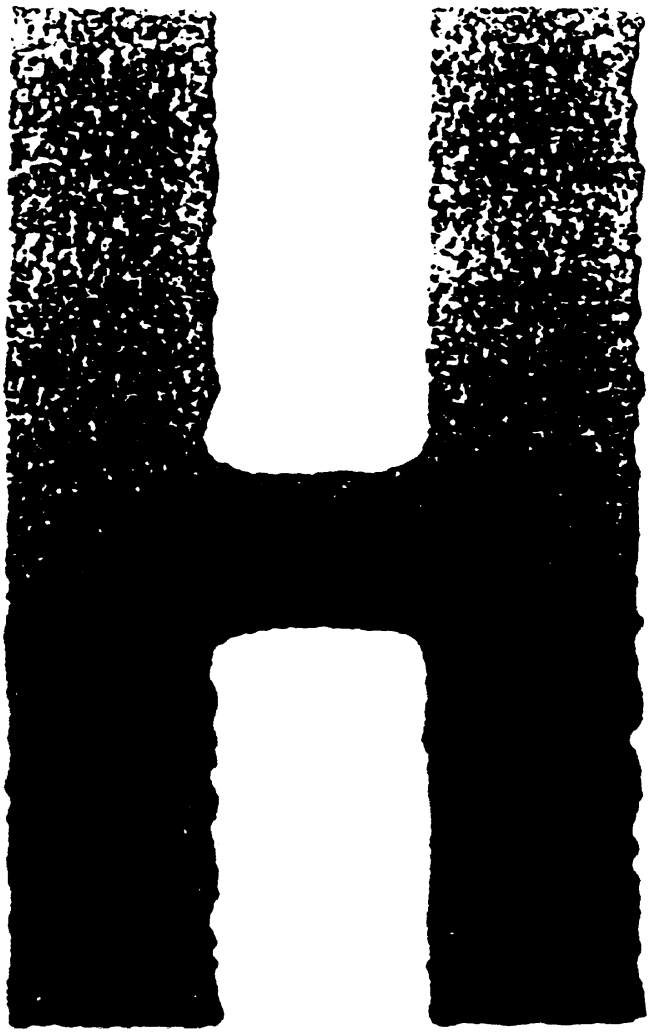
TOSHIBA

SERVICE HANDBOOK

MULTIFUNCTIONAL DIGITAL SYSTEMS

e-STUDIO163/203



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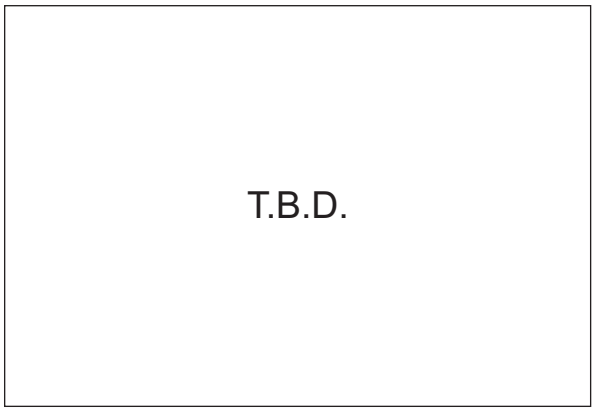
GENERAL PRECAUTIONS REGARDING THE SERVICE FOR e-STUDIO163/203

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

1) **Transportation/Installation**
   - When transporting/installing the equipment, employ two persons and be sure to hold the positions as shown in the figure.
     The equipment is quite heavy and weighs approximately 30 kg (66.18 lb), therefore pay full attention when handling it.



   - Be sure not to hold the movable parts or units when transporting the equipment.
   - Be sure to use a dedicated outlet with AC 110 V / 13.2 A, 115 V or 127 V / 12 A, 220-240 V or 240 V / 8 A for its power source.
   - The equipment must be grounded for safety.
   - Select a suitable place for installation. Avoid excessive heat, high humidity, dust, vibration and direct sunlight.
   - Provide proper ventilation since the equipment 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”) on the rear.
   - The equipment shall be installed near the socket outlet and shall be accessible.
   - Be sure to fix and plug in the power cable securely after the installation so that no one trips over it.

2) **General Precautions at Service**

- Be sure to turn the power OFF and unplug the power cable during service (except for the service should be done with the power turned ON).
- Unplug the power cable and clean the area around the prongs of the plug and socket outlet once a year or more. A fire may occur when dust lies on this area.
- When the parts are disassembled, reassembly is the reverse of disassembly unless otherwise noted in this manual or other related documents. Be careful not to install small parts such as screws, washers, pins, E-rings, star washers in the wrong places.
- Basically, the equipment should not be operated with any parts removed or disassembled.
- The PC board must be stored in an anti-electrostatic bag and handled carefully using a wristband since the ICs on it may be damaged due to static electricity.

  Caution: Before using the wristband, unplug the power cable of the equipment and make sure that there are no charged objects which are not insulated in the vicinity.

- Avoid expose to laser beam during service. This equipment uses a laser diode. Be sure not to expose your eyes to the laser beam. Do not insert reflecting parts or tools such as a screwdriver on the laser beam path. Remove all reflecting metals such as watches, rings, etc. before starting service.
- Be sure not to touch high-temperature sections such as the exposure lamp, fuser unit, damp heater and areas around them.
- Be sure not to touch high-voltage sections such as the chargers, developer, high-voltage transformer and power supply unit. Especially, the board of these components should not be touched since the electric charge may remain in the capacitors, etc. on them even after the power is turned OFF.
- Make sure that the equipment will not operate before touching potentially dangerous places (e.g. rotating/operating sections such as gears, belts pulleys, fans and laser beam exit of the laser optical unit).
- Be careful when removing the covers since there might be the parts with very sharp edges underneath.
- When servicing the equipment with the power turned ON, be sure not to touch live sections and rotating/operating sections. Avoid exposing your eyes to laser beam.
- Use designated jigs and tools.
- Use recommended measuring instruments or equivalents.
- Return the equipment to the original state and check the operation when the service is finished.

3) **Important Service Parts for Safety**

- The breaker, door switch, fuse, thermostat, thermofuse, thermistor, IC-RAMs including lithium batteries, etc. are particularly important for safety. Be sure to handle/install them properly. If these parts are short-circuited and their functions become ineffective, they may result in fatal accidents such as burnout. Do not allow a short-circuit or do not use the parts not recommended by Toshiba TEC Corporation.

4) **Cautionary Labels**

- During servicing, be sure to check the rating plate and cautionary labels such as “Unplug the power cable during service”, “CAUTION. HOT”, “CAUTION. HIGH VOLTAGE”, “CAUTION. LASER BEAM”, etc. to see if there is any dirt on their surface and if they are properly stuck to the equipment.

5) **Disposal of the Equipment, Supplies, Packing Materials, Used Batteries and IC-RAMs**
   - Regarding the recovery and disposal of the equipment, supplies, packing materials, used batteries and IC-RAMs including lithium batteries, follow the relevant local regulations or rules.

Caution:
Dispose of used batteries and IC-RAMs including lithium batteries according to this manual.
Attention:
Se débarrasser de batteries et IC-RAMs usés y compris les batteries en lithium selon ce manuel.
Vorsicht:
Entsorgung der gebrauchten Batterien und IC-RAMs (inclusive der Lithium-Batterie) nach diesem Handbuch.

CONTENTS

1. SPECIFICATIONS / ACCESSORIES / OPTIONS / SUPPLIES

1.1 Specifications

Values in [ ] are for e- STUDIO203 in case that the specification is different among e-STUDIO163 and e-STUDIO203.

- Copy process: Indirect electrophotographic process (dry)
- Type: Desktop type
- Original table: Fixed type (the left rear corner used as guide to place originals)
- Accepted originals: Sheet, book and 3-dimensional object. The automatic document feeder (ADF) only accepts paper which are not pasted or stapled. (Single-sided originals: 50 to 127 g/m^2/13 to 34 lb. Bond) Carbon paper are not acceptable either.
  Maximum size: A3/LD

- Copy speed (Copies/min.)

e-STUDIO163

Paper size	Drawer	Bypass feed		PFU
		Size specified	Size not specified	
A4, B5, LT	16	16	11	16
A5-R, ST-R	-	16	11	-
A4-R, B5-R, LT-R	15.5	15.5	11	15.5
B4, LG, FOLIO, COMPUTER	13	13	11	13
A3, LD	11	11	11	11

e-STUDIO203

Paper size	Drawer	Bypass feed		PFU
		Size specified	Size not specified	
A4, B5, LT	20	20	11	20
A5-R, ST-R	-	20	11	-
A4-R, B5-R, LT-R	15.5	15.5	11	15.5
B4, LG, FOLIO, COMPUTER	13	13	11	13
A3, LD	11	11	11	11

* "–" means "Not acceptable".

* The copy speed in the above table are available when originals are manually placed for single side, multiple copying.

* When the ADF is used, the copy speed of 16[20] sheets per minute is only available under the following conditions:
  - Original/Mode: Single side original/A4/LT size. APS/automatic density are not selected.
  - Number of sheets: 16[20] or more.
  - Reproduction ratio: 100%

Copy speed for thick paper (Copies/min.)
e-STUDIO163/203

Thick 1 (81 g/m^2 to 105 g/m^2, 21.3 lb. Bond to 28 lb. Bond)

Paper size	Drawer	Bypass feed		PFU
		Size specified	Size not specified	
A4, B5, LT	- [-]	16 [18.5]	10.5 [10.5]	- [-]
A5-R, ST-R	- [-]	16 [18.5]	10.5 [10.5]	- [-]
A4-R, B5-R, LT-R	- [-]	14.5 [14.5]	10.5 [10.5]	- [-]
B4, LG, FOLIO, COMPUTER	- [-]	12 [12]	10.5 [10.5]	- [-]
A3, LD	- [-]	10.5 [10.5]	10.5 [10.5]	- [-]

Thick 2 (106 g/m^2 to 163 g/m^2, 28 lb. Bond to 90 lb. Index)

Paper size	Drawer	Bypass feed		PFU
		Size specified	Size not specified	
A4, B5, LT	- [-]	16 [18.5]	10.5 [10.5]	- [-]
A5-R, ST-R	- [-]	16 [18.5]	10.5 [10.5]	- [-]
A4-R, B5-R, LT-R	- [-]	14.5 [14.5]	10.5 [10.5]	- [-]
B4, LG, FOLIO, COMPUTER	- [-]	12 [12]	10.5 [10.5]	- [-]
A3, LD	- [-]	10.5 [10.5]	10.5 [10.5]	- [-]

* System copy speed

Copy mode		Sec.	
		e-STUDIO163	e-STUDIO203
Single-sided originals ↓ Single-sided copies	1 set 3 sets 5 sets	TBD TBD TBD	TBD TBD TBD

* The system copy speed, including scanning time, is available when 10 sheets of A4/LT size original are set on ADF and one of the copy modes in the above table is selected. The period of time from pressing [START] to the paper exit completely out of the equipment based on the actually measured value.
* Upper drawer is selected and copying is at the non-sort mode.
* Automatic copy density, APS/AMS are turned off.

• Copy paper

	Drawer	PFU	Bypass copy	Remarks
Size	A3, A4, A4-R, B4, B5, B5-R, LD, LG, LT, LT-R, FOLIO, COMPUTER, 13"LG, 8.5" x 8.5", 8K, 16K, 16K-R		A3 to A5-R, LD to ST-R, FOLIO, COMPUTER, 13"LG, 8.5" x 8.5", 8K, 16K, 16K-R (Non-standard or user-specified sizes can be set.)	
Weight	64 to 80 g/m^2		50 to 163 g/m^2(Single paper feeding) 64 to 80 g/m^2(Continuous feeding)	
Special paper	–		Tracing paper, labels, OHP film (thickness: 80 µm or thicker),	These special papers recommended by Toshiba Tec

• First copy time ..... Approx. TBD sec. or less
(A4/LT, 100%, original placed manually)

• Warming-up time..... Approx. 25 sec. (temperature: 20°C)

• Multiple copying ..... Up to 999 copies; Key in set numbers

• Reproduction ratio ..... Actual ratio: 100±0.5%
Zooming: 25 to 200% in increments of 1%

• Resolution/Gradation ..... Scanning: 600 dpi x 600 dpi
Printing: Equivalent to 2400 dpi x 600 dpi
Gradation: 256 steps

• Eliminated portion..... Leading edges: 3.0±2.0 mm, Side/trailing edges: 2.0±2.0 mm (copy)
Leading / trailing edges: 5.0±2.0 mm, Side edges: 5.0±2.0 mm (print)

• Paper feeding ..... Standard drawer:
1 drawer (stack height TBD mm, equivalent to 250 sheets; 64 to 80 g/m^2 (17 to 22 lb. Bond))

Paper Feed Unit (PFU):
Option (One drawer: stack height TBD mm, equivalent to 250 sheets; 64 to 80 g/m^2 (17 to 22 lb. Bond))

Bypass feeding:
Stack height TBD mm: equivalent to 100 sheets; 64 to 80 g/m^2 (17 to 22 lb. Bond)

• Capacity of originals in the automatic document feeder (Option)
..... A3 to A5-R, LD to ST-R:
100 sheets / 80 g/m^2 (Stack height 16 mm or less)

• Toner supply ..... Automatic toner density detection/supply
Toner cartridge replacing method (There is a recovered toner supply mechanism.)

• Density control..... Automatic density mode and manual density mode selectable in 7 steps

• Weight..... Approximately TBD kg (TBD lb.) (include the developer material and drum)

• Power requirements ..... AC 110 V / 13.2 A, 115 V or 127 V / 12 A
220-240 V or 240 V / 8 A (50/60 Hz)
* The acceptable value of each voltage is ±10%.

• Power consumption ..... 1.5 kW or less (115 V series, 200 V series)
* The electric power is supplied to the ADF through the equipment.

• Total counter..... Electronical counter

• Dimensions of the equipment ..... See the figure below (TBD)

Fig. 1-1

1.2 Accessories

Unpacking/setup instruction	1 set
Operator's manual	1 pc. (except for MJD)
Operator's manual pocket	1 pc.
Power cable	1 pc.
Warranty sheet	1 pc. (for NAD)
Setup report	1 set (for NAD and MJD)
Customer satisfaction card	1 pc. (for MJD)
Drum (installed inside of the equipment)	1 pc.
Toner cartridge	1 pc. (except for NAD, MJD)
Developer material	1 pc. (except for NAD, MJD)
Blind seal	1 pc.
Rubber plug	5 pcs.
CD-ROM	4 pcs.
Transfer charger wire cleaner (installed inside of the transfer cover)	1 pc.
Toner	1 pc.

* Machine version

NAD: North America
ASD: Central and South America / Hong Kong
AUD: Australia
MJD: Europe
ASU: Asia
SAD: Saudi Arabia
IRD: Iran
CND: China
TWD: Taiwan
JPD: Japan

1.3 Options

Platen Cover	KA-1640 PC
Automatic Document Feeder (ADF)	MR-2017
Paper Feed Unit (PFU)	MY-1027
Expansion Memory	GC-1240

1.4 Supplies

Drum	TBD
Toner cartridge	TBD
Developer	TBD

1.5 System List

Fig. 1-2

2. ERROR CODE AND SELF-DIAGNOSTIC MODE

2.1 Error Code List

One of the following error codes is displayed with “7-segment LED” while pressing the [CLEAR/STOP] button and the digital key [8] simultaneously when the “CLEAR PAPER” or “CALL SERVICE” symbol is blinking.

2.1.1 Jam

Error code	Classification	Contents	Troubleshooting
E01	Paper exit jam	Jam not reaching the exit sensor: The paper which has passed through the fuser unit does not reach the exit sensor.	xxx
E02		Stop jam at the exit sensor: The trailing edge of the paper does not pass the exit sensor after its leading edge has reached this sensor.	xxx
E03	Other paper jam	Power-ON jam: The paper is remaining on the paper transport path when power is turned ON.	xxx
E09		Jam at the registration area due to registration time-out error	xxx
E12	Paper misfeeding	Bypass misfeeding (Paper not reaching the registration sensor): The paper fed from the bypass tray does not reach the registration sensor.	xxx
E13		Drawer misfeeding (Paper not reaching the registration sensor): The paper fed from the drawer does not reach the registration sensor.	xxx
E14		PFU drawer misfeeding (Paper not reaching the PFU feed sensor): The paper fed from the PFU drawer does not reach the PFU feed sensor.	xxx
E21	Paper transport jam	PFU drawer transport jam (Paper not reaching the registration sensor): The paper does not reach the registration sensor after it has passed the PFU feed sensor.	xxx
E40	Cover open jam	Transfer cover open jam: The transfer cover has opened during printing.	xxx
E41		Front cover open jam: The front cover has opened during printing.	xxx
E44		PFU cover open jam: The PFU cover has opened during printing.	xxx
E71	ADF jam	Jam not reaching the original registration sensor: The original fed from the original feeding tray does not reach the original registration sensor.	xxx
E72		Jam not reaching the read sensor: The original does not reach the read sensor after it has passed the registration sensor.	xxx
E73		Stop jam at the exit sensor: The trailing edge of the original does not pass the exit sensor after its leading edge has reached this sensor.	xxx
E86		ADF jam access cover open: The ADF jam access cover has opened during ADF operation.	xxx
E87		ADF open jam: ADF has opened during ADF operation.	xxx

2.1.2 Service call

Error code	Classification	Contents	Troubleshooting
C01	Drive system related service call	Main motor abnormality: The main motor is not rotating normally.	xxx
C07		Exit motor IC overcurrent detection error	xxx
C21	Scanning system related service call	CIS unit initialization error	xxx
C26		Peak detection error: Lighting of the exposure lamp (white reference) is not detected when power is turned ON.	xxx
C41	Fuser unit related service call	Thermistor or heater abnormality at power-ON: Abnormality of service call the thermistor is detected when power is turned ON or the temperature of the fuser roller does not rise in a specified period of time after power is turned ON.	xxx
C42		Drum thermistor abnormality	xxx
C43		Thermistor abnormality during warming up or in ready status after abnormality judgment	xxx
C44		Heater abnormality after abnormality judgment: The temperature of the fuser roller has exceeded the range of control (in this case, the main switch turns OFF automatically) or does not even reach the range.	xxx
C45		Thermistor abnormality during printing: Abnormality of the thermistor is detected during printing.	xxx
C46		Heater or thermistor abnormality from “ready status” to “start of printing”.	xxx
C97	Process related service call	High-voltage transformer abnormality: Leakage of the main charger is detected.	xxx
CA1	Laser optical unit related service call	Polygonal motor abnormality: The polygonal motor is not rotating normally.	xxx
CA2		H-Sync detection error: H-Sync detection PC board cannot detect laser beams.	xxx
CF7	Other service call	Toner for recycle transport area lock	xxx

2.2 Self-diagnosis Modes

Mode	For start	Contents	For exit	Display
Input check mode	[0]+[3]+ [POWER]	Checks the status of input signals.	[POWER] OFF/ON	
Output check mode	[0]+[4]+ [POWER]	Checks the status of output signals.	[POWER] OFF/ON	
Test print mode	[0]+[7]+ [POWER]	Outputs the test patterns.	[POWER] OFF/ON	
Adjustment mode	[0]+[5]+ [POWER]	Adjusts various items.	[POWER] OFF/ON	
Setting mode	[0]+[8]+ [POWER]	Sets various items.	[POWER] OFF/ON	
List print mode	[9]+[START] +[POWER]	Prints out the data lists of the codes 05/08 and pixel counter.	[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.

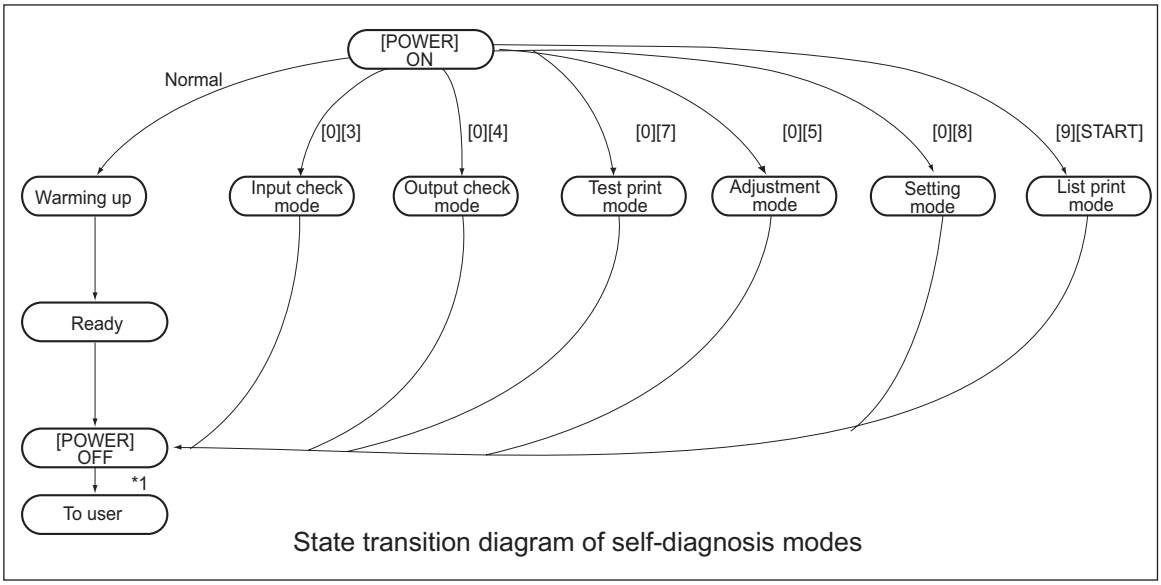
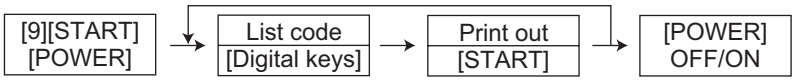


Fig. 2-1

*1 Turn OFF the power after using the self-diagnosis modes, and leave the equipment to the user.

<Operation procedure>

- Input check mode (03): Refer to 🕮 P. 2-5 "2.2.1 Input check (Test mode 03)".
- Output check mode (04): Refer to 🕮 P. 2-9 "2.2.2 Output check (Test mode 04)".
- Test print mode (07): Refer to 🕮 P. 2-11 "2.2.3 Test print mode (Test mode 07)".
- Adjustment mode (05): Refer to 🕮 P. 2-12 "2.2.4 Adjustment mode (05)".
- Setting mode (08): Refer to 🕮 P. 2-27 "2.2.5 Setting mode (08)".
- List print mode (9S):

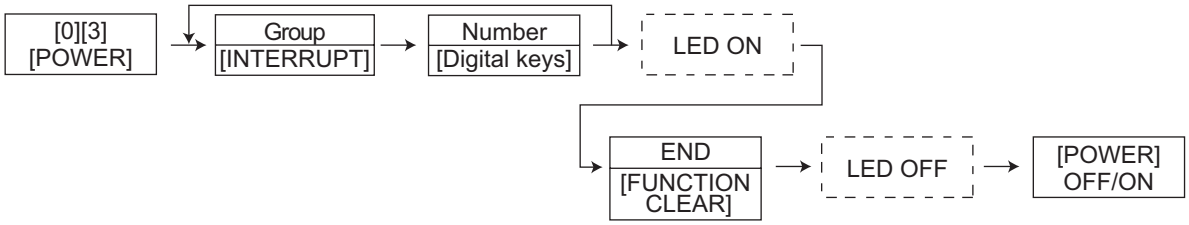


101:FUNC (FUNC,05/08) Data list
102:FUNCTION list

2.2.1 Input check (Test mode 03)

The status of each input signal can be checked by pressing the [INTERRUPT] button, and the digital keys in the test mode (03).

<Operation procedure>



Group is displayed by ON/OFF of the [INTERRUPT] LED, and the number keyed in is displayed with the 7-segment LED. Each status is indicated by ON/OFF of the 7 [DENSITY LED] s.

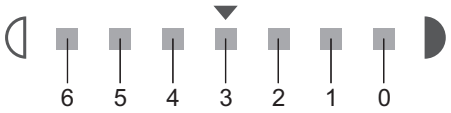


Fig. 2-2 Display position of the density LED

[INTERRUPT] LED	Number [Digital keys]	Display position of the density LED	Items to check	ON	OFF
OFF	[1]	0	-	-	-
		1	-	-	-
		2	-	-	-
		3	-	-	-
		4	Bypass paper sensor	No paper	Paper present
		5	Bypass unit connection	Not connected	Connected
		6	-	-	-
OFF	[4]	0	-	-	-
		1	-	-	-
		2	-	-	-
		3	-	-	-
		4	-	-	-
		5	Paper empty sensor	No paper	Paper present
		6	Drawer detection switch	Drawer not installed	Drawer installed
OFF	[5]	0	-	-	-
		1	-	-	-
		2	-	-	-
		3	Bypass feed paper width sensor-3	Refer to table 1	
		4	Bypass feed paper width sensor-2	Refer to table 1	
		5	Bypass feed paper width sensor-1	Refer to table 1	
		6	Bypass feed paper width sensor-0	Refer to table 1	

[INTERRUPT] LED	Number [Digital keys]	Display position of the density LED	Items to check	ON	OFF
OFF	[6]	0	-	-	-
		1	-	-	-
		2	-	-	-
		3	-	-	-
		4	-	-	-
		5	PFU paper empty sensor	No paper	Paper present
		6	-	-	-
OFF	[7]	0	-	-	-
		1	-	-	-
		2	-	-	-
		3	-	-	-
		4	-	-	-
		5	PFU feed sensor	Paper present	No paper
		6	PFU drawer detection switch	No drawer	Drawer present
OFF	[8]	0	Toner cartridge detection switch	No cartridge	Cartridge present
		1	-	-	-
		2	Polygonal motor rotation status (Motor is rotating at Output Mode (04))	Abnormal rotation	Normal rotation
		3	-	-	-
		4	PFU board connection	Not connected	Connected
		5	-	-	-
		6	24 V power supply (Front cover opening/closing)	24 V ON	24 V OFF
OFF	[9]	0	-	-	-
		1	-	-	-
		2	PFU cover opening/closing switch	Cover opened	Cover closed
		3	Front cover opening/closing switch	Cover opened	Cover closed
		4	-	-	-
		5	Exit sensor	No paper	Paper present
		6	Registration sensor	No paper	Paper present
OFF	[0]	0	-	-	-
		1	-	-	-
		2	-	-	-
		3	Developer unit switch	Not connected	Connected
		4	Fuser unit switch	Connected	Not connected
		5	-	-	-
		6	Externally counter connection	Not connected	Connected

Table 1. Relation between the status of the bypass paper size detection sensor and the paper width

.

Bypass paper-width sensor			Paper-width size
2	**1**	**0**	
1	1	1	A3/A4
1	1	0	B5-R
1	0	1	A5-R
1	0	0	A3/A4
0	1	1	Card size
0	1	0	A4-R/A5
0	0	1	B6-R
0	0	0	B4-R/B5

[INTERRUPT] LED	Number [Digital keys]	Display position of the density LED	Items to check	ON	OFF
ON	[1]	0	-	-	-
		1	-	-	-
		2	-	-	-
		3	-	-	-
		4	-	-	-
		5	High-voltage transformer error	Normal	Error
		6	-	-	-
ON	[2]	0	-	-	-
		1	-	-	-
		2	-	-	-
		3	-	-	-
		4	CIS home position sensor	Home position	Other than home position
		5	Platen sensor	Cover opened	Cover closed
		6	ADF connection	Connected	Not connected
ON	[4]	0	ADF read sensor	Original present	No original
		1	-	-	-
		2	ADF exit sensor	Original present	No original
		3	ADF opening/closing sensor	ADF opened	ADF closed
		4	ADF cover opening/closing sensor	Cover opened	Cover closed
		5	ADF empty sensor	Original present	No original
		6	ADF tray sensor	Original present	No original

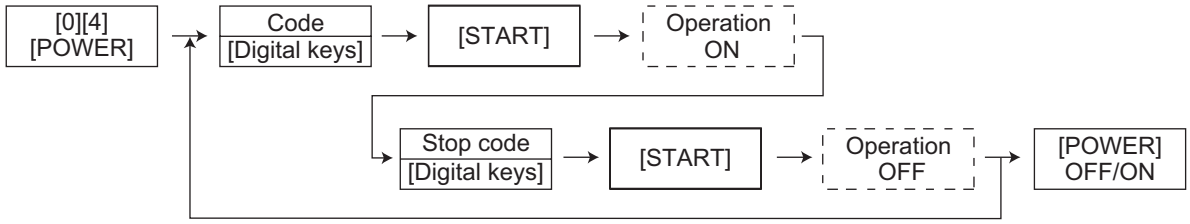
[INTERRUPT] LED	Number [Digital keys]	Display position of the density LED	Items to check	ON	OFF
ON	[5]	0	-	-	-
		1	-	-	-
		2	ADF original width sensor-3	Original present	No original
		3	ADF original width sensor-2	Original present	No original
		4	ADF original width sensor-1	Original present	No original
		5	ADF original length sensor	Original present	No original
		6	ADF registration sensor	Original present	No original

2.2.2 Output check (Test mode 04)

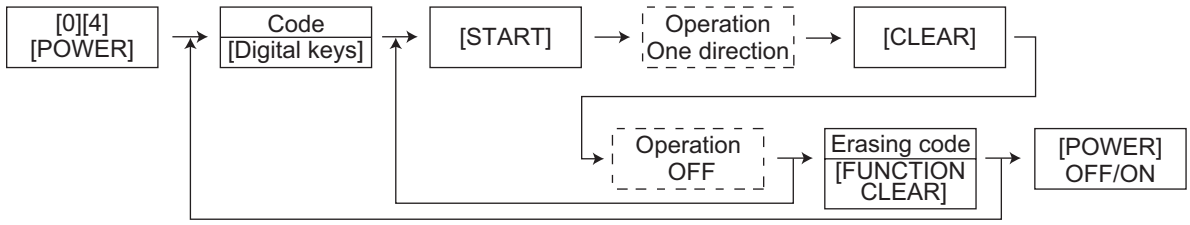
Status of the output signals can be checked by keying in the following codes in the test mode 04.

<Operation procedure>

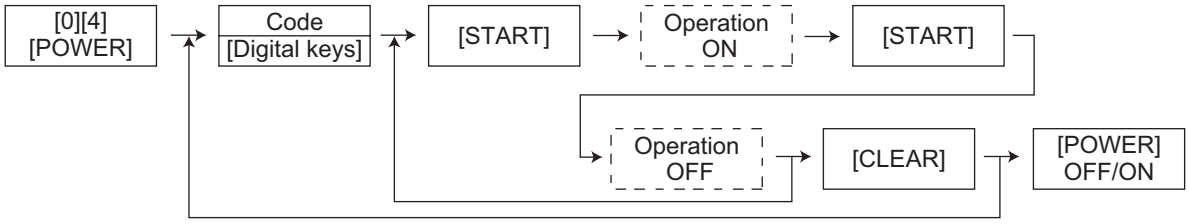
Procedure 1



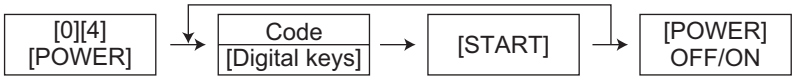
Procedure 2



Procedure 3



Procedure 4

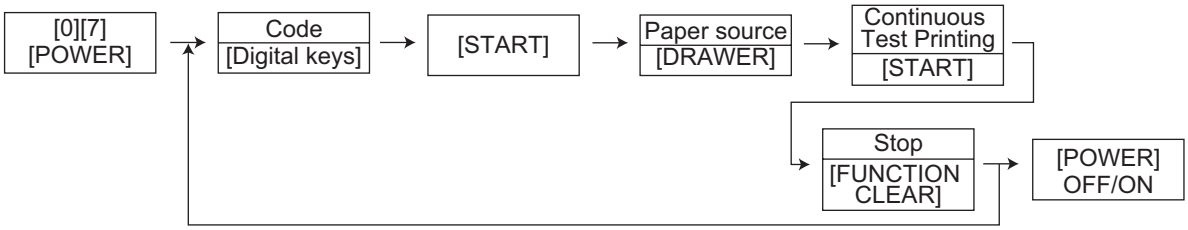


Code	Function	Code	Function	Procedure
101	Main motor ON (operational without developer unit)	151	Code No. 101 function OFF	1
102	Toner motor ON (normal rotation)	152	Code No. 102 function OFF	1
103	Polygonal motor ON (600 dpi)	153	Code No. 103 function OFF	1
108	Registration clutch ON	158	Code No. 108 function OFF	1
110	ADU motor ON (low speed)	160	Code No. 110 function OFF	1
118	Laser ON	168	Code No. 118 function OFF	1
201	Pickup solenoid ON/OFF			3
202	PFU pickup solenoid ON/OFF			3
203	PFU transport clutch (high speed) ON/OFF			3
204	Bypass pickup solenoid ON/OFF			3
205	PFU transport clutch (low speed) ON/OFF			3
218	Key copy counter count up			2
235	Discharge LED ON/OFF			3
236	Exhaust fan ON/OFF (low speed)			3
237	Exhaust fan ON/OFF (high speed)			3
249	Developer bias [-DC] ON/OFF			3
252	Main charger ON/OFF			3
253	Separation bias ON/OFF			3
255	Transfer guide bias ON/OFF			3
256	Transfer transformer ON/OFF			3
261	Scan motor ON (Automatically stops at limit position; speed can be changed with the [ZOOM] button			2
267	Contact image sensor Unit ON/OFF			3
271	LCF tray-up motor (up/down)			2
278	PFP upper drawer tray-up motor ON (tray up)			2
280	PFP lower drawer tray-up motor ON (tray up)			2
281	ADF feed motor ON/OFF (normal rotation)			3
282	ADF feed motor ON/OFF (reverse rotation)			3
283	ADF read motor ON/OFF (normal rotation)			3
284	ADF reverse motor ON/OFF (normal rotation)			3
285	ADF reverse motor ON/OFF (reverse rotation)			3
294	ADF reverse/exit solenoid ON/OFF			3
295	Power OFF mode			4
297	ADF fan motor ON/OFF			3
410	Switching regulator cooling fun ON/OFF (low speed)			3
411	Switching regulator cooling fun ON/OFF (high speed)			3

2.2.3 Test print mode (Test mode 07)

The embedded test pattern can be printed out by keying in the following codes in the test print mode (07).

<Operation procedure>



Notes:

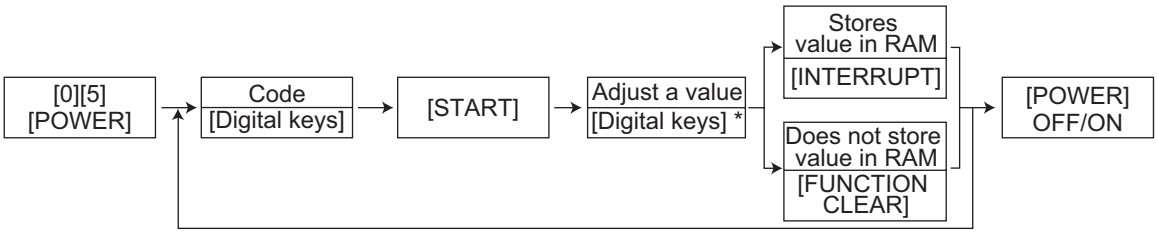
1. When an error occurs, it is indicated on the panel, but the recovery operation is not performed. Turn OFF the power and then back ON to clear the error.
2. During test printing, the [CLEAR] button is disabled when the “Adding toner” LED on the control panel light.

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)

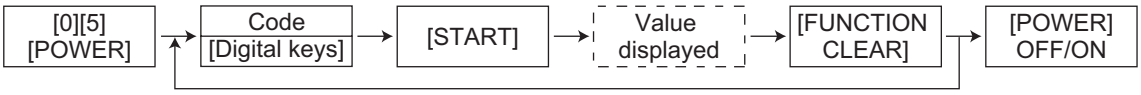
Items in the adjustment mode list in the following pages can be corrected or changed in the adjustment mode (05). Turn ON the power with pressing the digital keys [0] and [5] simultaneously in order to enter this mode.

Procedure 1

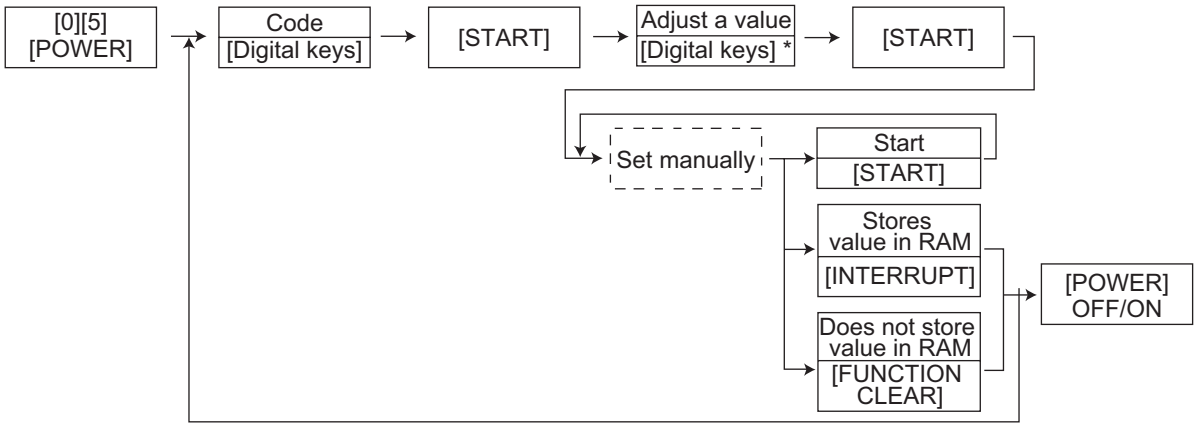


* Press [#] to enter minus (-).

Procedure 2

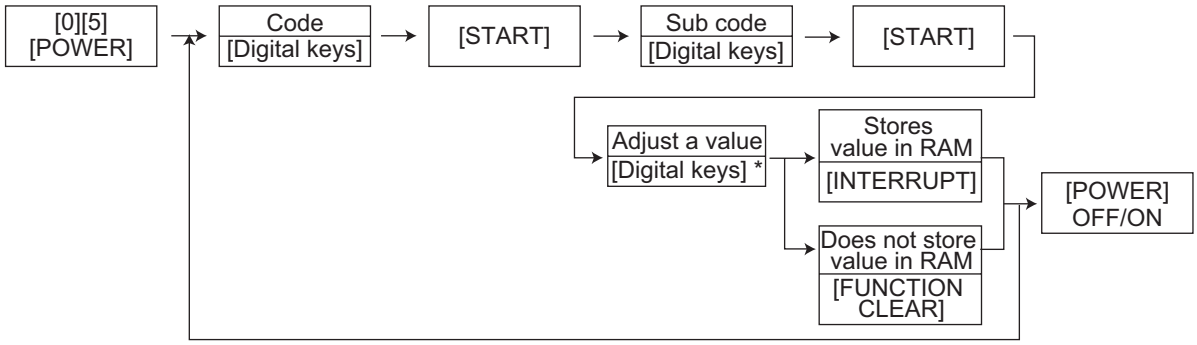


Procedure 3



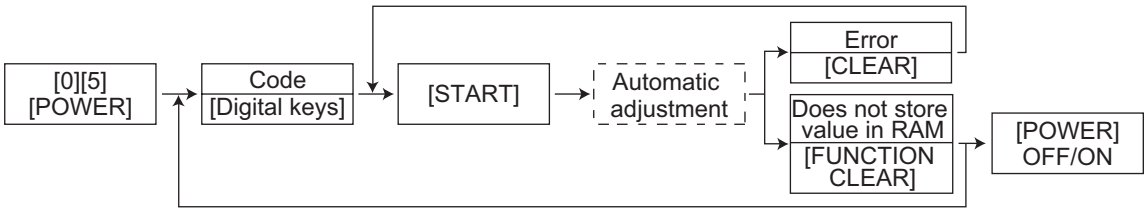
* Press [#] to enter minus (-).

Procedure 4

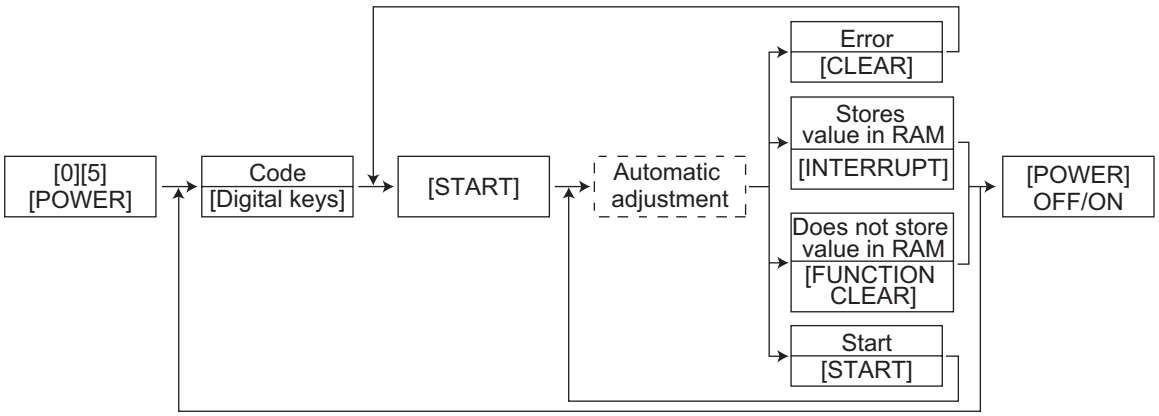


* Press [#] to enter minus (-).

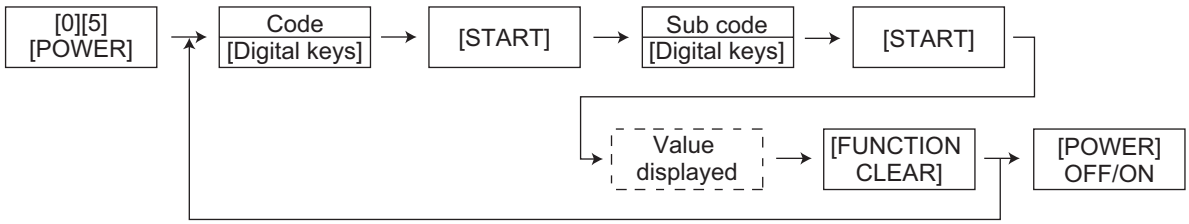
Procedure 6



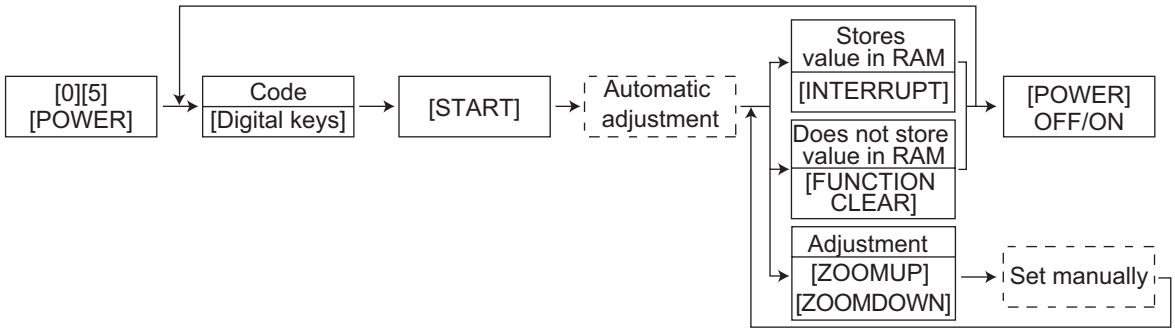
Procedure 7



Procedure 10



Procedure 17



* When the “storing” is not performed within 2 minutes after pressing the [START] button at the manual adjustment, the “automatic adjustment” starts automatically.

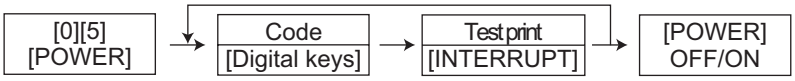
Note:

The fuser roller temperature control at the adjustment mode is different from that 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 equipment for approx. 3 minutes after it has become ready state and then start up the adjustment mode again.

Test print pattern in Adjustment Mode (05)

Procedure



Test code	Types of test pattern	Remarks
1	Grid pattern	TBD
2	Secondary scanning direction 33 gradation steps	TBD

Notes:

- The digit after the hyphen in “Code” of the following table is a sub code.
- In “RAM”, the NVRAM of the board in which the data of each code is stored is indicated. “M” stands for the MAIN board.

