TOSHIBA

SERVICE HANDBOOK DP4500/3500

DIGITAL PLAIN PAPER COPIER

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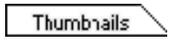

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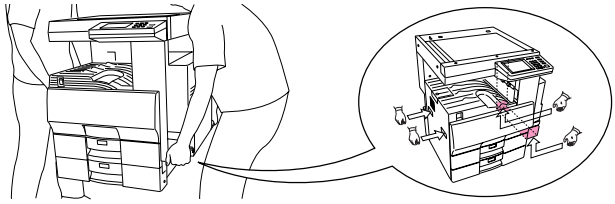
GENERAL PRECAUTIONS REGARDING THE INSTALLATION AND SERVICE FOR THE COPIER DP4500/3500

The installation and service should be done by a qualified service technician.

1. Transportation/Installation

- When transporting/installing the copier, employ two persons and be sure to use the positions as indicated below.
  The copier is quite heavy and weighs approximately 73kg (161lb), therefore pay full attention when handling it.



- Be sure to use a dedicated outlet with AC 115V or 120V/15A (220V, 230V, 240V/10A) or more for its power source.
- The copier must be grounded for safety.
  Never ground it to a gas pipe or a water pipe.
- Select a suitable place for installation.
  Avoid excessive heat, high humidity, dust, vibration and direct sunlight.
- Also provide proper ventilation as the copier emits a slight amount of ozone.
- To insure adequate working space for the copying operation, keep a minimum clearance of 80 cm (32") on the left, 80 cm (32") on the right and 10 cm (4") in the rear.
- The socket-outlet shall be installed near the copier and shall be easily accessible.

2. Service of Machines

- Basically, be sure to turn the main switch off and unplug the power cord during service.
- Be sure not to touch high-temperature sections such as the exposure lamp, the fuser unit, the damp heater and their periphery.
- Be sure not to touch high-voltage sections such as the chargers, high-voltage transformer, IH control circuit, exposure lamp control inverter, inverter for the LCD backlight and power supply unit. Especially, the board of these components should not be touched since the electirc charge may remain in the condensers, etc. on them even after the power is turned OFF.
- Be sure not to touch rotating/operating sections such as gears, belts, pulleys, fan, etc.
- Be careful when removing the covers since there might be the parts with very sharp edges underneath.
- When servicing the machines with the main switch turned on, be sure not to touch live sections and rotating/operating sections. Avoid exposure to laser radiation.
- Use suitable measuring instruments and tools.
- Avoid exposure to laser radiation during servicing.
  - Avoid direct exposure to the beam.
  - Do not insert tools, parts, etc. that are reflective into the path of the laser beam.
  - Remove all watches, rings, bracelets, etc. that are reflective.

3. **Main Service Parts for Safety**
   - The breaker, door switch, fuse, thermostat, thermofuse, thermistor, etc. are particularly important for safety. Be sure to handle/install them properly.

4. **Cautionary Labels**
   - During servicing, be sure to check the rating plate and the cautionary labels such as “Unplug the power cord during service”, “Hot area”, “Laser warning label” etc. to see if there is any dirt on their surface and whether they are properly stuck to the copier.

5. **Disposition of Consumable Parts/Packing Materials**
   - Regarding the recovery and disposal of the copier, supplies, consumable parts and packing materials, it is recommended to follow the relevant local regulations or rules.

6. **When parts are disassembled, reassembly is basically the reverse of disassembly unless otherwise noted in this manual or other related documents. Be careful not to reassemble small parts such as screws, washers, pins, E-rings, star washers in the wrong places.**

7. **Basically, the machine should not be operated with any parts removed or disassembled.**

8. **Precautions Against Static Electricity**
   - The PC board must be stored in an anti-electrostatic bag and handled carefully using a wristband, because the ICs on it may become damaged due to static electricity.

   Caution: Before using the wristband, pull out the power cord plug of the copier and make sure that there are no uninsulated charged objects in the vicinity.

Caution :	Dispose of used batteries and RAM-ICs including lithium batteries according to the manufacturer’s instructions.
Attention :	Se débarrasser de batteries et RAM-ICs usés y compris les batteries en lithium selon les instructions du fabricant.
Vorsicht :	Entsorgung des gebrauchten Batterien und RAM-ICs (inklusive der Lithium-Batterie) nach Angaben des Herstellers.

1. ERROR CODE AND SELF-DIAGNOSIS

2. ADJUSTMENT

3. PREVENTIVE MAINTENANCE (PM)

4. PRECAUTIONS FOR STORING / HANDLING SUPPLIES AND PARTS

5. TROUBLESHOOTING

6. UPDATING THE FIRMWARE

7. WIRE HARNESS CONNECTION DIAGRAMS

CONTENTS

1. ERROR CODES AND SELF-DIAGNOSIS

1.1 Error Code

One of the following error codes is displayed instead of the set number while the [CLEAR/STOP] key and the digital key "8" are pressed simultaneously when the "CLEAR PAPER" or "CALL SERVICE" symbol is flashing.

Group	Error Code	Machine Status
Paper transport jam inside the copier (1)	E01	Leading edge of paper not reaching the exit sensor
	E02	Trailing edge of paper not passing the exit sensor
	E03	Paper remaining inside the copier at power ON
	E09	HDD is abnormal
Paper misfeeding	E11	ADU misfeeding (paper not reaching the registration sensor)
	E12	Bypass misfeeding (paper not reaching the registration sensor)
	E13	Upper cassette misfeeding (paper not reaching the upper feed sensor)
	E14	Lower cassette misfeeding (paper not reaching the lower feed sensor)
	E15	PFP upper cassette misfeeding (paper not reaching the PFP upper feed sensor)
	E16	PFP lower cassette misfeeding (paper not reaching the PFP lower feed sensor)
	E19	LCF misfeeding (paper not reaching the LCF feed sensor)
Paper transport jam inside the copier (2)	E20	Paper fed from the upper cassette not reaching the registration sensor
	E21	Paper fed from the lower cassette not reaching the registration sensor
	E22	Paper fed from the lower cassette not reaching the upper feed sensor
	E30	Paper fed from the PFP upper cassette not reaching the registration sensor
	E31	Paper fed from the PFP upper cassette not reaching the upper feed sensor
	E32	Paper fed from the PFP upper cassette not reaching the lower feed sensor
	E33	Paper fed from the PFP lower cassette not reaching the registration sensor
	E34	Paper fed from the PFP lower cassette not reaching the upper feed sensor
	E35	Paper fed from the PFP lower cassette not reaching the lower feed sensor
	E36	Paper fed from the PFP lower cassette not reaching the PFP upper feed sensor
	E3C	Paper fed from the LCF not reaching the registration sensor
	E3D	Paper fed from the LCF not reaching the upper feed sensor
	E3E	Paper fed from the LCF not reaching the lower feed sensor

Group	Error Code	Machine Status
Cover open jam	E40	Jam access cover opened during printing
	E41	Front cover opened during printing
	E42	PFP side cover opened during printing
	E43	ADU opened during printing
	E44	Side cover opened during printing
	E45	LCF side cover opened during printing
	E48	Relay unit opened during printing
Transport jam (ADU and other area)	E51	ADU stack jam (paper not reaching the ADU entrance sensor)
	E52	ADU transport jam (paper not reaching the ADU exit sensor)
	E55	Paper remaining on the transport path when CRUN is OFF
Transport jam (RADF)	E71	Original feeding jam
	E72	Original transport jam
	E73	Original discharging jam
	E74	Original reversing jam
Paper jam in finisher	E91	Leading edge of paper not reaching the relay unit transport sensor-1
	E92	Trailing edge of paper not passing the relay unit transport sensor-1
	E93	Leading edge of paper not reaching the relay unit transport sensor-2
	E94	Trailing edge of paper not passing the relay unit transport sensor-2
	E9F	Punching jam
	EA1	Finisher paper transport delay jam
	EA2	Finisher paper transport stop jam
	EA3	Paper remaining inside the finisher at power ON
	EA4	Finisher front door opened during printing
	EA5	Finisher stapling jam
	EA6	Finisher early arrival jam
	EA7	Stack transport jam before stapling
	EA8	Saddle stitcher stapling jam
	EA9	Saddle stitcher door opened during printing
	EAA	Paper remaining at the saddle stitcher at power ON
	EAB	Saddle stitcher paper transport stop jam
	EAC	Saddle stitcher paper transport delay jam
	EAD	Print end command time-out jam
	EAE	Receiving time time-out jam
	EAF	Stapled stack transport jam
	EB3	Ready time time-out jam
Paper transport jam inside the copier (3)	EB5	Paper left on the transport path due to multiple feeding
	EB6	Paper left on the transport path due to multiple feeding
Drive system related service call	C01	Main motor is abnormal

Group	Error Code	Machine Status
Paper feeding system related service call	C04	PFP motor is abnormal (paper can be fed from cassettes other than PFP cassette)
	C13	Upper cassette tray is abnormal (paper can be fed from the cassettes other than the copier cassettes)
	C14	Lower cassette tray is abnormal (paper can be fed from the cassettes other than the copier cassettes)
	C15	PFP upper cassette tray is abnormal (paper can be fed from the cassettes other than the PFP upper cassette)
	C16	PFP lower cassette tray is abnormal (paper can be fed from the cassettes other than the PFP lower cassette)
	C18	LCF tray-up motor is abnormal (paper can be fed from the cassettes other than the LCF cassette)
	C1A	LCF end fence motor is abnormal (paper can be fed from the cassettes other than the LCF cassette)
	C1B	LCF motor is abnormal (paper can be fed from the cassettes other than the LCF cassette)
Scanning system related service call	C26	Peak detection error
	C27	Carriage home position sensor not going OFF within a fixed time
	C28	Carriage home position sensor not going ON within a fixed time
Fuser unit related service call	C41	Thermistor or heater is abnormal at power ON
	C43	Thermistor is abnormal after abnormality judgment
	C44	Fuser is abnormal after abnormality judgment
	C45	Side thermistor is abnormal after the copier has become ready
	C47	IH power voltage is abnormal/IH initialization error
	C48	IGBT high temperature
	C49	IH circuit or coil is abnormal
Communication related service call	C55	ADF I/F is abnormal
	C57	Communication error between main CPU and IPC board
	C58	Communication error between IPC board and finisher
	F07	Communication error between SYS board and LGC board
	F11	Communication error between SYS board and SLG board
RADF related service call	C71	ADF feed motor is abnormal
	C73	EEPROM initialization error
	C74	Reverse sensor adjustment error
	C81	Fan motor is abnormal
	C82	Read sensor adjustment error
	C83	Original length sensor adjustment error
Laser optical unit related service call	CA1	Polygonal motor is abnormal
	CA2	H-Sync detection error

Group	Error Code	Machine Status
Finisher related service call	CB1	Feed motor is abnormal
	CB2	Delivery motor is abnormal
	CB3	Tray lift motor is abnormal
	CB4	Alignment motor is abnormal
	CB5	Staple motor is abnormal
	CB6	Stapler shift motor is abnormal
	CB7	Height sensor is abnormal
	CB8	Backup RAM data are abnormal
	CB9	Saddle stitcher paper pushing plate motor is abnormal
	CBA	Saddle stitcher stitch motor (front) is abnormal
	CBB	Saddle stitcher stitch motor (rear) is abnormal
	CBC	Saddle stitcher alignment motor is abnormal
	CBD	Saddle stitcher guide motor is abnormal
	CBE	Saddle stitcher paper folding motor is abnormal
	CBF	Saddle stitcher paper positioning plate motor is abnormal
	CC0	Saddle stitcher sensor connector connection error
	CC1	Saddle stitcher microswitch error
	CC2	Communication error between finisher and saddle stitcher
	CC3	Stack processing motor is abnormal
	CC4	Swing motor is abnormal
	CC5	Horizontal registration motor is abnormal
	CC6	Punch motor is abnormal
	CC8	Front jogging motor is abnormal
	CC9	Upper stack tray lift motor is abnormal
	CCA	Lower stack tray lift motor is abnormal
	CCB	Rear jogging motor is abnormal
Service call for others	C94	Main CPU is abnormal
	F10	HDD initialization error

<<Error history (08-253)>>

(Example of display)

EA1	0 0 1 2 2 6 1 7 5 7 3 2	6 4	6 4	2 3 6 2 1 0 0 0 0 0 0 0
Error code	YYMMDDHHMMSS	MMM	NNN	A B C D E F G H I J K L
3 digits	12 digits (Year indicated with its last 2 digits)	3 digits	3 digits	12 digits

Copy mode	
A	Paper source
	0: Not selected 1: Bypass feeding 2: LCF 3: PFP(U) 4: Not used 5: PFP(L) 6: ADU feeding
	7: Upper cassette 8: Lower cassette
B	Paper size code
	0: Not selected 1: A5-R 2: ST-R 3: LT 4: A4 5: B5-R 6: LT-R 7: A4-R 8: OTHER/UNIV 9: B5
	A: FOL/COM B: LG C: B4 D: LD E: A3 F: 13'LG G: 8.5*8.5 H: 8K I:16K J:16K-R
C	Sort mode/Staple mode
	0: Not selected 1: Group 2: Sort 7: Staple (stapling one corner -1) 8: Staple (stapling 2 places)
	9: Staple (stapling one corner -2) A: Saddle stitch
D	ADF mode
	0: Not used 1: AUTO FEED (SADF) 2: STACK FEED
E	APS/AMS mode
	0: Not selected 1: APS 2: AMS
F	Duplex mode
	0: Not selected 1: BOOK 2: Two-sided/Single-sided 4: Two-sided/Duplex 8: Single-sided/Duplex
G	Not used
	0: Not used
H	Image shift
	0: Not used 1: BOOK 2: LEFT 3: RIGHT
I	Editing
	0: Not used 1: Masking 2: Trimming 3: Mirror image 4: Negative/Positive
J	Edge erasing/Dual-page
	0: Not used 1: Edge erase 2: Dual-page 3: Edge erase & Dual-page
K	Not used
	0: Not used
L	Function
	0: Not used 1: Copying 2: Fax input 3: Fax printing 4: LAN printer 5: DSS

Reproduction ratio	
MMM	Primary scanning reproduction ratio
	Shown in hexadecimal
NNN	Secondary scanning reproduction ratio
	Shown in hexadecimal

The latest 8 error data can be displayed in the setting mode (08-253).

1.2 Self-Diagnosis Modes

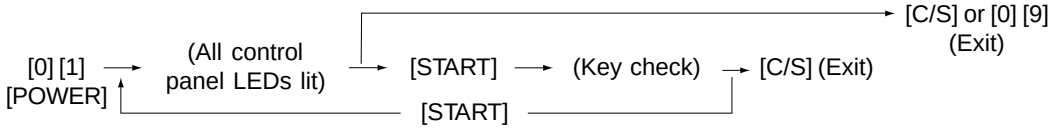
Since this copier is designed to cope with multifunctions such as those of a network printer and DSS, there are many setting items which are related to each other in the self-diagnosis modes.
Malfunctions such as machine locking can be caused by the internal structural problem of the program when a normal operation is attempted by pressing [0] and [9] simultaneously or [C/S] on the control panel subsequently to the adjustment.
Therefore, turn OFF the power after using the self-diagnosis mode for adjustment after unpacking, service or preventive maintenance, and then leave the machine to the customer.

Mode	Keys to press	Function	Keys to exit	Display
Whole control panel items lighting mode	[0]+[1]+ [POWER]	All LEDs on the control panel are lit, and all the LCD pixels flash.	[C/S]or [0]+[9]	———
Test mode	[0]+[3]+ [POWER]	Checks the status of input/output signals.	[0]+[9]	100% C TEST MODE
Test print mode	[0]+[4]+ [POWER]	Outputs the test patterns.	[0]+[9]	100% P A4 TEST PRINT
Adjustment mode	[0]+[5]+ [POWER]	Adjusts various items.	[0]+[9]	100% A A4 TEST MODE
Setting mode	[0]+[8]+ [POWER]	Sets various items.	[0]+[9]	100% D TEST MODE
List printing mode	[9]+[START] +[POWER]	Prints out the lists for the codes 05 and 08.	[POWER] OFF	100% L A4 LIST PRINT
Unit replacement mode	[6]+[START] +[POWER]	Performs auto-toner adjustment and clears the process counters.	[POWER] OFF	100% K TEST MODE

Note: To enter the desired mode, turn ON the power while two digital keys designated to each mode (e.g. [0] and [5]) are pressed simultaneously.

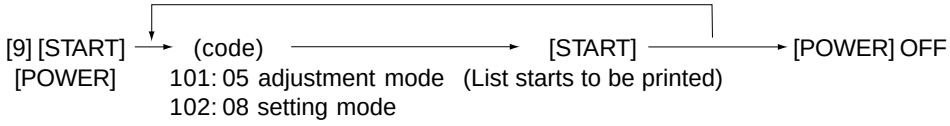
<Operation procedure>

• Whole control panel items lighting mode (01):

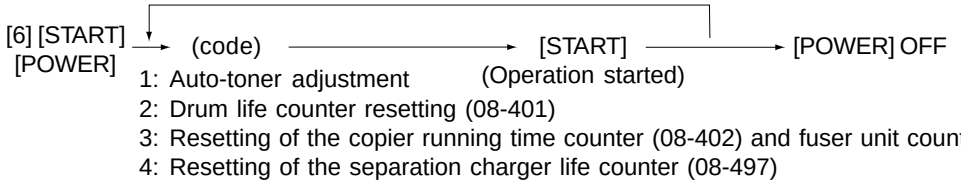


Notes: 1. The mode can be canceled only by pressing the [C/S] key during the key check.
2. Key Check Keys with LED (Press to turn OFF the LED)
Keys without LED (Press to display the message on the control panel)

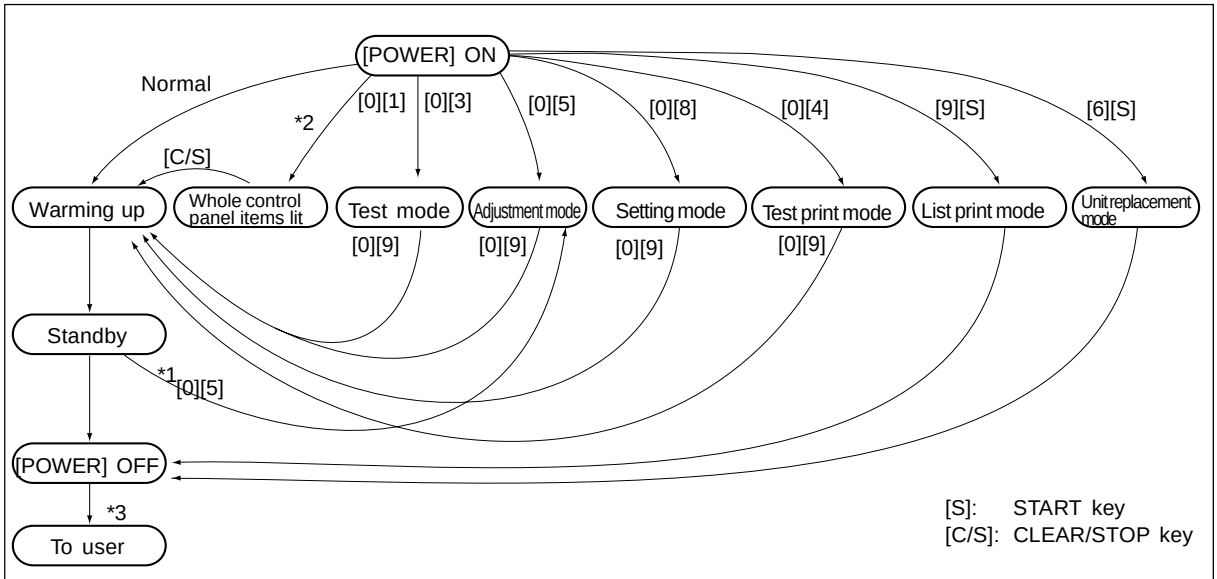
- Test mode (03): Refer to “1.2.1 Input check (test mode 03)” and “1.2.2 Outpout check (test mode 03)”.
- Test print mode (04): Refer to “1.2.3 Test print mode (04)”.
- Adjustment mode (05): Refer to “1.2.4 Adjustment mode (05)”.
- List print mode



- Unit replacement mode



- Setting mode (08): Refer to “1.2.5 Setting mode (08)”.



State transition diagram of self-diagnosis mode

*1 Only when the copier is put into the adjustment mode by turning ON the power while the digital keys [0] and [5] are pressed simultaneously and then becomes standby state by pressing [0] and [9] simultaneously, it can go back to the adjustment mode by the pressing of [0] and [5] simultaneously.

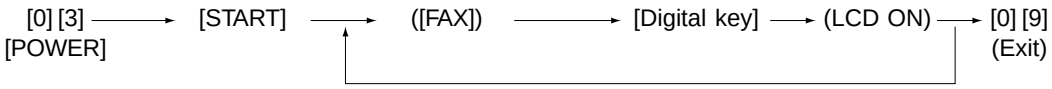
*2 In the “whole control panel items lighting mode”, copying is disabled. Enter the standby state by pressing [0] and [9] simultaneously or [C/S] key to perform copying.

*3 Turn OFF the power after using the self-diagnosis mode, and leave the copier to the user.

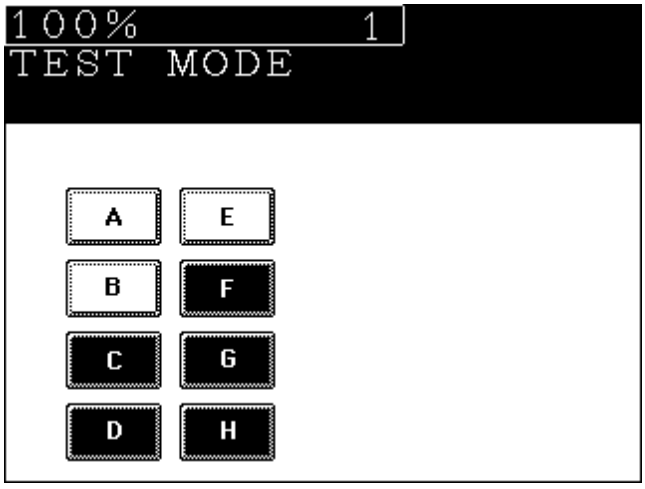
1.2.1 Input check (test mode 03)

The state of each input signal can be checked by pressing the [FAX] key and the digital keys in the test mode (03).

<Operation procedure>



Note: Initialization is performed before the copier enters the test mode.



[Example of display during input check]

Items to be checked and the state of the copier with the icons [A] to [H] displayed in black are listed on the following pages.

[FAX] key: OFF ([FAX] LED: OFF)

Digital key	Icon	Items to check	Copier state with black icon
[1]	A	—	
	B	LCF connection	Not connected
	C	—	
	D	Bypass feed sensor	Paper does not exist
	E	ADU connection	Not connected
	F	ADU opening/closing switch	ADU opened
	G	ADU exit sensor	There is paper
	H	ADU entrance sensor	There is paper
[2]	A	—	
	B	—	
	C	PFP upper cassette paper-stock sensor	Paper is almost finished
	D	PFP upper feed sensor	There is paper
	E	PFP connection	Not connected
	F	PFP side cover opening/closing switch	Cover opened
	G	PFP upper cassette paper-empty sensor	No paper
	H	PFP upper cassette tray-up sensor	Tray at upper limit position
[3]	A	LCF tray bottom sensor	Tray at bottom position
	B	LCF paper mis-insertion detection sensor	Paper not inserted properly
	C	—	
	D	—	
	E	—	
	F	—	
	G	—	
	H	LCF feed side paper-stock sensor	Paper is almost finished
[4]	A	—	
	B	—	
	C	PFP lower cassette paper-stock sensor	Paper is almost finished
	D	PFP lower feed sensor	There is paper
	E	PFP motor rotation condition (motor is being rotated in the output check (03))	Abnormal rotation
	F	—	
	G	PFP lower cassette paper-empty sensor	No paper
	H	PFP lower cassette tray-up sensor	Tray at upper limit position
[5]	A	LCF end fence home position sensor	Fence at home position
	B	LCF end fence stop position sensor	Fence at stop position
	C	LCF standby side paper-empty sensor	No paper
	D	LCF side cover opening/closing switch	Cover closed
	E	LCF motor rotation condition (motor is being rotated in the output check (03))	Abnormal rotation
	F	LCF tray-up sensor	Tray at upper limit position
	G	LCF feed sensor	No paper
	H	LCF feed side paper-empty sensor	No paper
[6]	A	—	
	B	—	
	C	—	
	D	—	
	E	Upper feed sensor	There is paper
	F	—	
	G	Upper cassette paper-empty sensor	No paper
	H	Upper cassette tray-up sensor	Tray at upper limit position

Digital key	Icon	Items to check	Copier state with black icon
[7]	A	—	
	B	—	
	C	—	
	D	—	
	E	Lower feed sensor	There is paper
	F	—	
	G	Lower cassette paper-empty sensor	No paper
	H	Lower cassette tray-up sensor	Tray at upper limit position
[8]	A	Bypass feed paper width sensor-3	See table 1.
	B	Bypass feed paper width sensor-2	See table 1.
	C	Bypass feed paper width sensor-1	See table 1.
	D	Bypass feed paper width sensor-0	See table 1.
	E	—	
	F	—	
	G	—	
	H	PFP upper cassette detection sensor	No cassette
[9]	A	—	
	B	—	
	C	—	
	D	PFP lower cassette detection sensor	No cassette
	E	—	
	F	—	
	G	Upper cassette detection sensor	No cassette
	H	Upper cassette paper-stock sensor	Paper is almost finished
[0]	A	—	
	B	—	
	C	—	
	D	LCF cassette detection switch	No cassette
	E	—	
	F	—	
	G	Lower cassette detection sensor	No cassette
	H	Lower cassette paper-stock sensor	Paper is almost finished

Table 1. Relation between the state of the bypass feed paper width sensor and paper size (width).

Bypass paper width sensor				Paper width size
3	2	1	0	
0	1	1	1	A3/LD
1	0	1	1	A4-R/LT-R
1	1	0	1	A5-R/ST-R
1	1	1	0	Card size
0	0	1	1	B4-R/LG
1	0	0	1	B5-R

[FAX] key: ON ([FAX] LED: ON)

Digital key	Icon	Items to check	Copier state with black icon
[1]	A	—	
	B	—	
	C	—	
	D	IPC board connection	Not connected
	E	—	
	F	Polygonal motor rotation condition (motor is being rotated in the output check (03))	Abormal rotation
	G	Toner cartridge detection switch	OFF
	H	24V power supply	OFF
[2]	A	Registration sensor	There is paper
	B	Exit sensor	There is paper
	C	Auto-toner sensor connection	Not connected
	D	Front cover switch	Cover opened
	E	—	
	F	—	
	G	Side door switch	Side cover opened
	H	Main motor rotation condition (motor is being rotated by in the output check (03))	Abormal rotation
[3]	A	—	
	B	Key copy counter connection	Not connected
	C	Toner bag full detection sensor	Toner is full
	D	Fuser unit connection	Unit connected
	E	Relay unit transport sensor-2	No paper
	F	Relay unit opening/closing switch	Cover opened
	G	—	
	H	Relay unit paper full detection sensor	Paper not full
[4]	A	—	
	B	—	
	C	—	
	D	—	
	E	—	
	F	—	
	G	Relay unit installation	Not installed
	H	Relay unit transport sensor-1	No paper
[5]	A	—	
	B	—	
	C	—	
	D	—	
	E	—	
	F	RADF connection	RADF connected
	G	Platen sensor	Platen cover opened
	H	Scanner carriage home position sensor	Home position

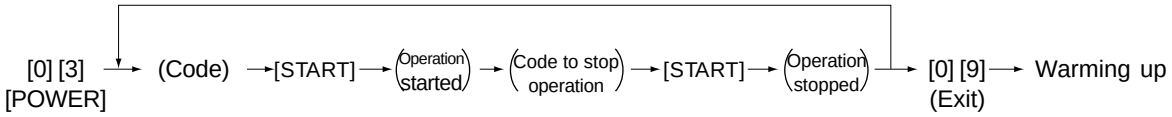
Digital key	Icon	Items to check	Copier state with black icon
[6]	A	—	
	B	—	
	C	—	
	D	APS sensor (APS-5/for A4 series) / (APS-6/for LT series)	No original
	E	APS sensor (APS-4/for A4 series)	No original
	F	APS sensor (APS-3)	No original
	G	APS sensor (APS-2)	No original
	H	APS sensor (APS-1)	No original
[7]	A	RADF tray sensor	Original present
	B	RADF empty sensor	Original present
	C	RADF jam access cover opening/closing switch	Cover opened
	D	RADF opening/closing sensor	RADF opened
	E	RADF exit sensor	Original present
	F	RADF reverse sensor	Original present
	G	RADF read sensor	Original present
	H	RADF registration sensor	Original present
[8]	A	—	
	B	—	
	C	—	
	D	—	
	E	RADF original length sensor	Original present
	F	RADF original width sensor-1	Original present
	G	RADF original width sensor-2	Original present
	H	RADF original width sensor-3	Original present
[9]	A	—	
	B	—	
	C	—	
	D	—	
	E	—	
	F	—	
	G	—	
	H	—	
[0]	A	—	
	B	—	
	C	—	
	D	—	
	E	—	
	F	—	
	G	—	
	H	—	

1.2.2 Output check (test mode 03)

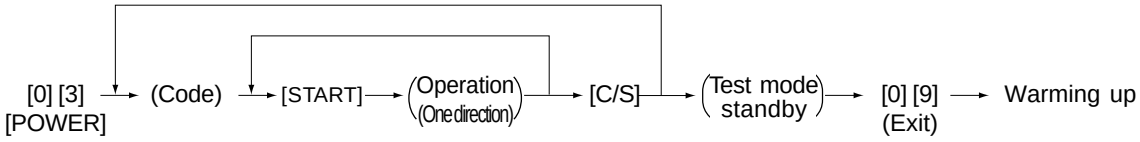
State of the output signals can be checked by entering the codes in the following table in the test mode 03.

<Operation procedure>

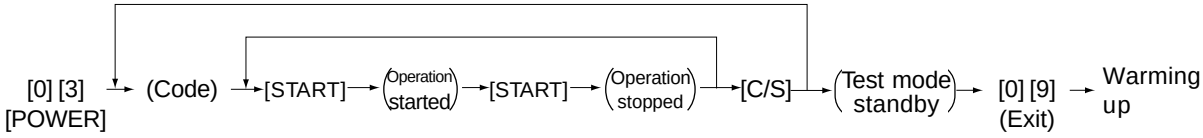
Group (1)



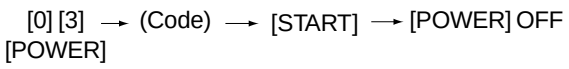
Group (2)



Group (3)



Group (4)



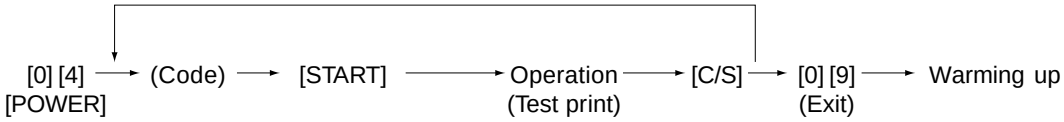
Code	Function	Code	Function	Procedure
101	Main motor ON	151	Code 101 operation OFF	1
102	Toner motor ON	152	Code 102 operation OFF	1
103	Polygonal motor (600dpi) ON	153	Code 103 operation OFF	1
108	Registration clutch ON	158	Code 108 operation OFF	1
109	PFP motor ON	159	Code 109 operation OFF	1
110	ADU motor (215mm/s) ON	160	Code 110 operation OFF	1
118	Laser ON	168	Code 118 operation OFF	1
120	Exit motor ON / forward rotation	170	Code 120 operation OFF	1
121	Exit motor ON / reverse rotation	171	Code 121 operation OFF	1
122	LCF motor ON	172	Code 122 operation OFF	1
201	Upper cassette feed clutch ON/OFF			3
202	Lower cassette feed clutch ON/OFF			3
203	Transport clutch (high speed) ON/OFF			3
204	Bypass feed clutch ON/OFF			3
205	Transport clutch (low speed) ON/OFF			3
206	LCF pickup solenoid ON/OFF			3

Code	Function	Procedure
207	LCF end fence reciprocating movement	2
208	LCF end fence motor ON/OFF	3
209	LCF feed clutch ON/OFF	3
210	LCF transport clutch ON/OFF	3
211	RADF feed motor ON/OFF / forward rotation	3
212	RADF feed motor ON/OFF / reverse rotation	3
213	RADF read motor ON/OFF / forward rotation	3
214	RADF read motor ON/OFF / reverse rotation	3
215	RADF reverse motor ON/OFF / forward rotation	3
216	RADF reverse motor ON/OFF / reverse rotation	3
217	Sub-separation fan ON/OFF	3
218	Key copy counter count-up	2
219	Middle cooling fan ON/OFF	3
222	ADU clutch ON/OFF	3
225	PFP transport clutch ON/OFF	3
226	PFP upper cassette feed clutch ON/OFF	3
228	PFP lower cassette feed clutch ON/OFF	3
232	Relay unit gate solenoid ON/OFF	3
235	Discharge lamp ON/OFF	3
236	Exhaust fan (low speed) ON/OFF	3
237	Exhaust fan (high speed) ON/OFF	3
238	IH control board cooling fan / developer unit cooling fan ON/OFF	3
241	Fuser unit cooling fan ON/OFF	3
242	Upper cassette tray-up motor ON (tray raised)	2
243	Lower cassette tray-up motor ON (tray raised)	2
248	Developer bias +DC ON/OFF	3
249	Developer bias -DC1 ON/OFF	3
252	Main charger ON/OFF	3
253	Separation charger ON/OFF	3
255	Transfer guide bias ON/OFF	3
256	Transfer charger ON/OFF	3
261	Scanner motor ON (automatically stops at the limit position, speed can be changed by the ZOOM keys)	2
267	Scanner exposure lamp ON/OFF	3
268	Laser unit fan (high speed) ON/OFF	3
271	LCF tray-up motor UP/DOWN	2
278	PFP upper cassette tray-up motor ON (tray raised)	2
280	PFP lower cassette tray-up motor ON (tray raised)	2
294	RADF reverse solenoid ON/OFF	3
295	Power OFF mode	4
297	RADF fan motor ON/OFF	3

1.2.3 Test print mode (test mode 04)

The built-in test pattern can be printed out by entering the following codes in the test print mode (04).

<Operation procedure>



Note: An error code is displayed on the control panel if an error occurs in the process, but no recovery operation is performed.
Turn the power OFF and then back ON to clear the error.

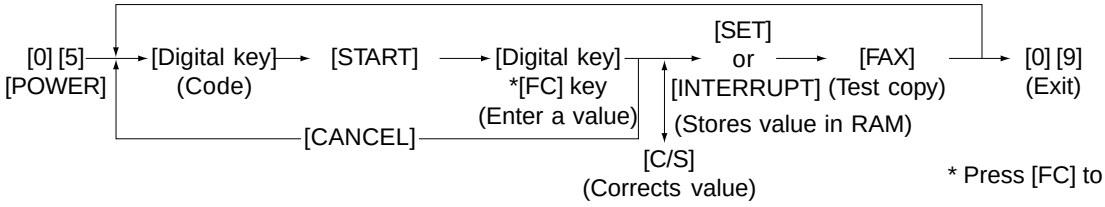
Code	Types of test pattern	Remarks
111	Primary scanning direction, 33 gradation steps, error diffusion	
113	Secondary scanning direction, 33 gradation steps, error diffusion	
142	Grid pattern (Pattern width: 2 dots, Pitch: 10 mm)	

1.2.4 Adjustment mode (05)

Items in the adjustment code list on the following pages can be corrected or changed in this adjustment mode (05). Turn ON the power while the digital keys [0] and [5] are pressed simultaneously to enter this mode.

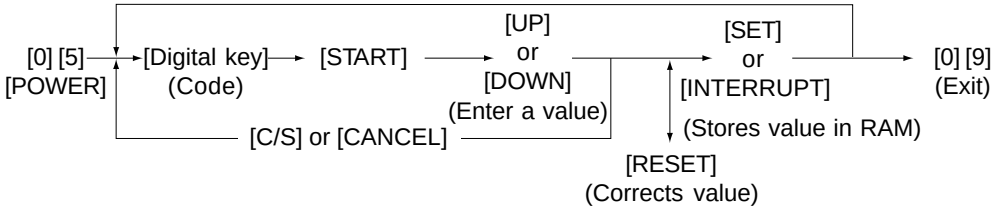
<Procedure>

Group 1

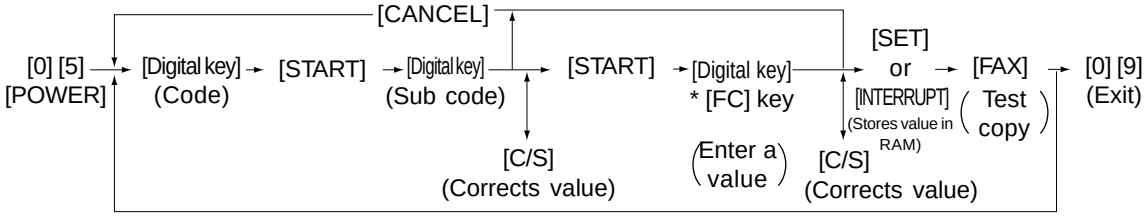


* Press [FC] to enter "–".

Group 2

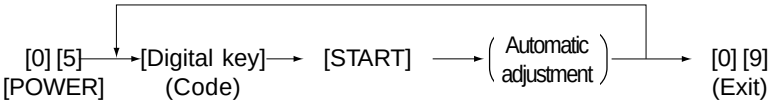


Group 3

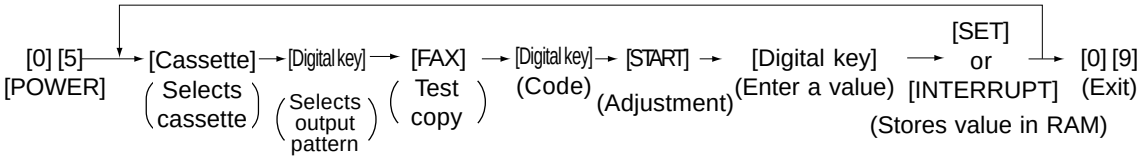


* Press [FC] to enter "–".

Group 4



Group 5



1: Code 401, 421, 440~444
2: Code 445, 498

Adjustment mode (05)							
Code	Items to adjust		Mode	Default	Acceptable value	Contents	Operation procedure group
200	Automatic adjustment of auto-toner sensor (Fuser heater ON)		ALL	–	–	- As the value increases, the sensor output increases correspondingly. - The value starts changing approx. 2 minutes after this adjustment was started and is automatically set in the range of 2.35 to 2.45V. (► chapter 2.2)	–
201	Manual adjustment of auto-toner sensor initial value(Fuser heater ON)		ALL	128	0~255	Adjustment value of auto-toner sensor can be displayed.	2
205	Developer bias DC output adjustment		ALL	193	0~255	As the value increases by "1", output from the transformer increases correspondingly. Remove the developer unit and install the service jig to make adjustment. However, the service jig is not necessary to adjust the developer bias DC. (► chapter 2.5)	2
210	Main charger grid bias output adjustment		ALL	158	0~255		2
221	Transfer transformer DC output adjustment/center value		ALL	117	0~255		2
231	Separation transformer AC output adjustment/center value		ALL	159	0~255		2
286	Laser power adjustment		ALL	117	0~255	When the value increases by "1", the laser output increases correspondingly.	2
305	Adjustment of scanner secondary scanning start position deviation		ALL	128	0~255	When the value increases by "1", the image shifts toward the leading edge of paper by approx. 0.17mm.	1
306	Adjustment of scanner primary scanning start position deviation		ALL	128	0~255	When the value increases by "1", image shifts toward the rear side of paper by approx. 0.0423mm.	1
308	Distortion mode		ALL	–	–	Moves the carriages to the adjustment position. (► chapter 2.3.4)	4
340	Adjustment of scanner secondary scanning reproduction ratio		ALL	128	0~255	When the value increases by "1", the reproduction ratio of the secondary scanning direction decreases by approx. 0.025%.	1
354	Adjustment of RADF paper alignment	for single-sided paper	ALL	10	0~20	When the value increases by "1", the aligning amount increases by approx. 0.5mm.	1
355		for double-sided paper	ALL	10	0~20		1
356	Automatic adjustment of RADF sensor and EEPROM initialization		ALL	–	–	Perform the adjustment and initialization when the PC board or sensor of the RADF is replaced.	4
357	Fine adjustment of RADF transport speed		ALL	50	0~100	When the value increases by "1", the reproduction ratio of the secondary scanning direction on original fed from the RADF increases by approx. 0.1%.	1
358	RADF sideways deviation adjustment		ALL	128	0~255	When the value increases by "1", the image of original fed from the RADF shifts toward the rear side of paper by approx. 0.0423mm.	1

Adjustment mode (05)							
Code	Items to adjust		Mode	Default	Acceptable value	Contents	Operation procedure group
365	RADF leading edge position adjustment	for single-sided paper	ALL	50	0~100	When the value increases by “1”, the copied image of original fed from the RADF shifts toward the trailing edge of paper by approx. 0.1mm.	1
366		for double-sided paper	ALL	50	0~100		1
401	Fine adjustment of polygonal motor rotation speed (Reproduction ratio adjustment of primary scanning direction)		PRT	133	0~255	When the value increases by “1”, the reproduction ratio of the primary scanning direction increases by approx. 0.07%. (approx.0.5mm/4steps)	5
405			PPC	129	0~255		1
410	Adjustment of primary scanning laser writing start position		PPC	128	0~255	When the value increases by “1”, the writing start position shifts to the front side by approx. 0.0423mm.	1
411			PRT	128	0~255		1
421	Fine adjustment of main motor rotation speed (Reproduction ratio adjustment of secondary scanning direction)	For units other than the fax	ALL	138	0~255	When the value increases by “1”, the reproduction ratio of the secondary scanning direction increases by approx. 0.055%. (approx. 0.5mm/4steps)	5
422		For the fax	FAX	139	0~255		1
430	Top margin adjustment (blank area at the leading edge of the paper)		PPC	0	0~255	When the value increases by “1”, the blank area becomes wider by approx. 0.0423mm.	1
431	Left margin adjustment (blank area at the left of the paper along the paper feeding direction)		PPC	0	0~255		1
432	Right margin adjustment (blank area at the right of the paper along the paper feeding direction)		PPC	0	0~255		1
433	Bottom margin adjustment (blank area at trailing edge of paper)		PPC	0	0~255		1
435	Top margin adjustment (blank area at the leading edge of the paper)		PRT	24	0~255		1
436	Left margin adjustment (blank area at the left of the paper along the paper feeding direction)		PRT	0	0~255		1
437	Right margin adjustment (blank area at the right of the paper along the paper feeding direction)		PRT	0	0~255		1
438	Bottom margin adjustment (blank area at the trailing edge of the paper)		PRT	0	0~255		1
440	Secondary scanning laser write start position	Upper cassette	ALL	7	0~15	When the value increases by “1”, the image shifts toward the leading edge of paper by approx. 0.4mm.	5
441		Lower cassette	ALL	24	0~40		5
442		Bypass feed	ALL	8	0~15		5
443		LCF	ALL	8	0~15		5
444		PFP	ALL	8	0~15		5
445		ADU	ALL	8	0~15		5
448-0	Paper aligning amount adjustment (at the copier registration section)	PFP upper cassette/Long size	ALL	10	0~63	When the value increases by “1”, the aligning amount increases by approx. 0.8mm. <Paper length> Long size: 330mm or longer Middle size: 220mm~329mm Short size: 219mm or shorter	3
448-1		PFP upper cassette/Middle size	ALL	10	0~63		3
448-2		PFP upper cassette/Short size	ALL	8	0~63		3

Adjustment mode (05)							
Code	Items to adjust		Mode	Default	Acceptable value	Contents	Operation procedure group
449-0	Paper aligning amount adjustment (at the copier registration section)	PFP lower cassette/Long size	ALL	10	0~63	When the value increases by "1", the aligning amount increases by approx. 0.8mm. <Paper length> Long size: 330mm or longer Middle size: 220mm~329mm Short size: 219mm or shorter	3
449-1		PFP lower cassette/Middle size	ALL	10	0~63		3
449-2		PFP lower cassette/Short size	ALL	8	0~63		3
450-0		Upper cassette /Long size	ALL	20	0~63		3
450-1		Upper cassette /Middle size	ALL	22	0~63		3
450-2		Upper cassette /Short size	ALL	19	0~63		3
452-0		Lower cassette /Long size	ALL	12	0~63		3
452-1		Lower cassette /Middle size	ALL	10	0~63		3
452-2		Lower cassette /Short size	ALL	10	0~63		3
455-0		ADU/Long size	ALL	38	0~63	When the value increases by "1", the aligning amount increases by approx. 0.5mm.	3
455-1		ADU/Middle size	ALL	38	0~63		3
455-2		ADU/Short size	ALL	38	0~63		3
457		LCF	ALL	8	0~63	When the value increases by "1", the aligning amount increases by approx. 0.8mm.	1
458-0		Bypass feed /Long size	ALL	28	0~63		3
458-1		Bypass feed /Middle size	ALL	28	0~63		3
458-2		Bypass feed /Short size	ALL	21	0~63		3
458-3		Bypass feed /post card	ALL	24	0~63		3
468-0	Fine adjustment of binding position / folding position	A4-R / LT-R	ALL	0	-14~14	When the value increases by "1", binding / folding position shifts toward the right page by 0.25mm.	3
468-1		B4	ALL	0	-14~14		3
468-2		A3 / LD	ALL	0	-14~14		3
497-4	Adjustment of LCF sideways deviation		ALL	128	0~255	When the value increases by "1", the image shifts toward the front side by 0.0423mm.	3
498-0	Adjustment of ADU sideways deviation	Long size	ALL	148	0~255	When the value increases by "1", the image shifts toward the front side by 0.0423mm.	5
498-1		Short size (A4 / LT or smaller)	ALL	148	0~255		5
501	Fine adjustment of manual density	Center value	PPC (Photo)	128	0~255	When the value increases, the image of the center step density becomes darker.	1
503			PPC (Text/Photo)	128	0~255		1
504			PPC (Text)	128	0~255		1
505		Light step value	PPC (Text/Photo)	20 (25 for JPN)	0~255	When the value increases, the image of the "light" steps becomes lighter.	1
506			PPC (Photo)	12	0~255		1
507			PPC (Text)	26 (23 for JPN)	0~255		1

Adjustment mode (05)							
Code	Items to adjust		Mode	Default	Acceptable value	Contents	Operation procedure group
508	Fine adjustment of manual density	Dark step value	PPC (Text/Photo)	20 (12 for JPN)	0~255	When the value increases, the image of the "dark" steps becomes darker.	1
509			PPC (Photo)	25	0~255		1
510			PPC (Text)	14 (8 for JPN)	0~255		1
512	Fine adjustment of automatic density		PPC (Photo)	128	0~255	When the value increases, the image becomes darker.	1
514			PPC (Text/Photo)	128	0~255		1
515			PPC (Text)	128	0~255		1
570	Range correction on original manually set on the original glass		PPC (Text/Photo)	12 (44 for JPN)	11~14, 21~24, 31~34, 41~44	Set whether the value of the background peak and text peak are fixed or not. If they are fixed, the range correction is performed with standard values. The values of the background peak and text peak affect the reproduction of the background density and text density respectively. Background peak / Text peak 1: fixed / fixed 2: varied / fixed 3: fixed / varied 4: varied / varied	1
571			PPC (Photo)	12			1
572			PPC (Text)	44			1
593	Gamma data slope adjustment		PPC (Text/Photo)	0	0~9	When the value increases, the image becomes darker.	1
594			PPC (Photo)	0	0~9		1
595			PPC (Text)	0	0~9		1
620	Sharpness adjustment (HPF intensity)		PPC (Text/Photo)	1	0~99	The number of units: Enter one of the following fixed values in the copying mode. 1: Text/Photo 2: Photo 5: Text	1
621			PPC (Photo)	2	0~99		1
622			PPC (Text)	5	0~99	The number of tens: intensity 0: default value 1 to 9: when the value increases, the image becomes sharper. • In case of Text/Photo mode (code 620), 2 1 └ Fixed value for the Text/Photo mode └ Enter a number (0 to 9)	1

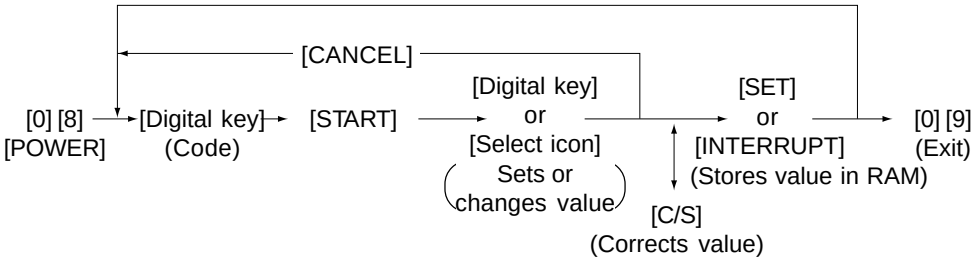
Adjustment mode (05)						
Code	Items to adjust	Mode	Default	Accept-able value	Contents	Operation procedure group
693	Range correction on original set on the RADF	PPC (Text/Photo)	12 (44 for JPN)	11~14, 21~24, 31~34, 41~44	Set whether the value of the background peak and text peak are fixed or not. If they are fixed, the range correction is performed with standard values. The values of the background peak and text peak affect the reproduction of the background density and text density respectively. Background peak / Text peak 1: fixed / fixed 2: varied / fixed 3: fixed / varied 4: varied / varied	1
694		PPC (Photo)	12			1
695		PPC (Text)	44			1

1.2.5 Setting mode (08)

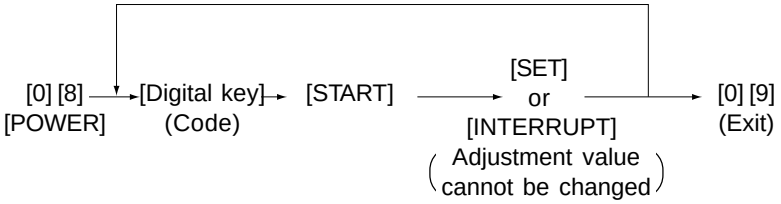
The items in the setting code list can be set or changed in this setting mode (08).

<Procedure>

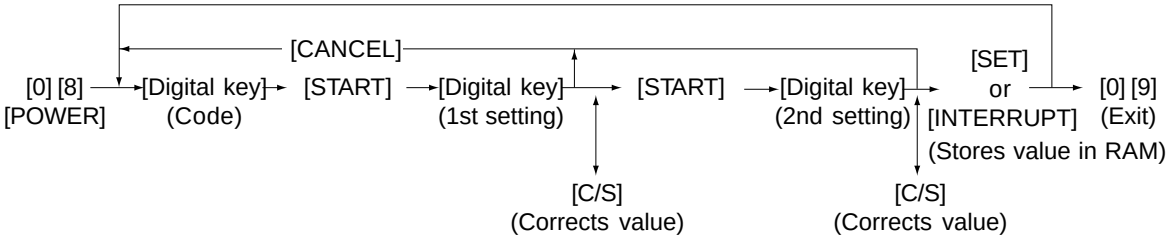
Group 1



Group 2



Group 3



Setting mode (08)						
Code	Name	Mode	Default	Accept-able Value	Contents	Operation procedure group
200	Date and time setting	ALL	–	13 digits	Year / month / date / day / hour / minute / second Example: 00 03 01 5 13 27 49	1
201	Destination selection	ALL	0:EUR 1:UC 2:JPN	0~2	0:EUR 1:UC 2:JPN	1
202	Setting for externally installed copy counter	ALL	0	0~3	0: External copy counter not used 1: Coin controller 2: Copy key card 3: Key copy counter	1
203	Line adjustment mode	ALL	0	0~1	0: For factory shipment 1: For line *Field: '0' must be selected *Need to be checked when K-SRAM was changed.	1
204	Auto clear timer setting	ALL	3	0~10	Timer to return the machine to the default settings when the [START] key is not pressed after the function and mode were set. 0: Max. (150 sec.) 1 to 10: Set number X 15 sec.	1
205	Energy saver timer setting	ALL	11	0~15	Timer to automatically switch to the energy saving mode when the copier has not been used. 0: Disabled 1: 30sec. 2: 60sec. 3: 90sec. 4: 120sec. 5: 150sec. 6: 3min. 7: 4min. 8: 5min. 9: 7min. 10: 10min. 11: 15min. 12: 20min. 13: 30min. 14: 45min. 15: 60min.	1
206	Auto-power off timer setting	ALL	9	0~20	Timer to automatically turn OFF the power when the copier has not been used. 0: 3min. 1: 5min. 2: 10min. 3: 15min. 4: 20min. 5: 25min. 6: 30min. 7. 40min 8. 50min. 9: 60min. 10: 70min. 11. 80min. 12. 90min. 13. 100min. 14. 110min. 15. 120min. 16. 150min 17. 180min. 18. 210min. 19. 240min. 20. Not used	1
220	Language displayed at power ON	ALL	0	0~4	0: Language1 1: Language2 2: Language3 3: Language4 4: Language5	1
224	Paper size for bypass feed	ALL	UNDEF	0~255	Press the icon on the LCD to select the size	1
225	Paper size for upper cassette	ALL	JPN:A4 UC: LT EUR:A4	0~255	Press the icon on the LCD to select the size	1
226	Paper size for lower cassette	ALL	JPN:A3 UC: LD EUR:A3	0~255	Press the icon on the LCD to select the size	1
227	Paper size for PFP upper cassette	ALL	JPN:A4-R UC: LT-R EUR:A4-R	0~255	Press the icon on the LCD to select the size	1
228	Paper size for PFP lower cassette	ALL	JPN:B4 UC: LG EUR:A4	0~255	Press the icon on the LCD to select the size	1

Setting mode (08)						
Code	Name	Mode	Default	Accept-able Value	Contents	Operation procedure group
229	Paper size (A3) feeding/widthwise direction	ALL	420/297	182~432 /140~297		3
230	Paper size (A4-R) feeding/widthwise direction	ALL	297/210	182~432 /140~297		3
231	Paper size (A5-R) feeding/widthwise direction	ALL	210/148	182~432 /140~297		3
232	Paper size (B4) feeding/widthwise direction	ALL	364/257	182~432 /140~297		3
233	Paper size (B5-R) feeding/widthwise direction	ALL	257/182	182~432 /140~297		3
234	Paper size (LT-R) feeding/widthwise direction	ALL	279/216	182~432 /140~297		3
235	Paper size (LD) feeding/widthwise direction	ALL	432/279	182~432 /140~297		3
236	Paper size (LG) feeding/widthwise direction	ALL	356/216	182~432 /140~297		3
237	Paper size (ST-R) feeding/widthwise direction	ALL	216/140	182~432 /140~297		3
238	Paper size (COMPUTER) feeding/widthwise direction	ALL	356/257	182~432 /140~297		3
239	Paper size (FOLIO) feeding/widthwise direction	ALL	330/210	182~432 /140~297		3
240	Paper size (13 inch LG) feeding/widthwise direction	ALL	330/216	182~432 /140~297		3
241	Paper size (8.5X8.5inch) feeding/widthwise direction	ALL	216/216	182~432 /140~297		3
242	Paper size (Non-standard) feeding/widthwise direction	ALL	432/279	148~432 /105~297		3
244	Paper size (8K) feeding/widthwise direction	ALL	390/270	182~432 /140~297		3
245	Paper size (16K-R) feeding/widthwise direction	ALL	270/195	182~432 /140~297		3
250	Service call telephone number	ALL	0	14 digits	Telephone numbers up to 14 digits can be entered. Use the HELP/INFO key to enter a hyphen (-).	1
251	PM counter setting value	ALL	DP4500:150000 DP3500:116000 (0 for JPN)	0~99999999		1
252	PM counter current value	ALL	0	0~99999999		1
253	Error history display	ALL	–	–	Displays the latest 8 error data.	2
255	PFP/LCF installation	ALL	0	0~4	0: Automatic 1: PFP single cassette type installed 2: PFP two cassette type installed 3: LCF installed 4: PFP/LCF not installed	1
256	Paper size for LCF	ALL	JPN:A4 UC: LT EUR:A4	0~255	Press the icon on the LCD to select the size	1

Setting mode (08)						
Code	Name	Mode	Default	Accept-able Value	Contents	Operation procedure group
257	Copying total counter value	ALL	–	1~2	1: > (Counter value displayed at left is overwritten on the counter value on the right) 2: < (Counter value displayed at right is overwritten on the counter value on the left) (► 1-32) When the difference between the total counter and backup counter is 1000 or more, the “CHECK TOTAL COUNTER” message has been displayed in the “TEST MODE” area in adjustment mode “05” and setting mode “08” only.	–
300	MAX9 selection	PPC	0	0~2	0:999 1:99 2:9	1
302	Original counter display	ALL	0 EUR : 2	0 or 2	0: Not displayed 2: Displayed	1
331	Screen selection	ALL	0	0~1	0: Copy 1: FAX	1
352	A3/LD double count setting	ALL	1	0~1	0: Single count 1: Double count	1
356	Upper cassette counter	ALL	0	0~99999999	Counter for paper fed from the upper cassette	1
357	Lower cassette counter	ALL	0	0~99999999	Counter for paper fed from the lower cassette	1
358	Bypass feed counter	ALL	0	0~99999999	Counter for paper fed from the bypass tray	1
359	LCF counter	ALL	0	0~99999999	Counter for paper fed from LCF	1
360	PFP upper cassette counter	ALL	0	0~99999999	Counter for paper fed from the PFP upper cassette	1
361	Copy scan counter	ALL	0	0~99999999	Counts number of scannings in the copying mode.	1
362	Copy counter	ALL	0	0~99999999	Counts number of printings in the copying mode.	1
363	Fax scan counter	ALL	0	0~99999999	Counts number of scannings in the fax transmission mode.	1
364	Fax transmission counter	ALL	0	0~99999999	Counts number of documents transmitted	1
365	Fax reception counter	ALL	0	0~99999999	Counts number of polling documents received	1
366	Fax/list counter	ALL	0	0~99999999	Counts number of fax documents and lists/reports (including group list) which are output	1
367	Printer counter	ALL	0	0~99999999	Counts number of printings in the printer mode	1
368	DSS scan counter	ALL	0	0~99999999	Counts number of scannings in the DSS scanner mode	1
370	PFP lower cassette counter	ALL	0	0~99999999	Counts paper fed from the PFP lower cassette	1
372	ADU counter	ALL	0	0~99999999	Counts number of automatic duplex copies	1
374	ADF counter	ALL	0	0~99999999	Counts papers fed from ADF	1
390	HDD error counter	PPC	0	0~32767	Reset by HDD formatting	2
391	HDD error counter	FAX	0	0~32767	Reset by HDD formatting	2
392	HDD error counter	LAN DSS	0	0~32767	Reset by HDD formatting	2

Setting mode (08)						
Code	Name	Mode	Default	Accept-able Value	Contents	Operation procedure group
400	Fuser roller thermistor error counter	ALL	0	0~19	0: No error 1: C41 occurred once 2: C41 occurred continuously 3: Not used 4: Error C43 5: Error C44 6: Error C43 7: Error C44 8: Error C45 9: Error C44 10: Error C47 11: Error C47 12: Error C48 13: Error C49 14: Error C47 15: Error C48 16: Error C49 17: Error C47 18: Error C48 19: Error C49	1
401	Drum life counter (enter 0 to reset the counter)	ALL	0	0~99999999	Counts drum rotation time (sec.)	1
402	Copier running time counter (enter 0 to reset the counter)	ALL	0	0~99999999	Counts the copier running time (min.)	1
403	Fuser unit counter (enter 0 to reset the counter)	ALL	0	0~99999999	Counts the fuser roller rotation time (sec.)	1
404	Developer material counter (enter 0 to reset the counter)	ALL	0	0~99999999	Counts the total consumed paper (Long size: double count)	1
408	Pre-running time before 1st print (thick paper)	ALL	0	0~15	0: Not used 1: 1sec. 2: 2sec. 3: 3sec. 4: 4sec. 5: 5sec. 6: 6sec 7: 7 sec 8: 8sec. 9: 9sec. 10: 10sec. 11: 12 sec. 12: 14sec. 13: 16sec. 14: 18sec. 15: 20sec.	1
410	Fuser roller temperature during printing	ALL	12	0~14	0: 140°C 1: 145°C 2: 150°C 3: 155°C 4: 160°C 5: 165°C 6: 170°C 7: 175°C 8: 180°C 9: 185°C 10: 190°C 11: 195°C 12: 200°C 13: 205°C 14: 210°C	1
411	Fuser roller temperature during standby state	ALL	12	0~12	0: 140°C 1: 145°C 2: 150°C 3: 155°C 4: 160°C 5: 165°C 6: 170°C 7: 175°C 8: 180°C 9: 185°C 10: 190°C 11: 195°C 12: 200°C	1
412	Fuser roller temperature in energy saver mode	ALL	0	0~1	0: OFF 1: 100°C	1
413	Fuser roller temperature for thick paper	ALL	2	0~4	0: Not used 1: 195°C 2: 200°C 3: 205°C 4: 210°C	1
414	Correction of toner density adjustment value	ALL	0	0~8	Corrects the toner density adjustment value set in 05-201. 0: 0 bit (No correction) 1: +3 bit 2: +6 bit 3: +9 bit 4: +12 bit 5: -3 bit 6: -6 bit 7: -9 bit 8: -12 bit	1
455	Correction of toner supply amount	ALL	0	0~2	Corrects the rotation time of the toner motor during toner supply 0: 100% 1: 90% 2: 80%	1
462	Setting for switchback operation to copy mixed-sized original on RADF	ALL	0	0~1	0: Disabled 1: Enabled	1
469	Speed switching of sub-separation fan	ALL	0	0~1	0: High speed 1: Low speed	1

Setting mode (08)						
Code	Name	Mode	Default	Accept-able Value	Contents	Operation procedure group
480	Paper source priority selection	ALL	0	0~5	0: A4/LT 1: LCF 2: Upper cassette 3: Lower cassette 4: PFP upper cassette 5: PFP lower cassette	1
481	Paper source automatic alternation	ALL	1	0~2	Set if the cassette is automatically changed to the other cassette which has the paper of the same size when paper in the selected cassette has run out. 0: OFF 1: ON (Changed to the cassette which has the same paper direction and size: ex. A4 to A4) 2: ON (Changed to the cassette which has the same paper size. Paper with the different direction is acceptable as long as the size is the same: ex. A4 to A4-R, LT-R to LT)	1
482	Feeding retrying	ALL	0	0~1	0: ON 1: OFF	1
483	Pre-running rotation of polygonal motor	ALL	0	0~2	0: ON (Motor starts rotating when original is placed on the RADF tray or original glass. 1: OFF 2: ON (Motor starts rotating when original is placed on the RADF tray.	1
484	Auto-stop of pre-running rotation of polygonal motor	ALL	0	0~1	0: Motor stops (according to the setting vaue in 08-486) 1: Motor not stopped	1
485	Rotation of polygonal motor during the standby state	ALL	0	0~1	0: Rotated (corresponding to the setting value in 08-489) 1: Stopped	1
486	Auto-stop timer for pre-running rotation of polygonal motor	ALL	0	0~2	0: 15 sec. 1: 30sec. 2: 45sec. This setting only effective when 08-484 is set to “0”	1
489	Polygonal motor rotation number during the standby state	ALL	5	0~5	0: 38090.55[rpm] 1: 35000[rpm] 2: 30000[rpm] 3: 25000[rpm] 4: 20000[rpm] 5: 10000[rpm]	1
490	Polygonal motor rotation in the energy saver mode	ALL	0	0~1	0: Stopped 1: 10000[rpm]	1
497	Separation charger life counter (enter 0 to reset the counter)	ALL	0	0~99999999	Counts the total number of consumed paper (Long size: double count)	1
503	Density mode priority selection at power on	PPC	0	0~1	0: Automatic density 1: Manual density	1
550	Copy mode priority selection	PPC	0	0~2	0: Text/Photo 1: Photo 2: Text	1
602	Screen setting for automatic energy saver/automatic power off	ALL	1 EUR: 0	0~1	0: Display OFF 1: Display ON	1
603	Setting for automatic duplexing mode	PPC	0	0~3	0: Disabled 1: Single-sided to duplex 2: Two-sided to duplex 3: User selection	1
604	APS priority selection	PPC	0	0~2	0: APS 1: AMS 2: None	1

<table>
<tr><th colspan="7">Setting mode (08)</th></tr>
<tr><th>Code</th><th>Name</th><th>Mode</th><th>Default</th><th>Accept-able Value</th><th>Contents</th><th>Operation procedure group</th></tr>
<tr><td>607</td><td>RADF priority mode selection</td><td>PPC</td><td>0</td><td>0~1</td><td>0: Continuous feed (original fed by pressing the START key)
1: Single feed (original automatically fed by setting it on the tray)</td><td>1</td></tr>
<tr><td>611</td><td>BOOK duplex copy</td><td>PPC</td><td>0</td><td>0~1</td><td>0: Left page to right page
2: Right page to left page</td><td>1</td></tr>
<tr><td>612</td><td>Summer time mode</td><td>ALL</td><td>0</td><td>0~1</td><td>0: Not summer time 1: Summer time</td><td>2</td></tr>
<tr><td>613</td><td>Paper size designation for OTHER key</td><td>PPC</td><td>JPN:A5R
EUR:FOLIO
UC:COMP</td><td>0~255</td><td>Press the icon on the LCD to select the size</td><td>1</td></tr>
<tr><td>618</td><td>Original size priority (same/mixed size)</td><td>PPC</td><td>0</td><td>0~1</td><td>0: Same sized original
1: Mixed sized original</td><td>1</td></tr>
<tr><td>619</td><td>Time lag before auto-start of bypass feeding</td><td>ALL</td><td>4</td><td>0~10</td><td>Time to take to add paper and resume paper feeding when paper in the bypass tray has run out during the bypass feed copying.
0: Paper is not drawn in unless the START key is pressed.
1~10: Setting value x 0.5sec.</td><td>1</td></tr>
<tr><td>625</td><td>Blank copying prevention mode during RADF jamming</td><td>PPC</td><td>0</td><td>0~1</td><td>0: Disabled
1: Enabled (Printing is started after the scanning is finished completely)</td><td>1</td></tr>
<tr><td>626</td><td>Outer guide elimination when paper size is not selected for a bypass feed printing</td><td>PPC</td><td>1</td><td>0~1</td><td>When a size is not selected for a bypass feed printing,
0: OFF (Outer guide not eliminated (image printed in the largest size))
1: ON (Image printed with a standard width detected by the bypass guide.)</td><td>1</td></tr>
<tr><td>627</td><td>Rotation printing in the non-sort mode for original fed from RADF</td><td>PPC</td><td>0</td><td>0~1</td><td>Set if the rotation printing is performed when an original fed from the RADF needs to be printed in the same direction with the original placed on the original glass.
0: Not performed 1: Performed</td><td>1</td></tr>
<tr><td>628</td><td>Direction priority of original image</td><td>PPC</td><td>0</td><td>0~2</td><td>0: Automatic 1: Portrait 2: Landscape</td><td>1</td></tr>
<tr><td>629</td><td>Department management setting</td><td>PPC</td><td>7</td><td>0~7</td><td>
<table>
<tr><th>Value</th><th>COPY</th><th>FAX</th><th>LAN/DSS</th></tr>
<tr><td>0</td><td>X</td><td>X</td><td>X</td></tr>
<tr><td>1</td><td>◯</td><td>X</td><td>X</td></tr>
<tr><td>2</td><td>X</td><td>◯</td><td>X</td></tr>
<tr><td>3</td><td>◯</td><td>◯</td><td>X</td></tr>
<tr><td>4</td><td>X</td><td>X</td><td>◯</td></tr>
<tr><td>5</td><td>◯</td><td>X</td><td>◯</td></tr>
<tr><td>6</td><td>X</td><td>◯</td><td>◯</td></tr>
<tr><td>7</td><td>◯</td><td>◯</td><td>◯</td></tr>
<tr><td colspan="4">◯ ---- Function enabled
X ----- Function disabled</td></tr>
</table>
</td><td>1</td></tr>
</table>

Setting mode (08)						
Code	Name	Mode	Default	Accept-able Value	Contents	Operation procedure group
634	Paper exit destination in the non-sort mode when the finisher is attached	PPC	0	0~1	Setting whether the paper exit destination in the non-sort mode from the finisher should be the copier exit tray or the finisher exit tray. 0: Finisher exit tray 1: Copier exit tray	1
636	Width setting for image shift copying (linkage of front side and back side)	ALL	0	0~1	0: Enabled 1: Disabled	1

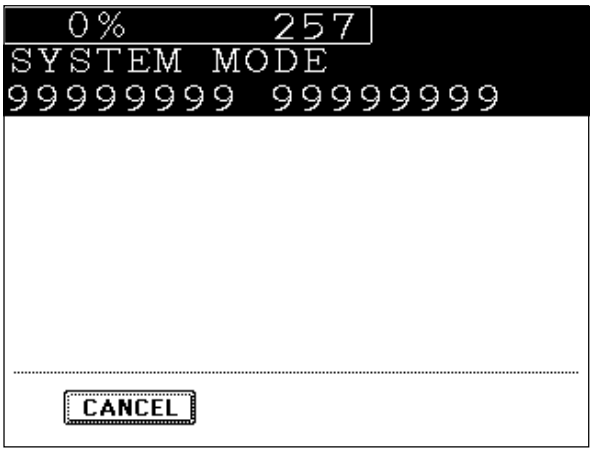
Setting mode (08)						
Code	Name	Mode	Default	Accept-able Value	Contents	Operation procedure group
637	Counter display for printer UI	PPC	1	0~2	0: Not displayed 1: Only total counter displayed 2: Total counter, copy counter, fax/list counter and printer counter displayed	1
639	Time display	PPC	1	0~1	0: OFF 1: ON	1
640	Date display format	PPC	JPN:0 UC:2 EUR:1	0~2	0: 2000.11.28 1: 28.11.2000 2: 11.28.2000	1
641	Automatic sorting mode (RADF)	PPC	2	0~4	0: Disabled 1: STAPLE 2: SORT 3: GROUP 4: ALTERNATION	1
642	Sorter mode priority selection	PPC	0	0~4	0: NON SORT 1: STAPLE 2: SORT 3: GROUP 4: ALTERNATION	1
645	Reproduction ratio in editing mode	PPC	10	0~10	Set the reproduction ratio for "X in 1" printing (including magazine sort) to "Reproduction ratio x adjustment reproduction ratio" 0: 90% 1: 91% 2: 92% 3: 93% 4: 94% 5: 95% 6: 96% 7: 97% 8: 98% 9: 99% 10: 100%	1
646	Image position of 2-in-1 or 4-in-1	PPC	0	0~1	0: Images placed at the upper left corner of each page 1: Images placed in the center of each page	1
648	Returning finisher tray when printing is finished	ALL	0	0~1	Set whether the finisher tray is returned to the 1-bin when printing is finished or not 0: Not returned 1: Returned	1
649	Magazine sort setting	PPC	0	0~1	0: Left page to right page 1: Right page to left page	1
650	2 in 1/4 in 1 setting	PPC	0	0~1	0: Horizontal 1: Vertical	1
651	Annotation printing format setting	PPC	0	0~3	Hyphen (page number) / Dropout (annotation/page number) 0: OFF / OFF 1: ON / OFF 2: OFF / ON 3: ON / ON Note: Hyphen printing format ON: -1- OFF: 1	1
652	Cascade operation setting	PPC	0	0~1	0: OFF 1: ON	1
653	Cascade operation setting	PRT	0	0~1	0: OFF 1: ON	1
657	Direction priority for annotation printing	PPC	0	0~1	0: Short edge 1: Long edge	1
658	Auto-start setting for bypass feed printing	PRT	0	0~1	Set if the paper is automatically fed into the copier when it is placed in the bypass tray. 0: Auto-start OFF. Sheet is fed by pressing the [START] key. 1: Auto-start ON	1

Setting mode (08)						
Code	Name	Mode	Default	Accept-able Value	Contents	Operation procedure group
659	Auto-start setting for by-pass feed printing	PPC	1	0~1	Set if the paper is automatically fed into the copier when it is placed in the bypass tray. 0: Auto-start OFF. Sheet is fed by pressing the [START] key. 1: Auto-start ON	1
672	Initialization of depart-ment management infor-mation	–	–	–	Initializes the department managment in-formation. * Enter the code with the digital keys and press the [INITIALIZE] icon to perform the initialization. If the area storing the department management information is destroyed for some reason, “Enter Department code” is displayed on the control panel even if the department management function is not set on. In this case, initialize the area with this code. This area is normally ini-tialized at the factory.	–
690	HDD formatting	ALL	–	2	2: Normal format	1
691	HDD type display	ALL	–	0~2	0: Not formatted 1: Not used 2: Normal format	2
693	HDD standby mode	ALL	242	0~255	Timer for the HDD to enter the standby mode. * This value may need to be changed when the HDD is replaced since the HDDs of the different manufactureres have their own characteristics.	1
839	Control by humidity sen-sor	ALL	0	0~3	0: Auto-toner control 1: Not used 2: Main charger grid, developer bias and laser power control 3: Auto-toner, main charger grid, developer bias and laser power control	
840	Toner density tempera-ture control	ALL	1	0~1	Set if the toner density is controlled by the thermistor. 0: Controlled 1: Not controlled (Default)	1
855	Fuser roller temperature during printing on OHP	ALL	7	0~7	0: 165°C 1: 170°C 2: 175°C 3: 180°C 4: 185°C 5: 190°C 6: 195°C 7: 200°C	1
860	Developer bias DC ad-justment	PRT	128	0~255	Adjusts the developer transformer DC output adjustment value in 05-205 (in PRT mode)	1
861	Developer bias DC ad-justment	PPC (Text/ Photo)	128	0~255	Adjusts the developer transformer DC output adjustment value in 05-205 (in PPC Text/Photo mode)	1
862	Developer bias DC ad-justment	PPC (Text)	128	0~255	Adjusts the developer transformer DC output adjustment value in 05-205 (in PPC text mode)	1

Setting mode (08)						
Code	Name	Mode	Default	Accept-able Value	Contents	Operation procedure group
863	Developer bias DC adjustment	PPC (Photo)	128	0~255	Adjusts the developer transformer DC output adjustment value in 05-205 (in PPC Photo mode)	1
864	Main charger grid bias adjustment	PRT	128	0~255	Adjusts the main charger transformer output adjustment value in 05-210 (in PRT mode)	1
865	Main charger grid bias adjustment	PPC (Text/ Photo)	128	0~255	Adjusts the main charger transformer output adjustment value in 05-210 (in PPC Text/Photo mode)	1
866	Main charger grid bias adjustment	PPC (Text)	128	0~255	Adjusts the main charger transformer output adjustment value in 05-210 (in PPC Text mode)	1
867	Main charger grid bias adjustment	PPC (Photo)	128	0~255	Adjusts the main charger transformer output adjustment value in 05-210 (in PPC Photo mode)	1
872	Laser power adjustment	PRT	128	0~255	Adjusts the laser power adjustment value in 05-286 (in PRT mode)	1
873	Laser power adjustment	PPC	128	0~255	Adjusts the laser power adjustment value in 05-286 (in PPC mode)	1
900	System firmware ROM version	ALL	–	–	JPN: T320SJXXXX UC: T320SUXXXX EUR: T320SEXXXX Others: T320SXXXXX	2
903	Printer ROM version	ALL	–	–	320M-XXX	2
905	Scanner ROM version	ALL	–	–	320S-XXX	2
907	RADF ROM version	ALL	–	–	DF-XXX	2
908	Finisher ROM version	ALL	–	–	SDL-XXX FIN-XXX	2
920	FROM main section software version	ALL			VX.X/X.X	2
921	FROM internal program version	ALL	–	–	VXXX.XXX	2
922	UI data fixed area version	ALL	–	–	VXXX.XXX	2
923	UI data common area version	ALL	–	–	VXXX.XXX	2
924	Version of UI data 1st language in HDD	ALL	–	–	VXXX.XXX	2
925	Version of UI data 2nd language in HDD	ALL	–	–	VXXX.XXX	2
926	Version of UI data 3rd language in HDD	ALL	–	–	VXXX.XXX	2
927	Version of UI data 4th language in HDD	ALL	–	–	VXXX.XXX	2
928	Version of UI data 5th language in HDD	ALL	–	–	VXXX.XXX	2
930	Version of UI data in FROM displayed at power ON	ALL	–	–	VXXX.XXX	2

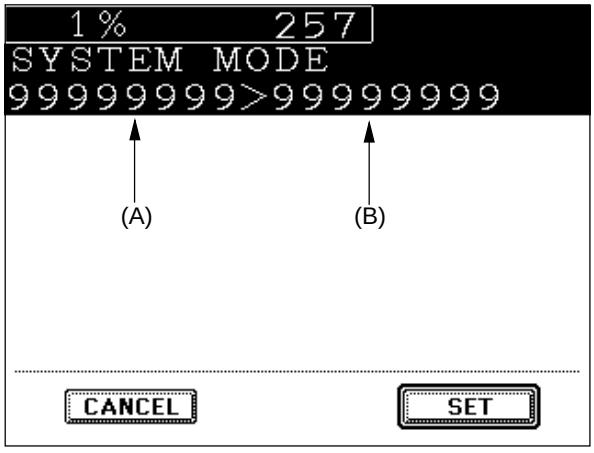
<<Procedure to copy the total counter value (08-257)>>

1. Turn ON the power while [0] and [8] are pressed simultaneously.
2. Enter the code “257” with the digital keys and press the [START] key (the following is displayed).
   Note: Before performing the following operations, note the current counter values.

