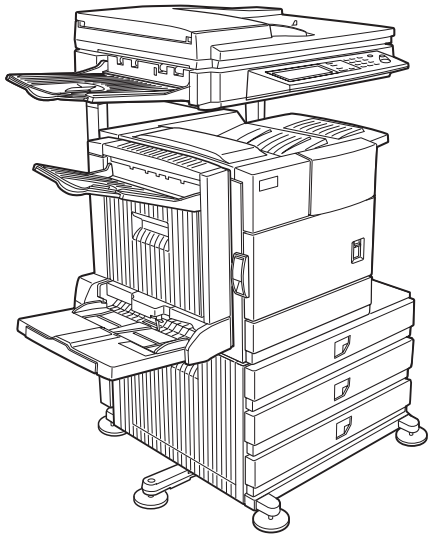
SHARP SERVICE MANUAL

CODE: 00ZAR455N/A1E



DIGITAL MULTIFUNCTIONAL SYSTEM

MODEL AR-M355N AR-M455N

CONTENTS

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

SHARP CORPORATION

CAUTION

This product is a class 1 laser product that complies with 21CFR 1040.10 and 1040.11 of the CDRH standard and IEC825. This means that this machine does not produce hazardous laser radiation. The use of controls, adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.
This laser radiation is not a danger to the skin, but when an exact focusing of the laser beam is achieved on the eye's retina, there is the danger of spot damage to the retina.
The following cautions must be observed to avoid exposure of the laser beam to your eyes at the time of servicing.

1) When a problem in the laser optical unit has occurred, the whole optical unit must be exchanged as a unit, not as individual parts.
2) Do not look into the machine with the main switch turned on after removing the developer unit, toner cartridge, and drum cartridge.
3) Do not look into the laser beam exposure slit of the laser optical unit with the connector connected when removing and installing the optical system.
4) The middle frame contains the safety interlock switch.
   Do not defeat the safety interlock by inserting wedges or other items into the switch slot.

Cautions on laser

Wave length	785 nm +10 nm −15 nm
Pulse times	North America: 35 cpm model: (4.1 µs ± 4.1 ns)/7 mm 45 cpm model: (5.7 µs ± 5.7 ns)/7 mm Europe: 35 cpm model: (3.8 µs ± 3.8 ns)/7 mm 45 cpm model: (4.4 µs ± 4.4 ns)/7 mm
Output power	0.2 mW - 0.4 mW

At the production line, the output power of the scanner unit is adjusted to 0.4 MILLIWATT PLUS 8 % and is maintained constant by the operation of the Automatic Power Control (APC).

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

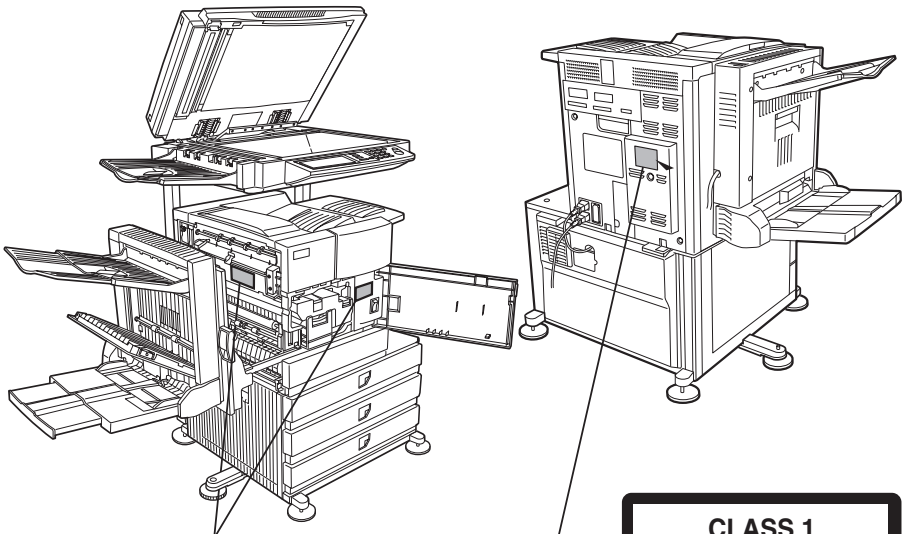
For North America:

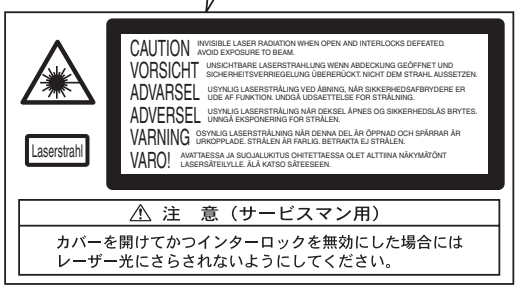
SAFETY PRECAUTIONS

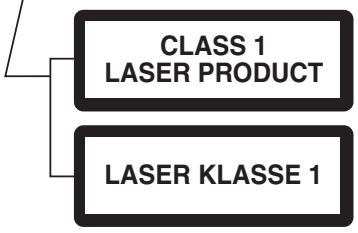
This Digital Equipment is rated Class 1 and complies with 21 CFR 1040.10 and 1040.11 of the CDRH standards. This means that the equipment does not produce hazardous laser radiation. For your safety, observe the precautions below.

- Do not remove the cabinet, operation panel or any other covers.
- The equipment's exterior covers contain several safety interlock switches. Do not bypass any safety interlock by inserting wedges or other items into switch slots.

Caution
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.







⚠ 注　意（サービスマン用）
カバーを開けてかつインターロックを無効にした場合には
レーザー光にさらされないようにしてください。

For Europe:

CLASS 1 LASER PRODUCT

LASER KLASSE 1

LUOKAN 1 LASERLAITE

KLASS 1 LASERAPPARAT

CAUTION
INVISIBLE LASER RADIATION WHEN OPEN 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 SIKKERHEDSBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLNING.

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.

[1] GENERAL

1. Note for servicing

Pictogram

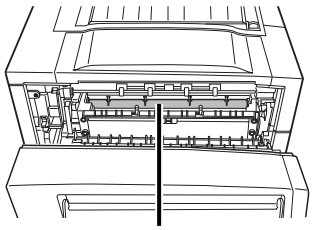
This Service Manual uses some pictographs to assure safe operation.

Please understand the meanings of pictographs before servicing.

CAUTION: If this CAUTION is ignored, an injury or damage to property could occur.

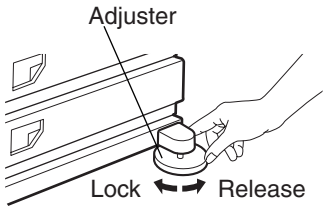
A. Cautions for servicing

1) Do not touch the photoconductive drum. Scratches or smudges on the drum will cause dirty printouts.
2) The fusing unit is extremely hot. Exercise care in this area.



Fusing unit

3) Do not look directly at the light source of the scanner module. Doing so may damage your eyes.
4) Five adjusters are provided on all optional stand/paper drawer units. These adjusters should be lowered until they contact the floor.



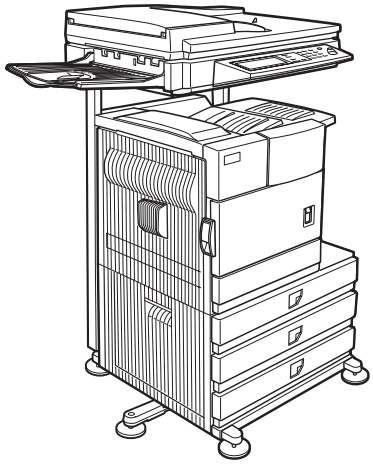
5) Do not make any modifications to this machine. Doing so may result in personal injury or damage to the machine.
6) Since this machine is heavy, it is recommended that it be moved by more than one person to prevent injury.
7) When connecting this machine to a computer, be sure to first turn both the computer and the machine off.
8) Do not print anything which is prohibited from printing by law. The following items are normally prohibited from printing by national law. Other items may be prohibited by local law.
   - Money
   - Stamps
   - Bonds
   - Stocks
   - Bank drafts
   - Checks
   - Passports
   - Driver's licenses
9) Do not throw toner or a toner cartridge into fire. Toner may be spattered, causing a burn.
10) Store toner or toner cartridges in a hard-to-reach place for children.

[2] CONFIGURATION

1. System configuration

A. Basic system

AR-M355N/M455N
(Copier/Network printer model)



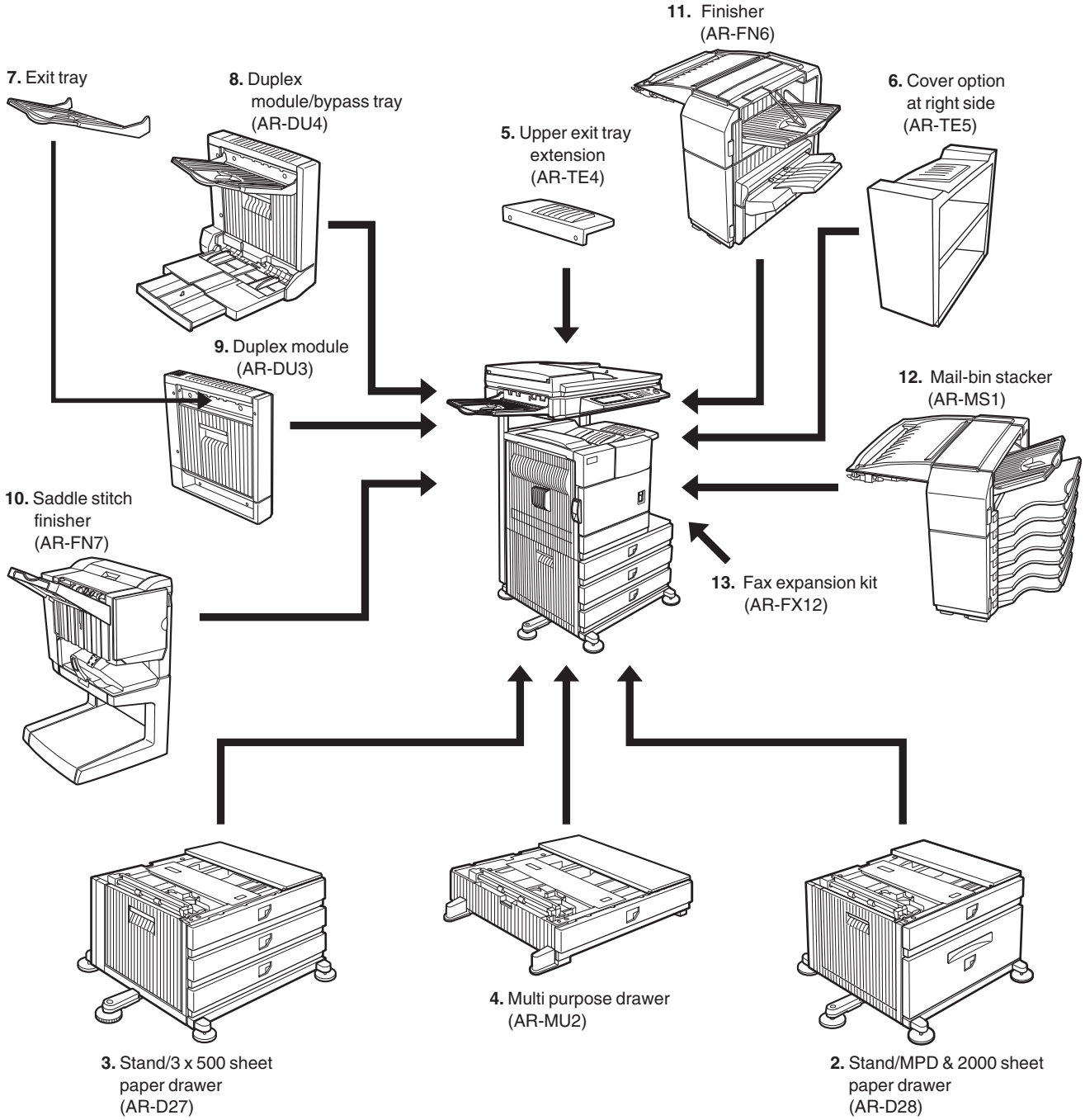
Necessary options

- B/W scanner module/DSPF (AR-EF3)
- Scanner Rack (AR-RK2)
- Any one of the stand/MPD & 2000 sheet paper drawer (AR-D28), the stand/3 x 500 sheet paper drawer (AR-D27), or the multi purpose drawer (AR-MU2)
- Any one of the upper exit tray extension (AR-TE4), the finisher (AR-FN6), the mail-bin stacker (AR-MS1), or the cover option at right side (AR-TE5)

B. Option lineup

For combinations of options, refer to "C. List of combination of peripheral devices" described later.

(1) Major options



No.	Option name		Installing conditions
1	B/W scanner module/DSPF	AR-EF3	• The scanner rack (AR-RK2) is required. • Either of the stand/3 x 500 sheet paper drawer (AR-D27) or the stand/MPD & 2000 sheet paper drawer (AR-D28) is required.
2	Stand/MPD & 2000 sheet paper drawer	AR-D28	• Simultaneous installation with the large capacity paper feed desk (AR-D28) or the 3-stage paper feed desk (AR-D27) is inhibited.
3	Stand/3 x 500 sheet paper drawer	AR-D27	
4	Multi purpose drawer	AR-MU2	
5	Upper exit tray extension	AR-TE4	• Required when the finisher (AR-FN6) or the mail-bin stacker (AR-MS1) is not installed.
6	Cover option at right side	AR-TE5	
7	Exit tray	AR-TE3	• Required when the duplex module (AR-DU3) is installed and the saddle stitch finisher (AR-FN7) is not installed.
8	Duplex module/bypass tray	AR-DU4	• Any one of the multi purpose drawer (AR-MU2), the stand/3 x 500 sheet paper drawer (AR-D27), or the stand/MPD & 2000 sheet paper drawer (AR-D28) is required. • The duplex module/bypass tray (AR-DU4) cannot be installed with the exit tray (AR-TE3) or the saddle stitch finisher (AR-FN7). • When the duplex module (AR-DU3) is installed, the exit tray (AR-TE3) or the saddle stitch finisher (AR-FN7) is required.
9	Duplex module	AR-DU3	
10	Saddle stitch finisher	AR-FN7	• Simultaneous installation with the finisher (AR-FN6) is inhibited. • The duplex module (AR-DU3) is required. • The stand/3 x 500 sheet paper drawer (AR-D27) or the stand/MPD & 2000 sheet paper drawer (AR-D28) is required.
11	Finisher	AR-FN6	• Simultaneous installation with the saddle finisher (AR-FN7) is inhibited. • Any one of the multi paper drawer (AR-MU2), the stand/3 x 500 sheet paper drawer (AR-D27), or the stand/MPD & 2000 sheet paper drawer (AR-D28) is required.
12	Mail-bin stacker	AR-MS1	• Any one of the multi paper drawer (AR-MU2), the stand/3 x 500 sheet paper drawer (AR-D27), or the stand/MPD & 2000 sheet paper drawer (AR-D28) is required.
13	Fax expansion kit	AR-FX12	• The scanner rack (AR-RK2) and the stand/3 x 500 sheet paper drawer (AR-D27), or the stand/MPD & 2000 sheet paper drawer is required. • The B/W scanner module/DSPF (AR-EF3) is required.

(2) Other options

Option			Installing conditions
Paper exit unit	Punch unit	AR-PN1	For saddle stitch finisher (AR-FN7)
Function expansion options	PS3 expansion kit	AR-PK6	
	Network scanner expansion kit	AR-NS3	
	Sharpdesk 1 licence kit	AR-U11M	For network scanner expansion kit (AR-NS3)
	Sharpdesk 5 licence kit	AR-U15M	
	Sharpdesk 50 licence kit	AR-U1AM	
	Sharpdesk 100 licence kit	AR-U1BM	
	Data security kit (CC version)	AR-FR21	
	Data security kit (Commercial version)	AR-FR21U	
	Bar code font	AR-PF1	
	Flash ROM kit	AR-PF2	
FAX-related option	Fax memory (8 MB)	AR-MM9	For fax expansion kit (AR-FX12)

C. List of combination of peripheral devices

As shown in the table below, some other peripheral devices (B) may be needed for installation of a peripheral device (A) and some peripheral devices cannot be installed together.

A		B: B/W scanner module/DSPF	Scanner rack	Multi purpose drawer	Stand/3 x 500 sheet paper drawer	Stand/MPD & 2000 sheet	Duplex module/bypass tray	Duplex module	Saddle stitch finisher	Finisher	Mail-bin stacker	Exit tray	Upper exit tray extension	Punch unit	Cover option at right side	Multi-function controller board	Print server card	PS3 expansion kit	Network scanner expansion kit	Facsimile expansion kit	Fax memory (8 MB)	Bar code font	Flash ROM kit	Data security kit (CC version)	Data security kit (Commercial version)
Related to scanner feature																									
B/W scanner module/DSPF	AR-EF3	—	○	×	○*1											○									
Scanner rack	AR-RK2	○*1	—	×	○*1											○									
Related to paper feed unit																									
Multi purpose drawer	AR-MU2	×	×	—	×	×			×					×					×	×	×					
Stand/3 x 500 sheet paper drawer	AR-D27			×	—	×																			
Stand/MPD & 2000 sheet paper drawer	AR-D28			×	×	—																			
Duplex module/bypass tray	AR-DU4			○*1			—		×					×											
Duplex module	AR-DU3			○*1				—																	
Output units																									
Saddle stitch finisher	AR-FN7			×	○*1		×	○	—	×		×													
Finisher	AR-FN6			○*1					×	—	×		×	×											
Mail-bin stacker	AR-MS1			○*1						×	—		×												
Exit tray	AR-TE3						○*1		×	×	×	—		×											
Upper exit tray extension	AR-TE4									×	×		—												
Cover option at right side	AR-TE5																				—				
Punch unit	AR-PN1			×	○*1		×	○	○	×		×		—											
Related to extension of functions and others																									
PS3 expansion kit	AR-PK6																	—							
Network scanner expansion kit	AR-NS3	○*1	○	×	○*1											○	○		—						
Facsimile expansion kit	AR-FX12	○*1	○	×	○*1											○				—					
Fax memory (8 MB)	AR-MM9	○*1	○	×	○*1											○				○	—				
Bar code font	AR-PF1																					—			
Flash ROM kit	AR-PF2																						—		
Data security kit (CC version)	AR-FR21																							—	
Data security kit (Commercial version)	AR-FR21U																								—

○ = Must be installed together.
○*1 = Any of the units must be installed together.
× = Cannot be installed together.

[3] SPECIFICATIONS

1. Basic Specification

A. Base Engine

(1) Form

Console type

(2) Engine speed

Paper size	AR-M355N	AR-M455N
A4, 8.5" x 11"	35ppm (31ppm*)	45ppm (40ppm*)
A4R, 8.5" x 11"R	25ppm	30ppm
A5R/5.5" x 8.5"R, Invoice-R	35ppm	45ppm
B5	35ppm	45ppm
B5R, Exective-R	25ppm	30ppm
B4/8.5" x 14	20ppm	22ppm
A3/11" x 17"	17ppm	20ppm
8K	17ppm	20ppm
16K	35ppm	45ppm

* Paper feed from Manual bypass tray

(3) Engine composition

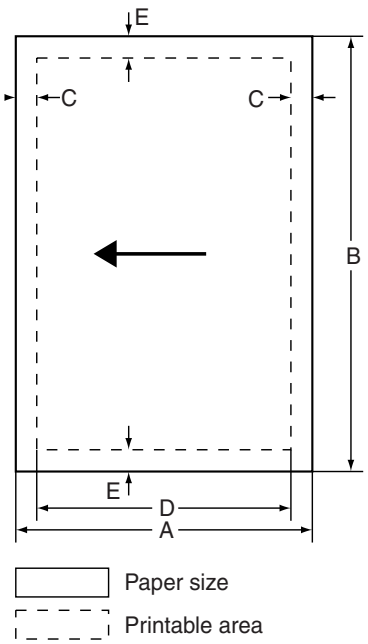
Photoconductor type	OPC (diameter of photoconductor : ø30mm)
Record method	Electrophotograph (laser)
Development method	Dry-type dual-component magnetic brush development
Charge method	Charged saw-tooth method
Transfer method	Transfer roller
Cleaning method	Counter blade
Fusing method	Heat roller

(4) Engine resolution

Resolution	Read: 600dpi Write :600dpi
Smoothing	Write :1200dpi equivalent
Gradation	Write :2 levels

(5) Printable area

The print area of this product is shown below.



If a printer driver for Windows or Macintosh is used for printing, the printable area will be smaller. The actual printable area depends on the printer driver to be used.

(in mm)

Paper size	A	B	C	D	E
A3	297	420	4	289	4
B4	257	364	4	242	4
A4	210	297	4	202	4
B5	182	257	4	168	4
A5	148	210	4	140	4
Japanese postcard	100	148	4	92	4
Ledger	279	432	4	271	4
Legal	216	356	4	208	4
Foolscap	216	330	4	208	4
Letter	216	279	4	208	4
Executive	184	267	4	183	4
Invoice	140	2162	4	132	4
Com-10 (envelope)	105	241	4	97	4
C5 (envelope)	162	229	4	154	4
Monarch (envelope)	98	191	4	90	4
DL (envelope)	110	220	4	102	4
ISO B5(envelope)	176	250	4	168	4

(6) Warm-up

Warm-up time	less than 80 seconds
Pre-heat requirement	Required
Jam recovery time	Target: about 30 seconds (Under standard condition of 60 seconds left after side cover opening, polygon motor halt)

(7) Power source

Voltage	100V system
	100-127V
Frequency	50/60Hz
Power cord	Inlet type

(8) Power consumption

	AR-M355N	AR-M455N
Max. Power consumption		
Energy consumption efficiency		

(9) Energy Star benchmark

	AR-M355N	AR-M455N
Low power mode	184.75W	223.25W
Recovery time from low power mode	Max. 30 sec.	Max. 30 sec. (Recommendation)
Sleep mode	Less than 80W	Less than 95W
Transition time to sleep mode	60 min. (Max. 240 min.)	90 min. (Max. 240 min.)

(10) Noise

At working	less than 6.8B
At waiting mode	less than 5.0B

* Showing noise benchmark in each model as a whole system.

(11) Dimensions

External dimensions (W x D x H)	16.9" x 21.7" x 18.5" (428 x 552 x 475 mm) (Only main unit)
Occupied space dimensions (W x D)	25.7" x 22.3" (654 x 567 mm) *1
Weight	Approx. 85.7 lb (38.9kg) (include developer and controller board)

*1: With multi purpose tray (AR-MU1)

B. Document Feeding Equipment

(1) One-drawer tray (included in the base engine)

Paper feed method	One-drawer tray
Sizes to be fed	A4, B5, 8.5" x 11"
Paper capacity	500 sheets (at 80g/m²)
Media available for paper feeding	Plain paper 60 - 105g/m², 16 - 28lbs
Paper type	Plain, recycled, pre-printed, pre-punched, color, letter head
Paper size switching	To be switched by user (paper size to be entered from the operation panel).
Dehumidification heater	Not provided
Balance detection	Provided (paper empty and 3 steps)
Default size setting	100V system
	8.5" x 11"
Mounting/demounting of the tray	Provided

C. Output Equipment

(1) Face-down Exit Tray (included in the base engine)

Output position/method	Face-down output at the upper side of main unit
Output paper capacity	400 sheets (80g/m² sheet)
Output paper size	A3, B4, A4, A4R, B5, B5R, A5R 11 " x 17", 8.5" x 14", 8.5" x 13", 8.5" x 11 ", 8.5" x 11 "R, 5.5" x 8.5"R Executive, postal card, Monarch (98 x 191), 8K, 16K, 16KR Com-10 (105 x 241), DL (110 x 220), C5 (162 x 229), ISO B5 (176 x 250)
Spec of media for paper output	Tracing paper : 52 ~ 59g/m² / 14 ~ 15lbs Plain paper : 60 ~ 128g/m² / 16 ~ 34lbs Index paper : 176g/m² / 47lbs Cover paper : 205g/m² / 54 ~ 55lbs Transparency firm
Remaining paper detection	Not provided
Exit tray full detection	Provided

2. Specific Function

A. Printer Function

(1) Platform

IBM PC/AT (Include compatible machine) Macintosh

(2) Support OS

Custom PS	Windows 95/98/Me
	Windows NT 4.0 Windows 2003 server Windows 2000 server Windows 2000 Windows XP
Custom PCL5e/6(XL)	Windows 95/98/Me
	Windows NT 4.0 Windows 2003 server Windows 2000 server Windows 2000 Windows XP
PPD	Windows 95/98/Me
	Windows NT 4.0 Windows 2003 server Windows 2000 server Windows 2000 Windows XP
	MacOS 8.6 - 9.x, 10.1.5, 10.2 - 10.2.8 (except for Mac OS 10.2.2), 10.3-10.3.3

(3) PDL emulation

PCL6 compatible, PCL5e compatible, PostScript 3 compatible

(4) Windows driver function

a. General

Function	PCL5e	PCL6	PS	PPD file *1 (for Windows XP)
Copies	1-999			
Orientation	Portrait Landscape			Portrait Landscape-A Landscape-B (*2)
Duplex	1-sided 2-sided (Left /top/ right binding)			1-sided 2-sided (Long / short binding) (*2)
Booklet	Invoice on Letter Letter on Ledger A5 on A4 A4 on A3 B5 on B4 Letter on Letter Ledger on Ledger A4 on A4 A3 on A3 B4 on B4			Yes (2up booklet only) (*2)
Binding edge	Left / top / right			–
N-up	2/4/6/8/9/16			2 / 4 / 6 / 9 / 16 (*2)
N-up order	Z / Reversed Z / N / Reversed N			Z (*2)
N-up border	Yes / No			Always Yes (*2)

*1: For printing, PS driver bundled with the Windows is required.

*2: Since the function is of PS driver bundled with Windows, specification may vary according to the OS.

b. Paper Input

Function	PCL5e	PCL6	PS	PPD file *1 (for Windows XP)
Paper size	A3 / B4 / A4 / B5 / A5 / Ledger / Legal / Foolscap / Letter / Executive /Invoice/8k / 16k /COM10/C5/ Monarch/DL			
Paper type	Plain Letter Head Pre-Print Pre-Punch Recycle Color Label Heavy Paper Transparency Envelope			
Custom paper type	7 type			–
Source selection	Automatic Tray 1/2/3/4 Bypass-tray			
Cover	Yes/No User can select from 1-sided/2-sided/ No print			–
Insert page	Yes/No User can select from 1-sided/2-sided/ No print			–
Transparency inserts	No Yes (Blank) Yes (Printed)			–

*1: For printing, PS driver bundled with the Windows is required.

c. Paper Output

Function	PCL5e	PCL6	PS	PPD file *1 (for Windows XP)
Output tray selection	Center tray			
	Finisher • Top tray • Offset tray			
	Saddle Stitch Finisher • Offset tray			
	Mailbin stacker • Mailbin top tray • Mailbin (1-7)			
	Duplex module • Left tray			
Staple	Finisher • No staple • 1 staple • 2 staples			
	Saddle Stitch Finisher • No staple • 1 staple • 2 staples			Saddle Stitch Finisher • No staple • 1 staple • 2 staples
Offset cancel	Yes/No			

*1: For printing, PS driver bundled with the Windows is required.

d. Graphic

Function	PCL5e	PCL6	PS	PPD file *1 (for Windows XP)
Resolution setting	600/300 dpi		600dpi	600dpi
Halftone setting	–	No	Screen frequency 8.0 to 360.0 in 0.1 steps Screen angle 0.0 to 360.0 in 0.1 steps	–
Graphics mode	Raster HP-GL2	Raster Vector	–	–
Smoothing	Yes/No			
Toner save	Yes / No			
Photo enhancement	–	Yes/No	–	–
Negative image	–	–	Yes / No	
Mirror image	–	–	Horizontal Vertical	Horizontal (*2)
Zoom	–	–	25-400% (XY zoom)	1-1000% (*2)
Fit to page	Yes / No			–

*1: For printing, PS driver bundled with the Windows is required.

*2: Since the function is of PS driver bundled with Windows, specification may vary according to the OS.

e. Font

Function	PCL5e	PCL6	PS	PPD file *1 (for Windows XP)
Download font	Bitmap TrueType		Bitmap Type1 TrueType	Auto Outline Bitmap Native TrueType (*2)

f. Others

Function	PCL5e	PCL6	PS	PPD file *1 (for Windows XP)
Configuration setting	Yes			
Watermark	Yes			Yes (functionality is limited)
Edge to edge	Yes			–
Line width setting	–			
Form overlay	Yes			–
Print hold	Yes			–
Confidential print	Yes			–
Sample print	Yes			–
Print accounting	Yes			–
Quick sets	Yes			–
Auto configuration	Yes			–
Job end notification	Yes			–
Tandem print	Yes			
Carbon print	Yes			–
Multi-enlargement	–			
XY zoom	–		Yes	–
Cover insert + pamphlet	Yes			–
Document filing	Yes			–

*1: For printing, PS driver bundled with the Windows is required.

*2: Since the function is of PS driver bundled with Windows, specification may vary according to the OS.

(5) Macintosh driver functions

a. General

Function	Macintosh PPD file (for Mac OS X ver10.2.8)
Copies	1-999
Orientation	Portrait Landscape-A Landscape-B (*1)
Duplex	1-sided 2-sided Pamphlet (Right /left /top binding)
Booklet	Yes
N-up	2/4/6/9/16 (*1)
N-up order	Z / reversed Z / N / reversed N (*1)
N-up border	None / Single hairline / Single thin line / Double hairline / Double thin line (*1)

*1: Since the function is of PS driver bundled with Macintosh, specification may vary according to the OS.

b. Paper input

Function	Macintosh PPD file (for Mac OS X ver10.2.8)
Paper size	A3 / B4 / A4 / B5 / A5 / Japanese Postcard / Ledger / Legal / Foolscap / Letter / Executive / Invoice/ 8K / 16K/ COM10/C5/Monarch/DL
Paper type	Plain / Letter Head / Pre-Print / Pre-Punch / Recycle / Color / Label / Heavy Paper / Transparency / Envelope
Custom paper type	7
Source selection	Automatic Tray 1/2/3/4 Bypass-tray
Different 1st page	Yes / No (*1)
Cover / insert page	– (On OS9, user can select from: No/First Page/Last Page) (*1)
Transparency inserts	No Yes (Blank) Yes (Printed)

*1: Since the function is of PS driver bundled with Macintosh, specification may vary according to the OS.

c. Paper output

Function	Macintosh PPD file (for Mac OS X ver10.2.8)
Output tray selection	Center tray
	Finisher • Top tray • Offset tray
	Saddle Stitch Finisher • Offset tray
	Mailbin stacker • Mailbin top tray • Mailbin (1-7)
	Duplex module • Left tray
Staple	Finisher • No staple • 1 staple • 2 staples
	Saddle Stitch Finisher • No staple • 1 staple • 2 staples
Offset	Yes/No

d. Graphic

Function	Macintosh PPD file (for Mac OS X ver10.2.8)
Resolution setting	600dpi
Halftone setting	–
Graphics mode	–
Smoothing	Yes/No
Toner save	Yes / No
Photo enhancement	Yes/No
Negative image	–
Mirror image	–
Zoom	1-100000 (*1)
Fit to page	–

*1: Since the function is of PS driver bundled with Macintosh, specification may vary according to the OS.

e. Font

Function	Macintosh PPD file (for Mac OS X ver10.2.8)
Download font	– (Selectable only on MacOS9.x.x - LaserWriter) (*1)

f. Others

Function	Macintosh PPD file (for Mac OS X ver10.2.8)
Configuration setting	Yes
Watermark	Yes
Edge to edge	Yes
Form overlay	–
Print hold	Yes
Confidential print	Yes (PIN selection)
Sample print	Yes
Print accounting	Yes
Quick sets	–
Auto configuration	– (OS9: Yes)
Job end notification	–
Tandem print	Yes
Carbon print	–
Multi-enlargement	–
XY zoom	–
Cover insert + pamphlet	–
Document filing	Yes (*1)

*1: Since the function is of PS driver bundled with Macintosh, specification may vary according to the OS.

(6) Compatibility

PCL 5e compatibility	Target for PCL5e is to be compatible with HP LaserJet 4050. Small margin difference, rendering difference by different font family, default and transfer function difference is not to be included in the compatibility. All the PJL commands are not necessarily included in the compatibility.
PCL6 compatibility	Target for PCL6 is to be compatible with HP LaserJet 4050. Small margin difference, rendering difference by different font family, default and transfer function difference is not to be included in the compatibility. All the PJL commands are not necessarily included in the compatibility.
PostScript Compatibility	PostScript is targeted to be compatible with Adobe PostScript as performed in HP LaserJet 4050. Small margin difference, rendering difference by different font family, default and transfer function difference is not to be included in the compatibility.

B. Image send function

(1) Mode

Scanner (Scan to E-mail, Scan to Sharpdesk, Scan to FTP, Scan to HDD), FAX, Internet FAX

(2) Support system

Mode	Scanner	Internet FAX	FAX
Supported server	SMTP server FTP server	POP server SMTP server ESMTP server	–

(3) Support image

Format	TIFF, PDF, TIFF-F, TIFF-FX		
	Scanner	Internet FAX	FAX
Compression method	Uncompressed, G3 (1-dimension) *1, G4 *3 *1 G3 (1-dimension) = MH (Modified Huffman) *3 G4 = MMR (Modified MR)	MH, MMR	MH, MR, MMR, JBIG

(4) Image process

Mode	Scanner	Internet FAX	FAX
Half tone reproduction	Equivalent to 256 levels		
Exposure adjustment	Auto + 5 steps		
Quality selection	Half-tone ON/OFF (It's not effective for the following resolution with *.)		
Resolution (Varies with the file type/ transmission method)	200 x 200dpi *	200 x 100dpi *	Normal (203.2 x 97.8dpi) *
	300 x 300dpi	200 x 200dpi	Small letter (203.2 x 195.6dpi)
	400 x 400dpi	200 x 400dpi	Fine (203.2 x 391dpi)
	600 x 600dpi	400 x 400dpi	Extra fine (406.4 x 391dpi)
	–	600 x 600dpi	–

(5) Specified destination

Mode	Scanner	Internet FAX	FAX
LDAP	Yes (Also can be stored in one-touch address.)		
Specified destination	Specifying by one-touch or group, manual destination entry		
One-touch keys (Max. number of keys to be stored.)	Max. 999 destinations In this, FTP and Desktop are 200 destinations.		
Group*	To be registered from one-touch and manual destination entry 500		
Program	Yes		
Manual destination entry	Soft Keyboard		Input via the numeric keys, # key and * key.
Chain dialing (Manual destination entry)	–		Up to 64-digit with pause key
Resend	This is used to recall the last destination.		
Speed dialing	This is used to recall address control number by using numeric keys.		

(6) Specified multiple destinations

Mode	Scanner	Internet FAX	FAX
Specified destination	Specifying by one-touch or group, manual destination entry.		
Max. number of Manual destination entry*	Total of 5000 destinations including group and relay broadcast.		
Sequential broadcasting	Yes (E-mail only. It is not available for FTP/Desktop.)		Yes
Simultaneous FAX transmission	–		Yes

* Manual destination entry: Entry other than One-touch, using numeric keys or soft keyboard.

* In the case of broadcast transmission including fax destination, the resolution level for fax mode is applied.

* In the case of broadcast transmission with Internet FAX and Scanner destinations, the resolution level of Internet FAX mode is applied.

* In the case of broadcast transmission, the compression format set with the key operator programs is applied.

(7) Functions

Mode			Scanner	Internet FAX	FAX
Transmit function	Memory transmit		– Data is sent by memory transmit when upper limit is set.	Yes	
	On-fook		–		Yes
	Quick online transmit		–		Yes
	Direct transmit		–		At on-hook only
	Auto reduction transmit		–		Yes: A3 → B4, A3 → A4, B4 → A4
	Rotation transmit		Yes		
	Scaling transmit		Yes (Scaling from regular size to regular size only. Some functions does not allow rotation transmit)		
	Re-call mode	Error	–	Yes	
		Busy	–	–	Yes
			No. of times/interval is set via key operator program.		
	Book original transmit		Yes		
	Long length original transmit		Yes	Yes	Yes
			Max. 800mm		
	Specified pages per file		Yes	Yes	–
	Maximum number of send data		Yes		
	Sender name		Max.999 destinations		

Mode		Scanner	Internet FAX	FAX
Receive function	Auto receive	–	Yes	
	Manual receive	–	Yes	
	Memory receive	–	Yes	
	Reduction receive for standard size	–	Yes	
	Scaling receive for specified size	–		
	Rotation receive	–	Yes	
	Divided receive	–	Yes: To be defined by key operator program	
	Duplex receive	–	Yes: To be defined by key operator program	
	2 in 1 receive	–		
	Address/Domain-specified reception is enabled.		Yes 50 address	-
	Address/Domain-specified reception is disabled.		Yes 50 address	Only the specified number
	External phone connection	–		Yes
	Answering phone connection	–	No (Remedy for PAT)	
	Transfer function at output trouble	–	Yes	
	Auto startup mode	–	Yes	
Special function	Time setting	Yes		
	Transmit request	–		Yes
	Remote transmit	–		Yes
	Cover function	–		No
	Print at sender	–	Yes	
	Page division	Yes		
	Page combination	No		
	Confidential (machine at the other end)	–		Yes (F code method)
	Transmit broadcast direction	–		Yes (F code method)
	Transmit message	–		
	Edge erase	Yes		
	Center erase	Yes		
	2 in 1	Yes		
	Card shot	Yes		
Report/ List function	Transmit/receive record	Yes		
	Transmit/receive result	No	Yes	
	Address/phone directory list	Yes		
	Group list	Yes		
	ID/Sender's address list)	–		
	Sender list	Print administrator address.	No Described in the key operation list	
	Confidential box check list	–		Yes (Integrated to the memory box list)
	Transmit group list	–		Yes (Integrated to the memory box list)
	Program list	Yes		
	Reserved transmit list	–		
	Memory box list	–		Yes (FAX mode only)
	Memory clear notice list	– (It's possible that this is output in case of errors.)		
Others	PC-facsimile transmission	–	PC-iFAX	PC-FAX

(8) Transmission method

Mode	Scanner	Internet FAX	FAX
Transmission time	–		2 seconds (level: Super G3/JBIG) 6 seconds (G3 ECM)
Modem speed	–		33.6kbps → 2.4kbps automatic fallback
Intercommunication	–		Super G3/G3
Communication line	–		General telephone line (PSTN), Private branch exchange(PBX), FAX line
ECM	–		Yes

(9) Record size

Mode	Scanner	Internet FAX	FAX
Max. record width	293mm		
Record size	–	A3-A5, 11" x 17"-5.5" x 8.5"	A3-A5, 11" x 17"-5.5" x 8.5"

(10) F code transmission

Mode	Scanner	Internet FAX	FAX
Sub address	–		Yes
Passcode	–		Yes

C. Copy function

(1) Copy Speed

	AR-M355N			AR-M455N		
	Actual	Reduction	Enlargement	Actual	Reduction	Enlargement
A4, 8.5" x 11"	35	35	35	45	45	45
A4R, 8.5" x 11"R	25	25	25	30	30	30
A5R, 5.5" x 8.5"R, Invoice-R	35	35	35	45	45	45
B5	35	35	35	45	45	45
B5R, Exective-R	25	25	25	30	30	30
B4, 8.5" x 14"	20	20	20	22	22	22
A3, 11" x 17"	17	17	17	20	20	20
Extra, Envelope	17	17	17	20	20	20

∗ Figures in reduction/enlargement are represented by those at the ratio to show slowest speed

(2) First copy time

Conditions: A4 or 8.5"x11" from front tray of PPC, with polygon motor running.

	AR-M355N	AR-M455N
Document glass *1	Less than 5.3 seconds	Less than 4.6 seconds
DSPF	Less than 6.0 seconds	Less than 5.3 seconds

*1: During OC mode

(3) Job speed

	AR-M355N	AR-M455N
S→ S *1	33 cpm (94%)	42 cpm (93%)
S→ D *2	32 cpm (91%)	40 cpm (88%)
D→ D *3	32 cpm (91%)	40 cpm (88%)

*1: S → S : A4 / 8.5" x 11" original 5 sheets copy 5sets
*2: S → D : A4 / 8.5" x 11" original 10 sheets copy 5sets
*3: D → D : A4 / 8.5" x 11" original 5 sheets (10 pages) copy 5sets

(4) Continuous copy

Max. multiple number	999 pages

(5) Copy Ratio

Copy ratio	AB series : 25%, 50%, 70%, 81%, 86%, 100%, 115%, 122%, 141%, 200%, 400% Inch series : 25%, 50%, 64%, 77%, 100%, 121%, 129%, 200%, 400%
Zoom	25 - 400% 25 - 200% (Copy from DSPF)
Independent scaling	4

(6) Exposure/Copy Quality Process

Exposure mode	Binary: Text(auto/manual), Text/photo, Photo 256 levels: Not provided
Manual steps	9 steps
Toner save mode	Standard

(7) Copy Function

Function	APS	Yes
	AMS	Yes
	XY zoom	Yes
	Paper type select	Yes (By type setting)
	Auto tray switching	Yes
	Rotation copy	Yes
	Electronic sort	Yes
	Rotation sort	Yes
	Reserved copy	Yes
	Prior tray setting	No
	Recall/register of program	Yes
	Document filing	Yes
	Proof copy	No
	Preheat function	Yes (To be set up by the key operator program)
	Auto power shut-off function	Yes (To be set up by the key operator program)
	Account control	Yes 500 accounts
	Process control	Yes
	Tandem copy	Yes (via network)
	Tab copy	No
	Book copy	Yes
	Irregular original size input	Yes
	Irregular paper size input	Yes

Special function	Margin shift	Yes
	Edge erase/Center erase	Yes
	Dual page copying	Yes
	Covers/Inserts/Tab Inserts	Yes
	Transparency insert	Yes
	Centering	No
	Multi shot (Nin1)	Yes (2 in 1 / 4 in 1) (Centering: Yes)
	Card shot	Yes
	Pamphlet copy	Yes (Centering: Yes)
	2-sided copy orientation change	Yes
	Job build	Yes (max.10000 sheets)
	Negative image	Yes
	Shading	No
	Mirror image	Yes
	Multi-page enlargement	No
	Repeat	No
	Date stamp	Yes
	Stamp	Yes
	Character stamp	Yes
	Page stamp	Yes

Yes: Standard Function

No: Not provided

3. B/W Scanner Module (DSPF)

(1) Form

Scanner (Document glass) / DSPF standard
Operation panel integral type
(common hardware for all the destinations)

(2) Resolution / Gradation

Reading resolution (dpi)						
	Copy mode					
	Magnification	25 - 99	100	101 - 200	201 - 400	–
	OC	600x600	600x600	600x600	600x600	–
	OC (High speed): Text/Auto	600x600	600x300	600x600	600x600	–
	OC (High speed): Others	600x600	600x300	600x600	600x600	–
	DSPF/SPF (standard)	600x300	600x300	600x600	-	–
	DSPF/SPF (high quality)	600x600	600x600	600x600	-	–
Input and transmitting resolution (dpi)						
	FAX transmit mode and scanner/fax multicasting mode					
	Selection mode	Standard	Fine	Super fine	Ultra fine	600dpi sending
	Input resolution: OC	600 x391.2	600x391.2	600x391.2	600x391.2	–
	Input resolution: DSPF	600x300	600x300	600x300	600x300	–
	Transmitting resolution	203.2x97.8	203.2x195.6	203.2x391	406.4x391	–
	Internet-FAX					
		200x100	200x200	200x400	400x400	600x600
	Scanner mode					
	Selection mode	Standard	Fine	Super fine	Ultra fine	–
	Input resolution: OC	600x391.2	600x391.2	600x391.2	600x600	–
	Input resolution: DSPF	600x300	600x300	600x300	600x300	–
	Transmitting resolution	200x200	300x300	400x400	600x600	–
Reading level						
	256 tones					
Exposure lamp						
	Electrodeless xenon lamp					
Output level						
	Binary					

(3) Document Glass

Reading area	297 x 431.8 (mm) 11.7" x 17"	
Original alignment	Left edge / Rear corner alignment	
Original size detection	Provided (Standard size only)	
Sizes to be detected	Automatic (one detection unit to be used with software modification by destination)	
	Inch-1	11" x 17", 8.5" x 14", 8.5" x 11", 8.5" x 11"R, 5.5" x 8.5"
	Inch-2	11" x 17", 8.5" x 13", 8.5" x 11", 8.5" x 11"R, 5.5" x 8.5"
	AB-1	A3, B4, A4, A4R, B5, B5R, A5
	AB-2	A3, A4, A4R, A5, B5, B5R, 216 x 330 mm
	AB-3	8K, A4, A4R, A5, B4, 16K, 16KR

OR guide display	Rear left side (Print display)	Original reference position "⇒"
	Left side OR guide (Print display)	(From the Interior side) 5-1/2, A5R, B5R, A4R/A5, 8.5", B4R/B5, 11", A3R/A4
	Interior side OR guide (Print display)	(From the left side) 5-1/2, A5, B5, A4/A5R, 8-1/2, B5R, 11", A4R, 13", 14", B4R, A3R, 17"
	Interior side OR guide	Book marks are at A4 and 8-1/2 positions.
	The position available to attach the staple position guide label when the optional finisher (desktop console type) is equipped.	

(4) DSPF/SPF

Type	DSPF	One-scan-dual-side scanning method DSPF with OC integrated
Scan speed	Standard mode	45 opm
	High quality mode	22.5 opm
Original alignment	Center alignment	
Original size	A3, B4, A4, A4R, B5, B5R, A5, A5R 11"x17", 8.5"x14", 8.5"x13", 8.5"x11", 8.5"x11"R,5.5"x8.5", 5.5"x8.5"R, 8K, 16K, 16KR (Long size original up to 800mm in FAX, e-mail and iFAX mode)	
Original paper weight	50~128g/m², 15~34lbs	
Original stack capacity	Max. 50 sheets (Max. 30 sheets for A3, B4,11" x 17",8.5" x 14") (Max. 15 sheets for A3, B4, 11" x 17", 8.5" x 14" over 105g/m²) or, Total thickness less than Max. 6.5mm (at 50 to 80g/m², 15 to 21lbs) Max. 5.0mm (at 80 to 128g/m², 21 to 34lbs)	
Not transportable original type	Transparency film, secondary original paper, tracing paper, carbon paper, thermal paper, original with crumple/crimp/rip, original with attachment/clipping, original with many punch holes (with 2 or 3 holes acceptable), original preprinted with ink-ribbon.	
Original size detection	Provided	
Sizes to be detected	Automatic (one detection unit to be used with software modification by destination)	
	Inch-1	11" x 17", 8.5" x 14", 8.5" x 11", 8.5" x 11"R, 5.5" x 8.5", A4, A3
	Inch-2	11" x 17", 8.5" x 13", 8.5" x 11", 8.5" x 11"R, 5.5" x 8.5", A4, A3
	AB-1	A3, B4, A4, A4R, B5, B5R, A5, A3, 8.5" x 11", 11" x 17" 216 x 330 mm
	AB-2	A3, B4, A4, A4R, B5, B5R, A5, 8.5" x 11", 11" x 17", 216 x 330 mm
Original tray guide display	Center of the tray (inscribeddisplay)	Original reference position "←" Original face-down placement indication "⎙"
	Original Guide (inscribed display)	(From Center) B5R, A4R/A5, 8.5", B4R/B5, 11", A3R/A4
	The position available to attach the staple position guide label when the optional finisher (desktop console type) is equipped.	

(5) Power Source

Supplied from the main unit

(6) Dimensions

External dimensions (WxDxH)	808 x 619x180 mm
Occupied space dimensions (WxD)	945 x 619 mm (When the tray is extended)
Weight	Approx. 19.5 kg

(7) Display device at scanner part

Type	Dot map LCD, touch panel
Display dot number	640 x 240 dots (dot pitch 0.24x0.24 mm)
LCD operating dimension	153.5 x 57.5 mm
LCD back-light	Fluorescent tube method
LCD brightness adjustment	Provided

(8) Key

Mode selection area	Job status key Document filing key (* online display LED/data in-memory display LED) Image send key (busy display LED/data in-memory display LED) Copy mode key User definition key
Basic input area	Start key CA key 10-key Clear key * key #/P key

* For pirnter

(9) Touch sense method

Resistive film method

(10) Used character in the LCD

Dot	8 x 16 , 16 x 16 dots
Bold display	O

4. Rack for Scanner

(1) Dimensions

Strength	60 kg
External dimensions (W x D x H)	30 x 415 x 860 mm (Single goods)
Occupied space dimensions (W x D)	575 x 415 mm (State of installation) (2pieces)
Weight	Approx.5 kg (2pieces)

[4] CONSUMABLE PARTS

1. Supply system table

A. USA/CANADA

NO	Name	Content		Life	Product name	Remark
1	Toner cartridge (Black)	Toner cartridge (with IC) (Toner : Net weight 750 g)	x 10	350k (35k x 10)	AR-455MT	*Life setup is based on A4 6%
2	Developer (Black)	Developer (Developer : Net weight 500 g)	x 10	1000k (100k x 10)	AR-455MD	
3	Drum	OPC drum	x1	200k	AR-455DR	
4	50K maintenance kit	Cleaner blade Drum separation pawl Screen grid Toner reception seal Side malt F Side malt R Charging plate	x1 x4 x1 x1 x1 x1 x1	50K	AR-450KC1	
5	100K maintenance kit	Transfer roller Discharging plate Paper dust removing unit DV blade DV side seal F DV side seal R	x1 x1 x1 x1 x1 x1	100K	AR-450KA1	
6	Upper heat roller kit	Upper heat roller Fusing separation pawl (Upper)	x1 x4	200K	AR-450UH	
7	Lower heat roller kit	Lower heat roller Fusing separation pawl (Lower)	x1 x2	200K	AR-450LH	
8	Cleaner blade	Cleaner blade	x10	50K(x10)	AR-450CB	AR-450CB=(AR-450BL)x10
9	Cleaning roller	Cleaning roller Bearing	x10 x20	200K(x10)	AR-450CR	AR-450CR=(AR-450RC)x10
10	Staple cartridge	Staple cartridge	x3	3000x3	AR-SC1	Common with cartridge for AR-FN4 & AR-FN6
11	Staple cartridge	Staple cartridge	x3	5000x3	AR-SC2	Common with cartridge for AR-FN7

Note 1: Print on Master/individual carton:Toner/Developer in 2 languages (English/French), DR in 4 languages (English/French/German/Spanish).

Note 2: Packed with machine: DR 50K/Developer UN/Process UN

Note 3: The other maintenance parts which are not listed above are registered as service parts.

2. Production number identification

A. Drum cartridge

The lot number, printed on the front side flange, is composed of 10 digits, each digit showing the following content:

1	2	3	4	5	6	7	8	9	10

1 Number
For this model, this digit is 2.

2 Alphabet
Indicates the model conformity code. T for this model.

3 Number
Indicates the end digit of the production year.

4 Number or X, Y, Z
Indicates the production month.
X stands for October, Y November, and Z December.

5/6 Number
Indicates the production day on the month.

7 Number or X, Y, Z
Indicates the month of packing.
X stands for October, Y November, and Z December.

8/9 Number
Indicates the day of the month of packing.

10 Alphabet
Indicates the production factory. "A" for Nara Plant.

B. Toner cartridge

The lot number is of 7 digits, and each digit indicates as follows.
The lot number shall be printed in the position shown in the figure.

1	2	3	4	5	6	7

1 Version number (A - sequentially revised)

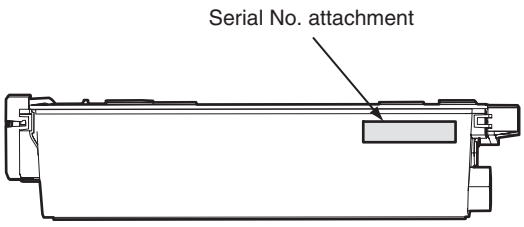
2 Numeral figure
Indicates the end digit of the production year.

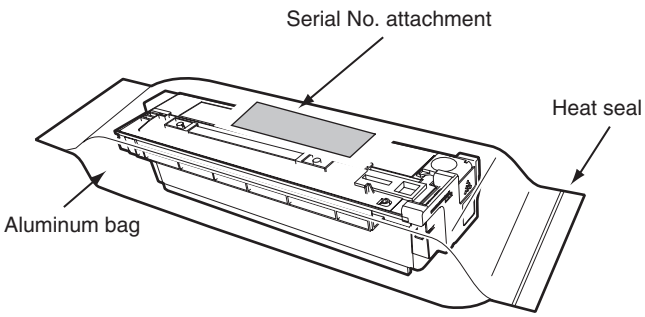
3 Alphabet
Indicates the production factory. (B for SOCC)

4 Destination code

5,6 Numeral figures
Indicates the production day.

7 Numeral figure or X, Y, Z
Indicates the production month.
X stands for October, Y November, and Z December.





C. Developer cartridge

The lot number is of 8 digit, and each digit indicates as follows.
The lot number shall be printed on the bag.

1	2	3	4	5	6	7	8

1 Alphabet
Indicates the production factory.

2 Number
Indicates the production year.

3/4 Number
Indicates the production month.

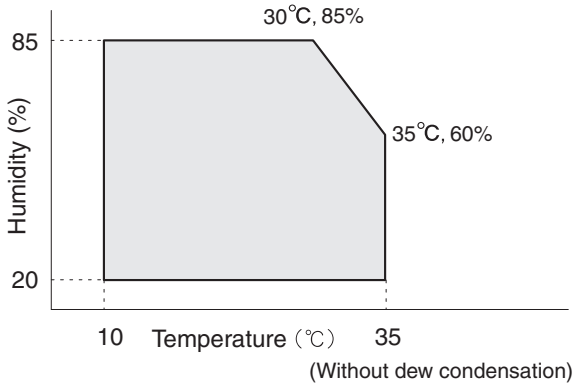
5/6 Number
Indicates the production day.

7 Hyphen

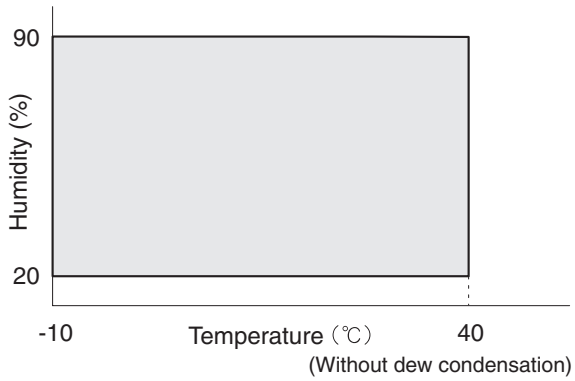
8 Number
Indicates the production lot.

3. Environmental conditions

A. Operating conditions



B. Storage conditions



[6] UNPACKING AND INSTALLATION

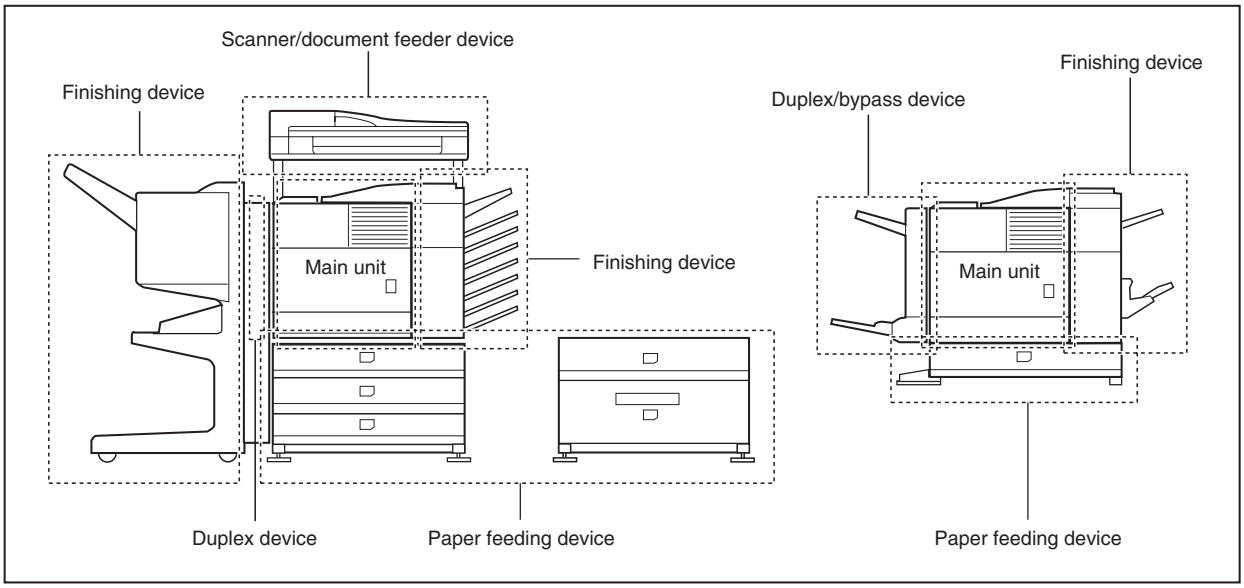
1. Installing procedure flowchart

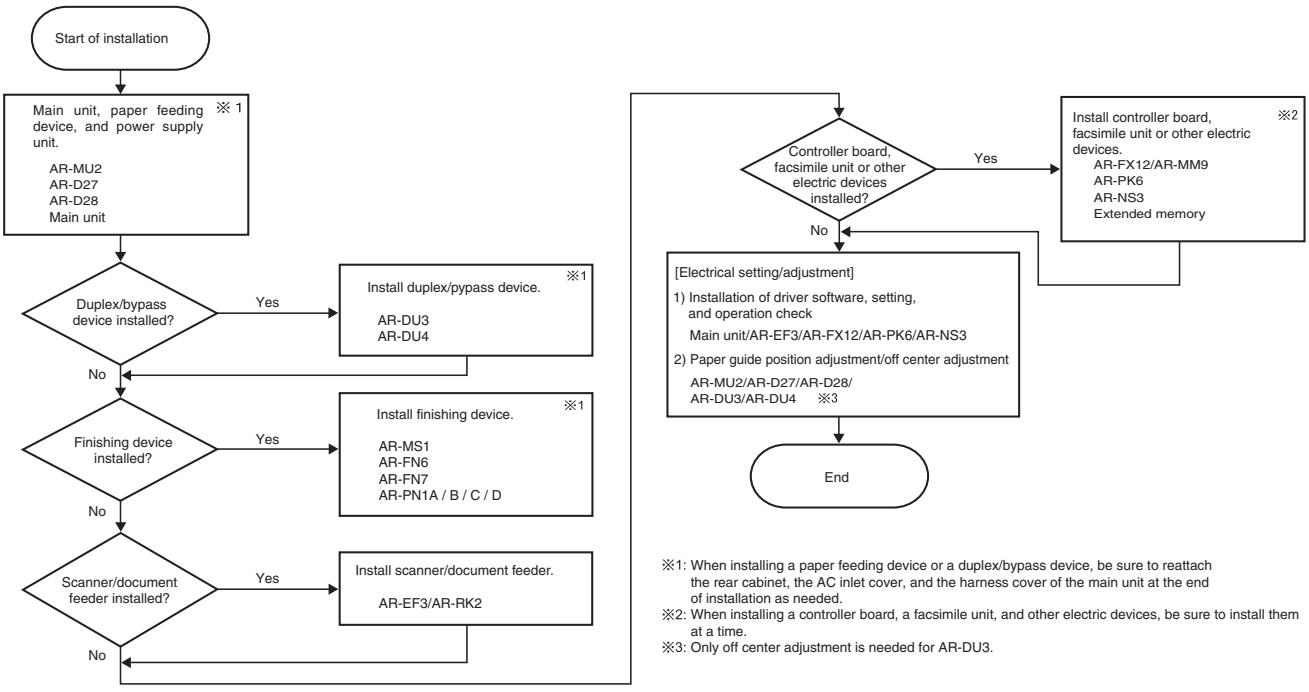
There are many combinations between this machine and option units. For installing option units, observe the following procedures for efficiency.

To install the devices effciently, follow the procedure below.

Some peripheral devices may have been installed as standard devices depending on the main unit model.

Part of descriptions and illustrations may be different.





※1: When installing a paper feeding device or a duplex/bypass device, be sure to reattach the rear cabinet, the AC inlet cover, and the harness cover of the main unit at the end of installation as needed.
※2: When installing a controller board, a facsimile unit, and other electric devices, be sure to install them at a time.
※3: Only off center adjustment is needed for AR-DU3.

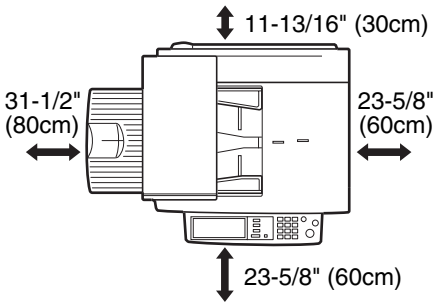
* For installation of an option unit, refer to the Service Manual of the option unit.

2. Note for installation place

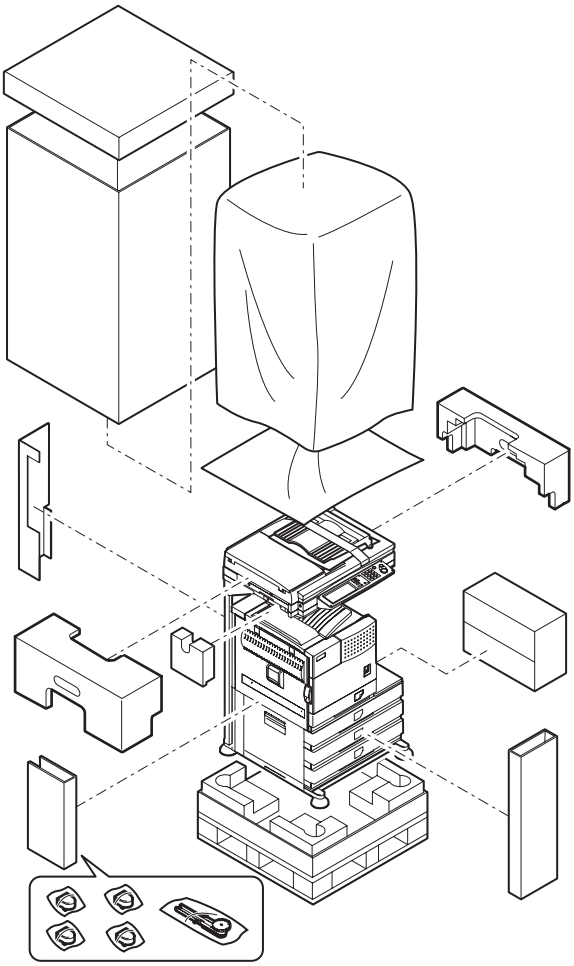
Improper installation may damage this product. Please note the following during initial installation and whenever the machine is moved.

1) The machine should be installed near an accessible power outlet for easy connection.
2) Be sure to connect the power cord only to a power outlet that meets the specified voltage and current requirements. Also make certain the outlet is properly grounded.
   - For the power supply requirements, see the name plate of the main unit.
3) Do not install your machine 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.
4) Be sure to allow the required space around the machine for servicing and proper ventilation.



3. Unpacking procedure



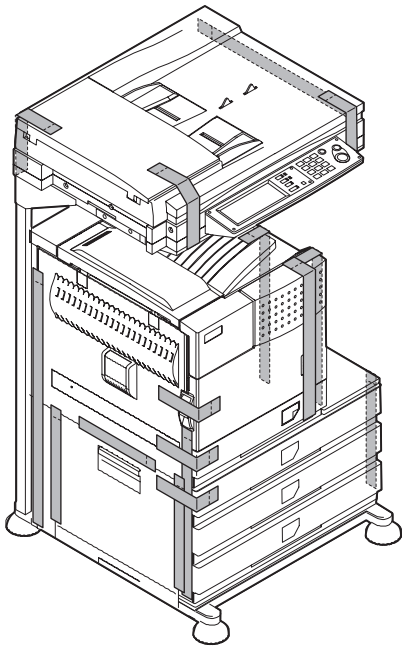
Check the following items are included in the package.

Operating Manual (Common/Copier/Key Operation)
Install Guide
CD-ROM for Printer
CD-ROM for Network Interface
Maintenance card/Maintenance case

4. Machine installing procedure

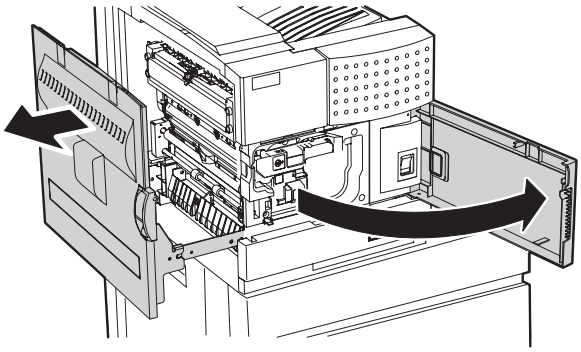
Note: In advance to installation of the machine, the paper feed option units (AR-D27/AR-D28/AR-MU2) should have been installed.

A. Remove the locking tape

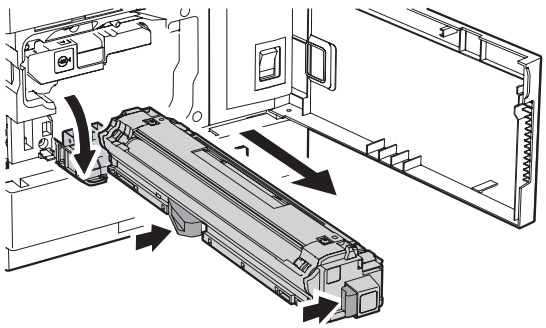


B. Setting related to process

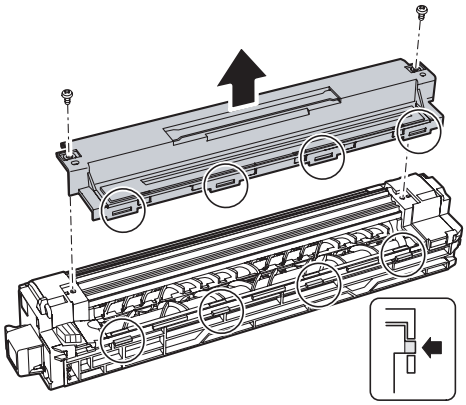
1) Open the left door and the front door.



2) Remove the developer cartridge from the machine.



3) Remove the top cover of the developer cartridge.

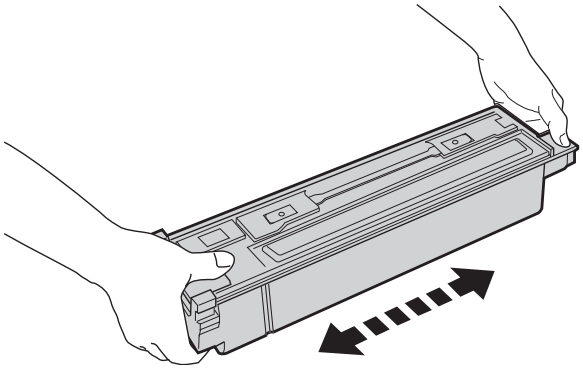


4) While rotating the MG roller, supply developer into the developer cartridge evenly.

   Note that the MG roller must be rotated in the arrow direction as shown in the figure below.

   Use of a metal scale or a screwdriver (-) facilitates the procedure.

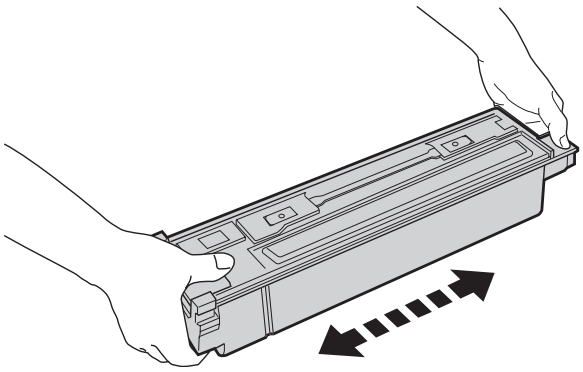
Note: Before opening the developer seal, shake it 4 or 5 times.



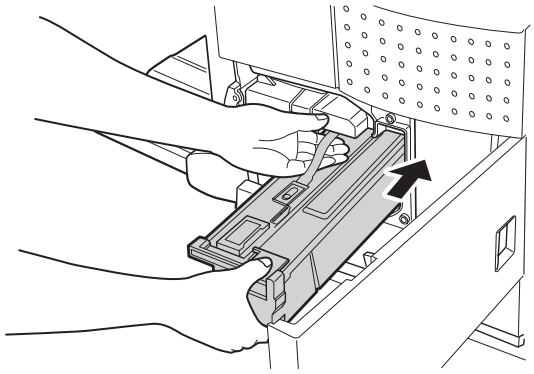
5) Attach the top cover to the developer cartridge and install the cartridge to the machine.

C. Toner cartridge settings

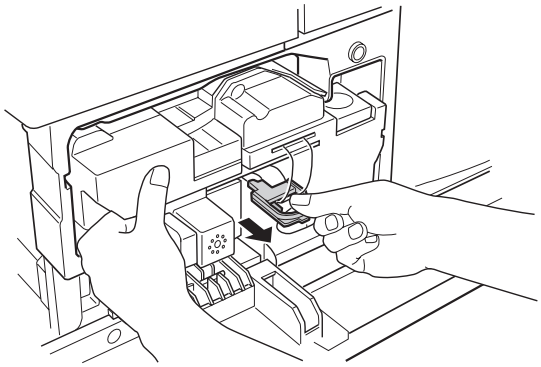
1) Remove a new toner cartridge from the package and shake it horizontally five or six times.



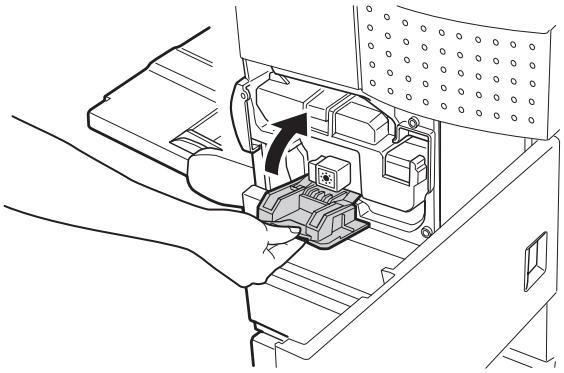
2) Insert a new toner cartridge.
Push the cartridge in until it locks securely into place.



3) Gently remove the sealing tape from the cartridge.

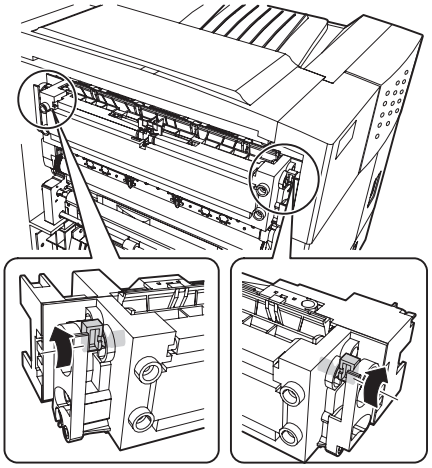


4) Return the cartridge lock lever.



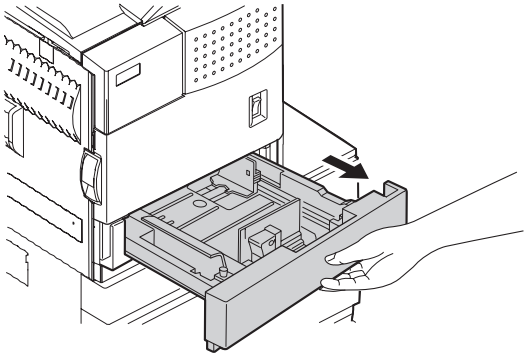
D. Setting related to fusing

1) Put down the right and the left levers of the fusing unit in the arrow direction.

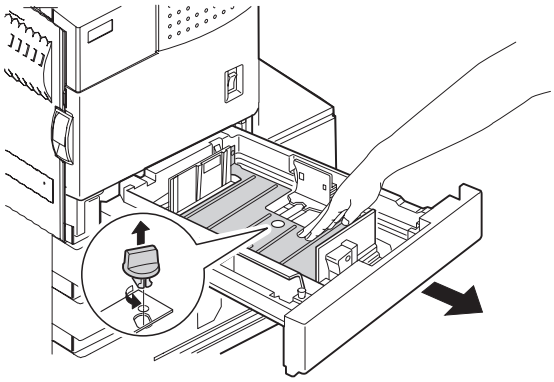


E. Paper setting

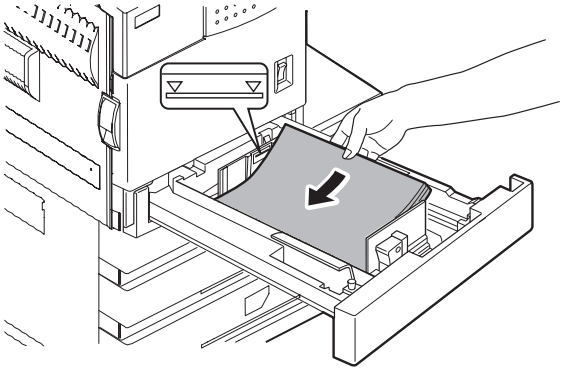
1) Pull out the first stage paper feed tray.
Slowly pull out the tray until it stops.



2) While pressing the paper holding plate, remove the fixing pin.



3) Put paper in the tray, and close the paper feed tray.



5. Automatic developer adjustment

1) Attach the cabinets which were removed.
2) Close the left door.

   At that time, keep the front door open.

Note: The automatic developer adjustment must be performed by entering the simulation mode with the front door open. If the power is turned on with the front door closed, warm-up is performed to supply toner to the developing unit. As a result, the reference toner density cannot be obtained.

3) Insert the power plug into the power outlet.
4) Go through the modes specified in Simulation 25-2.
5) Close the front door.

(LCD Display)

```
SIMULATION 25-2
AUTOMATIC DV ADJUSTMENT. PRESS START.
HUMIDITY AREA:     70.0 -  72.5
TEMPERATURE AREA:  70.0 -  72.5
DEVE REFERENCE: 128
```

Press [START] key.

Press [CUSTOM SETTINGS] key, and the operation is stopped immediately or after 3 min.

```
SIMULATION 25-2
AUTOMATIC DV ADJUSTMENT. EXECUTING···.
HUMIDITY AREA:     70.0 -  72.5
TEMPERATURE AREA:  70.0 -  72.5
DEVE REFERENCE: 118
```

6) Press the [START] key, and the automatic developer adjustment will be performed.

   During execution of the automatic developer adjustment, “EXECUTING...” is displayed and the toner sensor value is indicated on the LCD. (DEVE REFERENCE)

7) After about 2 min, the adjustment value is stored in the machine. Check that the mode was normally completed.

   Normal end: Returns to the initial window (PRESS START display).

   Abnormal end: Returns to the initial window (PRESS START display), and indicates the trouble display (TROUBLE! EE-**).

   In case of an error end, remove the cause of the error, and execute the automatic developer adjustment again.

8) Turn off/on the power, and the machine returns to the normal mode and enters the warm-up mode.

6. Print test

1) After completion of warm-up (normal mode), select [CUSTOM SETTINGS] → [Data list up] to display the menu.
2) Print [ALL SETUP LIST] to check and confirm the print quality.
3) Press the [CUSTOM SETTINGS] key again to return to the normal menu.

[7] DISASSEMBLY AND ASSEMBLY, MAINTENANCE

1. Self print of set values

Use of SIM 22-6 allows to print the set values and the jam history of the machine.
These values must be printed before execution of maintenance or disassembly procedures.

2. Maintenance System Table

A. Scanner / DSPF

Maintenance cycle : 200K

× Check (Clean, replace, or adjust as necessary.) ❍ Clean ▲ Replace Δ Adjust ☆ Lubricate ❑ Move position

Unit name	Part name		When calling	100K	200K	300K	400K	500K	600K	700K	800K	Remark
Optical section	Mirror/Lens/Reflector/Sensors		❍	❍	❍	❍	❍	❍	❍	❍	❍	
	Table glass/Dust-proof glass/OC		❍	❍	❍	❍	❍	❍	❍	❍	❍	
	White reference glass		❍	❍	❍	❍	❍	❍	❍	❍	❍	
	Rails			☆	☆	☆	☆	☆	☆	☆	☆	
	Drive belt/Drive wire/Pulley			×	×	×	×	×	×	×	×	
DSPF	Paper feed section	Pick-up roller	❍	❍	❍	❍	❍	❍	❍	❍	❍	Note 2
		Paper feed roller	❍	❍	❍	❍	❍	❍	❍	❍	❍	Note 2
		Separation mylar lower	❍	❍	❍	❍	❍	❍	❍	❍	❍	Note 2
		Separation pad	❍	❍	❍	❍	❍	❍	❍	❍	❍	Note 2
	Transport section	PS roller	❍	❍	❍	❍	❍	❍	❍	❍	❍	
		Exposure section (Dust-proof glass)	❍	❍	❍	❍	❍	❍	❍	❍	❍	
	Paper exit section	Paper exit roller	❍	❍	❍	❍	❍	❍	❍	❍	❍	
	Other	Sensors		❍	❍	❍	❍	❍	❍	❍	❍	For cleaning, blow air.

Note 2: Replacement reference: Replace by using the SPF counter value as an indication.
Paper feed section pickup roller, paper feed roller, separation pad, separation lower mylar lower:
100K or 1 year

B. Engine section

Maintenance cycle : 200K

× Check (Clean, replace, or adjust as necessary.) ❍ Clean ▲ Replace Δ Adjust ☆ Lubricate ❑ Move position

Unit name	Part name	When calling	100K	200K	300K	400K	500K	600K	700K	800K	Remark
Drum peripheral	Drum		×	▲	×	▲	×	▲	×	▲	Replace at 200K or 1 year.
	Cleaner blade		×	▲	×	▲	×	▲	×	▲	
	Toner reception seal		×	▲	×	▲	×	▲	×	▲	
	Side molt F		×	▲	×	▲	×	▲	×	▲	
	Side molt R		×	▲	×	▲	×	▲	×	▲	
	Transfer roller	×	×	▲	×	▲	×	▲	×	▲	
	Discharge plate	×	×	▲	×	▲	×	▲	×	▲	
	TR bearing (F/R)		×	×	×	▲	×	×	×	▲	
	Transfer roller collar		×	×	×	▲	×	×	×	▲	
	After-transfer star ring		×	×	×	×	×	×	×	×	
	TR gear	×	×	▲	×	▲	×	▲	×	▲	
	Drum separation pawl unit		×	▲	×	▲	×	▲	×	▲	
	MC unit	×	❍	▲	❍	▲	❍	▲	❍	▲	Includes the screen grid, the charging plate, and the MC cleaner. ❍: Charging plate cleaning by the MC cleaner
	Paper guide	❍	❍	❍	❍	❍	❍	❍	❍	❍	
Developing section	Developer		▲	▲	▲	▲	▲	▲	▲	▲	Supplied when installing
	DV blade		×	▲	×	▲	×	▲	×	▲	
	DSD collar		❍	❍	❍	❍	❍	❍	❍	❍	
	DV side seal F		×	▲	×	▲	×	▲	×	▲	
	DV side seal R		×	▲	×	▲	×	▲	×	▲	
	Toner cartridge		–	–	–	–	–	–	–	–	Attached when installing./ 750g, user replacement for every 35K.
Fusing section	Upper heat roller	×	×	▲	×	▲	×	▲	×	▲	
	Lower heat roller	×	×	▲	×	▲	×	▲	×	▲	
	Upper separation pawl	❍	❍	▲	❍	▲	❍	▲	❍	▲	
	Lower separation pawl	❍	❍	▲	❍	▲	❍	▲	❍	▲	
	Thermistor	×	×	×	×	×	×	×	×	×	Clean and remove paper dust.
	Upper heat roller gear		×	▲	×	▲	×	▲	×	▲	
	Paper guides	❍	❍	❍	❍	❍	❍	❍	❍	❍	
	Gears		☆	☆	☆	☆	☆	☆	☆	☆	
	CL roller	×	×	▲	×	▲	×	▲	×	▲	
	CL roller bearing	×	×	▲	×	▲	×	▲	×	▲	
Filters	Ozone filter		▲	▲	▲	▲	▲	▲	▲	▲	
Paper feed section	Pick-up roller	×	×	×	×	×	×	×	×	×	Note 1
	Paper feed roller	×	×	×	×	×	×	×	×	×	Note 1
	Separation roller	×	×	×	×	×	×	×	×	×	Note 1
	Torque limiter	×	×	×	×	×	×	×	×	×	Note 1
Transport section Paper exit reverse section	PS follower roller	×	❍	❍	❍	❍	❍	❍	❍	❍	
	Transport rollers	×	❍	❍	❍	❍	❍	❍	❍	❍	
	Transport paper guides	❍	❍	❍	❍	❍	❍	❍	❍	❍	
	Paper dust remover unit	❍	❍	▲	❍	▲	❍	▲	❍	▲	
	Optical reflection sensor	❍	❍	❍	❍	❍	❍	❍	❍	❍	PS roller unit section
Drive section	Gears (Specified position)	×	☆	☆	☆	☆	☆	☆	☆	☆	
	Belts	×	×	×	×	×	×	×	×	×	
Image quality		×	×	×	×	×	×	×	×	×	
Other	Sensors		×	×	×	×	×	×	×	×	Cleaning is performed by air blowing.

