Service Manual

MF7200/7100 Series
MF7170i

Canon

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Application

This manual has been issued by Canon Inc. for qualified persons to learn technical theory, installation, maintenance, and repair of products. This manual covers all localities where the products are sold. For this reason, there may be information in this manual that does not apply to your locality.

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Caution

Use of this manual should be strictly supervised to avoid disclosure of confidential information.

Symbols Used

This documentation uses the following symbols to indicate special information:

Symbol	Description
	Indicates an item of a non-specific nature, possibly classified as Note, Caution, or Warning.
	Indicates an item requiring care to avoid electric shocks.
	Indicates an item requiring care to avoid combustion (fire).
	Indicates an item prohibiting disassembly to avoid electric shocks or problems.
	Indicates an item requiring disconnection of the power plug from the electric outlet.
Memo	Indicates an item intended to provide notes assisting the understanding of the topic in question.
REF.	Indicates an item of reference assisting the understanding of the topic in question.
	Provides a description of a service mode.
	Provides a description of the nature of an error indication.

The following rules apply throughout this Service Manual:

1. Each chapter contains sections explaining the purpose of specific functions and the relationship between electrical and mechanical systems with reference to the timing of operation.
   In the diagrams, ▭▮▮▮▭ represents the path of mechanical drive; where a signal name accompanies the symbol , the arrow ⟶ indicates the direction of the electric signal.
   The expression "turn on the power" means flipping on the power switch, closing the front door, and closing the delivery unit door, which results in supplying the machine with power.
2. In the digital circuits, '1'is used to indicate that the voltage level of a given signal is "High", while '0' is used to indicate "Low".(The voltage value, however, differs from circuit to circuit.) In addition, the asterisk (*) as in "DRMD*" indicates that the DRMD signal goes on when '0'.
   In practically all cases, the internal mechanisms of a microprocessor cannot be checked in the field. Therefore, the operations of the microprocessors used in the machines are not discussed: they are explained in terms of from sensors to the input of the DC controller PCB and from the output of the DC controller PCB to the loads.

The descriptions in this Service Manual are subject to change without notice for product improvement or other purposes, and major changes will be communicated in the form of Service Information bulletins.
All service persons are expected to have a good understanding of the contents of this Service Manual and all relevant Service Information bulletins and be able to identify and isolate faults in the machine."

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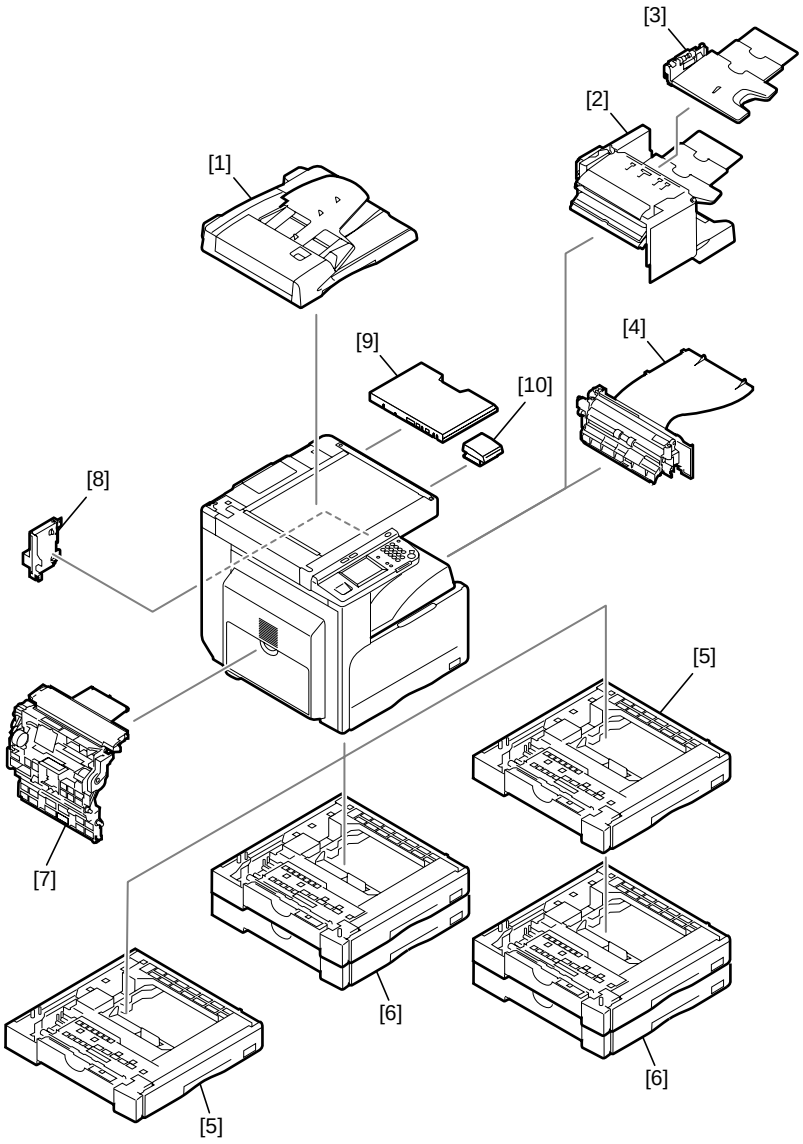
1.1 System Construction

1.1.1 Pickup/ Delivery /Original Handling Accessories System Configuration (MF7170i)

The configuration is as shown in the following figure:



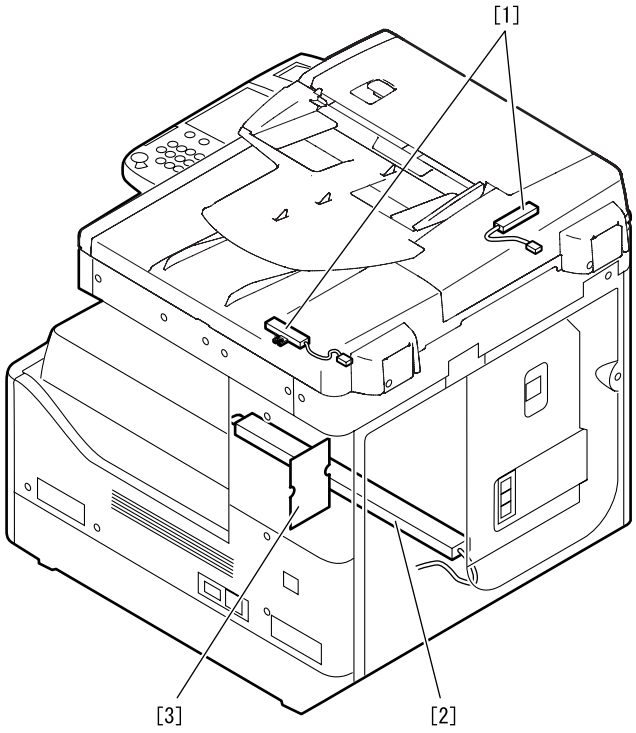
F-1-1

[1]	DADF-P1	*1
[2]	Finisher-U1	
[3]	Additional Finisher Tray-C1	
[4]	Inner 2-way Tray-E1	
[5]	Cassette Feeding Module-J1	*2
[6]	Cassette Feeding Module-K1	*2
[7]	Duplex Unit-A1	
[8]	Power Supply Kit-Q1	*1
[9]	Document Tray-J1	
[10]	Card Reader-E1	

*1: Standard equipment
*2: A Cassette feeding module-J1 can be placed on the Cassette feeding module-K1 to use these cassette units as a 3-stage cassette unit.

1.1.2 Reader Heater/ Cassette Heater System Configuration (MF7170i)

The configuration is as shown in the following figure:



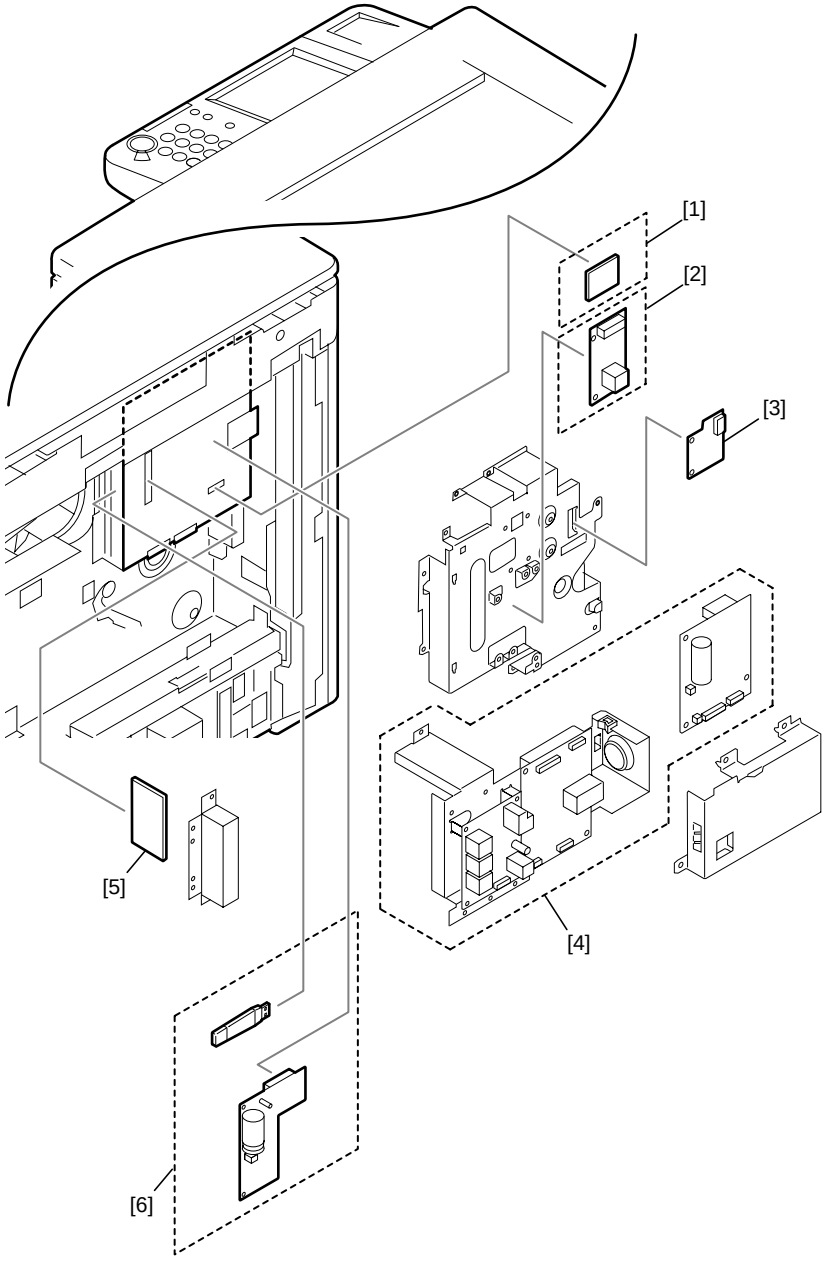
F-1-2

[1]	Reader Heater	*1
[2]	Cassette Heater	*1
[3]	Heater PCB	

These parts are supplied as service parts, not the standard items.
*1: To operate the heaters, a heater PCB is required.

1.1.3 Printing/Transmitting Accessories System Configuration (MF7170i)

The configuration is as shown in the following figure:



F-1-3

[1]	PCL Printer Kit-K1	*1
[2]	UFRII LT Printer Kit-J2	*1
[3]	Serial Interface Board-A1	
[4]	Super G3 FAX Board-T1	
[5]	iR 256MB Expansion RAM-D1	*1
[6]	Color SEND Kit (This item is not supplied as goods.)	*1

*1: Standard equipment

1.1.4 Functions of the Printing/Transmission Functions (MF7170i)

The following is a brief explanation of the functions expected of the accessories; for details, see the chapters that follow:

T-1-1

UFR II print function (Resolution: 1200dpi)*1	==>	UFRII LT Printer Kit-J2 iR 256MB Expansion RAM-D1
PCL print function*1	==>	PCL Printer Kit-K1
FAX function	==>	Super G3 FAX Board-T1
Coin vender function	==>	Serial Interface Board-A1

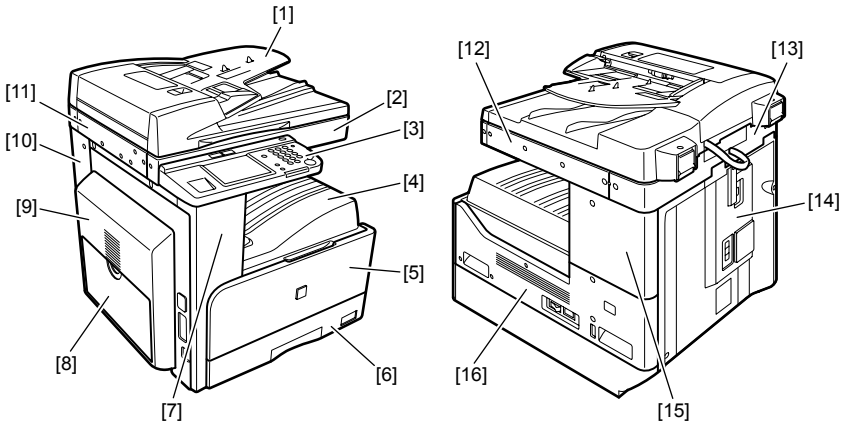
Color SEND function*1	==>	This function is not supplied as goods.

*1: Standard equipment

1.2 Product Specifications

1.2.1 Names of Parts

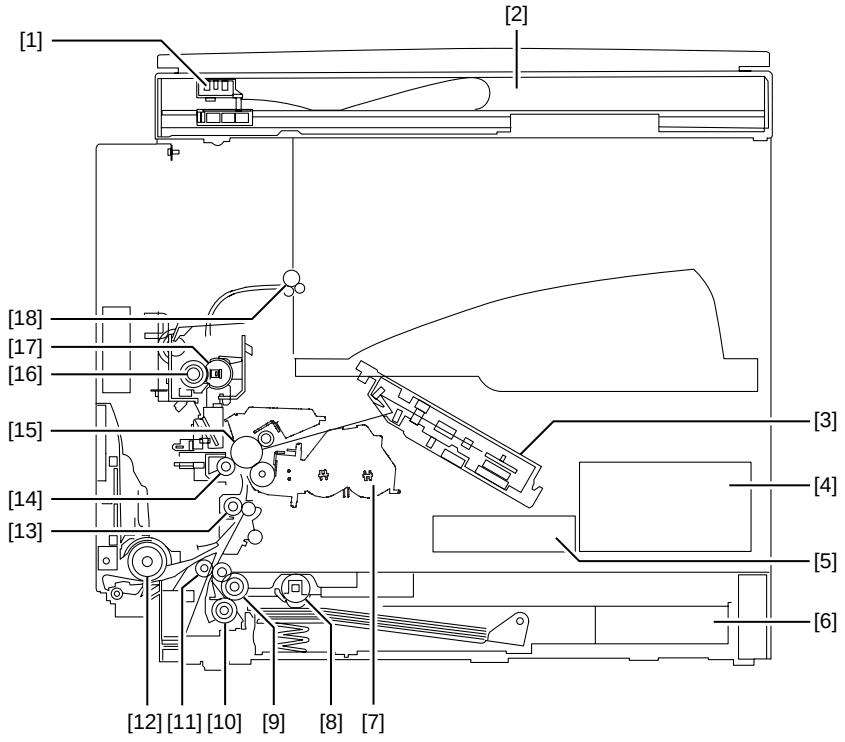
1.2.1.1 External View (MF7170i)



F-1-4

[1]	DADF	[9]	Left door
[2]	Reader front cover	[10]	Left cover (rear)
[3]	Control panel	[11]	Reader left cover
[4]	Delivery tray	[12]	Reader right cover
[5]	Front cover	[13]	Reader rear cover
[6]	Cassette 1	[14]	Rear cover
[7]	Left cover (front)	[15]	Right cover (upper)
[8]	Manual feed tray	[16]	Right cover (lower)

1.2.1.2 Cross-Section



F-1-5

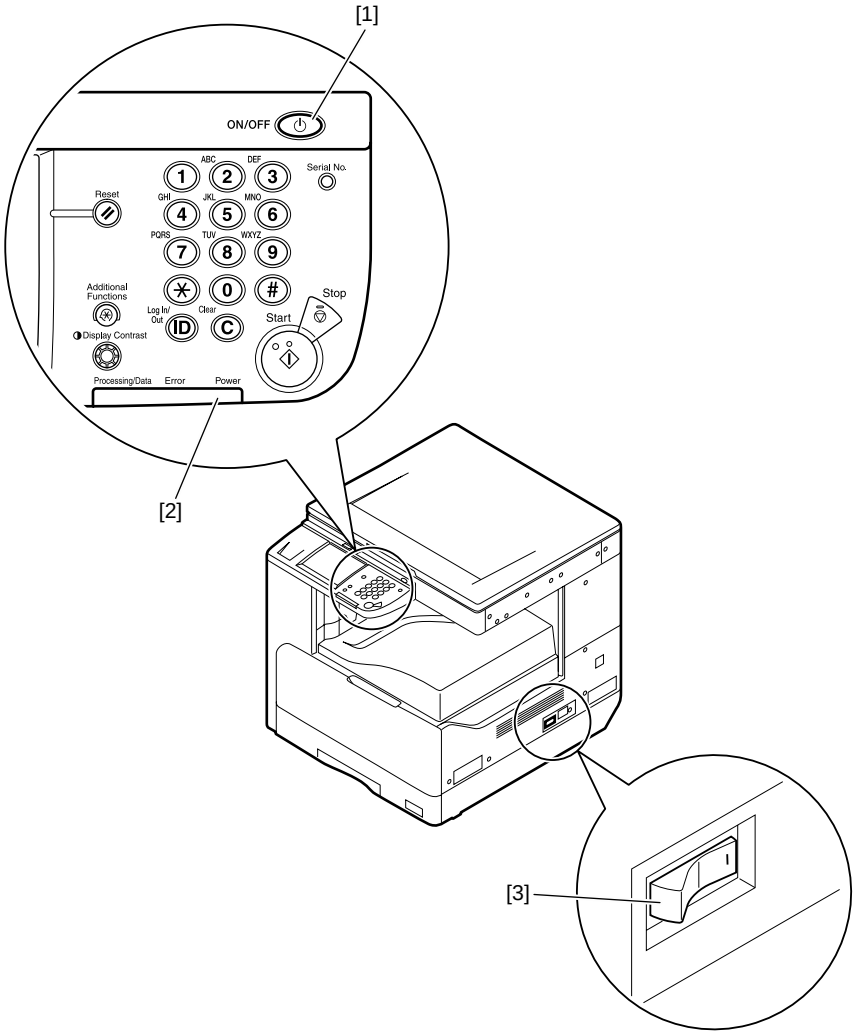
[1]	CIS unit	[10]	Separation roller
[2]	Reader unit	[11]	Vertical path roller
[3]	Laser scanner unit	[12]	Manual feed pickup roller

[4]	DC power supply PCB	[13]	Registration roller
[5]	HVT PCB	[14]	Transfer roller
[6]	Cassette	[15]	Drum unit
[7]	Toner cartridge	[16]	Pressure roller
[8]	Pickup roller	[17]	Fixing film unit
[9]	Feed roller	[18]	Delivery roller

1.2.2 Using the Machine

1.2.2.1 Turning On the Power Switch

The machine possesses 2 power switches: main power switch and control power switch. Normally (i.e., unless the machine is in a sleep state), the machine will be supplied with power when you turn on its main power switch.



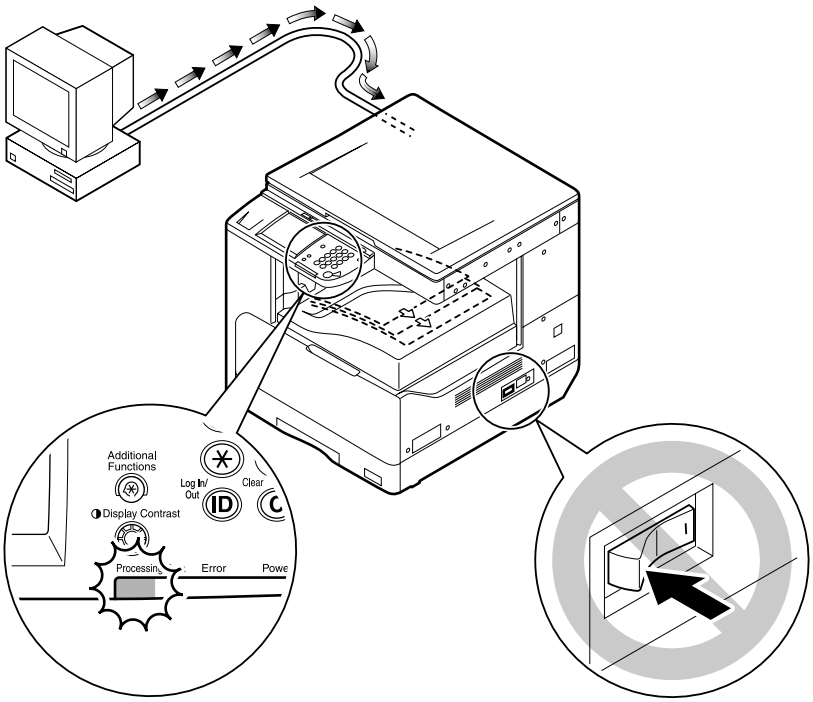
F-1-6

[1]Control panel power switch
[2]Main power lamp
[3]Main power switch

1.2.2.2 When Turning Off the Main Power Switch

<During printing or fax data transmission/reception>

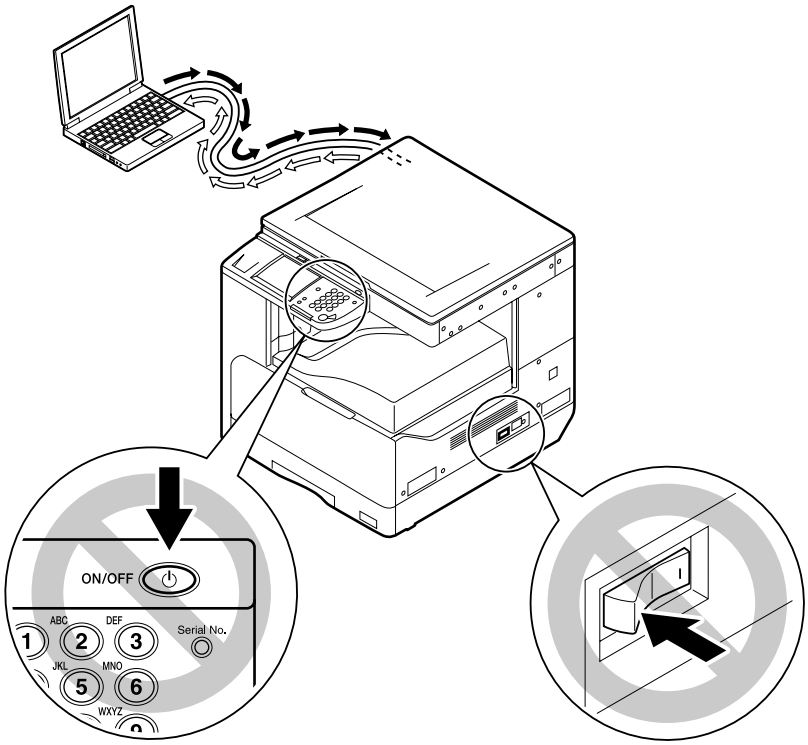
⚠
Be sure to operate the main power switch while the Processing/Data lamp on the control panel is not lit.
(Turning off the main switch during printing or fax data transmission/reception can erase the data being processed.)



F-1-7

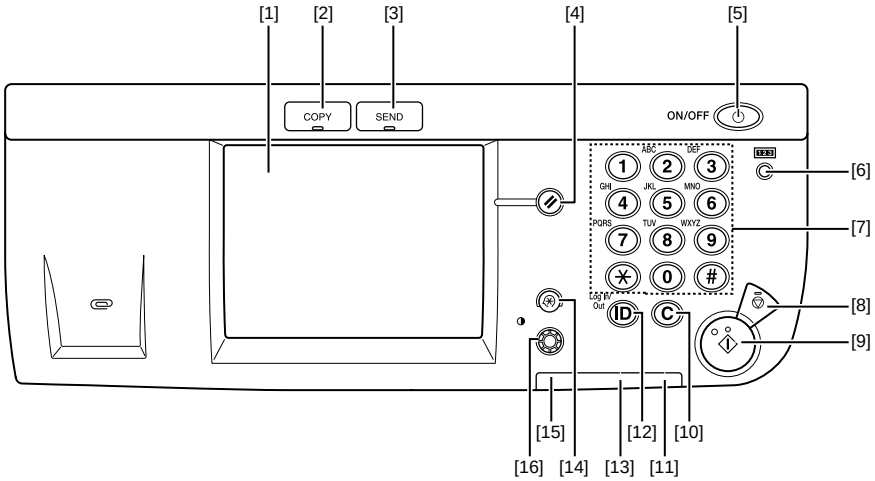
<During downloading>

Do not turn off the power switch or ON/OFF switch on the control panel.
(Turning off the main power switch during downloading can make this machine inoperative.)



F-1-8

1.2.2.3 Control Panel (MF7170i)



F-1-9

[1]	Touch Panel Display	[9]	Start key
[2]	COPY key	[10]	Clear key
[3]	SEND key	[11]	Main power indicator
[4]	Reset key	[12]	Log IN/Out key
[5]	Control panel power switch	[13]	Error indicator
[6]	Counter Check key	[14]	Additional functions key
[7]	Numeric keys	[15]	Processing/Date indicator
[8]	Stop key	[16]	Display Contrast Dial

1.2.3 User Mode Items

1.2.3.1 Common Settings

T-1-2

Item	Settings(*1 Indicates the default setting.)
Initial Function	Select Initial Function: Copy*1, Send Set System Monitor Screen as initial function: On, Off*1 Set [Device] as the default for System Monitor: On*1, Off
Auto Clear Setting	Initial Function*1, Selected Function
Audible Tones	Entry Tone: On*1 (1* to 3 levels), Off Error Tone: On*1 (1* to 3 levels), Off Send Done Tone: On (1* to 3 levels), Off*1 Receive Done Tone: On (1* to 3 levels), Off*1 Print Done Tone: On*1 (1* to 3 levels), Off Scan Done Tone: On*1 (1* to 3 levels), Off
Toner Save Mode	High, Low, Off*1
Printer Density	1 to 9 levels; 5*1
Inch Entry	On, Off*1
Drawer Eligibility For APS/ADS	Copy: (Stack Bypass: On, Off*1, All Other Paper Sources: On*1, Off) Printer: (Stack Bypass: cannot be set, All Other Paper Sources: On*1, Off) Receive: (Stack Bypass: On, Off*1, All Other Paper Sources: On*1, Off) Other: (Stack Bypass: On, Off*1, All Other Paper Sources: On*1, Off)
Register Paper Type	Paper Drawer 1, Paper Drawer 2*2, Paper Drawer 3*2, Paper Drawer 4*2: Plain*1, Recycled, Color, Bond, Heavy Paper 1
Energy Consumption in Sleep Mode	Low*1, High
Tray Designation*2	If the Optional Inner 2 Way Tray-E1 Is Attached Tray A: Copy*1, Printer*1, Receive*1, Other*1 Tray B: Copy*1, Printer*1, Receive*1, Other*1 If the Optional Finisher-U1 and Additional Finisher Tray-C1 Are Attached Tray A: Copy*1, Printer*1, Receive*1, Other*1 Tray B: Copy*1, Printer*1, Receive*1, Other*1
Stack Bypass Standard Settings	On:Option, Off*1
Paper Feed Method Switch	Stack Bypass, Paper Drawer 1, Paper Drawer 2*2, Paper Drawer 3*2, Paper Drawer 4*2: Speed*1, Print Side
Language Switch	On, Off*1
Reversed Display (B/W)	On, Off*1
Error Display for Dirty Feeder	On*1, Off
Initialize Common Settings	Initialize

Item	Settings(*1 Indicates the default setting.)

*2 Indicates items that appear only when the appropriate optional equipment is attached.

1.2.3.2 Timer Settings

T-1-3

Item	Settings(*1 Indicates the default setting.)
Date & Time Settings	Date and Time Setting (12 digit number) Time Zone Settings: GMT -12:00 to GMT +12:00; GMT -03:00*1 Daylight Saving Time Settings: On, Off*1
Auto Sleep Time	On*1 3 to 30 minutes; 5*1 Off
Auto Clear Time	0 (Off) to 9 minutes, in one minute increments; 2 min.*1

1.2.3.3 Adjustment/Cleaning

T-1-4

Item	Settings(*1 Indicates the default setting.)
Transfer Roller Cleaning	Press [Start]
Fixing Unit Cleaning	Press [Cleaning Sheet Print]
Feeder Cleaning	Press [Start]
Special Mode M	Normal*1, Low, High
Special Mode N	On, Off*1
Special Mode O	Stack Bypass: On, Off*1 Drawer: On, Off*1
Special Mode P	On, Off*1
Bond Special Fixing Mode	On, Off*1
Special Mode S	Speed Priority 1, Speed Priority 2, Off*1
Auto Adjustment for Dirty Feeder	On*1, Off
Maintenance Code	This setting is not functional in this model.

1.2.3.4 Report Settings

T-1-5

Item	Settings(*1 Indicates the default setting.)
Settings	TX Report: On, For Error Only*1, Off Report With TX Image: On*1, Off
	Activity Report Auto Print: On*1, Off Send/Receive Separate: On, Off*1
	RX Report: On, For Error Only, Off*1
Print List	Address Book List One-touch Buttons: Yes, No Address Book: Yes, No
	User's Data List: Yes, No

1.2.3.5 System Settings

T-1-6

Item	Settings(*1 Indicates the default setting.)
System Manager Settings	
System Manager	32 characters maximum
System Manager ID	Seven digit number maximum
System Password	Seven digit number maximum
Department ID Management	
Department ID Management	On, Off*1
Register ID/Password	Register, Edit, Erase
Page Totals	Clear, Clear All Totals, Print List
Allow ID Unknown Printer Jobs	On*1, Off
Network Settings	
TCP/IP Settings	
IP Address Settings	IP Address, Subnet Mask, Gateway Address, DHCP, RARP, BOOTP
DNS Server	Primary Server(DNS), Secondary Server (DNS), Host Name, Domain Name
WINS Configuration	WINS Resolution, WINS Server
Use LPD Print	LPD Settings
RAW Settings	Use RAW, Use Bidirectional
Use PASV Mode for FTP	Use PASV Mode for FTP On/Off
FTP Extension	FTP Extension On/Off
Use HTTP	Use HTTP On/Off
Port Number Settings	LPD, RAW, HTTP, SMTP, Receive, POP3 Receive, FTP Sending, SMTP Sending, SNMP
IP Address Range Settings	On/Off*1 A maximum of 4 IP addresses can be stored.

Item	Settings(*1 Indicates the default setting.)
Receiving MAC Address Settings	Apply Settings: On/Off MAC addresses (a maximum of 5 addresses can be registered)
SMB Settings	Use SMB Client, Server, Workgroup, Comment, LM Announce
SNMP Settings	Use SNMP, Community Name, Writable SNMP
Enable Dedicated Port Settings	On/Off
Ethernet Driver Settings	Auto Detect, Communication Mode, Ethernet Type, MAC Address
E-Mail/I-Fax	SMTP Receive, POP, POP Authentication before Send, SMTP Server, E-mail Address, POP Server, POP Address, POP Password, POP Interval
Startup Time Settings	0 to 300 seconds 60*1
Forwarding Settings	
Receive Type	All*1, Fax, I-Fax
Validate/Invalidate	On, Off*1
Register	Condition Name: 50 characters maximum Forwarding Conditions Receive Type: Fax*1, I-Fax Forwarding Destination: Select from the registered addresses. File Format: TIFF*1, PDF, Divide into Pages
Forward w/o Cond.	Receive Type: Fax*1, I-Fax Forwarding Destination: Select from the registered addresses. File Format: TIFF*1, PDF, Divide into Pages
Detail/Edit	Condition Name: 50 characters maximum Forwarding Conditions Receive Type: Fax*1, I-Fax Forwarding Destination: Select from the registered addresses. File Format: TIFF*1, PDF, Divide into Pages
Erase	Yes, No
Print List	Yes, No
Device Info Settings	
Device Name	32 characters maximum
Location	32 characters maximum
User ID Management	On, Off*1
Communications Settings	
E-mail/I-Fax	Maximum TX Data Size: 0 to 99 MB, in one MB increments, 3 MB*1 Devided TX over Max. Data Size: On, Off*1 Default Subject: 40 characters maximum
Fax Settings	Send Start Speed, Receive Start Speed R-Key Settings: PSTN*1/PBX
Memory Lock Settings	On:Option, Off*1
Remote UI On/Off	On*1, Off
Restrict Access to Destinations	Restrict New Addresses: On, Off*1 Allow Fax Driver TX: On*1, Off
License Registration	This setting is not functional in this model.
Department ID & User's Name	On*1, Off
Job Log Display	On*1, Off
Use USB Device	On*1, Off

1.2.3.6 Copy Settings

T-1-7

Item	Settings(*1 Indicates the default setting.)
Image Orientation Priority	On, Off*1
Auto Orientation	On*1, Off
Standard Settings	Store, Initialize
Initialize Copy Settings	Yes, No

1.2.3.7 Communication Settings

T-1-8

Item	Settings(*1 Indicates the default setting.)
Common Settings	

Item	Settings(*1 Indicates the default setting.)
TX Settings	Unit Name (24 characters maximum)
	Data Compression Ratio: High Ratio, Normal*1, Low Ratio
	Retry Times: 0 to 5 times; 3 times*1
	Edit Standard Send Settings Store, Initialize
	TX Terminal ID On*1 (Printing Position: Inside, Outside*1; Telephone # Mark: FAX*1, TEL)
	Gamma Value for Color Send Jobs: Gamma 1.0, Gamma 1.4, Gamma 1.8*1, Gamma 2.2
	Sharpness: 1 to 7 levels, 4*1
	Register Favorites Button: M1 to M18
	Color TX Scan Settings: Speed Priority, Image Priority*1
	Default Screen for Send: Favorite Buttons, One-touch Buttons, Initial Function*1
	Initialize TX Settings: Yes, No
RX Settings	Two-sided Print: On, Off*1
	Select Cassette Switch A: On*1, Off Switch B: On*1, Off Switch C: On*1, Off Switch D: On*1, Off
	Receive Reduction On*1 RX Reduction: Auto*1, Fix. Red. Reduce %: 97, 95, 90*1, 75% Reduce Direction: Ver. Hor., Vertical Only*1 Off
	Continue Printing When Toner Is Out: Yes*1, No
Fax Settings	
User Settings	Unit Telephone # (20 characters maximum)
	Tel Line Type: Tone*1, Pulse
	Monitor Volume Control: Volume Control: 0 to 3 levels, 1*1), Off (0)
TX Settings	ECM TX: On*1, Off
	Pause Time: 1 to 15 seconds; 2 seconds*1
	Auto Redial On*1 Option: Redial Times: 1 to 10 times; 2 times*1 Redial Interval: 2 to 99 minutes; 2 minutes*1 TX Error Redial: On*1, Off Off
	Check Dial Tone Before Sending: On*1, Off
	Rotate Send: On*1, Off
RX Settings	ECM RX: On*1, Off

1.2.3.8 Printer Settings

T-1-9

Item	Settings(* Indicates the default setting.)
Default Papersize	A4*, A3, B4, B5, A5, 11X17, LGL, LTR, STMT, EXECUTIV, ISO-B5, ISO-C5, COM10, MONARCH, DL
Default Papertype	Plain Paper*, Color, Recycled, Heavy Paper 1, Heavy Paper 2, Heavy Paper 3, Bond, Transparency, Labels, Envelope
Copies	1 to 999; 1*
2-Sided Printing	Off*, On
Print Quality	
Image Refinement	On*, Off
Density	9 levels; 5*
Toner Saver	Off*, On
Page Layout	
Binding	Long Edge*, Short Edge
Margin	MM*: -50.0 MM to 50.0 MM; 0.0 MM* Inches: -01.90 Inches to 01.90 Inches; 00.00 Inches*
Error Time Out	On* (Time Out Period: 5 to 300 Sec), Off;15 Sec*
Collate	Off*, Collate, Offset + Collate**, Offset + Group**, Staple** (Staple Position: Top Left*, Top Right, Bottom Left)
Init. Printer Set	Off*, On
Reset Printer	Off*, On
PCL Settings	
Orientation	PortraitT*, Landscape
Font Number	0 to 120; 0*

Item	Settings(* Indicates the default setting.)
Point Size	4.00 to 999.75 point; 12.00 point*
Pitch	0.44 to 99.99 cpi; 10.00 cpi*
Form Lines	5 to 128 lines; 64 lines*
Symbol Set	PC8*, PC850, PC852, PC8DN, PC8TK, PC1004, PIFONT, PSMATH, PSTEXT, ROMAN8, VNINTL, VNMATH, VNUS, WIN30, WINBALT, WINL1, WINL2, WINL5, DESKTOP, ISO4, ISO6, ISO11, ISO15, ISO17, ISO21, ISO60, ISO69, ISOL1, ISOL2, ISOL5, ISOL6, LEGAL, MATH8, MCTEXT, MSPUBL, PC775
Custom Paper	Off*, On
Unit of Measure	Millimeters*, Inches
X Dimension	148 mm to 432 mm (5.83" to 17.00"); 432 mm* (17.00")
Y Dimension	95 mm to 297 mm (3.75" to 11.69"); 297 mm* (11.69")
Append CR to LF	No*, Yes
Enlarge A4	Off*, On

Two asterisks (**) indicate items that appear only when the appropriate optional equipment is attached.

1.2.3.9 Address Book Settings

T-1-10

Item	Settings(*1 Indicates the default setting.)
Register Address	
Register New Add	
Fax	Fax Number: 120 characters maximum Register Name: 16 characters maximum Option: Sending Speed, Long Distance, ECM TX
E-mail	E-mail Address: 120 characters maximum Register Name: 16 characters maximum
I-Fax	I-Fax Address: 120 characters maximum Register Name: 16 characters maximum
File	Protocol: FTP*1, Windows (SMB) Host Name: 120 characters maximum File Path: 120 characters maximum User: 24 characters maximum (FTP, Windows (SMB)) Password: 24 characters maximum (FTP), 14 characters maximum (Windows (SMB)) Register Name: 16 characters maximum
Group	Erase Address Book Register Name: 16 characters maximum
Erase	-
Edit	-
One-touch Buttons	
Register/Edit	You can register or edit the items of One-touch Buttons for Fax, E-mail, I-Fax, File, and Group shown in Register New Add above. Key Name: 12 characters maximum

1.2.3.10 Recommended setting of system management information

When multiple users use the machine, it is necessary to advise each user to set the system management information.
Setting ID and password of system administrator on the operation unit under (Additional functions key) > [System management setting] > [Setting of system administrator's information] has an effect of restraining the third person from falsifying information, for the ID and password are required when a user carries out an important setting of the machine.
Under the environment that the setting is not done, if a user who does not sufficiently know operation situation of the machine tries to change the setting, following troubles may occur.
- When the user changes [User ID Management] from [off] to [on], copying operation cannot be done unless ID and password are input.
- When each setting is changed on the network from RUI, that enables to falsify data of address book or delete log.
- When TCP/IP fixed address is changed on the network setting, printing operation via network cannot be done until the port setting is changed.
- When usage restriction of USB device is changed to [on], printing operation via USB becomes disabled.

1.2.3.11 The Reference Information of the Department ID Management

Function:
If Department is registered in Department ID Management, users are required to input the Department ID and password when inputting data from the operation unit of the machine. Also, the registration enables to restrict usage and control the usage number of times of Total Parts, Copy, B&W Scan, Color Scan, or Print.
Setting method:
Register Department ID in Department ID Management under Additional Functions key>System Setting.
Operation outline:
Department ID can be registered in [Department ID management] from the operation unit of the machine even though [System Manager Settings] is not done.
When registering data in [Department ID Management] using RUI, you need to register yourself as a system manager in [System Manager Settings] and login as a system manager.

1.2.4 Maintenance by the User

1.2.4.1 User Maintenance Items

T-1-11

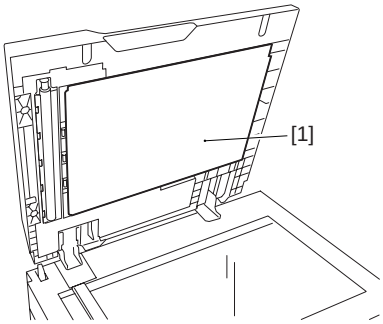
No.	Item	Maintenance cycle	Remarks
[1]	Pressure plate cleaning	As required	
[2]	opyboard glass(large/small) cleaning	As required	
[3]	Copyboard holder (jump board)	As required	
[4]	Fixing pressure roller cleaning	As required	Clean every 10000 sheets
[5]	Exterior cleaning	As required	
[6]	Transfer roller cleaning	As required	
[7]	Drum cleaning	As required	
[8]	Toner cartridge replenishment	When the relevant error code appears	

1.2.4.2 Cleaning

The parts that should be cleaned by the customer to maintain the design performance and the cleaning method are described below.
The service engineer should instruct the customer to clean the machine at regular intervals (once a month).

1. Pressure Plate

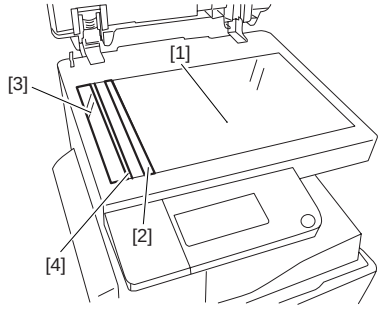
Clean the pressure plates [1] with a cloth dampened with water or neutral detergent and squeezed hard, and then wipe it with a dry soft cloth.



F-1-10

2. Document Glass/Vertical Size Plate

Clean the document glass [1] and vertical size plate [2] with a cloth dampened with water or neutral detergent and squeezed hard, and then wipe them with a dry soft cloth.
When an ADF is installed, clean is document glass (small) [3] and glass holder [4] in the same manner.



F-1-11

3. Cleaning the Fixing Pressure Roller

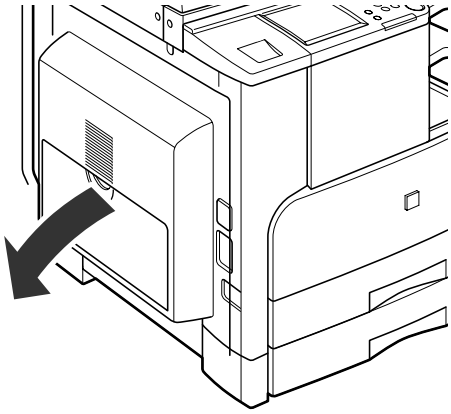
If white streaks are seen on the printed paper, the fixing pressure roller can be dirty. If white streaks are seen on the printed paper, clean the fixing pressure roller in the user mode.

⚠When cleaning the fixing pressure roller, manually feed A4 paper.

MEMO:
The time required for cleaning is about 100 seconds.

---

1) Press the Additional functions key to enter the user mode.
2) Select "Adjustment/Cleaning" on the touch panel.
3) Select "Fixing Unit Cleaning" and then press [Cleaning Sheet Print]. The cleaning pattern will be printed.
4) Open the manual feed tray.



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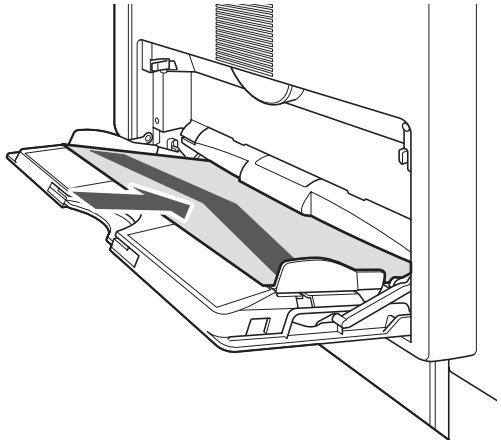
5) Place the cleaning pattern printed in step 3 in the manual feed tray with "V" up.



F-1-13

6) Select the size of the loaded paper and then press [Next].
7) Select the size of the loaded paper and then press [OK].
8) Press [Start] and then Cleaning will start.

4. Cleaning the Transfer Roller

If the reverse side of the printed paper is stained, the transfer roller can be dirty. If the reverse side of the printed paper is stained, clean the transfer roller in the user mode.

1) Press the Additional functions key to enter the user mode.
2) Select "Adjustment/Cleaning" on the touch panel.
3) Select "Transfer Roller Cleaning" and press [Start]. Cleaning will start.

5. Cleaning the Drum

If the quality of the printer image is poor, the drum can be dirty. If this symptom occurs, clean the drum in the user mode.

1) Press the Additional functions key to enter the user mode.
2) Select "Adjustment/Cleaning" on the touch panel.
3) Select "Drum Cleaning" and then press [Start]. Cleaning will start.

1.2.5 Safety

1.2.5.1 Safety of the Laser Light

Laser light can prove to be hazardous to the human body. The machine's laser unit is fully enclosed in a protective housing and external covers so that its light will not escape outside as long as the machine is used normally.

1.2.5.2 CDRH Regulations

The Center for Devices and Radiological Health of the US Food and Drum Administration put into force regulations concerning laser products on August 2, 1976. These regulations apply to laser products manufactured on and after August 1, 1976, and the sale of laser products not certified under the regulations is banned within the Untied States. The label shown here indicates compliance with the CDRH regulations, and its attachment is required on all laser products that are sold in the United States.

CANON

30-2, SHIMOMARUKO, 3-CHOME, OHTAKU, TOKYO, 146, JAPAN.

MANUFACTURED:

THIS PRODUCT CONFORMS WITH DHHS RADIATION PERFORMANCE STANDARD 21CFR CHAPTER 1 SUBCHAPTER J.

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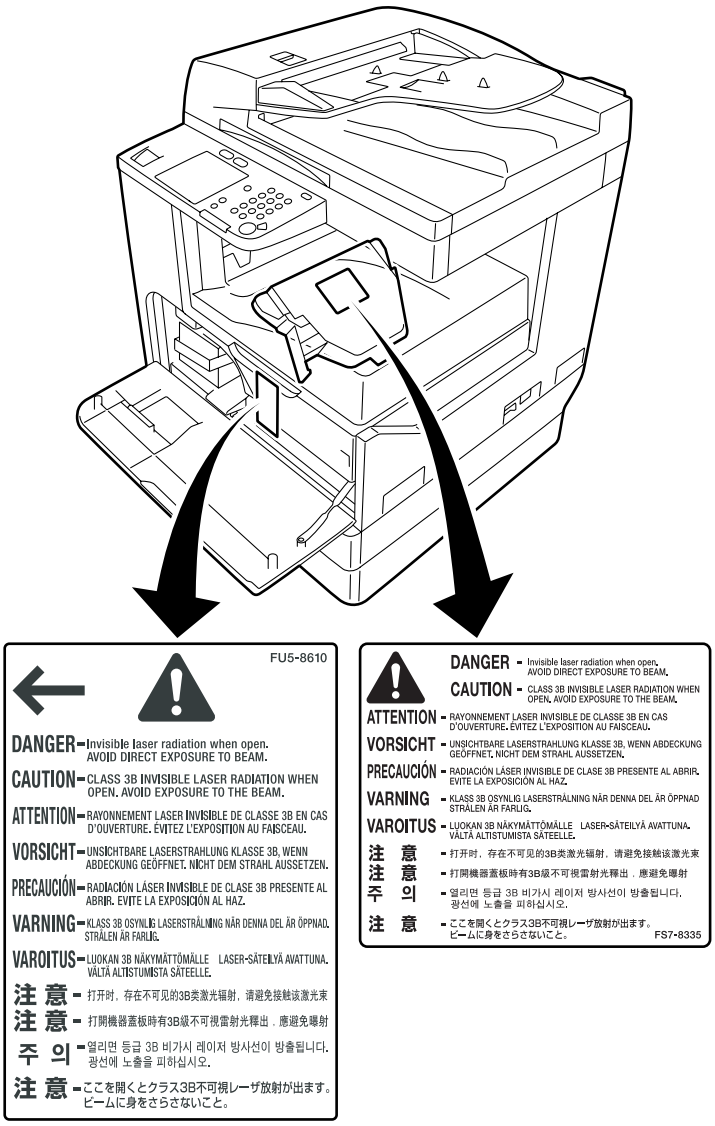
1.2.5.3 Handling the Laser Unit

The laser scanner unit emits invisible laser light inside it. If exposed to laser light, the human eye can irreparably be damaged. Never attempt to disassemble the laser scanner unit. (It is not designed for servicing in the field.)
Warning labels are affixed to the top cover of the laser scanner unit and the inner cover inside the front cover of this machine.



F-1-15

1.2.5.4 Safety of Toner

The machine's toner is a non-toxic material made of plastic, iron, and small amounts of dye.

⚠
Do not throw toner into fire. It may cause explosion.

Toner on Clothing or Skin
1. If your clothing or skin has come into contact with toner, wipe it off with tissue; then, wash it off with water.
2. Do not use warm water, which will cause the toner to jell and fuse permanently with the fibers of the cloth.
3. Do not bring toner into contact with plastic material. It tends to react easily.

1.2.5.5 Point to Note about Fire

It is dangerous to throw lithium batteries and parts and components containing flammable substances, such as toner cartridges, etc., into fire. Such parts and components must be disposed of in accordance with local laws and regulations.

1.2.5.6 Cautions as to the replacement and disposal of lithium battery

Risk of explosion if Battery is replaced by an incorrect type.
Dispose of used Batteries according to the instructions.

1.2.5.7 Storing and Handling the Cartridge Before Unpacking

Whether it is left packed or unpacked, or is fitted to the machine, the cartridge is subject to the effects of the environment, and will deteriorate over time. The speed of deterioration depends on the site or storage condition, and cannot be generalized. Take full care when storing or handing it.

If the cartridge is to be stored in a storeroom or a workshop, be sure to refer to table, and keep the following in mind:
- Avoid direct sunshine.
- Avoid vibration.
- Avoid impact. (Take care not to drop it.)

T-1-12

Temperature		
Normal (9/10 of total storage period)		0 to 35 deg C
Severe (1/10 of total storage time)	High	35 to 40 deg C
	Low	-20 to 0 deg C
Change in temperature (within about 3 min)		40 to 15 deg C -20 to 25 deg C
Humidity		
Normal (9/10 of total storage period)		35 to 85 %RH
Severe (1/10 of total storage time)	High	85 to 95 %RH
	Low	10 to 35 %RH
Atmospheric pressure		0.6 to 1.01hpa
Effective period		2.5 yr (approx.)

1.2.5.8 Storing or Handling the Cartridge After Unpacking

The photosensitive medium is made of organic photo-conducting material (OPC), and will deteriorate if exposed to strong light. It is also used to hold toner inside it. Be sure to advise the user to be fully careful when storing and handling the cartridge. (The cartridge must always be put inside a protective bag for storage.)

a. Use a protective bag for storage.
b. Avoid areas subject to direct sunshine (e.g., near a window). Do not leave it alone inside a card, as the temperature can rise to an extremely high level. (These are also true even if the cartridge is put in a protective bag.)
c. Avoid areas subject to high temperature/humidity or low temperature/humidity, areas subject to rapid changes in temperature or humidity, or areas subject to condensation (e.g., near an air conditioner).
d. Avoid areas exposed to corrosive gas (e.g., insecticide) or salty air.
e. Avoid areas subject to dust, ammonium gas, or organic solvent gas.
f. Avoid areas near a CRT display, disk drive, and floppy disk. (The magnetism from the cartridge can destroy the data.)
g. Keep it out of reach of children.
h. Keep the temperature between 0 and 35 deg C.

1.2.6 Product Specifications

1.2.6.1 Product Specifications

Copyboard	stream reading, fixed reading
Body	desktop
Light source type	LED array (CIS)
Photosensitive medium	OPC drum (30-mm dia.)
Image reading method	CCD (CIS)
Reproduction method	indirect electrostatic
Exposure method	by laser light
Charging method	by AC charging roller
Development method	1-component toner projection
Transfer method	by transfer roller
Separation method	by curvature + static eliminator
Cassette pickup method	retard
Multifeeder pickup method	dual processing
Drum cleaning method	by cleaning blade
Fixing method	on-demand
Delivery method	face-down
Reproduction ratio	50% to 200%
Warm-up time	approx. 13sec
Image margin (leading edge)	3.0 -/+1.5 mm
Image margin (trailing edge)	3.0 -/+2.0 mm
Image margin (left/right)	left edge: 3.0 -/+2.0 mm right edge: 0.5 mm or more
Non-image width (leading edge)	3.0 -/+2.0 mm
Non-image width (trailing edge)	3.0 -/+2.0 mm
Non-image width (left/right)	3.0 -/+2.0 mm
Number of gradations	256 gradations
Reading resolution	600 x 600 dpi
Printing resolution	1200 dpi x 1200 dpi (MF7120: 600 dpi x 600 dpi)
First print time	Book mode: 7.9 sec or less ADF mode: 13.5 sec or less
Cassette capacity	250sheets (80 g/m2)
Multifeeder tray capacity	100 sheets (80 g/m2) (B4/LGL or less, 64 g/m2) 80 sheets (80 g/m2) (B4/LGL or less, 80 g/m2) 50 sheets (B4/LGL or more, 64 g/m2, 80 g/m2) 50 sheets (heavy paper (105 to 128 g/m2), OHP) 10 sheets (envelope) 1 sheet (label) 40 sheets (post card)
Continuous reproduction	1 to 99 sheets
Toner type	magnetic negative toner

Original type	sheet, book
Maximum original size	A3/LDR
Original size recognition	by reflection type sensor (This feature is not supported by the MF7120/ MF7170i.)
Sleep mode	yes
Option	See the system configuration chart.
Operating environment (temperature range)	15 to 27.5 deg C
Operating environment (humidity range)	25% to 75%
Operating environment (atmospheric pressure)	0.6 to 1.0 atm
Noise	MF7200 series: 66.0 dB or less MF7100 series: 64.6 dB or less
Power supply rating	100V / 120V / 230V
Power consumption (maximum)	100V model: 1250 W or less 120V model: 1550 W or less 230V model: 1600 W or less
Power consumption	100V model: continuous printing: 460 Wh (reference only) 120V model: continuous printing: 470 Wh (reference only) 230V model: continuous printing: 500 Wh (reference only)
Ozone	0.01ppm or less (initial) 0.035ppm or less (after endurance test)
Dimensions	MF7210/MF7120/MF7110: 622 mm x 633.4 mm x 580.4 mm (WxDxH) MF7240/MF7170i/MF7140: 622 mm x 668 mm x 672 mm (WxDxH) MF7280: 622 mm x 668 mm x 757 mm (WxDxH)
Weight	MF7210/MF7120/MF7110: approx. 44.0 kg MF7240/MF7170i/MF7140: approx. 52.0 kg MF7280: approx. 58.0 kg

1.2.7 Function List

1.2.7.1 Printing Speed (MF7100 Series)

T-1-13

	Paper size	Single-sided	
		Casette feed	Manual feed
Plain paper	A4	16	16
	A5	24	24
	A5R	-	13
	B5	21	21
	B5R	12	12
	A4R	11	11
	B4	9	9
	A3	10	10
	STMT	16	16
	STMTR	-	13
	EXE	-	21
	LTR	16	16
	LTRR	11	11
	LGL	10	10
	LDR	10	10
	8K	9	9
	16K	21	21

	Paper size	Single-sided	
		Casette feed	Manual feed
Heavy paper(81 to 105g/m2) (Heavy paper(106 to 128g/m2)	A4	12(10)	12(10)
	A5	13(11)	13(11)
	A5R	-	10(7)
	B5	12(10)	12(10)
	B5R	9(6)	9(6)
	A4R	10(8)	10(8)
	B4	6	6
	A3	8(7)	8(7)
	STMT	11(7)	11(7)
	STMTR	-	10(7)
	EXE	-	13(11)
	LTR	12(10)	12(10)
	LTRR	9(8)	9(8)
	LGL	8(5)	8(5)
	LDR	8(7)	8(7)
	8K	7(5)	7(5)
	16K	12(10)	12(10)
Bond paper	A4	8	8
	A5	6	6
	A5R	-	4
	B5	6	6
	B5R	4	4
	A4R	4	4
	B4	5	5
	A3	6	6
	STMT	4	4
	STMTR	-	4
	EXE	-	6
	LTR	7	7
	LTRR	4	4
	LGL	4	4
	LDR	6	6
	8K	5	5
	16K	6	6
OHP	A4	-	16
	LTR	-	16
Envelope	Monarch	-	4
	COM10	-	4
	ISO-B5	-	4
	ISO-C5	-	4
	DL	-	4
Postcard	Postcard	-	8
	Double postal card	-	7
	4-plane post card	-	7

T-1-14

	Paper size	Double-sided	
		Casette feed	Manual feed
Plain paper	A4	16	16
	A5	11	11
	A5R	-	15
	B5	19	19
	B5R	8	8
	A4R	8	8
	B4	7	7
	A3	7	7
	STMT	14	14
	STMTR	-	13
	EXE	-	19
	LTR	16	16
	LTRR	8	8
	LGL	7	7
	LDR	7	7
	8K	7	7
	16K	19	19

Supplement:
- The above copy speed does not change irrespective of whether paper is supplied from the upper/lower cassette, the manual feed tray, or from the cassette feeding module.
- The copy speed may become down when the copies make continuously one minutes or more with the narrow width paper. The slowdown is reduced with the following user mode. User Mode: Additional Functions > Adjust/Cleaning > Spesial Mode P > ON
- The double-sided copy speed applies only when a duplex unit-A1 is installed.

1.2.7.2 Types of Paper

T-1-15

Type		Paper size	Source	
			Manual Feed Tray	Cassette
Plain paper, eco paper, recycled paper (64-90g/m2)		A3, B4, A4, A4R, B5, B5R, A5, LDR, LGL, LTR, LTRR, STMT, 8K, 16K	Yes	Yes
Special paper	Heavy paper (90-128g/m2)	Width: 95mm-297mm Length: 148mm-432mm	Yes	No
	OHP	A4, LTR	Yes	No
	Postcard	Postcard A6R modified	Yes	No
	4-plane postcard	A4 modified	Yes	No
	Label paper	A4, B4, LTR	Yes	No
	3-hole paper	same as plain	Yes	Yes
	Envelope	Com10, Monarch, DL, ISO-C5, ISO-B5	Yes	No

Chapter 2 Installation

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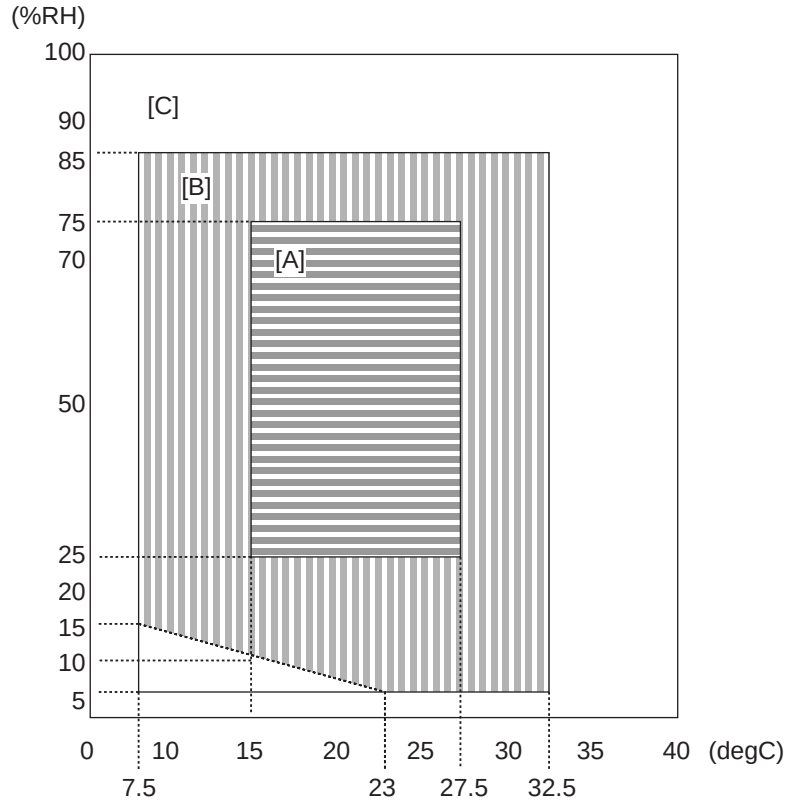
2.1 Making Pre-Checks

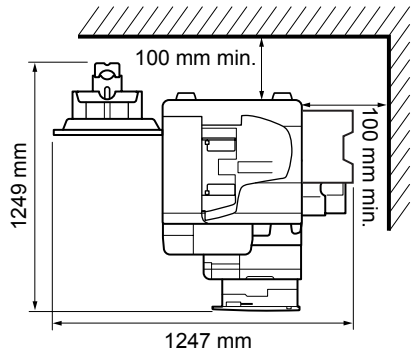
2.1.1 Selecting the Site of Installation

Select the site of installation against the following requirements; if possible, visit the user's before delivery of the machine:
1) There must be a power outlet properly grounded and rated as indicated (-/+10%) for exclusive use by the machine.
2) The environment of the room must be as indicated in the following diagram, and the machine must not be installed near a water faucet, water boiler, humidifier, or refrigerator:



F-2-1

<Environmental zone assured>
[A]: Zone A: Satisfies all the conditions of the standard image quality and paper feed performance.
[B]: Zone B: Inferior to Zone A in terms of the standard image quality and paper feed performance, or may not apply.
[C]: Zone C: Problems associated with safety, malfunctions, or incorrect message display do not occur, but image quality and paper feed performance are not guaranteed.
3) The machine must not be installed near a source of fire or in an area subject to dust or ammonium gas.
If the area is exposed to direct rays of the sun, provide curtains to the window.
4) The level of ozone generated by the machine will not affect the health of individuals around it. Some, however, may find its odor unpleasant as while remaining in contact with it for long hours. Be sure that the room is well ventilated.
5) The floor of the machine must be level so that the feet of the machine will remain in contact and the machine will remain level.
6) The machine must be at least 10 cm away from any wall, permitting unobstructed use.



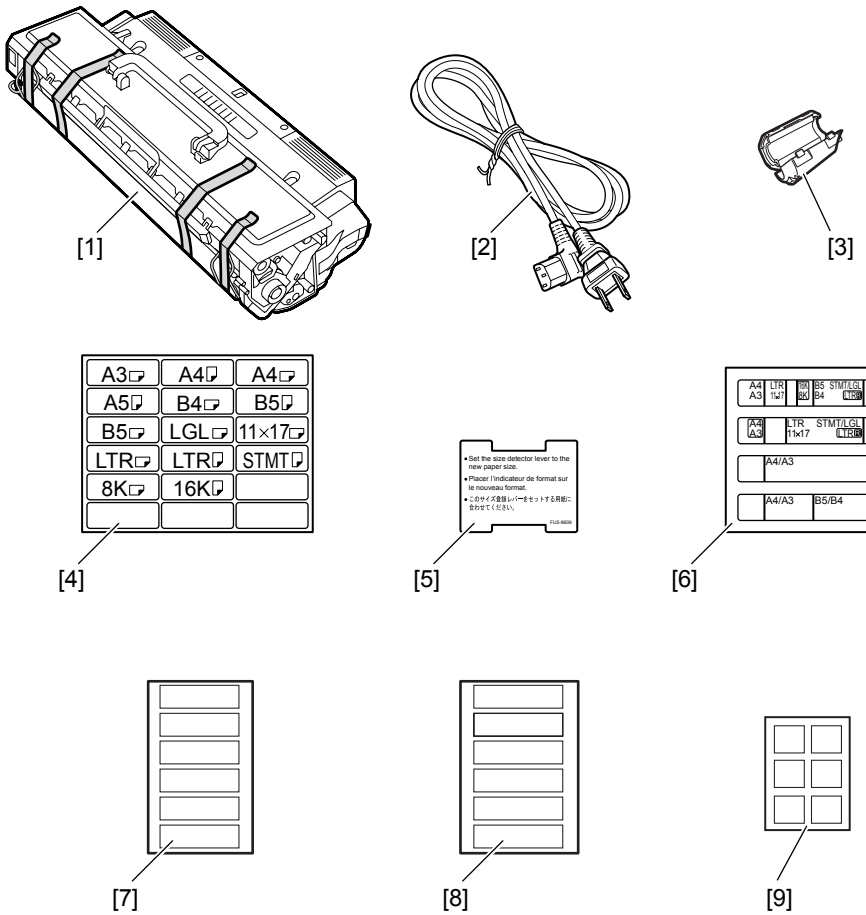
F-2-2

7) The machine must be placed in a well ventilated area. It is important to make sure, however, that the machine is not near the air vent (for suction) of the room.

2.1.2 Before Starting the Work

1-1 Points to Make Before Installation
Be sure to go through the following before starting the work:
1) If you are installing the machine after moving it from a cold to warm location, be sure to leave the machine unpacked for at least 2 hours so that the machine is fully used to the site temperature, thus avoiding image faults caused by condensation. (The term "condensation" refers to the formation of droplets of water on the surface of a metal object brought in from a cold to warm place, i.e., as the result of the rapid cooling of the moisture (vapor) around the object.)
2) The machine weighs a maximum of about 52 kg. Be sure to work in a group of 2 persons when lifting it.

1-2 Checking the Contents
Check to be sure that none of the following contents is missing:



F-2-3

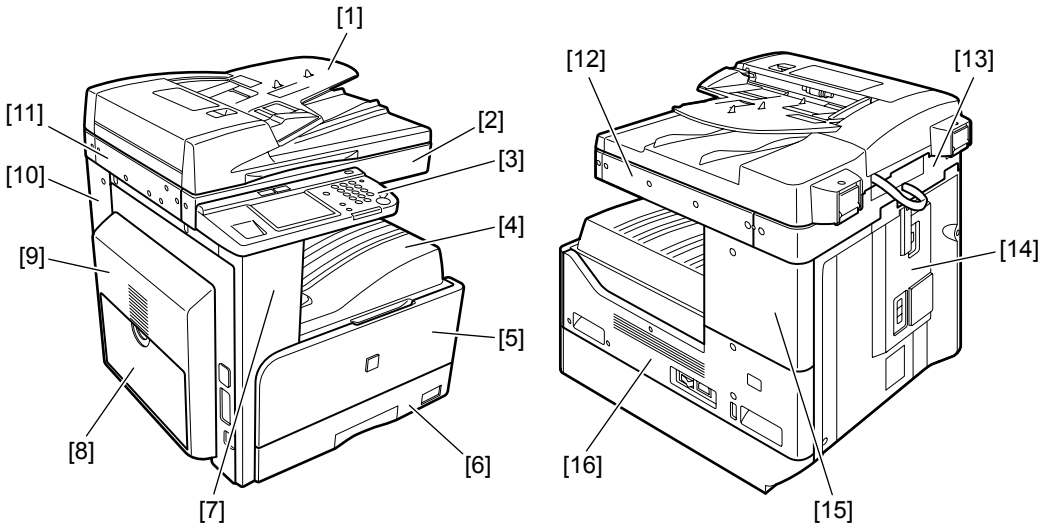
[1]	Toner cartridge	---1	[6]	Document size label	---1
[2]	Power cable	---1	[7]	Finger pinch caution label	---1
[3]	Ferrite core	---1	[8]	Scan glass cleaning label	---1
[4]	Cassette size label	---1	[9]	Black streak cleaning instruction label	---1
[5]	Caution sheet	---1			

Check the documentation and CD against the following table:

T-2-1

Starter Guide (English)
Starter Guide (French)
Starter Guide (German)
Starter Guide (Italian)
Operator manual: Reference Guide
Netwark Quick Start Guide
Operators manual CD-ROM
Driver/Utility CD-ROM (E/U)
Driver/Utility CD-ROM (F/S)
Driver/Utility CD-ROM (G/I)
Driver PCL CD-ROM

1-3 Names of Parts



F-2-4

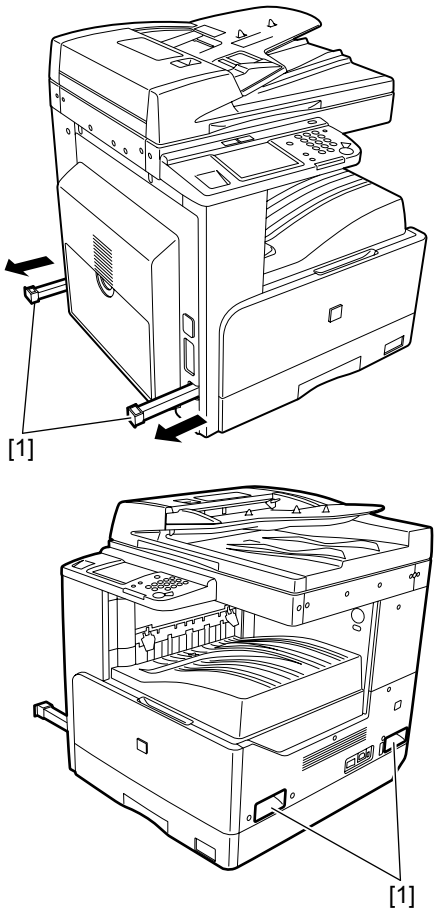
[1]	DADF	[9]	Left door
[2]	Reader front cover	[10]	Left cover (rear)
[3]	Control panel	[11]	Reader left cover
[4]	Delivery tray	[12]	Reader right cover
[5]	Front cover	[13]	Reader rear cover
[6]	Cassette 1	[14]	Rear cover
[7]	Left cover (front)	[15]	Right cover (upper)
[8]	Manual feed tray	[16]	Right cover (lower)

2.2 Unpacking and Installation

2.2.1 Unpacking and Removing the Packaging Materials

1) Unpack the machine and remove vinyl, cushioning materials, and tape.
2) Hold the handles [1] of the machine together with one or more persons and take it out.

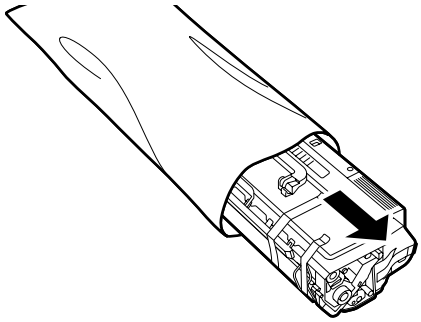
⚠
The maximum weight of this machine is approximately 52kg. Two or more persons are required to lift the machine.



F-2-5

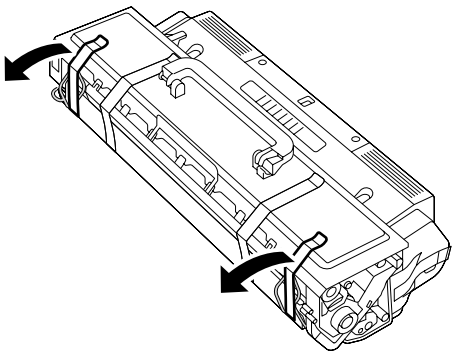
2.2.2 Installing the Toner Cartridge

1) Remove the cartridge from the bag.



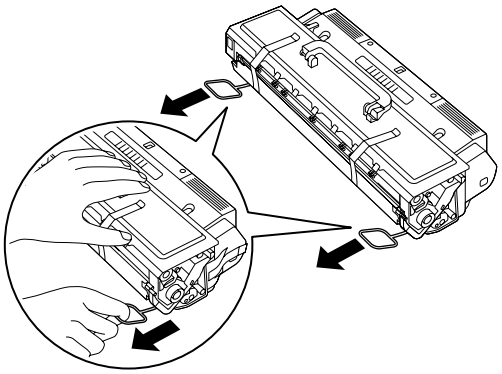
F-2-6

2) Remove the short shipping tape.



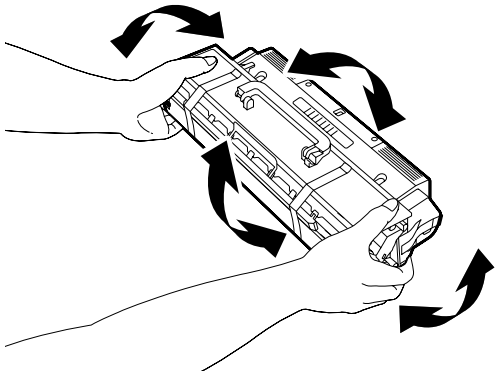
F-2-7

3) Remove the packing materials.



F-2-8

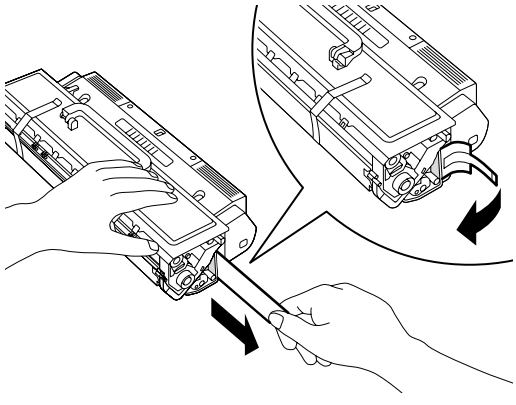
4) Gently rock the cartridge several times to distribute toner inside.



F-2-9

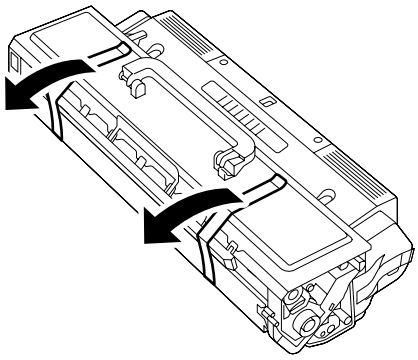
5) Pull out the seal completely.

⚠
Do not pull out the seal at an angle.



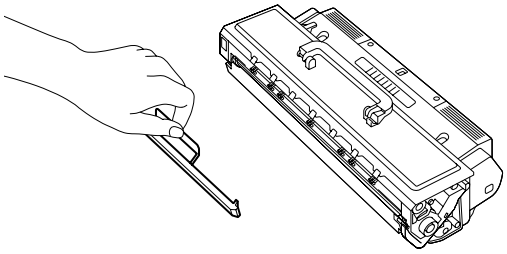
F-2-10

6) Remove the long shipping tape.



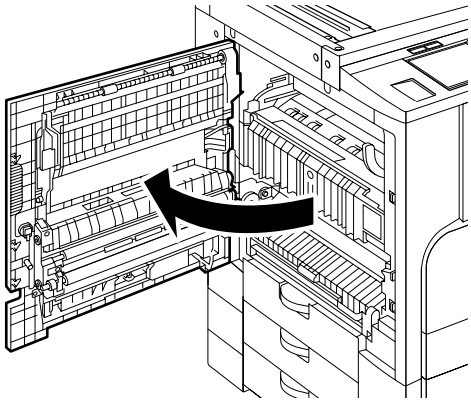
F-2-11

7) Remove the protective cover.



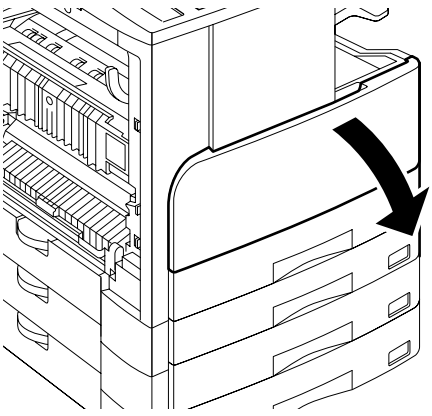
F-2-12

8) Push the release button on the left cover of the main unit to open the left cover.



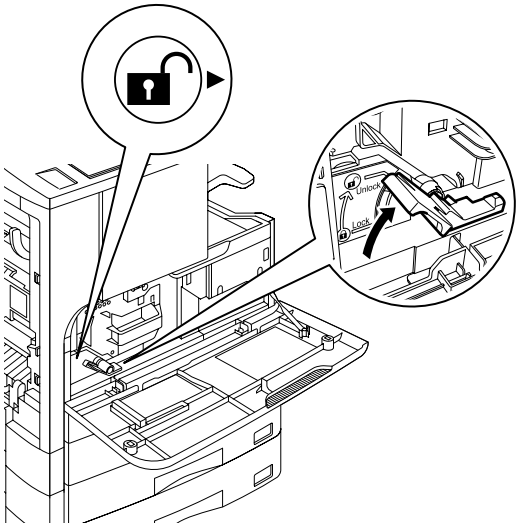
F-2-13

9) Open the front cover.



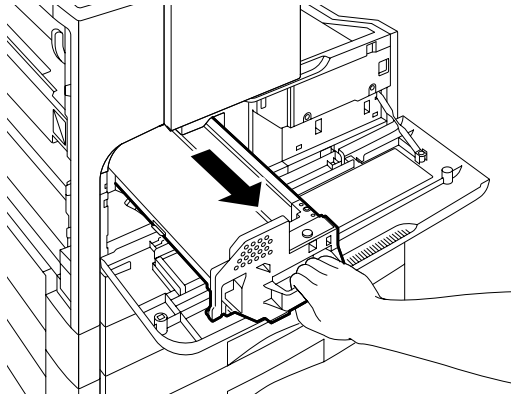
F-2-14

10) ÉJÅ[ÉgÉäÉbÉWÉçÉbÉNÉåÉoÅ[ÇšâšèúàþíuÇ…âÒÇ²ÅB



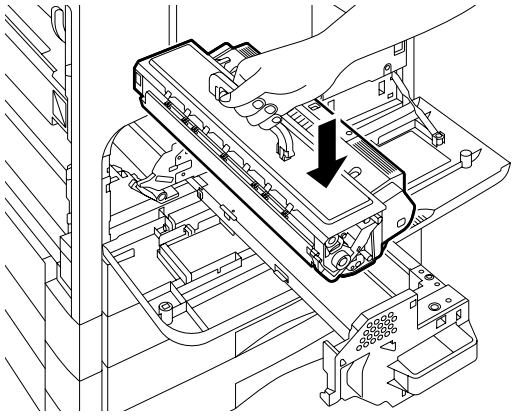
F-2-15

10) While grasping the handle of the cartridge holder, pull the cartridge holder out of the machine until it stops.



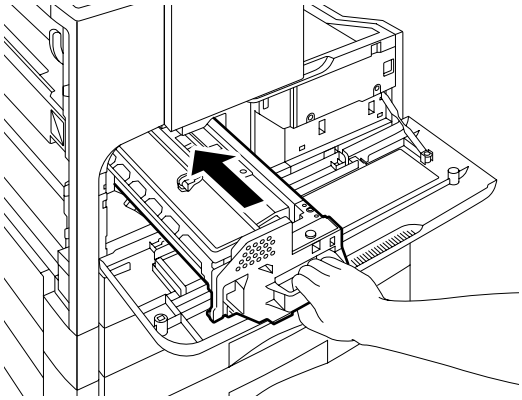
F-2-16

11) Hold the cartridge by its handle, then insert it into the cartridge holder.



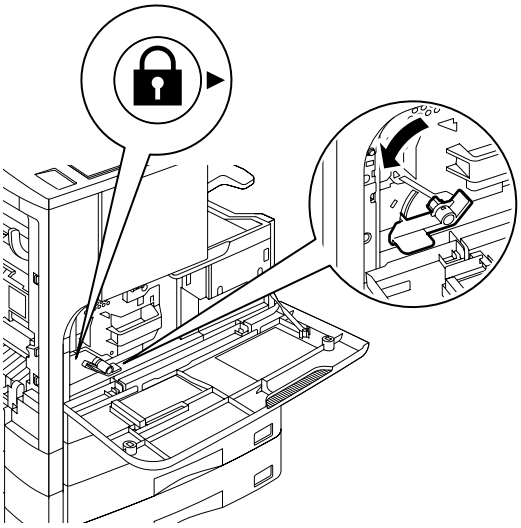
F-2-17

12) Push the cartridge holder in the machine as far as it will go.



F-2-18

13) Rotate the lever to the unlocked position.

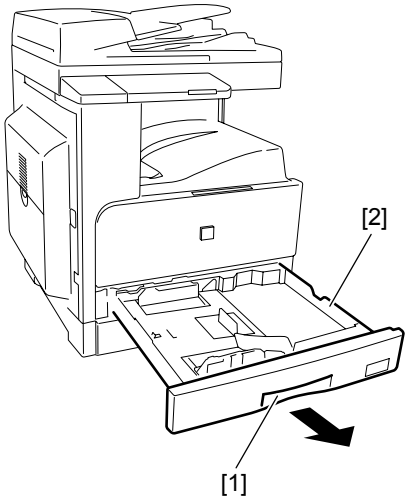


F-2-19

14) Close the front cover.
15) Gently close the left cover until it clicks.

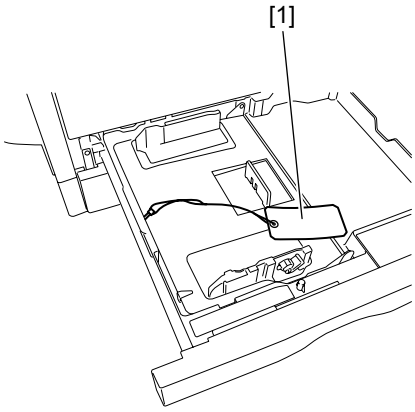
2.2.3 Setting the Cassettes

1) Holding the knob [1] at the center of the cassette, draw out the cassette [2] until it stops.



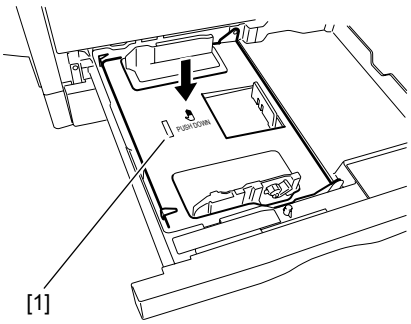
F-2-20

2) Remove the wire [1] securing the inner plate of the cassette.



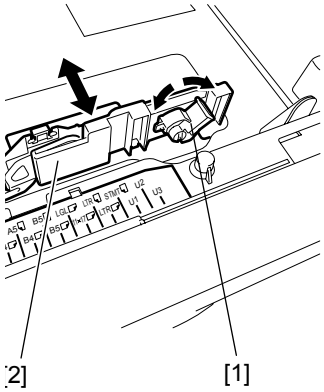
F-2-21

3) Press the "PUSH DOWN" mark [1] on the inner plate to lock it into the cassette.



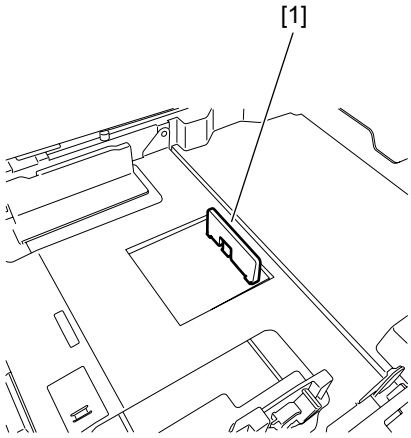
F-2-22

4) Turn the lever [1] of the paper front guide counterclockwise to release it. Slide the paper front guide [2] to fit to the size of the paper to be used, and then turn the lever clockwise to lock it.



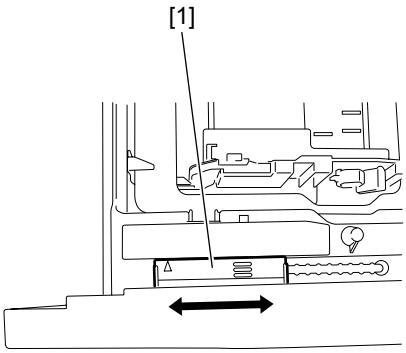
F-2-23

5) Turn the paper trailing edge registration plate [1] to the left to remove it. Re-attach it to fit to the size of the paper to be loaded.



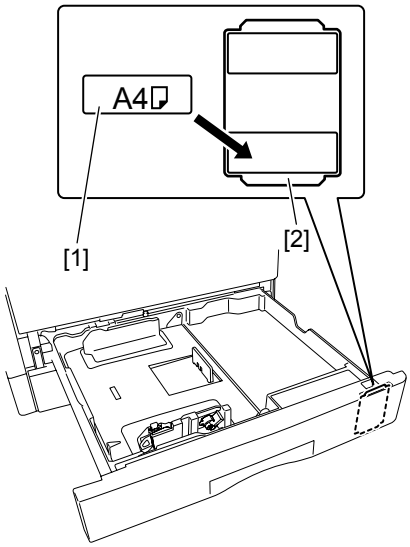
F-2-24

6) Slide the paper size detection lever [1] to fit to the paper size.



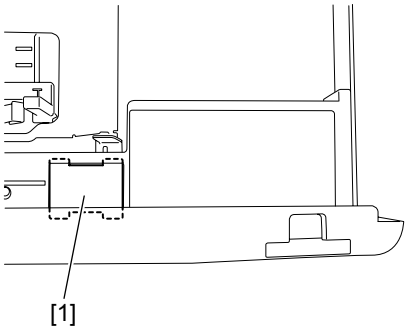
F-2-25

7) Affix the cassette size label [1] to the paper size indication plate [2].



F-2-26

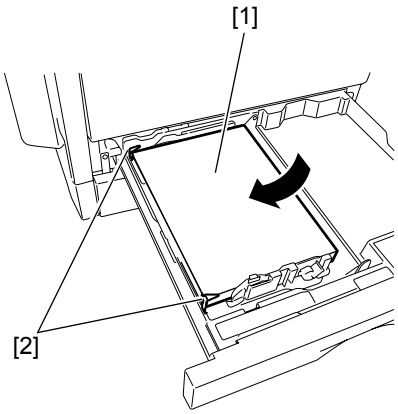
8) Affix the caution sheet printed in an appropriate language.



F-2-27

9) Align the left, right, and leading edges of sheets and load the stack of paper in the cassette. Make sure that the paper is below the claws of the cassette.

MEMO:
Inserting the cassette into the iR body with the inner plate locked into the cassette will unlock the inner plate automatically. If the inner plate is not locked, press the "PUSH DOWN" mark [1] on the inner plate to lock it into the cassette and then load paper.



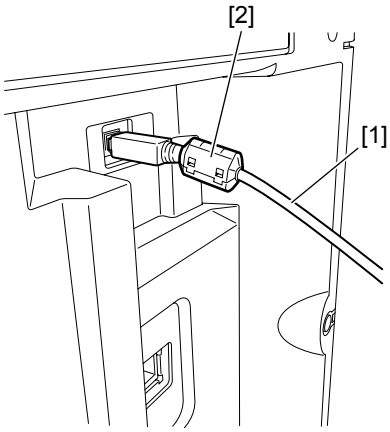
F-2-28

10) Holding the knob at the center of the cassette, insert the cassette in the iR body until it stops.

