SHARP SERVICE MANUAL

CODE: 00ZSF2540FM/E

No.1

SF-2540
SF-D23/D24
MODEL SF-DM11

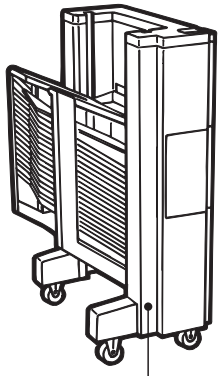
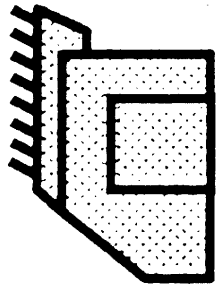
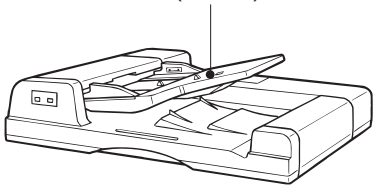
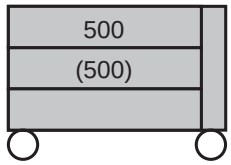
[Note] The SF-2540 is a minor change model of the SF-2040. This Service Manual omits descriptions common with the SF-2040, and describes only the different points of the SF-2540. For the different points, refer to the list of changes between the SF-2040 and the SF-2540.

CONTENTS

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

SHARP CORPORATION

List of changes between the SF-2040 and the SF-2540

No.	SF2040			SF2540	Remark
	Page	Item	Content	Change	
	I	CONTENTS	**[3] OPTIONS SPECIFICATION** 1. SF-A55 . . . . . . 2. SF-S15 . . . . . . 3. SF-S53 . . . . . . 4. SF-D23 . . . . . . 5. Others	1. SF-A55 is changed to SF-A58. 3. SF-S53 is changed to SF-S56. 4. SF-D23 is changed to SF-D24.	
	II	CONTENTS	**[4] COMPONENT IDENTIFICATION** 9. Desk unit (SF-D23)	(SF-D23) is changed to (SF-D23/D24).	
			[5] INSTALLATION A. Installing conditions . . . . . . B. Installation procedure . . . . . . (1) SF-2040	(1) SF-2040 is changed to SF-2540.	
	III	CONTENTS	(2) SF-A55 . . . . . . (3) SF-S53 . . . . . . (5) SF-D23	(2) SF-A55 is changed to SF-A58. (3) SF-S53 is changed to SF-S56. (5) SF-D23 is changed to SF-D23/D24.	
	1-1	[1]-1	1. General description The SF-2040...	"The SF-2040" is changed to "The SF-2540."	
		[1]-4	System outline  1/bin staple sorter (SF-S53)	• The model name and the illustration are changed. 	
			Reversing automatic document feeder (SF-A55) 	• The model name and the illustration are changed.	
				• SF-D24 is added.  One-step paper feed unit (SF-D24)	

<table>
<tr><th rowspan="2">No.</th><th colspan="3">SF2040</th><th>SF2540</th><th rowspan="2">Remark</th></tr>
<tr><th>Page</th><th>Item</th><th>Content</th><th>Change</th></tr>
<tr><td></td><td>2-1</td><td>[2]-(3)</td><td>(3) Kinds of originals
<table><tr><td>Option:</td><td>RADF</td></tr><tr><td>Original loading capacity:</td><td>50 sheets</td></tr><tr><td>Original size:</td><td>A3 to A5, Ledger ~ Invoice</td></tr><tr><td>Original replace speed:</td><td>40 sheets per minute</td></tr><tr><td>Weight of original:</td><td>35 to 128 g/m^2 (14 to 34 lbs)</td></tr><tr><td>Mixed paper feed mode:</td><td>Possible (same width)</td></tr></table></td><td>(30 sheets for A3/WLT) is added to 50 sheet.</td><td></td></tr>
<tr><td></td><td></td><td>[2]-(4)</td><td>(4) Copy Speed</td><td>Copy speed of China paper is added.
<table><tr><th></th><th>Actual (1:1)</th><th>Enlarge (ratio)</th><th>Reduce (ratio)</th></tr><tr><td>8K</td><td>?? sheets per minute</td><td>?? sheets per minute (200%)</td><td>?? sheets per minute (50%)</td></tr><tr><td>16K</td><td>?? sheets per minute</td><td>?? sheets per minute (200%)</td><td>?? sheets per minute (50%)</td></tr><tr><td>16KR</td><td>?? sheets per minute</td><td>?? sheets per minute (200%)</td><td>?? sheets per minute (50%)</td></tr></table></td><td></td></tr>
<tr><td></td><td></td><td>[2]-(5)</td><td>(5) Warm up time</td><td>• "Auto power shut off : YES" is added.</td><td></td></tr>
<tr><td></td><td>2-2</td><td>[2]-10</td><td>AB series
<table><tr><th>Paper entry</th><th>Paper size</th></tr><tr><td>Upper cassette (Option)</td><td>B5/B5/R
A4/A4R/B4/A3</td></tr><tr><td>Lower cassette</td><td>A5/B5/B5/R
A4/A4R/B4/A3
A5: ✳ With the option ~</td></tr></table>Inch series
<table><tr><th>Paper entry</th><th>Paper feed size</th></tr><tr><td>Upper cassette (Option)</td><td>Letter/Letter R/
Legal/Ledger</td></tr><tr><td>Lower cassette</td><td>Letter/Letter R/
Legal/Ledger/
Invoice
✳ With the option ~</td></tr></table></td><td>AB series
Letter and 13" are added to the paper size of upper/lower cassettes.

Inch series
A4 and 13" are added to the paper size of upper/lower cassettes.</td><td></td></tr>
<tr><td></td><td>2-3</td><td>[2]-19</td><td>(19) Automatic duplex
<table><tr><td>Option</td><td colspan="2">(SF-DM11)</td></tr><tr><td>Location</td><td colspan="2">Copier upper module slot</td></tr><tr><td>Size</td><td>AB series:</td><td>A3, B4, A4R, B5, B5R, A5</td></tr><tr><td></td><td>Inch series:</td><td>Ledger, Legal, Letter, Letter R</td></tr><tr><td>Capacity</td><td colspan="2">50 sheets (below A4 or Letter size)</td></tr><tr><td>Paper weight</td><td colspan="2">56 to 80 g/m^2 (15 to 21 lbs)</td></tr></table></td><td>13" is added to the inch series.</td><td></td></tr>
<tr><td></td><td></td><td>[2]-(20)</td><td>(20) Paper receive tray and finishing</td><td>Model name change
• SF-S53 is changed to SF-S56.
• The capacity of non-sort bin is changed from 250 sheets to 100 sheets.</td><td></td></tr>
</table>

No.	SF2040			SF2540	Remark
	Page	Item	Content	Change	
	2-5	[2]-25	SF2040 (25) Accessories		

Destination	Japan	SEC	SECL	SEEG	SUK	SCA	AB agent	Inch agent
Drum	Installed when shipping.	Installed when shipping.	Installed when shipping.	Separately packed.	Separately packed.	Installed when shipping.	Partly packed.	Partly packed.
Developer (Black)	○	×	×	×	×	×	×	×
Toner cartridge	○	×	×	×	×	×	×	×
Original cover	Standard provision	Option	Option	Option	Option	Option	Standard provision	
Paper exit tray 1 *1	○							
Original table	×	○					×	
Toner collection container	○ (4pcs.) One is installed when shipping.							
Operation manual	Japanese	Exclusive English	English /French	GG: German BG: None	Exclusive English	English	English /French /Arabic Typical example	English /Spanish Typical example
Dust cover	○	×					○ (Part)	
Zooming ratio table	○							
ROM language	Japanese	English	English	GG: German BG: None	English	English	English/French/Spanish depending on the destination.	
Key sheet	Japanese	English	English /French	GG: German BG: None	English	English	English, partly Spanish	English, partly Spanish
	SEL = English/French packed together. SEEG (BG) = Treated in a kit.							
Other printed matters: Delivery/installation report (Japan/SEEG), SCA warranty, Warranty registration (SUK), Maintenance card, Counter contract × 2 (Japan)								

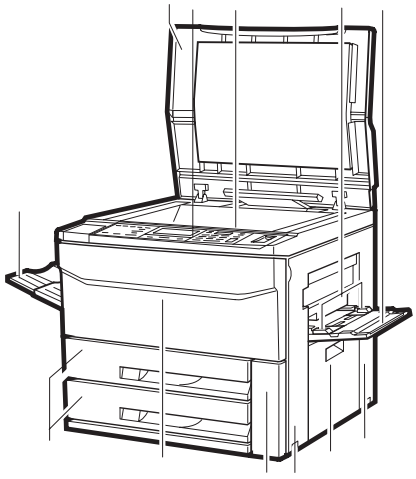
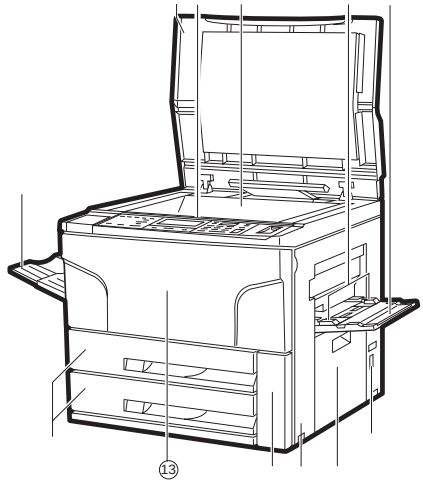
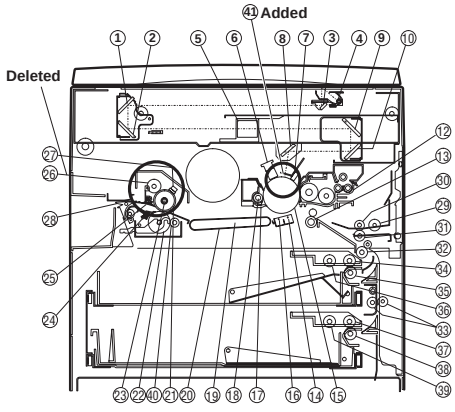
*1: Retractable (Japan), Fixed (Outside Japan)

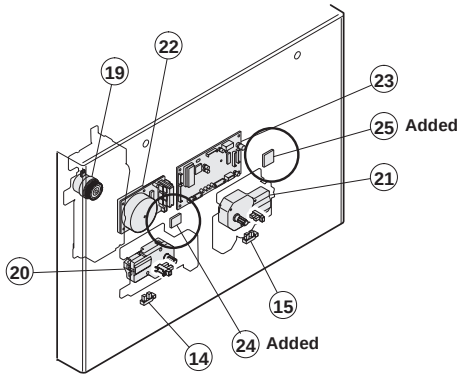
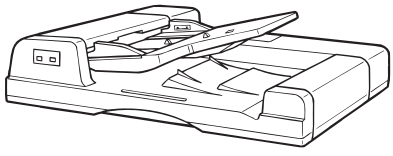
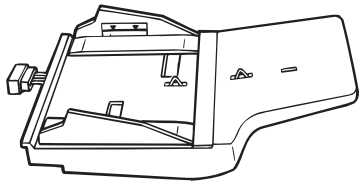
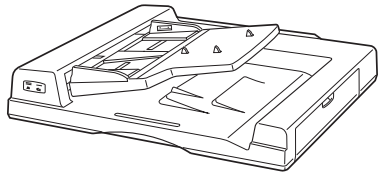
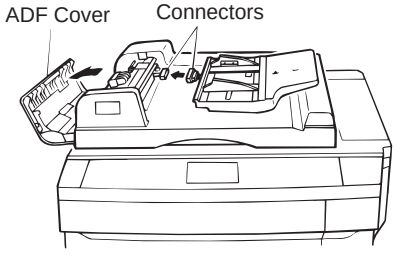
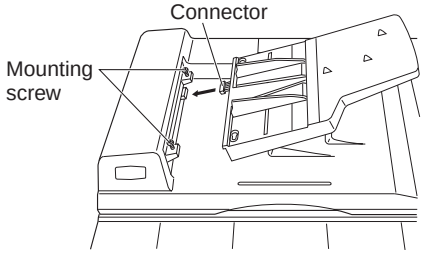
SF-2540 accessory (The changed items are in **Gothic**.)
(25) Accessory