Adjustment mode (05)							
Code	**Classification**	**Items**	**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
200	Developer	Automatic adjustment of auto-toner sensor (Fuser heater ON)	ALL	-	-	As the value increases, the sensor output increases correspondingly. The value starts changing approx. 2 minutes after this adjustment was started and is automatically set in the range of 2.35 to 2.45 V. * Selection is disable when developer unit is not installed. (P.xxxxx)	17
201	Developer	Correction of auto-toner sensor (Fuser heater ON)	ALL	141 <0-255>	M	Corrects the control value of the auto-toner sensor setup in 05-200. * Selection is disable when developer unit is not installed.	3
205	Developer	Developer bias DC output adjustment	ALL	132 <0-255>	M	As the value increases, the transformer output increases correspondingly. Remove the developer unit and install the adjustment jig to make adjustment. (P.xxxxx)	3
210	Charger	Main charger grid bias output adjustment	ALL	80 <0-255>	M		3
220	Transfer	Transfer transformer DC output adjustment (H)	ALL	118 <0-255>	M		3
221	Transfer	Transfer transformer DC output adjustment (C)	ALL	129 <0-255>	M		3
222	Transfer	Transfer transformer DC output adjustment (L)	ALL	97 <0-255>	M		3
233	Separation	Separation transformer DC output adjustment (H)	ALL	56 <0-255>	M		3
234	Separation	Separation transformer DC output adjustment (C)	ALL	56 <0-255>	M		3
235	Separation	Separation transformer DC output adjustment (L)	ALL	38 <0-255>	M		3
247	Developer	Relative humidity latest value	ALL	50 <0-100>	M	Displaying of the relative humidity latest value.	2
248	Developer	Drum temperature latest value	ALL	25 <0-100>	M	Displaying of the drum temperature latest value.	2
270	Developer	Temperature latest value	ALL	25 <0-50>	M	Displaying of the temperature latest value.	2
280	Process	Forced performing of idling for toner recycle	ALL	-	M	Perform this adjustment before the replacement of the developer material. (The toner is forcibly removed from the cleaner.)	6
286	Laser	Laser power adjustment	ALL	63 <0-255>	M	When the value increases, the laser output increases correspondingly.	3

Adjustment mode (05)								
Code	**Classi-fication**	**Items**		**Func-tion**	**Default <Accept-able value>**	**RAM**	**Contents**	**Proce-dure**
305	Scanner	Image location adjustment of secondary scanning direction (scanner section)		ALL	128 <92-164>	M	When the value increases by “1”, the image shifts by approx. 0.137 mm toward the trailing edge of the paper.	1
306	Scanner	Image location adjustment of primary scanning direc-tion (scanner section)		ALL	128 <0-255>	M	When the value increases by “1”, the image shifts by approx. 0.0846 mm toward the front side of the paper.	1
340	Scanner	Reproduction ratio adjust-ment of secondary scan-ning direction (scanner section)		ALL	128 <0-255>	M	When the value increases by “1”, the reproduction ratio in the secondary scanning direction (vertical to paper feeding direction) increases by approx. 0.223%.	1
350	Scanner	Shading posi-tion adjust-ment	Original glass	ALL	128 <118-138>	M	0.064 mm/step	1
351			ADF	ALL	128 <118-138>	M		1
354	ADF	Adjustment of ADF paper alignment		ALL	10 <0-20>	M	When the value increases by “1”, the aligning amount increases by approx. 0.5 mm.	1
356	Scanner	Automatic adjustment of ADF sensor and EPROM initialization		ALL	-	M		6
357	ADF	Fine adjustment of ADF transport speed		ALL	50 <0-100>	M	When the value increases by “1”, the reproduction ratio of the secondary scanning direction when using the ADF increases by approx. 0.1%.	1
358	ADF	ADF sideways deviation adjustment		ALL	128 <0-255>	M	When the value increases by “1”, the image of original fed from the ADF shifts toward the rear side of paper by approx. 0.0846 mm.	1
359	Scanner	Carriage position adjust-ment during scanning from ADF		ALL	128 <0-255>	M	When the value increases by “1”, the car-riage position when using the ADF shifts by approx. 0.1 mm toward the original feeding side.	1

Adjustment mode (05)								
Code	**Classification**	**Items**		**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
365	ADF	ADF leading edge position adjustment	for single - sided original	ALL	50 <0-100>	M	When the value increases by “1”, the copied image of original fed from the ADF shifts toward the trailing edge of paper by approx. 0.1 mm.	1
401	Laser	Fine adjustment of polygonal motor rotation speed (adjustment of primary scanning direction reproduction ratio)		PRT	136 <0-255>	M	When the value increases by “1”, the reproduction ratio of primary scanning direction increases by approx. 0.07%. (approx. 0.1 mm/step)	1
405				PPC	134 <0-255>	M		1
410	Laser	Adjustment of primary scanning laser writing start position.		PPC	128 <0-255>	M	When the value increases by “1”, the writing start position shifts to the front side by approx. 0.0423 mm.	1
411				PRT	153 <0-255>	M		1
421	Drive	Adjustment of secondary scanning direction reproduction ratio (fine adjustment of main motor speed)		PPC/PRT	129 <0-255>	M	When the value increases by “1”, the reproduction ratio of secondary scanning direction increases by approx. 0.04%.	1
424	Drive	Fine adjustment of exit motor speed		PPC/PRT	160 <0-255>	M	When the value increases by “1”, the rotation becomes faster by approx. 0.05%.	1

Adjustment mode (05)								
Code	**Classi-fication**	**Items**		**Func-tion**	**Default <Accept-able value>**	**RAM**	**Contents**	**Proce-dure**
430	Image	Top margin adjustment (blank area at the leading edge of the paper)		PPC	0 <0-255>	M	When the value increases by “1”, the blank area becomes wider by approx. 0.0423 mm.	1
431	Image	Left margin adjustment (blank area at the left of the paper along the paper feeding direction)		PPC	0 <0-255>	M		1
432	Image	Right margin adjustment (blank area at the right of the paper along the paper feeding direction)		PPC	0 <0-255>	M		1
433	Image	Bottom margin adjustment (blank area at the trailing edge of the paper)		PPC	0 <0-255>	M		1
434-0	Image	Bottom margin adjustment (blank area at the trailing edge of the paper)/ Reverse side at duplexing		ALL	29 <0-255>	M		4
434-1	Image	Right margin adjustment (blank area at the right of the paper along the paper feeding direction)/Reverse side at duplexing		ALL	29 <0-255>	M		4
435	Image	Top margin adjustment (blank area at the leading edge of the paper)		PRT	24 <0-255>	M		1
436	Image	Left margin adjustment (blank area at the left of the paper along the paper feeding direction)		PRT	0 <0-255>	M		1
437	Image	Right margin adjustment (blank area at the right of the paper along the paper feeding direction)		PRT	0 <0-255>	M		1
438	Image	Bottom margin adjustment (blank area at the trailing edge of the paper)		PRT	0 <0-255>	M		1
440	Laser	Adjustment of secondary scanning laser writing start position	Drawer	ALL	8 <0-40>	M	When the value increases by “1”, the image shifts toward the leading edge of the paper by approx. 0.2 mm.	1
441			PFU	ALL	21 <0-40>	M		1
442			Bypass feeding	ALL	8 <0-15>	M		1
450-0	Paper feeding	Paper aligning amount adjustment at the registra-tion section (Drawer/Plain paper)	Long size	ALL	17 <0-63>	M	When the value increases by “1”, the aligning amount increases by approx. 0.8 mm. <Paper length> Long size: 330 mm or longer Middle size: 220 mm to 329 mm Short size: 219 mm or shorter	4
450-1			Middle size	ALL	17 <0-63>	M		4
450-2			Short size	ALL	17 <0-63>	M		4

Adjustment mode (05)								
Code	**Classification**	**Items**		**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
451-0	Paper feeding	Paper aligning amount adjustment at the registration section (PFU/Plain paper)	Long size	ALL	20 <0-63>	M	When the value increases by "1", the aligning amount increases by approx. 0.8 mm. <Paper length> Long size: 330 mm or longer Middle size: 220 mm to 329 mm Short size: 219 mm or shorter * Postcard is supported only for JPN model.	4
451-1			Middle size	ALL	20 <0-63>	M		4
451-2			Short size	ALL	20 <0-63>	M		4
458-0	Paper feeding	Paper aligning amount adjustment at the registration section (Bypass feeding/Plain paper)	Long size	ALL	26 <0-63>	M		4
458-1			Middle size	ALL	26 <0-63>	M		4
458-2			Short size	ALL	25 <0-63>	M		4
460-0	Paper feeding	Paper aligning amount adjustment at the registration section (Bypass feeding/Thick paper 1)	Long size	ALL	26 <0-63>	M		4
460-1			Middle size	ALL	26 <0-63>	M		4
460-2			Short size	ALL	26 <0-63>	M		4
461-0	Paper feeding	Paper aligning amount adjustment at the registration section (Bypass feeding/Thick paper 2)	Long size	ALL	17 <0-63>	M		4
461-1			Middle size	ALL	17 <0-63>	M		4
461-2			Short size	ALL	17 <0-63>	M		4
462-0	Paper feeding	Paper aligning amount adjustment at the registration section (Bypass feeding/Thick paper 3)	Long size	ALL	17 <0-63>	M		4
462-1			Middle size	ALL	17 <0-63>	M		4
462-2			Short size	ALL	17 <0-63>	M		4
462-3			Postcard	ALL	14 <0-63>	M		4
463-0	Paper feeding	Paper aligning amount adjustment at the registration section (Bypass feeding/OHP film)	Long size	ALL	26 <0-63>	M		4
463-1			Middle size	ALL	26 <0-63>	M		4
463-2			Short size	ALL	26 <0-63>	M		4
464-0	Paper feeding	Paper aligning amount adjustment at the registration section (Bypass feeding /Envelope)	Long size	ALL	26 <0-63>	M		4
464-1			Middle size	ALL	26 <0-63>	M		4
464-2			Short size	ALL	26 <0-63>	M		4

Adjustment mode (05)								
Code	**Classification**	**Items**		**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
466-0	Paper feeding	Adjustment of paper pushing amount/ Bypass feeding	Plain paper	ALL	0 <0-255>	M	When the value increases by “1”, the driving speed of bypass feed roller increases by approx. 0.2 ms when the paper transport is started from the registration section. * Postcard is supported only for JPN model.	4
466-1			Postcard	ALL	0 <0-255>	M		4
466-3			Envelope	ALL	0 <0-255>	M		4
466-4			Thick paper 1	ALL	0 <0-255>	M		4
466-5			Thick paper 2	ALL	0 <0-255>	M		4
466-6			Thick paper 3	ALL	0 <0-255>	M		4
466-7			OHP film	ALL	0 <0-255>	M		4
469-0	Paper feeding	Paper aligning amount adjustment at the registration section (Drawer)	Thick paper 1 Long size	ALL	20 <0-63>	M	When the value increases by “1”, the aligning amount increases by approx. 0.8 mm. <Paper length> Long size: 330 mm or longer Middle size: 220 mm to 329 mm Short size: 219 mm or shorter	4
469-1			Thick paper 1 Middle size	ALL	20 <0-63>	M		4
469-2			Thick paper 1 Short size	ALL	20 <0-63>	M		4
469-3			Thick paper 2 Long size	ALL	20 <0-63>	M		4
469-4			Thick paper 2 Middle size	ALL	22 <0-63>	M		4
469-5			Thick paper 2 Short size	ALL	19 <0-63>	M		4
497-0	Laser	Adjustment of drawer sideways deviation	Drawer	ALL	128 <0-255>	M	When the value increases by “1”, the image shifts toward the front side by 0.0423 mm.	4
497-1			PFU	ALL	128 <0-255>	M		4
497-4			Bypass feeding	ALL	128 <0-255>	M		4
501	Image	Density adjustment Fine adjustment of “manual density”/ Center value	Photo	PPC	128 <0-255>	M	When the value increases, the image at the center step becomes darker.	1
503			Text/Photo	PPC	128 <0-255>	M		1
504			Text	PPC	128 <0-255>	M		1
505	Image	Density adjustment Fine adjustment of “manual density”/ Light step value	Text/Photo	PPC	33 <0-255>	M	When the value increases, the image of the “light” steps becomes lighter.	1
506			Photo	PPC	20 <0-255>	M		1
507			Text	PPC	20 <0-255>	M		1

Adjustment mode (05)								
Code	**Classification**	**Items**		**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
508	Image	Density adjustment Fine adjustment of “manual density”/ Dark step value	Text/Photo	PPC	33 <0-255>	M	When the value increases, the image of the “dark” steps becomes darker.	1
509			Photo	PPC	EUR:24 UC:24 JPN:24 <0-255>	M		1
510			Text	PPC	EUR:20 UC:20 JPN:27 <0-255>	M		1
512	Image	Density adjustment Fine adjustment of “automatic density”	Photo	PPC	128 <0-255>	M	When the value increases, the image becomes darker.	1
514			Text/Photo	PPC	128 <0-255>	M		1
515			Text	PPC	128 <0-255>	M		1
532	Image	Range correction/Background peak adjustment	Text/Photo	PPC	32 <0-255>	M	When the value increases, the background becomes more brightened.	1
533			Photo	PPC	16 <0-255>	M		1
534			Text	PPC	64 <0-255>	M		1
535	Image	Range correction/Text peak adjustment	Text/Photo	PPC	246 <0-255>	M		1
536			Text	PPC	254 <0-255>	M		1
537			Photo	PPC	EUR:220 UC:220 JPN:224 <0-255>	M		1
570	Image	Range correction on original manually set on the original glass	Text/Photo	PPC	EUR:12 UC:12 JPN:22 <11-14, 21-24, 31-34, 41-44>	M	Sets whether the values 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 for “manual density”. Once 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. 1: fixed/fixed 2: varied/fixed 3: fixed/varied 4: varied/varied * Background peak/ Text peak	1
571			Photo	PPC	12 <11-14, 21-24, 31-34, 41-44>	M		1
572			Text	PPC	22 <11-14, 21-24, 31-34, 41-44>	M		1

Adjustment mode (05)								
Code	**Classification**	**Items**		**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
593	Image	Gamma data slope adjustment	Text/Photo	PPC	5 <1-9>	M	Select the slope of Gamma curve (The larger the value is, the larger the slope becomes.)	1
594	Image		Photo	PPC	5 <1-9>	M		1
595	Image		Text	PPC	5 <1-9>	M		1
596-0	Image	Gamma balance adjustment (PS/Photo)	Low density	PRT	128 <0-255>	M	When the value increases, the density in the target area becomes higher.	4
596-1			Medium density	PRT	128 <0-255>	M		4
596-2			High density	PRT	128 <0-255>	M		4
597-0	Image	Gamma balance adjustment (PS/Text)	Low density	PRT	128 <0-255>	M		4
597-1			Medium density	PRT	128 <0-255>	M		4
597-2			High density	PRT	128 <0-255>	M		4
598-0	Image	Gamma balance adjustment (PCL/Photo)	Low density	PRT	128 <0-255>	M		4
598-1			Medium density	PRT	128 <0-255>	M		4
598-2			High density	PRT	128 <0-255>	M		4
599-0	Image	Gamma balance adjustment (PCL/Text)	Low density	PRT	128 <0-255>	M		4
599-1			Medium density	PRT	128 <0-255>	M		4
599-2			High density	PRT	128 <0-255>	M		4
600	Image	Background adjustment	Text/Photo	PPC	5 <1-9>	M	When the value decreases, the background becomes darker. When the value increases, the background becomes lighter.	1
601			Photo	PPC	5 <1-9>	M		1
602			Text	PPC	5 <1-9>	M		1
609	Image	Switching of the scanner Gamma correction table when paper		ALL	0 <0-4>	M		1

Adjustment mode (05)								
Code	**Classification**	**Items**		**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
620	Image	Sharpness adjustment	Text/Photo	PPC	EUR: 1 UC: 1 JPN: 0 <0-99>	M	When the value increases, the image becomes sharper. When the value decreases, the image becomes softer. The smaller the value is, the less the moire becomes. One's place: Fixed value (05-620 is "1", 05-621 is "2", 05-622 is "5") Ten's place: Adjustable from 0 to 9 regarding the default value as the standard (The larger the value is, the sharper the image becomes.) * When entering "0" on the ten's place, this value is not displayed on the entry screen.	1
621			Photo (Error diffusion)	PPC	2 <0-99>	M		1
622			Text	PPC	EUR: 45 UC: 45 JPN: 45 <0-99>	M		1
623			Photo (Dither)	PPC	2 <0-99>	M		1
648	Image	Adjustment of smudged/faint text		PPC	2 <0-4>	M	Adjustment of the smudged/faint text. With decreasing the value, the faint text is suppressed, and with increasing it, the smudged text is suppressed.	1
654	Image	Adjustment of smudged/faint text	PS	PRT	5 <0-9>	M	Adjustment of the smudged/faint text. With decreasing the value, the faint text is suppressed, and with increasing it, the smudged text is suppressed.	1
655			PCL	PRT	5 <0-9>	M		1
656			GDI	PRT	5 <0-9>	M		1
662	Image	Upper limit value in toner-saving period	GDI		176 <0-255>	M	When the value decreases, the density of the printed text becomes lower.	1
664			PS		176 <0-255>	M		1
665			PCL		176 <0-255>	M		1
667-0	Image	Density adjustment of copied image		PPC	0 <0-63>	M	Adjusts the density level of copied image. When the value decreases, the text becomes lighter.	4
667-1				PPC	19 <0-63>	M		4
667-2				PPC	25 <0-63>	M		4
667-3				PPC	31 <0-63>	M		4
667-4				PPC	44 <0-63>	M		4

Adjustment mode (05)								
Code	**Classi-fication**	**Items**		**Func-tion**	**Default <Accept-able value>**	**RAM**	**Contents**	**Proce-dure**
672-0	Image	Adjustment of printer image density	GDI	PRT	0 <0-63>	M	Adjustment of the image density. With decreasing the value, the text becomes lighter.	4
672-1				PRT	19 <0-63>	M		4
672-2				PRT	25 <0-63>	M		4
672-3				PRT	31 <0-63>	M		4
672-4				PRT	44 <0-63>	M		4
676-0			PS/PCL	PRT	0 <0-63>	M		4
676-1				PRT	19 <0-63>	M		4
676-2				PRT	25 <0-63>	M		4
676-3				PRT	31 <0-63>	M		4
676-4				PRT	44 <0-63>	M		4
693	Image	Range correction on original set on the ADF	Text/Photo	PPC	EUR:12 UC:12 JPN:22 <11-14, 21-24, 31-34, 41-44>	M	Sets whether the values 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 for "manual density". Once 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. 1: fixed/fixed 2: varied/fixed 3: fixed/varied 4: varied/varied * Background peak/ Text peak	1
694			Photo	PPC	12 <11-14, 21-24, 31-34, 41-44>	M		1
695			Text	PPC	22 <11-14, 21-24, 31-34, 41-44>	M		1

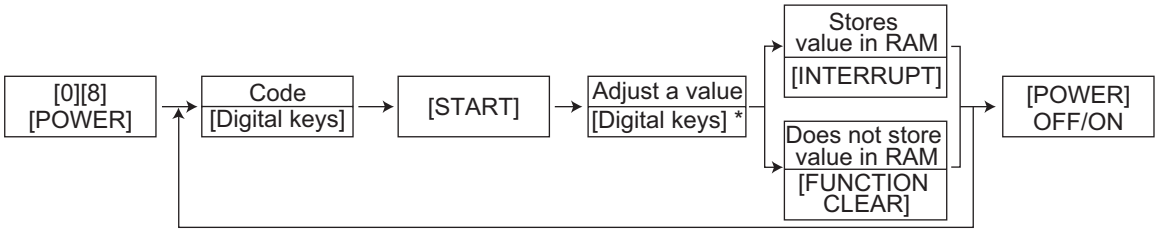
Adjustment mode (05)								
Code	**Classification**	**Items**		**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
913	Image	Range correction on original manually set on the original glass	Custom Mode 1	PPC	EUR:12 UC:12 JPN:22 <11-14, 21-24, 31-34, 41-44>	M	Set whether the values 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 for “manual density”. Once 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. 1: fixed/fixed 2: varied/fixed 3: fixed/varied 4: varied/varied * Background peak/ Text peak	1
916	Image	Range correction on original set on the ADF	Custom Mode 1	PPC	EUR:12 UC:12 JPN:22 <11-14, 21-24, 31-34, 41-44>	M		1
919	Image	Range correction Background peak adjustment	Custom Mode 1	PPC	40 <0-255>	M	When the value increases, the background becomes more brightened.	1
922	Image	Sharpness adjustment	Custom Mode 1	PPC	1 <0-99>	M	When the value increases, the image becomes sharper. When the value decreases, the image becomes softer. The smaller the value is, the less the moire becomes. One's place: Fixed value “1” Ten’s place: Adjustable from 0 to 9 regarding the default value as the standard (The larger the value is, the sharper the image becomes.) * When entering “0” on the ten's place, this value is not displayed on the entry screen.	1
926	Image	Range correction/Text peak adjustment	Custom Mode 1	PPC	255 <0-255>	M		1
928	Image	Adjustment of smudged/faint text	Custom Mode 1	PPC	2 <0-4>	M	Adjustment of the smudged/faint text. With increasing the value, the faint text is suppressed, and with decreasing it, the smudged text is suppressed.	1

Adjustment mode (05)								
Code	**Classi-fication**	**Items**		**Func-tion**	**Default <Accept-able value>**	**RAM**	**Contents**	**Proce-dure**
931	Image	Density adjustment Fine adjust-ment of “man-ual density”/ Center value	Custom Mode 1	PPC	128 <0-255>	M	When the value increases, the image of the center step becomes darker.	1
934	Image	Density adjustment Fine adjust-ment of “man-ual density”/ Light step value	Custom Mode 1	PPC	20 <0-255>	M	When the value increases, the image of the “light” step density becomes lighter.	1
937	Image	Density adjustment Fine adjust-ment of “man-ual density”/ Dark step value	Custom Mode 1	PPC	20 <0-255>	M	When the value increases, the image of the “dark” step density becomes darker.	1
940	Image	Density adjustment Fine adjust-ment of “auto-matic density”	Custom Mode 1	PPC	128 <0-255>	M	When the value increases, the image becomes darker.	1
943	Image	Gamma data slope adjust-ment	Custom Mode 1	PPC	5 <1-9>	M	Select the slope of Gamma curve (The larger the value is, the larger the slope becomes.)	1
946	Image	Gamma data slope adjust-ment	Custom Mode 1	PPC	5 <1-9>	M		1

2.2.5 Setting mode (08)

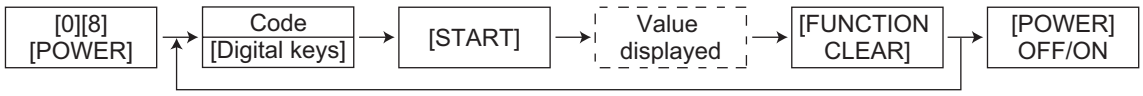
The items in the setting code list can be set or changed in this setting mode (08).

Procedure 1,5,11

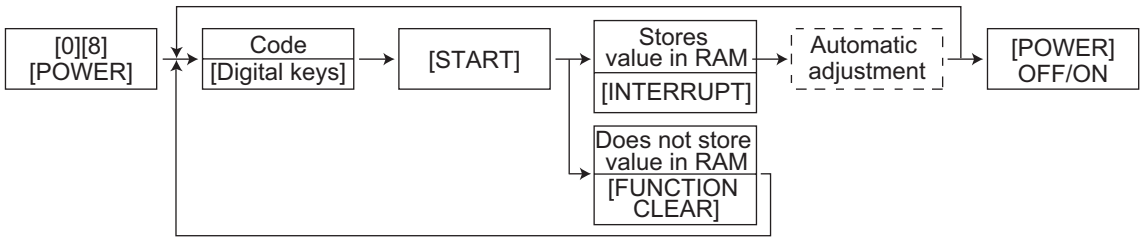


* Press [#] to enter minus (-).

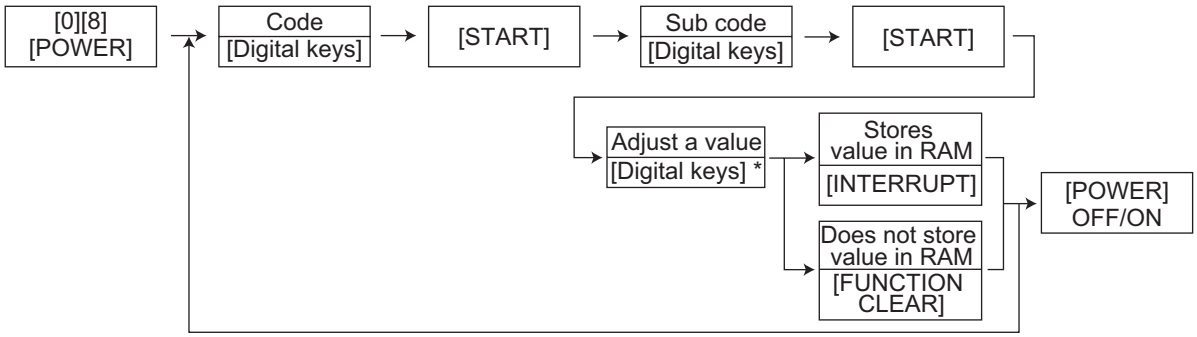
Procedure 2



Procedure 3

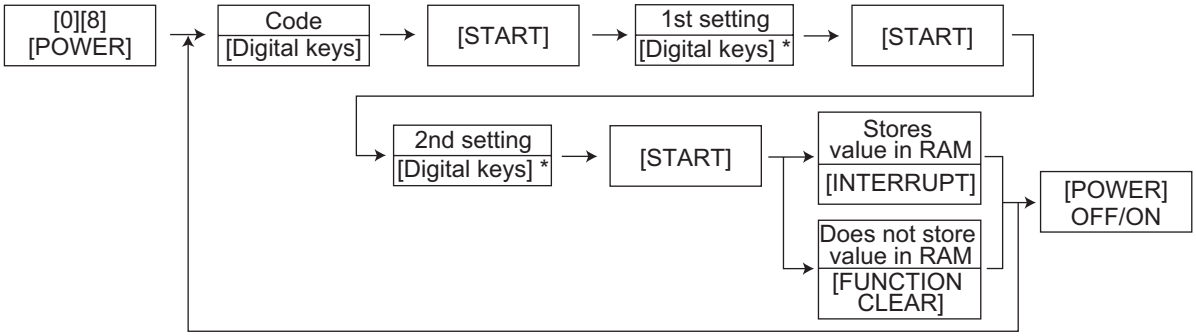


Procedure 4



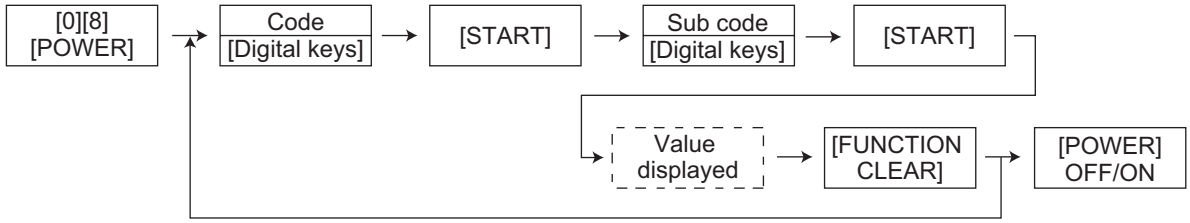
* Press [#] to enter minus (-).

Procedure 10



* Press [#] to enter minus (-).

Procedure 14



Notes:

- The digit after the hyphen in “Code” of the following table is a sub code.
- In “RAM”, the NVRAM of the board in which the data of each code is stored is indicated. “M” stands for the MAIN board.

Setting mode (08)							
Code	**Classification**	**Items**	**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
201	General	Destination selection	ALL	EUR: 0 UC: 1 JPN: 2 <0-2>	M	0: EUR 1: UC 2: JPN	1
202	User interface	Counter installed externally	ALL	0 <0-3>	M	0: No external counter 1: Coin controller 2: Copy key card 3: Key copy counter	1
203	General	Line adjustment mode	ALL	0 <0-1>	M	0: For factory shipment 1: For line * Field: “0” must be selected	1
204	User interface	Auto-clear timer setting	ALL	3 <0-15>	M	Timer to return the equipment to the default settings when the [START] button is not pressed after the function and the mode are set 0: Not cleared 1 to 15: Set number x 15 sec.	1
205	User interface	Auto power save mode timer setting	ALL	1 <0-1>	M	0: Invalid 1: Valid	1
206	User interface	Auto Shut Off Mode timer setting (Auto Shut Off Mode/Sleep Mode)	ALL	1 <0-1>	M	0: Invalid 1: Valid	1
210-0	Paper feeding	Paper size (A6-R) feeding direction	PRT	148 <105-432>	M		10
210-1		Paper size (A6-R) widthwise direction	ALL	105 <105-432>	M		10
216	Paper feeding	Tab paper print Tab width setting (Bypass feeding)	ALL	130 <100-200>	M		1
217	Paper feeding	Tab paper print Shift width setting (Bypass feeding)	ALL	1300 <0-3000>	M		1
220	User interface	Language displayed at power-ON	ALL	EUR: 0 UC: 0 JPN: 5 <0-6>	M	0: Language 1 1: Language 2 2: Language 3 3: Language 4 4: Language 5 5: Language 6 6: Language 7	1

Setting mode (08)								
Code	**Classifi-cation**	**Items**		**Func-tion**	**Default <Accept-able value>**	**RAM**	**Contents**	**Proce-dure**
224	Paper feeding	Paper size (Bypass)		ALL	14 <0-15>	M	Paper size (Bypass) 0:A3 1:A4 2:A4-R 3:A5-R 4:B4 5:B5 6:B5R 7:LETTER 8:LETTER-R 9:LEDGER 10:LEGAL 11:STATEMENT-R 12:COMPUTER 13:FOLIO 14:NON-STANDARD 15:POST CARD	9
225	Paper feeding	Paper size (Drawer)		ALL	UC: 7 Other: 1 <0-13>	M	Paper size (Drawer) 0:A3 1:A4 2:A4-R 3:A5-R 4:B4 5:B5 6:B5R 7:LETTER 8:LETTER-R 9:LEDGER 10:LEGAL 11:STATEMENT-R 12:COMPUTER 13:FOLIO	9
226	Paper feeding	Paper size (PFU)		ALL	UC: 7 Other: 1 <0-13>	M	Paper size (PFU) 0:A3 1:A4 2:A4-R 3:A5-R 4:B4 5:B5 6:B5R 7:LETTER 8:LETTER-R 9:LEDGER 10:LEGAL 11:STATEMENT-R 12:COMPUTER 13:FOLIO	9
229-0	Paper feeding	Paper size (A3)	feeding direction	ALL	420 <140-432>	M		10
229-1			widthwise direction	ALL	297 <140-432>	M		10
230-0	Paper feeding	Paper size (A4-R)	feeding direction	ALL	297 <140-432>	M		10
230-1			widthwise direction	ALL	210 <140-432>	M		10

Setting mode (08)								
Code	Classification	Items		Function	Default <Acceptable value>	RAM	Contents	Procedure
231-0	Paper feeding	Paper size (A5-R)	feeding direction	ALL	210 <140-432>	M		10
231-1			widthwise direction	ALL	148 <140-432>	M		10
232-0	Paper feeding	Paper size (B4)	feeding direction	ALL	364 <140-432>	M		10
232-1			widthwise direction	ALL	257 <140-432>	M		10
233-0	Paper feeding	Paper size (B5-R)	feeding direction	ALL	257 <140-432>	M		10
233-1			widthwise direction	ALL	182 <140-432>	M		10
234-0	Paper feeding	Paper size (LT-R)	feeding direction	ALL	279 <140-432>	M		10
234-1			widthwise direction	ALL	216 <140-432>	M		10
235-0	Paper feeding	Paper size (LD)	feeding direction	ALL	432 <140-432>	M		10
235-1			widthwise direction	ALL	279 <140-432>	M		10
236-0	Paper feeding	Paper size (LG)	feeding direction	ALL	356 <140-432>	M		10
236-1			widthwise direction	ALL	216 <140-432>	M		10
237-0	Paper feeding	Paper size (ST-R)	feeding direction	ALL	216 <140-432>	M		10
237-1			widthwise direction	ALL	140 <140-432>	M		10
238-0	Paper feeding	Paper size (COMPUTER)	feeding direction	ALL	356 <140-432>	M		10
238-1			widthwise direction	ALL	257 <140-432>	M		10
239-0	Paper feeding	Paper size (FOLIO)	feeding direction	ALL	330 <140-432>	M		10
239-1			widthwise direction	ALL	210 <140-432>	M		10

Setting mode (08)								
Code	**Classification**	**Items**		**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
240-0	Paper feeding	Paper size (13"LG)	feeding direction	ALL	330 <140-432>	M		10
240-1			widthwise direction	ALL	216 <140-432>	M		10
241-0	Paper feeding	Paper size (8.5"X8.5")	feeding direction	ALL	216 <140-432>	M		10
241-1			widthwise direction	ALL	216 <140-432>	M		10
242-0	Paper feeding	Paper size (Non-standard)	feeding direction	ALL	432 <105-432>	M		10
242-1			widthwise direction	ALL	279 <105-432>	M		10
244-0	Paper feeding	Paper size (8K)	feeding direction	ALL	390 <140-432>	M		10
244-1			widthwise direction	ALL	270 <140-432>	M		10
245-0	Paper feeding	Paper size (16K-R)	feeding direction	ALL	270 <140-432>	M		10
245-1			widthwise direction	ALL	195 <140-432>	M		10
246	User interface	Clearing copy jobs at auto clear		ALL	0 <0-1>	M	0: No clearing 1: Clearing	1
251	Maintenance	Setting value of PM counter		ALL	Refer to content <8 digits>	M	<Default> e-STUDIO 163 UC, EUR: 74,000 JPN: 0 e-STUDIO 203 UC, EUR: 90,000 JPN: 0	1
252	Maintenance	Current value of PM counter Display/0 clearing		ALL	0 <8 digits>	M	Counts up when the registration sensor is ON.	1
253	Maintenance	Error history display		ALL	-	M	Displaying of the latest 8 errors data	2

Setting mode (08)							
Code	**Classification**	**Items**	**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
254	Paper feeding	LT <-> A4/LD <-> A3	PRT	0 <0-1>	M	Sets whether the data is printed on the different but similar size paper or not when the paper of corresponding size is not available. 0: Valid (The data is printed on A4/A3 when LT/LD is selected or vice versa.) 1: Invalid (The message to use the selected paper size is displayed.)	1
257	Counter	Counter copy	ALL	- <1-2>	-	1) Electrical counter → Backup counter 2) Backup counter → Electrical counter (P.xxxx)	-
258	Maintenance	FSMS acceptance	ALL	1 <0-2>	M	Sets whether the FSMS connection is accepted or not. 0: Prohibited 1: Accepted (USB normal connection) 2: Accepted (USB forcible connection)	1
261	User interface	Fixes the paper size setting for the bypass tray	ALL	0 <0-1>	M	0: Size not fixed (Turn the power OFF or press the Function Clear key to return to the non-standard size.) 1: Size fixed (Turn the power OFF or press the Function Clear key to return to the size set at 08-224.)	1
263	User interface	Administrator's password (Maximum 6 digits)	ALL	123456 <6 digits>	M	The password can be entered in figures (0-9) within 6 digits.	11
300	User interface	Maximum number of copy volume (MAX9)	PPC	0 <0-2>	M	0: 999 1: 99 2: 9	1
302	User interface	Original counter display	ALL	EUR: 2 UC: 0 JPN: 0 <0,2>	M	Sets whether the original counter is displayed or not. 0: Not displayed 2: Displayed	1
304	User interface	Switching “APS”/”ADF-APS” display	ALL	UC: 1 Other: 0 <0,2>	M	0: “APS” display 1: “ADF-APS” display	1

Setting mode (08)								
Code	**Classification**	**Items**		**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
305-0	Counter	Number of output pages in copier function	A3	PPC	0 <8 digits>	M	Counts the output pages in the copier function for each paper size according to the setting for the count setting of large-sized paper (08-352) and the definition setting of large-sized paper (08-353).	4
305-1			A4					
305-2			A5					
305-3			A6					
305-4			B4					
305-5			B5					
305-6			FOLIO					
305-7			LD					
305-8			LG					
305-9			LT					
305-10			ST					
305-11			COMP					
305-12			13”LG					
305-13			8.5” x 8.5”					
305-14			16K					
305-15			8K					
305-16			Others					
306-0	Counter	Number of output pages in printer function	A3	PRT	0 <8 digits>	M	Counts the output pages in the printer function for each paper size according to the setting for the count setting of large-sized paper (08-352) and the definition setting of large-sized paper (08-353).	4
306-1			A4					
306-2			A5					
306-3			A6					
306-4			B4					
306-5			B5					
306-6			FOLIO					
306-7			LD					
306-8			LG					
306-9			LT					
306-10			ST					
306-11			COMP					
306-12			13”LG					
306-13			8.5” x 8.5”					
306-14			16K					
306-15			8K					
306-16			Others					

Setting mode (08)								
Code	**Classification**	**Items**		**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
307-0	Counter	Number of output pages at list print mode	A3	PRT	0 <8 digits>	M	Counts the output pages at the list print mode for each paper size according to the setting for the count setting of large-sized paper (08-352) and the definition setting of large-sized paper (08-353).	4
307-1			A4					
307-2			A5					
307-3			A6					
307-4			B4					
307-5			B5					
307-6			FOLIO					
307-7			LD					
307-8			LG					
307-9			LT					
307-10			ST					
307-11			COMP					
307-12			13”LG					
307-13			8.5” x 8.5”					
307-14			16K					
307-15			8K					
307-16			Others					
312-0	Counter	Number of scanning pages in copier function	A3	PPC	0 <8 digits>	M	Counts the scanning pages in the copier function for each paper size according to the setting for the count setting of large-sized paper (08-352) and the definition setting of large-sized paper (08-353).	4
312-1			A4					
312-2			A5					
312-3			A6					
312-4			B4					
312-5			B5					
312-6			FOLIO					
312-7			LD					
312-8			LG					
312-9			LT					
312-10			ST					
312-11			COMP					
312-12			13”LG					
312-13			8.5” x 8.5”					
312-14			16K					
312-15			8K					
312-16			Others					
320-0	Counter	Display of number of output pages in copier function	Large	PPC	0 <8 digits>	M	Counts the number of output pages in the Copier Function according to its size (large/small). Large: Number of output pages of large-sized paper defined at 08-353 Small: Number of output pages other than set as large-sized paper Total: Total number output pages of all paper sizes.	14
320-1	Counter		Small	PPC	0 <8 digits>	M		14
320-2	Counter		Total	PPC	0 <8 digits>	M		14

Setting mode (08)								
Code	**Classification**	**Items**		**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
321-0	Counter	Display of number of output pages in printer function	Large	PRT	0 <8 digits>	M	Counts the number of output pages in the Printer Function according to its size (large/small). Large: Number of output pages of large-sized paper defined at 08-353 Small: Number of output pages other than set as large-sized paper Total: Total number output pages of all paper sizes.	14
321-1	Counter		Small	PRT	0 <8 digits>	M		14
321-2	Counter		Total	PRT	0 <8 digits>	M		14
322-0	Counter	Display of number of output pages at list print mode	Large	PRT	0 <8 digits>	M	Counts the number of output pages at the List Print Mode Function according to its size (large/small). Large: Number of output pages of large-sized paper defined at 08-353 Small: Number of output pages other than set as large-sized paper Total: Total number output pages of all paper sizes.	14
322-1	Counter		Small	PRT	0 <8 digits>	M		14
322-2	Counter		Total	PRT	0 <8 digits>	M		14
327-0	Counter	Display of number of scanning pages in copier function	Large	PPC	0 <8 digits>	M	Counts the number of scanning pages in the Copier Function according to its size (large/small). Large: Number of output pages of large-sized paper defined at 08-353 Small: Number of output pages other than set as large-sized paper Total: Total number output pages of all paper sizes.	14
327-1	Counter		Small	PPC	0 <8 digits>	M		14
327-2	Counter		Total	PPC	0 <8 digits>	M		14

Setting mode (08)								
Code	**Classification**	**Items**		**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
335-0	Counter	Display of total number of pages	Large	ALL	0 <8 digits>	M	Displays the total number of pages.	14
335-1	Counter		Small	ALL	0 <8 digits>	M		14
335-2	Counter		Total	ALL	0 <8 digits>	M		14
337-0	Paper feeding	Paper size (#10-R)	feeding direction	ALL	241 <105-432>	M		10
337-1			widthwise direction	ALL	105 <105-432>	M		10
338-0	Paper feeding	Paper size (DL-R)	feeding direction	ALL	220 <105-432>	M		10
338-1			widthwise direction	ALL	110 <105-432>	M		10
339-0	Paper feeding	Paper size (Envelope: Monerch-R)	feeding direction	ALL	191 <98-432>	M		10
339-1			widthwise direction	ALL	98 <98-432>	M		10
340-0	Paper feeding	Paper size (Envelope: CHO-3-R)	feeding direction	ALL	235 <105-432>	M		10
340-1			widthwise direction	ALL	120 <105-432>	M		10
341-0	Paper feeding	Paper size (Envelope: YOU-4-R)	feeding direction	ALL	235 <105-432>	M		10
341-1			widthwise direction	ALL	105 <105-432>	M		10
345	Counter	Count setting of envelope (PM)		ALL	1 <0-1>	M	0: Counted as 1 1: Counted as 2	1
346	Counter	Count setting of large-sized paper (PM)		ALL	1 <0-1>	M	0: Counted as 1 1: Counted as 2	1
347	Counter	Definition setting of large-sized paper (PM)		ALL	1 <0-1>	M	0: A3/LD 1: A3/LD/B4/LG/ FOLIO/COMP	1
348	Counter	Count setting of thick paper (PM)		ALL	1 <0-1>	M	0: Counted as 1 1: Counted as 2	1
349	Counter	Count setting of OHP film (PM)		ALL	1 <0-1>	M	0: Counted as 1 1: Counted as 2	1
352	Counter	Count setting of large-sized paper (Fee charging system counter)		ALL	JPN: 0 Other: 1 <0-1>	M	0: Counted as 1 1: Counted as 2	1
353	Counter	Definition setting of large-sized paper (Fee charging system counter)		ALL	0 <0-1>	M	0: A3/LD 1: A3/LD/B4/LG/ FOLIO/COMP/8K	1
356	Counter	Counter for Drawer feeding		ALL	0 <8 digits>	M	Counts the number of sheets fed from Drawer	2

Setting mode (08)							
Code	**Classification**	**Items**	**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
357	Counter	Counter for PFU feeding	ALL	0 <8 digits>	M	Counts the number of sheets fed from PFU	2
358	Counter	Counter for bypass feeding	ALL	0 <8 digits>	M	Counts the number of sheets fed from bypass feed	2
374	Counter	Counter for ADF	ALL	0 <8 digits>	M	Counts the number of originals fed from ADF	2
381	Counter	Setting for counter installed externally	ALL	1 <0-7>	M	Selects the job to count up for the external counter. 0: Not selected 1: Copier 2: FAX 3: Copier/FAX 4: Printer 5: Copier/Printer 6: Printer/FAX 7: Copier/Printer/FAX	1
386	Counter	Counter for Platen	ALL	0 <6 digits>	M	Counts the number of originals fed from platen	2
398	Laser	Number of polygonal motor rotational speed switching	ALL	0 <8 digits>	M	Counts the number of time the polygonal motor has switched its rotational speed between normal rotation and standby rotation.	2
399	Laser	Accumulated time of polygonal motor at normal rotation	ALL	0 <8 digits>	M	Accumulates the time the polygonal motor has rotated at normal rotation.	2
400	Fuser	Fuser unit error status counter	ALL	0 <0-19>	M	0: No error 1: C41 (Once) 2: C41 (consecutively occurred) 3: C46 4: C43 5: C44 6: C45 7: C44 8: C45 9: C44 10: C47 11: C47 12: C48 13: C49 14: C47 15: C48 16: C49 17: C47 18: C48 19: C49	1

Setting mode (08)								
Code	**Classification**	**Items**		**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
404-0	Fuser	Temperature drop setting in ready status (Center thermistor)	The first drop	ALL	1 <0-10>	M	This code is valid only when “20” is set to 08-886. Setting value x -5°C: from 0°C to -50°C	4
404-1			The second drop	ALL	1 <0-10>	M		4
404-2			The third drop	ALL	1 <0-10>	M		4
404-3			The fourth drop	ALL	1 <0-10>	M		4
405-0	Fuser	Temperature drop setting in ready status (Side thermistor)	The first drop	ALL	3 <0-10>	M		4
405-1			The second drop	ALL	3 <0-10>	M		4
405-2			The third drop	ALL	3 <0-10>	M		4
405-3			The fourth drop	ALL	3 <0-10>	M		4
407	Fuser	Fuser roller temperature in ready status (Side thermistor)		ALL	8 <0-12>	M	0: 140°C 1: 145°C 2: 150°C 3: 155°C 4: 160°C 5: 165°C 6: 170°C 7: 175°C 8: 180°C 9: 185°C 10: 190°C 11: 195°C 12: 200°C	1
409	Fuser	Fuser roller temperature at energy saver mode (Center thermistor)		ALL	0 <0-13>	M	0: OFF 1: 40°C 2: 50°C 3: 60°C 4: 70°C 5: 80°C 6: 90°C 7: 100°C 8: 110°C 9: 120°C 10: 130°C 11: 140°C 12: 150°C 13: 160°C	1
410	Fuser	Fuser roller temperature during printing (Center thermistor/Plain paper)		ALL	6 <0-14>	M	0: 140°C 1: 145°C 2: 150°C 3: 155°C 4: 160°C 5: 165°C 6: 170°C 7: 175°C 8: 180°C 9: 185°C 10: 190°C 11: 195°C 12: 200°C 13: 205°C 14: 210°C	1
411	Fuser	Fuser roller temperature on standby (Center thermistor)		ALL	6 <0-12>	M	0: 140°C 1: 145°C 2: 150°C 3: 155°C 4: 160°C 5: 165°C 6: 170°C 7: 175°C 8: 180°C 9: 185°C 10: 190°C 11: 195°C 12: 200°C	1

Setting mode (08)								
Code	**Classification**	**Items**		**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
413	Fuser	Fuser roller temperature during printing (Center thermistor/Thick paper 1)		ALL	6 <0-14>	M	0: 140°C 1: 145°C 2: 150°C 3: 155°C 4: 160°C 5: 165°C 6: 170°C 7: 175°C 8: 180°C 9: 185°C 10: 190°C 11: 195°C 12: 200°C 13: 205°C 14: 210°C	1
414	Developer	Toner density life correction switching		ALL	0 <0-7>	M	0: Unchanged (Default) 1: Approx. 0.3 wt% higher 2: Approx. 0.6 wt% higher 3: Approx. 0.9 wt% higher 4: Approx. 0.2 wt% lower 5: Approx. 0.4 wt% lower 6: Approx. 0.6 wt% lower 7: Approx. 0.9 wt% lower	1
424-0	Fuser	Temperature drop switching time setting in ready status (Center thermistor)	The first drop	ALL	15 <2-60>	M	This code is valid only when “20” is set to 08-886. Setting value x 1 min.: from 2 to 60 min. later	4
424-1			The second drop	ALL	15 <2-60>	M		4
424-2			The third drop	ALL	15 <2-60>	M		4
424-3			The fourth drop	ALL	15 <2-60>	M		4
425-0	Fuser	Temperature drop switching time setting in ready status (Side thermistor)	The first drop	ALL	15 <2-60>	M		4
425-1			The second drop	ALL	15 <2-60>	M		4
425-2			The third drop	ALL	15 <2-60>	M		4
425-3			The fourth drop	ALL	15 <2-60>	M		4
433-0	Fuser	Temperature control lower limit (Plain paper/ at ordinary temperature)	Center thermistor	ALL	5 <0-12>	M	0: 130°C 1: 135°C 2: 140°C 3: 145°C 4: 150°C 5: 155°C 6: 160°C 7: 165°C 8: 170°C 9: 175°C 10: 180°C 11: 185°C 12: 120°C	4
433-1			Side thermistor	ALL	3 <0-12>	M		4