2.2.4 Connecting the Cable

1) Attach the ferrite core [2] to the user's USB cable, and then connect the USB cable to the USB port of the host machine.

⚠
To reduce noise, attach the ferrite core as close to the USB port of the host machine as possible.

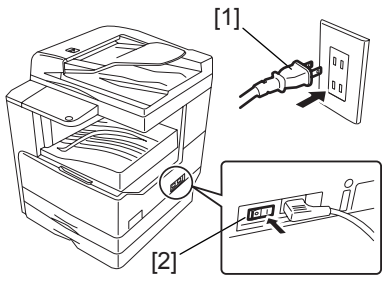


F-2-29

2.2.5 Checking the Image Quality

1) Plug the power cord into the outlet, and then turn on the main power switch [2].

⚠
Use the specified power supply (rated voltage -/+10% and rated current).



F-2-30

2) Place a document on the document glass, take a copy of it by supplying

paper from the cassette or manual feed tray, and check the printed image. Also perform the following checks:
- Check whether abnormal sound is heard.
- Check the printed images at all preset magnifications.

- Check whether the document is copied normally on the specified number of sheets.

2.2.6 Setting the Country/Region

1) Press the following keys to display the service mode screen:
   > 2 Key > 8 Key >
2) Select "# CLEAR" using ◀ or ▶, and then press the OK.
3) Select "TYPE" using ◀ or ▶, and then press the OK.
4) Using ◀ or ▶ key, select the country/region type that conforms to the communication standard used in the country/region where the machine is used.
5) Press the OK. When "Please Wait" disappears, the selected country/region type takes effect.

2.2.7 Setting the Date and Time

1) Press keys to display the user mode screen.
2) Select "TIMER SETTINGS" and then press the OK.
3) Select "DATE&TIME SETTING", and then press the OK. The set date and time appears.
4) Enter the current date and time with the ten keys.
5) Press the OK to allow the entered date and time to take effect.

2.2.8 Attaching Other Parts

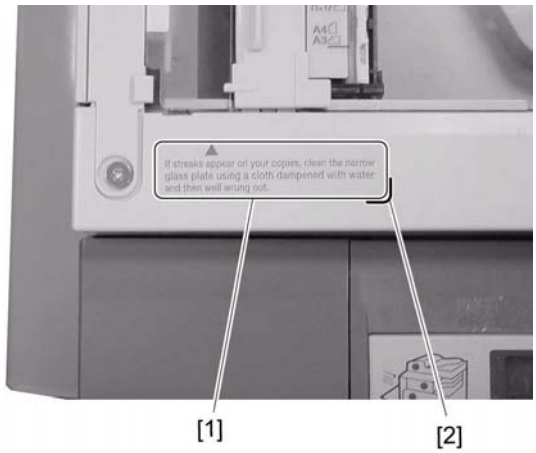
a. Finger pinch caution label
1) Open the DADF and affix the supplied finger pinch caution label.

Affix the label printed in the user-selected language.

F-2-31

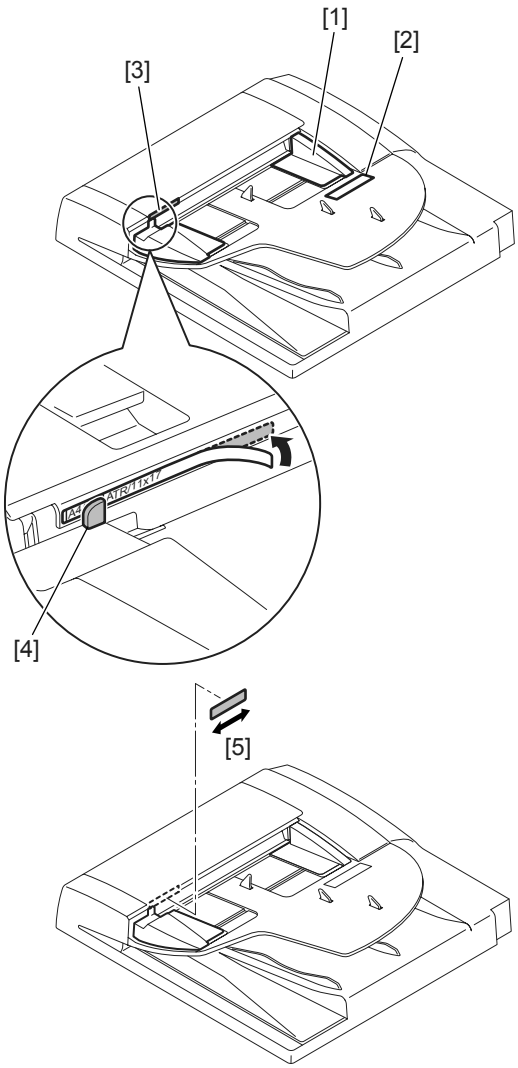
b. Scan glass cleaning label
1) Affix the supplied scan glass cleaning label [1] to the reader front cover with it aligned with the mark-off line [2].

Affix the label printed in the user-selected language.



F-2-32

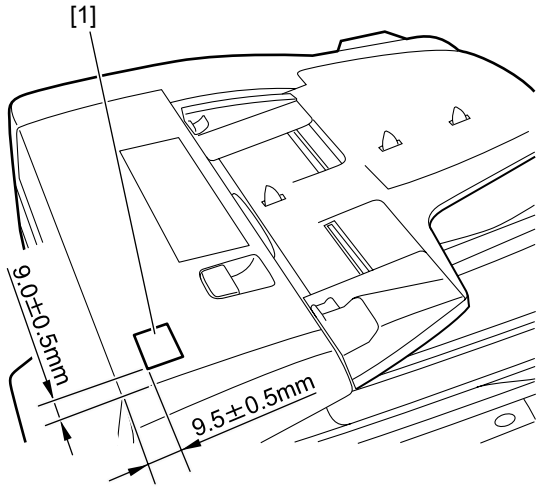
C. Document size label
The purpose of this label is to facilitate the size adjustment made from the view point of each user.
1) Align the side guide (rear) [1] to "A4/A3" "LTR/11X17" [2].
2) Affix the label of the series matching the document size label [3] to the feeder cover.
   Adjust the label position by moving it back and forth (in the direction of the arrow [5]) according to the view point of the user so that the indicator [4] on the side guide (front) meets the indicator on the size label, and then affix the label securely.



F-2-33

d. Black streak cleaning instruction label
1) Affix the black streak cleaning instruction label [1] to the feeder cover of the DADF.

Affix the label printed in the user-selected language.



F-2-34

2.3 Checking the Connection to the Network

2.3.1 Checking the Network Connection

If the machine supports a network feature, check the network connection following the procedure below.
1) Press the following keys to display the service mode screen:

⊛ > 2 Key > 8 Key > ⊛

2) Select "# REPORT" using ◀ or ▶, and then press the OK key.

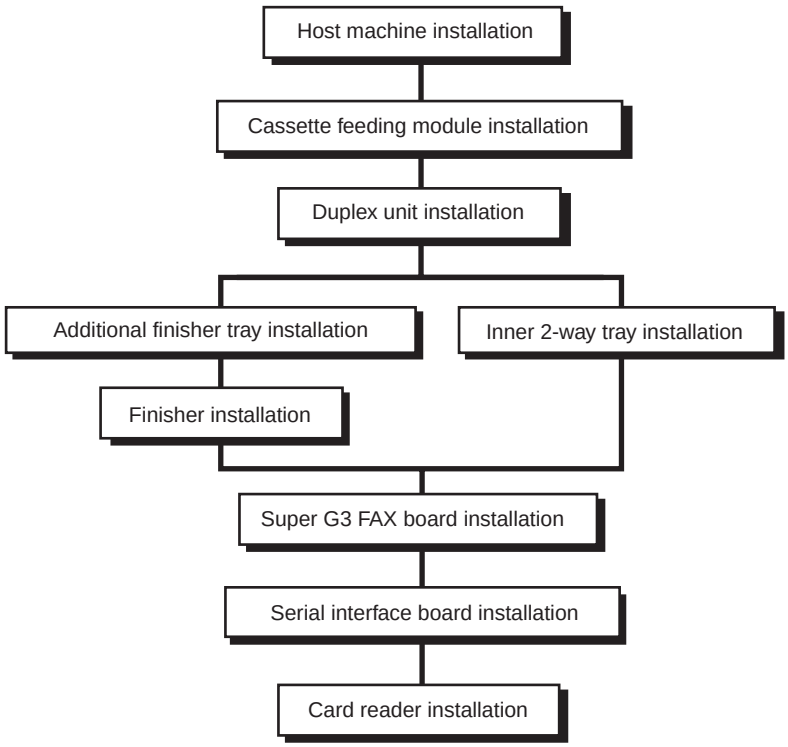
3) Select "REPORT OUTPUT" using ◀ or ▶, and then press the OK.

4) Select "SPEC LIST" using ◀ or ▶, and then press the OK.
5) When "SPEC REPORT" is displayed, check that "BDL-IMAGE" is set to ON.
6) Contact the system administrator of the customer to make network settings.

2.4 Flow of Accessory Installation

2.4.1 Flow of Accessary Installation

If you are going to install any accessory after installing the host machine, follow the following flow of work so that the work will become effective.



F-2-35

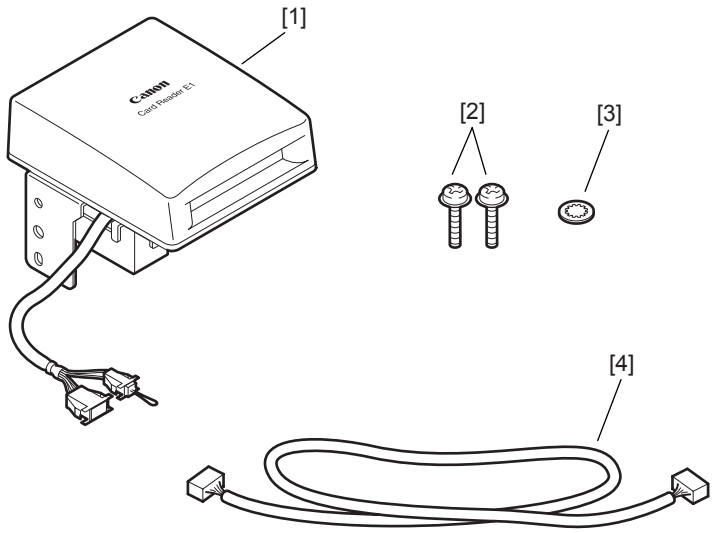
2.5 Installing the Card Reader

2.5.1 Points to Note

When installing the card reader, the card reader attachment-D1 is required.

2.5.2 Checking the Contents

<Card reader-E1>

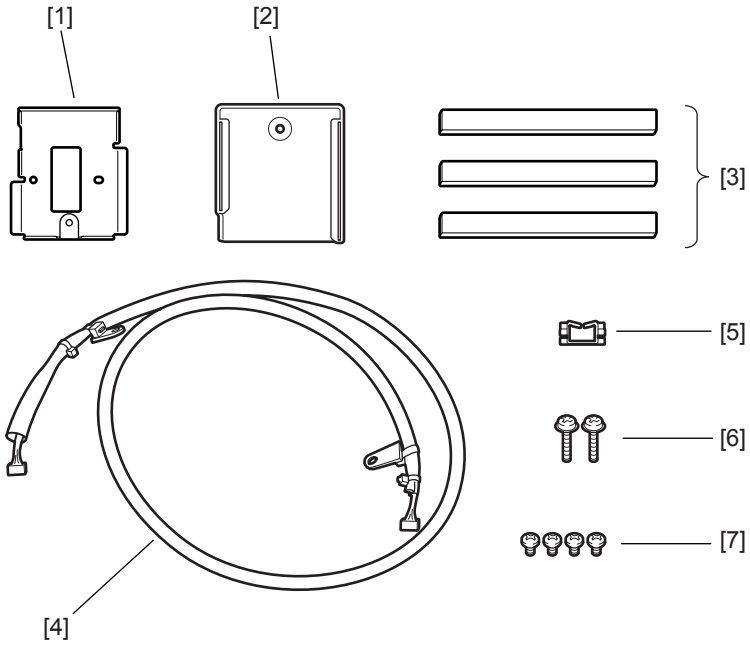


F-2-36

[1]	Card reader-E1	1 pc.
[2]	TP screw (M3x12)	1 pc.
[3]	Toothed washer	1 pc.
[4]	Repeating harness A	1 pc.

The repeating harness, TP screw (M3x12), and toothed washer are not used.

<Card reader attachment-D1>



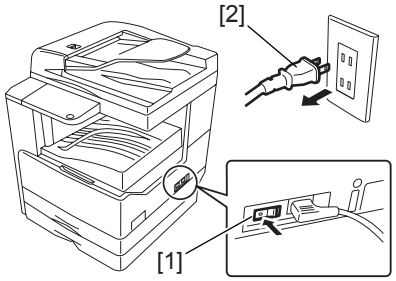
F-2-37

[1]	Card reader mount	1 pc.
[2]	Card reader cover	1 pc.

[3]	Harness cover (base + lid)	3 pcs.
[4]	Repeating harness B	1 pc.
[5]	Edge saddle	1 pc.
[6]	TP screw	2 pcs.
[7]	Binding screw (M4x6)	4 pcs.

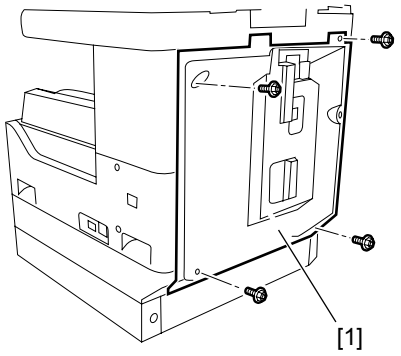
2.5.3 Installation Procedure

1) Turn off the main power switch [1] of the host machine and disconnect the power plug [2] from the outlet.



F-2-38

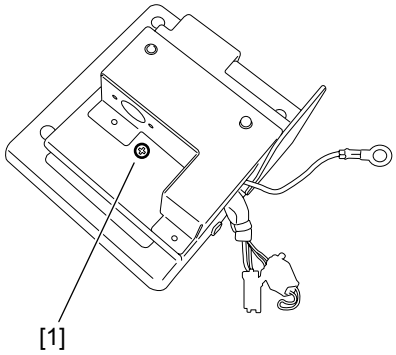
2) Remove the four screws, and then detach the rear cover [1].



F-2-39

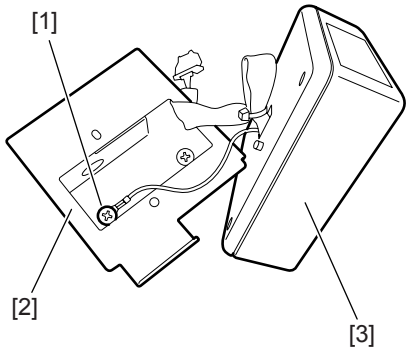
3) Remove the screw [1] from the card reader.

MEMO:
The removed screw will be used later.



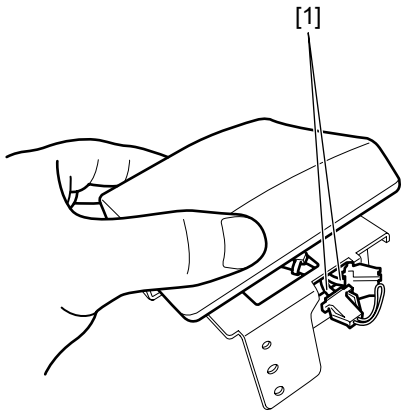
F-2-40

4) Remove the screw [1] securing the ground cable, and then separate the card reader [3] from the card reader mount [2].



F-2-41

When removing the harness [1] through the opening in the card reader mount, take care not to cut or damage it.

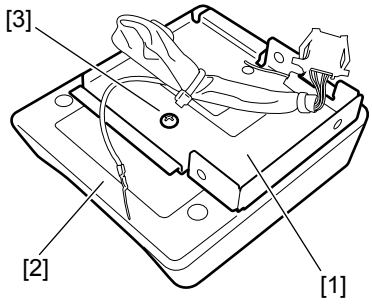


F-2-42

MEMO:
The removed card reader mount is no longer necessary.

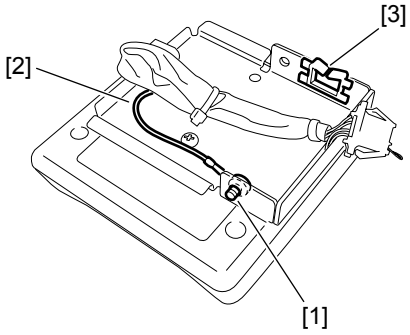
5) Insert the card reader [2] harness and ground cable into the hole in the supplied card reader mount [1]. Using the screw [3] removed in step 1, secure the card reader to the card reader mount.

When inserting the card reader [2] harness and ground cable, take care not to cut or damage them.



F-2-43

6) Using the supplied binding screw (M4x6) [1], connect the ground cable to the reader mount. Attach the supplied edge saddle [3] to the card reader mount.

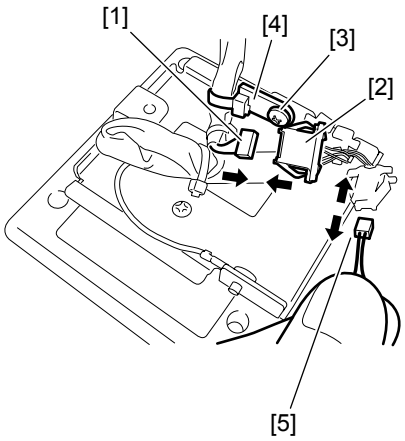


F-2-44

7) Connect the connector [1] of the supplied repeating harness B to the connector [2] on the card reader. Using the supplied binding screw (M4x6), secure the repeating harness B clamp [4]. Disconnect the shorting connector [5].

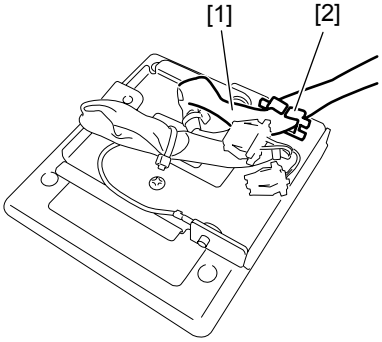
If the shorting connector [5] is not disconnected, a malfunction or error can result. Therefore, the shorting connector must be disconnected.

MEMO:
The removed shorting connector is no longer necessary.



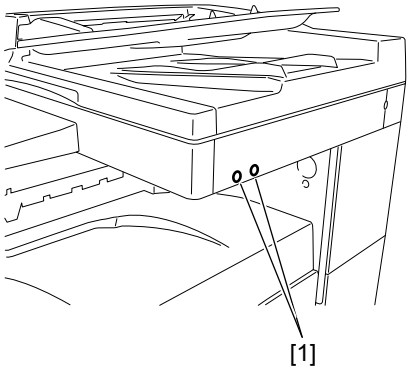
F-2-45

8) Secure the repeating harness B [1] with the wire saddle [2].



F-2-46

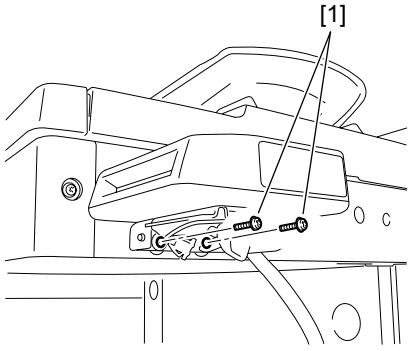
9) Remove the two blind seals [1] from the reader left cover.



F-2-47

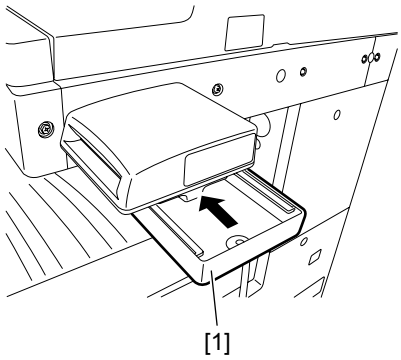
10) Using the two supplied TP screws (M4x16), attach the card reader to the reader.

⚠
When tightening the screws, take care not to damage the repeating harness B.



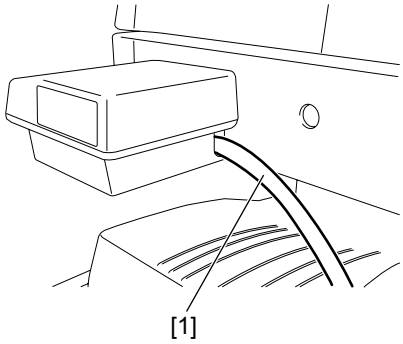
F-2-48

11) Slide the card reader cover [1] to attach it to the card reader mount.



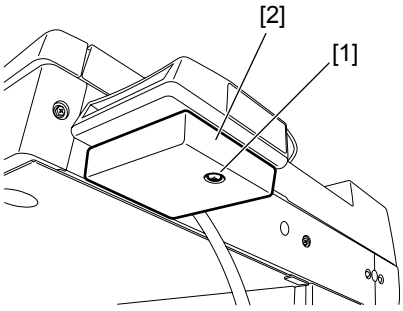
F-2-49

Route the repeating wire B [1] as shown below.



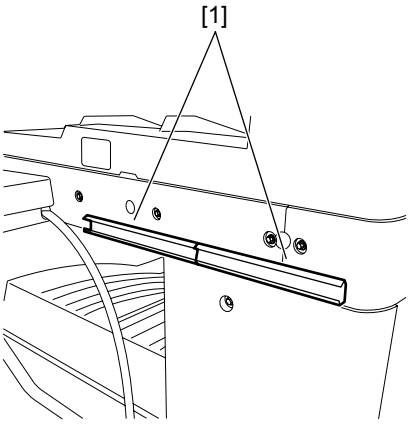
F-2-50

12) Using the supplied binding screw (M4x6), secure the card reader cover [2].



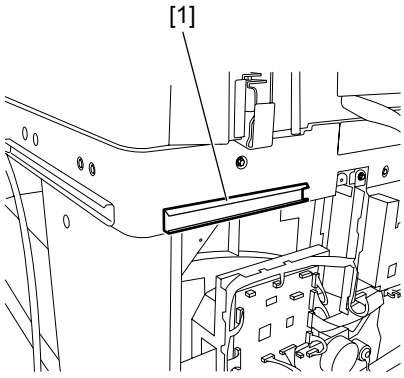
F-2-51

13) Affix the two supplied harness covers (bases) at the right rear of the machine with it aligned with the bottom line of the reader.



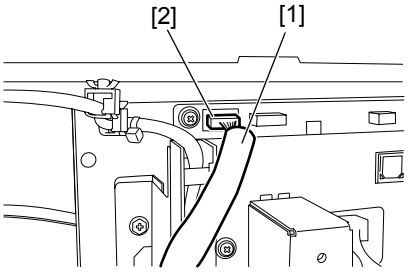
F-2-52

14) Affix the supplied harness cover (base) [1] at the back of the machine with it aligned with the bottom line of the reader.



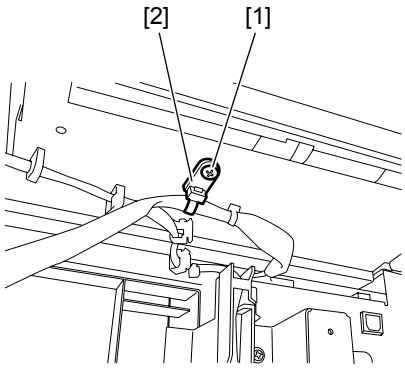
F-2-53

15) Connect the connector of the repeating harness B [1] to the connector J317 [2] on the image processor PCB.



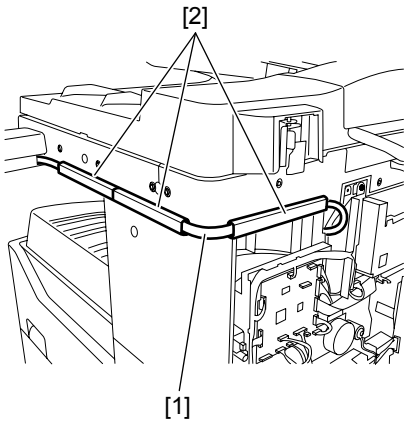
F-2-54

16) Using the supplied binding screw (M4x6) [1], secure the repeating harness B clamp [2].



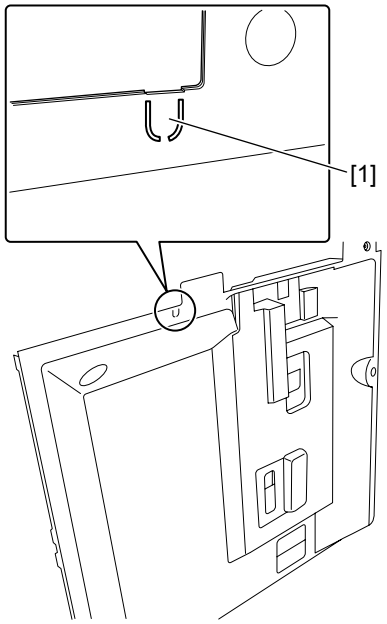
F-2-55

17) Using the three harness covers (lids) [2], secure the repeating harness B [1] to the harness covers (bases).



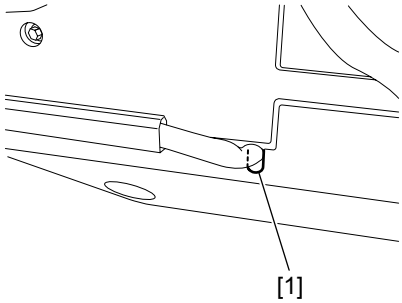
F-2-56

18) Using a nipper, remove the precut portion [1] of the rear cover as shown below.



F-2-57

19) Attach the rear cover with the repeating harness B routed through the cut portion of the rear cover.

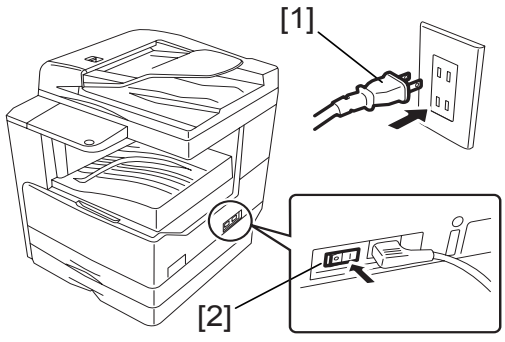


F-2-58

2.5.4 Registering the Card IDs

After installing the card reader-E1, register the card numbers to be used in the service mode of the iR body. If they are not registered, cards will not be recognized when inserted.

1) Plug the power cord [1] into the outlet, and then turn on the main power switch [2].



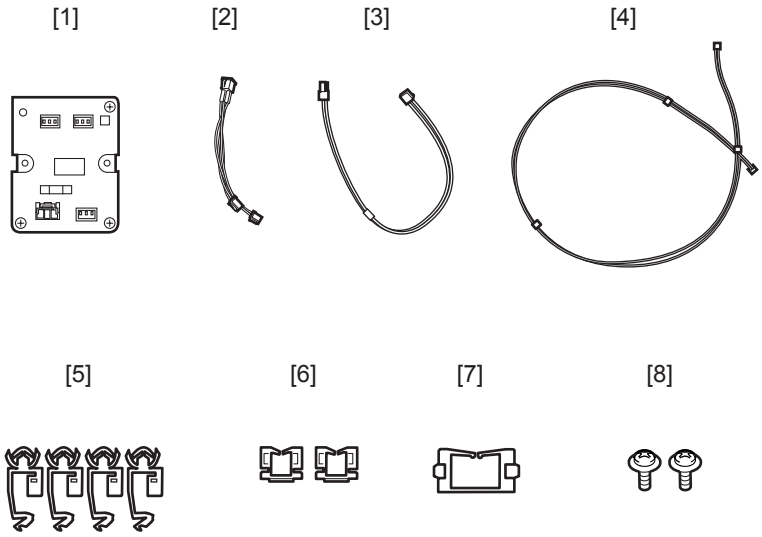
F-2-59

2) Press the following keys to display the service mode screen:
Menu > 2 Key > 8 Key > Menu
3) Select "# ACC" using ◀ and ▶, and then press the OK.
4) Select "CARD" using ◀ and ▶, and then press the OK.
5) Specify the first ID number of the card ID numbers to be registered, and then press the OK.
Sequential Card ID numbers of 1000 cards are automatically registered in the department ID, starting with the specified card ID number.
6) Press Menu key to enter the user mode.
7) Select "System Settings."
8) Select "Department ID Management."
9) Select "ON" and then press the OK.
10) Turn main power switch off and on again. Check that "Insert Card" appears.

2.6 Installing the Heater PCB

2.6.1 Preparing the parts

1) Prepare the following parts.

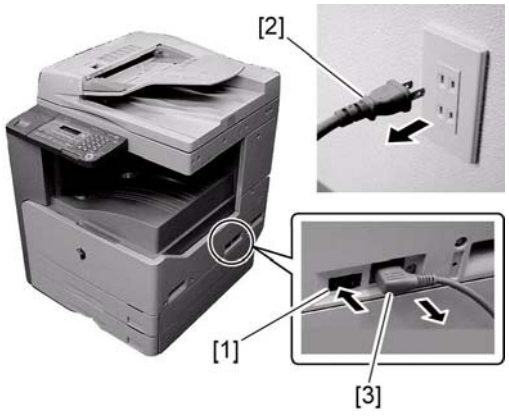


F-2-60

[1]	Heater PCB unit	1 pc.
[2]	Heater switch harness	1 pc.
[3]	Cassette heater harness	1 pc.
[4]	Heater PCB harness	1 pc.
[5]	Clamp	4 pcs.
[6]	Edge saddle (small)	2 pcs.
[7]	Edge saddle (large)	1 pc.
[8]	P screw (M3x8)	2 pcs.

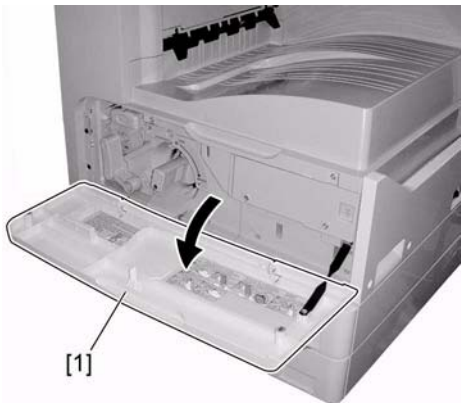
2.6.2 Preparing the Host Machine

⚠
Before installing, make sure the host machine is turned off. If it is turned on, go through the following:
1. Turn off the main power switch.
2. Disconnect the power cable (from the power outlet).
3. Disconnect the power cable.



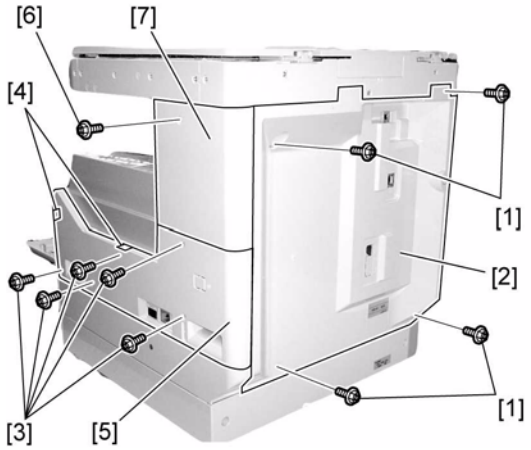
F-2-61

1) Open the front cover [1].



F-2-62

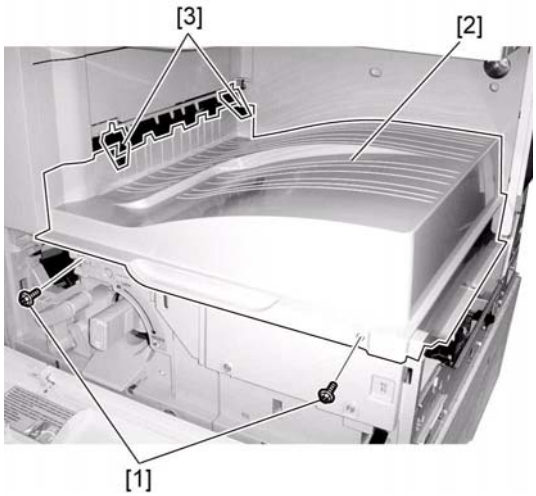
2) Remove the four screws [1], and then detach the rear cover [2].
3) Remove the five screws [3]. Remove the two hooks [4], and then detach the lower-right cover [5].
4) Remove the screw [6], and then detach the upper-right cover [7].



F-2-63

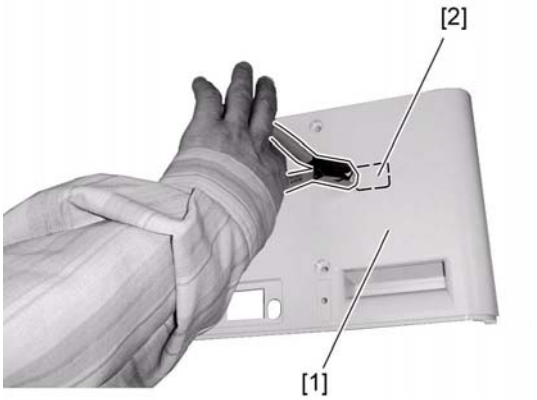
5) Remove the two screws [1], and then the delivery tray [2].

When removing or reinstalling the delivery tray, be careful not to damage the paper holder [3].



F-2-64

6) Using a nipper or the like, cut out the face plate [2] (used to install a heater switch) on the lower-right cover [1].

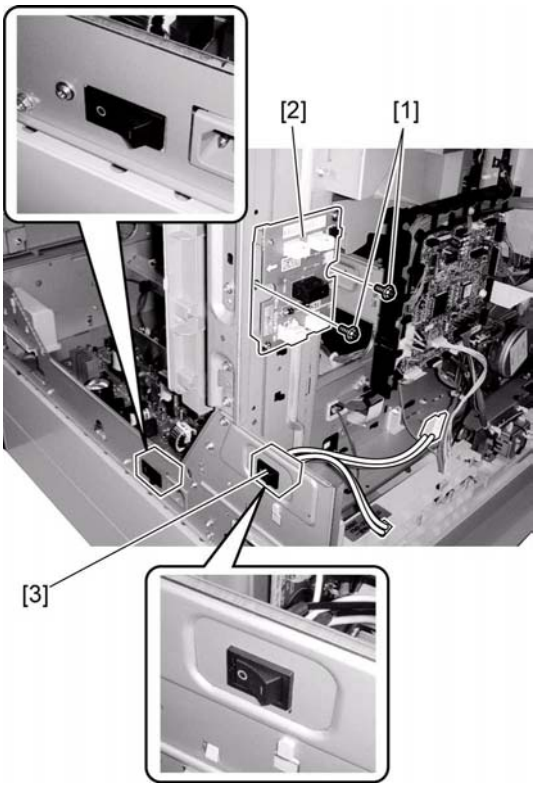


F-2-65

2.6.3 Installing the Heater PCB

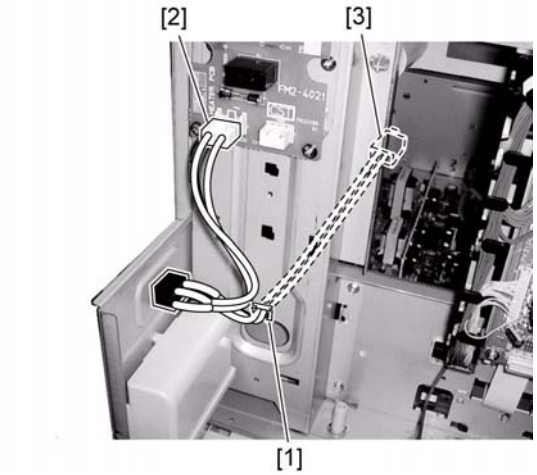
1) Install the heater PCB unit [2] using the two supplied TP screws (M3x8) [1].
2) Install the heater switch [3] on the right side panel.

Install the heater switch with the OFF position on the left and the ON position on the right just like the main power switch.



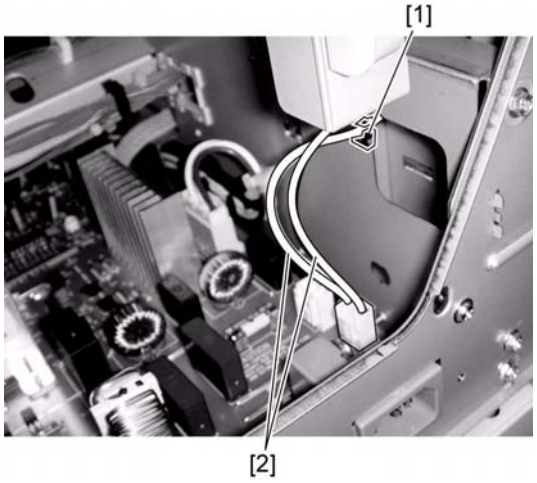
F-2-66

3) Install the edge saddle (large) [1] and connect one heater switch harness [2] to the connector (J1901) on the heater PCB. Route the other harness [3] to the front of the host machine through the saddle.



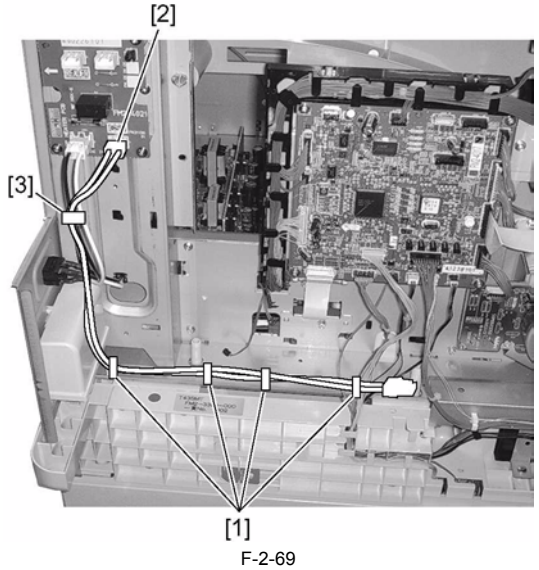
F-2-67

4) Install the edge saddle (small) [1] on the power supply unit at the front of the host machine, and then connect the header switch harness [2] (routed to the front of the host machine) to the connector (J15) on the power supply PCB through the edge saddle.



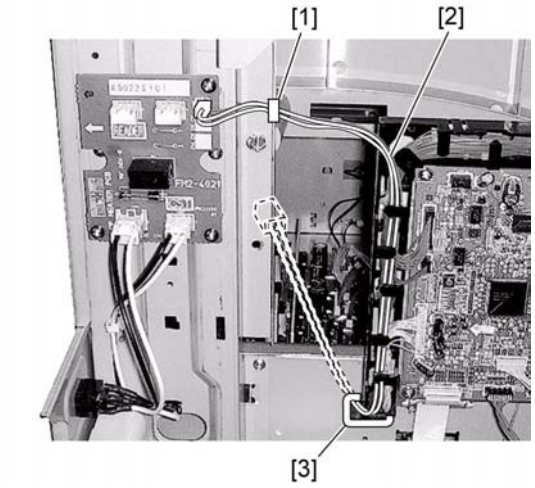
F-2-68

5) Install the four clamps [1] on the back of the host machine.
6) Connect the cassette heater harness [2] to the connector (J1905) on the heater PCB unit, install the reuse band [3], and then pass the harness through the clamps installed in step 5).



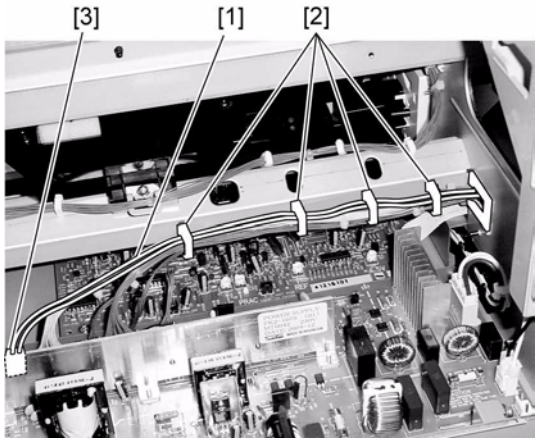
F-2-69

7) Install the edge saddle (small) [1].
8) Connect the heater harness [2] to the connector (J1902) on the heater PCB unit, pass the harness through the installed edge saddle, and then route the harness to the front of the host machine through the hole [3].



F-2-70

9) Pass the heater harness [1] through the wire saddle [2], and then connect it to the connector (J17) [3] on the power supply PCB.



F-2-71

10) Install the delivery tray. (2 screws)

⚠
When reinstalling the delivery tray, be careful not to damage the paper holder.

---

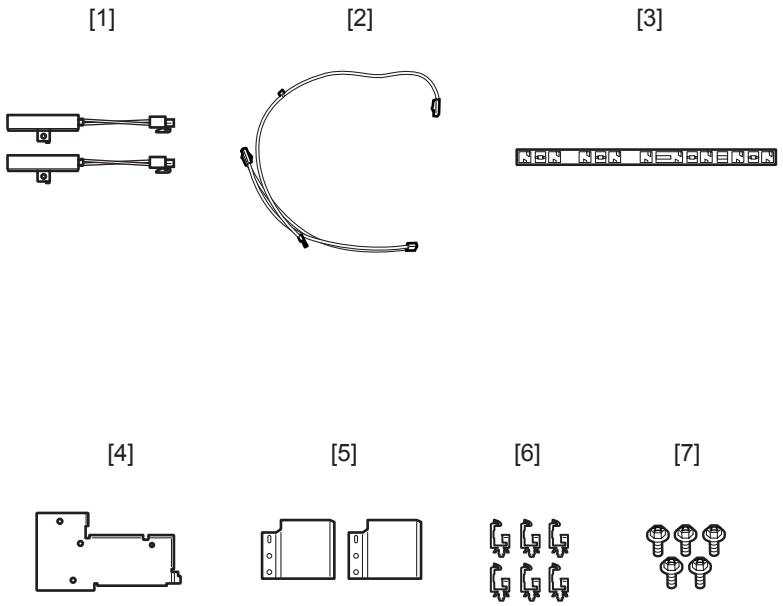
11) Attach the upper-right cover of the host machine. (1 screw)
12) Attach the lower-right cover of the host machine. (5 screws)
13) Attach the rear cover of the host machine. (4 screws)
14) Close the front cover of the host machine.

2.7 Installing the Reader Heater

2.7.1 Preparing the parts

Before installing, make sure the heater PCB has been installed.

1) Prepare the following parts.

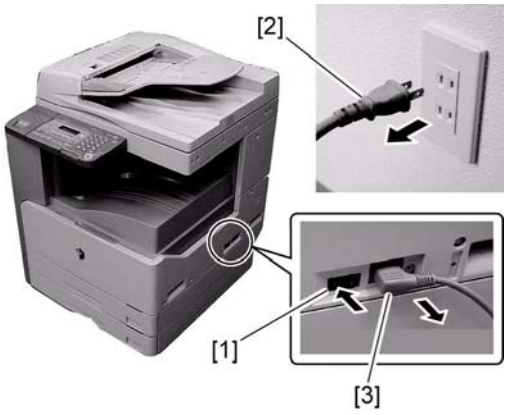


F-2-72

[1]	Reader heater	2 pcs.
[2]	Heater harness	1 pc.
[3]	Harness guide	1 pc.
[4]	Right heater base	1 pc.
[5]	Heater cover	2 pcs.
[6]	Clamp	6 pcs.
[7]	TP screw (M3x6)	5 pcs.

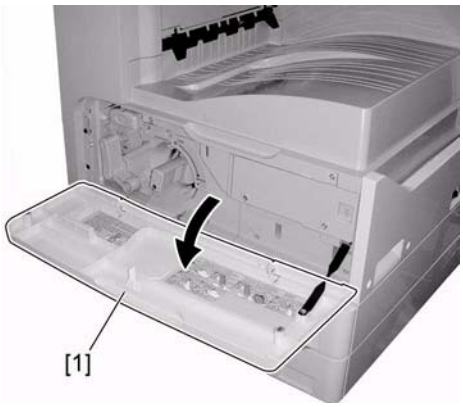
2.7.2 Installing the Reader Heater Harness

Before installing, make sure the host machine is turned off. If it is turned on, go through the following:
1. Turn off the main power switch.
2. Disconnect the power cable (from the power outlet).
3. Disconnect the power cable.



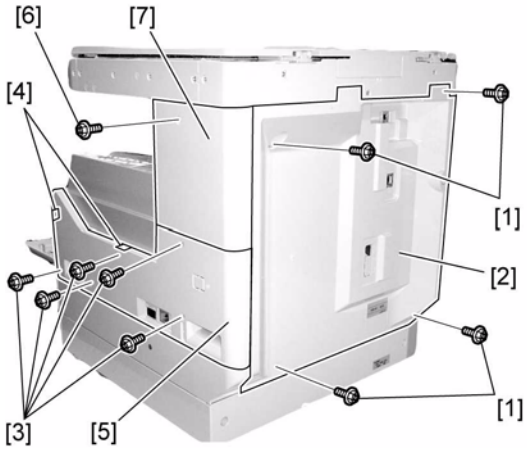
F-2-73

1) Open the front cover [1].



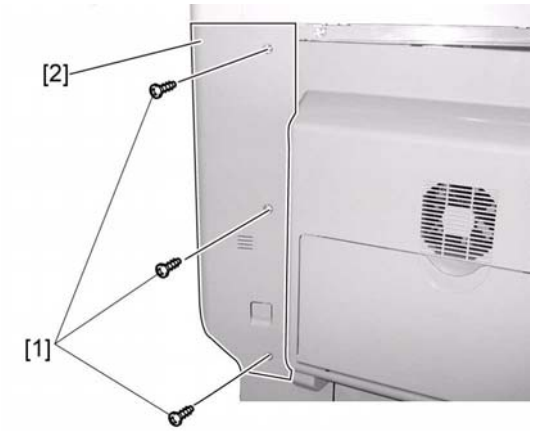
F-2-74

2) Remove the four screws [1], and then detach the rear cover [2].
3) Remove the five screws [3]. Remove the two hooks [4], and then detach the lower-right cover [5].
4) Remove the screw [6], and then detach the upper-right cover [7].



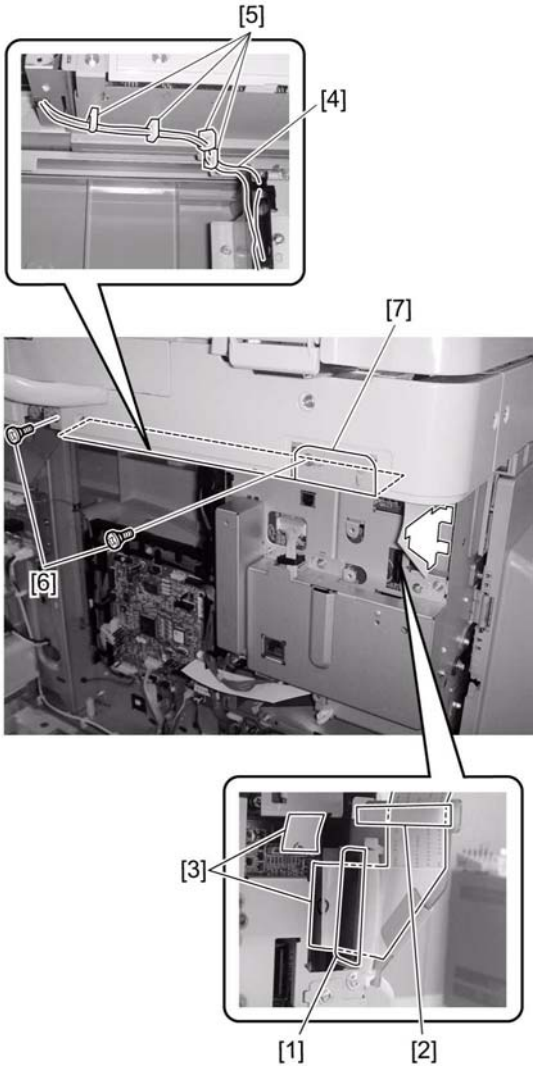
F-2-75

5) Remove the three screws [1], and then detach the rear-left cover [2].



F-2-76

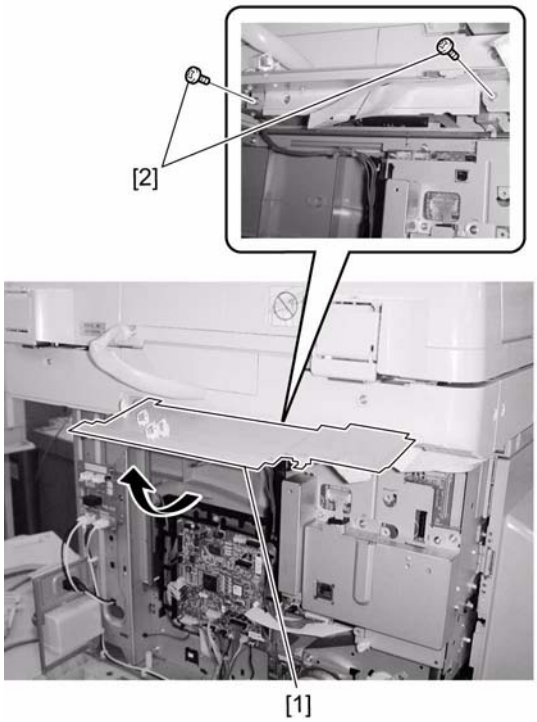
6) Remove the core [1] and the flexible cable holder [2] at the back of the host machine. Disconnect the two reader flexible cables [3].
7) Disconnect the harness [4] from the four wire saddles [5].
8) Remove the two screws [6], and then detach the flexible cable cover [7].



F-2-77

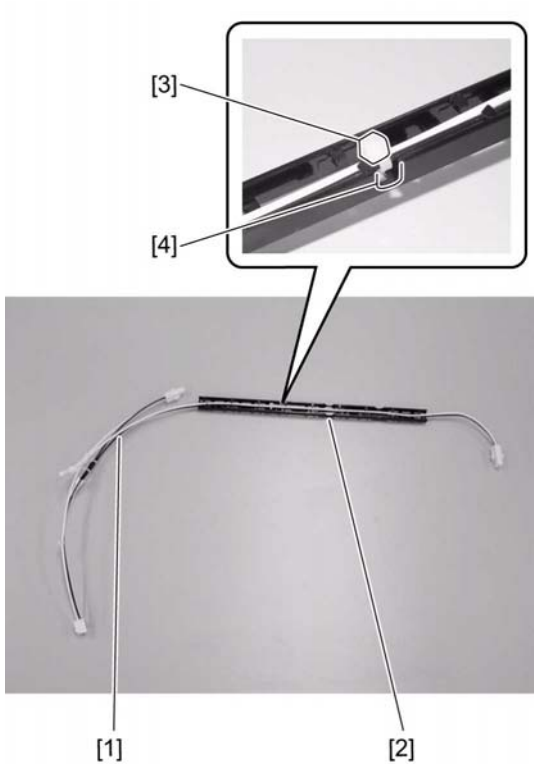
The reader flexible cables are stuck to the flexible cable cover, so do not pull the cover forcibly.

9) Turn over the reader flexible cable cover [1], and then secure to the back of the reader temporarily using a screw [2].



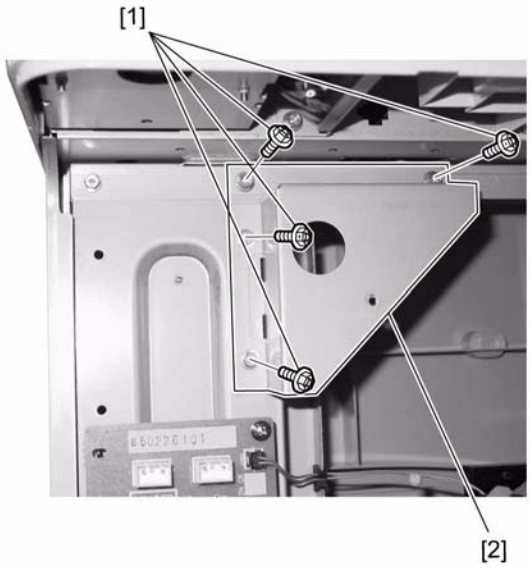
F-2-78

10) Pass the heater harness [1] though the harness guide [2] with the clamp [3] of the heater harness aligned with the notch [4] in the harness guide.



F-2-79

11) Remove the four screws [1], and then the metal plate [2].

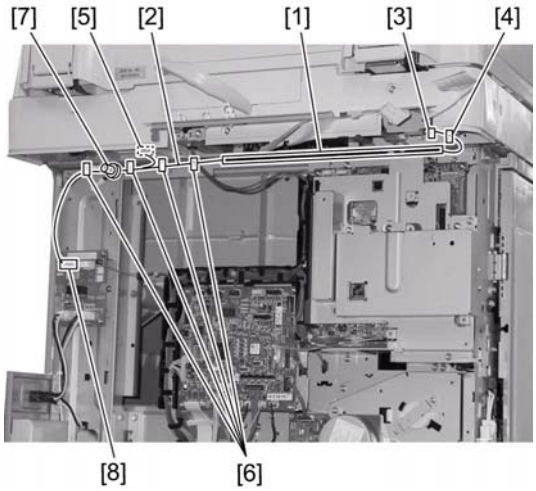


F-2-80

12) Secure the harness guide [1] to the rear bottom of the reader together with the heater harness [2].
13) Connect the heater connector (right) [3].
14) Install the wire saddle [4], and then pass the heater harness [2] through it.
15) Connect the heater connector (left) [5].
16) Install the four wire saddles [6], and then pass the heater cable through them.

MEMOÅF
Rout the heater cable so as its terminal [7] to be connected at the position shown in the Figure.

17) Connect the heater harness [2] to the connector (J1904) [8] on the heater PCB.



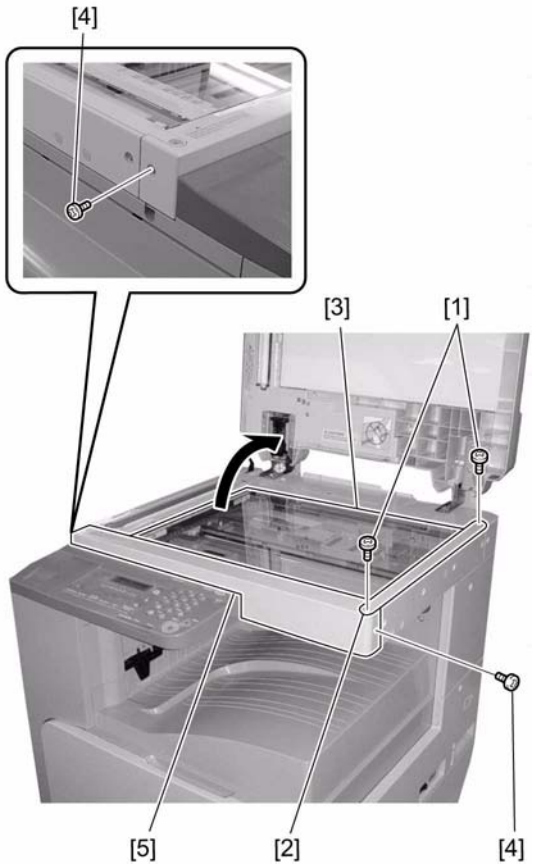
F-2-81

18) Install the metal plate removed in step 11). (4 screws)
19) Return the reader flexible cable cover in place, and then connect the reader flexible cables to the image processor PCB.

2.7.3 Removing Reader Components

⚠
Installation precautions are as follows:
- Do not touch the top surface of the contact sensor.
- Be careful not to allow foreign objects to enter the reader unit.
- Do not stain the stream reading glass.
- Be careful not to touch grease on the shaft, when moving the contact sensor, etc.

1) Open the ADF/copyboard cover.
2) Remove the two screws [1], and then the right glass holder [2] of the reader.
3) Remove the document deck glass [3].
4) Remove the two screws [4], and then detach the front cover [5] of the reader.



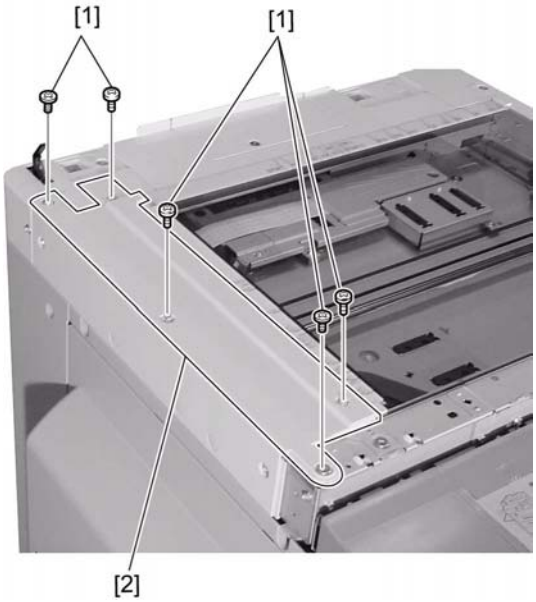
F-2-82

2.7.4 Removing Parts at the Left of the Reader

The work procedure for removing the parts at the left of the reader differs between the machine with a copyboard cover and the machine with a DADF. Follow the appropriate procedure.

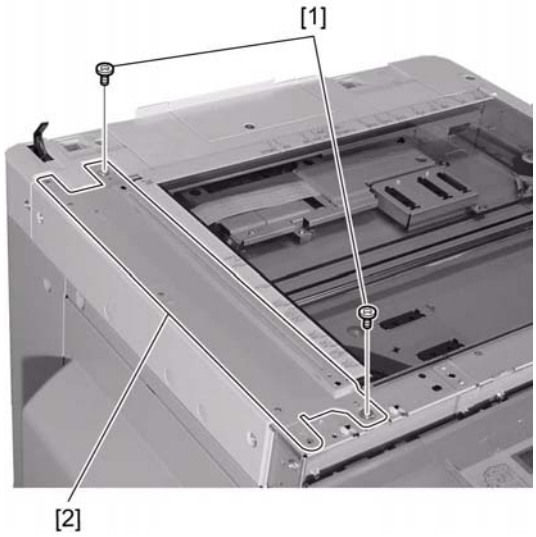
a. Machine with a Copyboard Cover

1) Remove the five screws [1], and then detach the upper-left cover [2] of the reader



F-2-83

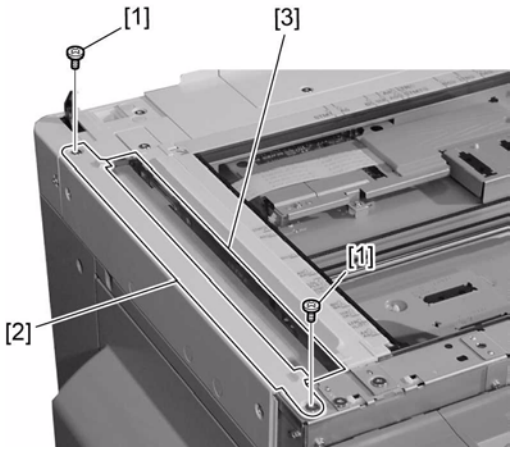
2) Remove the two screws [1], and then detach the blind plate [2].



F-2-84

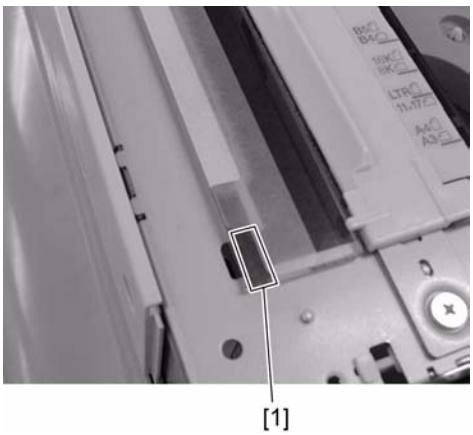
b. Machine with a DADF

1) Remove the two screws [1], and then detach the stream reading glass holder [2].
2) Remove the stream reading glass [3].



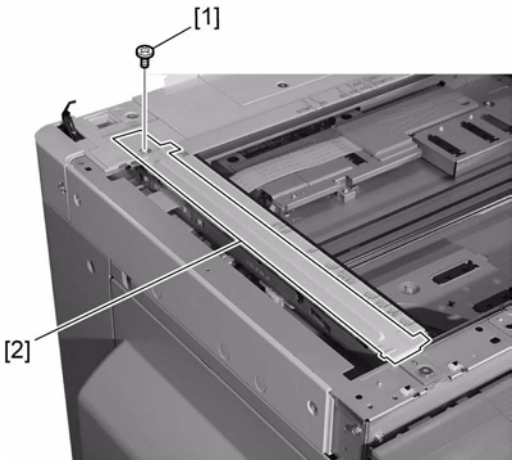
F-2-85

Mount the stream reading glass with the notch [1] of the sheet material affixed to the glass is at the front left.



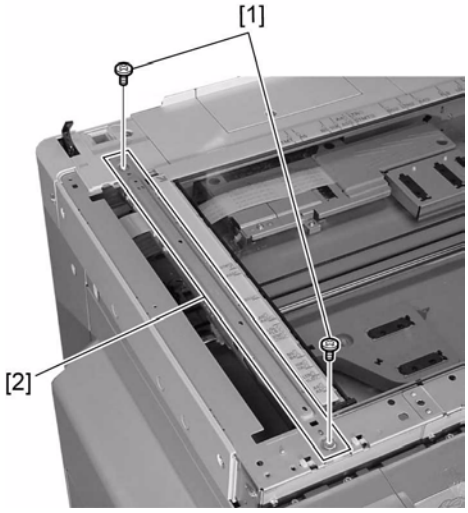
F-2-86

3) Remove the screw [1], and then remove the jump board [2].



F-2-87

4) Remove the screw [1], and then the stay [2].

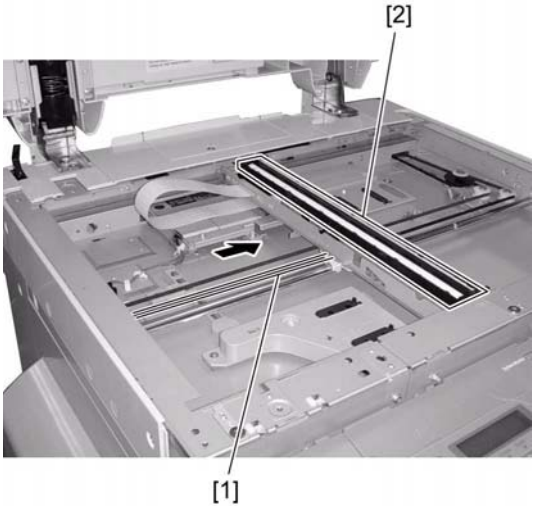


F-2-88

2.7.5 Installing the Reader Heater

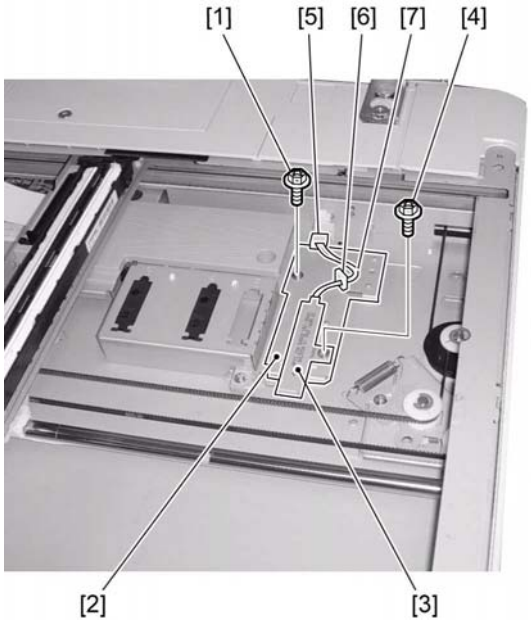
1) Pull the front side [1] of the drive belt in the direction of the arrow to move the contact sensor [2] to the center

⚠
Do not touch the top surface of the contact sensor.



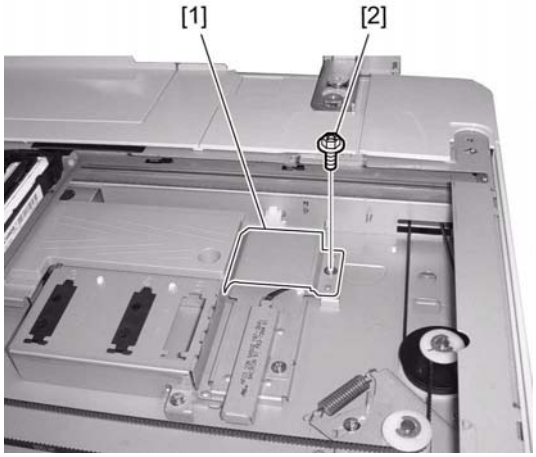
F-2-89

2) Install the heater base [2] using a screw [1].
3) Install the reader heater [3] on the header base [2] using a screw [4]. Connect the connector [5] of the heater. Install the wire saddle [6] and route the cable [7].



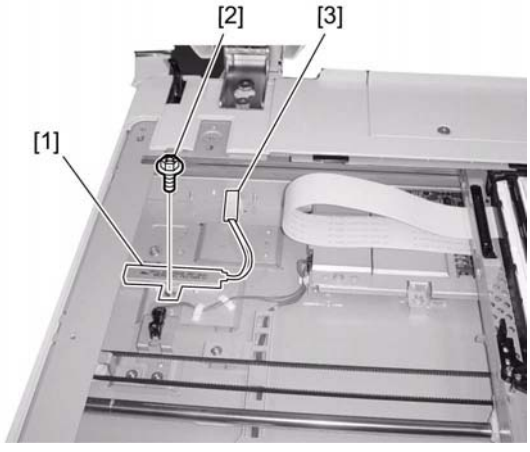
F-2-90

4) Attach the heater cover [1] using a screw [2].



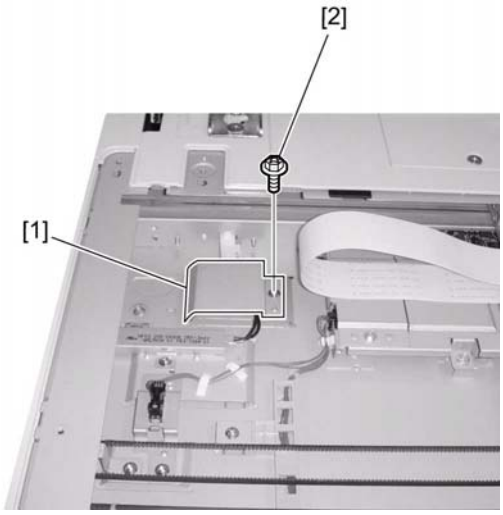
F-2-91

5) Install the reader heater [1] using a screw [2]. Connect the connector [3] of the heater.



F-2-92

6) Attach the heater cover [1] using a screw [2].



F-2-93

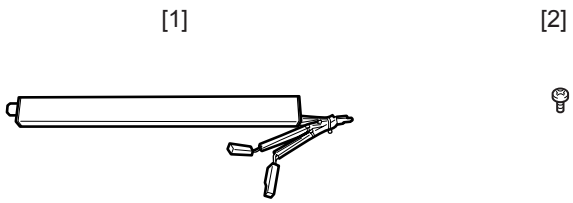
7) Reinstall the parts at the left of the reader.
8) Attach the front cover of the reader. (2 screws)
9) Install the copyboard glass.
10) Install the right glass holder of the reader. (2 screws)
11) Attach the rear left cover of the host machine. (3 screws)
12) Attach the upper-right cover of the host machine. (1 screw)
13) Attach the lower-right cover of the host machine. (5 screws)
14) Attach the rear cover of the host machine. (4 screws)

2.8 Installing the Cassette Heater

2.8.1 Preparing the parts

Before installing the cassette heater, make sure the heater PCB has been installed.

1) Prepare the following parts.

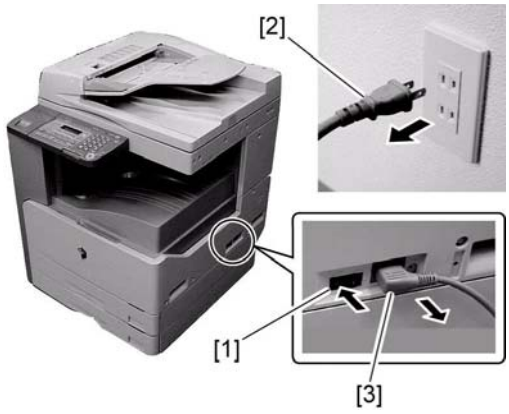


F-2-94

[1]	Cassette heater	1 pc.
[2]	P tightening screw (M4x8)	1 pc.

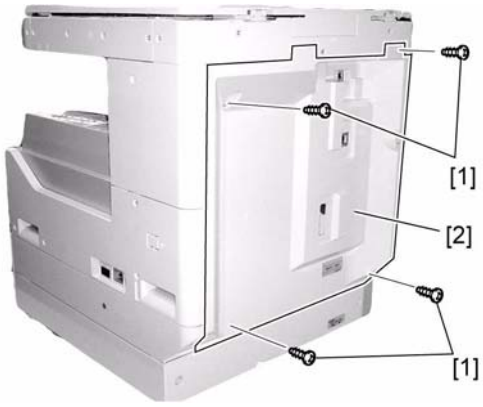
2.8.2 Preparing the Host Machine

Before installing the cassette heater unit 30, make sure the host machine is turned off. If it is turned on, go through the following:
1. Turn off the main power switch.
2. Disconnect the power cable (from the power outlet).
3. Disconnect the power cable.



F-2-95

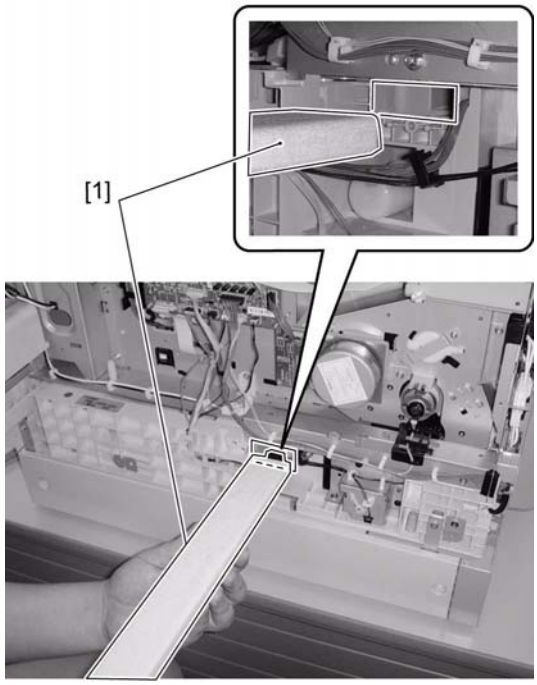
1) Remove the four screws [1], and then detach the rear cover [2].



F-2-96

2.8.3 Installing the Cassette Heater

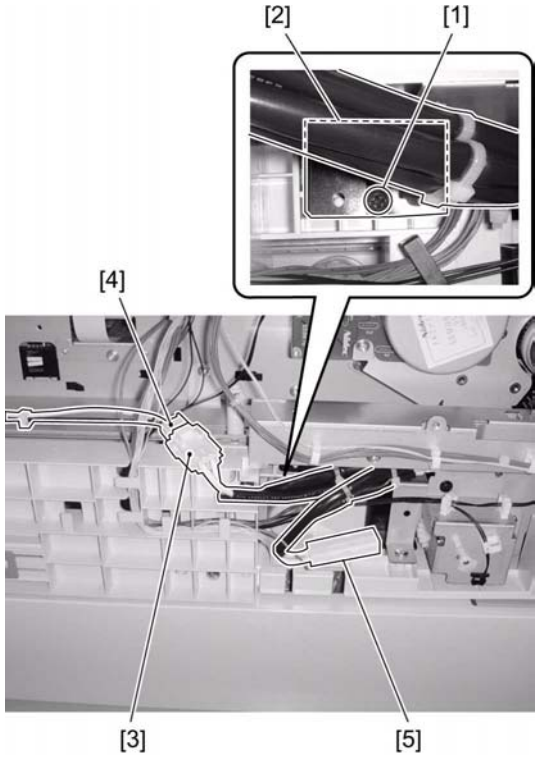
1) Insert the cassette heater [1] from behind the host machine.



F-2-97

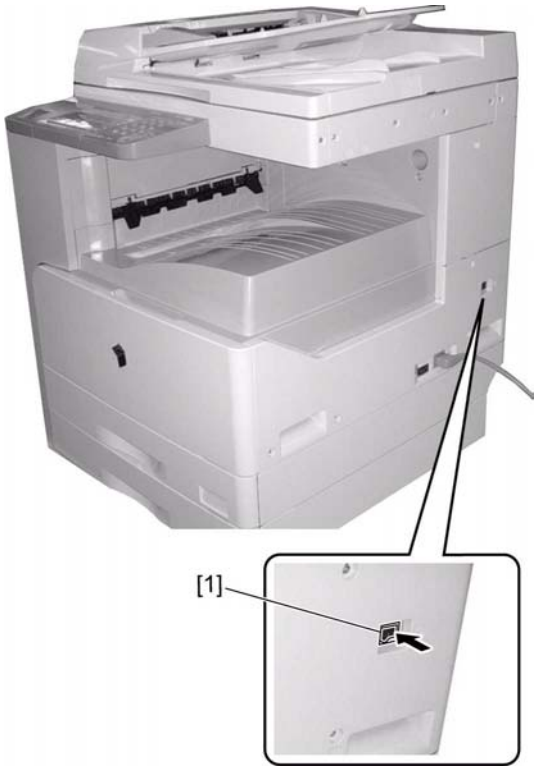
When installing the cassette heater unit, make sure that harness is not pinched.

2) Secure the cassette heater [2] using a screw [1].
3) Connect one harness [3] to the cassette heater harness [4].
4) Place the other harness [5] at the position shown below. Connect this connector to the heater of the cassette when connecting the cassette heater to the cassette at the second or lower stage.



F-2-98

5) Attach the rear cover. (4 screws)
6) Turn on the main power switch of the host machine.
7) Turn on the heater switch [1] and make sure that the cassette heater is powered.



F-2-99

When installing the heater for the cassette at the second or lower stage, detach the rear cover of the cassette and follow the procedure mentioned in this procedural manual.

Chapter 3 Main Controller

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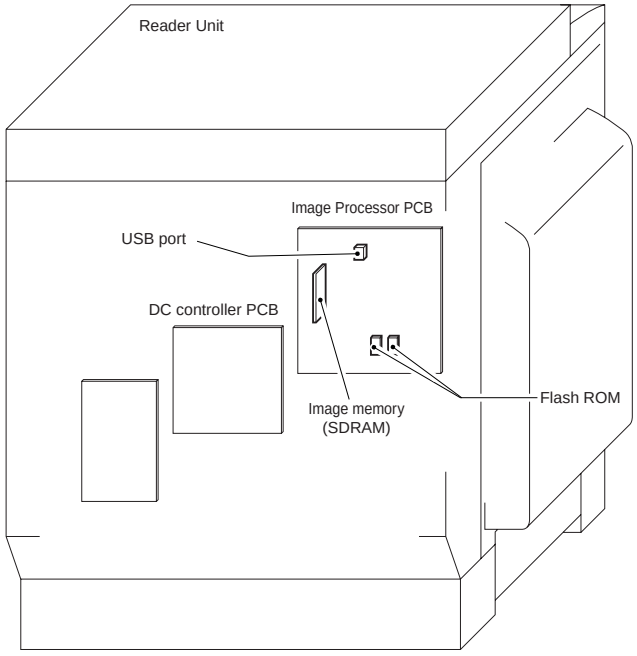
3.1 Overview/Configuration

3.1.1 Construction and Mechanisms

The machine's main controller block consists of the following and has the following functions:

T-3-1

Item	Description
Image Processor PCB	Controls system operation, memory, printer unit output, image processing, printer unit image input processing, card printer unit interface, fax image processing, etc.
Image memory (SDRAM)	Temporarily retains image data (256 MB)
Flash ROM	Stores system software and retains user data/service data
USB port	USB2.0 interface

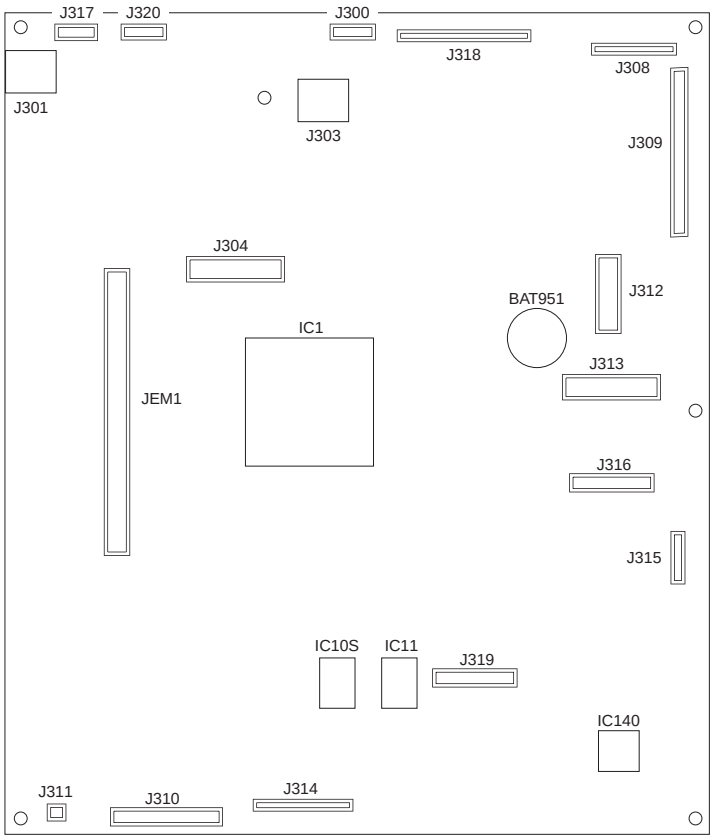


F-3-1

3.2 Outline of the Electrical Circuitry

3.2.1 Image Processor PCB

The following is a diagram showing the major control mechanisms of the Image Processor PCB according to connectors:



F-3-2

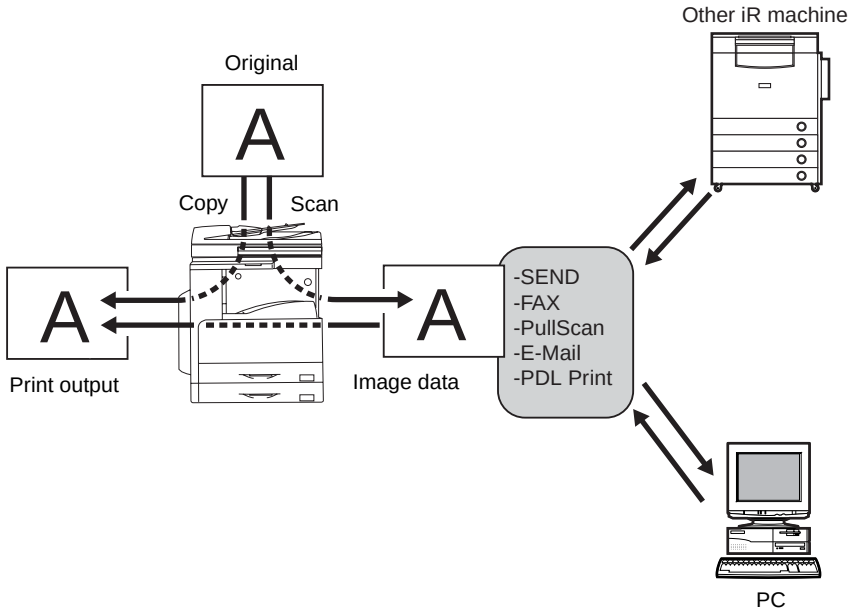
T-3-2

Connector	Description
J300	Not used
J301	USB memory connection slot
J303	USB port
J304	LAN PCB connection slot
J308	Reader ADF connection slot
J309	Reader Book connection slot
J310	Power supply connection slot
J312	SERIAL PCB connection slot
J314	DC controller PCB connection slot
J315	SOFT ID PCB connection slot
J316	SOFT counter PCB connection slot
J317	New Card Reader connection slot
J318	Control panel connection slot
J319	Extend ROM PCB connection slot
J320	Not used
JMEM1	DDR DIMM PCB connection slot

3.3 Image Processing

3.3.1 Overview of the Image Flow

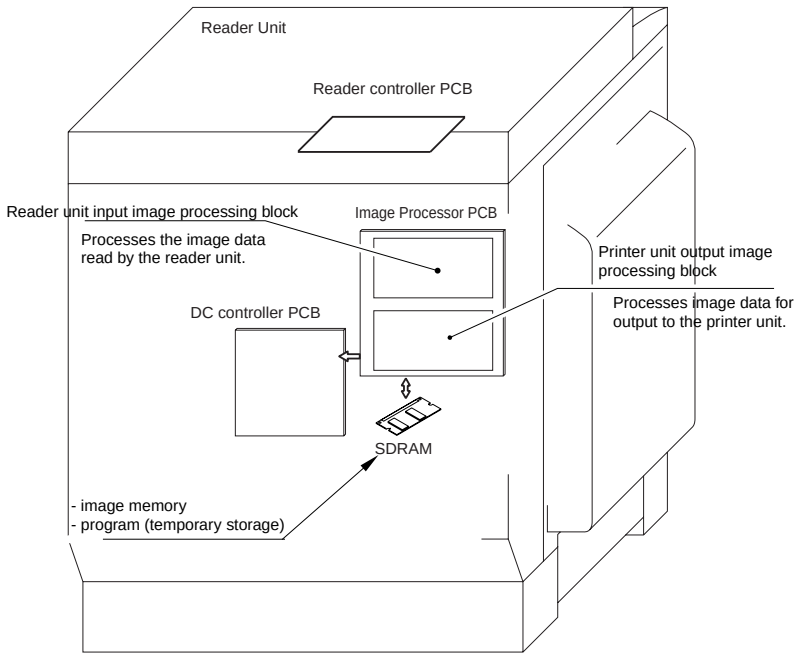
The following shows the flow of images in relation to the machine's functions:



F-3-3

3.3.2 Construction of the Image Processing Module

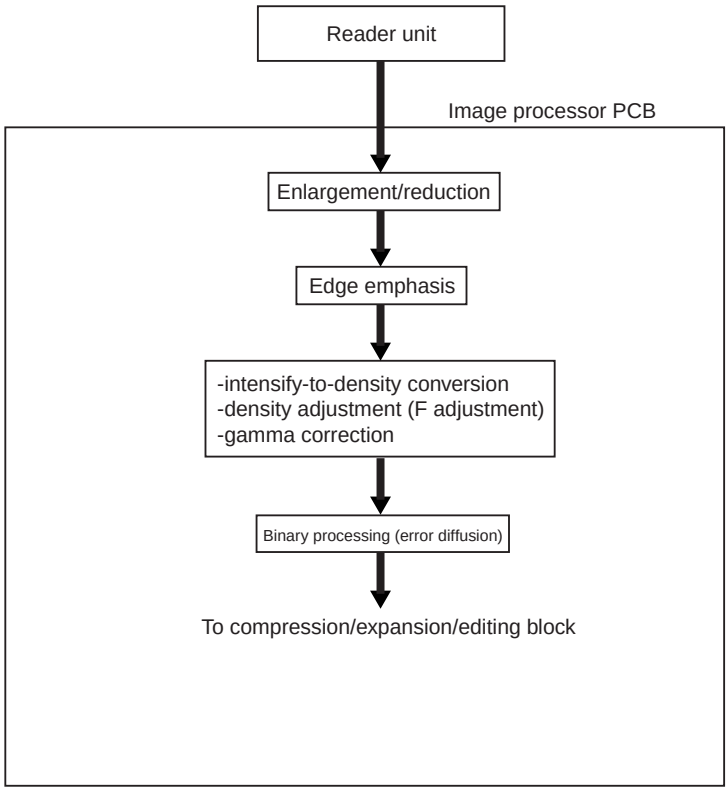
The machine's major image processing is executed by the Image processor PCB.
The following shows the construction of the modules associated with image processing:



F-3-4

3.3.3 Reader Unit Input Image Processing

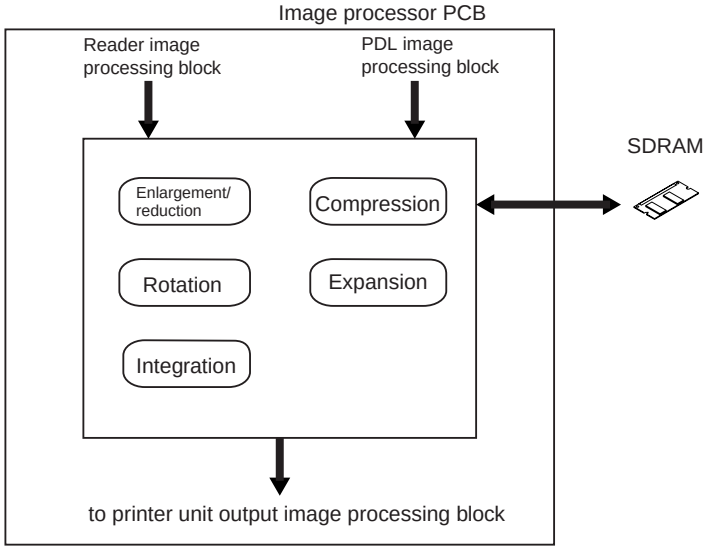
The image data colleted by the contact image sensor is processed by the Image processor PCB.



F-3-5

3.3.4 Compression/ Extesion/ Editing Block

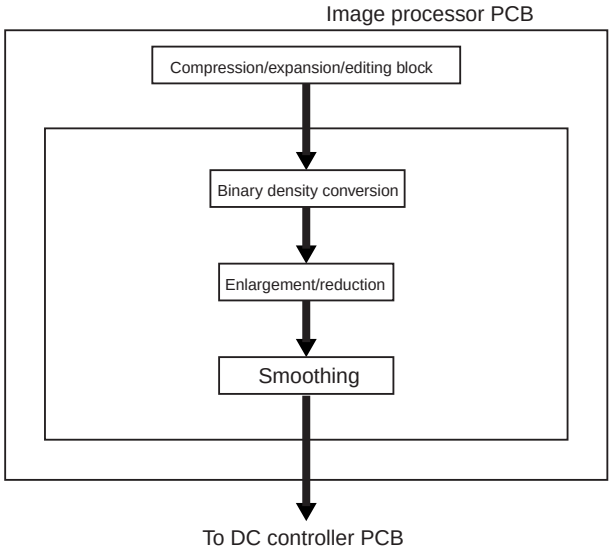
Here, image data is processed for compression, extension, and editing.