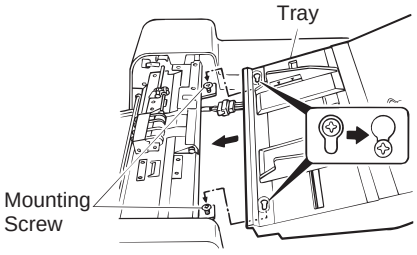
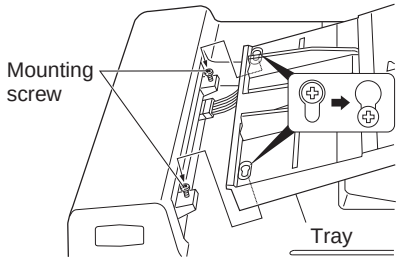
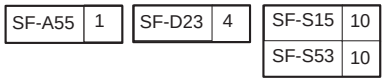
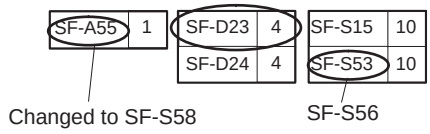
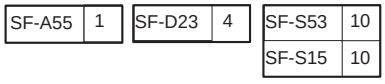
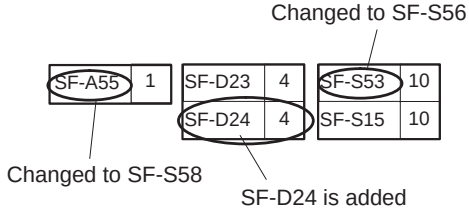
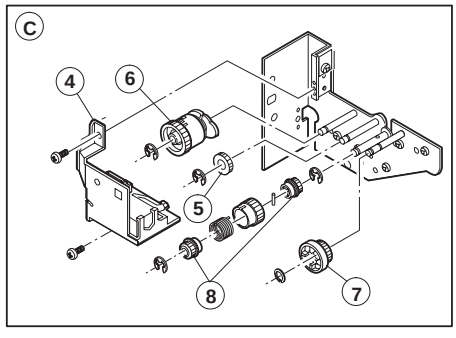
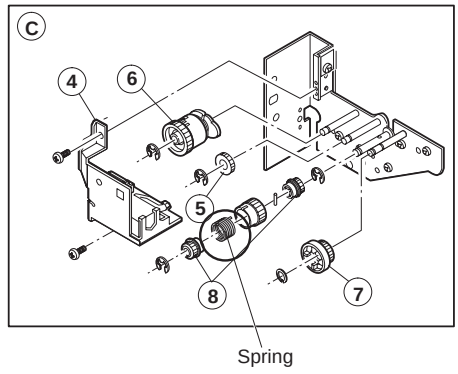
Destination	Japan	SEC	SECL	SEEG	SUK	SCA	AB agents	Inch agents	China
Drum (∗2)	Installed when shipping	Installed when shipping	Installed when shipping	**Installed when shipping**	**Installed when shipping**	Installed when shipping	**Installed when shipping**	**Installed when shipping**	**Installed when shipping**
Developer (Black)		×	×	×	×	×	×	×	○
Toner cartridge		×	×	×	×	×	×	×	○
Original cover	Standard provision	Option	Option	Option	Option	Option	**(LAG option)**		**Standard provision**
Paper exit tray (∗1)									○
Document table	×						**(LAG package)**		○
Toner collection bottle	4 pcs (One is installed when shipping.)								○
Operation Manual	Japanese	Special English	English /French	GG: German BG: None	Special English	English	English /French /Arabic Typical example	English /Spanish Typical example	**China**
Dust cover		×					Part		×
Magnification ratio quick-find list	○	×							×
Language ROM	Japanese	English	English	GG: German/ English BG: English	English	English	English/French/ Spanish depending on the destination		**China**
Key sheet conformity	Japanese	English	English/ French	GG: German/ English BG: None attached	English	English	English/ Spanish (Some area)	English/ Spanish (Some area)	**Chinese**
	SEL = English/French packed together. SEEG (BG) = Treated in a kit.								
Other printed matters Installation manual (Japan, Delivery report: Japan/SEEG), SCA Warranty Warranty registration (SUK), Maintenance card, Counter contract × 2 sheets (Japan) **Maintenance control table (Chinese), K8/K16 adapter (Only for China)**									

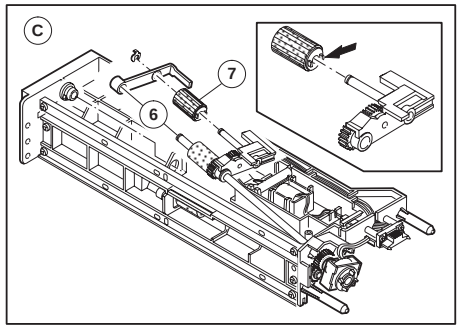
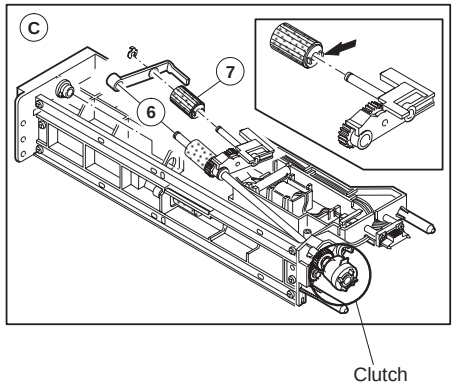
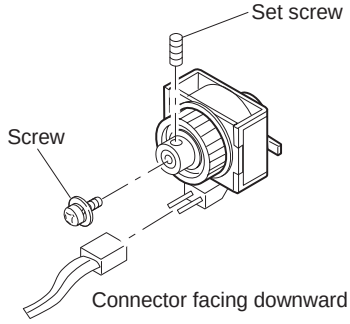
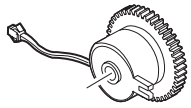
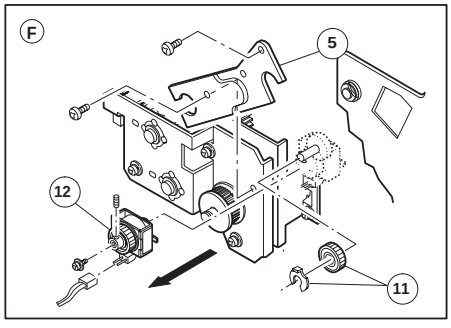
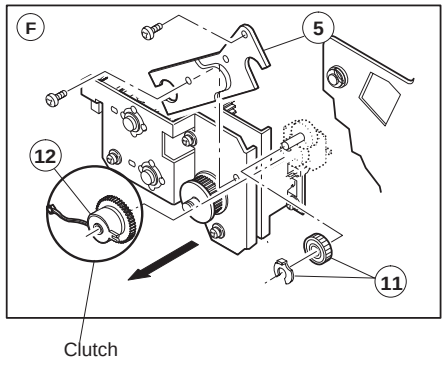
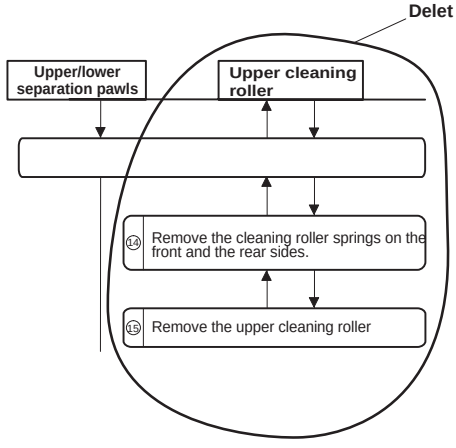
∗1: Extendable for Japan, fixed for EX japan.

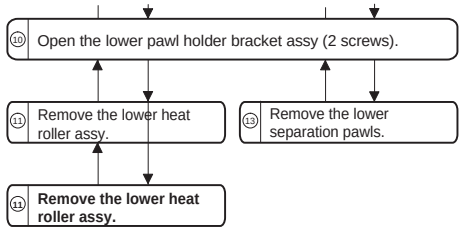
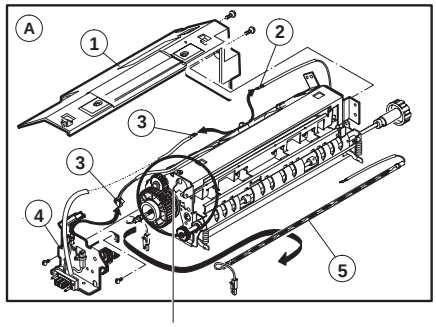
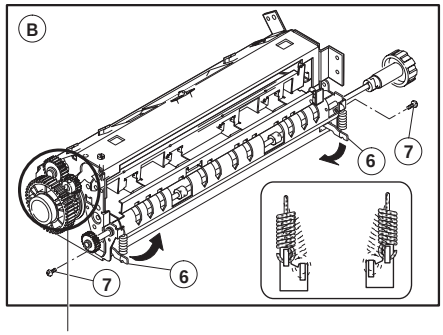
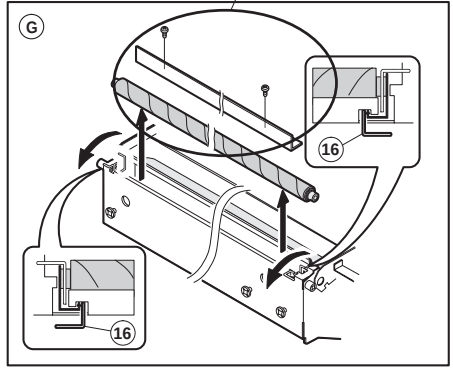
∗2: For SEEG/SUK, installed when shipping only for SOCC production. (In Japan production, separately packed.)

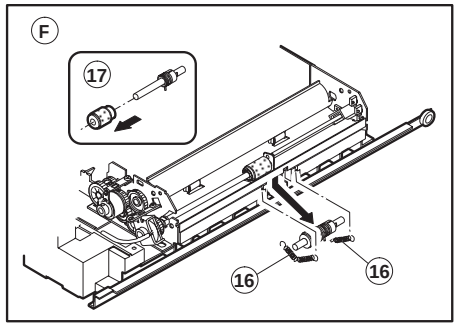
<table>
<tr><th rowspan="2">No.</th><th colspan="3">SF2040</th><th>SF2540</th><th rowspan="2">Remark</th></tr>
<tr><th>Page</th><th>Item</th><th>Content</th><th>Change</th></tr>
<tr><td></td><td>2-5
2-6</td><td>[2]-2</td><td>Consumables</td><td>2. Consumables change (Refer to the separate sheet.)
• SF-2540 Supply system (SEC)
• SF-2540 Supply system (SECL, agents)
• SF-2540 Supply system (SEEG, SUK, SCA, SCNZ)</td><td>Refer to the attached sheet 2-5, 2-6.</td></tr>
<tr><td></td><td>3-1</td><td>[3]</td><td>[3] OPTIONS SPECIFICATIONS
1. SF-A55
3. SF-S53</td><td>Model change (Refer to the separate sheet.)
1. SF-A55 is changed to SF-A58.
3. SF-S53 is changed to SF-A56.</td><td>Refer to the attached sheet 3-1.</td></tr>
<tr><td></td><td>3-2</td><td>[3]</td><td>[3] OPTIONS SPECIFICATIONS
4. SF-D23</td><td>Model added.
4. SF-D24 is added to SF-D23.</td><td></td></tr>
<tr><td></td><td>4-1</td><td>[4]-1</td><td>1. External view
  </td><td>⑬ Front cover shape change
 
</td><td></td></tr>
<tr><td></td><td>4-4</td><td>[4]-3</td><td>Internal view</td><td>Illustration No. ㉖ is deleted.
No. ㊶ is added.
List No. ㉖ Upper cleaning roller is deleted.
No. ㊶ Process mark sensor is added.
 
</td><td></td></tr>
<tr><td></td><td>4-8</td><td>[4]-7</td><td>Board list
<table><tr><th></th><th>Name</th><th>Type</th></tr><tr><td>⑤</td><td>Original sensing light emitting PWB</td><td>Japan</td></tr><tr><td>⑥</td><td>Original sensor light receive PWB</td><td>Japan</td></tr></table></td><td>⑤ ⑥ board types are changed.
Japan → Common</td><td></td></tr>
</table>

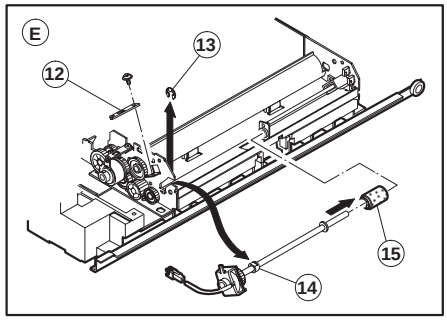
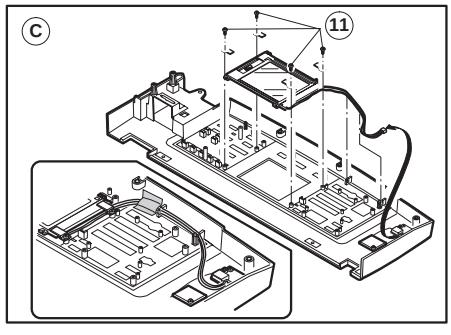
<table>
<tr><th rowspan="2">No.</th><th colspan="3">SF2040</th><th>SF2540</th><th rowspan="2">Remark</th></tr>
<tr><th>Page</th><th>Item</th><th>Content</th><th>Change</th></tr>
<tr><td></td><td>4-10</td><td>[4]-9</td><td>Desk unit (SF-D23)</td><td>Sensors ㉔ ㉕ are added to the desk unit.
㉔ Paper quantity sensor (DPTD1)
㉕ Paper quantity sensor (DPTD2)
  </td><td></td></tr>
<tr><td></td><td>4-11</td><td>[4]-9</td><td>A. Sensors and switches</td><td>A. Sensors and switches
㉔ ㉕ sensors are added to "A. Sensors and switches" list.
<table><tr><th></th><th>Signal name</th><th>Name</th><th>Type</th><th>Function/ Operation</th><th>Contact/ output</th></tr><tr><td>㉔</td><td>DPTD1</td><td>Paper quantity sensor</td><td>???</td><td>???</td><td>???</td></tr><tr><td>㉕</td><td>DPTD2</td><td>Paper quantity sensor</td><td>???</td><td>???</td><td>???</td></tr></table></td><td></td></tr>
<tr><td></td><td>5-2</td><td>[5]-B</td><td>B. Installation procedure
(1) SF-2040</td><td>Model name change
SF-2040 is changed to SF-2540.</td><td></td></tr>
<tr><td></td><td>5-10</td><td>[5]-B-11-(2)</td><td>SF-A55
 
SF-A58(Packed together)
  </td><td>The model name and the illustration are changed due to model change.
 