Setting mode (08)							
Code	**Classifi-cation**	**Items**	**Func-tion**	**Default <Accept-able value>**	**RAM**	**Contents**	**Proce-dure**
437	Fuser	Fuser roller temperature during printing (Center thermistor /Thick paper 2)	ALL	9 <0-14>	M	0: 140°C 1: 145°C 2: 150°C 3: 155°C 4: 160°C 5: 165°C 6: 170°C 7: 175°C 8: 180°C 9: 185°C 10: 190°C 11: 195°C 12: 200°C 13: 205°C 14: 210°C	1
438	Fuser	Fuser roller temperature during printing (Center thermistor/OHP film)	ALL	6 <0-14>	M	0: 140°C 1: 145°C 2: 150°C 3: 155°C 4: 160°C 5: 165°C 6: 170°C 7: 175°C 8: 180°C 9: 185°C 10: 190°C 11: 195°C 12: 200°C 13: 205°C 14: 210°C	1
439	Fuser	Pre-running time for first printing (Thick paper 2)	ALL	10 <0-15>	M	0: Invalid 1: 1 sec. 2: 2 sec. 3: 3 sec. 4: 4 sec. 5: 5 sec. 6: 6 sec. 7: 7 sec. 8: 8 sec. 9: 9 sec. 10: 10 sec. 11: 12 sec. 12: 14 sec. 13: 16 sec. 14: 18 sec. 15: 20 sec.	1
440	Fuser	Pre-running time for first printing (Plain paper)	ALL	0 <0-15>	M	0: Invalid 1: 1 sec. 2: 2 sec. 3: 3 sec. 4: 4 sec. 5: 5 sec. 6: 6 sec. 7: 7 sec. 8: 8 sec. 9: 9 sec. 10: 10 sec. 11: 12 sec. 12: 14 sec. 13: 16 sec. 14: 18 sec. 15: 20 sec.	1
441	Fuser	Pre-running time for first printing (Thick paper 1)	ALL	10 <0-15>	M	0: Invalid 1: 1 sec. 2: 2 sec. 3: 3 sec. 4: 4 sec. 5: 5 sec. 6: 6 sec. 7: 7 sec. 8: 8 sec. 9: 9 sec. 10: 10 sec. 11: 12 sec. 12: 14 sec. 13: 16 sec. 14: 18 sec. 15: 20 sec.	1

Setting mode (08)							
Code	**Classification**	**Items**	**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
448	Fuser	Fuser roller temperature in Energy Saving Mode (Side thermistor)	ALL	0 <0-13>	M	0: OFF 1: 40°C 2: 50°C 3: 60°C 4: 70°C 5: 80°C 6: 90°C 7: 100°C 8: 110°C 9: 120°C 10: 130°C 11: 140°C 12: 150°C 13: 160°C	1
450	Fuser	Fuser roller temperature during printing (Side thermistor/Plain paper)	ALL	6 <0-14>	M	0: 140°C 1: 145°C 2: 150°C 3: 155°C 4: 160°C 5: 165°C 6: 170°C 7: 175°C 8: 180°C 9: 185°C 10: 190°C 11: 195°C 12: 200°C 13: 205°C 14: 210°C	1
451	Fuser	Fuser roller temperature during printing (Side thermistor/Thick paper 1)	ALL	6 <0-14>	M	0: 140°C 1: 145°C 2: 150°C 3: 155°C 4: 160°C 5: 165°C 6: 170°C 7: 175°C 8: 180°C 9: 185°C 10: 190°C 11: 195°C 12: 200°C 13: 205°C 14: 210°C	1
452	Fuser	Fuser roller temperature during printing (Side thermistor/Thick paper 2)	ALL	9 <0-14>	M	0: 140°C 1: 145°C 2: 150°C 3: 155°C 4: 160°C 5: 165°C 6: 170°C 7: 175°C 8: 180°C 9: 185°C 10: 190°C 11: 195°C 12: 200°C 13: 205°C 14: 210°C	1
453	Fuser	Fuser roller temperature during printing (Side thermistor/OHP film)	ALL	6 <0-14>	M	0: 140°C 1: 145°C 2: 150°C 3: 155°C 4: 160°C 5: 165°C 6: 170°C 7: 175°C 8: 180°C 9: 185°C 10: 190°C 11: 195°C 12: 200°C 13: 205°C 14: 210°C	1
455	Image processing	Toner supply amount correction/Toner motor control	ALL	0 <0-5>	M	Corrects the supply amount of the fresh toner (driving period of the toner motor) into the developer unit. 0: x1.0 1: x0.75 2: x0.5 3: x0.3 4: x2.0 5: x1.5	1

Setting mode (08)								
Code	**Classification**	**Items**		**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
456-0	Paper feeding	Feeding retry number setting (Drawer)	Plain paper	ALL	5 <0-5>	M	Sets the number of times of the feeding retry from the Drawer.	4
456-1			Others	ALL	5 <0-5>	M		4
459-0	Paper feeding	Feeding retry number setting (bypass feed)	Plain paper	ALL	5 <0-5>	M	Sets the number of times of the feeding retry from the bypass tray.	4
459-1			Others	ALL	5 <0-5>	M		4
462	ADF	Setting for switchback operation to copy mixed-sized original on ADF		ALL	0 <0-1>	M	Sets whether or not detecting the original length by transporting without scanning in reverse when finding A4-R/FOLIO paper. 0: Invalid- Judges as A4-R without transporting in reverse with no scanning. 1: Valid- Judges whether it is A4-R or FOLIO size by transporting in reverse with no scanning. * The original is transported in reverse with no scanning when detecting LT-LG size-paper in LT, regardless of this setting.	1
471-0	Paper feeding	Paper size (Postcard)	feeding direction	ALL	148 <100-432>	M	* Postcard is supported only for JPN model.	10
471-1			widthwise direction	ALL	100 <100-432>	M		10
476-0	Fuser	Temperature drop setting during printing (Center thermistor/ Thick paper)	The first drop	ALL	1 <0-10>	M	Setting value x -5ºC: from 0ºC to -50ºC	4
476-1			The second drop	ALL	1 <0-10>	M		4
476-2			The third drop	ALL	1 <0-10>	M		4
476-3			The fourth drop	ALL	1 <0-10>	M		4
478	Laser	Judged number of polygonal motor rotation error (Normal rotation)		ALL	0 <0-1>	M	Displays the error [CA10] when the set number of rotation error has been detected. 0: 2 times 1: 12 times	1

Setting mode (08)							
Code	**Classification**	**Items**	**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
479	Laser	Judged number of polygonal motor rotation error (At acceleration/deceleration)	ALL	0 <0-1>	M	0: Waiting time for polygonal motor rotation overshooting 0.6 sec. 1: Waiting time for polygonal motor rotation overshooting 2.2 sec.	1
480	Paper feeding	Default setting of paper source	PPC	0 <0-4>	M	0: A4/LT 1: Drawer 2: LCF 3: Not used 4: Not used	1
481	Paper feeding	Automatic change of paper source	PPC	1 <0-2>	M	Sets whether or not changing the drawer automatically to the other drawer with the paper of the same size when paper in the selected drawer has run out. 0: OFF 1: ON (Changes to the drawer with the same paper direction and size: ex. A4 to A4) 2: ON (Changes to the drawer with 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	Paper feeding	Feeding retry setting	ALL	0 <0-1>	M	0: ON 1: OFF	1
483	Laser	Pre-running rotation of polygonal motor	ALL	0 <0-2>	M	Sets whether or not switching the polygonal motor from the standby rotation to the normal rotation when the original is set on the ADF or the platen cover is opened. 0: Valid (when using ADF and the original is set manually) 1: Invalid 2: Valid (when using ADF only)	1

Setting mode (08)							
Code	**Classification**	**Items**	**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
484	Laser	Polygonal motor rotational status switching at the Auto Clear Mode	ALL	0 <0-1>	M	Sets whether or not switching the polygonal motor from the normal rotation to the standby rotation at the Auto Clear Mode. 0: Valid 1: Invalid	1
485	Laser	Rotational status of polygonal motor on standby	ALL	JPN: 1 Others: 0 <0-1>	M	Sets the rotational status of polygonal motor on standby. 0: Rotated (The rotational speed is set at 08-490.) 1: Stopped	1
486	Laser	Timing of auto-clearing of polygonal motor pre-running rotation	ALL	0 <0-2>	M	Switches the polygonal motor to the standby rotation when a certain period of time has passed from the pre-running. At this code, the period to switch the status to the standby rotation is set. 0: 15 sec.1: 30 sec. 2: 45 sec. * This setting is effective when “0” or “2” is set at 08-483.	1
489	Laser	Polygonal motor rotation number on standby	ALL	5 <0-5>	M	0: 38,090.55 rpm 1: 35,000 rpm 2: 30,000 rpm 3: 25,000 rpm 4: 20,000 rpm 5: 10,000 rpm	1
490	Laser	Polygonal motor rotation in the energy saving mode	ALL	0 <0-1>	M	0: Stopped 1: 10,000 rpm	1
502	Image	Error diffusion and dither setting at photo mode	PPC	1 <0-1>	M	Sets the image reproduction method at photo mode. 0: Error diffusion 1: Dither	1
508	Image	Custom Mode setting	PPC	0 <0-4>	M	0: Not used 1: Custom Mode 1 when Text/Photo is set as a base 2: Custom Mode 2 when Text is set as a base 3: Custom Mode 3 when Photo is set as a base (Error diffusion) 4: Custom Mode 4 when Photo is set as a base (Dither)	1

Setting mode (08)							
Code	**Classification**	**Items**	**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
515	Fuser	Temperature setting of warming-up (Center thermistor)	ALL	9 <0-14>	M	0: 140°C 1: 145°C 2: 150°C 3: 155°C 4: 160°C 5: 165°C 6: 170°C 7: 175°C 8: 180°C 9: 185°C 10: 190°C 11: 195°C 12: 200°C 13: 205°C 14: 210°C	1
516	Fuser	Temperature setting of warming-up (Side thermistor)	ALL	9 <0-14>	M	0: 140°C 1: 145°C 2: 150°C 3: 155°C 4: 160°C 5: 165°C 6: 170°C 7: 175°C 8: 180°C 9: 185°C 10: 190°C 11: 195°C 12: 200°C 13: 205°C 14: 210°C	1
520	Fuser	Fuser roller temperature during printing (Center thermistor/Envelope)	ALL	9 <0-14>	M	0: 140°C 1: 145°C 2: 150°C 3: 155°C 4: 160°C 5: 165°C 6: 170°C 7: 175°C 8: 180°C 9: 185°C 10: 190°C 11: 195°C 12: 200°C 13: 205°C 14: 210°C	1
521	Fuser	Fuser roller temperature during printing (Side thermistor/Envelope)	ALL	9 <0-14>	M	0: 140°C 1: 145°C 2: 150°C 3: 155°C 4: 160°C 5: 165°C 6: 170°C 7: 175°C 8: 180°C 9: 185°C 10: 190°C 11: 195°C 12: 200°C 13: 205°C 14: 210°C	1
523	Fuser	Pre-running time for first printing (Envelope)	ALL	10 <0-15>	M	0: Invalid 1: 1 sec. 2: 2 sec. 3: 3 sec. 4: 4 sec. 5: 5 sec. 6: 6 sec. 7: 7 sec. 8: 8 sec. 9: 9 sec. 10: 10 sec. 11: 12 sec. 12: 14 sec. 13: 16 sec. 14: 18 sec. 15: 20 sec.	1

Setting mode (08)								
Code	**Classification**	**Items**		**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
525-0	Fuser	Temperature drop switching time setting during printing (Center thermistor)	The first drop	ALL	20 <0-200>	M	Setting value x 5 sec.: from 0 to 1,000 sec. later	4
525-1			The second drop	ALL	38 <0-200>	M		4
525-2			The third drop	ALL	75 <0-200>	M		4
525-3			The fourth drop	ALL	75 <0-200>	M		4
526	Fuser	Pre-running time for first printing (OHP film)		ALL	0 <0-15>	M	0: Invalid 1: 0 sec. 2: 2 sec. 3: 3 sec. 4: 4 sec. 5: 5 sec. 6: 6 sec. 7: 7 sec. 8: 8 sec. 9: 9 sec. 10: 10 sec. 11: 12 sec. 12: 14 sec. 13: 16 sec. 14: 18 sec. 15: 20 sec.	1
527-0	Fuser	Temperature drop switching time setting during printing (Side thermistor)	The first drop	ALL	20 <0-200>	M	Setting value x 5 sec.: from 0 to 1,000 sec. later	4
527-1			The second drop	ALL	30 <0-200>	M		4
527-2			The third drop	ALL	48 <0-200>	M		4
527-3			The fourth drop	ALL	75 <0-200>	M		4
535-0	Fuser	Temperature drop control setting during printing (Temperature/ Time)	Plain paper	ALL	2 <0-20>	M	0: None 1: Pattern 1 2: Pattern 2 3: Pattern 3 4: Pattern 4 5: Pattern 5 6: Pattern 6 7: Pattern 7 8: Pattern 8 9: Pattern 9 10: Pattern 10 11: Pattern 11 12: Pattern 12 13: Pattern 13 14: Pattern 14 15: Pattern 15 16: Pattern 16 17: Pattern 17 18: Pattern 18 19: Pattern 19 20: Manual adjustment	4
535-1			Thick paper	ALL	20 <0-20>	M		4

Setting mode (08)								
Code	**Classification**	**Items**		**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
536-0	Fuser	Temperature drop setting during printing (Center thermistor)	The first drop	ALL	1 <0-10>	M	This code is valid only when “20” is set to 08-535. Setting value x -5°C: from 0°C to -50°C	4
536-1			The second drop	ALL	2 <0-10>	M		4
536-2			The third drop	ALL	3 <0-10>	M		4
536-3			The fourth drop	ALL	3 <0-10>	M		4
537-0	Fuser	Temperature drop setting during printing (Side thermistor)	The first drop	ALL	1 <0-10>	M		4
537-1			The second drop	ALL	2 <0-10>	M		4
537-2			The third drop	ALL	3 <0-10>	M		4
537-3			The fourth drop	ALL	5 <0-10>	M		4
538	Image	Density default in image quality mode		ALL	0 <0-7>	M	0: AUTO 1: Light 3 2: Light 2 3: Light 1 4: Center 5: Dark 1 6: Dark 2 7: Dark 3	1
539-0	Fuser	Temperature drop setting during printing (Side thermistor/ Thick paper)	The first drop	ALL	1 <0-10>	M	Setting value x -5ºC: from 0ºC to -50ºC	4
539-1			The second drop	ALL	2 <0-10>	M		4
539-2			The third drop	ALL	3 <0-10>	M		4
539-3			The fourth drop	ALL	3 <0-10>	M		4
540-0	Fuser	Temperature drop switching time setting during printing (Center thermistor)	The first drop	ALL	20 <0-200>	M	This code is valid only when “20” is set to 08-535. Setting value x 5 sec.: from 0 to 1,000 sec.later	4
540-1			The second drop	ALL	48 <0-200>	M		4
540-2			The third drop	ALL	100 <0-200>	M		4
540-3			The fourth drop	ALL	100 <0-200>	M		4
541-0	Fuser	Temperature drop switching time setting during printing (Side thermistor)	The first drop	ALL	20 <0-200>	M	This code is valid only when “20” is set to 08-535. Setting value x 5 sec.: from 0 to 1,000 sec.later	4
541-1			The second drop	ALL	48 <0-200>	M		4
541-2			The third drop	ALL	100 <0-200>	M		4
541-3			The fourth drop	ALL	100 <0-200>	M		4
550	Image	Default setting of original mode		PPC	0 <0-10>	M	0: Text/Photo 1: Text 2: Photo 3: Custom Mode	1
601	User interface	Setting for the Energy Saving Mode		ALL	Refer to content <0-1>	M	0: Auto Shut Off Mode 1: Sleep Mode <Default value> EUR, UC, SAD: 1 JPN, Others: 0	1

Setting mode (08)							
Code	**Classification**	**Items**	**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
602	User interface	Screen setting for Auto power Save Mode and Auto Shut OFF Mode	ALL	EUR: 0 UC: 1 JPN: 1 <0-1>	M	0: OFF 1: ON	1
604	User interface	Default setting for APS/AMS	PPC	0 <0-2>	M	0: APS (Automatic Paper Selection) 1: AMS (Automatic Magnification Selection) 2: Not selected	1
605	User interface	Centering printing of primary/secondary direction at AMS	PPC	1 <0-1>	M	0: Invalid 1: Valid	1
607	User interface	Default setting of RADF mode	PPC	0 <0-1>	M	0: Continuous feeding (by pressing the [START] button) 1: Single feeding (by setting original on the tray)	1
610	User interface	Key touch sound of control panel	ALL	1 <0-1>	M	0: OFF 1: ON	1
611	User interface	Book type original priority	PPC	0 <0-1>	M	0: Left page to right page 1: Right page to left page	1
612	General	Summer time mode	ALL	0 <0-1>	M	0: Not summer time 1: Summer time	1
614	Network	Local I/F time-out period	PRT	6 <1-50>	M	Sets the period of time when the job is judged as completed in local I/F printing (USB). 1: 1.0 sec. 2: 1.5 sec. -50: 25.5 sec. (in increments of 0.5 sec.)	1
615	General	Size information of main memory and page memory	ALL	-	M	Displays the sizes of the main memory and page memory. Enables to check if each memory is properly recognized.	2
617	User interface	Print setting without department code	ALL	0 <0-1>	M	0: Printed 1: Not printed (pooled in the invalid queue)	1
618	User interface	Default setting when mixed size originals are set on ADF	PPC	0 <0-1>	M	0: Scanned as all in same size 1: Scanned as each original size	1

Setting mode (08)							
Code	**Classification**	**Items**	**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
619	Paper feeding	Time lag before Auto Job Start of bypass feeding	ALL	4 <0-10>	M	Sets the time taken to add 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] button is pressed. 1-10: Setting value x 0.5 sec.	1
620	User interface	Department management setting (Copier)	PPC	1 <0-1>	M	0: Invalid 1: Valid	1
622	User interface	Department management setting (Printer)	PRT	1 <0-1>	M	0: Invalid 1: Valid	1
624	User interface	Department management setting (List print)	PRT	1 <0-1>	M	0: Invalid 1: Valid	1
625	User interface	Blank copying prevention mode during ADF jamming	PPC	0 <0-1>	M	0: OFF 1: ON (Start printing when the scanning of each page is finished)	1
627	User interface	Rotation printing at the non-sorting	ALL	0 <0-1>	M	0: Not rotating 1: Rotating	1
628	User interface	Direction priority of original image	PPC	0 <0-1>	M	0: Automatic 1: Portrait	1
629	User interface	Department management setting	ALL	0 <0-1>	M	0: OFF 1: ON	1
634	User interface	Inner receiving tray priority at Non-sort Mode	ALL	0 <0-1>	M	0: Normal 1: Inner receiving tray	1
636	User interface	Width setting for image shift copying (linkage of front side and back side)	PPC	0 <0-1>	M	0: ON 1: OFF	1

Setting mode (08)							
Code	**Classification**	**Items**	**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
638	General	Time differences	ALL	EUR: 24 UC: 40 JPN: 6 <0-47>	M	0: +12.0h 1: +11.5h 2: +11.0h 3: +10.5h 4: +10.0h 5: +9.5h 6: +9.0h 7: +8.5h 8: +8.0h 9: +7.5h 10: +7.0h 11: +6.5h 12: +6.0h 13: +5.5h 14: +5.0h 15: +4.5h 16: +4.0h 17: +3.5h 18: +3.0h 19: +2.5h 20: +2.0h 21: +1.5h 22: +1.0h 23: +0.5h 24: 0.0h 25: -0.5h 26: -1.0h 27: -1.5h 28: -2.0h 29: -2.5h 30: -3.0h 31: -3.5h 32: -4.0h 33: -4.5h 34: -5.0h 35: -5.5h 36: -6.0h 37: -6.5h 38: -7.0h 39: -7.5h 40: -8.0h 41: -8.5h 42: -9.0h 43: -9.5h 44: -10.0h 45: -10.5h 46: -11.0h 47: -11.5h	1
641	User interface	Automatic Sorting Mode setting (ADF)	PPC	2 <0-5>	M	0: Invalid 1: STAPLE 2: SORT 3: Invalid 4: ROTATE SORT 5:SORT OFFSET	1
642	User interface	Default setting of Sorter Mode	PPC	0 <0-6>	M	0: NON-SORT 1: STAPLE 2: SORT 3: GROUP 4: ROTATE SORT	1
645	User interface	Correction of reproduction ratio in editing copy	PPC	10 <0-10>	M	Sets 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	User interface	Image position in editing	PPC	0 <0-1>	M	Sets the page pasted position for “X in 1” to the upper left corner/ center. 0: Cornering 1: Centering	1
647	User interface	Rotation of paper direction for BOX printing	ALL	1 <0-1>	M	0: Rotation OFF 1: Rotation ON	1

Setting mode (08)							
Code	**Classification**	**Items**	**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
648	User interface	Returning finisher tray when printing is finished	ALL	0 <0-1>	M	Sets whether or not returning the finisher tray to the bin 1 when printing is finished. 0: Not returned 1: Returned	1
649	User interface	Magazine sort setting	PPC	0 <0-1>	M	0: Left page to right page 1: Right page to left page	1
650	User interface	2 in 1/4 in 1 page allocating order setting	PPC	0 <0-1>	M	0: Horizontal 1: Vertical	1
651	User interface	Printing format setting for Time stamp and Page Number	PPC	2 <0-3>	M	Hyphen (with page number) /Dropout (with date, time and page number) 0: OFF/OFF 1: ON/OFF 2: OFF/ON 3: ON/ON **Note:** Hyphen printing format ON: -1- OFF: 1	1
652	User interface	Cascade operation setting	PPC	0 <0-1>	M	0: OFF 1: ON	1
653	User interface	Cascade operation setting	PRT	0 <0-1>	M	0: OFF 1: ON	1
655	General	Reset the 05/08 codes	-	-	-	Default setting of 05/08 codes.	-
658	User interface	Auto Job Start setting for bypass feed printing	PRT	0 <0-1>	M	Sets whether or not feeding a paper automatically into the equipment when it is placed on the bypass tray. 0: OFF (Press the [START] button to start feeding.) 1: ON (Automatic feeding)	1
659	User interface	Auto Job start setting for bypass feed printing	PPC	1 <0-1>	M	Sets whether or not feeding a paper automatically into the equipment when it is placed on the bypass tray. 0: OFF (Press the [START] button to start feeding.) 1: ON (Automatic feeding)	1
671	User interface	Size indicator	ALL	0 <0-1>	M	0: Invalid 1: Valid	1

Setting mode (08)							
Code	**Classification**	**Items**	**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
672	General	Initialization of department management information	-	-	M	Initializing of the department management information * Key in the code and press the [INITIALIZE] button 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.	3
673	General	Resetting drum-related counters	-	-	-	08: 320-0, 320-1, 1150-0, 1200-0 (Valid when 08-903 is set to 1.)	-
682	User interface	Offsetting between jobs	ALL	0 <0-1>	M	0: Invalid 1: Valid	1
688	User interface	UI shortcut key	PPC	1 <0-10>	-	0: Invalid 1: Valid (REDUCE/ENLARGE and ZOOM UP/DOWN only) 2: Valid (Cassette paper size setting only) 3: Valid (All, REDUCE/ENLARGE, ZOOM UP/DOWN, and cassette paper size setting)	
695	General	Genuine toner cartridge detection function (Supports IC chip)	ALL	1 <0-1>	M	0: OFF 1: ON	1
697	Paper feeding	Paper type priority	PPC	1 <1-2>	M	Sets the paper type priority during copying. 1: Plain paper 2: Thick paper 1	1
698	Paper feeding	Limit function for the number of paper exit	ALL	1 <0-1>	M	0: OFF 1: ON Number set at 08-699 will be set as the limit number of paper exit.	1
699	Paper feeding	Limit number setting for paper exit	ALL	250 <1-999>	M	Sets the limit number of paper exit for 08-698	1

Setting mode (08)								
Code	**Classification**	**Items**		**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
797	Maintenance	Firmware download		ALL	0 <0-1>	M	0: Accepted 1: Prohibited	1
800-0	Fuser	Temperature control lower limit (OHP film)	Center themistor	ALL	7 <0-12>	M	0: 130°C 1: 135°C 2: 140°C 3: 145°C 4: 150°C 5: 155°C 6: 160°C 7: 165°C 8: 170°C 9: 175°C 10: 180°C 11: 185°C 12: 120°C	4
800-1			Side themistor	ALL	5 <0-12>	M		4
801-0	Fuser	Temperature control lower limit (Thick paper 1)	Center themistor	ALL	7 <0-12>	M	0: 130°C 1: 135°C 2: 140°C 3: 145°C 4: 150°C 5: 155°C 6: 160°C 7: 165°C 8: 170°C 9: 175°C 10: 180°C 11: 185°C 12: 120°C	4
801-1			Side themistor	ALL	5 <0-12>	M		4
802-0	Fuser	Temperature control lower limit (Thick paper 2)	Center themistor	ALL	11 <0-12>	M	0: 130°C 1: 135°C 2: 140°C 3: 145°C 4: 150°C 5: 155°C 6: 160°C 7: 165°C 8: 170°C 9: 175°C 10: 180°C 11: 185°C 12: 120°C	4
802-1			Side themistor	ALL	11 <0-12>	M		4
804-0	Fuser	Temperature control lower limit (Envelope)	Center themistor	ALL	11 <0-12>	M	0: 130°C 1: 135°C 2: 140°C 3: 145°C 4: 150°C 5: 155°C 6: 160°C 7: 165°C 8: 170°C 9: 175°C 10: 180°C 11: 185°C 12: 120°C	4
804-1			Side themistor	ALL	11 <0-12>	M		4

Setting mode (08)							
Code	Classification	Items	Function	Default <Acceptable value>	RAM	Contents	Procedure
805	Charger	Main charger bias correction (Text/Photo/OHP film)	PRT	98 <0-255>	M	Corrects the value of the main charger bias adjustment (05-210).	1
806	Charger	Main charger bias correction (Toner Saving Mode/OHP film)	PRT	98 <0-255>	M		1
807	Charger	Main charger bias correction (Text/Photo/OHP film)	PPC	98 <0-255>	M		1
808	Charger	Main charger bias correction (Text/OHP film)	PPC	98 <0-255>	M		1
809	Charger	Main charger bias correction (Photo/OHP film)	PPC	98 <0-255>	M		1
814	Charger	Main charger bias correction (Text/Photo/OHP film) GDI	PRT	113 <0-255>	M		1
819	Charger	Main charger bias correction (Text/Photo) GDI	PRT	113 <0-255>	M		1
826	Charger	Main charger bias correction (Toner saving mode)	PRT	128 <0-255>	M		1
830	Transfer	Transfer transformer DC correction (C)	ALL	128 <0-255>	M	Corrects the value of the transfer transformer DC output adjustment (05-221).	1
831	Separation	Separation transformer DC correction (C)	ALL	128 <0-255>	M	Corrects the value of the separation transformer DC output adjustment (05-234).	1
833	Developer	Developer bias DC correction (Text/Photo/OHP film)	PRT	107 <0-255>	M	Corrects the value of the developer bias adjustment (05-205).	1
834	Developer	Developer bias DC correction (Toner Saving Mode/OHP film)	PRT	107 <0-255>	M		1
835	Developer	Developer bias DC correction (Text/Photo/OHP film)	PPC	107 <0-255>	M		1
836	Developer	Developer bias DC correction (Text/OHP film)	PPC	107 <0-255>	M		1
837	Developer	Developer bias DC correction (Photo/OHP film)	PPC	107 <0-255>	M		1
838	Image processing	Switching of recycled toner saving control	ALL	0 <0-1>	M	0: Switched 1: Not switched	1

Setting mode (08)								
Code	**Classification**	**Items**		**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
839	Image processing	Correction by temperature/humidity		ALL	0 <0-3>	M	Sets the correction by temperature/humidity. 0: All valid 1: All invalid 2: Valid only in auto-toner sensor 3: All valid except transfer and separation	1
840	Developer	Developer bias DC correction (Text/Photo/OHP film)	GDI	PRT	117 <0-255>	M	Corrects the value of the developer bias adjustment (05-205).	1
858	Developer	Developer bias DC correction (Normal)	GDI	PRT	118 <0-255>	M		1
859	Developer	Developer bias DC correction (Toner saving mode)		PRT	128 <0-255>	M	Corrects the value of the developer bias adjustment (05-205).	1
860	Developer	Developer bias DC correction (Normal)		PRT	128 <0-255>	M	Corrects the value of the developer bias adjustment (05-205).	1
861	Developer	Developer bias DC correction (Text/Photo)		PPC	128 <0-255>	M	Corrects the value of the developer bias adjustment (05-205).	1
862	Developer	Developer bias DC correction (Text)		PPC	128 <0-255>	M	Corrects the value of the developer bias adjustment (05-205).	1
863	Developer	Developer bias DC correction (Photo)		PPC	128 <0-255>	M	Corrects the value of the developer bias adjustment (05-205).	1
864	Charger	Main charger bias correction (Normal)		PRT	128 <0-255>	M	Corrects the value of the main charger bias adjustment (05-210).	1
865	Charger	Main charger bias correction (Text/Photo)		PPC	128 <0-255>	M	Corrects the value of the main charger bias adjustment (05-210).	1
866	Charger	Main charger bias correction (Text)		PPC	128 <0-255>	M	Corrects the value of the main charger bias adjustment (05-210).	1
867	Charger	Main charger bias correction (Photo)		PPC	128 <0-255>	M	Corrects the value of the main charger bias adjustment (05-210).	1
868	Transfer	Transfer transformer DC correction (H)		ALL	128 <0-255>	M	Corrects the value of the transfer transformer DC output adjustment (05-220).	1
869	Transfer	Transfer transformer DC correction (L)		ALL	128 <0-255>	M	Corrects the value of the transfer transformer DC output adjustment (05-222).	1

Setting mode (08)								
Code	**Classification**	**Items**		**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
870	Separation	Separation transformer DC correction (H)		ALL	128 <0-255>	M	Corrects the value of the separation transformer DC output adjustment (05-233).	1
871	Separation	Separation transformer DC correction (L)		ALL	128 <0-255>	M	Corrects the value of the separation transformer DC output adjustment (05-235).	1
872	Laser	Laser power correction (Normal)		PRT	128 <0-255>	M	Corrects the value of the laser power adjustment (05-286).	1
873	Laser	Laser power correction (Text/Photo)		PPC	128 <0-255>	M	Corrects the value of the laser power adjustment (05-286).	1
875	Laser	Laser power correction (Toner saving mode)		PRT	128 <0-255>	M	Corrects the value of the laser power adjustment (05-286).	1
876	Laser	Laser power correction (Text)		PPC	128 <0-255>	M	Corrects the value of the laser power adjustment (05-286).	1
877	Laser	Laser power correction (Photo)		PPC	128 <0-255>	M	Corrects the value of the laser power adjustment (05-286).	1
883	Laser	Laser power correction (Normal)	GDI	PRT	128 <0-255>	M		1
886	Fuser	Temperature drop control setting in ready status (Temperature/Time)		ALL	4 <0-20>	M	0: None 1: Pattern 1 2: Pattern 2 3: Pattern 3 4: Pattern 4 5: Pattern 5 6: Pattern 6 7: Pattern 7 8: Pattern 8 9: Pattern 9 10: Pattern 10 11: Pattern 11 12: Pattern 12 13: Pattern 13 14: Pattern 14 15: Pattern 15 16: Pattern 16 17: Pattern 17 18: Pattern 18 19: Pattern 19 20: Manual adjustment	1
896-0	Fuser	Temperature control lower limit (Plain paper/ Low temperature)	Center themistor	ALL	5 <0-12>	M	0: 130°C 1: 135°C 2: 140°C 3: 145°C 4: 150°C 5: 155°C 6: 160°C 7: 165°C 8: 170°C 9: 175°C 10: 180°C 11: 185°C 12: 120°C	4
896-1			Side themistor	ALL	3 <0-12>	M		4
900	Version	System firmware ROM version		ALL	-	-	T280SY0W***	2

Setting mode (08)							
Code	**Classification**	**Items**	**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
903	General	Switching for SRU/CRU mode	ALL	JPN: 0 Other: 1 <0-1>	M	0:CRU 1:SRU	1
904	Paper feeding	APS forced start (Exclude ADF)	PPC	0 <0,2>	-	0: Valid (One time pressing) 2: Invalid	1
907	Version	ADF ROM version	ALL	-	-	DF-XXXX	2
920	Version	FROM basic section software version	ALL	-	-	VX.XX/X.XX	2
921	Version	FROM internal program	ALL	-	-	VTRxx.xxxW	2
922	Version	Function table data version	ALL	-	-	VXXX.XXX X	2
923	Version	Language data version	ALL	-	-	VXXX.XXX X	2
930	Version	Version of UI data in FROM displayed at power-ON	ALL	-	-	VXXX.XXX X	2
948	General	Mode setting by pressing [Energy Saver] button for a while	ALL	0 <0-1>	M	Sets the mode to enter when the [Energy Saver] button is pressed for a while. 0: Sleep Mode 1: Auto Shut Off Mode	1
949	General	Automatic interruption page setting during printing	ALL	0 <0-100>	M		1
969	User interface	Error sound	ALL	1 <0-1>	M	0: OFF 1: ON	1
970	User interface	Sound setting when switching to Energy Saving Mode	ALL	1 <0-1>	M	0: OFF 1: ON	1
973	Network	PCL line feed code setting	PRT	0 <0-3>	M	Sets the PCL line feed code. 0: Automatic setting 1: CR=CR, LF=LF 2: CR=CR+LF, LF=LF 3: CR=CR, LF=CR+LF	1
975	General	Job handling when printing is short paid with coin controller	ALL	1 <0-1>	M	Sets whether pause or stop the printing job when it is short paid using a coin controller. 0: Pause the job 1: Stop the job	1
988	Paper feeding	Setting of paper size switching to 13” LG	ALL	0 <0-2>	M	0: Not switched 1: LG → 13”LG 2: FOLIO → 13”LG	1
995	Version	Equipment number (serial number) display	ALL	0 <20 digits>	M	The Equipment number can be entered in alphabets (A-Z=*01-*26) and figures (0-9) within 20digits.	11
999	Maintenance	FSMS total counter	ALL	0 <8 digits>	M	Refers to values of total counter	1
1130	User interface	Job Build Function	ALL	1 <0-1>	M	Sets the Job Build Function. 0: Invalid 1: Valid	1

Setting mode (08)							
Code	Classification	Items	Function	Default <Acceptable value>	RAM	Contents	Procedure
1131	User interface	Maximum number of time job build performed	ALL	1000 <5-1000>	M	Sets the maximum number of time a job build has been performed. 5-1000: 5 to 1000 times	1
1133	Paper feeding	Feeding direction setting of envelope	ALL	0 <0-1>	M	Sets the feeding direction of envelopes. 0: Envelope flap comes on its trailing edge (front side of the equipment) 1: Envelope flap comes on its leading edge (rear side of the equipment)	1
1135	Paper feeding	Default setting of drawers (Printer/BOX)	PRT	1 <1-5>	M	1: LCF 2: Drawer 3: PFU 4: Invalid 5: Invalid	1
1140	User interface	Restriction of the template function with the administrator privilege	ALL	0 <0-1>	M	Selects the restriction of the template function usage setting. 0: No restriction 1: Only available with the administrator privilege.	1
1372	Counter	Heater and energizing time accumulating counter Display/0 clearing	ALL	0 <8 digits>	M	Counts up the heater control time accumulated (when power of the equipment is ON) but does not count at the Sleep Mode.	1
1378	Counter	Counter for period of time fuser unit is at ready temperature	ALL	0 <8 digits>	M	Counts up the heater control time accumulated (when the equipment is at ready status).	1
1380	Counter	Counter for period of time fuser unit is at printing temperature	ALL	0 <8 digits>	M	Counts up the heater control time accumulated (during printing).	1
1382	Counter	Counter for period of time fuser unit is at energy saving temperature/Counter reset	ALL	0 <8 digits>	M	Counts up the heater control time accumulated (when the equipment is in the Energy Saving Mode).	1
1385	Image processing	Number of output pages (Thick paper 1)	ALL	0 <8 digits>	M	Counts up when the registration sensor is ON.	1
1386	Image processing	Number of output pages (Thick paper 2)	ALL	0 <8 digits>	M	Counts up when the registration sensor is ON.	1
1388	Image processing	Number of output pages (OHP film)	ALL	0 <8 digits>	M	Counts up when the registration sensor is ON.	1
1390	Paper feeding	Feeding retry counter (Drawer)	ALL	0 <8 digits>	M	Counts the number of times of the feeding retry from the Drawer.	1

Setting mode (08)							
Code	**Classification**	**Items**	**Function**	**Default <Acceptable value>**	**RAM**	**Contents**	**Procedure**
1391	Paper feeding	Feeding retry counter (PFU)	ALL	0 <8 digits>	M	Counts the number of times of the feeding retry from the PFU.	1
1394	Paper feeding	Feeding retry counter (Bypass feed)	ALL	0 <8 digits>	M	Counts the number of times of the feeding retry from the bypass tray.	1
1396	Paper feeding	Feeding retry counter upper limit value (Drawer)	ALL	0 <8 digits>	M	When the number of feeding retry (08-1390 to 08-1395) exceeds the setting value, the feeding retry will not be performed subsequently. In case “0” is set as a setting value, however, the feeding retry continues regardless of the counter setting value.	1
1397	Paper feeding	Feeding retry counter upper limit value (PFU)	ALL	0 <8 digits>	M		1
1400	Paper feeding	Feeding retry counter upper limit value (Bypass feed)	ALL	0 <8 digits>	M		1
1410	Counter	Counter for period of toner cartridge rotation time	ALL	0 <8 digits>	M	Counts up the period of rotation time of the toner cartridge.	1
1411	Counter	Counter for envelope	ALL	0 <8 digits>	M	Counts up when the registration sensor is ON.	1
1628-0	Processing	Drum life correction switching of the drum reverse rotation amount	ALL	4 <0-15>	M		1
1628-1	Processing	Drum life correction switching of the normal drum rotation amount after the reverse rotation	ALL	10 <0-15>	M		1
1913	Processing	The function clear LED blinks	PPC	0 <0-1>	SYS	Blinks when the value is different from the present default value after copying (until auto clear or all clear.) 0: Invalid (Always off) 1: Valid	1

<<PM management setting code>>

- The following items are displayed or set by using sub-codes at PM management setting in the table below.

<Sub-codes>

0: Present number of output pages
   - Means the present number of output pages.

1: Recommended number of output pages for replacement
   - Means the recommended number of output pages for replacement.

2: Number of output pages at the last replacement
   - Means the number of output pages at the last replacement.

3: Present driving counts
   - Means the present drive counts (1 count = 2 seconds).

4: Recommended driving counts to be replaced
   - Means the recommended drive counts for replacement (1 count = 2 seconds).

5: Driving counts at the last replacement
   - Means the drive counts at the last replacement.

6: Present output pages for control
   - Means the present number of output pages for controlling.

7: Present driving counts for control
   - Means the present drive counts for controlling (1 count = 2 seconds).

8: Number of times replaced
   - Counts up when clearing the counter of each unit in the PM Support Mode Screen.

Notes:

- Sub-code 3 is equivalent to sub-code 7.
  When the value of sub-code 3 is changed, the value of sub-code 7 is also updated and vice versa.
- Sub-code 0 is equivalent to sub-code 6.
  When the value of sub-code 0 is changed, the value of sub-code 6 is also updated and vice versa.
- When “0” is set at one of sub-codes 0, 3, 6 and 7, the rest of them are automatically updated to “0”.

Items	PM management setting <Procedure 4> *Indicated in 8 digits	Date of previous replacement <Procedure 2>	Remarks
Upper Fuser roller brush	361-0 to 8	362	<Default values of code 361 (e-STUDIO 163/203)> Sub-code 0, 2, 3, 5, 6, 7: 0/0 Sub-code 1: 74,000/90,000 Sub-code 4: 167,000/167,000
Pressure roller brush	363-0 to 8	364	<Default values of code 363 (e-STUDIO 163/203)> Sub-code 0, 2, 3, 5, 6, 7: 0/0 Sub-code 1: 74,000/90,000 Sub-code 4: 167,000/167,000
Aluminum roller brush	365-0 to 8	366	<Default values of code 365 (e-STUDIO 163/203)> Sub-code 0, 2, 3, 5, 6, 7: 0/0 Sub-code 1: 74,000/90,000 Sub-code 4: 167,000/167,000
Photoconductive drum	1150-0 to 8	1151	<Default values of code 1150 (e-STUDIO 163/203)> Sub-codes 0, 2, 3, 5, 6, 7, 8: 0/0 Sub-code 1: 74,000/90,000 Sub-code 4: 167,000/167,000
Drum cleaning blade	1158-0 to 8	1159	<Default values of code 1158 (e-STUDIO 163/203)> Sub-codes 0, 2, 3, 5, 6, 7, 8: 0/0 Sub-code 1: 74,000/90,000 Sub-code 4: 167,000/167,000
Drum separation finger	1172-0 to 8	1173	<Default values of code 1172 (e-STUDIO 163/203)> Sub-codes 0, 2, 3, 5, 6, 7, 8: 0/0 Sub-code 1: 74,000/90,000 Sub-code 4: 167,000/167,000
Main charger grid	1174-0 to 8	1175	<Default values of code 1174 (e-STUDIO 163/203)> Sub-codes 0, 2, 3, 5, 6, 7, 8: 0/0 Sub-code 1: 74,000/90,000 Sub-code 4: 167,000/167,000
Needle electrode	1182-0 to 8	1183	<Default values of code 1182 (e-STUDIO 163/203)> Sub-codes 0, 2, 3, 5, 6, 7, 8: 0/0 Sub-code 1: 74,000/90,000 Sub-code 4: 167,000/167,000
Ozone filter	1198-0 to 8	1199	<Default values of code 1198 (e-STUDIO 163/203)> Sub-codes 0, 2, 3, 5, 6, 7, 8: 0/0 Sub-code 1: 148,000/180,000 Sub-code 4: 167,000/167,000
Developer material	1200-0 to 8	1201	<Default values of code 1200 (e-STUDIO 163/203)> Sub-codes 0, 2, 3, 5, 6, 7, 8: 0/0 Sub-code 1: 74,000/90,000 Sub-code 4: 167,000/167,000
Transfer charger wire	1214-0 to 8	1215	<Default values of code 1214 (e-STUDIO 163/203)> Sub-codes 0, 2, 3, 5, 6, 7, 8: 0/0 Sub-code 1: 74,000/90,000 Sub-code 4: 167,000/167,000

Items	PM management setting <Procedure 4> *Indicated in 8 digits	Date of previous replacement <Procedure 2>	Remarks
Separation charger wire	1224-0 to 8	1225	<Default values of code 1224 (e-STUDIO 163/203)> Sub-codes 0, 2, 3, 5, 6, 7, 8: 0/0 Sub-code 1: 74,000/90,000 Sub-code 4: 167,000/167,000
Fuser roller	1246-0 to 8	1247	<Default values of code 1246 (e-STUDIO 163/203)> Sub-codes 0, 2, 3, 5, 6, 7, 8: 0/0 Sub-code 1: 74,000/90,000 Sub-code 4: 167,000/167,000
Pressure roller	1250-0 to 8	1251	<Default values of code 1250 (e-STUDIO 163/203)> Sub-codes 0, 2, 3, 5, 6, 7, 8: 0/0 Sub-code 1: 74,000/90,000 Sub-code 4: 167,000/167,000
Cleaning roller	1266-0 to 8	1267	<Default values of code 1266 (e-STUDIO 163/203)> Sub-codes 0, 2, 3, 5, 6, 7, 8: 0/0 Sub-code 1: 74,000/90,000 Sub-code 4: 167,000/167,000
Fuser roller separation finger	1268-0 to 8	1269	<Default values of code 1268 (e-STUDIO 163/203)> Sub-codes 0, 2, 3, 5, 6, 7, 8: 0/0 Sub-code 1: 74,000/90,000 Sub-code 4: 167,000/167,000
Pickup roller (ADF)	1282-0,1,2,8	1283	<Default values of code 1282 (e-STUDIO 163/203)> Sub-codes 0, 2, 8: 0/0 Sub-code 1: 120,000/120,000
Feed roller (ADF)	1284-0,1,2,8	1285	<Default values of code 1284 (e-STUDIO 163/203)> Sub-codes 0, 2, 8: 0/0 Sub-code 1: 120,000/120,000
Separation roller (ADF)	1286-0,1,2,8	1287	<Default values of code 1286 (e-STUDIO 163/203)> Sub-codes 0, 2, 8: 0/0 Sub-code 1: 120,000/120,000
Pickup roller (PFU)	1292-0,1,2,8	1293	<Default values of code 1292 (e-STUDIO 163/203)> Sub-codes 0, 2, 8: 0/0 Sub-code 1: 80,000/80,000
Feed roller (Drawer)	1298-0,1,2,8	1299	<Default values of code 1298 (e-STUDIO 163/203)> Sub-codes 0, 2, 8: 0/0 Sub-code 1: 80,000/80,000
Feed roller (PFU)	1300-0,1,2,8	1301	<Default values of code 1300 (e-STUDIO 163/203)> Sub-codes 0, 2, 8: 0/0 Sub-code 1: 80,000/80,000
Separation roller (PFU)	1308-0,1,2,8	1309	<Default values of code 1308 (e-STUDIO 163/203)> Sub-codes 0, 2, 8: 0/0 Sub-code 1: 80,000/80,000
Separation roller (Bypass unit)	1316-0,1,2,8	1317	<Default values of code 1316 (e-STUDIO 163/203)> Sub-codes 0, 2, 8: 0/0 Sub-code 1: 80,000/80,000

Items	PM management setting <Procedure 4> *Indicated in 8 digits	Date of previous replacement <Procedure 2>	Remarks
Feed roller (Bypass unit)	1324-0,1,2,8	1325	<Default values of code 1324 (e-STUDIO 163/203> Sub-codes 0, 2, 8: 0/0 Sub-code 1: 80,000/80,000
Pickup roller (Bypass unit)	1332-0,1,2,8	1333	<Default values of code 1332 (e-STUDIO 163/203)> Sub-codes 0, 2, 8: 0/0 Sub-code 1: 80,000/80,000
Recovery blade	1336-0 to 8	1337	<Default values of code 1336 (e-STUDIO 163/203)> Sub-codes 0, 2, 3, 5, 6, 7, 8: 0/0 Sub-code 1: 74,000/90,000 Sub-code 4: 120,000/120,000

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

Fig. 2-3

2.2.6 Classification List of Adjustment Mode (05) / Setting Mode (08)

<T.B.D>

3. ADJUSTMENT

3.1 Adjustment of Auto-Toner Sensor

When the developer material is replaced, adjust the auto-toner sensor in the following procedure.

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

(1) Install the process unit into the equipment.

Note:
Do not install the toner cartridge.

(2) While pressing [0] and [5] simultaneously, turn the power ON.
The following message will be displayed.