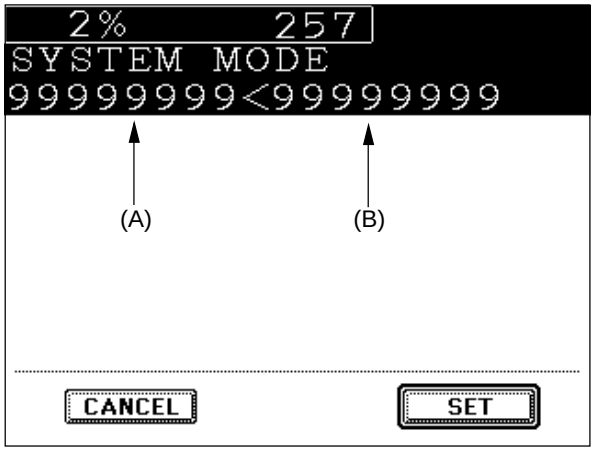


3. Enter the value “1” or “2” with the digital key and press the [START] key.
   The value entered is displayed on the left of the “%”, and the [SET] icon is displayed.
   Note: The value can be erased by pressing the [C/S] key to change as long as the [START] key is not pressed. (The value on the left of the “%” is reset to “0” by pressing the [C/S] key.)

   • Enter “1” to copy the value of the total counter (LGC board) (A) onto the value of the backup counter (SLG board) (B).



   • Enter “2” to copy the value of the backup counter (SLG board) (B) onto the value of the total counter (LGC board) (A).



4. Press the [SET] icon to complete overwriting of the counter value.

Note: The screen returns to the code entry screen without copying (overwriting) the value when the [CANCEL] icon is pressed.

2. ADJUSTMENT

2.1 Formatting the Hard Disk

<Procedure>

(1) Turn ON the power while the digital keys [0] and [8] are pressed simultaneously.
(2) Confirm that "Test Mode" is displayed on the control panel. Enter the code "690" and press the [START] key. The display changes to "System Mode".
(3) Enter "2" and then press the [SET] icon or [INTERRUPT] key.
(4) "Wait" is displayed.
(5) Turn OFF the power after the message "Wait" is gone.

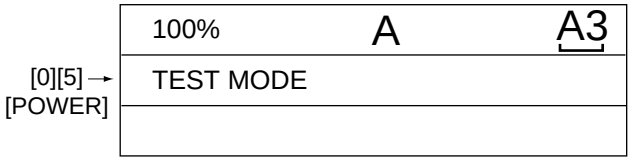
2.2 Adjustment of Auto-Toner Sensor

Note: Check if the cleaning blade is pressed against the drum before performing this adjustment.

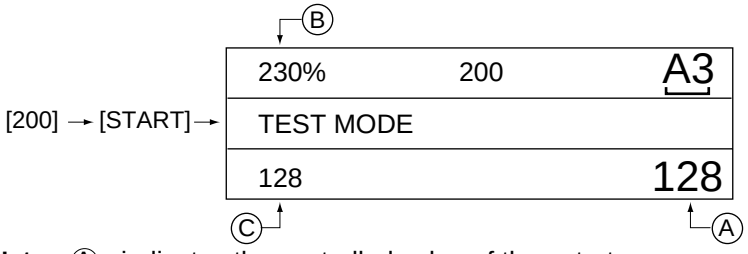
<Procedure> (Code "200" in the adjustment mode (05))

(1) Install the cleaner and developer unit in the copier (the cleaning blade is in contact with the drum).

(2) Turn ON the power while the digital keys "0" and "5" are pressed simultaneously.
The following is displayed on the control panel.

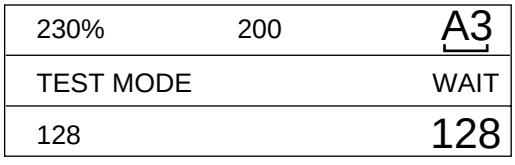


(3) Enter "200" using the digital keys and press the [START] key.
The display changes as follows.

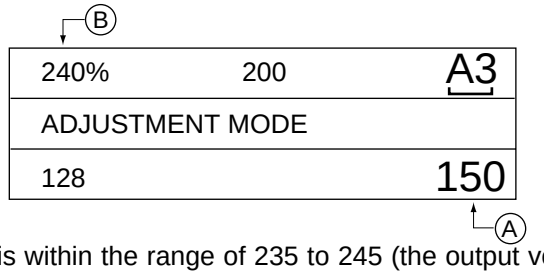


Note: Ⓐ: indicates the controlled value of the auto-toner sensor output. Press the Up or Down icon to change the value.
Ⓑ: indicates the output voltage of the auto-toner sensor (2.30 V in the above case). The drum, developer unit, etc. are in operation.
Ⓒ: indicates the latest adjustment value.

(4) After about two minutes, the value Ⓑ automatically starts changing.



(5) After a short time, the value Ⓑ becomes stable and the display changes as follows.



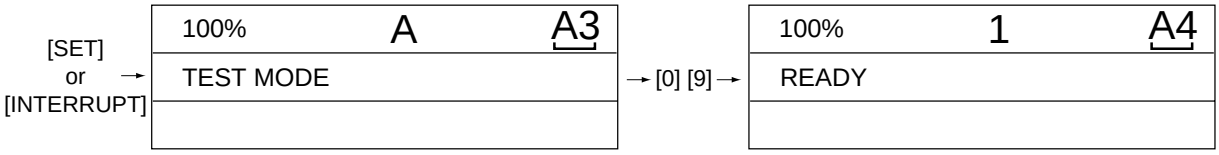
(6) Check if the value Ⓑ is within the range of 235 to 245 (the output voltage range of the auto-toner sensor is 2.35 V to 2.45 V).

(7) If the value Ⓑ is not within the range of 235 to 245%, press the Up or Down icon to adjust the value manually.

Note: The relation between the icons and the values Ⓐ and Ⓑ is as follows.

Icon to be pressed	Value Ⓐ	Value Ⓑ
Up	Increased	Increased
Down	Decreased	Decreased

(8) Press the [SET] icon or [INTERRUPT] key.
The drum, developer unit, etc. are stopped and the following is displayed.



2.3 Dimensional Adjustment of Copied Image

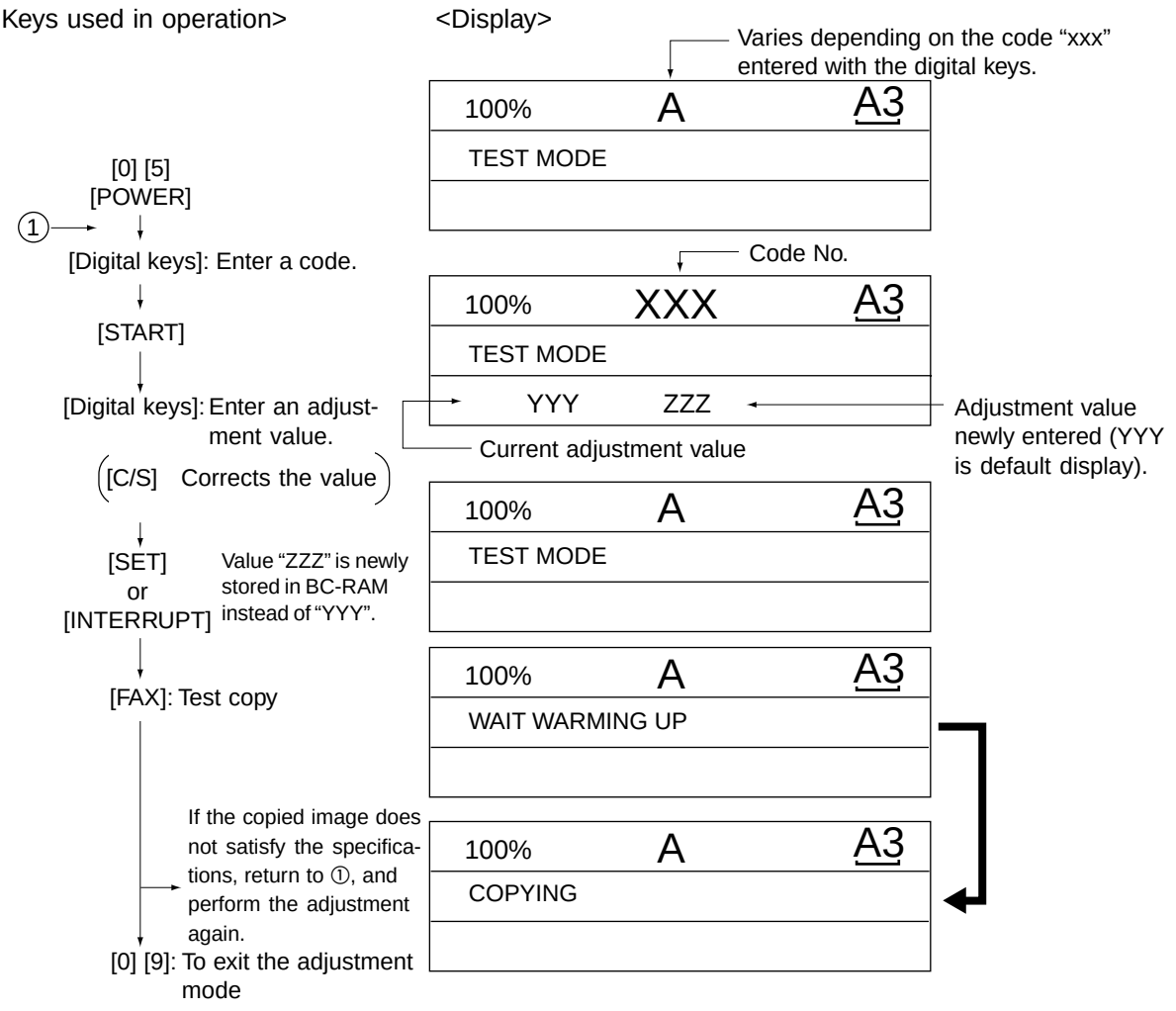
2.3.1 Overview

The followings are the items in the copy image dimensional adjustment mode.
The adjustment must be performed in the following order.

Items to adjust		Code
(1) Paper alignment		(450) (452) (448) (449) (455) (457) (458)
(2) Printer related adjustmet	a) Reproduction ratio of primary scanning direction (Fine adjustment of polygonal motor rotation speed)	(401)
	b) Image position of primary scanning direction (Laser writing start position)	(411) (410)
	c) Reproduction ratio of secondary scanning direction (Fine adjustment of main motor rotation speed)	(421)
	d) Image position of secondary scanning direction (Laser writing start position)	(441) (440) (443) (444) (445) (442)
	e) Image position of primary scanning direction during duplex copying (Laser writing start position)	(498)
(3) Scanner related adjustment	a) Image distortion	–
	b) Reproduction ratio of primary scanning direction (Fine adjustment of polygonal motor rotation speed/PPC)	(405)
	c) Image position of primary scanning direction (Deviation correction of the scanner primary scanning start position)	(306)
	d) Reproduction ratio of secondary scanning direction	(340)
	e) Image position of secondary scanning direction (Deviation correction of the scanner secondary scanning start position)	(305)
	f) Top margin	(430)
	g) Right margin	(432)
	h) Bottom margin	(433)

[Procedure to input the adjustment values]

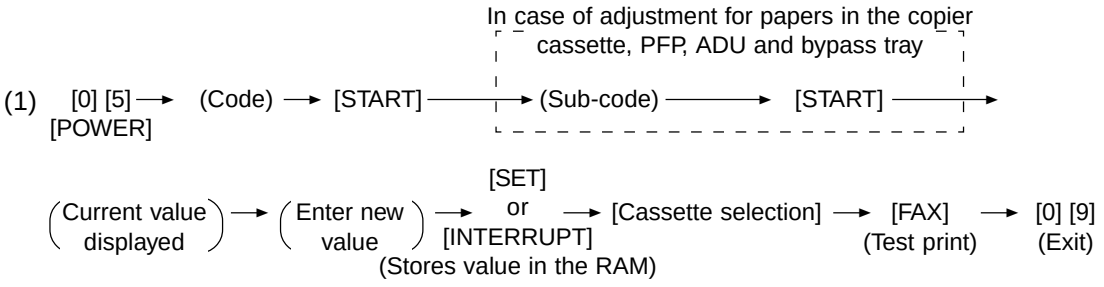
In accordance with the following procedure, adjust each adjustment item so that the measured values obtained from the test copy satisfy the specification. Single-side test copying can be performed (in the normal copy modes) by pressing the [FAX] key immediately after entering the adjustment mode (05).



2.3.2 Paper alignment

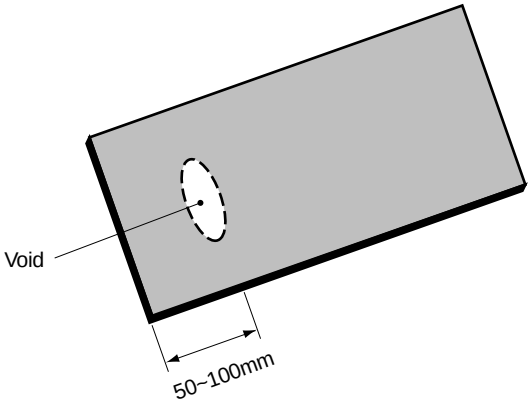
<Procedure> (The adjustment code for each cassette is as follows.)

Copier			PFP				
Upper cassette	Lower cassette	➡	Upper cassette	Lower cassette	➡	ADU	➡	LCF	➡	Bypass feed
(450)	(452)		(448)	(449)		(455)		(457)		(458)



(2) Check if image void is occurring. If there is any, reduce the value as in "31" → "30" → "29"… until the void disappears. At this time, make sure there are no paper jams.
Increasing the aligning amount may increase the scraping noise caused by the paper and the Mylar as the paper is transported by the registration roller.
Decrease the value if the noise is annoying.

(3) Perform the same procedure for the ADU, LCF and bypass feeding.



Note: When paper thinner than that specified is used, paper jams may occur frequently at the registration section. In this case, it is advised to change (reduce) the aligning amount. However, if the aligning amount is reduced too much, this may cause the shift of the leading edge position. Select the appropriate value when the adjustment value is changed while confirming if the leading edge is not shifted.

* As a tentative countermeasure, the service life of the feed roller can be extended by increasing the aligning amount.

2.3.3 Printer related adjustment

(a) Reproduction ratio adjustment of the primary scanning direction (fine adjustment of polygonal motor rotation speed/PRT)

1. Turn ON the power while the digital keys [0] and [5] are pressed simultaneously. →(Adjustment mode)
2. Press [1] and [FAX]. (A grid pattern of 10 mm squares is printed out: Use A3 (LD) in the lower cassette.)
3. Measure the distance A from the first grid line to the 21st of the grid pattern.
4. Check if the distance A is within 200 ± 0.5 mm or not.
5. If not, change the value taking the following procedure, and measure the distance A again.

<Procedure> (Adjustment mode)→(Enter the code [401] with the digital keys)→[START]
→(Enter a value (acceptable values: 0 to 255) with the digital keys)
→Press the [SET] icon or the [INTERRUPT] key to store the value in the RAM
→"100% A" is displayed.→Press [1]→[FAX]→(A grid pattern is printed out)
*The larger the adjustment value, the longer the distance A becomes (approx. 0.5 mm/4 steps).

(b) Image position adjustment of the primary scaning direction (the adjustment of the laser writing start position)

1. Turn ON the power while the digital keys [0] and [5] are pressed simultaneously.→(Adjustment mode)
2. Press [1]→[FAX] (A grid pattern is printed out: Use A3 (LD) in the lower cassette.)
3. Measure the distance B from the leading edge of the paper to the 6th line of the grid pattern.
4. Check if the distance B is in the range of 52 ± 0.5 mm.
5. If not, change the value taking the following procedure and measure the distance B again.

<Procedure> (Adjustment mode)→(Enter the code [411] with the digital keys)→Press [START]
→(Enter a value (acceptable values: 0 to 255) with the digital keys)
→Press the [SET] icon or the [INTERRUPT] key to store the value in the RAM.
→"100% A" is displayed.
→Press [1]→[FAX]→(A grid pattern is printed out.)
*The larger the adjustment value, the longer the distance B becomes (approx. 0.5 mm/10 steps).

6. After the adjustment for the code 411 is completed, apply the same adjustment value for the code 410.

<Procedure> (Adjustment mode)→(Enter the code [410] with the digital keys)→Press [START]
→(Enter the same value entered in the step 5 above with the digital keys)
→Press the [SET] icon or the [INTERRUPT] key to store the value in the RAM.

Note: The first line of the grid pattern is occasionally not printed out.

(c) Reproduction ratio adjustment of the secondary scanning direction (fine adjustment of main motor rotation speed)

1. Turn ON the power while the digital keys [0] and [5] are pressed simultaneously.→(Adjustment mode)
2. Press [1] and then [FAX]. (A grid pattern is printed out. Use A3 (LD) in the lower cassette.)
3. Measure the distance C from the 1st line at the trailing edge of the paper to the 21st line of the grid pattern.
4. Check if the distance C is within the range of 200 ± 0.5 mm.
5. If not, change the value taking the following procedure and measure the distance C again.

<Procedure> (Adjustment mode)→(Enter the code [421] with the digital keys)→[START]
→(Enter a value (acceptable values: 0 to 255) with the digital keys)
→Press the [SET] icon or the [INTERRUPT] key to store the value in the RAM.
→"100% A" is displayed.→Press [1]→[FAX]→(A grid pattern is printed out)
*The larger the adjustment value, the longer the distance C becomes (0.5 mm/4 steps).

(d) Image position adjustment of the secondary scanning direction (the adjustment of the laser writing start position)
This adjustment has to be performed for each paper source.
The following table shows the order of the paper source to be adjusted, code, paper size and acceptable values.

Order for adjustment	Paper source	Code	Paper size	Acceptable value	Remarks
1	Lower cassette	441	A3	0 to 40	
2	Upper cassette	440	A4	0 to 15	
3	LCF	443	A4	0 to 15	
4	PFP	444	A3	0 to 15	
5	ADU	445	A3	0 to 15	Paper fed from the lower cassette
6	Bypass feed	442	A4	0 to 15	

1. Turn ON the power while the digital keys [0] and [5] are pressed simultaneously.→(Adjustment mode)
2. Press [1] ([3] for ADU)→[FAX]. (A grid pattern is printed out.)
3. Measure the distance D from the leading edge of the paper to the 5th line of the grid pattern.
4. Check if the distance D is within the range of 52 ± 0.5 mm.
5. If not, change the value taking the following procedure and measure the distance D again.

<Procedure> (Adjustment mode)→(Enter the code [see table above] with the digital keys)→[START]
→(Enter a value (the acceptable values: see the table above) with the digital keys)
→Press the [SET] icon or the [INTERRUPT] key to store the value in the RAM.
→"100% A" is displayed→Press [1] ([3] for ADU)→[FAX]→(A grid pattern is printed out)
*The larger the adjustment value, the shorter the distance D becomes (0.4 mm/steps).

(e) Image position adjustment of the primary scanning direction during duplex printing (the adjustment of the laser writing start position)

(e-1) Adjustment for long-sized paper

1. Turn ON the power while the digital keys [0] and [5] are pressed simultaneously.→(Adjustment mode)
2. Press [3]→[FAX] (A grid pattern is printed out on both sides of the paper: Use A3 (LD) in the lower cassette.)
3. Check the grid pattern on the back side of the paper. Measure the distance E from the leading edge of the paper to the 6th line of the grid pattern.
4. Check if the distance E is in the range of 52 ± 0.5 mm.
5. If not, change the value taking the following procedure and measure the distance E again.

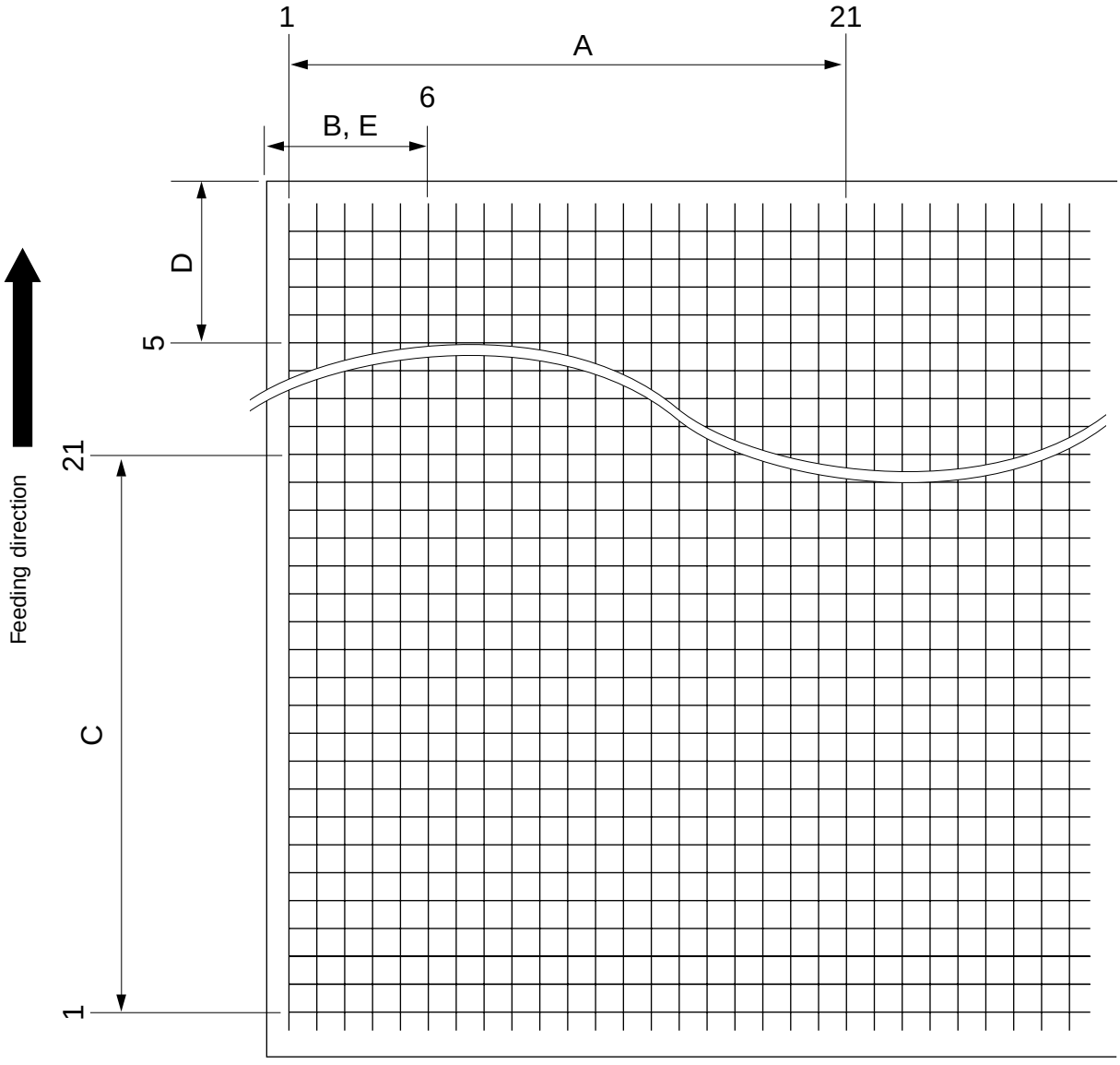
<Procedure> (Adjustment mode)→(Enter the code [498] with the digital keys)→Press [0]→[START]
→(Enter a value (acceptable values: 0 to 255) with the digital keys)
→Press the [SET] icon or the [INTERRUPT] key to store the value in the RAM.
→"100% A" is displayed.
→Press [3]→[FAX]→(Grid patterns are printed out on both sides of the paper)
*The larger the adjustment value, the longer the distance E becomes (approx. 0.5 mm/10 steps).

(e-2) Adjustment for short-sized paper

After the adjustment for long-sized paper is completed, apply the same adjustment value for short-sized paper.

<Procedure> (Adjustment mode)→(Enter the code [498] with the digital keys)→Press [1]→[START]
→(Enter the same value entered for long-sized paper with the digital keys)
→Press the [SET] icon or the [INTERRUPT] key to store the value in the RAM.

Note: The first line of the grid pattern is occasionally not printed out.



[Grid pattern]

<Order of distances to be adjusted>

[0] [5] [POWER] → [1] ([3] for duplex copying) → [FAX]

A: 05-401 (lower cassette, A3/LD) → 200±0.5 mm (+0.5 mm/4 steps)

B: 05-411 (lower cassette, A3/LD) → 52±0.5 mm (+0.5 mm/10 steps) → enter the same value for 05-410.

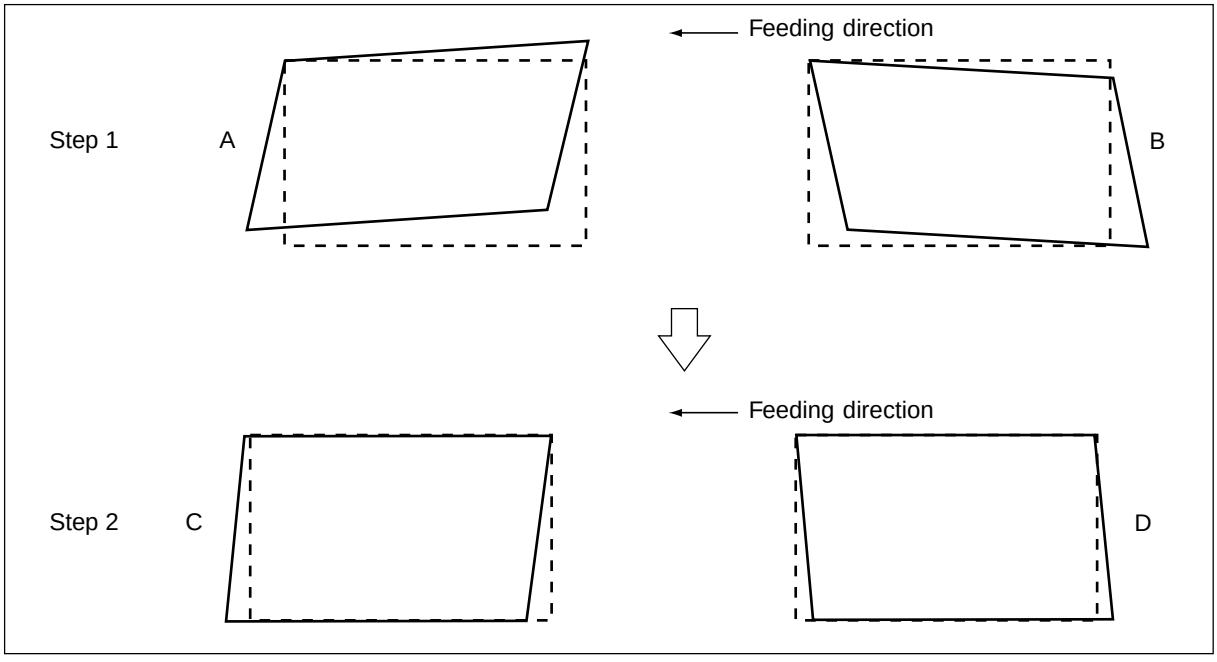
C: 05-421 (lower cassette, A3/LD) → 200±0.5 mm (+0.5 mm/4 steps)

D: 05-441 (lower cassette, A3/LD), 440 (upper cassette, A4/LT), 443 (LCF, A4/LT), 444 (PFP, A3/LD), 445 (ADU, A3/LD), 442 (bypass feed, A4/LT) → 52±0.5 mm (–0.4 mm/steps)

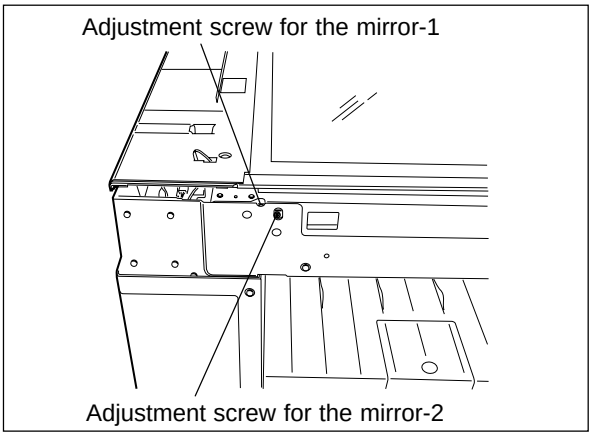
E: 05-498-0, 498-1 → 52±0.5 mm (+0.5 mm/10 steps)

2.3.4 Scanner related adjustment

(a) Image distortion adjustment



1. Turn ON the power while the digital keys [0] and [5] are pressed simultaneously.
2. Press [FAX] to make a copy of any image on a sheet of A3 (LD) paper.
3. Enter [308] and press the [START] key to move the carriage to the position for adjustment (exit side).
4. Make an adjustment in the order of step 1 and 2.



[Step 1]

In the case of A: Tighten the adjustment screw for mirror-2 (CW).

In the case of B: Loosen the adjustment screw for mirror-2 (CCW).

[Step 2]

In the case of C: Tighten the adjustment screw for mirror-1 (CW).

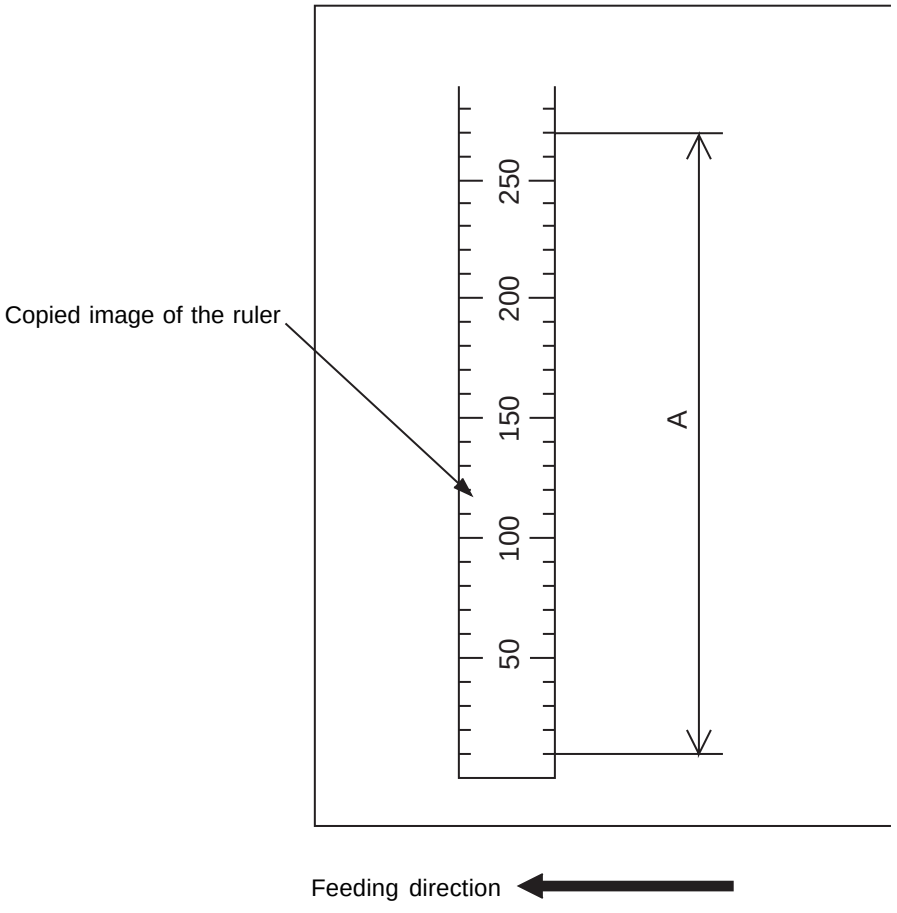
In the case of D: Loosen the adjustment screw for mirror-1 (CCW).

(b) Reproduction ratio adjustment of the primary scanning direction (fine adjustment of the polygonal motor rotation speed/PPC)

1. Turn ON the power while the digital keys [0] and [5] are pressed simultaneously. → (Adjustment mode)
2. Place a ruler on the original glass (along the direction from the rear to the front of the machine).
3. Press the [FAX] key and make a copy in the condition of A3 (LD), 100% and lower cassette.
4. Measure the distance A from 10 mm to 270 mm of the copied image of the ruler.
5. Check if the distance A is within the range of 260±0.5 mm.
6. If not, change the value taking the following procedure, and repeat the steps 3 to 5 until the distance falls within range.

<Procedure> (Adjustment mode) → (Enter the code [405] with the digital keys) → [START]
→ (Enter a value (acceptable values : 0 to 255) with the digital keys)
→ Press the [SET] icon or the [INTERRUPT] key to store the value in the RAM.
→ ("100% A" is displayed.)

* The larger the adjustment value, the higher the reproduction ratio and the longer the distance A become (approx. 0.5 mm/4 steps).

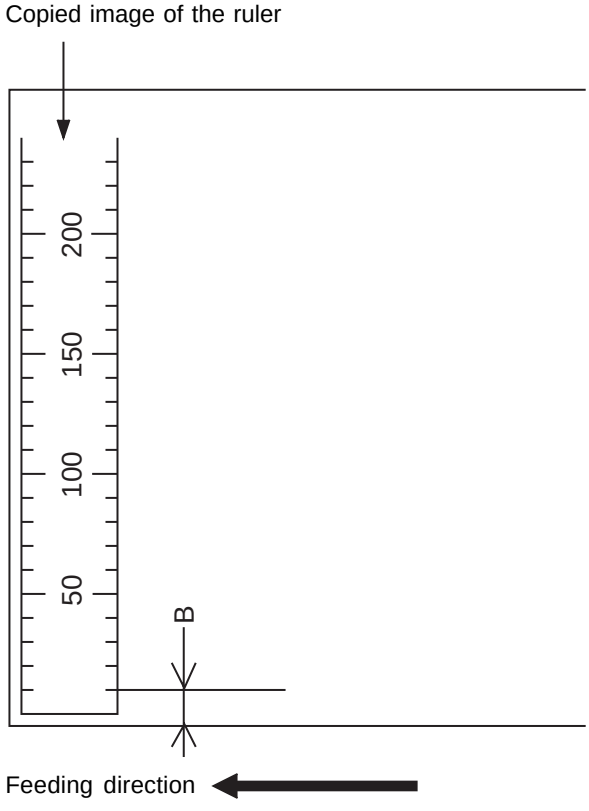


(c) Image position adjustment of the primary scanning direction (Deviation adjustment of the scanner primary scanning start position)

1. Turn ON the power while the digital keys [0] and [5] are pressed simultaneously.→ (Adjustment mode)
2. Place a ruler on the original glass with its leading edge pushed against the rear side and its side along the original scale on the left.
3. Press the [FAX] key and make a copy in the condition of A3 (LD), 100% and lower cassette.
4. Measure the distance B from the left edge of the paper to 10 mm of the copied image of the ruler.
5. Check if the distance B is within the range of 10±0.5 mm .
6. If not, change the value taking the following procedure, and repeat the steps 3 to 5 until the distance falls within range.

<Procedure> (Adjustment mode) → (Enter the code [306] with the digital keys) → [START]
→ (Enter a value (acceptable values : 0 to 255) with the digital keys)
→ Press the [SET] icon or the [INTERRUPT] key to store the value in the RAM.
→ ("100% A" is displayed.)

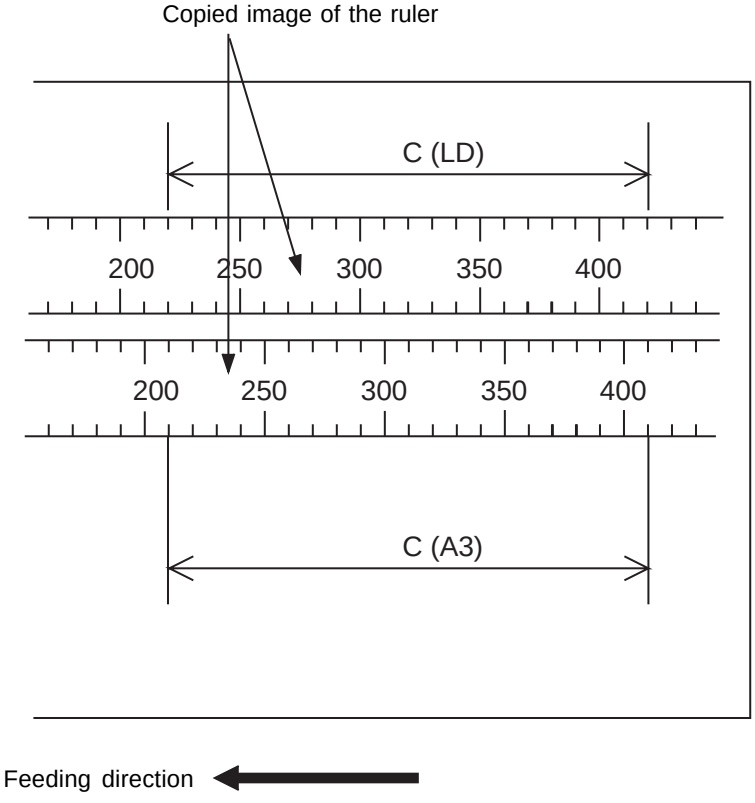
* The larger the adjustment value, the more the image is shifted to the left and the distance B becomes narrower (0.0423 mm/step).



(d) Reproduction ratio adjustment of the secondary scanning direction

1. Turn ON the power while the digital keys [0] and [5] are pressed simultaneously.→ (Adjustment mode)
2. Place a ruler on the original glass with its leading edge pushed against the original scale on the left.
3. Press the [FAX] key and make a copy in the condition of A3 (LD), 100% and lower cassette.
4. Measure the distance C from 210 mm to 410 mm (in case of A3) or from 220 mm to 420 mm (in case of LD) of the copied image of the ruler.
5. Check if the distance C is within the range of 200±0.5 mm.
6. If not, change the value taking the following procedure, and repeat steps 3 to 5 until the distance falls within range.

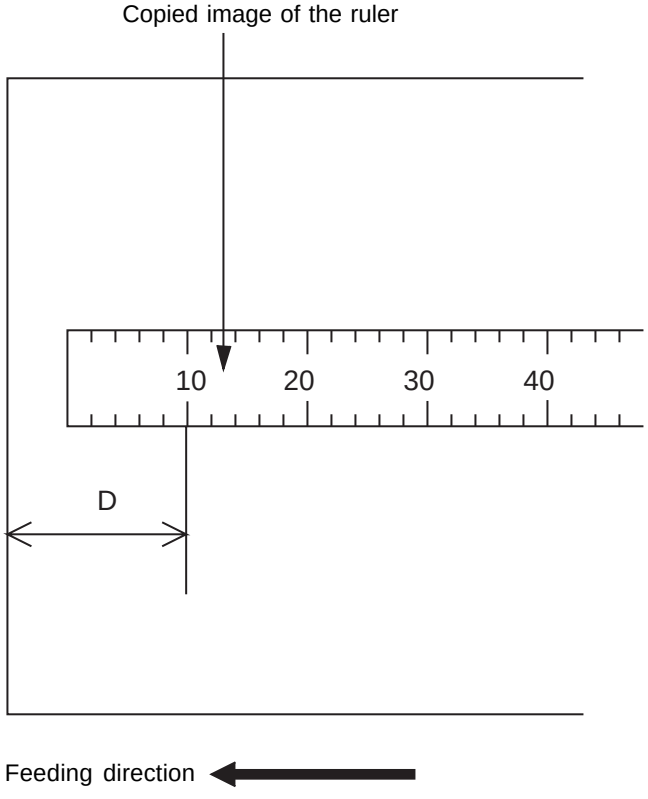
<Procedure> (Adjustment mode) → (Enter the code [340] with the digital keys) → [START]
→ (Enter a value (acceptable values : 0 to 255) with the digital keys)
→ Press the [SET] icon or the [INTERRUPT] key to store the value in the RAM.
→ ("100% A" is displayed.)
* The larger the adjustment value, the lower the reproduction ratio becomes. (0.05 mm/step)



(e) Image position adjustment of the secondary scanning direction (Deviation adjustment of the scanner secondary scanning start position)

1. Turn ON the power while the digital keys [0] and [5] are pressed simultaneously. → (Adjustment mode)
2. Place a ruler on the original glass with its leading edge pushed against the original scale on the left.
3. Enter “305” with the digital keys and press the [START] key → [SET] icon or [INTERRUPT] key → [FAX] key to make a copy in the condition of A3(LD), 400% and lower cassette.
4. Measure the distance D from the leading edge of the paper to 10 mm of the copied image of the ruler.
5. Check if the distance D is within the range of 34±0.5 mm.
6. If not, change the value taking the following procedure, and repeat the steps 3 to 5 until the distance falls within range.

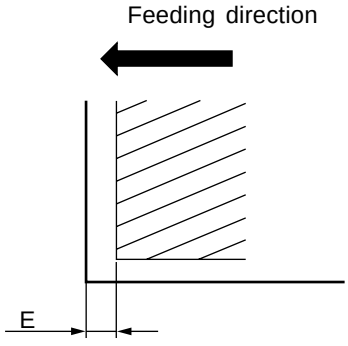
<Procedure> (Adjustment mode) → (Enter the code [305] with the digital keys) → [START]
→ (Enter a value (acceptable values : 0 to 255) with the digital keys)
→ Press the [SET] icon or the [INTERRUPT] key to store the value in the RAM.
→ (“100% A” is displayed.)
* The larger the adjustment value, the more the image is shifted to the leading edge (0.68 mm/step).



(f) Top margin

1. Turn ON the power while the digital keys [0] and [5] are pressed simultaneously. → (Adjustment mode)
2. Open the platen cover or ADF.
3. Press the [FAX] key and make a copy in the condition of A3 (LD), 100% and lower cassette.
4. Measure the blank area E at the leading edge of the copied image.
5. Check if the blank area E is within the range of 3±0.5 mm.
6. If not, change the value taking the following procedure, and repeat the steps 3 to 5 until the distance falls within range.

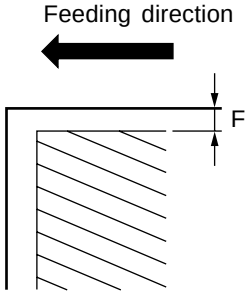
<Procedure> (Adjustment mode) → (Enter the code [430] with the digital keys) → [START]
→ (Enter a value (acceptable values : 0 to 255) with the digital keys)
→ Press the [SET] icon or the [INTERRUPT] key to store the value in the RAM.
→ ("100% A" is displayed.)
* The larger the adjustment value, the wider the blank area becomes (0.0423 mm/step).



(g) Right margin

1. Turn ON the power while the digital keys [0] and [5] are pressed simultaneously. → (Adjustment mode)
2. Open the platen cover or ADF.
3. Press the [FAX] key and make a copy in the condition of A3 (LD), 100% and lower cassette.
4. Measure the blank area F at the right side of the copied image.
5. Check if the blank area F is within the range of 2±0.5 mm.
6. If not, change the value taking the following procedure, and repeat the steps 3 to 5 until the area falls within range.

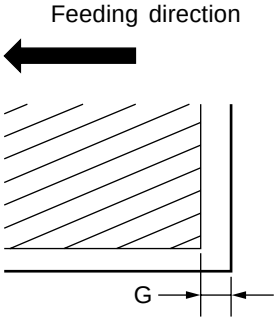
<Procedure> (Adjustment mode) → (Enter the code [432] with the digital keys) → [START]
→ (Enter a value (acceptable values : 0 to 255) with the digital keys)
→ Press the [SET] icon or the [INTERRUPT] key to store the value in the RAM.
→ ("100% A" is displayed.)
* The larger the adjustment value, the wider the blank area at the right side becomes (0.0423 mm/step).



(h) Bottom margin

1. Turn ON the power while the digital keys [0] and [5] are pressed simultaneously. → (Adjustment mode)
2. Open the platen cover or ADF.
3. Press the [FAX] key and make a copy in the condition of A3 (LD), 100% and lower cassette.
4. Measure the blank area G at the trailing edge of the copied image.
5. Check if the blank area G is within the range of 2±0.5 mm.
6. If not, change the value taking the following procedure, and repeat the steps 2 to 4 until the area falls within range.

<Procedure> (Adjustment mode) → (Enter the code [433] with the digital keys) → [START]
→ (Enter value (acceptable values : 0 to 255) with the digital keys)
→ Press the [SET] icon or the [INTERRUPT] key to store the value in the RAM.
→ ("100% A" is displayed.)
* The larger the adjustment value, the wider the blank area at the trailing edge becomes (0.0423 mm/step).



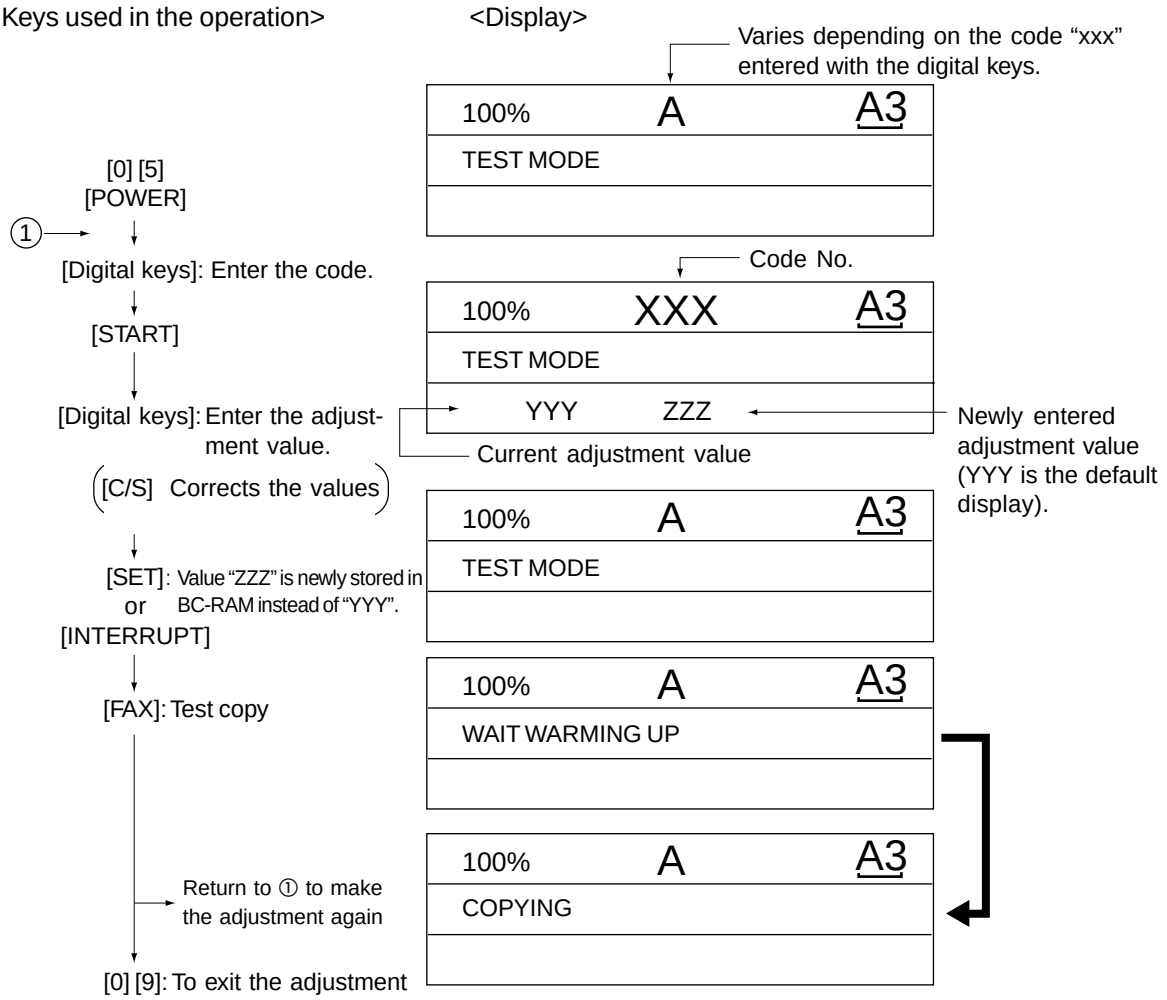
2.4 Image Quality Adjustment

2.4.1 Image density

Perform the image density adjustment in the adjustment mode “05” if the user requests to change the image density.

	Copy mode			Items to adjust	Remarks
	Text/Photo	Photo	Text		
Code	503	501	504	Manual density center value	The larger the value, the darker the image becomes
	505	506	507	Manual density light step value	The larger the value, the lighter the image of the lighter steps become
	508	509	510	Manual density dark step value	The larger the value, the darker the image of the darker steps become
	514	512	515	Automatic density	The larger the value, the darker the image becomes

Adjust the image density to satisfy the user’s request by taking the following procedure while studying the image obtained from the test copy and the currently entered values.



Notes) 1. Only one single-sided copy can be made.
2. Since the duplex copying is disabled, make a test copy after exiting the adjustment mode.

2.4.2 Sharpness (HPF) adjustment

If user requests to make the image sharpness softer or harder, adjust the sharpness setting (HPF intensity) in the adjustment mode “05”.

	Copy mode			Items to adjust	Remarks
	Text/Photo	Photo	Text		
Code	620	621	622	Sharpness setting (HPF intensity)	Enter one of the following values in the copy mode. Units: 1: Text/Photo 2: Photo 5: Text Tens: 0: Use default value 1~9: Change intensity (The larger the value, the sharper the image becomes.) • Example of value entry in case the copy mode is “Text/Photo”. 2 1 Fixed value for Text/Photo mode Enter a value 0 to 9

The entry procedure of the adjustment value is the same as that for “2.4.1 Image density”.

2.4.3 Gamma slope adjustment

If the user requests to change the gamma slope, perform the gamma slope adjustment in the adjustment mode “05”.

	Copy mode			Items to adjust	Remarks
	Text/Photo	Photo	Text		
Code	593	594	595	Gamma slope adjustment	0: Use default value (equivalent to the set value 5) 1 to 9: Gamma data (The larger the value, the darker the image becomes)

The entry procedure of the adjustment value is the same as that for “2.4.1 Image density”.

2.4.4 Setting for the range correction

The range correction on the values of the background peak/text peak can be set in the adjustment mode (05).

If they are fixed, the range correction is performed with standard values.

The values of the background peak and text peak affect the reproduction of the background density and text density respectively.

Code	Copy mode			Items to set	Remarks
	Text/Photo	Photo	Text		
	570	571	572	Range correction for original manually set on the original glass	The following are the default values set for each copy mode. Text/Photo: 12, Photo: 12, Text: 44
	693	694	695	Range correction for original set on the RADF	Units: Setting for the automatic density mode Tens: Setting for the manual density mode 1: Value of the background peak - fixed Value of the text peak - fixed 2: Value of the background peak - varies depending on image data to be copied. Value of the text peak - fixed 3: Value of the background peak - fixed Value of the text peak - varies depending on image data to be copied. 4: Value of the background peak - varies depending on image data to be copied. Value of the text peak - varies depending on image data to be copied.

The entry procedure of the adjustment value is the same as that for “2.4.1 Image density”.

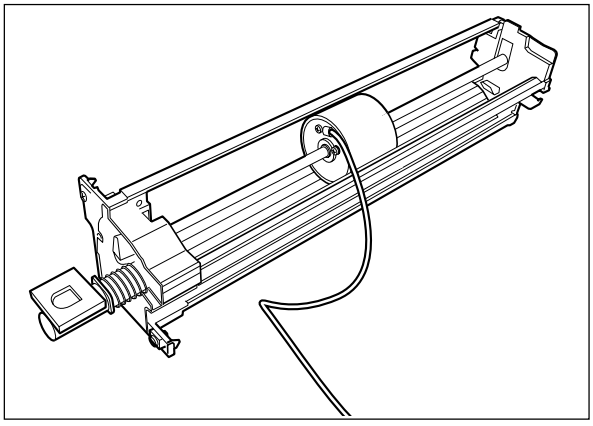
2.5 High-Voltage Adjustment

(1) Preparation

		Developer Bias	Main Charger	Transfer Charger	Separation Charger
Developer unit		Disconnect the connector.	Remove from the copier. (Not used)		
Cleaner unit		Remove the drum and install the cleaner unit in the copier.	Install the unit together with the current measuring jig in the copier. NOTE 1: Connect the green cable of the current measuring jig to ground on the copier frame. Refer to (a) Installation of current measuring jig.		
Developer unit connector of the copier		Not connected	Connect the jig detection conector with the developer unit connector of the copier.		
Digital Tester	(+) terminal	Connect in the hole at the front side of the developer unit.	Connect to the main charger case (between the case and the terminal).	Connect with the red cable of the current measuring jig.	
	(–) terminal	Connect to the machine frame (to ground).	Connect with the white cable of the current measuring jig (to ground).		
	Function switch	DC			AC
	Full-scale	1,000 V		2V	
	Remarks	Use a digital tester with an input resistance of 10 MΩ(RMS value) or higher.			
How to turn on the power		Attach the door switch jig and press the front cover opening/closing switch while the front cover is open.			
Remarks		Refer to (b) Connection for developer bias adjustment.	Refer to (c) Connection for main charger adjustment.	Refer to (d) Connection for transfer/separation charger adjustment.	

(a) Installation of the current measuring jig

Notes: 1. Clean the toner recovery auger when the toner is sticking to it. Then attach the jig.
2. Do not damage the tip of the separation fingers.
3. Remove the cleaner stay before installing the jig.



1. Unlock the cleaning blade using the blade releasing jig. (► Chapter 11.5 [C] in the Service Manual)

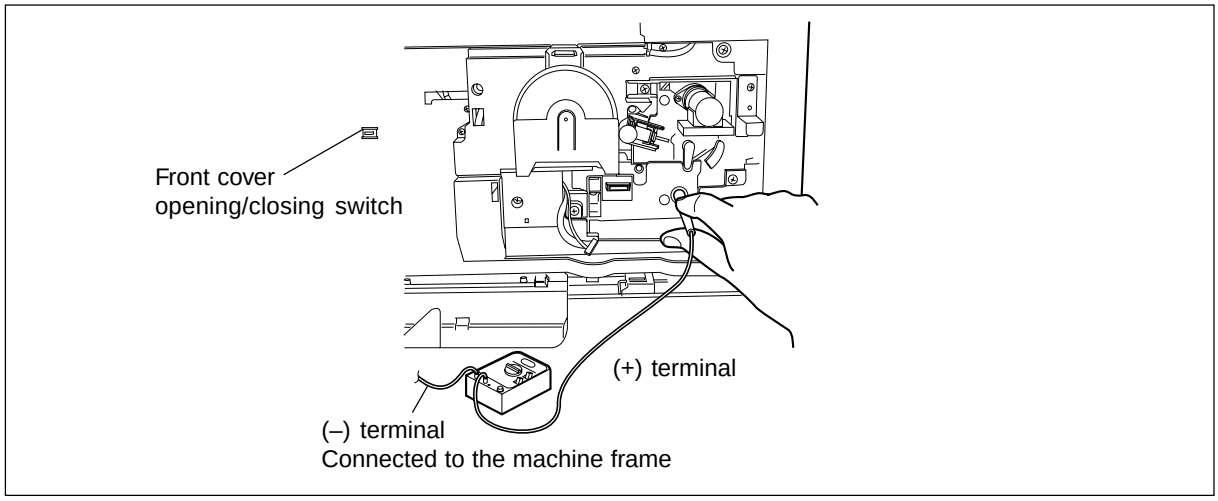
2. Insert the shaft through the hole at the front side of the cleaner.

3. Put the shaft through the current measuring jig and put it into the rear hole to fix it to the cleaner. Attach the cleaner stay.

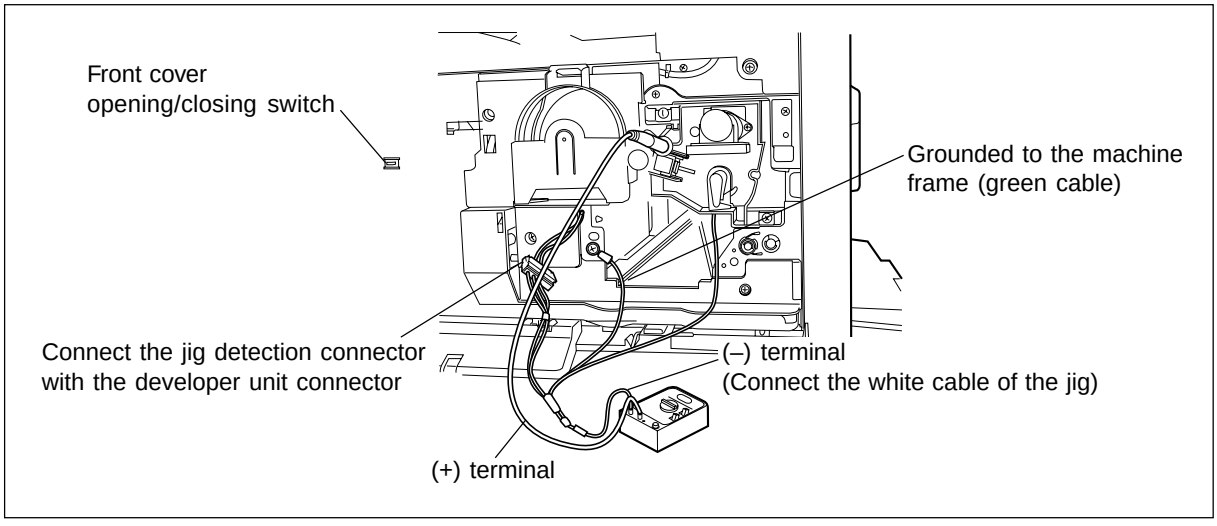
4. Install the cleaner unit in the copier with 2 screws, and connect the jig detection connector with the connector of the developer unit in the copier.
   Fix the green cable of the current measuring jig to the machine frame.

Notes: 1. Set the current measuring jig in the center of the cleaner unit.
2. High-voltage adjustment cannot be performed without connecting the jig detection connector (except the developer bias adjustment).

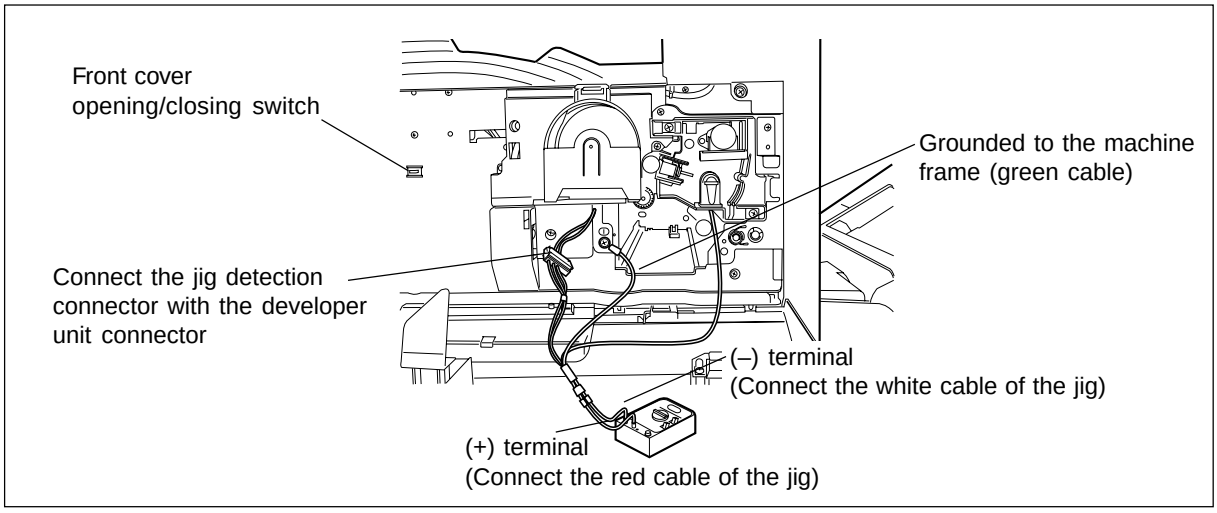
(b) Connection for developer bias adjustment



(c) Connection for main charger adjustment



(d) Connection for transfer/separation charger adjustment

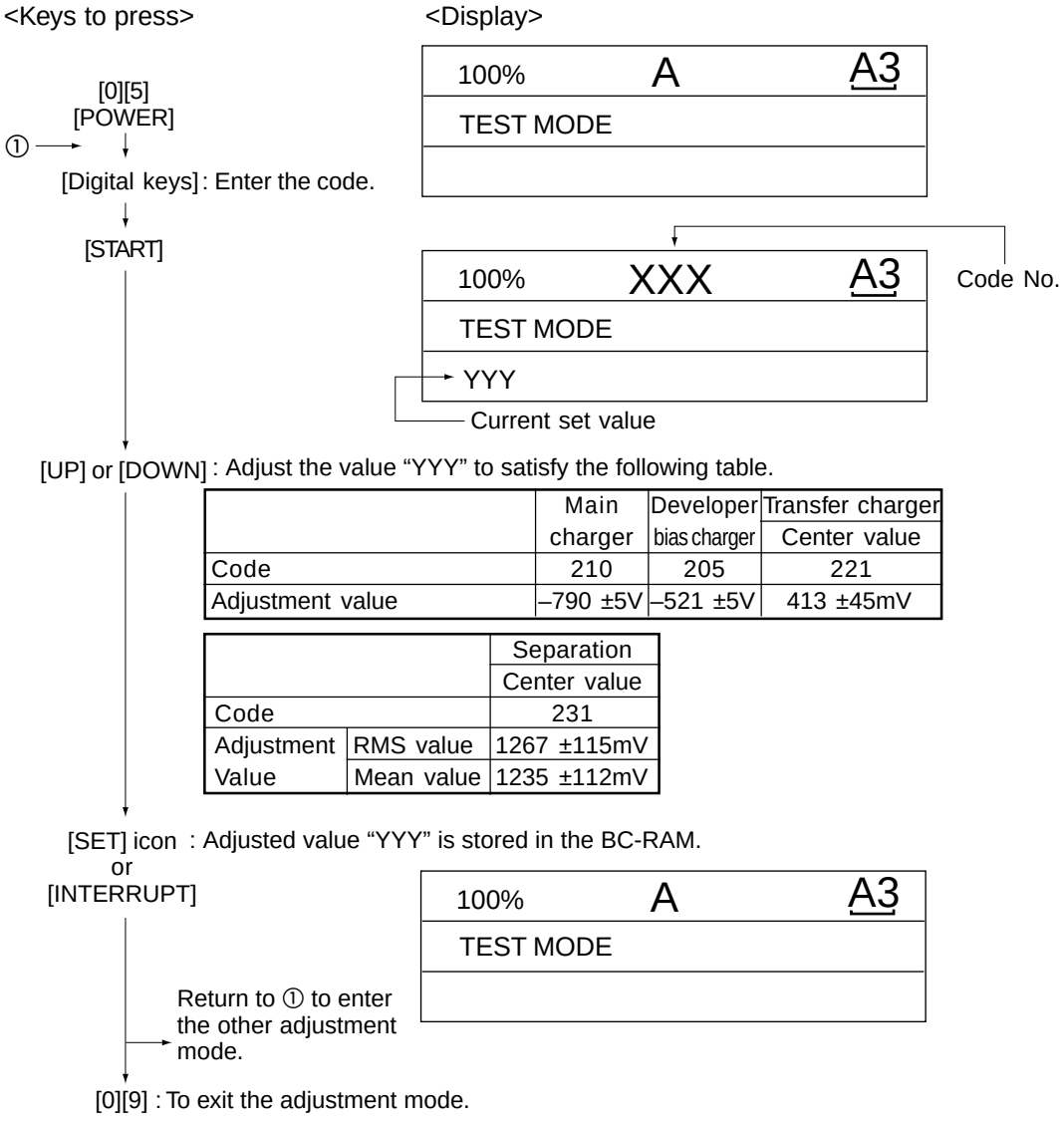


(2) Operation

NOTES

1. After the drum is replaced with a new one, reset the drum life counter to “0” (08-401).
2. After the developer material is replaced with a new one, reset the developer material life counter to “0” (08-404).
3. After the separation charger wire is replaced with a new one, reset the separation charger life counter to “0” (08-497).
4. A current measuring jig is necessary to adjust the high-voltage output (except the developer bias adjustment).
5. If the connectors of the current measuring jig and the developer unit of the copier are not connected with each other, high-voltage adjustment codes except those for the developer bias are not accepted. Do not connect anything with the connector of the developer unit of the copier during the measurement of the developer bias.
6. After the high-voltage transformer is replaced with a new one, the output of the main charger, developer bias charger, transfer charger and separation charger need to be checked and adjusted.

