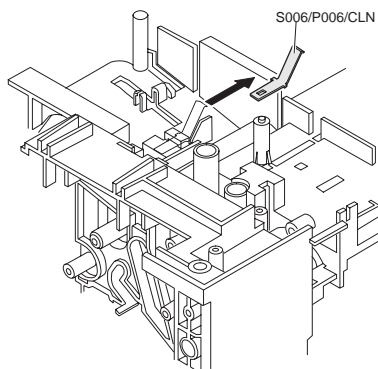


**\* Cleaning**

Use absolute alcohol to clean the transfer roller.

**\* Troubles caused by improper work**

- 1) Print image detect (Insufficient density, improper density balance, streaks in the main scanning direction)
- (13) Release the hook, and remove the transfer charger electrode (S006/P004).

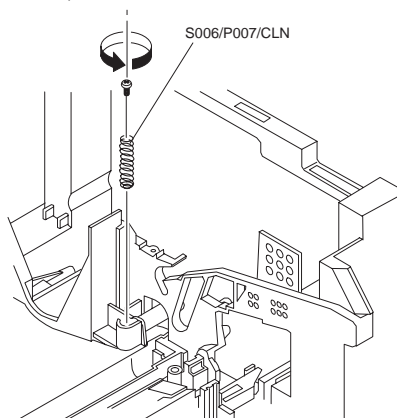


**\* Cleaning**

Use absolute alcohol to clean the charger electrode.

**\* Troubles caused by improper work**

- 1) Print image defect (Insufficient density, improper density balance, streaks in the main scanning direction)
- (14) Remove the screw, and remove the developing bias electrode SP 9S006/P007).

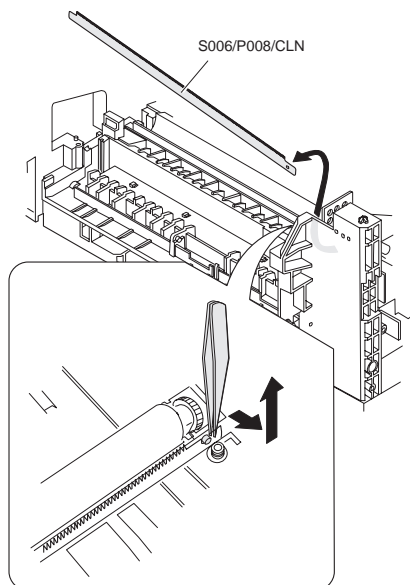


**\* Cleaning**

Use absolute alcohol to clean the developing bias electrode SP.

**\* Troubles caused by improper work**

- 1) Print image defect (Insufficient density, streaks in the main scanning direction.)
- 2) Toner dispersion
- (15) Slide and remove the separation electrode (S006/P008).

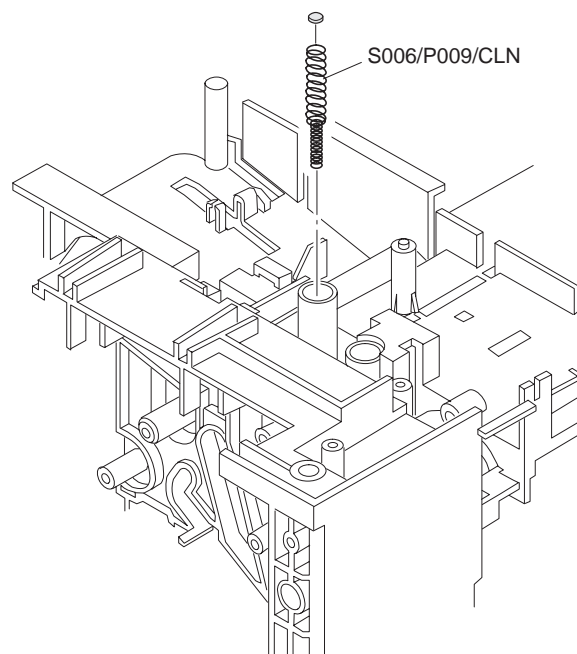


**\* Cleaning**

Use absolute alcohol to clean the separation electrode.

**\* Troubles caused by improper work**

- 1) Paper jam
- (16) Remove the bottom base plate [S001/P009].
- (17) Pull out the main charger electrode SP (S006/P008).

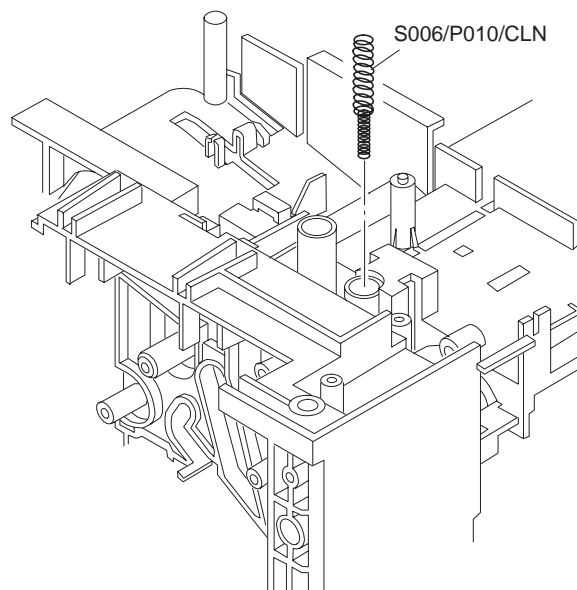


**\* Cleaning**

Use absolute alcohol to clean the main charger electrode SP.

**\* Troubles caused by improper work**

- 1) Print image defect  
(Dirt, streaks in the main scanning direction)
- (18) Pull out the earth electrode SP (S006/P010).



**\* Cleaning**

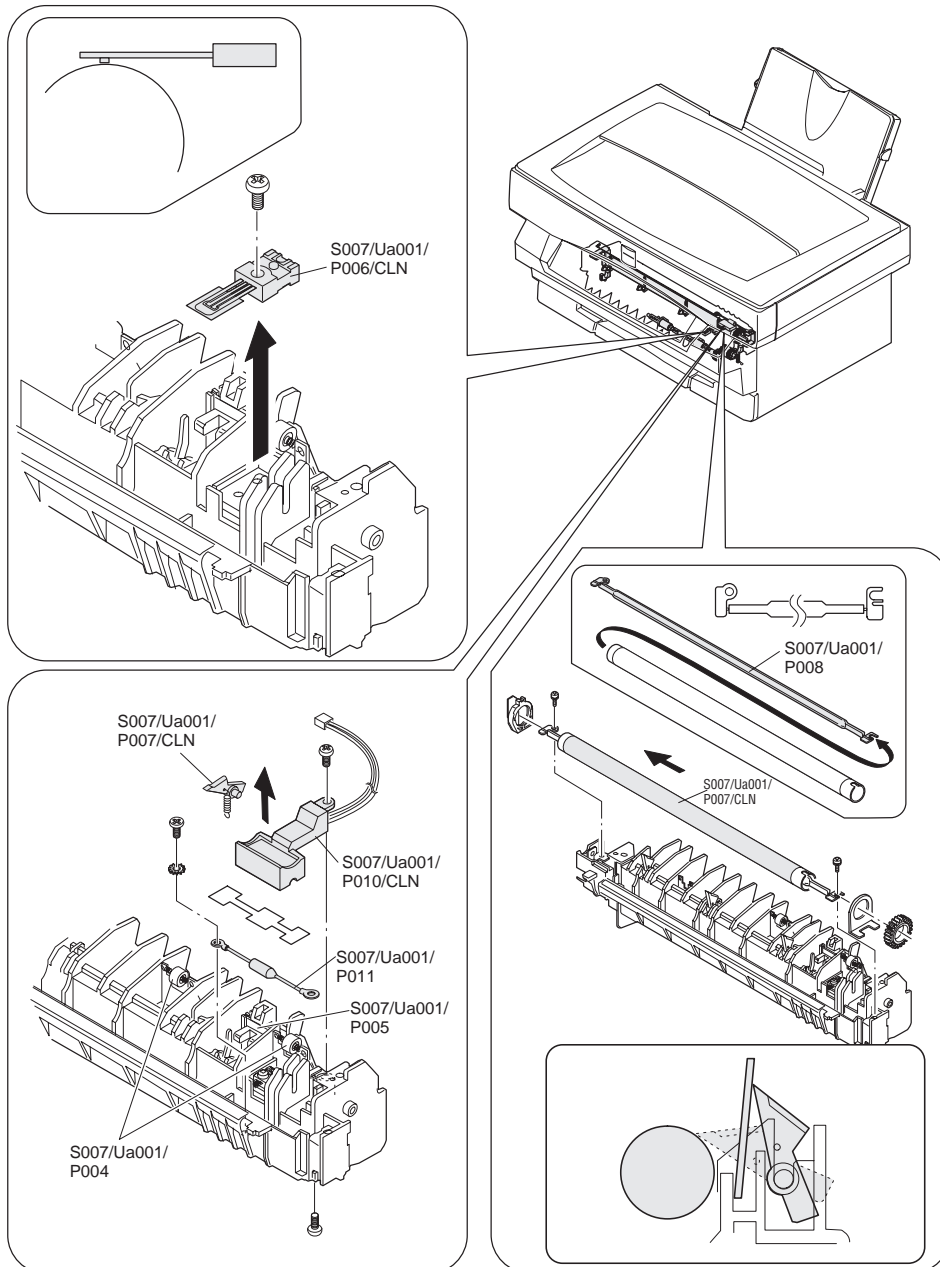
Use absolute alcohol to clean the earth electrode SP.

**\* Troubles caused by improper work**

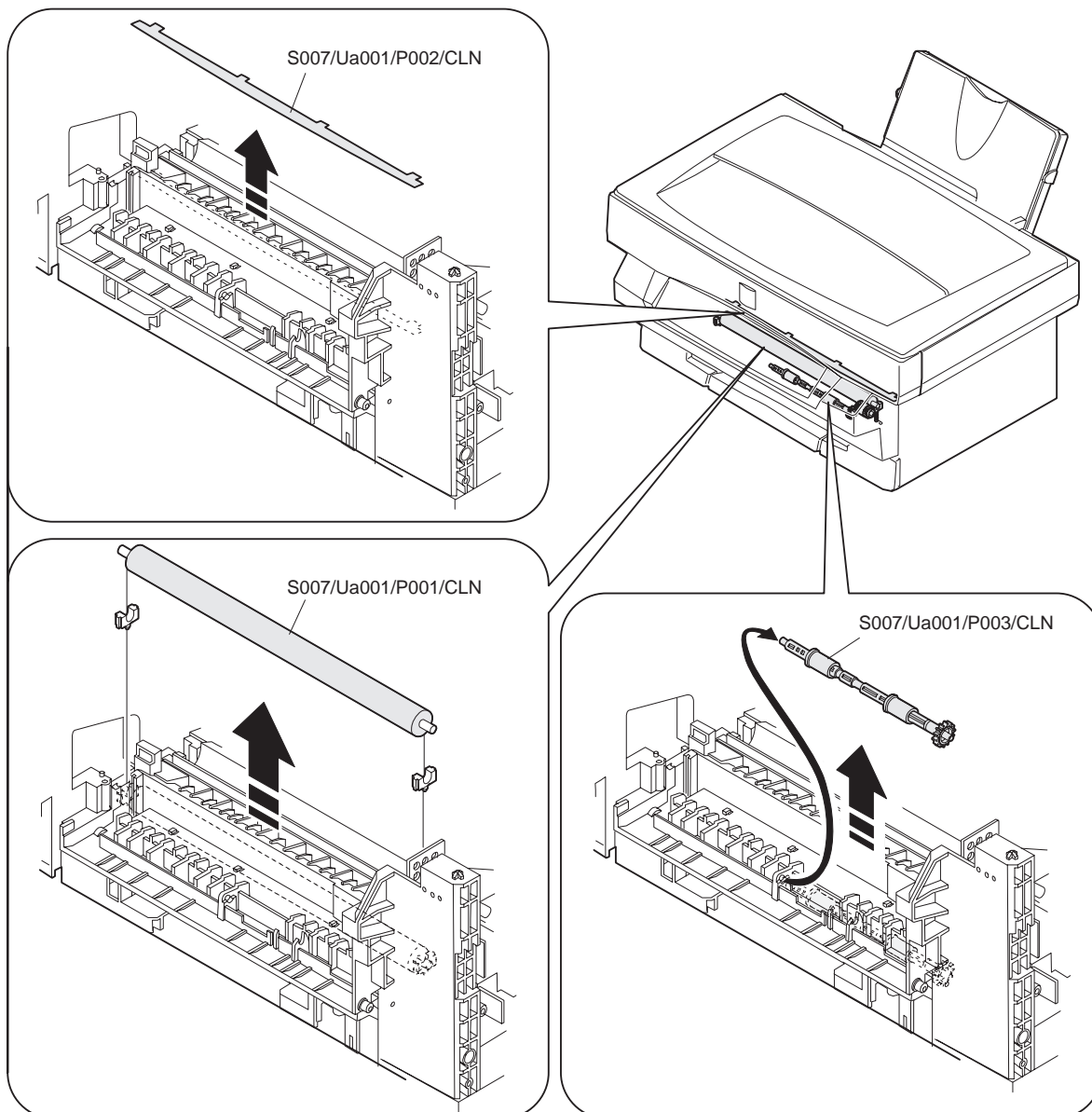
- 1) Paper jam

# S007 Fusing, paper exit

Section		Unit				Part		JOB CODE	After-work	NOTE
S No.	Part name	Ua No.	Unit name	Ub No.	Unit name	P No.	Part name		JOB No.	
S 007	Fusing, paper exit	Ua 001	Fusing unit					ASS		
						P 001	Pressure roller	ASS		
								CLN		
						P 002	Paper guide sheet	ASS		
								CLN		
						P 003	Paper exit roller L	ASS		
								CLN		
						P 004	Paper exit roller U	ASS		
								CLN		
						P 005	Paper exit detector	ASS		
						P 006	Fusing temperature sensor	ASS		
								CLN		
						P 007	Heat roller	ASS		
								CLN		
						P 008	Heater lamp	ASS		
						P 009	Separation pawl	ASS		
								CLN		
						P 010	Temperature fuse A	ASS		
								CLN		
						P 011	Temperature fuse B	ASS		







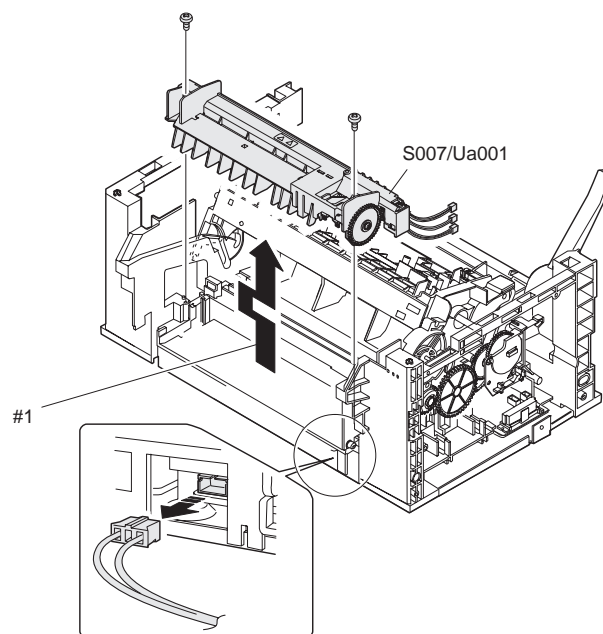
## S007/Ua001 Fusing unit

**S007/Ua001/P001** Pressure roller

**S007/Ua001/P002** Paper guide sheet

**S007/Ua001/P003** Paper exit roller U

- (1) Remove the rear cabinet [S001/P001].
- (2) Remove the front upper cabinet [S001/P002].
- (3) Remove the right cabinet [S001/P003].
- (4) Remove the left cabinet [S001/P004].
- (5) Remove the document table glass [S001/P007].
- (6) Remove the fan motor unit [S010/P001].
- (7) Remove the operation unit [S002/P001, S002/P002, S002/P003].
- (8) Remove the scanner unit [S004/Ua001].
- (9) Remove the MCu (PCU) PWB unit [S009/Ua002].
- (10) Remove the toner cartridge and the photoconductor cartridge [S006/P001, S006/P002].
- (11) Remove the connector screw, and remove the fusing unit (S007/Ua001).

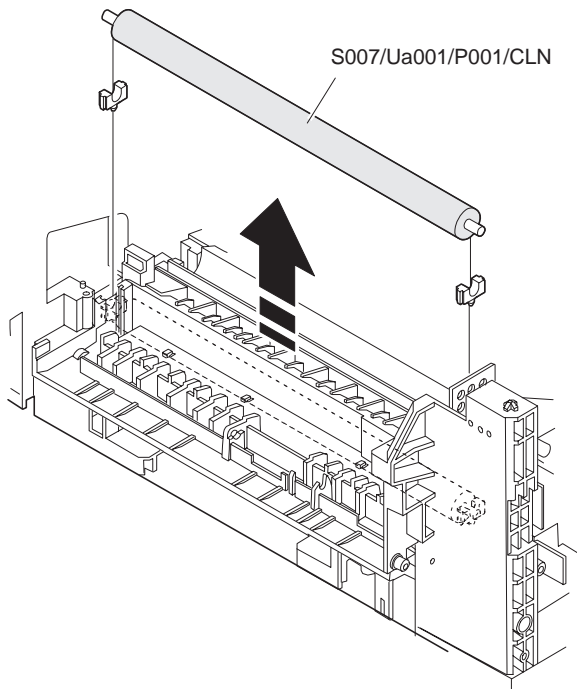


#1. Slide to the left and lift and remove.

**\* Troubles caused by improper work**

- 1) Fusing abnormality
- 2) Paper jam

(12) Remove the pressure roller (S007/Ua001/P001).



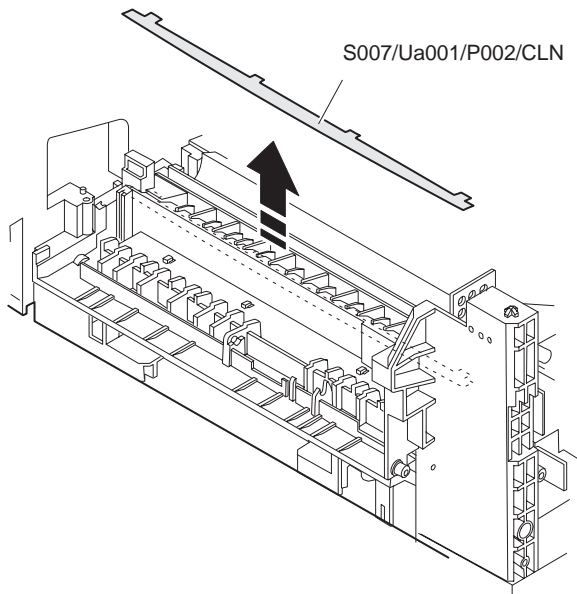
**\* Cleaning**

Use the absolute alcohol to clean the pressure roller.

**\* Troubles caused by improper work**

- 1) Print dirt
- 2) Paper jam
- 3) Fusing abnormality

(13) Remove the paper guise sheet (S007/Ua001/P002).



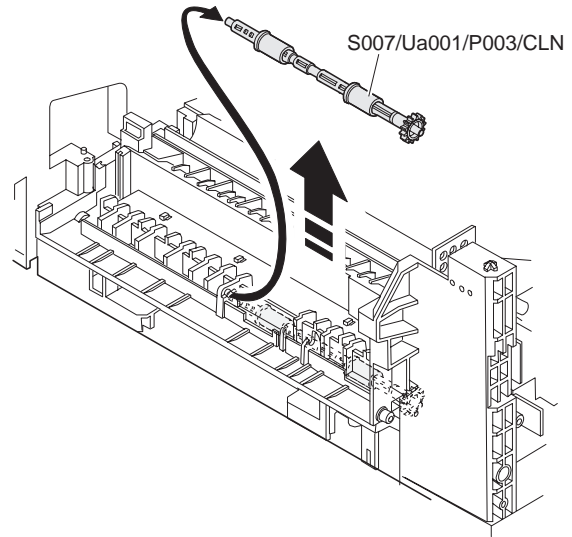
**\* Cleaning**

Use the absolute alcohol to clean the paper guide sheet.

**\* Troubles caused by improper work**

- 1) Paper jam

(14) Remove the paper exit roller L (S007/Ua001/P003).



**\* Cleaning**

Use absolute alcohol to clean the paper exit roller L.

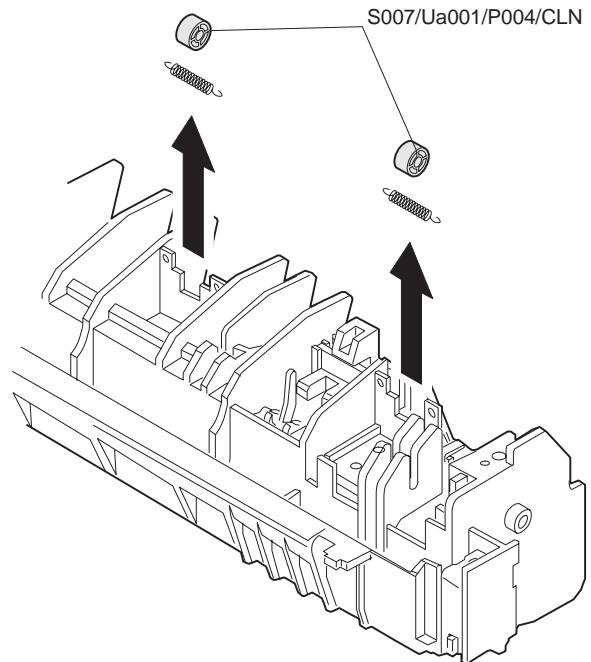
**\* Troubles caused by improper work**

- 1) Paper jam

**\* Note**

<b>S007/Ua001/P004</b>	<b>Paper exit roller U</b>
<b>S007/Ua001/P005</b>	<b>Paper exit detector</b>
<b>S007/Ua001/P006</b>	<b>Fusing temperature sensor</b>
<b>S007/Ua001/P007</b>	<b>Heat roller</b>
<b>S007/Ua001/P008</b>	<b>Heater lamp</b>
<b>S007/Ua001/P009</b>	<b>Separation pawl</b>
<b>S007/Ua001/P010</b>	<b>Temperature fuse A</b>
<b>S007/Ua001/P011</b>	<b>Temperature fuse B</b>

(1) Remove the spring, and remove the paper exit roller U (S007/Ua001/P004).