Note 1: Replacement reference: Use the counter value of each paper feed port as the replacement reference.
Paper feed roller/Separation pad/Torque limiter section (Include Desk, Multi purpose): 100K or 1 years

C. Peripheral devices

Maintenance cycle : 50K

× Check (Clean, replace, or adjust as necessary.) ❍ Clean ▲ Replace Δ Adjust ☆ Lubricate ❑ Move position

Option name	Part name		When calling	100K	200K	300K	400K	500K	600K	700K	800K	Remark
Finisher	Transport section	Transport rollers	❍	❍	❍	❍	❍	❍	❍	❍	❍	
		De-curler roller	(❍)×	❍	❍	❍	❍	❍	❍	❍	❍	
		Transport paper guides	×	❍	❍	❍	❍	❍	❍	❍	❍	
	Drive section	Gears	×	☆	☆	☆	☆	☆	☆	☆	☆	(Specified position)
		Belts	×	×	×	×	×	×	×	×	×	
	Other	Sensors	×	×	×	×	×	×	×	×	×	
		Discharge brush	×	×	×	×	×	×	×	×	×	
	Staple unit											Replace unit at 200K staple.
	Staple cartridge											User replacement for every 3000 pcs.
Mail-bin stacker	Transport section	Transport rollers	×	❍	❍	❍	❍	❍	❍	❍	❍	
		Transport paper guides	×	❍	❍	❍	❍	❍	❍	❍	❍	
	Drive section	Gears	×	☆	☆	☆	☆	☆	☆	☆	☆	(Specified position)
		Belts	×	×	×	×	×	×	×	×	×	
	Other	Sensors	×	×	×	×	×	×	×	×	×	
		Discharge brush	×	×	×	×	×	×	×	×	×	
Saddle finisher, punch unit	Transport section	Transport rollers	×	❍	❍	❍	❍	❍	❍	❍	❍	
		Transport paper guides	×	❍	❍	❍	❍	❍	❍	❍	❍	
	Drive section	Gears	×	☆	☆	☆	☆	☆	☆	☆	☆	(Specified position)
		Belts	×	×	×	×	×	×	×	×	×	
	Other	Sensors	×	×	×	×	×	×	×	×	×	
		Discharge brush	×	×	×	×	×	×	×	×	×	
	Staple unit											Replace unit at 300K staple.
	Staple cartridge											User replacement for every 5000 pcs.
	Punch unit											Replace unit at 1000K.
ADU + Manual feed	Paper feed separation section	Paper feed rollers	(❍)×	(❍)×	(❍)×	(❍)×	(❍)×	(❍)×	(❍)×	(❍)×	(❍)×	Note 3
	Transport section	Transport rollers	×	❍	❍	❍	❍	❍	❍	❍	❍	
		Transport paper guides	×	❍	❍	❍	❍	❍	❍	❍	❍	
	Drive section	Gears	×	☆	☆	☆	☆	☆	☆	☆	☆	(Specified position)
		Belts	×	×	×	×	×	×	×	×	×	
	Other	Sensors	×	×	×	×	×	×	×	×	×	

Note 3: Replacement reference: Use the counter value of each paper feed port as the replacement reference.
Paper feed section pickup roller, paper feed roller, separation pad: 100K or 1 year

[9] SIMULATION

1. Outline and purpose

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

1) Various adjustments
2) Setup of specifications and functions
3) Canceling troubles
4) Operation check
5) Various counters check, setup, and clear
6) Machine operating status (operation history) data check, clear
7) Transfer of various data (adjustments, setup, operations, counters)

The operating procedures and the displays differ depending on the form of the operation panel of the machine.

2. Code-type simulation

A. Operating procedures and operations

* Entering the simulation mode

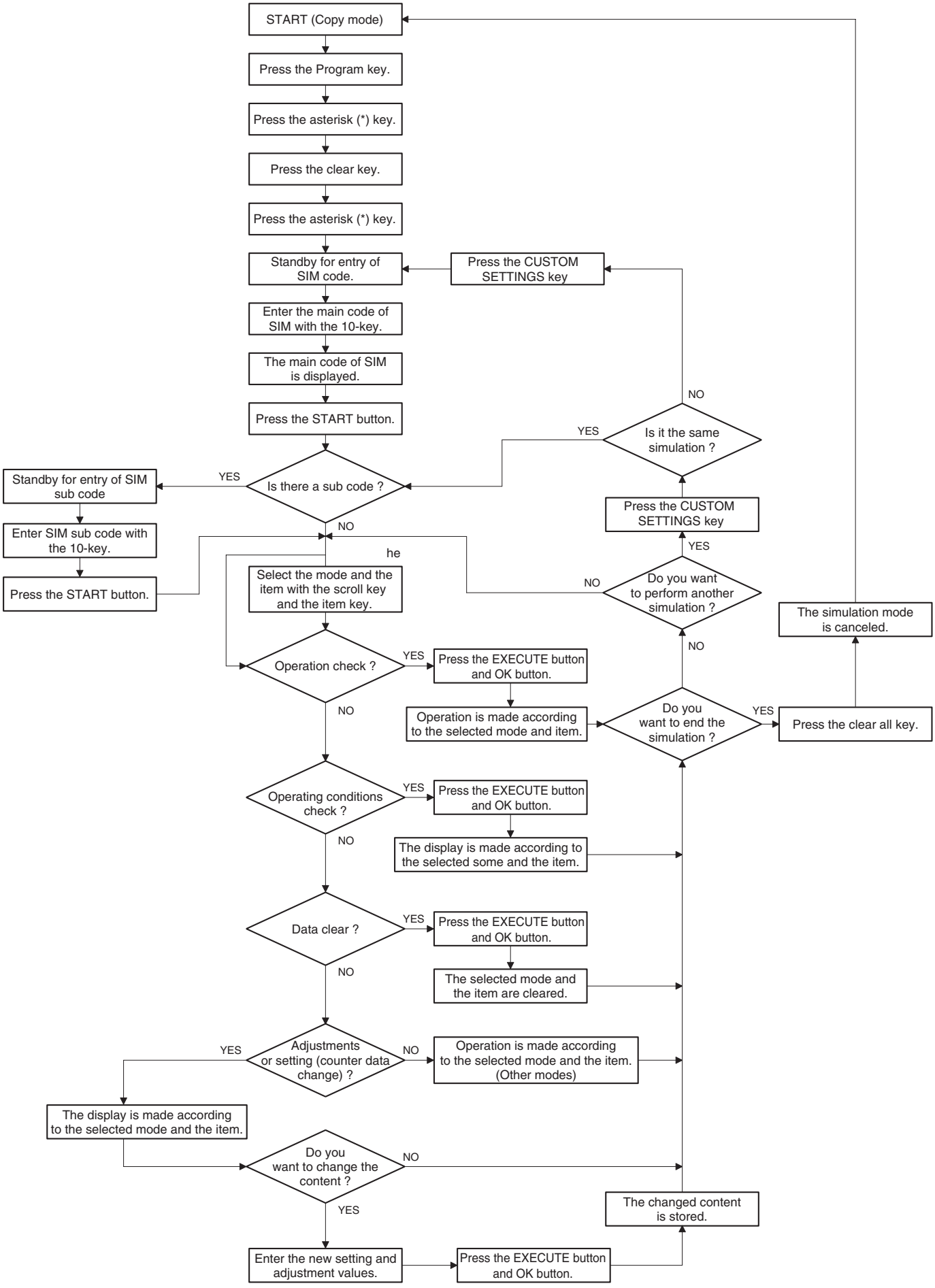
1) Copy mode key ON → Program key ON → Asterisk (*) key ON → CLEAR key ON → Asterisk (*) key ON → Ready for input of a main code of simulation
2) Entering a main code with the 10-key → START key ON
3) Entering a sub code with the 10-key → START key ON
4) Select an item with the scroll key and the item key.
5) The machine enters the mode corresponding to the selected item.

   Press START key or EXECUTE key to start the simulation operation.

   To cancel the current simulation mode or to change the main code and the sub code, press the user setup key.

* Canceling the simulation mode to return to the normal mode

1) Press CA key.


START (Copy mode)
Press the Program key.
Press the asterisk (*) key.
Press the clear key.
Press the asterisk (*) key.
Standby for entry of SIM code.
Press the CUSTOM SETTINGS key
Enter the main code of SIM with the 10-key.
The main code of SIM is displayed.
Press the START button.
NO
Is it the same simulation ?
YES
Is there a sub code ?
YES
Standby for entry of SIM sub code
Enter SIM sub code with the 10-key.
Press the START button.
NO
Press the CUSTOM SETTINGS key
YES
he
Select the mode and the item with the scroll key and the item key.
NO
Do you want to perform another simulation ?
The simulation mode is canceled.
NO
Operation check ?
YES
Press the EXECUTE button and OK button.
NO
Operation is made according to the selected mode and item.
Do you want to end the simulation ?
YES
Press the clear all key.
Operating conditions check ?
YES
Press the EXECUTE button and OK button.
NO
The display is made according to the selected some and the item.
Data clear ?
YES
Press the EXECUTE button and OK button.
NO
The selected mode and the item are cleared.
YES
Adjustments or setting (counter data change) ?
NO
Operation is made according to the selected mode and the item. (Other modes)
The display is made according to the selected mode and the item.
Do you want to change the content ?
NO
YES
The changed content is stored.
Enter the new setting and adjustment values.
Press the EXECUTE button and OK button.

B. Simulation list

(1) Main/ Sub

Code		Function (Purpose)
Main	Sub	
1	1	Used to check the operations of the scanner (read) unit and its control circuit.
	2	Used to check the operation of sensor and detector in the scanning (read) section and the related circuit.
2	1	Used to check the operations of the automatic document feeder unit and the control circuit.
	2	Used to check the operations of the sensors and detectors in the automatic document feeder unit and the related circuits.
	3	Used to check the operations of the loads in the automatic document feeder unit and the control circuits.
3	2	Used to check the operation of sensor and detector in the finisher and the related circuit.
	3	Used to check the operation of the load in the finisher and the control circuit.
	6	Used to adjust the stacking capacity of the finisher. (Used to adjust the alignment plate (jogger) stop position in the finisher paper width direction. The adjustment is made by changing the alignment plate home position in the paper width direction by software.)
	10	Console finisher adjustment
	20	Used to check the mail bin stacker sensor.
	21	Used to check the operations of the mail bin stacker loads.
4	2	Used to check the operations of the sensors and detectors in the paper feed section (desk paper feed/large capacity tray) and the related circuit.
	3	Used to check the operations of the loads in the paper feed section (desk paper feed/large capacity tray) and the related circuit.
5	1	Used to check the operation of the display, LCD in the operation panel, and control circuit.
	2	Used to check the operation of the heater lamp and the control circuit.
6	1	Used to check the operation of the paper transport system loads and the control circuit.
	2	Used to check the operations of each fan motor and its control circuit.
7	1	Used to set the operating conditions of aging.
	6	Used to set the intermittent aging cycle.
	8	Used to set the warm-up time display YES/NO.
8	1	Used to check and adjust the operations of the developing voltage of each color and the control circuit.
	2	Used to check and adjust the operation of the main charger grid voltage in each printer mode and the control circuit.
	6	Used to check and adjust the operation of the transfer voltage and the control circuit.
	17	Used to check and adjust the operation of the transfer voltage and the related circuit. (Transfer belt cleaning mode)
9	1	Used to check and adjust the operation of the load (clutch/solenoid) in the duplex section and the control circuit.
	2	Used to check the operations of the sensors and detectors in the duplex section and its control circuit.
10	1	Used to check the operations of the toner motor and the related circuit.
13	0	Used to cancel the self-diag "U1" trouble. (Only when FAX is installed.)
14	0	Used to cancel excluding the self-diag U1/LCC/ U2/PF troubles.
15	0	Used to cancel the self-diag "U6-09, F3-12, 22" (large capacity paper feed tray, paper feed trays 1, 2) troubles.
16	0	Used to cancel the self-diag U2 troubles.
17	0	Used to cancel the PF troubles (when the copy inhibit command from the host computer is received).
21	1	Used to set the maintenance cycle.
22	1	Used to check the print count value in each section and each operation mode. (Used to check the maintenance timing.)
	2	Used to check the total numbers of misfeed and troubles. (When the number of misfeed is considerably great, it is judged as necessary for repair. The misfeed rate is obtained by dividing this count value with the total counter value.)
	3	Used to check misfeed positions and the misfeed count of each position. (If the misfeed count is considerably great, it may be judged as necessary to repair.)
	4	Used to check the trouble (self diag) history.
	5	Used to check the ROM version of each unit (section).
	6	Used to output the list of the setting and adjustment data (simulations, FAX soft switch, counters).
	7	Used to display the key operator code. (This simulation is used when the customer forgets the key operator code.)
	8	Used to check the number of use of the finisher, the SPF, and the scan (reading) unit.
	9	Used to check the number of use (print quantity) of each paper feed section.
	10	Used to check the system configuration (option, internal hardware).
	11	Used to check the use frequency (send/receive) of FAX. (Only when FAX is installed)
	12	Used to check the SPF misfeed positions and the number of misfeed at each position. (When the number of misfeed is considerably great, it can be judged as necessary for repair.)
	13	Used to check the operating time of the process section (OPC drum, DV unit, toner bottle).
	19	Used to check the values of the counters related to the scan mode and the internet FAX mode.
23	2	Used to check the trouble history of paper jam and misfeed. (If the number of misfeed and troubles is considerably great, it may be judged as necessary to repair.)
	80	Used to check the operations of the sensors and detectors in the paper feed and transport section.
24	1	Used to clear the misfeed counter, the misfeed history, the trouble counter, and the trouble history. (The counters are cleared after completion of maintenance.)
	2	Used to clear the number of use (the number of prints) of each paper feed section.
	3	Used to clear the number of use of the finisher, SPF, and the scan (reading) unit.
	4	Used to reset the maintenance counter.
	5	Used to reset the developer counter. (The developer counter of the DV unit which is installed is reset.)

Code		Function (Purpose)
Main	Sub	
24	6	Used to reset the copy counter.
	7	Used to clear the OPC drum counter. (Perform this simulation when the OPC drum is replaced.)
	9	Used clear the printer mode print counter and the self print mode print counter.
	10	Used to clear the FAX counter. (Only when FAX is installed)
	11	Used to reset the OPC drum rotation time, and the DV unit rotation time counter. The developer counter in the DV unit installed is reset.
	15	Used to clear the counters related to the scan mode and the internet FAX mode.
25	1	Used to check the operations of the developing section (toner concentration, humidity and toner concentration sensor, humidity sensor, temperature sensor output can be monitored.)
	2	Used to make the initial setting of toner concentration when replacing developer.
26	3	Used to set the specifications of the auditor. Setting must be made according to the auditor use conditions.
	5	Used to set the count mode of the total counter and the maintenance counter.
	6	Used to set the specifications (paper, fixed magnification ratio, etc.) of the destination.
	10	Used to set the network scanner trial mode.
	18	Used to set YES/NO of toner save operation. (This function is valid only in Japan and UK versions. (Depends on the destination setting of SIM26-6.) For the other destinations, the same setting can be made by the user program P22.)
	30	Used to set the operation mode conforming to the CE mark (Europe safety standards). (Conforming to soft start when driving the fusing heater lamp.)
	35	Used to set whether the same continuous troubles are displayed as one trouble or the series of troubles with SIM 22-4 when the same troubles occur continuously.
	38	Used to set CONTINUE/STOP of printing when maintenance timing is over and the count value reaches 110% of replacement timing (life).
	41	Used to set YES/NO of the automatic magnification ratio selection (AMS) in the pamphlet mode.
	50	Black-White reverse YES/NO setting
	52	Used to set whether non-print paper (insertion paper, cover paper) (blank image print paper) is counted up or not.
	68	Used to set ENABLE/DISABLE of the CA key cancel function of print stop.
27	1	Used to set the specifications for operations in case of communication trouble between the host computer and MODEM (machine side). (When communication trouble occurs between the host computer MODEM and the machine, the self diag display (U7-00) is printed and setting for inhibition of print or not is made.)
	5	Used to enter the machine tag No. (This function allows to check the tag No. of the machine with the host computer.)
30	1	Used to check the operation of sensors and detectors in other than the paper feed section and the operations of the related circuits.
	2	Used to check the operation of sensors and detectors in the paper feed section and the related circuits.

Code		Function (Purpose)
Main	Sub	
40	1	Used to check the operation of the manual feed tray paper size detector and the related circuit. (The operation of the manual feed tray paper size detector can be monitored with the LCD display.)
	2	Used to adjust the manual paper feed tray paper width detector detection level.
	7	Used to enter the manual paper feed tray paper width adjustment value.
	11	Used to check the multi-purpose tray width detection adjustment value.
	12	Used to check the multi-purpose tray width detection adjustment value.
41	1	Used to check the operation of the document size sensor and the related circuit. (The operation of the document size sensor can be monitored with the LCD display.)
	2	Used to adjust the document size sensor sensing level.
	3	Used to check the operation of the document size sensor and the related circuit. (The document size sensor output level can be monitored with the LCD display.)
43	1	Used to set the fusing temperature in each operation mode.
44	1	Used to set enable/disable of correction operations in the image forming (process) section.
	9	Used to check the data related to the image forming section correction (process correction) result (corrected main charger grid voltage, the developing bias voltage, and the laser power voltage in each print mode). (This simulation allows to check that correction is performed normally or not.)
	14	Used to check the output level of the temperature sensor and the humidity sensor.
	16	Used to check the toner concentration control data.
46	2	Used to adjust the copy density in all the copy modes (Auto, Text, Text/Photo, and Photo mode).
	9	Used to adjust the print density for each density level (display value) in the copy mode (binary - Text mode). An optional print density can be set for each density level (display value).
	10	Used to adjust the print density for each density level (display value) in the copy mode (binary - Text/Photo mode). An optional print density can be set for each density level (display value).
	11	Used to adjust the print density for each density level (display value) in the copy mode (binary - Photo mode). An optional print density can be set for each density level (display value).
	12	Used to adjust the print density in the FAX mode (all modes).
	13	Used to adjust the print density in the FAX mode (each normal mode). (Only when FAX is installed.)
	14	Used to adjust the print density in the FAX mode (each fine mode). (Only when FAX is installed.)
	15	Used to adjust the print density in the FAX mode (each super fine mode). (Only when FAX is installed.)
	16	Used to adjust the print density in the FAX mode (each ultra fine mode). (Only when FAX is installed.)
	17	Used to set the gain in shading correction.

Code		Function (Purpose)
Main	Sub	
46	18	Used to adjust the gamma (density gradient) in the copy mode.
	19	Used to set the auto mode operation specifications in each mode (copy, scan, FAX).
	20	Used to adjust the copy density correction in the SPF copy mode for the document table copy mode. The adjustment is made so that the copy density becomes the same as that of the document table copy mode.
	21	Used to adjust the scanner exposure level in all the scanner modes.
	22	Used to adjust the scanner exposure level in the normal text mode.
	23	Used to adjust the scanner exposure level in the fine text mode.
	24	Used to adjust the scanner exposure level (in the super fine text mode).
	25	Used to adjust the scanner exposure level in the ultra fine text mode.
	27	Used to adjust the gamma (density gradient) of the network scanner mode.
	31	Used to adjust sharpness of the copy mode.
	39	Used to adjust sharpness of the FAX mode.
	45	Used to adjust the image density in the FAX mode (600dpi).
	46	Used to adjust sharpness of the scanner mode.
48	1	Used to adjust the copy magnification ratio (in the main scanning and the sub scanning directions).
	5	Used to adjust the copy magnification ratio in the sub scanning direction.
50	1	Used to adjust the copy image position and the void area (image loss) adjustment on print paper in the copy mode. (The similar adjustment can be performed with SIM 50-5 and 50-2 (Simplified method).) (Document table mode)
	2	Used to adjust the document scan position, the image print position, and the void area (image loss). (Simple adjustment) (This adjustment is the simple method of SIM 50-1.) (Document table mode)
	5	Used to adjust the print image position and the void area (image loss) on print paper. (Adjustment as the print engine) (This adjustment is reflected on all the FAX/printer/copy modes.)
	6	Used to adjust the copy image position and void area (image loss) on print paper in the copy mode. (The similar adjustment can be performed with SIM 50-7 (simple method).) (SPF mode)
	7	Used to adjust the copy image position and void area (image loss) on print paper in the copy mode. (The similar adjustment can be performed with SIM 50-6.) (SPF mode)
	10	Used to adjust the print image off-center position. (Adjusted separately for each paper feed section.)
	12	Used to adjust the scan image off-center position. (Adjusted separately for each scan mode.)
	27	Used to adjust the image loss of the scan image in the FAX/scan mode.
51	2	Used to adjust the contact pressure of paper on the resist roller of each section (each paper feed, duplex feed and SPF paper feed of the copier). (This adjustment is required when the print image position variations are considerably great or when paper jams occur frequently.)

Code		Function (Purpose)
Main	Sub	
53	6	Used to adjust the DSPF width detection level.
	7	Used to enter the SPF width detection adjustment value.
	8	Used to adjust the document scan start position. (Used to adjust the scanner scan position in the SPF mode front scan.)
55	1	Used to set the specifications of the engine control operations. (PCU PWB)
	2	Used to set the specifications of the scanner control operations. (Scanner control PWB)
	3	Used to set the specifications of the controller operations. (MFP control PWB)
56	1	Used to transfer the MFP controller data. (Used to repair the PWB.)
60	1	Used to check the MFP control (DRAM) operations (read/write).
61	1	Used to check the operation of the scanner (write) unit (LSU).
	2	Used to adjust the laser power (absolute value) in the copy mode.
	3	Used to adjust the laser power (absolute value) in the FAX mode.
	4	Used to adjust the laser power (absolute value) in the printer mode.
62	1	Used to format the hard disk.
	2	Used to check the operation of the hard disk (read/write). (Only in the model with a disk installed) (Partial check)
	3	Used to check the operation of the hard disk (read/write). (All areas check)
	6	Used to check the operations of the hard disk. (The self diag operation of the SMART function is executed.)
	7	Used to check the operations of the hard disk. (The result of the self diag operation of the SMART function is printed out.)
	8	Used to format the hard disk (the system area excluded).
	10	Used to delete a job complete list (also to delete job log data)
	11	Used to delete document filing data. (The management area (standard folder, user folder) is cleared.)
63	1	Used to check the result of shading correction. (The shading correction data are displayed.)
	2	Used to execute shading.
	7	Used to adjust the white plate scan start position for shading. (Document table mode)
64	1	Used to check the operation of the printer section (self-print operation), (The print pattern, the paper feed mode, the print mode, the print quantity, and the density can be optionally set.)
65	1	Used to adjust the touch panel (LCD display section) detection position.
	2	Used to check the result of the touch panel (LCD display) detection position adjustment. (The coordinates are displayed.)
66	1	Used to change and check the FAX soft switch functions. (Used to change and check the functions provided for the FAX soft switches.) (Only when FAX is installed)
	2	Used to clear the FAX soft switch function data and to set to the default. (Excluding the adjustment values.) (Only when FAX is installed)

Code		Function (Purpose)
Main	Sub	
66	3	Used to check the operation of the FAX PWB memory (read/write). (This adjustment is required when the PWB is replaced with a new one.) (Only when FAX is installed)
	4	Used to check the output operation of data signals in each data output mode of FAX. (Used to check the operation of MODEM.) Send level: Max. (Only when FAX is installed)
	5	Used to check the output operation of data signals in each data output mode of FAX. (Used to check the operation of MODEM.) An output is sent at the send level set by the soft switch. (Only when FAX is installed)
	6	Used to print the confidential pass code. (Used when the confidential pass code is forgotten.) (Only when FAX is installed)
	7	Used to print the image memory data (memory send/receive). (Only when FAX is installed)
	8	Used to check the output operation of various sound signals of FAX. (Used to check the operation of the sound output IC.) Send level: Max. (Only when FAX is installed)
	9	Used to check the output operation of various sound signals of FAX. (Used to check the operation of the sound output IC.) An output is sent at the send level set by the soft switch. (Only when FAX is installed)
	10	Used to clear all data of the image memory (memory send/receive). The confidential data are also cleared at the same time. (Only when FAX is installed)
	11	Used to check the output operation of FAX G3 mode 300bps. (Used to check the operation of MODEM.) Send level: Max. (Only when FAX is installed)
	12	Used to check the output operation of FAX G3 mode 300bps. (Used to check the operation of MODEM.) An output is send at the send level set by the soft switch. (Only when FAX is installed)
	13	Used to enter (set) the number of FAX dial signal output test. (The dial number set by this simulation is outputted when the dial signal output test is made by SIM 66-14 - 16.) (Only when FAX is installed)
	14	Used to set the make time in the FAX pulse dial mode (10pps) and to test the dial signal output. (The dial number signal set by SIM 66-13 is outputted.) Used to check troubles in dialing and to check the operation. (Only when FAX is installed)
	15	Used to set the make time in the FAX pulse dial mode (20pps) and to test the dial signal output. (The dial number signal set by SIM 66-13 is outputted.) Used to check troubles in dialing and to check the operation. (Only when FAX is installed)
	16	Used to check the dial signal (DTMF) output in the FAX tone dial mode. (The dial number signal set by SIM 66-13 is outputted.) The send level can be set to an optional level. Used to check troubles in dialing and to check the operation. (Only when FAX is installed)
	17	Used to check the dial signal (DTMF) output in the FAX tone dial mode. Send level: Max. Used to check the operation. (Only when FAX is installed)

Code		Function (Purpose)
Main	Sub	
66	18	Used to check the dial signal (DTMF) output in the FAX tone dial mode. An output is sent at the send level set by the soft switch. Used to check the operation. (Only when FAX is installed)
	19	Used to back-up the HDD data into the Flash memory (optional FAX expansion memory: AR-MM9). (Only when FAX is installed)
	20	Used to read the back-up data by SIM 66-19 to the SRAM/HDD. (Only when FAX is installed)
	21	Used to print information related to FAX (various registrations, communication management, file management, system error protocol). (Only when FAX is installed)
	22	Used to adjust the handset volume. (Only when the FAX is installed.)
	23	Used to download the FAX program. (Only when FAX is installed) Not used in the market. (For development)
	24	Used to clear the FAST memory data. (Only when FAX is installed)
	25	Used to register the FAX number for Modem dial-in. (Only when FAX is installed) Not used in the market. (For development)
	26	Used to register external telephone numbers for Modem dial-in. (Only when FAX is installed) Not used in the market. (For development)
	27	Used to register the transfer number for voice warp. (Only when FAX is installed) Not used in the market. (For development)
	29	Used to clear data related to an address book (one-touch registration, program registration/ expansion, relay memory box registration, each table content).
	30	Used to check the change in the TEL/LIU status. (Only when FAX is installed)
	31	Used to check the relay operation. (Only when FAX is installed)
	32	Used to check the receive data (fixed data) from the line. (Only when FAX is installed)
	33	Used to check the signal (BUSY TONE/CNG/ CED/FNET/DTMF) detection. (Only when FAX is installed)
	34	Used to measure the communication time of test image data. (Only when FAX is installed)
	35	Modem program reloading (Only when FAX is installed) Not used in the market. (For development)
	36	Used to check interface between MFPC controller and MDMC. (Check of the data line or the command line) (Only when FAX is installed)
	39	Used to set the destination specifications. (Only when FAX is installed)
	42	PIC program rewriting (Only when FAX is installed)
	43	PIC adjustment value writing (Only when FAX is installed)
	60	Used to set the ACR data. (Only when FAX is installed)
67	2	Used to check the operation of the parallel I/F of the printer. (This simulation is for production only, and requires a special tool for execution. Not used in the market.)
	11	Used to set YES/NO of the parallel I/F select signal of the printer.
	16	Used to check the operation of the network card.

C. Details

1

1-1

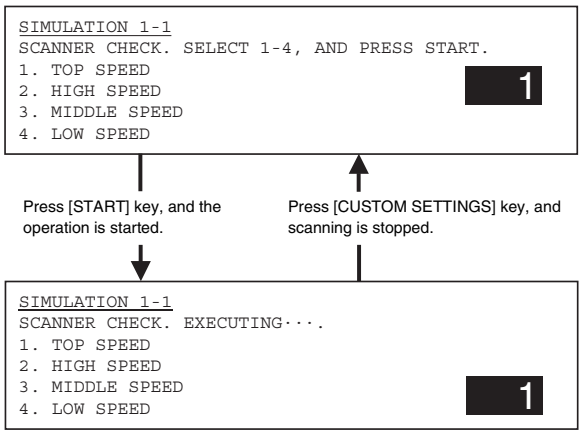
Purpose	Operation test/Check
Function (Purpose)	Used to check the operations of the scanner (read) unit and its control circuit.
Section	Optical (Image scanning)
Item	Operation

Operation/Procedure

1) Select the operation mode with 10-key.
2) Press START key.

   The scanner performs scanning at the speed corresponding to the operation mode.

1	TOP SPEED	Top speed (220mm/s)
2	HIGH SPEED	High speed (168.7mm/s)
3	MIDDLE SPEED	Middle speed (110mm/s)
4	LOW SPEED	Low speed (55mm/s)



1-2

Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of sensor and detector in the scanning (read) section and the related circuit.
Section	Optical (Image scanning)
Item	Operation

Operation/Procedure

The sensor and detector operation conditions are displayed.

The active sensors and detectors are highlighted.

- The scanner (read) unit is in the home position.: "MHPS" section is highlighted.
- The scanner (read) unit is not in the home position.: "MHPS" is normally displayed.

MHPS	Optical system home position

2

2-1

Purpose	Operation test/Check
Function (Purpose)	Used to check the operations of the automatic document feeder unit and the control circuit.
Section	DSPF
Item	Operation

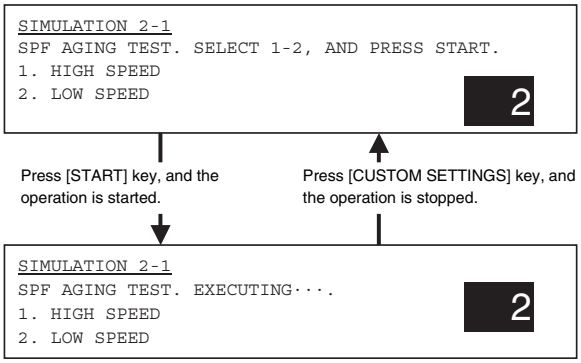
Operation/Procedure

1) Select the operation mode with 10-key.
2) Press START key.

   The SPF repeat paper feed, transport, and paper exit at the speed corresponding to the operation mode.

   The operation can be stopped by [CUSTOM SETTINGS] key.

1	HIGH SPEED	High speed
2	LOW SPEED	Low speed



2-2

Purpose	Operation test/Check
Function (Purpose)	Used to check the operations of the sensors and detectors in the automatic document feeder unit and the related circuits.
Section	DSPF
Item	Operation

Operation/Procedure

The operating conditions of the sensors and detectors are displayed.

The active sensors and detectors are highlighted.

SPFSET	SPF sensor
SOCD	Open/close sensor
SCOV	Paper feed cover sensor
SPED	Document set sensor
SPPD	Resist front detection sensor
SPOD	Document paper exit sensor
SWDn	Document width sensor (n → 1 (inside) - 6 (outside))
SPLSn	Document length sensor (n → 1 (inside) - 2 (outside))
CISSET	CIS installation detection
STSET	Stamp unit installation sensor
SWD_LEN	SPF guide plate position (unit: 0.1mm)
SWD_AD	SPF document width detection volume output AD value

```
SIMULATION 2-2
SPF SENSOR CHECK.
SPFSET    SOCD     SCOV     SPED
SPPD      SPOD     SWD6     SWD5
SWD4      SWD3     SWD2     SWD1
SPLS2     SPLS1    CISSET   STSET
SWD_LEN: 2100      SWD_AD: 600
```

2-3

Purpose	Operation test/Check
Function (Purpose)	Used to check the operations of the loads in the automatic document feeder unit and the control circuits.
Section	DSPF
Item	Operation

Operation/Procedure

1) Select the number corresponding to the target of operation check with 10-key.
2) Press START key.

   The load selected in procedure 1 is operated.

Press [CUSTOM SETTINGS] key to stop the operation of the load.

1	MOTOR(H)	Motor high speed
2	MOTOR(L)	Motor low speed
3	SDSS	SPF gate solenoid
4	SPFS	SPF pick-up solenoid
5	SPFC	SPF paper feed clutch
6	SRRC	SPF resist roller clutch
7	STMPS	Stamp solenoid

```
SIMULATION 2-3
SPF LOAD TEST. SELECT 1-7, AND PRESS START.
1.MOTOR(H)  2.MOTOR(L)
3.SDSS      4.SPFS    5.SPFC    6.SRRC      2
7.STMPS
```

Press [START] key, and the operation is started.

Press [CUSTOM SETTINGS] key, and the operation is stopped.

```
SIMULATION 2-3
SPF LOAD TEST. EXECUTING···.
1.MOTOR(H)  2.MOTOR(L)
3.SDSS      4.SPFS    5.SPFC    6.SRRC      2
7.STMPS
```

3

3-2

Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of sensor and detector in the finisher and the related circuit.
Section	Finisher
Item	Operation

Operation/Procedure

The operating conditions of the sensors and detectors are displayed.

The active sensors and detectors are highlighted.

Built-in finisher	
STHP	Stapler HP detection
POD	Tray 2 paper exit detection
SCID	Staple compiler paper entry detection
PID	Paper entry detection
T2PD	Tray 2 paper empty detection
T2DN	Tray 2 lower limit detection
T2UP	Tray 2 upper limit detection
JRHP	Jogger R HP
JFHP	Jogger (F) HP
SCID2	Staple compiler paper entry detection 2
STTHP2	Staple rotation HP detection 2
STTHP1	Staple rotation HP detection 1
STUHP	Staple shift HP detection
PSHP	Pusher HP detection
PPD	Paper hold return detection
DSW2	Staple replacement door open detection
DSW1	Compiler jam cancel door open detection
24VM	24V power supply
T1PF	Tray 1 full detection
STSP	Stapling ready detection
STLS	Cartridge inside spare staple empty detection
STNC	Cartridge empty detection
DOPD	Interface unit door open detection
MMLK	Main drive motor lock detection
SCPD	Staple compiler paper empty detection
Console finisher	
FSSS	Stapler safety switch
FJS	Joint switch
FFDSW	Front door switch
FTCS	Upper cover sensor
FFDS	Front door sensor
FSPS	Self prime sensor
FSUC	Stapler connection detection
FSS	Staple sensor
FSTHPS	Stapler HP sensor
FSHPS	Slide HP sensor
FLE	Lift lock sensor
FLLLS	Lift lower limit sensor
FULS	Lift upper limit sensor
FFE	Bookbinding clock sensor
FFES	Bookbinding paper sensor
FFRHPS	Bookbinding roller HP sensor
FFHPS	Bookbinding HP sensor
FFPS	Bookbinding position sensor
FSLS	Paper surface sensor
FBES	Tray paper sensor
FOBHPS	Paper exit belt HP sensor
FAS	Alignment tray sensor
FRJHPS	Alignment HP sensor R
FFJHPS	Alignment HP sensor F
FARHPS	Bundle roller HP sensor
FPHPS	Paddle HP sensor
FES	Entry port sensor

- The following units are added when the punch unit is installed to the console finisher:

FPE	Punch motor encoder
FPSHPS	Punch side register HP
FPUC	Punch connection detection
FPDS	Punch dust sensor
FPDSS4	Punch side register sensor 4
FPDSS3	Punch side register sensor 3
FPDSS2	Punch side register sensor 2
FPDSS1	Punch side register sensor 1
FPTS	Punch timing sensor

(Built-in finisher)

```
SIMULATION 3-3
FINISHER SENSOR CHECK.
PID          SCID         SCID2        PPD
SCPD         POD          T1PF         T2UP
T2DN         T2PD         STSP         STLS
STNC         STHP         JFHP         JRHP
PSHP         STUHP        STTHP1
STTHP2       DOPD         DSW1         DSW2
24VM         MMLK
```

(Console finisher)

```
SIMULATION 3-2
FINISHER SENSOR CHECK.
FSSS  FJS     FFDSW  FTCS    FFDS
FSPS  FSUC    FSS    FSTHPS  FSHPS   FLE     FLLLS
FULS  FFE     FFES   FFRHPS  FFHPS   FFPS    FSLS
FBES  FOBHPS  FAS    FRJHPS  FFJHPS  FARHPS  FPHPS
FES
(FPE)(FPSHPS)(FPUC)(FPDS)(FPDSS4)(FPDSS3)(FPDSS2)
(FPDSS1)(FPTS)
```

( ) : Added when the punch unit is installed.

3-3

Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of the load in the finisher and the control circuit.
Section	Finisher
Item	Operation

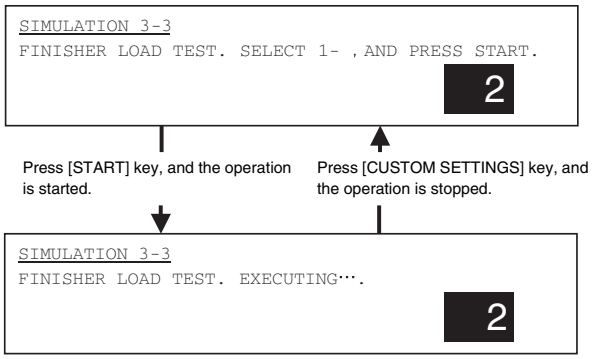
Operation/Procedure

1) Select the number corresponding to the target of operation check with 10-key.
2) Press START key.

   The load selected in procedure 1 is operated.

   Press [CUSTOM SETTINGS] key to stop the operation of the load.

Built-in finisher		
1	T2S	Tray 2 solenoid
2	T2OM	Paper exit motor
3	SPS	Stopper solenoid
4	SCRS	Roller pressure release solenoid
5	PPS	Rear edge h folding solenoid
6	SCGS	Compiler gate solenoid
7	STTM	Staple rotation motor
8	STUM	Stapler shift motor
9	MM	Main drive motor
10	EVM	Elevator motor
11	STM	Staple motor
12	JRM	Jogger motor rear
13	JFM	Jogger motor front
14	PSM	Pusher motor
Console finisher		
1	FFC	Folding clutch
2	FPSM	Puncher side register motor
3	FPNM	Punch motor
4	FLM	Shift motor
5	FFSM	Stapler motor
6	FSM	Slide motor
7	FRJM	Alignment motor R
8	FFJM	Alignment motor F
9	FAM	Bundle exit motor
10	FPM	Paddle motor
11	FFM	Transport motor

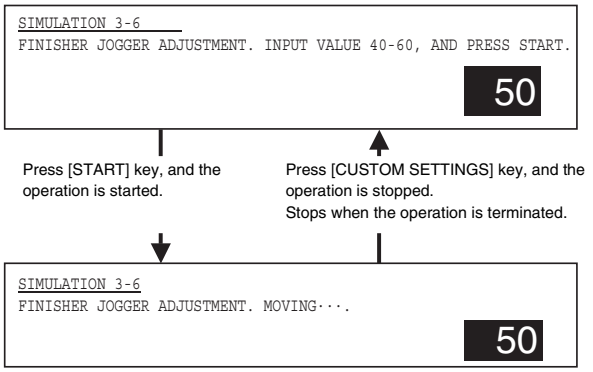


3-6

Purpose	Adjustment
Function (Purpose)	Used to adjust the stacking capacity of the finisher. (Used to adjust the alignment plate (jogger) stop position in the finisher paper width direction. The adjustment is made by changing the alignment plate home position in the paper width direction by software.)
Section	Finisher
Item	Operation

Operation/Procedure

Enter the adjustment value with 10 digit key pad and press START key. The jogger moves to LT position (Inch series) or A4 position (AB series) according to the entered value, and stops there.



3-10

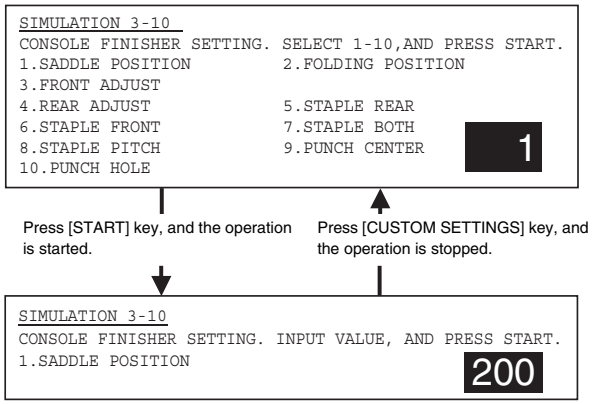
Purpose	Adjustment
Function (Purpose)	Console finisher adjustment
Section	Finisher
Item	Operation

Operation/Procedure

1) Select the number corresponding to the target of operation check with 10-key.
2) Press [START] key.
3) Enter the adjustment value with 10-key.
4) Press [START] key. (The entered value is stored.)

	Item	Set range	Initial value	1STEP
1	Saddle binding position adjustment	0 - 400	200	0.0707mm
2	Saddle folding position adjustment	0 - 400	200	0.0525mm
3	Front alignment position adjustment	0 - 20	10	0.367mm
4	Rear alignment position adjustment	0 - 20	10	0.367mm

	Item	Set range	Initial value	1STEP
5	Staple rear one-position binding position adjustment	0 - 200	100	0.04374mm
6	Staple front one-position binding position adjustment	0 - 200	100	0.04374mm
7	Staple 2-position binding center adjustment	0 - 200	100	0.04374mm
8	Staple 2-position binding pitch adjustment	0 - 99	50	0.04374mm
9	Punch center adjustment (Slide direction)	47 - 53	50	1mm
10	Punch hole position adjustment (Paper feed direction)	0 - 99	50	0.105mm



3-20

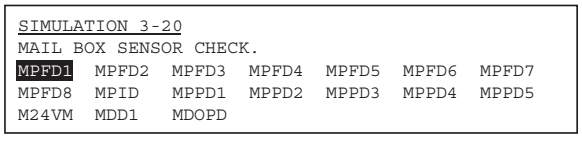
Purpose	Operation test/Check
Function (Purpose)	Used to check the mail bin stacker sensor.
Section	Mail bin stacker
Item	Operation

Operation/Procedure

The operating conditions of the sensors and detectors are displayed.

The active sensors and detectors are highlighted.

MPFD1	Tray 1 paper full detection
MPFD2	Tray 2 paper full detection
MPFD3	Tray 3 paper full detection
MPFD4	Tray 4 paper full detection
MPFD5	Tray 5 paper full detection
MPFD6	Tray 6 paper full detection
MPFD7	Tray 7 paper full detection
MPFD8	Tray 8 paper full detection
MPID	Interface unit paper entry detection
MPPD1	Paper transport sensor 1
MPPD2	Paper transport sensor 2
MPPD3	Paper transport sensor 3
MPPD4	Paper transport sensor 4
MPPD5	Paper transport sensor 5
M24VM	24V power supply
MDD1	Jam cancel door
MDOPD	Interface unit door



3-21

Purpose	Operation test/Check
Function (Purpose)	Used to check the operations of the mail bin stacker loads.
Section	Mail bin stacker
Item	Operation

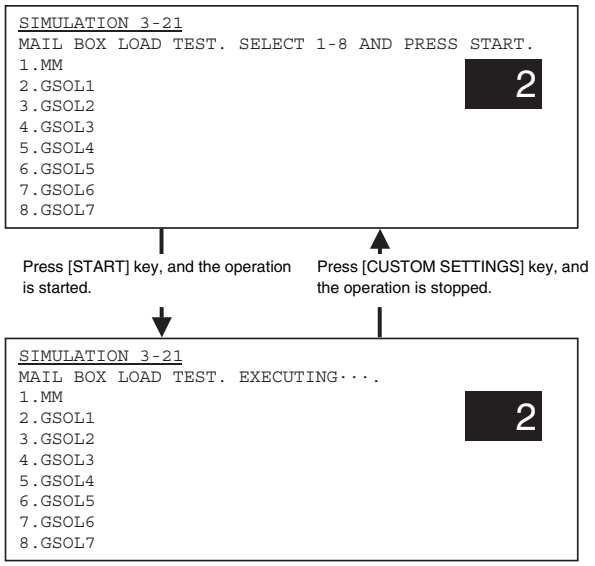
Operation/Procedure

1) Select the number corresponding to the target of operation check with 10-key.
2) Press [START] key.

   The load selected in procedure 1 is operated.

Press [CUSTOM SETTINGS] key to stop the operation of the load.

1	MM	Main motor
2	GSOL1	Gate solenoid 1
3	GSOL2	Gate solenoid 2
4	GSOL3	Gate solenoid 3
5	GSOL4	Gate solenoid 4
6	GSOL5	Gate solenoid 5
7	GSOL6	Gate solenoid 6
8	GSOL7	Gate solenoid 7



3-30

Purpose	Operation test/Check
Function (Purpose)	Used to check the operations of the sensors and detectors in the inserter.
Section	Inserter
Item	

Operation/Procedure

The operating conditions of the sensors and detectors are displayed.

The active sensors and detectors are highlighted.

TH_SEN	Sub tray pull-out detection
TS_SEN	Sub tray storage detection
T_SEN	Inserter tray paper size detection
EMP_SEN	Inserter tray empty detection
REG_SEN	Inserter resist sensor
TIM_SEN	Inserter timing sensor detection
JCK_SEN	Inserter cover open/close sensor
H_SEN	Inserter reverse sensor
HI_SEN	Inserter paper exit sensor
HYK_SEN	Inserter reverse unit open/close sensor
S_SW	Inserter set SW
KC_SEN	Base cover open/close sensor

TH_SEN	Sub tray pull-out detection
P_ST_SW	Inserter start SW
P_MO_SW	Inserter staple mode select SW
P_PN_SW	Inserter punch select SW

```
SIMULATION 3-30
INSERTER SENSOR CHECK.
TH_SEN      TS_SEN      T_SEN       EMP_SEN
REG_SEN     TIM_SEN     JCK_SEN     H_SEN
HI_SEN      HYK_SEN     S_SW        KC_SEN
P_ST_SW     P_MO_SW     P_PN_SW
```

3-31

Purpose	Operation test/Check
Function (Purpose)	Used to check the operations of the loads in the inserter and the related circuits.
Section	Inserter
Item	Operation

Operation/Procedure

1) Select the number corresponding to the target of operation check with 10-key.
2) Press [START] key.

   The load selected in procedure 1 is operated.

Press [CUSTOM SETTINGS] key to stop the operation of the load.

1	K_MOT	Reverse motor
2	Y_MOT	Horizontal transport motor
3	H_MOT	Inserter reverse
4	F_SOL	Inserter flapper solenoid
5	R_CL	Inserter resist clutch
6	P_LED	Inserter operation panel upper LED

```
SIMULATION 3-31
INSERTER LOAD TEST. SELECT 1-6, AND PRESS START.
1. K_MOT    2. Y_MOT    3. H_MOT
4. F_SOL    5. R_CL     6. P_LED        2
```

Press [START] key, and the operation is started.

Press [CUSTOM SETTINGS] key, and the operation is stopped.

```
SIMULATION 3-31
INSERTER LOAD TEST. EXECUTING···.
2. Y_MOT                                2
```

3-32

Purpose	Setting (Adjustment)
Function (Purpose)	Inserter paper width detection level setting.
Section	Inserter
Item	Operation

Operation/Procedure

1) Select the number corresponding to the adjustment item with 10-key.
2) Press [START] key.
3) Enter the setting (adjustment) value with 10-key.
4) Press [START] key.

1	MAX. POSITION	Max. position
2	POSITION 1	Adjustment point 1
3	POSITION 2	Adjustment point 2
4	MIN. POSITION	Min. width

```
SIMULATION 3-32
INSERTER TRAY VALUE SETTING. SELECT 1-4, AND PRESS
START.
1. MAX. POSITION :  72
2. POSITION 1    : 380                  1
3. POSITION 2    : 710
4. MIN. POSITION : 804
```

Press [START] key. Press [CUSTOM SETTINGS] key.

```
SIMULATION 3-32
INSERTER TRAY VALUE SETTING. INPUT VALUE 0-1023, AND
PRESS START.
1. MAX. POSITION                        72
```

4

4-2

Purpose	Operation test/Check
Function (Purpose)	Used to check the operations of the sensors and detectors in the paper feed section (desk paper feed/large capacity tray) and the related circuit.
Section	Paper feed
Item	Operation

Operation/Procedure

The operating conditions of the sensors and detectors are displayed.

The active sensors and detectors are highlighted.

<Desk>

DDRS	Desk door sensor
DSPD2	Desk cassette 2 remaining paper quantity sensor
DSPD1	Desk cassette 1 remaining paper quantity sensor
DCSS24	Desk cassette 2 paper rear edge sensor 4
DCSS23	Desk cassette 2 paper rear edge sensor 3
DCSS22	Desk cassette 2 paper rear edge sensor 2
DCSS21	Desk cassette 2 paper rear edge sensor 1
DLUD2	Desk cassette 2 upper limit sensor
DPED2	Desk cassette 2 paper sensor
DPFD3	Desk paper transport sensor 3
DCSS14	Desk cassette 1 paper rear edge sensor 4
DCSS13	Desk cassette 1 paper rear edge sensor 3
DCSS12	Desk cassette 1 paper rear edge sensor 2
DCSS11	Desk cassette 1 paper rear edge sensor 1
DLUD1	Desk cassette 1 upper limit sensor
DPED1	Desk cassette 1 paper sensor
DPFD2	Desk paper transport sensor 2
MCSS4	MP tray size detection 4
MCSS3	MP tray size detection 3
MCSS2	MP tray size detection 2
MCSS1	MP tray size detection 1
MCSPD	MP tray remaining quantity detection
MCLUD	MP tray upper limit detection
MCPED	MP tray paper empty detection
DPFD1	MP tray transport detection

```
SIMULATION 4-2
DESK  SENSOR CHECK.
DDRS          DPFD1         DPFD2         DPFD3
MCLUD         DLUD1         DLUD2         MCSPD
DSPD1         DSPD2         MCPED         DPED1
DPED2         MCSS1         MCSS2         MCSS3
MCSS4         DCSS11        DCSS12        DCSS13
DCSS14                      DCSS21        DCSS22
DCSS23        DCSS24
```

<LCC>

TDRS	Tandem side door sensor
TTSD	Tandem tray sensor
TLUD2	Tandem tray 2 upper limit sensor
TLUD1	Tandem tray 1 upper limit sensor
TSPD2	Tandem tray 2 remaining quantity sensor
TSPD1	Tandem tray 1 remaining quantity sensor
TPED2	Tandem tray 2 paper sensor
TPED1	Tandem tray 1 paper sensors
TPFD3	Tandem paper transport sensor 3
TPFD2	Tandem paper transport sensor 2
MCSS4	MP tray size detection 4
MCSS3	MP tray size detection 3
MCSS2	MP tray size detection 23
MCSS1	MP tray size detection 1
MCSPD	MP tray remaining quantity detection
MCLUD	MP tray upper limit detection
MCPED	MP tray paper empty detection
TPFD1	MP tray transport detection

```
SIMULATION 4-2
LCC SENSOR CHECK.
TDRS        TTSD        TPFD1       TPFD2
TPFD3       MCLUD       TLUD1       TLUD2
MCSPD       TSPD1       TSPD2       MCPED
TPED1       TPED2       MCSS1       MCSS2
MCSS3       MCSS4
```

4-3

Purpose	Operation test/Check
Function (Purpose)	Used to check the operations of the loads in the paper feed section (desk paper feed/large capacity tray) and the related circuit.
Section	Paper feed
Item	Operation

Operation/Procedure

1. Select the number corresponding to the target of operation check with 10-key.
2. Press [START] key.

   The load selected in procedure 1 is operated.

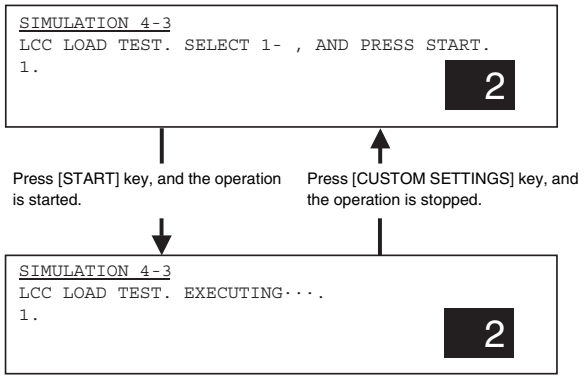
   Press [CUSTOM SETTINGS] key to stop the operation of the load.

<Desk>

1	DLUM2	Desk lift-up motor 2
2	DLUM1	Desk lift-up motor 1
3	MCLUM	Desk multi lift-up motor
4	DPFCL	Desk paper transport clutch
5	DPCL2	Desk paper feed clutch 2
6	DPCL1	Desk paper feed clutch 1
7	MCPCL	Desk multi paper feed clutch
8	DMM	Desk transport motor

<LCC>

1	TLUM2	LCC lift-up motor 2
2	TLUM1	LCC lift-up motor 1
3	MCLUM	LCC multi lift-up motor
4	TPFCL	LCC transport clutch
5	TPCL2	LCC paper feed clutch 2
6	TPCL1	LCC paper feed clutch 1
7	MCPCL	LCC multi paper feed clutch
8	TMM	LCC transport motor



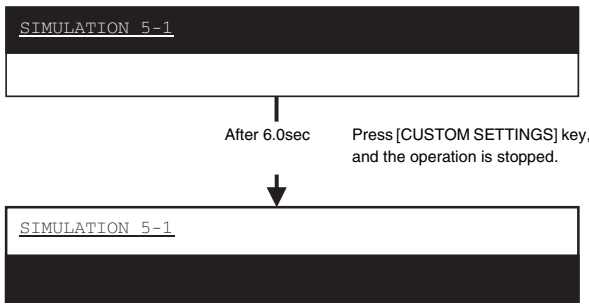
5

5-1

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

Operation/Procedure

The LCD is changed as shown below. (The contrast changes every 2sec from the current level to MAX → MIN → the current level. During this period, each LED is lighted.



5-2

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

Operation/Procedure

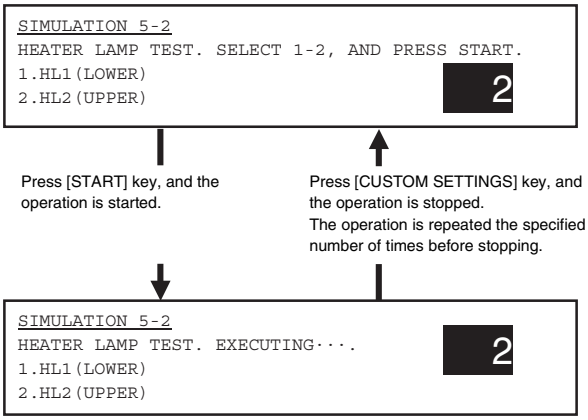
1) Select the number corresponding to the target of operation check with 10-key.
2) Press [START] key.

   The load selected in procedure 1 performs ON/OFF operation.

   Press [CUSTOM SETTINGS] key to stop the operation of the load.

   The ON/OFF operation of the selected heater lamp is repeated every 500ms five times.

1	HL1 (LOWER)	Heater lamp 1 (Lower)
2	HL2 (UPPER)	Heater lamp 2 (Upper)



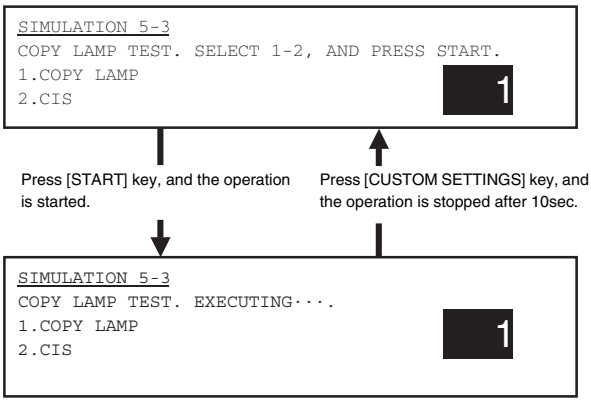
5-3

Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of the scanner lamp and the control circuit.
Section	Optical (Image scanning)
Item	Operation

Operation/Procedure

1) Select the number corresponding to the target of operation check with 10-key.
2) Press [START] key.
   The load selected in procedure 1 turns ON for 10sec.
   Press [CUSTOM SETTINGS] key to stop the operation.
   The copy lamp or CIS is turned on for 10sec and turned off.

NOTE: CIS: only when the DSPF is installed.



6

6-1

Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of the paper transport system loads and the control circuit.
Section	Paper transport (Discharge/Switchback/Transport)
Item	Operation

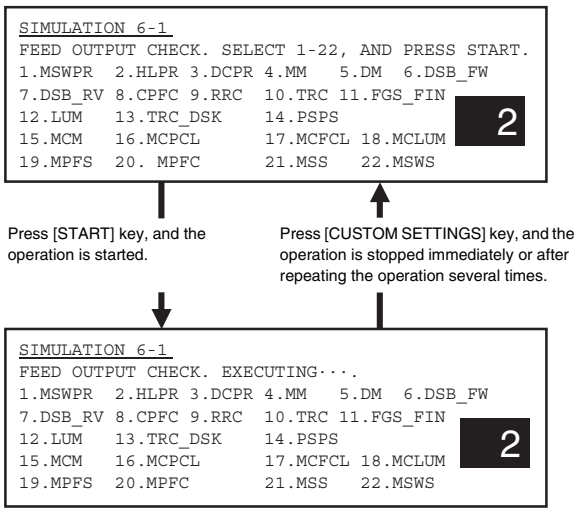
Operation/Procedure

1) Select the number corresponding to the target of operation check with 10-key.
2) Press [START] key.
   The load selected in procedure 1 operates.
   Press [CUSTOM SETTINGS] key to stop the operation.

1	MSWPR	MSW power relay
2	HLPR	Heater power relay
3	DCPR	DC power relay
4	MM	Main motor
5	DM	Drum motor
6	POM_FW	Paper exit motor forward rotation
7	POM_RV	Paper exit motor reverse rotation
8	CPFC	Paper feed clutch
9	RRC	Resist roller clutch
10	TRC	Transport roller clutch
11	FGS_FIN	Finisher gate solenoid
12	LUM	Tray 1 lift-up motor
13	TRC_DSK	Desk clutch sync signal
14	PSPS	Separation pawl solenoid
15*1	MCM	MP drive motor control signal
16*1	MCPCL	MP tray paper feed clutch signal
17*1	MCFCL	MP tray transport clutch signal
18*1	MCLUM	MP tray lift-up motor signal
19*2	MPFS	Manual paper feed solenoid signal
20*2	MPFC	Manual paper feed clutch signal
21*2	MSS	Manual paper feed gate solenoid

*1: Displayed when OPTION of multi-purpose only.

*2: Displayed when manual feed OPTION is added.



6-2

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

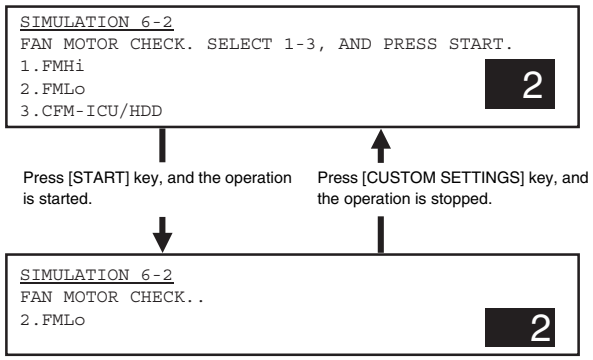
Operation/Procedure

1) Select the number corresponding to the target of operation check with 10-key.
2) Press [START] key.

   The load selected in procedure 1 operates.

   Press [CUSTOM SETTINGS] key to stop the operation.

1	Fan motor high speed
2	Fan motor low speed
3	Cooling fan motor (Controller/HDD)



7

7-1

Purpose	Setting
Function (Purpose)	Used to set the operating conditions of aging.
Section	
Item	Operation

Operation/Procedure

1) Select the number corresponding to the operating condition of aging with 10-key.

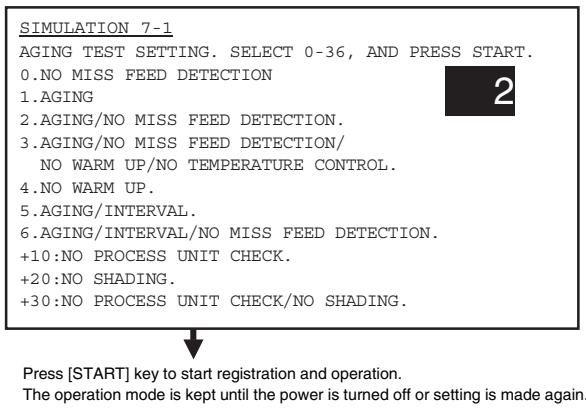
   The combined mode of 0 - 6 mode and 10, 20, or 30 mode can be set.

   In that case, the number corresponding to one of 0 - 6 mode and the number corresponding to one of 10, 10, and 30 mode are added and the sum number is entered.
2) Press [START] key.

   The condition selected in procedure 1) is set.

The setting of this simulation is kept valid until the power is turned off.

0	NO MISS FEED DETECTION	No jam detection
1	AGING	Aging mode
2	AGING/NO MISS FEED DETECTION.	No jam detection, aging mode
3	AGING/NO MISS FEED DETECTION/NO WARM UP/ NO TEMPERATURE CONTROL.	No jam detection/ no warm-up/ no fusing temperature control, aging mode
4	NO WARM UP.	No warm-up
5	AGING/INTERVAL.	Intermittent aging mode
6	AGING/INTERVAL/NO MISS FEED DETECTION.	No jam detection intermittent aging mode
+10	NO PROCESS UNIT CHECK.	Above +10: No process unit (including the developing unit) detection
+20	NO SHADING.	Above +20: No shading
+30	NO PROCESS UNIT CHECK/ NO SHADING.	Above +30: No process unit detection /no shading



Press [START] key to start registration and operation.
The operation mode is kept until the power is turned off or setting is made again.

7-6

Purpose	Setting
Function (Purpose)	Used to set the intermittent aging cycle.
Section	
Item	Operation

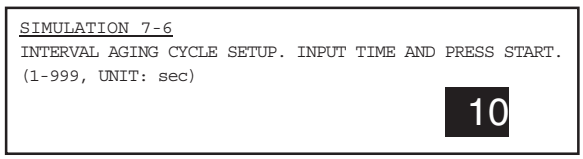
Operation/Procedure

1) Enter the intermittent aging cycle (unit: sec) with 10-key.
2) Press [START] key.

   The time entered in procedure 1) is set.

∗ Set range of interval time: 1 - 999 (sec)

Set the intermittent aging mode cycle of 7-1 with 10-key. (Unit: sec)



7-8

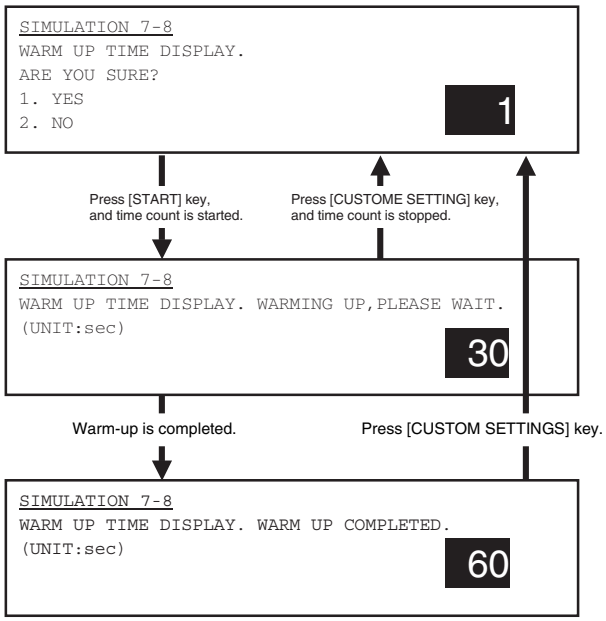
Purpose	Setting
Function (Purpose)	Used to set the warm-up time display YES/NO.
Item	Operation

Operation/Procedure

1) Select the number corresponding to the warm-up time display YES/NO.
2) Press [START] key, and the number selected in procedure 1) is set.

∗ The setting of this simulation is kept valid until the power is turned off.

The warm-up time is displayed in the unit of second.



8

8-1

Purpose	Adjustment/Operation test/Check
Function (Purpose)	Used to check and adjust the operations of the developing voltage of each color and the control circuit.
Section	Image process (Photoconductor/Developing/ Transfer/Cleaning)

Operation/Procedure

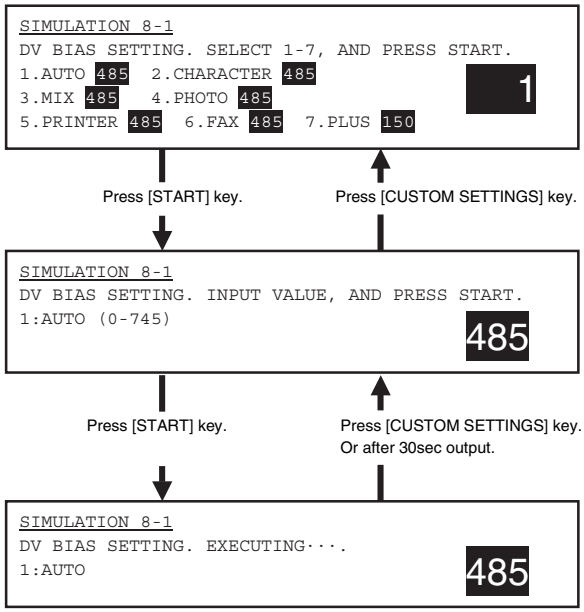
1) Enter the number corresponding to the adjustment item with 10-key.
2) Press [START] key.
3) Enter the adjustment value with 10-key.
4) Press [START] key.

   (The set value is stored, and the output corresponding to the set value is outputted for 30sec.)

Press [CUSTOM SETTINGS] key to stop the operation.

(The developing bias output voltage adjustment and output check can be made in each print mode.)

Item			Set range	Default
1	AUTO	Auto mode	0 - 745	485
2	CHARACTER	Text mode		
3	MIX	Text/Photo mode		
4	PHOTO	Photo mode		
5	PRINTER	Printer mode		
6	FAX	FAX mode		
7	PLUS	Reverse developing bias voltage	0 - 255	150



8-2

Purpose	Adjustment/Operation test/Check
Function (Purpose)	Used to check and adjust the operation of the main charger grid voltage in each printer mode and the control circuit.
Section	Image process (Photoconductor/Developing/ Transfer/Cleaning)

Operation/Procedure

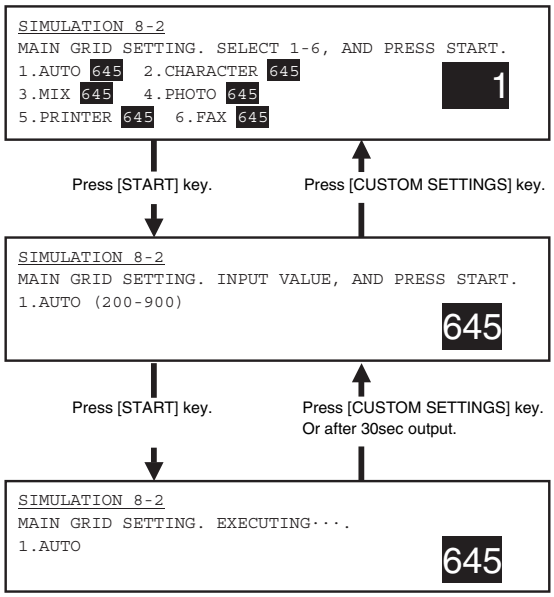
1) Enter the number corresponding to the adjustment item with 10-key.
2) Press [START] key.
3) Enter the adjustment value with 10-key.
4) Press [START] key.

   (The set value is stored, and the output corresponding to the set value is outputted for 30sec.)

Press [CUSTOM SETTINGS] key to stop the operation.

(The main charger grid output voltage adjustment and output check can be made in each print mode.)

Item			Set range	Default
1	AUTO	Auto mode	200 - 900	645
2	CHARACTER	Text mode		
3	MIX	Text/Photo mode		
4	PHOTO	Photo mode		
5	PRINTER	Printer mode		
6	FAX	FAX mode		



8-6

Purpose	Adjustment/Operation test/Check
Function (Purpose)	Used to check and adjust the operation of the transfer voltage and the control circuit.
Section	Image process (Photoconductor/Developing/ Transfer/Cleaning)/Transfer

Operation/Procedure

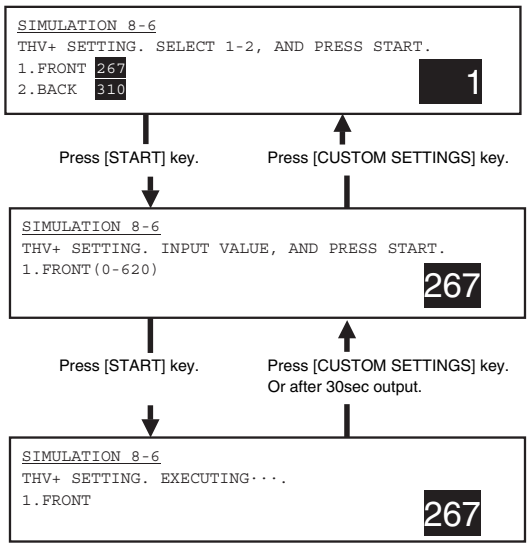
1) Enter the number corresponding to the adjustment item with 10-key.
2) Press [START] key.
3) Enter the adjustment value with 10-key.
4) Press [START] key.

   (The set value is stored, and the voltage corresponding to the set value is outputted for 30sec.)

Press [CUSTOM SETTINGS] key to stop the operation.

(The transfer output voltage adjustment and output check can be made in each print mode.)

Item			Set range	Default	
				AR-M355N	AR-M455N
1	FRONT	Long side print mode	0 - 620	220	267
2	BACK	Back side print mode		267	310



8-17

Purpose	Operation test/Check
Function (Purpose)	Used to check and adjust the operation of the transfer voltage and the related circuit. (Transfer belt cleaning mode)
Section	Image process (Photoconductor/Developing/ Transfer/Cleaning)
Item	Operation

Operation/Procedure

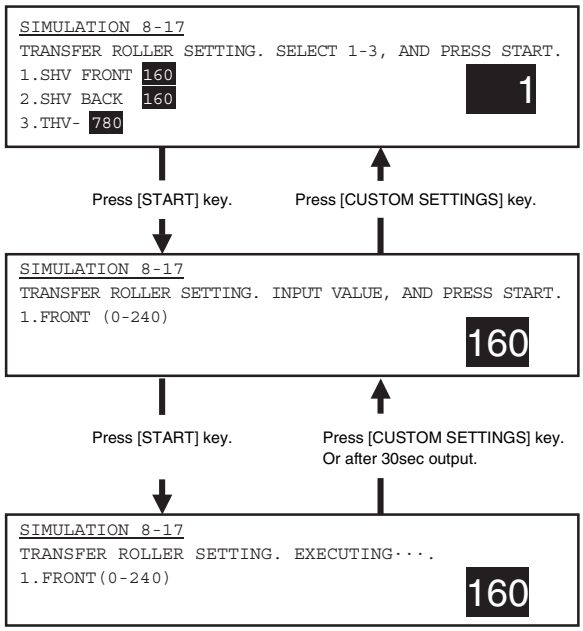
1) Enter the number corresponding to the adjustment item with 10-key.
2) Press [START] key.
3) Enter the adjustment value with 10-key.
4) Press [START] key.

   (The set value is stored, and the voltage corresponding to the set value is outputted for 30sec.)

Press [CUSTOM SETTINGS] key to stop the operation.

(The transfer output voltage adjustment and output check can be made in the transfer belt cleaning mode.)

Item			Set range	Default	
				AR-M355N	AR-M455N
1	SHF FRONT	AC component	0 - 240	120	160
2	SHV BACK	AC component	0 - 240	120	160
3	THV-	DC component	0 - 1250	780	780



9

9-1

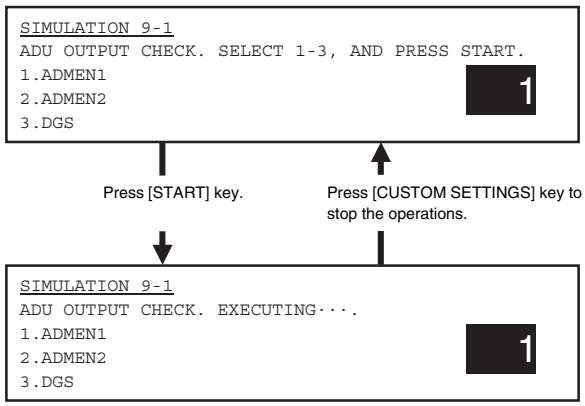
Purpose	Operation test/Check
Function (Purpose)	Used to check and adjust the operation of the load (clutch/solenoid) in the duplex section and the control circuit.
Section	Duplex
Item	Operation

Operation/Procedure

1) Select the number corresponding to the target of the operation check with 10-key.
2) Press [START] key.
   The load selected in procedure 1) is operated.

Press [CUSTOM SETTINGS] key to stop the operation.

1	ADMEN1	ADU motor 1 control signal
2	ADMEN2	ADU motor 2 control signal
3	DGS	ADU gate solenoid



9-2

Purpose	Operation test/Check
Function (Purpose)	Used to check the operations of the sensors and detectors in the duplex section and its control circuit.
Section	Duplex
Item	Operation

Operation/Procedure

The operating conditions of the sensors and detectors are displayed.

The active sensors and detectors are highlighted.

ADUSET	ADU installation detection
DSW_D	ADU cabinet open detection
AINPD	ADU paper entry detection
APOD	ADU paper exit detection
APPD1	ADU paper detection 1
APPD2	ADU paper detection 2

10

10-1

Purpose	Operation test/Check
Function (Purpose)	Used to check the operations of the toner motor and the related circuit.
Section	Process (Developing)
Item	Operation

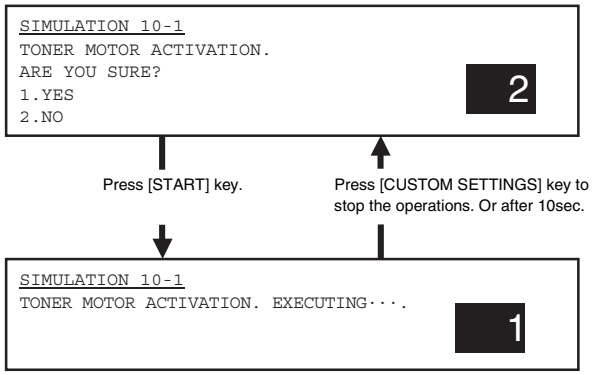
Operation/Procedure

1) Select the number corresponding to the target of the operation check with 10-key.
2) Press [START] key.
   The load selected in procedure 1) is operated for 10sec.

Press [CUSTOM SETTINGS] key to stop the operation.

NOTE: Never execute this simulation with toner in the toner hopper.
If executed, excessive toner will enter the developing section, causing an overtoner trouble. Be sure to remove the toner motor from the toner hopper before execution.

1	Toner motor rotation start
2	Cancel (The display returns to the main code entry menu.)



13

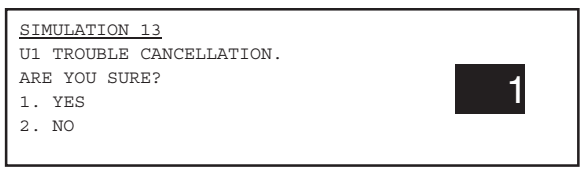
13-0

Purpose	Clear/Cancel (Trouble etc.)
Function (Purpose)	Used to cancel the self-diag "U1" trouble. (Only when FAX is installed.)
Section	FAX
Item	Trouble

Operation/Procedure

1) Select 1 (YES) with 10-key.
2) Press [START] key. (The trouble display is canceled.)

1	YES	After canceling U1 trouble, the machine returns to the main code entry standby mode.
2	NO	Without canceling U1 trouble, the machine returns to the main code entry standby mode.



14

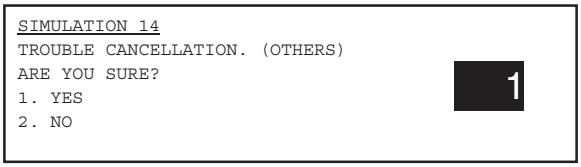
14-0

Purpose	Clear/Cancel (Trouble etc.)
Function (Purpose)	Used to cancel excluding the self-diag U1/LCC/U2/PF troubles.
Item	Trouble Error

Operation/Procedure

1) Select 1 (YES) with 10-key.
2) Press [START] key. (The trouble display is canceled.)

1	YES	After canceling the trouble other than U1, U2, PF, and LCC, the machine returns to the main code entry standby mode.
2	NO	Without canceling the trouble, the machine returns to the main code entry standby mode.



15

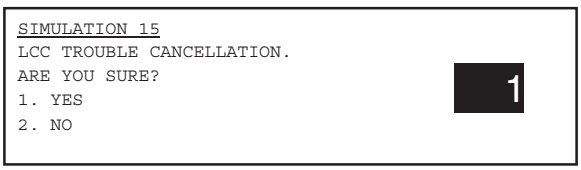
15-0

Purpose	Clear/Cancel (Trouble etc.)
Function (Purpose)	Used to cancel the self-diag "U6-09, F3-12, 22" (large capacity paper feed tray, paper feed trays 1, 2) troubles.
Section	LCC
Item	Trouble

Operation/Procedure

1) Select 1 (YES) with 10-key.
2) Press [START] key. (The trouble display is canceled.)

1	YES	After canceling the LCC trouble, the machine returns to the main code entry standby mode.
2	NO	Without canceling the trouble, the machine returns to the main code entry standby mode.



16

16-0

Purpose	Clear/Cancel (Trouble etc.)
Function (Purpose)	Used to cancel the self-diag U2 troubles.
Section	MFP control PWB, PCU PWB, scanner control PWB
Item	Trouble

Operation/Procedure

1) Select 1 (YES) with 10-key.
2) Press [START] key. (The trouble display is canceled.)

1	YES	After canceling the U2 trouble, the machine returns to the main code entry standby mode.
2	NO	Without canceling the trouble, the machine returns to the main code entry standby mode.

17

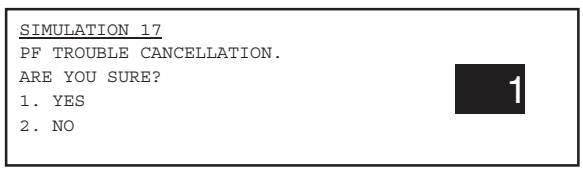
17-0

Purpose	Clear/Cancel (Trouble etc.)
Function (Purpose)	Used to cancel the PF troubles (when the copy inhibit command from the host computer is received).
Section	Communication unit (TEL/LIU/MODEM etc.)
Item	Trouble Error

Operation/Procedure

1) Select 1 (YES) with 10-key.
2) Press [START] key. (The trouble display is canceled.)

1	YES	After canceling the PF trouble, the machine returns to the main code entry standby mode.
2	NO	Without canceling the trouble, the machine returns to the main code entry standby mode.



21

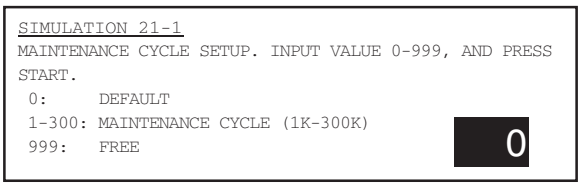
21-1

Purpose	Setting
Function (Purpose)	Used to set the maintenance cycle.
Item	Specifications Counter

Operation/Procedure

1) Enter the number corresponding to the maintenance timing display.
2) Press [START] key. The condition entered in procedure 1) is set.

Maintenance timing display		Set range
0	Default (Differs depending on the model.)	0 - 999
1 - 300	Maintenance display at 1K - 300K	
999	No maintenance display	



22

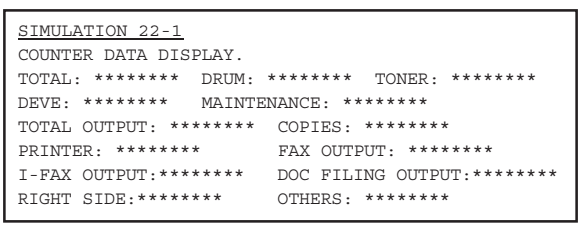
22-1

Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the print count value in each section and each operation mode. (Used to check the maintenance timing.)
Item	Counter

Operation/Procedure

Various print counter values are displayed.

TOTAL	Total counter
DRUM	Drum counter
TONER	Toner counter
DEVE	Developer counter
MAINTENANCE	Maintenance counter
TOTAL OUTPUT	Total output quantity
COPIES	Copy effective paper counter
PRINTER	Printer counter
FAX	FAX print counter
I-FAX OUTPUT	iFAX print counter
DOC FILING OUTPUT	Document filing print counter
RIIGHT SIDE OUTPUT	Right paper exit counter
OTHERS	Other print counter (List print , etc.)