Connect the digital testers as described in (1) Preparation, and follow the procedure on the next page to adjust the output from the main charger, developer bias charger, transfer charger and separation charger.



	Main charger	Developer bias charger	Transfer charger Center value
Code	210	205	221
Adjustment value	–790 ±5V	–521 ±5V	413 ±45mV

		Separation Center value
Code		231
Adjustment Value	RMS value	1267 ±115mV
	Mean value	1235 ±112mV

Note: The "adjustment value" indicates the output voltage of the D/A converter (IC47 and IC48) on the logic PC board. The relation between the output voltage and adjustment value is as follows:

Output voltage = (Adjustment value + 1) ÷ 256 × 5 V

(3) Precautions

(a) Developer bias

Note for adjustment

Adjust the developer bias if fogging occurs over the entire image even though the main charger grid voltage and toner density are appropriate. However, the following may occur if the developer bias is lowered too much:

- Image contrast becomes low.
- Image is patchy or blurred.
- The carrier in the developer material adheres to the photoconductive drum, causing scratches around the cleaner.

(b) Transfer

Items to check before adjustment

Blotched image or poor transfer can be also caused by matters other than defective adjustment of transfer output. Check the following items before adjusting the transfer charger. If there is no problem, adjust the output of the transfer charger.

- Is the charger wire incorrectly installed or dirty? Is the transfer guide deformed?
- Is the developer unit properly installed? Is the developer magnetic brush in contact with the drum? Is the developer sleeve rotating during copying? Is the toner density low?
- Is the copy paper fed straight? Is the copy paper abnormally moist?
- Is the rotation of the registration roller normal?
- Is the output of the transfer guide bias normal?
- Is the separation output different from the set value?
- Is the developer bias value an appropriate one?
- Are the transfer/separation charger case and the drum shaft grounded? Is the transfer/separation transformer grounded?
- Is the transfer insulation film (transparent film) damaged or deformed?

Note for adjustment

When blotched image appear:

- If blotched image appear in halftone areas, lower the transfer output value. Remember that transfer performance becomes low if the transfer output value is lowered too much.

When transfer is poor:

Increase the transfer output value under the following conditions. Remember that blotched image appear if the transfer output value is increased too much.

- Transfer is poor even though the charger wire is not dirty.
- Thick paper has been frequently used.

(c) Separation

Items to check before adjustment

Poor paper separation from the drum can be also caused by matters other than defective adjustment of the separation output. Check the following items before making an adjustment. If there is no problem, adjust the output of the separation charger.

- Is the charger wire incorrectly installed or dirty?
- Is the developer unit installed properly? Is the developer magnetic brush in contact with the drum? Is the developer sleeve rotating during copying? Is the toner density low?
- Is the copy paper fed straight? Is the copy paper abnormally moist?
- Is the rotation of the registration roller normal?
- Is the output of the main charger normal?
- Is the transfer output different from the set value?
- Is the transfer/separation charger case grounded? Is the transfer/separation transformer grounded?
- Is the sub-separation fan rotating?
- Is the separation finger in contact with the drum surface?

Note for adjustment

When poor paper separation occurs:

Increase the separation output value under the following conditions. Remember that if the separation output value is increased too much, blotched image occurs and separation performance becomes low.

- Poor separation occurs even though the charger wire is not dirty.
- Thin paper has been frequently used.

When poor transfer occurs:

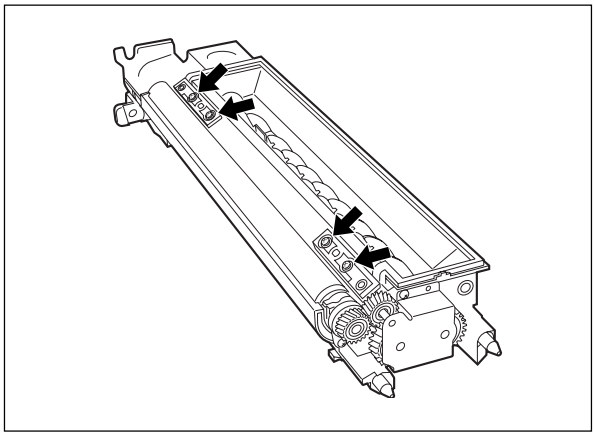
- Decrease the separation output value when poor transfer occurs. Remember that the separation performance becomes low if the separation output value is decreased too much.

2.6 Adjustment of Developer Unit

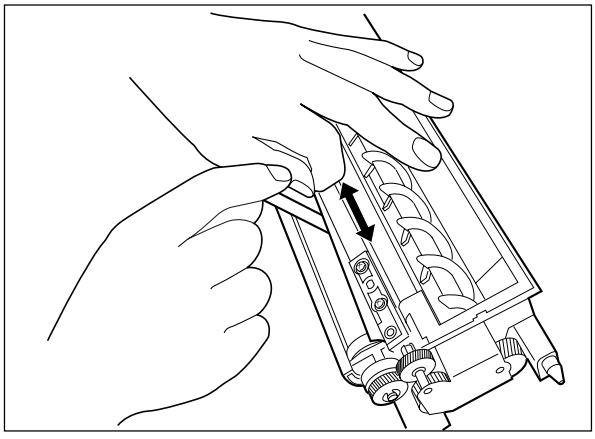
2.6.1 Adjustment of the doctor-sleeve gap

Tool to be used: Doctor-sleeve jig

(1) Take out the developer unit from the copier. Remove the top cover and dispose the developer material (► Chapter 12.5 in the Service Manual).
(2) Remove 2 screws to take off the developer sleeve cover. Place the developer unit on a flat surface.
(3) Loosen 4 screws fixing the doctor blade.



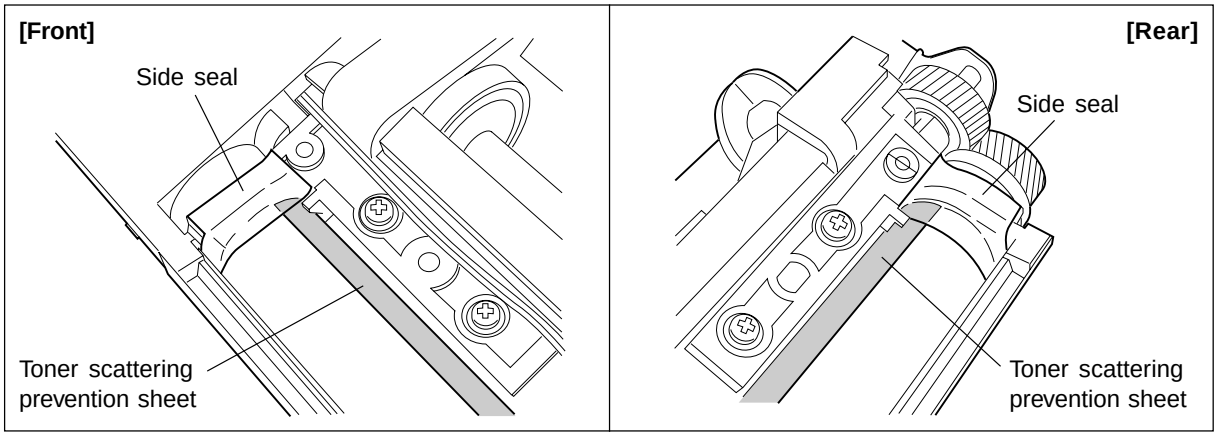
(4) Lift up the toner scattering prevention sheet (urethane sheet), and insert the jig of the gauge “0.45” into the gap between the developer sleeve and doctor blade (front and rear).
(5) Tighten the screws while the doctor blade is pressed against the doctor-sleeve jig lightly.
(6) Insert the jig of the gauge “0.40” into the gap between the developer sleeve and doctor blade. Confirm that the jig moves smoothly to the front and rear sides, and the jig of the gauge “0.50” cannot be inserted into the gap.



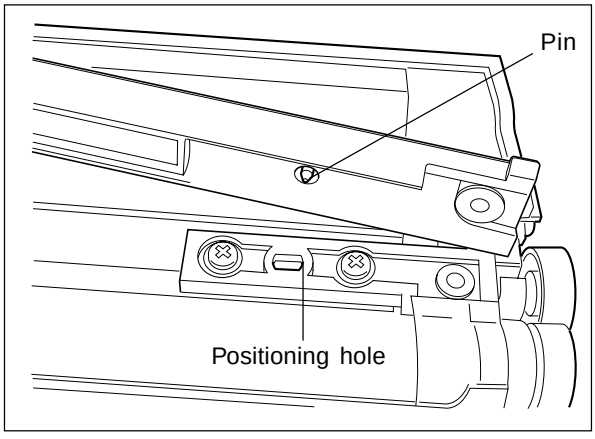
Note: Before adjusting or checking the gap, make sure the mark on the developer sleeve is facing the blade.

(7) Confirm that the both ends (rear and front) of the toner scattering prevention sheet get in between the developer sleeve and doctor blade support holder.

Note: Make sure that the side seals are attached on the toner scattering prevention sheet.

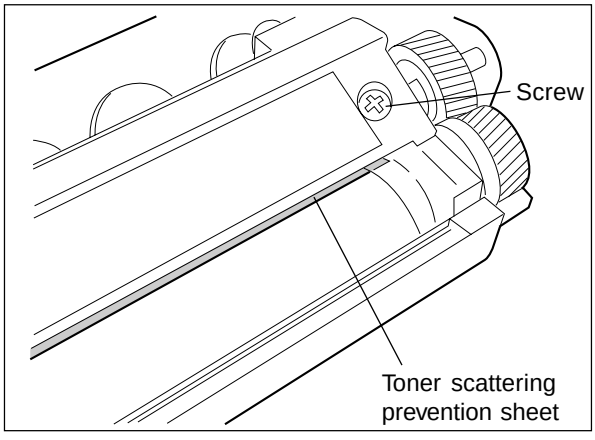


(8) Put the pin at the back of the developer sleeve cover into the positioning hole of the doctor blade support holder. Tighten the screws (one each for the front and the rear) to fix the developer sleeve cover.



Note: 1. Tighten the screw of the front side first.
2. Attach the developer sleeve cover properly, otherwise the cover may be deformed.
3. Make sure that the toner scattering prevention sheet is not caught between the doctor blade and the developer sleeve.

(9) Attach the top cover. Securely hook it on the latches and fit the protrusion of the developer unit into the cut-out part of the cover.



2.6.2 Adjustment of the developer polarity position

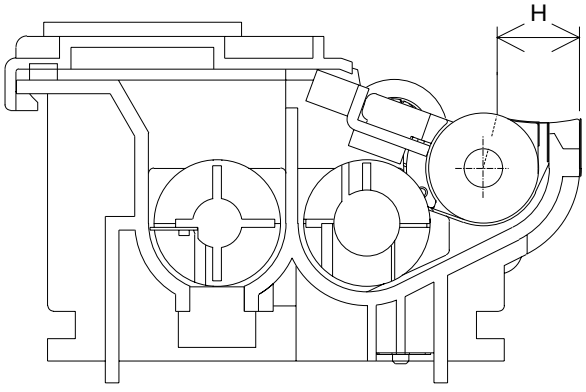
(1) Remove the developer unit from the copier (► Chapter 12.5 in the Service Manual).

(2) Loosen the fixing screw of the polarity adjustment lever. Move the lever and adjust the polarity position using the scale on the frame.

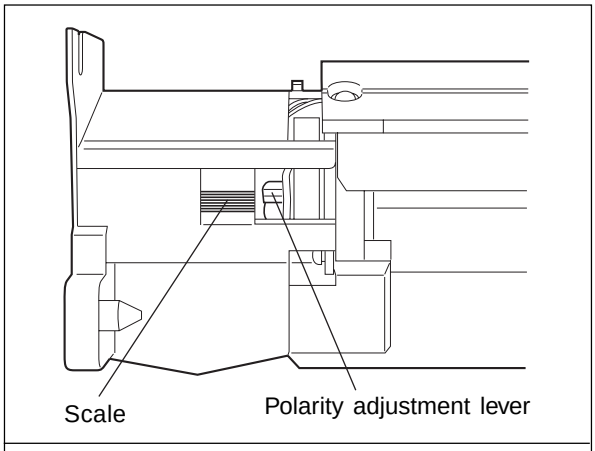
Notes: 1. Do not loosen or remove the fixing screw of the lever unnecessarily since it is adjusted with a special jig at the factory.

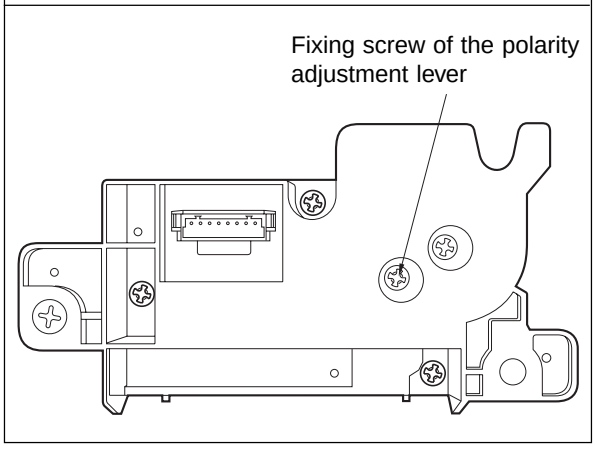
2. When the screw needs to be loosened for disassembly, mark the position of the polarity adjustment lever and reassemble it where it was.

However, when the new developer sleeve is installed, the height "H" in the figure below has priority over the position of the lever in assembling the developer unit.



H = 15.1mm





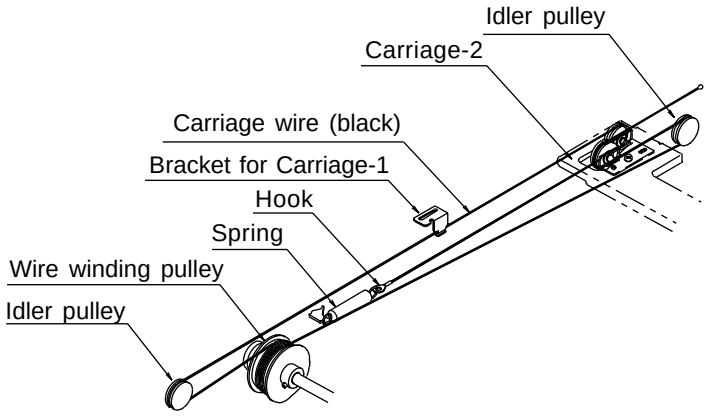
2.7 Adjustment of Scanning Section

2.7.1 Adjustment of the carriages

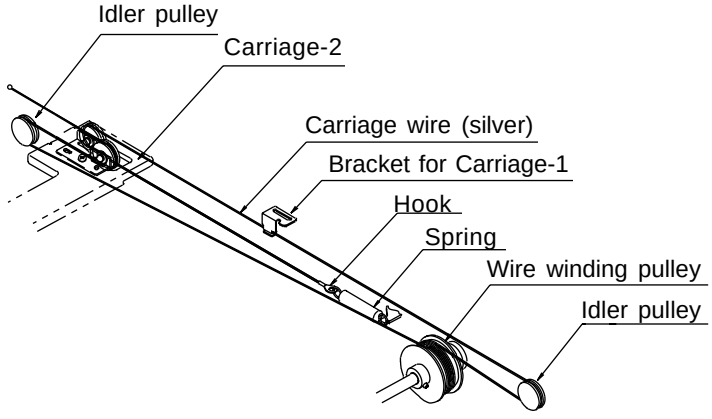
(1) Installing the carriage wire

Install a new carriage wire as in the following figure when it is replaced.

[Front side]



[Rear side]



(2) Adjustment of the carriage wires

Adjustment is not necessary since a certain tension is applied to the carriage wires by the tension springs.

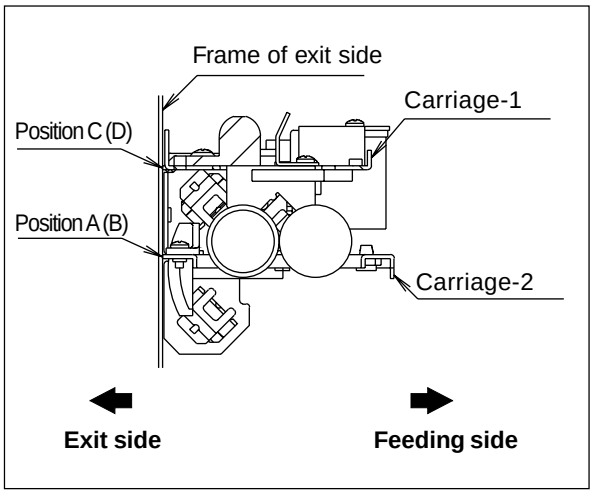
Note: Make sure that the tension applied to the wire is normal.

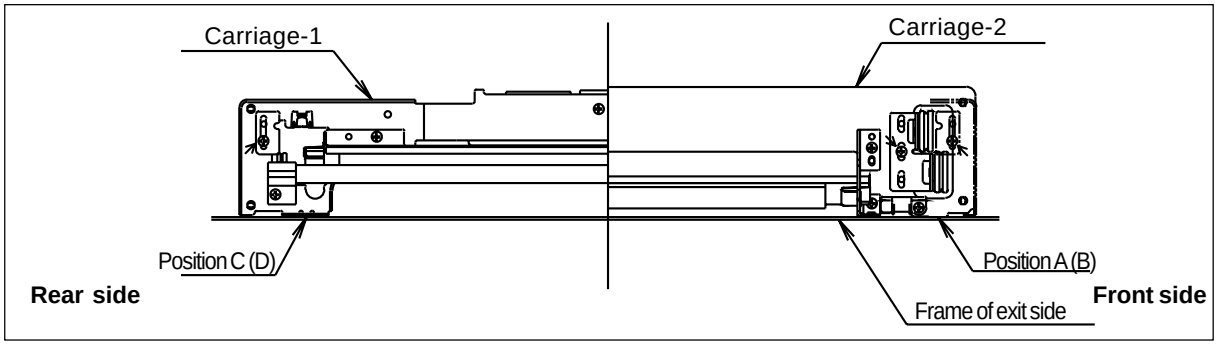
(3) Adjustment of the positions of the carriages-1 and -2

a. Move the carriage-2 to the exit side. Loosen one screw fixing the front side idler pulley bracket. Tighten the screw again while the positions A and B are pushed against inside the frame of exit side.

b. Fix 2 brackets (one each at the rear and the front) attached to the wire temporarily to the base of the carriage-1. Push the positions C and D of the carriage-1 against inside the frame of the exit side while the carriage-2 is also pushed against inside the frame of the exit side, and then fix the carriage-1 to the wire.

* The adjustment screw of the carriage-2 cannot be reached when the carriage-1 has been fixed temporarily to the wire bracket.

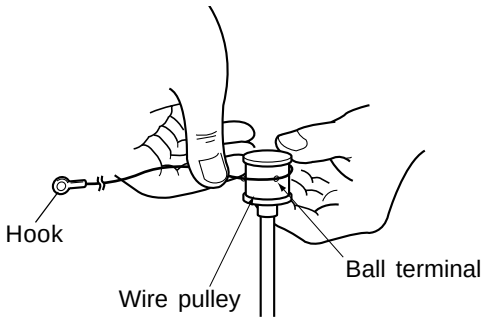




(4) Winding the wire around the pulleys

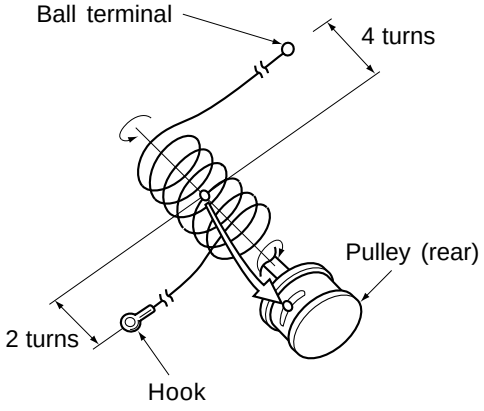
Wind the wire around the wire pulley:

a. Put the ø3 ball terminal located at the center of the wire into a hole on the wire pulley. One end of the wire with a hook attached comes to the outside.

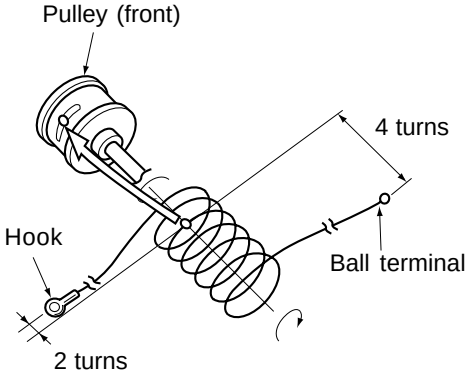


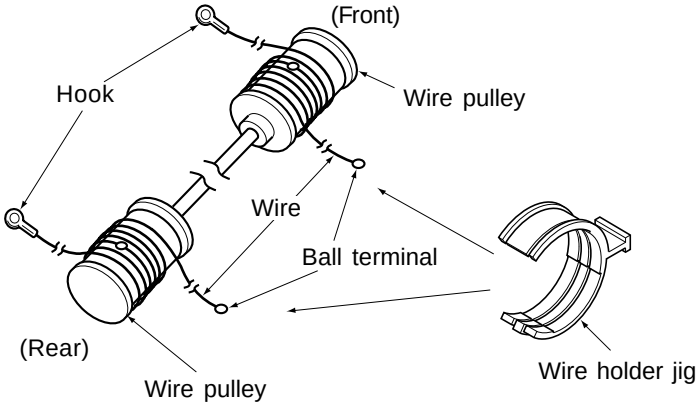
b. Wind the wires around the wire pulleys of the front and rear sides. The number of turns to be wound are as follows:
· 2 turns to the opposite side of the boss.
· 4 turns to the boss side.
After winding the wires around the pulleys, attach the wire holder jigs not to loosen the wires.

[Rear side]



[Front side]





Notes: 1. Pay attention to the following when the wires are wound around the pulleys:

· Do not twist the wire.

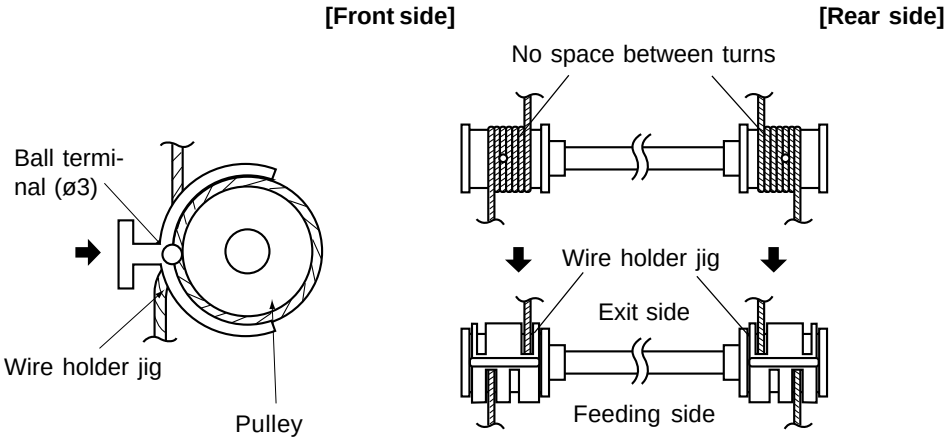
· Wind the wires tightly so that they are in complete contact with the surface of the pulleys.

· Each turn should be pushed against the previously wound turn so that there is no space between them.

2. When the wire holder jig is attached, make sure that the wire is not shifted or loosened.

3. The wire should come out of the slot of the wire holder jig.

4. Attach the wire holder jig with its one side with the wider space between the slots facing the exit side.

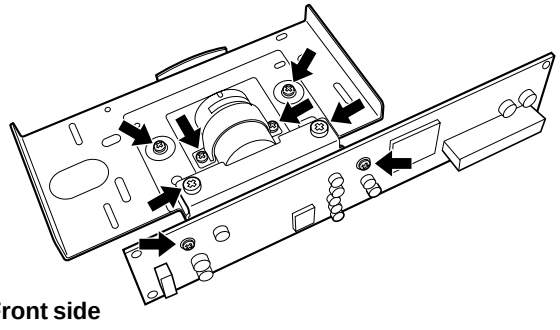


2.7.2 Lens unit

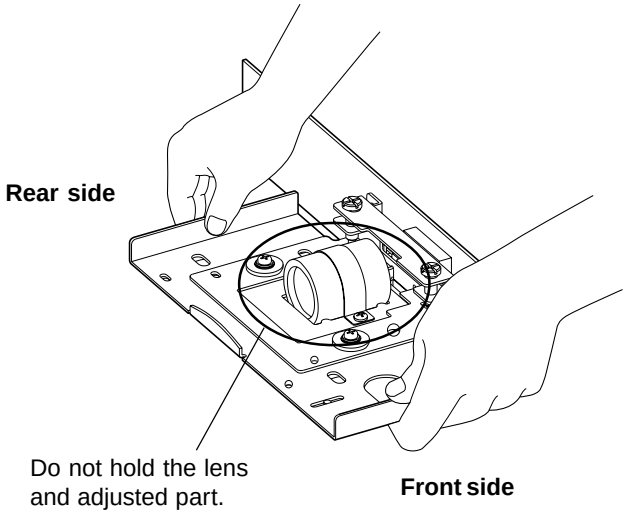
(1) Replacment of the lens unit

· Since the lens unit is precisely adjusted at the factory, it must not be readjusted in the field and some of the components cannot be replaced. If any of the components is defective, replace the whole unit.

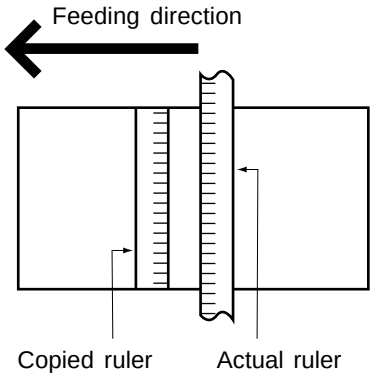
· When the unit is replaced with a new one, do not loosen or remove the 8 screws indicated with the arrows.



· Handle the unit with care. Do not hold the lens and adjusted part (hold the unit as shown below).



(2) Adjustment of the magnification ratio of the lens

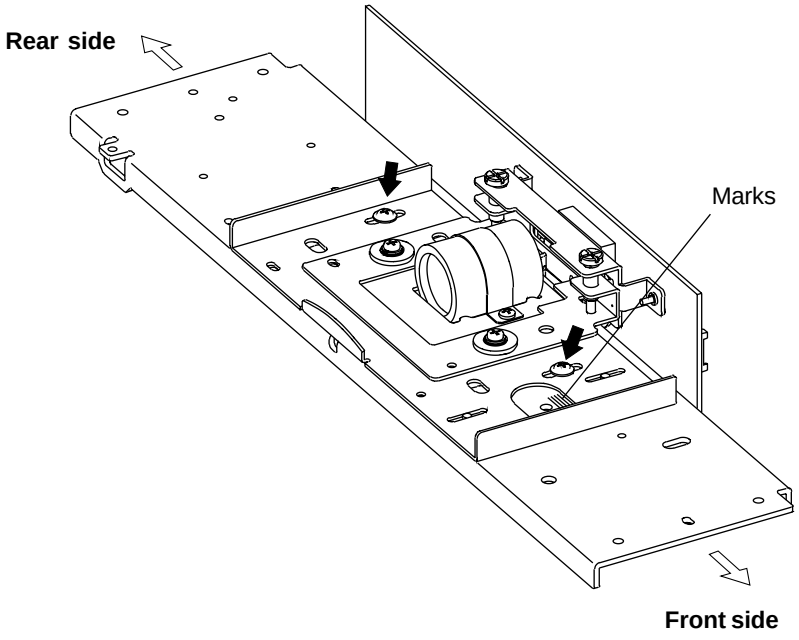


Notes: 1. Perform magnification ratio adjustment of the lens only when the lens unit has been removed or is to be replaced.
2. Before making this adjustment, check that the primary scanning reproduction ratio of the printer is correct.

a. Place a ruler on the original glass and make a copy on a A4(LT)-sized paper at a 100% reproduction ratio.
b. Compare the copied ruler with the actual ruler to see the difference in size.
c. Make adjustment following the procedure below, so as to make the distance between each mark on the rulers match.

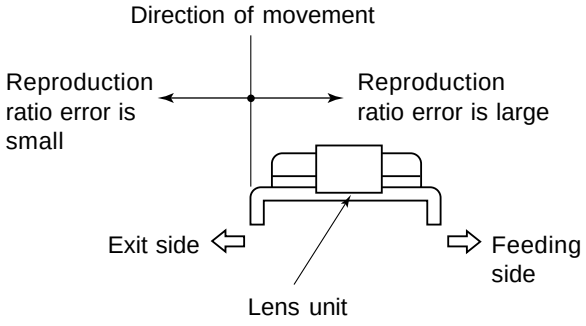
Note: After this adjustment is finished, be sure to perform the "deviation adjustment of the scanner primary scanning start position".

<Adjustment procedure>
1. Remove the original glass and lens cover.
2. Loosen the 2 screws fixing the lens unit.



3. Slide the lens unit forward or backward using the marks on the lens base as a guide.
   The following table shows the relation between the difference in the reproduction ratio between the copied ruler and the actual ruler and the movement amount of the lens unit.

Reproduction-ratio error	Movment amount of unit
0.1 %	0.5 mm
0.2 %	0.9 mm
0.3 %	1.4 mm
0.4 %	1.8 mm
0.5 %	2.3 mm
0.6 %	2.7 mm
0.7 %	3.2 mm
0.8 %	3.6 mm
0.9 %	4.1 mm
1.0 %	4.5 mm

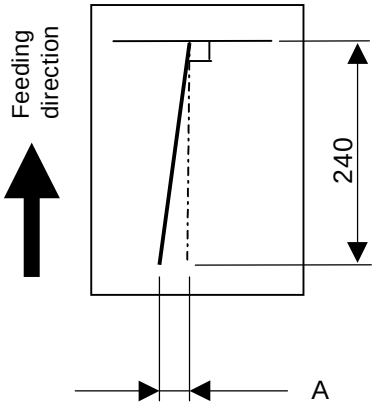


Note: Finer adjustment can be made in the “Fine adjustment of polygonal motor rotation speed”.

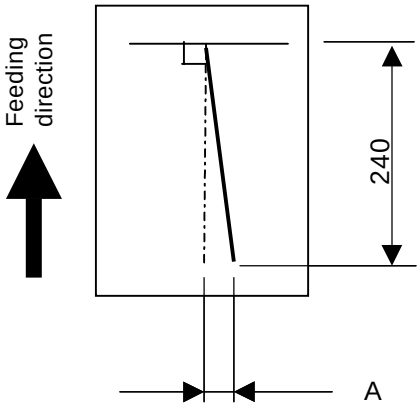
4. Attach the lens cover and original glass. Make a copy to confirm the reproduction ratio.
5. Remove the original glass and lens cover again, and tighten 2 screws to fix the lens unit.
6. Reattach the lens cover and original glass.

2.8 Adjustment of Angle of the Printed Image

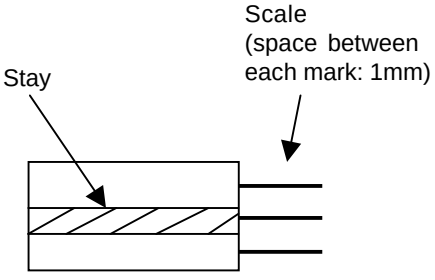
(1) Print out a grid pattern in the test print mode (04-142). Measure the deviation A (see the figure below) against the distance of 240mm in the feeding direction on the grid pattern.
(2) Remove the rear side upper cover.
(3) Look at the scale on the frame and write down the position of the stay before making an adjustment.
(4) Loosen the adjustment screw and slide the stay as much as the deviation A on the printed grid pattern in the direction as described below to adjust the deviation of the laser optical unit.
ex.) If the grid line is slanted by 1mm to the rear side, slide the stay 1mm downward.

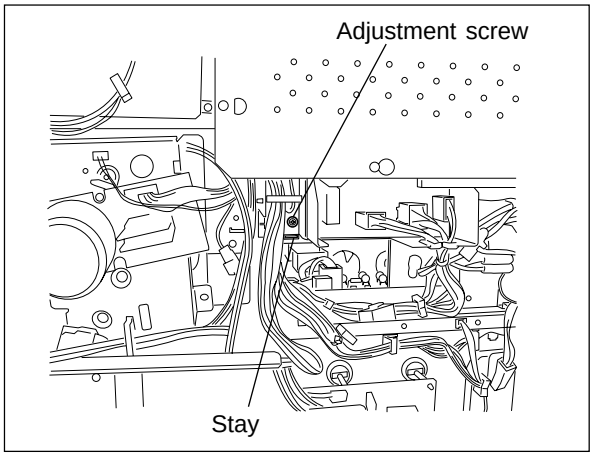


(a) The grid line is slanted to the rear side against the feeding direction.
→ Slide the stay downward.



(b) The grid line is slanted to the front side against the feeding direction.
→ Slide the stay upward.



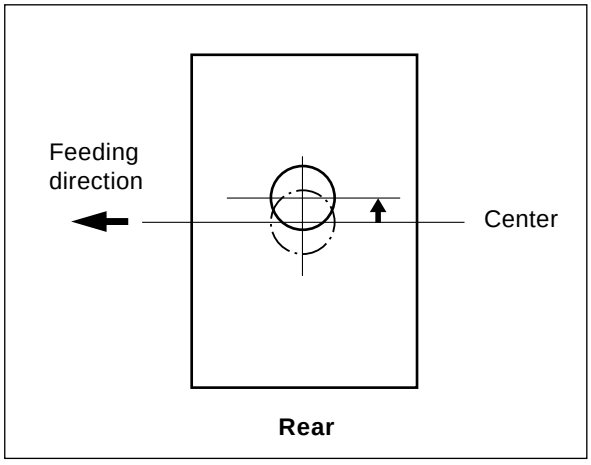


Note: Print out an image and check if it is positioned properly. Adjust the printer section following "2.3 Dimentional Adjustment of Copied Image" if necessary.

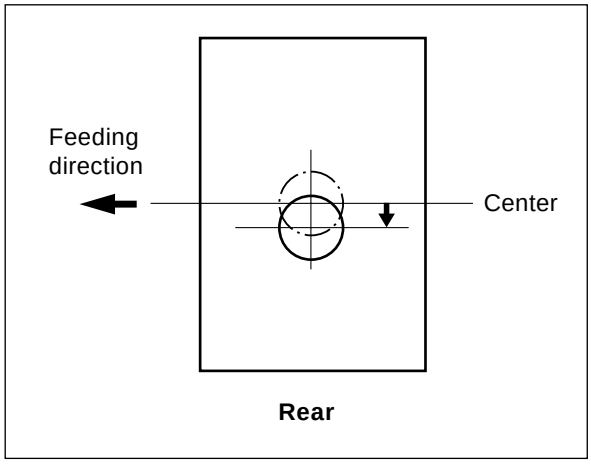
2.9 Adjustment of Sideways Deviation of Sheet Caused by Paper Feeding

<Procedure>

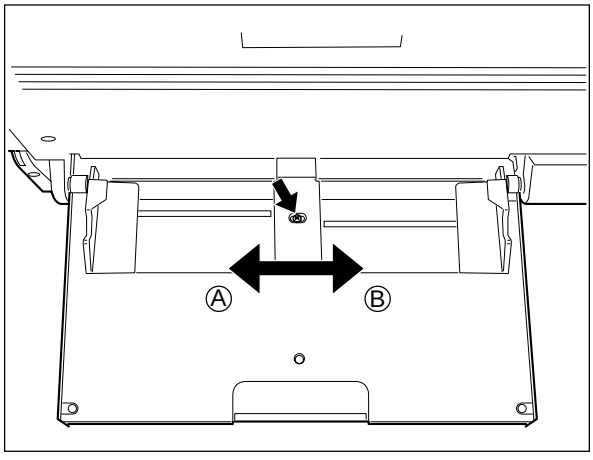
- The center of the copied image shifts to the front side. → Move the guide to the front side (the direction Ⓐ in the figures below).



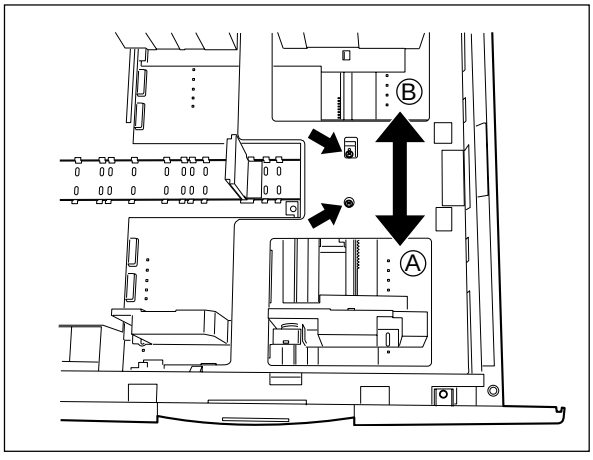
- The center of the copied image shifts to the rear side. → Move the guide to the rear side (the direction Ⓑ in the figures below).



- Bypass feeding

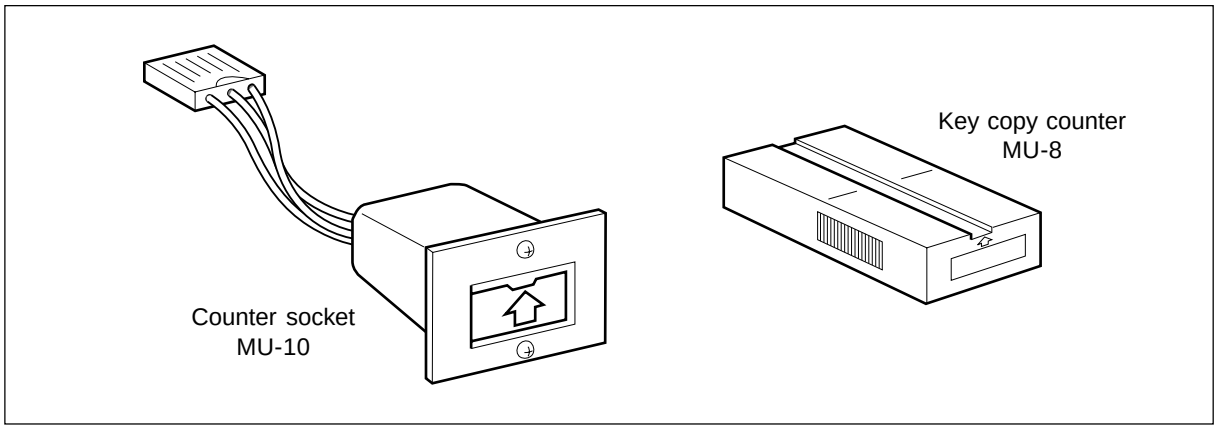


- Cassette feeding



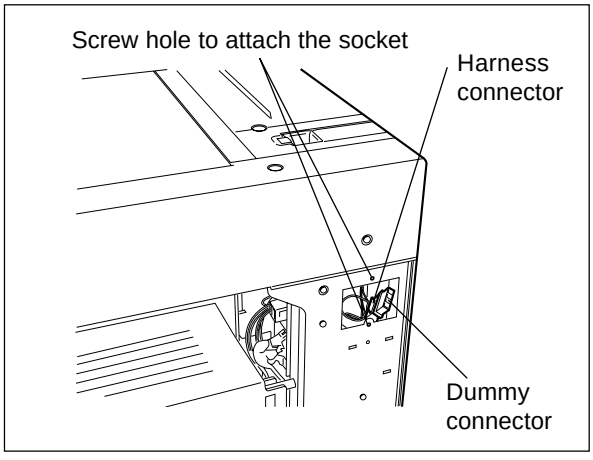
2.10 Key Copy Counter (MU-8, MU-10)

The following 2 parts are needed to install the key copy counter.

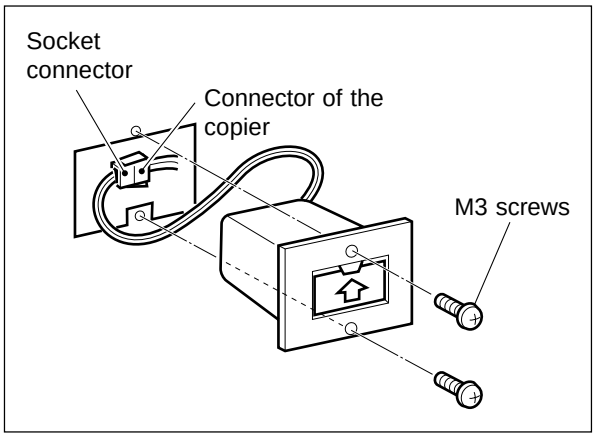


<Installation procedure>

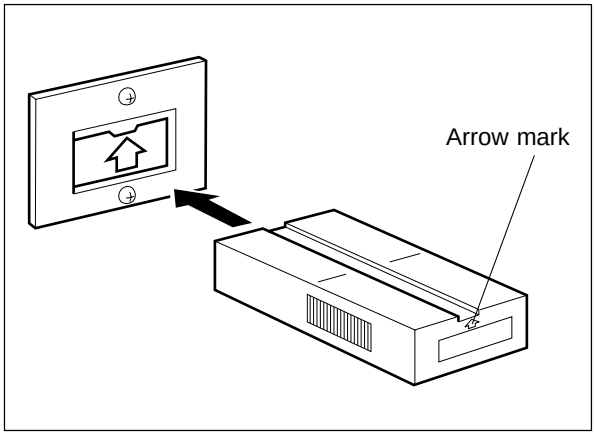
(1) Remove the rear side upper cover.
(2) Remove the feeding side upper cover, and cut out the cover for the key copy counter.
(3) Pull out the harness connector from the hole on the frame, and cut the shorted harness of the connector. (Treat the cut harness properly to avoid its being shorted on the machine frame). Disconnect the dummy connector.



(4) Connect the connector of the counter socket with the harness connector of the copier.
(5) Install the counter socket to the copier frame with two M3 screws.
(6) Attach the feed side upper cover and the rear side upper cover.



(7) Insert the key copy counter with its arrow mark facing up.



(8) Enter the value “3” for the code 202 in the setting mode (08).

3. PREVENTIVE MAINTENANCE (PM)

3.1 Maintenance Performed Every 150,000 (DP4500) and 120,000 Copies (DP3500)

(1) Preparation

a. Ask the user about the current machine conditions and note them down.

b. Before starting maintenance, make some sample copies and save them.

c. Turn OFF the power and be sure to unplug the copier.

(2) Perform preventive maintenance using the following checklist and the illustrations. Refer to the Service Manual if necessary.

(3) When the maintenance is finished, plug in the copier, turn ON the power and make some copies to confirm that the copier is working properly.

3.2 Maintenance Performed Every 450,000 (DP4500) and 360,000 Copies (DP3500)

(1) Replace all the supplies.

(2) Check the components in the drive section (gears, pulleys, timing belts, etc.). Replace them with new ones if they are damaged.

(3) Check all the adhesives such as tape and Mylars if they are damaged or have become unstuck. Replace them with new ones if necessary.

(4) Check the performance of all the switches and sensors. Replace them with new ones if necessary.

(5) Clean inside the copier thoroughly.

3.3 Cleaning the Units which Have Processed 75,000 Copies (DP4500)/60,000 Copies (DP3500)

Clean inside the machine as needed following the checklist.

3.4 Preventive Maintenance Checklist

Symbols used in the checklist

Cleaning	Lubrication	Replacement	Operation check	Date
A Clean with alcohol	L Launa 40	The number of sheets consumed before replacement (Value x 1,000)	○ After cleaning or replacement, confirm there is no problem.	User name
○ Clean with soft pad, cloth or vacuum cleaner	Coating			Serial No.
	SI Silicon oil			Inspector's name
	W White grease (Molycoat)			
	AV Alvania No.2	△ Replace if deformed or damaged		Remarks

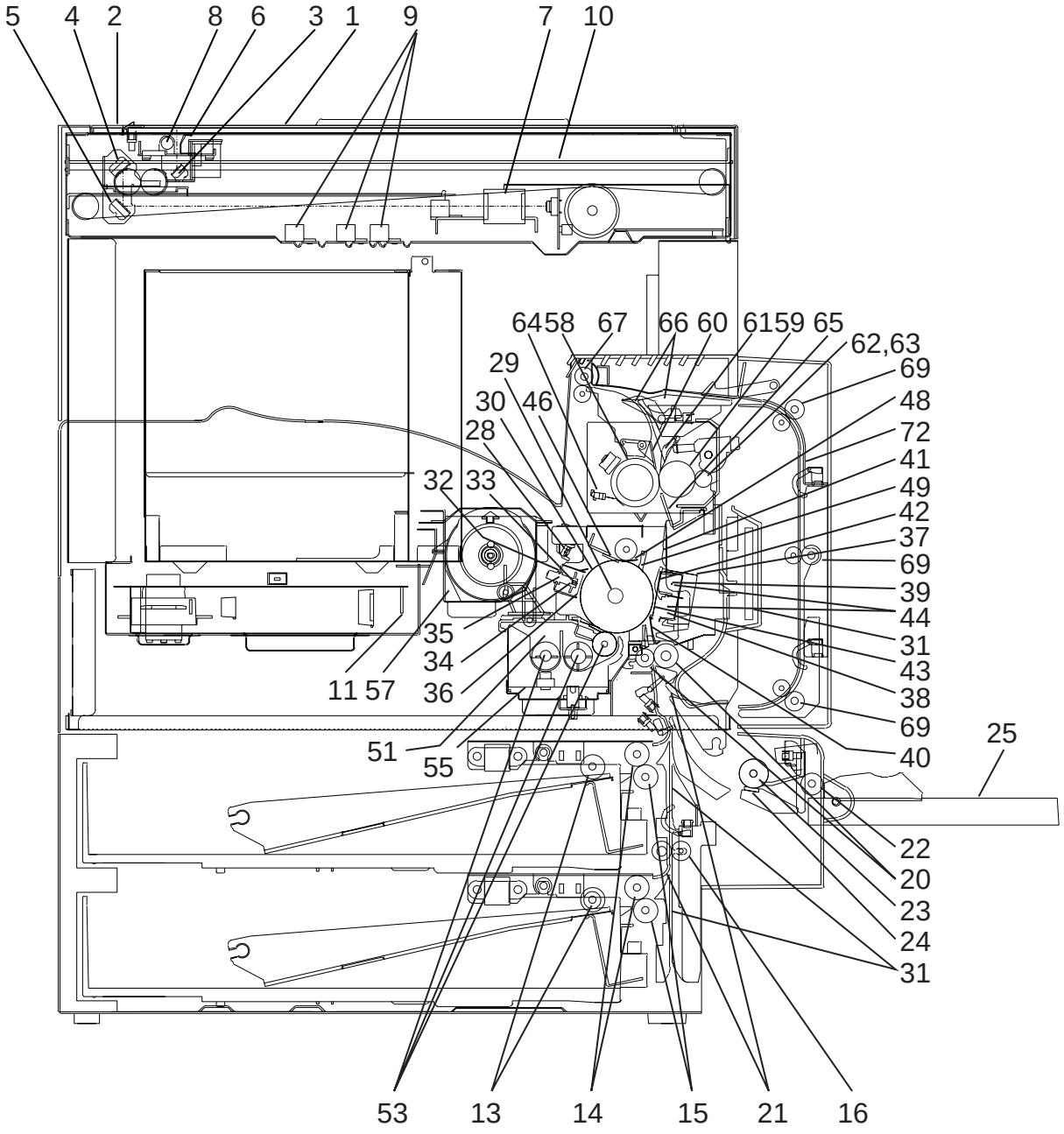
[Preventive Maintenance Checklist]

Notes: 1. Perform cleaning and apply lubrication every 150,000 copies for DP4500 and 120,000 copies for DP3500. Apply lubrication to the replacement parts according to the replacement cycle.
2. Values under “Replacement” indicate the replacement cycle for the DP4500/DP3500.
3. <P-I> under “Remarks” indicates page and item number in the Parts List.
4. The replacement cycle of the parts in the feeding section depends on the number of sheets fed from each paper source.
5. Do not put oil on the rollers, belts and belt pulleys.

Section	Items to check	Cleaning	Lubri-cation	Replace--ment (x1,000 sheets)	Operation check	Remarks <P-I>
Scanner	1. Original glass	○ or A				*1
	2. ADF original glass	○ or A				
	3. Mirror-1	○				
	4. Mirror-2	○				
	5. Mirror-3	○				
	6. Reflector	○				
	7. Lens	○				
	8. Exposure lamp			△	○	<P20-I2>
	9. Automatic original detection sensor	○			○	
	10. Slide sheet (front and rear)	○ or A		△		<P9 -I41,42>
Laser unit	11. Slit glass	○				
Drive system	12. Main motor drive unit gear		W			
Feeding section	13. Pickup roller (upper and lower)		W	80/80		*2 <P13-I20>
	14. Feed roller (upper and lower)		W	80/80		*2 <P13-I20>
	15. Separation roller (upper and lower)		AV	80/80		*3 <P13-I9>
	16. Transport roller	A		△		<P14-I7>
	17. Paper guide (all)	○				
	18. Drive gear (tooth face and shaft)		W			*4
	19. One side of the GCB bushing to which the shaft is inserted		L			
	20. Registration roller	A		△		<P18-I19>
	21. Paper guide	○		△		<P18 -I1,7,12>

Section	Items to check	Cleaning	Lubri-cation	Replace--ment (x1,000 sheets)	Operation check	Remarks <P-I>
Bypass feed unit	22. Pickup roller			80/80		<P17-I18>
	23. Feed roller			80/80		<P17-I14>
	24. Separation pad			80/80		<P16-I4>
	25. Bypass tray	○				
	26. Drive gear (tooth face and shaft)		W			
	27. One side of the GCB bushing to which the shaft is inserted		L			
Drum	28. Discharge lamp	○				
	29. Drum shaft	○				
	30. Photoconductive drum			150/120		*5 <P24-I31>
	31. Ozone filter			150/120		<P10-I16>
Main charger	32. Charger case	○				*6
	33. Charger wire			150/120 △	○	*6 <P22-I10>
	34. Contact point of terminals	○				
	35. Charger wire cleaner			△		<P22-I3>
	36. Grid			150/120 △		<P22-I15>
Transfer/ separation charger	37. Charger case	○				*7
	38. Transfer charger wire			150/120 △	○	*7 <P23-I6>
	39. Separation charger wire			150/120 △	○	*7 <P23-I6>
	40. Pre-transfer guide	○ or A				
	41. Post-transfer guide	○ or A				
	42. Separation supporter	○		△		<P23-I12>
	43. Terminal cover	○				
	44. Contact point of terminals	○				
Cleaner	45. Whole unit	○				
	46. Drum cleaning blade			150/120		*8 <P24-I4>
	47. Toner bag			8/8		Should be re-placed togeth-er with toner by operator <P27-I30>

Section	Items to check	Cleaning	Lubri-cation	Replace--ment (x1,000 sheets)	Operation check	Remarks <P-I>
Cleaner	48. Recovery blade	○		△		<P24-I18>
	49. Separation finger for drum			150/120 △	○	*9 <P24-I13>
Developer unit	50. Whole unit	○				
	51. Developer material			150/120		*10
	52. Front shield	○		△		<P25-I34>
	53. Oil seal (5pcs.)		AV	450/360		*11 <P25-I33>
	54. Guide roller	○ or A		△		<P25-I9>
	55. Developer unit lower stay	○				
	56. Toner cartridge drive gear shaft		W			
	57. Inside of the toner cartridge stay	○				
Fuser unit	58. Fuser roller			150/120		*12 <P29-I5>
	59. Pressure roller			150/120		*12 <P29-I1>
	60. Separation finger for fuser roller			150/120		*13 <P30-I13>
	61. Separation finger for pressure roller			△		<P29-I10>
	62. Pressure roller cleaning roller			150/120		*14 <P29-I8>
	63. One side of the cleaning roller to which the shaft is inserted		SI			
	64. Thermistor (2pcs.)	A		△		<P28-I10>
	65. Fuser unit entrance guide	A				
	66. Exit/reverse guide	A				
	67. Exit roller	A		△		<P30-I2>
	68. Drive gear		SI			
ADU	69. Transport roller (upper, middle and lower)	A		△		<P32 -I7,14>
	70. One side of the GCB bushing to which the shaft is inserted		L			
	71. One side of the plastic bushing to which the shaft is inserted		W			
	72. Paper guide	○				


5 4 2 8 6 3 1 9 7 10
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[Front side]

Remarks "*" in the Preventive Maintenance Check List

*1 Original glass

Clean both sides of the original glass.

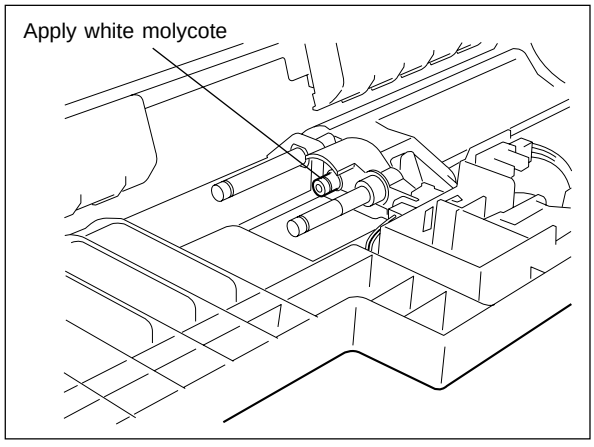
Note: Make sure that there is no fingerprints or oil staining on part of the original glass on where the original scale is mounted since the shading correction plate is located below the scale to be scanned.

*2 Pickup roller and feed roller

Apply white molycote of quantity like one grain of rice to the shaft of the idler gear (see the figure below) when the pickup roller and feed roller are replaced with new ones.

Notes: 1. Do not put the white molycote to the idler gear tooth and the other parts.

2. Do not put oil to the roller surface. In case that it was, wipe it off in the same manner of the cleaning with alcohol.

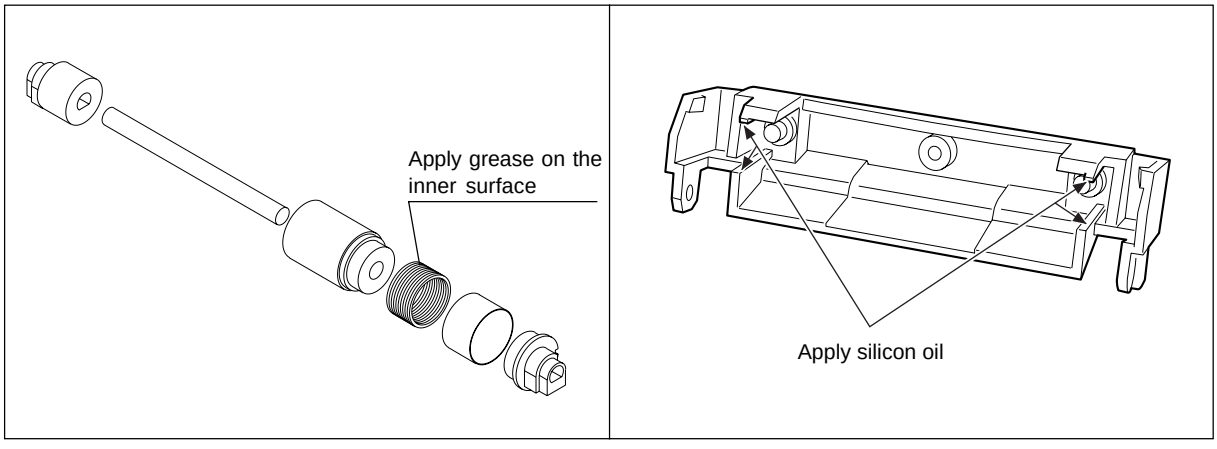


*3 Separation roller

Apply Alvania No.2 over the entire inner surface of the spring.

Put some silicon oil on a cloth and wipe parts of holder shown in the following figure with it when the separation roller is replaced with a new one.

Note: Do not put oil or grease on the roller surface. In case that they were, wipe them off in the same manner of the cleaning with alcohol.



*4 Drive gears in the paper feeding section (teeth face and shafts)

Apply some white molycote to the teeth faces and shafts of the drive gears.

Note: Make sure that oil is not running over or scattered around as the gear is rotated coming into the clutch after applying molycote to the gear which is located near the clutch. The quantity of molycote should be smaller than that to be applied to the other parts.

*5 Phtoconductive drum

Refer to "4.2 Checking and Cleaning of Photoconductive Drum".

*6 Main charger case/main charger wire

Clean the main charger case and wire with a cloth soaked in water and then squeezed tightly.

Note: Be careful of the following when attaching a new wire (length: 363mm).

- Insert the wire securely into the V-grooves of the front and rear sides.
- Do not twist the wire.
- Do not touch the wire with your bare hand.

*7 Transfer/separation charger case and transfer/separation charger wire

Clean the transfer/separation charger case and wire with a cloth soaked in water and then squeezed tightly.

Notes: 1. Do not deform the metal plate of the pre-transfer guide.

2. Be careful of the following when attaching a new wire (length: 353mm).
   - Insert the wire securely into the V-grooves of the front and rear sides.
   - Do not twist the wire.
   - Do not touch the wire with your bare hand.

*8 Drum cleaning blade

Since the edge of the blade is breakable and can be easily damaged by matters such as the adherence of paper dust. Replace the cleaning blade with a new one if poor images are copied due to the damaged blade regardless of the number of copies which have been made.

*9 Separation fingers for the drum

The paper jam may be caused if the tip of the separation finger is damaged or deformed. If there is any problem with it, replace the finger with a new one regardless of the number of copies which have been made.

If any mark which was made by the finger appears on the copied image, clean the tip of the finger.

Notes: 1. Wipe the tip of the finger lightly with a dry cloth trying not to deform it.
Do not leave the lint on the tip.

2. Apply patting power to the tip of the fingers and drum surface after replacing or cleaning them to reduce the load on the drum surface by the finger.

*10 Developer material

Be sure to perform the auto-toner adjustment after replacing the developer material.

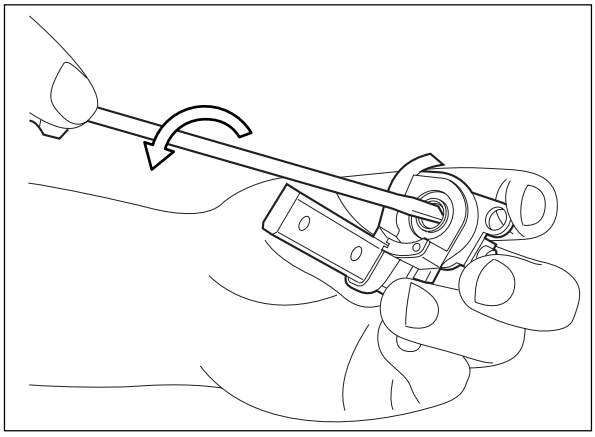
*11 Oil seal

Locations of the oil seals used in this developer unit (5 in total)

a. One at the rear side of the developer sleeve shaft
b. Two at both sides of the shaft of mixer-1
c. Two at both sides of the shaft of mixer-2

Procedure for replacement of the oil seal

1. Stick something thin like a screwdriver into the depression of the oil seal to take it out.

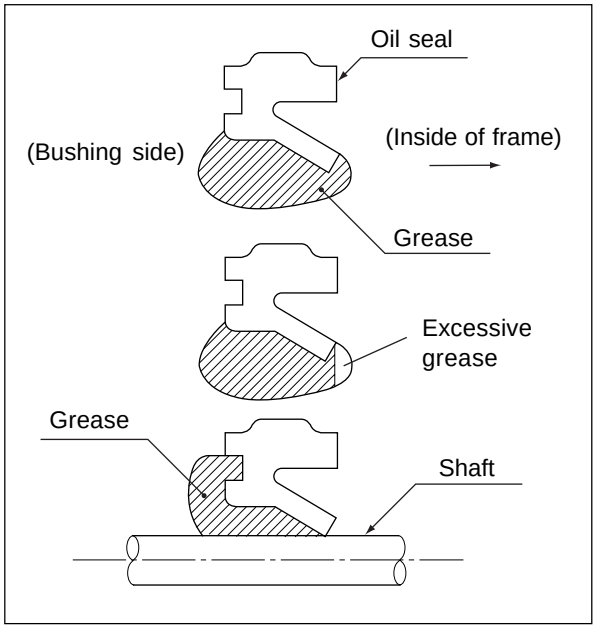


2. Push in the new oil seal in parallel with the frame of the developer unit or bushing of the mixer shaft paying attention to its direction.

3. Apply grease (Alvania No.2; quantity like one grain of rice) evenly over the entire surface of the oil seal. Assemble the mixer and developer sleeve.

Note: Wipe off excessive grease.

4. Apply grease (Alvania No.2; quantity like one or two grains of rice) on the entire surface of the shafts of the mixer and the developer sleeve evenly, and attach the bushings.



*12 Fuser roller and pressure roller

Refer to “4.5 Checking and Cleaning of Fuser Roller and Pressure Roller”.

*13 Separation fingers for fuser roller and pressure roller

The paper jam may be caused if the tip of the finger is damaged or deformed. If there is any problem with it, replace the finger with a new one regardless of the number of copies which have been made. Do not damage the tip of the finger during the cleaning. The finger may be damaged if the toner adhering to the tip of it is scraped off forcibly. Replace the finger if the toner is sticking to it heavily.

*14 Pressure roller cleaning roller

Refer to “4.4 Checking and Replacement of Pressure Roller Cleaning Roller”.

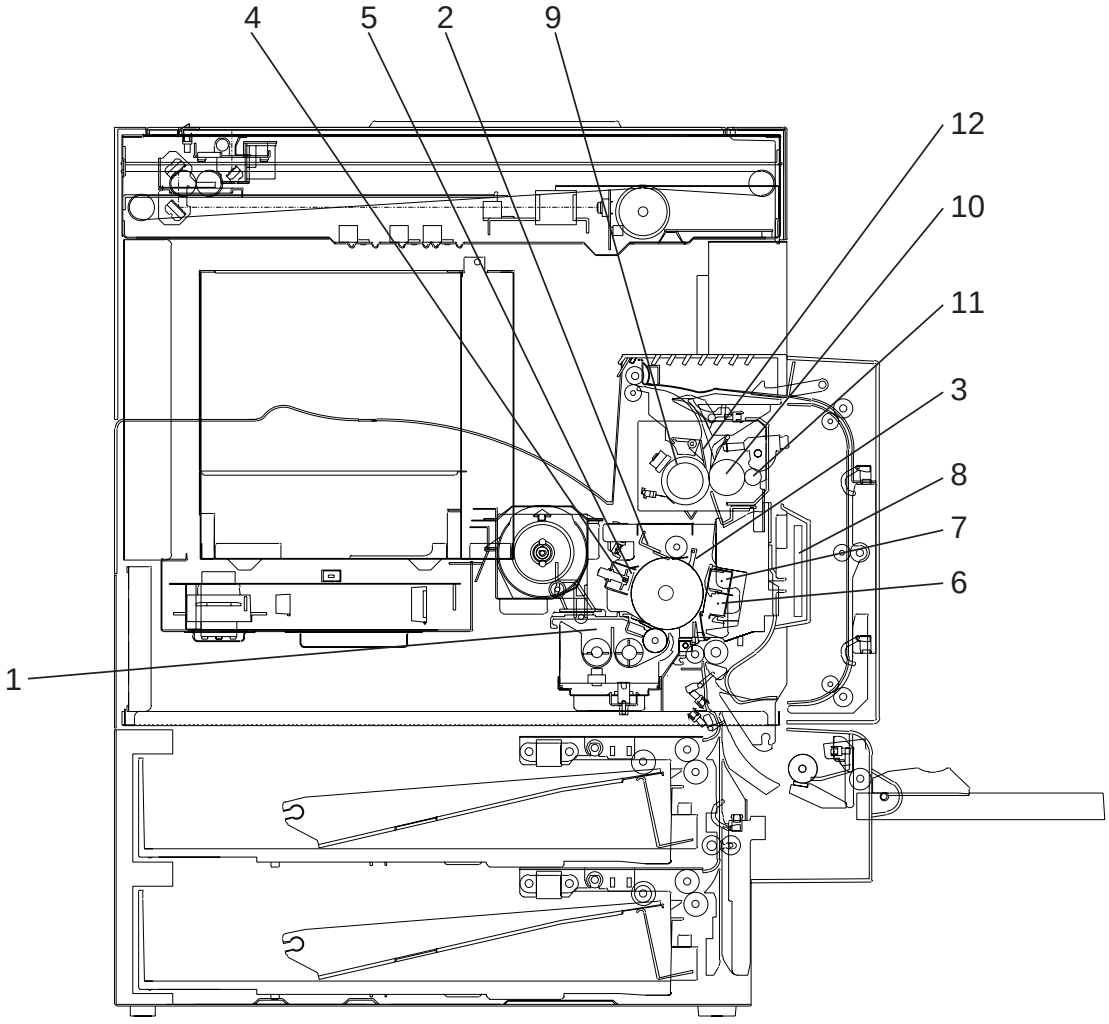
*15 Thermistor

Clean the thermistor with alcohol if the toner or dirt is sticking to it when the fuser roller is replaced. Do not deform or damage the thermistor during the cleaning. Replace the thermistor with a new one if it is damaged or deformed regardless of degree.

3.5 PM Kit

	Item	Part name	Qty.
1	Developer material	D-3500	1
2	Drum cleaning blade	BL-3500D	1
3	Separation finger for drum	SCRAPER-DRUM	3
4	Main charger wire	WIRE-CH-363	1
5	Main charger grid	GRID-220	1
6	Transfer charger wire	WIRE-CH-060*353	1
7	Separation charger wire	WIRE-CH-060*353	1
8	Ozone filter	FILTER-OZ-320	1
9	Fuser roller	HR-3500-U	1
10	Pressure roller	HR-3500-L	1
11	Pressure roller cleaning roller	SHAFT-CLN-P/R	1
12	Separation finger for fuser roller	SCRAPER-H/R	6

[Location of PM parts]



3.6 Jig List

Item	Parts list	
	Page	Item
Door switch jig	100	1
Doctor-sleeve jig	100	2
Brush	100	3
Current measuring jig	100	4
Wire holder jig	100	5
Downloading jig (DLM board)	100	6
Downloading jig (DLS board)	100	7
Blade releasing jig	100	8
Developer material nozzle	100	9

4. PRECAUTIONS FOR STORING/HANDLING SUPPLIES AND PARTS

4.1 Precautions for Storing TOSHIBA Supplies

A. Toner and Developer Material

Toner and developer material should be stored in a shaded place where the ambient temperature is between 10 to 35°C (no condensation), and should be also protected from direct sunlight during transportation.

B. Photoconductive Drum

Like the toner and developer material, the photoconductive drums should be stored in a dark place where the ambient temperature is between 10 to 35°C (no condensation). Keep the drum away from places where it may be exposed to high humidity, chemicals and/or chemical gases.

C. Drum Cleaning Blade

This blade should be stored horizontally on a flat place where the ambient temperature is between 10 to 35°C, and should be also protected from high humidity, chemicals and/or chemical gases.

D. Fuser Roller

Keep the fuser roller away from place where it may be subjected to high humidity, chemicals and/or chemical gases.

E. Cleaning Roller

Keep the cleaning roller away from place where it may be exposed to high humidity, chemicals and/or chemical gases.

F. Copy Paper

Do not store copy paper in place where it may be subjected to high humidity.

After a package is opened, be sure to store the paper in a storage bag.

4.2 Checking and Cleaning of Photoconductive Drum

(1) Use of gloves

Since fingerprints or oil stains on the drum surface affects the quality of the copy image and degrades the characteristics of the photoconductor, do not touch the drum surface with your bare hands.

(2) Handling precautions

As the drum surface is very sensitive, be sure to handle the drum carefully when installing or removing it so as not to damage its surface.

When the drum is replaced with a new one, apply patting powder (lubricant) on the entire surface of the new drum (including both edges to where the OPC is not coated) and separation finger of the cleaner before installing them. The drum counter must be cleared to 0 (zero) in the setting mode 08 – 401.