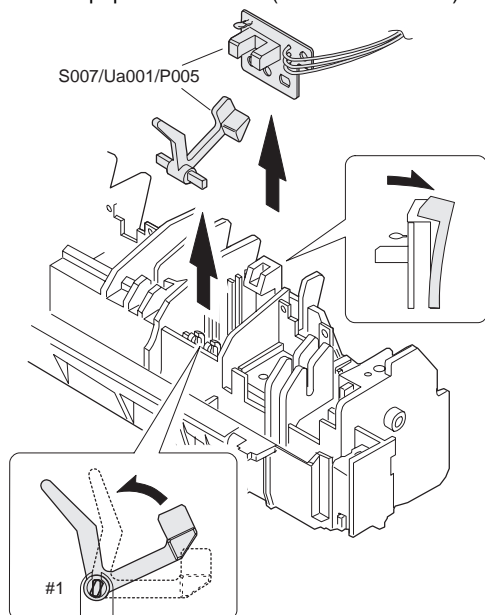
**\* Cleaning**

Use absolute alcohol to clean the paper exit roller U.

**\* Troubles caused by improper work**

- 1) paper jam

- (2) Remove the paper exit detector (S007/Ua001/P005).

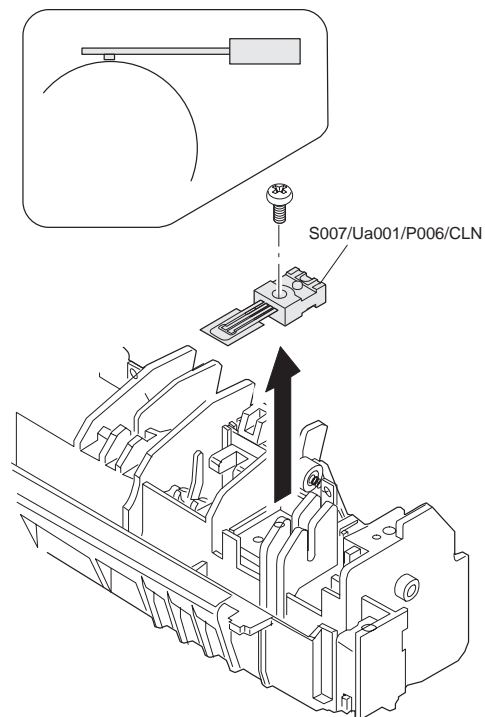


#1. Fit the boss direction and remove.

\* **Troubles caused by improper work**

- 1) Paper jam

- (3) Remove the screw, and remove the fusing temperature sensor (S007/Ua001/P006).



\* **Note for assembly**

Be careful not to mistake the installing direction of the fusing temperature sensor.

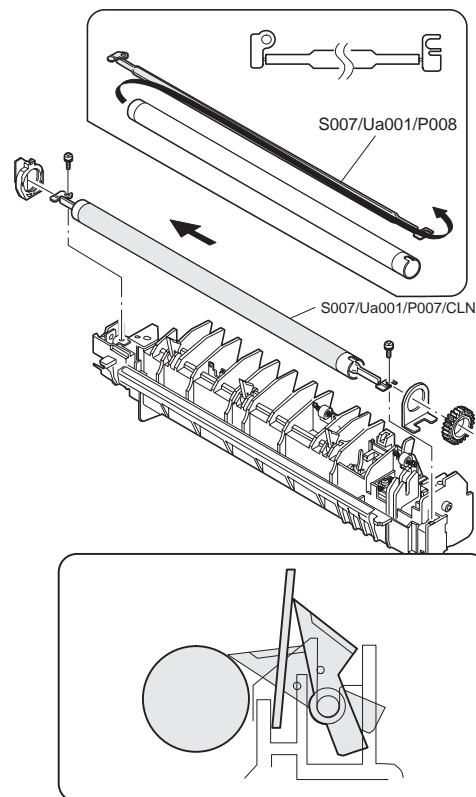
\* **Cleaning**

Use absolute alcohol to clean the contact surface of the heat roller.

\* **Troubles caused by improper work**

- 1) Fusing abnormality  
2) Fusing temperature error (H2-00, H3-00, H4-00)

- (4) Remove the screw, and remove the heat roller (S007/Ua001/P007) and the heater lamp (S007/Ua001/P008).



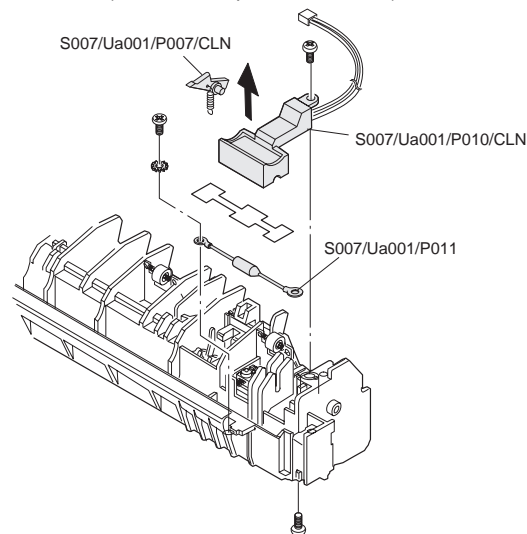
\* **Note for assembly**

Insert a piece of paper between the separation pawl and the heat roller to keep the separation pawl open in order to protect the heat roller from damage.

\* **Cleaning**

Use absolute alcohol to clean the separation pawl.

- (5) Remove the separation pawl (S007/Ua001/P009).  
(6) Remove the screw, and remove the temperature fuse A (S007/Ua001/P010) and the temperature fuse B (S007/Ua001/P011).



\* **Cleaning**

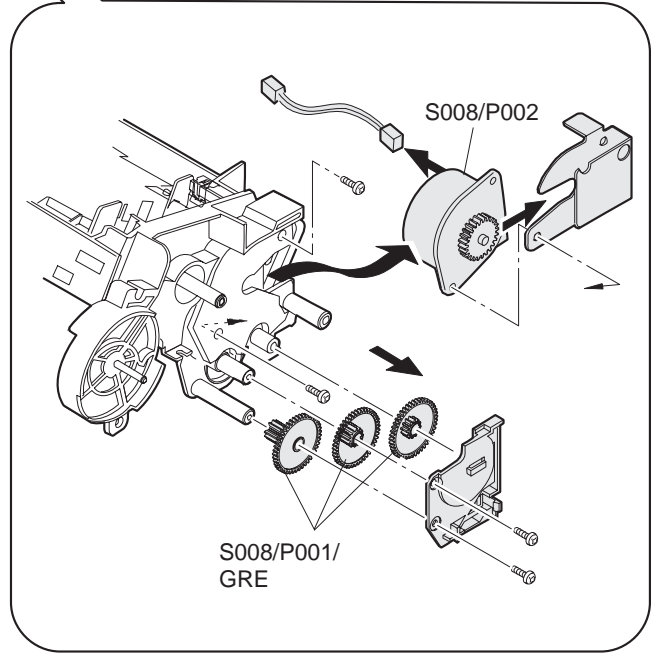
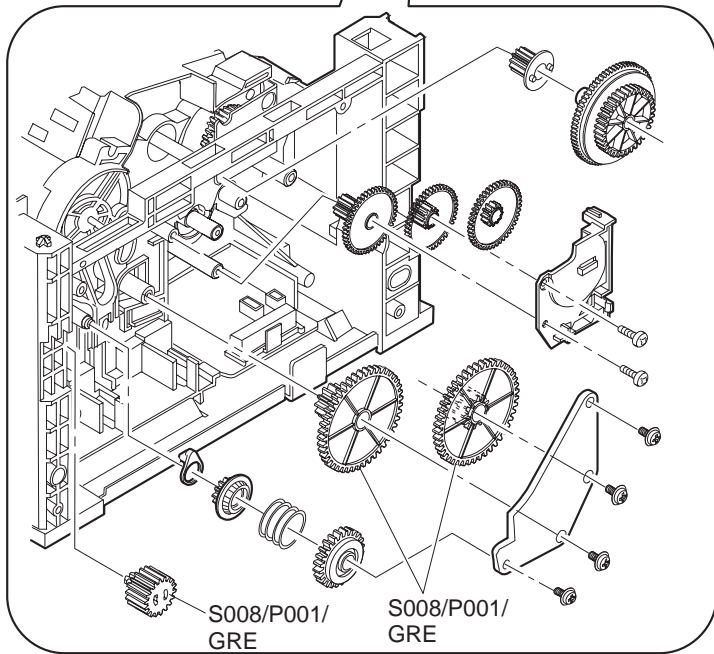
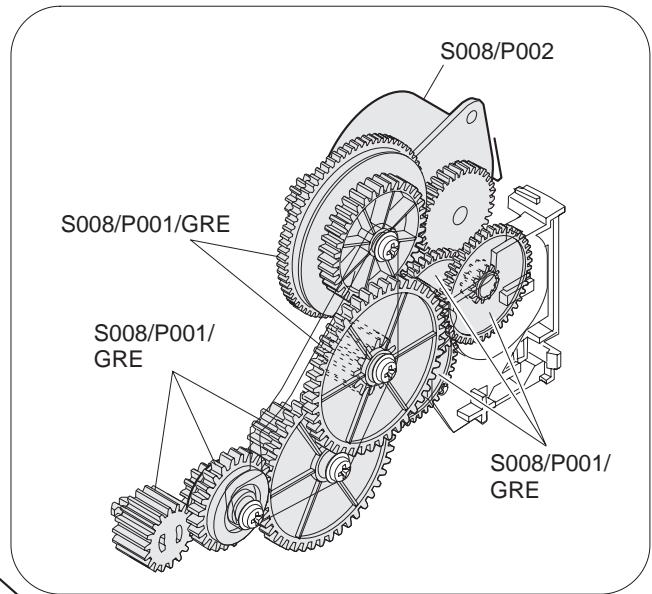
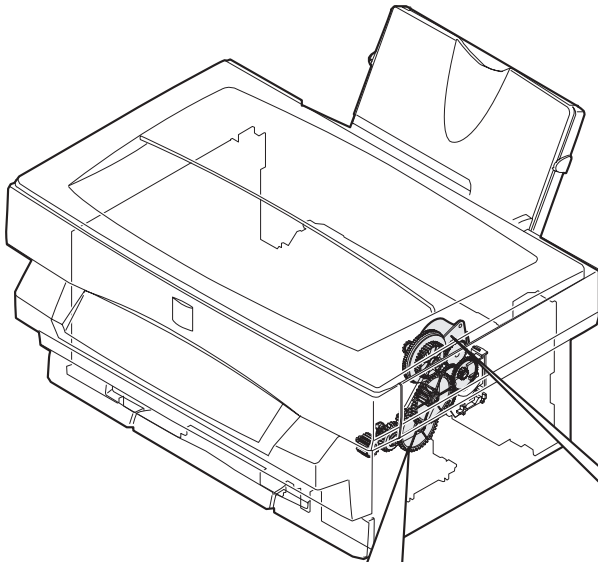
Use absolute alcohol to clean the contact section of the temperature fuse A which is in contact with the heat roller.  
Use absolute alcohol to clean the separation pawl.

\* **Troubles caused by improper work**

- 1) paper jam

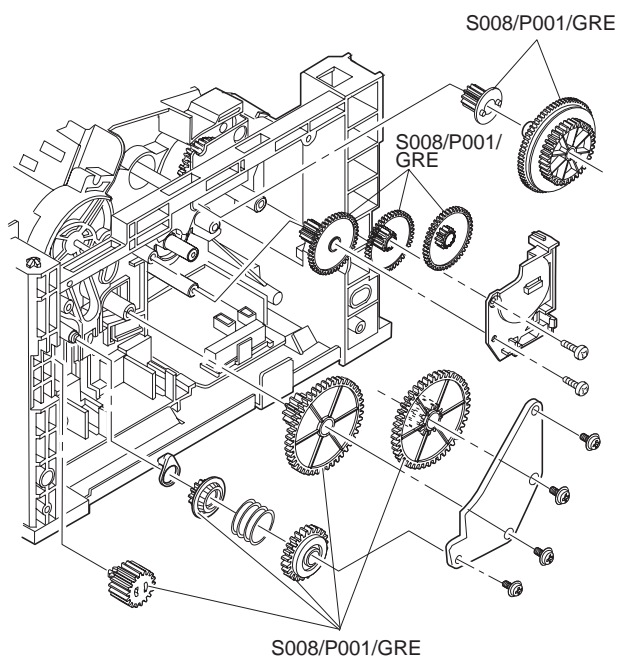
# S008 Drive section

Section		Unit				Part		JOB CODE	After-work	NOTE
S No.	Part name	Ua No.	Unit name	Ub No.	Unit name	P No.	Part name	JOB No.		
S 008	Drive					P 001	Gears	ASS		
								GRE		
						P 002	Main motor	ASS		



**S008/P001 Gear**

- (1) Remove the rear cabinet [S001/P001].
- (2) Remove the front upper cabinet [S001/P002].
- (3) Remove the right cabinet [S001/P003].
- (4) Remove the fan motor unit [S010/P001].
- (5) Remove the gear (S008/P001) as shown below.

**\* Grease up**

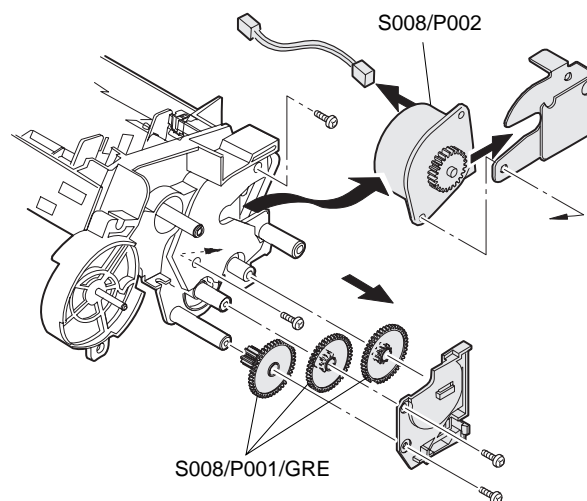
When gears are disassembled or replaced, be sure to grease again.

**\* Troubles caused by improper work**

- 1) Noise generation
- 2) Image deflection
- 3) Banding

**S008/P002 Main motor**

- (1) Remove the rear cabinet [S001/P001].
- (2) Remove the front upper cabinet [S001/P002].
- (3) Remove the right cabinet [S001/P003].
- (4) Remove the left cabinet [S001/P004].
- (5) Remove the document table glass [S001/P007].
- (6) Remove the fan motor unit [S010/P001].
- (7) Remove the MCU (PCU) PWB unit [S009/Ua002].
- (9) Remove the gear (S008/P001).
- (10) Remove the screw and the connector, and remove the main motor (S008/P002).

**\* Grease up**

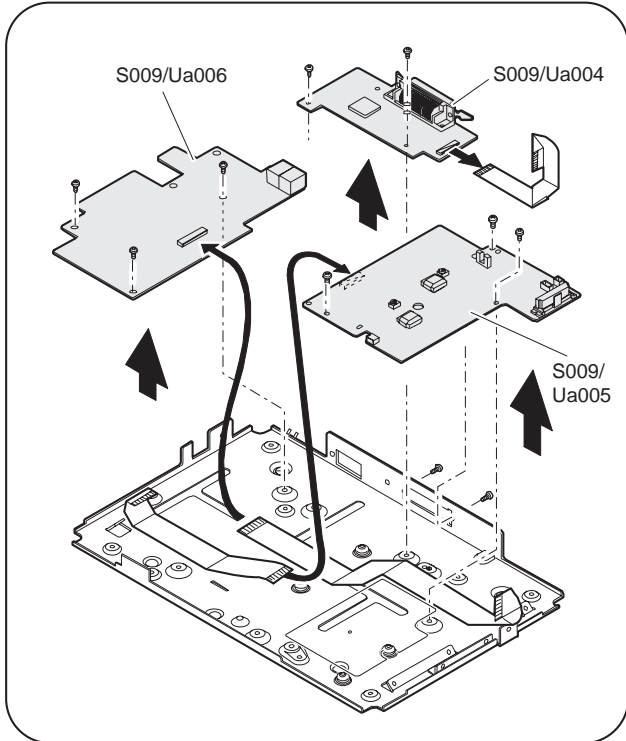
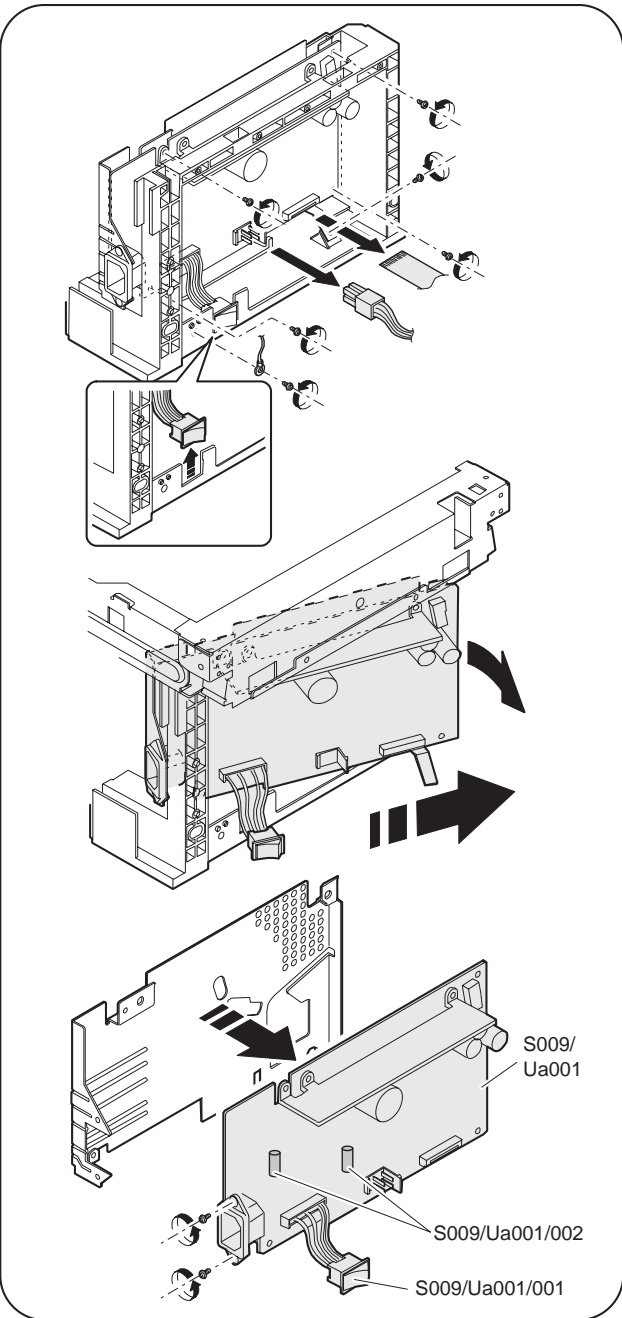
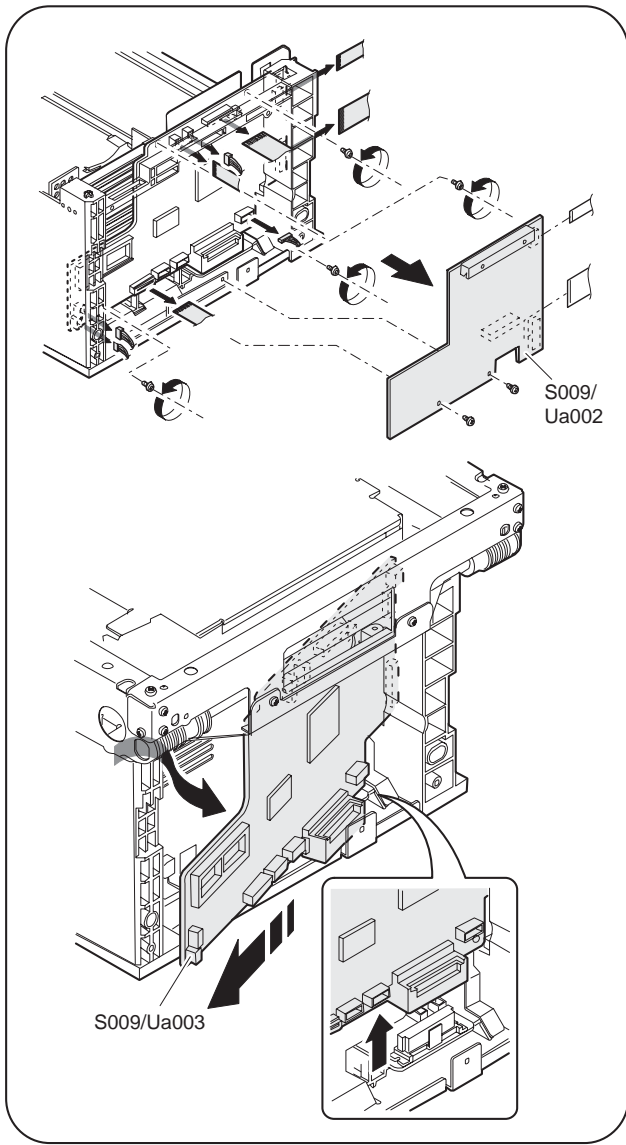
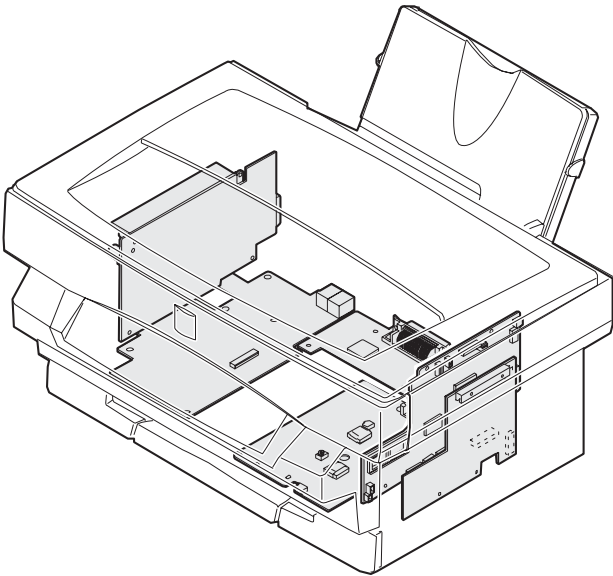
When gears are disassembled or replaced, be sure to grease again.

