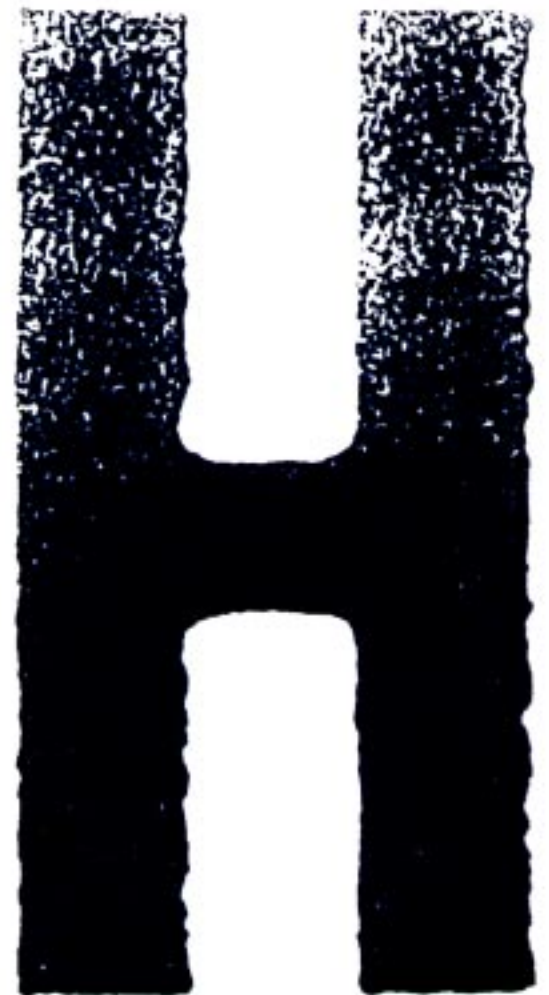


TOSHIBA

SERVICE HANDBOOK

DIGITAL PLAIN PAPER COPIER

e-STUDIO0550/650/810
(DP-5510/6510/8110)



GENERAL PRECAUTIONS REGARDING THE INSTALLATION AND SERVICE FOR THE COPIER e-STUDIO550/650/810

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

1. Transportation/Installation

- When transporting/installing the copier, move it by the casters while lifting the stoppers.
The copier is quite heavy and weighs approximately 200 kg (441 lb), therefore pay full attention when handling it.
- Be sure to use a dedicated outlet with AC 115V or 120V/20A (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, 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 electric 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. If these parts are shorted circuit and/or made their functions out, they may burn down, for instance, and may result in fatal accidents. Do not allow a short circuit to occur. Do not use the parts not recommended by Toshiba TEC Corporation.

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, Used batteries and RAM-ICs

- Regarding the recovery and disposal of the copier, supplies, consumable parts, packing materials, used batteries and RAM-ICs including lithium batteries, 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 this manual.

Attention : Se débarrasser de batteries et RAM-ICs usés y compris les batteries en lithium selon ce manuel.

Vorsicht : Entsorgung des gebrauchten Batterien und RAM-ICs (inklusive der Lithium-Batterie) nach diesem Handbuch.

**1. SPECIFICATIONS /
ACCESSORIES / OPTIONS /
SUPPLIES**

**2. ERROR CODE AND SELF-
DIAGNOSIS**

3. ADJUSTMENT

**4. PREVENTIVE MAINTENANCE
(PM)**

5. TROUBLESHOOTING

6. UPDATING THE FIRMWARE

7. POWER SUPPLY UNIT

**8. WIRE HARNESS CONNECTION
DIAGRAMS**

CONTENTS

1. SPECIFICATIONS / ACCESSORIES / OPTIONS / SUPPLIES	1-1
1. 1. Specifications	1-1
1. 2. Accessories	1-5
1. 3. Options	1-6
1. 4. Supplies	1-6
1. 5. System List	1-7
 2. ERROR CODES AND SELF-DIAGNOSIS	 2-1
2. 1. Error Codes	2-1
2. 2. Self-diagnosis Modes	2-8
2. 2. 1. Input check (test mode 03)	2-10
2. 2. 2. Output check (test mode 03)	2-16
2. 2. 3. Test print mode (04)	2-19
2. 2. 4. Adjustment mode (05)	2-20
2. 2. 5. Setting mode (08)	2-31
 3. ADJUSTMENT	 3-1
3. 1. Hard Disk Formatting	3-1
3. 2. Adjustment of Auto-toner Sensor	3-2
3. 3. Dimensional Adjustment of Copied Image	3-4
3. 3. 1. Overview	3-4
3. 3. 2. Paper alignment	3-6
3. 3. 3. Paper related adjustment	3-7
3. 3. 4. Scanner related adjustment	3-12
3. 4. Image Quality Adjustment	3-19
3. 4. 1. Image density for copier	3-19
3. 4. 2. Sharpness adjustment for copier	3-20
3. 4. 3. Gamma slope adjustment for copier	3-20
3. 4. 4. Setting for range correction for copier	3-21
3. 4. 5. Adjustment of background peak for range correction for copier	3-21
3. 4. 6. Adjustment of blurred/thin spotted text	3-22
3. 4. 7. Adjustment of image density for printer	3-22
3. 5. High-voltage Adjustment	3-23
3. 6. Adjustment of Scanning Section	3-25
3. 6. 1. Carriages	3-25
3. 6. 2. Lens unit	3-29
3. 7. Adjustment of Paper Feeding System	3-32
3. 7. 1. Sheet sideways deviation caused by paper feeding	3-32
3. 8. Adjustment of Developer Unit	3-34
3. 9. Adjustment of Fuser Unit	3-35
3. 9. 1. Adjustment of fuser roller pressure	3-35

3. 9. 2. Setting of fuser roller temperature	3-36
3. 9. 3. Adjustment of fuser inlet guide	3-36
3. 9. 4. High-fusing mode	3-37
3. 10. Adjustment of Exit/Reversal Unit	3-38
3. 10. 1. Adjustment of sideways deviation at reverse discharging	3-38
3. 11. Adjustmet of Reversing Automatic Document Feeder	3-39
3. 11. 1. Installing of the RADF unit	3-39
3. 11. 2. Skew adjustment	3-40
3. 11. 3. Adjustment of solenoid	3-41
3. 11. 4. Adjustment of RADF open/close switch	3-42
3. 11. 5. Adjustment of RADF height	3-42
3. 12. Key Copy Counter (MU-8, MU-10)	3-43
4. PREVENTIVE MAINTENANCE (PM)	4-1
4. 1. PM Support Mode	4-1
4. 1. 1. General description	4-1
4. 1. 2. Operational flow and operational screen	4-1
4. 2. General Descriptions for PM procedure	4-5
4. 3. Operational Items in Overhauling	4-5
4. 4. Preventive Maintenance Checklist	4-5
4. 5. PM Kit	4-19
4. 6. Jig List	4-20
4. 7. Precautions for Storing and Handling Supplies	4-21
4. 7. 1. Precautions for storing TOSHIBA supplies	4-21
4. 7. 2. Checking and cleaning of OPC drum	4-21
4. 7. 3. Checking and cleaning of drum cleaning blade and transfer belt cleaning blade	4-22
4. 7. 4. Handling of drum cleaning brush and transfer belt cleaning brush	4-23
4. 7. 5. Handling of transfer belt	4-23
4. 7. 6. Checking and cleaning of fuser roller and pressure roller	4-23
4. 7. 7. Checking and replacing of cleaning web and cleaning rollers (felt, metal)	4-24
5. TROUBLESHOOTING	5-1
5.1 Diagnosis and Prescription for Each Error Code and Phenomenum	5-1
5.1.1 Paper transport jam	5-1
5.1.2 Paper misfeeding	5-14
5.1.3 Cover open jam	5-21
5.1.4 Jams at eit/reverse section and other transport jams	5-24
5.1.5 Original jam in RADF	5-33
5.1.6 Paper jam in finisher	5-37
5.1.7 Drive system related service call	5-48
5.1.8 Process system related service call	5-58
5.1.9 Scanning system related service call	5-60
5.1.10 Fuser unit related service call	5-62

5.1.11	Communication related service call	5-68
5.1.12	ADF related service call	5-71
5.1.13	Laser optical unit related service call	5-76
5.1.14	Finisher related service call	5-79
5.1.15	Service call for others	5-101
5.1.16	Troubleshooting for image quality control	5-102
5.1.17	Troubleshooting for surface potential control	5-105
5.2	Troubleshooting for the Image	5-107
6.	FIRMWARE UPDATING	6-1
6. 1.	Software Installing for Firmware Updating	6-2
6. 1. 1.	Outline	6-2
6. 1. 2.	Requirements	6-2
6. 1. 3.	Dial-up network function	6-4
6. 1. 4.	Installing of dial-up network	6-8
6. 1. 5.	Setting of dial-up network	6-10
6. 1. 6.	Software installing for FTP server	6-14
6. 2.	Operation Procedure in [3][9] Mode	6-18
6. 2. 1.	Outline	6-18
6. 2. 2.	Preparation	6-18
6. 2. 3.	Updating procedure	6-20
6. 2. 4.	Display	6-28
6. 3.	Firmware Updating with Download Jig	6-32
6. 3. 1.	System firmware	6-33
6. 3. 2.	Engine firmware	6-39
7.	POWER SUPPLY UNIT	7-1
7. 1.	Output Channel	7-1
7. 2.	Fuse	7-5
8.	WIRE HARNESS CONNECTION DIAGRAMS	8-1
8. 1.	AC Wire Harness	8-2
8. 2.	DC Wire Harness	8-4, Appendix

1. SPECIFICATIONS / ACCESSORIES / OPTIONS / SUPPLIES

1. 1. Specifications

When the specification is different among e-STUDIO550, 650 and 810, the value for e-STUDIO650 is shown by [] and the value for e-STUDIO810 is shown by { }.

- Copy process Indirect electrophotographic process (dry system)
- Type Console type
- Original table Fixed type (left rear corner used as a guide to place originals)
- Acceptable originals Sheets, books and 3-dimensional objects
 The automatic document feeder only accepts paper (single-sided originals: 50~127g/m²/13~34lb.Bond, double-sided originals: 50~104g/m²/13~28lb.Bond) excluding carbon paper, pasted sheet and stapled sheet.
 Maximum size : A3/LD

- Copy speed

e-STUDIO550

(Copies/min.)

Paper size \ Paper supply		Cassette	Tandem LCF	Bypass feeding	
				Size specified	Size not specified
A4, LT, B5	Top side discharging	55	55	48	33
	Back side discharging	55	55	48	30
A4-R, B5-R, A5-R, LT-R, ST-R	Top side discharging	44	—	42	33
	Back side discharging	42	—	42	30
B4, LG	Top side discharging	39	—	37	33
	Back side discharging	35	—	35	30
A3, LD	Top side discharging	34	—	33	33
	Back side discharging	30	—	30	30

e-STUDIO650

(Copies/min.)

Paper size \ Paper supply		Cassette	Tandem LCF	Bypass feeding	
				Size specified	Size not specified
A4, LT, B5	Top side discharging	65	65	48	33
	Back side discharging	65	65	48	33
A4-R, B5-R, A5-R, LT-R, ST-R	Top side discharging	50	—	42	33
	Back side discharging	48	—	42	33
B4, LG	Top side discharging	43	—	37	33
	Back side discharging	40	—	37	33
A3, LD	Top side discharging	37	—	33	33
	Back side discharging	34	—	33	33

Paper size \ Paper supply		Cassette	Tandem LCF	Bypass feeding	
				Size specified	Size not specified
A4, LT, B5	Top side discharging	81	81	50	34
	Back side discharging	81	81	50	34
A4-R, B5-R, A5-R, LT-R, ST-R	Top side discharging	61	—	44	34
	Back side discharging	56	—	44	34
B4, LG	Top side discharging	52	—	39	34
	Back side discharging	45	—	39	34
A3, LD	Top side discharging	43	—	34	34
	Back side discharging	37	—	34	34

* “—” means “Not acceptable”.

* Each copy speed described in the table of the previous page is available when doing a multiple copying of the manually placed single-sided originals, and in this mode, only the top side discharging is carried out.

* When using the automatic document feeder, each copy speed of 55 [65] {81} copies/min. is available only when the following conditions are met:

- Original/Mode : Single-sided original, A4/LT size, 1 sheet/APS and automatic density are not selected.
- Preset number of sheets: 55 [65] {81} or more.
- Reproduction ratio : 100%

* System copy speed

Copy mode		sec.		
		e-STUDIO 550	e-STUDIO 650	e-STUDIO 810
Single-sided originals ↓	1 set	18"86	16"81	15"96
	3 sets	40"17	35"99	30"52
Single-sided copies ↓	5 sets	61"92	53"56	45"19
Single-sided originals ↓	1 set	21"28	20"70	20"46
	3 sets	42"91	39"47	36"37
Double-sided copies ↓	5 sets	64"89	57"70	49"48
Double-sided originals ↓	1 set	35"32	35"21	34"36
	3 sets	78"61	71"70	63"89
Double-sided copies ↓	5 sets	121"96	108"01	95"06
Double-sided originals ↓	1 set	31"77	31"49	30"88
	3 sets	74"75	67"97	60"58
Single-sided copies ↓	5 sets	117"88	104"64	90"02

* System copy speed, including scanning time, is available when 10 sheets of A4-sized original are set on RADF and one of the copy modes in the left table is selected.

* 1st cassette is selected and copying is at the sort mode.

* Finisher, hole-punch unit and inserter are installed.

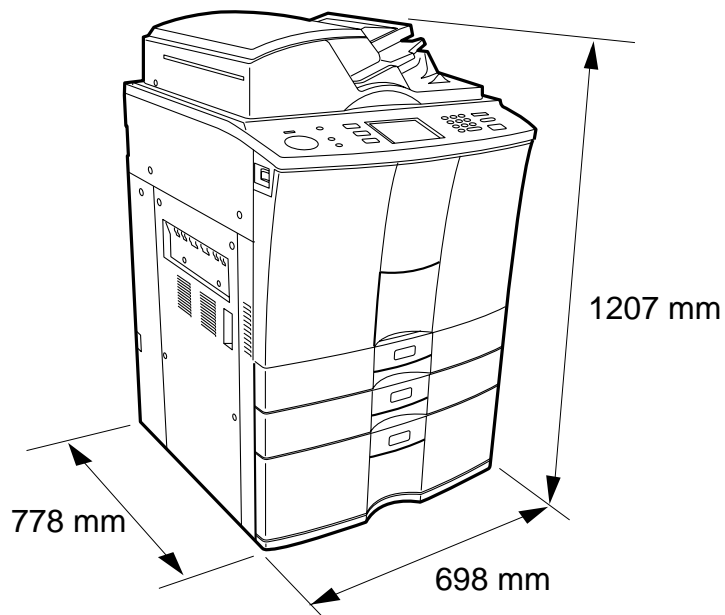
* Measurement deviation is included since the system copy speed was measured by actual measurement.

• Copy paper

	Cassette	Duplex copy	LCF	Bypass copy	Remarks
Size	A3~A5R, LD~ST-R, 13"LG, 8.5"x8.5", 8K, 16K, 16K-R		A4, LT	A3~A5-R, LD~ST-R, 8.5"x8.5", 8K, 16K, 16K-R (Non-standard or user- specified sizes can be set.)	No guarantee for 8K, 16K, 16K-R at duplex copy
Weight	64~209g/m ² , 17~110lb. -index			64~209g/m ² 17lb~110lb -index	
Special paper	Tab paper (2nd cassette only)	—		Tracing paper, labels, OHP film (thickness: 80µm or thicker), tab paper	Special types of paper should be recommended by Toshiba.

- First copy time 3.3 seconds or less (A4/LT, LCF, 100%, original placed manually)
- Warming-up time Approx. 160 seconds (e-STUDIO550/650/810, Temperature: 20°C)
 - Notes:** 1. This is at the condition not entering the toner supply operation.
 - 2. The auto job start is not operated.
- Multiple copying Up to 9999 copies; set number entered with digital keys
- Reproduction ratio Actual ratio: 100±0.5%
 - Zooming: 25~400% in increments of 1%
(25~200% when using the RADF)
- Resolution/Gradation Read: 600 dpi
 - Write: Equivalent to 2400 dpi x 600 dpi
(primary scanning only : 4 division smoothing)
- Eliminated image width Leading edge: 3.0±1.0 mm, Trailig edge: 2.0±1.0 mm, Side edges: 2.0±2.0 mm
- Paper feeding Automatic feeding: Copier cassettes—2 cassettes (Paper stack height 55 mm, equivalent to 550 sheets; 64 to 80 g/m² (17 to 22 lb.Bond))
 - LCF (Paper stack height 137 mm: equivalent to 2500 sheets; 64 to 80 g/m², 17 to 22 lb.Bond)
 - Bypass feeding: (Paper stack height 11 mm : equivalent to 100 sheets; 64 to 80 g/m², 17 to 22 lb.Bond)
- Capacity of originals in the automatic document feeder
 - A3~A5-R, LD~ST-R : 100 sheets
- Automatic duplexer Stackless, Switchback type
- Toner supplying Automatic toner density detection/supply
 - Toner cartridge replacing method
(There is a recycle toner supplying system.)

- Density control Automatic density mode and manual density mode selectable in 11 steps
- Weight Approx. 200kg, 441lb
- Power requirements AC 115V/15A, AC 220 – 240V/10A
- Power consumption 2.0 kW or less (115V series, 200V series)
 - * The electric power is supplied to the finisher and external LCF (optional) through the copier.
- Total counter Electronic counter
- Dimensions of the copier ... See the figure below. (W698x D778 x H1207 mm)



1. 2. Accessories

Unpacking/setup instruction	1 pc.
Operator's Manual	1 pc. (not available for MJD)
PM sticker	1 pc. (for MJD)
Setup report	1 set. (for NAD and MJD)
Customer satisfaction card	1 pc. (for MJD)
Operator's Manual pocket	1 pc.
Power cable	1 pc. (for ASD, AUD and MJD)
Warranty sheet	1 pc. (for NAD)
Drum	1 pc.
Drum cover	1 pc.
Original feeding tray	1 pc.
Tab paper end guide	1 pc.

* Machine version

NAD: North America

MJD: Europe

AUD: Australia

ASD: Asia

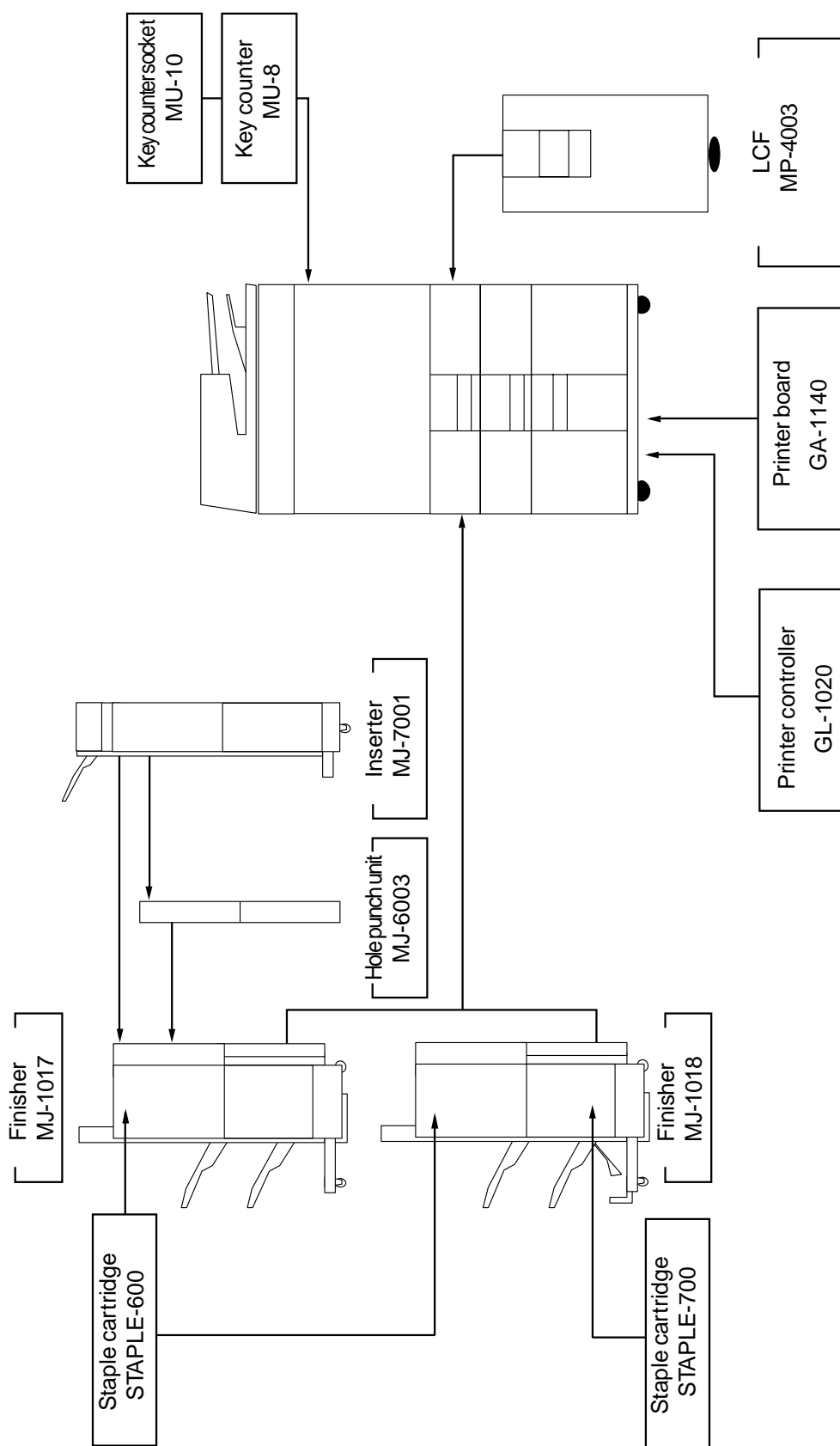
1. 3. Options

Finisher	MJ-1017, MJ-1018
Hole punch unit	MJ-6003N/E/F/S
Insertor	MJ-7001
Staple cartridge	STAPLE-600/STAPLE-700 (for saddle stitcher)
External large capacity feeder	MP-4003A/L
Key copy counter/Key copy counter socket	MU-8/MU-10
Damp heater kit	MF-6510U/E
Printer controller	GL-1020
Printer board	GA-1140

1. 4. Supplies

Drum	OD-6510
Developer material	D-6510
Toner	PS-ZT6510/PS-ZT6510/PS-ZT-6510D
Toner bag	PS-TB6510/PS-TB6510E

1. 5. System List



2. ERROR CODES AND SELF-DIAGNOSIS

2. 1. Error Codes

Instead of the set number, one of the following error codes is displayed with pressing the [CLEAR] key and the digital key "8" simultaneously when the "CLEAR PAPER" or "CALL SERVICE" symbol is flashing.

Group	ErrorCode	Machine Status
Paper transport jam inside the copier (1)	E01	Leading edge of paper not reaching the fuser exit sensor
	E02	Trailing edge of paper not passing the fuser exit sensor
	E03	Paper remaining inside the copier at power ON
	E09	Jam caused by an abnormal HDD
Paper misfeeding	E11	Misfeeding during duplex printing (paper not reaching the registration sensor)
	E12	Bypass misfeeding (paper not reaching the registration sensor)
	E13	1st cassette misfeeding (paper not reaching the 1st cassette feed sensor)
	E14	2nd cassette misfeeding (paper not reaching the 2nd cassette feed sensor)
	E15	3rd cassette misfeeding (paper not reaching the 3rd cassette feed sensor)
	E16	4th cassette misfeeding (paper not reaching the 4th cassette feed sensor)
	E18	Tandem LCF misfeeding (paper not reaching the tandem LCF feed sensor)
	E19	External LCF misfeeding (paper not reaching the external LCF feed sensor)
Paper transport jam inside the copier (2)	E20	Paper fed from the 1st cassette (not reaching the registration sensor)
	E21	Paper fed from the 1st cassette (not reaching the 1st cassette transport sensor)
	E22	Paper fed from the 2nd cassette (not reaching the registration sensor)
	E23	Paper fed from the 2nd cassette (not reaching the 1st cassette transport sensor)
	E24	Paper fed from the 2nd cassette (not reaching the 2nd cassette transport sensor)
	E25	Paper fed from the external LCF (not reaching the registration sensor)
	E30	Paper fed from the 3rd cassette (not reaching the registration sensor)
	E31	Paper fed from the 3rd cassette (not reaching the 1st cassette transport sensor)
	E32	Paper fed from the 3rd cassette (not reaching the 2nd cassette transport sensor)

Group	ErrorCode	Machine Status
Paper transport jam inside the copier (2)	E33	Paper fed from the 3rd cassette (not reaching the 3rd cassette transport sensor)
	E34	Paper fed from the 4th cassette (not reaching the registration sensor)
	E35	Paper fed from the 4th cassette (not reaching the 1st cassette transport sensor)
	E36	Paper fed from the 4th cassette (not reaching the 2nd cassette transport sensor)
	E37	Paper fed from the 4th cassette (not reaching the 3rd cassette transport sensor)
	E38	Paper fed from the 4th cassette (not reaching the 4th cassette transport sensor)
	E3C	Paper fed from the tandem LCF (not reaching the registration sensor)
	E3D	Paper fed from the tandem LCF (not reaching the 1st cassette feed sensor)
	E3E	Paper fed from the tandem LCF (not reaching the 2nd cassette feed sensor)
	E3F	Paper fed from the tandem LCF (not reaching the tandem LCF transport sensor)
Cover open jam	E41	Front cover opened during printing
	E44	Feed cover opened during printing
	E45	LCF side cover opened during printing
	E46	Bypass feed unit cover opened during printing
	E47	Exit cover opened during printing
Transport jam (exit/reversing section and others)	E50	Leading edge of paper not reaching the reverse sensor 2
	E51	Leading edge of paper not reaching the transport sensor 1
	E52	Leading edge of paper not reaching the transport sensor 2
	E54	Leading edge of paper not reaching the transport sensor 3
	E55	Paper remaining on the transport path when CRUN is OFF
	E57	Leading edge of paper not reaching the reverse sensor 1
	E58	Trailing edge of paper not passing the reverse sensor 1 or reverse sensor 2
	E59	Trailing edge of paper not passing the exit sensor
Transport jam (RADF)	E5A	Leading edge of paper not reaching the exit sensor
	E71	Original feeding jam
	E72	Original transport jam
	E73	Original discharging jam
	E74	Original reversing jam
	E76	Small original discharging jam
	E77	Scanning section transport jam
	E7B	RADF opened at the original transporting
	E7C	RADF opened at the large original discharging
	E7D	RADF opened at the small original reversing
	E7E	RADF opened at the small original discharging
	E7F	RADF opened at the original scanning section

Group	ErrorCode	Machine Status
Transport jam (RADF)	E80	Jam access cover opened at the original feeding
	E81	Jam access cover opened at the original transporting
	E82	Jam access cover opened at the large original discharging
	E83	Jam access cover opened at the small original reversing
	E84	Jam access cover opened at the small original discharging
	E85	Jam access cover opened at the original scanning section
Paper jam in finisher	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
	EB3	Ready time time-out jam
	EC0	Insertter feeding delay jam
	EC1	Insertter feeding stop jam
	EC2	Insertter reverse path delay jam 1
	EC3	Insertter reverse path stop jam 1
	EC4	Insertter reverse path delay jam 2
	EC5	Insertter reverse path stop jam 2
	EC6	Insertter transport delay jam 1
	EC7	Insertter transport stop jam 1
	EC8	Insertter transport delay jam 2
	EC9	Insertter transport stop jam 2
	ECA	Paper remaining in the inserter when power is ON
	ECB	Wrong size of inserter
	ECC	Inserter feeding Jam
Paper transport jam inside the copier (3)	EB5	Paper left on the transport path
	EB6	Paper left on the transport path

Group	ErrorCode	Machine Status
Paper feeding system related service call	C04	Abnormal feed motor
	C13	Abnormal 1st cassette tray (Paper can be fed from cassettes other than the 1st cassette.)
	C14	Abnormal 2nd cassette tray (Paper can be fed from cassettes other than the 2nd cassette.)
	C15	Abnormal 3rd cassette tray (Paper can be fed from cassettes other than the 3rd cassette.)
	C16	Abnormal 4th cassette tray (Paper can be fed from cassettes other than the 4th cassette.)
	C18	Abnormal tandem LCF tray-up motor (Paper can be fed from cassettes other than the tandem LCF cassette.)
	C1A	Abnormal tandem LCF end fence motor (Paper can be fed from cassettes other than the tandem LCF cassette.)
	C1C	Abnormal external LCF tray-up motor (Paper can be fed from cassettes other than the external LCF)
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
Processing system related service call	C36	Abnormal main charger wire cleaner drive motor
	C37	Abnormal transfer belt cam motor
	CD1	Abnormal drum cleaning brush motor
	CD2	Abnormal used toner transport motor
	CD3	Abnormal recycle toner transport motor
	CD4	Full toner bag
Fuser unit related service call	C41	Abnormal thermistor or heater at the power ON
	C43	Abnormal thermistor after abnormality judgment
	C44	Abnormal fuser after abnormality judgment
	C45	Abnormal side thermistor after the copier has become ready
	C46	Abnormal pressure roller thermistor during a ready state
	C47	Abnormal IH power voltage / IH initialization error
	C48	IGBT high temperature
	C49	Abnormal IH circuit or coil
	C4A	Cleaning web finished
	CD5	Web motor signal path error

Group	ErrorCode	Machine Status
Communication related service call	C55	RADF I/F error
	C56	Communication error between main CPU and PFC
	C57	Communication error between main CPU and IPC board
	C58	Communication error between IPC board and finisher
	C59	Communication error between main CPU and laser CPU
	F07	Communication error between SYS board and LGC board
	F11	Communication error between SYS board and SLG board
RADF related service call	C73	EEPROM initialization error
	C82	Read sensor adjustment error
	C83	Original length sensor adjustment error
	C84	Small original reverse sensor adjustment error
	C85	Abnormal tray lift motor
	C86	Large original exit sensor adjustment error
Laser optical unit related service call	CA1	Abnormal polygonal motor
	CA2	H-Sync detection error
	CA3	Secondary scanning coarse adjustment error
	CA5	Laser power adjustment error
	CA6	Laser calibration error
	CA9	Image data transmission error from SYS board
	CAA	Secondary scanning fine adjustment error
	CAB	Secondary scanning inter-page compensation error
	CAC	Primary scanning dot adjustment error
	CD0	Laser initializing time out
	CE0	Abnormal comparator
	CE1	Beam sensor detection error
	CE2	Sensor busy error
	CE3	Primary scanning adjustment error
	CE4	Abnormal window comparator
Finisher related service call	CB1	Abnormal feed motor
	CB2	Abnormal delivery motor
	CB3	Abnormal tray lift motor
	CB4	Abnormal alignment motor
	CB5	Abnormal staple motor
	CB6	Abnormal stapler shift motor
	CB7	Abnormal height sensor
	CB8	Abnormal backup RAM data
	CB9	Abnormal saddle stitcher paper pushing plate motor
	CBA	Abnormal saddle stitcher stitch motor (front)
	CBB	Abnormal saddle stitcher stitch motor (rear)
	CBC	Abnormal saddle stitcher alignment motor
	CBD	Abnormal saddle stitcher guide motor
	CBE	Abnormal saddle stitcher paper folding motor
	CBF	Abnormal saddle stitcher paper positioning plate motor

Group	ErrorCode	Machine Status
Finisher related service call	CC0	Abnormal saddle stitcher sensor connector connection
	CC1	Abnormal saddle stitcher microswitch
	CC2	Abnormal communication between finisher and saddle stitcher
	CC4	Abnormal swing motor
	CC5	Abnormal horizontal registration motor
	CC6	Abnormal punch motor
	CC7	Abnormal punch unit backup RAM data
	CCC	Communication error between inserter and finisher
	CCD	Abnormal inserter EEPROM
	CCE	Abnormal inserter fan
Service call for others	C94	Abnormal main CPU
	F10	HDD formatting error

<<Error history (08-253)>>

(Example of display) EA1 0 2 0 6 2 6 1 7 5 7 3 2 6 4 6 4 2 3 6 2 1 0 0 0 0 0 0
 Error code YYMMDDHHMMSS MMM NNN ABCDEFGHIJKL
 3 digits 12 digits (Year indicated 3 digits 3 digits 12 digits
 with its last 2 digits)

Copy mode	
A	Paper source
	0: Not selected 1: Bypass feeding 2:Tandem LCF 3: 1st cassette 4: 2nd cassette 5: 3rd cassette 6: 4th cassette 7: Duplex printing 8: External LCF 9: Inserter
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: Non-sort/Non-staple 1: Group 2: Sort 7: Staple sort (standard) 8: Staple sort (2 places) 9: Staple sort (rear side) 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/Duplexed 8: Single-sided/Duplexed
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: Not used 3: Not used 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 20 errors data can be displayed in the setting mode (08-253).

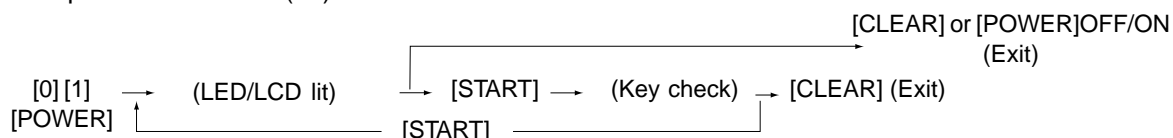
2.2. Self-diagnosis Modes

Mode	Keys to press	Contents	Keys to exit	Display
Control panel check mode	[0]+[1]+ [POWER]	All LEDs on the control panel are lit, and all the LCD pixels flash.	[CLEAR] or [POWER]OFF/ON	——
Test mode	[0]+[3]+ [POWER]	Checks the status of input/output signals.	[POWER] OFF/ON	100% C TEST MODE
Test print mode	[0]+[4]+ [POWER]	Outputs the test patterns.	[POWER] OFF/ON	100% P A4 TEST PRINT
Adjustment mode	[0]+[5]+ [POWER]	Adjusts various items.	[POWER] OFF/ON	100% A A4 TEST MODE
Setting mode	[0]+[8]+ [POWER]	Sets various items.	[POWER] OFF/ON	100% D TEST MODE
List printing mode	[9]+[START] +[POWER]	Prints out the data lists of the codes 05 and 08 and PM support mode.	[POWER] OFF/ON	100% L A4 LIST PRINT
PM support mode	[6]+[START] +[POWER]	Performs auto-toner adjustment and clears each counter.	[POWER] OFF/ON	100% K TEST MODE
Firmware update mode	[3]+[9]+ [POWER]	Performs updating of the firmware.	[POWER] OFF/ON	——

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>

- Control panel check mode (01):

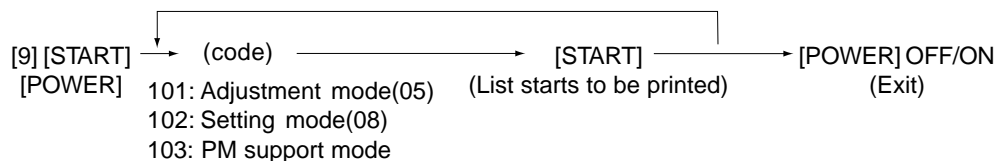


Notes: 1. A mode can be canceled only by pressing the [CLEAR] key during the key check and by the [CLEAR] key or [POWER] OFF/ON during the LED and LCD are lit.

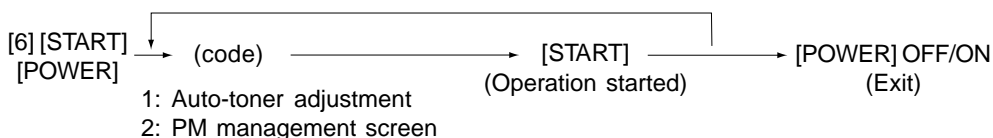
- | | |
|--------------|---|
| 2. Key Check | Keys with LED (Press to turn OFF the LED.) |
| | Keys without LED (Press to display the message on the control panel.) |

- Test mode (03): Refer to “2.2.1. Input check (test mode 03)” and “2.2.2. Output check (test mode 03)”.
- Test print mode (04): Refer to “2.2.3. Test print mode (04)”.
- Adjustment mode (05): Refer to “2.2.4. Adjustment mode (05)”.
- Setting mode (08): Refer to “2.2.5. Setting mode (08)”.

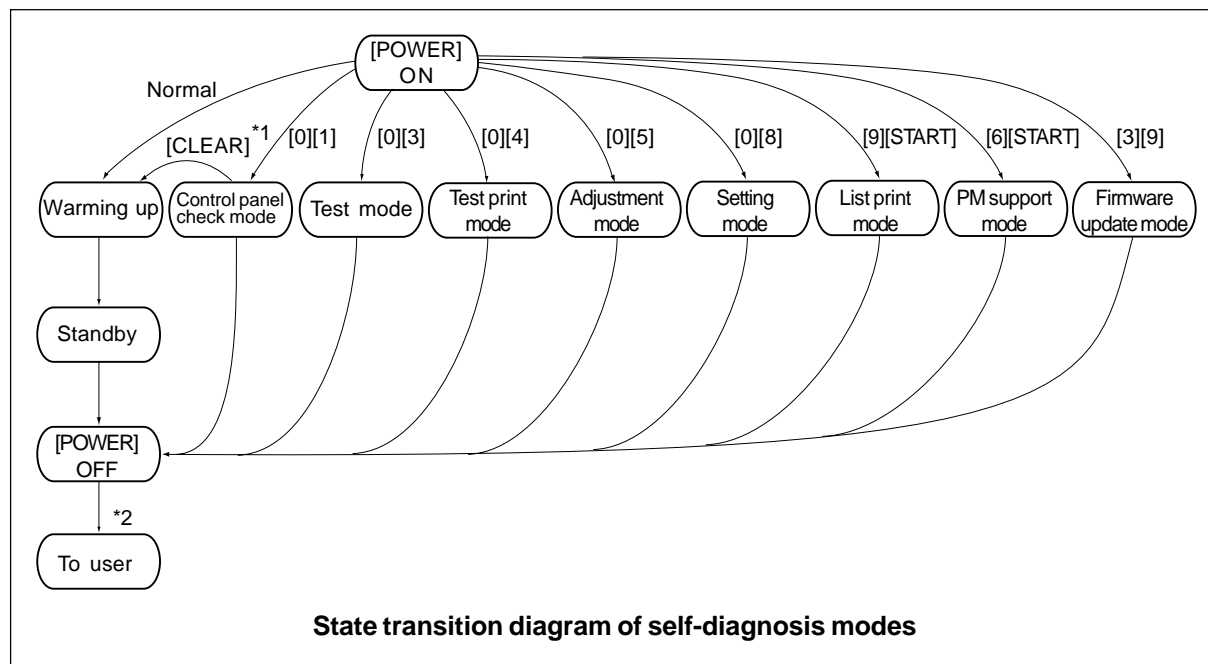
- List printing mode (9S):



- PM support mode (6S):



- Firmware update mode (39): Refer to “6. FIRMWARE UPDATING”.



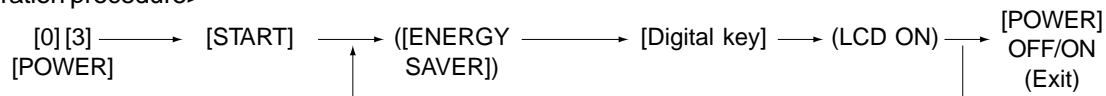
*1 In the “Control panel check mode”, copying is disabled. Enter the standby state by pressing the [CLEAR] key to start copying.

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

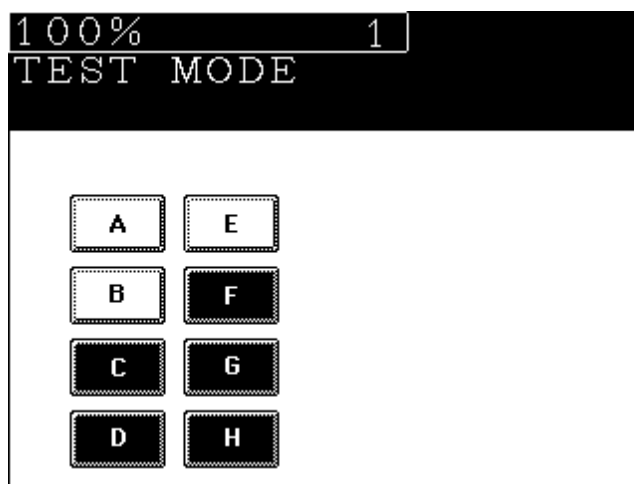
2. 2. 1. Input check (test mode 03)

The state of each input signal can be checked by pressing the [ENERGY SAVER] 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.

[ENERGY SAVER] key: OFF ([ENERGY SAVER] LED: OFF)

Digital key	Icon	Items to check	Copier state with black icon
[1]	A	—	
	B	External LCF feed sensor	No paper —
	C	External LCF tray-up sensor	Top position
	D	External LCF tray bottom sensor	Bottom position
	E	External LCF tray sensor	Stack opened
	F	External LCF empty sensor	No paper
	G	External LCF set sensor	Unit opened
	H	External LCF connection	Not connected
[2]	A	1st cassette feed sensor	No paper
	B	1st cassette transport sensor	No paper
	C	1st cassette tray top sensor	Top position
	D	1st cassette tray bottom sensor	Bottom position
	E	1st cassette detection switch	Cassette installed
	F	1st cassette paper empty sensor	No paper
	G	—	
	H	—	
[3]	A	2nd cassette feed sensor	No paper
	B	2nd cassette transport sensor	No paper
	C	2nd cassette tray top sensor	Top position
	D	2nd cassette tray bottom sensor	Bottom position
	E	2nd cassette detection switch	Cassette installed
	F	2nd cassette paper empty sensor	No paper
	G	—	
	H	—	
[4]	A	3rd cassette feed sensor / Tandem LCF feed sensor	No paper
	B	3rd cassette transport sensor / Tandem LCF transport sensor	No paper
	C	3rd cassette tray top sensor / Tandem LCF tray top sensor	Top position
	D	3rd cassette tray bottom sensor	Bottom position
	E	3rd cassette detection switch / Tandem LCF cassette detection switch	Cassette installed
	F	3rd cassette paper empty sensor/ Tandem LCF feeding side paper empty sensor	No paper
	G	Feed cover open/close switch	Cover opened
	H	—	
[5]	A	4th cassette feed sensor	No paper
	B	4th cassette transport sensor	No paper
	C	4th cassette tray top sensor	Top position
	D	4th cassette tray bottom sensor	Bottom position
	E	4th cassette detection switch	Cassette installed
	F	4th cassette paper empty sensor	No paper
	G	—	
	H	—	

Digital key	Icon	Items to check	Copier state with black icon
[6]	A	—	
	B	Reverse sensor 2	No paper
	C	Reverse sensor 1	No paper
	D	—	
	E	Exit/Reversing section connection	Not connected
	F	Fuser unit exit sensor	No paper
	G	Exit sensor	Paper present
	H	Exit cover open/close switch	Cover opened
[7]	A	Tandem LCF end fence home position sensor	Home position
	B	Tandem LCF end fence stop position sensor	Stop position
	C	Bypass paper size detection sensor 3 (▶ Table1)	
	D	Bypass paper size detection sensor 2 (▶ Table1)	
	E	Bypass paper size detection sensor 1 (▶ Table1)	
	F	Bypass paper size detection sensor 0 (▶ Table1)	
	G	Bypass unit cover open/close switch	Door closed
	H	Bypass sensor	No paper
[8]	A	Tandem LCF tray bottom sensor	Bottom position
	B	Tandem LCF connection switch	Connected
	C	Tandem LCF standby side mis-stacking sensor	Paper loaded improperly
	D	—	
	E	—	
	F	—	
	G	—	
	H	Tandem LCF standby side empty sensor	No paper
[9]	A	Transport sensor 1	Paper present
	B	Transport sensor 2	Paper present
	C	Transport sensor 3	Paper present
	D	—	
	E	—	
	F	—	
	G	—	
	H	—	
[0]	A	—	
	B	—	
	C	—	
	D	Finisher connection (IPC board connection)	Not connected
	E	Fuser unit switch	Fuser unit installed
	F	—	
	G	—	
	H	Developer unit switch	Developer unit installed

Table 1. Relation between the state of the bypass paper size detection 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	Post card
0	0	1	1	B4/LG
1	0	0	1	B5-R

[ENERGY SAVER] key: ON ([ENERGY SAVER] LED: ON)

Digital key	Icon	Items to check	Copier state with black icon
[1]	A	Front door switch	Door opened
	B	—	
	C	Exit sensor	Paper present
	D	—	
	E	Toner full detection sensor	Toner bag full
	F	—	
	G	Fuser unit exit sensor	No paper
	H	—	
[2]	A	—	
	B	—	
	C	Total counter connection	Not connected
	D	Auto-toner sensor connection	Not connected
	E	—	
	F	Cleaner unit connection	Not connected
	G	Wire cleaner stop position switch	Other than stop position
	H	Exit jam access door open/close switch	Door opened
[3]	A	—	
	B	—	
	C	—	
	D	—	
	E	—	
	F	Key copy counter connection	Not connected
	G	Toner cartridge switch	No cartridge
	H	—	

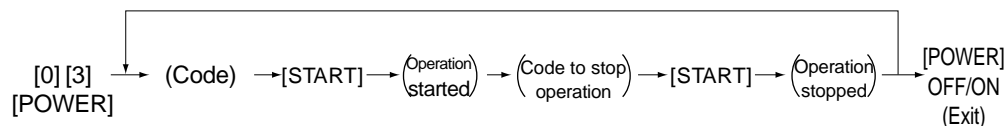
Digital key	Icon	Items to check	Copier state with black icon
[4]	A	—	
	B	—	
	C	—	
	D	—	
	E	Registration sensor	Paper present
	F	—	
	G	Transfer belt release switch	Other than release position
	H	Transfer belt contact switch	Other than contact position
[5]	A	—	
	B	—	
	C	—	
	D	—	
	E	—	
	F	RADF connection	RADF connected
	G	RADF open/close sensor	RADF opened
	H	Carriage home position sensor	Home position
[6]	A	—	
	B	—	
	C	—	
	D	Automatic original detection sensor (APS-5) (for A4/LT series)	No original
	E	Automatic original detection sensor (APS-4) (for A4/LT series)	No original
	F	Automatic original detection sensor (APS-3) (for A4/LT series)	No original
	G	Automatic original detection sensor (APS-2) (for A4/LT series)	No original
	H	Automatic original detection sensor (APS-1) (for A4 series)	No original
[7]	A	RADF tray sensor	Original present
	B	RADF empty sensor	Original present
	C	RADF jam access cover open/close switch	Cover opened
	D	RADF open/close switch	RADF opened
	E	RADF large original exit sensor	Original present
	F	RADF intermediate sensor	Original present
	G	RADF read sensor	Original present
	H	RADF registration sensor	Original present
[8]	A	RADF lifting tray lower limit sensor	Lower limit position
	B	RADF lifting tray upper limit sensor	Upper limit position
	C	RADF small original exit sensor	Original present
	D	RADF small original reverse sensor	Original present
	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

Digital key	Icon	Items to check	Copier state with black icon
[9]	A	—	
	B	—	
	C	—	
	D	—	
	E	—	
	F	—	
	G	RADF APS operation sensor	APS sensors operated
	H	RADF 24V power supply	Power OFF
[0]	A	—	
	B	—	
	C	—	
	D	—	
	E	—	
	F	—	
	G	—	
	H	—	

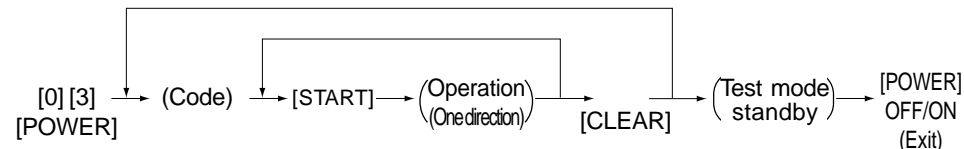
2. 2. 2. Output check (test mode 03)

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

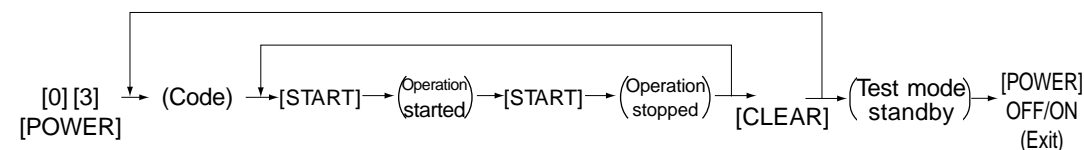
Procedure 1



Procedure 2



Procedure 3



Procedure 4

[0] [3] → (Code) → [START] → [POWER] OFF
[POWER]

Code	Function	Code	Function	Procedure
101	Drum motor ON	151	Code 101 operation OFF	1
102	New toner supply motor ON	152	Code 102 operation OFF	1
103	Polygonal motor (600dpi) ON	153	Code 103 operation OFF	1
108	Registration motor ON	158	Code 108 operation OFF	1
110	Reversed paper transport driving clutch ON	160	Code 110 operation OFF	1
111	Drum separation finger solenoid ON	161	Code 111 operation OFF	1
112	Developer unit motor ON	162	Code 112 operation OFF	1
113	Fuser motor ON	163	Code 113 operation OFF	1
114	Transfer belt motor ON	164	Code 114 operation OFF	1
115	Cleaning brush drive motor ON	165	Code 115 operation OFF	1
116	Used toner transport motor ON	166	Code 116 operation OFF	1
118	Laser ON	168	Code 118 operation OFF	1
119	Fuser moter (low speed) ON	169	Code 119 operation OFF	1
120	Exit motor (normal) ON	170	Code 120 operation OFF	1

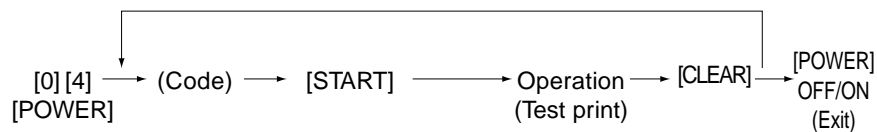
Code	Function		Procedure
121	Exit motor (increased speed) ON	171 Code 121 operation OFF	1
122	External LCF feed motor ON	172 Code 122 operation OFF	1
123	Toner recycle hopper motor ON	173 Code 122 operation OFF	1
124	Web motor ON	174 Code 122 operation OFF	1
125	Feed motor ON	175 Code 122 operation OFF	1
126	Reverse motor (normal/forward rotation) ON	176 Code 122 operation OFF	1
127	Reverse motor (increased speed/forward rotation) ON	177 Code 122 operation OFF	1
128	Reverse motor (normal/reverse rotation) ON	178 Code 122 operation OFF	1
129	Reverse motor (increased speed/reverse rotation) ON	179 Code 122 operation OFF	1
131	Recycle toner transport motor ON	181 Code 122 operation OFF	1
201	1st cassette feed clutch ON/OFF		3
202	2nd cassette feed clutch ON/OFF		3
203	Intermediate transport clutch ON/OFF		3
204	Bypass feed clutch ON/OFF		3
206	Tandem LCF pickup solenoid ON/OFF		3
207	Tandem LCF end fence reciprocating movement		2
208	Tandem LCF end fence motor ON/OFF		3
209	Tandem LCF feed clutch ON/OFF		3
210	Tandem LCF transport clutch ON/OFF		3
211	RADF feed motor (forward rotation) ON/OFF		3
212	RADF feed motor (reverse rotation) ON/OFF		3
213	RADF read motor (forward rotation) ON/OFF		3
218	Key copy counter count-up		2
219	Exit fan ON/OFF		3
220	Reversed paper transport clutch 1 ON/OFF		3
221	Reversed paper transport clutch 2 ON/OFF		3
225	4th cassette transport clutch ON/OFF		3
226	3rd cassette feed clutch ON/OFF		3
228	4th cassette feed clutch ON/OFF		3
229	1st cassette transport clutch ON/OFF		3
230	2nd cassette transport clutch ON/OFF		3
231	3rd cassette transport clutch ON/OFF		3
234	Bypass pickup solenoid ON/OFF		3
235	Discharge lamp ON/OFF		3
238	System fan ON/OFF		3
240	Developer unit fan ON/OFF		3
243	Main charger wire cleaner motor ON		2
244	Transfer belt cam motor UP/DOWN		3
245	Transfer belt supply roller bias TR1 ON/OFF		3
246	Transfer belt supply roller bias TR2 ON/OFF		3
247	Transfer belt supply roller bias TR3 ON/OFF		3

Code	Function	Procedure
248	Developer bias +DC ON/OFF (Operation is possible without the developer unit.)	3
249	Developer bias -DC1 ON/OFF (Operation is possible without the developer unit.)	3
250	Developer bias -DC2 ON/OFF (Operation is possible without the developer unit.)	3
251	Developer bias -DC3 ON/OFF (Operation is possible without the developer unit.)	3
252	Main charger ON/OFF (Operation is possible without the developer unit.)	3
254	Duct in fan ON/OFF	3
255	Transfer belt cleaning brush bias ON/OFF (Operation is possible without the developer unit.)	3
257	Duct out fan (high speed) ON/OFF	3
258	Duct out fan (low speed) ON/OFF	3
259	Heater fan (high speed) ON/OFF	3
260	Heater fan (low speed) ON/OFF	3
261	Scanner motor ON (automatically stopping at the limit position, speed changeable by the ZOOM keys)	2
264	SLG fan ON/OFF	3
267	Exposure lamp ON/OFF	3
270	Tandem LCF tray motor ON (tray lifted)	2
271	External LCF tray motor ON (tray lifted)	2
272	External LCF feed clutch ON/OFF	3
273	External LCF transport clutch ON/OFF	3
274	Gate solenoid ON/OFF	3
276	Cassette tray-up motor 1 ON (1st cassette tray lifted)	2
278	Cassette tray-up motor 1 ON (2nd cassette tray lifted)	2
279	Cassette tray-up motor 2 ON (3rd cassette tray lifted)	2
280	Cassette tray-up motor 2 ON (4th cassette tray lifted)	2
283	RADF large original exit roller (forward rotation) ON/OFF	3
284	RADF large original exit roller (reverse rotation) ON/OFF	3
285	RADF small original exit roller (forward rotation) ON/OFF	3
286	RADF small original exit roller (reverse rotation) ON/OFF	3
287	RADF large original exit solenoid ON/OFF	3
288	RADF small original exit solenoid ON/OFF	3
289	RADF disengagement solenoid ON/OFF	3
290	RADF tray lift motor ON (tray lifted)	2
292	Laser unit fan (high speed) ON/OFF	3
293	Laser unit fan (low speed) ON/OFF	3
295	Power OFF mode	4
450	IH fan (high speed) ON/OFF	3
451	IH fan (low speed) ON/OFF	3
452	Reverse section fan 1 (high speed) ON/OFF	3
453	Reverse section fan 1 and 2 (low speed) ON/OFF	3
454	Reverse section fan 2 (high speed) ON/OFF	3

2. 2. 3. Test print mode (test 04)

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

<Operation procedure>



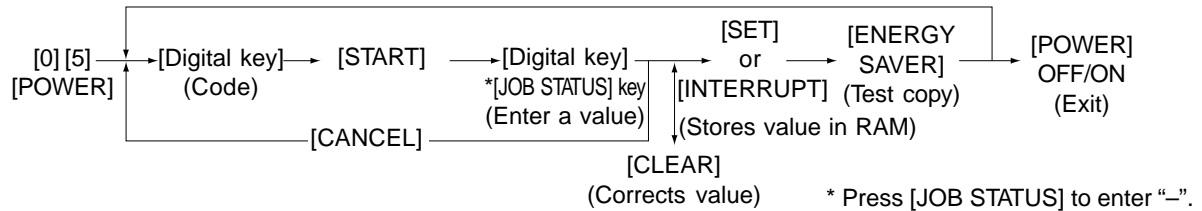
- Notes:**
1. An error code is displayed on the control panel if an error occurs in the process, but no recovery operation is performed.
 2. Turn the power OFF, and then turn it back ON to clear the error.

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)	

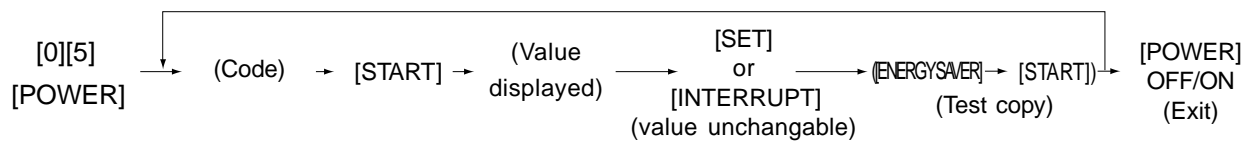
2. 2. 4. Adjustment mode (05)

Items in the adjustment mode list in the following pages can be corrected or changed in this adjustment mode (05). Turn ON the power with pressing the digital keys [0] and [5] simultaneously in order to enter this mode.

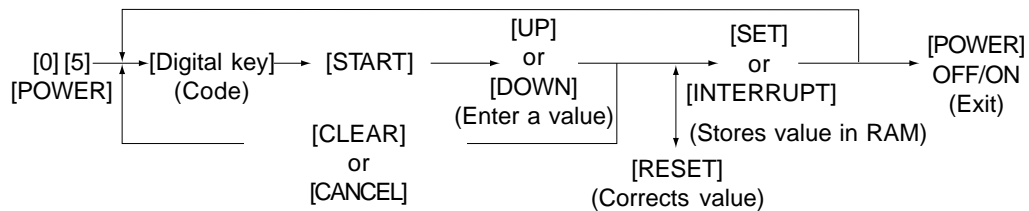
Procedure 1



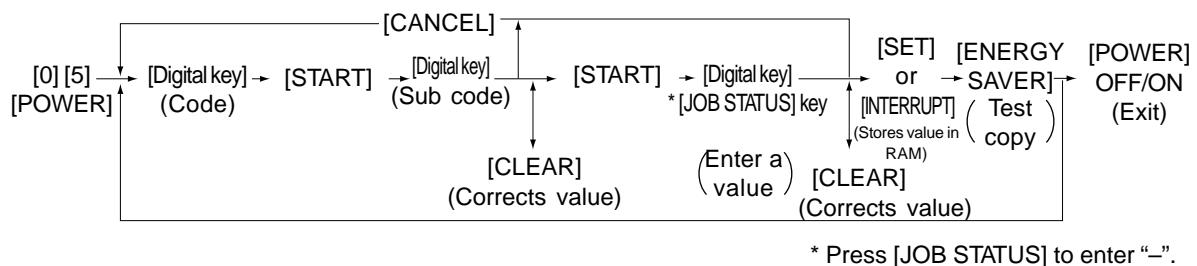
Procedure 2



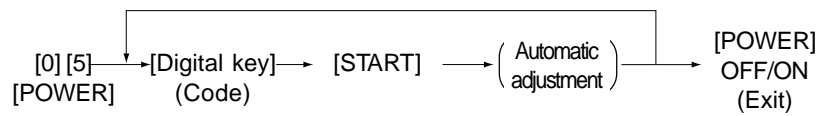
Procedure 3



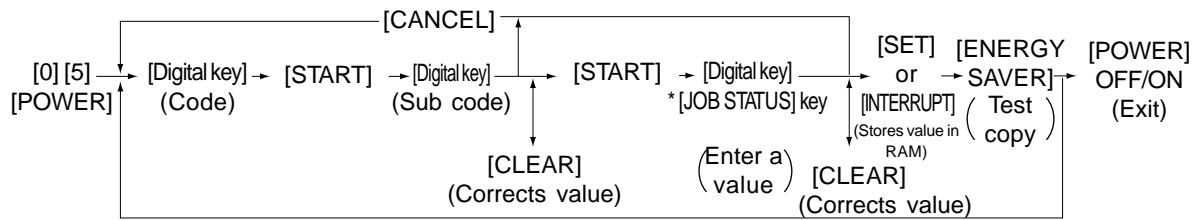
Procedure 4



Procedure 6

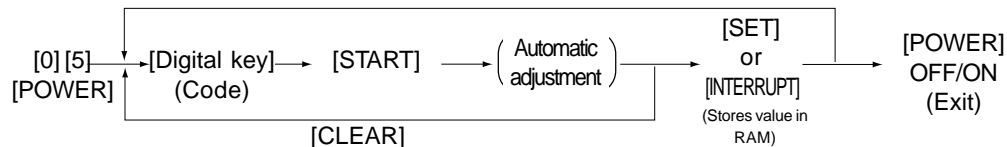


Procedure 13



* Press [JOB STATUS] to enter “-”.

Procedure 15



Note: The fuser roller temperature control is different from it at the normal state. Therefore, the problem of fusing efficiency may be occurred in the test copy at the adjustment mode.

In that case, turn ON the power normally, leave the copier for approx. 3 minutes after it has become ready state and then start up the adjustment mode again.

Adjustment mode (05)						
Code	Items to adjust	Function	Default	Acceptable value	Contents	Operation procedure
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 2.45 to 2.55V. (▶ Chapter 3.2.)	6
201	Correction of auto-toner sensor (Fuser heater ON)	ALL	—	0~255		3
205	Developer bias DC output adjustment	ALL	141	0~255	As the value increases by “1”, output from the transformer increases correspondingly. (▶ Chapter 3.5.)	3
206	Developer bias actual value	ALL	—	0~255	The developer bias value at the latest printing is displayed.	2
210	Main charger grid bias output adjustment	ALL	112	0~255	As the value increases by “1”, output from the transformer increases correspondingly. (▶ Chapter 3.5.)	3
211	Main charger grid bias actual value	ALL	—	0~255	The main charger grid bias value at the latest printing is displayed.	2
221	Transfer transformer DC output adjustment/center value	ALL	175	0~255	The voltage for the transfer belt power supply roller can be adjusted but cannot be measured. * When carrying out an adjustment, close the front cover and be careful not to touch the high-voltage section.	3
242	Control status of the drum surface potential sensor	ALL	0	0~255		2
268	Image quality control Display of the exposure corrected value	ALL	0	-255 ~255		2
269	Image quality control Display of limiter flag	ALL	0	0~255		2
290	Enforced performing of Image quality control	ALL	—	—		6
291	Image quality control Control status display	ALL	0	0~255		2

Adjustment mode (05)							
Code	Items to adjust		Function	Default	Acceptable value	Contents	Operation procedure
292	Display of the output value of the image quality sensor	Sensor light source OFF	ALL	—	0~1023	The output value of the image quality sensor is displayed when the sensor light source is OFF.	2
293		Drum surface	ALL	—	0~1023	The output value of the image quality sensor on the drum surface (without a test pattern) is displayed.	2
296	Display of the light amount adjustment result of the image quality sensor		ALL	—	0~255	LED light amount adjustment of the sensor, which makes the light amount reflected from the drum a standard value is displayed.	2
305	Adjustment of scanner secondary scanning start position deviation		ALL	137	0~255	When the value increases by “1”, the image shifts toward the leading edge of paper by approx. 0.1213mm.	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.)	6
340	Adjustment of scanner secondary scanning reproduction ratio		PPC	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 original	ALL	10	0~20	When the value increases by “1”, the aligning amount increases by approx. 0.5mm.	1
355		for two-sided original	ALL	10	0~20		1
356	Automatic adjustment of RADF sensor and EEPROM initialization		ALL	—	—	Perform the adjustment and initialization when the ADF board or sensor of the RADF is replaced.	6
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		Function	Default	Acceptable value	Contents	Operation procedure
365	RADF leading edge position adjustment	for single-sided original	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 two-sided original	ALL	50	0~100		1
367	RADF original tray width sensor adjustment	Minimum	ALL	—	—		6
368		Maximum	ALL	—	—		6
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/5steps)	1
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
424-0	Adjustment of the exit motor speed	Normal speed	PPC	128	0~255	When the value increases by "1", the rotation speed increases by approx. 0.24%.	13
424-1		Increased speed	PPC	128	0~255	When the value increases by "1", the rotation speed increases by approx. 0.32% (e-STUDIO550), 0.37% (e-STUDIO650) or 0.43% (e-STUDIO810).	13
425-0		Normal speed	PRT	128	0~255	Same as 424-0.	13
425-1		Increased speed	PRT	128	0~255	Same as 424-1.	13
426-0		Normal speed	PPC	128	0~255	When the value increases by "1", the rotation speed increases by approx. 0.195%.	13
426-1		Increased speed	PPC	128	0~255	When the value increases by "1", the rotation speed increases by approx. 0.28% (e-STUDIO550), 0.32% (e-STUDIO650) or 0.37% (e-STUDIO810).	13
427-0		Normal speed	PRT	128	0~255	Same as 426-0.	13
427-1		Increased speed	PRT	128	0~255	Same as 426-1.	13
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

Adjustment mode (05)							
Code	Items to adjust		Function	Default	Accept- able value	Contents	Operation procedure
435	Top margin adjustment (blank area at the leading edge of the paper)		PRT	24	0~255	When the value increases by “1”, the blank area becomes wider by approx. 0.0423mm.	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
439	Secondary scanning laser write start position	1st cassette	ALL	20	0~40	When the value increases by “1”, the image shifts toward the leading edge of paper by approx. 0.4mm.	1
440		2nd cassette	ALL	8	0~15		1
441		3rd cassette or tandem LCF	ALL	8	0~15		1
442		Bypass feeding	ALL	8	0~15		1
443		External LCF	ALL	8	0~15		1
444		4th cassette	ALL	8	0~15		1
445		Duplex feeding	ALL	8	0~15		1
446	Adjustment of remaining paper detection /Paper empty	4th cassette	ALL	10	0~31		1
447		Tandem LCF	ALL	10	0~31		1
448-0	Paper aligning amount adjustment (at the copier registration section)	3rd cassette /Long size	ALL	9	0~31	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	13
448-1		3rd cassette /Middle size	ALL	9	0~31		13
448-2		3rd cassette /Short size	ALL	8	0~31		13
448-3		3rd cassette /Thick paper	ALL	20	0~31		13
449-0		4th cassette /Long size	ALL	9	0~31		13
449-1		4th cassette /Middle size	ALL	9	0~31		13
449-2		4th cassette /Short size	ALL	8	0~31		13
449-3		4th cassette /Thick paper	ALL	20	0~31		13
450-0		1st cassette /Long size	ALL	11	0~31		13
450-1		1st cassette /Middle size	ALL	11	0~31		13
450-2		1st cassette /Short size	ALL	15	0~31		13
450-3		1st cassette /Thick paper	ALL	15	0~31		13

Adjustment mode (05)							
Code	Items to adjust		Function	Default	Accept-able value	Contents	Operation procedure
452-0		2nd cassette /Long size	ALL	12	0~31		13
452-1		2nd cassette /Middle size	ALL	9	0~31		13
452-2		2nd cassette /Short size	ALL	8	0~31		13
452-3		2nd cassette /Thick paper	ALL	20	0~31		13
453	Adjustment of remaining paper detection /Paper full	4th cassette	ALL	JPN: 8 UC, EUR: 2	0~31		1
454		Tandem LCF	ALL	JPN: 8 UC, EUR: 2	0~31		1
455-0	Paper aligning amount adjustment (at the copier registration section)	Duplex feeding /Long size	ALL	11	0~31	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	13
455-1		Duplex feeding /Middle size	ALL	11	0~31		13
455-2		Duplex feeding /Short size	ALL	15	0~31		13
455-3		Duplex feeding Thick paper	ALL	15	0~31		13
456-0		Tandem LCF /Normal paper	ALL	16	0~31		13
456-1		Tandem LCF /Thick paper	ALL	18	0~31		13
457-0		External LCF /Normal paper	ALL	8	0~31		13
457-1		External LCF /Thick paper	ALL	8	0~31		13
458-0		Bypass feeding /Long size	ALL	20	0~31		13
458-1		Bypass feeding /Middle size	ALL	16	0~31		13
458-2		Bypass feeding /Short size	ALL	15	0~31		13
458-3		Bypass feeding /Thick paper	ALL	25	0~31		13
458-4		Bypass feeding /Post card	ALL	18	0~31		13

Adjustment mode (05)							
Code	Items to adjust		Function	Default	Acceptable value	Contents	Operation procedure
468-0	Fine adjustment of	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.	13
468-1	binding position /	B4	ALL	0	-14~14		13
468-2	folding position	A3 / LD	ALL	0	-14~14		13
470	Automatic adjustment of remaining paper detection		ALL	—	—		15
471	Adjustment of remaining paper detection	External LCF	ALL	10	0~31		1
472		1st cassette	ALL	10	0~31		1
473		2nd cassette	ALL	10	0~31		1
474		3rd cassette	ALL	10	0~31		1
475	Automatic adjustment of remaining paper detection/Paper full		ALL	—	—		15
476	Adjustment of remaining paper detection	External LCF	ALL	JPN:8 UC:2 EUR:2	0~31		1
477		1st cassette	ALL	JPN:8 UC:2 EUR:2	0~31		1
478		2nd cassette	ALL	JPN:8 UC:2 EUR:2	0~31		1
479		3rd cassette	ALL	JPN:8 UC:2 EUR:2	0~31		1
481	Fine adjustment of the drum motor rotating speed		PPC	128	0~255	When the value increases by "1", the rotation speed increases by approx. 0.067%.	1
482			PRT	120	0~255		1
483	Fine adjustment of the registration motor rotating speed		PPC	128	0~255	When the value increases by "1", the rotation speed increases by approx. 0.097%.	1
484			PRT	128	0~255		1
485	Fine adjustment of the fuser motor rotation speed		PPC	128	0~255	When the value increases by "1", the rotation speed increases by approx. 0.061%.	1
486			PRT	128	0~255		1
487	Fine adjustment of the transfer belt motor rotation speed		PPC	128	0~255	When the value increases by "1", the rotation speed increases by approx. 0.127%.	1
488			PRT	128	0~255		1
489	Fine adjustment of the feed motor rotation speed		PPC	128	0~255	When the value increases by "1", the rotation speed increases by approx. 0.061%.	1
490			PRT	128	0~255		1
493-0	Fine adjustment of the developer unit motor rotation speed	Photo/Text	PPC	4	0~15	When the value increases by "1", the rotation speed increases by approx. 3.85%.	13
493-1		Text	PPC	4	0~15		13
493-2		Photo	PPC	4	0~15		13
495-0		Normal	PRT	4	0~15		13
495-1		Toner save	PRT	4	0~15		13

Adjustment mode (05)							
Code	Items to adjust		Function	Default	Acceptable value	Contents	Operation procedure
497-4	Adjustment of cassette sideways deviation	Tandem LCF	ALL	128	0~255	When the value increases by "1", the image shifts toward the front side by 0.0423mm.	13
498-0	Adjustment of duplex feeding sideways deviation	Long size	ALL	148	0~255	When the value increases by "1", the image shifts toward the front side by 0.0423mm.	13
498-1		Short size (A4/LT or smaller)	ALL	148	0~255		13
501	Density adjustment	Photo	PPC	128	0~255	When the value increases, the image of the center step density becomes darker.	1
503	Fine adjustment of "manual density" /Center value	Photo/Text	PPC	128	0~255		1
504		Text	PPC	128	0~255		1
505	Density adjustment	Photo	PPC	JPN:23 UC, EUR:21	0~255	When the value increases, the image of the "light" steps becomes lighter.	1
506	Fine adjustment of "manual density" /Light step value	Photo/Text	PPC	27	0~255		1
507		Text	PPC	16	0~255		1
508	Density adjustment	Photo/Text	PPC	JPN:38 UC, EUR:25	0~255	When the value increases, the image of the "dark" steps becomes darker.	1
509	Fine adjustment of "manual density" /Dark step value	Photo	PPC	33	0~255		1
510		Text	PPC	JPN:42 UC, EUR:19	0~255		1
512	Density adjustment	Photo	PPC	128	0~255	When the value increases, the image becomes darker.	1
514	Fine adjustment of	Photo/Text	PPC	128	0~255		1
515	"automatic density"	Tex	PPC	128	0~255		1
532	Range correction	Photo/Text	PPC	40	0~255	When the value increases, the background becomes more brightened.	1
533	Background peak	Photo	PPC	16	0~255		1
534	adjustment	Text	PPC	64	0~255		1

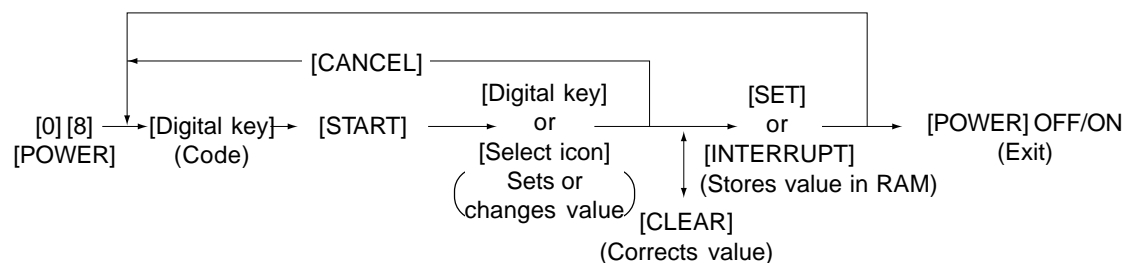
Adjustment mode (05)						
Code	Items to adjust	Function	Default	Acceptable value	Contents	Operation procedure
570	Range correction on original manually set on the original glass	Photo/Text	PPC	JPN:44 UC, EUR:12	Set whether the value of the background peak and text peak are fixed or not. One's place is an adjustment for "automatic density" and ten's place is one for "manual density". 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		Photo	PPC	12		1
572		Text	PPC	44		1
593	Gamma data slope adjustment	Photo/Text	PPC	0	When the value increases, the image becomes darker.	1
594		Photo	PPC	0		1
595		Text	PPC	0		1
620	Sharpness adjustment	Photo/Text	PPC	JPN:1 UC:31 EUR:31	The number of units: Enter one of the following fixed values in the copying mode. 1: Text/Photo 2: Photo 5: Text 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
621		Photo	PPC	2		1
622		Text	PPC	5		1
648	Adjustment of blurred/thin spotted text	Photo/Text	PPC	JPN:152 UC:30 EUR:30	Adjustment of the blurred/thin spotted text 05-648: With increasing the value, the thin spotted text is suppressed, and with decreasing it, the blurred text is suppressed. 05-657, 658: With decreasing the value, the thin spotted text is suppressed, and with increasing it, the blurred text is suppressed.	1
657		Normal	PRT	4		1
658		Toner save	PRT	6		1

Adjustment mode (05)							
Code	Items to adjust		Function	Default	Acceptable value	Contents	Operation procedure
672-0	Adjustment of printer image density	Normal	PRT	0	0~10	Adjustment of the image density. With decreasing the value, the text becomes lighter.	4
672-1			PRT	4	0~10		4
672-2			PRT	5	0~10		4
672-3			PRT	6	0~10		4
672-4			PRT	10	0~10		4
673-0			PRT	0	0~10		4
673-1			PRT	4	0~10		4
673-2			PRT	5	0~10		4
673-3			PRT	6	0~10		4
673-4			PRT	10	0~10		4
676-0		Toner save	PRT	0	0~10		4
676-1			PRT	4	0~10		4
676-2			PRT	5	0~10		4
676-3			PRT	6	0~10		4
676-4			PRT	10	0~10		4
677-0			PRT	0	0~10		4
677-1			PRT	4	0~10		4
677-2			PRT	5	0~10		4
677-3			PRT	6	0~10		4
677-4			PRT	10	0~10		4
693	Range correction on original set on the RADF	Photo/Text	PPC	JPN:44 UC, EUR:12	11~14, 21~24, 31~34, 41~44	Set whether the value of the background peak and text peak are fixed or not. One's place is an adjustment for "automatic density" and ten's place is one for "manual density". 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		Photo	PPC	12			1
695		Text	PPC	44			1

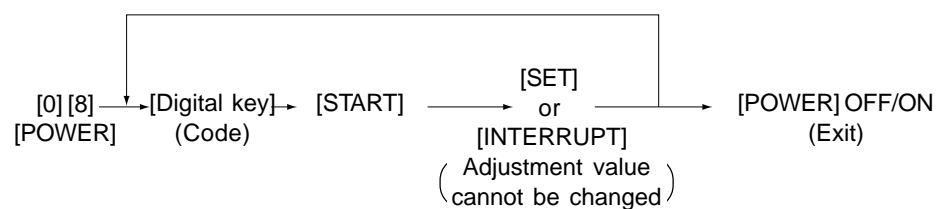
2. 2. 5. Setting mode (08)

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

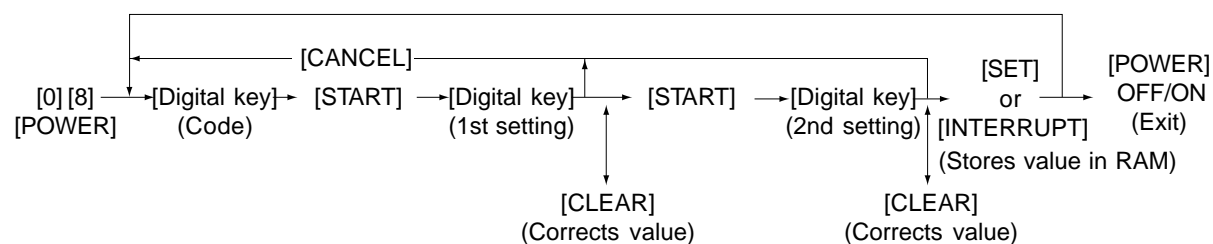
Procedure 1



Procedure 2



Procedure 3



Setting mode (08)						
Code	Name	Function	Default	Acceptable Value	Contents	Operation procedure
200	Date and time setting	ALL	—	13 digits	Year /month /date /day /hour /minute /second Example: 02 06 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, 11~15	Timer to automatically switch to the energy saving mode when the copier has not been used 0: Disabled 11: 15min. 12: 20min. 13: 30min. 14: 45min. 15: 60min.	1
206	Auto-power off timer setting	ALL	12	5~20	Timer to automatically turn OFF the power when the copier has not been used 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
210	Punch setting to the tab paper	ALL	0	0~1	Setting of whether or not punching the tab paper when both the tab and hole punch functions are selected 0: No punch 1: Punch set	1
211	Inserter/ Reverse setting when inserting the back cover	PPC	0	0~1	Setting of whether or not to reverse only the back cover when inserting the back cover at the inserter function 0: No reverse 1: Reverse set	1
213	Reversal exit setting at SADF - single-sided copying	PPC	0	0~1	Setting of whether or not to discharge paper without reversing it when carrying out a single-sided copying at SADF 0: Invalid (reversing) 1: Valid (no reversing)	1
214	Tab paper printing/ tab extension setting (2nd cassette feeding)	PPC	130	120~170	Setting of the initial value for the tab extension at the tab printing mode by 0.1mm	1
215	Tab paper printing/ tab shift setting (2nd cassette feeding)	PPC	130	0~300	Setting of the initial value for the shift amount at the tab printing mode by 0.1mm	1

Setting mode (08)						
Code	Name	Function	Default	Acceptable Value	Contents	Operation procedure
216	Tab paper printing/ tab extension setting (bypass feeding)	PPC	130	100~200	Setting of the initial value for the tab extension at the tab printing mode by 0.1mm	1
217	Tab paper printing/ tab shift setting (bypass feeding)	PPC	130	0~300	Setting of the initial value for the shift amount at the tab printing mode by 0.1mm	1
220	Language displayed at power ON	ALL	0	0~5	0: Language1 1: Language2 2: Language3 3: Language4 4: Language5 5: Language6	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 1st cassette	ALL	JPN:A4 UC: LT-R EUR:A4-R	0~255	Press the icon on the LCD to select the size.	1
226	Paper size for 2nd 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 3rd cassette	ALL	JPN:A4-R	0~255	Press the icon on the LCD to select the size.	1
228	Paper size for 4th cassette	ALL	JPN:B4	0~255	Press the icon on the LCD to select the size.	1
229	Paper size (A3) feeding/widthwise direction	ALL	420/297	182~432 /140~297		4
230	Paper size (A4-R) feeding/widthwise direction	ALL	297/210	182~432 /140~297		4
231	Paper size (A5-R) feeding/widthwise direction	ALL	210/148	182~432 /140~297		4
232	Paper size (B4) feeding/widthwise direction	ALL	364/257	182~432 /140~297		4
233	Paper size (B5-R) feeding/widthwise direction	ALL	257/182	182~432 /140~297		4
234	Paper size (LT-R) feeding/widthwise direction	ALL	279/216	182~432 /140~297		4
235	Paper size (LD) feeding/widthwise direction	ALL	432/279	182~432 /140~297		4
236	Paper size (LG) feeding/widthwise direction	ALL	356/216	182~432 /140~297		4
237	Paper size (ST-R) feeding/widthwise direction	ALL	216/140	182~432 /140~297		4
238	Paper size (COMPUTER) feeding/widthwise direction	ALL	356/257	182~432 /140~297		4
239	Paper size (FOLIO) feeding/widthwise direction	ALL	330/210	182~432 /140~297		4
240	Paper size (13"LG) feeding/widthwise direction	ALL	330/216	182~432 /140~297		4
241	Paper size (8.5"X8.5") feeding/widthwise direction	ALL	216/216	182~432 /140~297		4

Setting mode (08)						
Code	Name	Function	Default	Acceptable Value	Contents	Operation procedure
242	Paper size (Non-standard) feeding/widthwise direction	ALL	432/279	148~432 /105~297		4
244	Paper size (8K) feeding/widthwise direction	ALL	390/270	182~432 /140~297		4
245	Paper size (16K-R) feeding/widthwise direction	ALL	270/195	182~432 /140~297		4
250	Service call telephone number	ALL	0	14 digits	Up to 14 digits of a telephone number can be entered. Use the [HELP] key to enter a hyphen (-).	1
251	PM counter setting value	ALL	▶ Contents	0~99999999	<Default> e-STUDIO550 JPN: 0 UC, EUR: 400000 e-STUDIO650 JPN: 0 UC, EUR: 460000 e-STUDIO810 JPN: 0 UC, EUR: 500000	1
252	PM counter current value	ALL	0	0~99999999		1
253	Error history display	ALL	—	—	Displaying of the latest 20 errors data	2
255	Paper cassette /External LCF installation	ALL	0	0~4	0: Automatic	1
256	Paper size setting /Tandem LCF	ALL	UC: LT EUR: A4	0~255	Press the icon on the LCD to select the size.	1
261	Paper size setting /External LCF	ALL	JPN: A4 UC: LT EUR: A4	0~255	Press the icon on the LCD to select the size.	1
300	MAX9 selection	ALL	0	0~3	0: 9999 1: 999 2: 99 3: 9	1
302	Original counter display	ALL	JPN: 0 UC: 0 EUR: 2	0 or 2	0: Not displayed 2: Displayed	1
332	Quick access menu Initial setting	ALL	JPN: 0 UC: 1 EUR: 0	0~2	Setting of whether or not to display the [QUICK] menu screen 0: Normal menu screen + [QUICK] tab 1: Normal menu screen (not displaying [QUICK] tab) 2: [QUICK] menu screen	1
333	Continued original input number of times	ALL	0	0~1	0: 9 times 1: 4 times	1
349	External LCF counter	ALL	0	0~99999999	Counting of the number of papers fed from the external LCF	1
351	Electrical counter	ALL	0	0~99999999		1
352	Large size double count setting	ALL	JPN: 0 UC, EUR: 1	0~2	0: Single count 1: Double count 2: Double count (only mechanical counter and key copy counter)	1
355	Large size setting	ALL	0	0~1	Setting of the paper size to be double counted when "1" is set at 08-352 0: A3/LD (420mm or over) 1: A3/B4/LD/COMP/LG/FOLIO (330mm or over)	1
356	1st cassette counter	ALL	0	0~99999999	Counting of the number of papers fed from the 1st cassette	1
357	2nd cassette counter	ALL	0	0~99999999	Counting of the number of papers fed from the 2nd cassette	1

Setting mode (08)						
Code	Name	Function	Default	Acceptable Value	Contents	Operation procedure
358	Bypass feed counter	ALL	0	0~99999999	Counting of the number of papers fed from the bypass tray	1
359	Tandem LCF counter	ALL	0	0~99999999	Counting of the number of papers fed from the tandem LCF	1
360	3rd cassette counter	ALL	0	0~99999999	Counting of the number of papers fed from the 3rd cassette	1
361	Copy scan counter	ALL	0	0~99999999	Counting of the number of scans at the copying function	2
362	Copy counter	ALL	0	0~99999999	Counting of the number of prints at the copying function	2
366	List report counter	ALL	0	0~99999999	Counting of the number of the list reports (including the group list)	2
367	Printer counter	ALL	0	0~99999999	Counting of the number of prints at the printer function	2
368	Scan counter	ALL	0	0~99999999	Counting of the number of scans at the scanner function	2
370	4th cassette counter	ALL	0	0~99999999	Counting of the number of papers fed from the 4th cassette	1
372	Duplex printing counter	ALL	0	0~99999999	Counting of the number of the automatic duplex printing	1
374	ADF counter	ALL	0	0~99999999	Counting of the number of papers fed from the ADF	1
385	Large size counter	PPC	0	0~99999999	Double counting when "1" is set and single counting when "2" is set at 08-352	1
386	Small size counter	PPC	0	0~99999999	Single counting when "0" is set at 08-312	1
387	Large size counter	PRT	0	0~99999999	Double counting when "1" is set and single counting when "2" is set at 08-352	1
388	Small size counter	PRT	0	0~99999999	Single counting when "0" is set at 08-312	1
390	HDD error counter	PPC	0	0~32767	Reset at the HDD formatting	2
392	HDD error counter	LAN DSS	0	0~32767	Reset at the HDD formatting	2
399	Used toner full counter	ALL	0	0~3	When the value becomes "3", call for service. Then reset to "0" after replacing the toner bag.	1
400	Fuser unit error counter	ALL	0	0~19	0: No error 1: C41 occurred once 2: C41 occurred continuously 3: – 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 control counter (enter 0 to reset the counter)	ALL	0	0~99999999	Counting of the drum rotation time (Value x 2 sec.)	1
402	Ready time counter	ALL	0	0~99999999	Counting of the copier running time (min.)	2
403	Fuser unit drive time counter (enter 0 to reset the counter)	ALL	0	0~99999999	Counting of the heat roller rotation time (sec.)	2

Setting mode (08)						
Code	Name	Function	Default	Acceptable Value	Contents	Operation procedure
404	Developer material counter (enter 0 to reset the counter)	ALL	0	0~99999999	Counting of the total consumed papers (double count for the long size)	1
405	Transfer belt counter (enter 0 to reset the counter)	ALL	0	0~99999999		1
408	Fuser unit temperature after pre-running	ALL	► Contents	0~12	0: 100°C 1: 110°C 2: 120°C 3: 125°C 4: 130°C 5: 135°C 6: 140°C 7: 145°C 8: 150°C 9: 155°C 10: 160°C 11: 165°C 12: 170°C <Default> e-STUDIO550 JPN: 8 UC: 4 EUR: 4 e-STUDIO650 JPN: 8 UC: 4 EUR: 4 e-STUDIO810 JPN: 4 UC: 4 EUR: 4	1
410	Fuser roller temperature during printing	ALL	8	0~11	0: 173°C 1: 180°C 2: 183°C 3: 186°C 4: 189°C 5: 192°C 6: 195°C 7: 198°C 8: 200°C 9: 203°C 10: 206°C 11: 209°C	1
411	Fuser roller temperature during standby state	ALL	8	0~11	0: 173°C 1: 180°C 2: 183°C 3: 186°C 4: 189°C 5: 192°C 6: 195°C 7: 198°C 8: 200°C 9: 203°C 10: 206°C 11: 209°C	1
412	Fuser roller temperature in energy saver mode	ALL	► Contents	0~15	0: 60°C 1: 65°C 2: 70°C 3: 80°C 4: 90°C 5: 100°C 6: 110°C 7: 120°C 8: 130°C 9: 140°C 10: 145°C 11: 150°C 12: 155°C 13: 160°C 14: 170°C 15: 180°C <Default> e-STUDIO550 JPN: 2 UC, EUR: 9 e-STUDIO650 JPN: 2 UC, EUR: 12 e-STUDIO810 JPN: 12 UC, EUR: 14	1
413	Fuser unit temperature after pre-running in a low temperature environment	ALL	► Contents	0~12	0: 100°C 1: 110°C 2: 120°C 3: 125°C 4: 130°C 5: 135°C 6: 140°C 7: 145°C 8: 150°C 9: 155°C 10: 160°C 11: 165°C 12: 170°C <Default> e-STUDIO550 JPN: 9 UC: 8 EUR: 8 e-STUDIO650 JPN: 9 UC: 8 EUR: 8 e-STUDIO810 JPN: 8 UC: 8 EUR: 8	1
414	Correction setting of toner density	ALL	6	0~7	Correction of the toner density 0: 0.5% higher 1: 0.8% higher 2: 1.5% higher 3: 1.5% lower 4: 0.8% lower 5: 0.3% lower 6: Status quo 7: 0.3% higher	1
418	Charger wire cleaning	ALL	0	0~1	0: Cleaning 1: No cleaning	1
420	Abnormal detection number of the drum surface potential sensor control	ALL	0	0~16		1
421	Setting of the drum surface potential sensor	ALL	0	0~1	0: Valid 1: Invalid	1

Setting mode (08)						
Code	Name	Function	Default	Acceptable Value	Contents	Operation procedure
433	High-fusing mode 2	ALL	0	0~1	Level up of the fusing performance at the continuous printing (reflected when the "Thick paper 2" is selected) 0: Invalid 1: Valid	1
434	High-fusing mode 1	ALL	0	0~10	Level up of the fusing performance for the 1st printing (reflected when the "Thick paper 2" is selected) 0: Invalid 1: 1 sec. 2: 5sec. 3: 8 sec. 4: 10 sec. 5: 12 sec. 6: 15 sec. 7: 17 sec. 8: 20 sec. 9: 22 sec. 10: 25 sec.	1
449	Temporary laser running service mode when the laser beam position adjustment fails (*1)	ALL	0	0~1	Set to "Continuous mode" until laser unit can be replaced. Service call error codes; CA3, CA5, CA6, CAA, CAB, CAC, CD0, CE0, CE1, CE2, CE3 or CE4 (▶ Chapter 5.1.13.) 0: Normal mode - The laser unit operates in this mode unless a service call is indicated when the beam position adjustment fails. 1: Continuous mode - Set to this mode when the laser beam adjustment has failed. The results of this setting places the laser beam close to target even though the beam position adjustment has fails.	1
455	Toner supply amount setting/toner cartridge motor control	ALL	0	0~2	Setting of the new toner supply amount to the developer unit 0: Normal amount 1: Normal amount x 1.5 2: Normal amount x 0.5	1
456	Toner supply amount setting/recycle toner hopper motor control	ALL	0	0~2	Setting of the recycle toner supply amount to the developer unit 0: Normal amount 1: Normal amount x 1.5 2: Normal amount x 0.5	1

(*1) 08-449

Due to the error of an optical component such as the galvanomirror or an error caused by the passing time of the housing, if the beam positioning adjustment is not finished correctly an temporary countermeasure will be brought about and a mode in which printing can continue to operate be applied. (If the H-Sync is not taken, printing is impossible)

If there is an error in the galvanomirror, then correction control is not performed and "Service Call" is displayed so the copier stops. When image deterioration is allowable, copier can be used without any judgment as to whether adjustment has been finished or not. This can continue until a replacement unit is available and service technician can use this mode for that purpose.