Note:

1. Application of the patting powder is to reduce friction among the drum, the cleaning blade and the separation finger. If this process is not performed, the drum and the cleaning blade may be damaged.
2. Remove any fibers or lint adhering to the blade since they can damage the drum and blade, or allows defective cleaning.

(3) Installation of the copier and storage of the drum

Do not install the copier in a place where it may be exposed to high temperature, high humidity, chemicals and/or chemical gas.

Do not leave the drum in a brightly lit place for a long time. Otherwise, it would be fatigued and causes background fogging on the copied image right after it is installed in the machine. However, this phenomenon will decrease as time elapses.

(4) Cleaning the drum

At the preventive maintenance, wipe the entire surface of the drum softly using the specified cleaning cotton (dry soft pad). Use sufficiently thick cleaning cotton so as not to touch the drum surface directly with your fingertips or nails. Remove your rings and wristwatch before cleaning so as not to damage the drum. Do not use organic solvents such as alcohol or silicone oil as they have a bad influence on the drum. Do not use selenium refresher either.

(5) Scratches on the photoconductive drum surface

If the surface is scratched and the aluminum base is exposed, black spots or streaks will appear on the copied images. Since those scratches can damage the cleaning blade, replace the drum with a new one.

(6) Used photoconductive drums

Dispose of the used drums following the regulations regarding industrial waste established by your local municipal office.

4.3 Checking and Cleaning of Drum Cleaning Blade

(1) Handling Precautions

Since the edge of the cleaning blade performs the cleaning operation, pay attention to the followings:

- Do not hit or rub the blade edge with anything hard.
- Do not rub the edge with a dry cloth or soft pad.
- Do not stain the edge with oil or fingerprints, etc.
- Do not put solvents such as paint thinner on the blade.
- Do not leave lint or dirt on the blade edge.
- Do not put the blade close to a heat source.

(2) Cleaning

Clean the blade edge softly with a cloth soaked in water and afterwards squeezed hard.

4.4 Checking and Replacement of Pressure Roller Cleaning Roller

(1) Handling Precautions

Do not put solvents such as paint thinner on the cleaning roller.

(2) Defective Cleaning and Corrective Action

Judge if there is defective cleaning by seeing the toner left on the pressure roller. If the toner is adhering to the roller heavily, cleaning has not performed sufficiently. In this case, replace the cleaning roller with new one.

The cleaning roller is gradually degraded due to being sujected to the heat from the fuser roller and toner adhesion. Replace it with new one after a certain amount of copies have been made.

4.5 Checking and Cleaning of Fuser Roller and Pressure Roller

(1) Handling Precautions

a. Fuser roller

- Do not put oil, fingerprints, etc. on the fuser roller.
- As a thin fluoroplastic coating is applied on the roller, defective cleaning can be caused by hitting or rubbing the roller surface with something hard.

b. Pressure roller

- Do not put oil, fingerprints, etc. on the pressure roller.

(2) Checking

- Check the fuser roller for staining and damage. Clean it if necessary.
- Clean the separation fingers and check if the tips are damaged.
- Check the cleaning effect of the cleaning roller.
- Check if the thermistor is in proper contact with the fuser roller.
- Check the fusing condition of the toner image.
- Check the gap between the entrance guide and the pressure roller.
- Check if the the fuser roller is rotated properly.

(3) Cleaning the fuser roller

Paper jam occurs when the fuser roller is dirty. Clean the roller surface with a cloth. It can be cleaned effectively while the roller is slightly warm.

Note:

Do not rub or try to scrape off the toner from the fuser roller using your nails or anything hard since the roller can be easily damaged. Do not apply silicone oil to the fuser roller.

5. TROUBLESHOOTING

5.1 Diagnosis and Prescription for Each Error Code

5.1.1 Paper transport jam

[E01] Leading edge of paper not reaching the exit sensor

[E02] Trailing edge of paper not passing the exit sensor

Open the jam access cover. Is there any paper on the transport path?

YES → Remove the paper.

NO ↓

Is the exit sensor working? (Perform the input check in the test mode: 03-[FAX]ON/[2]/[B])

NO →
1. Check if the connector of the exit sensor is disconnected.
2. Check if the connector J315 on the LGC board is disconnected.
3. Check if the connector pins are disconnected and the harnesses are open-circuited.
4. Check if the conductor pattern on the LGC board is short- or open-circuited.
5. Replace the exit sensor.
6. Replace the LGC board.

YES ↓

Is the registration clutch working? (Perform the output check in the test mode: 03-108/158)

NO →
1. Check if the connector of the registration clutch is disconnected.
2. Check if the connector J313 on the LGC board is disconnected.
3. Check if the connector pins are disconnected and the harnesses are open-circuited.
4. Check if the conductor pattern on the LGC board is short- or open-circuited.
5. Replace the registration clutch.
6. Replace the LGC board.

YES ↓

Check the registration roller. Replace it if it is worn out.

[E03] Paper remaining inside the copier at power ON

Open the cover of the unit/area whose picture is flashing on the control panel. Is there any paper on the transport path? (Refer to the following table)

YES → Remove the paper.

NO ↓

Is the sensor in the jamming area working? (Perform the input check in the test mode: refer to the following table.)

NO →
1. Check if the connector of the sensor is disconnected.
2. Check if any of the connectors on the LGC board is disconnected.
3. Check if the connector pins are disconnected and the harnesses are open-circuited.
4. Check if the conductor pattern on the LGC board is short- or open-circuited.
5. Replace the sensor.
6. Replace the LGC board.

YES ↓

Replace the LGC board.

Relation between the jamming area and the corresponding sensors/covers

(If a jam is occuring in the ADU, LCF or PFP, check the board in each unit.)

Jamming area	Cover	Sensor	Test mode/Input check
Registration area	Jam access cover	Registration sensor	03-[FAX]ON/[2]/[A]
		Upper feed sensor	03-[FAX]OFF/[6]/[E]
Exit area	Jam access cover	Exit sensor	03-[FAX]ON/[2]/[B]
ADU	ADU	ADU entrance sensor	03-[FAX]OFF/[1]/[H]
		ADU exit sensor	03-[FAX]OFF/[1]/[G]
Feeding area (main unit)	Side cover	Lower feed sensor	03-[FAX]OFF/[7]/[E]
LCF	LCF side cover	LCF feed sensor	03-[FAX]OFF/[5]/[G]
PFP	PFP side cover	PFP upper feed sensor	03-[FAX]OFF/[2]/[D]
		PFP lower feed sensor	03-[FAX]OFF/[4]/[D]
Relay unit	Relay unit	Relay unit transport sensor-1	03-[FAX]ON/[4]/[H]
		Relay unit transport sensor-2	03-[FAX]ON/[3]/[E]

[E09] HDD is abnormal

(1) Check if the connectors of the HDD are disconnected.

(2) Check if the connector pins are disconnected and the harnesses are open-circuited.

(3) Replace the HDD.

(4) Replace the SYS board.

[E20] Paper fed from the upper cassette not reaching the registration sensor

Open the jam access cover. Is there any paper in front of the registration sensor?

YES → Remove the paper.

NO ↓

Is the registration sensor working? (Perform the input check in the test mode: 03-[FAX]ON/[2]/[A])

NO →
1. Check if the connector of the registration sensor is disconnected.
2. Check if the connector J313 on the LGC board is disconnected.
3. Check if the connector pins are disconnected and the harnesses are open-circuited.
4. Check if the conductor pattern on the LGC board is short- or open-circuited.
5. Replace the registration sensor.
6. Replace the LGC board.

YES ↓

Is the upper cassette feed clutch working?
(Perform the output check in the test mode: 03-201)

NO →
1. Check if the connector of the upper cassette feed clutch is disconnected.
2. Check if the connector J310 on the LGC board is disconnected.
3. Check if the connector pins are disconnected and the harnesses are open-circuited.
4. Check if the conductor pattern on the LGC board for short- or open-circuited.
5. Replace the upper cassette feed clutch.
6. Replace the LGC board.

YES ↓

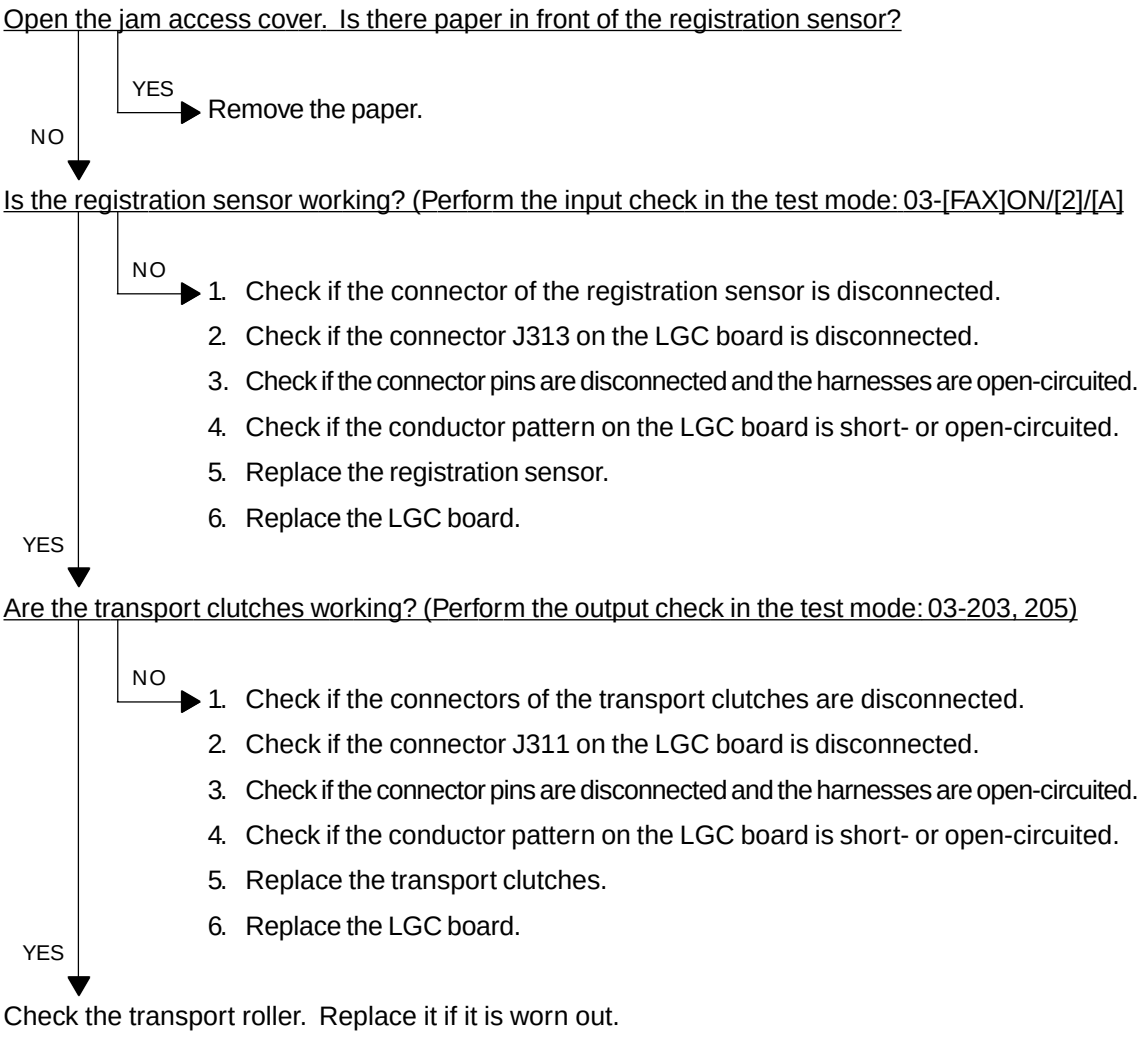
Check the upper cassette feed roller and separation roller. Replace them if they are worn out.

[E21] Paper fed from the lower cassette not reaching the registration sensor

[E30] Paper fed from the PFP upper cassette not reaching the registration sensor

[E33] Paper fed from the PFP lower cassette not reaching the registration sensor

[E3C] Paper fed from the LCF not reaching the registration sensor

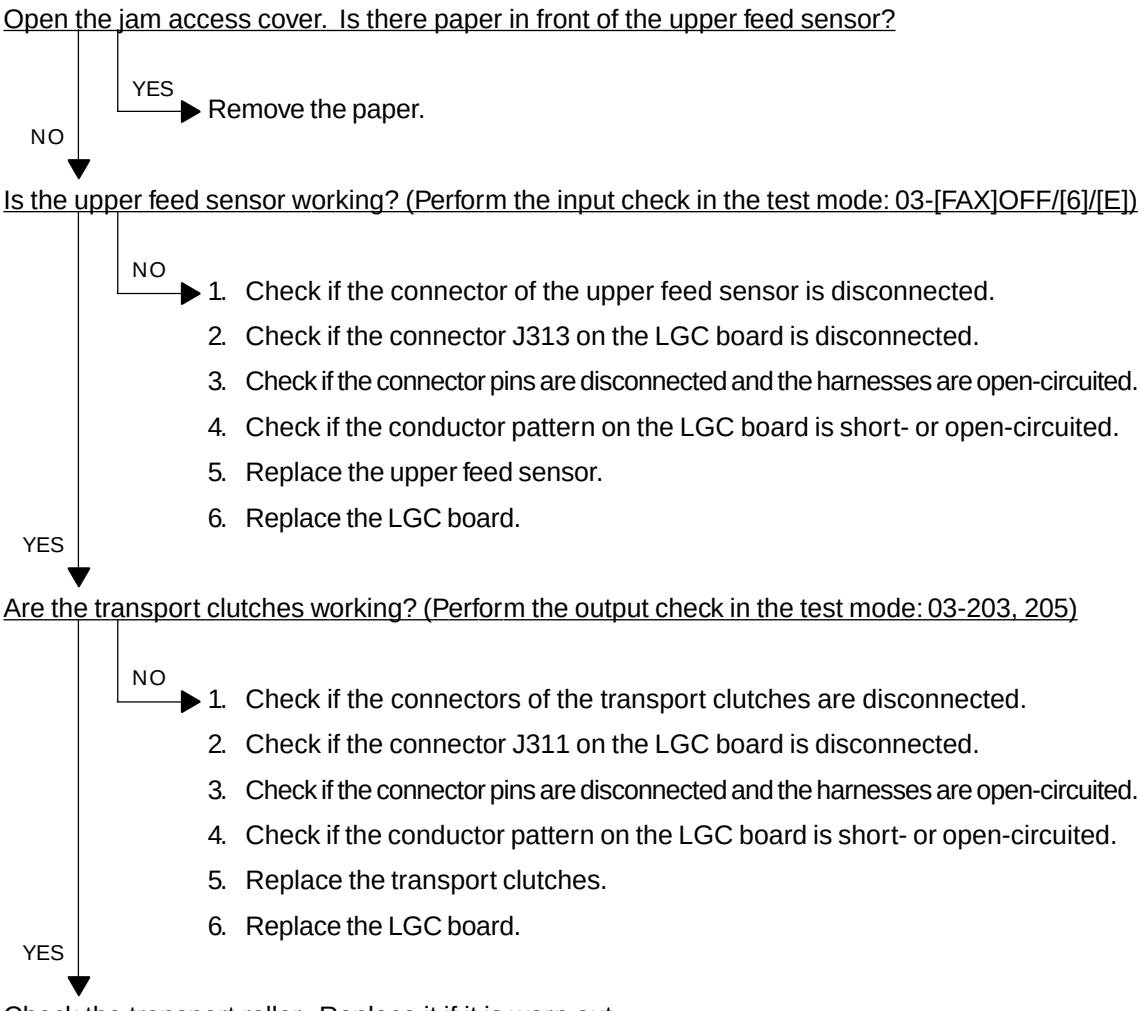


[E22] Paper fed from the lower cassette not reaching the upper feed sensor

[E31] Paper fed from the PFP upper cassette not reaching the upper feed sensor

[E34] Paper fed from the PFP lower cassette not reaching the upper feed sensor

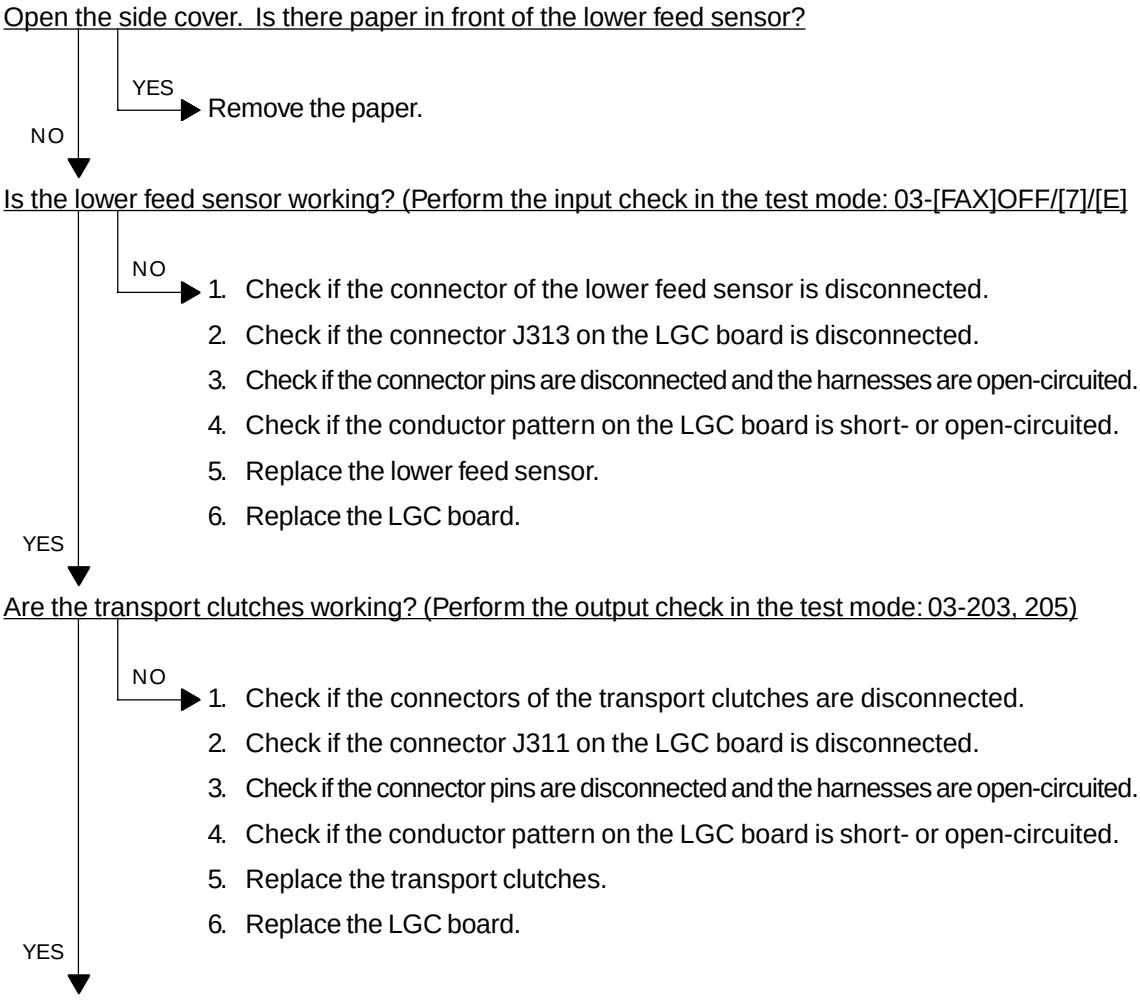
[E3D] Paper fed from the LCF not reaching the upper feed sensor



[E32] Paper fed from the PFP upper cassette not reaching the lower feed sensor

[E35] Paper fed from the PFP lower cassette not reaching the lower feed sensor

[E3E] Paper fed from the LCF not reaching the lower feed sensor



[E36] Paper fed from the PFP lower cassette not reaching the PFP upper feed sensor

Open the PFP side cover. Is there any paper in front of the PFP upper feed sensor?

YES → Remove the paper.

NO ↓

Is the PFP upper feed sensor working?
(Perform the input check in the test mode: 03-[FAX]OFF/[2]/[D]

NO →
1. Check if the connector of the PFP upper feed sensor is disconnected.
2. Check if either of the connectors CN241 or CN243 on the PFP board is disconnected.
3. Check if the connector J312 on the LGC board is disconnected.
4. Check if the connector pins are disconnected and the harnesses are open-circuited.
5. Check if the conductor patterns on the PFP board and LGC board are short- or open-circuited.
6. Replace the PFP upper feed sensor.
7. Replace the PFP board.
8. Replace the LGC board.

YES ↓

Is the PFP transport clutch working? (Perform the output check in the test mode: 03-225)

NO →
1. Check if the connector of the PFP transport clutch is disconnected.
2. Check if any of the connectors CN241, CN242 and CN244 on the PFP board is disconnected.
3. Check if the connector J312 on the LGC board is disconnected.
4. Check if the connector pins are disconnected and the harnesses are open-circuited.
5. Check if the conductor patterns on the PFP board and LGC board are short- or open-circuited.
6. Replace the PFP transport clutch.
7. Replace the PFP board.
8. Replace the LGC board.

YES ↓

Check the PFP transport roller. Replace it if it is worn out.

[EB5] Paper left on the transport path due to multiple feeding

In case an paper is fed from the upper cassette, bypass feed unit or ADU,

Open the jam access cover. Is there any paper in front of the registration sensor?

YES → Remove the paper.

NO

Is the registration sensor working? (Perform the input check in the test mode: 03-[FAX]ON/[2]/[A])

NO →
1. Check if the connector of the registration sensor is disconnected.
2. Check if the connector J313 on the LGC board is disconnected.
3. Check if the connector pins are disconnected and the harnesses are open-circuited.
4. Check if the conductor pattern on the LGC board is short- or open-circuited.
5. Replace the registration sensor.
6. Replace the LGC board.

YES

Check the rollers. Replace them if they are worn out.

In case an paper is fed from the lower cassette, PFP or LCF:

Open the jam access cover. Is there any paper in front of the upper feed sensor?

YES → Remove the paper.

NO

Is the upper feed sensor working? (Perform the input check in the test mode: 03-[FAX]OFF/[6]/[E])

NO →
1. Check if the connector of the upper feed sensor is disconnected.
2. Check if the connector J313 on the LGC board is disconnected.
3. Check if the connector pins are disconnected and the harnesses are open-circuited.
4. Check if the conductor pattern on the LGC board is short- or open-circuited.
5. Replace the upper feed sensor.
6. Replace the LGC board.

YES

Check the rollers. Replace them if they are worn out.

[EB6] Paper left on the transport path due to multiple feeding

Open the jam access cover. Is there any paper in front of the registration sensor?

YES → Remove the paper.

NO ↓

Is the registration sensor working? (Perform the input check in the test mode: 03-[FAX]ON/[2]/[A])

NO →

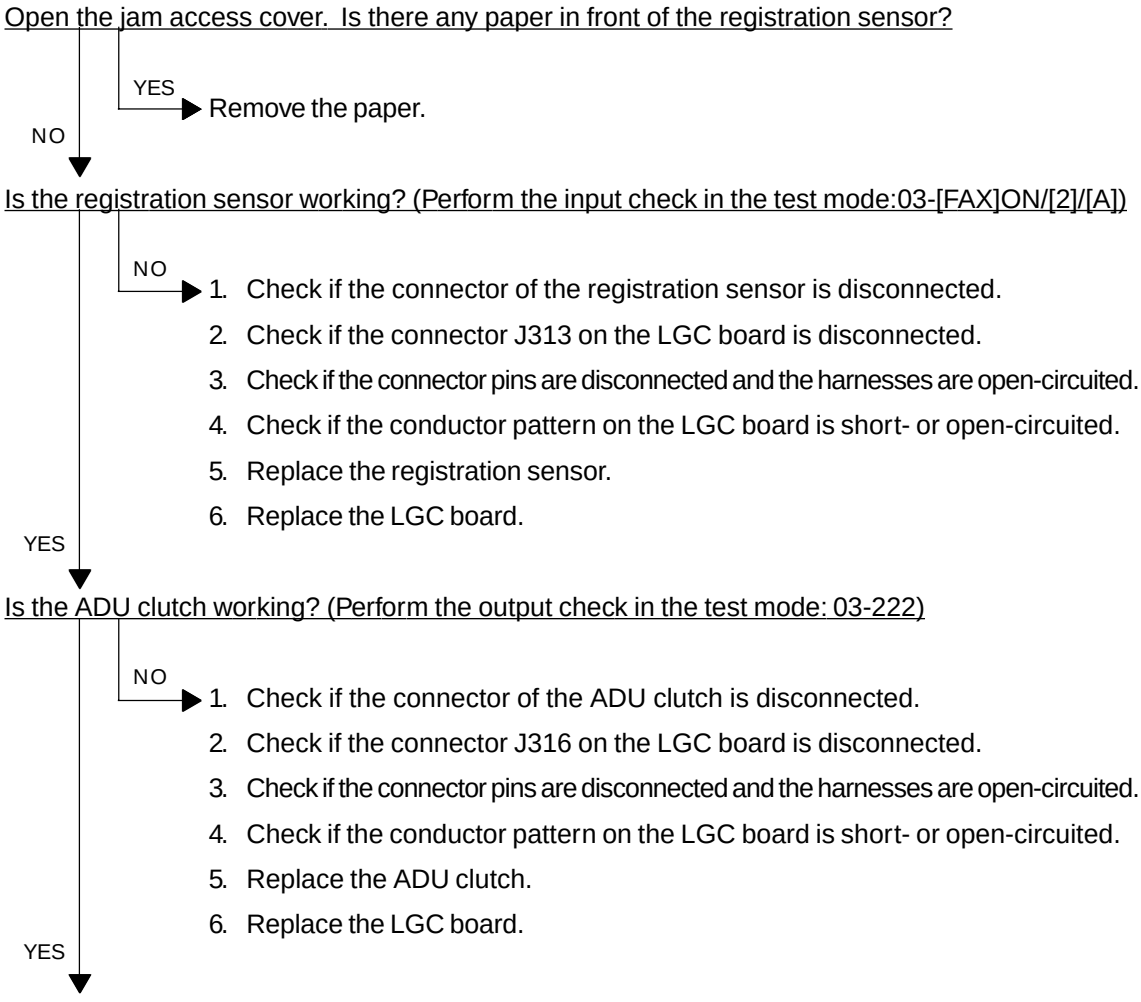
1. Check if the connector of the registration sensor is disconnected.
2. Check if the connector J313 on the LGC board is disconnected.
3. Check if the connector pins are disconnected and the harnesses are open-circuited.
4. Check if the conductor pattern on the LGC board is short- or open-circuited.
5. Replace the registration sensor.
6. Replace the LGC board.

YES ↓

Check the rollers. Replace them if they are worn out.

5.1.2 Paper misfeeding

[E11] ADU misfeeding (paper not reaching the registration sensor)



[E12] Bypass misfeeding (paper not reaching the registration sensor)

Open the jam access cover. Is there any paper in front of the registration sensor?

YES → Remove the paper.

NO ↓

Is the registration sensor working? (Perform the input check in the test mode: 03-[FAX]ON/[2]/[A])

NO →
1. Check if the connector of the registration sensor is disconnected.
2. Check if the connector J313 on the LGC board is disconnected.
3. Check if the connector pins are disconnected and the harnesses are open-circuited.
4. Check if the conductor pattern on the LGC board is short- or open-circuited.
5. Replace the registration sensor.
6. Replace the LGC board.

YES ↓

Is the bypass feed clutch working? (Perform the output check in the test mode: 03-204)

NO →
1. Check if the connector of the bypass feed clutch is disconnected.
2. Check if the connector J316 on the LGC board is disconnected.
3. Check if the connector pins are disconnected and the harnesses are open-circuited.
4. Check if the conductor pattern on the LGC board is short- or open-circuited.
5. Replace the bypass feed clutch.
6. Replace the LGC board.

YES ↓

Check the bypass feed roller and separation pad. Replace them if they are worn out.

[E13] Upper cassette misfeeding (paper not reaching the upper feed sensor)

Open the jam access cover. Is there any paper in front of the upper feed sensor?

YES → Remove the paper.

NO ↓

Is the upper feed sensor working? (Perform the input check in the test mode: 03-[FAX]OFF/[6]/[E])

NO →
1. Check if the connector of the upper feed sensor is disconnected.
2. Check if the connector J313 on the LGC board is disconencted.
3. Check if the connector pins are disconnected and the harnesses are open-circuited.
4. Check if the conductor pattern on the LGC board is short- or open-circuited.
5. Replace the upper feed sensor.
6. Replace the LGC board.

YES ↓

Is the upper cassette feed clutch working?
(Perform the output check in the test mode: 03-201)

NO →
1. Check if the connector of the upper cassette feed clutch is disconnected.
2. Check if the connector J310 on the LGC board is disconnected.
3. Check if the connector pins are disconnected and the harnesses are open-circuited.
4. Check if the conductor pattern on the LGC board is short- or open-circuited.
5. Replace the upper cassette feed clutch.
6. Replace the LGC board.

YES ↓

Check the upper cassette feed roller and separation roller. Replace them if they are worn out.

[E14] Lower cassette misfeeding (paper not reaching the lower feed sensor)

Open the side cover. Is there any paper in front of the lower feed sensor?

YES → Remove the paper.

NO ↓

Is the lower feed sensor working? (Perform the input check in the test mode: 03-[FAX]OFF/[7]/[E])

NO →
1. Check if the connector of the lower feed sensor is disconnected.
2. Check if the connector J313 on the LGC board is disconnected.
3. Check if the connector pins are disconnected and the harnesses are open-circuited.
4. Check if the conductor pattern on the LGC board is short- or open-circuited.
5. Replace the lower feed sensor.
6. Replace the LGC board.

YES ↓

Is the lower cassette feed clutch working?
(Perform the output check in the test mode: 03-202)

NO →
1. Check if the connector of the lower cassette feed clutch is disconnected.
2. Check if the connector J310 on the LGC board is disconnected.
3. Check if the connector pins are disconnected and the harnesses are open-circuited.
4. Check if the conductor pattern on the LGC board is short- or open-circuited.
5. Replace the lower cassette feed clutch.
6. Replace the LGC board.

YES ↓

Check the lower cassette feed roller and separation roller. Replace them if they are worn out.

[E15] PFP upper cassette misfeeding (paper not reaching the PFP upper feed sensor)

Open the PFP side cover. Is there any paper in front of the PFP upper feed sensor?

YES → Remove the paper.

NO ↓

Is the PFP upper feed sensor working?
(Perform the input check in the test mode: 03-[FAX]OFF/[2]/[D])

NO →
1. Check if the connector of the PFP upper feed sensor is disconnected.
2. Check if either of the connectors CN241 or CN243 on the PFP board is disconnected.
3. Check if the connector J312 on the LGC board is disconnected.
4. Check if the connector pins are disconnected and the harnesses are open-circuited.
5. Check if the conductor patterns on the PFP board and LGC board are short- or open-circuited.
6. Replace the PFP upper feed sensor.
7. Replace the PFP board.
8. Replace the LGC board.

YES ↓

Is the PFP upper cassette feed clutch working? (Perform the output check in the test mode: 03-226)

NO →
1. Check if the connector of the PFP upper cassette feed clutch is disconnected.
2. Check if any of the connectors CN241, CN242 and CN244 on the PFP board is disconnected.
3. Check if the connector J312 on the LGC board is disconnected.
4. Check if the connector pins are disconnected and the harnesses are open-circuited.
5. Check if the conductor patterns on the PFP board and LGC board are short- or open-circuited.
6. Replace the PFP upper cassette feed clutch.
7. Replace the PFP board.
8. Replace the LGC board.

YES ↓

Check the PFP upper cassette feed roller and separation roller. Replace them if they are worn out.

[E16] PFP lower cassette misfeeding (paper not reaching the PFP lower feed sensor)

Open the PFP side cover. Is there any paper in front of the PFP lower feed sensor?

YES → Remove the paper.

NO ↓

Is the PFP lower feed sensor working?

(Perform the input check in the test mode: 03-[FAX]OFF/[4]/[D])

NO →

1. Check if the connector of the PFP upper feed sensor is disconnected.
2. Check if either of the connectors CN241 or CN243 on the PFP board is disconnected.
3. Check if the connector J312 on the LGC board is disconnected.
4. Check if the connector pins are disconnected and the harnesses are open-circuited.
5. Check if the conductor patterns on the PFP board and LGC board are short- or open-circuited.
6. Replace the PFP lower feed sensor.
7. Replace the PFP board.
8. Replace the LGC board.

YES ↓

Is the PFP lower cassette feed clutch working?

(Perform the output check in the test mode: 03-228)

NO →

1. Check if the connector of the PFP lower cassette feed clutch is disconnected.
2. Check if any of the connectors CN241, CN242 and CN244 on the PFP board is disconnected.
3. Check if the connector J312 on the LGC board is disconnected.
4. Check if the connector pins are disconnected and the harnesses are open-circuited.
5. Check if the conductor patterns on the PFP board and LGC board are short- or open-circuited.
6. Replace the PFP lower cassette feed clutch.
7. Replace the PFP board.
8. Replace the LGC board.

YES ↓

Check the PFP lower cassette feed roller and separation roller. Replace them if they are worn out.

[E19] LCF misfeeding (paper not reaching the LCF feed sensor)

Open the LCF side cover. Is there any paper in front of the LCF feed sensor?

YES → Remove the paper.

NO ↓

Is the LCF feed sensor working? (Perform the input check in the test mode: 03-[FAX]OFF/[5]/[G])

NO →
1. Check if the connector of the LCF feed sensor is disconnected.
2. Check if either of the connectors CN100 or CN104 on the LCF board is disconnected.
3. Check if the connector J312 on the LGC board is disconnected.
4. Check if the connector pins are disconnected and the harnesses are open-circuited.
5. Check if the conductor patterns on the LCF board and LGC board are short- or open-circuited.
6. Replace the LCF feed sensor.
7. Replace the LCF board.
8. Replace the LGC board.

YES ↓

Is the LCF feed clutch working? (Perform the output check in the test mode: 03-209)

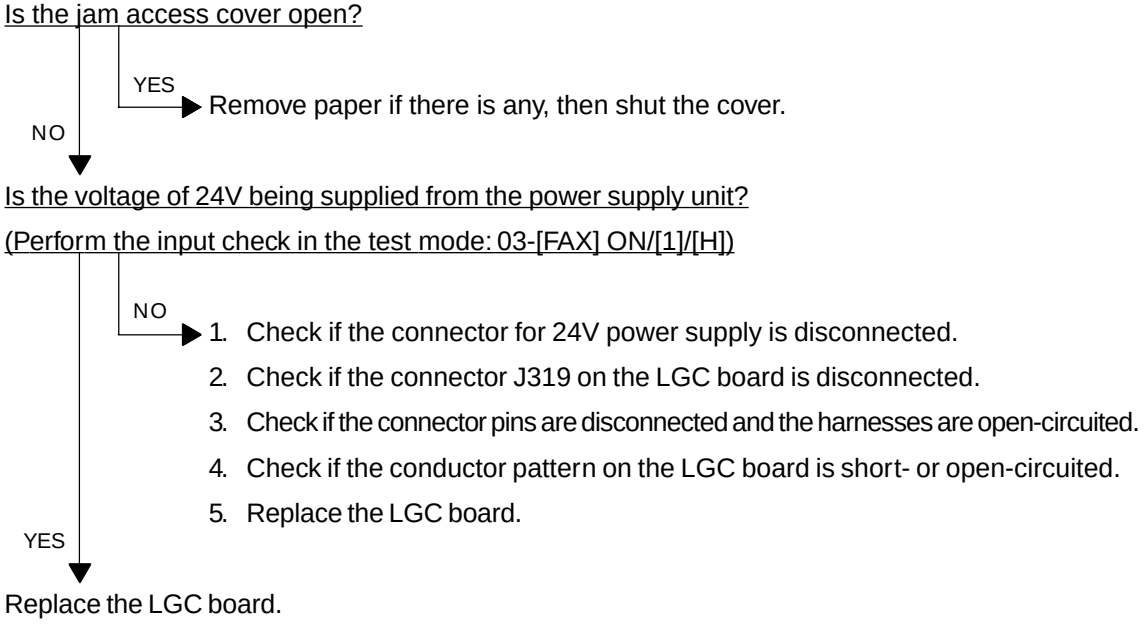
NO →
1. Check if the connector of the LCF feed clutch is disconnected.
2. Check if any of the connectors CN100, CN101 and CN103 on the LCF board is disconnected.
3. Check if the connector J312 on the LGC board is disconnected.
4. Check if the connector pins are disconnected and the harnesses are open-circuited.
5. Check if the conductor patterns on the LCF board and LGC board are short- or open-circuited.
6. Replace the LCF feed clutch.
7. Replace the LCF board.
8. Replace the LGC board.

YES ↓

Check the LCF feed roller and separation roller. Replace them if they are worn out.

5.1.3 Cover open jam

[E40] Jam access cover opened during printing



[E41] Front cover opened during printing

Is the front cover open?

YES → Shut the cover.

NO ↓

Is the voltage of 24V being supplied from the power supply unit?
(Perform the input check in the test mode: 03-[FAX] ON/[1]/[H])

NO →
1. Check if the connector for 24V power supply is disconnected.
2. Check if the connector J319 on the LGC board is disconnected.
3. Check if the connector pins are disconnected and the harnesses are open-circuited.
4. Check if the conductor pattern on the LGC board is short- or open-circuited.
5. Replace the LGC board.

YES ↓

Is the front cover opening/closing switch working?
(Perform the input check in the test mode: 03-[FAX]ON/[2]/[D]

NO →
1. Check if the connector of the front cover opening/closing switch is disconnected.
2. Check if the connector J305 on the LGC board is disconnected.
3. Check if the connector pins are disconnected and the harnesses are open-circuited.
4. Check if the conductor pattern on the LGC board is short- or open-circuited.
5. Replace the front cover opening/closing switch.
6. Replace the LGC board.

YES ↓

Replace the LGC board.

[E42] PFP side cover opened during printing

Is the PFP side cover open?

YES → Remove the paper if there is any, then shut the cover.

NO ↓

Is the PFP side cover opening/closing switch working? (Perform the input check in the test mode: 03-[FAX]OFF/[2]/[F])

NO →

1. Check if the connector of the PFP side cover opening/closing switch is disconnected.
2. Check if either of the connectors CN241 or CN243 on the PFP board is disconnected.
3. Check if the connector J312 on the LGC board is disconnected.
4. Check if the connector pins are disconnected and the harnesses are open-circuited.
5. Check if the conductor patterns on the PFP board and LGC board are short- or open-circuited.
6. Replace the PFP side cover opening/closing switch.
7. Replace the PFP board.
8. Replace the LGC board.

YES ↓

1. Replace the PFP board.
2. Replace the LGC board.

[E43] ADU opened during printing

Is the ADU open?

YES → Remove the paper if there is any, then shut the ADU.

NO ↓

Is the ADU opening/closing switch working? (Perform the input check in the test mode: 03-[FAX]OFF/[1]/[F])

NO →
1. Check if the connector of the ADU opening/closing switch is disconnected.
2. Check if either of the connectors CN211 or CN217 on the ADU board is disconnected.
3. Check if the connector J316 on the LGC board is disconnected.
4. Check if the connector pins are disconnected and the harnesses are open-circuited.
5. Check if the conductor patterns on the ADU board and LGC board are short- or open-circuited.
6. Replace the ADU opening/closing switch.
7. Replace the ADU board.
8. Replace the LGC board.

YES ↓

1. Replace the ADU board.
2. Replace the LGC board.

[E44] Side cover opened during printing

Is the side cover open?

YES → Remove the paper if there is any, then shut the cover.

NO ↓

Is the side door switch working?
(Perform the input check in the test mode: 03-[FAX]ON/[2]/[G])

NO →
1. Check if the connector of the side door switch is disconnected.
2. Check if the connector J313 on the LGC board is disconnected.
3. Check if the connector pins are disconnected and the harnesses are open-circuited.
4. Check if the conductor pattern on the LGC board is short- or open-circuited.
5. Replace the side door switch.
6. Replace the LGC board.

YES ↓

Replace the LGC board.

[E45] LCF side cover opened during printing

Is the LCF side cover open?

YES → Remove the paper if there is any, then shut the cover.

NO ↓

Is the LCF side cover opening/closing switch working?

(Perform the input check in the test mode: 03-[FAX]OFF/[5]/[D])

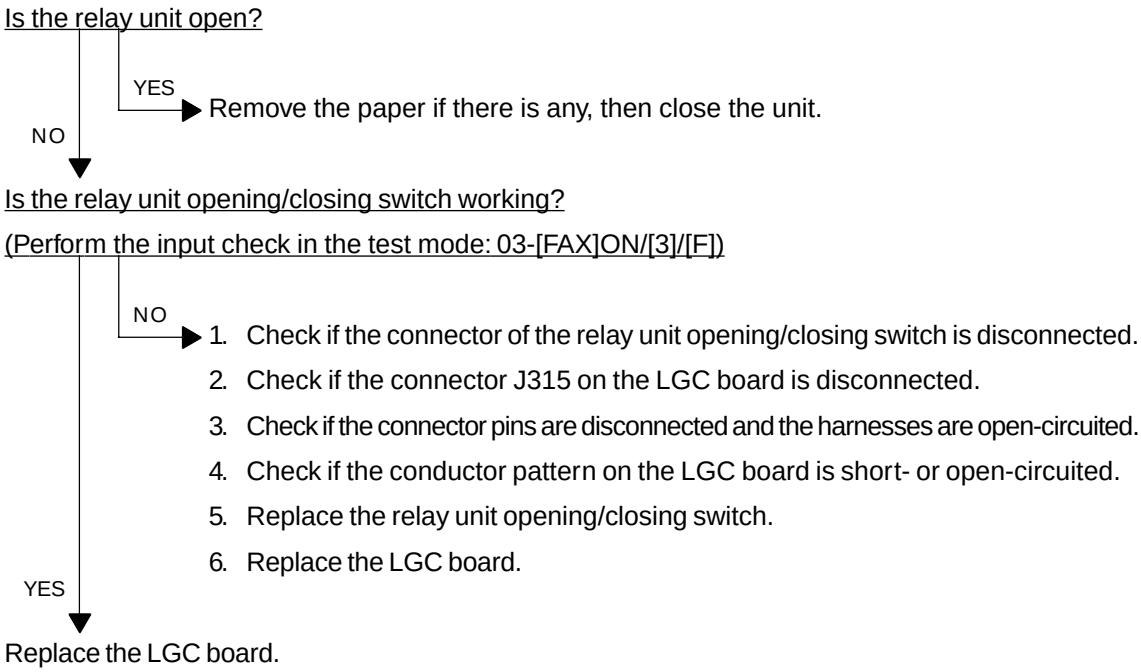
NO →

1. Check if the connector of the LCF side cover opening/closing switch is disconnected.
2. Check if either of the connectors CN100 or CN106 on the LCF board is disconnected.
3. Check if the connector J312 on the LGC board is disconnected.
4. Check if the connector pins are disconnected and the harnesses are open-circuited.
5. Check if the conductor patterns on the LCF board and LGC board are short- or open-circuited.
6. Replace the LCF side cover opening/closing switch.
7. Replace the LCF board.
8. Replace the LGC board.

YES ↓

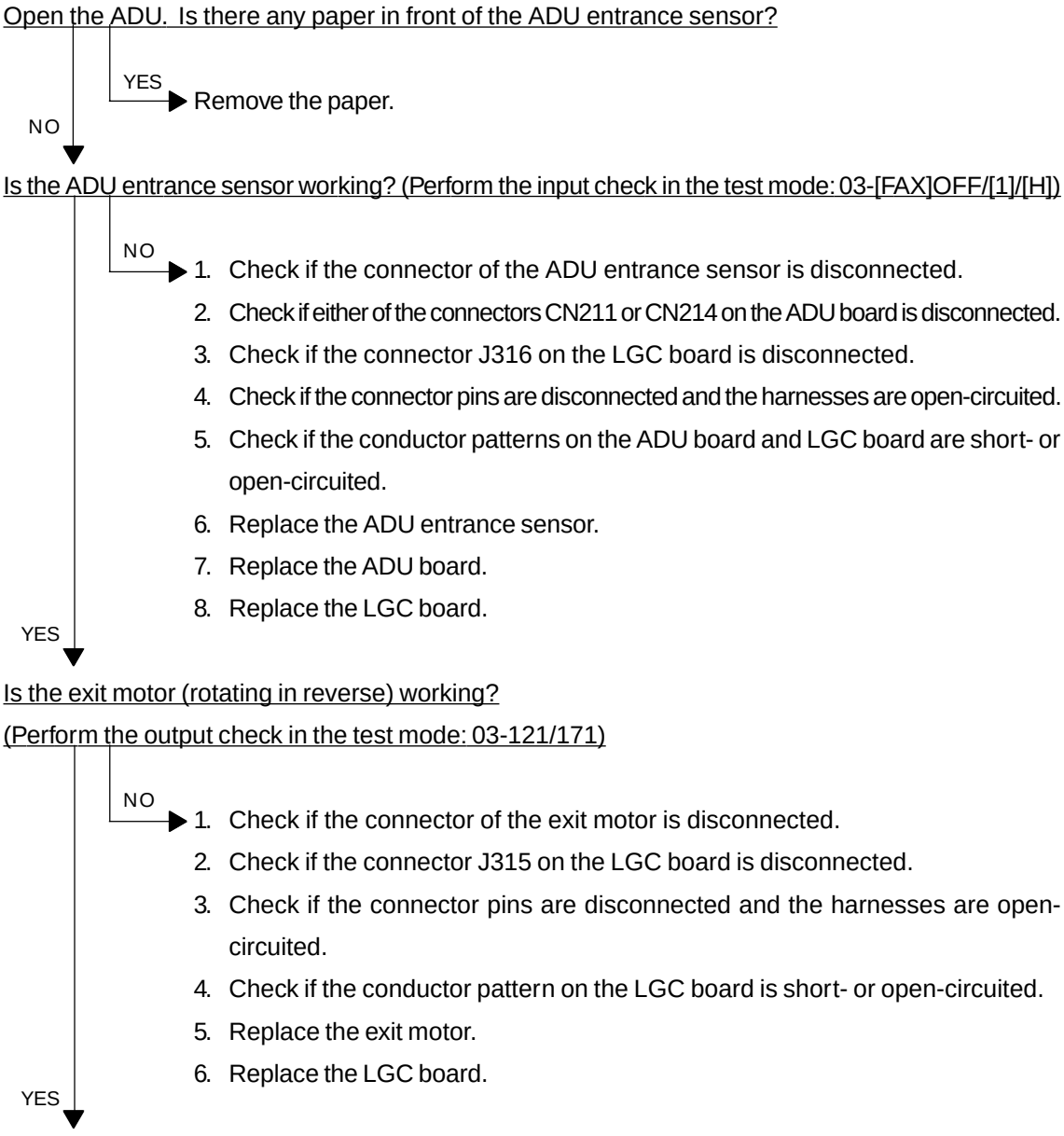
1. Replace the LCF board.
2. Replace the LGC board.

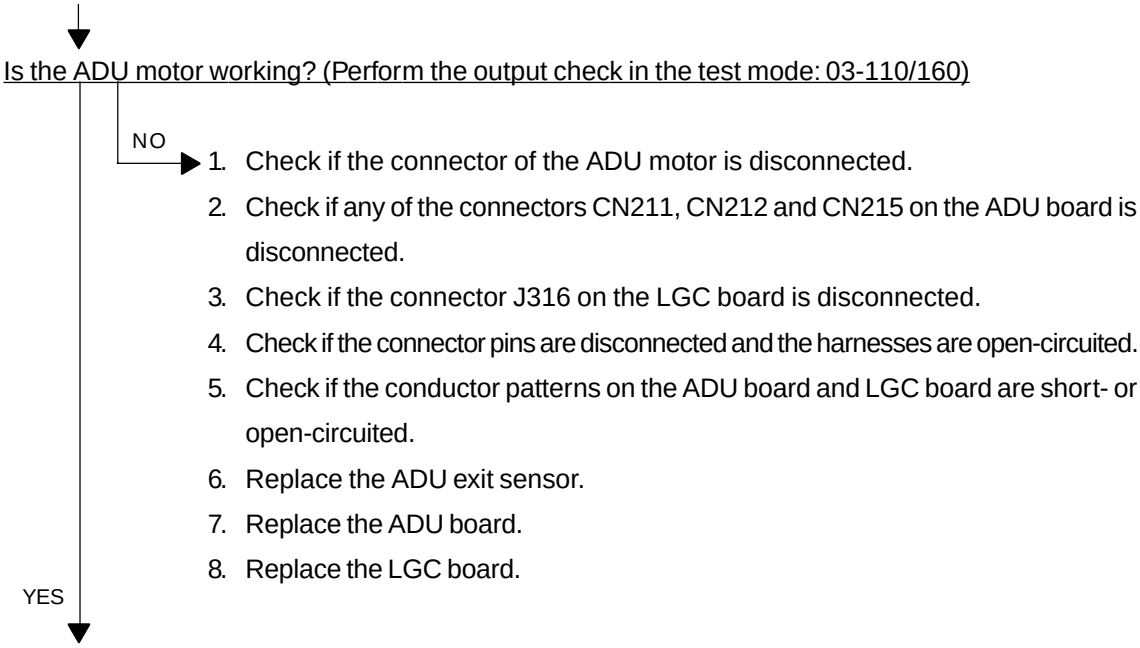
[E48] Relay unit opened during printing



5.1.4 Transport jam (ADU and other area)

[E51] ADU stack jam (paper not reaching the ADU entrance sensor)




Is the ADU motor working? (Perform the output check in the test mode: 03-110/160)
NO
1. Check if the connector of the ADU motor is disconnected.
2. Check if any of the connectors CN211, CN212 and CN215 on the ADU board is disconnected.
3. Check if the connector J316 on the LGC board is disconnected.
4. Check if the connector pins are disconnected and the harnesses are open-circuited.
5. Check if the conductor patterns on the ADU board and LGC board are short- or open-circuited.
6. Replace the ADU exit sensor.
7. Replace the ADU board.
8. Replace the LGC board.
YES
Check the rollers in the ADU and the exit roller of the main unit. Replace them if they are worn out.

[E52] ADU transport jam (paper not reaching the ADU exit sensor)

Open the ADU. Is there any paper in front of the ADU exit sensor?

YES → Remove the paper.

NO ↓

Is the ADU exit sensor working? (Perform the input check in the test mode: 03-[FAX]OFF/[1]/[G])

NO →
1. Check if the connector of the ADU exit sensor is disconnected.
2. Check if either of the connectors CN211 or CN213 on the ADU board is disconnected.
3. Check if the connector J316 on the LGC board is disconnected.
4. Check if the connector pins are disconnected and the harnesses are open-circuited.
5. Check if the conductor patterns on the ADU board and LGC board are short- or open-circuited.
6. Replace the ADU exit sensor.
7. Replace the ADU board.
8. Replace the LGC board.

YES ↓

Is the ADU clutch working? (Perform the output check in the test mode: 03-222)

NO →
1. Check if the connector of the ADU clutch is disconnected.
2. Check if the connector J316 on the LGC board is disconnected.
3. Check if the connector pins are disconnected and the harnesses are open-circuited.
4. Check if the conductor pattern on the LGC board is short- or open-circuited.
5. Replace the ADU clutch.
6. Replace the LGC board.

YES ↓

Check the rollers in the ADU. Replace them if they are worn out.

[E55] Paper remaining on the transport path when CRUN is OFF

Open the cover of the unit/area whose picture is flashing on the control panel. Is there any paper on the transport path?

YES → Remove the paper.

NO ↓

Is the sensor in the jamming area working? (Perform the input check in the test mode: refer to the following table)

NO →

1. Check if the connector of the sensor is disconnected.
2. Check if any of the connectors on the LGC board is disconnected.
3. Check if the connector pins are disconnected and the harnesses are open-circuited.
4. Check if the conductor pattern on the LGC board is short- or open-circuited.
5. Replace the sensor.
6. Replace the LGC board.

YES ↓

Replace the LGC board.

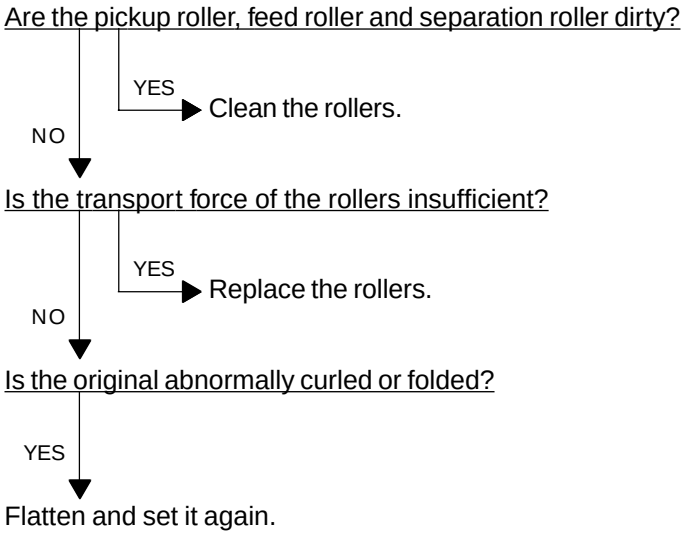
Relation between the jamming area and the corresponding sensors/covers

(If a jam is occurring in the ADU, LCF or PFP, check the board in each unit.)

Jamming area	Cover	Sensor	Test mode/Input check
Registration area	Jam access cover	Registration sensor	03-[FAX]ON/[2]/[A]
		Upper feed sensor	03-[FAX]OFF/[6]/[E]
Exit area	Jam access cover	Exit sensor	03-[FAX]ON/[2]/[B]
ADU	ADU	ADU entrance sensor	03-[FAX]OFF/[1]/[H]
		ADU exit sensor	03-[FAX]OFF/[1]/[G]
Feeding area (main unit)	Side cover	Lower feed sensor	03-[FAX]OFF/[7]/[E]
LCF	LCF side cover	LCF feed sensor	03-[FAX]OFF/[5]/[G]
PFP	PFP side cover	PFP upper feed sensor	03-[FAX]OFF/[2]/[D]
		PFP lower feed sensor	03-[FAX]OFF/[4]/[D]
Relay unit	Relay unit	Relay unit transport sensor-1	03-[FAX]ON/[4]/[H]
		Relay unit transport sensor-2	03-[FAX]ON/[3]/[E]
Finisher	Finisher door	Sensors in the finisher	–

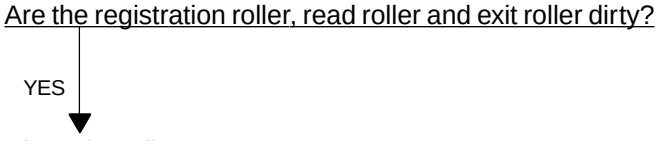
5.1.5 Transport jam (RADF)

[E71] Original feeding jam

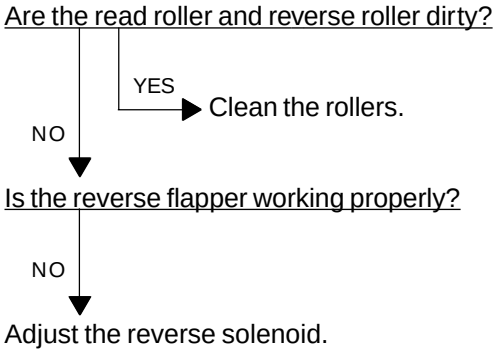


[E72] Original transport jam

[E73] Original discharging jam



[E74] Original reversing jam



5.1.6 Paper jam in finisher

[E91] Leading edge of paper not reaching the relay unit transport sensor-1

[E92] Trailing edge of paper not passing the relay unit transport sensor-1

[E93] Leading edge of paper not reaching the relay unit transport sensor-2

[E94] Trailing edge of paper not passing the relay unit transport sensor-2

Is there any paper remaining inside the relay unit?

YES → Remove the paper.

NO ↓

Are the relay unit transport sensors-1 and -2 working? (Perform the input check in the test mode: 03-[FAX] ON/[4][H], [3][E])

NO →
1. Check if the connectors of the relay unit transport sensors-1 and -2 are disconnected.
2. Check if the connector J573 of the relay unit is disconnected.
3. Check if the connector J315 on the LGC board is disconnected.
4. Check if the connector pins are disconnected and the harnesses are open-circuited.
5. Check if the conductor pattern on the LGC board is short- or open-circuited.
6. Replace the relay unit transport sensors.
7. Replace the LGC board.

YES ↓

Is the relay unit gate solenoid working? (Perform the output check in the test mode: 03-232)

NO →
1. Check if the connector J573 of the relay unit is disconnected.
2. Check if the connector J315 on the LGC board is disconnected.
3. Check if the connector pins are disconnected and the harnesses are open-circuited.
4. Replace the relay unit gate solenoid.
5. Replace the LGC board.

YES ↓

Does the transport roller of the relay unit work when the main motor is rotated? (Perform the output check in the test mode: 03-101/151)

NO → Check the drive system of the main unit and relay unit.

YES ↓

Check if the rollers in the relay unit are worn out.

[E9F] Punching jam

MJ-1012/1013 (Finisher section)

Is there any paper remaining on the transport path in the finisher or main unit?

YES → Remove the paper.

NO ↓

Is the connector J1 on the punch driver PC board disconnected?

Is the harness connecting the punch driver PC board and punch home position sensor (PI3P) open-circuited?

YES → Connect the connector securely. Replace the harness.

NO ↓

Is the punch home position sensor working properly?

NO →
1. Connect the connector of the punch home position sensor securely.
2. Replace the punch home position sensor.

YES ↓

Replace the punch driver PC board.

[EA1] Finisher paper transport delay jam

MJ-1011

Is there any paper remaining on the transport path in the finisher or main unit?

YES → Remove the paper.

NO ↓

Is the connector J10 on the finisher controller PC board disconnected?

Is the harness connecting the finisher controller PC board and inlet sensor (S2D) open-circuited?

YES → Connect the connector securely. Replace the harness.

NO ↓

Is the inlet sensor working properly? (Check the movement of the actuator.)

NO →
1. Connect the connector of the inlet sensor securely.
2. Attach the actuator securely if its shaft is out of place.
3. Replace the inlet sensor.

YES ↓

Replace the finisher controller PC board.

MJ-1012/1013 (Finisher section)

Is there any paper remaining on the transport path in the finisher or main unit?

YES → Remove the paper.

NO ↓

Is the connector J17 on the finisher controller PC board disconnected?

Is the harness connecting the finisher controller PC board and inlet sensor (PI1) open-circuited?

YES → Connect the connector securely. Replace the harness.

NO ↓

Is the inlet sensor working properly? (Check the movement of the actuator.)

NO →
1. Connect the connector of the inlet sensor securely.
2. Attach the actuator securely if its shaft is out of place.
3. Replace the inlet sensor.

YES ↓

Replace the finisher controller PC board.

[EA2] Finisher paper transport stop jam

MJ-1011

Is there any paper remaining on the transport path in the finisher or main unit?

YES → Remove the paper.

NO ↓

Is the connector J10 on the finisher controller PC board disconnected?

Is the harness connecting the finisher controller PC board and inlet sensor (S2D) open-circuited?

YES → Connect the connector securely. Replace the harness.

NO ↓

Is the inlet sensor working properly? (Check the movement of the actuator.)

NO →
1. Connect the connector of the inlet sensor securely.
2. Attach the actuator securely if its shaft is out of place.
3. Replace the inlet sensor.

YES ↓

Replace the finisher controller PC board.

MJ-1012/1013 (Finisher section)

Is there any paper remaining on the transport path in the finisher or main unit?

YES → Remove the paper.

NO ↓

Is any of the connectors J17, J24, J9 and J11 on the finisher controller PC board disconnected?

Is the harness connecting the finisher controller PC board and inlet sensor (PI1) open-circuited?

Is the harness connecting the finisher controller PC board and buffer path inlet paper sensor (PI17) open-circuited?

Is the harness connecting the finisher controller PC board and buffer path paper sensor (PI14) open-circuited?

Is the harness connecting the finisher controller PC board and stapling tray sensor (PI4) open-circuited?

Is the harness connecting the finisher controller PC board and delivery sensor (PI3) open-circuited?

YES → Connect the connectors securely. Replace the harnesses.

NO ↓

Is the inlet sensor working properly? (Check the movement of the actuator.)

Is the buffer path inlet paper sensor working properly? (Check the movement of the actuator.)

Is the buffer path paper sensor working properly? (Check the movement of the actuator.)

Is the stapling tray sensor working properly? (Check the movement of the actuator.)

Is the delivery sensor working properly? (Check the movement of the actuator.)

NO →
1. Connect the connectors of the sensors securely.
2. Attach the actuators securely if their shafts are out of place.
3. Replace the sensors.

YES ↓

Replace the finisher controller PC board.

[EA3] Paper remaining inside the finisher at power ON

MJ-1011

Is there any paper remaining on the transport path in the finisher?

YES → Remove the paper.

NO ↓

Is the connector J10 on the finisher controller PC board disconnected?

Is the harness connecting the finisher controller PC board and inlet sensor (S2D) open-circuited?

YES → Connect the connector securely. Replace the harness.

NO ↓

Is the inlet sensor working properly? (Check the movement of the actuator.)

NO →
1. Connect the connector of the inlet sensor securely.
2. Attach the actuator securely if its shaft is out of place.
3. Replace the inlet sensor.

YES ↓

Replace the finisher controller PC board.

MJ-1012/1013 (Finisher section)

Is there any paper remaining on the transport path in the finisher?

YES → Remove the paper.

NO ↓

Is any of the connectors J17, J24 and J11 on the finisher controller PC board disconnected?

Is the harness connecting the finisher controller PC board and inlet sensor (PI1) open-circuited?

Is the harness connecting the finisher controller PC board and buffer path inlet paper sensor (PI17) open-circuited?

Is the harness connecting the finisher controller PC board and buffer path paper sensor (PI14) open-circuited?

Is the harness connecting the finisher controller PC board and delivery sensor (PI3) open-circuited?

YES → Connect the connectors securely. Replace the harnesses.

NO ↓

Is the inlet sensor working properly? (Check the movement of the actuator.)

Is the buffer path inlet paper sensor working properly? (Check the movement of the actuator.)

Is the buffer path paper sensor working properly? (Check the movement of the actuator.)

Is the delivery sensor working properly? (Check the movement of the actuator.)

NO →
1. Connect the connectors of the sensors securely.
2. Attach the actuators securely if their shafts are out of place.
3. Replace the sensors.

YES ↓

Replace the finisher controller PC board.

[EA4] Finisher front door opened during printing

MJ-1011

Is there any paper remaining on the transport path in the finisher or main unit?

YES → Remove the paper.

NO ↓

Is the finisher connected with the main unit?

NO → Connect the finisher with the main unit.

YES ↓

Is the connector J11 on the finisher controller PC board disconnected?

Is the harness connecting the finisher controller PC board and joint sensor (S4D) open-circuited?

YES → Connect the connector securely. Replace the harness.

NO ↓

Is the joint sensor working properly?

NO →
1. Connect the connector of the joint sensor securely.
2. Replace the joint sensor.

YES ↓

Replace the finisher controller PC board.

MJ-1012/1013 (Finisher section)

Is there any paper remaining on the transport path in the finisher or main unit?

YES → Remove the paper.

NO ↓

Is the finisher connected with the main unit?

NO → Connect the finisher with the main unit.

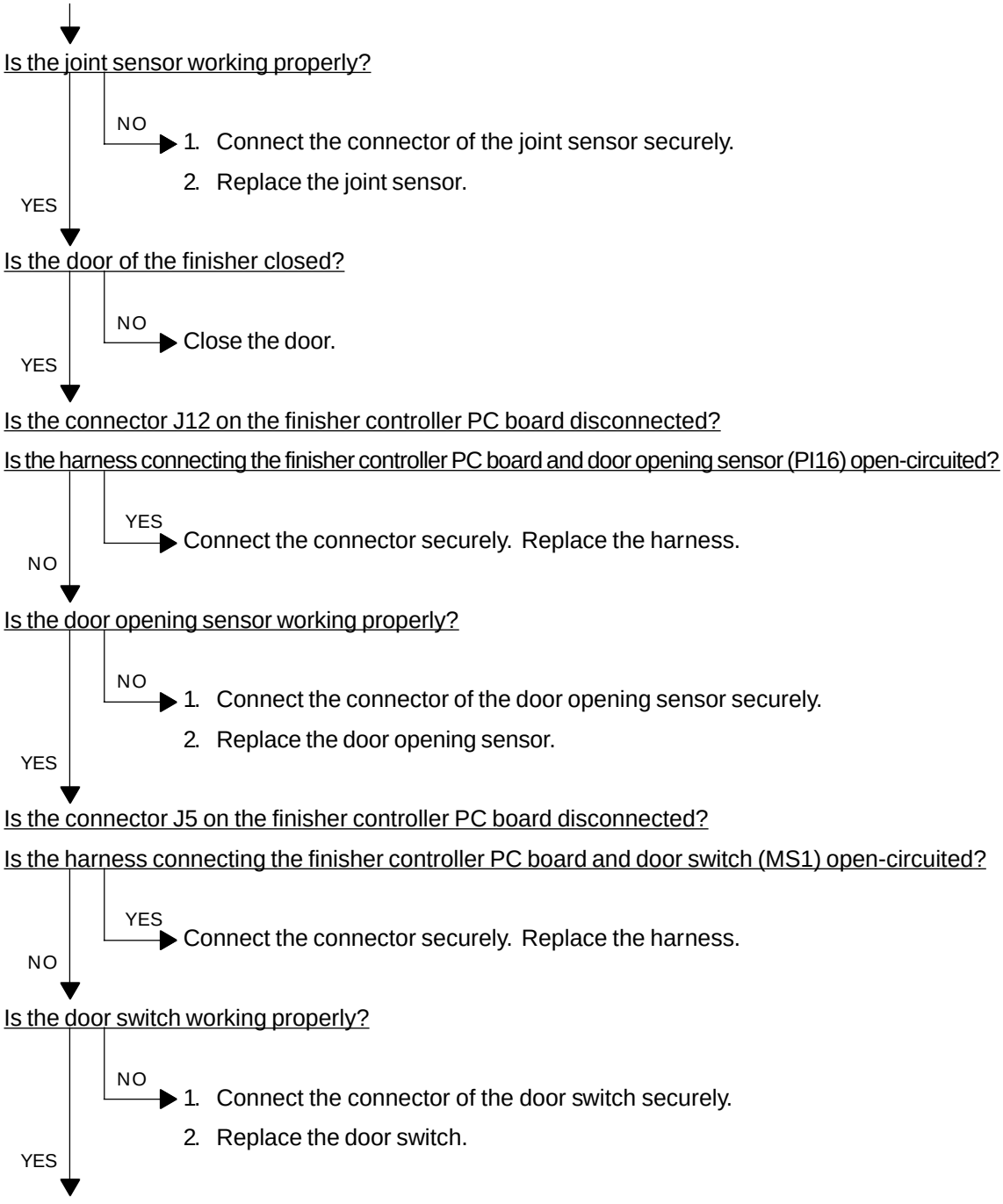
YES ↓

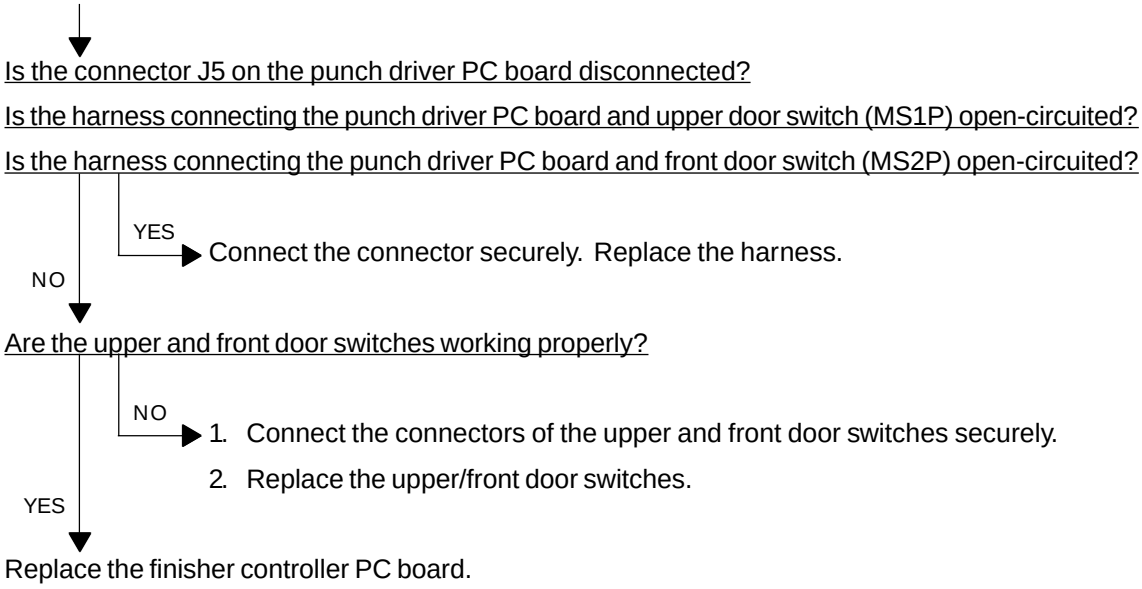
Is the connector J12 on the finisher controller PC board disconnected?

Is the harness connecting the finisher controller PC board and joint sensor (PI15) open-circuited?

YES → Connect the connector securely. Replace the harness.

NO ↓


Is the joint sensor working properly?
NO
1. Connect the connector of the joint sensor securely.
2. Replace the joint sensor.
YES
Is the door of the finisher closed?
NO
Close the door.
YES
Is the connector J12 on the finisher controller PC board disconnected?
Is the harness connecting the finisher controller PC board and door opening sensor (PI16) open-circuited?
YES
Connect the connector securely. Replace the harness.
NO
Is the door opening sensor working properly?
NO
1. Connect the connector of the door opening sensor securely.
2. Replace the door opening sensor.
YES
Is the connector J5 on the finisher controller PC board disconnected?
Is the harness connecting the finisher controller PC board and door switch (MS1) open-circuited?
YES
Connect the connector securely. Replace the harness.
NO
Is the door switch working properly?
NO
1. Connect the connector of the door switch securely.
2. Replace the door switch.
YES


Is the connector J5 on the punch driver PC board disconnected?
Is the harness connecting the punch driver PC board and upper door switch (MS1P) open-circuited?
Is the harness connecting the punch driver PC board and front door switch (MS2P) open-circuited?
YES
Connect the connector securely. Replace the harness.
NO
Are the upper and front door switches working properly?
NO
1. Connect the connectors of the upper and front door switches securely.
2. Replace the upper/front door switches.
YES
Replace the finisher controller PC board.