SF-A58
  </td><td></td></tr>
<tr><td></td><td>5-11</td><td>[5]-B-11-(2)</td><td>4. Connect the ADF tray connector
  </td><td>Illustration change (Refer to the following illustration.)
  </td><td></td></tr>
</table>

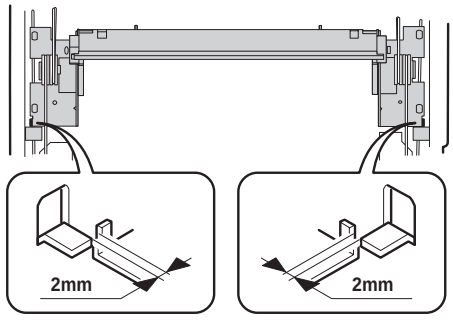
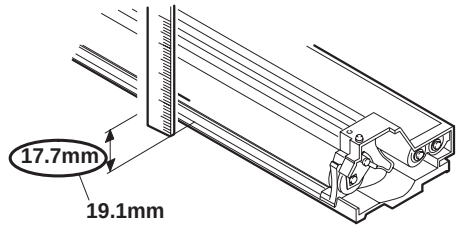
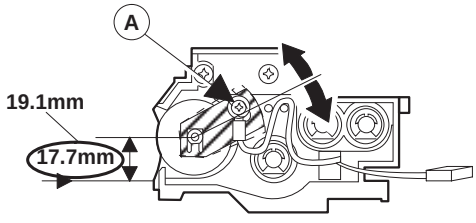
No.	SF2040			SF2540	Remark
	Page	Item	Content	Change	
	5-11	[5]-B-11-(2)	5. Attach the tray 	Illustration change 	
			6. Set the mode 	Model name change in the descriptions • SF-S53 is changed to SF-S56. • SF-A55 is changed to SF-A58. 	
	5-12 ~ 5-18	[5]-B-11-(3)	(3) SF-S53	Model change SF-S53 is changed to SF-S56.	Refer to the separate sheet 5-12 to 5-18.
	5-21	[5]-B-11-(4)	(4) SF-S15 (20-Bin Sorter) 10. Set the mode 	Model change and addition SF-S53 is changed to SF-S56. SF-A55 is changed to SF-A56. SF-D24 is added. 	
	5-29	[5]-B-11-(7)	(7) SF-DM11 9. To check and adjust the matching guide	The following note is added. Enter "0" in SIM 52-3. (All destinations except for SEC/SECL.)	
	6-4	[6]-2	Manual feed multicopy unit 	Illustration Ⓒ spring position change 	

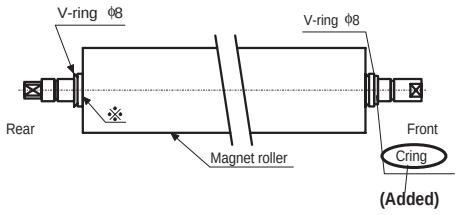
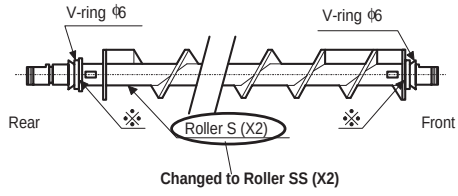
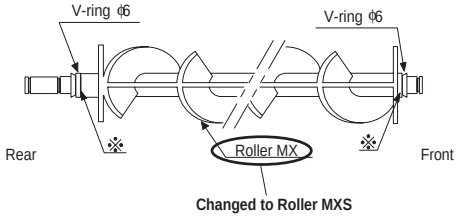
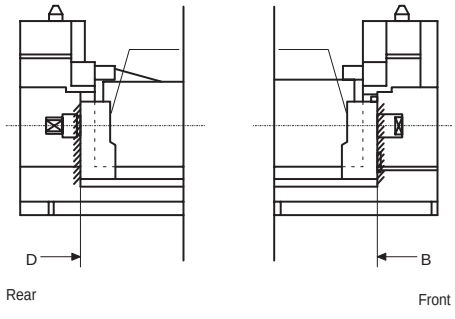
No.	SF2040			SF2540	Remark
	Page	Item	Content	Change	
	6-6	[6]-3	Paper feed unit 	Illustration Ⓐ ~ Ⓔ clutch shape change (Refer to Ⓒ in the figure below.) 	
	6-7	[6]-4	4. Transport baseplate unit 	Clutch shape change 	
	6-8	[6]-4	4. Transport baseplate unit 	Illustration Ⓕ clutch shape change 	
	6-9	[6]-5	Fuser unit	Flow chart change 1. Upper cleaning roller is deleted. 	

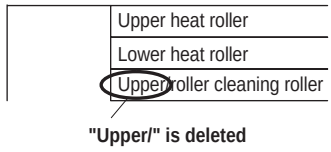
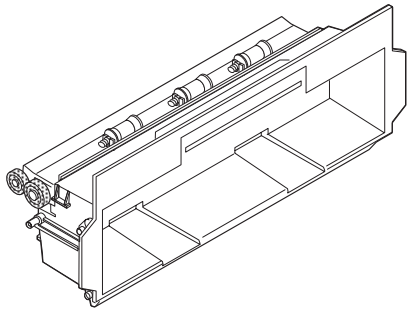
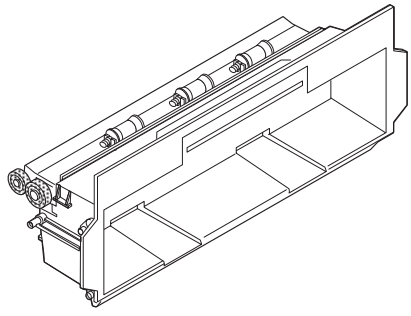
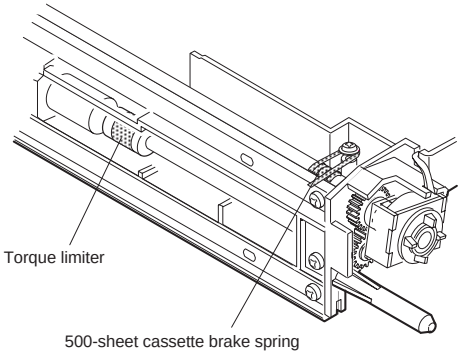
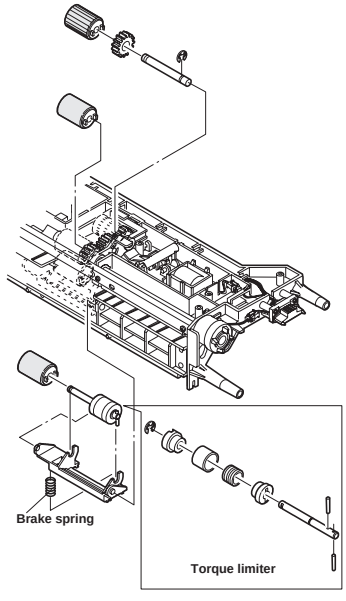
No.	SF2040			SF2540	Remark
	Page	Item	Content	Change	
	6-9	[6]-5		2. Procedure to remove the scraper is added. 	
	6-10	[6]-5	Fusing unit	Fusing unit • Illustration Ⓔ Ⓕ are deleted. • Illustration Ⓐ Ⓑ upper cleaning roller gears are deleted.  Gears are deleted  **Gears are deleted** • Scraper and two screws are added to illustration Ⓖ. Control code Ⓖ is changed to Ⓕ. **Added** 	

<table>
<tr><th rowspan="2">No.</th><th colspan="3">SF2040</th><th>SF2540</th><th rowspan="2">Remark</th></tr>
<tr><th>Page</th><th>Item</th><th>Content</th><th>Change</th></tr>
<tr><td></td><td>6-12</td><td>[6]-6</td><td>6. Duplex copy unit</td><td>6. Duplex copy unit
• Control code Ⓔ of illustration Ⓔ is changed to Ⓕ. Part No. ⑫ is changed to ⑯ and ⑬ to ⑰. (Refer to the figure below.)
 

llustration Ⓔ is added. (Refer to the figure below.)
 
</td><td></td></tr>
<tr><td></td><td>6-15</td><td></td><td>7. Rear frame side major components
⁎ DC power PWB identification
<table><tr><td>100V system</td><td>200V system</td></tr><tr><td>White label</td><td>Red label</td></tr></table></td><td>Red label is changed to Pink label.
⁎ DC power PWB identification
<table><tr><td>100V system</td><td>200V system</td></tr><tr><td>White label</td><td>Red label</td></tr></table>Pink label</td><td></td></tr>
<tr><td></td><td>6-16</td><td>[6]-8</td><td>8. Operation panel unit and document size sensor board (light receiver side)</td><td>8. Operation panel unit and document size sensor board (light receiver side)
• No. ⑪ is added to illustration ⓒ (Refer to the figure below.)
 
</td><td></td></tr>
<tr><td></td><td>6-21</td><td>[6]-9</td><td>9. Optical unit
Copy lamp unit installing position</td><td>9. Optical unit
Copy lamp unit installing position
The following description and illustrationa re added.</td><td></td></tr>
</table>

No.	SF2040			SF2540	Remark
	Page	Item	Content	Change	
	6-21	[6]-9		∗When the copy lamp unit is pushed to the optical section notch, there must be a clearance of 2mm between No. 2/3 mirror base unit and the optical section notch. 	
	7-1	[7]-1-(2)	(2) Position Adjustment of Developing Magnet Roller Main Pole	(2) Position Adjustment of Developing Magnet Roller Main Pole The measurement value, 17.7mm, in the description and illustration are changed to 19.1mm. ⑤ Measure the distance from the mark to the reference plane on which the developer tank is placed. This distance must be **19.1** mm. If not so, loosen setscrew A of the main pole adjusting plate and move the adjusting plate in the arrow direction to obtain the proper distance.  	
	7-2	[7]-1-(4)	(4) Notes on installing various rollers of the developing unit	(4) Notes on installing various rollers of the developing unit • Part codes of ϕ8 ring and ϕ6 ring are changed as follows. (3) When attaching ϕ8-ring **PRNGP0051FCZZ** ϕ8-ring and PRNGP0022FCZZ and ϕ6-ring **PRNGP0050FCZZ** to the developing magnet roller,	

No.	SF2040			SF2540	Remark
	Page	Item	Content	Change	
	7-2	[7]-1-(4)		• The name in the illustration is changed and an addition is made.   	
			(5) Notes on applying the developing side seals (front and rear)	(5) Notes on applying the developing side seals (front and rear) • Side seal FN/FR shape change (Refer to the figure below.) 	
	7-23	[7]-6-A	A. Adjustment when installing the machine	A. Adjustment when installing the machine • Procedures (2)(3) below are added. (2) Execute SIM 44-2. Drum mark sensor level adjustment Standard value: 204 ±10 (3) Execute SIM 44-3. Image density sensor level adjustment Standard value: 204 ±10	
		[7]-6-D	D. Adjustment when replacing the drum (Photoconductor)	D. Adjustment when replacing the drum (Photoconductor) • Adjustment procedure (4) is changed to (5). • Adjustment procedure (4) is added. (Refer to the following description.) (4) Execute SIM 44-3. Image density sensor level adjustment Standard value: 204 ±10	

No.	SF2040			SF2540	Remark
	Page	Item	Content	Change	
		[7]-6-E	E. Adjustments when replacing the developer and the drum (photoconductor)	E. Adjustments when replacing the developer and the drum (photoconductor) • Adjustment procedure (5) is changed to (6). • Adjustment procedure (5) is added. (Refer to the following description.) (4) Execute SIM 44-3. Image density sensor level adjustment Standard value: 204 ±10	
	8-1 ~ 8-18	[8]	[8] SIMULATION AND DIAGNOSTICS	For [8] SIMULATION AND DIAGNOSTICS, refer to the separate sheet.	Refer to the separate sheet 8-1 to 8-8.
	9-1	[9]	[9] MAINTENANCE AND OTHERS	[9] MAINTENANCE AND OTHERS • "Upper/" is deleted from "Upper/lower cleaning roller" in the table.  	
	9-2	[9]-2	2. Counters and simulation related to maintenance (1) List of counters and test commands related to maintenance	2. Counters and simulation related to maintenance (1) List of counters and test commands related to maintenance List change (Refer to the separate sheet 9-2.)	Refer to the separate sheet 9-2.
	9-6	[9]-4-(5)	(5) Paper exit roller driving gears 	Illustration shape change 	
	9-7	[9]-4-(6)	(6) Paper-feed torque limiter 500-sheet cassette brake spring  	Illustration shape change  	

2. Consumables

SF-2540 supply system (SEC)

No.	Name	Content		Life	Product name	Package	Remark
1	Upper heat roller kit	Upper heat roller Fusing separation pawl (Upper) Fusing gear	× 1 × 4 × 1	160K	SF-240UH	5	For replacement of the fusing separation pawl (80K life) every 80K
2	Lower heat roller kit	Lower heat roller Fusing separation pawl (Lower)	× 1 × 2	160K	SF-240LH	5	For replacement of the fusing separation pawl (80K life) every 80K
3	80K maintenance kit	Cleaner blade Charging plate unit Drum separation pawl unit	× 1 × 1 × 1	80K	SF-240KA1	5	
4	Cleaner blade	Cleaner blade	× 10	80K (×10)	SF-222CB	1	Product shipped by Group. SEC treats them as parts. (222BL) × 10 = 222CB Order reception: SF-222CB (240RU) × 10 = 240UR Order reception: SF-240UR
5	Upper cleaning roller	Upper cleaning roller	× 10	80K (×10)	SF-240UR	1	
6	Lower cleaning roller	Lower cleaning roller	× 10	80K (×10)	SF-235CR2	1	(235RU) × 10 = 235 CR2 Order reception: SF-235CR2
7	Staple cartridge	Cartridge	× 5	5000 times × 5	SD-LS20	10	Common with the cartridge for SD-2075, 3075. (SD-SC20) × 5 = SD-LS20

∗ For Toner collection bottle (4 pcs, 80K)/Screen grid (80K)/Charger wire (80K)/Ozone filter (80K)/Toner reception seal (160K)/DV seal, use service parts.
Charging plate unit (120K) and drum separation pawl unit (120K) are supplied as service parts.

SF2540 supply system (SECL, for Agent)

No.	Name	Content		Life	Product name	Package	Remark
1	80K maintenance kit	Upper cleaning roller Lower cleaning roller Toner collection bottle Fusing separation pawl (Upper) Fusing separation pawl (Lower) Screen grid Cleaner blade Charging plate unit Drum separation pawl unit	× 1 × 1 × 4 × 4 × 2 × 1 × 1 × 1 × 1	80K	SF-240KA	1	
2	160K maintenance kit	Upper heat roller Lower heat roller Toner reception seal DV seal Fusing gear	× 1 × 1 × 1 × 1 × 1	160K	SF-240KB	1	
3	Staple cartridge	Cartridge	× 1	5000 times×5	SD-LS20	10	Common with the cartridge for SD-2075. (SD-SC20) ×5 = SD-LS20

SF2540 supply system (SEEG, SUK, SCA, SCNZ)

No.	Name	Content		Life	Product name	Package	Remark
1	80K maintenance kit	Upper cleaning roller Lower cleaning roller Toner collection bottle Fusing separation pawl (Upper) Fusing separation pawl (Lower) Screen grid Cleaner blade Charging plate unit Drum separation pawl unit	× 1 × 1 × 4 × 4 × 2 × 1 × 1 × 1 × 1	80K	SF-240KA	1	For conformity with EAN code
2	160K maintenance kit	Upper heat roller Lower heat roller Toner reception seal DV seal Fusing gear	× 1 × 1 × 1 × 1 × 1	160K	SF-240KB	1	For conformity with EAN code
3	Staple cartridge	Staple cartridge	× 5	5000 times × 5	SD-LS20	10	Common with the cartridge for SD-2075. (SD0SC20) × 5 = SD-LS20

[8] Simulation and diagnostics

1. Simulation

(1) Introduction

Simulation are used to do the following:

- To operate any functional block independently to check its function.
- To adjust the machine.
- To cancel troubles.
- To set up functions.