Setting mode (08)						
Code	Name	Function	Default	Acceptable Value	Contents	Operation procedure
459	Reversing speed switching for thick paper	ALL	0	0~1	0: Increased speed 1: Normal speed	1
462	Setting for switchback operation to copy mixed-sized original on RADF	ALL	0	0~1	0: OFF 1: ON	1
480	Paper source priority selection	ALL	0	0~5	0: A4/LT 1: Tandem LCF 2: 1st cassette 3: 2nd cassette 4: 3rd cassette 5: 4th cassette 6: External LCF	1
481	Automatic change of paper source	ALL	1	0~2	Setting of whether or not changing the cassette automatically 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" is applied when the staple/hole-punch is specified.)	1
482	Feeding retry	ALL	0	0~1	0: ON 1: OFF	1
490	Polygonal motor rotation in the energy saver mode	ALL	0	0~1	0: Stopped 1: 10000[rpm]	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	JPN, UC: 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
607	RADF priority mode selection	PPC	0	0~1	0: Continuous feeding (by pressing the [START] key) 1: Single feeding (by setting original on the tray)	1
611	Book type original priority	PPC	0	0~1	0: Left page to right page 2: Right page to left page	1
612	Summer time mode	ALL	0	0~1	0: Not summer time 1: Summer time	2
613	Paper size designation for OTHER key	PPC	JPN:A5-R UC:COMP EUR:FOLIO	0~255	Press the icon on the LCD to select the size.	1
618	Original size priority (same/mixed size)	PPC	0	0~1	0: Same size originals 1: Mixed size originals	1

Setting mode (08)																																	
Code	Name	Function	Default	Acceptable Value	Contents	Operation procedure																											
619	Time lag before auto-start of bypass feeding	ALL	4	0~10	Setting of the time taken 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.	1																											
625	Blank copying prevention mode during RADF jamming	PPC	0	0~1	0: OFF 1: ON (Printing is started after the scanning is finished completely)	1																											
626	Outer guide elimination when paper size is not selected for a bypass feed printing	PPC	1	0~1	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.)	1																											
627	Reverse setting at the manually placed original/non-sorting	PPC	0	0~1	Setting of whether or not reversing and discharging (printed side facing down) an original when copying with the manually placed original/non-sorting 0: Not reversed 1: Reversed	1																											
628	Direction priority of original image	PPC	0	0~1	0: Automatic 1: Portrait	1																											
629	Department management setting	ALL	7	0~7	<table><tr><th>Value</th><th>Copy</th><th>Printer/Scanner</th></tr><tr><td>0</td><td>X</td><td>X</td></tr><tr><td>1</td><td>○</td><td>X</td></tr><tr><td>2</td><td>X</td><td>X</td></tr><tr><td>3</td><td>○</td><td>X</td></tr><tr><td>4</td><td>X</td><td>○</td></tr><tr><td>5</td><td>○</td><td>○</td></tr><tr><td>6</td><td>X</td><td>○</td></tr><tr><td>7</td><td>○</td><td>○</td></tr></table> <p>○ ---- Functionable X ----- Unfunctionable</p>	Value	Copy	Printer/Scanner	0	X	X	1	○	X	2	X	X	3	○	X	4	X	○	5	○	○	6	X	○	7	○	○	1
Value	Copy	Printer/Scanner																															
0	X	X																															
1	○	X																															
2	X	X																															
3	○	X																															
4	X	○																															
5	○	○																															
6	X	○																															
7	○	○																															
634	Print Me setting display	PRT	0	0~1	Setting of whether or not to display the setting items for the Print Me function 0: OFF (not displaying) 1: ON (displaying)	1																											
636	Width setting for image shift copying (linkage of front side and back side)	ALL	0	0~1	0: ON 1: OFF	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: YYYY.MM.DD 1: DD.MM.YYYY 2: MM.DD.YYYY	1																											
641	Automatic sorting mode priority setteing (RADF)	PPC	2	0~3	0: Disabled 1: STAPLE 2: SORT 3: GROUP	1																											
642	Sorter mode priority setting	PPC	0	0~3	0: NON SORT 1: STAPLE 2: SORT 3: GROUP	1																											

Setting mode (08)						
Code	Name	Function	Default	Acceptable Value	Contents	Operation procedure
645	Correction of reproduction ratio in editing copy	PPC	10	0~10	Setting of the reproduction ratio for the "X in 1" printing (including magazine sort) to the "Reproduction ratio x Correction 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 in editing copy	PPC	1	0~1	Setting of the page pasted position for "Xin 1" to the upper left corner/center 0: Cornering 1: Centering	1
648	Returning finisher tray when printing is finished	ALL	0	0~1	Setting whether or not returning the finisher tray to the 1-bin when printing is finished 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 page allocating order setting	PPC	0	0~1	0: Horizontal 1: Vertical	1
651	Printing format setting for date, time and page number	PPC	0	0~3	<div> <div>Hyphen</div> <div>Dropout</div> <div>(with page number)</div> <div>(with date, time and page number)</div> </div> 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	Setting of whether or not feeding a paper automatically into the copier when it is placed on the bypass tray 0: OFF (Press the [START] key to start feeding.) 1: ON (Automatical feeding)	1
659	Auto-start setting for bypass feed printing	PPC	1	0~1	Setting of whether or not feeding a paper automatically into the copier when it is placed on the bypass tray 0: OFF (Press the [START] key to start feeding.) 1: ON (Automatical feeding)	1

Setting mode (08)						
Code	Name	Function	Default	Acceptable Value	Contents	Operation procedure
663	Auto-feed setting for the inserter function/tab paper feeding	PRT	1	0~1	Setting of whether or not feeding a paper automatically when feeding from the inserter 0: OFF (Press the [START] key to start feeding.) 1: ON (Automatical feeding)	1
664	Auto-feed setting for the inserter function/tab paper feeding	PPC	1	0~1	Setting of whether or not feeding a paper automatically when feeding from the inserter 0: OFF (Press the [START] key to start feeding.) 1: ON (Automatical feeding)	1
672	Initialization of department management information	—	—	—	Initializing of the department management information * Enter the code with the digital keys and press the [INITIALIZE] key 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 initialized at the factory.	—
690	HDD formatting	ALL	—	2, 10, 11	2: Normal formatting 10: Formatting except the information of the scanner template for the controller GA-1140 11: Formatting only the information of the scanner template for the controller GA-1140 (▶ Chapter 3.1.)	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	Setting the time taken 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
800	Image quality control/ Abnormality detection number (Enter 0 to reset)	ALL	0	0~16		1
802	Setting of image quality control	ALL	0	0~1	0: ON 1: OFF	1
803	Image quality control/ Auto-start print volume setting 1	ALL	2	0~30		2

Setting mode (08)						
Code	Name	Function	Default	Acceptable Value	Contents	Operation procedure
814	Image quality control/ Abnormal value of the image quality sensor	ALL	97	0~255		2
839	Control by humidity sensor	ALL	0	0~1	Setting of whether or not applying a humidity sensor control. 0: Auto-toner control 1: Not used	1
855	Low speed pre-running in recovering from the energy saving mode	ALL	▶ Contents	0~1	0: Pre-running operated 1: Pre-running not operated e-STUDIO550 JPN:1, UC,EUR:0 e-STUDIO650 JPN:1, UC,EUR:0 e-STUDIO810 JPN:0, UC,EUR:0	1
859	Developer bias DC correction (Toner save) (*2)	PRT	128	0~255	Correcting of the developer transformer DC output adjustment value in 05-205 (at the printer/toner save mode)	1
860	Developer bias DC correction (Normal) (*2)	PRT	128	0~255	Correcting of the developer transformer DC output adjustment value in 05-205 (at the printer/normal mode)	1
861	Developer bias DC correction (Photo/Text) (*2)	PPC	128	0~255	Correcting of the developer transformer DC output adjustment value in 05-205 (at the copy/Photo/Text mode)	1
862	Developer bias DC correction (Text) (*2)	PPC	128	0~255	Correcting of the developer transformer DC output adjustment value in 05-205 (at the copy/text mode)	1
863	Developer bias DC correction (Photo) (*2)	PPC	128	0~255	Correcting of the developer transformer DC output adjustment value in 05-205 (at the copy/photo mode)	1
864	Main charger grid bias correction (Normal) (*3)	PRT	128	0~255	Correcting of the main charger transformer output adjustment value in 05-210 (at the printer/normal mode)	1
865	Main charger grid bias correction (Photo/Text) (*3)	PPC	128	0~255	Correcting of the main charger transformer output adjustment value in 05-210 (at the copy/photo/text mode)	1
866	Main charger grid bias correction (Text) (*3)	PPC	128	0~255	Correcting of the main charger transformer output adjustment value in 05-210 (at the copy/text mode)	1
867	Main charger grid bias correction (Photo) (*3)	PPC	128	0~255	Correcting of the main charger transformer output adjustment value in 05-210 (at the copy/photo mode)	1
868	Transfer bias correction (High)	ALL	128	0~255		1
869	Transfer bias correction (Low)	ALL	128	0~255		1
871	Main charger grid bias correction (Toner save) (*3)	PRT	128	0~255	Correcting of the main charger transformer output adjustment value in 05-210 (at the printer/toner save mode)	1

(*2) When changing the values of the codes 859, 860, 861, 862 and 863, shift the same amount at all of these codes.

(*3) When changing the values of the codes 864, 865, 866, 867 and 871, shift the same amount at all of these codes.

Setting mode (08)						
Code	Name	Function	Default	Acceptable Value	Contents	Operation procedure
872	Laser power correction	PRT	128	0~255	Correcting of the laser power adjustment value in 05-286 (at the printer mode)	1
873	Laser power correction	PPC	128	0~255	Correcting of the laser power adjustment value in 05-286 (at the copy mode)	1
883	Fuser roller temperature during warming up	ALL	8	0~11	0: 173°C 1: 180°C 2: 183°C 3: 186°C 4: 189°C 5: 192°C 6: 195°C 7: 198°C 8: 200°C 9: 203°C 10: 206°C 11: 209°C	1
890	Temperature in starting low speed pre-running during ready (pressure roller)	ALL	► Contents	0~16	0: 50°C 1: 55°C 2: 60°C 3: 65°C 4: 70°C 5: 75°C 6: 80°C 7: 85°C 8: 90°C 9: 95°C 10: 100°C 11: 105°C 12: 110°C 13: 115°C 14: 120°C 15: 125°C 16: 130°C <Default value> e-STUDIO550 JPN:4, UC:13, EUR:12 e-STUDIO650 JPN:4, UC:13, EUR:12 e-STUDIO810 JPN:10, UC:13, EUR:12	1
891	Temperature in stopping low speed pre-running during ready (pressure roller)	ALL	JPN:5 UC:4 EUR:5	0~9	0: +5°C 1: +10°C 2: +15°C 3: +20°C 4: +25°C 5: +30°C 6: +35°C 7: +40°C 8: +45°C 9: +50°C	1
897	Temperature in starting low speed pre-running during ready (pressure roller) (at the option connected)	ALL	► Contents	0~16	0: 50°C 1: 55°C 2: 60°C 3: 65°C 4: 70°C 5: 75°C 6: 80°C 7: 85°C 8: 90°C 9: 95°C 10: 100°C 11: 105°C 12: 110°C 13: 115°C 14: 120°C 15: 125°C 16: 130°C <Default value> e-STUDIO550 JPN:7, UC:13, EUR:12 e-STUDIO650 JPN:7, UC:13, EUR:12 e-STUDIO810 JPN:10, UC:13, EUR:12	1
898	Temperature in stopping low speed pre-running during ready (pressure roller) (at the option connected)	ALL	JPN:5 UC:4 EUR:5	0~9	0: +5°C 1: +10°C 2: +15°C 3: +20°C 4: +25°C 5: +30°C 6: +35°C 7: +40°C 8: +45°C 9: +50°C	1
900	System firmware ROM version	ALL	—	—	JPN: T340SJXXX UC, EUR, Others: T340SUXXX	2
903	Printer ROM version	ALL	—	—	340M-XXX	2
904	Laser ROM version	ALL	—	—	340L-XXX	2
905	Scanner ROM version	ALL	—	—	340S-XXX	2
906	PFC ROM version	ALL	—	—	340F-XXX	2
907	RADF ROM version	ALL	—	—	DF-XXX	2
908	Finisher ROM version	ALL	—	—	SDL-XXX FIN-XXX	2
909	Insert ROM version	ALL	—	—	INS-XXX	2
920	FROM basic section software version	ALL			VX.X/X.X	2
921	FROM internal program version	ALL	—	—	VXXX.XXX	2

Setting mode (08)						
Code	Name	Function	Default	Acceptable Value	Contents	Operation procedure
922	UI data fixed section version	ALL	—	—	VXXX.XXX	2
923	UI data common section 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
929	Version of UI data 6th language in HDD	ALL	—	—	VXXX.XXX	2
930	Version of UI data in FROM displayed at power ON	ALL	—	—	VXXX.XXX	2
938	Display of remaining cleaning web	ALL	1	0~1	0: Displayed 1: Not displayed	1
939	Printing halt in finishing cleaning web	ALL	0	0~1	0: Halt 1: Operated	1
940	Cleaning web life control counter	ALL	0	0~9999999		1
941	Setting value for cleaning web near end display	ALL	▶ Contents	0~9999999	<Default> e-STUDIO550: 360001 e-STUDIO650: 410001 e-STUDIO810: 450001	1
942	Setting value for cleaning web end display				<Default> e-STUDIO550: 400001 e-STUDIO650: 460001 e-STUDIO810: 500001	1
943	Cleaning web paper feeding amount	ALL	300	0~9999999		2
955	Paper type information / 1st cassette	ALL	0	0~2	Displaying of the set paper type 0: Normal paper 1: Thick paper 2: Thick paper 2	2
956	Paper type information / 2nd cassette	ALL	0	0~2	Displaying of the set paper type 0: Normal paper 1: Thick paper 2: Thick paper 2	2
957	Paper type information / 3rd cassette	ALL	0	0~2	Displaying of the set paper type 0: Normal paper 1: Thick paper 2: Thick paper 2	2
958	Paper type information / 4th cassette	ALL	0	0~2	Displaying of the set paper type 0: Normal paper 1: Thick paper 2: Thick paper 2	2
959	Paper type information / Tandem LCF	ALL	0	0~2	Displaying of the set paper type 0: Normal paper 1: Thick paper 2: Thick paper 2	2

Setting mode (08)						
Code	Name	Function	Default	Acceptable Value	Contents	Operation procedure
960	Paper type information / External LCF	ALL	0	0~2	Displaying of the set paper type 0: Normal paper 1: Thick paper 2: Thick paper 2	2
961	Paper type information / Bypass feed	ALL	0	0~3	Displaying of the set paper type 0: Normal paper 1: Thick paper 2: Thick paper 2 2: OHP film	2
962	Paper type information / Inserter	ALL	0	0~3	Displaying of the set paper type 0: Normal paper 1: Thick paper 3: OHP film	2
999	FSMS total counter	ALL	0	0~99999999		2
1110	Image quality control/ Auto-start print volume setting 2	ALL	5	0~20		1

	Present number of the printouts <Procedure 2>	Standard number to replace (Value : 0~99999999) <Procedure 1>		Present drive time <Procedure 2>	Previous replace- ment date <Procedure 2>
	Code	Code	Default(x1000)	Code	Code
Drum	2001	2002	400/460/500	2003	2004
Drum cleaning blade	2005	2006	400/460/500	2007	2008
Drum cleaning brush	2009	2010	400/460/500	2011	2012
Ozone filter	2013	2014	400/460/500	2015	2016
Drum separation fenger	2063	2064	400/460/500	2065	2066
Main charger grid	2051	2052	400/460/500	2053	2054
Charger wire	2055	2056	400/460/500	2057	2058
Cleaning pad	2059	2060	400/460/500	2061	2062
Developer material	2101	2102	400/460/500	2103	2104
Toner filter	2105	2106	400/460/500	2107	2108
Toner bag	2121	2122	800/920/1000	2123	2124
Transfer belt	2151	2152	400/460/500	2153	2154
Transfer belt cleaning blade	2155	2156	400/460/500	2157	2158
Transfer belt cleaning brush	2159	2160	400/460/500	2161	2162
Fuser roller	2201	2202	400/460/500	2203	2204
Pressure roller	2205	2206	400/460/500	2207	2208
Cleaning web	2209	2210	400/460/500	2211	2212
Cleaning web pushing roller	2213	2214	400/460/500	2215	2216
Cleaning roller (felt)	2217	2218	400/460/500	2219	2220
Cleaning roller (metal)	2221	2222	400/460/500	2223	2224
Fuser unit upper separation finger	2225	2226	400/460/500	2227	2228
RADF pickup belt	2251	2252	500/500/500	—	2254
RADF feed roller	2255	2256	500/500/500	—	2258
RADF separation roller	2259	2260	500/500/500	—	2262
Tandem LCF pickup roller	2301	2302	300/300/300	—	2304
1st cassette pickup roller	2305	2306	200/200/200	—	2308
2nd cassette pickup roller	2309	2310	200/200/200	—	2312
3rd cassette pickup roller	2393	2394	200/200/200	—	2396
4th cassette pickup roller	2397	2398	200/200/200	—	2400
Bypass pickup roller	2401	2402	100/100/100	—	2404
External LCF pickup roller	2317	2318	500/500/500	—	2320
Tandem LCF feed roller	2321	2322	300/300/300	—	2324
1st cassette feed roller	2325	2326	200/200/200	—	2328
2nd cassette feed roller	2329	2330	200/200/200	—	2332
3rd cassette feed roller	2377	2378	200/200/200	—	2380
4th cassette feed roller	2381	2382	200/200/200	—	2384
Bypass feed roller	2385	2386	100/100/100	—	2388
External LCF feed roller	2337	2338	500/500/500	—	2340
Tandem LCF separation roller	2341	2342	300/300/300	—	2344
1st cassette separation roller	2345	2346	200/200/200	—	2348
2nd cassette separation roller	2349	2350	200/200/200	—	2352
3rd cassette separation roller	2361	2362	200/200/200	—	2364
4th cassette separation roller	2365	2366	200/200/200	—	2368
Bypass separation roller	2369	2370	100/100/100	—	2372
External LCF separation roller	2357	2358	500/500/500	—	2360

3. ADJUSTMENT

3. 1. Hard Disk Formatting

<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 the set value and press the [SET] or [INTERRUPT] key.

<Set value>

02: Initializing at the normal type

10: Initializing except information of the scanner template for the controller GA-1140

11: Initializing only information of the scanner template for the controller GA-1140

- (4) "Wait" is displayed.
- (5) Turn OFF the power after the message "REBOOT THE MACHINE" is displayed.

Note: The set value "10" and "11" are valid when the controller GA-1140 is installed and the HDD is initialized at "2" (normal type). They are applied to the template used in the scanner function (needing GE-1060).

3. 2. Adjustment of Auto-toner Sensor

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

<Procedure> (Adjustment mode (05-200))

- (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.

[0][5] → [POWER]	100%	A	<u>A3</u>
	TEST MODE		

- (3) Enter “200” using the digital keys and press the [START] key.

The display changes as follows.

[200] → [START] →	230%	200	<u>A3</u>
	TEST MODE		
	128		128

Note: (A) : indicates the controlled value of the auto-toner sensor output. Press the Up or Down icon to change the value.

(B) : indicates the output voltage of the auto-toner sensor (2.30 V in the above case).

The drum, developer unit, etc. are in operation.

(C) : indicates the latest adjustment value.

- (4) After about two minutes, the value (B) changes to “0”.

0%	200	<u>A3</u>
TEST MODE		WAIT
128		128

- (5) After the automatic adjustment has finished normally, the value (B) becomes stable and the display changes as follows.

240%	200	<u>A3</u>
ADJUSTMENT MODE		
128		150

(6) Check if the value ② is within the range of 245 to 255 (the output voltage range of the auto-toner sensor is 2.45 V to 2.55 V).

(7) If the value ② 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 ① and ② is as follows.

Icon to be pressed	Value ①	Value ②
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.

[SET] or [INTERRUPT] →	100%	A	<u>A3</u>
	TEST MODE		

(9) Enter “290” using the digital keys and press the [START] key. (enforced performing of image quality control)

The display changes as follows.

[290] → [START] →	100%	290	<u>A3</u>
	TEST MODE		WAIT

(10) After the operation has finished, the copier are automatically stopped and the following is displayed.

100%	A	<u>A3</u>
TEST MODE		

(11) Turn OFF the power.

3. 3. Dimensional Adjustment of Copied Image

3. 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) (456) (455) (457) (458)
(2) Printer related adjustment	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 transfer belt motor rotation speed)	(488)
	d) Image position of secondary scanning direction (Laser writing start position)	(439) (440) (441) (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)

Note: By carrying out the scanner related image position adjustment ((3)-b)~e)), an image position at reversing is adjusted and that at the “Manually-placed original/Non-sort mode” (at which reversing is not performed) does not come to the same position as adjusted above.

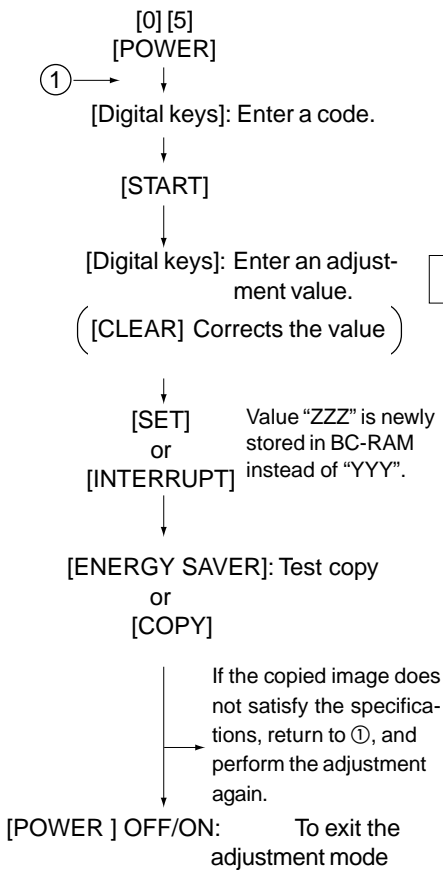
When the image position has to be matched at all modes, carry out a setting so that reversing can be performed also at the “Manually-placed original/Non-sort mode” (setting mode: 08-627).

However, 0.7sec. of delay at first copy occurs when this setting is carried out.

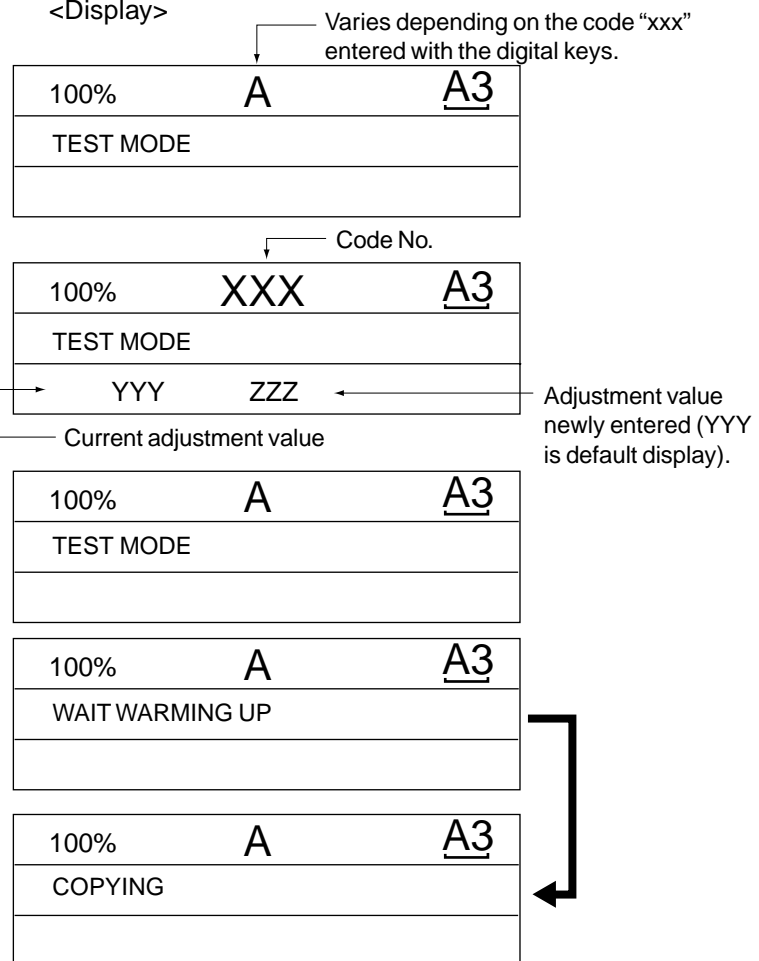
[Procedure to input the adjustment values]

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 [ENERGY SAVER] or [COPY] key immediately after entering the adjustment mode (05).

<Keys used in operation>



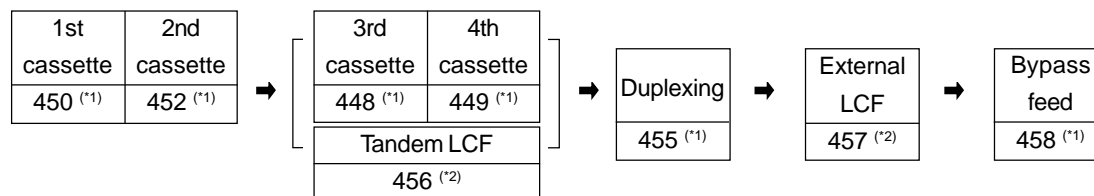
<Display>



3.3.2. Paper alignment

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

Note: The construction of the paper source depends on the destination. Perform the adjustment in the order corresponding to the construction.



Sub-code

(*1) 0:Long size, 1:Middle size, 2:Short size, 3:Thick paper, 4;Post card (for bypass)

(*2) 0:Normal paper, 1:Thick paper

(1) [0] [5] → (Code) → [START] → (Sub-code) → [START] →

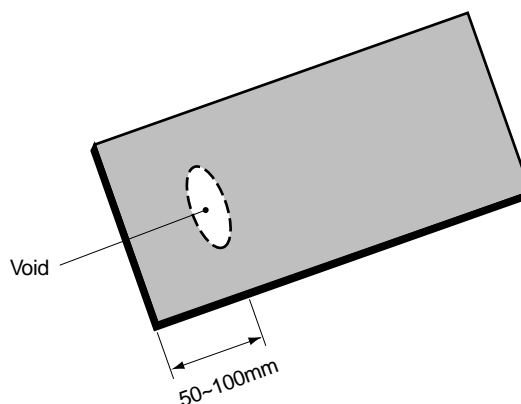
(Current value displayed) → (Enter new value) → [SET] or [INTERRUPT] → [Cassette selection] → [ENERGY SAVER] (Test print) → [POWER] OFF/ON (Exit)
(Stores value in the RAM)

- (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 all paper source.



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.

3.3.3. 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 [ENERGY SAVER]. (A grid pattern of 10 mm squares is printed out: Use A3/LD in the 2nd 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] or the [INTERRUPT] key to store the value in the RAM
→"100% A" is displayed.→Press [1]→[ENERGY SAVER]→(A grid pattern is printed out)
*The larger the adjustment value, the longer the distance A becomes (approx. 0.5 mm/5 steps).

(b) Image position adjustment of the primary scanning direction (the adjustment of the laser writing start position/PRT)

1. Turn ON the power while the digital keys [0] and [5] are pressed simultaneously.→(Adjustment mode)
2. Press [1]→[ENERGY SAVER] (A grid pattern is printed out: Use A3/LD in the 2nd cassette.)
3. Measure the distance B from the front 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] or the [INTERRUPT] key to store the value in the RAM.
→"100% A" is displayed.
→Press [1]→[ENERGY SAVER]→(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] 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 transfer belt 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 [ENERGY SAVER]. (A grid pattern is printed out. Use A3/LD in the 2nd cassette.)
3. Measure the distance C from the 5th line at the leading edge of the paper to the 25th 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 [488] with the digital keys)→[START]
 →(Enter a value (acceptable values: 0 to 255) with the digital keys)
 →Press the [SET] or the [INTERRUPT] key to store the value in the RAM.
 →“100% A” is displayed.→Press [1]→[ENERGY SAVER]→(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/PRT)

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	2nd cassette	440	A3/LD	0 to 15	
2	1st cassette	439	A4/LT	0 to 40	
3	3rd cassette or tandem LCF	441	A4/LT	0 to 15	
4	External LCF	443	A4/LT	0 to 15	
5	4th cassette	444	A4	0 to 15	
6	Bypass feed	442	A4/LT	0 to 15	
7	Duplexing	445	A3/LD	0 to 15	Paper fed from the 2nd cassette

1. Turn ON the power while the digital keys [0] and [5] are pressed simultaneously.→(Adjustment mode)
2. Press [1] ([3] for duplexing)→[ENERGY SAVER]. (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.
 * At the duplexing, measure it on the top side.
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] or the [INTERRUPT] key to store the value in the RAM.
 →“100% A” is displayed→Press [1] ([3] for duplexing)→[ENERGY SAVER]
 →(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)

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

(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]→[ENERGY SAVER] (A grid pattern is printed out on both sides of the paper: Use A3/LD in the 2nd cassette.)
3. Check the grid pattern on the top side of the paper. Measure the distance E from the front 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.

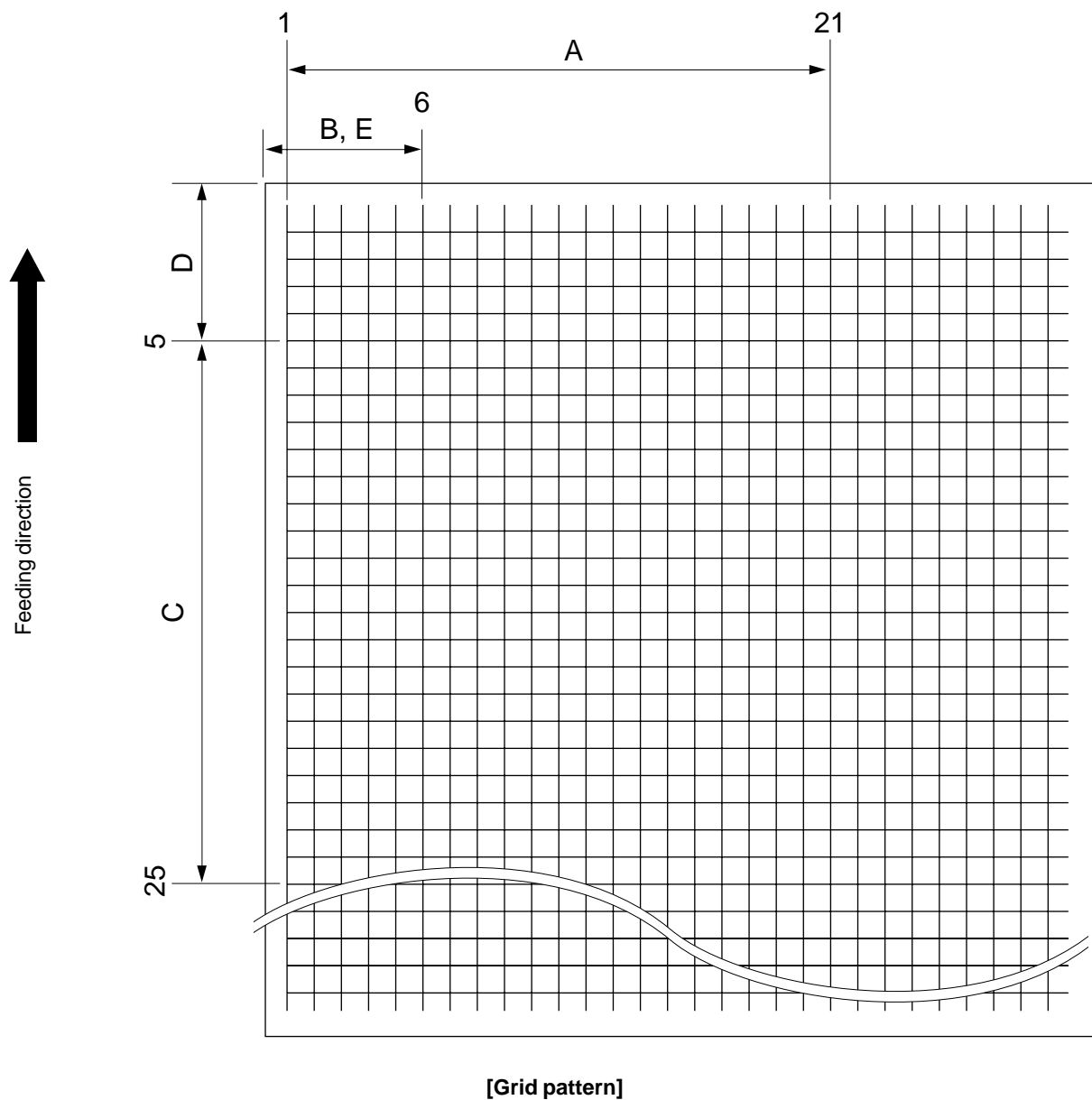
<Procedure> (Adjustment mode)→(Enter the code [498] with the digital keys)→Press [0]→[START]
 →(Enter a value (acceptable values: 0 to 255) with the digital keys)
 →Press the [SET] or the [INTERRUPT] key to store the value in the RAM.
 →“100% A” is displayed.
 →Press [3]→[ENERGY SAVER]
 →(Grid patterns 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

1. Turn ON the power while the digital keys [0] and [5] are pressed simultaneously.→(Adjustment mode)
2. Press [3]→[ENERGY SAVER] (A grid pattern is printed out on both sides of the paper: Use A3/LD in the 2nd cassette.)
3. Check the grid pattern on the top side of the paper. Measure the distance E from the front 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 [1]→[START]
 →(Enter a value (acceptable values: 0 to 255) with the digital keys)
 →Press the [SET] or the [INTERRUPT] key to store the value in the RAM.
 →“100% A” is displayed.
 →Press [3]→[ENERGY SAVER]
 →(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).



<Order of distances to be adjusted>

[0] [5] [POWER] → [1] ([3] for duplexing (05-445,498)) → [ENERGY SAVER]

A: 05-401 (2nd cassette, A3/LD) → 200 ± 0.5 mm (+0.5 mm/5 steps)

B: 05-411 (2nd cassette, A3/LD) → 52 ± 0.5 mm (+0.5 mm/10 steps) → enter the same value for 05-410.

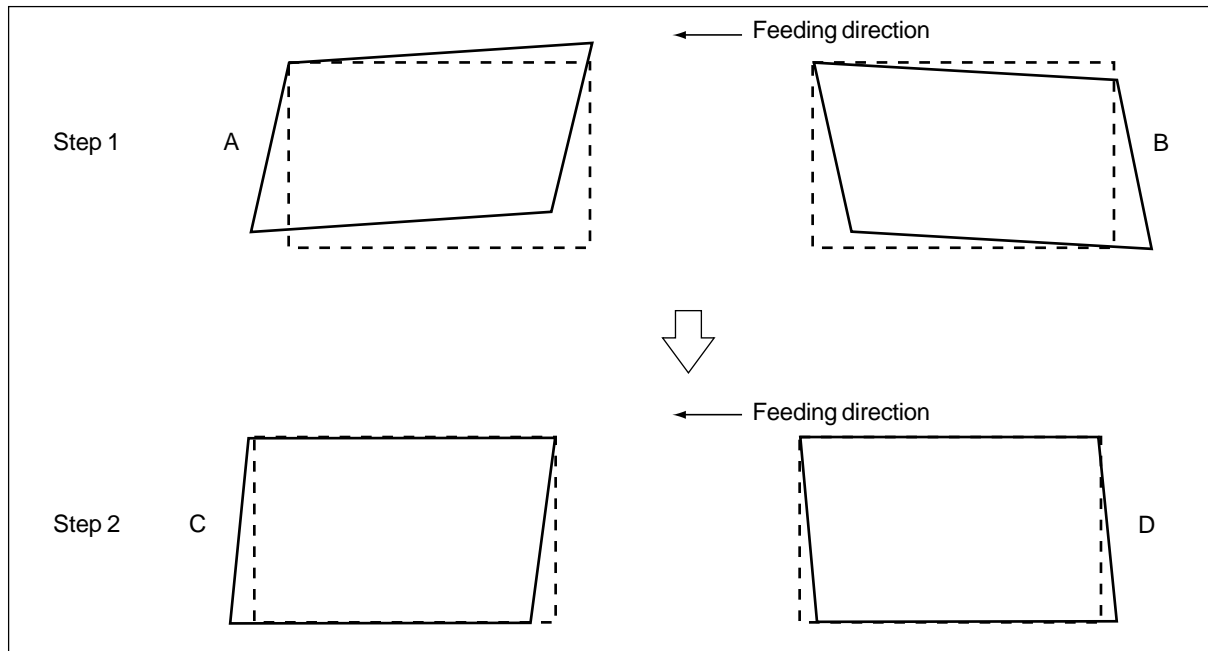
C: 05-488 (2nd cassette, A3/LD) → 200 ± 0.5 mm (+0.5 mm/4 steps)

D: 05-439 (1st cassette, A4/LT), 440 (2nd cassette, A3/LD), 441 (3rd cassette or tandem LCF, A4/LT), 443 (LCF, A4/LT), 444 (4th cassette, A4), 442 (bypass feed, A4/LT), 445 (duplexing, A3/LD) → 52 ± 0.5 mm (−0.4 mm/steps)

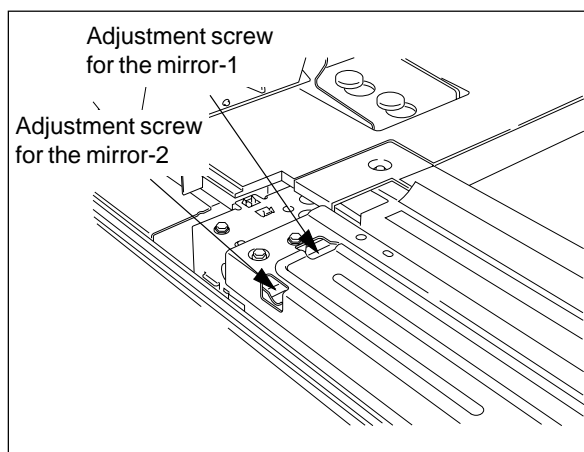
E: 05-498-0, 498-1 → 52 ± 0.5 mm (+0.5 mm/10 steps)

3.3.4. Scanner related adjustment

(a) Image distortion adjustment



1. Turn ON the power while the digital keys [0] and [5] are pressed simultaneously.
2. Press [ENERGY SAVER] 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. Select the condition of 2nd cassette (A3/LD) and 100% and press the [COPY] key to make a copy.
4. Measure the distance A from 10 mm to 210 mm of the copied image of the ruler.
5. Check if the distance A is within the range of 200 ± 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.

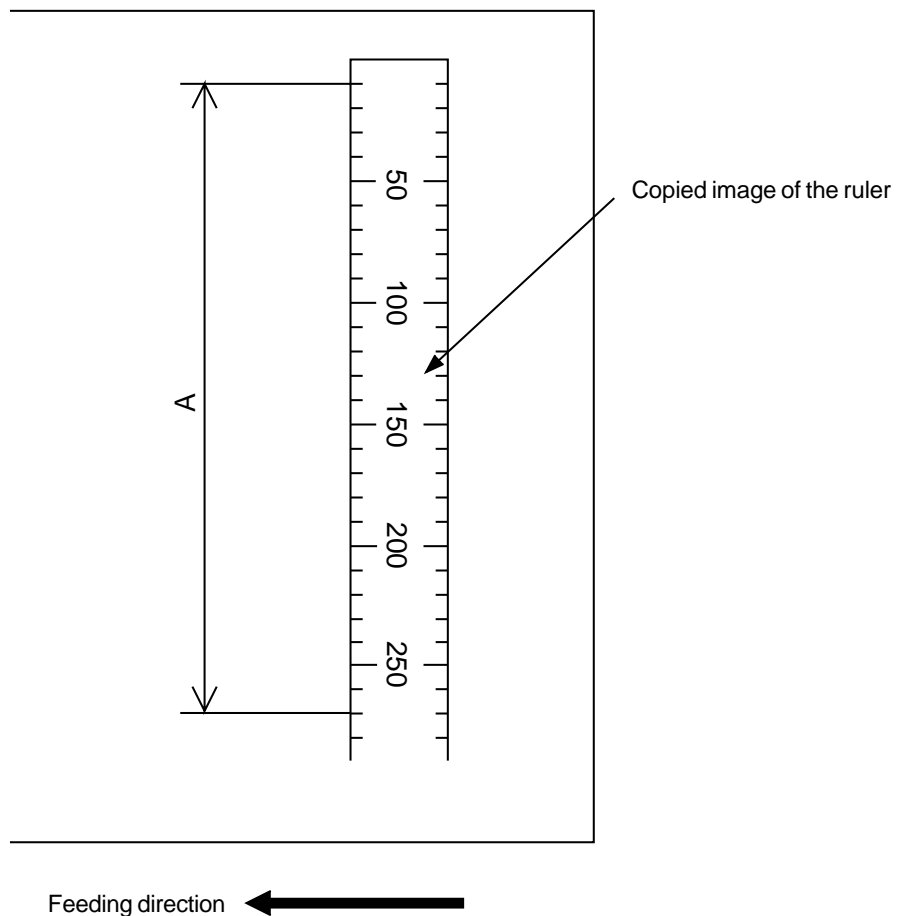
<Procedure> (Adjustment mode) → (Enter the code [405] with the digital keys) → [START]

→ (Enter a value (acceptable values : 0 to 255) with the digital keys)

→ Press the [SET] or the [INTERRUPT] key to store the value in the RAM.

→ ("100% A" is displayed.)

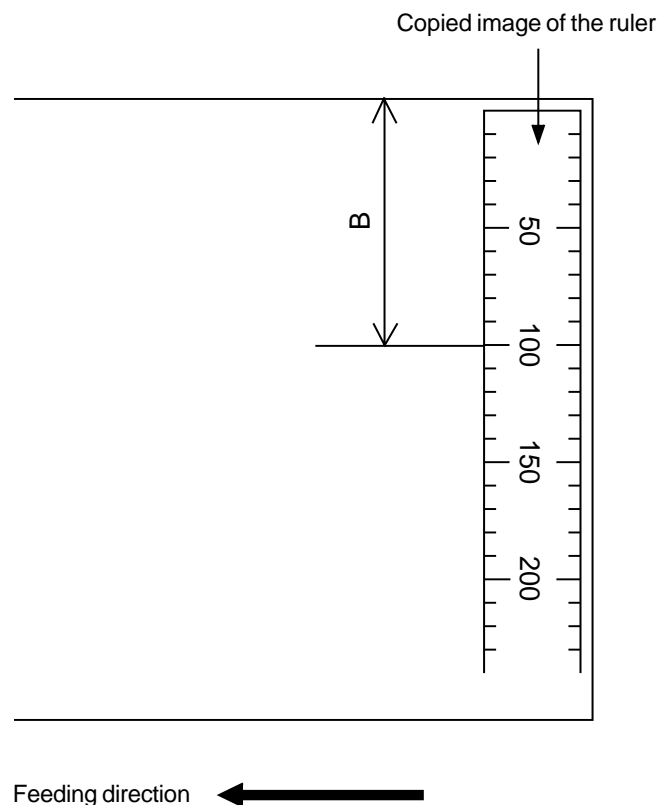
* The larger the adjustment value, the higher the reproduction ratio and the longer the distance A become (approx. 0.5 mm/5 steps).



(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. Select the condition of 2nd cassette (A3/LD) and 100% and press the [COPY] key to make a copy.
4. Measure the distance B from the left edge of the paper to 100 mm of the copied image of the ruler.
5. Check if the distance B is within the range of 100 ± 1.0 mm .
6. If not, change the value taking the following procedure, and repeat the steps 3 to 5 until the distance falls within range.

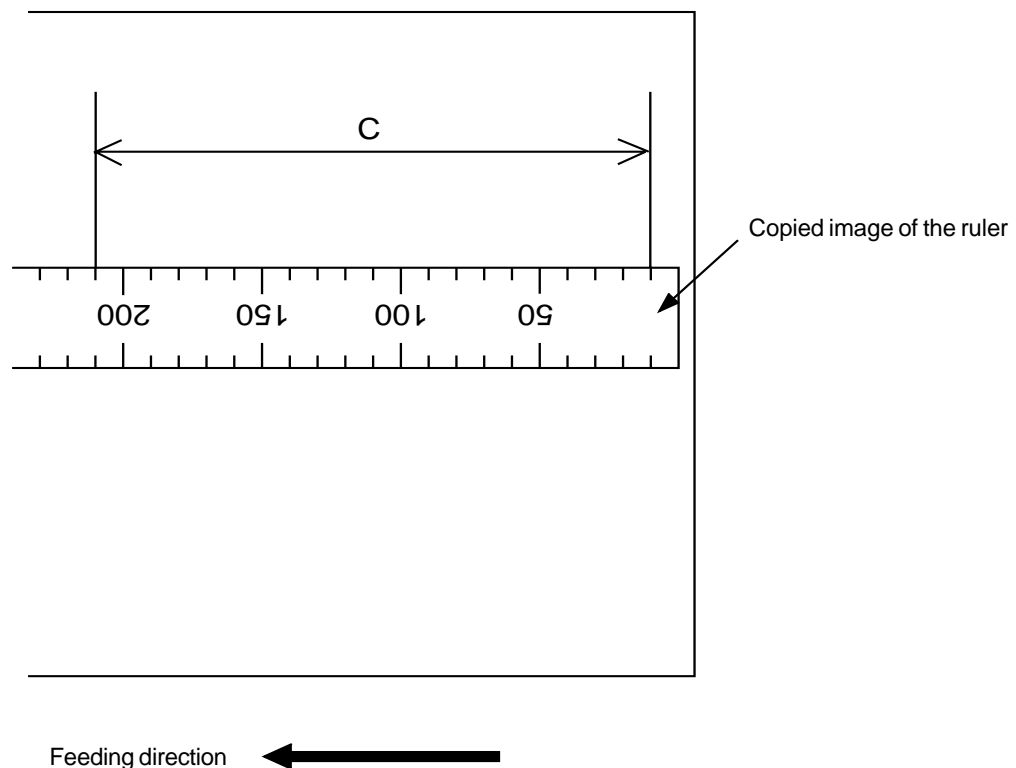
<Procedure> (Adjustment mode) → (Enter the code [306] with the digital keys) → [START]
→ (Enter a value (acceptable values : 0 to 255) with the digital keys)
→ Press the [SET] or the [INTERRUPT] key to store the value in the RAM.
→ ("100% A" is displayed.)
* The larger the adjustment value, the more the image is shifted to the right and the distance B becomes wider (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. Select the condition of 2nd cassette (A3/LD) and 100% and press the [COPY] key to make a copy.
4. Measure the distance C from 10 mm to 210 mm 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.

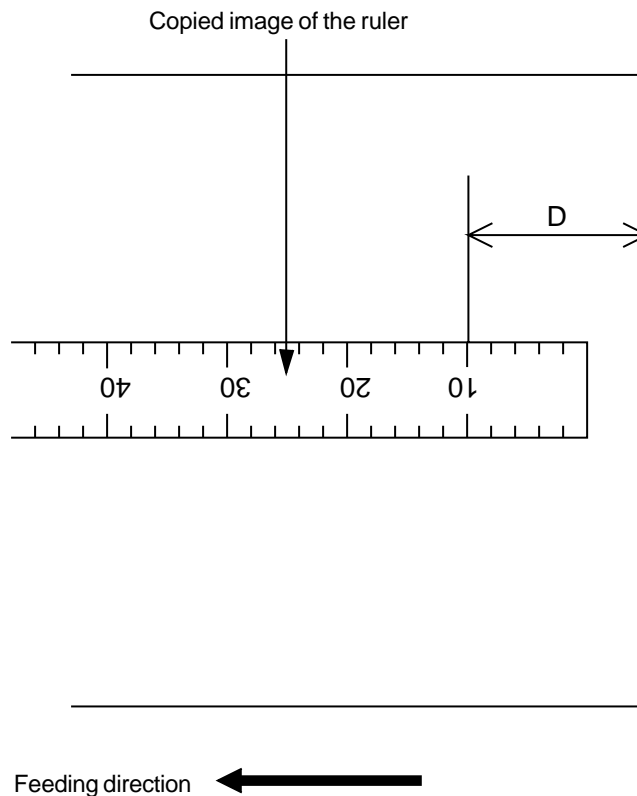
<Procedure> (Adjustment mode) → (Enter the code [340] with the digital keys) → [START]
→ (Enter a value (acceptable values : 0 to 255) with the digital keys)
→ Press the [SET] or the [INTERRUPT] key to store the value in the RAM.
→ ("100% A" is displayed.)
* The larger the adjustment value, the lower 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. Select the value of the top margin to "0".
(Adjustment mode) → (Enter the code [430] with the digital keys) → [START] → (Enter the value "0" with the digital keys) → Press the [SET] or [INTERRUPT] key to store the value in the RAM.
3. Place a ruler on the original glass with its leading edge pushed against the original scale on the left.
4. Select the condition of 2nd cassette (A3/LD) and 400%, enter "305" with the digital keys, and press the [START] → [SET] or [INTERRUPT] → [COPY] key to make a copy.
5. Measure the distance D from the leading edge of the paper to 10 mm of the copied image of the ruler.
6. Check if the distance D is within the range of 34 ± 0.5 mm.
7. 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] 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 (0.1433 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. Select the condition of 2nd cassette (A3/LD) and 100% and press the [ENERGY SAVER] key to make a copy.
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.

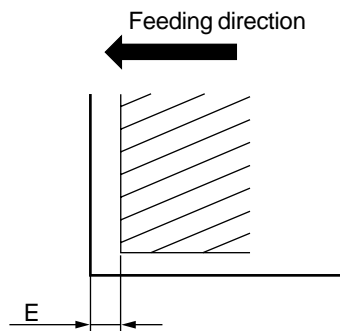
<Procedure> (Adjustment mode) → (Enter the code [430] with the digital keys) → [START]

→ (Enter a value (acceptable values : 0 to 255) with the digital keys)

→ Press the [SET] 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 RADF.
3. Select the condition of 2nd cassette (A3/LD) and 100% and press the [ENERGY SAVER] key to make a copy.
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.

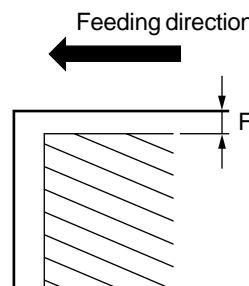
<Procedure> (Adjustment mode) → (Enter the code [432] with the digital keys) → [START]

→ (Enter a value (acceptable values : 0 to 255) with the digital keys)

→ Press the [SET] or the [INTERRUPT] key to store the value in the RAM.

→ ("100% A" is displayed.)

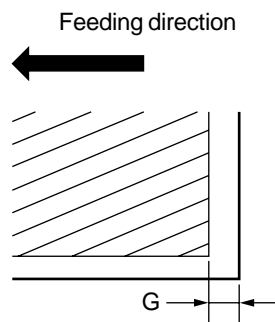
* The larger the adjustment value, the wider the blank area at the right side becomes (0.0423 mm/step).



(h) Bottom margin

1. Turn ON the power while the digital keys [0] and [5] are pressed simultaneously. → (Adjustment mode)
2. Open the RADF.
3. Select the condition of 2nd cassette (A3/LD) and 100% and press the [ENERGY SAVER] key to make a copy.
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] 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).



3. 4. Image Quality Adjustment

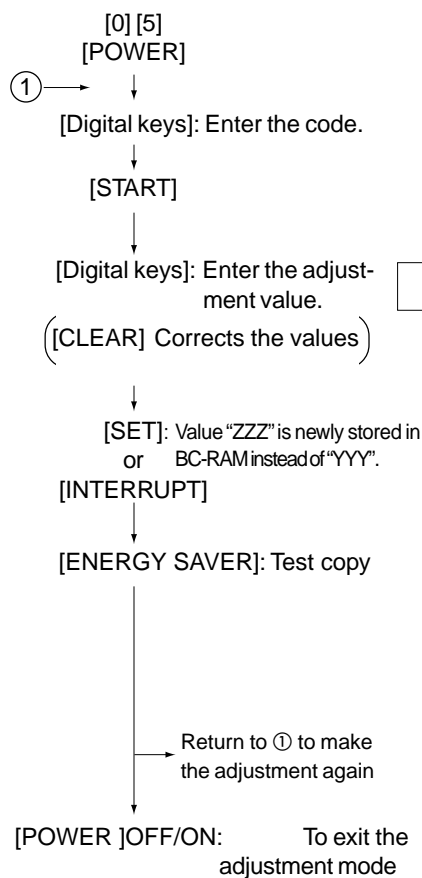
3. 4. 1. Image density for copier

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

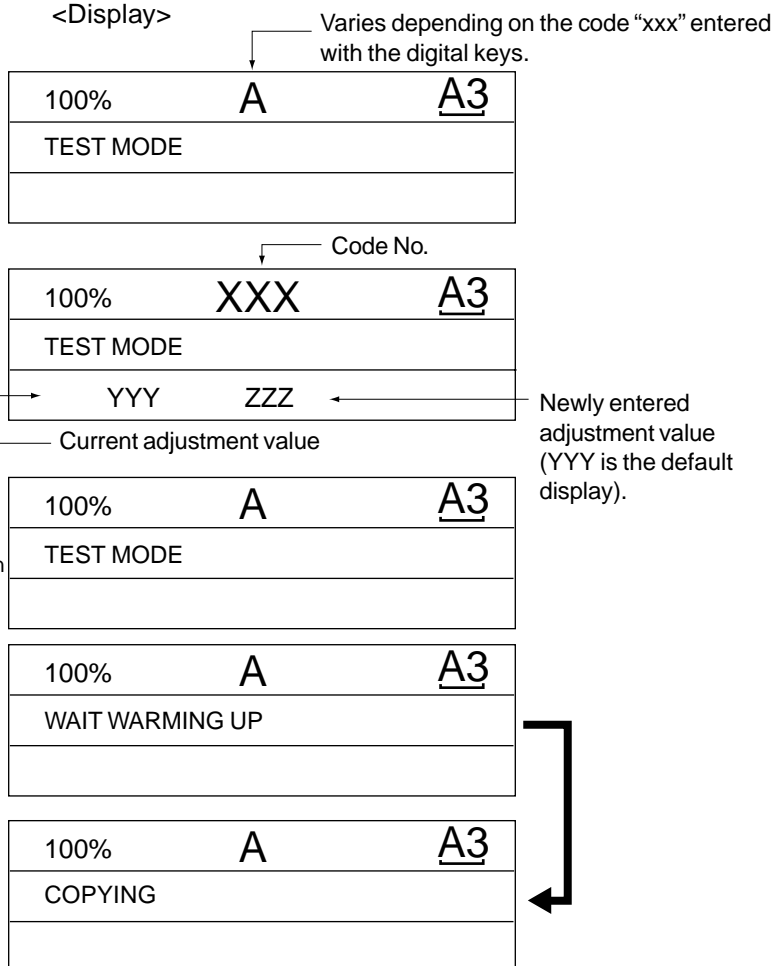
	Original mode			Items to adjust	Remarks
	Text/Photo	Photo	Text		
Code	503	501	504	Manual density center value	The larger the value, the darker the image becomes
	505	506	507	Manual density light step value	The larger the value, the lighter the image of the lighter steps become
	508	509	510	Manual density 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 by taking the following procedure while studying the image obtained from the test copy and the currently entered values.

<Keys used in the operation>



<Display>



- 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.

3. 4. 2. Sharpness adjustment for copier

When making the image sharpness softer or harder, adjust the sharpness setting in the adjustment mode "05".

	Original mode			Items to adjust	Remarks
	Text/Photo	Photo	Text		
Code	620	621	622	Sharpness setting	<p>Enter one of the following values in the original mode.</p> <p>Units: 1: Text/Photo 2: Photo 5: Text</p> <p>Tens: 0: Use default value</p> <p>1~9: Change intensity</p> <p>(The larger the value, the sharper the image becomes.)</p> <ul style="list-style-type: none"> • Example of value entry in case the original mode is "Text/Photo". <div style="text-align: center;"> <div style="display: inline-block; vertical-align: middle; text-align: center;"> 2 └─┬─┘ 1 </div> <div style="display: inline-block; vertical-align: middle; margin-left: 10px;"> <p>Fixed value for Text/Photo mode</p> <p>Enter a value 0 to 9</p> </div> </div> <p>Note: When the value "0" is entered in the tens digit, the value is not displayed on the LCD screen.</p>

The entry procedure of the adjustment value is the same as that for "3.4.1 Image density".

3. 4. 3. Gamma slope adjustment

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

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

The entry procedure of the adjustment value is the same as that for "3.4.1 Image density".

3. 4. 4. Setting for range correction for copier

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	Original 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 original mode. Text/Photo: 12, Photo: 12, Text: 44 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.
	693	694	695	Range correction for original set on the RADF	

The entry procedure of the adjustment value is the same as that for “3.4.1 Image density”.

3. 4. 5. Adjustment of background peak for range correction for copier

The level of the background peak for the range correction is set at the following codes in the adjustment mode (05).

Code	Original mode			Items to set	Remarks
	Text/Photo	Photo	Text		
	532	533	534		
				Back ground peak for range correction	When the value is increased, the background (low density section) of the image becomes not to be output.

The entry procedure of the adjustment value is the same as that for “3.4.1 Image density”.

3. 4. 6. Adjustment of blurred/thin spotted text

The blurred/thin spotted text can be adjusted at the following codes in the adjustment mode (05).

Code	Function / Mode			Items to set	Remarks
	Copier	Printer	Printer		
	Text/Photo	Smoothing	Toner Save		
	648	657	658	Adjustment of blurred/thin spotted text	<p>05-648: When the value is increased, the thin spotted text is improved, and when it is decreased, the blurred text is improved.</p> <p>05-657, 658: When the value is increased, the blurred text is improved, and when it is decreased, the thin spotted text is improved.</p> <p>Note: Remember that the image specifications and life span of the replacing parts may not meet the standard when the setting value is changed from the default value.</p>

The entry procedure of the adjustment value is the same as that for “3.4.1 Image density”.

3. 4. 7. Adjustment of Image density for printer

The level of the image density is set at the following codes in the adjustment mode (05).

Code	Mode		Item to set	Remarks
	Standard	Toner save		
	672-0~4	676-0~4		
	673-0~4	677-0~4	Adjustment of image density	<p>The image density level at the printer mode is set. When the value is decreased, text becomes lighter.</p> <p>Notes:</p> <ol style="list-style-type: none"> Set not to reverse the large and small number of the setting value corresponding to the sub code. Ex.) When substituting the setting value for 672-0 with A₀, . . . , 672-4 with A₄: $A_0 \leq A_1 \leq A_2 \leq A_3 \leq A_4$ Input the same value for the code 672/673 and code 676/677. Remember that the image specifications and life span of the replacing parts may not meet the standard when the setting value is changed from the default value.

3. 5. High-voltage Adjustment

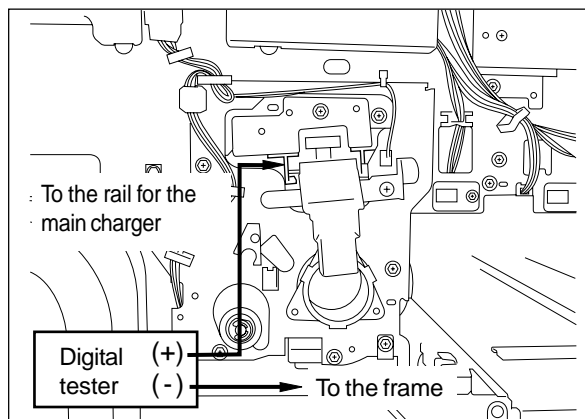
The outputs of the main charger grid bias and developer bias should be checked and adjusted when the high-voltage transformer has replaced.

The checking and adjusting is performed in the adjustment mode "05".

(1) Preparation

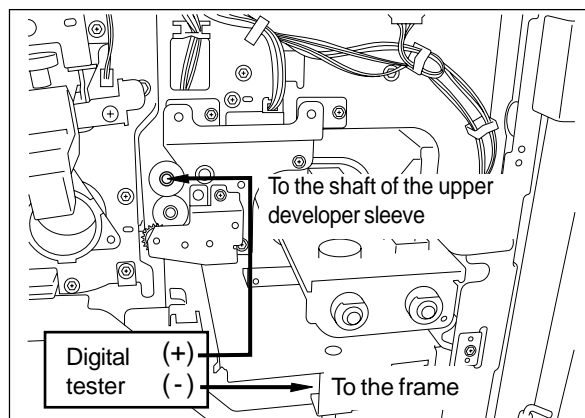
(a) Main charger grid bias

1. Take off the developer unit.
2. Connect the digital tester following the right figure. Use a digital tester with an input resistance of $10M\Omega$ (RMS value) or higher.
 - Range DC1000V
 - (+) terminal Connect to the rail for the main charger.
 - (-) terminal Connect to the frame (ground).
3. Set the door switch jig and start up the adjustment mode (05).



(b) Developer bias

1. Install the developer unit.
At this time, keep the connector of the auto-toner sensor disconnecting and the developer unit releasing from the drum (L-shaped shaft in the vertical direction.)
2. Connect the digital tester following the right figure. Use a digital tester with an input resistance of $10M\Omega$ (RMS value) or higher.
 - Range DC1000V
 - (+) terminal Connect to the shaft of the developer sleeve.
 - (-) terminal Connect to the frame (ground).
3. Set the door switch jig and start up the adjustment mode (05).



(2) Operation

Connect the digital tester as described in (1) Preparation, and perform the following procedure to adjust the outputs.

<Keys to press>

① → [0][5]
[POWER]
[Digital keys] : Enter the code.

[START]

[Up] or [Down] : Adjust the value "YYY" to satisfy the following table.

	Main charger grid bias	Developer bias
Code	210	205
Adjustment value	-733±5V	-480±5V

[SET] : Adjusted value "YYY" is stored in the BC-RAM.

or
[INTERRUPT]

Return to ① to enter
the other adjustment
mode.

[POWER] OFF/ON : To exit the adjustment mode.

<Display>

100%	A	<u>A3</u>
TEST MODE		

100%	XXX	<u>A3</u>
TEST MODE		
→ YYY		

Code No.

Current set value

100%	A	<u>A3</u>
TEST MODE		

(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. The developer bias can be adjusted at the setting mode (08-861, 862, 863, 860, 859) (about 36V/10 steps), and the equivalent number of steps must be adjusted for the main charger grid when adjusting the developer bias (08-865, 866, 867, 864, 871). However, the following problems may occur if the developer bias is lowered too much:

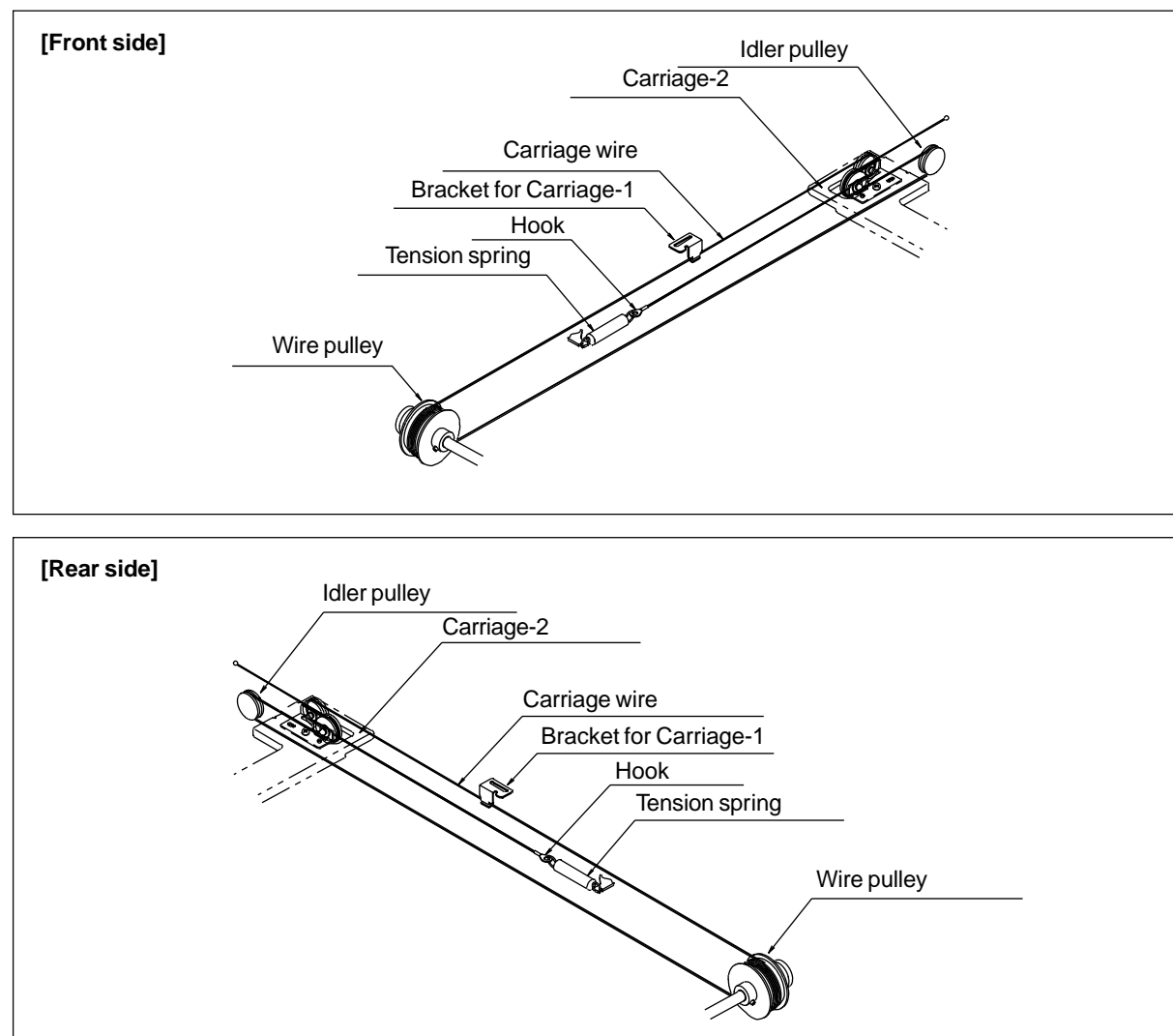
- Image contrast becomes low.
- Image is patchy or blurred.
- The carrier in the developer material adheres to the photoconductive drum, causing scratches around the cleaner.

3. 6. Adjustment of Scanning Section

3. 6. 1. Carriages

(1) Installing the carriage wire

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

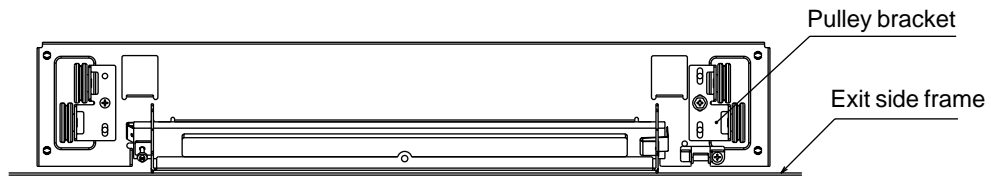


Adjustment of the carriage wire tension is not necessary since a certain tension is applied to the carriage wires by the tension springs.

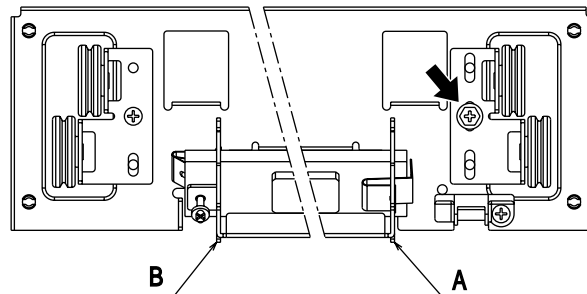
Note: Make sure that the tension applied to the wire is normal.

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

- a. Move the carriage-2 toward the exit side.
- b. Loosen the screws fixing the front side pulley bracket, make the A/B section of the carriage-2 touch with the inside of the exit side frame and screw it up.

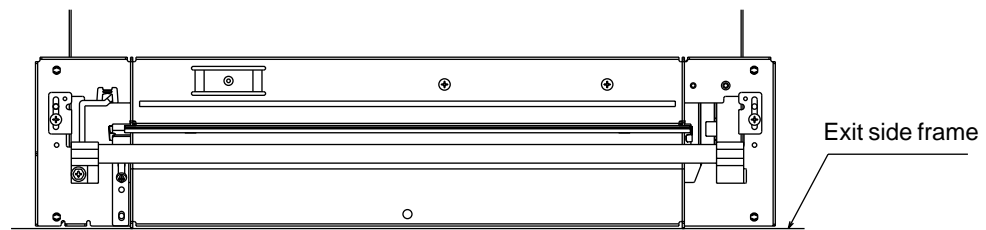


[Rear]

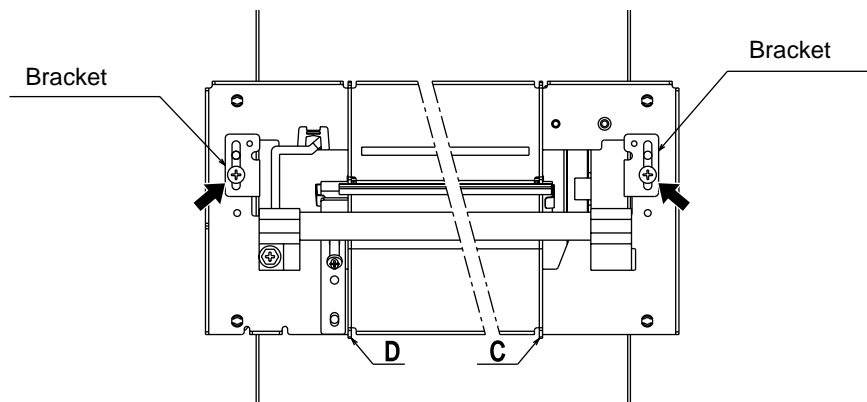


[Front]

- c. Put the carriage-1 on the rail, make the C/D section of the exit side frame touch with the inside of the exit frame and screw up the front/rear side of the bracket to fix it.



[Front]



[Rear]

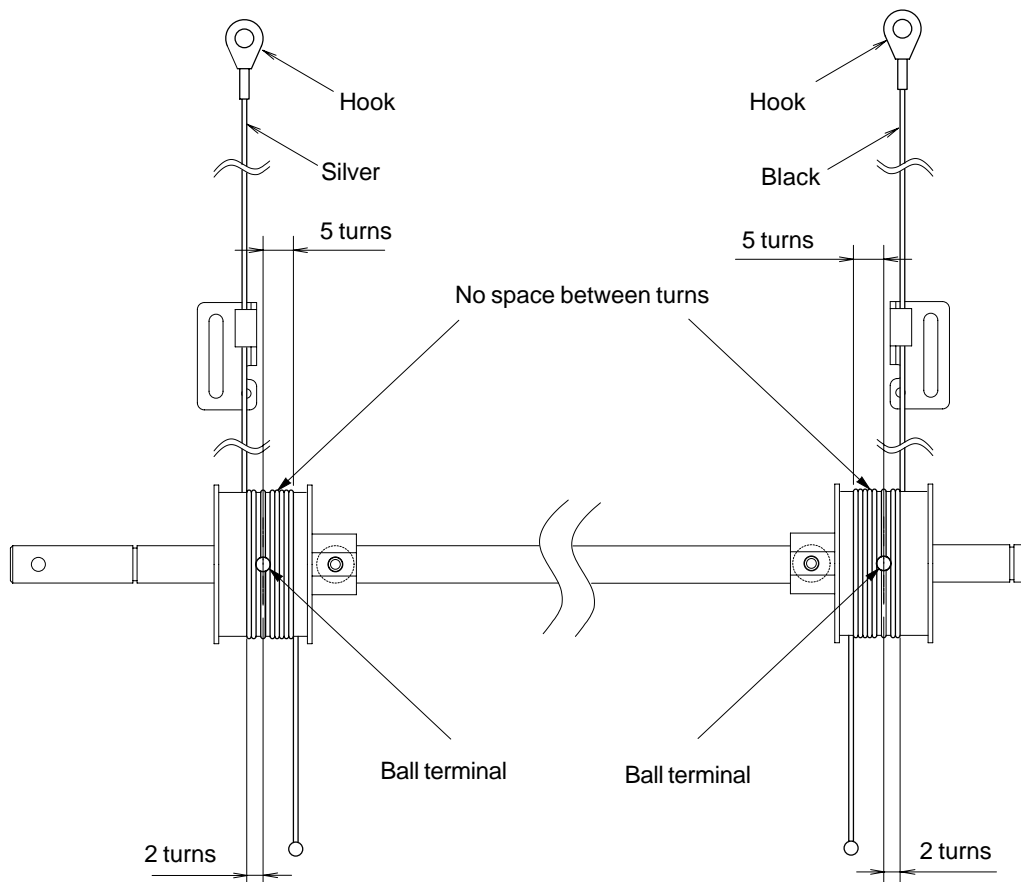
(3) Winding the wire around the pulleys

Wind the wire around the wire pulley:

- a. Put the $\varnothing 3$ 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 toward the opposite side of the boss
 - 5 turns toward the boss side

Note: Pay attention to the following when the wires are wound around the pulleys:

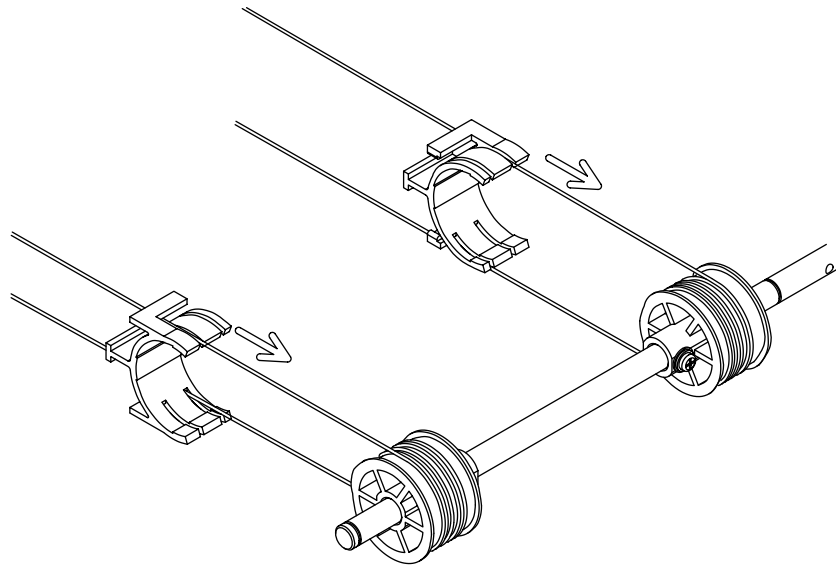
- Do not twist the wire.
- Wind the wires tightly so that they are in complete contact with the surface of the pulleys.
- Each turn should be pushed against the previously wound turn so that there is no space between them.



c. After winding the wires around the pulleys, attach the wire holder jigs not to loosen the wires.

Notes: 1. When the wire holder jig is attached, make sure that the wire is not shifted or loosened.

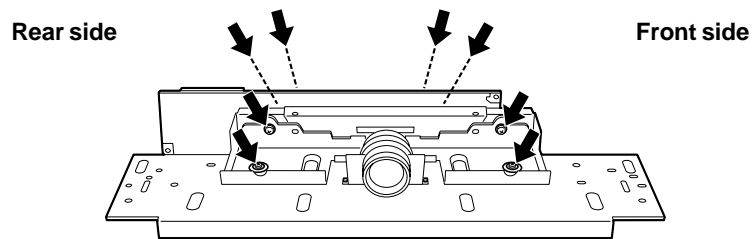
2. The wire should come out of the slot of the wire holder jig and be passed under the arm of it.



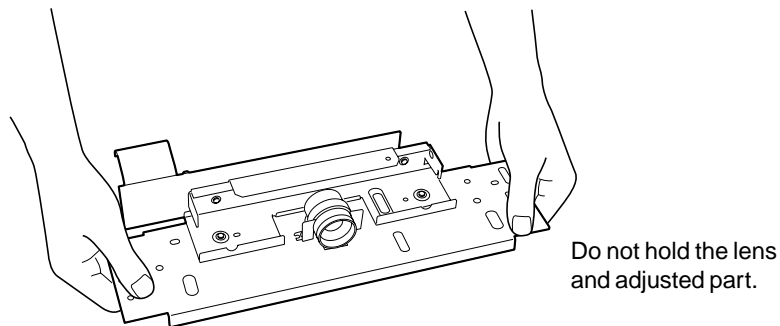
3. 6. 2. Lens unit

(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.

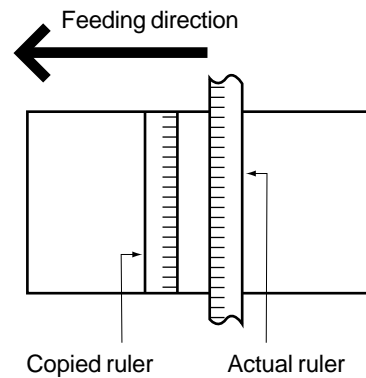


- Handle the unit with care. Do not hold the lens and adjusted part (hold the unit as shown below).



(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.

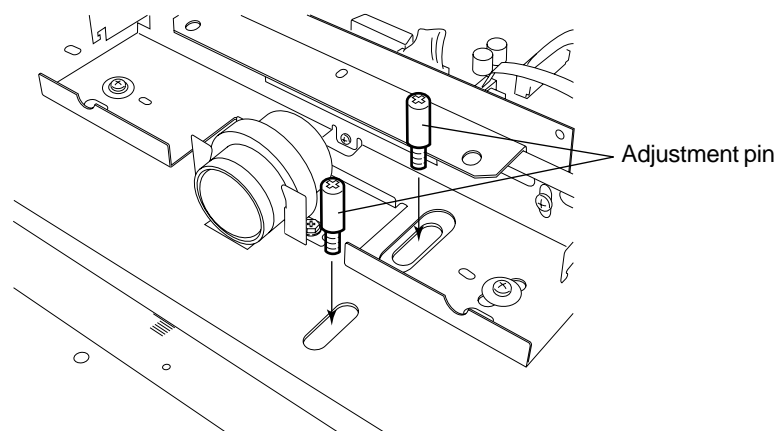


- a. Place a ruler on the original glass and make a copy on a A4/LT-sized paper at a 100% reproduction ratio.
- b. Compare the copied ruler with the actual ruler to see the difference in size.
- c. Make adjustment following the procedure below, so as to make the distance between each mark on the rulers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

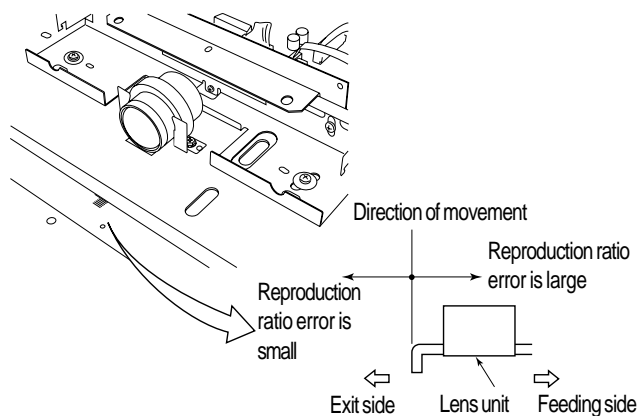


2. Screw the two pins for the lens magnification adjustment to the long hole at the lens base.
3. Loosen the 2 screws fixing the lens unit.

4. 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	Movement amount of unit
0.1 %	0.5 mm
0.2 %	1.0 mm
0.3 %	1.5 mm
0.4 %	2.0 mm
0.5 %	2.5 mm
0.6 %	3.0 mm
0.7 %	3.5 mm
0.8 %	3.9 mm
0.9 %	4.4 mm
1.0 %	4.9 mm



Note: Finer adjustment can be made in the “Fine adjustment of polygonal motor rotation speed/Copier (05-405)”.

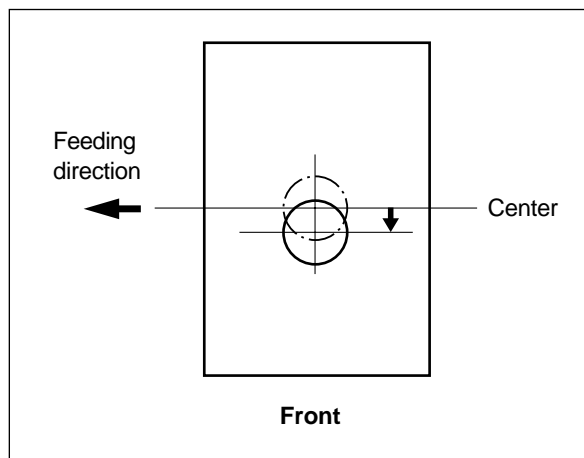
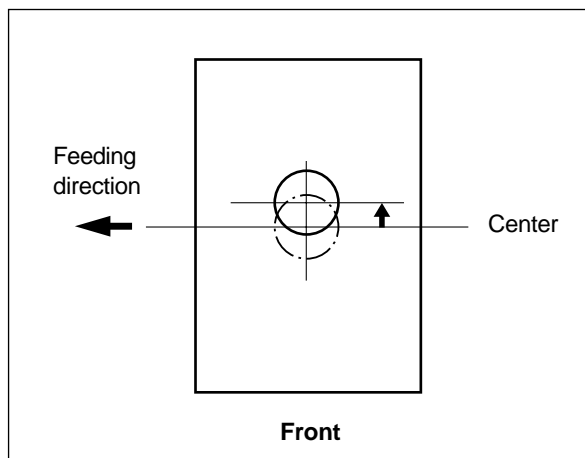
5. Attach the lens cover and original glass. Make a copy to confirm the reproduction ratio.
6. Remove the original glass and lens cover again, and tighten 2 screws to fix the lens unit.
7. Reattach the lens cover and original glass.

3. 7. Adjustment of Paper Feeding System

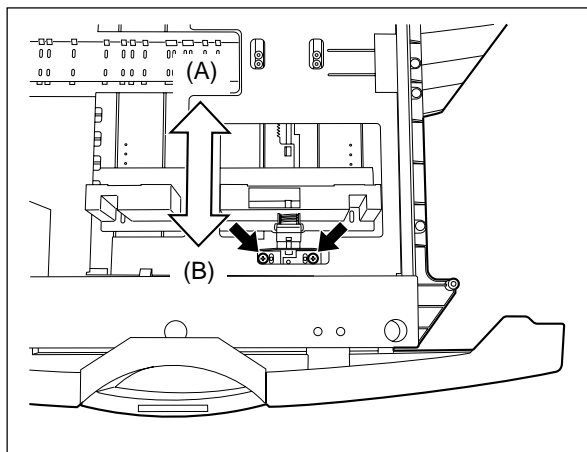
3. 7. 1. Sheet sideways deviation caused by paper feeding

<Procedure>

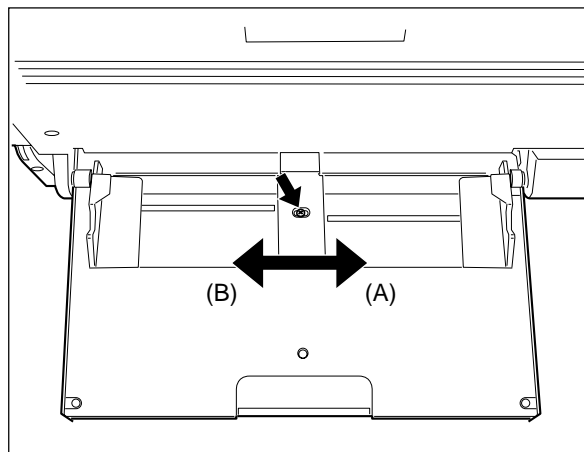
- The center of the printed image shifts to the rear side. → Move the guide to the rear side or the front cover to the front side with the tandem LCF (the direction (A) in the figures below).
- The center of the printed image shifts to the front side. → Move the guide to the front side or the front cover to the rear side with the tandem LCF (the direction (B) in the figures below).



• Cassette feeding

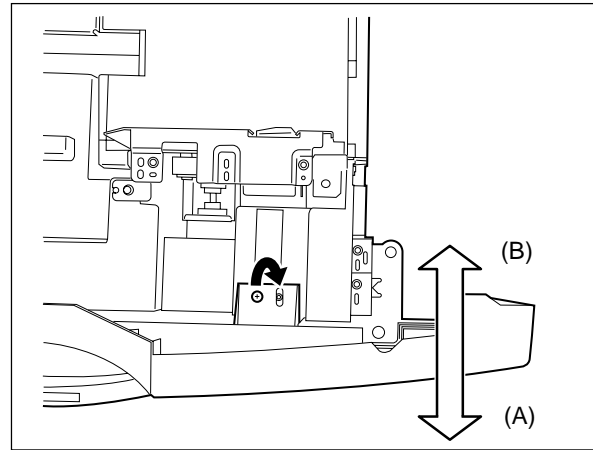
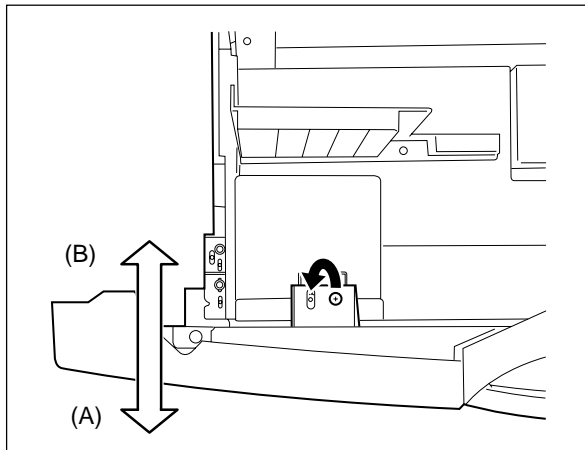


• Bypass feeding



- Tandem LCF

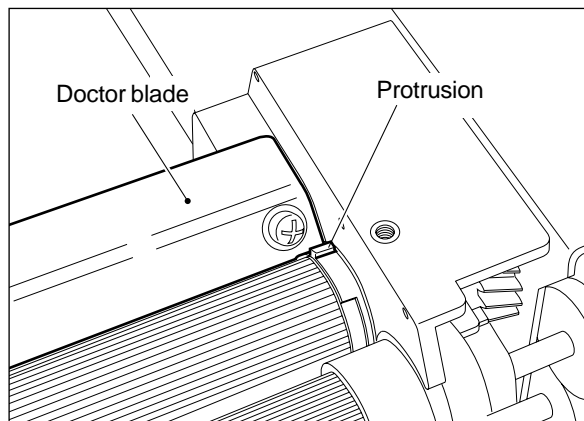
Move the screws to the long holes and adjust the position of the front cover along the front-rear direction.