[EA5] Finisher stapling jam

MJ-1011

Is there any paper remaining on the transport path in the finisher or main unit or on the stapling tray?

YES → Remove the paper.

NO ↓

Is the jam cleared by taking off the staple cartridge from the finisher and removing the staple sheet sliding it from the staple case?

YES → End

NO ↓

Is the connector J8 on the finisher controller PC board disconnected?

Is the harness connecting the finisher controller PC board and stapling home position sensor (S17D) open-circuited?

YES → Connect the connector securely. Replace the harness.

NO ↓

Is the stapling home position sensor working properly?

NO →
1. Connect the connector of the stapling home position sensor securely.
2. Replace the stapling home position sensor.

YES ↓

Replace the finisher controller PC board.

MJ-1012/1013 (Finisher section)

Is there any paper remaining on the transport path in the finisher or main unit, or on the stapling tray?

YES → Remove the paper.

NO ↓

Is the jam cleared by taking off the staple cartridge from the finisher and removing the staple sheet sliding it from the staple case?

YES → End

NO ↓

Is the connector J8 on the finisher controller PC board disconnected?

Is the harness connecting the finisher controller PC board and staple home position sensor (PI22) open-circuited?

YES → Connect the connector securely. Replace the harness.

NO ↓

Is the staple home position sensor working properly?

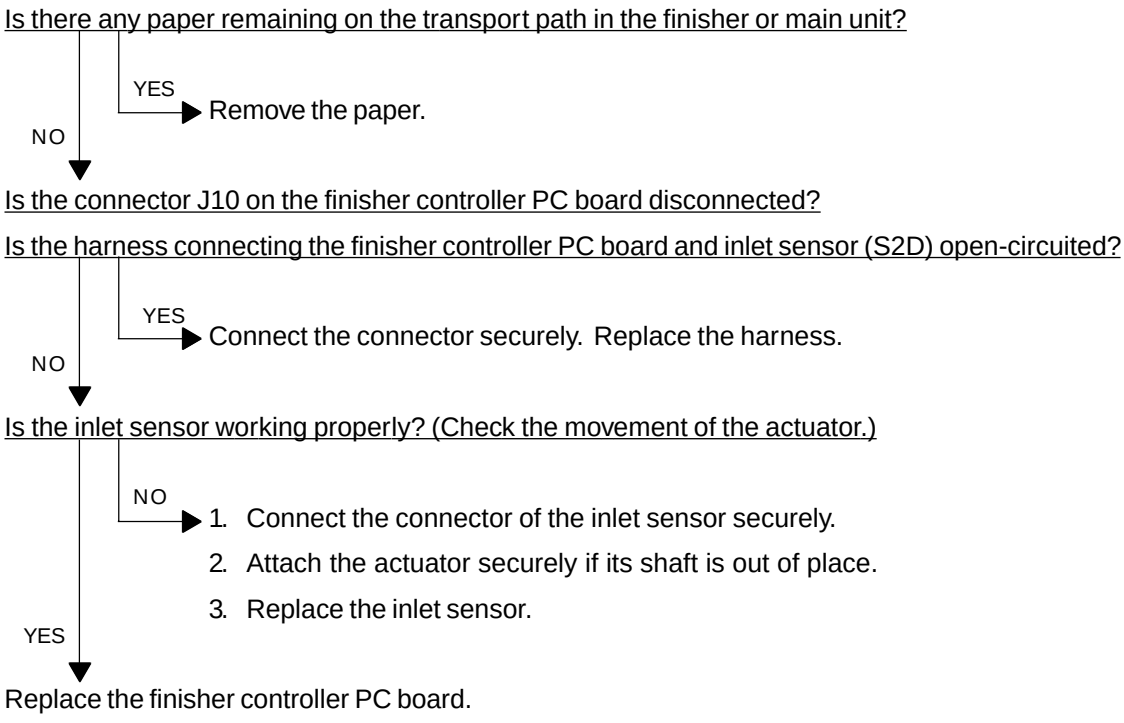
NO →
1. Connect the connector of the staple home position sensor securely.
2. Replace the staple home position sensor.

YES ↓

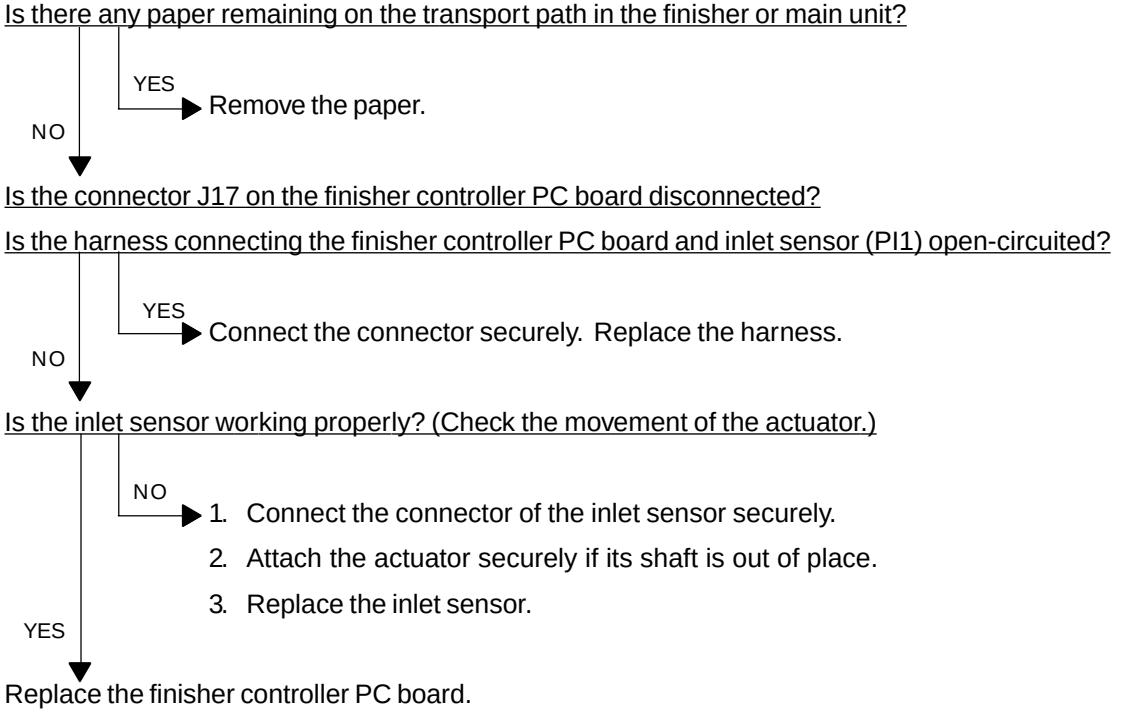
Replace the finisher controller PC board.

[EA6] Finisher early arrival jam

MJ-1011



MJ-1012/1013 (Finisher section)



[EA7] Stack transport jam before stapling

MJ-1011

Is there any paper remaining on the transport path in the finisher or main unit?

YES → Remove the paper.

NO ↓

Is the connector J9 on the finisher controller PC board disconnected?

Is the harness connecting the finisher controller PC board and stack delivery lever home position sensor (S8D) open-circuited?

YES → Connect the connector securely. Replace the harness.

NO ↓

Is the stack delivery lever home position sensor working properly?

NO →
1. Connect the connector of the stack delivery lever home position sensor securely.
2. Replace the stack delivery lever home position sensor.

YES ↓

Replace the finisher controller PC board.

[EA8] Saddle stitcher stapling jam

MJ-1013 (Saddle stitcher section)

Is there any paper remaining on the transport path in the finisher, saddle stitcher section or main unit, or on the stapling tray?

YES → Remove the paper.

NO ↓

Is the jam cleared by taking off the staple cartridge from the finisher and removing the staples stuck in the stapling unit?

YES → End

NO ↓

Is the connector J8 on the saddle stitcher controller PC board disconnected?

Is the harness connecting the saddle stitcher controller PC board and stitcher home position switch (rear: MS5S, front: MS7S) open-circuited?

YES → Connect the connector securely. Replace the harness.

NO ↓

Are the stitcher home position switches working properly?

NO →
1. Connect the connectors of the stitcher home position switches securely.
2. Replace the stitcher home position switches.

YES ↓

Replace the saddle stitcher controller PC board.

[EA9] Saddle stitcher door opened during printing

MJ-1013 (Saddle stitcher section)

Is there any paper remaining on the transport path in the finisher, saddle stitcher section or main unit?

YES → Remove the paper.

NO ↓

Is the saddle stitcher door closed?

NO → Close the door.

YES ↓

Is either of the connectors J10 or J11 on saddle stitcher controller PC board disconnected?

Are the harnesses connecting the saddle stitcher controller PC board and cover opening sensors (PI2S: front door opening/closing sensor, PI3S: delivery cover sensor, PI19S: inlet cover sensor) open-circuited?

YES → Connect the connector securely. Replace the harness.

NO ↓

Are the cover opening sensors working properly?

NO →
1. Connect the connectors of the cover opening sensors securely.
2. Replace the cover opening sensors.

YES ↓

Replace the finisher controller PC board.

[EAA] Paper remaining at the saddle stitcher at power ON

MJ-1013 (Saddle stitcher section)

Is there any paper remaining on the transport path in the finisher or saddle stitcher section?

YES → Remove the paper.

NO ↓

Is any of the connectors J10, J13 and J9 on the saddle stitcher controller PC board disconnected?

Is the harness connecting the saddle stitcher controller PC board and No.1 paper sensor (PI18S) open-circuited?

Is the harness connecting the saddle stitcher controller PC board and No.2 paper sensor (PI19S) open-circuited?

Is the harness connecting the saddle stitcher controller PC board and No.3 paper sensor (PI20S) open-circuited?

Is the harness connecting the saddle stitcher controller PC board and vertical path paper sensor (PI17S) open-circuited?

Is the harness connecting the saddle stitcher controller PC board and delivery sensor (PI11S) open-circuited?

YES → Connect the connectors securely. Replace the harnesses.

NO ↓

Is the No.1 paper sensor working properly? (Check the movement of the actuator.)

Is the No.2 paper sensor working properly? (Check the movement of the actuator.)

Is the No.3 paper sensor working properly? (Check the movement of the actuator.)

Is the vertical path paper sensor working properly? (Check the movement of the actuator.)

Is the delivery sensor working properly? (Check the movement of the actuator.)

NO →
1. Connect the connectors of the sensors securely.
2. Attach the actuators securely if their shafts are out of place.
3. Replace the sensors.

YES ↓

Replace the saddle stitcher controller PC board.

[EAB] Saddle stitcher transport stop jam

MJ-1013 (Saddle stitcher section)

Is there any paper remaining on the transport path in the finisher, saddle stitcher section or main unit?

YES → Remove the paper.

NO ↓

Is the conncetor J17 on finisher controller PC board disconnected?

Is the harness connecting the finisher controller PC board and inlet sensor (PI1) open-circuited?

Is either of the connectors J10 or J9 on the saddle stitcher controller PC board disconnected?

Is the harness connecting the saddle stitcher controller PC board and No.1 paper sensor (PI18S) open-circuited?

Is the harness connecting the saddle stitcher controller PC board and No.2 paper sensor (PI19S) open-circuited?

Is the harness connecting the saddle stitcher controller PC board and No.3 paper sensor (PI20S) open-circuited?

Is the harness connecting the saddle stitcher controller PC board and delivery sensor (PI11S) open-circuited?

YES → Connect the connectors securely. Replace the harnesses.

NO ↓

Is the inlet sensor working properly? (Check the movement of the actuator.)

Is the No.1 paper sensor working properly? (Check the movement of the actuator.)

Is the No.2 paper sensor working properly? (Check the movement of the actuator.)

Is the No.3 paper sensor working properly? (Check the movement of the actuator.)

Is the delivery sensor working properly? (Check the movement of the actuator.)

NO →
1. Connect the connectors of the sensors securely.
2. Attach the actuators securely if their shafts are out of place.
3. Replace the sensors.

YES ↓

Replace the saddle stitcher controller PC board.

[EAC] Saddle stitcher transport delay jam

MJ-1013 (Saddle stitcher section)

Is there any paper remaining on the transport path in the finisher, saddle stitcher section or main unit?

YES → Remove the paper.

NO ↓

Is the connector J17 on the finisher controller PC board disconnected?

Is the harness connecting the finisher controller PC board and inlet sensor (PI1) open-circuited?

YES → Connect the connector securely. Replace the harness.

NO ↓

Is the inlet sensor working properly? (Check the movement of the actuator.)

NO →
1. Connect the connector of the sensor securely.
2. Attach the actuator securely if its shaft is out of place.
3. Replace the sensor.

YES ↓

Replace the finisher controller PC board.

[EAD] Print end command time-out jam

Is the main motor rotating normally?

NO ↓

1. Replace the SYS board.
2. Replace the LGC board.

[EAE] Receiving time time-out jam

Is the finisher working?

YES → Replace the finisher controller PC board.

NO ↓

1. Check if the voltage (24V) is being supplied to the finisher.
2. Check the connection of the LGC board and IPC board.
3. Check if the harness connecting the IPC board and finisher I/F connector of the main unit side is open-circuited.
4. Check if the harness connecting the I/F connector of the finisher side and finisher controller PC board is open-circuited.
5. Connect the finisher controller PC board with the main unit.

[EAF] Stapled stack transport jam

MJ-1011

Is there any paper remaining on the transport path in the finisher or main unit?

YES → Remove the paper.

NO ↓

Is the connector J10 on the finisher controller PC board disconnected?

Is the harness connecting the finisher controller PC board and returning roller home position sensor (S3D) open-circuited?

YES → Connect the connector securely. Replace the harness.

NO ↓

Is the returning roller home position sensor working properly?

NO →
1. Connect the connector of the returning roller home position sensor securely.
2. Replace the returning roller home position sensor.

YES ↓

Replace the finisher controller PC board.

[EB3] Ready time time-out jam

Is there paper in the main unit?

NO → Replace the LGC board.

YES ↓

Are the IPC board and LGC board properly connected to each other?

NO → Connect them properly.

YES ↓

Is the harness securely connected to the IPC board?

NO → Connect the harness securely.

YES ↓

Is any of the connector pins of the harness connecting the PPC and finisher disconnected or any of those harnesses open-circuited?

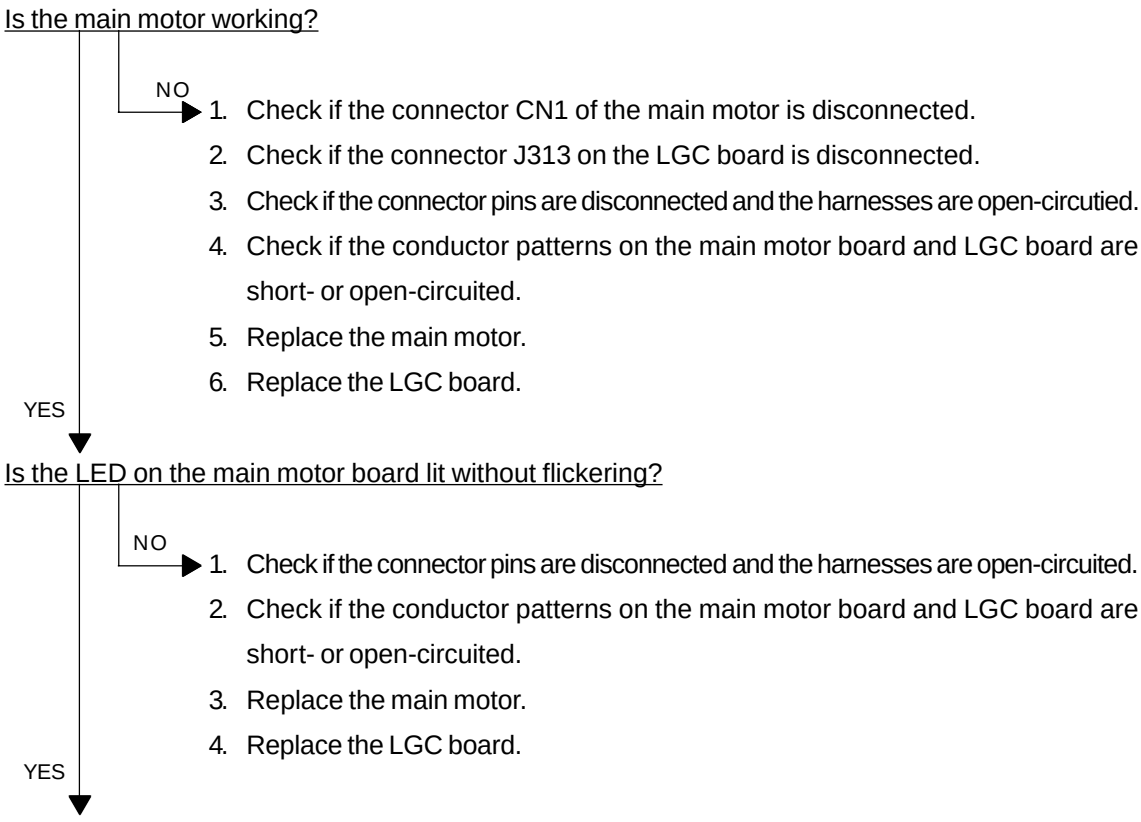
NO → Connect the pin securely/replace the harness.

YES ↓

1. Replace the IPC board.
2. Replace the LGC board.
3. Replace the finisher controller PC board.

5.1.7 Drive system related service call

[C01] Main motor is abnormal



1. Check if the PLL lock signal J313-11 output from the LGC board is always level “L”?
2. Check if the voltage supplied to the microcomputer input terminal IC10-7 is always “L”?
3. Replace the LGC board.

5.1.8 Paper feeding system related service call

[C04] PFP motor is abnormal (paper can be fed from the cassettes other than PFP cassette)

Is the PFP motor working? (Perform the output check in the test mode: 03-109/159)

NO

1. Check if the signal line connector CN1 of the PFP motor is disconnected.
2. Check if the power line connector CN2 of the PFP motor is disconnected.
3. Check if the connector CN246 on the PFP board is disconnected.
4. Check if the signal line connector CN241 on the PFP board is disconnected.
5. Check if the power line connector CN242 on the PFP board is disconnected.
6. Check if the connector J312 on the LGC board is disconnected.
7. Check if the connector pins are disconnected and the harnesses are open-circuited.
8. Check if the conductor patterns on the PFP motor board, PFP board and LGC board are short- or open circuited.
9. Replace the PFP motor.
10. Replace the PFP board.
11. Replace the LGC board.

YES

Is the LED on the PFP motor board lit without flashing?

NO

1. Check if the connector pins are disconnected and the harnesses are open-circuited.
2. Check if the conductor patterns on the PFP motor board, PFP board and LGC board are short- or open-circuited.
3. Replace the PFP motor.
4. Replace the PFP board.
5. Replace the LGC board.

YES

1. Check if the PLL lock signal CN246-8 output from the PFP board is always “L” level.
2. Check if the voltage supplied to the microcomputer input terminal IC5-17 is always “L” level.
3. Replace the PFP board.
4. Replace the LGC board.

[C13] Upper cassette tray is abnormal (paper can be fed from the cassettes other than copier cassettes)

[C14] Lower cassette tray is abnormal (paper can be fed from the cassettes other than copier cassettes)

Does the tray go up? (Perform the output check in the test mode: 03-242, 243)

NO

1. Check if the connector of the tray-up motor is disconnected.
2. Check if the connector J311 on the LGC board is disconnected.
3. Check if the connector pins are disconnected and the harnesses are open-circuited.
4. Check if the conductor pattern on the LGC board is short- or open-circuited.
5. Replace the LGC board.

YES

Is the tray-up sensor working?
(Perform the input check in the test mode: 03-[FAX]OFF/[6]/[H], /[7]/[H])

NO

1. Check if the connector of the sensor is disconnected.
2. Check if the connector J310 on the LGC board is disconnected.
3. Check if the slit reaches the sensor.
4. Check if the connector pins are disconnected and the harnesses are open-circuited.
5. Check if the conductor pattern on the LGC board is short- or open-circuited.
6. Replace the LGC board.

YES

1. Check if the conductor pattern on the LGC board is short- or open-circuited.
2. Replace the LGC board.

[C15] PFP upper cassette tray is abnormal (paper can be fed from the cassettes other than PFP upper cassette)

[C16] PFP lower cassette tray is abnormal (paper can be fed from the cassettes other than PFP lower cassette)

Does the tray go up? (Perform the output check in the test mode: 03-278, 280)

NO

1. Check if the connector of the tray-up motor is disconnected.
2. Check if any of the connectors CN241, CN242 and CN244 on the PFP board is disconnected.
3. Check if the connector J312 on the LGC board is disconnected.
4. Check if the connector pins are disconnected and the harnesses are open-circuited.
5. Check if the conductor patterns on the PFP board and LGC board are short- or open-circuited.
6. Replace the PFP board.
7. Replace the LGC board.

YES

Is the tray-up sensor working?
(Perform the input check in the test mode: 03-[FAX]OFF/[2]/[H], /[4]/[H])

NO

1. Check if the connector of the sensor is disconnected.
2. Check if any of the connectors CN241, CN247 and CN248 on the PFP board is disconnected.
3. Check if the connector J312 on the LGC board is disconnected.
4. Check if the slit reaches the sensor.
5. Check if the connector pins are disconnected and the harnesses are open-circuited.
6. Check if the conductor patterns on the PFP board and LGC board are short- or open-circuited.
7. Replace the PFP board.
8. Replace the LGC board.

YES

1. Check if the conductor pattern on the LGC board is short- or open-circuited.
2. Replace the LGC board.

[C18] LCF tray-up motor is abnormal (paper can be fed from the cassettes other than LCF cassette)

Does the tray move? (Perform the output check in the test mode: 03-271)

NO

1. Check if the connector of the LCF tray-up motor is disconnected.
2. Check if any of the connectors CN100, CN101 and CN103 on the LCF board is disconnected.
3. Check if the connector J312 on the LGC board is disconnected.
4. Check if the connector pins are disconnected and the harnesses are open-circuited.
5. Check if the conductor patterns on the LCF board and LGC board are short- or open-circuited.
6. Replace the LCF board.
7. Replace the LGC board.

YES

Are the LCF tray bottom sensor and LCF tray-up sensor working?
(Perform the input check in the test mode: 03-[FAX]OFF/[5]/[F], /[3]/[A]

NO

1. Check if the connectors of the sensors are disconnected.
2. Check if any of the connectors CN100, CN104 and CN105 on the LCF board is disconnected.
3. Check if the connector J312 on the LGC board is disconnected.
4. Check if the slit reaches the sensors.
5. Check if the connector pins are disconnected and the harnesses are open-circuited.
6. Check if the conductor patterns on the LCF board and LGC board arer short- or open-circuited.
7. Replace the LCF board.
8. Replace the LGC board.

YES

1. Check if the conductor pattern on the LGC board is short- or open-circuited.
2. Replace the LGC board.

[C1A] LCF end fense motor is abnormal (paper can be fed from the cassettes other than LCF cassette)

Is the LCF end fence motor working? (Perform the output check in the test mode: 03-207)

NO

1. Check if the connector of the LCF end fence motor is disconnected.
2. Check if any of the connectors CN100, CN101 and CN103 on the LCF board is disconnected.
3. Check if the connector J312 on the LGC board is disconnected.
4. Check if the connector pins are disconnected and the harnesses are open-circuited.
5. Check if the conductor patterns on the LCF board and LGC board are short- or open-circuited.
6. Replace the LCF board.
7. Replace the LGC board.

YES

Are the LCF end fence home/stop position sensors working?
(Perform the input check in the test mode: 03-[FAX]OFF/[5]/[A], /[5]/[B])

NO

1. Check if the connectors of the sensors are disconnected.
2. Check if either of the connectors CN100 or CN107 on the LCF board is disconnected.
3. Check if the connector J312 on the LGC board is disconnected.
4. Check if the slit reaches the sensors.
5. Check if the connector pins are disconnected and the harnesses are open-circuited.
6. Check if the conductor patterns on the LCF board and LGC board are short- or open-circuited.
7. Replace the LCF board.
8. Replace the LGC board.

YES

1. Check if the conductor pattern on the LGC board is short- or open-circuited.
2. Replace the LGC board.

[C1B] LCF motor is abnormal (paper can be fed from the cassettes other than LCF cassette)

Is the LCF motor working? (Perform the output check in the test mode: 03-122/172)

NO

1. Check if the connector CN1 of the LCF motor is disconnected.
2. Check if the connector CN102 on the LCF board is disconnected.
3. Check if the signal line connector CN100 on the LCF board is disconnected.
4. Check if the power line connector CN101 on the LCF board is disconnected.
5. Check if the connector J312 on the LGC board is disconnected.
6. Check if the connector pins are disconnected and the harnesses are open-circuited.
7. Check if the conductor patterns on the LCF motor board, LCF board and LGC board arer short- or open-circuited.
8. Replace the LCF motor.
9. Replace the LCF board.
10. Replace the LGC board.

YES

1. Check if the connector pins are disconnected and the harnesses are open-circuited.
2. Check if the conductor patterns on the LCF motor board, LCF board and LGC board are short- or open-circuited.
3. Check if the PLL lock signal CN102-3 output from the LCF board is always “L” level.
4. Check if the voltage supplied to the microcomputer input terminal IC103-17 is always “L” level.
5. Replace the LCF motor.
6. Replace the LCF board.
7. Replace the LGC board.

5.1.9 Scanning system related service call

[C26] Peak detection error

Does the exposure lamp light?

YES

1. Check if the connectors on the CCD and SLG boards are disconnected.
2. Check if the shading correction plate is dirty.
3. Check if the conductor pattern on the CCD board is short- or open-circuited.
4. Check if the conductor pattern on the SLG board is short- or open-circuited.
5. Replace the lens unit.
6. Replace the SLG board.

NO

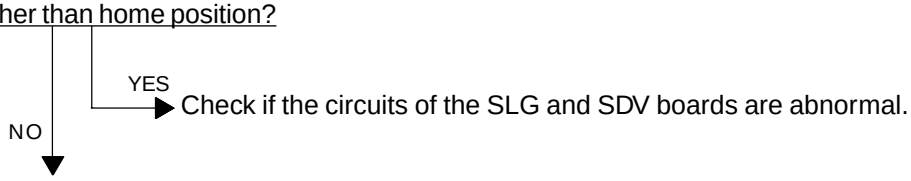
1. Check if the connectors of the exposure lamp and inverter are disconnected.
2. Check the SLG board if the connector pin J9 is disconnected and the harness is short- or open-circuited.
3. Check if the conductor pattern on the SLG board is short- or open-circuited.
4. Replace the SLG board.
5. Replace the inverter.
6. Replace the exposure lamp.

[C27] Carriage home position sensor not going OFF within a fixed time

[C28] Carriage home position sensor not going ON within a fixed time

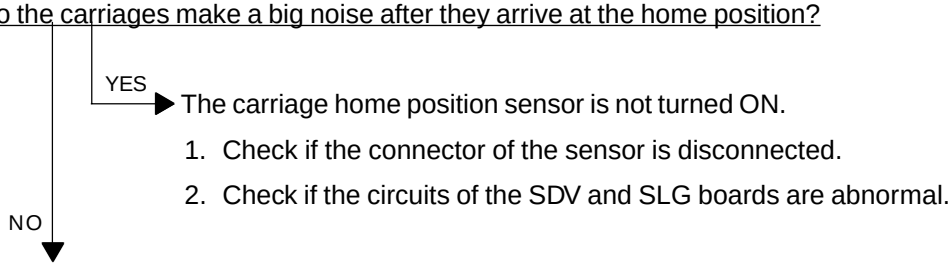
Remove the original glass and move the carriages to the paper feeding side. Turn ON the power and check the following items.

[C27] Are the carriages slightly moved to the feeding direction?/Are the carriages staying at a position other than home position?



1. Check if the connector pin is disconnected and the harness is short- or open-circuited.
2. Check if the conductor pattern on the SDV board is short- or open-circuited.
3. Check if the conductor pattern on the SLG board is short- or open-circuited.
4. Replace the SDV board.
5. Replace the SLG board.

[C28] Do the carriages make a big noise after they arrive at the home position?



The carriages are stopped at the home position and do not move.

1. Check if the connector pins are disconnected and the harnesses are short- or open-circuited.
2. Check if the conductor pattern on the SDV board is short- or open-circuited.
3. Check if the conductor pattern on the SLG board is short- or open-circuited.
4. Replace the SDV board.
5. Replace the SLG board.

5.1.10 Fuser unit related service call

CAUTION

Turn OFF the power to check the IH control circuit and IH coil.

[C41] Thermistor or heater is abnormal at power ON

Note: Unplug the power cable to prevent any kind of danger before checking the following 1 and 2.

1. Check the thermistors

(1) Check if the connectors are disconnected.
(2) Check if the center and side thermistors are in contact with the surface of the fuser roller properly?
(3) Check if the harnesses of the center and side thermistors are open-circuited.

2. Check the IH control board and IH coil

(1) Check if the IH coil is broken.
(2) Check if the connector of the IH coil is disconnected.
(3) Check if the thermostat is blown.
(4) Check if the connectors on the IH control board are disconnected (AC input connector and LGC I/F connector J552).
(5) Check if the IH control board or the switching power supply unit are abnormal.
    • Replace the IH control board.

3. Check the LGC board

(1) Check if the connectors J315 and J317 are disconnected.
(2) Check if the conductor pattern on the LGC board is short- or open-circuited.
(3) Replace the LGC board.

4. Clear the status counter

After repairing the matter which caused the error [C41], perform the following:

(1) Turn ON the power while [0] and [8] are pressed simultaneously.
(2) Enter “400” with the digital keys, then press the [START] key.
(3) Change the current status counter value “1” or “2” to “0”, then press the [SET] key or [INTERRUPT] key (to cancel [C41]).
(4) Turn the power OFF and then back ON. Make sure that the copier enters the normal standby state.

[C43] Thermistor is abnormal after abnormality judgment

[C44] Fuser is abnormal after abnormality judgment

1,2.3. Check the thermistors, IH control board, IH coil and LGC board

Check the above components following the procedure 1, 2 and 3 for [C41].

4. Clear the status counter

Change the current status counter value (08-400) “4” or “6” to “0” for [C43] and “5”, “7” or “9” to “0” for [C44], taking the same procedure as that for [C41].

* The status counter value is as follows in the following cases. Change them to "0" respectively.

- The error occurred during warming-up: "4" or "5"
- The error occurred after the machine has become ready: "6" or "7"
- The temperature detected by the center thermistor is 230°C or higher: "9"
- The temperature detected by the side thermistor is 270°C or higher: "9"

[C45] Side thermistor is abnormal after the copier has become ready

1. Check the side thermistor

(1) Check if the connector is disconnected.
(2) Check if the side thermistor is in contact with the surface of the fuser roller properly.
(3) Check if the harness of the side thermistor is open-circuited.

2. Check the LGC board

(1) Check if the connector J315 is disconnected.
(2) Check if the conductor pattern on the board is short- or open-circuited.
(3) Replace the LGC board.

3. Clear the status counter

Change the current status counter value (08-400) “8” to “0”.

[C47] IH power voltage is abnormal/IH initialization error

1. Check the AC input voltage

Check if the AC input voltage is within the specified range.

(especially when the heater becomes ON after the power is turned ON (the copier is warming up))

2. Check the thermostat

Check if the thermostat is blown.

3. Check the IH control board

(1) Check if the AC input connector on the IH control board or the LGC I/F connector J522 is disconnected?

(2) Check if the fuse on the IH control board has blown.

(3) Replace the IH control board.

4. Check the LGC board

(1) Check if the connector J317 is disconnected.

(2) Check if the conductor pattern on the board is short- or open-circuited.

(3) Replace the LGC board.

5. Clear the status counter

Change the values “10”, “11”, “13”, “14” or “17” of the status counter (08-400) to “0”.

* The status counter value is as follows in the following cases. Change them to "0" respectively.

- The error occurred immediately after the power was turned ON: "10"
- The error occurred before the temperature of the fuser roller reaches 40°C: "11"
- The error occurred before the temperature of the fuser roller reaches 150°C: "14"
- The error occurred before the machine has become ready: "13"
- The error occurred when the machine is in the ready state: "17"

[C48] IGBT high temperature

1. Check the operation of the IH control board cooling fan

Check if the IH control board cooling fan is rotating normally. (Is the connector securely connected?)

2. Check the IH control board

(1) Check if the IGBT or IGBT radiation plate are normal. (Is the radiation plate securely attached?)

(2) Check if the conductor pattern on the board is short- or open-circuited.

(3) Replace the IH control board.

3. Clear the status counter

Change the values “12”, “14”, “15” or “18” of the status counter (08-400) to “0”.

* The status counter value is as follows in the following cases. Change them to "0" respectively.
  - The error occurred before the temperature of the fuser roller reaches 40°C: "12"
  - The error occurred before the temperature of the fuser roller reaches 150°C: "15"
  - The error occurred before the machine has become ready: "14"
  - The error occurred when the machine is in the ready state: "18"

[C49] IH circuit or coil is abnormal

1. Check the IH control board

(1) Check if the conductor pattern on the board is short or open-circuited.

(2) Replace the IH control board.

2. Check the IH coil

(1) Check if the coil is broken or shorted.

(2) Replace the IH coil.

3. Clear the status counter

Change the values “13”, “15”, “16” or “19” of the status counter (08-400) to “0”.

* The status counter value is as follows in the following cases. Change them to "0" respectively.
  - The error occurred before the temperature of the fuser roller reaches 40°C: "13"
  - The error occurred before the temperature of the fuser roller reaches 150°C: "16"
  - The error occurred before the machine has become ready: "15"
  - The error occurred when the machine is in the ready state: "19"

[C47], [C48] and [C49] can be cleared by turning OFF and ON the main switch as long as the problem was solved, and the status counter does not have to be changed to "0".
The value of the status counter remains until the next service call overwrites the value.

5.1.11 Communication related service call

[C55] ADF I/F is abnormal

(1) Check if the harness connecting the ADF control board and SLG board is disconnected or open-circuited.
(2) Check the circuits and connectors on the ADF control board, mainly IC1, IC2, IC5 and CN2 for short- and open-circuits.
(3) Check the circuits and connectors on the SLG board, mainly IC1, IC5 and J7 for short- or open-circuits.
(4) Replace the ADF control board.
(5) Replace the SLG board.

[C57] Communication error between main CPU and IPC board

(1) Check the conductor pattern on the LGC board, mainly IC18, IC19, IC21 and J318 for short- and open-circuits.
(2) Check if the conductor pattern on the IPC board is short- or open-circuited.
(3) Replace the IPC board.
(4) Replace the LGC board.

[C58] Communication error between IPC board and finisher

(1) Check if the specified finisher is attached.
(2) Check if the conductor pattern on the IPC board is short- or open-circuited.
(3) Check if the connector pins connected to the connector J2 on the IPC board are disconnected or the harness is open-circuited.
(4) Check if the conductor pattern on the finisher controller PC board is short- or open-circuited.
(5) Check the connections between the finisher and the copier if the connector pins are disconnected, or the harnesses are open-circuited.
(6) Replace the IPC board.
(7) Replace the LGC board.

[F07] Communication error between SYS board and LGC board

[F11] Communication error between SYS board and SLG board

(1) Check if the connectors J114 and J105 on the SYS board are disconnected.

(2) Check if the connector J4 on the SLG board is disconnected.

(3) Check if the harness connecting the SYS and SLG boards is open-circuited and the connector pins are disconnected.

(4) Check if the harness connecting the SYS board and LGC board is open-circuited and the connector pins are disconnected.

(5) Check the version of the FROM on the SYS board.

(6) Check the version of the MROM on the LGC board.

(7) Check the version of the SROM on the SLG board.

(8) Replace the SYS board.

(9) Replace the SLG board.

(10) Replace the LGC board.

5.1.12 ADF related service call

[C71] ADF feed motor is abnormal

(1) Check if the load on the motor shaft is normal.
(2) Check the mechanical load and adjust the drive system. Remove foreign objects.
(3) Check if the power is supplied to connector CN11 of the motor.
(4) Check the circuits and connectors on the ADF control board, mainly IC6, Q19, Q20, Q21, Q22 and CN11, for short- and open-circuits.
(5) Replace the ADF control board.
(6) Replace the ADF feed motor.

[C73] EEPROM initialization error

(1) Check the ADF control board, mainly IC12, for short- and open-circuits.
(2) Replace the ADF control board.
(3) Initialize the EEPROM and perform the automatic sensor adjustment of the ADF.

[C74] Reverse sensor adjustment error

(1) Check if there is any foreign object between the reverse sensor and reflecting mirror. Check if the reflecting mirror is dirty.
(2) Check if the harness connecting the reverse sensor and ADF control board is open-circuited.
(3) Check the circuits and connectors on the ADF control board, mainly IC3, IC4 and CN4, for short- and open-circuits.
(4) Replace the reverse sensor.
(5) Replace the ADF control board.
(6) Initialize the EEPROM and perform the automatic sensor adjustment of the ADF.

[C81] Fan motor is abnormal

(1) Check if the load on the motor shaft is normal.
(2) Remove foreign objects.
(3) Check if the harness connecting the fan motor and ADF control board is open-circuited.
(4) Check if the power is supplied to the pin 1 of the CN9 on the ADF control board during the operation.
(5) Check the circuits and connectors on the ADF control board, mainly Q12 and Q16, for open-and short-circuits.
(6) Replace the ADF control board.
(7) Replace the fan motor.

[C82] Read sensor adjustment error

(1) Check if there is any foreign object between the read sensor and the reflecting mirror. Check if the reflecting mirror is dirty.
(2) Check if the harness connecting the read sensor and the ADF control board is open-circuited.
(3) Check the circuits and connectors on the ADF control board, mainly IC3, IC4 and CN6, for short- and open-circuited.
(4) Replace the read sensor.
(5) Replace the ADF control board.
(6) Initialize the EEPROM and perform automatic sensor adjustment of the ADF.

[C83] Original length sensor adjustment error

(1) Check if there is any foreign object between the original length sensor and reflecting mirror. Check if the reflecting mirror is dirty.
(2) Check if the harness connecting the original length sensor and the ADF control board is open-circuited.
(3) Check the circuits and connectors on the ADF control board, mainly IC3, IC4 and CN3, for short- and open-circuits.
(4) Replace the original length sensor.
(5) Replace the ADF control board.
(6) Initialize the EEPROM and perform the automatic sensor adjustment of the ADF.

5.1.13 Laser optical unit related service call

[CA1] Polygonal motor is abnormal

Is the polygonal motor rotating?

NO

1. Check if the connector J302 on the LGC board is disconnected.
2. Check if the connector J203 on the POL board is disconnected.
3. Check if the harness is open-circuited and the connector pin is disconnected.
4. Check if the conductor pattern on the LGC board is short- or open-circuited.
5. Replace the laser optical unit.
6. Replace the LGC board.

YES

Are the pins-3 and -4 of the connector J203 on the POL board always level "L"?

NO

1. Check if the conductor pattern on the LGC board is short- or open-circuited.
2. Replace the laser optical unit.
3. Replace the LGC board.

YES

1. Check if the conductor pattern on the LGC board is short- or open-circuited.
2. Replace the LGC board.

[CA2] H-Sync detection error

Are the harness connecting the connector (J308) on the LGC board and connector (J202) on the SNS board open-circuited? Are the connectors disconnected?

YES

Replace the harness. Connect the disconnected connectors.

NO

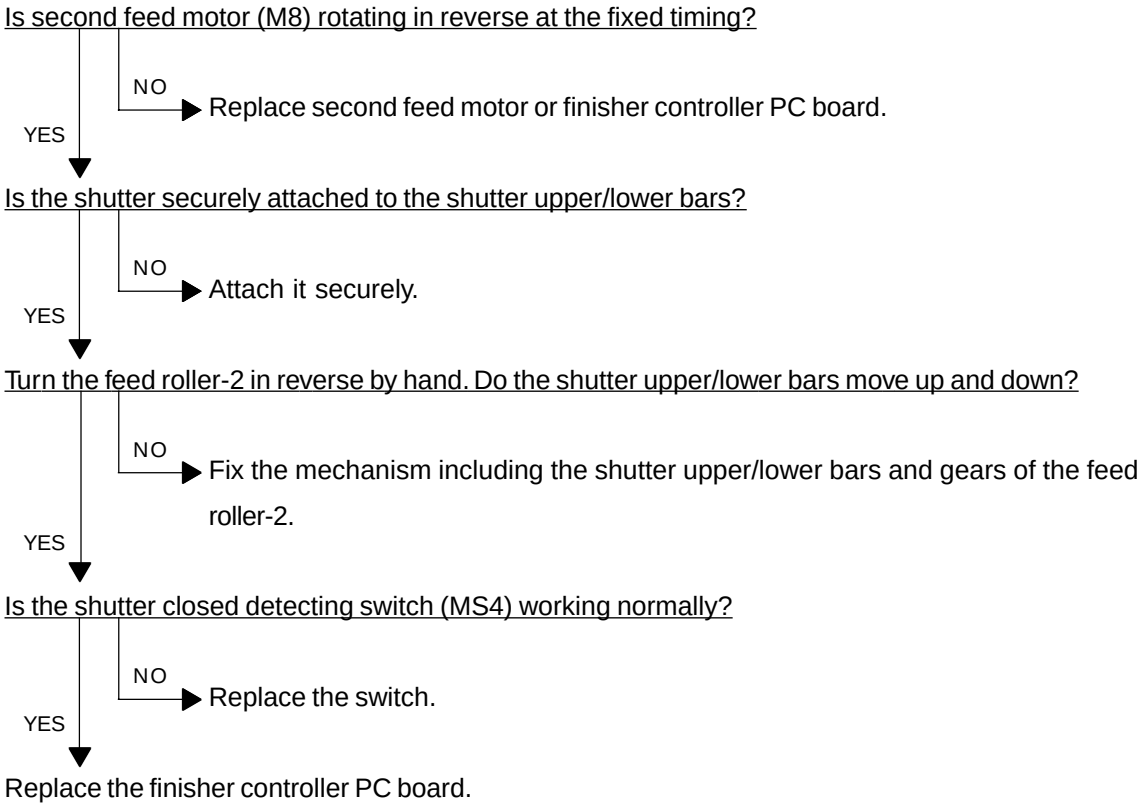
1. Replace the LGC board.
2. Replace the laser optical unit.

5.1.14 Finisher related service call

[CB1] Feed motor is abnormal

MJ-1012/1013 (Finsher section)

[Procedure 1]



[Procedure 2]

Is second feed motor (M8) rotating in reverse at the fixed timing?

NO → Replace second feed motor or finisher controller PC board.

YES ↓

Is the shutter securely attached to the shutter upper/lower bars?

NO → Attach it securely.

YES ↓

Turn feed roller-2 in reverse by hand. Do the shutter upper/lower bars move up and down?

NO → Fix the mechanism including the shutter upper/lower bars and gears of the feed roller-2.

YES ↓

Is the shutter open sensor (PI5) working normally?

NO → Replace the sensor.

YES ↓

Replace the finisher controller PC board.

[Procedure 3]

Check the safety zone switch (MS3). Is the switch working normally?

NO → Replace the switch.

YES ↓

Is the safety zone switch (MS3) correctly pressed?

NO → Fix the mechanism.

YES ↓

Is the shutter closed detecting switch (MS4) working normally?

NO → Replace the switch.

YES ↓

Is the shutter closed detecting switch (MS4) correctly pressed?

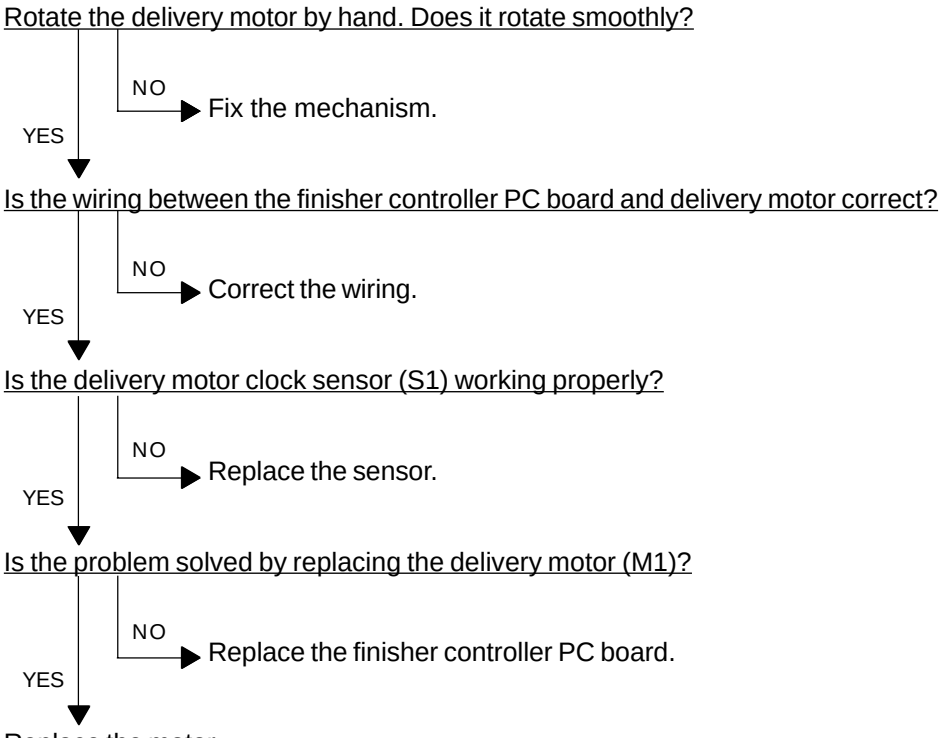
NO → Fix the mechanism.

YES ↓

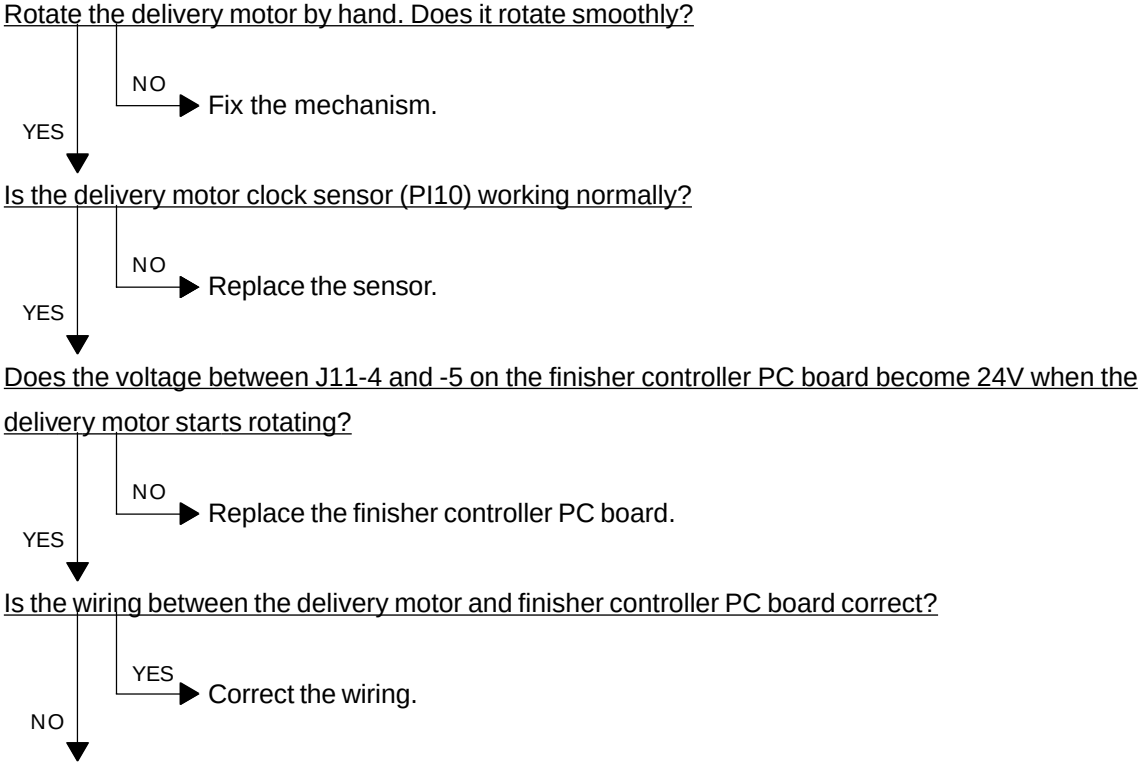
Replace the finisher controller PC board.

[CB2] Delivery motor is abnormal

MJ-1011



MJ-1012/1013 (Finsher section)



[CB3] Tray lift motor is abnormal

MJ-1012/1013 (Finisher section)

[Procedure 1]

Is the tray home position sensor (PI8) working normally?

NO → Replace the sensor.

YES ↓

Is the tray elevation mechanism normal?

NO → Fix the mechanism.

YES ↓

Is 24V DC supplied to the tray lift motor (M5) from the finisher controller PC board when the tray is being driven?

NO → Replace the finisher controller PC board.

YES ↓

Is the wiring between the finisher controller PC board and the tray lift motor (M5) correct?

YES → Correct the wiring.

NO ↓

Replace the tray lift motor (M5).

[Procedure 2]

Does the tray reach the tray upper limit detecting switch (MS5)?

NO → Lower the position of the tray.

YES ↓

Is the tray upper limit detecting switch (MS5) working normally?

NO → Replace the switch.

YES ↓

Is the wiring between the finisher controller PC board and the tray upper limit detecting switch correct?

YES → Correct the wiring.

NO ↓

Replace the finisher controller PC board.

[Procedure 3]

Does the tray move up/down?

NO → Is the power supplied to the motor from the finisher controller PC board when the tray is moving?

NO → Replace the finisher controller PC board.

YES ↓

Is there any problem with the tray elevation mechanism?

YES → Replace the tray lift motor (M5).

NO ↓

Fix the tray elevation mechanism.

YES ↓

Are the tray lift motor clock sensor-1/-2 (PI9/PI19) working normally?

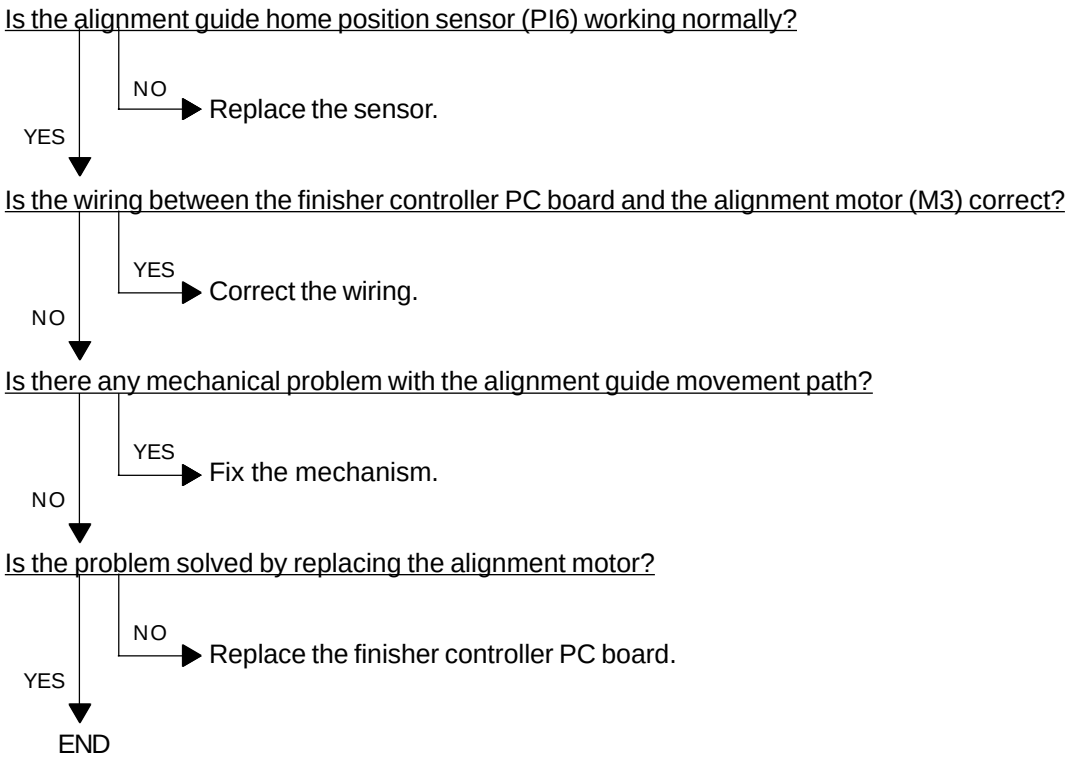
NO → Replace the sensors.

YES ↓

Replace the finisher controller PC board.

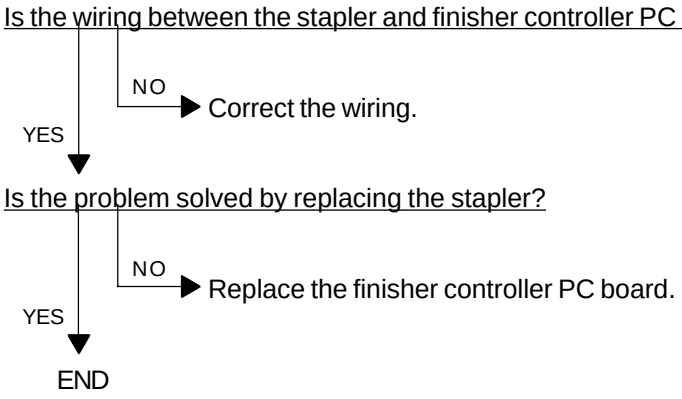
[CB4] Alignment motor is abnormal

MJ-1012/1013 (Finisher section)

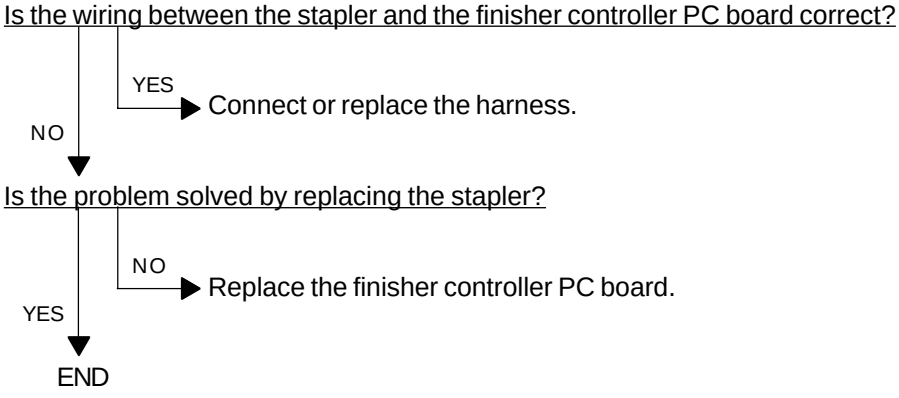


[CB5] Staple motor is abnormal

MJ-1011

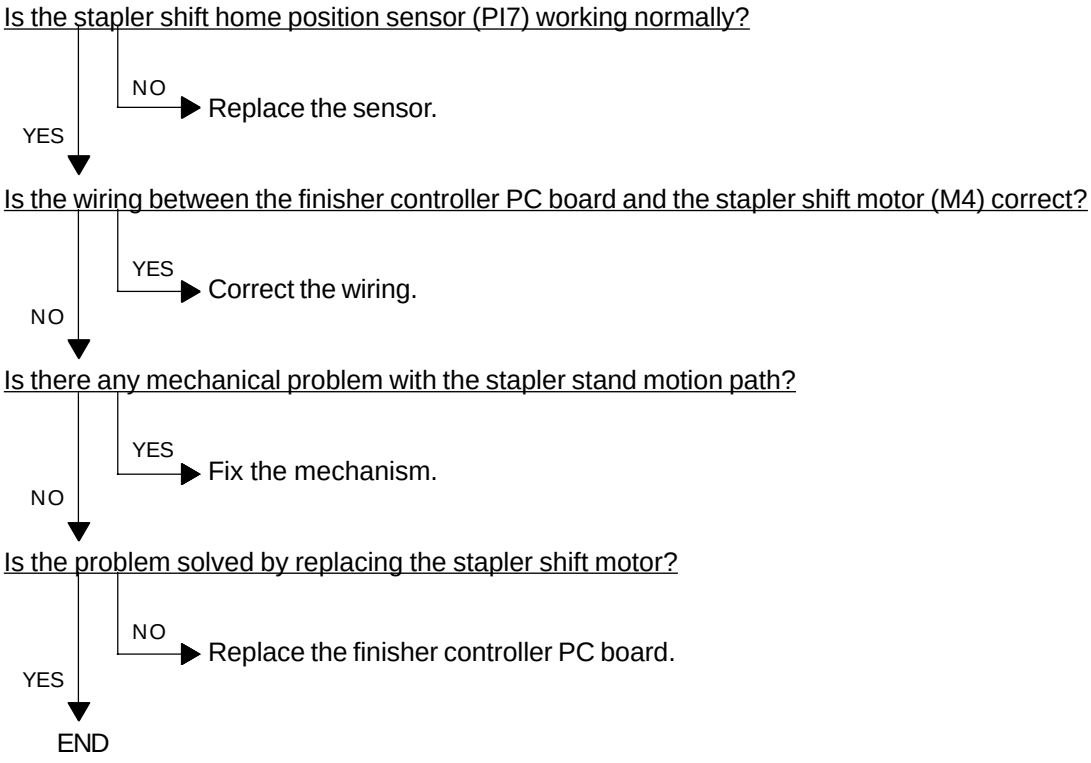


MJ-1012/1013 (Finisher section)



[CB6] Stapler shift motor is abnormal

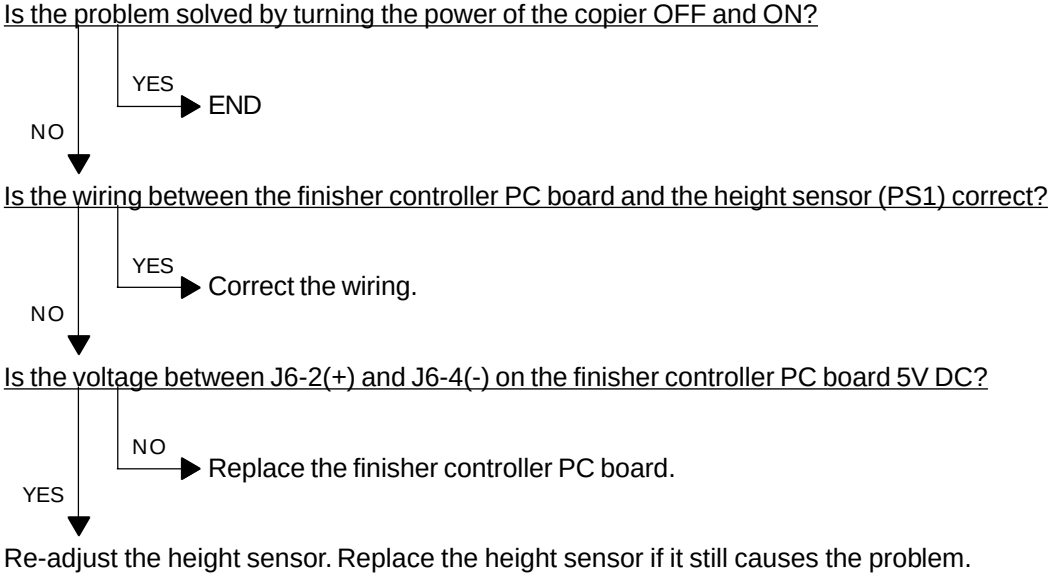
MJ-1012/1013 (Finisher section)



[CB7] Height sensor is abnormal

MJ-1012/1013 (Finisher section)

[Procedure 1]



[Procedure 2]

Is the connector J6 on the finisher controller PC board, J114 of the height sensor (PS1) or relay connector J212 disconnected?

YES → Connect the connector(s).

NO ↓

Is the voltage between J6-2(+) and J6-4(-) on the finisher controller PC board 5V DC?

NO → Replace the finisher controller PC board.

YES ↓

Is the wiring between the finisher controller PC board and height sensor correct?

YES → Correct the wiring.

NO ↓

Replace the height sensor.

[Procedure 3]

Is the problem solved by readjusting the DIP switch?

YES → END

NO ↓

Is the wiring between the finisher controller PC board and height sensor (PS1) correct?

YES → Correct the wiring.

NO ↓

Is the voltage between J6-2(+) and J6-4(-) on the finisher controller PC board 5V DC?

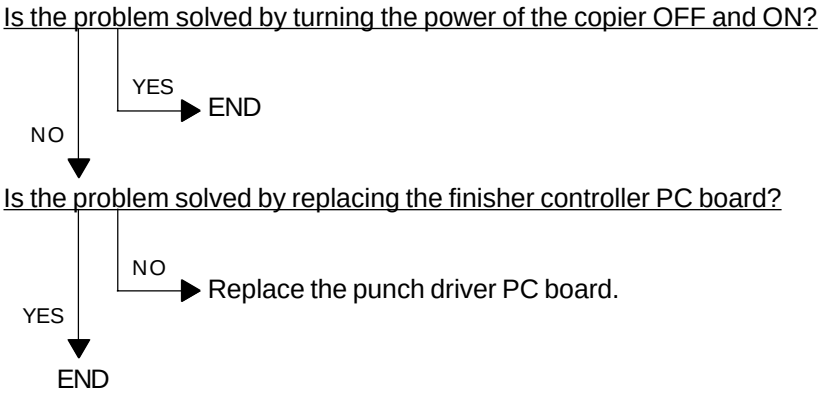
NO → Replace the finisher controller PC board.

YES ↓

Replace the height sensor.

[CB8] Backup RAM data are abnormal

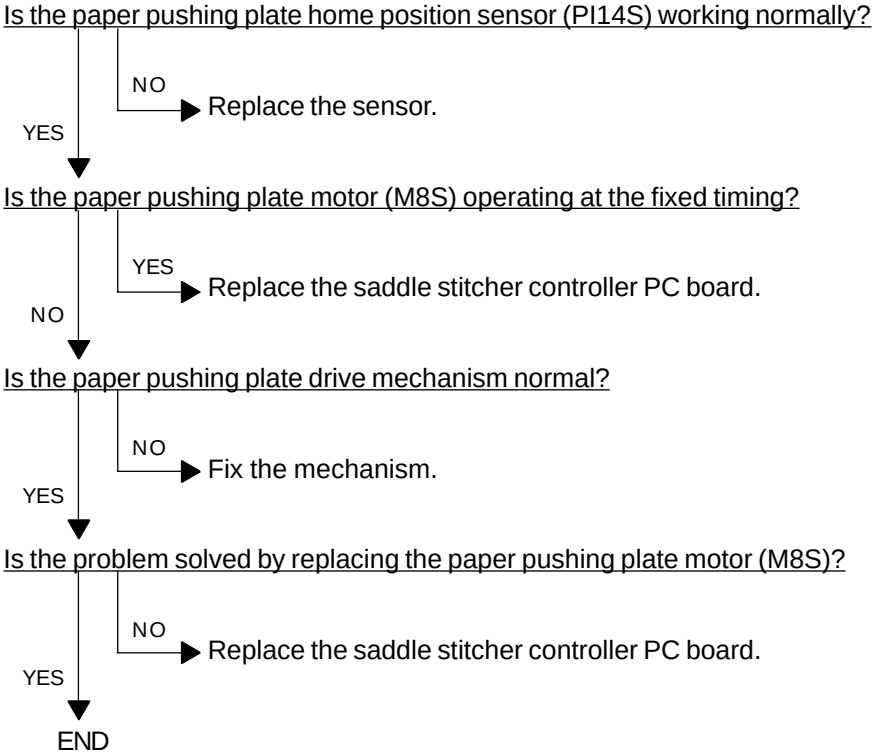
MJ-1012/1013 (Finisher section) (with MJ-6001 connected)



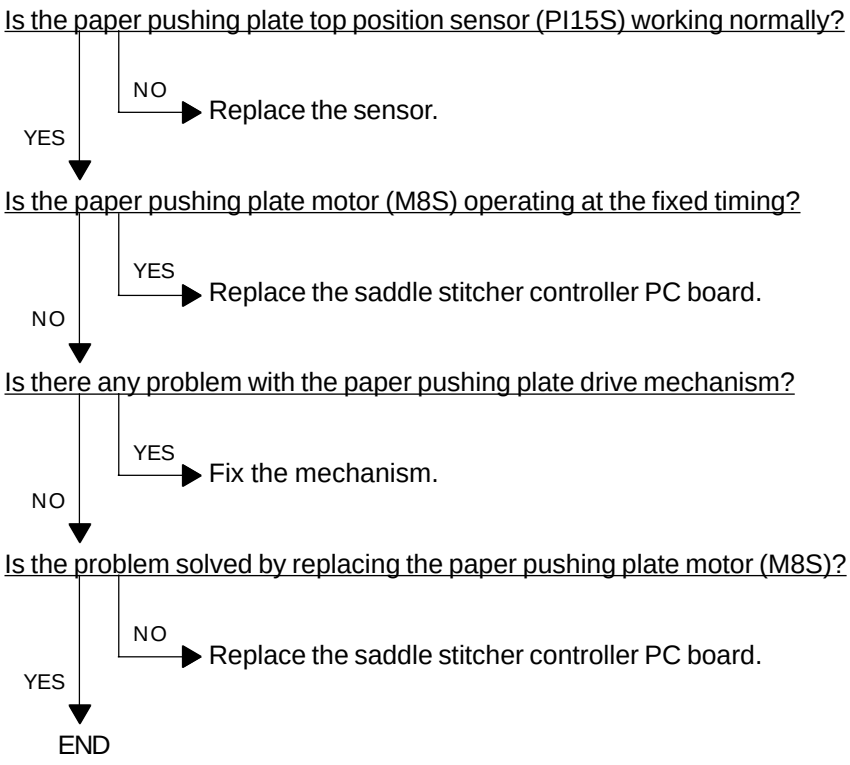
[CB9] Saddle stitcher paper pushing plate motor is abnormal

MJ-1013 (Saddle stiticher section)

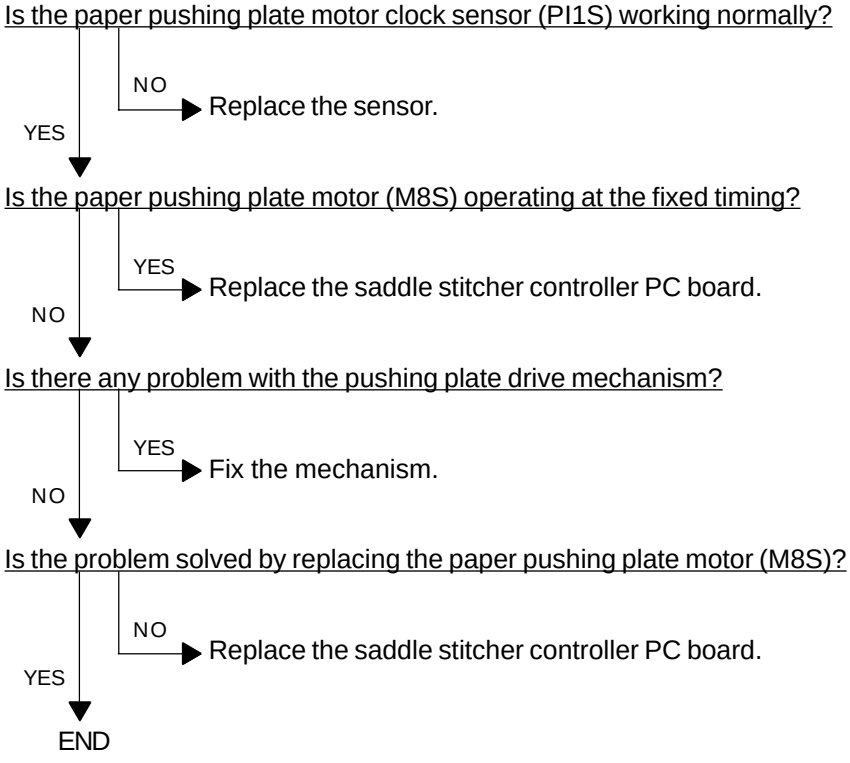
[Procedure 1]



[Procedure 2]



[Procedure 3]



[CBA] Saddle stitcher stitch motor (front) is abnormal

[CBB] Saddle stitcher stitch motor (rear) is abnormal

MJ-1013 (Saddle stitcher section)

Are the front and rear stitchers and their stands installed properly?

NO → Install them properly.

YES ↓

Are the stitcher home position switches (MS7S/MS5S) on the front and rear stitchers working normally?

NO → Replace the front or rear stitcher.

YES ↓

Are the front and rear stitchers operating at the fixed timing?

NO → Replace the front or rear stitcher.

YES ↓

Check the wiring between the stitcher and saddle stitcher controller PC board. If there is no problem, replace the controller PC board.

[CBC] Saddle stitcher alignment motor is abnormal

MJ-1013 (Saddle stitcher section)

Is the alignment plate home position sensor (PI5S) working normally?

NO → Replace the sensor.

YES ↓

Is the alignment motor (M5S) operating at the fixed timing?

YES → Replace the saddle stitcher controller PC board.

NO ↓

Is the alignment plate drive mechanism normal?

NO → Fix the mechanism.

YES ↓

Is the problem solved by replacing the alignment motor (M5S)?