F-3-6

3.3.5 Printer unit Output Image Processing

The image processor PCB processes the image data coming from the reader unit for output to the printer unit.

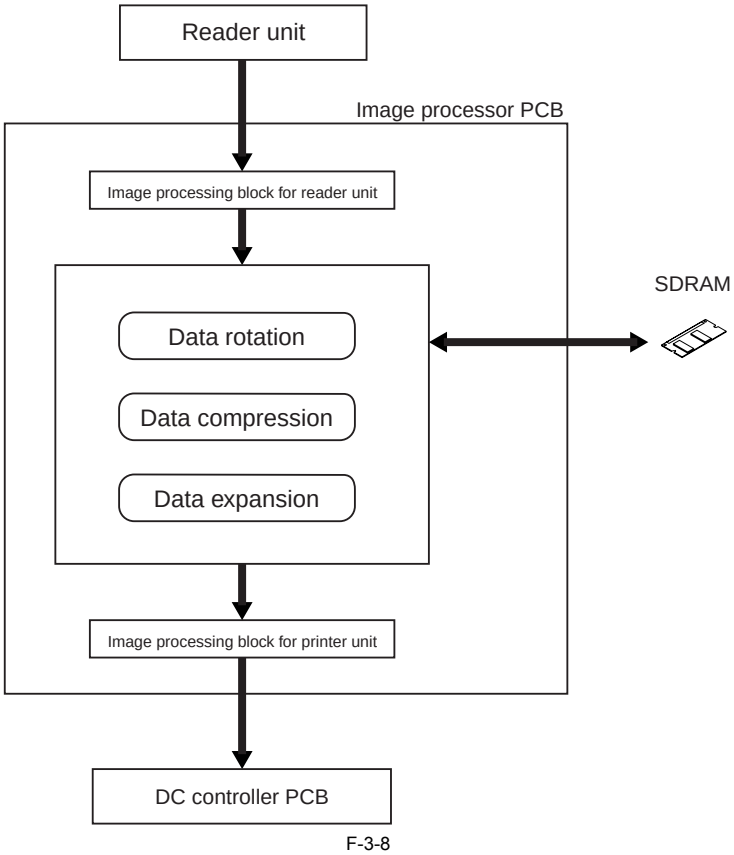


F-3-7

3.4 Image Data Flow

3.4.1 Flow of Image Data According to Copy Functions

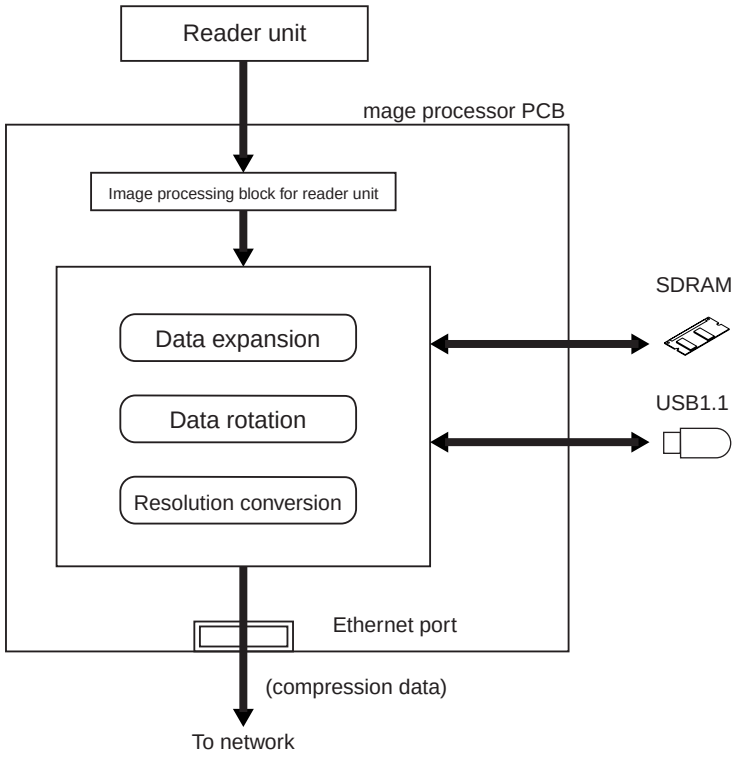
The following is the flow of image data when the Copy Function is in use:



F-3-8

3.4.2 Flow of Image Data for the SEND Function

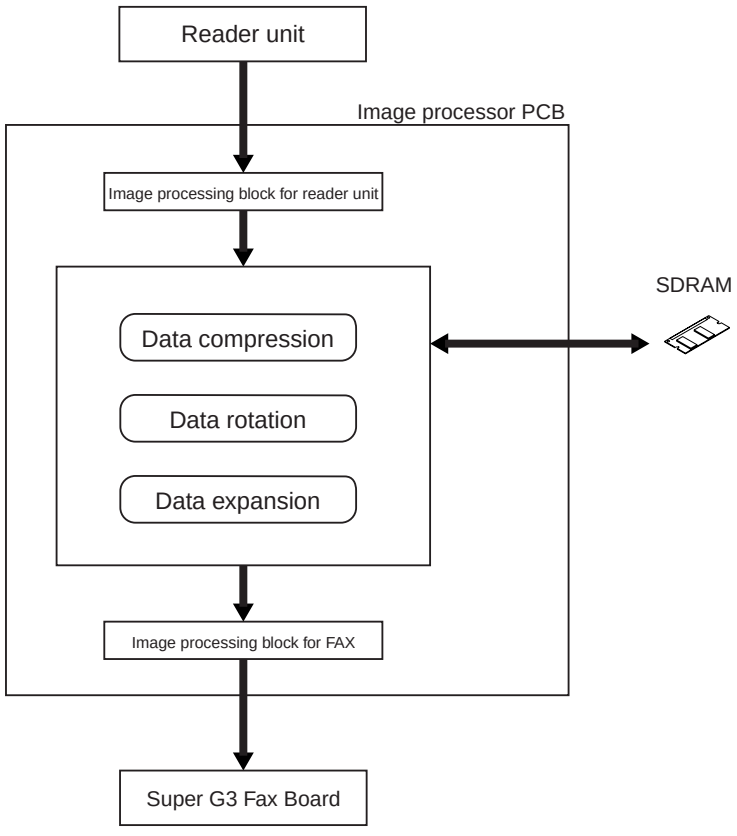
The following is the flow of image data when the SEND function is in use.



F-3-9

3.4.3 Flow of Image Data for the Fax Transmission

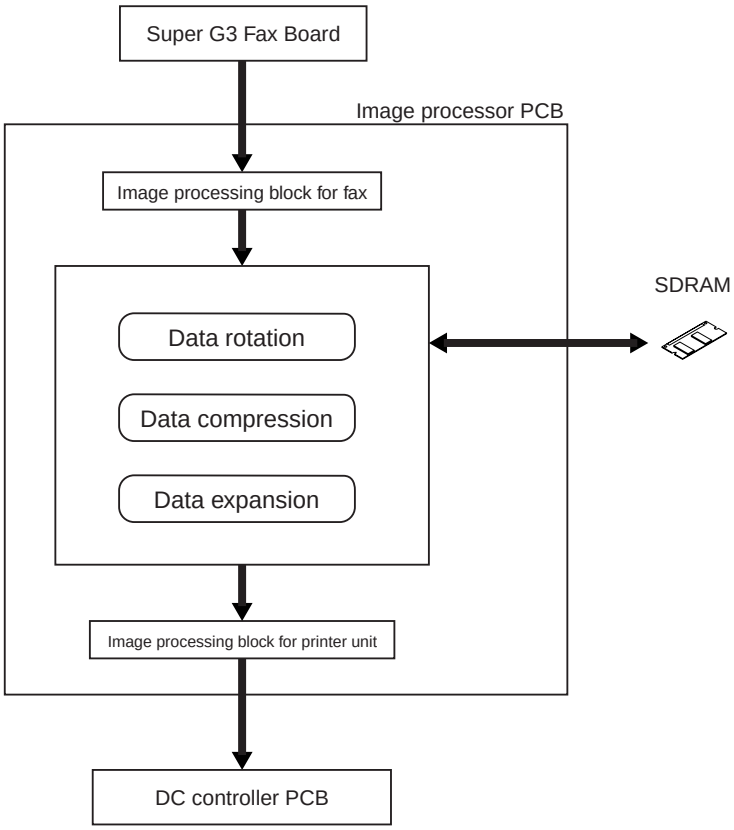
The following is the flow of image data when the fax transmission function is in use:



F-3-10

3.4.4 Flow of Image Data for the Fax Reception Function

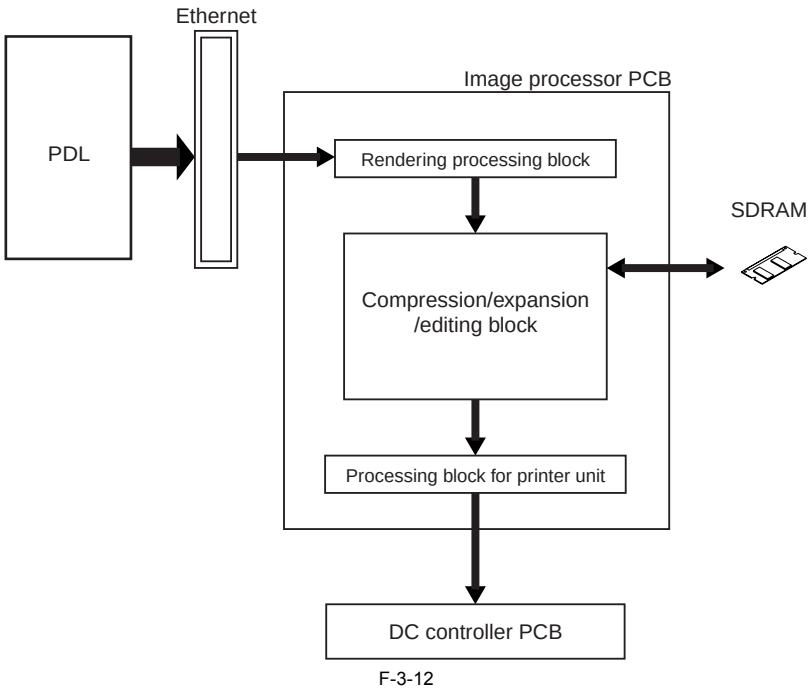
The following is the flow of image data when the fax reception function is in use:



F-3-11

3.4.5 Flow of Image Data for the PDL Function

The following is the flow of image data when the PDL function is in use:



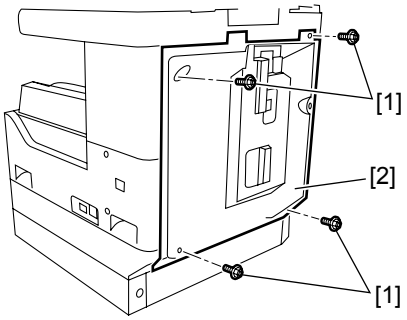
F-3-12

3.5 Parts Replacement Procedure

3.5.1 Main Controller PCB

3.5.1.1 Removing the Rear Cover

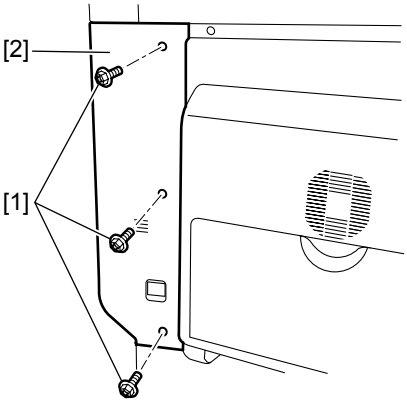
1) Remove the four screws [1], and then detach the rear cover [2].



F-3-13

3.5.1.2 Removing the Left Cover (Rear)

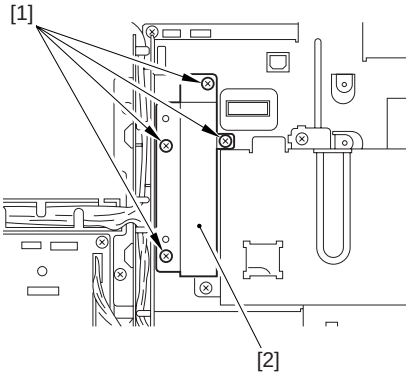
1) Remove the three screws [1], and then detach the left cover (rear)[2].



F-3-14

3.5.1.3 Removing the RAM Cover

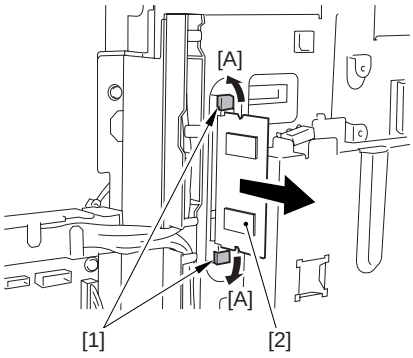
1) Remove the four screws [1], and then detach the RAM cover [2].



F-3-15

3.5.1.4 Removing the SDRAM

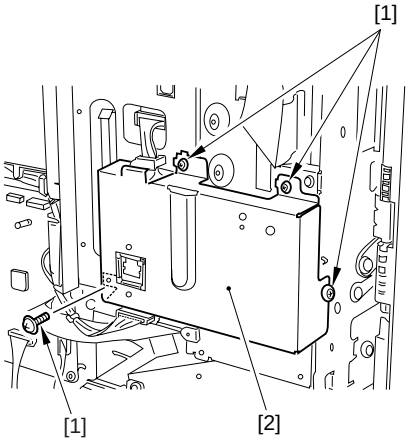
1) Release two lock levers [1] in the direction of arrow [A] and remove SDRAM [2].



F-3-16

3.5.1.5 Removing the LAN Cover

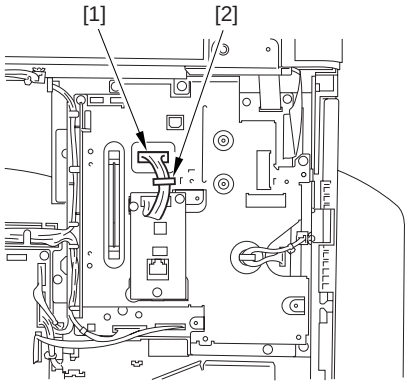
1) Remove the four screws [1], and then detach the LAN cover [2].



F-3-17

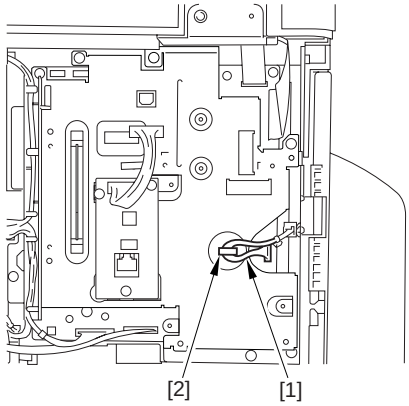
3.5.1.6 Removing the IP Cover

1) Remove a connector [1] of IP-LAN cable and a cable clamp [2].



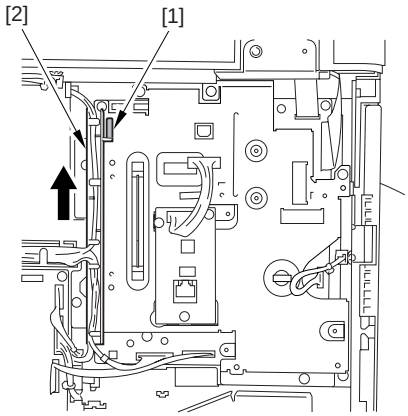
F-3-18

2) Release SOFT ID cable [1] from the cable clamp [2].



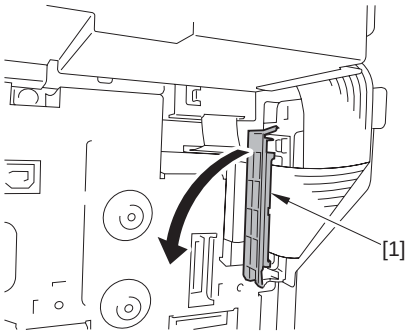
F-3-19

3) Release a claw [1] of cable guide and detach the cable guide [2] upward.



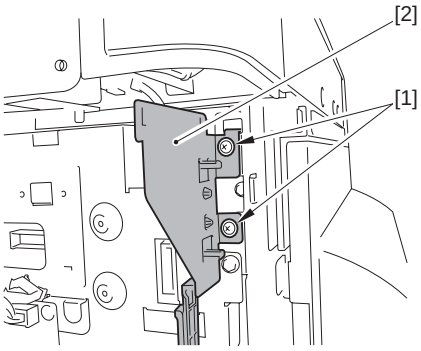
F-3-20

4) Open a core [1].



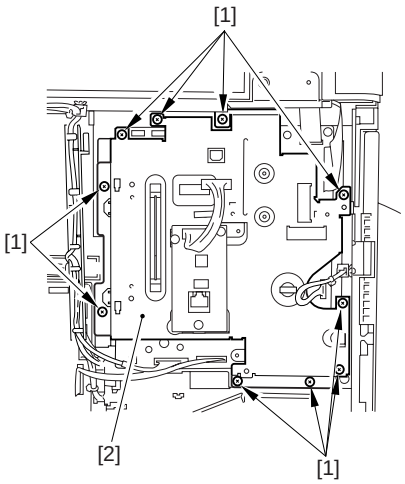
F-3-21

5) Remove the two screws [1], and then detach the flexible cable guide [2].



F-3-22

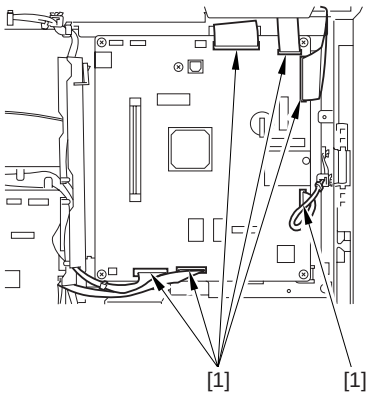
6) Remove the 10 screws [1], and then detach the IP cover [2].



F-3-23

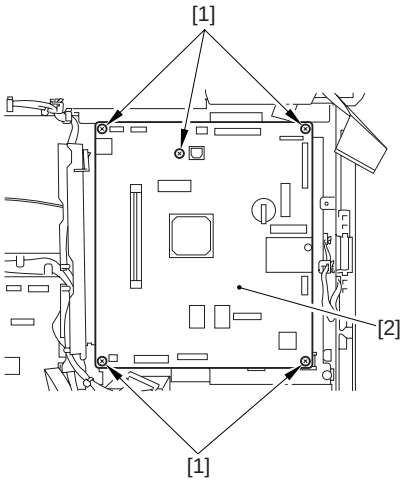
3.5.1.7 Removing the Image Processor PCB

1) Remove six connectors [1].



F-3-24

2) Remove the five screws [1], and detach the image processor PCB [2].



F-3-25

3.5.1.8 Procedure after Replacing the Image Processor PCB

If you have replaced the image processor PCB with a new one, perform the following operations:
- Using the service support tool, download the latest firmware (System/Boot) and language files.
- Delete the languages not used at the destination (Service mode > CLEAR > FILE SYSTEM).
- Input the all value printed on the service label affixed to the rear cover.

Make the following adjustments:
- Correction of output between CIS channels

1) Enter the service mode.
Sequentially press the Additional functions key, 2 key, 8 key, and Additional functions key on the operation panel.
2) Press the arrow key on the touch panel to display "TEST MODE".
3) Press [OK].
4) Press the [2] key to display "SCAN TEST".
5) Press the [1] key to display "SHADING".
6) Press [OK].
After completion of the above procedure, the contact sensor output is compensated and parameters are set automatically.
After completion of automatic adjustment, "OK" is displayed.
- Read position adjustment (Stream reading: Only when the ADF is installed)

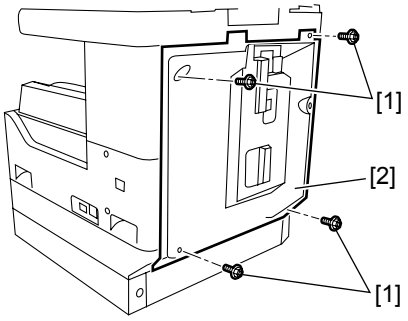
1) Enter the service mode.
Sequentially press the Additional functions key, 2 key, 8 key, and Additional functions key on the operation panel.
2) Press the arrow key on the touch panel to display "TEST MODE".
3) Press [OK].
4) Press the [2] key to display "SCAN TEST".
5) Press the [3] key to display "SHEET POS ADJ".
6) Press [OK].
The optical system starts scanning. Several seconds later, automatic adjustment of the reading position finishes and "OK" appears.

⚠ If automatic adjustment fails, "NG" appears. Perform the following procedure:
Clean the white roller of the DADF and the document glass of the host machine, and then retry auto adjustment.

3.5.2 SDRAM

3.5.2.1 Removing the Rear Cover

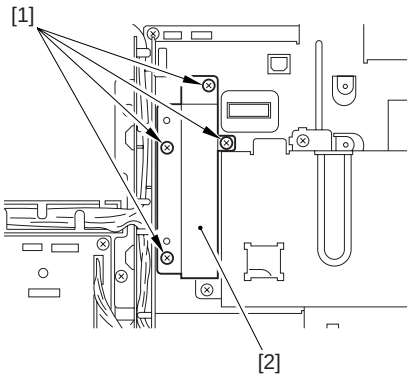
1) Remove the four screws [1], and then detach the rear cover [2].



F-3-26

3.5.2.2 Removing the RAM Cover

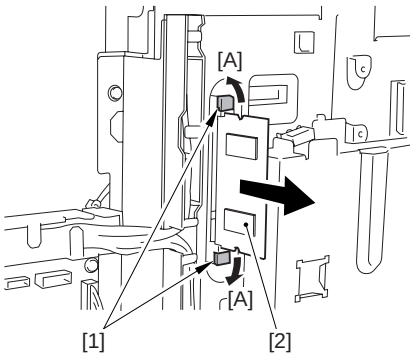
1) Remove the four screws [1], and then detach the RAM cover [2].



F-3-27

3.5.2.3 Removing the SDRAM

1) Release two lock levers [1] in the direction of arrow [A] and remove SDRAM [2].



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Chapter 4 Original Exposure System

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4.1 Basic Constraction

4.1.1 Specifications, Control Methods, and Functions

Major specifications, control methods, and functions of the original exposure system are summarized below.

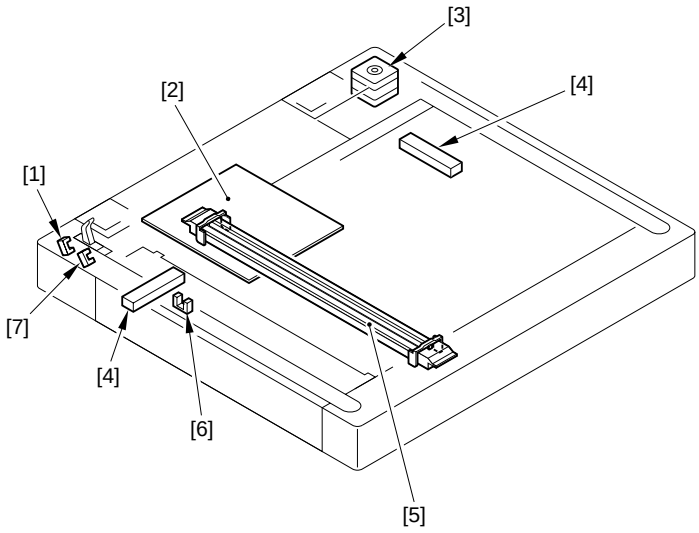
T-4-1

Item	Function/Method
Exposure light source	LED
Original scan	In BOOK mode: Original scan is performed by moving the contact image sensor (CIS).
	When ADF is used: Original stream reading is performed with the contact image sensor (CIS) fixed.
Scan resolution	600 dpi (vertical scan) x 600 dpi (horizontal scan) (Color send: 300 dpi horizontal scan)
Gradation	256
Carriage position detection	Contact image sensor (CIS) HP sensor (SR401)
Magnification range	50% to 200%
	Vertical scan direction: Image processing is by image processor PCB
	Horizontal scan direction:
	BOOK mode: Carriage movement speed change and image processing by image processor PCB *1
	ADF mode: Original feed speed change and image processing by image processor PCB *1
Lens	Rod lens array
CMOS sensor	Number of lines: 1
	Number of pixels: Total 7488 (incl. 7176 effective pixels)
	Maximum original scan width: 304 mm
CIS drive control	Drive control by reader motor (M401)
Original size detection	[1] BOOK mode: not used
	[2] When ADF is used
	Width: Detection by original width sensor PCB in ADF
	Length: Detection by photo sensor in ADF

*1 The control method depends on the magnification. For more details, refer to "Magnification Change".

4.1.2 Major Components

Major components of the original exposure system are as follows:



F-4-1

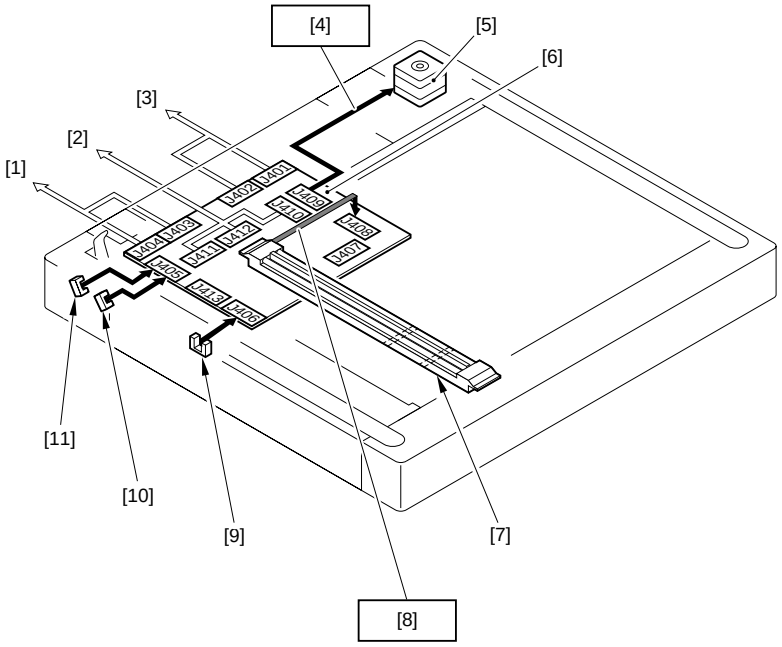
T-4-2

	Component	No.	Function/Specification
[1]	Copyboard cover open/close sensor (Rear: SR402)	SR402	Photo interrupter: Detects the copyboard cover open/close status. Starts detecting the original size when the copyboard cover angle is 30 deg.
[2]	Reader controller PCB	-	Controls drive of the reader unit and image processing.
[3]	Reader motor	M401	Pulse motor: Controls drive of the carriage.
[4]	Reader heater*1	-	Prevents condensation inside the original glass.
[5]	Contact image sensor (CIS)	-	Uses LEDs for indirect exposure (LED + Photoconductor)
[6]	CISHP sensor	SR401	Photo interrupter: Detects the CIS position.
[7]	Copyboard cover open/close sensor	SR403	Finishes detecting the original size when the copyboard cover angle is 5 deg.

*1 Option setting

4.1.3 Control System Configuration

The control system configuration of the original exposure system is shown below.

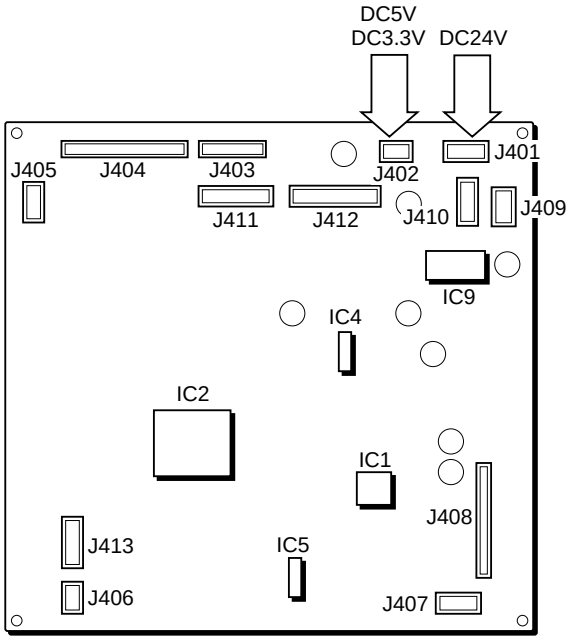


F-4-2

[1] Printer main body (Connected to the image processor PCB)
[2] Connected to ADF
[3] Connected to the power supply PCB
[4] Reader motor drive control
[5] Reader motor (M401)
[6] Reader controller PCB
[7] Contact image sensor
[8] Image signal
[9] CISHP sensor (PS503)
[10] Copyboard cover open/close sensor (Front: SR403)
[11] Copyboard cover open/close sensor (Front: SR402)

4.1.4 Reader Controller PCB

The functional configuration of the reader controller PCB is shown below.



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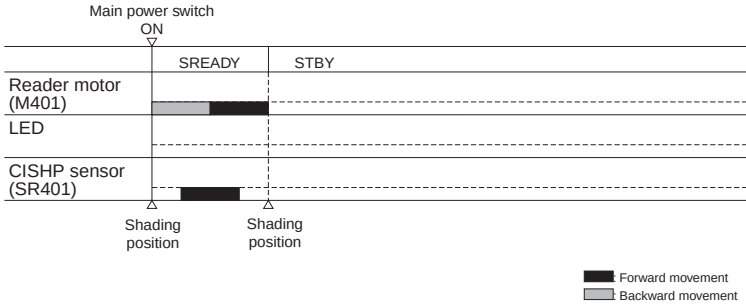
T-4-3

Jack No.	Function
J401	Supplies power (24 VDC) from the main body (printer).
J402	Supplies power (5 VC, 3.3 VDC) from the main body (printer).
J403	Communicates with the main body (printer) (to control the ADF).
J404	Communicates with the main body (printer).
J405	Connected to the copyboard open/close sensor.

Jack No.	Function
J406	Connected to the contact image sensor (CIS) HP sensor.
J407	Not used.
J408	Connected to the contact image sensor (CIS).
J409	Connected to the reader motor.
J410	Supplies power to the ADF.
J411	Communicates with the ADF (to drive the sensor).
J412	Communicates with the ADF (to drive the motor).
J413	Not used.

4.2 Basic Sequence

4.2.1 Basic Sequence at Power-on



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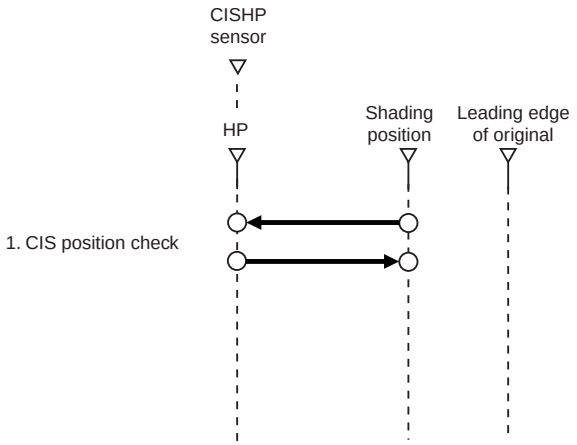
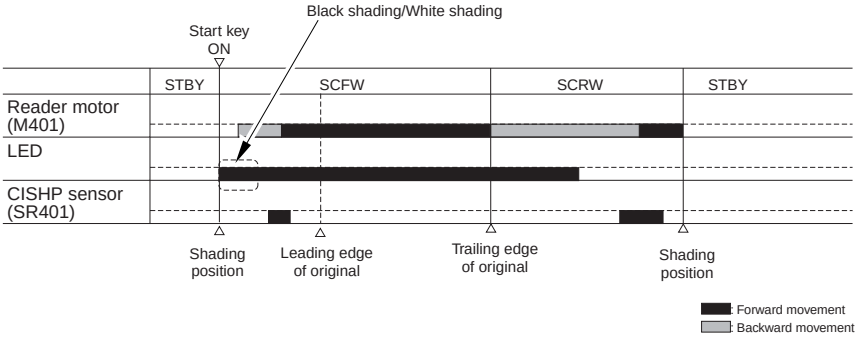
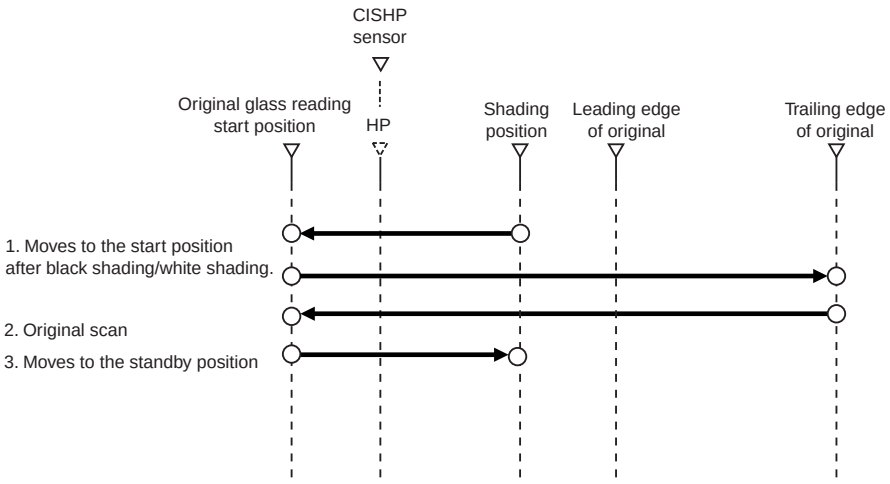


F-4-5

4.2.2 Basic Sequence after Depression of Start Key (Book mode, One Sheet of original)

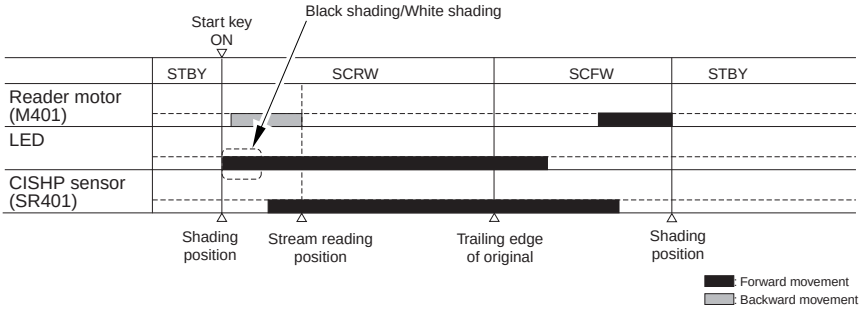


F-4-6

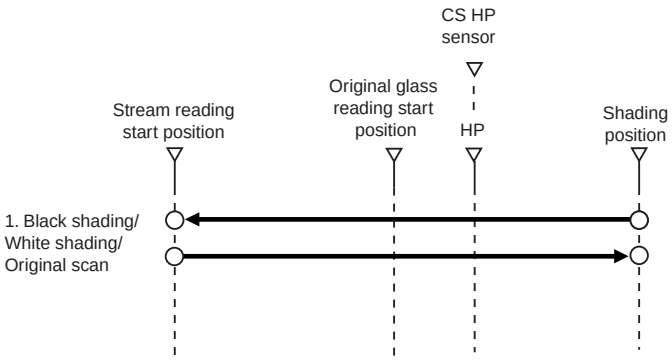


F-4-7

4.2.3 Basic Sequence after Depression of Start Key (ADF Mode, One Sheet of Original)



F-4-8



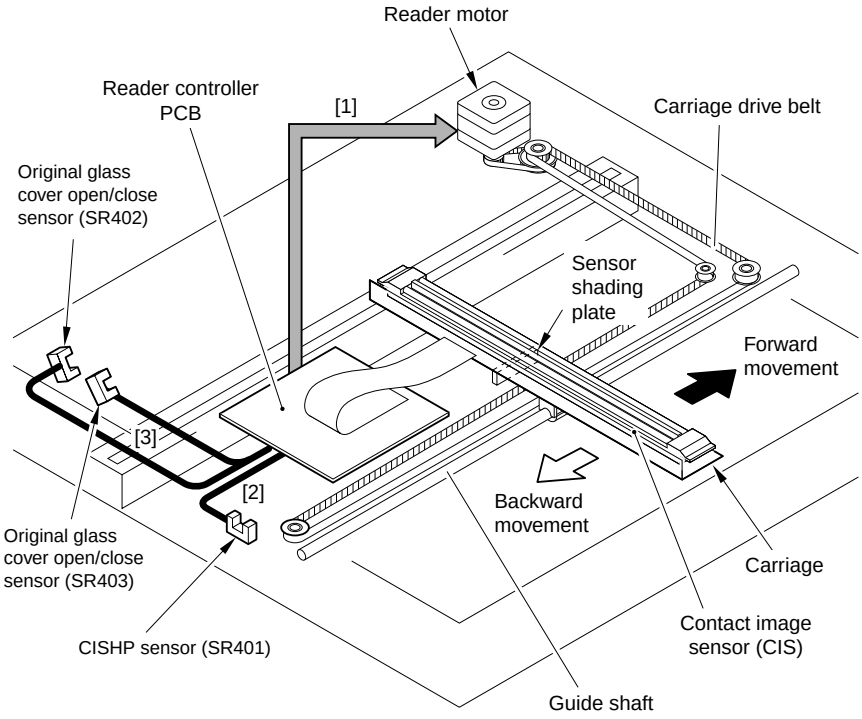
F-4-9

4.3 Various Control

4.3.1 Controlling the Scanner Drive System

4.3.1.1 Outline

The machine's scanner system consists of the following components:

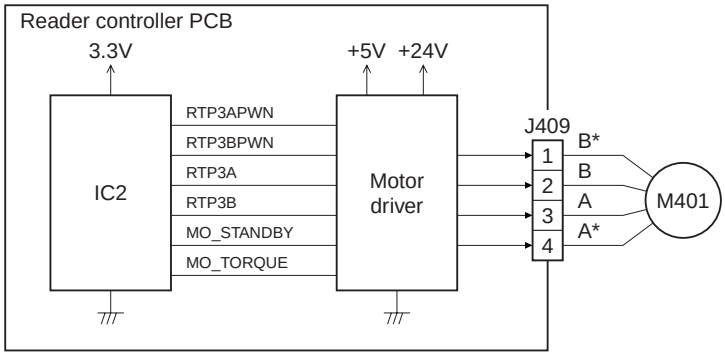


F-4-10

[1] Reader motor (M401) drive signal
Controls rotation/stop and rotational direction/speed of the reader motor.
[2] Contact image sensor (CIS) HP sensor (SR401) signal
Detects that the contact image sensor (CIS) is at the home position.
[3] Copyboard cover sensor (SR403 (front)/SR402 (rear)) signal
Detects the open/close status of the copyboard cover.

4.3.1.2 Reader Motor Control

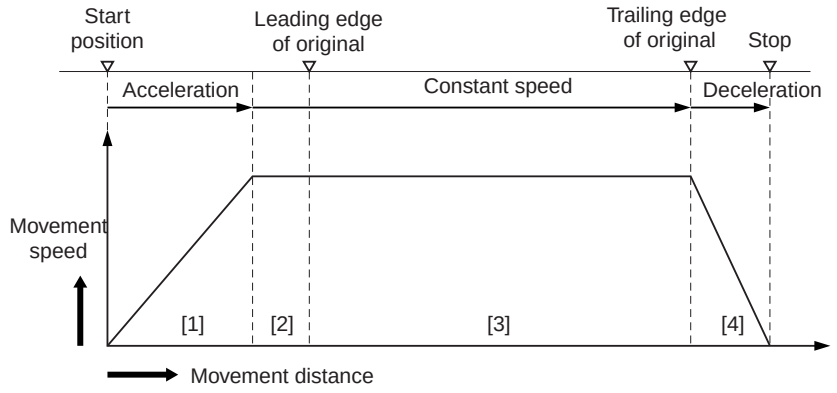
The reader motor driver controls rotation/stop and rotational direction/speed of the reader motor based on the signals from IC2.



F-4-11

MEMO:
The scan speed of this machine is as follows:
Copy (100%): 118 mm/sec
Color send (300 dpi x 300 dpi): 28 mm/sec

a. Forward Movement during Image Scan
During image scan, operation of the contact image sensor (CIS) is controlled by controlling the motor as shown below.



[1] Acceleration area: The motor accelerates to the speed specified for each mode.
[2] Runup area: A margin to stabilize the speed.
[3] Image read area: The image is read at a constant speed.
[4] Deceleration area: Upon detection of the trailing edge, the motor decelerates rapidly and stops.

F-4-12

b. Backward Movement after Image Scan
After image scan, the carriage moves back to the contact image sensor (CIS) shading position at the constant speed (118 mm/sec).

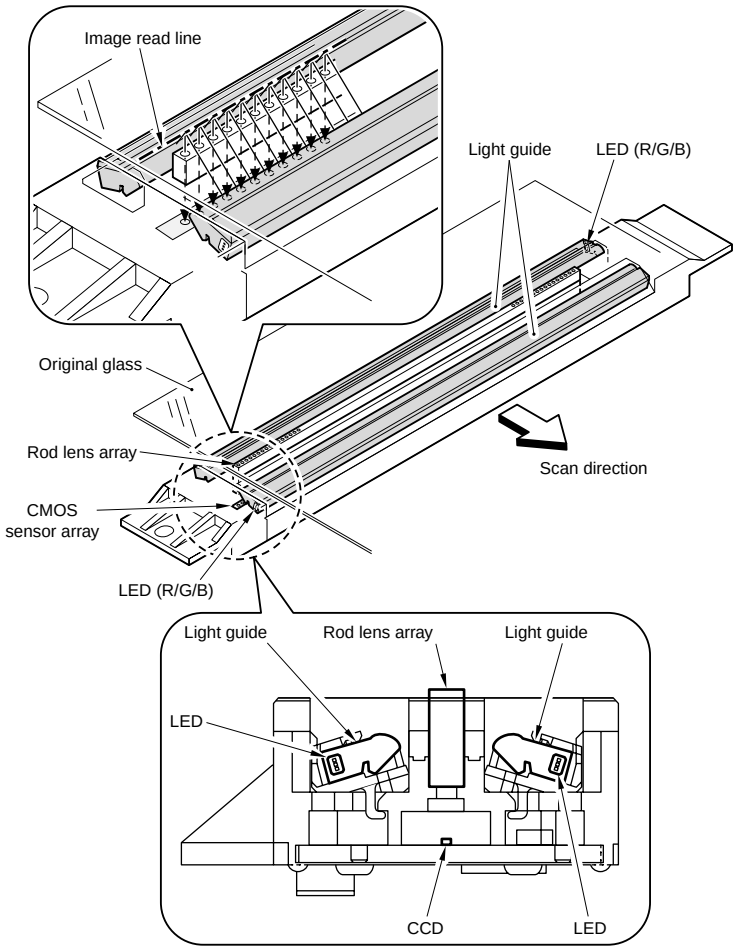
4.3.2 Contact Image Sensor (CIS)

4.3.2.1 Outline

The original is exposed to light and read using the contact image sensor (CIS) to read the image on a line-by-line basis.

T-4-4

Component	Function
LED	Illuminates the original.
Light guide	Illuminates the entire image line with the LED light.
Rod lens array	Collects the light reflected by the original.
CMOS sensor array	Receives the light that passed through the rod lens array.



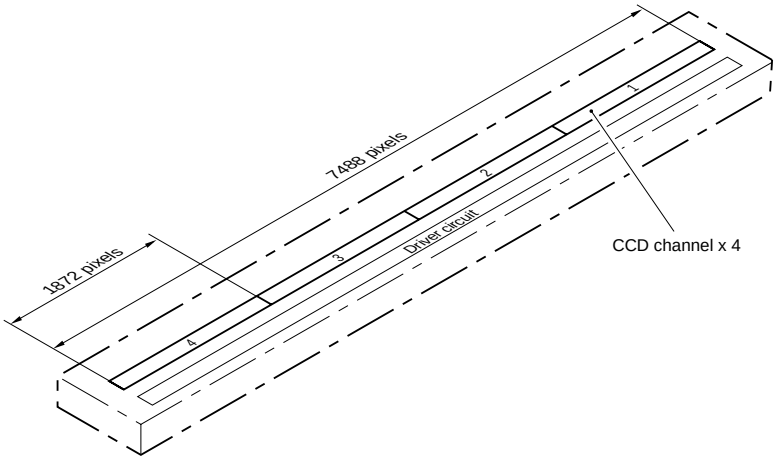
F-4-13

4.3.2.2 Analog Control Performed by the CIS

The flow of analog image processing performed by the contact image sensor (CIS) is as follows:

The light reflected by the original is collected by the rod lens array.
- The light is received by the CMOS sensor array.
- The CMOS sensor array converts the received light to an electric signal and outputs it.

The CMOS sensor array consists of four channels (units).
Each channel is provided with an output correction table to output an image signal after performing gain correction for the input brightness signal.



F-4-14

- After replacing the contact image sensor (CIS), go through the following steps to perform inter-channel output correction:
1) Enter the service mode.
Sequentially press the Additional functions key, 2 key, 8 key, and Additional functions key on the operation panel.
2) Press the arrow key on the touch panel to display "TEST MODE".
3) Press [OK].
4) Press the [2] key to display "SCAN TEST".
5) Press the [1] key to display "SHADING".
6) Press [OK].
After completion of the above procedure, the contact sensor output is compensated and parameters are set automatically.
After completion of automatic adjustment, "OK" is displayed.

4.3.3 Enlargement/Reduction

4.3.3.1 Magnification Change in Vertical Scan Direction

In the Book mode or when the ADF is used
In the vertical scan direction, the image is read at 100%. Magnification is changed by processing data on the image processor PCB.

4.3.3.2 Magnification Change in Vertical Scan Direction

In the horizontal scan direction, magnification is changed as follows depending on the selected magnification rate:
1) When magnification is reduced to 50-99%
a. In the Book mode
Data is processed on the image processor PCB with the original scan speed held at 118 mm/sec.

b. When the ADF is used
The original feed speed is changed within the range of 118 mm/sec to 236 mm/sec depending on the selected magnification rate. Data is not processed on the image processor PCB.

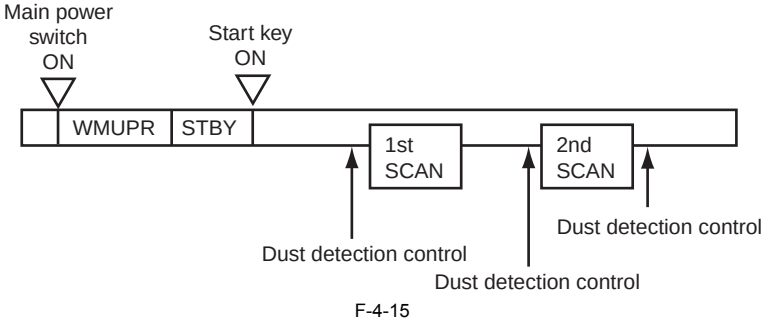
2) When magnification is increased to 100-200%
The original scan speed (in the Book mode)/original feed speed (when the ADF is used) is changed within the range of 118 mm/sec to 59 mm/sec depending on the selected magnification rate. Data is not processed on the image processor PCB.

4.3.4 Dirt Sensor Control

4.3.4.1 Outline

The machine changes the original read position or corrects the read image depending on the presence/absence of dust on the stream reading glass or ADF platen roller, thus preventing dust from showing up in the image. This control is performed only when the ADF is used and it is closed.

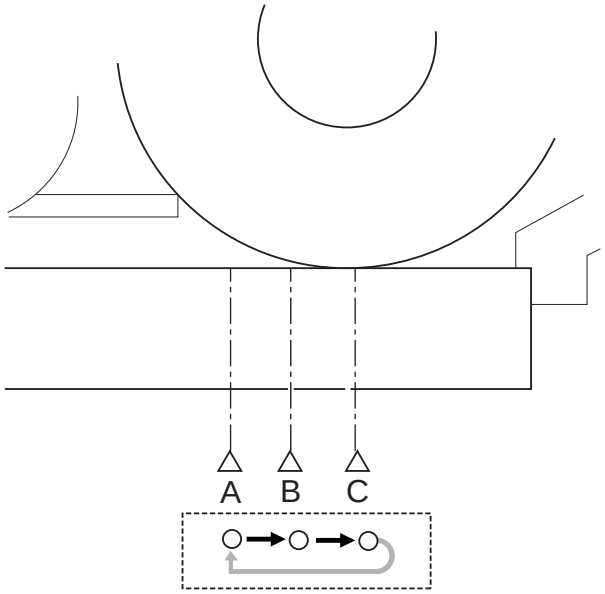
[Control Timing]
- At job end
- Immediately before scanning (one sheet at a time)



F-4-15

[Description of Control]
- At job end (Dust detection)
The contact image sensor (CIF) checks the light reflected by the ADF platen roller surface at the read position for presence/absence of dust. After completion of a job, dust detection is performed maximum six times in 3 point of A, B and C. First, dust detection is performed once at position A. If no dust is detected at position A, dust detection is performed twice there. If no dust is detected, the original is scanned at position A. If dust is detected at position A, move to position B and dust detection is performed twice at position B. If no dust is detected at position B, the original is scanned at position B. If dust is also detected at position B, move to position C and dust detection is performed once at position C. If dust is also detected at position C, a relevant message is displayed on the operation panel. In this case, move back to position A and the original is scanned at position A.

- At job start (Dust bypass)
Presence/absence of dust is detected at all points A, B, and C in this order at job end. The original is read at the point where least dust is detected.

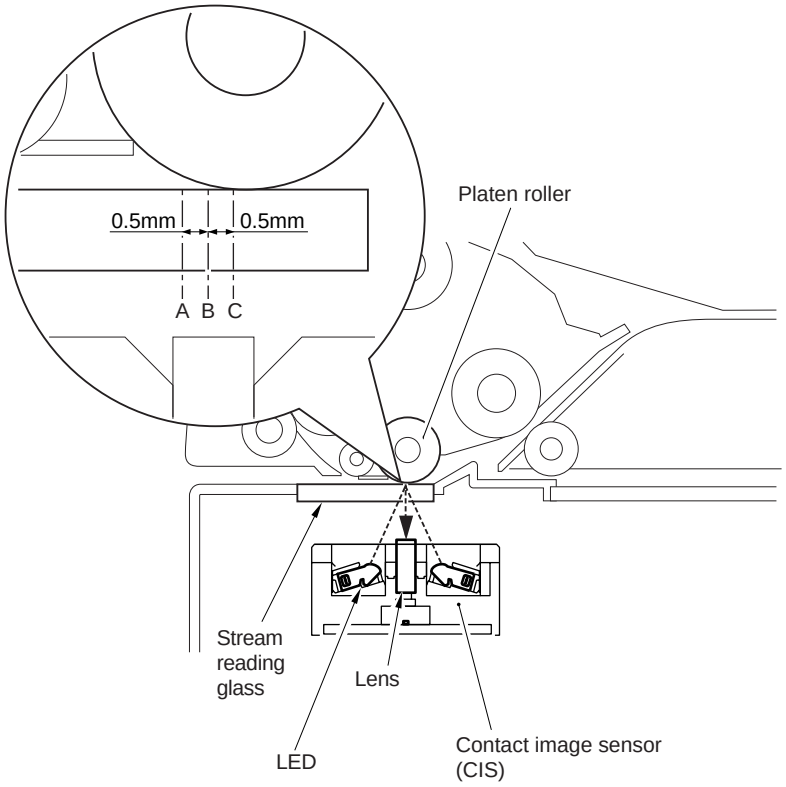


F-4-16

- Immediately before scanning (one sheet at a time)
The contact image sensor (CIS) does not move to detect dust.
The original is read at the position determined at job end or start. If presence of dust is detected there, the read image is corrected.

T-4-5

Point	Description
A	Read reference position
B	out 0.5 mm from the reference position to the inside of the roller
C	About 1.0 mm from the reference position to the inside of the roller



F-4-17

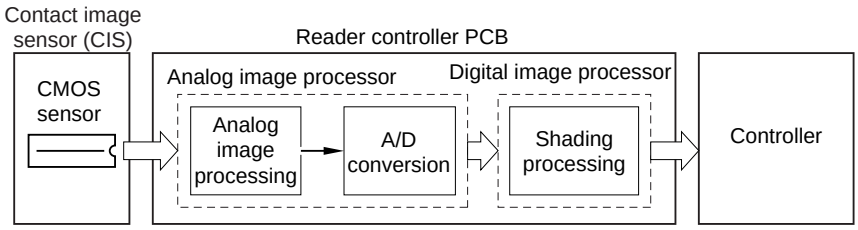
4.3.5 Image Processing

4.3.5.1 Outline

Major specifications and functions of the image processing system are as follows:

T-4-6

- CMOS sensor	Number of lines: 1 Number of pixels: Total 7488 (incl. 7176 effective pixels) Pixel size: 32 x 46.9 um
- Shading correction	Shading correction: Made for each job. Shading adjustment: Made in the Service mode.



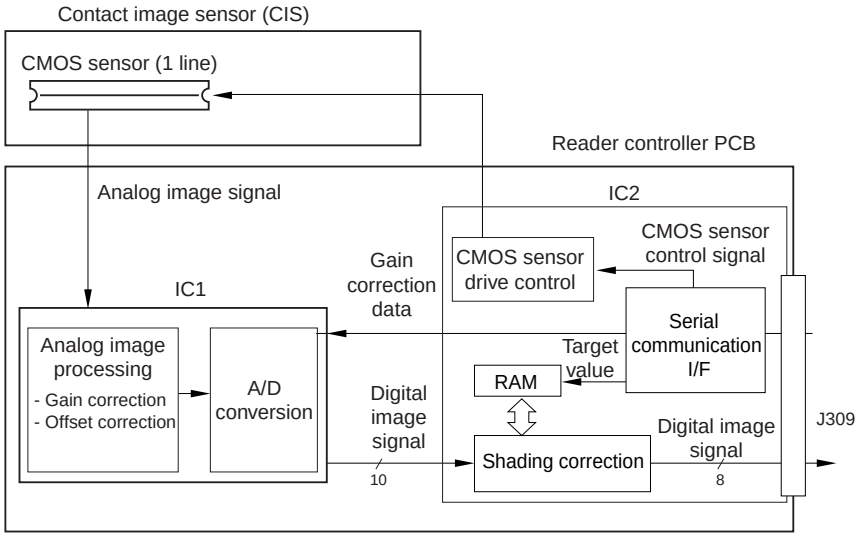
F-4-18

Functions of the image processing system are summarized below.

T-4-7

- Reader controller PCB	CMOS sensor drive, analog image processing, A/D conversion, and shading correction

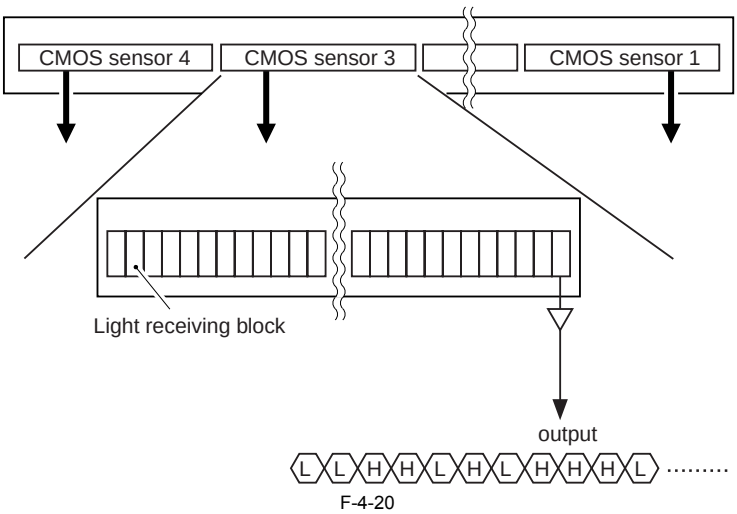
The reader controller PCB is used to process images on a line-by-line basis. Its major functions are as follows:
1)Analog image processing
- CMOS sensor drive
- CMOS sensor output gain correction and offset correction
- CMOS sensor output A/D conversion
2)Digital image processing
- Shading correction



F-4-19

4.3.5.2 CMOS Sensor Drive

The CMOS sensor used in this machine is a 1-line linear image sensor consisting of 7488 photocells. After completion of photoelectric conversion in the light-receiving block, the signals are output to the AP circuit in the reader controller PCB in parallel for each channel (total four channels) of the CMOS sensor array.



F-4-20

4.3.5.3 CMOS Sensor Output Gain Correction and Offset Correction

The analog video signals output from the CMOS sensor are corrected so that they will have a specific gain level (gain correction), and the output voltages generated in the absence of incident light are also corrected so that they it will have a specific offset level (offset correction).

4.3.5.4 CMOS Sensor Output A/D Conversion

After completion of the above corrections, the analog video signals are converted to digital signals corresponding to individual pixel voltage levels by the A/D converter.

4.3.5.5 Shading Correction (Outline)

The CMOS sensor outputs are necessary even for the following reasons even when the density of the original is uniform:

(1) Variation in sensitivity among CMOS sensor pixels
(2) Variation in light intensity of rod lens array

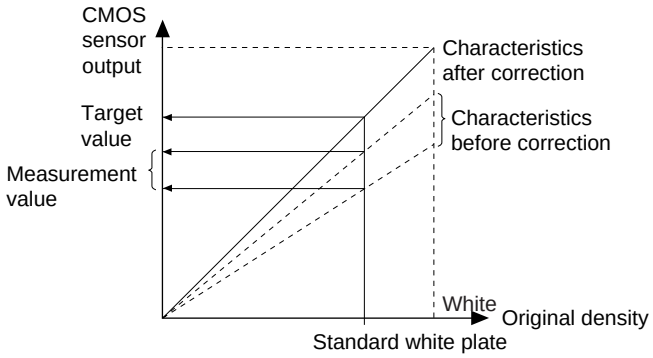
The machine performs shading correction to even out the CMOS sensor output.
There are two types of shading correction: shading adjustment performed in the Service mode and shading correction performed for each job.

4.3.5.6 Shading Adjustment

The machine measures the density of the standard white plate, and stores the measured density data. It then processes the stored data to use it as the target value for shading correction.

4.3.5.7 Shading Correction

The machine performs shading correction for each scan. It measures the density of the standard white plate, and compares the measured value with the target value stored in the shading correction circuit to use the difference between the two as the shading correction value. The machine uses this shading correction value to correct the variation among CMOS sensor pixels when scanning the original, thus evening out the image density level.


CMOS
sensor
output
Target
value
Measurement
value
Characteristics
after correction
Characteristics
before correction
White
Original density
Standard white plate

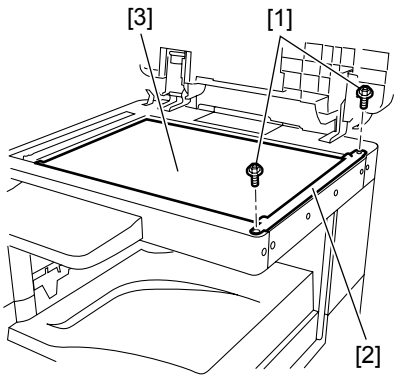
F-4-21

4.4 Parts Replacement Procedure

4.4.1 Copyboard Glass

4.4.1.1 Removing the Copyboard Glass

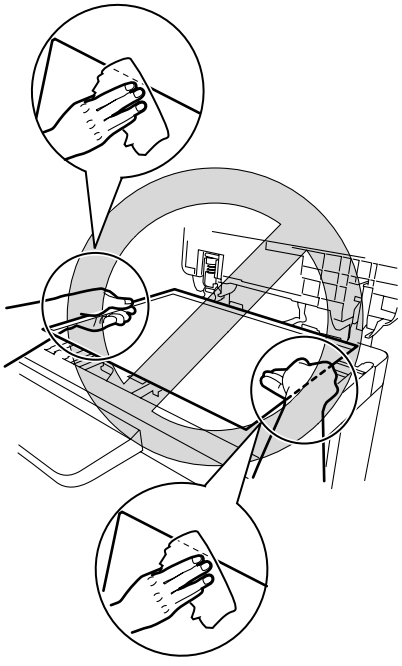
1) Open the copyboard cover (or ADF).
2) Remove the two screws [1], remove the glass retainer [2], and then remove the copyboard glass [3].



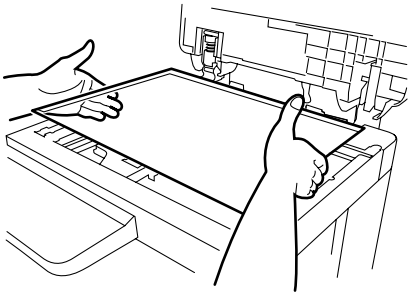
F-4-22

⚠When removing the copyboard glass, take care not to touch the following:
- Glass surface
- Standard white plate

Dirt on these parts can show up as white/black lines in the image. If dirt is found, remove it with lint-free paper moistened with alcohol.



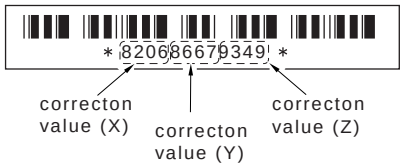
F-4-23



F-4-24

4.4.1.2 Procedure after Replacing the Copyboard Glass

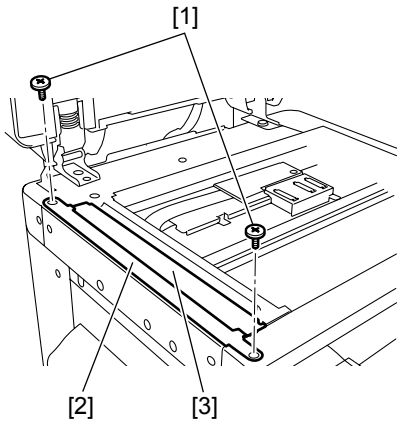
After replacing the copyboard glass, enter the correction values (X, Y, Z) of the standard white plate which are indicated on the back of the new copyboard glass in the service mode.
Correction value (X): Service mode>#SCAN>#SCAN NUMERIC>No.213
Correction value (Y): Service mode>#SCAN>#SCAN NUMERIC>No.214
Correction value (Z): Service mode>#SCAN>#SCAN NUMERIC>No.215
Also, rewrite the values on the service label.



F-4-25

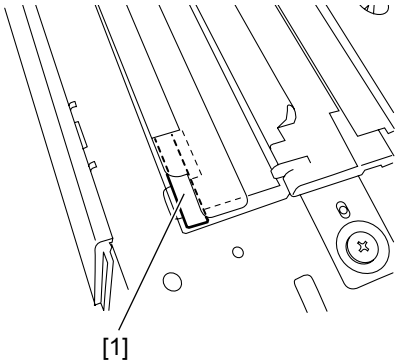
4.4.1.3 Removing the ADF Reading Glass

1) Open the copyboard cover (or ADF).
2) Remove the two screws [1], and then remove the glass retainer [2].
3) Remove the ADF reading glass [3].



F-4-26

⚠
- When removing the ADF reading glass, take care not to touch the glass surface. Dirt on these parts can show up as white/black lines in the image. If dirt is found, remove it with lint-free paper moistened with alcohol.
- When installing the ADF reading glass, position the cut portion [1] of the ADF reading glass sheet at the front-left corner.

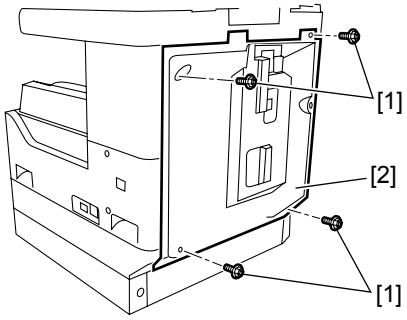


F-4-27

4.4.2 Reader Controller PCB

4.4.2.1 Removing the Rear Cover

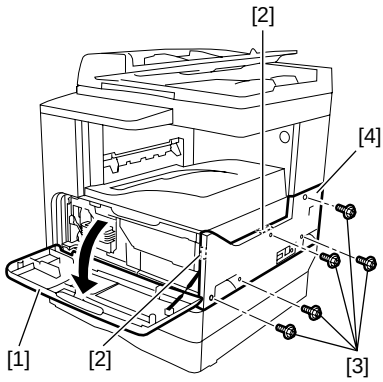
1) Remove the four screws [1], and then detach the rear cover [2].



F-4-28

4.4.2.2 Removing the Right Cover (Lower)

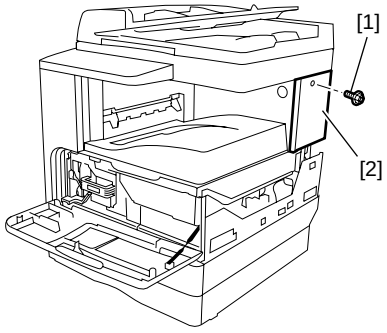
1) Open the front cover[1].
2) Remove the five screws [2]. Remove the two hooks [3], and then detach the right cover (lower) [4].



F-4-29

4.4.2.3 Removing the Right Cover (Upper)

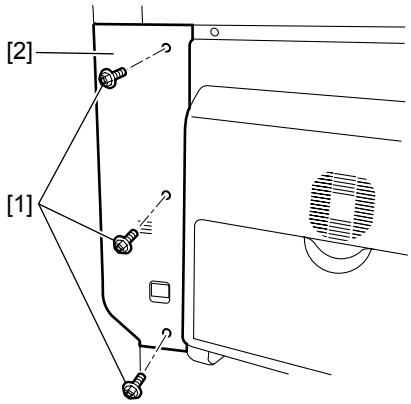
1) Remove the screw [1], and then detach the right cover (upper).



F-4-30

4.4.2.4 Removing the Left Cover (Rear)

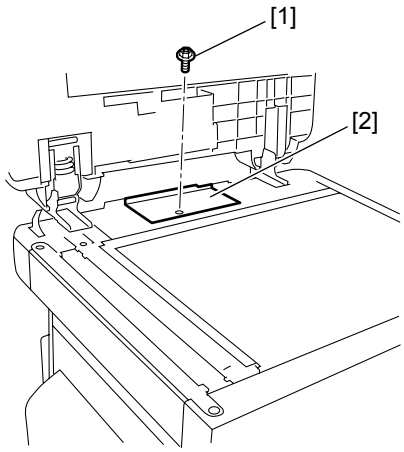
1) Remove the three screws [1], and then detach the left cover (rear)[2].



F-4-31

4.4.2.5 Removing the Reader Rear Cover

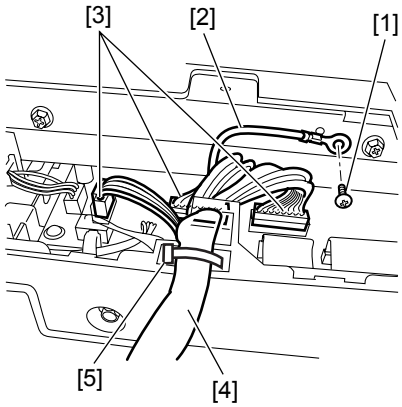
1) Open the copyboard cover (or ADF).
2) Remove the screw, and then detach the small cover [2].



F-4-32

3) Remove the screw [1], and then disconnect the ground cable [2] of the ADF harness.
4) Disconnect the four connectors [3], and then remove the ADF harness [4].

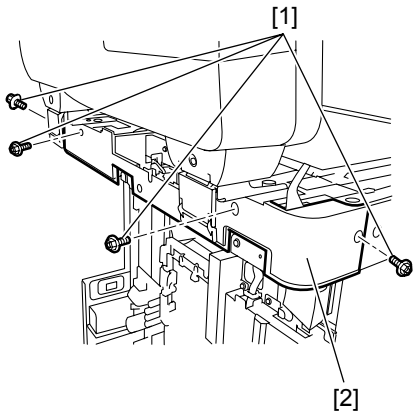
MEMO:
Perform steps 3 and 4 only for the model with an ADF.



F-4-33

⚠When installing the ADF harness [4], fit the harness band [5] in the groove in the reader rear cover.

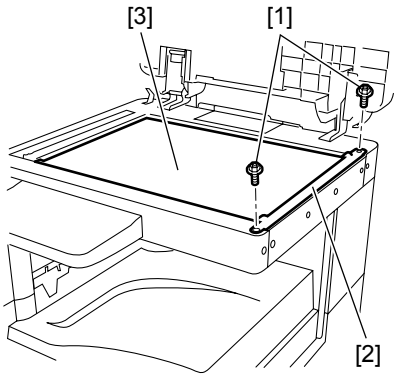
5) Remove the four screws [1], and then detach the reader rear cover [2].



F-4-34

4.4.2.6 Removing the Copyboard glass

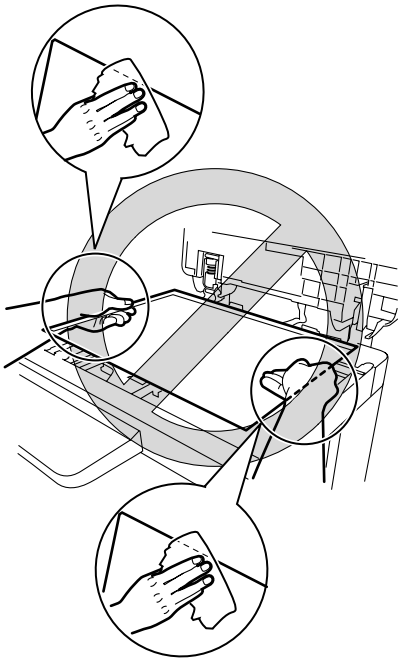
1) Open the copyboard cover (or ADF).
2) Remove the two screws [1], remove the glass retainer [2], and then remove the copyboard glass [3].



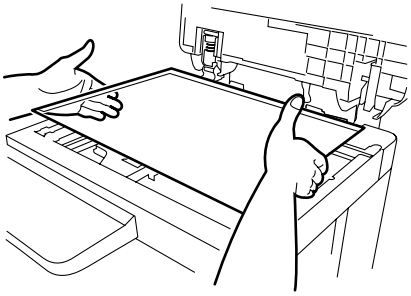
F-4-35

⚠When removing the copyboard glass, take care not to touch the following:
- Glass surface
- Standard white plate

Dirt on these parts can show up as white/black lines in the image. If dirt is found, remove it with lint-free paper moistened with alcohol.



F-4-36

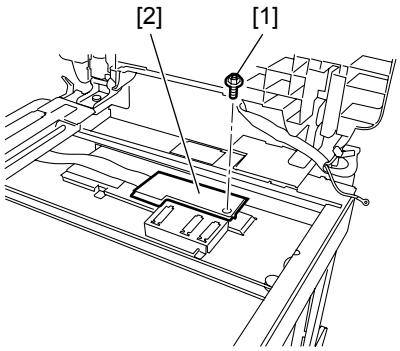


F-4-37

4.4.2.7 Removing the Reader Controller PCB

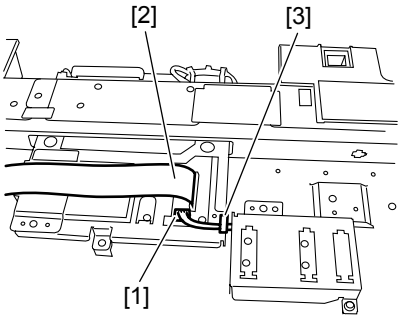
MEMO:
This machine stores adjustment values in the image processor PCB, not the reader controller PCB.
Accordingly, you need not input adjustment values after replacing the reader controller PCB.

1) Remove the screw [1], and then detach the cover [2].



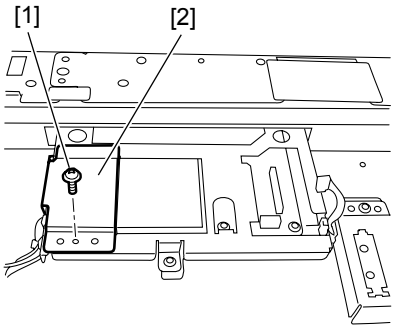
F-4-38

2) Disconnect the connector [1] and flexible cable [2] from the leader controller PCB, and then remove the harness from the edge saddle [3].



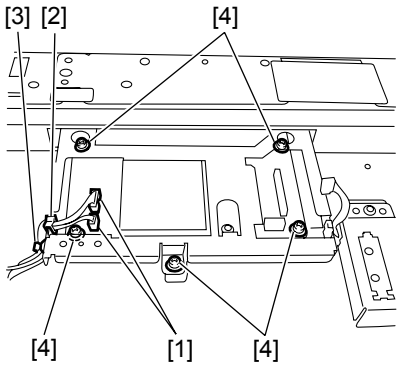
F-4-39

3) Remove the screw [1], and then detach the cover [2].



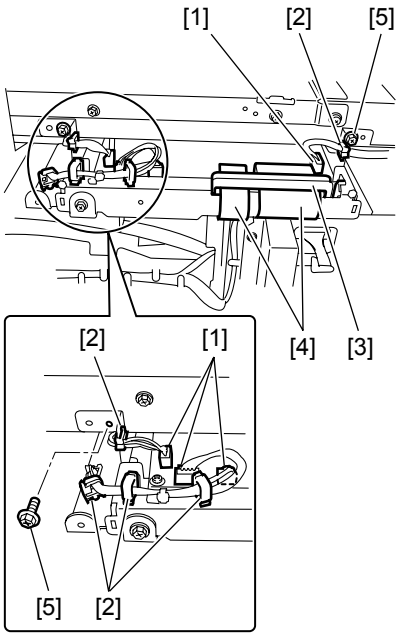
F-4-40

4) Disconnect the two connectors [1], and then remove the harness from the edge saddle [2] and clamp [3].
5) Remove the five screws [4].



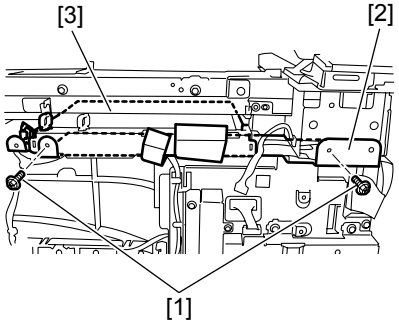
F-4-41

6) Go to the back of the machine, and then disconnect the four connectors [1] from the reader controller PCB.
7) Remove the harness from the edge saddle/clamp [2].
8) Remove the flexible cable holder [3], and then disconnect the two flexible cables [4].
9) Remove the two screws [5].



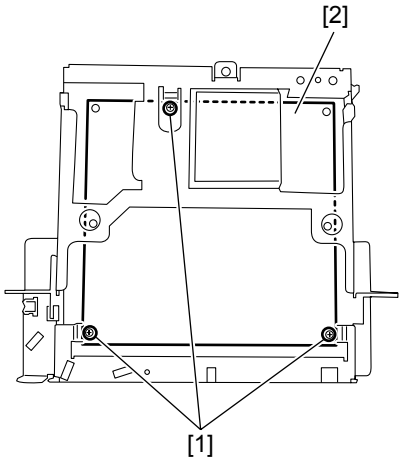
F-4-42

10) Remove he two screws [1], and then remove the flexible cable guide [2].
11) Remove the reader controller PCB [3] together with the mount.



F-4-43

12) Remove the three screws [1], and remove the reader controller PCB [2] from the mount.

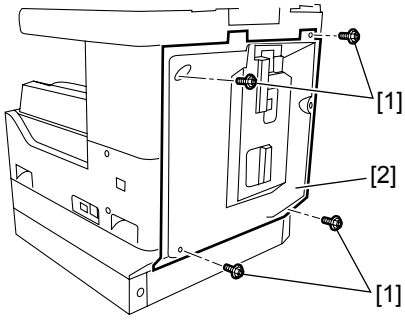


F-4-44

4.4.3 Reader Motor

4.4.3.1 Removing the Rear Cover

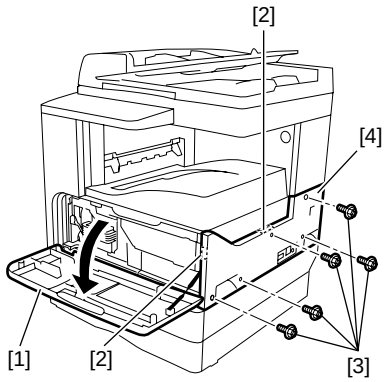
1) Remove the four screws [1], and then detach the rear cover [2].



F-4-45

4.4.3.2 Removing the Right Cover (Lower)

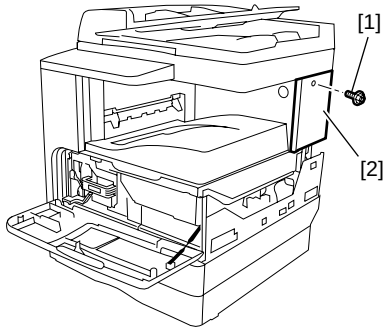
1) Open the front cover[1].
2) Remove the five screws [2]. Remove the two hooks [3], and then detach the right cover (lower) [4].



F-4-46

4.4.3.3 Removing the Right Cover (Upper)

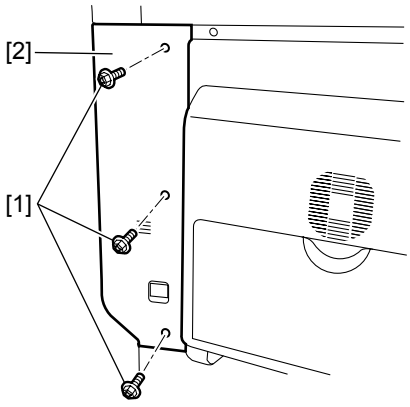
1) Remove the screw [1], and then detach the right cover (upper).



F-4-47

4.4.3.4 Removing the Left Cover (Rear)

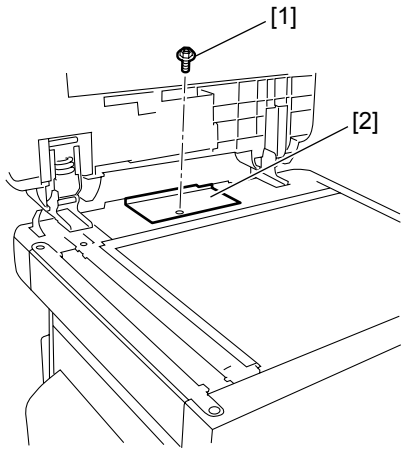
1) Remove the three screws [1], and then detach the left cover (rear)[2].



F-4-48

4.4.3.5 Removing the Reader Rear Cover

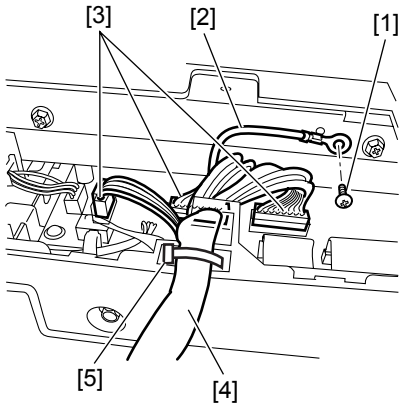
1) Open the copyboard cover (or ADF).
2) Remove the screw, and then detach the small cover [2].



F-4-49

3) Remove the screw [1], and then disconnect the ground cable [2] of the ADF harness.
4) Disconnect the four connectors [3], and then remove the ADF harness [4].

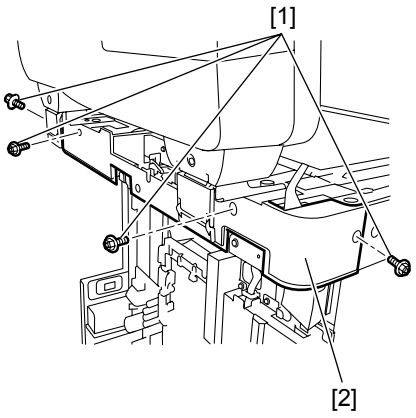
MEMO:
Perform steps 3 and 4 only for the model with an ADF.



F-4-50

When installing the ADF harness [4], fit the harness band [5] in the groove in the reader rear cover.

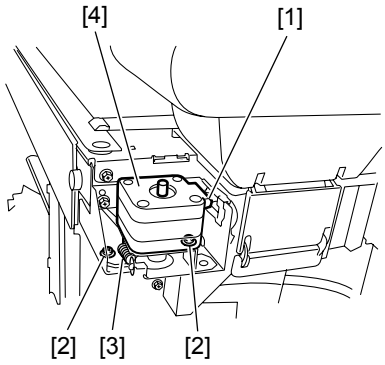
5) Remove the four screws [1], and then detach the reader rear cover [2].



F-4-51

4.4.3.6 Removing the Reader Motor

1) Disconnect the connector [1], and then remove the two screws [2].
2) Remove the spring [3], and then remove the reader motor [4].

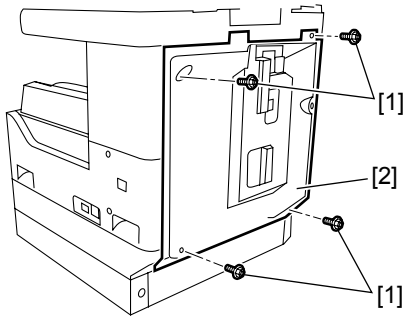


F-4-52

4.4.4 Contact Sensor

4.4.4.1 Removing the Rear Cover

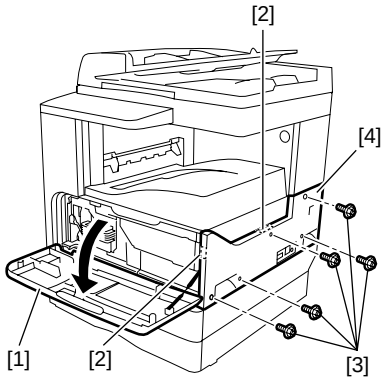
1) Remove the four screws [1], and then detach the rear cover [2].



F-4-53

4.4.4.2 Removing the Right Cover (Lower)

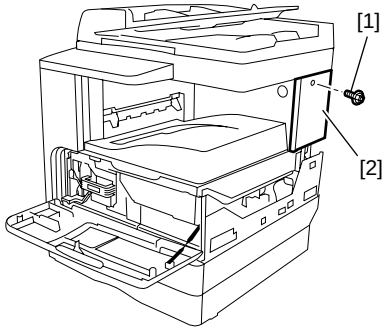
1) Open the front cover[1].
2) Remove the five screws [2]. Remove the two hooks [3], and then detach the right cover (lower) [4].



F-4-54

4.4.4.3 Removing the Right Cover (Upper)

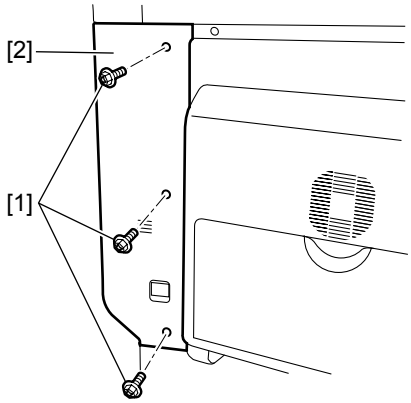
1) Remove the screw [1], and then detach the right cover (upper).



F-4-55

4.4.4.4 Removing the Left Cover (Rear)

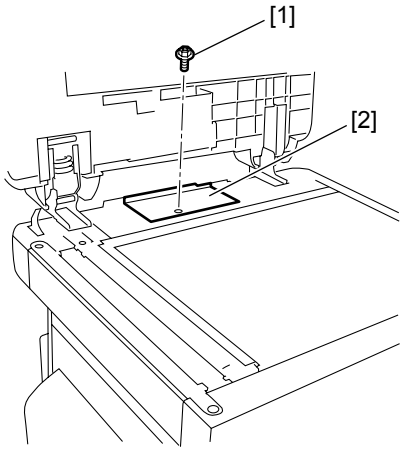
1) Remove the three screws [1], and then detach the left cover (rear)[2].



F-4-56

4.4.4.5 Removing the Reader Rear Cover

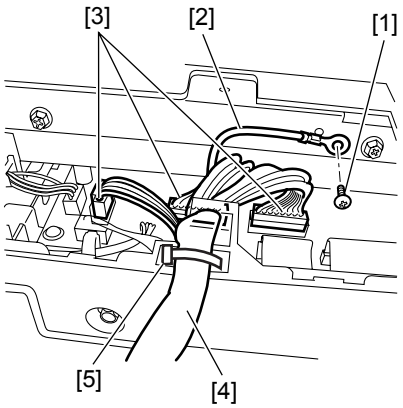
1) Open the copyboard cover (or ADF).
2) Remove the screw, and then detach the small cover [2].



F-4-57

3) Remove the screw [1], and then disconnect the ground cable [2] of the ADF harness.
4) Disconnect the four connectors [3], and then remove the ADF harness [4].

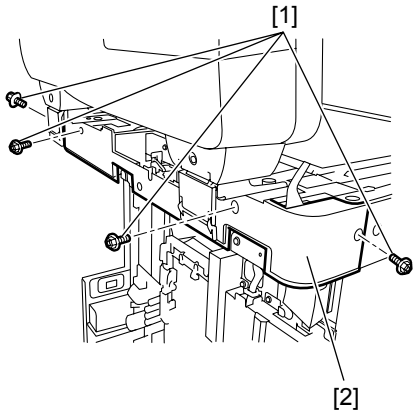
MEMO:
Perform steps 3 and 4 only for the model with an ADF.



F-4-58

When installing the ADF harness [4], fit the harness band [5] in the groove in the reader rear cover.

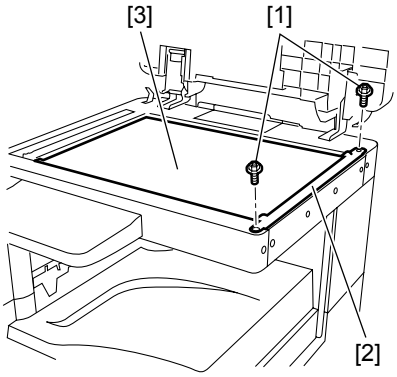
5) Remove the four screws [1], and then detach the reader rear cover [2].



F-4-59

4.4.4.6 Removing the Copyboard Glass

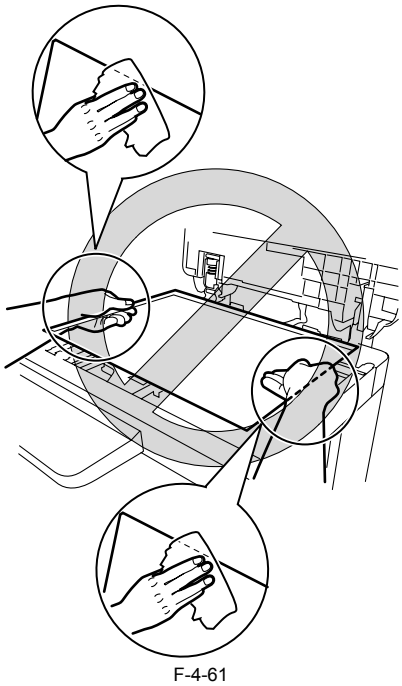
1) Open the copyboard cover (or ADF).
2) Remove the two screws [1], remove the glass retainer [2], and then remove the copyboard glass [3].