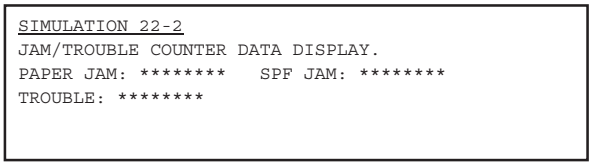
22-2

Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the total numbers of misfeed and troubles. (When the number of misfeed is considerably great, it is judged as necessary for repair. The misfeed rate is obtained by dividing this count value with the total counter value.)
Item	Trouble

Operation/Procedure

The paper jam/trouble counter value is displayed.

PAPER JAM	Number of paper jams
SPF JAM	Number of SPF jams
TROUBLE	Number of troubles



22-3

Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to check misfeed positions and the misfeed count of each position. (If the misfeed count is considerably great, it may be judged as necessary to repair.)
Section	Sections other than SPF/DSPF section
Item	Trouble Misfeed

Operation/Procedure

The history of paper jams and misfeed is displayed.

The misfeed history is displayed sequentially from the latest one. The max. 100 items of misfeed history can be recorded. The data may be used to identify trouble position.

The latest 100 items of paper jam history are displayed. (Refer to the jam cause code table below.)

(Jam cause code)

Code	Description
NO_JAM_CAUSE	No jam. Also used to cancel a jam.
TRAY2	Tray 2 paper feed jam (MPFD not-reaching)
MPFDND1	MPFD not-reaching jam (Desk tray 1 feed paper)
MPFDND2	MPFD not-reaching jam (Desk tray 2 feed paper)
MPFDNTD	MPFD not-reaching jam (Tandem desk feed paper)
MPFDST2	MPFD remaining jam (Machine tray 3 feed paper)
MPFDSD1	MPFD remaining jam (Desk tray 1 feed paper)
MPFDSD2	MPFD remaining jam (Desk tray 2 feed paper)
MPFDSTD	MPFD remaining jam (Tandem desk feed paper)
PPD1NMF	PPD1 not-reaching jam (Manual feed tray paper)
TRAY1	Tray 1 feed paper jam (PPD1 not-reaching)
PPD1NT2	PPD1 not-reaching jam (Machine tray 2 feed paper)
PPD1ND1	PPD1 not-reaching jam (Desk tray 1 feed paper)
PPD1ND2	PPD1 not-reaching jam (Desk tray 2 feed paper)

Code	Description
PPD1NTD	PPD1 not-reaching jam (Tandem desk feed paper)
PPD1NAD	PPD1 not-reaching jam (ADU refeed paper)
PPD1SMF	PPD1 remaining jam (Manual feed tray feed paper)
PPD1ST1	PPD1 remaining jam (Machine tray 1 feed paper)
PPD1ST2	PPD1 remaining jam (Machine tray 2 feed paper)
PPD1SD1	PPD1 remaining jam (Desk tray 1 feed paper)
PPD1SD2	PPD1 remaining jam (Desk tray 2 feed paper)
PPD1STD	PPD1 remaining jam (Tandem desk feed paper)
PPD1SAD	PPD1 remaining jam (ADU refeed paper)
PPD1_PCU	PPD1 remaining jam (Timer end of fusing ready standby/high voltage rising completion standby, etc.)
PPD1PRI	PPD1 jam (Image ready is not supplied from ICU.)
POD1N	POD1 not-reaching jam
POD1S	POD1 remaining jam
POD2N	POD2 not-reaching jam
POD2SR	POD2 remaining jam (When discharging to the right side of machine.)
POD2SL	POD2 remaining jam (When discharging to the left side of machine.)
AINPDN	ADU paper entry sensor not-reaching jam
AINPDS	ADU paper entry sensor remaining jam
APODN	ADU paper exit sensor not-reaching jam
APODS	ADU paper exit sensor remaining jam
APPD1N	ADU transport sensor 1 not-reaching jam
APPD1S	ADU transport sensor 1 remaining jam
APPD2N	ADU transport sensor 2 not-reaching jam (When ADU transport)
APPD2S	ADU transport sensor 2 remaining jam (When ADU transport)
BPT	Manual feed tray paper feed jam (APPD2 not-reaching)
APPD2SM	ADU transport sensor 2 remaining jam (Manual feed tray feed paper)
DESK2	Desk tray 2 paper feed jam (DPFD3 not-reaching)
DPFD3SD2	DPFD3 remaining jam (Desk tray 2 feed paper)
DESK1	Desk tray 1 paper feed jam (DPFD2 not-reaching)
DPFD2N2	DPFD2 not-reaching jam (Desk tray 2 feed paper)
DPFD2S1	DPFD2 remaining jam (Desk tray 1 feed paper)
DPFD2S2	DPFD2 remaining jam (Desk tray 2 feed paper)
TTRAY2	Tandem tray 2 paper feed jam (TPFD3 not-reaching)
TPFD3S2	TPFD3 remaining jam (Tandem tray 2 feed paper)
TTRAY1	Tandem tray 1 paper feed jam (TPFD2 not-reaching)
TPFD2N2	TPFD2 not-reaching jam (Tandem tray 2 feed paper)
TPFD2S1	TPFD2 remaining jam (Tandem tray 1 feed paper)
TPFD2S2	TPFD2 remaining jam (Tandem tray 2 feed paper)

Code	Description
PPD1_DESK	DESK paper feed jam (Preliminary paper feed from the desk, no response in a certain time after paper feed instruction)
FPID_N	Built-in finisher PID not-reaching jam
FPID_S	Built-in finisher PID remaining jam
FSCID_N	Built-in finisher SCID not-reaching jam
FSCID_S	Built-in finisher SCID remaining jam
FSCID2N	Built-in finisher SCID2 not-reaching jam
FSCID2S	Built-in finisher SCID2 remaining jam
FPPD_S	Built-in finisher PPD remaining jam
FSCPD_N	Built-in finisher SCPD not-reaching jam
FSCPD_S	Built-in finisher SCPD remaining jam
FPOD_N	Built-in finisher POD not-reaching jam
FPOD_S	Built-in finisher POD remaining jam
FES_N	Console finisher entry port sensor (FES) not-reaching jam
FES_S	Console finisher entry port sensor (FES) remaining jam
FFPS_N	Console finisher saddle not-reaching jam (Not reaching the folding sensor (FFPS).)
FFPS_S	Console finisher saddle remaining jam (The folding sensor (FFPS) does not turn off.)
FSTPL	Console finisher staple jam (The stapler does not complete clinching.)
FPNCH	Console finisher punch jam (The puncher does not complete punching.)
FDOP	Console finisher door open jam (During/after paper passing, the front door, joint, or upper cover is opened.)
PID_N	Mail box PID not-reaching jam
PID_S	Mail box PID remaining jam
MPPD1_N	Mail box MPPD1 not-reaching jam
MPPD1_S	Mail box MPPD1 remaining jam
MPPD2_N	Mail box MPPD2 not-reaching jam
MPPD2_S	Mail box MPPD2 remaining jam
MPPD3_N	Mail box MPPD3 not-reaching jam
MPPD3_S	Mail box MPPD3 remaining jam
MPPD4_N	Mail box MPPD4 not-reaching jam
MPPD4_S	Mail box MPPD4 remaining jam
MPPD5_N	Mail box MPPD5 not-reaching jam
MPPD5_S	Mail box MPPD5 remaining jam

```
SIMULATION 22-3
PAPER JAM HISTORY.
*******,*******,*******,*******,*******,*******,*******,*******,*******,*******
*******,*******,*******,*******,*******,*******,*******,*******,*******,*******
*******,*******,*******,*******,*******,*******,*******,*******,*******,*******
*******,*******,*******,*******,*******,*******,*******,*******,*******,*******
*******,*******,*******,*******,*******,*******,*******,*******,*******,*******
.....
```

(10 lines, 80 digits = 800 characters)

22-4

Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the trouble (self diag) history.
Item	Trouble

Operation/Procedure

The trouble history is displayed.

The trouble history is displayed sequentially from the latest one. The max. 100 items can be stored. (The oldest one is deleted sequentially. The trouble position can be identified by the data.)

```
SIMULATION 22-4
TROUBLE HISTORY.
**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**
**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**
**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**
**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**
**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**,**-**
.....
```

(10 lines, 80 digits = 800 characters)

22-5

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

Operation/Procedure

The ROM version of each section can be checked. When there is any problem in the software, use this simulation to check the ROM version of each section and revise the version if necessary.

S/N	Engine section serial number
MFP	MFP controller
(LANGUAGE)	(Language version)
BOOT	MFP controller boot ROM
FAX	FAX controller
NIC	Network card
PCU	PCU controller
SCANNER	Scanner controller
FINISHER	Finisher controller
DESK	Desk/LCC controller
MAIL BIN	mail bin controller
PUNCH UNIT	Punch unit

```
SIMULATION 22-5
ROM VERSION DATA DISPLAY.
S/N:   0000000000
MFP:            1.00  (LANGUAGE:1.00)
PCU:            1.00           BOOT:         1.00
SCANNER:        1.00            FAX:         1.00
FINISHER:       1.00            NIC:         1.00
DESK:           1.00       MAIL BIN:         1.00
PUNCH UNIT:     1.00
```

22-6

Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to output the list of the setting and adjustment data (simulations, FAX soft switch, counters).
Item	Data Adjust/Setting data

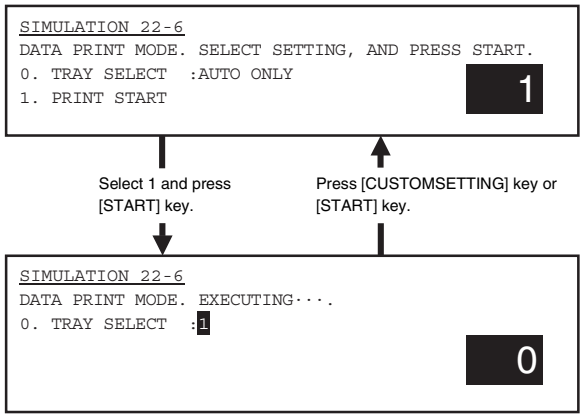
Operation/Procedure

When installing or servicing this machine, execute this simulation to print and save various setting and adjustment data for next servicing. (For example, memory trouble, PWB replacement, etc.)

1) Enter 1 with 10-key.
2) Press [START] key.

The various setting and adjustment data are printed out. (The print paper cannot be selected optionally.)

0	TRAY SELECT	TRAY SELECT auto only (Selection is not allowed.)
1	PRINT START	PRINT START



22-7

Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to display the key operator code. (This simulation is used when the customer forgets the key operator code.)
Item	Data User data

Operation/Procedure

The key operator code is displayed.

```
SIMULATION 22-7
KEY OPERATOR CODE DISPLAY.
CODE: *****
```

22-8

Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the number of use of the finisher, the SPF, and the scan (reading) unit.
Section	Optical (Image scanning) Finisher
Item	Counter

Operation/Procedure

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

SPF	Document feed quantity
SCAN	Number of scans
STAPLER	Number of stapling
PUNCH	Number of punching
STAMP	Number of SPF finish stamps

```
SIMULATION 22-8
ORG./STAPLE COUNTER DATA DISPLAY.
SPF: ********
SCAN: ********
STAPLER: ********      PUNCH: ********
STAMP: ********
```

22-9

Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the number of use (print quantity) of each paper feed section.
Section	Paper feed, ADU
Item	Counter

Operation/Procedure

The values of the paper feed related counters are displayed.

TRAY1	Use quantity of tray 1
TRAY2	Use quantity of tray 2 (Multi purpose tray)
TRAY3/LCC1	Use quantity of tray 3/LCC left tray (Common to Desk/LCC)
TRAY4/LCC2	Use quantity of tray 4/LCC right tray
BPT	Use quantity of manual feed tray
ADU	Use quantity of duplex paper feed

```
SIMULATION 22-9
PAPER FEED COUNTER DATA DISPLAY.
TRAY1:      ********   TRAY2:      ********
TRAY3/LCC1:********   TRAY4/LCC2:********
BPT:        ********   ADU:        ********
```

22-10

Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the system configuration (option, internal hardware).
Item	Specifications Options

Operation/Procedure

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

MACHINE	AR-311S, AR-351S/AR-M355U, AR-451S/AR-M455U, AR-311FP, AR-351FP/AR-M351U, AR-451FP/ AR-M451U, AR-311N, AR-351N/M355N/M351N, AR-451N/M455N/M451N
SPF	(Model code)
FINISHER	NONE/ (Model code)
MAIL BIN	NONE/ (Model code)
PUNCH	NONE/ (Model code)
DESK/LCC	NONE/ (Model code)
ADU	NONE/ (Model code)
SYSTEM MEMORY	Memory capacity (MB)
HDD	Hard disk capacity (MB)
ICU	Board type
NIC	NONE/ (Model code)
NSCN	NONE/ (Network scanner)
PS3	NONE/ (PS3 expansion kit)
FAX	NONE/ (Model code)
FAX MEMORY	FAX expansion memory capacity (MB)
HAND SET	NONE/ (Model code)
STAMP	Finisher stamp NONE/ (Model code)
PCU TYPE	PCU PWB type (JPN: Japan/ EX100: EX Japan 100V/ EX200: EX Japan 200V)

(Model code list)

Item	Display	Content
MACHINE	AR-311S	31-sheet S model
	AR-351S/ AR-M355U	35-sheet S/U model
	AR-451S/ AR-M455U	45-sheet S/U model
	AR-311FP	31-sheet FP model (Local printer standard provision model)
	AR-351FP/ AR-M351U	35-sheet FP/U model (Local printer standard provision model)
	AR-451FP/ AR-M451U	45-sheet FP/U model (Local printer standard provision model)
	AR-311N	31-sheet N model
	AR-351N/ M355N/ M351N	35-sheet N model
	AR-451N/ M455N/ M451N	45-sheet N model
SPF	----	Document feed unit not installed
	AR-EF4	Document feed unit (SPF) installed
	AR-EF3	Duplex document feed unit (DSPF) installed
FINISHER	----	After-work unit not installed
	AR-FN6	Built-in finisher installed
	AR-FN7	Console finisher installed
MAIL BIN	----	Mail bin not installed
	AR-MS1	Mail bin installed
Punch unit	----	Punch unit not installed
	AR-PN1A	Punch unit 2 holes
	AR-PN1B	Punch unit 3 holes
	AR-PN1C	Punch unit 4 holes
	AR-PN1D	Punch unit 4 holes wide hole
ADU	----	Duplex module not installed
	AR-DU3	Duplex module installed
	AR-DU4	Duplex module + manual feed unit installed
DESK	----	Paper feed desk not installed
	AR-MU2	Multi-purpose tray installed
	AR-D27	Paper feed desk installed
	AR-D28	Tandem desk installed
ICU	TYPE-U/S	For U/S model board
	TYPE-U/FP	For U/FP model board
	TYPE-N	For N model board
MEMORY	0MB	No expansion memory
	***MB	Expansion memory ***MB
HD	0MB	Hard disk not installed
	****MB	Hard disk installed (AR-HD3)
NIC	----	NIC not installed
	AR-NC7J	NIC installed

Item	Display	Content
PS3 expansion kit	----	PS3 expansion kit not installed
	AR-PK6	PS3 expansion kit installed
FAX	----	FAX expansion kit not installed
	AR-FX12	FAX expansion kit installed
Network scanner	----	Network expansion kit not installed
	AR-NS3	Network expansion kit installed
Expansion memory	----	Expansion memory for FAX not installed
	AR-MM9	Expansion memory for FAX 8MB (AR-MM9) installed
Handset	----	handset not installed
	AR-HN5	Handset installed
Finish stamp	----	Finish stamp unit not installed
	AR-SU1	Finish stamp unit installed

```
SIMULATION 22-10
SYSTEM INFORMATION.
MACHINE:*******
SPF:*******
FINISHER:*******   MAIL BIN:*******      PUNCH:******
DESK/LCC:*******   ADU:*******
SYSTEM MEMORY:**MB            HDD:***MB  ICU:******
NIC:*******  NSCN:******      PS3:******
FAX:*******  FAX MEMORY:**MB  HAND SET:*******
STAMP:*******
PCU TYPE:*******
```

22-11

Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the use frequency (send/receive) of FAX. (Only when FAX is installed)
Section	FAX
Item	Data

Operation/Procedure

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

FAX SEND	Number of FAX send
FAX RECEIVE	Number of FAX receive
FAX OUTPUT	Number of FAX print
SEND IMAGES	Send quantity
SEND TIME	Send time
RECEIVE TIME	Receive time

```
SIMULATION 22-11
FAX COUNTER DATA DISPLAY.
FAX SEND: ********   FAX RECEIVE : ********
FAX OUTPUT:********
SEND IMAGES: ********    SEND TIME: ********:**:**
RECEIVE TIME: ********:**:**
```

22-12

Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the SPF misfeed positions and the number of misfeed at each position. (When the number of misfeed is considerably great, it can be judged as necessary for repair.)
Section	DSPF
Item	Trouble

Operation/Procedure

The history of paper jam and misfeed is displayed.

The misfeed history is displayed sequentially from the latest one. The max. 20 items are recorded. (The oldest one is sequentially deleted.) This data can be used to identify the trouble position.

The latest 20 data of document jam history are displayed. (Refer to the jam code below.)

(Jam cause code)

Code	Description
NO_JAM_CAUSE	No jam. Also used to cancel a jam.
SPSD_N	SPPD1 not-reached jam
SPSD_S	SPPD1 remaining jam
STD_N	SPPD2 not-reached jam
STD_S	SPPD2 remaining jam
SPOD_N	SPOD not-reached jam
SPOD_S	SPOD remaining jam
SPSDSCN	Exposure start timer end

```
SIMULATION 22-12
SPF JAM HISTORY.
*******,*******,*******,*******,*******,*******,*******,*******,*******,*******
*******,*******,*******,*******,*******,*******,*******,*******,*******,*******
```

(10 lines, 80 digits = 800 characters)

22-13

Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the operating time of the process section (OPC drum, DV unit, toner bottle).
Item	Counter

Operation/Procedure

The rotating time and the print quantity of the process section (OPC drum, DV unit (developer), toner motor (toner bottle)) are displayed.

DRUM	OPC drum	Count value (counts)
		Rotating time (sec)
TONER	Toner motor	Count value (counts)
		Rotating time (sec)
DEVE	DV unit	Count value (counts)
		Rotating time (sec)

```
SIMULATION 22-13
PROCESS DATA DISPLAY.
DRUM: ********(counts)   **********(sec.)
TONER: ********(counts)  **********(sec.)
DEVE: *********(counts)  **********(sec.)
```

22-19

Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the values of the counters related to the scan mode and the internet FAX mode.
Section	Scanner
Item	Counter

Operation/Procedure

The values of the counters related to the scan mode and the internet FAX mode are displayed.

NETWORK SCANNER ORIGINAL COUNTER	Document scan quantity (OC, SPF total quantity)
MAIL COUNTER	Number of times of mail send
FTP COUNTER	Number of times of FTP send
INTERNET-FAX ORIGINAL COUNTER	Document scan quantity (OC, SPF, total quantity)
INTERNET-FAX SEND	Number of times of internet FAX send
INTERNET-FAX RECEIVE	Number of times of internet FAX receive
INTERNET-FAX OUTPUT	Internet FAX print quantity
SCAN TO HDD	Scan to HDD record quantity
INTERNET-FAX SEND IMAGES	IFAX send quantity counter
MAIL SEND IMAGES	MAIL send quantity counter
FTP SEND IMAGES	FTP send quantity counter

```
SIMULATION 22-19
NETWORK SCANNER AND INTERNET-FAX COUNTER DISPLAY.

 NETWORK SCANNER ORIGINAL COUNTER: *********
 MAIL COUNTER: ********
 FTP COUNTER: ********
 INTERNET-FAX ORIGINAL COUNTER: ********
 INTERNET-FAX SEND: ********
 INTERNET-FAX RECEIVE: ********
 INTERNET-FAX OUTPUT: ********
 SCAN TO HDD : ********
 INTERNET-FAX SEND IMAGES: ********
 MAIL SEND IMAGES: ********
 FTP SEND IMAGES: ********
```

23

23-2

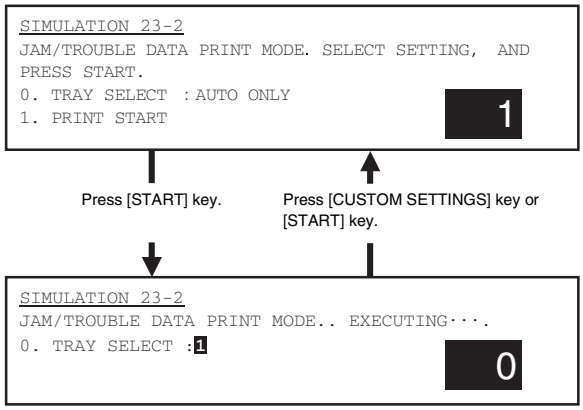
Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the trouble history of paper jam and misfeed. (If the number of misfeed and troubles is considerably great, it may be judged as necessary to repair.)
Item	Trouble

Operation/Procedure

1) Select "1. PRINT START."
2) Press [START] key.

The trouble history of paper jam and misfeed is printed.

This data can be cleared by SIM 24-1.



23-80

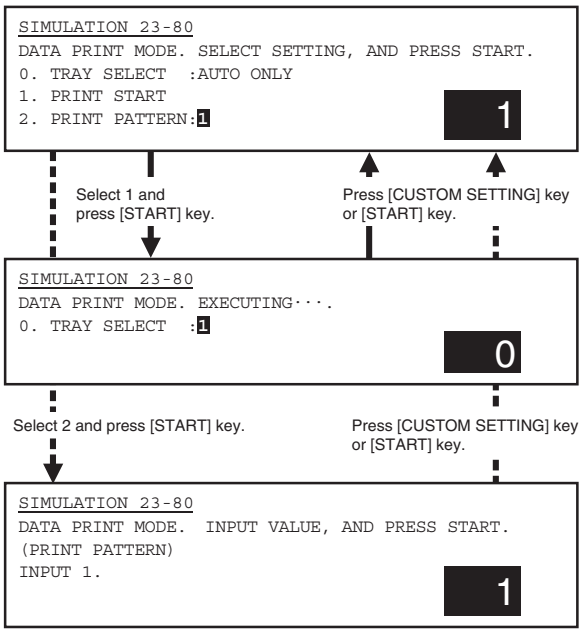
Purpose	Operation test/Check
Function (Purpose)	Used to check the operations of the sensors and detectors in the paper feed and transport section.
Section	Paper feed, paper transport
Item	Operation

Operation/Procedure

1) Select "2. PRINT PATTERN."
2) Press [START] key.
3) Select "1" (Paper transport time data) with 10-key.
4) Press [START] key.

The list of the ON time of the sensors and the detectors of the paper transport section is printed. When a paper jam or misfeed is generated, the ON time of each sensor and detector is checked to check if the operation of the sensor and the detector, paper feed, and transport are normal or not.

0	TRAY SELECT AUTO ONLY	Auto only (No selection allowed)
1	PRINT START	Print execution Print of the set data is executed.
2	PRINT PATTERN	Print pattern 1. Paper transport time data



24

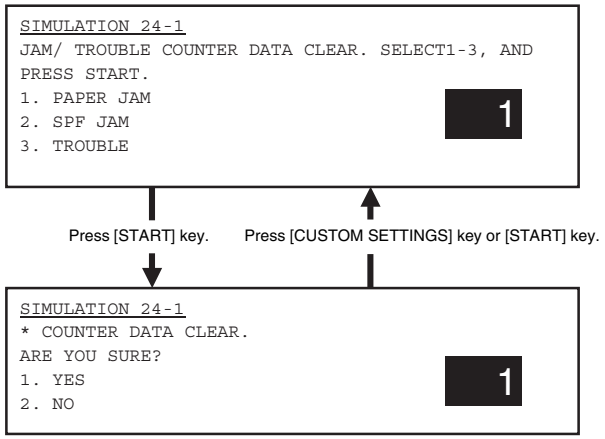
24-1

Purpose	Data clear
Function (Purpose)	Used to clear the misfeed counter, the misfeed history, the trouble counter, and the trouble history. (The counters are cleared after completion of maintenance.)
Item	Counter

Operation/Procedure

1) Select the counter to be cleared with 10-key.
2) Press [START] key.
   The confirmation to clear is opened.
3) Select Yes/NO of counter clear with 10-key.
   YES: Clear
   NO: Not clear
4) Press [START] key.

1	PAPER JAM	Number of paper jams
2	SPF JAM	Number of SPF jams
3	TROUBLE	Number of troubles



* = PAPER JAM, SPF JAM, TROUBLE

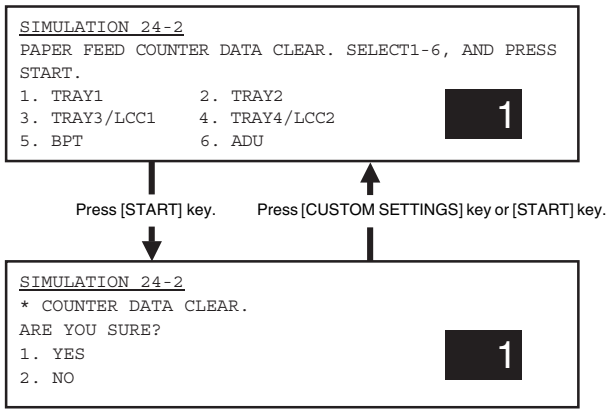
24-2

Purpose	Data clear
Function (Purpose)	Used to clear the number of use (the number of prints) of each paper feed section.
Section	Paper feed
Item	Counter

Operation/Procedure

1) Select the counter to be cleared with 10-key.
2) Press [START] key.
   The confirmation to clear is opened.
3) Select Yes/NO of counter clear with 10-key.
   YES: Clear
   NO: Not clear
4) Press [START] key.

1	TRAY1	Tray 1 use quantity
2	TRAY2	Tray 2 use quantity
3	TRAY3/LCC1	Tray 3/LCC left tray use quantity
4	TRAY4/LCC2	Tray 4/LCC right tray use quantity
5	BPT	Manual feed tray use quantity
6	ADU	Duplex feed quantity



* = TRAY1, TRAY2, TRAY3/LCC1, TRAY4/LCC2, BPT, ADU

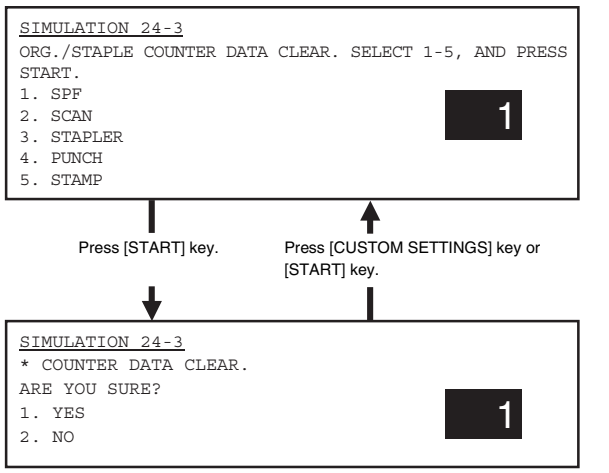
24-3

Purpose	Data clear
Function (Purpose)	Used to clear the number of use of the finisher, SPF, and the scan (reading) unit.
Section	
Item	Counter

Operation/Procedure

1) Select the counter to be cleared with 10-key.
2) Press [START] key.
   The confirmation to clear is opened.
3) Select Yes/NO of counter clear with 10-key.
   YES: Clear
   NO: Not clear
4) Press [START] key.

1	SPF	SPF paper pass quantity
2	SCAN	Number of times of document scan
3	STAPLER	Number of times of stapling
4	PUNCH	Number of times of punching
5	STAMP	Number of times of SPF finish stamp



* = SPF, SCAN, STAPLER, PUNCH, STAMP

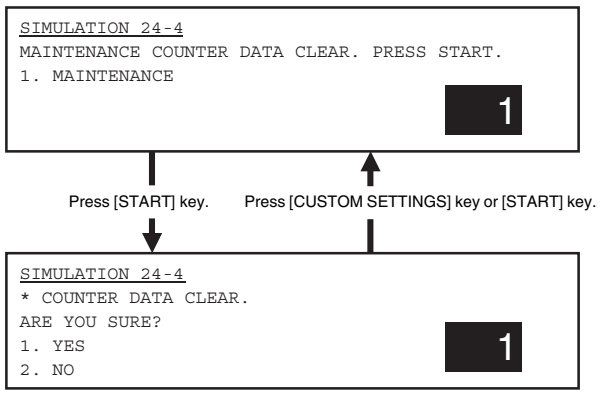
24-4

Purpose	Data clear
Function (Purpose)	Used to reset the maintenance counter.
Item	Counter

Operation/Procedure

1) Select the counter to be cleared with 10-key.
2) Press [START] key.
   The confirmation to clear is opened.
3) Select Yes/NO of counter clear with 10-key.
   YES: Clear
   NO: Not clear
4) Press [START] key.

1	MAINTENANCE	Maintenance counter



* = MAINTENANCE

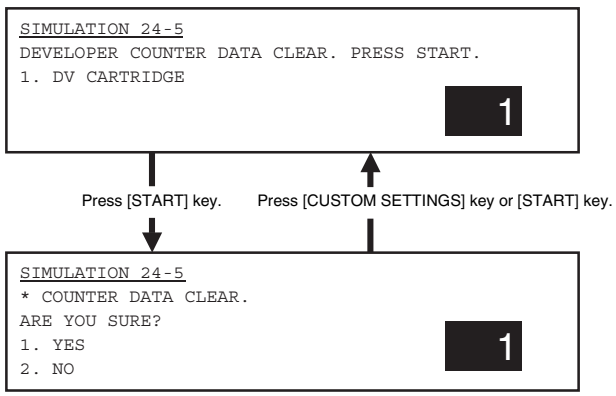
24-5

Purpose	Data clear
Function (Purpose)	Used to reset the developer counter. (The developer counter of the DV unit which is installed is reset.)
Section	Image process (Photoconductor/Developing/ Transfer/Cleaning)
Item	Counter Developer

Operation/Procedure

1) Select the counter to be cleared with 10-key.
2) Press [START] key.
   The confirmation to clear is opened.
3) Select Yes/NO of counter clear with 10-key.
   YES: Clear
   NO: Not clear
4) Press [START] key.

1	DV CARTRIDGE	Developer cartridge



* = DV CARTRIDGE

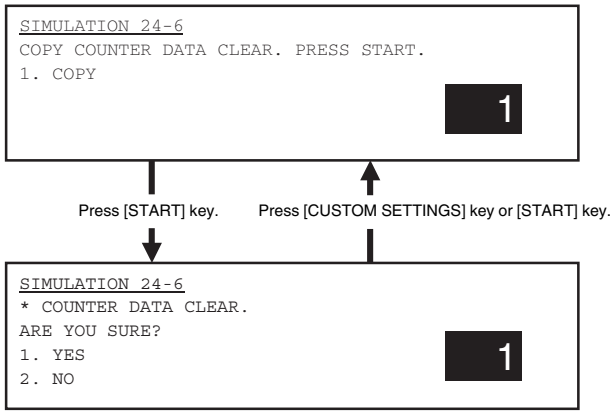
24-6

Purpose	Data clear
Function (Purpose)	Used to reset the copy counter.
Item	Counter Copy

Operation/Procedure

1) Select the counter to be cleared with 10-key.
2) Press [START] key.
   The confirmation to clear is opened.
3) Select Yes/NO of counter clear with 10-key.
   YES: Clear
   NO: Not clear
4) Press [START] key.

1	COPY	Copy effective paper counter



* = COPY

24-7

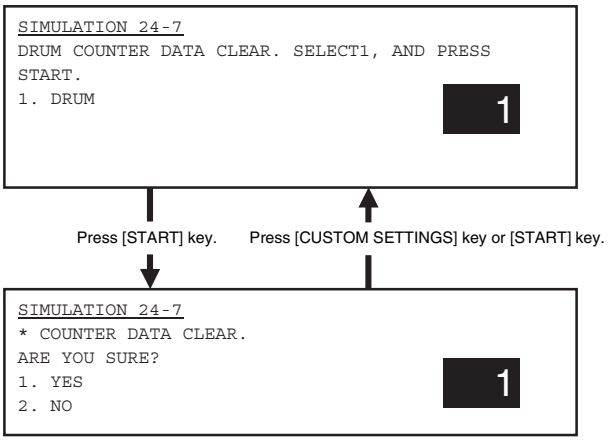
Purpose	Data clear
Function (Purpose)	Used to clear the OPC drum counter. (Perform this simulation when the OPC drum is replaced.)
Section	Image process (Photoconductor/Developing/ Transfer/Cleaning)
Item	Counter Photo conductor

Operation/Procedure

1) Select the counter to be cleared with 10-key.
2) Press [START] key.
   The confirmation to clear is opened.
3) Select Yes/NO of counter clear with 10-key.
   YES: Clear
   NO: Not clear
4) Press [START] key.

After replacing the OPC drum, be sure to clear the OPC drum counter.

1	DRUM	OPC drum counter



* = DRUM

24-9

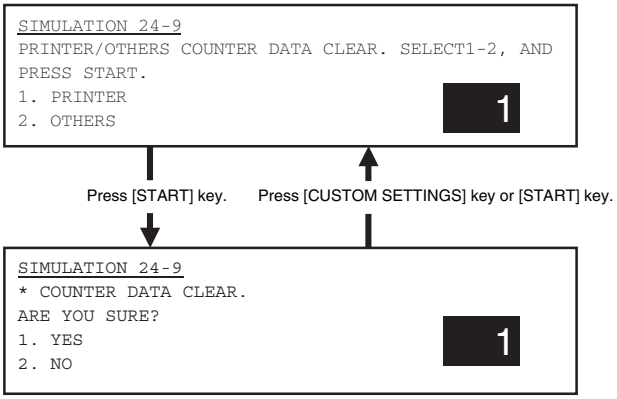
Purpose	Data clear
Function (Purpose)	Used clear the printer mode print counter and the self print mode print counter.
Section	Printer
Item	Counter

Operation/Procedure

1) Select the counter to be cleared with 10-key.
2) Press [START] key.
   The confirmation to clear is opened.
3) Select Yes/NO of counter clear with 10-key.
   YES: Clear
   NO: Not clear
4) Press [START] key.

After replacing the OPC drum, be sure to clear the OPC drum counter.

1	PRINTER	Printer counter (Print mode)
2	OTHERS	Other effective paper counter (Self print mode)



* = PRINTER, OTHERS

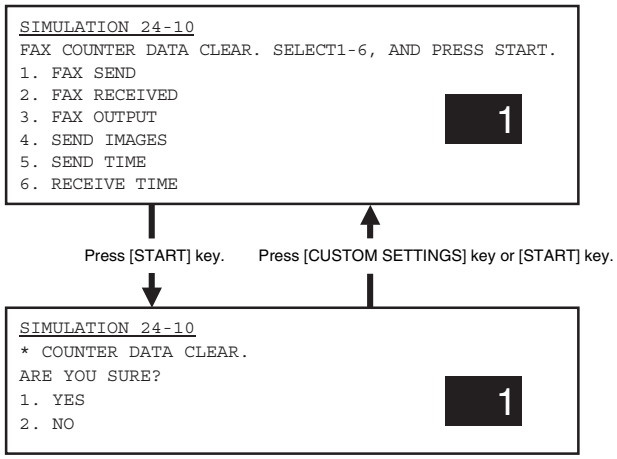
24-10

Purpose	Data clear
Function (Purpose)	Used to clear the FAX counter. (Only when FAX is installed)
Section	FAX
Item	Counter

Operation/Procedure

1) Select the counter to be cleared with 10-key.
2) Press [START] key.
   The confirmation to clear is opened.
3) Select Yes/NO of counter clear with 10-key.
   YES: Clear
   NO: Not clear
4) Press [START] key.

1	FAX SEND	Number of times of FAX send
2	FAX RECEIVE	Number of times of FAX receive
3	FAX OUTPUT	FAX print quantity
4	SEND IMAGES	Send quantity
5	SEND TIME	Send time
6	RECEIVE TIME	Receive time



* = FAX SEND, FAX RECEIVED, FAX OUTPUT, SEND IMAGES, SEND TIME, RECEIVE TIME

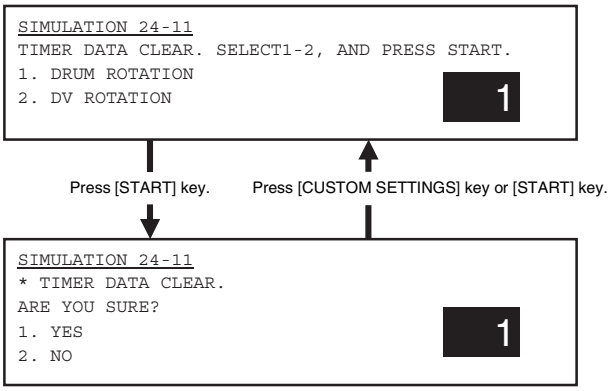
24-11

Purpose	Data clear
Function (Purpose)	Used to reset the OPC drum rotation time, and the DV unit rotation time counter. The developer counter in the DV unit installed is reset.
Section	Image process (Photoconductor/Developing/ Transfer/Cleaning)
Item	Counter Developer

Operation/Procedure

1) Select the counter to be cleared with 10-key.
2) Press [START] key.
   The confirmation to clear is opened.
3) Select Yes/NO of counter clear with 10-key.
   YES: Clear
   NO: Not clear
4) Press [START] key.

1	DRUM ROTATION	OPC drum rotation time
2	DV ROTATION	DV unit rotation time



* = DRUM ROTATION, DV ROTATION

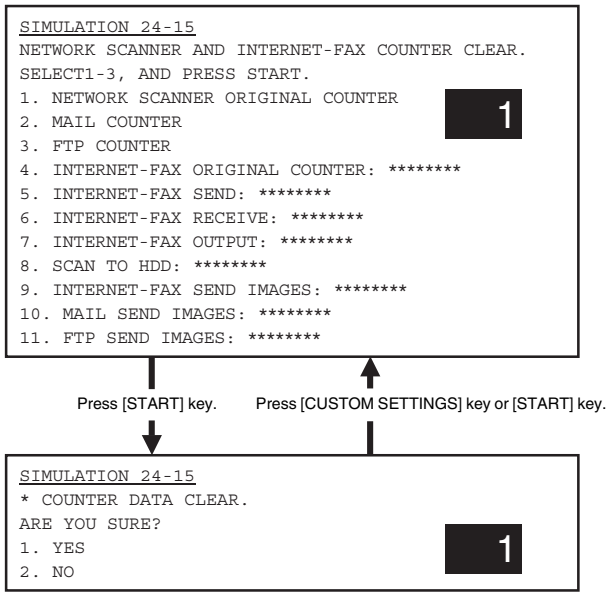
24-15

Purpose	Data clear
Function (Purpose)	Used to clear the counters related to the scan mode and the internet FAX mode.
Item	Counter

Operation/Procedure

1) Select the counter to be cleared with 10-key.
2) Press [START] key.
   The confirmation to clear is opened.
3) Select Yes/NO of counter clear with 10-key.
   YES: Clear
   NO: Not clear
4) Press [START] key.

1	NETWORK SCANNER ORIGINAL COUNTER	Document scan quantity counter in the network scanner mode
2	MAIL COUNTER	Number of times of mail send
3	FTP COUNTER	Number of times of FTP send
4	INTERNET-FAX ORIGINAL COUNTER	Internet FAX document scan quantity (Total quantity of OC and SPF)
5	INTERNET-FAX SEND	Number of times of internet FAX send
6	INTERNET-FAX RECEIVE	Number of times of internet FAX receive
7	INTERNET-FAX OUTPUT	Internet FAX print quantity
8	SCAN TO HDD	SCAN TO HDD record quantity
9	INTERNET-FAX SEND IMAGES	IFAX send quantity counter
10	MAIL SEND IMAGES	MAIL send quantity counter
11	FTP SEND IMAGES	FTP send quantity counter



* = NETWORK SCANNER ORIGINAL, MAIL, FTP, INTERNET-FAX ORIGINAL COUNTER, INTERNET-FAX SEND, INTERNET-FAX RECEIVE, INTERNET-FAX OUTPUT, SCAN TO HDD, INTERNET-FAX SEND IMAGES, MAIL SEND IMAGES, FTP SEND IMAGES

25

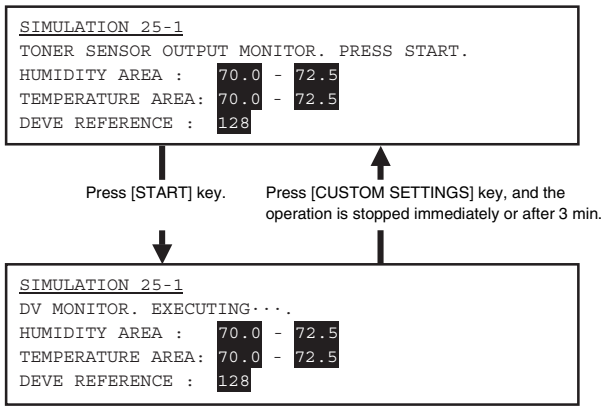
25-1

Purpose	Operation test/Check
Function (Purpose)	Used to check the operations of the developing section (toner concentration, humidity and toner concentration sensor, humidity sensor, temperature sensor output can be monitored.)
Section	Process (Developing section)
Item	Operation

Operation/Procedure

Press [START] key.

The developing motor and the OPC drum motor rotate, and the toner concentration detection level and the humidity sensor detection level and the temperature sensor detection level are displayed.



25-2

Purpose	Setting
Function (Purpose)	Used to make the initial setting of toner concentration when replacing developer.
Section	Image process (Photoconductor/Developing/ Transfer/Cleaning)
Item	

Operation/Procedure

1) Press [START] key.

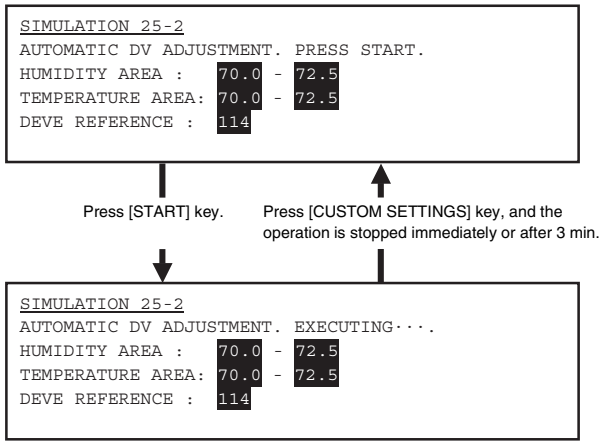
   The developing motor rotates for 2 min and the toner concentrations sensor makes sampling of toner concentration 16 times, and the detection level is displayed.

   After the developing motor stops, the average value of toner concentration sampling is set as the reference toner concentration level.

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

(Default: 114)

2) The humidity near the developing tank at the developing adjustment is registered.



26

26-3

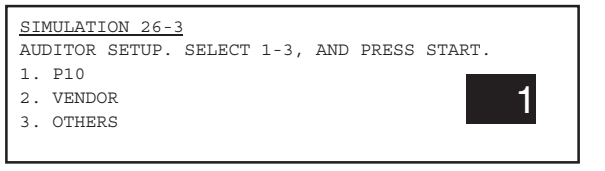
Purpose	Setting
Function (Purpose)	Used to set the specifications of the auditor. Setting must be made according to the auditor use conditions.
Section	Auditor
Item	Specifications

Operation/Procedure

1) Select the number corresponding to the auditor mode with 10-key.
2) Press [START] key.

1	P10	Built-in auditor mode
2	VENDOR	Coin vendor mode
3	OTHERS	Other

(Default: 1)



26-5

Purpose	Setting
Function (Purpose)	Used to set the count mode of the total counter and the maintenance counter.
Item	Specifications Counter

Operation/Procedure

1) Select the number corresponding to the counter to be set with 10-key.
2) Press [START] key.
3) Select the count mode with 10-key.
4) Press [START] key.

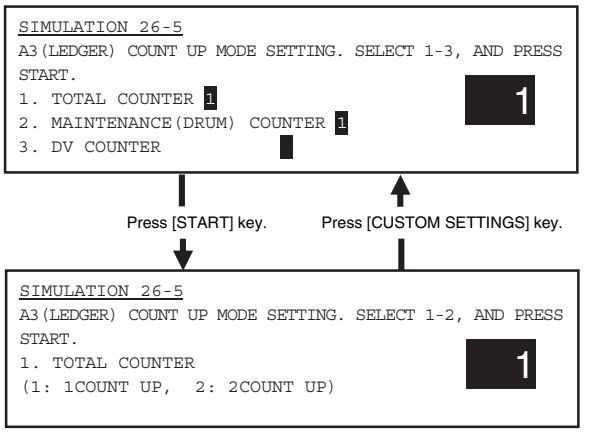
Set the count-up (1 or 2) for A3/WLT paper.

(Select the target counter.)

1	TOTAL COUNTER	Total counter
2	MAINTENANCE (DRUM) COUNTER	Maintenance counter/ OPC drum counter
3	DV COUNTER	Developer counter

(Count-up)

1	1 COUNT UP	1 count-up	
2	2 COUNT UP	2 count-up	Default



26-6

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

Operation/Procedure

1) Select the number corresponding to the destination with 10-key.
2) Press [START] key.

After completion of setting, the machine is automatically reset.

1	USA	United States of America
2	CANADA	Canada
3	INCH	Inch series EX
4	JAPAN	Japan
5	AB_B	AB series B5
6	EUROPE	Europe
7	UK	UK
8	AUSTRALIA	Australia
9	AB_A	AB series A5
10	CHINA	China

Since this simulation cannot change the Fax destination, use SIM 66-2 to change the FAX destination.

```
SIMULATION 26-6
DESTINATION SETUP. SELECT 1-10, AND PRESS START.
1.USA 2.CANADA 3.INCH
4.JAPAN 5.AB_B
6.EUROPE 7.UK 8.AUSTRALIA
9.AB_A   10.CHINA
                                        1
```

26-10

Purpose	Setting
Function (Purpose)	Used to set the network scanner trial mode.
Item	Operation

Operation/Procedure

1) Select START/END of the network scanner trial mode with 10-key.
2) Press [START] key.

Max. 500 menus can be scanned.

0	END	Trial mode cancel	Default
1	START	Trial mode start	

```
SIMULATION 26-10
NETWORK SCANNER TRIAL SETTING. SELECT 0-1, AND PRESS
START.
0.END
1.START
                                        1
```

26-18

Purpose	Setting
Function (Purpose)	Used to set YES/NO of toner save operation. (This function is valid only in Japan and UK versions. (Depends on the destination setting of SIM26-6.) For the other destinations, the same setting can be made by the user program P22.)
Item	Specifications Operation mode

Operation/Procedure

1) Select YES/NO of the toner save mode with 10-key.
2) Press [START] key.

0	YES	Toner save mode is set.	
1	NO	Toner save mode is not set.	Default

```
SIMULATION 26-18
TONER SAVE MODE SETTING. SELECT 0-1, AND PRESS START.
0. YES
1. NO
                                        1
```

26-30

Purpose	Setting
Function (Purpose)	Used to set the operation mode conforming to the CE mark (Europe safety standards). (Conforming to soft start when driving the fusing heater lamp.)
Item	Specifications Operation mode (Common)

Operation/Procedure

1) Select the number corresponding to the operation mode with 10-key.
2) Press [START] key.

0	NO	CE mark control NO (Normal operation)
1	YES	CE mark control YES (Heater lamp soft start operation)

(Default: 1 for Europe, 0 for the others)

```
SIMULATION 26-30
CE MARK CONTROL SETTING. SELECT 0-1, AND PRESS START.
0. NO
1. YES
                                        1
```

26-35

Purpose	Setting
Function (Purpose)	Used to set whether the same continuous troubles are displayed as one trouble or the series of troubles with SIM 22-4 when the same troubles occur continuously.
Section	
Item	Specifications

Operation/Procedure

1) Select the number corresponding to the operation mode with 10-key.
2) Press [START] key.

0	ONCE	When two or more troubles of a same kind occur continuously, the troubles are displayed as one trouble in the trouble history of SIM22-4.
1	ANY	When two or more troubles of a same kind occur continuously, the troubles are displayed straightly as two or more troubles in the trouble history of SIM22-4.

(Default: 0)

```
SIMULATION 26-35
TROUBLE MEMORY MODE SETTING. SELECT 0-1, AND PRESS
START.
0. ONCE
1. ANY
                                        1
```

26-38

Purpose	Setting
Function (Purpose)	Used to set CONTINUE/STOP of printing when maintenance timing is over and the count value reaches 110% of replacement timing (life).
Section	Other
Item	Specifications

Operation/Procedure

1) Select the number corresponding to the operation mode with 10-key.
2) Press [START] key.

0	PRINT CONTINUE	Print continue
1	PRINT STOP	Print stop

(Default: 0)

```
SIMULATION 26-38
LIFE OVER SETTING. SELECT 0-1, AND PRESS START.
0. PRINT CONTINUE
1. PRINT STOP
                                        1
```

26-41

Purpose	Setting
Function (Purpose)	Used to set YES/NO of the automatic magnification ratio selection (AMS) in the pamphlet mode.
Section	
Item	Specifications Operation mode (Common)

Operation/Procedure

1) Enter the number corresponding to whether AMS operation is automatically performed or nor in the center binding mode with the 10-key.
2) Press [START] key.

0	NO	AMS/APS selection allowed
1	YES	AMS is forcibly operated.

(Default: 1 for Europe and UK, 0 for the others)

```
SIMULATION 26-41
PAMPHLET MODE AMS SETTING. SELECT 0-1, AND PRESS
START.
0. NO
1. YES
```
1

26-50

Purpose	Setting
Function (Purpose)	Black-White reverse YES/NO setting
Item	Specifications Operation

Operation/Procedure

1) Select ENABLE/DISABLE of the B/W reverse mode with 10-key.
2) Press [START] key.

0	DISABLE	B/W reverse mode DISABLE	
1	ENABLE	B/W reverse mode ENABLE	Default

```
SIMULATION 26-50
B/W REVERSE MODE SETTING. SELECT 0-1, AND PRESS
START.
0. DISABLE
1. ENABLE
```
1

26-52

Purpose	Setting
Function (Purpose)	Used to set whether non-print paper (insertion paper, cover paper) (blank image print paper) is counted up or not.
Section	Paper transport (Discharge/Switchback/Transport)
Item	Specifications Operation mode

Operation/Procedure

1) Select YES/NO of the non-print paper count-up with 10-key.
2) Press [START] key.

Non-print paper means an insert paper (without copying) in the OHP insertion mode, a cover (without copying) in the cover insertion mode, back surface, and white paper in the duplex exit mode (CA, etc.).

0	NO (NO COUNT UP)	No count up
1	YES (COUNT UP)	Count up

(Default: 0 for Japan and Australia, 1 for the other)

The target counters are as follows:

- Copies counter
- Printer counter
- Department management counter
- Total counter
- Effective paper counter

```
SIMULATION 26-52
BLANK PAPER COUNT UP SETTING. SELECT 0-1, AND PRESS
START.
0. NO  (NO COUNT UP)
1. YES (COUNT UP)
```
1

26-68

Purpose	Setting
Function (Purpose)	Used to set ENABLE/DISABLE of the CA key cancel function of print stop.
Section	
Item	Specifications Operation

Operation/Procedure

1) Select ENABLE/DISABLE of the CA key cancel function of print stop with 10-key.
2) Press [START] key.

0	DISABLE	Disable
1	ENABLE (PRINT STOP)	Enable

(Default: 1)

```
SIMULATION 26-68
CA KEY CANCEL MODE SETTING. SELECT 0-1, AND PRESS
START.
0. DISABLE
1. ENABLE (PRINT STOP)
```
0

27

27-1

Purpose	Setting
Function (Purpose)	Used to set the specifications for operations in case of communication trouble between the host computer and MODEM (machine side). (When communication trouble occurs between the host computer MODEM and the machine, the self diag display (U7-00) is printed and setting for inhibition of print or not is made.)
Section	Communication unit (TEL/LIU/MODEM etc.)
Item	Specifications Operation mode

Operation/Procedure

1) Select the number corresponding to the operation mode with 10-key.
2) Press [START] key.

0	YES	Though a communication trouble occurs between the host computer and the MODEM (machine side), there is no effect on the machine operations.
1	NO	When a communication trouble occurs between the host computer and the MODEM (machine side), the self diag display (U7-00) is displayed and printing is inhibited.

(Default: 0)

```
SIMULATION 27-1
DISABLING OF U7-00 TROUBLE. SELECT 0-1, AND PRESS START.
0. YES
1. NO
```
1

27-5

Purpose	Setting
Function (Purpose)	Used to enter the machine tag No. (This function allows to check the tag No. of the machine with the host computer.)
Section	Communication unit (TEL/LIU/MODEM etc.)
Item	Specifications Operation mode

Operation/Procedure

1) Enter the tag number with 10-key.
2) Press [START] key.

```
SIMULATION 27-5
TAG # SETTING. INPUT VALUE, AND PRESS START.
PRESENT:  00010000
NEW:      00009999
```

30

30-1

Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of sensors and detectors in other than the paper feed section and the operations of the related circuits.
Item	Operation

Operation/Procedure

The operating conditions of sensors and detectors are displayed.

The active sensors and detectors are highlighted.

PPD1	Resist roller front paper detection
POD1	After-fusing transport detection 1
POD2	After-fusing transport detection 2
POD3	Paper full detection
DSWL	Cabinet open detection
DSWF	Front door

```
SIMULATION 30-1
SENSOR CHECK..
PPD1   POD1   POD2   POD3   DSWL
DSWF
```

30-2

Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of sensors and detectors in the paper feed section and the related circuits.
Section	Paper feed
Item	Operation

Operation/Procedure

The operating conditions of sensors and detectors are displayed.

The active sensors and detectors are highlighted.

CSS1	Tray 1 insertion detection
PED	Tray 1 paper empty detection
LUD	Tray 1 upper limit detection
MCSET	MP unit detection
MCDRS	MP unit side door open detection
MCPPD	MP tray transport detection
MCLUD	MP tray upper limit detection
MCPED	MP tray paper empty detection
MCSPD	MP tray remaining quantity detection
MCSS1	MP tray size detection 1
MCSS2	MP tray size detection 2
MCSS3	MP tray size detection 3
MCSS4	MP tray size detection 4
MP Tray size	(The detection size of MP tray is displayed.)
MPFSET	Manual feed tray detection
MPED	Manual feed tray paper empty detection
MPLD	Manual feed length detection
MPLS1	Manual feed pull-out sensor 1
MPLS2	Manual feed pull-out sensor 2
Bypass Tray size	(The detection size of manual feed tray is displayed.)

```
SIMULATION 30-2
TRAY SENSOR CHECK..
CSS    PED   LUD
MCSET  MCDRS MCPPD MCLUD MCPED MCSPD MCSS1 MCSS2
MCSS3  MCSS4     (MP Tray size: A4 )
MPFSET MPED  MPLD  MPLS1 MPLS2
                 (Bypass Tray size: A3 )
```

40

40-1

Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of the manual feed tray paper size detector and the related circuit. (The operation of the manual feed tray paper size detector can be monitored with the LCD display.)
Section	Paper feed
Item	Operation

Operation/Procedure

The operating conditions of sensors and detectors are displayed.

The active sensors and detectors are highlighted.

The paper width size detection level is displayed.

MPLD	Manual tray length detection
MPLS1	Manual tray pull-out detection 1
MPLS2	Manual tray pull-out detection 2
BYPASS_WIDTH	Manual feed guide plate position
BYPASS_AD	Manual feed width detection volume output AD value
Bypass Tray width size	(Manual tray detection size is displayed.) A4/A3, 11 x, B5/B4, 8.5 x , A4R, B5R, A5R, 5.5x, 7.25x, EXTRA

```
SIMULATION 40-1
BYPASS TRAY SENSOR CHECK..

MPLD     MPLS1     MPLS2
BYPASS_WIDTH: 2100       BYPASS_AD: 600
(Bypass Tray width size: A4/A3)
```

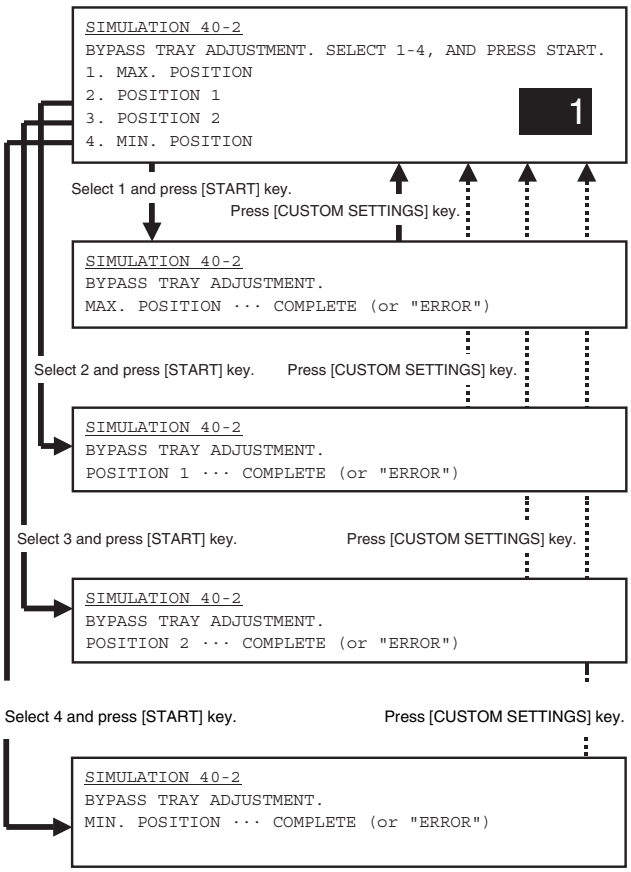
40-2

Purpose	Adjustment
Function (Purpose)	Used to adjust the manual paper feed tray paper width detector detection level.
Section	Paper feed
Item	Operation

Operation/Procedure

1) Open the manual paper feed guide to the max. width.
2) Select MAX POSITION with 10-key.
3) Press [START] key.
   The max. width detection level is recognized.
4) Press [CUSTOM SETTINGS] key.
5) Set the manual paper feed guide to A4R size width.
6) Select POSITION with 10-key.
7) Press [START] key.
   The A4R width detection level is recognized.
8) Press [CUSTOM SETTINGS] key.
9) Set the manual paper feed guide to A5/A5R size width.
10) Select POSITION2 with 10-key.
11) Press [START] key.
    The A5R width detection level is recognized.
12) Press [CUSTOM SETTINGS] key.
13) Open the manual paper feed guide to the min. width.
14) Select MIN POSITION with 10-key.
15) Press [START] key.
    The min. width detection level is recognized.

If the above procedures are not completed normally, "ERROR" is displayed. If completed normally, "COMPLETE" is displayed.



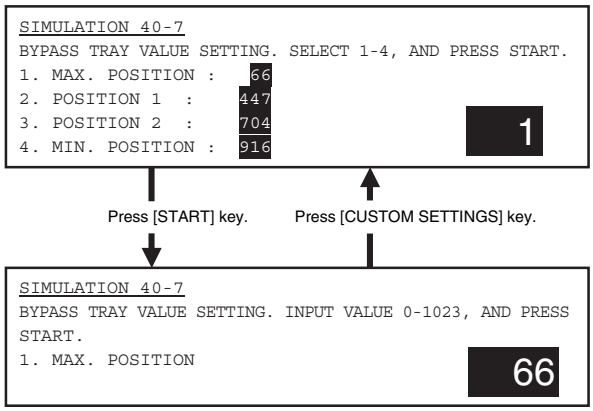
40-7

Purpose	Adjustment/Setup
Function (Purpose)	Used to enter the manual paper feed tray paper width adjustment value.
Section	Paper feed
Item	Operation

Operation/Procedure

1) Select the number corresponding to the set item with 10-key.
2) Press [START] key.
3) Enter the set value with 10-key.
4) Press [START] key.

1	MAX. POSITION	Max. width
2	POSITION 1	Adjustment point 1
3	POSITION 2	Adjustment point 2
4	MIN. POSITION	Min. value



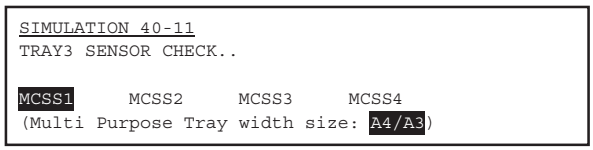
40-11

Purpose	Operation test/Check
Function (Purpose)	Used to check the multi-purpose tray width detection adjustment value.
Section	Paper feed
Item	Operation

Operation/Procedure

The operating conditions of sensors and detectors are displayed.
The active sensors and detectors are highlighted.
The paper width detection level is also displayed.

MCSS1	Tray 3 size detection 1
MCSS2	Tray 3 size detection 2
MCSS3	Tray 3 detection size 3
MCSS4	Tray 3 size detection 4
Multi Purpose Tray	(MPT width direction detection size is displayed.) A4/A3, 11X, B5/B4, 8.5X, A4R, B5R, A5R, 5.5X, 7.25X, EXTRA



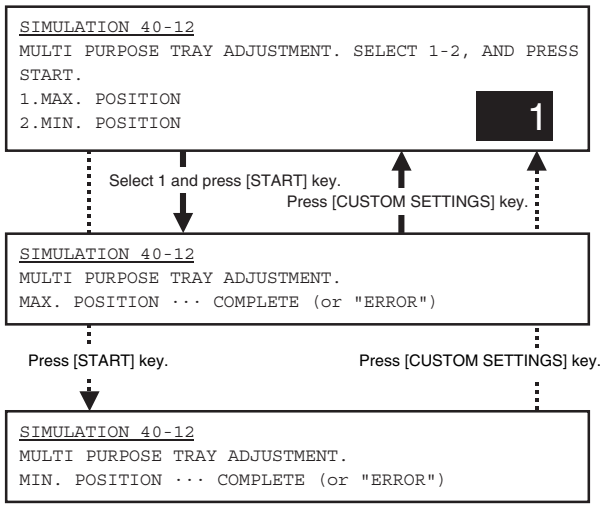
40-12

Purpose	Adjustment/Setup
Function (Purpose)	Used to check the multi-purpose tray width detection adjustment value.
Section	Paper feed
Item	Operation

Operation/Procedure

1) Open the paper feed tray 2 paper feed guide to the max. width position.
2) Select MAX POSITION with 10-key.
3) Press [START] key.
   The max. width detection level is recognized.
4) Press [CUSTOM SETTINGS] key.
5) Open the paper feed tray 3 paper feed guide to the min. width position.
6) Select MIN POSITION with 10-key.
7) Press [START] key.
   The min. width detection level is recognized.

If the above procedures are not completed normally, "ERROR" is displayed. If completed normally, "COMPLETE" is displayed.



41

41-1

Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of the document size sensor and the related circuit. (The operation of the document size sensor can be monitored with the LCD display.)
Section	Other
Item	Operation

Operation/Procedure

The operating conditions of sensors and detectors are displayed.

The active sensors and detectors are highlighted.

OCSW	Document cover status	Open: Normal display
		Close: Highlighted
PD1 - 7	Document detection sensor status	No document: Normal display
		Document present: Highlighted

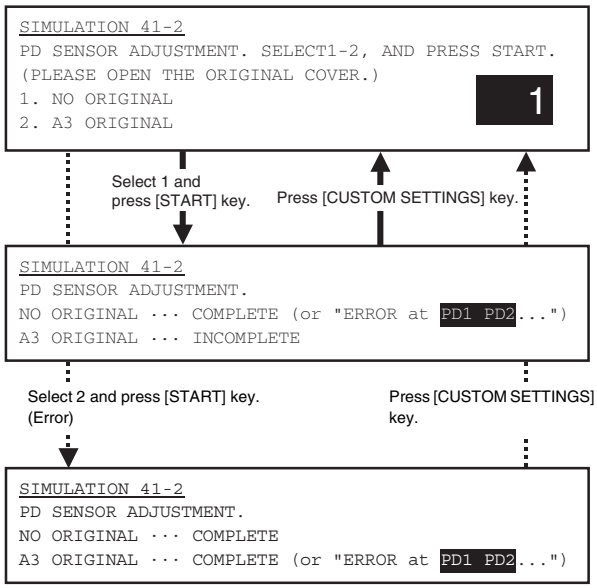
41-2

Purpose	Adjustment
Function (Purpose)	Used to adjust the document size sensor sensing level.
Section	Other
Item	Operation

Operation/Procedure

1) Open the document cover and select NO ORIGINAL with 10-key without placing any document on the document table.
2) Press [START] key.
   The sensor level is set without document on the document table.
3) Place an A3 document on the document table, and select A3 ORIGINAL with 10-key.
4) Press [START] key.
   The sensor level is set when detection the document.

If the above procedures are not completed normally, "ERROR" is displayed. If completed normally, "COMPLETE" is displayed.



41-3

Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of the document size sensor and the related circuit. (The document size sensor output level can be monitored with the LCD display.)
Section	Other
Item	Operation

Operation/Procedure

The detection output level (A/D value) of the document sensors (PD1 - PD7) is displayed in real time.

* The value in [ ] on the side of each sensor name indicates the threshold value.

The light receiving value (A/D value) and the threshold value (A/D value) of PD1 - PD7 are in the range of 1 - 255. The default of threshold value is 128.

OCSW	Original cover status	Open: Normal display
		Close: Highlighted
PD1 - 7	PD sensor detection level The value in [ ] indicates the adjustment threshold value (SIM41-2 adjustment value).	

```
SIMULATION 41-3
PD SENSOR DATA DISPLAY.
OCSW
PD1[128]: 200     PD2[128]: 200
PD3[128]:  50     PD4[128]:  52
PD5[128]:  51     PD6[128]:  50
PD7[128]:  52
```

43

43-1

Purpose	Setting
Function (Purpose)	Used to set the fusing temperature in each operation mode.
Section	Fixing (Fusing)
Item	Operation

Operation/Procedure

1) Select the number corresponding to the setting mode with 10-key.
2) Press [START] key.
3) Press [CUSTOM SETTINGS] key.
4) Press [START] key.

Item			Default
1	INSIDE NORMAL	Heater inside/normal	190
2	OUTSIDE NORMAL	Heater outside/normal	190
3	INSIDE PREHEAT	Heater inside/preheat	150
4	OUTSIDE PREHEAT	Heater outside/preheat	150

```
SIMULATION 43-1
FUSER TEMPERATURE SET. SELECT 1-4, AND PRESS START.
1. INSIDE NORMAL 190
2. OUTSIDE NORMAL 190
3. INSIDE PREHEAT 150
4. OUTSIDE PREHEAT 150
                                        1
```

Press [START] key. Press [CUSTOM SETTINGS] key.

```
SIMULATION 43-1
FUSER TEMPERATURE SET. INPUT VALUE, AND PRESS START.
1. INSIDE NORMAL
                                      190
```

44

44-1

Purpose	Setting
Function (Purpose)	Used to set enable/disable of correction operations in the image forming (process) section.
Section	Image process (Photoconductor/Developing/ Transfer/Cleaning)
Item	Operation

Operation/Procedure

When bit =1, correction is made.

Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
	0	0	0	0	0	0	0	0	Vg4 Vb4 Ld4	Vbr	Vg3 Vb3 Ld3	Vb1 Vb2	Ld2	Vg2	Ld1	Vg1

```
SIMULATION 44-1
PROCESS CORRECTION VALUE SETTING. INPUT VALUE 0-255
AND PRESS START.
BIT0:Vg1, BIT1:Ld1, BIT2:Vg2,  BIT3:Ld2
BIT4:Vb1, Vb2                          111
BIT5:Vg3, Vb3, Ld3
BIT6:Vbr
BIT7:Vg4, Vb4, Ld4
```

44-4

Purpose	Setup
Function (Purpose)	Used to set the target image (reference) density level in the developing bias voltage correction.
Section	Process (OPC drum, developing, transfer, cleaning)
Item	Data

Operation/Procedure

1) Select the number corresponding to the setting mode with 10-key.
2) Press [START] key.
3) Enter the set value.
4) Press [START] key.

Item		
1	TEMP. AREA *1	Process environment temperature forcible setting value (0 - 99°C /normal: 0)
2	HUMIDITY AREA *1	Process environment humidity forcible setting value (0 - 99°C /normal: 0)
3	S_WT	Vb rising correction standby time (0 - 180 sec/default: 90)
4	Vb1	Vb correction amount (first rotation) (0 - 150V/default: 50)
5	Vb2	Vb correction amount (second rotation) (0-50V/default: 15)

*1: Only when this value is 0, control is made with the actual measurement value of the process thermistor (temperature/humidity). When it is not 0, control is made with the forcible setting value.

```
SIMULATION 44-4
PROCESS CONTROL VALUE SETTING. SELECT 1-5 AND PRESS
START.
1.TEMP. AREA     0
2.HUMIDITY AREA  0                      3
3.S_WT   100
4.Vb1     50
5.Vb2     50
```

Press [START] key. Press [CUSTOM SETTINGS] key.

```
SIMULATION 44-4
PROCESS CONTROL VALUE SETTING. INPUT VALUE, AND PRESS
START.
3.S_WT                                101
```

44-9

Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the data related to the image forming section correction (process correction) result (corrected main charger grid voltage, the developing bias voltage, and the laser power voltage in each print mode). (This simulation allows to check that correction is performed normally or not.)
Section	Image process (Photoconductor/Developing/ Transfer/Cleaning)
Item	Data Operation data (Machine condition)

Operation/Procedure

DRUM ROTATION TIME	Drum rotation time (sec)
DEVE ROTATION TIME	Developer rotation time (sec)
Vg1 - Vg4	Grid voltage correction value
Vb1 - Vb4	Developing bias correction value
Ld1 - Ld4	Laser power correction value
DESTINATION 1	Machine CRUM destination (1-9)
DESTINATION 2	CRUM destination (1-9)

```
SIMULATION 44-9
PROCESS CONTROL DATA DISPLAY.
DRUM ROTATION TIME:01234567(sec)
DEVE ROTATION TIME:01234567(sec)
Vg1:30(V) Vg2:30(V) Vg3:30(V) Vg4:30(V)
Vb1:30(V) Vb2:10(V) Vb3:30(V) Vb4:10(V)
Ld1       Ld2       Ld3       Ld4
DESTINATION1:1
DESTINATION2:1
```

44-14

Purpose	Adjustment/Setup/Operation data output/Check (Display)
Function (Purpose)	Used to check the output level of the temperature sensor and the humidity sensor.
Section	Image process (Photoconductor/Developing)
Item	Operation

Operation/Procedure

The output levels of the temperature thermistor and the humidity thermistor in the developing unit are displayed.

TH-DV	Developing temperature thermistor	0 - 255
HUS-DV	Developing humidity thermistor	0 - 255

```
SIMULATION 44-14
SENSOR DATA DISPLAY MONITOR.
TH-DV:      255
HUS-DV:     255
```

44-16

Purpose	Adjustment/Setup/Operation data output/Check (Display)
Function (Purpose)	Used to check the toner concentration control data.
Section	Image process (Developing)
Item	Operation

Operation/Procedure

HUMIDITY AREA	Humidity area
INT HUMIDITY AREA	Humidity area in development adjustment
TEMPERATURE AREA	Temperature area
INT TEMPERATURE AREA	Temperature area in development adjustment
TARGET LEVEL	Toner control reference value
DEV REF	Development adjustment registration value
HUM	Humidity correction value
(TARGET)	Target value of humidity correction
TMP	Temperature correction value
(TARGET)	Target value of temperature correction
LIFE	Environment correction value
(TARGET)	Target value of environment correction

```
SIMULATION 44-16
TONER CONTROL STANDARD LEVEL DISPLAY.
HUMIDITY AREA: 11
INT HUMIDITY AREA: 7
TEMPERATURE AREA: 6
INT TEMPERATURE AREA: 6
TARGET LEVEL=DEV REF+HUM(TARGET)+TMP(TARGET)+LIFE(TARGET)
        133 = 118    + 10(10)     +  0(0)      +    5(5)
```

46

46-2

Purpose	Adjustment
Function (Purpose)	Used to adjust the copy density in all the copy modes (Auto, Text, Text/Photo, and Photo mode).
Item	Picture quality Density

Operation/Procedure

1) Select the number corresponding to the copy mode to be adjusted with 10-key. (Select one of 3 - 6.)
2) Press [START] key.
3) Enter the copy density level with 10-key.

Item			Set range	Default
0	TRAY SELECT	Paper feed tray selection		
1	COPY START	Copy START (Default)		
2	EXP LEVEL	Exposure level selection		
3	AE 3.0	AE mode	0 - 99	50
4	CH 3.0	Text mode 3.0		
5	MIX 3.0	Text/Photo mode 3.0		
6	PHOTO 3.0	Photo mode 3.0		

4) Press P key or [START] key.

   The adjustment value is set.

   When [START] key is pressed, copying is performed and the adjustment value is simultaneously set.

   Check the density of the printed copy image.

Normal display		NOW COPYING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

NOTE: When the copy image density is adjusted with this simulation, the copy image densities of all the copy modes are changed to the copy image density level set with this simulation.

That is, the copy image density of each copy mode set with SIM 46-9, 10, 11 is changed to the copy image density level adjusted with this simulation.

To select paper (paper feed tray), perform the following procedures.

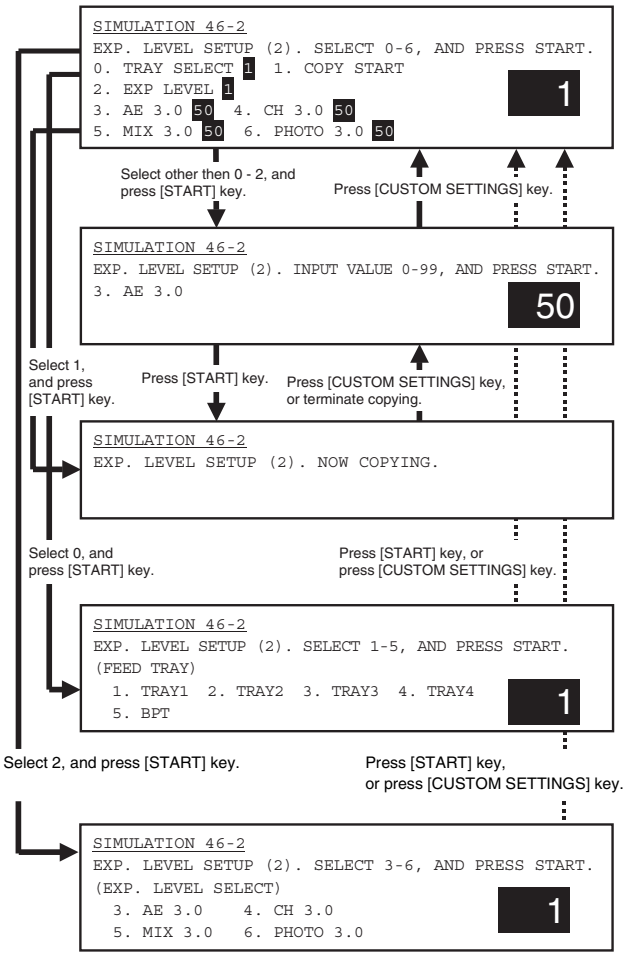
1) Enter 0 with 10-key.
2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)

3) Enter the number corresponding to the paper feed tray to be used with 10-key.

4) Press [START] key. (The paper feed tray is selected.)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

NOTE: When [P] key is pressed after entering an adjustment value in this simulation, the adjustment value is set. When START key is pressed, the adjustment value is set and copying is performed.



46-9

Purpose	Adjustment
Function (Purpose)	Used to adjust the print density for each density level (display value) in the copy mode (binary - Text mode). An optional print density can be set for each density level (display value).
Item	Picture quality Density

Operation/Procedure

1) Select the number corresponding to the copy density adjustment level with 10-key. (Select one of 3 - 11.)

2) Press [START] key.

3) Enter the copy density level with 10-key.

Item			Set range	Default
0	TRAY SELECT	Paper feed tray selection		
1	COPY START	Copy START (Default)		
2	EXP LEVEL	Exposure level selection		
3	1.0	Exposure level 1.0	0 - 99	50
4	1.5	Exposure level 1.5		
5	2.0	Exposure level 2.0		
6	2.5	Exposure level 2.5		
7	3.0	Exposure level 3.0		
8	3.5	Exposure level 3.5		
9	4.0	Exposure level 4.0		
10	4.5	Exposure level 4.5		
11	5.0	Exposure level 5.0		

4) Press [P] key or [START] key.

The adjustment value is set.

When [START] key is pressed, copying is perfumed and the adjustment value is set simultaneously.

Check the density of printed copy image.

Normal display		NOW COPYING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

To select paper (paper feed tray), perform the following procedures.

1) Enter 0 with 10-key.

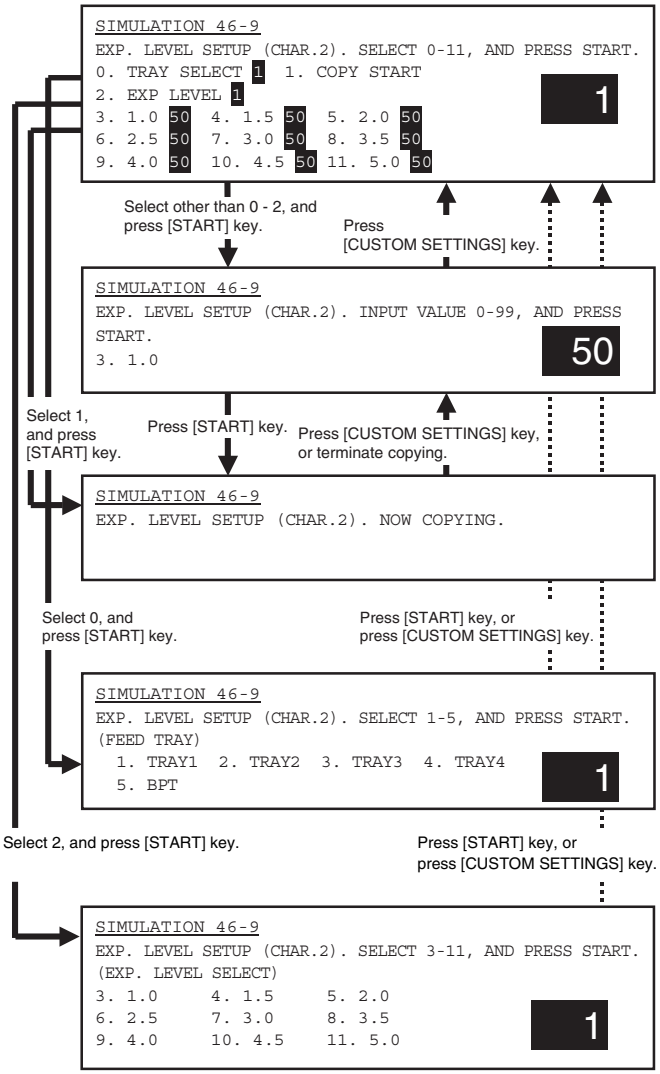
2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)

3) Enter the number corresponding to the paper feed tray to be used with 10-key.

4) Press [START] key. (The paper feed tray is selected.)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

NOTE: When [P] key is pressed after entering an adjustment value in this simulation, the adjustment value is set. When START key is pressed, the adjustment value is set and copying is performed.



46-10

Purpose	Adjustment
Function (Purpose)	Used to adjust the print density for each density level (display value) in the copy mode (binary - Text/Photo mode). An optional print density can be set for each density level (display value).
Item	Picture quality

Operation/Procedure

1) Select the number corresponding to the copy density adjustment level with 10-key. (Select one of 3 - 11.)
2) Press [START] key.
3) Enter the copy density level with 10-key.

Item			Set range	Default
0	TRAY SELECT	Paper feed tray selection		
1	COPY START	Copy START (Default)		
2	EXP LEVEL	Exposure level selection		
3	1.0	Exposure level 1.0	0 - 99	50
4	1.5	Exposure level 1.5		
5	2.0	Exposure level 2.0		
6	2.5	Exposure level 2.5		
7	3.0	Exposure level 3.0		
8	3.5	Exposure level 3.5		
9	4.0	Exposure level 4.0		
10	4.5	Exposure level 4.5		
11	5.0	Exposure level 5.0		

4) Press [P] key or [START] key.

   The adjustment value is set.

   When [START] key is pressed, copying is perfumed and the adjustment value is set simultaneously.

   Check the density of printed copy image.