3. 8. Adjustment of Developer Unit

(1) Doctor-sleeve gap

The doctor-sleeve gap is set by putting both edges of the doctor blade against the protrusions of the front and rear side frames and fixing the blade. Therefore, the adjustment of the gap is not necessary.



(2) Drum-sleeve gap

The drum-sleeve gap is set by putting the guide rollers of the developer unit against the cleaner unit. Therefore, the adjustment of the gap is not necessary.

(3) Pole position of the developer sleeve

The pole positions of the developer sleeves are set by installing the sleeve holders and pole position fixing bushings. Therefore, the adjustment of the pole position is not necessary.

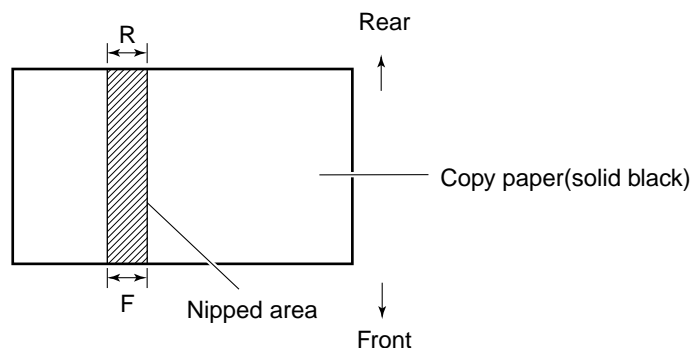
3. 9. Adjustment of Fuser Unit

3. 9. 1. Adjustment of fuser roller pressure

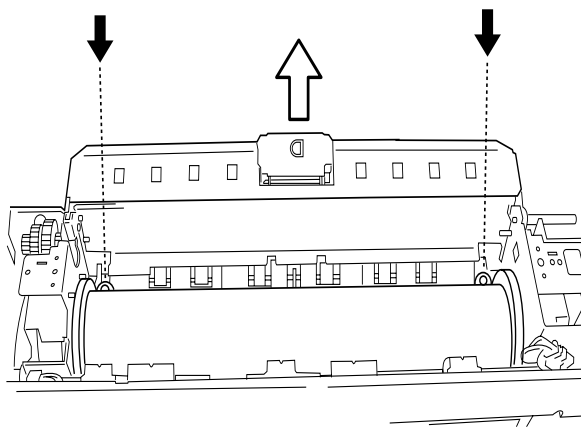
Normally, the heat roller pressure need not be adjusted. However, it must be carried out when wrinkles frequently appear on copies made on plain paper.

<Procedure>

- (1) Open the RADF and make a copy with A3/LD size (solid copy).
- (2) Turn the power OFF after copying is finished.
- (3) Open the front cover quickly, and pull out the transfer/transport unit.
- (4) Insert the copy made in (1) into the fuser inlet guide with the image side facing down while turning the jam release lever CCW until the center of the copy paper is nipped by the heat roller.
- (5) Leave the copy paper for about 20 seconds, and then take it out by quickly turning the jam release lever CCW again.
- (6) Measure the width of the area nipped by the heat and pressure rollers at the front and the rear.



- (7) If $|F-R| \geq 0.5\text{mm}$, lift up the upper separation finger unit and loosen the fixing screw of the pressure spring on the side with the wider nip width. One half turn corresponds to narrowing the nipped section by about 0.5mm.
- (8) If $|F-R| < 0.5\text{mm}$, the adjustment is completed. Close the RADF and make five blank copies with A3/LD size to clean the heat and pressure rollers.



3.9.2. Setting of fuser roller temperature

The fuser has been set (heat roller surface temperature: 200°C, pressurizing pressure: 100 kg) taking the fusing performance, wrinkling, curling and toner transfer deficiency at the leading/trailing edges of the duplex print into consideration when our company recommended paper is used. This is to allow the characteristics of the paper to be demonstrated in a well-balanced manner. However, various types of paper are used in the field, and factors such as the paper thickness and smoothness greatly effect the fusing performance, in particular. If the fusing performance deteriorates while using a specific type of paper, deal with that by changing the fuser roller temperature at the setting mode "08".

Change the heat roller setting temperature in the setting mode (08-410, 411, 883). The default is "8" (200°C), and can be changed within the range "8" to "10" (200°C to 206°C). Input the same value in 80-410, 411 and 883.

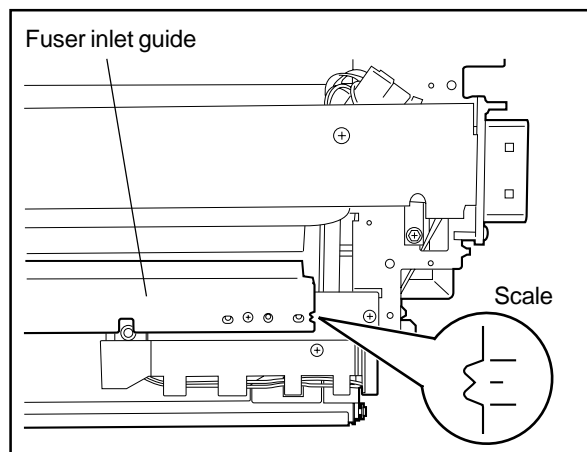
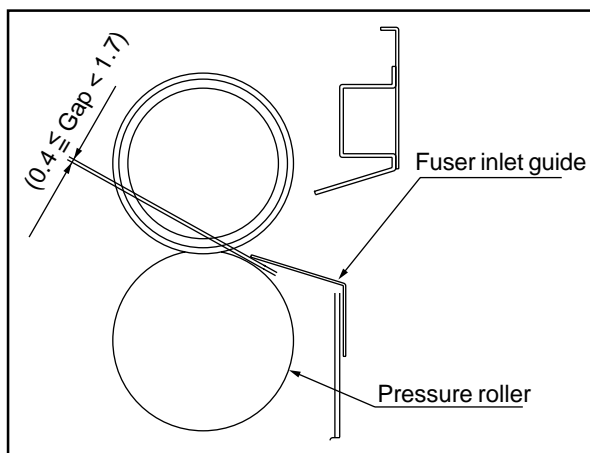
- Notes:**
1. When a large value is set (to increase the temperature), the level of wrinkling, curling and toner transfer deficiency at the leading/trailing edges of the duplex print tends to worsen.
 2. Do not set the temperature to value larger than "12" (212°C or more). The fuser thermostat actuates to turn the power OFF, and the thermostat must be replaced.

3.9.3. Adjustment of fuser inlet guide

Check the gap between the fuser inlet guide and the press roller when the following troubles occur:

- Stain on the paper back side
- Jam at the fuser entrance
- Paper wrinkling

- (1) Move the screw fastening position of the inlet guide towards the oblong hole, and adjust with reference to the scale.
- (2) Adjust the gap between the fuse inlet guide and the pressure roller. ($0.4 \leq \text{gap} < 1.7$)



3.9.4. High-fusing mode

When the fusing level needs to be raised, it can be set at the setting mode "08".

(1) Level up at 1st printing

The level for the 1st printing is set at the "high-fusing mode 1 (08-434)". The level is raised by delaying the time for the 1st printing and extending the time to warm the fuser roller. At this code, the time to delay is set.

(2) Level up at continuous printing

The level for the continuous printing is set at the "high-fusing mode 2 (08-433)". The level is raised by delaying the printing cycle and controlling not to lower the fuser roller temperature.

Note: (1) and (2) can be combined.

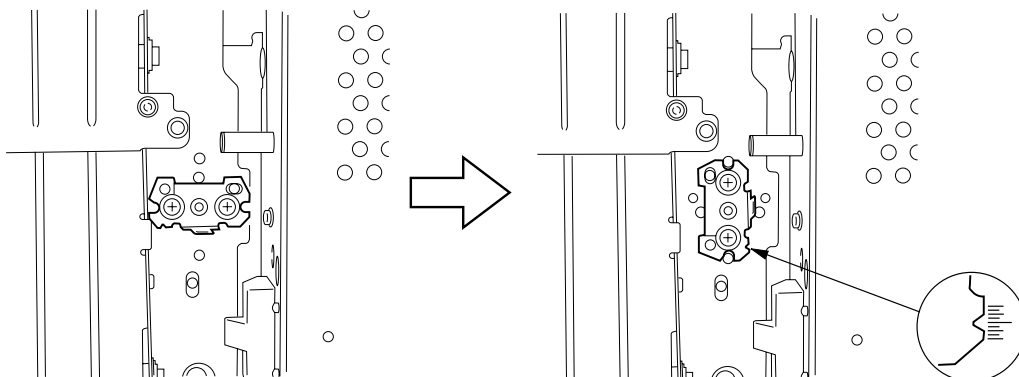
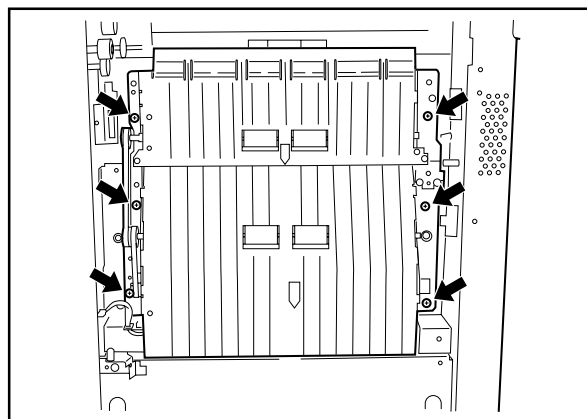
The above settings are reflected when the "Thick paper 2" is selected.

3. 10. Adjustment of Exit/Reversal Unit

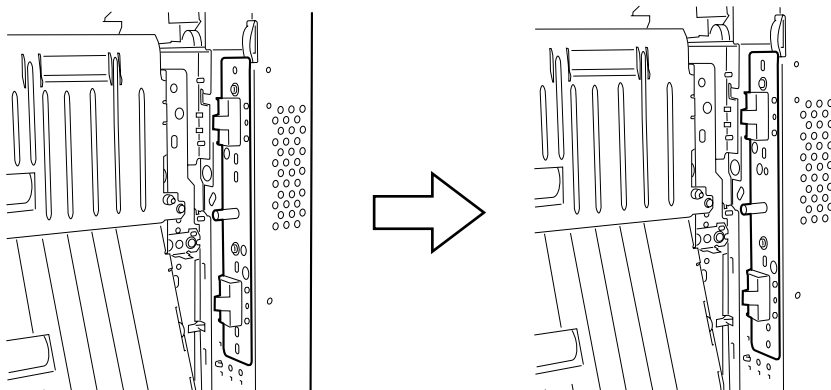
3. 10. 1. Adjustment of sideways deviation at reverse discharging

When a paper sideways deviation occurs at reverse discharging, the transport guide position is adjusted through the following procedure.

- (1) Open the exit side door.
- (2) Loosen 6 screws fixing the transport guide.
- (3) Remove 2 screws, and take off the plate.
- (4) Set the plate lengthwise, and fix it again with 2 screws after adjusting the plate installing position depending on the paper deviation amount.



- (5) Remove 2 screws, and take off the plate with the latch holder.
- (6) Turn the latch holder to the opposite direction, and install it to the plate.
- (7) Turn the plate upside down (with the long hole upside), and install it again with 2 screws after adjusting the same amount as did in the above (4).

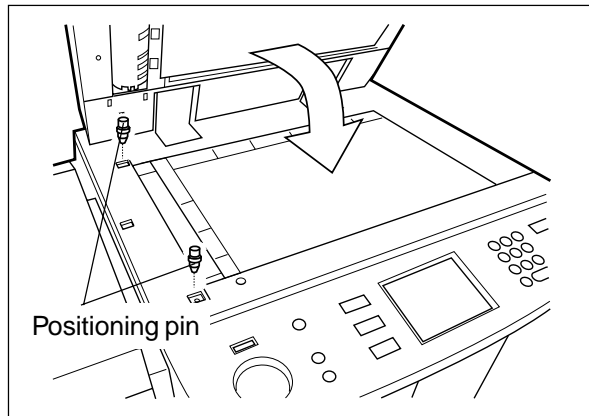


3. 11. Adjustment of Reversing Automatic Document Feeder

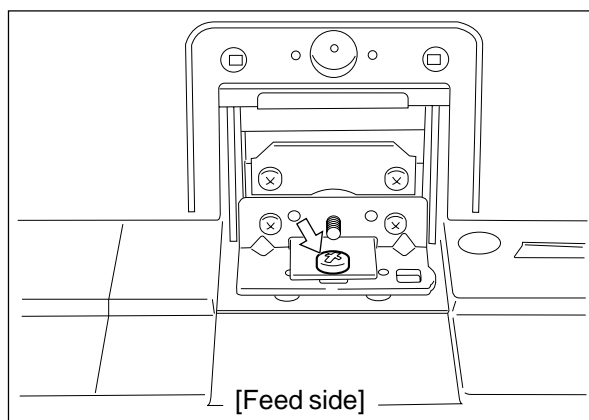
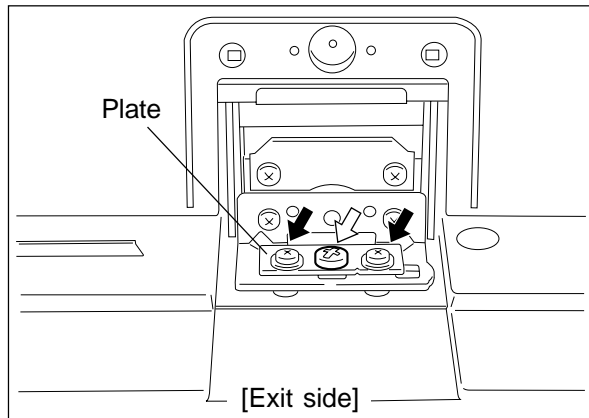
3. 11. 1. Installing of the RADF unit

When replacing an RADF unit to another one, install it with 2 RADF positioning pins according to the following procedure.

- (1) Attach the positioning pins to the copier.
- (2) Put the RADF quietly on the copier and slide it to the front side.
- (3) While closing it slowly, adjust the RADF unit to the position where the positioning pins fit smoothly into the holes at the unit.



- (4) Loosen 2 screws fixing a hinge at the exit side and move the plate to the position where its center hole and one at the copier side are met together.
- (5) Fix hinges at the feed and exit sides with 2 shouldered screws (shown by white arrows).
- (6) Tighten 2 screws loosened at the step (4).

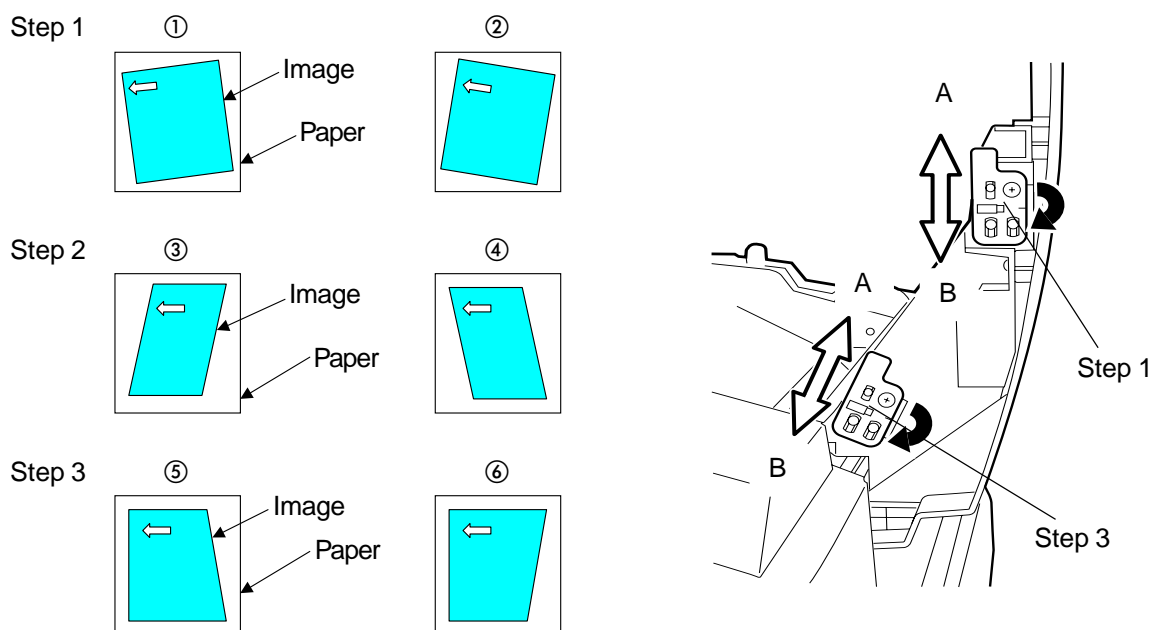


3. 11. 2. Skew adjustment

When an image skew occurs, carry out copying at the manually placed original mode and check it is not occurring. When it occurs at this mode, adjust the scanning section (► Chap.3.3.4).

(1) Check if the RADF unit is installed properly (► Chap.3.11.1).

(2) Adjust the image according to the following steps while checking the condition of the image skew.



Step 1

Open the jam access cover and adjust the position of the plate at the registration roller side.

In case of ①: Move a screw to the long hole and shift the plate to the direction of B.

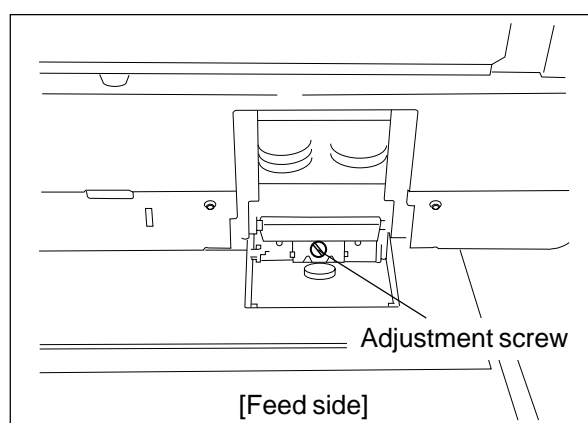
In case of ②: Move a screw to the long hole and shift the plate to the direction of A.

Step 2

Loosen the screws fixing the hinges at the rear side (1 screw each for the feed and exit sides) and perform the adjustment by turning the adjustment screw from the front side.

In case of ③: Turn the adjustment screw to CCW direction.

In case of ④: Turn the adjustment screw to CW direction.



Step 3

Open the jam access cover and adjust the position of the plate at the read roller side.

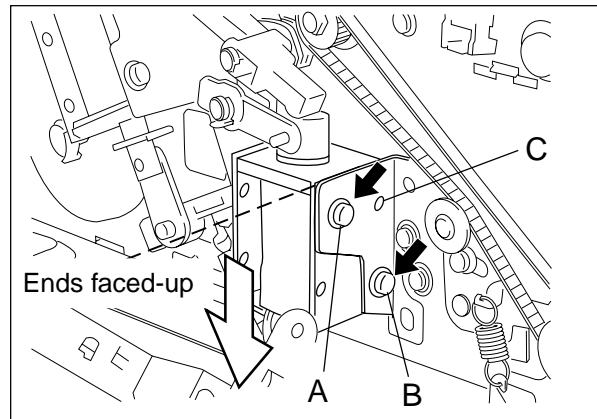
In case of ⑤: Move a screw to the long hole and shift the plate to the direction of B.

In case of ⑥: Move a screw to the long hole and shift the plate to the direction of A.

3. 11. 3. Adjustment of solenoid

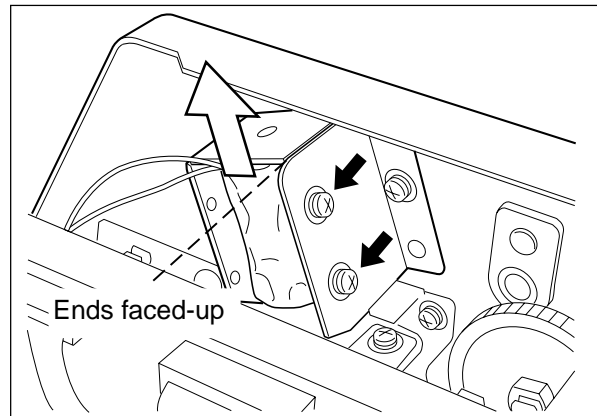
(1) Disengagement solenoid

To install the solenoid, put the end faces of the bracket and solenoid together and fix the solenoid with two screws at the position (A) and (B). When the large original exit roller is not disengaged completely, move the screw from the position (A) to (B) and shift the solenoid upward to adjust the level of the disengagement.



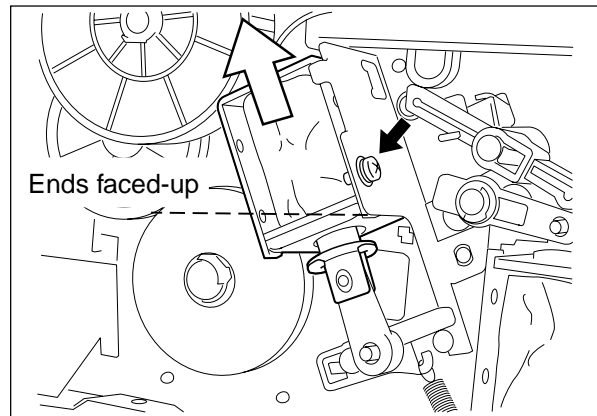
(2) Small original exit solenoid

To install this solenoid, put the end faces of the bracket and solenoid together. When the small original reverse flapper is not pulled at completely, loosen two screws and shift the solenoid upward to adjust the level of the flapper movement.



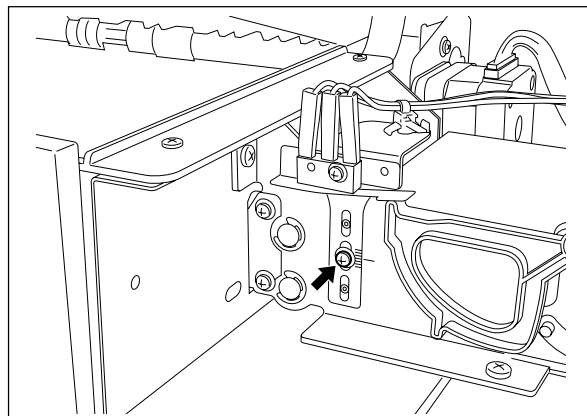
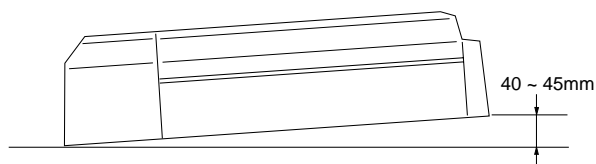
(3) Large original exit solenoid

To install this solenoid, put the end faces of the bracket and solenoid together. When the large original reverse flapper is not pulled at completely, loosen the screws and shift the solenoid upward to adjust the level of the flapper movement.



3. 11. 4. Adjustment of RADF open/close switch

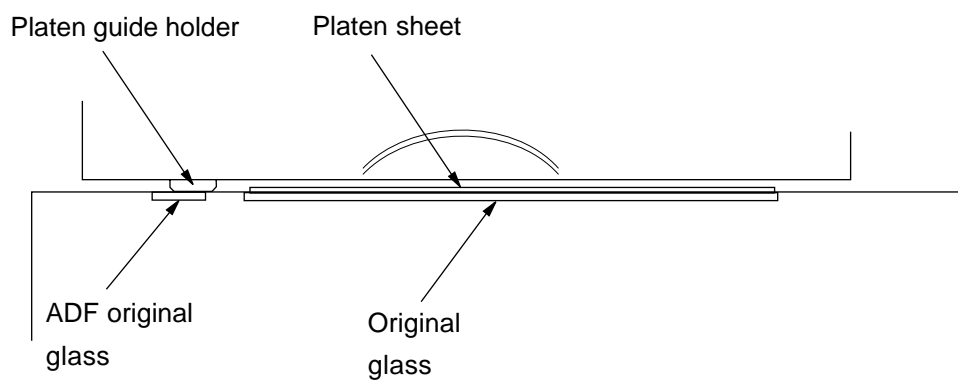
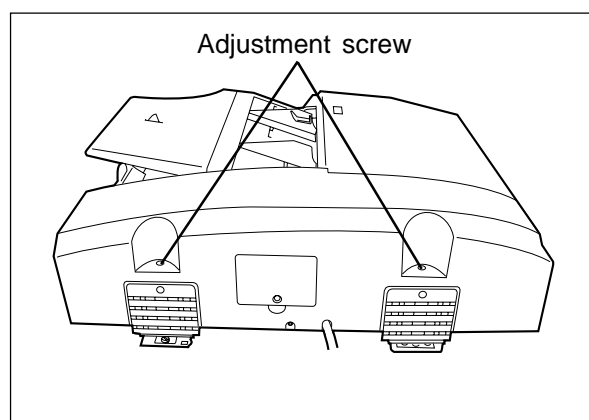
When opening the RADF, adjust the bracket position so that the switch is turned on when the front side height becomes 40~45mm (within the empty weight falling limit).



3. 11. 5. Adjustment of RADF height

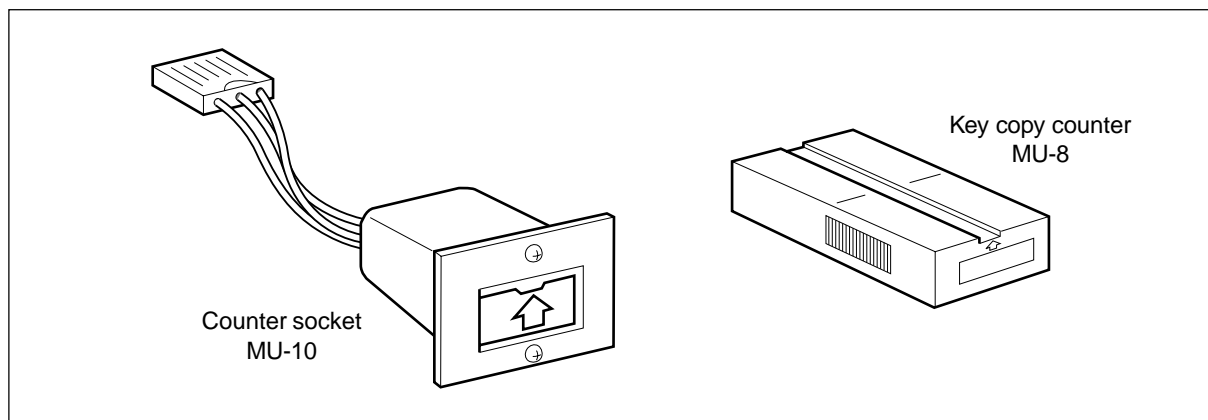
The height is adjusted with 2 adjustment screws at hinges.

Adjust the height so that the platen guide holders (front, rear) touch the ADF original glass.



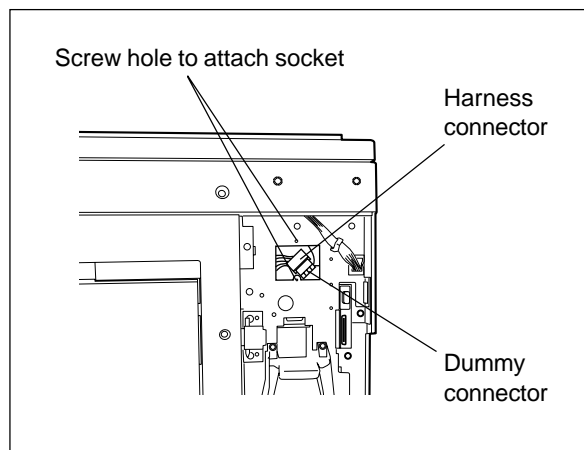
3. 12. Key Copy Counter (MU-8, MU-10)

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

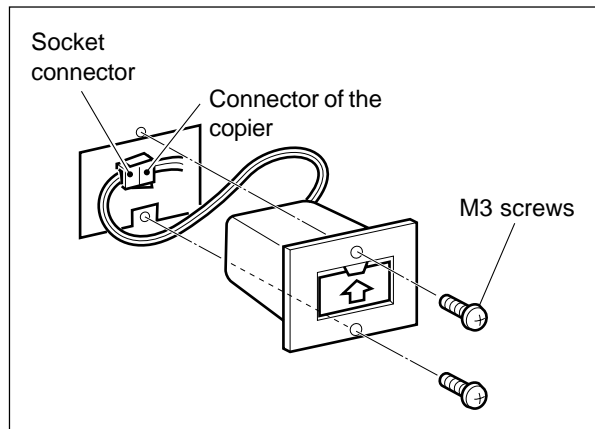


<Installation procedure>

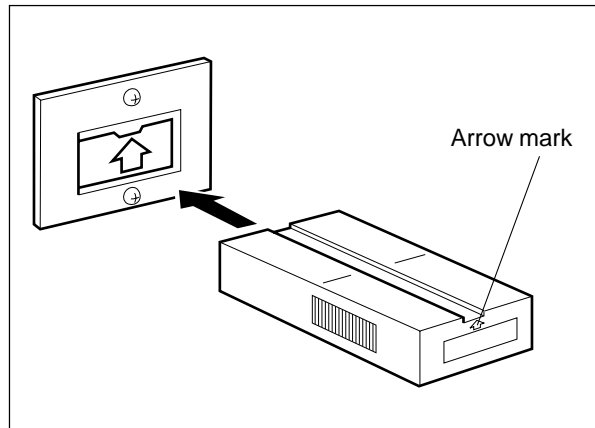
- (1) Remove the feed side rear cover, and cut out the cover for the key copy counter.
- (2) Pull out the harness connector from the hole on the frame, and cut the shorted harness of the connector. (Treat the cut harness properly to avoid its being shorted on the machine frame). Disconnect the dummy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



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



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



- (7) Enter the value "3" for the code 202 in the setting mode (08).

4. PREVENTIVE MAINTENANCE (PM)

4. 1. PM Support Mode

4. 1. 1. General description

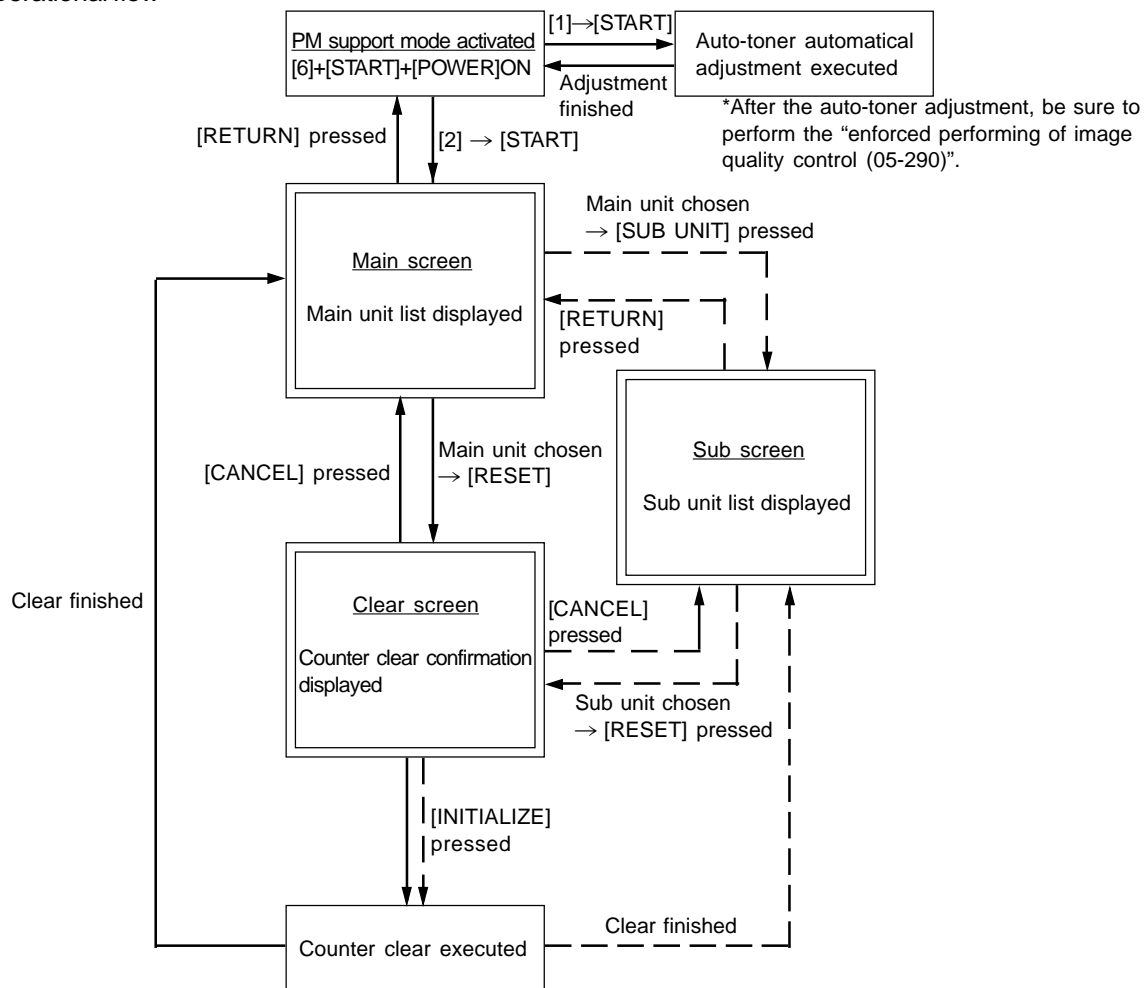
The timing for the parts replacement usually depends on the number of printouts ever made after they were replaced before. However, the life span of them changes depending on the general use of users and the environment in which the machine is placed. Therefore, it is necessary to consider not only the number of printouts but also the driving time when deciding the timing for the parts replacement in order to utilize the parts and materials effectively.

This copier packs the PM support mode, which makes it possible to see the general use of each part (the number of printouts, driving time) and replacement record and to do a counter clearing operation more efficiently when replacing.

The replacement record can be printed out in the list printing mode (9S-103).

4. 1. 2. Operational flow and operational screen

(1) Operational flow



* The screen goes back to the main screen when the counter clear is executed or the [CANCEL] key is pressed after moving from the main screen, while it goes back to the sub screen after moving from the sub screen.

(2) Operational screen

(a) Main screen

Displaying of the number of printouts (Cpy.), drive time (Cnt.) and previous replacement date (Chg.) for a chosen unit

When the replacement date for the sub unit is different, press the [SUB UNIT] key to move to the sub screen and see each information, otherwise information is not displayed.

Displaying of the main unit name

Displaying of the present number of printouts (x1000)
When there are differences among the sub units (parts), “_” is displayed and “CHECK SUBUNIT” is displayed at the top.

Back to the PM support mode activation screen

Moving to the sub screen

Moving to the next/previous page

Clearing of the chosen unit counters (all the sub unit (parts) counters belonging to that unit)
All counters are cleared when the unit is not selected.

Displaying of the standard number of printouts (x1000) to replace the unit parts

Displaying of the present drive time (x1000sec.)

100% 2			
CHECK SUBUNIT			
Cpy. 0 Cnt. 0 Chg2002/04/22			
* EXCHANGE			
Class Name	Copy	Norm	Count
CLEANER/DRUM UNIT	-	-	-
MAIN-CHARGER UNIT	0.0K	400K	0.0K
DEVELOPER UNIT	999K	400K	9999K*
TONER BAG UNIT	0.0K	400K	0.0K
TRANSFER BELT UNIT	-	-	-
RETURN RESET SUB UNIT Next Prev			

- Notes:**
1. “—” is always displayed at the drive time section for the reversing automatic document feeder (RADF) and feed unit.
 2. “—” is displayed at the numeric section for the paper source which is not installed since the paper source is different depending on the destination.

(b) Sub screen

Displaying of the number of printouts, drive time and previous replacement date for a chosen sub unit

Displaying of the sub unit (parts) name

Displaying of the present number of printouts (x1000)

Displaying of the standard number of printouts (x1000) to replace the sub unit (parts)

Displaying of the present drive time (x1000sec.)

Item Name	Copy	Norm	Count
TRANSPORT BELT	999K	400K	9999K*
BELT BLADE	0.0K	400K	0.0K
BELT BLUSH	400K	400K	400K

Back to the main screen

Clearing of the chosen sub unit (parts) counters

Moving to the next/previous page

(c) Clear screen

Displaying of information for the unit to be cleared and WEB unit (parts)

COUNTER RESET

TRANSPORT BELT

CANCEL

INITIALIZE

When the [INITIALIZE] key is pressed, "Present number of printouts" and "Driving time" are cleared and "Previous replacement date" is updated.

(3) Access tree

<u>Main screen</u>	<u>Sub-screen</u>
Drum/cleaner unit [DRUM/CLEANER]	Drum [DRUM] Drum cleaning blade [DRUM BLADE] Drum cleaning brush [DRUM BRUSH] Ozone filter [OZONE FILTER] Drum separation fenger [DRUM FINGER]
Main charger unit [MAIN CHARGER]	Main charger grid [GRID] Charger wire [CHARGER WIRE] Cleaning pad [CLEANING PAD]
Developer unit [DEVELOPER UNIT]	Developer material [DEVELOPER] Toner filter [TONER FILTER]
Toner bag [TONER BAG]	Toner bag [TONER BAG]
Transfer belt unit [TRANSFER BELT UNIT]	Transfer belt [TRANSFER BELT] Transfer belt cleaning blade [BELT BLADE] Transfer belt cleaning brush [BELT BRUSH]
Fuser unit [FUSER UNIT]	Fuser roller [FUSER ROLLER] Pressure roller [PRESSURE ROLLER] Cleaning web [CLEANING WEB] Cleaning web pushing roller [WEB ROLLER] Cleaning roller (felt) [FELT ROLLER] Cleaning roller (metal) [METAL ROLLER] Fuser unit upper separation finger [FUSER FINGER]
Automatic reversing document feeder [RADF]	RADF pickup belt [PICKUP BELT] RADF feed roller [FEED ROLLER] RADF separation roller [SEPARATION ROLLER]
Paper feeding system [PAPER FEEDING]	Tandem LCF pickup roller [T.LCF PICKUP] 1st cassette pickup roller [1ST PICKUP] 2nd cassette pickup roller [2ND PICKUP] 3rd cassette pickup roller [3RD PICKUP] 4th cassette pickup roller [4TH PICKUP] Bypass pickup roller [BYPASS PICKUP] External LCF pickup roller [EX.LCF PICKUP] Tandem LCF feed roller [T.LCF FEED] 1st cassette feed roller [1ST FEED] 2nd cassette feed roller [2ND FEED] 3rd cassette feed roller [3RD FEED] 4th cassette feed roller [4TH FEED] Bypass feed roller [BYPASS FEED] External LCF feed roller [EX.LCF FEED] Tandem LCF separation roller [T.LCF SEPARATION] 1st cassette separation roller [1ST SEPARATION] 2nd cassette separation roller [2ND SEPARATION] 3rd cassette separation roller [3RD SEPARATION] 4th cassette separation roller [4TH SEPARATION] Bypass separation roller [BYPASS SEPARATION] External LCF separation roller [EX.LCF SEPARATION]

Note: The name inside []
is displayed on the
LCD screen.

4. 2. General Descriptions for PM Procedure

- (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. See the replacement record and check the parts needed to be replaced in the PM support mode (6S-2) or list printing mode (9S-103).

6S-2 : [6]+[START]+[POWER]ON → [2] → [START]
 9S-103 : [9]+[START]+[POWER]ON → [103] → [START]
 - d. Turn OFF the power and unplug the copier for sure.
- (2) Perform a preventive maintenance using the following checklist and illustrations. Refer to the Service Manual if necessary.
- (3) Plug in the copier after the maintenance has been finished. Then turn ON the power and make some copies to confirm that the copier is working properly.

4. 3. Operational Items in Overhauling

- (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.

4. 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) △ Replace if deformed or damaged	○ 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			Remarks

[Preventive Maintenance Checklist]

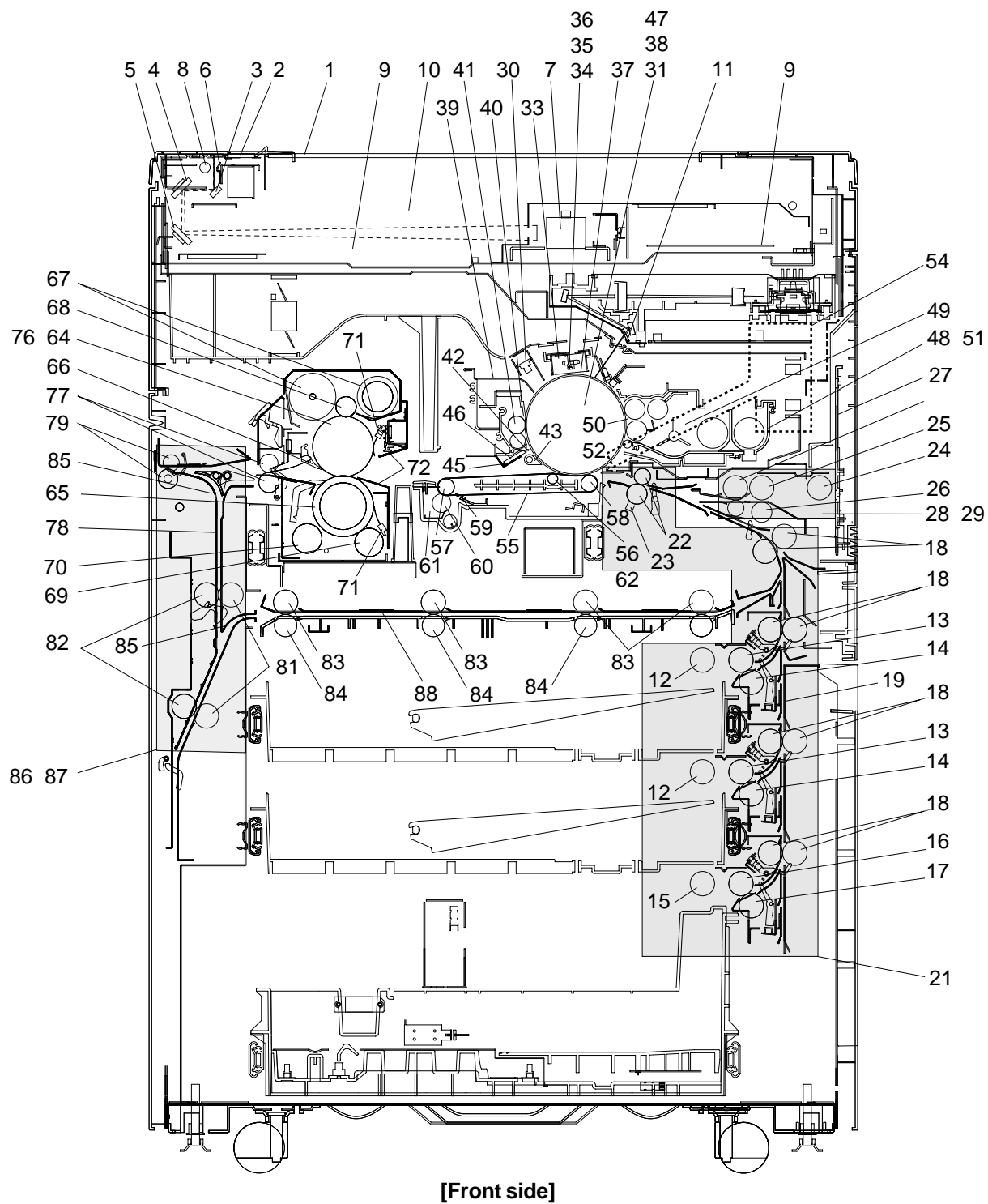
- Notes:**
1. Perform cleaning and lubricating in every 400,000 copies for the e-STUDIO550, 460,000 copies for the e-STUDIO650 and every 500,000k copies for the e-STUDIO810. Lubricate the replacement parts following to the replacement cycle.
 2. Values under "Replacement" indicate the replacement cycle for the e-STUDIO550/e-STUDIO650/e-STUDIO810.
 3. <P-I> under "Remarks" indicates page items of the parts list.
 4. The replacement cycle of the parts in the feeding section equals to the number of sheets fed from each paper source.
 5. Be careful not to put oil on the rollers, belts and belt pulleys when lubricating.

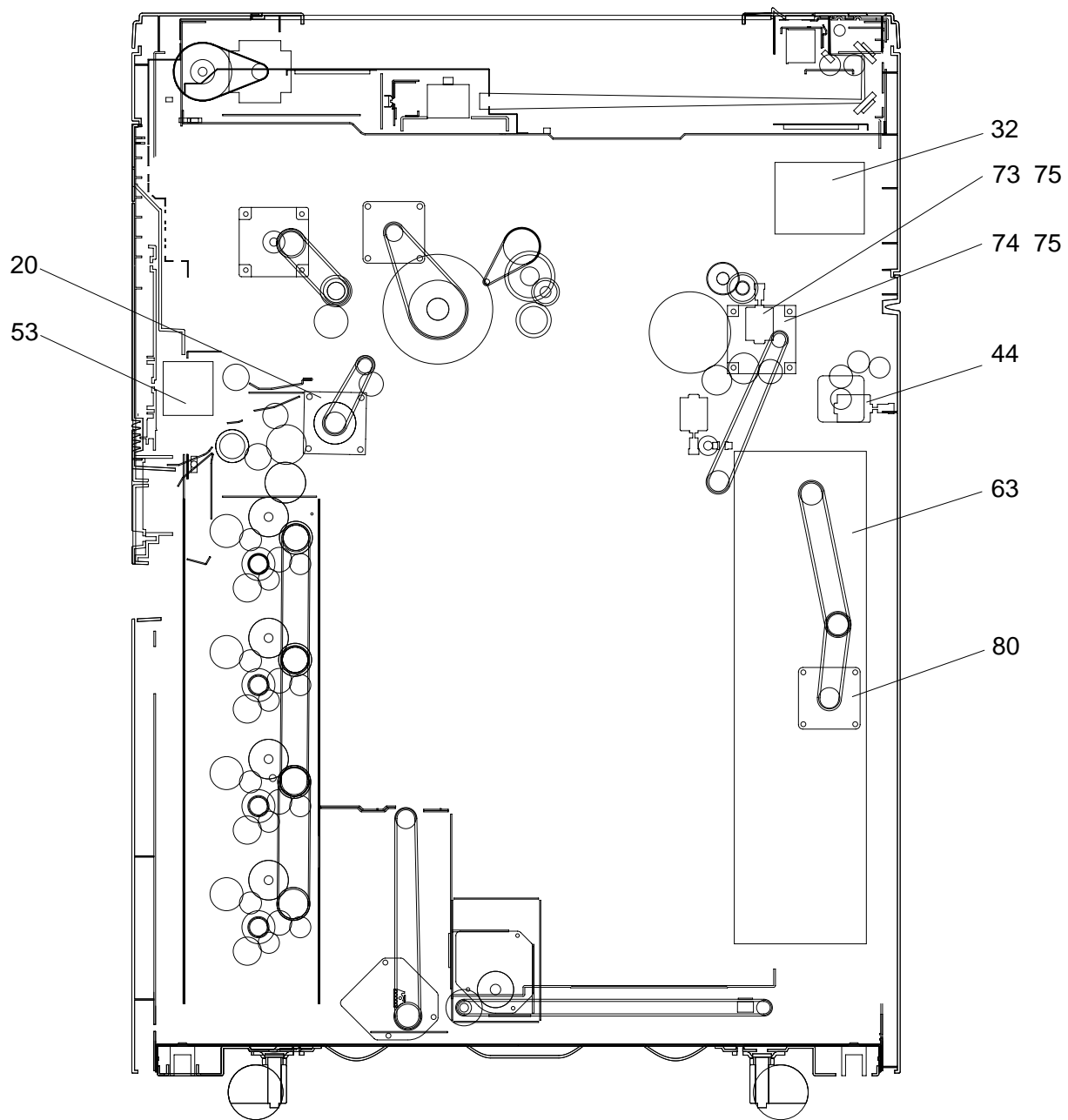
Section	Items to check	Cleaning	Lubri- cation	Replace- ment (x1,000)	Operation check	Remarks <P-I>
Scanner	1. Original glass	○ or A				*1
	2. ADF original glass	○ or A				
	3. Mirror-1	○				
	4. Mirror-2	○				
	5. Mirror-3	○				
	6. Reflector	○				
	7. Lens	○				
	8. Exposure lamp			△	○	
	9. Automatic original detection sensor	○			○	
	10. Slide sheet (front and rear)	○ or A		△		
Laser unit	11. Slit glass	○				*2
Feed unit	12. Pickup roller (cassette)		W	200/200/200		*3 <P7-I38>
	13. Feed roller (cassette)		W	200/200/200		*3 <P7-I38>
	14. Separation roller (cassette)			200/200/200		*4 <P7-I52>
	15. Pickup roller (Tandem LCF)			300/300/300		<P7-I38>
	16. Feed roller (Tandem LCF)			300/300/300		<P7-I38>
	17. Separation roller (Tandem LCF)			300/300/300		<P7-I52>
	18. Transport roller	A		△		
	19. Paper guide (all)	○				
	20. Drive gear (tooth face and shaft)		W			*5
	21. GCB bushing bearing		L			
	22. Registration roller	A		△		<P16-I8>
	23. Paper dust removal brush	○		△		<P16-I19>

Section	Items to check	Cleaning	Lubri- cation	Replace- ment (x1,000 sheets)	Operation check	Remarks <P-I>
Bypass feed unit	24. Pickup roller			100/100/100		<P10-I36>
	25. Feed roller			100/100/100		<P10-I35>
	26. Separation roller			100/100/100		<P11-I35>
	27. Bypass tray	○				
	28. Drive gear (tooth face and shaft)		W			
	29. GCB bushing bearing		L			
Process related section	30. Discharge lamp	○				
	31. Drum shaft	○				
	32. Ozone filter			400/460/500		<P31-I32>
Main charger	33. Charger case	○				*6
	34. Charger wire			400/460/500 △	○	*6 <P38-I19>
	35. Contact point of terminals	○				
	36. Charger wire cleaning pad			400/460/500		<P38-I9>
	37. Grid			400/460/500 △		<P38-I27>
Drum/ Cleaner	38. Photoconductive drum			400/460/500		► ch.4.7.2 <P202-I1>
	39. Whole cleaner unit					*7
	40. Drum cleaning blade			400/460/500		*8 ► ch.4.7.3 <P48-I9>
	41. Drum cleaning brush			400/460/500		*8 ► ch.4.7.4 <P49-I10>
	42. Recovery blade	○		△		*9
	43. Separation finger for drum			400/460/500 △	○	*10 <P48-I21>
	44. Used toner auger drive section		W			*11
	45. Cleaner lower guide	○				
	46. Image quality sensor	○				*7
	47. Drum shaft bearing	○				*7
Developer unit	48. Whole developer unit	○				
	49. Developer material			400/460/500		*12
	50. Front shield	○		△		
	51. Oil seal (9pcs.)		AV	800/920/1000		*13

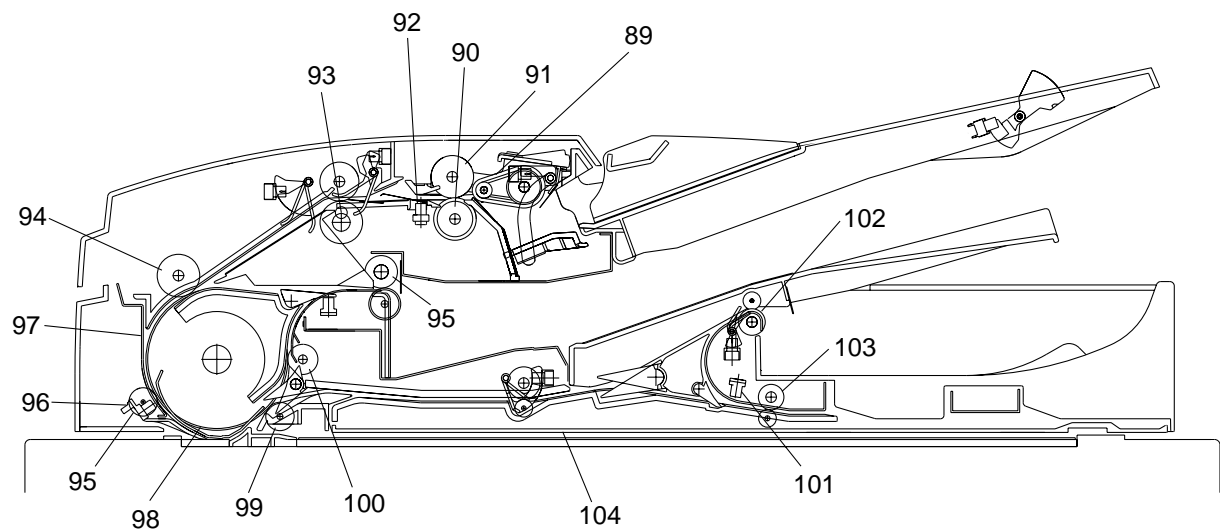
Section	Items to check	Cleaning	Lubri- cation	Replace- ment (x1,000 sheets)	Operation check	Remarks <P-I>
Developer unit	52. Guide roller	○ or A		△		
	53. Toner filter			400/460/500		<P40-I24>
Toner recycle	54. Whole toner recycle unit	○				*14
Transfer belt	55. Transfer belt			400/460/500		► ch.4.7.5 <P22-I18>
	56. Transfer belt power supply roller	A		△		*15
	57. Transfer belt drive roller	A		△		
	58. Transfer belt follower roller	A		△		
	59. Transfer belt cleaning blade			400/460/500		► ch.4.7.3 <P23-I31>
	60. Transfer belt cleaning brush			400/460/500		*16 ► ch.4.7.4 <P23-I10>
	61. Flicker periphery	○				*16
	62. Transfer belt power supply roller bearing and plastic bushing	A	L			
Toner bag	63. Toner bag			800/920/1000		Key operating <P45-I19>
Fuser unit	64. Fuser roller			400/460/500		► ch.4.7.6 <P25-I12>
	65. Pressure roller			400/460/500		► ch.4.7.6 <P25-I14>
	66. Upper separation finger			400/460/500		*17 <P27-I22>
	67. Cleaning web			400/460/500		*18 ► ch.4.7.7 <P26-I11>
	68. Web pushing roller			400/460/500		*18 <P26-I12>
	69. Cleaning roller (felt)			400/460/500		► ch.4.7.7 <P26-I24>
	70. Cleaning roller (metal)			400/460/500		► ch.4.7.7 <P27-I14>
	71. Thermistor (4pcs.)	A		△		*19
	72. Fuser unit inlet/exit guide	A				
	73. Web motor worm gear		W			

Section	Items to check	Cleaning	Lubri- cation	Replace- ment (x1,000 sheets)	Operation check	Remarks <P-I>
Fuser unit	74.Fuser unit motor gear		W			
	75. Fuser roller drive gear/ Cleaning web drive gear			△		
	76. Fuser roller bearing/ One-way bearing			△		
	77. Fuser unit exit roller	A				
Exit/Reverse section	78. Exit/Reversal guide	A				
	79. Exit roller	A		△		
	80. Drive gear		SI			
	81. Reverse section transport roller (upper, lower)	A		△		
	82. Reverse section follower roller (upper, lower)	A				
	83. Horizontal transport section transport roller (4)	A				
	84. Horizontal transport section follwer roller (8)	A				
	85. Reverse section myler (2pcs.)	○ or A				
	86. Bearing for GCB bushing		L			
	87. Bearing of plastic bushing		W			
	88. Paper guide	○				
RADF	89. Pickup belt			400/460/500		<P81-I20>
	90. Separation roller			400/460/500		<P82-I22>
	91. Feed roller			400/460/500		<P81-I21>
	92. Original length sensor	○				
	93. Registration roller	A				
	94. First roller	A				
	95. 2nd roller	A				
	96. Read sensor	○				
	97. Read guide	○				
	98. Read roller	A				
	99. 3rd roller	A				
	100. 4th roller	A				
	101. Reverse sensor	○				
	102. Exit roller	A				
	103. Reverse roller	A				
	104. Platen sheet	○ or A				





[Rear side]



[Automatic Document Feeder]

Remarks “*” in the Preventive Maintenance Check List

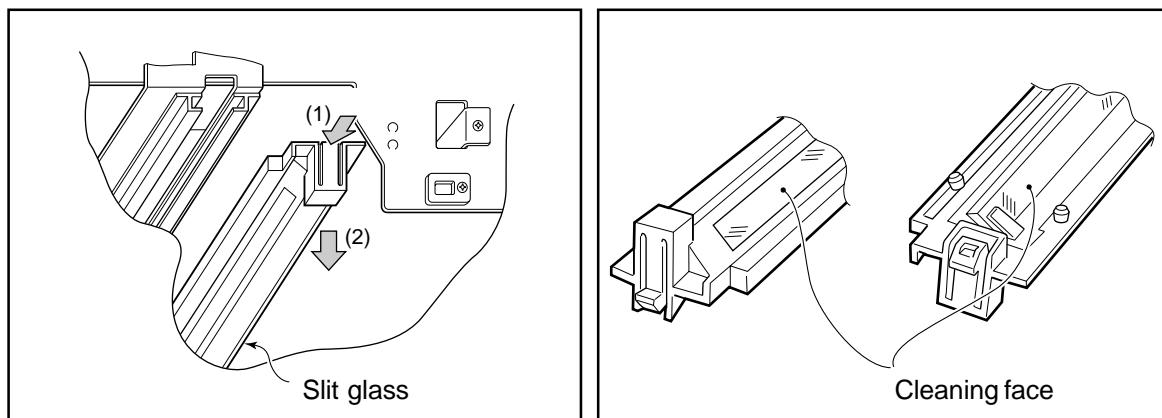
*1 Original glass

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 Slit glass

Take off the slit glass unit and clean the face side and back side of the glass.

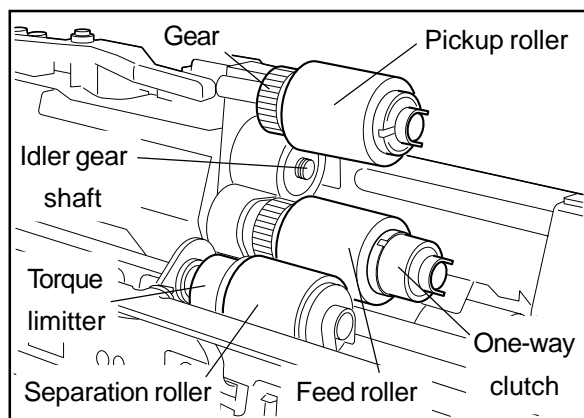


*3 Pickup roller and feed roller

When installing the pickup roller and feed roller, pay attention to allocate the pickup roller, gear, feed roller and one-way clutch correctly.

*4 Separation roller

When replacing the separation roller, replace only the roller and continue to use the torque limiter.



***5 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.

***6 Main charger case/main charger wire**

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

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.

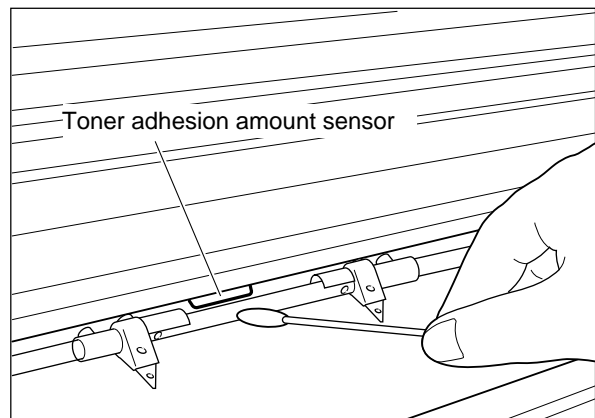
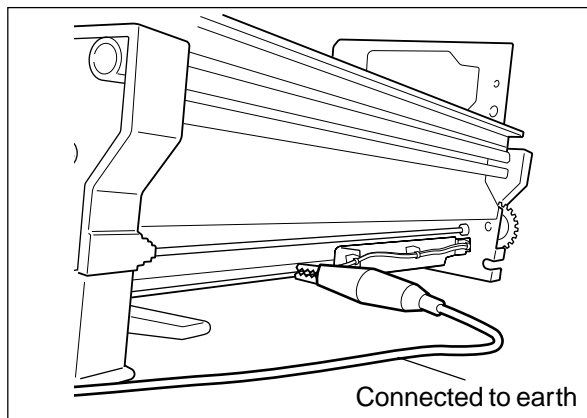
***7 Cleaner Unit / Toner adhesion amount sensor / Drum shaft bearing**

Be sure to connect the ground lead to the aluminum die cast on the rear of the cleaner (exit side) before you clean the cleaner unit. Then clean the unit with, for example, a vacuum cleaner.

(If the cleaner unit is not grounded, static electricity may damage the toner adhesion amount sensor.)

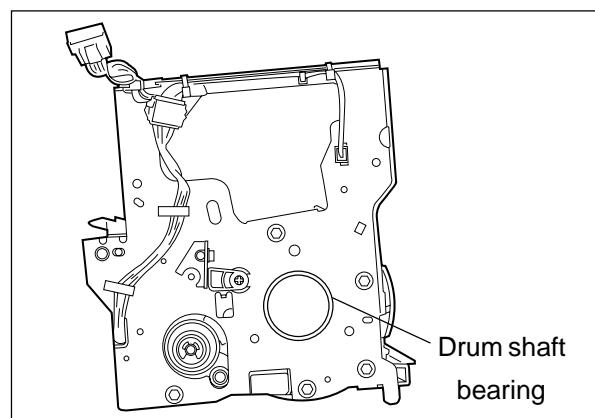
Also wipe the window of the toner adhesion amount sensor with a cotton wool bud or tissue.

(If the window of the toner adhesion amount sensor is dirty, the sensor may no longer function properly.)



Next, wipe the inner diameter of the drum shaft bearing with a cloth.

(If toner adheres to the inner diameter, you may no longer be able to draw out the drum shaft.)



***8 Drum cleaning blade / Drum cleaning brush**

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 and brush with new ones if poor images are copied due to the damaged blade regardless of the number of copies which have been made.

***9 Recovery blade**

Replace the recovery blade regardless the number of copies if the edge of the blade get damaged.

***10 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 printed image, clean the tip of the finger.

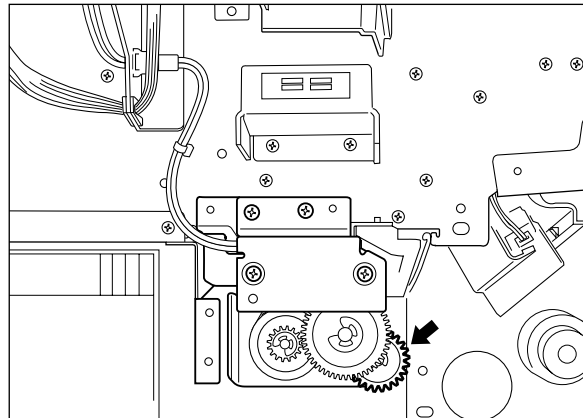
Notes: 1. Wipe the tip of the finger lightly with a dry cloth trying not to deform it.

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.

***11 Toner transport auger drive section**

Apply white grease to the toner transport auger drive section (shown by arrow).



***12 Developer material**

After replacing the developer material, be sure to perform the auto-toner adjustment and then enforced performing of image quality control.

*13 Oil seal

Mixer shaft 4 pcs.
Paddle shaft 2 pcs.
Upper developer sleeve 1 pc.
Lower developer sleeve 1 pc.
Transport sleeve 1 pc.

During replacement, coat the oil seal with grease (Alvania No.2).

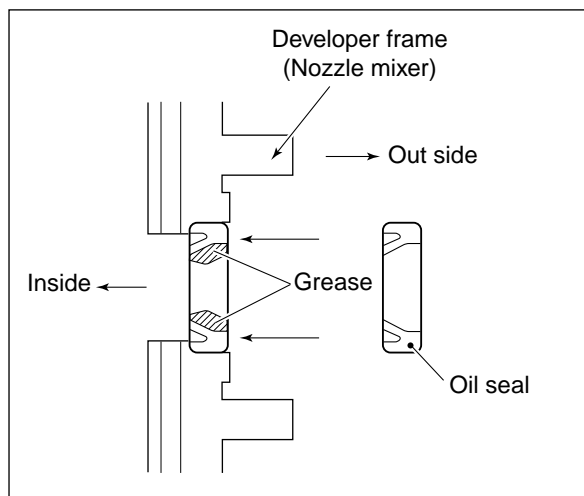
- (1) Push in a new oil seal parallel to the mounting hole section of the developer frame or outside of the nozzle mixer.

* Pay attention to the direction in which the oil seal is attached. (See figure on right.)

- (2) Apply an even coat of grease to the inside of the oil seal.

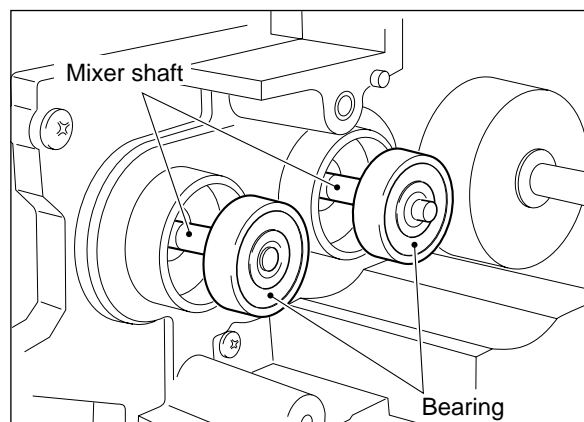
- Amount: About two small drops

- (3) Wipe off any grease the exudes from the inside.



Mixer Shaft

Apply a coating of grease (Alvania No.2) to the entire periphery of the mixer shaft before attaching the bearing.



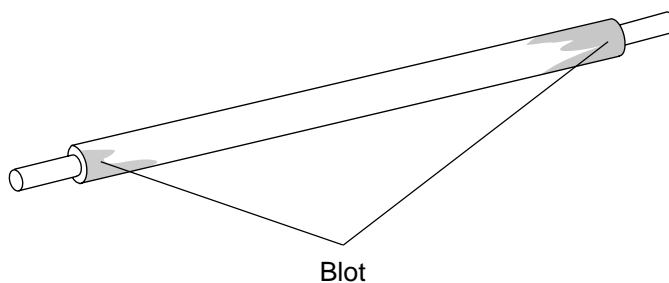
***14 Whole toner recycle unit**

Clean up the toner in the toner recycle unit when replacing the developer material.

- (1) Open the shutter at the bottom of the toner hopper and vacuum off the toner in the hopper from the toner exit.
- (2) Vacuum off the toner in the toner transport pipe from the joint section to the cleaner unit.

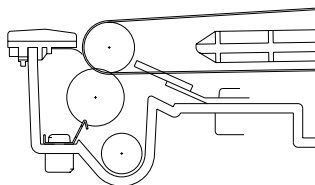
***15 Transfer belt power supply roller**

Fully clean up the toner and such adhered to the roller with alcohol since an image failure may occur if there remains any blot on the roller.



***16 Transfer belt cleaning bush/Flicker periphery**

When replacing the transfer belt cleaning brush, clean the toner pooling under the brush (around the flicker).



***17 Upper separation finger**

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.

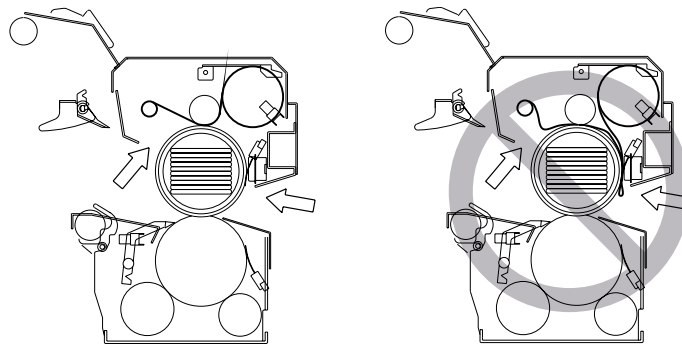
*18 Cleaning web/web pushing roller

Take the following steps when replacing the cleaning web and web pushing roller.

1. Pull out the fuser unit, and take off the cleaning web unit (2 black screws).
2. Replace the cleaning web and web pushing roller.

Note: Be sure to replace both the cleaning web and web pushing roller. If only the web pushing roller is continuously used, the cleaning web may be caught by the roller.

3. Take up the cleaning web a little (3~5 rotations with hand).
4. Install the cleaning web unit to the fuser unit. At this time, make sure that the web is not slacked off.
5. Turn the fuser unit jam access knob 10~15 times to adapt the cleaning web to the fuser roller. At this time make sure that there is no defect caused by an installing inadequacy.
6. Make sure that the cleaning web is not riveled or slacked off.
 - Be sure that the cleaning web does not run over the space between the upper guide and fuser roller when seen from the fuser unit entrance side.
 - Open the upper separation finger unit and make sure that the cleaning web is not riveled or slacked off.



7. Set up the PM support “6S” and clear the cleaning web counter.

After clearing it, the web motor automatically rotates for 65 seconds when turning the power ON.

Note: It is possible for the cleaning performance to be lowered unless the counter clear is not carried out.

8. Turn the power ON and make sure that “READY” is displayed.
9. Finally confirm the fuser unit is in a proper condition (same as the above 6).

Note: Do not rotate the web motor for more than 2 min. at the output check (03-124) since the cleaning web may be slacked off when rolled up.

*19 Thermistor

Clean the thermistor with alcohol if the toner or dirt is sticking to it when the fuser roller is replaced.

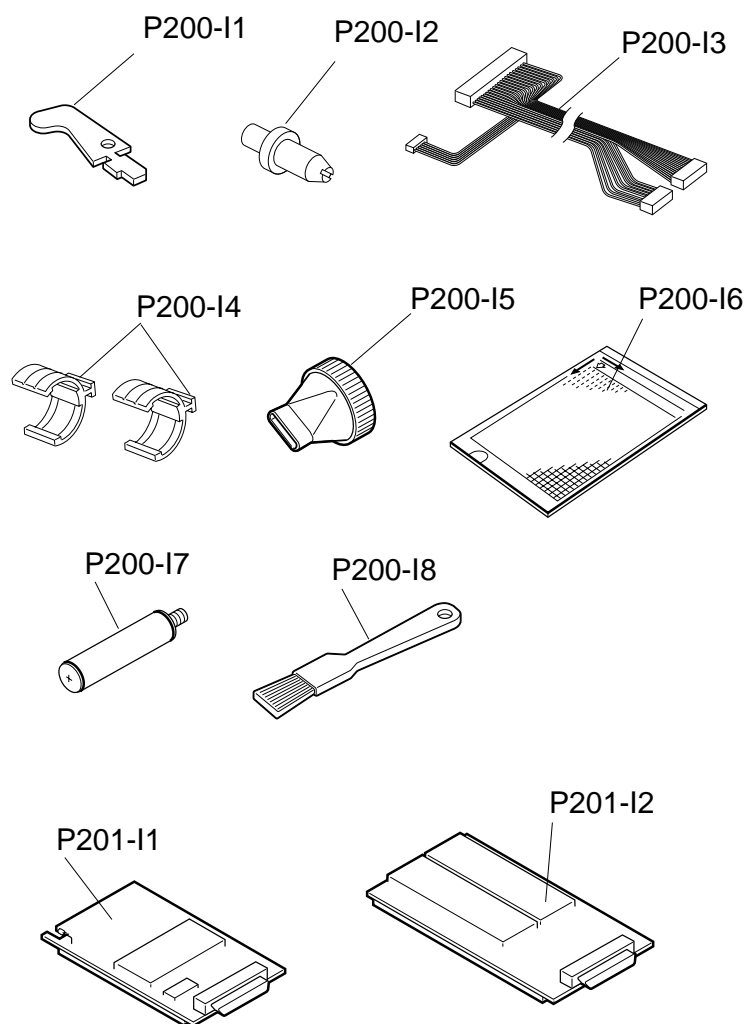
Do not deform or damage the thermistor during the cleaning. Replace the thermistor with a new one if it is damaged or deformed regardless of degree.

4.5. PM Kit

Item	Product name	Part name	Qty.
1	Main charger wire	WIRE-CH-060*398	1
2	Main charger grid	GRID-340	1
3	Charger wire cleaning pad	K-BASE-PAD-CH-M	1
4	Ozone filter	FLTR-OZN	1
5	Drum cleaning blade	BL-6510D	1
6	Drum cleaning brush	B-6570	1
7	Drum separation finger	K-CLAW-DRUM	2
8	Developer material	D-6510	1
9	Toner filter	FILTER-DEV-F300	1
10	Transfer belt	BT-6510TR	1
11	Transfer belt cleaning blade	BL-6510TR	1
12	Transfer belt cleaning brush	B-6510TR	1
13	Fuser roller	HR-8110-U	1
14	Pressure roller	HR-6570-L	1
15	Cleaning web	CW-6510	1
16	Web pushing roller	PR-6510W	1
17	Cleaning roller (metal)	B-8070L	1
18	Cleaning roller (felt)	SR-6570L	1
19	Fuser unit upper separation finger	SCRAPER-212	6

4. 6. Jig List

Item	Parts list	
	Page	Item
Door switch jig	200	1
RADF positioning pin	200	2
Harness for CD drive connection	200	3
Wire holder jig	200	4
Developer bottle nozzle	200	5
Area sheet	200	6
Lens magnification adjustment pin	200	7
Brush	200	8
Downloading jig (DLM board)	201	1
Downloading jig (DLS board)	201	2



4. 7. Precautions for Storing and Handling Supplies

4. 7. 1. Precautions for storing TOSHIBA supplies

A. Toner/Developer

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

B. OPC drum

Like the toner and developer, OPC drums should be stored in a dark place where the ambient temperature is between 10 to 35°C (no condensation). Be sure to avoid places where drums may be subjected to high humidity, chemicals and/or their fumes.

C. Drum cleaning blade/Transfer belt cleaning blade

This item should be stored in a flat place where the ambient temperature is between 10 to 35°C, and should also be protected against high humidity, chemicals and/or their fumes.

D. Fuser roller/Pressure roller/Cleaning WEB/WEB pushing roller/Cleaning roller (felt)/ Transfer belt/Drum cleaning brush/Transfer belt cleaning brush

Avoid places where the heat rollers may be subjected to high humidity, chemicals and/or their fumes.

E. Cleaning roller (metal)

Avoid places where the felt roller may be subjected to the high humidity, chemicals and/or their fumes and keep it in a flat place.

F. Copy Paper

Avoid storing copy paper in places where it may be subjected to high humidity.

After a package is opened, be sure to place and store it in a storage bag.

4. 7. 2. Checking and cleaning of OPC drum

(1) Use of gloves

If fingerprints or oil adhere to the drum surface, the characteristics of the photosensitive drum may degrade, affecting the quality of the copy image. So, do not touch the drum surface with your bare hands.

(2) Handling precautions

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

Be sure to apply "patting powder" (lubricant) to the entire surface of the drum and separation claws on the cleaner before installing the drum into the machine. When the drum has been replaced with a new one, the drum counter (setting mode "08", code "401") must be cleared to 0 (zero).

Notes: 1. Application of the patting powder is for reducing the friction between the drum, cleaning blade, and separation fingers. If the application of patting powder is neglected, the drum and cleaning blade may be damaged.

2. When paper fibers adhere to the cleaning blade edge, they may reduce the cleaning efficiency and, in addition, may damage the blade and the drum. Be sure to remove any fibers found adhering to the blade.

(3) Installation of Copier and Storage of Drum

Avoid installing the copier where it may be subjected to high temperature, high humidity, chemicals and/or their fumes.

Do not leave drums in a brightly lit place for a long time. Otherwise the drum will fatigue, and will not produce sufficient image density immediately after being installed in the machine. However, this effect may decrease as time elapses.

(4) Cleaning the Drum

At periodic maintenance calls, wipe the entire surface of the drum clean using the designated cleaning cotton. Use sufficiently thick cleaning cotton (dry soft pad) so as not to scratch the drum surface inadvertently with your fingertips or nails. Also, remove your rings and wristwatch before starting cleaning work to prevent accidental damage to the drum.

Do not use alcohol, selenium refresher and other organic solvents or silicon oil as they will have an adverse effect on the drum.

(5) Scratches on OPC Drum Surface

If the surface is scratched in such a way that the aluminum substrate is exposed, no copy image will be produced on this area. In addition, the cleaning blade will be damaged so replacement with a new drum will be necessary.

(6) Collecting Used OPC Drums

Regarding the recovery and disposal of used OPC drums, we recommend following the relevant local regulations or rules.

4. 7. 3. Checking and cleaning of drum cleaning blade and transfer belt cleaning blade

(1) Handling precautions

Pay attention to the following points as the cleaning blade life is determined by the condition of its edge:

- Do not allow hard objects to hit or rub against blade edge. Do not rub the edge with a cloth or soft pad.
- Do not leave oil (or fingerprints, etc.) on the edge.
- Do not apply solvents such as paint thinner to the blade.
- Do not allow loose thread or dirt to contact the blade edge.
- Do not place the blade near a heat source.

(2) Cleaning procedure

Clean the blade edge with a cloth moistened with water and squeezed lightly.

4. 7. 4. Handling of drum cleaning brush and transfer belt cleaning brush

Do not touch the brush surface with bare hands.

4. 7. 5. Handling of transfer belt

- (1) Do not touch the belt surface with your bare hands.
- (2) Prevent oil or other foreign matter from adhering to the belt surface.
- (3) Do not touch the transfer belt with alcohol or other organic solvents.
- (4) Do not apply external pressure that might scratch the transfer belt.

4. 7. 6. Checking and cleaning of fuser roller and pressure roller

(1) Handling precautions

- Do not leave oil (fingerprints, etc.) on the fuser roller.
- Be extremely careful not to allow a hard object to hit or rub against the rollers because the thin teflon layer coated on the aluminum substrate is easily damaged and, if damaged, will result in defective drum cleaning.

(2) Checking

- Check for stain and damage to the fuser and pressure rollers and clean or replace if necessary.
- Clean the upper/lower separation fingers and check for chipped claws.
- Check the cleaning condition of the cleaning WEB and cleaning roller (kinks, lines and slacks on the cleaning WEB).
- Check the thermistor for proper contact with the fuser roller.
- Check the fused condition of the toner image.
- Check the gap between the lower entrance guide and pressure roller (do not make them touch each other).
- Check the gap between the fuser roller and thermostat (2~2.5mm).
- Check the fuser and pressure rollers for proper rotation.
- Check the fuser and pressure rollers for bearing.
- Check the fuser roller drive gear and cleaning WEB drive gear
- Check the WEB motor lubrication to the worm gear (white molycote).

(3) Cleaning procedure for fuser roller

When the fuser roller becomes dirty, it will cause paper jamming. If this happens, wipe the roller surface clean with cotton moistened in alcohol. For a better cleaning effect, clean the roller when it is still warm.

Note: Be careful not to rub the teflon-coated surface with your fingernails or hard objects because it is easily damaged. Do not apply the silicon oil to the fuser roller.

4. 7. 7. Checking and replacing of cleaning web and cleaning rollers (felt, metal)

(1) Handling precaution

Never allow solvents such as paint thinner to adhere to the cleaning roller.

(2) Defective cleaning and countermeasures

Defective cleaning should be judged by the toner deposited on the fuser and pressure rollers.

When the fuser roller has heavy toner deposits, replace the cleaning web and web pushing roller, and when the pressure roller has, replace the cleaning rollers (felt, metal).

The cleaning web and cleaning rollers will be gradually degraded due to the subjection to the heat from the heat roller over a long period of time. Replace them preferably after a specified number of copies have been made.

(3) Precaution when installing cleaning web

Fully confirm that the cleaning web has no slacks, which may cause a cleaning defect by generating kinks and lines.

5. TROUBLESHOOTING

5.1 Diagnosis and Prescription for Each Error Code and Phenomenum

5.1.1 Paper transport jam

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

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

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

YES → Remove the paper.

NO ↓

Is the fuser exit sensor working?

(Perform the input check in the test mode: 03-[ENERGY SAVER]ON/[6]/[F])

NO →

1. Check if the connector of the exit sensor is disconnected.
2. Check if the connector J335 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 motor working? (Perform the output check in the test mode: 03-108/158)

NO →

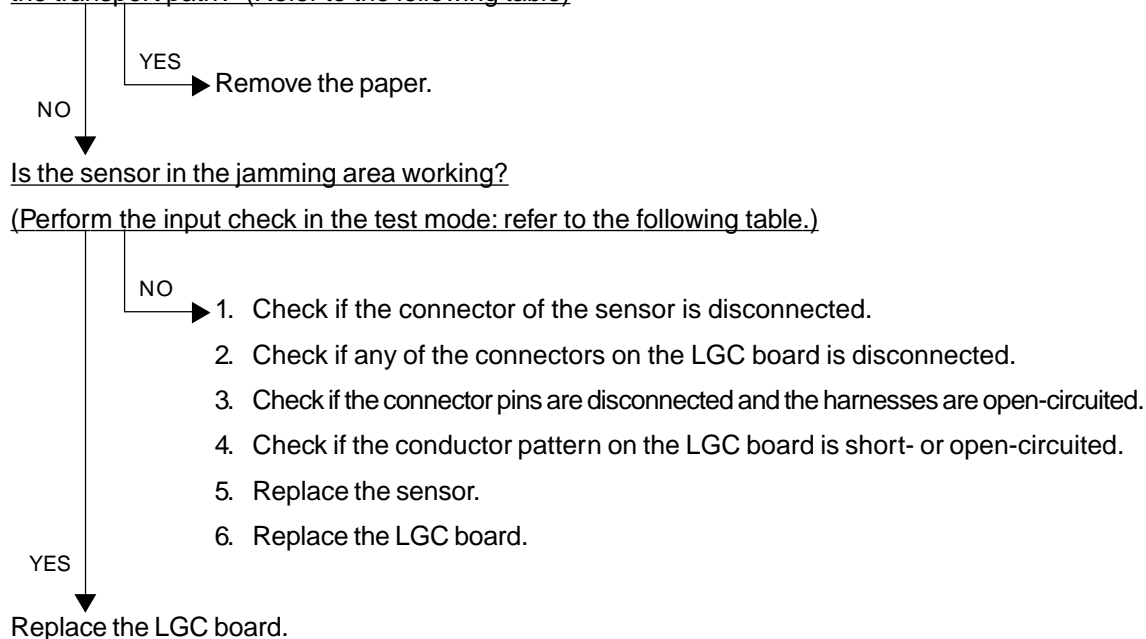
1. Check if the connector of the registration clutch is disconnected.
2. Check if the connector J341 on the LGC board is disconnected.
3. Check if the connector pins are disconnected and the harnesses are open-circuited.
4. Check if the conductor pattern on the LGC board is short- or open-circuited.
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.)



Relation between the jamming area and the corresponding sensors

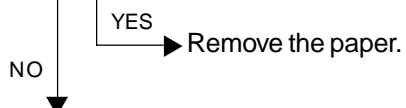
Jamming area	Sensor	Test mode/Input check
Registration area	Registration sensor	03-[ENERGY SAVER]ON/4[E]
Exit/reverse area	Exit sensor	03-[ENERGY SAVER]OFF/6[G]
	Reversal sensor 1	03-[ENERGY SAVER]OFF/6[C]
	Reversal sensor 2	03-[ENERGY SAVER]OFF/6[B]
Reverse transport area	Transport sensor 1	03-[ENERGY SAVER]OFF/0[C]
	Transport sensor 2	03-[ENERGY SAVER]OFF/0[A]
	Transport sensor 3	03-[ENERGY SAVER]OFF/0[B]
Paper feeding area	1st cassette feed sensor	03-[ENERGY SAVER]OFF/2[A]
	2nd cassette feed sensor	03-[ENERGY SAVER]OFF/3[A]
	3rd cassette/Tandem LCF feed sensor	03-[ENERGY SAVER]OFF/4[A]
	4th cassette/Tandem LCF feed sensor	03-[ENERGY SAVER]OFF/5[A]
	1st cassette transport sensor	03-[ENERGY SAVER]OFF/2[B]
	2nd cassette transport sensor	03-[ENERGY SAVER]OFF/3[B]
	3rd cassette/Tandem LCF transport sensor	03-[ENERGY SAVER]OFF/4[B]
	4th cassette/Tandem LCF transport sensor	03-[ENERGY SAVER]OFF/5[B]

[E09] Jam caused by an abnormal HDD

- (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.

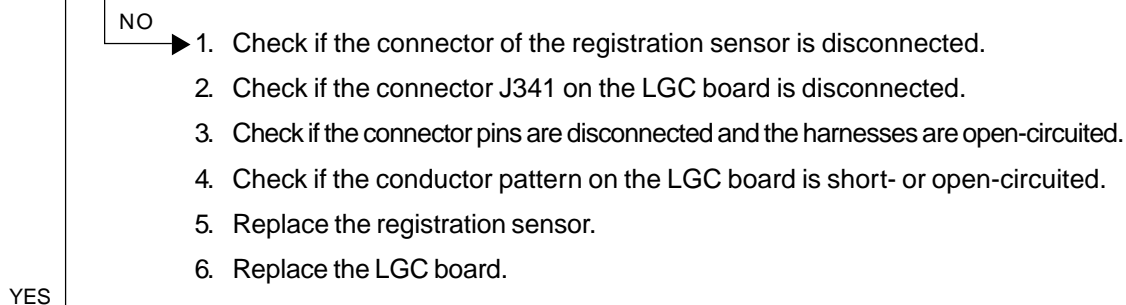
[E20] Paper fed from the 1st cassette not reaching the registration sensor

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



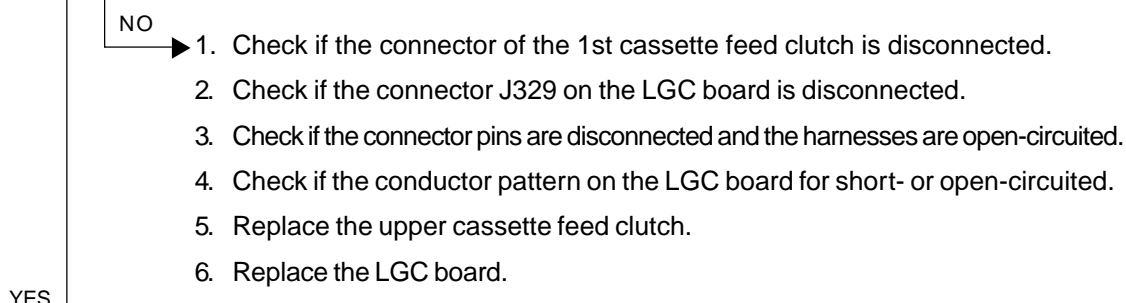
Is the registration sensor working?

(Perform the input check in the test mode: 03-[ENERGY SAVER]ON/[4]/[E])



Is the 1st cassette feed clutch working?

(Perform the output check in the test mode: 03-201)



Check the 1st cassette feed roller and separation roller. Replace them if they are worn out.