(2) Purpose

Simulation are used to help repair and adjust the machine.

When the PAUSE key is pressed in a course of a simulation being executed, the simulation is interrupted with the copy number window turned off and the copier becomes ready to accept entry of a simulation number.

∗1: If the key was pressed for more than five seconds, it may not go into the simulation mode.

∗2: Further operation may be needed depending on the kind of simulation.

∗3: One of the next methods is required to cancel the simulation as it varies according to the simulation. The machine then starts from the state immediately after power on.

— Other than simulation 7

The simulation is canceled when the CLEAR ALL key is pressed.

— Simulation 7

One of the following operation cancels the simulation execution.

1. Power switch off.
2. Press the CLEAR → PAUSE → 0 → PAUSE → CLEAR ALL keys.

— Simulation 14

The simulation 14 is used to clear the memory contents (H2, H3, H4) that have been stored. After the simulation 14 has been executed, the diagnostic is automatically terminated.

— Special keys

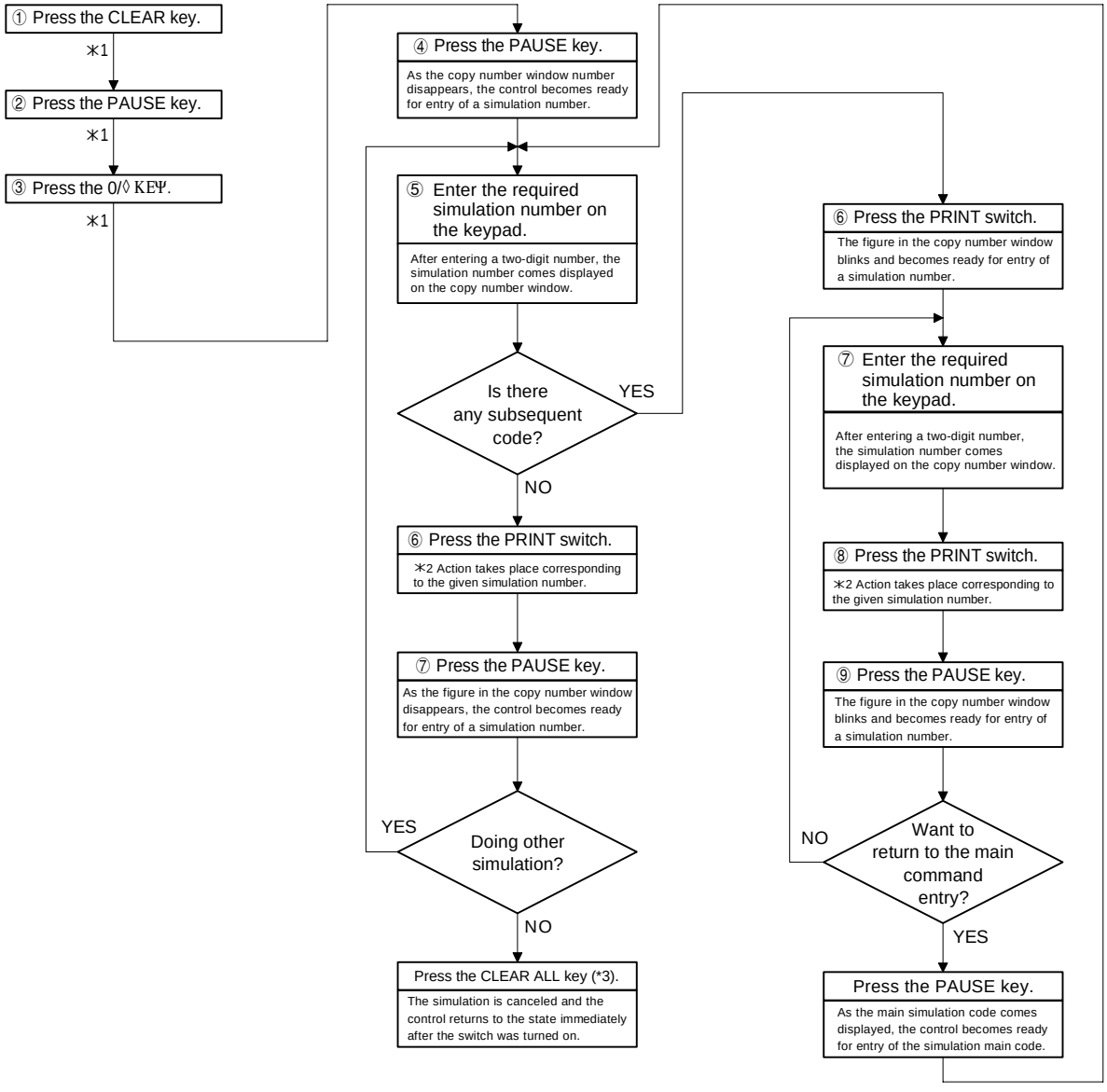
CLEAR ALL key: Simulation mode → normal mode.

PAUSE key: Execution of simulation is interrupted.
CLEAR key: Clears the copy number window.

— The diagnostic is automatically terminated after the doorswitch operation "ON → OFF → ON", except "H" and "U2" code.

(3) Simulation execution procedure

List of the test commands

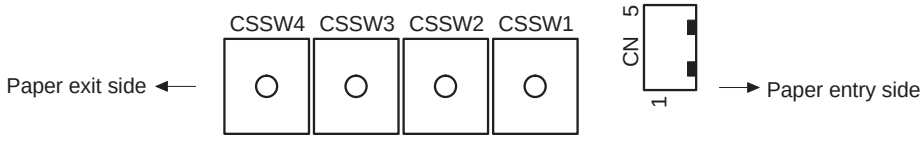
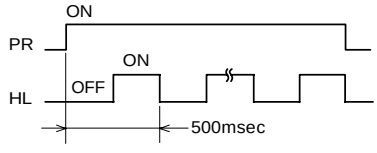


Sim. NO	Sim. SUB	Description	
01	01	Optical system mirror scanning check	
	02	Optical system sensor state display	
	03	Lens movement operation check	
	04	Lens aging	
02	01	ADF aging	
	02	ADF sensor state display	
	03	ADF individual load operation check	Motor A forward rotation
	04		Motor A reverse rotation
	05		Motor B forward rotation
	06		Motor B reverse rotation
	07		Belt clutch
	08		Paper feed solenoid
	09		Reverse solenoid
	10		Shutter solenoid
	11		Brake clutch
03	01	Staple sorter aging (only when SF-S56 installed)	
	02	Sorter sensor state display	
	03	Sorter individual load operation check	Transport motor
	04		Bin shift motor
	05		Fan motor (SF-S15 only)
	06		Gate solenoid
	08		Staple motor (SF-S53 only)
	09		Paper hold solenoid (SF-S53 only)
	10		Guide bar motor (SF-S53 only)
04	02	Desk sensor status display	
	03	1cs cassette size switch check (Desk)	
	04	2cs cassette size switch check (Desk)	
	05	3cs cassette size switch check (Desk)	
	06	Desk individual load operation check	Transport motor
	07		1cs lift up motor
	08		2cs lift up motor
	09		3cs lift up motor
	10		Transport clutch
	11		1cs paper feed solenoid
	12		1cs paper feed clutch
	13		2cs paper feed solenoid
	14		2cs paper feed clutch
	15		3cs paper feed solenoid
	16		3cs paper feed clutch
05	01	Operation panel display check	
	02	Fuser lamp check	
	03	Copy lamp check	
	04	BL/DL check	
06	02	Separation pawl solenoid operation check	
07	01	Warm-up time display and aging with jam detection	
	02	Warm-up time display and aging without jam	
	03	Intermittent aging without fusing without jam	
	04	Warm-up saving	
	06	Intermittent aging	
	07	Intermittent aging without jam	
	08	Warm up time display (without jam)	
08	01	Developer bias check	
	02	MHV (Charge), grid check	ME
	03		Photo
	04		TSM
	06	THV (Transfer) check	
	07	SHV (Separation) check	
09	02	ADU sensor state display	
	03	ADU trail edge plate aging	
	04	ADU alignment plate aging	
	05	Gate solenoid operation check	
10	✳✳	Toner motor aging	
14	✳✳	Cancel of troubles except U2, H2, H3, H4	
16	✳✳	Cancel of U2 trouble code	
17	✳✳	PF trouble cancel	
20	✳✳	Maintenance counter clear	
21	01	Maintenance cycle setting	
22	01	Maintenance counter display	
	02	Maintenance preset counter display	
	03	Jam memory display	
	04	Total jam counter display	
	05	Total counter display	
	06	Developer counter display	

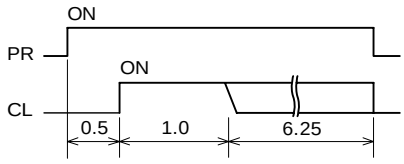
Sim. NO	Sim. SUB	Description	
22	07	Developer preset cycle counter display	
	08	RADF counter display	
	09	ADU counter display	
	10	Staple counter display	
	11	Developer adjustment time display	
	12	Drum adjustment time display	
	13	Key operator code display	
	14	ROM version display	
	15	Trouble memory display	
	16	Cassette paper feed counter display	
24	01	Jam memory/total jam counter clear	
	02	Trouble memory/counter clear (SGL/WPB)	
	03	ADU counter clear	
	04	RADF counter clear	
	05	Staple counter clear	
	06	Developer adjustment time clear	
	07	Drum adjustment time clear	
	08	Cassette paper feed counter clear	
25	01	Main motor system ON	
	02	Auto developer adjustment	
	06	Toner control A counter value setting	
	07	Grid correction setting for toner control A	
26	01	Option setting	
	03	Coin vendor setting	
	05	Counter mode setting	
	06	Destination setting	
	07	Drum sensitivity setting	
	08	Lens focus setting	
	09	4/5 mirror characteristics setting	
	10	AE original density setting	
	18	Toner save mode setting (Japan + SUK)	
	28	Fixed magnification ratio setting/change	
27	01	PPC communication trouble	
30	01	Paper sensor state display	
	02	Cassette size switch state display	
41	01	Document size sensor check	
	02	Document size sensor adjustment	
	03	Document sensor light receiving level adjustment	
42	✳✳	Developer counter clear	
43	✳✳	Fusing temperature setting	
44	01	Correction mode setting	
	02	Drum mark sensor sensitivity adjustment	
	03	Image density sensor sensitivity adjustment	
	05	Test mode of half tone density correction	
	06	Compulsory execution of half tone density correction	
	07	Drum mark sensor/image density sensor gain select check	
	09	Measurement data display of half tone density correction	
	11	Operation and setting at grid bias	
	12	Copying is performed without half tone density correction.	
46	01	Exposure level adjustment	
47	✳✳	AE sensor characteristics setting	
48	01	Front/rear magnification ratio adjustment, focus adjustment	
	02	Paper transport direction magnification ratio adjustment (scanner speed)	
50	01	Lead edge image position adjustment	
	02	Lead edge image position adjustment, (calculating formula)	
51	02	Resist amount adjustment	
52	01	ADU alignment plate adjustment value setting	
	02	ADU trail edge plate adjustment value setting	
	03	ADU drive clutch OFF time setting	
53	01	RADF stop position adjustment	Normal paper, Single copy
	02		Normal paper, Duplex copy
	03		Thin paper, Single copy
	04		Thin paper, Duplex copy
	05	RADF resist sensor adjustment	
	06	RADF timing sensor adjustment	
	07	RADF repulsion sensor adjustment	
	08	RADF empty sensor adjustment	