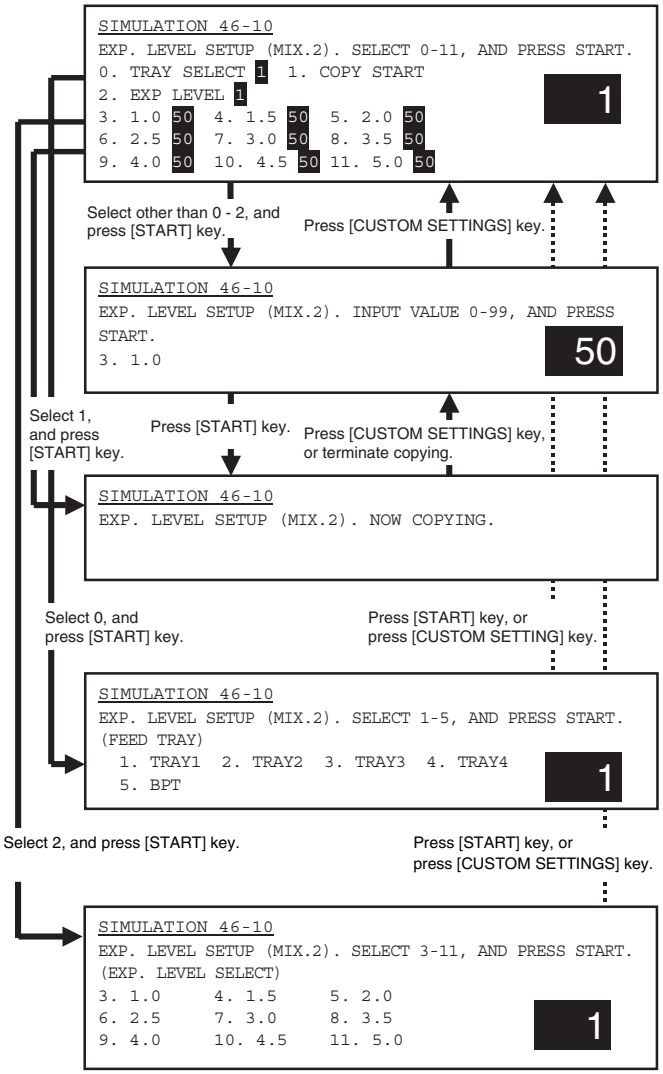
Normal display		NOW COPYING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

To select paper (paper feed tray), perform the following procedures.

1) Enter 0 with 10-key.
2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
3) Enter the number corresponding to the paper feed tray to be used with 10-key.
4) Press [START] key. (The paper feed tray is selected.)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

NOTE: When [P] key is pressed after entering an adjustment value in this simulation, the adjustment value is set. When START key is pressed, the adjustment value is set and copying is performed.



46-11

Purpose	Adjustment
Function (Purpose)	Used to adjust the print density for each density level (display value) in the copy mode (binary - Photo mode). An optional print density can be set for each density level (display value).
Item	Picture quality Density

Operation/Procedure

1) Select the number corresponding to the copy density adjustment level with 10-key. (Select one of 3 - 11.)
2) Press [START] key.
3) Enter the copy density level with 10-key.

Item			Set range	Default
0	TRAY SELECT	Paper feed tray selection		
1	COPY START	Copy START (Default)		
2	EXP LEVEL	Exposure level selection		
3	1.0	Exposure level 1.0	0 - 99	50
4	1.5	Exposure level 1.5		
5	2.0	Exposure level 2.0		
6	2.5	Exposure level 2.5		
7	3.0	Exposure level 3.0		
8	3.5	Exposure level 3.5		
9	4.0	Exposure level 4.0		
10	4.5	Exposure level 4.5		
11	5.0	Exposure level 5.0		

4) Press [P] key or [START] key.

   The adjustment value is set.

   When [START] key is pressed, copying is perfumed and the adjustment value is set simultaneously.

   Check the density of printed copy image.

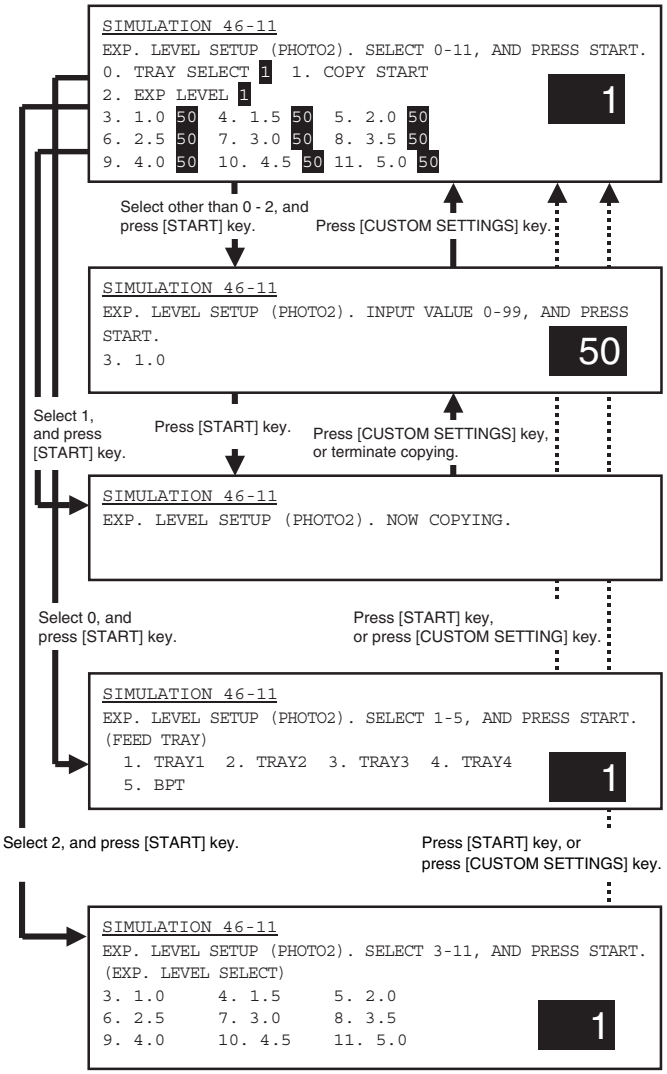
Normal display		NOW COPYING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

To select paper (paper feed tray), perform the following procedures.

1) Enter 0 with 10-key.
2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
3) Enter the number corresponding to the paper feed tray to be used with 10-key.
4) Press [START] key. (The paper feed tray is selected.)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

NOTE: When [P] key is pressed after entering an adjustment value in this simulation, the adjustment value is set. When START key is pressed, the adjustment value is set and copying is performed.



46-12

Purpose	Adjustment
Function (Purpose)	Used to adjust the print density in the FAX mode (all modes).
Item	Picture quality

Operation/Procedure

1) Select the adjustment item of FAX EXP. LEVEL with 10-key.
2) Press [START] key.
3) Enter the print density level with 10-key.

Item			Set range	Default
0	TRAY SELECT	Paper feed tray selection		
1	COPY START	Copy START (Default)		
2	FAX EXP. LEVEL	FAX mode print density	0 - 99	50

4) Press [P] key or [START] key.
   The adjustment value is set.
   When [START] key is pressed, printing is perfumed and the adjustment value is set simultaneously.
   Check the density of printed image.

Normal display		NOW PRINTING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

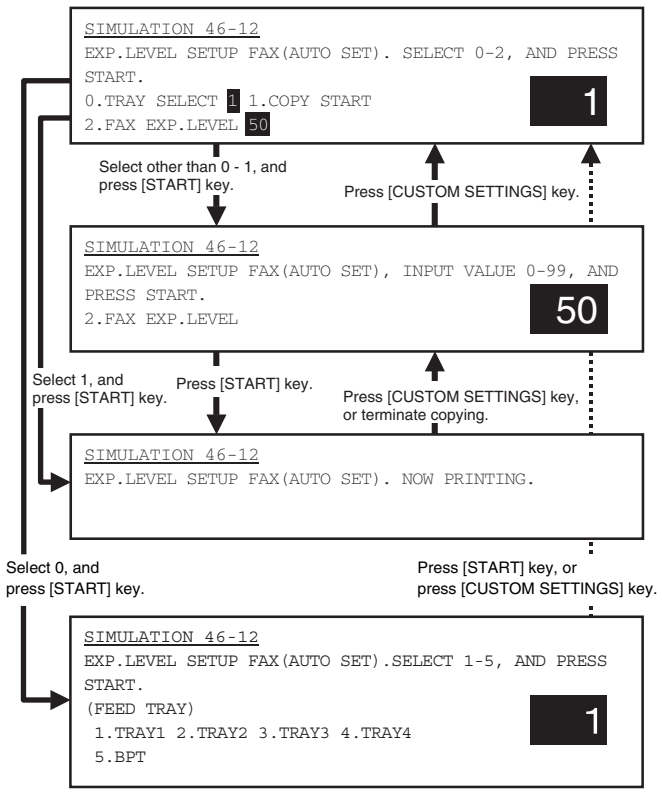
NOTE: When the FAX print image density is adjusted with this simulation, the print image densities of all the FAX modes are changed to the image density level set with this simulation.
That is, the print image density of each FAX mode set with SIM 46-13, 14, 15 is changed to the print image density level adjusted with this simulation.

To select paper (paper feed tray), perform the following procedures.

1) Enter 0 with 10-key.
2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
3) Enter the number corresponding to the paper feed tray to be used with 10-key.
4) Press [START] key. (The paper feed tray is selected.)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

NOTE: When [P] key is pressed after entering an adjustment value in this simulation, the adjustment value is set. When START key is pressed, the adjustment value is set and copying is performed.



46-13

Purpose	Adjustment
Function (Purpose)	Used to adjust the print density in the FAX mode (each normal mode). (Only when FAX is installed.)
Item	Picture quality

Operation/Procedure

1) Select the number corresponding to one of the following adjustment items with 10-key.
   * Manual mode (Print density adjustment level)
   * Auto mode
2) Press [START] key.
3) Enter the print density level with 10-key.

Item			Set range	Default
0	TRAY SELECT	Paper feed tray selection		
1	PRINT START	Print start (Default)		
2	EXP LEVEL	Exposure level selection		
3	AUTO	Auto	0 - 99	50
4	1.0	Exposure level 1		
5	2.0	Exposure level 2		
6	3.0	Exposure level 3		
7	4.0	Exposure level 4		
8	5.0	Exposure level 5		

4) Press [P] key or [START] key.

   The adjustment value is set.

   When [START] key is pressed, printing is perfumed and the adjustment value is set simultaneously.

   Check the density of printed image.

Normal display		NOW PRINTING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

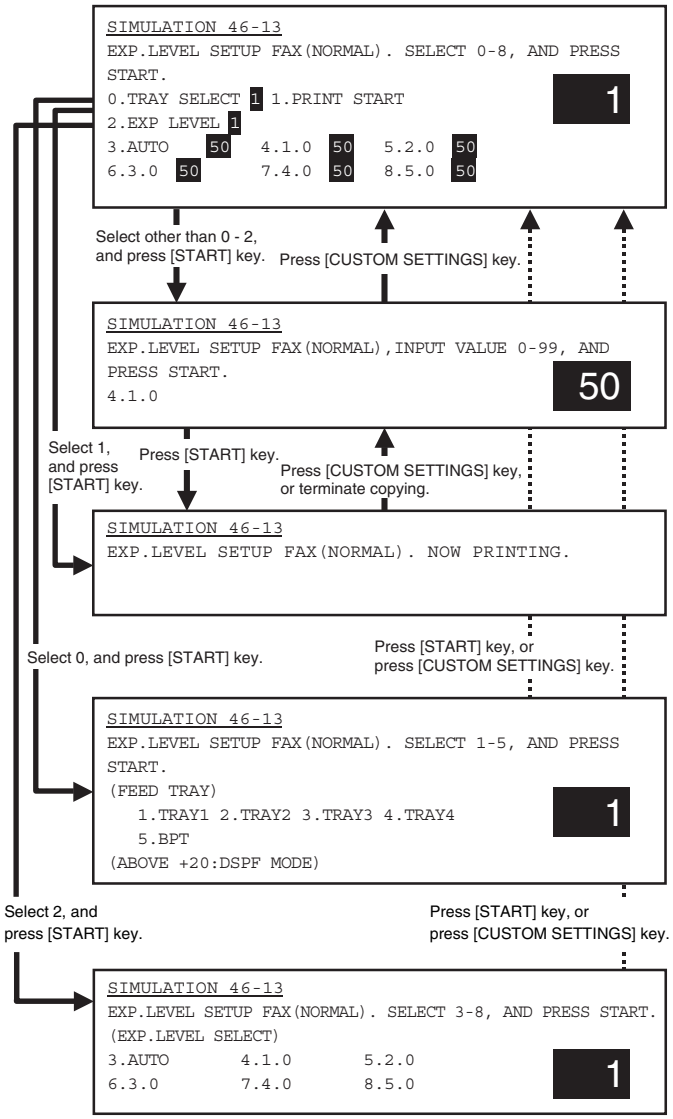
To select paper (paper feed tray), perform the following procedures.

1) Enter 0 with 10-key.
2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
3) Enter the number corresponding to the paper feed tray to be used with 10-key.
4) Press [START] key. (The paper feed tray is selected.)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

When the sum of the above set value (1 - 5) and 20 is set, the mode is changed to the duplex print mode.

NOTE: When [P] key is pressed after entering an adjustment value in this simulation, the adjustment value is set. When START key is pressed, the adjustment value is set and copying is performed.



46-14

Purpose	Adjustment
Function (Purpose)	Used to adjust the print density in the FAX mode (each fine mode). (Only when FAX is installed.)
Item	Picture quality

Operation/Procedure

1) Select the number corresponding to one of the following adjustment items with 10-key. (Select one of 3 - 14.)
   - ∗ Normal mode (Print density adjustment level)
   - ∗ Normal mode (Print density adjustment level) (Half-tone mode)
   - ∗ Auto mode
   - ∗ Auto mode (Half-tone mode)
2) Enter the print density level with 10-key.

Item			Set range	Default
0	TRAY SELECT	Paper feed tray selection		
1	PRINT START	Print start (Default)		
2	EXP LEVEL	Exposure level selection		
3	AUTO	Auto	0 - 99	50
4	1.0	Exposure level 1		
5	2.0	Exposure level 2		
6	3.0	Exposure level 3		
7	4.0	Exposure level 4		
8	5.0	Exposure level 5		
9	AUTO (H)	Auto (Half-tone)		
10	1.0 (H)	Exposure level 1 (Half-tone)		
11	2.0 (H)	Exposure level 2 (Half-tone)		
12	3.0 (H)	Exposure level 3 (Half-tone)		
13	4.0 (H)	Exposure level 4 (Half-tone)		
14	5.0 (H)	Exposure level 5 (Half-tone)		

3) Press [P] key or [ATART] key.

   The entered value is set.

   When [START] key is pressed, printing is performed and the adjustment value is set simultaneously.

   Check the density of print image.

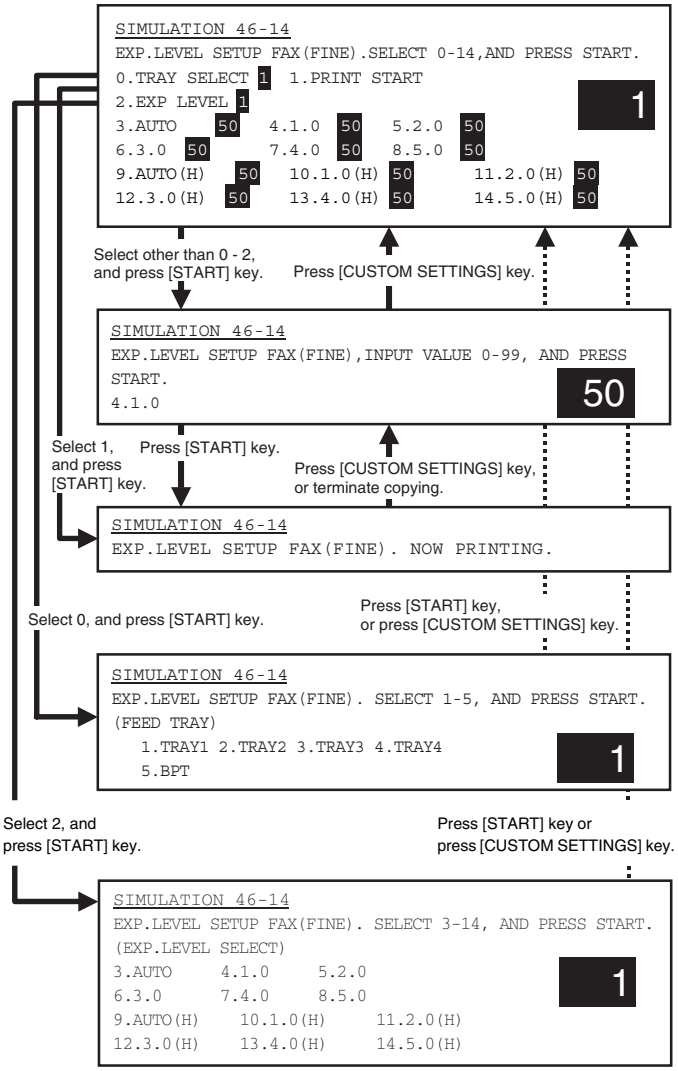
Normal display		NOW PRINTING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

To select paper (paper feed tray), perform the following procedures.

1) Enter 0 with 10-key.
2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
3) Enter the number corresponding to the paper feed tray to be used with 10-key.
4) Press [START] key. (The paper feed tray is selected.)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

NOTE: When [P] key is pressed after entering an adjustment value in this simulation, the adjustment value is set. When START key is pressed, the adjustment value is set and copying is performed.



46-15

Purpose	Adjustment
Function (Purpose)	Used to adjust the print density in the FAX mode (each super fine mode). (Only when FAX is installed.)
Item	Picture quality

Operation/Procedure

1) Select the number corresponding to one of the following adjustment items with 10-key. (Select one of 3 - 14.)
   - ∗ Normal mode (Print density adjustment level)
   - ∗ Normal mode (Print density adjustment level) (Half-tone mode)
   - ∗ Auto mode
   - ∗ Auto mode (Half-tone mode)
2) Press [START] key.
3) Enter the print density level with 10-key.

Item			Set range	Default
0	TRAY SELECT	Paper feed tray selection		
1	PRINT START	Print start (Default)		
2	EXP LEVEL	Exposure level selection		
3	AUTO	Auto	0 - 99	50
4	1.0	Exposure level 1		
5	2.0	Exposure level 2		
6	3.0	Exposure level 3		
7	4.0	Exposure level 4		
8	5.0	Exposure level 5		
9	AUTO (H)	Auto (Half-tone)		
10	1.0 (H)	Exposure level 1 (Half-tone)		
11	2.0 (H)	Exposure level 2 (Half-tone)		
12	3.0 (H)	Exposure level 3 (Half-tone)		
13	4.0 (H)	Exposure level 4 (Half-tone)		
14	5.0 (H)	Exposure level 5 (Half-tone)		

4) Press [P] key or [START] key.

   The entered value is set.

   When [START] key is pressed, printing is performed and the adjustment value is set simultaneously.

   Check the density of print image.

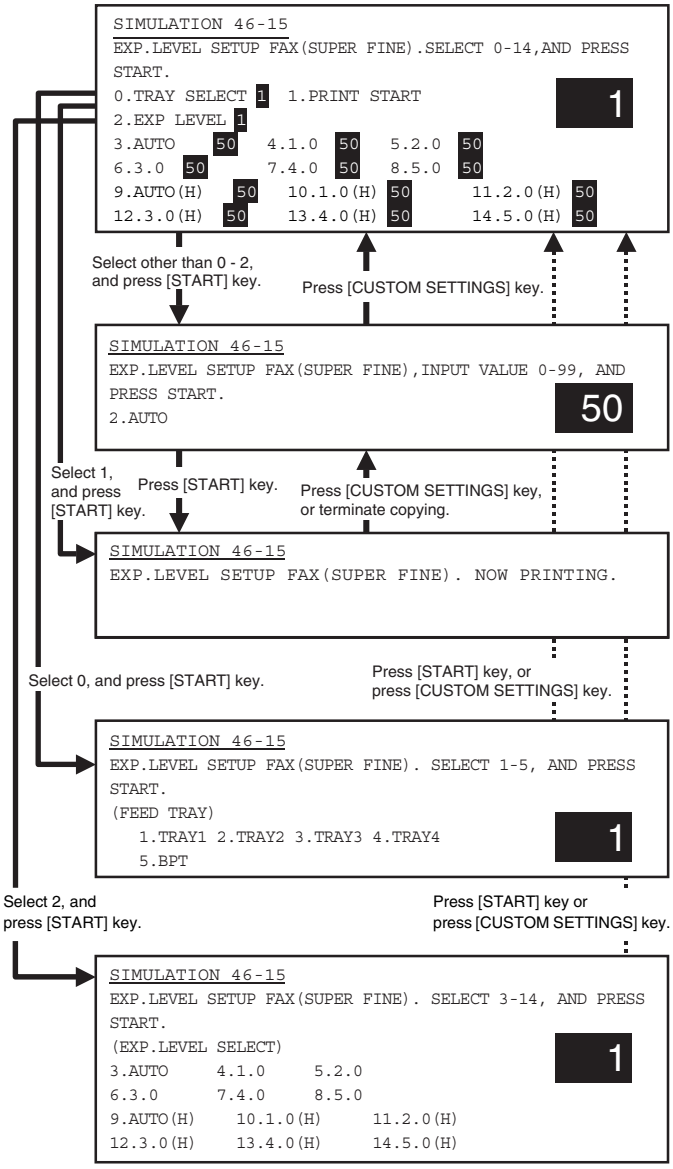
Normal display		NOW PRINTING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

To select paper (paper feed tray), perform the following procedures.

1) Enter 0 with 10-key.
2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
3) Enter the number corresponding to the paper feed tray to be used with 10-key.
4) Press [START] key. (The paper feed tray is selected.)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

NOTE: When [P] key is pressed after entering an adjustment value in this simulation, the adjustment value is set. When START key is pressed, the adjustment value is set and copying is performed.



46-16

Purpose	Adjustment
Function (Purpose)	Used to adjust the print density in the FAX mode (each ultra fine mode). (Only when FAX is installed.)
Item	Picture quality

Operation/Procedure

1) Select the number corresponding to one of the following adjustment items with 10-key. (Select one of 3 - 14.)
   - ∗ Normal mode (Print density adjustment level)
   - ∗ Normal mode (Print density adjustment level) (Half-tone mode)
   - ∗ Auto mode
   - ∗ Auto mode (Half-tone mode)
2) Press [START] key.
3) Enter the print density level with 10-key.

Item			Set range	Default
0	TRAY SELECT	Paper feed tray selection		
1	PRINT START	Print start (Default)		
2	EXP LEVEL	Exposure level selection		
3	AUTO	Auto	0 - 99	50
4	1.0	Exposure level 1		
5	2.0	Exposure level 2		
6	3.0	Exposure level 3		
7	4.0	Exposure level 4		
8	5.0	Exposure level 5		
9	AUTO (H)	Auto (Half-tone)		
10	1.0 (H)	Exposure level 1 (Half-tone)		
11	2.0 (H)	Exposure level 2 (Half-tone)		
12	3.0 (H)	Exposure level 3 (Half-tone)		
13	4.0 (H)	Exposure level 4 (Half-tone)		
14	5.0 (H)	Exposure level 5 (Half-tone)		

4) Press [P] key or [START] key.

   The entered value is set.

   When [START] key is pressed, printing is performed and the adjustment value is set simultaneously.

   Check the density of print image.

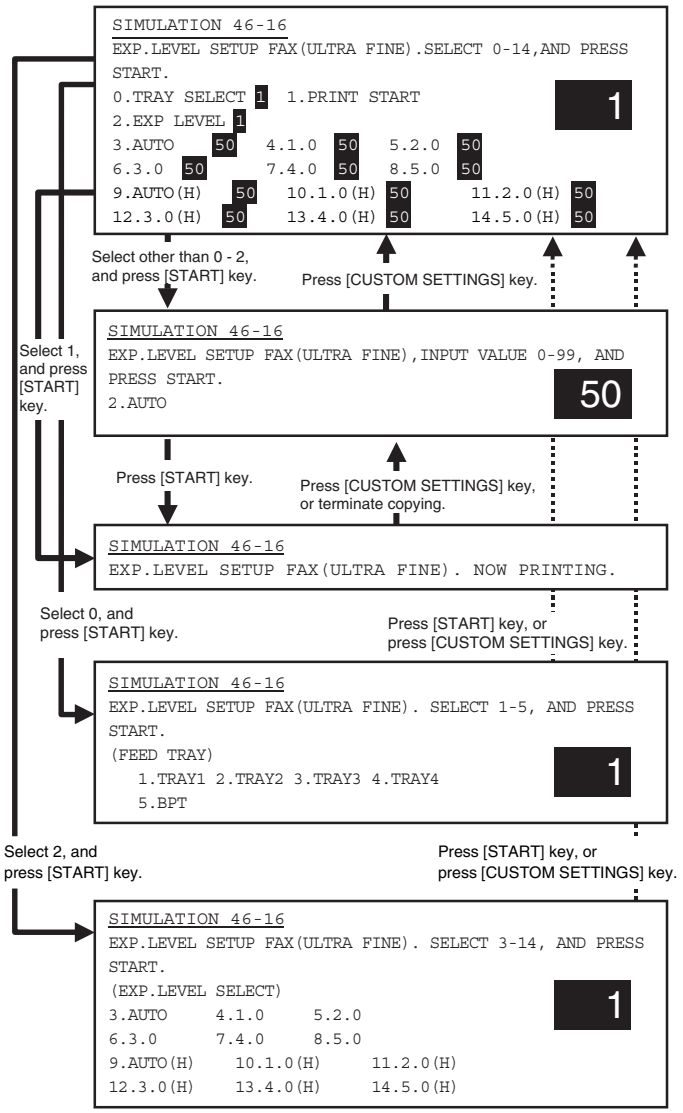
Normal display		NOW PRINTING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

To select paper (paper feed tray), perform the following procedures.

1) Enter 0 with 10-key.
2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
3) Enter the number corresponding to the paper feed tray to be used with 10-key.
4) Press [START] key. (The paper feed tray is selected.)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

NOTE: When [P] key is pressed after entering an adjustment value in this simulation, the adjustment value is set. When START key is pressed, the adjustment value is set and copying is performed.



46-17

Purpose	Setting	
Function (Purpose)	Used to set the gain in shading correction.	
Section	Optical (Image scanning)	CCD, CIS
Item	Operation	

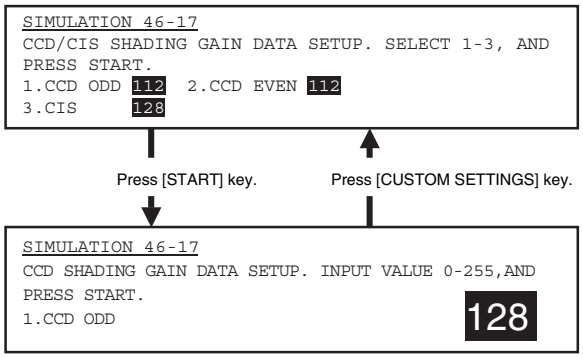
Operation/Procedure

1) Enter the number corresponding to the adjustment item
2) Press [START] key.
3) Enter the shading gain change value with 10-key.
4) Press [START] key.

There is normally no need to change the shading gain with this simulation.

Only when the scanned image density is unsatisfactory though shading is performed, the above procedure is performed.

Item		Set range	Default
1	CCD ODD	0 - 255	112
2	CCD EVEN		
3	CIS		128



46-18

Purpose	Adjustment
Function (Purpose)	Used to adjust the gamma (density gradient) in the copy mode.
Item	Picture quality Density

Operation/Procedure

(Copy mode selection)

1) Select the number corresponding to the copy mode to be adjusted with 10-key. (Select one of 3 - 14.)
2) Press [START] key.

(Print mode selection in the FAX mode)

1) Enter 2 with 10-key.
2) Press [START] key.
3) Select the number corresponding to one of the following adjustment items. (Select one of 3 - 14.)
   - ∗ Normal mode (Print density adjustment level)
   - ∗ Normal mode (Print density adjustment level) (Half-tone mode)
   - ∗ Auto mode
   - ∗ Auto mode (Half-tone mode)

Item			Set range	Default
0	TRAY SELECT	Paper feed tray selection		
1	PRINT START	Print start (Default)		
2	EXP LEVEL	Exposure level selection		
3	OC_AE	AE mode (OC)	0 - 127	64
4	OC_CHARA	Text mode (OC)		
5	OC_MIX	Text/Photo mode (OC)		
6	OC_PHOTO	Photo mode (OC)		
7	SPF1_AE	AE mode (SPF1)		
8	SPF1_CHARA	Text mode (SPF1)		
9	SPF1_MIX	Text/Photo mode (SPF1)		
10	SPF1_PHOTO	Photo mode (SPF1)		
11	SPF2_AE	AE mode (SPF2)		
12	SPF2_CHARA	Text mode (SPF2)		
13	SPF2_MIX	Text/Photo mode (SPF2)		
14	SPF2_PHOTO	Photo mode (SPF2)		
15	CIS_AE	AE mode (CIS)		
16	CIS_CHARA	Text mode (CIS)		
17	CIS_MIX	Text/Photo mode (CIS)		
18	CIS_PHOTO	Photo mode (CIS)		

Exposure level

Item		
3	AUTO	Auto
4	1.0	Exposure level 1
5	2.0	Exposure level 2
6	3.0	Exposure level 3
7	4.0	Exposure level 4
8	5.0	Exposure level 5
9	AUTO (H)	Auto (Half-tone)
10	1.0 (H)	Exposure level 1 (Half-tone)
11	2.0 (H)	Exposure level 2 (Half-tone)
12	3.0 (H)	Exposure level 3 (Half-tone)
13	4.0 (H)	Exposure level 4 (Half-tone)
14	5.0 (H)	Exposure level 5 (Half-tone)

4) Press [START] key.

Normal display		NOW PRINTING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

(Gamma adjustment)

After completion of the above procedures, perform the following procedures.

1) Enter the gamma level with 10-key.
2) Enter [P] key or [CUSTOM SETTINGS] key.

   When [START] key is pressed, printing is performed and the adjustment value is set simultaneously.

   Check the gamma density (copy density in the low density area and the high density area) of printed copy image. The greater the adjustment value is, the greater the gamma value is, resulting in a higher contrast.

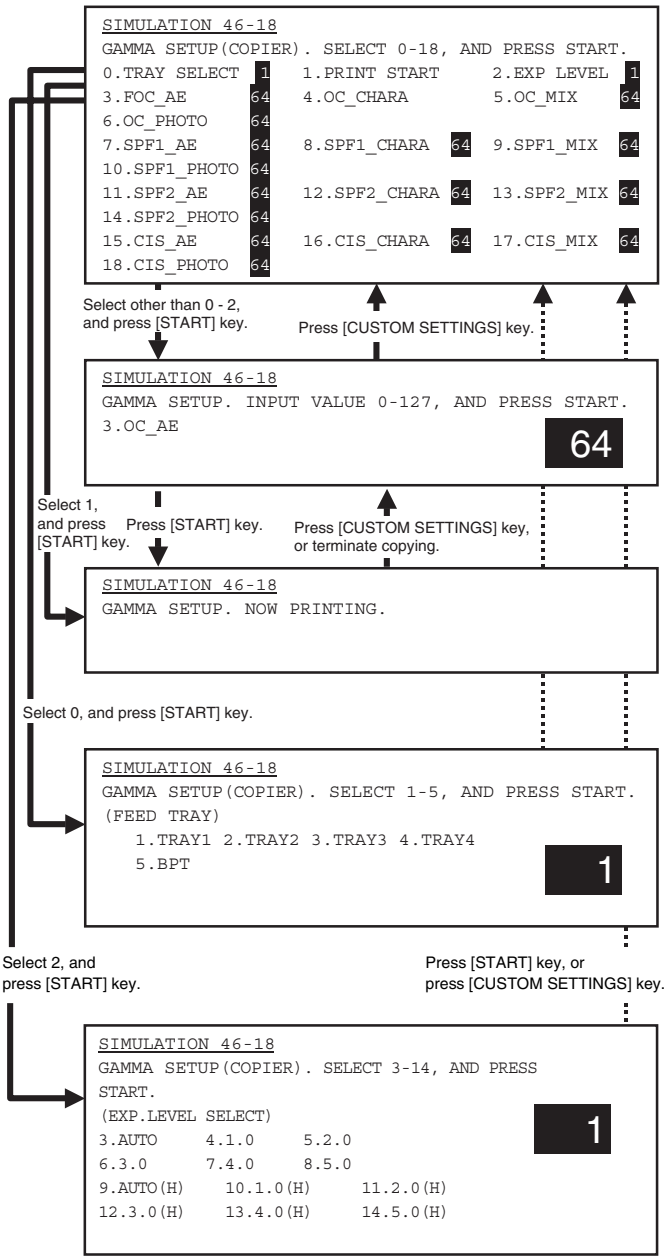
(Copy condition setting in this simulation)

To select paper (paper feed tray), perform the following procedures.

1) Enter 0 with 10-key.
2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
3) Enter the number corresponding to the paper feed tray to be used with 10-key.
4) Press [START] key. (The paper feed tray is selected.)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

NOTE: When [P] key is pressed after entering an adjustment value in this simulation, the adjustment value is set. When START key is pressed, the adjustment value is set and copying is performed.



46-19

Purpose	Adjustment
Function (Purpose)	Used to set the auto mode operation specifications in each mode (copy, scan, FAX).
Item	Picture quality Density

Operation/Procedure

(Toner save operation YES/NO setting in the auto mode)

1) Select "1. AE MODE" with 1-key.
2) Press [START] key.
3) Select the number corresponding to the operation specifications with 10-key.
4) Press [START] key.

   When [START] key is pressed, the adjustment value is set.

(Operation setting in the auto copy mode)

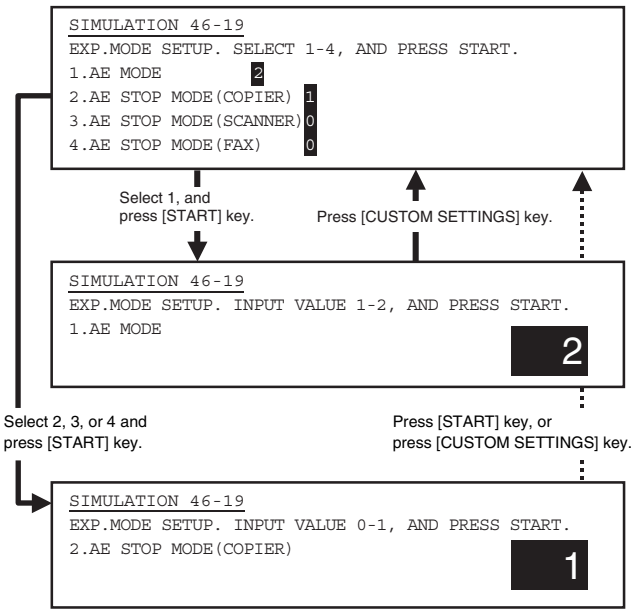
1) Select the number corresponding to the mode with 10-key. (Select one of 2 - 4.)
2) Press [START] key.
3) Select the number corresponding to the operation mode with 10-key.
4) Press [START] key.

1	AE MODE	AE mode
2	AE STOP MODE (COPIER)	AE fixed mode (Copier)
3	AE STOP MODE (SCANNER)	AE fixed mode (Scanner)
4	AE STOP MODE (FAX)	AE fixed mode (FAX)

Mode	Set value	Item	Default
AE mode	1	Image quality priority mode (Normal mode) ∗ Gamma is sharp to provide high contrast images.	2
	2	Toner consumption priority mode ∗ Gamma is mild to provide low contrast images.	
AE fixed mode	0	AE fixed OFF	1 (COPIER) 0 (SCANNER/ FAX)
	1	AE fixed ON	

AE fixed OFF: The automatic density (exposure) control is performed in real time. (The density level is changed in real time according to the document pattern.)

AE fixed ON: The density at the lead edge of the document is scanned, and the overall density (exposure) level is determined according to the scanned density level. (Overall density level fixed)



46-20

Purpose	Adjustment
Function (Purpose)	Used to adjust the copy density correction in the SPF copy mode for the document table copy mode. The adjustment is made so that the copy density becomes the same as that of the document table copy mode.
Section	SPF
Item	Picture quality Density

Operation/Procedure

(Adjustment mode selection)

1) Select the number corresponding to the copy mode to be adjusted with 10-key.

   SPF front frame side (Front surface copy), SPF rear frame side (Front surface copy), SPF (Back surface copy) (Select one of 3 - 5.)

2) Press [SATART] key.

(Copy density level adjustment)

1) Enter the density correction value with 10-key.
2) Press [P] key or [START] key.

(Copy condition setting in this simulation)

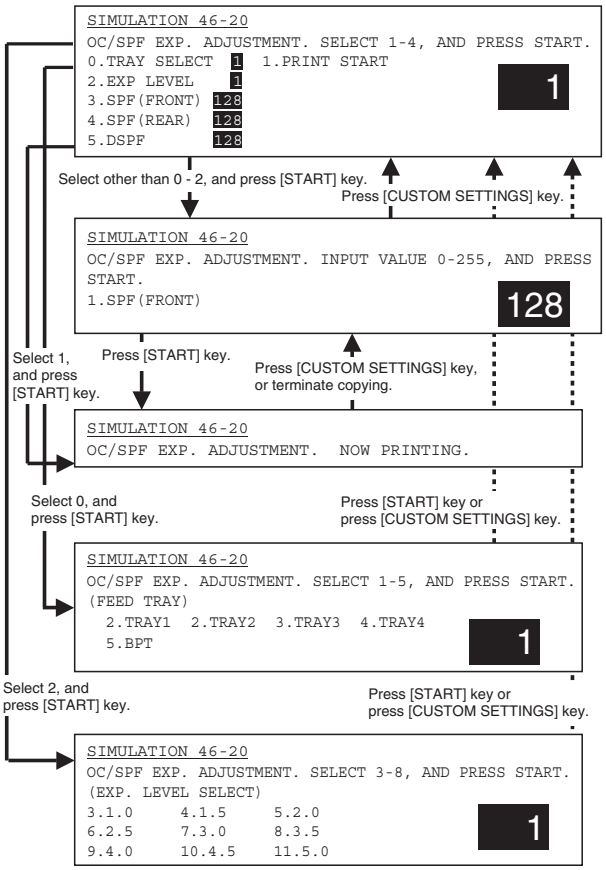
To select paper (paper feed tray), perform the following procedures.

1) Enter 0 with 10-key.
2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
3) Enter the number corresponding to the paper feed tray to be used with 10-key.
4) Press [START] key. (The paper feed tray is selected.)

NOTE: When [P] key is pressed after entering an adjustment value in this simulation, the adjustment value is set. When START key is pressed, the adjustment value is set and copying is performed.

	Item	Content	Set range	Default
0	TRAY SELECT	Paper feed tray selection 1: TRAY1 2: TRAY2 3: TRAY3 4: TRAY4 5: Manual feed	–	–
1	PRINT START	Print start (Default)	–	–
2	EXP LEVEL	Exposure level selection 3: Exposure level 1.0 4: Exposure level 1.5 5: Exposure level 2.0 6: Exposure level 2.5 7: Exposure level 3.0 8: Exposure level 3.5 9: Exposure level 4.0 10: Exposure level 4.5 11: Exposure level 5.0	–	–
3	SPF (FRONT)	SPF (front) (front frame side)	0 - 255	128
4	SPF (REAR)	SPF (front) (rear frame side)		
5	DSPF	DSPF (Back surface)		

- "Set value - 128" is added to the shading adjustment value (SIM 46-17).



46-21

Purpose	Adjustment
Function (Purpose)	Used to adjust the scanner exposure level in all the scanner modes.
Item	Picture quality Density

Operation/Procedure

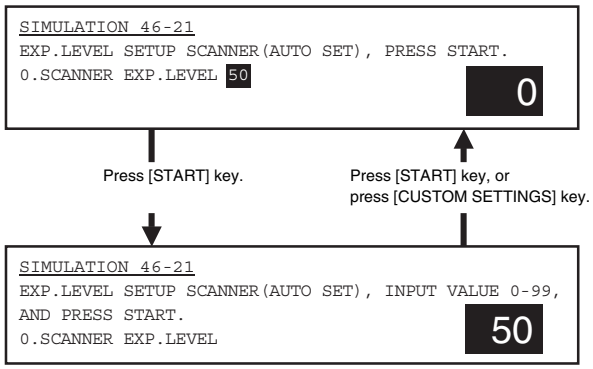
1) Select "SCANNER EXP. LEVEL" with 10-key.
2) Press [START] key.
3) Enter the image density adjustment value.
4) Press [P] key or [START] key.

NOTE: When this simulation is performed to adjust the scan image densities, all the image densities in all the scan modes are changed to the image density level set with this simulation.

That is, the image densities set with SIM 46-22, 23, 24, 25, and 45 are changed to the image density level set with this simulation.

	Item		Set range	Default
0	SCANNER EXP. LEVEL	Image density level	0 - 99	50

NOTE: Only the set value is changed and no printing is performed.



46-22

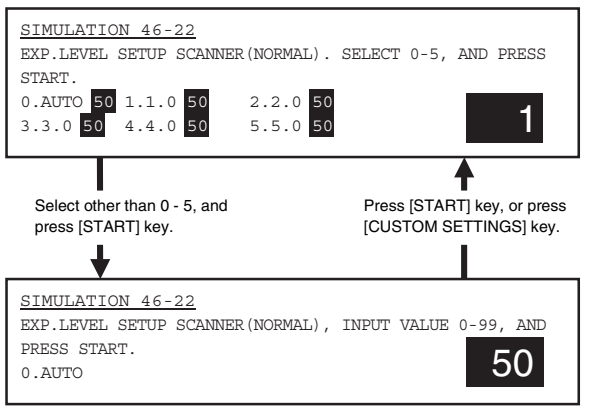
Purpose	Adjustment
Function (Purpose)	Used to adjust the scanner exposure level in the normal text mode.
Item	Picture quality Density

Operation/Procedure

1) Select the number corresponding to one of the following adjustment items with 10-key. (Select one of 0 - 5.)
   - ∗ Normal mode (Image density adjustment level)
   - ∗ Auto mode
2) Press [START] key.
3) Enter the image density adjustment value with 10-key.
4) Press [START] key or press [CUSTOM SETTINGS] key.
   The adjustment value is set.

Item			Set range	Default
0	AUTO	Auto	0 - 99	50
1	1.0	Exposure level 1		
2	2.0	Exposure level 2		
3	3.0	Exposure level 3		
4	4.0	Exposure level 4		
5	5.0	Exposure level 5		

NOTE: Only the set value is changed and no printing is performed.



46-23

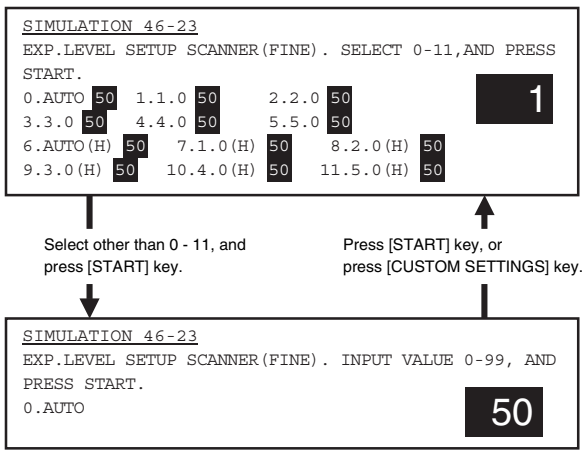
Purpose	Adjustment
Function (Purpose)	Used to adjust the scanner exposure level in the fine text mode.
Item	Picture quality Density

Operation/Procedure

1) Select the number corresponding to one of the following adjustment items with 10-key. (Select one of 0 - 11.)
   - ∗ Normal mode (Image density adjustment level)
   - ∗ Normal mode (Image density adjustment level) (Half-tone mode)
   - ∗ Auto mode
   - ∗ Auto mode (Half-tone mode)
2) Press [START] key.
3) Enter the image density adjustment value with 10-key.
4) Press [START] key or press [P] key.
   The adjustment value is set.

Item			Set range	Default
0	AUTO	Auto	0 - 99	50
1	1.0	Exposure level 1		
2	2.0	Exposure level 2		
3	3.0	Exposure level 3		
4	4.0	Exposure level 4		
5	5.0	Exposure level 5		
6	AUTO (H)	Auto (Half-tone)		
7	1.0 (H)	Exposure level 1 (Half-tone)		
8	2.0 (H)	Exposure level 2 (Half-tone)		
9	3.0 (H)	Exposure level 3 (Half-tone)		
10	4.0 (H)	Exposure level 4 (Half-tone)		
11	5.0 (H)	Exposure level 5 (Half-tone)		

NOTE: Only the set value is changed and no printing is performed.



46-24

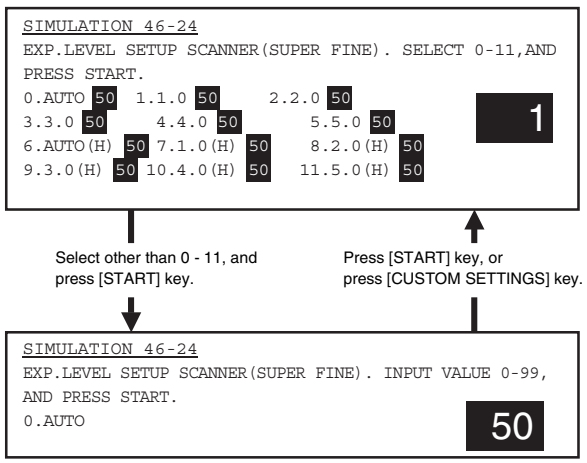
Purpose	Adjustment
Function (Purpose)	Used to adjust the scanner exposure level (in the super fine text mode).
Item	Picture quality Density

Operation/Procedure

1) Select the number corresponding to one of the following adjustment items with 10-key. (Select one of 0 - 11.)
   - ∗ Normal mode (Image density adjustment level)
   - ∗ Normal mode (Image density adjustment level) (Half-tone mode)
   - ∗ Auto mode
   - ∗ Auto mode (Half-tone mode)
2) Press [START] key.
3) Enter the image density adjustment value with 10-key.
4) Press [START] key or press [P] key.
   The adjustment value is set.

Item			Set range	Default
0	AUTO	Auto	0 - 99	50
1	1.0	Exposure level 1		
2	2.0	Exposure level 2		
3	3.0	Exposure level 3		
4	4.0	Exposure level 4		
5	5.0	Exposure level 5		
6	AUTO (H)	Auto (Half-tone)		
7	1.0 (H)	Exposure level 1 (Half-tone)		
8	2.0 (H)	Exposure level 2 (Half-tone)		
9	3.0 (H)	Exposure level 3 (Half-tone)		
10	4.0 (H)	Exposure level 4 (Half-tone)		
11	5.0 (H)	Exposure level 5 (Half-tone)		

NOTE: Only the set value is changed and no printing is performed.



46-25

Purpose	Adjustment
Function (Purpose)	Used to adjust the scanner exposure level in the ultra fine text mode.
Item	Picture quality Density

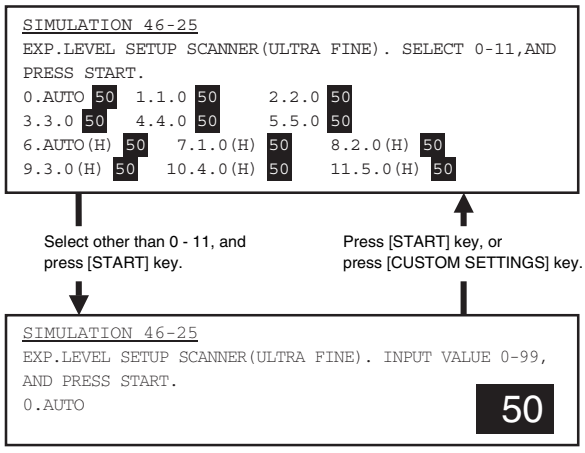
Operation/Procedure

1) Select the number corresponding to one of the following adjustment items with 10-key. (Select one of 0 - 11.)
   - ∗ Normal mode (Image density adjustment level)
   - ∗ Normal mode (Image density adjustment level) (Half-tone mode)
   - ∗ Auto mode
   - ∗ Auto mode (Half-tone mode)
2) Press [START] key.
3) Enter the image density adjustment value with 10-key.
4) Press [START] key or press [P] key.

The adjustment value is set.

Item			Set range	Default
0	AUTO	Auto	0 - 99	50
1	1.0	Exposure level 1		
2	2.0	Exposure level 2		
3	3.0	Exposure level 3		
4	4.0	Exposure level 4		
5	5.0	Exposure level 5		
6	AUTO (H)	Auto (Half-tone)		
7	1.0 (H)	Exposure level 1 (Half-tone)		
8	2.0 (H)	Exposure level 2 (Half-tone)		
9	3.0 (H)	Exposure level 3 (Half-tone)		
10	4.0 (H)	Exposure level 4 (Half-tone)		
11	5.0 (H)	Exposure level 5 (Half-tone)		

NOTE: Only the set value is changed and no printing is performed.



46-27

Purpose	Adjustment
Function (Purpose)	Used to adjust the gamma (density gradient) of the network scanner mode.
Item	Picture quality

Operation/Procedure

(Scanner mode selection)

1) Select the number corresponding to the scanner mode to be adjusted with 10-key. (Select one of 1 - 9.)
2) Press [START] key.

(Gamma adjustment)

1) Enter the gamma level with 10-key.
2) Press [START] key.

The greater the adjustment value is, the greater the gamma is, resulting in a higher contrast.

Item			Set range	Default
1	OC_Fine.HT	Fine text (Half-tone) (OC)	0 - 127	64
2	OC_SFine.HT	Super fine (Half-tone) (OC)		
3	OC_UFine.HT	Ultra fine (Half-tone) (OC)		
4	SPF1_Fine.HT	Fine text (Half-tone) (SPF1)		
5	SPF1_SFine.HT	Super fine (Half-tone) (SPF1)		
6	SPF1_UFine.HT	Ultra fine (Half-tone) (SPF1)		
7	SPF2_Fine.HT	Fine text (Half-tone) (SPF2)		
8	SPF2_SFine.HT	Super fine (Half-tone) (SPF2)		
9	SPF2_UFine.HT	Ultra fine (Half-tone) (SPF2)		
10	CIS_Fine.HT	Fine text (Half-tone) (CIS)		
11	CIS_SFine.HT	Super fine (Half-tone) (CIS)		
12	CIS_UFine.HT	Ultra fine (Half-tone) (CIS)		

```
SIMULATION 46-27
GAMMA SETUP(SCANNER). SELECT 1-12, AND PRESS START.
1.OC_Fine.HT   64 2.OC_SFine.HT   64 3.OC_UFine.HT   64
4.SPF1_Fine.HT 64 5.SPF1_SFine.HT 64 6.SPF1_UFine.HT 64
7.SPF2_Fine.HT 64 8.SPF2_SFine.HT 64 9.SPF2_UFine.HT 64
10.CIS_Fine.HT 64 11.CIS_SFine.HT 64 12.CIS_UFine.HT 64
```

46-31

Purpose	Adjustment
Function (Purpose)	Used to adjust sharpness of the copy mode.
Item	Picture quality

Operation/Procedure

(Copy mode selection)

1) Select the number corresponding to the copy mode to be adjusted with 10-key. (Select one of 1 - 16.)
2) Press [START] key.

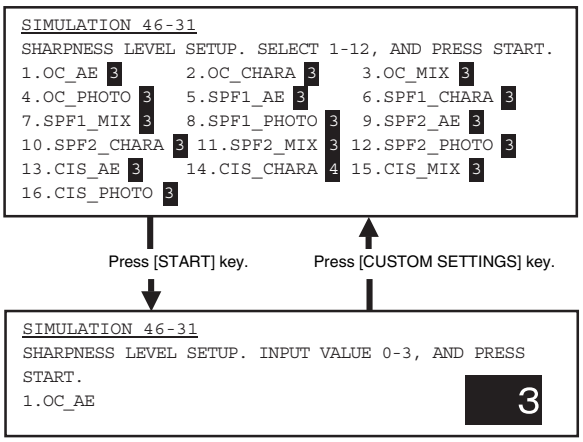
(Sharpness adjustment)

1) Enter the sharpness level with 10-key.
2) Press [START] key.

The greater the adjustment value is, the greater the sharpness is.

Item			Set range	Default
1	OC_AE	AE mode (OC)	1 - 5	3
2	OC_CHARA	Text mode (OC)		
3	OC_MIX	Text/Photo mode (OC)		
4	OC_PHOTO	Photo mode (OC)		
5	SPF1_AE	AE mode (SPF1)		
6	SPF1_CHARA	Text mode (SPF1)		
7	SPF1_MIX	Text/Photo mode (SPF1)		
8	SPF1_PHOTO	Photo mode (SPF1)		
9	SPF2_AE	AE mode (SPF2)		
10	SPF2_CHARA	Text mode (SPF2)		
11	SPF2_MIX	Text/Photo mode (SPF2)		
12	SPF2_PHOTO	Photo mode (SPF2)		
13	CIS_AE	AE mode (CIS)		
14	CIS_CHARA	Text mode (CIS)		4
15	CIS_MIX	Text/Photo mode (CIS)		3
16	CIS_PHOTO	Photo mode (CIS)		

* SPF1: DSPF front surface (CCD)
* SPF2: DSPF back surface (CCD)



46-39

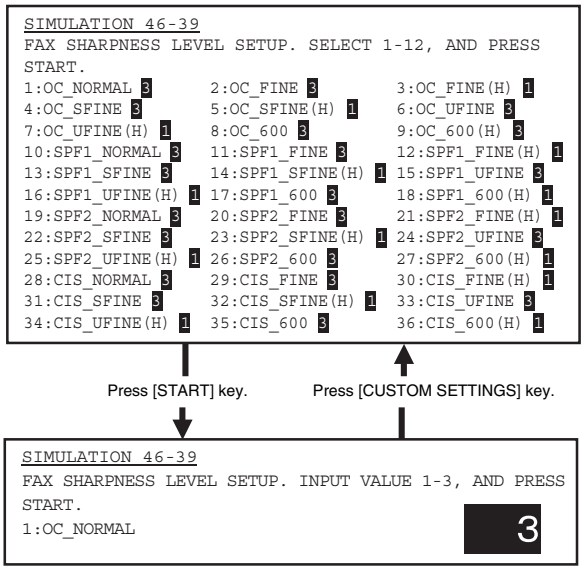
Purpose	Adjustment
Function (Purpose)	Used to adjust sharpness of the FAX mode.
Item	Picture quality

Operation/Procedure

1) Enter the sharpness level with 10-key.
2) Press [START] key.

The greater the adjustment value is, the greater the sharpness is.

Default: 3 (Normal), 1 (Halftone)



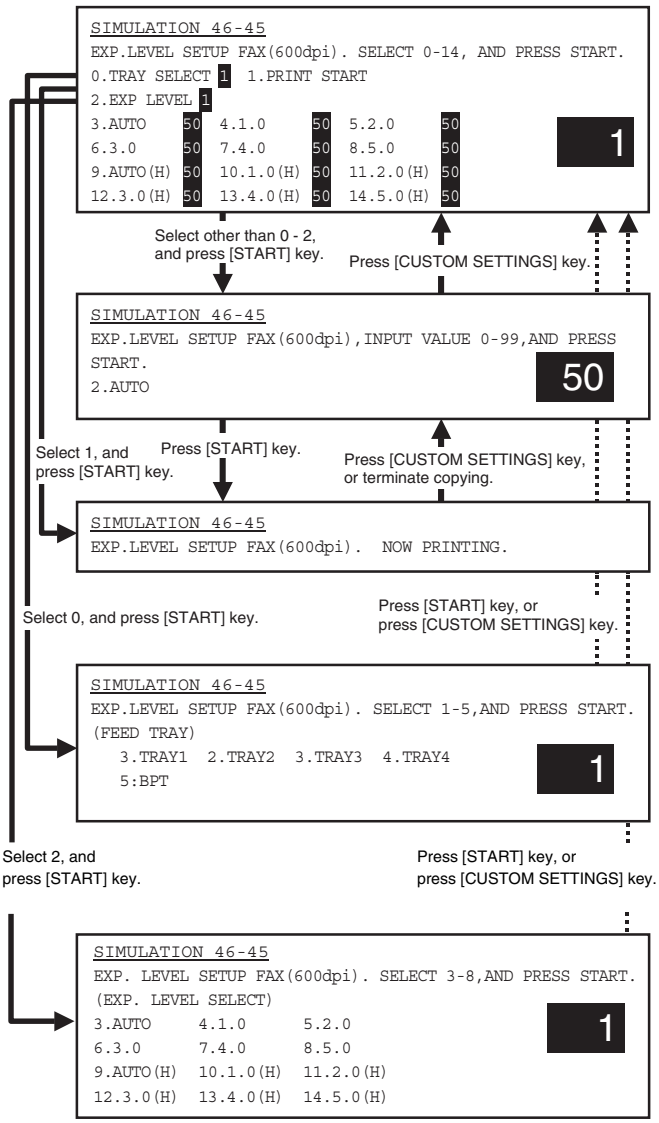
46-45

Purpose	Adjustment
Function (Purpose)	Used to adjust the image density in the FAX mode (600dpi).
Item	Picture quality

Operation/Procedure

1) Select the number corresponding to one of the following adjustment items with 10-key. (Select one of 0 - 11.)
   - ∗ Normal mode (Image density adjustment level)
   - ∗ Normal mode (Image density adjustment level) (Half-tone mode)
   - ∗ Auto mode
   - ∗ Auto mode (Half-tone mode)
2) Press [START] key.
3) Enter the image density adjustment value with 10-key.
4) Press [START] key or press [P] key.
   The adjustment value is set.

Item			Set range	Default
0	AUTO	Auto	0 - 99	50
1	1.0	Exposure level 1		
2	2.0	Exposure level 2		
3	3.0	Exposure level 3		
4	4.0	Exposure level 4		
5	5.0	Exposure level 5		
6	AUTO (H)	Auto (Half-tone)		
7	1.0 (H)	Exposure level 1 (Half-tone)		
8	2.0 (H)	Exposure level 2 (Half-tone)		
9	3.0 (H)	Exposure level 3 (Half-tone)		
10	4.0 (H)	Exposure level 4 (Half-tone)		
11	5.0 (H)	Exposure level 5 (Half-tone)		



46-46

Purpose	Adjustment
Function (Purpose)	Used to adjust sharpness of the scanner mode.
Item	Picture quality

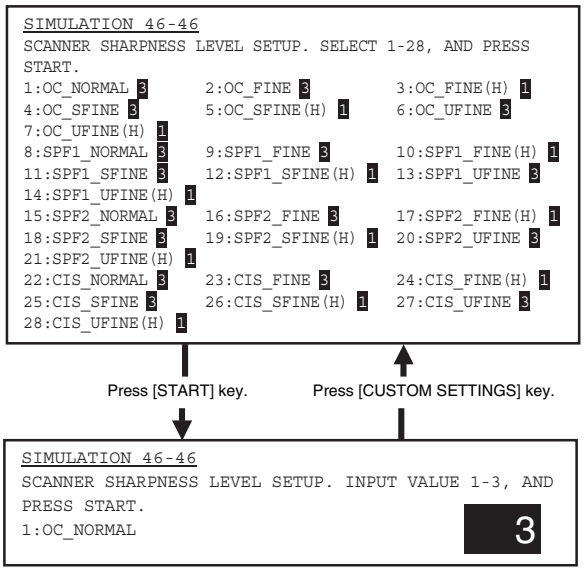
Operation/Procedure

1) Enter the sharpness level with 10-key.
2) Press [START] key.

The greater the adjustment value is, the greater the sharpness is.

Set range: 1 - 3

Default: 3 (Normal), 1 (Halftone)



48

48-1

Purpose	Adjustment
Function (Purpose)	Used to adjust the copy magnification ratio (in the main scanning and the sub scanning directions).
Section	Optical (Image scanning)
Item	Picture quality

Operation/Procedure

(Adjustment mode selection)

1) Select the number corresponding to the copy mode to be adjusted with 10-key. (Select one of 3 - 7.)
2) Press [START] key.

Item			Set range	Default
0	TRAY SELECT	Paper feed tray selection	0 - 99	50
1	COPY START	Copy START (Default)		
2	MAGNIFICATION	Print magnification ratio		
3	CCD (MAIN)	SCAN main scanning magnification ratio adjustment (CCD)		
4	CCD (SUB)	SCAN sub scanning magnification ratio adjustment (CCD)		
5	SPF (MAIN)	SPF front surface magnification ratio adjustment (Main scan)		
6	SPF (SUB)	SPF front surface magnification ratio adjustment (Sub scan)		
7	CIS (MAIN)	SPF back surface magnification ratio adjustment (CIS main scan)		

(Copy magnification ratio adjustment)

1) Select the number corresponding to the copy magnification ratio adjustment mode to be adjusted with 10-key. (Select one of 3 - 7.)
2) Press [START] key.
3) Enter the copy magnification ratio adjustment value with 10-key.
4) Press [P] key or [START] key.

   When the [START] key is pressed, copying is performed and the adjustment value is set simultaneously.

   The copy magnification ratio in the sub scan direction can be adjusted by changing the scan speed (motor RPM).

Normal display		NOW COPYING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

The greater the value is, the greater the correction is. One step corresponds to 0.1% adjustment.

(Copy condition setting in this simulation)

* To select paper (paper feed tray), perform the following procedures.

1) Enter 0 with 10-key.
2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
3) Enter the number corresponding to the paper feed tray of the selected paper with 10-key. (Select one of 1 - 5.)
4) Press [START] key. (The paper feed tray is selected.)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

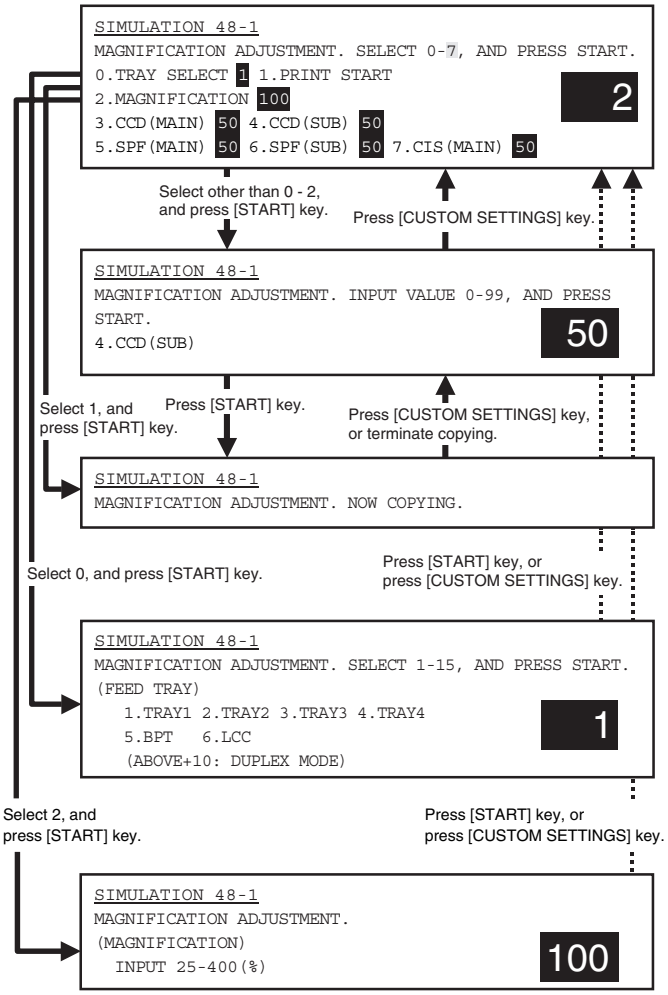
When the total of the above set value (1 - 5) and 10 is entered, the mode is changed to the duplex mode.

* The copy magnification ratio can be set with the following

1) Enter 2 with 10-key.
2) Press [START] key.
3) Enter the copy magnification ratio with 10-key.
4) Press [START] key.

Set range	25 - 400%

NOTE: When [P] key is pressed after entering the adjustment value, the adjustment value is set. When [START] key is pressed instead, the adjustment value is set and copying is performed.



48-5

Purpose	Adjustment
Function (Purpose)	Used to adjust the copy magnification ratio in the sub scanning direction.
Section	Optical (Image scanning)
Item	Picture quality

Operation/Procedure

When the sub scanning direction image magnification ratio adjustment with SIM 48-1 cannot provide a satisfactory result if a different magnification ration is set and a copy is made, perform this simulation.

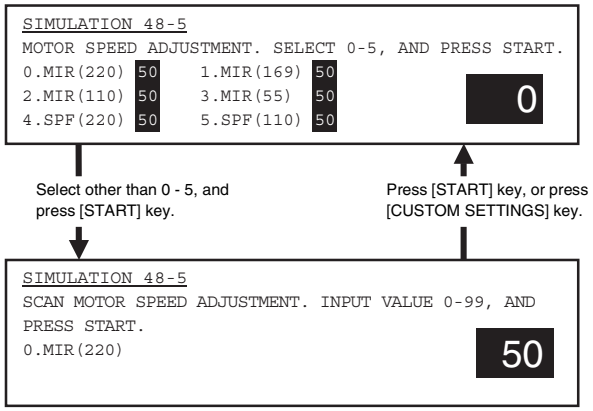
When there is an error in the copy magnification ratio in reduction copy, change the adjustment value of the high speed mode. When there is an error in the copy magnification ratio in enlargement copy, change the adjustment value of the low speed mode.

1) Select the number corresponding to the adjustment mode with 10-key.
2) Press [START] key.
3) Enter the copy adjustment value with 10-key.

   The scanner/SPF motor rotation sped adjustment value is entered.

Item		Content	Set range	Default
0	MIR (220)	Mirror motor (220mm/sec)	0 - 99	50
1	MIR (169)	Mirror motor (168.7mm/sec)		
2	MIR (110)	Mirror motor (110mm/sec)		
3	MIR (55)	Mirror motor (55mm/sec)		
4	SPF (220)	SPF motor (220mm/sec)		
5	SPF (110)	SPF motor (110mm/sec)		

4) Press [START] key.



50

50-1

Purpose	Adjustment
Function (Purpose)	Used to adjust the copy image position and the void area (image loss) adjustment on print paper in the copy mode. (The similar adjustment can be performed with SIM 50-5 and 50-2 (Simplified method).) (Document table mode)
Section	
Item	Picture quality Image position

Operation/Procedure

(Lead edge image loss/void area adjustment)

1) Set the lead edge image loss adjustment value (LEAD EDGE) and the paper lead edge void adjustment value (DENA) as follows.

   (Standard set value) Lead edge image loss: 1.5mm (LEDA: 15)

   Paper lead edge void: 3.5mm (DENA: 35)

   * Set LEAD to 15. (Enter 15 as the adjustment value of LEAD, and press [P] key.) (0.1mm/step)
   * Set DENA to 35. (Enter 35 as the adjustment value of DENA, and press [P] key.) (0.1mm/step)
2) Make a copy at the normal ratio (100%) and check the lead edge void area and the image loss. (Enter 100 as the set value of the copy magnification ratio (MAGNIFICATION), and press [START} key.)
3) If the adjustment result is not satisfactory, perform the following procedures.
   * If the lead edge void are is not 3.5mm:
     Change the adjustment value of RRCB and perform the adjustment. (Change the adjustment value of RRCB and press [START] key.) (1msec/step)
   * If the lead edge image loss is not 1.5mm:
     Change the adjustment value of RRCA and perform the adjustment. (Change the adjustment value of RRCA and press [START] key.)
     (Shift for the adjustment value change: 0.2mm/step)

(Rear edge void area adjustment)

Adjust so that the rear edge void area is 3.5mm. (Change the adjustment value of TRAIL EDGE, and press [START] key.)

(Front/rear frame direction image loss adjustment)

Set the adjustment value of SIDE to 20. (Enter 20 as the adjustment value of SIDE, and press [P] key.)

When the adjustment value is changed, the image position is shifted in the front/rear frame direction.

(Front/rear frame direction void area adjustment)

Adjust so that the total of the front/rear direction void areas is 7.0mm. (Change the adjustment values of FRONT/REAR, and press [START] key.)

Front frame void area = 3.5mm Rear frame void area = 3.5mm

If, as shown above, the front and the rear void areas are not even, use SIM 50-5 to adjust the image off-center position.

Item		Content	Set range	Default
0	TRAY SELECT	Paper feed tray selection	1 - 6	–
1	COPY START	Copy START (Default)	–	–
2	MAGNIFICATION	Print magnification ratio	25 - 400%	–
(Lead edge adjustment value)				
3	RRCA	Document scan start position	0 - 99	50
4	RRCB	Resist roller clutch ON timing adjustment value		
10	SIDE2 ADJ.	Correction value for RRCB when refereeing from ADU	1 - 99	50
(Image loss set value)				
5	LEAD	Lead edge image loss set value	0 - 99	15
6	SIDE	Side image loss set value		20
(Void set value)				
7	LEAD_EDGE (DENA)	Lead edge void set value	0 - 99	35
8	TRAIL_EDGE (DENB)	Rear edge void adjustment value		
9	FRONT/REAR	Front/Rear void adjustment value		

NOTE: When [P] is pressed after entering an adjustment value, the adjustment value is set. When [START] key is pressed instead, the adjustment value is set and copying is performed.)

Normal display		NOW COPYING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

(Copy condition in this simulation)

* To select paper (paper feed tray), perform the following procedures.

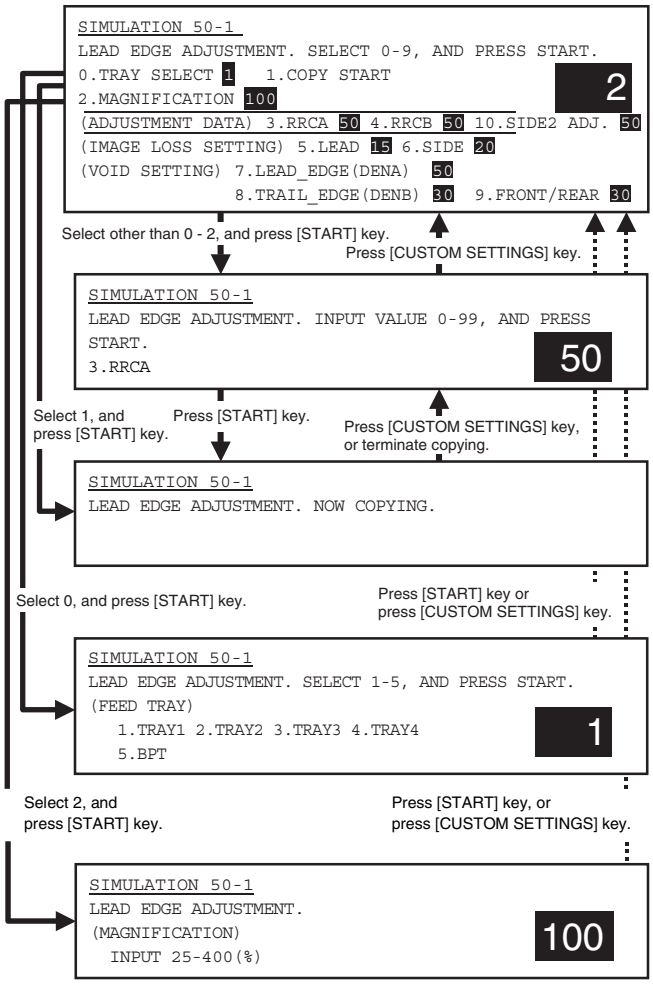
1) Enter 0 with 10-key.
2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
3) Enter the number corresponding to the paper feed tray of the target paper with 10-key.
4) Press [START] key. (The paper feed tray is selected.)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

* To set the magnification ratio, perform the following procedure.

1) Enter 2 with 10-key.
2) Press [START] key.
3) Enter the copy magnification ratio with 10-key.
4) Press [START] key.

Set range	25 - 400 (%)



50-2

Purpose	Adjustment
Function (Purpose)	Used to adjust the document scan position, the image print position, and the void area (image loss). (Simple adjustment) (This adjustment is the simple method of SIM 50-1.) (Document table mode)
Item	Picture quality Image position

Operation/Procedure

(Lead edge image loss/void area adjustment)

1) Set the RRGB value of SIM 50-1 to 80 - 99.
2) Set the lead edge image loss adjustment value (LEAD EDG) and the paper lead edge void adjustment value (DENA) to the values specified below.

   (Standard set value) Lead edge image loss: 1.5mm
   Paper lead edge void: 3.5mm (DENA: 35)

   * Set the adjustment value of LEAD to 15. (Enter 15 as the adjustment value of LEAD and press [P] key.
   * Set the adjustment value of DENA to 35. (Enter 35 as the adjustment value of DENA and press [P] key.)
3) Set the adjustment value of L1 to 0. (Enter 0 as the adjustment value of L1, and press [P] key.)
4) Set the adjustment value of L2 to 0. (Enter 0 as the adjustment value of L2, and press [P] key.)

5) Make a copy at 400%, and calculate the values of L1 and L2. (Enter 100 as the set value (MAGNIFICATION) of the copy magnification ratio, and press [START] key.) (Place a scale on the document table and make a copy.)

L1 = Distance (mm) from the image lead edge position to the scale position of 10mm x 10

L2 = Distance (mm) from the image lead edge position to the paper lead edge x 10

6) Enter the above values as the set values of L1 and L2. (Enter the adjustment values of L1 and L2, and press [P] key.)

If the adjustment result is not satisfactory, perform the above procedures again from the beginning, or use SIM 50-1 to adjust.

NOTE: If a satisfactory result is not obtained with the above procedures, through the adjustment values are changed individually, the normal adjustment cannot be made.

Perform procedures 3) to 6) continuously.

(Rear edge void area adjustment)

Adjust so that the rear edge void area is 3.5mm. (Change the adjustment value of TRAIL EDGE, and press [START] key.)

(Front/rear frame direction image loss adjustment)

Set the adjustment value of SIDE to 20. (Enter 20 as the adjustment value of SIDE, and press [P] key.)

When this adjustment value is changed, the image position is shifted in the front/rear frame direction.

(Front/rear frame direction void area adjustment)

Adjust so that the total of the front/rear direction void areas is 7.0mm. (Change the adjustment values of FRONT/REAR, and press [START] key.)

Front frame void area = 3.5mm Rear frame void area = 3.5mm

If, as shown above, the front and the rear void areas are not even, use SIM 50-5 to adjust the image off-center position.

	Item	Content	Set range	Default
0	TRAY SELECT	Paper feed tray selection	1 - 6	–
1	COPY START	Copy START (Default)	–	–
2	MAGNIFICATION	Print magnification ratio	25 - 400%	400
(Lead edge adjustment value)				
3	L1	Distance from the image lead edge to the scale of 10mm. (Platen 400%, 0.1mm increment)	0 - 999	–
4	L2	Distance from the paper lead edge to the image lead edge (0.1mm increment)		–
(Image loss set value)				
5	LEAD	Lead edge image loss set value	0 - 99	15
6	SIDE	Side image loss set value		20
(Void set value)				
7	LEAD_EDGE (DENA)	Lead edge void set value	0 - 99	35
8	TRAIL_EDGE (DENB)	Rear edge void adjustment value		
9	FRONT/REAR	Front/Rear void adjustment value		

NOTE: When [P] is pressed after entering an adjustment value, the adjustment value is set. When [START] key is pressed instead, the adjustment value is set and copying is performed.)

Normal display		NOW COPYING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

(Copy condition in this simulation)

* To select paper (paper feed tray), perform the following procedures.

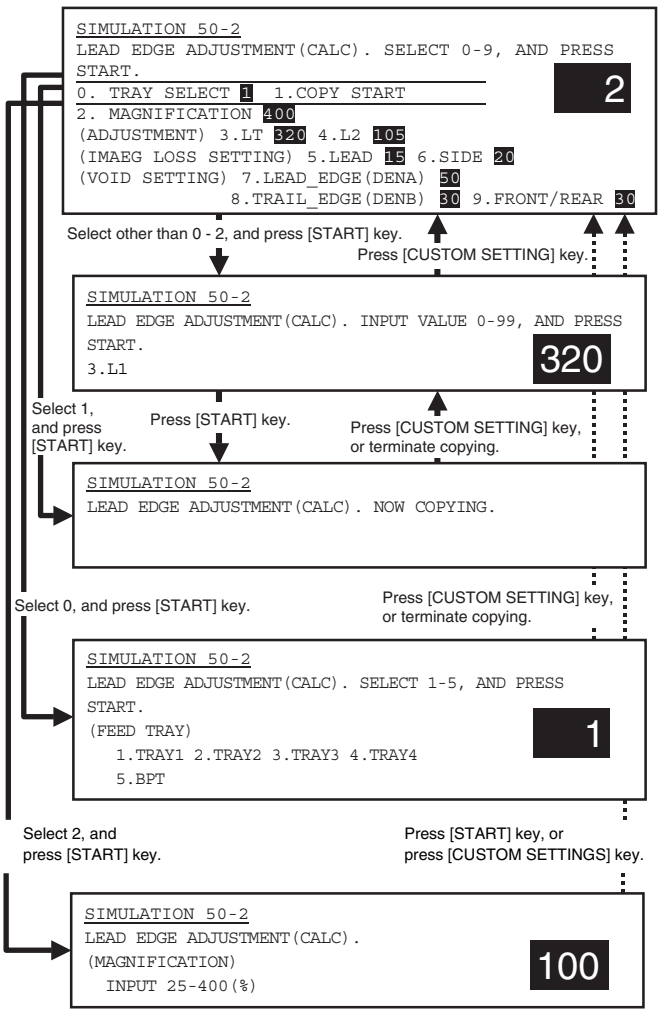
1) Enter 0 with 10-key.
2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
3) Enter the number corresponding to the paper feed tray of the target paper with 10-key.
4) Press [START] key. (The paper feed tray is selected.)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

* To set the magnification ratio, perform the following procedure.

1) Enter 2 with 10-key.
2) Press [START] key.
3) Enter the copy magnification ratio with 10-key.
4) Press [START] key.

Set range	25 - 400 (%)



50-5

Purpose	Adjustment
Function (Purpose)	Used to adjust the print image position and the void area (image loss) on print paper. (Adjustment as the print engine) (This adjustment is reflected on all the FAX/printer/copy modes.)
Section	
Item	Picture quality

Operation/Procedure

(Print image off-center position adjustment)

1) Enter the number corresponding to the paper feed tray to be adjusted with 10-key. (Select one of 10 - 16.) (Table 1)
2) Press [START] key.
3) Enter the adjustment value with 10-key.
4) Press [P] key or [START] key. When [START] key is pressed, the adjustment value is set and printing is performed. (Table 2)

   Check the off-center of the self-print patter of print-out.

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

The greater the adjustment value is, the more the print image is shifted to the front.

(Lead edge void area adjustment)

1) Set the lead edge void adjustment value (DENA) as specified below.

   (Standard set value) Paper lead edge void: 3.5mm (DENA: 35)

   * Set the adjustment value of DENA to 35. Enter 35 as the adjustment value of DENA, and press [P] key.
2) Check the lead edge void area on the self print pattern.

   (Enter 1 and press [START] key.)
3) If the adjustment result is not satisfactory, perform the following procedures.

   * If the lead edge void area is not 3.5mm:
     Change the adjustment value of RRCB and perform the adjustment. (Change the adjustment value of RRCB and press [START] key.)
     (Shift for the adjustment value change: 0.1mm/step)

(Front/rear frame direction void area adjustment)

Adjust so that the total of the front/rear direction void areas is 7.0mm. (Change the adjustment values of FRONT/REAR, and press [START] key.)

Front frame void area = 3.5mm Rear frame void area = 3.5mm

(Paper resist adjustment)

1) Enter the number corresponding to the paper feed tray to be adjusted with 10-key. (Select one of 3 - 9.) (Table 1)
2) Press [START] key.
3) Enter the adjustment value with 10-key.
4) Press [P] key or [START] key. When [START] key is pressed, the adjustment value is set and printing is performed. (Table 2)

If the relative positions of paper and print images vary or a paper jam occurs, change the adjustment value.

(Print condition setting in this simulation)

* To select paper (paper feed tray), perform the following procedures.

1) Enter 0 with 10-key.
2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
3) Enter the number corresponding to the paper feed tray to be used with 10-key. (Select one of 1 - 5.) (Table 3)
4) Press [START] key. (The paper feed tray is selected.)

When the total of the above set value (1 - 5) and 10 is entered, the mode is changed to the duplex print mode.

NOTE: When [P] key is pressed after entering the adjustment value in this simulation, the adjustment value is set. When [START] key is pressed instead, the adjustment value is set and copying is performed.