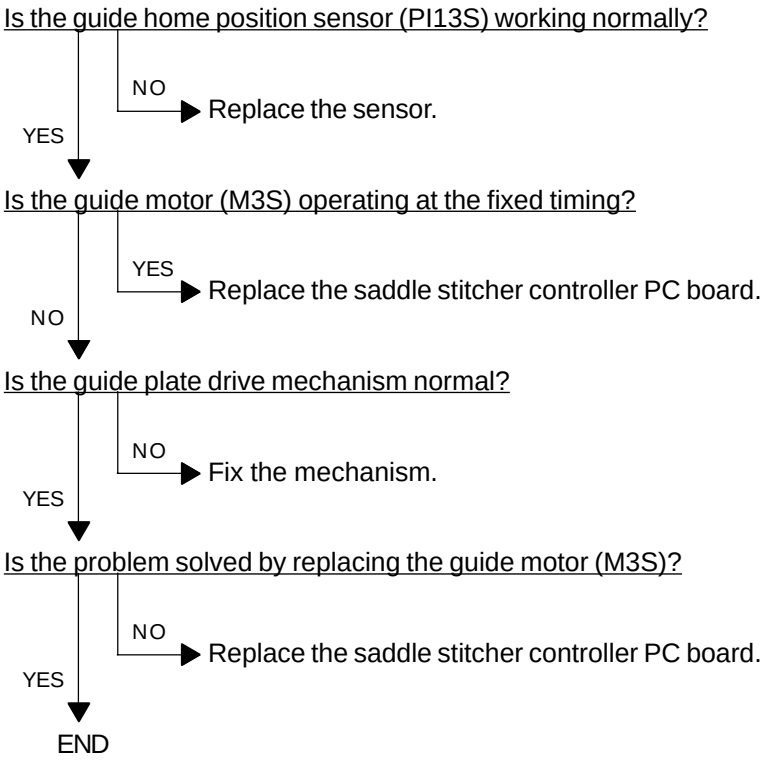
NO → Replace the saddle stitcher controller PC board.

YES ↓

END

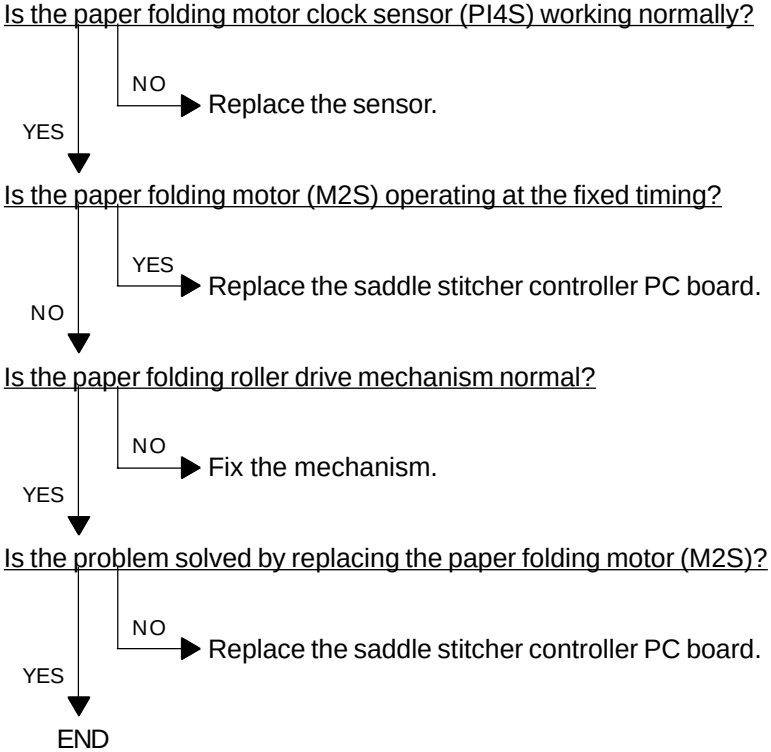
[CBD] Saddle stitcher guide motor is abnormal

MJ-1013 (Saddle stitcher section)



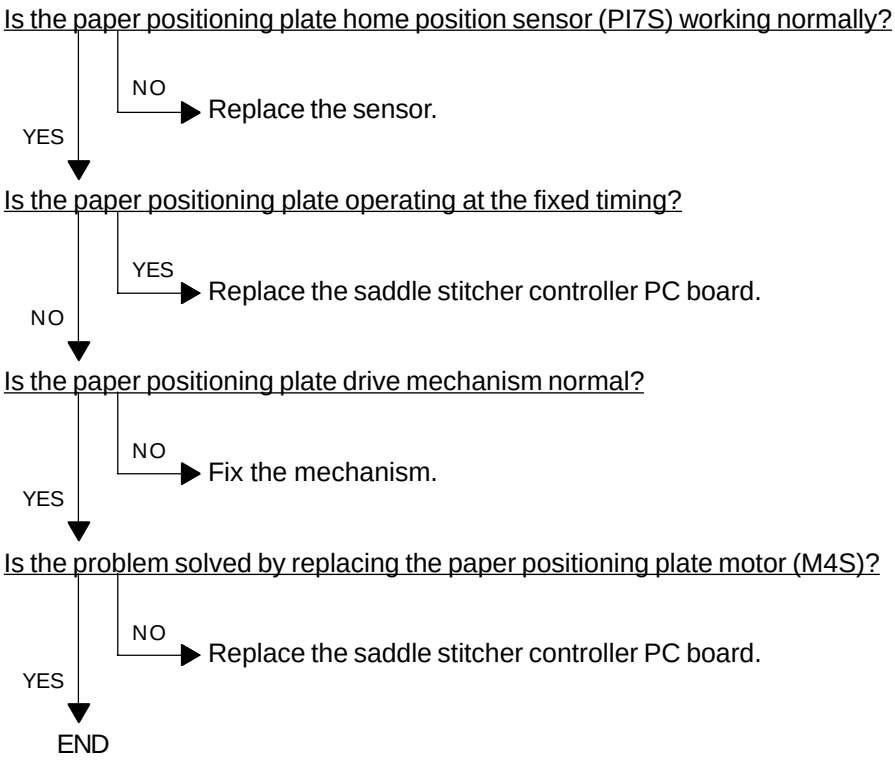
[CBE] Saddle stitcher paper folding motor is abnormal

MJ-1013 (Saddle stitcher section)



[CBF] Saddle stitcher paper positioning plate motor is abnormal

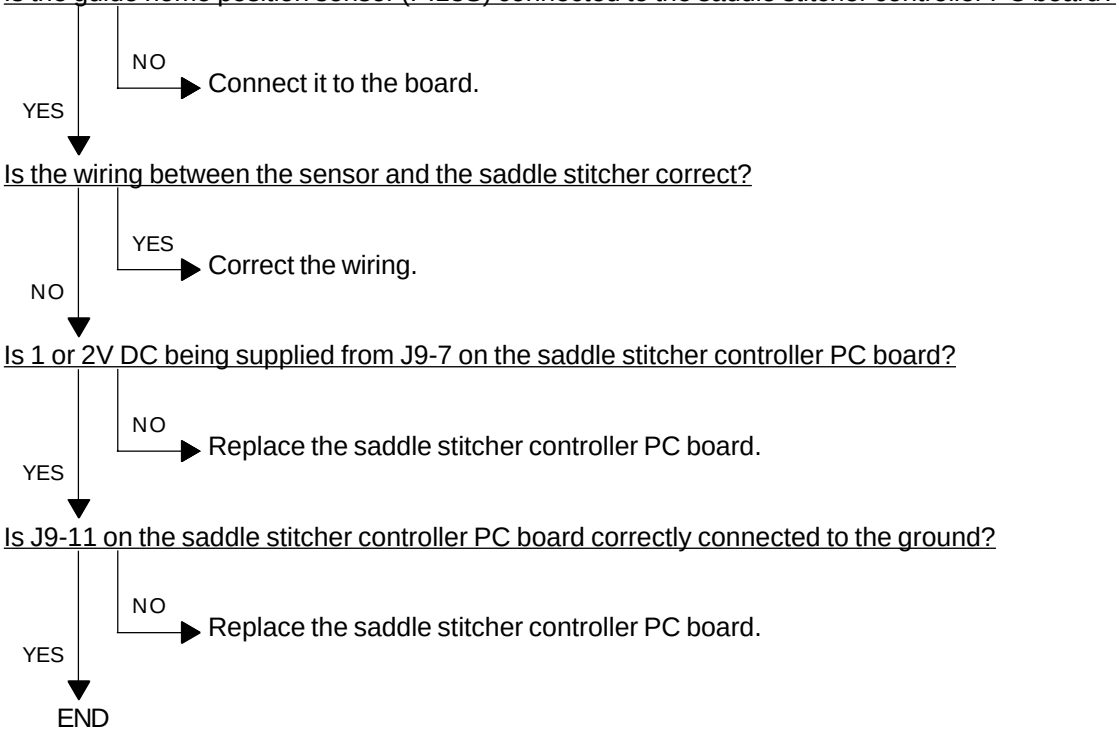
MJ-1013 (Saddle stitcher section)



[CCO] Saddle stitcher sensor connector connection error

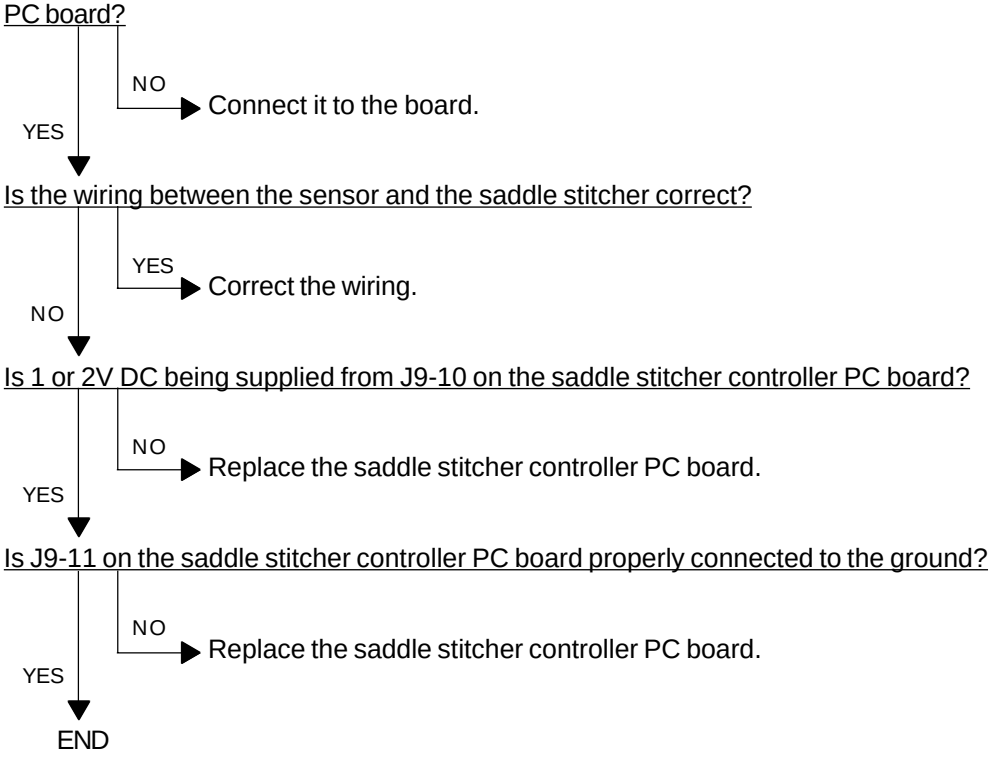
MJ-1013 (Saddle stitcher section)

[Procedure 1]



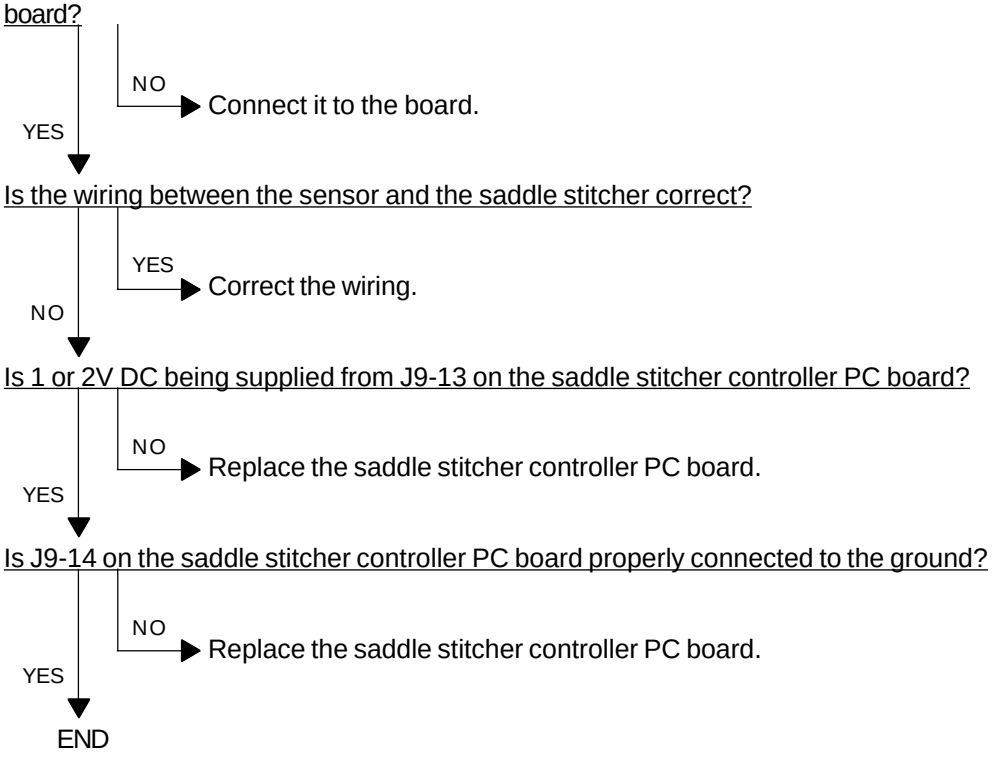
[Procedure 2]

Is the paper pushing plate home position sensor (PI14S) connected to the saddle stitcher controller PC board?



[Procedure 3]

Is the paper pushing plate top position sensor (PI15S) connected to the saddle stitcher controller PC board?



[CC1] Saddle stitcher microswitch error

MJ-1013 (Saddle stitcher section)

[Procedure 1]

Is the switch actuator for the inlet door working properly?

NO → Fix the mechanism.

YES ↓

Is the inlet cover switch (MS1S) working normally?

NO → Replace the switch.

YES ↓

Measure the voltage of J10-8 on the saddle stitcher controller PC board when the inlet door is open. Is it 5V?

NO → The inlet cover sensor (PI9S) is broken. Replace it.

YES ↓

Measure the voltage between J19-2 (+) and J19-1 (-) on the saddle stitcher controller PC board. Is it 24 V?

NO → Replace the saddle stitcher controller PC board.

YES ↓

Check the wiring between J19 and J1 on the saddle stitcher controller PC board. If there is no problem, replace the saddle stitcher controller PC board.

[Procedure 2]

Is the switch actuator for the front door working properly?

NO → Fix the mechanism.

YES ↓

Is the front cover switch (MS2S) working normally?

NO → Replace the switch.

YES ↓

Measure the voltage of J11-12 on the saddle switcher controller PC board when the front door is opened. Is it 5V?

NO → The front door opening/closing sensor is broken. Replace it.

YES ↓

Replace the saddle stitcher controller PC board.

[Procedure 3]

Is the switch actuator for the delivery door working properly?

NO → Fix the mechanism.

YES ↓

Is the delivery cover switch working normally?

NO → Replace the switch.

YES ↓

Measure the voltage of J11-9 on the saddle stitcher controller PC board when the delivery door is opened. Is it 5V ?

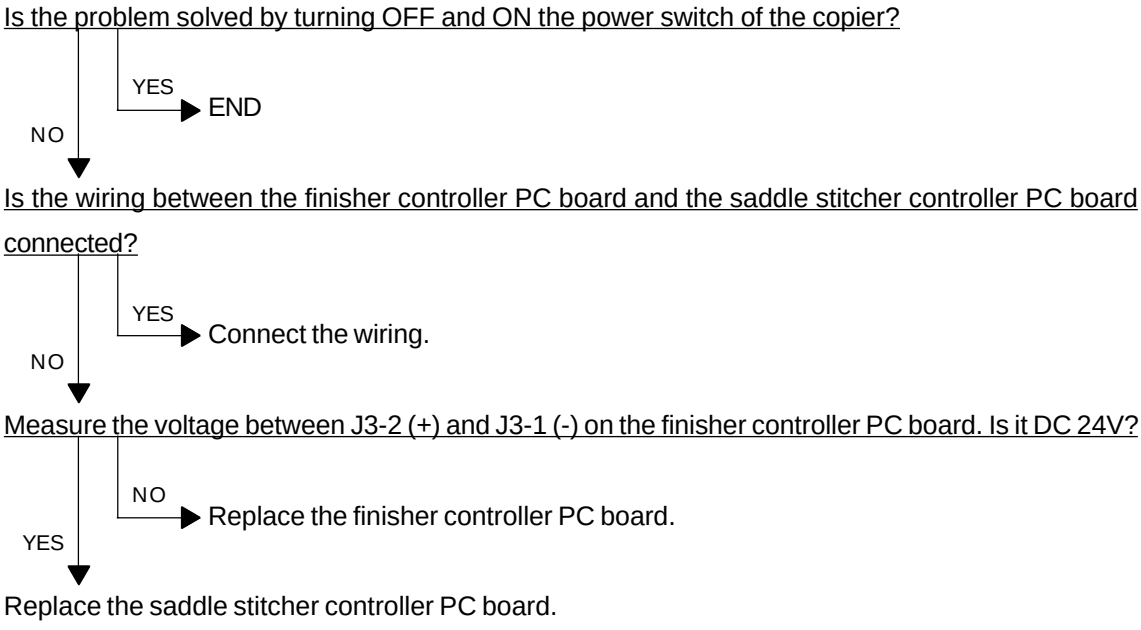
NO → The delivery cover sensor (PI3S) is broken. Replace it.

YES ↓

Replace the saddle stitcher controller PC board.

[CC2] Communication error between finisher and saddle stitcher

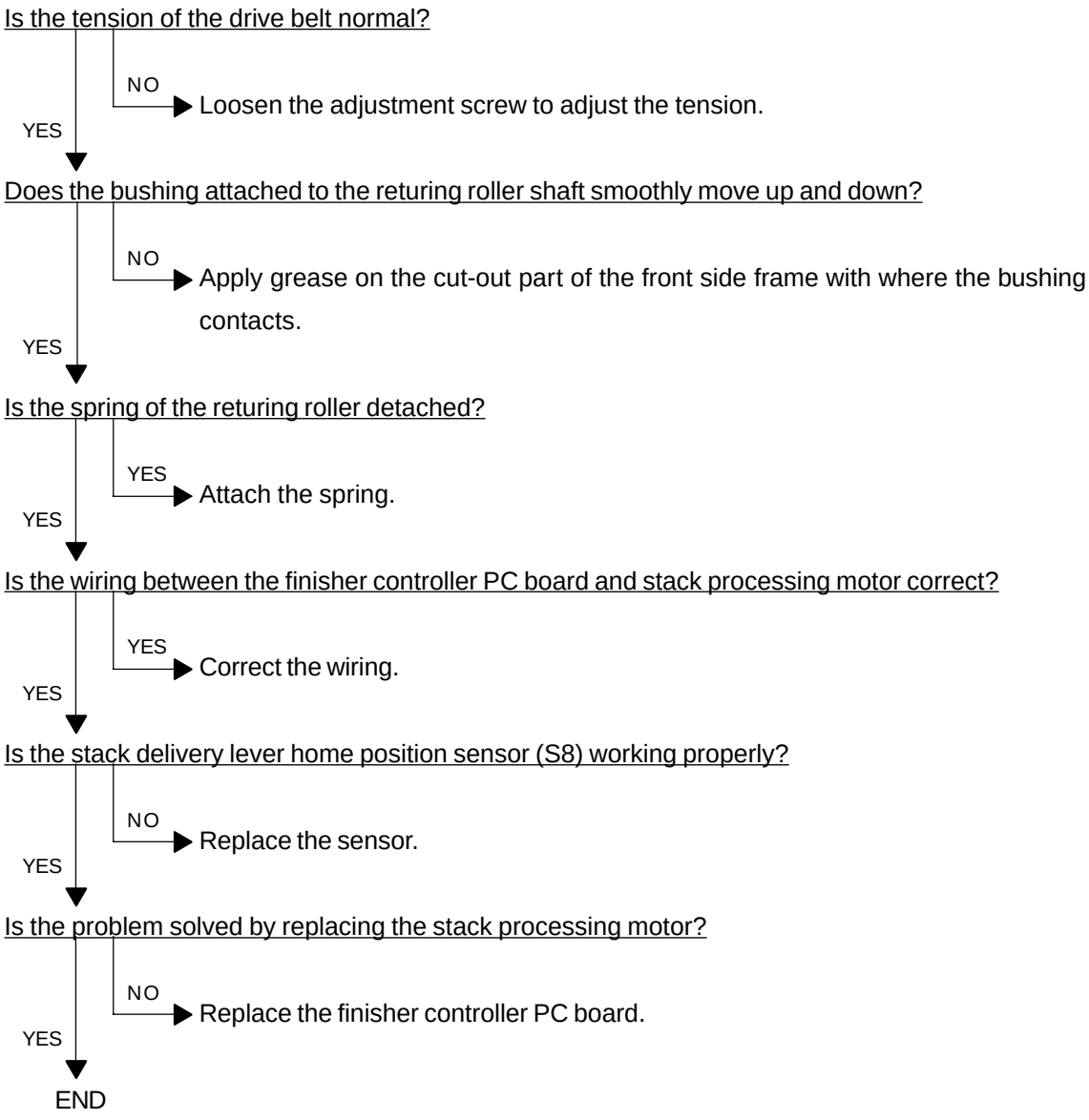
MJ-1012/1013



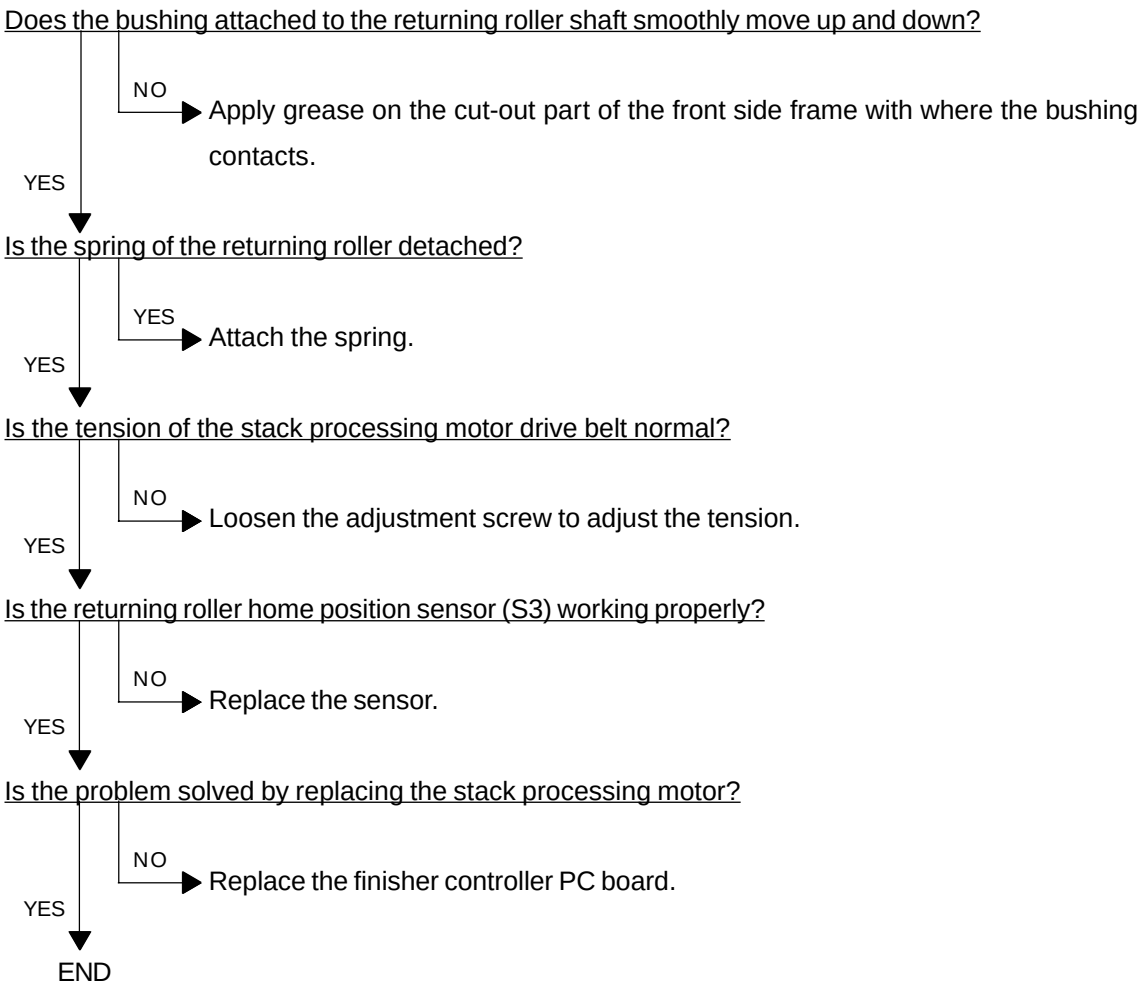
[CC3] Stack processing motor is abnormal

MJ-1011

[Procedure 1]



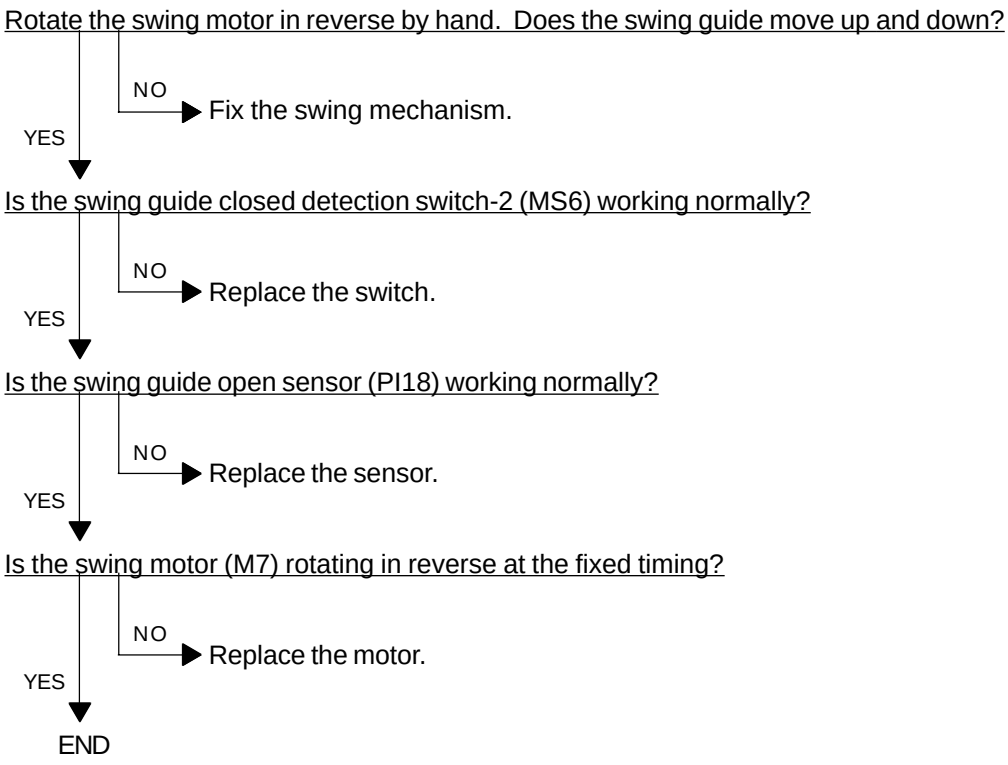
[Procedure 2]


Does the bushing attached to the returning roller shaft smoothly move up and down?
NO
Apply grease on the cut-out part of the front side frame with where the bushing contacts.
YES
Is the spring of the returning roller detached?
YES
Attach the spring.
YES
Is the tension of the stack processing motor drive belt normal?
NO
Loosen the adjustment screw to adjust the tension.
YES
Is the returning roller home position sensor (S3) working properly?
NO
Replace the sensor.
YES
Is the problem solved by replacing the stack processing motor?
NO
Replace the finisher controller PC board.
YES
END

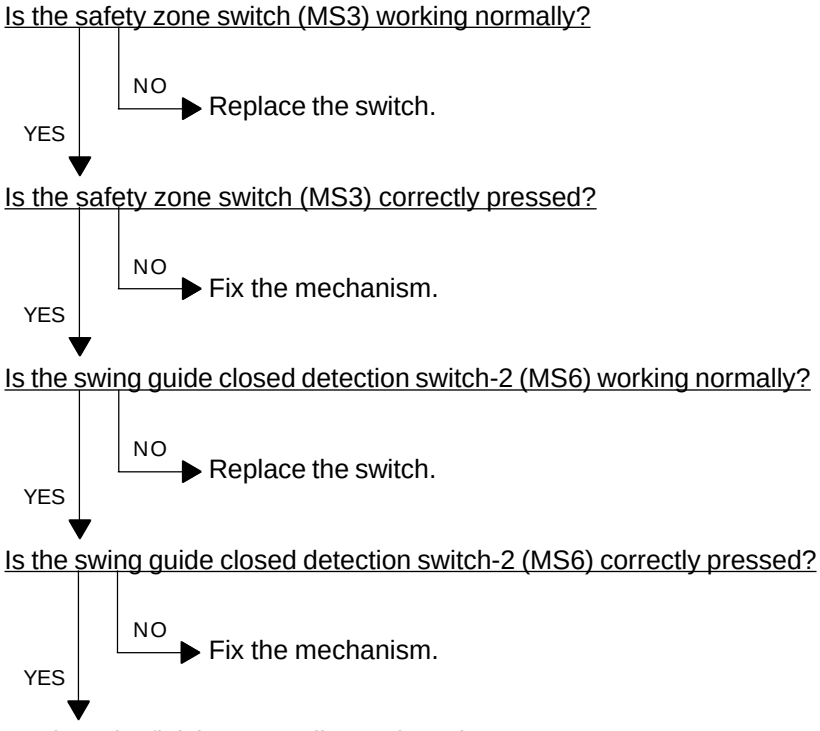
[CC4] Swing motor is abnormal

MJ-1012/1013 (Finishier section)

[Procedure 1]

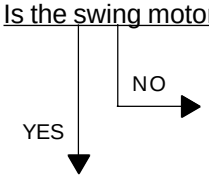


[Procedure 2]



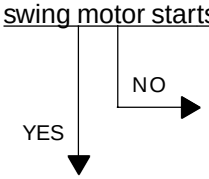
[Procedure 3]

Is the swing motor clock sensor (PI20) working normally?



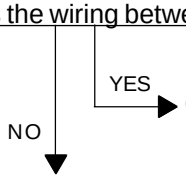
Replace the sensor.

Does the voltage between J11-6 and -7 on the finisher controller PC board become 24V when the swing motor starts rotating?



Replace the finisher controller PC board.

Is the wiring between the swing motor and finisher controller PC board correct?

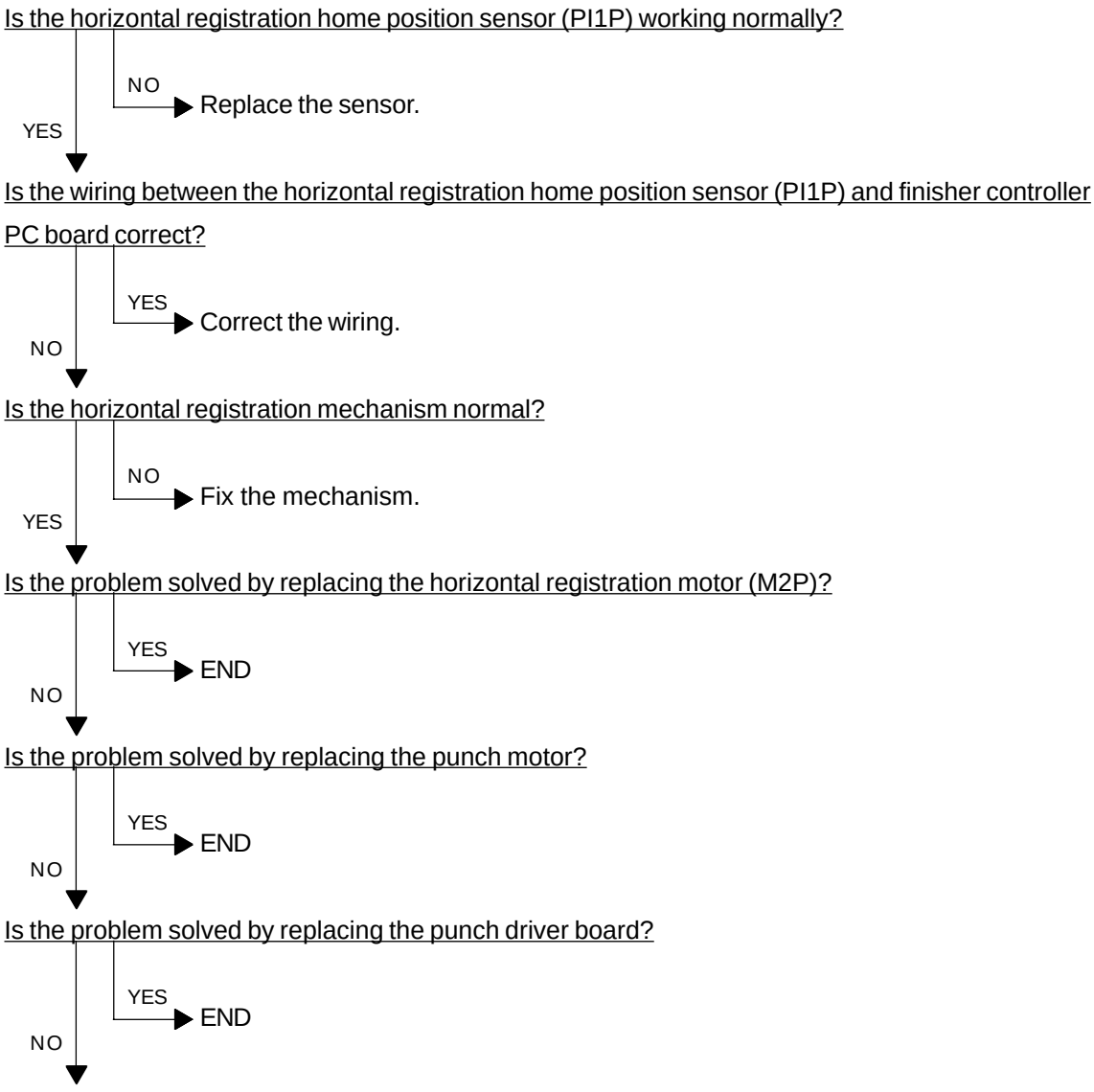


Correct the wiring.

Replace the swing motor.

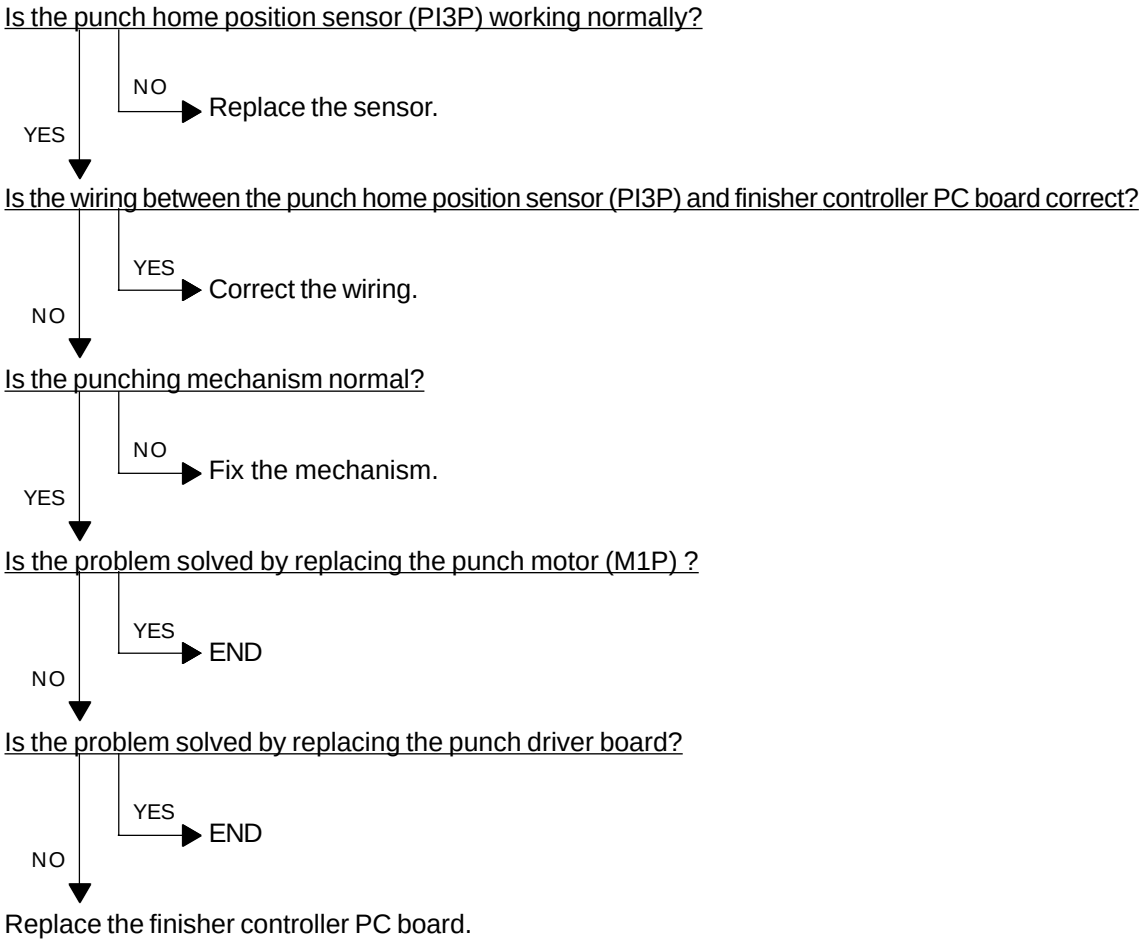
[CC5] Horizontal registration motor is abnormal

MJ-1012/1013 (with MJ-6001 connected)



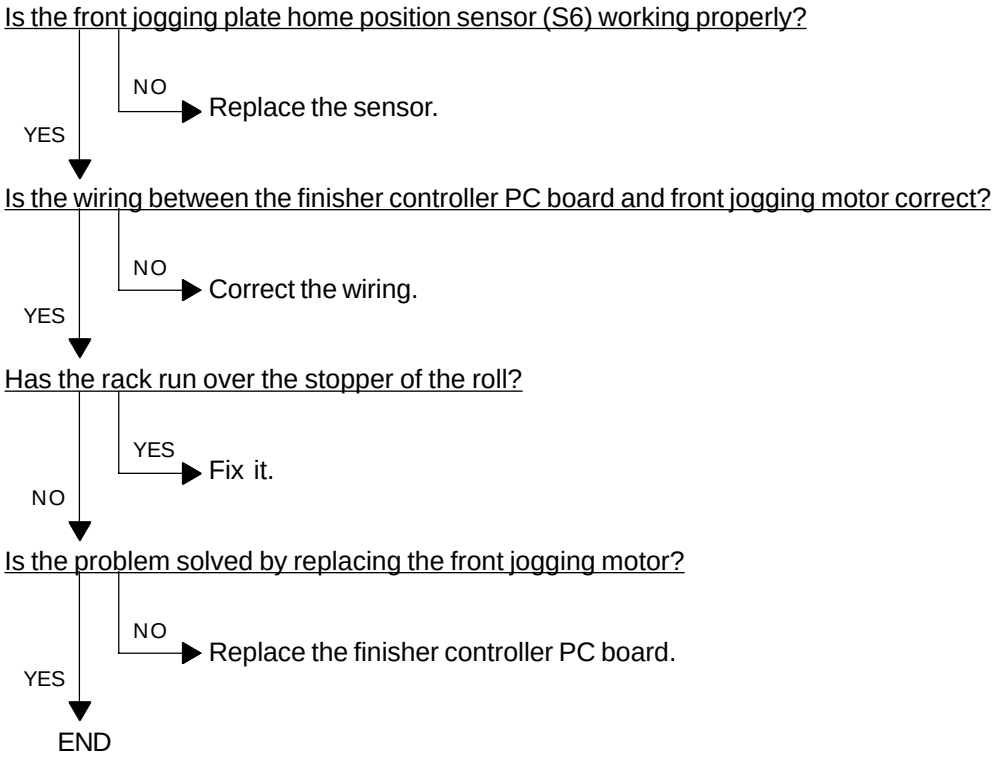
[CC6] Punch motor is abnormal

MJ-1012/1013 (with MJ-6001 connected)



[CC8] Front jogging motor is abnormal

MJ-1011



[CC9] Upper stack tray lift motor is abnormal

MJ-1011

Is the wiring between the finisher controller PC board and upper stack tray lift motor correct?

NO → Correct the wiring.

YES ↓

Are the front and rear sides of the upper stack tray leveled?

NO → Level them.

YES ↓

Is the upper stack tray lift motor clock sensor (S19) working properly?

NO → Replace the sensor.

YES ↓

Is the stack tray paper height sensor (S10) working properly?

NO → Replace the sensor.

YES ↓

Are the upper stack tray upper limit sensor (S25), lower stack tray full sensor (S23) and stack processing safety switch working properly?

NO → Replace the sensor or sensor controller PC board.

YES ↓

Does the voltage between the pins J14-1 and -2 on the finisher controller PC board become 24V when the upper stack tray lift motor starts rotating?

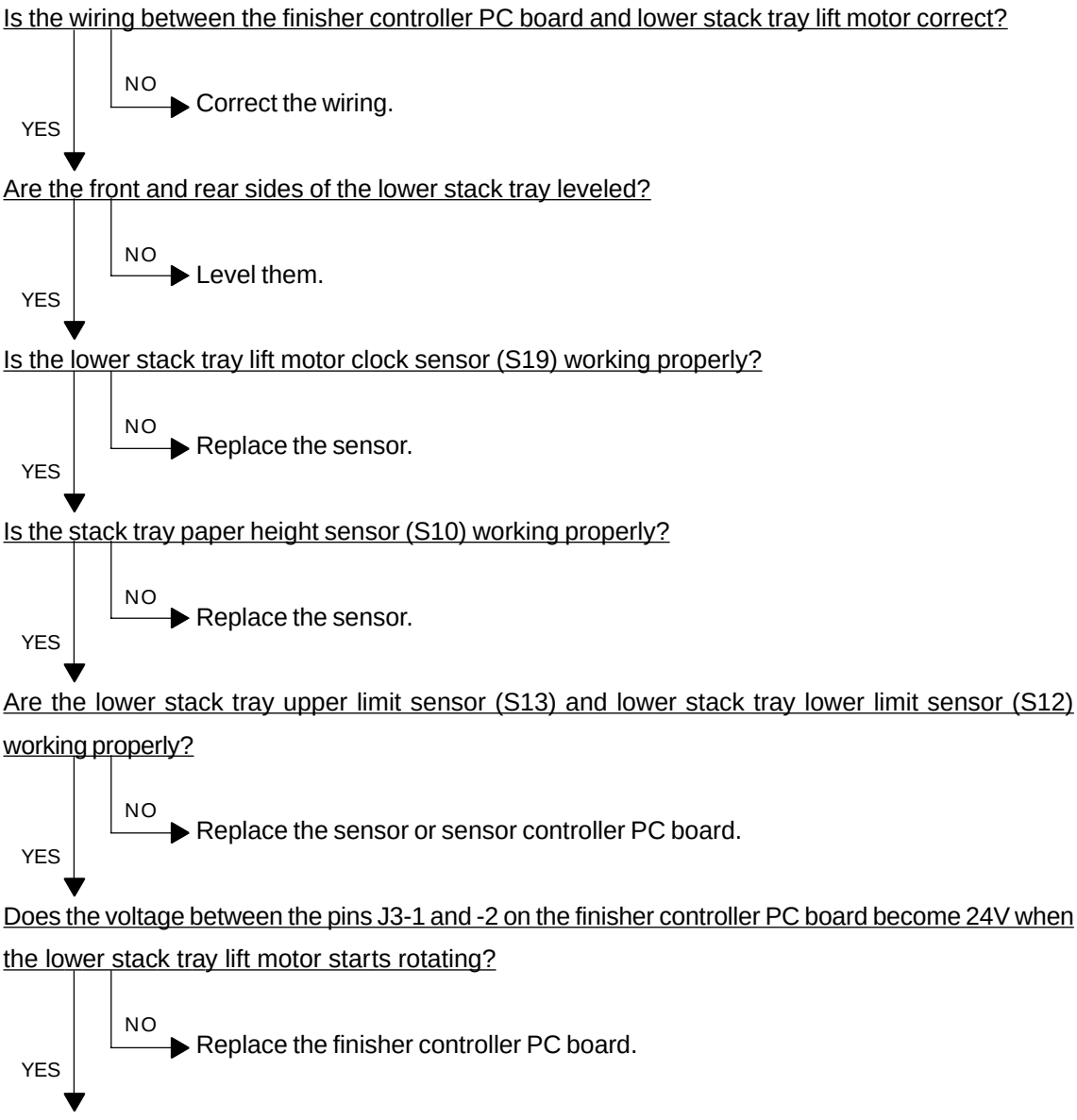
NO → Replace the finisher controller PC board.

YES ↓

Check the wiring between the upper stack tray lift motor and finisher controller PC board. If there is no problem, replace the upper stack tray lift motor.

[CCA] Lower stack tray lift motor is abnormal

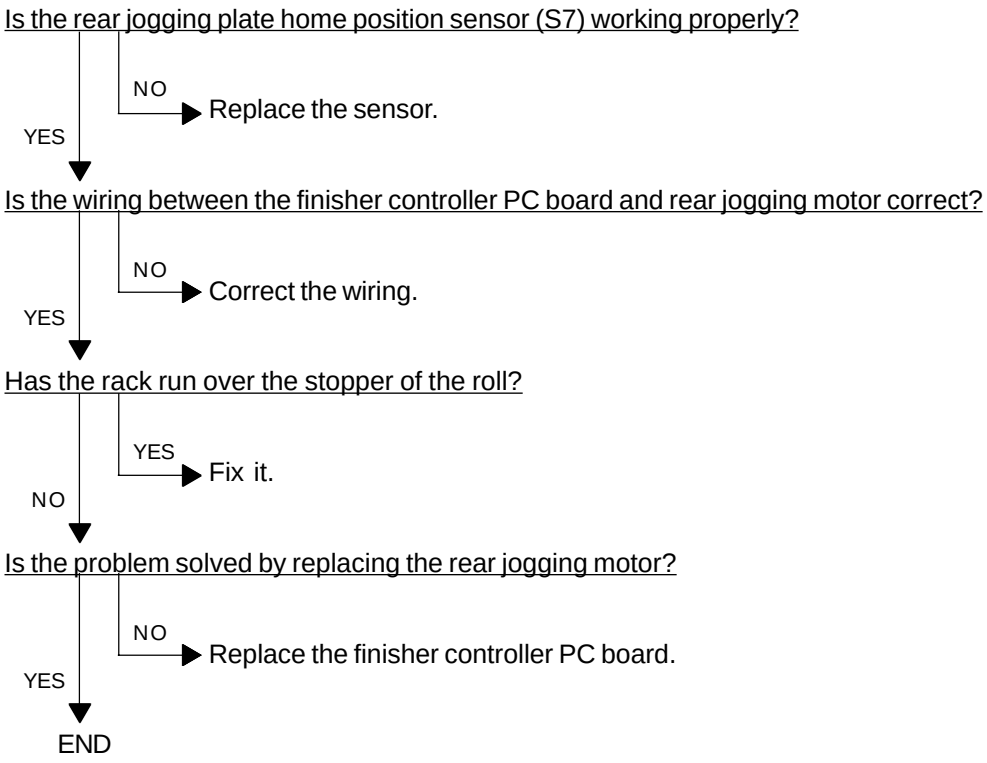
MJ-1011



Check the wiring between the upper stack tray lift motor and finisher controller PC board. If there is no problem, replace the lower stack tray lift motor.

[CCB] Rear jogging motor is abnormal

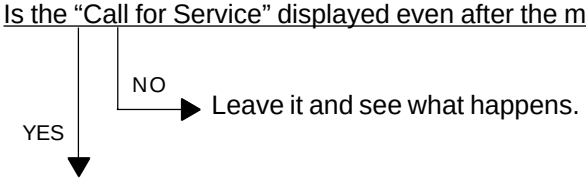
MJ-1011



5.1.15 Service call for others

[C94] Main CPU is abnormal

Is the “Call for Service” displayed even after the main switch is turned OFF and back ON ?



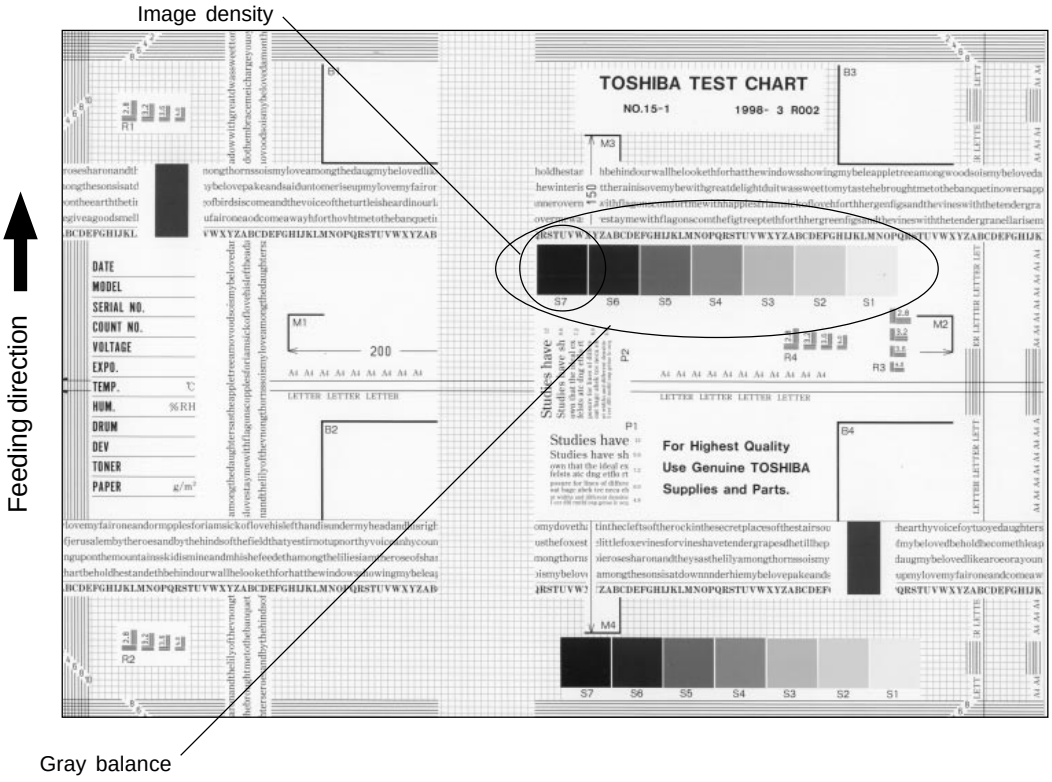
1. Check if the circuit pattern between the main CPU and MROM is short- or open-circuited.
2. Replace the LGC board if this error occurs frequently.

[F10] HDD Initialization error

(1) Initialize the HDD. (mode (08) → code "690" → 2)
(2) Check if the HDD is mounted.
(3) Check if the specified HDD is mounted.
(4) Check if the connector pins of the HDD are bent.
(5) Check if the power supply connector is disconnected.
(6) Check if the connector J111 on the SYS board is disconnected.
(7) Replace the HDD.
(8) Replace the SYS board.
(9) Replace the harness.

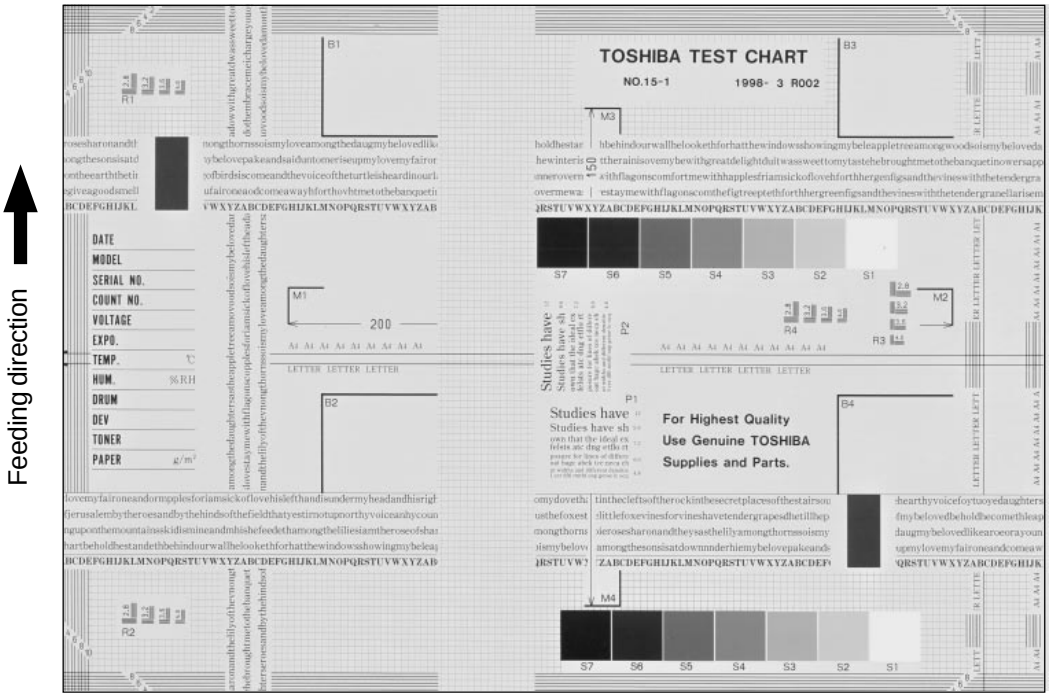
5.2 Troubleshooting for the Image

(1) Abnormality of image density/Gray balance



Defective area	Step	Check Items	Prescription	Remarks
Density/Gray balance	1	Check the density/gray balance.	Adjust the density.	
Printer section	2	Check the printed image.	Make a test print using 04-113.	Go to step 4 If there is any problem on the image.
Scanner	3	Are the original glass or mirrors dirty?	Clean them.	
Printed image	4	Is the image faded?	Perform troubleshooting for faded image.	
		Is background fogging occuring?	Perform troubleshooting for background fogging.	
		Is there a blotch on the image?	Perform troubleshooting for blotched image.	
		Is the image transferred normally?	Perform troubleshooting for abnormal transfer.	

(2) Background Fogging

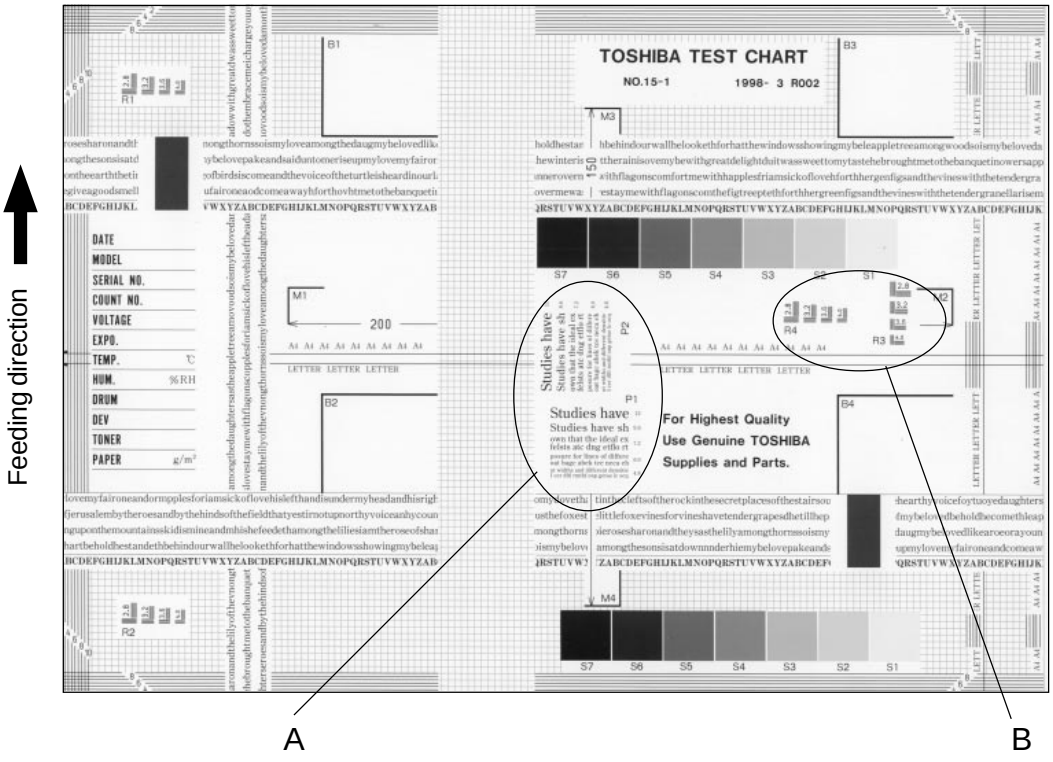


Feeding direction

Defective area	Step	Check Items	Prescription	Remarks
Density reproduction	1	Check the reproduction of the Image density.	Adjust the density.	
Printer section	2	Check the printed image.	Make a test print using 04-113.	Go to step 4 If there is any problem with the image.
Scanner	3	Are the original glass (especially shading position), mirrors and lens dirty?	Clean them.	
Auto-toner	4	Is the auto-toner sensor normal?	Check the performance of the auto-toner sensor and readjust.	
	5	Is the toner supplied normally?	Check the motor and circuits.	
Main charger output	6	Is the main charger output normal?	Check the circuits. (*)	
Developer bias	7	Is the developer bias proper?	Check the circuits. (*)	
Developer unit	8	Is the contact between the drum and developer material normal?	Adjust the doctor-sleeve gap and polarity.	
Developer material	9	Has the developer material reached its PM life?	Replace the developer material.	
Drum cleaning blade	10	Is the drum cleaned properly?	Check the pressure of the drum cleaning blade against the drum surface.	
Toner dusting	11	Is toner heaped on the seal of the developer unit?	Remove the toner and clean the developer unit.	

* **Note:**
If the output from the main charger or developer bias are abnormal, replace the high-voltage transformer with a new one and output the chart again. If the output stays abnormal, check if the harness connecting the LGC board and high-voltage transformer, or high-voltage harness is open-circuited, if the power supply is normal, and if the main charger wire is dirty.

(3) Moire/lack of sharpness



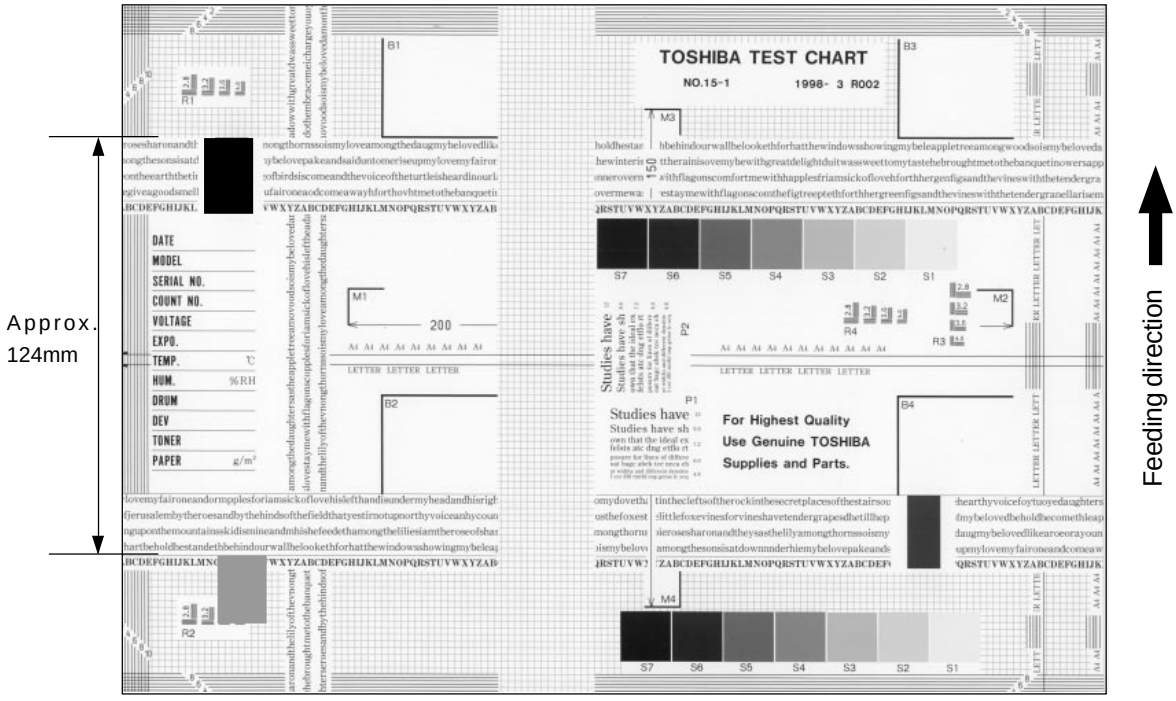
Moire

Defective area	Step	Check Items	Prescription	Remarks
Density reproduction	1	Check the reproduction of the image density.	Adjust the density.	
Parameter adjustment value	2	Check the image processing parameters.	Check the adjustment value for sharpness.	
Printer section	3	Check the printed image.	Make a test print using 04-113.	Perform the appropriate trouble-shooting if there is any problem with the image.

Lack of sharpness

Defective area	Step	Check Items	Prescription	Remarks
Density reproduction	1	Check the reproduction of the image density.	Adjust the density.	
Parameter adjustment value	2	Check the image processing parameters.	Check the adjustment value for sharpness.	
Printer section	3	Check the printed image.	Make a test print using 04-113.	Perform the appropriate trouble-shooting if there is any problem with the image.
	4	Check the image processing parameters.	Check the encircled areas A and B in the image, and change the sharpness intensity in the sharpness adjustment mode.	

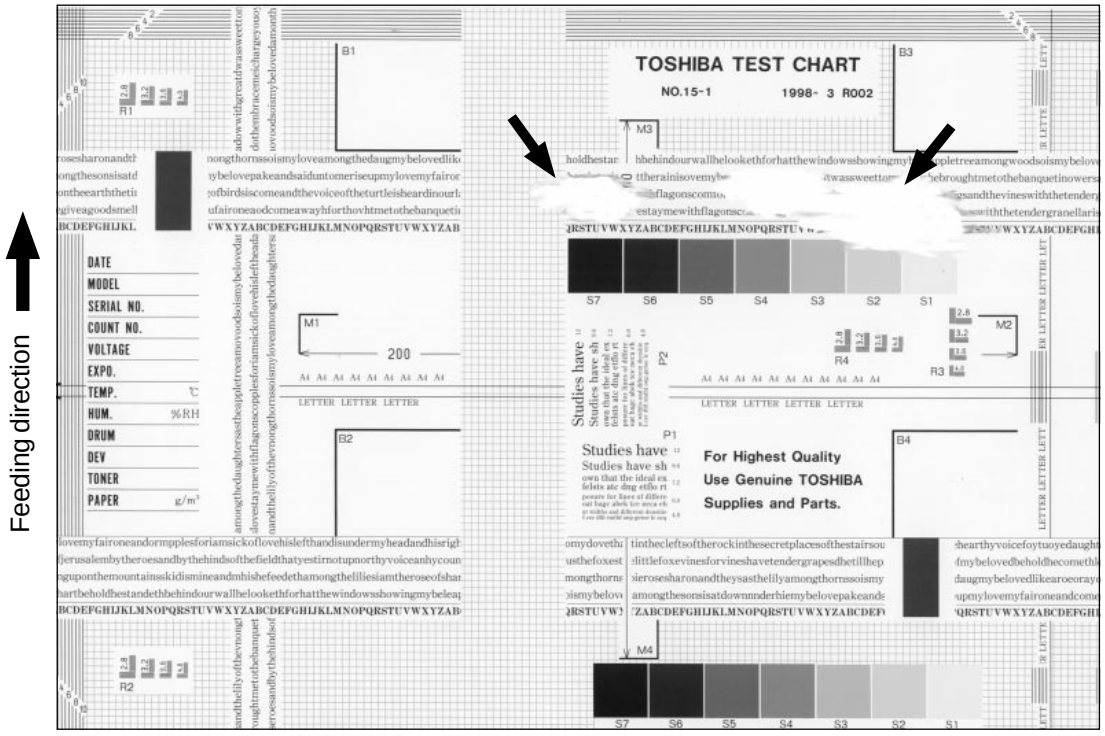
(4) Toner offset



Toner offset (Shadow image appears approx. 124 mm toward the dark image.)

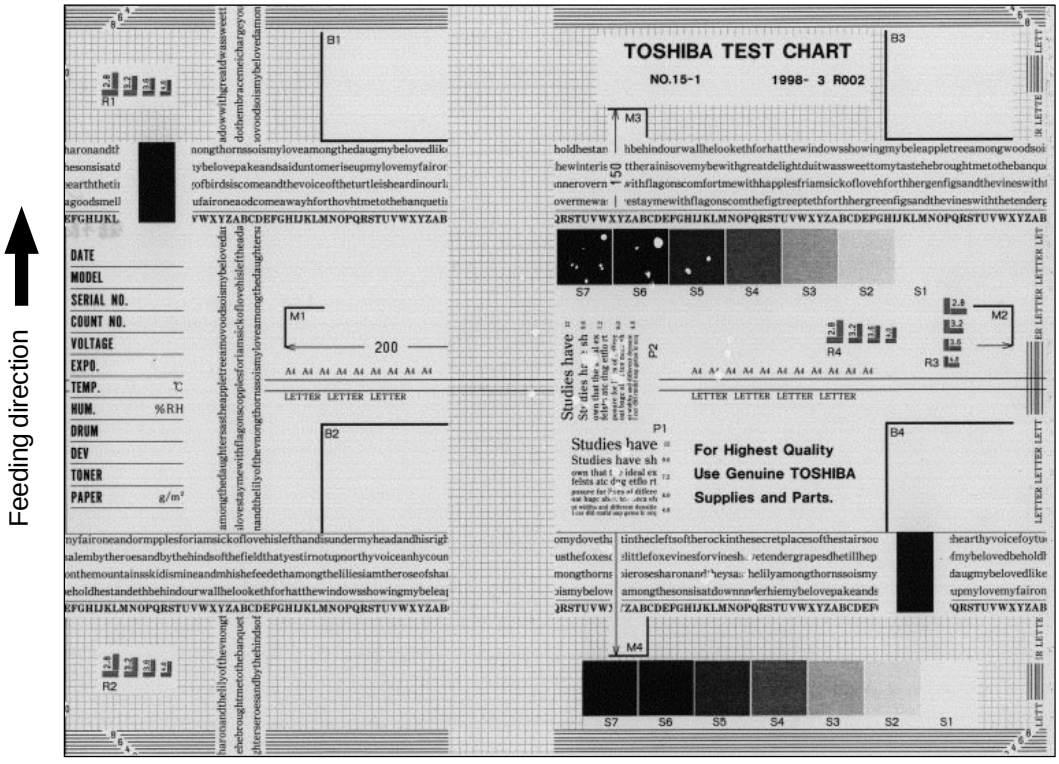
Defective area	Step	Check Items	Prescription	Remarks
Density	1	Is the density too high?	Adjust the density.	
Fuser unit	2	Is the pressurization of the fuser roller normal?	Check the pressure releasing parts and pressurization mechanism.	
	3	Is the thermistor in contact with the fuser roller?	Contact the thermistor with the fuser roller.	
	4	Is there a scratch on the fuser roller surface?	Replace the fuser roller.	
	5	Has the fuser roller reached its PM life?	Replace the fuser roller.	
	6	Is the temperature of the fuser roller normal?	Check the adjustment values of fuser roller temperature? 08-410:12 (200°C) 08-411:12 (200°C)	
Paper	7	Has the appropriate paper mode been selected?	Select a proper mode.	
	8	Using the recommended paper?	Use the recommended paper.	
Developer material	9	Using the specified developer material?	Use the specified developer material and toner.	
Scanner	10	Are the original glass (especially shading position), mirror and lens density?	Clean them.	

(5) Blurred image



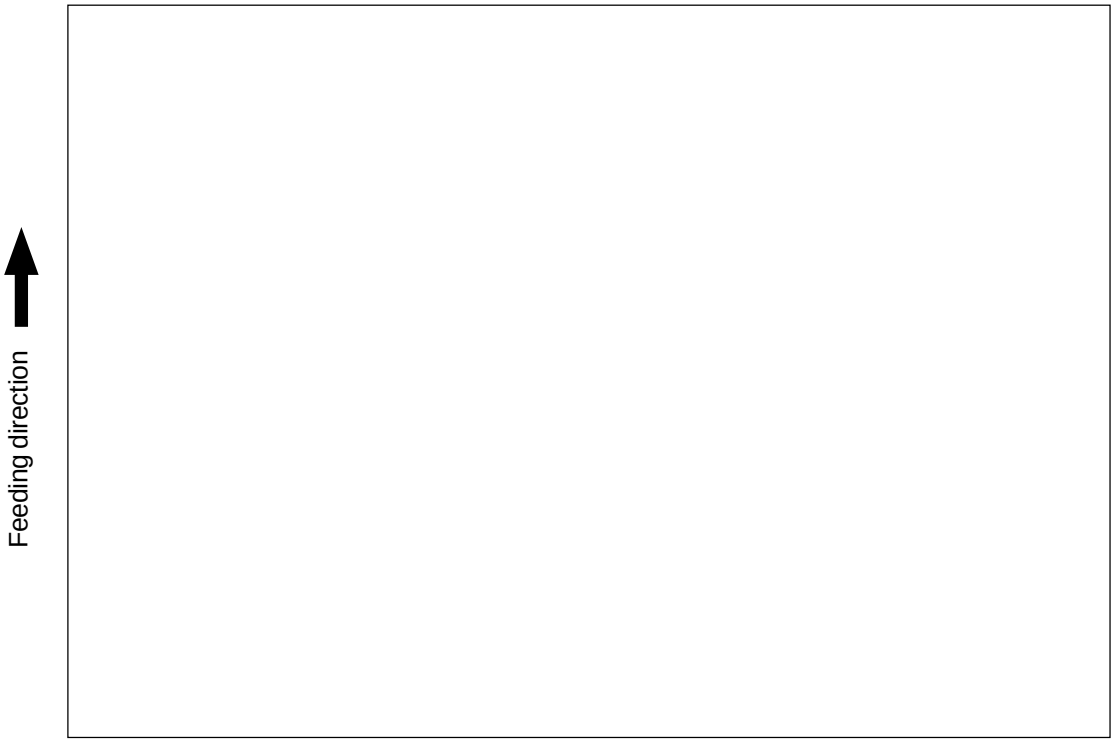
Defective area	Step	Check Items	Prescription
Scanner condensation	1	Is the scanner condensed?	Clean it.
Drum	2	Is the drum surface wet or dirty?	Wipe the drum with a dry cloth. * Do not use alcohol or other organic solvents.