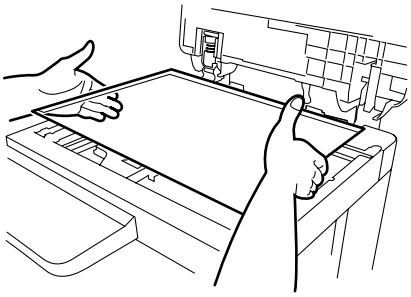
F-4-60

When removing the copyboard glass, take care not to touch the following:
- Glass surface
- Standard white plate

Dirt on these parts can show up as white/black lines in the image. If dirt is found, remove it with lint-free paper moistened with alcohol.



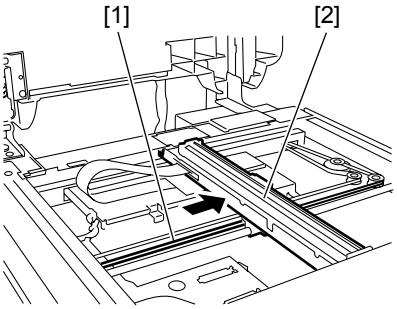
F-4-61



F-4-62

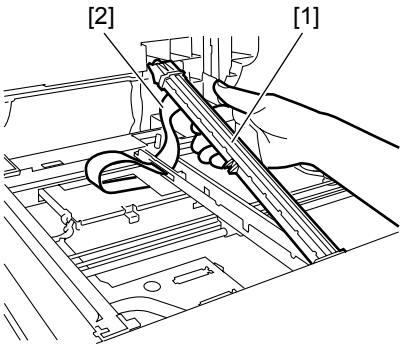
4.4.4.7 Removing the Contact Image Sensor (CIS)

1) Pull the drive belt (front) [1] in the direction of the arrow to move the contact sensor [2] to the position shown below.



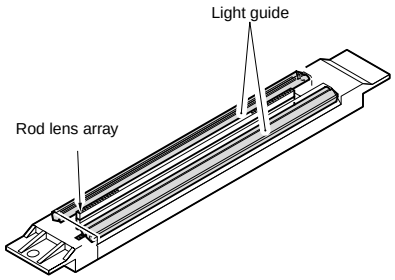
F-4-63

2) Remove the rear side of the contact sensor [1] from the carriage.
3) Disconnect the flexible cable [2], and then remove the contact sensor [1].



F-4-64

⚠When removing or installing the contact sensor unit, take care not to touch the light guide and rod lens array.



F-4-65

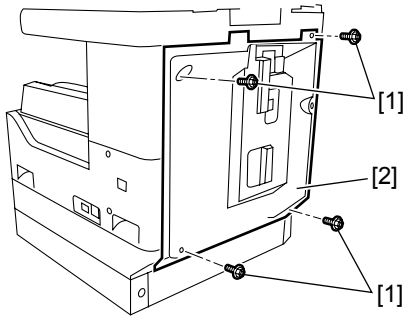
4.4.4.8 Procedure after Replacing the CIS

After replacing the contact image sensor (CIS), go through the following steps to perform inter-channel output correction:
1) Enter the service mode.
Sequentially press the Additional functions key, 2 key, 8 key, and Additional functions key on the operation panel.
2) Press the arrow key on the touch panel to display "TEST MODE".
3) Press [OK].
4) Press the [2] key to display "SCAN TEST".
5) Press the [1] key to display "SHADING".
6) Press [OK].
After completion of the above procedure, the contact sensor output is compensated and parameters are set automatically.
After completion of automatic adjustment, "OK" is displayed.

4.4.5 Copyboard Cover Open/Close Sensor

4.4.5.1 Removing the Rear Cover

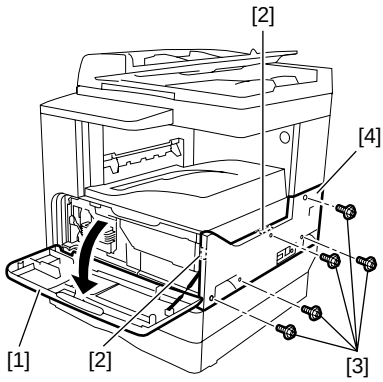
1) Remove the four screws [1], and then detach the rear cover [2].



F-4-66

4.4.5.2 Removing the Right Cover (Lower)

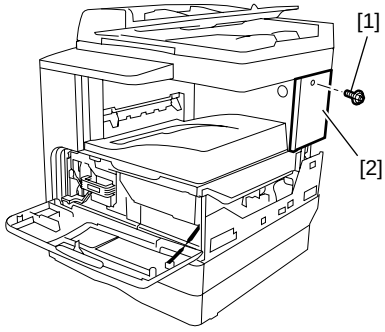
1) Open the front cover[1].
2) Remove the five screws [2]. Remove the two hooks [3], and then detach the right cover (lower) [4].



F-4-67

4.4.5.3 Removing the Right Cover (Upper)

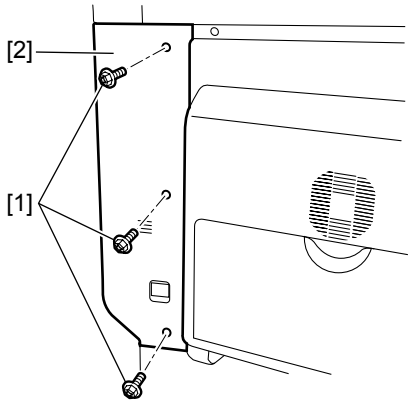
1) Remove the screw [1], and then detach the right cover (upper).



F-4-68

4.4.5.4 Removing the Left Cover (Rear)

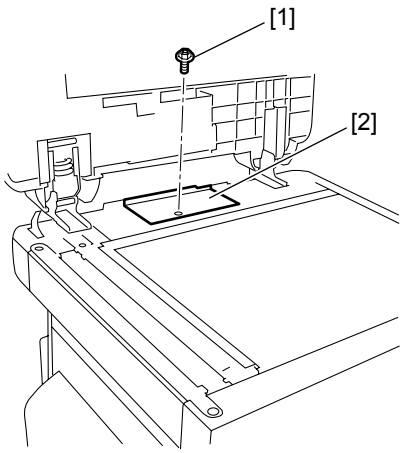
1) Remove the three screws [1], and then detach the left cover (rear)[2].



F-4-69

4.4.5.5 Removing the Reader Rear Cover

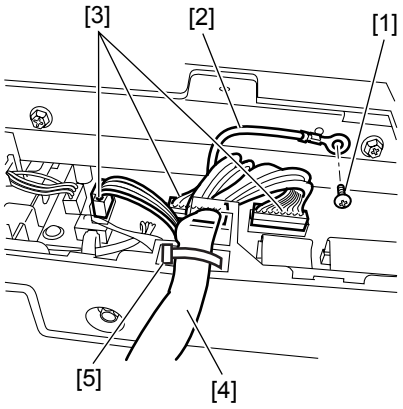
1) Open the copyboard cover (or ADF).
2) Remove the screw, and then detach the small cover [2].



F-4-70

3) Remove the screw [1], and then disconnect the ground cable [2] of the ADF harness.
4) Disconnect the four connectors [3], and then remove the ADF harness [4].

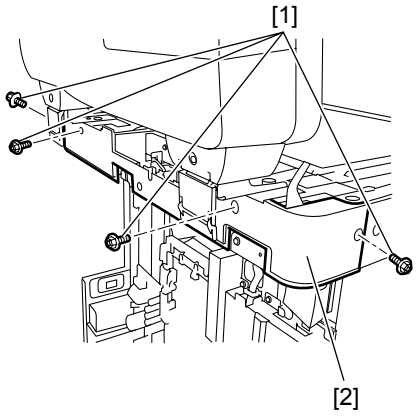
MEMO:
Perform steps 3 and 4 only for the model with an ADF.



F-4-71

⚠When installing the ADF harness [4], fit the harness band [5] in the groove in the reader rear cover.

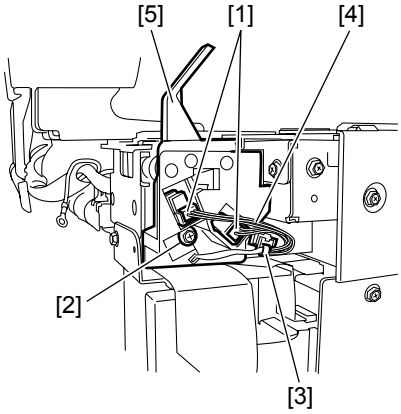
5) Remove the four screws [1], and then detach the reader rear cover [2].



F-4-72

4.4.5.6 Removing the Copyboard Cover Open/Close Sensor (Front/Rear)

1) Disconnect the to connectors [1], and then remove the screw [2].
2) Remove the reusable band [3], and then remove the harness [4] from the sensor mount.
3) Remove the sensor mount [5].
4) Remove the sensor from the sensor mount.

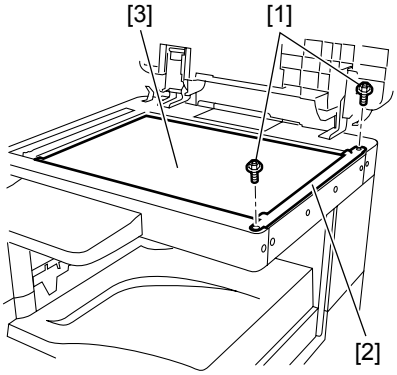


F-4-73

4.4.6 Contact Sensor HP Sensor

4.4.6.1 Removing the Copyboard Glass

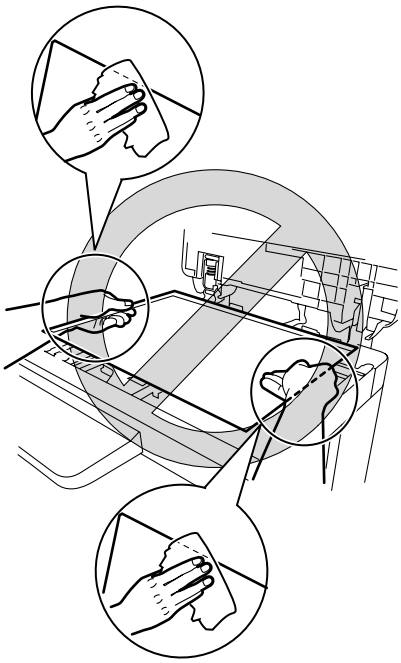
1) Open the copyboard cover (or ADF).
2) Remove the two screws [1], remove the glass retainer [2], and then remove the copyboard glass [3].



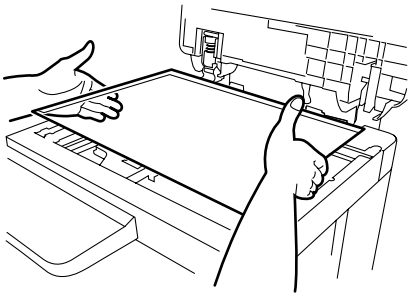
F-4-74

⚠When removing the copyboard glass, take care not to touch the following:
- Glass surface
- Standard white plate

Dirt on these parts can show up as white/black lines in the image. If dirt is found, remove it with lint-free paper moistened with alcohol.



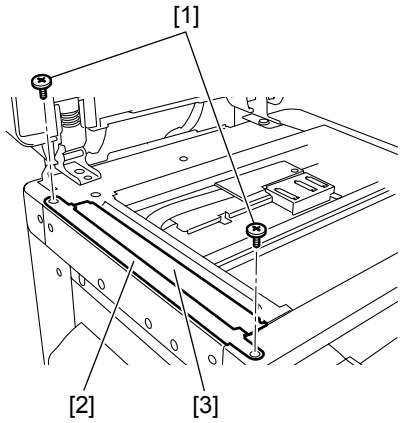
F-4-75



F-4-76

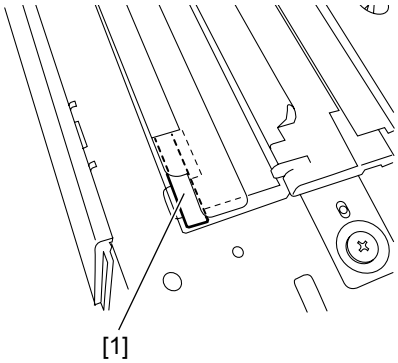
4.4.6.2 Removing the ADF Reading Glass

1) Open the copyboard cover (or ADF).
2) Remove the two screws [1], and then remove the glass retainer [2].
3) Remove the ADF reading glass [3].



F-4-77

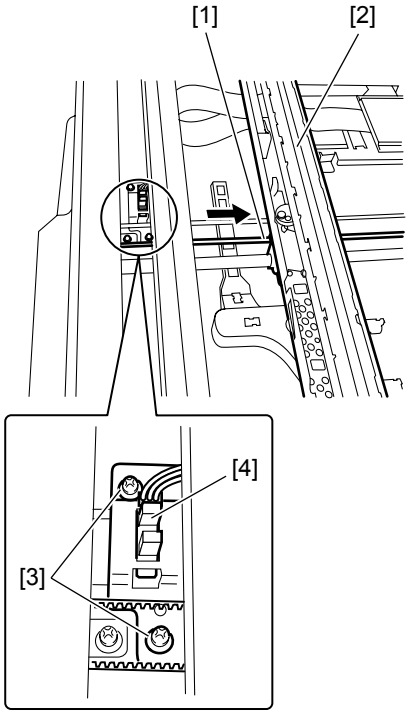
- When removing the ADF reading glass, take care not to touch the glass surface. Dirt on these parts can show up as white/black lines in the image. If dirt is found, remove it with lint-free paper moistened with alcohol.
- When installing the ADF reading glass, position the cut portion [1] of the ADF reading glass sheet at the front-left corner.



F-4-78

4.4.6.3 Removing the Contact Sensor HP Sensor

1) Pull the drive belt (front) [1] in the direction of the arrow to move he contact sensor [2] to the center.
2) Remove the two screws [3], and then remove the contact sensor [4] together with the mount.
3) Remove the contact sensor HP sensor.

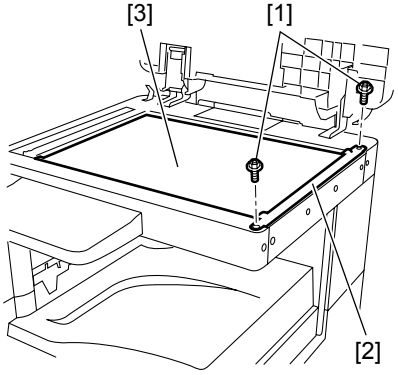


F-4-79

4.4.7 Reader Heater (option)

4.4.7.1 Removing the Copyboard Glass

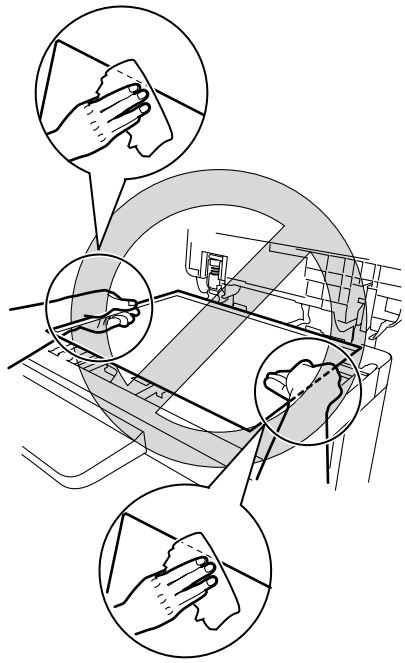
1) Open the copyboard cover (or ADF).
2) Remove the two screws [1], remove the glass retainer [2], and then remove the copyboard glass [3].



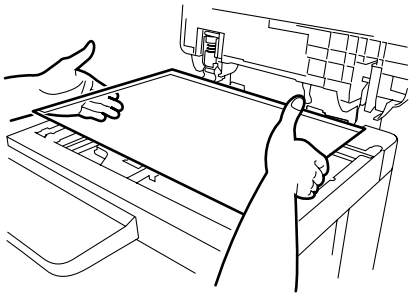
F-4-80

⚠When removing the copyboard glass, take care not to touch the following:
- Glass surface
- Standard white plate

Dirt on these parts can show up as white/black lines in the image. If dirt is found, remove it with lint-free paper moistened with alcohol.



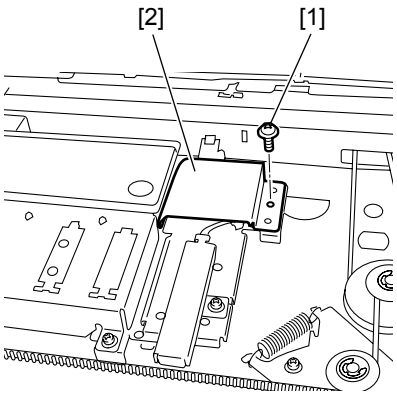
F-4-81



F-4-82

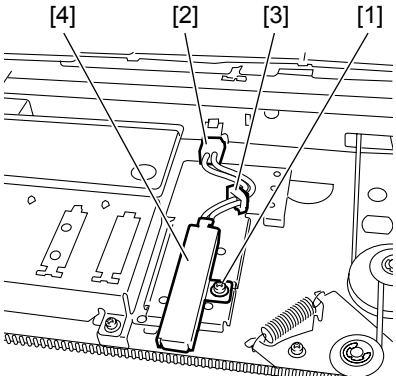
4.4.7.2 Removing the Reader Heater (Right)

1) Remove the screw [1], and then detach the heater cover [2].



F-4-83

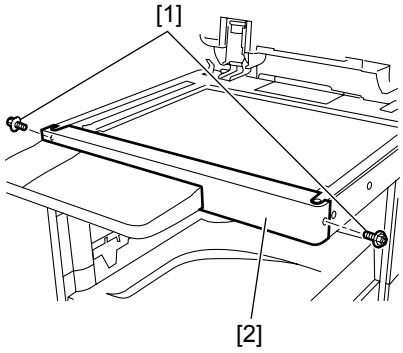
2) Remove the screw [1].
3) Disconnect the connector [2], disconnect the harness from the wire saddle [3], and then remove the reader heater (right) [4].



F-4-84

4.4.7.3 Removing the Reader Front Cover

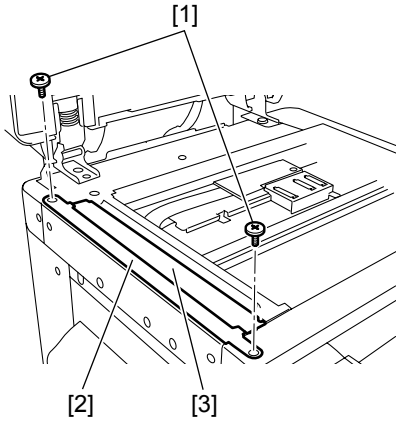
1) Open the copyboard cover (or ADF).
2) Remove the two screws [1], and then detach the reader front cover [2].



F-4-85

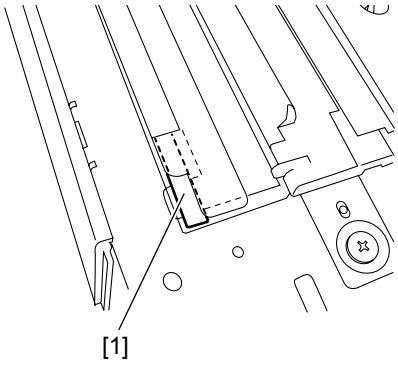
4.4.7.4 Removing the ADF Reading Glass

1) Open the copyboard cover (or ADF).
2) Remove the two screws [1], and then remove the glass retainer [2].
3) Remove the ADF reading glass [3].

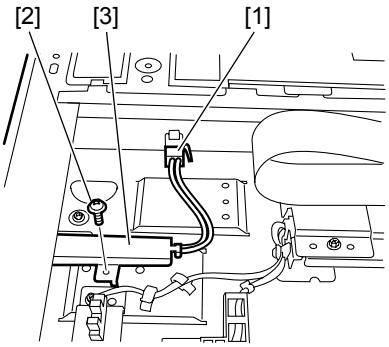


F-4-86

⚠
- When removing the ADF reading glass, take care not to touch the glass surface. Dirt on these parts can show up as white/black lines in the image. If dirt is found, remove it with lint-free paper moistened with alcohol.
- When installing the ADF reading glass, position the cut portion [1] of the ADF reading glass sheet at the front-left corner.



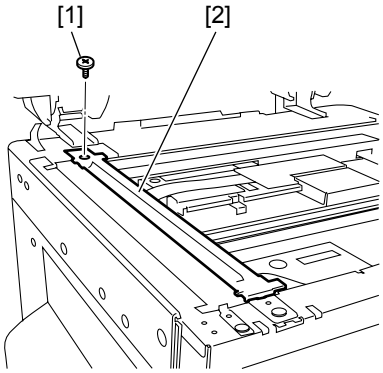
F-4-87



F-4-91

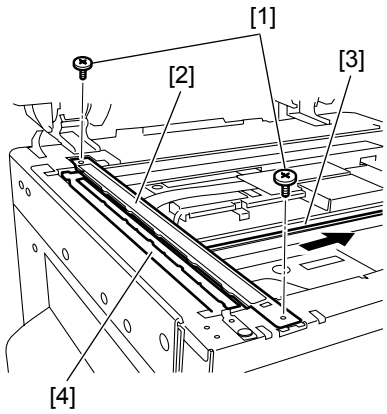
4.4.7.5 Removing the Reader Heater (Left)

1) Remove the screw [1], and then remove the jump board [2].



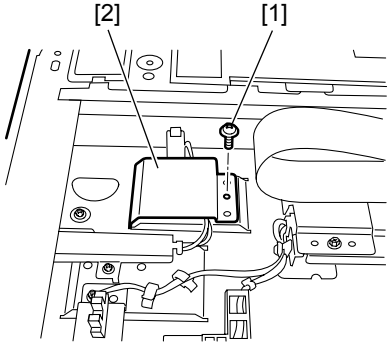
F-4-88

2) Remove the two screws [1], and then remove the stream reading glass stay [2].
3) Pull the drive belt (front) [3] in the direction of the arrow to move the contact sensor [4] to the center.



F-4-89

4) Remove the screw [1], and then detach the heater cover [2].



F-4-90

5) Disconnect the connector [1], remove the screw [2], and then remove the reader heater (left) [3].

Chapter 5 Laser Exposure

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5.1 Overview/Configuration

5.1.1 Overview

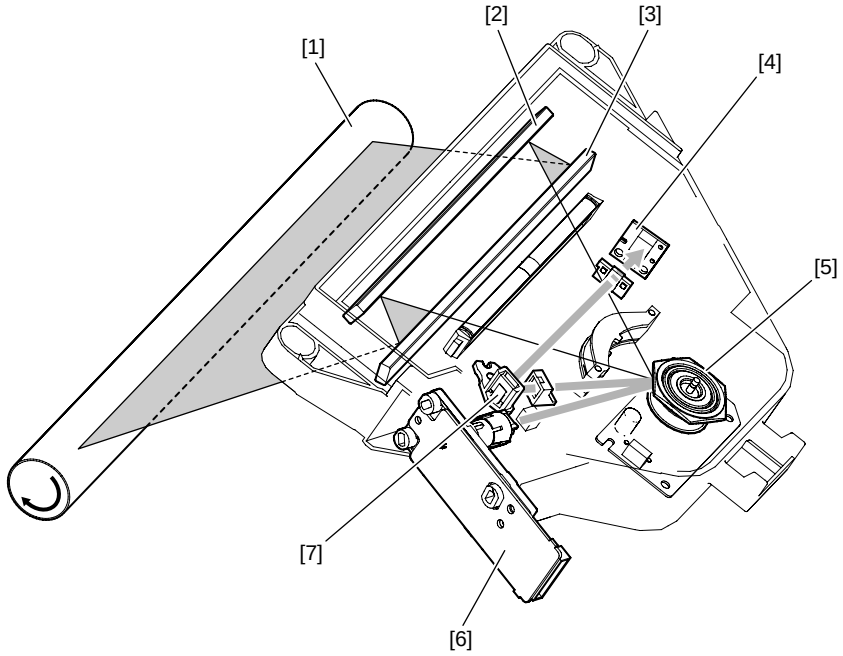
The laser scanner unit consists of a laser driver, scanner motor, and others. It is controlled by the signals from the DC controller PCB.
The laser driver operates the laser diode to emit light in response to the laser control signals and video signals from the DC controller PCB.
Laser beams are emitted, through a collimator lens and cylindrical lens, to the hexahedral mirror rotating at a constant speed.
Laser beam reflected by the hexahedral mirror focus on the photoconductor drum via the imaging lens and loop-back mirrors installed before the hexahedral mirror.
When the hexahedral mirror rotates at a constant speed, the photoconductor drum is scanned with laser beams at a constant speed.
When the photoconductor drum rotates at a constant speed and the photoconductor is scanned with laser beams at a constant speed, a latent image is formed on the photoconductor drum.

5.1.2 Specifications and Control Mechanism

T-5-1

Laser beam		
	Number of laser beams	2 beams
Scanner Motor		
	Type of motor	DC brushless motor
	Rotation control	Constant speed rotaion control
Polygon Mirror		
	Number of facets	6 facets (40-mm dia.)
Control Mechanism		
	Synchronous control	Horizontal (main scan) synchronization control
	Light intensity control	Automatic photocurrent control (APC)
	Others	Laser emission ON/OFF control
		Laser scanner motor control
		Laser shutter control

5.1.3 Main Components



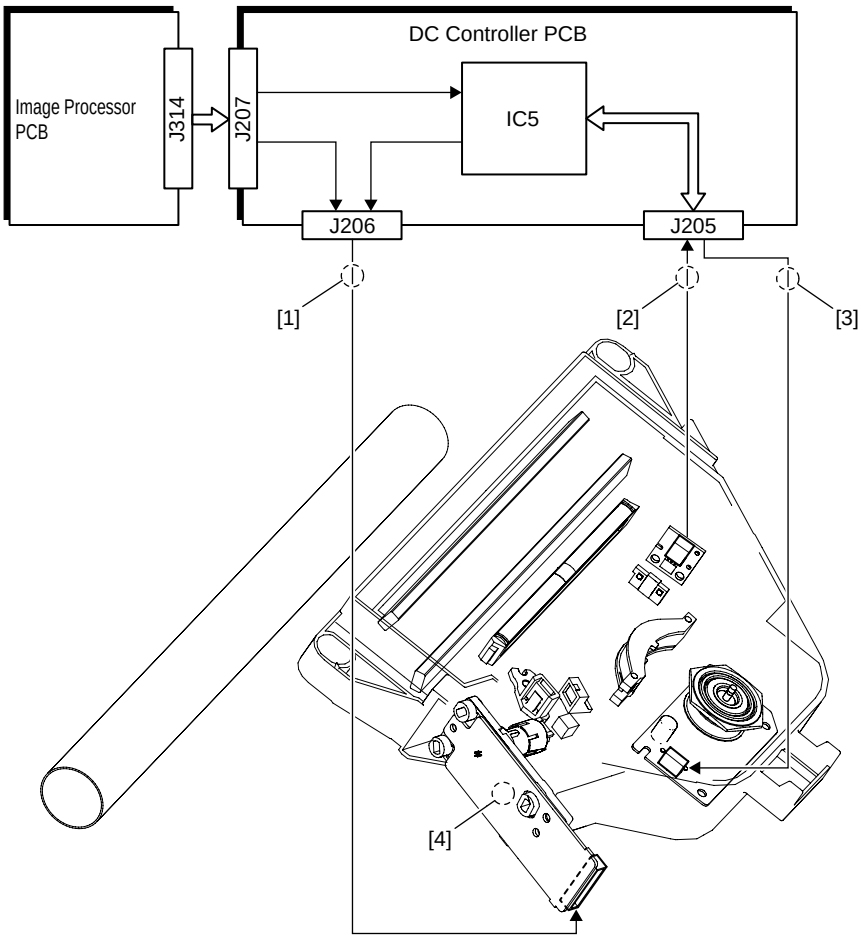
F-5-1

T-5-2

Name	Function
[1] Photoconductive drum	Receives laser beams to form a latent image.
[2] Laser mirror 1 (loop-back mirror)	Reflects a laser beam toward laser mirror 2.
[3] Laser mirror 2 (loop-back mirror)	Reflects a laser beam toward the photoconductor drum.
[4] BD PCB	Generates a BD signal.
[5] Polygonal mirror	Scans the photoconductive drum with a laser beam in the main scan direction.
[6] Laser unit	Emits laser beams.
[7] BD mirror	Reflects a laser beam toward the BD PCB.

5.1.4 Control System Configuration

The laser exposure system is controlled mainly by the IC5 on the DC controller PCB.
Main control types are as follows:
[1] Laser emission ON/OFF control/video signal input
[2] Horizontal synchronization control
[3] Laser scanner motor control
[4] Automatic photocurrent control (APC)



F-5-2

5.2 Controlling the Laser Activation Timing

5.2.1 Laser Emission ON/OFF Control

The purpose of this control is to turn ON/OFF the laser diode (LD) in response to video signals.
The DC controller PCB sends laser control signals (CNTRL0, CNTRL1, and CNTRL2), which are used to switch between laser driver operation modes, to the laser driver IC along with video signals (VDO1, /VDO1, VDO2, and /VDO2). The laser driver IC controls laser emission (ON/OFF) according to the combination of CNTRL0, CNTRL1, and CNTRL2 signals.
The following table shows combinations of laser control signals (CNTRL0, CNTRL1, and CNTRL2).

T-5-3

Laser control signal			Laser status		Description
CTL2	CTL1	CTL0	Laser A	Laser B	
0	0	0	OFF	OFF	Laser control OFF
1	1	1	Video signal input enable		Laser beams can be emitted in response to video signals.
1	1	0	ON	OFF	Forced emission of laser A (for adjustment in factory)
1	0	1	OFF	ON	Forced emission of laser B (for adjustment in factory)
1	0	0	ON	ON	Forced emission of laser A and laser B (for adjustment in factory)
0	1	0	ON	OFF	APC over laser A
0	0	1	OFF	ON	APC over laser B
0	1	1	OFF	OFF	Forced stop of laser emission

5.2.2 Horizontal Synchronization Control

The purpose of this control is to adjust the position where scanning starts in the horizontal direction (main scan direction) of the image with reference to the horizontal synchronization signal (/BD) sent from the BD sensor in the laser scanner. The horizontal synchronization signal is also used as a vertical synchronization signal to recognize the leading edge of paper. Upon detection of arrival of the fed paper at the prescribed position, the DC controller PCB starts sending the /BD signal to the image porcessor PCB. The image processor PCB recognizes the leading edge of paper at the start of the continuous /BD signal; it recognizes the trailing edge of paper at the end of the continuous /BD signal.

Memo:
About Generation of BD Signal
The BD sensor on the BD circuit board receives only the beam of laser B; it does not receive the beam of laser A. The BD signal is generated from the beam of laser A.

5.3 Controlling the Intensity of Laser Light

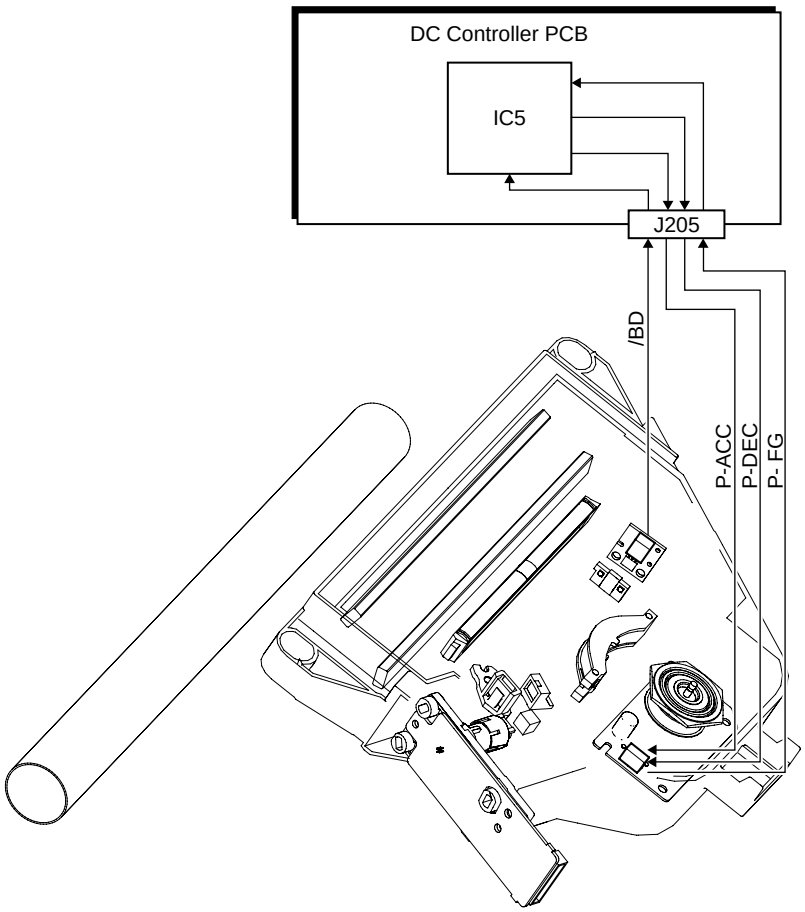
5.3.1 Automatic Photocurrent Control (APC)

The purpose of this control is to monitor the laser beam emitted to the photodiode on the laser driver circuit board in order to adjust the light quantity.

5.4 Controlling the Laser Scanner Motor

5.4.1 Laser Scanner Motor Control

From the moment the laser scanner motor starts to the moment it reaches the target revolution speed, the revolution speed is controlled with reference to the laser scanner motor revolution speed signal (FG signal). After the target revolution speed is reached, the revolution speed is controlled so that the BD cycle and the laser scanner motor revolution cycle are in the same phase.
The revolution speed of the laser scanner motor is controlled using an acceleration signal (ACC signal) and deceleration signal (DEC signal).

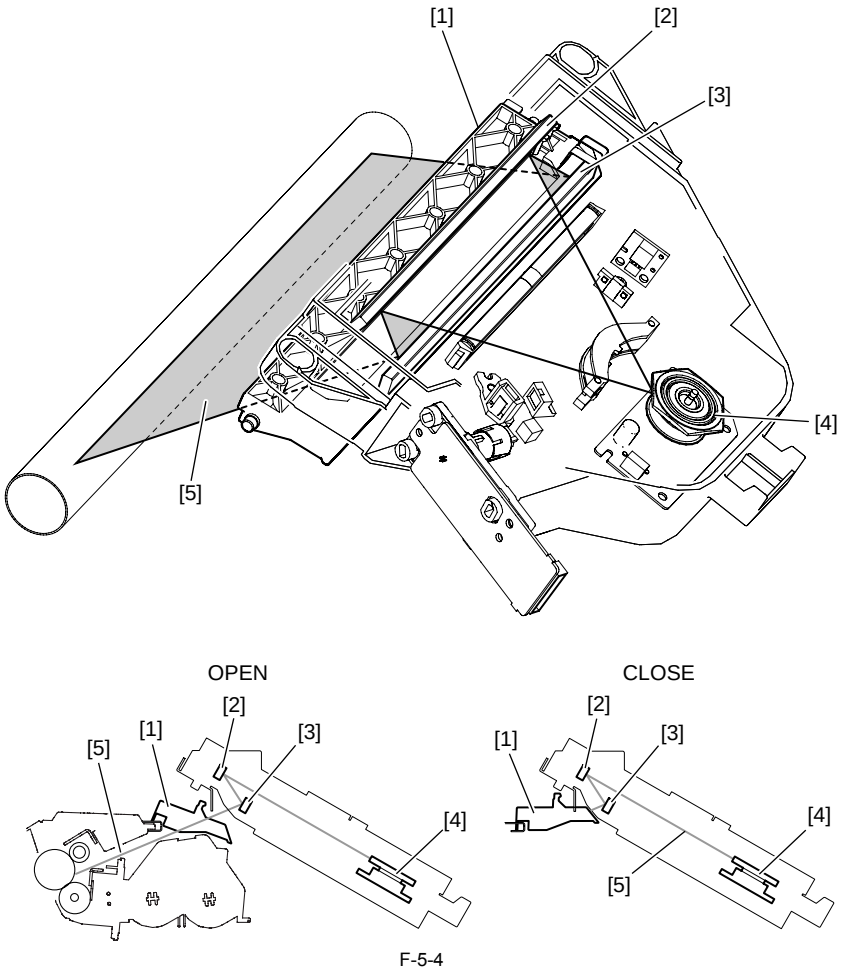


F-5-3

5.5 Controlling the Laser Shutter

5.5.1 Laser Shutter Control

When the toner cartridge is removed, the interlocked laser shutter moves down, shutting off the laser beam path. When opening of the front cover or left door is detected, the laser scanner motor and laser outputs turn off.



F-5-4

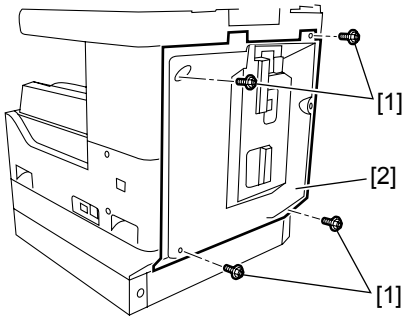
Laser shutter control
[1] Laser shutter
[2] Laser mirror 1
[3] Laser mirror 2
[4] Polygonal mirror
[5] Laser beam

5.6 Parts Replacement Procedure

5.6.1 Laser/Scanner Unit

5.6.1.1 Removing the Rear Cover

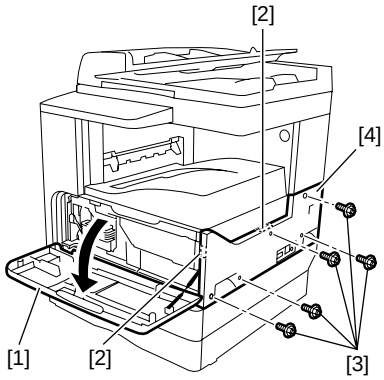
1) Remove the four screws [1], and then detach the rear cover [2].



F-5-5

5.6.1.2 Removing the Right Cover (Lower)

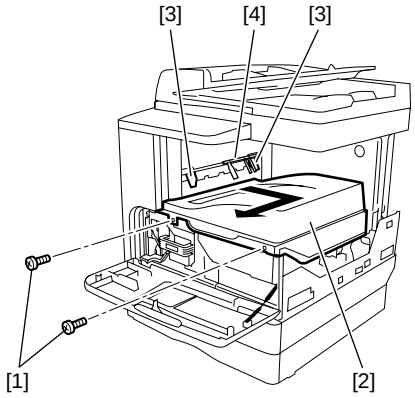
1) Open the front cover[1].
2) Remove the five screws [2]. Remove the two hooks [3], and then detach the right cover (lower) [4].



F-5-6

5.6.1.3 Removing the Delivery Tray

1) Remove the two screws [1], and then detach the delivery tray [2].

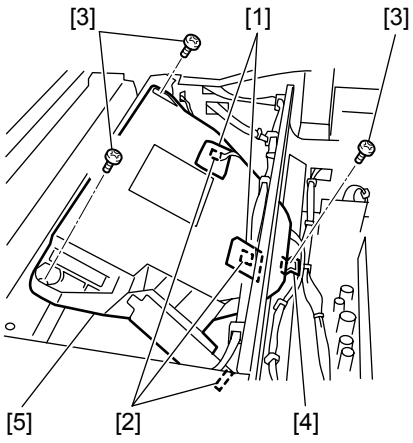


F-5-7

When attaching or detaching the delivery tray, be careful not to damage the paper holder [3] and full stack sensor flag [4].(The full stack sensor flag is not installed in case of MF7120/MF7170i.)

5.6.1.4 Removing the Laser Scanner Unit

1) Remove the two pieces of sponge [1].
2) Disconnect the three connectors [2].
3) Remove the three screws [3], and then remove the metal plate [4] and laser scanner unit [5].



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Chapter 6 Image Formation

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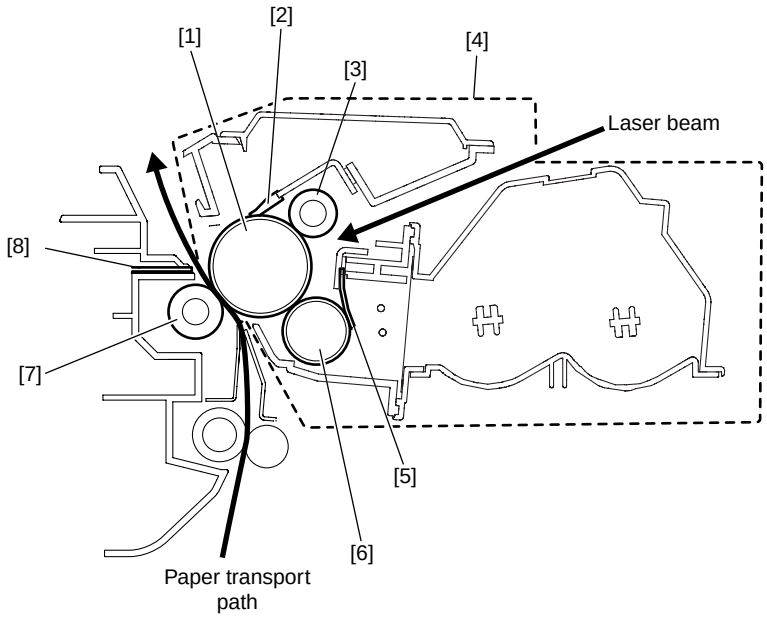
6.1 Overview/Configuration

6.1.1 Specifications of Image Formation System

T-6-1

Photosensitive drum	
Drum type	OPC drum
Drum diameter	3mm
Cleaning mechanism	Cleaning blade
Processing speed	106.7mm/sec
Primary charging	
Charging method	Roller charging (AC + DC)
ng roller diameter	14mm
Transfer charging	
Charging method	Roller charging (DC)
Charging roller diameter	16mm
Developing assembly	
Developing cylinder diameter	20mm
Developing method	Dry, 1-component jumping (AC + DC)
Toner	1-component, negative toner
Remaining toner level detection	Remaining toner level sensor (in toner cartridge)
Others	
Separation method	Static Eliminator + Curvature separation
Waste toner	Collected in the toner cartridge.

6.1.2 Major Components of Image Formation System



F-6-1

[1] Photosensitive drum
[2] Cleaner blade
[3] Primary charging roller
[4] Toner cartridge
[5] Blade
[6] Developing assembly
[7] Toner bottle
[8] Developing cylinder
[9] Transfer charging roller
[10] Static eliminator

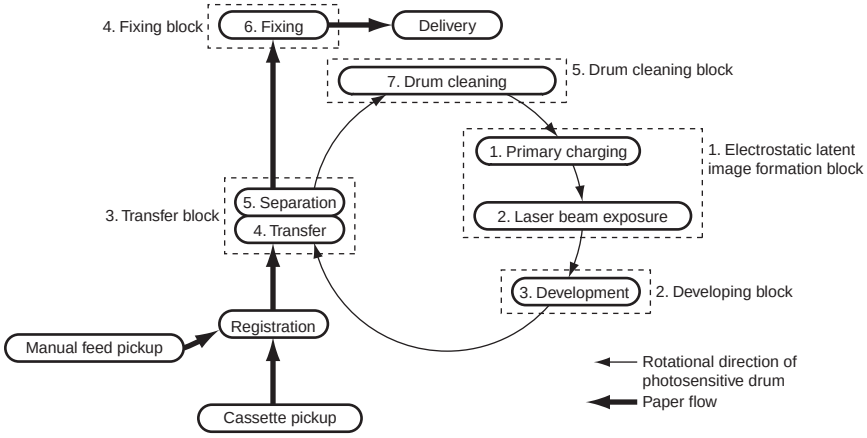
6.2 Image Formation Process

6.2.1 Image Formation Process

The image formation system of this machine consists of toner, primary charging roller, developing unit, cartridge integrated with a drum, and transfer charging roller, and so on.

The image formation process of this machine is composed of the following five blocks (7 steps):
[1] Electrostatic latent image formation block
  Step 1: Primary charging (AC & Minus DC)
  Step 2: Laser exposure
[2] Developing block
  Step 3: Developing (AC & Minus DC bias)
[3] Transfer block

Step 4: Transfer (Plus DC)
Step 5: Separation (Minus DC)
[4] Fixing block
Step 6: Fixing (Minus DC bias)
[5] Drum cleaning block
Step 7: Drum cleaning

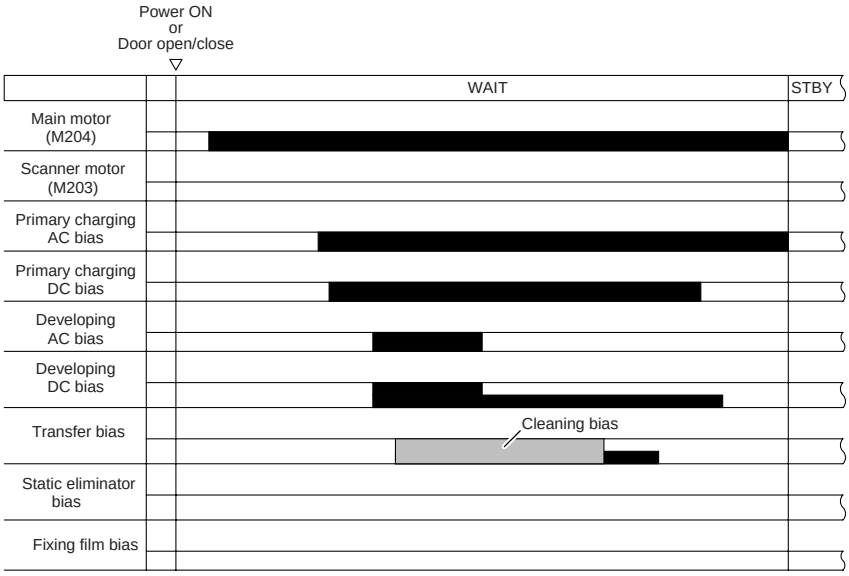


F-6-2

6.3 Basic Sequence

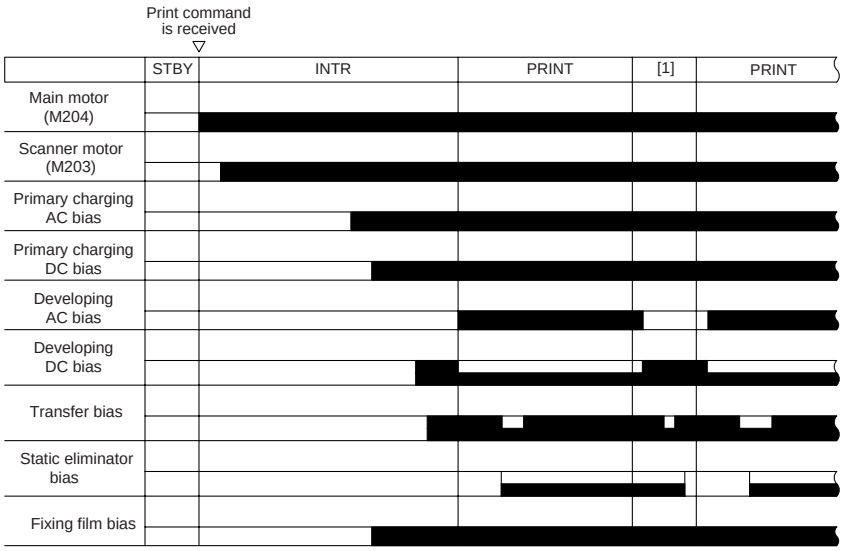
6.3.1 Basic Sequence of Operation

The basic sequence of operation of this machine is explained below.
For more details, refer to the explanation of various types of bias control.
- At power-on (when the door is opened/closed)
The main motor starts rotating after completion of the error check.
To prevent fogging of the drum, the developing DC bias voltage is held higher than usual during application of the developing AC bias voltage.



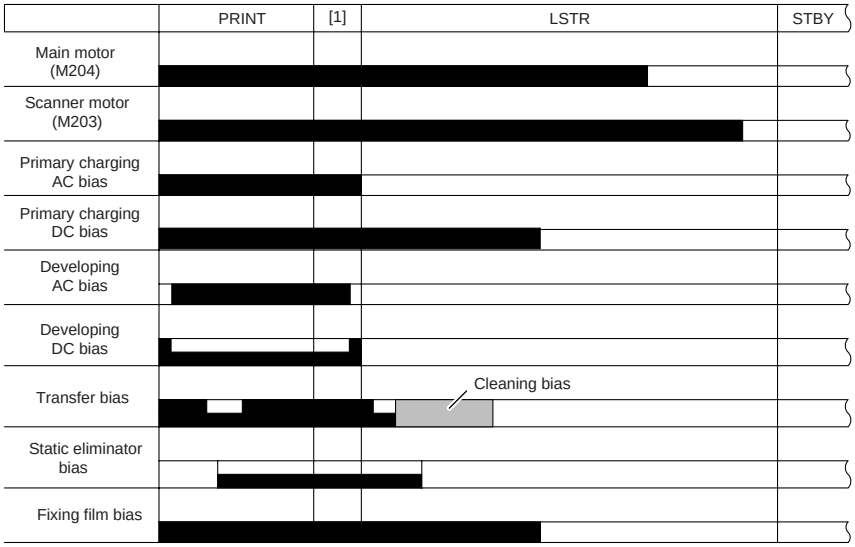
F-6-3

- During printing
To prevent fogging of the drum, the developing DC bias is held higher than usual except during image formation.
To prevent the toner remaining on the photosensitive drum from sticking to the transfer charging roller, the transfer roller bias which is lower than that applied during printing the is applied at the prescribed timing.



F-6-4

[1] Between sheets
- At the end of printing
To prevent fogging of the drum, the developing DC bias is held higher than usual except during image formation.
To prevent the toner remaining on the photosensitive drum from sticking to the transfer charging roller, the transfer roller bias which is lower than that applied during printing the is applied at the prescribed timing.



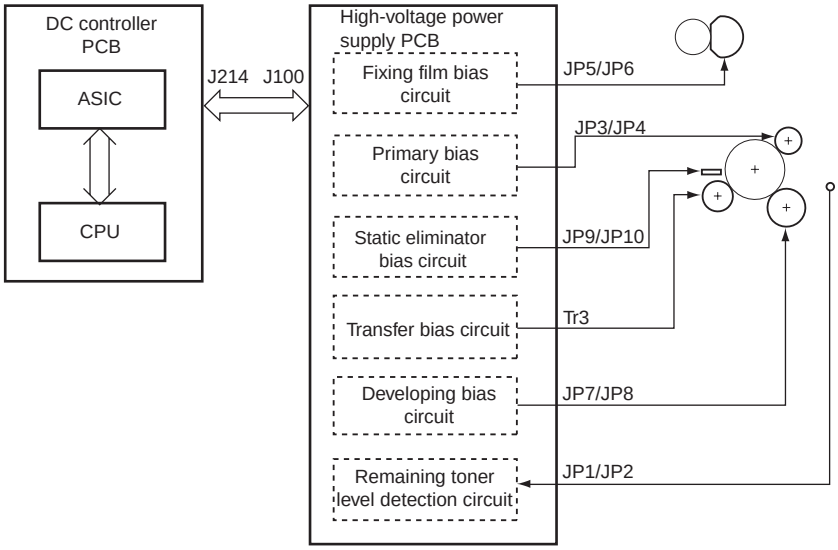
F-6-5

[1] Time until post-rotation

6.4 Driving and Controlling the High-Voltage System

6.4.1 Outline

The voltage generated by superimposing the DC voltage over the AC voltage is applied to the primary charging roller and developing cylinder, and a positive or negative DC voltage is applied to the transfer charging roller according to the instruction of the CPU on the DC controller PCB.
The primary DC bias and developing DC bias are changed according to the image density information sent from the image processor PCB, thus adjusting the image density.
A negative DC voltage is applied to the electrostatic discharge needle and fixing film.



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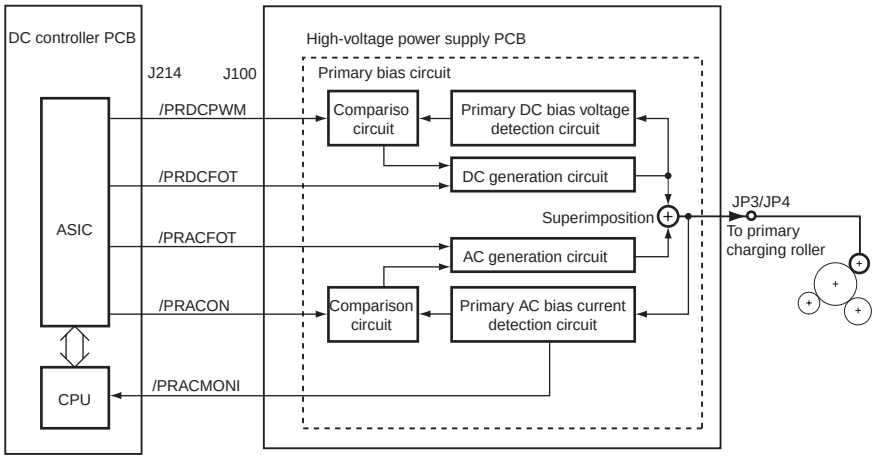
6.4.2 Primary Charging Bias Control

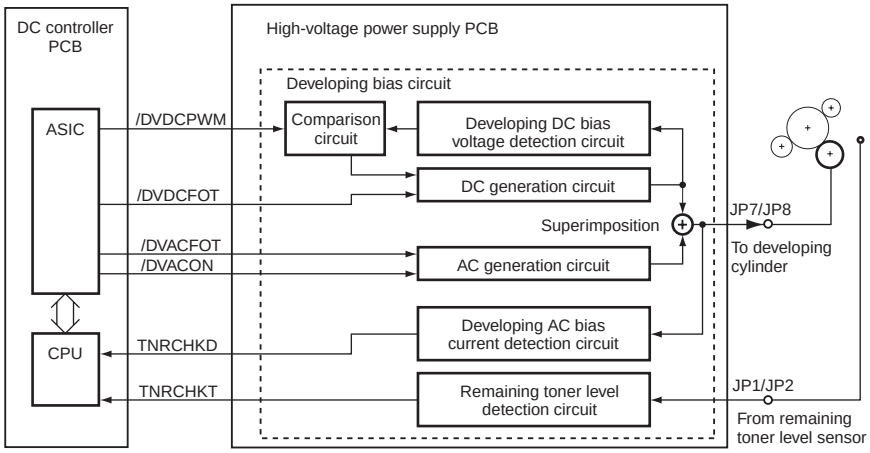
With the primary charging bias method, the drum is charged directly by the charging roller. In addition to a DC bias, an AC bias is applied to the primary charging roller to stabilize charging. When the drum is charged, both AC and DC biases are applied. When the drum is discharged, only the AC bias is applied.
The ASIC on the DC controller PCB outputs the primary bias drive signal (/PRACFOT), primary AC bias ON/OFF signal (/PRACON), primary DC bias drive signal (/PRDCFOT), and primary DC bias output level signal (/PRDCPWM) to apply the voltage generated by superimposing the primary AC bias over the primary DC bias to the primary charging roller.
The primary AC bias is detected by the primary AC bias current detection circuit, and is fed back to the AC generator circuit via the comparison circuit.
The primary DC bias is detected by the primary DC bias current detection circuit, and is fed back to the DC generator circuit via the comparison circuit. Thus, this machine controls the primary DC bias voltage. The primary DC bias voltage changes with the developing DC bias voltage according to the image density information sent from the image processor PCB.



F-6-7

6.4.3 Developing Bias Control

A DC bias and an AC bias are applied to the developing cylinder.
The ASIC on the DC controller PCB outputs the developing AC bias drive signal (/DVACFOT), developing AC bias ON/OFF signal (/DVACON), developing DC bias drive signal (/DVDCFOT), and developing DC bias output level signal (/DVDCPWM) to apply the voltage generated by superimposing the developing AC bias over the developing DC bias to the developing cylinder.
To prevent fogging of the drum, a DC bias higher than usual applied except during image formation and when the developing AC bias is applied for warm-up rotation.
The developing DC bias is detected by the developing DC bias detection circuit, and is fed back to the DC generation circuit via the comparison circuit, thus controlling the DC bias voltage. The developing DC bias voltage changes with the primary DC bias voltage according to the image density information sent from the image processor PCB.
The remaining toner level is detected during warm-up rotation and when the developing AC bias is applied for printing. The remaining toner level detection signal (TNRCHKT) sampled from the antenna (for remaining toner level check) in the developing assembly is compared with the reference signal (TNRCHKD) received from the developing bias detection circuit.

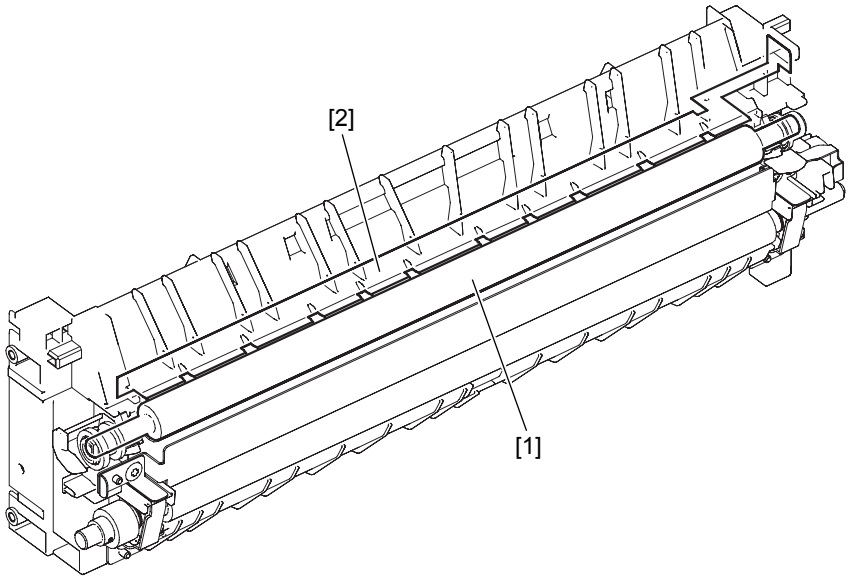


F-6-8

6.5 Secondary Transfer Mechanism

6.5.1 Outline

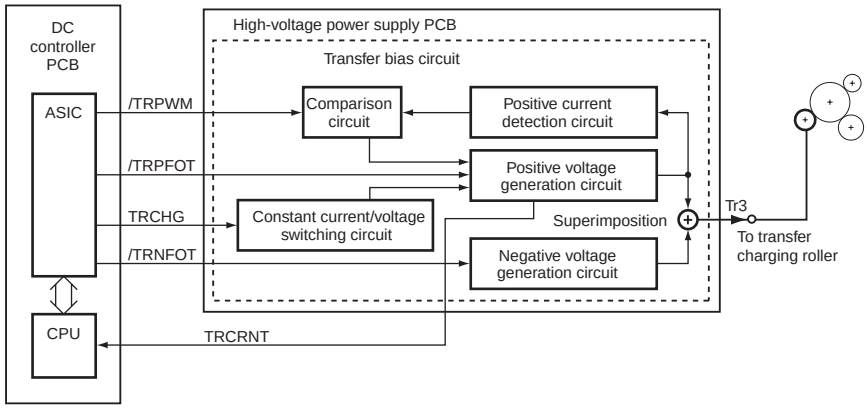
The transfer unit consists of a transfer roller [1] and an static eliminator [2].
The transfer roller is driven by the photosensitive drum.
The static eliminator is biased to separate paper from the drum.



F-6-9

6.5.2 Transfer Roller Bias Control

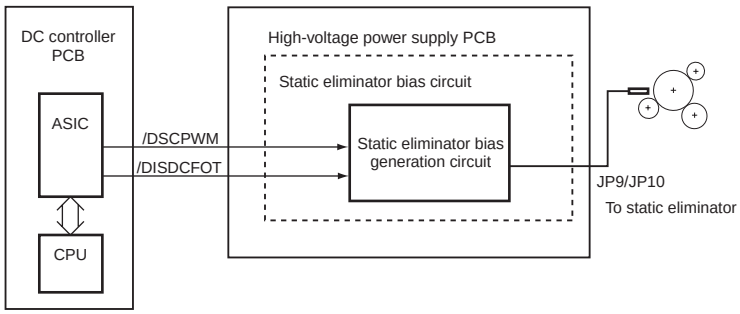
A negative bias, sheet-to-sheet bias, or positive bias is applied to the transfer charging roller according to the type of sequence.
The negative bias is applied at the prescribed timing to moves the toner from the transfer charging roller to the photosensitive drum for cleaning.
The sheet-to-sheet bias is lower than that applied during printing and it is applied at the prescribed timing to prevent the toner remaining on the photosensitive drum from adhering to the transfer charging roller.
The positive bias is applied to transfer toner images from the photosensitive drum to paper.



F-6-10

6.5.3 Static Eliminator Bias Control

Two types of biases, a high-output bias and a low-output bias, are applied to the static eliminator using the static eliminator bias drive signal (/DISDCFOT) and static eliminator bias output level signal (/DSCPWM) issued from the DC controller PCB according to the type of the print sequence, thus allowing the printing paper to separate easily from the photosensitive drum.



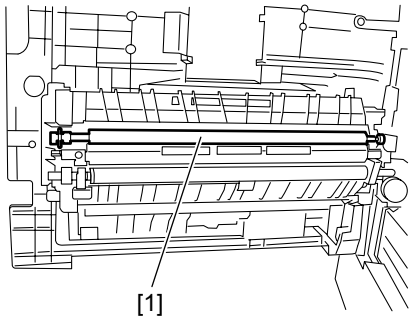
F-6-11

6.6 Parts Replacement Procedure

6.6.1 Transfer Charging Roller

6.6.1.1 Removing the Transfer Charging Roller

1) Open the left door.
2) Remove the transfer charging roller [1]



F-6-12

⚠Do not touch the transfer charging roller surface.

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7.1 Overview/Configuration

7.1.1 Specifications/Configuration/Operation Methods

Functions and operation methods of the pickup/feeding system are as follows:

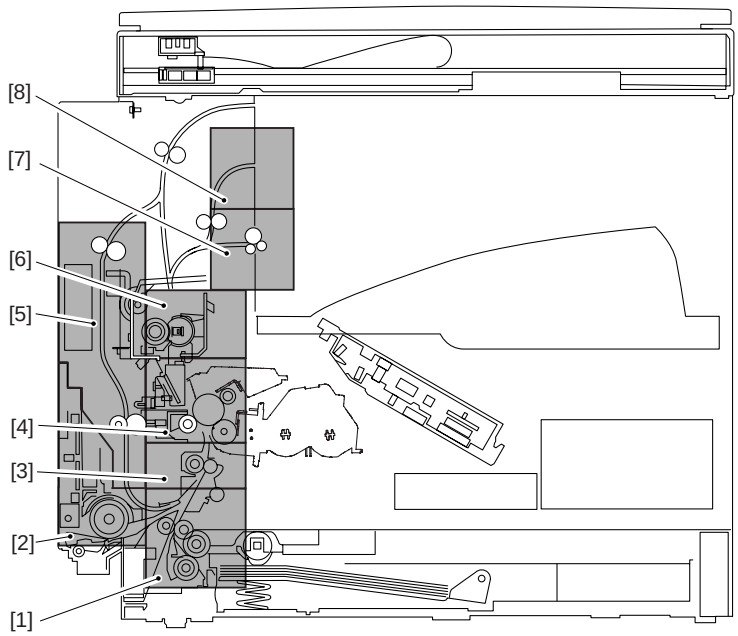
T-7-1

Item		Function/Operation method
Pickup method	Cassette	Clow retard
	Multi manual feed tray	Duplo separation
Paper stack	Cassette	Plain Paper 300Sheets(64g/m2) 260Sheets(75g/m2) 250Sheets(80g/m2) 125Sheets(90g/m2)
	Multi manual feed tray	Plain paper Large 50Sheets(64g/m2)*1 Small 100Sheets(64g/m2) Large 50Sheets(75g/m2) Small 80Sheets(75g/m2) Large 50Sheets(80g/m2) Small 80Sheets(80g/m2) Large 50Sheets(90g/m2) Small 50Sheets(90g/m2) Thick Paper 50Sheets(105g/m2) 50Sheets(128g/m2) Label sheet 1Sheets OHP 50Sheets Envelope 10Sheets Postcard 40Sheets
Paper size Setting	Cassette	Set by user
	Multi manual feed tray	Set by user
Delivery option	Finisher-U1 Inner 2Way Tray-E1	
Pickup option	Cassette Feeding Module-J1 Cassette Feeding Module-K1	

1* Large:more than B4/LGL,Small:less than B4/LGL

7.1.2 Locations of Main Units

Locations of main units of the pickup/feeding system are shown blow.

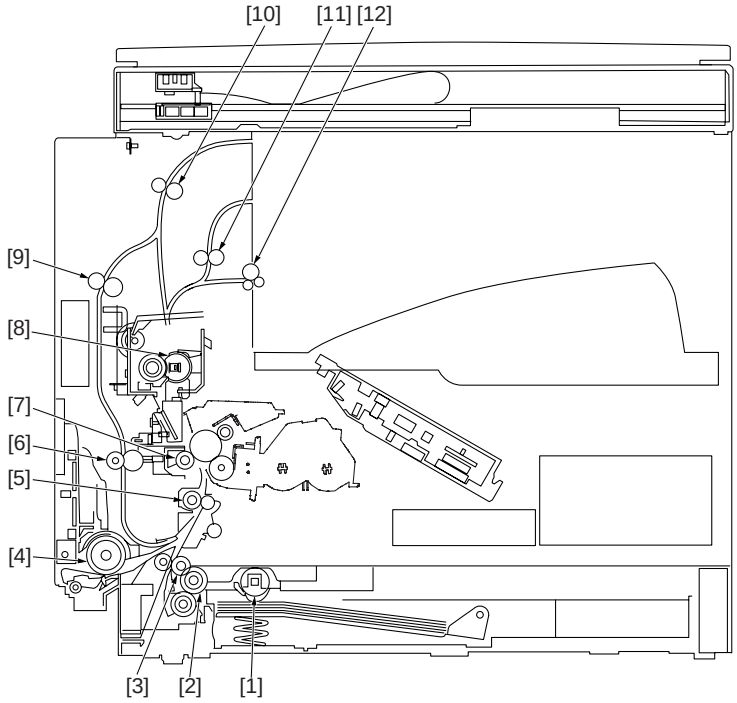


F-7-1

[1] Pickup assembly
[2] Manual feed pickup assembly
[3] Registration roller
[4] Transfer assembly
[5] Duplex print paper feed assembly(option)
[6] Fixing assembly
[7] First delivery assembly
[8] Second delivery assembly(option)

7.1.3 Roller Layout Drawing

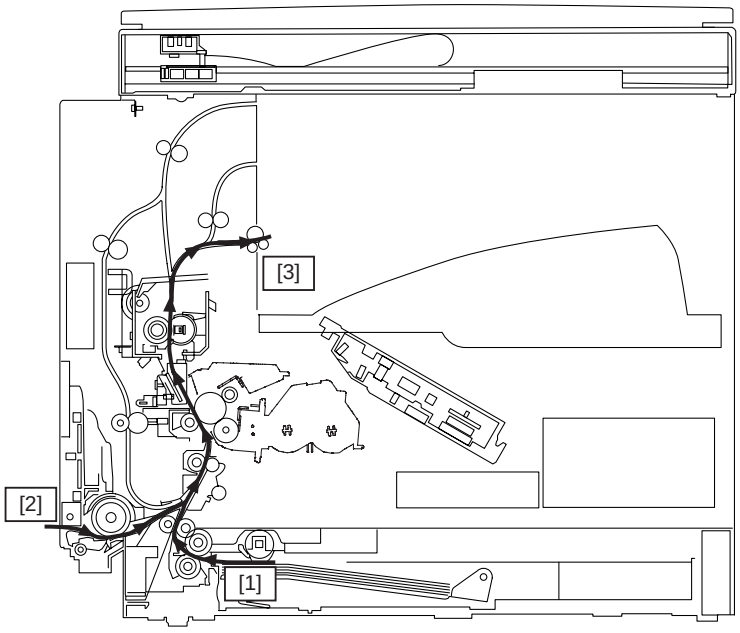
The layout of the rollers used in the pickup/feeding system is shown below.



F-7-2

[1] Pickup roller
[2] Cassette pickup roller
[3] Feed roller 1
[4] Multi pickup roller
[5] Registration roller
[6] Duplex print paper feed roller 3
[7] Transfer roller
[8] Fixing roller
[9] Duplex print paper feed roller 2
[10] Duplex print paper feed roller 1
[11] Second delivery roller
[12] First delivery roller

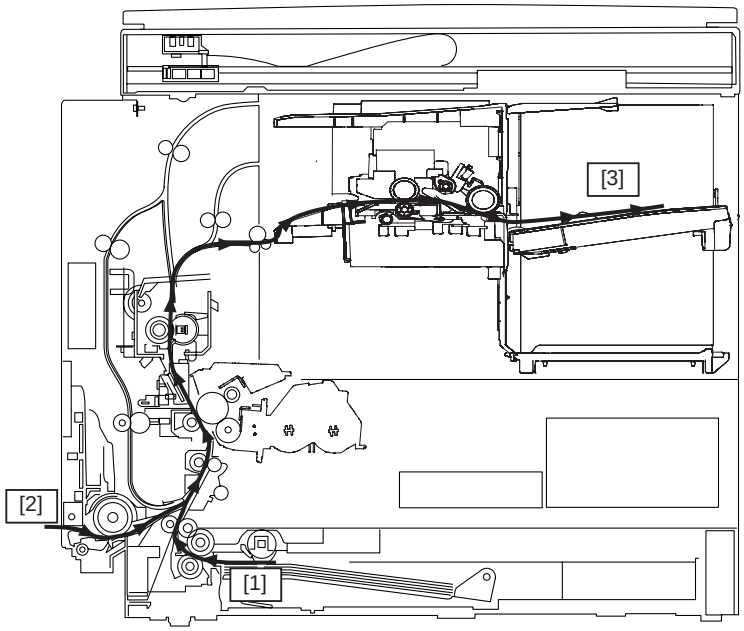
7.1.4 Paper Path Drawing(Printer on its own)



F-7-3

[1] Cassette pickup
[2] Manual feed pickup
[3] Delivery from copy tray 1

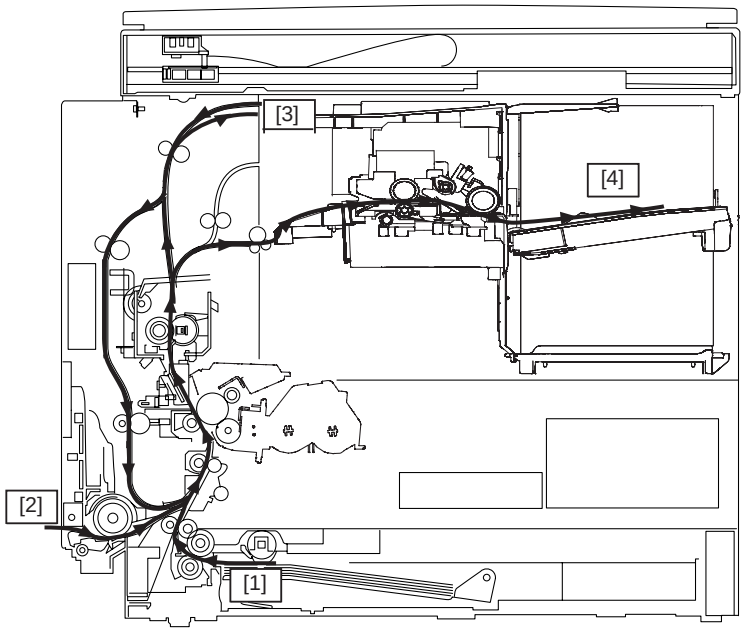
7.1.5 Paper Path Drawing(Finisher-U1)



F-7-4

[1] Cassette pickup
[2] Manual feed pickup
[3] Finisher-U1(option)

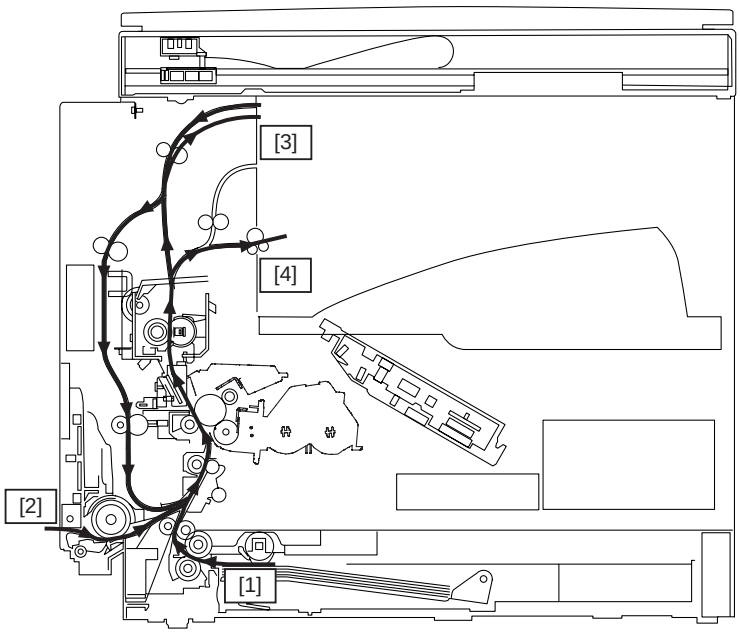
7.1.6 Paper Path Drawing(Duplex Unit-A1/Finisher-U1)



F-7-5

[1] Cassette pickup
[2] Manual feed pickup
[3] Both sides re-paper feed(option)
[4] Finisher-U1(option)

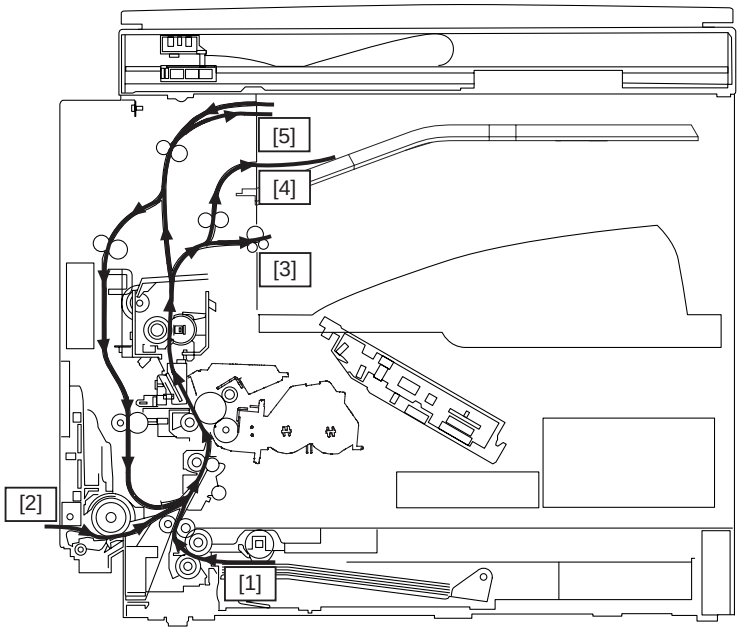
7.1.7 Paper Path Drawing(Duplex-A1)



F-7-6

[1] Cassette pickup
[2] Manual feed pickup
[3] Both sides re-paper feed(option)
[4] Delivery from copy tray 1

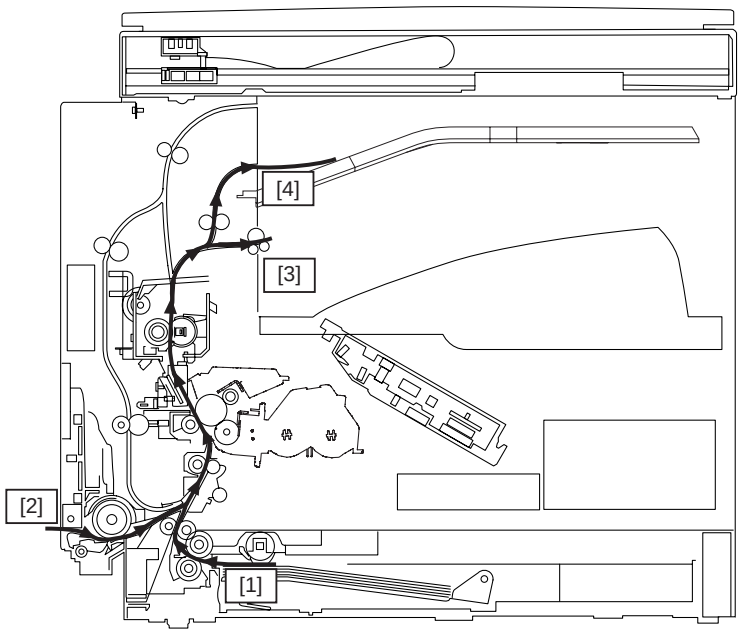
7.1.8 Paper Path Drawing(Duplex-A1/Inner 2Way Tray-E1)



F-7-7

[1] Cassette pickup
[2] Manual feed pickup
[3] Delivery from copy tray 1
[4] Delivery from copy tray 2(option)
[5] Both sides re-paper feed(option)

7.1.9 Paper Path Drawing(Inner 2Way Tray-E1)

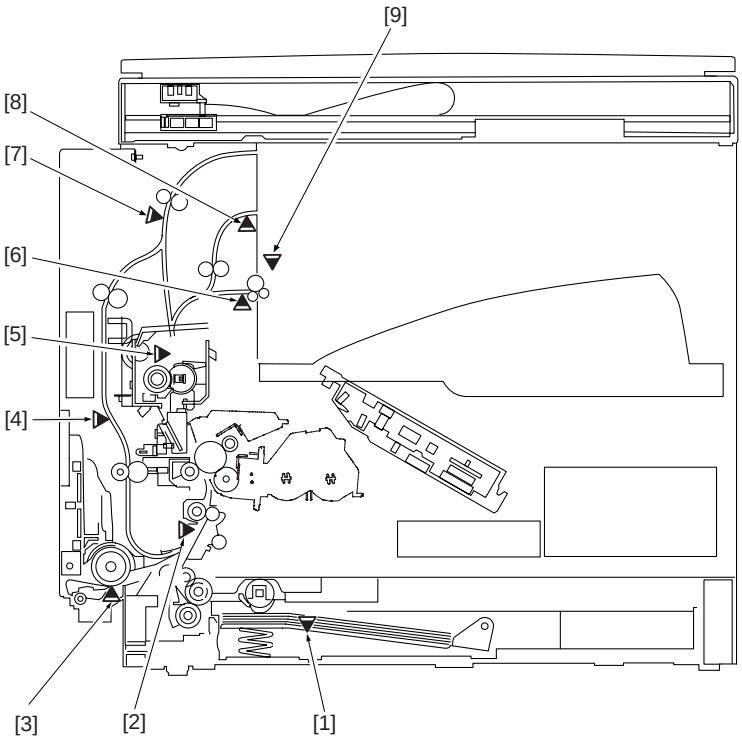


F-7-8

[1] Cassette pickup
[2] Manual feed pickup
[3] Delivery from copy tray 1
[4] Delivery from copy tray 2(option)

7.1.10 Sensor Layout Drawing

The layout of the sensors used in the pickup/feeding system is shown below.



F-7-9

[1] Cassette 1 paper presence/absence sensor (SR204)
[2] Registration sensor (SR209)
[3] Manual feed paper presence/absence sensor (SR208)
[4] Duplex print paper sensor 2 (SR1003)(Option)
[5] Fixed paper delivery sensor (SR202)
[6] First delivery sensor (SR203)
[7] Duplex print paper sensor 1 (SR1002)(option)
[8] Second delivery sensor (SR1102)(option)
[9] First delivery paper full sensor (SR207)(option)

7.2 Detection Jams

7.2.1 Delay Jams

7.2.1.1 Delay Jam in Pickup Assembly

Delay Jam in Pickup Assembly
The registration sensor cannot detect the leading edge of paper within the jam detection time interval after paper pickup started.

T-7-2

Sensor/Solenoid
Registration sensor (SR209)
Pickup solenoid (SL202)

7.2.1.2 Delay Jam in Delivery Assembly (Paper Leading Edge Jam at First Delivery Sensor/Wound Paper Jam at Fixing Assembly)

Paper Leading Edge Jam at First Delivery Sensor
The first delivery sensor cannot detect presence of paper within the prescribed time after the registration clutch has been turned on.

T-7-3

Sensor/Registration clutch
First delivery sensor (SR203)
Registration clutch (CL203)

Wound Paper Jam at Fuser
The first delivery sensor has detected absence of paper within the prescribed time after it detected presence of paper (within the prescribed time after the registration clutch had been turned on).

T-7-4

Sensor/Registration clutch
First delivery sensor (SR203)
Registration clutch (CL203)

7.2.2 Stationary Jams

7.2.2.1 Stationary Jam in Pickup Assembly

Stationary Jam in Pickup Assembly
The registration sensor does not detect absence of paper within the prescribed time before the next leading edge of fed paper reaches the registration sensor.

T-7-5

Sensor
Registration sensor(SR209)

7.2.2.2 Stationary Jam in Delivery Assembly (Paper Trailing Edge Stationary Jam at First Delivery Sensor/Stationary Jam at Delivery Sensor)

Paper Trailing Edge Stationary Jam at First Delivery Sensor
The first delivery sensor cannot detect absence of paper within the prescribed time after the registration sensor has been turned off.

T-7-6

Sensor
Registration sensor (SR209)
First delivery sensor (SR203)

Stationary Jam at First Delivery Sensor
The first delivery sensor cannot detect absence of paper within the prescribed time after it has detected the leading edge of paper.

T-7-7

Sensor
First delivery sensor (SR203)

7.2.3 Other Jams

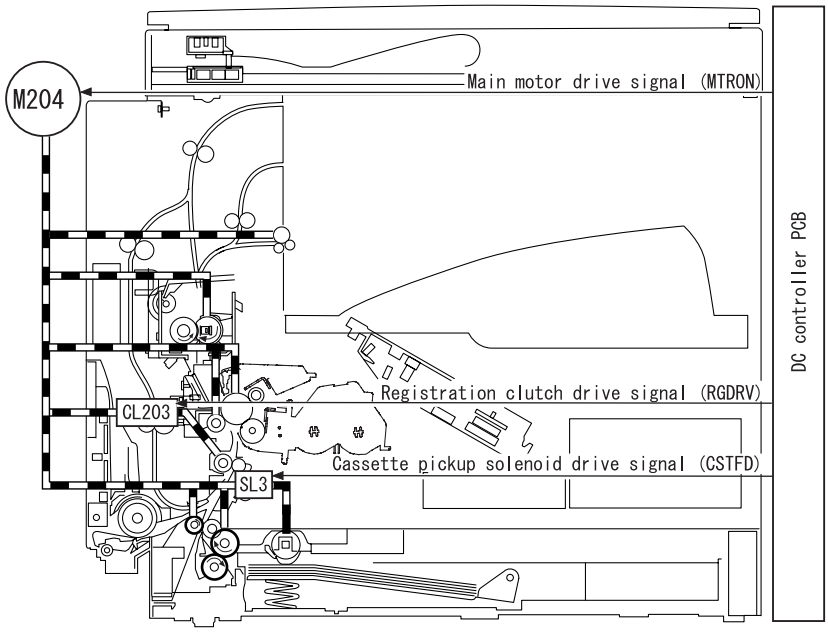
7.2.3.1 Door Open Jam

Door Open Jam
The door is opened when paper to be printed is in the paper feed path.

7.3 Cassette Pickup Unit

7.3.1 Overview

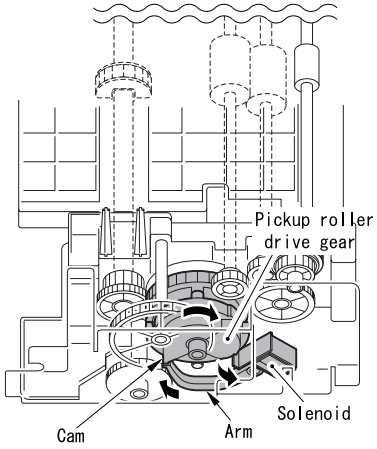
The paper picked up from the cassette is fed to the registration roller using the vertical path roller driven by the main motor (M204). The registration roller is not rotating when paper reaches there, so an arch is formed at the leading of the paper to prevent skewing. The DC controller PCB turns on the registration clutch (CL203) at the prescribed timing to transfer the main motor rotation to the registration roller, thus feeding the paper to the delivery tray through the transfer, separation, fixing, and delivery assemblies.



F-7-10

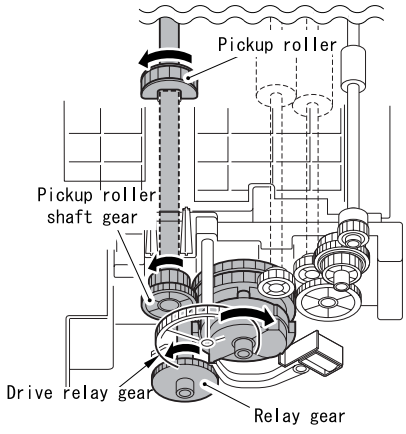
7.3.2 Cassette Pickup Operation

Rotation of the pickup roller is controlled by the pickup roller drive gear, which transfers the drive power of the main motor (M204) to the pickup roller drive shaft, and the cassette pickup solenoid (SL202). When the main motor starts rotating, the interlocked relay gear also starts rotating. At this time, the pickup roller drive gear is not driven because its toothless portion is positioned at the relay gear and therefore these gears are not engaged with each other.
1) The DC controller PCB issues a cassette pickup solenoid drive signal (CSTFD). When the solenoid is turned on, the control arm pushes the cam to rotate the pickup roller drive gear slightly.



F-7-11

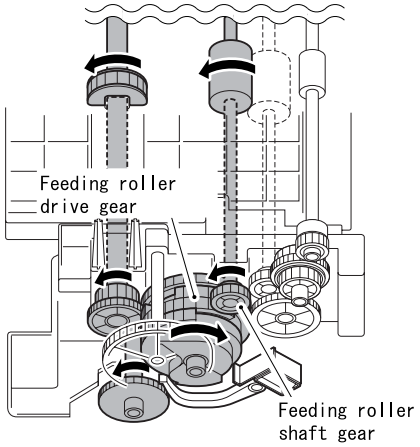
2) When the pickup roller drive gear is engaged with the pickup roller shaft gear, drive power is transferred to the pickup roller shaft gear and consequently the pickup roller starts rotating.