(Table 1)

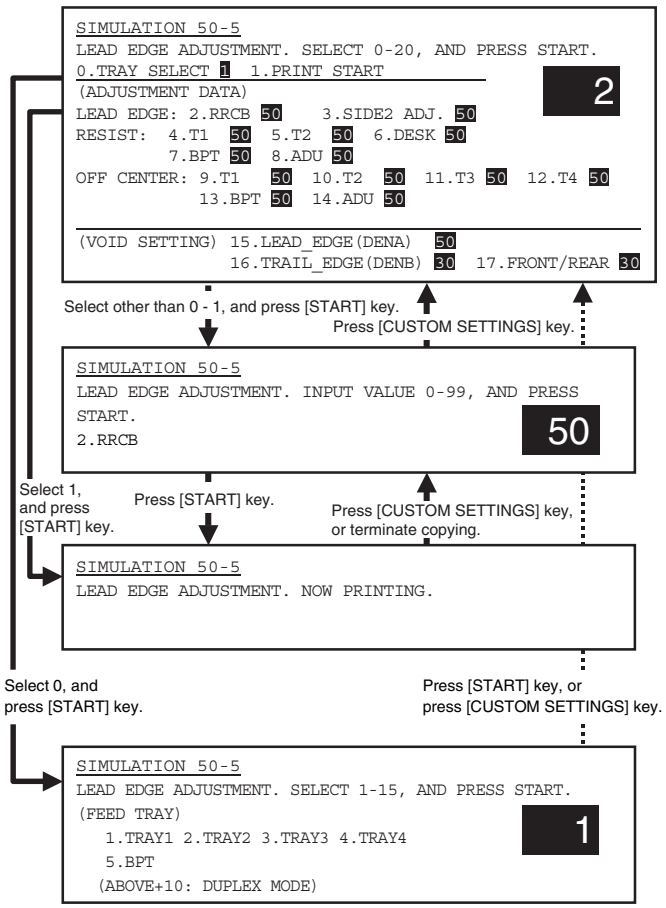
Item			Set range	Default	
				AR-M355N	AR-M455N
0	TRAY SELECT	Paper feed tray selection (1 - 6)	–	–	
1	PRINT START	Print start (Default)	–	–	
(Lead edge adjustment value)					
2	RRCB	Resist roller clutch ON timing adjustment value	0 - 99	50	
3	SIDE2 ADJ.	Correction value for RRCB when refereeing from ADU		50	
(Resist adjustment value)					
4	T1	Tray 1 adjustment	0 - 99	65	60
5	T2	Tray 2 adjustment		55	50
6	DESK	Tray 4 adjustment		55	50
7	BPT	Manual feed tray adjustment		60	55
8	ADU	Adjustment when paper is fed again from ADU		55	50
(Off-center set value) Self print					
9	T1	Tray 1 adjustment	0 - 99	50	
10	T2	Tray 2 adjustment			
11	T3	Tray 3 adjustment			
12	T4	Tray 4 adjustment			
13	BPT	Manual feed tray adjustment			
14	ADU	Adjustment when paper is fed again from ADU			
(Void set value)					
15	LEAD_EDGE (DENA)	Lead edge void set value	0 - 99	35	
16	TRAIL_EDGE (DENB)	Rear edge void adjustment value			
17	FRONT/REAR	Front/Rear void adjustment value			

(Table 2)

Normal display		NOW PRINTING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

(Table 3)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed



50-6

Purpose	Adjustment
Function (Purpose)	Used to adjust the copy image position and void area (image loss) on print paper in the copy mode. (The similar adjustment can be performed with SIM 50-7 (simple method).) (SPF mode)
Section	
Item	Picture quality

Operation/Procedure

(Lead edge image loss adjustment) (Table 1)

1) Set the front and back surface image loss adjustment values (LEAD EDGE) as specified below:

   (Standard set value) Lead edge image loss: 1.5mm (LEAD: 1.5)Paper lead edge: 3.5mm (DENA: 35)

   * Set the adjustment value of LEAD to 15. (Enter 15 as the adjustment value of LEAD EDGE, and press [P] key.)

2) Make a duplex copy at 100% with the SPF, and check that the lead edge (image loss) is 1.5mm either on the front surface and the back surface. (Select the duplex mode in the paper selection mode of SIM 50-6.) (Table 3) (Enter 100 as the copy magnification ratio set value (MAGNIFICATION), and press [START] key.)

If the adjustment result is not satisfactory, perform the following procedures:

3) Change the adjustment values of SIDE1 and SIDE2, and perform the adjustment. (Change the adjustment values of SIDE1 and SIDE2, and press [START] key.)

   SIDE1: SPF front surface document lead edge scan position adjustment value

   SIDE2: SPF back surface document lead edge scan position adjustment value

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

   (The image scan start timing is determined with the detection timing of the document lead edge by the detector SPPD4.)

Repeat procedures 2) and 3) until a satisfactory result is obtained.

(Rear edge image loss adjustment)

1) Use the SPF at 100% to make a duplex copy, and check that the rear edge image loss is 1.5mm on the front and the back surfaces. (Select the duplex mode in the paper selection mode of SIM 50-6.) (Enter 100 as the copy magnification ratio set value (MAGNIFICATION), and press [START] key.)

If the adjustment value is not satisfactory, perform the following procedure.

2) Change the adjustment value of TRAIL EDGE. Change the adjustment value of TRAIL EDGE, and press [START] key.

Repeat the above procedures until a satisfactory result is obtained.

(Front/rear frame direction image loss adjustment)

Set the adjustment value of the front surface and the back surface (FRONT/REAR) to 20. (Enter 20 as the adjustment value of FRONT/REAR, and press [P] key.)

When the adjustment value is changed, the image position is shifted in the front/rear frame direction.

NOTE: When [P] key is pressed after entering the adjustment value, the adjustment value is set. When [START] key is pressed instead, the adjustment value is set and copying is performed. (Table 2)

(Copy condition setting in this simulation)

* To select paper (paper feed tray), perform the following procedures.

1) Enter 0 with 10-key.
2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
3) Enter the number corresponding to the paper feed tray to be used with 10-key. (Table 3)
4) Press [START] key. (The paper feed tray is selected.)

* To set the copy magnification ratio, perform the following procedure.

1) Enter 2 with 10-key.
2) Press [START] key.
3) Enter the copy magnification ratio with 10-key.
4) Press [START] key.

Set range	25 - 200 (%)

(Table 1)

Item			Set range	Default
0	TRAY SELECT	Paper feed tray selection	1 - 6	–
1	COPY START	Copy START (Default)	–	–
2	MAGNIFICATION	Print magnification ratio	25 - 200%	–
(Lead edge adjustment value)				
3	SIDE1	Front surface document scan start position adjustment value	0 - 99	50
4	SIDE2	Back surface document scan start position adjustment value		
(Image loss set value: SIDE 1)				
5	LEAD_EDGE	Front surface lead edge image loss set value	0 - 99	15
6	FRONT_REAR	Front surface side edge image loss set value		20
7	TRAIL_EDGE	Front surface rear edge image loss set value	0 - 20	0

Item			Set range	Default
(Image loss set value: SIDE 2)				
8	LEAD_EDGE	Back surface lead edge image loss set value	0 - 99	15
9	FRONT/REAR	Back surface side edge image loss set value		20
10	TRAIL_EDGE	Back surface rear edge image loss set value	0 - 20	0

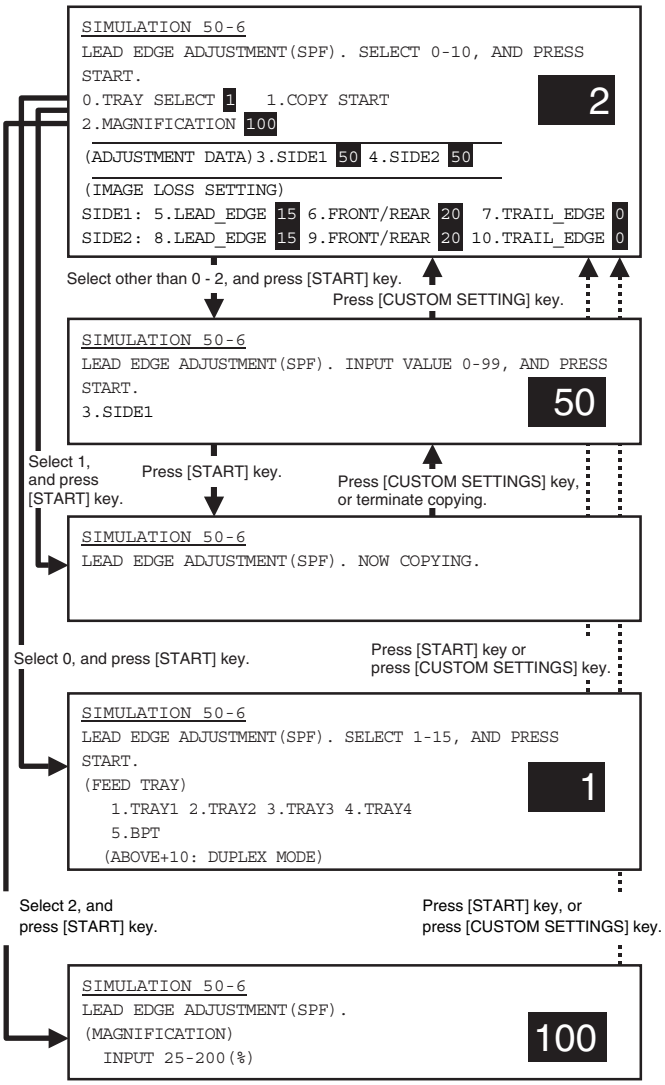
(Table 2)

Normal display		NOW COPYING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

(Table 3)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

When the total of the above set value and 10 is entered, the mode is changed to the duplex mode (DD), and a duplex copy is made.



50-7

Purpose	Adjustment
Function (Purpose)	Used to adjust the copy image position and void area (image loss) on print paper in the copy mode. (The similar adjustment can be performed with SIM 50-6.) (SPF mode)
Section	
Item	Picture quality

Operation/Procedure

(Lead edge image loss adjustment)

1) Set the front and back surface image loss adjustment values (LEAD EDGE) as specified below:

   (Standard set value) Lead edge image loss: 1.5mm (LEAD: 1.5)Paper lead edge void: 3.5mm (DENA: 35)

   * Set the adjustment value of LEAD to 15. (Enter 15 as the adjustment value of LEAD EDGE, and press [P] key.)

2) Set the adjustment value of L4 to 0. (Enter 0 as the adjustment value of L4, and press [P] key.

3) Set the adjustment value of L5 to 0. (Enter 0 as the adjustment value of L5, and press [P] key.

4) Make a copy at 200% with the SPF, and calculate the values of L4 and L5. (Enter 200 as the set value of the copy magnification ratio set value (MAGNIFICATION) and press [START] key.)

   L4 = Distance (mm) from the image lead edge position to the scale of 10mm x 10

   L5 = Distance (mm) from the image lead edge position to the paper lead edge x 10

5) Enter the above values as the set values of L4 and L5. (Enter the adjustment values of L4 and L5, and press [P] key.)

   (The image scan start timing is determined with the detection timing of the document lead edge by the detector SPPD4.)

If the adjustment result is not satisfactory, perform the above procedures again or adjust with SIM 50-1.

NOTE: If the adjustment result of the above procedures is not satisfactory, though the adjustment value is changed individually, the adjustment cannot be completed normally.

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

(Rear edge image loss adjustment)

Adjust so that the rear edge image loss is 3.5mm. (Change the adjustment value of TRAIL EDGE, and press [START] key.)

(Front/rear frame direction image loss adjustment)

Set the adjustment value of SIDE to 20. (Enter 20 as the adjustment value of SIDE, and press [P] key.)

When the adjustment value is changed, the image position is shifted in the front/rear frame direction.

NOTE: When [P] key is pressed after entering the adjustment value, the adjustment value is set. When [START] key is pressed instead, the adjustment value is set and copying is performed. (Table 2)

(Copy condition setting in this simulation)

* To select paper (paper feed tray), perform the following procedures.

1) Enter 0 with 10-key.
2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
3) Enter the number corresponding to the paper feed tray to be used with 10-key. (Table 3)
4) Press [START] key. (The paper feed tray is selected.)

* To set the copy magnification ratio, perform the following procedure.

1) Enter 2 with 10-key.
2) Press [START] key.

3) Enter the copy magnification ratio with 10-key.

4) Press [START] key.

Set range	25 - 200 (%)

(Table 1)

Item			Set range	Default
0	TRAY SELECT	Paper feed tray selection (1 - 6)	–	–
1	COPY START	Copy START (Default)	–	–
2	MAGNIFICATION	Print magnification ratio (25 - 200%)	–	–
(Lead edge adjustment value)				
3	L4	Distance from the front surface image lead edge to the scale of 10mm (SPF: 200%)	0 - 999	–
4	L5	Distance from the back surface image lead edge to the scale of 10mm (SPF: 200%)		–
(Image loss set value: SIDE 1)				
5	LEAD_EDGE	Front surface lead edge image loss set value	0 - 99	15
6	FRONT_REAR	Front surface side edge image loss set value		20
7	TRAIL_EDGE	Front surface rear edge image loss set value	0 - 20	0
(Image loss set value: SIDE 2)				
8	LEAD_EDGE	Back surface lead edge image loss set value	0 - 99	15
9	FRONT/REAR	Back surface side edge image loss set value		20
10	TRAIL_EDGE	Back surface rear edge image loss set value	0 - 20	0

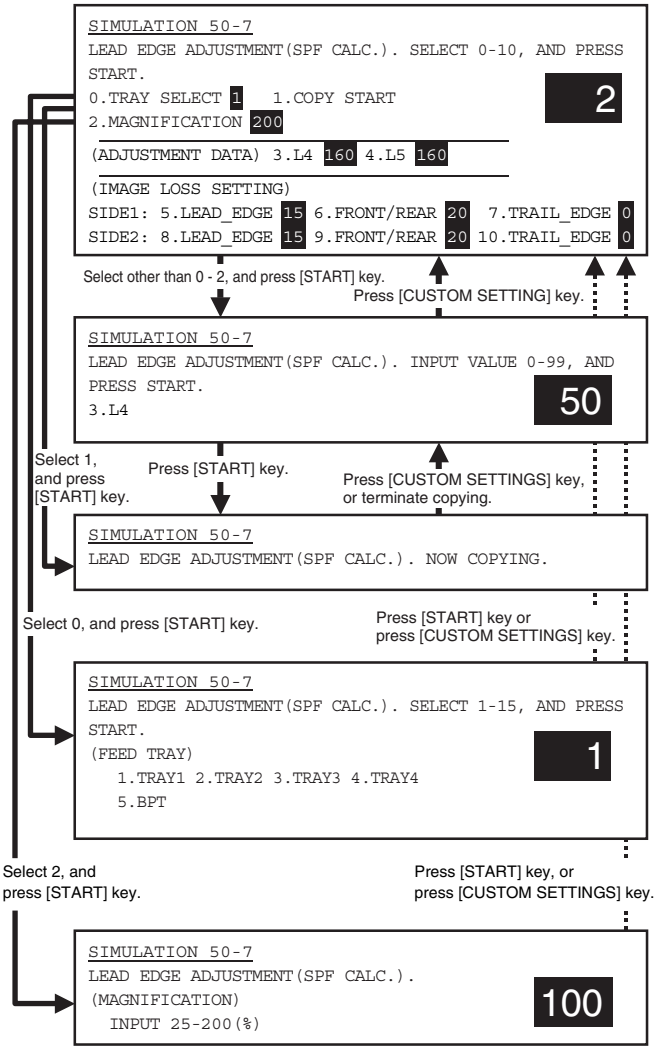
(Table 2)

Normal display		NOW COPYING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

(Table 3)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

When the total of the above set value and 10 is entered, the mode is changed to the duplex mode (DD), and a duplex copy is made.



50-10

Purpose	Adjustment	
Function (Purpose)	Used to adjust the print image off-center position. (Adjusted separately for each paper feed section.)	
Item	Picture quality	Image position

Operation/Procedure

(Print image off-center position adjustment)

NOTE: This simulation cannot provide an accurate adjustment. Do not use.

1) Enter the number corresponding to the number of the paper feed tray to be adjusted with 10-key. (Select one of 3 - 9.)

Item			Set range	Default
0	TRAY SELECT	Paper feed tray selection	1 - 6	–
1	COPY START	Copy START (Default)	–	–
2	MAGNIFICATION	Print magnification ratio	25 - 400%	100
(Off-center adjustment value)				
3	TRAY1	Tray 1 adjustment	0 - 99	50
4	TRAY2	Tray 2 adjustment		
5	TRAY3	Tray 3 adjustment		
6	TRAY4	Tray 4 adjustment		
7	BPT	Manual feed tray adjustment		
8	ADU	Adjustment when paper is fed again from ADU		

2) Press [START] key.
3) Enter the adjustment value with 10-key.
4) Press [P] key or [START] key. When [START] key is pressed, the adjustment value set and copying is performed.

Normal display		NOW COPYING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

(Image off-center adjustment)

1) Enter 1 with 10-key.
2) Press [START] key. The adjustment pattern is printed.
3) Check the off-center of the printed image.
(UNIT: 0.1mm/step When the adjustment value is increased, the print image is shifted to the front direction.)

NOTE: This adjustment can be performed with SIM 50-5.

(Copy condition setting in this simulation)

* To select paper (paper feed tray), perform the following procedures.

1) Enter 0 with 10-key.
2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
3) Enter the number corresponding to the paper feed tray to be used with 10-key. (Select one of 1 - 5)
4) Press [START] key. (The paper feed tray is selected.)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

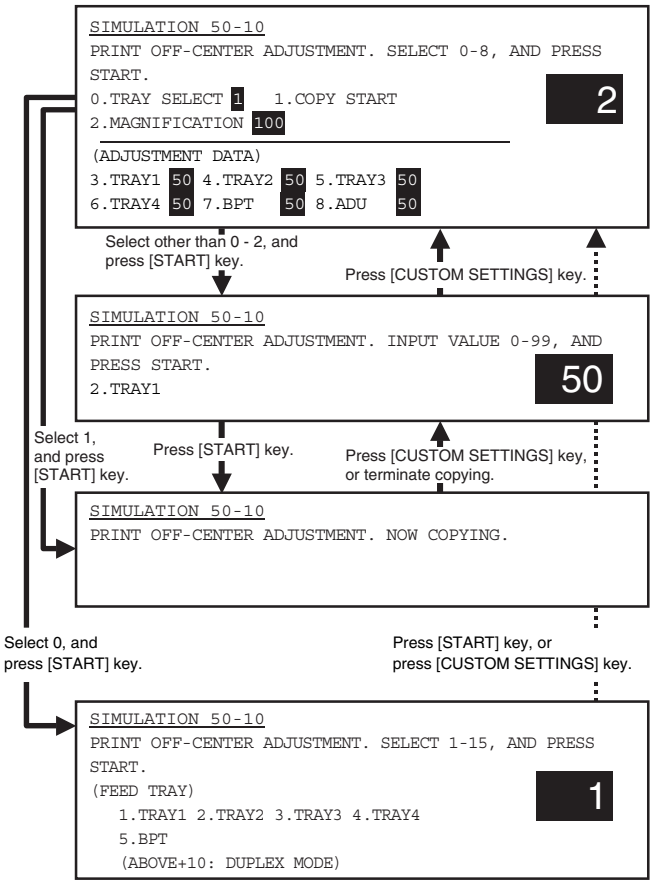
When the total of the above set value (1 - 5) and 10 is entered, the mode is changed to the duplex print mode.

* To set the copy magnification ratio, perform the following procedure.

1) Enter 2 with 10-key.
2) Press [START] key.
3) Enter the copy magnification ratio with 10-key.
4) Press [START] key.

Set range	25 - 400 (%)

NOTE: When [P] key is pressed after entering the adjustment value in this simulation, the adjustment value is set. When [START] key is pressed, the adjustment value is set and copying is performed.



50-12

Purpose	Adjustment	
Function (Purpose)	Used to adjust the scan image off-center position. (Adjusted separately for each scan mode.)	
Section		
Item	Picture quality	Image position

Operation/Procedure

(Select the scan mode to be adjusted.)

1) Enter the number corresponding to the scan mode to be adjusted with 10-key. (Select one of 3 - 5.)

Item			Set range	Default
0	TRAY SELECT	Paper feed tray selection	1 - 5	–
1	COPY START	Copy START (Default)	–	–
2	MAGNIFICATION	Print magnification ratio	25 - 400%	100
(Resist adjustment value)				
3	PLATEN	OC mode adjustment	0 - 99	50
4	SPF SIDE1	SPF front surface adjustment		
5	SPF SIDE2	SPF back surface adjustment		

2) Press [START] key.

(Scan off-center position adjustment)

1) Enter the scan image position adjustment value with 10-key.
2) Press [P] key or [START] key.
   When [START] key is pressed, the adjustment value is set and copying is performed.

Normal display		NOW COPYING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

Check the off-center of the printed image.

Repeat the above procedures until a satisfactory result is obtained.

(UNIT: 0.1mm/step When the adjustment value is increased, the print image is shifted to the front direction.)

(Copy condition setting in this simulation)

* To select paper (paper feed tray), perform the following procedures.

1) Enter 0 with 10-key.
2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
3) Enter the number corresponding to the paper feed tray to be used with 10-key. (Select one of 1 - 6)
4) Press [START] key. (The paper feed tray is selected.)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

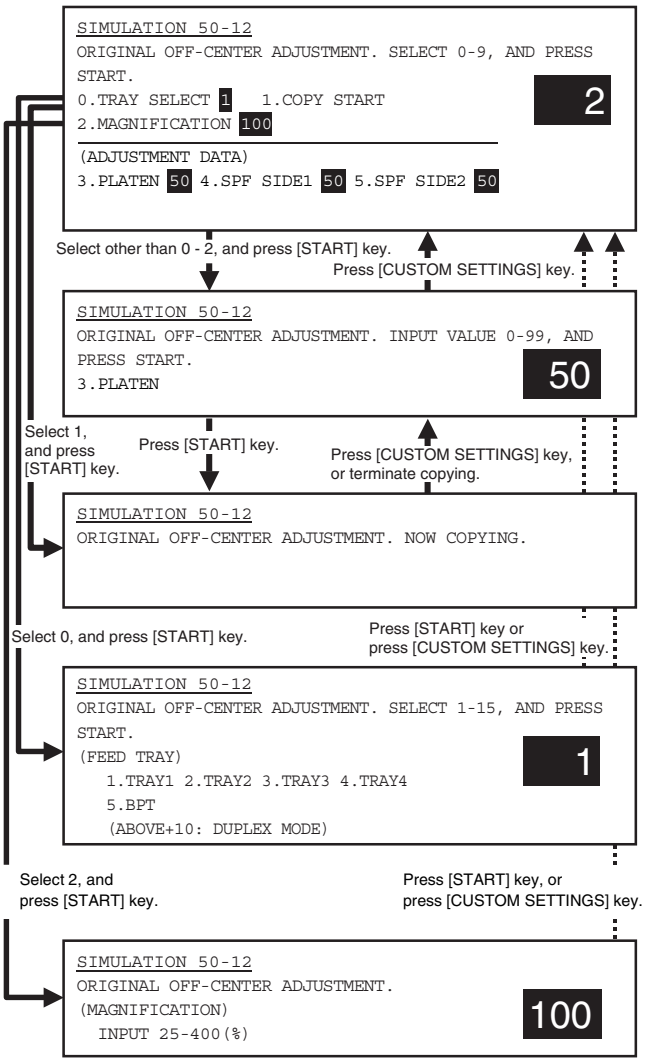
When the total of the above set value (1 - 5) and 10 is entered, the mode is changed to the duplex print mode.

* To set the copy magnification ratio, perform the following procedure.

1) Enter 2 with 10-key.
2) Press [START] key.
3) Enter the copy magnification ratio with 10-key.
4) Press [START] key.

Set range	25 - 400 (%)

NOTE: When [P] key is pressed after entering the adjustment value in this simulation, the adjustment value is set. When [START] key is pressed, the adjustment value is set and copying is performed.



50-27

Purpose	Adjustment
Function (Purpose)	Used to adjust the image loss of the scan image in the FAX/scan mode.
Item	Picture quality

Operation/Procedure

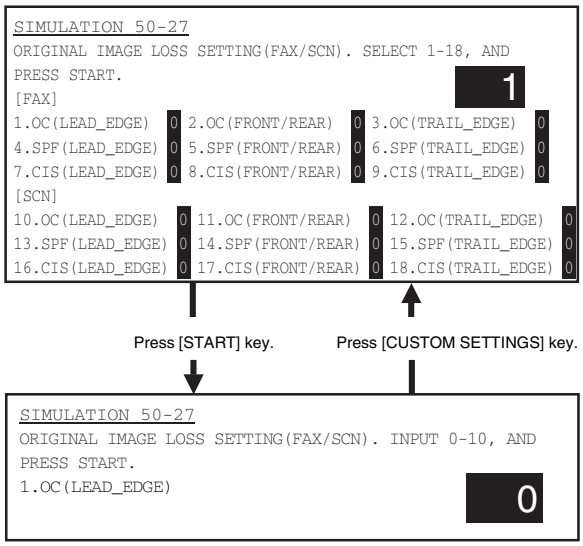
(Select the scan mode to be adjusted.)

1) Enter the number corresponding to the adjustment item with 10-key.
2) Press [START] key.
3) Enter the adjustment value with 10-key.
4) Press [START] key.

(Shift for the adjustment value change: 1.0mm/step)

Item			Set range	Default
FAX send				
1	OC (LEAD_EDGE)	OC lead edge	0 - 10 (Unit 1mm)	3 (3mm)
2	OC (FRONT/REAR)	OC side		
3	OC (TRAIL_EDGE)	OC rear edge		
4	SPF (LEAD_EDGE)	SPF lead edge		
5	SPF (FRONT/REAR)	SPF side		
6	SPF (TRAIL_EDGE)	SPF rear edge		
7	CIS (LEAD_EDGE)	CIS lead edge		
8	CIS (FRONT/REAR)	CIS side		
9	CIS (TRAIL_EDGE)	CIS rear edge		

Item			Set range	Default
Scanner mode				
10	OC (LEAD_EDGE)	OC lead edge	0 - 10 (Unit 1mm)	0 (0mm)
11	OC (FRONT/REAR)	OC side		
12	OC (TRAIL_EDGE)	OC rear edge		
13	SPF (LEAD_EDGE)	SPF lead edge		
14	SPF (FRONT/REAR)	SPF side		
15	SPF (TRAIL_EDGE)	SPF rear edge		
16	CIS (LEAD_EDGE)	CIS lead edge		
17	CIS (FRONT/REAR)	CIS side		
18	CIS (TRAIL_EDGE)	CIS rear edge		



51

51-2

Purpose	Adjustment
Function (Purpose)	Used to adjust the contact pressure of paper on the resist roller of each section (each paper feed, duplex feed and SPF paper feed of the copier). (This adjustment is required when the print image position variations are considerably great or when paper jams occur frequently.)
Section	Paper transport (Discharge/Switchback/Transport)
Item	Operation

Operation/Procedure

(Select the scan mode to be adjusted.)

1) Enter the number corresponding to the paper feed tray to be adjusted with 10-key. (Select one of 2 - 12.)

Item			Set range	Default	
				AR-M355N	AR-M455N
0	TRAY SELECT	Paper feed tray selection (1 - 5)	–	–	
1	PRINT START	Copy start (Initial value)	–	–	
2	TRAY1	Tray 1 resist adjustment value	0 - 99	65	60
3	TRAY2	Tray 2 resist adjustment value		55	50
4	DESK	Desk resist adjustment value		55	50
5	BPT	Manual tray resist adjustment value		60	55
6	ADU	ADU resist adjustment value		55	50
7	SPF (HIGH)	SPF resist adjustment value (High speed)		50	50
8	SPF (LOW)	SPF resist adjustment value (Low speed)		50	50

2) Press [START] key.

(Resist adjustment)

1) Enter the resist adjustment value with 10-key.
2) Press [START] key.
   When [START] key is pressed, the adjustment value is set and paper feed and copying are performed.

Normal display		NOW PRINTING.
ERROR display	Door open	DOOR OPEN.
	Jam	JAM
	Paper empty	PAPER EMPTY.

(Copy condition setting in this simulation)

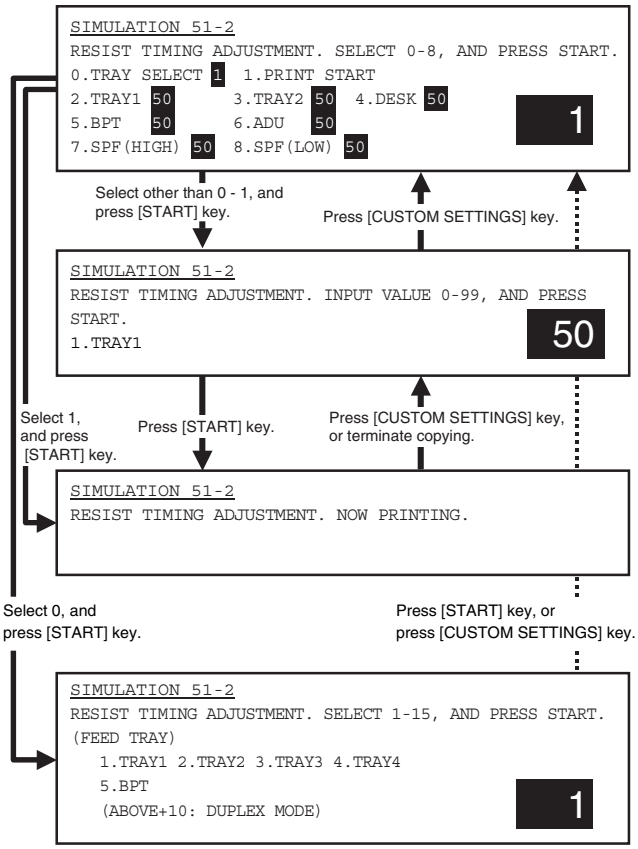
* To select paper (paper feed tray), perform the following procedures.

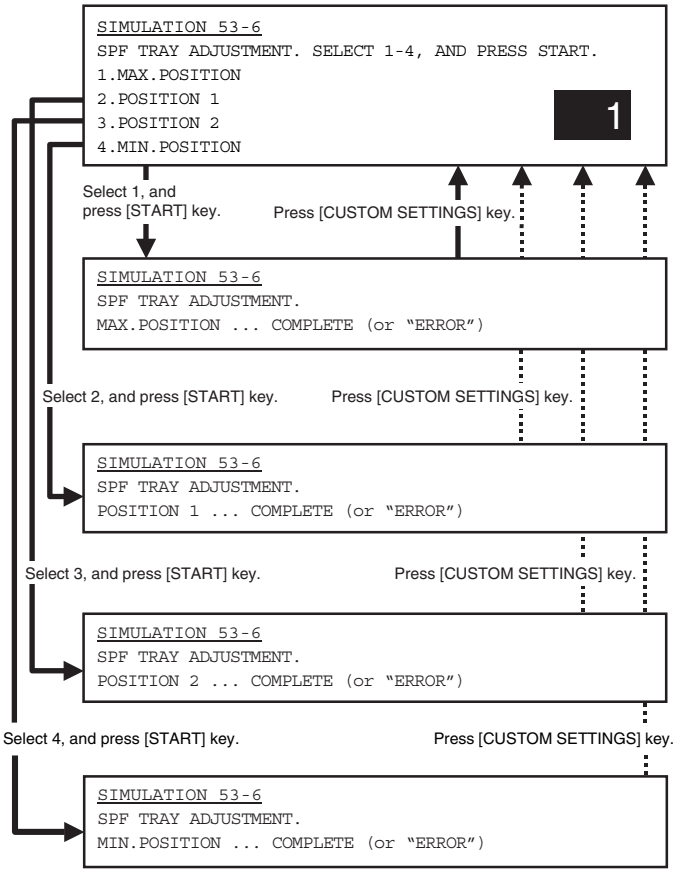
1) Enter 0 with 10-key.
2) Press [START] key. (The mode is changed to the paper feed tray selection mode.)
3) Enter the number corresponding to the paper feed tray to be used with 10-key.
4) Press [START] key. (The paper feed tray is selected.)

1	TRAY1	TRAY1
2	TRAY2	TRAY2
3	TRAY3	TRAY3
4	TRAY4	TRAY4
5	BPT	Manual feed

When the total of the above set value (1 - 5) and 10 is entered, the mode is changed to the duplex print mode.

NOTE: When [P] key is pressed after entering the adjustment value in this simulation, the adjustment value is set. When [START] key is pressed, the adjustment value is set and copying is performed.





53

53-6

Purpose	Adjustment
Function (Purpose)	Used to adjust the DSPF width detection level.
Section	
Item	Operation

Operation/Procedure

1) Set the SPF paper feed guide to the max. position.
2) Select "MAX. POSITION" with 10-key.
3) Press [START] key.
   The max. width detection level is recognized.
4) Press [CSUTOM SETTING] key.
5) Set the SPF paper feed guide to A4R size position.
6) Select POSITION 1 with 10-key.
7) Press [START] key.
   The A4R width detection level is recognized.
8) Press [CSUTOM SETTING] key.
9) Set the SPF paper feed guide to A5R size position.
10) Select POSITION 2 with 10-key.
11) Press [START] key.
    The A5R width detection level is recognized.
12) Press [CSUTOM SETTING] key.
13) Set the SPF paper feed guide to the min. position.
14) Select "MIN. POSITION" with 10-key.
15) Press [START] key.
    The min. width detection level is recognized.

If the above procedures are not completed normally, ERROR is displayed. When completed normally, COMPLETE is displayed.

53-7

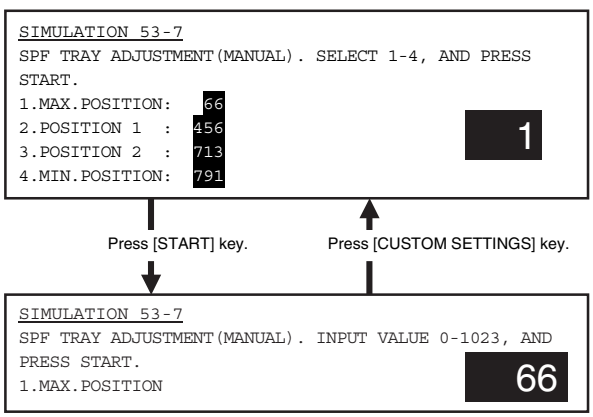
Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to enter the SPF width detection adjustment value.
Section	DSPF
Item	Operation

Operation/Procedure

1) Enter the number corresponding to the set item with 10-key.

	Item		Set range	Default
1	MAX. POSITION	Max. width	0 - 1023	66
2	POSITION 1	Adjustment position 1		456
3	POSITION 2	Adjustment position 2		713
4	MIN. POSITION	Min. width		791

2) Press [START] key.
3) Enter the set value with 10key.
4) Press [START] key.



53-8

Purpose	Adjustment
Function (Purpose)	Used to adjust the document scan start position. (Used to adjust the scanner scan position in the SPF mode front scan.)

Operation/Procedure

(Automatic adjustment)

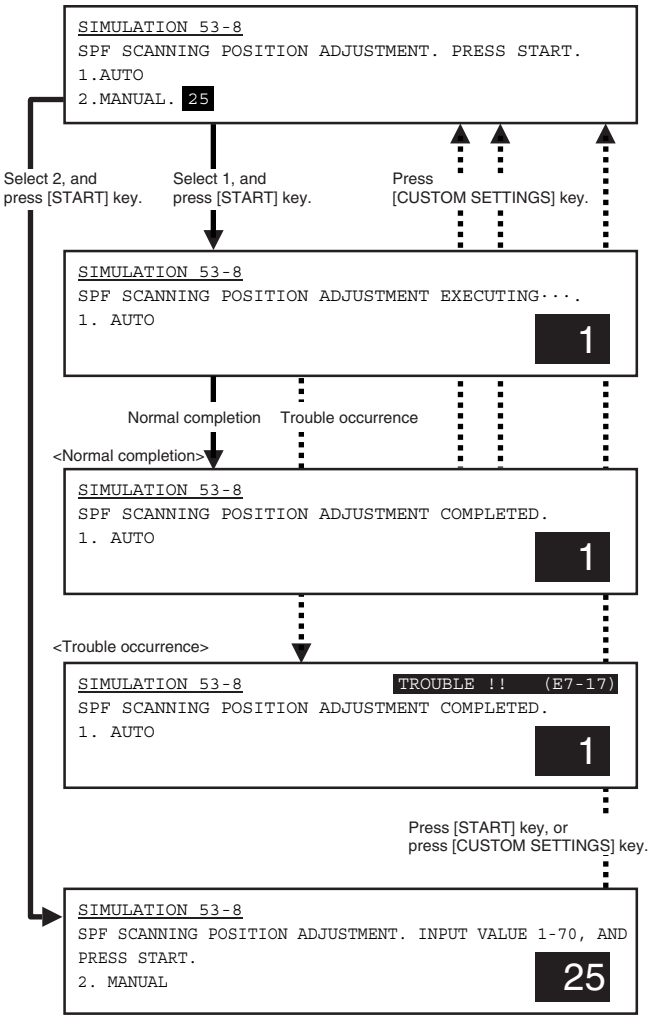
1) Select 1 or 2 with 10-key.
2) Press [START] key.

(Manual feed adjustment)

1) Enter the adjustment value with 10key.
2) Press [START] key.

When an adjustment error occurs, the trouble code (E7-17) is displayed simultaneously with “COMPLETED.”

Item			Set range	Default
1	AUTO	Automatic adjustment	–	–
2	MANUAL	Manual feed adjustment (Direct entry of a number)	1 - 70 (1 count: 0.1mm)	32



55

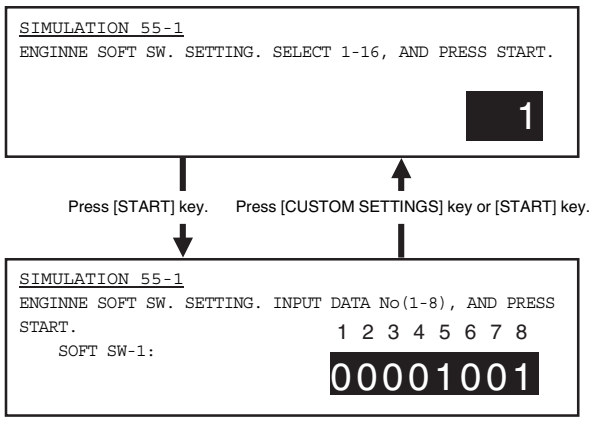
55-1

Purpose	Setting
Function (Purpose)	Used to set the specifications of the engine control operations. (PCU PWB)
Section	
Item	Operation Specifications

Operation/Procedure

This simulation is used to change and check the engine soft SW. Set this setting to the default.

There is no need to change this setting in the market.



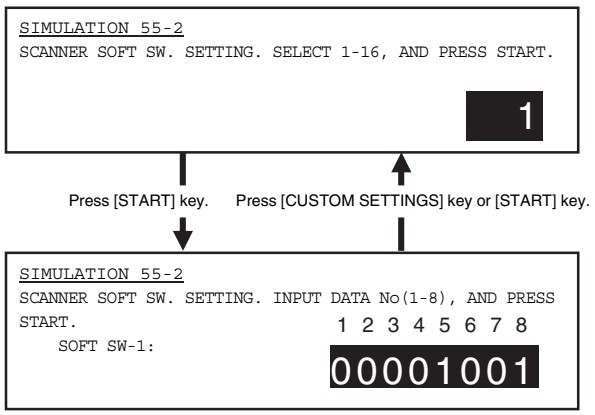
55-2

Purpose	Setting
Function (Purpose)	Used to set the specifications of the scanner control operations. (Scanner control PWB)
Section	
Item	Operation Specifications

Operation/Procedure

This simulation is used to change and check the scanner soft SW. Set this setting to the default.

There is no need to change this setting in the market.



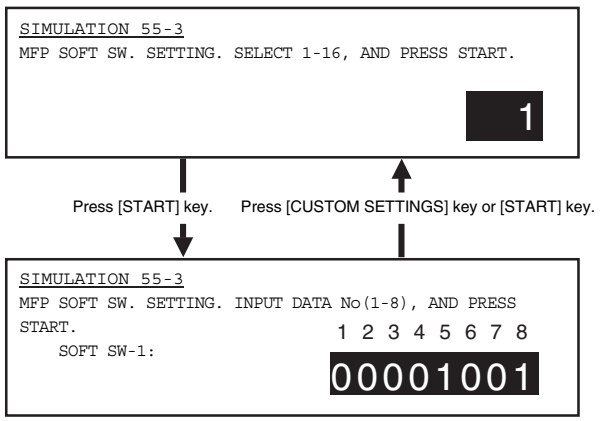
55-3

Purpose	Setting
Function (Purpose)	Used to set the specifications of the controller operations. (MFP control PWB)
Section	
Item	Operation Specifications

Operation/Procedure

This simulation is used to change and check the controller soft SW. Set this setting to the default.

There is no need to change this setting in the market.



56

56-1

Purpose	Data transfer
Function (Purpose)	Used to transfer the MFP controller data. (Used to repair the PWB.)
Section	MFP controller
Item	Data transfer

Operation/Procedure

1) Select the number corresponding to the data transfer mode with 10-key.

1	ALL (EEPROM, SRAM, FlashROM) → HDD	All the contents of memory are transferred to HDD. (Similar to execution of items 3 and 5.)
2	HDD → ALL (EEPROM, SRAM, FlashROM)	The HDD contents are transferred to all the memories. (Similar to execution of items 4 and 6.)
3	EEPROM → HDD	Transfer from EEPROM to HDD
4	HDD → EEPROM	Transfer from HDD to EEPROM
5	SRAM (+ FAX Memory, + Option Memory) → HDD	Transfer from SRAM to HDD. When, however, the FAX memory or an option memory (for FAX memory) * is installed, the contents of the Fax memory are also transferred to HDD.
6	HDD → SRAM (+ FAX Memory, + Option → Memory)	Transfer from HDD to SRAM. When, however, the FAX memory or an option memory (for FAX memory) * is installed, the contents HDD are transferred to the FAX memory as well as the SRAM.
7	FontROM → HDD	Transfer from the font ROM to HDD

*: When Flash ROM or OP_Flash ROM is not installed, transfer is not made.

2) Press [START] key.

3) The confirmation menu is opened to confirm YES/NO of data transfer. Select one.

1	YES	Data transfer is executed.
2	NO	Data transfer is not executed.

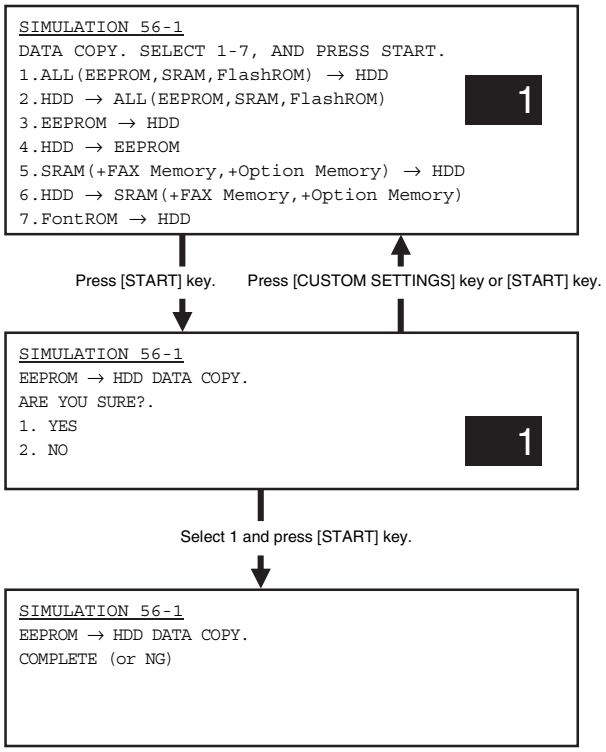
4) Press [START] key.

After completion of transfer, the transfer result is displayed.

If there is no error, the machine is automatically reset after completion of data transfer.

If there is an error, "NG" is displayed. (The machine is not reset.)

When restoring from HDD, fit the configurations of the Flash ROM and the optional Flash ROM at back-up.



60

60-1

Purpose	Operation test/Check
Function (Purpose)	Used to check the MFP control (DRAM) operations (read/write).
Section	ICU
Item	Operation

Operation/Procedure

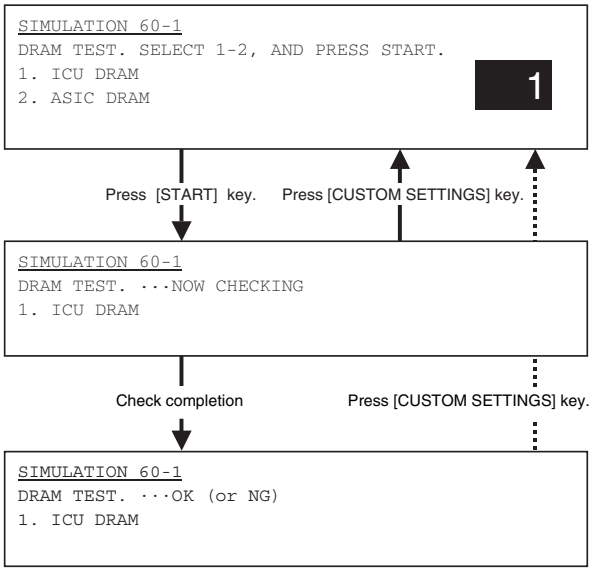
1) Enter the number corresponding to the memory to be checked with 10-key.

1	MFP DRAM	ERDH image memory
2	ASIC DRAM	ASIC image memory

2) Press [START] key.

The memory read/write operation is started.

After starting the operation, "NOW CHECKING" is displayed during checking. When read/write is normally completed, "OK" is displayed. If an error occurs, "NG" is displayed.



61

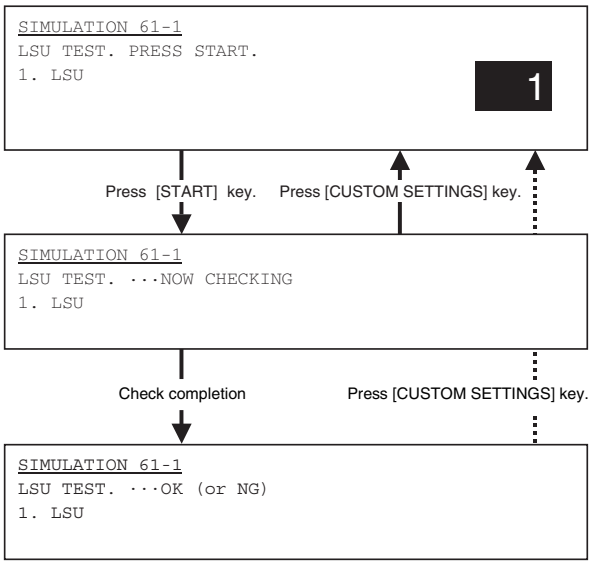
61-1

Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of the scanner (write) unit (LSU).
Section	Scanner (write) unit (LSU)
Item	Operation

Operation/Procedure

Used to check if the LSU delivers output of the sync signal (HSYNC/) or not.

"NOW CHECKING" is displayed during checking. When the test is normally completed, "OK" is displayed. If an error occurs, "NG" is displayed.



61-2

Purpose	Adjustment
Function (Purpose)	Used to adjust the laser power (absolute value) in the copy mode.
Section	Scanner (write) unit (LSU)
Item	Operation

Operation/Procedure

1) Select the number corresponding to the adjustment mode with 10-key.

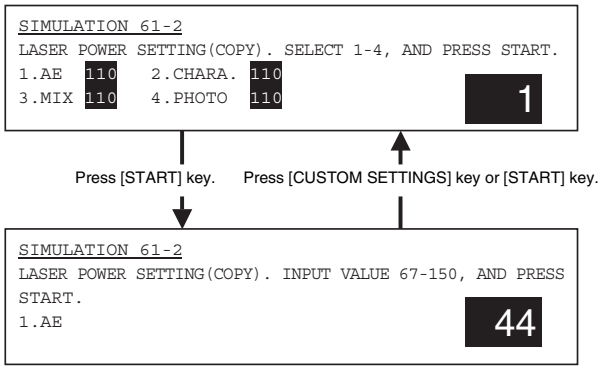
Item			Set range	Default	
				AR-M355N	AR-M455N
1	AE	Auto exposure mode	67 - 150	86	110
2	CHARA.	Text mode		86	110
3	MIX	Text/Photo mode		86	110
4	PHOTO	Photo mode		86	110

2) Press [START] key.

3) Enter the adjustment value with 10-key.

4) Enter [START] key.

NOTE: Be sure to set the default value. If not, a trouble may occur in the LSU.



61-3

Purpose	Adjustment
Function (Purpose)	Used to adjust the laser power (absolute value) in the FAX mode.
Section	Scanner (write) unit (LSU)
Item	Operation

Operation/Procedure

1) Select the number corresponding to the adjustment mode with 10-key.

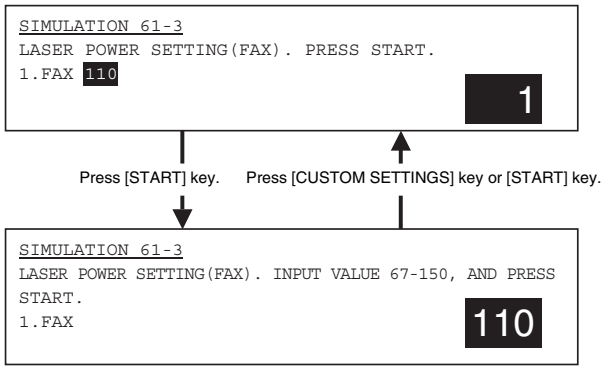
2) Press [START] key.

3) Enter the adjustment value with 10-key.

Set range	67 - 150
Default	86 (AR-M355N) 110 (AR-M455N)

4) Enter [START] key.

NOTE: Be sure to set the default value. If not, a trouble may occur in the LSU.



61-4

Purpose	Adjustment
Function (Purpose)	Used to adjust the laser power (absolute value) in the printer mode.
Section	Scanner (write) unit (LSU)
Item	Operation

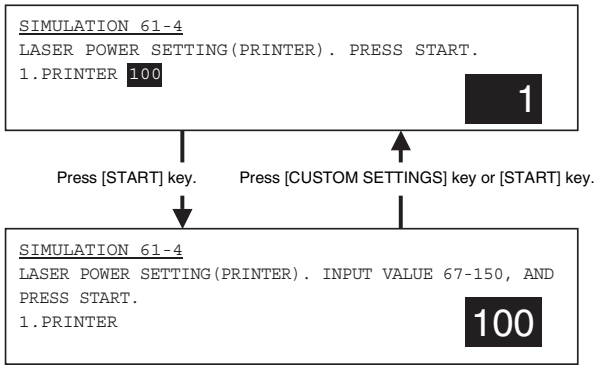
Operation/Procedure

1) Select the number corresponding to the adjustment mode with 10-key.
2) Press [START] key.
3) Enter the adjustment value with 10-key.

Set range	67-150
Default	76 (AR-M355N) 100 (AR-M455N)

4) Enter [START] key.

NOTE: Be sure to set the default value. If not, a trouble may occur in the LSU.



62

62-1

Purpose	Data clear
Function (Purpose)	Used to format the hard disk.
Section	MFP controller (HDD)
Item	Clear

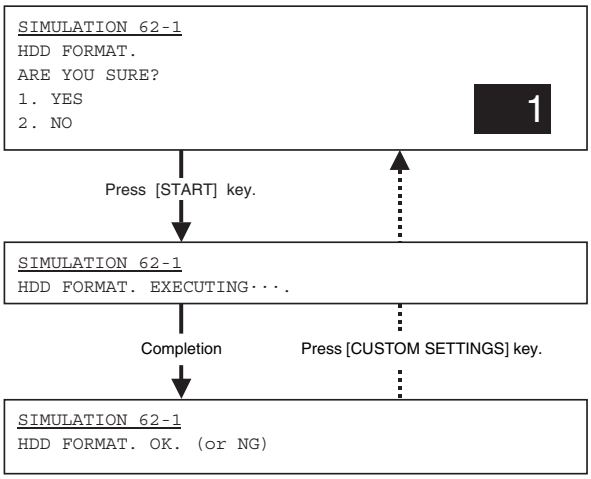
Operation/Procedure

1) Select YES/NO of hard disk format.

1	YES	Execution
2	NO	Cancel

2) Press [START] key.

During formatting, "EXECUTING" is displayed. When formatting is completed normally, "OK" is displayed. If not, "NG" is displayed.



62-2

Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of the hard disk (read/write). (Only in the model with a disk installed) (Partial check)
Section	MFP controller (HDD)
Item	Operation

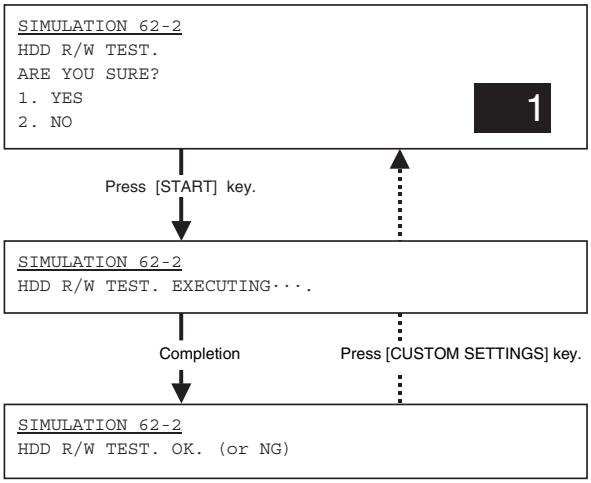
Operation/Procedure

1) Select YES/NO of hard disk read/write check.

1	YES	Execution
2	NO	Cancel

2) Press [START] key.

During testing, "EXECUTING" is displayed. When test is completed normally, "OK" is displayed. If not, "NG" is displayed.



62-3

Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of the hard disk (read/write). (All areas check)
Section	MFP controller (HDD)
Item	Operation

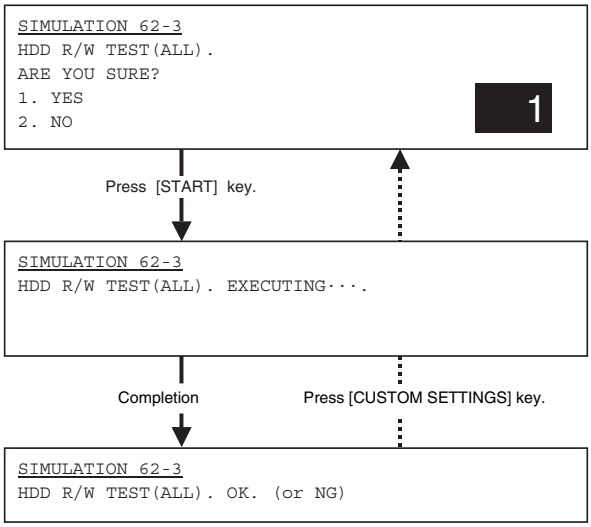
Operation/Procedure

1) Select YES/NO of hard disk read/write check.

1	YES	Execution
2	NO	Cancel

2) Press [START] key.

During testing, "EXECUTING" is displayed. When test is completed normally, "OK" is displayed. If not, "NG" is displayed.



62-6

Purpose	Operation test/Check
Function (Purpose)	Used to check the operations of the hard disk. (The self diag operation of the SMART function is executed.)
Section	MFP controller (HDD)
Item	Clear

Operation/Procedure

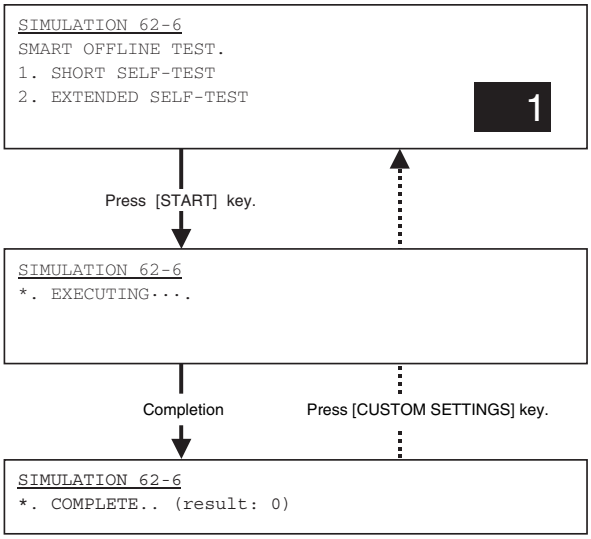
1) Select the number corresponding to the self diag check mode.

1	SHORT SELF-TEST	Partial test
2	EXTENDED SELF-TEST	All areas test

2) Press [START] key.

During the self diag operation, "EXECUTING" is displayed.

If the self diag is completed normally, "0" is displayed. If not, any value but 0 is displayed.



* = SHORT SELF-TEST, EXTENDED SELF-TEST

62-7

Purpose	Operation test/Check
Function (Purpose)	Used to check the operations of the hard disk. (The result of the self diag operation of the SMART function is printed out.)
Section	MFP controller (HDD)
Item	Clear

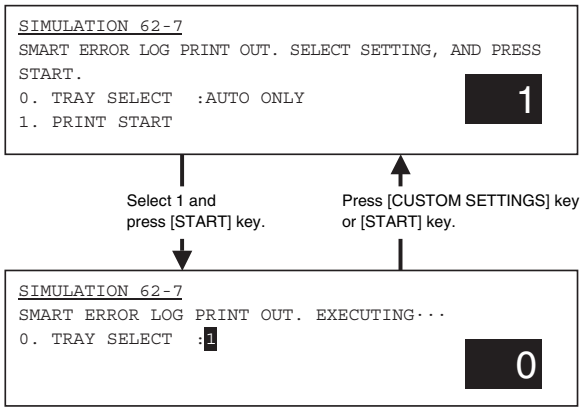
Operation/Procedure

1) Enter 1 with 10-key.

0	TRAY SELECT	Tray select auto only (Selection inhibited)
1	PRINT START	Print start

2) Press [START] key.

The result of the hard disk operation check (the self diag operation of the SMART function) is printed out.



62-8

Purpose	Data clear
Function (Purpose)	Used to format the hard disk (the system area excluded).
Section	MFP controller (HDD)
Item	Clear

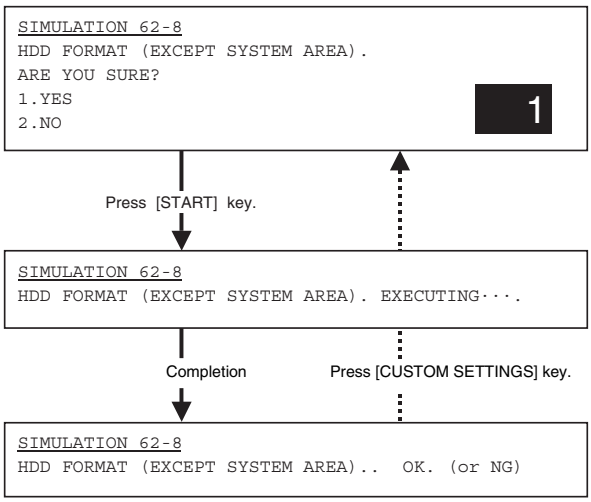
Operation/Procedure

1) Select YES/NO of hard disk (the system area excluded) format.

1	YES	Execution
2	NO	Cancel

2) Press [START] key.

During formatting, "EXECUTING" is displayed. When formatting is completed normally, "OK" is displayed. If not, "NG" is displayed.



62-10

Purpose	Data clear
Function (Purpose)	Used to delete a job complete list (also to delete job log data)
Section	MFP controller (HDD)
Item	Clear

Operation/Procedure

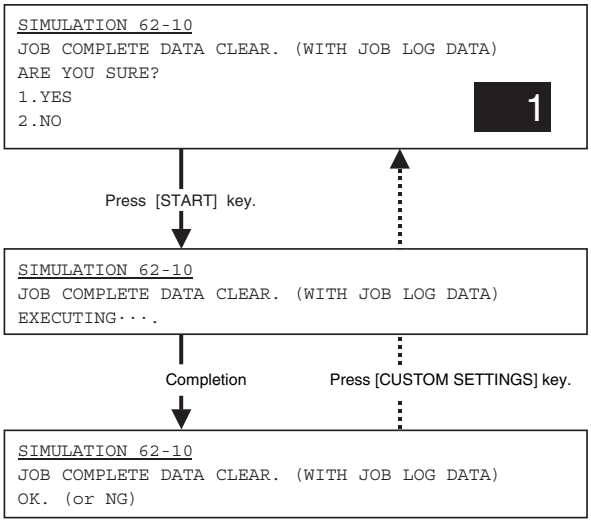
1) Select YES/NO of deleting the job complete list.

1	YES	Execution
2	NO	Cancel

2) Press [START] key.

During formatting, "EXECUTING" is displayed. When formatting is completed normally, "OK" is displayed. If not, "NG" is displayed.

NOTE: When executed, this function also deletes the complete queues of E-MAIL, FAX and IFAX, reservation data associated with the image send function, bulletin board data, and confidential data.



62-11

Purpose	Data clear
Function (Purpose)	Used to delete document filing data. (The management area (standard folder, user folder) is cleared.)
Section	MFP controller (HDD)
Item	Clear

Operation/Procedure

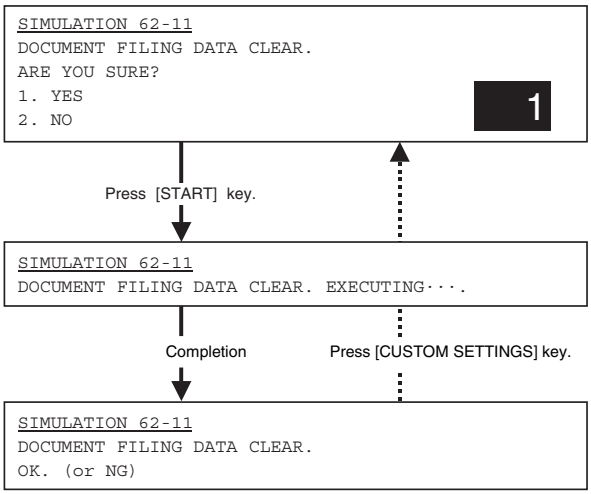
1) Select YES/NO of deleting the document filing data.

1	YES	Execution
2	NO	Cancel

2) Press [START] key.

During formatting, "EXECUTING" is displayed. When formatting is completed normally, "OK" is displayed. If not, "NG" is displayed.

NOTE: When executed, this function internally executes the same function as SIM66-10;deleting reservation data, bulletin board data, and confidential data.



63

63-1

Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the result of shading correction. (The shading correction data are displayed.)
Section	Optical (Image scanning)
Item	Operation

Operation/Procedure

CCD data	
Values	Description
ODD GAIN	Od pixel gain adjustment value
EVEN GAIN	Even pixel gain adjustment value
ODD MAX	Od pixel MAX
ODD MIN	Od pixel MIN
ODD AVE	Od pixel average
EVEN MAX	Even pixel MAX
EVEN MIN	Even pixel MIN
EVEN AVE	Even pixel average
ODD OFFSET	Black offset
EVEN OFFSET	Even offset
ODD DEV	Odd standard deviation
EVEN DEV	Even standard deviation
CIS data : Only when DSPF installed	
Values	Description
GAIN	Gain adjustment value
MAX	Pixel MAX
MIN	Pixel MIN
AVE	Pixel average
OFFSET	Black offset
DEV	Standard deviation

```
SIMULATION 63-1
SHADING DATA DISPLAY.
(CCD)
ODD GAIN:  128
EVEN GAIN: 128  OFFSET: 126  MAX.: 128
MIN.:      128  AVE.:   128

(CIS)
GAIN: 128  OFFSET: 128  MAX.: 128
MIN.: 128  AVE.:   128  DEV.: 128
```

63-2

Purpose	Adjustment
Function (Purpose)	Used to execute shading.
Section	Optical (Image scanning)
Item	Operation

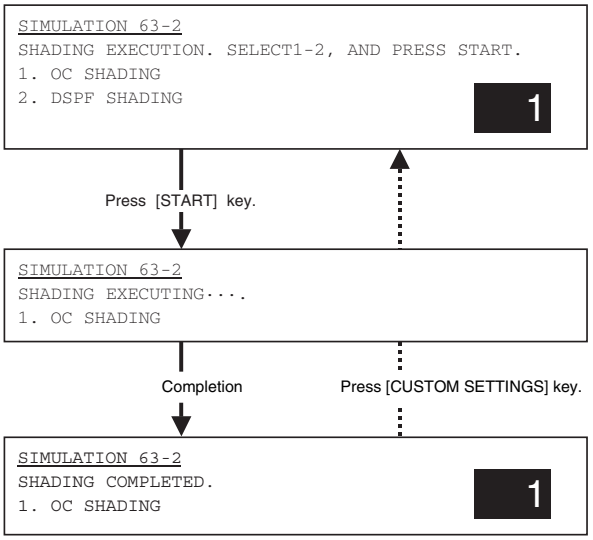
Operation/Procedure

1) Enter the number corresponding to the shading mode to be executed.

1	OC SHADING	OC analog level correction and shading correction (Document table mode)
2	DSPF SHADING	DSPF analog level correction and shading correction

2) Press [START] key.

During execution, "EXECUTING" is displayed. When execution is completed normally, "COMPLETED" is displayed.



63-7

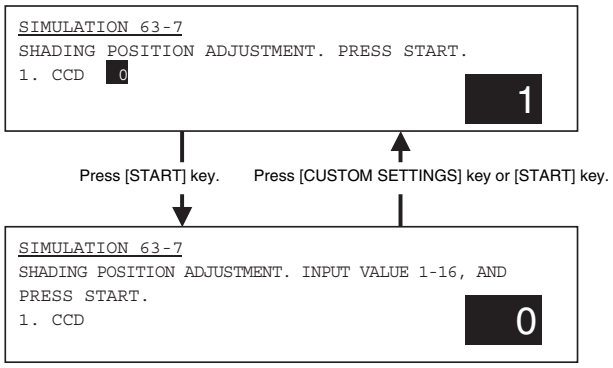
Purpose	Adjustment
Function (Purpose)	Used to adjust the white plate scan start position for shading. (Document table mode)
Section	Laser (Exposure)
Item	Operation

Operation/Procedure

1) Enter 1 with 10-key.
2) Press [START] key.
3) Enter the adjustment value with 10-key.
4) Press [START] key.

When a shading error occurs, this adjustment value is changed.

Item			Set range	Default
1	CCD	CCD scan	1 - 16	6



64

64-1

Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of the printer section (self-print operation), (The print pattern, the paper feed mode, the print mode, the print quantity, and the density can be optionally set.)
Section	
Item	Operation

Operation/Procedure

(Various print patterns output) (Table 1)

1) Select PRINT PATTERN with 10-key.
2) Enter the number corresponding to the print pattern to be printed with 10-key.
3) Press [START] key.
4) Select PRINT START with 10-key.
5) Press [START] key.

(Print condition setting in this simulation)

* To select paper (paper feed tray), perform the following procedures.

1) Select TRAY SELECT with 10-key.
2) Press [START] key.
3) Enter the number corresponding to the paper feed tray of the target paper with 10-key.
4) Press [START] key. (The paper feed tray is selected.)

* To adjust the print density, perform the following procedures.

1) Select DENSITY with 10-key.
2) Enter the adjustment value with 10-key.
3) Press [START] key.

* To set the print quantity, perform the following procedures.

1) Select MULTI with 10-key.
2) Enter the print quantity with 10-key.
3) Press [START] key.

* To set the print quality mode, perform the following procedures.

1) Select MODE with 10-key.
2) Enter the number corresponding to the print quality mode with 10-key.
3) Press [START] key.

* To set the print level, perform the following procedures.

1) Select LEVEL with 10-key.
2) Enter the adjustment value with 10-key.
3) Press [START] key.

NOTE: In some print patterns, changing the level may not change the picture quality.

* To set duplex/simplex print, perform the following procedures.

1) Select DUPLEX with 10-key.
2) Enter the number corresponding to the operation mode with 10-key.
3) Press [START] key.

(Table 1)

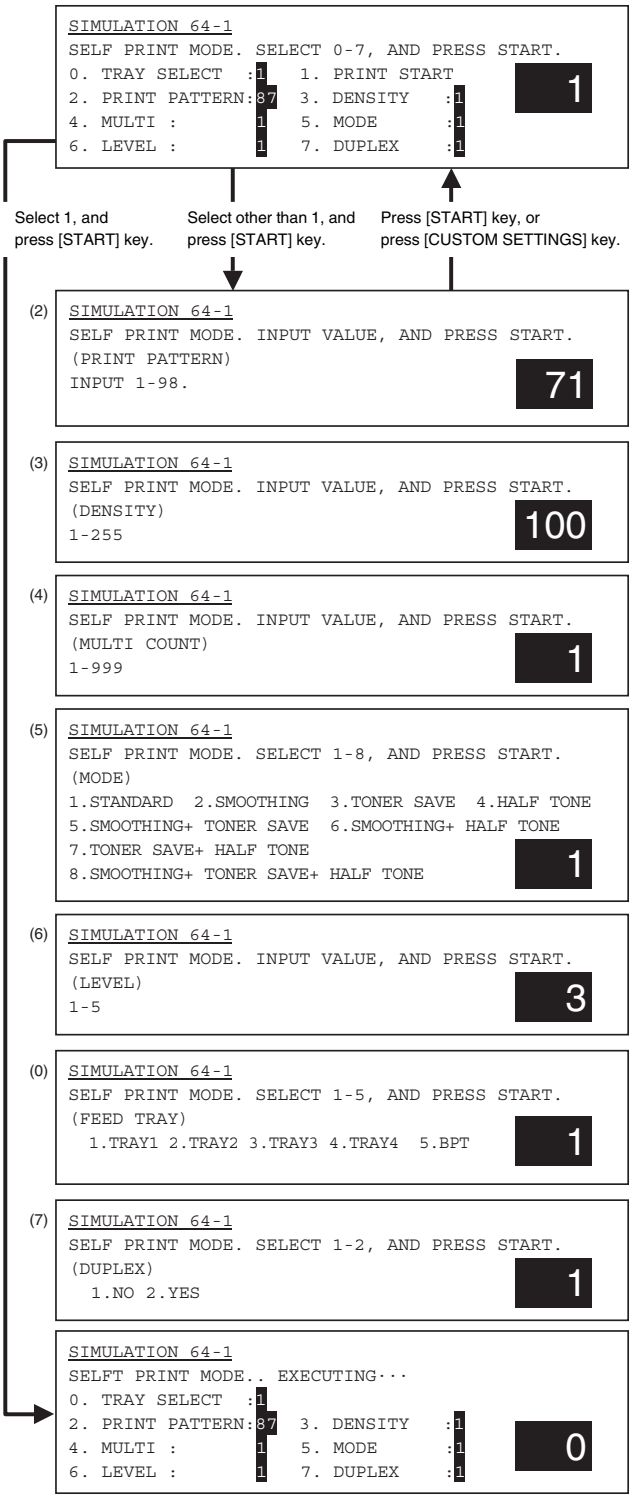
0	TRAY SELECT 1. TRAY1 2. TRAY2 3. TRAY3 4. TRAY4 5. BPT	Paper feed tray 1: Tray 1 2: Tray 2 3: Tray 3 4: Tray 4 5: Manual feed
1	PRINT START	Print execution (Printing of the set data is executed.)
2	PRINT PATTERN	Print pattern (Note 1)
3	DENSITY	Graphic density (Valid only when No. 79, 80 or 84 is selected.)
4	MULTI	Print quantity
5	MODE 1. STANDARD 2. SMOOTHING 3. TONER SAVE 4. HALF TONE 5. SMOOTHING + TONER SAVE 6. SMOOTHING + HALF TONE 7. TONER SAVE + HALF TONE 8. SMOOTHING + TONER SAVE + HALF TONE	Print mode 1. Standard 2. Smoothing ON 3. Smoothing ON 3. Toner save ON 4. Half tone ON 5. Smoothing + toner save 6. Smoothing + half tone 7. Toner save + half tone 8. Smoothing + toner save + half tone
6	LEVEL	(Parameter of print image process)
7	DUPLEX 1. NO 2. YES	Duplex 0: NO (Simplex) 1: YES (Duplex)

(Note 1) Print pattern

NO	ENGINE PATTERN	CONTROLLER	PATTERN
1	❍		For off-center adjustment
2	❍		Main scanning direction 1 by 5
3	❍		Main scanning direction 1mm-pitch
4	❍		Main scanning direction 3 by 3
5	❍		Sub scanning direction 1 by 1
6	❍		Sub scanning direction 1 by 5
7	❍		Sub scanning direction 2 by 4
8	❍		Sub scanning direction 3 by 3
9	❍		Right oblique 1 by 2
10	❍		Right oblique 1 by 5
11	❍		Right oblique 2 by 4
12	❍		Right oblique 3 by 3
13	❍		Left oblique 1 by 2
14	❍		Left oblique 1 by 5
15	❍		Left oblique 2 by 4
16	❍		Left oblique 3 by 3
17	❍		Dot 1 by 1
18	❍		Dot 3 by 3
19	❍		Dot
20	❍		Solid black
21	❍		Main scanning direction 1 by 1
22	❍		Main scanning direction 5 by 1
23	❍		Main scanning direction 4 by 2
24	❍		Main scanning direction 3 by 3
25	❍		Sub scanning direction 1 by 1
26	❍		Sub scanning direction 5 by 1
27	❍		Sub scanning direction 4 by 2
28	❍		Sub scanning direction 3 by 3
29	❍		Right oblique 2 by 1
30	❍		Right oblique 5 by 1

NO	ENGINE PATTERN	CONTROLLER	PATTERN
31	❍		Right oblique 4 by 2
32	❍		Right oblique 3 by 3
33	❍		Left oblique 2 by 1
34	❍		Left oblique 5 by 1
35	❍		Left oblique 4 by 2
36	❍		Left oblique 3 by 3
37	❍		Dot 1 by 1
38	❍		Dot 3 by 3
39	❍		Dot
40	❍		Solid white
50		❍	All surface 1 by 1 (Vertical)
51		❍	All surface 1 by 1 (Horizontal)
52		❍	All surface 1 by 2 (Vertical)
53		❍	All surface 1 by 2 (Horizontal)
54		❍	All surface 1 by 3 (Vertical)
55		❍	All surface 1 by 3 (Horizontal)
56		❍	All surface 1 by 4 (Vertical)
57		❍	All surface 1 by 4 (Horizontal)
58		❍	All surface 1 by 5 (Vertical)
59		❍	All surface 1 by 5 (Horizontal)
60		❍	All surface 2 by 2 (Vertical)
61		❍	All surface 2 by 2 (Horizontal)
62		❍	All surface 2 by 3 (Vertical)
63		❍	All surface 2 by 3 (Horizontal)
64		❍	All background
65		❍	Special pattern
66		❑	For every other 1 block width 128 pixels/ 32 gradations
67		❑	For every other 1 block width 128 pixels/ 16 gradations
68		❑	For every other 1 block width 128 pixels/ 8 gradations
69		❍	1-dot pattern
70		❍	Print adjustment pattern with scale (Vertical)
71		❍	Grid pattern
72		❍	Slant line 45 degrees
73		❍	Slant line 26.6 degrees
74		❍	Slant line 63.4 degrees
75		❍	ID/BG pattern
76		❍	Dot pattern 12.5%
77		❍	Dot pattern 28%
78		❍	Dot pattern 50%
79		❑	All surface effort diffusion background
80		❍	All surface dither process background
81		❍	For every other 1 block width 128 pixels/ 32 gradations
82		❍	For every other 1 block width 128 pixels/ 16 gradations
83		❍	For every other 1 block width 128 pixels/ 8 gradations
84		❍	Memory check pattern
85		❍	Cleaning check pattern
86		❍	Offset check pattern
87		❍	Test B image (For aging)
88		❍	6% printer chart
89		❍	5% printer chart
90			Toner quantity measuring chart
91			Radiation chart
98			Data printing

❑: Error diffusion process



65

65-1

Purpose	Adjustment
Function (Purpose)	Used to adjust the touch panel (LCD display section) detection position.
Section	Operation (Display/Operation key)
Item	

Operation/Procedure

Touch the four cross marks (+) sequentially. The coordinates of pressed positions are set.

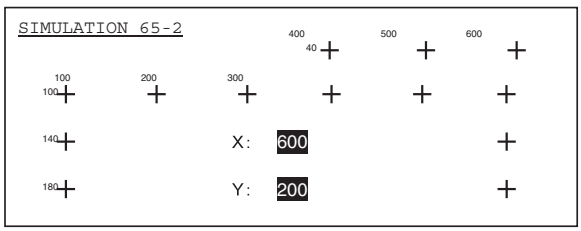
When the coordinates setting is completed normally, the display turns gray. When all the four points are set, the display returns to the normal state.

65-2

Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the result of the touch panel (LCD display) detection position adjustment. (The coordinates are displayed.)
Section	Operation (Display/Operation key)
Item	

Operation/Procedure

When the touch panel is touched, the X and Y coordinate values of the touched point and the coordinate values of the specified point are displayed. The coordinate values set with SIM 65-1 are used as the reference.



66

66-1

Purpose	Setting
Function (Purpose)	Used to change and check the FAX soft switch functions. (Used to change and check the functions provided for the FAX soft switches.) (Only when FAX is installed)
Section	FAX
Item	

Operation/Procedure

Setting of soft switches other than SW1 can be changed and checked.

1) Enter the soft switch number to be checked or changed with 10-key.

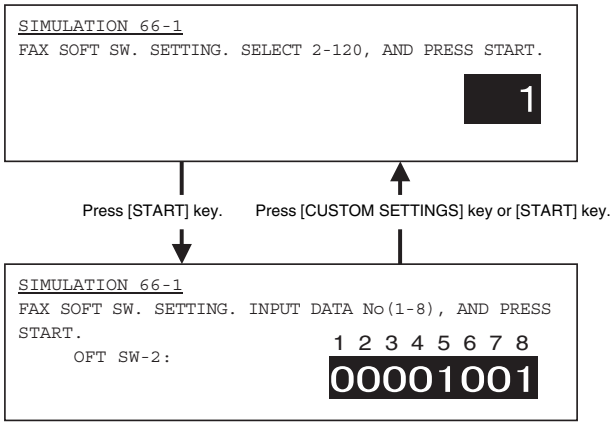
   The current set state is displayed.

2) Enter the number corresponding to the bit to be changed with 10-key.

   (Example) When the bit of 5 is to be changed, enter 5.

   The set value of 1/0 is alternatively changed every time when the target key is pressed.

3) After completion of setting of all the bits, press [START] key.



66-2

Purpose	Data clear
Function (Purpose)	Used to clear the FAX soft switch function data and to set to the default. (Excluding the adjustment values.) (Only when FAX is installed)
Section	FAX
Item	Data

Operation/Procedure

1) Set the destination code with 10-key.

Japan	0 0 0 0 0 0 0 0	Finland	0 0 1 1 1 1 0 0
U.S.A.	1 0 1 1 0 1 0 1	Norway	1 0 0 0 0 0 1 0
Australia	0 0 0 0 1 0 0 1	Denmark	0 0 1 1 0 0 0 1
U.K.	1 0 1 1 0 1 0 0	Netherlands	0 1 1 1 1 0 1 1
France	0 0 1 1 1 1 0 1	Italy	0 1 0 1 1 0 0 1
Germany	0 0 0 0 0 1 0 0	Switzerland	1 0 1 0 0 1 1 0
Sweden	1 0 1 0 0 1 0 1	Austria	0 0 0 0 1 0 1 0
Newzealand	0 1 1 1 1 1 1 0	Indonesia	0 1 0 1 0 1 0 0
China	0 0 1 0 0 1 1 0	Thailand	1 0 0 1 0 0 1
Singapore	1 0 0 1 1 1 0 0	Malaysia	0 1 1 0 1 1 0 0
TW	1 1 1 1 1 1 1 0	India	0 1 0 1 0 0 1 1
Other1	1 1 1 1 1 1 0 1	Philippines	1 0 0 0 1 0 0 1
Other2	1 1 1 1 1 1 0 0	Hongkong	0 1 0 1 0 0 0 0
Ohter3	1 1 1 1 1 0 1 1		

The codes other than the above are recognized as Japan.

2) Press [START] key.

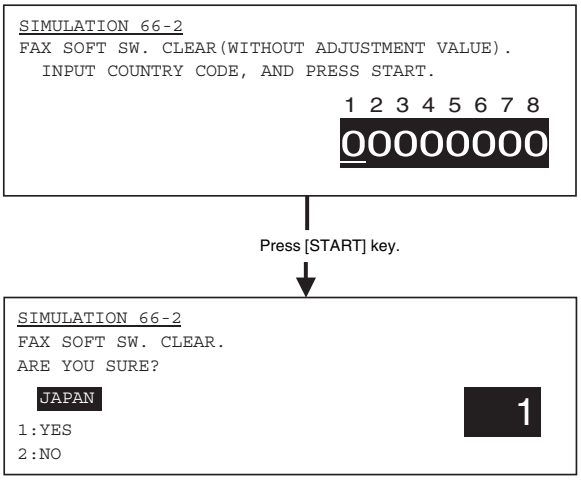
3) The confirmation menu of YES/NO of clear is displayed. Select one.

1	YES	FAX soft SW is cleared.
2	NO	Not cleared.

4) Press [START] key.

The soft switch (except for the adjustment values) is cleared according to the destination selected in procedure 1).

NOTE: When the FAX BOX is not installed, initialization including the adjustment value is performed. (The adjustment value is stored in the FAX BOX.)



66-3

Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of the FAX PWB memory (read/write). (This adjustment is required when the PWB is replaced with a new one.) (Only when FAX is installed)
Section	FAX
Item	Data

Operation/Procedure

1) Enter the number corresponding to the memory to be checked with 10-key.
2) Press [START] key.