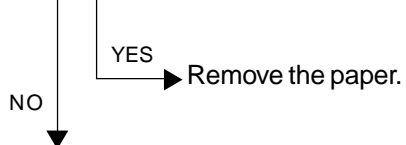
[E22] Paper fed from the 2nd cassette not reaching the registration sensor

[E30] Paper fed from the 3rd cassette not reaching the registration sensor

[E34] Paper fed from the 4th cassette not reaching the registration sensor

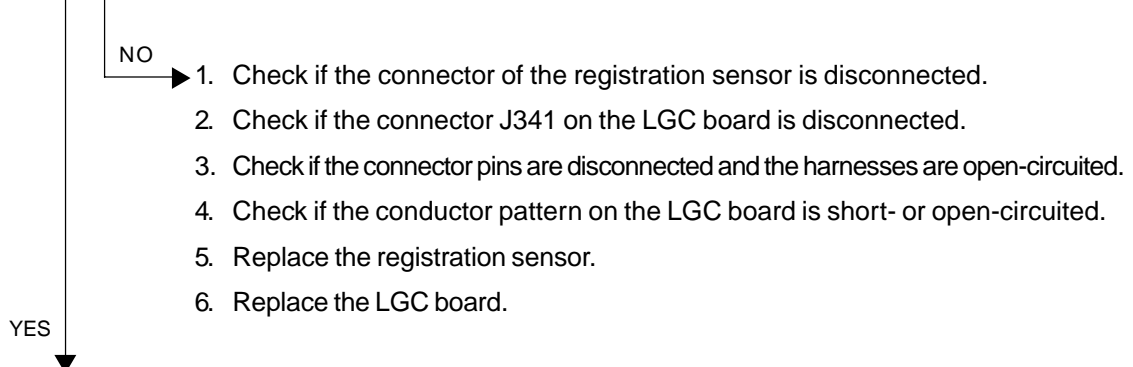
[E3C] Paper fed from the tandem LCF not reaching the registration sensor

Open the bypass unit cover. Is there paper in front of the registration sensor?

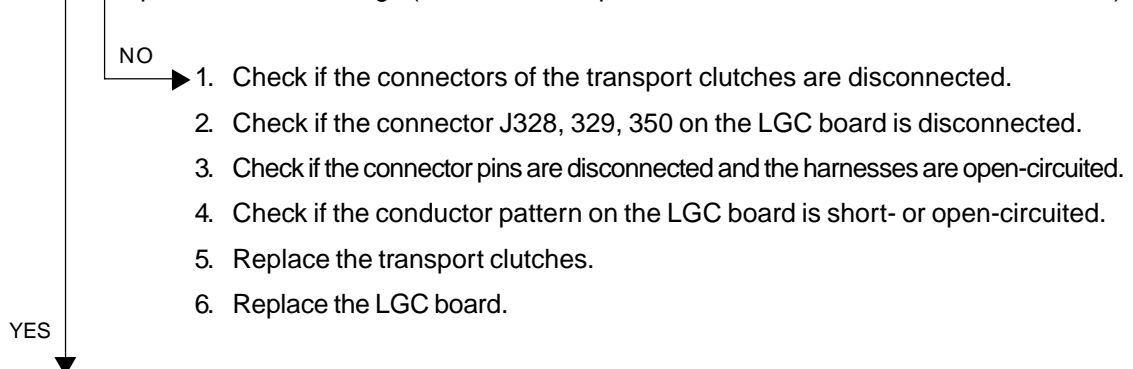


Is the registration sensor working?

(Perform the input check in the test mode: 03-[ENERGY SAVER]ON/[4]/[E])



Are the transport clutches working? (Perform the output check in the test mode: 03-202, 203, 210)



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

[E25] External LCF transport jam (paper not reaching the registration sensor)

Is there any paper before the registration sensor when the bypass unit cover is opened?

YES → Remove the paper.

NO ↓

Is the registration sensor working? (Perform the input check in the test mode: 03-[ENERGY SAVER]ON/[4]/[E])

NO →

1. Check if the registration connector is not disconnected.
2. Check if the connector J341 on the LGC board is not disconnected.
3. Check if the connector pins are not disconnected and the harness is not open-circuited.
4. Check if the conductor pattern on the LGC board is not short- or open-circuited.
5. Replace the registration sensor.
6. Replace the LGC board.

YES ↓

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

NO →

1. Check if the connector of the transport motor is not disconnected.
2. Check if the connectors J801~804 on the LCF board are not disconnected.
3. Check if there is any abnormality at the transport drive unit.

YES ↓

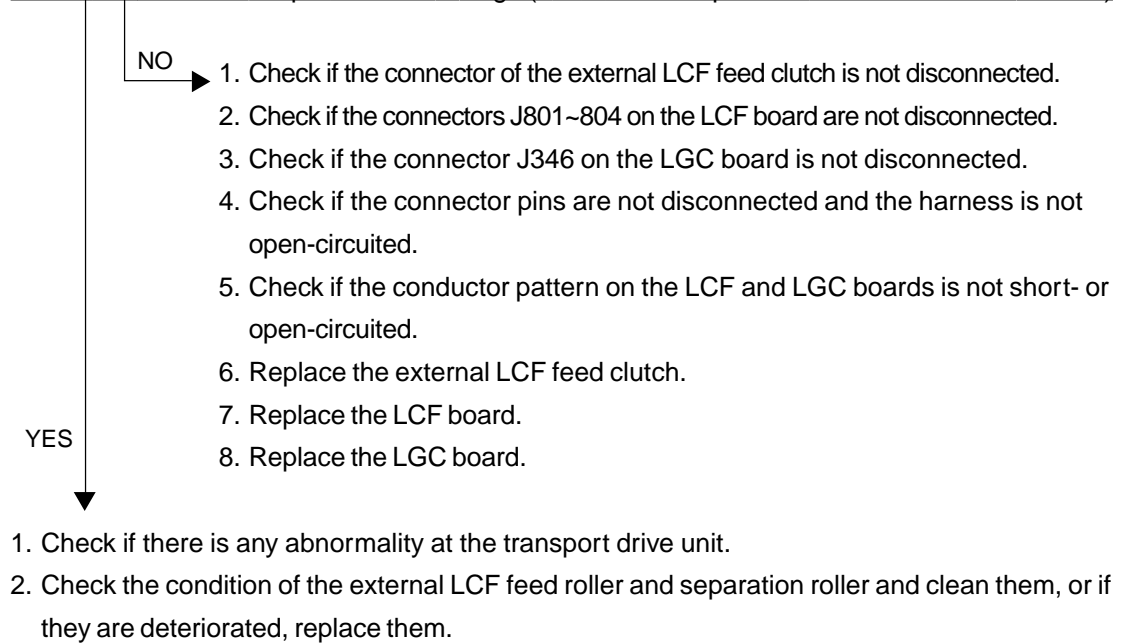
Is the external LCF feed clutch working? (Perform the output check in the test mode: 03-272)

NO →

1. Check if the external LCF clutch connector is not disconnected.
2. Check if the connectors J801~804 on the LCF board are not disconnected.
3. Check if the connector J346 on the LGC board is not disconnected.
4. Check if the connector pins are not disconnected and the harness is not open-circuited.
5. Check if the conductor pattern on the LCF and LGC boards is not short- or open-circuited.
6. Replace the external LCF feed clutch.
7. Replace the LCF board.
8. Replace the LGC board.

YES ↓

Is the external LCF transport clutch working? (Perform the output check in the test mode: 03-273)



[E21] Paper fed from the 1st cassette not reaching the 1st cassette transport sensor

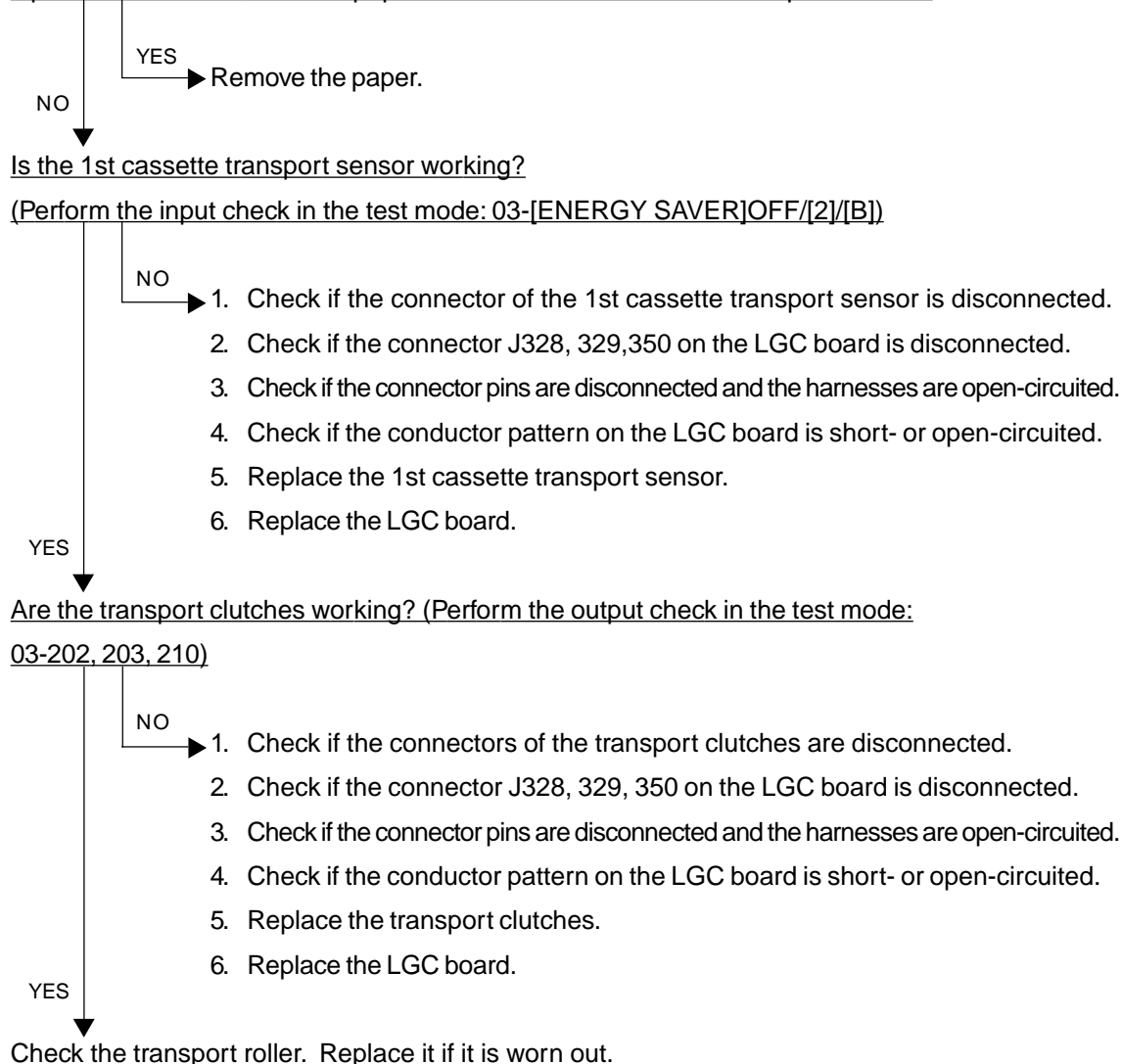
[E23] Paper fed from the 2nd cassette not reaching the 1st cassette transport sensor

[E31] Paper fed from the 3rd cassette not reaching the 1st cassette transport sensor

[E35] Paper fed from the 4th cassette not reaching the 1st cassette transport sensor

[E3D] Paper fed from the tandem LCF not reaching the 1st cassette transport sensor

Open the feed cover. Is there paper in front of the 1st cassette transport sensor?



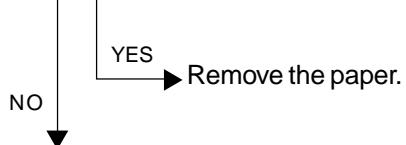
[E24] Paper fed from the 2nd cassette not reading the 2nd cassette transport sensor

[E32] Paper fed from the 3rd cassette not reaching the 2nd cassette transport sensor

[E35] Paper fed from the 4th cassette not reaching the 2nd cassette transport sensor

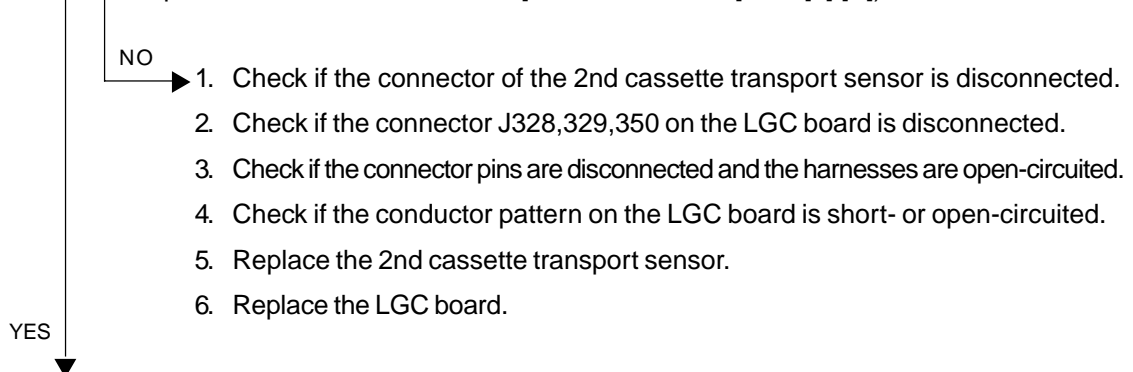
[E3E] Paper fed from the tandem LCF not reaching the 2nd cassette transport sensor

Open the feed cover. Is there paper in front of the 2nd cassette transport sensor?

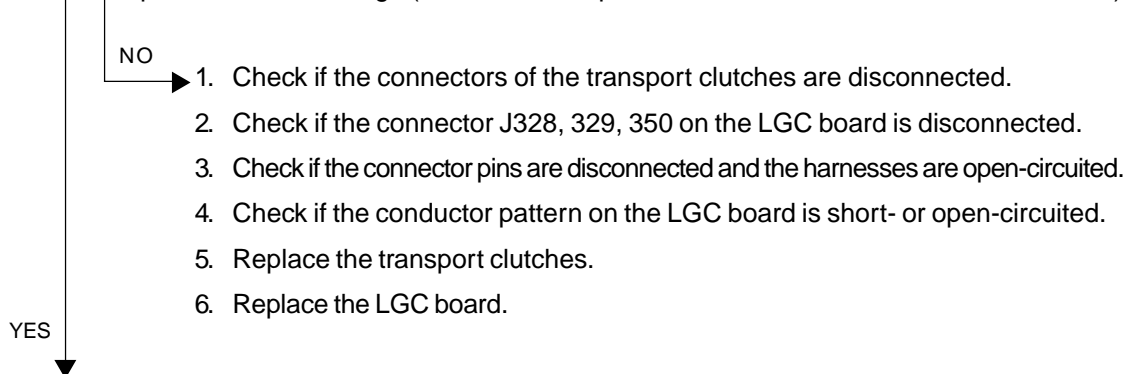


Is the 2nd cassette transport sensor working?

(Perform the input check in the test mode: 03-[ENERGY SAVER]OFF/[3]/[B])



Are the transport clutches working? (Perform the output check in the test mode: 03-203, 210, 226)



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

[E33] Paper fed from the 3rd cassette not reaching the 3rd cassette transport sensor

[E37] Paper fed from the 4th cassette not reaching the 3rd cassette transport sensor

Open the feed cover. Is there any paper in front of the 3rd cassette transport sensor?

YES
→ Remove the paper.

NO

Is the 3rd cassette transport sensor working?

(Perform the input check in the test mode: 03-[ENERGY SAVER]OFF/[4]/[B])

- NO
1. Check if the connector of the 3rd cassette transport sensor is disconnected.
 2. Check if the connector J328 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 patterns on the LGC board are short- or open-circuited.
 5. Replace the 3rd cassette transport sensor.
 6. Replace the LGC board.

YES

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

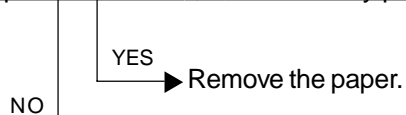
- NO
1. Check if the connector of the transport clutch is disconnected.
 2. Check if the connector J328, 329, 350 on the LGC board is disconnected.
 3. Check if the connector pins are disconnected and the harnesses are open-circuited.
 4. Check if the conductor patterns on the LGC board are short- or open-circuited.
 5. Replace the transport clutch.
 6. Replace the LGC board.

YES

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

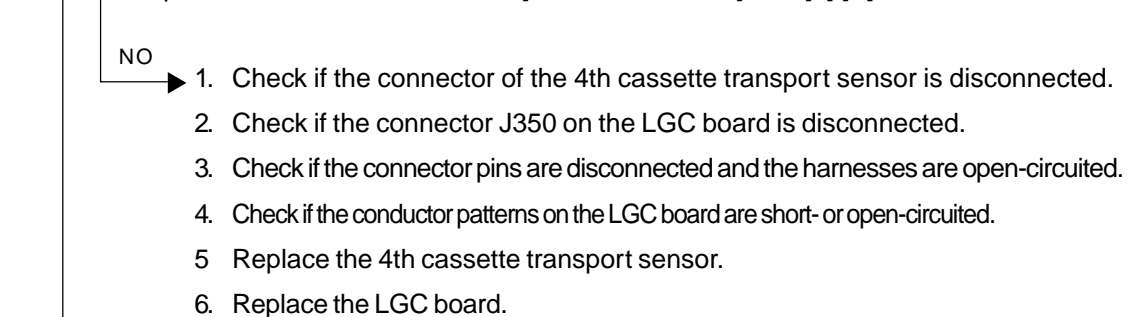
[E38] Paper fed from the 4th cassette not reaching the 4th cassette transport sensor

Open the feed cover. Is there any paper in front of the 4th cassette transport sensor?

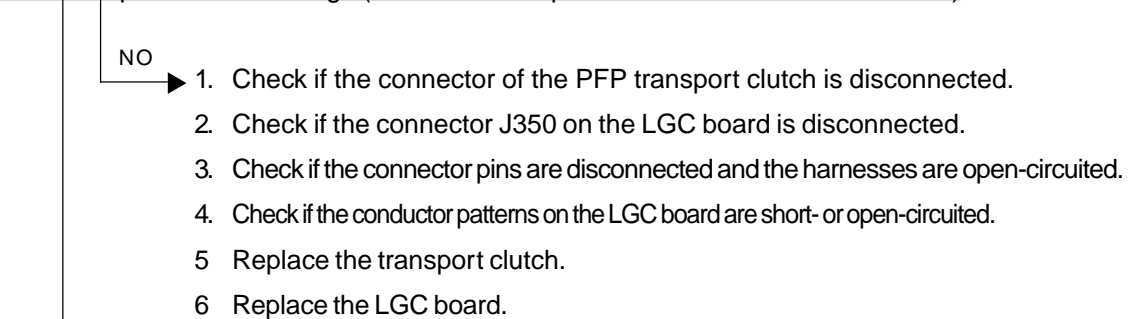


Is the 4th cassette transport sensor working?

(Perform the input check in the test mode: 03-[ENERGY SAVER]OFF/[5]/[B])



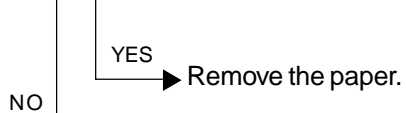
Is the transport clutch working? (Perform the output check in the test mode: 03-225)



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

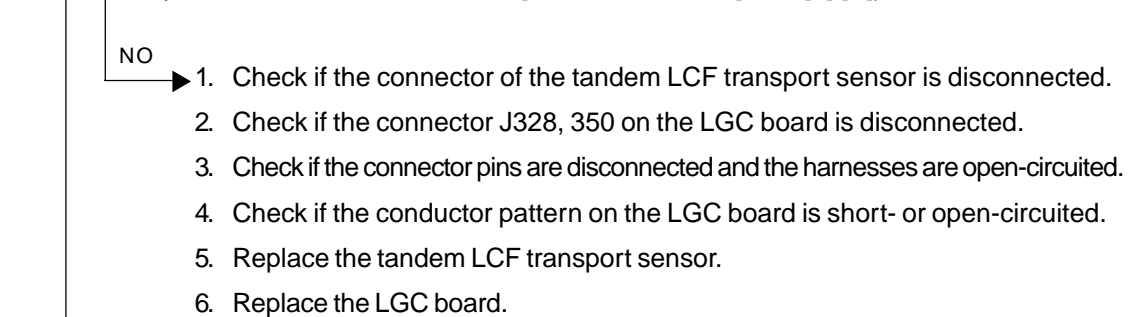
[E3F] Paper fed from the tandem LCF not reading the tandem LCF transport sensor

Open the feed cover. Is there paper in front of the tandem LCF transport sensor?

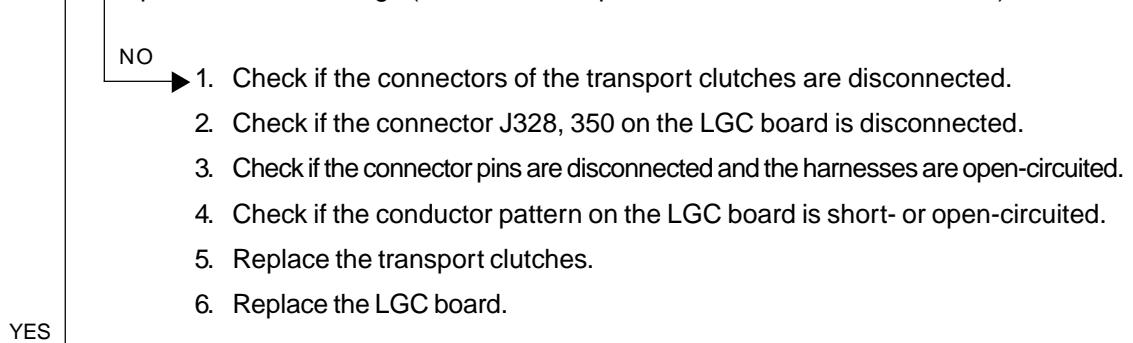


Is the tandem LCF transport sensor working?

(Perform the input check in the test mode: 03-[ENERGY SAVER]OFF/[4]/[B])



Are the transport clutches working? (Perform the output check in the test mode: 03-225)



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

[EB5] Paper left on the transport path

In case an paper is fed from the 1st cassette, bypass feed unit or reversed paper transport section:

Open the bypass unit 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-[ENERGY SAVER]ON/[4]/[E])

NO

1. Check if the connector of the registration sensor is disconnected.
2. Check if the connector J341 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 2nd, 3rd, 4th or tandem LCF:

Open the feed cover. Is there any paper in front of the 1st cassette transport sensor?

YES
→ Remove the paper.

NO

Is the 1st cassette transport sensor working?

(Perform the input check in the test mode: 03-[ENERGY SAVER]OFF/[2]/[B])

NO

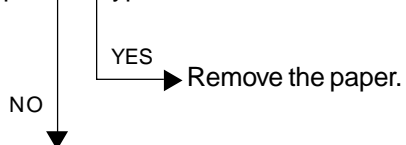
1. Check if the connector of the 1st cassette transport sensor is disconnected.
2. Check if the connector J329 on the LGC board is disconnected.
3. Check if the connector pins are disconnected and the harnesses are open-circuited.
4. Check if the conductor pattern on the LGC board is short- or open-circuited.
5. Replace the 1st cassette transport sensor.
6. Replace the LGC board.

YES

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

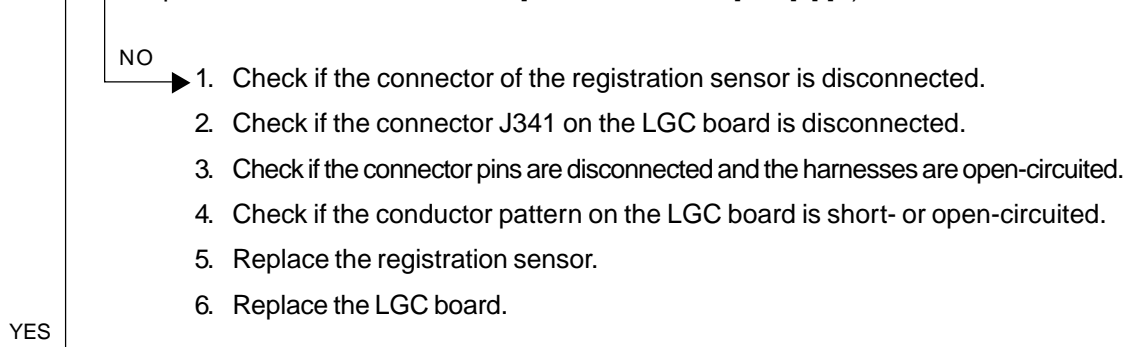
[EB6] Paper left on the transport path

Open the bypass unit cover. Is there any paper in front of the registration sensor?



Is the registration sensor working?

(Perform the input check in the test mode: 03-[ENERGY SAVER]ON/[4]/[E])

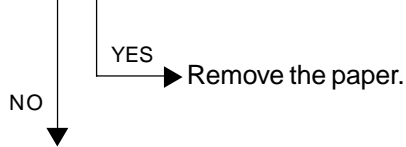


Check the rollers. Replace them if they are worn out.

5.1.2 Paper misfeeding

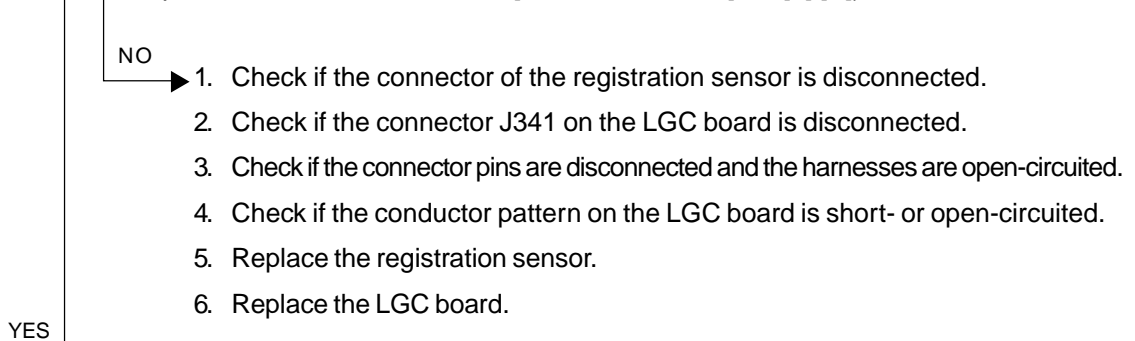
[E11] Reversed paper transport jam (paper not reaching the registration sensor at the duplex printing)

Open the bypass unit cover. Is there any paper in front of the registration sensor?



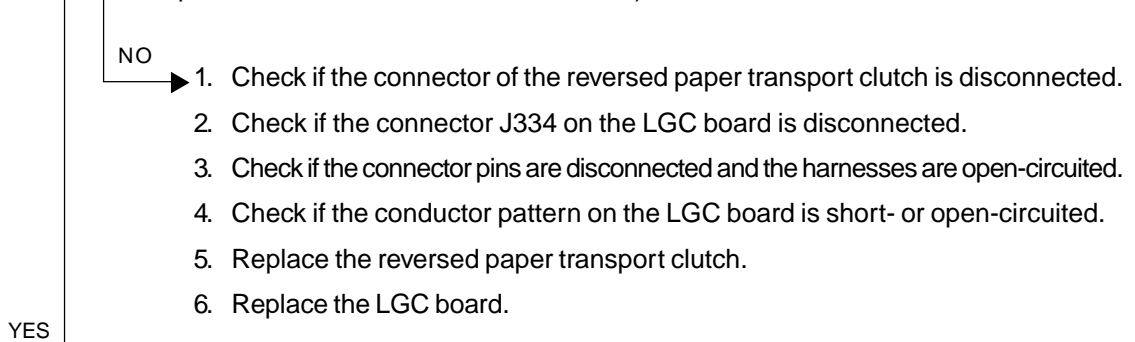
Is the registration sensor working?

(Perform the input check in the test mode: 03-[ENERGY SAVER]ON/[4]/[E])



Is the reversed paper transport clutch working?

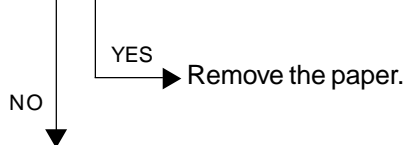
(Perform the output check in the test mode: 03-220, 221)



Check the rollers in the reversed papaer transport section. Replace them if they are worn out.

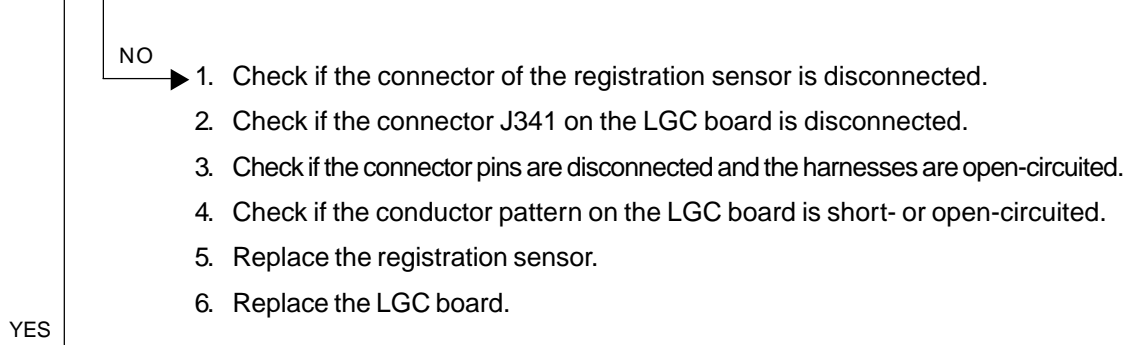
[E12] Bypass misfeeding (paper not reaching the registration sensor)

Open the bypass unit cover. Is there any paper in front of the registration sensor?

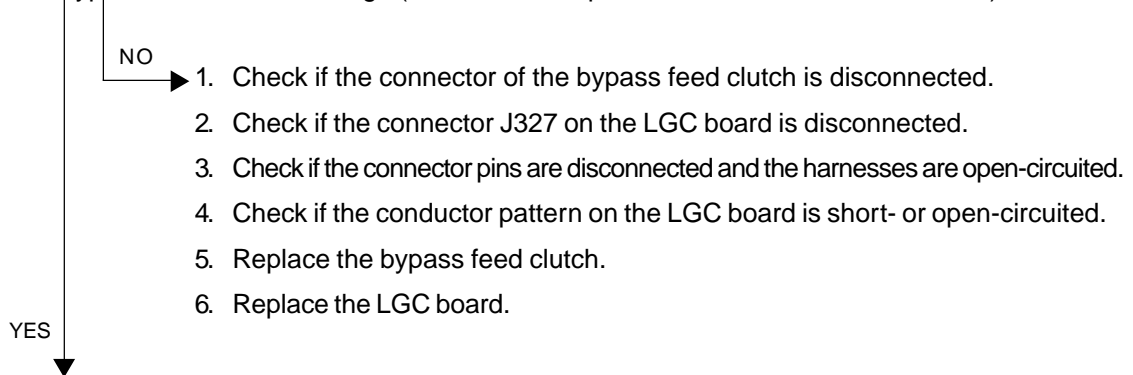


Is the registration sensor working?

(Perform the input check in the test mode: 03-[ENERGY SAVER]ON/[4]/[E])



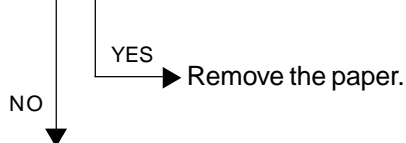
Is the bypass feed clutch working? (Perform the output check in the test mode: 03-204)



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

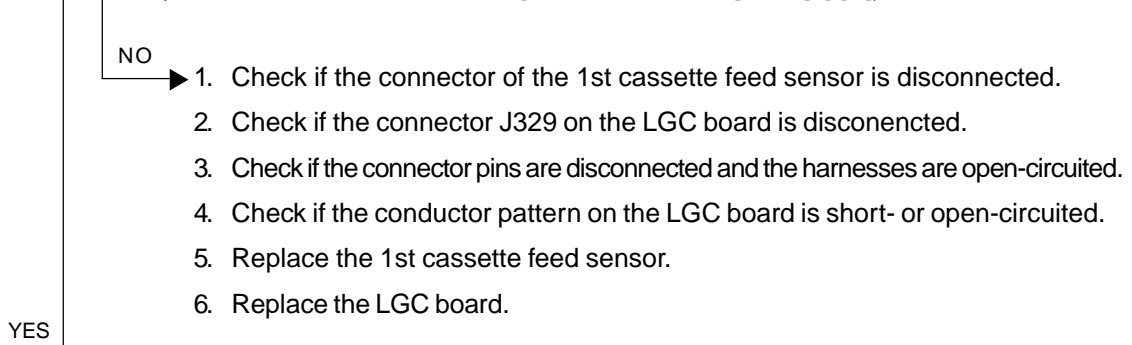
[E13] 1st cassette misfeeding (paper not reaching the 1st cassette feed sensor)

Open the feed cover. Is there any paper in front of the 1st cassette feed sensor?



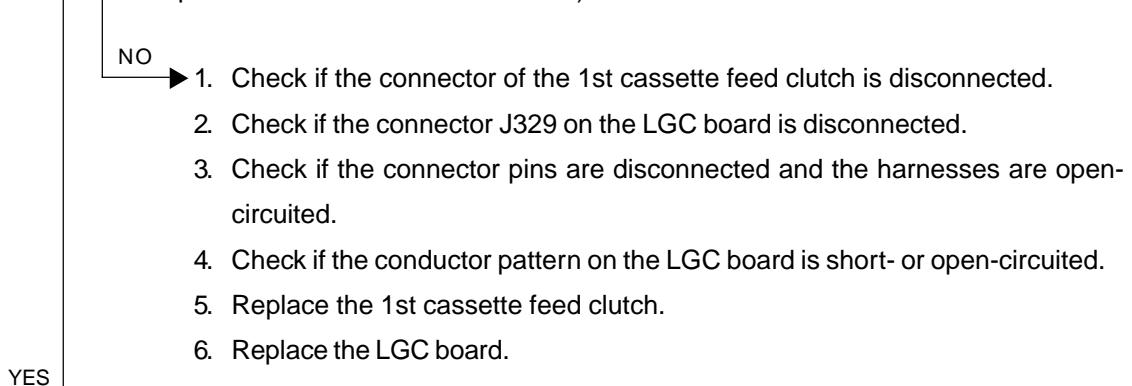
Is the 1st cassette feed sensor working?

(Perform the input check in the test mode: 03-[ENERGY SAVER]OFF/[2]/[B])



Is the 1st cassette feed clutch working?

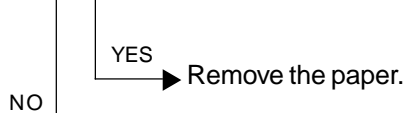
(Perform the output check in the test mode: 03-201)



Check the 1st cassette feed roller and separation roller. Replace them if they are worn out.

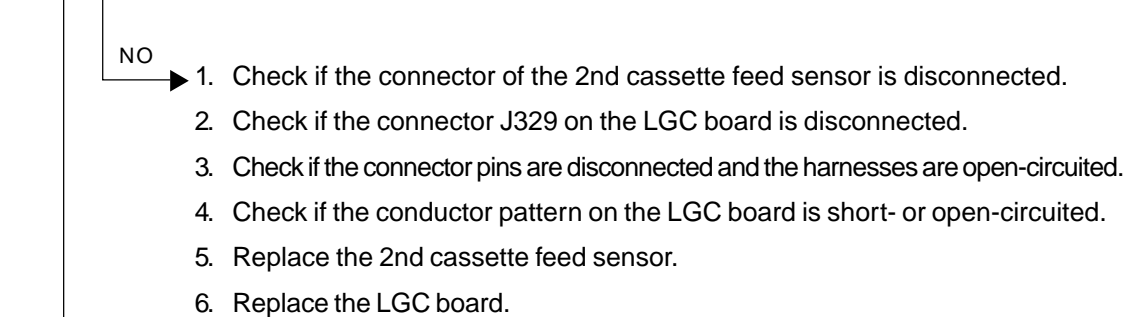
[E14] 2nd cassette misfeeding (paper not reaching the 2nd cassette feed sensor)

Open the feed cover. Is there any paper in front of the 2nd cassette feed sensor?



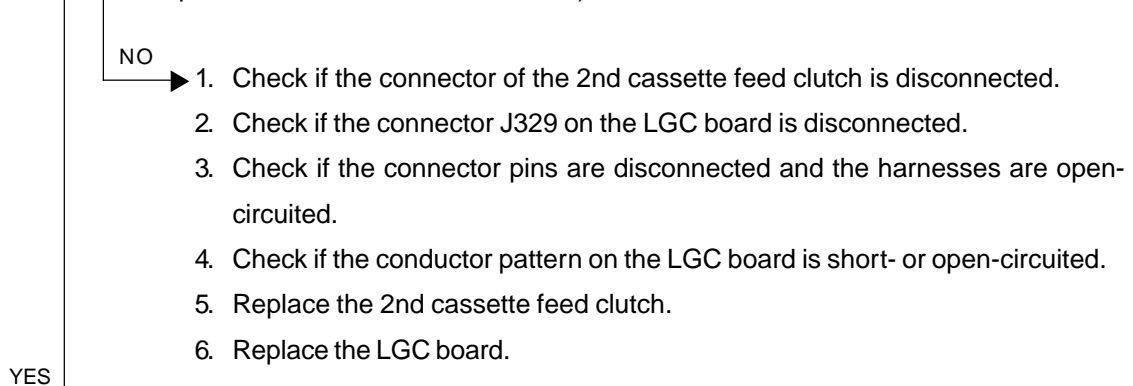
Is the 2nd cassette feed sensor working?

(Perform the input check in the test mode: 03-[ENERGY SAVER]OFF/[3]/[B])



Is the 2nd cassette feed clutch working?

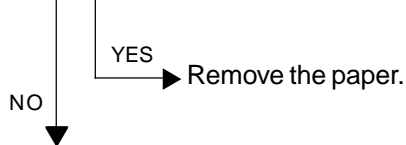
(Perform the output check in the test mode: 03-202)



Check the 2nd cassette feed roller and separation roller. Replace them if they are worn out.

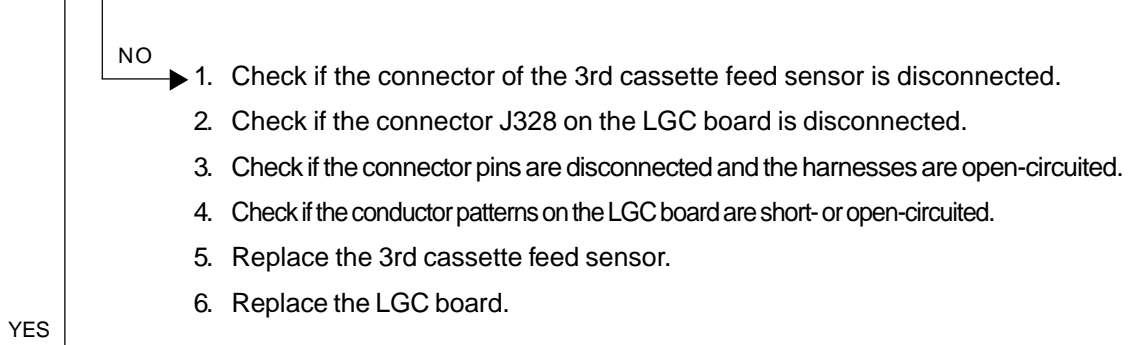
[E15] 3rd cassette misfeeding (paper not reaching the 3rd cassette feed sensor)

Open the feed cover. Is there any paper in front of the 3rd cassette feed sensor?

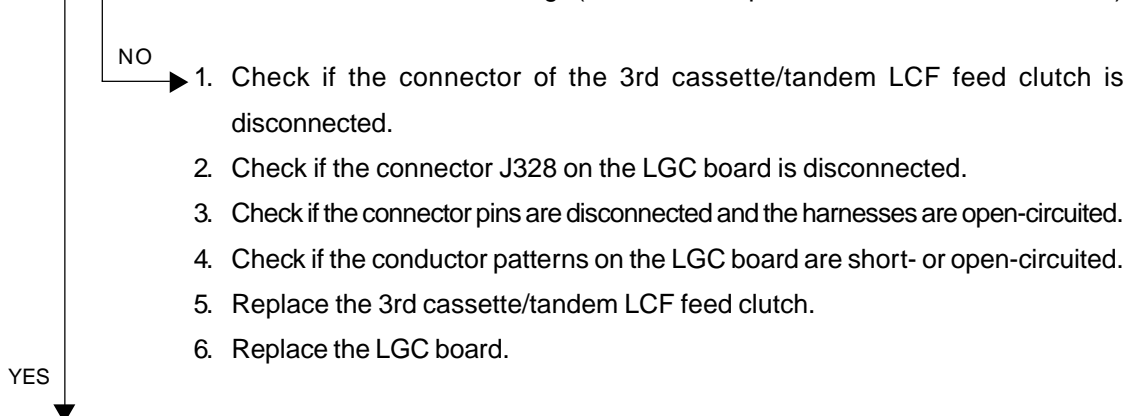


Is the 3rd cassette feed sensor working?

(Perform the input check in the test mode: 03-[ENERGY SAVER]OFF/[4]/[B])



Is the 3rd cassette/tandem LCF feed clutch working? (Perform the output check in the test mode: 03-226)



Check the 3rd cassette/tandem LCF feed roller and separation roller. Replace them if they are worn out.

[E16] 4th cassette misfeeding (paper not reaching the 4th cassette feed sensor)

Open the feed cover. Is there any paper in front of the 4th cassette feed sensor?

YES → Remove the paper.

NO ↓

Is the 4th cassette feed sensor working?

(Perform the input check in the test mode: 03-[ENERGY SAVER]OFF/[5]/[B])

NO →

1. Check if the connector of the 4th cassette feed sensor is disconnected.
2. Check if the connector J350 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 patterns on the LGC board are short- or open-circuited.
5. Replace the LGC board.
6. Replace the 4th cassette feed sensor.

YES ↓

Is the 4th cassette feed clutch working?

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

NO →

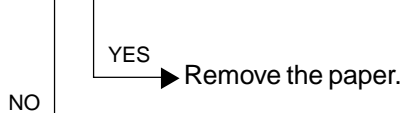
1. Check if the connector of the 4th cassette feed clutch is disconnected.
2. Check if the connector J350 on the LGC board is disconnected.
3. Check if the connector pins are disconnected and the harnesses are open-circuited.
4. Check if the conductor patterns on the LGC board are short- or open-circuited.
5. Replace the 4th cassette feed clutch.
6. Replace the LGC board.

YES ↓

Check the 4th cassette feed roller and separation roller. Replace them if they are worn out.

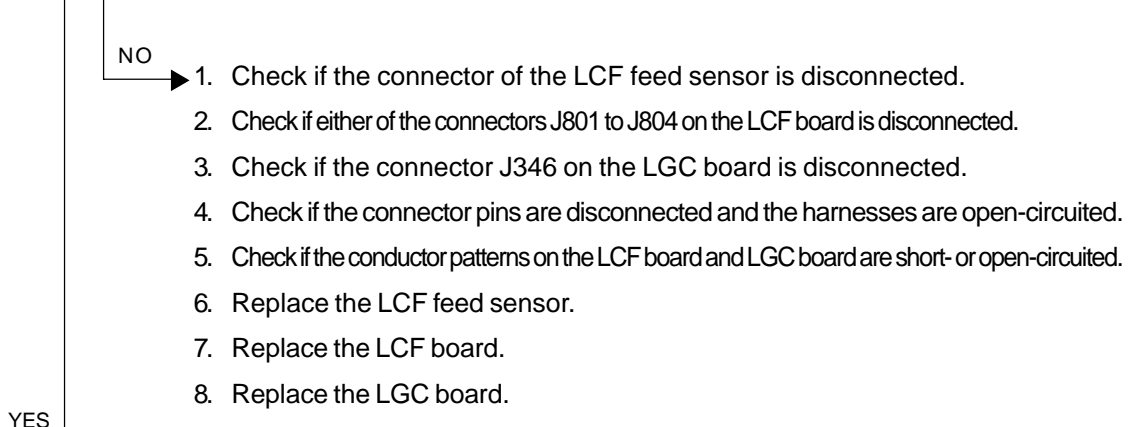
[E19] LCF misfeeding (paper not reaching the LCF feed sensor)

Open the LCF (release from the copier) side cover. Is there any paper in front of the LCF feed sensor?



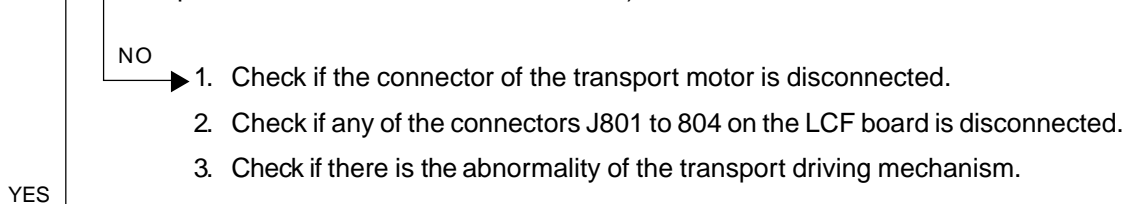
Is the LCF feed sensor working?

(Perform the input check in the test mode: 03-[ENERGY SAVER]OFF/[1]/[B])

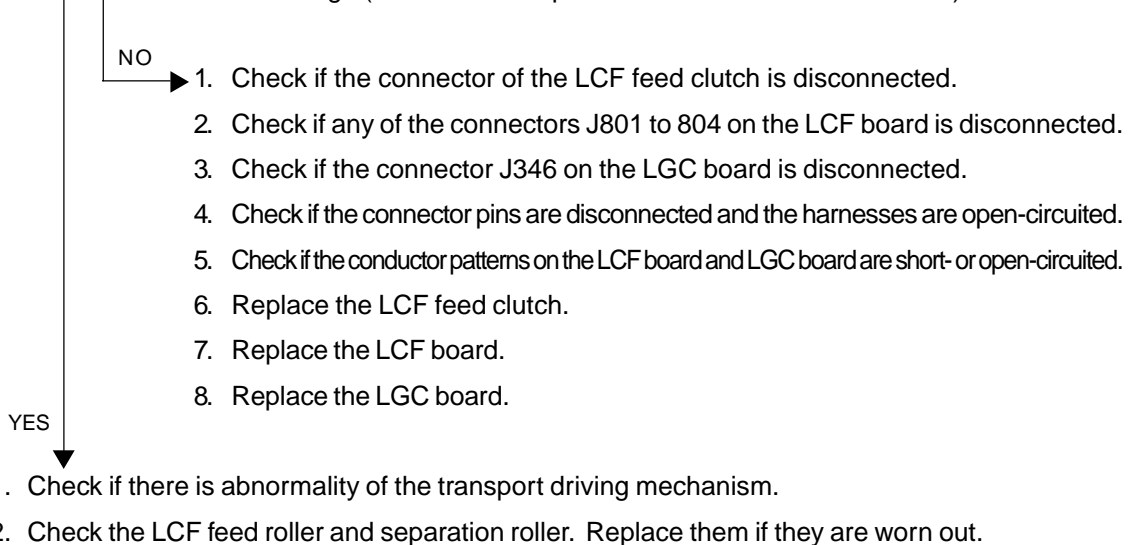


Is the LCF transport motor working?

(Perform the output check in the test mode: 03-122/172)

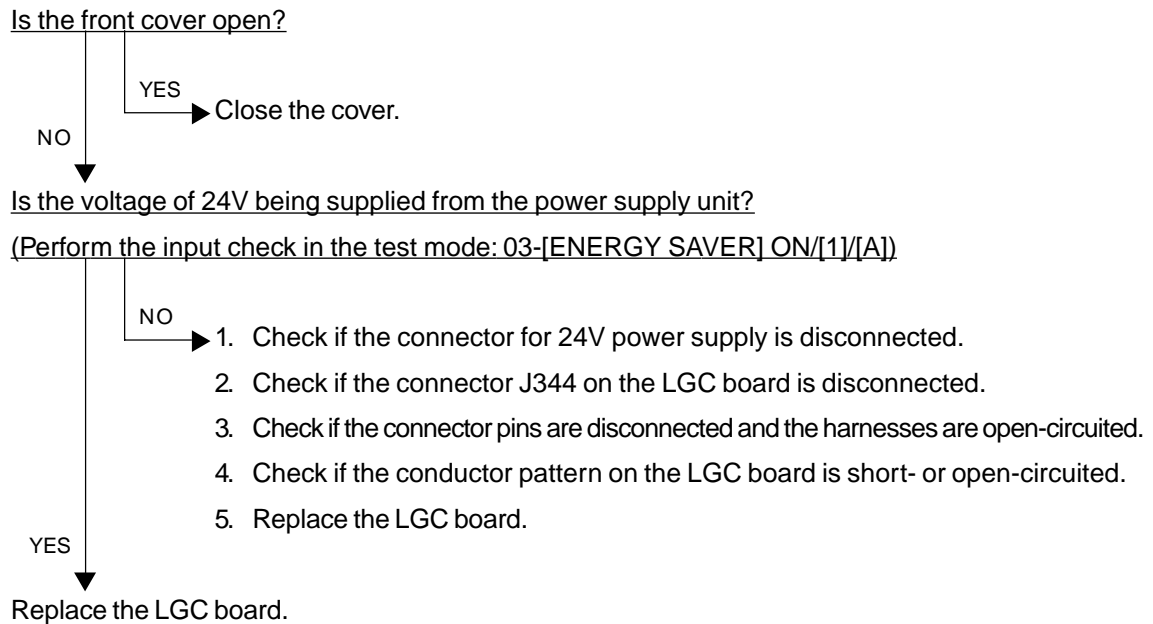


Is the LCF feed clutch working? (Perform the output check in the test mode: 03-272)

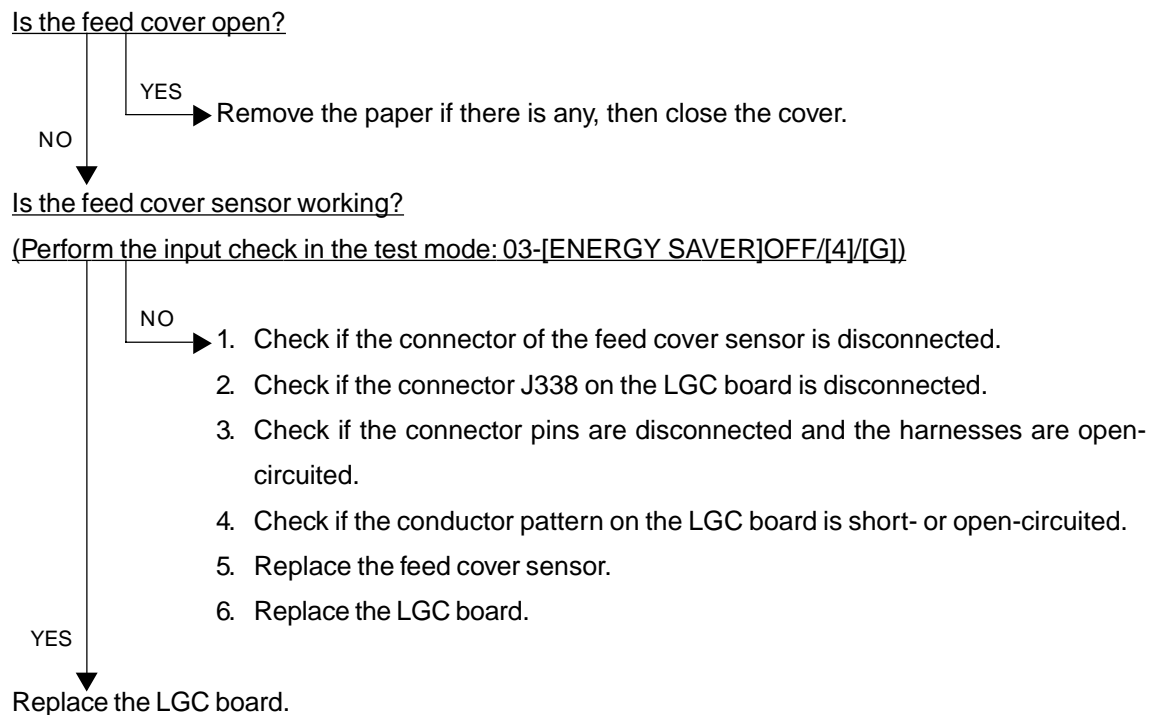


5.1.3 Cover open jam

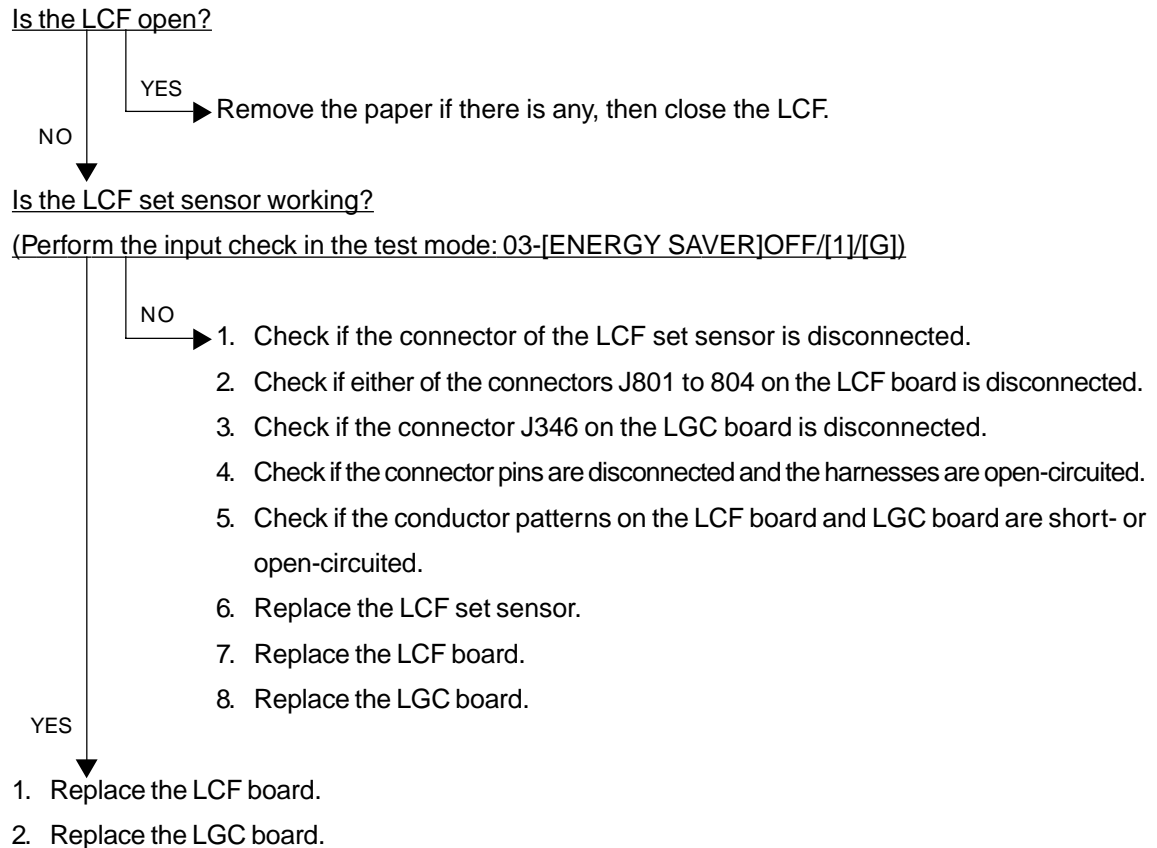
[E41] Front cover opened during printing



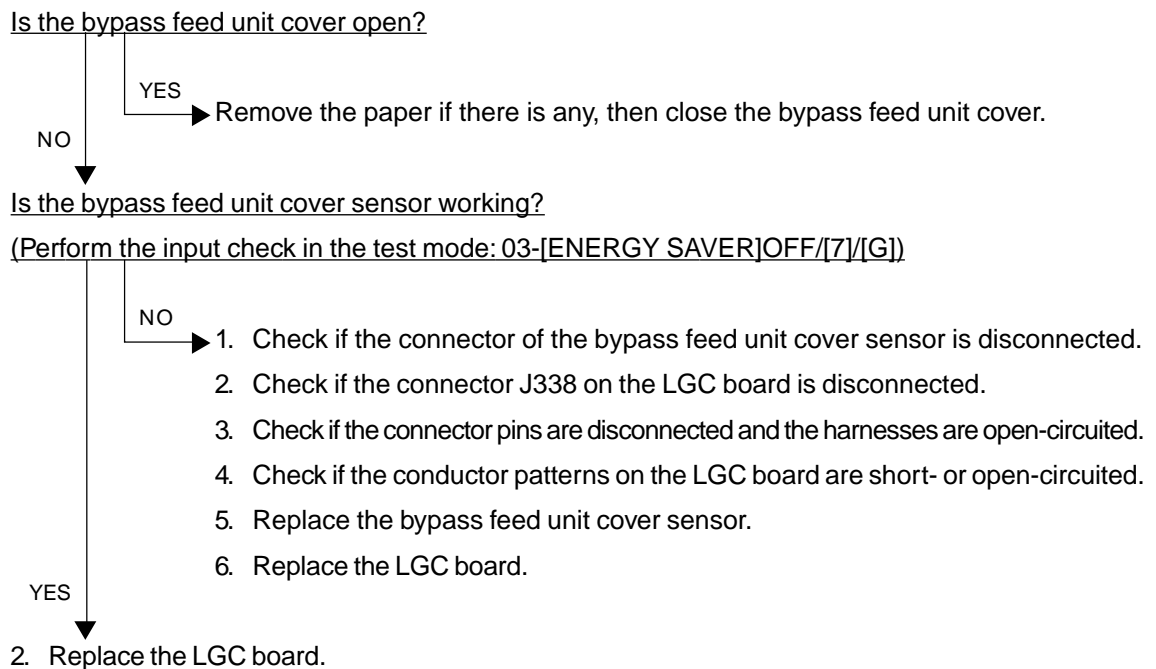
[E44] Feed cover opened during printing



[E45] LCF opened during printing

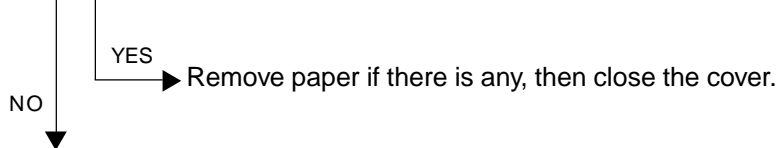


[E46] Bypass feed unit cover opened during printing



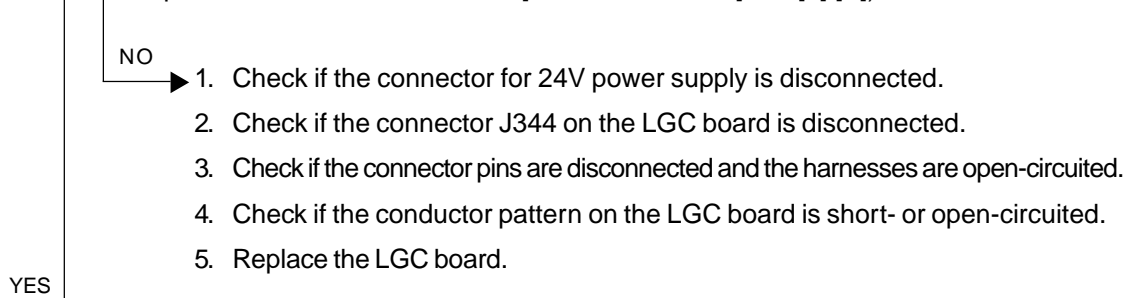
[E47] Feed cover opened during printing

Is the feeds cover close?



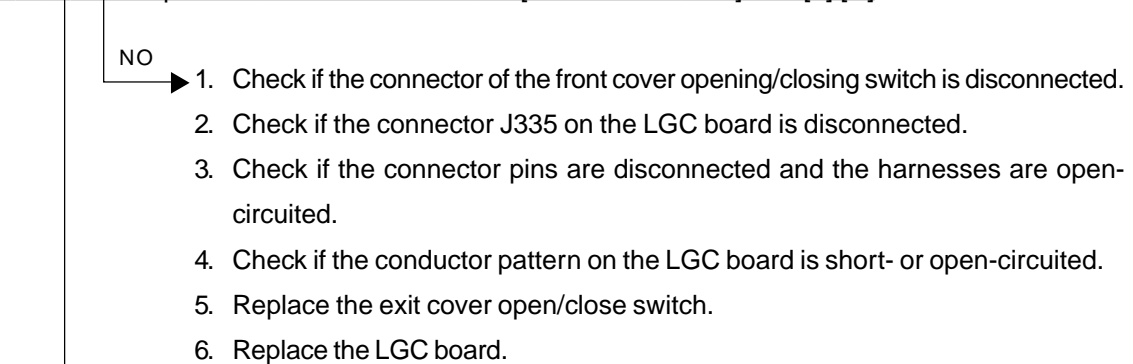
Is the voltage of 24V being supplied from the power supply unit?

(Perform the input check in the test mode: 03-[ENERGY SAVER] ON/[1]/[A])



Is the exit cover open/close switch working?

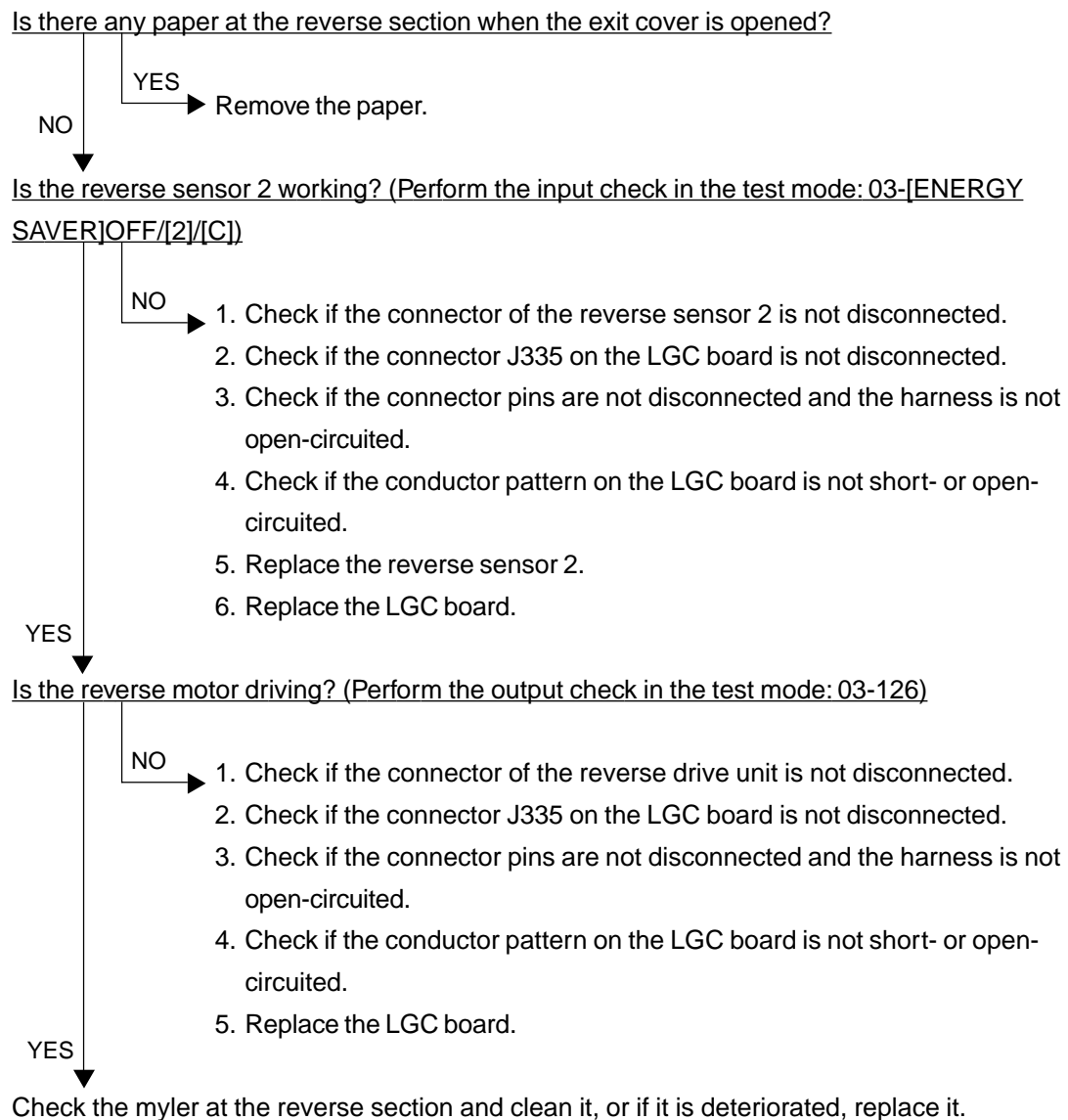
(Perform the input check in the test mode: 03-[ENERGY SAVER]OFF/[6]/[H])



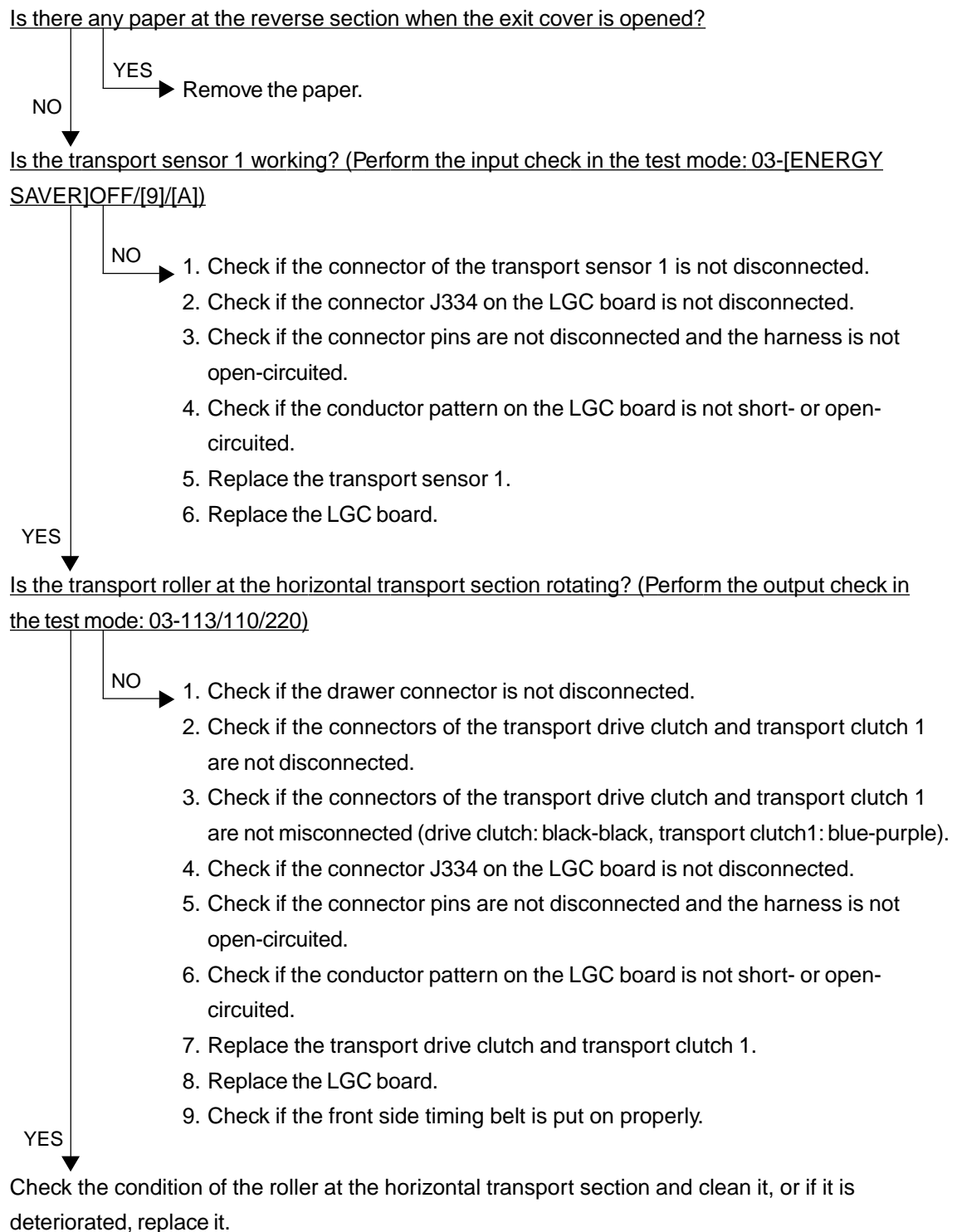
Replace the LGC board.

5. 1. 4. Jams at exit/reverse section and other transport jams

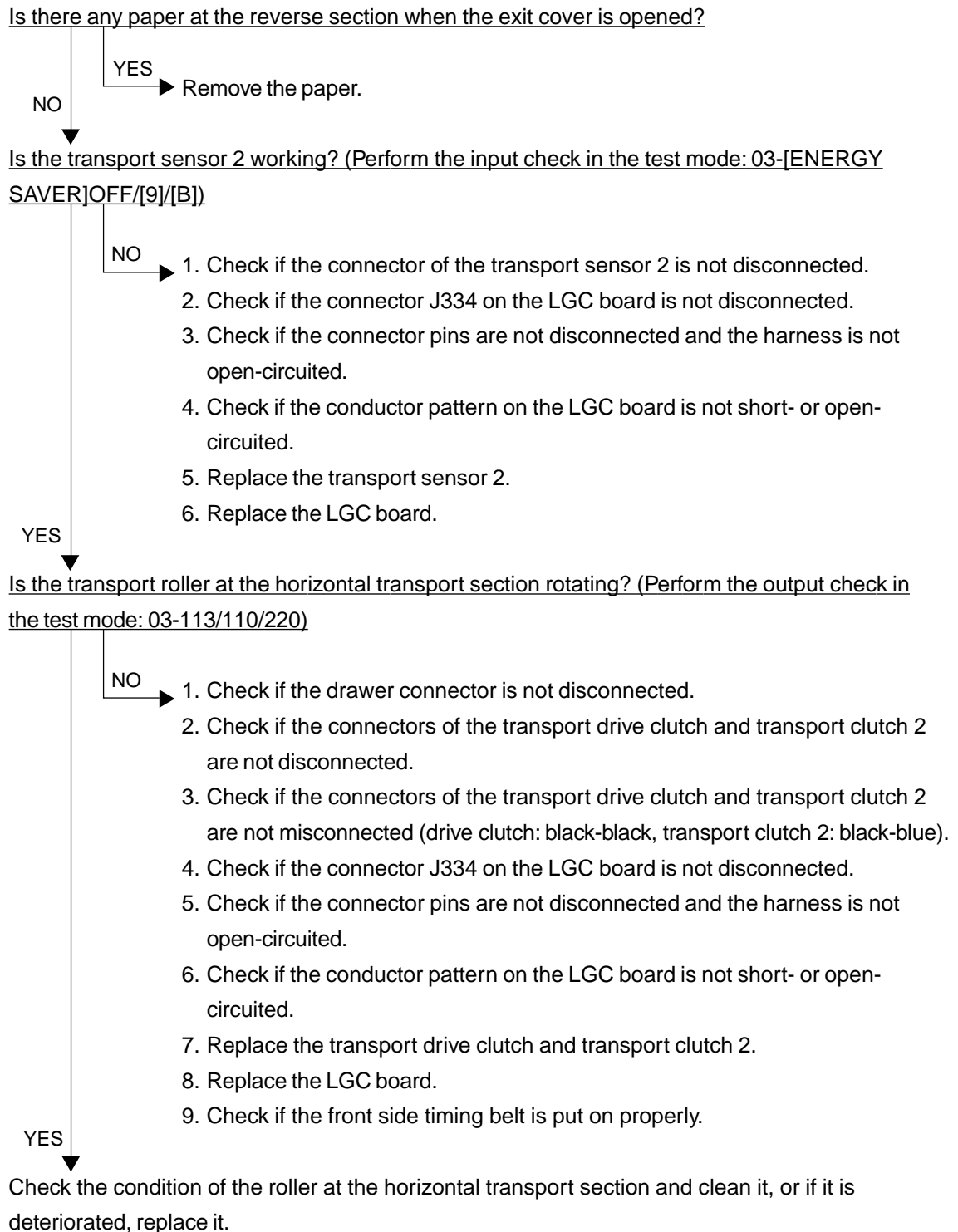
[E50] Leading edge of paper not reaching the reverse sensor 2



[E51] Leading edge of paper not reaching the transport sensor 1

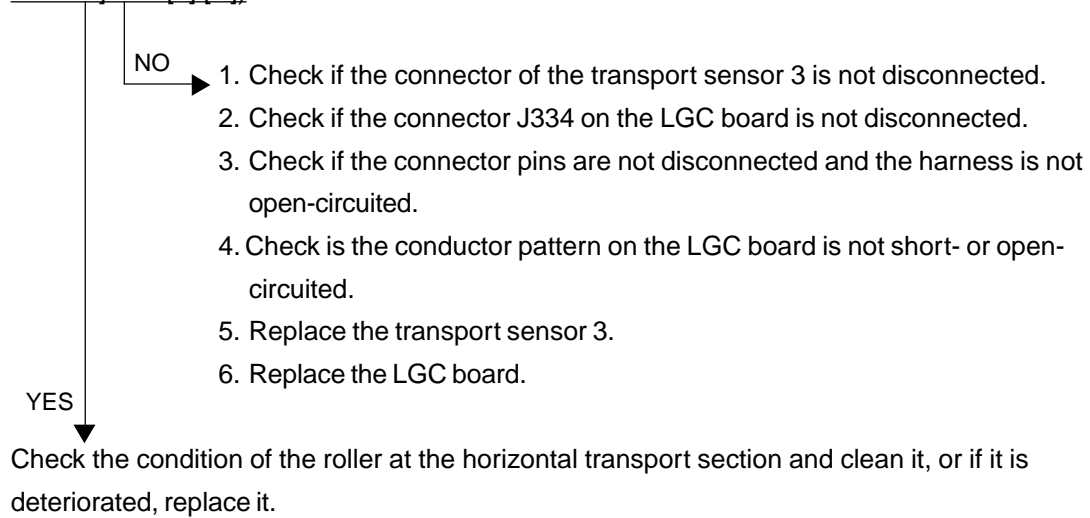


[E52] Leading edge of paper not reaching the transport sensor 2



[E54] Leading edge of paper not reaching the transport sensor 3

Is the transport sensor 3 working? (Perform the input check in the test mode: 03-[ENERGY SAVER]OFF/[9]/[C])



[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.

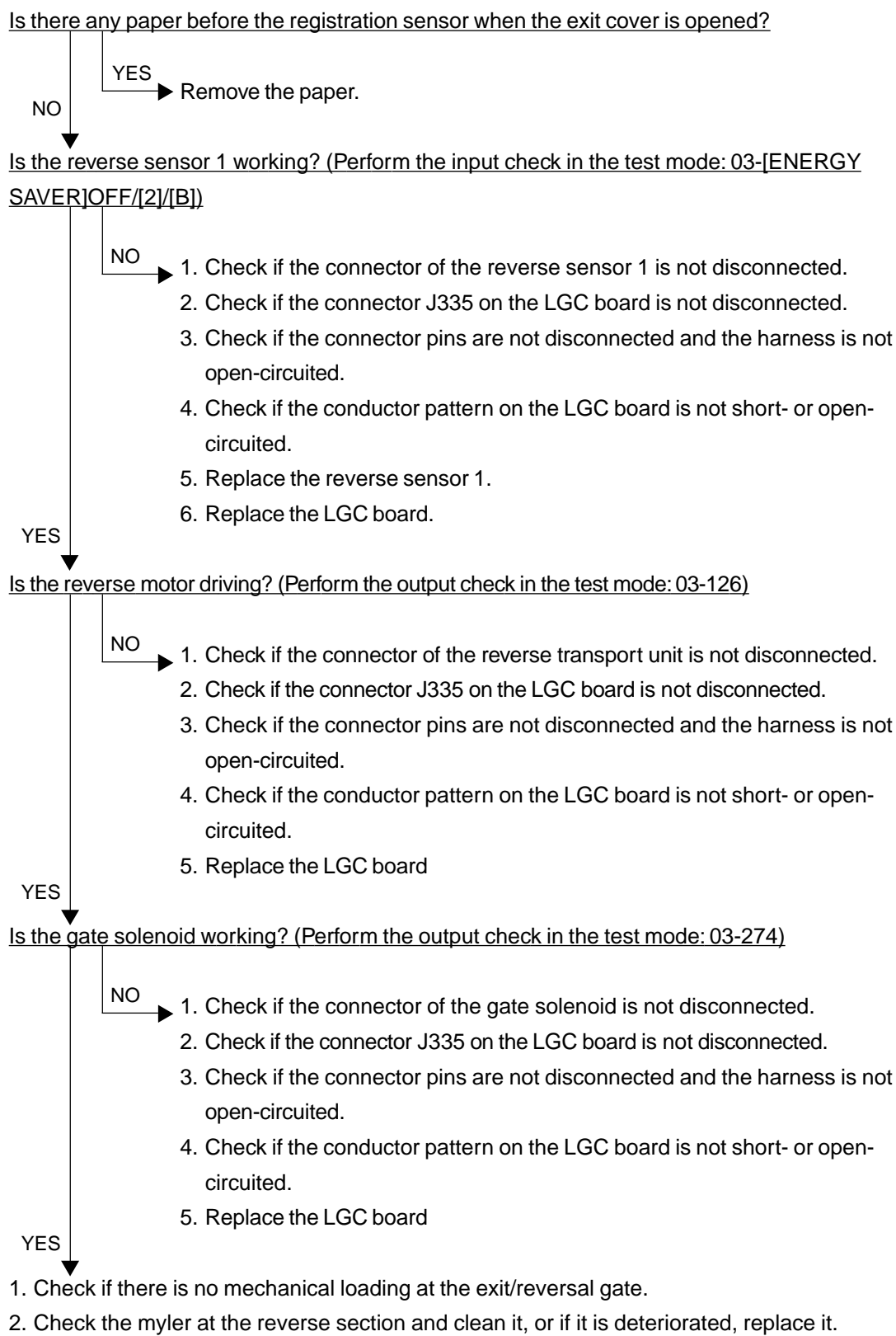
YES

Replace the LGC board.

Relation between the jamming area and the corresponding sensors

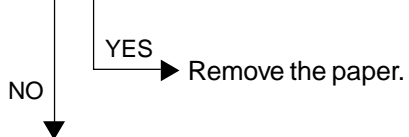
Jamming area	Sensor	Test mode/Input check
Registration area	Registration sensor	03-[ENERGY SAVER]ON[4][E]
Exit/reverse area	Exit sensor	03-[ENERGY SAVER]OFF[6][G]
	Reversal sensor 1	03-[ENERGY SAVER]OFF[6][C]
Reverse transport area	Reversal sensor 2	03-[ENERGY SAVER]OFF[6][B]
	Transport sensor 1	03-[ENERGY SAVER]OFF[0][C]
	Transport sensor 2	03-[ENERGY SAVER]OFF[0][A]
	Transport sensor 3	03-[ENERGY SAVER]OFF[0][B]
Paperfeeding area	1st cassette feed sensor	03-[ENERGY SAVER]OFF[2][A]
	2nd cassette feed sensor	03-[ENERGY SAVER]OFF[3][A]
	3rd cassette/Tandem LCF feed sensor	03-[ENERGY SAVER]OFF[4][A]
	4th cassette/Tandem LCF feed sensor	03-[ENERGY SAVER]OFF[5][A]
	1st cassette transport sensor	03-[ENERGY SAVER]OFF[2][B]
	2nd cassette transport sensor	03-[ENERGY SAVER]OFF[3][B]
	3rd cassette/Tandem LCF transport sensor	03-[ENERGY SAVER]OFF[4][B]
	4th cassette/Tandem LCF transport sensor	03-[ENERGY SAVER]OFF[5][B]

[E57] Leading edge of paper not reaching the reverse sensor 1

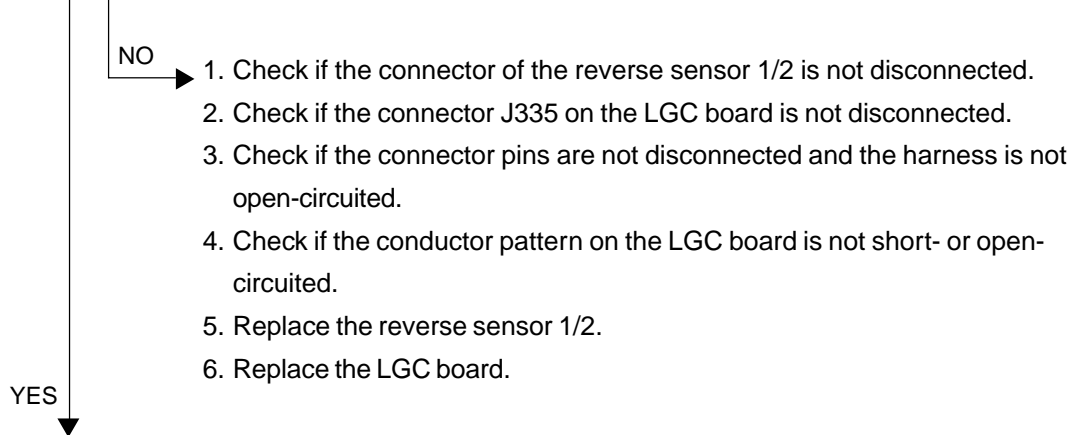


[E58] Trailing edge of paper not passing the reverse sensor 1/2

Is there any paper at the reverse section when the exit cover is opened?



Is the reverse sensor 1/2 working? (Perform the input check in the test mode: 03-[ENERGY SAVER]OFF/[2]/[B], [2]/[C])

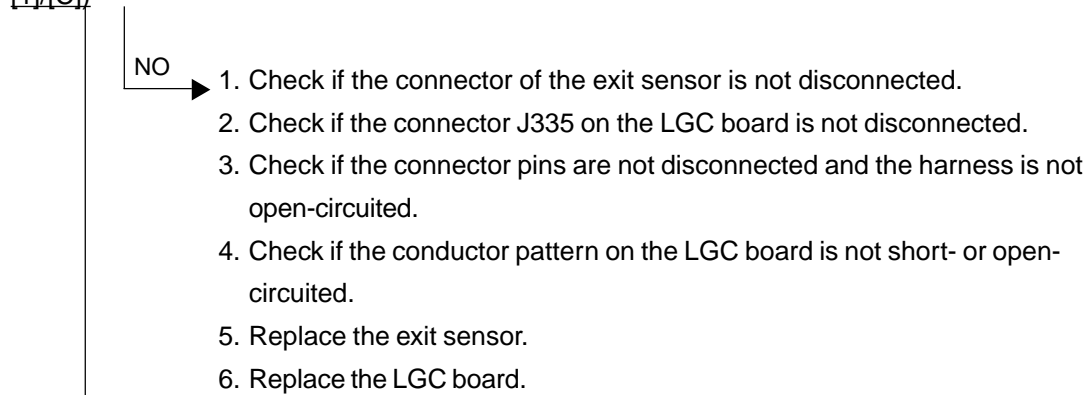


1. Check if the setting of the paper size is correct.
2. Check the condition of the roller at the reverse section and clean it, or if it is deteriorated, replace it.
3. Check if there is no mechanical loading at the follower roller and no abnormality at the myler.
4. Check if the adjustment of the reverse motor speed (05-426/427) is appropriate.

[E59] Leading edge of paper not reaching the exit sensor

Is the exit sensor working? (Perform the input check in the test mode: 03-[ENERGY SAVER]ON/

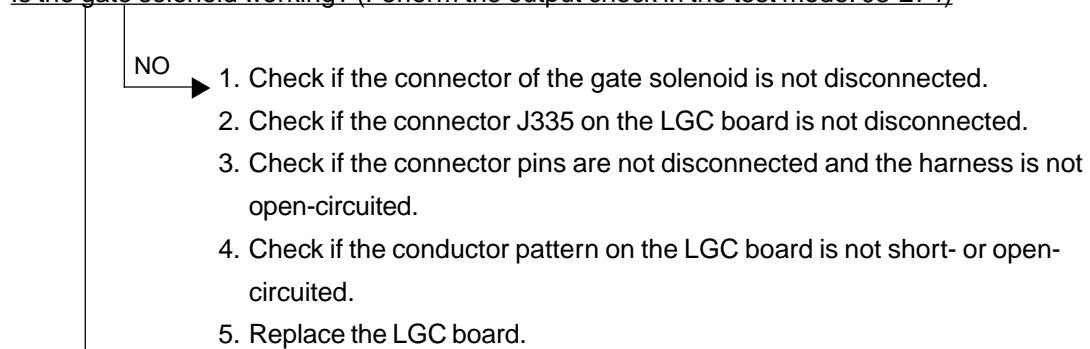
[1]/[C])



YES

<Simple discharging>

Is the gate solenoid working? (Perform the output check in the test mode: 03-274)



YES

Replace the LGC board.

<Reversal discharging>

1. Check if the setting of the paper size is correct.
2. Check if there is no abnormality and extraneous material at the guide and myler in front of the exit roller.

[E5A] Trailing edge of paper not passing the exit sensor

Is there any paper at the reverse section when the exit cover is opened?

YES → Remove the paper.

NO

Is the exit motor driving? (Perform the output check in the test mode: 03-120)

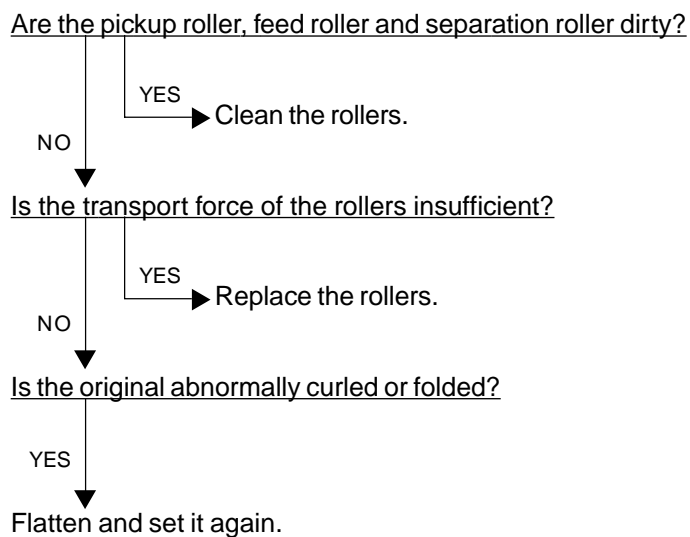
- NO →
1. Check if the connector of the exit motor is not disconnected.
 2. Check if the connector J336 on the LGC board is not disconnected.
 3. Check if the connector pins are not disconnected and the harness is not open-circuited.
 4. Check if the conductor pattern on the LGC board is not short- or open-circuited.
 5. Replace the LGC board.

YES

1. Check if the setting of the paper size is correct.
2. Check if there is no abnormality and extraneous material at the guide and myler in front of the exit roller.
3. Check if there is no mechanical loading at the exit follower roller.

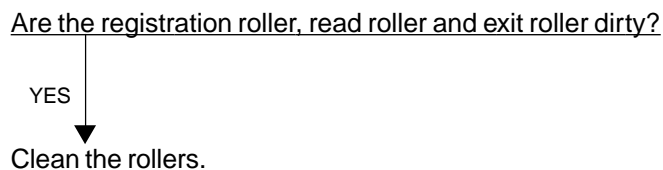
5.1.5 Original jam in RADF

[E71] Original feeding jam

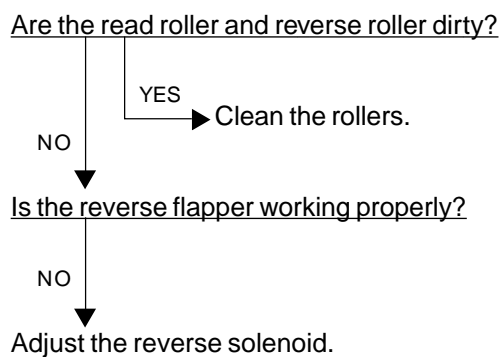


[E72] Original transport jam

[E73] Original discharging jam



[E74] Original reversing jam



[E76] Short-sized original exit jam

Are the registration roller, read roller, intermediate transport roller and small original reverse roller tainted?



Are the small original exit flapper and small original reverse flapper operating normally?