F-7-12

3) When the feed roller drive gear is engaged with the feed roller shaft gear, drive power is transferred to the feed roller shaft gear and consequently the feed roller starts rotating.
4) When the pickup roller rotates once, the toothless portion of the pickup roller drive gear comes to the position of the relay gear and consequently drive power of the main motor is not transferred, stopping the rotation of pickup and feed rollers.

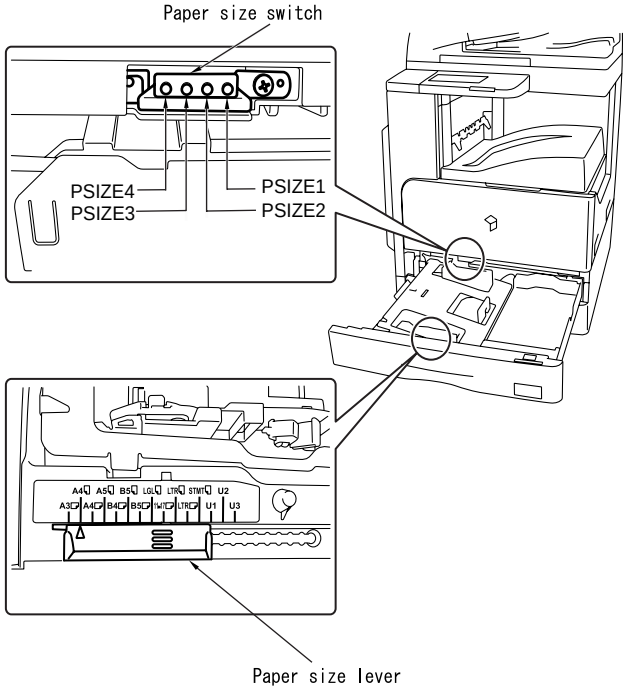
5) The picked up paper is fed to the registration roller through the vertical path roller.



F-7-13

7.3.3 Cassette Paper Size Detection

The size of the paper in the cassette is detected by the DC controller PCB when the user changes the position of the cassette paper size lever. When the cassette is inserted in the iR host machine, the paper size lever pushes the paper size switches provided in the iR host machine to allow the DC controller PCB to detect presence of the cassette and the size of paper. Paper size switches are arranged as shown below. Paper sizes are determined by the combinations of the switches pushed by the paper size lever.



F-7-14

T-7-8

	A3	A4	A4R	A5	B4	B5	B5R	LGL	11x17	LTR	LTRR	STMT	U1*	U2*	U3*
PSIZE1	ON	OFF	ON	OFF	OFF	ON	ON	OFF	ON	ON	ON	ON	OFF	OFF	OFF
PSIZE2	OFF	ON	OFF	ON	OFF	OFF	ON	ON	OFF	ON	ON	ON	ON	OFF	OFF
PSIZE3	OFF	OFF	ON	OFF	ON	OFF	OFF	ON	ON	OFF	ON	ON	ON	ON	OFF
PSIZE4	OFF	OFF	OFF	ON	OFF	ON	OFF	OFF	ON	ON	OFF	ON	ON	ON	ON

ON:The push switch is pushed.
OFF:The push switch is not pushed.
*:Not used.

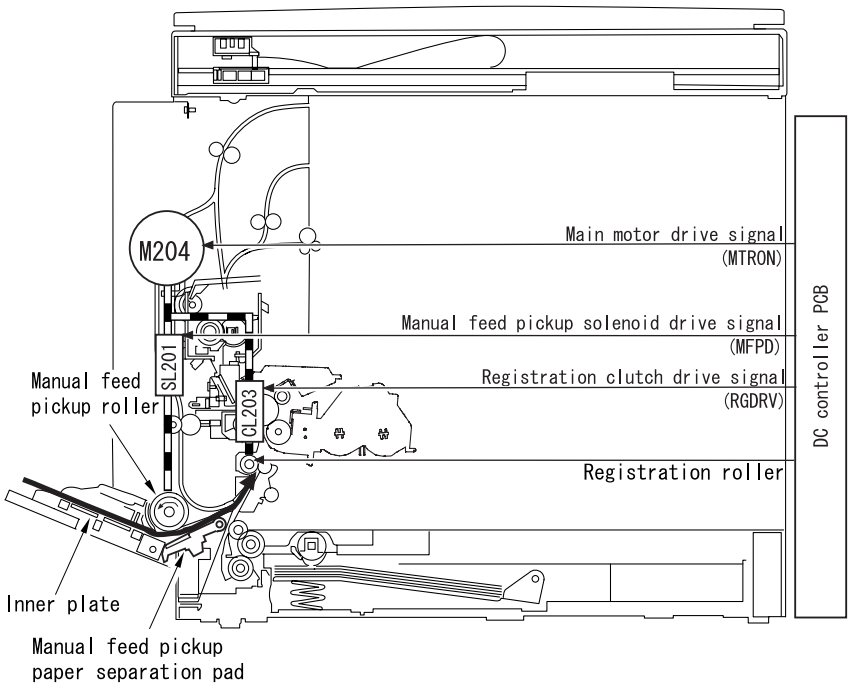
7.4 Manual Feed Pickup Unit

7.4.1 Overview

a. Multi Manual feed Pickup Control

The manual feed pickup mechanism picks up sheets of paper in succession from the multi manual feed tray. The sheets of paper stacked in the tray are raised against the manual feed pickup roller by the inner plate. The manual feed pickup roller is driven by the main motor (M204) via the manual feed pickup solenoid (SL202)

and gears. Only one sheet of paper is picked up by the combination of the manual feed pickup roller and manual feed pickup paper separation pad, and then fed to the registration roller. These operations are performed for each sheet to be picked. The user must set the size of the paper in the multi manual feed tray using the operation panel, or the user must register a fixed size in the user mode.



F-7-15

b. Inner Plate Lift Operation
During standby, the inner plate is at the down position with it held by the cams provided at the front and back of the manual feed pickup roller shaft. Rotation of the pickup roller rotates the interlocked cams to lift the inner plate, raising the sheets of paper (loaded in the manual feed tray) against the manual feed pickup roller. On the opposite side of the pickup roller is mounted a separation pad that separates only one sheet of paper from others and feeds it to the next section.
c. Manual feed Tray Pickup Drive Mechanism
pickup solenoid drive signal (MFPD) sent from the DC controller PCB. Rotation of the main motor drives the pickup drive power transfer gear. The DC controller PCB issues a manual feed pickup solenoid drive signal (MFPD). When the solenoid turns on, the stopper operates to rotate the pickup roller once. Next, the stopper operates again to stop rotation of the pickup roller.

7.4.2 Post-pickup Control after Multi Manual Feed Pickup

Paper pickup operation ends when paper is pressed against the registration roller. After this, the registration roller starts rotating and the multi manual feed pickup clutch turns on. This clutch turns off after feeding the paper by the distance equivalent to the paper size - 126.7 mm (*1) -5 mm (*2).

*1 Distance that paper is fed from the multi pickup roller to the point where the registration sensor turns on.
*2 Paper is post-fed to the point which is 5 mm to the training edge.

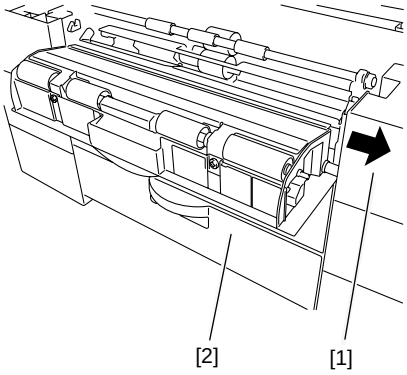
When the paper size is not specified, paper is post-fed by the distance equivalent to the multi paper feed enabled size (148 mm in longitudinal direction).
Minimum post-feed distance: 148 mm - 126.7 mm -5 mm = 16.3 mm

7.5 Parts Replacement Procedure

7.5.1 Cassette Pickup Assembly

7.5.1.1 Removing the Lower-left Cover

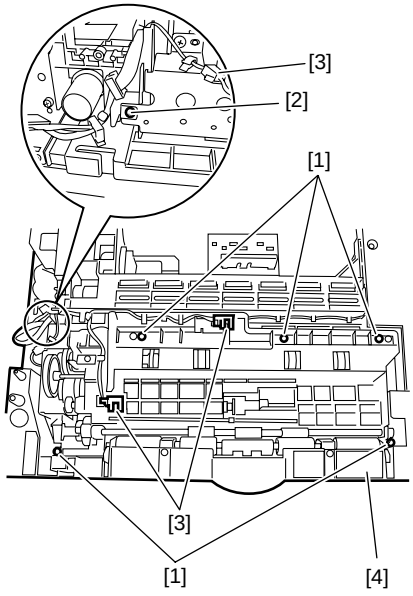
1) Detach the lower-left cover [2] by opening the rear support [1] with a slightly strong force applied in the direction of the arrow.



F-7-16

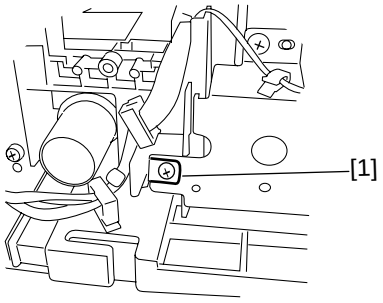
7.5.1.2 Removing the Cassette Pickup Assembly

1) Detach the cassette rear cover. (2 screws)
2) Remove the five screws [1] and one screw with toothed washer [2].
3) Disconnect the three connectors [3], and then remove the cassette pickup assembly [4].



F-7-17

⚠Install the cassette pickup assembly with the ground plate [1] outside the side plate.

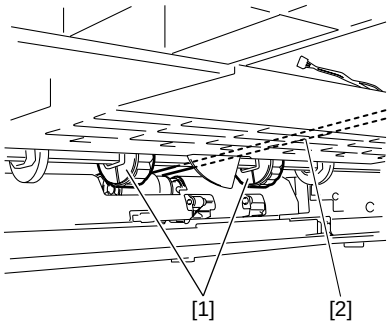


F-7-18

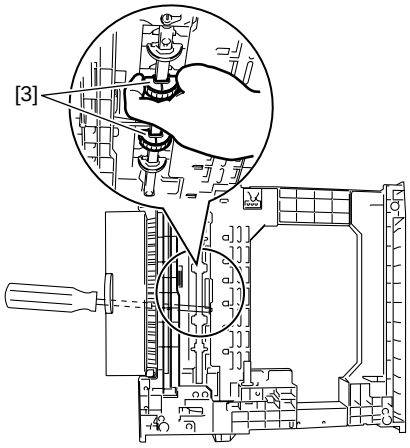
7.5.2 Cassette Pickup Roller

7.5.2.1 Removing the Cassette Paper Pickup Roller

1) Remove the cassette.
2) Open the lower-left cover.
3) With the pickup roller [1] down, insert a screwdriver [2] or the like from the left side of the host machine as shown below.
4) Remove the pickup roller [3] with your fingers as shown below.



F-7-19

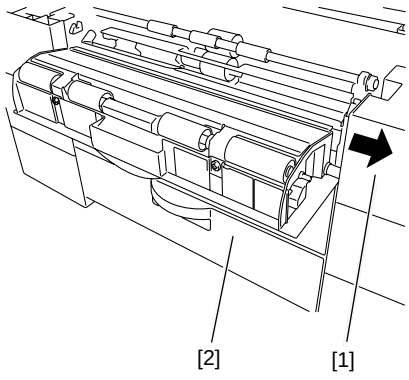


F-7-20

7.5.3 Cassette Paper Sensor

7.5.3.1 Removing the Lower-left Cover

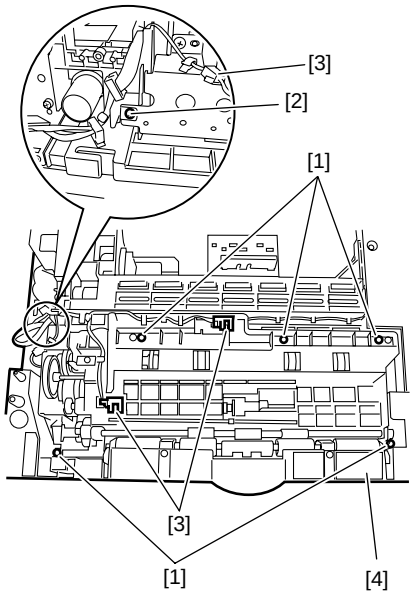
1) Detach the lower-left cover [2] by opening the rear support [1] with a slightly strong force applied in the direction of the arrow.



F-7-21

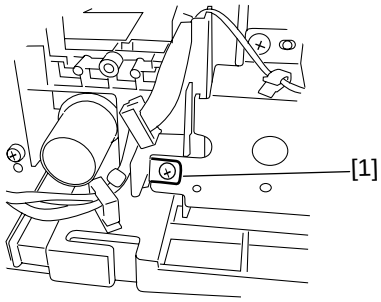
7.5.3.2 Removing the Cassette Pickup Assembly

1) Detach the cassette rear cover. (2 screws)
2) Remove the five screws [1] and one screw with toothed washer [2].
3) Disconnect the three connectors [3], and then remove the cassette pickup assembly [4].



F-7-22

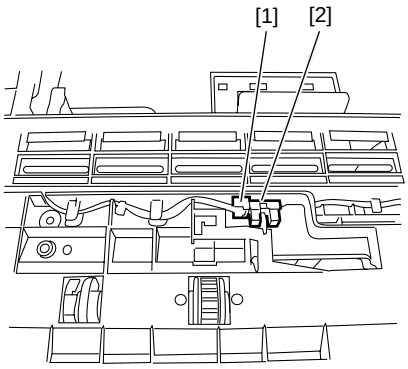
Install the cassette pickup assembly with the ground plate [1] outside the side plate.



F-7-23

7.5.3.3 Removing the Cassette Paper Presence/Absence Sensor

1) Disconnect the connector [1], and then remove the cassette paper presence/absence sensor [2].

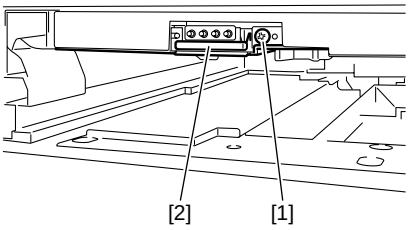


F-7-24

7.5.4 Cassette Size Sensor

7.5.4.1 Removing the Paper Size Detection Switches

1) Remove the screw [1], and then remove the paper size switches [2].

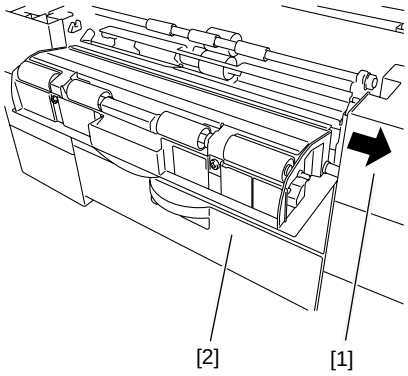


F-7-25

7.5.5 Cassette Retry Paper Sensor

7.5.5.1 Removing the Lower-left Cover

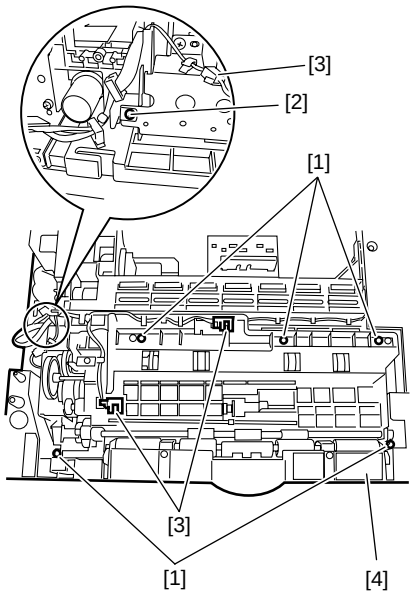
1) Detach the lower-left cover [2] by opening the rear support [1] with a slightly strong force applied in the direction of the arrow.



F-7-26

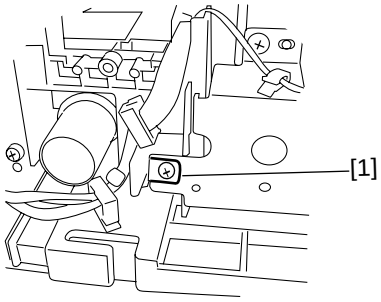
7.5.5.2 Removing the Cassette Pickup Assembly

1) Detach the cassette rear cover. (2 screws)
2) Remove the five screws [1] and one screw with toothed washer [2].
3) Disconnect the three connectors [3], and then remove the cassette pickup assembly [4].



F-7-27

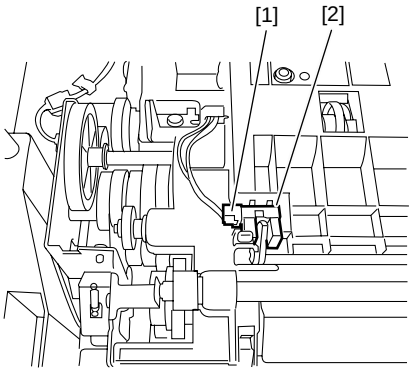
Install the cassette pickup assembly with the ground plate [1] outside the side plate.



F-7-28

7.5.5.3 Removing the Retry Sensor

1) Disconnect the connector [1], and then remove the retry sensor [2].

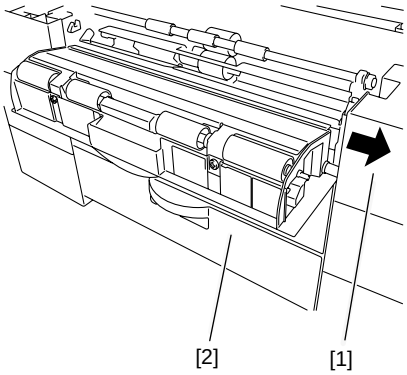


F-7-29

7.5.6 Cassette Pickup Solenoid

7.5.6.1 Removing the Lower-left Cover

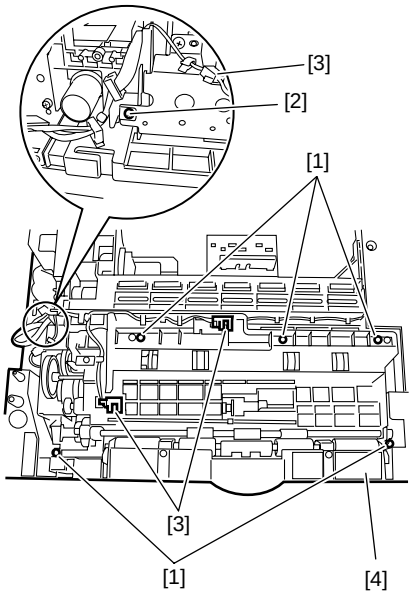
1) Detach the lower-left cover [2] by opening the rear support [1] with a slightly strong force applied in the direction of the arrow.



F-7-30

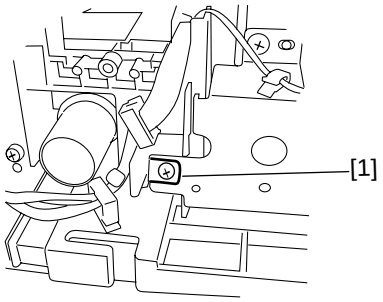
7.5.6.2 Removing the Cassette Pickup Assembly

1) Detach the cassette rear cover. (2 screws)
2) Remove the five screws [1] and one screw with toothed washer [2].
3) Disconnect the three connectors [3], and then remove the cassette pickup assembly [4].



F-7-31

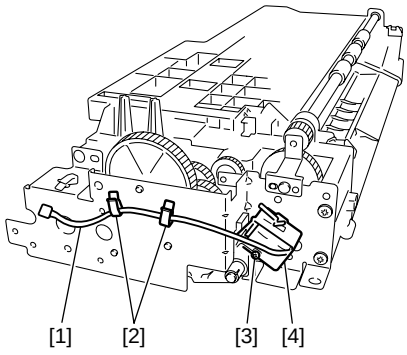
Install the cassette pickup assembly with the ground plate [1] outside the side plate.



F-7-32

7.5.6.3 Removing the Cassette Pickup Solenoid

1) Remove the harness [1] from the two wire saddles [2].
2) Remove the screw [3], and then remove the cassette pickup solenoid [4].

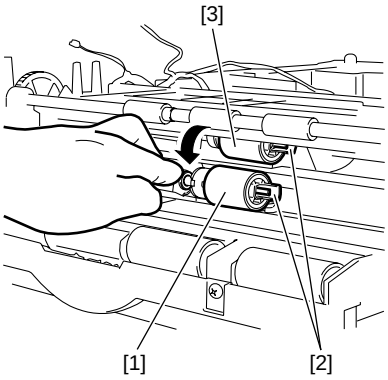


F-7-33

7.5.7 Separation Roller

7.5.7.1 Removing the Feed and Separation Rollers

1) Remove the cassette.
2) Open the lower-left cover.
3) Lower the separation roller [1] as shown below, and then remove the separation roller [1] and feed roller [3] by holding the claws [2] of the roller collars.



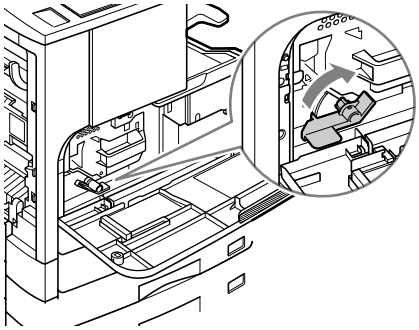
F-7-34

7.5.8 Manual Pickup Roller

7.5.8.1 Removing the Toner Cartridge

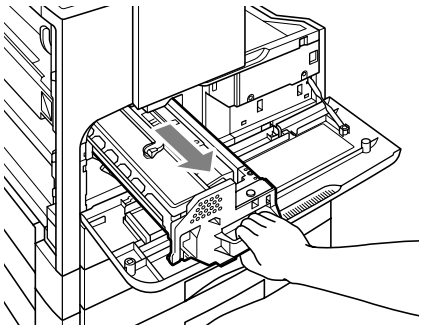
1)Open the front cover.
2)Raise the lock lever, and open the left door.

⚠Open the left door fully to prevent the damage to the drum.



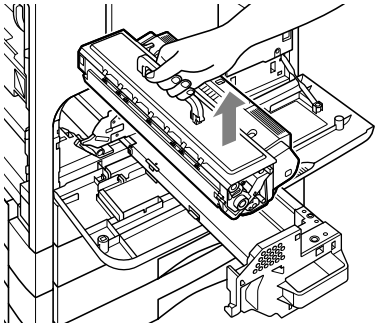
F-7-35

3)While grasping the handle of the cartridge holder, pull the cartridge holder out of the machine.



F-7-36

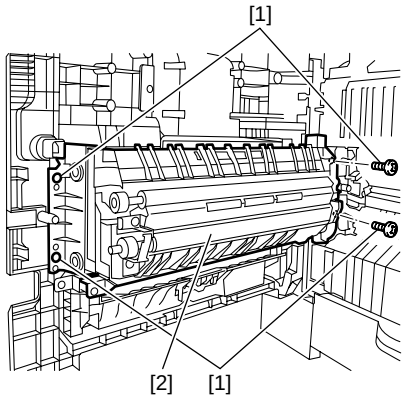
4)While grasping the handle of the cartridge, remove the cartridge from the cartridge holder.



F-7-37

7.5.8.2 Removing the Transfer Registration Unit

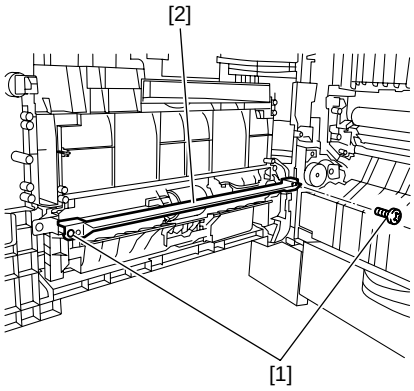
1) Remove the four screws [1], and then remove the transfer registration unit [2].



F-7-38

7.5.8.3 Removing the Feed Guide

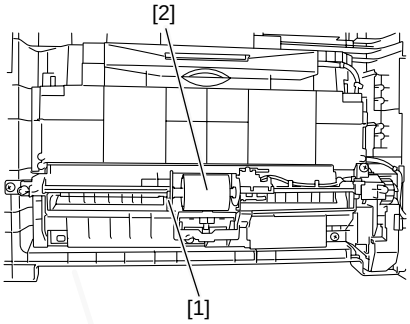
1) Remove the two screws [1], and then remove the feed guide [2].



F-7-39

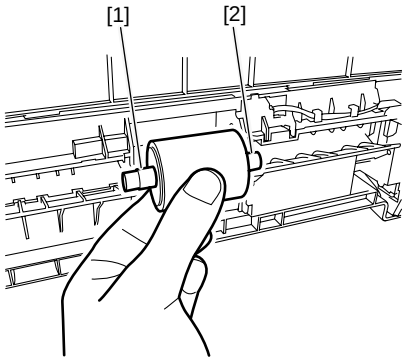
7.5.8.4 Removing the Multifeeder Pickup Roller

1) Remove the bearing [1], and then remove the multi-paper roller [2].



F-7-40

⚠When installing the multifeeder pickup roller, pay attention to the orientation.
Left-side axis: [1] Long Right-side axis: Short [2]



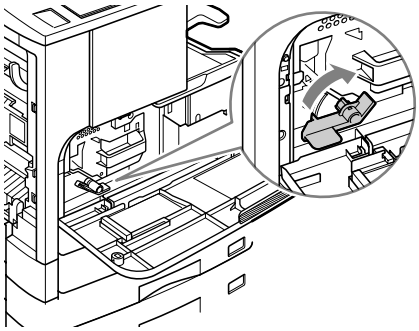
F-7-41

7.5.9 Manual Feed Tray Paper Sensor

7.5.9.1 Removing the Toner Cartridge

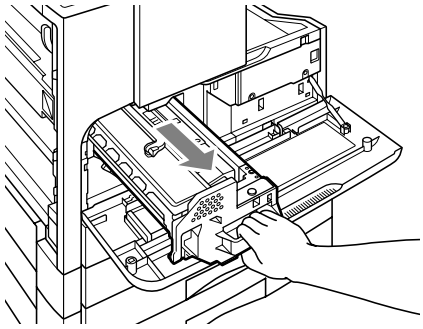
1)Open the front cover.
2)Raise the lock lever, and open the left door.

⚠Open the left door fully to prevent the damage to the drum.



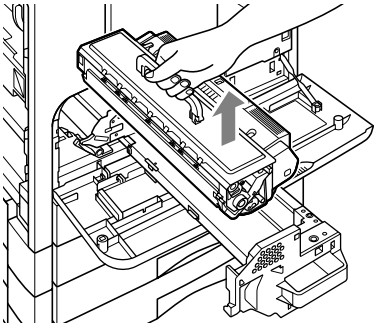
F-7-42

3)While grasping the handle of the cartridge holder, pull the cartridge holder out of the machine.



F-7-43

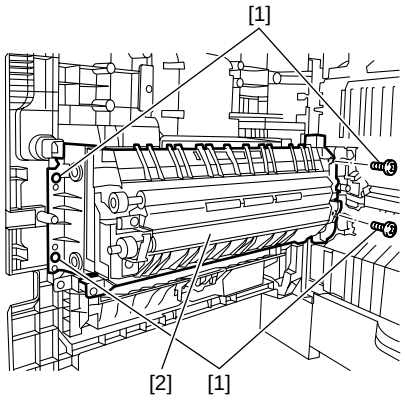
4)While grasping the handle of the cartridge, remove the cartridge from the cartridge holder.



F-7-44

7.5.9.2 Removing the Transfer Registration Unit

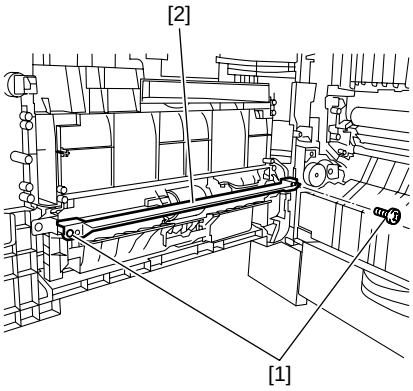
1) Remove the four screws [1], and then remove the transfer registration unit [2].



F-7-45

7.5.9.3 Removing the Feed Guide

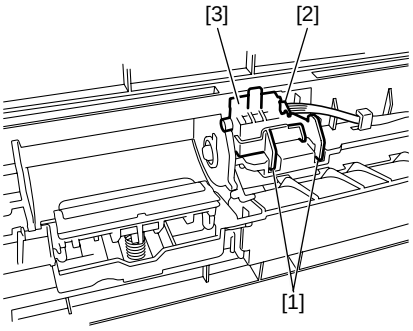
1) Remove the two screws [1], and then remove the feed guide [2].



F-7-46

7.5.9.4 Removing the Multifeeder Paper Presence/ Absence Sensor

1) Remove the two claws [1]. Remove the connector [2], and then remove the multifeeder paper presence/absence sensor [3].



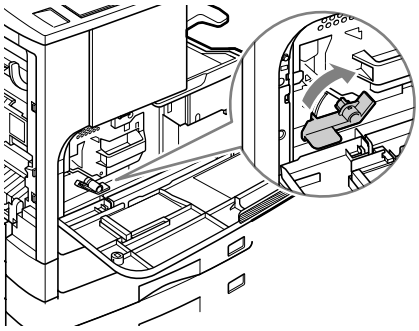
F-7-47

7.5.10 Manual Pickup Solenoid

7.5.10.1 Removing the Toner Cartridge

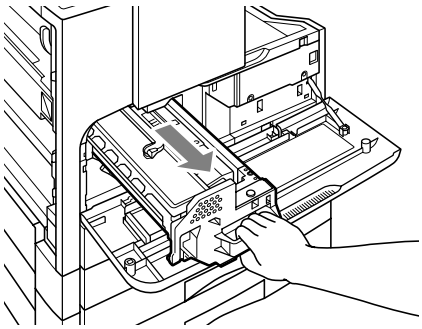
1)Open the front cover.
2)Raise the lock lever, and open the left door.

⚠Open the left door fully to prevent the damage to the drum.



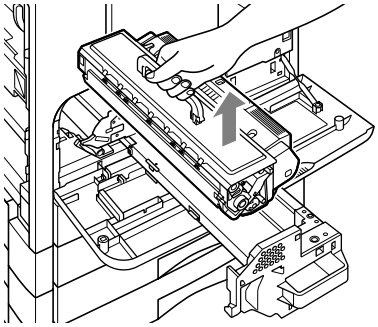
F-7-48

3)While grasping the handle of the cartridge holder, pull the cartridge holder out of the machine.



F-7-49

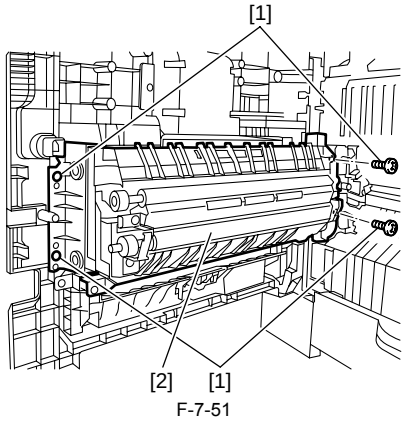
4)While grasping the handle of the cartridge, remove the cartridge from the cartridge holder.



F-7-50

7.5.10.2 Removing the Transfer Registration Unit

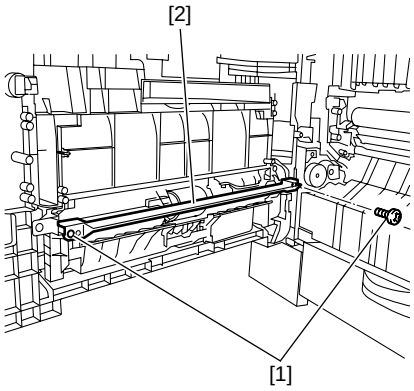
1) Remove the four screws [1], and then remove the transfer registration unit [2].



F-7-51

7.5.10.3 Removing the Feed Guide

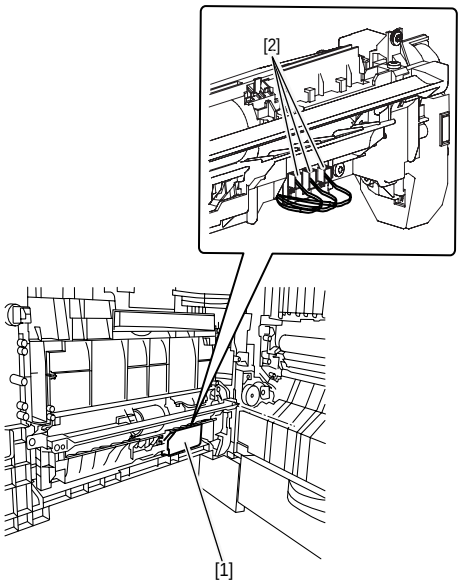
1) Remove the two screws [1], and then remove the feed guide [2].



F-7-52

7.5.10.4 Removing the Multifeeder Connector Cover

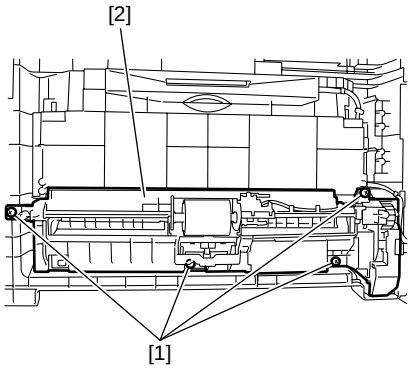
1) Detach the multifeeder connector cover [1], and then disconnect the three connectors [2].



F-7-53

7.5.10.5 Removing the Multifeeder Unit

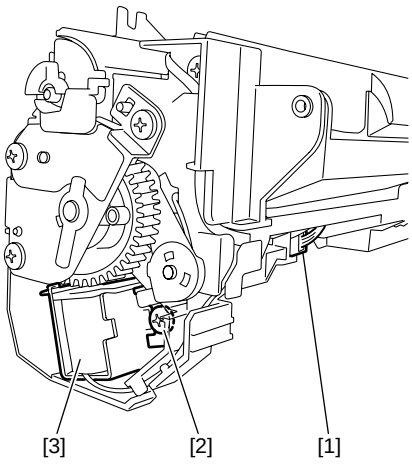
1) Remove the four screws [1], and then remove the multifeeder unit [2].



F-7-54

7.5.10.6 Removing the Multifeeder Pickup Solenoid

1) Disconnect the connector [1], and then remove the harness from the guide.
2) Remove the screw [2], and then remove the multifeeder pickup solenoid [3].



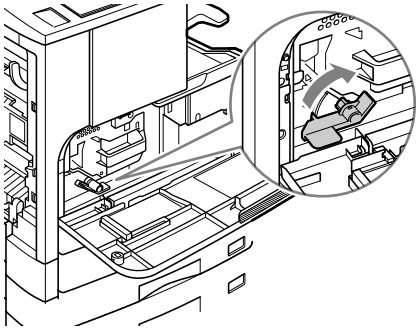
F-7-55

7.5.11 Registration Roller

7.5.11.1 Removing the Toner Cartridge

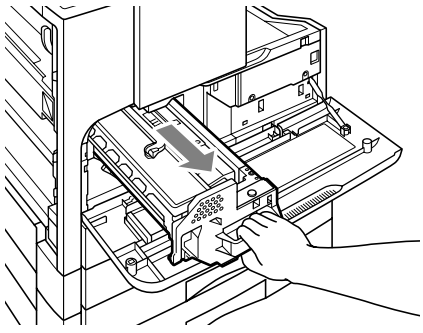
1)Open the front cover.
2)Raise the lock lever, and open the left door.

⚠Open the left door fully to prevent the damage to the drum.



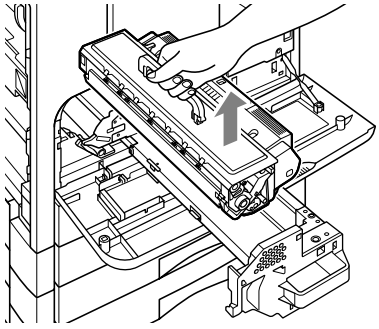
F-7-56

3)While grasping the handle of the cartridge holder, pull the cartridge holder out of the machine.



F-7-57

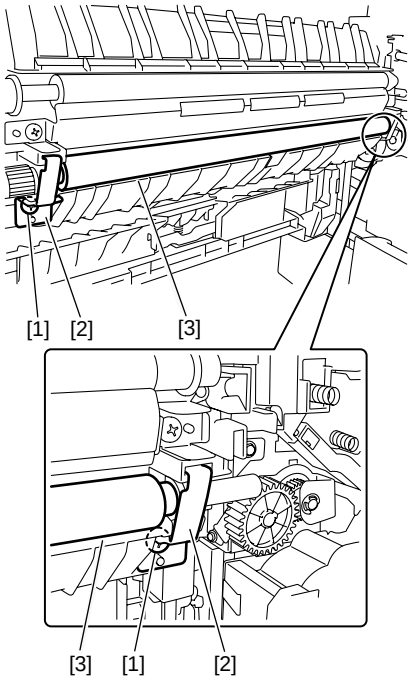
4)While grasping the handle of the cartridge, remove the cartridge from the cartridge holder.



F-7-58

7.5.11.2 Removing the Registration Roller

1) Remove the two screws [1], remove the two metal plates [2], and remove the registration roller [3].

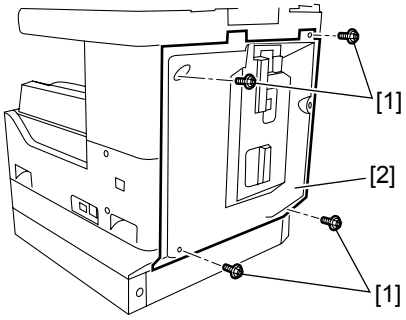


F-7-59

7.5.12 Registration Clutch

7.5.12.1 Removing the Rear Cover

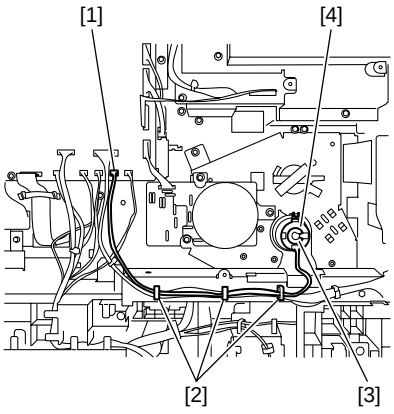
1) Remove the four screws [1], and then detach the rear cover [2].



F-7-60

7.5.12.2 Removing the Registration Clutch

1) Disconnect the connector [1], and then remove the harness from the three wire saddles [2].
2) Remove the resin ring [3], and then remove the registration clutch [4].



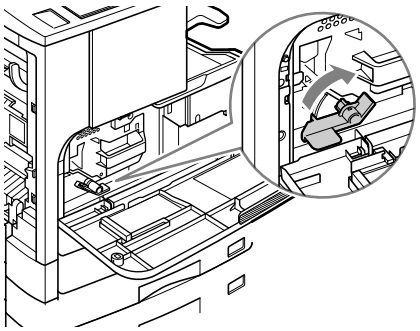
F-7-61

7.5.13 Separation Pad

7.5.13.1 Removing the Toner Cartridge

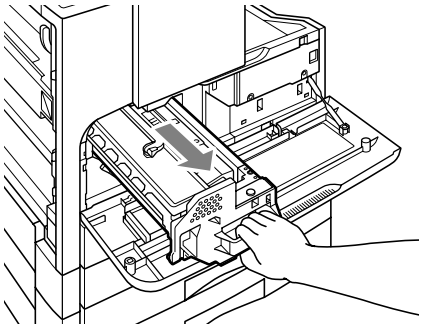
1)Open the front cover.
2)Raise the lock lever, and open the left door.

⚠Open the left door fully to prevent the damage to the drum.



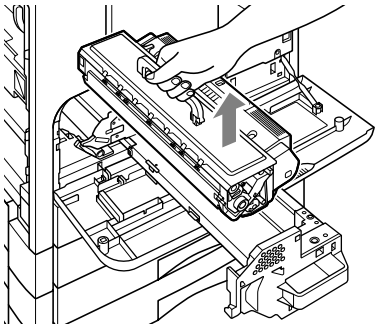
F-7-62

3)While grasping the handle of the cartridge holder, pull the cartridge holder out of the machine.



F-7-63

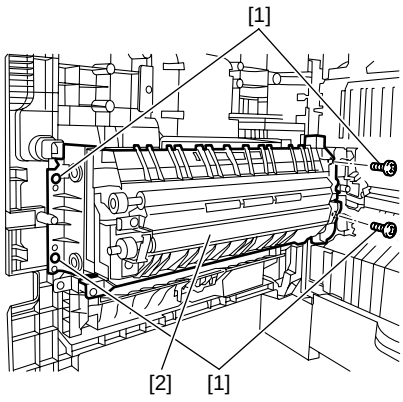
4)While grasping the handle of the cartridge, remove the cartridge from the cartridge holder.



F-7-64

7.5.13.2 Removing the Transfer Registration Unit

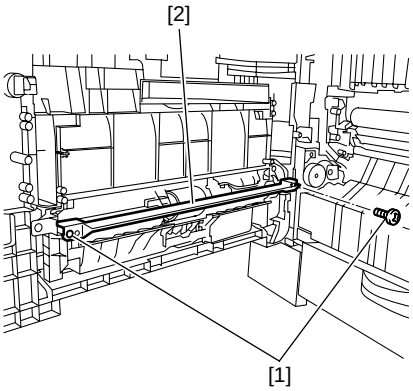
1) Remove the four screws [1], and then remove the transfer registration unit [2].



F-7-65

7.5.13.3 Removing the Feed Guide

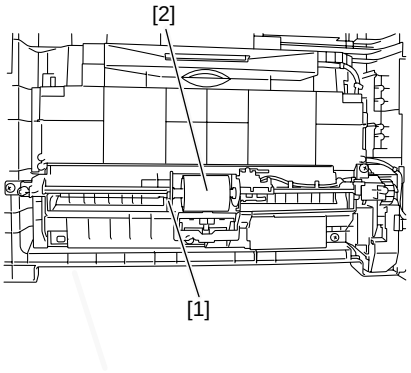
1) Remove the two screws [1], and then remove the feed guide [2].



F-7-66

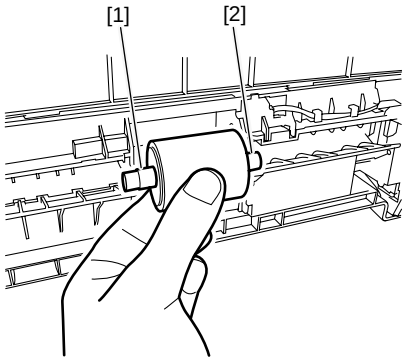
7.5.13.4 Removing the Multifeeder Pickup Roller

1) Remove the bearing [1], and then remove the multi-paper roller [2].



F-7-67

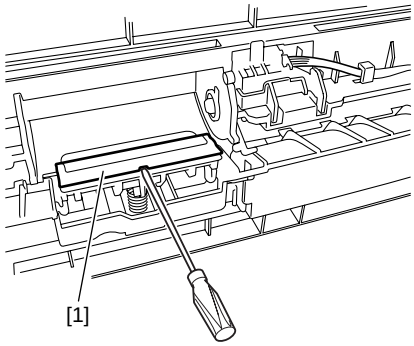
⚠When installing the multifeeder pickup roller, pay attention to the orientation.
Left-side axis: [1] Long Right-side axis: Short [2]



F-7-68

7.5.13.5 Removing the Separation Pad

1) I use a minus screwdriver and remove separation pad [1].



F-7-69

Chapter 8 Fixing System

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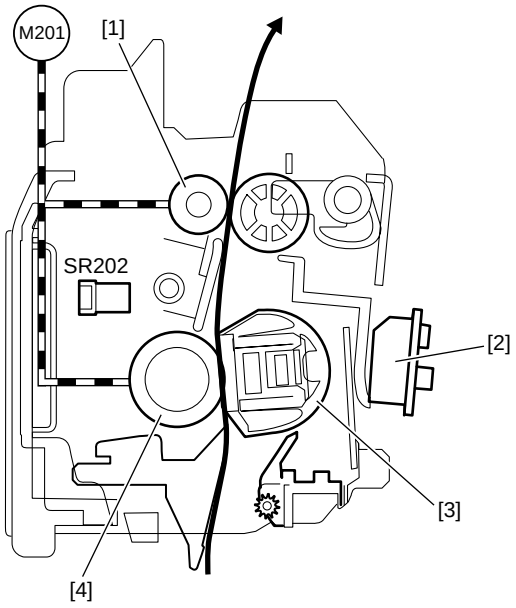
8.1 Overview/Configuration

8.1.1 Specifications, Control Mechanisms, and Functions

T-8-1

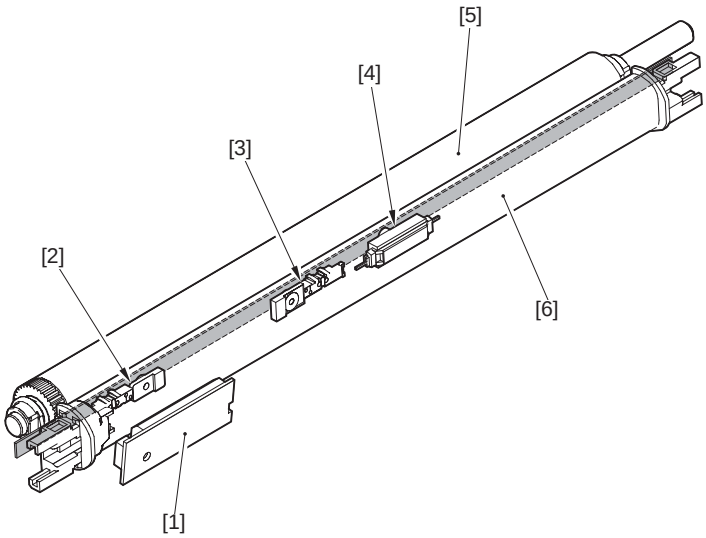
Item	Function/Method
Fixing method	by fixing film + pressure roller
Fixing heater	Unitary flat heater incorporating both main heater and sub heater
Fixing temperature detection	[1] Main thermistor (TH1): Temperature control and fault detection
	[2] Sub thermistor (TH2): Fault detection
	[3] Thermo-switch (TP1): Fault detection
Fixing temperature control	[1] Warm-up temperature control
	[2] Normal temperature control
	[3] Sheet-to-sheet temperature control
Protection functions	[1] Detection of error in temperature control by thermistor
	[2] Detection of temperature rise by thermo-switch
Fixing drive control	Speed control by detecting fixing film rotation

8.1.2 Major Components



F-8-1

[1]	Inner delivery roller	[4]	Pressure roller
[2]	Fixing film speed sensor	SR202	Fixing delivery sensor
[3]	Fixing film unit	M201	Fixing drive motor



F-8-2

[1]	Fixing film speed sensor	[4]	Thermo-switch (TP1)

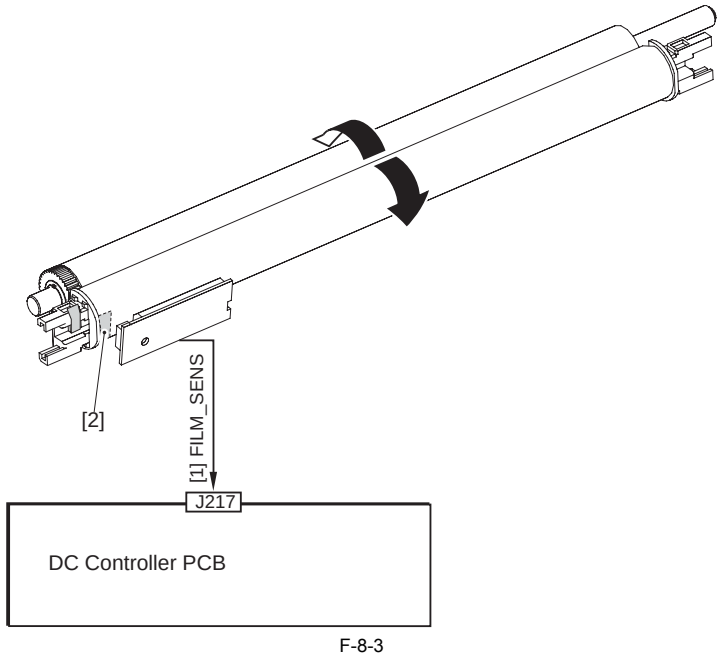
[2]	Sub thermistor (TH2)	[5]	Pressure roller
[3]	Main thermistor (TH1)	[6]	Fixing film unit

8.2 Various Control Mechanisms

8.2.1 Controlling the Speed of the Fixing Film

8.2.1.1 Controlling the Fixing Film Speed

The rotation cycle is measured with reference to the mark provided at the end of the fixing film to rotate the fixing drive motor at the optimum speed, thus keeping the paper feed speed constant. Measurement of the cycle of each rotation (excluding the initial rotation and post-rotation) of the fixing drive motor starts when 1 second lapses after the motor starts rotating and ends when the trailing edge of the last sheet has passed through the fixing nipper.



F-8-3

[1] Film rotation detection signal (FILM_SENS): Set to 1 and 0 alternately when the fixing film is rotating.
[2] Rotation cycle measurement mark

8.2.2 Controlling the Fixing Film Temperature

8.2.2.1 Outline

The surface temperature of the fixing heater is detected to control the fixing heater drive signal so that the fixing heater temperature becomes the target temperature. The temperature of the fixing heater is detected by the thermistor (TH1/TH2) provided on the fixing heater. If the surface temperature rises, the resistance of the thermistor lowers and the voltage of the fixing heater temperature detection signal (M_TH/S_TH) also lowers.
The CPU on the DC controller monitors the voltage of the M_TH/S_TH signal to control the fixing heater 1 drive signal (H1DRV) and fixing heater 2 drive signal (H2DRV). These two voltages are generated based on the zero crossing detection signal which is output from the heater control circuit. The CPU controls these two signals to adjust the fixing heater temperature to the prescribed value.

8.2.2.2 Controlling the Fixing Film Temperature

This machine performs fixing temperature control according to the fixing heater temperature as mentioned below.
1) Warm-up temperature control
   Upon receipt of a print command from the DC controller, the fixing heater heats to the temperature below the target paper-present section temperature.
2) Paper-present section temperature control
   The fixing heater temperature is adjusted to the target paper-present section temperature according to the combination of the paper size, number of sheets fed, fixing mode, and temperature detected by the fixing main thermistor.
3) Sheet-to-sheet temperature control
   The fixing heater temperature is held relatively below the target paper-present section temperature to prevent the paper-absent section temperature from rising between sheets.
4) Down sequence
   The temperature may detect an abnormally high temperature during continuous printing. If the sub-thermistor detects a temperature equal to or higher than 275 deg C, the sheet-to-sheet distance is increased to prevent the paper-absent section temperature from rising. If the sub-thermistor detects a temperature equal to or lower than 220 deg C in the down sequence, normal control resumes.
5) Cooling mode
   If printing is performed using wider sheets (*1) after printing is performed using narrower sheets in the continuous print mode, fixing offset may occur due to the difference in temperature between the edge and center. If the sub-thermistor detects a temperature equal to or higher than 130 deg C, paper feed and printing stop to prevent the temperature from rising at the edge. If the sub-thermistor detects a temperature equal to or lower than 130 deg C or two or more minutes lapse, normal control resumes.

*1: The large size is a paper of which the width is 10 mm larger than the previous job.

8.2.2.3 Target Temperatures by Mode

This machine controls the fixing temperature according to the "media type" selected in the user mode and the "target temperature" set in the "special mode."
The correspondence between each mode and target temperature is as follows:

T-8-2

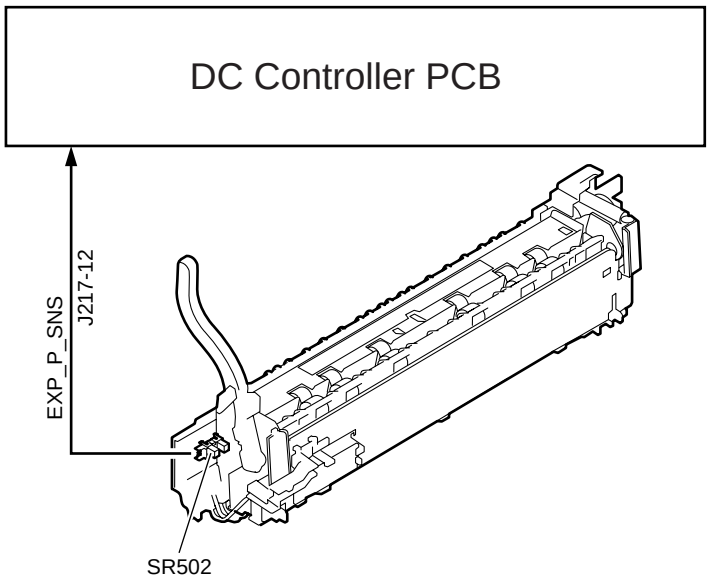
Fixing mode	Paper type	Target initial fixing temperature (*1)	Initial number of sheets (*2)	Condition
Normal	Plain paper (colored paper/recycled paper/ label sheet (64-80 g/m2)	190 deg C	1-9 (A4/LTR)	Special Mode P: OFF
		185 deg C	1-9 (A4/LTR)	Special Mode P: ON
Rough Paper Lo	Heavy paper 1 (81-90 g/m2)	195 deg C	1-9 (A4/LTR)	
	Heavy paper 2 (91-105g/m2)			
Rough Paper	Heavy paper 3 (106-128g/m2)	220 deg C	1-9 (A4/LTR)	
Super rough paper	Bond paper	220 deg C	1-100 (A4/LTR)	Bond SP. FIX. Mode: OFF
Super rough paper Hi	Bond paper	220 deg C	1-100 (A4/LTR)	Bond SP. FIX. Mode: ON
Postcard	Postcard	220 deg C	1-2	Special Mode S: OFF
Postcard H	Postcard	220 deg C	1	Special Mode S: Speed Priority 1 or Speed Priority 2
Envelope	Envelope	220 deg C	1-2	
OHP	OHP	190 deg C	1-9 (A4/LTR)	

*1: Target fixing temperature at startup. When the initial temperature of the fixing unit is high, the target temperature is lowered. In the continuous copy mode, the target temperature is lowered in 5 deg C steps.
*2: Number of sheets controlled at the initial target temperature. If it is exceeded, the target temperature is lowered. The prescribed number of sheets varies with the paper size.

8.2.3 Detecting the Passage Paper

8.2.3.1 Detecting the Passage of Paper

The paper passage detection mechanism of the fixing unit is shown below.

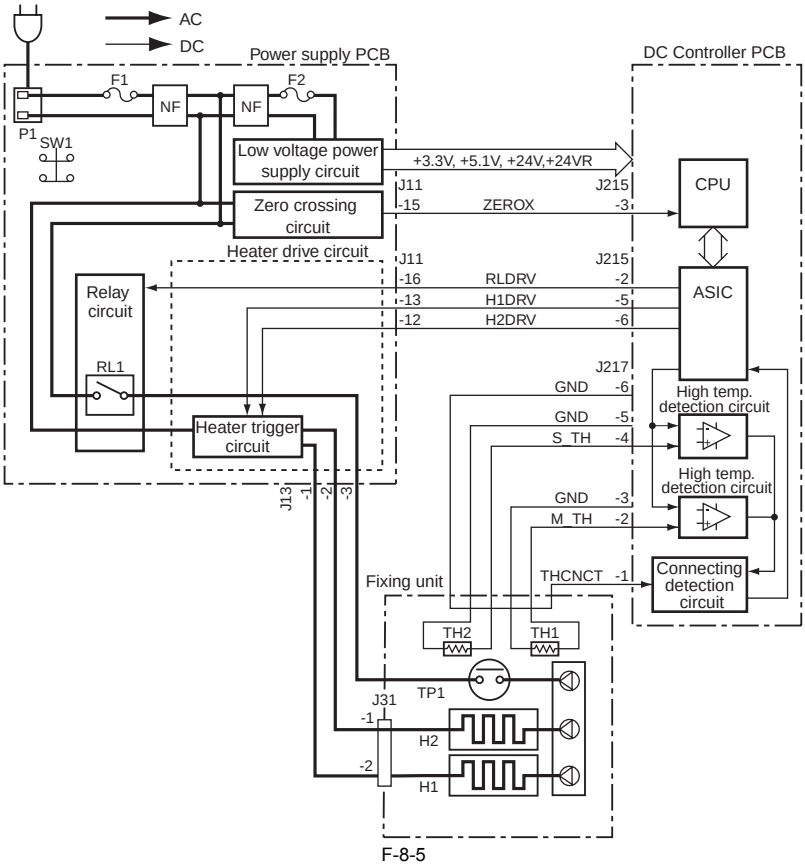


F-8-4

If a delay jam is detected by the fixing delivery sensor (SR202), the fixing motor is stopped immediately to prevent paper from winding around the fixing roller.

8.3 Protection Function

8.3.1 Protective Functions



F-8-5

Protection Functions
This machine is provided with the following four protection functions to prevent the fixing heater from overheating:
1) The CPU monitors the thermistor (TH1) voltage. If the thermistor (TH1) voltage is abnormal, the CPU judges that the fixing heater is faulty and turns off the relay (RL1). At the same time, the CPU notifies the DC controller of occurrence of the fixing heater failure.
2) If the temperature of the fixing heater rises abnormally and the thermistor (TH1) detects a voltage lower than about 0.7 V (equivalent of 240 deg C), the fixing heater high temperature detection circuit cuts off the power supplied to the fixing heater.
3) If the temperature of the fixing heater rises abnormally and the thermo switch (TP1) detects a temperature higher than 244 deg C, the thermo switch turns off to cuts off the power supplied to the fixing heater.

Failure Detection
The CPU performs error detection at intervals of 40 msec. If any one of the cases a to d occurs, the CPU stops the machine completely. To restart the machine, remove the cause of the failure and carry out initial rotation. If a failure is detected, an error code "EXXX" is displayed on the operation panel.

MEMO:
The detail code of the error code of this machine can be confirmed in the following service mode.
Service mode>ERROR DISPLAY

---

a. Failure at startup
1) The main thermistor has detected temperatures lower than 30 deg C continuously for 400 or more msec since 1 second lapsed after energization of the fixing heater.
2) The main thermistor has detected temperatures lower than 70 deg C continuously for 400 or more msec since 2 seconds lapsed after energization of the fixing heater.
3) The sub-thermistor has detected temperatures lower than 75 deg C continuously for 400 or more msec since 5 seconds lapsed after energization of the fixing heater.
4) The temperature rise detected by the main thermistor is less than 5 deg C when energization of the fixing heater starts, when the temperature detected by the main thermistor is less than 100 deg C, or when 1 sec has lapsed since start of energization.
5) The main thermistor has detected temperatures less than 115 deg C continuously for 400 or more msec since 1 second has lapsed after detection of 100 deg C.
6) The main thermistor has detected temperatures less than 150 deg C continuously for 400 or more msec since 1 second has lapsed after detection of 140 deg C.
7) The main thermistor has detected temperatures less than 165 deg C continuously for 400 or more msec since 1 second has lapsed after detection of 160 deg C.
8) The target printing temperature is not reached when 30 seconds have lapsed since start of the initial rotation.

b. Low temperature detection during temperature control
During temperature control, the main or sub thermistor has detected low temperatures continuously for 400 or more msec after the target temperature was reached.

c. Abnormally high temperature detection
1) The main thermistor has detected 240 C deg irrespective of whether the fixing heater is of or off.
2) The sub thermistor has detected 295 deg C irrespective of whether the fixing heater is of or off.
3) An abnormally high temperature has been detected in the ASIC irrespective of whether the fixing heater is of or off.

d. Drive circuit failure
1) The zero crossing signal frequency of the power supply has not been detected during initial rotation.
2) During temperature control, no zero crossing signal has been input for 3 seconds.
3) A triac short circuit has been detected in the ASIC.

Fixing System Error Codes
E000-0000 STARTUP ERROR
The temperature detected by the main and sub thermistors did not reach the prescribed temperature during startup control.
E001-0000 ABNORMALLY HIGH TEMPERATURE (detected by main thermistor)
The main thermistor detected an abnormally high temperature (250 deg C) during temperature control.

E001-0001 ABNORMALLY HIGH TEMPERATURE (detected by sub thermistor)
The sub thermistor detected an abnormally high temperature (295 deg C) during temperature control.
E002-0000 LOW TEMPERATURE DETECTED DURING TEMPERATURE CONTROL
The main and sub thermistors detected an abnormally low temperature (140 deg C) during temperature control.
E003-0000 ABNORMALLY LOW TEMPERATURE (detected by main thermistor)
The temperature detected by the main thermistor does not reach the target temperature during initial rotation after it has reached the target temperature.
E003-0001 ABNORMALLY LOW TEMPERATURE (detected by sub thermistor)
The temperature detected by the sub thermistor does not reach the target temperature during initial rotation after it has reached the target temperature.
E007-0000 ABNORMALLY LOW TEMPERATURE (detected by sub thermistor)
A fixing film sensor failure has been detected.
E808-0000 DRIVE CIRCUIT FAILURE
A zero crossing signal cannot be detected.
A fixing drive motor failure has been detected.

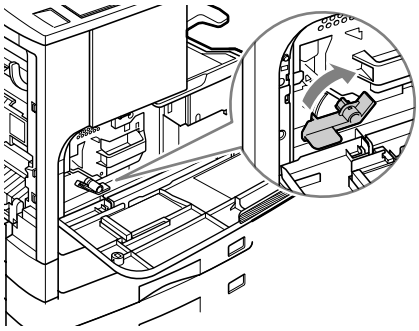
8.4 Parts Replacement Procedure

8.4.1 Fixing Unit

8.4.1.1 Removing the Toner Cartridge

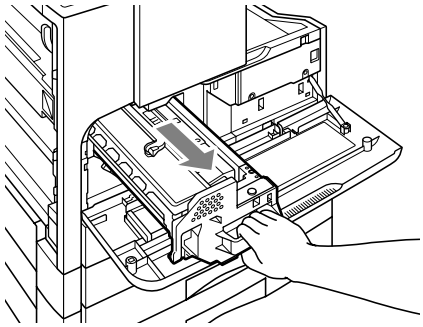
1)Open the front cover.
2)Raise the lock lever, and open the left door.

⚠Open the left door fully to prevent the damage to the drum.



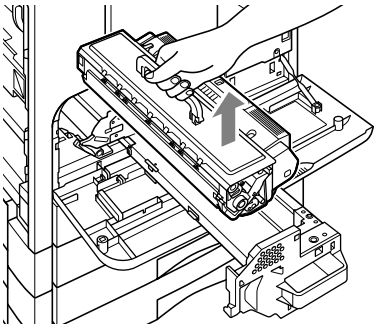
F-8-6

3)While grasping the handle of the cartridge holder, pull the cartridge holder out of the machine.



F-8-7

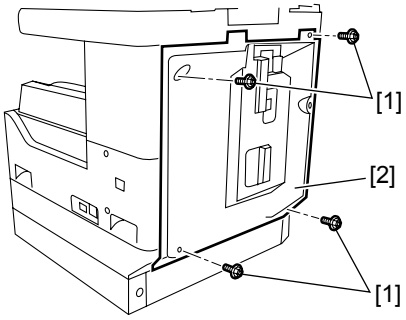
4)While grasping the handle of the cartridge, remove the cartridge from the cartridge holder.



F-8-8

8.4.1.2 Removing the Rear Cover

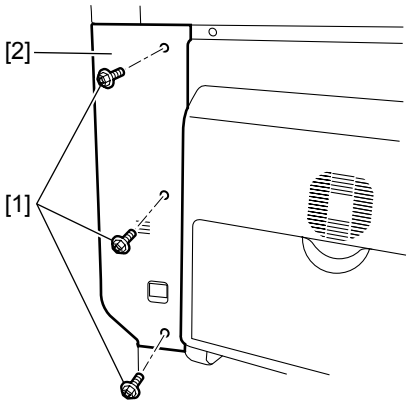
1) Remove the four screws [1], and then detach the rear cover [2].



F-8-9

8.4.1.3 Removing the Left Cover (Rear)

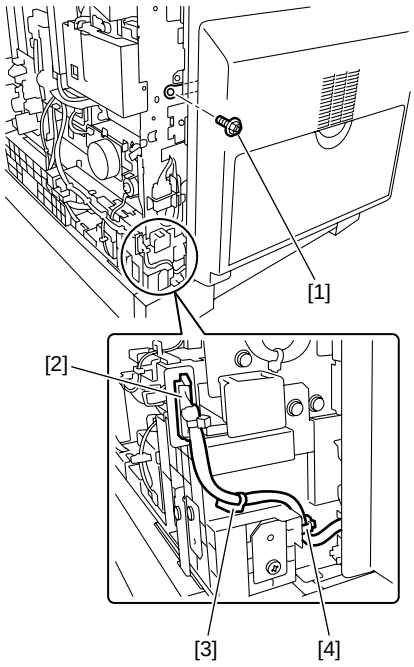
1) Remove the three screws [1], and then detach the left cover (rear)[2].



F-8-10

8.4.1.4 Removing the Left Door

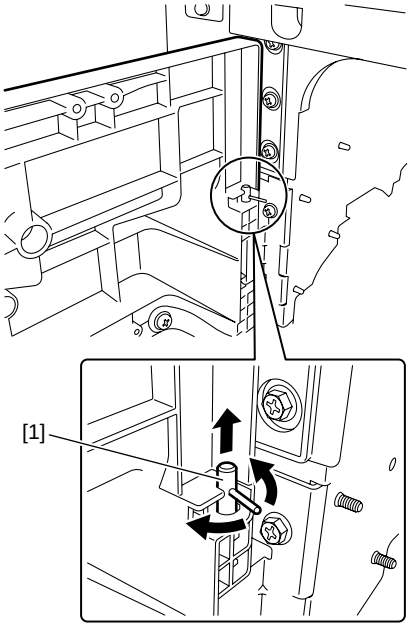
1) Remove the screw [1] securing the door support band. Remove the connector [2] and reusable band [3], and release the manual feed harness from the wire saddle [4].



F-8-11

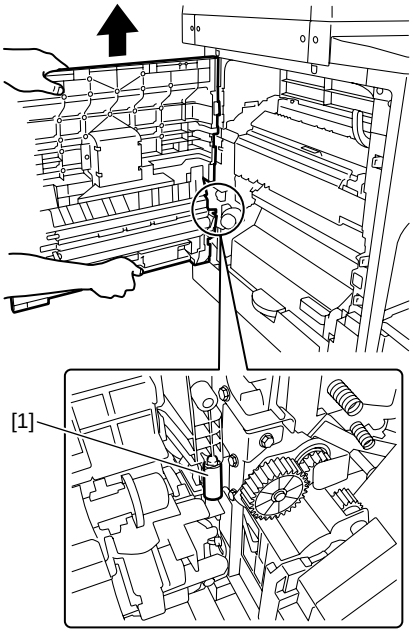
2) Open the left door until it sops and pull out the hinge shaft [1].

MEMO:
When a duplex unit (option) is installed, remove it before pulling out the hinge shaft for each access.



F-8-12

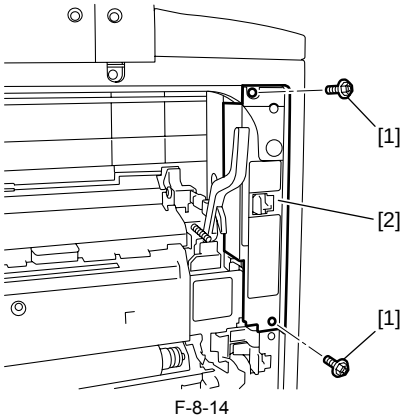
3) Lift the left door with both hands to release it from the door rotation shaft [1], and then remove the left door.



F-8-13

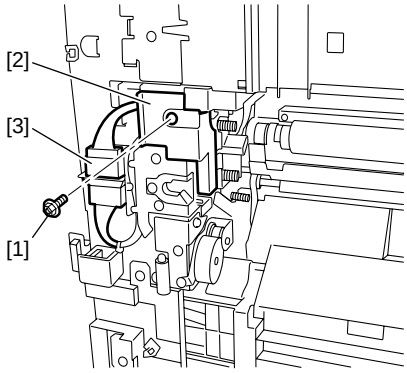
8.4.1.5 Removing the Fixing Unit

1) Remove the two screws [1], and then detach the inner cover [2] at the upper front.



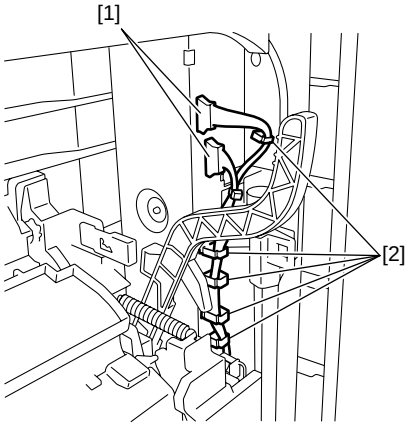
F-8-14

2) Remove the screw [1], and then detach the heater harness cover [2]. Disconnect the connector [3].



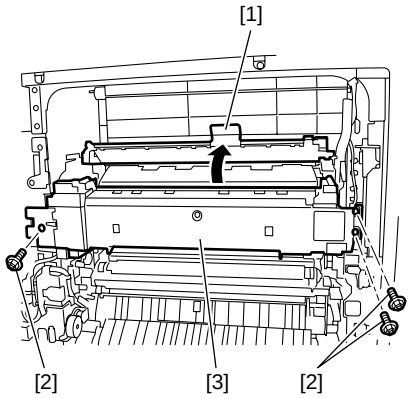
F-8-15

3) Disconnect the two connectors [1], and then release the fixing unit harness from the wire saddle [2].



F-8-16

4) Raise the delivery upper guide [1]. Remove the three screws [2], and then remove the fixing unit [3].



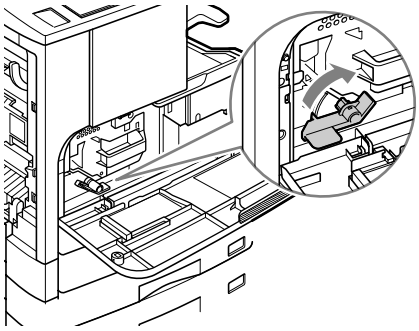
F-8-17

8.4.2 Fixing Film Unit

8.4.2.1 Removing the Toner Cartridge

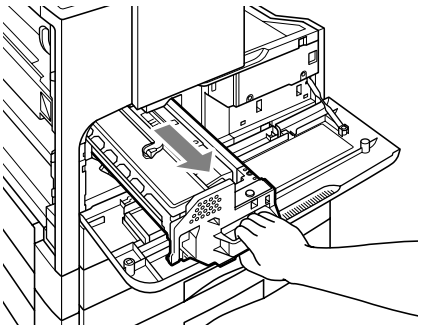
1)Open the front cover.
2)Raise the lock lever, and open the left door.

⚠Open the left door fully to prevent the damage to the drum.



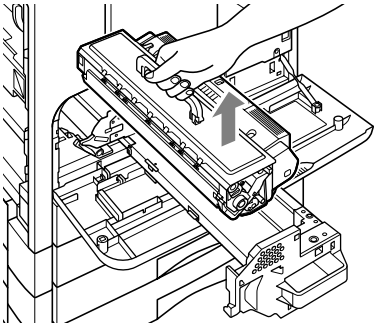
F-8-18

3)While grasping the handle of the cartridge holder, pull the cartridge holder out of the machine.



F-8-19

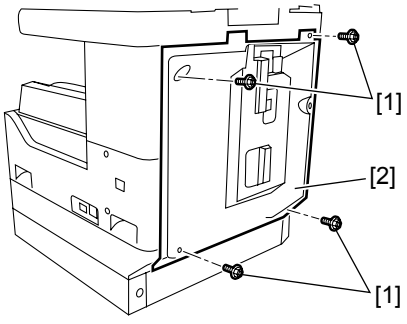
4)While grasping the handle of the cartridge, remove the cartridge from the cartridge holder.



F-8-20

8.4.2.2 Removing the Rear Cover

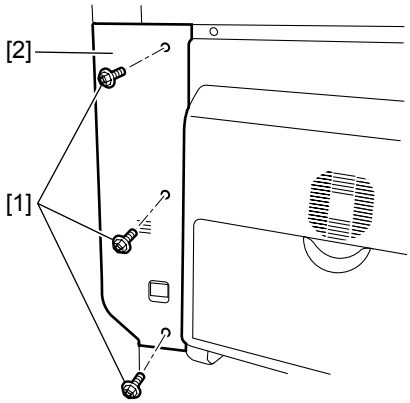
1) Remove the four screws [1], and then detach the rear cover [2].



F-8-21

8.4.2.3 Removing the Left Cover (Rear)

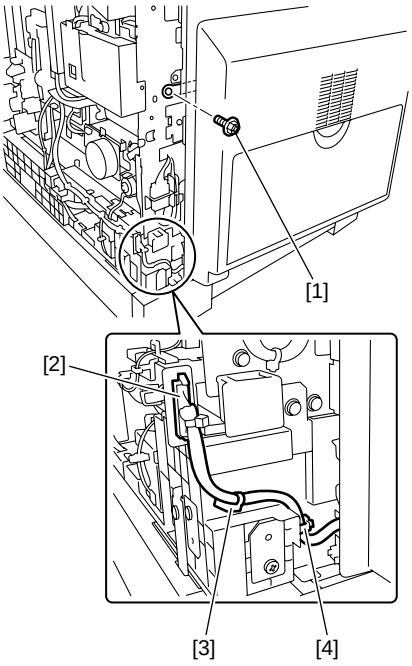
1) Remove the three screws [1], and then detach the left cover (rear)[2].



F-8-22

8.4.2.4 Removing the Left Door

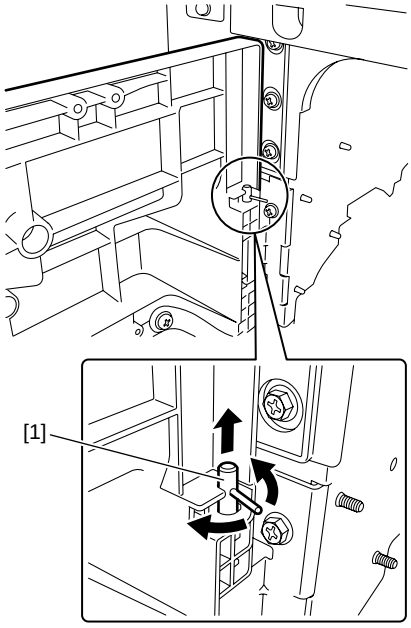
1) Remove the screw [1] securing the door support band. Remove the connector [2] and reusable band [3], and release the manual feed harness from the wire saddle [4].



F-8-23

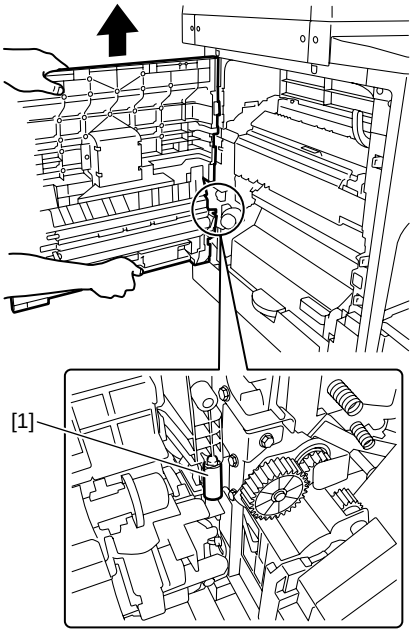
2) Open the left door until it sops and pull out the hinge shaft [1].

MEMO:
When a duplex unit (option) is installed, remove it before pulling out the hinge shaft for each access.



F-8-24

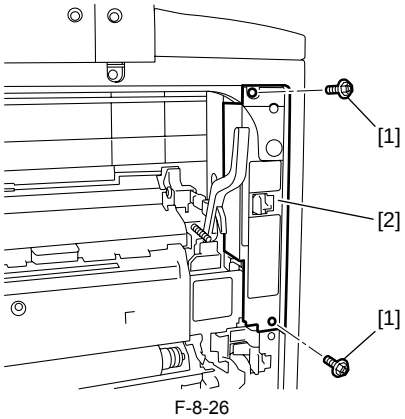
3) Lift the left door with both hands to release it from the door rotation shaft [1], and then remove the left door.



F-8-25

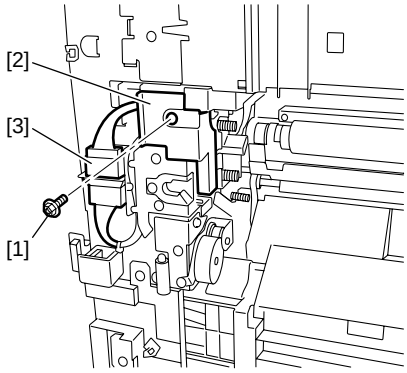
8.4.2.5 Removing the Fixing Unit

1) Remove the two screws [1], and then detach the inner cover [2] at the upper front.



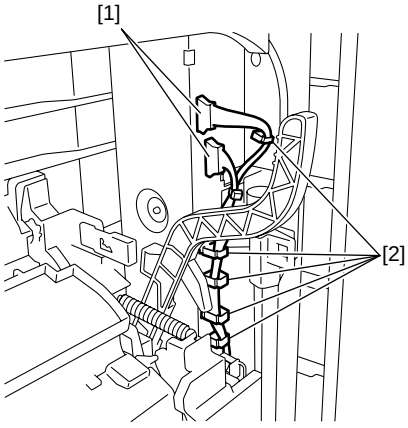
F-8-26

2) Remove the screw [1], and then detach the heater harness cover [2]. Disconnect the connector [3].



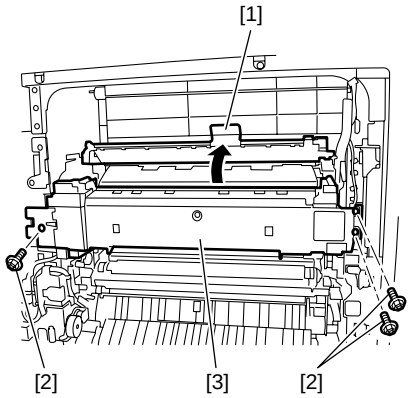
F-8-27

3) Disconnect the two connectors [1], and then release the fixing unit harness from the wire saddle [2].



F-8-28

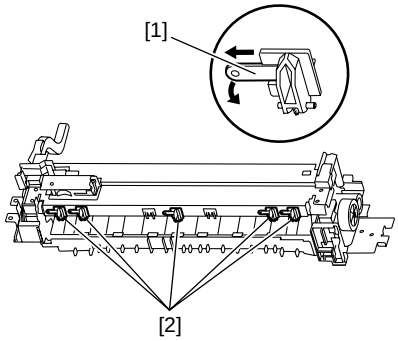
4) Raise the delivery upper guide [1]. Remove the three screws [2], and then remove the fixing unit [3].



F-8-29

8.4.2.6 Removing the Fixing Film Unit

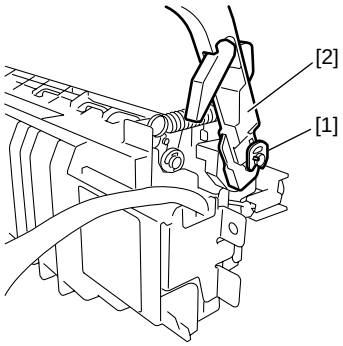
1) Release the hooks [1], and then remove the spur unit [2] by sliding it.



F-8-30

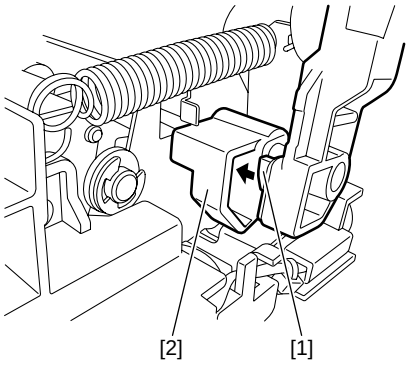
2) Remove the resin ring [1], and then remove the fixing pressure release

lever [2].



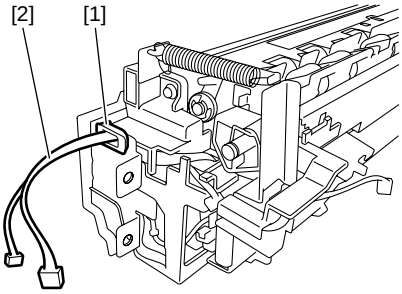
F-8-31

When installing the fixing pressure release lever, check that the rib [1] of the lever is inside the pressure block [2].



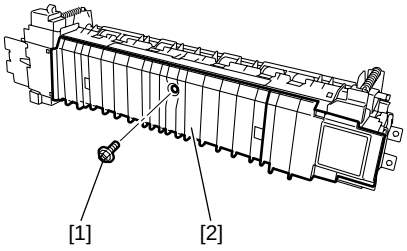
F-8-32

3) Release the fixing unit harness [2] from the wire saddle [1].



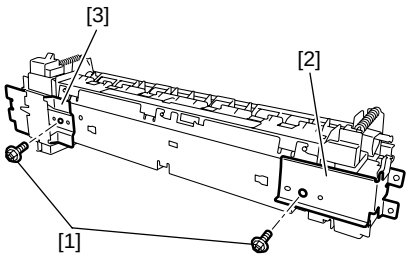
F-8-33

4) Remove the screw [1], and then remove the fixing paper guide [2].



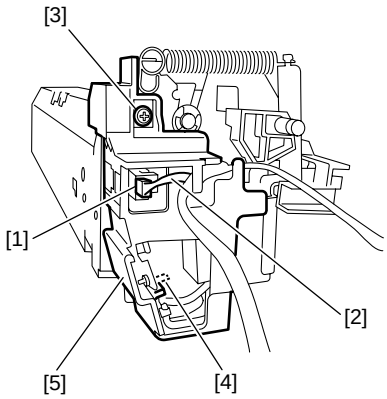
F-8-34

5) Remove the two screws [1], and then remove the right side stay [1] and left side stay [2].



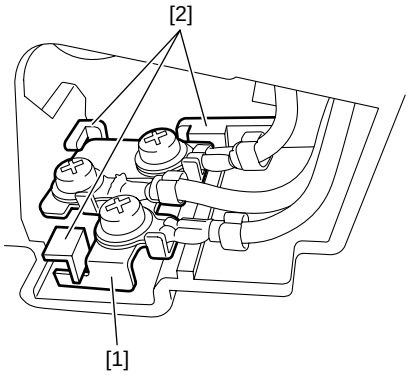
F-8-35

6) Disconnect the connector [1], and then disconnect the sensor harness [2]. Remove the screw [3], release the hook [4], and then remove the sensor holder [5].



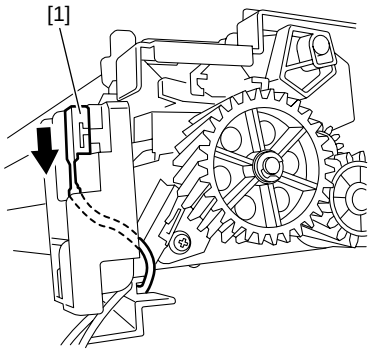
F-8-36

When installing the electrode plate [1], place it under the three claws [2] as shown below.



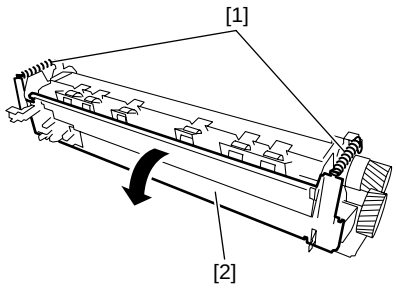
F-8-37

7) Remove the ground cable [1] from the holder, and then free the fixing unit AC harness.



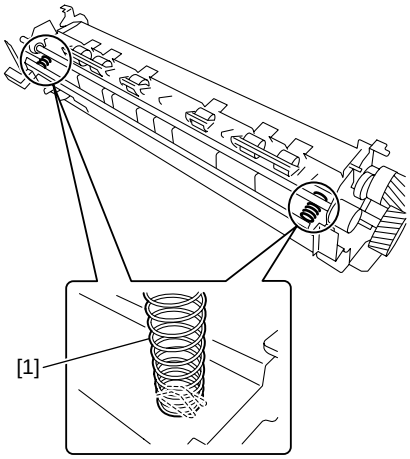
F-8-38

8) Remove the two pressure springs [1], remove the pressure plate by turning it in the direction of the arrow.



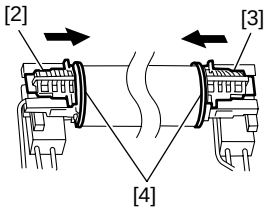
F-8-39

- When installing the pressure plate, check that the inner springs [1] are fit in place as shown below.



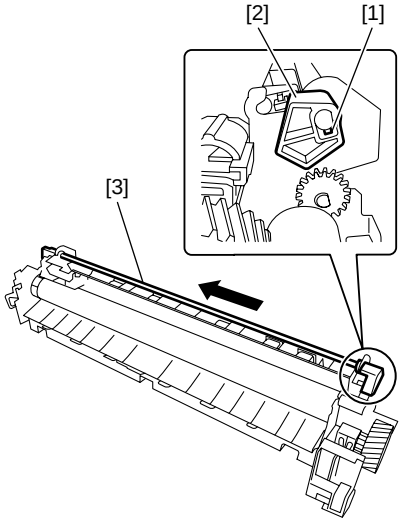
F-8-40

- When reinstalling the pressure plate, check that the spacer (F) [2] and spacer (R) [3] are pressed against the rib [4] of the flange cap.



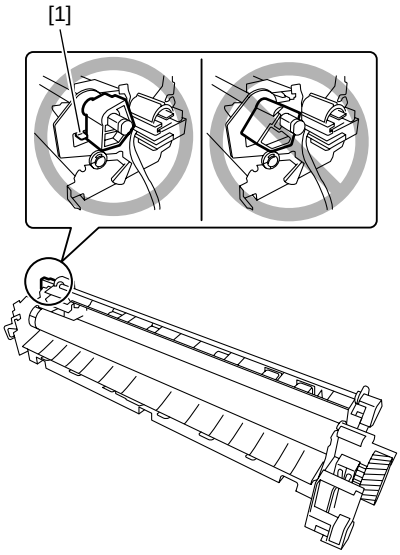
F-8-41

9) Release the claw [1] of the pressure cam, remove the pressure cam [2] from the pressure shaft, and then pull out the pressure shaft [3] in the direction of the arrow.