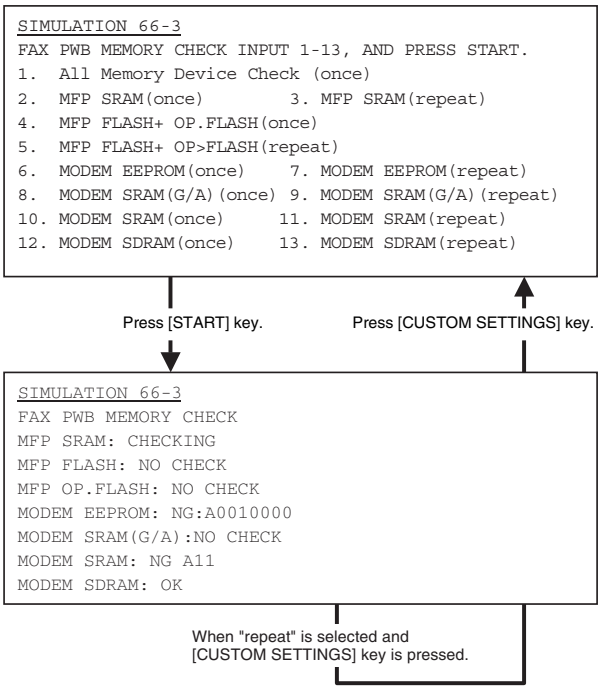
In the case of All, all memories are checked only once.

Check connection wire list	
NO CHECK	Not checked yet.
CHECKING	Checking
OK	Check complete OK
NG	Check complete NG

The error address or the data line is displayed individually.

Target memory of check	
MFP SRAM	SRAM
MFP FLASH	FLASH ROM
MFP OP.FLASH	
MODEM EEPROM	
MODEM SRAM (G/A)	
MODEM SRAM	
MODEM SDRAM	

When "repeat" is selected, the operation is repeated until the result is "NG" or [CUSTOMSETTING" is pressed.



When Check is "once," the display stops at the result display. When [CUSTOM SETTINGS] key is pressed, the display returns to the initial display.

66-4

Purpose	Operation test/Check
Function (Purpose)	Used to check the output operation of data signals in each data output mode of FAX. (Used to check the operation of MODEM.) Send level: Max. (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

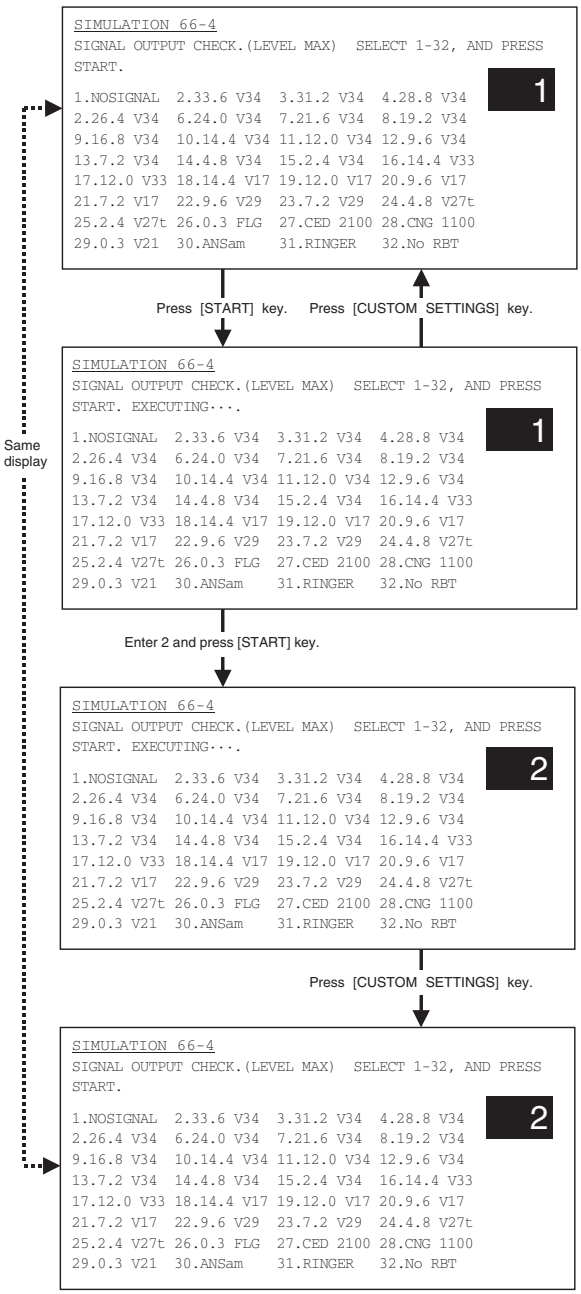
1) Enter the number corresponding to the output mode with 10-key.
2) Press [START] key.

The output is delivered at the max. send level.

1	NOSIGNAL	No signal	17	12.0 V33	12.0 V33
2	33.6 V34	26.4 V34	18	14.4 V17	14.4 V17
3	31.2 V34	31.2 V34	19	12.0 V17	12.0 V17
4	28.8 V34	28.8 V34	20	9.6 V17	9.6 V17
5	26.4 V34	26.4 V34	21	7.2 V17	7.2 V17
6	24.0 V34	24.0 V34	22	9.6 V29	9.6 V29
7	21.6 V34	21.6 V34	23	7.2 V29	7.2 V29
8	19.2 V34	19.2 V34	24	4.8 V27t	4.8 V27t
9	16.8 V34	16.8 V34	25	2.4 V27t	2.4 V27t
10	14.4 V34	14.4 V34	26	0.3 FLG	0.3 FLG
11	12.0 V34	12.0 V34	27	CED 2100	CED 2100
12	9.6 V34	9.6 V34	28	CNG 1100	CNG 1100
13	7.2 V34	7.2 V34	29	0.3 V21	0.3 V21
14	4.8 V34	4.8 V34	30	ANSam	ANSam
15	2.4 V34	2.4 V34	31	RINGER	RINGER
16	14.4 V33	14.4 V33	32	No RBT	No RBT

When [CUSTOM SETTINGS] key is pressed during execution, execution is stopped.

When a number is entered and [START] key is pressed during execution, the kind of signal can be changed.



66-5

Purpose	Operation test/Check
Function (Purpose)	Used to check the output operation of data signals in each data output mode of FAX. (Used to check the operation of MODEM.) An output is sent at the send level set by the soft switch. (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

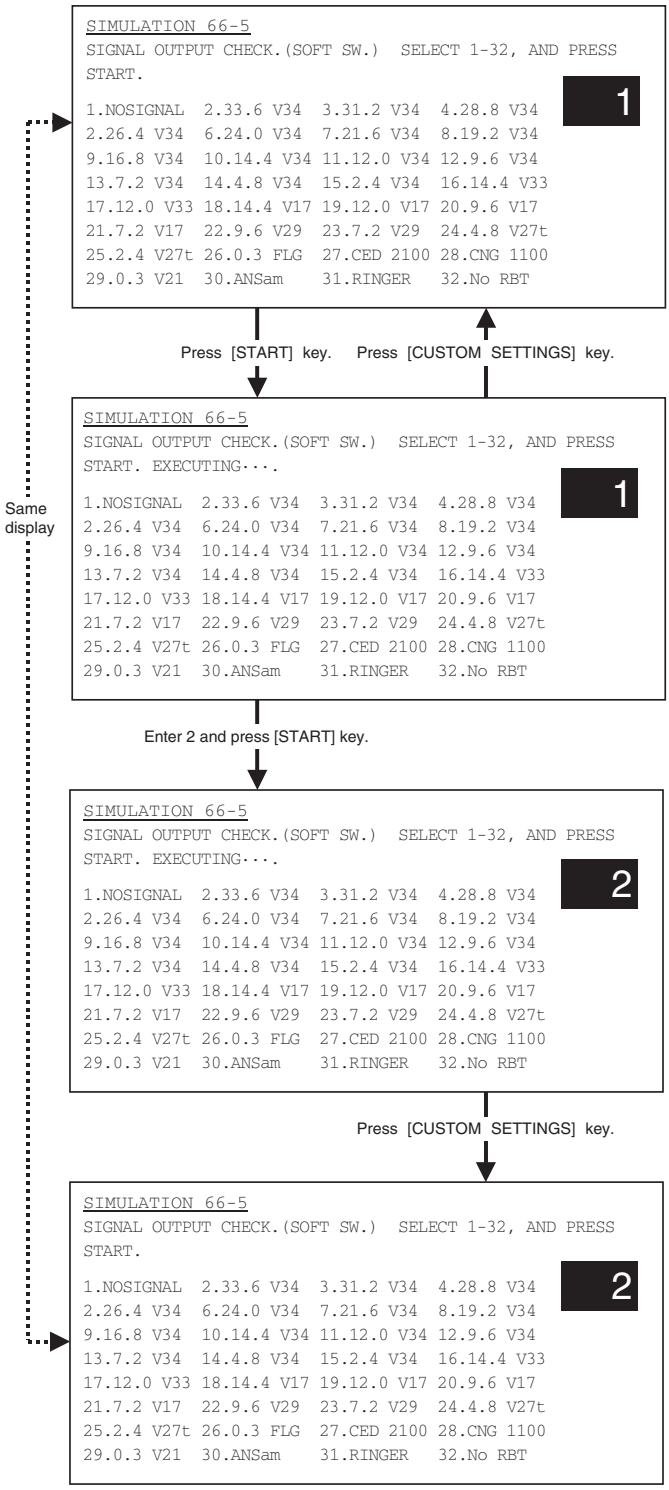
1) Enter the number corresponding to the output mode with 10-key.
2) Press [START] key.

The output is delivered at the send level set with the soft switch.

1	NOSIGNAL	No signal	17	12.0 V33	12.0 V33
2	33.6 V34	26.4 V34	18	14.4 V17	14.4 V17
3	31.2 V34	31.2 V34	19	12.0 V17	12.0 V17
4	28.8 V34	28.8 V34	20	9.6 V17	9.6 V17
5	26.4 V34	26.4 V34	21	7.2 V17	7.2 V17
6	24.0 V34	24.0 V34	22	9.6 V29	9.6 V29
7	21.6 V34	21.6 V34	23	7.2 V29	7.2 V29
8	19.2 V34	19.2 V34	24	4.8 V27t	4.8 V27t
9	16.8 V34	16.8 V34	25	2.4 V27t	2.4 V27t
10	14.4 V34	14.4 V34	26	0.3 FLG	0.3 FLG
11	12.0 V34	12.0 V34	27	CED 2100	CED 2100
12	9.6 V34	9.6 V34	28	CNG 1100	CNG 1100
13	7.2 V34	7.2 V34	29	0.3 V21	0.3 V21
14	4.8 V34	4.8 V34	30	ANSam	ANSam
15	2.4 V34	2.4 V34	31	RINGER	RINGER
16	14.4 V33	14.4 V33	32	No RBT	No RBT

When [CUSTOM SETTINGS] key is pressed during execution, execution is stopped.

When a number is entered and [START] key is pressed during execution, the kind of signal can be changed.



66-6

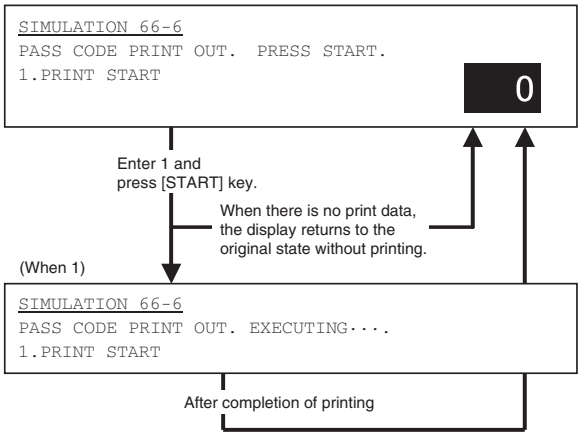
Purpose	User data output/Check (Display/Print)
Function (Purpose)	Used to print the confidential pass code. (Used when the confidential pass code is forgotten.) (Only when FAX is installed)
Section	FAX
Item	Data

Operation/Procedure

1) Enter 1 with 10-key and press [START] key.

1	PRINT START	Print start

The paper is automatically selected with the size saved in the image memory.



66-7

Purpose	User data output/Check (Display/Print)
Function (Purpose)	Used to print the image memory data (memory send/receive). (Only when FAX is installed)
Section	FAX
Item	Data

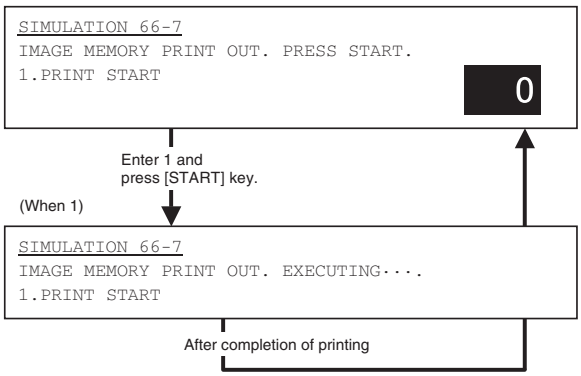
Operation/Procedure

All image data stored in the image memory are printed.

∗ The confidential receive data are also printed.

1	PRINT START	Print start

The paper is automatically selected with the size saved in the image memory.



66-8

Purpose	Operation test/Check
Function (Purpose)	Used to check the output operation of various sound signals of FAX. (Used to check the operation of the sound output IC.) Send level: Max. (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

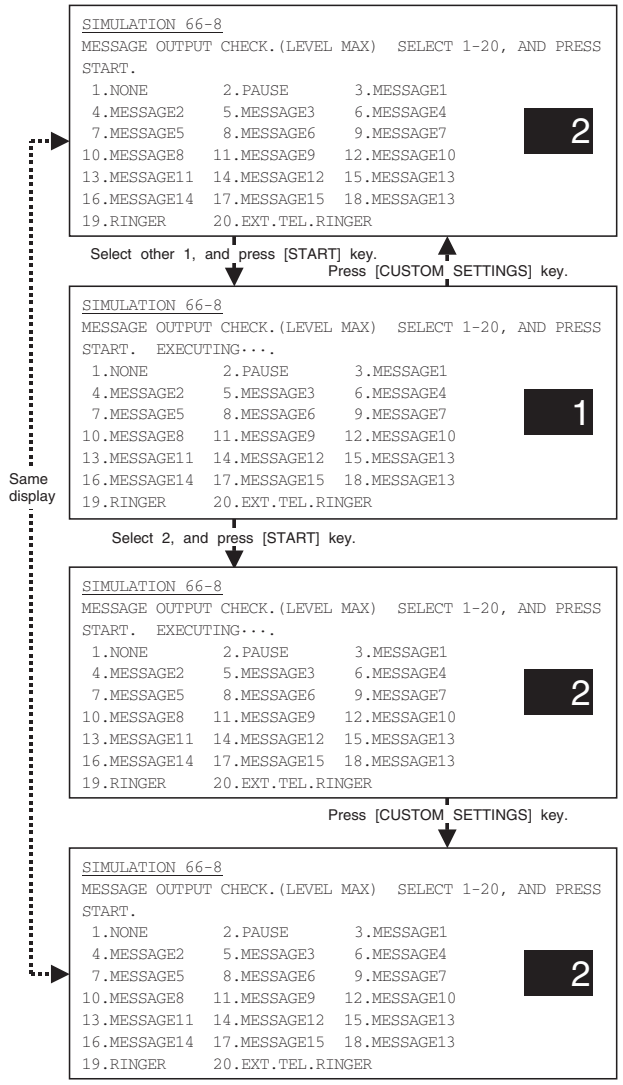
1) Enter the number corresponding to the output mode with 10-key.
2) Press [START] key.

The output is delivered at the max. level.

1	NONE	Mute	11	MESSAGE 9	Message 9
2	PAUSE	Pause sound	12	MESSAGE 10	Message 10
3	MESSAGE1	Message 1	13	MESSAGE 11	Message 11
4	MESSAGE2	Message 2	14	MESSAGE 12	Message 12
5	MESSAGE3	Message 3	15	MESSAGE 13	Message 13
6	MESSAGE4	Message 4	16	MESSAGE 14	Message 14
7	MESSAGE5	Message 5	17	MESSAGE 15	Message 15
8	MESSAGE6	Message 6	18	ALARM	Alarm
9	MESSAGE7	Message 7	19	RINGER	Call ring
10	MESSAGE8	Message 8	20	EXT.TEL.RINGER	External TEL ring

When the number is entered during execution, the kind of signal can be changed.

When [START] key is pressed, the voice message is sent. When [CUSTOM SETTINGS] key is pressed, it is stopped.



66-9

Purpose	Operation test/Check
Function (Purpose)	Used to check the output operation of various sound signals of FAX. (Used to check the operation of the sound output IC.) An output is sent at the send level set by the soft switch. (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

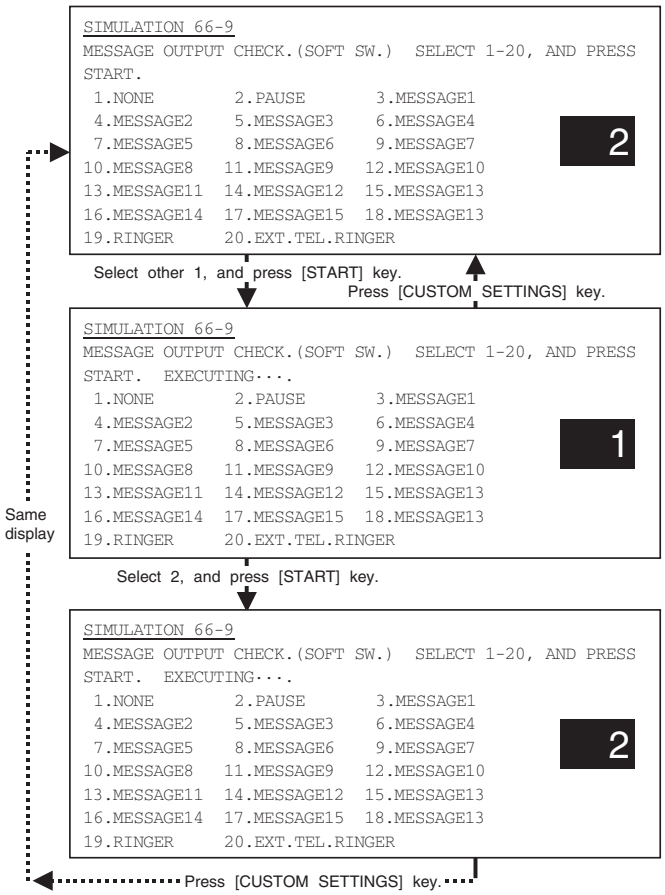
1) Enter the number corresponding to the output mode with 10-key.
2) Press [START] key.

The output is delivered at the send level set with the soft SW.

1	NONE	Mute	11	MESSAGE 9	MESSAGE 9
2	PAUSE	Pause sound	12	MESSAGE10	MESSAGE 10
3	MESSAGE1	MESSAGE 1	13	MESSAGE11	MESSAGE 11
4	MESSAGE2	MESSAGE 2	14	MESSAGE12	MESSAGE 12
5	MESSAGE3	MESSAGE 3	15	MESSAGE13	MESSAGE 13
6	MESSAGE4	MESSAGE 4	16	MESSAGE14	MESSAGE 14
7	MESSAGE5	MESSAGE 5	17	MESSAGE15	MESSAGE 15
8	MESSAGE6	MESSAGE 6	18	ALARM	Alarm
9	MESSAGE7	MESSAGE 7	19	RINGER	Call ring
10	MESSAGE8	MESSAGE 8	20	EXT.TEL.RINGER	External TEL ring

When the number is entered during execution, the kind of signal can be changed.

When [START] key is pressed, the voice message is sent. When [CUSTOM SETTINGS] key is pressed, it is stopped.



66-10

Purpose	User data output/Check (Display/Print)
Function (Purpose)	Used to clear all data of the image memory (memory send/receive). The confidential data are also cleared at the same time. (Only when FAX is installed)
Section	FAX
Item	Data

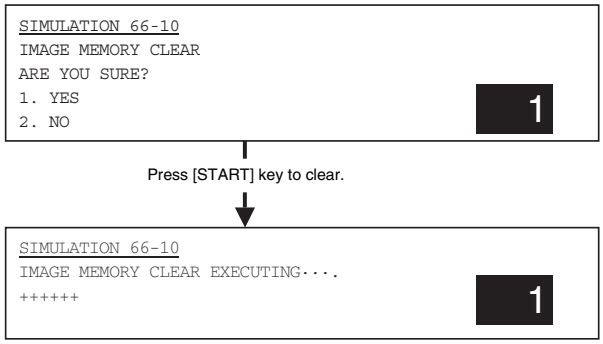
Operation/Procedure

1) Select YES/NO of image memory clear with 10-key.

1	YES	Image memory clear is executed.
2	NO	Clear is not executed.

2) Press [START] key.

The SRAM image data management table and image data in the Flash ROM area and HD (except for filing images) are cleared.



The processing status of image memory clear is displayed with "+."

66-11

Purpose	Operation test/Check
Function (Purpose)	Used to check the output operation of FAX G3 mode 300bps. (Used to check the operation of MODEM.) Send level: Max. (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

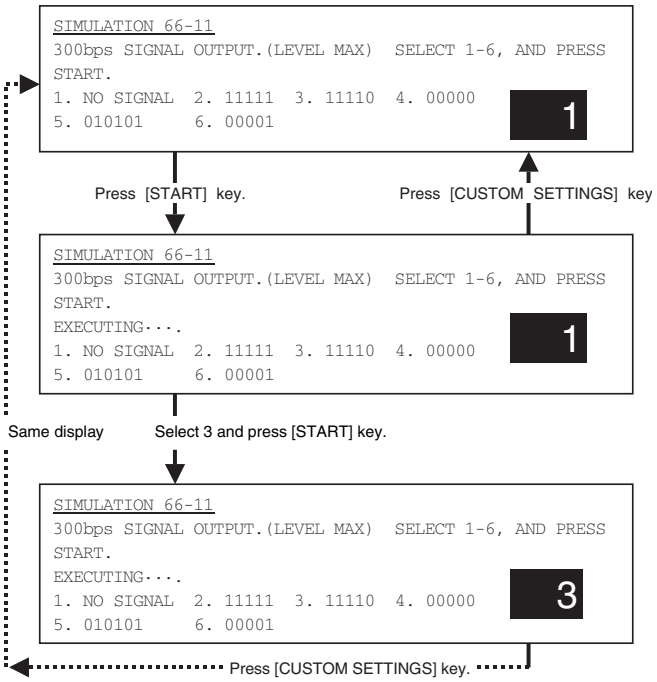
1) Select the number corresponding to the output mode with 10-key.
2) Press [START] key.

The signal is sent in the max. send level.

1	NO SIGNAL	No signal	4	00000	00000
2	11111	11111	5	010101	010101
3	11110	11110	6	00001	00001

When the number is entered during execution, the kind of signal can be changed.

When [CUSTOM SETTINGS] key is pressed during execution, the operation is stopped.



66-12

Purpose	Operation test/Check
Function (Purpose)	Used to check the output operation of FAX G3 mode 300bps. (Used to check the operation of MODEM.) An output is send at the send level set by the soft switch. (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

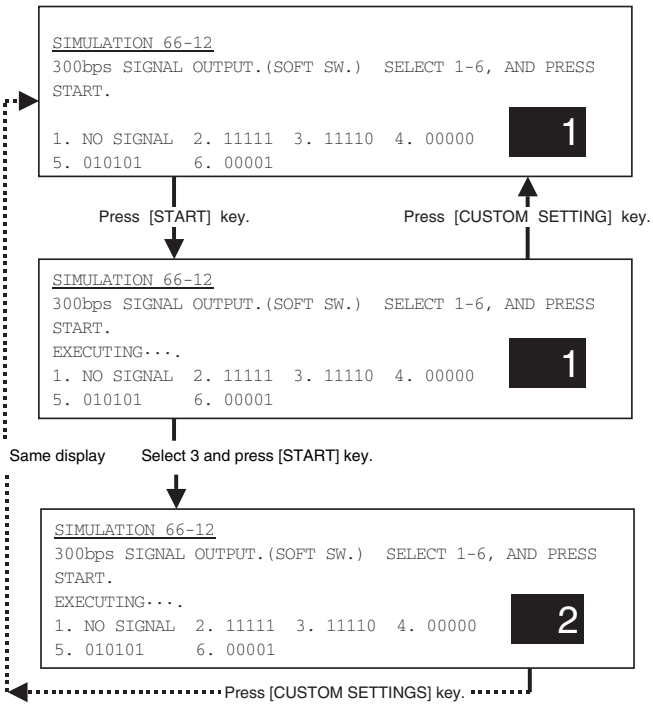
1) Select the number corresponding to the output mode with 10-key.
2) Press [START] key.

The signal is sent in the send level set with the soft switch.

1	NO SIGNAL	No signal	4	00000	00000
2	11111	11111	5	010101	010101
3	11110	11110	6	00001	00001

When the number is entered during execution, the kind of signal can be changed.

When [CUSTOM SETTINGS] key is pressed during execution, the operation is stopped.



66-13

Purpose	Setting
Function (Purpose)	Used to enter (set) the number of FAX dial signal output test. (The dial number set by this simulation is outputted when the dial signal output test is made by SIM 66-14 - 16.) (Only when FAX is installed)
Section	FAX
Item	Data

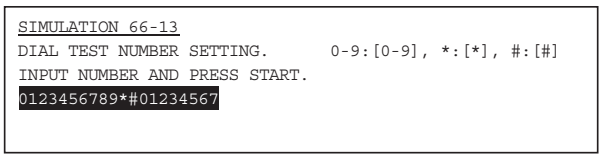
Operation/Procedure

1) Enter the dial number with 10-key.

   Use 10-key, [*] key, and [#] key to enter the number. The upper limit is 20 digits.

   When [CLEAR] key is pressed, the mode returns to the initial state.

2) Press [START] key.



66-14

Purpose	Setting/Operation test/Check
Function (Purpose)	Used to set the make time in the FAX pulse dial mode (10pps) and to test the dial signal output. (The dial number signal set by SIM 66-13 is outputted.) Used to check troubles in dialing and to check the operation. (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

1) Enter 0 with 10-key.
2) Press [START] key.

The dial signal is outputted.

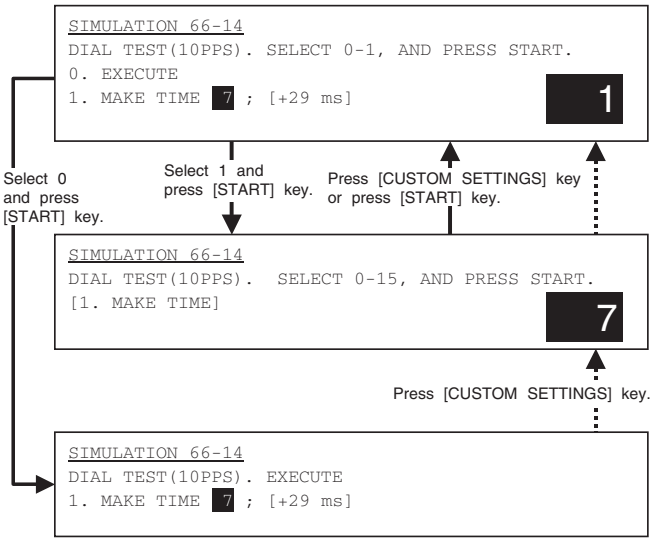
(Dial pulse make time setting)

1) Enter 1 with 10-key.
2) Press [START] key.
3) Enter the set value with 10-key.
4) Press [START] key.

0	EXECUTE	Execute
1	MAKE TIME	Dial pulse make time setting (0 - 15)

The dial signal is sent with the set value + 29ms.

When [CUSTOM SETTINGS] key is pressed during execution, the operation is stopped.



66-15

Purpose	Setting/Operation test/Check
Function (Purpose)	Used to set the make time in the FAX pulse dial mode (20pps) and to test the dial signal output. (The dial number signal set by SIM 66-13 is outputted.) Used to check troubles in dialing and to check the operation. (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

1) Enter 0 with 10-key.
2) Press [START] key.

The dial signal is outputted.

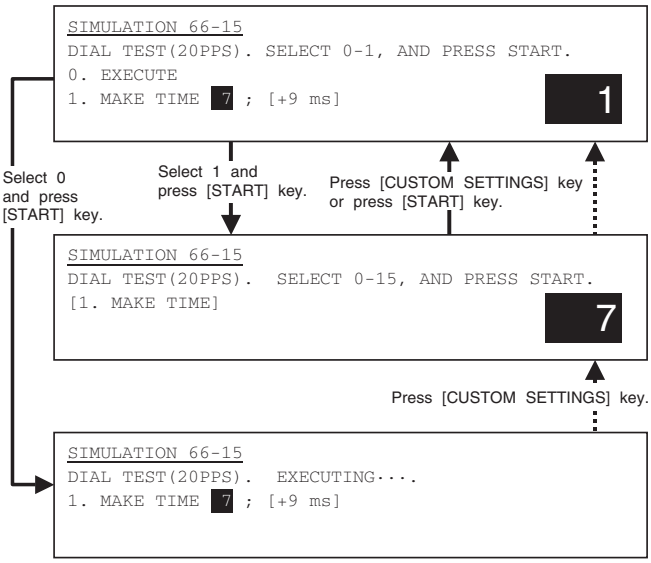
(Dial pulse make time setting)

1) Enter 1 with 10-key.
2) Press [START] key.
3) Enter the set value with 10-key.
4) Press [START] key.

0	EXECUTE	Execute
1	MAKE TIME	Dial pulse make time setting (0 - 15)

The dial signal is sent with the set value + 9ms.

When [CUSTOM SETTINGS] key is pressed during execution, the operation is stopped.



66-16

Purpose	Setting/Operation test/Check
Function (Purpose)	Used to check the dial signal (DTMF) output in the FAX tone dial mode. (The dial number signal set by SIM 66-13 is outputted.) The send level can be set to an optional level. Used to check troubles in dialing and to check the operation. (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

1) Enter 0 with 10-key.
2) Press [START] key.

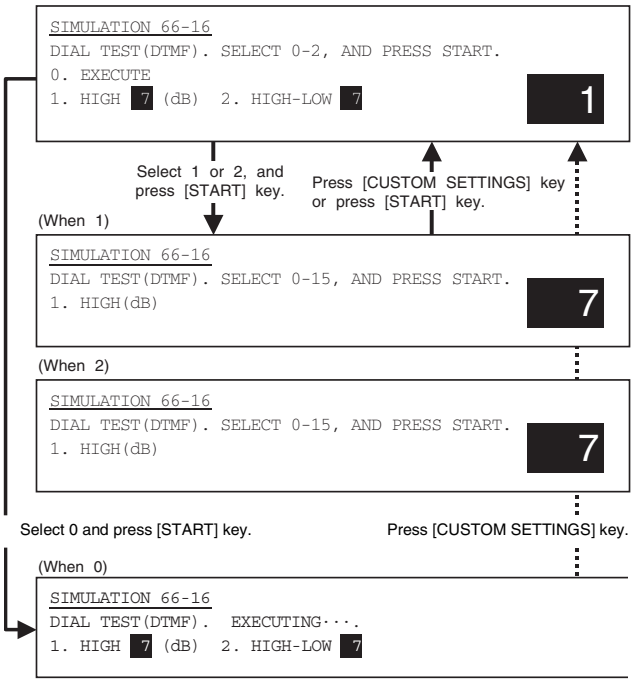
The dial signal is outputted.

(Dial pulse make time setting)

1) Enter 1 or 2 with 10-key.
2) Press [START] key.
3) Enter the set value with 10-key.
4) Press [START] key.

Item			Set range
0	EXECUTE	Execution	
1	HIGH	High group level	0 - 15dB
2	HIGH LOW	High group - Low group	0 - 15

When [CUSTOM SETTINGS] key is pressed during execution, the operation is stopped.



66-17

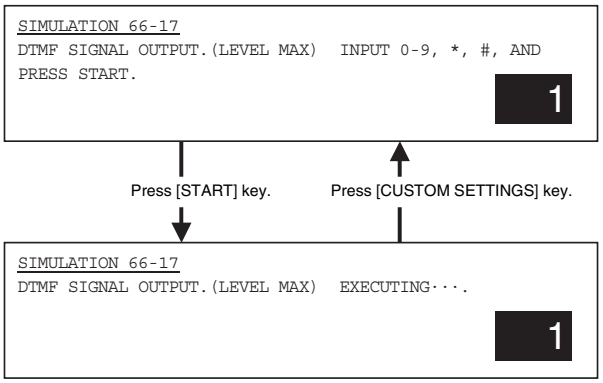
Purpose	Setting
Function (Purpose)	Used to check the dial signal (DTMF) output in the FAX tone dial mode. Send level: Max. Used to check the operation. (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

1) Enter the DTMF signal (1 - 9, 0, *, #) to be sent with 10-key.
2) Press [START] key.

The signal is sent in the max. send level.

When [CUSTOM SETTINGS] key is pressed during execution, the operation is stopped.



66-18

Purpose	Setting
Function (Purpose)	Used to check the dial signal (DTMF) output in the FAX tone dial mode. An output is sent at the send level set by the soft switch. Used to check the operation. (Only when FAX is installed)
Section	FAX
Item	Operation

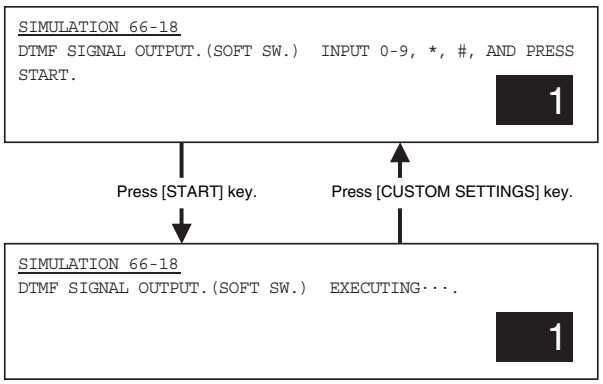
Operation/Procedure

1) Enter the DTMF signal (1 - 9, 0, *, #) to be sent with 10-key.

2) Press [START] key.

The signal is sent in the send level set with the soft SW.

When [CUSTOM SETTINGS] key is pressed during execution, the operation is stopped.



66-19

Purpose	Data transfer
Function (Purpose)	Used to back-up the HDD data into the Flash memory (optional FAX expansion memory: AR-MM9). (Only when FAX is installed)
Section	FAX
Item	Data

Operation/Procedure

1) Select YES/NO of data transfer (backup).

1	YES	Backup is executed.
2	NO	Backup is not executed.

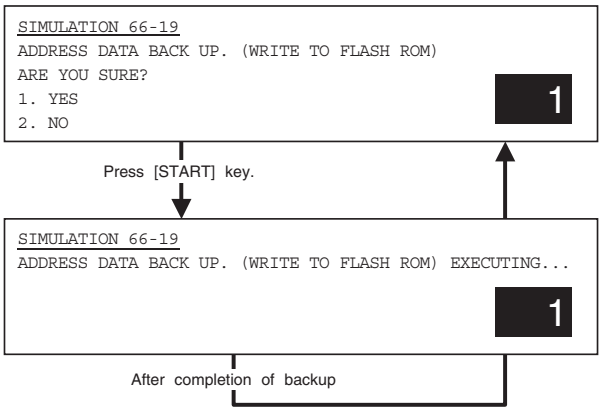
2) Press [START] key.

This function is valid only when the AR-MM9 is installed.

Backup contents

- Address book data (FAX, Mail, Address)
- One-touch dial
- FTP expansion
- Group expansion
- Program
- Use index
- Standard sender
- IFAX sender registration
- FAX sender registration
- Item name
- Fine name
- FAX receive select table
- IFAX receive YES/NO
- Polling allow number
- Memory box
- Sender name
- Soft SW

The other contents are not backed up.



66-20

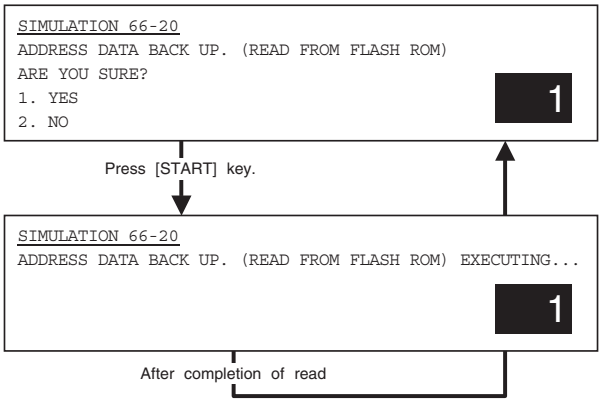
Purpose	Data transfer
Function (Purpose)	Used to read the back-up data by SIM 66-19 to the SRAM/HDD. (Only when FAX is installed)
Section	FAX
Item	Data

Operation/Procedure

1) Select YES/NO of data transfer.

1	YES	Backup is executed.
2	NO	Backup is not executed.

2) Press [START] key.



66-21

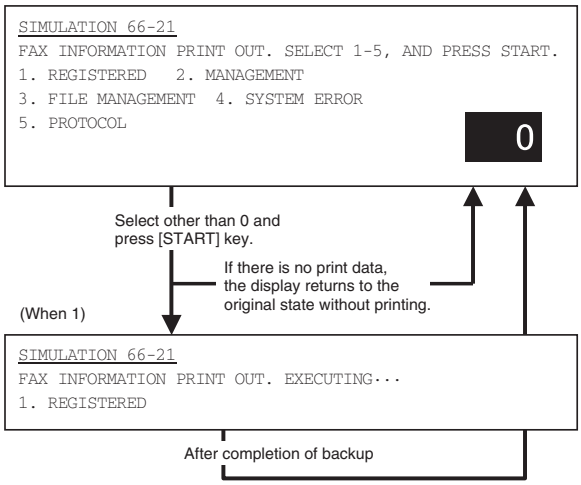
Purpose	Adjustment/Setup/Operation data output/Check (Display/Print)
Function (Purpose)	Used to print information related to FAX (various registrations, communication management, file management, system error protocol). (Only when FAX is installed)
Section	FAX
Item	Data

Operation/Procedure

1) Enter the number corresponding to the information (item) to be printed with 10-key.

2) Press [START] key.

1	REGISTERED	Various registration information
2	MANAGEMENT	Communication management information
3	FILE MANAGEMENT	File management information
4	SYSTEM ERROR	System error information
5	PROTOCOL	Protocol information



66-22

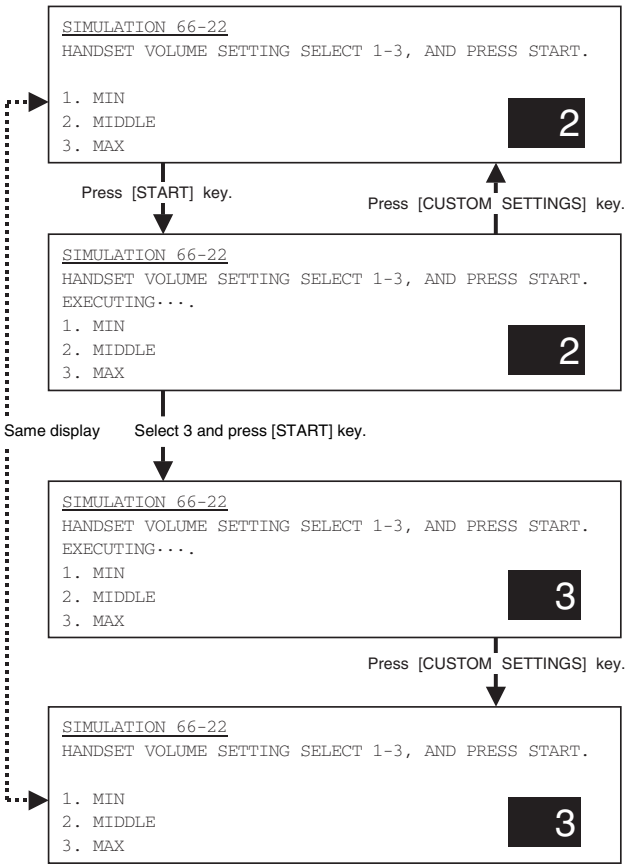
Purpose	Setting
Function (Purpose)	Used to adjust the handset volume. (Only when the FAX is installed.)
Section	FAX
Item	Operation

Operation/Procedure

1) Enter the number corresponding to the volume with 10-key.
2) Press [START] key.

1	MIN	Small
2	MIDDLE	Medium
3	MAX	Large

Selection of 1, 2, and 3 can be made during execution.



66-23

Purpose	Setting
Function (Purpose)	Used to download the FAX program. (Only when FAX is installed) Not used in the market. (For development)
Section	FAX
Item	

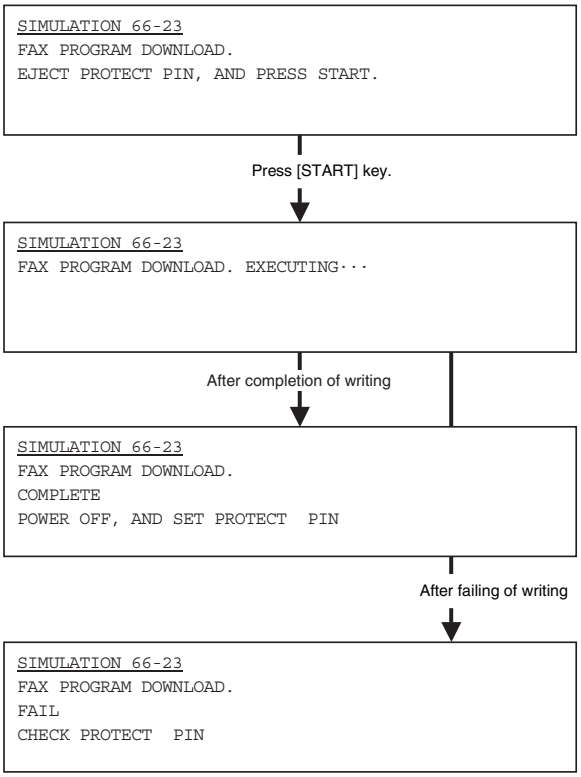
Operation/Procedure

1) Turn OFF the power.
2) Remove the protect pin.
3) Turn ON the power.
4) Enter the SIM 66-23 mode.
5) Press [START] key.

During operation, "EXECUTING" is displayed. When the operation is completed normally, "COMPLETE" is displayed.

If an error occurs, "FAIL" is displayed.

6) Turn OFF the power, and attach the protect pin.



66-24

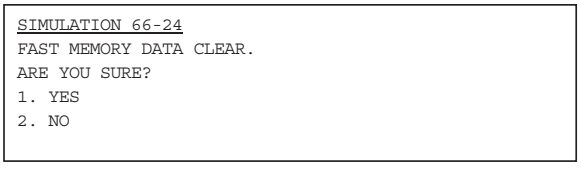
Purpose	Clear
Function (Purpose)	Used to clear the FAST memory data. (Only when FAX is installed)
Section	FAX
Item	Data

Operation/Procedure

1) Select YES/NO of data clear.

1	YES	FAST memory data is cleared.
2	NO	Not cleared.

2) Press [START] key.



66-25

Purpose	Setting
Function (Purpose)	Used to register the FAX number for Modem dial-in. (Only when FAX is installed) Not used in the market. (For development)
Section	FAX
Item	Data

Operation/Procedure

1) Enter the Modem dial-in FAX number (1 - 9, 0, *, #) with 10-key.
2) Press [START] key.

```
SIMULATION 66-25
M-D-IN FAX NUMBER SETTING. 0-9:[0-9],*:[*],#:[#]
INPUT NUMBER AND PRESS START.
0123456789*#01234567
```

66-26

Purpose	Setting
Function (Purpose)	Used to register external telephone numbers for Modem dial-in. (Only when FAX is installed) Not used in the market. (For development)
Section	FAX
Item	Data

Operation/Procedure

1) Enter the Modem dial-in FAX number (1 - 9, 0, *, #) with 10-key.
2) Press [START] key.

```
SIMULATION 66-26
M-D-IN EXTEL NUMBER SETTING. 0-9:[0-9],*:[*],#:[#]
INPUT NUMBER AND PRESS START.
0123456789*#01234567
```

66-27

Purpose	Setting
Function (Purpose)	Used to register the transfer number for voice warp. (Only when FAX is installed) Not used in the market. (For development)
Section	FAX
Item	Data

Operation/Procedure

1) Enter the voice warp transfer number (1 - 9, 0, *, #) with 10-key.
2) Press [START] key.

```
SIMULATION 66-27
V-WP TRANSMIT NUMBER SETTING. 0-9:[0-9],*:[*],#:[#]
INPUT NUMBER AND PRESS START.
0123456789*#01234567
```

66-29

Purpose	Clear
Function (Purpose)	Used to clear data related to an address book (one-touch registration, program registration/ expansion, relay memory box registration, each table content).
Section	FAX, Network scanner
Item	Data

Operation/Procedure

1) Select YES/NO of data clear.

1	YES	Address book data is cleared.
2	NO	Not cleared.

2) Press [START] key.

```
SIMULATION 66-29
ADDRESS DATA CLEAR.
ARE YOU SURE?
1. YES
2. NO                                   1
```

66-30

Purpose	Operation test/Check
Function (Purpose)	Used to check the change in the TEL/LIU status. (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

The TEL/LIU state is displayed.

When the state is changed, it is highlighted.

HS1	Polarity reverse signal
HS2	Polarity reverse signal
RHS	Handset hook SW
EXHS	External telephone hook SW

```
SIMULATION 66-30
TEL/LIU SENSOR CHECK.
HS1   HS2   RHS   EXHS
                                        1
```

66-31

Purpose	Operation test/Check
Function (Purpose)	Used to check the relay operation. (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

1) Enter the number corresponding to the check item with 10-key.
2) Press [START] key.

```
SIMULATION 66-31
TEL/LIU SETTING.
INPUT 0-1, AND PRESS START.
1. MPXA   2. CION   3. MR   4. EC
5. S.     6. CML    7. DP   8.
                          1 2 3 4 5 6 7 8
                          10001100
```

66-32

Purpose	Operation test/Check
Function (Purpose)	Used to check the receive data (fixed data) from the line. (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

When check is completed normally, "OK" is displayed. In case of an error, "NG" is displayed.

(Display message)

CHECKING	Checking
OK	Checking completed (OK)
NG	Checking completed (NG)

```
SIMULATION 66-32
RECEIVED DATA CHECK.
CHECKING···.(OK or NG)
```

66-33

Purpose	Operation test/Check
Function (Purpose)	Used to check the signal (BUSY TONE/CNG/ CED/FNET/DTMF) detection. (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

The detected signal is highlighted.

```
SIMULATION 66-33
SIGNAL DETECT CHECK.
BUSY TONE  CNG   CED   FNET   DTMF
```

66-34

Purpose	Operation test/Check
Function (Purpose)	Used to measure the communication time of test image data. (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

Communication test is performed to measure the time (ms).

Send is made under the following conditions.

Communication means	Memory send
Image quality	Normal text
Density	Light
ECM	ON
Sender record	OFF

```
SIMULATION 66-34
COMMUNICATION TIME DISPLAY.

* * * * * ms
```

66-35

Purpose	Setting
Function (Purpose)	Modem program reloading (Only when FAX is installed) Not used in the market. (For development)
Section	FAX
Item	Data

Operation/Procedure

1) Select YES/NO of Modem program reload.

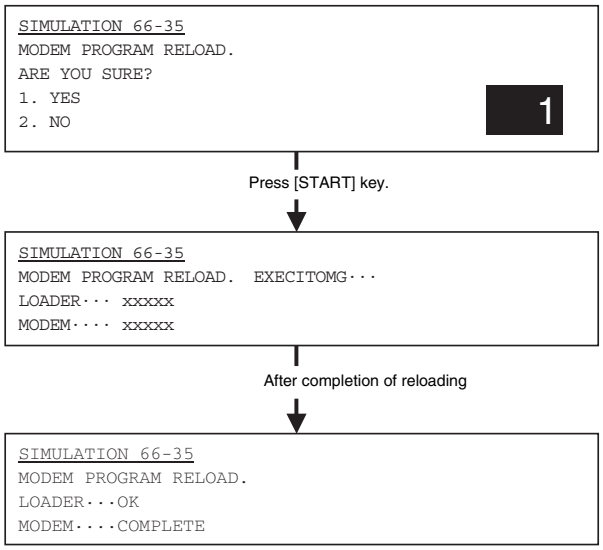
1	YES	Modem block reload is cleared.
2	NO	Not reloaded.

2) Press [START] key.

When reload is completed normally, "OK" is displayed. In case of an error, "CHECK SUM" is displayed.

The result of Modem reload is displayed.

COMPLETE	Reload completed
81	Check sum error
82	Write error
83	Delete error
84	Verify error
NG	Due to loader NG



66-36

Purpose	Operation test/Check
Function (Purpose)	Used to check interface between MFPC controller and MDMC. (Check of the data line or the command line) (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

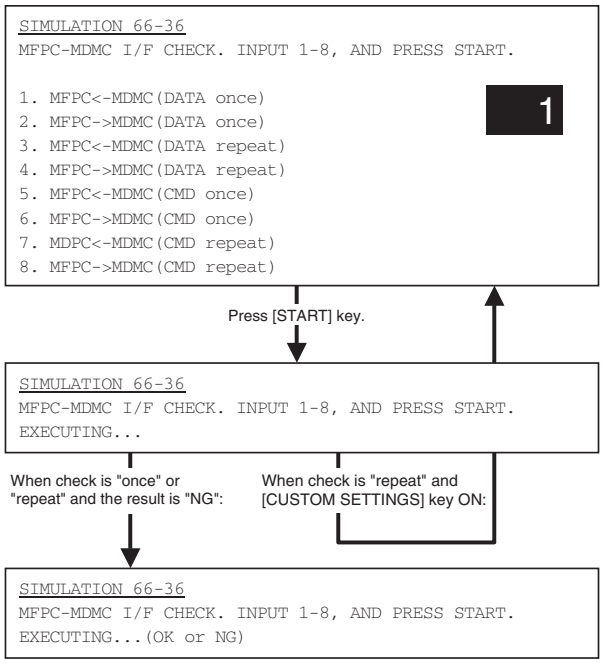
1) Enter the number corresponding to the check mode with 10-key.

1	MFPC ← MDMC	Date line once only
2	MFPC → MDMC	Date line once only
3	MFPC ← MDMC	Data line repeat
4	MFPC → MDMC	Data line repeat
5	MFPC ← MDMC	Command line once only
6	MFPC → MDMC	Command line once only
7	MFPC ← MDMC	Command line repeat
8	MFPC → MDMC	Command line repeat

2) Press [START] key.

When check is completed normally, "OK" is displayed. Incase of an error, "NG" is displayed.

When check is "repeat," the operation is continued until the result is NG or [CUSTOM SETTINGS] key is pressed.

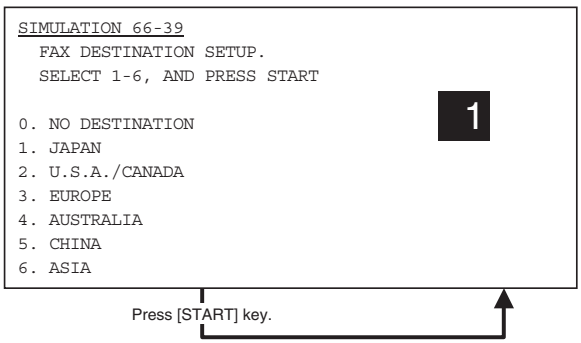


66-39

Purpose	Setting
Function (Purpose)	Used to set the destination specifications. (Only when FAX is installed)
Section	FAX
Item	Specifications Operation

Operation/Procedure

1) Enter the number corresponding to the destination.
2) Press [START] key.



66-42

Purpose	Setting
Function (Purpose)	PIC program rewriting (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

1) The confirmation window is displayed. Select whether rewriting of the program into PIC installed in the FAX VOX is performed or not.

NOTE: Release the write protect notch.

FAX program writing enabled (Jumpers and DIP SW depending on the model.)

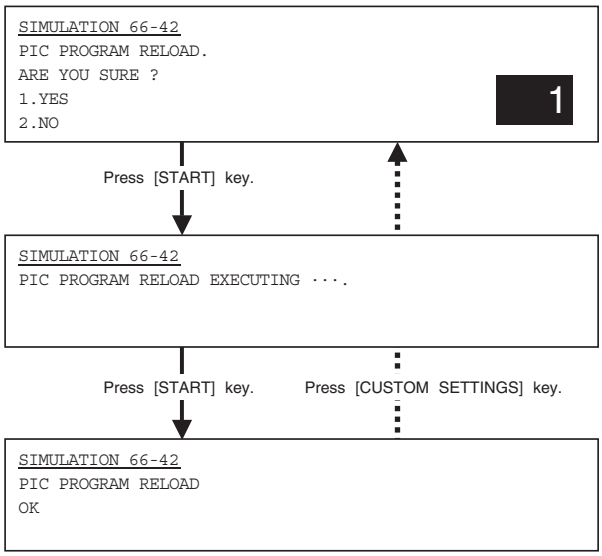
1	YES	Execution
2	NO	Cancel

2) Press [START] key.

When reload is completed normally, "OK" is displayed. In case of an error, "NG" is displayed.

NG cause:

- Write protect is set.
- PIC is not installed.
- Access error to PIC



66-43

Purpose	Setting
Function (Purpose)	PIC adjustment value writing (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

To execute this simulation, FAX program writing must be allowed. (Jumpers and DIP SW depending on the model.) The adjustment values in PIC are changed or rewritten.

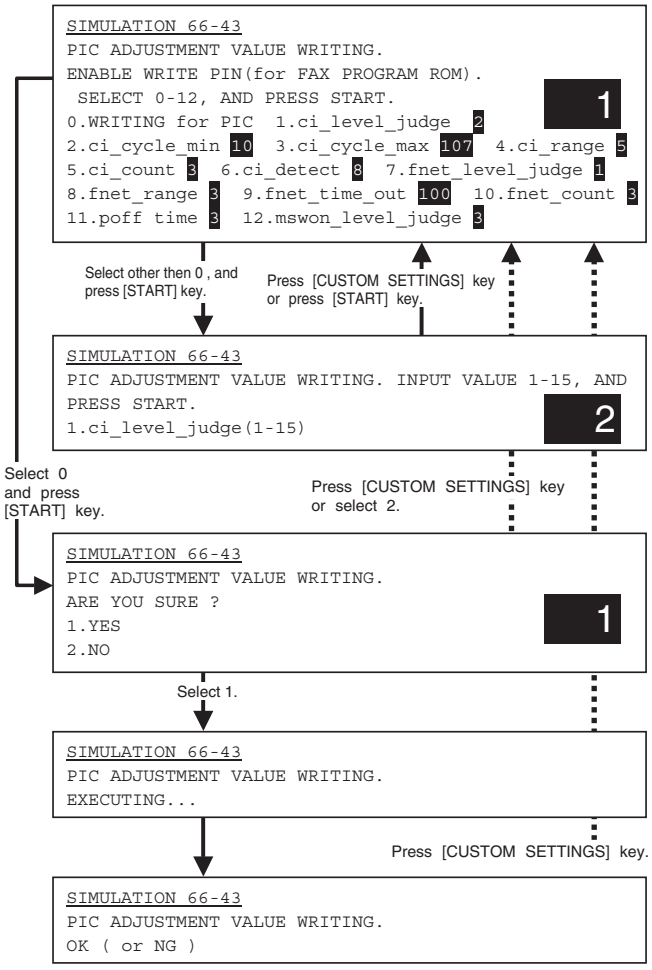
1) Enter the number corresponding to the set item with 10-key.
2) Press [START] key.
3) Enter the set value.
4) Press [P] key.
5) Select 0.

6) The confirmation window is displayed. Select whether the PIC adjustment values are written or not.

YES	The adjustment values are collectively written into PIC installed in the FAX BOX.
NO	No writing

When writing of the PIC adjustment values is normally completed, "OK" is displayed. In case of an error, "NG" is displayed.

	Item	Content	Set range	Default
0	WRITING to PIC	Writing to PIC	–	–
1	ci_level_judge	Number of sensing until the CI signal level is setteld.	1-15	2
2	ci_cycle_min		0-254	10
3	ci_cycle_max		0-254	107
4	ci_range		0-127	5
5	ci_count		1-15	3
6	ci_detect		1-15	8
7	fnet_level_judge		1-15	1
8	fnet_range		0-74	3
9	fnet_time_out		76-255	100
10	fnet_count		1-15	3
11	poff_time		0-15	3
12	mswon_level_judge		2-15	3



66-60

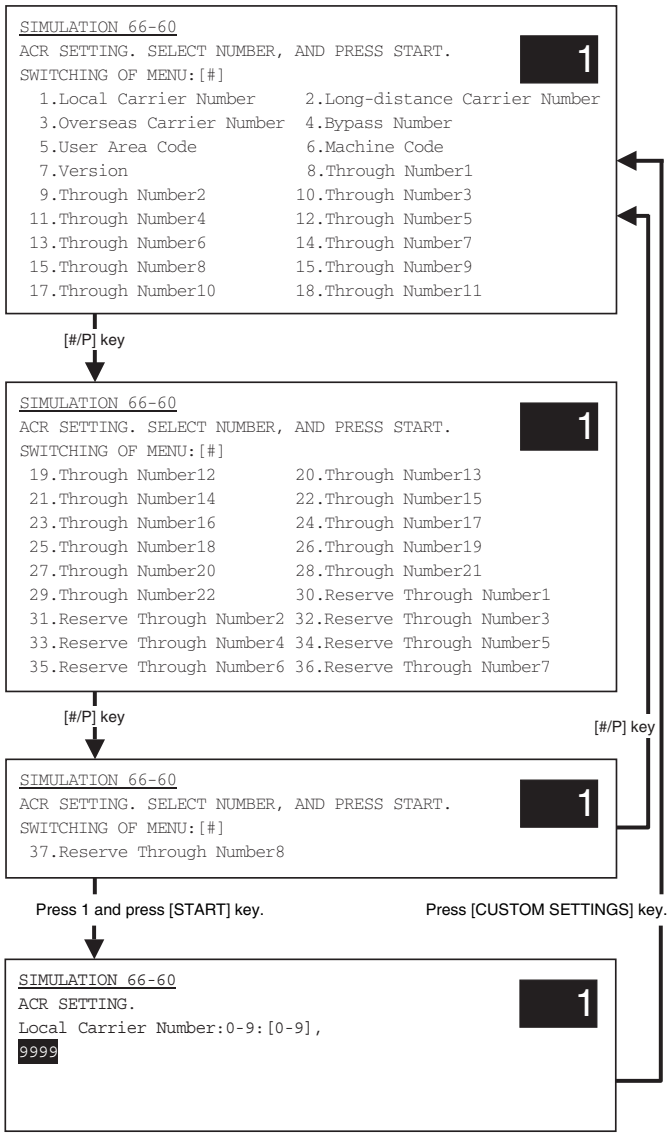
Purpose	Setting
Function (Purpose)	Used to set the ACR data. (Only when FAX is installed)
Section	FAX
Item	Operation

Operation/Procedure

1) Enter the number corresponding to the set item with 10-key. The item list menu can be switched by pressing [P] key.
2) Press [START] key.
3) Enter the set value.
4) Press [START] key.

This simulation can be executed when soft SW 24-4 and 24-5 are set to 1. Display/Not display is switched by soft SW 24-4 and 24-5.

The digit limitation and characters allowed to be inputted depend on the input item.



67

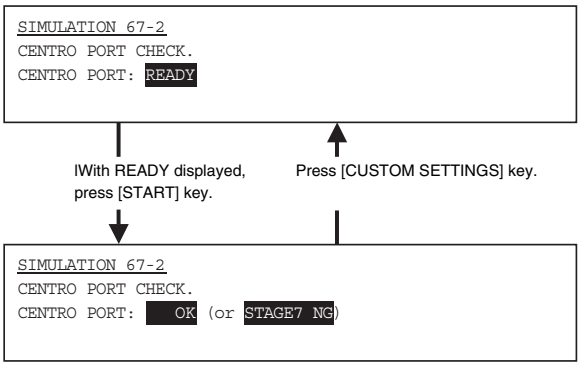
67-2

Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of the parallel I/F of the printer. (This simulation is for production only, and requires a special tool for execution. Not used in the market.)
Section	MFP controller
Item	Operation Interface/Communication

Operation/Procedure

(Display message)

WAITING	Waiting
READY	Check start OK
OK	Check end (Normal)
STAGE*NG	Check end (Error in stage *. *: 1 - 11)



67-11

Purpose	Setting
Function (Purpose)	Used to set YES/NO of the parallel I/F select signal of the printer.
Section	MFP controller
Item	Operation Interface/Communication

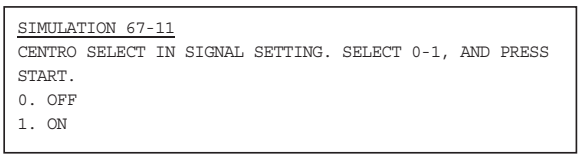
Operation/Procedure

1) Enter the number corresponding to the select IN signal YES/NO setting with 10-key.

Item		Default
0	OFF	1
1	ON	

2) Press [START] key.

When the printer parallel I/F is used and a trouble is generated in the communication between the PC and the printer, change the setting of this simulation.



67-16

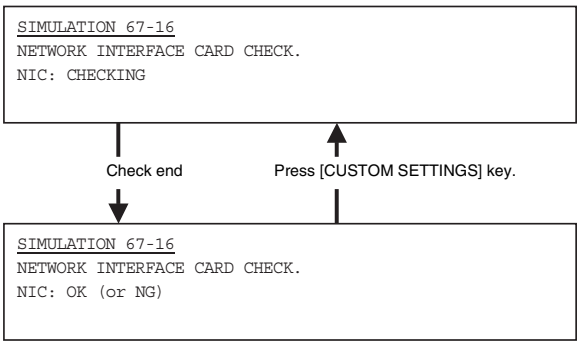
Purpose	Operation test/Check
Function (Purpose)	Used to check the operation of the network card.
Section	MFP controller
Item	Operation Interface/Communication

Operation/Procedure

During check, "CHECKING" is displayed. When check is completed normally, "OK" is displayed. In case of an error, "NG" is displayed.

(Display message)

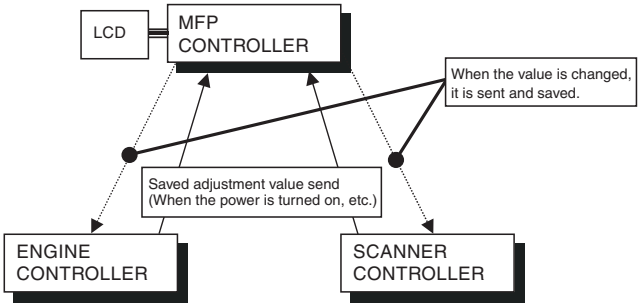
CHECKING	Checking
OK	Check end (Normal)
NG	Check end (Error)



3. Other related items

(1) Simulation adjustment value/ Set value data

Each controller is provided with an EEPROM. The adjustment/set values are collected to the MFP controller. If they are changed, they are sent back and saved.



● **Data saved by the PCU PWB**

Counters	Adjustment value	Other
Drum rotation time counter (Accumulated time)	Developing bias voltage value	Serial number
Developer unit rotation time counter	Cleaning mode developing bias voltage value	Trouble history
Toner supply time (Block IC CHIP)	Main high voltage adjustment	Tray 1 size
Drum rotating time (Block IC CHIP)	Transfer charger voltage value	LCC size
Total counter	Transfer belt cleaning voltage value	Manual destination information
Maintenance counter	Toner concentration reference value	
Developing counter	Density correction start set time (Developer unit)	Tray 2 destination information
Drum counter	Density correction rotation time (Developer tank)	
Toner cartridge counter	Density correction amount (Developer tank)	Tray 1 paper remaining quantity data
Valid paper counter	Correction execution direction, upper/lower limit (Developer tank)	Tray 2 paper remaining quantity data
Tray 1 paper feed counter	Toner concentration temperature correction (low temperature side) correction amount	Tray 3 paper remaining quantity data
Tray 2 paper feed counter	Toner concentration temperature correction (low temperature side) set temperature	Tray 4 paper remaining quantity data
Tray 3 paper feed counter	Toner concentration temperature correction (low temperature side) release temperature	Final toner concentration sensor output value
Tray 4 paper feed counter	Toner concentration temperature correction (high temperature) correction amount	Toner cartridge IC CHIP destination
Manual paper feed counter	Toner concentration temperature correction (high temperature side) judgment temperature	Counter mode setting
ADU paper feed counter	Toner concentration temperature correction (high temperature side) judgment voltage	White paper exit count setting
Staple counter	Toner concentration temperature correction (high temperature side) correction value	Trouble memory mode setting
Punch counter	Toner concentration temperature correction (low temperature side) release time	Fusing operation mode (Prevention against curl)
Main unit right-side paper exit counter	Toner concentration temperature correction (high temperature side) toner concentration delay time	CE mark conforming operation mode
	Multi-purpose width adjustment value	Maintenance cycle
	Manual width adjustment value	Print stop setting when developer life over
Saddle staple counter	Heater lamp temperature (Center, normal control)	Saddle alignment operation priority mode
	Lead edge adjustment	
	Led edge void set value	
	Rear edge void set value	
	Side edge setting	
	Print off-center adjustment value	
	Resist amount adjustment value	
	Laser power adjustment value	
	PPD1 sensor adjustment	
	Process correction inhibit allow set value	
	Developing bias rising correction wait time	
	Developing bias rising correction adjustment value	
	Built-in finisher jogger position adjustment	
	Saddle adjustment value	

● **Data saved by the scanner control PWB**

Counters	Adjustment value	Other
Scan counter	Document lead edge adjustment value	Exposure mode set value
SPF paper pass counter	Document off-center adjustment value	Scanner serial number
SPF stamp counter	Document image loss amount adjustment value	Document image loss amount adjustment value
	Magnification ratio adjustment value	
	SPF resist amount adjustment value	
	Exposure motor speed adjustment value	
	Platen document detection adjustment value	
	SPF size width detection adjustment value	
	Touch panel adjustment value	
	Exposure level adjustment value	
	γ change value	
	OC/SPF exposure correction value	
	Shading adjustment value (CCD/CIS)	
	CCD shading start position adjustment value	

● **Data saved by the MFP control PWB**

Counters	Adjustment value	Other
Copy counter	FAX SOFT SW., etc.	Trouble history
Printer counter		JAM history
FAX receive counter		Destination setting
FAX send counter		Language setting
All valid paper counter		Toner save mode setting
Trouble counter		13" setting
JAM counter		Auditor setting
		Counter mode setting
		Trouble memory mode setting
		Center binding mode AMS setting
		PC/MODEM communication trouble detection YES/NO setting
		Tag number set value
		Printers set values
		Network set value

[10] TROUBLE CODES

1. General

When a trouble occurs in the machine or when the life of a consumable part is nearly expired or when the life is expired, the machine detects and displays it on the display section. This allows the user and the serviceman to take the suitable action. In case of a trouble, this feature notifies the occurrence of a trouble and stops the machine to minimize the damage.

1) Securing safety. (The machine is stopped on detection of a trouble.)
2) The damage to the machine is minimized. (The machine is stopped on detection of a trouble.)
3) By displaying the trouble content, the trouble position can be quickly identified. (This allows to perform an accurate repair, improving the repair efficiency.)
4) Preliminary warning of running out of consumable parts allows to arrange for new parts in advance of running out. (This avoids stopping of the machine due to running out the a consumable part.)

2. Trouble codes list

Trouble codes		Contents	Remark	Trouble detection
C1	00	MC trouble		PCU
E6	11	CSI shading trouble (White correction)	When the scanner is installed	SCANNER
	14	CIS communication trouble	When the scanner is installed	SCANNER
E7	01	System data trouble		ICU
	02	Laser trouble		PCU
	03	HDD trouble	With HDD installed	Controller
	06	Decode error trouble		Controller
	10	Shading trouble (Black correction)	When the scanner is installed	SCANNER
	11	Shading trouble (White correction all pixel adjustment)	When the scanner is installed	SCANNER
	14	CCD communication trouble	When the scanner is installed	SCANNER
	17	SPF scanning position adjustment trouble (Detected only when executing an adjustment SIM.)		
	50	LSU connection trouble		PCU
	80	Communication trouble (ICU detection) between ICU and scanner	When the scanner is installed	ICU
	90	Communication trouble (ICU detection) between ICU and PCU	When the scanner is installed	ICU
F1	00	Finisher communication trouble	With Finisher installed	PCU
		Mail-bin stacker communication trouble	With Mail bin stacker installed	PCU
F1	02	Finisher transport motor abnormality	With Finisher installed	PCU
		Mail-bin stacker transport motor abnormality	With Mail bin stacker installed	
	03	Console finisher paddle motor trouble	With Console Finisher installed	PCU
	06	Console finisher slide motor trouble	With Console Finisher installed	PCU
	08	Finisher staple shift motor trouble	With Finisher installed	PCU
	10	Finisher stapler motor trouble	With Finisher installed	PCU
		Console finisher stapler motor trouble	With Console Finisher installed	PCU
	11	Finisher bundle exit motor trouble	With Finisher installed	PCU
		Console finisher bundle exit motor trouble	With Console Finisher installed	PCU
	12	Mail-bin stacker gate trouble	With Mail bin stacker installed	PCU
	15	Finisher lift motor trouble	With Finisher installed	PCU
		Console finisher lift motor trouble	With Console Finisher installed	PCU
	19	Finisher front alignment motor trouble	With Finisher installed	PCU
		Console finisher front alignment motor trouble	With Console Finisher installed	PCU
	20	Finisher rear alignment motor trouble	With Finisher installed	PCU
		Console finisher rear alignment motor trouble	With Console Finisher installed	PCU
	30	Console finisher communication trouble	With Console Finisher installed	PCU
	31	Console finisher fold sensor trouble	With Console Finisher installed	PCU
	32	Communication trouble between the console finisher and the punch unit.	With Console Finisher installed	PCU
	33	Console finisher punch side registration motor trouble	With Console Finisher installed	PCU
	34	Console finisher punch motor trouble	With Console Finisher installed	PCU
	35	Console finisher punch side registration sensor trouble	With Console Finisher installed	PCU

Trouble codes		Contents	Remark	Trouble detection
F1	36	Console finisher punch timing sensor trouble	With Console Finisher installed	PCU
	37	Console finisher backup RAM trouble	With Console Finisher installed	PCU
	38	Console finisher punch backup RAM trouble	With Console Finisher installed	PCU
	39	Console finisher punch dust sensor trouble	With Console Finisher installed	PCU
	40	Console finisher punch power interruption trouble	With Console Finisher installed	PCU
	80	Finisher power abnormality	With Finisher installed	PCU
		Mail-bin stacker power abnormality	With Mail bin stacker installed	PCU
	81	Console finisher transport motor abnormality	With Console Finisher installed	PCU
	87	Finisher staple rotation motor trouble	With Finisher installed	
F2	00	Toner control sensor open/ sensor trouble		PCU
	02	Toner supply abnormality		PCU
	04	Improper cartridge (life cycle error, etc.)		PCU
	05	CRUM error		PCU
	39	Process thermistor trouble		PCU
F3	12	Machine no. 1 tray lift-up trouble		PCU
	22	Machine tray 2 lift-up trouble	Multi-purpose tray	PCU
F6	00	Communication trouble (ICU detection) between ICU and FAX	When the Fax board is installed	ICU
	01	FAX expansion flash memory abnormality (ICU detection)	When the Fax board is installed	ICU
	04	FAX modem operation abnormality	When the Fax board is installed	FAX
	20	FAX write protect cancel	When the Fax board is installed	FAX
	21	Combination abnormality of the TEL/LIU PWB and the FAX soft switch	When the Fax board is installed	FAX
	97	FAX-BOX skating trouble	When the Fax board is installed	FAX
	98	Combination error of the FAX-BOX destination information and the machine destination information	When the Fax board is installed	FAX
F7	01	FAX board EEPROM read/ write error	When the Fax board is installed	FAX
H2	00	Thermistor open (HL1)		PCU
	01	Thermistor open (HL2)		PCU
H3	00	Fusing section high temperature trouble (HL1)		PCU
	01	Fusing section high temperature trouble (HL2)		PCU

Trouble codes		Contents	Remark	Trouble detection
H4	00	Fusing section low temperature trouble (HL1)		PCU
	01	Fusing section low temperature trouble (HL2)		PCU
H5	01	5-time continuous POD1 not-reaching jam detection		PCU
L1	00	Scanner feed trouble	When the scanner is installed	SCANNER
L3	00	Scanner return trouble	When the scanner is installed	SCANNER
L4	01	Main motor lock detection		PCU
	02	Drum motor lock detection		PCU
	30	Controller fan motor lock detection		
L6	10	Polygon motor lock detection		PCU
L8	01	No fullwave signal		PCU
	02	Full wave signal width abnormality		PCU
U1	01	FAX battery abnormality	With FAX board installed	Controller
	02	RTC read abnormality (common with FAX, on ICU PWB)	When the Fax board is installed	ICU
U2	00	EEPROM read/write error (ICU)		Controller
	11	Counter check sum error (ICU)		Controller
	12	Adjustment value check sum error (ICU)		Controller
	22	SRAM memory check sum error (ICU)		ICU
	23	SRAM memory individual data check sum error (ICU)		
	50	HD section individual data check sum error (ICU)		
	80	EEPROM read/write error (Scanner)	When the scanner is installed	SCANNER
	81	Memory check sum error (Scanner)	When the scanner is installed	SCANNER
	90	EEPROM read/write error (PCU)		PCU
	91	Memory check sum error (PCU)		PCU
U6	00	Desk/LCC communication trouble	With Paper feed desk installed	PCU
	01	Desk/LCC No. 1 tray lift-up trouble	With Paper feed desk installed	PCU
	02	Desk No. 2 tray/LCC1 lift-up trouble	With Paper feed desk installed	PCU
	03	Desk No. 3 tray/LCC2 lift-up trouble	With Paper feed desk installed	PCU
	10	Desk/LCC transport motor trouble	With Paper feed desk installed	PCU
U7	00	RIC communication trouble		Controller

Trouble codes		Contents	Remark	Trouble detection
CH	--	Door open (CH ON)		PCU
	00	No developer cartridge		PCU
	01	No toner cartridge		PCU
	02	No drum cartrige		PCU
EE	EL	Auto developer adjustment trouble (Over-toner)	Only during DIAG	PCU
	EU	Auto developer adjustment trouble (Under-toner)	Only during DIAG	PCU
PC	--	Personal counter not installed		Controller
PF	--	RIC copy inhibit signal is received.		Controller
--	--	Auditor not ready		Controller

3. Details of trouble codes

MAIN	SUB	Details	
C1	00	Content	MC trouble
		Detail	Main charger output abnormality (Output open) Trouble signal is outputted from the high voltage transformer.
		Cause	The main charger is not installed properly. The main charger is not assembled properly. Disconnection of connector of high voltage transformer. High voltage harness disconnection or breakage.
		Check and remedy	Use the SIM 8-2 to check the main charger output. Check for disconnection of the main charger. Replace the high voltage unit.
E6	11	Content	CSI shading trouble (White correction)
		Details	The CIS white reference plate scan level is abnormal when the lamp is on.
		Cause	Abnormal harness installation to CIS unit Dirt on the white reference plate. CIS lighting error CIS unit installation trouble CIS unit abnormality Scanner PWB abnormality
		Check & Remedy	Clean the white reference plate. Check CIS light quantity (SIM 5-3) and lighting. Check CIS unit harness. Check scanner PWB.
	14	Content	CIS communication trouble
		Details	Communication trouble (clock sync) between scanner PWB and CIS-ASIC
		Cause	Abnormal harness installation to CIS unit CIS unit abnormality Scanner PWB abnormality
		Check & Remedy	Check CIS unit harness. Check CIS unit. Check scanner PWB.

MAIN	SUB	Details	
E7	01	Content	System data trouble
		Detail	When in data storage/acquiring of the HDD system area, the HDD responds an error and does not respond for 30sec, it is judged as a trouble.
		Cause	The HDD is not properly installed to the ICU PWB. The HDD does not work for the ICU PWB. ICU PWB abnormality
		Check and remedy	Check installation of the HDD to the ICU PWB. Check harness connection of the HDD from the ICU PWB. Use SIM62-2, 3 to check the HDD read/write. Replace the HDD. Replace the ICU PWB.
E7	02	Content	Laser trouble
		Detail	BD signal from LSU is kept OFF, or ON.
		Cause	The connector of LSU or the harness in LSU is disconnected or broken. The polygon motor does not rotate normally. The laser home position sensor in LSU is shifted. The proper voltage is not supplied to the power line for laser. Laser emitting diode trouble PCU PWB trouble ICU PWB trouble
		Check and remedy	Check for disconnection of the LSU connector. Use SIM 61-1 to check LSU operation. Check that the polygon motor rotates normally or not. Check light emission of laser emitting diode. Replace the LSU unit. Replace the PCU PWB. Replace the ICU PWB.
	03	Content	HDD trouble
		Detail	HDD connection failure If the HDD responds an error or does not respond for 30sec, it is judged as an error. (Other than the system area) Data abnormality in the file management area (when the cluster chain is broken)
		Cause	HDD is not installed properly to the ICU PWB. HDD does not operate properly in the ICU PWB. ICU PWB trouble
		Check and remedy	Check installation of HDD to the ICU PWB. Check connection of the harness of HDD to the ICU PWB. Use SIM 62-2, -3 to check read/write of HDD. Replace HDD. Replace ICU PWB.

MAIN	SUB	Details	
E7	06	Content	Decode error trouble
		Detail	A decode error occurs during making of an image.
		Cause	Data error during input from PCI to PM. PM trouble Data error during image compression/ transfer. ICU PWB abnormality
		Check and remedy	Check insertion of the PWB. (PCI bus) If the error occurred in a FAX job, check installation of the FAX PWB. For the other cases, check the ICU PWB. Replace the ICU PWB.
	10	Content	Shading trouble (Black correction)
		Details	CCD black scan level abnormality when the copy lamp is off.
		Cause	Abnormal installation of flat cable to CCD unit. CCD unit abnormality Scanner PWB abnormality
		Check & Remedy	Check installation of CCD unit flat cable. Check CCD unit. Check scanner PWB.
	11	Content	Shading trouble (White correction all pixel adjustment)
		Details	CCD white reference plate scan level abnormality when the copy lamp is ON.
		Cause	Abnormal installation of flat cable to CCD unit. Dirt on mirror, lens, white reference plate Copy lamp lighting abnormality Abnormal installation of CCD unit CCD unit abnormality Scanner PWB abnormality
		Check & Remedy	Clean mirror, lens, and white reference plate. Check copy lamp light quantity (SIM 5-3) and lighting. Check CCD unit. Check scanner PWB.
	14	Content	CCD communication trouble
		Details	Communication trouble (clock sync) between scanner PWB and CCD-ASIC
		Cause	Abnormal installation of harness to CCD unit CCD unit abnormality Scanner PWB abnormality
		Check & Remedy	Check CCD unit harness. Check CCD unit. Check scanner PWB.
	17	Content	SPF scanning position adjustment trouble (Detected only when executing an adjustment SIM.)
		Details	The black Mylar which serves as the reference of the SPF scanning position is not detected.
		Cause	Black Mylar installing failure on the SPF side
		Check & Remedy	Check the SPF black Mylar.

MAIN	SUB	Details	
E7	50	Content	LSU connection trouble
		Detail	An LSU which does not conform to the machine is installed.
		Cause	LSU connection trouble PCU PWB trouble LSU trouble
		Check and remedy	Check LSU PWB. Check PCU PWB. Check connection of the connector and the harness between PCU and LSU.
	80	Content	Communication trouble (ICU detection) between ICU and scanner
		Details	Communication establishment error/ Fleming/Parity/Protocol error
		Cause	Defective connection of slave unit PWB connector Defective harness between slave unit PWB and ICU PWB Slave unit PWB mother board connector pin breakage
		Check & Remedy	Check connector and harness of slave unit PWB and ICU PWB. Check grounding of machine.
	90	Content	Communication trouble (ICU detection) between ICU and PCU
		Details	Communication establishment error/ Fleming/Parity/Protocol error
		Cause	Defective connection of slave unit PWB connector Defective harness between slave unit PWB and ICU PWB Slave unit PWB mother board connector pin breakage
		Check & Remedy	Check connector and harness of slave unit PWB and ICU PWB. Check grounding of machine.
F1	00	Content	Finisher communication trouble
		Detail	Communication cable test error after turning on the power or exiting from SIM. Communication error with the finisher
		Cause	Improper connection or disconnection of connectors and harness between the machine and the finisher. Finisher control PWB trouble Control PWB (PCU) trouble Malfunction by noises
		Check and remedy	Canceled by turning OFF/ON the power. Check connectors and harness in the communication line. Replace the finisher control PWB or PCU PWB.