**\* Troubles caused by improper work**

- 1) Noise generation
- 2) Image deflection
- 3) Banding

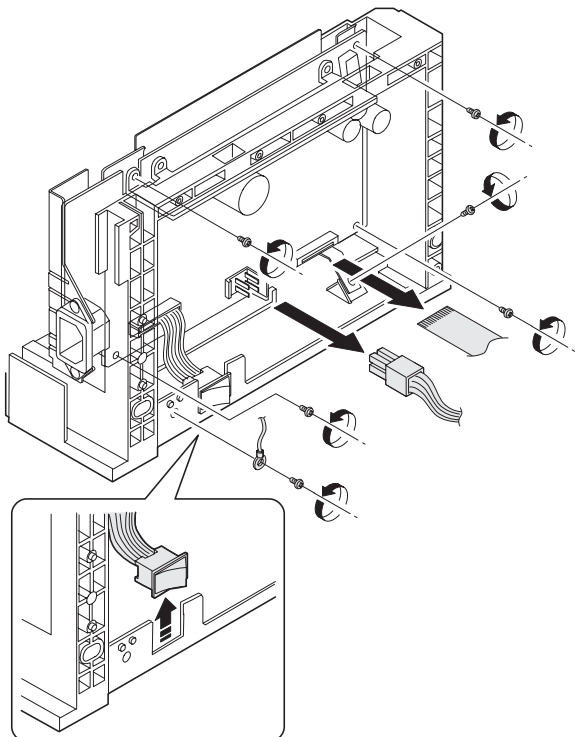
**S009 Electrical section**

Section		Unit				Part		JOB CODE	After-work JOB No.	NOTE	
S No.	Part name	Ua No.	Unit name	Ub No.	Unit name	P No.	Part name				
S 009	Electrical	Ua 001	Power source, PWB unit					ASS			
						P 001	Power switch	ASS			
						P 002	Fuse	ASS			
		Ua 002	FAX control PWB unit						ASS		
		Ua 003	MCU (PCU) PWB unit						ASS	SET M1/M2 ADJ M1/ M4 ~ 6	Adjustment is required when replace
		Ua 004	ICU PWB/Interface PWB unit						ASS		
		Ua 005	High voltage/motor drive PWB unit						ASS		
		Ua 006	LIU PWB unit					ASS			

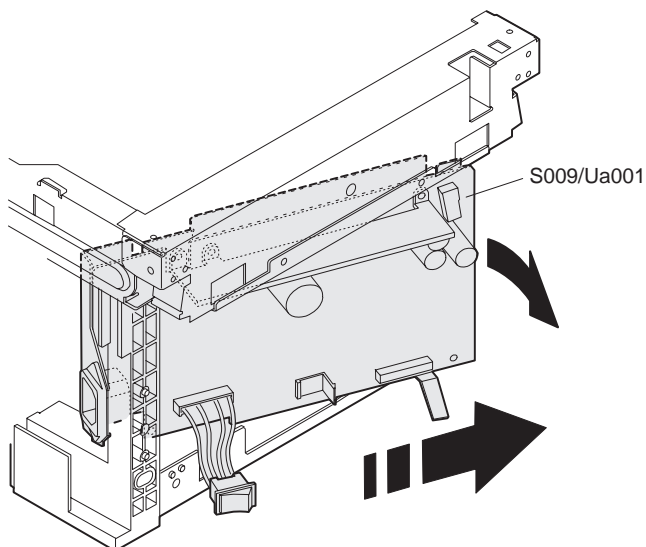


**S009/Ua001 Power PWB unit****S009/Ua001/P001 Electrical switch****S009/Ua001/P002 Fuse**

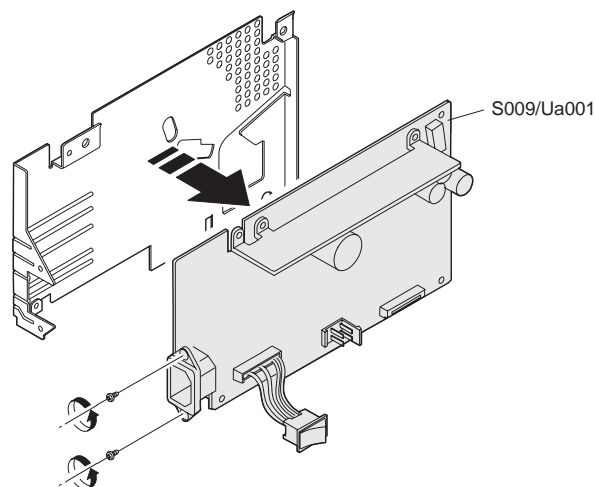
- (1) Remove the rear cabinet [S001/P001].
- (2) Remove the front upper cabinet [S001/P002].
- (3) Remove the left cabinet [S001/P004].
- (4) Remove the screw and the connector.



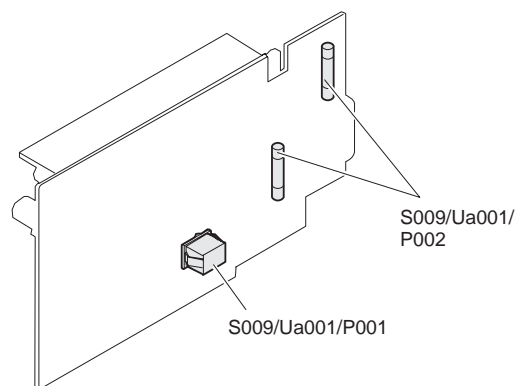
- (5) Push the power PWB unit (S009/Ua001) from the inside to remove.



- (6) Remove the screw, and remove the power PWB unit (S009/Ua001) from the base plate.



- (7) Remove the power switch (S009/Ua001/P001) and the fuse (S009/Ua001/P002) from the power PWB unit.

**\* After-work**

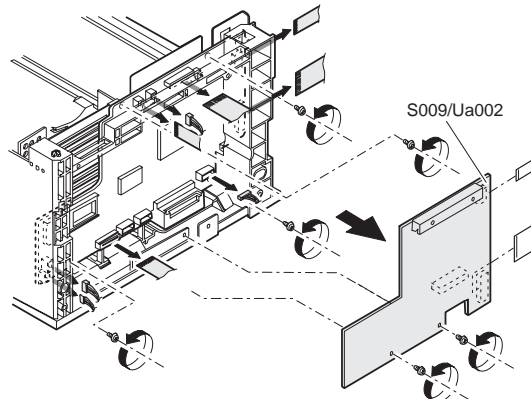
- 1) Output voltage adjustment (When any part i the power unit is replaced.)

**\* Troubles caused by improper work**

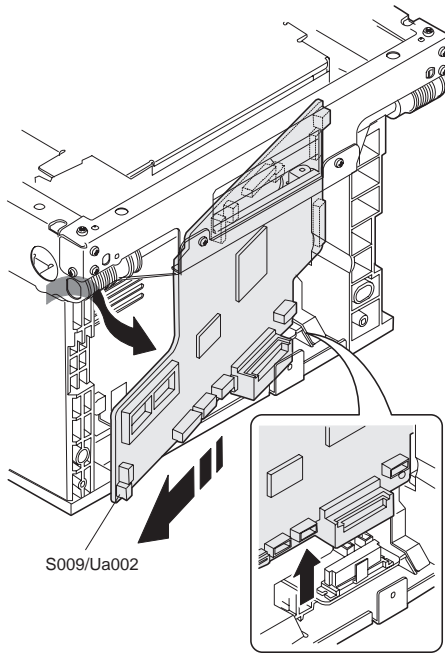
- 1) Power abnormality

**S009/Ua002 FAX control PWB unit****S009/Ua003 MCU (PCU) PWB unit**

- (1) Remove the rear cabinet [S001/P001].
- (2) Remove the front upper cabinet [S001/P002].
- (3) Remove the right cabinet [S001/P003].
- (4) Remove the fan motor unit [S010/P001].
- (5) Remove the screw and the connector.
- (6) Remove the FAX control PWB unit (S009/Ua002).



(7) Remove the connector, and push the MCU (PCU) PWB unit (S009/Ua003) inside then remove.

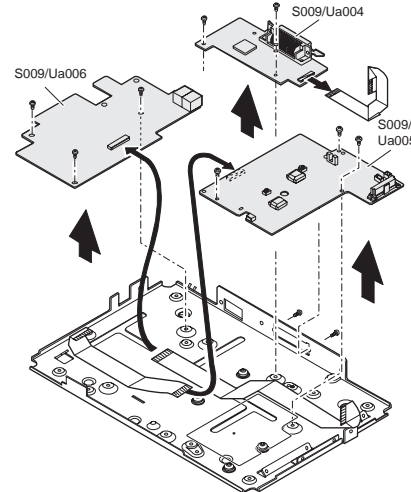


**S009/Ua004** ICU PWB interface PWB unit

**S009/Ua005** High voltage/motor drive PWB unit

**S009/Ua006** LIU PWB unit

- (1) Remove the base bottom base plate **S001/P008**.
- (2) Remove the screw and the connector, and remove the ICU PWB interface PWB unit (S009/Ua004), the high voltage/motor drive PWB unit (S009/Ua005) and LIU PWB unit (S009/Ua006).



**\* Troubles caused by improper work**

- 1) Machine malfunction

**\* Troubles caused by improper work**

- 1) Printer malfunction
- 2) Print defect

**S010** SPF

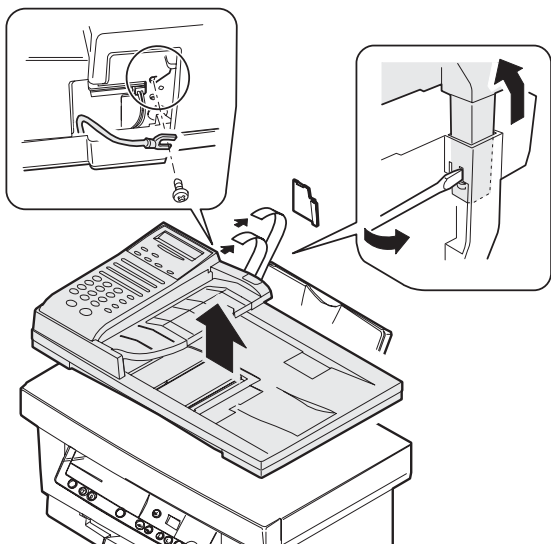
S No.	Section	Part name	Unit			P No.	Part name	JOB CODE	After-work JOB No.	NOTE				
			Ua No.	Unit name	Ub No.						Unit name			
S 010	SPF	Ua 001	FAX operation panel unit			P 001	FAX operation control PWB	ASS						
						P 002	Enter key	ASS						
						P 003	Function key	ASS						
						P 004	One-touch key	ASS						
						P 005	10-key	ASS						
						P 006	Start key	ASS						
						P 007	Stop key	ASS						
						P 008	SPF paper exit guide unit	ASS						
						P 009	SPF paper exit follower roller	ASS						
								CLN						
						P 010	Roller pressure release lever	ASS						
		P 011	Roller pressure release button	ASS										
		Ua 002	SPF transport/paper feed unit	Ub 001	SPF unit	P 001	SPF paper exit roller	ASS						
						P 002	Drive belt	ASS						
						P 003	SPF paper guide	ASS						
						P 004	SPF transport roller	ASS						
								GRE						
						P 005	SPF resist roller	ASS						
								GRE						
						P 006	SPF interface PWB	ASS						
								GRE						
						P 007	SPF motor	ASS						
								GRE						
						Ub 002				P 001	SPF paper feed solenoid	ASS		
										P 002	SPF document detector	ASS		
										P 003	SPF paper entry detector	ASS		
										P 004	SPF paper feed clutch boss	ASS		
										P 005	SPF paper feed clutch spring	ASS		
										P 006	SPF paper feed clutch sleeve	ASS		
										P 007	SPF paper feed clutch gear	ASS		
P 008	Pickup roller	ASS												
		CLN												
P 009	SPF paper feed roller	ASS												
		CLN												
Ua 003				P 001	SPF open/close detector	ASS								
				P 002	Separation unit	ASS								
						CLN								
				P 003	Document mat	ASS								
						CLN								
P 004	SPF transport follower roller A	ASS												
		CLN												
P 005	SPF transport follower roller B	ASS												
		CLN												



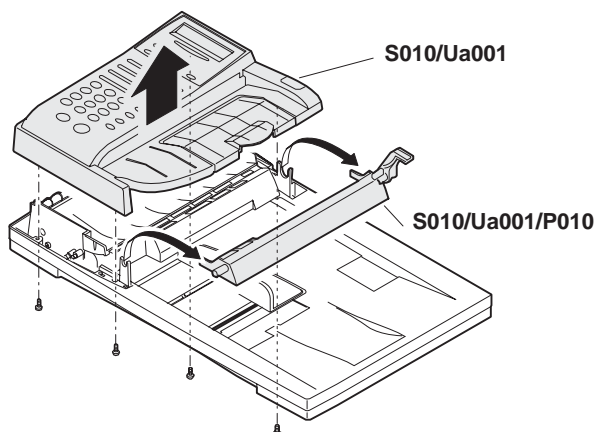
**S010/Ua001 FAX operation panel unit**

<b>S010/Ua001/P001</b>	<b>FAX operation control PWB</b>
<b>S010/Ua001/P002</b>	<b>Enter key</b>
<b>S010/Ua001/P003</b>	<b>Function key</b>
<b>S010/Ua001/P004</b>	<b>One-touch key</b>
<b>S010/Ua001/P005</b>	<b>10-key</b>
<b>S010/Ua001/P006</b>	<b>Start key</b>
<b>S010/Ua001/P007</b>	<b>Stop key</b>
<b>S010/Ua001/P008</b>	<b>SPF paper exit guide unit</b>
<b>S010/Ua001/P009</b>	<b>SPF paper exit follower roller</b>
<b>S010/Ua001/P010</b>	<b>Roller pressure release lever</b>
<b>S010/Ua001/P011</b>	<b>Roller pressure release button</b>

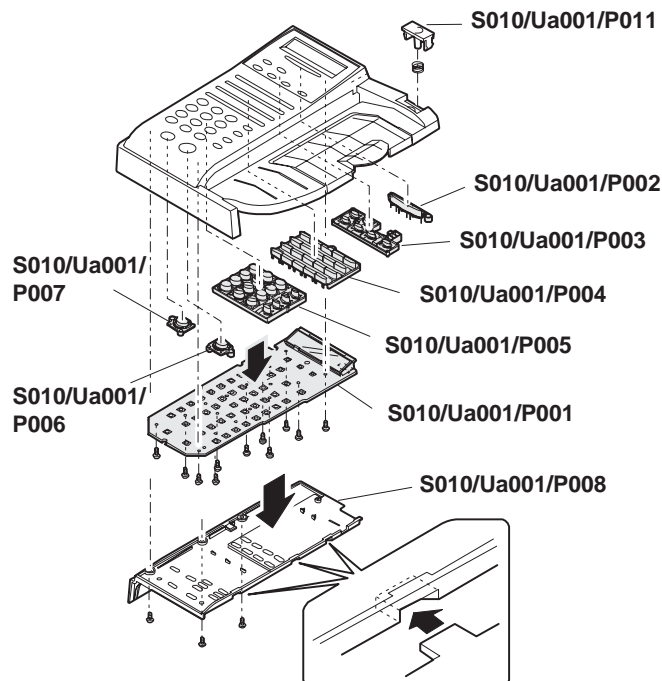
- (1) Remove the FAX harness cover, remove the harness, and remove the SPF unit from the machine.



- (2) Remove the screw from the back of the unit. Remove the roller pressure release lever, and remove the FAX operation panel unit (S010/Ua001).



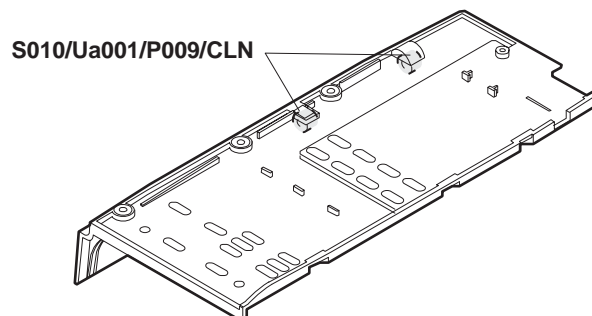
- (3) Remove the SPF paper exit guide unit (S010/Ua001/P008). Remove the FAX operation control PWB (S010/Ua001/P001), the Enter key (S010/Ua001/P002), the function key (S010/Ua001/P003), the one-touch key (S010/Ua001/P004), the 10-key (S010/Ua001/P005), the Start key (S010/Ua001/P006), and the Stop key (S010/Ua001/P007).



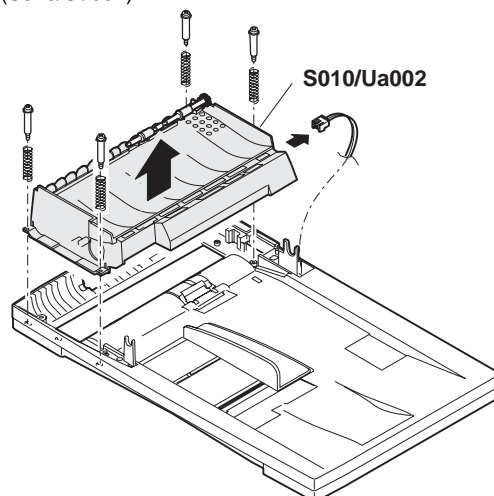
(Note) When installing the SPF paper exit guide unit (S010/Ua001/P008), engage the three pawls.

**\* Cleaning**

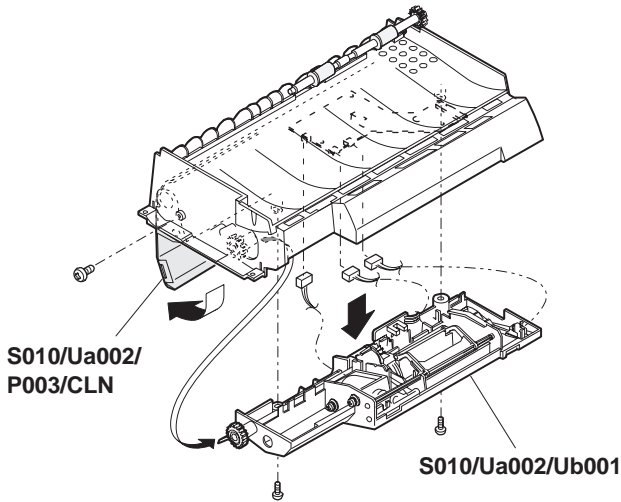
Clean the SPF paper exit follower roller (S010/Ua001/P008) with absolute alcohol.

**S010/Ua002 SPF transport/paper feed unit****S010/Ua002/Ub001 SPF unit**

- (4) Remove the connector, and remove the SPF transport/paper feed unit (S010/Ua002).

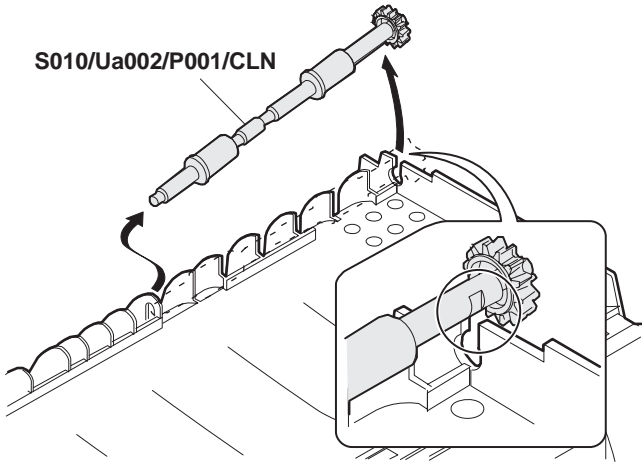


- (5) Open the SPF paper guide (S010/Ua002/P008). Remove the paper feed unit (S010/Ua002/Ub001) from the SPF transport/paper feed unit, and disconnect the three connectors.