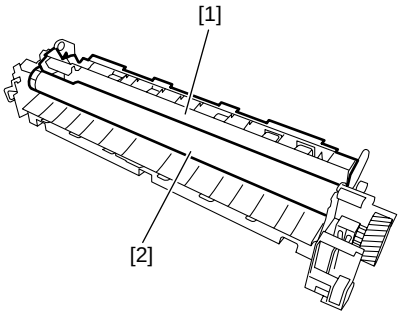
F-8-42

When installing the pressure cam, position it inside the bent portion [1] of the side plate as shown below.



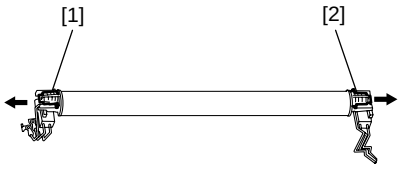
F-8-43

10) Remove the delivery roller unit [1], and then remove the fixing film unit [2].



F-8-44

11) Remove the spacer (F) [1] and spacer (R) [2] by sliding them.



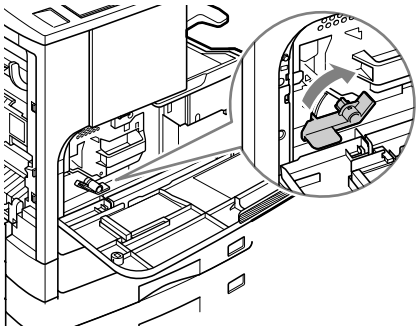
F-8-45

8.4.3 Fixing Pressure Roller

8.4.3.1 Removing the Toner Cartridge

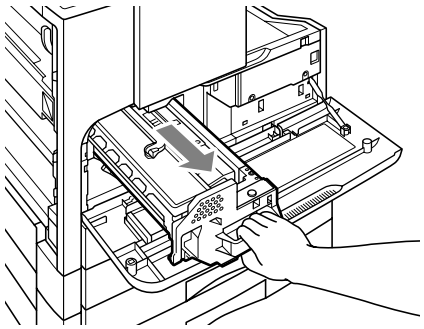
1)Open the front cover.
2)Raise the lock lever, and open the left door.

Open the left door fully to prevent the damage to the drum.



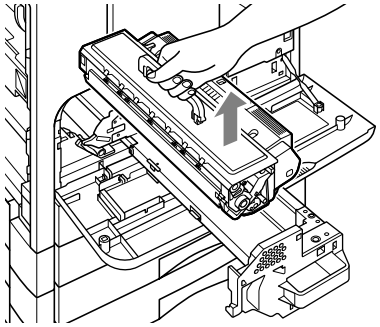
F-8-46

3)While grasping the handle of the cartridge holder, pull the cartridge holder out of the machine.



F-8-47

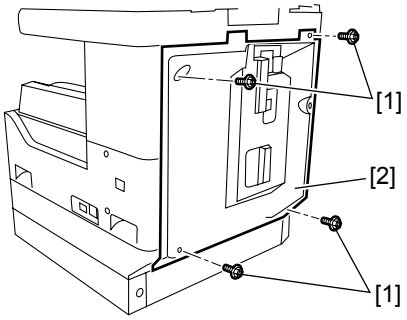
4)While grasping the handle of the cartridge, remove the cartridge from the cartridge holder.



F-8-48

8.4.3.2 Removing the Rear Cover

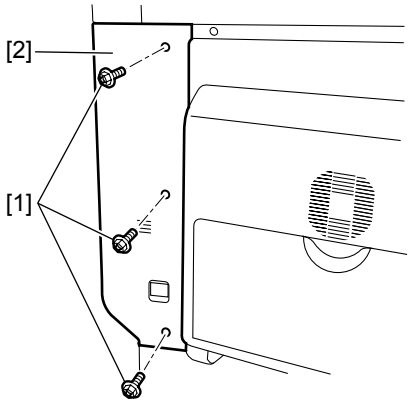
1) Remove the four screws [1], and then detach the rear cover [2].



F-8-49

8.4.3.3 Removing the Left Cover (Rear)

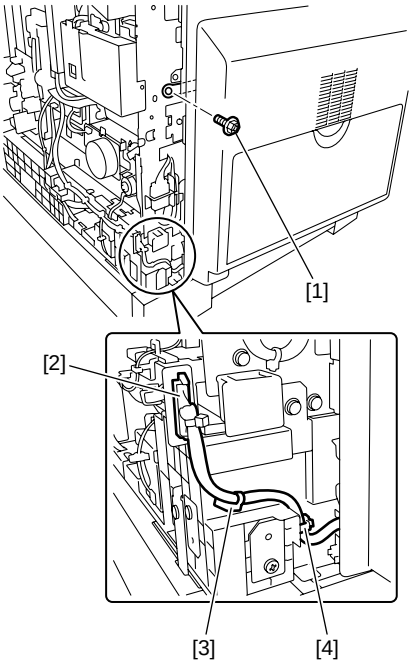
1) Remove the three screws [1], and then detach the left cover (rear)[2].



F-8-50

8.4.3.4 Removing the Left Door

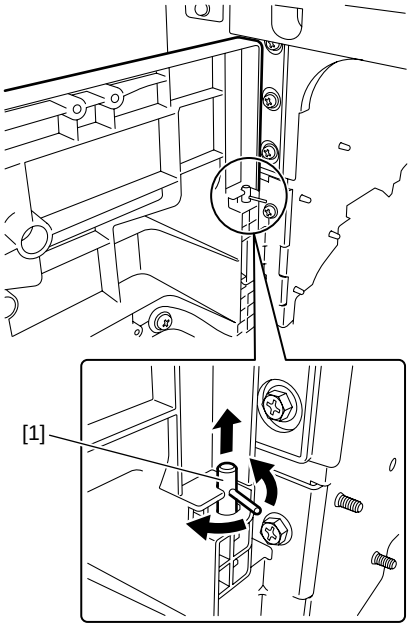
1) Remove the screw [1] securing the door support band. Remove the connector [2] and reusable band [3], and release the manual feed harness from the wire saddle [4].



F-8-51

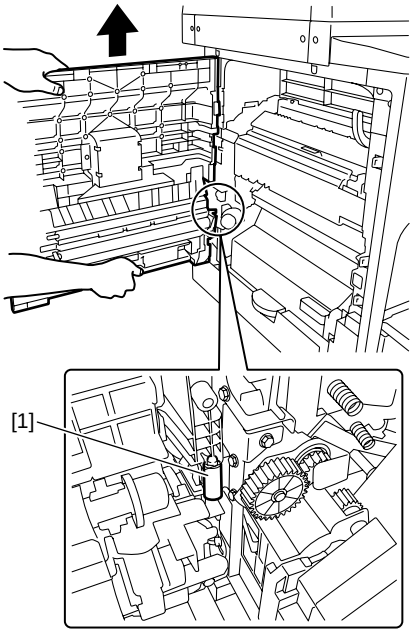
2) Open the left door until it sops and pull out the hinge shaft [1].

MEMO:
When a duplex unit (option) is installed, remove it before pulling out the hinge shaft for each access.



F-8-52

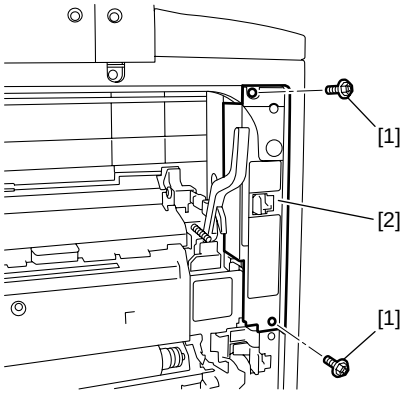
3) Lift the left door with both hands to release it from the door rotation shaft [1], and then remove the left door.



F-8-53

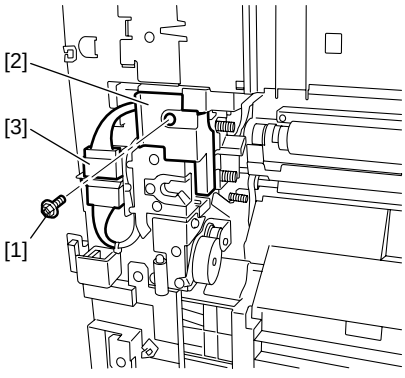
8.4.3.5 Removing the Fixing Unit

1) Remove the two screws [1], and then detach the inner cover [2] at the upper front.



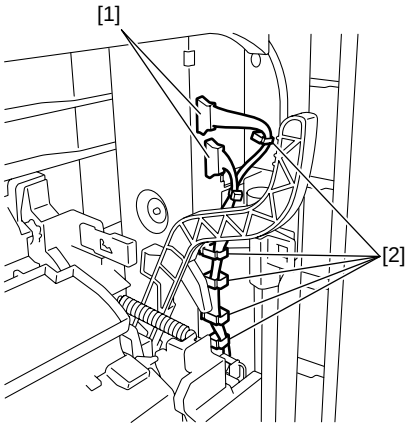
F-8-54

2) Remove the screw [1], and then detach the heater harness cover [2]. Disconnect the connector [3].



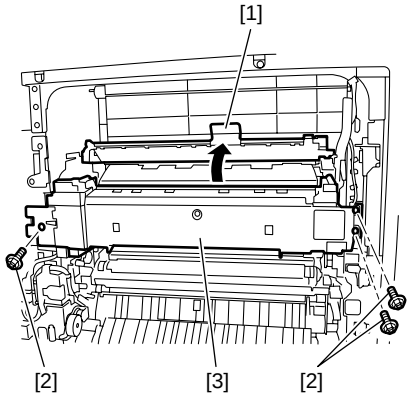
F-8-55

3) Disconnect the two connectors [1], and then release the fixing unit harness from the wire saddle [2].



F-8-56

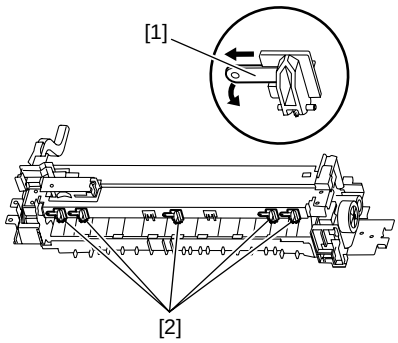
4) Raise the delivery upper guide [1]. Remove the three screws [2], and then remove the fixing unit [3].



F-8-57

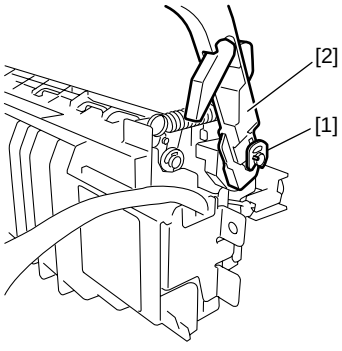
8.4.3.6 Removing the Fixing Film Unit

1) Release the hooks [1], and then remove the spur unit [2] by sliding it.



F-8-58

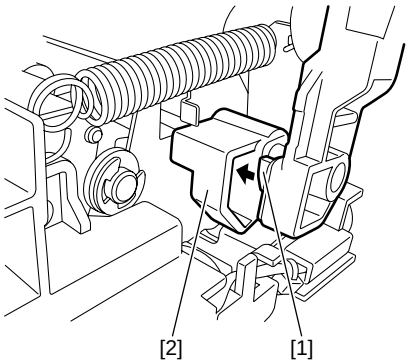
2) Remove the resin ring [1], and then remove the fixing pressure release lever [2].



F-8-59

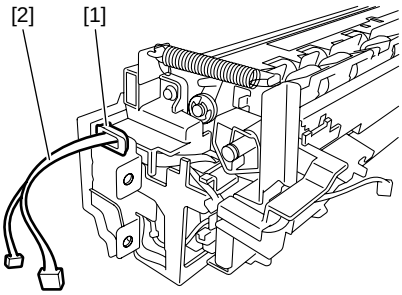
⚠ When installing the fixing pressure release lever, check that the rib [1] of the

lever is inside the pressure block [2].



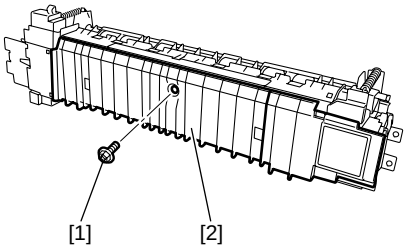
F-8-60

3) Release the fixing unit harness [2] from the wire saddle [1].



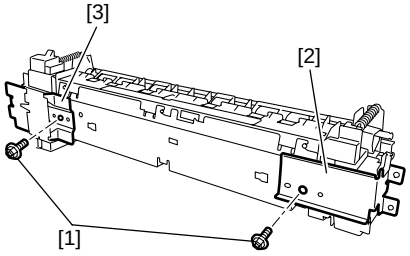
F-8-61

4) Remove the screw [1], and then remove the fixing paper guide [2].



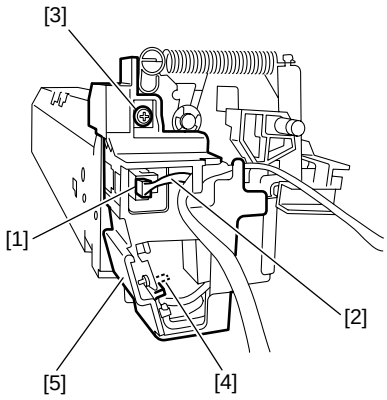
F-8-62

5) Remove the two screws [1], and then remove the right side stay [1] and left side stay [2].



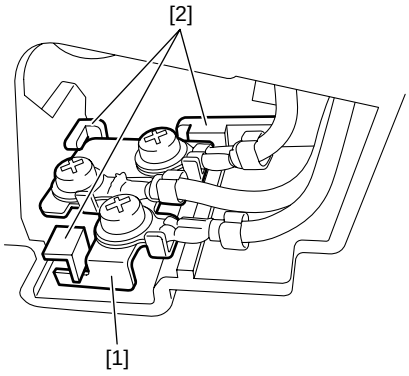
F-8-63

6) Disconnect the connector [1], and then disconnect the sensor harness [2]. Remove the screw [3], release the hook [4], and then remove the sensor holder [5].



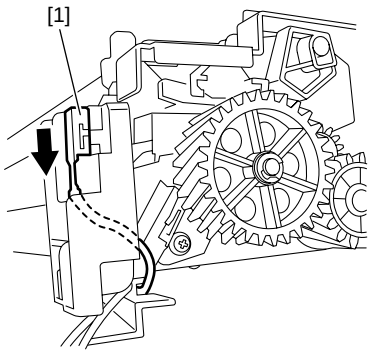
F-8-64

When installing the electrode plate [1], place it under the three claws [2] as shown below.



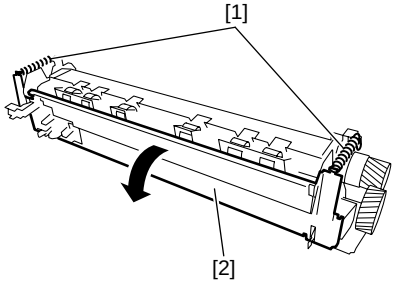
F-8-65

7) Remove the ground cable [1] from the holder, and then free the fixing unit AC harness.



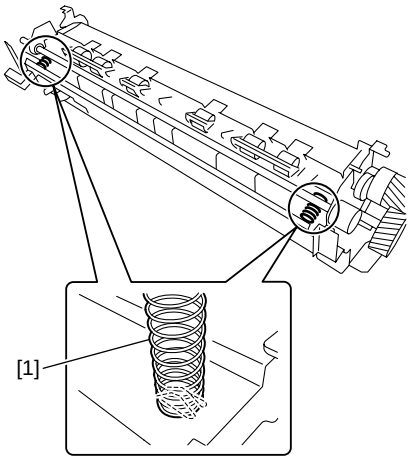
F-8-66

8) Remove the two pressure springs [1], remove the pressure plate by turning it in the direction of the arrow.



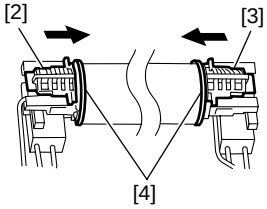
F-8-67

- When installing the pressure plate, check that the inner springs [1] are fit in place as shown below.



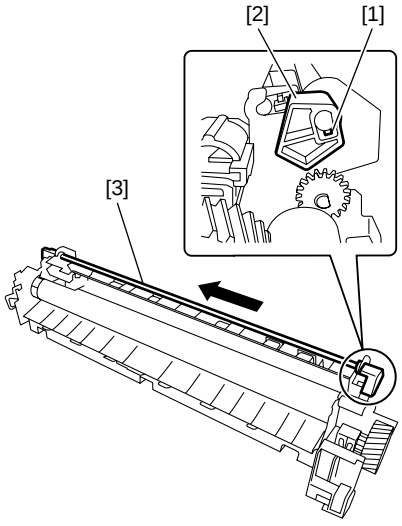
F-8-68

- When reinstalling the pressure plate, check that the spacer (F) [2] and spacer (R) [3] are pressed against the rib [4] of the flange cap.



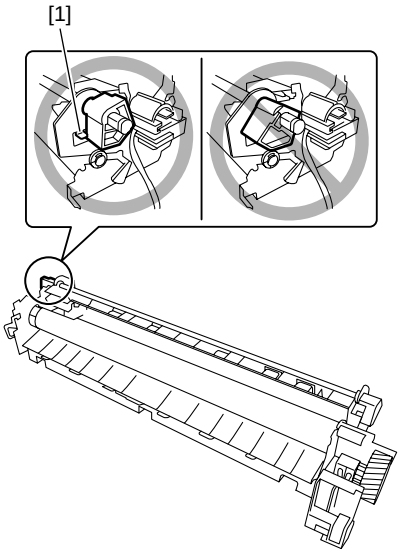
F-8-69

9) Release the claw [1] of the pressure cam, remove the pressure cam [2] from the pressure shaft, and then pull out the pressure shaft [3] in the direction of the arrow.



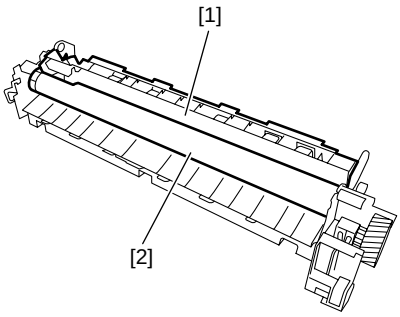
F-8-70

When installing the pressure cam, position it inside the bent portion [1] of the side plate as shown below.



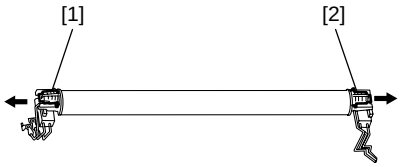
F-8-71

10) Remove the delivery roller unit [1], and then remove the fixing film unit [2].



F-8-72

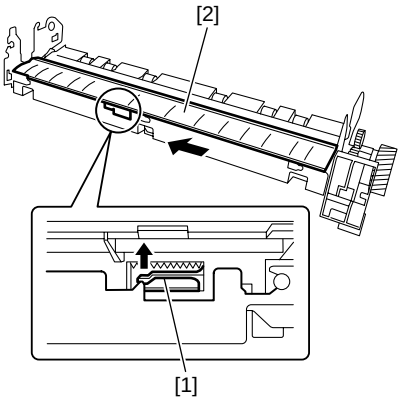
11) Remove the spacer (F) [1] and spacer (R) [2] by sliding them.



F-8-73

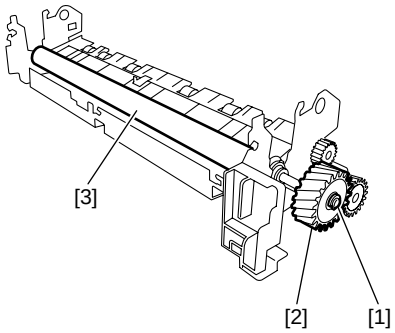
8.4.3.7 Removing the Pressure Roller

1) Raise the claw [1] of the fixing unit inlet guide, and remove the slide the fixing unit inlet guide [2] by sliding it in the direction of the arrow.



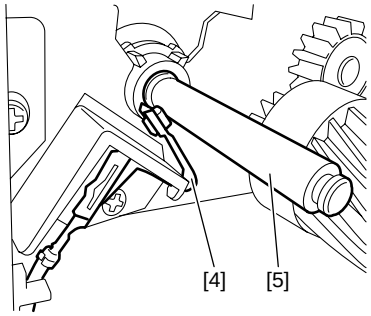
F-8-74

2) Remove the E-ring [1] and gear [2], and then remove the pressure roller [3].



F-8-75

When installing the pressure roller, bring the ground plate [4] into contact with the roller shaft [5].



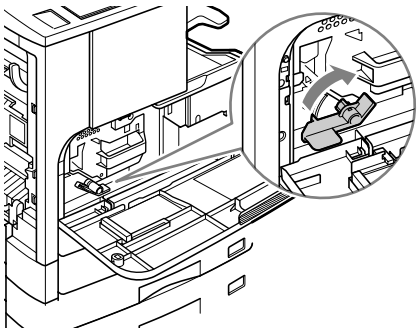
F-8-76

8.4.4 Fixing Delivery Paper Sensor

8.4.4.1 Removing the Toner Cartridge

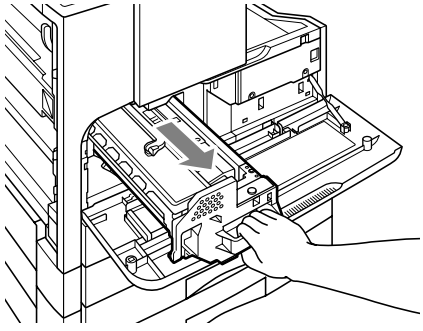
1)Open the front cover.
2)Raise the lock lever, and open the left door.

Open the left door fully to prevent the damage to the drum.



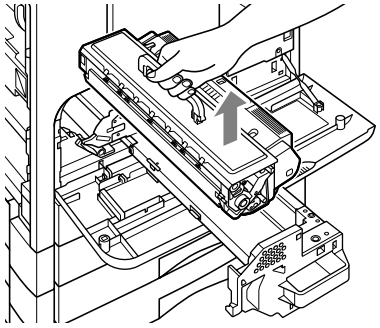
F-8-77

3)While grasping the handle of the cartridge holder, pull the cartridge holder out of the machine.



F-8-78

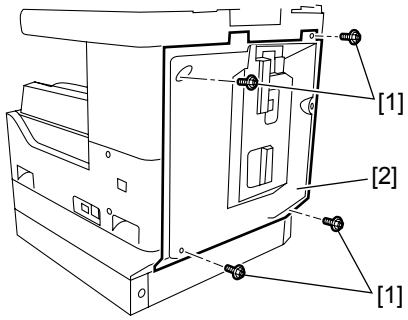
4)While grasping the handle of the cartridge, remove the cartridge from the cartridge holder.



F-8-79

8.4.4.2 Removing the Rear Cover

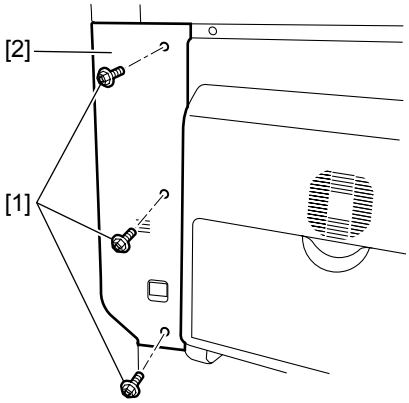
1) Remove the four screws [1], and then detach the rear cover [2].



F-8-80

8.4.4.3 Removing the Left Cover (Rear)

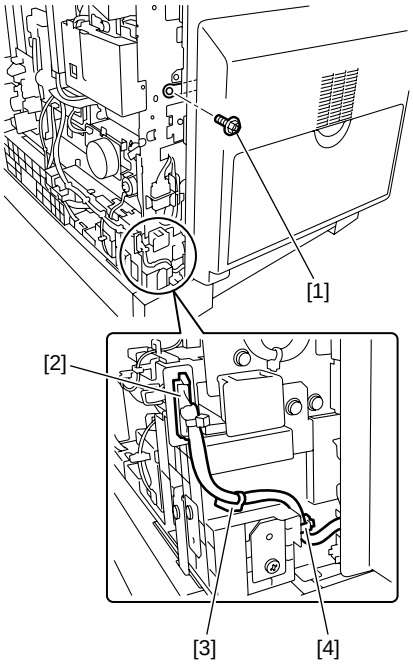
1) Remove the three screws [1], and then detach the left cover (rear)[2].



F-8-81

8.4.4.4 Removing the Left Door

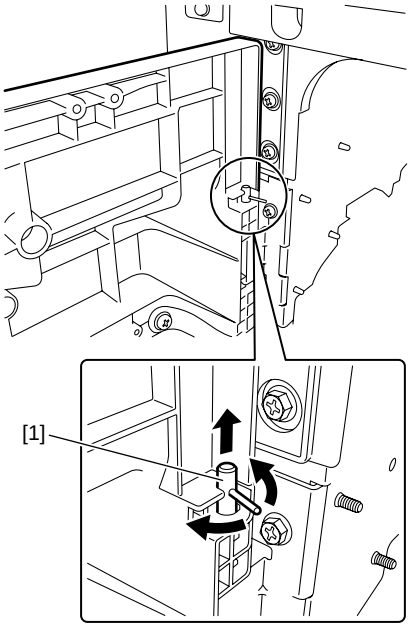
1) Remove the screw [1] securing the door support band. Remove the connector [2] and reusable band [3], and release the manual feed harness from the wire saddle [4].



F-8-82

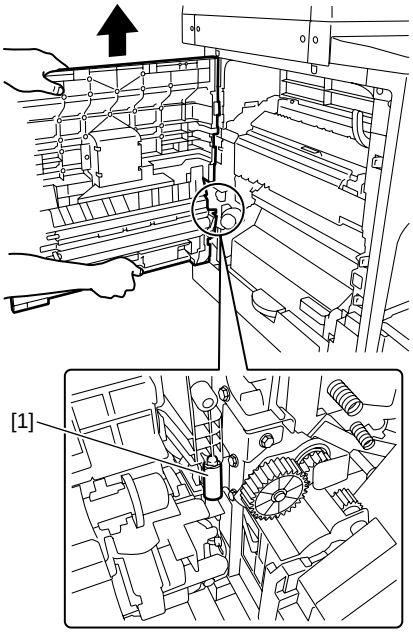
2) Open the left door until it sops and pull out the hinge shaft [1].

MEMO:
When a duplex unit (option) is installed, remove it before pulling out the hinge shaft for each access.



F-8-83

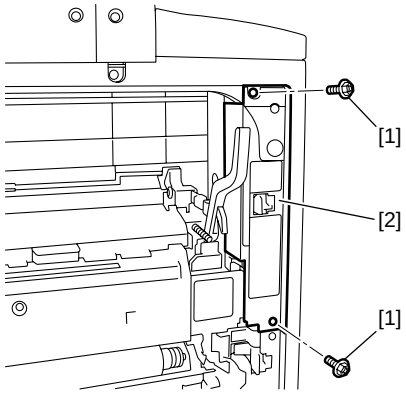
3) Lift the left door with both hands to release it from the door rotation shaft [1], and then remove the left door.



F-8-84

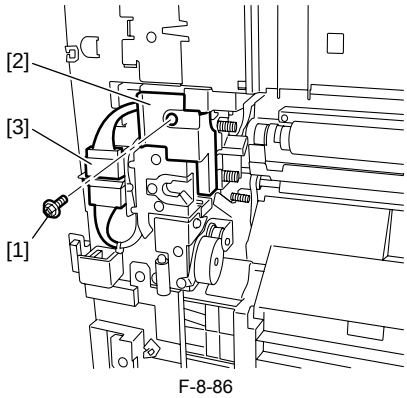
8.4.4.5 Removing the Fixing Unit

1) Remove the two screws [1], and then detach the inner cover [2] at the upper front.



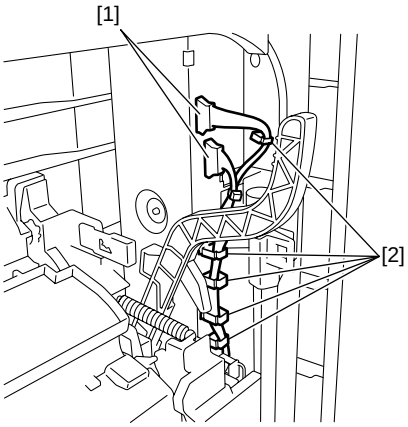
F-8-85

2) Remove the screw [1], and then detach the heater harness cover [2]. Disconnect the connector [3].



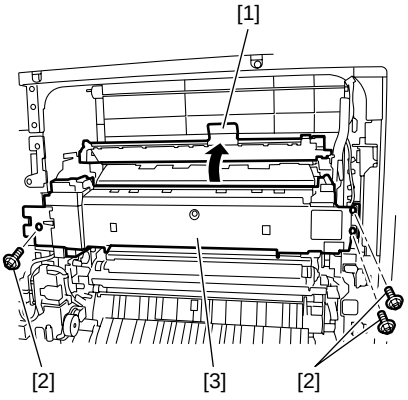
F-8-86

3) Disconnect the two connectors [1], and then release the fixing unit harness from the wire saddle [2].



F-8-87

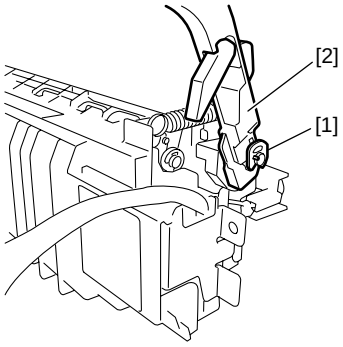
4) Raise the delivery upper guide [1]. Remove the three screws [2], and then remove the fixing unit [3].



F-8-88

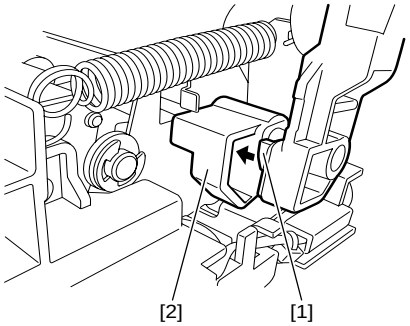
8.4.4.6 Removing the Fixing Delivery Sensor

1) Remove the resin ring [1], and then remove the fixing pressure release lever [2].



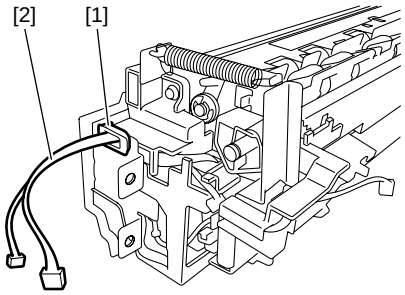
F-8-89

When installing the fixing pressure release lever, check that the rib [1] of the lever is inside the pressure block [2].



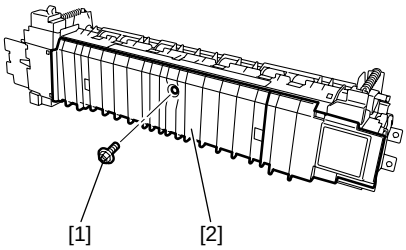
F-8-90

2) Remove the fixing unit harness [2] from the wire saddle [1] and harness guide.



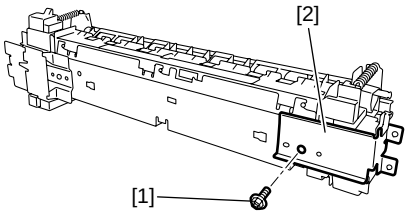
F-8-91

3) Remove the screw [1], and then remove the fixing paper guide [2].



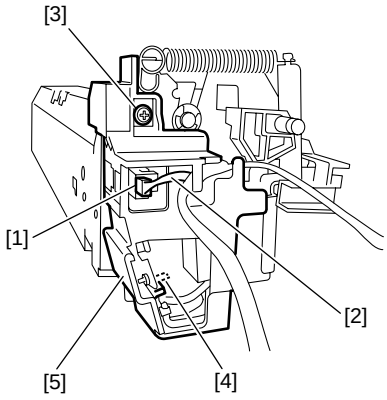
F-8-92

4) Remove the screw [1], and then remove the right side stay [2].



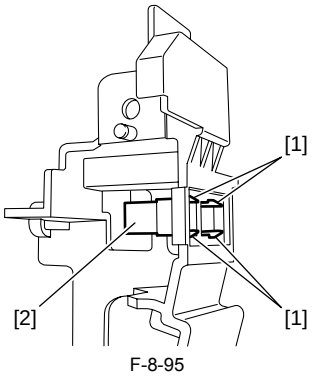
F-8-93

5) Remove the connector [1], and then remove the sensor harness [2]. Remove the screw [3], release the hook [4], and then remove the sensor holder [5].



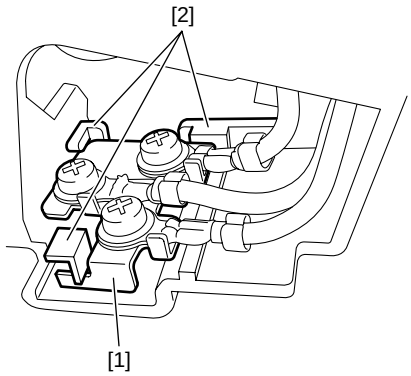
F-8-94

6) Release the four sensor claws [1], and then remove the fixing delivery sensor [2].



F-8-95

When installing the sensor holder, place the electrode plate [1] under the three claws.



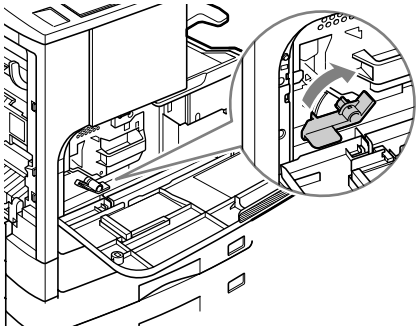
F-8-96

8.4.5 Fixing Film Sensor

8.4.5.1 Removing the Toner Cartridge

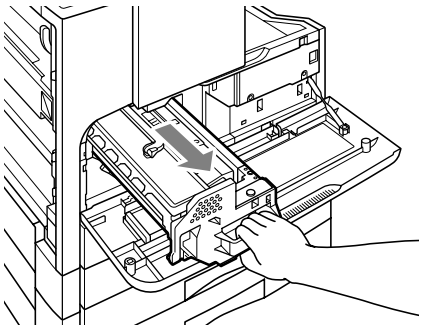
1)Open the front cover.
2)Raise the lock lever, and open the left door.

Open the left door fully to prevent the damage to the drum.



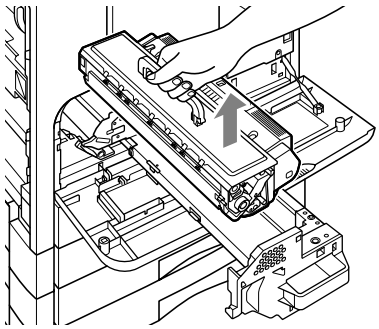
F-8-97

3)While grasping the handle of the cartridge holder, pull the cartridge holder out of the machine.



F-8-98

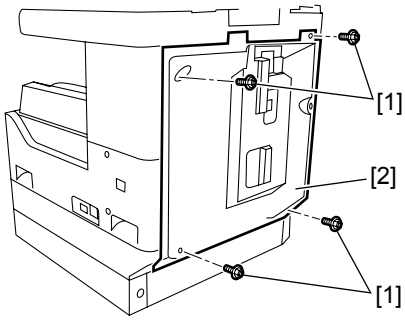
4)While grasping the handle of the cartridge, remove the cartridge from the cartridge holder.



F-8-99

8.4.5.2 Removing the Rear Cover

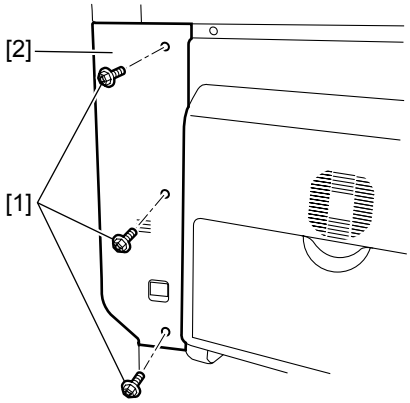
1) Remove the four screws [1], and then detach the rear cover [2].



F-8-100

8.4.5.3 Removing the Left Cover (Rear)

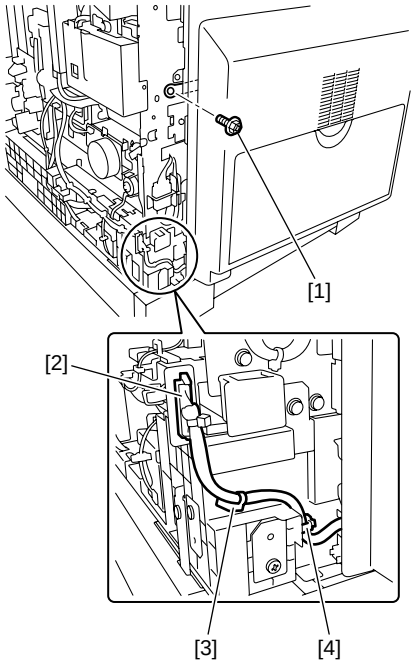
1) Remove the three screws [1], and then detach the left cover (rear)[2].



F-8-101

8.4.5.4 Removing the Left Door

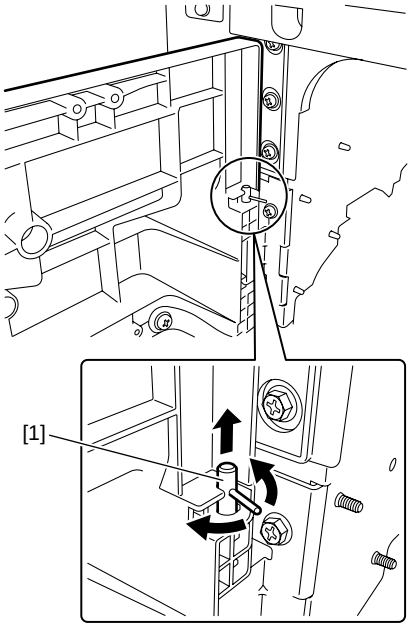
1) Remove the screw [1] securing the door support band. Remove the connector [2] and reusable band [3], and release the manual feed harness from the wire saddle [4].



F-8-102

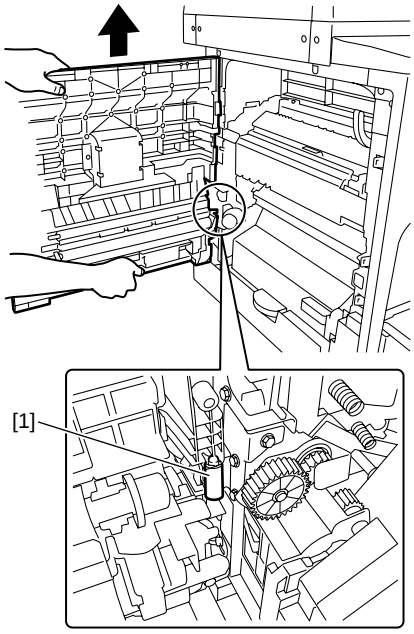
2) Open the left door until it sops and pull out the hinge shaft [1].

MEMO:
When a duplex unit (option) is installed, remove it before pulling out the hinge shaft for each access.



F-8-103

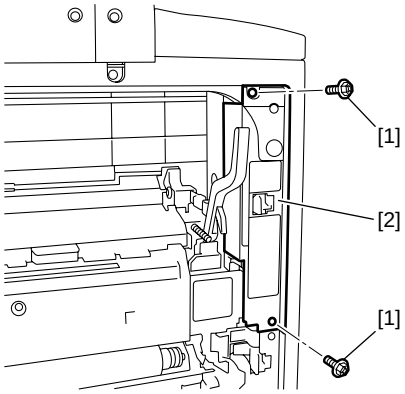
3) Lift the left door with both hands to release it from the door rotation shaft [1], and then remove the left door.



F-8-104

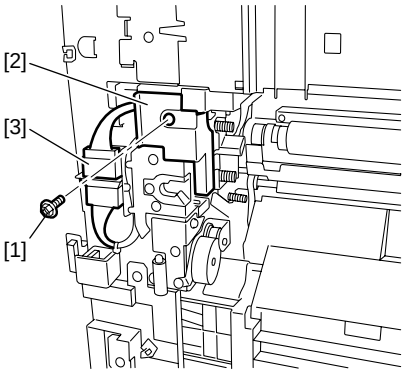
8.4.5.5 Removing the Fixing Unit

1) Remove the two screws [1], and then detach the inner cover [2] at the upper front.



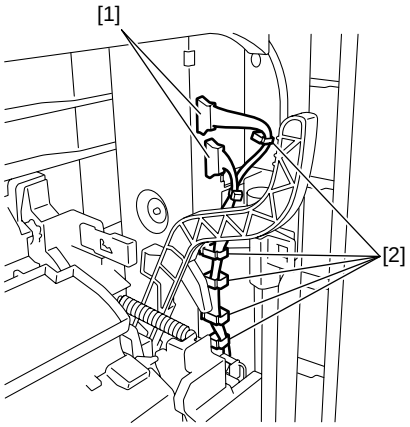
F-8-105

2) Remove the screw [1], and then detach the heater harness cover [2]. Disconnect the connector [3].



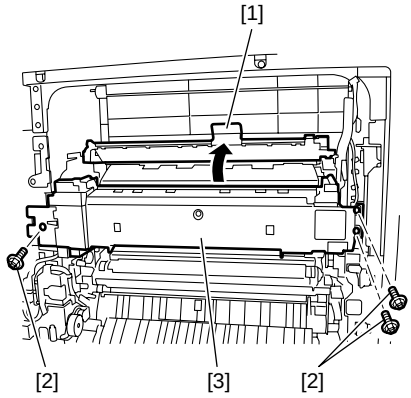
F-8-106

3) Disconnect the two connectors [1], and then release the fixing unit harness from the wire saddle [2].



F-8-107

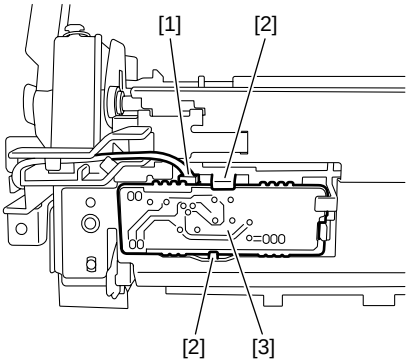
4) Raise the delivery upper guide [1]. Remove the three screws [2], and then remove the fixing unit [3].



F-8-108

8.4.5.6 Removing the Fixing Film Sensor

1) Disconnect the connector [1], release the two hooks [2], and then remove the film sensor [3].



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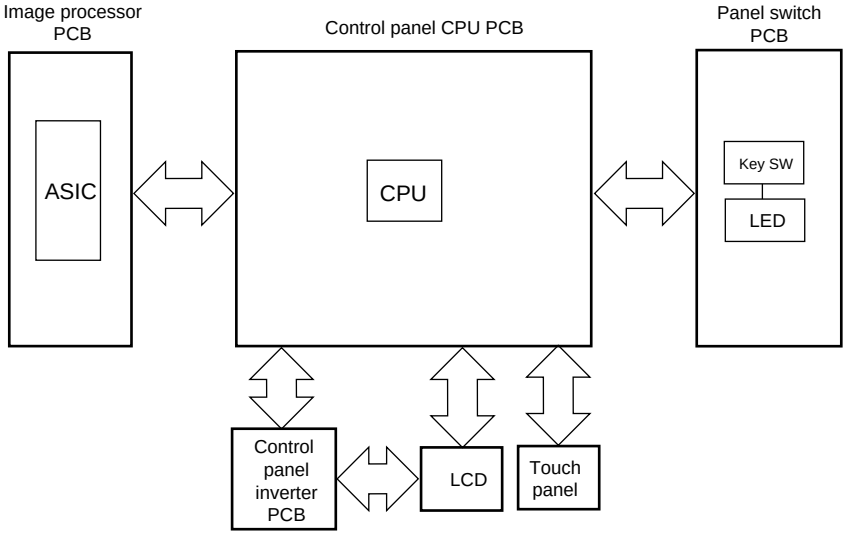
9.1 Control Panel

9.1.1 Overview

The machine's control panel consists of the following PCBs, and is controlled by the ASIC of the image processor PCB.

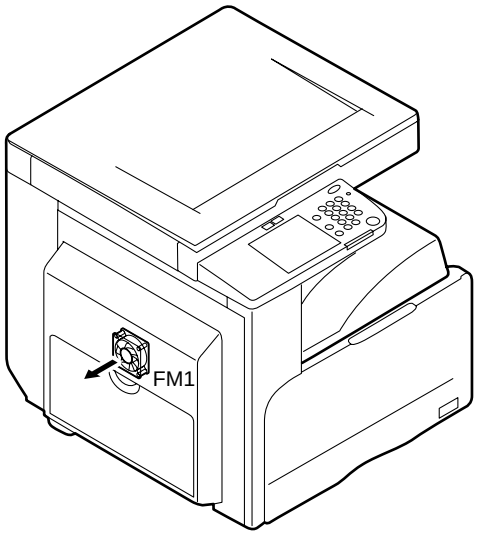


F-9-1

9.2 Fan

9.2.1 Overview

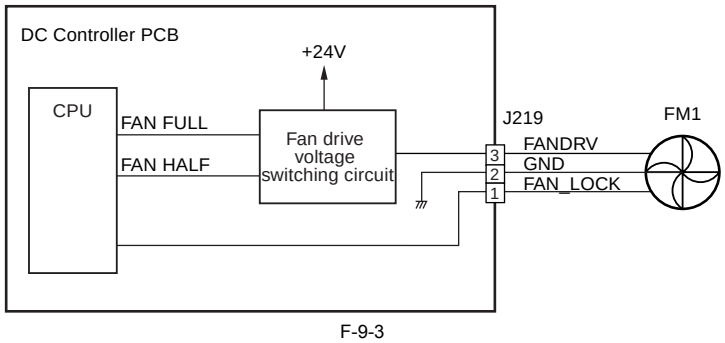
This machine is provided with a fan to cool the fixing unit.



F-9-2

9.2.2 Fan Control

The fan motor control circuit is shown below.

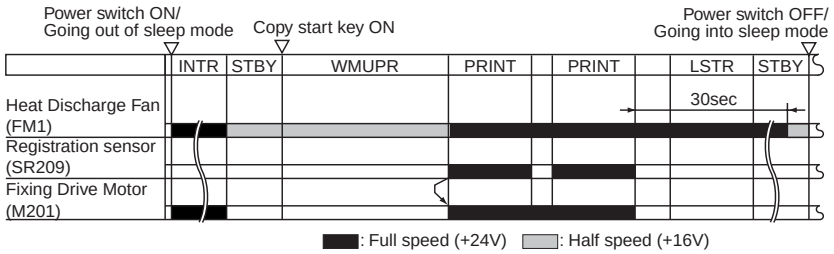


F-9-3

Switching between full-speed rotation and half-speed rotation is controlled as described below.
1) Full-speed control
When the CPU on the DC controller outputs a fan full speed signal (FAN_FULL), the fan drive voltage switching circuit supplies a +24 V fan drive voltage to turn the heat exhaust fan at the full speed.

2) Half-speed control
When the CPU on the engine controller outputs a fan half speed signal (FAN_HALF), the fan drive voltage switching circuit supplies a +16 V fan drive voltage to turn the heat exhaust fan at the half speed.

Fan Control Sequence



F-9-4

E805-0000 (Main body fan error)
When the cooling fan of the main body starts, the fan lock detection signal (FAN_LOCK) has been held at the "H" level for longer than the prescribed time.

9.3 Power Supply

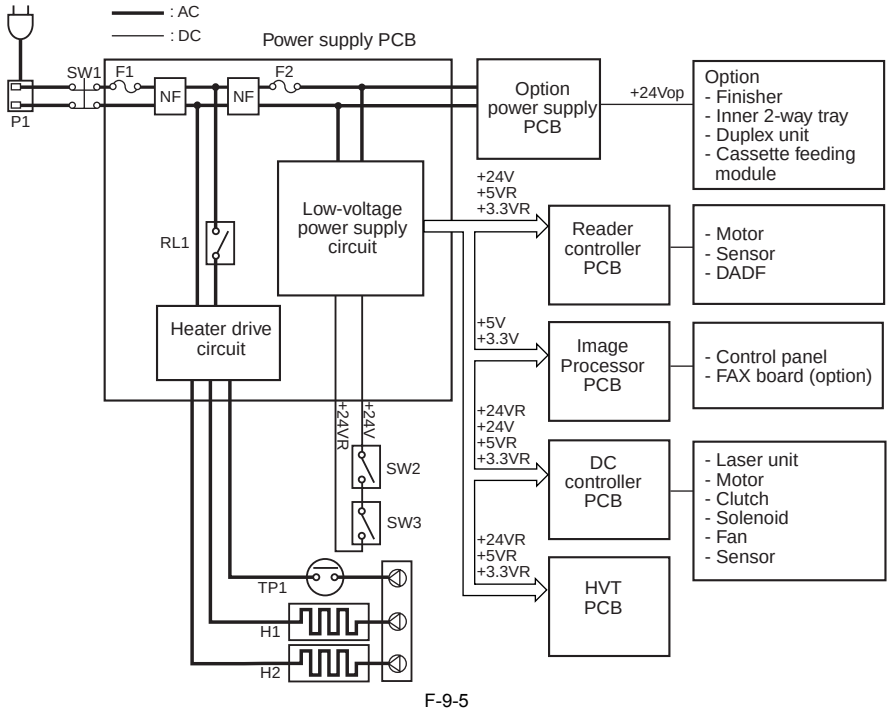
9.3.1 Power Supply

9.3.1.1 Outline (MF7170i)

When the main power switch (SW1) is turned on, AC power is supplied to the low-voltage power supply circuit in the power supply PCB.
The low-voltage power supply circuit supplies +3.3 V, +5 V, and +24 V to operate the machine.
+24 V is supplied to the motors, fan, electromagnetic clutch, solenoid, etc. +5 V and +3.3 V are supplied to the sensor, etc.
There are two types of +24 V voltages: +24 V which is normaly supplied from the low voltage power supply and +24 VR which is cut off when the front cover or the left door is opened. The +24 VR also plays the role of a door open detection signal (DOPEN). This signal allows the CPU to detect that the front cover or the left door has opened.

T-9-1

Part Name	Function
Power supply PCB	Generates DC power from AC power.
Option power supply PCB (option)	Generates DC power from AC power for the options.
Main power switch (SW1)	Supplies AC power to the power supply PCB.
Front cover switch (SW2)	Detects opening/closing of the front cover and cuts off +24 VR.
Left door switch (SW3)	Detects opening/closing of the left door and cuts off +24 VR.



F-9-5

9.3.1.2 Rated Output of the Power Supply PCB

T-9-2

Output	24V	5V	5VR	3.3V	3.3VR
Rated output voltage	24V	5.1V	5.1V	3.4V	3.4V

Output	24V	5V	5VR	3.3V	3.3VR
Output voltage tolerance	+10%, -5%	+3%, -4%	+3%, -4%	+3%, -3%	+3%, -3%
Rated output current	5.5A	1.0A	2.0A	2.5A	1.0A
Overcurrent protection trigger current	8.0A	2.5A	4.0A	5.0A	2.0A
Overvoltage protection trigger voltage	32.5V	8.0V	8.0V	5.5V	5.5V

9.3.2 Protection Function

9.3.2.1 Protective Mechanisms

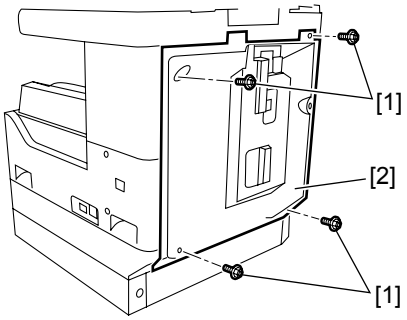
The power supply PCB is provided with an overcurrnet/overvoltage protection function to automatically cut off the output voltage when a trouble such as a short circuit occurs on in the load.
When the overcurrnet/overvoltage protection function is activated, turn off the main power switch, solve the trouble with the load, and then turn on the main power switch.
Further, the power supply circuit has two fuses which blow to stop power supply when an excessive current flows in the AC line.

9.4 Parts Replacement Procedure

9.4.1 Rear Cover

9.4.1.1 Removing the Rear Cover

1) Remove the four screws [1], and then detach the rear cover [2].

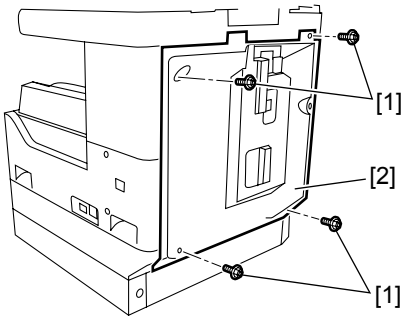


F-9-6

9.4.2 Upper Right Cover

9.4.2.1 Removing the Rear Cover

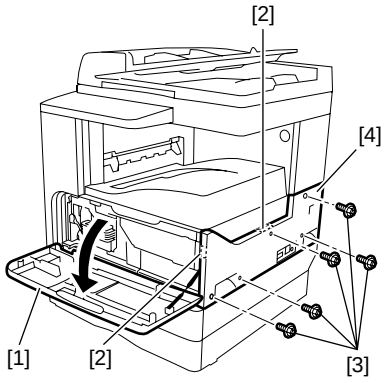
1) Remove the four screws [1], and then detach the rear cover [2].



F-9-7

9.4.2.2 Removing the Right Cover (Lower)

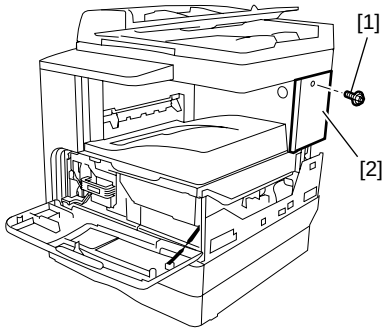
1) Open the front cover[1].
2) Remove the five screws [2]. Remove the two hooks [3], and then detach the right cover (lower) [4].



F-9-8

9.4.2.3 Removing the Right Cover (Upper)

1) Remove the screw [1], and then detach the right cover (upper).

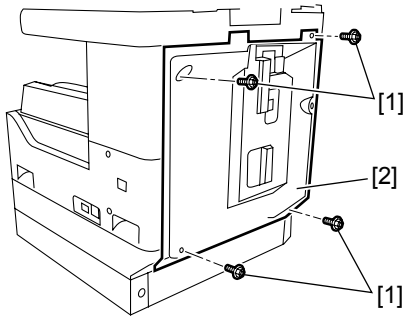


F-9-9

9.4.3 Lower Right Cover

9.4.3.1 Removing the Rear Cover

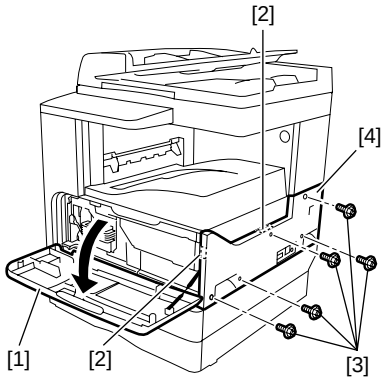
1) Remove the four screws [1], and then detach the rear cover [2].



F-9-10

9.4.3.2 Removing the Right Cover (Lower)

1) Open the front cover[1].
2) Remove the five screws [2]. Remove the two hooks [3], and then detach the right cover (lower) [4].

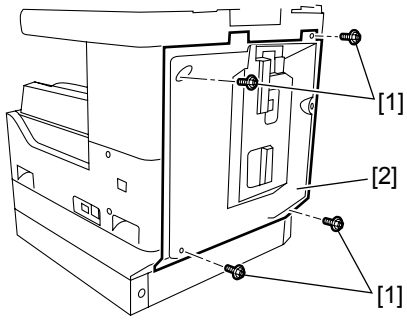


F-9-11

9.4.4 Left Rear Cover

9.4.4.1 Removing the Rear Cover

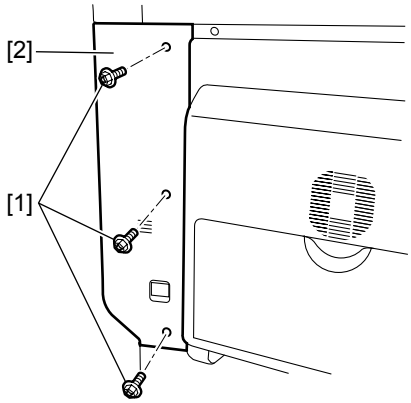
1) Remove the four screws [1], and then detach the rear cover [2].



F-9-12

9.4.4.2 Removing the Left Cover (Rear)

1) Remove the three screws [1], and then detach the left cover (rear)[2].

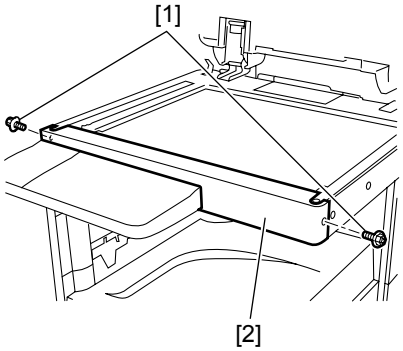


F-9-13

9.4.5 Reader Front Cover

9.4.5.1 Removing the Reader Front Cover

1) Open the copyboard cover (or ADF).
2) Remove the two screws [1], and then detach the reader front cover [2].

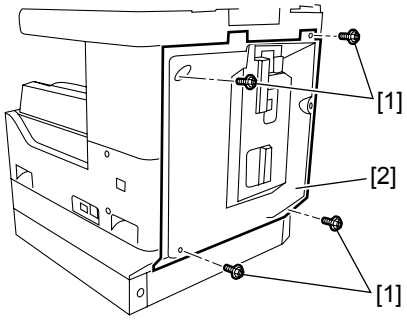


F-9-14

9.4.6 Reader Rear Cover

9.4.6.1 Removing the Rear Cover

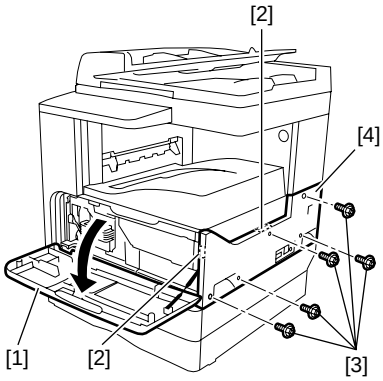
1) Remove the four screws [1], and then detach the rear cover [2].



F-9-15

9.4.6.2 Removing the Right Cover (Lower)

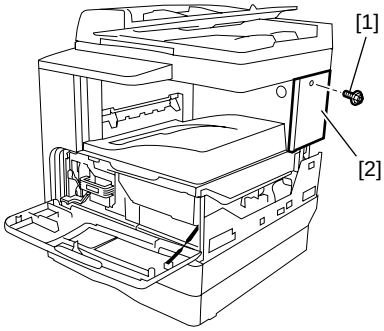
1) Open the front cover[1].
2) Remove the five screws [2]. Remove the two hooks [3], and then detach the right cover (lower) [4].



F-9-16

9.4.6.3 Removing the Right Cover (Upper)

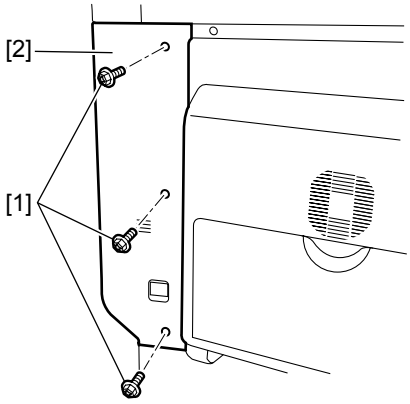
1) Remove the screw [1], and then detach the right cover (upper).



F-9-17

9.4.6.4 Removing the Left Cover (Rear)

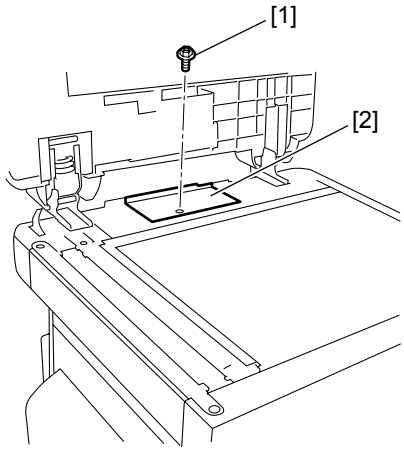
1) Remove the three screws [1], and then detach the left cover (rear)[2].



F-9-18

9.4.6.5 Removing the Reader Rear Cover

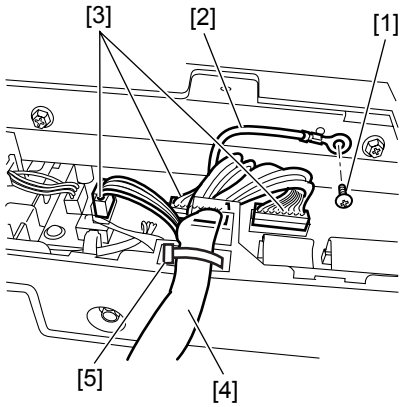
1) Open the copyboard cover (or ADF).
2) Remove the screw, and then detach the small cover [2].



F-9-19

3) Remove the screw [1], and then disconnect the ground cable [2] of the ADF harness.
4) Disconnect the four connectors [3], and then remove the ADF harness [4].

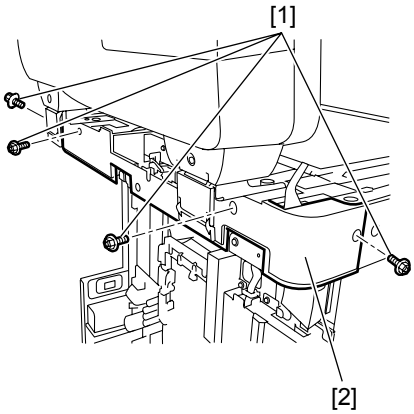
MEMO:
Perform steps 3 and 4 only for the model with an ADF.



F-9-20

⚠When installing the ADF harness [4], fit the harness band [5] in the groove in the reader rear cover.

5) Remove the four screws [1], and then detach the reader rear cover [2].

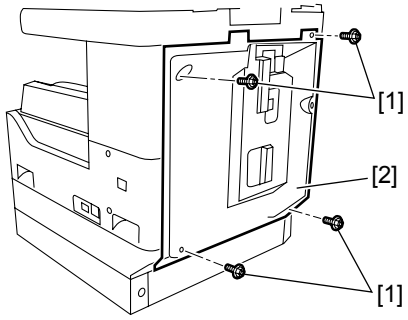


F-9-21

9.4.7 Delivery Tray

9.4.7.1 Removing the Rear Cover

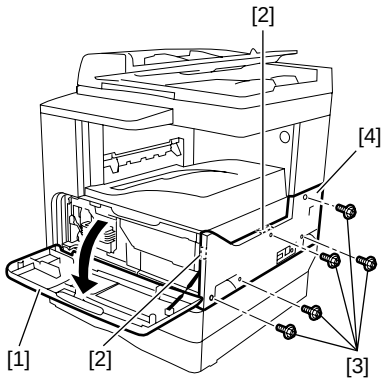
1) Remove the four screws [1], and then detach the rear cover [2].



F-9-22

9.4.7.2 Removing the Right Cover (Lower)

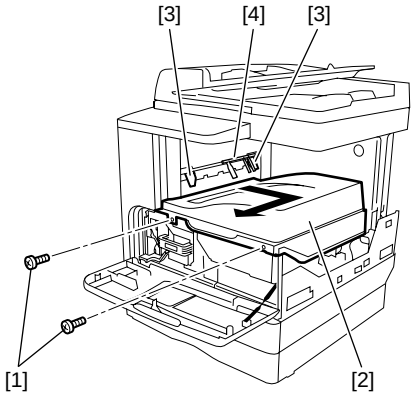
1) Open the front cover[1].
2) Remove the five screws [2]. Remove the two hooks [3], and then detach the right cover (lower) [4].



F-9-23

9.4.7.3 Removing the Delivery Tray

1) Remove the two screws [1], and then detach the delivery tray [2].



F-9-24

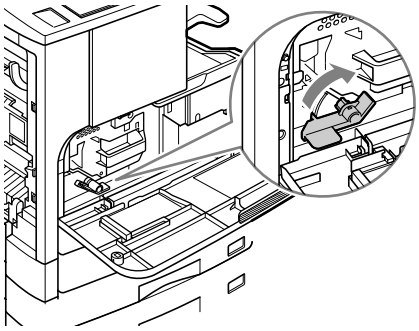
⚠When attaching or detaching the delivery tray, be careful not to damage the paper holder [3] and full stack sensor flag [4].(The full stack sensor flag is not installed in case of MF7120/MF7170i.)

9.4.8 Left Door

9.4.8.1 Removing the Toner Cartridge

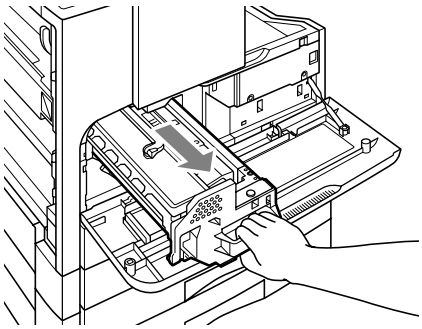
1)Open the front cover.
2)Raise the lock lever, and open the left door.

⚠Open the left door fully to prevent the damage to the drum.



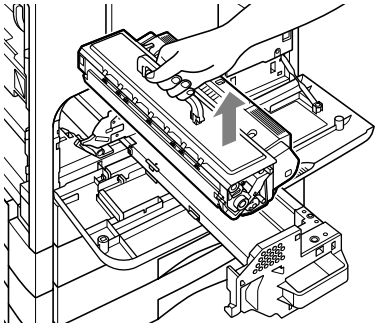
F-9-25

3)While grasping the handle of the cartridge holder, pull the cartridge holder out of the machine.



F-9-26

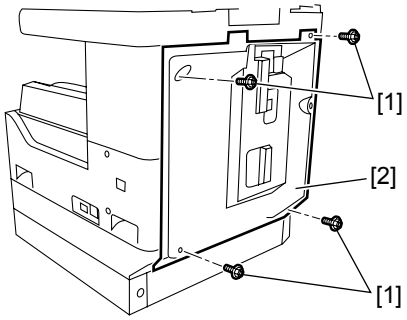
4)While grasping the handle of the cartridge, remove the cartridge from the cartridge holder.



F-9-27

9.4.8.2 Removing the Rear Cover

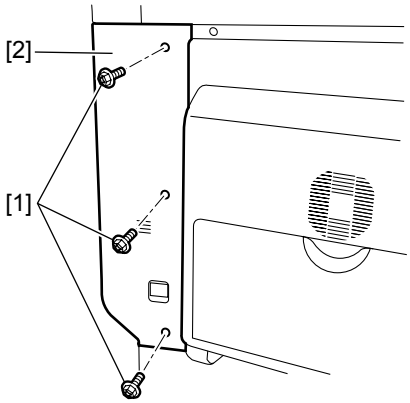
1) Remove the four screws [1], and then detach the rear cover [2].



F-9-28

9.4.8.3 Removing the Left Cover (Rear)

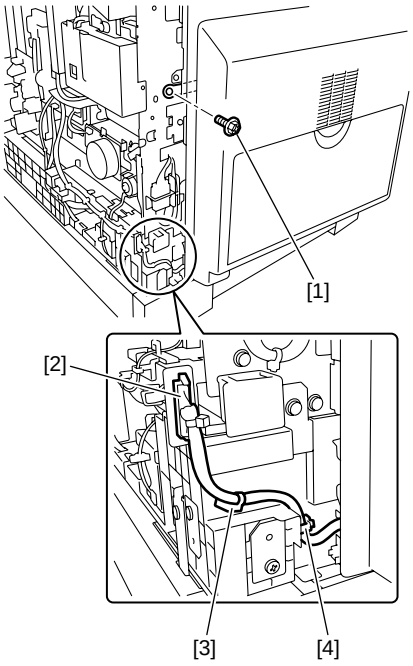
1) Remove the three screws [1], and then detach the left cover (rear)[2].



F-9-29

9.4.8.4 Removing the Left Door

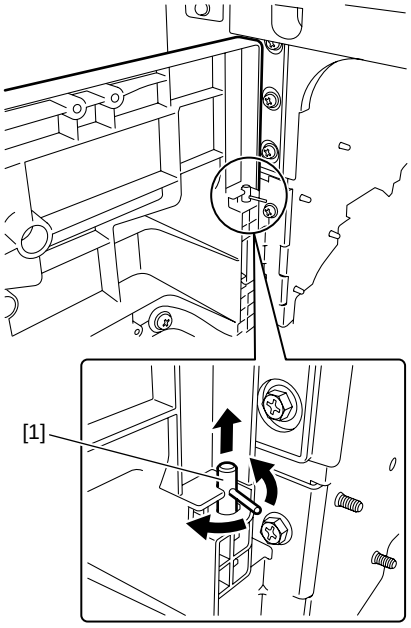
1) Remove the screw [1] securing the door support band. Remove the connector [2] and reusable band [3], and release the manual feed harness from the wire saddle [4].



F-9-30

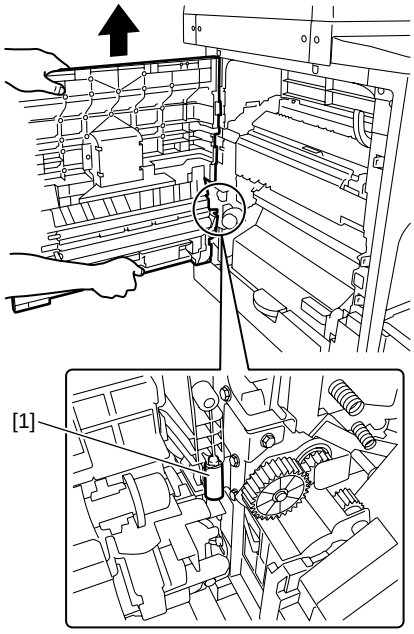
2) Open the left door until it sops and pull out the hinge shaft [1].

MEMO:
When a duplex unit (option) is installed, remove it before pulling out the hinge shaft for each access.



F-9-31

3) Lift the left door with both hands to release it from the door rotation shaft [1], and then remove the left door.



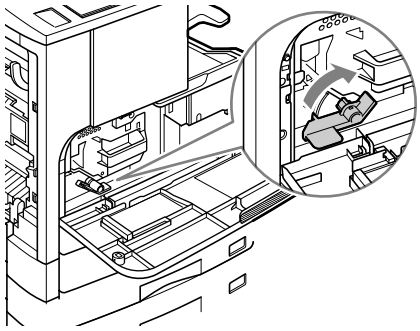
F-9-32

9.4.9 Main Drive Unit

9.4.9.1 Removing the Toner Cartridge

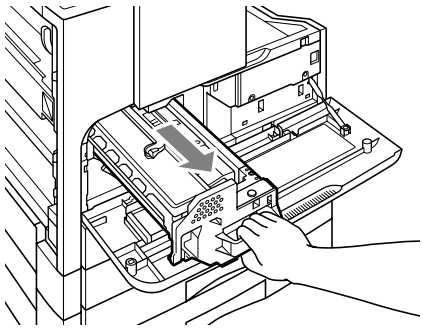
1)Open the front cover.
2)Raise the lock lever, and open the left door.

⚠Open the left door fully to prevent the damage to the drum.



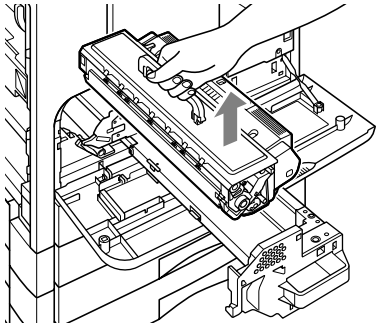
F-9-33

3)While grasping the handle of the cartridge holder, pull the cartridge holder out of the machine.



F-9-34

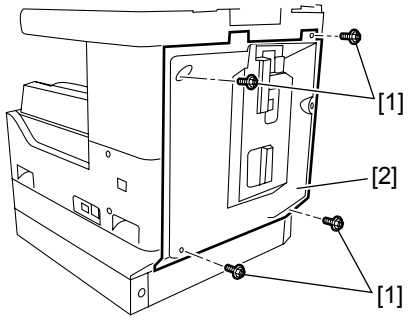
4)While grasping the handle of the cartridge, remove the cartridge from the cartridge holder.



F-9-35

9.4.9.2 Removing the Rear Cover

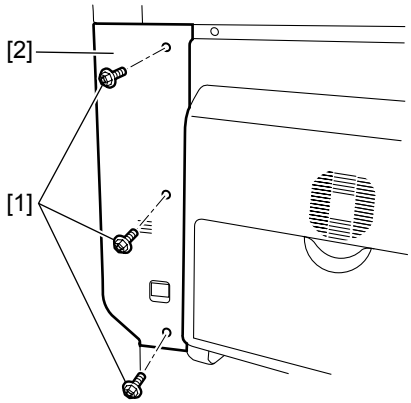
1) Remove the four screws [1], and then detach the rear cover [2].



F-9-36

9.4.9.3 Removing the Left Cover (Rear)

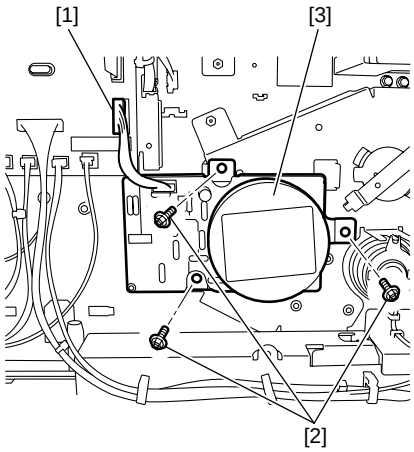
1) Remove the three screws [1], and then detach the left cover (rear)[2].



F-9-37

9.4.9.4 Removing the Main Motor

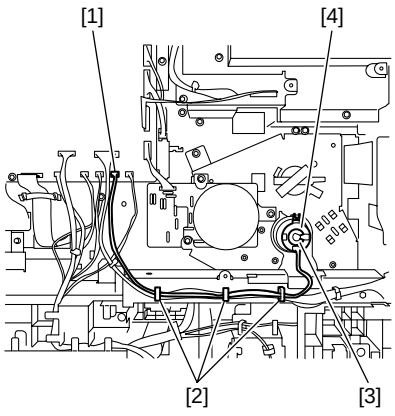
1) Disconnect the connector [1], remove three screws [2], and then remove the main motor [3].



F-9-38

9.4.9.5 Removing the Registration Clutch

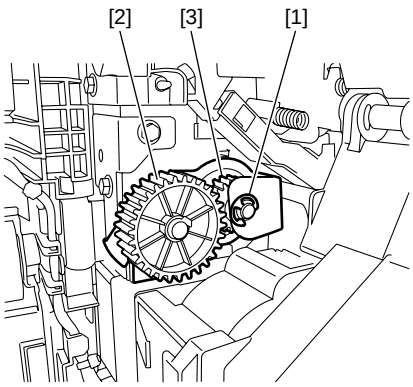
1) Disconnect the connector [1], and then remove the harness from the three wire saddles [2].
2) Remove the resin ring [3], and then remove the registration clutch [4].



F-9-39

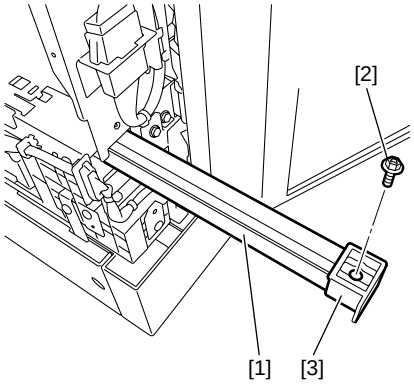
9.4.9.6 Removing the Main Drive Unit

1) Open the left door fully.
2) Remove the E-ring [1], and then remove the gear unit [2] and gear [3].



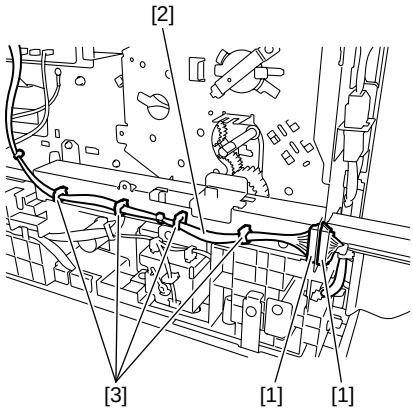
F-9-40

3) Pull out the handle [1] at the back of the machine, remove the screw [2], and then remove the stopper [3].



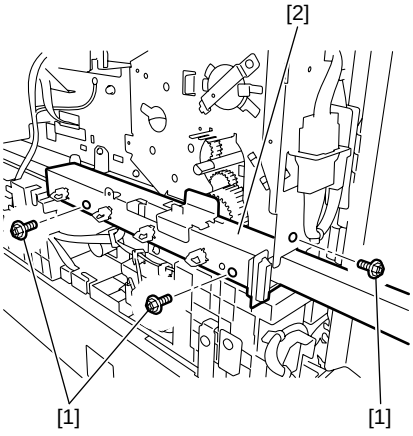
F-9-41

4) Disconnect the two connectors [1], and then remove the harness [2] from the wire saddle [3].



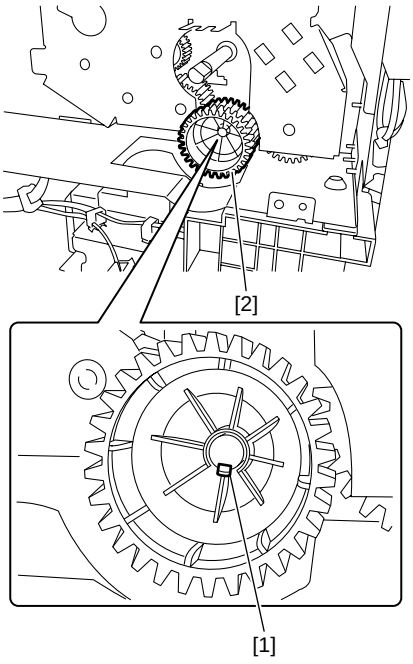
F-9-42

5) Remove the three screws [1], and then remove the handle unit [2].



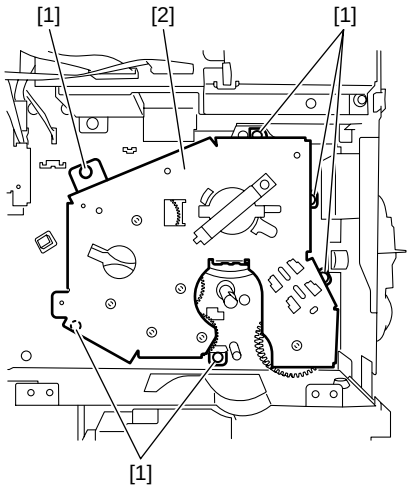
F-9-43

6) Release the gear stopper [1] from the shaft, and then remove the gear [2].



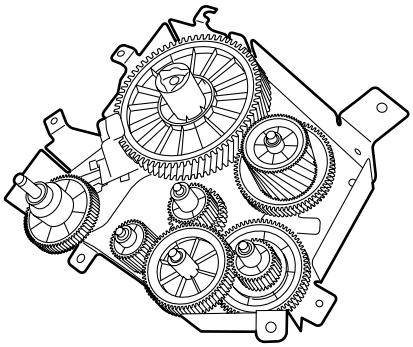
F-9-44

7) Remove the six screws [1], and then remove the main drive unit [2].



F-9-45

Since the gears in the main drive unit are not secured, gears will fall if the main drive unit is inclined. If gears should fall, install them at the positions shown below.



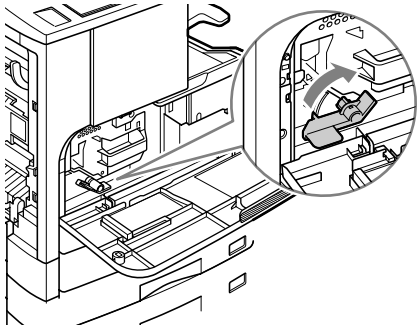
F-9-46

9.4.10 Fixing Drive Unit

9.4.10.1 Removing the Toner Cartridge

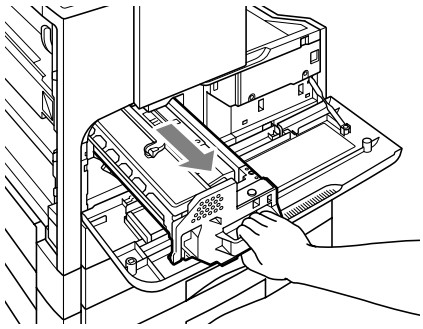
1)Open the front cover.
2)Raise the lock lever, and open the left door.

Open the left door fully to prevent the damage to the drum.



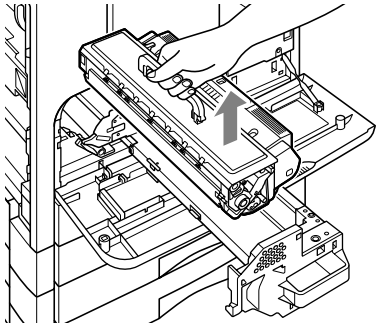
F-9-47

3)While grasping the handle of the cartridge holder, pull the cartridge holder out of the machine.



F-9-48

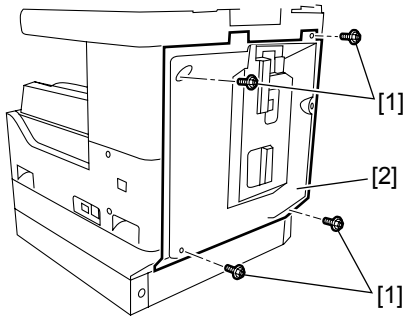
4)While grasping the handle of the cartridge, remove the cartridge from the cartridge holder.



F-9-49

9.4.10.2 Removing the Rear Cover

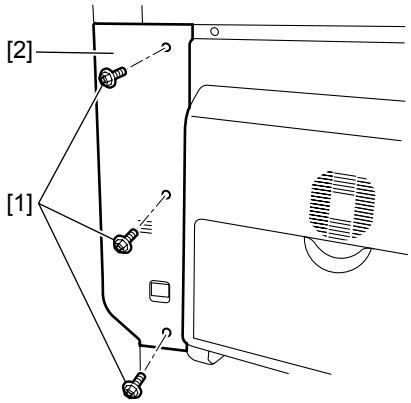
1) Remove the four screws [1], and then detach the rear cover [2].



F-9-50

9.4.10.3 Removing the Left Cover (Rear)

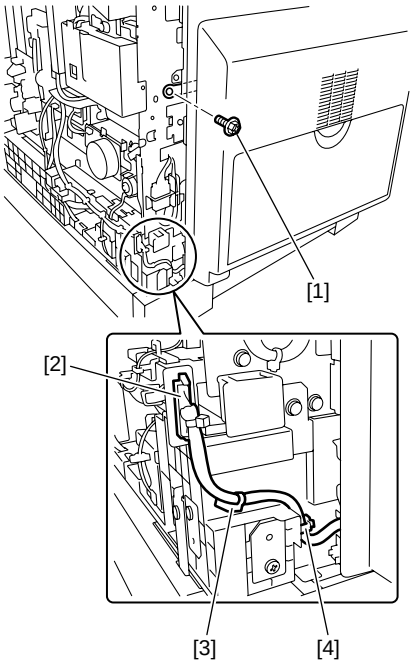
1) Remove the three screws [1], and then detach the left cover (rear)[2].



F-9-51

9.4.10.4 Removing the Left Door

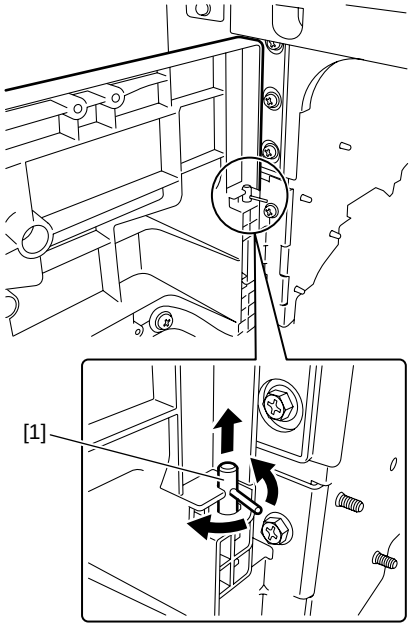
1) Remove the screw [1] securing the door support band. Remove the connector [2] and reusable band [3], and release the manual feed harness from the wire saddle [4].



F-9-52

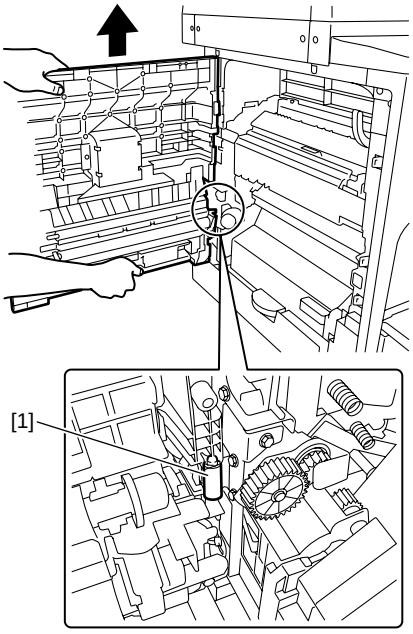
2) Open the left door until it sops and pull out the hinge shaft [1].

MEMO:
When a duplex unit (option) is installed, remove it before pulling out the hinge shaft for each access.



F-9-53

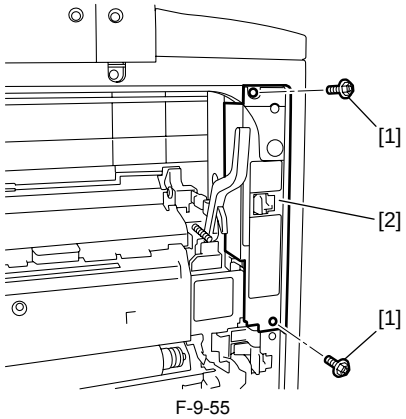
3) Lift the left door with both hands to release it from the door rotation shaft [1], and then remove the left door.



F-9-54

9.4.10.5 Removing the Fixing Unit

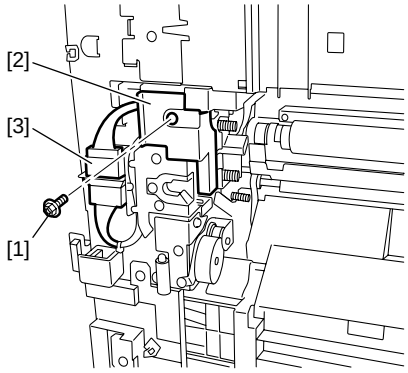
1) Remove the two screws [1], and then detach the inner cover [2] at the upper front.