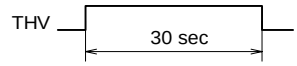
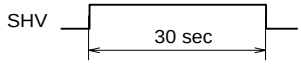
<table>
<tr><th>Main code</th><th>Sub code</th><th>Description</th><th>Ref. Page</th></tr>
<tr><td>01</td><td>01</td><td>This is the test command used to test the optical system. The mirror base automatically starts to scan.
(1) With depression of the PAUSE key, the control moves from the test command mode to be ready to execute it. The READY pilot lamp (RPL) comes active with the zoom ratio at 100%. It is possible to change the zoom mode using the ZOOM key.
(2) When the PRINT key is pressed while the RPL is active, the status lamp turns off and the test command starts to execute. The mirror base moves to scan in the zoom ratio at that time.
(3) If the door is opened while the operation is in process, the operation is interrupted with status "CH" prompted. Closing the door will start the operation all over again from its initial step.</td><td></td></tr>
<tr><td></td><td>02</td><td>This is the test command used to test the optical system sensors. When the test command starts and the sensor turns on and the display reverses, it starts to test the on/off action of a optical system sensor.
<table>
<tr><th></th><th>Active status lamp</th></tr>
<tr><td>RE</td><td>Mirror rotary encoder pulse (RE) input</td></tr>
<tr><td>MHPS</td><td>Mirror home position sensor</td></tr>
<tr><td>LHPS</td><td>Lens home position sensor</td></tr>
<tr><td>MPHPS</td><td>No.4/5 mirror home position sensor</td></tr>
</table></td><td></td></tr>
<tr><td></td><td>03</td><td>Used to test the zoom lens movement.
• The zoom ratio is displayed on the zoom ratio window.
AB series machine 100% → 50% → 70% → 81% → 86% → 115% → 122% → 141% → 200%
Inch series machine 100% → 50% → 64% → 77% → 95% → 121% → 129% → 141% → 200%</td><td></td></tr>
<tr><td></td><td>04</td><td>Used to test the zoom lens in the aging test mode.
• Test command 01-03 are repeated to test.</td><td></td></tr>
<tr><td>02</td><td>01</td><td>Used to test the action of the ADF/RADF (ADF aging). The aging test starts when the document presence sensor is manually turned on.</td><td></td></tr>
<tr><td></td><td>02</td><td>This is the test command used to test ADF/RADF sensors. On/off state of sensor can be manually tested.
When the sensor turns on, the display reverses.
<table>
<tr><td>Sensing presence of document
DSD</td><td>Sensing DF block open/close
AUOD</td><td>Sensing document width
DWS1</td></tr>
<tr><td>Sensing pre-fed document
DFD</td><td>Sensing paper feed block open/close
FGOD</td><td>Sensing document width
DWS2</td></tr>
<tr><td>Sensing document release
RDD</td><td>Sensing paper inversion block open/close
TGOD</td><td>Sensing document width
DSW3</td></tr>
<tr><td></td><td></td><td>Sensing document width
DSW4</td></tr>
<tr><td>Sensing document width
DWS</td><td></td><td>Sensing document length
DLS1</td></tr>
<tr><td></td><td>Document sige (length) detection
DLS3</td><td>Sensing document length
DLS2</td></tr>
</table>
Reverse display: Paper presence/Door open, Normal display: No paper/Door closed</td><td></td></tr>
<tr><td></td><td>03</td><td>Used to test the action of ADF/RADF (individual load check)
Motor A forward rotation</td><td></td></tr>
<tr><td></td><td>04</td><td>Used to test the action of ADF/RADF (individual load check)
Motor A revere rotation</td><td></td></tr>
<tr><td></td><td>05</td><td>Used to test the action of ADF/RADF (individual load check)
Motor B forward rotation</td><td></td></tr>
<tr><td></td><td>06</td><td>Used to test the action of ADF/RADF (individual load check)
Motor B revere rotation</td><td></td></tr>
<tr><td></td><td>07</td><td>Used to test the action of ADF/RADF (individual load check)
Belt clutch</td><td></td></tr>
<tr><td></td><td>08</td><td>Used to test the action of ADF/RADF (individual load check)
Paper feed solenoid</td><td></td></tr>
</table>

<table>
<tr><th>Main code</th><th>Sub code</th><th>Description</th><th>Ref. Page</th></tr>
<tr><td>02</td><td>09</td><td>Used to test the action of ADF/RADF (individual load check)
Inversion solenoid</td><td></td></tr>
<tr><td></td><td>10</td><td>Used to test the action of ADF/RADF (individual load check)
Shutter solenoid</td><td></td></tr>
<tr><td></td><td>11</td><td>Used to test the action of ADF/RADF (individual load check)
Brake clutch</td><td></td></tr>
<tr><td>03</td><td>01</td><td>Staple sorter aging (only when SF-S56 installed)
Used to test the operation of the sorter (SF-S56).
The sort mode operation (with 20-bin) is repeated without paper.</td><td></td></tr>
<tr><td></td><td>02</td><td>This is the test command used to test the sensors in the sorter.
On/off state of sensors can be manually tested.
When the sensor turns on, the display reverses.
[When SF-S56 installed]
<table>
<tr><td>Staple door switch
DROPN</td><td>Staple door sensor
SPLDR</td></tr>
<tr><td>Joint switch
JNTS</td><td>Staple cartridge sensor
SCD</td></tr>
<tr><td>Paper exit sensor
SPEXT</td><td>Stapler foreign material sensor
SPBD</td></tr>
<tr><td>Stapler oscillation home position sensor
SWHP</td><td>Staple head sensor
STMD</td></tr>
<tr><td>Alignment pole home position sensor
GBHP</td><td>Staple sensor
SED</td></tr>
<tr><td>Bin unit home position sensor
BHP</td><td>Bin upper paper sensor
BPED</td></tr>
<tr><td>Lead cam sensor
LDP</td><td>DIP switch ?
DIPSW ?</td></tr>
<tr><td>Stapler home position
SPLHP</td><td>Push switch ?
PSW ?</td></tr>
<tr><td>24V sensor S_24V</td><td></td></tr>
</table>
[When SF-S15 installed]
<table>
<tr><td>Paper entry sense (Non-sort)
PES/SPID</td><td>Indexer upper limit sense
IULS/-</td></tr>
<tr><td>Sorter set sense
SJS/JSW</td><td>Paper entry sense (Sort)
-/SPPD</td></tr>
<tr><td>Indexer lower limit sense
ILLS/-</td><td>Top cover open/close sense
UCSW/-</td></tr>
<tr><td>Paper exit sense
PWB-S/-</td><td>Indexer (bin) hoe position sense
IHS/BHPS</td></tr>
<tr><td>Floor cover open/close sense
FCSW/-</td><td>Paper sense in bin
-/BPED</td></tr>
<tr><td>Indexer (bin) fixed position sense
IPS/LCHPS</td><td>Staple cover home position sense
-/SCSW</td></tr>
<tr><td>Staple position paper sense
-/SPED</td><td>Guide bar home position sense
-/SGHPS</td></tr>
<tr><td>Staple unit home position sense
-/SCS</td><td>Staple unit position sense
-/SSD</td></tr>
<tr><td>Staple operation home position
-/SHPS</td><td>Staple sense
-/SED</td></tr>
</table>
Reverse display: paper found/door opened/ON
Normal display: no paper found/door closed/OFF</td><td></td></tr>
<tr><td></td><td>03</td><td>Used to test the operations of the sorter (individual load check).
Transport motor rotation</td><td></td></tr>
<tr><td></td><td>04</td><td>Bin shift motor rotation (returns to the home position at first, then stops at each bin location Bin 1 to Bin 21, moving up and down. Sorter bin moving.</td><td></td></tr>
<tr><td></td><td>05</td><td>Fan motor rotation</td><td></td></tr>
<tr><td></td><td>06</td><td>Gate solenoid ON</td><td></td></tr>
<tr><td></td><td>08</td><td>Stapler motor rotation (the paper is stapled once when there is a paper in the stapler tray). (SF-S56 only)</td><td></td></tr>
</table>

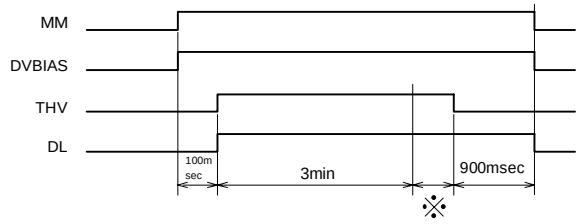
<table>
<tr><th>Main code</th><th>Sub code</th><th>Description</th><th>Ref. Page</th></tr>
<tr><td>03</td><td>09</td><td>Paper holder solenoid operation check (SF-S56 only)</td><td></td></tr>
<tr><td></td><td>10</td><td>Guide motor operation check (SF-S56 only)</td><td></td></tr>
<tr><td>04</td><td>02</td><td>This is the test command used to test sensors in the desk. On/off state of the sensors can be manually tested.
When a sensor turns on, the display reverses.
<table>
<tr><td>Upper stage paper exit sensor
DPOD1</td><td>Upper stage cassette lift up sensor
DLUD1</td><td>Upper stage cassette paper sensor
DPE1</td></tr>
<tr><td>Upper stage paper paper exit sensor
DPOD2</td><td>Middle stage cassette lift up sensor
DLUD2</td><td>Middle stage cassette paper sensor
DPE2</td></tr>
<tr><td>Lower stage paper sensor
DPOD3</td><td>Lower stage cassette lift up sensor
DLUD3</td><td>Lower stage cassette paper sensor
DPE3</td></tr>
<tr><td>Door open/close sensor
DDOP</td><td>—</td><td>—</td></tr>
</table>
Reverse display: paper found/door opened/ON
Normal display: no paper found/door closed/OFF</td><td></td></tr>
<tr><td></td><td>03</td><td>Used to check ON/OFF of first stage cassette size switch of the desk (option).
When the switch is turned on, the display is reversed.
(Cassette size board arrangement) Switch position when viewed from the front frame
 
</td><td></td></tr>
<tr><td></td><td>04</td><td>Used to check ON/OFF of second stage cassette size switch of the desk (option).
The contents are the same as SIM 04-03.</td><td></td></tr>
<tr><td></td><td>05</td><td>Used to check ON/OFF of third stage cassette size switch of the desk (option).
The contents are the same as SIM 04-03.</td><td></td></tr>
<tr><td></td><td>06</td><td>Desk (option) transport motor rotation</td><td></td></tr>
<tr><td></td><td>07</td><td>Desk (option) first stage cassette lift up motor rotation (OFF when the upper limit is sensed.)</td><td></td></tr>
<tr><td></td><td>08</td><td>Desk (option) second stage cassette lift up motor rotation (OFF when the upper limit is sensed.)</td><td></td></tr>
<tr><td></td><td>09</td><td>Desk (option) third stage cassette lift up motor rotation (OFF when the upper limit is sensed.)</td><td></td></tr>
<tr><td></td><td>10</td><td>Desk (option) transport clutch ON</td><td></td></tr>
<tr><td></td><td>11</td><td>Desk (option) first stage paper feed solenoid ON</td><td></td></tr>
<tr><td></td><td>12</td><td>Desk (option) first stage paper feed clutch ON</td><td></td></tr>
<tr><td></td><td>13</td><td>Desk (option) second stage paper feed solenoid ON</td><td></td></tr>
<tr><td></td><td>14</td><td>Desk (option) second stage paper feed clutch ON</td><td></td></tr>
<tr><td></td><td>15</td><td>Desk (option) third stage paper feed solenoid ON</td><td></td></tr>
<tr><td></td><td>16</td><td>Desk (option) third stage paper feed clutch ON</td><td></td></tr>
<tr><td>05</td><td>01</td><td>All LED's on the operation panel are turned on for one minute. After one minute, the machine automatically goes into the sub code input wait state.</td><td></td></tr>
<tr><td></td><td>02</td><td>This is the test command used to test the heater lamp. Heater lamp turned on and off five times.
 

The heater turns on and off in the order shown above.</td><td></td></tr>
</table>

Main code	Sub code	Description	Ref. Page
05	03	This is the test command used to test the copy lamp. Copy lamp turned on in the following order. When the test command starts, the copy lamp turns full power for one second with the manual exposure setting 3.0 shown, and the copy lamp intensity can be changed to the power set on the exposure setup key for a period of 6.25 seconds. Use care not to damage original cover or RADF belt.  * Refrain from repeating this test command without waiting for lamp and glass to cool.	
	04	This is the test command used to check activation of the discharge lamp (DL) and the blank lamps (BL). The discharge lamp (DL) turns on for 30 seconds. Each blank lamp turns on, from the front frame side to the rear frame side. Finally, all blank lamps turn on. After lighting, the machine automatically goes into the sub code input wait state.	
06	02	Activation of the separation solenoid Used to test the action of the drum separator pawl solenoid.	
07	01	Aging with jam 1. Used to check the warmup time. 2. Executes the continuing aging test for the given number of copies. When the test command is executed. the machine performs its normal action and the warmup time starts to count from zero and increase count every one second. The count is displayed on the copy lamp window. When the RPL is turned on, the addition of the copy number is interrupted with the copy number remaining on display as it is. When the CLEAR key is pressed, the copy number must be entered on the keypad, and with depression of the PRINT switch, the given number of copies repeated to produce. In this case, the paper misfeed function comes alive.	
	02	Aging without jam Aging is performed without paper feed. Similar to SIM 7-1. Aging is performed disregarding paper misfeed function. (For the warm up time check, it is the same as SIM 7-1.)	
	03	Aging without jam without fusing Similar to SIM 7-1. Aging is performed without warm up time and by disregarding trouble functions of the heater system and paper misfeed function. (The heater lamp does not turn on.)	
	04	Saving warm up Warm up time is saved to check the operation of the machine. When this simulation is executed, RPL turns on. The operation of the machine can be checked with this. When the heater section is at low temperature, the heater low temperature trouble may be detected and H4 may be displayed.	
	06	Intermittent aging	
	07	Intermittent aging without jam	
	08	Warm up time display (without aging) (Warm up time check is the same as SIM 7-1.)	
08	01	Developing bias voltage output. After delivering the output, the machine automatically goes into the sub code input wait state. This is the test command used to check the developing bias voltage. The developing bias voltage is turned on for 30 seconds. Standard developing bias setting is –200VDC.	[7]-2(3)
	02	Main (charge) corona output [ME]. After delivering the output, the machine automatically goes into the sub code input wait state. Standard manual exposure mode main corona grid voltage is –875 ± 15V. This is the test command used to check the main corona variance between the front and rear sides. The corona output continues for 30 seconds. • The main corona variance must be within 8μA between the front and the rear.	[7]-5-(D)
	03	Main corona output [PE]. After delivering the output, the machine automatically goes into the sub code input wait state. Standard photographic mode main corona grid voltage is –560 ± 15V.	[7]-5-(D)
	04	Main corona output [TSM]. After delivering the output, the machine automatically goes into the sub code input wait state. Standard TSM main corona grid voltage is –???V ± 15V.	[7]-5-(D)

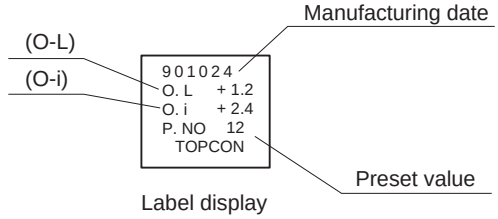
<table>
<tr><th>Main code</th><th>Sub code</th><th>Description</th><th>Ref. Page</th></tr>
<tr><td>08</td><td>06</td><td>Transfer corona output [TSM]. After delivering the output, the machine automatically goes into the sub code input wait state.
This is the test command used to check the transfer corona output (THV). The transfer corona output continues for 30 seconds.
 
Standard transfer corona output is –31μA ± 5μA (F/R difference: Max. 8μA).</td><td>[7]-4-(B)</td></tr>
<tr><td></td><td>07</td><td>Separation corona output. After delivering the output, the machine automatically goes into the sub code input wait state.
This is the test command used to check the separation corona output (SHV). The separation corona output continues for 30 seconds.
 