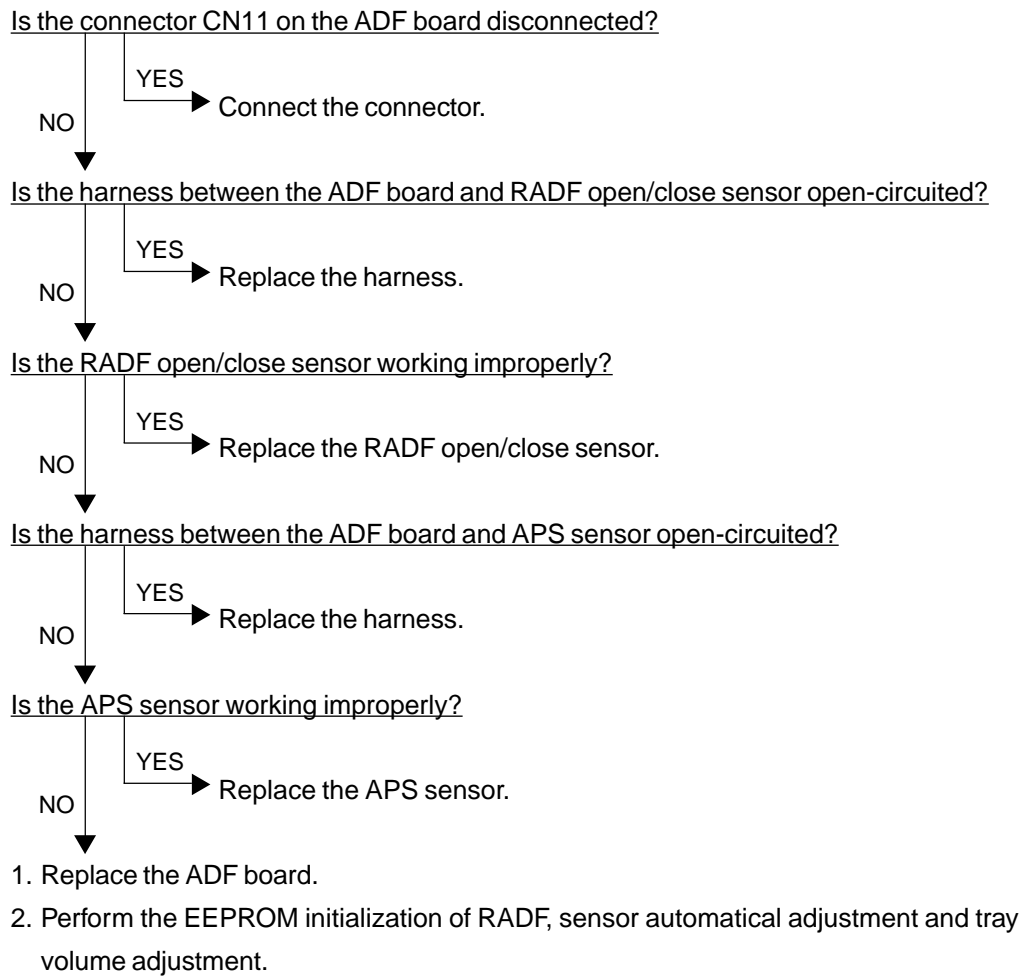
Adjust the small original exit solenoid.

[E77] Transport jam at scanning section

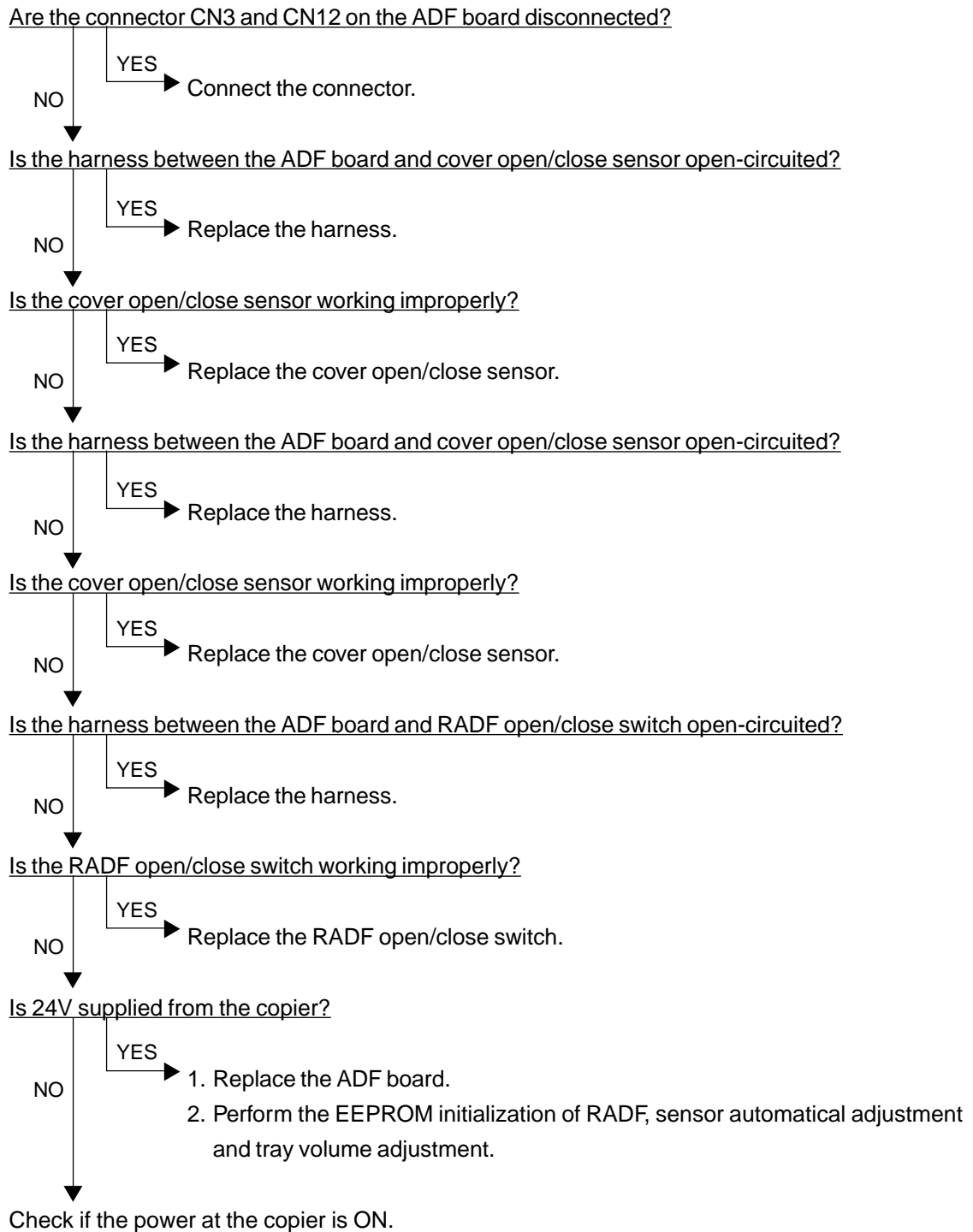
Are the registration sensor and read roller tainted?

Clean up the roller.

- [E7A] RADF opened during original feeding
- [E7B] RADF opened during original transporting
- [E7C] RADF opened during large-sized original discharging
- [E7D] RADF opened during small-sized original reversing
- [E7E] RADF opened during small-sized original discharging
- [E7F] RADF opened at the scanning section

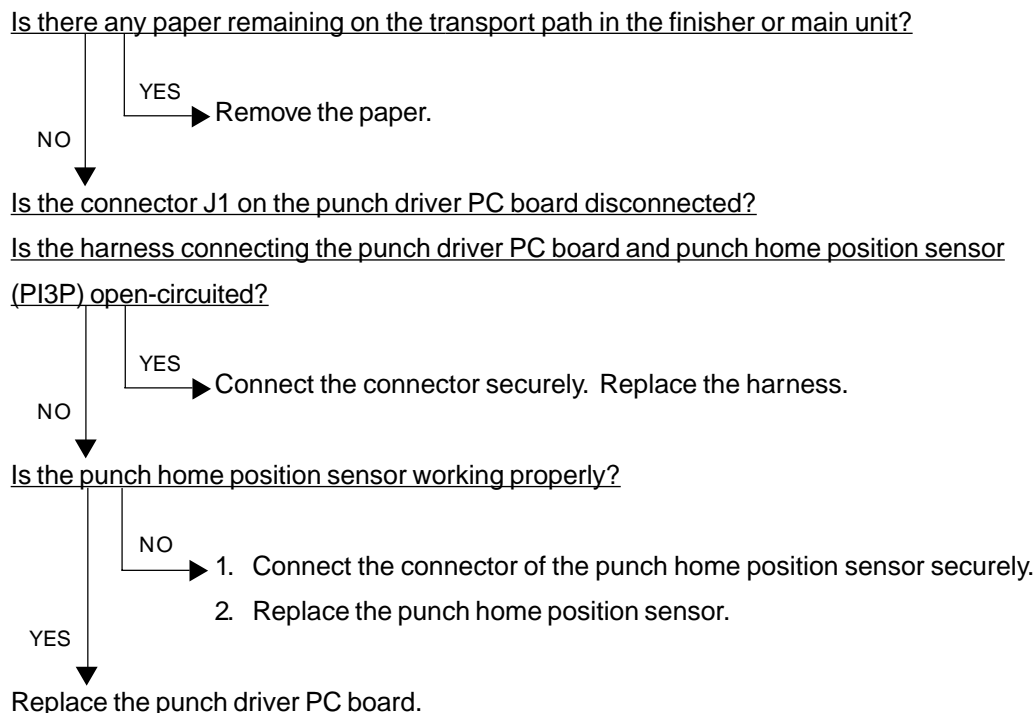


- [E80] Jam access cover opened during original feeding**
- [E81] Jam access cover opened during original transporting**
- [E82] Jam access cover opened during large-sized original discharging**
- [E83] Jam access cover opened during small-sized original reversing**
- [E84] Jam access cover opened during small-sized original discharging**
- [E85] Jam access cover opened at the scanning section**

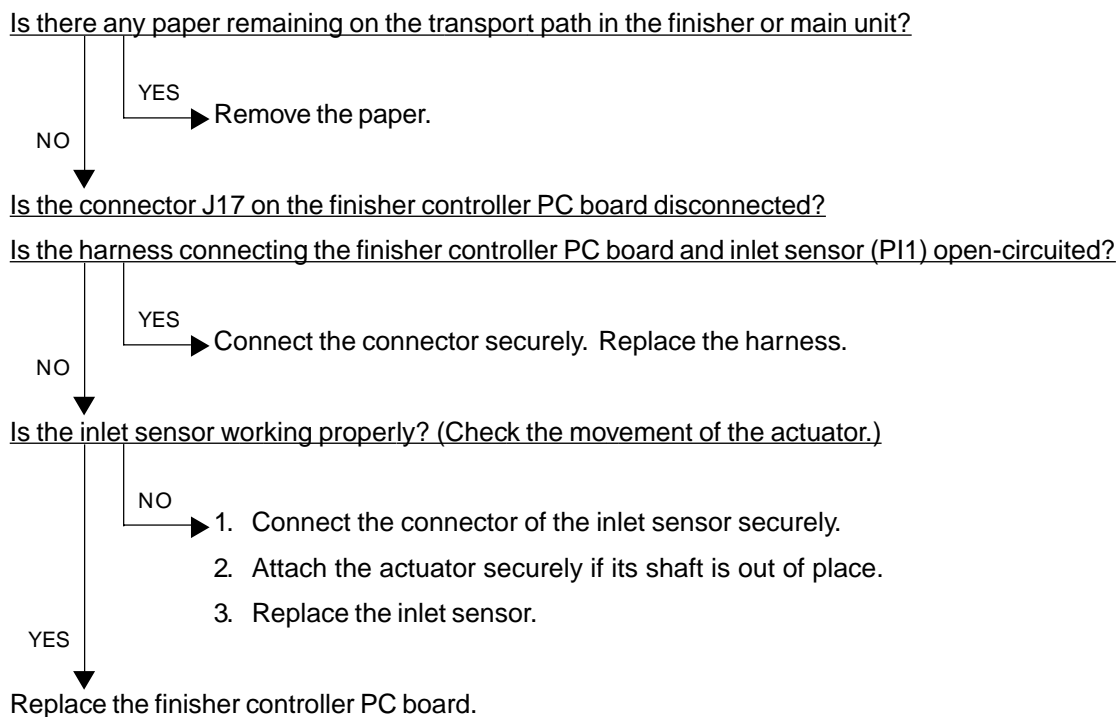


5. 1. 6. Paper jam in finisher

[E9F] Punching jam

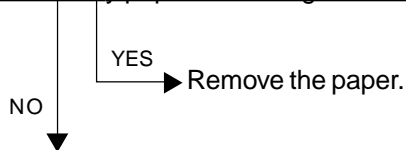


[EA1] Finisher paper transport delay jam



[EA2] Finisher paper transport stop jam

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



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

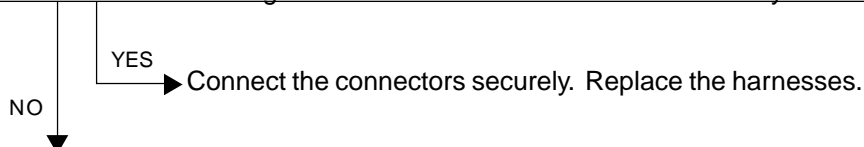
Is the harness connecting the finisher controller PC board and inlet sensor (PI1) open-circuited?

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?



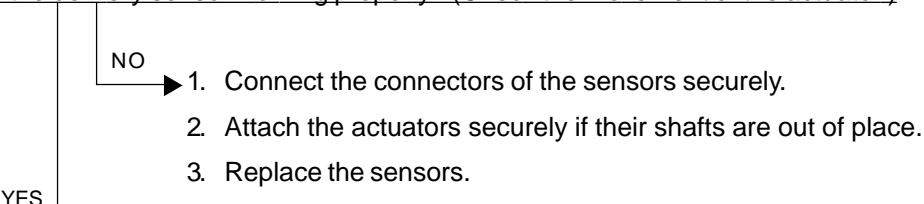
Is the inlet sensor working properly? (Check the movement of the actuator.)

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.)

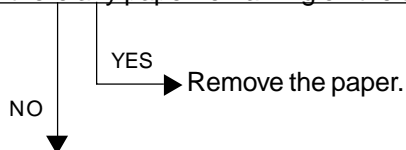
Is the delivery sensor working properly? (Check the movement of the actuator.)



Replace the finisher controller PC board.

[EA3] Paper remaining inside the finisher at power ON

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



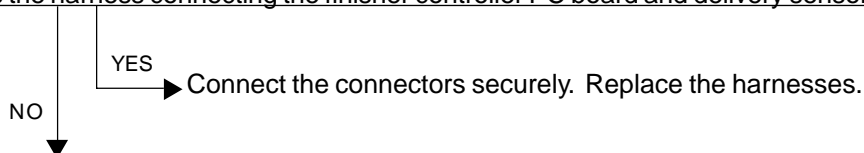
Is any of the connectors J17, J24 and J11 on the finisher controller PC board disconnected?

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?

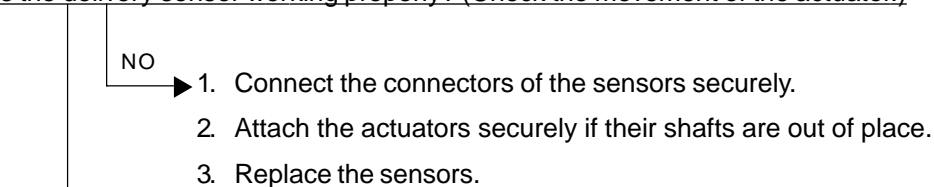


Is the inlet sensor working properly? (Check the movement of the actuator.)

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

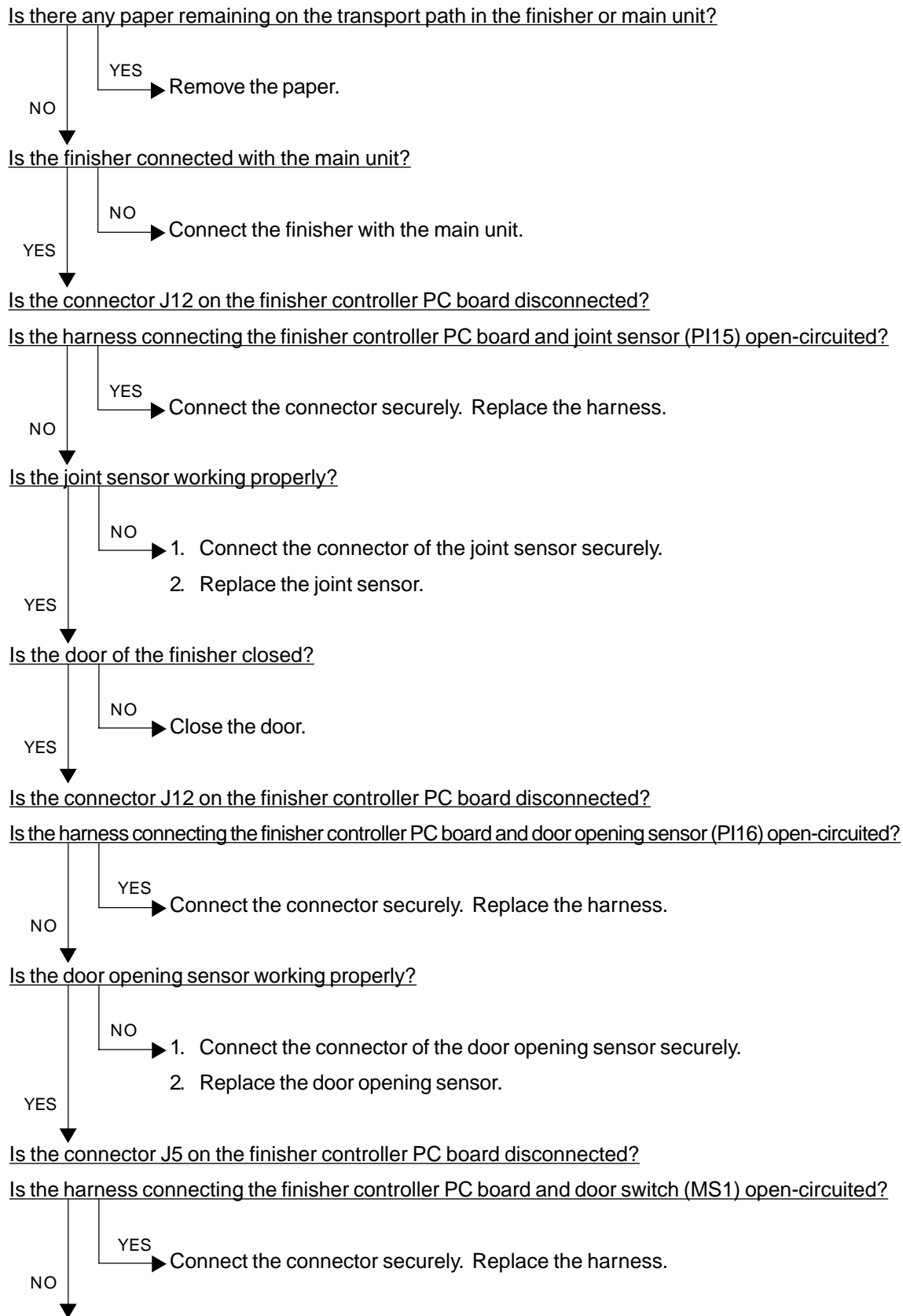
Is the buffer path paper sensor working properly? (Check the movement of the actuator.)

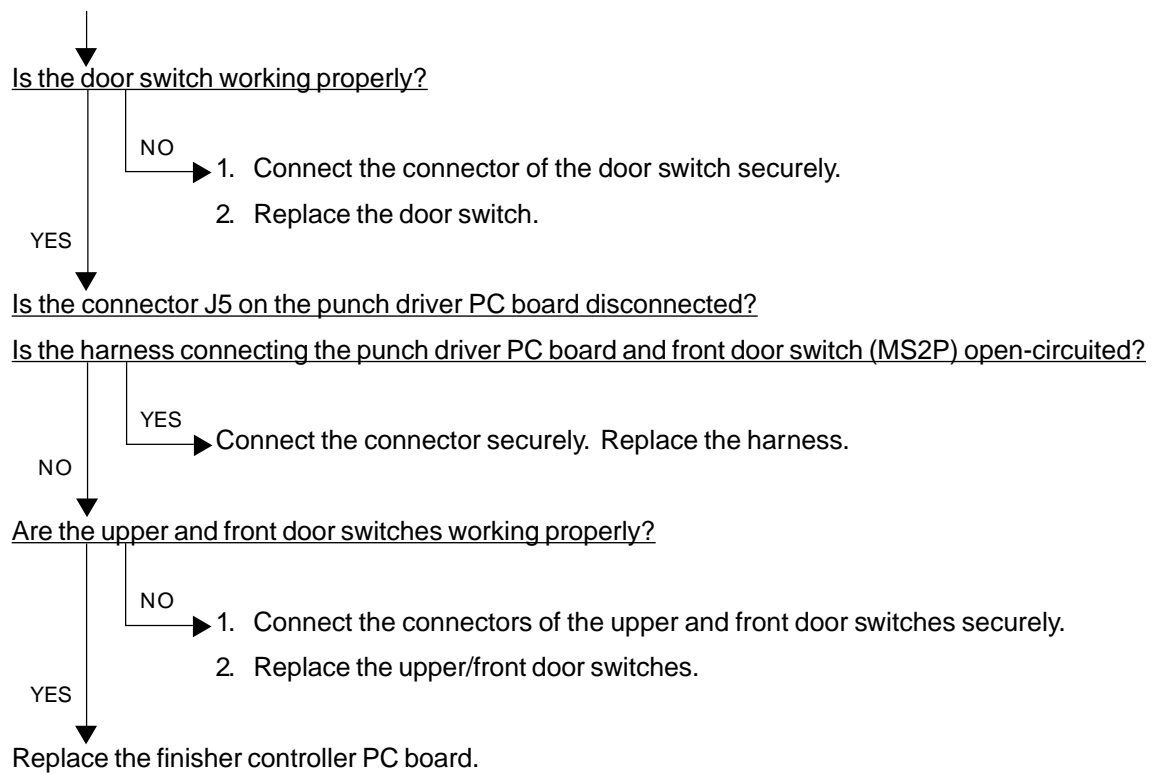
Is the delivery sensor working properly? (Check the movement of the actuator.)



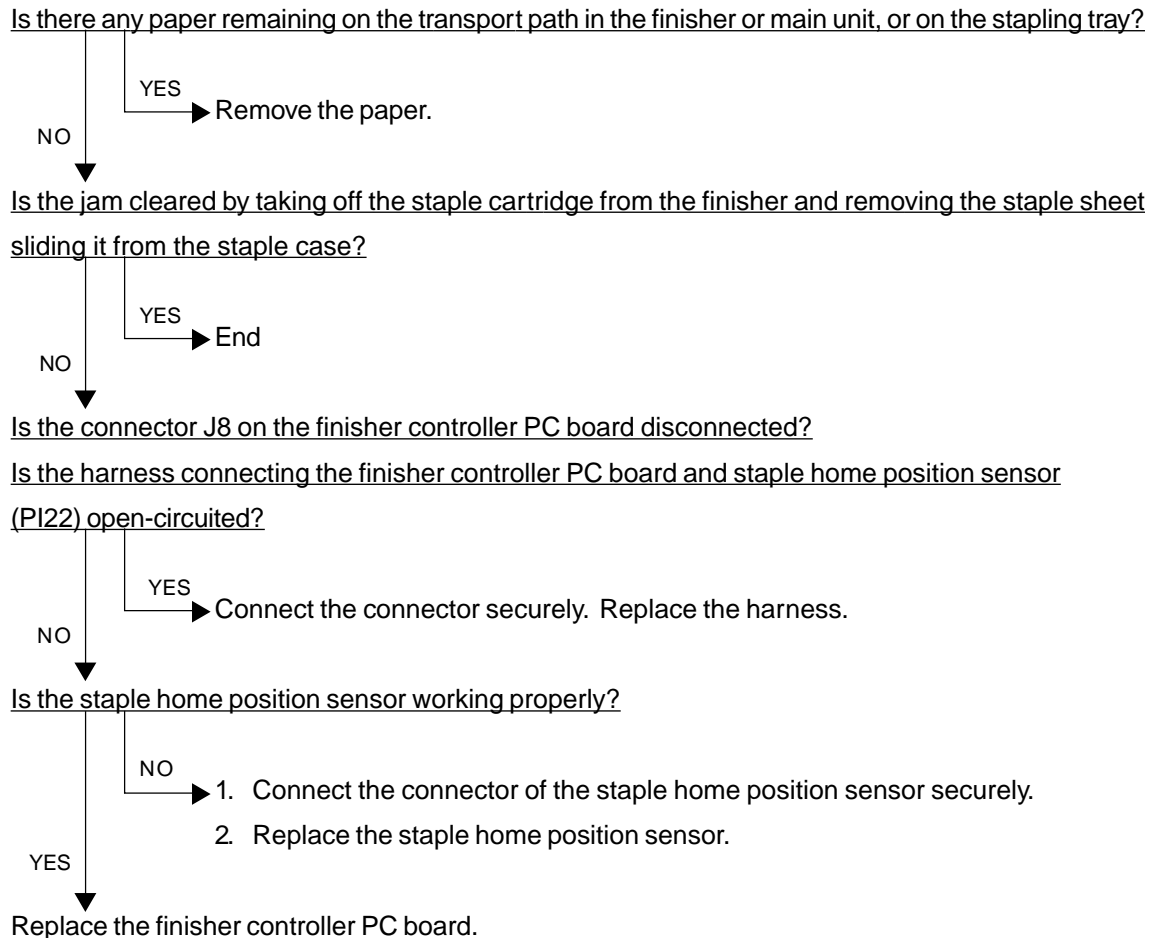
Replace the finisher controller PC board.

[EA4] Finisher front door opened during printing

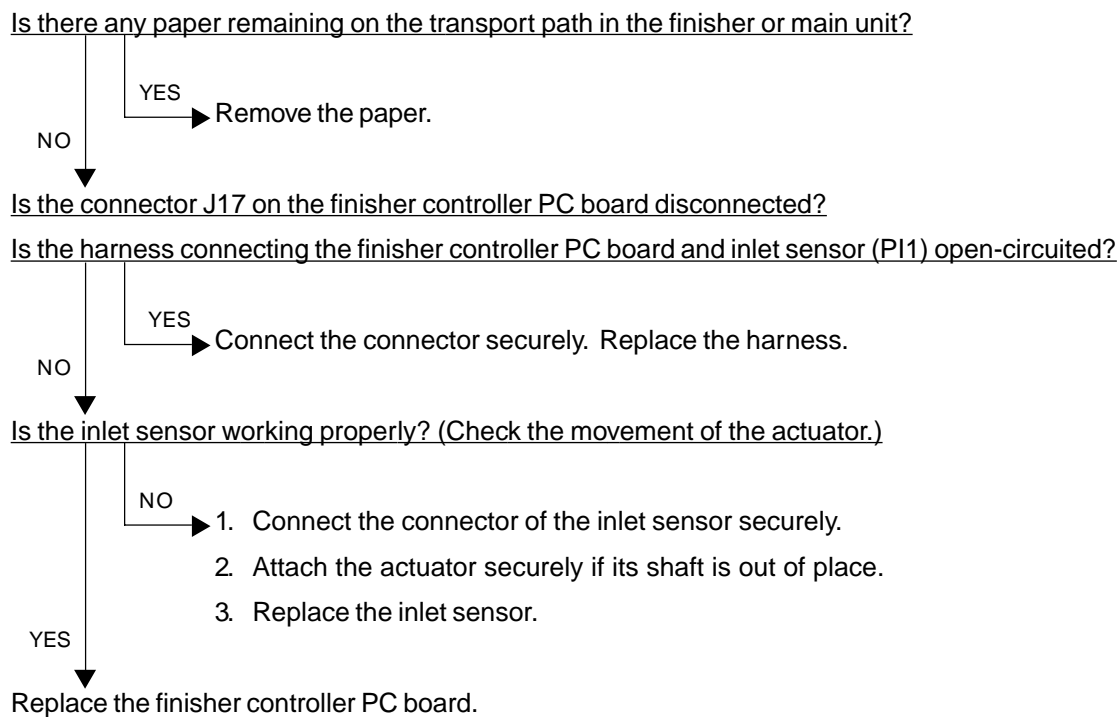




[EA5] Finisher stapling jam

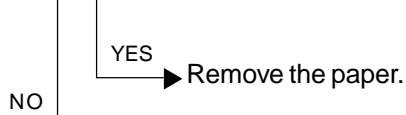


[EA6] Finisher early arrival jam

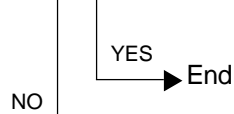


[EA8] Saddle stitcher stapling jam

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

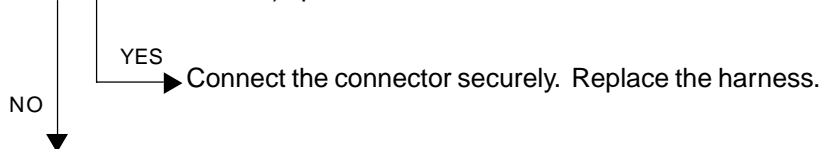


Is the jam cleared by taking off the staple cartridge from the finisher and removing the staples stuck in the stapling unit?

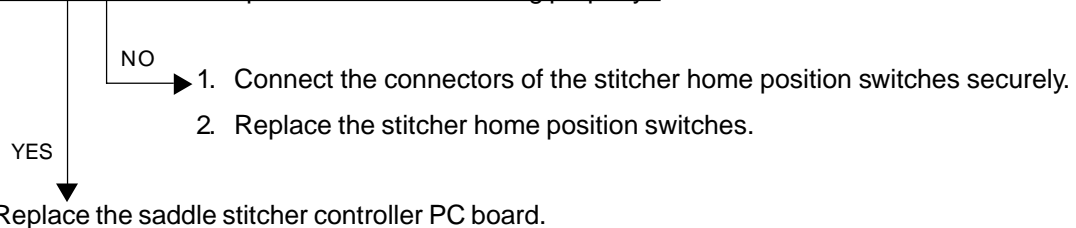


Is the connector J8 on the saddle stitcher controller PC board disconnected?

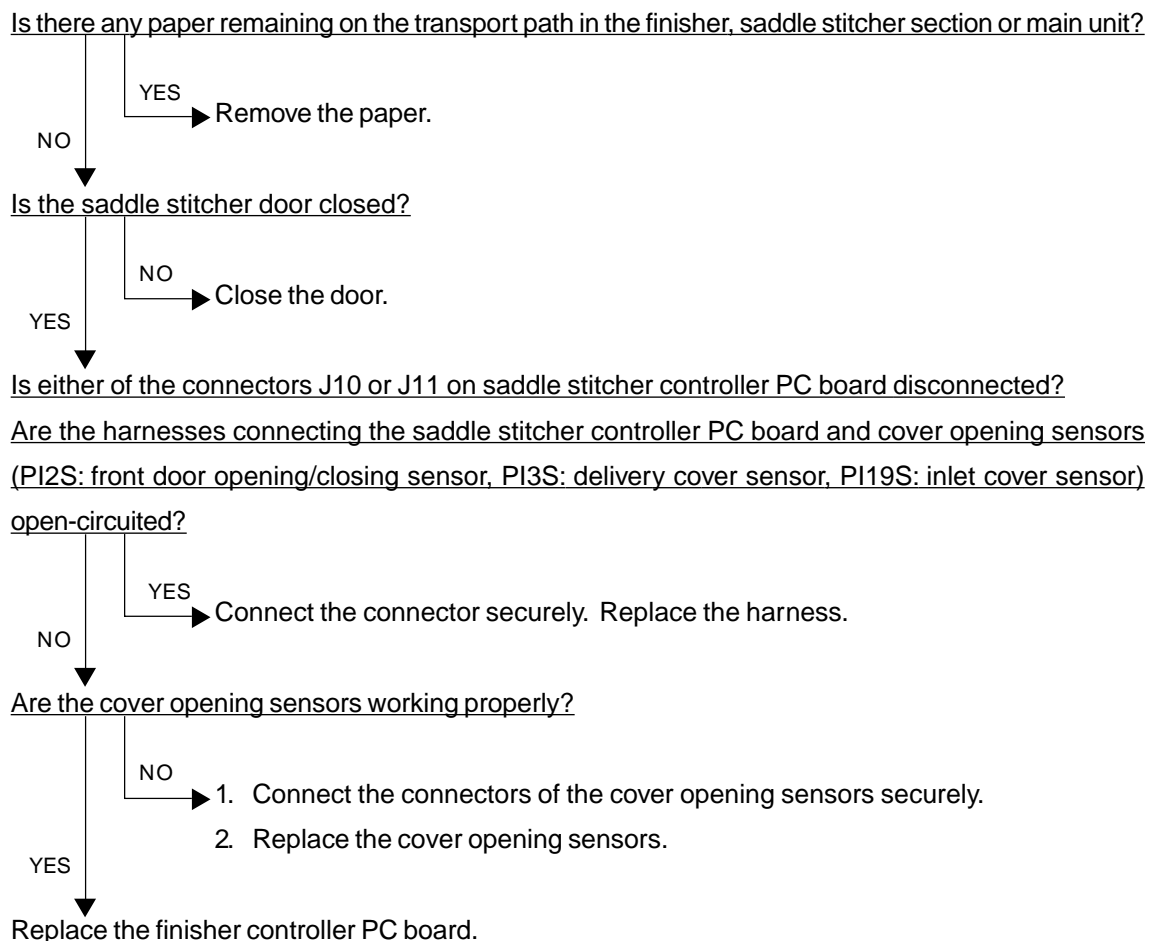
Is the harness connecting the saddle stitcher controller PC board and stitcher home position switch (rear: MS5S, front: MS7S) open-circuited?



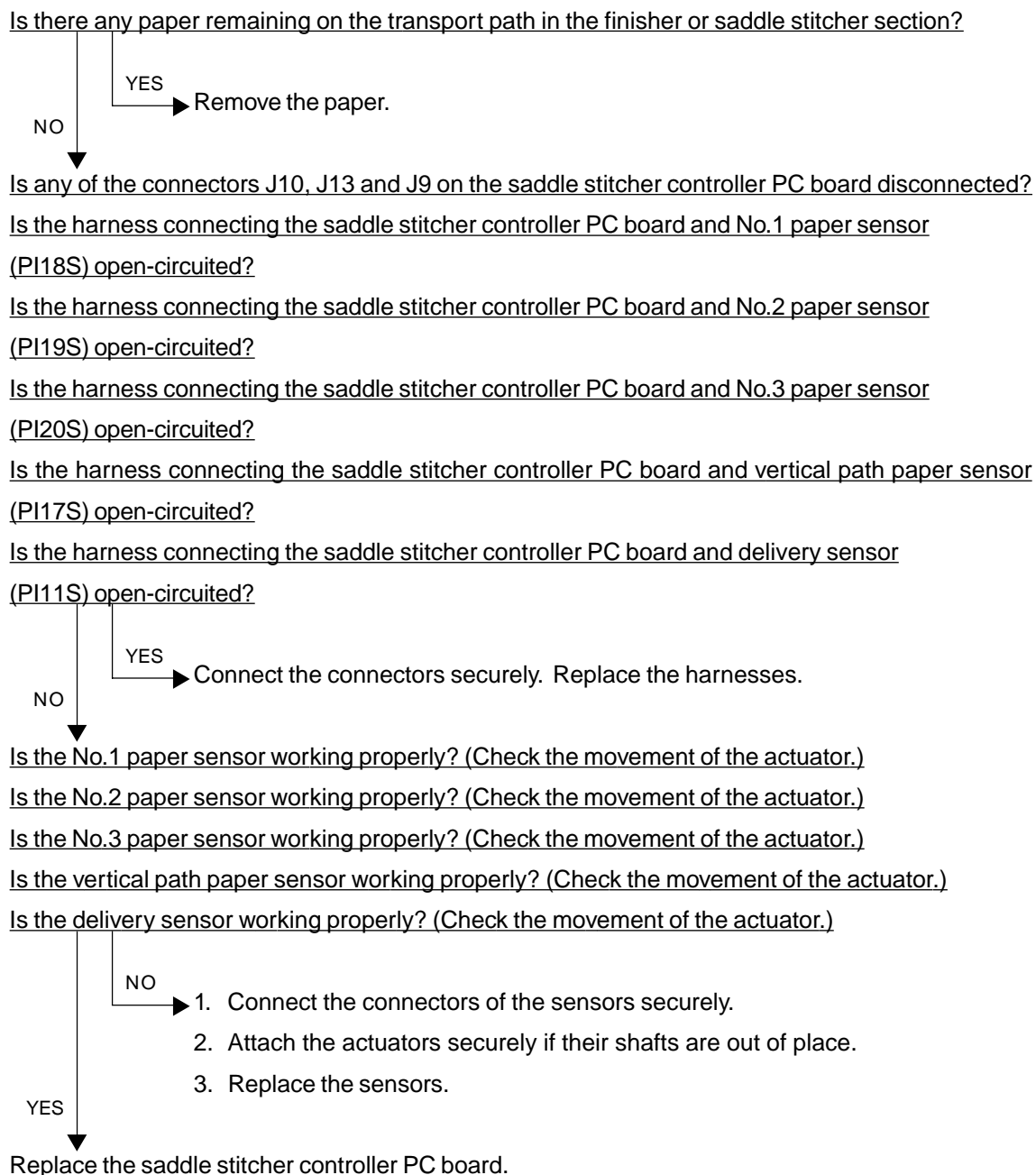
Are the stitcher home position switches working properly?



[EA9] Saddle stitcher door opened during printing

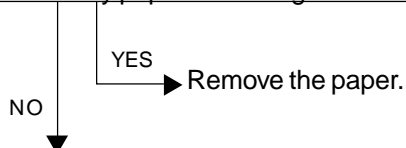


[EAA] Paper remaining at the saddle stitcher at power ON



[EAB] Saddle stitcher transport stop jam

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



Is the connector J17 on finisher controller PC board disconnected?

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

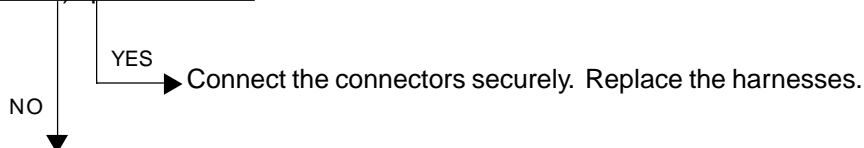
Is either of the connectors J10 or J9 on the saddle stitcher controller PC board disconnected?

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?



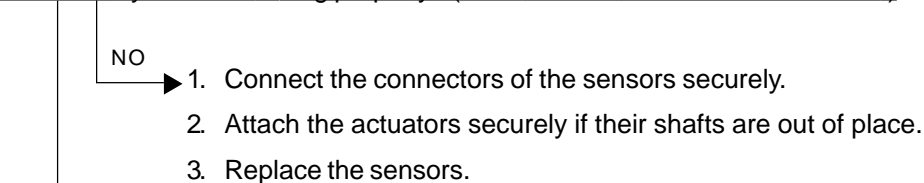
Is the inlet sensor working properly? (Check the movement of the actuator.)

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.)

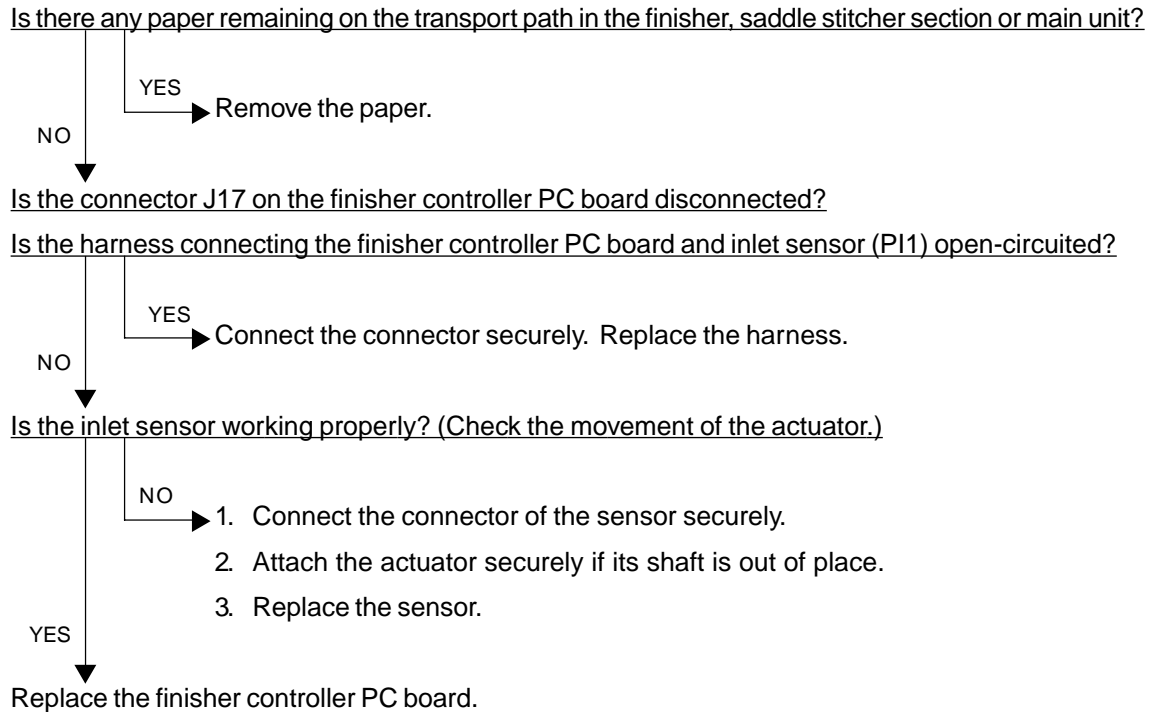
Is the No.3 paper sensor working properly? (Check the movement of the actuator.)

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

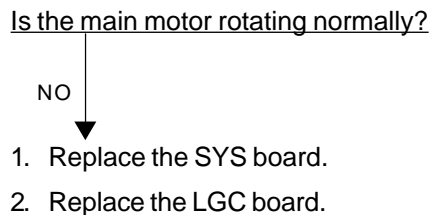


Replace the saddle stitcher controller PC board.

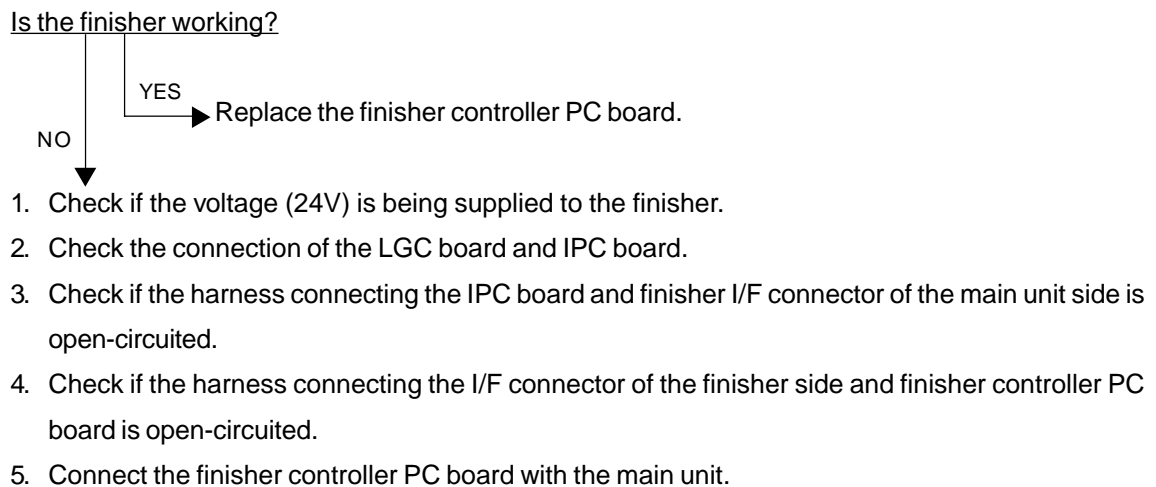
[EAC] Saddle stitcher transport delay jam



[EAD] Print end command time-out jam



[EAE] Receiving time time-out jam



[EB3] Ready time time-out jam

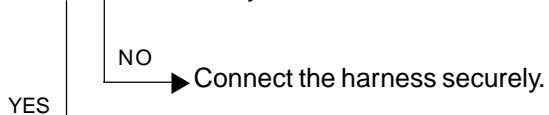
Is there paper in the main unit?



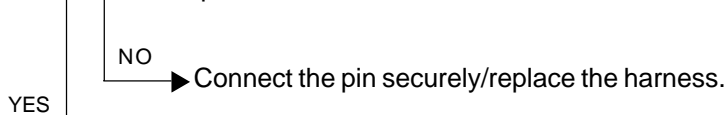
Are the IPC board and LGC board properly connected to each other?



Is the harness securely connected to the IPC board?

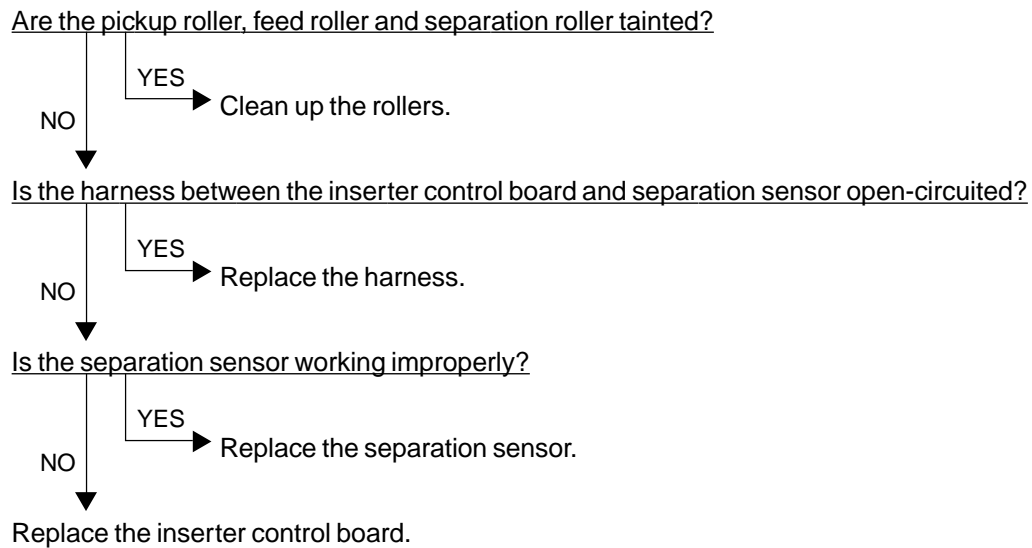


Is any of the connector pins of the harness connecting the PPC and finisher disconnected or any of those harnesses open-circuited?

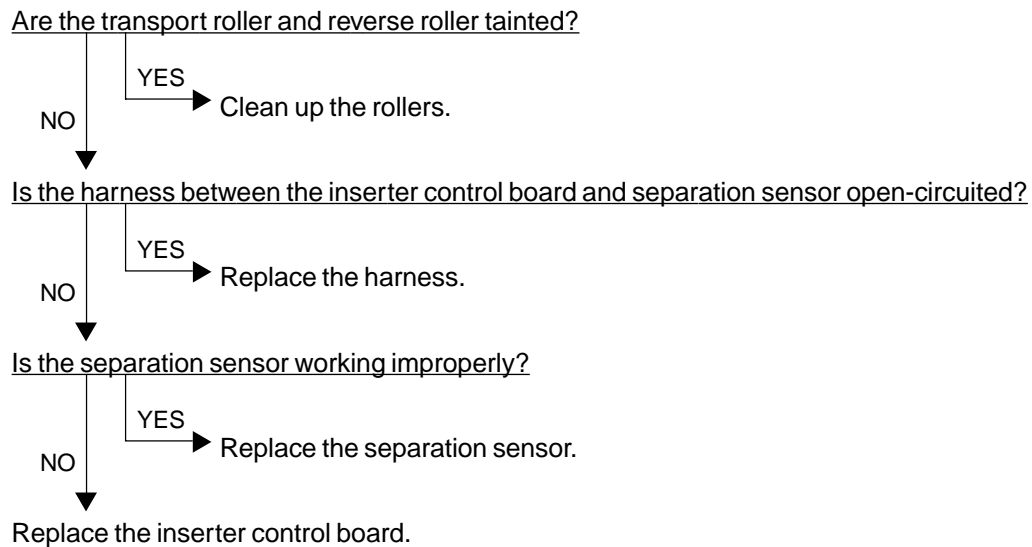


1. Replace the IPC board.
2. Replace the LGC board.
3. Replace the finisher controller PC board.

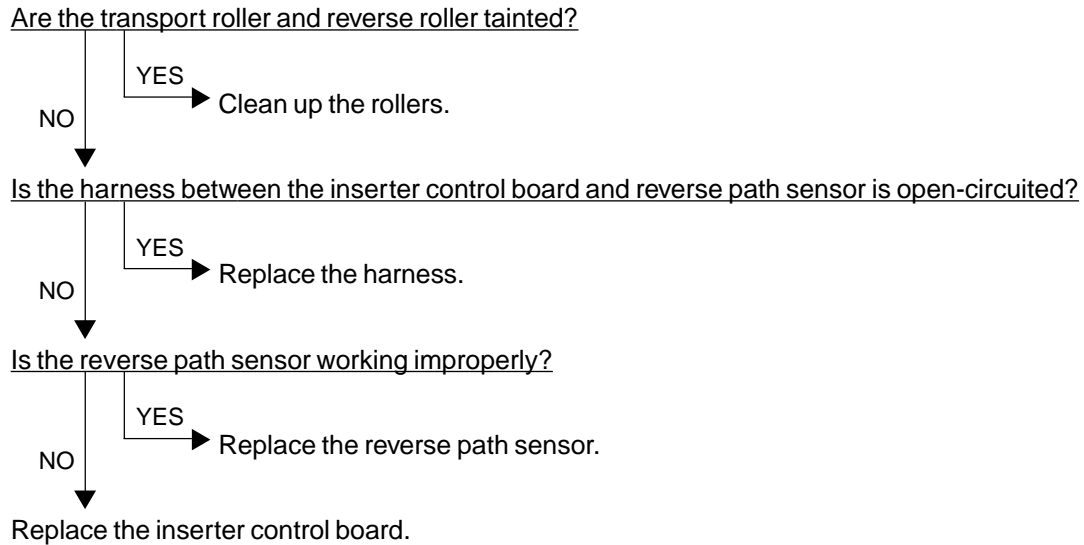
[EC0] Inserter feeding delay jam



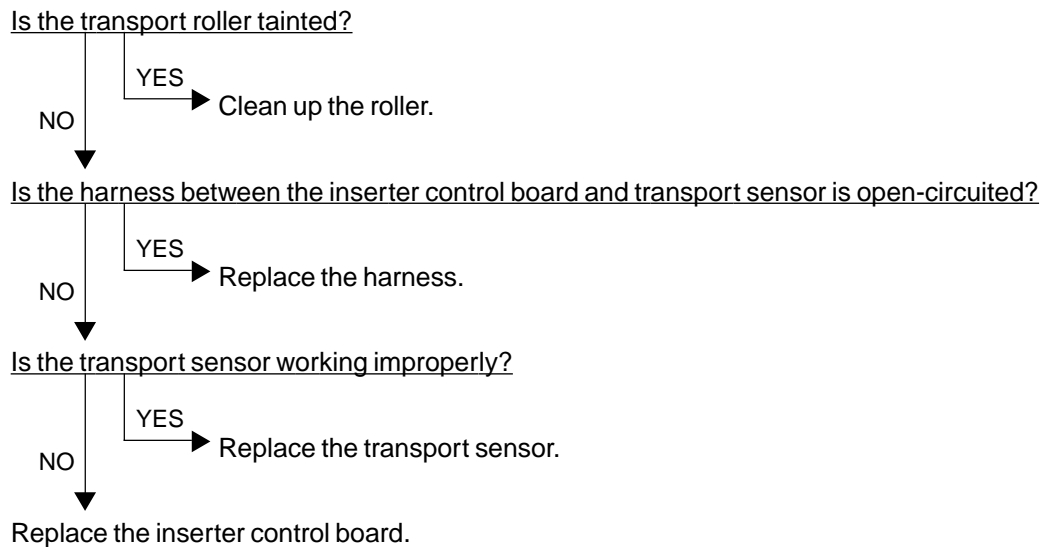
[EC1] Inserter feeding stop jam



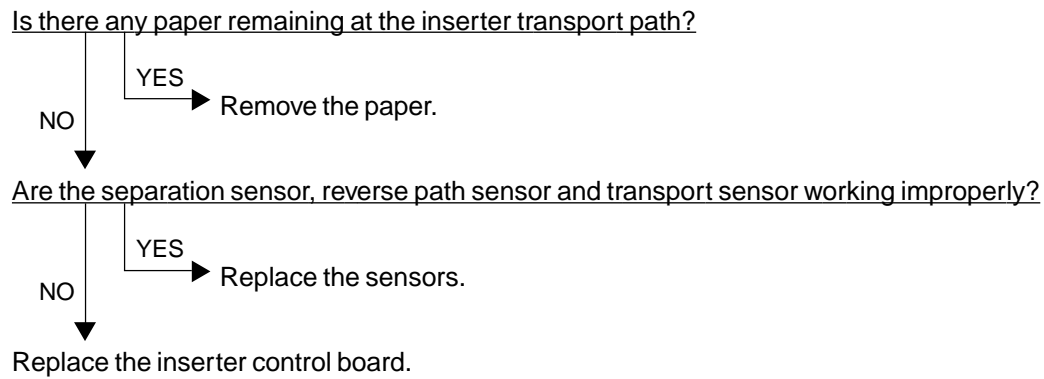
- [EC2] Inserter reverse path delay jam 1**
- [EC3] Inserter reverse path stop jam 1**
- [EC4] Inserter reverse path delay jam 2**
- [EC5] Inserter reverse path stop jam 2**



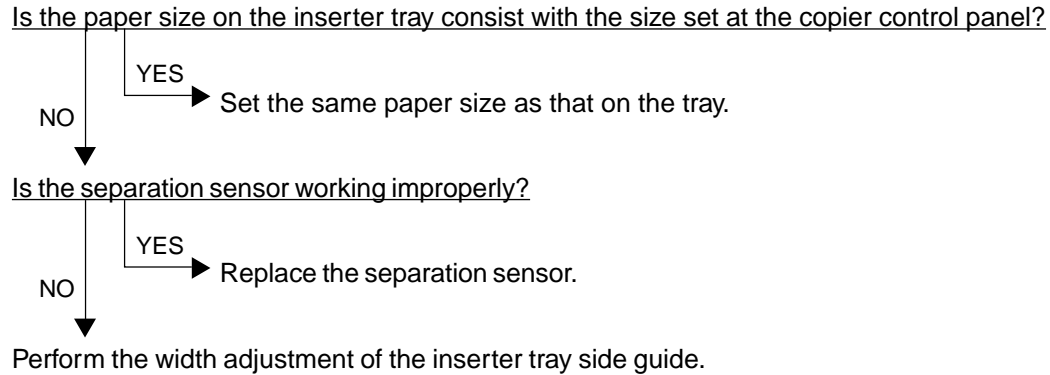
- [EC6] Inserter transport delay jam 1**
- [EC7] Inserter transport stop jam 1**
- [EC8] Inserter transport delay jam 2**
- [EC9] Inserter transport stop jam 2**



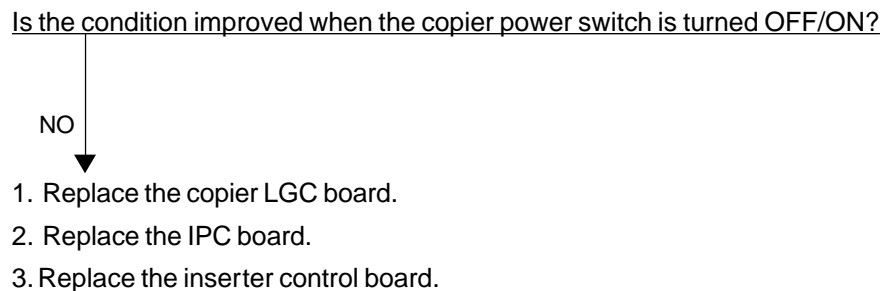
[ECA] Paper remaining at the inserter when the power is ON



[ECB] Inserter size difference jam



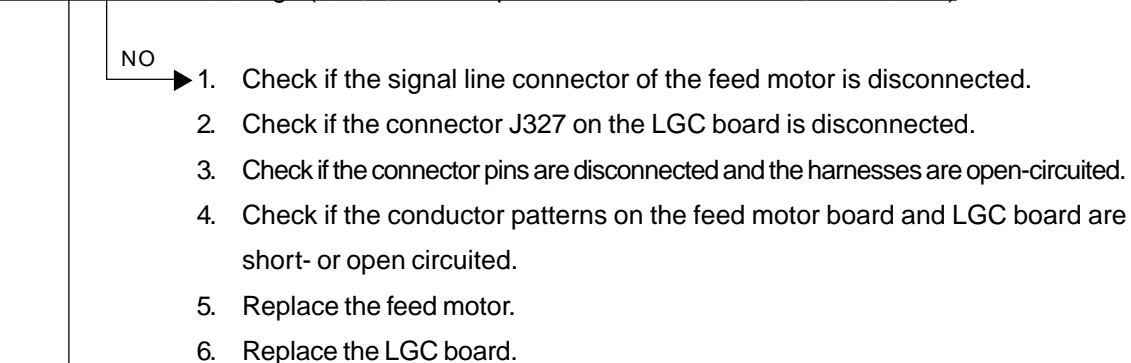
[ECC] Inserter feeding jam



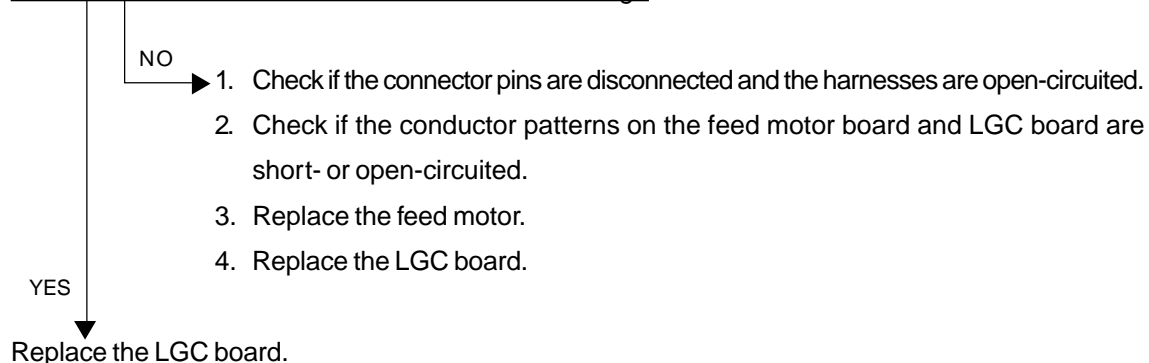
5. 1. 7. Paper feeding system related service call

[C04] Abnormal feed motor

Is the PFP motor working? (Perform the output check in the test mode: 03-125/175)

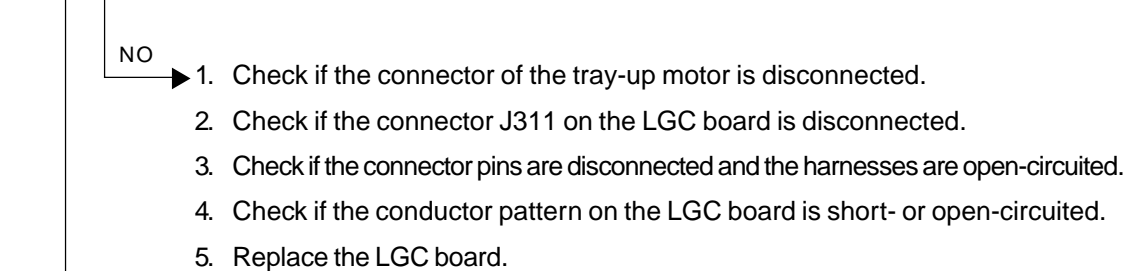


Is the LED on the feed motor board lit without flashing?



- [C13] Abnormal 1st cassette tray (paper can be fed from the cassettes other than copier cassettes)**
[C14] Abnormal 2nd cassette tray (paper can be fed from the cassettes other than copier cassettes)
[C15] Abnormal 3rd cassette tray (paper can be fed from the cassettes other than 3rd cassette)
[C16] Abnormal 4th cassette tray (paper can be fed from the cassettes other than 4th cassette)

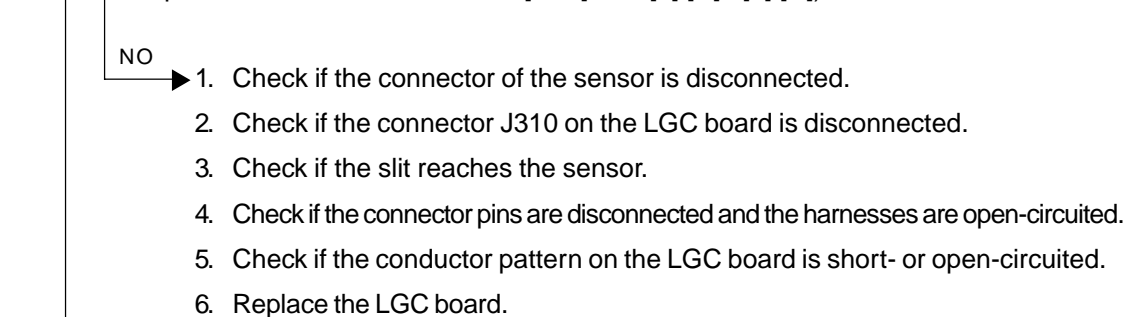
Does the tray go up? (Perform the output check in the test mode: 03-242, 243)



YES

Is the tray-up sensor working?

(Perform the input check in the test mode: 03-[FAX]OFF/[6]/[H], /[7]/[H])



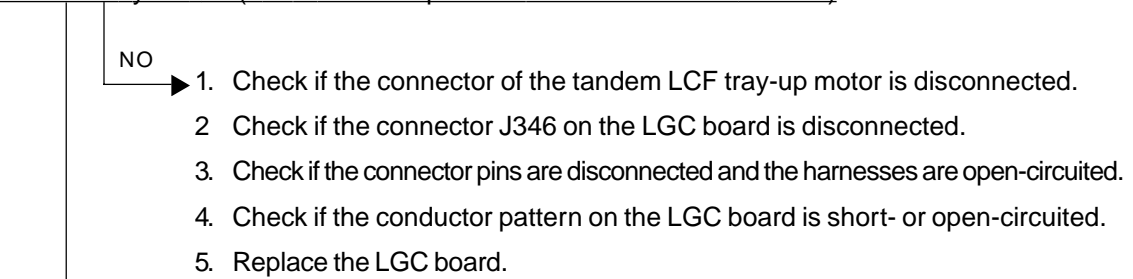
YES

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

[C18] Abnormal tandem LCF tray-up motor

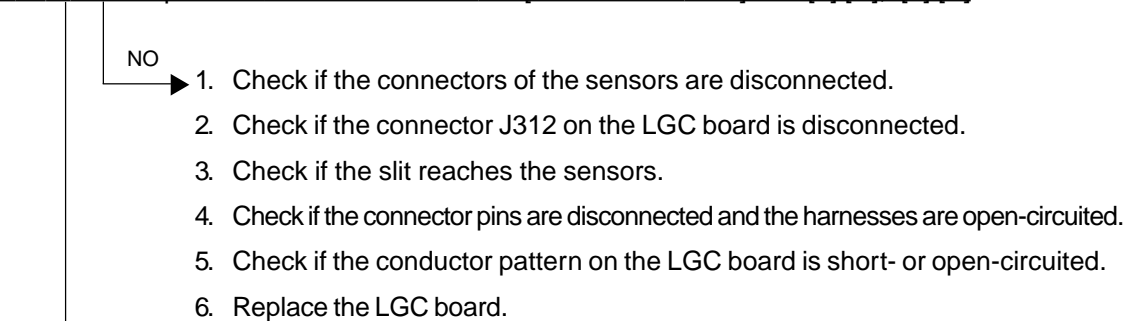
(paper can be fed from cassettes other than the tandem LCF)

Does the tray move? (Perform the output check in the test mode: 03-270)



Are the LCF tray bottom sensor and LCF tray-up sensor working?

(Perform the input check in the test mode: 03-[ENERGY SAVER]OFF/[4]/[C],/[8]/[A])

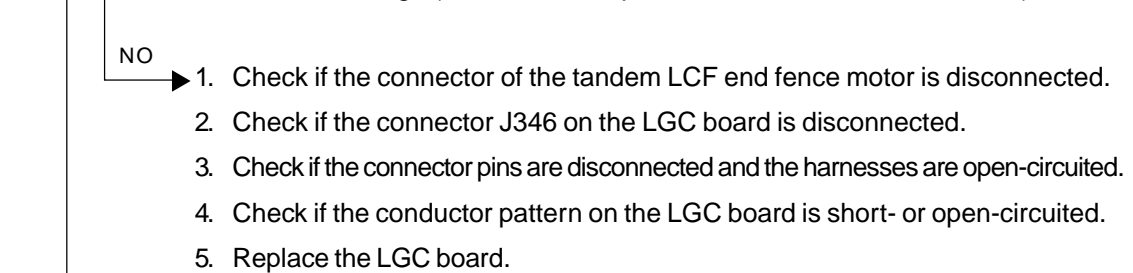


1. Check if the driving mechanism is abnormal.
2. Check if the conductor pattern on the LGC board is short- or open-circuited.
3. Replace the LGC board.

[C1A] Abnormal tandem LCF end fence motor

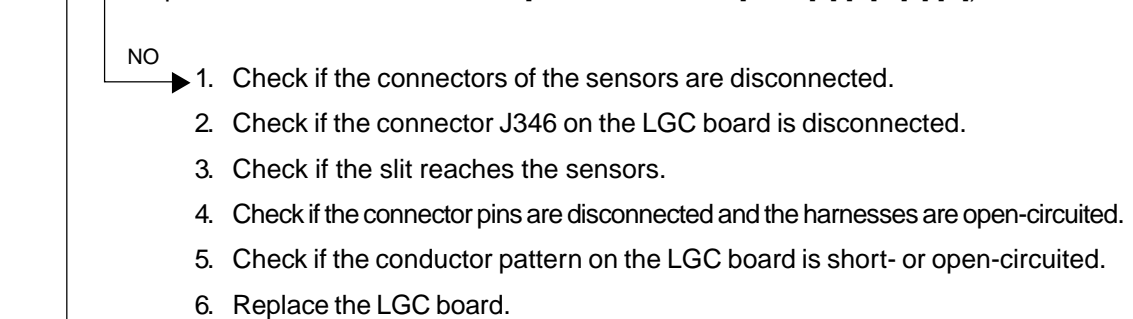
(paper can be fed from cassettes other than the tandem LCF)

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



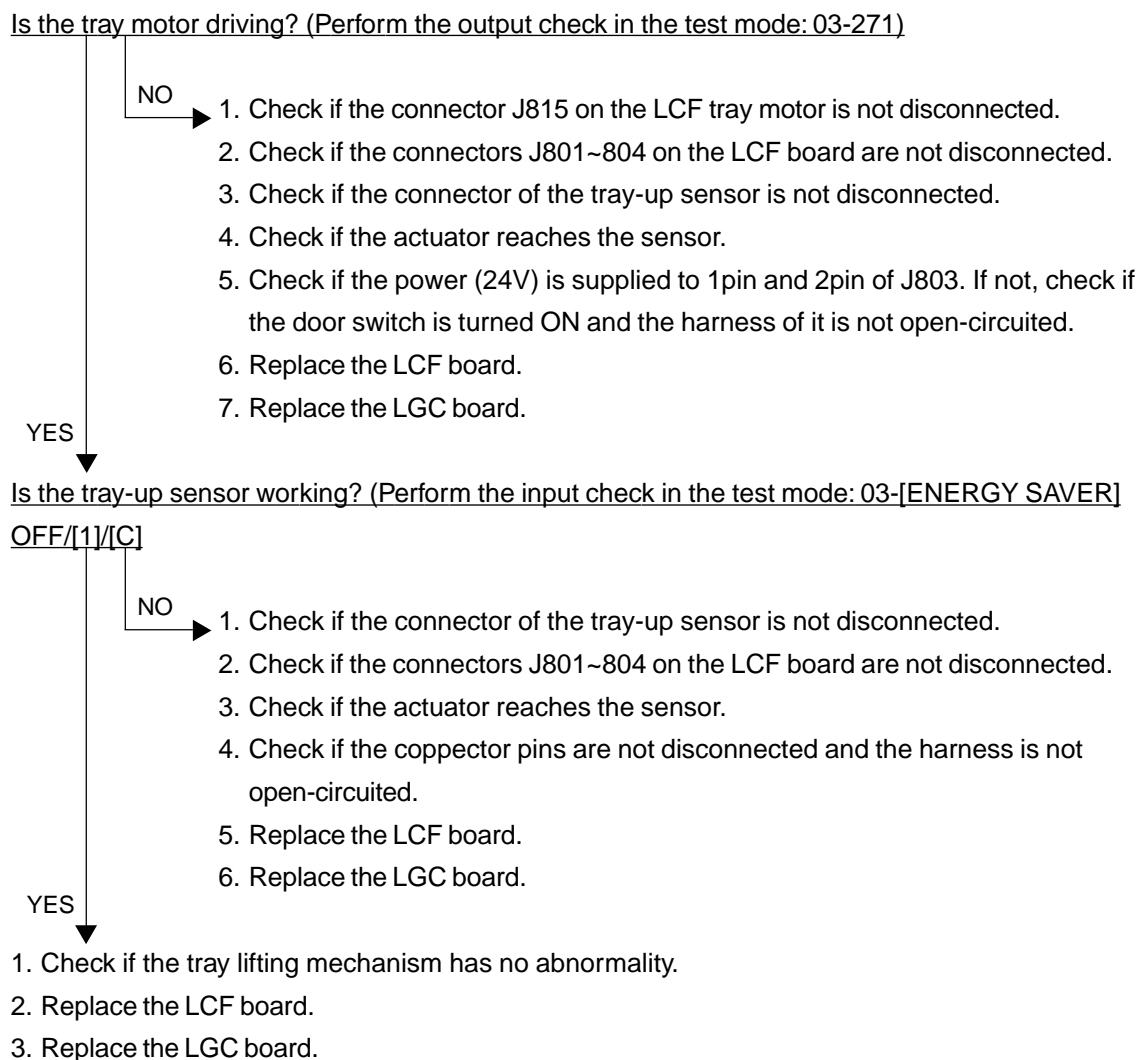
Are the tandem LCF end fence home/stop position sensors working?

(Perform the input check in the test mode: 03-[ENERGY SAVER]OFF/[7]/[A],/[7]/[B])



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

[C1C] External LCF tray motor driving abnormally (Feeding is abled from the cassettes other than the external LCF.)



5. 1. 8. Process system related service call

[C36] Main charger wire cleaning operating abnormally

- (1) Check if the main charger is not disconnected.
- (2) Check if the wire cleaner drive motor is driving.
- (3) Replace the LGC board.

[C37] Transfer belt operating abnormally

- (1) Check if the connector of the transfer belt cam motor is not disconnected.
- (2) Check if the transfer belt contact/release switch is working properly.
- (3) Replace the transfer belt cam motor.
- (4) Replace the LGC board.

[CD1] Cleaning brush drive motor driving abnormally

- (1) Check if the cleaning brush, recovery toner transport auger and recycle toner transport auger are not locked (no extraneous material or toner clod in both the toner transport sections at the cleaner unit and recycle toner unit).
- (2) Check if the connector on the LGC board and connector pins are not disconnected.
- (3) Replace the cleaning brush drive motor and recycle toner transport motor.
- (4) Replace the LGC board.

[CD2] Used toner transport motor driving abnormally

- (1) Check if the transport auger is not locked (there is no extraneous material or toner clod).
- (2) Check if the connector on the LGC board and connector pins are not disconnected.
- (3) Replace the used toner transport motor.
- (4) Replace the LGC board.

[CD3] Recycle toner transport motor driving abnormally

- (1) Check if the recycle toner transport auger is not locked (no extraneous material or toner clod in both the transport sections at the toner recycle unit and recycle toner hopper).
- (2) Check if the connector on the LGC board and connector pins are not disconnected.
- (3) Replace the recycle toner transport motor and toner recycle hopper motor.
- (4) Replace the LGC board.

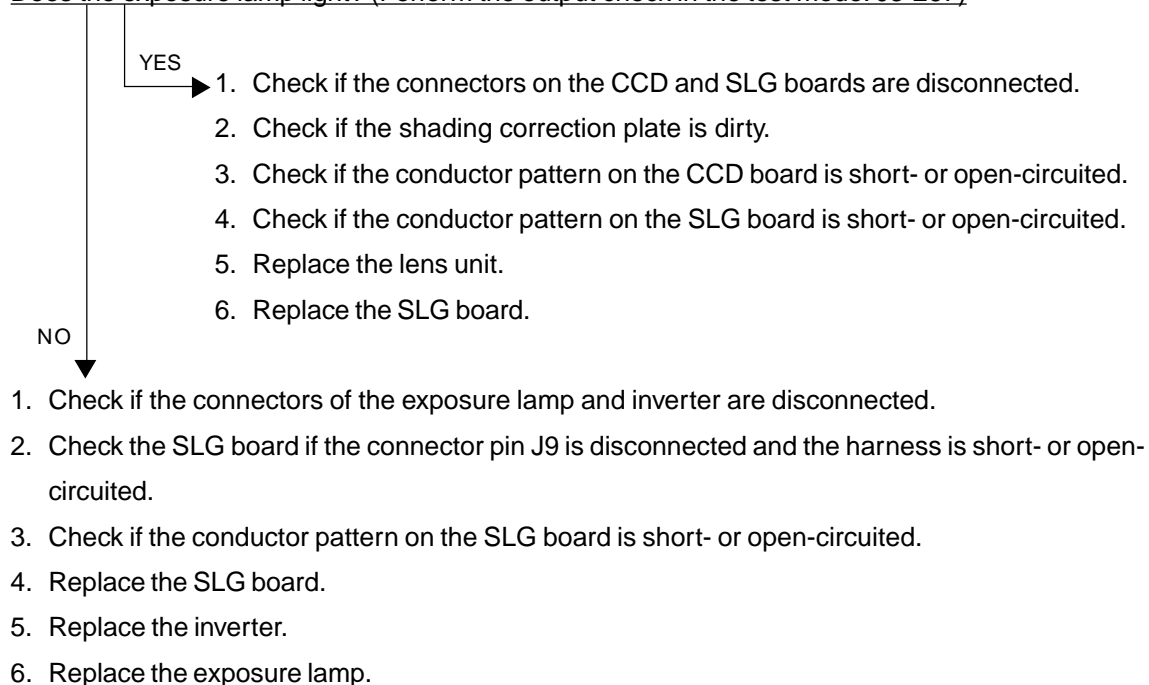
[CD4] Toner bag full

- (1) Check the toner bag.
 - Is the toner bag full?
- (2) Check the toner full detection sensor.
 - Is the tone full detection sensor working properly?
 - Is the connector not disconnected?
- (3) Check the used toner transport motor.
 - Is the used toner transport motor driving?
 - Does the pulley beside the motor become heavy when it is turned toward the direction of arrow (counterclockwise)?
- (4) Replace the LGC board.
- (5) Release the status counter.
 - Turn the power ON while pressing both the [0] and [8] keys.
 - Press the [START] key after inputting [399] with digital keys.
 - Change the status counter "1", "2" or "3" to "0" and press the [SET] or [INTERRUPT] key ([CD4] released).
 - Check if the copier becomes to a standby state normally when power is turned ON again.
 - In case that the used toner transport motor does not drive or [CD4] is not released when power is turned ON again, do the above procedure after manually turning the pulley beside the motor toward the direction of arrow (counterclockwise) several times.

5. 1. 9. Scanning system related service call

[C26] Peak detection error

Does the exposure lamp light? (Perform the output check in the test mode: 03-267)

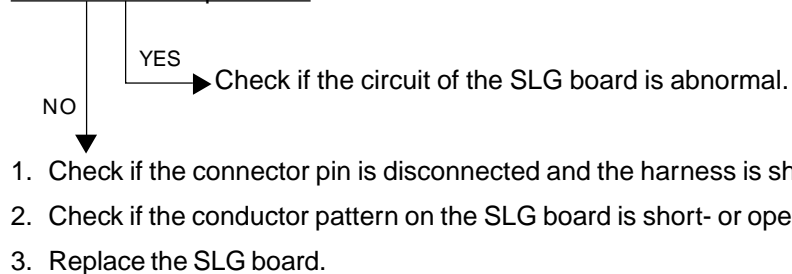


[C27] Carriage home position sensor not going OFF within a fixed time

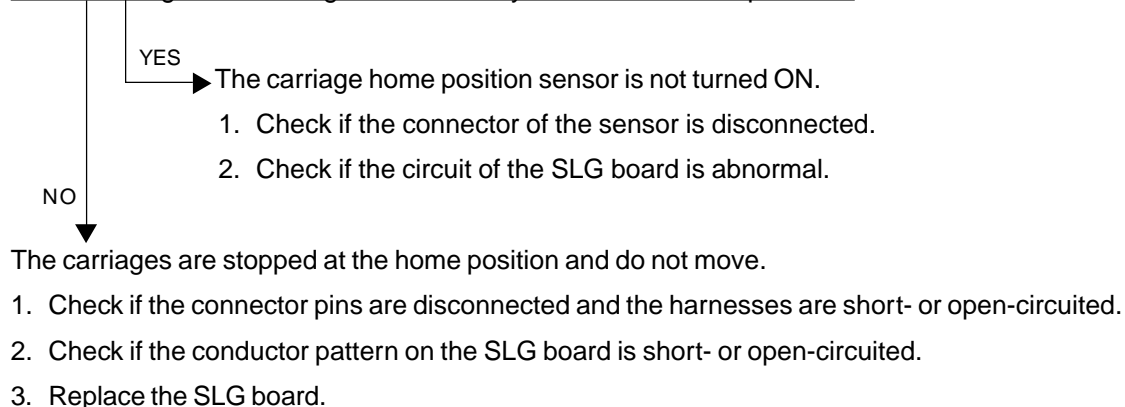
[C28] Carriage home position sensor not going ON within a fixed time

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?



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



5. 1. 10. Fuser unit related service call

CAUTION

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

[C41] Abnormal thermistor or heater 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 (front, rear) 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 connectors J552 and J553).
- (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 connector J334 is 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] Abnormal thermistor after abnormality judgment

[C44] Abnormal fuser 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" 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"
- 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] Abnormal side thermistor 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 J334 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) "6" to "0".

[C46] Pressure roller thermistor being abnormal after the copier has become ready

1. Check the pressure roller thermistor.

- (1) Check if the connector is not disconnected.
- (2) Check if the pressure roller thermistor closely touches the surface of the pressure roller.
- (3) Check if the harness of the pressure roller thermistor is not open-circuited.

2. Check the LGC board.

- (1) Check if the connector J334 is not disconnected.
- (2) Check if the conductor pattern on the LGC board is not short- or open-circuited.
- (3) Replace the LGC board.

3. Clear the status counter.

Change the current status counter value (08-400) "3" or "8" to "0".

[C47] Abnormal IH power voltage/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, the LGC I/F connectors J522 and J553 are 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 J334 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 fan

Check if the IH 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] Abnormal IH circuit or coil

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.

[C4A] Cleaning web finished

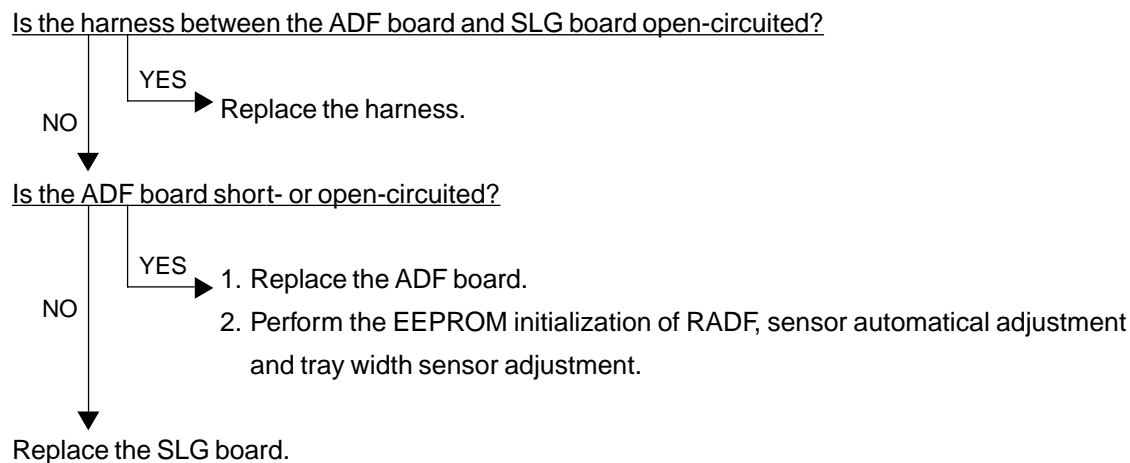
- (1) Check if the cleaning web is remaining.
- (2) Check if the connector J332 on the LGC board is not disconnected.
- (3) Check if there is no abnormality at the web sensor.
- (4) Replace the LGC board.

[CD5] Abnormality at the web motor signal path

- (1) Check if the connector of the web motor and connector pins are not disconnected.
- (2) Check if the drawer connector and connector pins are not disconnected.
- (3) Check if the harness between the drawer connector and the web motor is not open-circuited.
- (4) Check if the connector of the LGC board and connector pins are not disconnected.
- (5) Check if the harness between the connector of the LGC board and the drawer connector is not open-circuited.
- (6) Replace the LGC board.
- (7) Replace the fuser unit.

5. 1. 11. Communication system related service call

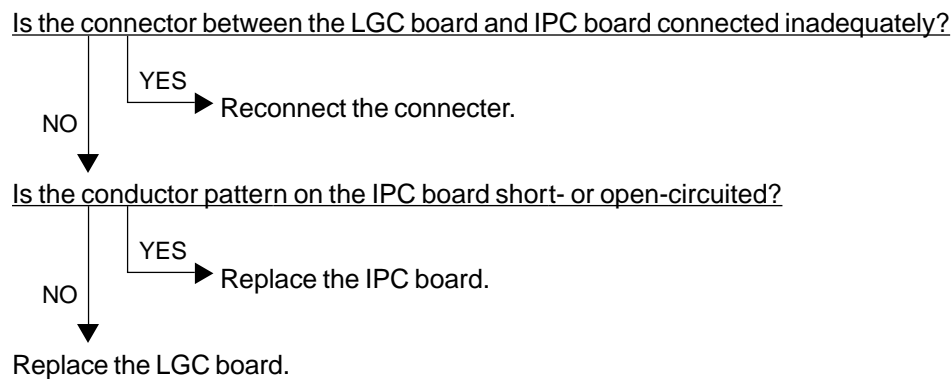
[C55] RADF I/F being abnormal



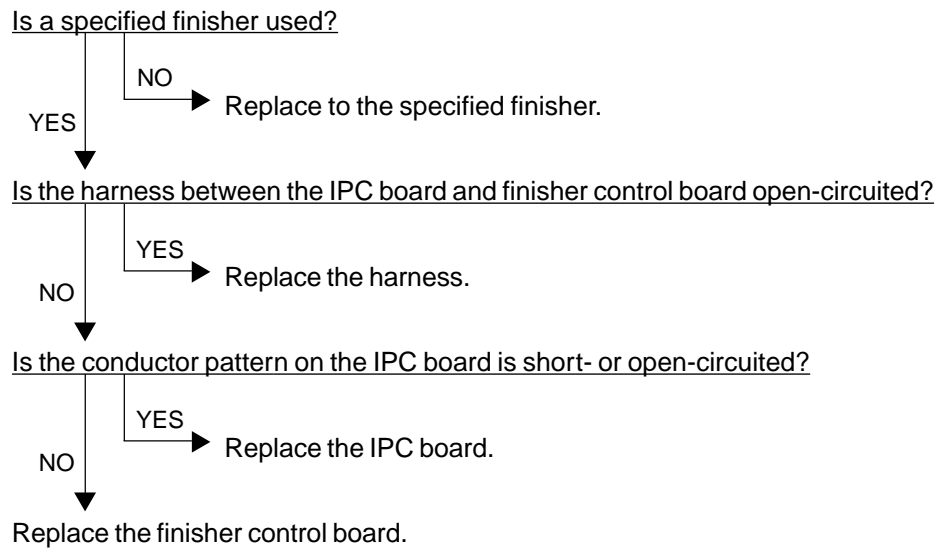
[C56] Communication error between the main CPU and PFC-CPU

- (1) Check if the conductor pattern around IC57 and IC58 is not short- or open-circuited.
- (2) Replace the LGC board.

[C57] Communication error between the main CPU and IPC board



[C58] Communication error between the IPC board and finisher



[C59] Communication error between the main CPU and laser CPU

- (1) Check if the harness between the LGC board and PLG board is not disconnected or open-circuited.
- (2) Check if the conductor pannern around IC13, IC25, IC57, J327 and J342 on the LGC board is not short- or open-circuited.
- (3) Check if the conductor pattern around IC4, IC19 and J202 on the PLG board is not short- or open-circuited.
- (4) Replace the LGC board.
- (5) Replace the PLG board.

[F07] Communication error between SYS board and LGC board

[F11] Communication error between SYS board and SLG board

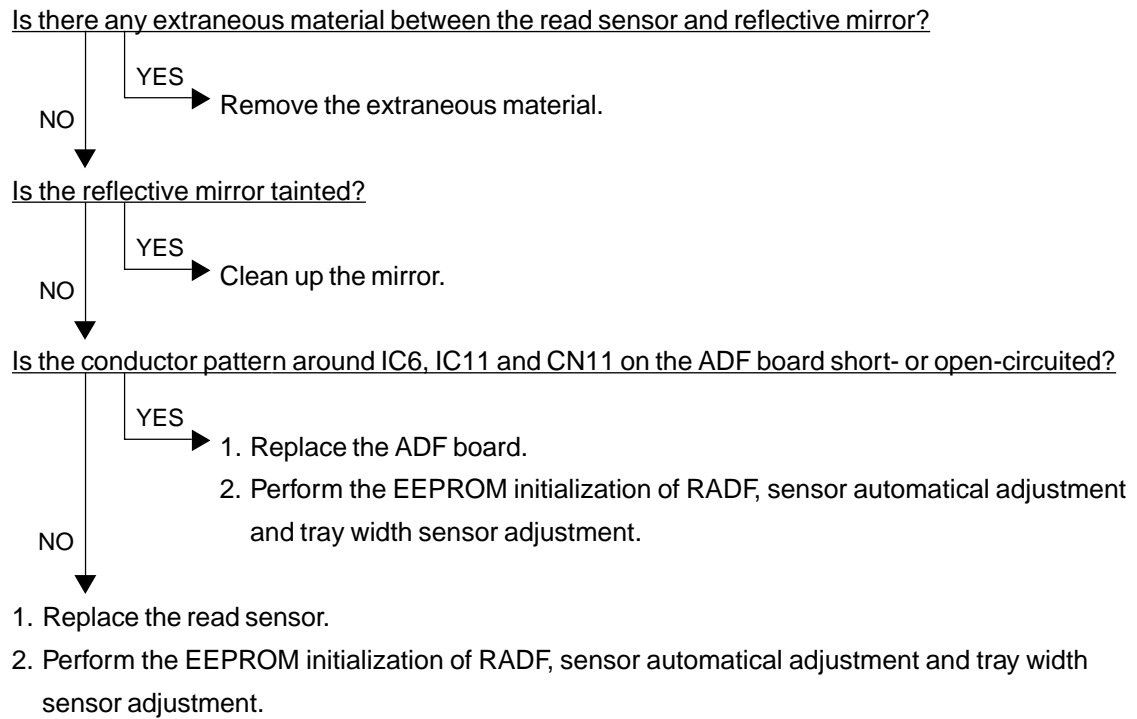
- (1) Check if the connectors J114 and J105 on the SYS board are disconnected.
- (2) Check if the connector J4 on the SLG board is disconnected.
- (3) Check if the harness connecting the SYS and SLG boards is open-circuited and the connector pins are disconnected.
- (4) Check if the harness connecting 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

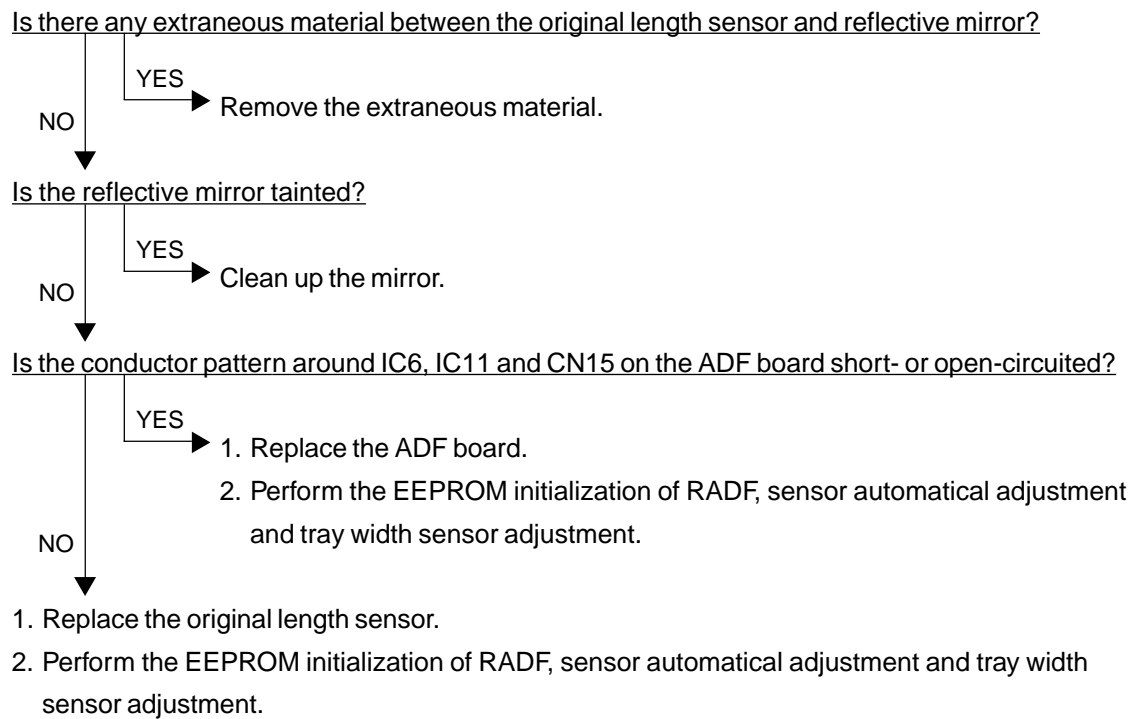
[C73] EEPROM initialization error

- (1) Check the ADF board, mainly IC13, for short- and open-circuits.
- (2) Replace the ADF board.
- (3) Perform the "Automatic adjustment of RADF sensor and EEPROM initialization" and "Adjustment of the tray width sensor".