F-9-55

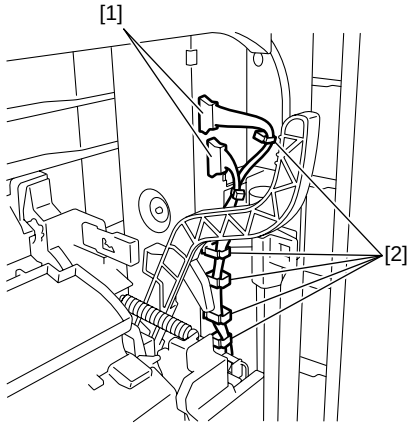
2) Remove the screw [1], and then detach the heater harness cover [2].

Disconnect the connector [3].



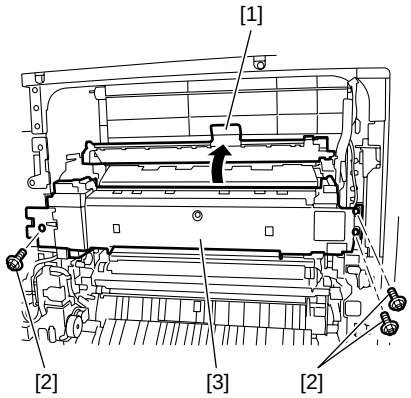
F-9-56

3) Disconnect the two connectors [1], and then release the fixing unit harness from the wire saddle [2].



F-9-57

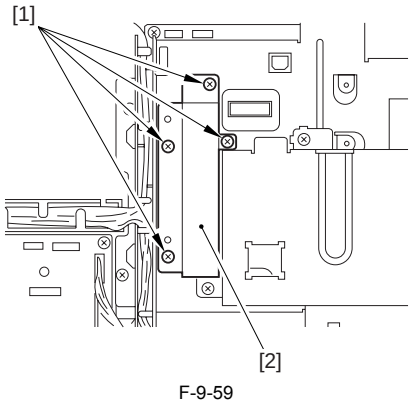
4) Raise the delivery upper guide [1]. Remove the three screws [2], and then remove the fixing unit [3].



F-9-58

9.4.10.6 Removing the RAM Cover

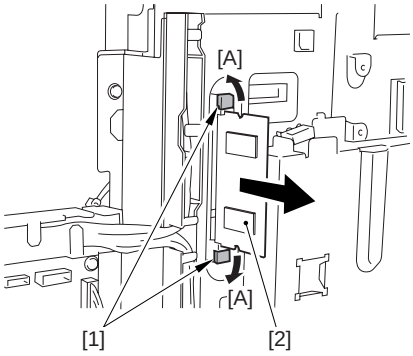
1) Remove the four screws [1], and then detach the RAM cover [2].



F-9-59

9.4.10.7 Removing the SDRAM

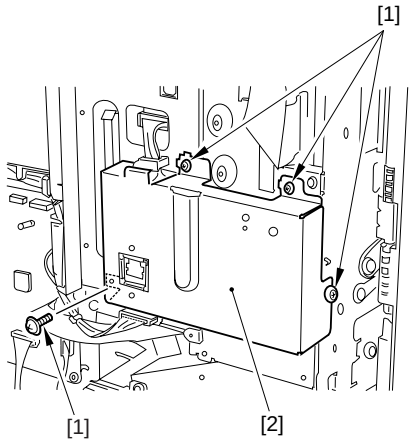
1) Release two lock levers [1] in the direction of arrow [A] and remove SDRAM [2].



F-9-60

9.4.10.8 Removing the LAN Cover

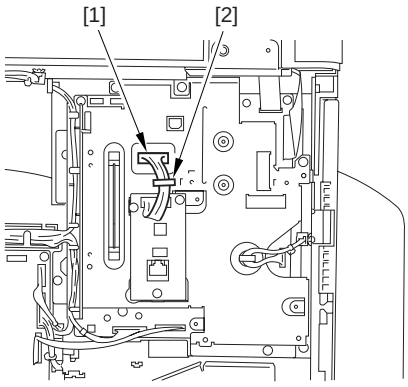
1) Remove the four screws [1], and then detach the LAN cover [2].



F-9-61

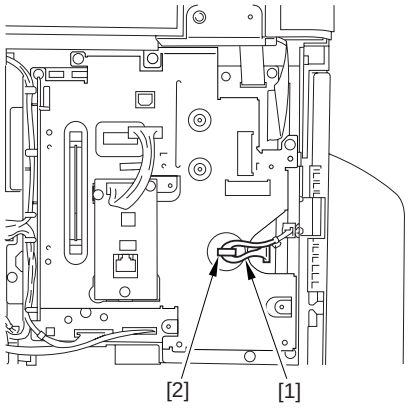
9.4.10.9 Removing the IP Cover

1) Remove a connector [1] of IP-LAN cable and a cable clamp [2].



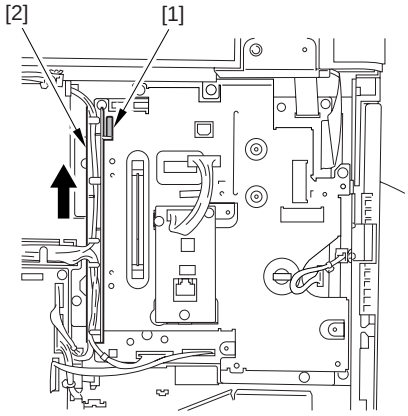
F-9-62

2) Release SOFT ID cable [1] from the cable clamp [2].



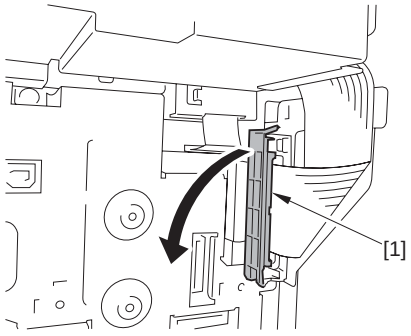
F-9-63

3) Release a claw [1] of cable guide and detach the cable guide [2] upward.



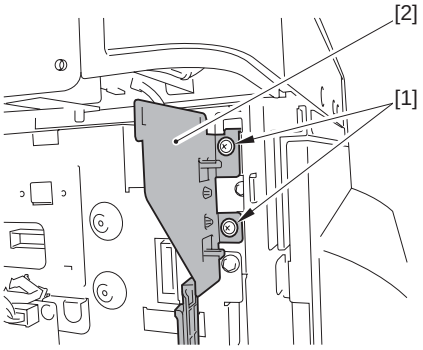
F-9-64

4) Open a core [1].



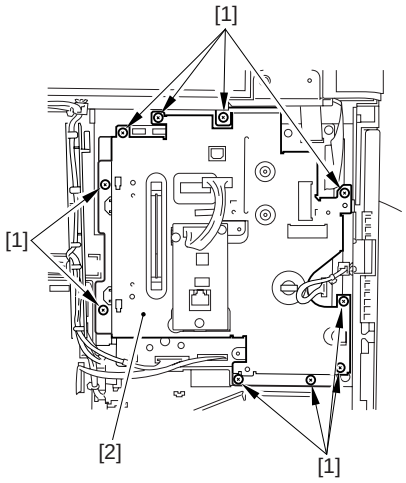
F-9-65

5) Remove the two screws [1], and then detach the flexible cable guide [2].



F-9-66

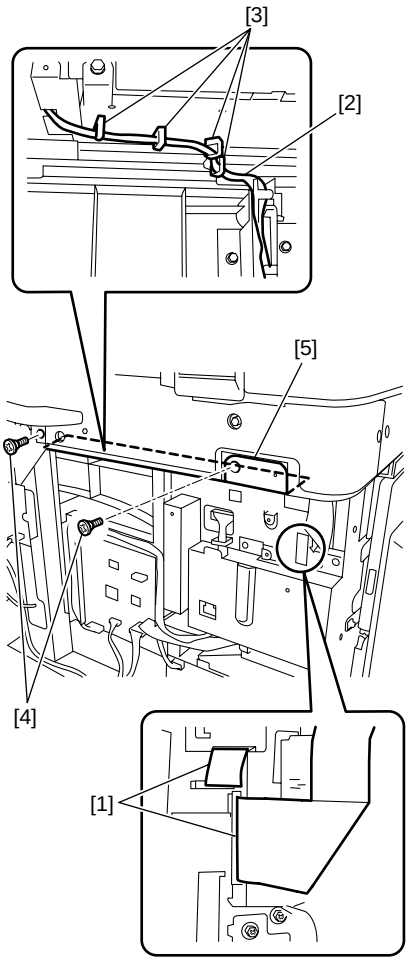
6) Remove the 10 screws [1], and then detach the IP cover [2].



F-9-67

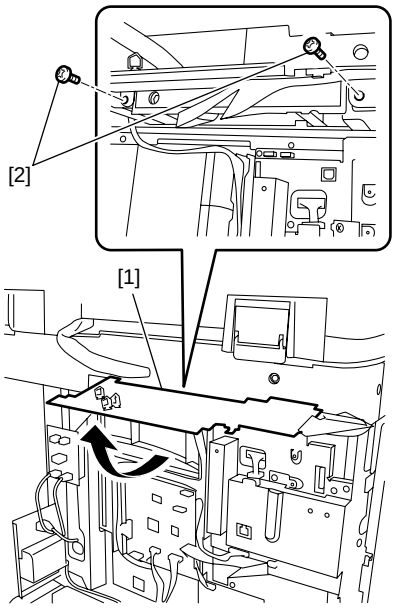
9.4.10.10 Removing the Image Processor PCB Mount

1) Disconnect the two reader flexible cables [1]. Release the harness [2] from the wire saddles [3]. Remove the two screws [4], and then detach the flexible cable cover [5].



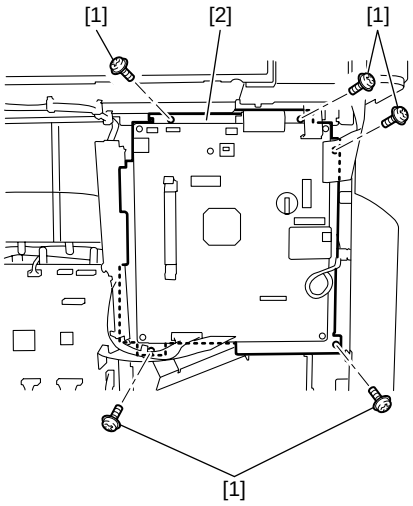
F-9-68

2) Turn over the reader flexible cable cover [1], and then secure to the back of the reader temporarily using a screw [2].



F-9-69

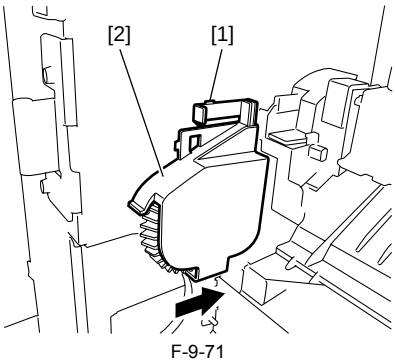
3) Disconnect all connectors and remove the five screws [2], then remove the image processor PCB with the PCB mount.



F-9-70

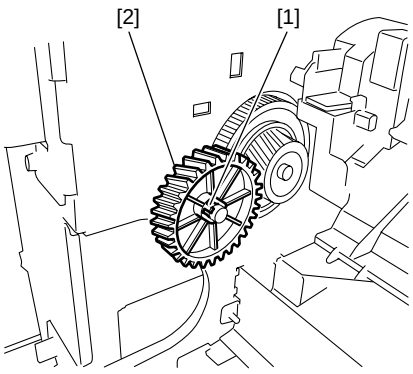
9.4.10.11 Removing the Fixing Drive Unit

1) Release the claw [1] on the gear cover, and then remove the gear cover [2] by sliding it in the direction of the arrow.



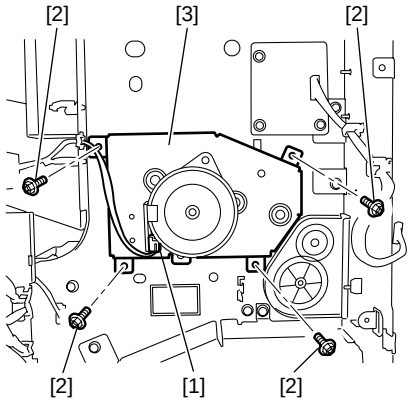
F-9-71

2) Release the gear stopper [1], and then remove the gear [2].



F-9-72

3) Remove the four screws [1], and then remove the fixing drive unit [2].

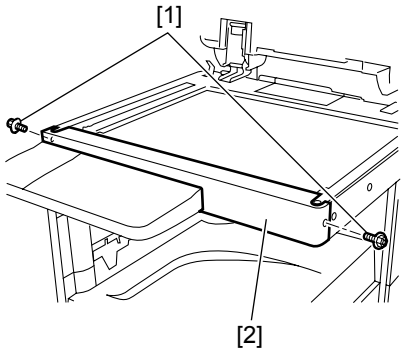


F-9-73

9.4.11 Operation Panel Unit

9.4.11.1 Removing the Reader Front Cover

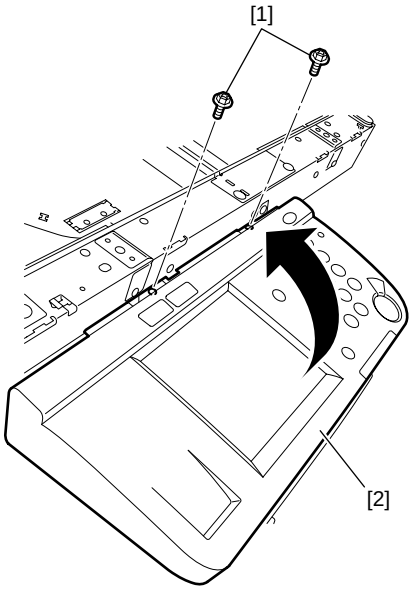
1) Open the copyboard cover (or ADF).
2) Remove the two screws [1], and then detach the reader front cover [2].



F-9-74

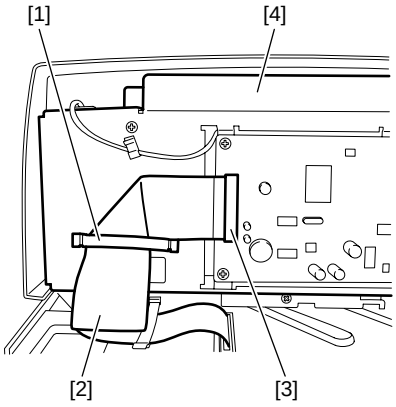
9.4.11.2 Removing the Operation Panel Unit

1) Remove the two screws [1], and then turn over the operation panel unit[2].



F-9-75

2) Disconnect the flexible cable holder [1] and disconnect the connector [3] of the flexible cable [2] to remove the operation panel unit [4].

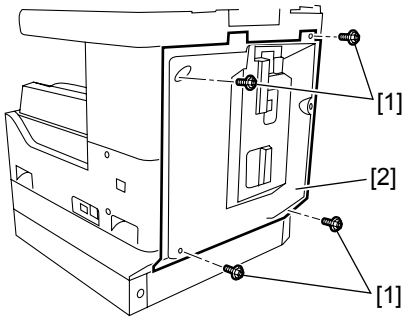


F-9-76

9.4.12 DC Controller PCB

9.4.12.1 Removing the Rear Cover

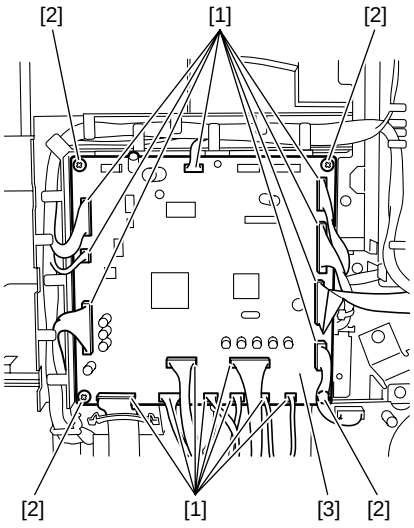
1) Remove the four screws [1], and then detach the rear cover [2].



F-9-77

9.4.12.2 Removing the DC Controller PCB

1) Disconnect all connectors [1]. Remove the four screws [2], and then remove the DC controller PCB [3].

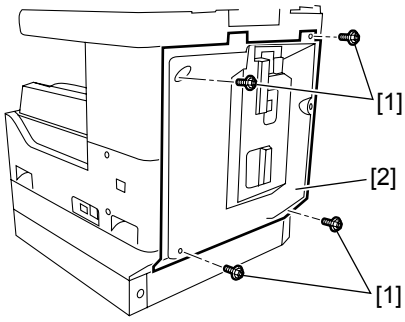


F-9-78

9.4.13 Powwer Supply PCB

9.4.13.1 Removing the Rear Cover

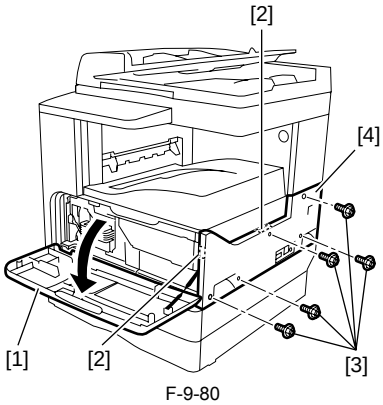
1) Remove the four screws [1], and then detach the rear cover [2].



F-9-79

9.4.13.2 Removing the Right Cover (Lower)

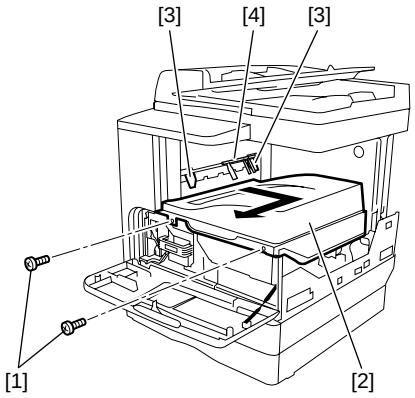
1) Open the front cover[1].
2) Remove the five screws [2]. Remove the two hooks [3], and then detach the right cover (lower) [4].



F-9-80

9.4.13.3 Removing the Delivery Tray

1) Remove the two screws [1], and then detach the delivery tray [2].

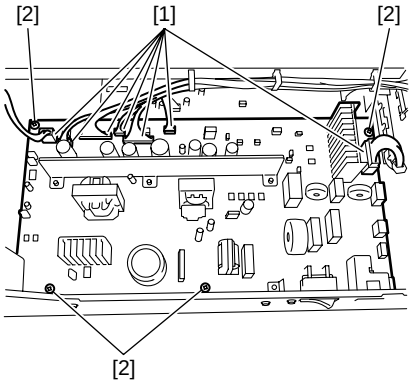


F-9-81

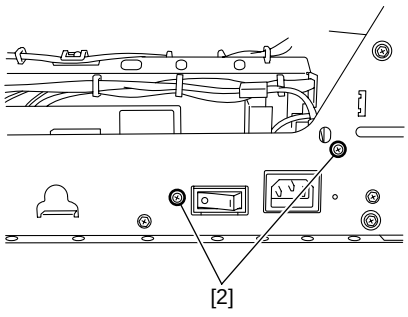
⚠When attaching or detaching the delivery tray, be careful not to damage the paper holder [3] and full stack sensor flag [4].(The full stack sensor flag is not installed in case of MF7120/MF7170i.)

9.4.13.4 Removing the Main Power Supply PCB

1) Remove the connector [1] and screw [2], and then remove the power supply PCB [3].



F-9-82

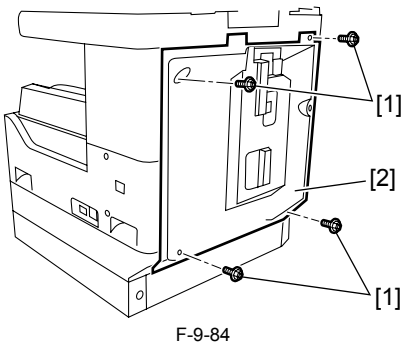


F-9-83

9.4.14 HVT PCB

9.4.14.1 Removing the Rear Cover

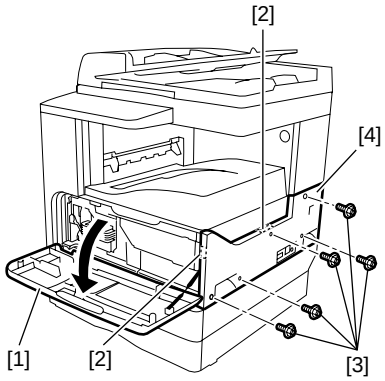
1) Remove the four screws [1], and then detach the rear cover [2].



F-9-84

9.4.14.2 Removing the Right Cover (Lower)

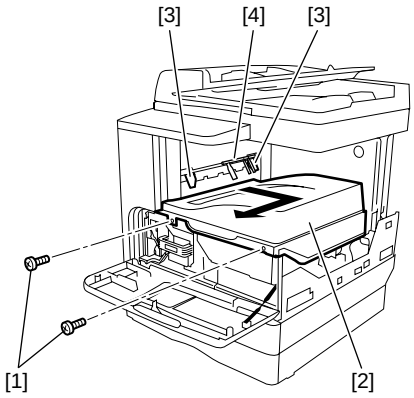
1) Open the front cover[1].
2) Remove the five screws [2]. Remove the two hooks [3], and then detach the right cover (lower) [4].



F-9-85

9.4.14.3 Removing the Delivery Tray

1) Remove the two screws [1], and then detach the delivery tray [2].

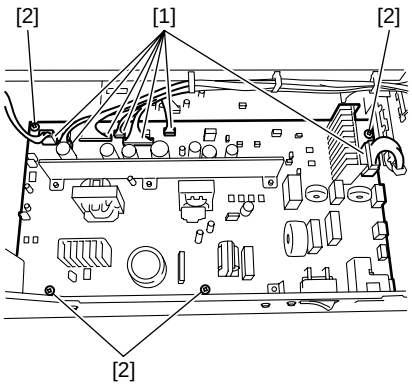


F-9-86

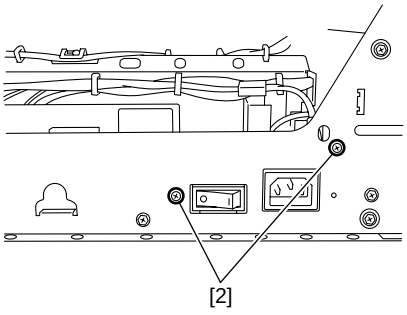
⚠When attaching or detaching the delivery tray, be careful not to damage the paper holder [3] and full stack sensor flag [4].(The full stack sensor flag is not installed in case of MF7120/MF7170i.)

9.4.14.4 Removing the Main Power Supply PCB

1) Remove the connector [1] and screw [2], and then remove the power supply PCB [3].



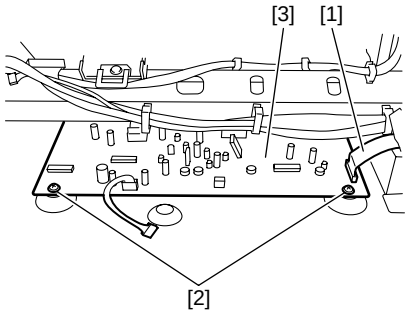
F-9-87



F-9-88

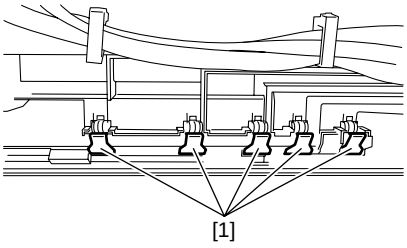
9.4.14.5 Removing the HVT PCB

1) Remove the connector [1] and screw [2], and then remove the HVT PCB.



F-9-89

When installing the HVT PCB, check that the contacts on the high voltage electrode plate [1] touch the contacts on the PCB.

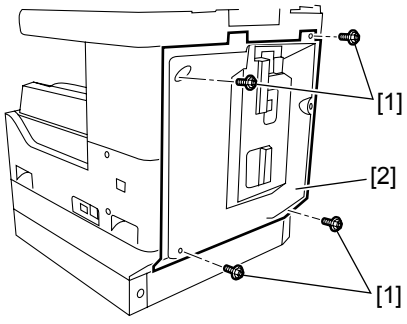


F-9-90

9.4.15 Main Drive Motor

9.4.15.1 Removing the Rear Cover

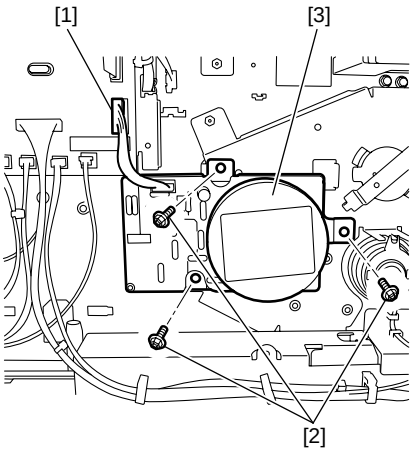
1) Remove the four screws [1], and then detach the rear cover [2].



F-9-91

9.4.15.2 Removing the Main Motor

1) Disconnect the connector [1], remove three screws [2], and then remove the main motor [3].

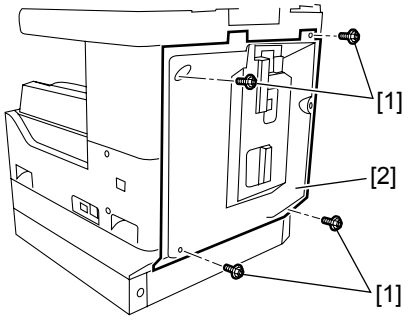


F-9-92

9.4.16 Fixing Drive Motor

9.4.16.1 Removing the Rear Cover

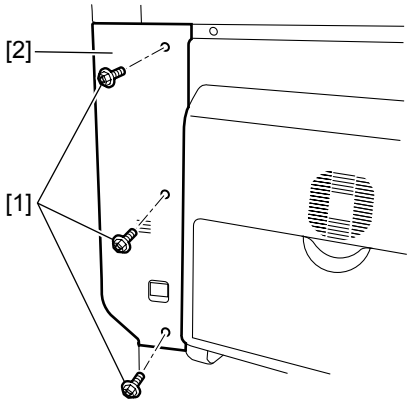
1) Remove the four screws [1], and then detach the rear cover [2].



F-9-93

9.4.16.2 Removing the Left Cover (Rear)

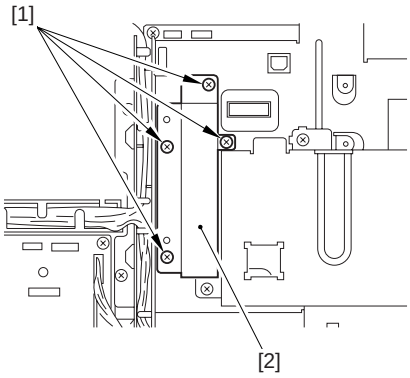
1) Remove the three screws [1], and then detach the left cover (rear)[2].



F-9-94

9.4.16.3 Removing the RAM Cover

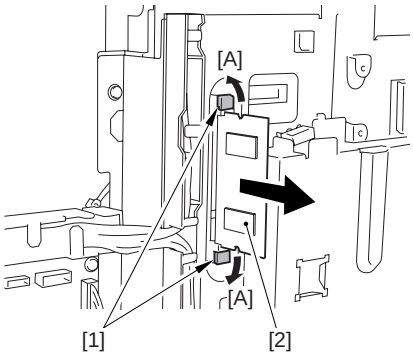
1) Remove the four screws [1], and then detach the RAM cover [2].



F-9-95

9.4.16.4 Removing the SDRAM

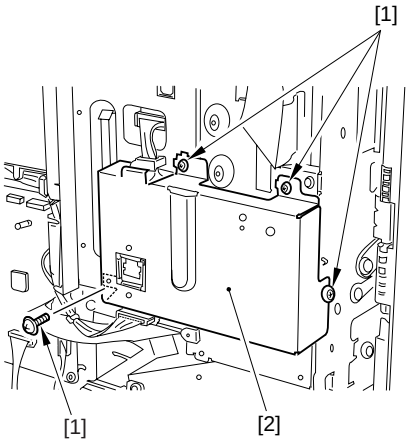
1) Release two lock levers [1] in the direction of arrow [A] and remove SDRAM [2].



F-9-96

9.4.16.5 Removing the LAN Cover

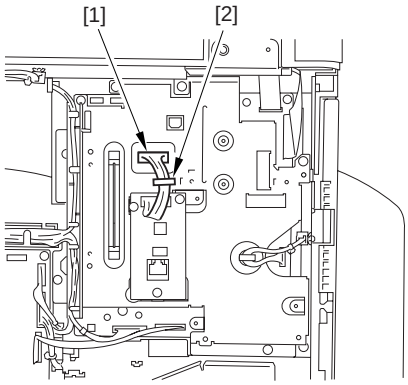
1) Remove the four screws [1], and then detach the LAN cover [2].



F-9-97

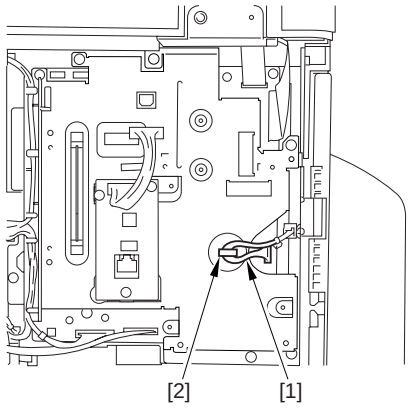
9.4.16.6 Removing the IP Cover

1) Remove a connector [1] of IP-LAN cable and a cable clamp [2].



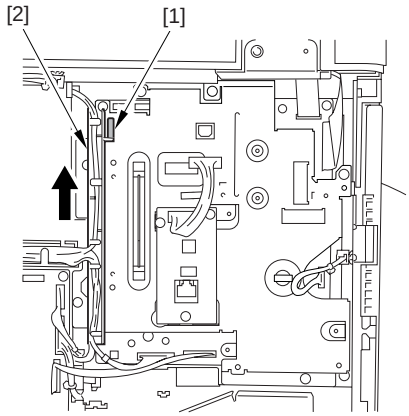
F-9-98

2) Release SOFT ID cable [1] from the cable clamp [2].



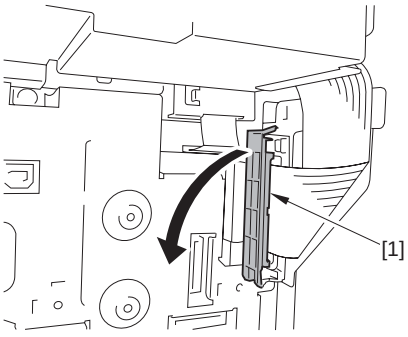
F-9-99

3) Release a claw [1] of cable guide and detach the cable guide [2] upward.



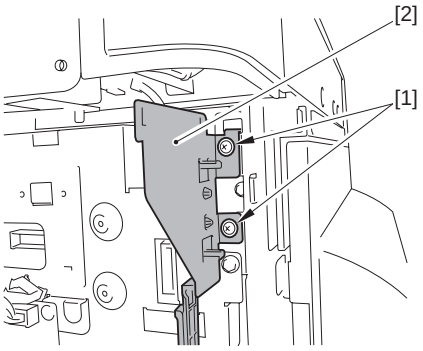
F-9-100

4) Open a core [1].



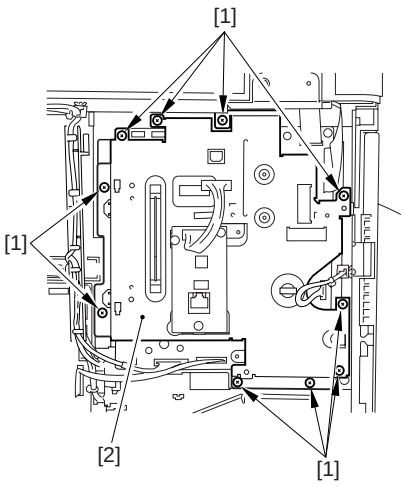
F-9-101

5) Remove the two screws [1], and then detach the flexible cable guide [2].



F-9-102

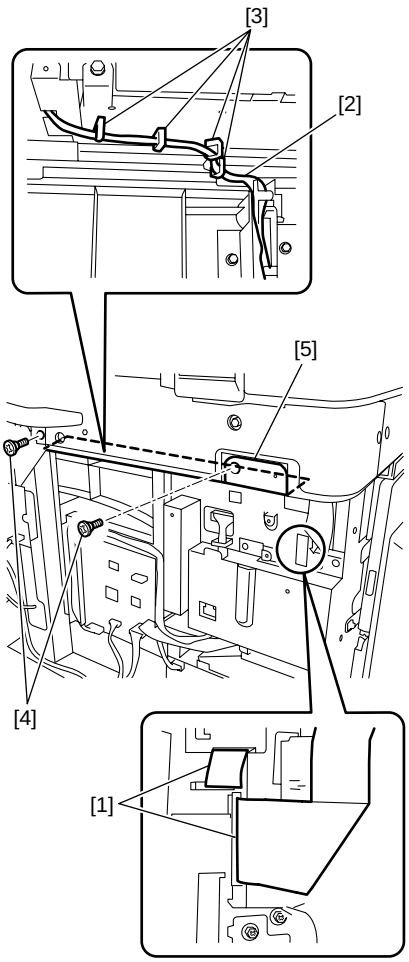
6) Remove the 10 screws [1], and then detach the IP cover [2].



F-9-103

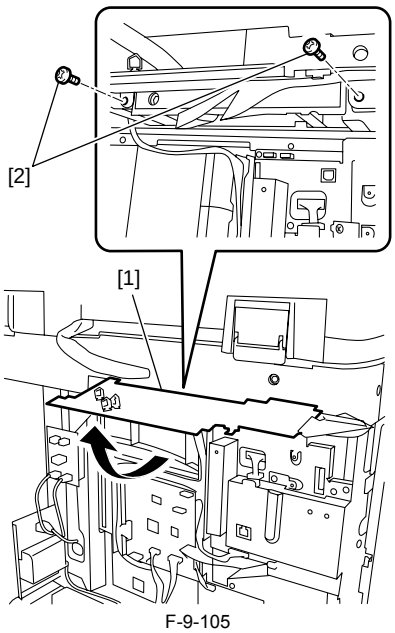
9.4.16.7 Removing the Image Processor PCB Mount

1) Disconnect the two reader flexible cables [1]. Release the harness [2] from the wire saddles [3]. Remove the two screws [4], and then detach the flexible cable cover [5].



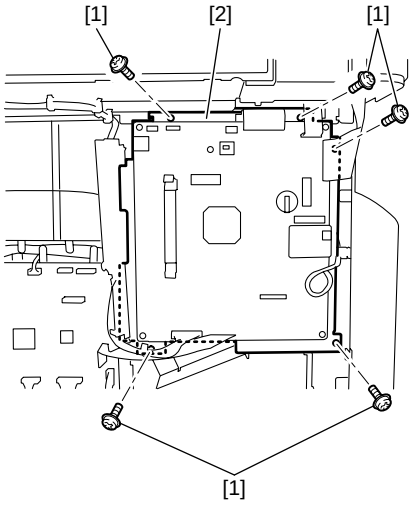
F-9-104

2) Turn over the reader flexible cable cover [1], and then secure to the back of the reader temporarily using a screw [2].



F-9-105

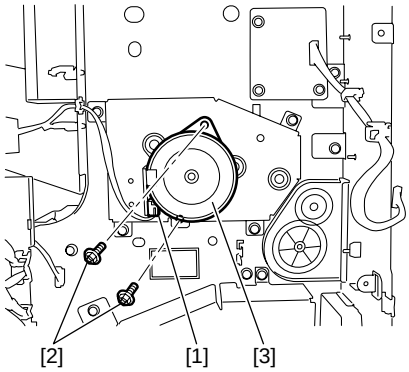
3) Disconnect all connectors and remove the five screws [2], then remove the image processor PCB with the PCB mount.



F-9-106

9.4.16.8 Removing the Fixing Unit Drive Motor

1) Disconnect the connector [1], remove the two screws [2], and then remove the fixing motor [3].

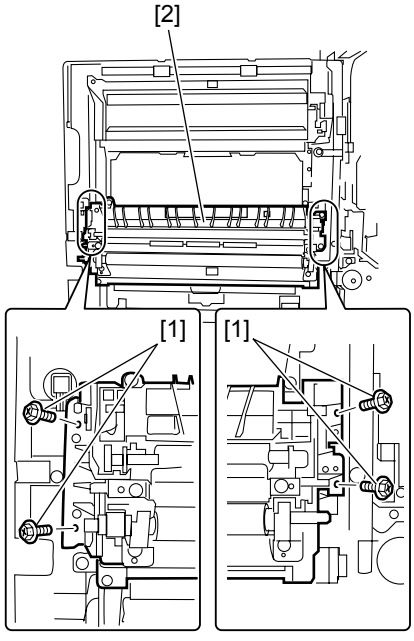


F-9-107

9.4.17 Fixing Heat Discharge Fan

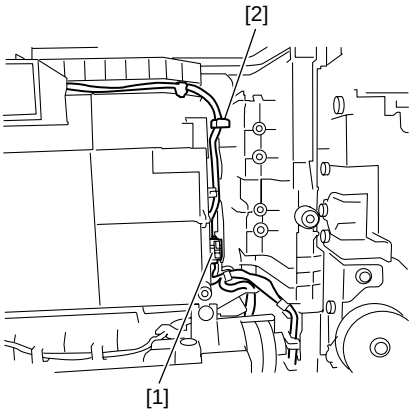
9.4.17.1 Removing the Fixing Heat Discharge Fan

1) Open the left door until it stops.
2) Remove the four screws [1], and then remove the transfer/registration unit [2].



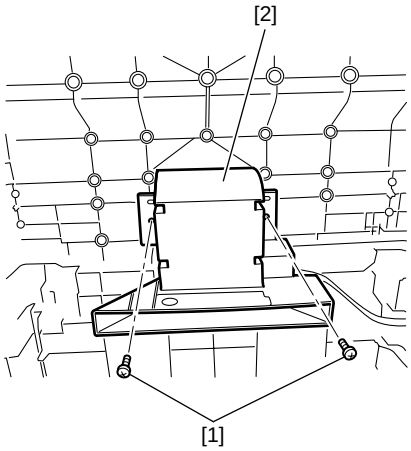
F-9-108

3) Disconnect the connector [1], and then release the harness from the wire saddle [2].



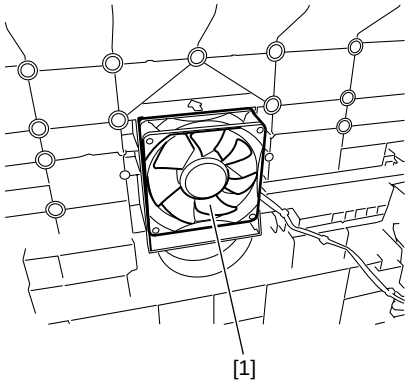
F-9-109

4) Remove the two screws [1], and then remove the duct [2].



F-9-110

5) Remove the fixing heart discharge fan [1].

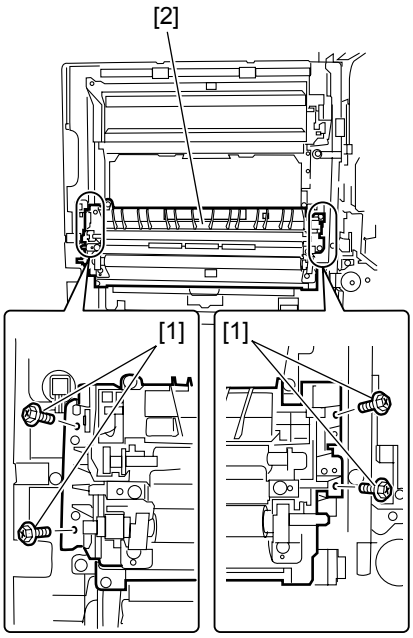


F-9-111

9.4.18 Fan Filter

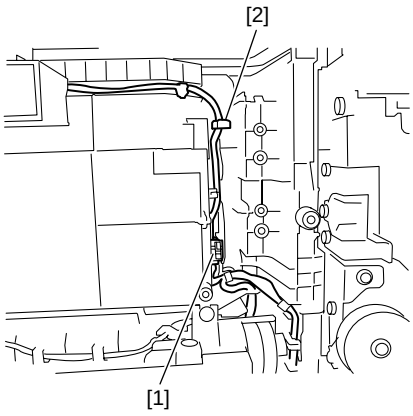
9.4.18.1 Removing the Fan Filter

1) Open the left door until it stops.
2) Remove the four screws [1], and then remove the transfer/registration unit [2].



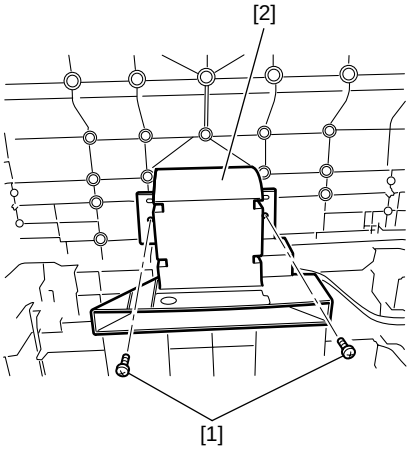
F-9-112

3) Disconnect the connector [1], and then release the harness from the wire saddle [2].



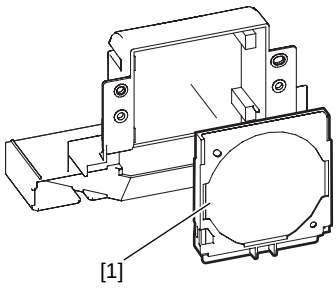
F-9-113

4) Remove the two screws [1], and then remove the duct [2].



F-9-114

5) Remove the fan filter [1] from the duct.



F-9-115

MEMO:
When a duplex unit is used, first remove the duplex unit and next remove the fan filter from it.

Chapter 10 Maintenance and Inspection

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10.1 Periodically Replaced Parts

10.1.1 Overview

The machine has parts that must be replaced on a periodical basis to ensure a specific level of functional performance. (The loss of the function of any of these parts will significantly affect the machine performance, regardless of the presence/absence of external changes or damage.)
If possible, schedule the replacement so that it coincides with a scheduled service visit.

The timing of replacement may vary depending on the site environment or user habit.

10.1.2 Reader Unit

The reader unit does not have parts that require periodical replacement.

10.1.3 Printer Unit

The printer unit does not have parts that require periodical replacement.

10.2 Consumables

10.2.1 Overview

The machine has parts that may require replacement once or more during the period of product warranty because of wear or damage. Replace them as needed by referring to their indicated estimated lives.
- Checking the Timing of Replacement
Use the following service mode item to check the timing of replacement:
#COUNTER > DRBL-1
- FX-UNIT: Fixing Unit
- TR-ROLL: Transfer roller
- M-PU-RL: Manual feed pickup roller
- M-SP-PD: Manual feed separation pad

10.2.2 Reader Unit

The reader unit does not have parts that are classified as durables.

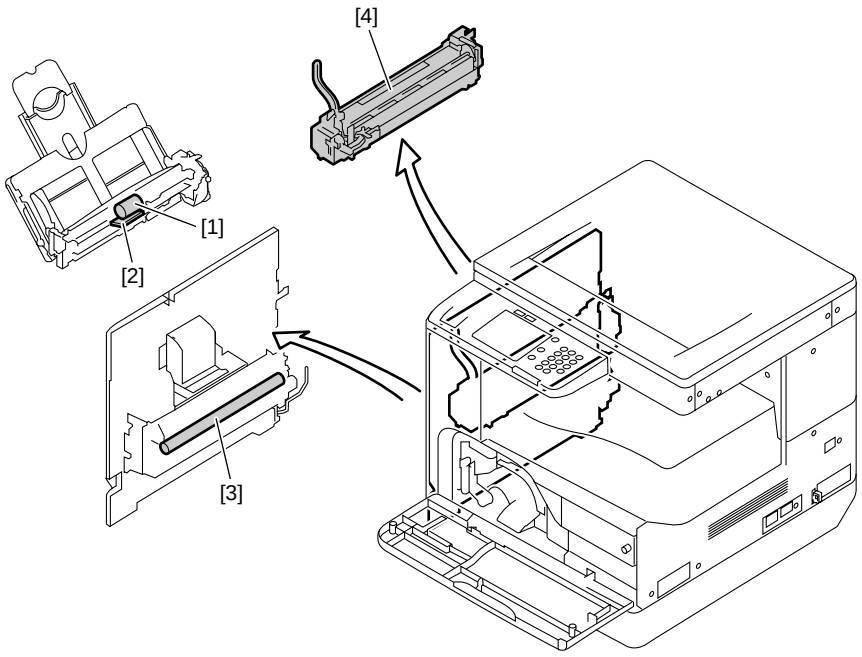
10.2.3 Printer Unit

T-10-1

As of Aug. 2005

Ref.	Parts name	Parts No.	Q'ty	Life	Remarks
[1]	Manual feed pickup roller	FL2-3202-000	1	150K	
[2]	Manual feed separation pad	FL2-3201-000	1	150K	
[3]	Transfer roller	FC6-4313-000	1	150K	
[4]	Fixing unit (100V)	FM2-6351-000	1	150K	
	Fixing unit (120V)	FM2-3345-000	1	150K	
	Fixing unit (230V)	FM2-3352-000	1	150K	

The value is the mean value collected from the results of evaluation. The parts number may change because of changes in design.



F-10-1

10.3 Periodical Service

10.3.1 Scheduled Servicing

The reader and printer unit does not have items that require scheduled servicing.

⚠
Be sure to clean the copyboard glass and the ADF reading glass during every service visit.

Chapter 11 Measurement and Adjustments

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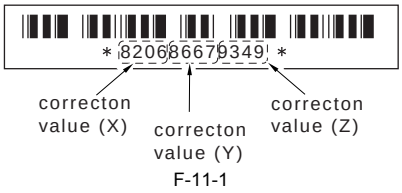
11.1 Scanning System

11.1.1 Procedure after Replacing the CIS

After replacing the contact image sensor (CIS), go through the following steps to perform inter-channel output correction:
1) Enter the service mode.
Sequentially press the Additional functions key, 2 key, 8 key, and Additional functions key on the operation panel.
2) Press the arrow key on the touch panel to display "TEST MODE".
3) Press [OK].
4) Press the [2] key to display "SCAN TEST".
5) Press the [1] key to display "SHADING".
6) Press [OK].
After completion of the above procedure, the contact sensor output is compensated and parameters are set automatically.
After completion of automatic adjustment, "OK" is displayed.

11.1.2 Procedure after Replacing the Copyboard Glass

After replacing the copyboard glass, enter the correction values (X, Y, Z) of the standard white plate which are indicated on the back of the new copyboard glass in the service mode.
Correction value (X): Service mode>#SCAN>#SCAN NUMERIC>No.213
Correction value (Y): Service mode>#SCAN>#SCAN NUMERIC>No.214
Correction value (Z): Service mode>#SCAN>#SCAN NUMERIC>No.215
Also, rewrite the values on the service label.



F-11-1

11.2 Electrical Adjustments

11.2.1 Procedure after Replacing the Image Processor PCB

If you have replaced the image processor PCB with a new one, perform the following operations:
- Using the service support tool, download the latest firmware (System/Boot) and language files.
- Delete the languages not used at the destination (Service mode > CLEAR > FILE SYSTEM).
- Input the all value printed on the service label affixed to the rear cover.
Make the following adjustments:
- Correction of output between CIS channels
1) Enter the service mode.
Sequentially press the Additional functions key, 2 key, 8 key, and Additional functions key on the operation panel.
2) Press the arrow key on the touch panel to display "TEST MODE".
3) Press [OK].
4) Press the [2] key to display "SCAN TEST".
5) Press the [1] key to display "SHADING".
6) Press [OK].
After completion of the above procedure, the contact sensor output is compensated and parameters are set automatically.
After completion of automatic adjustment, "OK" is displayed.
- Read position adjustment (Stream reading: Only when the ADF is installed)
1) Enter the service mode.
Sequentially press the Additional functions key, 2 key, 8 key, and Additional functions key on the operation panel.
2) Press the arrow key on the touch panel to display "TEST MODE".
3) Press [OK].
4) Press the [2] key to display "SCAN TEST".
5) Press the [3] key to display "SHEET POS ADJ".
6) Press [OK].
The optical system starts scanning. Several seconds later, automatic adjustment of the reading position finishes and "OK" appears.

If automatic adjustment fails, "NG" appears. Perform the following procedure:
Clean the white roller of the DADF and the document glass of the host machine, and then retry auto adjustment.

11.2.2 Procedure after Replacing the USB Memory

If you have replaced the USB with a new one, perform the following operations:
- Using the service support tool, download language files.
- Delete the languages not used at the destination (Service mode > CLEAR > FILE SYSTEM).

MEMO:
You also need to perform these operations after formatting the damaged USB memory.

11.2.3 Actions to Take before All Clearing (Backing up the User Data)

- Performing the all-clear operation in the service mode (#CLEAR > ALL) erases/initializes the user data such as address data and user mode settings.
  Be sure to back up the user data with the data export function before starting the all-clear operation, and then load the user data with tbe data import function.
- To export and import user data, a PC and a USB cable are required. Have them on hand.

a. Exporting user data
1) Output a user data list in the following user mode.
> Report Setting > Plint List > User Data List
2) Press the following keys to enter the service mode.
> 2 key > 8 key >
3) Select "#SYSTEM" using ◀ or ▶, and then press the OK.
4) Select "#SYSTEM SW" using ◀ or ▶, and then press the OK.
5) Press the following keys to display "SW003."
   # > 0 key > 3 key
   Message: #SYSTEM SW003 00001000
6) Position the cursor at Bit-6 (second from left) using ◀ or ▶, and then press the 1 key.
   Message: #SYSTEM SW003 01001000
7) Press the OK key. Check that "SW003" changes to "SW004".
   Message: #SYSTEM SW004 00000000
8) Press the Reset key to exit the service mode.
9) Turn off the main power switch, and then turn it on again.
10) Start the PC and connect it to this machine with a USB cable.
11) Open My Computer on the PC to check that the "Removable Disk" icon is displayed. If the "Removable Disk" icon is not displayed, repeat the above procedure starting with step 1.
12) Double-click the "Removable Disk" icon, and then copy the user data (address_book.abk and user_data.dat) onto the Desktop.
13) Close the window on the Desktop.
14) Turn off the main power switch of this machine.
15) Disconnect the USB cable from this machine.

b. Importing user data
1) Press the flowing keys to enter the service mode.
> 2 key > 8 key >
2) Select "#SYSTEM" using ◀ or ▶, and then press the OK.
4) Select "#SYSTEM SW" using ◀ or ▶, and then press the OK.
5) Press the following keys to display "SW003".
   # > 0 key > 3 key
   Message: #SYSTEM SW003 00001000
5) Check that Bit-6 (second from left) is set to set to "1". If Bit-6 is not set to "1", position the cursor at this bit using ◀ or ▶ and then press the 1 key.
   Message: #SYSTEM SW003 01001000
6) Press the OK key. Check that "SW003" changes to "SW004".
   Message: #SYSTEM SW004 00000000
7) Press the Reset key to exit the service mode.
8) Turn off the main power switch, and then turn it on again.
9) Open My Computer on the PC to check that the "Removal Disk" icon is displayed.
11) Write the user data (address_book.abk and user_data.dat) copied onto the Desktop as described in "a. Exporting user data" over the removable disk.
12) Disconnect the USB cable from the machine.
13) Turn off the main power switch of the machine.
14) Perform steps 1) to 4) again to reset Bit-6 of "SW003" to "0".
15) Press the OK key. When "SW003" changes to "SW004", press the Reset key to exit the service mode.
16) Check the user data list output as described in "a. Exporting user data" to make sure that the user data has been loaded into the machine properly.

Chapter 12 Correcting Faulty Images

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12.1 Initial Checkup

12.1.1 Site Environment

a. There must be a source of power whose voltage is as specified (+/-10%). The power plug must never be disconnected day and night.
b. The machine must not be in an area subject to high humidity (near a water faucet, water boiler, humidifier). The site must not be too cold or subject to dust. The machine must not be near a source of fire.
c. The site must not be subject to ammonium gas.
d. The machine must not be exposed to the rays of the sun. As necessary, curtains must be provided.
e. The area must be well ventilated. The machine must be on a level floor.
f. Be sure that there is a source of power that can be used by the machine.

12.1.2 Checking the Paper

a. Be sure the paper being used is of a type recommended by Canon.
b. Be sure that the paper is not moist. Try using paper fresh out of package.

12.1.3 Checking the Placement of Paper

a. There must be paper in the cassette or the tray deposited within a specific limit.
b. If transparencies are used, be sure that they are placed in the manual feed tray in the correct orientation.

12.1.4 Checking the Durables

Refer to the table of durables, and replace those that have reached the end of their lives.

12.1.5 Checking the Units and Functional Systems

<Reader>
- Check whether the optical system (contact sensor/white panel/copyboard glass) is free from scratches, stain, foreign objects.
- Check whether the contact sensor unit moves smoothly. Check whether the rails are free from dirt.
- Check whether the contact sensor is not flickering.
- Check whether the optical system is free from dew condensation.

<Process>
- Check whether the toner cartridge is installed securely.
- Check whether the photoconductor drum is free from scratches and stain.

<Transfer>
- Check whether the transfer roller is free from scratches, stain, and deformation.

<Fixing>
- Check whether the fixing film and pressure roller are free from wear, scratches, dirt, and deformation.
- Check whether the fixing thermistor is broken.
- Check whether the thermo switch is conductive.

<Paper transport >
- Check whether the paper transport path is free from foreign objects such as paper chips.
- Check whether the paper pickup, feed, and separation rollers are free from paper dust. Also check whether these rollers are free from wear, scratches, dirt, and deformation.
- Check whether the registration roller and paper path are free from wear, scratches, dirt, and deformation.
- Check whether the transport guide is free from wear, scratches, dirt, and deformation.
- Check whether the leading edge of paper is not folded, curled, wavy, or damp.
- Check whether use of the Canon-recommended paper/transparency solves the problem.

<Machine>
- Check whether the drive system load is heavy.
- Check whether gears are worn or cracked?

<Cassette>
- Check whether the cassette is installed properly. Check whether the paper size is set properly. Check whether the same symptom occurs when the cassette is replaced with the cassette verified to be normal.
- Check whether the middle plate of the cassette moves smoothly. Check whether it is deformed.
- Check whether the side and rear alignment plates are adjusted properly.
- Check whether the cassette heater switch is turned on (when a cassette heater is installed).

<Service Mode>
- Check whether various adjustment values are the same as those printed on the service label.
- Check whether the output between CIS channels has been corrected.
(Service mode>TEST MODE>"2"(SCANTEST)>"1")
- Check whether the read position has been adjusted properly. (Stream reading: Only when the ADF is installed)
(Service mode>TEST MODE>"2"(SCANTEST)>"3"(SHEET POS ADJ))
- Check whether the error has been cleared.
(Service mode>CLEAR>ERR)

<General>
- Check whether the power cord is plugged in the outlet securely.
- Check whether the specified AC voltage is applied to the outlet.
- Check whether sensors, clutches, motors, and solenoids are operating normally. Check whether connectors are connected properly.
(Check the power supply and signal routes with reference to the general circuit diagram.)
- Check whether all cables are routed properly and all screws are not loose.
- Check whether all outer covers are attached.
- Check whether the main power switch and the power switch on the operation pane are turned on.
- Check the power cables and signal cables of options are connected properly.
- Check whether no fuse on PCBs is blown.
- Check whether the user uses the machine properly.

12.1.6 Others

If a machine is brought from a cold to warm room, its inside can start to develop condensation, leading to various problems.
a. condensation on the BD sensor is likely to cause problems associated with E100
b. condensation on the dust-proof glass is likely to cause poor image density in sub scanning direction
c. condensation on the contact sensor of the reader unit or on the copyboard glass can cause light images

d. condensation on the pickup or feed guide can cause paper feed problems

If the problem given in d. above has occurred, dry wipe the units in the feed system. Do not open the package containing a toner cartridge right after it has been brought in from a cold to warm place to avoid condensation. Be sure to leave it alone for a while (1 to 2 hr), opening it after it has become fully used to the temperature of the site.

12.2 Outline of Electrical Components

12.2.1 Cluth/Solenoid

12.2.1.1 List of Clutches/Solenoids

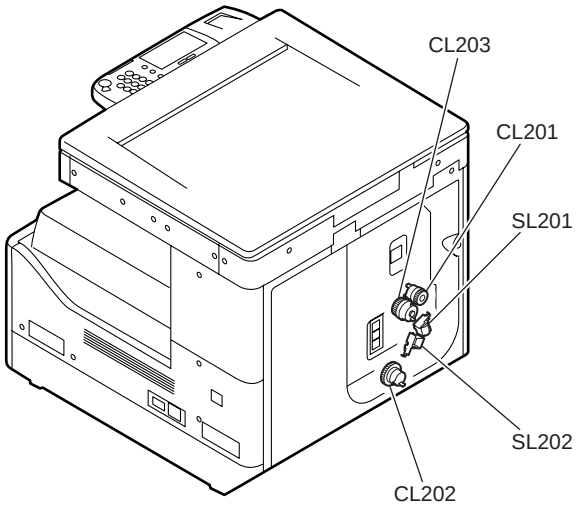
<Reader Unit>
The reader unit has no clutch/solenoid.
<Printer Unit>

T-12-1

Symbol	Name	Function
CL201	Manual pickup clutch	Drives the manual pickup roller.
CL202	Cassette feed clutch	Drives the cassette feed roller.
CL203	Registration clutch	Drives the registration clutch.
SL201	Manual pickup solenoid	Drives the manual pickup roller.
SL202	Cassette 1 pickup solenoid	Drives the cassette 1 pickup roller.

T-12-2

Symbol	Part No.	DC controller PCB
CL201	FK2-1070	J219
CL202	FK2-1068	J211
CL203	FK2-1069	J210
SL201	FK2-1083	J219
SL202	FK2-1082	J209



F-12-1

12.2.2 Motor

12.2.2.1 List of Motors

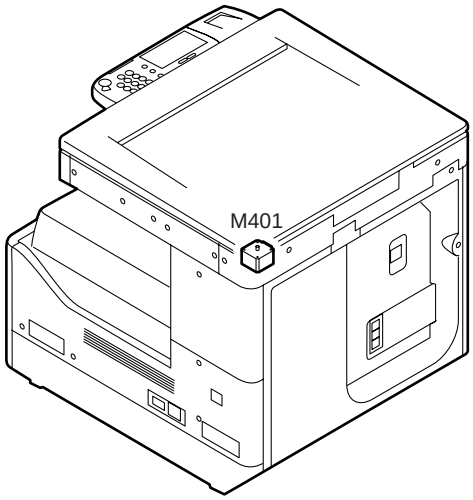
<Reader Unit>

T-12-3

Symbol	Name	Function
M401	Reader motor	Drives the carriage.

T-12-4

Symbol	Part No.	Reader controller PCB	Error
M401	FK2-1066	J409	



F-12-2

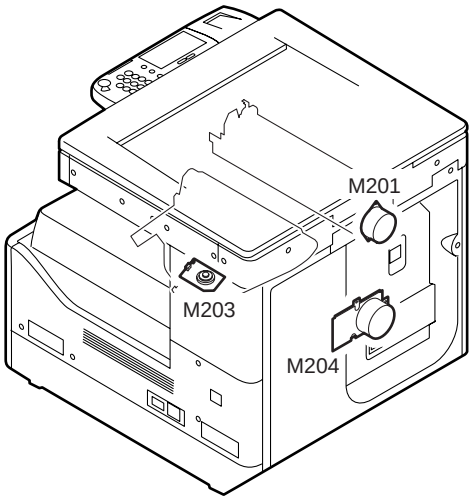
<Printer Unit>

T-12-5

Symbol	Name	Function
M201	Fixing motor	Drives the fixing unit.
M203	Polygon motor	Drives the laser scanner.
M204	Main motor	Drives the main parts of the printer.

T-12-6

Symbol	Part No.	DC controller PCB	Error
M201	FK2-1067	J202	E007, E808
M203	Scanner unit FM2-3384	J205	
M204	FK2-1080	J208	E010



F-12-3

12.2.3 Fan

12.2.3.1 List of Fans

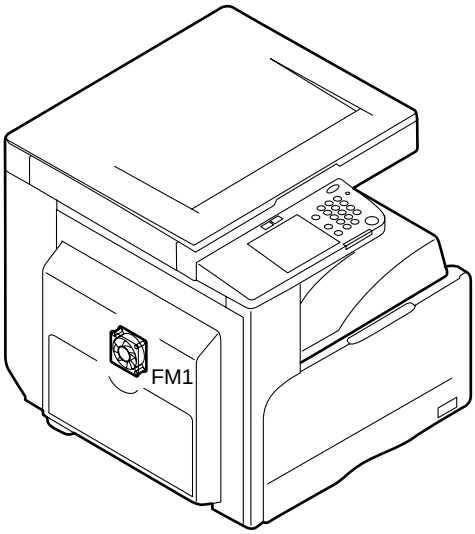
<Reader Unit>
The reader unit has no fan.
<Printer Unit>

T-12-7

Symbol	Name	Function
FM1	Heat discharge fan	Cools fixing unit.

T-12-8

Symbol	Part No.	DC controller PCB	Error
FM1	FK2-1073	J219	E805



F-12-4

12.2.4 Sensor

12.2.4.1 List of Sensors

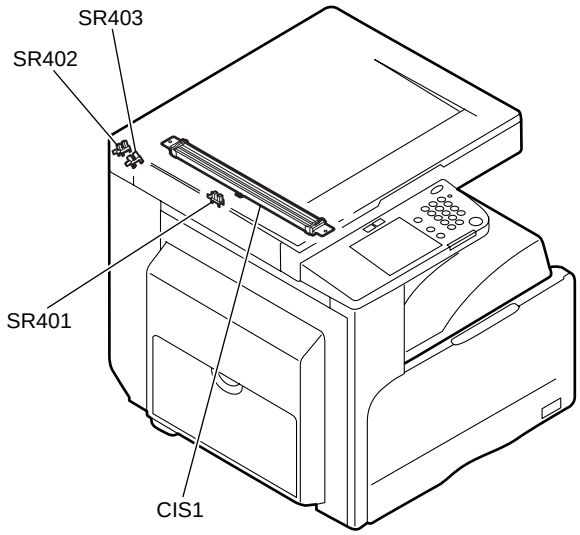
<Reader Unit>

T-12-9

Symbol	Name	Function
SR401	CIS HP sensor	Detects the CIS home position.
SR402	Copyboard cover open/closed sensor (rear)	Detects opening/closing of the copyboard cover.
SR403	Copyboard cover open/closed sensor (front)	Detects opening/closing of the copyboard cover.
CIS1	CIS	Reads the original.

T-12-10

Symbol	Part No.	Reader controller PCB	Jam code
SR401	WG8-5696	J406	
SR402	WG8-5696	J405	
SR403	WG8-5696	J405	000f
CIS1	FM2-3369	J408	



F-12-5

<Printer Unit>

T-12-11

Symbol	Name	Function
SR101	Fixing film speed sensor	Detects the fixing film speed.
SR202	Fixing delivery sensor	Detects fixing delivery.
SR203	No.1 delivery sensor	Detects delivery.
SR204	Cassette 1 paper sensor	Detects presence/absence of cassette 1 paper.

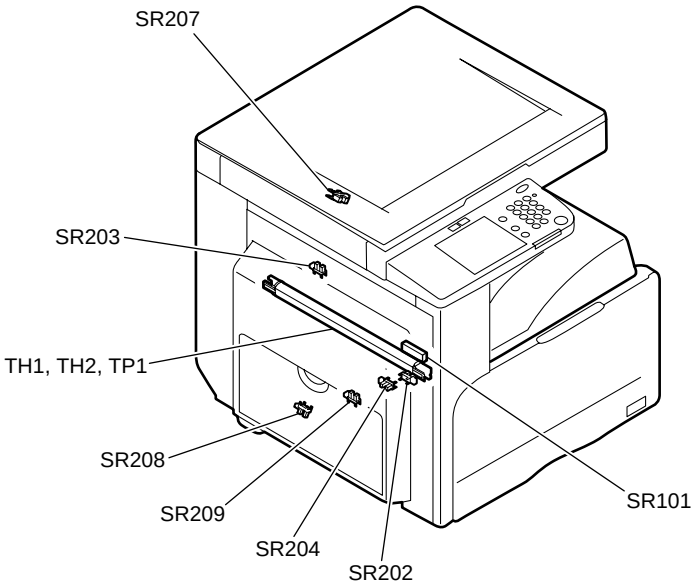
Symbol	Name	Function
SR207	No.1 paper full sensor	Detects the No.1 paper full status.
SR208	Manual paper sensor	Detects presence/absence of manually fed paper.
SR209	Registration sensor	Detects registration paper.
TH1	Fixing main thermistor	Detects the fixing heater temperature.
TH2	Fixing sub thermistor	Detects the fixing heater temperature.
TP1	Thermo switch	Cuts off the heater power supply line when an abnormal temperature is detected.

T-12-12

Symbol	Part No.	DC controller PCB	Jam code
SR201	FG3-3501	J217	
SR202	WG8-5696	J217	010c, 0210, 0214, 1118
SR203	WG8-5696	J221	010c, 0210, 0214, 1118
SR204	WG8-5696	J213	
SR207	WG8-5696	J201	
SR208	WG8-5696	J219	
SR209	WG8-5696	J212	0104, 0208, 010c, 0214, 1118

T-12-13

Symbol	Part No.	DC controller PCB	Power supply PCB
TH1,TH2	Fixing film unit FM2-6351(100V) FM2-3346(120V) FM2-3353(230V)	J217	
TP1			J13



F-12-6

12.2.5 Switch

12.2.5.1 List of Switches

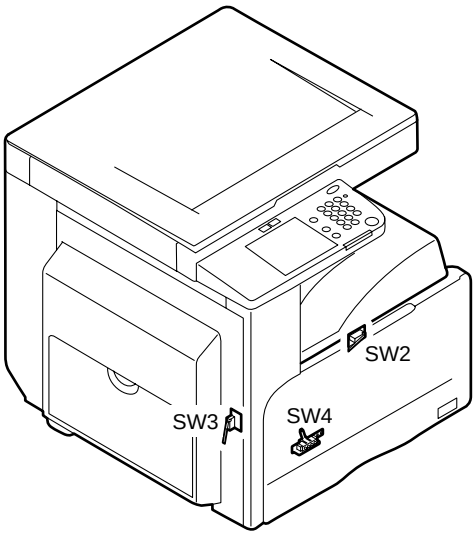
<Reader Unit>
The reader unit has no switch.
<Printer Unit>

T-12-14

Symbol	Name	Function
SW2	Front cover switch	Detects opening/closing of the front cover.
SW3	Left door switch	Detects opening/closing of the left door.
SW4	Cassette 1 size detection switch	Detects the cassette 1 paper size.

T-12-15

Symbol	Part No.	DC controller PCB	Power supply PCB
SW2	FM2-4433		J12
SW3	FM2-4433		J12
SW4	WC2-5332	J213	



F-12-7

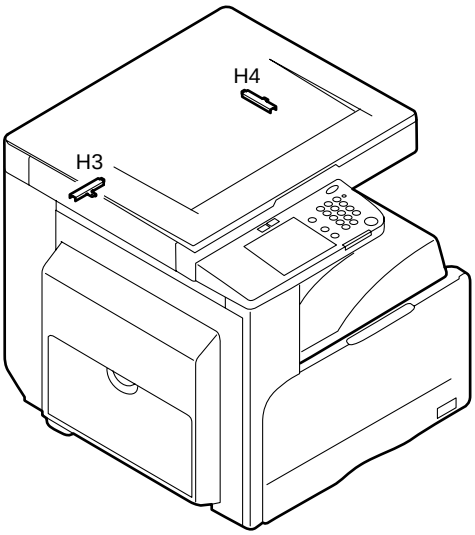
12.2.6 Lamps, Heaters, and Others

12.2.6.1 List of Lamps, Heaters, and Others

<Reader Unit>

T-12-16

Symbol	Name	Part No.	Function
H3	Reader heater (left)	NPN	Prevents dew condensation on the ADF reading glass.
H4	Reader heater (right)	NPN	Prevents dew condensation on the copyboard glass.



F-12-8

<Printer unit>

T-12-17

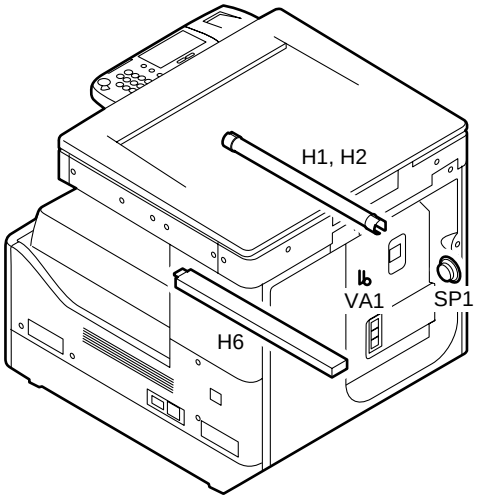
Symbol	Name	Function
H1	Fixing main heater	Used as the main heater for fixing.
H2	Fixing sub heater	Used as the sub heater for fixing.
H6	Cassette heater	Prevents paper in the cassette from absorbing moisture.
VA1	Varistor	Used as a varistor.
SP1	Speaker	Used as a speaker (for fax unit).

T-12-18

Symbol	Part No.
H1,H2	Fixing film unit FM2-6351(100V) FM2-3346(120V) FM2-3353(230V)
H6	FK2-1146(100V) FK2-1088(230V)

T-12-19

Symbol	Part No.	Modem PCB
VA1	FH5-3543	
SP1	FK2-1265	J1203



F-12-9

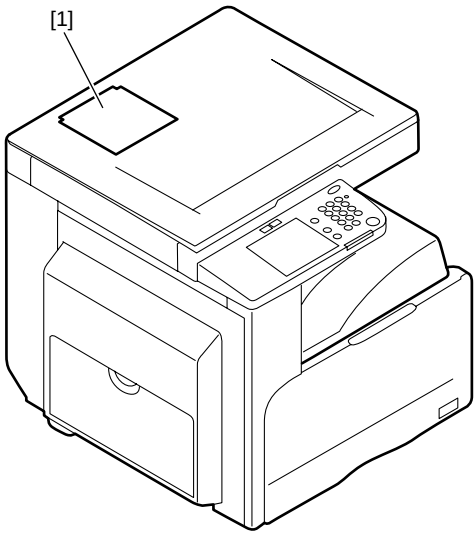
12.2.7 PCBs

12.2.7.1 List of PCBs

<Reader Unit>

T-12-20

Symbol	Name	Part No.	Function
[1]	Reader controller PCB	FM2-3305	controls the reader unit/ADF



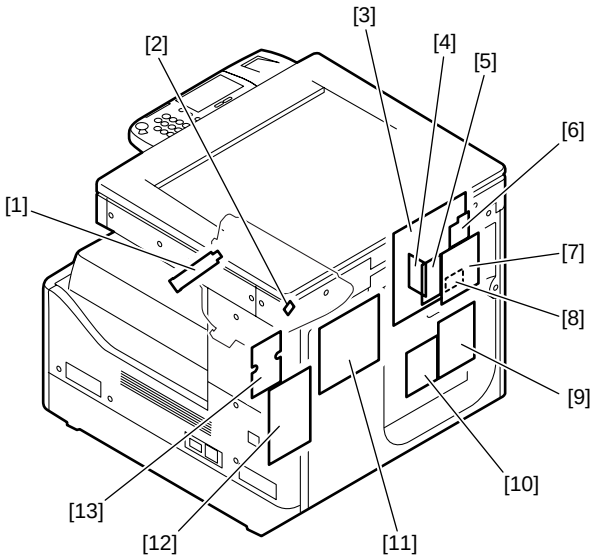
F-12-10

<Printer unit>

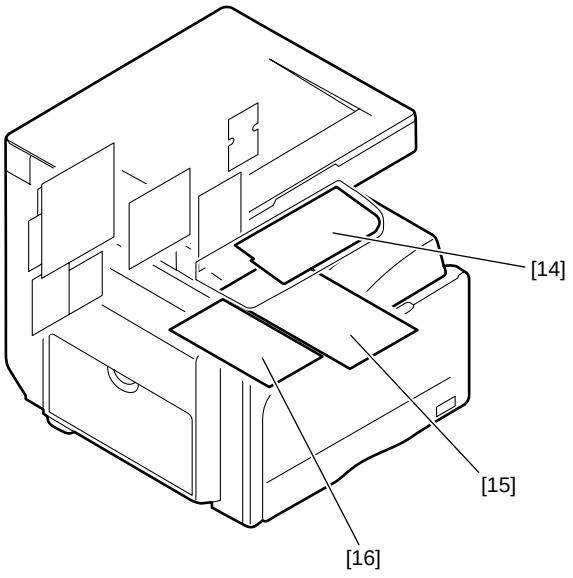
T-12-21

Symbol	Name	Part No.	Function
[1]	Laser driver PCB	Scanner unit FM2-3384	controls the laser unit drive
[2]	BD PCB		generates the BD signal
[3]	Image processor PCB	FM2-4893(MF7110/MF7140/ MF7210/MF7240) FM2-4781(MF7280/MF7170i)	processes output image data for the printer unit
[4]	256MB RAM	FM2-4056	temporarily retains image data
[5]	LAN PCB	FM2-4058	network interface/printer function control
[6]	Seriar interface PCB	FM2-4062	coin vendor interface
[7]	Modem PCB	FM2-4773(100V) FM2-4057(120V/230V)	control the fax
[8]	PCL PCB	FM2-4061	PCL function control

Symbol	Name	Part No.	Function
[9]	NCU PCB	FM2-2790	controls the line switching operation
[10]	Modular PCB	FM2-4778(100V) FM2-4777(120V) FM2-4772(230V)	fax line interface
[11]	DC controller PCB	FM2-5941(MF7110/MF7140) FM2-5942(MF7210/MF7240) FM2-5944(MF7280) FM2-5945(MF7170i)	controls the printer unit/option
[12]	Option power supply PCB	FK2-1085(100V/120V) FK2-1086(230V)	Option power supply
[13]	Heater PCB	FM2-4021	heater power switch
[14]	Operation panel PCB	Operation panel unit FM2-4010(MF7210/7140/7240) FM2-4011(MF7280) FM2-4012(MF7170i)	controls the operation panel
[15]	Power supply PCB	FK2-1831(100V) FK2-1074(120V) FK2-1075(230V)	printer power supply
[16]	HVT PCB	FM2-4018	high-voltage power supply



F-12-11



F-12-12

Chapter 13 Error Code

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13.1 Error Code Table

13.1.1 List of Error Codes

T-13-1

Error Code	Detail Code	Error Name/Explanation of Error
E000	0000	Fixing temperature abnormal rise
E001	0000	Fixing unit temperature rise detection (by main thermistor)
	0001	Fixing unit temperature rise detection (by sub thermistor)
E002	0000	Fixing unit temperature insufficient rise
E003	0000	Low fixing temperature detection after standby (by main thermistor)
	0001	Low fixing temperature detection after standby (by sub thermistor)
E007	0000	Fixing film rotation error
E010	0000	Main motor rotation error
E019	0001	Waste toner full detection
	0002	Waster toner full detection sensor failure
E052	0000	Duplex unit connection error
E100	0000	BD cycle out of range
E197	0000	Erroneous communication with printer engine
E500	0001	Finisher communication error
E520	0000	Offset error
E531	0000	Stapling error
E540	0001	Paper surface not detected (standard tray)
	0002	Not moved within the specified time (standard tray)
	0003	Sensor not reached within 3 seconds (standard tray)
	0005	Encoder clock failure (standard tray)
E542	0001	Paper surface not detected (optional tray)
	0002	Not moved within the specified time (optional tray)
	0003	Sensor not reached within 3 seconds (optional tray)
	0005	Encoder clock failure (optional tray)
E575	0000	Stack delivery error
E584	0000	Shutter failure
E716	0000	Erroneous communication with optional cassette
E719	0000	Erroneous communication with card reader (serial communication)
	0002	Erroneous communication with coin vender (serial communication)
E733	0000	Erroneous communication between controller and printer
E736	0000	CCU communication error
E739	0000	Erroneous communication between controller and network board
E744	0001	Language file/boot ROM/USB memory error
	0002	
	0003	
	0004	
E805	0000	Fan failure
E808	0000	Fixing drive circuit failure

13.2 Error Code Details

13.2.1 Error Code Details

MEMO:
The detail code of the error code of this machine can be confirmed in the following service mode.
Service mode>ERROR DISPLAY

T-13-2

Display Code	Detail Code	Main Cause/Symptom	Countermeasure
E000	0000	Startup error	
		The temperature detected by the main or sub thermistor does not rise to the specified value during startup control.	- Check the fixing film connector. - Replace the fixing film unit. - Replace the DC controller PCB.
E001	0000	Abnormally high temperature (detected by main thermistor)	
		The main thermistor detected an abnormally high temperature (240 deg C) during temperature control.	- Check the connector of the fixing film unit. - Replace the fixing film unit. - Replace the DC controller PCB.
	0001	Abnormally high temperature (detected by sub thermistor)	
		The sub thermistor detected an abnormally high temperature (295 deg C) during temperature control.	- Check the connector of the fixing film unit. - Replace the fixing film unit. - Replace the DC controller PCB.

Display Code	Detail Code	Main Cause/Symptom	Countermeasure
E002	0000	Low temperature during temperature control.	
		The target temperature is not reached during temperature control.	- Check the connector of the fixing film unit. - Replace the fixing film unit. - Replace the DC controller PCB.
E003	0000	Abnormally low temperature (detected by main thermistor)	
		After the temperature detected by the main thermistor has reached the specified value, it does not reach the specified value during initial rotation.	- Check the connector of the fixing film unit. - Replace the fixing film unit. - Replace the DC controller PCB.
	0001	Abnormally low temperature (detected by sub thermistor)	
		After the temperature detected by the sub thermistor has reached the specified value, it does not reach the specified value during initial rotation.	- Check the connector of the fixing film unit. - Replace the fixing film unit. - Replace the DC controller PCB.
E007	0000	Fixing film sensor failure	
		The fixing film sensor is faulty.	- Check the connector of the fixing film sensor. - Replace the fixing film sensor. - Replace the DC controller PCB.
E010	0000	Main motor failure	
		The main motor is faulty.	- Check the connector of the main motor. - Replace the main motor. - Replace the DC controller PCB.
E019	0000	Waste toner full detection	
		The waste toner full state was detected.	Replace the drum unit.
	0001	Waster toner full detection sensor is faulty.	
		The waste toner full state was detected continuously for five or more seconds while the main motor was turning.	- Check the connector of the waster toner full sensor. - Replace the waste toner full sensor. - Replace the DC controller PCB.
E052	0000	Erroneous connection to duplex unit	
		Disconnection of the duplex unit was detected after power-on, detection of normal connection to the duplex unit, and start of communication.	- Check the connectors of the duplex unit and DC controller PCB. - Replace the duplex controller PCB. - Replace the DC controller PCB.
E100	0000	BD detection PCB failure	
		The BD detection PCB is faulty.	- Check the connector of the BD detection PCB. - Replace the laser scanner unit. - Replace the DC controller PCB.
E197	0000	Printer engine communication error	
		Erroneous communication between the DC controller PCB and image processor PCB was detected.	- Check the connectors of the DC controller PCB and image processor PCB. - Replace the DC controller PCB for normal connection. - Replace the image processor PCB.
E716	0000	Erroneous communication with optional cassette	
		Disconnection of the optional cassette was detected after power-on, detection of normal connection to the optional cassette, and start of communication.	- Check the connectors of the optional cassette PCB and DC controller PCB. - Replace the optional cassette PCB for normal connection. - Replace the DC controller PCB.
E719	0000	Erroneous communication with card reader (serial communication)	
		- Disconnection from the card reader has been detected since communication started after confirmation of normal connection to the card reader (after power-on). - A serial communication error has occurred. (The serial communication error cannot be recovered.)	- Check the connectors of the card reader and image processor PCB. - Replace the card reader for normal connection. - Replace the image processor PCB.
	0002	Erroneous communication with coin vendor (serial communication)	
		- Disconnection from the coin vendor has been detected since communication started after confirmation of normal connection to the coin vendor (after power-on). - A serial communication error has occurred. (The serial communication error cannot be recovered.)	- Check the connection between the image processor PCB and serial PCB. - Check the connectors of the serial PCB and coin vendor for normal connection. - Replace the serial PCB. - Check the coin vendor. - Replace the image processor PCB.
E733	0000	Erroneous communication between controller and printer	
		Cannot communicate with the printer at startup.	- Check the connectors of the DC controller PCB and image processor PCB for normal connection. - Check the power supply of the printer (Check whether initialization is performed at startup). - Replace the DC controller PCB or image processor PCB.

Display Code	Detail Code	Main Cause/Symptom	Countermeasure
E736	0000	CCU communication error	
		The installed modem PCB is incompatible.	- Check the connectors of the image processor PCB and modem. - Replace the modem PCB. - Replace the image processor PCB.
E739	0000	Erroneous communication between controller and network board	
		The installed network board is incompatible.	- Check the connectors of the image processor PCB and LAN PCB for normal connection. - Replace the LAN PCB. - Replace the image processor PCB.
E744		Language file/boot ROM/USB memory error	
	0001	The language file version does not match Bootable.	Download a language file of the correct version.
	0002	The language file is longer than the permitted size.	Download a language file of the correct version.
	0003	The language file version does not match Bootable.	Download a language file of the correct version.
	0004	Language file read error	Download a language file of the correct version.
E805	0000	Fan failure	
		The fan is faulty.	- Check the fan connector. - Replace the fan. - Replace the DC controller PCB.
E808	0000	Fixing drive circuit failure	
		- The heater does not turn on. - A fixing drive motor failure was detected.	- Check the connector of the fixing film unit. - Replace the fixing film unit. - Replace the fixing drive motor. - Replace the DC controller PCB. - Replace the power supply PCB.

13.3 Jam Code

13.3.1 Jam Codes (Related to Printer Unit)

T-13-3

Code	Name	Sensor No.	Description
0104	Delay jam in paper pickup section	SR209	The registration sensor cannot detect the leading edge of paper from the moment paper pickup starts to the moment the jam detection time is reached.
0208	Stationary jam in paper pickup section	SR209	The registration sensor cannot detect the no paper status specified time before the leading edge of the picked up paper reaches this sensor.
010c	Delay jam in deliver section	SR202, SR203, SR209	- The fixing delivery sensor cannot detect presence of paper within the specified time after turning on of the registration clutch. - The fixing delivery sensor detected absence of paper within the specified time after the sensor had detected presence of paper within the specified time after turning on of the registration clutch. - The No.1 delivery sensor cannot detect presence of paper within the specified time after turning on of the fixing delivery sensor.
0210	Stationary jam in delivery section	SR202, SR203	- The fixing delivery sensor cannot detect absence of paper within the specified time after turning off of the registration clutch. - The fixing delivery sensor cannot detect absence of paper within the specified time after the sensor detected the leading edge of paper. - The No.1 delivery sensor cannot detect absence of paper within the specified time after the sensor detected the leading edge of paper.
0214	Stationary jam in machine	SR202, SR203, SR209	Paper was detected in the paper transport path during initial rotation, during automatic delivery, at the end of cleaning, or at reception of an emergency stop command.
1118	Door open jam	SR202, SR203, SR209, SW2, SW3	The door was opened when there was printing paper in the transport path.

13.3.2 Jam Codes (Related to Finisher)

T-13-4

Code	Name	Sensor No.	Description
0130	Delayed feed jam	PI5	The inlet sensor is not turned on within the specified time after reception of a paper ejection signal from the host machine.
0231	Staying paper jam	PI5	The inlet sensor is not turned off even if paper is fed by the specified distance after the leading edge of the paper from the host machine has passed through the sensor.
0033	Stack ejection jam	PI1	When a paper stack is ejected, the HP sensor is not turned off within the specified time.

Code	Name	Sensor No.	Description
0035	Staple jam	Stapler HP sensor (built in stapler)	The stapler HP sensor was turned off once after start of stapler operation, but the HP has not been reached within the specified time.
1036	Power-on jam	PI5	The inlet sensor detected paper at power-on.
1137	Door open jam	SW1	The front cover switch detected opening of the front cover during standby or copy operation.

13.3.3 Jam Codes (Related to ADF)

T-13-5

Code	Name	Sensor No.	Description
0000	Unknown jam	-	Other errors
0007	Initial stationary	PI6,PI7,PI8	Paper is detected in the transport path before the DADF starts initial operation.
0008	Read sensor delay	PI7,PI8	The read sensor does not detect paper when the paper has been fed by the predetermined distance since reception of a pickup request.
0009	Read sensor stationary	PI7	The trailing edge of paper is not detected when the paper has been fed by the predetermined distance since detection of it by the read sensor.
000a	Paper absence (Pull out the document.)	PI11	The Document set sensor has been held off since start of pickup.
000c	Delivery reversal sensor delay	PI6,PI7	The delivery reversal sensor does not detect paper since the paper has been fed by the predetermined distance since the read sensor was turned on.
000d	Delivery reversal sensor stationary	PI6	The trailing edge of paper is not detected when the paper has been fed by the predetermined distance since the delivery reversal sensor detected the paper.
000e	ADF cover open	PI10	The feeder cover was opened during operation (of the drive system).
000f	User ADF open	sensor of the reader unit	The ADF was opened during operation (of the drive system).
0010	Pickup NG	-	The registration sensor has been held off since paper pickup started.

13.3.4 Jam Codes (Related to Duplex Unit)

T-13-6

Code	Name	Sensor No.	Description
0120	Delay jam at duplex paper sensor 1	SR1002	The duplex paper sensor 1 does not turn on within the specified time after the delivery sensor on the main unit side turns on.
0124	Delay jam at duplex paper sensor 2	SR1003	The duplex paper sensor 2 does not turn on within the specified time after the duplex reverse motor starts.
0221	Stationary jam at duplex paper sensor 1	SR1002	- The duplex paper sensor 1 does not turn off when the specified time has lapsed since the duplex paper sensor 2 turned on.
			- The duplex paper sensor 1 does not turn off when the paper with a longitudinal length of 280 mm reaches the standby position (about 90 mm from the duplex paper sensor 2).
0228	Stationary jam at duplex paper sensor 2	SR1003	The duplex paper sensor 2 does not turn off when the specified time has lapsed since the feed motor started.

13.3.5 Jam Codes (Related to Inner 2-way Tray)

T-13-7

Code	Name	Sensor No.	Description
010e	Delay jam at No.2 delivery section	SR1101	The No.2 delivery sensor does not detect presence of paper within the specified time after turning on of the fixing delivery sensor.
0212	Stationary jam at No.2 delivery section	SR1101	Absence of paper is not detected within the specified time after turning on of the No.2 delivery sensor.