Adjustment value: 0 ± 10μA (Japan)</td><td>[7]-6-(E)</td></tr>
<tr><td>09</td><td>02</td><td>ADU sensor check test command ON/OFF state of each sensor can be manually checked.
When the sensor turns on, the display reverses.
<table><tr><th>Sensor</th><th>Function</th></tr><tr><td>DPPD1</td><td>ADU transport sensor 1</td></tr><tr><td>DPPD2</td><td>ADU transport sensor 2</td></tr><tr><td>DTPID</td><td>ADU tray sensor</td></tr><tr><td>DPFD</td><td>ADU tray out sensor</td></tr><tr><td>APHPS1</td><td>ADU alignment plate home position sensor</td></tr><tr><td>APHPS2</td><td>ADU rear edge plate home position sensor</td></tr></table></td><td></td></tr>
<tr><td></td><td>03</td><td>ADU trail edge plate drive motor rotation
• Used to check the trail edge plate movement
(AB series)
HP.A3 → B4 → A4R → B5R → A4 → B5 → A5
(Inch series)
HP.11"x17" → 11"x14" → 8½ x11"(R) → 8½ x11"</td><td></td></tr>
<tr><td></td><td>04</td><td>ADU alignment plate drive motor rotation
• Used to check the alignment plate movement
(AB series)
HP.A3.A4 → B4.B5 → A5.A4R → B5R
(Inch series)
HP.11"x17". 8½ x11" → 11"x14". 8½ x11"(R)</td><td></td></tr>
<tr><td></td><td>05</td><td>Gate solenoid activation
Used to check the gate solenoid operation.</td><td></td></tr>
<tr><td>10</td><td>—</td><td>Toner motor activation
Used to check the toner motor activation.</td><td></td></tr>
<tr><td>14</td><td>—</td><td>Trouble code cancellation
This is the test command used to cancel other than the "U2" trouble. After the trouble has been removed, the test command terminates.</td><td></td></tr>
<tr><td>16</td><td>—</td><td>U2 trouble code cancellation
This is the test command used to cancel the "U2" trouble code.
After the trouble code has been removed, the test command terminates.</td><td></td></tr>
<tr><td>17</td><td>✳✳</td><td>PF trouble cancel
Used to cancel the PF trouble in the machine with PC/Modem when the copy inhibition command from the host machine is received. After cancelling the trouble, the test command is automatically cancelled.</td><td></td></tr>
<tr><td>20</td><td>—</td><td>Maintenance counter clear
Used to reset the maintenance preset counter to zero after the maintenance is completed. It is mandatory to clear the counter after the maintenance is completed.</td><td></td></tr>
</table>

Main code	Sub code	Description	Ref. Page
21	01	◦ Maintenance cycle setting Used to set the maintenance cycle. Code Maintenance cycle 0 ····· 80,000 sheets 1 ····· 5,000 sheets 2 ····· 10,000 sheets 3 ····· 20,000 sheets 4 ····· 40,000 sheets 5 ····· Free The default is 0.	
22	01	◦ Maintenance counter display Copy number of the maintenance counter is displayed.	
	02	◦ Maintenance preset counter display This test command is used to check the contents of the maintenance preset cycle counter.	
	03	◦ JAM memory display (JAM map display) Displays the causes (positions) of JAM occurred in copy operation. (Max. 50 JAMs from the recent one) To check the history of JAM cause, press the message forward feed key. The history is displayed in the sequence from the oldest to the latest.	
	04	◦ Total misfeed counter display	
	05	◦ Total counter display This counter is used to show the total copy number of the machine.	
	06	◦ Developer counter display The contents of the copy number counter of the installed developing unit is displayed.	
	07	◦ Developer preset cycle counter display Number of developer replacements and the reset counter contents of the installed developing unit are displayed.	
	08	◦ ADF/RADF counter display Used to check the number of originals fed through the ADF/RADF.	
	09	◦ Duplex counter display Used to check the number of sheets fed through the duplex unit.	
	10	◦ Staple counter display Used to check the number of uses of the staple unit.	
	11	◦ Developer adjustment time display Used to check the correction level according to the developer rotating time.	
	12	◦ Drum adjustment time display Used to check the correction level according to the drum rotating time.	
	13	◦ Key operator code display Used to check the key operator code registered voluntarily by the key operator.	
	14	◦ ROM version display Used to display the version of ROM which is currently installed.	
	15	◦ Trouble memory display Used to display the number of troubles occurred and the trouble codes up to 50 cases from the latest one.	
	16	◦ Cassette paper feed counter display Used to check the counter value of each cassette.	
24	01	◦ Misfeed map memory and total misfeed counter clear	
	02	◦ Trouble memory clear	
	03	◦ Duplex counter clear The contents of the copy number counter of the duplex unit is reset. It is mandatory to clear the memory contents after the maintenance is completed.	
	04	◦ ADF/RADF counter clear The contents of the copy number counter of the ADF/RADF is reset. It is mandatory to clear the memory contents after the maintenance is completed.	
	05	◦ Staple counter clear The staple unit using counter is cleared to zero.	
	06	◦ Developer adjustment time clear The developer adjustment time is cleared to zero.	

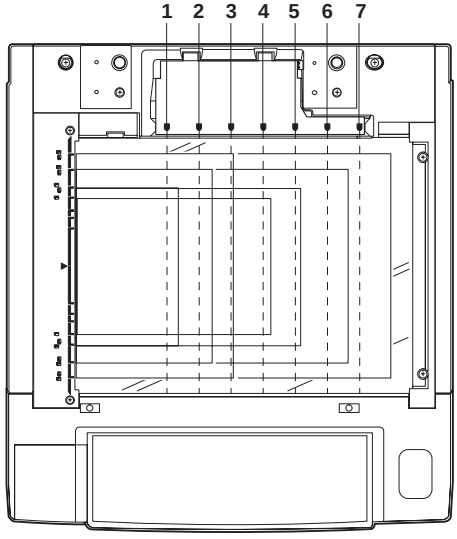
<table>
<tr><th>Main code</th><th>Sub code</th><th>Description</th><th>Ref. Page</th></tr>
<tr><td>24</td><td>07</td><td>◦ Drum adjustment time clear
The drum adjustment time is cleared to zero.</td><td></td></tr>
<tr><td></td><td>08</td><td>◦ Tray paper feed counter clear
Used to clear the tray paper feed counter.</td><td></td></tr>
<tr><td>25</td><td>01</td><td>Main motor activation
• Used to check malfunction in the main motor drive train. (Rotates for 3 min.)
• Also, monitors the toner density sensor. (Sensor output value display)
(??????)</td><td></td></tr>
<tr><td></td><td>02</td><td>Automatic developer adjustment
• This is the test command used to monitor the toner sensor and to automatically set the developer.
• For automatically setting developer, the developing tank is stirred and the toner sensor output is monitored. The sensor is monitored 16 times in 3 minutes after the stirring started and the mean value is stored in the memory as the toner density referance value. (See the area marked with an asterisk in the figure below.) (Afterwards, referance changes as copies are made to maintain density.)
 

(?????)</td><td></td></tr>
<tr><td></td><td>04</td><td>Toner control A count setting
Used to set the max. correction time of toner control (correction by copy time).</td><td></td></tr>
<tr><td></td><td>05</td><td>Grid correction amount setting for toner control A
Used to set the absolute value of the reference criteria (4Vg) of toner control (correction by grid bias correction value).</td><td></td></tr>
<tr><td>26</td><td>01</td><td>Option unit setup
• Used to set up option unit.
① When the test command is executed, the presently stored machine setup code is displayed with the READY lamp turned on.
② After the READY lamp has turned on, enter an appropriate setup code on the keypad and press the PRINT switch. Then, the date is stored in the memory and the display returns to the sub code entry menu.
<table><tr><th>Code</th><th>Option</th></tr><tr><td>+1</td><td>RADF</td></tr><tr><td>+2</td><td>ADU</td></tr><tr><td>+4</td><td>Desk</td></tr><tr><td>+10</td><td>Sorter</td></tr></table>◦ No need to set "+2 (ADU)". If the ADU is installed, "2" is automatically added.</td><td></td></tr>
</table>

<table>
<tr><th>Main code</th><th>Sub code</th><th>Description</th><th>Ref. Page</th></tr>
<tr><td>26</td><td>01</td><td>
<table>
<tr><th>Code</th><th>Option</th></tr>
<tr><td>0</td><td>No option</td></tr>
<tr><td>1</td><td>RADF</td></tr>
<tr><td>2</td><td>ADU</td></tr>
<tr><td>3</td><td>RADF + ADU</td></tr>
<tr><td>4</td><td>Desk</td></tr>
<tr><td>5</td><td>RADF + desk</td></tr>
<tr><td>6</td><td>ADU + desk</td></tr>
<tr><td>7</td><td>RADF + ADU + desk</td></tr>
<tr><td>10</td><td>Sorter</td></tr>
<tr><td>11</td><td>RADF + sorter</td></tr>
<tr><td>12</td><td>ADU + sorter</td></tr>
<tr><td>13</td><td>RADF + ADU + sorter</td></tr>
<tr><td>14</td><td>Desk + sorter</td></tr>
<tr><td>15</td><td>RADF + desk + sorter</td></tr>
<tr><td>16</td><td>ADU + desk + sorter</td></tr>
<tr><td>17</td><td>RADF + ADU + desk + sorter</td></tr>
</table>
○ Used to set the code that corresponds to an option unit.
(EX): To set the RADF and desk together with ADU, enter 1+2+4=7, or 1+4=5.
NOTES:
(1) Be sure to enter the code that corresponds to the installed option unit.
(2) If option setup is incorrect, a trouble code is displayed. See the trouble code chart.
</td><td></td></tr>
<tr><td></td><td>03</td><td>Coin vendor setting
0: Cancel, 1: Setting</td><td></td></tr>
<tr><td></td><td>05</td><td>Counter mode setup
① When the test command is executed, the code of the presently stored mode is displayed with the READY lamp turned on.
② After the READY lamp has turned on, enter an appropriate setup code on the keypad and press the PRINT switch. Then, the code is stored in the memory and the READY lamp turns off.
<table>
<tr><th>Code</th><th>Total counter</th><th>Maintenance counter</th></tr>
<tr><td>0</td><td>Double count</td><td>Double count</td></tr>
<tr><td>1</td><td>Single count</td><td>Double count</td></tr>
<tr><td>2</td><td>Double count</td><td>Single count</td></tr>
<tr><td>3</td><td>Single count</td><td>Single count</td></tr>
</table>
</td><td></td></tr>
<tr><td></td><td>06</td><td>Destination setup
Used to set the destination setting.
① When the test command is executed, the presently stored model number and the destination code are displayed (see table below) and the READY lamp turns on.
② After the READY lamp has turned on, enter the model number and the destination code on the keypad and press the PRINT switch to store the setting in the memory. The READY lamp then turns off.
<table>
<tr><th>Code</th><th colspan="2">Destination</th><th>AB/Inch</th></tr>
<tr><td>0</td><td>SEC (ES)</td><td>America</td><td rowspan="4">(Inch)</td></tr>
<tr><td>1</td><td>SEC ✳</td><td>America</td></tr>
<tr><td>2</td><td>SECL</td><td>Canada</td></tr>
<tr><td>3</td><td>Other</td><td></td></tr>
<tr><td>4</td><td>Japan</td><td></td><td rowspan="2">(AB Japan)</td></tr>
<tr><td>5</td><td>Other</td><td></td></tr>
<tr><td>6</td><td>SEEG</td><td>German</td><td rowspan="4">(AB Export)</td></tr>
<tr><td>7</td><td>SUK</td><td>U.K.</td></tr>
<tr><td>8</td><td>SCA</td><td>Australia</td></tr>
<tr><td>9</td><td>Other</td><td></td></tr>
</table>
✳ Energy star
</td><td></td></tr>
</table>

<table>
<tr><th>Main code</th><th>Sub code</th><th>Description</th><th>Ref. Page</th></tr>
<tr><td>26</td><td>07</td><td>Drum sensitivity setup
① When the test command is executed, the number stored in the memory is recalled and the READY lamp turns on.
② A number 1 to 3 may be entered on the keypad while the RPL is active.
③ Press the PRINT switch after the number has been entered. With this, the READY lamp turns off and the test command number is displayed.
∘ Drum
<table><tr><td>Keypad entry</td><td>1</td><td>2</td><td>3</td></tr><tr><td>Sensitivity</td><td>1</td><td>2</td><td>3</td></tr></table></td><td></td></tr>
<tr><td></td><td>08</td><td>Lens characteristics entry (at a time of lens replacement)
Because each lens has a variance in focal distance, the lens moving distance in any zoom mode must correspond with the focal distance of the lens. The zoom ratio varies proportionate to the variance of the lens focal distance.
To avoid focus problem, the class of the lens focal distance (refer to chart on page 7-11) is stored in the memory using the test command. In a variable zoom mode, the lens moving distance that corresponds to the lens focal distance is obtained on the basis of the data so as to produce the accurate zoom copy.
Setup method (26-08)
① When the test command is executed, the presently stored preset code is displayed and the READY lamp turns on.
② After the READY lamp turned on, enter the lens number shown on the top of lens area and press the PRINT switch to store the value in the memory. The READY lamp now turns off.</td><td>[7]-10-(6)</td></tr>
<tr><td></td><td>09</td><td>4/5 mirror characteristics entry (at a time of lens replacement)
① Set the correction value for lens marked value based on "lens value vs. test command input."
As the READY lamp turns on, the previously set value 1 to 21 is shown.
② Enter the new value on the keypad.
Example: If the value shown on the lens is +1, 2, enter "14."
Press the [1] → [4] → [PSW] keys.
The value is "0-L" value on the label which is attached to the lens unit.
 