Fig. 3-1

(3) Key in code [200] and press the [START] button.
The display changes as follows.

Fig. 3-2

Notes:

- A indicates the controlled value of the auto-toner sensor output. Press the Up or Down button 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 automatically starts changing.

Fig. 3-3

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

Fig. 3-4

(6) Check if the value B is within the range of 232 to 248 (the output voltage range of the auto-toner sensor is 2.32 V to 2.48 V).

(7) If the value B is not within the range of 232 to 248, press the Up or Down button to adjust the value manually.

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

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

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

Fig. 3-5

(9) Turn the power OFF.

(10) Install the toner cartridge.

3.2 Image Dimensional Adjustment

3.2.1 General description

There are several adjustment items in the image dimensional adjustment, as listed below. When adjusting these items, the following adjustment order should strictly be observed.

Item to be adjusted		Code in mode 05
1 Paper alignment at the registration roller		450, 451, 458, 460, 461, 462, 463, 464, 469
2 Printer related adjustment	(a) Reproduction ratio of primary scanning direction (Fine adjustment of polygonal motor rotation speed)	401
	(b) Primary scanning data laser writing start position	411
	(c) Reproduction ratio of secondary scanning direction (Fine adjustment of main motor rotation speed)	421
	(d) Secondary scanning data laser writing start position	441, 440, 442
3 Scanner related adjustment	(a) Reproduction ratio of primary scanning direction	405
	(b) Image location of primary scanning direction	306
	(c) Reproduction ratio of secondary scanning direction	340
	(d) Image location of secondary scanning direction	305
	(e) Top margin	430
	(f) Right margin	432
	(g) Bottom margin	433

[Procedure to key in adjustment values]
In accordance with the procedure described below, make adjustment of each adjustment item so that the measured values obtained from test copies satisfy the specification.

Fig. 3-6

3.2.2 Paper alignment at the registration roller

The aligning amount is adjusted by using the following codes in Adjustment Mode (05).

Paper type	Weight	Drawer	PFU	Bypass feed
Plain paper	64-80 g/m^2 17-20 lb.	450 (*1)	451 (*1)	458 (*1)
Thick paper 1	81-105g/m^2 21-28 lb.	469 (*1)	-	460 (*1)
Thick paper 2	106-163g/m^2 29-43 lb.	-	-	461 (*1)
Thick paper 3	164-209g/m^2 44-55 lb.	-	-	462 (*2)
OHP	-	-	-	463 (*3)
Envelope	-	-	-	464 (*4)

Sub-code

(*1) 0: Long size 1: Middle size 2: Short size
(*2) 0: Long size 1: Middle size 2: Short size 3: Post card
(*3) 0: Long size of OHP film 1: Middle size of OHP film 2: Short size of OHP film
(*4) 0: Long size of Envelope 1: Middle size of Envelope 2: Short size of Envelope

Notes:

1. Long size: 330 mm or longer (13.0 inches or longer)
   Middle size: 220-239 mm (8.7-12.9 inches)
   Short size: 219 mm or shorter (8.6 inches or shorter)
2. The adjustment of “Post card” is for Japan only.

<Procedure>

(1) Perform the test print according to the following procedure.

(2) Check if any transfer void is occurring. If there is a transfer problem, try the values in descending order as “31” → “30” → “29”··· until the transfer void disappears. At the same time, confirm if any paper jam occurs. Also, when the aligning amount has been increased, this may increase the scraping noise caused by the paper and the Mylar sheet as it is transported by the registration roller. If this scraping noise is annoying, try to decrease the value.

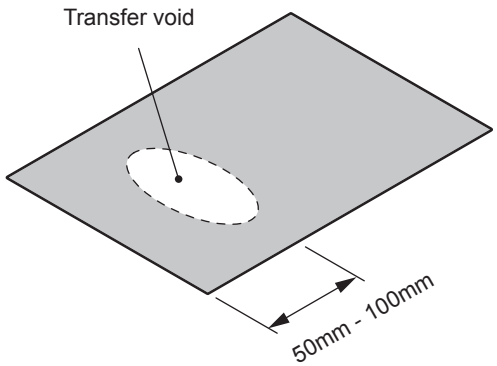


Fig. 3-7

(3) Perform the same procedure for all paper sources.

Note:

When paper thinner than specified is used, paper jams may occur frequently at the registration section. In this case, it is advisable to change (or reduce) the aligning amount.
However, if the aligning amount is reduced too much, this may cause the shift of leading edge position. So, when adjusting the aligning amount, try to choose the appropriate amount while confirming the leading edge position is not shifted.

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

3.2.3 Printer related adjustment

[A] Reproduction ratio of primary scanning direction (Fine adjustment of polygonal motor rotation speed (Printer))

<Procedure>

(1) While pressing [0] and [5] simultaneously, turn the power ON. → (Adjustment Mode)

(2) Press [1] → [INTERRUPT]. (A grid pattern with 10 mm squares is printed out. Use A3/LD from standard drawer of the equipment.

(3) Check the grid pattern on the test chart printed out and measure the distance A from the 1st line to the 21st line of the grid pattern.

(4) Check if the distance A is within 200±0.5 mm.

(5) If not, use the following procedure to change values and measure the distance A again.

(Adjustment Mode) → (Key in code [401]) → [START]
→ (Key in a value (acceptable values: 0 to 255))
→ [ENTER] or [INTERRUPT] (Stored in memory)
→ "100% A" is displayed
→ Press [1] → [INTERRUPT] → (A grid pattern is printed out.)

* The larger the adjustment value is, the longer the distance A becomes (approx. 0.125 mm/step).

[B] Primary scanning data laser writing start position (Printer)

<Procedure>

(1) While pressing [0] and [5] simultaneously, turn the power ON. → (Adjustment Mode)

(2) Press [1] → [INTERRUPT]. (A grid pattern with 10 mm squares is printed out. Use A3/LD from standard drawer of the equipment.

(3) Check the grid pattern on the test chart printed out and measure the distance B from the left edge of the paper to the 6th line of the grid pattern.

(4) Check if the distance B is within 52±0.5 mm.

(5) If not, use the following procedure to change values and measure the distance B again.

(Adjustment Mode) → (Key in the code [411]) → [START]
→ (Key in a value (acceptable values: 0 to 255))
→ [ENTER] or [INTERRUPT] (Stored in memory)
→ "100% A" is displayed
→ Press [1] → [INTERRUPT] → (A grid pattern is printed out.)

* The larger the adjustment value is, the longer the distance B becomes (approx. 0.05 mm/step).

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

(Adjustment Mode) → (Key in the code [410]) → [START]
→ (Key in the same value in the step 5 above)
→ Press [ENTER] or [INTERRUPT] (Stored in memory).

Note:
Make sure the first line of the grid pattern is printed out since the line is occasionally vanished.

[C] Reproduction ratio of secondary scanning direction (Fine adjustment of main motor rotation speed (Copier/Printer))

<Procedure>

(1) While pressing [0] and [5] simultaneously, turn the power ON. → (Adjustment mode)

(2) Press [1] → [INTERRUPT]. (A grid pattern with 10 mm squares is printed out. Use A3/LD from standard drawer of the equipment.

(3) Check the grid pattern on the test chart printed out and measure the distance C from the 10th line at the leading edge of the paper to the 30th line of the grid pattern.
* Normally, the 1st line of the grid pattern is not printed.

(4) Check if the distance C is within 200±0.5 mm.

(5) If not, use the following procedure to change values and measure the distance C again.

(Adjustment Mode) → (Key in code [421]) → [START]
→ (Key in a value (acceptable values: 0 to 255))
→ [ENTER] or [INTERRUPT] (Stored in memory)
→ "100% A" is displayed
→ Press [1] → [INTERRUPT] → (A grid pattern is printed out.)
* The larger the adjustment value is, the longer the distance C becomes (approx. 0.125 mm/step).

[D] Secondary scanning data laser writing start position

This adjustment has to be performed for each paper source. (If there is no paper source, skip this step.)
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	Drawer	440	A3/LD	0 to 40	
2	PFU	441	A4/LT	0 to 40	
3	Bypass feed	442	A4/LT	0 to 15	

<Procedure>

(1) While pressing [0] and [5] simultaneously, turn the power ON. → (Adjustment Mode)

(2) Press [1] → [INTERRUPT]. (A grid pattern with 10 mm squares is printed out.)

(3) Check the grid pattern on the test chart printed out and measure the distance D from the leading edge of the paper to the 6th line of the grid pattern.
* Normally, the 1st line of the grid pattern is not printed.

(4) Check if the distance D is within 52±0.5 mm.

(5) If not, use the following procedure to change values and measure the distance D again.

(Adjustment Mode) → (Key in the code shown above) → [START]
→ (Key in an acceptable value shown above)
→ [ENTER] or [INTERRUPT] (Stored in memory)
→ "100% A" is displayed
→ Press [1] → [INTERRUPT] → (A grid pattern is printed out.)
* The larger the adjustment value is, the longer the distance D becomes (approx. 0.4 mm/step).

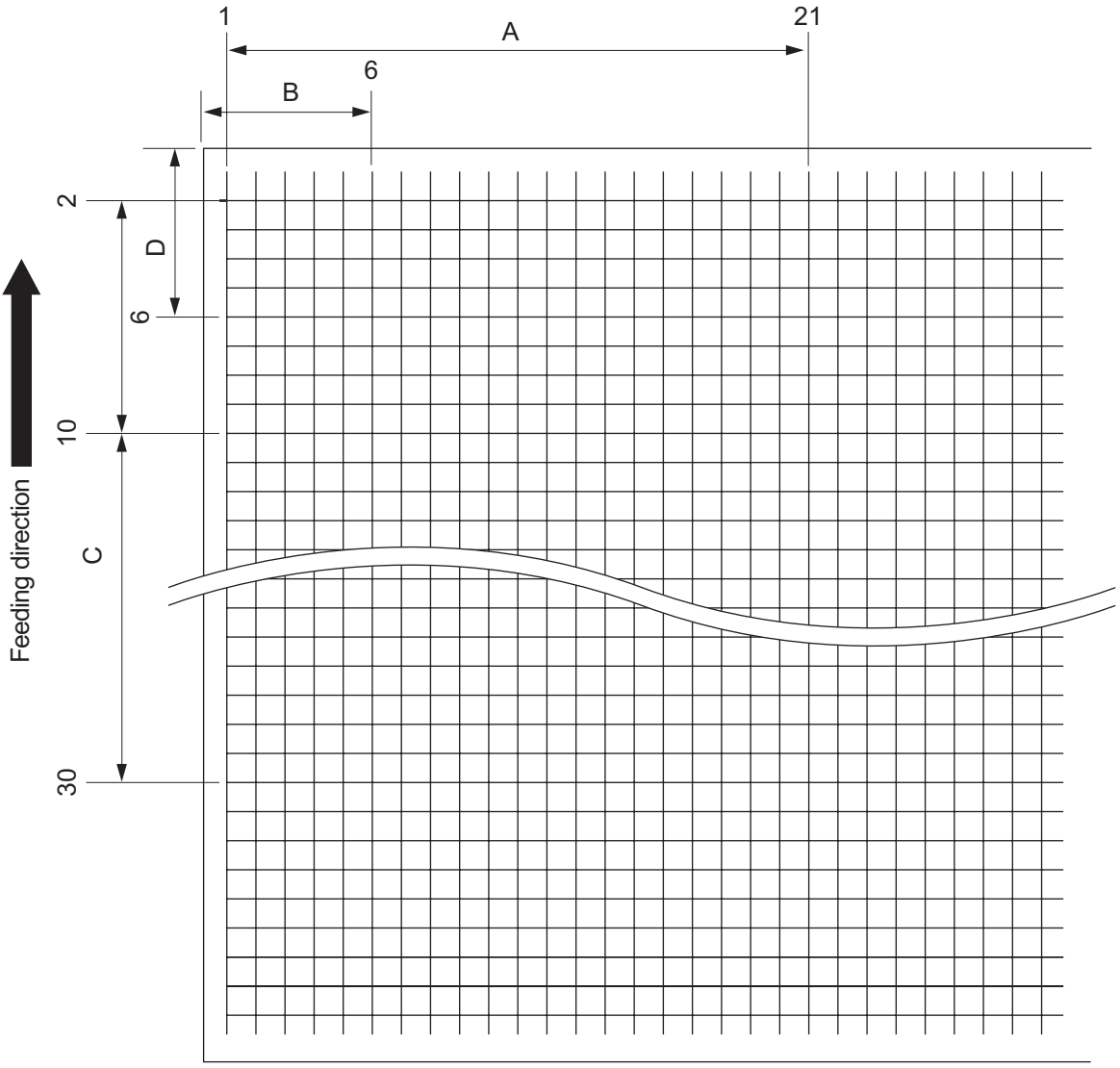


Fig. 3-8 Grid pattern

<Procedure>
[0] [5] [Power ON] → [1] → [INTERRUPT]

A: 05-401 (Drawer, A3/LD) → 200±0.5 mm (0.125 mm/step)

B: 05-411 (Drawer, A3/LD) → 52±0.5 mm (0.05 mm/step)
→ Key in the same value for 05-410.

C: 05-421 (Drawer, A3/LD) → 200±0.5 mm (0.125 mm/step)

D: 05-440 (Drawer, A3/LD), 441 (PFU, A4/LT), 442 (Bypass feed, A4/LT)
→ 52±0.5 mm(0.4 mm/step)

3.2.4 Scanner related adjustment

[A] Reproduction ratio adjustment of the primary scanning direction

<Procedure>

(1) While pressing [0] and [5] simultaneously, turn the power ON → (Adjustment Mode)

(2) Place a ruler on the original glass (along the direction from the rear to the front of the equipment).

(3) Make a copy at the mode of A3 (LD), 100% and standard drawer of the equipment.

(4) Measure the distance A from 10 mm to 270 mm of the copied image of the ruler.

(5) Check if the distance A is within the range of 260±0.5 mm.

(6) If not, use the following procedure to change values and repeat the steps (1) to (5) above.
(Adjustment Mode) → (Key in the code [405]) → [START]
→ (Key in a value (acceptable values: 0 to 255))
→ Press the [ENTER] or the [INTERRUPT] button (stored in memory).
→ ("100% A" is displayed.)
* The larger the adjustment value is, the higher the reproduction ratio and the longer the distance A become (approx. 0.125 mm/step).

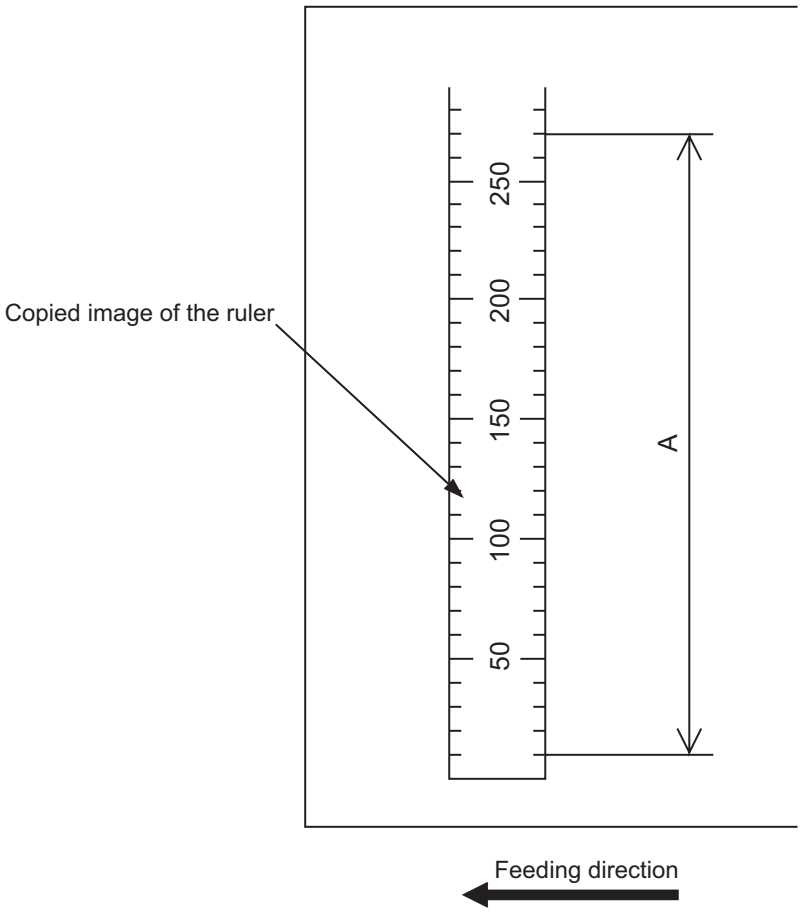


Fig. 3-9

[B] Image position adjustment of the primary scanning direction

<Procedure>

(1) While pressing [0] and [5] simultaneously, turn the power ON. → (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) Make a copy at the mode of A3 (LD), 100% and standard drawer of the equipment.

(4) Measure the distance B from the left edge of the paper to 10 mm of the copied image of the ruler.

(5) Check if the distance B is within the range of 10±0.5 mm.

(6) If not, use the following procedure to change values and repeat the steps (1) to (5) above.

(Adjustment Mode) → (Key in the code [306]) → [START]
→ (Key in a value (acceptable values: 0 to 255))
→ Press the [ENTER] or the [INTERRUPT] button (stored in memory).
→ ("100% A" is displayed.)

* The smaller the adjustment value is, the more the image is shifted to the left and the distance B becomes narrower (0.085 mm/step).

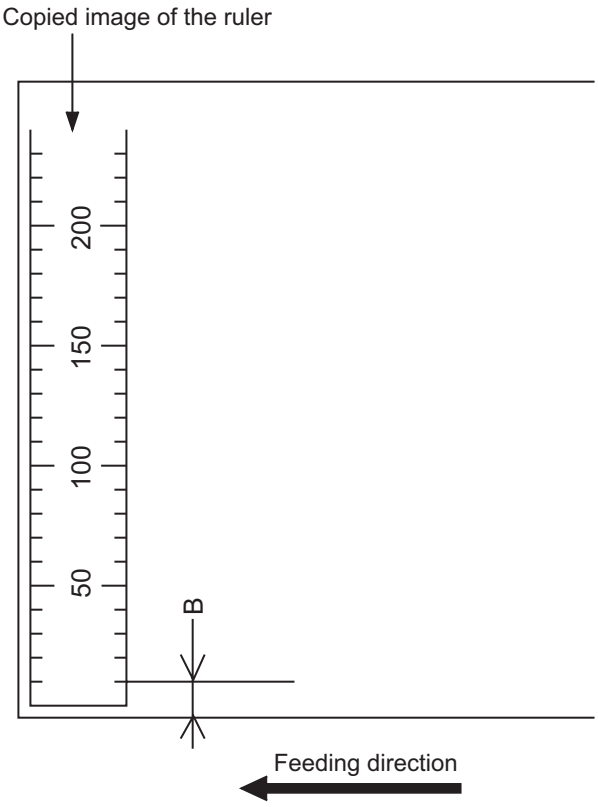


Fig. 3-10

[C] Reproduction ratio adjustment of the secondary scanning direction

<Procedure>

(1) While pressing [0] and [5] simultaneously, turn the power ON. → (Adjustment Mode)

(2) Place a ruler on the original glass with its leading edge pushed against the original scale on the left.

(3) Make a copy at the mode of A3 (LD), 100% and standard drawer of the equipment.

(4) Measure the distance C from 200 mm to 400 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, use the following procedure to change values and repeat steps (1) to (5) above.

(Adjustment Mode) → (Key in the code [340]) → [START]
→ (Key in a value (acceptable values: 0 to 255))
→ Press the [ENTER] or the [INTERRUPT] button (stored in memory).
→ ("100% A" is displayed.)

* The smaller the adjustment value is, the lower the reproduction ratio becomes (0.45 mm/step).

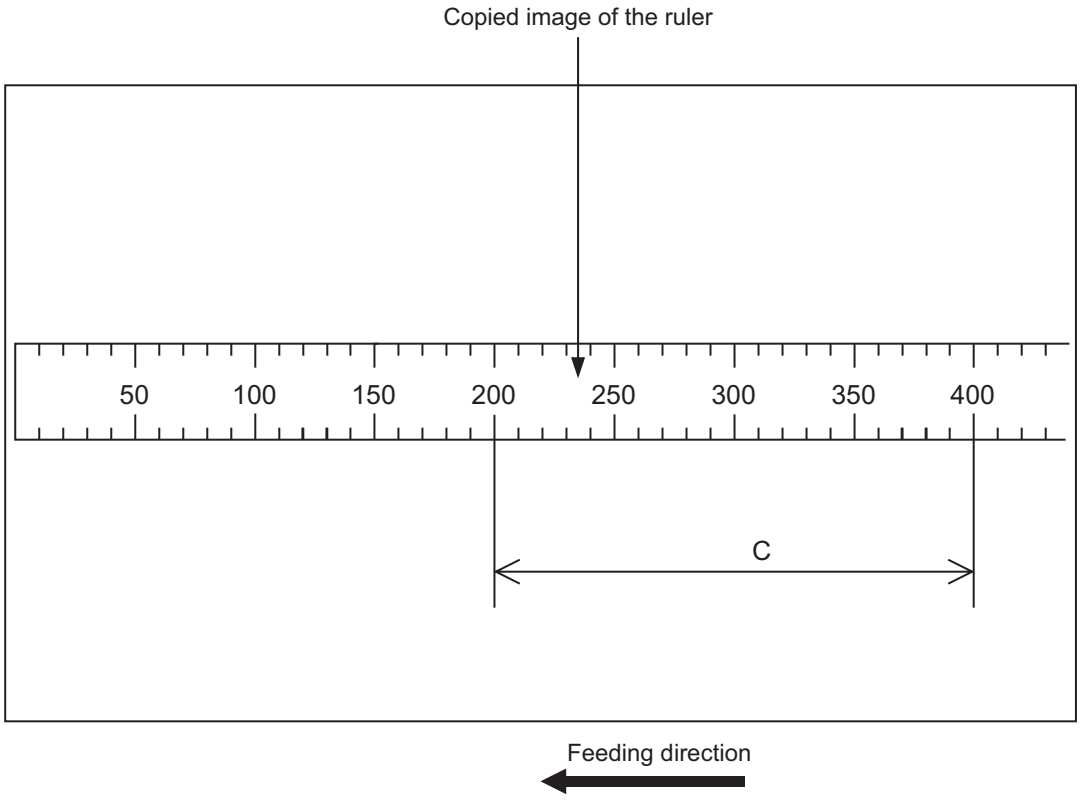


Fig. 3-11

[D] Image position adjustment of the secondary scanning direction

<Procedure>

(1) While pressing [0] and [5] simultaneously, turn the power ON. → (Adjustment Mode)

(2) Place a ruler on the original glass with its leading edge pushed against the original scale on the left.

(3) Make a copy at the mode of A3 (LD), 100% and standard drawer of the equipment.

(4) Measure the distance D from the leading edge of the paper to 10 mm of the copied image of the ruler.

(5) Check if the distance D is within the range of 10±0.5 mm.

(6) If not, use the following procedure to change values and repeat the steps (1) to (5) above.

(Adjustment Mode) → (Key in the code [305]) → [START]
→ (Key in a value (acceptable values: 0 to 255))
→ Press the [ENTER] or the [INTERRUPT] button (stored in memory).
→ ("100% A" is displayed.)

* The larger the adjustment value is, the more the image is shifted to the trailing edge (0.14 mm/step).

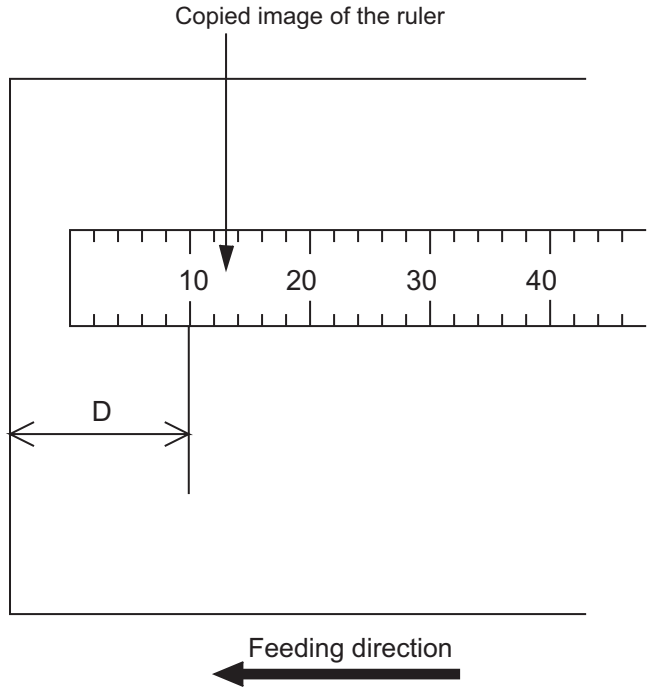


Fig. 3-12

[E] Top margin

<Procedure>

(1) While pressing [0] and [5] simultaneously, turn the power ON. → (Adjustment Mode)

(2) Open the platen cover or ADF.

(3) Make a copy at the mode of A3/LD, 100%, Text/Photo and standard drawer of the equipment.

(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, use the following procedure to change values and repeat the steps (1) to (5) above.

(Adjustment Mode) → (Key in the code [430]) → [START]
→ (Key in a value (acceptable values: 0 to 255))
→ Press the [ENTER] or the [INTERRUPT] button (stored in memory).
→ ("100% A" is displayed.)

* The larger the adjustment value is, the wider the blank area becomes (approx. 0.04 mm/ step).

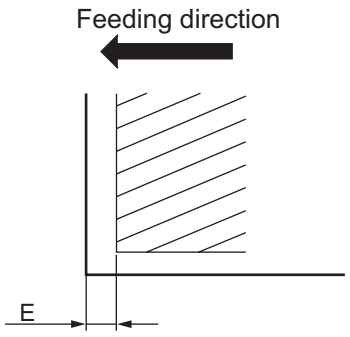


Fig. 3-13

[F] Right margin

<Procedure>

(1) While pressing [0] and [5] simultaneously, turn the power ON. → (Adjustment Mode)

(2) Open platen cover or ADF.

(3) Make a copy at the mode of A3/LD, 100%, Text/Photo and standard drawer of the equipment.

(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±1.0 mm.

(6) If not, use the following procedure to change values and repeat the steps (1) to (5) above.

(Adjustment Mode) → (Key in the code [432]) → [START]
→ (Key in a value (acceptable values: 0 to 255))
→ Press the [ENTER] or the [INTERRUPT] button (stored in memory).
→ ("100% A" is displayed.)

* The larger the adjustment value is, the wider the blank area at the right side becomes (approx. 0.04 mm/step).

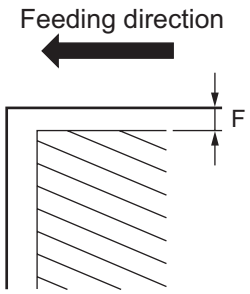


Fig. 3-14

[G] Bottom margin

<Procedure>

(1) While pressing [0] and [5] simultaneously, turn the power ON. → (Adjustment Mode)

(2) Open platen cover or ADF.

(3) Make a copy at the mode of A3/LD, 100%, Text/Photo and standard drawer of the equipment.

(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±1.0 mm.

(6) If not, use the following procedure to change values and repeat the steps (1) to (5) above.

(Adjustment Mode) → (Key in the code [433]) → [START]
→ (Key in value (acceptable values: 0 to 255))
→ Press the [ENTER] or the [INTERRUPT] button (stored in memory).
→ ("100% A" is displayed.)

* The larger the adjustment value is, the wider the blank area at the trailing edge becomes (approx. 0.04 mm/step).

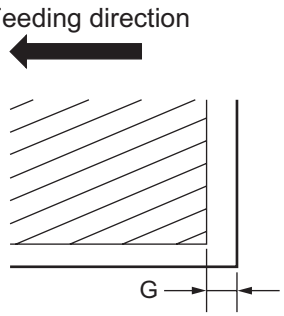


Fig. 3-15

3.3 Image Quality Adjustment (Copying Function)

3.3.1 Density adjustment

The center density and the density variation controlled by density adjustment keys can be adjusted as follows.

< Adjustment Mode (05) >

Original mode			Item to be adjusted	Remarks
Text/Photo	Photo	Text		
503 (931)	501	504	Manual density mode center value	The larger the value is, the darker the image becomes. Acceptable values: 0 to 255
505 (934)	506	507	Manual density mode light step value	The larger the value is, the lighter the light side becomes. Acceptable values: 0 to 255
508 (937)	509	510	Manual density mode dark step value	The larger the value is, the darker the dark side becomes. Acceptable values: 0 to 255
514 (940)	512	515	Automatic density mode	The larger the value is, the darker the image becomes. Acceptable values: 0 to 255

* The values in "( )" are the adjustment codes of the Custom Mode.

Make a test copy and compare the image obtained with the current settings; if necessary, make adjustment using the following procedure.

<Procedure>

(1) While pressing [0] and [5] simultaneously, turn the power ON.

(2) Key in a code and press the [START] button.

(3) Key in an adjustment value.
(To correct the keyed-in value, press the [CLEAR] button.)

(4) Press the [ENTER] or [INTERRUPT] button to store the value. → The equipment goes back to the ready state.

(5) Let the equipment restarted and perform copying job.

(6) If the desired image density has not been attained, repeat step (2) to (5).

3.3.2 Gamma slope adjustment

Gamma slope is adjustable with the following codes.

< Adjustment Mode (05) >

Original mode			Item to be adjusted	Remarks
Text/Photo	Photo	Text		
593 (943)	594	595	Gamma slope adjustment	One's place: 0: equivalent to the set value 5 1 to 9: Select the gamma slope angle. (The larger the value is, the larger the angle becomes.) Ten's place: 0: equivalent to the set value 5 1 to 9: Select the gamma slope angle of the low density area. (The smaller the value is, the darker the background becomes.) 00: Use default value

* The values in “( )” are the adjustment codes of the Custom Mode.

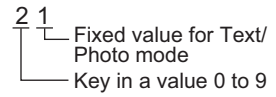
<Procedure>

Procedure is same as that of 📖 P. 3-18 "3.3.1 Density adjustment".

3.3.3 Sharpness adjustment

If you want to make copy images look softer or sharper, perform the following adjustment.

< Adjustment Mode (05) >

Original mode				Item to be adjusted	Remarks
Text/ Photo	Photo	Text	Photo (Dither)		
620 (922)	621	622	623	Sharpness adjustment	Key in the following values depending on the original mode. One's place 1: Text/Photo 2: Photo 5: Text Ten's place 0: Use Default value 1 to 9: Change intensity (The larger the value is, the sharper the image becomes.) • Example of value entry in case the mode is "Text/Photo".  **Note:** When the value "0" is keyed in at the ten's digit, the value is not displayed on LCD screen.

* The values in "( )" are the adjustment codes of the Custom Mode.

Make a test copy and compare the image obtained with the current settings; if necessary, make adjustment using the following procedure.

<Procedure>

Procedure is same as that of 📖 P. 3-18 "3.3.1 Density adjustment".

3.3.4 Setting range correction

The values of the background peak / text peak in the range correction can be switched to “varied” or “fixed” in the following codes.
If they are fixed, the range correction is performed with standard values.
The values of the background peak affect the reproduction of the background density and the values of the text peak affect that of the text density.

< Adjustment Mode (05) >

Original mode			Item to be adjusted	Remarks
Text/Photo	Photo	Text		
570 (913)	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: 22 Each digit stands for: One’s place: Automatic density mode Ten’s place: Manual density mode The setting conditions possible are as follows: Background peak / Text peak 1: fixed / fixed 2: varied / fixed 3: fixed / varied 4: varied / varied
693 (916)	694	695	Range correction for original set on the ADF	

* The values in “( )” are the adjustment codes of the Custom Mode.
Make a test copy and compare the image obtained with the current settings; if necessary, make adjustment using the following procedure.

<Procedure>
Procedure is same as that of 📖 P. 3-18 "3.3.1 Density adjustment".

3.3.5 Setting range correction (Adjustment of background peak)

The levels of the background peak for the range correction can be set at the following codes.

< Adjustment Mode (05) >

Original mode			Item to be adjusted	Remarks
Text/Photo	Photo	Text		
532 (919)	533	534	Background peak for range correction	When the value increases, the background (low density area) of the image is not output. Acceptable values: 0 to 255 (Default: Text/Photo: 24, Photo: 16, Text: 64)

* The values in “( )” are the adjustment codes of the Custom Mode.
Make a test copy and compare the image obtained with the current settings; if necessary, make adjustment using the following procedure.

<Procedure>
Procedure is same as that of 📖 P. 3-18 "3.3.1 Density adjustment".

3.3.6 Adjustment of smudged/faint text

The smudged/faint text can be set at the following codes.

< Adjustment Mode (05) >

Original mode Text/Photo	Item to be adjusted	Remarks
928	Adjustment of smudged/faint spotted text (Custom Mode)	When the value increases, the faint text is improved. When the value decreases, the smudged text is improved. Acceptable values: 0 to 4 (Default: 2) **Note:** Remember 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.

Make a test copy and compare the image obtained with the current settings; if necessary, make adjustment using the following procedure.

<Procedure>

Procedure is same as that of 📖 P. 3-18 "3.3.1 Density adjustment".

3.3.7 Adjustment of image density

The image density level can be set at the following codes.

< Adjustment Mode (05) >

Code	Item to be adjusted	Remarks
667-0 to 4	Adjustment of image density	When the value is decreased, text becomes lighter. Acceptable values: 0 to 63 **Notes:** 1. 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 667-0 with A0, • • •, 667-4 with A4: A0 A1 A2 A3 A4 2. 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.

<Procedure>

(1) While pressing [0] and [5] simultaneously, turn the power ON.

(2) Key in the code “667” and press the [START] button.

(3) Key in the sub code (0, 1, 2, 3 or 4), and press the [START] button.

(4) Key in an adjustment value.
(To correct the keyed-in value, press the [CLEAR] button.)

(5) Press the [ENTER] or [INTERRUPT] button to store the value in memory. The equipment goes back to the ready state.

(6) For resetting the value, repeat step (2) to (5).

(7) Turn the power OFF and then back ON to perform printing job.

(8) If the desired image density has not been attained, repeat step (2) to (7).

3.4 Image Quality Adjustment (Printing Function)

3.4.1 Adjustment of smudged/faint text

The smudged/faint text can be set at the following codes.

< Adjustment Mode (05) >

Language			Remarks
PS	PCL	GDI	
654	655	656	When the value increases, the smudged text is improved. When the value decreases, the faint text is improved. Acceptable values: 0 to 9 (Default: 5)

<Procedure>

(1) While pressing [0] and [5] simultaneously, turn the power ON.

(2) Key in a code and press the [START] button.

(3) Key in an adjustment value.
(To correct the keyed-in value, press the [CLEAR] button.)

(4) Press the [ENTER] or [INTERRUPT] button to store the value. The equipment goes back to the ready state.

(5) Turn the power OFF and then back ON to perform printing job.

(6) If the desired text density has not been attained, repeat step (2) to (5).

3.4.2 Adjustment of image density

The image density level is adjustable both at standard and toner saving modes.

< Adjustment Mode (05) >

Toner mode		Item to be adjusted	Remarks
Standard	Toner saving		
672-0 to 4	676-0 to 4	Adjustment of image density	When the value is decreased, text becomes lighter. Acceptable values: 0 to 63 **Notes:** 1. 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: A0 A1 A2 A3 A4 2. 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.

<Procedure>

(1) While pressing [0] and [5] simultaneously, turn the power ON.

(2) Key in a code and press the [START] button.

(3) Key in the sub code (0, 1, 2, 3 or 4), and press the [START] button.

(4) Key in an adjustment value.
(To correct the keyed-in value, press the [CLEAR] button.)

(5) Press the [ENTER] or [INTERRUPT] button to store the value in memory. The equipment goes back to the ready state.

(6) For resetting the value, repeat step (2) to (5).

(7) Turn the power OFF and then back ON to perform printing job.

(8) If the desired image density has not been attained, repeat step (2) to (7).

3.5 Adjustment of High-Voltage Transformer

When replacing the high-voltage transformer, checking each output adjustment of main charger, developer bias, transfer charger and separation charger is needed.

3.5.1 Adjustment

[1] Preparation

Items to check		Developer Bias	Main Charger	Transfer Charger	Separation Charger
Process Unit		Take off from the equipment. (Not used)			
High-Voltage Transformer Jig		Install the high-voltage transformer jig in the equipment. **Note:** Connect the green cable of the high-voltage transformer jig to ground on the equipment frame. Refer to 🕮 P. 3-27 "[A] Installation of the high-voltage transformer jig".			
Digital Tester	(+) terminal	Connect with the black cable of the high-voltage transformer jig.	Connect with the red cable (thick line) of the high-voltage transformer jig.	Connect with the red cable (thin line) of the high-voltage transformer jig.	
	(–) terminal	Connect with the white cable of the high-voltage transformer jig.			
	Function switch	DC			
	Full-scale (range)	1000 V		2 V	
	Remarks	Use a digital tester with an input resistance of 10 MΩ (RMS value) or higher.			
How to turn ON the power		Attach the door switch jig and start with the adjustment mode [05] while the front cover opened. Then press the front cover opening/closing switch.			
Note		Refer to 🕮 P. 3-29 "[B] Connection for developer bias adjustment".	Refer to 🕮 P. 3-29 "[C] Connection for main charger adjustment".	Refer to 🕮 P. 3-30 "[D] Connection for transfer/separation charger adjustment".	

[A] Installation of the high-voltage transformer jig

(1) Open the bypass tray, ADU and transfer cover.
(2) Open the front cover and take off the toner cartridge.
(3) Disconnect 1 connector. Loosen 2 screws and pull out the process unit.

Note:
Be careful not to let the connector and the harness be caught when installing the process unit after adjustment.

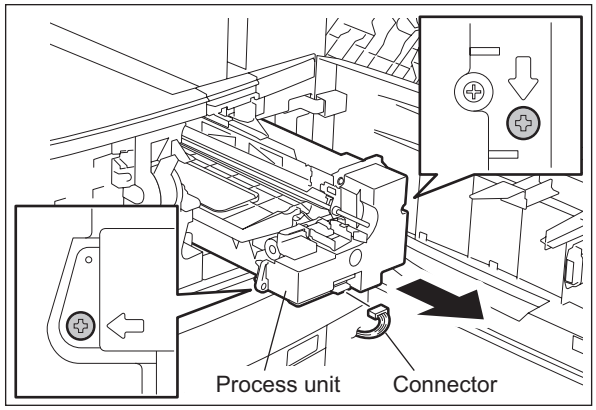


Fig. 3-16

(4) Install the high-voltage transformer jig and fix it with 2 screws.

Note:
Be careful not to let the connector and the harness be caught.

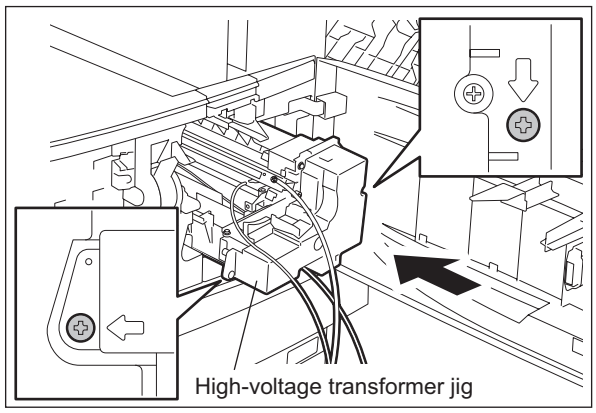


Fig. 3-17

(5) Fix the green cable of the high-voltage transformer jig to the frame of the equipment for grounding.

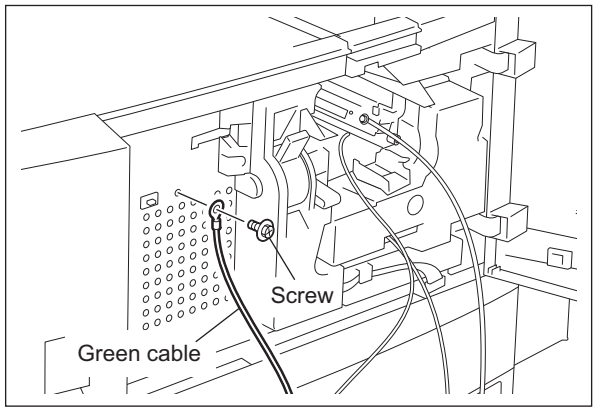


Fig. 3-18

(6) Install the door switch jig.
(7) Close the transfer cover.

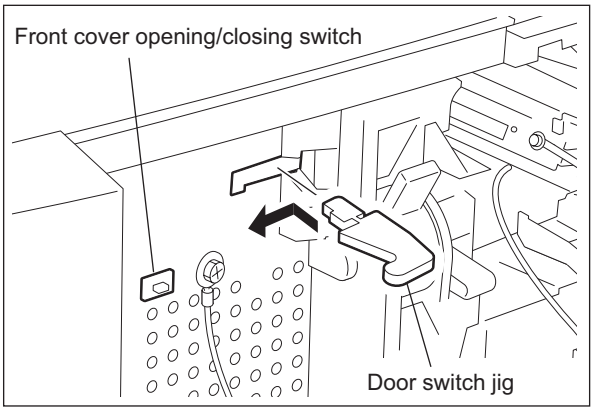


Fig. 3-19

[B] Connection for developer bias adjustment

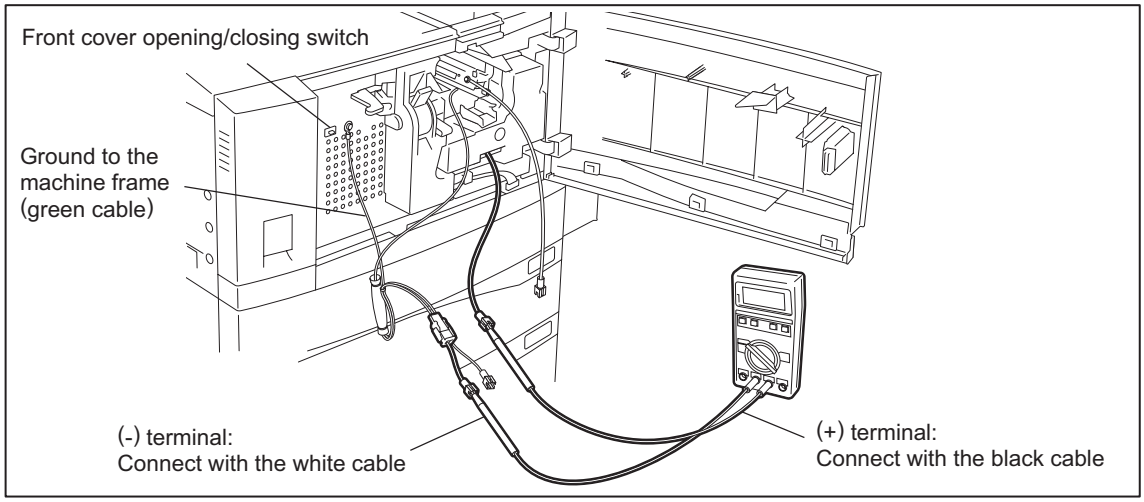


Fig. 3-20

[C] Connection for main charger adjustment

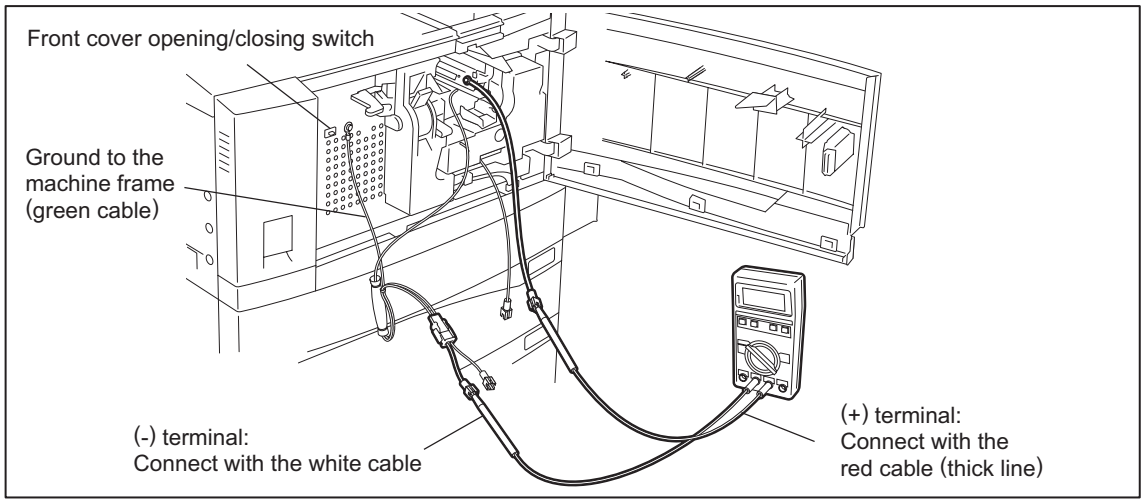


Fig. 3-21

[D] Connection for transfer/separation charger adjustment

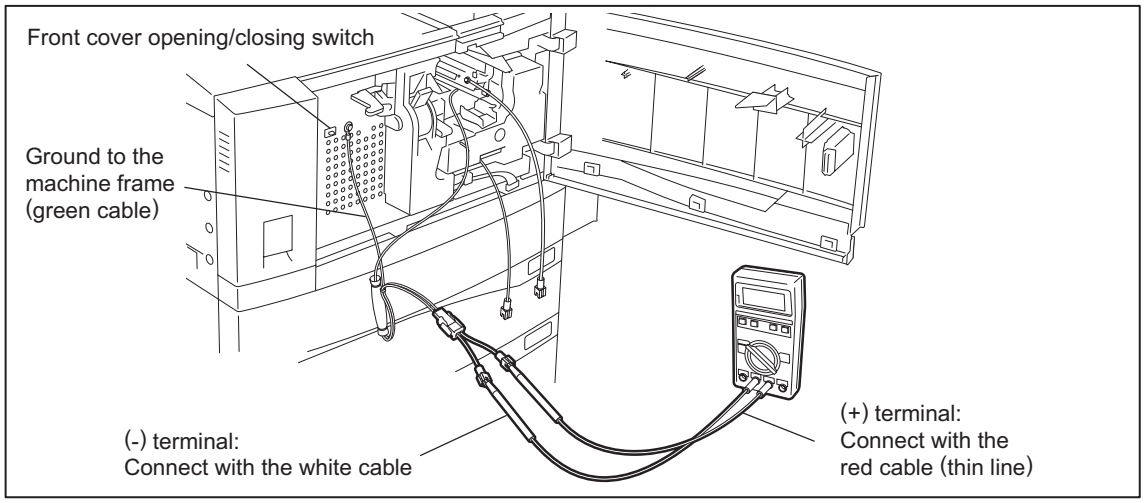


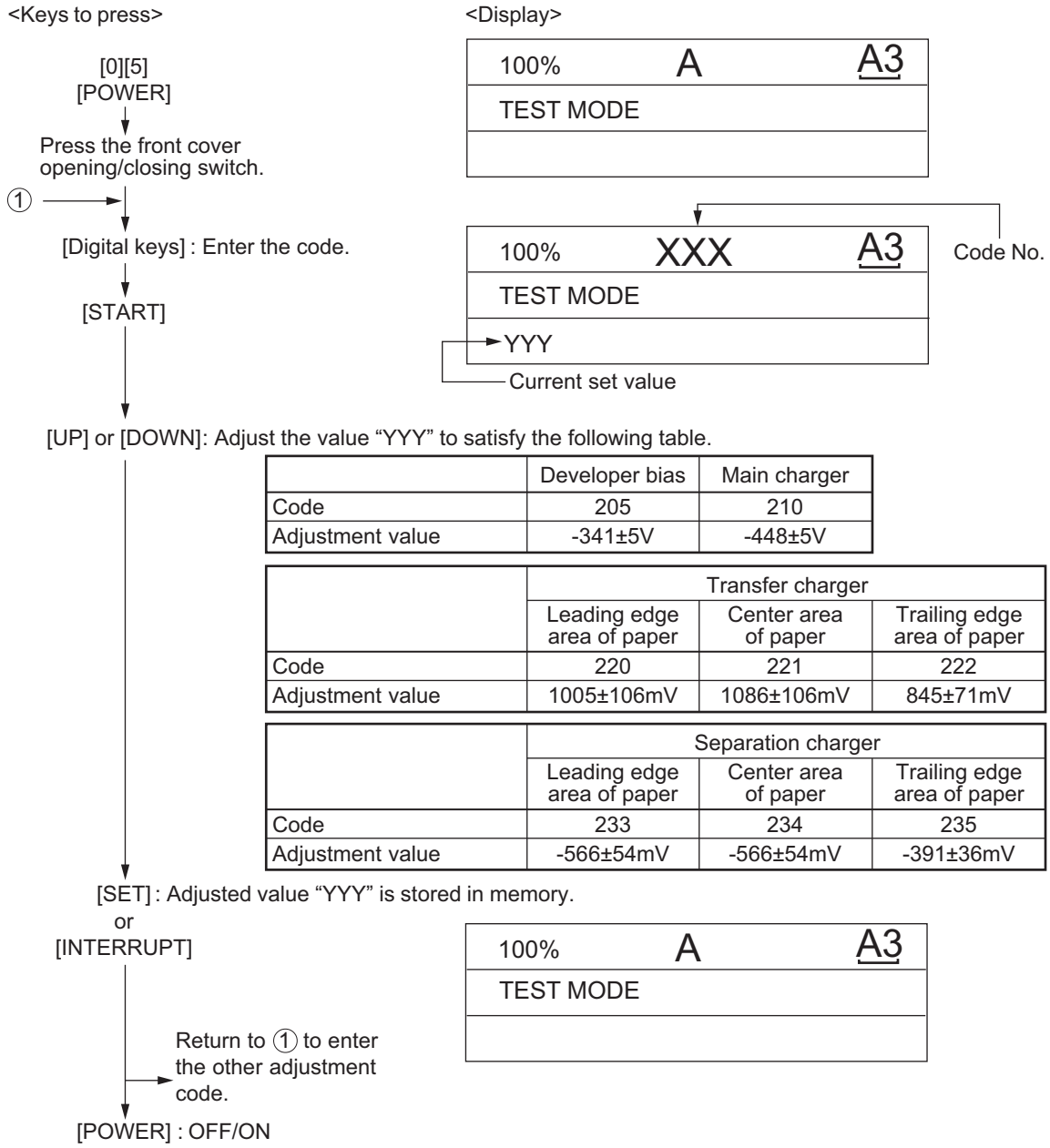
Fig. 3-22

[2] Operation

Note:

When adjusting output of high-voltage transformer, make sure to use the high-voltage transformer jig.