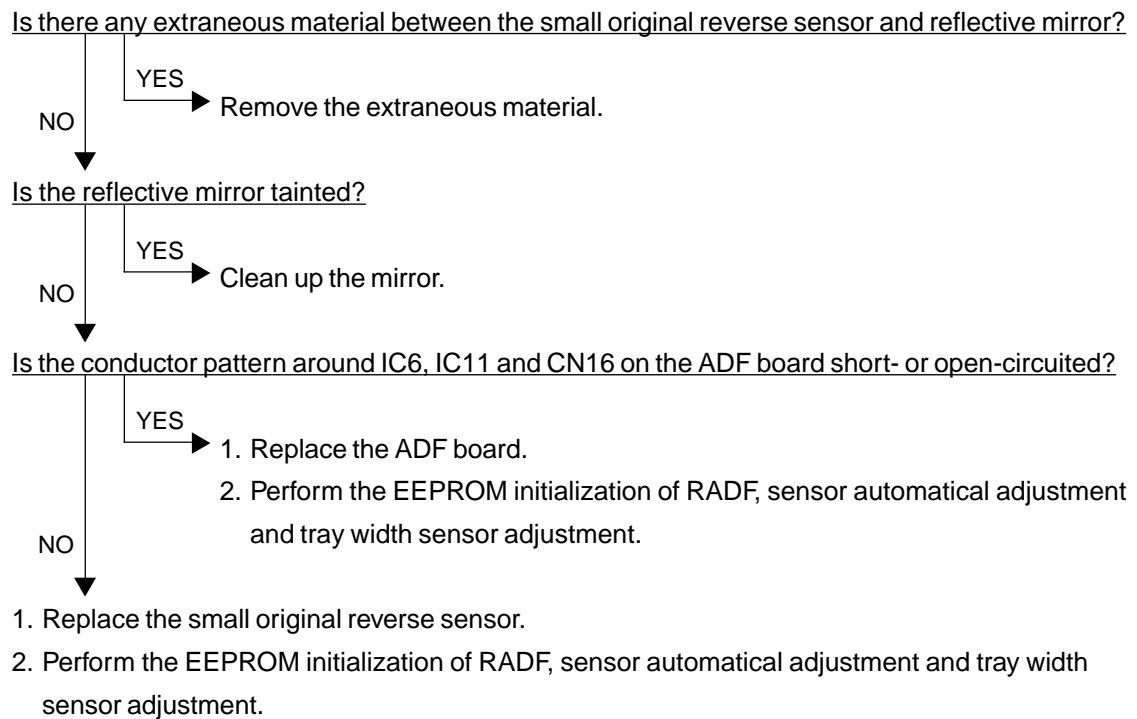
[C82] Read sensor adjustment error



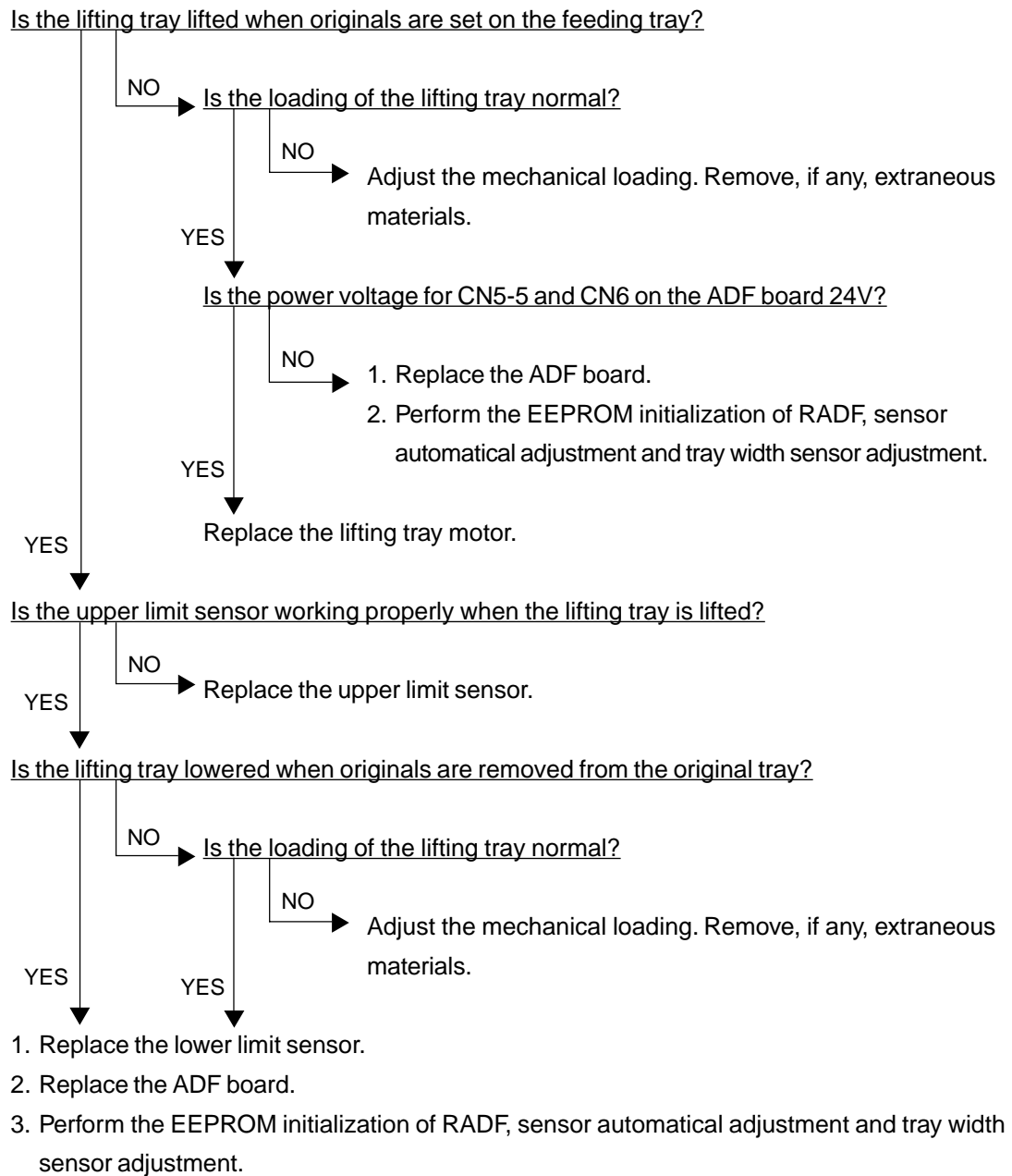
[C83] Original length sensor adjustment error



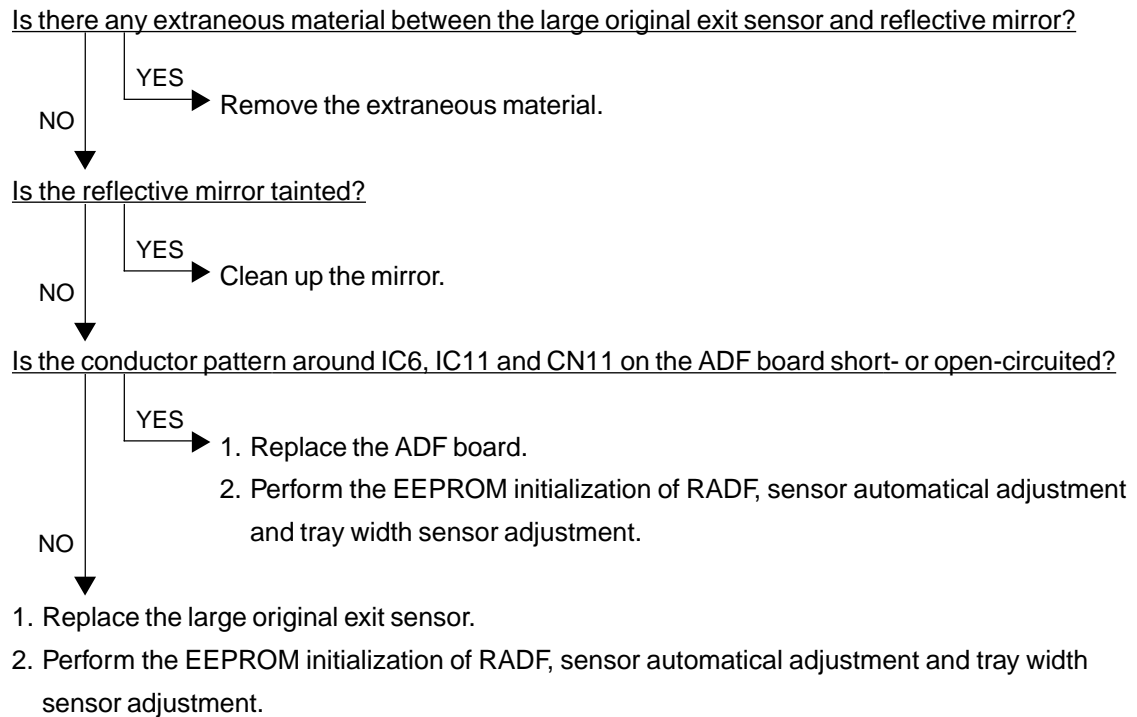
[C84] Small original reverse sensor adjustment error



[C85] Lifting tray motor error



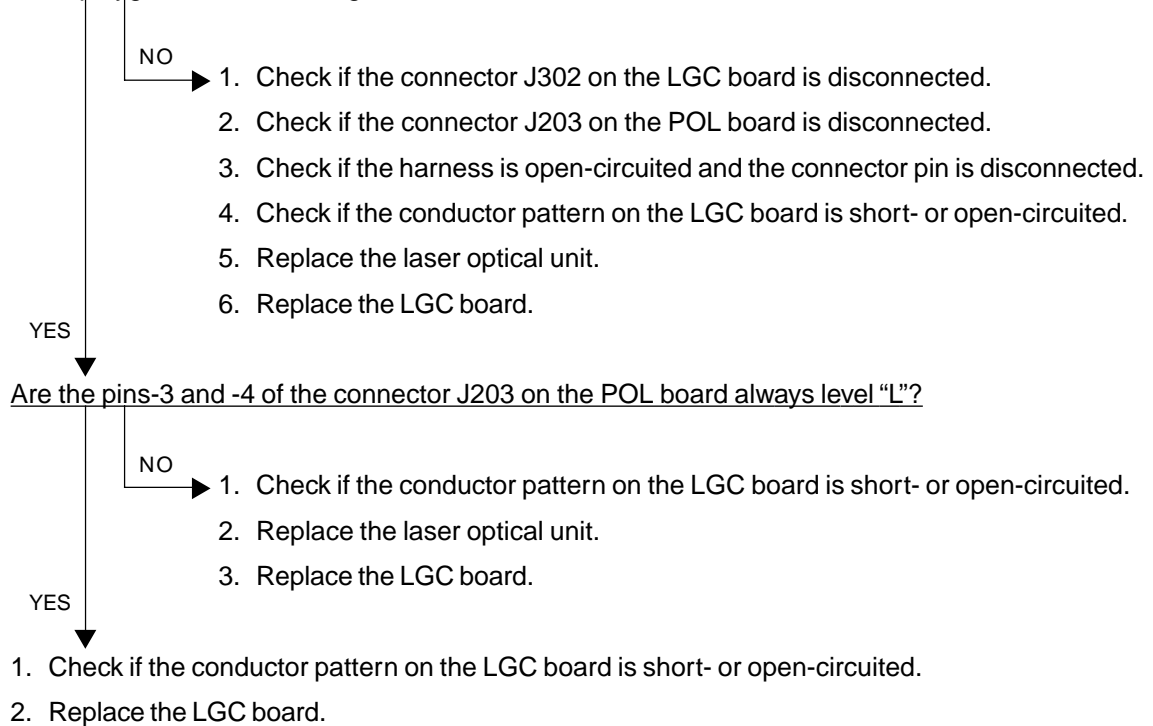
[C86] Large original exit sensor adjustment error



5. 1. 13. Laser optical unit related service call

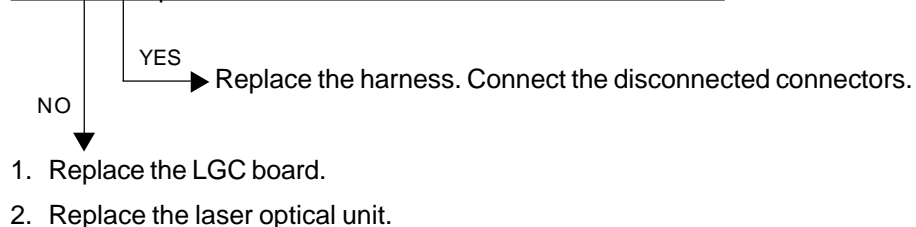
[CA1] Abnormal polygonal motor

Is the polygonal motor rotating?



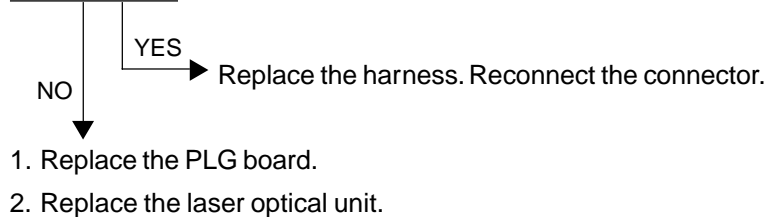
[CA2] H-Sync detection error

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



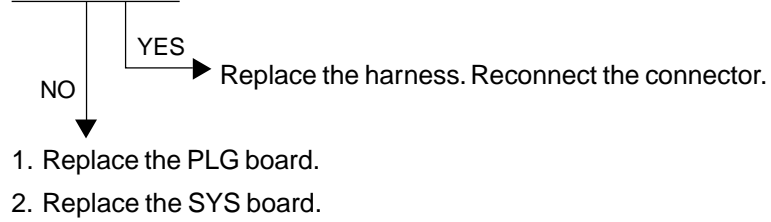
- [CA3] Secondary scanning coarse adjustment
- [CA5] Laser power adjustment error
- [CA6] Laser calibration error
- [CAA] Secondary scanning fine adjustment error
- [CAB] Secondary scanning inter-page compensation error
- [CAC] Primary scanning dot adjustment error
- [CD0] Laser initializing time out
- [CE0] Abnormal comparator
- [CE1] Beam sensor detection error
- [CE2] Busy sensor
- [CE3] Primary scanning adjustment error
- [CE4] Abnormal window comparator

Is any harness between the PLG board and galvanic mirror, PLG board and laser drive PC board and PLG board and H-Sync detection PC board open-circuited or any connector disconnected?



[CA9] Sending error of the image data from the SYS board

Is the harness between the PLG board and SYS board open-circuited or the connector disconnected?

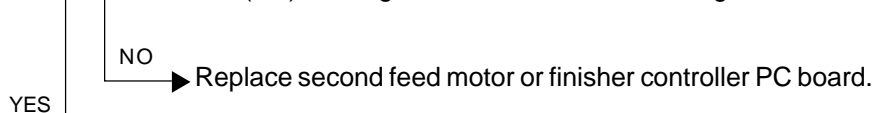


5. 1. 14 . Finisher related service call

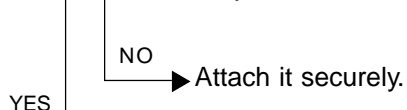
[CB1] Abnormal feed motor

[Procedure 1]

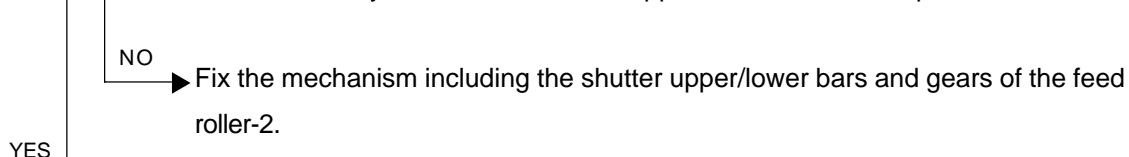
Is second feed motor (M8) rotating in reverse at the fixed timing?



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



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

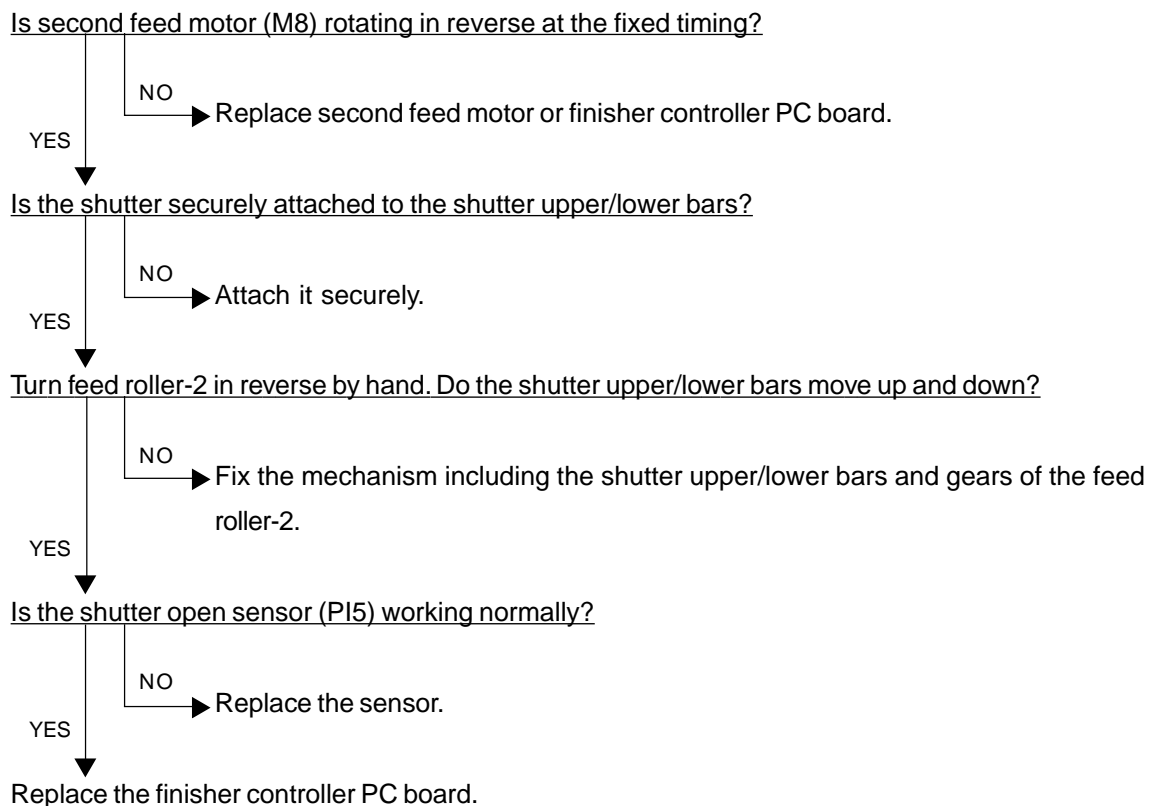


Is the shutter closed detecting switch (MS4) working normally?

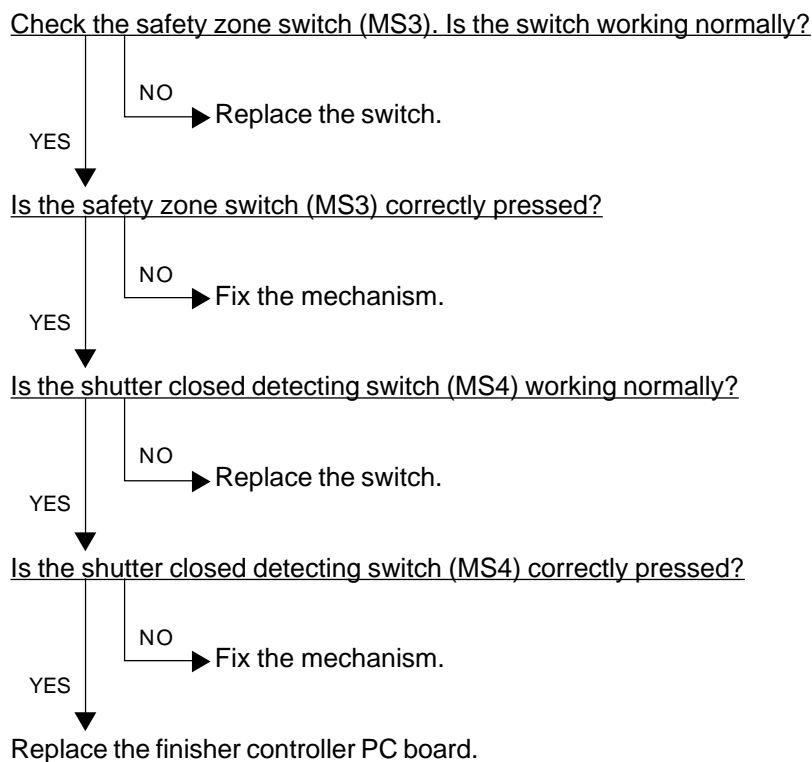


Replace the finisher controller PC board.

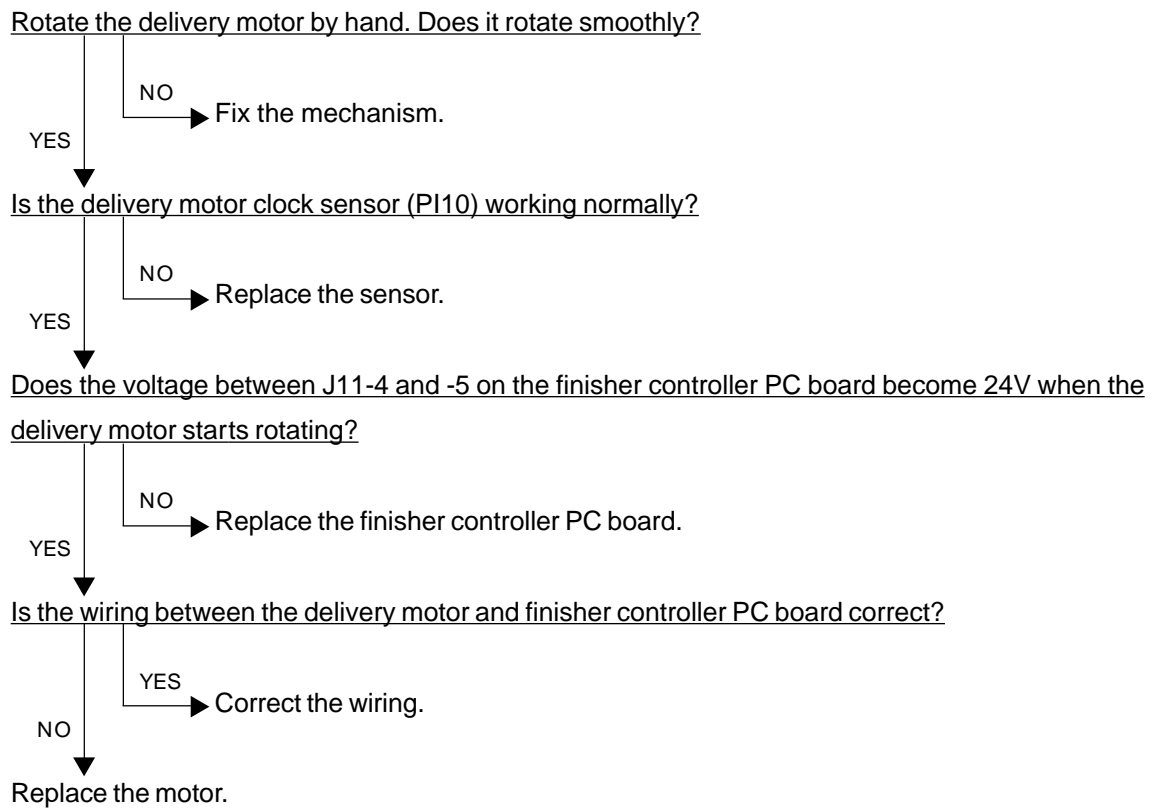
[Procedure 2]



[Procedure 3]



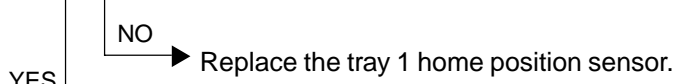
[CB2] Abnormal delivery motor



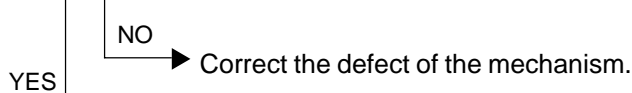
[CB3] Tray lifting motor driving abnormally

<Procedure 1>

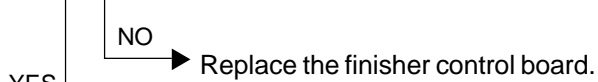
Is the tray 1 home position sensor working properly?



Is the tray 1 lifting mechanism working properly?



Is 24V supplied to the tray1 lifting motor from the finisher control board at the timing of tray driving?



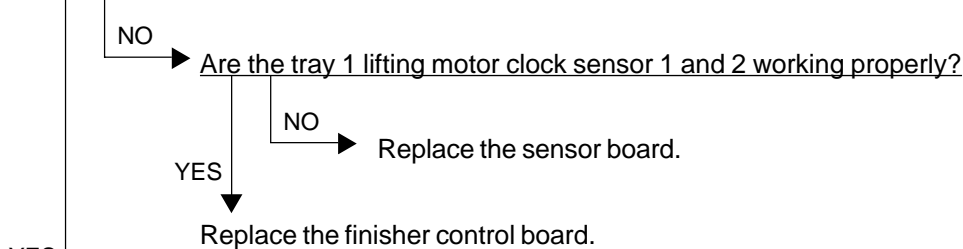
Is the harness between the finisher control board and tray 1 lifting motor normal?



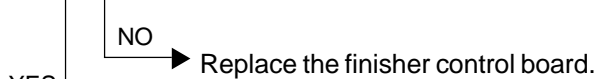
Replace the tray 1 lifting motor.

<Procedure 2>

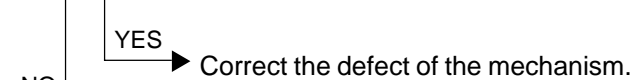
Is the tray 1 lifted/lowered?



Is the power supplied to the motor from the finisher control board at the timing of tray 1 lifting?



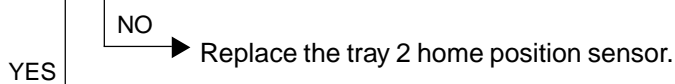
Is there any abnormality at the tray 1 lifting mechanism?



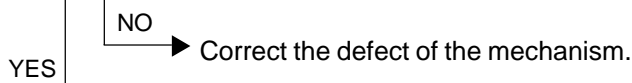
Replace the tray 1 lifting motor.

<Procedure 3>

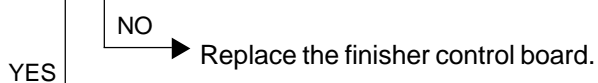
Is the tray 2 home position sensor working properly?



Is the tray 2 lifting mechanism working properly?



Is 24V supplied to the tray 2 lifting motor from the finisher control board at the timing of tray driving?



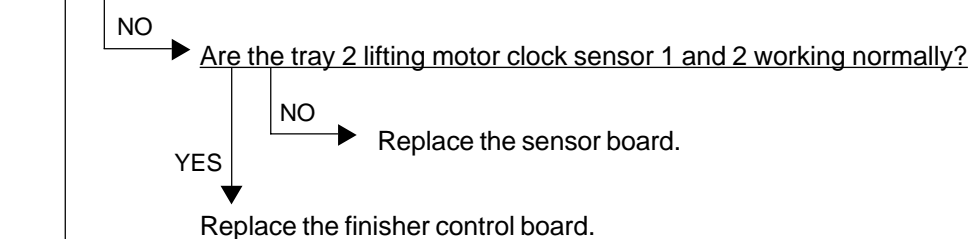
Is the harness between the finisher control board and tray 2 lifting motor normal?



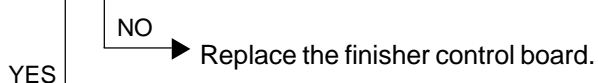
Replace the tray 2 lifting motor.

<Procedure 4>

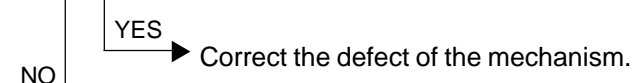
Is the tray 2 lifted/lowered?



Is the power supplied to the motor from the finisher control board at the timing of tray 2 lifting?

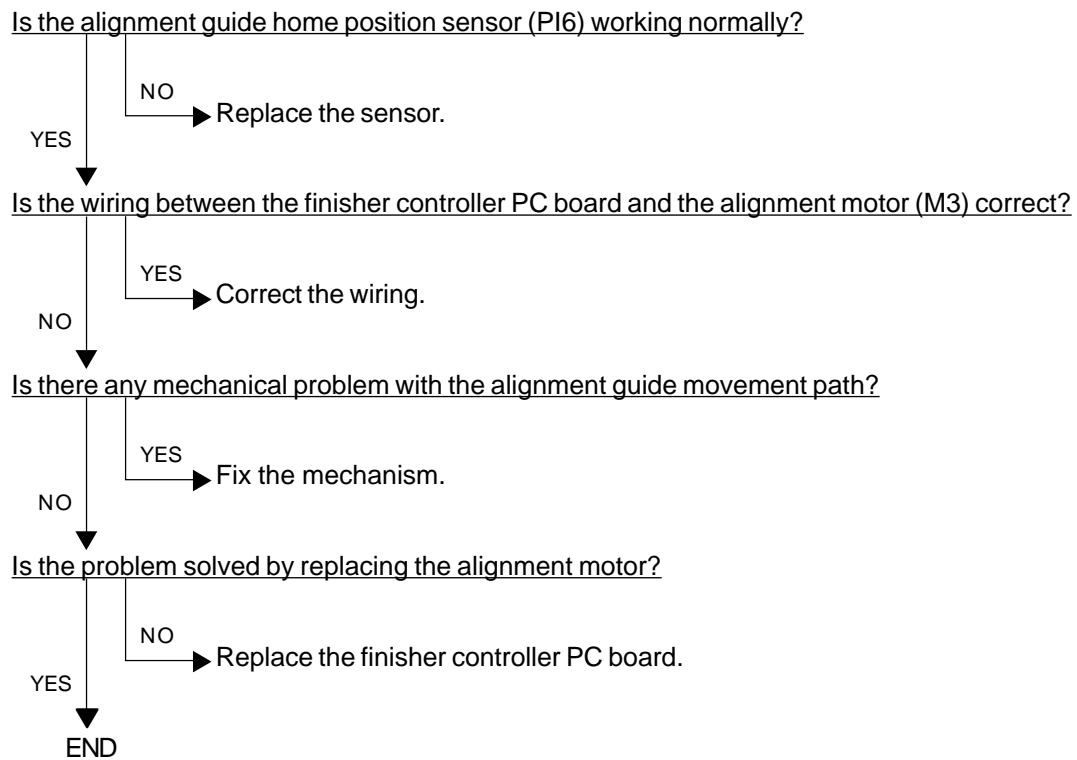


Is there any abnormality at the tray 2 lifting mechanism?

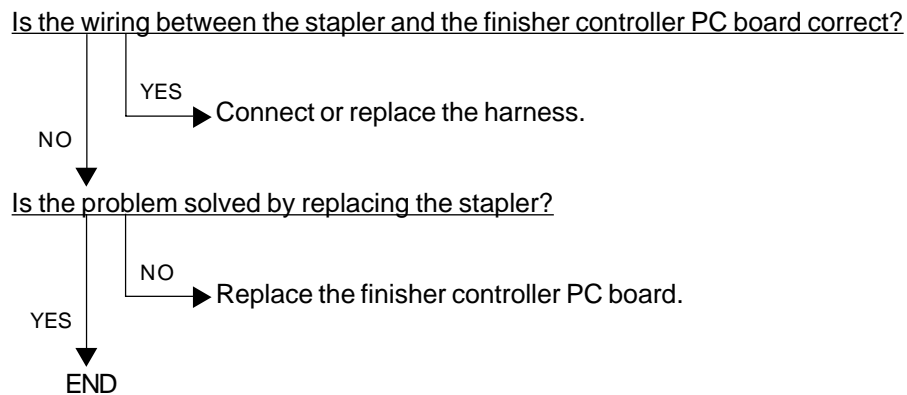


Replace the tray 2 lifting motor.

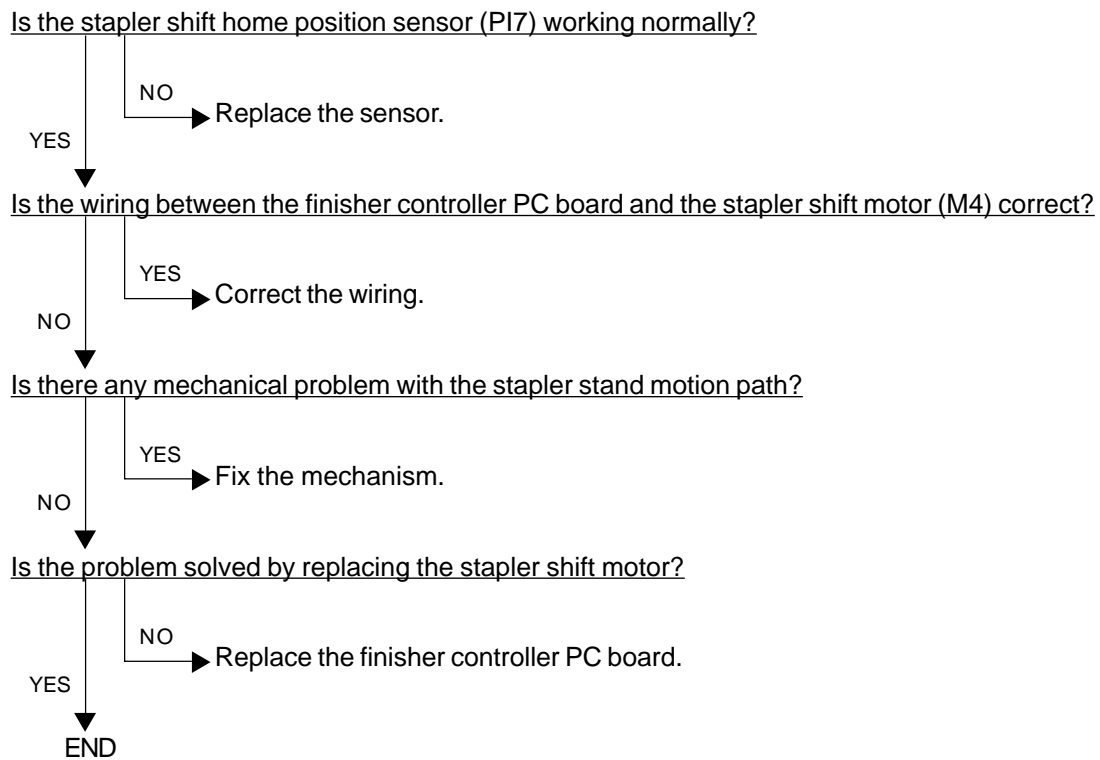
[CB4] Abnormal alignment motor



[CB5] Abnormal stapler motor

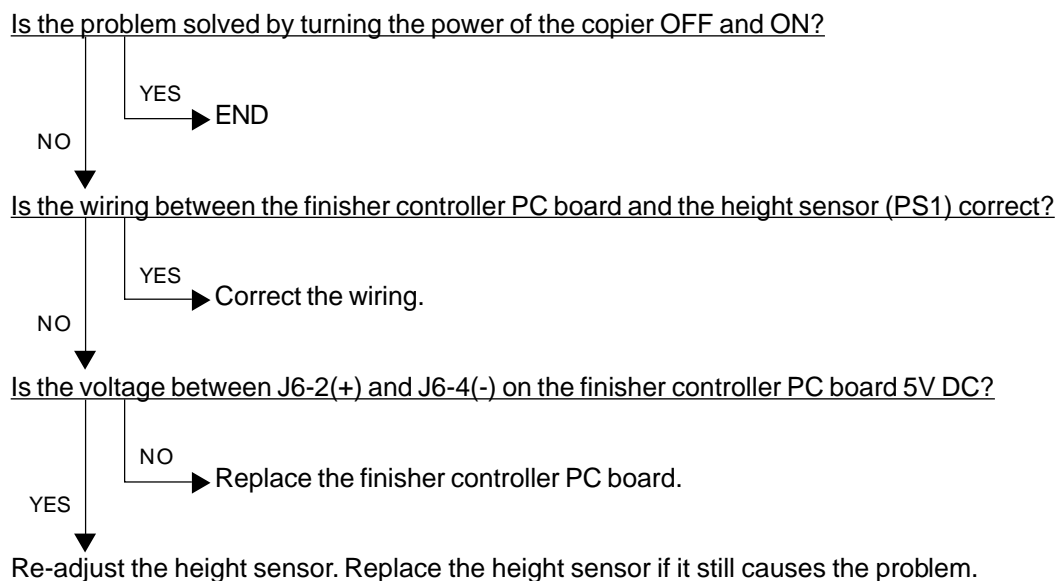


[CB6] Abnormal stapler shift motor



[CB7] Abnormal height sensor

[Procedure 1]

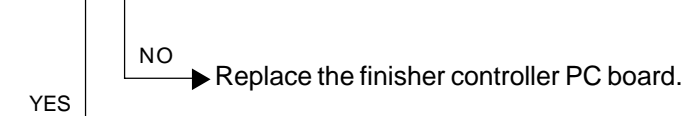


[Procedure 2]

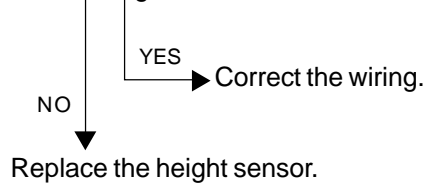
Is the connector J6 on the finisher controller PC board, J114 of the height sensor (PS1) or relay connector J212 and J213 disconnected?



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

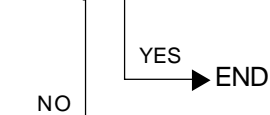


Is the wiring between the finisher controller PC board and height sensor correct?

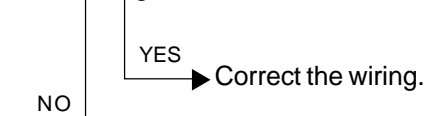


[Procedure 3]

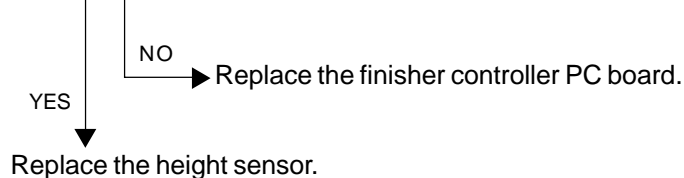
Is the problem solved by readjusting the DIP switch?



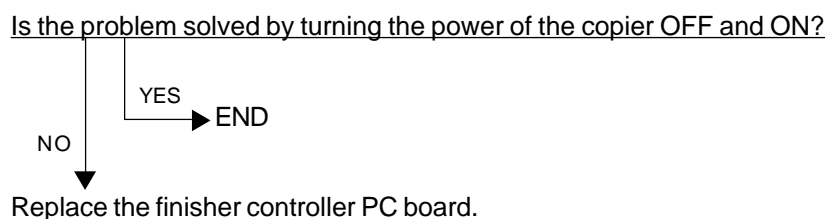
Is the wiring between the finisher controller PC board and height sensor (PS1) correct?



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

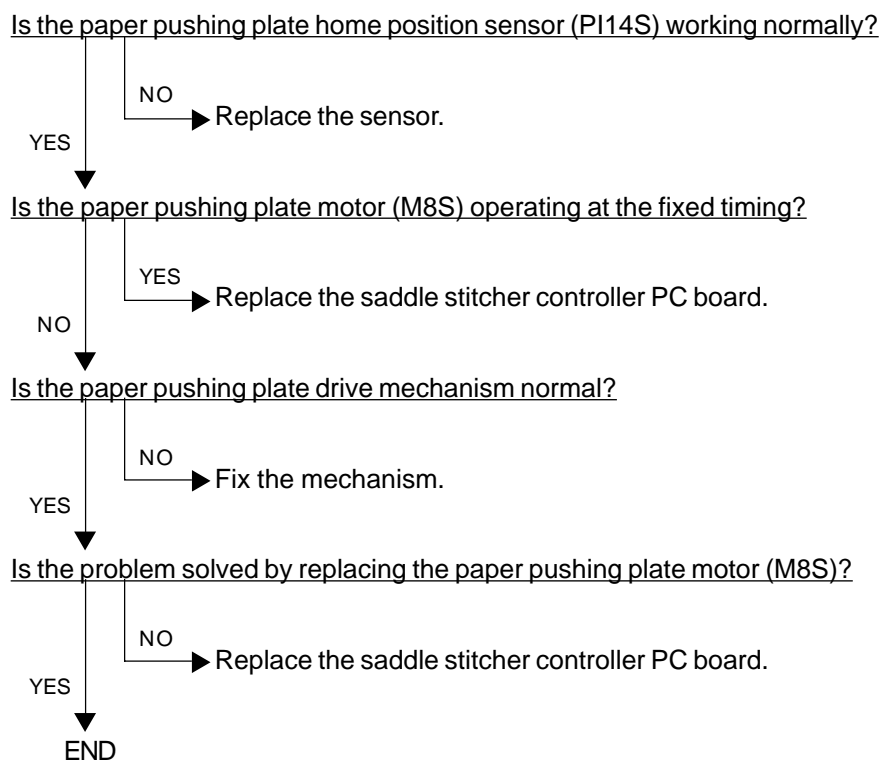


[CB8] Abnormal backup RAM data

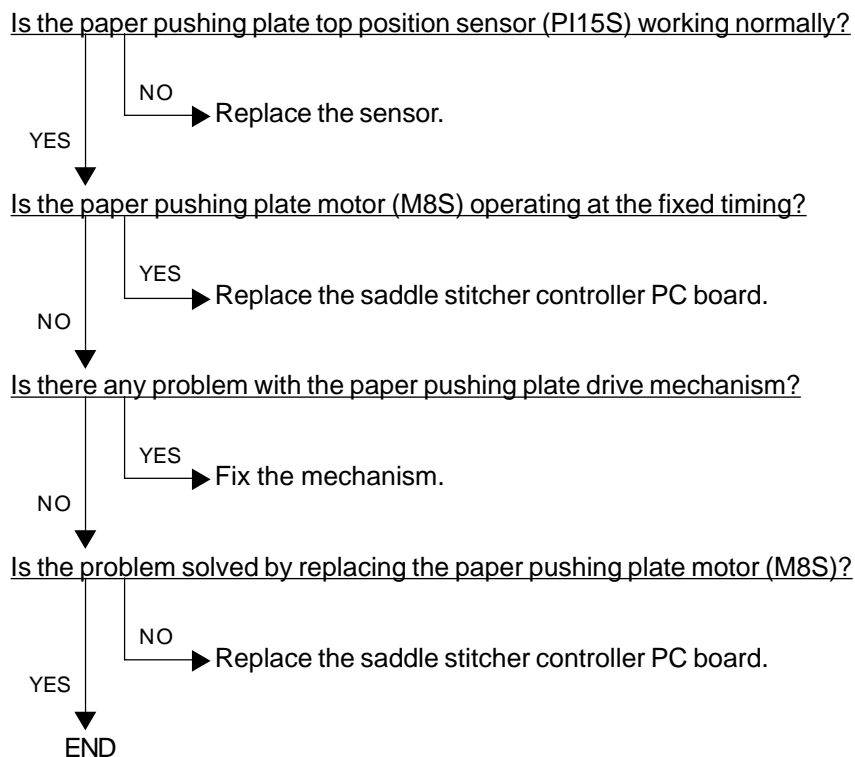


[CB9] Abnormal saddle stitcher paper pushing plate motor

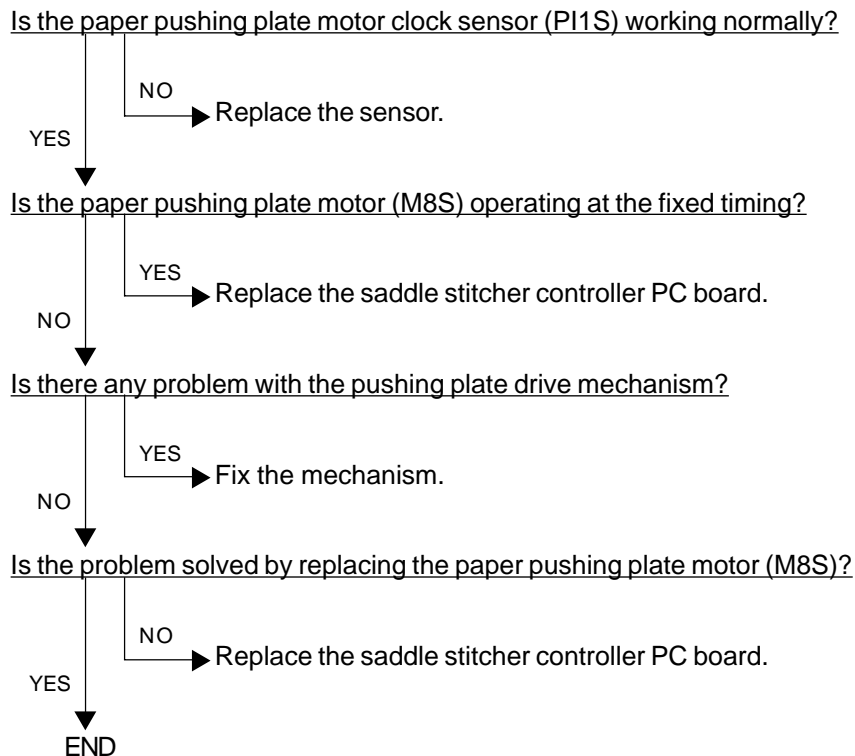
[Procedure 1]



[Procedure 2]

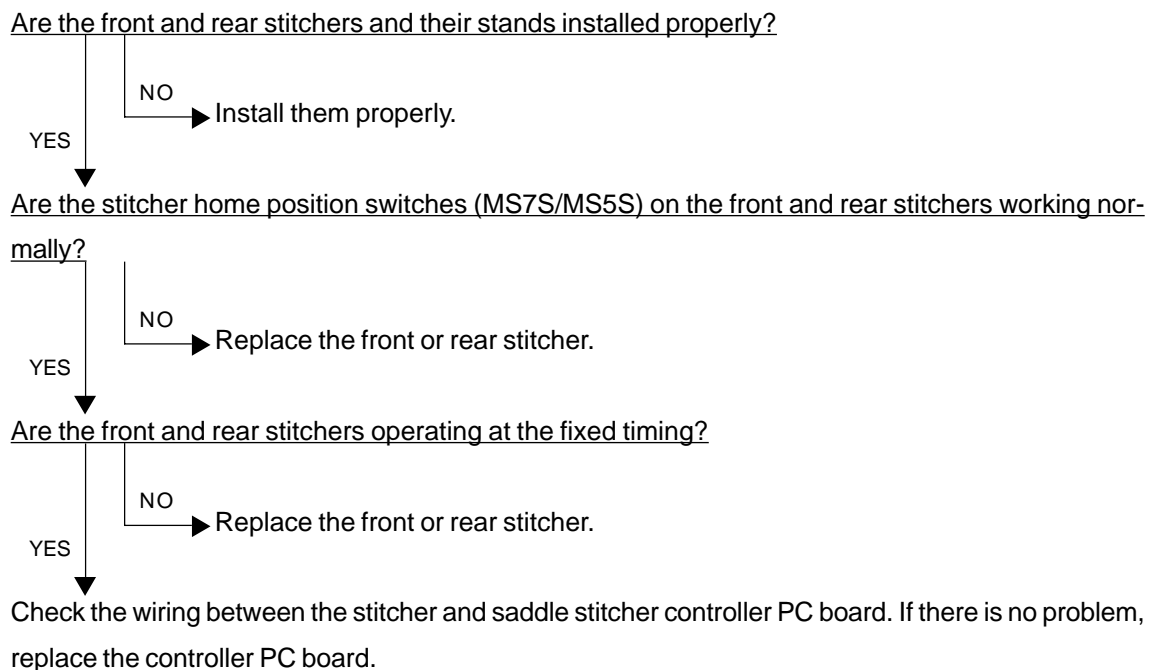


[Procedure 3]

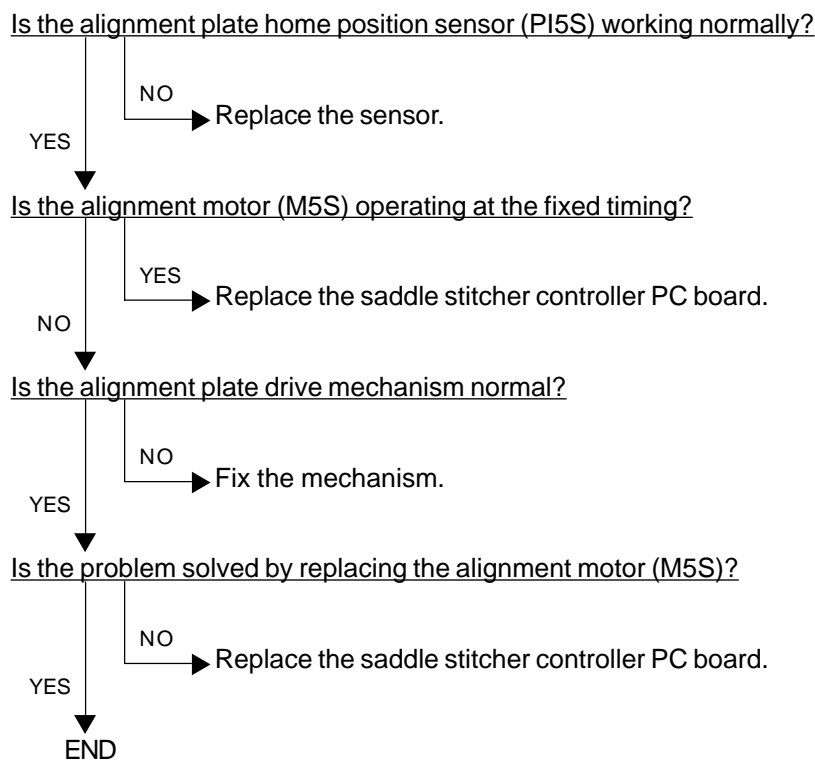


[CBA] Abnormal saddle stitcher stitch motor (front)

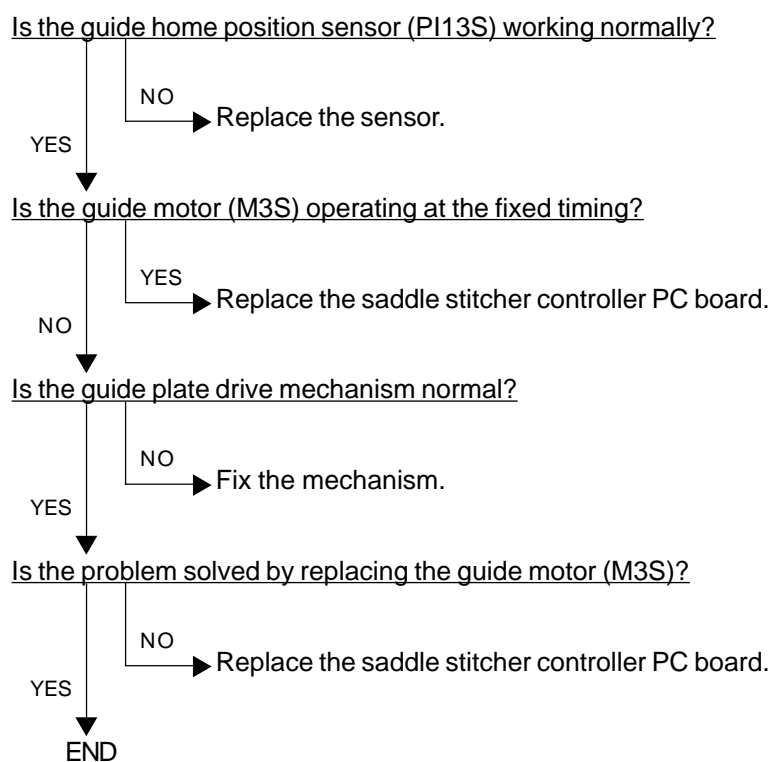
[CBB] Abnormal saddle stitcher stitch motor (rear)



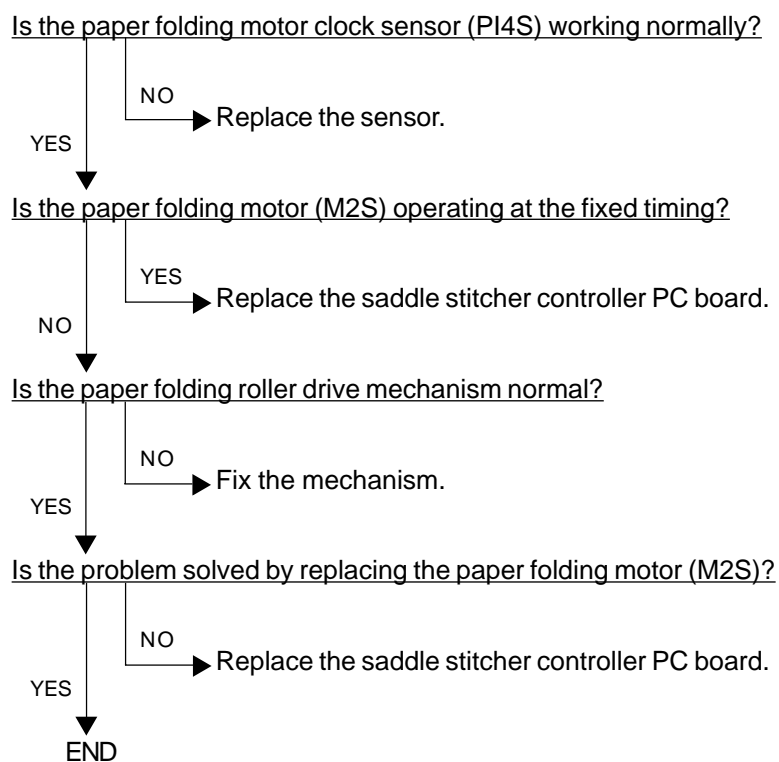
[CBC] Abnormal saddle stitcher alignment motor



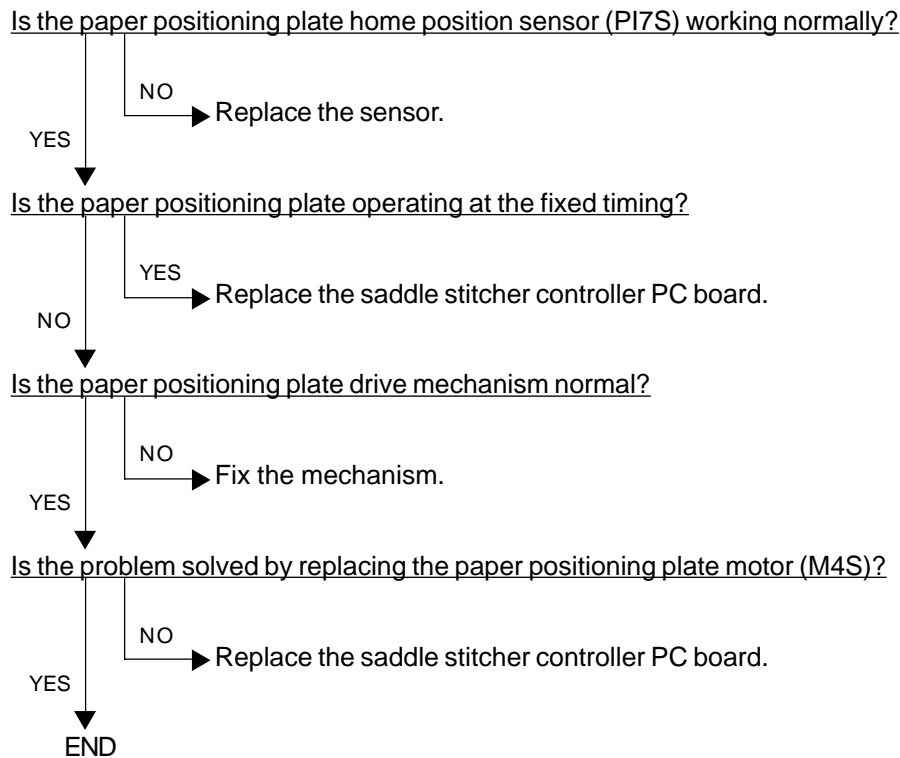
[CBD] Abnormal saddle stitcher guide motor



[CBE] Abnormal saddle stitcher paper folding motor

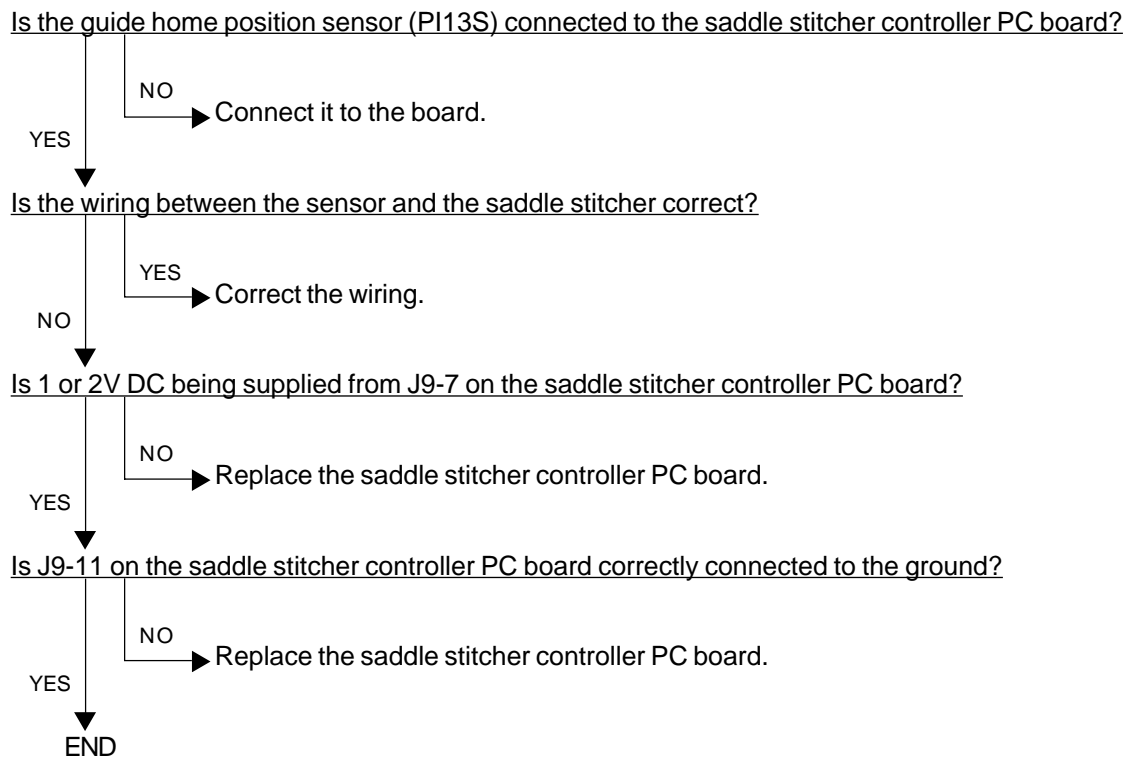


[CBF] Abnormal saddle stitcher paper positioning plate motor



[CC0] Saddle stitcher sensor connector connection error

[Procedure 1]

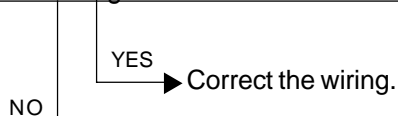


[Procedure 2]

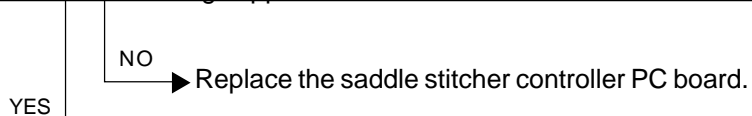
Is the paper pushing plate home position sensor (PI14S) connected to the saddle stitcher controller PC board?



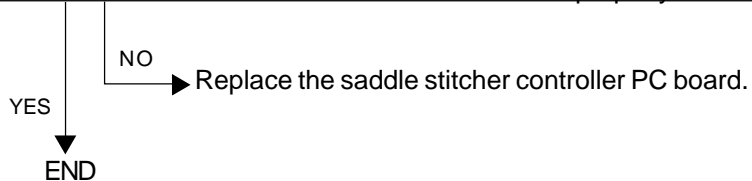
Is the wiring between the sensor and the saddle stitcher correct?



Is 1 or 2V DC being supplied from J9-10 on the saddle stitcher controller PC board?



Is J9-11 on the saddle stitcher controller PC board properly connected to the ground?

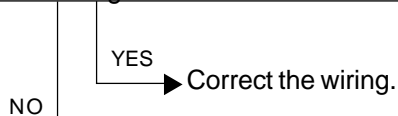


[Procedure 3]

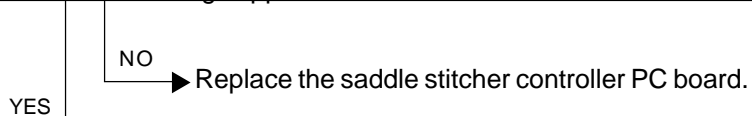
Is the paper pushing plate top position sensor (PI15S) connected to the saddle stitcher controller PC board?



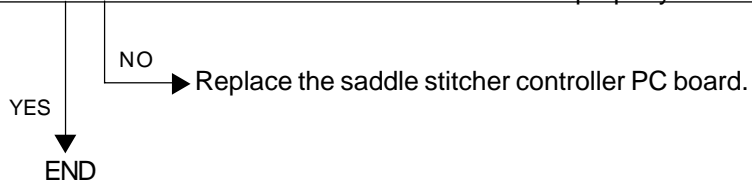
Is the wiring between the sensor and the saddle stitcher correct?



Is 1 or 2V DC being supplied from J9-13 on the saddle stitcher controller PC board?



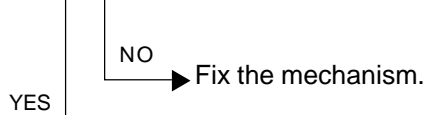
Is J9-14 on the saddle stitcher controller PC board properly connected to the ground?



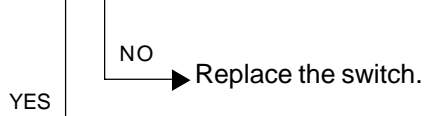
[CC1] Abnormal Saddle stitcher microswitch

[Procedure 1]

Is the switch actuator for the inlet door working properly?

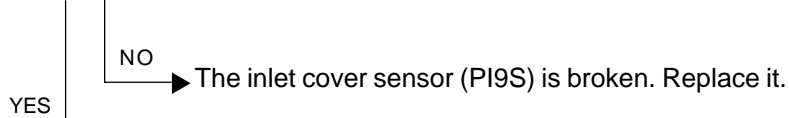


Is the inlet cover switch (MS1S) working normally?

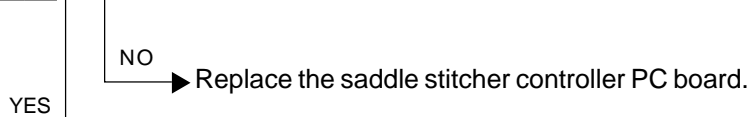


Measure the voltage of J10-8 on the saddle stitcher controller PC board when the inlet door is open.

Is it 5V?



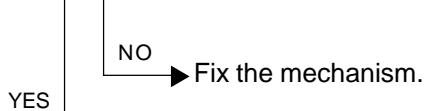
Measure the voltage between J19-2 (+) and J19-1 (-) on the saddle stitcher controller PC board. Is it 24 V?



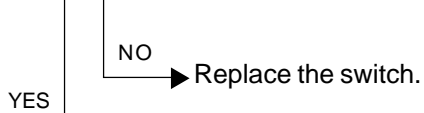
Check the wiring between J19 on the finisher controller PC board and J1 on the saddle stitcher controller PC board. If there is no problem, replace the saddle stitcher controller PC board.

[Procedure 2]

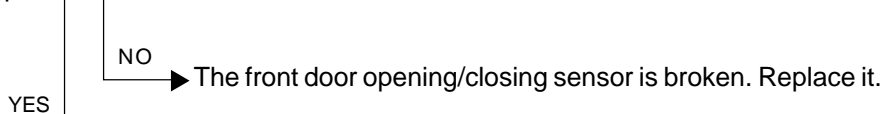
Is the switch actuator for the front door working properly?



Is the front cover switch (MS2S) working normally?



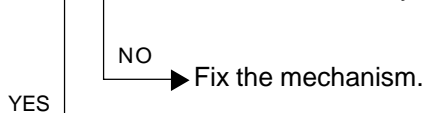
Measure the voltage of J11-12 on the saddle switcher controller PC board when the front door is opened. Is it 5V?



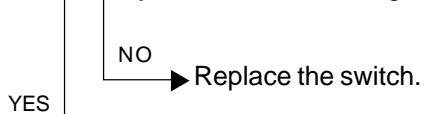
Replace the saddle stitcher controller PC board.

[Procedure 3]

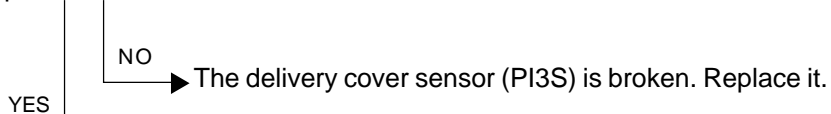
Is the switch actuator for the delivery door working properly?



Is the delivery cover switch working normally?

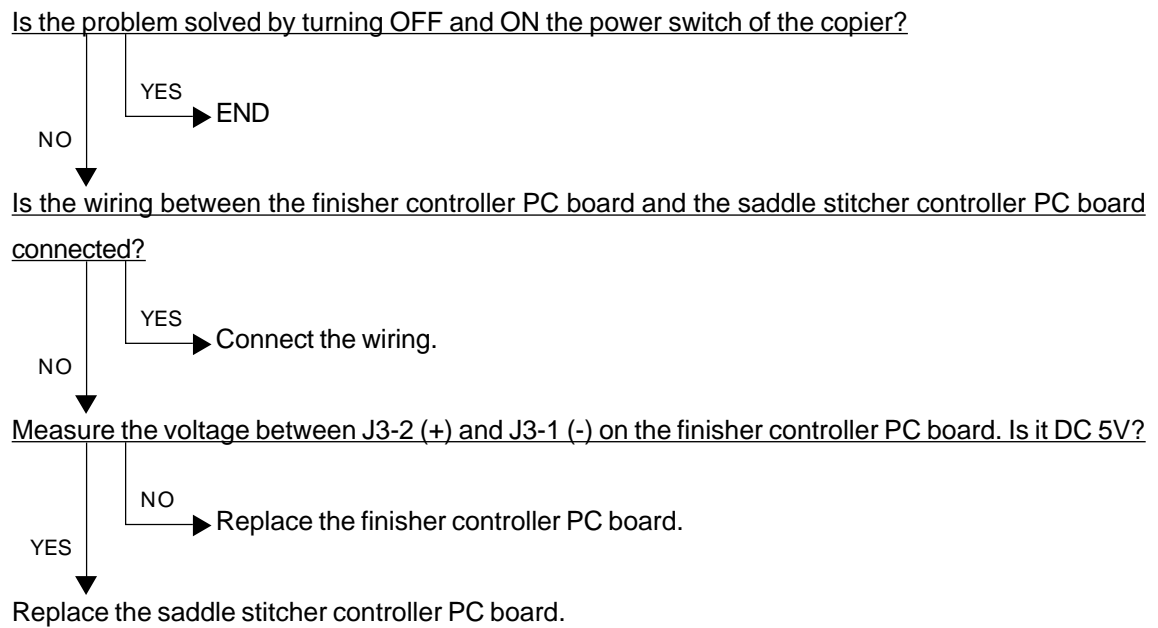


Measure the voltage of J11-9 on the saddle stitcher controller PC board when the delivery door is opened. Is it 5V ?



Replace the saddle stitcher controller PC board.

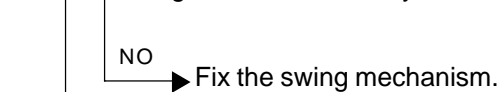
[CC2] Communication error between finisher and saddle stitcher



[CC4] Abnormal swing motor

[Procedure 1]

Rotate the swing motor in reverse by hand. Does the swing guide move up and down?



Is the swing guide closed detection switch-2 (MS6) working normally?



Is the swing guide open sensor (PI18) working normally?



Is the swing motor (M7) rotating in reverse at the fixed timing?



END

[Procedure 2]

Is the safety zone switch (MS3) working normally?



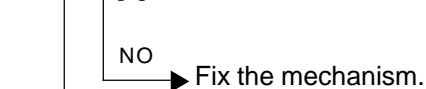
Is the safety zone switch (MS3) correctly pressed?



Is the swing guide closed detection switch-2 (MS6) working normally?



Is the swing guide closed detection switch-2 (MS6) correctly pressed?



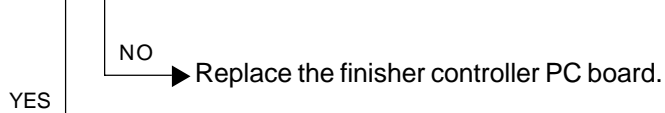
Replace the finisher controller PC board.

[Procedure 3]

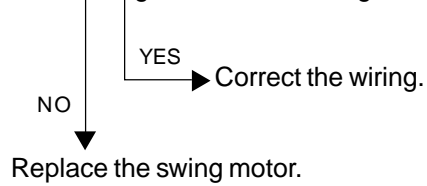
Is the swing motor clock sensor (PI20) working normally?



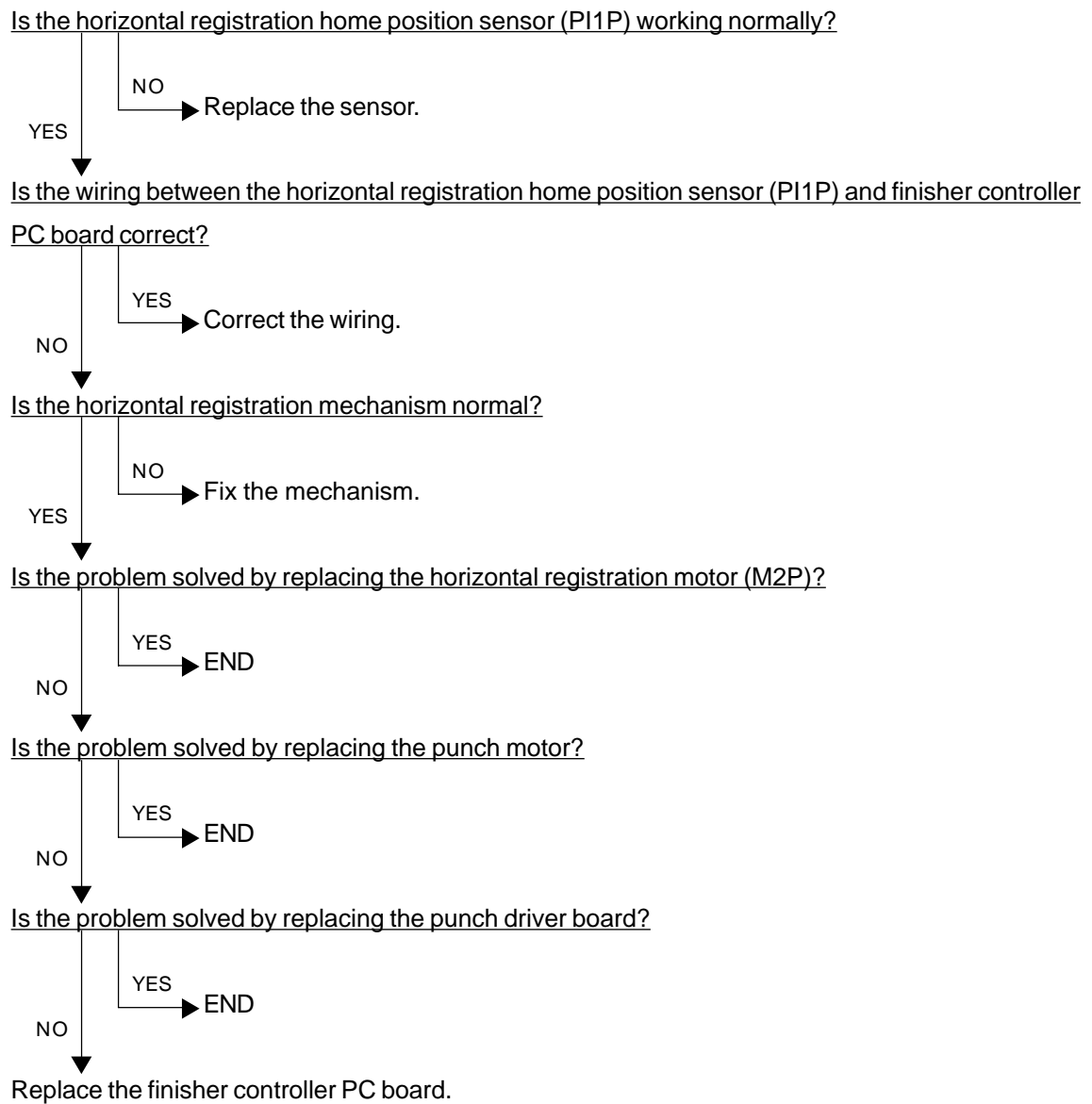
Does the voltage between J11-6 and -7 on the finisher controller PC board become 24V when the swing motor starts rotating?



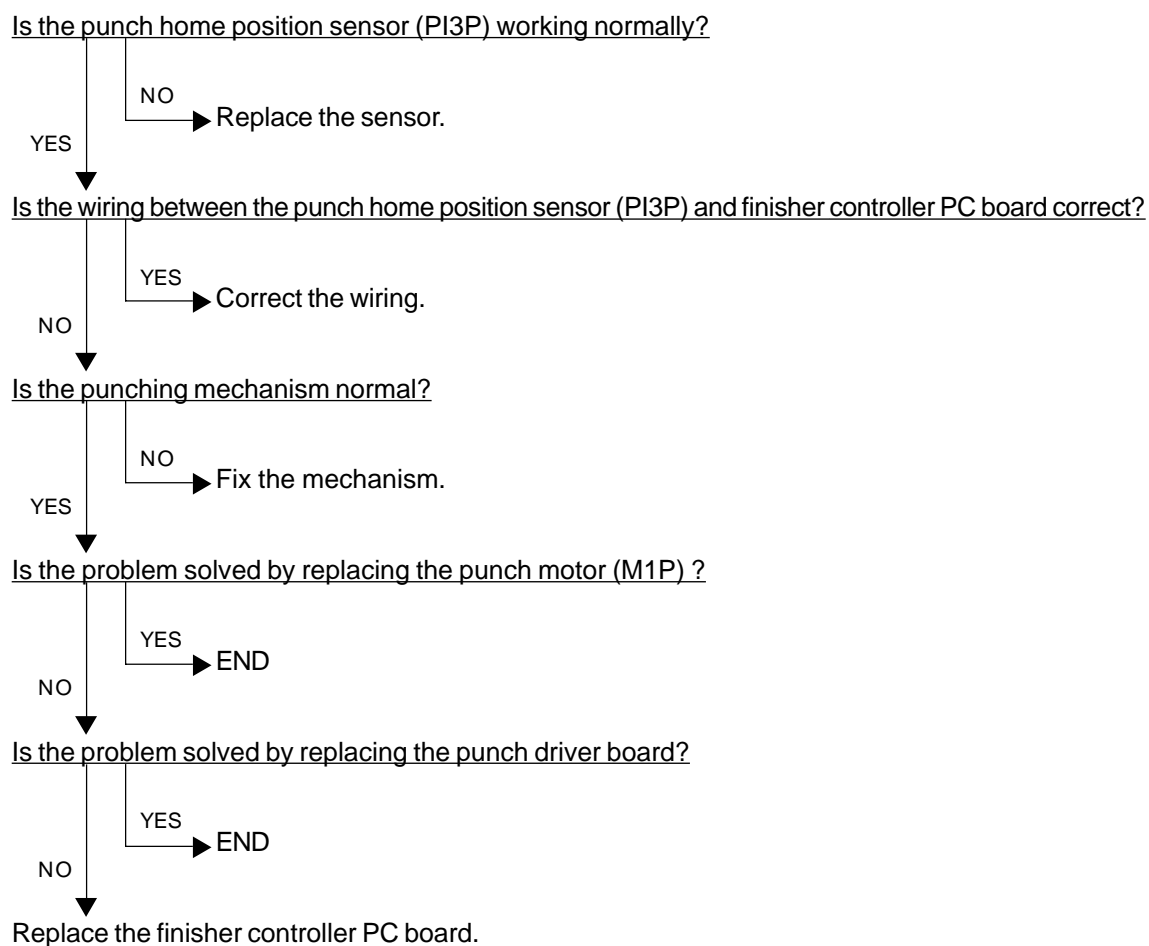
Is the wiring between the swing motor and finisher controller PC board correct?



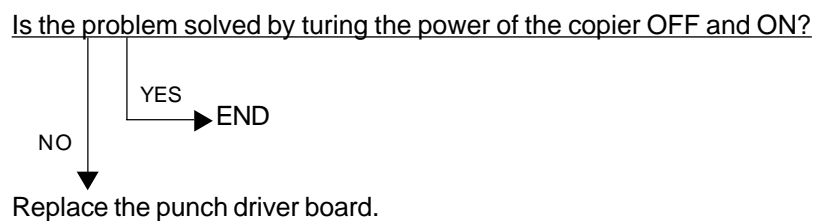
[CC5] Abnormal horizontal registration motor (with MJ-6003 connected)



[CC6] Abnormal punch motor (with MJ-6003 connected)



[CC7] Abnormal punch unit backup RAM data



[CCC] Communication error between the inserter and finisher

Is the harness between the finisher control board and inserter control board normal?

NO → Replace the harness.

YES ↓

Is 5V output to CN13-5 on the inserter control board?

YES → Replace the finisher control board.

NO ↓

Replace the inserter control board.

[CCD] Abnormal inserter EEPROM

Is the conductor pattern around IC5 on the inserter control board short- or open-circuited?

YES ↓

1. Replace the inserter control board.
2. Perform the inserter tray volume adjustment.

[CCE] Abnormal inserter fan

Is the harness between the inserter control board and inserter fan normal?

NO → Replace the harness.

YES ↓

Is the conductor pattern around Q11, Q16 and CN8 on the inserter control board short- or open-circuited?

NO → Replace the inserter fan.

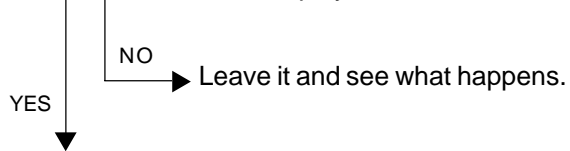
YES ↓

Replace the inserter control board.

5. 1. 15. Service call for others

[C94] Abnormal main CPU

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 J107 on the SYS board is disconnected.
- (7) Replace the HDD.
- (8) Replace the SYS board.
- (9) Replace the harness.

5. 1. 16. Troubleshooting for image quality control

[Corrective action when “Service Recommended for IQC” is blinked]

Check the control status of the image quality control(05-291).

<When “2” is displayed: pattern error>

The pattern is not read or formed correctly.

<When “4” is displayed: sensor error>

The sensor output is out of the acceptable range.

(1) Corrective action for pattern error

Output the test print (04-113 : 33-gradation pattern in subscanning direction).

Is there any abnormality (blank print, uneven image density, etc.) in the image?

YES → Replace the image quality sensor and perform the “enforced performing of image quality control”/“control status check” (described later).

NO

Is the developer unit inserted completely and locked?

YES → After completely inserting and locking the developer unit, perform the “enforced performing of image quality control”/“control status check” (described later).

NO

Is the main charger tainted or attached poorly?

NO → After cleaning the main charger or correcting the defect, perform the “enforced performing of image quality control”/“control status check” (described later).

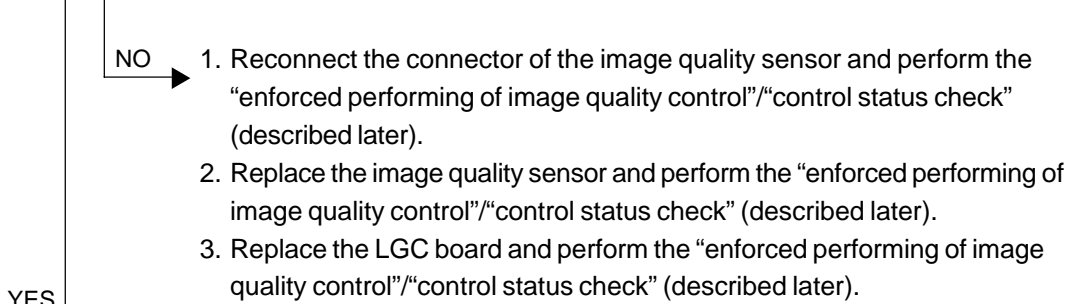
YES

1. Replace the developer unit and perform the “enforced performing of image quality control”/“control status check” (described later).
2. Replace the cleaner unit and perform the “enforced performing of image quality control”/“control status check” (described later).
3. Replace the transfer belt unit and perform the “enforced performing of image quality control”/“control status check” (described later).

(2) Corrective action for sensor error

Check the output value (sensor light source OFF) of the image quality sensor (05-292).

Is the output value within the range 102~307?



Check the output value (drum surface) of the image quality sensor (05-293).

Is the output value within the range (value for 08-814)x4~819?

- If the output value is within the range (value for 08-814)x4~819 -

Perform the "enforced performing of image quality control"/"control status check" (described later).

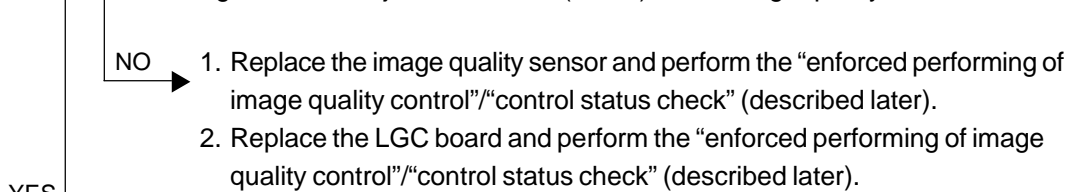
- If the output value is above 819 -

Replace the image quality sensor and perform the "enforced performing of image quality control"/"control status check" (described later).

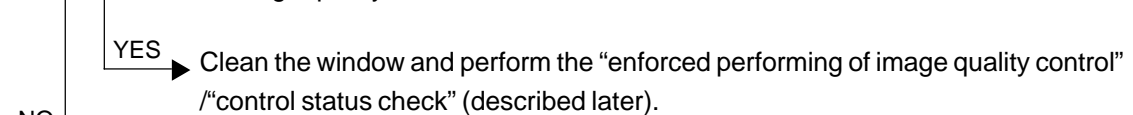
Replace the LGC board and perform the "enforced performing of image quality control"/"control status check" (stated later).

- If the output value is less than (value for 08-814)x4 -

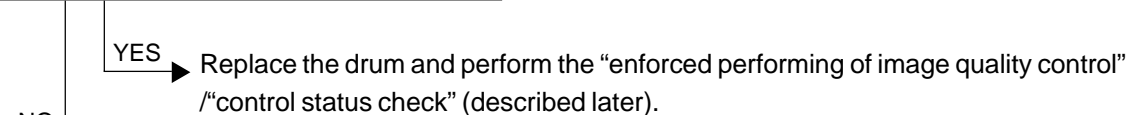
Is the value of the light amount adjustment result (5-296) of the image quality sensor 255?



Is the window of the image quality sensor tainted?



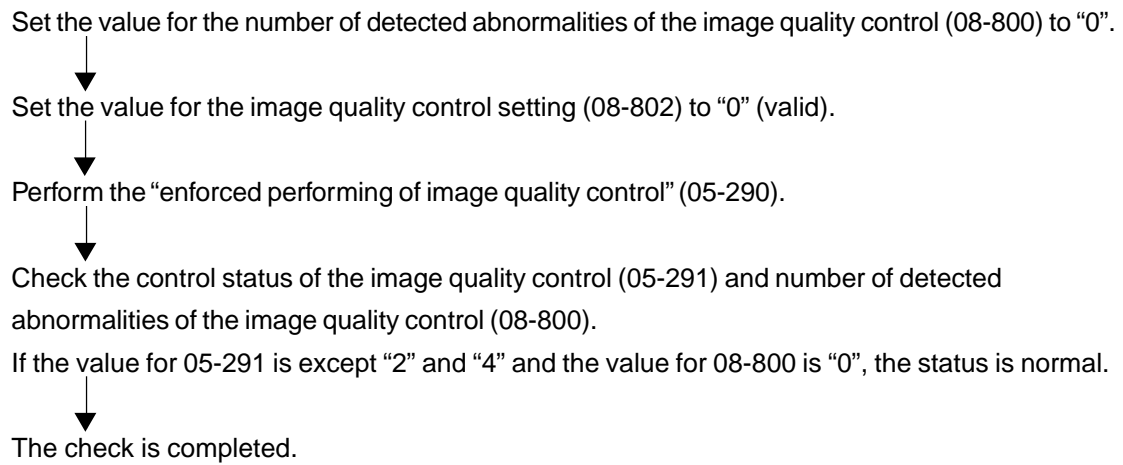
Is the center of the drum scarred or tainted?



1. Replace the image quality sensor and perform the "enforced performing of image quality control"/"control status check" (described later).

2. Replace the LGC board and perform the "enforced performing of image quality control"/"control status check" (described later).

<<Procedure of the “enforced performing of image quality control”/”control status check”>>



5. 1. 17. Troubleshooting for surface potential control

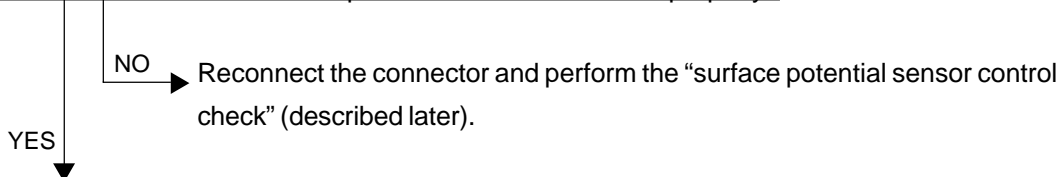
[Corrective action when “ Service Recommended for SPC” is blinked]

Check the control status of the surface potential sensor (05-242).