Label display</td><td>[7]-10-(6)</td></tr>
<tr><td></td><td>10</td><td>AE original density setting
Used to set the original density. (Set value: 1 ~ 9)
Default: 2 Set to 9 if the density is extremely low.</td><td></td></tr>
<tr><td></td><td>18</td><td>Toner save mode setting</td><td></td></tr>
<tr><td></td><td>28</td><td>Fixed magnification ratio setting
① Select the magnification ratio to be set or changed with 10-key on the magnification ratio select menu.
After selection, press the START key to fix it, and the display goes to the magnification ration change menu.
② Set the desired magnification ratio with the zoom key. Then press the START key to fix it.</td><td></td></tr>
<tr><td>27</td><td>01</td><td>PPC communication trouble</td><td></td></tr>
<tr><td>30</td><td>01</td><td>Monitoring main unit paper sensor
Used to check the on/off state of paper sensor in the copier.
When the sensor turns on, the display reverses.</td><td></td></tr>
<tr><td></td><td>02</td><td>Monitoring paper cassette size
Used to check the on/off state of paper cassette size. When the switch turns on, the display reverses.</td><td></td></tr>
</table>

<table>
<tr><th>Main code</th><th>Sub code</th><th>Description</th><th>Ref. Page</th></tr>
<tr><td>41</td><td>01</td><td>Document size photo sensor check
The document length is sensed by interrupting the document.
When the sensor is turned on (document detection), the display is reversed.
<table>
<tr><th>Shaft</th><th>Japan AB series</th><th>EX AB series</th><th>EX inch series</th></tr>
<tr><td>1</td><td>—</td><td>A5</td><td>5 1/2" × 8 1/2"</td></tr>
<tr><td>2</td><td>B5</td><td>A4</td><td>11" × 8 1/2"</td></tr>
<tr><td>3</td><td>A4</td><td>—</td><td>—</td></tr>
<tr><td>4</td><td>B5R</td><td>A4R</td><td>11" × 8 1/2" (R)</td></tr>
<tr><td>5</td><td>A4R</td><td>—</td><td>—</td></tr>
<tr><td>6</td><td>B4</td><td>B4</td><td>11" × 14"</td></tr>
<tr><td>7</td><td>A3</td><td>A3</td><td>11" × 17"</td></tr>
</table>
• OCSW is used to check the original cover open/close.
Reversed display: Cover open
Normal display: Cover close
 
</td><td>[8]-4-(1)</td></tr>
<tr><td></td><td>02</td><td>Document size photo sensor setting</td><td>[7]-18-(2)</td></tr>
<tr><td></td><td>03</td><td>○ Document sensor light reception level and setting level display
Used to check the document sensor level.
1. Light reception level display
• The light reception level during execution of the simulation is displayed.
2. Setting level display
• Each sensor level set with SIM 41-2 is displayed.</td><td></td></tr>
<tr><td>42</td><td>✳</td><td>○ Developer counter clear
Reset the contents of the copy number counter of the installed developing unit.</td><td></td></tr>
<tr><td>43</td><td>✳</td><td>When main code "43" is entered, the following message is displayed on the LCD.
○ Fusing temperature setting
Used to set the fusing temperature.
When this simulation is executed, the currently set fusing temperature is displayed.
The fusing temperatures in the single copy mode and the duplex copy mode can be set individually.
Use the message forward scroll key to select the mode. Use the ten key to set the temperature.
SIMULATION No.43-✳
[1 → 1, 2 → 1]
INPUT 0 ~ 9
1. 160℃ 2. 165℃ 3. 170℃
4. 175℃ 5. 180℃ 6. 185℃
7. 190℃ 8. 195℃ 9. 200℃ 0. 205℃
[1 → 2, 2 → 2]
INPUT 0 ~ 9
1. 160℃ 2. 165℃ 3. 170℃
4. 175℃ 5. 180℃ 6. 185℃
7. 190℃ 8. 195℃ 9. 200℃ 0. 205℃
[1 → 2, 2 → 2] SETTING:PRESS ➡ KEY</td><td></td></tr>
</table>

<table>
<tr><th>Main code</th><th>Sub code</th><th>Description</th><th>Ref. Page</th></tr>
<tr><td>44</td><td>01</td><td>Correction mode setting
[+ 1] Process control correction enable
[+ 2] Optical dirt correction enable
[+ 4] Drum layer wear correction enable
Toner control correction setting
[+10] Toner control A correction valid
[+20] Toner control B correction valid
Note: When all are "Enable," set to 37.
The corrections, except for the process control correction mode, can be disabled in the normal copy mode. When "0" is inputted, "1" (Process control correction) is enabled. (Automatic setting)</td><td></td></tr>
<tr><td></td><td>02</td><td>Drum mark sensor sensitivity adjustment: 0 ~ 255 (5V)
For the drum mark sensor gain rank, "2" is selected.
The main motor rotates and the drum mark sensor sensing level is displayed on the multi-display section. Adjust VR1 in the process unit to obtain [204±10].</td><td></td></tr>
<tr><td></td><td>03</td><td>Image density sensor sensitivity adjustment: 0 ~ 255 (5V)
For the image density sensor gain rank, "2" is selected.
The main motor rotates and the image density sensor sensing level is displayed on the multi-display section. Adjust VR2 in the process unit to obtain [204±10].</td><td></td></tr>
<tr><td></td><td>05</td><td>Test mode of half tone density correction: 0 ~ 255 (5V)
The main motor rotates to form images in nine steps of the grid bias level from 450V to 850V (50V step) on the drum, and the image density sensor level is displayed on the LCD.
Display
SIMULATION No.44-5
Test mode of half tone density correction: 0 ~ 255 (54V)
450VP / 450VB : ✱✱✱
500VP / 500VB : ✱✱✱
550VP / 550VB : ✱✱✱
600VP / 600VB : ✱✱✱
650VP / 650VB : ✱✱✱
700VP / 700VB : ✱✱✱
750VP / 750VB : ✱✱✱
800VP / 800VB : ✱✱✱
850VP / 850VB : ✱✱✱
✱✱✱ VP: Toner patch reflection level
✱✱✱ VB: Base reflection level</td><td></td></tr>
</table>

<table>
<tr><th>Main code</th><th>Sub code</th><th>Description</th><th>Ref. Page</th></tr>
<tr><td>44</td><td>06</td><td>Compulsory execution of half tone density correction

SIMULATION No.44-6
Compulsory execution of half tone density correction
NORMAL : ✱✱✱✱ PATCH1 : ✱✱✱
T/S : ✱✱✱✱ BASE1 : ✱✱✱
PHOTO : ✱✱✱✱ PATCH2 : ✱✱✱
GB ADJUST : ✱✱✱ BASE2 : ✱✱✱
TARGET : ✱✱✱ PATCH3 : ✱✱✱
ID GAIN : ✱ BASE3 : ✱✱✱
MARK : ✱✱✱ l : ✱✱✱
MARK B : ✱✱✱ m : ✱✱✱
DM GAIN : ✱ n : ✱✱✱
l✱m✱n : ✱✱✱ M1 : ✱✱✱
M2 : ✱✱✱

NORMAL : Standard mode grid bias (450 ~ 1250V)
T/S : Toner save mode grid bias (450 ~ 1250V)
PHOTO : Photo mode grid bias (450 ~ 1250V)
GB ADJUST : Grid bias correction value after measurement (±0 ~ 999V)
TARGET : Patch/surface. Patch reference value when surface is 255. (255 = Surface)
ID GAIN : Image density sensor gain rank in execution (1 ~ 7)
MARK : Drum mark sensor mark level in execution (0 ~ 255 = 5V)
MARK B : Drum mark sensor surface level in execution (0 ~ 255 = 5V)
DM GAIN : Drum mark sensor gain rank in execution (1 ~ 7)
BASE 1,2,3 : Drum surface image density sensor level in execution (0 ~ 255, 255 =5V)
PATCH123 : Toner patch image density sensor level in execution (0 ~ 255, 255 =5V)
l : Vg correction coefficient
m : Dirt correction coefficient
n : Film wear correction coefficient
M1 : Dirt correction coefficient (M1)
M2 : Dirt correction coefficient (M2)
l✱m✱n : Vc1 correction coefficient</td><td></td></tr>
<tr><td></td><td>07</td><td>Drum mark sensor/image density sensor gain select check
The image density sensor level can be checked for selection of each gain rank. :0 ~ 255 (5V)

SIMULATION No.44-7
Gain select check of drum mark sensor
and image density sensor: 0 ~ 255 (5V)
DM7 : ✱✱✱ ID7 : ✱✱✱
DM6 : ✱✱✱ ID6 : ✱✱✱
DM5 : ✱✱✱ ID5 : ✱✱✱
DM4 : ✱✱✱ ID4 : ✱✱✱
DM3 : ✱✱✱ ID3 : ✱✱✱
DM2 : ✱✱✱ ID2 : ✱✱✱
DM1 : ✱✱✱ ID1 : ✱✱✱</td><td></td></tr>
</table>

<table>
<tr><th>Main code</th><th>Sub code</th><th>Description</th><th>Ref. Page</th></tr>
<tr><td>44</td><td>09</td><td>Measurement data display of half tone density correction

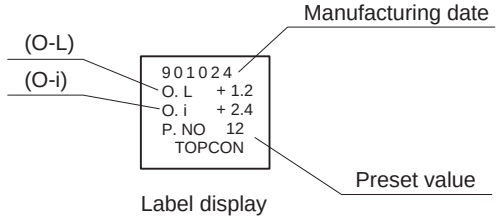
SIMULATION No.44-9
Compulsory execution of half tone density correction
NORMAL : ✱✱✱✱ PATCH1 : ✱✱✱
T/S : ✱✱✱✱ BASE1 : ✱✱✱
PHOTO : ✱✱✱✱ PATCH2 : ✱✱✱
GB ADJUST : ✱✱✱ BASE2 : ✱✱✱
TARGET : ✱✱✱ PATCH3 : ✱✱✱
ID GAIN : ✱ BASE3 : ✱✱✱
MARK : ✱✱✱ l : ✱✱✱
MARK B : ✱✱✱ m : ✱✱✱
DM GAIN : ✱ n : ✱✱✱
l✱m✱n : ✱✱✱ M1 : ✱✱✱
M2 : ✱✱✱

NORMAL : Standard mode grid bias (450 ~ 1250V)
T/S : Toner save mode grid bias (450 ~ 1250V)
PHOTO : Photo mode grid bias (450 ~ 1250V)
GB ADJUST : Grid bias correction value after measurement (±0 ~ 999V)
TARGET : Patch/surface. Patch reference value when surface is 255. (255 = Surface)
D GAIN : Image density sensor gain rank in execution (1 ~ 7)
MARK : Drum mark sensor mark level in execution (0 ~ 255 = 5V)
MARK B : Drum mark sensor surface level in execution (0 ~ 255 = 5V)
DM GAIN : Drum mark sensor gain rank in execution (1 ~ 7)
BASE 1,2,3 : Drum surface image density sensor level in execution (0 ~ 255, 255 =5V)
PATCH123 : Toner patch image density sensor level in execution (0 ~ 255, 255 =5V)
l : Vg correction coefficient
m : Dirt correction coefficient
n : Film wear correction coefficient
M1 : Dirt correction coefficient (M1)
M2 : Dirt correction coefficient (M2)
l✱m✱n : Vc1 correction coefficient</td><td></td></tr>
<tr><td></td><td>11</td><td>Used to set the grid voltage in each copy mode.

Display
GB-350V GB_850V GB_1000V GB_1150V
PATCH : ✱✱✱✱ NORMAL : ✱✱✱
T/S : ✱✱✱✱ PHOTO : ✱✱✱

PATCH –610±10
NORMAL –860±10
T/S –755±10
PHOTO –610±10

Use "→" key to select, and press PSW to determine. Aging is started.</td><td></td></tr>
<tr><td></td><td>12</td><td>Copying is made without half tone density correction operation. This simulation is used to know whether the trouble is in the process section or in the other section when F2 trouble occurs.</td><td></td></tr>
<tr><td>46</td><td>01</td><td>° Exposure level adjustment
Used to adjust the copy density and the copy density select level.</td><td>[7]-19-(6)</td></tr>
<tr><td>47</td><td>✱</td><td>° AE sensor characteristics measurement
AE sensor output characteristics memory
(1) AE sensor output characteristics input
When this simulation is executed, the mirror base is initialized, scans about 10cm, then stops. The READY lamp turns on now and becomes ready to measure.
Press the PRINT switch. The copy lamp driving voltage changes in increments of 10V (20V) each from 80V (160V) to 30V (60V), and the AE sensor output characteristics are stored in the memory. The values are used as referances.
NOTE: Shown in parenthesis is for the 200V series machine.
① Execute SIM 47. (The mirror base starts scanning and stops at the AE sensor level measurement point.)
② Place 4 or 5 sheets of white paper (A3 or 11" × 17") on the document table.
③ Press PSW again, and the AE sensor output level with the white paper is displayed on the copy quantity display and this output level is stored in the memory.</td><td>[7]-18-(3)</td></tr>
</table>