S010/Ua002/P001	SPF paper exit roller
S010/Ua002/P002	Drive belt
S010/Ua002/P003	SPF paper guide
S010/Ua002/P004	SPF transport roller
S010/Ua002/P005	SPF resist roller
S010/Ua002/P006	SPF interface PWB
S010/Ua002/P007	SPF motor

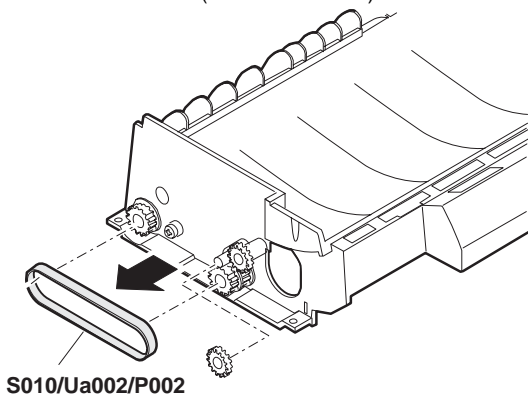
- (6) Remove the SPF paper exit roller (010/Ua002/P001).



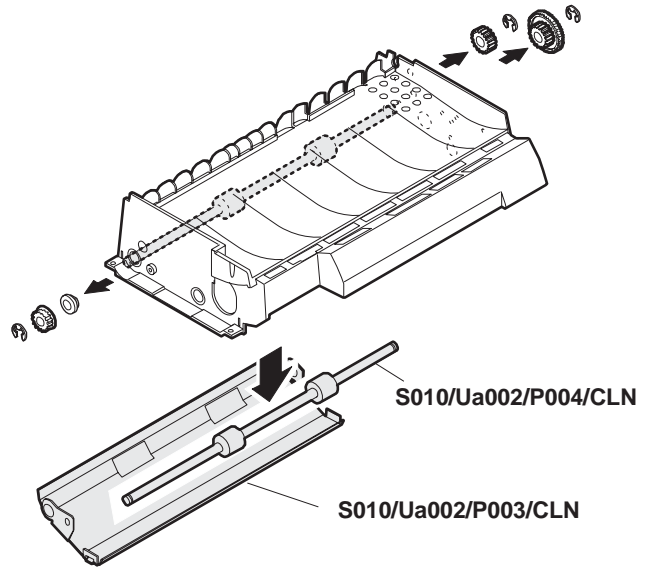
**\* Cleaning**

Clean the SPF paper exit roller with absolute alcohol.

- (7) Remove the drive belt (010/Ua002/P002).



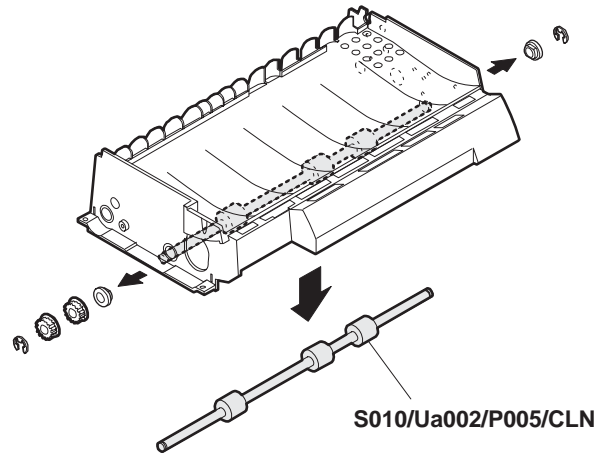
- (8) Remove the E-ring, the gear, and the bearing, and remove the SPF paper guide (S010/Ua002/P003) and the SPF transport roller (S010/Ua002/P004).



**\* Cleaning**

Clean the SPF paper guide and the SPF transport roller with absolute alcohol.

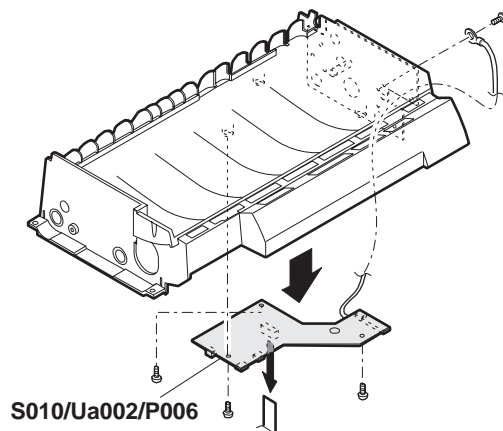
- (9) Remove the E-ring, the gear, and the bearing, and remove the SPF resist roller (S010/Ua002/P005).



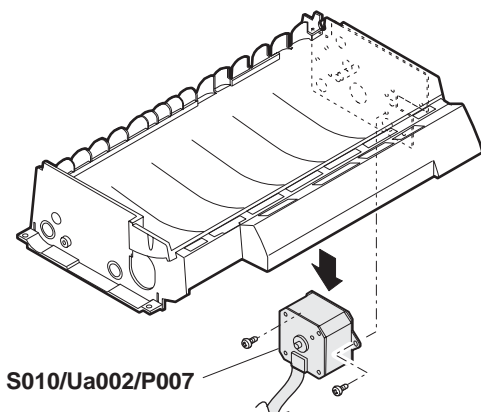
**\* Cleaning**

Clean the SPF resist roller with absolute alcohol.

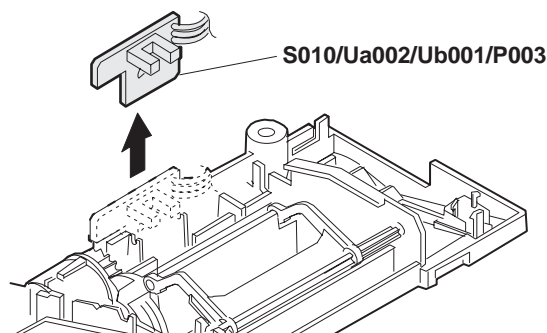
- (10) Remove the earth terminal, the harness, and the screw, and remove the SPF interface PWB(S010/Ua002/P006).



- (11) Remove the screw and remove the SPF motor (S010/Ua002/P007).

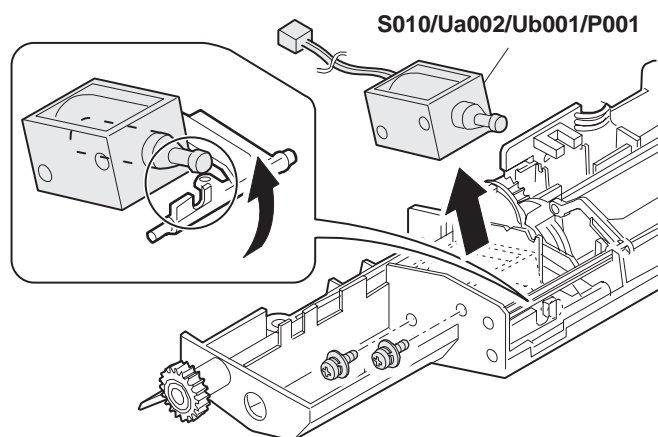


- (14) Remove the SPF paper entry detector (S010/Ua002/Ub002/P003).



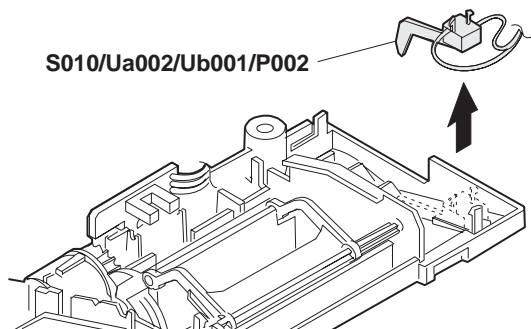
<b>S0010/Ua002/Ub002/P001</b>	<b>SPF paper feed solenoid</b>
<b>S0010/Ua002/Ub002/P002</b>	<b>SPF document detector</b>
<b>S0010/Ua002/Ub002/P003</b>	<b>SPF paper entry detector</b>
<b>S0010/Ua002/Ub002/P004</b>	<b>SPF paper feed clutch boss</b>
<b>S0010/Ua002/Ub002/P005</b>	<b>SPF paper feed clutch spring</b>
<b>S0010/Ua002/Ub002/P006</b>	<b>SPF paper feed clutch sleeve</b>
<b>S0010/Ua002/Ub002/P007</b>	<b>SPF paper feed clutch gear</b>
<b>S0010/Ua002/Ub002/P008</b>	<b>Pickup roller</b>
<b>S0010/Ua002/Ub002/P009</b>	<b>SPF paper feed roller</b>

- (12) Remove the screw, and remove the SPF paper feed solenoid (S010/Ua002/Ub002/P001).

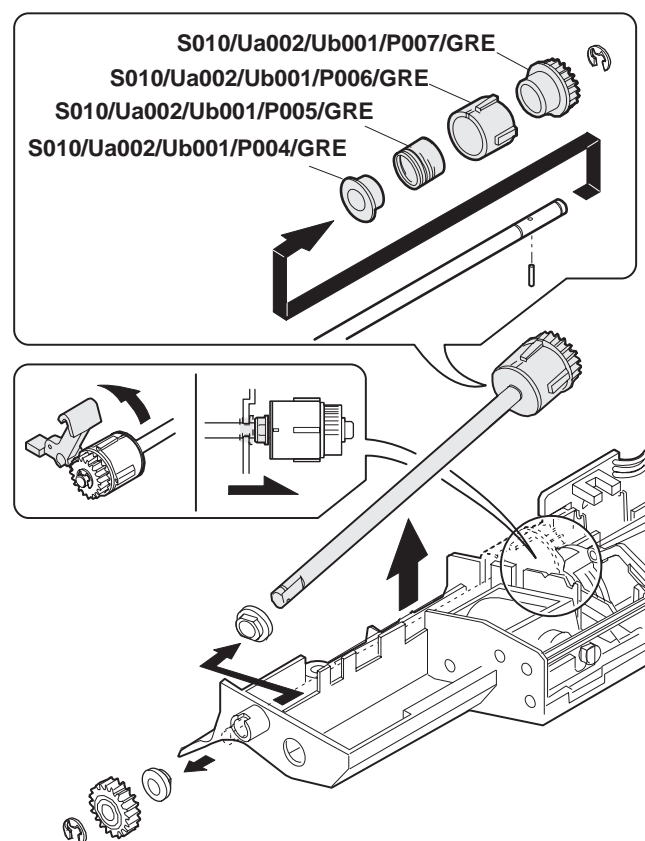


(Note) When installing, hang the iron core on the solenoid arm.

- (13) Remove the SPF document detector (S010/Ua002/Ub002/P002).



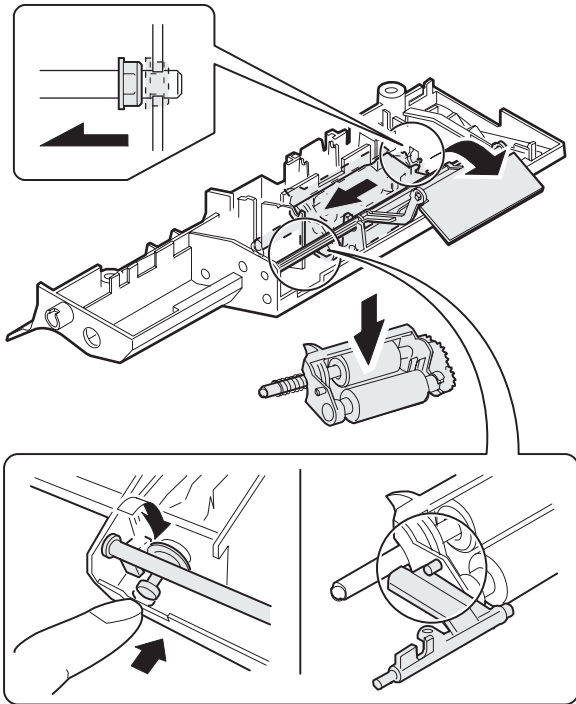
- (15) Remove the clutch unit. Remove the E-ring, the SPF paper feed clutch boss (S010/Ua002/Ub002/P004), the SPF paper feed clutch spring (S010/Ua002/Ub002/P005), the SPF paper feed clutch sleeve (S010/Ua002/Ub002/P006), and the SPF paper feed clutch gear (S010/Ua002/Ub002/P007).



#### \* Greasing

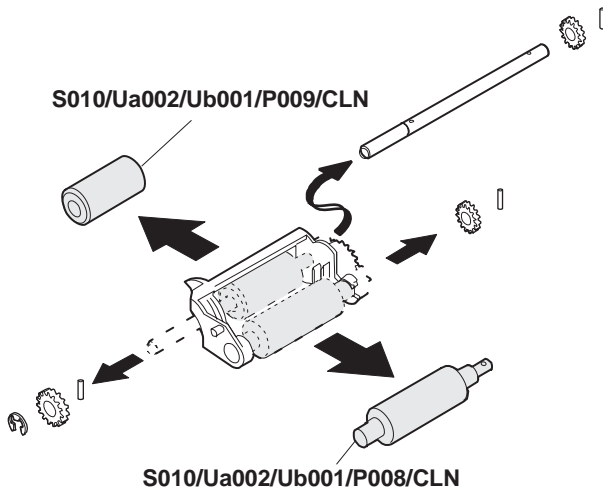
Apply grease to the SPF paper feed clutch boss, the SPF paper feed clutch spring, the SPF paper feed clutch sleeve, and the SPF paper feed clutch gear.

(16) Lift the paper stopper, and remove the pickup unit.



(Note) When installing, hang the projection of the pickup unit on the solenoid arm.  
Put the projection of the stopper arm in the lower side.

(17) Remove the parts, and remove the pickup roller (S010/Ua002/Ub002/P008), the SPF paper feed roller (S010/Ua002/Ub002/P009).



**\* Cleaning**

Clean the pickup roller and the SPF paper feed roller with absolute alcohol.

**S010/Ua003/P001** SPF open/close detector

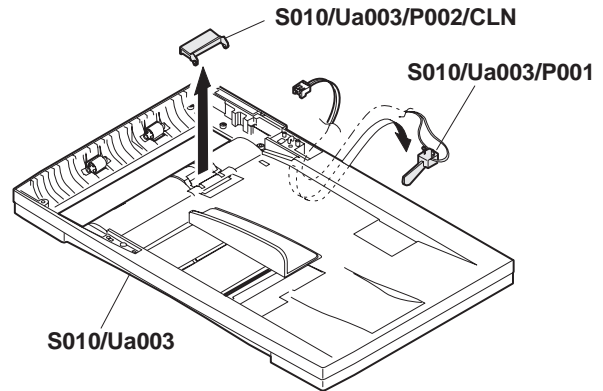
**S010/Ua003/P002** Separation unit

**S010/Ua003/P003** Document mat

**S010/Ua003/P004** SPF transport follower roller A

**S010/Ua003/P005** SPF transport follower roller B

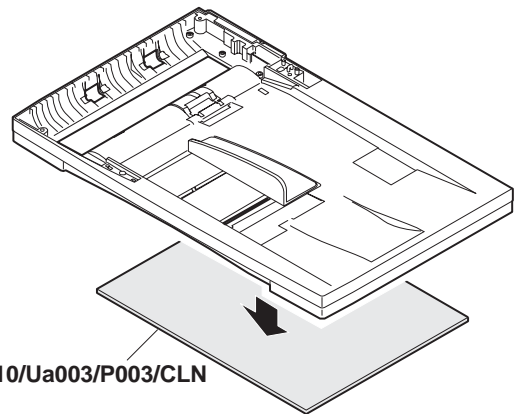
(18) Remove the open/close detector (S010/Ua003/P001) and the separation unit (S010/Ua003/P002) from the SPF base unit (S010/Ua003).



**\* Cleaning**

Clean the separation unit with absolute alcohol.

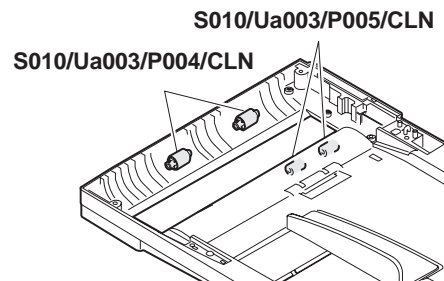
(19) Remove the document mat (S010/Ua003/P003).



**\* Cleaning**

Clean the document mat with absolute alcohol.

(20) Clean the SPF transport follower roller A (S010/Ua003/P004) and the SPF transport follower roller B (S010/Ua003/P005).



**\* Cleaning**

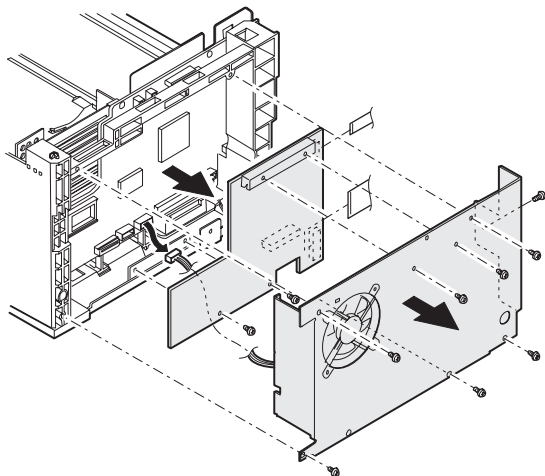
Clean the SPF transport follower roller A and the SPF transport follower roller B with absolute alcohol.

## S011 Other section

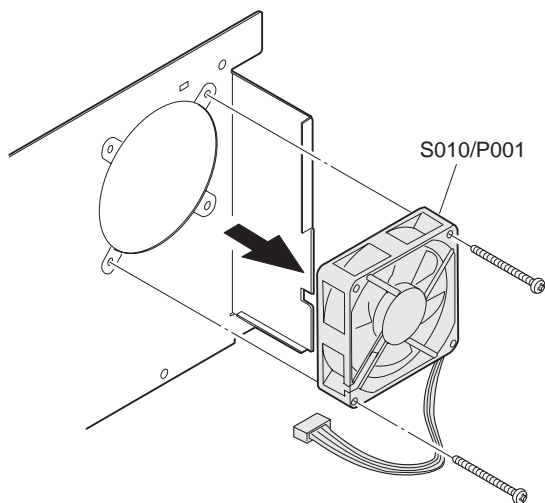
Section		Unit				Part		JOB CODE	After-work	NOTE
S No.	Part name	Ua No.	Unit name	Ub No.	Unit name	P No.	Part name	JOB No.		
S 011	Others					P 001	Fan motor	ASS		

### S011/P001 Fan motor

- (1) Remove the rear cabinet [S001/P001].
- (2) Remove the front upper cabinet [S001/P002].
- (3) Remove the right cabinet [S001/P003].
- (4) Remove the FAX control PWB unit, the screw, the connector, and remove the fan motor unit.



- (5) Remove the screw, and remove the fan motor (S010/P001).



#### \* Troubles caused by improper work

- 1) Image distortion

# [10] TROUBLESHOOTING

## 1. Self diag message and troubleshooting

### A. Outline

When a trouble occurs in the machine or when the life of a consumable part is approached or expired, the machine detects it by itself and displays it on the display section or notifies the user and the how allowing the user and the serviceman to take proper measures.

In case of a trouble, the occurrence of the trouble is notified and the machine is stopped to minimize damages.

### B. Function and propose

- 1) Assuring safety. (The machine is stopped simultaneously with detection of a trouble.)
- 2) Minimizing the machine damages. (The machine is stopped simultaneously with detection of a trouble.)
- 3) The trouble content is displayed to identify the trouble position at an early stage. (The precise repair work is allowed and the repair efficiency is improved.)
- 4) Warning of near end of consumable part life allows arrangement of the consumable part in advance. (Machine stop by exhaustion of consumable part is avoided.)

### C. Kinds of self diag messages

The self diag messages are classified as follows:

Group 1	User	Troubles and warnings which can be recovered by the user. (Paper jam, consumable part exhaustion, etc.)
	Service	Troubles and warnings which can be recovered only by the serviceman. (Motor trouble, maintenance, etc.)
	Other	—
Group 2	Warning	Warning to the user, and no direct relation with machine troubles. (Consumable part life preliminary warning, etc.)
	Trouble	Machine troubles. The machine is stopped.
	Other	—

### D. Self diag operation

#### (1) Self diag operation and flow of countermeasures

The machine is always watching its state.

When the machine detects a trouble, it stops the operation and displays a trouble message.

The warning message is made when a consumable part life is near end or expired.