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



	Developer bias	Main charger
Code	205	210
Adjustment value	-341±5V	-448±5V

	Transfer charger		
	Leading edge area of paper	Center area of paper	Trailing edge area of paper
Code	220	221	222
Adjustment value	1005±106mV	1086±106mV	845±71mV

	Separation charger		
	Leading edge area of paper	Center area of paper	Trailing edge area of paper
Code	233	234	235
Adjustment value	-566±54mV	-566±54mV	-391±36mV

Fig. 3-23

3.5.2 Precautions

[1] Developer bias

Note for adjustment

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

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

[2] Transfer

Items to check before adjustment

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

- Is the charger wire incorrectly installed or dirty? Is the transfer guide deformed?
- Is the process unit properly installed? Is the developer magnetic brush in contact with the drum? Is the process unit worked correctly? Is the toner density low?
- Is the copy paper fed straight? Is the copy paper abnormally moist?
- Is the rotation of the registration roller normal?
- Is the separation output different from the set value?
- Is the developer bias value an appropriate one?
- Are the transfer/separation charger case grounded? Is the high-voltage transformer grounded?

Note for adjustment

When blotched image appear:

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

When poor transfer occurs:

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

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

The adjustment code varies according to where blotched image and poor transfer occur. Select the required adjustment code while referring to the following diagram.

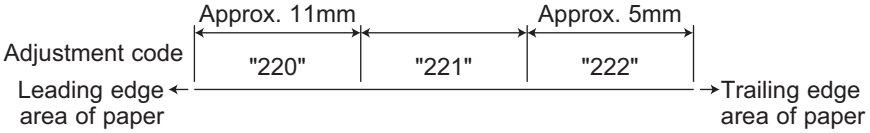


Fig. 3-24

[3] Separation

Items to check before adjustment

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

- Is the charger wire incorrectly installed or dirty?
- Is the process unit installed properly? Is the developer magnetic brush in contact with the drum? Is the process unit worked correctly? Is the toner density low?
- Is the copy paper fed straight? Is the copy paper abnormally moist?
- Is the rotation of the registration roller normal?
- Is the output of the main charger normal?
- Is the developer bias an appropriate value?
- Is the transfer output different from the set value?
- Is the transfer/separation charger case grounded? Is the high-voltage transformer grounded?
- Is the separation finger in contact with the drum surface?

Note for adjustment

When poor paper separation occurs:

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

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

When poor transfer occurs:

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

The adjustment code varies according to where poor paper separation and poor transfer occur. Select the required adjustment code while referring to the following diagram.

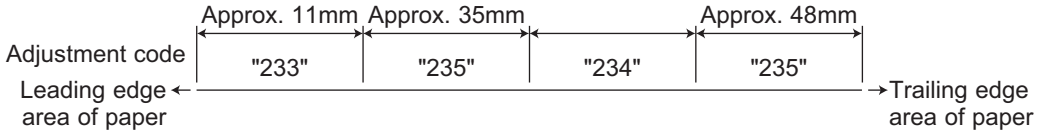


Fig. 3-25

* Adjustment code 235 performs the adjustment for 2 areas.

3.6 Adjustment of the Scanner Section

3.6.1 CIS unit

[A] Replacing the CIS unit

- The CIS unit must not be readjusted and some part of its components must not be replaced in the field since the unit is precisely adjusted. If any of the components is defective, replace the whole unit.
- Handle the CIS unit with care not to contaminate the lens with fingerprints or such.

3.6.2 CIS unit drive belt-1

Adjust the tension of the CIS unit drive belt-1 when installing it.

<Procedure>

(1) Install the tension spring.

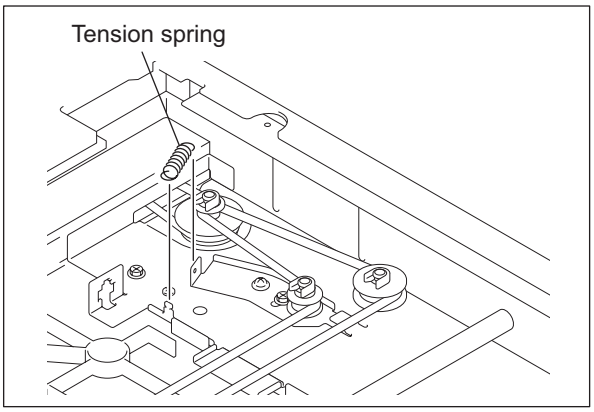


Fig. 3-26

(2) Tighten the tension bracket fixing screw.

Note:
Install the CIS unit drive belt-1 after the tension spring is removed and the tension bracket fixing screw are loosened.

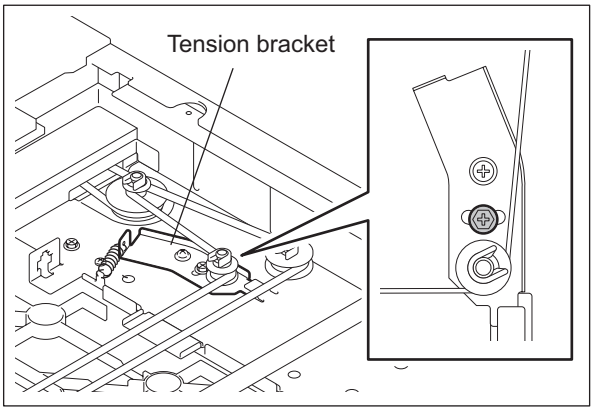


Fig. 3-27

3.6.3 Scan motor (CIS unit drive belt-2)

When installing the scan motor and CIS unit drive belt-2, adjust the tension of the CIS unit drive belt-2 with the belt tension jig.

<Procedure>

(1) Temporarily fix screws A and B.

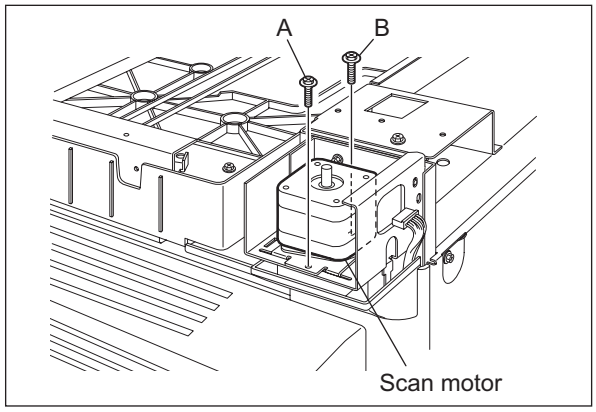


Fig. 3-28

(2) Hook the belt tension jig on the motor bracket and frame.

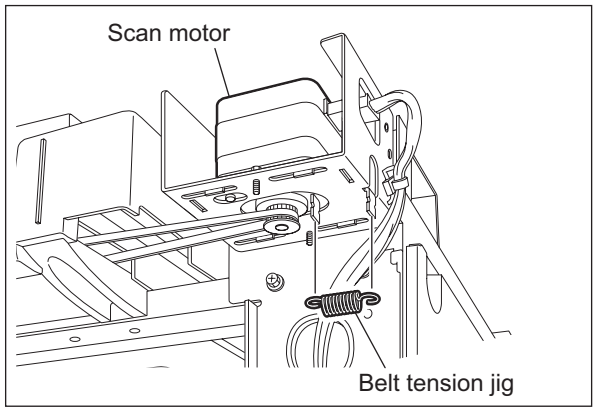


Fig. 3-29

(3) Tighten screws A and B where the scan motor pulled by the belt tension jig stops.

3.7 Adjustment of the Paper Feeding System

3.7.1 Sheet sideways deviation caused by paper feeding

<Procedure>

The center of the printed image shifts to the front side. → Move the guide to the front side (Arrow (A) direction in the lower figure).

The center of the printed image shifts to the rear side. → Move the guide to the rear side (Arrow (B) direction in the lower figure).

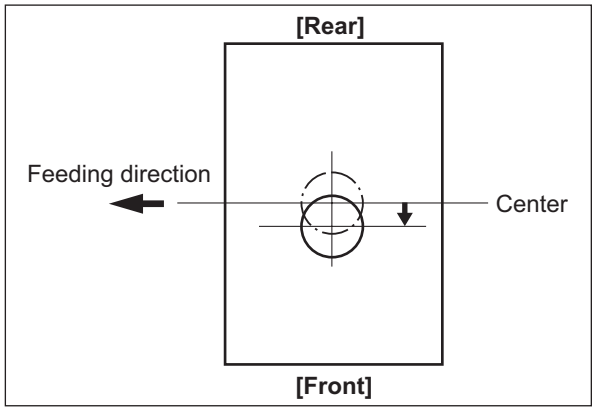


Fig. 3-30

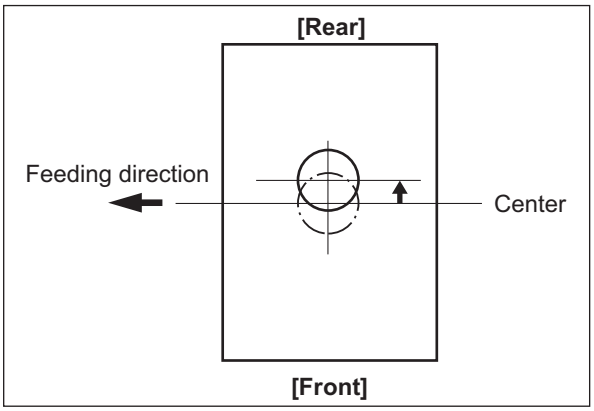


Fig. 3-31

Bypass feeding

1) Loosen the screen.
2) Move the entire guide to the front or rear side.
3) Tighten the screw.

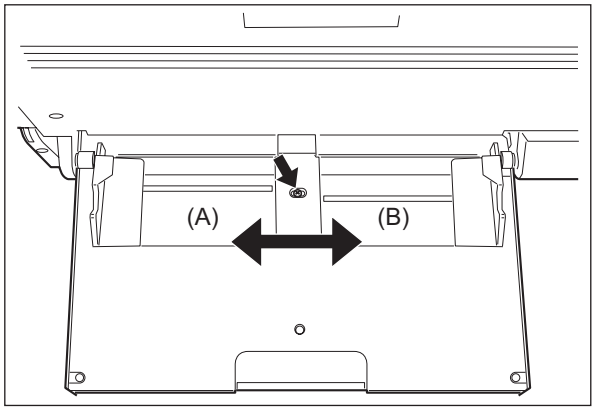


Fig. 3-32

Drawer feeding

(1) Loosen 3 screws.
(2) Move the entire guide to the front or rear side.
(3) Tighten the 3 screws.

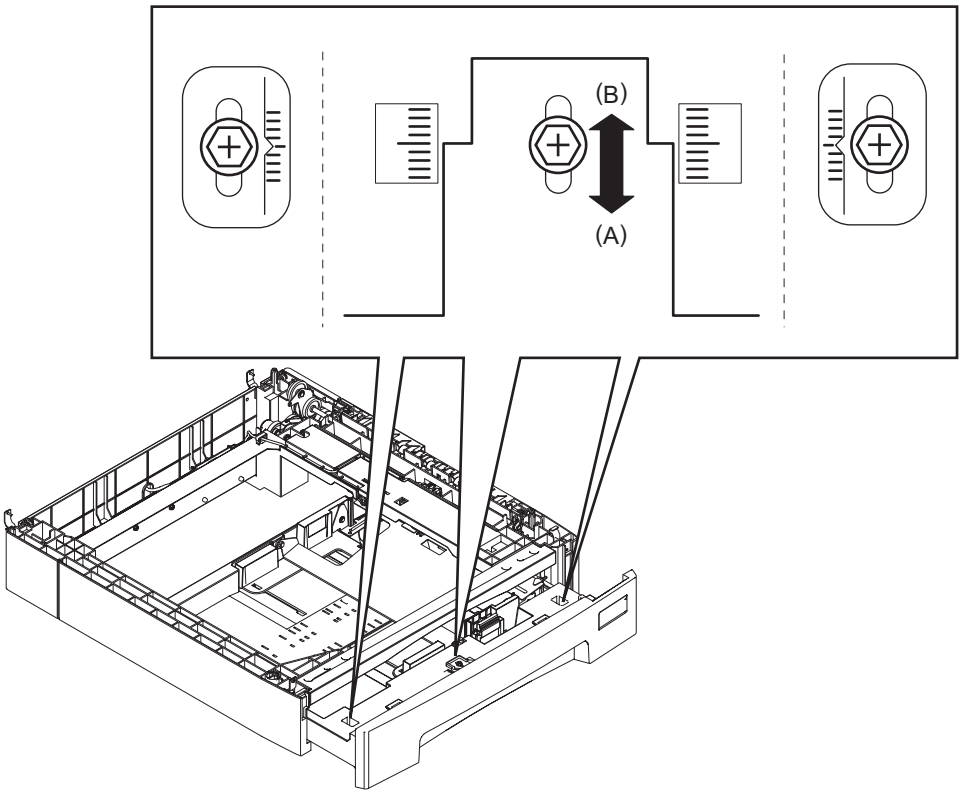


Fig. 3-33

3.8 Adjustment of Developer Unit

3.8.1 Doctor-to-sleeve gap

Adjustment tool to use: Doctor-sleeve jig
<Procedure>

(1) Perform the adjustment code “05-280”.

(2) Take out the process unit from the equipment.

(3) Take out the developer unit from the process unit.

(4) Remove 2 screws and take off the developer material cover and discharge the developer material.

Note:
Discharge the developer material from the rear side, being careful not to let it be scattered on the gear.

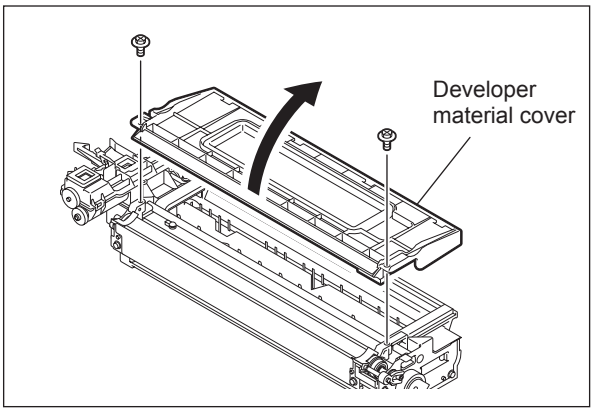


Fig. 3-34

(5) Turn the adjustment screw to widen the gap so that the jig can be inserted in it.
(Turning the screw clockwise widens the gap)

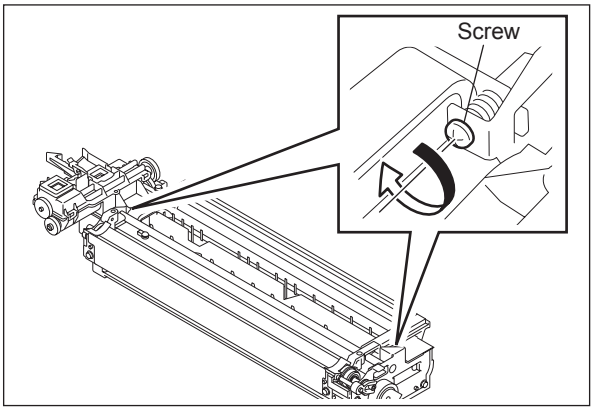


Fig. 3-35

(6) Insert the gauge with the thickness “0.45” of the doctor sleeve jig into the gap between the developer sleeve and doctor blade after lifting up the toner scattering prevention sheet.
Adjust the screws with the doctor blade to push the doctor sleeve jig lightly.

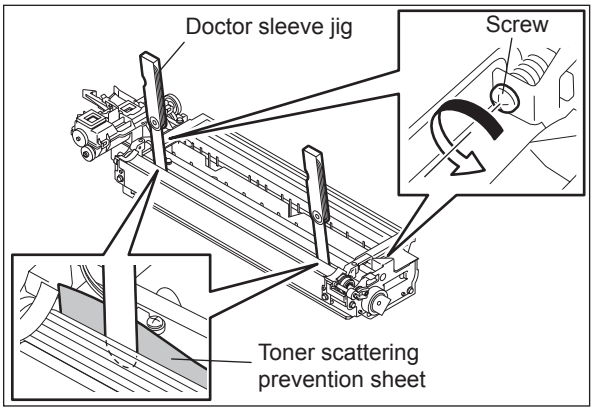


Fig. 3-36

(7) Insert the gauge “0.40” of the doctor sleeve jig into the gap between the developer sleeve and doctor blade. Confirm that the jig moves smoothly to the front and rear side, and the gauge “0.50” cannot be inserted into the gap.

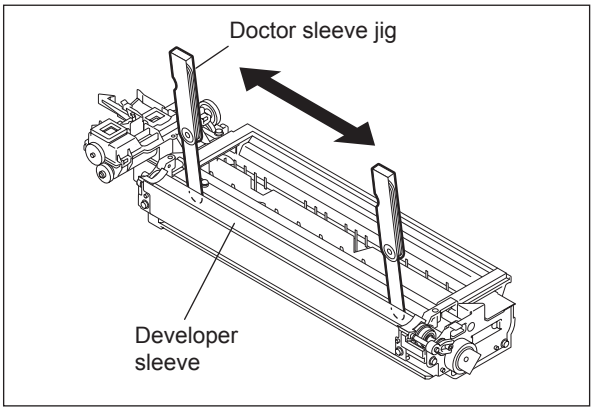


Fig. 3-37

(8) Confirm that the side seals are attached on the toner scattering prevention sheet.

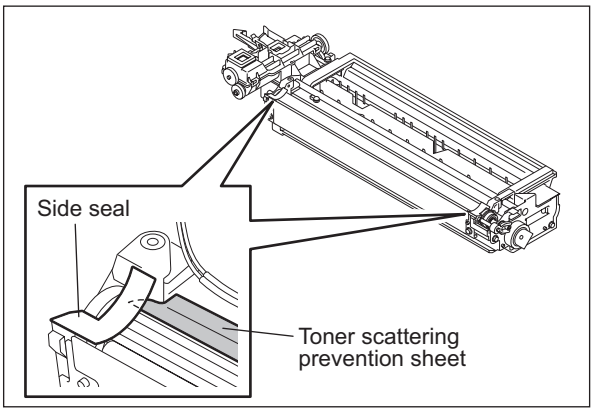


Fig. 3-38

(9) Attach the developer material cover and tighten 2 screws.

Note:

After the developer material has been replaced, adjust the auto-toner sensor. (See 🕮 P. 3-1 "3.1 Adjustment of Auto-Toner Sensor".)

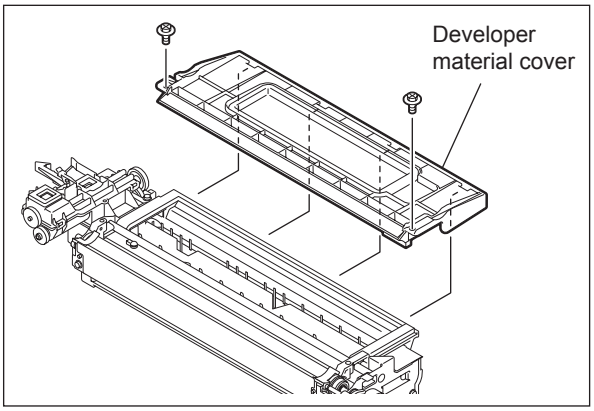


Fig. 3-39

3.9 Adjustment of the ADF (MR-2017)

3.9.1 Adjustment of ADF Position

Perform this adjustment when the ADF is not installed in the correct position.

Note:
Check if the image adjustment for the equipment is performed properly before this adjustment of the ADF.

[A] Checking

(1) Open the ADF and install 2 positioning pins (the positioning pins are installed to the back side of the hinge which is on the left side of the ADF).

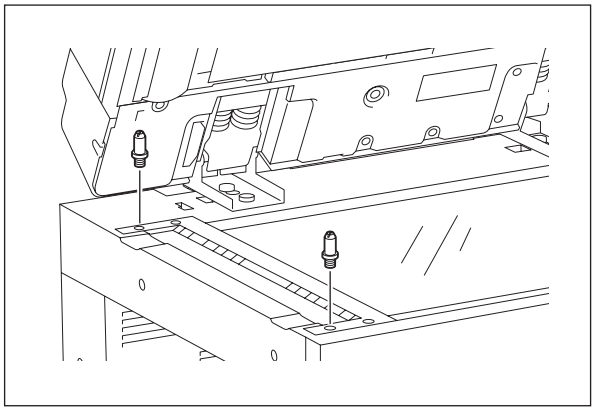


Fig. 3-40

(2) Remove the platen sheet.

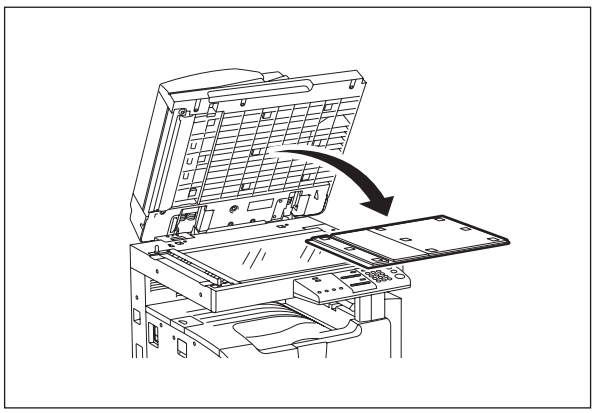


Fig. 3-41

(3) Close the ADF and check if the positioning pins fit the holes on the ADF.

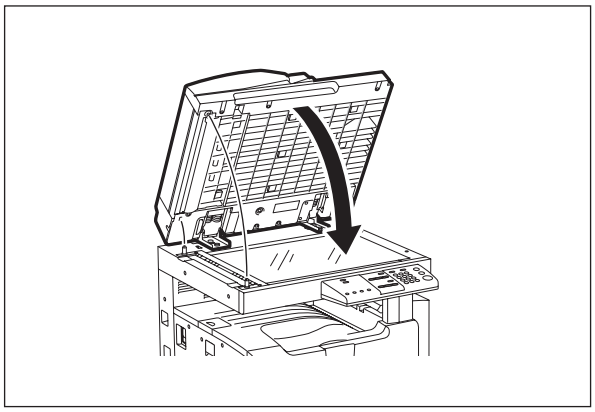


Fig. 3-42

[B] Adjustment

If the pins cannot be fitted into the holes, perform the adjustment according to the following procedure.

(1) Remove the right-hand hinge screw at the rear side.

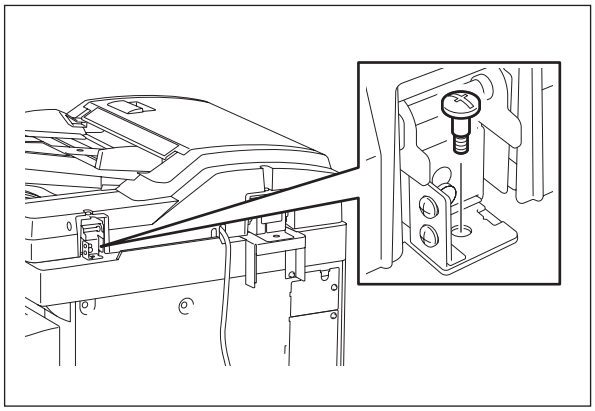


Fig. 3-43

(2) Loosen the left-hand hinge screw at the rear side.

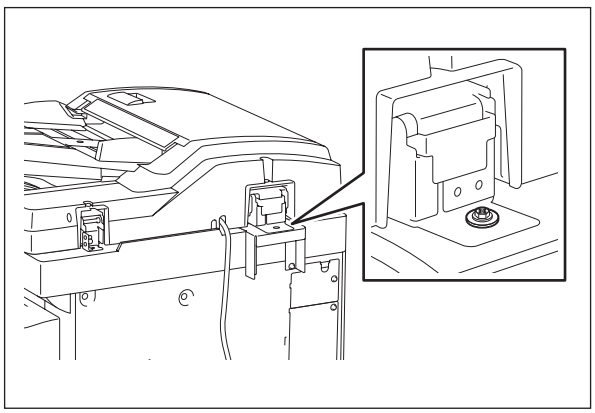


Fig. 3-44

(3) Loosen the hinge screws at the front side.

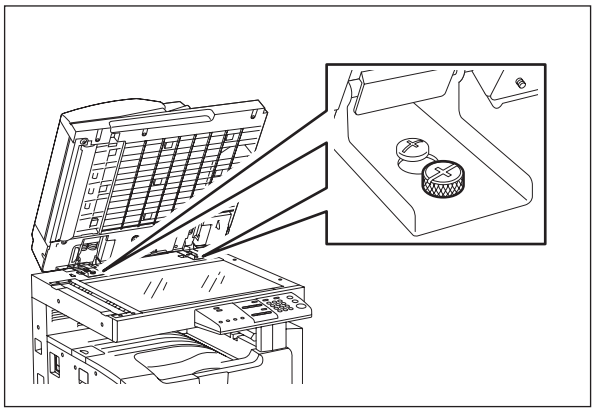


Fig. 3-45

(4) Position the pins with the holes on the ADF by moving it so that the pins fit into the holes when the ADF is closed.

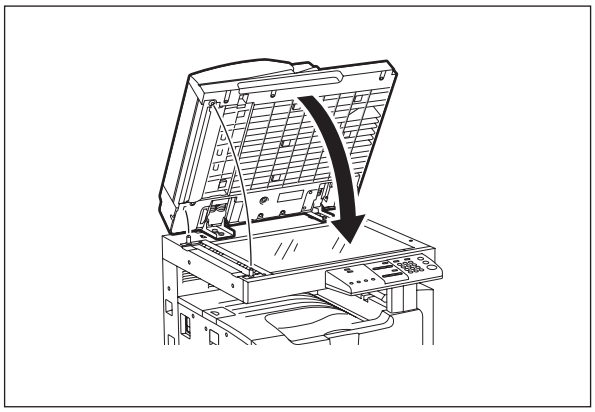


Fig. 3-46

(5) Tighten the left-hand hinge screw at the rear side.

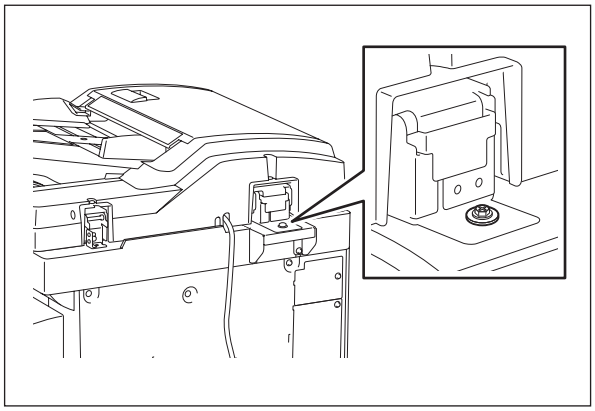


Fig. 3-47

(6) Loosen the hole position adjustment screws on the right hand side.

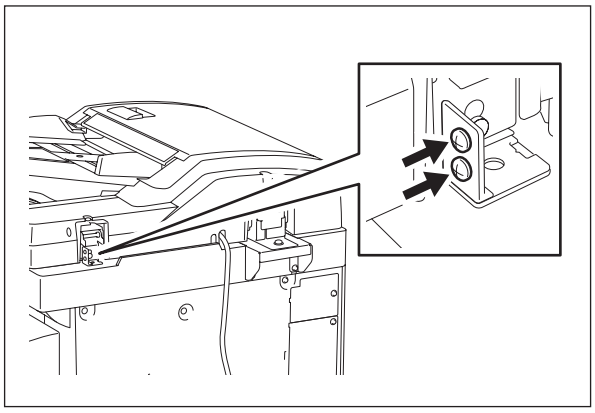


Fig. 3-48

(7) Match the screw hole positions.

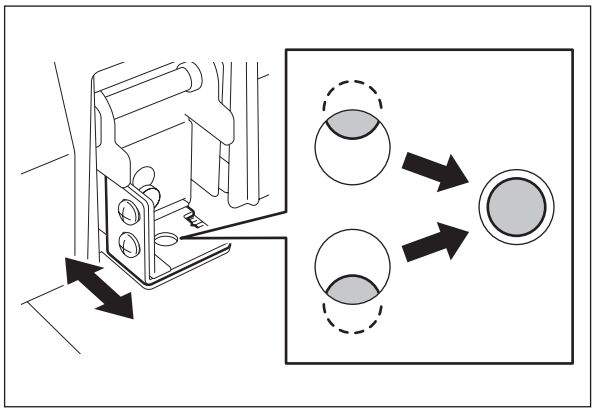


Fig. 3-49

(8) Install the right-hand hinge screw at the rear side.

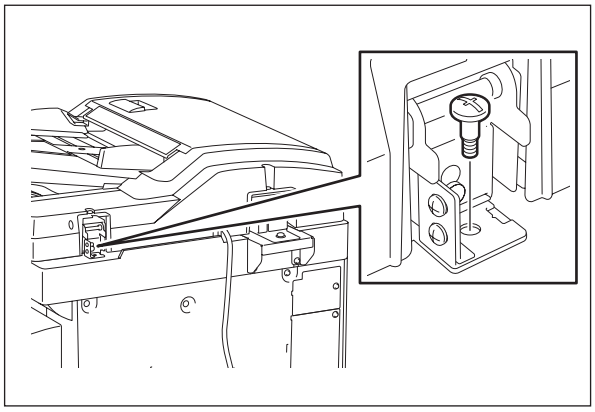


Fig. 3-50

(9) Loosen the hinge screws at the front side.

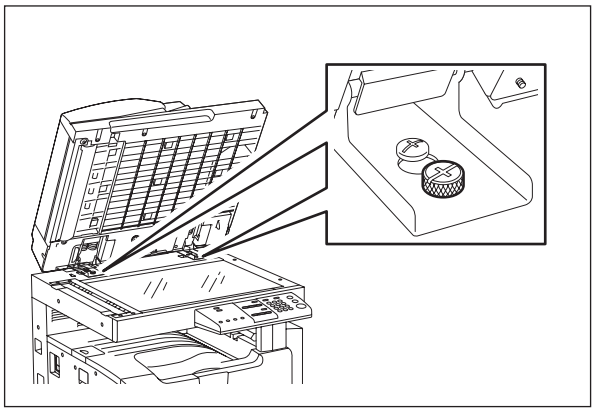


Fig. 3-51

(10) Place the platen sheet on the original glass and align it to the top left corner.
Close the ADF gently and open it to check if the platen sheet is attached properly.

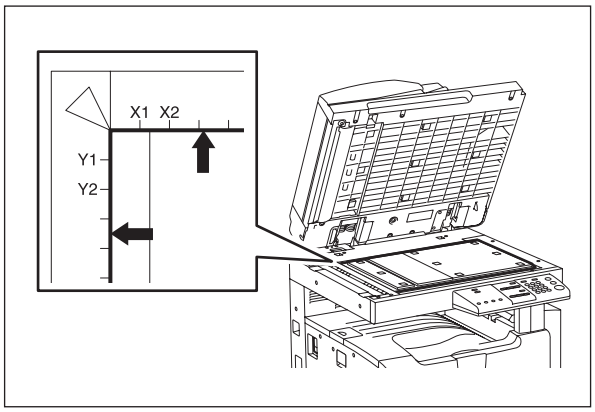


Fig. 3-52

3.9.2 Adjustment of ADF Height

Note:

Check if the image adjustment for the equipment is performed properly before this adjustment of the ADF.

[A] Checking

(1) Close the ADF.
(2) Light the exposure lamp.
- Turn the power ON while pressing [0] and [4] simultaneously.
- Key in [267] and then press the [START] button. The exposure lamp is turned ON for a given length of time.

(3) Visually check the gap between platen guide holder “A” and upper surface of the original glass “B” from the left hand side of the equipment. If the value is not within the tolerance, perform the adjustment according to the following procedure.

[Tolerance of the gap]
Rear side: 0 - 0.5 mm
Front side: 0 mm

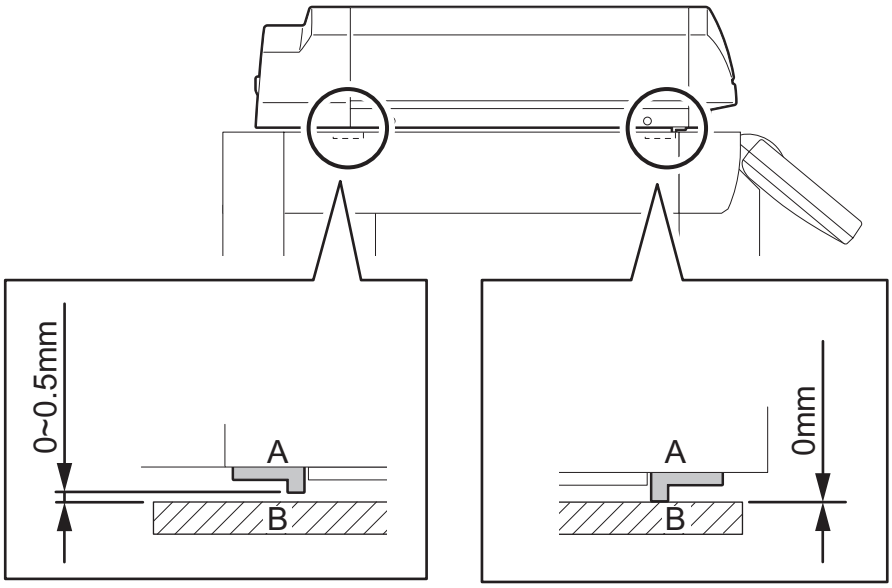


Fig. 3-53

[B] Adjustment

(1) Close the ADF.
(2) Adjust it by turning the adjustment screws on the hinges.
- Adjust the height on the rear side by means of the screw on the hinge on the feed side of the ADF.

Turn it clockwise ..... Heightened
Turn it counterclockwise ..... Lowered

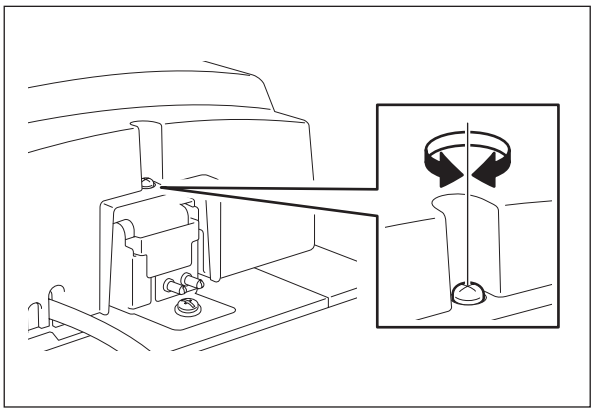


Fig. 3-54

- Adjust the gap on the rear side by means of the screw on the hinge on the feed side of the ADF.

Turn it clockwis ..... Lowered
Turn it counterclockwise ..... Heightened

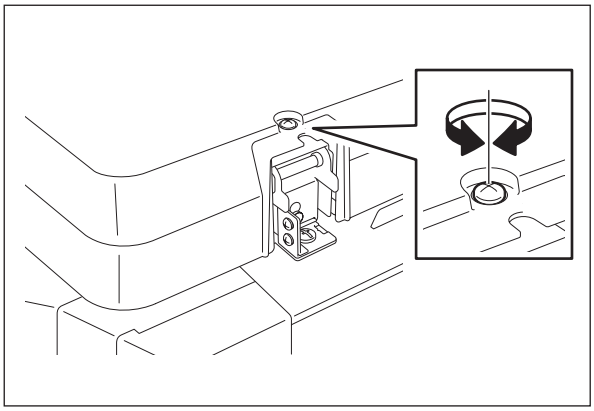


Fig. 3-55

3.9.3 Adjustment of Skew

Note:
Check if the image adjustment for the equipment is performed properly before this adjustment of the RADF. Also, the RADF position and height shall be adjusted properly.

[A] Checking

Check the image using the chart (original) with vertical and horizontal lines in the following procedure.

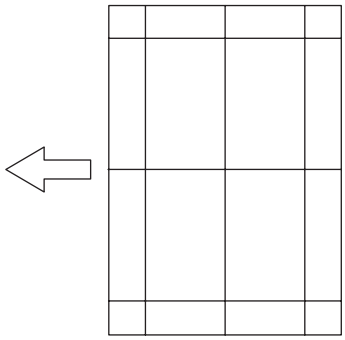


Fig. 3-56 Chart (Original)

(1) Place the chart provided as an original with its face up on the original tray of the ADF, select [1 Sided -> 1 Sided] and press the [START] button.
(2) Superimpose the chart on the copy and check the inclination of the copy image.

[B] Adjustment

(1) Shift the aligning plate with the scale as the guide shown in the figure below to adjust the skew.

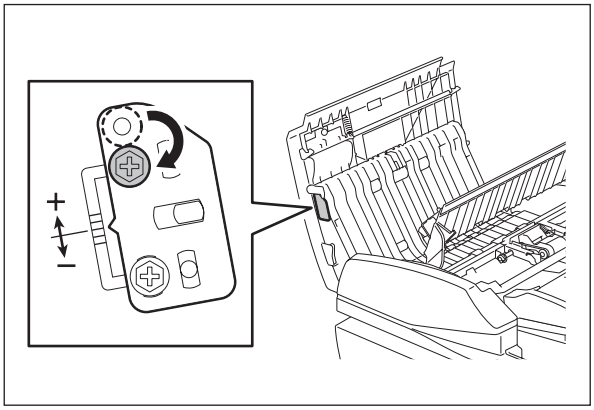


Fig. 3-57

(2) If the image skew is “C” as shown in the figure below, shift the aligning plate in the direction of “+”, and if “D”, shift it to “-”.

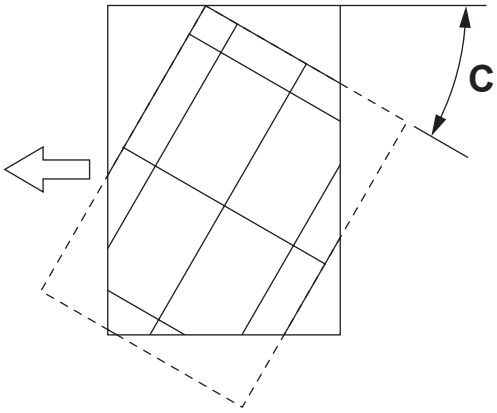


Fig. 3-58

Shift the aligning plate in the direction of “+”.

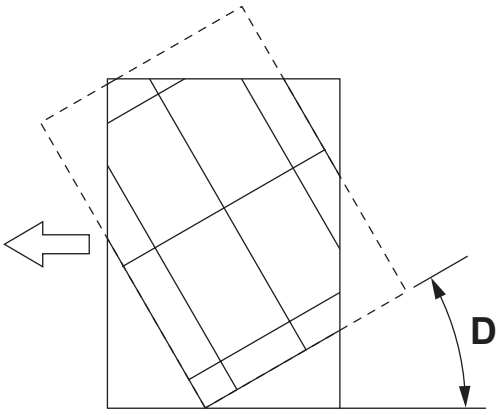


Fig. 3-59

Shift the aligning plate in the direction of “-”.

3.9.4 Adjustment of the Leading Edge Position

Note:
Check if the image adjustment for the equipment is performed properly before this adjustment of the ADF. Also, the ADF position and height shall be adjusted properly.

[A] Checking

Check the image using the chart (original) with vertical and horizontal lines in the following procedure.

(1) Place the chart provided as an original with its face up on the original tray of the ADF, select [1 Sided -> 1 Sided] and press the [START] button.
(2) Superimpose the chart on the copy and check the leading edge E of the chart and F of the copy.

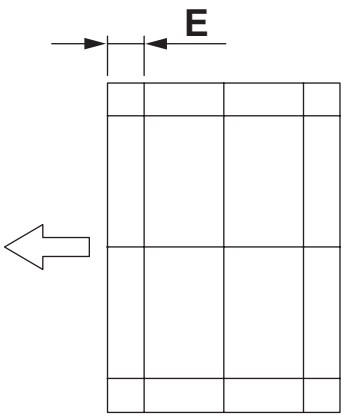


Fig. 3-60 Chart (Original)

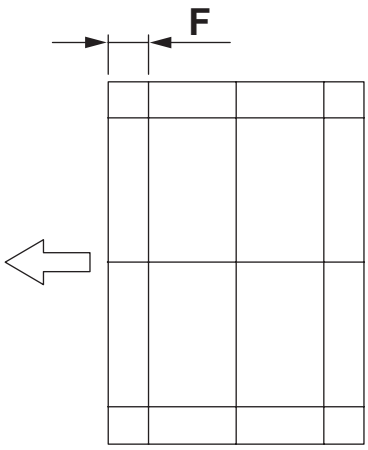


Fig. 3-61 Copy

[B] Adjustment

(1) Turn the power ON while pressing [0] and [5] simultaneously, key in [365] and then press the [START] button.
(2) Enter the value.
- If the leading edge (F) margin of the copy image is larger than the (E) margin of the chart, enter a value smaller than the current one.

Note:
Changing one value shifts the copy image by 0.1 mm.

- If the leading edge (F) margin of the copy image is smaller than the (E) margin of the chart, enter a value larger than the current one.

Note:
Changing one value shifts the copy image by 0.1 mm.

(3) Press the [ENTER] button.

3.9.5 Adjustment of Horizontal Position

Note:
Check if the image adjustment for the equipment is performed properly before this adjustment of the ADF. Also, the ADF position and height shall be adjusted properly.

[A] Checking

Check the image using the chart (original) with a center line in the following procedure.

(1) Place the chart provided as an original with its face up on the original tray of the ADF.
(2) Press the [START] button.
(3) Fold the copy in half and check if the center line is misaligned.

[B] Adjustment

(1) Turn the power ON while pressing [0] and [5] simultaneously.
(2) Key in [358] and then press the [START] button.
- If the center line of the copy image is shifted to the front side of the equipment, enter a value larger than the current one.

Note:
Changing one value shifts the copy image by 0.042 mm.

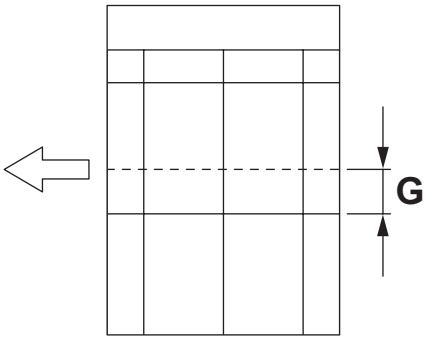


Fig. 3-62

- If the center line of the copy image is shifted to the rear side of the equipment, enter a value smaller than the current one.

Note:
Changing one value shifts the copy image by 0.042 mm.