<When “4” is displayed: sensor error>

The sensor detection value is abnormal or the sensor output value is not changed even though the main charger bias value is changed.

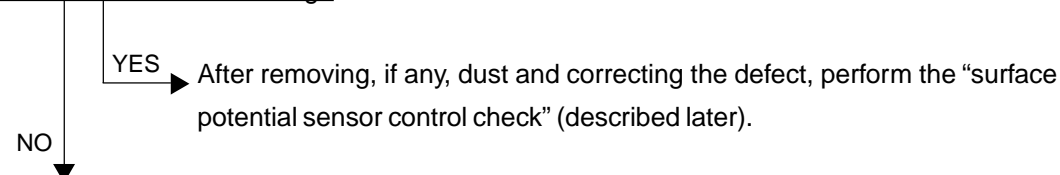
Is the connector of the surface potential sensor connected properly?



Is the main charger grid/wire attached poorly?

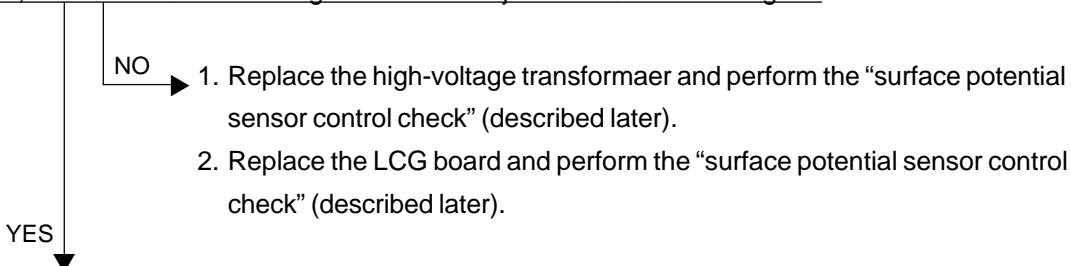
Is the main charger attached poorly?

Are leaks and such occurring?

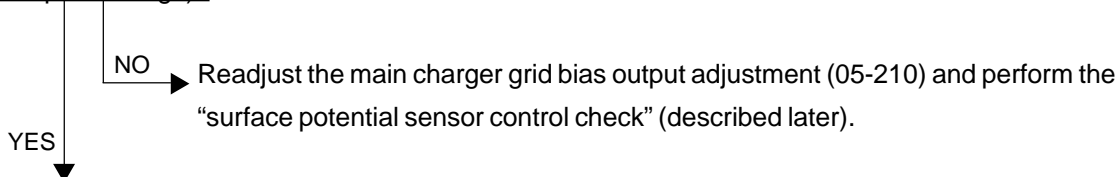


Is the main charger grid bias output when the main charger grid bias output adjustment (05-210) is performed?

Or, is the bias value is changed when the adjustment value is changed?



Does the output value of the main charger grid bias consist with the setting value (within the acceptable range)?



<<Procedure of the “surface potential sensor control check”>>

Set the value for the number of detected abnormalities of the drum surface potential control (08-420) to “0”.



Set the value for the drum surface potential setting (08-421) to “0” (valid).



Set the value for the auto-start print volume setting 1 of the image quality control (08-803) to “0” (valid).



Perform a test printing.



Check the control status of the surface potential sensor (05-242) and number of detected abnormalities of the surface potential sensor (08-420).

If the value for 05-242 is except “4” and the value for 08-420 is “0”, the status is normal.



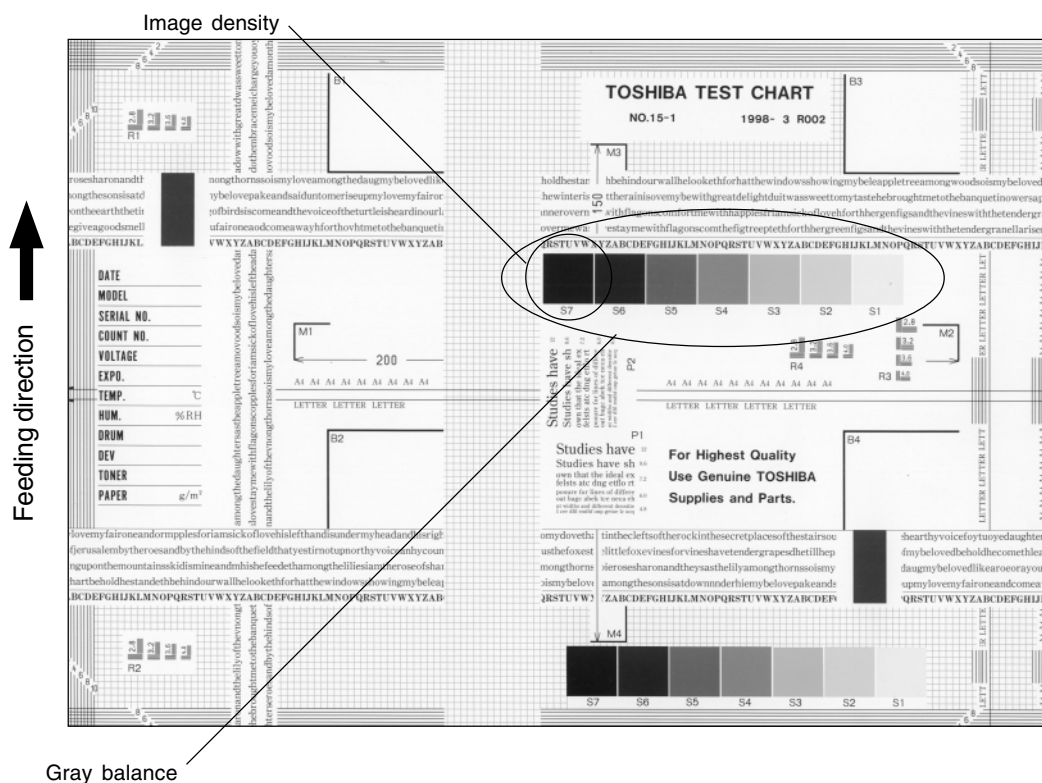
Return the value for the auto-start print volume setting 1 of the image quality control (08-803) to “2”.



The check is completed.

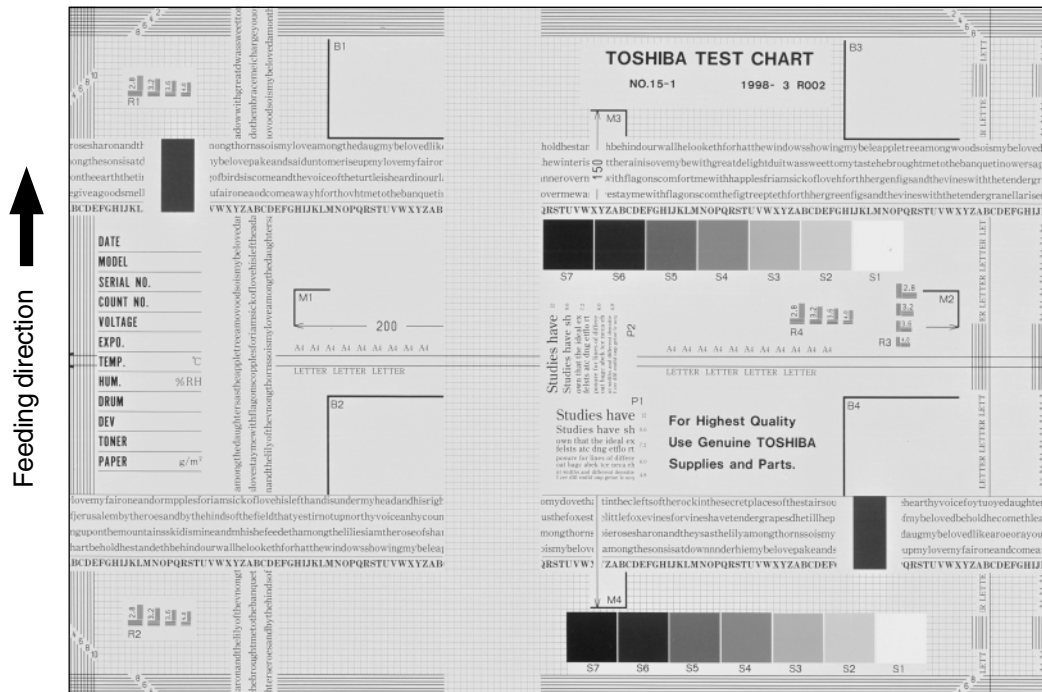
5.2 Troubleshooting for Image

(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 and check it.	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 occurring?	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



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 and check it.	Go to step 4 if there is any problem with the image.
Parameter adjustment value	3	Check the image processing parameter.	Check the range correction setting and the adjustment value of the background peak for range correction. (►ch. 3.4.4, ch. 3.4.5) If they need to be adjusted, check the print image in the above circle mark to adjust the adjustment value of the background peak for range correction.	
Scanner	4	Are the original glass (especially shading position), mirrors and lens dirty?	Clean them.	
Developer material/Toner /Photoconductive drum	5	Using the specified developer material, toner and photoconductive drum?	Use the specified developer material, toner and photoconductive drum.	
	6	Have the developer material and the photoconductive drum reached their PM life?	Replace the developer material and photoconductive drum.	
	7	Is the storage environment of the toner cartridge 35°C or less without dew?	Use the toner cartridge stored in the environment within specification.	

Defective area	Step	Check Items	Prescription	Remarks
Main charger output	8	Is the setting value proper? Is the main charger output normal?	If the setting value is out of specification, adjust it. If the output is not normal, check the circuits. (Note 1)	
Developer bias output	9	Is the setting value proper? Is the developer bias output normal?	If the setting value is out of specification, adjust it. If the output is not normal, check the circuits. (Note 1)	
Increasing toner density	10	Is the performance of the auto-toner sensor control normal?	Check the performance of the auto-toner sensor.	
	11	Is the toner density high?	Adjust the toner density. (Note 2: See the toner density correcting method.)	
Image quality sensor/ Surface potential sensor	12	Are the image quality sensor and the surface potential sensor normal?	Check the performance of the image quality sensor and the surface potential sensor. (See the troubleshooting related with the image quality control.)	
Drum cleaning blade	13	Is the drum cleaned properly?	See the troubleshooting for the poor cleaning.)	

Note 1:

If the output from the main charger or the developer bias is 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 is open-circuited, if the power supply is normal and if the main charger wire is dirty.

Note 2:

Toner density correcting method

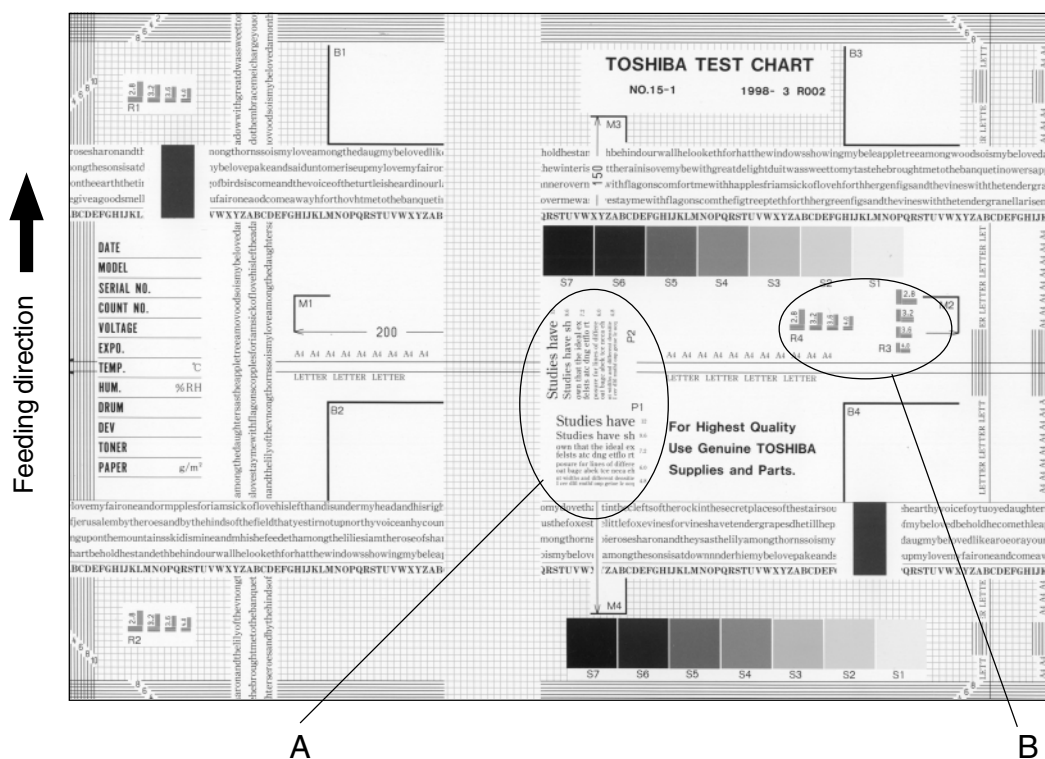
Change the setting value 'Toner density life correction setting (08-414)' (6 is the default setting.)

3: Appox. 1.5% lower than the current value	7: Appox. 0.3% higher than the current value
4: Appox. 0.8% lower than the current value	0: Appox. 0.5% higher than the current value
5: Appox. 0.3% lower than the current value	1: Appox. 0.8% higher than the current value
6: The current value (Default setting)	2: Appox. 1.5% higher than the current value

<Caution for correction>

When increasing or decreasing the toner density too much, the image may become poor or the life of developer material, cleaner, photoconductive drum and fuser unit, etc. may shorten. Therefore it is not recommended to correct (to shift) the toner density basically. If it is shifted, make sure that the image may be improper in a few minutes after shifting.

(3) Moire/lack of sharpness



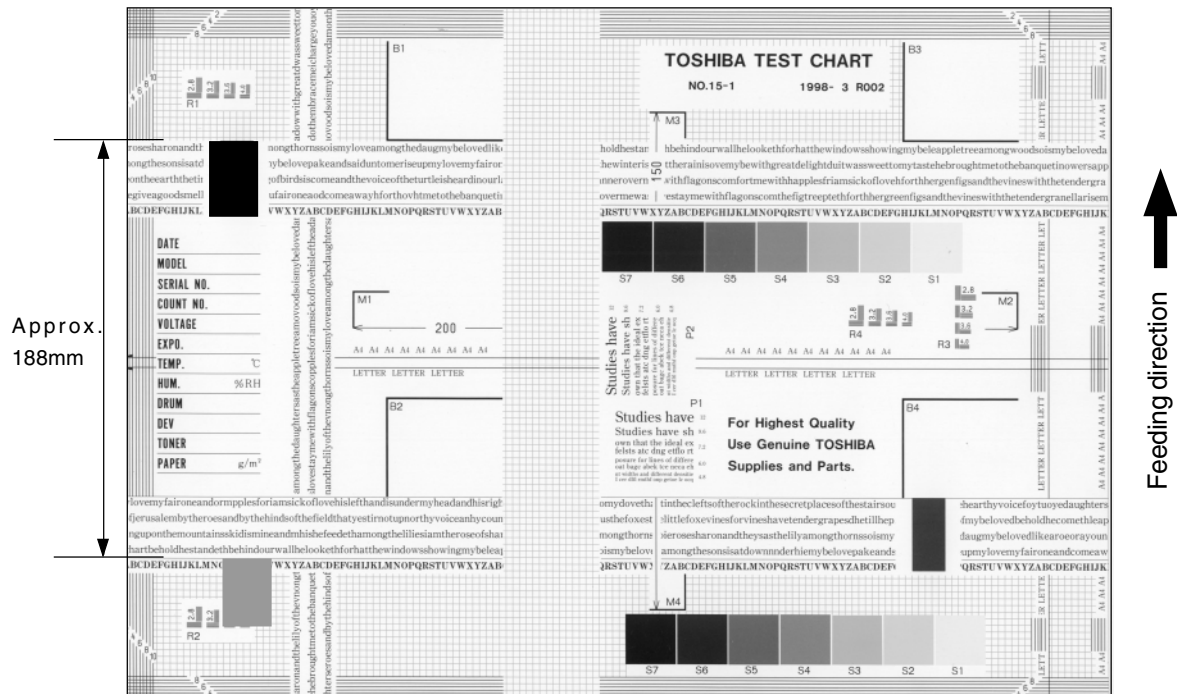
Moire

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. If it needs to be adjusted, check the encircled areas A and B in the image, and change the sharpness intensity in the sharpness adjustment mode.	
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.

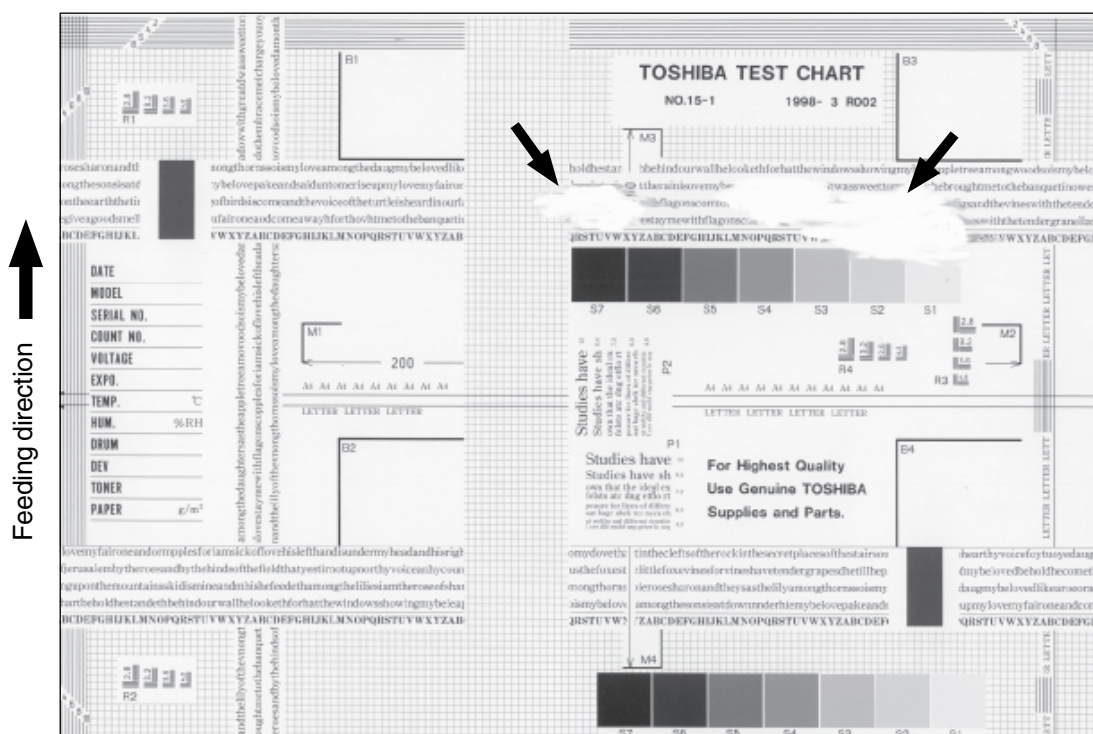
(4) Toner offset



Toner offset (Shadow image appears approx. 188 mm toward the dark image.)

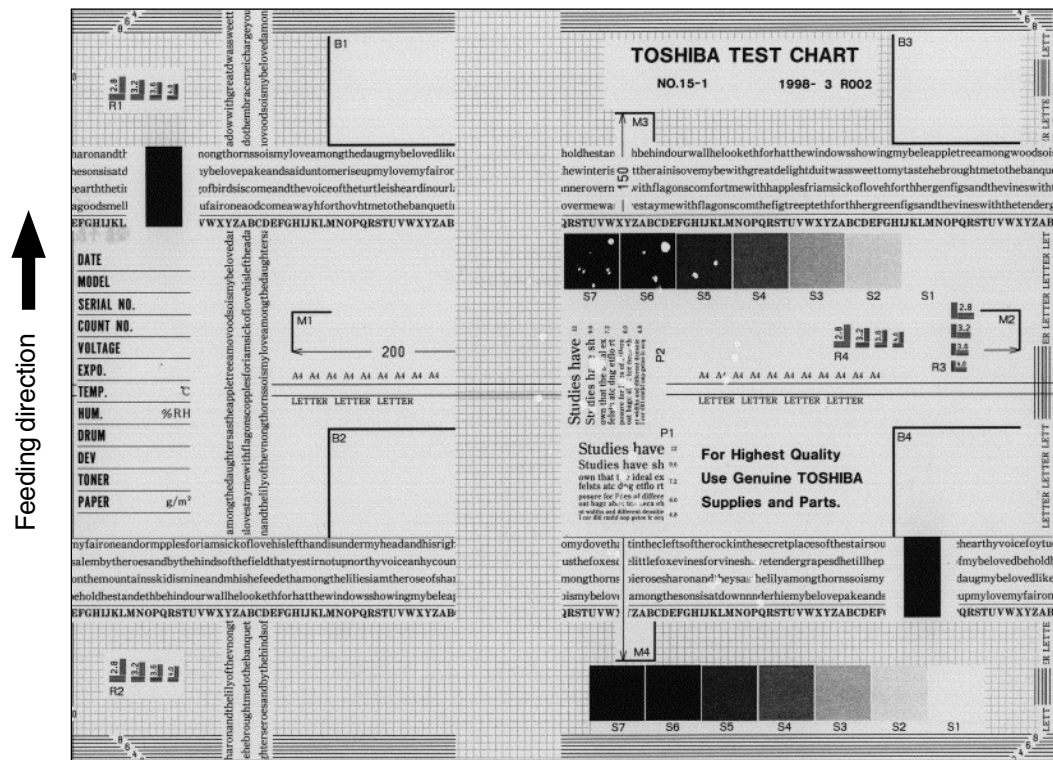
Defective area	Step	Check Items	Prescription	Remarks
Density	1	Is the density too high?	Adjust the density.	
Fuser unit	2	Is the pressurization of the fuser roller normal?	Check the pressure releasing parts and pressurization mechanism.	
	3	Is the thermistor in contact with the fuser roller?	Contact 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)	
	7	Using the specified fuser roller and the pressure roller?	Use the specified fuser roller and the pressure roller.	
	8	Is the pressurization of cleaning web normal?	Check the installation state of cleaning web mechanism.	
	9	Is the cleaning web transported normally?	Check the drive system of the cleaning web. Check and correct setting (08-940)	
	10	Has the cleaning web reached its PM life?	Replace the cleaning web.	
	11	Using the specified cleaning web?	Use the specified cleaning web.	
	12	Is there any trouble with the thermistor?	Clean or replace the thermistor.	
Paper	13	Has the appropriate paper mode been selected?	Select a proper mode.	
	14	Using the recommended paper?	Use the recommended paper.	
Developer material and toner	15	Using the specified developer material and toner?	Use the specified developer material and toner.	
Scanner	16	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.

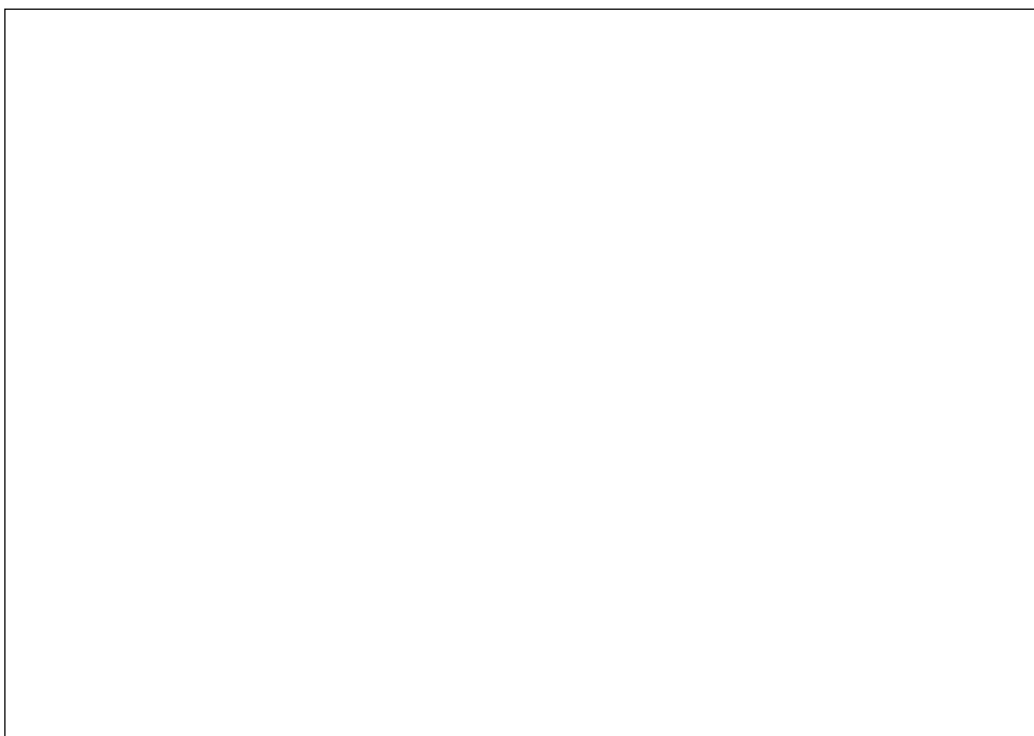
(6) Poor fusing



Defective area	Step	Check Items	Prescription
Developer material and toner	1	Using the specified developer material and toner?	Use the specified developer material and toner.
IH electric power abnormal	2	Check if the connector contacts properly.	Correct it.
	3	Is the IH coil shorted or broken? Is the IH control board normal?	Replace the IH coil or IH control board.
Improper pressure between fuser roller and pressure roller	4	Are the pressure springs working properly?	Check/adjust the pressure springs.
Fuser roller temperature	5	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)
Thermistor	6	Is there any problem with the thermistor?	Clean or replace the thermistor.
Paper	7	Is the paper moist?	Change the paper.

(7) Blank copy

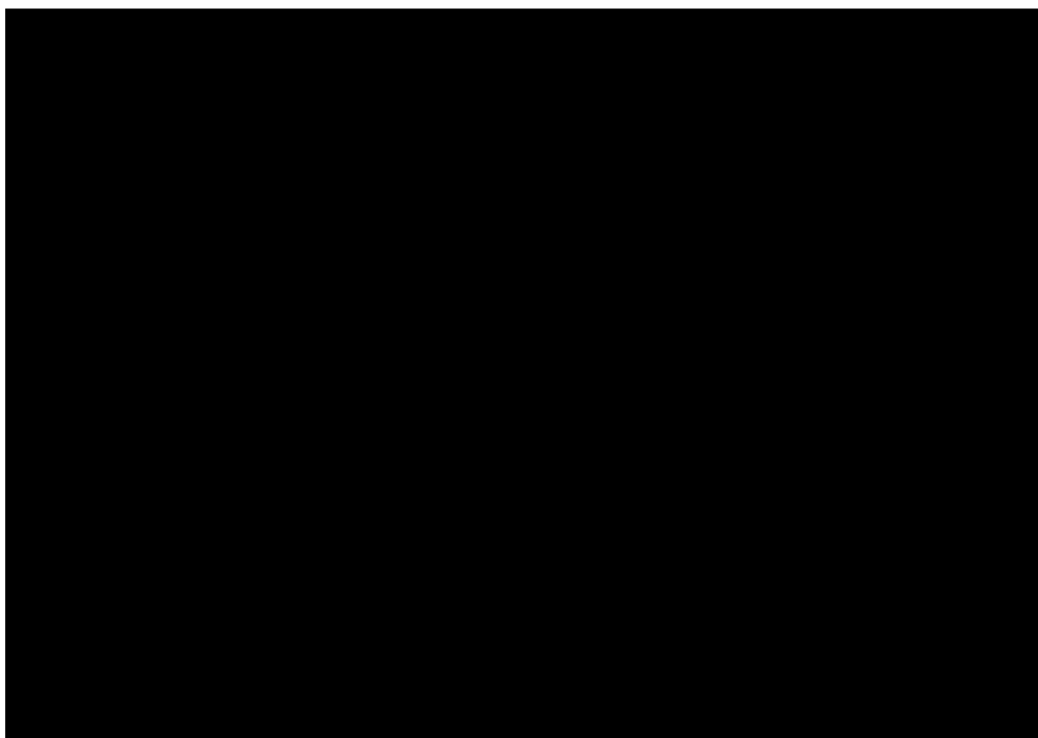
Feeding direction
↑



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.
Bias supply connector	2	Is the connector inserted properly?	Insert the connector properly.
Developer unit	3	Is the developer unit installed properly?	Check the installation state of the developer unit.
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.
Drum	6	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	7	Are the connectors securely connected? Check if the harnesses connecting the boards are open-circuited.	Connect the connectors securely. Replace the harness.

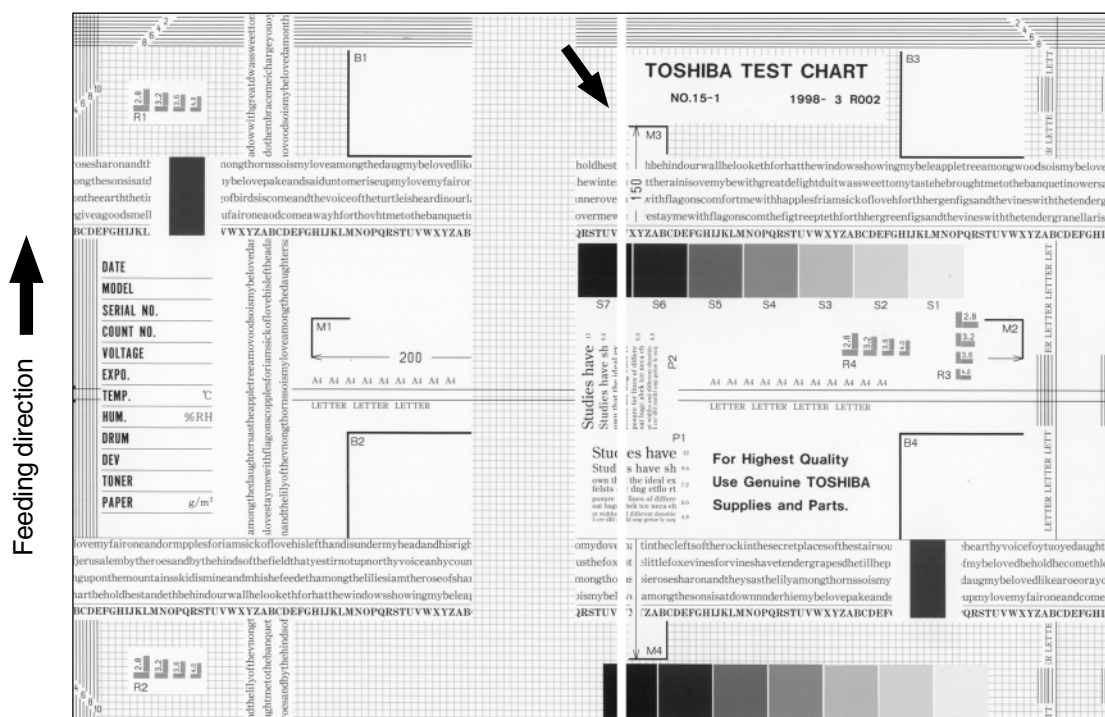
(8) Solid copy

↑
Feeding direction



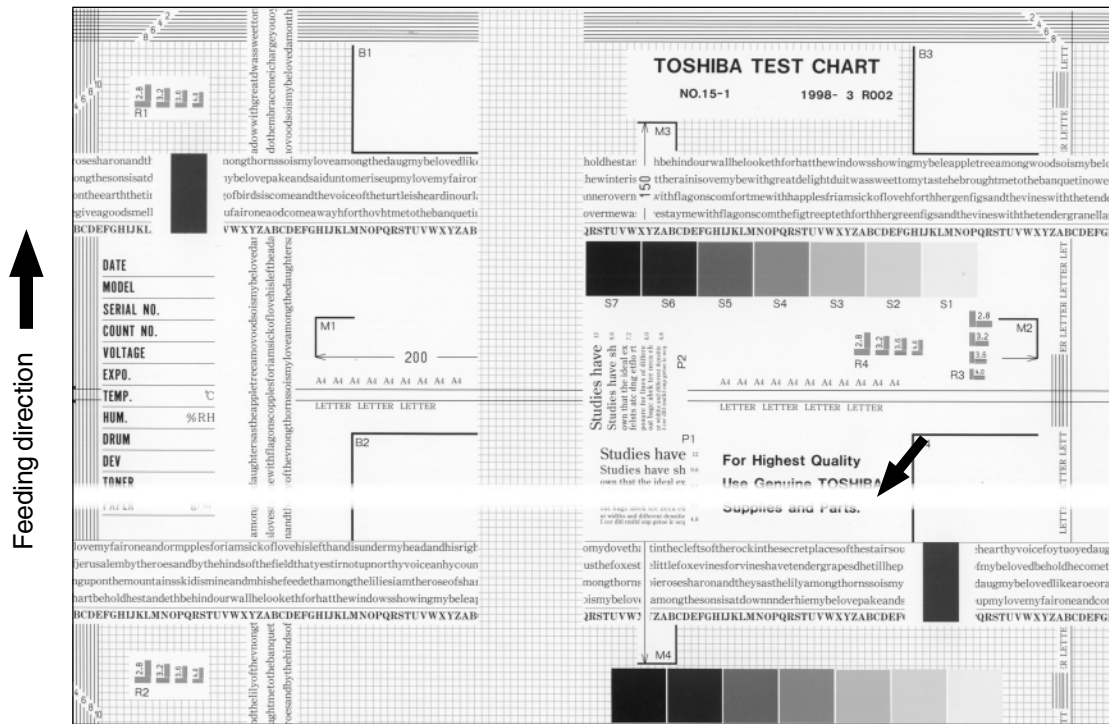
Defective area	Step	Check Items	Prescription
Exposure lamp and inverter	1	Does the exposure lamp light?	Check if the connector contacts with the lamp terminal. Replace the defective inverter.
Scanner	2	Is there any foreign object on the light path?	Remove it.
Condensation of scanner and drum	3	Is the 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)



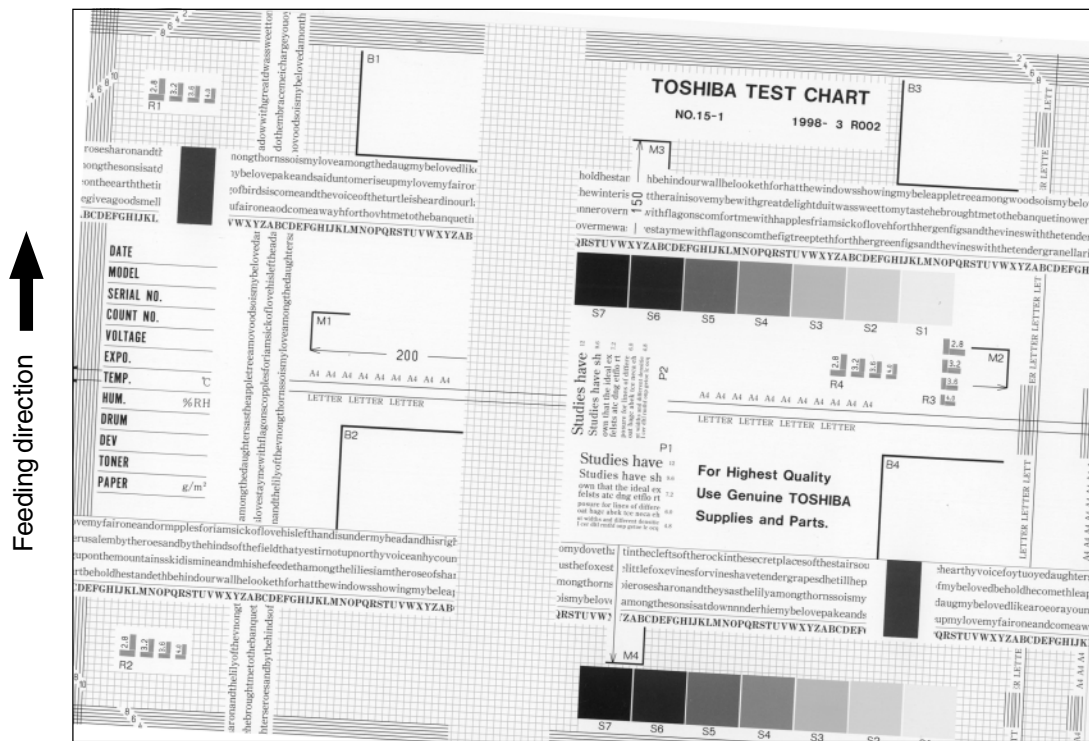
Defective area	Step	Check Items	Prescription
Laser optical unit	1	Is there a foreign object or stain on the slit glass?	Clean the slit glass.
Main charger grid	2	Is there a foreign object on the charger grid?	Remove the foreign object.
Developer unit	3	Is the developer material transported properly?	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)



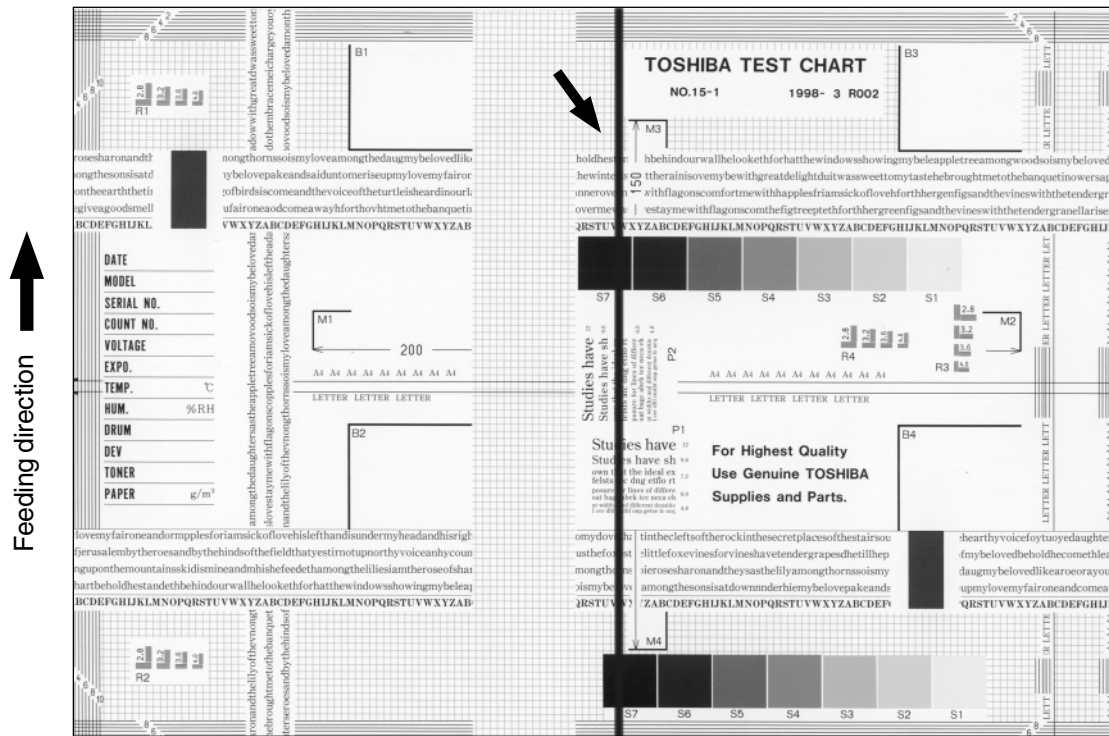
Defective area	Step	Check Items	Prescription
Main charger	1	Is there a foreign object on the charger?	Remove the foreign object.
	2	Is the connector in proper contact with the terminal?	Clean or adjust the terminal.
Drum	3	Is there any abnormality on the drum surface?	Replace the drum.
Discharge lamp	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.

(11) Skew (inclined image)



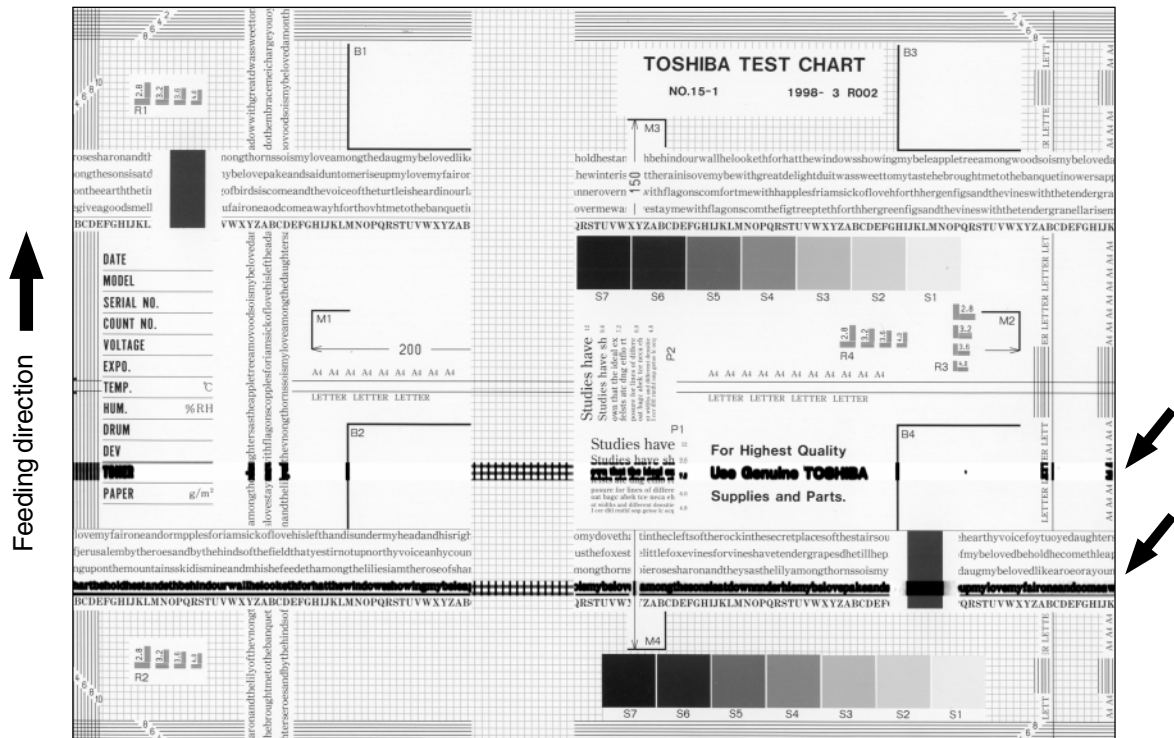
Defective area	Step	Check Items	Prescription
Cassette LCF PFP	1	Is the cassette or LCF/PFP properly installed?	Install the cassette or LCF/PFP properly.
	2	Is there too much paper in the cassette or LCF/PFP?	The height of the paper stack should not exceed 55mm. (137mm or lower/room for LCF)
	3	Is the 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 setscrews.
Aligning amount	7	Is the aligning amount proper?	Increase the aligning amount.
Registration roller	8	Is the spring detached from the registration roller?	Attach the spring correctly. Clean the roller if it is dirty.
Pre-registration guide	9	Is the pre-registration guide properly installed?	Correct it.

(12) Black banding (in the feeding direction)



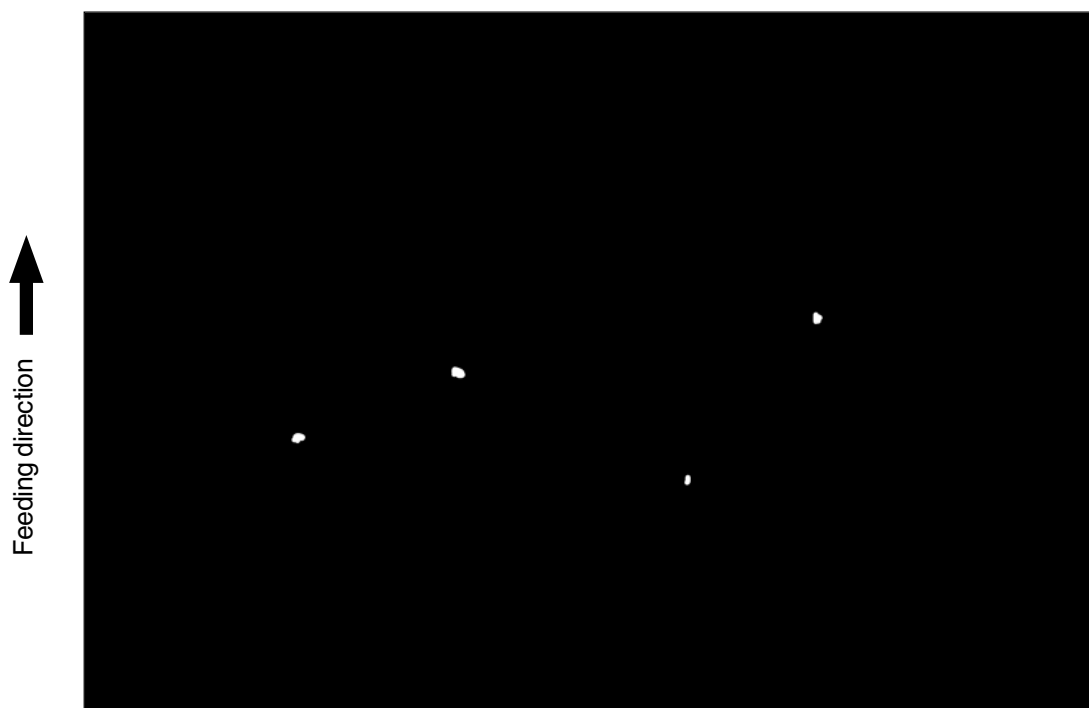
Defective area	Step	Check Items	Prescription
Scanner	1	Is there a foreign object on the light path?	Clean the lens and mirrors.
Main charger grid	2	Is there a foreign object on the grid?	Remove the foreign object.
	3	Is the grid dirty or deformed?	Clean or replace the grid.
	4	Is there a foreign object on the main charger?	Remove the foreign object.
Main charger	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?	(1) Clean or replace the fuser roller.
		(2) Is the thermistor cleaned at the preventive maintenance?	(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)	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	Remarks
Toner empty	1	Is the toner supply symbol lighting?	Replace the toner cartridge.	
	2	Is the toner cartridge installed properly?	Check the installation state of the toner cartridge.	
	3	Is the performance of the toner motor normal?	Check the performance of the toner motor.	
	4	Is the toner cartridge normal?	Check the toner cartridge. Replace if it is not normal.	
Decreasing toner density	5	Is the performance of the auto-toner sensor control normal?	Check the performance of the auto-toner sensor.	
	6	Is the toner density low?	Correct the toner density. (Note 2: See 'Toner density correcting method'.)	
Developer material/Toner/ Photoconductive drum	7	Using the specified developer material, toner and photoconductive drum?	Use the specified developer material, toner and photoconductive drum.	
	8	Have the developer material and the photoconductive drum reached their PM life?	Replace the developer material and photoconductive drum.	
	9	Is the storage environment of the toner cartridge 35°C or less without dew?	Use the toner cartridge stored in the environment within specification.	
	10	Is there any dent on the surface of the photoconductive drum?	Replace the drum.	
	11	Is there any film forming on the photoconductive drum?	Clean or replace the drum.	
Main charger	12	Is there any foreign object on the charger?	Remove it.	
	13	Is the charger dirty or deformed?	Clean or replace the charger wire and grid.	

Defective area	Step	Check Items	Prescription	Remarks
Main charger output	14	Is the setting value proper? Is the main charger output normal?	If the setting value is out of specification, adjust it. If the output is not normal, check the circuits. (Note 1)	
Developer bias output	15	Is the setting value proper? Is the developer bias output normal?	If the setting value is out of specification, adjust it. If the output is not normal, check the circuits. (Note 1)	
Transfer belt	16	Is there any foreign object or fiber, etc. on the belt surface?	Remove it.	

Note 1:

If the output from the main charger, the developer bias or the transfer bias is 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 is open-circuited, if the power supply is normal and if the main charger wire is dirty.

Note 2:

Toner density correcting method

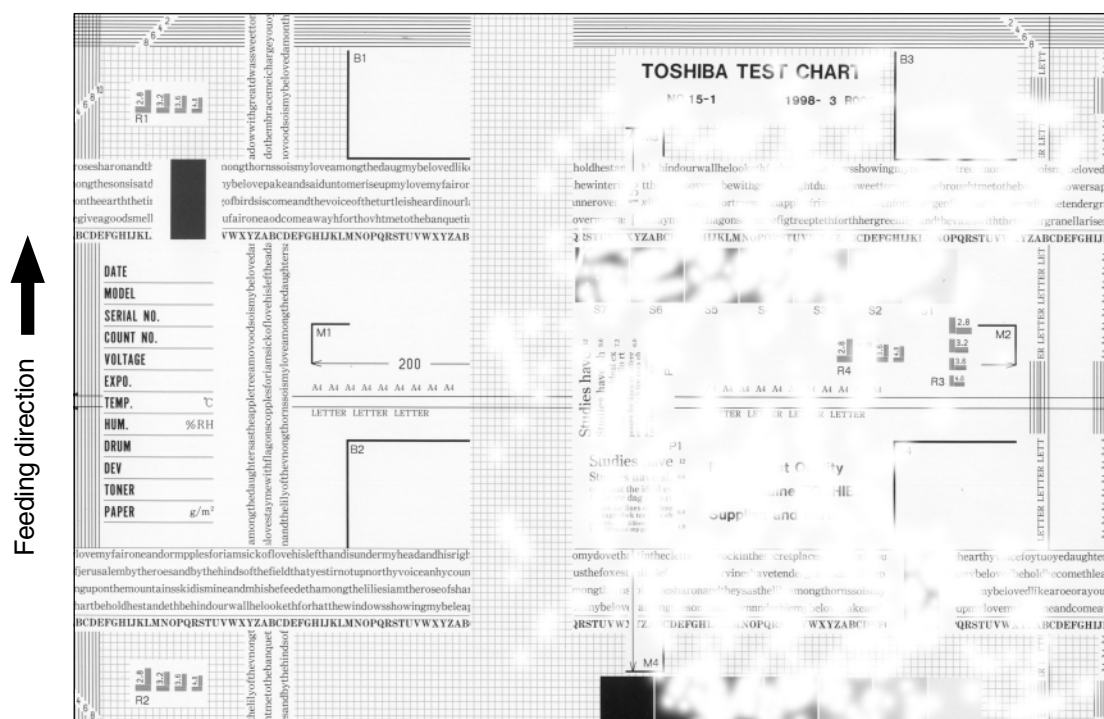
Change the setting value 'Toner density life correction setting (08-414)' (6 is the default setting.)

3: Appox. 1.5% lower than the current value	7: Appox. 0.3% higher than the current value
4: Appox. 0.8% lower than the current value	0: Appox. 0.5% higher than the current value
5: Appox. 0.3% lower than the current value	1: Appox. 0.8% higher than the current value
6: The current value (Default setting)	2: Appox. 1.5% higher than the current value

<Caution for correction>

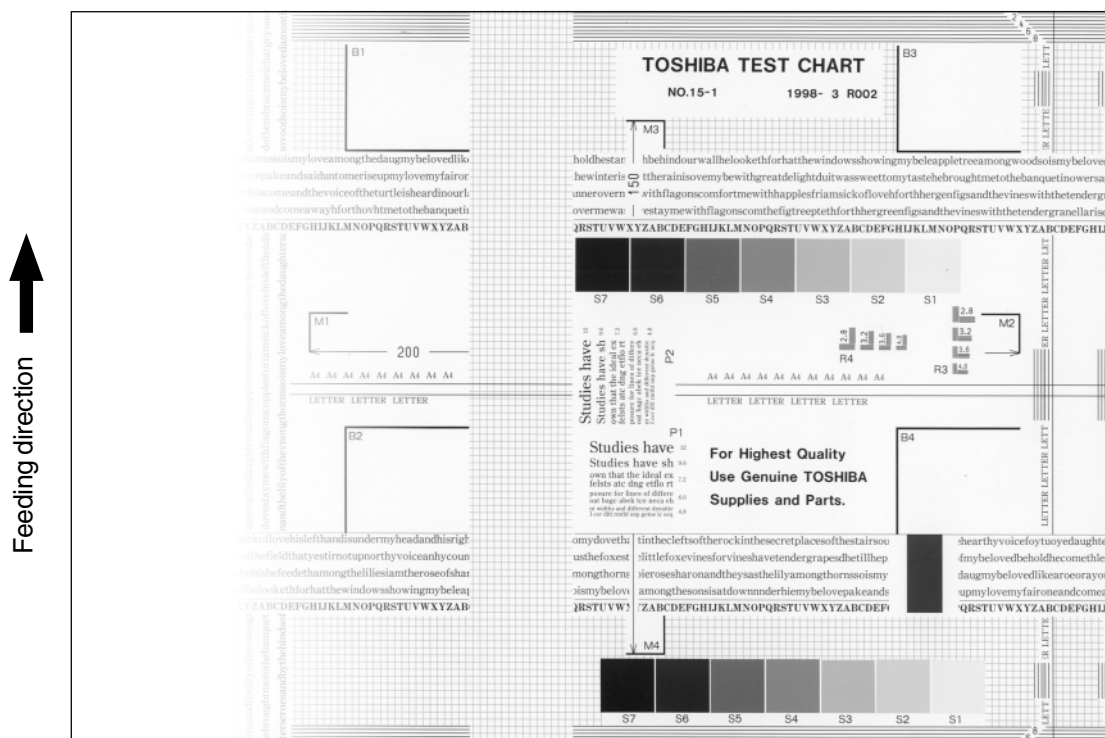
When increasing or decreasing the toner density too much, the image may become poor or the life of developer material, cleaner, photoconductive drum and fuser unit, etc. may shorten. Therefore it is not recommended to correct (to shift) the toner density basically. If it is shifted, make sure that the image may be improper in a few minutes after shifting.

(15) Poor image transfer



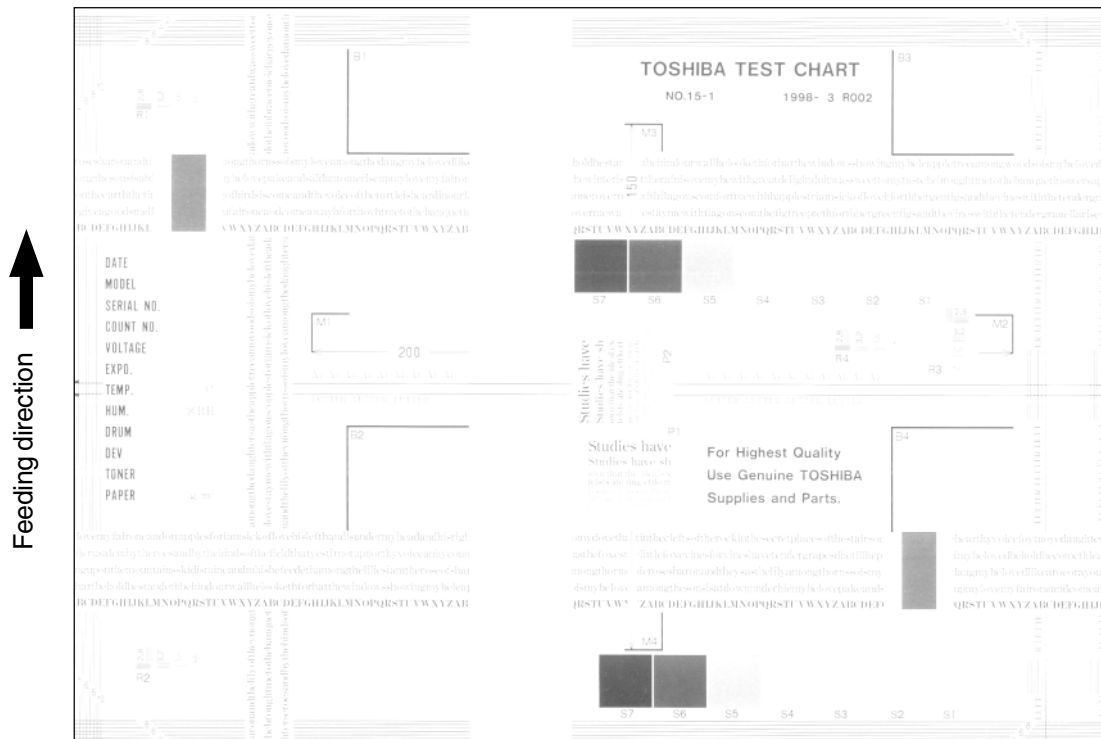
Defective area	Step	Check Items	Prescription
Transfer belt unit	1	Is the surface of the transfer belt supply roller dirty with toner?	Clean it with alcohol.
Paper	2	Is the paper in the cassette or LCF/PPF curled?	Reinsert the paper with the reverse side up or change the paper.
	3	Is the paper in the cassette or LCF/PPF moist?	Change the paper. * Be sure to store the paper correctly.
Registration roller	4	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)	5	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 belt unit	2	Is the the surface of the transfer belt supply roller dirty with toner?	Clean it with alcohol.
Laser optical unit	3	Is there any foreign object or stain on the slit glass?	Remove the foreign object.
Discharge lamp	4	Is the discharge lamp dirty?	Clean it.
	5	Are any of the discharge lamps off?	Replace it.
Developer unit	6	Is the developer unit installed properly?	Check and correct the installation state of the developer unit.
	7	Is the developer sleeve pressure mechanism working?	Check the mechanism.
	8	Is the developer material transported normally?	Remove foreign objects if there are any.
Scanner section	9	(1) Is the RADF open? (2) Are the original glass (especially shading position), mirrors and lens dirty?	(1) Close the RADF. (2) Clean them.

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



Defective area	Step	Check Items	Prescription	Remarks
Developer material/ Toner/Photoconductive drum	1	Using the specified developer material, toner and photoconductive drum?	Use the specified developer material, toner and photoconductive drum.	
	2	Have the developer material and the photoconductive drum reached their PM life?	Replace the developer material and photoconductive drum.	
	3	Is there any film forming on the photoconductive drum?	Clean or replace the drum.	
Toner empty	4	Is the toner supply symbol lighting?	Replace the toner cartridge.	
	5	Is the toner cartridge installed properly?	Check the installation state of the toner cartridge.	
	6	Is the performance of the toner motor normal?	Check the performance of the toner motor.	
	7	Is the toner cartridge normal?	Check the toner cartridge. Replace if it is not normal.	
Developer unit	8	Is the developer unit installed properly?	Check the installation state of the developer unit.	
	9	Is the pushing mechanism of the developer sleeve performing?	Check the mechanism.	
Main charger output	10	Is the setting value proper? Is the main charger output normal?	If the setting value is out of specification, adjust it. If the output is not normal, check the circuits. (Note 1)	
Developer bias output	11	Is the setting value proper? Is the developer bias output normal?	If the setting value is out of specification, adjust it. If the output is not normal, check the circuits. (Note 1)	

Defective area	Step	Check Items	Prescription	Remarks
Decreasing toner density	12	Is the performance of the auto-toner sensor control normal?	Check the performance of the auto-toner sensor.	
	13	Is the toner density low?	Correct the toner density. (Note 2: See 'Toner density correcting method'.)	
Image quality sensor/ Surface potential sensor	14	Are the image quality sensor and the surface potential sensor normal?	Check the performance of the image quality sensor and the surface potential sensor. (See the trouble shooting related with the image quality control.)	
Main charger	15	Is the main charger dirty?	Clean or replace it.	

Note 1:

If the output from the main charger or the developer bias is 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 is open-circuited, if the power supply is normal and if the main charger wire is dirty.

Note 2:

Toner density correcting method

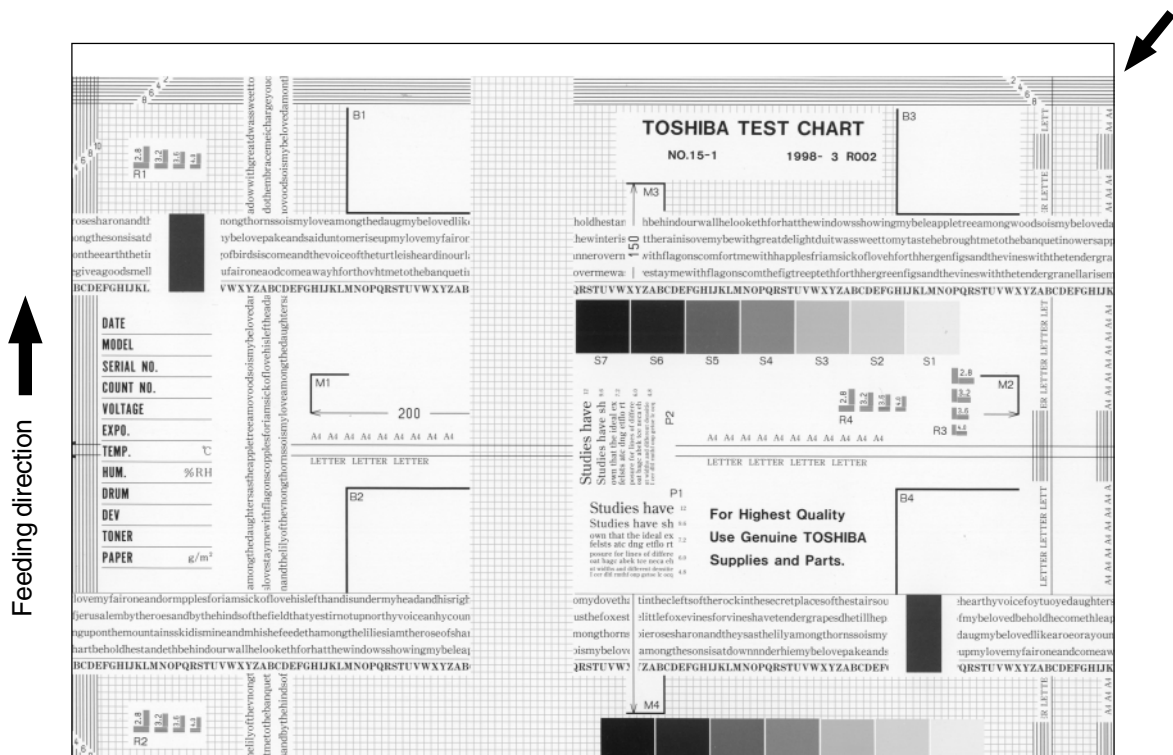
Change the setting value 'Toner density life correction setting (08-414)' (6 is the default setting.)

3: Appox. 1.5% lower than the current value	7: Appox. 0.3% higher than the current value
4: Appox. 0.8% lower than the current value	0: Appox. 0.5% higher than the current value
5: Appox. 0.3% lower than the current value	1: Appox. 0.8% higher than the current value
6: The current value (Default setting)	2: Appox. 1.5% higher than the current value

<Caution for correction>

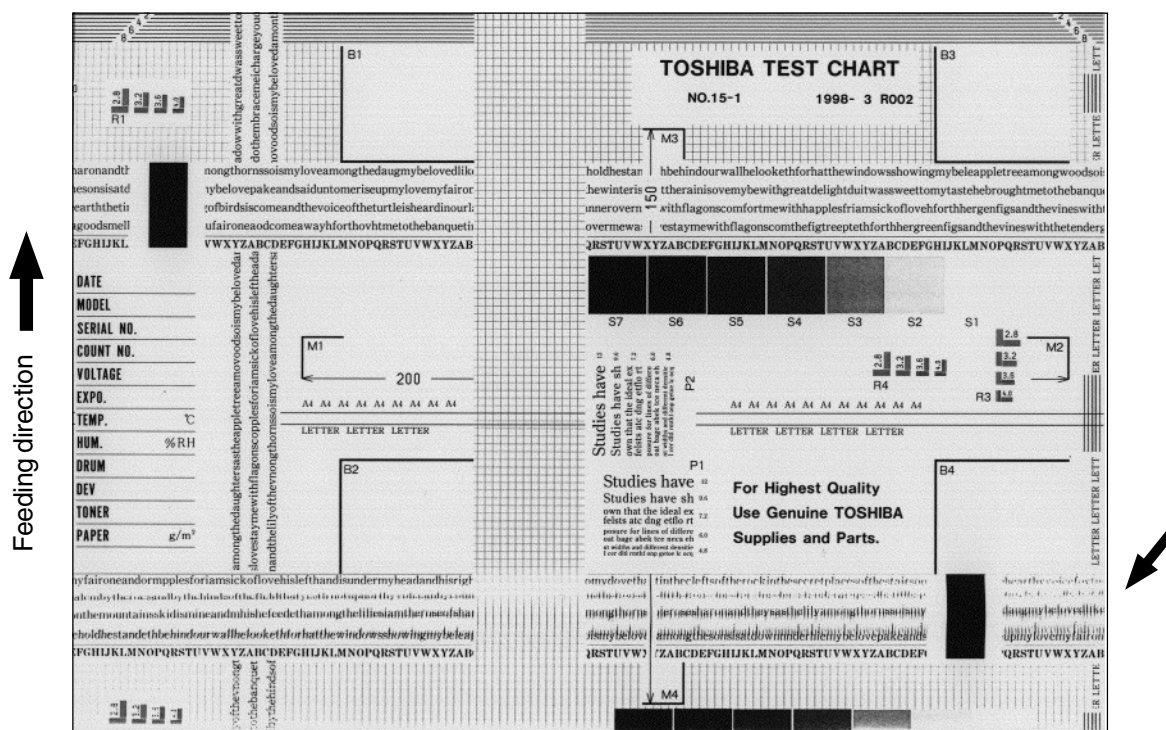
When increasing or decreasing the toner density too much, the image may become poor or the life of developer material, cleaner, photoconductive drum and fuser unit, etc. may shorten. Therefore it is not recommended to correct (to shift) the toner density basically. If it is shifted, make sure that the image may be improper in a few minutes after shifting.

(18) Image dislocation in feeding direction



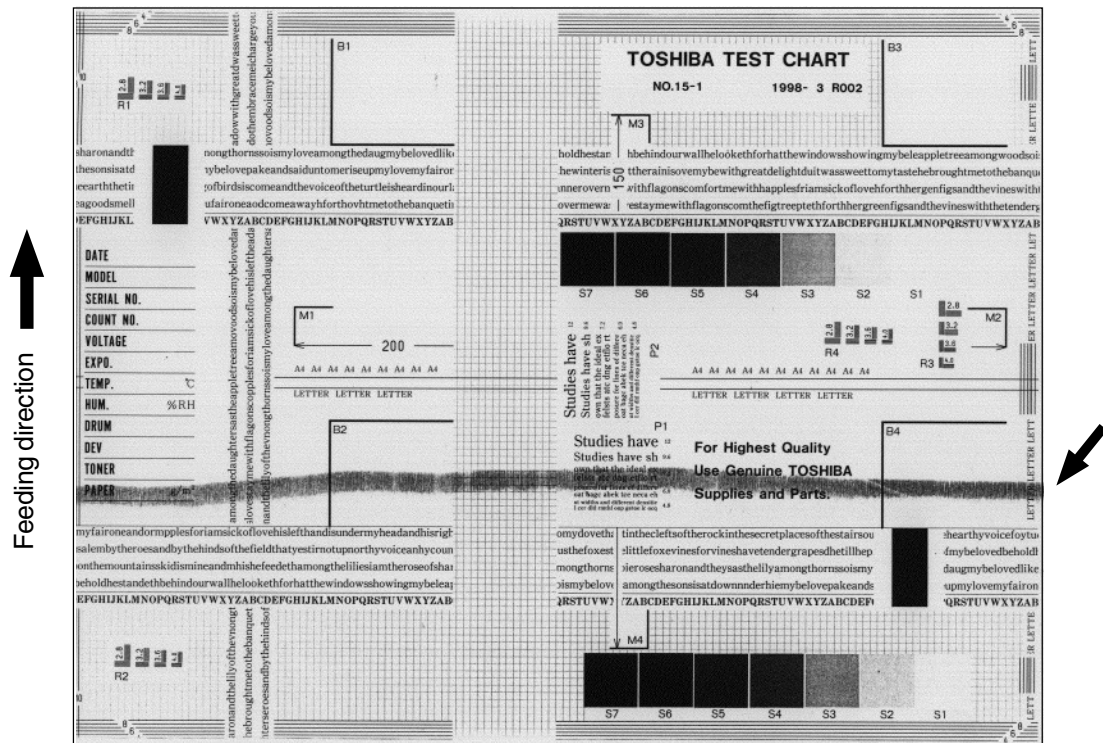
Defective area	Step	Check Items	Prescription
Scanner/printer adjustment	1	Have the printed images been out of position in the same manner?	Adjust the position of the leading edge of paper in the adjustment mode.
Registration roller	2	Is the registration roller dirty, or the spring detached?	Clean the 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	Remarks
Developer material/ Toner/Photoconductive drum	1	Using the specified developer material, toner and photoconductive drum?	Use the specified developer material, toner and photoconductive drum.	
Cleaning roller	2	Is the cleaning roller damaged or has it reached its PM life?	Replace the roller.	
	3	Is the pressurization of the cleaning roller normal?	Check and correct the pressurization mechanism.	
Fuser roller	4	Are there bubble-like scratches on the fuser roller (188mm pitch on the printed image)?	Replace the fuser roller. Check and adjust the temperature control circuit.	
	5	Has the fuser roller reached its PM life?	Replace it.	
	6	Is the pressurization of the fuser roller normal?	Check and adjust the pressurization mechanism.	
	7	Is the temperature of the fuser roller normal?	Check the adjustment value of fuser roller temperature. (08-410, 411)	
Cleaning web	8	Is the pressurization of the cleaning web normal?	Check the installation state of the cleaning web mechanism.	
	9	Is the cleaning web transported normally?	Check the drive system of the cleaning web. Check and correct the setting. (08-940)	
	10	Has the cleaning web reached its PM life?	Replace it.	
	11	Using the specified cleaning web?	Use the specified cleaning web.	

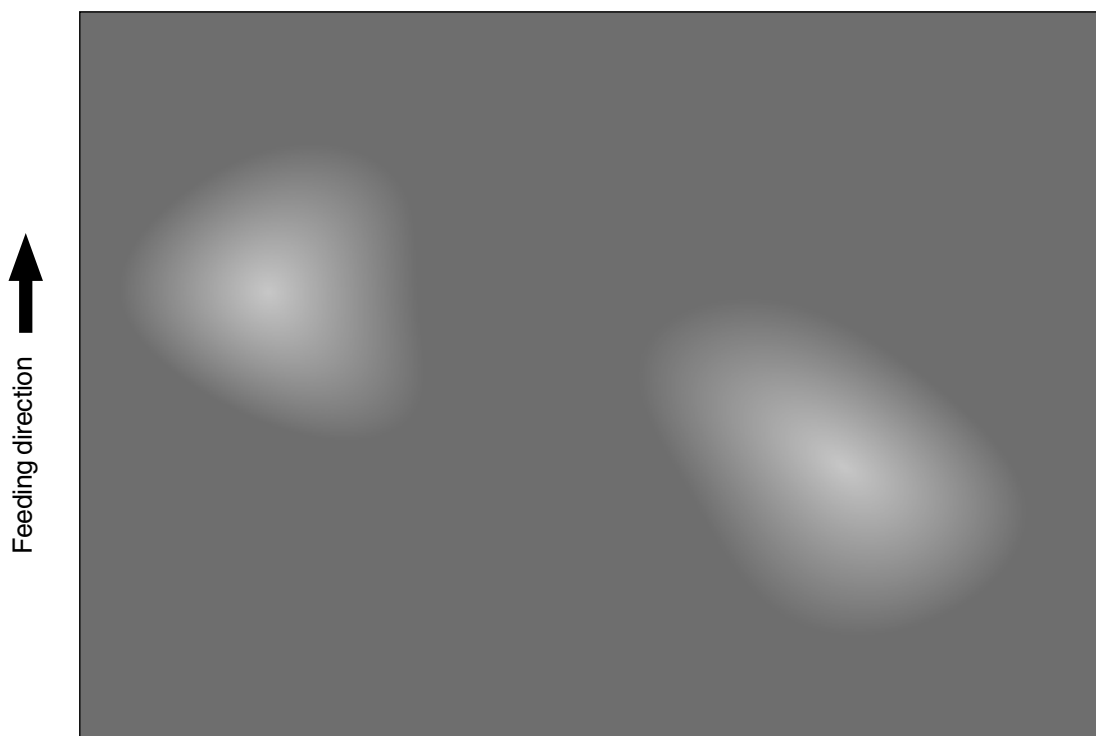
Defective area	Step	Check Items	Prescription	Remarks
Cleaning blade	12	Is the blade in proper contact with the drum?	Check the blade.	
	13	Has the cleaning blade been turned up?	Replace the blade. Check and replace the drum if necessary.	
Toner recovery auger	14	Is the toner recovered normally?	Clean the toner recovery auger. Check the pressure of the cleaning blade.	
Recycle unit	15	Is the recycle unit installed properly?	Check and correct the installation.	
	16	Is the recycle toner transport motor performed?	Check if the connector comes off. Replace the motor if necessary.	
	17	Is the hopper motor performed?		

(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.
Transfer belt unit	3	Is the the surface of the transfer belt supply roller dirty with toner?	Clean it with alcohol.
High-voltage transformer (transfer charger)	4	Is the output from the high-voltage transformer normal?	Adjust the output. Replace the transformer if necessary.

6. FIRMWARE UPDATING

<<Caution>>

Only the minimum firmware required for updating using the PC is installed in the system control PC board (SYS board), logic PC board (LGC board), scanner control PC board (SLG board) and printer control PC board (PLG board) provided as service parts.

When any of the above PC boards is replaced with a new one in the field, confirm the other firmware version to ensure the most suitable firmware is installed.

* Never use any unsuitable combination of firmware since it can cause abnormalities.

-
- The official name of Windows 95 is Microsoft Windows 95 Operating System.
 - The official 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 95/98 are held by US Microsoft Corporation.
 - Some of the screens used in this manual to describe operations are of Windows 95/98.

6. 1. Software Installing for Firmware Updating

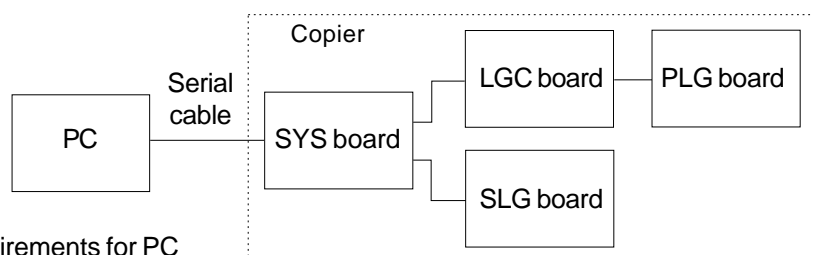
6. 1. 1. Outline

The procedure to update the software of the SYS, LGC, SLG and PLG boards using the PPP (Point-to-Point Protocol) and FTP (File Transfer Protocol) is described in this section.

* This procedure is described based on the Windows 95/98. Refer to the FSMS manual about the information and necessary files corresponding to other OSs.

6. 1. 2. Requirements

The following environment is necessary to update the firmware.



Software Requirements for PC

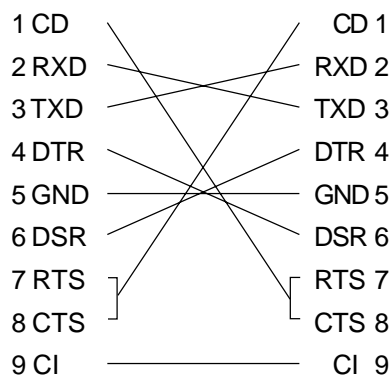
- Microsoft Windows 95/98
- Virtual modem
- FTP Server / tools (ex. War FTP Daemon)

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)

See below for the connection lines.

DTE-DTE connection



Pin No.	Signal	Meaning	I/O
1	CD	Reception carrier detection	I
2	RXD	Reception data	I
3	TXD	Transmission data	O
4	DTR	Data terminal ready	O
5	GND	Signal ground	
6	DSR	Data setting ready	I
7	RTS	Transmission request	O
8	CTS	Transmission enabled	I
9	CI	Called indication	I

RS232C DTE-DTE Cross Cable Lines (D-SUB 9pin)

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 network 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.

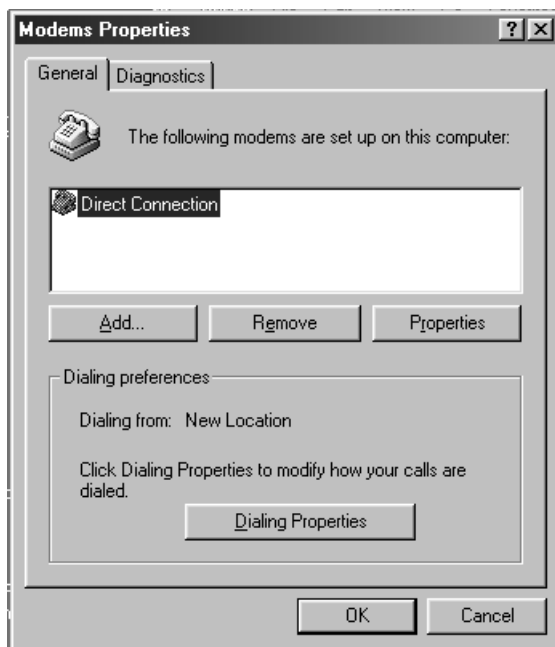
(2) Installation of the virtual modem

Download the following file from the web.

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

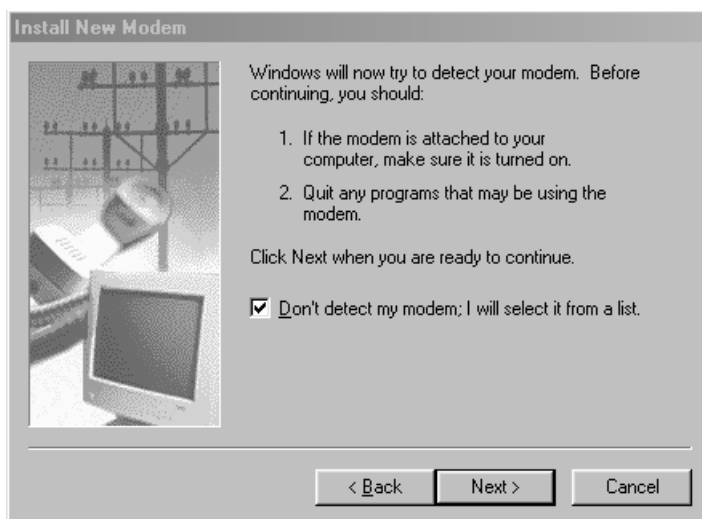
After the above file has been downloaded, install the modem as follows.

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

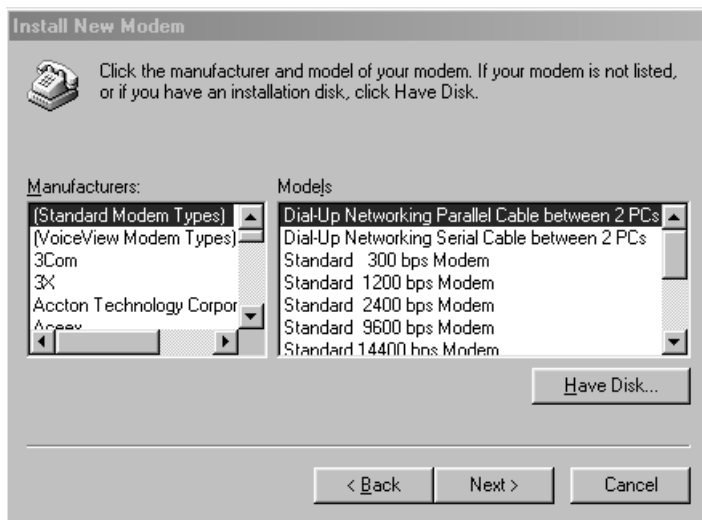


The Modem Wizard is opened.

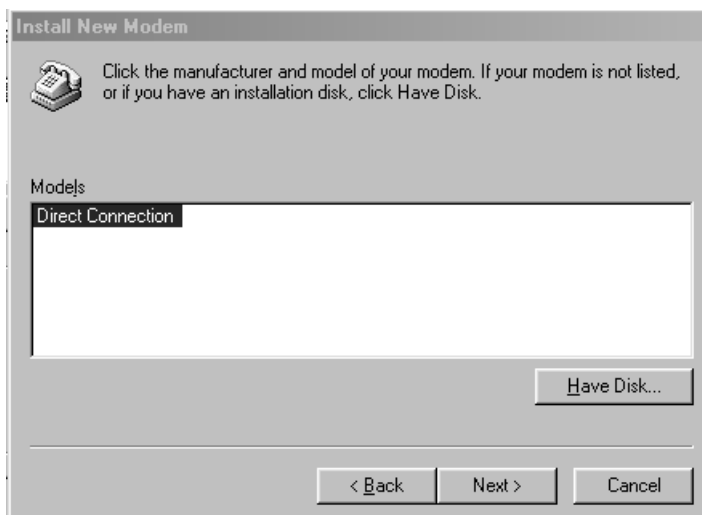
Check "Don't detect my modem; I will select it from a list", and click [Next].



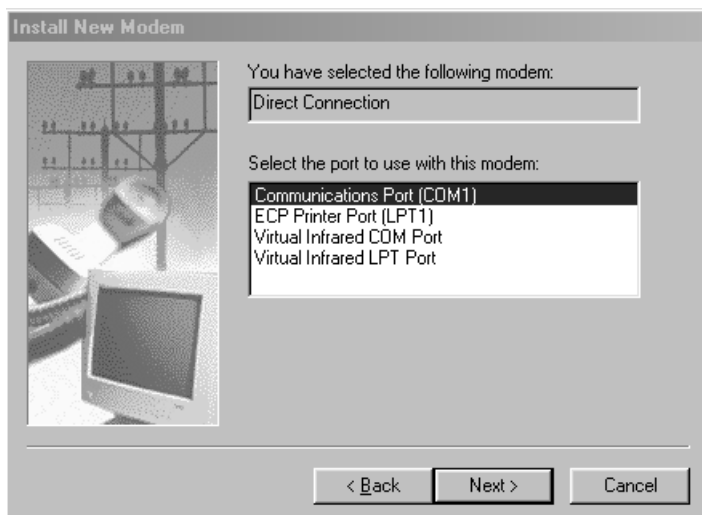
Click [Have Disk], then select a folder in which the downloaded file has been stored.



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



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



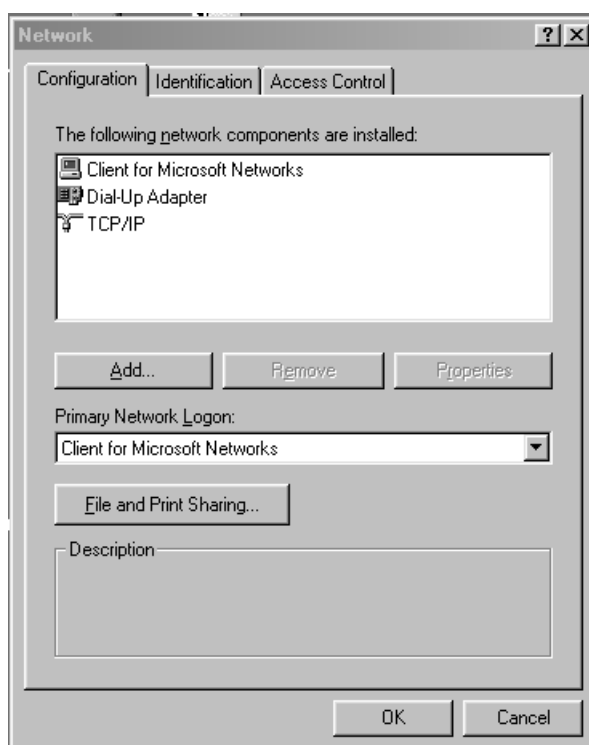
Click the [Finish] button to complete the virtual modem installation.



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.

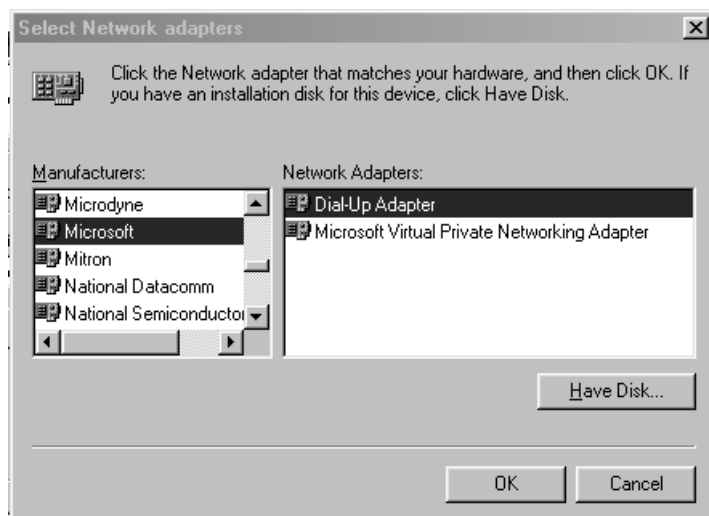
In the "Network" dialog box, click the "Configuration" tab.
Confirm that "Dial-Up Adapter" and "TCP/IP" are displayed.



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

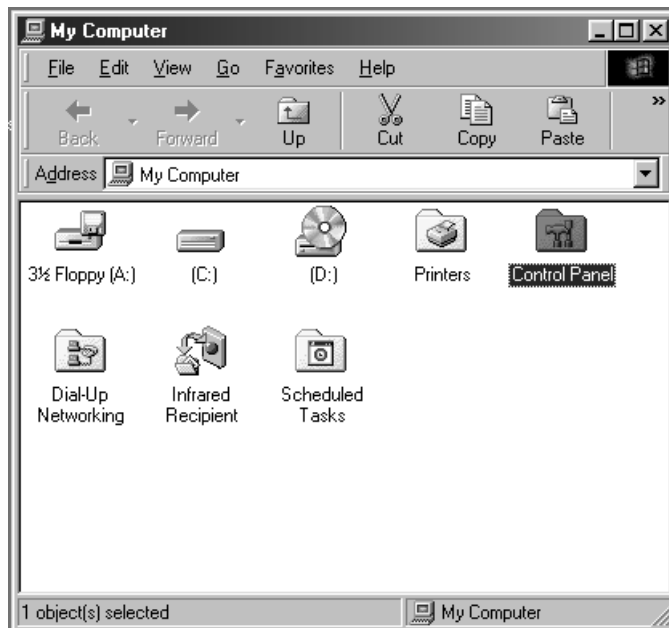
Select "Microsoft" from the "Manufacturers" list and "Dial-Up Adapter" from the "Network Adapters" list, then click [OK].

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

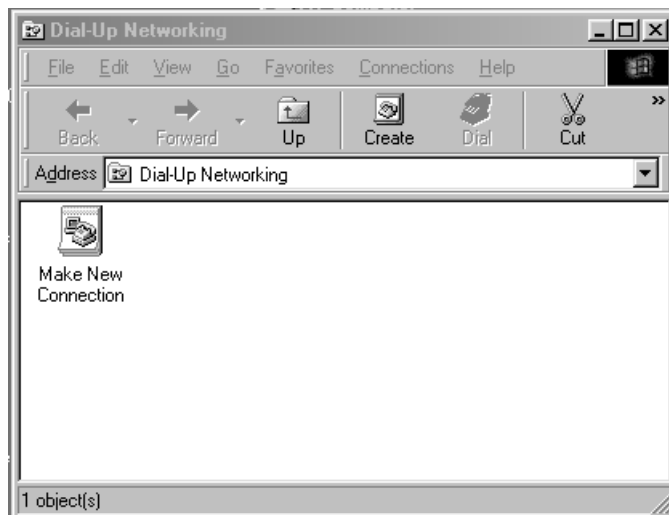


6. 1. 5. Setting of dial-up network

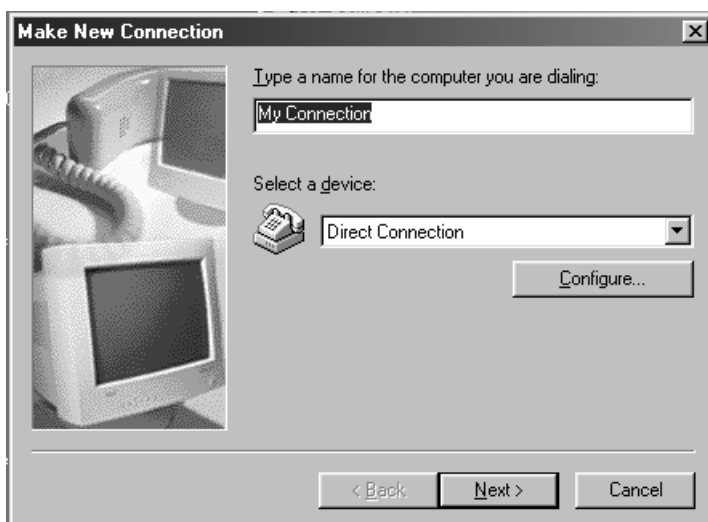
Double-click "My Computer". If the "Dial-Up Networking" icon is not in the window, open [Add/Remove Programs] in the Control Panel to install it.