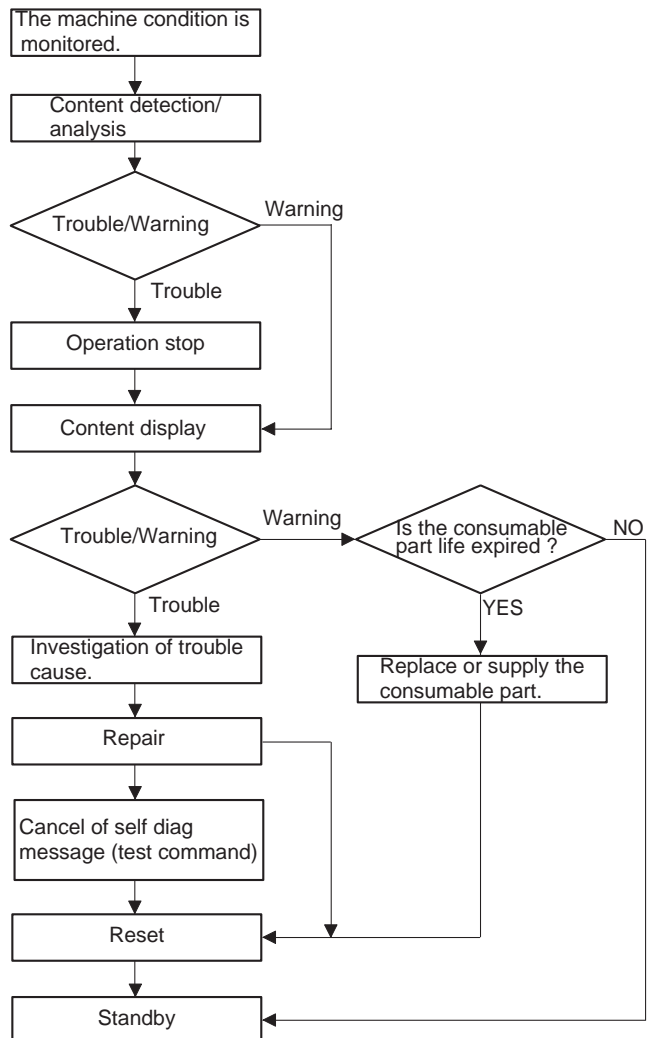
When a warning message is made, there are two cases: where the machine and where the machine is not stopped.

Trouble and warning messages are made by LED and lamps, at the display section, and the host's display section.

The display form and the display position differ depending on the machine specifications.

Trouble messages are cleared automatically after repairing them or must be cleared by test commands.

Warning messages for consumable parts are automatically cleared when the consumable part is supplied or must be cleared by the diag and test commands.



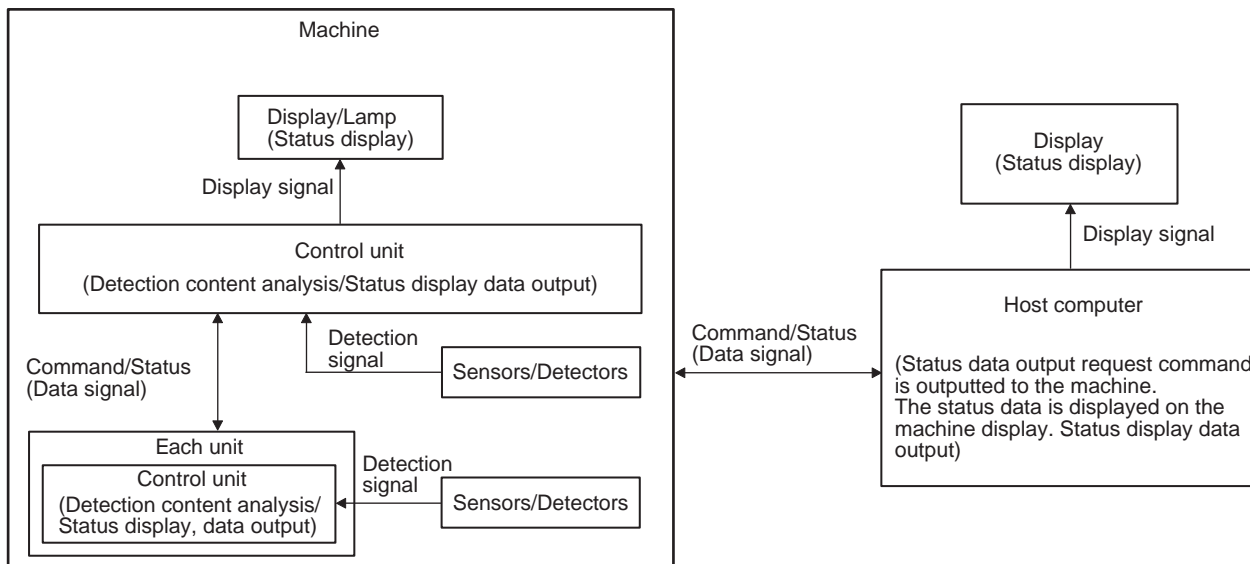
## (2) Status detection and display

Recognition of the machine status is made by each unit controller or the machine's controller according to the detection information of sensors and detectors.

The machine status is also recognized by the control data (counter data, etc.) of the controller itself.

The status data from the machine, the option and each unit are sent to the host computer and displayed on the host computer's display.

(The status data output request command is sent between each control unit and the host computer. According to the command, the status data are sent to the unit which requests and the host computer.)



## E. List

Display (Code)

No	MAIN CODE	SUB CODE	Content (Title)	Section	Operation mode	Reset method	NOTE
C1	L1	00	Scanner (reading) feed trouble	Scanner (reading)	Copy	SIM 14	
C2	L-3	00	Scanner (reading) return trouble	Scanner (reading)	Copy	SIM 14	L-3 alternatively lighted.
C3	E7	03	Laser beam output trouble	Scanner (writing)	Copy, print	POWER OFF -	
C4	E7	04	Shading correction (white level) trouble	Scanner (reading)	Copy	POWER OFF -	
C5	E7	05	Shading correction (dark component) trouble	Scanner (reading)	Copy	POWER OFF -	
C6	E7	12	Shading correction (output level) trouble	Scanner (reading)	Copy	POWER OFF -	
C7	E7	14	ASIC (MCU PWB) malfunction	MCU PWB	All modes	POWER OFF -	
C8	E7	15	Copy lamp trouble	Scanner (reading)	Copy	POWER OFF -	
C9	H2	00	Fusing temperature sensor (thermistor) trouble	Fusing	Copy, print	SIM 14	
C10	H3	00	Fusing high temperature trouble	Fusing	Copy, print	SIM 14	
C11	H4	00	Fusing low temperature trouble	Fusing	Copy, print	SIM 14	
C12	U2	01	EEPROM (MCU PWB) trouble (Counter data error)	MCU PWB	All modes	SIM 16	
C13	U2	04	EEPROM (MCU PWB) trouble (Read/write error)	MCU PWB	All modes	SIM 16	
C14	U2	05	EEPROM (MCU PWB) trouble	MCU PWB	All modes	SIM 16	
C15	U2	06	RAM (MCU PWB) trouble (Read/write error)	MCU PWB	All modes	SIM 16	
C16	C1		Cabinet open/close detection switch trouble	Power PWB	All modes	Reset when the trouble is canceled.	"CH" ON
C17	CH		Developer cartridge detection trouble	Developer cartridge	All modes	Reset when the trouble is canceled.	"CH" blink
C18	E1		Paper misfeed	Paper feed	Copy, print	Reset when the trouble is canceled.	"P" blink
C19	E2		Paper jam (Paper entry section)	Transfer, paper feed	Copy, print	Reset when the trouble is canceled.	"JAM" blink
C20	E3		Paper jam (Fusing, paper exit section)	Fusing	Copy, print	Reset when the trouble is canceled.	"JAM" blink
C21	P		Paper empty	Paper feed	Copy, print	Reset when the trouble is canceled.	"P" blink
C22	-1		SPF paper mis-feed/jam	SPF	SPF mode (Copy/FAX)	Open/close the SPF unit.	SPF paper mis-feed lamp blinks
C23	-1		Paper jam in the main section when SPF copy mode is selected	SPF	SPF copy mode	Restore the paper jam and turn on the start button or the clear key.	Command to recopy the one document fed by the SPF at the time of the main section paper jam.

## F. Details

SELF DIAG CODE MESSAGE	L1
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No	C1					
PHENOMENON	DISPLAY	CODE	MAIN CODE	L1	SUB CODE	00
		LAMP				
	TITLE	Scanner (reading) feed trouble				
	DETAIL	1) The scanner (reading) feed operation is not performed. 2) The scanner (reading) feed operation is not recognized.				
	SECTION	Scanner (reading)				
	ITEM	Operation		Recognition error		
	TYPE (MODE)	User		Warning		
		Service	YES	Trouble	YES	
		Other		Other		
	OPERATION MODE	Copy			Machine operation when the message is displayed	Stop
NOTE						
BASIC CAUSE 1	Though the specified number (pulses) of the scanner (reading motor feed; motor forward rotation) signals are outputted, the scanner home position sensor (MHP) OFF cannot be checked.					
CASE 1	No					
	TROUBLE POSITION CAUSE	The scanner (reading) mechanism operation is not smoothly made. 1) Scanner (reading) mechanism lock 2) Scanner (reading) mechanism wear				
	REMEDY	(Check) 1) Scanner (reading) drive section assembly 2) Scanner (reading) sliding section (rail, shaft)				
		(Remedy) 1) Grease up. 2) Scanner (reading) section parts replacement 3) Reset the trouble with SIM 14.				
(After work) 1) Adjust when the scanner (reading) section parts are disassembled.						
NOTE						
CASE 2	No					
	TROUBLE POSITION CAUSE	Scanner home position sensor (MHP) signal recognition error 1) Scanner home position sensor (MHP) trouble 2) MCU PWB scanner home position sensor (MHP) input circuit trouble				
	REMEDY	(Check) 1) Scanner home position sensor (MHP) 2) MCU PWB scanner home position sensor (MHP) input circuit				
		(Remedy) 1) Scanner home position sensor (MHP) replacement 2) MCU PWB replacement 3) Rest the trouble with SIM 14.				
(After work) 1) When the MCU PWB is replaced, perform simulations to input various set values and adjustment values.						
NOTE						
CASE 3	No					
	TROUBLE POSITION CAUSE	Scanner (reading) motor drive trouble 1) Scanner (reading) motor trouble 2) MCU PWB scanner (reading) motor control circuit trouble				
	REMEDY	(Check) 1) Scanner (reading) motor 2) MCU PWB scanner (reading) motor control circuit trouble				
		(Remedy) 1) Scanner (reading) motor replacement 2) MCU PWB replacement 3) Reset the trouble with SIM 14.				
(After work) 1) When the MCU PWB is replaced, perform simulations to input various set values and adjustment values.						
NOTE						



No	C2					
PHENOMENON	DISPLAY	CODE	MAIN CODE	L3	SUB CODE	00
		LAMP				
	TITLE	Scanner (reading) return trouble				
	DETAIL	1) The scanner (reading) dose not return. 2) The scanner (reading) return completion is not recognized.				
	SECTION	Scanner (reading)				
	ITEM					
	TYPE (MODE)	User		Warning		
		Service	YES	Trouble	YES	
		Other		Other		
	OPERATION MODE	Copy			Machine operation when the message is displayed	Stop
NOTE						
BASIC CAUSE 1	Though the specified number (pulses) of the scanner (reading) motor return (motor reverse rotation) signal is outputted, the scanner home position sensor (MHP) ON is not recognized.					
CASE 1	No					
	TROUBLE POSITION CAUSE	The scanner (reading) mechanism operation is not smooth. 1) Scanner (reading) mechanism lock 2) Scanner (reading) mechanism wear				
	REMEDY	(Check) 1) Scanner (reading) drive section assembly 2) Scanner (reading) sliding section 9rail, shaft)				
		(Remedy) 1) Grease up 2) Scanner (reading) section parts replacement 3) Rest the trouble with SIM 14.				
		(After work) 1) When the scanner (reading) section parts are disassembled, adjust.				
NOTE						
CASE 2	No					
	TROUBLE POSITION CAUSE	Scanner home position sensor (MHP) signal recognition error 1) Scanner home positions sensor (MHP) trouble 2) MCU PWB scanner home position sensor (MHP) input circuit trouble				
	REMEDY	(Check) 1) Scanner home position sensor (MHP) 2) MCU PWB scanner home position sensor (MHP) input circuit				
		(Remedy) 1) Scanner home position sensor (MHP) replacement 2) MCU PWB replacement 3) Reset the trouble with SIM 14.				
		(After work) 1) When the MCU PWB is replaced, perform simulations to input various set values and adjustment values.				
NOTE						
CASE 3	No					
	TROUBLE POSITION CAUSE	Scanner (reading) motor drive trouble 1) Scanner (reading) motor trouble 2) MCU PWB scanner (reading) motor control circuit trouble				
	REMEDY	(Check) 1) Scanner (reading) motor 2) MCU PWB scanner (reading) motor control circuit				
		(Remedy) 1) Scanner (reading) motor replacement 2) MCU PWB replacement 3) Reset the trouble with SIM 14				
		(After work) 1) When the MCU PWB is replaced, perform simulations to input various set values and adjustment values.				
NOTE						

SELF DIAG CODE MESSAGE	E7
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No	C3					
PHENOMENON	DISPLAY	CODE	MAIN CODE	E7	SUB CODE	03
		LAMP				
	TITLE	Laser beam output trouble				
	DETAIL	1) Laser beams are not outputted. 2) Laser beams are not recognized.				
	SECTION	Scanner (writing)				
	ITEM					
	TYPE (MODE)	User		Warning		
		Service	YES	Trouble	YES	
		Other		Other		
	OPERATION MODE	All modes			Machine operation when the message is displayed	Stop
NOTE						
BASIC CAUSE 1	When the scanner (writing) motor is rotating, the laser beam detection signal (SYNC) is not recognized.					
CASE 1	No					
	TROUBLE POSITION CAUSE	Laser beam sensor signal recognition error 1) Laser beam sensor trouble 2) MCU PWB laser beam sensor input circuit trouble				
	REMEDY	(Check) 1) Laser beam sensor 2) MCU PWB laser beam sensor input circuit				
		(Remedy) 1) Laser beam sensor replacement 2) The MCU PWB replacement				
		(After work) 1) When the MCU PWB is replaced, perform simulations to input various set values and adjustment values.				
NOTE						
CASE 2	No					
	TROUBLE POSITION CAUSE	The scanner (writing) optical system does not reflect and converge laser beams normally. 1) Scanner (writing) optical system dirt 2) Scanner (writing) optical system parts installation position shift				
	REMEDY	(Check) 1) Scanner (writing) optical system dirt 2) Scanner (writing) optical system parts installing position shift				
		(Remedy) 1) Scanner (writing) optical system cleaning 2) Scanner (writing) optical system cleaning				
		(After work)				
NOTE						

SELF DIAG CODE MESSAGE	E7
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No	C4					
PHENOMENON	DISPLAY	CODE	MAIN CODE	E7	SUB CODE	04
		LAMP				
	TITLE	Shading correction (white level) trouble				
	DETAIL	1) Abnormal white level output during shading correction 2) The white level output is not recognized properly during shading correction.				
	SECTION	Scanner (reading)				
	ITEM					
	TYPE (MODE)	User		Warning		
		Service	YES	Trouble	YES	
		Other		Other		
	OPERATION MODE	Copy			Message display	Stop
NOTE						
BASIC CAUSE 1	The white level output is not recognized properly during shading correction.					

No	C4	
CASE 1	No	
	TROUBLE POSITION CAUSE	The scanner (reading) optical system does not transmit images (light) normally. 1) Scanner (reading) optical system dirt 2) Scanner (reading) optical parts installing position shift
	REMEDY	(Check) 1) Scanner (reading) optical system dirt 2) Scanner (reading) optical parts installing position (CCD unit, lens, mirror, copy lamp, copy lamp light quantity sensor, shading correction sheet)
		(Remedy) 1) Scanner (reading) optical system cleaning 2) Scanner (reading) optical parts installing position adjustment (CCD unit, lens, mirror, copy lamp, copy lamp light quantity sensor shading correction sheet)
(After work) 1) Copy density adjustment		
NOTE		
CASE 2	No	
	TROUBLE POSITION CAUSE	Shading correction white level output recognition error 1) CCD unit trouble 2) MCU PWB image signal (CCD) input circuit trouble
	REMEDY	(Check) 1) CCD unit output 2) MCU PWB image signal input circuit
		(Remedy) 1) CCD unit replacement 2) MCU PWB replacement
(After work) 1) When the MCU PWB is replaced, perform simulations to input various set values and adjustment values.		
NOTE		
CASE 3	No	
	TROUBLE POSITION CAUSE	Copy lamp light quantity abnormality 1) Copy lamp trouble 2) Copy lamp control PWB trouble 3) Copy lamp light quantity adjustment trouble
	REMEDY	(Check) 1) Copy lamp 2) Copy lamp control PWB 3) Copy lamp light quantity level
		(Remedy) 1) Copy lamp replacement 2) Copy lamp control PWB replacement 3) Copy lamp light quantity level adjustment
(After work) 1) Copy density adjustment		
NOTE		

## SELF DIAG CODE MESSAGE

E7

No	C5					
PHENOMENON	DISPLAY	CODE	MAIN CODE	E7	SUB CODE	05
		LAMP				
	TITLE	Shading correction (dark component) trouble				
	DETAIL	1) Dark component level output is abnormal during shading correction. 2) Dark component level output is not recognized normally during shading correction.				
	SECTION	Scanner (reading)				
	ITEM					
	TYPE (MODE)	User		Warning		
		Service	YES	Trouble	YES	
		Other		Other		
	OPERATION MODE	Copy			Machine operation when the message is displayed	Stop
NOTE						

No	C5	
BASIC CAUSE 1	Dark component level output is not recognized normally during shading correction.	
CASE 1	No	
	TROUBLE POSITION CAUSE	Scanner (reading) optical system does not transmit images (light) normally. 1) Scanner (reading) optical parts installing position shift
	REMEDY	(Check) 1) Scanner (reading) optical parts installing position (CCD unit, lens, mirror, copy lamp, copy lamp light quantity sensor, shading correction sheet)
		(Remedy) 1) Scanner (reading) optical parts installing position adjustment (CCD unit, lens, mirror, copy lamp, copy lamp light quantity sensor, shading correction sheet)
		(After work) 1) Copy density adjustment
NOTE		
CASE 2	No	
	TROUBLE POSITION CAUSE	Dark component output level recognition error during shading correction 1) CCD unit trouble 2) MCU PWB image signal (CCD) input circuit trouble
	REMEDY	(Check) 1) CCD unit output 2) MCU PWB image signal (CCD) input circuit
		(Remedy) 1) CCD unit replacement 2) MCU PWB replacement
		(After work) 1) When the MCU PWB is replaced, perform simulations to input various set values and adjustment values. 2) When the CCD unit is replaced, adjust.
NOTE		
CASE 3	No	
	TROUBLE POSITION CAUSE	Copy lamp light quantity abnormality 1) Copy lamp trouble 2) Copy lamp control PWB trouble 3) Copy lamp light quantity adjustment trouble
	REMEDY	(Check) 1) Copy lamp 2) Copy lamp control PWB 3) Copy lamp light quantity level
		(Remedy) 1) Copy lamp replacement 2) Copy lamp control PWB replacement 3) Copy lamp light quantity level adjustment
		(After work) 1) Copy density adjustment
NOTE		

SELF DIAG CODE MESSAGE	E7
------------------------	----

No	C6					
PHENOMENON	DISPLAY	CODE	MAIN CODE	E7	SUB CODE	12
		LAMP				
	TITLE	Shading correction (output level) trouble				
	DETAIL	1) CCD output abnormality during shading correction 2) CCD level output recognition error during shading correction				
	SECTION	Scanner (reading)				
	ITEM					
	TYPE (MODE)	User		Warning		
		Service	YES	Trouble	YES	
		Other		Other		
	OPERATION MODE	Copy			Machine operation when the message is displayed	Stop
NOTE						

No	C6	
BASIC CAUSE 1	1) CCD level output recognition error during shading correction 2) Abnormally low or high CCD output level	
CASE 1	No	
	TROUBLE POSITION CAUSE	Scanner (reading) optical system does not transmit images (light) normally 1) Scanner (reading) optical system dirt 2) Scanner (reading) optical parts installing position shift
	REMEDY	(Check) 1) Scanner (reading) optical system dirt 2) Scanner (reading) optical parts installing position adjustment (CCD unit, lens, mirror, copy lamp, copy lamp light quantity sensor, shading correction sheet)
		(Remedy) 1) Scanner (reading) optical system cleaning 2) Scanner (reading) optical parts installing position adjustment (CCD unit, lens, mirror, copy lamp, copy lamp light quantity sensor, shading correction sheet)
		(After work) 1) Copy density adjustment
NOTE		
CASE 2	No	
	TROUBLE POSITION CAUSE	CCD level output recognition error during shading correction 1) CCD unit trouble 2) MCU PWB image signal (CCD) input circuit trouble
	REMEDY	(Check) 1) CCD unit output 2) MCU PWB image signal (CCD) input circuit
		(Remedy) 1) CCD unit replacement 2) MCU PWB replacement
		(After work) 1) When the MCU PWB is replaced, perform simulations to input various set values and adjustment values.
NOTE		
CASE 3	No	
	TROUBLE POSITION CAUSE	Copy lamp light quantity abnormality 1) Copy lamp trouble 2) Copy lamp control PWB trouble 3) Copy lamp light quantity adjustment trouble
	REMEDY	(Check) 1) Copy lamp 2) Copy lamp control PWB 3) Copy lamp light quantity level
		(Remedy) 1) Copy lamp replacement 2) Copy lamp control PWB replacement 3) Copy lamp light quantity level adjustment
		(After work) 1) Copy density adjustment
NOTE		

SELF DIAG CODE MESSAGE	E7
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No	C7					
PHENOMENON	DISPLAY	CODE	MAIN CODE	E7	SUB CODE	14
		LAMP				
	TITLE	ASIC (MCU PWB) trouble				
	DETAIL	ASIC (MCU PWB) malfunction				
	SECTION	MCU PWB				
	ITEM					
	TYPE (MODE)	User			Warning	
		Service	YES		Trouble	YES
		Other			Other	
	OPERATION MODE	All modes			Machine operation when the message is displayed	Stop
NOTE						