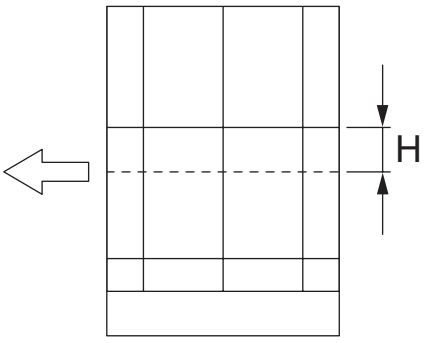


Fig. 3-63

(3) Press the [ENTER] button.

3.9.6 Adjustment of Copy Ratio

Note:
Check if the image adjustment for the equipment is performed properly before this adjustment of the ADF. Also, the ADF position and height shall be adjusted properly.

[A] Checking

Check the image using the chart (original) with vertical and horizontal lines in the following procedure.

(1) Place the chart provided as an original with its face up on the original tray of the ADF.
(2) Press the [START] button.
(3) Superimpose the chart on the copy and check the image dimension “l”.

[B] Adjustment

(1) Turn the power ON while pressing [0] and [5] simultaneously.
(2) Key in [357] and then press the [START] button.
- If the copy image dimension “l” is larger than the chart dimension, enter a value smaller than the current one.
- If the copy image dimension “l” is smaller than the chart dimension, enter a value larger than the current one.

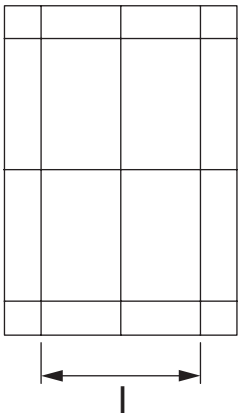


Fig. 3-64

(3) Press the [ENTER] button.

3.9.7 Adjustment of ADF Opening/Closing Sensor

Adjust the bracket position so that the sensor is turned ON when the height “A” becomes 100 mm or less (within the empty weight falling limit).

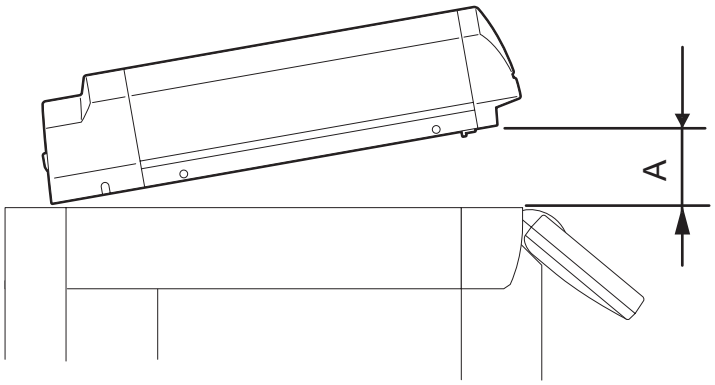


Fig. 3-65

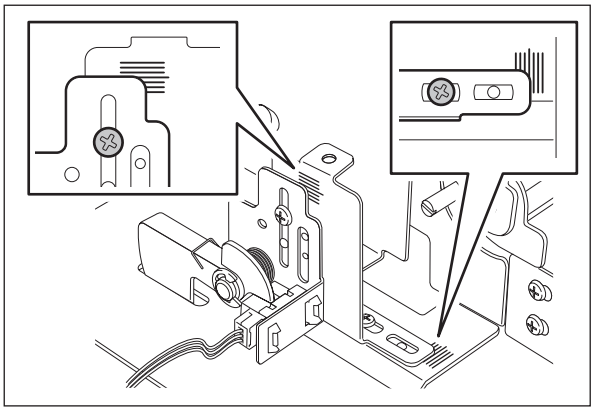


Fig. 3-66

4. PREVENTIVE MAINTENANCE (PM)

4.1 General Descriptions for PM Procedure

Perform the preventive maintenance in the following timing.
e-STUDIO163: every 72,000 sheets
e-STUDIO203: every 90,000 sheets

(1) Preparation
- Ask the user about the current conditions of the equipment and note them down.
- Before starting maintenance, make some sample copies and store them.
- See the replacement record and check the parts to be replaced in the list printing mode (T.B.D).
  T.B.D

Fig. 4-1

- Turn OFF the power and make sure to unplug the equipment.

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

(3) Plug in the equipment after the maintenance has been finished. Then turn ON the power and make some copies to confirm that the equipment is working properly.

4.2 Operational Items in Overhauling

Overhaul each equipment with the following timing.

e-STUDIO163: When the number of output pages has reached 216,000 or 2.5 years have passed from the start of use (Whichever is earlier)

e-STUDIO203: When the number of output pages has reached 270,000 or 2.5 years have passed from the start of use (Whichever is earlier)

(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 Mylar 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 equipment thoroughly.

4.3 Preventive Maintenance Checklist

Symbols used in the checklist

Cleaning	Lubrication/Coating	Replacement	Operation check
A: Clean with alcohol B: Clean with soft pad, cloth or vacuum cleaner	L: Launa 40 SI: Silicon oil W1: White grease (Molykote X5-6020) W2: White grease (Molykote HP-300) AV: Alvania No.2 FL: Floil (GE-334C)	Value: Replacement cycle (Value x 1000) R:Replace if deformed or damaged	O: After cleaning or replacement, confirm there is no problem.

[Preventive Maintenance checklist]

Notes:

1. Perform cleaning and lubricating in the following timing.
   Exceptionally, the lubrication for the drum unit, main charger, color developer unit and transfer unit must follow the PM cycle of each unit.
   e-STUDIO163: every 72,000 sheets
   e-STUDIO203: every 90,000 sheets
2. Value under “Replacement” indicates the replacement cycle for e-STUDIO163/ e-STUDIO203.
3. The replacement cycle of the parts for the charge, development and transfer in copying process is not indicated by the number of output pages (sheet), but the develop counts (development).
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.
6. Page-Item (P-I) is described in the column of the Parts list.

A. Scanner

Items to check		Cleaning	Lubrication	Replacement (x 1,000 sheets)	Operation check	Parts list <P-I>	Remarks
A1	Original glass	B or A				T.B.D	*a1
A2	ADF original glass	B				T.B.D	*a1
A3	Slide sheet (front and rear)	B or A		R			

B. Laser unit

Items to check		Cleaning	Lubrication	Replacement (x 1,000 sheets)	Operation check	Parts list <P-I>	Remarks
B1	Slit glass	B					

C. Feed unit

Items to check		Cleaning	Lubrication	Replacement (x 1,000 sheets)	Operation check	Parts list <P-I>	Remarks
C1	Pickup roller			T.B.D		T.B.D	
C2	Paper guide	B					
C3	Drive gear (tooth face and shaft)		W1				*c1
C4	GCB bushing bearing		L				
C5	One side of the plastic		W1				
C6	Registration roller	A		R			

D. ADF (MR-2017)

Items to check		Cleaning (30K)	Lubrication	Replacement (x 1,000 sheets)	Operation check	Parts list <P-I>	Remarks
D1	Pickup roller	A		90		T.B.D	
D2	Separation roller	A		90		T.B.D	
D3	Feed roller	A		90		T.B.D	
D4	Registration roller	A				T.B.D	
D5	Intermediate transfer	A				T.B.D	
D6	Front read roller	A				T.B.D	
D7	Rear read roller	A				T.B.D	
D8	Exit/reverse roller	A				T.B.D	
D9	Platen sheet	B or A				T.B.D	

E. Bypass feed unit

Items to check		Cleaning	Lubrication	Replacement (x 1,000 sheets)	Operation check	Parts list <P-I>	Remarks
E1	Pickup roller			T.B.D		T.B.D	
E2	Feed roller			T.B.D		T.B.D	
E3	Separation pad		-	T.B.D		T.B.D	
E4	Bypass tray	B					
E5	Drive gear (tooth face and shaft)		W1				
E6	GCB bushing bearing		L				

F. Main charger

Items to check		Cleaning	Lubrication	Replacement (KD)	Operation check	Parts list <P-I>	Remarks
F1	Main charger case	B				T.B.D	*f1
F2	Needle electrode			72/90			*f1
F3	Contact point of terminals	B					
F4	Main charger wire cleaner			R	○	T.B.D	
F5	Main charger grid			72/90		T.B.D	

G. Transfer / Separation charger

Items to check		Cleaning	Lubrication	Replacement (KD)	Operation check	Parts list <P-I>	Remarks
G1	Charger case	B				T.B.D	*g1
G2	Transfer charger wire			72/90	○	T.B.D	*g1
G3	Separation charger wire			72/90	○	T.B.D	*g1
G4	Pre-transfer guide	B or A					
G5	Post-transfer guide	B or A					
G6	Terminal cover	B					
G7	Contact point of terminals	B					
G8	Transfer guide roller	B		R		T.B.D	

H. Drum/Cleaner related section

Items to check		Cleaning	Lubrication	Replacement (KD)	Operation check	Parts list <P-I>	Remarks
H1	Photoconductive drum			72/90			Chap. 4.7.2
H2	Discharge LED	B					
H3	Whole cleaner unit	B					
H4	Drum cleaning blade			72/90		T.B.D	*h1
H5	Separation finger for drum			72/90			*h2
H6	Recovery blade	B		72/90		T.B.D	*h3
H7	Ozone filter			144/180		T.B.D	

I. Developer unit / Toner cartridge related section

Items to check		Cleaning	Lubrication	Replacement (x 1,000 sheets)	Operation check	Parts list <P-I>	Remarks
I1	Whole developer unit	B					
I2	Developer material			72/90			*i1
I3	Front shield	B		R			
I4	Oil seal (6 pcs.)		AV	360/450		T.B.D	*i2
I5	Guide roller	B or A					
I6	Side shield	B		R			
I7	Developer unit lower stay	B					
I8	Toner cartridge drive gear shaft		W1				

J. Fuser unit

Items to check		Cleaning	Lubrication	Replacement (x 1,000 sheets)	Operation check	Parts list <P-I>	Remarks
J1	Fuser roller			144/180		T.B.D	
J2	Pressure roller			144/180		T.B.D	
J3	Separation finger for fuser roller			144/180		T.B.D	*j1
J4	Fuser unit entrance guide	A				T.B.D	
J5	Thermistor (3 pcs.)	A		R		T.B.D	*j2
J6	Drive gear (tooth face and shaft)		W2	R		T.B.D	
J7	Fuser roller gear			R		T.B.D	
J8	Exit roller	A		R		T.B.D	

K. PFU (MY-1027)

Items to check		Cleaning	Lubrication	Replacement (x 1,000 sheets)	Operation check	Parts list <P-I>	Remarks
K1	Pickup roller (upper/lower)			T.B.D		T.B.D	
K2	Feed roller (upper/lower)			T.B.D		T.B.D	

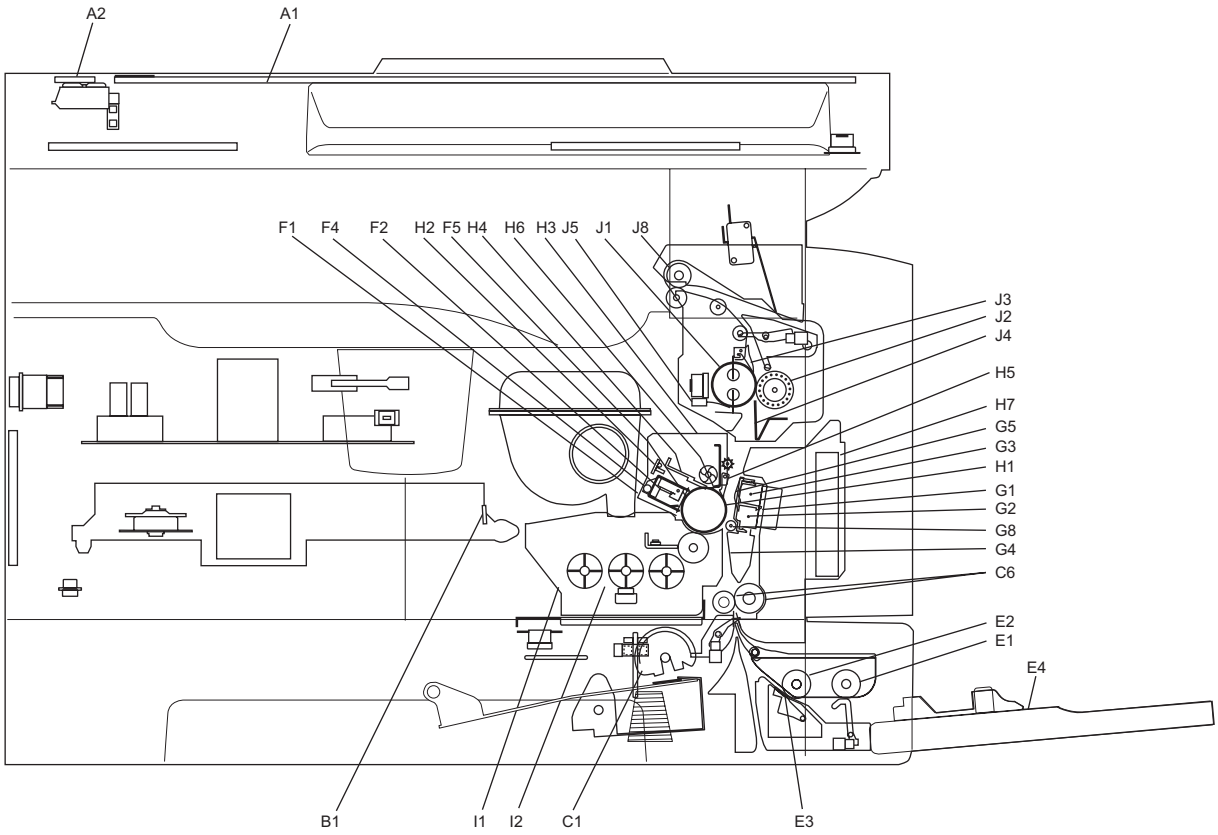


Fig. 4-2 Front side

4

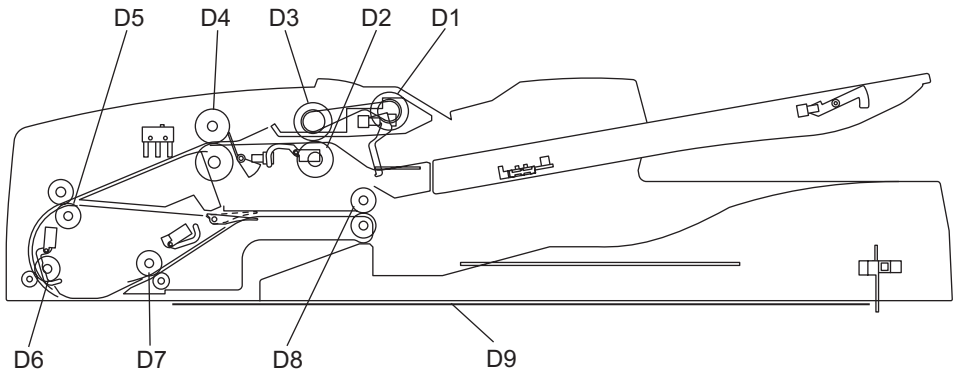


Fig. 4-3 Automatic Document Feeder (ADF)

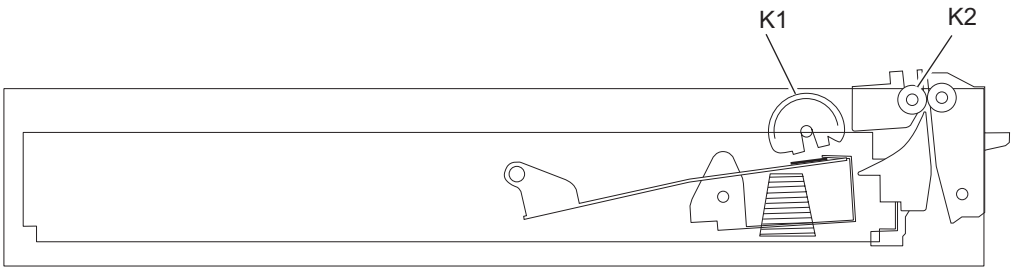


Fig. 4-4 Paper Feed Unit (PFU)

Remarks "*" in the Preventive Maintenance Check List

* a1. Original glass / ADF original glass
Clean both sides of the original glass and ADF original glass.
Make sure that there is no dust after cleaning. Then install the original glass and ADF 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.

* c1. Drive gears in the paper feeding section (teeth of gears and shafts)
Apply some white grease (Molykote X5-6020) to the teeth of gears 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 Molykote to the gear which is located near the clutch. The quantity of Molykote should be smaller than that to be applied to the other parts.

* f1. Main charger case / Needle electrode
Clean the main charger case with a cloth soaked in water and squeezed tightly, and then wipe them with a dry cloth.
Clean the needle electrode only with the main charger cleaner.
Replace the needle electrode with a new one if it is damaged regardless of the number of output pages which have been mode.

Note:
Do not touch the needle electrode with your bare hand when attaching the needle electrode.

* g1. Transfer / separation charger case and transfer / separation wire
Clean the transfer / separation charger case with a cloth soaked in water and squeezed tightly, and then wipe them with a dry cloth.
Replace the wire with a new one if it is damaged regardless of the number of output pages which have been mode.

Notes:
- Do not deform the metal plate of the transfer guide roller.
- Be careful of the following when attaching a new wire (length: 353 mm)
  - 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.

* h1. Drum cleaning blade
Since the edge of the blade is vulnerable and can be easily damaged by factors such as the adherence of paper dust. Replace the cleaning blade with new ones if poor images are printed due to the damaged blade regardless of the number of output pages if which have been made.

* h2. Separation fingers for 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 output pages 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 powder to the tip of the fingers and drum surface after replacing or cleaning them to reduce the load on the drum surface by the finger.

* h3. Recovery blade
Replace the recovery blade regardless the number of output pages if the edge of the blade get damaged.

* i1. Developer material
After replacing the developer material, be sure to perform the auto-toner adjustment.
(📖 P. 3-1 "3.1 Adjustment of Auto-Toner Sensor")

* i2. Oil seal (Developer unit)
Mixer unit (Shafts of mixers-1, -2 & -3) 6 pcs.

Note:
Lubricate the oil seal only when the oil seal is replaced.

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

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

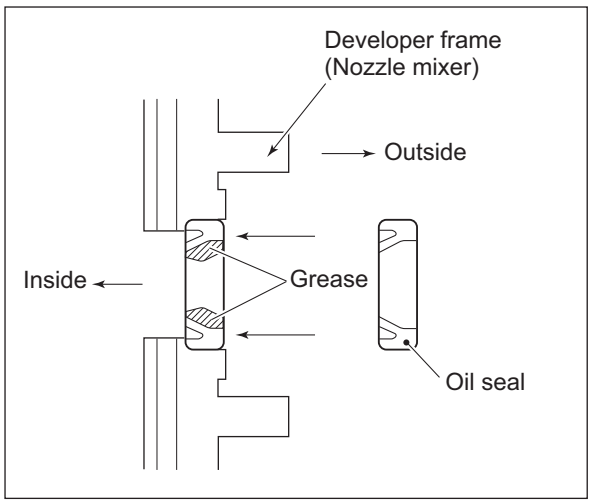


Fig. 4-5

* j1. Separation fingers for fuser roller
The paper jam may be caused if the tip of the finger is damaged or deformed. If there is any problem with it, replace the finger with a new one regardless of the number of output pages 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.

* j2. 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.

4.4 PM KIT

Item	Product name	Part name	Qty.
DEV-KIT-2340	Developer material	D-2320	1
	Drum cleaning blade	BL-2320D	1
	Separation finger for drum	SCRAPER-371	2
	Recovery blade	BLADE-REC	1
	Main charger grid	GRID-CH-M-371	1
	Needle electrode	CH-M	1
	Transfer charger wire	WIRE-CH-060-353-R	1
	Separation charger wire	WIRE-CH-060-353-R	1
FR-KIT-1640	Ozone filter	FILTER-OZON-TRU-371	1
	Fuser roller	HR-1640-U	1
	Pressure roller	HR-1640-L	1
	Separation finger for fuser roller	SCRAPER-280	5
	Bush for fuser roller	BUSH-HR/RLR	2
DF-KIT-3018	Pickup roller	ASYS-ROL-FEED	1
	Feed roller	ASYS-ROL-FEED	1
	Separation roller	ASYS-ROL-RET	1

4.5 Jig List

Item	Parts list	
	Page	Item
Door switch jig	T.B.D	T.B.D
Brush	T.B.D	T.B.D
Doctor sleeve jig	T.B.D	T.B.D
Developer material nozzle	T.B.D	T.B.D
Wire holder jig	T.B.D	T.B.D
Belt tension jig	T.B.D	T.B.D
High-voltage transformer jig	T.B.D	T.B.D
Downloading jig (DLM board)	T.B.D	T.B.D
Download JIG-2 (6 Flash ROMs)	T.B.D	T.B.D
Download JIG-1 (2 Flash ROMs)	T.B.D	T.B.D
ROM writer adapter (For T.B.D)	T.B.D	T.B.D
ROM writer adapter (For T.B.D)	T.B.D	T.B.D

4.6 Grease List

Grease name		Part name	Volume	Container	Parts list	
					Page	Item
SI	Silicon oil	ASM-SILICONE-1M	100cc	Bottle	T.B.D	T.B.D
L	Launa 40	OIL-LAUNA40-100	100cc	Oiler	T.B.D	T.B.D
W2	White grease (Molykote HP-300)	ASM-PG-HP300-S	100g	Bottle	T.B.D	T.B.D
W2	White grease (Molykote HP-300)	GREASE-HP300-S	10g	Bottle	T.B.D	T.B.D
AV	Alvania No.2	ASM-PG-ALV2	100g	Tube	T.B.D	T.B.D
W1	White grease (Molykote X5-6020)	MOLYKOTE-100	100g	Tube	T.B.D	T.B.D
FL	Floil (GE-334C)	ASM-PG-GE334C-S	20g	Bottle	T.B.D	T.B.D

4.7 Precautions for Storing and Handling Supplies

4.7.1 Precautions for storing TOSHIBA supplies

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

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

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

4) Fuser roller / Pressure roller / Cleaning roller
   Avoid places where the rollers may be subjected to high humidity, chemicals and/or their fumes.

5) Paper
   Avoid storing 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 photoconductive drum

1) Use of gloves
   If fingerprints or oil adhere to the drum surface, the property of the photoconductive drum may degrade, affecting the quality of the print image. So, do not touch the drum surface with bare hands.

2) Handling precautions
   As the photoconductive 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 (including both ends of the drum where OPC is not coated) when replacing the drum. When the drum has been replaced with a new one, the drum counter (the Setting Mode 08-1150-0,3,6,7) must be cleared to 0 (zero). This clearing can be performed in the PM Support Mode.

   Notes:
   - Application of the patting powder is for reducing the friction between the drum and cleaning blade. If the application of patting powder is neglected, the drum and cleaning blade may be damaged.
   - When paper fibers or dint 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 the equipment and storage of drum
   Avoid installing the equipment where it may be subjected to high temperature, high humidity, chemicals and/or their fumes.
   Do not place the light drum in a location where it is exposed to direct sunlight or high intensity light such as near a window. Otherwise the drum will fatigue, and will not produce sufficient image density immediately after being installed in the equipment.

4) Cleaning the drum
   At preventive 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 photoconductive drum surface
   If the surface is scratched in such a way that the aluminum substrate is exposed, no print 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 photoconductive drums
   Regarding the recovery and disposal of used photoconductive drums, we recommend following the relevant local regulations or rules.

4.7.3 Checking and cleaning of drum 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 paper fibers 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 Checking and cleaning of fuser roller and pressure roller

1) Handling precautions
   - Fuser roller
     Do not leave any oil (fingerprints, etc.) on the fuser roller.
     Be careful not to allow any hard object to hit or rub against the fuser roller, or it may be damaged, possibly resulting in poor cleaning.

   - Pressure roller
     Do not leave any oil (fingerprints, etc.) on the pressure roller.

2) Checking
   - Check for stain and damage on the fuser and pressure rollers, and clean if necessary.
   - Check the separation guide and fingers and check for chipped tips.
   - Check the cleaning effect of the cleaning roller.
   - Check the thermistors for proper contact with the pressure roller.
   - Check the fused and fixed condition of the toner.
   - Check the gap between the entrance guide and pressure roller.
   - Check the fuser roller for proper rotation.

3) Cleaning procedure
   When fuser roller and pressure roller become dirty, they will cause jamming. If this happens, wipe the surface clean with a piece of soft cloth. For easier cleaning, clean the roller white they are still warm.

   Note:
   Be careful not to rub the fuser roller and pressure roller surface with your nails or hard objects because it can be easily damaged. Do not use silicone oil on the fuser roller and pressure roller.

5. TROUBLESHOOTING

5.1 Diagnosis and Prescription for Each Error Code

5.1.1 Paper transport jam

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

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

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

↓ YES → Remove the paper.

NO

Is the exit sensor working?
(Perform the input check in the test mode: 03-[INTERRUPT]OFF/[9]/[5])

NO →
1) Check if the connector of the exit sensor is disconnected.
2) Check if the connector CN17 on the MAIN 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 MAIN board is short circuited or open circuited.
5) Replace the exit sensor.
6) Replace the MAIN board.

↓

YES

Is the registration roller clutch working?
(Perform the output check in the test mode: 04-108/158)

NO →
1) Check if the connector of the registration roller clutch is disconnected.
2) Check if the connector CN26 on the MAIN 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 MAIN board is short circuited or open circuited.
5) Replace the registration roller clutch.
6) Replace the MAIN board.

↓

YES

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

[E03] Paper remaining inside the equipment at power-ON

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

↓ YES → Remove the paper.

NO

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

| NO →
↓ | 1) Check if the connector of the sensor is disconnected.
2) Check if any of the connectors on the MAIN 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 MAIN board is short circuited or open circuited.
5) Replace the sensor.
6) Replace the MAIN board. |
|---|---|

YES

Replace the MAIN board.

Relation between the jamming area and the corresponding sensors and covers
(If a jam is occurring in the PFU, check the PFU board.)

Jamming area	Cover	Sensor	Test mode / Input check
Registration area	Transfer cover	Registration sensor	03-[INTERRUPT]OFF/[9]/[6]
Exit area	Transfer cover	Exit sensor	03-[INTERRUPT]OFF/[9]/[5]
PFU	PFU side cover	PFU feed sensor	03-[INTERRUPT]OFF/[7]/[5]

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

[E21] Paper fed from the PFU drawer not reaching the registration sensor

↓ YES → Remove the paper.

NO

Is the registration sensor working?
(Perform the input check in the test mode: 03-[INTERRUPT]OFF/[9]/[6]

↓ NO →
1) Check if the connector of the registration sensor is disconnected.
2) Check if the connector CN26 on the MAIN 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 MAIN board is short circuited or open circuited.
5) Replace the registration sensor.
6) Replace the MAIN board.

YES

Are the PFU transport clutches (High speed/Low speed) working?
(Perform the output check in the test mode: 04-203, 205)

↓ NO →
1) Check if the connectors of the PFU transport clutches (High speed/Low speed) are disconnected.
2) Check if the connector CN4 on the MAIN 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 MAIN board is short circuited or open circuited.
5) Replace the PFU transport clutches (High speed/Low speed).
6) Replace the MAIN board.

YES

1) Check the condition of the feed roller, separation roller and pickup roller of each paper source, and replace them if they are worn out.
2) Check the transport roller. Replace it if it is worn out.

5.1.2 Paper misfeeding

[E12] Bypass misfeeding

Open the transfer 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-[INTERRUPT]OFF/[9]/[6])

↓ NO →
1) Check if the connector of the registration sensor is disconnected.
2) Check if the connector CN26 on the MAIN 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 MAIN board is short circuited or open circuited.
5) Replace the registration sensor.
6) Replace the MAIN board.

YES

Is the bypass feed clutch working? (Perform the output check in the test mode: 04-204)
Is the bypass paper sensor working?
(Perform the input check in the test mode: 03-[INTERRUPT]OFF/[1]/[4])

↓ NO →
1) Check if the connector of the bypass feed clutch and bypass paper sensor are disconnected.
2) Check if the connector CN26 on the MAIN 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 MAIN board is short circuited or open circuited.
5) Replace the bypass feed clutch and bypass paper sensor.
6) Replace the MAIN board.

YES

Check the bypass transport, feed separation and pickup rollers. Replace them if they are worn out.

[E13] Drawer misfeeding (paper not reaching the registration sensor)

Open the transfer 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-[INTERRUPT]OFF/[9]/[6])

NO →
1) Check if the connector of the registration sensor is disconnected.
2) Check if the connector CN26 on the MAIN 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 MAIN board is short circuited or open circuited.
5) Replace the registration sensor.
6) Replace the MAIN board.

↓

YES

Is the pickup solenoid working?
(Perform the output check in the test mode: 04-201)

NO →
1) Check if the connector of the pickup solenoid is disconnected.
2) Check if the connector CN26 on the MAIN 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 MAIN board is short circuited or open circuited.
5) Replace the pickup solenoid.
6) Replace the MAIN board.

↓

YES

Check the drawer feed roller, separation roller and pickup roller.
Replace them if they are worn out.

[E14] PFU drawer misfeeding (paper not reaching the PFU feed sensor)

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

↓ YES → Remove the paper.

NO

Is the PFU feed sensor working?
(Perform the input check in the test mode: 03-[INTERRUPT]OFF/[7]/[5])

NO →
1) Check if the connector of the PFU feed sensor is disconnected.
2) Check if the connector CN4 on the MAIN 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 MAIN board is short circuited or open circuited.
5) Replace the PFU feed sensor.
6) Replace the MAIN board.

↓

YES

Is the PFU pickup solenoid working?
(Perform the output check in the test mode: 04-202)

NO →
1) Check if the connector of the PFU pickup solenoid is disconnected.
2) Check if the connector CN4 on the MAIN 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 MAIN board is short circuited or open circuited.
5) Replace the PFU pickup solenoid.
6) Replace the MAIN board.

↓

YES

Check the PFU drawer feed roller, separation roller and pickup roller. Replace them if they are worn out.

5.1.3 Cover open jam

[E40] ADU cover opened during printing

Is the ADU cover open?

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

NO

Is the ADU cover opening/closing interlock switch working?
(Perform the input check in the test mode: 03-[INTERRUPT]ON/[2]/[G])

↓ NO →
1) Check if the connector of the ADU cover opening/closing interlock switch is disconnected.
2) Check if the connector CN3 on the MAIN 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 MAIN board is short circuited or open circuited.
5) Replace the ADU cover opening/closing interlock switch.
6) Replace the MAIN board.

YES

Replace the LGC board.

Is the voltage of 24V being supplied from the power supply unit?
(Perform the input check in the test mode: 03-[INTERRUPT]OFF/[8]/[6])

↓ NO →
1) Check if the connector for 24 V power supply is disconnected.
2) Check if the connector CN23 on the MAIN 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 MAIN board is short circuited or open circuited.
5) Replace the MAIN board.

YES

Replace the MAIN board.

[E41] Front cover opened during printing

Is the front cover open?

↓ YES → Close the cover.

NO

Is the front cover opening/closing switch working?
(Perform the input check in the test mode: 03-[INTERRUPT]OFF/[9]/[3])

| NO →
1) Check if the connector of the front cover opening/closing switch is disconnected.
2) Check if the connector CN3 on the MAIN 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 MAIN board is short circuited or open circuited.
5) Replace the front cover opening/closing switch.
6) Replace the MAIN board.

↓

YES

Is the voltage of 24V being supplied from the power supply unit?
(Perform the input check in the test mode: 03-[INTERRUPT]OFF/[8]/[6])

| NO →
1) Check if the connector for 24 V power supply is disconnected.
2) Check if the connector CN23 on the MAIN 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 MAIN board is short circuited or open circuited.
5) Replace the MAIN board.

↓

YES

Replace the MAIN board.

[E44] PFU cover opened during printing

Is the PFU cover open?

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

NO

Is the PFU cover opening/closing switch working?
(Perform the input check in the test mode: 03-[INTERRUPT]OFF/[9]/[2])

| NO →
1) Check if the connector of the PFU cover opening/closing switch is disconnected.
2) Check if the connector CN4 on the MAIN 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 MAIN board is short circuited or open circuited.
5) Replace the PFU cover opening/closing switch.
6) Replace the MAIN board.

YES

Replace the MAIN board.

5.1.4 Transport jam (ADF)

[E71] Jam not reaching the original registration sensor

Are the pickup roller, feed roller and separation roller stained or worn out?

↓ YES → Clean the rollers or replace them.

NO

Is the original excessively curled or folded?

↓ YES → Flatten and set it again.

NO

Are the original registration sensor working?
(Perform the input check: 03-[INTERRUPT]ON/[5]/[6])

| NO →
1) Check if the connectors of the original registration sensor are disconnected.
2) Check if the connector CN74 on the ADF board is disconnected.
3) Check if the connector pins are disconnected or the harnesses are open circuited.
4) Check if the conductor pattern on the ADF board is short circuited or open circuited.
5) Replace the original registration sensor.
6) Replace the ADF board.

↓

YES

Replace the ADF board.

[E72] Jam not reaching the read sensor

Are the registration roller and read roller stained?

↓ YES → Clean the rollers.

NO

Is the read sensor working? (Perform the input check: 03-[INTERRUPT]ON/[4]/[0])

| NO →
1) Check if the connector of the read sensor are disconnected.
2) Check if the connector CN75 on the ADF board is disconnected.
3) Check if the connector pins are disconnected or the harnesses are open circuited.
4) Check if the conductor pattern on the ADF board is short circuited or open circuited.
5) Replace the read sensor.
6) Replace the ADF board.

↓

YES

Replace the ADF board.

[E73] Stop jam at the exit sensor

Is the exit roller stained?

↓ YES → Clean the roller.

NO

Is the exit sensor working? (Perform the input check: 03-[INTERRUPT]ON/[2]/[2])

↓ NO →
1) Check if the connector of the exit sensor is disconnected.
2) Check if the connector CN75 on the ADF board is disconnected.
3) Check if the connector pins are disconnected or the harnesses are open circuited.
4) Check if the conductor pattern on the ADF board is short circuited or open circuited.
5) Replace the exit sensor.
6) Replace the ADF board.

YES

Replace the ADF board.

[E86] ADF jam access cover open

Is the ADF jam access cover opened?

↓ YES → Remove the original, if any, and close the ADF jam access cover.

NO

Is the ADF jam access cover switch working?
(Perform the input check: 03-[INTERRUPT]ON/[4]/[4])

↓ NO →
1) Check if the connector of the ADF jam access cover switch is disconnected.
2) Check if the connector CN75 on the ADF board is disconnected.
3) Check if the connector pins are disconnected or the harnesses are open circuited.
4) Check if the conductor pattern on the ADF board is short circuited or open circuited.
5) Replace the ADF jam access cover switch.
6) Replace the ADF board.

YES

Replace the ADF board.

[E87] ADF open jam

Is the ADF opened?

↓ YES → Remove the original, if any, and close the ADF.

NO

Is the ADF opening/closing sensor adjusted within the specified range?

↓ NO → Adjust the ADF opening/closing sensor.

YES

Is the ADF opening/closing sensor working?
(Perform the input check: 03-[INTERRUPT]ON/[4]/[3])

↓ NO →
1) Check if the connector of the ADF opening/closing sensor is disconnected.
2) Check if the connector CN74 on the ADF board is disconnected.
3) Check if the connector pins are disconnected or the harnesses are open circuited.
4) Check if the conductor pattern on the ADF board is short circuited or open circuited.
5) Replace the ADF opening/closing sensor.
6) Replace the ADF board.

YES

Replace the ADF board.

5.1.5 Drive system related service call

[C01] Main motor is abnormal

Is the main motor working? (Perform the output check in the test mode: 04-101/151)

NO →
1) Check if the connector CN1 of the main motor is disconnected.
2) Check if the connector CN16 on the MAIN 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 main motor board and MAIN board are short circuited or open circuited.
5) Replace the main motor.
6) Replace the MAIN board.

↓

YES

Is the LED on the main motor board lit without flickering?

NO →
1) Check if the connector pins are disconnected and the harnesses are open circuited.
2) Check if the conductor patterns on the main motor board and MAIN board are short circuited or open circuited.
3) Replace the main motor.
4) Replace the MAIN board.

↓

YES

1) Check if the PLL lock signal CN305-B8 output from the MAIN board is always level “L”?
2) Check if the voltage supplied to the CPU input terminal IC24-12 is always “L”?
3) Replace the MAIN board.

5.1.6 Scanning system related service call

[C26] Peak detection error

Does the exposure lamp light? (Perform the output check in the test mode: 04-267)

↓ YES → Replace the CIS unit.

NO

1) Check if the connector of the CIS unit are disconnected.
2) Check the MAIN board if the connector (CN6) is disconnected and the harness is short circuited or open circuited.
3) Check if the conductor pattern on the MAIN board is short circuited or open circuited.
4) Replace the MAIN board.
5) Replace the CIS unit.

5.1.7 Fuser unit related service call

CAUTION
Be sure to turn OFF the power and unplug the power cable beforehand when checking the heater.
The fuser unit itself or the part of the unit remains heated and the capacitors are still charged after a while the power cable is unplugged. So make sure the unit is cooled down enough before checking.

[C41] Thermistor or heater is abnormal at power ON

1. Check the thermistors

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

2. Check the heater

(1) Check if the heater is broken.
(2) Check if the connector of the heater is disconnected.
(3) Check if the thermostat is blown.

3. Check the MAIN board

(1) Check if the connectors CN17 are disconnected.
(2) Check if the conductor pattern on the MAIN board is short circuited or open circuited.
(3) Replace the MAIN 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) Key in “400”, then press [START].
(3) Change the current status counter value “1” or “2” to “0”, then press [ENTER] or [INTERRUPT] (to cancel [C41]).
(4) Turn the power OFF and then back ON. Make sure that the equipment enters the normal ready state.

[C44] Fuser is abnormal after abnormality judgment

1,2.3. Check the thermistors, Heater and MAIN board

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

4. Clear the status counter

Change the current status counter value (08-400) “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: “5”
  - The error occurred after the equipment has become ready: “7”
  - The temperature detected by the center thermistor is 230°C or higher: “9”
  - The temperature detected by the side thermistor is 230°C or higher: “9”
  - The temperature detected by the edge thermistor is 230°C or higher: “9” only during printing.

[C45] Thermistor abnormality during printing

1. Check the edge thermistor

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

2. Check the MAIN board

(1) Check if the connector CN17 is disconnected.
(2) Check if the conductor pattern on the board is short circuited or open circuited.
(3) Replace the MAIN board.

3. Clear the status counter

Change the current status counter value (08-400) “6” to “0”.

5.1.8 ADF related service call

No service call for the ADF (MR-2017).

5.1.9 Laser optical unit related service call

[CA1] Polygonal motor is abnormal

Is the polygonal motor rotating?

↓ NO →
1) Check if the connector of the harness is disconnected between MAIN board (CN24) and the laser optical unit.
2) Check if the harness is open circuited and the connector pin is disconnected.
3) Check if the conductor pattern on the MAIN board is short circuited or open circuited.
4) Replace the laser optical unit.
5) Replace the MAIN board.

YES

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

[CA2] H-Sync detection error

Are the harness open circuited and the connectors disconnected or misconnected between the MAIN board (CN21, CN22) and laser optical unit?

↓ YES → Replace the harness. Connect the disconnected connectors.

NO

1) Replace the MAIN board.
2) Replace the laser optical unit.

5.1.10 Service call for others

[C97] High-voltage transformer abnormality

(1) Is the main charger installed securely?
(2) Check if the spring of high-voltage supply contact point is deformed.
(3) Check if the needle electrode is broken or the main charger grid is deformed.
(4) Check if any foreign matters is on the needle electrode or the main charger grid.
(5) Is the transfer/separation charger installed securely?
(6) Check if the transfer/separation charger wire is broken or unhooked.
(7) Check if any foreign matter is on the transfer/separation charger wire.

[CF7] Recycle toner transport area lock

(1) Check if any foreign matter or toner flakes are on the recycle toner transport area.
(2) Check if the auger or the gear is damaged on the recycle toner transport area.
(3) Check if the connector (CN16) is disconnected or the connector pin is removed on the MAIN board.
(4) Check if the harness is short circuited or open circuited.
(5) Replace the auger lock switch.
(6) Replace the MAIN board.

5.2 Troubleshooting for the Image

1) Abnormality of image density / Gray balance

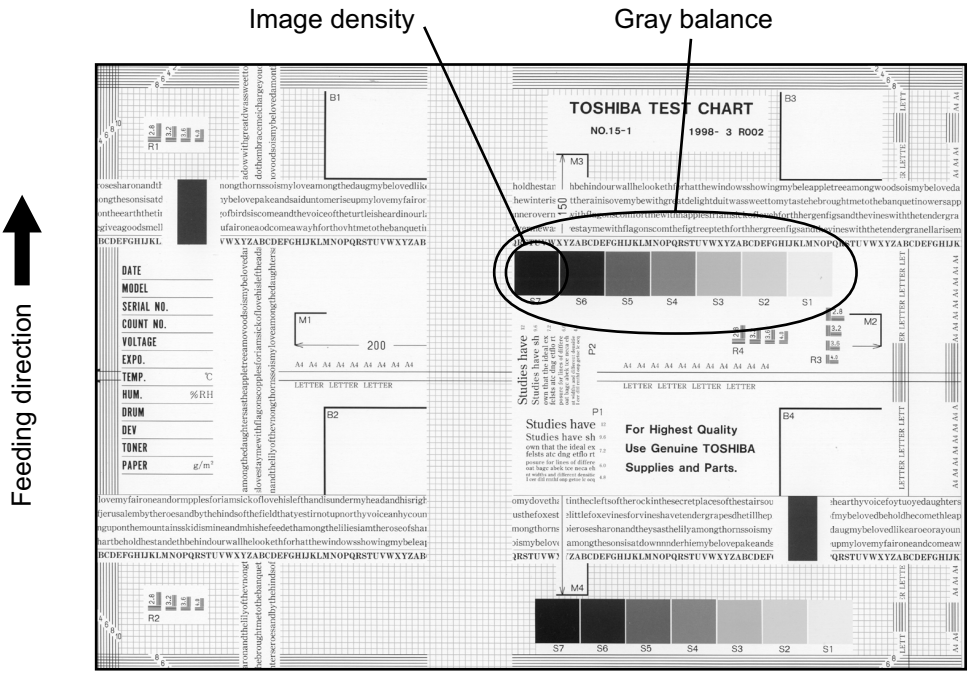


Fig. 5-1

Defective area	Step	Check items	Prescription
Density/Gray balance	1	Check the density/gray balance.	Adjust the density.
Printer section	2	Check test print image (07-113).	Go to step 4 if there is any problem on image.
Scanner	3	Are the original glass, mirrors and lens dirty?	Clean them.
Printed image	4	Is the image faded?	Perform troubleshooting for faded image.
	5	Is background fogging occurring?	Perform troubleshooting for background fogging.
	6	Is there a blotch on the image?	Perform troubleshooting for blotched image.
	7	Is the image transferred normally?	Perform troubleshooting for abnormal transfer.

2) Background fogging

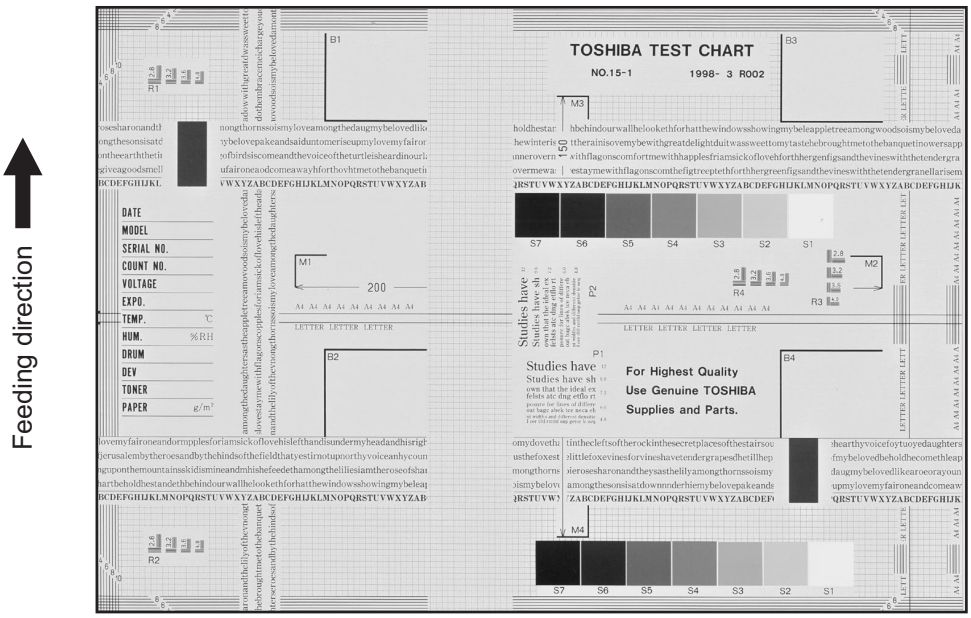


Fig. 5-2

Defective area	Step	Check items	Prescription
Density reproduction	1	Check the reproduction of the image density.	Adjust the density.
Background reproduction	2	Check the background reproduction.	Adjust the background.
Printer section	3	Check test print image (07-113).	Go to step 4 if there is any problem on image.
Scanner	4	Are the original glass, mirrors and lens dirty?	Clean them.
Auto-toner	5	Is the auto-toner sensor normal?	Check the performance of the auto-toner sensor and readjust.
	6	Is the toner supplied normally?	Check the motor and circuits.
High-voltage transformer (Main charger / Developer bias)	7	Is the high-voltage transformer output defective?	Adjust the output, or replace the transformer.
Developer unit	8	Is the contact between the drum and developer material normal?	Adjust the doctor-sleeve gap and polarity.
Developer material/Toner/ Drum	9	Using the specified developer material, toner and drum?	Use the specified developer material, toner and drum.
	10	Have the developer material and drum reached their PM life?	Replace the developer material and drum.
	11	Is the storage environment of the toner cartridge 35°c less without dew?	Use the toner cartridge stored in the environment within specification.
Drum cleaning blade	12	Is the drum cleaned properly?	Check the pressure of the drum cleaning blade.
Toner dusting	13	Is toner heaped on the seal of the developer unit?	Remove the toner and clean the developer unit.