Main code	Sub code	Description	Ref. Page
48	01	Front/rear direction zoom ratio adjustment (refer to [8]-5-(6) for the lens type value. Used to set the No.4/5 mirror home position (focal adjustment) and to adjust the zoom ratio of the copy in the vertical direction (from front to rear). There are two kinds of test command 48-01 of which are described as follows. 1-1. Horizontal copy zoom ratio standard value input method (at a time of lens or main PWB replacement) When this simulation is executed, the already set value or "40" is displayed. Substitute the value of "O.L" shown on the label attached to the lens with the formula value. 40 – [(value of O.L.) x 5] = standard value of correction Ex: 40 – (+1.2 x 5) = 34 1-2. Use this test command to adjust the horizontal zoom ratio. Change the value entered in "1-1" to change. 2-1. No.4/5 mirror home position standard value input (at a time of lens or main PWB replacement). When this simulation is executed, the already stored value or "42" is displayed. Substitute the value of "O.L" shown on the label attached to the lens with the formula value. 42 – [(O.L value) x 10] = standard value of correction Ex: 42 – (+1.2 x 10) = 30 2-2. To adjust the resolution, change the value entered at "2-1" using this test command. When the No. 4/5 mirror reference value is "+" from the center value "50", the mirror is shifted away from the lens to lengthen the light path. When it is "–", the mirror is shifted to the lens to shorten the light path. The value is calculated in this manner.  Label display	[7]-8-(1) -(3) [7]-8-(2) [7]-9-(4)
	02	◦ Paper transport direction magnification ratio adjustment Used to adjust the magnification ratio in the transport direction. Varying the mirror base moving speed adjusts the zoom factor in the landscape direction of the copy (paper moving direction). ① Place a scale over the original table in the direction the paper moves. Make a copy in the 100% zoom mode and obtain the copy zoom ratio correction factor. Copy zoom correction factor = (original size) $-\frac{\text{(copy image size)}}{\text{(original size)}} \times 100\%$ ② As the READY lamp turns on, the previously set figure between 5 and 35 is displayed. Change it with the copy zoom factor correction factor obtained in ①. (Input value) = (previously stored value) + copy zoom ratio correction factor [%] × 10 Press the PRINT switch after entering the input value. With this, the input value is stored in the memory and the READY lamp turns off.	[7]-10-(5)
50	01	Used to adjust the copy lead edge image loss and void areas. For more information, refer to the optical system copy lead edge adjustment procedure.	[7]-15-(11)
	02	The function of this test command is similar to the test command 50-01. The test command 50-02 allows easier lead edge adjustment using the values of L1 and L2. For more information, refer to the optical system copy lead edge adjustment procedure.	[7]-15-(11)
51	02	◦ Resist amount adjustments Used to set the on timing of the paper feed roller (rate of buckle in the paper caused by the resist roller). When the test command is executed, the manual feed mode is automatically established. Change the manual feed mode resisting rate, cassette paper feed resist rate, and ADU paper feed resist rate independantly. When this simulation is executed, the manual feed lamp turns on → ① Enter number → press the cassette key (main unit bottom cassette and pause lamp turn on) → ② enter number → press the cassette key (main unit bottom cassette lamp turns on) → ③ enter number → press the cassette key. ①: Manual feed paper resist rate adjustment (MULTI TRAY) ②: Cassette paper resist rate adjustment (TRAY) ③: ADU paper resist rate adjustment (ADU) Reference value 40, 45, 50 (When "0" is entered, the reference value is set.) RESIST AMOUNT ADJUSTMENT MANUAL: CASSETTE: ADU:	

Main code	Sub code	Description	Ref. Page
52	01	◦ ADU alignment plate adjust value setup Used to adjust the home position of the ADU alignment plate. When the test command is executed, the READY lamp turns on. Enter a new value as the previously set value came displayed, and press the PRINT switch to stored it in memory. It is adjustable from 1 to 99. The default is 7. Setting a smaller value increases the width of the alignment plate and vice versa.	
	02	◦ ADU rear plate adjust value setup Used to adjust the home position of the ADU rear plate. When the test command is executed, the READY lamp turns on. Enter a new value as the previously set value came displayed, and press the PRINT switch to stored it in the memory. It is adjustable from 0 to 99. The default is 0. Setting a smaller value increases the width of the rear plate and vice versa.	
	03	ADU drive clutch off time setup: 10ms increment (1 step) 0 ~ 10 1 = 1ms, ··· 18 = 18ms, ··· 99 = 99ms Setting a smaller value shortens the ADU clutch off timings and decreases the enforced curling rate of paper.	
53	01	◦ RADF and ADF stop position adjustment value (normal paper, single copy) setting Used to adjust the RADF stop position in single copy with normal paper. When this simulation is executed, the ready lamp lights up and the currently set adjustment value is displayed. Enter the new adjustment value and press the PRINT switch to store it in the memory. The adjustment value should be in the range of 0 to 15.	
	02	◦ RADF stop position adjustment value (normal paper, duplex copy) setting Used to adjust the RADF stop position in duplex copy with normal paper. When this simulation is executed, the ready lamp lights up and the currently set adjustment value is displayed. Enter the new adjustment value and press the PRINT switch to store it in the memory. The adjustment value should be in the range of 0 to 15.	
	03	◦ RADF and ADF stop position adjustment value (thin paper, single copy) setting Used to adjust the RADF stop position in single copy with thin paper. When this simulation is executed, the ready lamp lights up and the currently set adjustment value is displayed. Enter the new adjustment value and press the PRINT switch to store it in the memory. The adjustment value should be in the range of 0 to 15.	
	04	◦ RADF and ADF stop position adjustment value (thin paper, duplex copy) setting Used to adjust the RADF stop position in duplex copy with thin paper. When this simulation is executed, the ready lamp lights up and the currently set adjustment value is displayed. Enter the new adjustment value and press the PRINT switch to store it in the memory. The adjustment value should be in the range of 0 to 15.	
	05	◦ RADF and ADF resist sensor adjustment Used to adjust the RADF resist sensor. (In the case of ADF, the resist sensor and the paper pass width sensor are adjusted.) When this simulation is executed, the RADF resist sensor is adjusted and the adjustment value is displayed.	
	06	◦ RADF and ADF timing sensor adjustment Used to adjust the RADF timing sensor. When this simulation is executed, the RADF timing sensor is adjusted and the adjustment value is displayed.	
	07	◦ RADF and ADF repulsion sensor adjustment Used to adjust the RADF repulsion sensor. When this simulation is executed, the RADF repulsion sensor is adjusted and the adjustment value is displayed.	
	08	◦ RADF and ADF empty sensor adjustment Used to adjust the RADF empty sensor. When this simulation is executed, the RADF empty sensor is adjusted and the adjustment value is displayed.	

(Trouble codes list)

Trouble status code	Subordinate code	Description
L4	01	Main motor lock detection
L5	03	No.4/5 mirror motor error detection
	04	No.4/5 mirror motor MHPS error detection
	05	Lens motor error detection
	06	Lens motor LHPS error detection
L8	01	Power supply line frequency error detection
	03	AE output is not changed. (During execution of SIM47)
H2	—	Open thermistor (Test command 14 to reset)
H3	—	Heat roller high temperature detection (Test command 14 to reset)
H4	—	Heat roller low temperature detection (Test command 14 to reset)
U2	00	Memory sum check error
	01	Counter sum check error
U3	20	Mirror motor lock detection
	21	Mirror motor MHPS error detection
U4	02	ADU alignment plate malfunction detected
	04	ADU rear plate malfunction detected
U5	00	ADF communication trouble detected
	01	A motor malfunction detected
	02	B motor malfunction detected
	03	Resist sensor malfunction detected
	04	Eject sensor malfunction detected
U6	00	Desk communication trouble detected
	01	Desk-1 cassette liftup motor trouble detected
	02	Desk-2 cassette liftup motor trouble detected
	03	Desk-3 cassette liftup motor trouble detected
	08	Desk 24V line error detected
	09	LCC motor overcurrent detected
	10	Desk transport motor trouble detected
U7	00	Communication trouble between PC/Modem and the copier.
F1	00	Sorter communication trouble detected
	02	Transport motor malfunction detected
	04	Indexer lower limit detected
	05	Indexer upper limit detected
	06	Shift motor malfunction detected
	08	Staple shift motor trouble
F2	02	Toner motor malfunction detected
	31	ID sensor level abnormality (less than 3V)
		ID sensor photo conductor surface level abnormality (less than 2.25V)
	32	DM sensor level abnormality (less than 3V)
		DM sensor cannot sense.
		When measuring the gain level (at 1.5 rotations of the drum)
		DM sensor cannot sense.
		When measuring the patch (at 1.5 rotations of the drum)
	35✳	Adjustment impossible for GB (-32V ✳ 4 times)
		Adjustment impossible for GB (+32V ✳7 times)
		Preliminary adjustment impossible for GB (-200V to -88V)
F3	12	Main unit upper cassette liftup motor trouble detected
	22	Main unit lower cassette liftup motor trouble detected
EE	EL	Automatic developer adjustment: Over-toner
	EU	Automatic developer adjustment: Under-toner
CC	—	Original size detect sensor level abnormality.
C2	00	THV leak trouble

Mark " ✳ ": The error display is given only when performing the simulation. (For the process control at warming-up,, the error display is not given.)

Display codes other than trouble

Trouble codes	Sub code	Operation
CH	—	Door open/DV unit uninstalled
PC	—	Personal counter uninstalled/auditor code input waiting
PF	—	Copy inhibit command is received from the host when installing PC/Modem.

(Key operator program)

The list below shows all key operator programs. These programs can be used only when the key operator code in inputted at the beginning.

	Program Code No.	Program name	Function
∗	P10	Auditing Mode	Enables or disables the basic auditing mode, which controls access to copier.
∗	P11	Number of Copies per Account	Displays the total number of copies made against account numbers.
∗	P13	Resetting Account	Resets all audit accounts or selectively resets individual accounts.
∗	P14	Account Number Control	Registers accounts, deletes accounts, changes an account number, or displays all registered account numbers.
∗	P16	Account Limit Setting	Sets the maximum number of copies which can be made against a registered account number.
∗	P18	Account Number Security	Guards against 3-time continuous error entering of audit account numbers.
	P19	Key Operator Code Number Change	Changes the key operator code number.
	P20	Auto Exposure Adjust	Lightens or darkens copies in the automatic exposure mode.
∗	P21	Auto Power Shut-off Timer	Sets a time interval after which the copier automatically turns off. (10 min ~ 4 hours)
	P22	Toner Save Mode	Toner save mode setting (Except for Japan and SUK)
	P23	Auto Clear Setting	Sets a time interval after which the copier returns to the initial settings. (10 sec ~ 240 sec)
	P24	Fixed magnification ratio setting	Adds or changes reduction and enlargement fixed magnification ratios. (50 % ~ 200 %)
	P25	Setting a Maximum Number of Copies	Sets the maximum number of copies that can be selected. (Number of copies, number of sets of copies)
	P26	Margin Shift Setting	Sets the margin shift values.
	P27	Erase Width Adjustment	Sets the amount of the erase area.
	P28	Initial Status Setting	Sets the copier's initial settings in the ready condition.
	P29	Total Copy Count	Recalls the total copy counts of the copier, document feeder, duplex module, and stapler.
	P31	Preheat Mode Setting	Sets the time that elapses before the copier enters the preheat mode after copying is completed. (1 min ~ 120 min)
	P42	Right/Left Shift Direction Selection	Determines whether shift direction change is to be allowed.
	P43	Erase Mode Initial Setting	Selects the erase mode's initial setting.
	P44	Insertion paper inserting page content read inhibit	Reading of the insertion page of insertion paper is inhibited.
	P45	Message Time Setting	Sets the length of time that messages are displayed.
	P46	Operation inhibit mode	Prevents the copier from being started by people other than key operator.
	P47	Stream Feeding Mode	Enables the stream feeding mode for copying from an optional document feeder.
	P52	Staple sorter bin paper exit limitation cancel (Only when SF-S56/S53N is installed)	Staple sorter bin paper exit limitation can be canceled.
	P70	Disabling of Auto Paper Selection	Prevents automatic paper selection when using the ORIGINAL SIZE ENTER key or copying from an optional document feeder.
	P71	Disabling of Auto Tray Switching	Prevents automatic switching between the paper trays.
	P72	Prohibiting of Manual Feed Tray in Duplex Copy	Prohibits the use of the manual feed tray during duplex copying. (Duplex copying can be performed when an optional duplex module is installed.)
	P73	Disabling Deletion of Job Programs	Prevents stored programs from being replaced or deleted.
	P74	Disabling of Document Feeder	Prevents the use of an optional document feeder when it malfunctions.
	P75	Disabling of Duplex Copying	Temporarily prevents the optional duplex system from operating when it malfunctions. Allows the use of the copier but not the duplex system.
	P76	Disabling of Stapler	Prevents damage to the stapler while awaiting repair service. (Staple sorters are optional.)
	P77	Disabling of Covers	Prevents the selection of COVERS mode. (The COVERS mode can be used when an optional document feeder is installed.)
	P80	Copy inhibit when size/direction warning	Copying can be inhibited when the document direction differs from the paper direction or the maximum size paper is not set.
	P83	Disabling of PC/Modem Access	Provides or prevents access to key operator programs through a PC/modem without key operator code entry. (Remote access to key operator programs can be performed only when a computer or other equipment is connected to the copier directly or through a telephone line.)
	P86	Auto power shut off mode inhibit	Use of the auto power shut off mode can be inhibited.
	P90	Display the List of All P Codes	Sequentially displays all available programs.

∗ Cannot be set when the option SFEAII (card-type department control counter) or the SF-EA12 (password-type department control counter) is installed.

2. Counters and simulation related to maintenance

(1) List of counters and test commands related to maintenance

Content	Simulation		Remark
	Main code	Sub code	
Maintenance counter clear	20	**	Set the preset counter to "0."
Maintenance cycle setting	21	1	Code.....Maintenance cycle 0 .....80,000 sheets 1 ..... 5,000 sheets 2 .....10,000 sheets 3 .....20,000 sheets 4 .....40,000 sheets 5 .....Free
Maintenance counter display	22	01	Maintenance counter copy quantity is displayed.
Maintenance preset count display	22	02	Maintenance preset counter content is checked.
JAM map display	22	03	JAM memory display
Total JAM counter display	22	04	
Total counter display	22	05	Total copy quantity check
DV life counter display	22	06	DV life counter display
DV life preset counter display	22	07	DV life preset counter display
ADF RADF count display	22	08	ADF/RADF used quantity check
Duplex count display	22	09	Duplex used quantity check
Staple counter display	22	10	Staple used number of times
Developer adjustment time display	22	11	
Drum adjustment time display	22	12	
Cassette paper feed count display	22	16	Each cassette used quantity check
JAM map memory, total JAM counter clear	24	01	JAM map memory, total JAM counter are cleared to "0."
Duplex counter clear	24	03	Duplex counter is cleared to "0."
ADF/RADF count clear	24	04	ADF/RADF counter is cleared to "0."
Staple counter clear	24	05	Staple counter is cleared to "0."
Developer adjustment time clear	24	06	Developer adjustment time is cleared to "0."
Drum adjustment time clear	24	07	Drum adjustment time is cleared to "0."
Cassette paper feed counter clear	24	08	Each cassette used number of times is cleared to "0."
Mini maintenance counter and DV life counter clear	42	**	Mini maintenance counter and DV life counter are cleared to "0."

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SHARP

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