No	C7	
BASIC CAUSE 1	ASIC internal register operation trouble	
CASE 1	No	
	TROUBLE POSITION CAUSE	ASIC internal register operation trouble ASIC (MCU PWB) trouble
	REMEDY	(Check)
		(Remedy) MCU PWB replacement
	(After work) 1) When the MCU PWB is replaced, perform simulations to input various set values and adjustment values.	
	NOTE	

SELF DIAG CODE MESSAGE	E7
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No	C8					
PHENOMENON	DISPLAY	CODE	MAIN CODE	E7	SUB CODE	15
		LAMP				
	TITLE	Shading correction (white level) trouble				
	DETAIL	1) White level output abnormality during shading correction 2) White level output recognition error during shading correction				
	SECTION	Scanner (reading)				
	ITEM					
	TYPE (MODE)	User		Warning		
		Service	YES	Trouble	YES	
		Other		Other		
	OPERATION MODE	Copy			Machine operation when the message is displayed	Stop
	NOTE					
BASIC CAUSE 1	White level output recognition error during shading correction					
CASE 1	No					
	TROUBLE POSITION CAUSE	Scanner (reading) optical system does not transmit images (light) normally. 1) Scanner (reading) optical system dirt 2) Scanner (reading) optical parts installing position shift				
	REMEDY	(Check) 1) Scanner (reading) optical system dirt 2) Scanner (reading) optical parts installing position (CCD unit, lens, mirror, copy lamp, copy lamp light quantity sensor, shading correction sheet)				
		(Remedy) 1) Scanner (reading) optical system cleaning 2) Scanner (reading) optical parts installing position adjustment (CCD unit, lens, mirror, copy lamp, copy lamp light quantity sensor, shading correction sheet)				
	After work 1) Copy density adjustment					
	NOTE					
CASE 2	No					
	TROUBLE POSITION CAUSE	White level output recognition error during shading correction 1) CCD unit trouble 2) MCU PWB image signal (CCD) input circuit trouble				
	REMEDY	(Check) 1) CCD unit output 2) MCU PWB image signal (CCD) input circuit				
		(Remedy) 1) CCD unit replacement 2) MCU PWB replacement				
	(After work) 1) When the MCU PWB is replaced, perform simulations to input various set values and adjustment values.					
	NOTE					

No	C8	
CASE 3	No	
	TROUBLE POSITION CAUSE	Copy lamp light quantity abnormality 1) Copy lamp trouble 2) Copy lamp control PWB trouble 3) Copy lamp light quantity adjustment trouble
	REMEDY	(Check) 1) Copy lamp 2) Copy lamp control PWB 3) Copy lamp light quantity level
		(Remedy) 1) Copy lamp replacement 2) Copy lamp control PWB replacement 3) Copy lamp light quantity level adjustment
(After work) 1) Copy density adjustment		
NOTE		

SELF DIAG CODE MESSAGE

H2

No	C9					
PHENOMENON	DISPLAY	CODE	MAIN CODE	H2	SUB CODE	00
		LAMP				
	TITLE	Fusing temperature sensor (thermistor) trouble				
	DETAIL	1) Fusing temperature sensor (thermistor) output level abnormality 2) Fusing temperature sensor (thermistor) output level recognition error				
	SECTION	Fusing				
	ITEM					
	TYPE (MODE)	User		Warning		
		Service	YES	Trouble	YES	
		Other		Other		
	OPERATION MODE	All modes			Machine operation when the message is displayed	Stop
NOTE						
BASIC CAUSE 1	Fusing temperature sensor (thermistor) output level recognition error					
CASE 1	No					
	TROUBLE POSITION CAUSE	Fusing temperature sensor (thermistor) signal recognition error 1) Fusing temperature sensor (thermistor) trouble 2) MCU PWB fusing temperature sensor (thermistor) input circuit trouble				
	REMEDY	(Check) 1) Fusing temperature sensor (thermistor) 2) MCU PWB fusing temperature sensor (thermistor) input circuit				
		(Remedy) 1) Fusing temperature sensor (thermistor) replacement 2) MCU PWB replacement 3) Reset the trouble with SIM 14.				
(After work) 1) When the MCU PWB is replaced, perform simulations to input various set values and adjustment values.						
NOTE						

SELF DIAG CODE MESSAGE

H3

No	C10					
PHENOMENON	DISPLAY	CODE	MAIN CODE	H3	SUB CODE	00
		LAMP				
	TITLE	Fusing high temperature trouble				
	DETAIL	1) Fusing temperature sensor (thermistor) output level abnormality 2) Fusing temperature sensor (thermistor) output level recognition error				
	SECTION					
	ITEM					
	TYPE (MODE)	User		Warning		
		Service	YES	Trouble	YES	
		Other		Other		
	OPERATION MODE				Machine operation when the message is displayed	Stop
NOTE						

No	C10	
BASIC CAUSE 1	1) Fusing temperature (thermistor) output level recognition error 2) Fusing temperature sensor (thermistor) output level abnormality	
CASE 1	No	
	TROUBLE POSITION CAUSE	Fusing temperature sensor (thermistor) signal recognition error 1) Fusing temperature sensor (thermistor) trouble 2) MCU PWB temperature sensor (thermistor) input circuit trouble 3) Fusing temperature sensor (thermistor) dirt
	REMEDY	(Check) 1) Fusing temperature sensor (thermistor) 2) MCU PWB fusing temperature sensor (thermistor) input circuit
		(Remedy) 1) Fusing temperature sensor (thermistor) replacement 2) MCU PWB replacement 3) Fusing temperature sensor (thermistor) cleaning 4) Reset the trouble with SIM 14.
		(After work) 1) When the MCU PWB is replaced, perform simulations to input various set values and adjustment values.
NOTE		
CASE 2	No	
	TROUBLE POSITION CAUSE	Heater lamp control signal trouble 1) MCU PWB heater lamp control circuit trouble
	REMEDY	(Check) 1) MCU PWB
		(Remedy) 1) MCU PWB replacement 2) Reset the trouble with SIM 14.
		(After work) 1) When the MCU PWB is replaced, perform simulations to input various set values and adjustment values.
NOTE		
CASE 3	No	
	TROUBLE POSITION CAUSE	Heater lamp drive trouble 1) Power PWB heater lamp drive circuit trouble
	REMEDY	(Check) 1) Power PWB
		(Remedy) 1) Power PWB replacement 2) Reset the trouble with SIM 14.
		(After work)
NOTE		

SELF DIAG CODE MESSAGE	H4
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No	C11					
PHENOMENON	DISPLAY	CODE	MAIN CODE	H4	SUB CODE	00
		LAMP				
	TITLE	Fusing low temperature trouble				
	DETAIL	1) Fusing temperature sensor (thermistor) output level abnormality 2) Fusing temperature sensor (thermistor) output level recognition error				
	SECTION					
	ITEM					
	TYPE (MODE)	User		Warning		
		Service	YES	Trouble	YES	
		Other		Other		
	OPERATION MODE				Machine operation when the message is displayed	Stop
NOTE						
BASIC CAUSE 1	1) Fusing temperature sensor (thermistor) output level abnormality 2) Fusing temperature sensor (thermistor) output level recognition error					



No	C11	
CASE 1	No	
	TROUBLE POSITION CAUSE	Fusing temperature sensor (thermistor) signal recognition error 1) Fusing temperature sensor (thermistor) trouble 2) MCU PWB fusing temperature sensor (thermistor) input circuit trouble
	REMEDY	(Check) 1) Fusing temperature sensor (thermistor) 2) MCU PWB fusing temperature sensor (thermistor) input circuit
		(Remedy) 1) Fusing temperature sensor (thermistor) replacement 2) MCU PWB replacement 3) Reset the trouble with SIM 14.
		(After work) 1) When the MCU PWB is replaced, perform simulations to input various set values and adjustment values.
NOTE		
CASE 2	No	
	TROUBLE POSITION CAUSE	Heater lamp control signal trouble 1) MCU PWB heater lamp control circuit trouble
	REMEDY	(Check) 1) MCU PWB
		(Remedy) 1) MCU PWB replacement 2) Reset the trouble with SIM 14.
		(After work) 1) When the MCU PWB is replaced, perform simulations to input various set values and adjustment values.
NOTE		
CASE 3	No	
	TROUBLE POSITION CAUSE	Heater lamp drive trouble 1) Power PWB heater lamp drive circuit trouble
	REMEDY	(Check) 1) Power PWB
		(Remedy) 1) Power PWB replacement 2) Reset the trouble with SIM 14.
		(After work)
NOTE		

SELF DIAG CODE MESSAGE	U2
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No	C12					
PHENOMENON	DISPLAY	CODE	MAIN CODE	U2	SUB CODE	01
		LAMP				
	TITLE	EEPROM (MCU PWB) trouble (counter data error)				
	DETAIL	EEPROM (MCU PWB) counter data trouble (data error)				
	SECTION	MCU PWB		EEPROM		
	ITEM					
	TYPE (MODE)	User		Warning		
		Service		Trouble		
		Other		Other		
	OPERATION MODE	All modes			Machine operation when the message is displayed	Stop
NOTE						
BASIC CAUSE 1	EEPROM (MCU PWB) counter data trouble (data error)					
CASE 1	No					
	TROUBLE POSITION CAUSE	EEPROM (MCU PWB) counter data trouble EEPROM (MCU PWB) trouble				
	REMEDY	(Check)				
		(Remedy) 1) MCU PWB replacement 2) Reset the trouble with SIM 14. 3) Use simulations to set various set values and adjustment values.				
		(After work)				
NOTE						

SELF DIAG CODE MESSAGE	U2
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No	C13					
PHENOMENON	DISPLAY	CODE	MAIN CODE	U2	SUB CODE	04
		LAMP				
	TITLE	EEPROM (MCU PWB) trouble (read/write error)				
	DETAIL	EEPROM (MCU PWB) read/write operation trouble				
	SECTION	MCU PWB		EEPROM		
	ITEM					
	TYPE (MODE)	User		Warning		
		Service	YES	Trouble	YES	
		Other		Other		
	OPERATION MODE	All modes			Machine operation when the message is displayed	Stop
NOTE						
BASIC CAUSE 1	EEPROM (MCU PWB) read/write operation trouble					
CASE 1	No					
	TROUBLE POSITION CAUSE	EEPROM (MCU PWB) read/write operation trouble EEPROM (MCU PWB) trouble				
	REMEDY	(Check)				
		(Remedy) 1) MCU PWB replacement 2) Reset the trouble with SIM 14. 3) Use simulations to set various set values and adjustment values.				
		(After work)				
NOTE						

SELF DIAG CODE MESSAGE	U2
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No	C14					
PHENOMENON	DISPLAY	CODE	MAIN CODE	U2	SUB CODE	05
		LAMP				
	TITLE	EPROM (MCU PWB) trouble				
	DETAIL	EPROM (MCU PWB) data error				
	SECTION	MCU PWB		EPROM		
	ITEM					
	TYPE (MODE)	User		Warning		
		Service	YES	Trouble	YES	
		Other		Other		
	OPERATION MODE	All modes			Machine operation when the message is displayed	Stop
NOTE						
BASIC CAUSE 1	EPROM (MCU PWB) data error					
CASE 1	No					
	TROUBLE POSITION CAUSE	EPROM (MCU PWB) data error EPROM (MCU PWB) trouble				
	REMEDY	(Check)				
		(Remedy) 1) MCU PWB replacement 2) Reset the trouble with SIM 14. 3) Use simulations to set various set values and adjustment values.				
		(After work)				
NOTE						

## SELF DIAG CODE MESSAGE

U2

No	C15					
PHENOMENON	DISPLAY	CODE	MAIN CODE	U2	SUB CODE	06
		LAMP				
	TITLE	RAM (MCU PWB) trouble (read/write error)				
	DETAIL	RAM (MCU PWB) read/write operation trouble				
	SECTION	MCU PWB		RAM		
	ITEM					
	TYPE (MODE)	User		Warning		
		Service	YES	Trouble	YES	
		Other		Other		
	OPERATION MODE	All modes			Machine operation when the message is displayed	Stop
NOTE						
BASIC CAUSE 1	RAM (MCU PWB) read/write operation trouble					
CASE 1	No					
	TROUBLE POSITION CAUSE	RAM (MCU PWB) read/write operation trouble RAM (MCU PWB) trouble				
	REMEDY	(Check)				
		(Remedy) 1) MCU PWB replacement 2) Reset the trouble with SIM 14. 3) Use simulations to set various set values and adjustment values.				
		(After work)				
NOTE						

## SELF DIAG CODE MESSAGE

C1

No	C16					
PHENOMENON	DISPLAY	CODE	MAIN CODE	CH	SUB CODE	
		LAMP	"CH" ON			
	TITLE	Cabinet open/close detection switch trouble				
	DETAIL	1) Cabinet (operation unit) open/close detection switch malfunction 2) Cabinet (operation unit) open/close detection switch signal is not recognized.				
	SECTION	Power PWB unit				
	ITEM					
	TYPE (MODE)	User	YES	Warning	YES	
		Service	YES	Trouble	YES	
		Other		Other		
	OPERATION MODE	All modes			Machine operation when the message is displayed	Stop
NOTE						
BASIC CAUSE 1	Cabinet (operation unit) open/close detection switch signal is not recognized.					
CASE 1	No					
	TROUBLE POSITION CAUSE	Cabinet (operation unit) open/close detection switch signal recognition error 1) Cabinet (operation unit) open/close detection switch trouble 2) MCU PWB cabinet (operation unit) open/close detection switch signal input circuit trouble				
	REMEDY	(Check) 1) Cabinet (operation unit) open/close detection switch 2) MCU PWB cabinet (operation unit) open/close detection switch signal input circuit				
		(Remedy) 1) Cabinet (operation unit) open/close detection switch replacement 2) MCU PWB replacement 3) Power PWB replacement				
		(After work) 1) When the MCU PWB is replaced, perform simulations to input various set values and adjustment values.				
NOTE						

No	C16	
CASE 2	No	
	TROUBLE POSITION CAUSE	Cabinet (operation unit) open/close detection switch actuator does not operate while the cabinet is opened/closed. 1) Cabinet (operation unit) open/close trouble
	REMEDY	(Check) 1) Cabinet (Operation unit)
		(Remedy) 1) Cabinet (operation unit) replacement (After work)
NOTE		

SELF DIAG CODE MESSAGE	CH
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No	C17				
PHENOMENON	DISPLAY	CODE	MAIN CODE	CH	SUB CODE
		LAMP	"CH" blink		
	TITLE	Developer cartridge detection trouble			
	DETAIL	1) Toner density sensor malfunction 2) Toner density sensor signal recognition error			
	SECTION	Developer cartridge			
	ITEM				
	TYPE (MODE)	User	YES	Warning	YES
		Service	YES	Trouble	YES
		Other		Other	
	OPERATION MODE	All modes			Machine operation when the message is displayed
NOTE					

BASIC CAUSE 1 Toner density sensor signal level recognition error

CASE 1	No	
	TROUBLE POSITION CAUSE	Toner density sensor signal recognition error 1) Toner density sensor trouble 2) Toner density sensor signal input circuit trouble
	REMEDY	(Check) 1) Toner density sensor 2) Toner density sensor signal input circuit
		(Remedy) 1) Toner density sensor replacement 2) PCU PWB Replacement
(After work) 1) When the MCU PWB is replaced, perform simulations to input various set values and adjustment values.		
NOTE		

SELF DIAG CODE MESSAGE	E1
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No	C18				
PHENOMENON	DISPLAY	CODE	MAIN CODE	P	SUB CODE
		LAMP	"P" blink		
	TITLE	Paper misfeed			
	DETAIL	1) Paper entry detection (PIN) malfunction 2) Paper entry detector (PIN) signal recognition error 3) Paper feed roller abnormal rotation			
	SECTION	Fusing, paper exit			
	ITEM				
	TYPE (MODE)	User	YES	Warning	YES
		Service	YES	Trouble	YES
		Other		Other	
	OPERATION MODE	All modes			Machine operation when the message is displayed
NOTE					

BASIC CAUSE 1 1) Paper entry detector (PIN) signal recognition error  
2) Paper feed roller does not feed paper.

No	C18	
CASE 1	No	
	TROUBLE POSITION CAUSE	Paper entry detector (PIN) signal recognition error 1) Paper entry (PIN) trouble 2) Paper entry detector (PIN) signal input circuit trouble
	REMEDY	(Check) 1) Paper entry detector (PIN) 2) MCU PWB paper entry detector (PIN) signal input circuit
		(Remedy) 1) Paper entry detector (PIN) replacement 2) MCU PWB replacement
		(After work) 1) When the MCU PWB is replaced, perform simulations to input various set values and adjustment values.
NOTE		
CASE 2	No	
	TROUBLE POSITION CAUSE	Paper feed roller does not feed paper normally. 1) Paper feed roller clutch drive circuit trouble 2) Paper feed roller clutch trouble 3) Paper feed roller trouble 4) Paper separation sheet trouble
	REMEDY	(Check) 1) MCU PWB paper feed roller clutch drive circuit 2) Paper feed roller clutch 3) Paper feed roller 4) Paper separation sheet
		(Remedy) 1) MCU PWB replacement 2) Paper feed roller clutch replacement 3) Paper feed roller replacement 4) Paper separation sheet replacement
		(After work)
NOTE		

SELF DIAG CODE MESSAGE

E2

No	C19					
PHENOMENON	DISPLAY	CODE	MAIN CODE		SUB CODE	
		LAMP	Paper jam lamp blinking			
	TITLE	Paper jam (paper entry section)				
	DETAIL	1) Paper entry detector (PIN) malfunction 2) Paper entry detector (PIN) signal recognition error				
	SECTION	Paper entry, transfer				
	ITEM					
	TYPE (MODE)	User	YES	Warning	YES	
		Service	YES	Trouble	YES	
		Other		Other		
	OPERATION MODE	All modes			Machine operation when the message is displayed	Stop
NOTE						
BASIC CAUSE 1	Paper entry detector (PIN) signal recognition error					
CASE 1	No					
	TROUBLE POSITION CAUSE	Paper entry detector (PIN) signal recognition error 1) Paper entry detector (PIN) trouble 2) Paper entry detector (PIN) signal input circuit trouble				
	REMEDY	(Check) 1) Paper entry detector (PIN) 2) MCU PWB paper entry detector (PIN) signal input circuit				
		(Remedy) 1) Paper entry detector (PIN) replacement 2) MCU PWB replacement				
		(After work) 1) When the MCU PWB is replaced, perform simulations to input various set values and adjustment values.				
NOTE						

## SELF DIAG CODE MESSAGE

E3

No	C20				
PHENOMENON	DISPLAY	CODE	MAIN CODE	SUB CODE	
		LAMP	Paper jam lam blinking		
	TITLE	Paper jam (fusing, paper exit section)			
	DETAIL	1) Paper exit detector (POUT) malfunction 2) Paper exit detector (POUT) signal recognition error			
	SECTION	Fusing, paper exit			
	ITEM				
	TYPE (MODE)	User	YES	Warning	YES
		Service	YES	Trouble	YES
		Other		Other	
OPERATION MODE	All modes			Machine operation when the message is displayed	Stop
NOTE					
BASIC CAUSE 1	Paper exit detector (POUT) signal recognition error				
CASE 1	No				
	TROUBLE POSITION CAUSE	Paper exit detector (POUT) signal recognition error 1) Paper exit detector (POUT) trouble 2) Paper exit detector (POUT) signal input circuit trouble			
	REMEDY	(Check) 1) Paper exit detector (POUT) 2) MCU PWB paper exit detector (POUT) signal input circuit			
		(Remedy) 1) Paper exit detector (POUT) replacement 2) MCU PWB replacement			
		(After work) 1) When the MCU PWB is replaced, perform simulations to input various set values and adjustment values.			
NOTE					

## SELF DIAG CODE MESSAGE

P

No	C21				
PHENOMENON	DISPLAY	CODE	MAIN CODE	P	SUB CODE
		LAMP	Paper tray lamp "P" blinking		
	TITLE	Paper empty			
	DETAIL	1) Paper detector (PE) malfunction 2) Paper detector (PE) signal recognition error			
	SECTION	Paper feed tray			
	ITEM				
	TYPE (MODE)	User	YES	Warning	YES
		Service	YES	Trouble	YES
		Other		Other	
OPERATION MODE	All modes			Machine operation when the message is displayed	Stop
NOTE					
BASIC CAUSE 1	Paper detector (PE) signal recognition error				
CASE 1	No				
	TROUBLE POSITION CAUSE	Paper detector (PE) signal recognition error 1) Paper detector (PE) trouble 2) Paper detector (PE) signal input circuit trouble			
	REMEDY	(Check) 1) Paper detector (PE) 2) Paper detector (PE) signal input circuit			
		(Remedy) 1) Paper detector (PE) replacement 2) MCU PWB replacement			
		(After work) 1) When the MCU PWB is replaced, perform simulations to input various set values and adjustment values.			
NOTE					