3) Moire/lack of sharpness

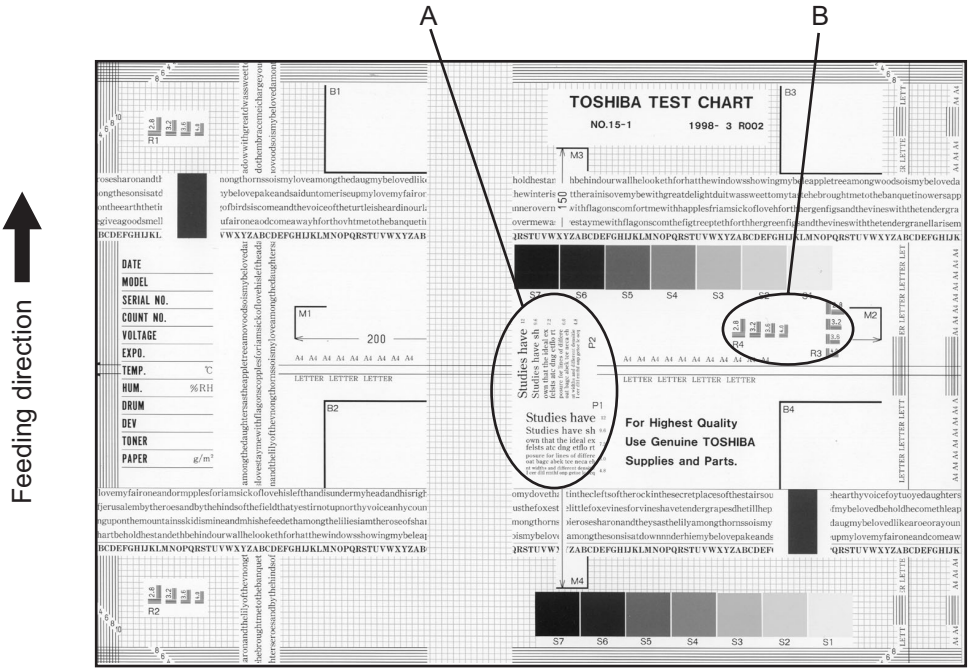


Fig. 5-3

5

Moire

Defective area	Step	Check items	Prescription
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 test print image (07-113).	When defects occur, perform the corresponding troubleshooting procedure.

Lack of sharpness

Defective area	Step	Check items	Prescription
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 test print image (07-113).	When defects occur, perform the corresponding troubleshooting procedure.
	4	Check the image processing parameters.	Check the encircled areas A and B in the image, and change the sharpness intensity in the sharpness adjustment mode.

4) Toner offset

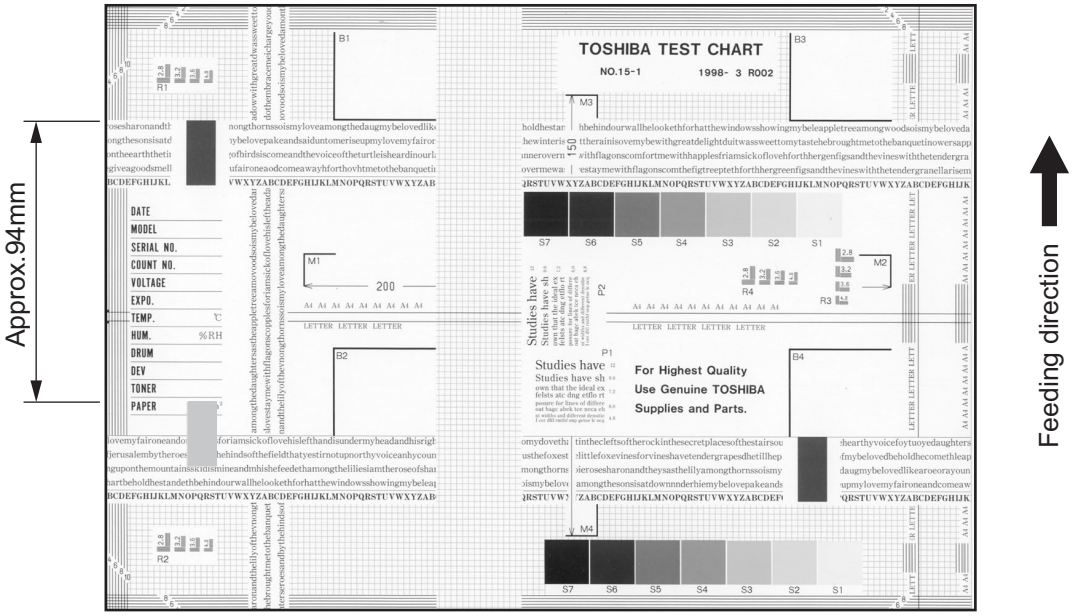


Fig. 5-4

Toner offset (Shadow image appears approx. 94 mm toward the dark image.)

Defective area	Step	Check items	Prescription
Density	1	Is the density too high?	Adjust the density.
Fuser unit	2	Is the pressure 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 setting temperature of the fuser roller normal?	Check the adjustment values of fuser roller temperature? 08-407, 410, 411, 450, 515, 516
Paper	7	Has the appropriate paper type been selected?	Select a proper mode.
	8	Is the setting temperature of the fuser roller in each paper type normal?	Check the setting and correct it. 08-412, 413, 437, 438, 451, 452, 453, 518, 520, 521
	9	Using the recommended paper?	Use the recommended paper.
Developer material	10	Using the specified developer material?	Use the specified developer material and toner.
Scanner	11	Are the original glass (especially the position of shading correction plate), mirror and lens dirty?	Clean them.

5) Blurred image

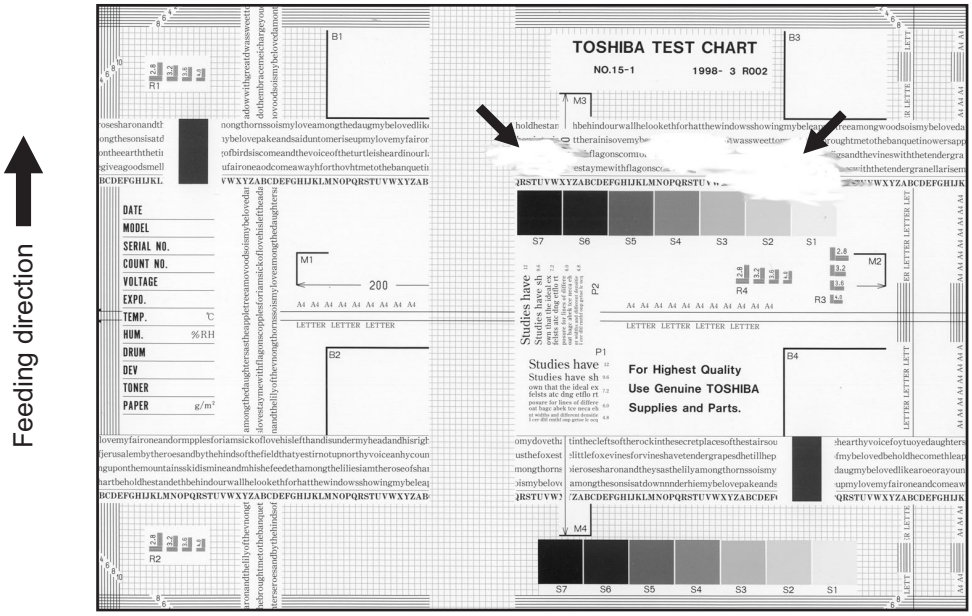


Fig. 5-5

Defective area	Step	Check items	Prescription
Paper	1	Is the paper in the drawer damp?	Change paper. Avoid storing paper in damp place.
Bedewed scanner	2	Is the scanner bedewed?	Clean the scanner.
Drum	3	Is the drum surface wet or dirty?	Wipe the drum with a piece of dry cloth. * Do not use alcohol or other organic solvents.
Ozone exhaust	4	Is the exhaust fan operating properly?	Check the connection of connector. Replace the ozone exhaust fan.
	5	Is the ozone filter stained or damaged?	Replace the ozone filter.

6) Poor fusing

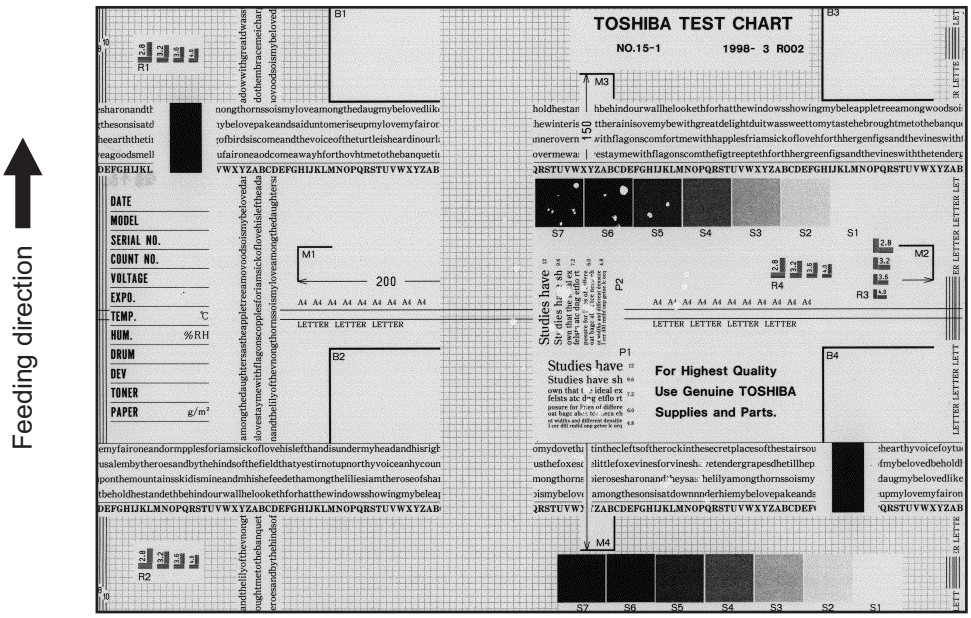


Fig. 5-6

Defective area	Step	Check items	Prescription
Heater electric power	1	Check if the connector contacts properly.	Correct it.
	2	Is the heater shorted or broken?	Replace the heater.
Pressure between fuser roller and pressure roller	3	Are the pressure springs working properly?	Check and adjust the pressure springs.
Fuser roller temperature	4	Is the temperature of the fuser roller normal?	Check the setting and correct it. 08-407, 410, 411, 450, 515, 516
Developer material/Toner	5	Using the specified developer material and toner?	Use the specified developer material and toner.
Paper	6	Is the paper in the drawer damp?	Avoid storing paper in damp place.
	7	Is the paper type corresponding to its mode?	Use the proper type of paper or select the proper mode.
	8	Is the setting temperature of the fuser roller in each paper type normal?	Check the setting and correct it. 08-412, 413, 437, 438, 451, 452, 453, 518, 520, 521
	9	Using the recommended paper?	Use the recommended paper.

7) Blank copy

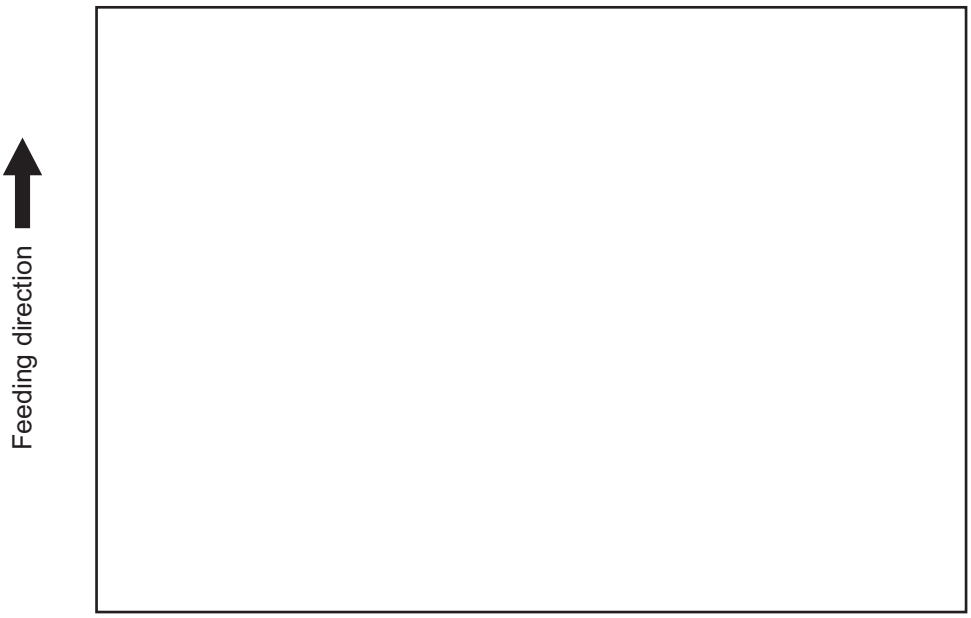


Fig. 5-7

Defective area	Step	Check items	Prescription
Transfer charger wire	1	Is the transfer charger wire cut off?	Replace the transfer charger wire.
High-voltage transformer (Transfer charger, Developer bias)	2	Is the high-voltage transformer output defective?	Adjust the output, or replace the transformer.
	3	Are the connectors of the high-voltage harness securely connected? Is the harness open circuited?	Reconnect the harness securely. Replace the high-voltage harness.
Developer unit	4	Is the developer unit installed properly?	Check and correct the engaging condition of the developer unit gears.
	5	Do the developer sleeve and mixers rotate?	Check and fix the drive system of the developer unit.
	6	Is the developer material smoothly transported?	Remove the foreign matter from the developer material.
	7	Has the magnetic brush phase been shifted?	Adjust the developer polarity.
	8	Is the doctor blade positioned properly?	Adjust it using the doctor-sleeve jig.
Drum	9	Is the drum rotating?	Check the drive system of the drum.
MAIN, LDR, SNS boards, CIS unit and harnesses	10	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

Fig. 5-8

Defective area	Step	Check items	Prescription
Exposure lamp and inverter	1	Does the exposure lamp light?	Check if the connector contacts with the exposure lamp terminal. Replace the defective inverter.
Scanner	2	Is there any foreign matter on the light path?	Remove it.
Bedewed scanner and drum	3	Is the scanner or drum bedewed?	Clean the mirrors, lens and drum. Keep the power cord plugged in all trough the day and night. (For the model with damp heater)
Main charger	4	Is the main charger securely installed?	Install it securely.
	5	Is the needle electrode broken?	Replace the needle electrode.
High-voltage transformer (Main charger)	6	Is the high-voltage transformer output defective?	Adjust the output, or replace the transformer.
	7	Are the connectors of the high-voltage harness securely connected? Is the harness open circuited?	Reconnect the harness securely. Replace the high-voltage harness.
MAIN, LDR, SNS boards, CIS unit and harnesses	8	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)

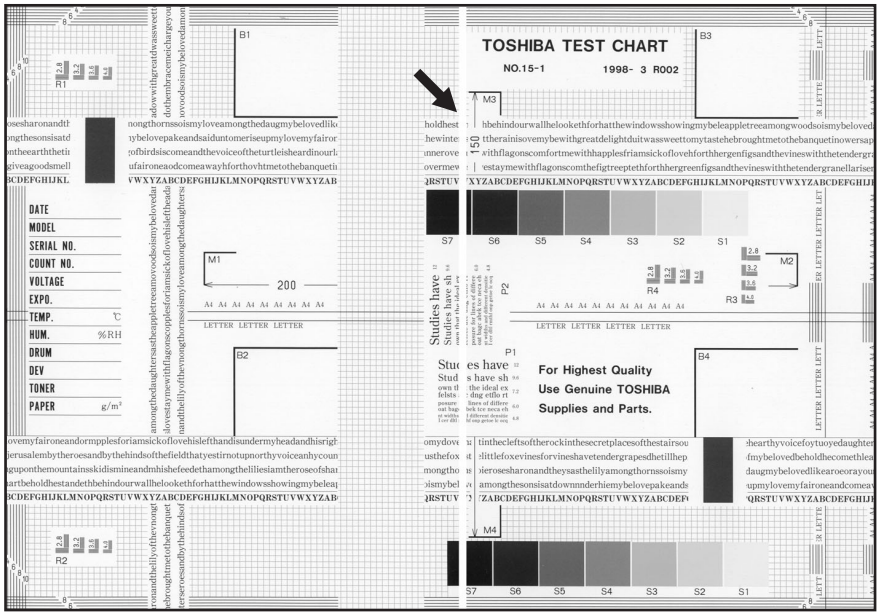


Fig. 5-9

Defective area	Step	Check items	Prescription
Laser optical unit	1	Is there a foreign matter or stain on the slit glass?	Remove the foreign matter or stain.
Main charger grid	2	Is there a foreign matter or dew on the charger grid?	Remove the foreign matter.
Transfer charger wire	3	Is there any foreign matter or stain on the transfer charger wire?	Clean the transfer charger wire.
Developer unit	4	Is the developer material transported properly?	Remove the foreign matter if there is any.
	5	Is there a foreign matter or dew on the drum seal?	Remove the foreign matter or dew.
	6	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	7	Is there a foreign matter on the drum surface?	Replace the drum.
Transport path	8	Does the toner image contact with any foreign matter before the paper enters the fusing section after the separation?	Remove the foreign matter.
Discharge LED	9	Is any of the discharge LEDS off?	Replace the discharge LED.
Scanner	10	Is there a foreign matter on the light path?	Remove the foreign matter.
	11	Are the original glass (especially the position of shading correction plate) mirror and lens dirty?	Clean them.
Cleaner	12	Is there any foreign matter, which contacts the drum on the cleaner stay?	Remove the foreign matter.

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

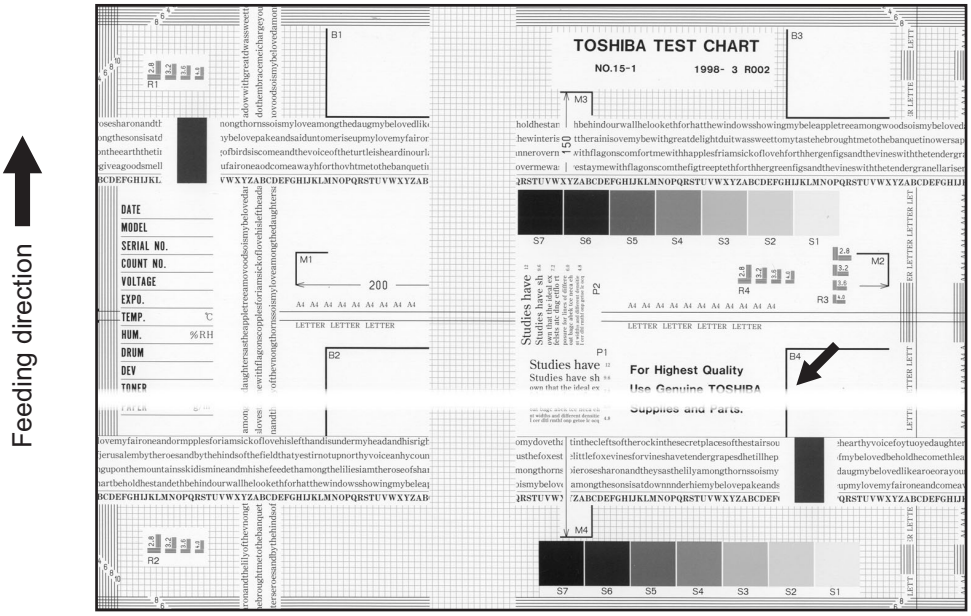


Fig. 5-10

Defective area	Step	Check items	Prescription
Main charger	1	Is there a foreign matter on the charger?	Remove the foreign matter.
	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 LED	4	Does the discharge LED light normally?	Replace the discharge LED or check the harness and the circuit.
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 / Developer bias / Transfer charger)	7	Is the high-voltage transformer output defective?	Adjust the output, or replace the transformer.
Transfer charger	8	Is any foreign matter such as paper shred sticking to the transfer charger wire?	Remove the foreign matter from the wire.
Feed system	9	Is the aligning amount proper?	Adjust the aligning amount.

11)Skew (inclined image)

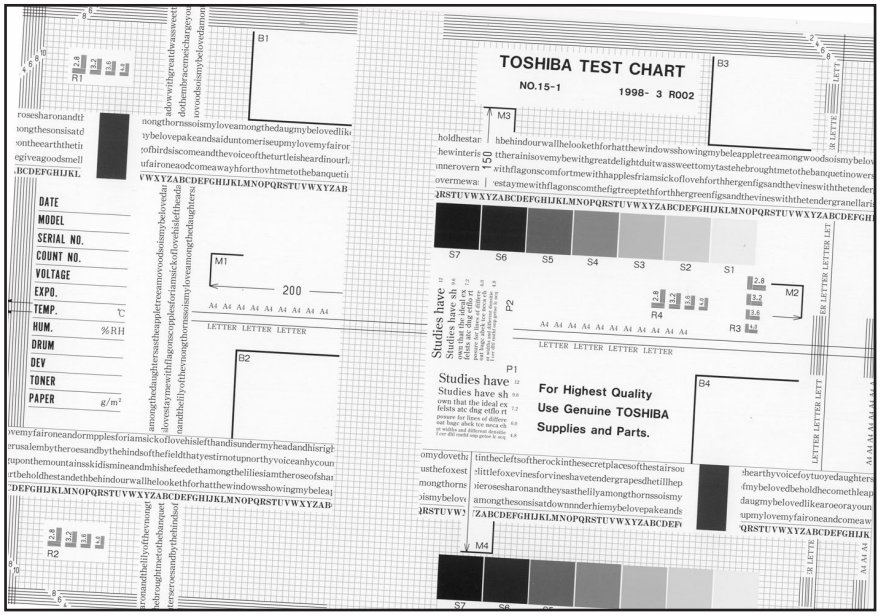


Fig. 5-11

Defective area	Step	Check items	Prescription
Drawers	1	Is the drawer properly installed?	Install the drawer properly.
	2	Is there too much paper in the drawer?	Reduce paper to 250 sheets or less.
	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 drawer properly installed?	Adjust the position of the side guides.
Feed roller	5	Is the surface of the feed roller dirty?	Clean the feed roller surface with alcohol, or replace the roller.
Rollers	6	Are the roller and shaft secured?	Check and tighten the E-rings, pins, clips and setscrews.
Registration roller	7	Is the spring detached from the registration roller?	Attach the spring correctly. Clean the roller if it is dirty.
Pre-registration guide	8	Is the pre-registration guide properly installed?	Correct it.
Carriage-1	9	Is the carriage-1 slanted?	Adjust the carriage-1.

12)Black banding (in the feeding direction)

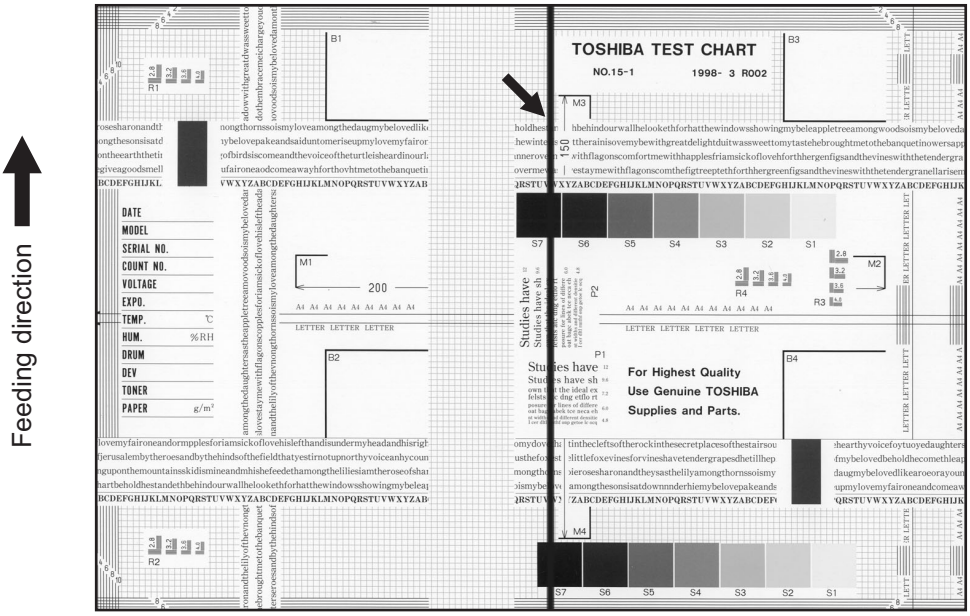


Fig. 5-12

Defective area	Step	Check items	Prescription
Scanner	1	Is there a foreign matter on the light path?	Clean the slit, lens and mirrors.
Shading correction plate	2	Is there dust or stains on part of the original glass where the shading correction plate is placed.	Clean the plate.
Main charger	3	Is there a foreign matter on the main charger grid?	Remove the foreign matter.
	4	Is the main charger grid dirty or deformed?	Clean or replace the main charger grid.
	5	Is there a foreign matter on the main charger?	Remove the foreign matter.
	6	Is the needle electrode dirty or deformed?	Clean or replace the needle electrode.
	7	Is there a foreign matter inside the main charger case?	Remove the foreign matter.
	8	Is the inside of the main charger case dirty?	Clean the inside of the main charger case.
Cleaner	9	Is there paper dust sticking to the drum cleaning blade edge?	Clean or replace the cleaning blade.
	10	Is the drum cleaning blade working properly?	Check the pressurization of the drum cleaning blade.
	11	Has the used toner been recovered properly?	Clean the toner recovery auger.
Fuser unit	12	Is the fuser roller surface dirty or damaged?	Clean or replace the fuser roller.
	13	Is the thermistor dirty?	Clean the thermistor.
Drum	14	Are there scratches on the drum surface?	Replace the drum.
Laser optical unit	15	Is there a foreign matter or stain on the slit glass?	Remove the foreign matter or the stain.

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

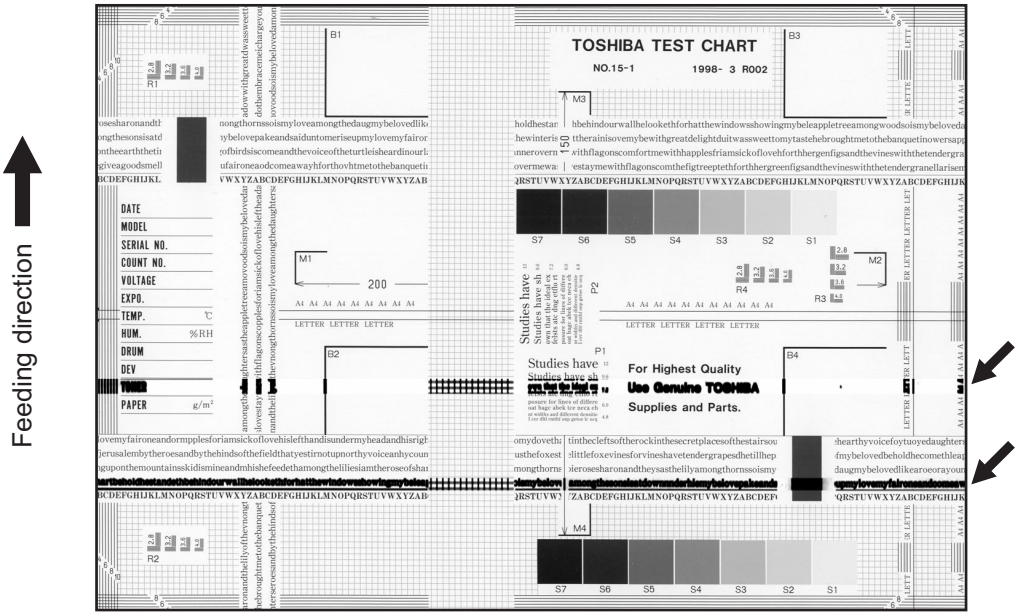


Fig. 5-13

Defective area	Step	Check items	Prescription
Main charger	1	Is the needle electrode dirty or deformed?	Clean or replace the needle electrode.
Fuser unit	2	Are the fuser roller, separation finger for fuser roller and thermistor dirty?	Clean them.
	3	Has the cleaning roller, pressure roller, fuser roller and separation finger for fuser roller reached their PM life?	Replace them.
High-voltage transformer (Main charger / Developer bias / Transfer charger)	4	Is the high-voltage transformer output defective?	Adjust the output, or replace the transformer.
Drum	5	Is there a deep scratch on the drum surface?	Replace the drum if the scratch has reached the aluminum base.
	6	Is there thin scratch (drum pitting) on the drum surface?	Check and adjust the contact condition of the cleaning blade and recovery blade.
Scanner	7	Is there a foreign matter on the carriage rail?	Remove the foreign matter.

14)White spots

Fig. 5-14

Defective area	Step	Check items	Prescription
Developer unit, Toner cartridge	1	Is the toner density in the developer material appropriate?	Check and correct the auto-toner sensor and toner supply operation. Check if the amount of the toner is sufficient in the toner cartridge.
	2	Is the doctor-sleeve gap proper?	Adjust the doctor-sleeve gap.
Developer material, Toner, Drum	3	Using the specified developer material, toner and drum?	Use the specified developer material, toner and drum.
	4	Have the developer material and drum reached their PM life?	Replace the developer material and drum.
	5	Is the storage environment of the toner cartridge 35°c or less without dew?	Use the toner cartridge stored in the environment with specification.
	6	Is there any dent on the drum surface?	Replace the drum.
	7	Is there any film forming on the drum?	Clean or replace the drum.
Main charger	8	Is there any foreign matter on the charger?	Remove it.
	9	Is the needle electrode dirty or deformed?	Clean or replace the needle electrode.
High-voltage transformer (Main charger / Developer bias / Transfer charger)	10	Is the high-voltage transformer output defective?	Adjust the output, or replace the transformer.
Transfer/Separation charger	11	Is there any foreign matter such as fiber in the paper transport area of the transfer/separation charger?	Clean the transfer/separation charger.

15)Poor image transfer

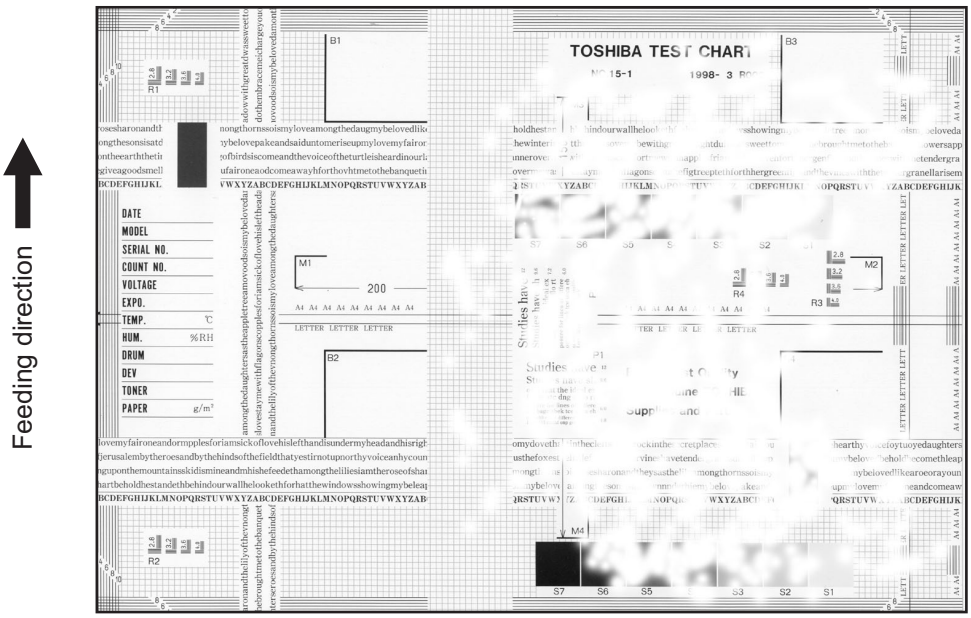


Fig. 5-15

Defective area	Step	Check items	Prescription
Paper	1	Is the paper in the drawer curled?	Reinsert the paper with the reverse side up or change the paper.
	2	Is the paper in the drawer damp?	Avoid storing paper in damp place.
	3	Is the paper type corresponding to its mode?	Select the proper mode.
	4	Using the recommended paper?	Use the recommended paper.
Transfer charger	5	Is the transfer charger case dirty?	Clean the transfer charger case.
	6	Is the transfer charger wire dirty?	Clean the transfer charger wire.
Registration roller	7	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)	8	Is the high-voltage transformer output defective?	Adjust the output, or replace the transformer.

16)Uneven image density

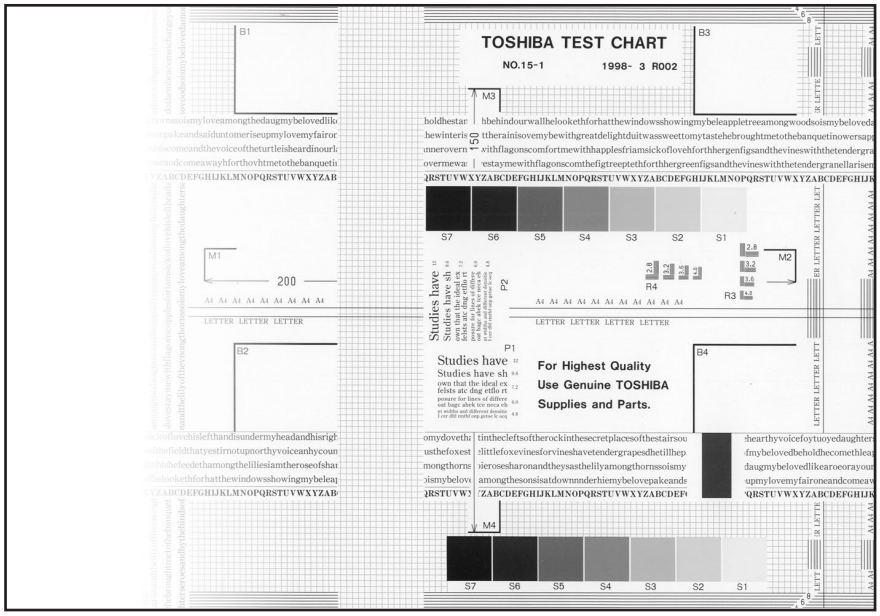


Fig. 5-16

Defective area	Step	Check items	Prescription
Main charger	1	Is the main charger dirty?	Clean or replace the needle electrode and main charger grid.
Transfer charger	2	Is the transfer charger dirty?	Clean the transfer charger.
	3	Is the transfer charger wire dirty?	Clean the transfer charger wire.
Laser optical unit	4	Is there any foreign matter or stain on the slit glass?	Remove the foreign matter or stain.
Discharge LED	5	Are the connectors of discharge LED harness securely connected?	Reconnect the harness securely.
	6	Is the discharge LED dirty?	Clean the discharge LED.
	7	Is any of the discharge LEDs off?	Replace the discharge LED.
Developer unit	8	Is the magnetic brush in proper contact with the drum?	Adjust the doctor-sleeve gap.
	9	Is the developer sleeve pressurization mechanism working?	Check the mechanism.
	10	Is the developer material transported normally?	Remove foreign matters if there is any.
Scanner section	11	Is the platen cover or ADF opened?	Close the platen cover or ADF.
	12	Are the original glass (especially the position of shading correction plate), mirror and lens dirty?	Clean them.

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

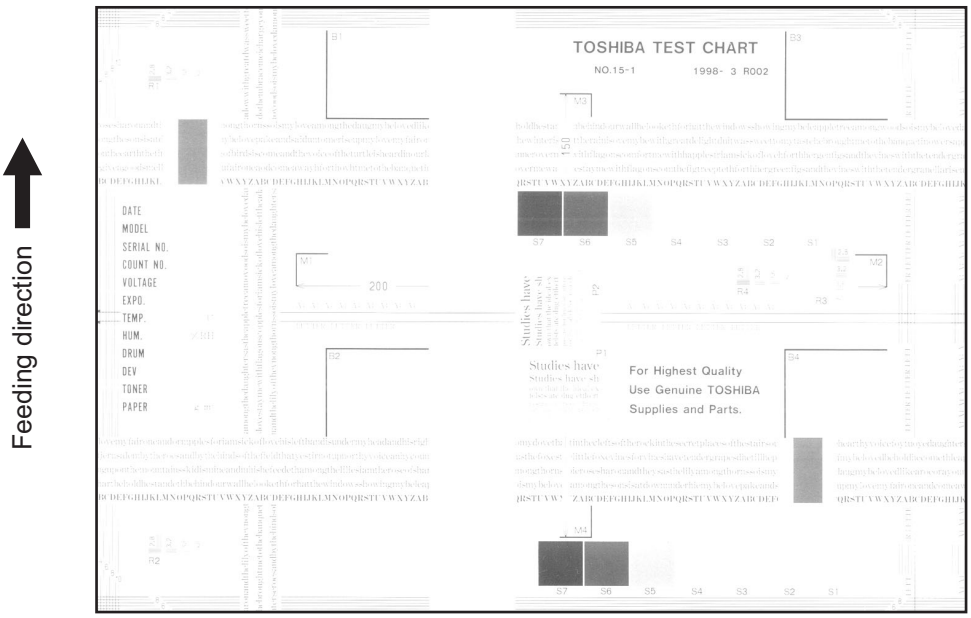


Fig. 5-17

Defective area	Step	Check items	Prescription
Toner empty	1	Is “ADD TONER” symbol lit?	Replace the toner cartridge.
Auto-toner circuit	2	Is there enough toner in the cartridge?	Check the performance of the auto-toner circuit.
	3	Is the toner density in the developer material too low?	
Toner motor	4	Is the toner motor working normally?	Check the toner motor and the motor drive.
Toner cartridge	5	Is there any problem with the toner cartridge?	Replace the toner cartridge.
Developer material	6	Has the developer material reached its PM life?	Replace the developer material.
Developer unit	7	Is the magnetic brush in proper contact with the drum?	Check the installation of the developer unit. Adjust the doctor-sleeve gap and polarity.
	8	Is the developer sleeve pressurization mechanism working?	Check the mechanism.
Main charger	9	Is the main charger dirty?	Clean it or replace the needle electrode and main charger grid.
Drum	10	Is “film-forming” occurring on the drum surface?	Clean or replace the drum.
	11	Has the drum reached its PM life?	Replace the drum.
Transfer charger	12	Is the transfer charger wire cut off?	Replace the transfer charger wire.
High-voltage transformer	13	Is the setting for the high-voltage transformer proper?	Adjust the output from the high-voltage transformer.
	14	Are the connectors of the high-voltage harness securely connected? Is the harness open circuited?	Reconnect the harness securely. Replace the high-voltage harness.
Discharge LED	15	Are the connectors of discharge LED harness securely connected?	Reconnect the harness securely.

18)Image dislocation in feeding direction

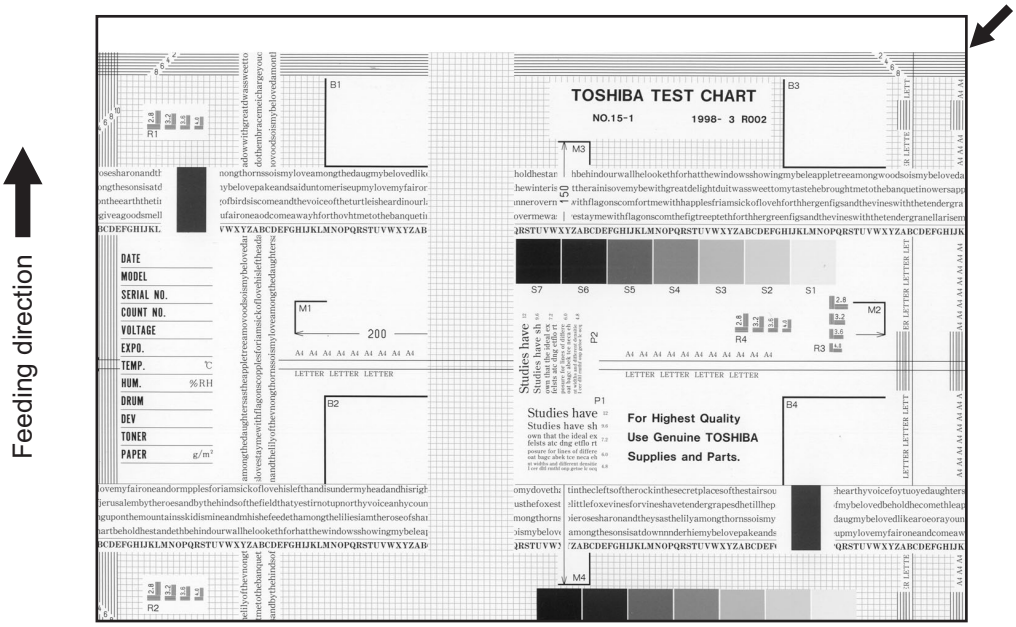


Fig. 5-18

Defective area	Step	Check items	Prescription
Scanner/Printer adjustment	1	Have the printed images been dislocated 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 registration roller with alcohol. Securely attach the springs.
	3	Is the registration roller working properly?	Adjust or replace the gears if they are not engaged properly.
Feed clutch	4	Is the feed clutch working properly?	Check the circuit or feed clutch, and replace them if necessary.
Pre-registration guide	5	Is the pre-registration guide installed properly?	Install the guide properly.

19)Jittering image

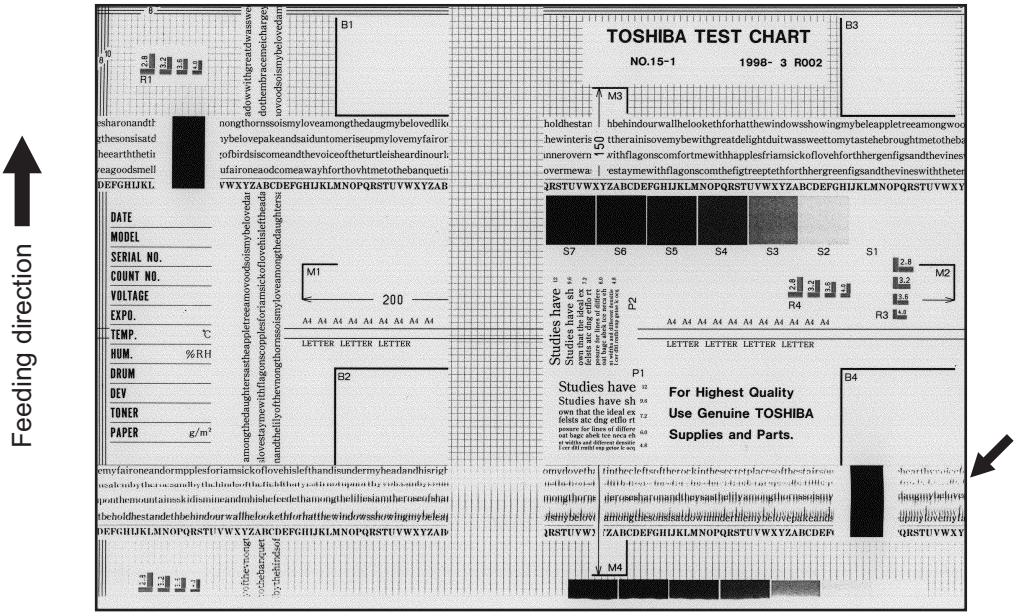


Fig. 5-19

Defective area	Step	Check items	Prescription
—	1	Is the toner image on the drum normal?	If normal, perform steps 2 to 4. Perform step 5 and followings in case the image is abnormal.
Registration roller	2	Is the registration roller rotating normally?	Check the registration roller area and springs for installation condition.
Fuser roller and pressure roller	3	Are the fuser roller and pressure roller rotating normally?	Check the fuser roller area. Replace the rollers if necessary.
Drum	4	Is there a big scratch on the drum?	Replace the drum.
Operation of carriage	5	Is there any problem with the slide sheet?	Replace the slide sheet.
	6	Is there any problem with the carriage foot?	Replace the carriage foot.
	7	Is the tension of the timing belt normal?	Adjust the tension.
	8	Is there any problem with the drive system of the carriage?	Check the drive system of the carriage.
Scanner	9	Is the mirror secured?	Secure it.
Drum drive system	10	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

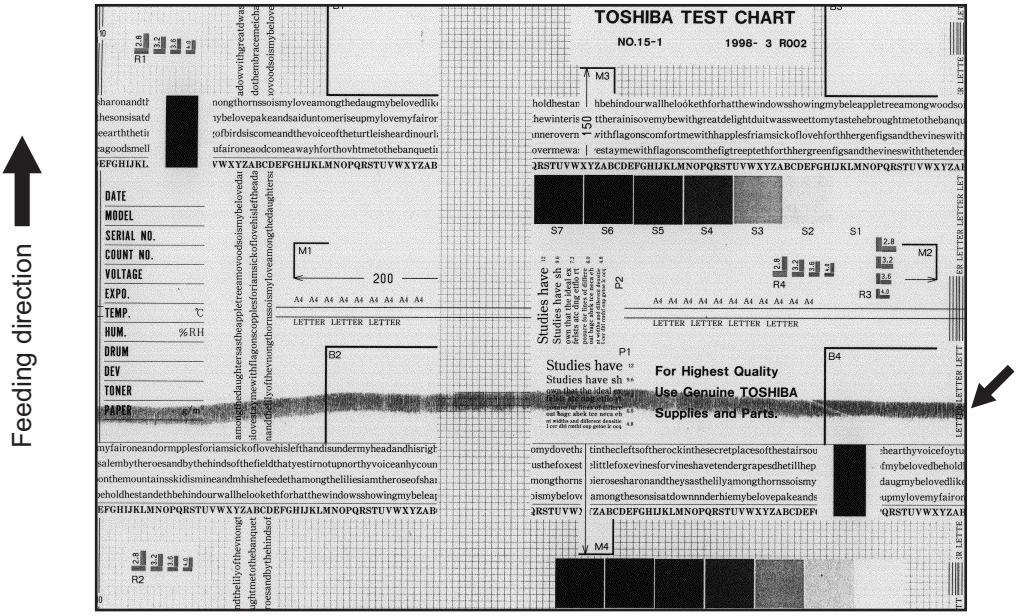


Fig. 5-20

Defective area	Step	Check items	Prescription
Developer material	1	Using the specified developer material?	Use the specified developer material and toner.
Cleaner	2	Is the cleaning blade in proper contact with the drum?	Check the cleaning blade.
	3	Has the cleaning blade been turned up?	Replace the cleaning blade. Check and replace drum if necessary.
Toner recovery auger	4	Is the toner recovered normally?	Clean the toner recovery auger. Check the pressure of the cleaning blade.
Fuser unit	5	Is the cleaning roller damaged or has it reached its PM life?	Replace the cleaning roller.
	6	Are there bubble-like scratches on the fuser roller (94 mm pitch on the image)?	Replace the fuser roller. Check and adjust the temperature control circuit.
	7	Has the fuser roller reached its PM life?	Replace the fuser roller.
	8	Is the pressure of the fuser roller normal?	Check and adjust the mechanism.
	9	Is the setting temperature of the fuser roller normal?	Check the setting and correct it. 08-407, 410, 411, 450, 515, 516

21)Uneven light distribution

Fig. 5-21

Defective area	Step	Check items	Prescription
Original glass	1	Is the original glass dirty?	Clean the original glass.
Main charger	2	Are the needle electrode, main charger grid and main charger case dirty?	Clean or replace them.
Discharge LED	3	Is the discharge LED dirty?	Clean the discharge LED.
	4	Is any of the discharge LEDs off?	Replace the discharge LED.
Scanner	5	Are the reflector, exposure lamp, mirrors, lens, and original glass (especially the position of shading correction plate) dirty?	Clean them.
Exposure lamp	6	Is the exposure lamp tilted?	Adjust the position of the exposure lamp.
	7	Is the exposure lamp discolored or degraded?	Replace the exposure lamp.