MAIN	SUB	Details	
F1	00	Content	Mail-bin stacker communication trouble
		Detail	Communication cable test error after turning on the power or exiting from SIM. Communication error with the Mail-bin stacker.
		Cause	Improper connection or disconnection of connector and harness between the machine and the Mail-bin stacker. Mail-bin stacker control PWB trouble Control PWB (PCU) trouble Malfunction by noises
		Check and remedy	Canceled by turning OFF/ON the power. Check harness and connector in the communication line. Replace the Mail-bin stacker PWB or PCU PWB.
	02	Content	Finisher transport motor abnormality
		Detail	Transport motor drive trouble
		Cause	Motor lock Motor RPM abnormality Overcurrent to the motor Finisher control PWB trouble
		Check and remedy	Use SIM 3-3 to check the transport motor operation.
	02	Content	Mail-bin stacker transport motor abnormality
		Detail	Transport motor trouble
		Cause	Motor lock Motor rpm abnormality Overcurrent to the motor Mail-bin stacker control PWB trouble
		Check and remedy	Use SIM3-21 to check the transport motor operation.
	03	Content	Console finisher paddle motor trouble
		Detail	Paddle motor operation abnormality
		Cause	Motor lock Motor rpm abnormality Overcurrent to the motor Console finisher control PWB trouble
		Check and remedy	Use SIM3-3 to check the motor operation.
	06	Content	Console finisher slide motor trouble
		Detail	Slide motor operation abnormality
		Cause	Motor lock Motor rpm abnormality Overcurrent to the motor Console finisher control PWB trouble
		Check and remedy	Use SIM3-3 to check the motor operation.
	08	Content	Finisher staple shift motor trouble
		Detail	Staple motor drive trouble
		Cause	Motor lock Motor rpm abnormality Overcurrent to the motor Finisher control PWB trouble
		Check and remedy	Use SIM3-3 to check operations of the staple motor.
	10	Content	Finisher stapler motor trouble
		Detail	Stapler motor operation abnormality
		Cause	Motor lock Motor rpm abnormality Overcurrent to the motor Console finisher control PWB trouble
		Check and remedy	Use SIM3-3 to check the motor operation.

MAIN	SUB	Details	
F1	10	Content	Console finisher stapler motor trouble
		Detail	Stapler motor operation abnormality
		Cause	Motor lock Motor rpm abnormality Overcurrent to the motor Console finisher control PWB trouble
		Check and remedy	Use SIM3-3 to check the motor operation.
	11	Content	Finisher bundle exit motor trouble
		Detail	Bundle exit motor operation abnormality
		Cause	Motor lock Motor rpm abnormality Overcurrent to the motor Console finisher control PWB trouble
		Check and remedy	Use SIM 3-3 to check the bundle exit motor operation and the paddle solenoid operation, or use SIM 3-2 to check the boomerang rotations sensor.
	11	Content	Console finisher bundle exit motor trouble
		Detail	Bundle exit motor operation abnormality
		Cause	Motor lock Motor rpm abnormality Overcurrent to the motor Console finisher control PWB trouble
		Check and remedy	Use SIM3-3 to check the motor operation.
	12	Content	Mail-bin stacker gate trouble
		Detail	Gate operation abnormality
		Cause	Gate lock Mail-bin stacker control PWB trouble
		Check and remedy	Use SIM3-21 to check the transport gate operation.
	15	Content	Finisher lift motor trouble
		Detail	Lift motor operation abnormality
		Cause	Motor lock Motor rpm abnormality Overcurrent to the motor Finisher control PWB trouble
		Check and remedy	Use SIM3-3 to check the lift motor operation.
	15	Content	Console finisher lift motor trouble
		Detail	Lift motor operation abnormality
		Cause	Motor lock Motor rpm abnormality Overcurrent to the motor Console finisher control PWB trouble
		Check and remedy	Use SIM3-3 to check the motor operation.
	19	Content	Finisher front alignment motor trouble
		Detail	Front alignment motor operation abnormality
		Cause	Motor lock Motor rpm abnormality Overcurrent to the motor Finisher control PWB trouble
		Check and remedy	Use SIM3-3 to check the motor operation.

MAIN	SUB	Details	
F1	19	Content	Console finisher front alignment motor trouble
		Detail	Front alignment motor operation abnormality
		Cause	Motor lock Motor rpm abnormality Overcurrent to the motor Console finisher control PWB trouble
		Check and remedy	Use SIM3-3 to check the motor operation.
	20	Content	Finisher rear alignment motor trouble
		Detail	Rear alignment motor operation abnormality
		Cause	Motor lock Motor rpm abnormality Overcurrent to the motor Finisher control PWB trouble
		Check and remedy	Use SIM3-3 to check the motor operation.
	20	Content	Console finisher rear alignment motor trouble
		Detail	Rear alignment motor operation abnormality
		Cause	Motor lock Motor rpm abnormality Overcurrent to the motor Console finisher control PWB trouble
		Check and remedy	Use SIM3-3 to check the motor operation.
	30	Content	Console finisher communication trouble
		Detail	Communication cable test error after turning on the power or exiting from SIM. Communication error with the console finisher
		Cause	Improper connection or disconnection of connector and harness between the machine and the console finisher. Console finisher control PWB trouble Control PWB (PCU) trouble Malfunction by noises
		Check and remedy	Canceled by turning OFF/ON the power. Check connectors and harness in the communication line. Replace the console finisher control PWB or PCU PWB.
	31	Content	Console finisher fold sensor trouble
		Detail	Sensor input value abnormality
		Cause	Sensor breakage harness breakage Console finisher control PWB trouble
		Check and remedy	Use SIM3-2 to check the sensor operation.

MAIN	SUB	Details	
F1	32	Content	Communication trouble between the console finisher and the punch unit.
		Detail	Communication err between the console finisher and the punch unit.
		Cause	Improper connection or disconnection of connector and harness between the console finisher and the punch unit. Console finisher control PWB trouble Control PWB (PCU) trouble Malfunction by noise
		Check and remedy	Canceled by turning OFF/ON the power. Check connectors and harness in the communication line. Replace the console finisher control PWB.
	33	Content	Console finisher punch side registration motor trouble
		Detail	Punch side registration motor operation abnormality
		Cause	Motor lock Motor rpm abnormality Overcurrent to the motor Console finisher control PWB trouble
		Check and remedy	Use SIM3-3 to check the motor operation.
	34	Content	Console finisher punch motor trouble
		Detail	Punch motor operation abnormality
		Cause	Motor lock Motor rpm abnormality Overcurrent to the motor Console finisher control PWB trouble
		Check and remedy	Use SIM3-3 to check the motor operation.
	35	Content	Console finisher punch side registration sensor trouble
		Detail	Sensor input value abnormality
		Cause	Sensor breakage Harness disconnection Console finisher control PWB trouble
		Check and remedy	Use SIM3-2 to check the sensor operation.
	36	Content	Console finisher punch timing sensor trouble
		Detail	Sensor input value abnormality
		Cause	Sensor breakage Harness disconnection Console finisher control PWB trouble
		Check and remedy	Use SIM3-2 to check the sensor operation.
	37	Content	Console finisher backup RAM trouble
		Detail	Backup RAM contents are disturbed.
		Cause	Console finisher control PWB trouble Malfunction by noise
		Check and remedy	Replace the console finisher control PWB.
	38	Content	Console finisher punch backup RAM trouble
		Detail	Punch unit backup RAM contents are disturbed.
		Cause	Punch control PWB trouble Malfunction by noise
		Check and remedy	Replace the punch control PWB.

MAIN	SUB	Details	
F1	39	Content	Console finisher punch dust sensor trouble
		Detail	Punch dust sensor detection trouble
		Cause	When the punch dust sensor is not normally detected.
		Check and remedy	Sensor breakage Harness disconnection Punch control PWB trouble
	40	Content	Console finisher punch power interruption trouble
		Detail	When power interruption of the punch unit is detected
		Cause	Though 24V is supplied to the punch unit, the punch unit detects power interruption.
		Check and remedy	Harness disconnection Punch control PWB trouble
	80	Content	Finisher power abnormality
		Detail	The 24V power is not supplied to the finisher PWB.
		Cause	Improper connection or disconnection of connector and harness Finisher control PWB trouble Power unit trouble
		Check and remedy	Use SIM3-2 to check the sensor.
	80	Content	Mail-bin stacker power abnormality
		Detail	The 24V power is not supplied to the Mail-bin stacker PWB.
		Cause	Improper connection or disconnection of connector and harness Mail-bin stacker control PWB trouble Power unit trouble
		Check and remedy	Use SIM3-20 to check the sensor operation.
	81	Content	Console finisher transport motor abnormality
		Detail	Transport motor trouble
		Cause	Motor lock Motor rpm abnormality Overcurrent to the motor Console finisher control PWB trouble
		Check and remedy	Use SIM3-3 to check the motor operation.
	87	Content	Finisher staple rotation motor trouble
		Detail	Front staple rotation motor trouble
		Cause	Motor lock Motor rpm abnormality Overcurrent to the motor Finisher control PWB trouble
		Check and remedy	Use SIM3-3 to check the motor operation.
F2	00	Content	Toner control sensor open/sensor trouble
		Detail	Toner control sensor output open
		Cause	Connector harness trouble Connector disconnection Sensor trouble
		Check and remedy	Check connection of the toner control sensor. Check connection of connector and harness to the main PWB. Check for disconnection of harness. Replace the sensor.

MAIN	SUB	Details	
F2	02	Content	Toner supply abnormality
		Detail	Toner control sensor output value becomes under-toner too earlier.
		Cause	Connector harness trouble Toner concentration sensor trouble Toner cartridge trouble
		Check and remedy	Check connection of the connector in the toner motor section. Check connection of connector and harness to the main PWB. Check for disconnection of harness. Toner concentration sensor output check SIM25-1. Replace the toner cartridge.
	04	Content	Improper cartridge (life cycle error, etc.)
		Detail	An improper process cartridge is inserted.
		Cause	IC chip trouble Improper cartridge
		Check and remedy	Insert a proper cartridge.
	05	Content	CRUM error
		Detail	Communication with IC chip cannot be made.
		Cause	IC chip trouble IC chip contact failure Improper cartridge
		Check and remedy	Insert a proper cartridge. Is the cartridge installed properly?
	39	Content	Process thermistor trouble
		Detail	Output value abnormality of the temperature sensor of temperature/ humidity sensor
		Cause	Temperature/humidity sensor abnormality Temperature/humidity sensor harness connection failure PCU PWB trouble
		Check and remedy	Check connection of the harness and the connector of the temperature/ humidity sensor. Replace the temperature/humidity sensor. Check PCU PWB.
	58	Content	Process humidity sensor breakdown
		Detail	Process humidity sensor open or short
		Cause	Temperature/humidity sensor harness connection failure Temperature/humidity sensor abnormality PCU PWB trouble
		Check and remedy	Check connection of the harness and the connector of the temperature/ humidity sensor. Replace the temperature/humidity sensor. Check PCU PWB.
F3	12	Content	Machine no. 1 tray lift-up trouble
		Detail	LUD does not turn ON in the specified time.
		Cause	LUD trouble No. 1 tray lift-up trouble Check connection of harness between the PCVU PWB, lift-up unit, and paper feed unit.
		Check and remedy	Check LUD, and their harness and connectors. Check the lift-up unit.

MAIN	SUB	Details	
F3	22	Content	Machine tray 2 lift-up trouble
		Detail	MCLUD does not turn ON in the specified time.
		Cause	MCLUD trouble No. 2 tray lift-up motor trouble Harness disconnection f the PCU PWB, the lift-up unit, and the paper feed unit.
		Check and remedy	Check MCLUD, and their harness and connectors. Check the lift-up unit.
F6	00	Content	Communication trouble (ICU detection) between ICU and FAX
		Details	Communication establishment error/ Fleming/Parity/Protocol error
		Cause	Slave unit PWB connector disconnection Harness abnormality between slave unit PWB and ICU PWB. Slave unit PWB mother board connector pin breakage Slave unit ROM abnormality/No ROM/ Reverse insertion of ROM/ROM pin breakable
		Check & Remedy	Check connector harness between slave unit PWB and ICU PWB. Check grounding of machine. Check slave unit PWB ROM.
	01	Content	FAX expansion flash memory abnormality (ICU detection)
		Details	Flash memory cannot be deleted.
		Cause	Flash memory cannot be deleted.
		Check & Remedy	Check the FAX image storage Flash memory. Use SIM 66-10 to clear the flash memory.
	04	Content	FAX modem operation abnormality
		Details	FAX PWB modem chip operation abnormality
		Cause	SW101 in the FAX PWB tries to perform normal operation on the boot side. Modem chip operation abnormality in FAX PWB
		Check & Remedy	Set SW101 on the FAX PWB to other than the boot side, and turn on the power again. Replace FAX PWB.
	20	Content	FAX write protect cancel
		Detail	The write protect jumper of the FAX interface PWB is released.
		Cause	The FAX write protect pin is set to Write Enable. FAX interface PWB trouble FAX PWB trouble
		Check and remedy	Check the write protect pin in the FAX interface PWB. Replace the FAX PWB. Replace the FAX interface PWB.

MAIN	SUB	Details	
F6	21	Content	Combination abnormality of the TEL/ LIU PWB and the FAX soft switch
		Detail	Combination abnormality of the TEL/ LIU PWB and the FAX PWB information (soft switch) Or the TEL/LIU PWB is not a new one for new MDMC PWB.
		Cause	The destination of the installed TEL/LIU PWB differs. The FAX PWB information (soft switch) differs. TEL/LIU PWB trouble
		Check and remedy	Check the destination of the TEL/LIU PWB. Check the FAX PWB information (soft switch). Replace the TEL/LIU PWB.
	97	Content	FAX-BOX skating trouble The FAX-BOX PWB is not one for the AR-FX12. (FAX detection)
		Detail	The FAX-BOX MODEM controller is not one for the AR-FX12.
		Cause	The FAX-BOX Modem controller PWB information (hard detection) is not for the AR-FX12. (The Modem controller PWB for the AR-FX5 or the AR-FX6 is used.)
		Check and remedy	Check the FAX-BOX modem controller PWB. Replace it with a modem controller PWB for the AR-FX12.
	98	Content	Combination error of the FAX-BOX destination information and the machine destination information
		Detail	Combination error of the FAX-BOX destination information and the machine destination information
		Cause	Because of improper combination between the destination information stored in the EEPROM on the FAX-BOX PWB and that of the machine (set with SIM 26-6).
		Check and remedy	Check the destination of the FAX-BOX. Check the machine destination with SIM 26-6. Use a proper combination of the machine and the FAX-BOX.
F7	01	Content	FAX board EEPROM read/write error
		Details	EEPROM access error (read/write)
		Cause	EEPROM trouble FAX PWB EEPROM access circuit trouble
		Check & Remedy	When replacing the EEPROM, use SIM66-4/5 (Signal send level) and SIM66-14/15/16 (Dial test) for adjustment. However, note that all the soft switches are reset to the initial values. No need to adjust when the PWB is replaced.

MAIN	SUB	Details	
H2	00··· HL1 01··· HL2	Content	Thermistor open Fusing unit not installed
		Detail	Thermistor is open. (An input voltage of 2.95V or above is detected.) Fusing unit not installed
		Cause	Thermistor trouble Control PWB trouble Fusing section connector disconnection AC power trouble Fusing unit not installed
		Check and remedy	Check harnesses and connectors from the thermistor to the control PWB. Use SIM14 to clear the self diag display.
H3	00··· HL1 01··· HL2	Content	Fusing section high temperature trouble
		Detail	The fusing temperature exceeds 241.5°C. (An input voltage of 0.35V or above is detected.) Fusing temperature control is started, and 242°C is detected three or more times continuously in sampling in the specified interval. (Every 300msec)
		Cause	Thermistor trouble Control PWB trouble Fusing section connector disconnection AC power trouble
		Check and remedy	Use SIM5-2 to check the heater lamp **Blinking operation.** If the heater lamp blinks normally: Check the thermistor and its harness. Check the thermistor input circuit in the control PWB. **If the heater lamp keep lighting:** Check the AC PWB and the lamp control circuit in the control PWB. Use SIM14 to cancel the trouble

MAIN	SUB	Details	
H4	00··· HL1 01··· HL2	Content	Fusing section low temperature trouble
		Detail	The set temperature is not reached within the specified time (3 min) after turning on the power relay. When the heater lamp is not turned off in the specified time (3minutes) from starting warm-up. After completion of warm-up operation, a temperature 50°C lower than the temperature control level is detected 5 times continuously in sampling in the specified interval. (every 300msec)
		Cause	Thermistor trouble Heater lamp trouble Control PWB trouble Thermostat trouble AC power trouble Interlock switch trouble
		Check and remedy	Use SIM5-2 to check the heater lamp **Blinking operation.** If the heater lamp blinks normally: Check the thermistor and its harness. Check the thermistor input circuit in the control PWB. **If the heater lamp does not light:** Check for heater lamp disconnection and thermostat disconnection. Check the interlock switch. Check the AC PWB and the lamp control circuit in the control PWB. Use SIM14 to cancel the trouble.
H5	01	Content	5-time continuous POD1 not-reaching jam detection
		Detail	5-time continuous POD1 not-reaching jam detection
		Cause	A fusing section jam is not properly removed. (Jam paper remains.) POD1 sensor trouble, or harness disconnection Improper installation of fusing unit
		Check and remedy	Check jam paper in the fusing section. (winding, etc.) Check POD1 sensor harness, and check the fusing unit installation. Use SIM14 to cancel the trouble.
L1	00	Content	Scanner feed trouble
		Details	Scanner feed is not completed within the specified time.
		Cause	Scanner unit abnormality Scanner wire disconnection
		Check & Remedy	Check scanning with SIM 1-1.
L3	00	Content	Scanner return trouble
		Details	Scanner return is not completed within the specified time.
		Cause	Scanner unit abnormality Scanner wire disconnection
		Check & Remedy	Check scanning with SIM 1-1.

MAIN	SUB	Details	
L4	01	Content	Main motor lock detection
		Detail	The motor lock signal is detected for 1.5sec during rotation of the main motor.
		Cause	main motor trouble Check connection of harness between the PCU PWB and the main motor. Control circuit trouble
		Check and remedy	Use SIM25-1 to check the main motor operation. Check harness and connector between the PCU PWB and the main motor.
	02	Content	Drum motor lock detection
		Detail	The motor lock signal is detected for 1.5sec during rotation of the drum motor.
		Cause	Drum motor trouble Improper connection of harness between the PCU PWB and the drum motor. Control circuit trouble
		Check and remedy	Use SIM6-1 to check the drum motor operation. Check harness and connector between the PCU PWB and the drum motor.
	30	Content	Controller fan motor lock detection
		Detail	The motor lock signal is detected during rotation of the controller fan motor. The motor lock signal is detected during rotation of the HDD fan motor.
		Cause	Fan motor trouble Improper connection of the harness between the controller PWB and the fan motor. Control circuit trouble
		Check and remedy	Use SIM 6-2 to check the fan motor operation. Check the harness and the connector between the controller PWB and the fan motor.
L6	10	Content	Polygon motor lock detection
		Detail	It is judged that the polygon motor lock signal is not outputted. Lock signal is checked in the interval of 10sec after starting the polygon motor, and it is judged that the polygon motor does not rotate normally.
		Cause	The LSU connector or harness in the LSU is disconnected or broken. Polygon motor trouble
		Check and remedy	Use SIM61-1 to check the polygon motor operation. Check connector and harness connection. Replace LSU.

MAIN	SUB	Details	
L8	01	Content	No fullwave signal
		Detail	Full wave signal is not detected.
		Cause	The PCU PWB connector or the power unit harness is disconnected or broken. PCU PWB trouble 12V power source trouble
		Check and remedy	Check connection of the harness and connector. Replace PCU PWB. Replace the power unit. Replace the controller connection mother board.
	02	Content	Full wave signal width abnormality
		Detail	It is judged as full wave signal frequency abnormality. (When the detection cycle is judged as 69Hz or above or 42.5Hz or below)
		Cause	The connector or harness of the PCU PWB and the power PWB is disconnected. PCU PWB trouble Power unit trouble
		Check and remedy	Check connection of the harness and connector. Replace the PCU PWB. Replace the power unit.
U1	01	Content	FAX battery abnormality
		Detail	FAX backup SRAM battery voltage fall
		Cause	Battery life Battery circuit abnormality
		Check and remedy	Check that the battery voltage is about 2.5V or above. Check the battery circuit.
	02	Content	RTC read abnormality (common with FAX, on ICU PWB)
		Details	The value read from RTC on ICU PWB is [EE]h (abnormal).
		Cause	RTC circuit abnormality Battery voltage fall Battery circuit abnormality
		Check & Remedy	Set the time again with key operation, and check that time advances properly. Check RTC circuit. Check that battery voltage is about 2.5V or above. Check battery circuit.
U2	00	Content	EEPROM read/write error (ICU)
		Detail	EEPROM write error
		Cause	EEPROM trouble EEPROM is not initialized. ICU PWB EEPROM access circuit trouble
		Check and remedy	Check that EEPROM is properly inserted. Save the counter/adjustment values with the simulation. Use SIM16 to cancel U2 trouble. Replace the ICU PWB.

MAIN	SUB	Details	
U2	11	Content	Counter check sum error (ICU)
		Detail	Counter data area check sum error
		Cause	EEPROM trouble Control circuit trouble by noise ICU PWB EEPROM access circuit trouble
		Check and remedy	Check that EEPROM is properly inserted. Save the counter/adjustment values with the DIAG simulation. Use DIAG (SIM16) to cancel U2 trouble. Replace the ICU PWB.
	12	Content	Adjustment value check sum error (ICU)
		Detail	Adjustment data area check sum error
		Cause	EEPROM trouble Control circuit trouble by noise ICU PWB EEPROM access circuit trouble
		Check and remedy	Check that EEPROM is properly inserted. Save the counter/adjustment values with the simulation. Use SIM16 to cancel U2 trouble. Replace the ICU PWB.
	22	Content	SRAM memory check sum error (ICU)
		Detail	MFPC section SRAM memory check sum error
		Cause	SRAM trouble Control circuit runaway due to noises ICU PWB SRAM access circuit trouble
		Check and remedy	Initialize the communication management table registered in the SRAM and the FAX soft switch. Since the registered data are deleted, register the data again. Use SIM16 to cancel U2 trouble. Replace the ICU PWB.
	23	Content	SRAM memory individual data check sum error (ICU)
		Detail	Check sum error for every data in the SRAM memory of the MFPC section (Communication management table, sender registration data, etc.)
		Cause	SRAM trouble Control circuit runaway due to noises ICU PWB SRAM access circuit trouble
		Check and remedy	Automatically initialize the data related to the check sum error by turning OFF/ON the power. Since the registered data are deleted, register the data again. Use SIM16 to cancel U2 trouble. Replace the ICU PWB.

MAIN	SUB	Details	
U2	50	Content	HD section individual data check sum error (ICU)
		Detail	Check sum error for every individual data in HD of the MFPC section (One-touch, Group, Program, etc.)
		Cause	HDD write/read error Control circuit runaway due to noises ICU PWB HD access circuit trouble
		Check and remedy	Automatically initialize the data related to the check sum error by turning OFF/ON the power. Since the registered data are deleted, register the data again. Use SIM 16 to cancel the U2 trouble. Replace the HD PWB. Replace the ICU PWB.
	80	Content	EEPROM read/write error (Scanner)
		Details	Scanner EEPROM write error
		Cause	EEPROM abnormality EEPROM which is not initialized is installed. Scanner PWB EEPROM access circuit abnormality
		Check & Remedy	Check that EEPROM is set properly. Record counter/adjustment values with the simulation to protect the data from being deleted. Cancel U2 trouble with SIM 16. Replace scanner PWB.
	81	Content	Memory check sum error (Scanner)
		Details	Scanner memory check sum error
		Cause	EEPROM trouble Control circuit freeze by noises Scanner PWB EEPROM access circuit trouble
		Check & Remedy	Check that EEPROM is set properly. Record counter/adjustment values with the simulation to protect the data from being deleted. Cancel U2 trouble with SIM 16. Replace scanner PWB.
	90	Content	EEPROM read/write error (PCU)
		Detail	PCU EEPROM write error
		Cause	EEPROM trouble EEPROM which is not initialized is installed. PCU PWB EEPROM access circuit trouble
		Check and remedy	Check that EEPROM is properly inserted. Record counter/adjustment values with the simulation to protect the data from being deleted. Use SIM16 to cancel U2 trouble. Replace the Controller PWB.
	91	Content	Memory check sum error (PCU)
		Detail	PCU memory check sum error
		Cause	EEPROM trouble EEPROM is not initialized. PCU PWB EEPROM access circuit trouble Hang of control circuit due to noises
		Check and remedy	Check that EEPROM is properly inserted. Save the counter/adjustment values with the simulation. Use SIM16 to cancel U2 trouble. Replace the Controller PWB.

MAIN	SUB	Details	
U6	00	Content	Desk/LCC communication trouble
		Detail	Desk/LCC communication error Communication cable test error after turning on the power or exiting SIM.
		Cause	Improper connection or disconnection of connector and harness Desk control PWB trouble Control PWB (PCU) trouble Noise or interference
		Check and remedy	Canceled by turning OFF/ON the power. Check connection of the harness and connector in the communication line.
	01	Content	Desk/LCC No. 1 tray lift-up trouble
		Detail	Desk/LCC No. 1 tray lift-up trouble
		Cause	Sensor trouble Desk control PWB trouble Gear breakage Lift-up motor trouble
		Check and remedy	Use SIM4-2 to check the lift-up sensor detection. Use SIM4-3 to check the lift-up motor operation.
	02	Content	Desk No. 2 tray/LCC1 lift-up trouble
		Detail	Desk No. 2 tray/LCC lift-up trouble
		Cause	Sensor trouble Desk control PWB trouble Gear breakage Lift-up motor trouble
		Check and remedy	Use SIM4-2 to check the lift-up sensor detection. Use SIM4-3 to check the lift-up motor operation.
	03	Content	Desk No. 3 tray/LCC2 lift-up trouble
		Detail	Desk no. 3 tray lift-up trouble
		Cause	Sensor trouble Desk control PWB trouble Gear breakage Lift-up motor trouble
		Check and remedy	Use SIM4-2 to check the lift-up sensor detection. Use SIM4-3 to check the lift-up motor operation.
	10	Content	Desk/LCC transport motor trouble
		Detail	Desk/LCC transport motor operation trouble
		Cause	Motor lock Motor rpm abnormality Overcurrent to the motor Desk control PWB trouble
		Check and remedy	Use SIM4-3 to check the transport motor operation.
U7	00	Content	RIC communication trouble
		Detail	RIC communication trouble Communication cable test error after turning on the power or exiting SIM.
		Cause	Disconnection of connector and harness RTC control PWB trouble Control PWB (ICU) trouble Noise or interference
		Check and remedy	Canceled by turning OFF/ON the power. Check connector and harness in the communication line.

MAIN	SUB	Details	
EE	EL	Content	Auto developer adjustment trouble (Over-toner)
		Detail	The toner concentration output is detected as 1.5V or below in the auto development adjustment.
		Cause	Toner concentration sensor trouble Charging voltage, developing voltage abnormality Insufficient toner concentration Developing unit trouble PCU PWB trouble
		Check and remedy	Use SIM25-2 to perform auto developer adjustment.
	EU	Content	Auto developer adjustment trouble (Under-toner)
		Detail	The toner concentration output is detected as 3.5V or above in the auto development adjustment.
		Cause	Insufficient toner concentration Charging voltage, developing voltage abnormality Insufficient toner concentration Developing unit trouble PCU PWB trouble
		Check and remedy	Use SIM25-2 to perform auto developer adjustment.
PF	00	Content	RIC copy inhibit signal is received.
		Detail	Copy inhibit command from RIM (host) is received.
		Cause	Judged by the host.
		Check and remedy	Inform to the host.
CE	00	Content	Another communication error occurs.
		Detail	Communication error
		Cause	Improper connection of the network cable
		Check and remedy	Check the connection of the network cable.
	01	Content	The print server card is broken down or is not installed.
		Detail	Print server card connection trouble
		Cause	The print server card is not installed on the controller. Print server card control PWB trouble
		Check and remedy	1. Check that the print server card is installed on the controller. 2. Output the NIC Config. Page to check the NIC version. 3. Replace the NIC.

MAIN	SUB	Details	
CE	02	Content	The specified mail server or FTP server is not found.
		Detail	The specified mail server or the FTP server is not found.
		Cause	Improper connection of the network cable Network setup trouble An error occurs in the SMTP server/ FTP server/ NTS.
		Check and remedy	1. Check that the network cable is properly connected. 2. Check that the connected network supports TCP/IP protocol. 3. Check from the web page that the address of the FTP server or the desktop PC is properly set as the primary/secondary e-mail server address. 4. When the above address is described with the Hostname, check that the DNS server is properly set or not. 5. Check the SMTP server/ FTP server/ NTS for any trouble.
	03	Content	The specified server suspends response during transmission of images.
		Detail	The specified server suspends response during transmission of images.
		Cause	Improper connection of the network cable An error occurs in the SMTP server/ FTP server/ NTS.
		Check and remedy	1. Check that the network cable is properly connected. 2. Check the SMTP server/ FTP server/ NTS for any trouble.
	04	Content	The account name or the password for the FTP server is invalid.
		Detail	The entered account name of the FTP server or the password for authentication is invalid.
		Cause	Improper connection of the network cable Improper registration of the account name or improper password registered in the FTP server as the destination
		Check and remedy	1. Check that the network cable is properly connected. 2. Check the account name or the password registered in the FTP server as the destination.
	05	Content	The directory of the FTP server is invalid.
		Detail	The entered directory of the FTP server is invalid.
		Cause	Improper connection of the network cable Check for existence of the directory name in the FTP server registered as the destination.
		Check and remedy	1. Check that the network cable is properly connected. 2. Check for existence of the directory name in the FTP server registered as the destination.

MAIN	SUB	Details	
CE	06	Content	The specified mail server (POP3) is not found.
		Detail	The specified mail server (POP3) is not found. POP3 server access error
		Cause	Improper connection of the network cable Network setup trouble An error occurs in the POP3 server.
		Check and remedy	1. Check connection of the network cable. 2. Check that the connected network supports TCP/IP protocol. 3. Check on the Web page that the POP3 server address is correctly set. 4. When the above address is described with the Hostname, check that the DNS server is properly set or not. 5. Check for any error in the POP3 server.
	07	Content	The entered account name of the POP3 server or the password for authentication is invalid.
		Detail	The entered account name of the POP3 server or the password for authentication is invalid. POP3 server authentication check error
		Cause	Improper connection of the network cable Improper account name or password registered in the POP3 server
		Check and remedy	1. Check connection of the network cable. 2. Check that the account name or the password registered for the POP3 server is correct.
	08	Content	The specified mail server (POP3) is not found.
		Detail	The specified mail server (POP3) is not found. POP3 server time out error
		Cause	Improper connection of the network cable An error occurs in the POP3 server.
		Check and remedy	1. Check connection of the network cable. 2. Check for any error in the POP3 server.

4. Other related items

(1) Self diag operation

The machine always monitors its own status. When it detects any abnormality or a status which requires warning, it performs the self diag operation to display the trouble or warning message as follows:

Warning	Content	This message is displayed to warn mainly the user to inform that a consumable part is near life, etc. It is no direct relation with machine troubles.
	Machine operation	The machine operation may be stopped and may be not.
	Message clear	The message may be automatically cleared by replacement or supply of the consumable part, or may be cleared by the specified simulation operation.
Trouble	Content	This message is a trouble message related to a machine trouble.
	Machine operation	The machine operation is stopped.
	Message clear	This message may be automatically cleared by repairing the trouble, or may be cleared by the specified simulation operation.

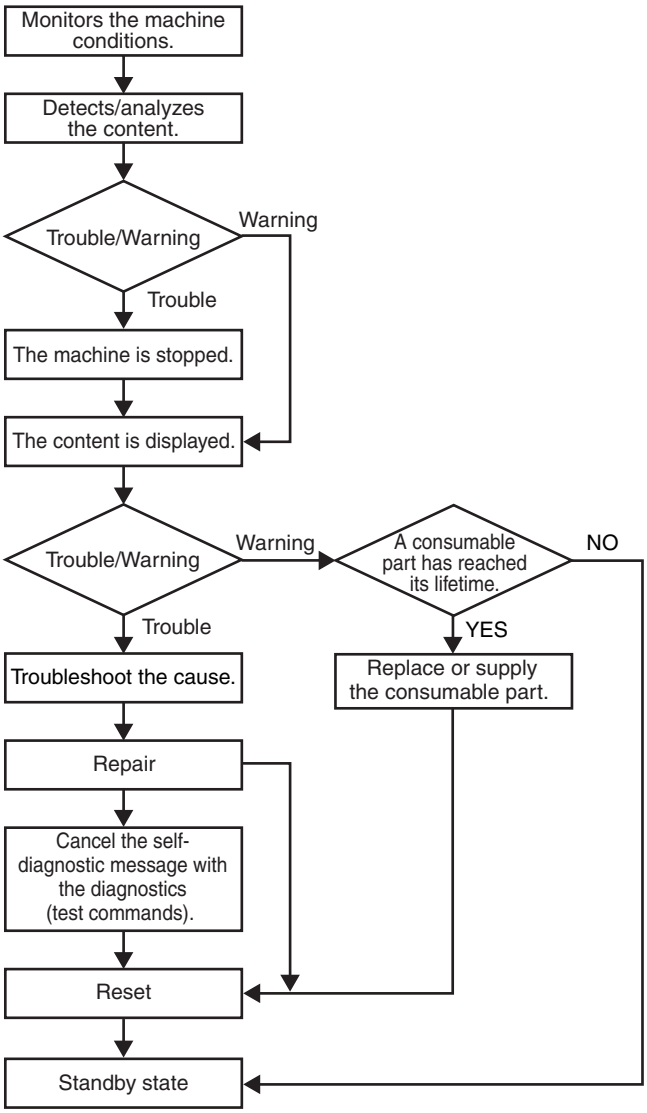
(2) Power ON trouble detection function

- When the power is turned on, if the stored trouble is H3, H4, H5, U1, U2, PF, U6 (LCC-related sub code 09 only), L4 (paper exit fan-related sub code 31 only), or U6 (sub code 2, 3), it is immediately judged as a trouble.

* E7-50 and 60 are not judged as a storing trouble, (Detected every time when the power is turned on.)

Trouble code	Storing	Trouble cancel command simulation
H3, H4, H5	PCU	SIM 14
U1	ICU	SIM 13
U2	Each block	SIM 16
PF	ICU	SIM 17
U6-09	PCU	SIM 15
L4-31	PCU	SIM 14
U6-2, 3	PCU	SIM 15

(3) Basic flow of countermeasures



(4) List of trouble modes

● Troubles where the machine can be operated under some conditions

When a trouble occurs, the dialogue is displayed and OK button is added to the trouble message.

Trouble content	Judgment block	Trouble code	Operation enable mode						
			Copy read (including interrupt)	FAX send	Email receive	FAX print	Print	List print	Notification to FASThost
Scanner section breakdowns (Mirror motor, lens, copy lamp)	Scanner	L1, L3, U2 (80, 81)	×	×	×	❍	❍	❍	❍
FAX board breakdown	ICU/FAX	F6, F7	❍	×	❍	×	❍	❍	×
FAX power OFF	ICU		❍	×	❍	×	❍	❍	×
Network error	ICU	CE	❍	❍	×	❍	❍	❍	×
Staple breakdown	PCU	F1 (10)	Δ2	❍	❍	Δ2	Δ2	Δ2	❍
Paper feed tray breakdown	PCU	F3, U6 (LCC)	Δ3	❍	❍	Δ3	Δ3	Δ3	❍
PCU section breakdowns (Motor, fusing section, etc.)	PCU	C1, C2, C3, H2, H3, H4, H5, L4 (excluding L4-30), L8, U2 (90, 91), F2	×	❍	❍	×	×	×	❍
After-process breakdown	PCU	F1	Δ5	❍	❍	Δ5	Δ5	Δ5	❍
Laser breakdown	PCU	E7 (02 only), L6	×	❍	❍	×	×	×	❍
HDD breakdown	ICU	E7 (03)	×	×	×	×	×	×	❍
CCD breakdowns (Shading, etc.)	Scanner	E7 (10, 11, 14)	×	×	×	❍	❍	❍	❍
CIS breakdowns (Shading, etc.)	Scanner	E6 (10, 11, 14)	Δ6	Δ6	Δ6	❍	❍	❍	❍
Scanner communication trouble	ICU	E7 (80)	×	×	×	❍	❍	❍	❍
PCU communication trouble	ICU	E7 (90)	×	×	×	×	×	×	❍
FAX backup battery voltage fall	ICU	U1 (01, 02)	❍	×	×	❍	❍	❍	❍
HDD registration data sum error	ICU	U2 (50)	❍	×	×	❍	❍	❍	❍
Thermistor trouble (trouble history)	PCU	F2 (39, 58)	❍	❍	❍	❍	❍	❍	❍

● Troubles where the machine cannot be operated

When a trouble occurs, the dialogue is displayed. OK button is not added to the trouble massage, and only setting can be performed. The message remains displayed until the trouble is canceled.

Trouble content	Judgment block	Trouble code	Operation enable mode						
			Copy read (including interrupt)	FAX send	Email receive	FAX print	Print	List print	Notification to FASThost
Memory	ICU	U2 (00, 11, 12, 22, 23)	×	×	×	×	×	×	❍
External communication disable (RICA)	ICU	U7, PF	×	×	×	×	×	×	❍
Image memory trouble, decode error	ICU	E7 (01, 06)	×	×	×	×	×	×	❍
Skating check error	ICU/PCU	E7 (50)	×	×	×	×	×	×	×
Controller fan motor trouble	ICU	L4-30	×	×	×	×	×	×	×

* For FAX communication, refer to the “Image send, receive (FAX call request and FAX call-in)“.

* The machine may be operated under some conditions.

Δ1: When detected except when in a job, the machine can be operated in the OC mode.

Δ2: Can be operated except in the staple mode.

Δ3: When detected except in a job, the machine can be operated except with the breakdown tray.

Δ4: Can be operated with some restriction on the image quality depending on the destination. (Low density print)

Δ5: When detected except in a job, can be operated except in the trouble paper exit section.

Δ6: When detected except in a job, can be operated in the single surface scan mode.

(5) Communication specification when a trouble occurs

The image send/receive specifications when a trouble occurs are as shown below.

Trouble	Send reservation	Print	FAX call request	FAX call-in	LAN send	LAN receive	Precaution
PCU breakdowns (Excluding C1, C2, C3, H2, H3, H4, H5, L4, L8, U2-90, U2-91, and skating check error)	❍	×	❍	❍ Note	❍	❍ Note	There is a risk that the memory is full.
Scanner breakdowns (L1, L3, U2-80, U2-81)	×	❍	❍	❍	❍	❍	
F6, F7 (FAX breakdown)	×	❍	×	×	❍	❍	
F1 (Paper exit section breakdown)	❍	Δ4	❍	❍	❍	❍	
F3, U6 (Paper feed tray breakdown)	❍	Δ2	❍	❍	❍	❍	
E7 (01, 06) (ICU breakdown)	×	×	×	×	❍	❍	
E7-02 (Laser breakdown)	❍	×	❍	❍ Note	×	❍ Note	There is a risk that the memory is full.
E7-03 (HD breakdown)	×	×	×	×	×	×	
E7 (10, 11, 14) (CCD breakdown)	×	❍	❍	❍	❍	❍	
E6 (10, 11, 14) (CIS breakdown)	Δ6	❍	❍	❍	❍	❍	
E7-80 (Scanner communication trouble)	×	❍	❍	❍	❍	❍	
E7-90 (PCU communication trouble)	×	×	×	×	×	×	
E7 (50) (Skating check error)	×	×	×	×	×	×	
U2 (00, 11, 12, 22) (ICU memory error)	×	×	×	×	×	×	
U2 (22, 23) (SRAM check sum error)	×	×	×	×	×	×	
U2-50 (HD check sum error)	×	×	×	×	×	×	
U7 (RIC external communication disable), PF	×	×	×	×	×	×	Inhibition of use by a customer having outstanding fee
U1 (Backup battery voltage fall)	×	Δ3	× Note	×	× Note	×	Transfer enable
L4-30 (Controller fan motor trouble)	×	×	×	×	×	×	
Door open	❍	×	❍	❍Note	❍	❍ Note	There is a risk that the memory is full.
Toner empty	❍	×	❍	❍Note	❍	❍ Note	There is a risk that the memory is full.
Process cartridge uninstalled, etc.	❍	×	❍	❍Note	❍	❍ Note	There is a risk that the memory is full.
Paper empty	❍	×	❍	❍Note	❍	❍ Note	There is a risk that the memory is full.
Paper JAM	❍	×	❍	❍Note	❍	❍ Note	There is a risk that the memory is full.
Document JAM	×	❍	❍	❍	❍	❍	
Simulation	×	×	×	×	×	×	
Key operation (Communication disable)	×	×	×	×	×	×	

Δ2: Enable except for the trouble tray

* When, however, a paper feed tray trouble is detected during a job, the engine is stopped and printing is disabled.

Δ3: The display goes to the FAX status check menu and the list can be printed.: The received document is outputted.

Δ4: Paper exit is enabled except for the trouble paper exit tray

* When, however, a paper feed tray trouble is detected during a job, the engine is stopped and printing is disabled.

Δ5: Only the operation related to image quality can be executed depending on the destination. (low density print)

Δ6: The operation can be executed in the single surface scanning mode.

(6) Writing to the trouble memory

In case of a same trouble in this machine, selection is made with the simulation to write into the trouble memory or not. If this simulation is set, any trouble is written into the trouble memory unconditionally.

(SIMULATION. 26-35)

0: A same trouble as the previous one is not written. (Default)

1: Any trouble is written into the trouble memory unconditionally.

[12] ROM VERSION-UP METHOD

1. General

Firmware update is executed by collectively writing the files with each ROM inserted to its specified slot.

If update by collective writing is failed by power interruption during the update process, etc., insert a preliminary ROM into the controller PWB and make update for each ROM individually. The update process flow in such a case is shown in “G. Update process flow.”

The files for update can be transferred from a PC in which printer setting is made (regardless of Centro, USB, or TCP/IP connection type) to the printer by the use of File2PRN.EXE described later. In the other cases, use FCOPY.EXE to transfer the files.

2. Cautions

- In this method, verify for each byte is not made in order to shorten the writing time. The reliability of writing is assured by comparing the sum value. If the operation should be abnormal, make updater (C.) by the controller PWB.
- When the power is turned off during writing, the process may be failed and the machine may not be booted.
  In this case, refer to “E. Power OFF during update.”
- After completion of update, the update window may be displayed by resetting the DIP switch on the controller PWB and booting the machine normally. In this case, the PCU and the scanner may not have been updated normally. Refer to “F. Update window when normal booting.”
- It takes a longer time (about 5 minute) to write to the PWB’s on the PCU, the scanner, and the FAX ROM than to write by CN6 of the controller PWB. This is because the difference in the communication speeds of the PWB’s, etc. Also when the version of the software which is updated is the same, the process may be completed quickly.

3. Flash ROM update procedures

A. Preliminary arrangement

(1) Necessary tools

1) A machine with the operating ROM in it
2) A spare PCU ROM, a controller boot ROM, a scanner ROM (which operate normally) (Used when writing is failed.)
3) A PC operating on Windows with a USB or a parallel port. (When File2PRN is used, it must be set as a printer.)
4) USB cable or Centronics cable (Used to connect the PC and the controller PWB.)
5) File2PRN.EXE (Used to transfer the files to the machine connected with the USB, network, or parallel port. For the network connection, IP address setting is required. However, it is not mentioned here.), or FCOPY.EXE (parallel port file transfer tool). For the operating procedures of them, refer to <Reference> described later.
6) Compression files for update (SFU files for each of the PCU, the scanner, the FAX, the controller boot ROM and the MAIN ROM, or the collective SFU file)

(2) DIP switch setting on the back of the machine

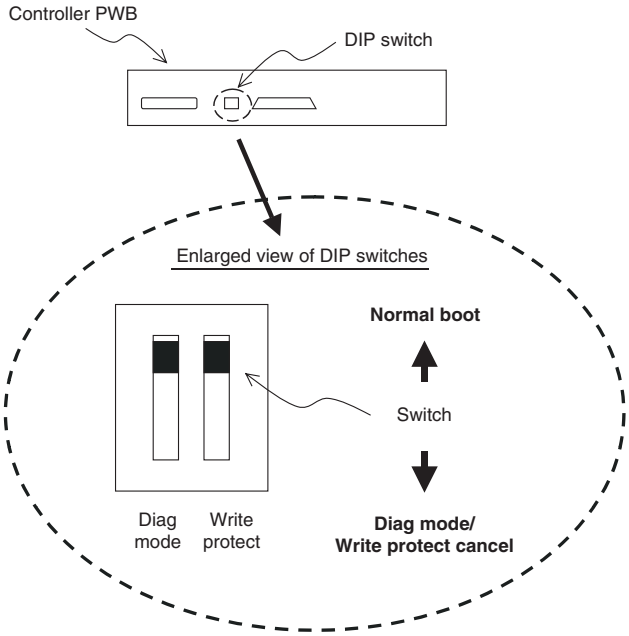
When updating the ROM, the DIP switches on the back of the machine must be set properly.

a) DIP switches

ON the back of the machine, there are following DIP switches from the controller PWB:

- Diag mode switch (on the left)
- Write protect switch (on the right)

The switches are set to the upper side (protect) in normal operation. When they are set to the lower side, the diag mode and write protect are released. (Refer to the figure below.) When writing each ROM, set the switches to the lower side. (Default: Upper side). When update is completed, be sure to reset the switches to the upper side.)



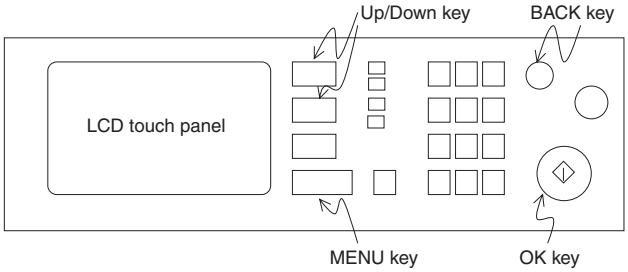
(3) Controller PWB slot

The Flash Rom slots of the controller PWB are CN4, CN5, and CN6. Normally the BOOT ROM is inserted to CN4, and the main ROM is inserted to CN5, and CN6 is empty. When, however, the controller PWB is used to make a ROM, CN6 is used.

(4) Operation panel

When the machine is booted by the diag mode, each operation is performed with the hard keys of the scanner. The window display is made by the LCD panel. The keys used in the diag mode are assigned as follows:

START key	→	OK key
Document filing key	→	Up/Down select key
FAX/Image send key	→	Up/Down select key
Job status key	→	Menu key
Clear key	→	BACK key



B. Update procedure 1 (Writing with each ROM inserted to the specified slot)

In this case, the ROM's on the PCU, FAX, and the scanner must be operating ROM's. An empty ROM which cannot boot the machine cannot be used for writing.

(1) Preparation

1) Set the DIP switches on the back of the machine to the diag mode (lower side) and the write protect switch to the release side (lower side).
2) Check to confirm that the scanner unit is connected with the machine.
3) Check to confirm that the FAX unit is connected with the machine. (When the FAX is installed.)
4) Connect the PC and the controller PWB with the Centronics cable or USB cable.
5) Turn on the power of the PC and the machine to be updated.

(2) Update procedures

1) When the machine is booted, the following display is shown.

```
Version Check
CONF: *********
```

2) Press MENU key a few times to display the following window. (In addition, when File2PRN.EXE is used, select the connection type (USB or parallel) with the Up/Down select key.)

```
Firm Update
From Parallel
```

3) Press OK key, and the following window is displayed.

```
Firm Update
Waiting Data
```

4) When files are transferred from the PC by Fcopy.EXE or File2PRN.EXE (collective files or a separate file for each ROM), the LED flashes and the display is changed sequentially as shown below. When the scanner is updated, the backlight of the LCD is instantaneously turned off. Since it is not a breakdown, do not turn off the power but wait for a while. When "Result: OK" is displayed after completion of writing (several minutes), press Up/Down key to check that there is no "Result: NG" for each ROM. (When, however, the collective files are updated with the machine which has no FAX installed, "Result: NG" is displayed for FAX.) When "Result: NG" is displayed, refer to (D.).

```
Firm Update   ***
Receiving Data
```

↓

```
Firm Update
Writing Data
```

↓

```
Firm Update   ***
 Result: OK
```

5) Reboot the machine, and use Up/Down key on the window of 1) to check to confirm that the version of the updated software has been updated.
6) Turn off the power, and reset the DIP switches to the upper side (normal side).

C. Update procedures 2 (Writing to each ROM by use of CN6 of the controller PWB)

By use of an empty slot of the controller PWB, writing can be made to an empty ROM which is not operating.

(1) Preparation

1) Set the DIP switch on the back of the machine to the diag mode (lower side), and set the write protect switch to the release side (lower side).
2) Insert one of the ROM's of the PCU, the SCN, and the FAX into the empty slot (CN6) of the controller PWB.
3) Check to confirm that the scanner unit is connected with the machine.
4) Check to confirm that the FAX unit is connected with the machine. (When the FAX is installed.)
5) Connect the PC and the controller PWB with the Centronics cable or USB cable.
6) Turn on the power of the PC and the machine to be updated.

(2) Update procedures

1) When the machine is booted, the following window is displayed.

```
Version Check
CONF: *********
```

2) Press MENU key a few times to display the following window. (In addition, when File2PRN.EXE is used, press Up/Down key to select the connection type (USB or parallel).)

```
CN Update
 From Parallel
```

3) Press OK key, and the following window is displayed.

```
CN Update
 Waiting Data
```

4) When files are transferred from the PC by the use of Fcopy.EXE or File2PRN.EXE, the data LED flashes and the window is changed sequentially as follows. The LED finishes flashing in a few minutes, and "Writing: OK" is displayed.

```
CN Update
 Receiving Data
```

5) Press OK key, and the following window is displayed.

```
CN Update ***-> CN5
 Writing OK?
```

6) Use Up/Down key to select the slot No. to which the ROM is inserted, and press OK key. The LED flashes and the window is changed sequentially as shown below. After completion of writing (several minutes), check to confirm that "Result: OK" is displayed.

```
CN Update ***-> CN6
 Writing Data
```

↓

```
CN Update ***-> CN6
 Result: OK
```

7) After turning off the power, replace the ROM to which writing is made with the ROM of the specified slot of the PWB, and turn on the power and check the operation and the version. (Use Up/Down key to check on the window of 1).)
8) Turn off the power, and reset the DIP switches to the upper side (protect side, normal side).

D. In case of “Result: NG”

(1) Possible causes of “Result: NG”

There are following possible causes of “Result: NG.”

1) The DIP switch of write protect is not set properly.
   - The write protect switch of the controller PWB is not set to the release side (lower side).

   → If the write protect switch is not set to the release side, data are not written into the ROM. Set the DIP switch properly, and retry updating.

2) The FAX cable is not connected. The FAX is NG.

   → Writing is not made. Connect properly and retry writing.

3) In rare cases, the ROM is broken down.

   → Check the ROM, and retry writing. If the trouble remains, replace the ROM.

   (* There are three types of ROM device: the common type for the PCU and the scanner, the common type for BOOT and MAIN, and the exclusive type for FAX.)

E. Turning off the power during update

When the power is turned off during the update process, though the machine is booted, data writing cannot be assured. Retry update as follows.

1) When the power is turned off during update process of (B.)

   Retry the update procedure of (B.). If the machine is not booted or the hard keys are not invalid (**), or retry of the update is failed again, replace the ROM’s with the spare one of the PCU, the controller BOOT, and the scanner ROM, and try the update procedure of (C.) for the replaced ROM’s.
   (** When the backlight of the display is lighted but the hard keys are invalid, all LED’s flash.)

2) When the power is turned off during update process of (C.)

   Retry updating.

F. Update window display in normal booting

After completion of updating, when the power is turned off and the DIP switches on the back of the machine are set to the normal side and the machine is booted, the update window is displayed as shown below instead of the normal boot window, the PCU or the scanner may not have been properly updated.

```
Version Check
CONF: *********
```

At that time, use Up/Down key to check the version of the PCU or the scanner. If the version is displayed as “BootMode,” or if the key operation is invalid (all the LED’s are flashing), retry updating as follows.

1) When the key operation is possible and the version is displayed as “BootMode”

   Turn off the power and retry the update procedure of (B.). At that time, be sure to set the DIP switches properly. After updating again, if the result is still NG, replace the ROM’s with the spare one of the PCU and the scanner ROM, and perform the update procedure of (C.) for the replaced ROM's.

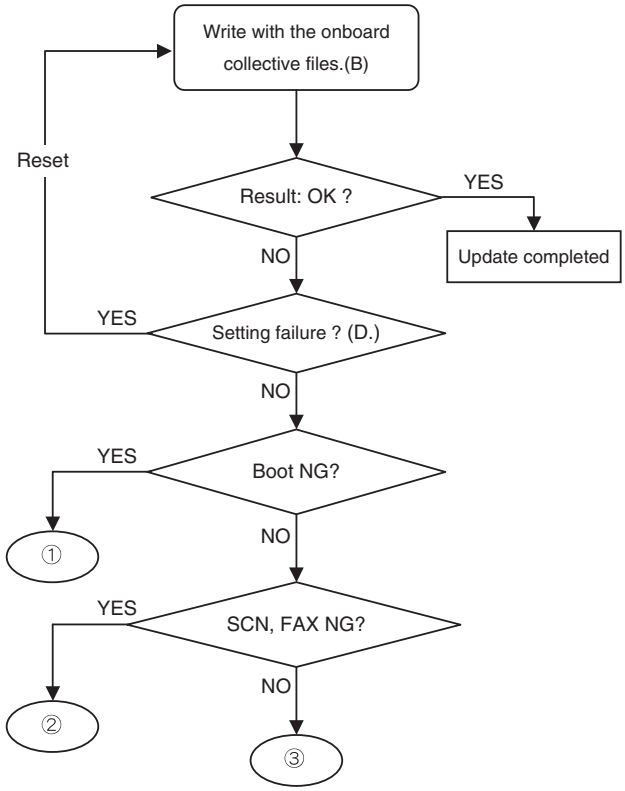
2) When the key operation is invalid

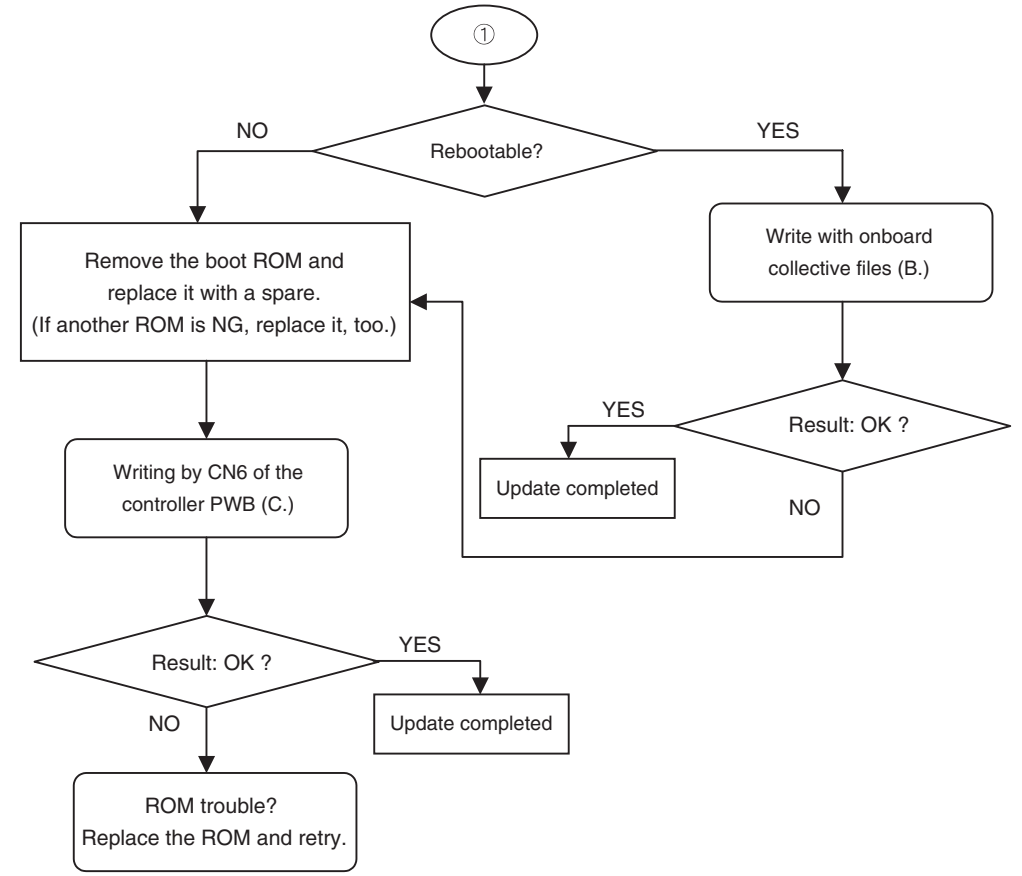
   Turn off the power and replace the ROM’s with the spare one of the PCU and the scanner ROM, and perform the update procedure of (C.) for the replaced ROM’s. Be sure to set the DIP switches properly.

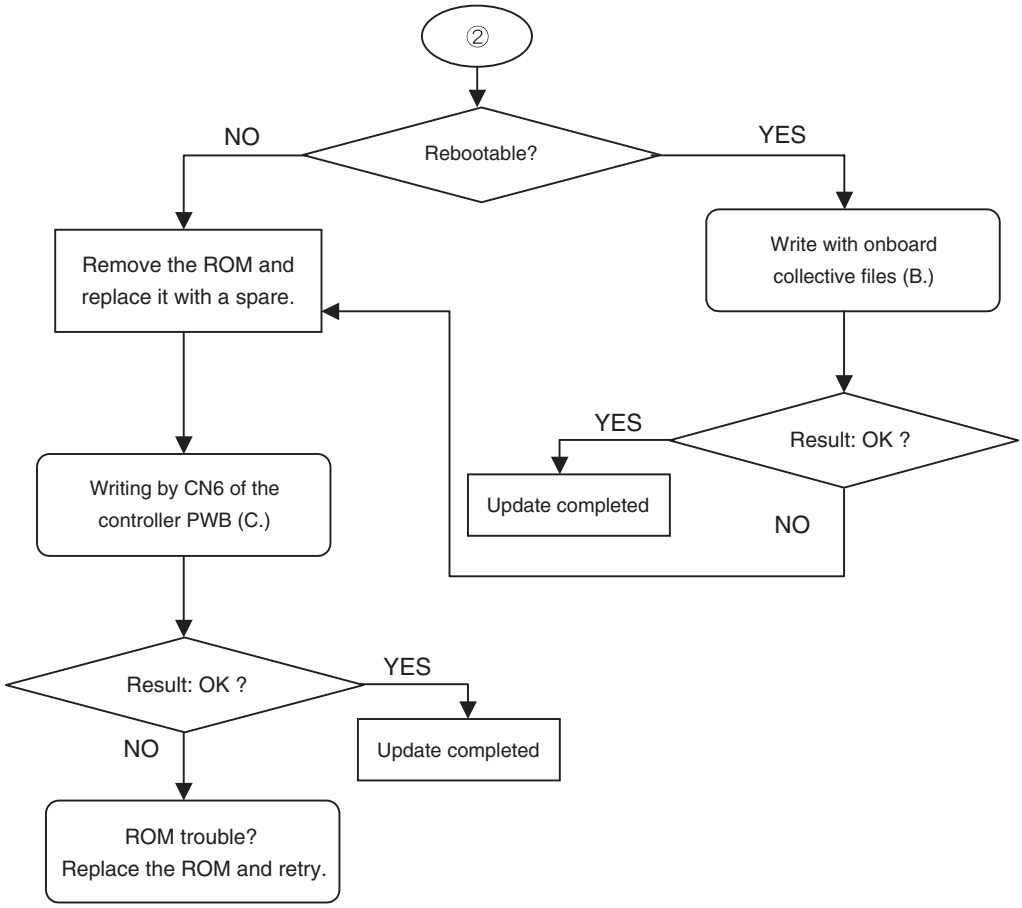
G. Update process flow

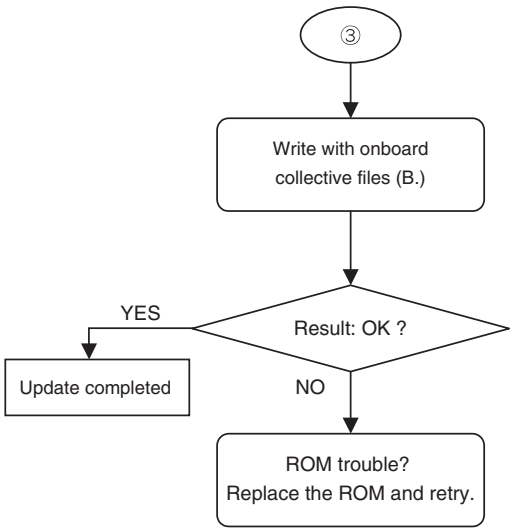
The brief descriptions on the update procedures are as follows. For turning off during update, refer to “E. Turning off the power during update.”

If the update window is displayed after booting with the DIP switches on the back of the machine set to the normal side, refer to “F. Update window display in normal booting.”




①
Rebootable?
NO
YES
Remove the boot ROM and replace it with a spare. (If another ROM is NG, replace it, too.)
Write with onboard collective files (B.)
Result: OK ?
YES
NO
Update completed
Writing by CN6 of the controller PWB (C.)
Result: OK ?
YES
NO
Update completed
ROM trouble? Replace the ROM and retry.

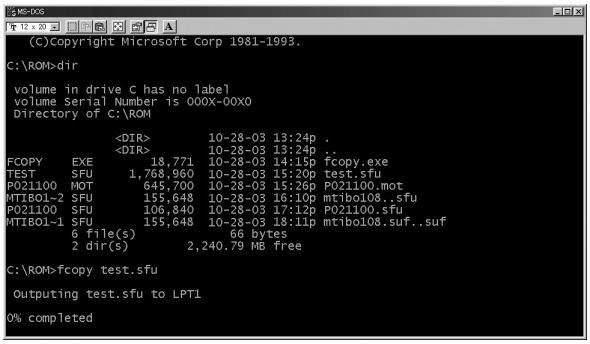

②
Rebootable?
NO
YES
Remove the ROM and replace it with a spare.
Write with onboard collective files (B.)
Result: OK ?
YES
NO
Update completed
Writing by CN6 of the controller PWB (C.)
Result: OK ?
YES
NO
Update completed
ROM trouble? Replace the ROM and retry.



<Reference> File transfer procedures

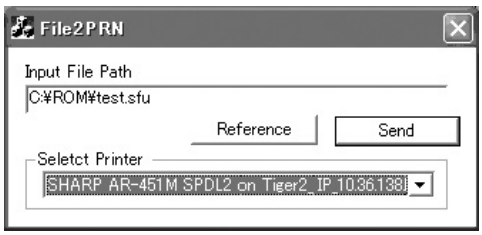
(1) File transfer by Fcopy.EXE

For file transfer by Fcopy, put Fcopy.exe and the files in a same directory, and boot the MS-DOS. Go to the directory of the files, and type “Fcopy file name” and transfer is made. In the following case, the SFU file is in the C:\ROM directory and it is transferred.



(2) File transfer by File2PRN.EXE

For file transfer by File2PRN, the machine to which the files are transferred must be set as a printer. The connection types as a printer are parallel port, network, and USB. For transfer by the network connection, IP address setting is required. It is not described here. For transfer of the files, execute File2PRN.EXE, and the following window is displayed.



Enter the path of the transfer file to “Input File Path.” (Or press Reference button and select a file to be transferred.) Then select the target printer in “Select Printer.” Select a parallel port connection printer or a USB connection printer depending on the connection type. After completion of the above transfer file selection and the target printer setting, press Send button to transfer the file.

For the file transfer by USB connection, refer to “<Reference> (3) File transfer by USB connection.”

(3) File transfer by USB connection

When update is made by File2PRN and USB connection, USB is used as a printer port similar to the other connections (parallel, network).

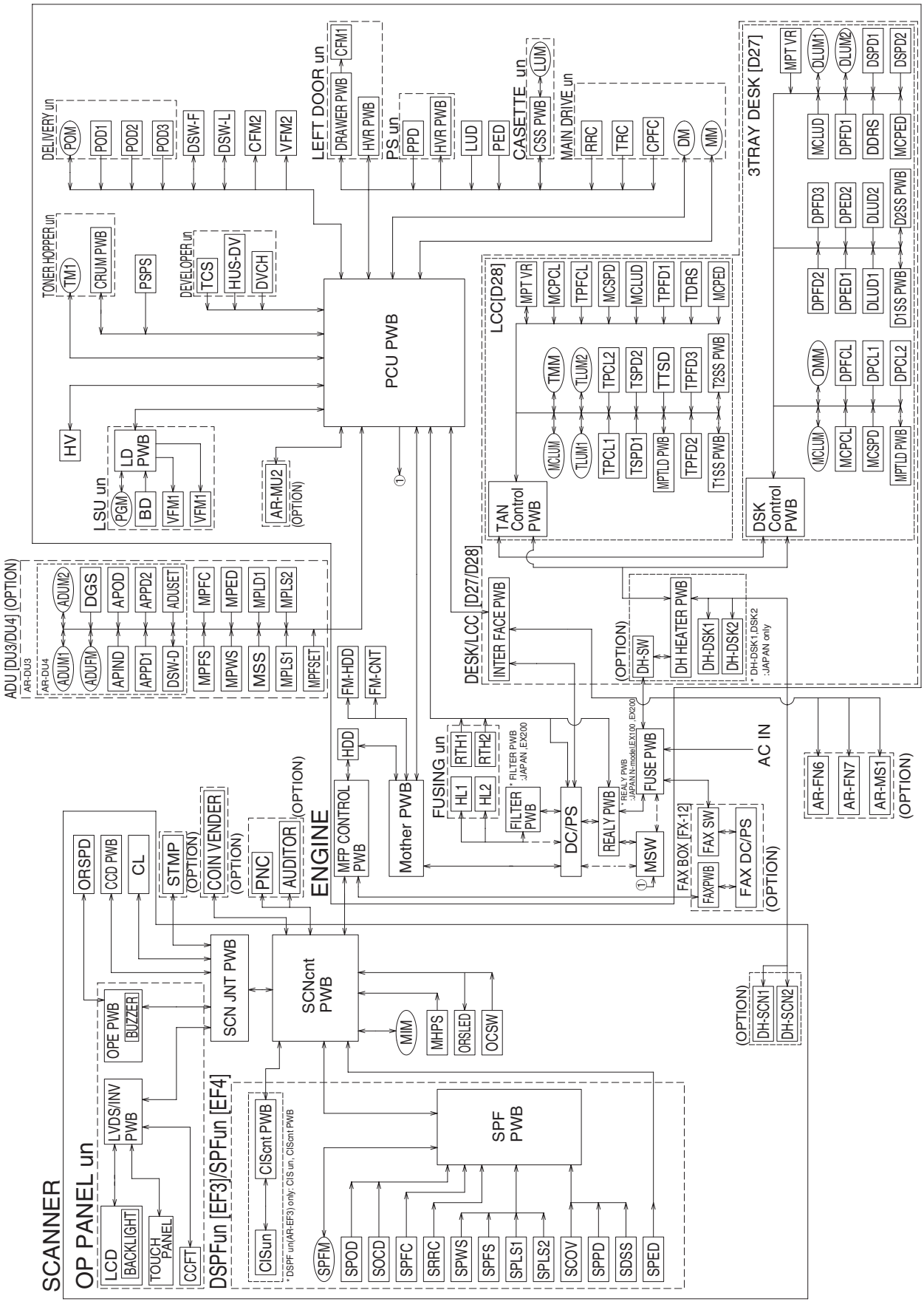
[Setup]

1) Set the machine as a printer which is connected to the PC in a connection type other than USB.
2) Boot the machine in the diag mode conforming to the normal ROM update procedures.
3) Connect the PC and the machine with the USB cable.
4) The PC system detects a new hardware by Plug & Play function.
5) The driver of SHARP AR-M455N is automatically installed. (Note that the model name is displayed as SHARP AR-M455N regardless of the actual model name.)
6) Follow the normal ROM update procedures to bring the machine into the data reception status.
7) Execute File2PRN, specify the printer registered in procedure 7), and execute file transfer.

(Example: SHARP AR-M455N SPDL2 on USB001)

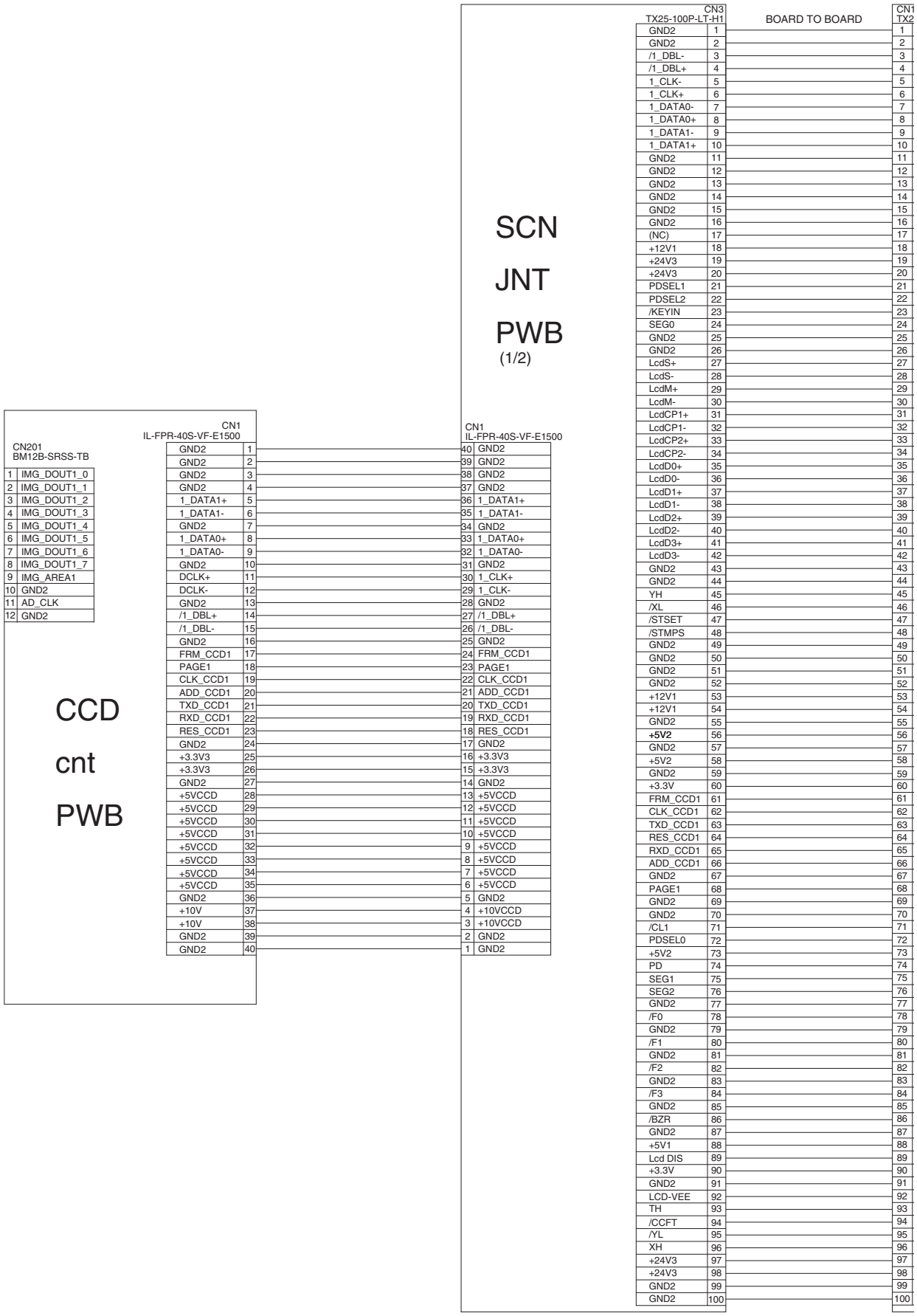
[13] ELECTRICAL SECTION

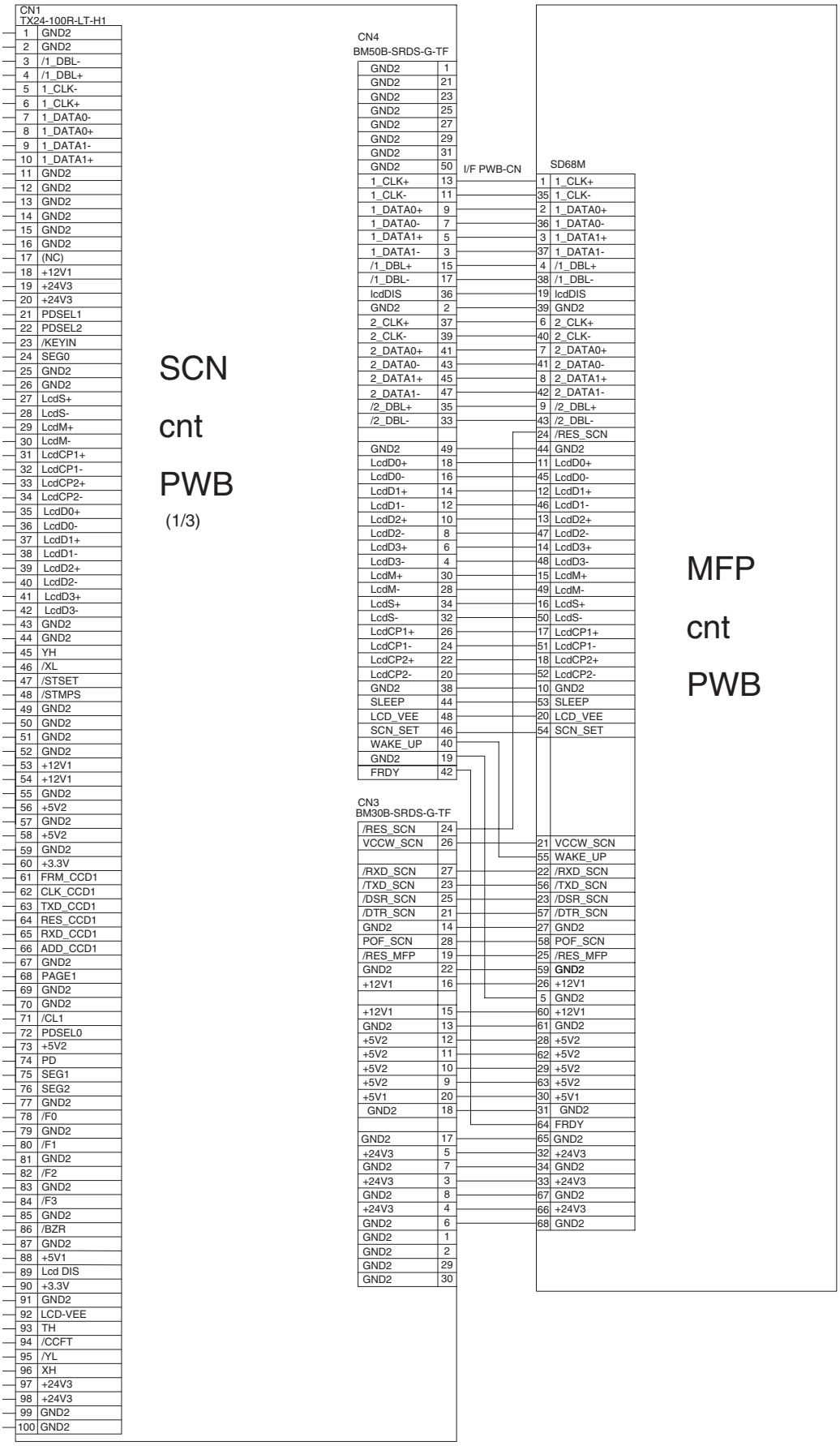
1. Block diagram



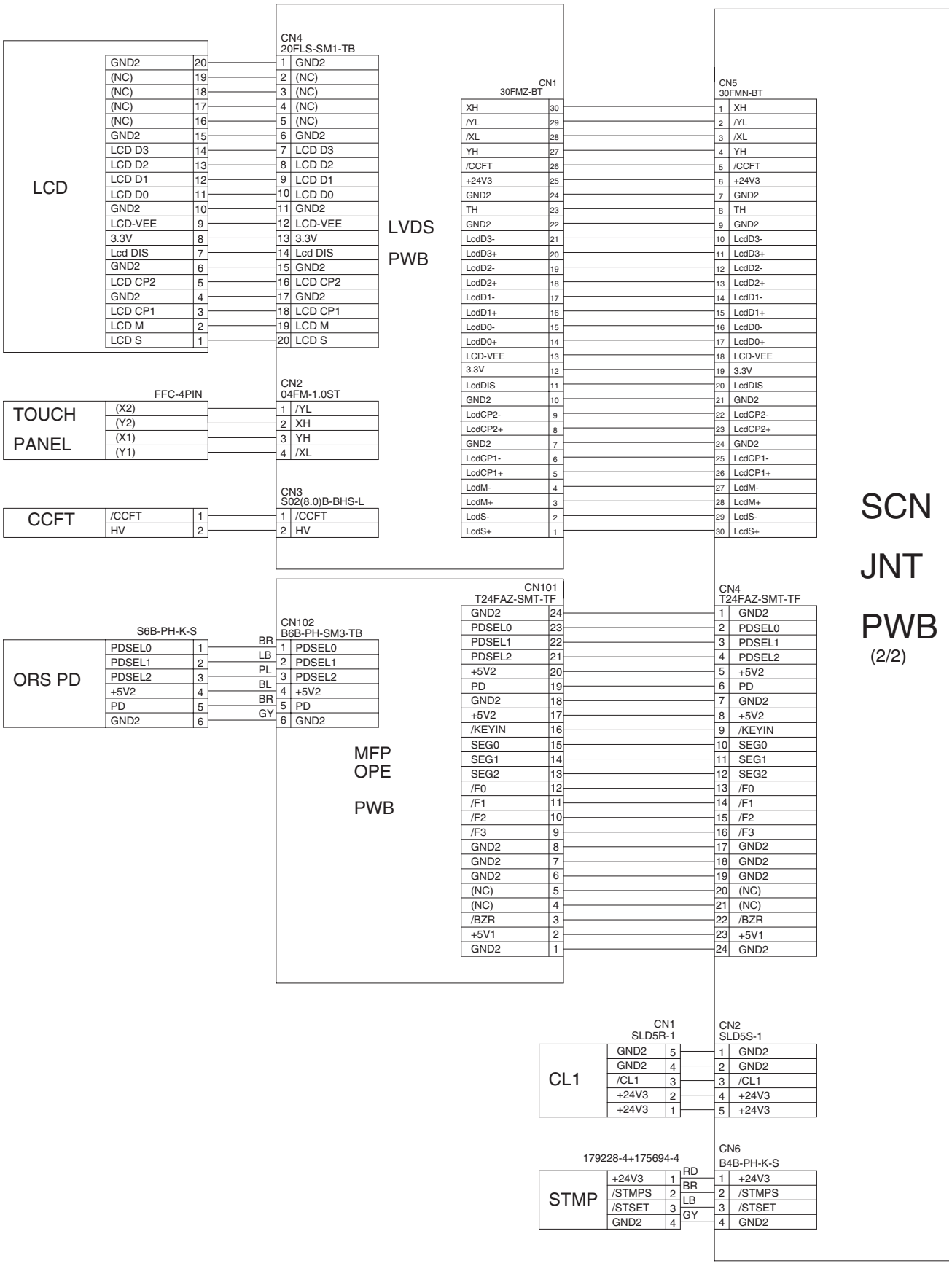
2. Actual wiring chart

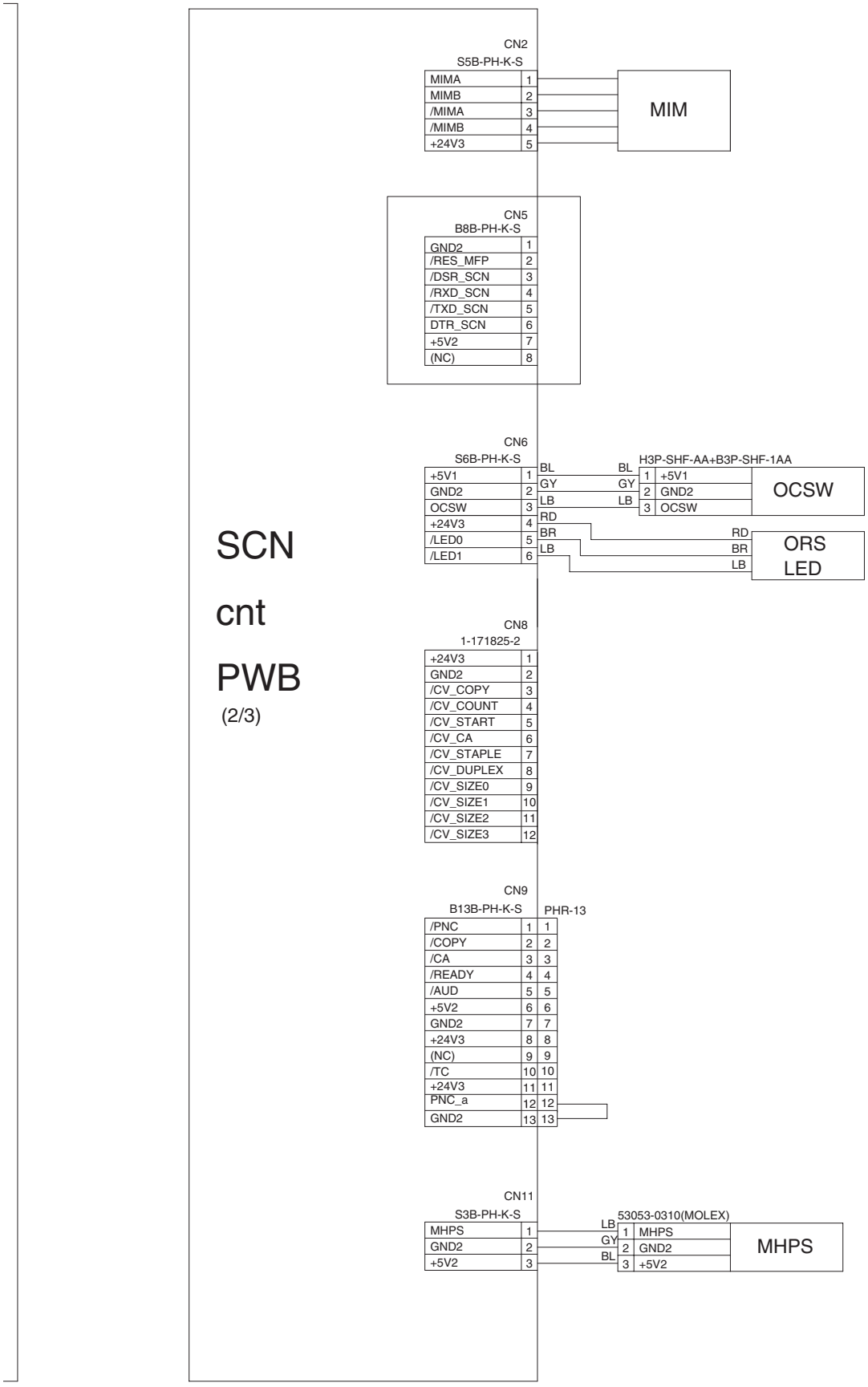
Scanner (1/3)