## SELF DIAG CODE MESSAGE

No.					
PHENOMENON	DISPLAY	CODE	MAIN CODE	-1	SUB CODE
		LAMP	SPF jam lamp blinking		
	TITLE	SPF document mis-feed			
	DETAILS	1) SPF paper entry detector (SW2) malfunction 2) SPF paper entry detector (SW2) signal is not normally recognized. 3) SPF paper fed roller does not rotate normally.			
	SECTION	SPF paper feed			
	ITEM				
	TYPE (MODE)	User	YES	Warning	YES
		Service	YES	Trouble	YES
		Other		Other	
	OPERATION MODE	All modes			Message table: Stop
NOTE					
BASIC CAUSE 1	1) SPF paper entry detector (SW2) signal is not recognized normally. 2) SPF paper feed roller does not feed paper.				
CASE 1	No.				
	TROUBLE POSITION CAUSE	SPF paper entry detector (SW2) signal recognition failure 1) SPF paper entry detector (SW2) trouble 2) SPF paper entry detector (SW2) signal input circuit trouble			
	REMEDY	(Check) 1) SPF paper entry detector (SW2) 2) MCU PWB paper entry detector (SW2) signal input circuit 3) SPF interface PWB			
		(Remedy) 1) Paper entry detector (SW2) replacement 2) MCU PWB replacement 3) SPF interface PWB replacement			
(After work) 1) When the MCU PWB is replaced, enter set values and adjustment values with the simulation.					
NOTE					
CASE 2	No.				
	TROUBLE POSITION CAUSE	Paper feed roller does not feed paper normally. 1) SPF paper feed roller clutch drive circuit trouble 2) SPF paper feed roller clutch trouble 3) SPF hip-up roller trouble 4) SPF paper feed roller trouble 5) SPF document separation unit trouble 6) SPF motor trouble			
	REMEDY	(Check) 1) MCU PWB paper feed roller clutch drive circuit 2) SPF paper feed roller clutch 3) SPF hip-up roller 4) SPF paper feed roller 5) SPF document separation unit 6) SPF motor			
		(Remedy) 1) MCU PWB paper feed roller clutch drive circuit replacement 2) SPF paper feed roller clutch replacement 3) SPF hip-up roller replacement 4) SPF paper feed roller replacement 5) SPF document separation unit replacement 6) SPF motor replacement			
(After work)					
NOTE					

## 2. Troubleshooting of print operation (Printer mode)

Problem	Cause	Remedy
The ready lamp (green) does not light up.	The power switch is not turned on.	Turn on the power switch.
	The power cord is not connected properly.	Check the power cord connection.
The GDI driver cannot be installed.	There is no sufficient free space in the hard disk of the computer.	Delete unnecessary files and applications to assure enough space.
	The operating system is not compatible.	Use the proper operating system (Windows 95, Windows NT4.0).
The printer does not print.	The interface cable is not connected properly.	Check the interface cable connection. (Check that it is of bi-directional.)
	The interface cable is defective.	Use the computer and the printer to check that the cable is proper or not. If necessary, replace the interface cable.
	Incorrect port setting	Check Windows control panel printer setting to confirm that the print job is sent to the proper port (for example, LPT1).
	Improper installation of developer cartridge and photoconductor cartridge	Check that the developer cartridge and the photoconductor cartridge are properly installed.
	Paper jam	Remove the paper jam.
	Incorrect configuration setting of the printer	Perform the GDI test print. If the test print is made properly, GDI printing is properly made. Check the application to confirm that the print setting is proper or not.
	Incorrect installation of GDI	Reinstall the GDI software and try printing the test page.
Paper is not fed to the printer.	Improper setting of paper	Set paper properly.
	The paper release lever is not pushed back.	Insert paper into the paper feed tray and push back the paper release lever.
	Too much paper is loaded in the paper feed tray.	Remove some paper from the paper feed tray.
The whole page of printed paper is blank.	Improper installation of developer cartridge	Install the developer cartridge properly.
	Developer cartridge empty	Replace the developer cartridge.
Half page of printed paper is blank.	Too complex page layout	Simplify the paper layout. If possible, remove unnecessary format commands from the document.
		Reduce resolution setting. If currently set to 500dpi, change to 300dpi.
		Install an expansion random access memory (RAM) to the computer.
	Incorrect setting of page orientation	In the printer setup dialogue box, change the page orientation.
	Too many applications are open.	Close all the applications before printing.
Reduce the resolution setting. If it is set to 600dpi, change to 300dpi. Install an expansion random access memory (RAM) to the computer.		
Half page of printed paper is blank.	The size of paper in the printer is greater than that specified by the application or Windows Printing System.	Set proper paper to the printer.
	Scaling is set to a lower level than 100%.	In the printer setup dialogue box, change the scaling.
	Incorrect specification of the interface cable	Check the interface cable specification, or replace the cable with an EEE-1284 cable.
	Incorrect specification of the CPU	Check that the CPU satisfies the specifications.
	Insufficient capacity of computer's random access memory RAM	Install an expansion random access memory (RAM) to the computer.
The printer prints erroneous characters or erroneous data.	Improper connection of the interface cable	Check connection of the interface cable.
	The GDI software may cause the problem.	Cancel the Windows mode and resume the computer.
		Turn off the printer and turn it on again.
Incorrect specification of the interface cable	Check the interface cable specification.	
Paper jams occur continuously.	Too much paper on the paper feed tray	Remove some paper from the paper feed tray.
	Paper of unusable kind is used.	Use only the paper which satisfies the specifications.
	Improper paper exit is made.	Thick paper must not be printed in the normal face down mode. Use the face up mode.
	The photoconductor cartridge is not properly installed.	Install the photoconductor cartridge properly.



Problem	Cause	Remedy
Slow print speed	When Windows 95 is used, spooling is not properly set.	Point the start task bar setting, and click the printer. Click the printer icon with the right button of the mouse to select the property. Then click the setting button of detailed spool to select spool.
	Too many applications are opened.	Close all the applications which are not used, then print.
	The computer RAM disk is used.	Reduce the RAM disk size or do not use the RAM disk.
	The resolution is set to 600dpi.	Set to 300dpi.
	Insufficient memory capacity (RAM) of the computer	Install an expansion RAM to the computer.
The low resolution print function works.	Two or more applications are used simultaneously.	Close all the applications which are not in use, then print.
	The computer RAM disk is used.	Reduce the RAM disk size or do not use it.
	The resolution is set to 600dpi.	Set to 300dpi.
	In the graphic dialogue box, the error dispersion is selected.	Change setting to the gray pattern.
		Expand the swap file size or the virtual memory size.
Gray images are not printed properly.	The graphic option setting is improper.	Check the setting in the graphic dialogue box.
Color display data are not printed properly.	The half tone setting is improper.	Check the setting in the graphic dialogue box.
Printed with a different font.	TrueType font is not set.	In the font dialogue box of the control panel window, set to disable the use of TrueType font.

### Error message displayed on the FAX operation panel LCD

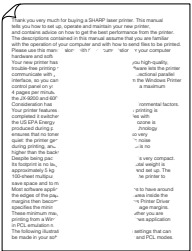
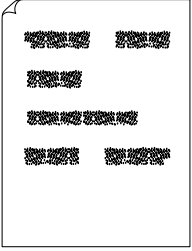

Error message	Content
LINE ERROR	FAX transmission or reception was failed.
NO RESPOONCE	No response from the line error reception machine.
RETURN ORGX XXSHEET(S)	** A paper jam occurs on the SPF./Line error occurs when memory is full. (The left message and "MEMORY FULL" are alternatively displayed.
PAPER OUT (XX)FAX RCVD IN MEMORY	** Since paper is exhausted, received image data are stored in memory. (Memory reception)
CAN NOT PRINT	** The imaging cartridge or the photoconductor cartridge reached the life./ The imaging cartridge is not inserted.
CHECK COPIER COVER	** The front cover of the machine is not closed completely.
FAX RCVD IN MEMORY	Received image data are stored in memory. (Due to the following reasons) Paper trouble (paper empty /jam) The imaging cartridge or the photoconductor cartridge reached the life./ The imaging cartridge is not inserted. Print engine section trouble
MEMORY FULL	Memory full (No more image data can be stored.)
PAPER JAM	** Print paper jam
COVER OPEN	The SPF unit or the document cover is open.
LOST IMAGE DATA XXXPRESS ←OR→KEY	Transmission job is not completed in the memory transmission mode due to service interruption.
DOCUMENT JAM	Document jam in the SPF
PAPER SIZE ERRORSET XXX SIZE PAPER	Improper paper size
COPY SERVICE ERROR	Machine (copier/printer) section service call error
FAX SERVER ERROR (#)	FAX side service call error (#: Error number)

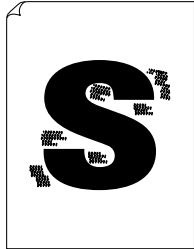
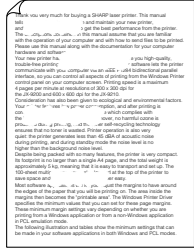
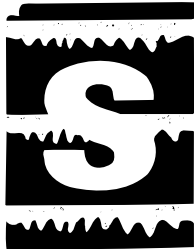
\*\* : Displayed also on the copy operation panel.

### Details of FAX SERVICE ERROR (#)

ERROR #	Content
1	FAX control PWB ROM error
2	FAX control PWB RAM error
3	Communication error between FAX control PWB and main control PWB
4	Communication error between FAX control PWB and FAX operation control PWB
5	Scan data error (Abnormal scan image data outputted from main control PWB)

### 3. Troubleshooting of copy/print quality

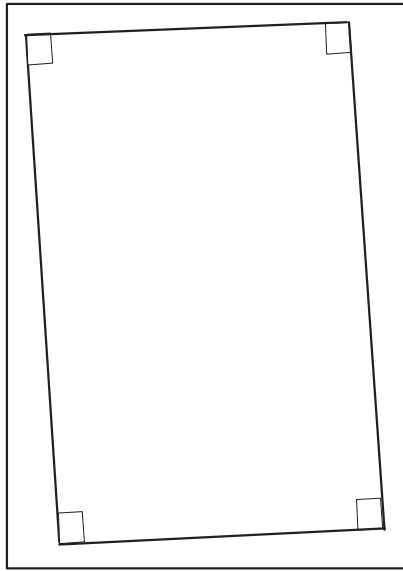
Problem	Cause	Remedy	Sample (Sample No.)
Insufficient, irregular density of printing	Paper quality problem	Use paper which satisfies the printer specification.	
	Uneven toner distribution	Remove the developer cartridge and shake it to distribute toner evenly.	
	Main charger, transfer charger, developing bias voltage abnormality	Check the output voltage and replace defective parts. Adjust the output voltage.	
	Main charger, transfer charger, developing charger bias output pin connection failure	Check connection and clean the contact section of electrodes.	
	Transfer charger roller trouble (dirt, humidity)	Clean the roller. If the abnormality continues, replace the roller.	
	Developing roller trouble (dirt, humidity)	Clean the roller. If the abnormality continues, replace the roller.	
	Developer cartridge trouble	Clean the developer cartridge. If the abnormality continues, replace it.	
	Photoconductor cartridge trouble	Clean the photoconductor cartridge. If the abnormality continues, replace it.	
	Scanner (reading) section dirt	Scanner (reading) section cleaning	
	Scanner (writing) section dirt	Scanner (writing) section cleaning	
Black stain	Paper quality problem	Use paper which satisfies the printer specifications.	
	A different printer's developer cartridge is installed.	Use the proper developer cartridge. If a developer cartridge which was used in a different printer, a trouble may occur.	
	Main charger voltage and developing bias voltage abnormality	Check the output voltage and replace the defective parts. Adjust the output voltage.	
	Main charger and developing bias output pin connection failure	Check the contact section. Clean the electrode.	
	Developer cartridge trouble, dirt	Clean the developer cartridge. If the abnormality continues, replace it.	
	Transfer charger roller trouble (dirt, humidity)	Clean the roller. If the abnormality continues, replace it.	
	Developing roller trouble (dirt, humidity)	Clean the roller. If the abnormality continues, replace it.	
Chipped character	Too dry paper	Print with different paper.	
	Developer cartridge trouble	Clean or replace the developer cartridge.	
	Photoconductor cartridge trouble	Clean or replace the photoconductor cartridge.	
	Transfer charger abnormality	Clean the transfer charger, If the abnormality continues, replace it.	
	Transfer charger roller trouble (dirt, abnormality)	Clean the roller. If the abnormality continues, replace it.	
	Developing roller trouble (dirt, humidity)	Clean the roller. If the abnormality continues, replace it.	
	Scanner (reading) section dirt	Clean the scanner (reading) section.	
	Main charger, transfer charger, developing bias voltage abnormality	Check the output voltage and replace defective parts. Adjust the output voltage.	

Problem	Cause	Remedy	Sample (Sample No.)
Background dirt	Wet paper	Print with different paper. If a paper package is opened unnecessarily, paper absorbs humidity in the air.	
	Rough print surface	When printing on envelopes, change the print layout. The overlapped section on the back must be excluded from the print area.	
	Main charger, developing bias voltage abnormality	Check the output voltage and replace defective parts. Adjust the output voltage.	
	Main charger, developing bias output pin connection failure	Check the contact and clean the electrode.	
	Developing cartridge trouble, dirt	Clean the developer cartridge. If the abnormality continues, replace it.	
	Photoconductor cartridge trouble	Replace the photoconductor cartridge.	
	Developing roller trouble (dirt, humidity)	Clean the roller. If the abnormality continues, replace it.	
	Scanner (reading) section dirt	Clean the scanner (reading) section.	
	Transfer charger roller trouble (dirt)	Clean or replace the transfer charger roller.	
	Void area adjustment trouble	Adjust the void area.	
	Developer cartridge trouble (dirt)	Clean or replace the developer cartridge.	
	Fusing section trouble (dirt)	Clean or replace the fusing section.	
Paper feed roller (dirt)	Clean or replace the paper feed roller.		
Missing character	Wet paper	Print with different paper. If a paper package is opened unnecessarily, paper absorbs humidity in the air.	
	Developer cartridge trouble	Replace the developer cartridge. Clean the developer cartridge.	
	Photoconductor cartridge trouble	Replace the photoconductor cartridge. Clean the photoconductor cartridge.	
	Laser unit trouble	Replace the upper frame unit.	
	Control PWB trouble	Replace the control PWB.	
	Scanner (reading) section dirt	Clean the scanner (reading) section.	
Faint graphic	Uneven toner distribution	Remove the developer cartridge and shake it to distribute toner evenly.	
	Toner near empty	The developer cartridge replacement time may be approached. Prepare a new developer cartridge.	
	Main charger, transfer charger, developing bias voltage abnormality	Check the output voltage and replace defective parts. Adjust the output voltage.	
Skew print	Transfer charger roller trouble (dirt, moisture)	Clean the roller. If the abnormality continues, replace it.	SMP1
	Developer roller trouble (dirt, moisture)	Clean the roller. If the abnormality continues, replace it.	
	Paper feed roller trouble	Clean or replace the paper feed roller.	
	Separation sheet trouble	Clean or replace the separation sheet.	
	Scanner (reading) section trouble	Adjust the installing positions of parts.	
	Scanner (writing) section trouble	Replace the scanner (writing) unit.	

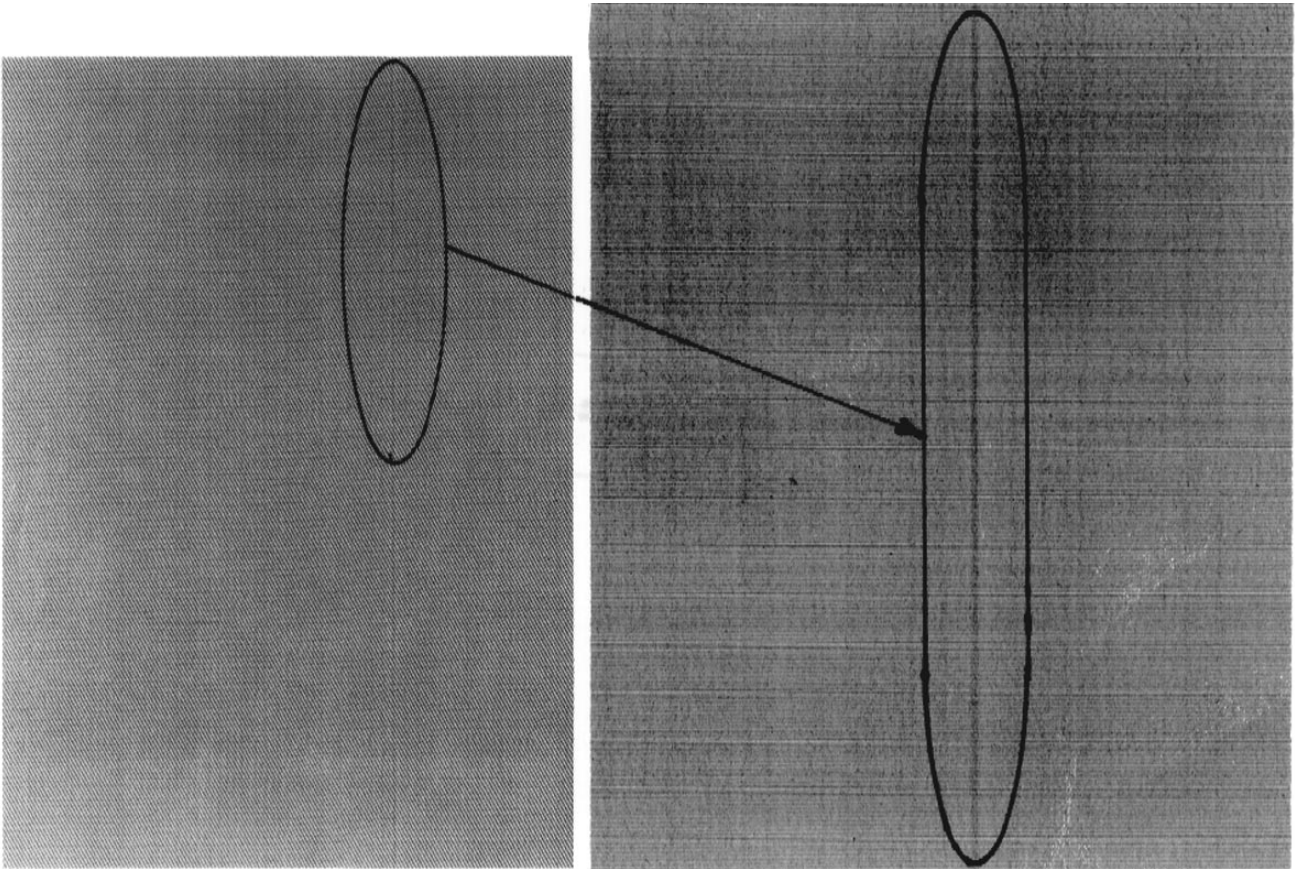
Problem	Cause	Remedy	Sample (Sample No.)
Black streaks (paper transport direction)	Developer cartridge trouble	Replace the developer cartridge.	SMP2
	Photoconductor cartridge trouble	Replace the photoconductor cartridge.	
	Laser unit trouble	Replace the upper frame unit.	
	Control PWB trouble	Repair the control PWB.	
	Transfer charger roller trouble (dirt, moisture)	Clean the roller. If the abnormality continues, replace it.	
	Developing roller trouble (Dirt, moisture)	Clean the roller. If the abnormality continues, replace it.	
	Scanner (reading) section trouble	Clean the scanner (reading) section.	
	Scanner (writing) section trouble	Clean the scanner (writing) section.	
	Fusing section trouble (dirt)	Clean or replace the fusing section.	
White streaks (paper transport direction)	Developer cartridge trouble	Clean the roller. If the abnormality continues, replace it.	SMP3
	Photoconductor cartridge trouble	Replace the developer cartridge.	
	Laser unit trouble	Replace the upper frame unit.	
	Control PWB trouble	Repair the control PWB.	
	Main charger roller trouble (dirt, moisture)	Clean the roller. If the abnormality continues, replace it.	
	Transfer charger roller trouble (dirt, moisture)	Clean the roller. If the abnormality continues, replace it.	
	Developer roller trouble (dirt, moisture)	Clean the roller. If the abnormality continues, replace it.	
	Scanner (reading) section dirt	Clean the scanner (reading) section.	
	Scanner (writing) section dirt	Clean the scanner (writing) section.	
Fusing section trouble	Clean the fusing section or replace defective parts.		
Ghost	Transfer roller trouble	Clean or replace the transfer charger roller.	SMP5
	Transfer charger voltage trouble	Repair or replace the high voltage power PWB.	
	Photoconductor cartridge trouble	Replace the photoconductor cartridge.	
Distorted image print	Paper feed roller trouble	Clean or replace the paper feed roller.	SMP6
	Separation sheet trouble	Clean or replace the separation sheet.	
	Scanner (reading) section trouble	Adjust the installing positions of parts.	
	Scanner (writing) section trouble	Replace the scanner (writing) unit.	
	Transfer charger roller trouble	Clean or replace the transfer charger roller.	
Black print	Main charger voltage trouble	Repair or replace the high voltage power PWB.	SMP7
	Main charger electrode contact failure	Clean the main charger electrode.	
	Copy lamp trouble	Replace the copy lamp.	
	Copy lamp control PWB trouble	Replace the copy lamp control PWB.	
	CCD unit trouble	Replace the CCD unit.	
White print	Transfer charger voltage trouble	Repair or replace the high voltage power PWB.	
	Transfer charger electrode contact failure	Clean the transfer charger electrode.	
	Developing bias voltage trouble	Repair or replace the high voltage power PWB.	
	Developing bias electrode contact failure	Clean the developing bias electrode.	
	Scanner (writing) section trouble	Replace the scanner (writing) section.	
	CCD unit trouble	Replace the CCD unit.	