22)Blotched image

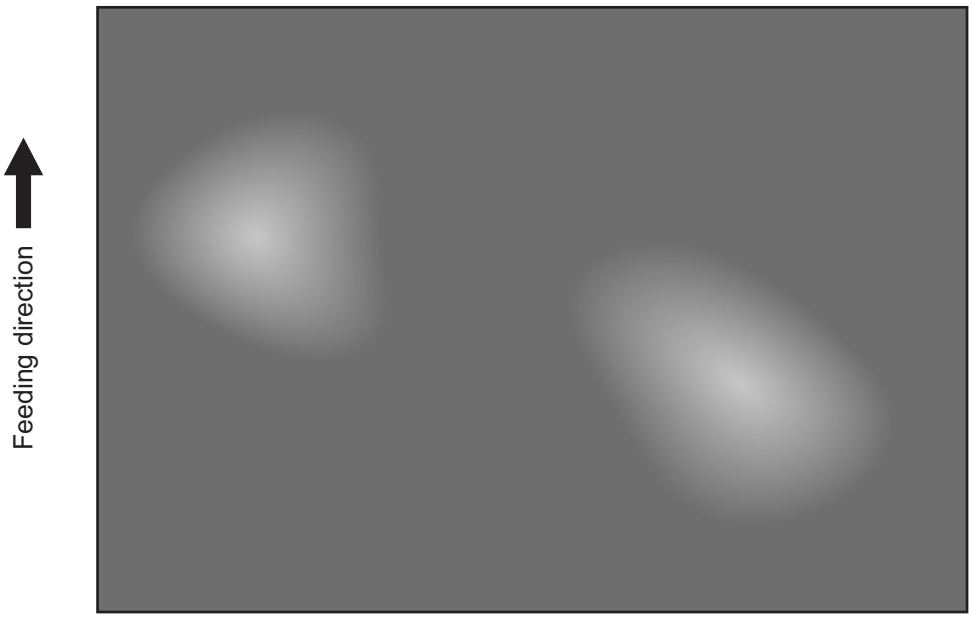


Fig. 5-22

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

5.3 Replacement of PC Boards

5.3.1 Replacing MAIN board

<<CAUTION IN REPLACING the MAIN board>>
The procedure for replacing the MAIN board is as follows.

<After replacing the MAIN board>

(1) Install SRAM board to the new MAIN board (from the old MAIN board).

(2) [If an expansion memory (GC-1240) has already been installed]
Install expansion memory (GC-1240) to the new MAIN board (from the old MAIN board).

(3) Update the version of system ROMs (System Firmware, OS data, UI data) (The ROMs had been used for the old MAIN board).
* See 🕮 P. 6-1 "6. FIRMWARE UPDATING" for the details of System ROM update.

6. FIRMWARE UPDATING

When you want to update the firmware above or the equipment becomes inoperative status due to some defectives of the firmware, updating the firmware is available by the following actions.

- Updating with the download jig
  📖 P. 6-1 "6.1 Firmware Updating with Download Jig"

- Updating with PC connected
  📖 P. 6-7 "6.2 Firmware Updating with TOSHIBA Viewer"

6.1 Firmware Updating with Download Jig

In this equipment, it is feasible to update the firmware automatically by connecting the download jig using the dedicated connector and turning ON the equipment.

Firmware	Stored	Download jig
System ROM	System control PC board (SYS board)	PWA-DWNLD-350-JIG1(16 MB) or PWA-DWNLD-350-JIG2(48 MB)

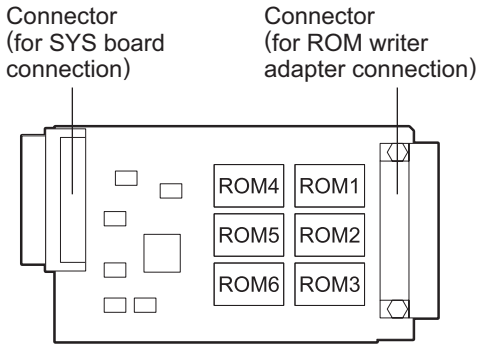


Fig. 6-1 Jig board: PWA-DWNLD-350-JIG2(48 MB)

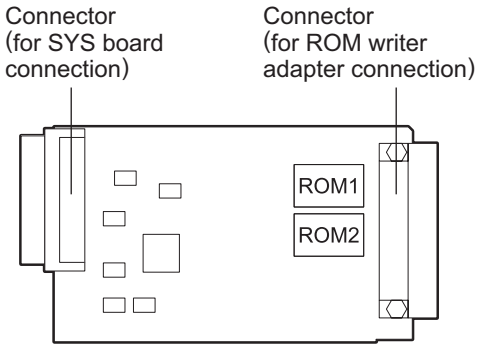


Fig. 6-2 Jig board: PWA-DWNLD-350-JIG1(16 MB)

Important:

- The download jig (PWA-DWNLD-350-JIG) has two types having different ROM capacity.

Download jig	ROM capacity
PWA-DWNLD-350-JIG2 (48 MB)	8 MB x 6
PWA-DWNLD-350-JIG1 (16 MB)	8 MB x 2

- The download jig (PWA-DWNLD-350-JIG) is the jig in which the Flash ROM is mounted on the board directly. Therefore, ROM writer adapter (PWA-DL-ADP-350) is required to write the data to these Flash ROMs. Refer to the following to write the data.
  📖 P. 6-5 "6.1.2 Writing the data to the download jig (PWA-DWNLD-350-JIG)"

6.1.1 PWA-DWNLD-350-JIG

[A] Update procedure

Important:

- Turn OFF the power before installing and removing the download jig.
- Do not turn OFF the power during the update. The data could be damaged and not be operated properly.

(1) Write the data to the download jig.
📖 P. 6-5 "6.1.2 Writing the data to the download jig (PWA-DWNLD-350-JIG)"

(2) Turn OFF the power of the equipment.

(3) Remove the rear cover.

Fig. 6-3

(4) Connect the download jig with the connector (CN1) on the MAIN board.

Fig. 6-4

(5) Turn ON the power.
Downloading starts automatically and the processing status is displayed on Control panel.

■ : ON □ : OFF

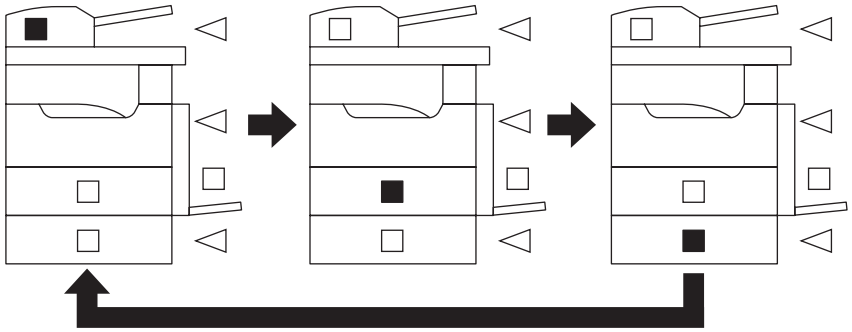


Fig. 6-5

(6) After the update is completed properly, the LED (DRAWER and Original setting) on the control panel blinks.

■ : ON □ : OFF

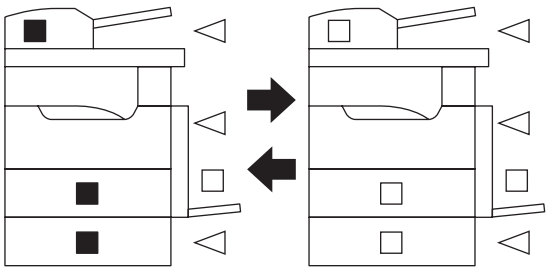


Fig. 6-6

When the update is not completed properly, the LED (Paper jam position) on the control panel blinks. Turn OFF the power, and then check the following items. After confirming and clearing the problems, restart updating from the beginning.

- Is the download jig connected properly?
- Is the updating data written to the download jig properly?
- Do the download jig and the equipment operate properly?

◀ : ON

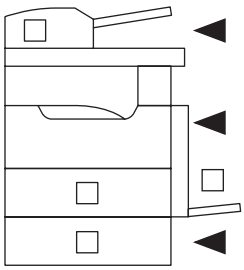


Fig. 6-7

(7) Turn OFF the power, remove the download jig and install the cover plate.

[B] Confirmation of the updated data

After the updating is completed, check each data version in the Setting Mode (08) to confirm that the data was overwritten properly.

08-900: System ROM version
08-920: FROM basic section software version
08-921: FROM internal program version
08-922: UI data fixed section version
08-923: UI data common section version
08-930: Version of UI data in FROM displayed at power ON

6.1.2 Writing the data to the download jig (PWA-DWNLD-350-JIG)

The download jig (PWA-DWNLD-350-JIG) is the jig in which the Flash ROM is mounted on the board directly. The ROM writer adapter (PWA-DL-ADP-350) is required to write data to these Flash ROMs. Connect the download jig with the ROM writer via ROM writer adapter to write data.
For the procedure to write data, refer to the download procedure, instruction manual of each ROM writer, or others.

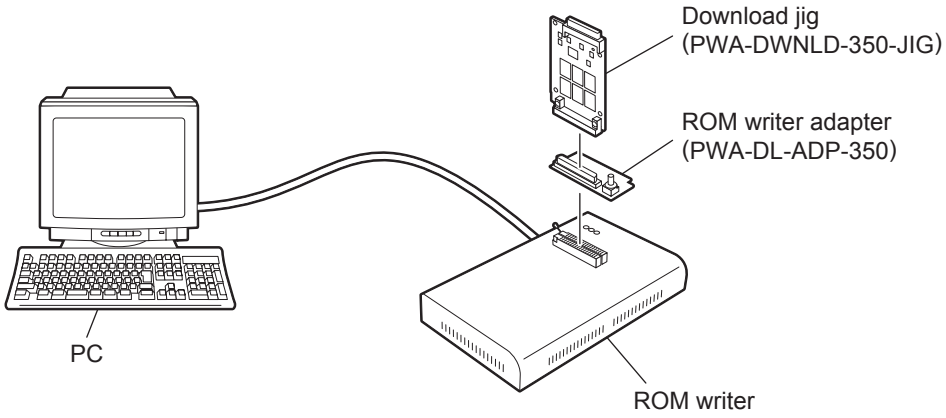


Fig. 6-8

Note:

There are two types of the ROM writer adapter. Use the proper one according to the ROM writer to be used. Applicable type of the adapter for the ROM writer can be confirmed by the model name indicated on the board. Confirm that the adapter is available for the ROM writer to be used before connecting them. If an unapplied adapter is connected, the application of the ROM writer judges it as an error and writing the data cannot be implemented. Applicable combinations of the ROM writer and adapter are as follows.

ROM writer	ROM writer adapter
Minato Electronics MODEL 1881XP (or equivalent)	PWA-DL-ADP-350-1881 (model 1881)
Minato Electronics MODEL 1893/1895/1931/1940 (or equivalent)	PWA-DL-ADP-350-1931 (model 1931)

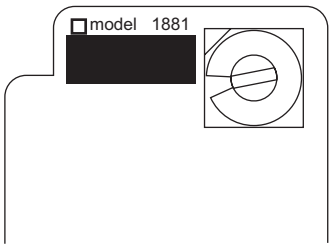


Fig. 6-9 PWA-DL-ADP-350-1881

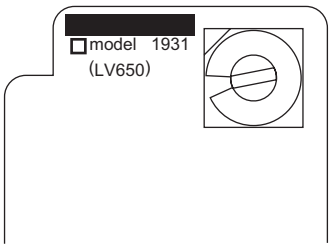


Fig. 6-10 PWA-DL-ADP-350-1931

[A] Precaution when writing the data

- Set the writing voltage (VID) to 3.3V.
- When writing the data, set the address from 0 to 3FFFFF. The data may not be written correctly if it is not set.
- The Flash ROM in which the data will be written, on the download jig is selected by switching the rotary switch on the adapter. Be sure to switch the rotary switch on the adapter depending on the data (file) to be written.

Rotary Switch	File Name	Flash ROM
1	ROM. bin	ROM1
2	N/A	ROM2
3	N/A	ROM3
4	N/A	ROM4
5	N/A	ROM5
6	N/A	ROM6

Note:

Be sure not to confuse different ROM Versions since the file name is identical although the ROM version is different.

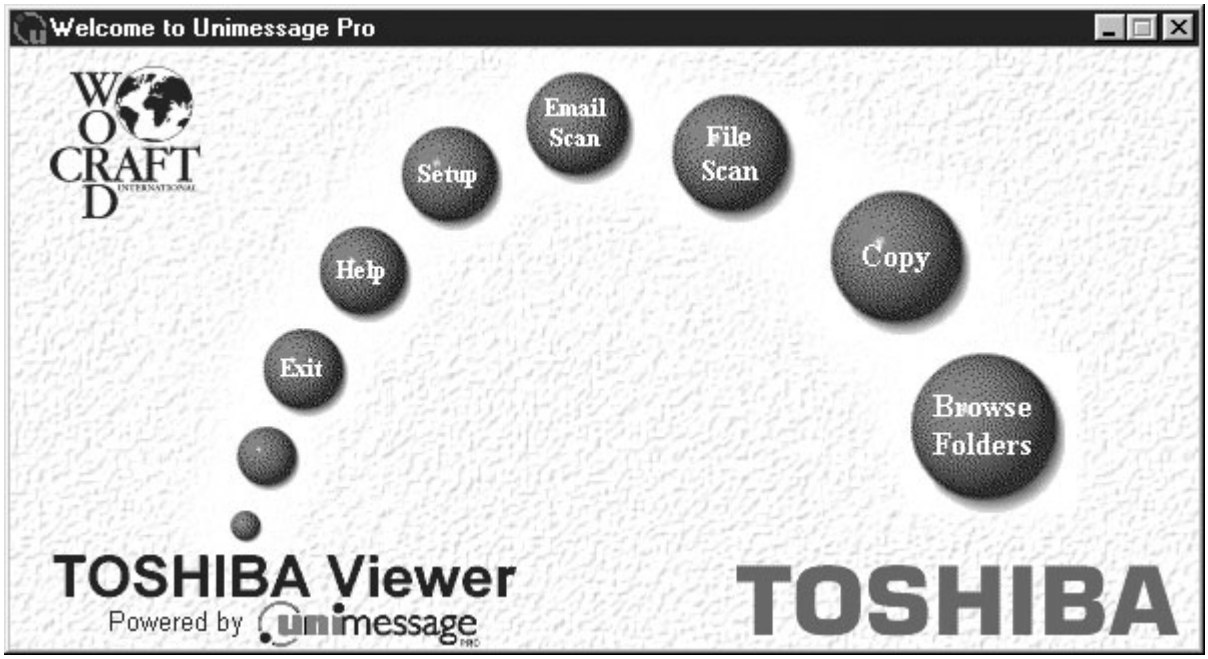
6.2 Firmware Updating with TOSHIBA Viewer

Using the TOSHIBA Viewer, you can download the firmware from the PC to this copier for updating.

Important:

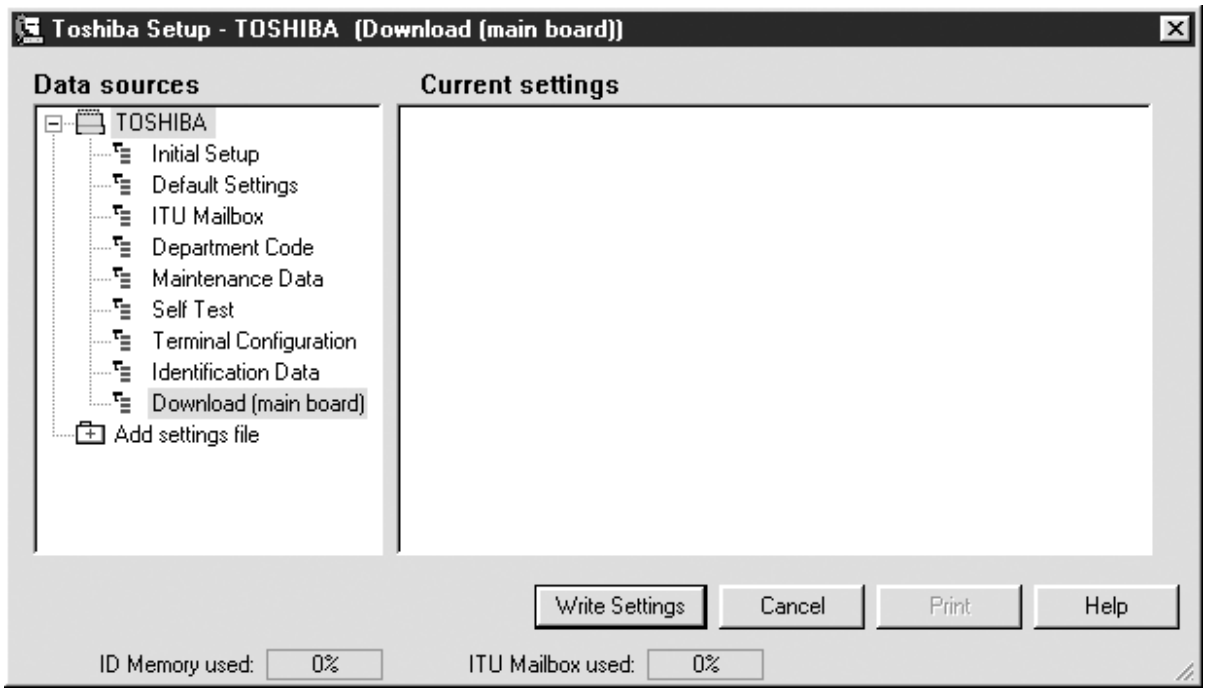
- Data to be downloaded should be stored in the same drive as the TOSHIBA Viewer program. If the data is stored in a different drive (including a floppy disk or the drive of another PC connected to the network), downloading may not be performed normally.
- Do not turn off the power of the copier and the PC while data is being updated. Data may be damaged causing the copier not to operate normally.

1) Start the TOSHIBA Viewer, and then Click [Setup] on the main welcome menu.



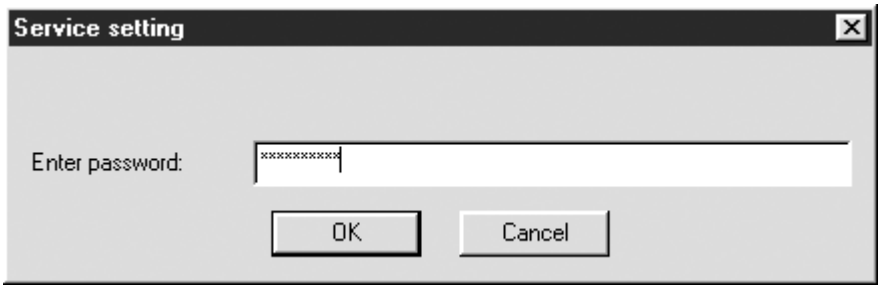
The Toshiba Setup screen appears.

2) Double click [Download (main board)] in Data sources.



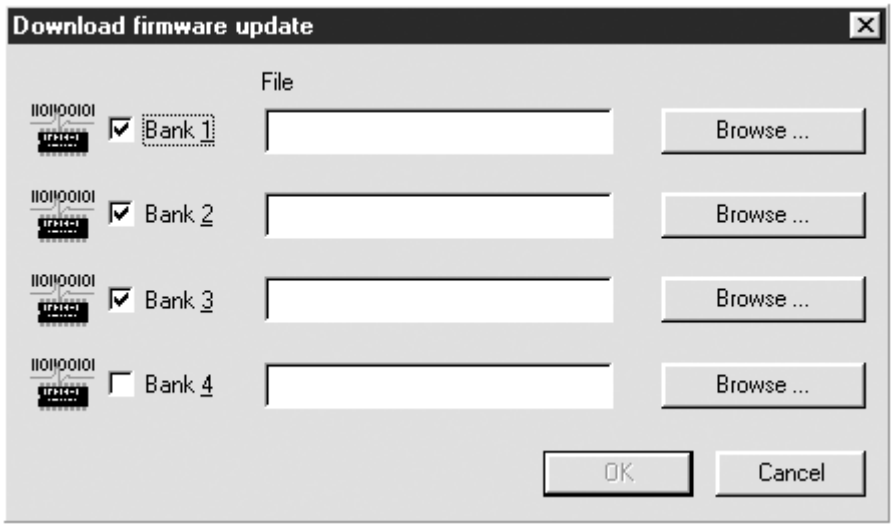
The Service setting dialog box appears.

3) Enter the password “TSBSERVICE”.

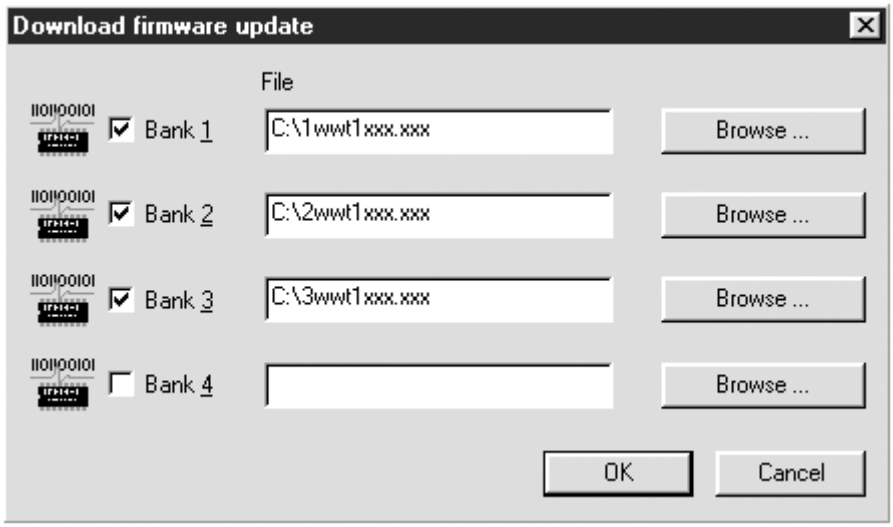


4) Click [OK].
The Download firmware update dialog box appears.

5) Select the file for the download firmware.



Click [Browse] to select the file to be downloaded.
The selected files are displayed in File.



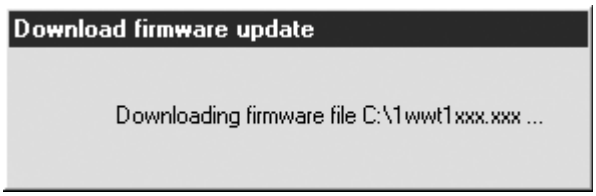
Notes:

- The files with the checked boxes are downloaded.
  Up to four files can be downloaded.

- The following files should be selected for the banks.
  Select files according to bank.
  Bank 1: Program data
  Bank 2: Function data
  Bank 3: Language data
  Bank 4: (Not used)

- When an inappropriate file is selected for the bank, the following message is displayed.
  Select the appropriate file.

6) Click [OK].
   Downloading starts and the file that is downloaded is displayed.



Notes:

- It takes approx. 20 <TBD> minutes to download the data (when three files are downloaded).
- The copier is automatically reset while downloading.

  When the downloading is completed, the following dialog box is displayed.

7) Click [OK].

7. POWER SUPPLY UNIT

7.1 Output Channel

The following are 2 output channels for the main switch line.

1) +5V
   +5V: CN104 Pin 1
   Output to the MAIN board

   +5VB: CN104 Pins 6, 7 and 8
   Output to the MAIN board

2) +24V
   +24V: CN104 Pins 15 and 16
   Output to the MAIN board

   +24VDF: CN104 Pins 17 and 18
   Output to the ADF (via MAIN board)

The following is an output channel for the cover switch line.

1) +24V
   +24VD: CN104 Pins 21 and 22
   Output to the MAIN board, PFU (via MAIN board)

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
+24V	MAIN board	Scan motor	M1	F203: T.B.D
		Polygonal motor	M4	
		Switching regulator cooling fan	M6	
		Main switch	SW1	
		Registration clutch	CLT1	
		Pickup solenoid	SOL1	
		Bypass pickup solenoid	SOL2	
		Contact image sensor unit	CIS	
	PFU			
+24VDF	ADF			F202: T.B.D
+24VD	MAIN board	Toner motor	M2	F201: T.B.D
		Main motor	M3	
		Exhaust fan	M5	
		Auto-toner sensor	S6	
		Discharge LED	ERS	
	Coin controller			

7.3 Configuration of Power Supply Unit

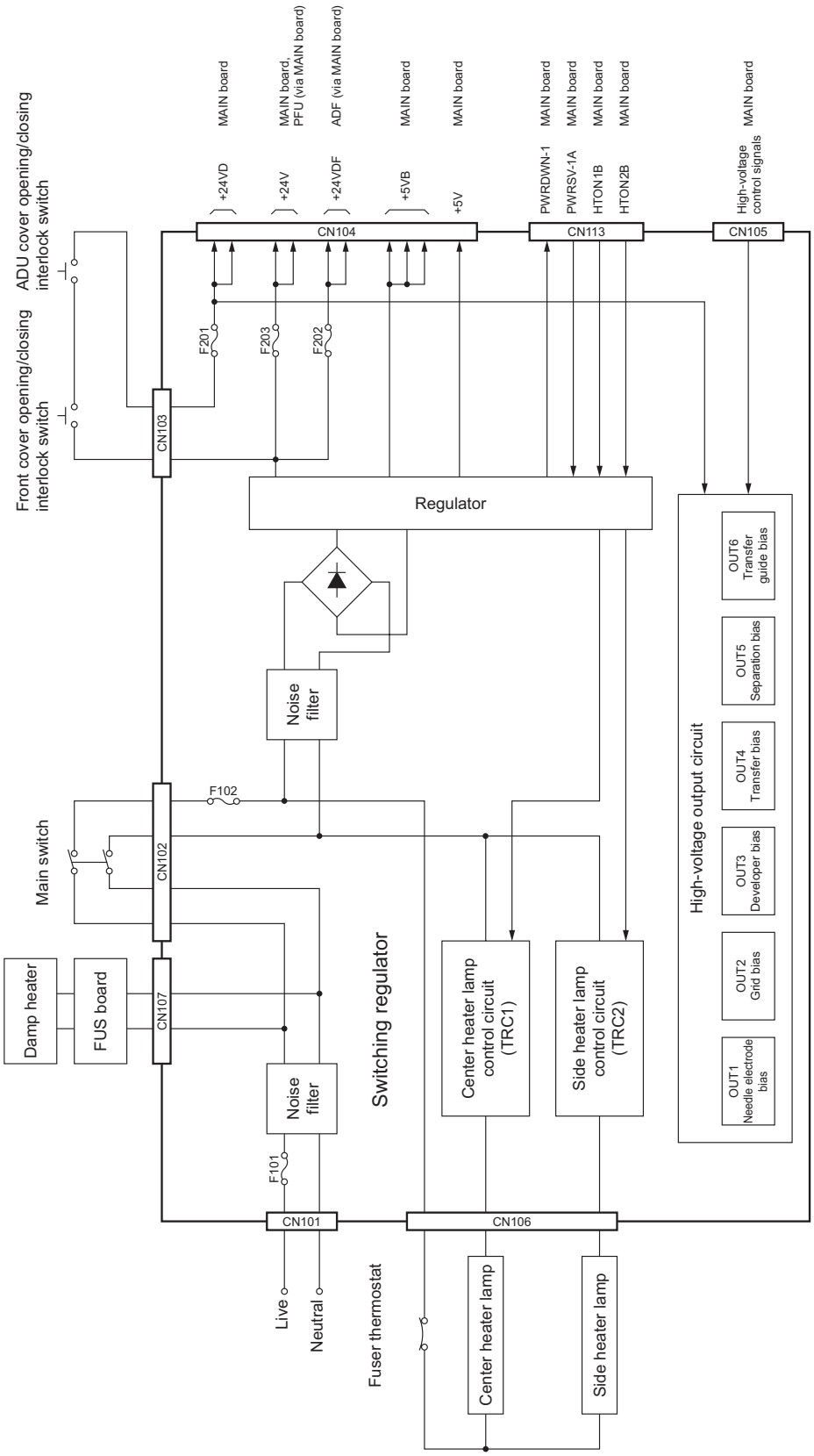


Fig. 7-1

8. WIRE HARNESS CONNECTION

8.1 AC Wire Harness

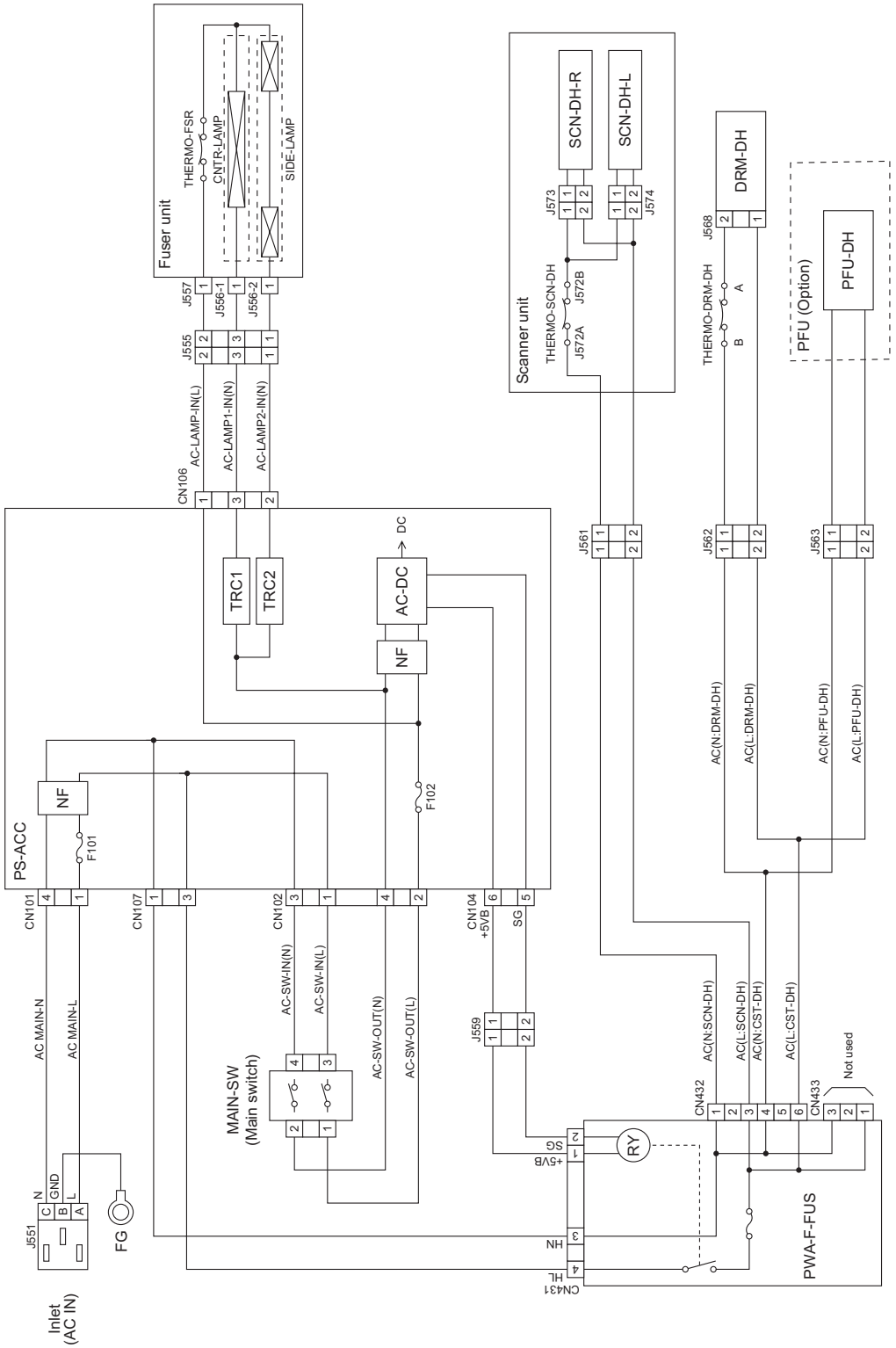
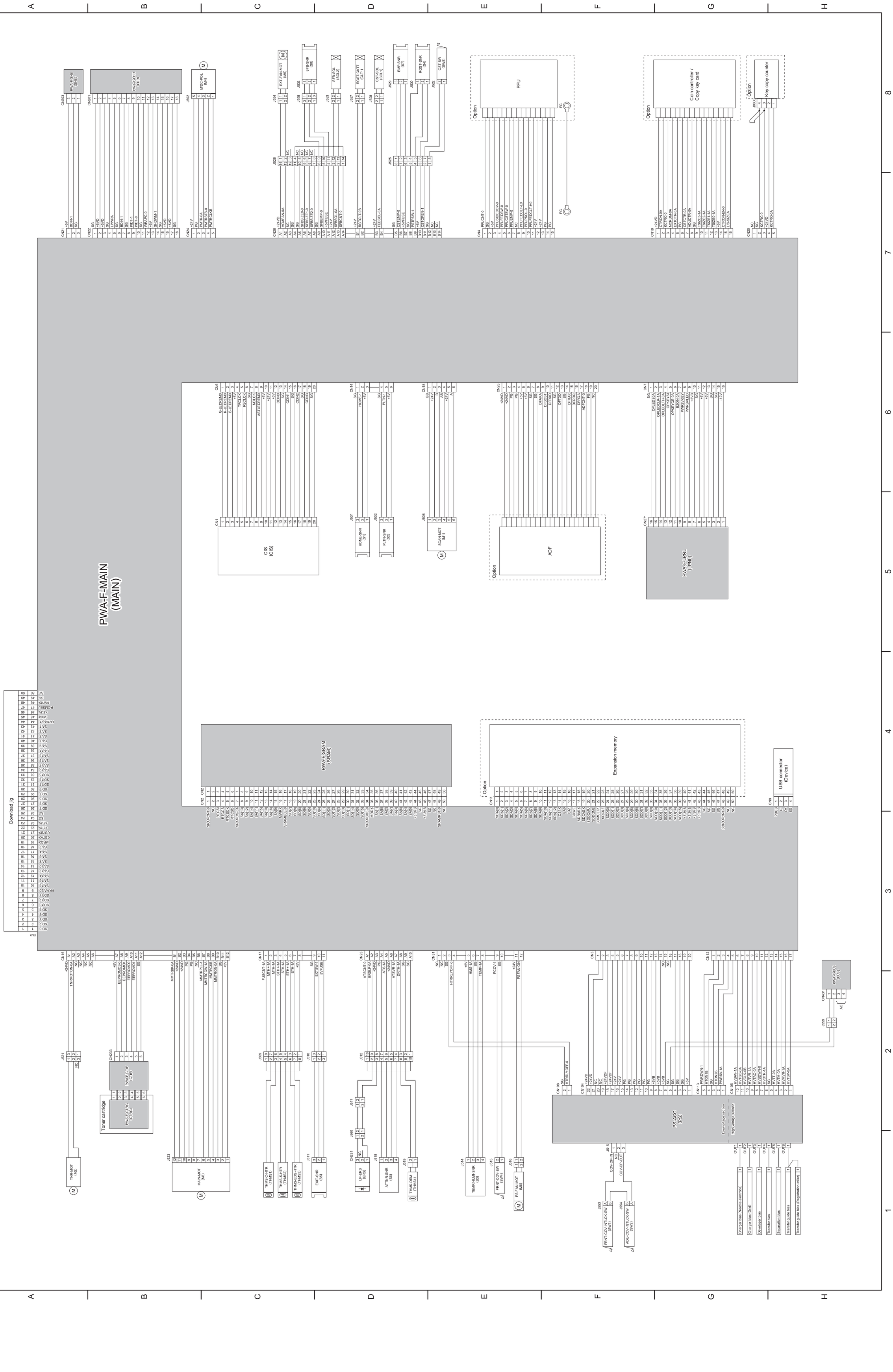


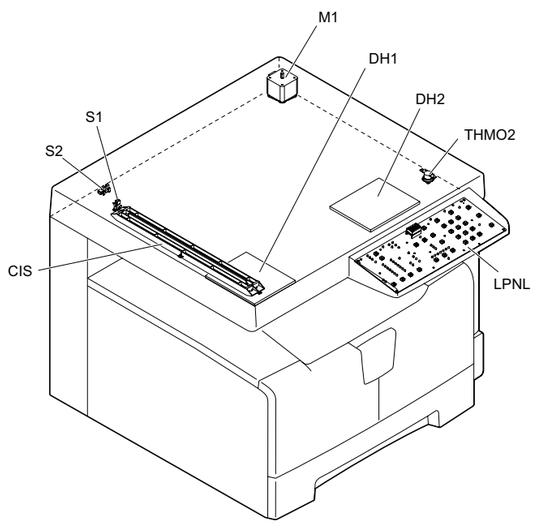
Fig. 8-1

8.2 DC Wire Harness

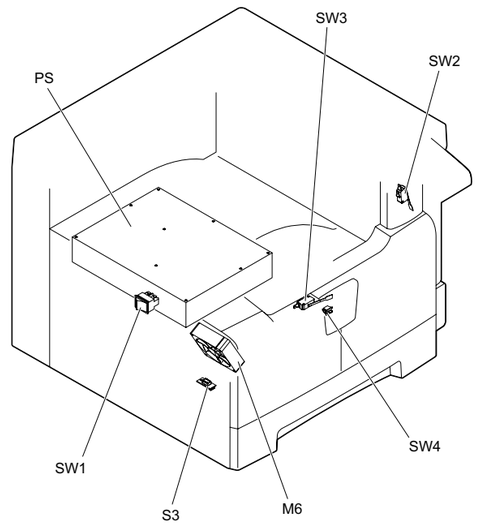


8.3 Electric Parts Layout

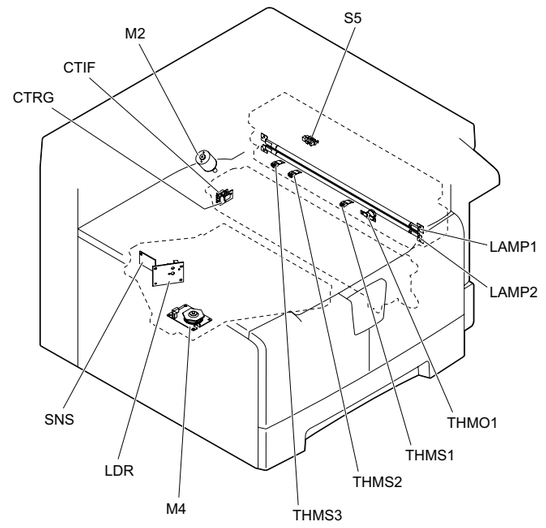
[A] Scanner, control panel



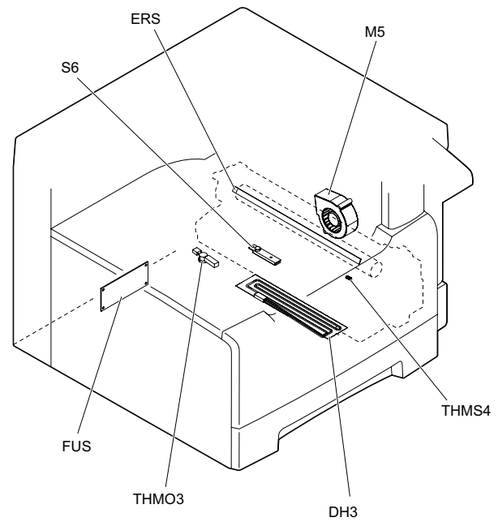
[B] Power supply section, switches



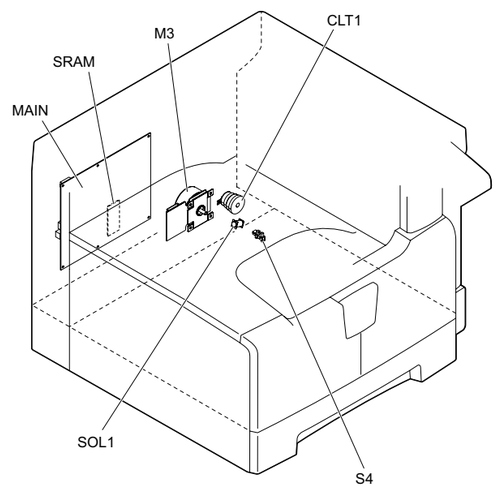
[C] Laser unit, fuser unit, toner cartridge section



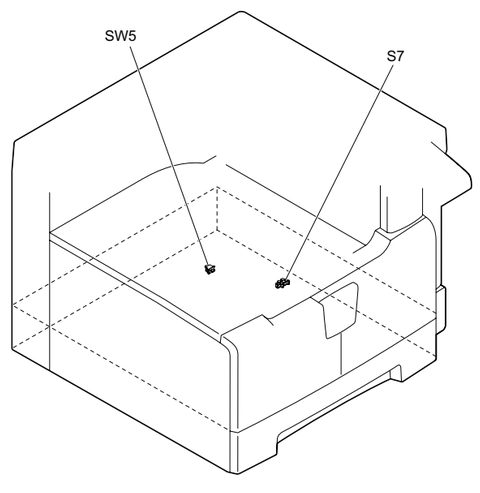
[D] Developer unit section



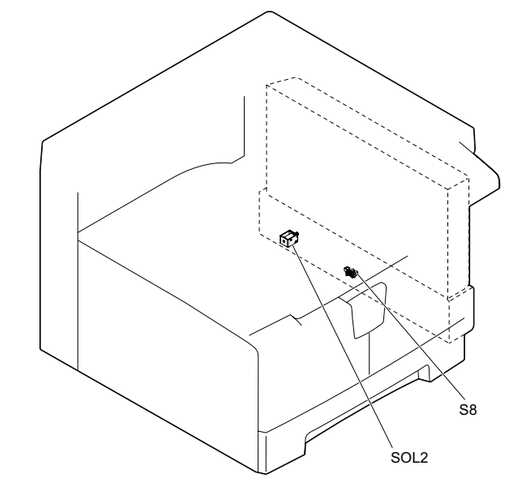
[E] Driving section



[F] Drawer section



[G] Bypass unit



Motors

Symbol	Name	Figure	Wire harness location
M1	SCAN-MOT Scan motor	[A]	5-E
M2	TNR-MOT Toner motor	[C]	1-A
M3	MAIN-MOT Main motor	[E]	1-B
M4	M/DC-POL Polygonal motor	[C]	8-C
M5	EXT-FAN-MOT Exhaust fan	[D]	8-C
M6	PS-FAN-MOT Switching regulator cooling fan	[B]	1-E

Sensors and Switches

Symbol	Name	Figure	Wire harness location
S1	HOME-SNR CIS home position sensor	[A]	5-D
S2	PLTN-SNR Platen sensor	[A]	5-D
S3	TEMP/HUMI-SNR Temperature/humidity sensor	[B]	1-E
S4	RGST-SNR Registration sensor	[B]	8-D
S5	EXIT-SNR Exit sensor	[E]	1-D
S6	ATTNR-SNR Auto-toner sensor	[C]	1-D
S7	EMP-SNR Paper empty sensor	[D]	8-D
S8	SFB-SNR Bypass paper sensor	[G]	8-C
SW1	MAIN-SW Main switch	[B]	AC wire harness
SW2	ADU-COV-INTLCK-SW ADU cover opening/closing interlock switch	[B]	1-F AC wire harness
SW3	FRNT-COV-INTLCK-SW Front cover opening/closing interlock switch	[B]	1-F AC wire harness
SW4	FRNT-COV-SW Front cover opening/closing switch	[B]	1-E
SW5	CST-SW Drawer detection switch	[F]	8-E

Electromagnetic spring clutches

Symbol	Name	Figure	Wire harness location
CLT1	RGST-CLT Registration clutch	[E]	8-D

Solenoids

Symbol	Name	Figure	Wire harness location
SOL1	CST-SOL Pickup solenoid	[E]	8-D
SOL2	SFB-SOL Bypass pickup solenoid	[G]	8-D

PC boards

Symbol	Name	Figure	Wire harness location
MAIN	PWA-F-MAIN Main PC board (MAIN board)	[E]	5-B
SRAM	PWA-F-SRAM SRAM PC board (SRAM board)	[E]	4-D
LDR	PWA-F-LDR Laser driving PC board (LDR board)	[C]	8-B
SNS	PWA-F-SNS H-sync signal detection PC board (SNS board)	[C]	8-A
LPNL	PWA-F-LPNL Control panel PC board-L (LPNL board)	[A]	5-G
CTIF	PWA-F-CTIF Toner cartridge interface PC board (CTIF board)	[C]	2-B
CTRG	PWA-F-CTRG Toner cartridge PC board (CTRG board)	[C]	2-B
FUS	PWA-F-FUS Fuse PC board (FUS board)	[D]	2-H

Lamps and heaters

Symbol	Name	Figure	Wire harness location
LAMP1	CNTR-LAMP Center heater lamp	[C]	AC wire harness
LAMP2	SIDE-LAMP Side heater lamp	[C]	AC wire harness
ERS	LP-ERS Discharge LED	[D]	1-D
DH1	SCN-DH-L Scanner damp heater (Left)	[A]	AC wire harness
DH2	SCN-DH-R Scanner damp heater (Right)	[A]	AC wire harness
DH3	DRM-DH Drum damp heater	[D]	AC wire harness

Thermistors and thermostats

Symbol	Name	Figure	Wire harness location
THMS1	THMS-C-HTR Center thermistor	[C]	1-C
THMS2	THMS-S-HTR Side thermistor	[C]	1-C
THMS3	THMS-EDG-HTR Edge thermistor	[C]	1-C
THMS4	THMS-DRM Drum thermistor	[D]	1-D
THMO1	THERMO-FSR Fuser thermostat	[C][D]	AC wire harness
THMO2	THERMO-SCN-DH Scanner damp heater thermostat	[A]	AC wire harness
THMO3	THERMO-DRM-DH Drum damp heater thermostat	[D]	AC wire harness

Others

Symbol	Name	Figure	Wire harness location
CIS	CIS Contact image sensor unit	[A]	5-C
PS	PS-ACC Switching regulator	[B]	2-G AC wire harness

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