(6) Poor fusing



Defective area	Step	Check Items	Prescription
IH electric power	1	Check if the connector contacts properly.	Correct it.
	2	Is the IH coil shorted or broken? Is the IH control board normal?	Replace the IH coil or IH control board.
Pressure between fuser roller and pressure roller	3	Are the pressure springs working properly?	Check/adjust the pressure springs.
Fuser roller temperature	4	Is the temperature of the fuser roller too low?	Check the adjustment values of fuser roller temperature? 08-410:12 (200°C) 08-411:12 (200°C)
Paper	5	Is the paper moist?	Change the paper.

(7) Blank copy

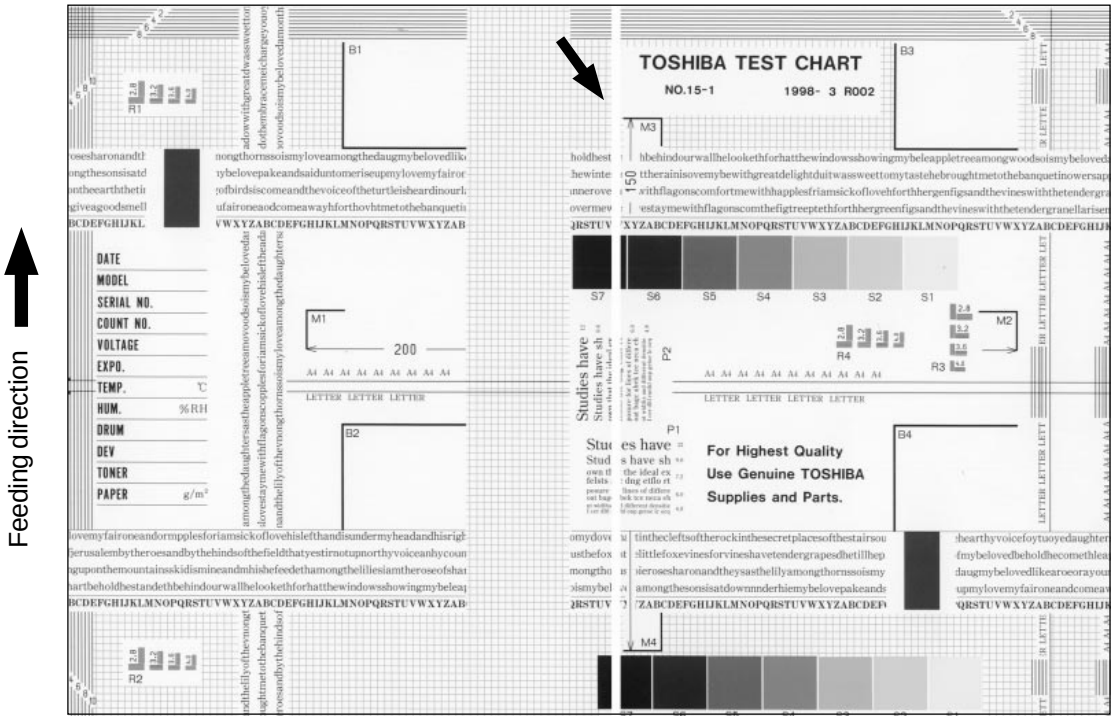


Defective area	Step	Check Items	Prescription
High-voltage transformer (transfer charger/ developer bias)	1	Is the output from the high-voltage transformer normal?	Adjust the output, or replace the transformer.
Transfer charger wire	2	Is the transfer charger wire cut off?	Replace the transfer charger wire.
Developer unit	3	Is the developer unit installed properly?	Check and correct the engaging condition of the developer unit gears.
Drive system of developer unit	4	Do the developer sleeve and mixers rotate?	Check and fix the drive system of the developer unit.
Developer material	5	Is the developer material smoothly transported?	Remove the foreign object from the developer material.
Developer polarity	6	Has the magnetic brush phase been shifted?	Adjust the developer polairty.
Position of doctor blade	7	Is the doctor blade positioned properly?	Adjust it using the doctor-sleeve jig.
Drum	8	Is the drum rotating?	Check if the drum shaft is inserted. Check the drive system of the drum.
CCD, SLG, SYS, LGC boards and harnesses	9	Are the connectors securely connected? Check if the harnesses connecting the boards are open-circuited.	Connect the connectors securely. Replace the harness.

(8) Solid copy

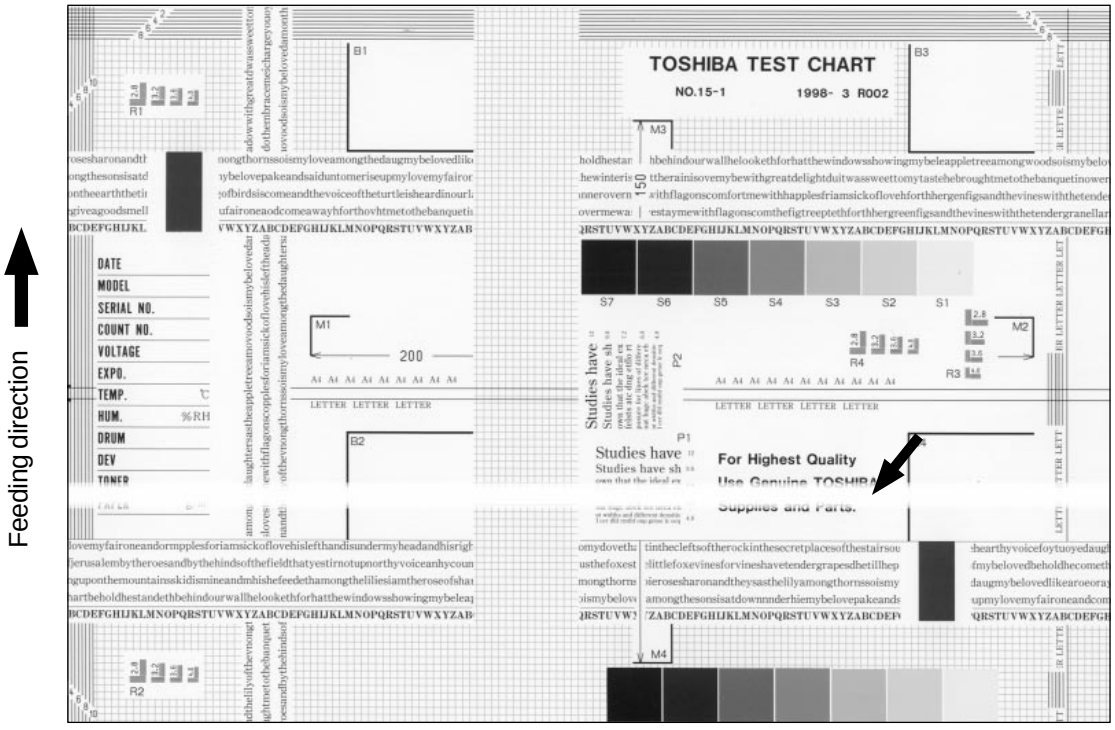
Defective area	Step	Check Items	Prescription
Exposure lamp and inverter	1	Does the exposure lamp light?	Check if the connector contacts with the lamp terminal. Replace the defective inverter.
Scanner	2	Is there any foreign object on the light path?	Remove it.
Condensation of scanner and drum	3	Is the scanner or drum condensed?	Clean the mirrors, lens and drum. Keep the power cord plugged in.
Main charger	4	Is the main charger securely installed?	Install it securely.
	5	Check the main charger wire for breaks.	Replace it.
High-voltage transformer (Main charger)	6	Is the output from the high-voltage transformer normal?	Adjust the output or replace the high-voltage transformer.
CCD, SLG, SYS, LGC boards and harnesses	7	Are the connectors securely connected? Check if the harnesses connecting the boards are open-circuited.	Connect the connectors securely. Replace the harness.

(9) White banding (in the feeding direction)



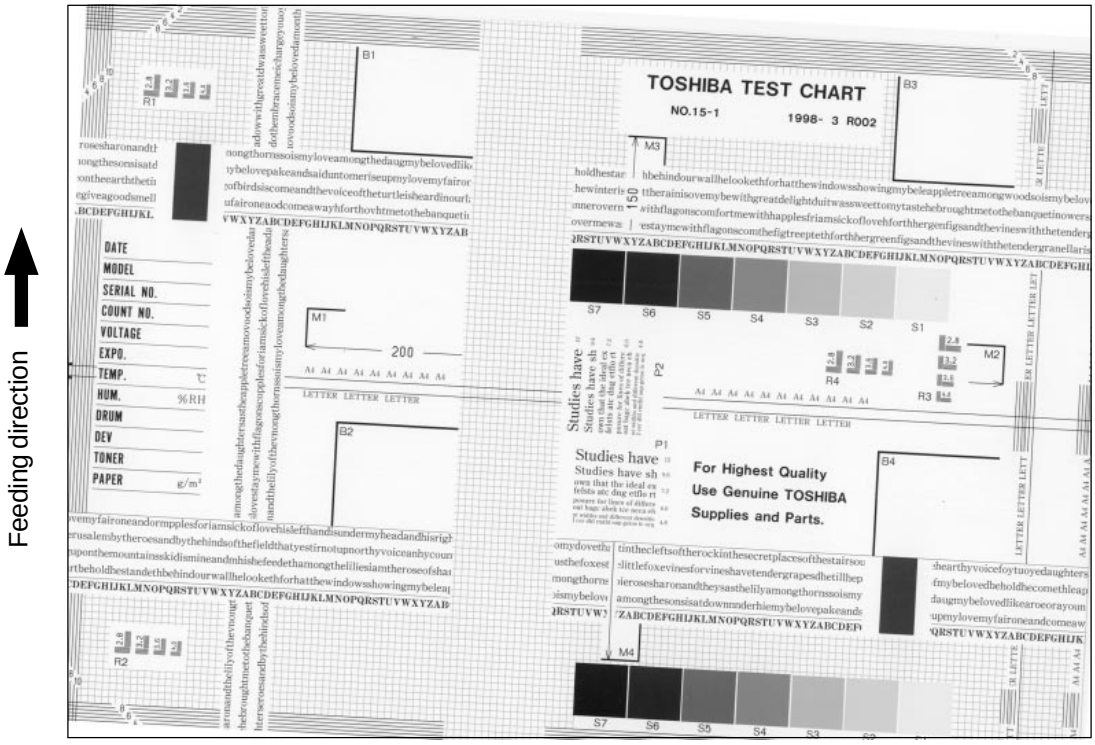
Defective area	Step	Check Items	Prescription
Laser optical unit	1	Is there a foreign object or stain on the slit glass?	Clean the slit glass.
Main charger grid	2	Is there a foreign object on the charger grid?	Remove the foreign object.
Developer unit	3	Is the developer material transported properly?	Remove the foreign object.
	4	Is there a foreign object on the drum seal?	Remove the foreign object.
	5	Is the upper drum seal of the developer unit in contact with the drum?	Correct the position of the drum seal or replace it.
Drum	6	Is there a foreign object on the drum surface?	Replace the drum.
Transport path	7	Does the toner image contact with any foreign object before the paper enters the fusing section after the separation?	Remove the foreign object.
Discharge lamp	8	Are any of the discharge lamps off?	Replace the discharge lamp.
Scanner	9	Is there a foreign object or stain on the light path?	Clean the lens and mirrors.
Cleaner	10	Is there any foreign object, which contacts the drum, on the cleaner stay?	Remove the foreign object.

(10) White banding (at right angle with the feeding direction)



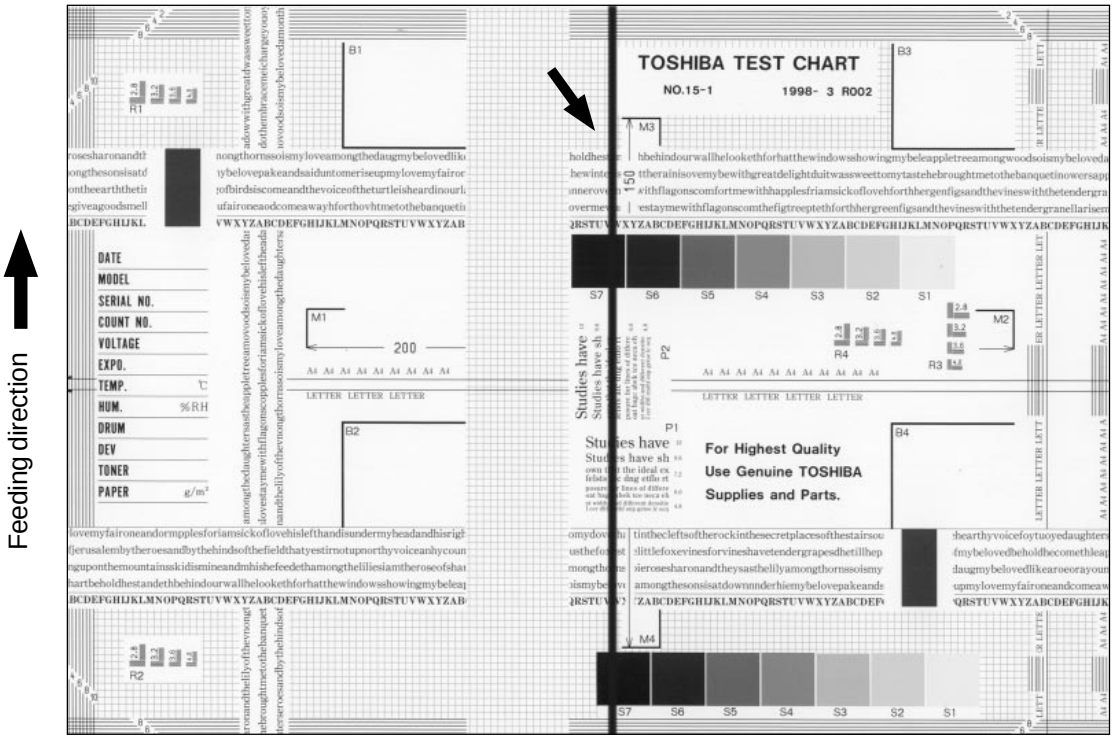
Defective area	Step	Check Items	Prescription
Main charger	1	Is there a foreign object on the charger?	Remove the foreign object.
	2	Is the connector in proper contact with the terminal?	Clean or adjust the terminal.
Drum	3	Is there any abnormality on the drum surface?	Replace the drum.
Discharge lamp	4	Does the discharge lamp light normally?	Replace the discharge lamp or clean the terminals.
Developer unit	5	Is the developer sleeve rotating normally? Is there any abnormality on the sleeve surface?	Check the drive system of the developer unit, or clean the sleeve surface.
Drive system	6	Are the drum and scanner jittering?	Check each drive system.
High-voltage transformer (main charger and transfer charger)	7	Is the output from the high-voltage transformer normal?	Check the leakage and circuit. Replace the high-voltage transformer if it is defective.
Transfer charger wire	8	Is any foreign object such as dust sticking to the transfer charger wire?	Remove the foreign object from the wire.

(11) Skew (inclined image)



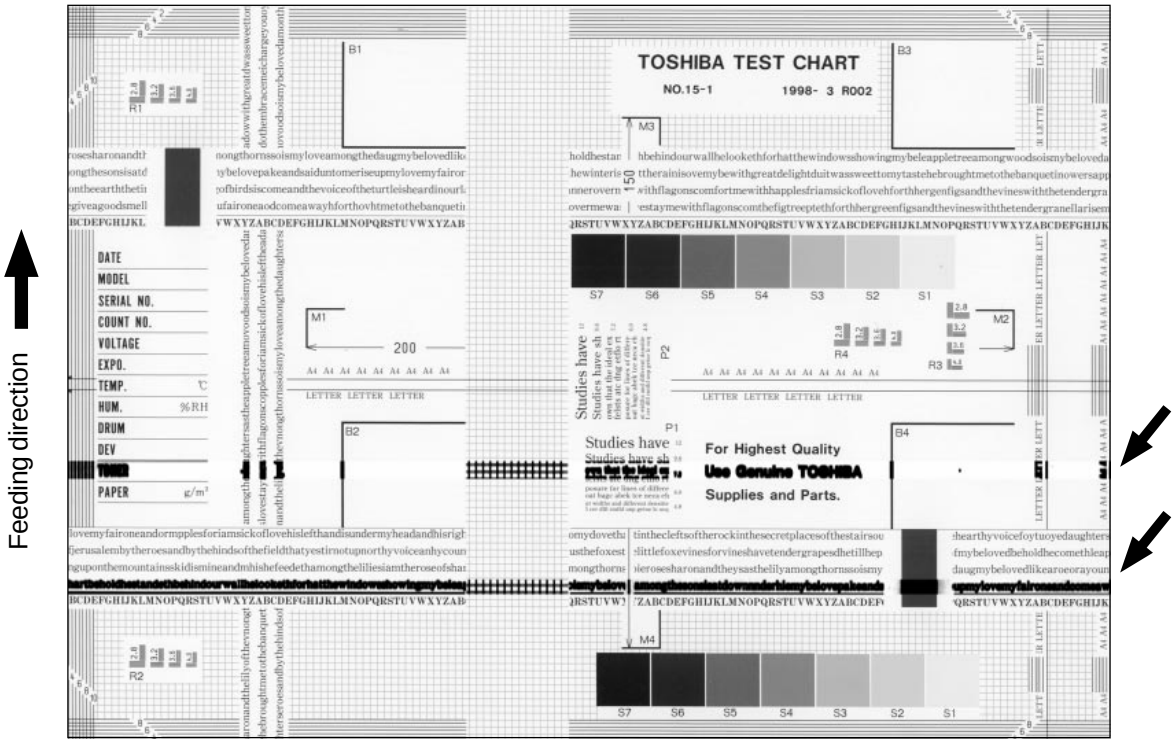
Defective area	Step	Check Items	Prescription
Cassette LCF PFP	1	Is the cassette or LCF/PFP properly installed?	Install the cassette or LCF/PFP properly.
	2	Is there too much paper in the cassette or LCF/PFP?	The hieght of the paper stack should not exceed 60.5mm. (137.5mm or lower/room for LCF)
	3	Is the corner of the paper folded?	Change the direction of the paper and set it again.
	4	Are the side guides of the cassette or LCF /PFP properly installed?	Adjust the position of the side guides.
Feed roller	5	Is the surface of the feed roller dirty?	Clean the roller surface with alcohol, or replace the roller.
Rollers	6	Are the roller and shaft secured?	Check and fasten the E-rings, pins, clips and set-screws.
Registration roller	7	Is the spring detached from the registration roller?	Attach the spring correctly. Clean the roller if it is dirty.
Pre-registration guide	8	Is the pre-registration guide properly installed?	Correct it.

(12) Black banding (in the feeding direction)



Defective area	Step	Check Items	Prescription
Scanner	1	Is there a foreign object on the light path?	Clean the lens and mirrors.
Main charger grid	2	Is there a foreign object on the grid?	Remove the foreign object.
	3	Is the grid dirty or deformed?	Clean or replace the grid.
Main charger	4	Is there a foreign object on the main charger?	Remove the foreign object.
	5	Is the charger wire dirty or deformed?	Clean or replace the charger wire.
	6	Is there a foreign object inside the charger case?	Remove the foreign object.
	7	Is inside the charger case dirty?	Clean inside the case.
Cleaner	8	Is there paper dust or something sticking to the cleaning blade edge?	Clean or replace the cleaning blade.
	9	Is the cleaning blade working properly?	Check the pressurization of the drum cleaning blade.
	10	Has the used toner been recovered properly?	Clean the toner recovery auger.
Fuser unit	11	(1) Is the fuser roller surface dirty or damaged? (2) Is the thermistor cleaned at the preventive maintenance?	(1) Clean or replace the fuser roller. (2) Clean the thermistor.
Drum	12	Are there scratches on the drum surface?	Replace the drum.
Laser optical unit	13	Is there a foreign object or stain on the slit glass?	Remove the foreign object or the stain.
Shading correction plate	14	Is there dust or stains on part of the original glass where the shading correction plate is placed on top.	Clean the plate.

(13) Black banding (at right angle with the feeding direction)

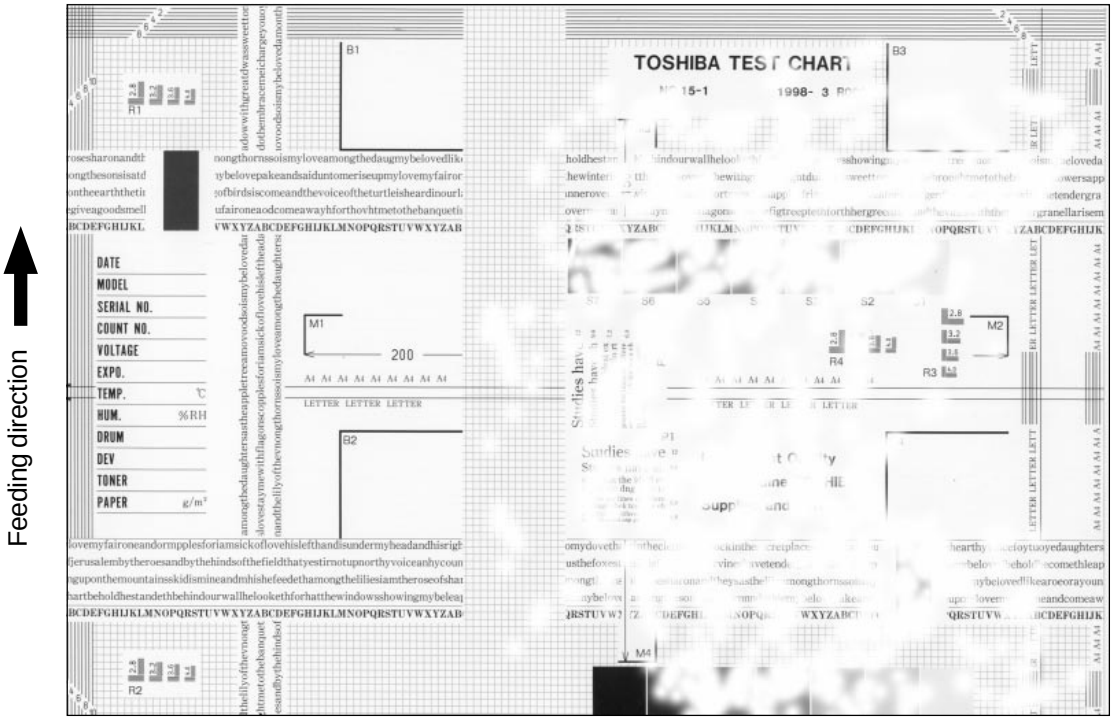


Defective area	Step	Check Items	Prescription
Main charger wire	1	Is the charger wire dirty or deformed?	Clean or replace the charger wire.
Fuser roller, separation finger and thermistor	2	Are the fuser roller, separation finger and thermistor dirty?	Clean them.
Cleaning roller for pressure roller	3	Has the cleaning roller for the pressure roller reached its PM life?	Replace it.
High-voltage transformer (main charger/ transfer charger)	4	Is the output from the high-voltage transformer normal?	Check the circuit and replace the high-voltage transformer if it is defective.
Drum	5	Is there a deep scratch on the drum surface?	Replace the drum if the scratch has reached the aluminum base.
	6	Are there thin scratches (drum pitting) on the drum surface?	Check and adjust the contact condition of the cleaning blade and recovery blade.
Scanner carriage	7	Is there a foreign object on the carriage rail?	Remove the foreign object.

(14) White spots

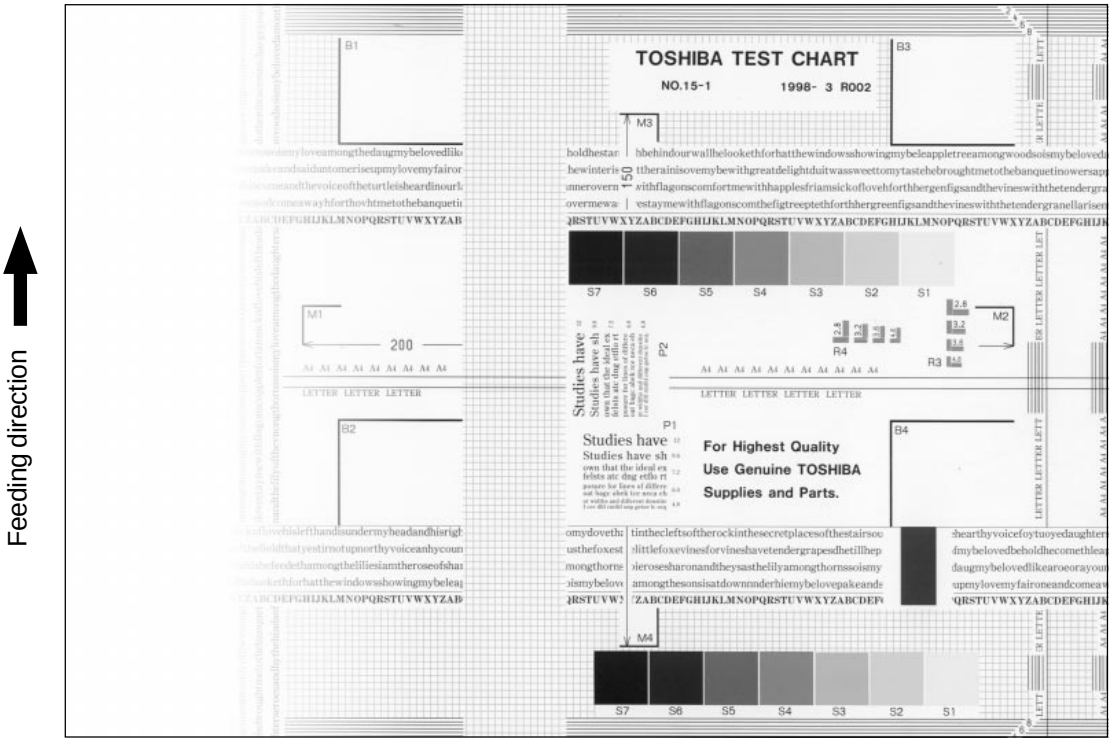
Defective area	Step	Check Items	Prescription
Developer unit/ Toner cartridge	1	Is the toner density in the developer material appropriate?	Check and correct the auto-toner sensor and toner supply operation. Check if the amount of the toner is sufficient in the toner cartridge.
Doctor-sleeve gap	2	Is the doctor-sleeve gap proper?	Adjust it.
Main charger	3	Is there any foreign object on the charger?	Remove it.
	4	Is the charger wire dirty or deformed?	Clean or replace the charger wire.
High-voltage transformer (main charger/ developer bias/transfer charger)	5	Is the output from the high-voltage transformer normal?	Adjust the output.
Transfer/Separation charger	6	Is there any object such as fiber in the paper transport area of the transfer/separation charger?	Clean the charger.
Developer material	7	Has the developer material reached its PM life?	Replace the developer material.

(15) Poor image transfer



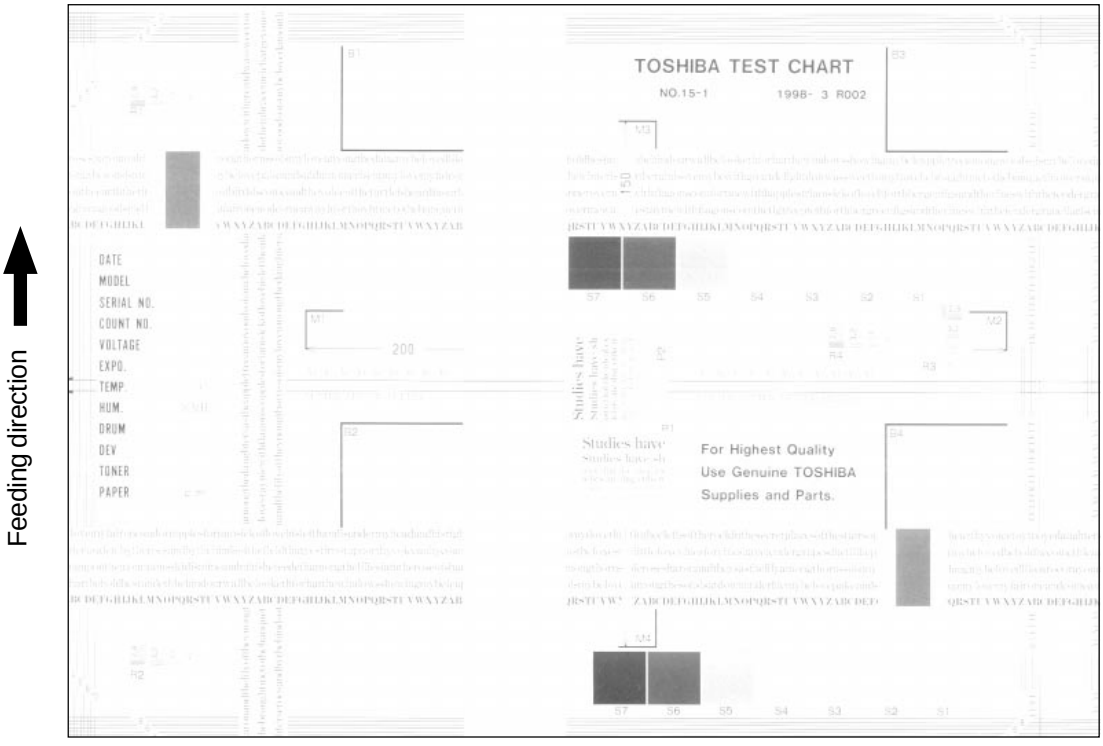
Defective area	Step	Check Items	Prescription
Transfer charger	1	Is the transfer charger case dirty?	Clean it.
	2	Is the transfer charger wire dirty?	Clean it.
Paper	3	Is the paper in the cassette or LCF/PFP curled?	Reinsert the paper with the reverse side up or change the paper.
	4	Is the paper in the cassette or LCF/PFP moist?	Change the paper. * Be sure to store the paper correctly.
Registration roller	5	Is there any abnormality related to the registration roller or with the roller itself?	Clean the roller if it is dirty. Securely attach the springs if they are detached. Replace the clutch if it is defective. Adjust the rotation speed of the roller.
High-voltage transformer (transfer charger)	6	Is the output from the high-voltage transformer normal?	Check the circuit and adjust the transformer output.

(16) Uneven image density



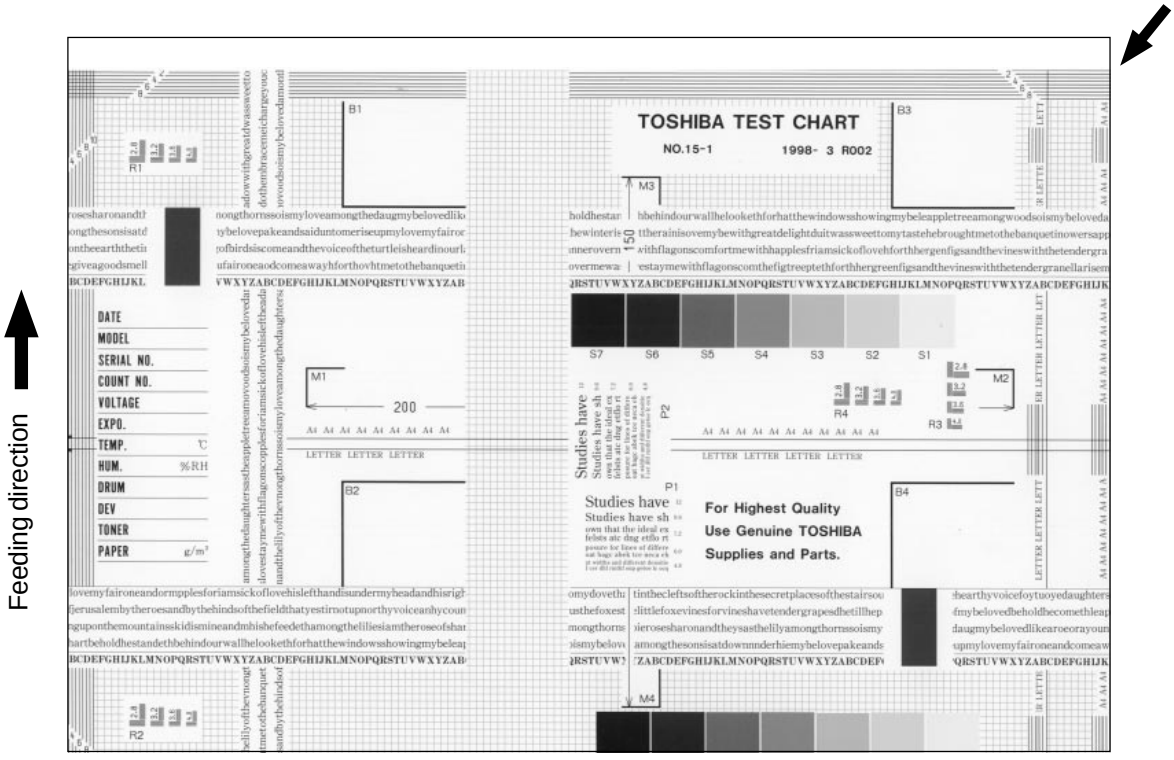
Defective area	Step	Check Items	Prescription
Main charger	1	Is the main charger dirty?	Clean or replace the charger wire.
Transfer charger	2	Is the transfer charger dirty?	Clean it.
	3	Is the transfer charger wire dirty?	Clean it.
Laser optical unit	4	Is there any foreign object or stain on the slit glass?	Remove the foreign object.
Discharge lamp	5	Is the discharge lamp dirty?	Clean it.
	6	Are any of the discharge lamps off?	Replace it.
Developer unit	7	Is the magnetic brush in proper contact with the drum?	Adjust the doctor-sleeve gap.
	8	Is the developer sleeve pressure mechanism working?	Check the mechanism.
	9	Is the developer material transported normally?	Remove foreign objects if there are any.
Scanner section	10	(1) Is the platen cover open? (2) Are the original glass (especially shading position), mirrors and lens dirty?	(1) Close the platen cover. (2) Clean them.

(17) Faded image (low density, abnormal gray balance)



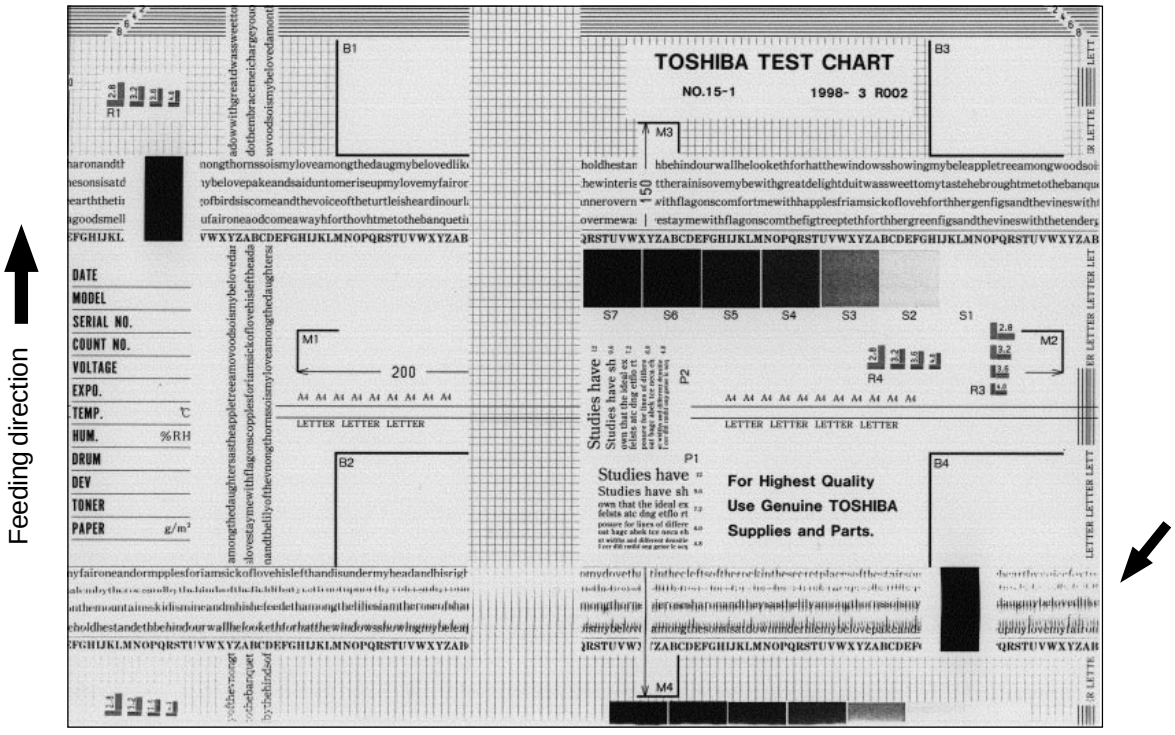
Defective area	Step	Check Items	Prescription
Toner empty	1	Is “ADD TONER” symbol lit?	Replace the toner cartridge.
Auto-toner circuit	2	Is there enough toner in the cartridge?	Check the performance of the auto-toner circuit.
	3	Is the toner density in the developer material too low?	
Toner motor	4	Is the toner motor working normally?	Check the motor drive circuit.
Toner cartridge	5	Is there any problem with the toner cartridge?	Replace the toner cartridge.
Developer material	6	Has the developer material reached its PM life?	Replace the developer material.
Developer unit	7	Is the magnetic brush in proper contact with the drum?	Check the installation of the developer unit. Adjust the doctor-sleeve gap and polarity.
	8	Is the developer sleeve pressure mechanism working?	Check the mechanism.
Main charger	9	Is the main charger dirty?	Clean it or replace the charger wire.
Drum	10	Is “film-forming” occurring on the drum surface?	Clean or replace the drum.
High-voltage transformer	11	Is the setting for the high-voltage transformer proper?	Adjust the output from the high-voltage transformer.

(18) Image dislocation in feeding direction



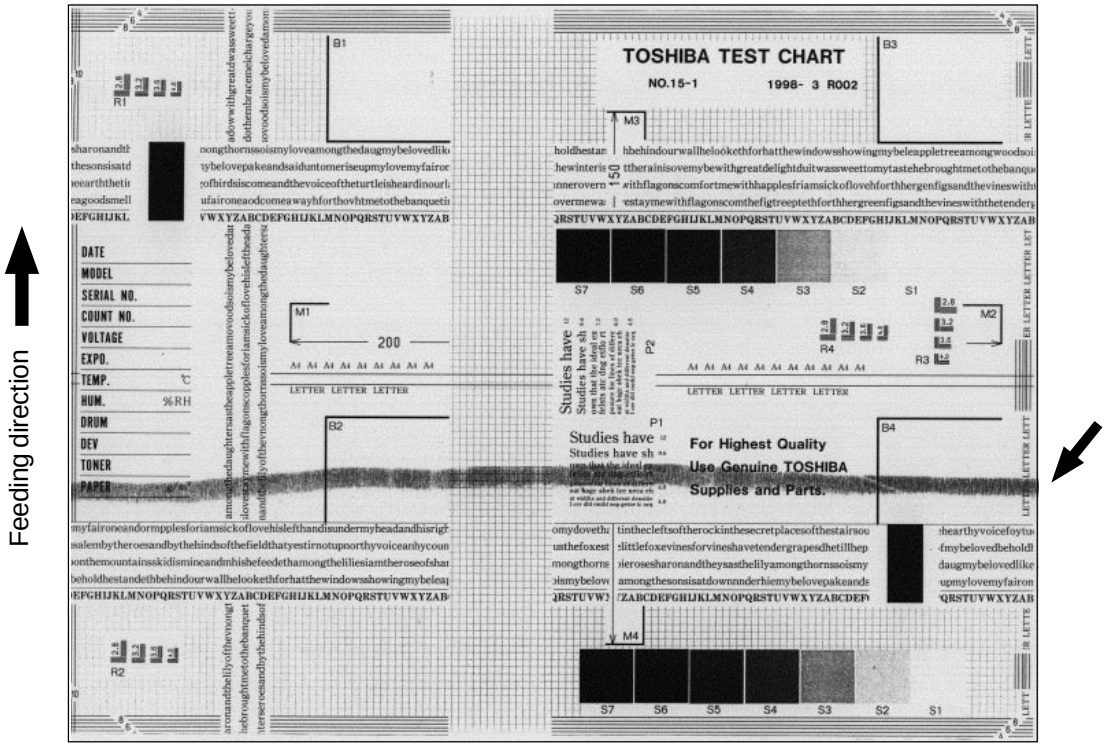
Defective area	Step	Check Items	Prescription
Scanner/printer adjustment	1	Have the printed images been out of position in the same manner?	Adjust the position of the leading edge of paper in the adjustment mode.
Registration roller	2	Is the registration roller dirty, or the spring detached?	Clean the roller with alcohol. Securely attach the springs.
	3	Is the registration roller moving normally?	Adjust or replace the gears if they are not engaged properly.
Feed clutch	4	Is the feed clutch working properly?	Check the circuit or clutch, and replace them if necessary.
Pre-registration guide	5	Is the pre-registration guide installed properly?	Install the guide properly.

(19) Jittering image



Defective area	Step	Check Items	Prescription
—	0	Is the toner image on the drum normal?	If normal, perform steps 1 to 3. Perform step 4 and followings in case the image is abnormal.
Registration roller	1	Is the registration roller rotating normally?	Check the registration roller area and springs for installation condition.
Fuser roller and pressure roller	2	Are the fuser/pressure rollers rotating normally?	Check the fuser roller area. Replace the rollers if necessary.
Drum	3	Is there a big scratch on the drum?	Replace the drum.
Operation of carriage	4	Is there any problem with the slide sheet?	Replace it.
	5	Is there any problem with the carriage foot?	Replace it.
	6	Is the tension of the timing belt normal?	Adjust the tension.
	7	Is there any problem with the drive system of the carriage?	Check the drive system of the carriage.
Scanner	8	Is the mirror secured?	Secure it.
Drum drive system	9	Is there any problem with the drive system of the drum?	Check the drive system of the drum. Clean or replace the gears if they have stains or scratches.

(20) Poor cleaning

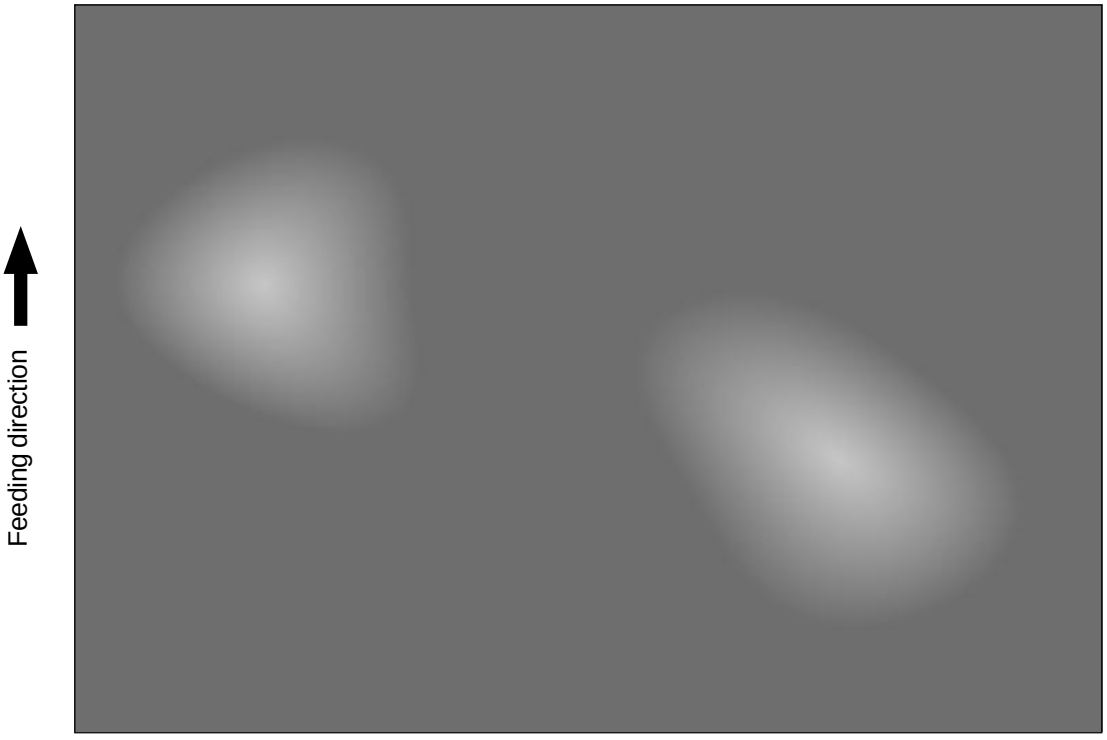


Defective area	Step	Check Items	Prescription
Developer material	1	Has the specified developer material been used?	Use the specified developer material and toner.
Cleaning roller	2	Is the cleaning roller damaged or has it reached its PM life?	Replace the roller.
Fuser roller	3	Are there bubble-like scratches on the fuser roller (125mm pitch on the copied image)?	Replace the fuser roller. Check and adjust the temperature control circuit.
	4	Has the fuser roller reached its PM life?	Replace it.
	5	Is the pressurization of the fuser roller normal?	Check and adjust the pressurization mechanism.
	6	Is the temperature of the fuser roller normal?	Check the adjustment values of fuser roller temperature? 08-410:12 (200°C) 08-411:12 (200°C)
Cleaning blade	7	Is the blade in proper contact with the drum?	Check the blade.
	8	Has the cleaning blade been turned up?	Replace the blade. Check and replace drum if necessary.
Toner recovery auger	9	Is the toner recovered normally?	Clean the toner recovery auger. Check the pressure of the cleaning blade.

(21) Uneven light distribution

Defective area	Step	Check Items	Prescription
Original glass	1	Is the original glass dirty?	Clean it.
Main charger wire	2	Is the main charger wire dirty?	Clean or replace the wire.
Discharge lamp	3	Is the discharge lamp dirty?	Clean it.
Scanner	4	Are the reflector, exposure lamp, mirrors, lens, etc. dirty?	Clean them.
Exposure lamp	5	Is the exposure lamp tilted?	Adjust the position of the lamp.
	6	Is the lamp discolored or degraded?	Replace it.

(22) Blotched image



Defective area	Step	Check Items	Prescription
Paper	1	Is the paper too thin?	Change the paper.
	2	Is the paper too dry?	Change the paper.
Separation charger	3	Is the output from the separation charger normal?	Adjust the output.
Transfer charger	4	Is the transfer charger case dirty?	Clean the case.
	5	Is the transfer charger wire dirty?	Clean the wire.
High-voltage transformer (transfer charger)	6	Is the output from the high-voltage transformer normal?	Adjust the output. Replace the transformer if necessary.

5.3 Troubleshooting for the Blown Fuse

If the fuse of the secondary side of the power supply unit is blown, check if the parts are not damaged following the table below.

Voltage	Unit	Parts	Rating
24VC	Scanner (SLG board)	SDV board	F3: 4A (semi-time lag)
		Scanner motor	
		Inverter	
24VD	RADF		F4: 4A (semi-time lag)
24VE	Finisher		F5: 5A (semi-time lag)
24VF	Main unit (LGC board)	Toner motor	F6: 4A (semi-time lag)
		Sub-separation fan	
		Middle cooling fan	
		Laser unit fan	
		Exhaust fan	
		Tray-up motor	
		Feed clutch (upper and lower)	
		Transport clutch (low speed)	
		Transport clutch (high speed)	
		Registration clutch	
		ADU motor	
		ADU clutch	
		Bypass feed clutch	
		Discharge lamp	
		Fuser unit cooling fan	
		Polygonal motor	
		Auto-toner sensor	
		Main switch	
	PFP		
24VG	Main unit (LGC board)	Exit motor	F7: 4A (semi-time lag)
		High-voltage transformer	
		Main motor	
		Developer unit cooling fan	
		Key copy counter	
		IH control board cooling fan	
		Switching power supply unit fan	
	Relay unit		

6. UPDATING THE FIRMWARE

<<Caution>>

Firmware are not installed in the system PC board (SYS board), logic PC board (LGC board) and scanner control PC board (SLG board) provided as service parts.
Install the firmware when any of them is replaced with a new one in the field.

* The version of the firmware to be installed should be compatible with the other firmware installed in the machine.

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- The offical name of Windows 98 is Microsoft Windows 98 Operating System.
- Microsoft, Windows and the brand names and product names of other Microsoft products are trademarks or registered trademarks of US Microsoft Corporation in the US and other countries.
- Copyright on the software of Windows 95 are held by US Microsoft Corporation.
- Some of the screens used in this manual to describe operations are of Windows 95/98.

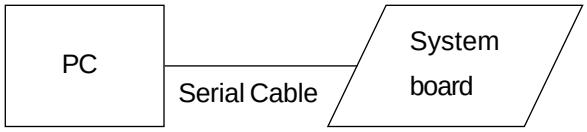
6.1 Installing Software for Firmware Update

6.1.1 Outline

The procedure to update the system firmware of the SYS board using the PPP (Point-to-Point Protocol) and FTP (File Transfer Protocol) is described in this section.

6.1.2 Requirements

The following environment is necessary to update the firmware.

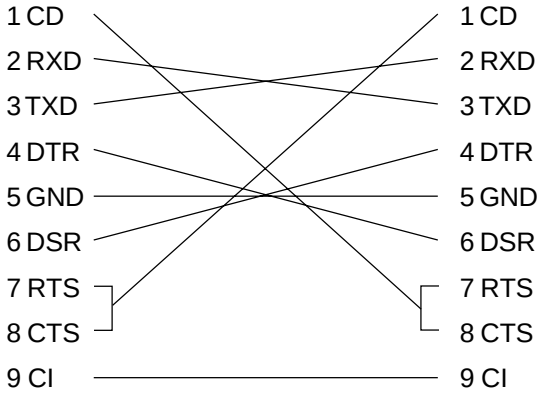


Software Requirements for PC

– Microsoft Windows95/98
– Virtual modem
– FTP Server/ tools (ex. War FTP Daemon)

Use a serial cable for the DTE-DTE connection to connect the PC and SYS board.
(Update cannot be performed with the cable for the DCE-DCE connection)

DTE-DTE connection



Protocol specifications between the PC and SYS board

BAUD RATE	115200bps
DATA BIT	8 BITS
PARITY	NONE
STOP BIT	1 BIT
FLOW CONTROL	NONE
ECHO	OFF

6.1.3 Dial-up networking function

The settings necessary for the PPP are described in this section. The dial-up networking function is used to perform the PPP connection on the Windows 95/98.

(1) Virtual modem

Since a modem is supposed to be used for the Windows 95/98 dial-up networking, download a virtual modem to enable the connection performed directly with a serial cable.

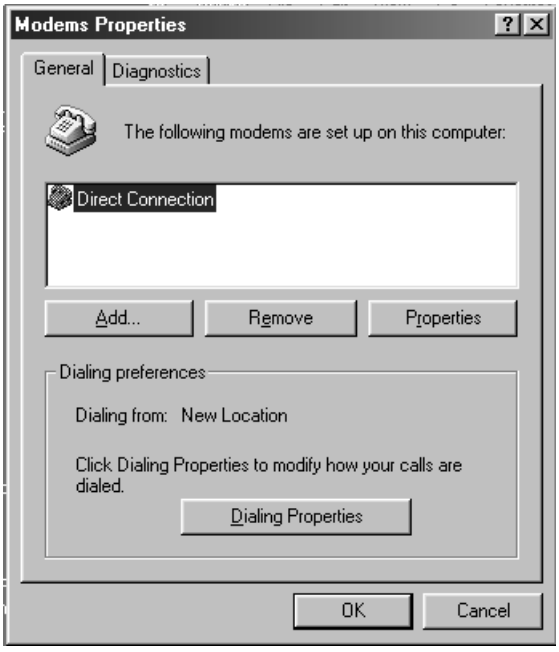
(2) Installation of virtual modem

Download the following file from the web.

URL:http://www.kevin-wells.com/net/mdmcbx4.inf

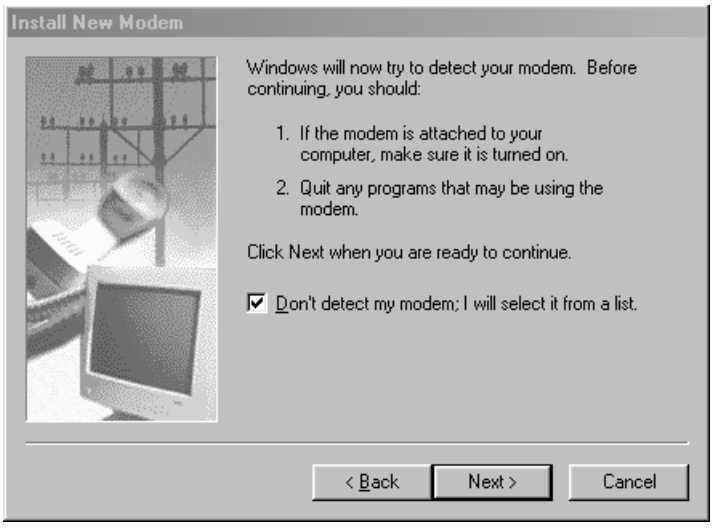
After the above file was downloaded, install the modem as follows.

Click the “Modems” button on the control panel to display the following window, then click [Add].

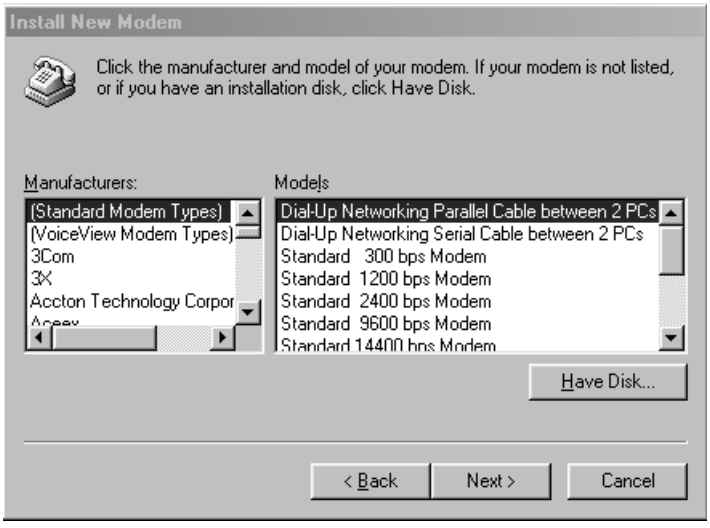


The Modem Wizard is opened.

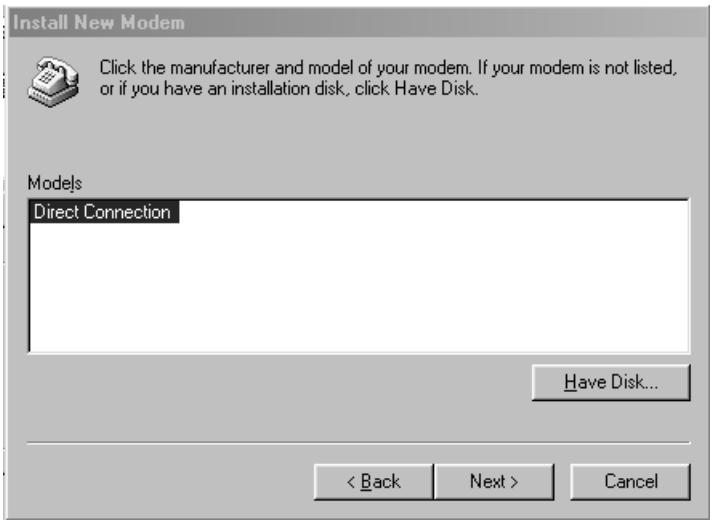
Check "Don't detect my modem; I will select it from a list", and click [Next].



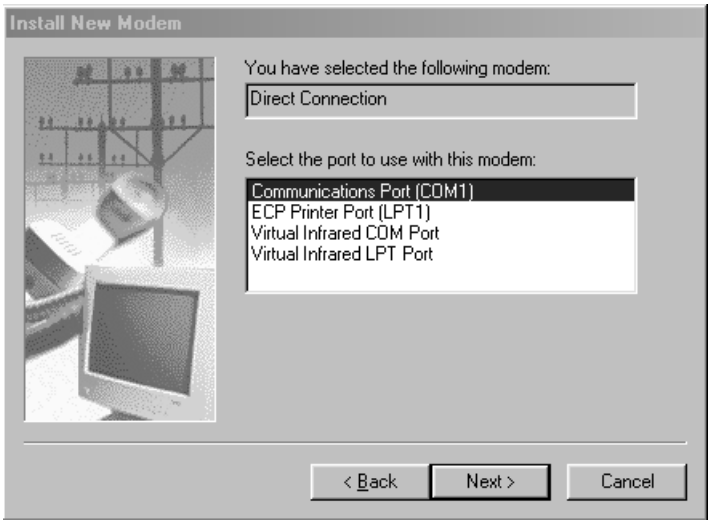
Click [Have Disk], then select a folder in which the downloaded file has been stored.



Select "Direct Connection", then click [Next].



Select "Communications Port(COM1)", then click [Next].

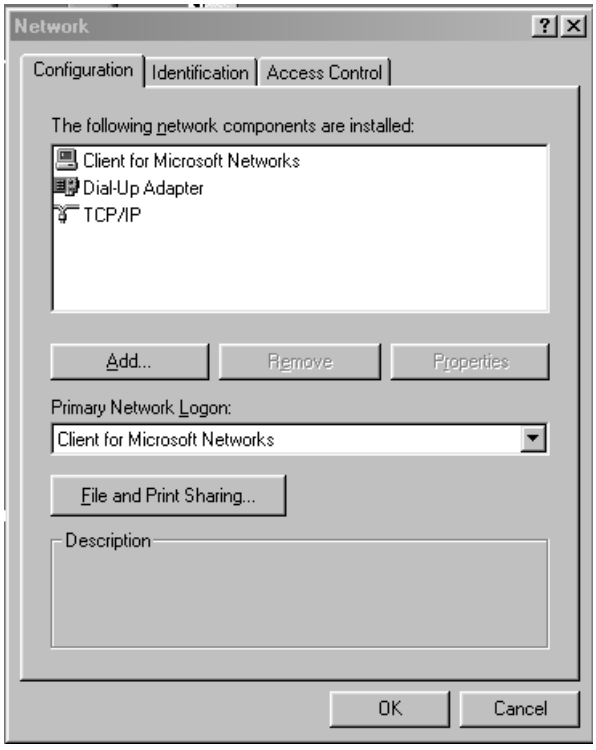


Click the [Finish] button to complete the virtual modem installation.

6.1.4 Installing dial-up networking

Your computer might be already set up to use a network. If the Windows prompts you for a network password at the startup and if the Network Neighborhood icon appears on the Windows desktop, the network function is already set up. In this case, you can skip this section.

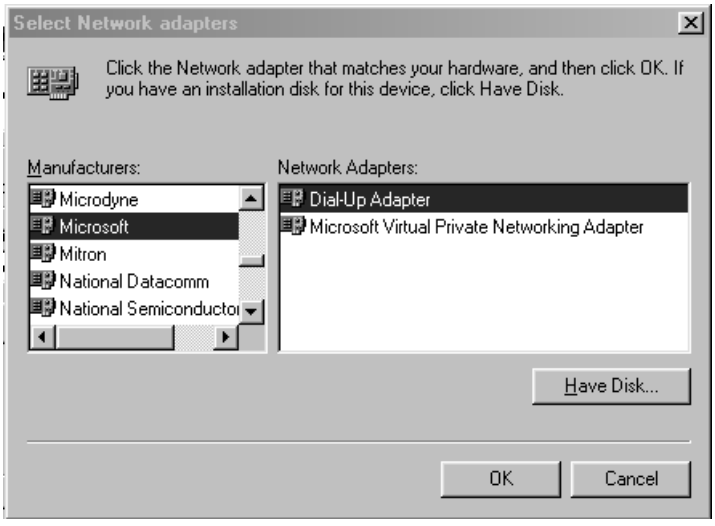
In the "Network" dialog box, click the "Configuration" tab.
Confirm that "Dial-Up Adapter" and "TCP/IP" are displayed.



If your PC does not have "Dial-Up Adapter", click [Add].

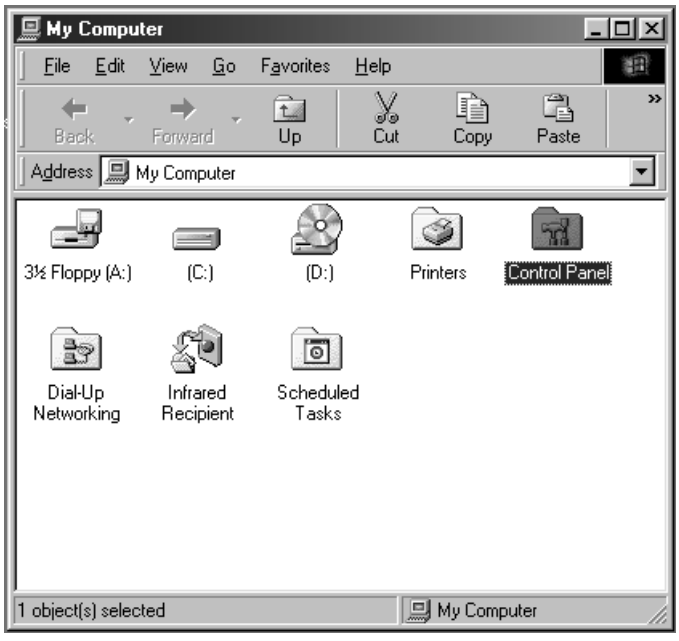
Select "Microsoft" from the "Manufacturers" list and "Dial-Up Adapter" from the "Network Adapters" list, then click [OK].

TCP/IP Protocol components are automatically installed together with "Dial-Up Adapter".

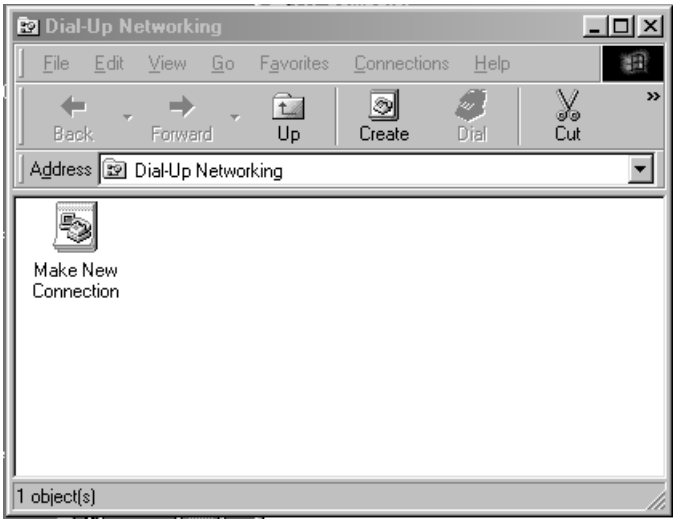


6.1.5 Setting dial-up networking

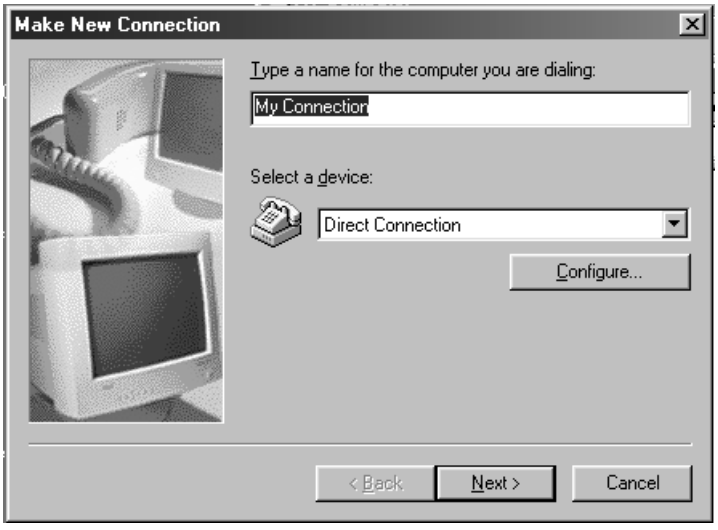
Double-click "My Computer". If the "Dial-Up Networking" icon is not in the window, open [Add/Remove Programs] in the Control Panel to install it.



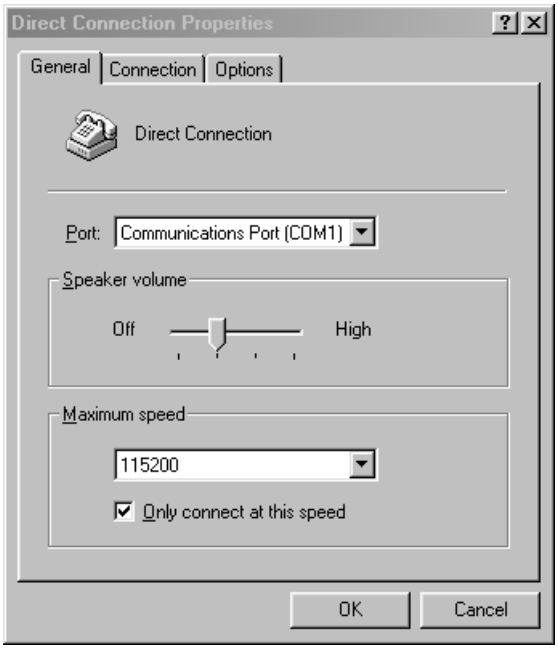
Double-click "Make New Connection".



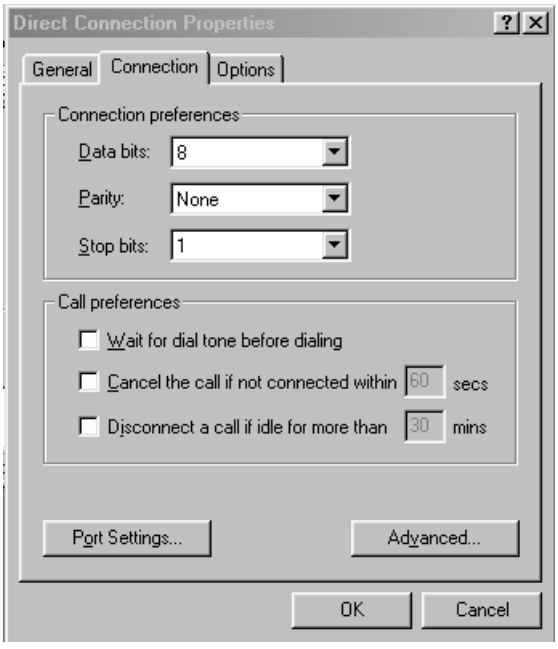
Enter a name in the box "Type a name for the computer you are dialing", and then select "Direct Connection" for "Select a device". Then, click [Configure].



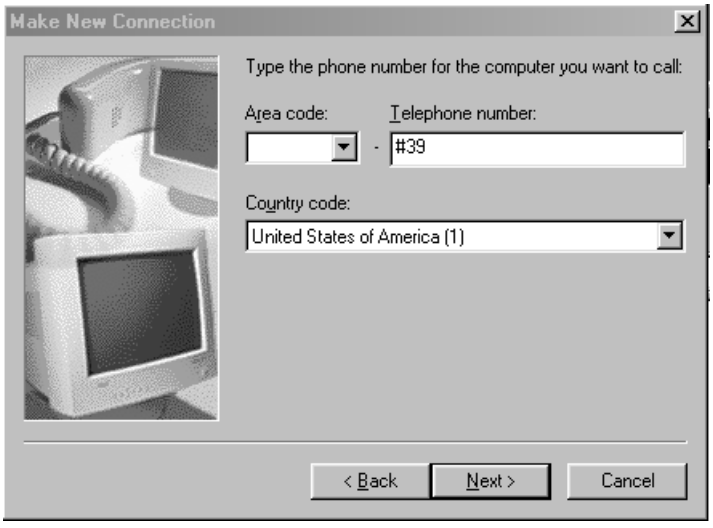
Click the "General" tab in the "Direct Connection Properties" dialog box. Select "115200" for "Maximum speed", and check "Only connect at this speed".



Click the "Connection" tab, confirm that no item in "Connection preferences" is selected, and then click [Advanced].



Confirm that no item in the "Advanced Connection Settings" dialog box is selected. Click the [OK] button to return to the "Make New Connection" dialog box and click [Next].



Enter "#39" in the [Telephone number] box.

Select an appropriate country code, then click [Next].

Click [Finish] to complete the setting for the dial-up networking.