Problem	Cause	Remedy	Sample (Sample No.)
Banding	Developer cartridge trouble	Replace the developer cartridge.	SMP8
	Photoconductor cartridge trouble	Replace the photoconductor cartridge.	
	Scanner (writing) section drive trouble	Adjust the installing position of the scanner (writing) section drive part or replace it.	
	Scanner (writing) section trouble	Replace the scanner (writing) section.	
	Drive section trouble	Adjust the installing position of the drive part or replace it.	
Uneven density	Scanner (reading) section dirt	Clean the scanner (reading) section.	SMP9
	Scanner (writing) section dirt	Clean the scanner (writing) section.	
	Transfer charger voltage trouble	Repair or replace the high voltage power PWB.	
	Transfer charger electrode contact failure	Clean the transfer charger electrode.	
	Developing bias voltage trouble	Repair or replace the high voltage power PWB.	
	Developing bias electrode contact failure	Clean the developing bias electrode.	
	Main charger voltage trouble	Repair or replace the high voltage power PWB.	
	Main charger electrode contact failure	Clean the main charger electrode.	
	Developer cartridge trouble	Replace the developer cartridge.	
	Photoconductor cartridge trouble	Replace the photoconductor cartridge.	
Streaks, black points or white points in 78mm pitch	Photoconductor cartridge trouble (dirt)	Clean or replace the developer cartridge.	SMP10
Streaks, black points or white points in 45mm pitch	Fusing section trouble	Clean or replace the fusing section.	SMP11
Black streaks (Vertical to paper transport direction)	Developer cartridge trouble	Replace the developer cartridge.	
	Photoconductor cartridge trouble	Replace the photoconductor cartridge.	
	Laser unit trouble	Replace the upper frame unit.	
	Control PWB trouble	Repair the control PWB.	
	Transfer charger roller trouble (dirt, moisture)	Clean the roller. If the abnormality continues, replace it.	
	Developing roller trouble (dirt, moisture)	Clean the roller. If the abnormality continues, replace it.	
	Laser unit trouble	Replace the upper frame unit.	
	Scanner (writing) section dirt	Clean the scanner (writing) section.	
White streaks (Vertical to paper transport direction)	Developer cartridge trouble	Replace the developer cartridge.	
	Photoconductor cartridge trouble	Replace the photoconductor cartridge.	
	Laser unit trouble	Replace the upper frame unit.	
	Control PWB trouble	Repair the control PWB.	
	Transfer charger roller trouble (dirt, moisture)	Clean the roller. If the abnormality continues, replace it.	
	Developing roller trouble (dirt, moisture)	Clean the roller. If the abnormality continues, replace it.	
	Scanner (writing) section dirt	Clean the scanner (writing) section dirt	
	Scanner (reading) section dirt	Clean the scanner (reading) section dirt	
Fusing trouble	Abnormally low fusing temperature	Check the temperature sensor and its peripheral circuit. replace the thermistor. Replace the heater lamp. Check the heater drive circuit.	SMP4
	Abnormally high fusing temperature	Clean the fusing section.	
	Heat roller, pressure roller trouble	Replace the heat roller/pressure roller.	

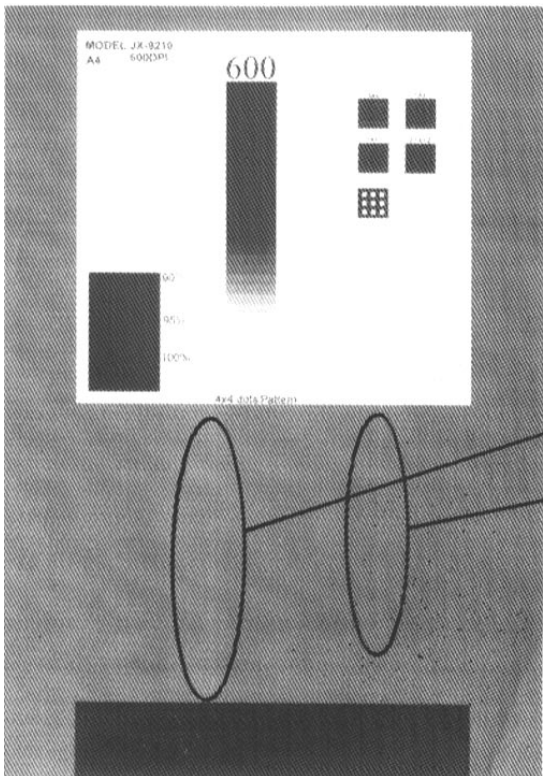
SMP1



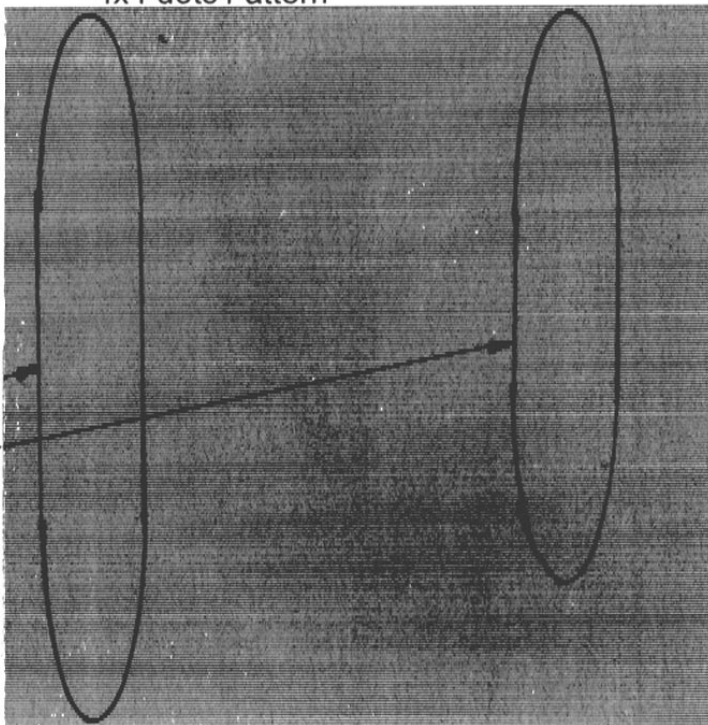
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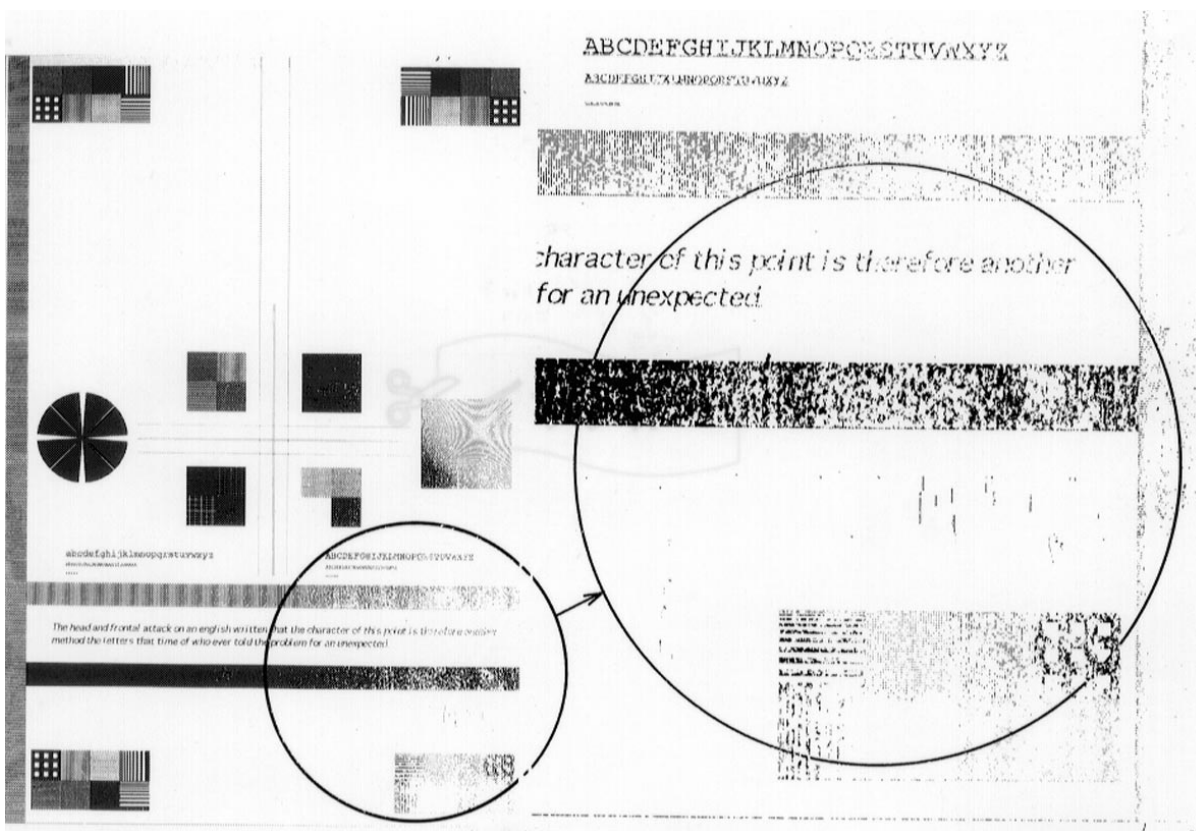
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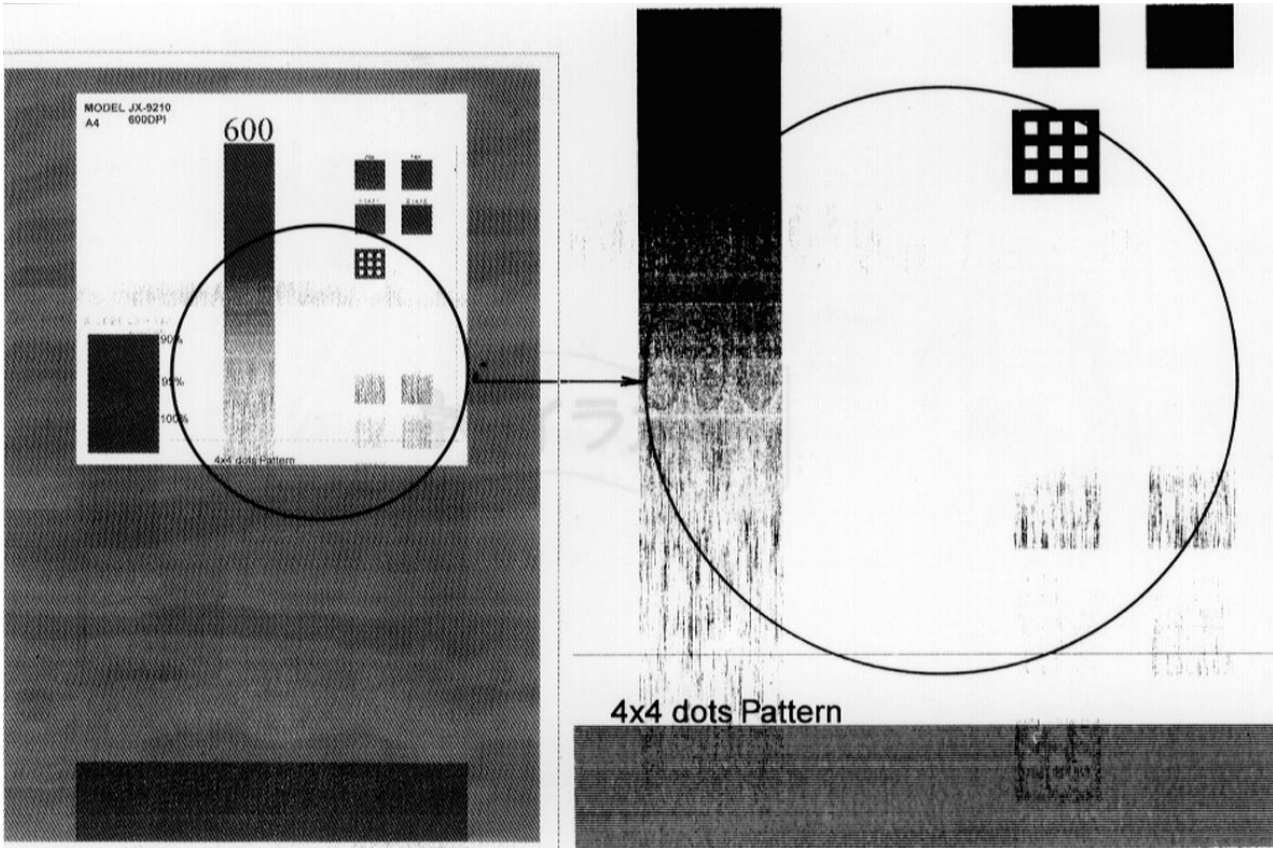
4x4 dots Pattern



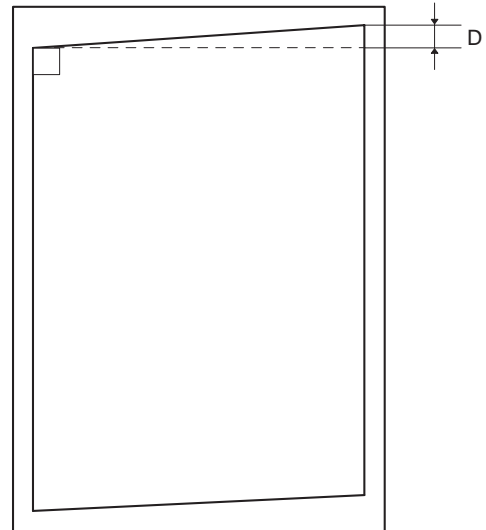
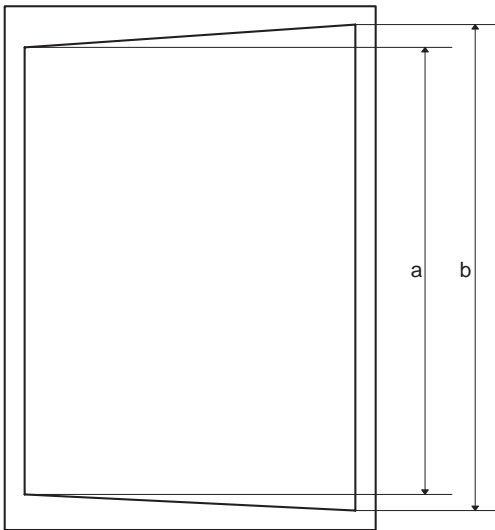
SMP4



SMP5

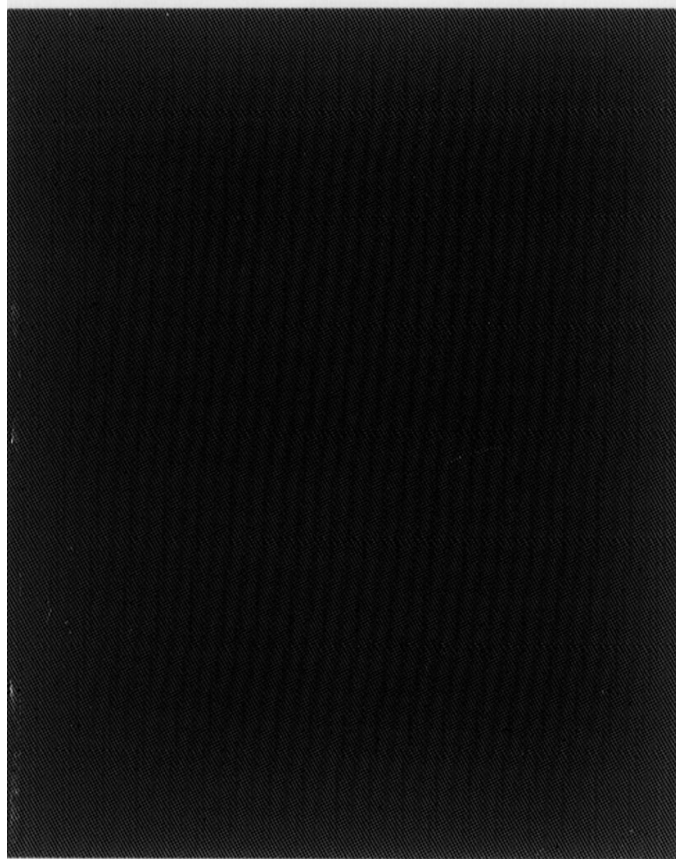


SMP6

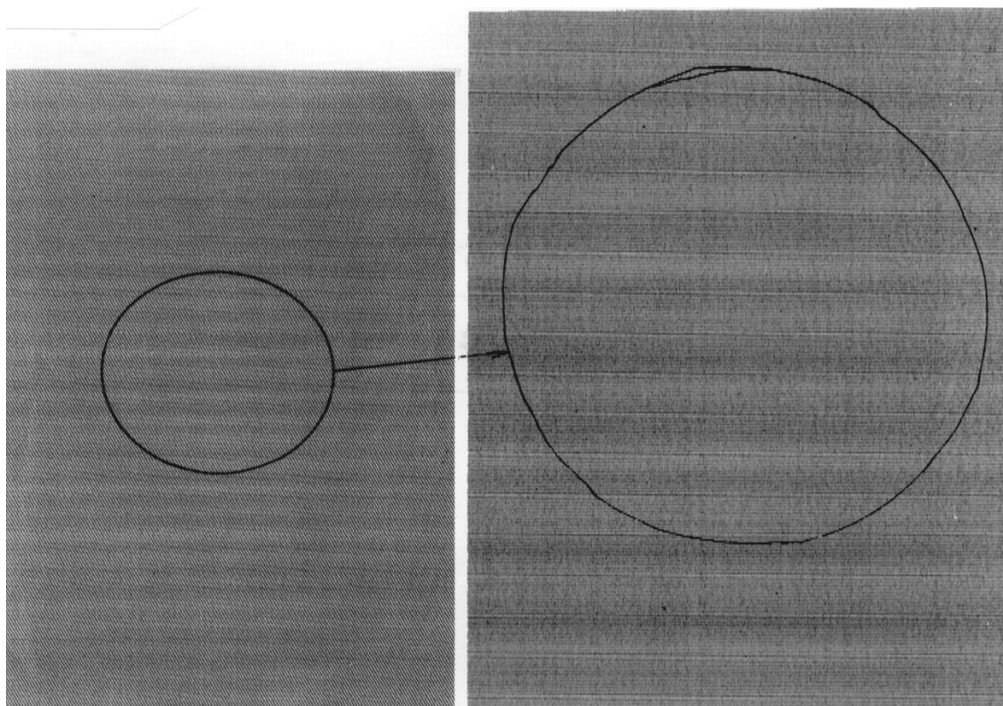




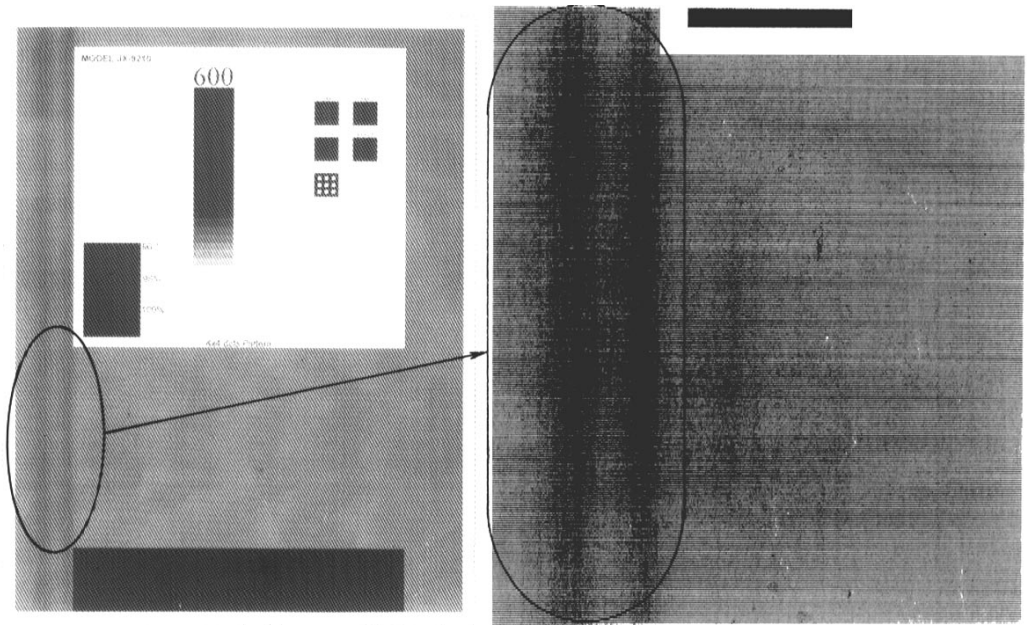
SMP7



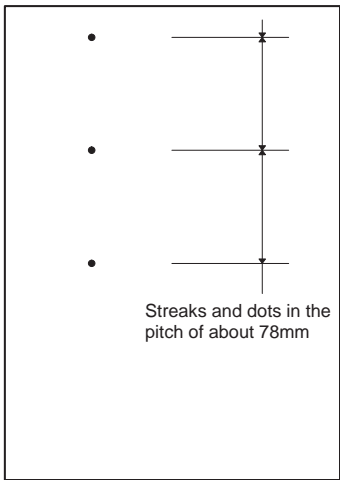
SMP8



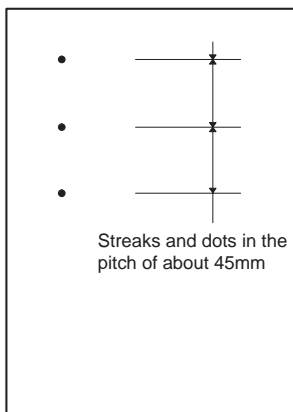
SMP9



SMP10



SMP11



**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.

# SHARP

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**SHARP CORPORATION**  
**Digital Document Systems Group**  
**Quality & Reliability Control Center**  
**Yamatokoriyama, Nara 639-1186, Japan**

1999 November Printed in Japan