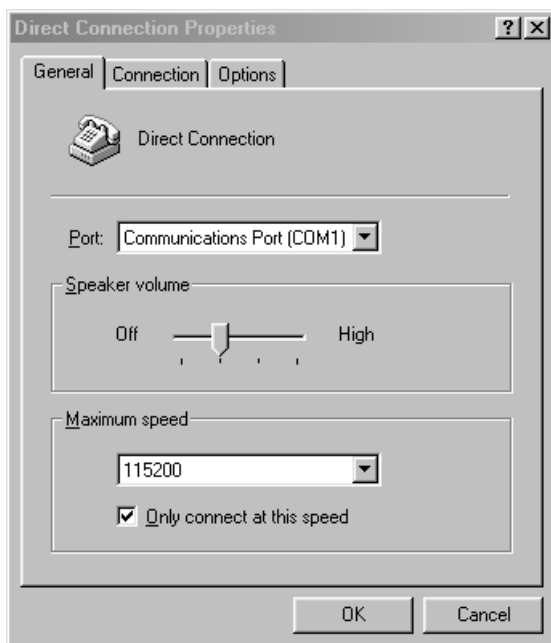
Double-click "Dial-up Networking" and then "Make New Connection".



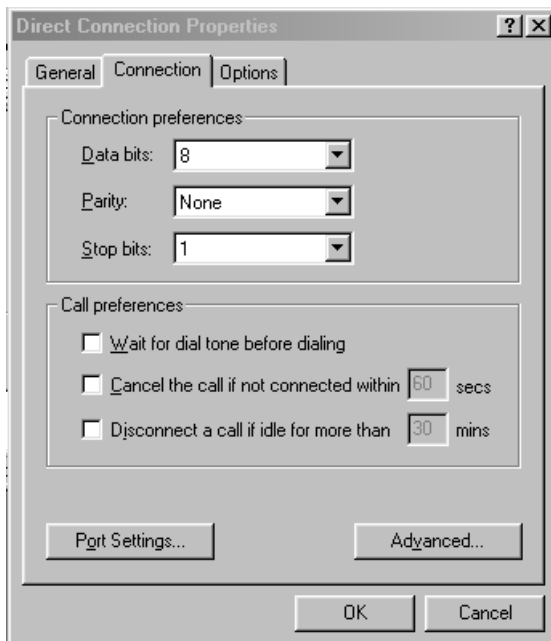
Enter a name in the box "Type a name for the computer you are dialing", and then select "Direct Connection" for "Select a device". Then, click [Configure].



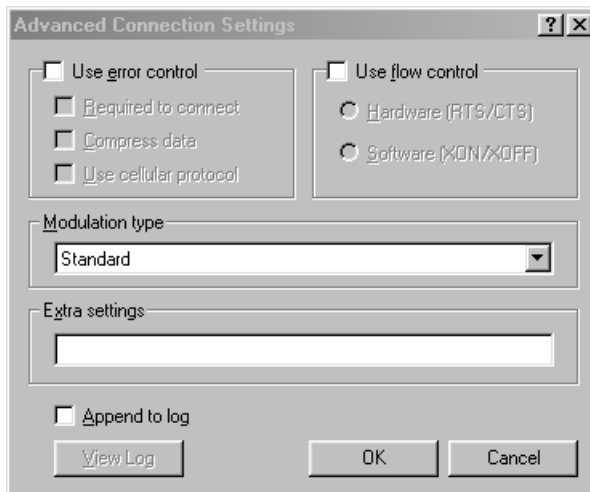
Click the "General" tab in the "Direct Connection Properties" dialog box. Select "115200" for "Maximum speed", and check "Only connect at this speed".



Click the "Connection" tab, confirm that no item in "Call preferences" is selected, and then click [Advanced].

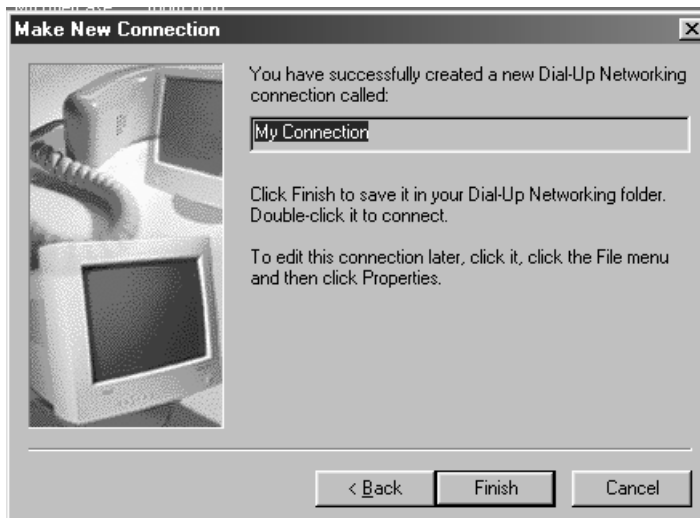


Confirm that no item in the "Advanced Connection Settings" dialog box is selected. Click the [OK] button to return to the "Make New Connection" dialog box and click [Next].





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. Software installing 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.

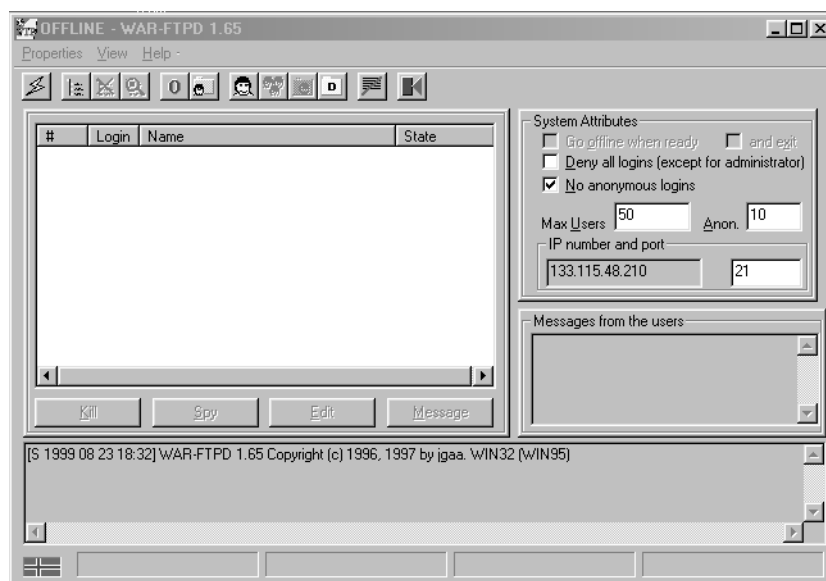
FTP: ftp://ftp.jgaa.com/pub/products/Windows/WarFtpDaemon/1.6_Series/ward165.exe

HTTP: http://download.jgaa.com/ftp/pub/products/Windows/WarFtpDaemon/1.6_Series/ward165.exe

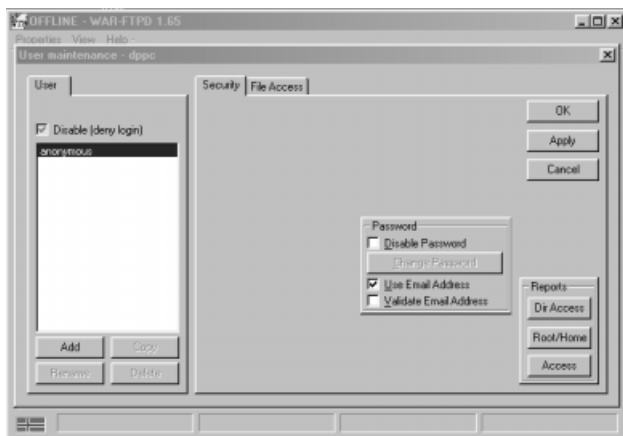
Some files are extracted by double-clicking the [ward165.exe] icon. Double-click [Setup.exe] to start installation.

Create a new folder "C:\WEBSHARE\FTPROOT".

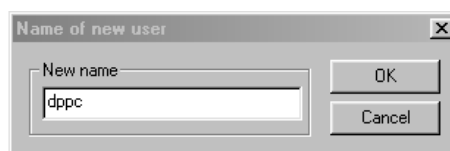
Double-click [war-ftpd.exe] in the [war-ftpd] folder.



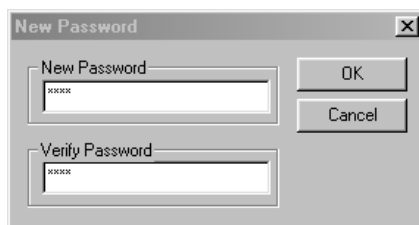
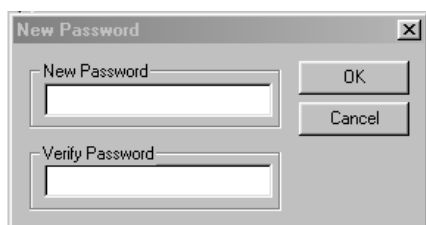
Select [Properties]-[Security]-[Edit User].



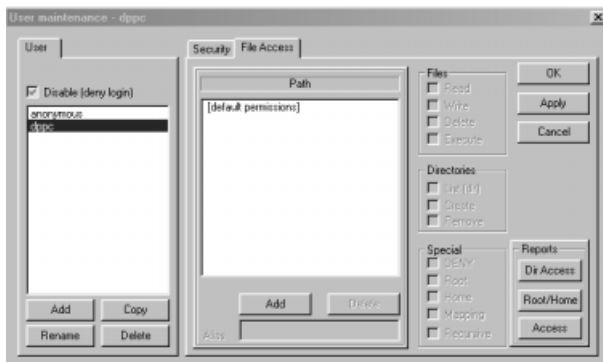
Click [Add] and type in "dppc" in the "New name" box.



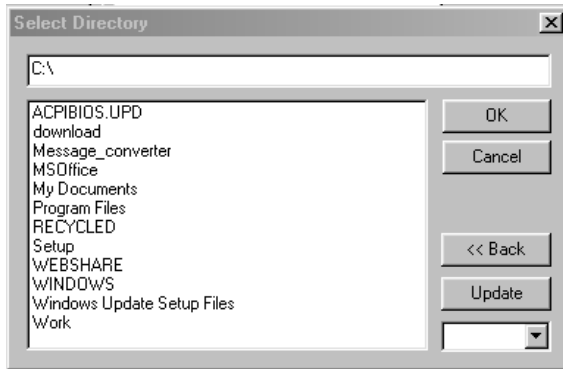
Type in "dppc" in the "New Password" and "Verify Password" boxes, then click [OK].



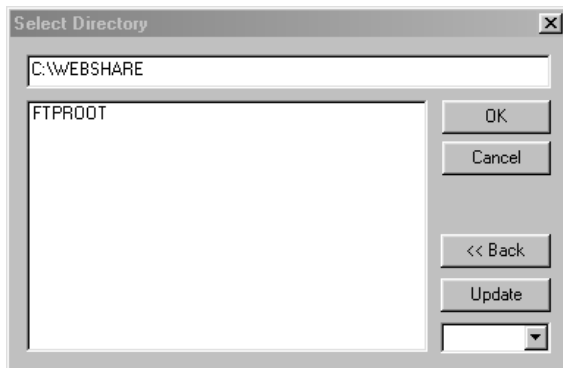
Select "dppc" and click the "File Access" tab. Then, click [Add].



Double-click "Webshare".



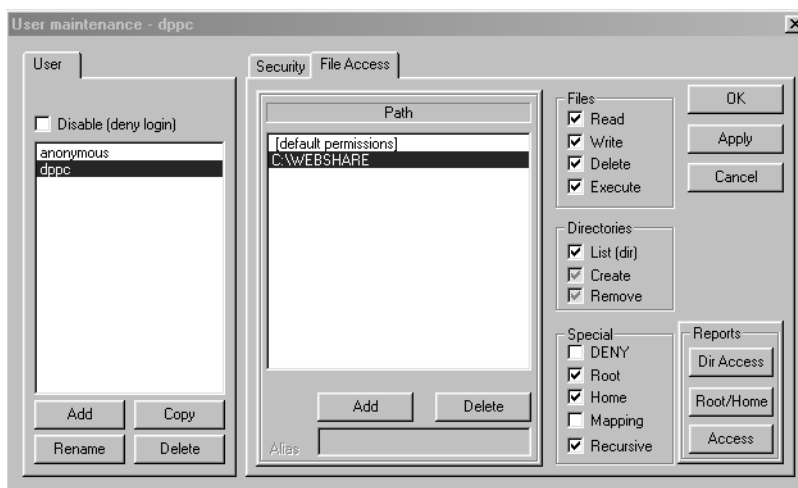
Double-click "Ftproot" and click [OK].



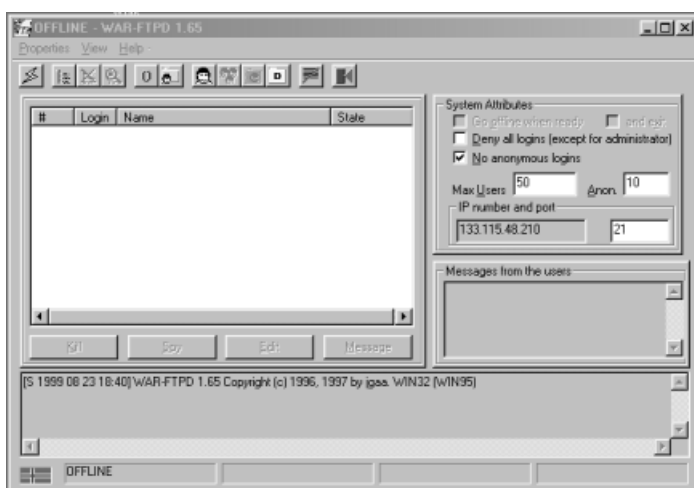
Check the "Read", "Write", "Delete", "Execute", "List", "Create" and "Remove" boxes. Confirm that the check marks are not gray but black.

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 pressing the digital keys [3] and [9] simultaneously to start the "Firmware Update Mode". The system firmware, UI data and engine firmware (printer ROM, PFC ROM, laser ROM and scanner ROM) can be updated in this mode.

Note: In the [3] [9] mode, the version of system firmware and UI data can be displayed, but the version of engine firmware cannot be displayed. Therefore, confirm the version of engine firmware in the setting mode (08).

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 Updating"

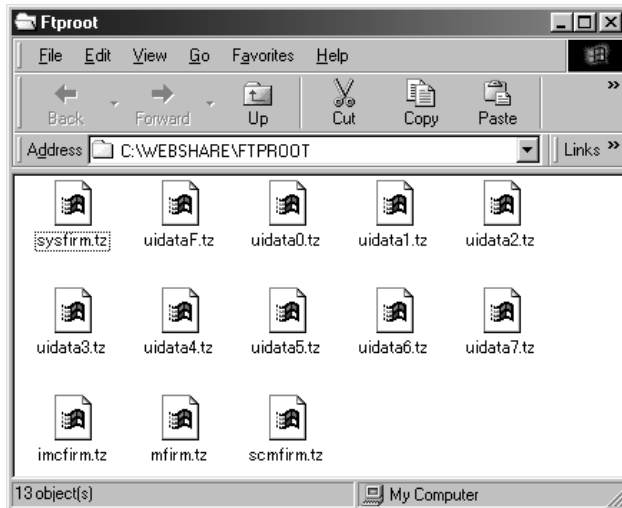
"War FTP Daemon" has to be in the "ONLINE" mode when updating the firmware.

(2) New file

Prepare files for updating in the PC.

New files with the preset directory and names are provided in the following folder.

C:\WEBSHARE\FTPROOT



New files:

- | | |
|---------------------------------|------------|
| - System firmware | sysfirm.tz |
| - UI data fixed section | uidataF.tz |
| - UI data common section | 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 |
| - 6th language UI data | uidata6.tz |
| - Engine firmware (Printer ROM) | mfirm.tz |
| - Engine firmware (PFC ROM) | pfcfirm.tz |
| - Engine firmware (Laser ROM) | lsrfirm.tz |
| - Engine firmware (Scanner ROM) | scmfirm.tz |

(3) Connection between the SYS board and PC

The SYS board and PC are connected with a cross cable.

For the PC, connect the cable to the connector corresponding to the serial communication port (eg. COM1) which is specified when the virtual modem is set up.

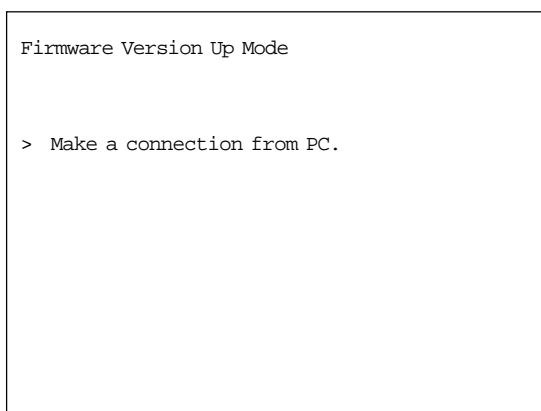
For the SYS board, connect the cable to the MMF(FSMS) port.

Note: Do not connect serial cable with machine power turned ON.

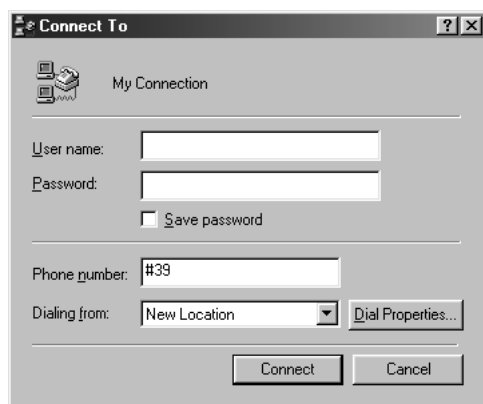
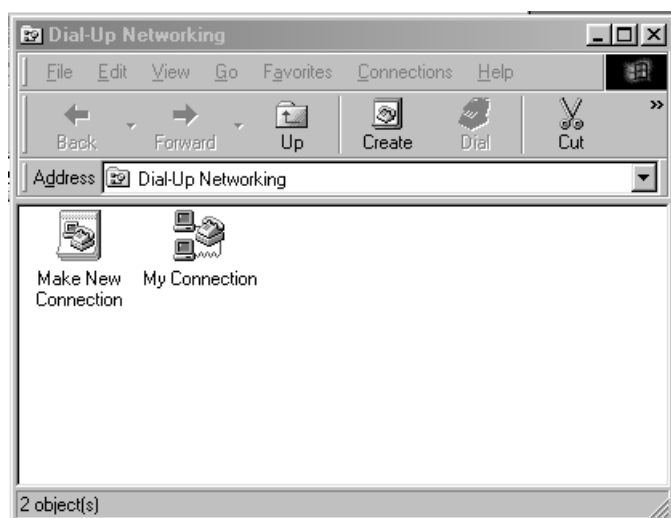
6. 2. 3. Updating procedure

Update the firmware in the [3][9] mode as follows:

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.

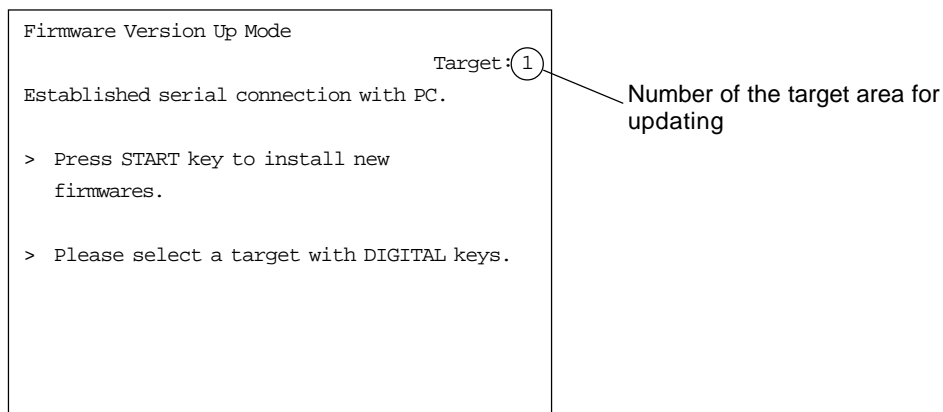


3. Make a serial connection using the dial-up networking function of the PC.
Refer to "6.1. Installing Software for Firmware Updating" for the dial-up network connection.
Double-click the defined icon for connection in the "Dial-up Networking" dialog box to perform the connection processing.



Enter "#39" in the "Phone number" box.

4. The following is displayed if the serial connection was completed successfully.



You can press [HELP] to confirm the current version (the version before the copier is updated).

*The engine firmware version cannot be displayed in this screen. Use the setting mode to confirm them.

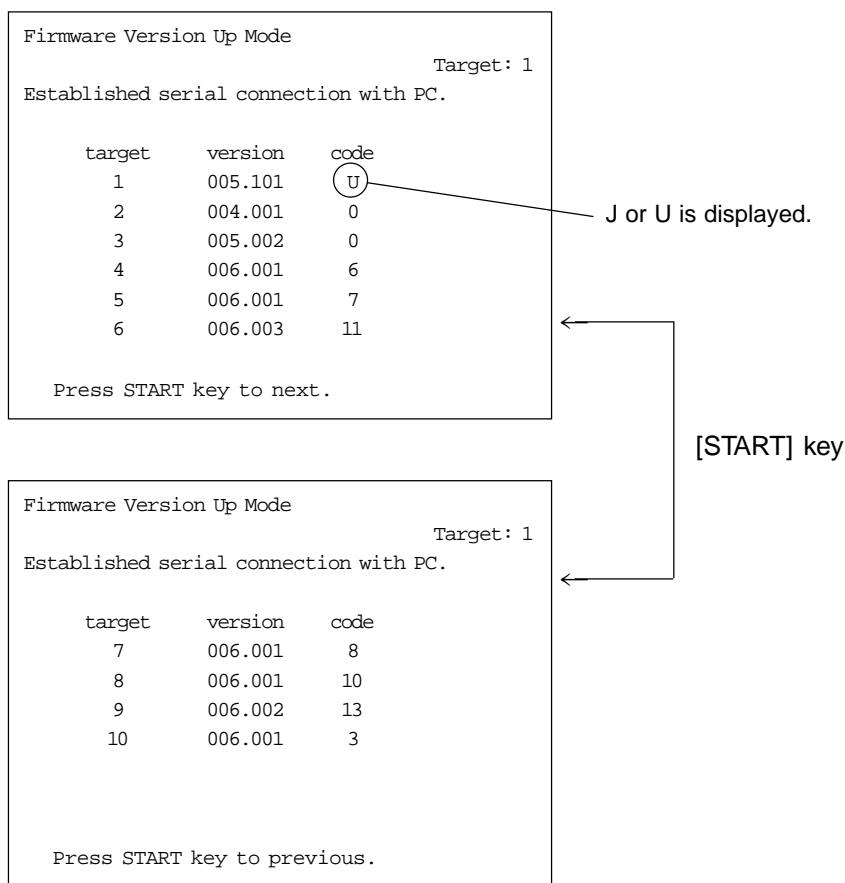
08-903 : Printer ROM version (LGC)

08-906 : PFC ROM version (LGC)

08-904 : Laser ROM version (PLG)

08-905 : Scanner ROM version (SLG)

Press [HELP] again to return to the above screen.



The "target" number indicates the following.

- 1: System firmware
- 2: UI data fixed section
- 3: UI data common section
- 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
- 9: 6th language UI data

The version number is displayed as "XXX.YYY".

"XXX" indicates the major version and "YYY" is the minor version.

The "code" indicates the following.

A. The "code" for the System firmware ("target": 1) denotes the destination.

J: JPN

U: except JPN

B. The "code" for the UI data ("target": 2-9) denotes the language.

Code	Language	Code	Language
2	Japanese	13	Finnish
3	American English	14	Norwegian
4	English	15	Australian English
5	—	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	—

5. Select the area to be updated using the digital keys and [INTERRUPT] key.

(Press the [INTERRUPT] key to enter "#".)

The selected number is displayed at upper right of the screen, next to "Target:".

The relation between the selected number and area to be updated is as follows.

- 1 : System firmware
- 2 : UI data fixed section
- 3 : UI data common section
- 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
- 9 : 6th language UI data
- 10 : Engine firmware (Printer ROM)
- 11 : Engine firmware (PFC ROM)
- 12 : Engine firmware (Laser ROM)
- 13 : Engine firmware (Scanner ROM)
- #1 : System firmware and all UI data (1 to 9)
- #2 : All UI data (2 to 9)
- #3 : All language UI data (4 to 9)
- #4 : All data (1 to 13)
- #5 : Engine firmware (Printer, PFC, laser and scanner ROM) (10 and 13)

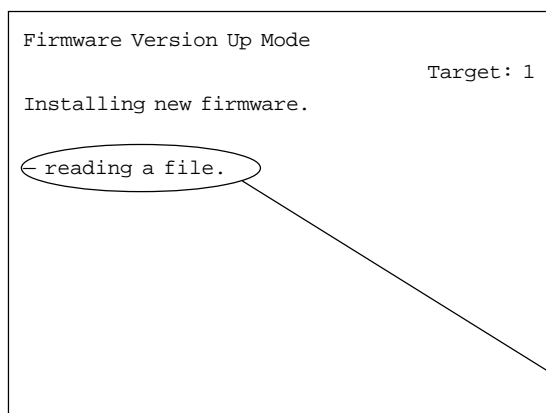
6. The copier starts updating when the [START] key is pressed.

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 after checking and performing the following items.

- Connect the serial cable correctly.
- Restart the copier and PC.
- Change the "War FTP Daemon" to "ONLINE" mode.
- Copy the new files to the PC again.

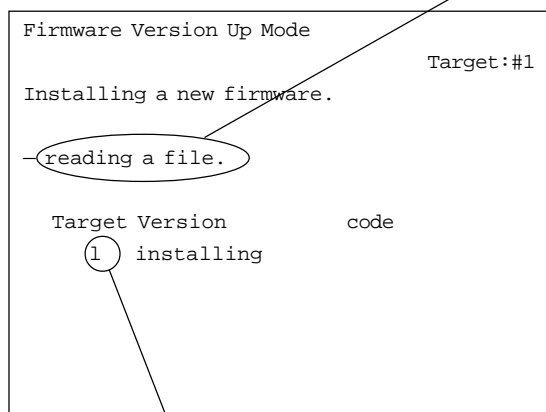
In case of target 1 - 13 :



Displays the status of updating process.

- reading file.
- erasing the device.
- writing to the device.

In case of target #1 - #5



Displays the area being processed.

* During writing the data corresponding to the target 10 - 13, the transmission rate is displayed.

- writing to the device.

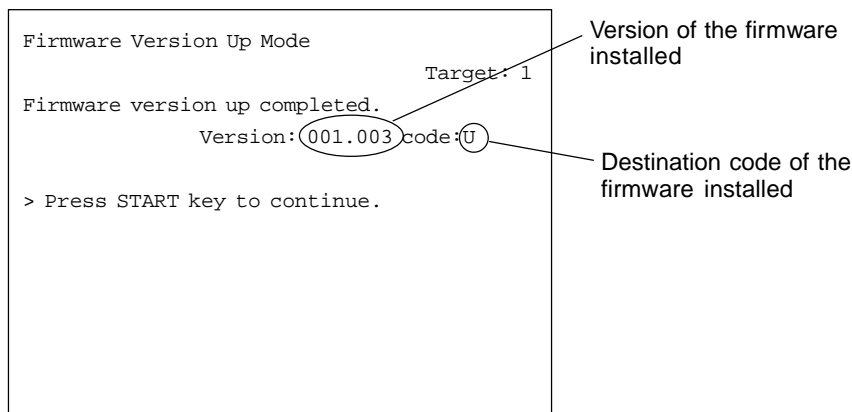
xxxxx/XXXXX transmitted / total (byte)

7. The following will be displayed when the firmware update is completed successfully.

In case of target 1 - 13:

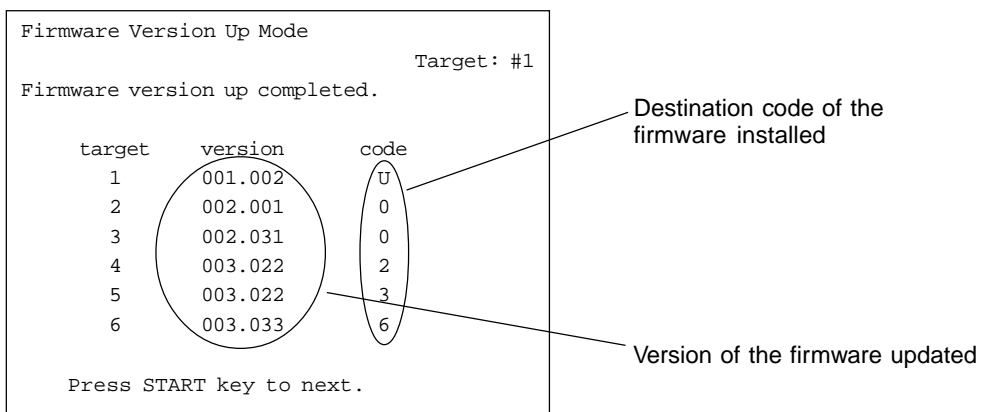
If you continue to update the other areas, press the [START] key and perform the step 5 and the followings for each area.

Turn OFF the power or press the [CLEAR] key to exit the update screen.



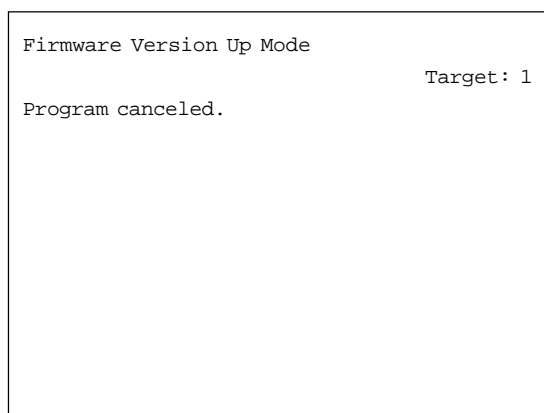
In case of target #1 - #5:

The following is displayed when the updating is finished.

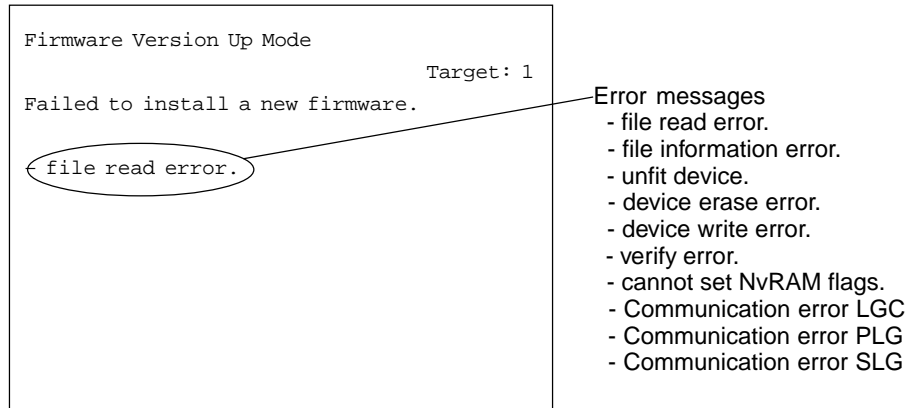


8. Press the [CLEAR] key to cancel the updating process.

However, it cannot be canceled once the data elimination process on the flash ROM is started.

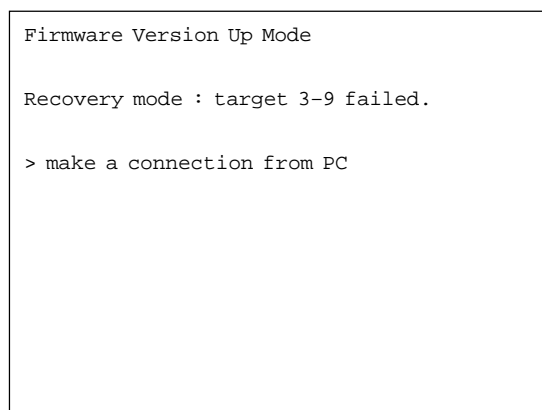


9. The following error message is displayed when the firmware was not updated successfully.
(If "- device erase error", "- device write error" or "- verify error" occurs, the "Recovery mode" is automatically activated when the power is turned ON next time. See 10.: Recovery mode)

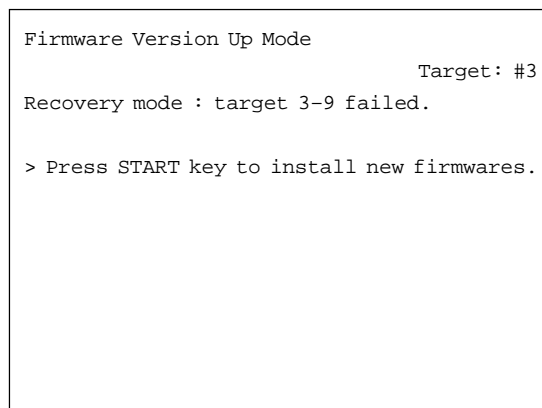


10. Recovery mode

The following is displayed when the power is turned OFF and then back ON after an error has occurred during the updating process.



The display changes as follows if the dial-up network connection (see procedure 3) was made successfully.



Further operations and displays are the same as those of the normal sequence.

* If an error occurs while the processing of automatically sequenced writing of #4, do the following operations after completing the update in a recovery mode.

Target	Area of error	Operation
#4	1~9	After completing the update to the target 9 in a recovery mode, update the target 10 to 13 in a writing processing with the area definition.
#4	10~13	Uupdate the target 10 to 13 in a writing processing with the area definition.

11. Assist mode

This mode has the following two functions.

(1) Clear NvRAM flags.

Even if download normally completed, Recovery mode start up when the power ie turn on again.

In this case, start up this mode, clear NvRAM flags which was used in download process.

(Normally, flags are automatically cleared in download process)

And, in the case the recovery mode is strat up when SYS-NVM is replaced etc..

(2) Format a Language Partition

This mode is used, in the case that UI data is downloaded which PC after replacing HDD. It is necessary to make the partition on HDD before downloading.

Note: 1.It is not necessary to make partition in the case of downloading through the Print board Jig.
2:Since this operation delete all the data in HDD, perform this format only when brand-new HDD is installed.

<Operation procedure>

(1) Turn on the power with pressing [3] and [CLEAR] simultaneously. (Displayed as bellow)

```
Firmware Version Up Mode

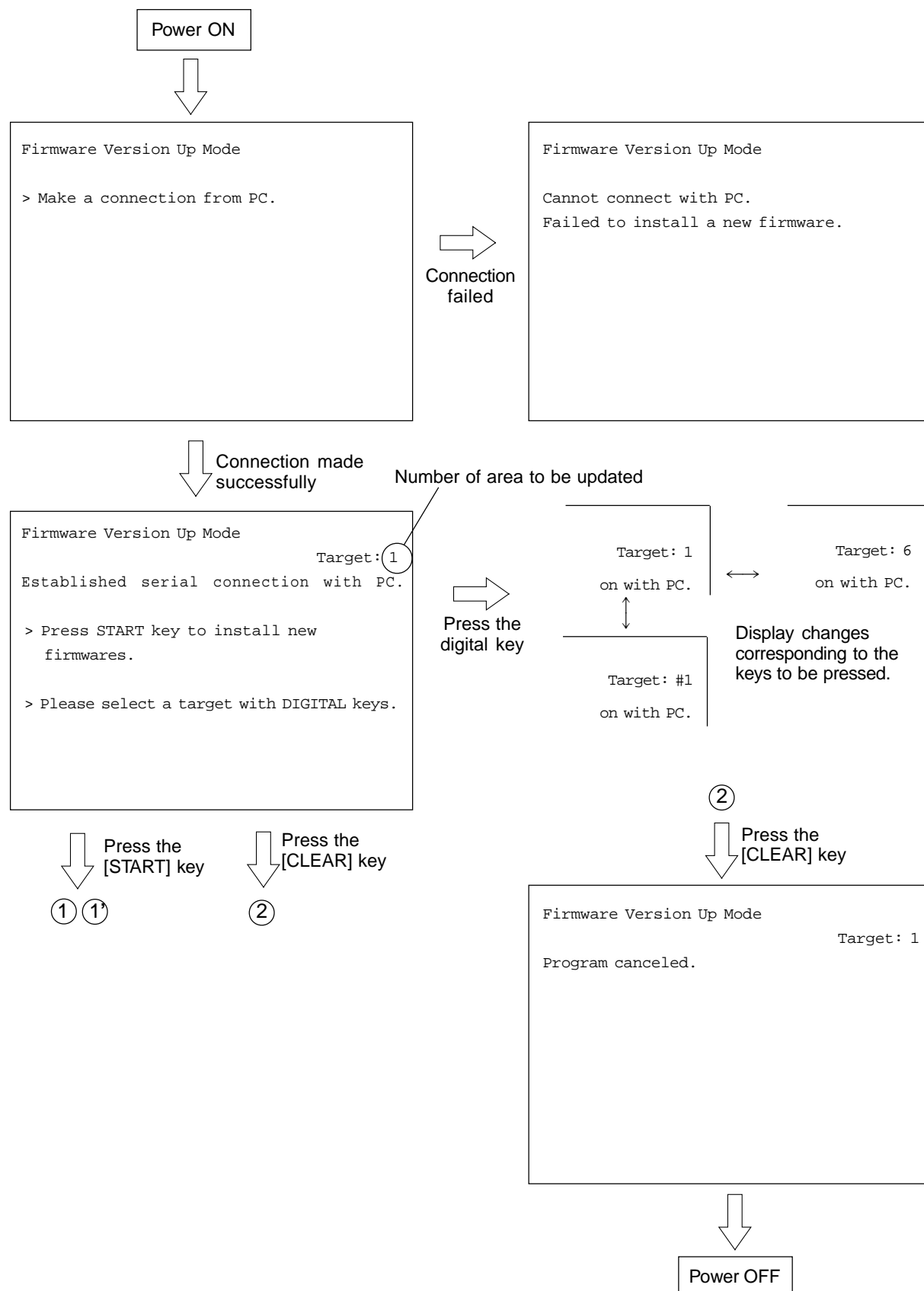
Select Number(1-2) and Press START key.

> 1:Clear NvRAM flags.
> 2:Format a Language Partition.
```

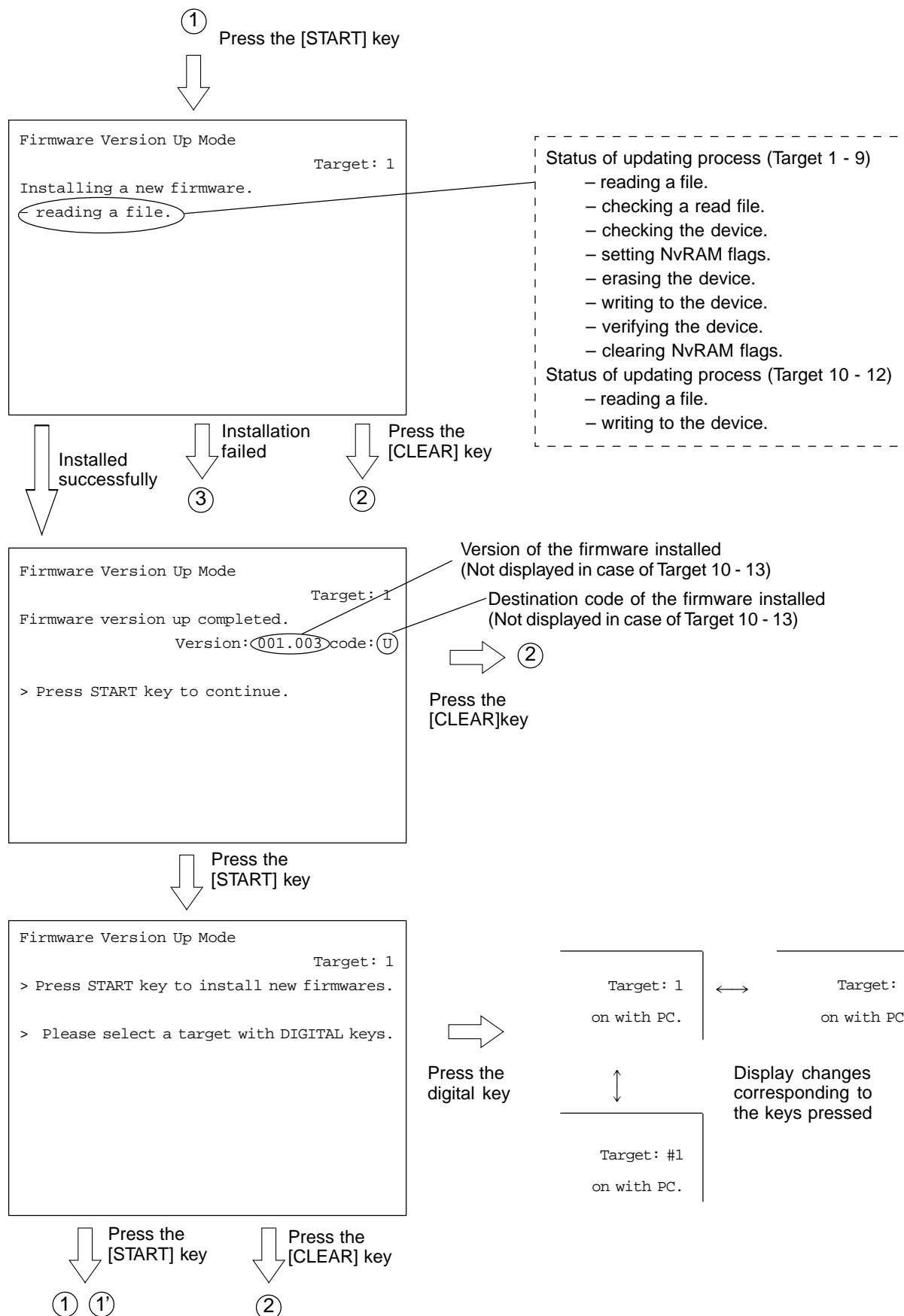
(2) Press [START] key after selecting the number with digital key.

6. 2. 4. Display

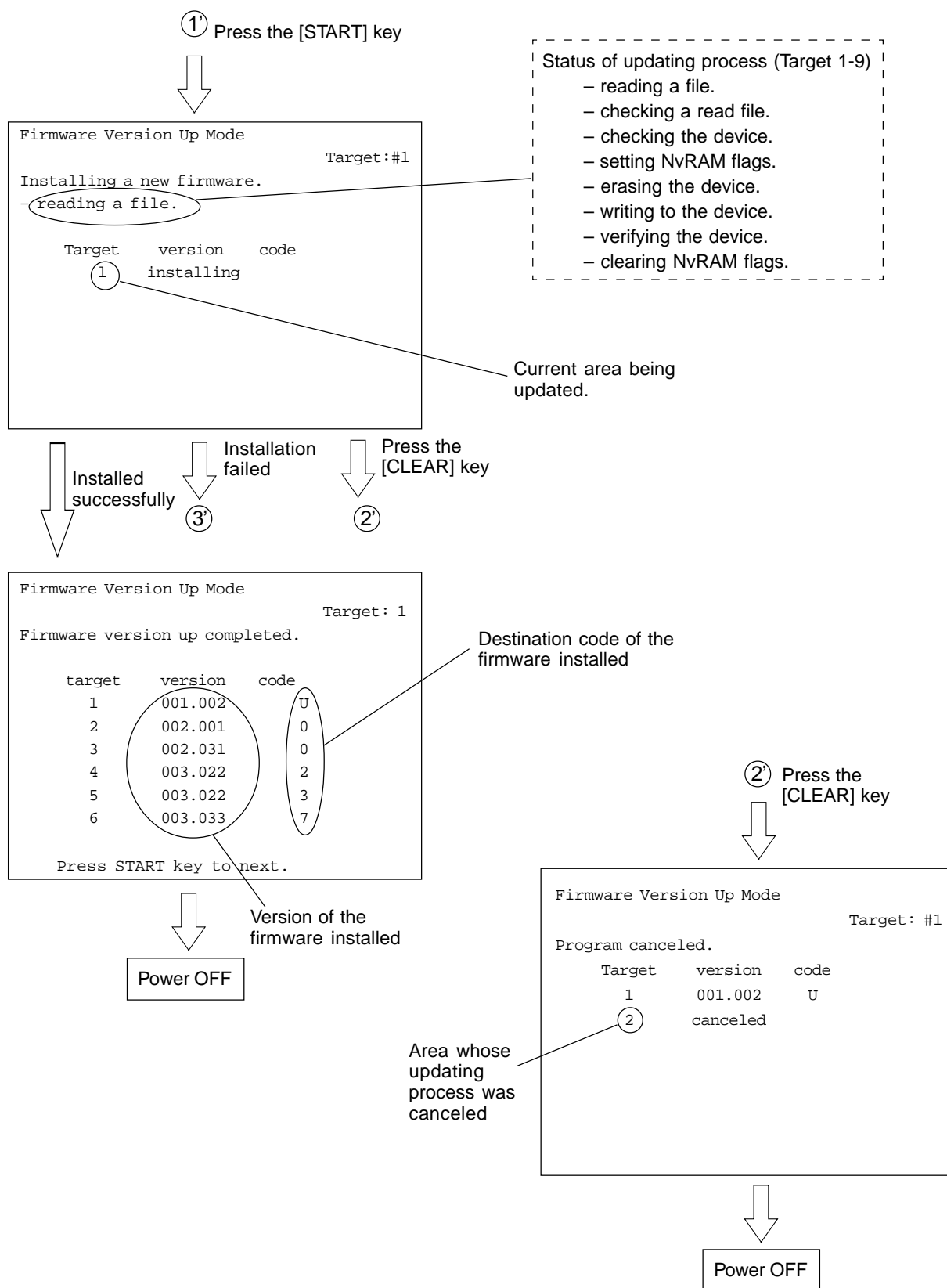
The following screens are displayed in the mode [3][9].



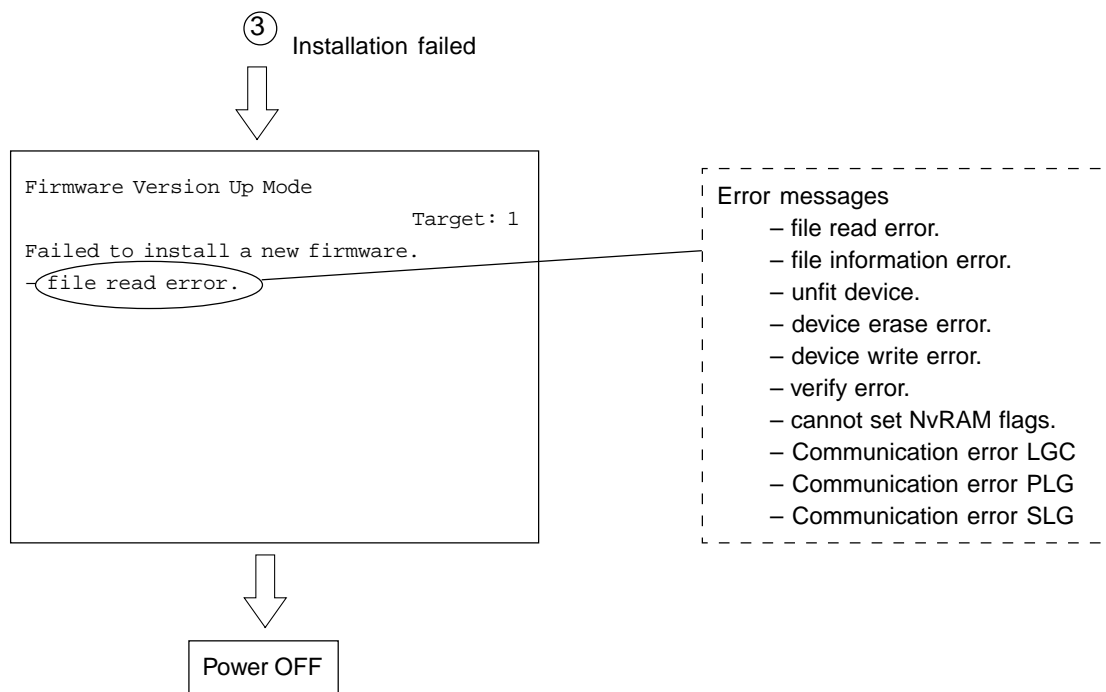
In case of target 1 - 13 :



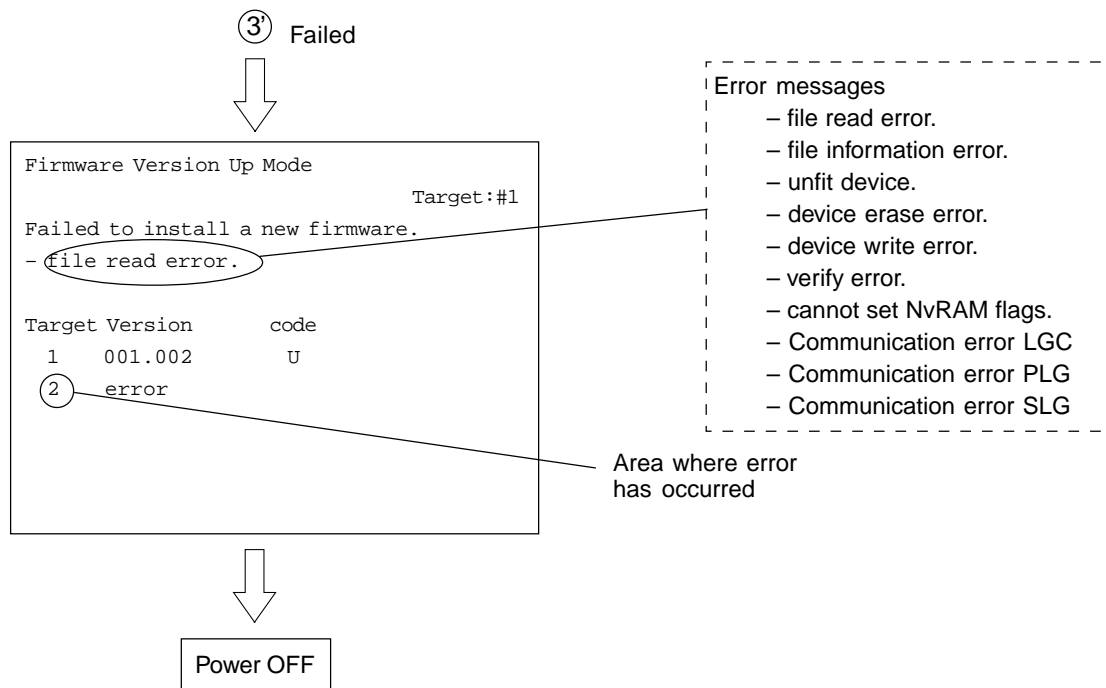
In case target of #1- #5:



In case of target of 1 - 13:



In case of target #1 - #5:

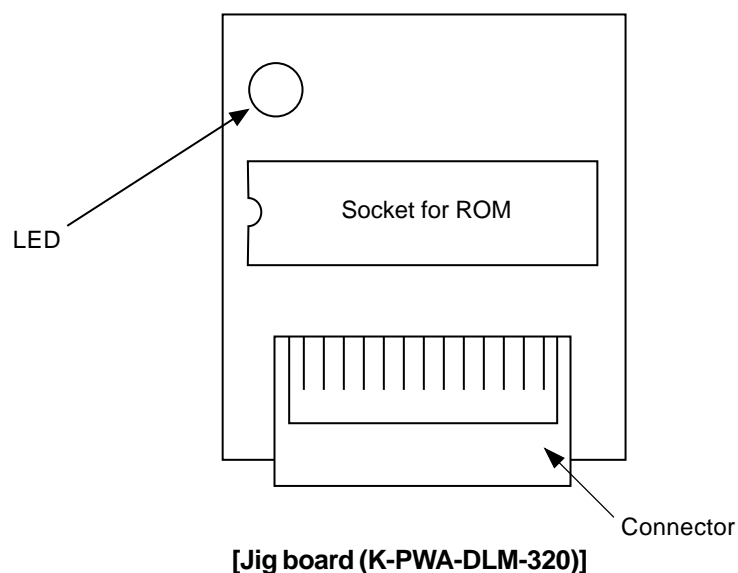
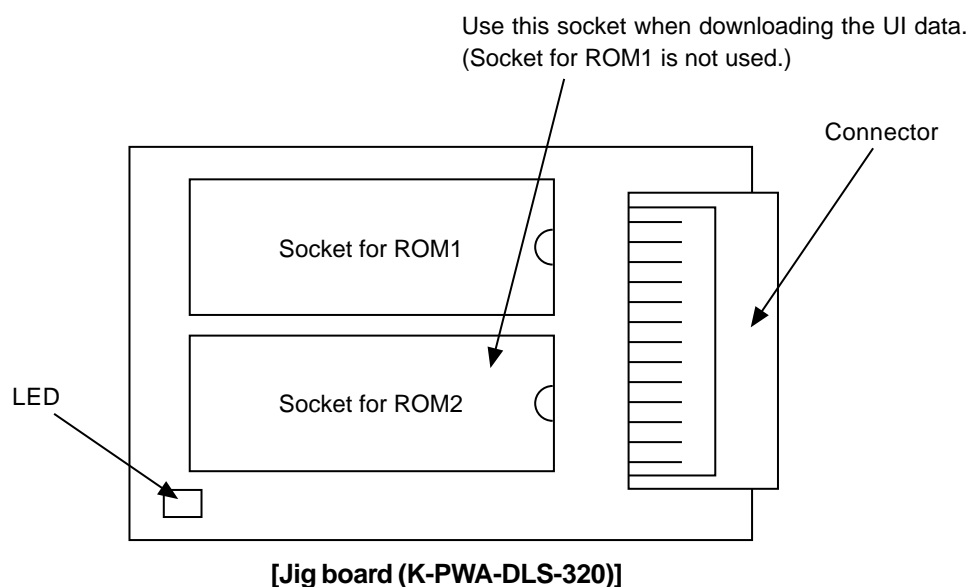


6. 3. Firmware Updating with Download Jig

In this model, it is possible to update the firmware automatically by connecting the download jig using the dedicated connector and turning the power of the copier ON.

The download jig consists of the programmed ROM and jig board. Two types of the jig boards are available as followed.

Firmware	PC board	Jig board to be used
System firmware	System control PC board (SYS board)	K-PWA-DLS-320
Engine firmware (printer ROM, PFC ROM, scanner ROM, laser ROM, RADF ROM and inserter ROM)	Logic PC board (LGC board)	K-PWA-DLM-320
	Scanner control PC board (SLG board)	
	Printer control PC board (PLG board)	
	ADF control board (ADF board)	
	Inserter main board	



6. 3. 1. System firmware

(1) ROM type

There are two types of ROM to be downloaded.

(a) ROM for application downloading

All areas in the FROM on the SYS board are updated. This ROM consists of 2 ROMs and is used for the normal updating.

The data to be overwritten by this ROM are as follows.

- System software basic section
 - * This area cannot be downloaded using PC.
- Program internal application
- UI data fixed section
- UI data common section
- Language(UI) on the display panel

(b) ROM for UI data downloading

The language data in the HDD is updated.

This ROM consists of 1 ROM and uses the socket for ROM2, which is a downloading jig.

The data to be updated by this ROM is as follows.

- UI data: The 1st to 6th languages

When downloading is performed using the ROM for UI data downloading, only UI data in the HDD are updated.

To make the result of updating effective, it is necessary to copy the updated data into the FROM by selecting a desired language in the setting mode "Selection of language(UI) on the display panel (08-220)".

(2) Jig board

Two types of the ROM mentioned above use the jig board K-PWA-DLS-320.

(▶ Page.6-32)

Note: Pay attention to the direction of the ROM when attaching it to the jig board.

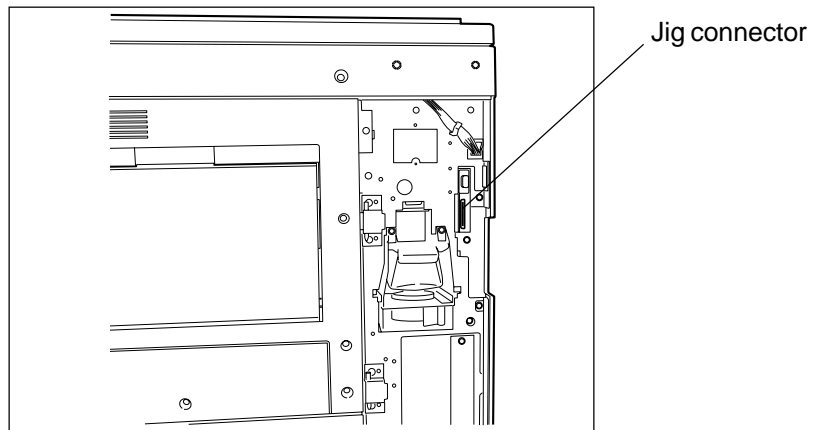
(3) Downloading procedure

(a) Connect the jig and perform downloading

Attach the ROMs on the jig board and connect the board with the connector of the copier.

1. Remove the feeding side rear cover.
(▶ Service Manual ch. 2.5.2)
2. Connect the downloading jig with the jig connector on the SYS board (ROM attached side to the right).

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.
- Check if the HDD is connected properly. (for UI data downloading)

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 result of updating effective for the display UI at power ON, it is necessary to copy the updated data 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 : Basic section software version

08-921 : Program internal (application) version

08-922 : UI data fixed section version

08-923 : UI data common section version

08-930 : Version of language(UI) on the display 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

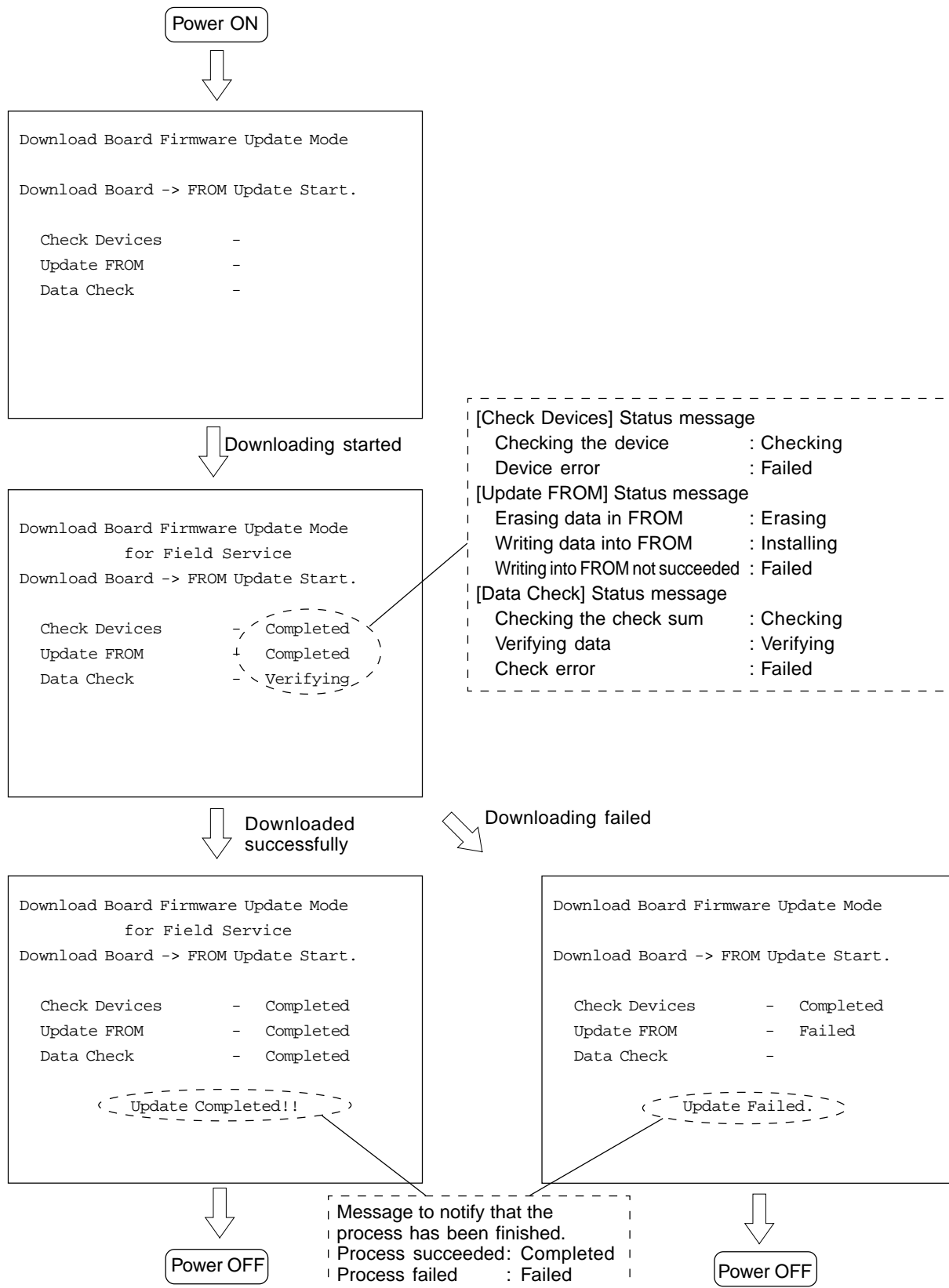
08-928 : Version of UI data 5th language in HDD

08-929 : Version of UI data 6th language in HDD

(4) Screens displayed during the download

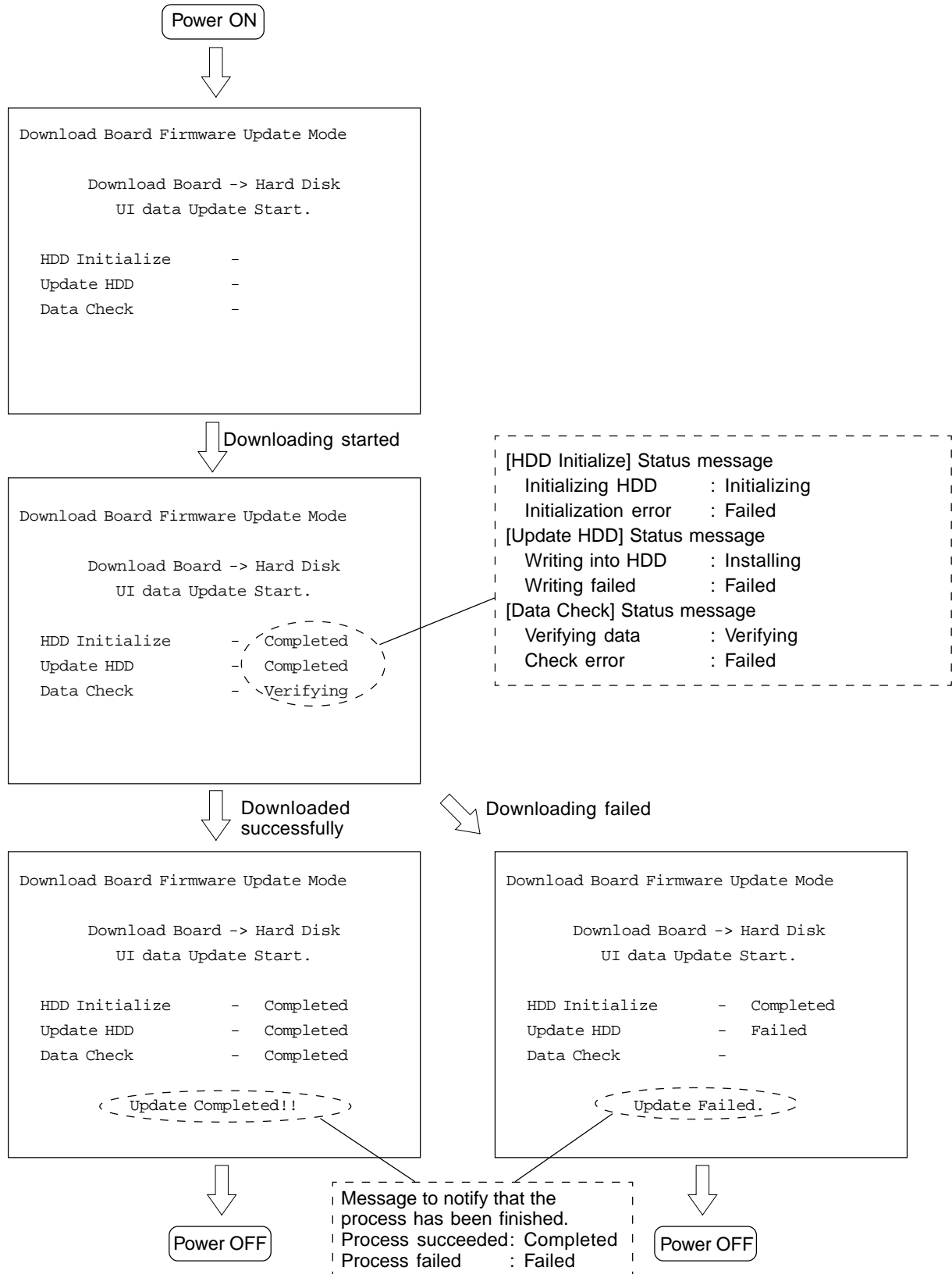
(a) Application downloading

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, PFC ROM/LGC board, scanner ROM/SLG board, laser ROM/PLG board, RADF ROM/ADF board and inserter ROM/inserter main board) is described in this section.

(1) Jig board

The printer ROM, PFC ROM/LGC board, the scanner ROM/SLG board, the laser ROM/PLG board, RADF ROM/ADF board and inserter ROM/inserter main board use K-PWA-DLM-320 as a jig board to update the engine firmware. (► Page. 6-32)

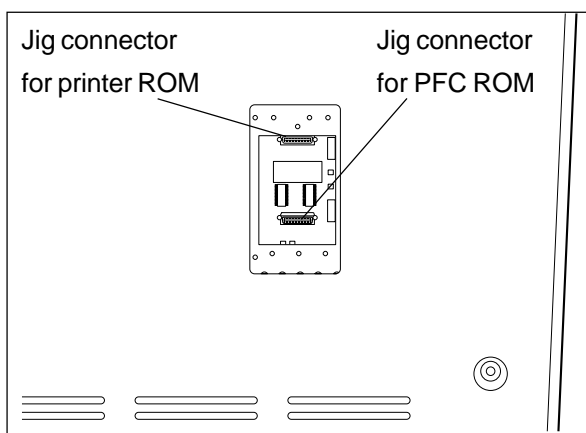
Note: Pay attention to the direction of the ROM when attaching it to the jig board.

(2) Downloading

- (a) Attach the ROM to the jig board and connect the board with the jig connector of the copier.

<<Printer ROM, PFC ROM/LGC board>>

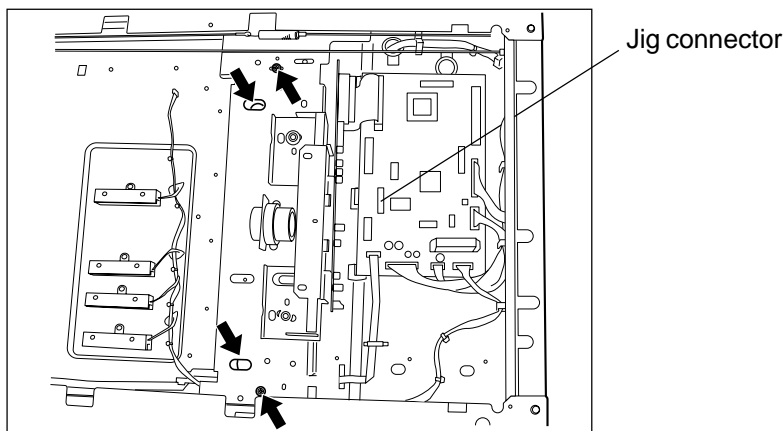
1. Take out a screw to remove the connector cover on the rear cover.
2. Connect the downloading jig with the jig connector on the LGC board (ROM attached side to the left).



<<Scanner ROM/SLG board>>

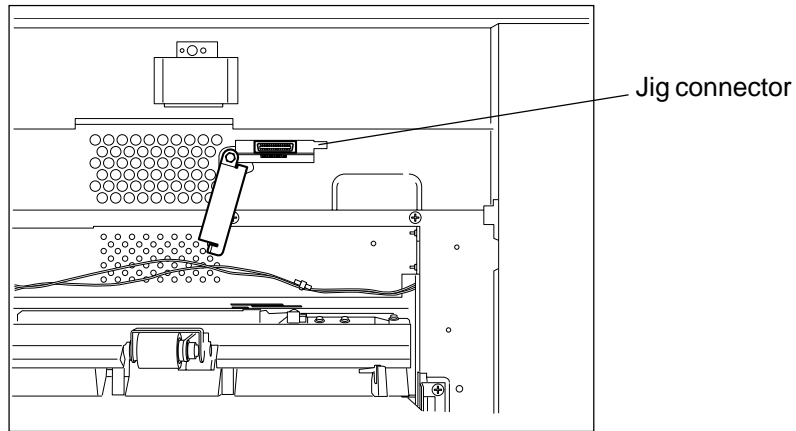
Note: Remember that the damp heater, lens cover, etc. are hot.

1. Remove the right top cover, glass retainer, original glass and lens cover. (► Service Manual ch. 2.5.1 and 2.5.2)
2. Connect the downloading jig with the jig connector on the SLG board (ROM attached side to the feeding side).



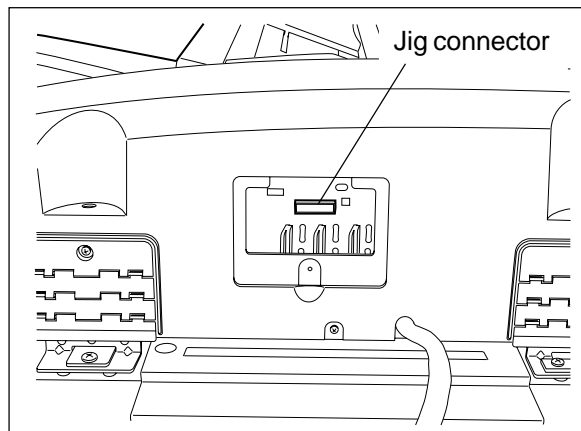
<<Laser ROM/PLG board>>

1. Open the right side upper cover.
2. Loosen a screw to open the connector cover.
3. Connect the downloading jig with the jig connector on the PLG board (ROM attached side upward).



<<RADF ROM/RADF board>>

1. Remove 1 screw and take off the connector cover on the ADF rear cover.
2. Insert the downloading jig into the jig connector of the ADF board (ROM attached side downward).

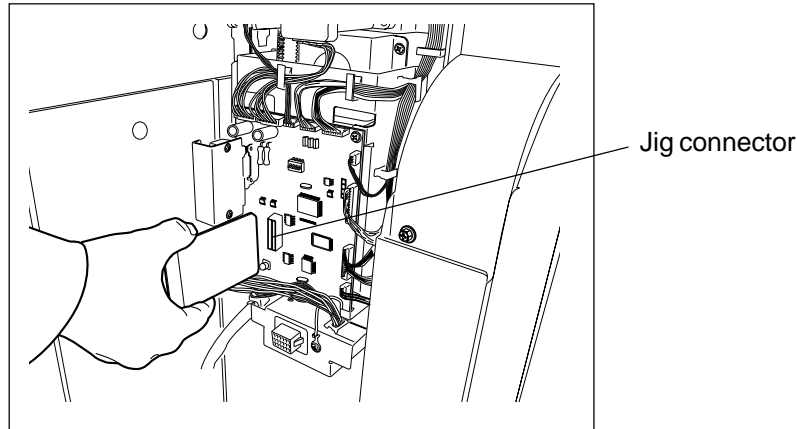


<<Inserter ROM/Inserter main board>>

1. Connect the inserter to the copier after the inserter rear cover removed.

*At this time, do not connect the finisher interface cable to the inserter.

2. Insert the downloading jig into the jig connector of the inserter main board (ROM attached side to the left).



(b) Turn ON the power while [3] and [9] 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, Laser ROM: 08-904, scanner ROM: 08-905, PFC ROM: 08-906, RADF: 08-907).

Notes: 1. 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.

2. After the downloading, clean the mirror-1, -2 and -3, the underside of shading correction plate and the original glass if any dust or oil stains on them.

7. POWER SUPPLY UNIT

7. 1. Output Channel

There are 4 output channels which do not work with the door switch.

(1) 3.3V

3.3VA	: J407 5pin
	Output to PLG board
3.3VB	: J408 5pin
	Output to SLG board
3.3VC	: J405 1pin, 2pin
	Output to SYS board

(2) 5.1V

5.1VB	: J405 5pin, 6pin
	Output to SYS board and printer board (via SYS board)
5.1VC	: J405 7pin
	Output to HDD
5.1VD	: J406 1pin, 2pin
	Output to LGC board
5.1VE	: J408 7pin, 8pin
	Output to SLG board
5.1VF	: J407 1pin
	Output to PLG board
5.1VG	: J407 2pin
	Output to PLG board
5.1VH	: J409 1pin
	Output to Fnisier

(3) 12V

12VA	: J405 13pin
	Output to HDD
12VB	: J407 6pin
	Output to PLG board
12VC	: J408 11pin
	Output to SLG board
12VD	: J406 8pin
	Output to LGC board

(4) 24V

24VF : J408 1pin, 2pin
Output to RADF
24VG : J406 4pin
Output to LGC board

There are 3 output channels which work with the door switch.

(1) 5.1V

5.1VA : J403 3pin
Output to PLG board

(2) 24V

24VA : J402 1pin
Output to LGC board
24VB : J402 2pin
Output to LGC board
24VC : J402 3pin
Output to LGC board
24VD : J403 1pin
Output to PLG board
24VE : J404 5pin
Output to SLG board
24VH : J409 3pin, 4pin
Output to Finisher

(3) 36V

36VA : J402 7pin
Output to LGC board
36VB : J402 8pin
Output to LGC board
36VC : J404 1pin, 2pin
Output to SLG board

<<Output connector>>

Not working with the door switch

J405 for SYS board

J406 for LGC board

J407 for PLG board

J408 for SLG board

J409 for Finisher

(1pin, 2pin)

Working with the door switch

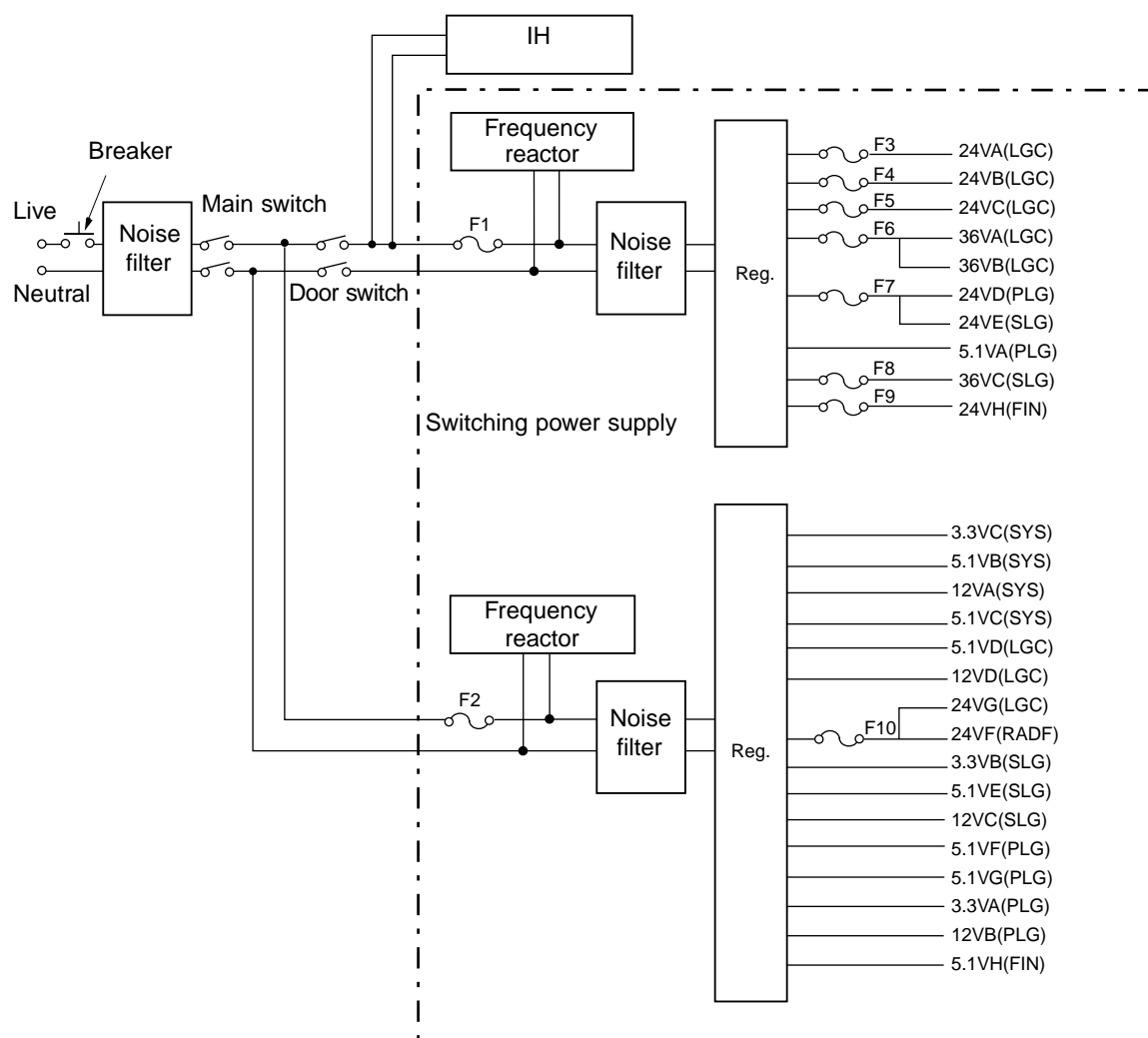
J402 for LGC board

J403 for PLG board

J404 for SLG board

J409 for Fisher

(3pin~6pin)



[Configuration of power supply unit]

7. 2. Fuse

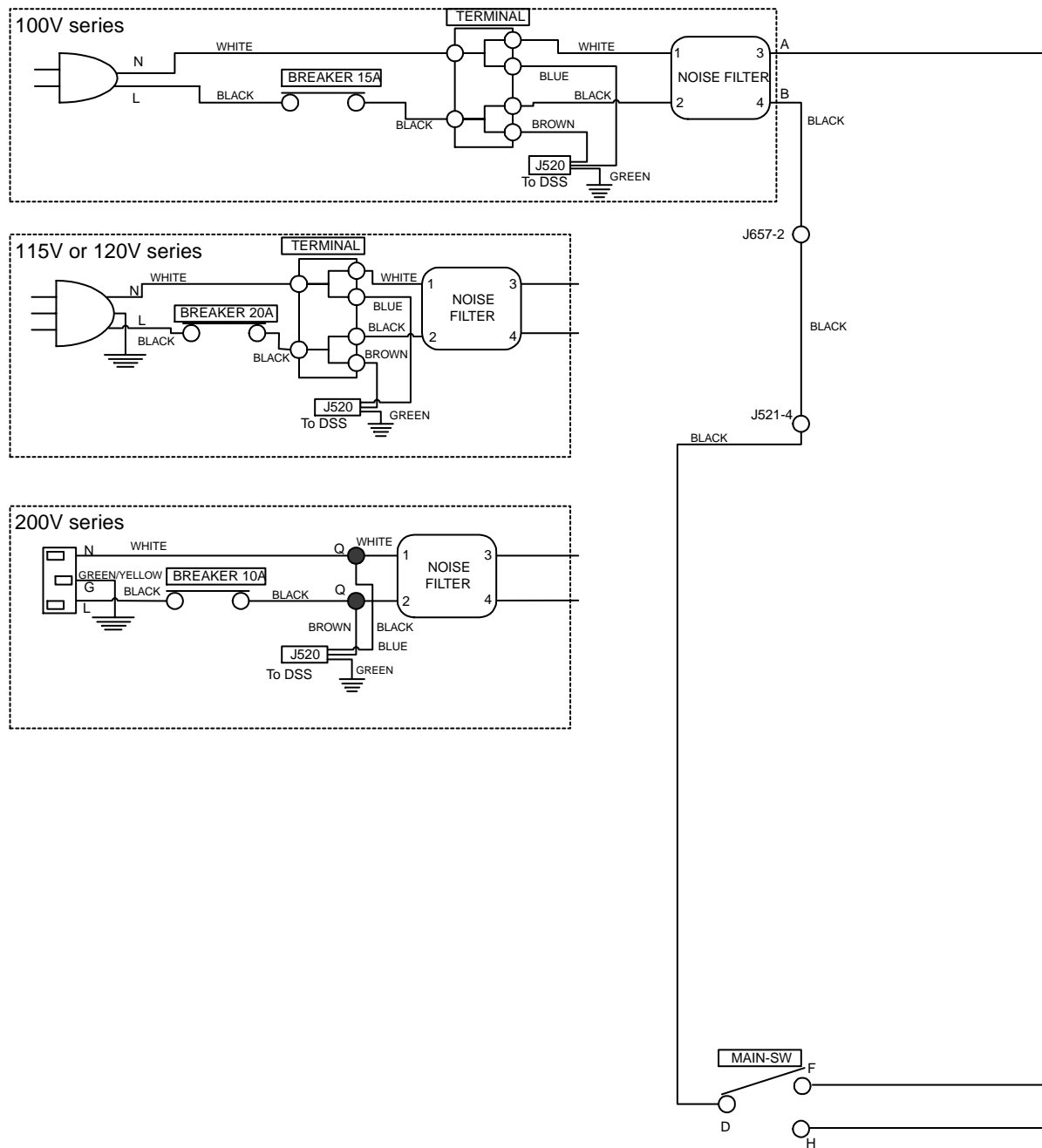
When the power supply secondary fuse is blown out, confirm that there is no abnormality with each part using the following table.

Voltage	Board/Unit	Part	Fuse type
24VA	LGC	System fan motor	F3: 4A (Semi time-lag)
		Duct in fan motor	
		Laser unit fan motor	
		Developer unit fan motor	
		Developer unit motor	
		Drum separation finger solenoid	
		Total counter	
		Key copy counter	
		Stack solenoid	
		Heater fan motor	
24VB	LGC	Main switch	F4: 4A (Semi time-lag)
		Auto-toner sensor	
		Drum surface potential sensor	
		Discharge lamp	
		High-voltage developer bias	
		Reverse motor	
		Exit motor	
		Transfer belt cam motor	
		Charger wire cleaner drive motor	
		Used toner transport motor	
		Cleaning brush drive motor	
		New toner supply motor	
		Toner recycle hopper motor	
24VC	LGC	Reversed paper transport section driving clutch 1 /2	F5: 4A (Semi time-lag)
		1st/2nd cassette transport clutch	
		Tandem LCF transport clutch	
		1st/2nd cassette feed clutch	
		Tandem LCF feed clutch	
		Bypass feed clutch	
		Reversed paper transport section driving clutch	
		Intermediate transport clutch	
		Bypass pickup solenoid	
		Tandem LCF pickup solenoid	
		End fence solenoid	
		Duct out fan motor	
		Exit fan motor	
		Reverse section fan motor 1/2	

Voltage	Board/Unit	Part	Fuse type
24VC	LGC	Registration motor	F5: 4A (Semi time-lag)
		LCF unit	
		IH fan motor	
		Cassette tray-up motor 1/2	
		LCF tray-up motor	
36VA	LGC	Fuser unit motor	F6: 4A (Semi time-lag)
		Feed motor	
36VB	LGC	Drum motor	
		Transfer belt motor	
24VD	PLG (OPT)	Polygonal motor	F7: 4A (Semi time-lag)
		Laser unit fan motor	
24VE	SLG (Scanner)	SLG fan motor	
		SLG fan motor driver circuit (SLG board)	
		Lamp inverter	
36VC	SLG (Scanner)	Scanner motor	F8: 4A (Semi time-lag)
		Scanner motor driver circuit (SLG board)	
24VH	Finisher		F9: 8A (Semi time-lag)
24VF	RADF		F10: 5A (Semi time-lag)
24VG	LGC	Monitoring system	
		Totalizer	

8. WIRE HARNESS CONNECTION DIAGRAMS

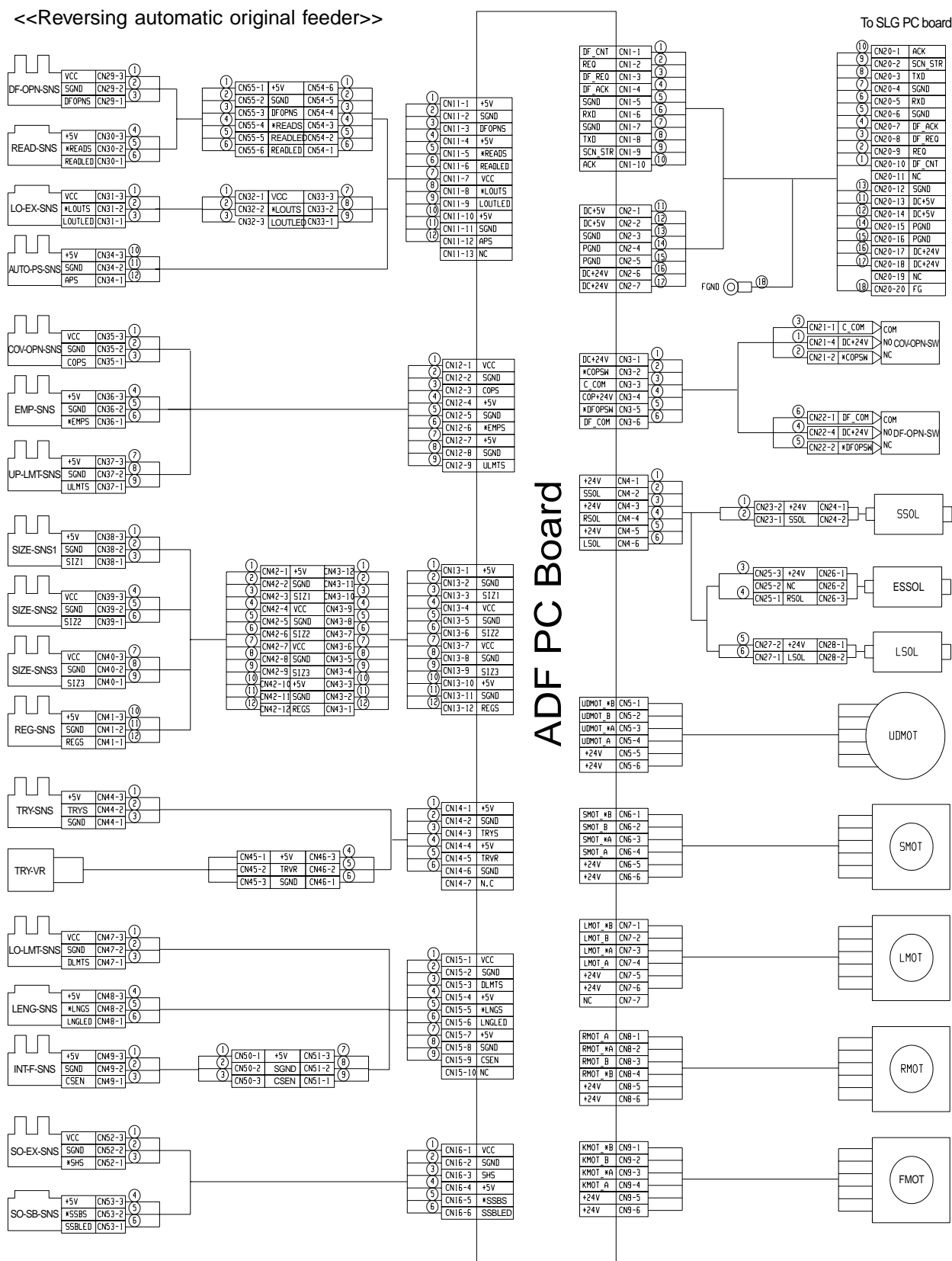
8. 1. AC Diagram





8. 2. DC Diagram

<<Reversing automatic original feeder>>



TOSHIBA

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