6.1.6 Installing software for FTP server

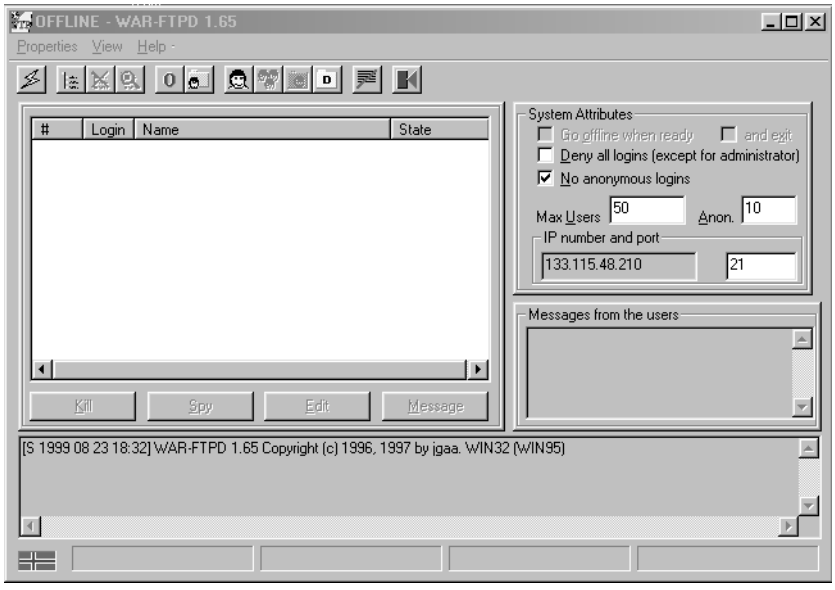
Install free software [War FTP Daemon Version 1.65] to use it as an FTP server.
War FTP Daemon can be downloaded from the following website.

URL: http://www.jgaa.com/downloadpage.htm

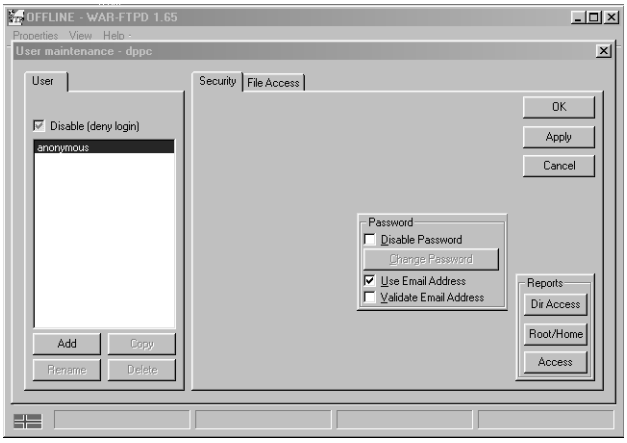
Some files are extracted by doubleclicking the [ward165.exe] icon. Double-click [Setup.exe] to start installation.

Create a new folder "C:\WEBSHARE\FTPROOT".

Double-click [war-ftpd.exe] in the [war-ftpd] folder.

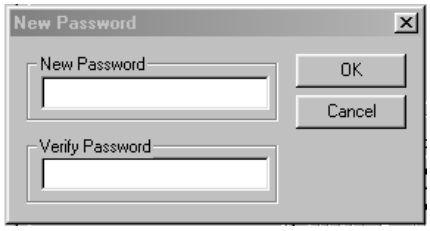


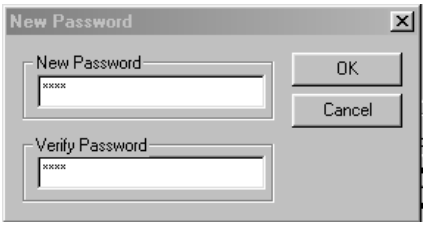
Select [Properties]-[Security]-[Edit User].



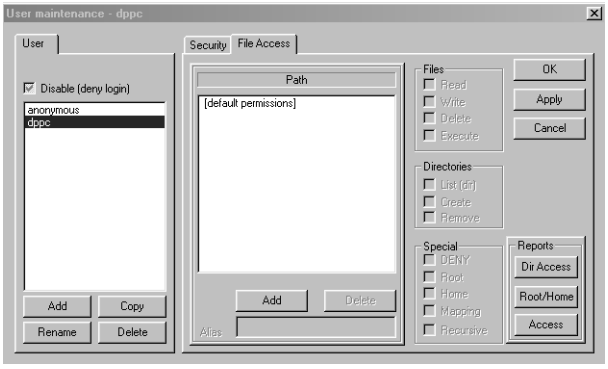
Click [Add] and type in "dppc" in the "New name" box.

Type in "dppc" in the "New Password" and "Verify Password" boxes, then click [OK].

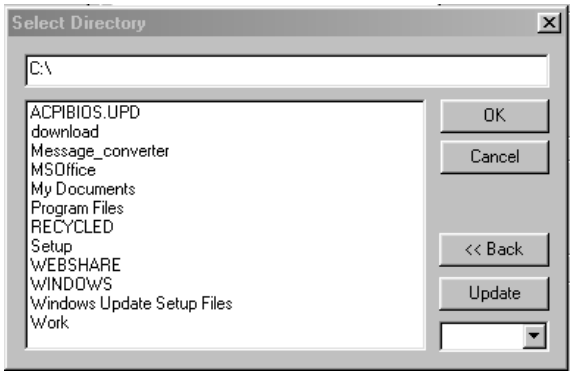




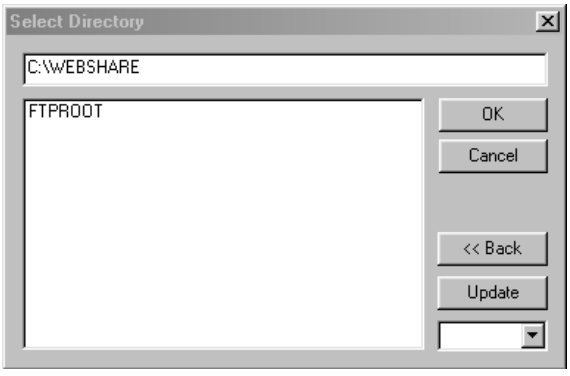
Select "dppc" and click the "File Access" tab. Then, click [Add].



Double-click "Webshare".

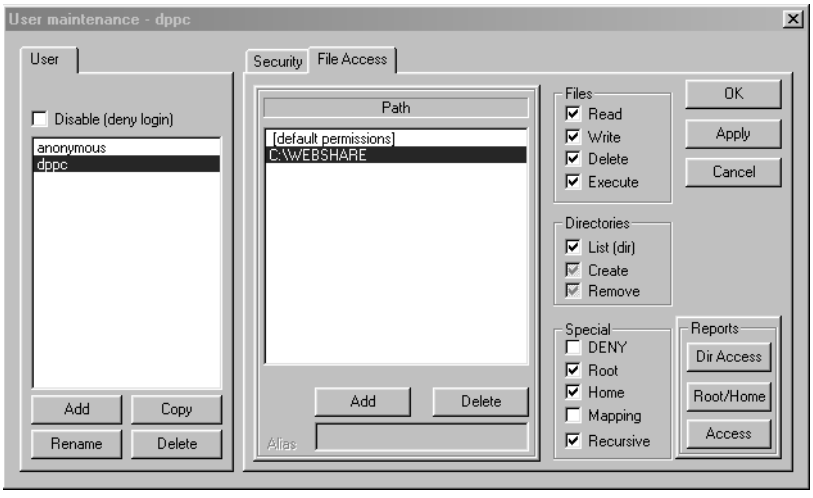


Double-click "Ftproot" and click [OK].

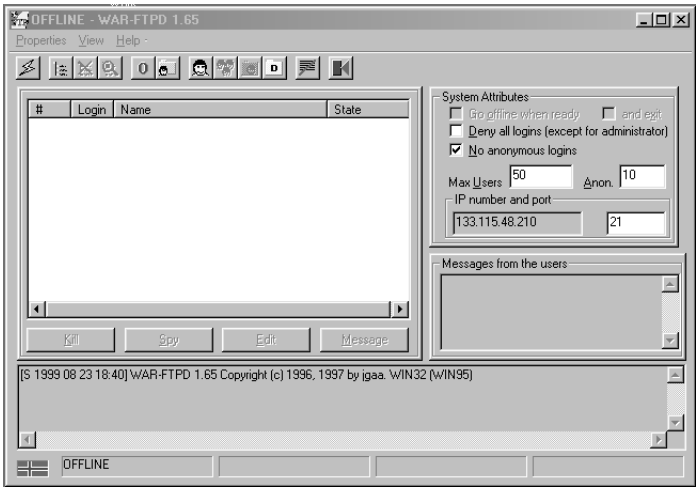


Check the "Read", "Write", "Delete", "Execute", "List", "Create" and "Remove" boxes. Confirm that the check marks are not gray but black.

Check "Root", "Home" and "Recursive" in the "Special" box as well.
Click [Apply] and then [OK].



Enter the "ONLINE" mode by clicking the button before starting the firmware update.



6.2 Operation Procedure in [3][9] Mode

6.2.1 Outline

Connect the copier and PC with a serial cable and turn ON the power while the digital keys [3] and [9] are pressed simultaneously. The copier enters the "Firmware Version-up Mode". The system software and UI data can be updated in this mode.

6.2.2 Preparation

The following need to be prepared or performed in advance to update the firmware.

(1) Software installation

"Virtual modem" and "War FTP Daemon" have to be installed in the PC.

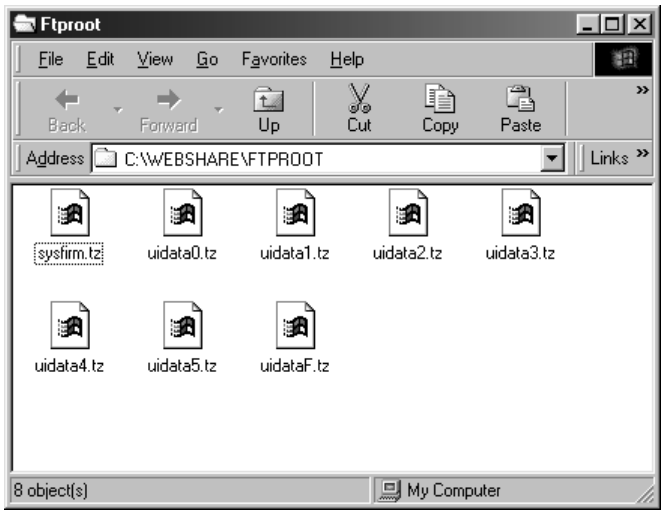
Refer to "6.1 Installing Software for Firmware Update"

"War FTP Daemon" has to be in the "ONLINE" mode to update the firmware.

(2) New file

New files with the preset directory and names are provided in the following folder.

C:\WEBSHARE\FTPROOT



New files:

- Program data sysfirm.tz
- Fixed UI data uidataF.tz
- Common UI data uidata0.tz
- 1st language UI data uidata1.tz
- 2nd language UI data uidata2.tz
- 3rd language UI data uidata3.tz
- 4th language UI data uidata4.tz
- 5th language UI data uidata5.tz

(3) Connection between the copier and PC

The copier and PC are connected with a cross cable.

Note: Do not connect serial cable with machine power turned ON.

Connect the MMF(FSMS) port of the copier and serial communication port of the PC which is specified when the virtual modem is set up.

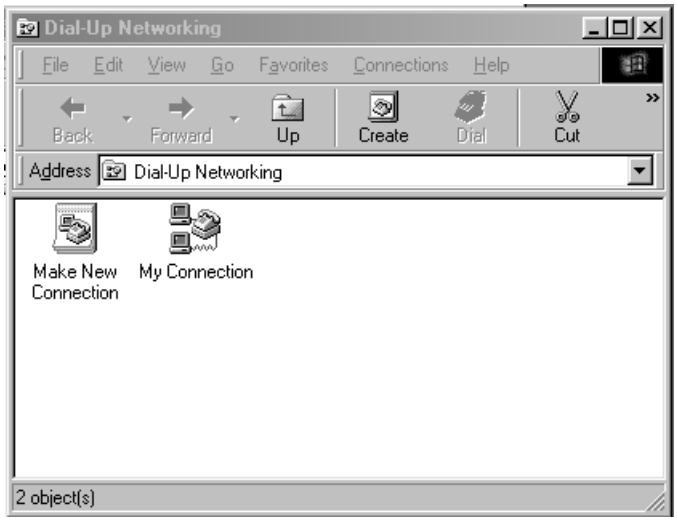
6.2.3 Updating firmware

1. Turn ON the power of the copier while the digital keys [3] and [9] are pressed simultaneously.
2. The following is displayed on the control panel of the copier.

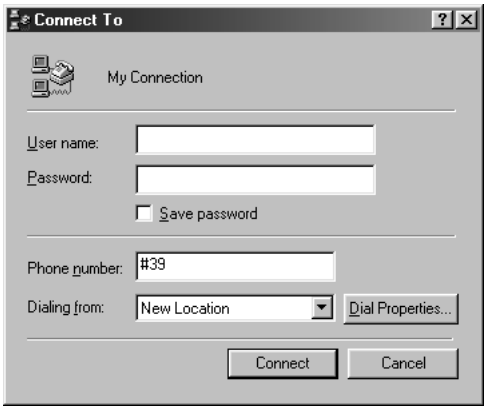
```
Firmware Version Up Mode

> Make a connection from PC.
```

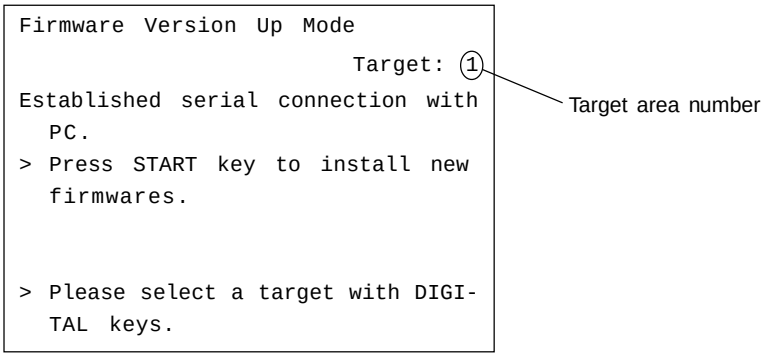
3. Make a serial connection using the dial-up networking function of the PC.
   Refer to "6.1 Installing Software for Firmware Update" for the dial- up network connection.



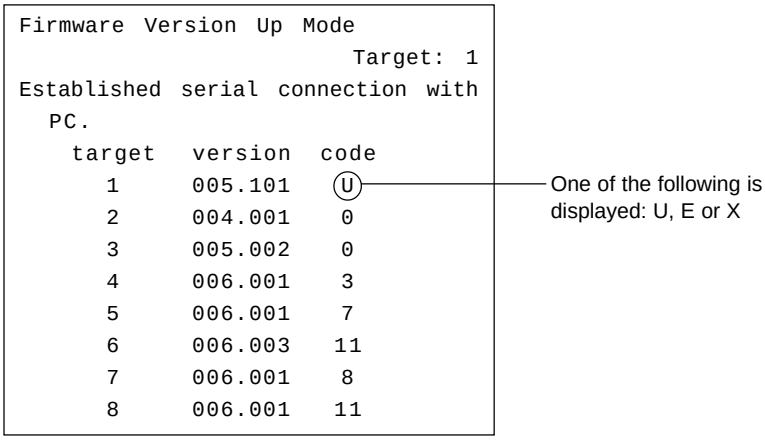
Enter "#39" in the "Phone number" box.



4. The following is displayed if the serial connection was completed successfully.



Press [HELP] to confirm the current version of the firmware and UI data. Press [HELP] again to return to the above screen.



The "target" number indicates the following.

1: Program data
2: Fixed UI data
3: Common UI data
4: 1st language UI data
5: 2nd language UI data
6: 3rd language UI data
7: 4th language UI data
8: 5th language UI data

The version number is displayed as "XXX.YYY".
"XXX" indicates the major version and "YYY" is the minor version.

A. The "Code" for the program data ("target": 1) denotes the destination.

U: USA, Canada and China

E: European countries

X: Australia and Asian countries

B. The "Code" for the UI data ("target": 2-8) denotes the language.

Code	Language	Code	Language
2	Japanese	13	Finnish
3	American English	14	Norwegian
4	English	15	Australian English
5	Reserved	16	Polish
6	French	17	Czech
7	German	18	Greek
8	Swedish	19	Romanian
9	Dutch	20	Bulgarian
10	Italian	21	Portuguese
11	Spanish	22	Hungarian
12	Danish	23	Reserved

5. Select the area to be updated using one of the digital keys from [1] to [8] and the [INTERRUPT] key. The selected number is displayed at upper right of the screen, next to "Target:". Press [INTERRUPT] to enter "#".

   The relation between the selected number and area to be updated is as follows.

   1 : Program data

   2 : Fixed UI data

   3 : Common UI data

   4 : 1st language UI data

   5 : 2nd language UI data

   6 : 3rd language UI data

   7 : 4th language UI data

   8 : 5th language UI data

   #1 : All data (1, 2, 3, 4, 5, 6, 7 and 8)

   #2 : All UI data (2, 3, 4, 5, 6, 7 and 8)

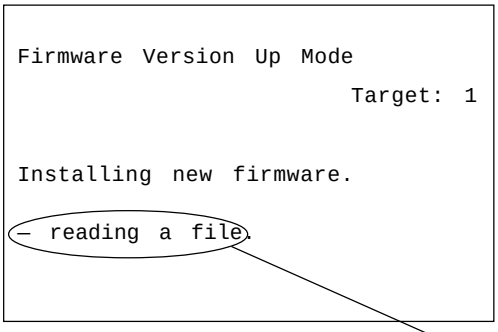
   #3 : All language UI data (4, 5, 6, 7 and 8)

6. The copier starts updating when the [START] key is pressed.

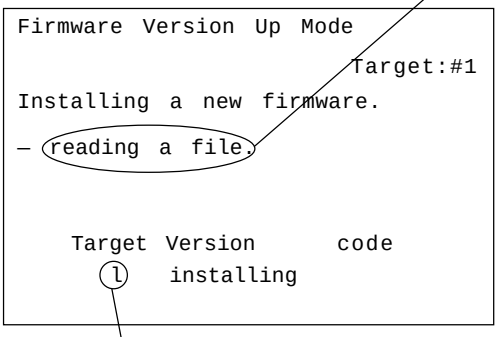
   Do not turn OFF the power of the copier or PC, or disconnect the cable after the [START] key has been pressed.

   Interruption during the file transmission to the copier will destroy the file in the FROM of the copier. The data must be reinstalled.

In case of target 1 - 8 :



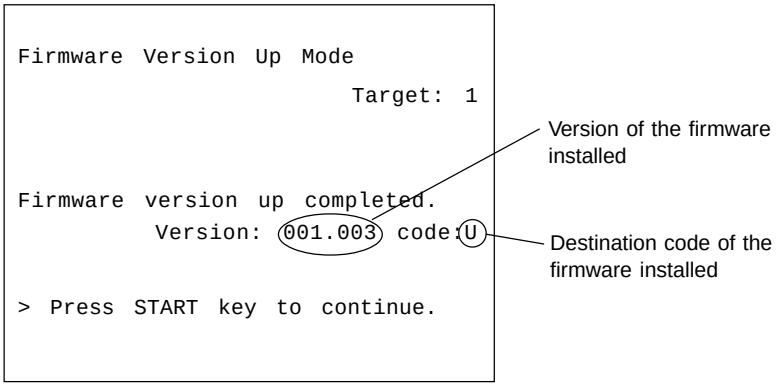
In case of target #1 - #3



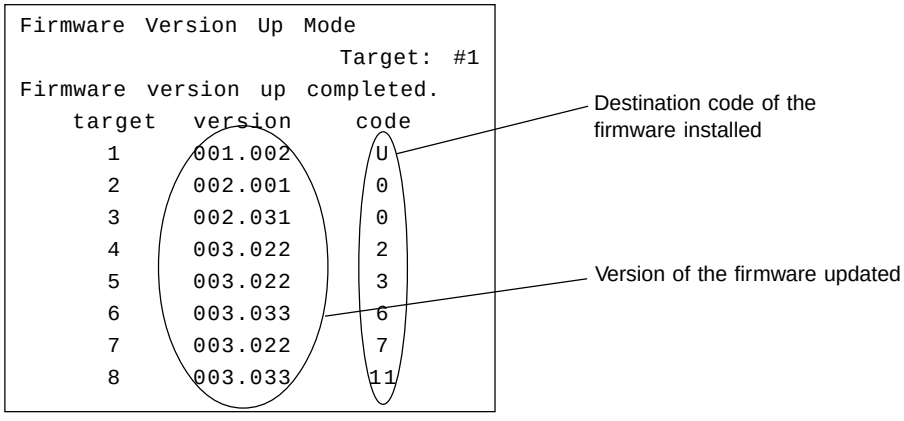
Displays the status of updating process.
- – reading a file.
- – erasing the device.
- – writing to the device.

Displays the area being processed

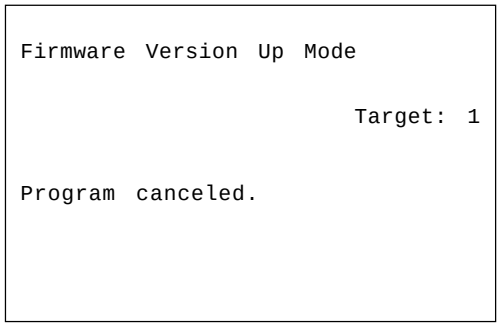
7. The following will be displayed when the firmware update is completed successfully.
   In case of target 1 - 8:
   If you continue to update the other areas, press the [START] key and perform the step 5 and the followings for each area.
   Turn OFF the power or press the [CLEAR/STOP] key to exit the update screen.



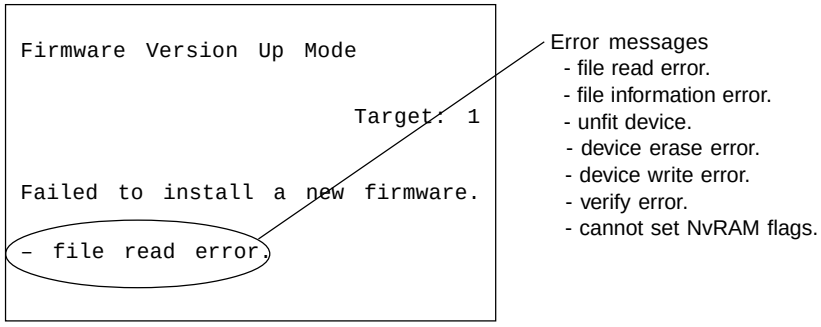
In case of target #1 - #3:
The following is displayed when the updating is finished.



8. Press the [CLEAR/STOP] key to cancel the updating process.
   However, it cannot be canceled once the data elimination process on the flash ROM is started.



9. The following error message is displayed when the firmware was not updated successfully.
   (If an error occurs, the "Recovery mode" is automatically activated when the power is turned ON next time. See 10:Recovery mode)



10. Recovery mode
    The following is displayed when the power is turned OFF and then back ON after an error has occurred during the upgrading process.

```
Firmware Version Up Mode


Recovery mode : target 3–8 failed.
> make a connection from PC
```

The display changes as follows if the dial-up network connection (see procedure 3) was made successfully.

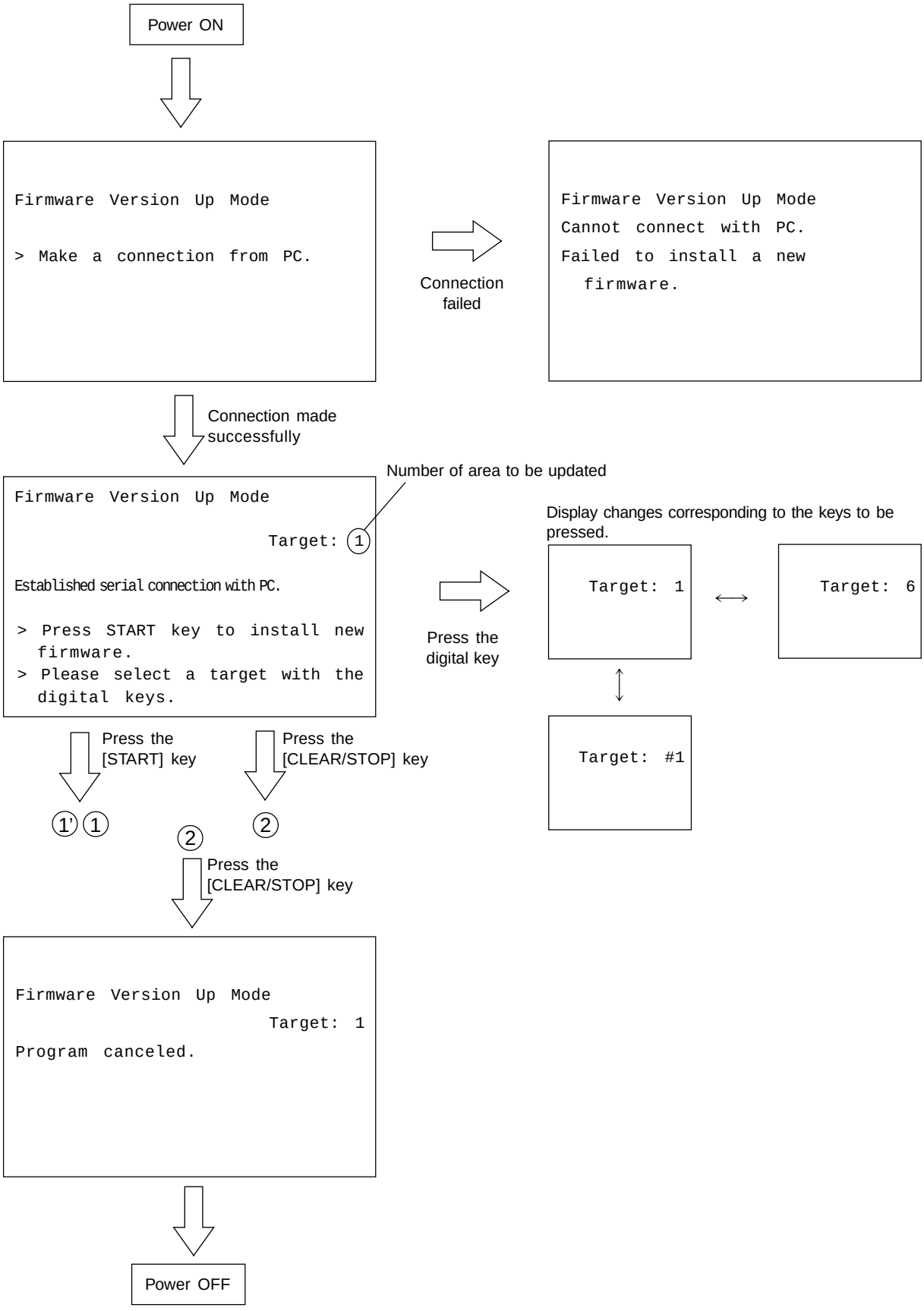
```
Firmware Version Up Mode
                      Target: #3

Recovery mode : target 3–8 failed.
> Press START key to install new
  firmwares.
```

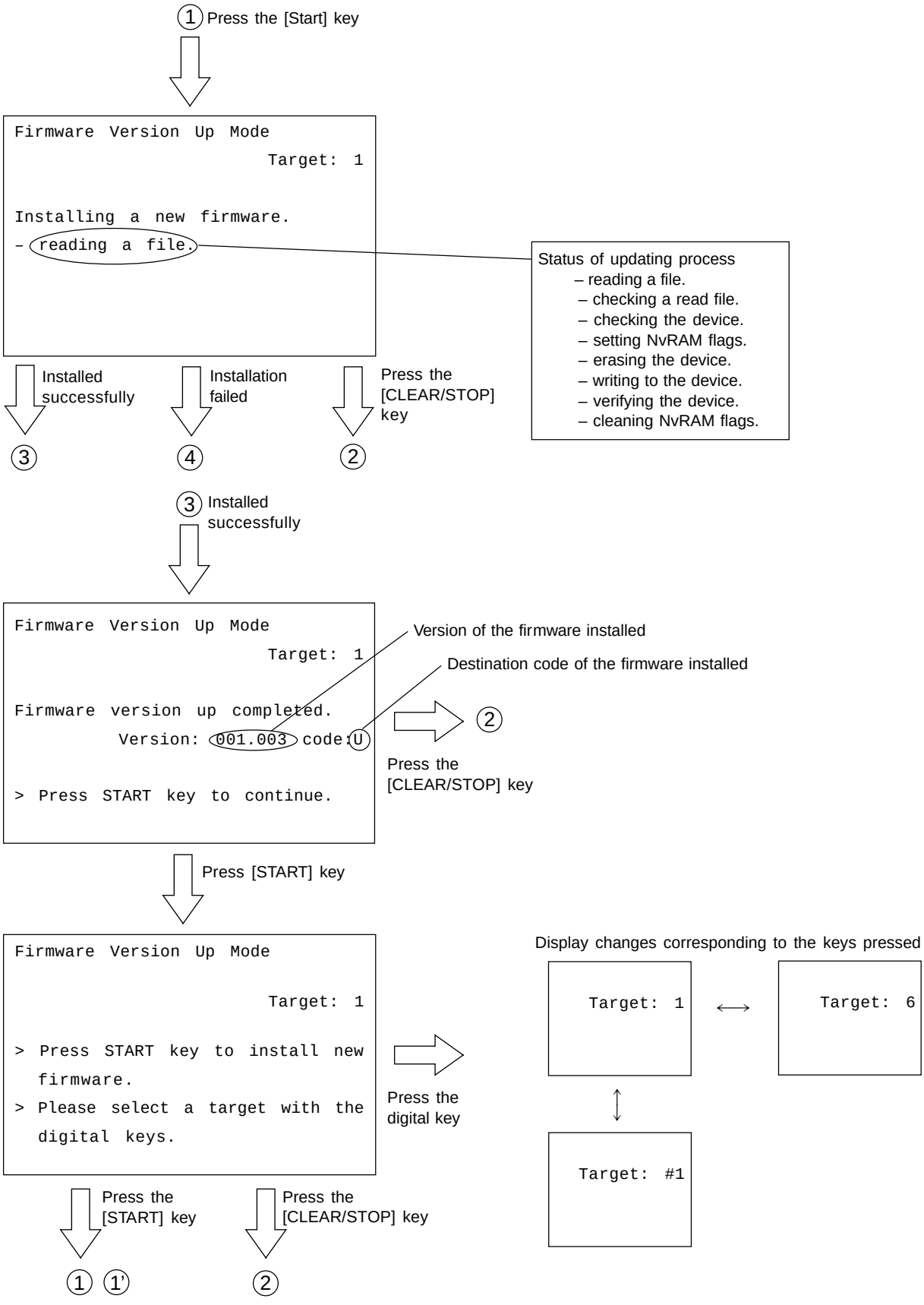
Further operations and displays are the same as those of the normal sequence.

6.2.4 Display

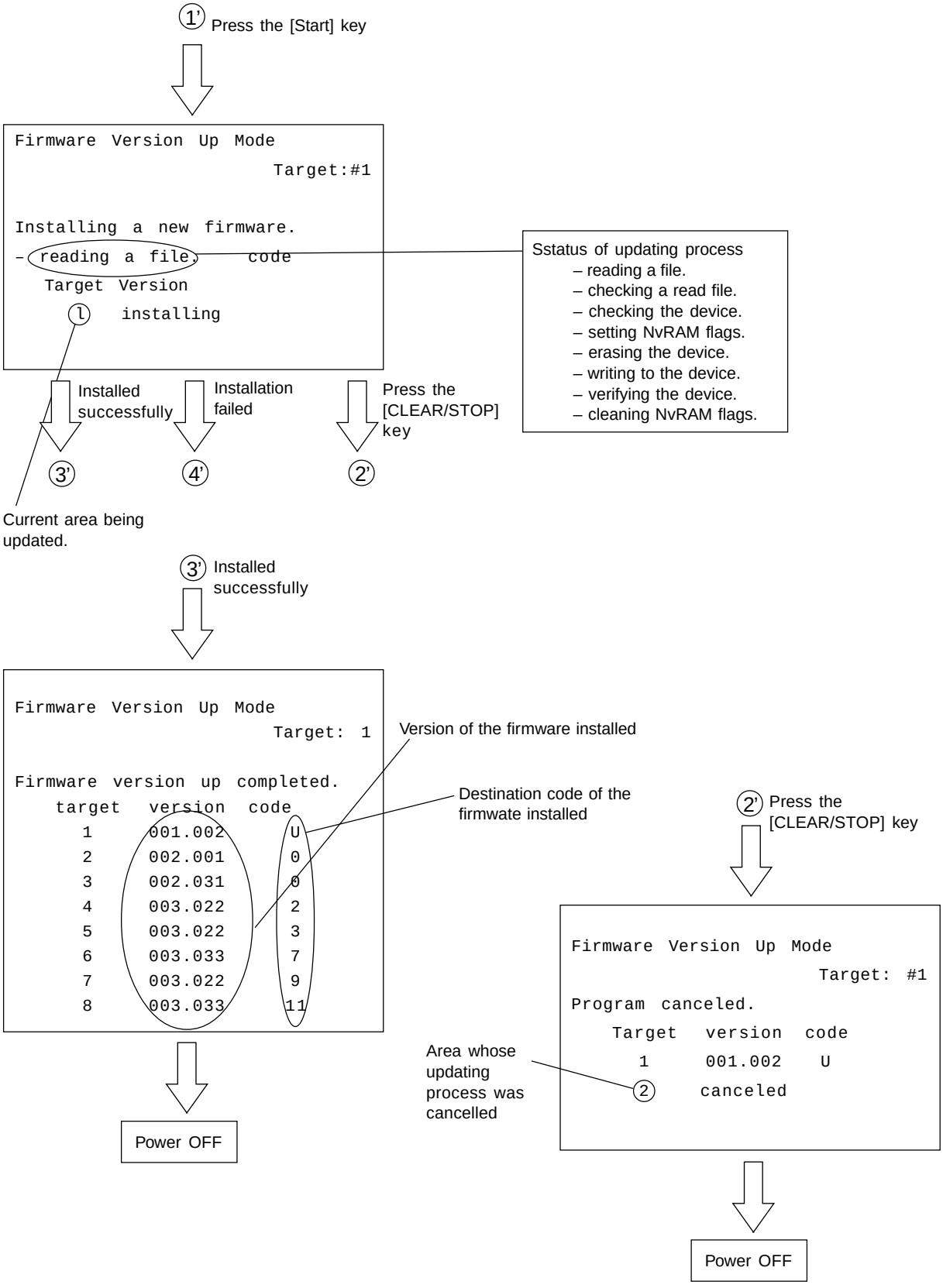
The following screens are displayed in the mode [3][9].



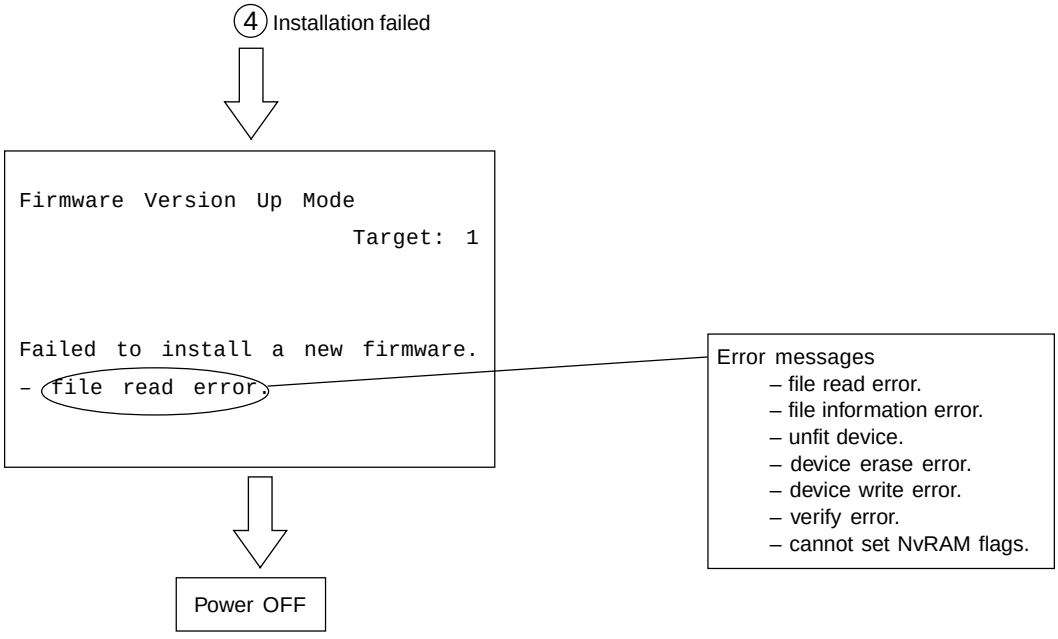
In case of target 1 - 8:



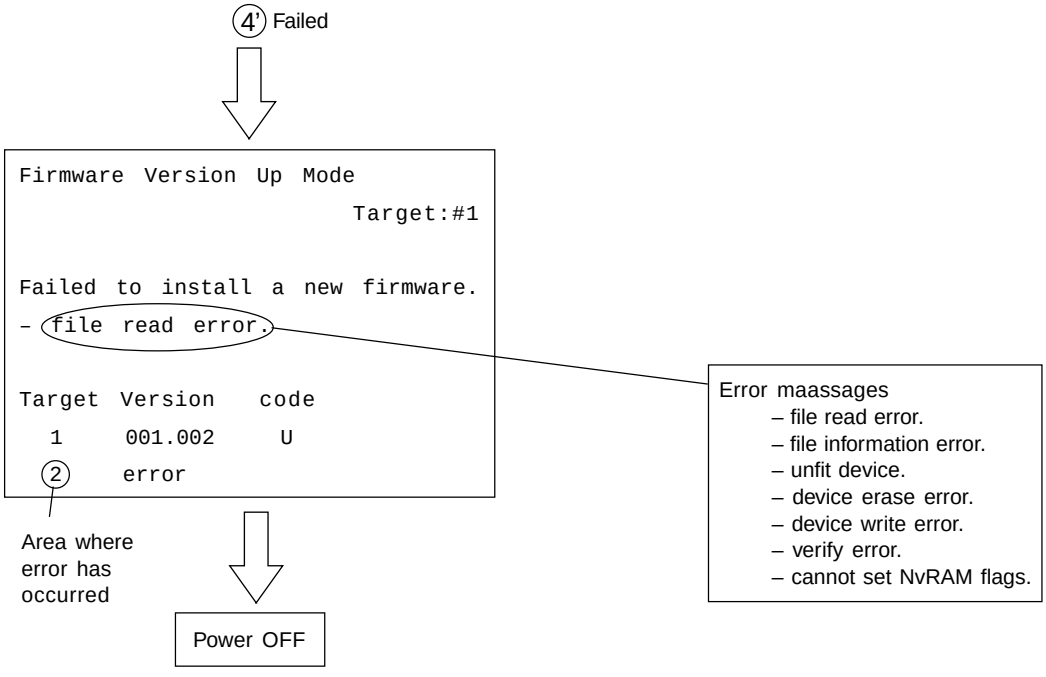
In case target of #1- #3:



In case of target of 1 - 8:



In case of target #1 - #3:



6.3 Updating the Firmware Using the Downloading Jig

In this model, it is possible automatically to update the firmware by connecting the downloading jig using the dedicated connector and turning the power of the copier ON.

The downloading jig consists of the programmed ROM and jig board. Two types of the jig board are available as follows.

Firmware	PC board	Jig board to be used
System firmware	System PC board (SYS board)	PWA-F-DLS-320
Engine firmware	Logic PC board (LGC board)	PWA-F-DLM-320
(printer ROM and scanner ROM)	Scanner control PC board (SLG board)	

6.3.1 System firmware

(1) ROM type

There are two types of ROM to be downloaded.

(a) ROM for application downloading

The area in the FROM on the SYS board is updated. This ROM is used for the normal update.

The data to be overwritten by this ROM are as follows.

- System software
  * This area cannot be downloaded using PC.
- Applications
- UI data fixed area
- UI data common area
- Default language

(b) ROM for UI data downloading

The language data in the HDD are updated.

The data to be updated by this ROM are as follows.

- UI data: The 1st to 5th languages

When downloading is performed using the ROM for UI data downloading, only UI data in the HDD are updated.

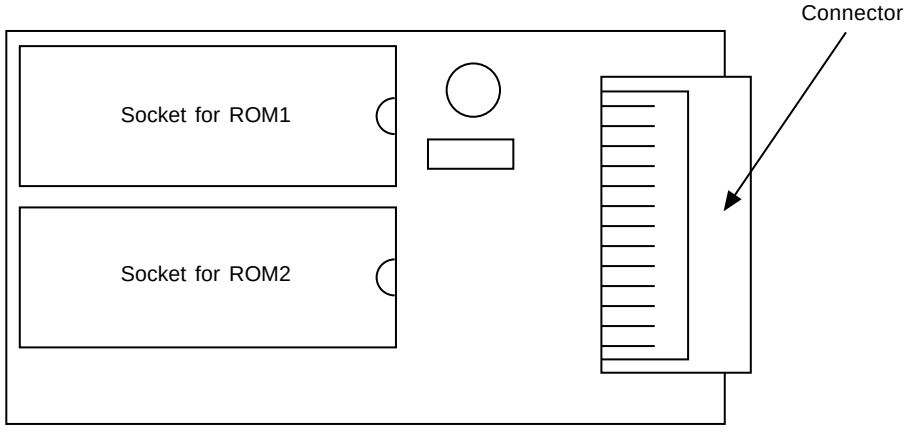
To make these updated data effective, it is necessary to copy the result of the update into the FROM by selecting a desired language in the setting mode “Language displayed at power ON” (08-220).

(2) Jig board

Two types of the ROM previously mentioned use the jig board PWA-F-DLS-320.

2 ROMs are required to download the applications. Only one ROM is used for UI data downloading, and the ROM should be attached to the socket for ROM2.

Note: Pay attention to the direction and position of the ROM when it is attached.



[Jig board (PWA-F-DLS-320)]

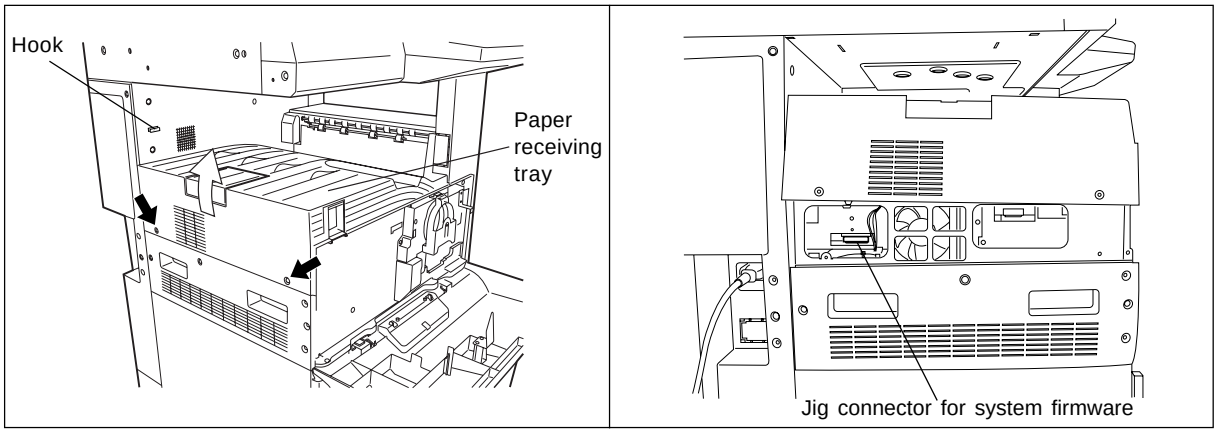
(3) Procedure of downloading

(a) Connect the jig and perform downloading

Attach the ROM(s) on the jig board and connect the board with the connector of the copier.

1. Open the front cover.
2. Remove 2 screws. Lift up the exit side of the paper receiving tray, and hang it on the hook.
3. Connect the downloading jig with the jig connector on the SYS board.

Note: Turn OFF the power before connecting or disconnecting the jig.



Turn ON the power (downloading is automatically started).

Note: Do not turn OFF the power during the downloading.

The processing status is displayed on the control panel during the downloading.

```
Download Board Firmware Update Mode

Download Board -> FROM Update Start.

  Check Devices  -  Completed
  Update FROM    -  Installing
  Data Check     -
```

"Update Completed!!" is displayed on the control panel when the downloading is completed. Turn OFF the power of the copier and disconnect the downloading jig.

```
Download Board Firmware Update Mode

Download Board -> FROM Update Start.


  Check Devices  -  Completed
  Update FROM    -  Completed
  Data Check     -  Completed


         Update Completed!!
```

"Update Failed." is displayed on the control panel when the downloading was not completed successfully. Turn OFF the power, check the downloading jig and copier and attempt the downloading again.

```
Download Board Firmware Update Mode

Download Board -> FROM Update Start.


  Check Devices  -  Completed
  Update FROM    -  Failed
  Data Check     -


           Update Failed.
```

Note: Check the following in case that the downloading was not performed successfully.

- Check if the ROM is attached properly
- Check if the ROM data were written correctly
- Check if the downloading jig is connected properly

For UI data downloading,

- Check if the HDD is connected properly

When the UI data and the applications are updated at the same time, perform the downloading successively.

When UI data downloading is performed, the UI data in the HDD are updated but the display UI at power ON in the FROM is not changed. To make the updated data effective for the display UI at power ON, it is necessary to copy the result of the update into the FROM by selecting a language in the setting mode (08-220).

(b) Confirmation of the downloaded data

Check each data version when the downloading is completed to confirm that the downloading was performed correctly. Check the version in the setting mode (08). Confirm that the version numbers shown by entering the following codes match the specified version numbers.

Confirmation for application downloading:

08-900 : System firmware version
08-920 : System software version
08-921 : Internal program (application) version
08-922 : UI data fixed area version
08-923 : UI data common area version
08-930 : Version of display UI at power ON in FROM

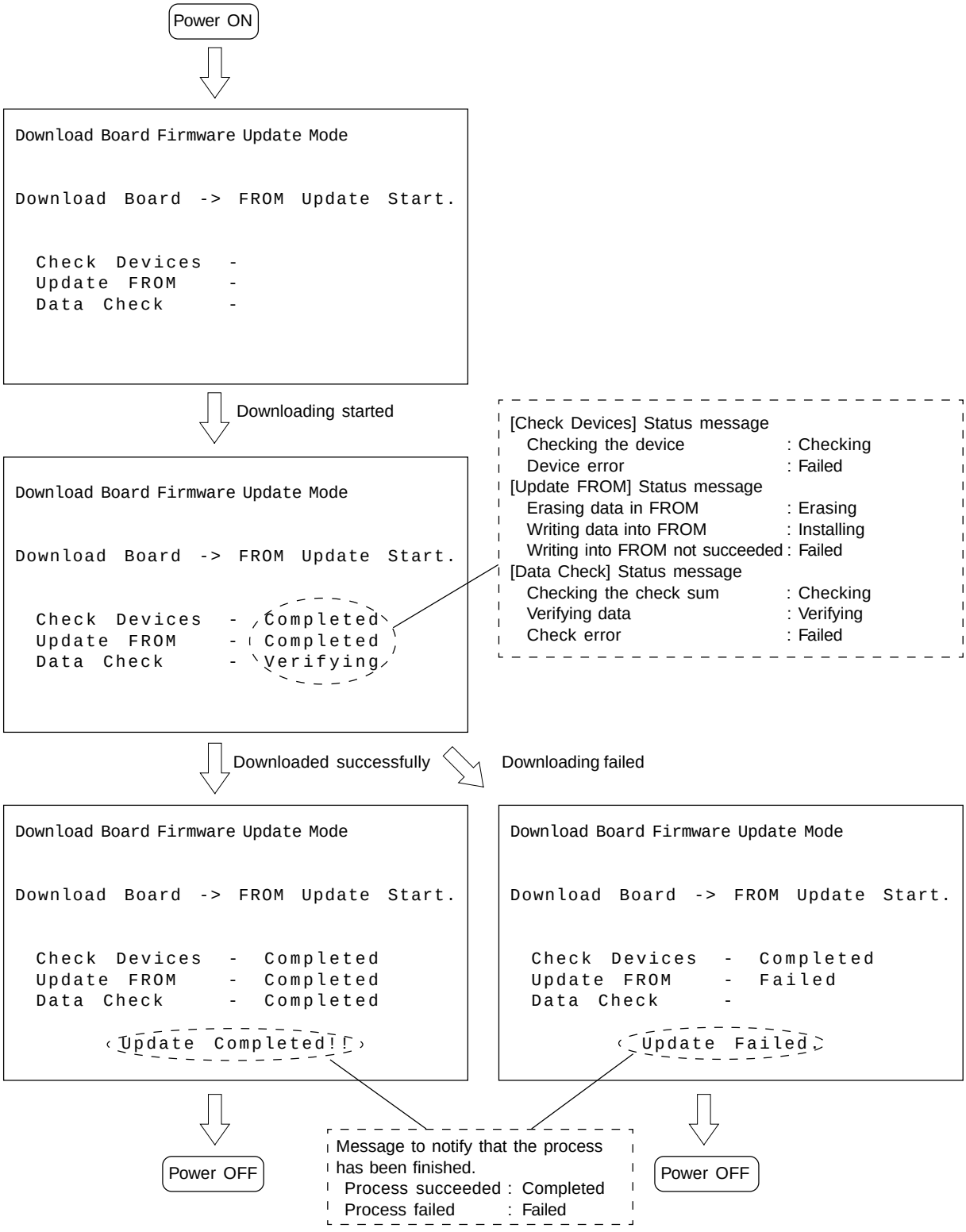
Confirmation for UI data downloading:

08-924 : Version of UI data 1st language in HDD
08-925 : Version of UI data 2nd language in HDD
08-926 : Version of UI data 3rd language in HDD
08-927 : Version of UI data 4th language in HDD
08-928 : Version of UI data 5th language in HDD

(4) Screens displayed during the download

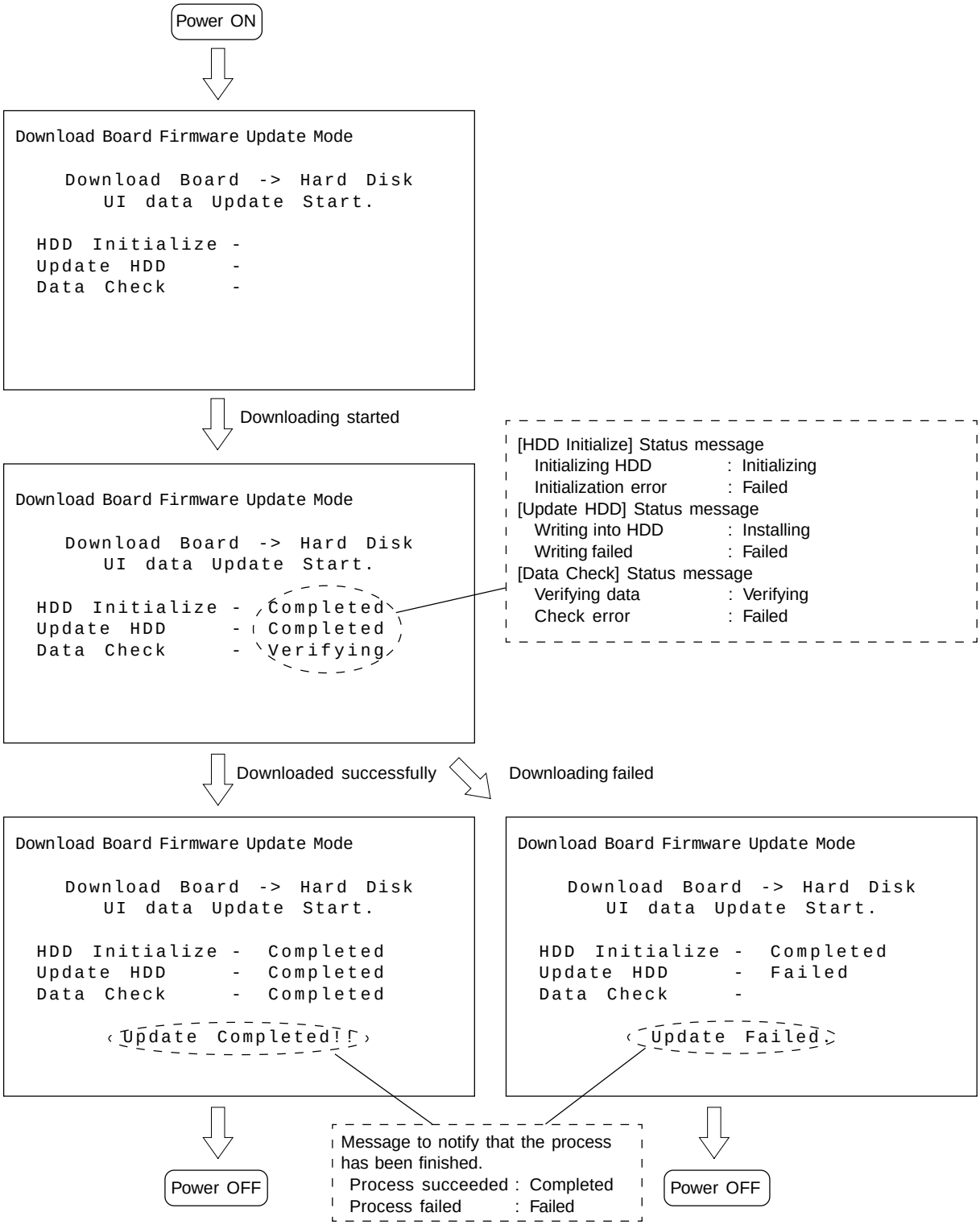
(a) Application downloading

The screens change as follows during the application downloading.



(b) UI data downloading

The screens change as follows during the UI data downloading.



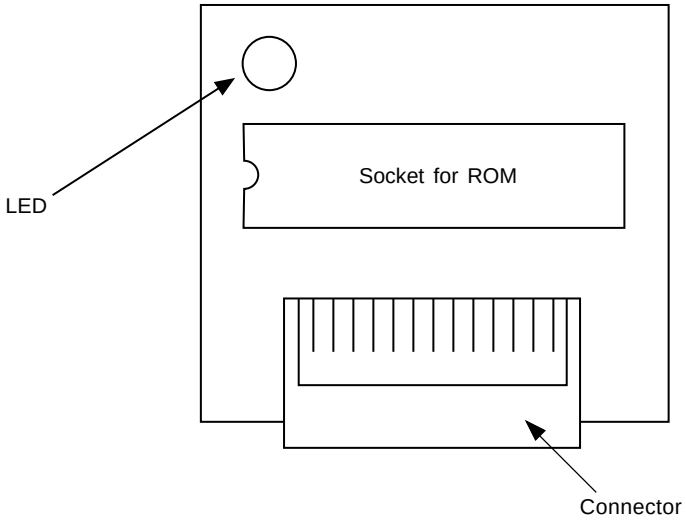
6.3.2 Engine firmware

The procedure to update the engine firmware (printer ROM/LGC board and scanner ROM/SLG board) is described in this section.

(1) Jig board

Both of the printer ROM/LGC board and scanner ROM/SLG board use PWA-F-DLM-320 as a jig board to update the engine firmware.

Note: Pay attention to the direction of the ROM when it is attached to the board.



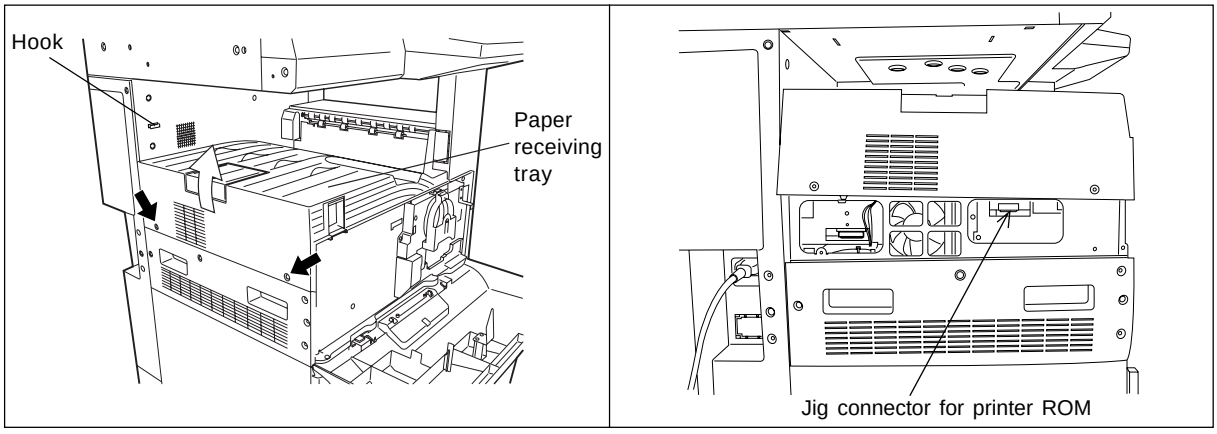
[Jig board (PWA-F-DLM-320)]

(2) Downloading

(a) Attach the ROM to the jig board and connect the board with the jig connector of the copier.

<<Printer ROM/LGC board>>

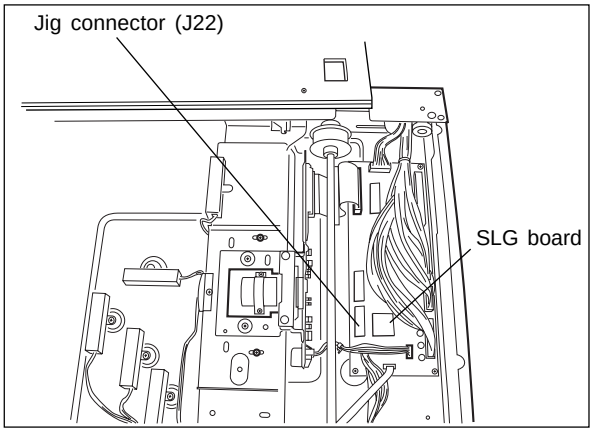
1. Open the front cover.
2. Remove 2 screws. Lift up the exit side of the paper receiving tray and hang it on the hook.
3. Connect the downloading jig with the jig connector on the LGC board.



<<Scanner ROM/SLG board>>

Note: Remember that the damp heater, lens cover, etc. are hot.

1. Remove 4 screws and take off the right top cover. Remove the original glass.
2. Remove 7 screws and disconnect one connector of the damp heater. Take off the lens cover.
3. Connect the downloading jig with the jig connector (J22) on the SLG board.

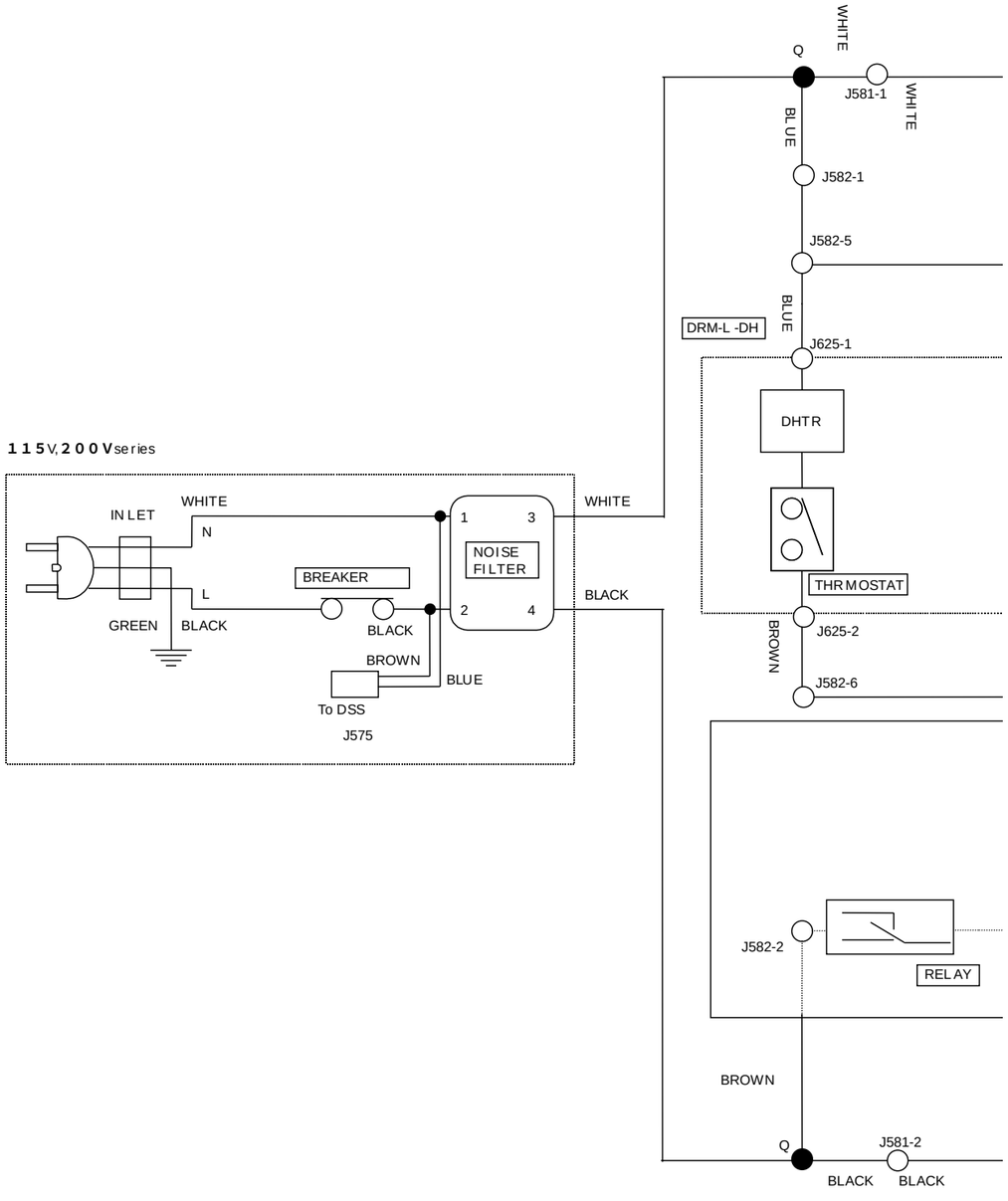


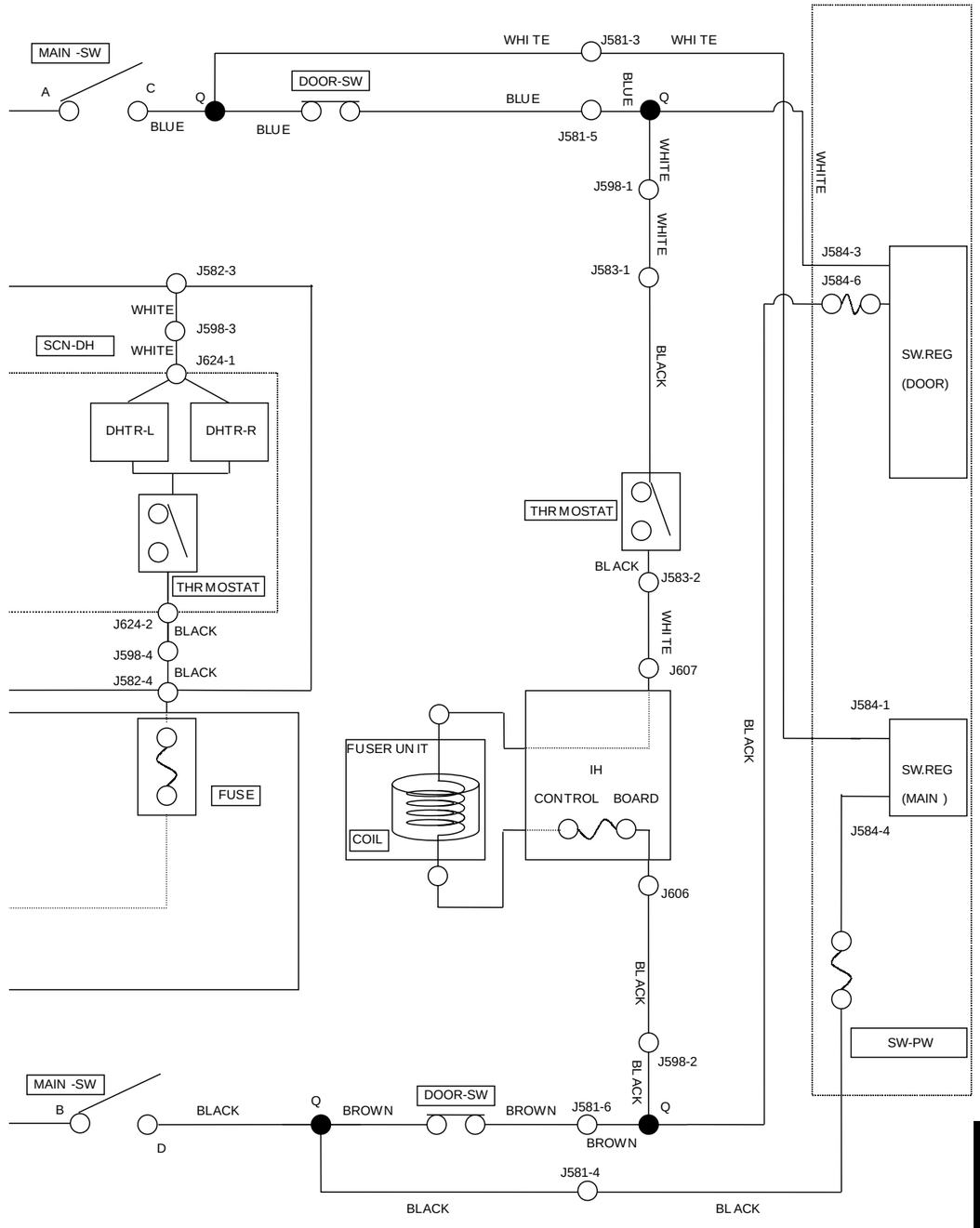
(b) Turn ON the power while [0] and [8] are pressed simultaneously (downloading is automatically started).
(c) Turn OFF the power when the LED on the jig board starts flashing. Remove the downloading jig.
(d) Check the version of the ROM in the setting mode (08) (printer ROM: 08-903, scanner ROM: 08-905).

Note: • It is assumed that the downloading was failed if the LED on the jig board does not start flashing even though 30 seconds have elapsed since the downloading was started. Check if the ROM is attached properly, if the ROM data were written correctly and if the downloading jig is connected properly.
• Clean the mirrors-1, -2 and -3, part of the original glass where the shading correction plate is placed on top and ADF original glass after the downloading not to leave dust or oil stains on them.

7. WIRE HARNESS CONNECTION DIAGRAMS

7.1 AC Wire Harness





DP4500/3500 SERVICE HANDBOOK
7.WIRE HARNESS CONNECTION DIAGRAMS
7.2 DC Wire Harness

DP-4503/3503 サービスマニュアル サービス編
7.束線結線図
7.2 DC結線図

2001.02, rev. 2

PWA-F-KEY-320

PWA-F-DSP-320

PWA-F-SYS-320 (SYS)

PWA-F-SLG-320 (SLG)

PWA-F-SDV-320 (SDV)

PWA-F-CCD-320 (CCD)

PS-ACC-320 (ACC)

PWA-F-ADU-320 (ADU)

PWA-F-LGC-320 (LGC)

PWA-F-LDR-320 (LDR)

PWA-F-SNS-320 (SNS)

IPC (FINISHER)

HDD (HDD)

LP-EXPO-50K-320 (EXP)

INV-EXP-50K-320 (INV)

PWA-F-SFB (SFB)

PWA-F-DLM-320

PWA-F-DLS-320

PWA-F-DLM-320

FAX(OPTION)

FAX(OPTION) or PRINTER(OPTION)

MMF/FC DOWNLOAD

ONLY FIRMWARE DOWNLOAD

GL-1010/PM545 Printer Controller (OPTION) or DSS-ANGS(OPTION)

Back Light

LCD

Touch Panel

K-PNL-TOUCH-320

ADU-TRL-SNR (S23)

ADU-TRU-SNR (S22)

ADU-SET-SW (S24)

ADU-MTR (M4)

ADU-CLT (CLT1)

SFB-CLT (CLT7)

SFB-SNR (S29)

T-FUL-SNR (S30)

DEV-FAN (M15)

MDC-POL-320 (M2)

Inside Laser Unit

Warning Line Voltage present

PS-HI-320 (H)

KEY-COUNTER (OPTION)

To RELAY-UNIT

EXIT-MTR (M6)

IH-FAN (M12)

MAIN-MTR (M9)

TNR-MTR (M7)

RGST-SNR (S13)

FED-U-SNR (S14)

FED-L-SNR (S15)

CST-COVER-SW (S25)

F-COV-SW (S26)

MAIN-SW (S7)

SNR-ATC (S12)

TNR-SW (S11)

EXIT-FAN (M11)

SP-FAN (M10)

LP-ERS (ERS)

MID-FAN (M13)

HUMI-SNR (S31)

THMS-DRM (THMS-D)

To PC

To FINISHER

To RADF

To PFP/LCF

Power Connection to PFP/LCF

To Paper Transfer Motor (PTM)

Jumper W5 ··· (N.C: Board Tester)
S1 ··· (N.C: Debug)

J116,J120: For Debug

ONLY FIRMWARE DOWNLOAD

ONLY 100V,115V /M/C

ONLY 220V-240V /M/C

Inside Laser Unit

FAN-DC-320 (M3)

WH-SLG-APS-320A

WH-SLG-APS-320L

WH-SLG-INV-320

WH-SYS-CHP-320

WH-SYS-SLG-320

WH-SLG-REAR-320

WH-SLG-REAR-320

WH-PWR-SYS-320

WH-SLG-SPLY-320

WH-PWR-SLG-320

WH-PWR-HDD-320

WH-LGC-FIN-320

WH-ADU-FED-L

WH-ADU-FED-U

WH-ADU-CVSW

WH-ADU-320

WH-SFB-320

WH-LGC-ADU-320

WH-LGC-IH-320/321

WH-LGC-POL-320

WH-LGC-CST-320

WH-LGC-FEDU-320

WH-LGC-UNT-320

WH-LGC-PFP-320

WH-LGC-EXIT-320

WH-HTR-THMS-320

WH-LGC-LDR-320

WH-LGC-FD-320U

WH-LGC-SNS-320

WH-LGC-PSU-320

WH-LGC-MOT-320

WH-LGC-FD-320E

WH-LGC-HMS-320

WH-ATS-320

WH-TNR-320

WH-TNR-SW-320

WH-EXIT-FAN-320

WH-TR-SW-320

WH-RGT-SW-320

PWB-F-CBL-320

WH-PWR-CCD-320