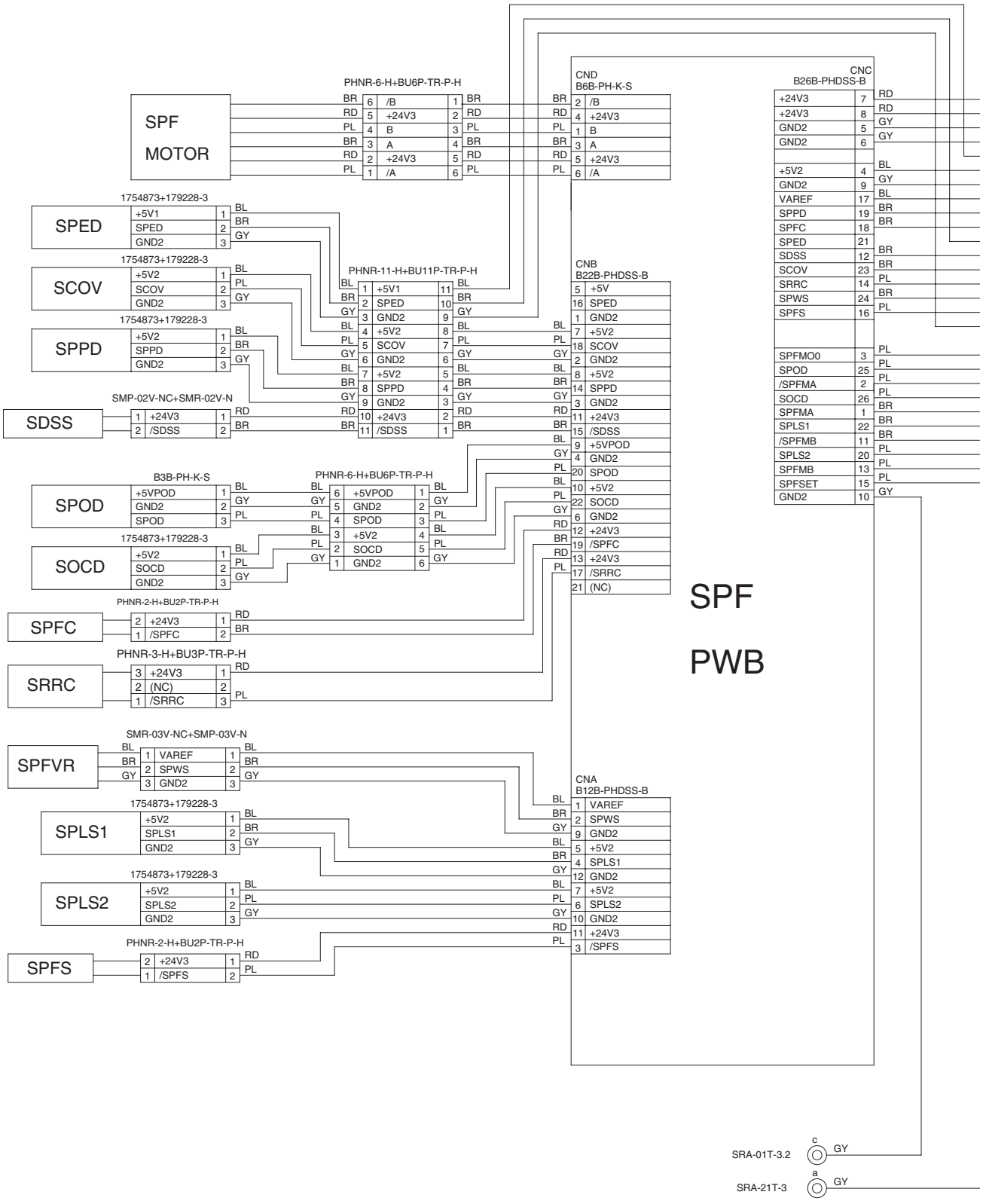

CN1
TX24-100R-LT-H1
1 GND2
2 GND2
3 /1_DBL-
4 /1_DBL+
5 1_CLK-
6 1_CLK+
7 1_DATA0-
8 1_DATA0+
9 1_DATA1-
10 1_DATA1+
11 GND2
12 GND2
13 GND2
14 GND2
15 GND2
16 GND2
17 (NC)
18 +12V1
19 +24V3
20 +24V3
21 PDSEL1
22 PDSEL2
23 /KEYIN
24 SEG0
25 GND2
26 GND2
27 LcdS+
28 LcdS-
29 LcdM+
30 LcdM-
31 LcdCP1+
32 LcdCP1-
33 LcdCP2+
34 LcdCP2-
35 LcdD0+
36 LcdD0-
37 LcdD1+
38 LcdD1-
39 LcdD2+
40 LcdD2-
41 LcdD3+
42 LcdD3-
43 GND2
44 GND2
45 YH
46 /XL
47 /STSET
48 /STMPS
49 GND2
50 GND2
51 GND2
52 GND2
53 +12V1
54 +12V1
55 GND2
56 +5V2
57 GND2
58 +5V2
59 GND2
60 +3.3V
61 FRM_CCD1
62 CLK_CCD1
63 TXD_CCD1
64 RES_CCD1
65 RXD_CCD1
66 ADD_CCD1
67 GND2
68 PAGE1
69 GND2
70 GND2
71 /CL1
72 PDSEL0
73 +5V2
74 PD
75 SEG1
76 SEG2
77 GND2
78 /F0
79 GND2
80 /F1
81 GND2
82 /F2
83 GND2
84 /F3
85 GND2
86 /BZR
87 GND2
88 +5V1
89 Lcd DIS
90 +3.3V
91 GND2
92 LCD-VEE
93 TH
94 /CCFT
95 /YL
96 XH
97 +24V3
98 +24V3
99 GND2
100 GND2
SCN
cnt
PWB
(1/3)
CN4
BM50B-SRDS-G-TF
GND2 1
GND2 21
GND2 23
GND2 25
GND2 27
GND2 29
GND2 31
GND2 50
1_CLK+ 13
1_CLK- 11
1_DATA0+ 9
1_DATA0- 7
1_DATA1+ 5
1_DATA1- 3
/1_DBL+ 15
/1_DBL- 17
lcdDIS 36
GND2 2
2_CLK+ 37
2_CLK- 39
2_DATA0+ 41
2_DATA0- 43
2_DATA1+ 45
2_DATA1- 47
/2_DBL+ 35
/2_DBL- 33
GND2 49
LcdD0+ 18
LcdD0- 16
LcdD1+ 14
LcdD1- 12
LcdD2+ 10
LcdD2- 8
LcdD3+ 6
LcdD3- 4
LcdM+ 30
LcdM- 28
LcdS+ 34
LcdS- 32
LcdCP1+ 26
LcdCP1- 24
LcdCP2+ 22
LcdCP2- 20
GND2 38
SLEEP 44
LCD_VEE 48
SCN_SET 46
WAKE_UP 40
GND2 19
FRDY 42
CN3
BM30B-SRDS-G-TF
/RES_SCN 24
VCCW_SCN 26
/RXD_SCN 27
/TXD_SCN 23
/DSR_SCN 25
/DTR_SCN 21
GND2 14
POF_SCN 28
/RES_MFP 19
GND2 22
+12V1 16
+12V1 15
GND2 13
+5V2 12
+5V2 11
+5V2 10
+5V2 9
+5V1 20
GND2 18
GND2 17
+24V3 5
GND2 7
+24V3 3
GND2 8
+24V3 4
GND2 6
GND2 1
GND2 2
GND2 29
GND2 30
I/F PWB-CN
SD68M
1 1_CLK+
35 1_CLK-
2 1_DATA0+
36 1_DATA0-
3 1_DATA1+
37 1_DATA1-
4 /1_DBL+
38 /1_DBL-
19 lcdDIS
39 GND2
6 2_CLK+
40 2_CLK-
7 2_DATA0+
41 2_DATA0-
8 2_DATA1+
42 2_DATA1-
9 /2_DBL+
43 /2_DBL-
24 /RES_SCN
44 GND2
11 LcdD0+
45 LcdD0-
12 LcdD1+
46 LcdD1-
13 LcdD2+
47 LcdD2-
14 LcdD3+
48 LcdD3-
15 LcdM+
49 LcdM-
16 LcdS+
50 LcdS-
17 LcdCP1+
51 LcdCP1-
18 LcdCP2+
52 LcdCP2-
10 GND2
53 SLEEP
20 LCD_VEE
54 SCN_SET
21 VCCW_SCN
55 WAKE_UP
22 /RXD_SCN
56 /TXD_SCN
23 /DSR_SCN
57 /DTR_SCN
27 GND2
58 POF_SCN
25 /RES_MFP
59 GND2
26 +12V1
5 GND2
60 +12V1
61 GND2
28 +5V2
62 +5V2
29 +5V2
63 +5V2
30 +5V1
31 GND2
64 FRDY
65 GND2
32 +24V3
34 GND2
33 +24V3
67 GND2
66 +24V3
68 GND2
MFP
cnt
PWB

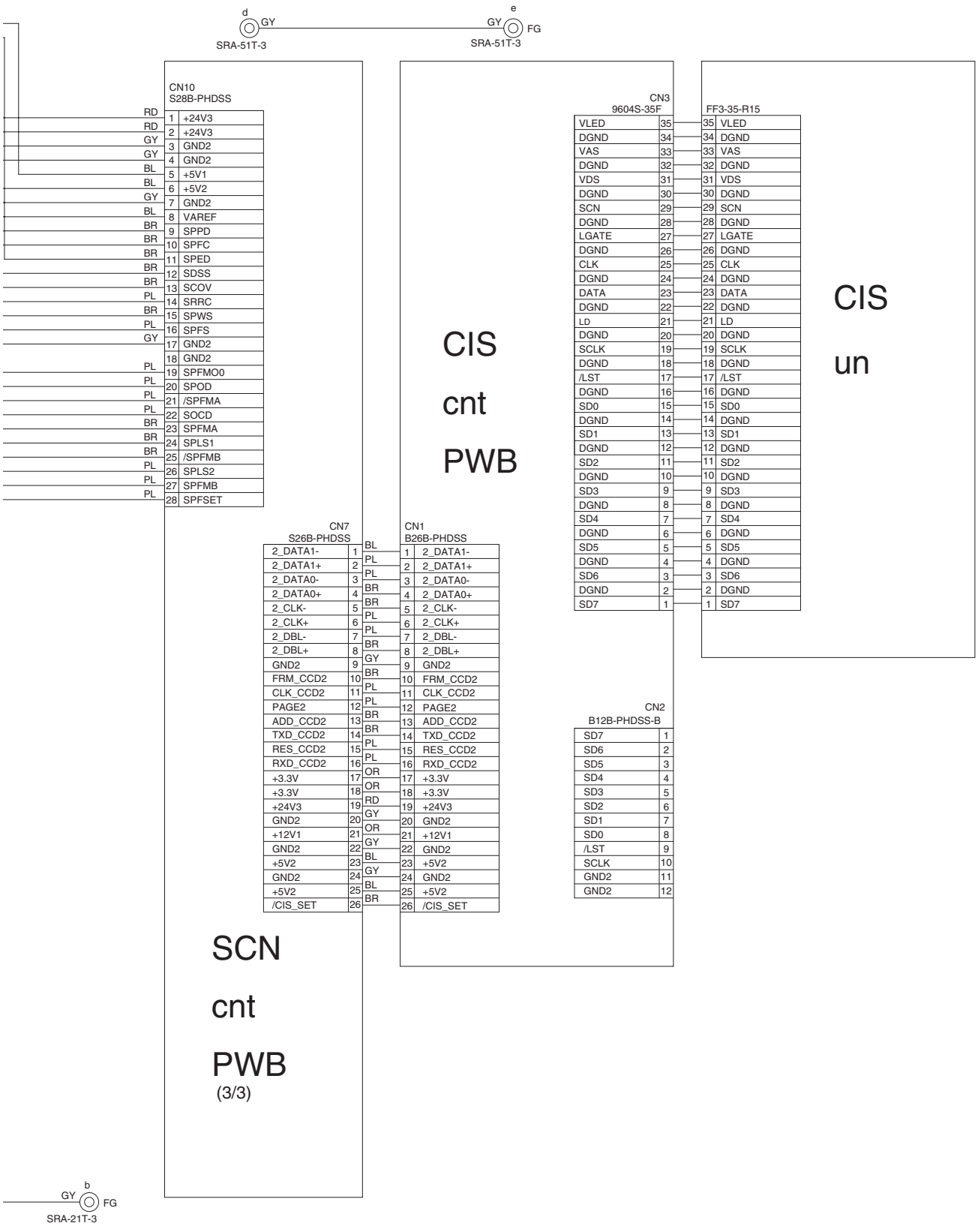
Scanner (2/3)


LCD
GND2 20
(NC) 19
(NC) 18
(NC) 17
(NC) 16
GND2 15
LCD D3 14
LCD D2 13
LCD D1 12
LCD D0 11
GND2 10
LCD-VEE 9
3.3V 8
Lcd DIS 7
GND2 6
LCD CP2 5
GND2 4
LCD CP1 3
LCD M 2
LCD S 1
CN4
20FLS-SM1-TB
1 GND2
2 (NC)
3 (NC)
4 (NC)
5 (NC)
6 GND2
7 LCD D3
8 LCD D2
9 LCD D1
10 LCD D0
11 GND2
12 LCD-VEE
13 3.3V
14 Lcd DIS
15 GND2
16 LCD CP2
17 GND2
18 LCD CP1
19 LCD M
20 LCD S
LVDS
PWB
CN1
30FMZ-BT
XH 30
/YL 29
/XL 28
YH 27
/CCFT 26
+24V3 25
GND2 24
TH 23
GND2 22
LcdD3- 21
LcdD3+ 20
LcdD2- 19
LcdD2+ 18
LcdD1- 17
LcdD1+ 16
LcdD0- 15
LcdD0+ 14
LCD-VEE 13
3.3V 12
LcdDIS 11
GND2 10
LcdCP2- 9
LcdCP2+ 8
GND2 7
LcdCP1- 6
LcdCP1+ 5
LcdM- 4
LcdM+ 3
LcdS- 2
LcdS+ 1
CN5
30FMN-BT
1 XH
2 /YL
3 /XL
4 YH
5 /CCFT
6 +24V3
7 GND2
8 TH
9 GND2
10 LcdD3-
11 LcdD3+
12 LcdD2-
13 LcdD2+
14 LcdD1-
15 LcdD1+
16 LcdD0-
17 LcdD0+
18 LCD-VEE
19 3.3V
20 LcdDIS
21 GND2
22 LcdCP2-
23 LcdCP2+
24 GND2
25 LcdCP1-
26 LcdCP1+
27 LcdM-
28 LcdM+
29 LcdS-
30 LcdS+
TOUCH PANEL
FFC-4PIN
(X2)
(Y2)
(X1)
(Y1)
CN2
04FM-1.0ST
1 /YL
2 XH
3 YH
4 /XL
CCFT
/CCFT 1
HV 2
CN3
S02(8.0)B-BHS-L
1 /CCFT
2 HV
ORS PD
S6B-PH-K-S
PDSEL0 1
PDSEL1 2
PDSEL2 3
+5V2 4
PD 5
GND2 6
BR
LB
PL
BL
BR
GY
CN102
B6B-PH-SM3-TB
1 PDSEL0
2 PDSEL1
3 PDSEL2
4 +5V2
5 PD
6 GND2
MFP
OPE
PWB
CN101
T24FAZ-SMT-TF
GND2 24
PDSEL0 23
PDSEL1 22
PDSEL2 21
+5V2 20
PD 19
GND2 18
+5V2 17
/KEYIN 16
SEG0 15
SEG1 14
SEG2 13
/F0 12
/F1 11
/F2 10
/F3 9
GND2 8
GND2 7
GND2 6
(NC) 5
(NC) 4
/BZR 3
+5V1 2
GND2 1
CN4
T24FAZ-SMT-TF
1 GND2
2 PDSEL0
3 PDSEL1
4 PDSEL2
5 +5V2
6 PD
7 GND2
8 +5V2
9 /KEYIN
10 SEG0
11 SEG1
12 SEG2
13 /F0
14 /F1
15 /F2
16 /F3
17 GND2
18 GND2
19 GND2
20 (NC)
21 (NC)
22 /BZR
23 +5V1
24 GND2
SCN
JNT
PWB
(2/2)
CL1
CN1
SLD5R-1
GND2 5
GND2 4
/CL1 3
+24V3 2
+24V3 1
CN2
SLD5S-1
1 GND2
2 GND2
3 /CL1
4 +24V3
5 +24V3
STMP
179228-4+175694-4
+24V3 1
/STMPS 2
/STSET 3
GND2 4
RD
BR
LB
GY
CN6
B4B-PH-K-S
1 +24V3
2 /STMPS
3 /STSET
4 GND2

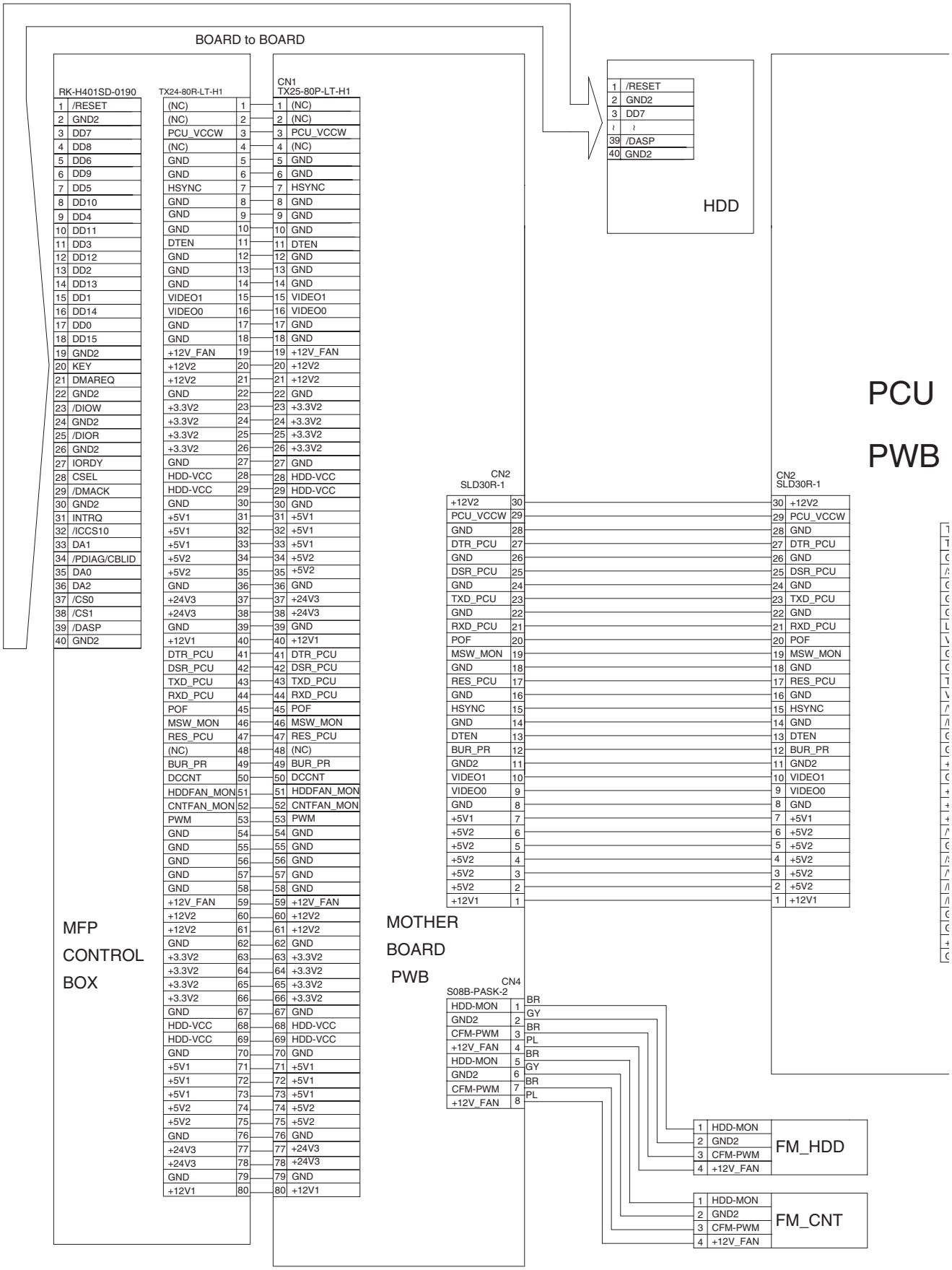

SCN
cnt
PWB
(2/3)
CN2
S5B-PH-K-S
MIMA 1
MIMB 2
/MIMA 3
/MIMB 4
+24V3 5
MIM
CN5
B8B-PH-K-S
GND2 1
/RES_MFP 2
/DSR_SCN 3
/RXD_SCN 4
/TXD_SCN 5
DTR_SCN 6
+5V2 7
(NC) 8
CN6
S6B-PH-K-S
+5V1 1
GND2 2
OCSW 3
+24V3 4
/LED0 5
/LED1 6
BL
GY
LB
RD
BR
LB
H3P-SHF-AA+B3P-SHF-1AA
1 +5V1
2 GND2
3 OCSW
OCSW
RD
BR
LB
ORS
LED
CN8
1-171825-2
+24V3 1
GND2 2
/CV_COPY 3
/CV_COUNT 4
/CV_START 5
/CV_CA 6
/CV_STAPLE 7
/CV_DUPLEX 8
/CV_SIZE0 9
/CV_SIZE1 10
/CV_SIZE2 11
/CV_SIZE3 12
CN9
B13B-PH-K-S
PHR-13
/PNC 1 1
/COPY 2 2
/CA 3 3
/READY 4 4
/AUD 5 5
+5V2 6 6
GND2 7 7
+24V3 8 8
(NC) 9 9
/TC 10 10
+24V3 11 11
PNC_a 12 12
GND2 13 13
CN11
S3B-PH-K-S
MHPS 1
GND2 2
+5V2 3
LB
GY
BL
53053-0310(MOLEX)
1 MHPS
2 GND2
3 +5V2
MHPS

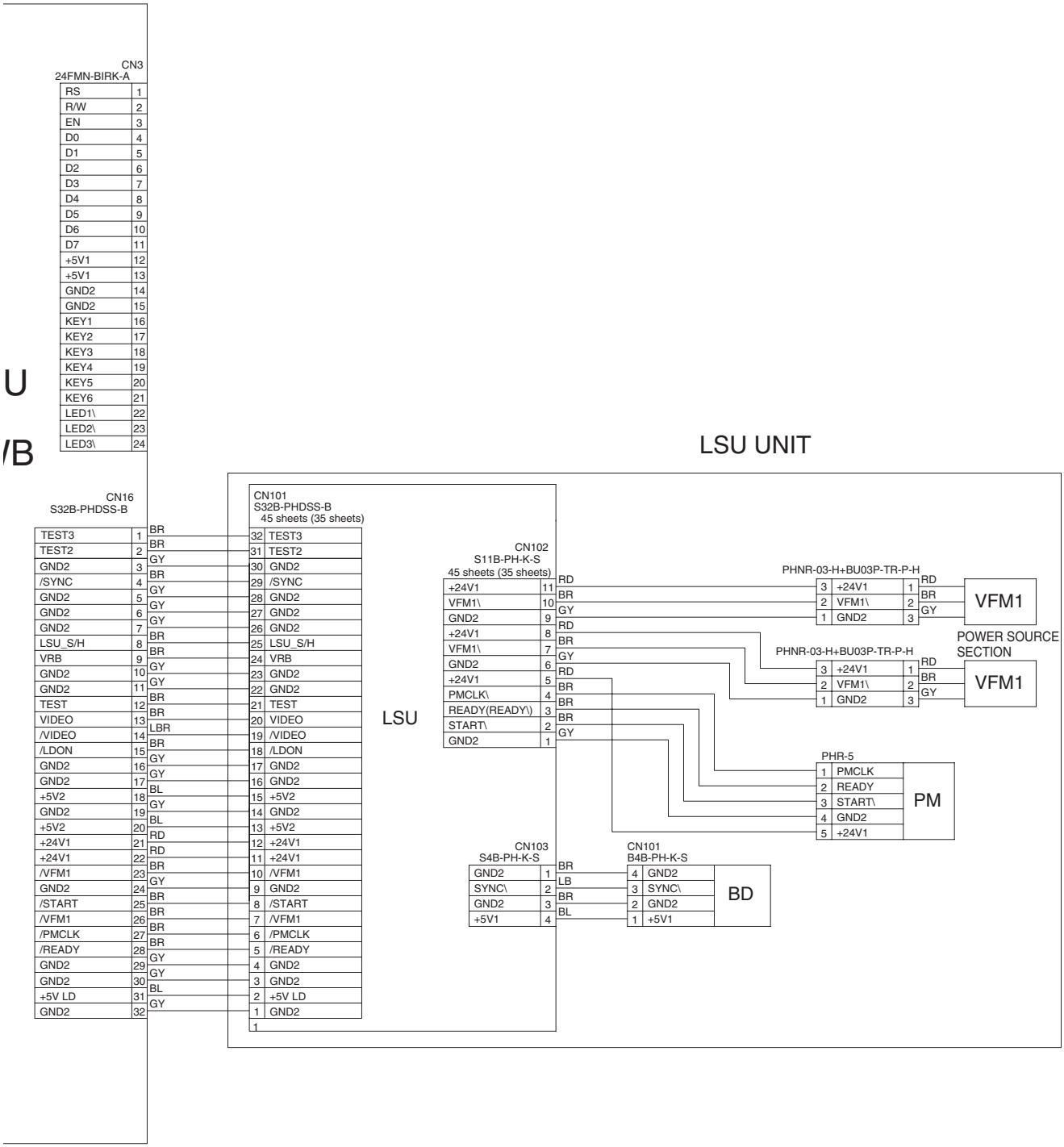
Scanner (3/3)


SPF MOTOR
PHNR-6-H+BU6P-TR-P-H
CND
B6B-PH-K-S
CNC
B26B-PHDSS-B
SPED
SCOV
SPPD
SDSS
SMP-02V-NC+SMR-02V-N
PHNR-11-H+BU11P-TR-P-H
CNB
B22B-PHDSS-B
SPOD
B3B-PH-K-S
SOCD
SPFC
PHNR-2-H+BU2P-TR-P-H
SRRC
PHNR-3-H+BU3P-TR-P-H
SPFVR
SMR-03V-NC+SMP-03V-N
CNA
B12B-PHDSS-B
SPLS1
SPLS2
SPFS
SPF PWB
SRA-01T-3.2
SRA-21T-3

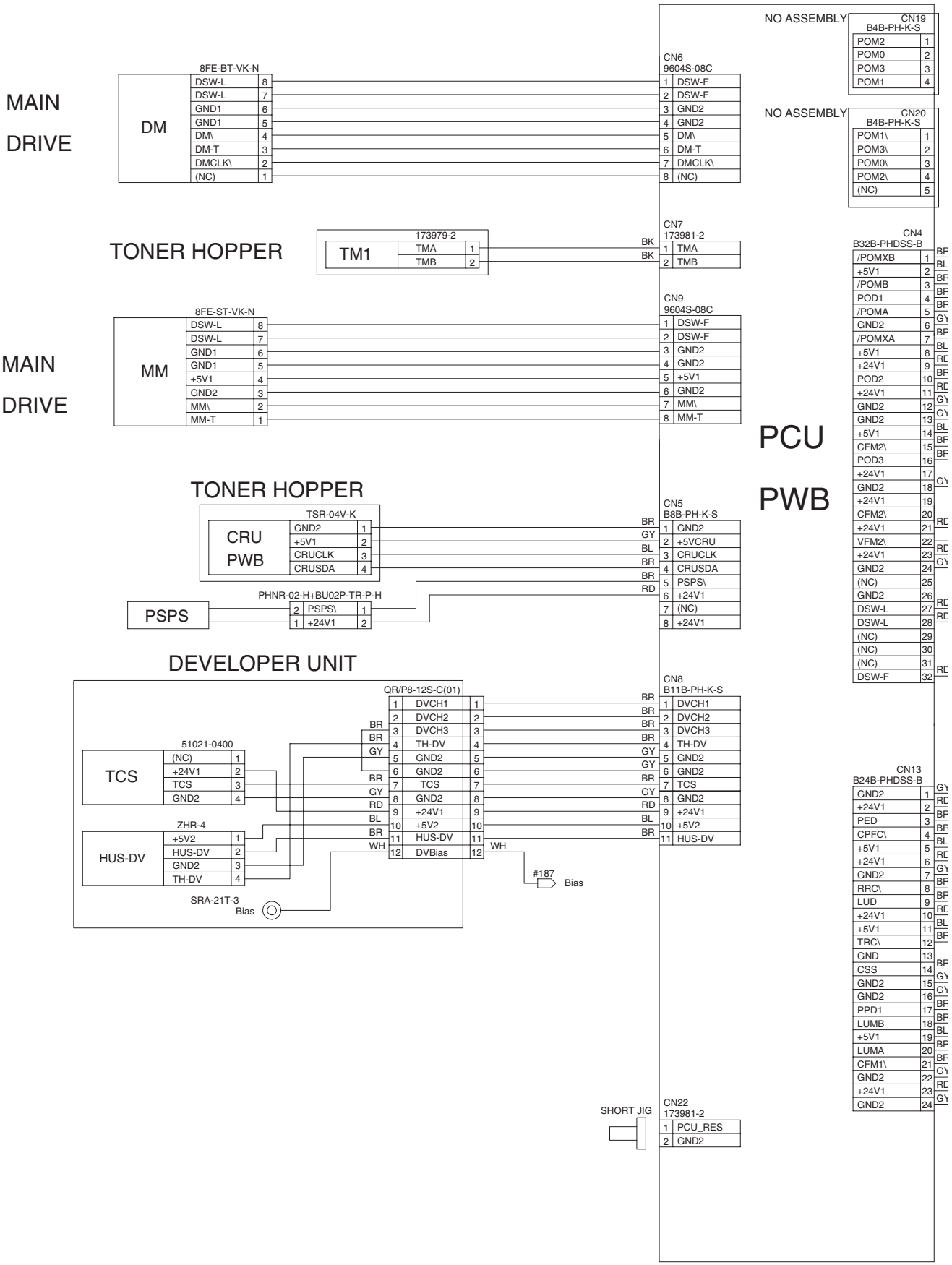

d
GY
SRA-51T-3
e
GY
FG
SRA-51T-3
CN10
S28B-PHDSS
RD 1 +24V3
RD 2 +24V3
GY 3 GND2
GY 4 GND2
BL 5 +5V1
BL 6 +5V2
GY 7 GND2
BL 8 VAREF
BR 9 SPPD
BR 10 SPFC
BR 11 SPED
BR 12 SDSS
BR 13 SCOV
PL 14 SRRC
BR 15 SPWS
PL 16 SPFS
GY 17 GND2
18 GND2
PL 19 SPFMO0
PL 20 SPOD
PL 21 /SPFMA
PL 22 SOCD
BR 23 SPFMA
BR 24 SPLS1
BR 25 /SPFMB
PL 26 SPLS2
PL 27 SPFMB
PL 28 SPFSET
CIS
cnt
PWB
CN3
9604S-35F
VLED 35
DGND 34
VAS 33
DGND 32
VDS 31
DGND 30
SCN 29
DGND 28
LGATE 27
DGND 26
CLK 25
DGND 24
DATA 23
DGND 22
LD 21
DGND 20
SCLK 19
DGND 18
/LST 17
DGND 16
SD0 15
DGND 14
SD1 13
DGND 12
SD2 11
DGND 10
SD3 9
DGND 8
SD4 7
DGND 6
SD5 5
DGND 4
SD6 3
DGND 2
SD7 1
FF3-35-R15
35 VLED
34 DGND
33 VAS
32 DGND
31 VDS
30 DGND
29 SCN
28 DGND
27 LGATE
26 DGND
25 CLK
24 DGND
23 DATA
22 DGND
21 LD
20 DGND
19 SCLK
18 DGND
17 /LST
16 DGND
15 SD0
14 DGND
13 SD1
12 DGND
11 SD2
10 DGND
9 SD3
8 DGND
7 SD4
6 DGND
5 SD5
4 DGND
3 SD6
2 DGND
1 SD7
CIS
un
CN7
S26B-PHDSS
2_DATA1- 1 BL
2_DATA1+ 2 PL
2_DATA0- 3 PL
2_DATA0+ 4 BR
2_CLK- 5 BR
2_CLK+ 6 PL
2_DBL- 7 PL
2_DBL+ 8 BR
GND2 9 GY
FRM_CCD2 10 BR
CLK_CCD2 11 PL
PAGE2 12 PL
ADD_CCD2 13 BR
TXD_CCD2 14 BR
RES_CCD2 15 PL
RXD_CCD2 16 PL
+3.3V 17 OR
+3.3V 18 OR
+24V3 19 RD
GND2 20 GY
+12V1 21 OR
GND2 22 GY
+5V2 23 BL
GND2 24 GY
+5V2 25 BL
/CIS_SET 26 BR
CN1
B26B-PHDSS
1 2_DATA1-
2 2_DATA1+
3 2_DATA0-
4 2_DATA0+
5 2_CLK-
6 2_CLK+
7 2_DBL-
8 2_DBL+
9 GND2
10 FRM_CCD2
11 CLK_CCD2
12 PAGE2
13 ADD_CCD2
14 TXD_CCD2
15 RES_CCD2
16 RXD_CCD2
17 +3.3V
18 +3.3V
19 +24V3
20 GND2
21 +12V1
22 GND2
23 +5V2
24 GND2
25 +5V2
26 /CIS_SET
CN2
B12B-PHDSS-B
SD7 1
SD6 2
SD5 3
SD4 4
SD3 5
SD2 6
SD1 7
SD0 8
/LST 9
SCLK 10
GND2 11
GND2 12
SCN
cnt
PWB
(3/3)
b
GY
FG
SRA-21T-3

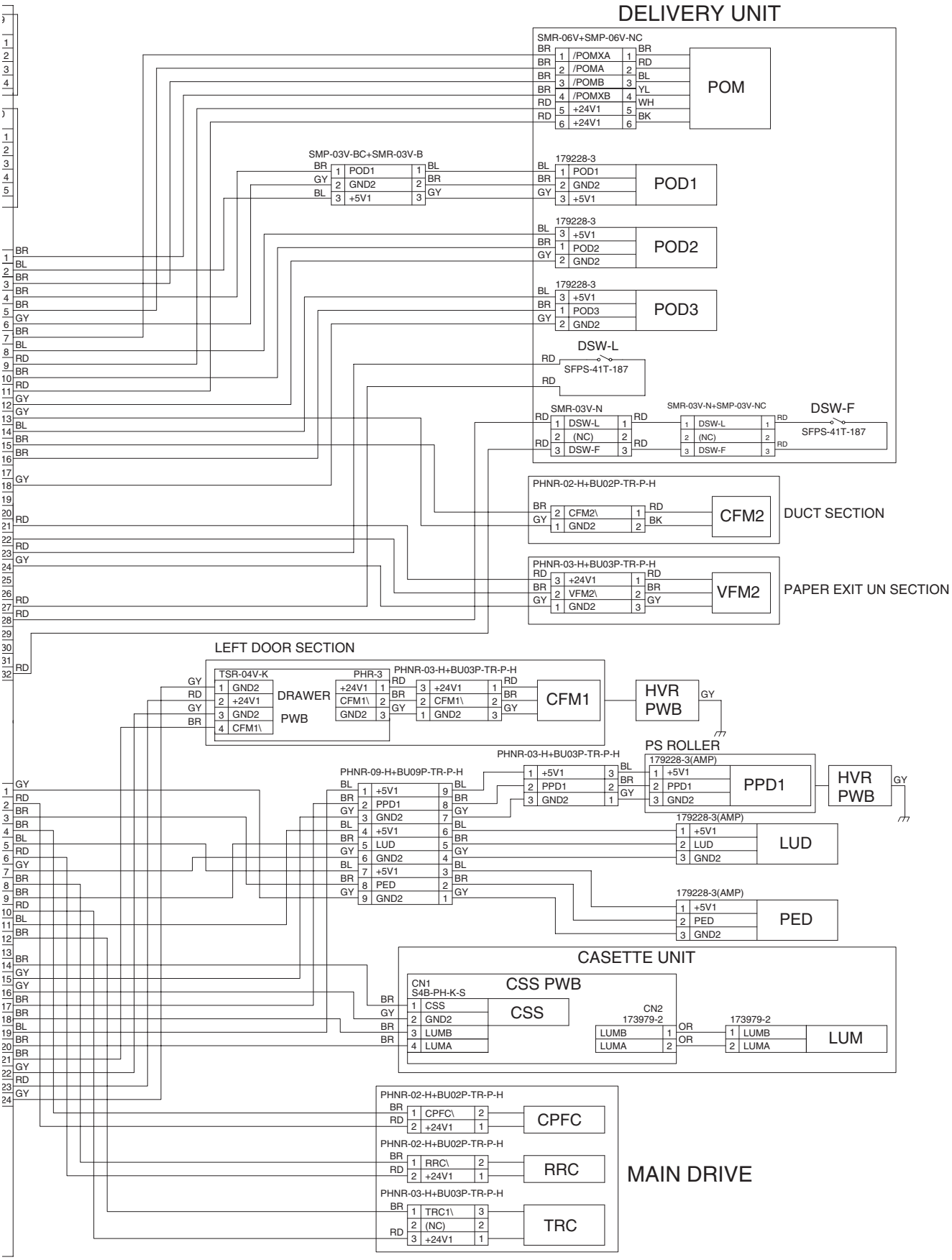
Engine (1/4)


BOARD to BOARD
RK-H401SD-0190
TX24-80R-LT-H1
CN1
TX25-80P-LT-H1
1 /RESET
2 GND2
3 DD7
39 /DASP
40 GND2
HDD
PCU
PWB
CN2
SLD30R-1
CN2
SLD30R-1
MFP
CONTROL
BOX
MOTHER
BOARD
PWB
CN4
S08B-PASK-2
HDD-MON
GND2
CFM-PWM
+12V_FAN
FM_HDD
FM_CNT

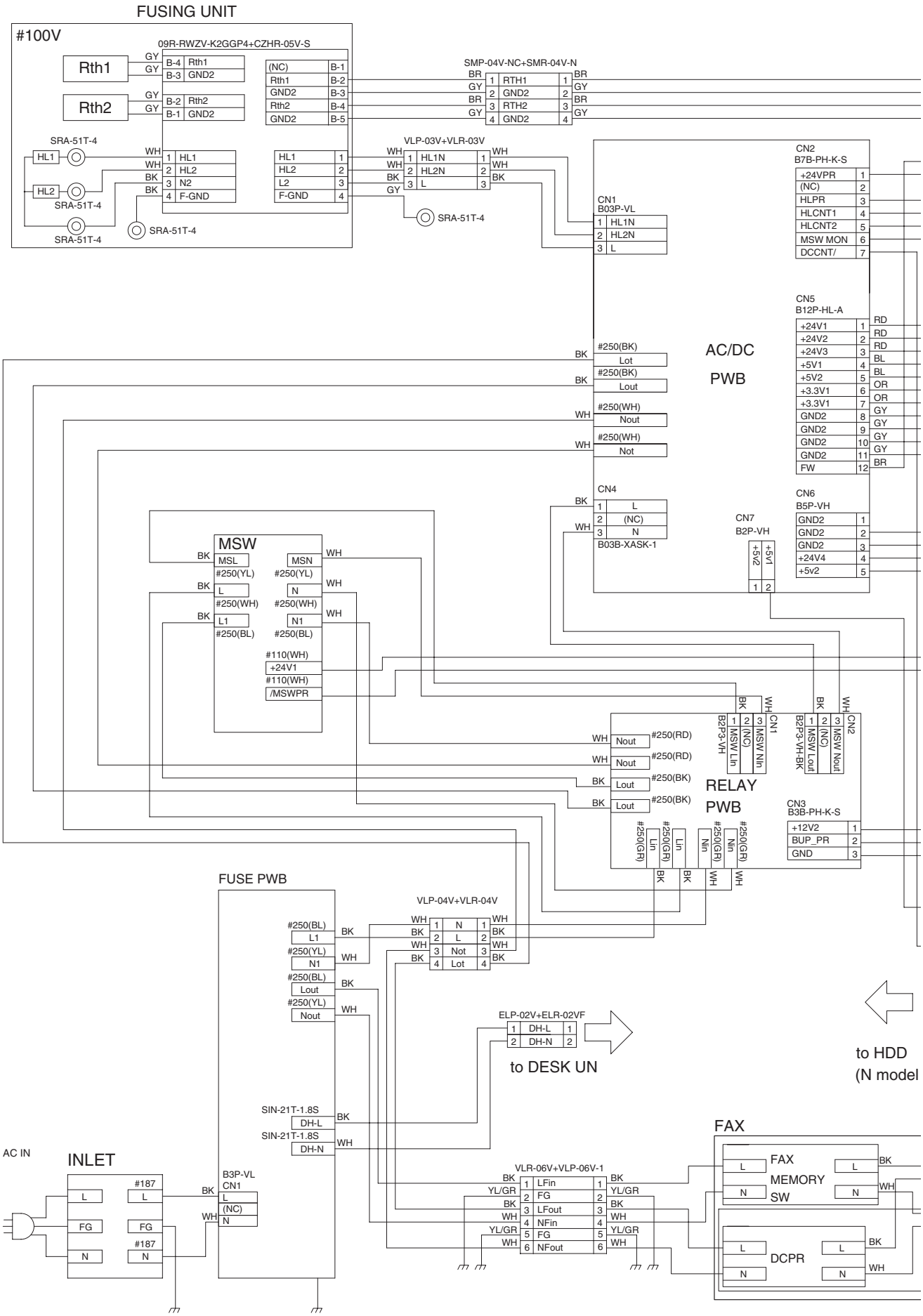

CN3
24FMN-BIRK-A
RS 1
R/W 2
EN 3
D0 4
D1 5
D2 6
D3 7
D4 8
D5 9
D6 10
D7 11
+5V1 12
+5V1 13
GND2 14
GND2 15
KEY1 16
KEY2 17
KEY3 18
KEY4 19
KEY5 20
KEY6 21
LED1\ 22
LED2\ 23
LED3\ 24
U
/B
LSU UNIT
CN16
S32B-PHDSS-B
TEST3 1
TEST2 2
GND2 3
/SYNC 4
GND2 5
GND2 6
GND2 7
LSU_S/H 8
VRB 9
GND2 10
GND2 11
TEST 12
VIDEO 13
/VIDEO 14
/LDON 15
GND2 16
GND2 17
+5V2 18
GND2 19
+5V2 20
+24V1 21
+24V1 22
/VFM1 23
GND2 24
/START 25
/VFM1 26
/PMCLK 27
/READY 28
GND2 29
GND2 30
+5V LD 31
GND2 32
BR
BR
GY
BR
GY
GY
GY
BR
BR
GY
GY
BR
BR
LBR
BR
GY
GY
BL
GY
BL
RD
RD
BR
GY
BR
BR
BR
BR
GY
GY
BL
GY
CN101
S32B-PHDSS-B
45 sheets (35 sheets)
32 TEST3
31 TEST2
30 GND2
29 /SYNC
28 GND2
27 GND2
26 GND2
25 LSU_S/H
24 VRB
23 GND2
22 GND2
21 TEST
20 VIDEO
19 /VIDEO
18 /LDON
17 GND2
16 GND2
15 +5V2
14 GND2
13 +5V2
12 +24V1
11 +24V1
10 /VFM1
9 GND2
8 /START
7 /VFM1
6 /PMCLK
5 /READY
4 GND2
3 GND2
2 +5V LD
1 GND2
1
LSU
CN102
S11B-PH-K-S
45 sheets (35 sheets)
+24V1 11
VFM1\ 10
GND2 9
+24V1 8
VFM1\ 7
GND2 6
+24V1 5
PMCLK\ 4
READY(READY\) 3
START\ 2
GND2 1
RD
BR
GY
RD
BR
GY
RD
BR
BR
BR
GY
PHNR-03-H+BU03P-TR-P-H
3 +24V1 1
2 VFM1\ 2
1 GND2 3
RD
BR
GY
VFM1
POWER SOURCE SECTION
PHNR-03-H+BU03P-TR-P-H
3 +24V1 1
2 VFM1\ 2
1 GND2 3
RD
BR
GY
VFM1
PHR-5
1 PMCLK
2 READY
3 START\
4 GND2
5 +24V1
PM
CN103
S4B-PH-K-S
GND2 1
SYNC\ 2
GND2 3
+5V1 4
BR
LB
BR
BL
CN101
B4B-PH-K-S
4 GND2
3 SYNC\
2 GND2
1 +5V1
BD

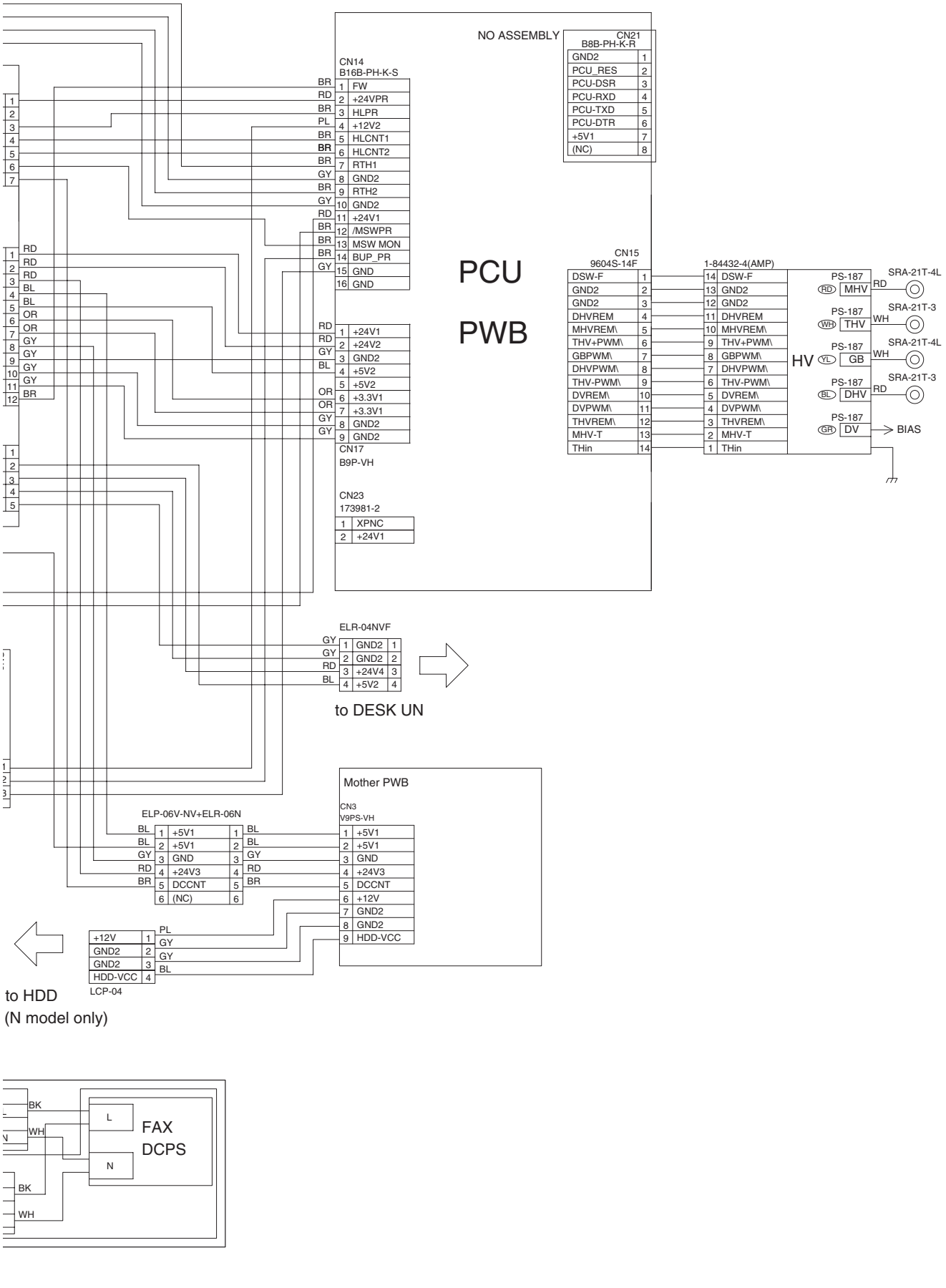
Engine (2/4)


MAIN DRIVE
8FE-BT-VK-N
DM
DSW-L 8
DSW-L 7
GND1 6
GND1 5
DM\ 4
DM-T 3
DMCLK\ 2
(NC) 1
CN6
9604S-08C
1 DSW-F
2 DSW-F
3 GND2
4 GND2
5 DM\
6 DM-T
7 DMCLK\
8 (NC)
NO ASSEMBLY
CN19
B4B-PH-K-S
POM2 1
POM0 2
POM3 3
POM1 4
NO ASSEMBLY
CN20
B4B-PH-K-S
POM1\ 1
POM3\ 2
POM0\ 3
POM2\ 4
(NC) 5
TONER HOPPER
173979-2
TM1
TMA 1
TMB 2
CN7
173981-2
BK 1 TMA
BK 2 TMB
MAIN DRIVE
8FE-ST-VK-N
MM
DSW-L 8
DSW-L 7
GND1 6
GND1 5
+5V1 4
GND2 3
MM\ 2
MM-T 1
CN9
9604S-08C
1 DSW-F
2 DSW-F
3 GND2
4 GND2
5 +5V1
6 GND2
7 MM\
8 MM-T
CN4
B32B-PHDSS-B
/POMXB 1 BR
+5V1 2 BL
/POMB 3 BR
POD1 4 BR
/POMA 5 GY
GND2 6 BR
/POMXA 7 BL
+5V1 8 RD
+24V1 9 BR
POD2 10 RD
+24V1 11 GY
GND2 12 GY
GND2 13 BL
+5V1 14 BR
CFM2\ 15 BR
POD3 16
+24V1 17 GY
GND2 18
+24V1 19
CFM2\ 20 RD
+24V1 21
VFM2\ 22 RD
+24V1 23 GY
GND2 24
(NC) 25
GND2 26 RD
DSW-L 27 RD
DSW-L 28
(NC) 29
(NC) 30
(NC) 31
DSW-F 32 RD
PCU PWB
TONER HOPPER
TSR-04V-K
CRU PWB
GND2 1
+5V1 2
CRUCLK 3
CRUSDA 4
CN5
B8B-PH-K-S
BR 1 GND2
GY 2 +5VCRU
BL 3 CRUCLK
BR 4 CRUSDA
BR 5 PSPS\
RD 6 +24V1
7 (NC)
8 +24V1
PHNR-02-H+BU02P-TR-P-H
PSPS
2 PSPS\ 1
1 +24V1 2
DEVELOPER UNIT
QR/P8-12S-C(01)
1 DVCH1 1
2 DVCH2 2
BR 3 DVCH3 3
BR 4 TH-DV 4
GY 5 GND2 5
6 GND2 6
BR 7 TCS 7
GY 8 GND2 8
RD 9 +24V1 9
BL 10 +5V2 10
BR 11 HUS-DV 11
WH 12 DVBias 12
CN8
B11B-PH-K-S
BR 1 DVCH1
BR 2 DVCH2
BR 3 DVCH3
BR 4 TH-DV
GY 5 GND2
GY 6 GND2
BR 7 TCS
GY 8 GND2
RD 9 +24V1
BL 10 +5V2
BR 11 HUS-DV
WH
#187
Bias
51021-0400
TCS
(NC) 1
+24V1 2
TCS 3
GND2 4
ZHR-4
HUS-DV
+5V2 1
HUS-DV 2
GND2 3
TH-DV 4
SRA-21T-3
Bias
CN13
B24B-PHDSS-B
GND2 1 GY
+24V1 2 RD
PED 3 BR
CPFC\ 4 BR
+5V1 5 BL
+24V1 6 RD
GND2 7 GY
RRC\ 8 BR
LUD 9 BR
+24V1 10 RD
+5V1 11 BL
TRC\ 12 BR
GND 13
CSS 14 BR
GND2 15 GY
GND2 16 GY
PPD1 17 BR
LUMB 18 BR
+5V1 19 BL
LUMA 20 BR
CFM1\ 21 BR
GND2 22 GY
+24V1 23 RD
GND2 24 GY
SHORT JIG
CN22
173981-2
1 PCU_RES
2 GND2

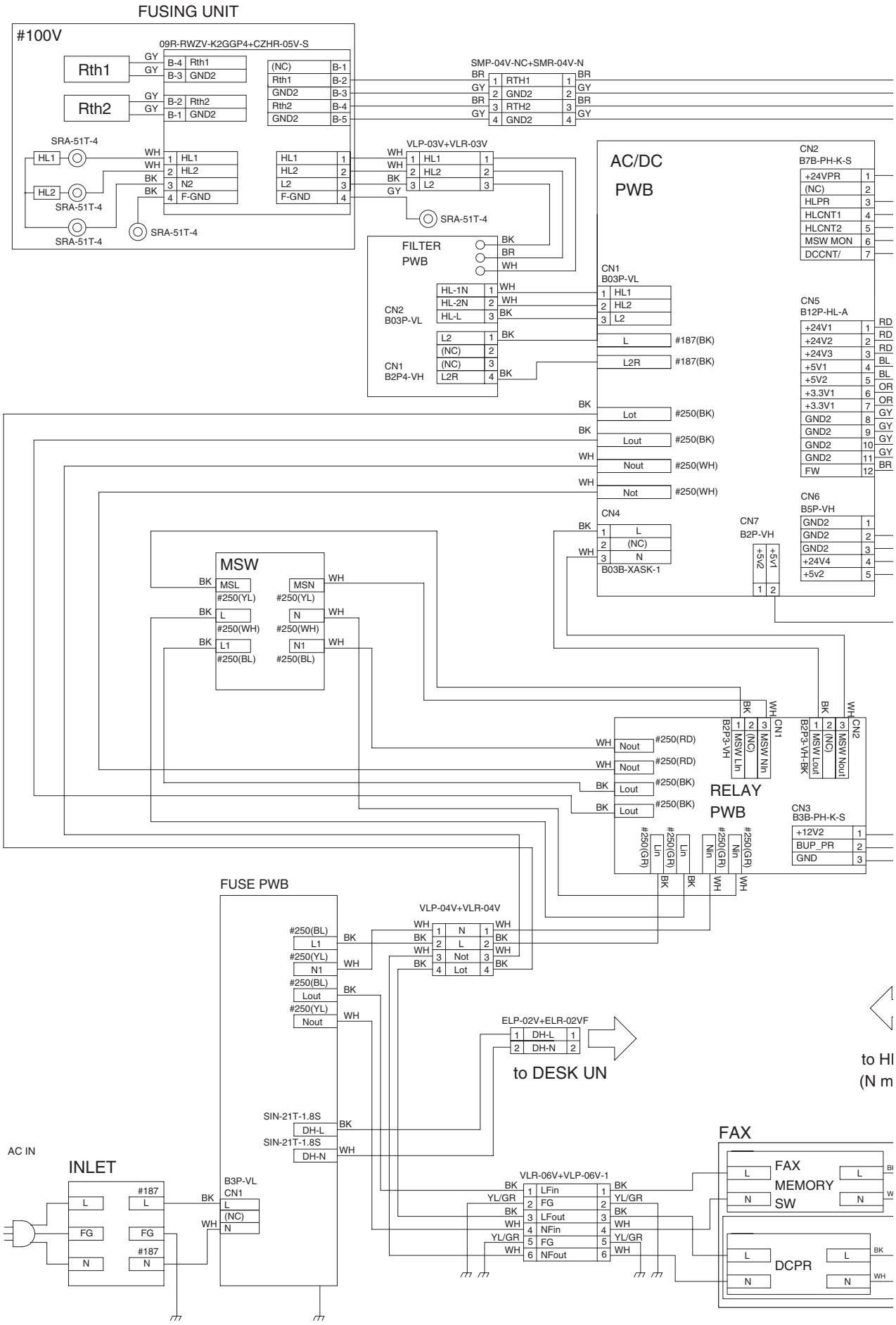

DELIVERY UNIT
SMR-06V+SMP-06V-NC
/POMXA
/POMA
/POMB
/POMXB
+24V1
+24V1
POM
SMP-03V-BC+SMR-03V-B
POD1
GND2
+5V1
179228-3
POD1
POD2
POD3
DSW-L
SFPS-41T-187
SMR-03V-N
SMR-03V-N+SMP-03V-NC
DSW-F
DSW-L
(NC)
DSW-F
PHNR-02-H+BU02P-TR-P-H
CFM2\
GND2
CFM2
DUCT SECTION
PHNR-03-H+BU03P-TR-P-H
+24V1
VFM2\
GND2
VFM2
PAPER EXIT UN SECTION
LEFT DOOR SECTION
TSR-04V-K
GND2
+24V1
GND2
CFM1\
DRAWER
PWB
PHR-3
+24V1
CFM1\
GND2
PHNR-03-H+BU03P-TR-P-H
CFM1
HVR
PWB
PS ROLLER
179228-3(AMP)
+5V1
PPD1
GND2
PPD1
PHNR-09-H+BU09P-TR-P-H
+5V1
PPD1
GND2
+5V1
LUD
GND2
+5V1
PED
GND2
LUD
PED
CASETTE UNIT
CN1
S4B-PH-K-S
CSS PWB
CSS
GND2
LUMB
LUMA
CN2
173979-2
173979-2
LUM
PHNR-02-H+BU02P-TR-P-H
CPFC\
+24V1
CPFC
RRC\
RRC
PHNR-03-H+BU03P-TR-P-H
TRC1\
(NC)
+24V1
TRC
MAIN DRIVE

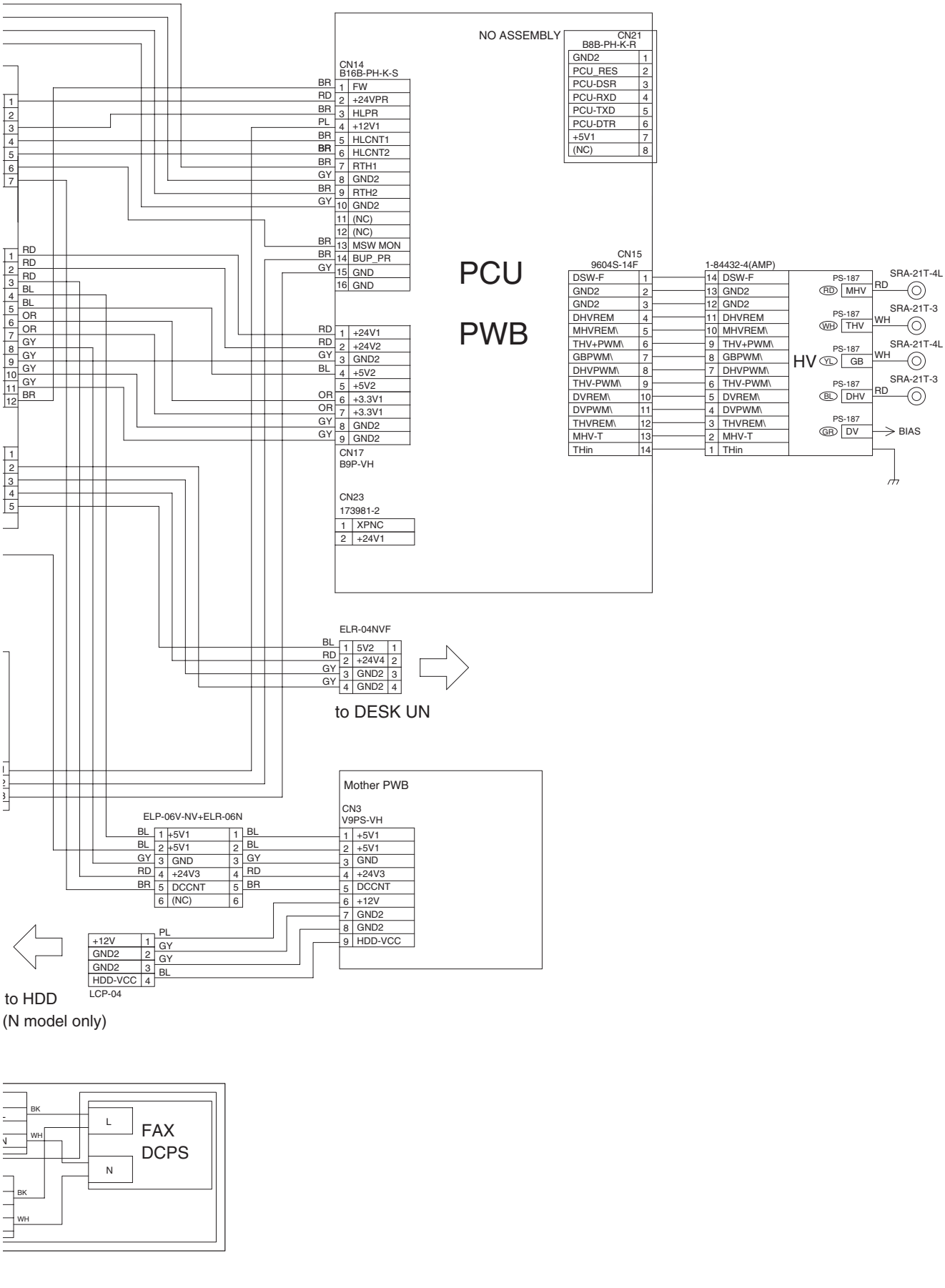
Engine (100V series) (3/4)



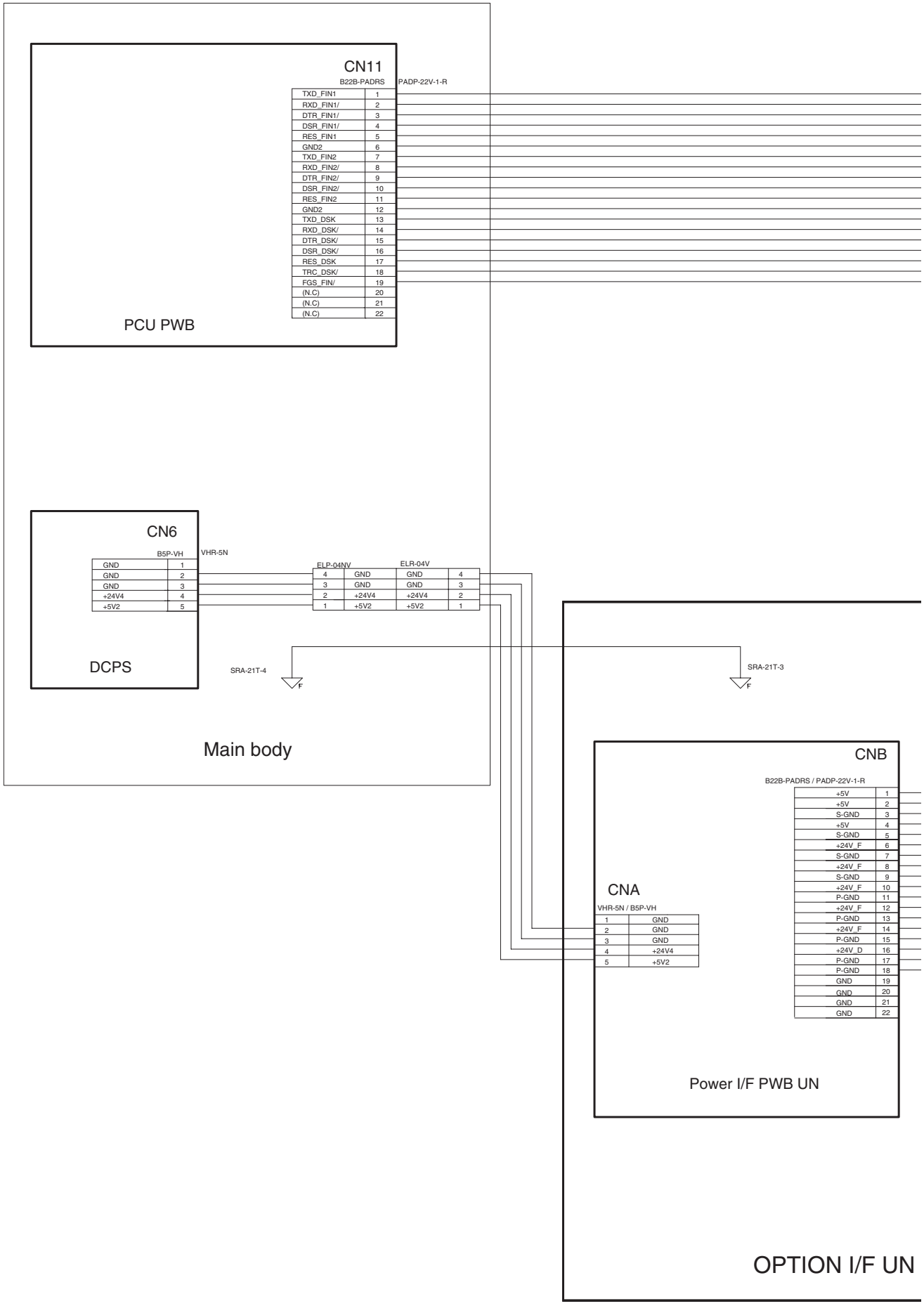

NO ASSEMBLY
CN21
B8B-PH-K-R
GND2 1
PCU_RES 2
PCU-DSR 3
PCU-RXD 4
PCU-TXD 5
PCU-DTR 6
+5V1 7
(NC) 8
CN14
B16B-PH-K-S
1 FW
2 +24VPR
3 HLPR
4 +12V2
5 HLCNT1
6 HLCNT2
7 RTH1
8 GND2
9 RTH2
10 GND2
11 +24V1
12 /MSWPR
13 MSW MON
14 BUP_PR
15 GND
16 GND
PCU
PWB
CN15
9604S-14F
DSW-F 1
GND2 2
GND2 3
DHVREM 4
MHVREM\ 5
THV+PWM\ 6
GBPWM\ 7
DHVPWM\ 8
THV-PWM\ 9
DVREM\ 10
DVPWM\ 11
THVREM\ 12
MHV-T 13
THin 14
1-84432-4(AMP)
14 DSW-F
13 GND2
12 GND2
11 DHVREM
10 MHVREM\
9 THV+PWM\
8 GBPWM\
7 DHVPWM\
6 THV-PWM\
5 DVREM\
4 DVPWM\
3 THVREM\
2 MHV-T
1 THin
HV
PS-187
MHV
THV
GB
DHV
DV
SRA-21T-4L
SRA-21T-3
BIAS
1 +24V1
2 +24V2
3 GND2
4 +5V2
5 +5V2
6 +3.3V1
7 +3.3V1
8 GND2
9 GND2
CN17
B9P-VH
CN23
173981-2
1 XPNC
2 +24V1
ELR-04NVF
1 GND2 1
2 GND2 2
3 +24V4 3
4 +5V2 4
to DESK UN
Mother PWB
CN3
V9PS-VH
1 +5V1
2 +5V1
3 GND
4 +24V3
5 DCCNT
6 +12V
7 GND2
8 GND2
9 HDD-VCC
ELP-06V-NV+ELR-06N
1 +5V1 1
2 +5V1 2
3 GND 3
4 +24V3 4
5 DCCNT 5
6 (NC) 6
+12V 1
GND2 2
GND2 3
HDD-VCC 4
LCP-04
to HDD
(N model only)
FAX
DCPS
L
N
BK
WH

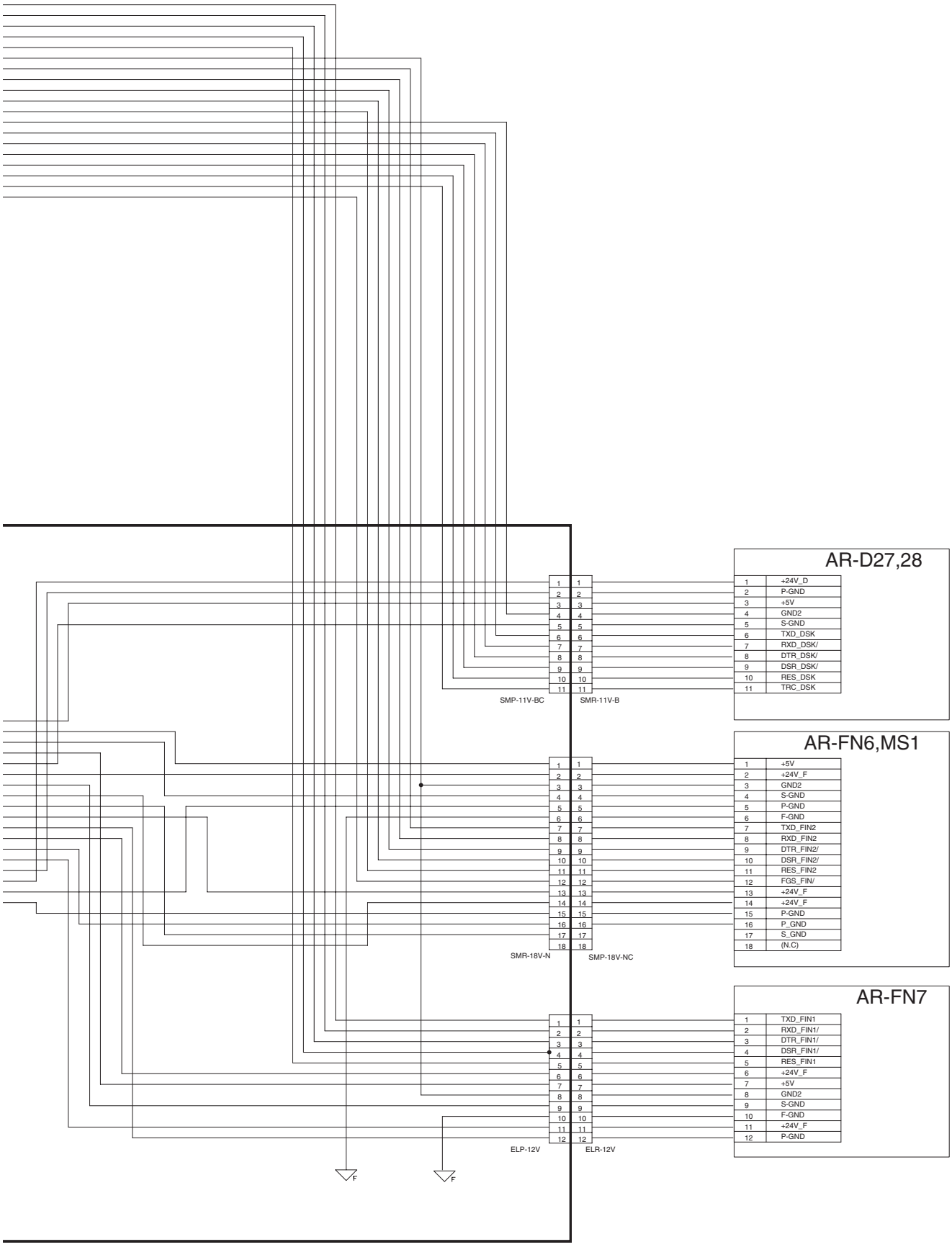
Engine (200V series) (4/4)



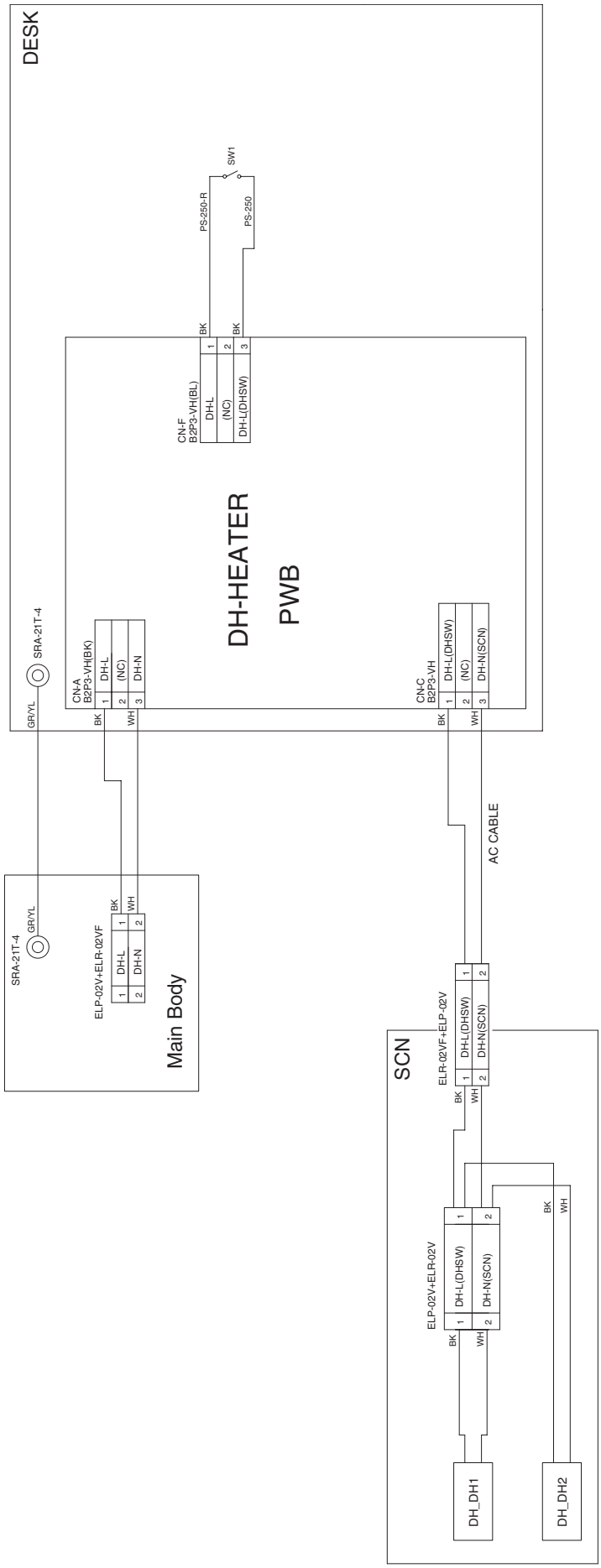

NO ASSEMBLY
CN21
B8B-PH-K-R
GND2 1
PCU_RES 2
PCU-DSR 3
PCU-RXD 4
PCU-TXD 5
PCU-DTR 6
+5V1 7
(NC) 8
CN14
B16B-PH-K-S
1 FW
2 +24VPR
3 HLPR
4 +12V1
5 HLCNT1
6 HLCNT2
7 RTH1
8 GND2
9 RTH2
10 GND2
11 (NC)
12 (NC)
13 MSW MON
14 BUP_PR
15 GND
16 GND
PCU
PWB
CN15
9604S-14F
DSW-F 1
GND2 2
GND2 3
DHVREM 4
MHVREM\ 5
THV+PWM\ 6
GBPWM\ 7
DHVPWM\ 8
THV-PWM\ 9
DVREM\ 10
DVPWM\ 11
THVREM\ 12
MHV-T 13
THin 14
1-84432-4(AMP)
14 DSW-F
13 GND2
12 GND2
11 DHVREM
10 MHVREM\
9 THV+PWM\
8 GBPWM\
7 DHVPWM\
6 THV-PWM\
5 DVREM\
4 DVPWM\
3 THVREM\
2 MHV-T
1 THin
HV
PS-187
RD MHV
SRA-21T-4L
RD
PS-187
WH THV
SRA-21T-3
WH
PS-187
YL GB
SRA-21T-4L
WH
PS-187
BL DHV
SRA-21T-3
RD
PS-187
GR DV
BIAS
1 +24V1
2 +24V2
3 GND2
4 +5V2
5 +5V2
6 +3.3V1
7 +3.3V1
8 GND2
9 GND2
CN17
B9P-VH
CN23
173981-2
1 XPNC
2 +24V1
ELR-04NVF
1 5V2 1
2 +24V4 2
3 GND2 3
4 GND2 4
to DESK UN
Mother PWB
CN3
V9PS-VH
1 +5V1
2 +5V1
3 GND
4 +24V3
5 DCCNT
6 +12V
7 GND2
8 GND2
9 HDD-VCC
ELP-06V-NV+ELR-06N
1 +5V1 1
2 +5V1 2
3 GND 3
4 +24V3 4
5 DCCNT 5
6 (NC) 6
+12V 1
GND2 2
GND2 3
HDD-VCC 4
LCP-04
to HDD
(N model only)
BK
WH
L
N
FAX
DCPS
BK
WH

OPTION (1/1)


CN11
B22B-PADRS
PADP-22V-1-R
TXD_FIN1 1
RXD_FIN1/ 2
DTR_FIN1/ 3
DSR_FIN1/ 4
RES_FIN1 5
GND2 6
TXD_FIN2 7
RXD_FIN2/ 8
DTR_FIN2/ 9
DSR_FIN2/ 10
RES_FIN2 11
GND2 12
TXD_DSK 13
RXD_DSK/ 14
DTR_DSK/ 15
DSR_DSK/ 16
RES_DSK 17
TRC_DSK/ 18
FGS_FIN/ 19
(N.C) 20
(N.C) 21
(N.C) 22
PCU PWB
CN6
B5P-VH
VHR-5N
GND 1
GND 2
GND 3
+24V4 4
+5V2 5
ELP-04NV
ELR-04V
4 GND GND 4
3 GND GND 3
2 +24V4 +24V4 2
1 +5V2 +5V2 1
DCPS
SRA-21T-4
SRA-21T-3
F
F
Main body
CNB
B22B-PADRS / PADP-22V-1-R
+5V 1
+5V 2
S-GND 3
+5V 4
S-GND 5
+24V_F 6
S-GND 7
+24V_F 8
S-GND 9
+24V_F 10
P-GND 11
+24V_F 12
P-GND 13
+24V_F 14
P-GND 15
+24V_D 16
P-GND 17
P-GND 18
GND 19
GND 20
GND 21
GND 22
CNA
VHR-5N / B5P-VH
1 GND
2 GND
3 GND
4 +24V4
5 +5V2
Power I/F PWB UN
OPTION I/F UN


AR-D27,28
1 +24V_D
2 P-GND
3 +5V
4 GND2
5 S-GND
6 TXD_DSK
7 RXD_DSK/
8 DTR_DSK/
9 DSR_DSK/
10 RES_DSK
11 TRC_DSK
SMP-11V-BC
SMR-11V-B
AR-FN6,MS1
1 +5V
2 +24V_F
3 GND2
4 S-GND
5 P-GND
6 F-GND
7 TXD_FIN2
8 RXD_FIN2
9 DTR_FIN2/
10 DSR_FIN2/
11 RES_FIN2
12 FGS_FIN/
13 +24V_F
14 +24V_F
15 P-GND
16 P_GND
17 S_GND
18 (N.C)
SMR-18V-N
SMP-18V-NC
AR-FN7
1 TXD_FIN1
2 RXD_FIN1/
3 DTR_FIN1/
4 DSR_FIN1/
5 RES_FIN1
6 +24V_F
7 +5V
8 GND2
9 S-GND
10 F-GND
11 +24V_F
12 P-GND
ELP-12V
ELR-12V
F
F

DH-LINE (1/1)


DESK
DH-HEATER
PWB
CN-F
B2P3-VH(BL)
DH-L
(NC)
DH-L(DHSW)
SW1
PS-250-R
PS-250
BK
CN-A
B2P3-VH(BK)
DH-L
(NC)
DH-N
WH
CN-C
B2P3-VH
DH-L(DHSW)
(NC)
DH-N(SCN)
SRA-21T-4
GR/YL
AC CABLE
Main Body
ELP-02V+ELR-02VF
SCN
ELR-02VF+ELP-02V
ELP-02V+ELR-02V
DH_DH1
DH_DH2