13.4 Finisher Error Codes

13.4.1 Error Code Details

T-13-8

Display code	Detail Code	Main Cause/Symptom	Countermeasure
E500	0001	Finisher communication error	
		Data communication could not be performed normally. It has been retried three times in vain.	- Check the connectors of the finisher controller PCB and DC controller PCB for normal connection. - Replace the finisher controller PCB. - Replace the DC controller PCB.

Display code	Detail Code	Main Cause/Symptom	Countermeasure
E520	0001	- Offset motor or finisher controller PCB failure - Offset HP sensor failure	
		- The offset motor was driven for 1000 ms in the HP sensor approach direction, but the offset HP sensor did not turn on.	- Check the connector of the offset HP sensor. - Check the connector of the offset motor. - Replace the offset HP sensor. - Replace the offset motor. - Replace the finisher controller PCB.
	0002	- Offset motor or finisher controller PCB failure - Offset HP sensor failure	
		- The offset motor was driven for 1000 ms in the HP sensor escape direction, but the offset HP sensor did not turn off.	- Check the connector of the offset HP sensor. - Check the connector of the offset motor. - Replace the offset HP sensor. - Replace the offset motor. - Replace the finisher controller PCB.
E531	0001	- Staple unit failure - Staple HP sensor failure - Finisher controller PCB failure	
		- The staple home position was not left when 400 ms have lapsed since start of staple operation.	- Check the connector of the staple unit. - Replace the staple unit. - Replace the finisher controller PCB.
	0002	- Staple unit failure - Staple HP sensor failure - Finisher controller PCB failure	
		- The staple home position had been left once, but it was not reached again when 400 ms have lapsed since start of staple operation. In addition, the staple home position could not be reached by performing reverse operation for 400 ms.	- Check the connector of the staple unit. - Replace the staple unit. - Replace the finisher controller PCB.

Display code	Detail Code	Main Cause/Symptom	Countermeasure
E540	0001	- Standard tray shift motor or finisher controller PCB failure - Standard tray HP sensor failure - Standard tray clock sensor failure - Standard tray shift motor load failure	
		The standard tray was moved but the paper surface was not detected.	- Check the connector of the standard tray HP sensor. - Check the connector of the standard tray clock sensor. - Check the connector of the standard tray shift motor. - Replace the standard tray HP sensor. - Replace the standard tray clock sensor. - Replace the standard tray shift motor. - Replace the finisher controller PCB.
	0002	- Standard tray shift motor or finisher controller PCB failure - Standard tray HP sensor failure - Standard tray clock sensor failure - Standard tray shift motor load failure	
		Cannot move (to the pickup position) within the specified time.	- Check the connector of the standard tray HP sensor. - Check the connector of the standard tray clock sensor. - Check the connector of the standard tray shift motor. - Replace the standard tray HP sensor. - Replace the standard tray clock sensor. - Replace the standard tray shift motor. - Replace the finisher controller PCB.
	0003	- Standard tray shift motor or finisher controller PCB failure - Standard tray HP sensor failure - Standard tray clock sensor failure - Standard tray shift motor load failure	
		The standard tray was operated, but it did not reach the sensor within 300 ms.	- Check the connector of the standard tray HP sensor. - Check the connector of the standard tray clock sensor. - Check the connector of the standard tray shift motor. - Replace the standard tray HP sensor. - Replace the standard tray clock sensor. - Replace the standard tray shift motor. - Replace the finisher controller PCB.
	0005	- Standard tray shift motor or finisher controller PCB failure - Standard tray HP sensor failure - Standard tray clock sensor failure - Standard tray shift motor load failure	
		The encoder clock signal was not detected two or more times when the standard tray was operated for 300 ms.	- Check the connector of the standard tray HP sensor. - Check the connector of the standard tray clock sensor. - Check the connector of the standard tray shift motor. - Replace the standard tray HP sensor. - Replace the standard tray clock sensor. - Replace the standard tray shift motor. - Replace the finisher controller PCB.

Display code	Detail Code	Main Cause/Symptom	Countermeasure
E542	0001	- Optional tray motor or finisher controller PCB failure - Optional tray HP sensor failure - Optional tray clock sensor failure - Optional tray shift motor load failure	
		The optional tray was operated, but the paper surface was not detected.	- Check the connector of the optional tray HP sensor. - Check the connector of the optional tray clock sensor. - Check the connector of the optional tray shift motor. - Replace the optional tray HP sensor. - Replace the optional tray clock sensor. - Replace the optional tray shift motor. - Replace the finisher controller PCB.
	0002	- Optional tray motor or finisher controller PCB failure - Optional tray HP sensor failure - Optional tray clock sensor failure - Optional tray shift motor load failure	
		Cannot move (to the pickup position) within the specified time.	- Check the connector of the optional tray HP sensor. - Check the connector of the optional tray clock sensor. - Check the connector of the optional tray shift motor. - Replace the optional tray HP sensor. - Replace the optional tray clock sensor. - Replace the optional tray shift motor. - Replace the finisher controller PCB.
	0003	- Optional tray motor or finisher controller PCB failure - Optional tray HP sensor failure - Optional tray clock sensor failure - Optional tray shift motor load failure	
		- The optional tray was moved upward, but it did not reach the HP sensor within 3000 ms.	- Check the connector of the optional tray HP sensor. - Check the connector of the optional tray clock sensor. - Check the connector of the optional tray shift motor. - Replace the optional tray HP sensor. - Replace the optional tray clock sensor. - Replace the optional tray shift motor. - Replace the finisher controller PCB.
	0005	- Optional tray motor or finisher controller PCB failure - Optional tray HP sensor failure - Optional tray clock sensor failure - Optional tray shift motor load failure	
		- The encoder clock signal was not detected two or more times when the optional tray was operated for 300 ms.	- Check the connector of the optional tray HP sensor. - Check the connector of the optional tray clock sensor. - Check the connector of the optional tray shift motor. - Replace the optional tray HP sensor. - Replace the optional tray clock sensor. - Replace the optional tray shift motor. - Replace the finisher controller PCB.
E575	0001	- Stack delivery motor or finisher controller PCB failure - Stack delivery HP sensor failure	
		- The stack delivery motor was driven for 2000 ms in the stack delivery direction (HP sensor approach direction), but the stack delivery HP sensor did not turn on.	- Check the connector of the stack delivery HP sensor. - Check the connector of the stack delivery motor. - Check the connector of the stack delivery HP sensor. - Replace the stack delivery motor. - Replace the finisher controller PCB.
	0002	- Stack delivery motor or finisher controller PCB failure - Stack delivery HP sensor failure	
		- The stack delivery motor was driven for 2000 ms in the HP sensor escape direction, but the stack delivery HP sensor did not turn off.	- Check the connector of the stack delivery HP sensor. - Check the connector of the stack delivery motor. - Check the connector of the stack delivery HP sensor. - Replace the stack delivery motor. - Replace the finisher controller PCB.

Display code	Detail Code	Main Cause/Symptom	Countermeasure
E584	0001	- Shutter drive motor or finisher controller PCB failure - Shutter open detection sensor failure - Shutter clutch failure	
		- The shutter open sensor did not turn on when 1000 ms have lapsed since the shutter unit had performed open operation, resulting in incomplete open operation.	- Check the connector of the shutter open sensor. - Check the connector of the shutter clutch. - Check the connector of the shutter motor. - Replace the shutter open sensor. - Replace the shutter clutch. - Replace the shutter drive motor. - Replace the finisher controller PCB.
	0002	- Shutter drive motor or finisher controller PCB failure - Shutter open detection sensor failure - Shutter clutch failure	
		- The shutter open sensor did not turn off when 1000 ms have lapsed since the shutter unit had performed close operation, resulting in incomplete close operation.	- Check the connector of the shutter open sensor. - Check the connector of the shutter clutch. - Check the connector of the shutter motor. - Replace the shutter open sensor. - Replace the shutter clutch. - Replace the shutter drive motor. - Replace the finisher controller PCB.

13.5 Fax Error Codes

13.5.1 Outline

13.5.1.1 Error Code Outline

An error code is used to indicate a fault in a machine, and is indicated in the machine's LCD or reports, showing the nature (symptoms) of the fault. Using the error code, the user or the service man can readily find out how to correct the fault by simply referring to the User's Manual or service manual.
An error code may be either of the following two types:

User Error Codes
A fault indicated as a user error code is one that can easily be corrected by the user, as by operating the machine. It takes the form of "#+number."

Service Error Codes
If a fault calls for a service man for correction, it is indicated as a service man error code in the form of "##+number" or "SYSTEM ERROR E+number."

Memo
A service error code expressed in the form of "##+number" will not appear on the LCD, Error Tx Report, or Activity Report while the machine remains in factory default state. To check a service error code, shift bit 0 of service soft switch #1 SSSW SW01 to '1'.

Memo
Display only the error codes which are newly incorporated in this machine as well as which require remedies unique to the product. For the causes and countermeasures of other error codes, refer to the separate G3/G4 Facsimile Error Code List (Rev. 2).

13.5.2 User Error Code

13.5.2.1 User Error Code

T-13-9

No.	Tx/Rx	Description
#0001	[Tx]	an original has jammed.
#0003	[Tx/Rx]	tine-out for copying or sending/receiving a single page has occurred.
#0005	[Tx/Rx]	time-out for initial identification (T0/T1) has occurred.
#0009	[Rx]	recording paper has jammed or is absent.
#0012	[Tx]	recording paper is absent at the other party.
#0018	[Tx/Rx]	auto call initiation has failed.
#0037	[Rx]	image memory overflow at time of reception has occurred.
#0059	[Tx]	The number you dial and connected number (CSI) does not match.
#0995/0099	[Tx/Rx]	a memory communication reservation has been cancelled.

13.5.3 Service Error Code

13.5.3.1 Service Error Code

T-13-10

No.	Tx/Rx	Description
##0100	[Tx]	at time of transmission, the procedural signal has been transmitted more than specified.
##0101	[Tx/Rx]	the modem speed does not match that of the other party.
##0102	[Tx]	at time of transmission, fall-back cannot be used.
##0103	[Rx]	at time of reception, EOL cannot be detected for 5 sec (15 sec if CBT).
##0104	[Tx]	at time of transmission, RTN or PIN is received.
##0106	[Rx]	at time of reception, the procedural signal is received for 6 sec while in wait for the signal.
##0107	[Rx]	at time of reception, the transmitting party cannot use fall-back.
##0109	[Tx]	at time of transmission, a signal other than DIS, DTC, FTT, CFR, or CRP is received, and the procedural signal has been sent more than specified.

No.	Tx/Rx	Description
##0111	[Tx/Rx]	memory error has occurred.
##0114	[Rx]	at time of reception, RTN is transmitted.
##0200	[Rx]	at time of reception, no image carrier is detected for 5 sec.
##0201	[Tx/Rx]	DCN is received outside the normal parity procedure.
##0220	[Tx/Rx]	system error (main program out of control) has occurred.
##0232	[Tx]	encoding error has occurred.
##0237	[Rx]	decoding error has occurred.
##0261	[Tx/Rx]	system error has occurred.
##0280	[Tx]	at time of transmission, the procedural signal has been transmitted more than specified.
##0281	[Tx]	at time of transmission, the procedural signal has been transmitted more than specified.
##0282	[Tx]	at time of transmission, the procedural signal has been transmitted more than specified.
##0283	[Tx]	at time of transmission, the procedural signal has been transmitted more than specified.
##0284	[Tx]	at time of transmission, DCN is received after transmission of TCF.
##0285	[Tx]	at time of transmission, DCN is received after transmission of EOP.
##0286	[Tx]	at time of transmission, DCN is received after transmission of EOM.
##0287	[Tx]	at time of transmission DCN is received after transmission of MPS.
##0288	[Tx]	after transmission of EOP, a signal other than PIN, PIP, MCF, RTP, or RTN has been received.
##0289	[Tx]	after transmission of EOM, a signal other than PIN, PIP, MCF, RTP, or RTN has been received.
##0290	[Tx]	after transmission of MPS, a signal other than PIN, PIP, MCF, RTP, or RTN has been received.
##0670	[Tx]	at time of V.8 late start, the V.8 ability of DIS front the receiving party is expected to be detected, and the CI signal is expected to be transmitted in response; however, the procedure fails to advance, and the line is released because of T1 time-out.
##0671	[Rx]	at time of V.8 arrival, procedure fails to move to phase 2 after detection of CM signal from caller, causing T1 time-out and releasing line
##0672	[Tx]	at time of V.34 transmission, a shift in procedure from phase 2 to phase 3 and thereafter stops, causing the machine to release the line and suffer T1 timeout.
##0673	[Rx]	at time of V.34 reception, a shift in procedure from phase 2 to phase 3 and thereafter stops, causing the machine to release the line and suffer T1 timeout.
##0674	[Tx]	at time of V.34 transmission, a shift in procedure from phase 3 and phase 4 to the control channel and thereafter stops, causing the machine to release the line and suffer T1 timeout.
##0675	[Rx]	at time of V.34 reception, a shift in procedure from phase 3 and phase 4 to the control channel and thereafter stops, causing the machine to release the line and suffer T1 timeout.
##0750	[Tx]	at time of ECM transmission, no meaningful signal is received after transmission of PPS-NULL, causing the procedural signal to be transmitted more than specified.
##0752	[Tx]	at time of ECM transmission, DCN is received after transmission of PPS-NULL.
##0753	[Tx]	at time of ECM transmission, the procedural signal has been transmitted more than specified after transmission of PPS-NULL, or T5 time-out (60 sec) has occurred.
##0754	[Tx]	at time of ECM transmission, the procedural signal has been transmitted more than specified after transmission of PPS-NULL.
##0755	[Tx]	at time of ECM transmission, no meaningful signal is received after transmission of PPS-MPS, causing the procedural signal to be transmitted more than specified.
##0757	[Tx]	at time of ECM transmission, DCN is received after retransmission of PPS-MPS.
##0758	[Tx]	at time of ECM transmission, the procedural signal has been transmitted more than specified after transmission of PPS-MPS, or T5 time-out (60 sec) has occurred.
##0759	[Tx]	at time of ECM transmission, the procedural signal has been transmitted more than specified after transmission of PPS-MPS.
##0760	[Tx]	at time of ECM transmission, no meaningful signal is received after transmission of PPS-EOM, causing the procedural signal to be transmitted more than specified.
##0762	[Tx]	at time of ECM transmission, DCN is received after transmission of PPS-EOM.
##0763	[Tx]	at time of ECM transmission, the procedural signal has been transmitted more than specified after transmission of PPS-MPS, or T5 time-out (60 sec) has occurred.
##0764	[Tx]	at time of ECM transmission, the procedural signal has been transmitted more than specified after transmission of PPS-EOM.
##0765	[Tx]	at time of ECM transmission, no meaningful signal is received after transmission of PPS-EOP, causing the procedural signal to be transmitted more than specified.
##0767	[Tx]	at time of ECM transmission, DCN is received after transmission of PPS-EOP.
##0768	[Tx]	at time of ECM transmission, the procedural signal has been transmitted more than specified after transmission of PPS-EOP, or T5 time-out (60 sec) has occurred.
##0769	[Tx]	at time of ECM transmission, the procedural signal has been transmitted more than specified after transmission of PPS-EOP.
##0770	[Tx]	at time of ECM transmission, no meaningful signal is received after transmission of EOR-NULL, causing the procedural signal to be transmitted more than specified.
##0772	[Tx]	at time of ECM transmission, DCN is received after transmission of EOR-NULL.
##0773	[Tx]	at time of ECM transmission, the procedural signal has been transmitted more than specified after transmission of EOR-NULL, or T5 time-out (60 sec) has occurred.

No.	Tx/Rx	Description
##0774	[Tx]	at time of ECM transmission, ERR is received after transmission of EOR-NULL.
##0775	[Tx]	at time of ECM transmission, no meaningful signal is received after transmission of EOR-MPS, causing the procedural signal to be transmitted more than specified.
##0777	[Tx]	at time of ECM transmission, DCN is received after transmission of EOR-MPS.
##0778	[Tx]	at time of ECM transmission, the procedural signal has been transmitted more than specified after transmission EOR-MPS, or T5 time-out (60 sec) has occurred.
##0779	[Tx]	at time of ECM transmission, ERR is received after transmission of EOR-MPS.
##0780	[Tx]	at time of ECM transmission, no meaningful signal is received after transmission of EOR-EOM, causing the procedural signal to be transmitted more than specified.
##0782	[Tx]	at time of ECM transmission, DCN is received after transmission of EOR-EOM.
##0783	[Tx]	at time of ECM transmission, the procedural signal has been transmitted more than specified after transmission of EOR-EOM, or T5 time-out (60 sec) has occurred.
##0784	[Tx]	at time of ECM transmission, ERR is received after transmission of EOR-EOM.
##0785	[Tx]	at time of ECM transmission, no meaningful signal is received after transmission of EOR-EOP, causing the procedural signal to be transmitted more than specified.
##0787	[Tx]	at time of ECM transmission, DCN is received after transmission of EOR-EOP.
##0788	[Tx]	at time of ECM transmission, the procedural signal has been transmitted more than specified after transmission of EOR-EOP, or T5 time-out (60 sec) has occurred.
##0789	[Tx]	at time of ECM transmission, ERR is received after transmission of EOR-EOP.
##0790	[Rx]	at time of ECM reception, ERR is transmitted after transmission of EOR-Q.
##0791	[Tx/Rx]	while ECM mode procedure is under way, a signal other than a meaningful signal is received.
##0792	[Rx]	at time of ECM reception, PPS-NULL cannot be detected over partial page processing.
##0793	[Rx]	at time of ECM reception, no effective frame is received while high-speed signal reception is under way, thus causing time-out.
##0794	[Tx]	at time of ECM reception, PPR with all 0s is received.
##0795	[Tx/Rx]	a fault has occurred in code processing for communication.

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14.1 Outline

14.1.1 Outline of Service Mode

The items that follow may be checked/set using the machine's service mode, which is designed the way the service mode used in fax machines is designed in terms of contents and operation.

#SSSW
Use it to register/set basic fax functions (e.g., error control, echo remedy, communication error correction).
Use it to make settings related counter functions.

#MENU
Use it to register/set items related to functions needed at time of installation (e.g., NL equalizer, transmission level).

#NUMERIC
These setting items are for inputting numeric parameters such as the various conditions for the RTN signal transmission.

#SPECIAL
These setting items are for telephone network control functions.

#NCU
These setting items are for telephone network control functions such as the selection signal transmission conditions and the detection conditions, for the control signals sent from the exchange.

#FAX
Do not use.

#SCAN
These setting items are for image adjustment in scanning.

#PRINT
These setting items are for image adjustment in printer assembly and for special mode for the field-related measures.

#NETWORK
Do not use.

#CODEC
Do not use.

#SYSTEM
These are used for the import/export of user information through USB.

#ACC
Register the accessories.

#COUNTER
Use it to check estimates for maintenance/parts replacement.

#LMS
Do not use.

#REPORT
Use it to generate reports on various service data.

#DOWNLOAD
Use it to download firmware to the ROM of a PCB in question.

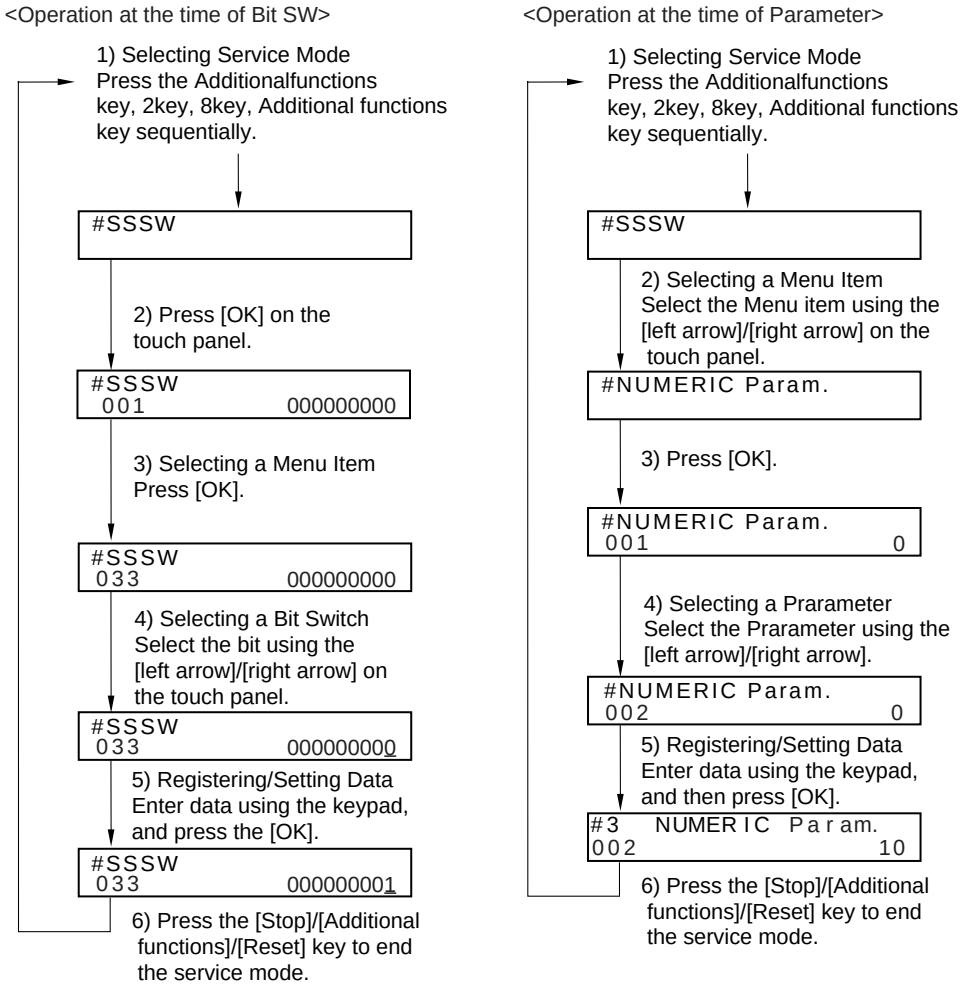
#CLEAR
Use it to reset various data to initial settings.

#ERROR DISPLAY
An error code is displayed when a service error has occurred.

#ROM
Displays ROM information, such as version numbers and checksums.

#TEST MODE
Makes various status checks, such as contact sensor, sensor and print status.

14.1.2 Using the Mode



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14.2 Default Settings

14.2.1 Service Mode Menus

#SSSW		
No.	**Initial setting**	**Function**
SW01	0	error/copy control
SW02		not used
SW03	0	echo remedy setting
SW04	10000000	communication fault remedy setting
SW05	0	standard function (DIS signal) setting
SW06 - SW11		not used
SW12	10	page timer setting
SW13	0	meter/inch resolution setting
SW14	1	inch/meter resolution setting
SW15 - SW27		not used
SW28	0	V.8/V.34 protocol settings
SW29		not used
SW30	00000000(JPN)/ 00000011(EURO)/ 00000001(Other country/region)	Assigning a New Dial Tone Detection Method
SW31- SW32		not used
SW33	0	counter function settings
SW34	1	waste toner full display setting
SW35 - SW50		not used

#MENU			
No.	**Initial setting**	**Range of setting**	**Function**
01: - 04:			not used
05:	0	ON/OFF	NL equalizer setting
06:	0	0: DIAL 1: SERVICEMAN [1] 2: SERVICEMAN [2] 3: OFF	line monitor setting
07:	10	0-15	transmission level setting
08:	0	0: 3429 1: 3200 2: 3000 3: 2800 4: 2743 5: 2400	V.34 baud rate
09:	0	0: 33.6kbs 1: 31.2kbs 2: 28.8kbs 3: 26.4kbs 4: 24.0kbs 5: 21.6kbs 6: 19.2kbs 7: 16.8kbs 8: 14.4kbs 9: 12.0kbs 10: 9.6kbs 11: 7.2kbs 12: 4.8kbs 13: 2.4kbs	V.34 transmission speed
10:	1	0: 50Hz 1: 25Hz 2: 17Hz	pseudo CI signal frequency setting
11: - 20:			not used

#NUMERIC			
No.	**Initial setting**	**Range of setting**	**Function**
001:			not used
002:	10 (10%)	(1 - 99)	RTN signal transmission condition (1) setting
003:	15 (15lines)	(2 - 9)	RTN signal transmission condition (2) setting
004:	12 (12times)	(1 - 99)	RTN signal transmission condition (3) setting
005:	4 (4sec)	(1 - 60)	NCC pause time (pre-ID code) setting
006:	4 (4sec)	(1 - 60)	NCC pause time (post-ID code) setting
007: - 009:			not used
010:	5500 (55sec)	(0 - 9999)	line connection identification time length
011:	3500 (35sec)	(0 - 9999)	T.30 T1 timer (for reception)
012:			not used
013:	1300 (13sec)	(500 - 3000)	T30 EOL timer
014:			not used
015:	120 (1200ms)	(0 - 999)	hooking detection time setting
016:	4 (4sec)	(0 - 9)	fax/tel switch-over function: between line acquisition and pseudo RBTtransmission
017:	100 (1000ms)	(0 - 999)	pseudo RBT signal pattern: ON time setting
018:	0 (0ms)	(0 - 999)	pseudo RBT signal pattern: OFF time (short) setting
019:	200 (2000ms)	(0 - 999)	pseudo RBT signal pattern: OFF time (long) setting
020:	100 (1000ms)	(0 - 999)	pseudo CI signal pattern: ON time setting
021:	0 (0ms)	(0 - 999)	pseudo CI signal pattern: OFF time (short) setting
022:	200 (2000ms)	(0 - 999)	pseudo CI signal pattern: OFF time (long) setting
023:	4	(0 - 7)	fax/tel switch-over pseudo RBT transmission level
024:	20 (-20dBm)	(0 - 20)	fax/tel switch-over pseudo RBT transmission level
025:	60 (60sec)	(0 - 999)	pseudo RBT signal pattern: OFF time (long) setting
026:			not used
027:	0	(0 - 20)	V21 low-speed flag preamble detection time length
028: - 055:			not used
056:	101	(0 - 999)	count type select 1
057:	103	(0 - 999)	count type select 2
058:	201	(0 - 999)	count type select 3
059:	203	(0 - 999)	count type select 4
060:	0	(0 - 999)	count type select 5
061:	0	(0 - 999)	count type select 6
062: - 080:			not used

#SPECIAL	Do not change.

#NCU	Do not change.
#FAX	Not used.

#SCAN				
	No.	**Initial setting**	**Range setting**	**Explanation**
#SCAN SW	SW1	00000000		Outputting an Image for ADF Squareness Adjsutment
	SW2 - SW50			Not used
#SCAN NUMERIC	001: - 023:			Not used
	024:	385	300 to 450, one unit=0.1mm	CIS scan position during ADF scanning.
	026:	22	6 to 48, one unit=0.1mm	Distance from the standby position of CIS to the shading start point.
	027: - 030:			Not used
	031:	35	0 to 70, one unit=0.1mm	Vertical scan start position adjustment
	032:	115	50 to 150, one unit=0.1mm	Horizontal scan start position adjustment
	033:	16	0 to 32, one unit=0.1%	Vertical scan magnification correction
	034:			Not used
	035: - 036:	474		Reader motor speed adjustment
	037: - 040:			Not used
	041:	35	0 to 70, one unit=0.1mm	Vertical scan start position adjustment (scanning on ADF)
	042:	220	170 to 270, one unit=0.1mm	Horizontal scan start position adjustment (scanning on ADF)
	043:	24	0 to 200, one unit=0.1mm	Horizontal scan end position correction (copy)
	044:	36	0 to 200, one unit=0.1mm	Horizontal scan end position correction (superfine)
	045:	47	0 to 200, one unit=0.1mm	Horizontal scan end position correction (fine)
	046:	47	0 to 200, one unit=0.1mm	Horizontal scan end position correction (standard)
	047:	16	0 to 32, one unit=0.1%	Vertical scan magnification correction (scanning on ADF)
	048:	16	0 to 32, one unit=0.1%	Horizontal scan magnification correction (scanning on ADF)
	049: - 053:			Not used
	054:	16	0 to 32, one unit=0.1%	Pickup motor speed correction (when the ADF is used)
	055: - 192:			Not used
	193:	0	0: LEGAL 1: FOOLSCAP 2: M_OFFICIO 3: A_FOOLSCAP 4: FOLIO 5: G_LEGAL 6: A_OFFICIO 7: B_OFFICIO	ADF special paper, standardized size: LGL misidentification-ready
	194:	0	0: LTR 1: G_LTR 2: A_LTR	ADF special paper, standardized size: LTR misidentification-ready
	195:	0	0: LTR_R 1: FOOLSCAP 2: OFFICIO 3: E_OFFICIO 4: G_LTR_R 5: A_LTR_R	ADF special paper, standardized size: LTR_R misidentification-ready
	196:	272	0 to 511	shading target value (red)
	197:	272	0 to 511	shading target value (green)
	198:	272	0 to 511	shading target value (blue)
	199: - 212:			Not used
	213:	8273	1 to 9999	XYZ correction value (X) of standard white plate
	214:	8737	1 to 9999	XYZ correction value (Y) of standard white plate
	215:	9427	1 to 9999	XYZ correction value (Z) of standard white plate
	216: - 350:			Not used

#PRINT				
	No.	**Initial setting**	**Range setting**	**Explanation**
#PRINT SW	SW01 - SW04			Not used
	SW05	10000000		Horizontal scanning priority record
	SW06 - SW13			Not used
	SW14	00000000		Special mode setting
	SW15	00000000		Delivery setting
	SW16 - SW50			Not used
#PRINT NUMERIC	01: - 30:			Not used
	31:	50	0 to 100, one unit = 0.1 mm	Top registration adjustment (manual paper feed tray)
	32:	50	0 to 100, one unit = 0.1 mm	Top registration adjustment (cassette)
	33:	50	0 to 100, one unit = 0.1 mm	Top registration adjustment (duplex unit)
	34:	100	0 to 200, one unit = 0.1 mm	Left-end registration adjustment (manual paper feed tray)
	35:	100	0 to 200, one unit = 0.1 mm	Left-end registration adjustment (cassette 1)
	36:	100	0 to 200, one unit = 0.1 mm	Left-end registration adjustment (cassette 2)
	37:	100	0 to 200, one unit = 0.1 mm	Left-end registration adjustment (cassette 3)
	38:	100	0 to 200, one unit = 0.1 mm	Left-end registration adjustment (cassette 4)
	39:	100	0 to 200, one unit = 0.1 mm	Left-end registration adjustment (duplex unit)
	40:	6	-30 to 0, 1 unit = 5 deg C	Target fixing temperature adjustment (multi)
	41:	6	-30 to 0, 1 unit = 5 deg C	Target fixing temperature adjustment (cassette 1)
	42:	6	-30 to 0, 1 unit = 5 deg C	Target fixing temperature adjustment (cassette 2)
	43:	6	-30 to 0, 1 unit = 5 deg C	Target fixing temperature adjustment (cassette 3)
	44:	6	-30 to 0, 1 unit = 5 deg C	Target fixing temperature adjustment (cassette 4)
	45:	16	0 to 30, 1 unit = 0.4%	Fixing film speed adjustment (manual paper feed tray)
	46:	16	0 to 30, 1 unit = 0.4%	Fixing film speed adjustment (cassette)
	47: - 50:			Not used
#PRINT CST	U1	0	0: G_LTR	Paper size group U1 special, standard-size paper entry
			29: A-LTR	
			31: G-LTR	
			40: 8K	
	U2	0	0: FLSP	Paper size group U2 special, standard-size paper entry
			24: FLSP	
			26: OFI	
			27: E-OFI	
			28: B-OFI	
			36: A-OFI	
			37: M-OFII	
			39: 16K	
	U3	0	0: G-LGL	Paper size group U3 special, standard-size paper entry
			25: AFLS	
			32: GLTRR	
			30: ALTRR	
			35: FORIO	
			34: G-LGL	

#NETWORK	Not used.
#CODEC	Not used.

#SYSTEM				
	No.	**Initial setting**	**Range of setting**	**Function**
#SYSTEM SW	SW01- SW02			not used
	SW03	00001000		Import/export of the user information via USB
	SW04 - SW50			not used
#SYSTEM NUMERIC	001: -100:			not used

#ACC			
Item	**Initial setting**	**Range of setting**	**Function**
CARD	0	0 - 99999	Card reader installation setting
CC-SPSW	0	0 or 1	Control card I/F support setting
COIN	0	0 or 1	Coin vendor change setting
CONTROL	0	0 or 1	Pinter output control setting at the time of support of control card I/F

#COUNTER	
Item	**Function**
TOTAL	total counter
PICK_UP	pickup-related counter
FEEDER	feeder counter
JAM	jam-related counter
MISC	other counter
DRBL-1	durables counter

#LMS	
Item	**Function**
INACTIVE	Not used
ERACE	Not used

#REPORT		
	Setting	**Function**
#REPORT SW		Not used
#REPORT OUTPUT	SERVICE DATA LIST	Output of service data list
	SYSTEM DATA LIST	Output of system data list
	SYSTEM DUMP LIST	Output of system dump list
	COUNTER LIST	Output of counter list
	ERROR LOG LIST	Output of error log list
	SPEC LIST	Output of spec list
	SERVICE LABEL	Output of service label
#REPORT NUMERIC		Not used

#DOWNLOAD	Download mode

#CLEAR		
Item	**Level2**	**Function**
TEL & USER DATA		Use it to clear all areas under user registration/setting.
SERVICE DATA		Use it to clear the counters (numerator), date, and start data form the system dump list.
COUNTER		Use it to clear the maintenance/parts counter data and each mode counter data.
SOFT-CNT		Not used.
TYPE		Use it to clear the user data and the service data by specified settings.
HST	ACTIVITY	Use it to clear the contents of the communications control report.
	ACCOUNT	Use it to clear each print history.
	JAM	Use it to clear the contents of the jam history.
	ERR	Use it to clear the contents of the error (E code) history.
	ALARM	Use it to clear the contents of the alarm history.
CARD		Use it to clear the control cars error data.
ERR	E355	Not used.
	E719	Use it to clear the management information at the time of card reader removal.
PWD		Use it to clear the system administrator's password.
FILE SYSTEM		Delete unnecessary language files in the USB memory.
FORMAT	USB MEMORY	Format the USB memory. (This mode is used when the USB memory error is damaged and E744 occurs.)
	LICENSE DRIVE	Not used.
ALL		Use it to clear all settings/registration data except the counter (denominator, numerator).

#ERROR DISPLAY	Display the service error code.

#ROM	
Item	**Function**
MAIN	Use it to indicate the version of the ROM (SYSTEM) on the image processor PCB.

#ROM	
Item	**Function**
MAIN2	Use it to indicate the version of the ROM (BOOT) on the image processor PCB.
OPROM	Use it to indicate the version of option ROM.
ECONT	Use it to indicate the version of the ROM on the DC controller PCB.

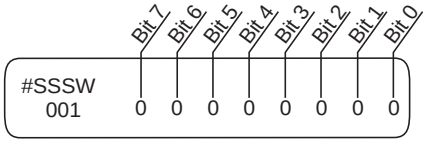
#TEST MODE [1] - [9]	
Item	**Function**
(1) DRAM [1] - [2]	Data check in D-RAM
(2) SCAN TEST [1] - [8]	CS automatic correction and document scan position adjustment
(3) PRINT TEST [1] - [9]	Output of test prints
(4) MODEM TEST [1] - [9]	modem/NCU related tests
(5) AGING TEST	not used
(6) FACULTY TEST [1] - [9]	Various functional tests
(0) ROLLER CLEAN	Printer and ADF roller cleaning

14.3 Service Soft Switch Settings (SSSW)

14.3.1 Outline

14.3.1.1 Bit Switch Composition

The items registered and set by each of these switches comprise 8-bit switches. The figure below shows which numbers are assigned to which bits. Each bit has a value of either 0 or 1.



F-14-2

Do not change service data identified as "not used"; they are set as initial settings.

14.3.2 SSSW-SW01:

14.3.2.1 List of Functions

T-14-1

Bit	Function	1	0
0	service error code	output	not output
1	not used	-	-
2	not used	-	-
3	not used	-	-
4	not used	-	-
5	not used	-	-
6	not used	-	-
7	not used	-	-

14.3.2.2 Detailed Discussions of Bit 0

Selects whether or not service error codes are output.
When output is selected, service error codes is report.

14.3.3 SSSW-SW03

14.3.3.1 List of Functions

T-14-2

Bit	Function	1	0
0	not used	-	-
1	not used	-	-
2	not used	-	-
3	not used	-	-
4	not used	-	-
5	not used	-	-
6	not used	-	-
7	tonal signal before CED signal transmission	transmit	do not transmit

14.3.3.2 Detailed Discussions of Bit 7

Use it to enable/disable transmission of a 1080-Hz tonal signal before transmission of the CED signal.
Select 'transmit' if errors occur frequently because of an echo when reception is from overseas.

Memo:
Any of the following error code may be indicated because of an echo at time of reception
##0005, ##0101, ##0106, ##0107, ##0114, ##0200, ##0201, ##0790

14.3.4 SSSW-SW04

14.3.4.1 List of Functions

T-14-3

Bit	Function	1	0
0	not used	-	-
1	not used	-	-
2	the number of final flag sequences of protocol signals	2	1
3	Reception mode after CFR signal transmission	high speed	high speed/low speed
4	the length of the period of ignoring low speed signals after CFR output	1500 ms	700 ms
5	not used	-	-
6	CNG signal for manual transmission	Not transmitted	Transmitted
7	CED signal for manual reception	Not transmitted	Transmitted

14.3.4.2 Detailed Discussions of Bit 2

Use it to select the number of last flag sequences for a protocol signal (transmission speed at 300 bps). Select '2' if the other party fails to receive the protocol signal properly.

Memo:
Any of the following error codes may be indicated at time of transmission
##0100, ##0280, ##0281, ##0750, ##0753, ##0754, ##0755, ##0758, ##0759, ##0760, ##0763 ##0764, ##0765, ##0768, ##0769,##0770, ##0773, ##0775, ##0778, ##0780, ##0783, ##0785, ##0788

14.3.4.3 Detailed Discussions of Bit 3

Use it to select an appropriate reception mode after transmission of the CFR signal.
If errors occur frequently at time of reception because of the condition of the line, select 'high speed' for reception mode and, at the same time, selects 'do not receive' for 'ECM reception.'

Memo:
Any of the following error codes may be indicated at time of reception because of line condition
##0107, ##0114, ##0201
Be sure to change bit 4 before changing this bit; if errors still occur, change this bit.
When 'high speed' is selected, only high-speed signals (images) will be received after transmission of the CFR signal.

14.3.4.4 Detailed Discussions of Bit 4

Use it to select the time length during which low-speed signals are ignored after transmission of the CFR signal.
If the condition of the line is not good and, therefore, the reception of image signals is difficult, select '1500 ms.'

14.3.4.5 Detailed Discussions of Bit 6

Selects whether or not to transmit CNG signal during manual transmission.
In manual transmitting to a fax with the FAX/TEL switching mode, if there are frequent errors due to failure to switch to fax mode, select "Transmitted" for the CNG signal.

14.3.4.6 Detailed Discussions of Bit 7

Selects whether or not to transmit CED signals during manual reception. If the other fax does not transmit even when you start manual reception, select "Transmitted" for the CED signal.

14.3.5 SSSW-SW05

14.3.5.1 List of Functions

T-14-4

Bit	Function	1	0
0	not used	-	-
1	Conversion from mm to inch (text mode)	convert	do not convert
2	Conversion from mm to inch (text/photo mode)	convert	do not convert
3	not used	-	-
4	not used	-	-
5	not used	-	-
6	not used	-	-
7	not used	-	-

14.3.5.2 Detailed Discussions of Bit 1

Use it to enable/disable millimeter/inch conversion in sub scanning direction for images read in text mode.
Scanning direction in conversion follows the Bit 2 setting of SW14.

14.3.5.3 Detailed Discussions of Bit 2

Use it to enable/disable millimeter/inch conversion in sub scanning direction for images read in text/photo mode while bit 1 is set to '1'.
Scanning direction in conversion follows the Bit 2 setting of SW14.

14.3.6 SSSW-SW12

14.3.6.1 List of Functions

T-14-5

Bit	Function	1	0
0	Time-out period for one page upon transmission	1	0
1	Time-out period for one page upon transmission	1	0
2	not used	-	-
3	not used	-	-
4	Time-out period for one page upon reception	1	0
5	Time-out period for one page upon reception	1	0
6	not used	-	-
7	Respective page timer settings for transmission and for reception	enable	do not enable

The machine will stop the ongoing communication if the transmission/reception of a single original page takes 32 min or more. To use the timer for a purpose other than this function, refer to the tables that follow, and select an appropriate time length.
When 'do not enable' is selected using bit 7, the time-out length for a single page for all modes will depend on the setting of bit 0 and bit 1.

T-14-6

Time-Out Length for Transmission/Reception	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
8 min	0	*	*	*	*	*	0	0
16 min	0	*	*	*	*	*	0	1
32 min	0	*	*	*	*	*	1	0
64 min	0	*	*	*	*	*	1	1

T-14-7

Time-Out Length for Transmission (in text mode)	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
8 min	1	*	*	*	*	*	0	0
16 min	1	*	*	*	*	*	0	1
32 min	1	*	*	*	*	*	1	0
64 min	1	*	*	*	*	*	1	1

T-14-8

Time-Out Length for Reception	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
8 min	1	*	0	0	*	*	*	*
16 min	1	*	0	1	*	*	*	*
32 min	1	*	1	0	*	*	*	*
64 min	1	*	1	1	*	*	*	*

14.3.7 SSSW-SW13

14.3.7.1 List of Functions

T-14-9

Bit	Function	1	0
0	not used	-	-
1	not used	-	-
2	Convert "inch" into "mm" when transmitting the received image data	convert	do not convert
3	not used	-	-
4	not used	-	-
5	not used	-	-
6	not used	-	-
7	not used	-	-

14.3.7.2 Detailed Discussions of Bit 2

It converts "inch" into "mm" when transmitting the received image data.
Scanning direction in conversion follows the Bit 2 setting of SW14.

14.3.8 SSSW-SW14

14.3.8.1 List of Functions

T-14-10

Bit	Function	1	0
0	not used	-	-
1	not used	-	-
2	direction of scanning for inch/mm conversion	both main and sub scanning directions	sub scanning direction only
3	not used	-	-

Bit	Function	1	0
4	inch-configuration resolution declaration	declare	do not declare
5	not used	-	-
6	not used	-	-
7	not used	-	-

14.3.8.2 Detailed Discussions of Bit 2

Use it to specify whether to convert or not convert an inch-configuration resolution into a millimeter-configuration resolution for image read in G3 transmission: either in sub scanning direction only or in both main and sub scanning directions. The setting is valid only when bit 1 of SW05 of #SSSW is set to '1'.

14.3.8.3 Detailed Discussions of Bit 4

Use it to specify whether to declare or not declare an inch-configuration resolution to the other machine for G3 communication: if 'declare' is selected, the machine will indicate that it reads and records at an inch-configuration resolution using the DIS, DCS, or DTC signal.

14.3.9 SSSW-SW28

14.3.9.1 List of Functions

T-14-11

Bit	Function	1	0
0	Caller V.8 protocol	NO	YES
1	Called party V.8 protocol	NO	YES
2	Caller V.8 protocol late start	NO	YES
3	Called party V.8 protocol late start	NO	YES
4	V.34 reception fallback	Prohibited	Not prohibited
5	V.34 transmission fallback	Prohibited	Not prohibited
6	not used	-	-
7	not used	-	-

14.3.9.2 Detailed Discussions of Bit 0

Select whether to use the V.8 protocol when calling. If NO is selected, the V.8 protocol is inhibited at calling and the V.21 protocol is used.

14.3.9.3 Detailed Discussions of Bit 1

Select whether to use the V.8 protocol when called. If NO is selected, the V8 protocol is inhibited when called and the V.21 protocol is used.

14.3.9.4 Detailed Discussions of Bit 2

If ANSam signal is not received during transmission, select whether to use the V.8 protocol when the other fax machine declares the V.8 protocol in DIS signal. If NO is selected, the CI signal is not transmitted and the V.8 protocol is not used even if the DIS that specifies the V.8 protocol is received.
The V.8 late start is not executed during manual transmission regardless of this setting.

14.3.9.5 Detailed Discussions of Bit 3

Select whether to declare the V.8 protocol in DIS signal for reception. If NO is selected, the V.8 protocol cannot be used because it is not declared in DIS signal.
The V.8 late start is not executed during manual reception regardless of this setting.

14.3.9.6 Detailed Discussions of Bit 4

Select whether the receiver falls back during V.34 reception. If 'Prohibit' is selected, the receiver does not fall back.

14.3.9.7 Detailed Discussions of Bit 5

Select whether the transmitter falls beck during V.34 transmission. If 'Prohibit' is selected, teh transmitter does not fall back.

14.3.10 SSSW-SW30

14.3.10.1 List of Functions

T-14-12

Bit	Function	1	0
0	Not used	-	-
1	Not used	-	-
2	Not used	-	-
3	Not used	-	-
4	Not used	-	-
5	New dial tone detection method	Detect with the new method.	Detect with the existing method.
6	Not used	-	-
7	Not used	-	-

14.3.10.2 Detailed Discussions of Bit 5

When "Detect with the new method" is selected, tone is detected for 3.5 seconds before call origination in order to discriminate between dial tone and voice. If dial tone is detected and the time since line seizure is 3.5 seconds or longer, call origination takes place immediately. If the time since line seizure is less than 3.5 seconds, call origination takes place after waiting for 1 second. (If the time since line seizure reaches 3.5 seconds during the 1-second waiting period, call origination takes place immediately. By default, "Detect with a new method" is assigned for this SW.

14.3.11 SSSW-SW33

14.3.11.1 List of Functions

T-14-13

Bit	Function	1	0
0	count B4 (Print) as large size	Yes	No
1	indicate serial No. on counter check screen	Yes	No
2	count B4 (Scan) as large size	Yes	No
3	the counter display type change in Japan	Yes	No
4	not used	-	-
5	not used	-	-
6	not used	-	-
7	not used	-	-

14.3.11.2 Detailed Discussions of Bit 0

Use it to specify whether B4 paper (Print) should be counted as large-size paper.
If 'yes' is selected, B4 paper will be counted as large-size paper.
If 'no' is selected, on the other hand, B4 paper will be counted as small-size paper.

14.3.11.3 Detailed Discussions of Bit 1

Use it to specific whether to indicate the machine serial No. on the Counter Check screen, appearing when the Counter key is pressed.
If 'yes' is selected, the serial No. will be indicated.
If 'no' is selected, on the other hand, the serial No. will not be indicated.

14.3.11.4 Detailed Discussions of Bit 2

Use it to specify whether B4 paper (Scan) should be counted as large-size paper.
If 'yes' is selected, B4 paper will be counted as large-size paper.
If 'no' is selected, on the other hand, B4 paper will be counted as small-size paper.

14.3.11.5 Detailed Discussions of Bit 3

Select whether to switch the counter display type in effect in Japan to the conventional or new type. Select "Yes" to display counters in the new type. Select "No" to display counters in the conventional type.

14.4 Menu Switch Settings (MENU)

14.4.1 Menu Switch Composition

T-14-14

No.	Function	Range of settings
005	NL equalizer	1: ON, 0: OFF
006	telephone line monitor	0:DIAL, 1:SERVICEMAN1, 2:SERVICEMAN2, 3:OFF
007	transmission level (ATT)	from 0 to 15 (ex: 15= -15 dBm)
008	V.34 modulation speed upper limit	0:3429, 1:3200, 2:3000, 3:2800, 4:2743, 5:2400
009	V34 data speed upper limit	0:33.6 kbps, 1:31.2 kbps, 2:28.8 kbps, 3:26.4 kbps, 4:24.0 kbps, 5:21.6 kbps, 6:19.2 kbps, 7:16.8 kbps, 8:14.4 kbps, 9:12.0 kbps, 10:9.6 kbps, 11:7.2 kbps, 12:4.8 kbps, 13:2.4 kbps
010	Frequency of pseudoring signal	0:50 Hz, 1:25 Hz, 2:17 Hz

14.4.2 <No.005 NL equalizer>

Use it to enable-disable the NL equalizer.
If errors occur often during communication because of the condition of the line, enable (ON) the NL equalizer.

Any of the following error codes may be indicated at time of transmission because of the line condition:
##100, ##101, ##102, ##104, ##201, ##281, ##282, ##283, ##750, ##755, ##765, ##774, ##779, ##784, ##789
Any of the following error codes may be indicated at time of transmission because of the line condition:
##103, ##107, ##114, ##201, ##790, ##793

14.4.3 <No.006 telephone line monitor>

Use it to s the telephone line monitor function:
DIAL: generate the monitor sound of the telephone line using the speaker from the start of transmission to DIS.
SERVICEMAN [1]: generate the monitor sound of the telephone line using the speaker from the start of communication to the end of it.
SERVICEMAN [2]: generate the monitor sound of the telephone line2 (Option).
OFF: do not generate the monitor sound of the telephone line using the speaker.

14.4.4 <No.007 ATT transmission level>

Use it to set the transmission level (ATT).
Raise the transmission level if errors occur frequently at time of communication because of the condition of the line. (It means close to 8)

Any of the following error codes may be indicated at time of transmission because of the line condition:
##100, ##101, ##102, ##104, ##201, ##280, ##281, ##282, ##283, ##284, ##750, ##752, ##754, ##755, ##757, ##759, ##760, ##762, ##764, ##765, ##767, ##769, ##770, ##772, ##774, ##775, ##777, ##779, ##780, ##782, ##784, ##785, ##787, ##789
Any of the following error codes may be indicated at time of reception because of the line condition:
##103, ##106, ##107, ##201, ##793

14.4.5 <No.008 V.34 modulation speed upper limit>

Use it to set an upper limit to the modulation speed (baud rate) for the V.34 primary channel.

14.4.6 <No.009 V.34 data speed upper limit>

Use it to set an upper limit to the data transmission speed for the V.34 primary channel between 2.4K and 33.6K bps in increments of 2400 bps. (0: 2.4K to 13: 33.6K bps).

14.4.7 <No.010 Frequency of the pseudo CI signal>

You may select a frequency for the pseudo CI signal.
Some types of external telephones do not ring when the fax/tel switch-over function is ON. To sound the ring, change the pseudo CI signal.

14.5 Numeric Parameter Settings (NUMERIC Param.)

14.5.1 Numerical Parameter Composition

T-14-15

No.	Item	Range of settings
002	RTN transmission condition(1)	1% to 99%
003	RTN transmission condition (2)	2 to 99 item
004	RTN transmission condition (3)	1 to 99 lines
005	NCC pause time length (pre-ID code)	1 to 60 sec
006	NCC pause time length (post-ID code)	1 to 60 sec
010	line condition identification time length	0 to 9999 (10 msec)
011	T.30T1 timer (for reception)	0 to 9999 (10 msec)
013	T.30 EOL timer	500 to 3000 (10 msec)
015	hooking detection time length	0 to 999
016	time length to first response at time of fax/tel switchover	0 to 9
017	pseudo RBT signal pattern ON time length	0 to 999
018	pseudo RBT signal pattern OFF time length (short)	0 to 999
019	pseudo RBT signal pattern OFF time length (long)	0 to 999
020	pseudo CI signal pattern ON time length	0 to 999
021	pseudo CI signal pattern OFF time length (short)	0 to 999
022	pseudo CI signal pattern OFF time length (long)	0 to 999
023	CNG detection level at time of fax/tel switchover	0 to 7
024	pseudo RBT transmission level at time of fax/tel switchover	10 to 20 0 to 20 (120/230V)
025	Answering machine connection function signal detection time	0 to 999
027	preamble detection time length for V21 low-speed flag	20 (x 10ms)
056	display the type of soft counter 1	101 (Fixed)
057	Display the type of soft counter 2	0 to 999
058	Display the type of soft counter 3	0 to 999
059	Display the type of soft counter 4	0 to 999
060	Display the type of soft counter 5	0 to 999
061	Display the type of soft counter 6	0 to 999

14.5.2 <002: RTN transmission condition (1)><003: RTN transmission condition (2)><004: RTN transmission condition (3)>

Use it to set RTN signal transmission conditions. Raise these parameters for more lenient conditions if errors occur frequently at time of reception because of transmission of the RTN signal.

Memo:
Any of the following error codes may be indicated at time of reception because of RTN signal transmission
##0104, ##0107, ##0114, ##0201

RTN signal transmission condition (1) affects the ratio of error lines to the total number of lines per single page of received images.
RTN signal transmission condition (2) affects the standard value (*2) of burst errors (*1).
RTN signal condition (3) affects the number of errors not reaching the standard value of burst errors.

*1: transmission error occurring cover several lines.
*2: for instance, if '15' is set, a single burst error will represent an error occurring continuously cover 15 lines.

If any of these lines is detected while an image signal is being received, the RTN signal will be transmitted after receiving the protocol signal of the transmitting party. Higher parameters restrict the transmission of the RTN signal.

14.5.3 <005: NCC pause length (pre-ID code)>

Use it to set the length of the pause automatically entered between access code and ID code when the NCC (New Common Carrier) line is used for dialing.

14.5.4 <006: NCC pause length (post-ID code)>

Use it to set the length of the pause automatically entered between ID code and telephone number of the other party when the NCC (New Common Carrier) line is used for dialing.

14.5.5 <010: line connection identification length>

Use it to set the time for identifying the line connection. Raise this parameter if errors occur frequently at time of communication because of the condition of the line.

Memo:
Any of the following error codes may be indicated because of the condition of the line
##0005, ##0018
The line condition identification time is between when the dial signal is transmitted and when the line condition is cut for the transmitting party, while it is between when the DIS signal is transmitted and when the line is cut for the receiving party.

14.5.6 <011: T.30 T1 timer (for reception)>

Set the T1 timer for the receiver (wait time after DIS transmission starts until a significant signal is received).

14.5.7 <013: T.30 EOL timer>

Set it so that the 1-line transmission time is longer for reception to prevent reception errors caused by a long data length per line (e.g., computer FAX).

14.5.8 <016: time length to first response at time of fax/tel switchover>

Allows setting of the time from seizing the line till pseudo RBT is sent, when the Fax/ Tel switching function is operating.

14.5.9 <017: pseudo RBT signal pattern ON time length><018: pseudo RBT signal pattern OFF time length (short)><019: pseudo RBT signal pattern OFF time length (long)>

Use it to set the pattern of the pseudo RBT signal transmitted at time of a fax/tel switchover.

14.5.10 <020: pseudo CI signal pattern ON time length><021: pseudo CI signal pattern OFF time length (short)><022: pseudo CI signal pattern OFF time length (long)>

Use it to set the pseudo CI signal pattern transmitted at time of a fax/tel switchover.

14.5.11 <023: CNG detention level for fax/tel switchover>

Use it to set the CNG detention level for a fax/tel switchover.

14.5.12 <024: pseudo RBT transmission level at time of fax/tel switchover>

Use it to set the pseudo transmission level for a fax/tel switchover.

14.5.13 <025: Answering machine connection function signal detection time>

Sets the signal detection time for the answering machine connection function operation. When the answering machine connection function is operating, if the function does not operate normally because the fax does not detect CNG signal sent from the line, raise this parameter to increase the signal detection time.

14.5.14 <027: V.21 low-speed flag preamble identification length>

Use it to detect the time of detection after which command analysis is started after detecting V.21 low-speed command preambles continuously for a specific period of time.

14.5.15 <056 - 061: Count type select >

Use it to confirm the count type indicated on the Counter Check screen, which appears in response to a press on the Counter key.
When '0' is selected, count type will not be indicated.
No.56: Use it to indicate the type of software counter 1 of the control panel. The type of soft counter 1 cannot be changed.
No.57: Use it to change the type of soft counter 2* of the control panel to suit the needs of the user.
No.58: Use it to change the type of soft counter 3* of the control panel to suit the needs of the user.
No.59: Use it to change the type of soft counter 4* of the control panel to suit the needs of the user.
No.60: Use it to change the type of soft counter 5* of the control panel to suit the needs of the user.
No.61: Use it to change the type of soft counter 6* of the control panel to suit the needs of the user.
*:The default type settings of soft counter is different from models.
<Soft Counter Specifications>
The soft counters are classified a follows in terms of input numbers:
100s: total
200s: copy
300s: print
400s: copy + print
500s: scan
700s: received file print
800s: report pint
900s: transmitted scan

Guide to the Table
- 1:Count sheets of all sizes by one.
- 2:Count sheets of the large size by two.
- C:full color
- Bk:black mono
- L:large size (larger than A4/LTR)
- S:small size (A4/LTR or smaller)

MEMO:
To make a change so that B4 papers (for print) will be counted as large-size, use service mode: make the following selections, and change bit 0 to '1': #SSSW>SW33.
To make a change so that B4 papers (for scan) will be counted as large-size, use service mode: make the following selections, and change bit 2 to '1': #SSSW>SW33.

Serial No. on counter check screen	Counter type	Print system															
		Bk 1-sided L				Bk 1-sided S				Bk 2-sided L				Bk 2-sided S			
		Local copy	PDL print	FAX print	Report print	Local copy	PDL print	FAX print	Report print	Local copy	PDL print	FAX print	Report print	Local copy	PDL print	FAX print	Report print
101	Total1	1	1	1	1	1	1	1	1								
102	Total2	2	2	2	2	1	1	1	1								
103	Total (L)	1	1	1	1												
104	Total (S)					1	1	1	1								
108	Total (Bk1)	1	1	1	1	1	1	1	1								
109	Total (Bk2)	2	2	2	2	1	1	1	1								
112	Total (Bk/L)	1	1	1	1												
113	Total (Bk/S)					1	1	1	1								
114	Total1 (2-sided)									1	1	1	1	1	1	1	1
115	Total2 (2-sided)									2	2	2	2	1	1	1	1
116	L (2-sided)									1	1	1	1				
117	S (2-sided)													1	1	1	1
126	TotalA1		1	1	1		1	1	1								
127	TotalA2		2	2	2		1	1	1								
128	TotalA (L)		1	1	1												
129	TotalA (S)						1	1	1								
132	TotalA (Bk1)		1	1	1		1	1	1								
133	TotalA (Bk2)		2	2	2		1	1	1								
136	TotalA (Bk/L)		1	1	1												
137	TotalA (Bk/S)						1	1	1								
138	TotalA1 (2-sided)										1	1	1		1	1	1
139	TotalA2 (2-sided)										2	2	2		1	1	1
140	L A (2-sided)										1	1	1				
141	S A (2-sided)														1	1	1
150	TotalB1		1	1	1		1	1	1								
151	TotalB2		2	2	2		1	1	1								
152	TotalB (L)		1	1	1												
153	TotalB (S)						1	1	1								
156	TotalB (Bk1)		1	1	1		1	1	1								
157	TotalB (Bk2)		2	2	2		1	1	1								
160	TotalB (Bk/L)		1	1	1												
161	TotalB (Bk/S)						1	1	1								
162	TotalB1 (2-sided)										1	1	1		1	1	1
163	TotalB2 (2-sided)										2	2	2		1	1	1
164	LB (2-sided)										1	1	1				
165	SB (2-sided)														1	1	1
201	Copy(Total1)	1				1											
202	Copy(Total2)	2				1											
203	Copy(L)	1															
204	Copy(S)					1											
205	CopyA (Total1)	1				1											
206	CopyA (Total2)	2				1											
207	CopyA (L)	1															
208	CopyA (S)					1											
209	Local copy(Total1)	1				1											
210	Local copy(Total2)	2				1											
211	Local copy(L)	1															
212	Local copy(S)					1											
221	Copy(Bk1)	1				1											
222	Copy(Bk2)	2				1											
227	Copy(Bk/L)	1															
228	Copy(Bk/S)					1											
237	Copy(Bk/L/2-sided)									1							
238	Copy(Bk/S/2-sided)													1			
249	CopyA (Bk1)	1				1											
250	CopyA (Bk2)	2				1											
255	CopyA (Bk/L)	1															
256	CopyA (Bk/S)					1											
265	CopyA (Bk/L/2-sided)									1							

Serial No. on counter check screen	Counter type	Print system															
		Bk 1-sided L				Bk 1-sided S				Bk 2-sided L				Bk 2-sided S			
		Local copy	PDL print	FAX print	Report print	Local copy	PDL print	FAX print	Report print	Local copy	PDL print	FAX print	Report print	Local copy	PDL print	FAX print	Report print
266	CopyA (Bk/S/2-sided)													1			
277	Local copy(Bk1)	1				1											
278	Local copy(Bk2)	2				1											
283	Local copy(Bk/L)	1															
284	Local copy(Bk/S)					1											
293	Local copy(Bk/L/2-sided)									1							
294	Local copy(Bk/S/2-sided)													1			
301	Print (Total1)		1		1		1		1								
302	Print (Total2)		2		2		1		1								
303	Print (L)		1		1												
304	Print (S)						1		1								
305	PrintA (Total1)		1		1		1		1								
306	PrintA (Total2)		2		2		1		1								
307	PrintA (L)		1		1												
308	PrintA (S)						1		1								
313	Print (Bk1)		1		1		1		1								
314	Print (Bk2)		2		2		1		1								
319	Print (Bk/L)		1		1												
320	Print (Bk/S)						1		1								
329	Print (Bk/L										1		1				
330	Print (Bk/S/2-sided)														1		1
331	PDL print (Total1)		1				1										
332	PDL print (Total2)		2				1										
333	PDL print (L)		1														
334	PDL print (S)						1										
339	PDL print (Bk1)		1				1										
340	PDL print (Bk2)		2				1										
345	PDL print (Bk/L)		1														
346	PDL print (Bk/S)						1										
355	PDL print (Bk/L/2-sided)										1						
356	PDL print (Bk/S)														1		
403	Copy+Print (Bk/L)	1	1		1												
404	Copy+Print (Bk/S)					1	1		1								
405	Copy+Print (Bk2)	2	2		2	1	1		1								
406	Copy+Print (Bk1)	1	1		1	1	1		1								
411	Copy+Print (L)	1	1		1												
412	Copy+Print (S)					1	1		1								
413	Copy+Print (2)	2	2		2	1	1		1								
414	Copy+Print (1)	1	1		1	1	1		1								
421	Copy+Print (Bk/L)									1	1		1				
422	Copy+Print (Bk/S)													1	1		1
701	Recieved print (Total1)																
702	Recieved print (Total2)																
703	Recieved print (L)																
704	Recieved print (S)																
709	Recieved print (Bk1)																
710	Recieved print (Bk2)																
715	Recieved print (Bk/L)																
716	Recieved print (Bk/S)																
725	Recieved print (Bk/L/2-sided)											1					
726	Recieved print (Bk/S/2-sided)															1	
801	Report print (Total1)																
802	Report print (Total2)																
803	Report print (L)																
804	Report print (S)																
809	Report print (Bk1)																
810	Report print (Bk2)																
815	Report print (Bk/L)																

Serial No. on counter check screen	Counter type	Print system															
		Bk 1-sided L				Bk 1-sided S				Bk 2-sided L				Bk 2-sided S			
		Local copy	PDL print	FAX print	Report print	Local copy	PDL print	FAX print	Report print	Local copy	PDL print	FAX print	Report print	Local copy	PDL print	FAX print	Report print
816	Report print (Bk/S)																
825	Report print (Bk/L)												1				
826	Report print (Bk/S)																1

Serial No. on counter check screen	Counter type	Scan system													
		Bk 1-sided L				Bk 1-sided S				Bk 2-sided L				Bk 2-sided S	
		Total scan	E-mail scan	FileShare DBscan	E-mail FileShare DB scan	FileShare DB BoxFscan	E-mail FileShare DB Box	Total scan	Total scan	E-mail scan	FileShare DB scan	E-mail FileShare DB scan	FileShare DB scan	E-mail FileShare DB BOX scan	Total scan
501	Scan (Total1)	1							1						
505	Bk scan (Total1)	1						1							
506	Bk scan (Total2)	2						1							
507	Bk scan (L)	1													
508	Bk scan (S)							1							
509	C scanTotal (1)								1						1
510	C scanTotal (2)								2						1
511	C scan (L)								1						
512	C scan (S)														1
915	Transmission scan total2 (C)													1	
916	Transmission scan total2 (Bk)						1								
917	Transmission scan total3 (C)											1			
918	Transmission scanTotal3 (Bk)				1										
921	Transmission scanTotal5 (C)										1				
922	Transmission scanTotal5 (Bk)			1											
929	Transmission scanTotal6 (C)												1		
930	Transmission scanTotal6 (Bk)					1									
945	Transmission scan/E-mail (C)									1					
946	Transmission scan/E-mail (Bk)		1												

14.6 Scanner Function Settings (SCANNER)

14.6.1 Setting of Bit Switch

<SCAN SW SSSW01>

T-14-16

Bit	Function	1	0
0	Not used	-	-
1	Not used	-	-
2	Not used	-	-
3	Not used	-	-
4	Outputting an Image for ADF Perpendicularity Adjsutment	output	not output
5	Not used	-	-
6	Not used	-	-
7	Not used	-	-

Specify whether to output an image for ADF perpendicularity adjustment.

14.6.2 Numeric Parameter Functional configuration

No.	Function	Default	Setting range	Unit
001: - 023:	Not used			
024:	CIS scan position during ADF scanning.	385	300-450	one unit=0.1mm
025:	Not used			
026:	Distance from the standby position of CIS to the shading start point.	22	6-48	one unit=0.1mm
027: - 030:	Not used			
031:	Vertical scan start position adjustment	35	0-70	one unit=0.1mm
032:	Horizontal scan start position adjustment	115	50-150	one unit=0.1mm

No.	Function	Default	Setting range	Unit
033:	Vertical scan magnification correction	16	0-32	one unit=0.1%
034:	Not used			
035: - 036:	Reader motor speed adjustment	474		
037: - 040:	Not used			
041:	Vertical scan start position adjustment (scanning on ADF)	35	0-70	one unit=0.1mm
042:	Horizontal scan start position adjustment (scanning on ADF)	220	170-270	one unit=0.1mm
043:	Horizontal scan end position correction (copy:scanning on ADF)	24	0-200	one unit=0.1mm
044:	Horizontal scan end position correction (superfine:scanning on ADF)	36	0-200	one unit=0.1mm
045:	Horizontal scan end position correction (fine:scanning on ADF)	47	0-200	one unit=0.1mm
046:	Horizontal scan end position correction (standard:scanning on ADF)	47	0-200	one unit=0.1mm
047:	Vertical scan magnification correction (scanning on ADF)	16	0-32	one unit=0.1%
048:	Horizontal scan magnification correction (scanning on ADF)	16	0-32	one unit=0.1%
049: - 053:	Not used			
054:	Pickup motor speed correction (when the ADF is used)	16	0-32	one unit=0.1%
055: - 192:	Not used			
193:	ADF special paper, standardized size: LGL misidentification-ready	0	0 : LEGAL 1 : FOOLSCAP 2 : M_OFFICIO 3 : A_FOOLSCAP 4 : FOLIO 5 : G_LEGAL 6 : A_OFFICIO 7 : B_OFFICIO	
194:	ADF special paper, standardized size: LTR misidentification-ready	0	0 : LTR 1 : G_LTR 2 : A_LTR	
195:	ADF special paper, standardized size: LTR_R misidentification-ready	0	0 : LTR_R 1 : FOOLSCAP 2 : OFFICIO 3 : E_OFFICIO 4 : G_LTR_R 5 : A_LTR_R	
196:	shading target value (red)	272	0-511	
197:	shading target value (green)	272	0-511	
198:	shading target value (blue)	272	0-511	
199: - 212:	Not used			
213:	XYZ correction value (X) of standard white plate	8273	1-9999	
214:	XYZ correction value (Y) of standard white plate	8737	1-9999	
215:	XYZ correction value (Z) of standard white plate	9427	1-9999	
216: - 350:	Not used			

⚠If any operation error occurs after changing the setting value, change the setting value to the original one.

14.6.3 <024:CIS scan position during ADF scanning>

This value is used when automatic scan position adjustment (TEST MODE>"2"SCAN TEST>"3"SHEET POS ADJ) fails.

14.6.4 <026:Distance from the standby position of CIS to the shading start point>

White shading can be adjusted finely.

⚠Normally, do not change the setting value. If any operation error occurs after changing the setting value, change the setting value to the original one.

14.6.5 <031Vertical scan start position adjustment>

Adjust the position at which vertical scanning of a book starts. The larger the adjustment value, the narrower the left-side margin of the image becomes.

14.6.6 <032Horizontal scan start position adjustment>

Adjust the position at which horizontal scanning of a book starts. The larger the adjustment value, the narrower the top margin in the image becomes.

14.6.7 <033Vertical scan magnification correction>

Correct the magnification of vertical scanning of a book. The larger the adjustment value, the more the image stretches in the vertical scanning direction.

14.6.8 <035: - 036:Reader motor speed change>

Though no market adjustment work needs to be carried out, enter factory defaults at image processor PCB replacement.

14.6.9 <041: Vertical scan start position adjustment (when scanning on a document fed from ADF)>

Adjust the position at which vertical scanning of a document fed from the ADF starts. The larger the adjustment value, the narrower the left-side margin of the image becomes.

14.6.10 <042: Horizontal scan start position adjustment (when scanning on a document fed from ADF)>

Adjust the position at which horizontal scanning of a document fed from the ADF starts. The larger the adjustment value, the narrower the top margin of the image becomes.

14.6.11 <043: Horizontal scan end position correction (copy:scanning on ADF)>

Adjust the position at which horizontal scanning of a document being copied ends (when scanning on a document fed from ADF). The larger the adjustment value, the narrower the bottom margin of the image becomes.

14.6.12 <044: Horizontal scan end position correction (superfine:scanning on ADF)>

Adjust the position at which horizontal scanning of a FAX document scanned in superfine mode ends. The larger the adjustment value, the narrower the bottom margin of the image becomes.

14.6.13 <045: Horizontal scan end position correction (fine:scanning on ADF)>

Adjust the position at which horizontal scanning of a FAX document scanned in fine mode ends. The larger the adjustment value, the narrower the bottom margin of the image becomes.

14.6.14 <046: Horizontal scan end position correction (standard:scanning on ADF)>

Adjust the position at which horizontal scanning of a FAX document set to the standard scan resolution ends. The larger the adjustment value, the narrower the bottom margin of the image becomes.

14.6.15 <047: Vertical scan magnification correction (when scanning on a document fed from ADF)>

Correct the magnification of vertical scanning of a document fed from the ADF. The larger the adjustment value, the more the image stretches in the vertical scanning direction.

14.6.16 <048: Horizontal scan magnification correction (when scanning on a document fed from ADF)>

Correct the magnification of horizontal scanning of a document fed from the ADF. The smaller the adjustment value, the more the image stretches in the horizontal scanning direction.
This menu is used to adjust the ADF feed motor speed. If you changed the adjustment value in this mode, the adjustment value selected for SCAN NUMERIC>54 must also be incremented/decremented by the same amount.

⚠ Do not change the adjustment value extremely.

14.6.17 <054: Pickup motor speed correction (when the ADF is used)>

This menu is used to adjust the ADF pickup motor speed. If you have adjusted the ADF feed motor speed by selecting SCAN NUMERIC>48, the ADF pickup motor speed must also be incremented/decremented by the same amount.

⚠ Do not change the adjustment value extremely.

14.6.18 <193: ADF special standard-sized paper: LGL misidentification-ready>

Set to use special standard-sized paper that is not otherwise identifiable to the ADF (because it is misidentified as "LEGAL").
0: LEGAL
1: FOOLSCAP
2: M_OFFICIO
3: A_FOOLSCAP
4: FOLIO
5: G_LEGAL
6: A_OFFICIO
7: B_OFFICIO

14.6.19 <194: ADF special standard-sized paper: LTR misidentification-ready>

Set to use special standard-sized paper that is not otherwise identifiable to the ADF (because it is misidentified as "LTR").
0: LTR
1: G_LTR
2: A_LTR

14.6.20 <195: ADF special standard-sized paper: LTR_R misidentification-ready>

Set to use special standard-sized paper that is not otherwise identifiable to the ADF (because it is misidentified as "LTRR").
0: LTR_R
1: FOOLSCAP
2: OFFICIO
3: E_OFFICIO
4: G_LTR_R
5: A_LTR_R

14.6.21 <196: Shading Target Value (Red)>

This is market-related measures taken to improve shadow images generated by a thick original such as a book or a folded or wrinkled original. When taking the measures, assign the same values for R, G, and B. After changing the values, be sure to turn off the power and turn it on again.

14.6.22 <197: Shading Target Value (Green)>

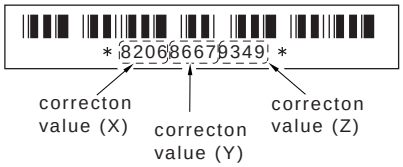
This is market-related measures taken to improve shadow images generated by a thick original such as a book or a folded or wrinkled original. When taking the measures, assign the same values for R, G, and B. After changing the values, be sure to turn off the power and turn it on again.

14.6.23 <198: Shading Target Value (Blue)>

This is market-related measures taken to improve shadow images generated by a thick original such as a book or a folded or wrinkled original. When taking the measures, assign the same values for R, G, and B. After changing the values, be sure to turn off the power and turn it on again.

14.6.24 <213: XYZ correction value (X) of standard white plate>

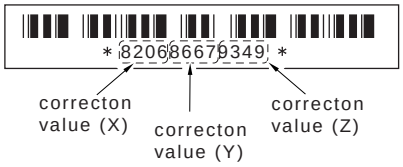
If you replaced the image processor PCB, enter values indicated on the service label. If you have replaced the document glass, enter values indicated on the new document glass and write the values on the service label.



F-14-3

14.6.25 <214: XYZ correction value (Y) of standard white plate>

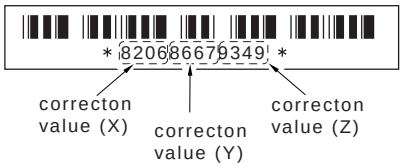
If you replaced the image processor PCB, enter values indicated on the service label. If you have replaced the document glass, enter values indicated on the new document glass and write the values on the service label.



F-14-4

14.6.26 <215: XYZ correction value (Z) of standard white plate>

If you replaced the image processor PCB, enter values indicated on the service label. If you have replaced the document glass, enter values indicated on the new document glass and write the values on the service label.



F-14-5

14.7 Printer Function Settings (PRINTER)

14.7.1 Service Soft Switch Settings (SSSW)

14.7.1.1 SSSW-SW05

14.7.1.1.1 List of Functions

0012-3961

T-14-17

Bit	Function	1	0
0	not used	-	-
1	not used	-	-
2	not used	-	-
3	not used	-	-
4	not used	-	-
5	not used	-	-
6	not used	-	-
7	priority on recording in sub scanning direction	place	do not place

14.7.1.1.2 Detailed Discussions of Bit 7

0012-3962

Use it to enable/disable placement of priority on recording in sub scanning direction.

T-14-18

place:	if B4 recording paper and A4 recording paper are set and an A4 extra-long image (*) is received, printing will be on the B4 recording paper.
do not place:	if B5 horizontal recording paper and A4 recording paper are set and a B4 image is received, printing will be by division and on B5 horizontal recording paper.

*: Image B4 or shorter and that cannot be printed by division and on A4 recording paper.

14.7.1.2 SSSW-SW14

14.7.1.2.1 List of Functions

0012-3963

T-14-19

Bit	Function	1	0
0	Transfer bias pressure reduction mode	Enable	Disable
1	Not used	-	-
2	Black belt addition mode	Enable	Disable
3	Post-rotation reduction mode	Enable	Disable
4	Flicker reduction mode	Enable	Disable
5	Silent mode	Enable	Disable
6	Terminal temperature rise noise reduction mode	Enable	Disable
7	Not used	-	-

14.7.1.2.2 Detailed Discussions of Bit 0

0012-3964

Select whether to enable or disable transfer bias pressure reduction mode.
Select "Enable" to avoid image defects (black spots) produced by transfer bias leaks occurring in a low-pressure region, such as one at a high altitude. This setting regulates the transfer bias to keep it from exceeding a predetermined level during printing.

14.7.1.2.3 Detailed Discussions of Bit 2

0012-3966

Select whether to enable or disable black belt addition mode. If the user uses paper that causes fixed toner on paper to be fused and adhered to drum, selecting "Yes" will clean the drum by forming a black band on the drum surface during the reverse rotation which is performed after printing on 50 sheets.

14.7.1.2.4 Detailed Discussions of Bit 3

0012-3967

Select whether to enable or disable post-rotation reduction mode. Selecting "Enable" will reduce the noise caused by the polygon motor by stopping the motor immediately after post-rotation.

14.7.1.2.5 Detailed Discussions of Bit 4

0012-3969

Select whether to enable or disable flicker reduction mode. Select "Enable" and enter a count to modify fusing temperature control to cancel fluorescent flicking during printing.

⚠ Implementation of this mode would degrade the throughput.

14.7.1.2.6 Detailed Discussions of Bit 5

0012-3970

Select whether to enable or disable silent mode. Select "Enable" to modify the registration loop amount and thus reduce noises or squeaks the registration rollers produce after picking paper from the individual paper inlets.

14.7.1.2.7 Detailed Discussions of Bit 6

0012-3972

Select whether to enable or disable noise reduction mode during terminal temperature rises. Select "Enable" to start slowdown at a temperature lower than normal when printing on smaller-sized paper than B4. Slowdown control thus enabled prevents the thermal degradation of the fusing film grease, assuring smooth sliding among the fixing film, heater and film guide to cut squeaks.

14.7.1.3 SSSW-SW15

14.7.1.3.1 List of Functions

0012-3973

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Bit	Function	1	0
0	Inhibit automatic delivery tray replacement while running jobs	Enable	Disable
1	Halt stapling job when out of staples	Enable	Disable
2	Inhibit tray full indication while the stapled document count is exceeded	Enable	Disable
3	Not used	-	-
4	Not used	-	-
5	Not used	-	-
6	Not used	-	-
7	Not used	-	-

14.7.1.3.2 Detailed Discussions of Bit 0

0012-3977

Select whether to inhibit automatic delivery tray replacement while running jobs with an inner two-way tray mounted in position. Select "Enable" to inhibit automatic tray replacement.

14.7.1.3.3 Detailed Discussions of Bit 1

0012-3978

Select whether to halt stapling job when a finisher installed has run out of staples. Select "Enable" to halt staple jobs when the finisher has run out of staples.

14.7.1.3.4 Detailed Discussions of Bit 2

0012-3979

Select whether to display a tray full message when the maximum allowable stapled document count is exceeded with a finisher installed. Select "Enable" not to display the message.

14.7.2 Numeric Parameter Settings (NUMERIC Param.)

14.7.2.1 List of Functions

No.	Function	Default	Setting range
01: - 30:	Not used		
31:	Top registration adjustment (manual feed tray)	50	0 to 100, one unit = 0.1 mm
32:	Top registration adjustment (cassette)	50	0 to 100, one unit = 0.1 mm
33:	Top registration adjustment (duplex unit)	50	0 to 200, one unit = 0.1 mm
34:	Left-end registration adjustment (manual feed tray)	100	0 to 200, one unit = 0.1 mm
35:	Left-end registration adjustment (cassette 1)	100	0 to 200, one unit = 0.1 mm
36:	Left-end registration adjustment (cassette 2)	100	0 to 200, one unit = 0.1 mm
37:	Left-end registration adjustment (cassette 3)	100	0 to 200, one unit = 0.1 mm
38:	Left-end registration adjustment (cassette 4)	100	0 to 200, one unit = 0.1 mm
39:	Left-end registration adjustment (duplex unit)	100	0 to 200, one unit = 0.1 mm
40:	Target fixing temperature adjustment (multi)	6	-30 to 0, one unit = 5 deg C
41:	Target fixing temperature adjustment (cassette 1)	6	-30 to 0, one unit = 5 deg C
42:	Target fixing temperature adjustment (cassette 2)	6	-30 to 0, one unit = 5 deg C
43:	Target fixing temperature adjustment (cassette 3)	6	-30 to 0, one unit = 5 deg C
44:	Target fixing temperature adjustment (cassette 4)	6	-30 to 0, one unit = 5 deg C
45:	Fixing film speed change (manual feed tray)	16	0 to 30, 1 unit = 0.4%
46:	Fixing film speed change (cassette)	16	0 to 30, 1 unit = 0.4%
47: - 50:	Not used		

14.7.2.2 <031: Top registration adjustment (manual feed tray)>

Adjust the top registration margin of paper picked from a manual feed tray. The larger the adjustment value, the wider the top margin of the image becomes.

14.7.2.3 <032: Top registration adjustment (cassette)>

Adjust the top registration margin of paper picked from cassettes. The larger the adjustment value, the wider the top margin of the image becomes.

14.7.2.4 <033: Top registration adjustment (duplex unit)>

Adjust the top registration margin of paper picked from a duplex unit. The larger the adjustment value, the wider the top margin of the image becomes.

14.7.2.5 <034: Left-end registration adjustment (manual feed tray)>

Adjust the left-end registration margin of paper picked from a manual feed tray. The larger the adjustment value, the wider the left-end margin of the image becomes.

14.7.2.6 <035: Left-end registration adjustment (cassette 1)>

Adjust the left-end registration margin of paper picked from cassette 1. The larger the adjustment value, the wider the left-end margin of the image becomes.

14.7.2.7 <036: Left-end registration adjustment (cassette 2)>

Adjust the left-end registration margin of paper picked from cassette 2. The larger the adjustment value, the wider the left-end margin of the image becomes.

14.7.2.8 <037: Left-end registration adjustment (cassette 3)>

Adjust the left-end registration margin of paper picked from cassette 3. The larger the adjustment value, the wider the left-end margin of the image becomes.

14.7.2.9 <038: Left-end registration adjustment (cassette 4)>

Adjust the left-end registration margin of paper picked from cassette 4. The larger the adjustment value, the wider the left-end margin of the image becomes.

14.7.2.10 <039: Left-end registration adjustment (duplex unit)>

Adjust the left-end registration margin of paper picked from a duplex unit. The larger the adjustment value, the wider the left-end margin of the image becomes.

14.7.2.11 <040: Target fixing temperature adjustment (manual feed tray)>

Lower the fixing temperature from the target temperature setting to reduce the chances of fixing offsets and curled or stuck delivered sheets occurring with paper picked from a manual feed tray.

14.7.2.12 <041: Target fixing temperature adjustment (cassette 1)>

Lower the fixing temperature from the target temperature setting to reduce the chances of fixing offsets and curled or stuck delivered sheets occurring with paper picked from cassette 1.

14.7.2.13 <042: Target fixing temperature adjustment (cassette 2)>

Lower the fixing temperature from the target temperature setting to reduce the chances of fixing offsets and curled or stuck delivered sheets occurring with paper picked from cassette 2.

14.7.2.14 <043: Target fixing temperature adjustment (cassette 3)>

Lower the fixing temperature from the target temperature setting to reduce the chances of fixing offsets and curled or stuck delivered sheets occurring with paper picked from cassette 3.

14.7.2.15 <044: Target fixing temperature adjustment (cassette 4)>

Lower the fixing temperature from the target temperature setting to reduce the chances of fixing offsets and curled or stuck delivered sheets occurring with paper picked from cassette 4.

14.7.2.16 <045: Fixing film speed change (manual feed tray)>

Change the fixing film speed to reduce the chances of streaks appearing in the trailing edge of images caused by shocks from the fixing roller out of position while picking paper from a manual feed tray.

14.7.2.17 <046: Fixing film speed change (cassette)>

Change the fixing film speed to reduce the chances of streaks appearing in the trailing edge of images caused by shocks from the fixing roller out of position while picking paper from a cassette.

14.7.3 Setting of Cassette (CST)

14.7.3.1 Special Standard-sized Paper Compatibility

With a special paper compatibility kit (cassette size adjuster) installed, set the cassette paper size lever to paper size groups U1 to U3 to set the paper sizes listed below.

Paper size group	Setting (*default)	Paper name	Marking
U1	0*	Government LETTER	G-LTR
	29	Argentine LETTER	A-LTR
	31	Government LETTER	G-LTR
	40	8K	8K
U2	0*	FOOLSCAP	FLSP
	24	FOOLSCAP	FLSP
	26	OFFICIO	OFI
	27	Ecuadorian OFFICIO	E-OFI
	28	Bolivian OFFICIO	B-OFI
	36	Argentine Offico	A-OFI
	37	Mexican OFFICIO	M-OFI
	39	16K	16K
U3	0*	Government LEGAL	G-LGL
	25	Australian FOOLSCAP	AFLS
	30	Argentine LETTERR	ALTRR
	32	Government LETTERR	FLTRR
	34	Government LEGAL	G-LGL
	35	FORIO	FORIO

14.8 Setting of System Functions (SYSTEM)

14.8.1 Bit Switch Settings

SSSW-SW03 functional configuration

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Bit	Function	1	0
0	Not used	-	-
1	Not used	-	-
2	Not used	-	-
3	Not used	-	-
4	Not used	-	-
5	Not used	-	-
6	Imports and exports user information via USB.	Enable	Disable
7	Not used	-	-

Bit 6 details
Select whether to enable the host machine to work as a USB storage device or not. If the host machine is plugged into a PC with this setting enabled, it allows user registration data (user data and telephone registration data) to be imported and exported to and from the PC, except for the data embedded in the department management information and user management IDs in the system management information.

14.9 Registration of Accessories (ACC)

14.9.1 Accessory Registration

The table below gives summary description of the accessories available.

Item		Explanation
#ACC	CARD	Card reader installation setting Enter a card number to use. (0 to 9999. One hundred cards are registered with the department ID beginning from the input card number in sequence.) *1:1,000 cards if option ROM is mounted. When a card number is entered, the following kinds of management information are initialized: - Card name (department ID), beginning from the input card number. - Password associated with the card
	CC-SPSW	Control card I/F support setting Set whether to support the control card I/F (CC-V) or not. 0: Do not support. 1: Support.
	COIN	Coin vendor change Set the control card set display appearing on the operator station for vendor use. 0: Control card use 1: Coin vendor use
	CONTROL	Set the PDL printer output control where the control card I/F (CC-V) is supported. 0: Enable printing without a card mounted. 1: Enable printing with a card mounted in position.

14.10 Counter Indication (COUNTER)

14.10.1 Counters

This copier is furnished with a maintenance/supplies counter set (DRBL-1), which can be used to gain rough measures of when to replace supplies. The counter set increments by one on counting each sheet of small-sized paper (up to A4/LTR) and by two on counting each sheet of large-sized paper (larger than A4/LTR).

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Maintenance counter list		
Item	**Counter**	**Explanation**
TOTAL (Total counter)	SERVICE1	Service total counter 1
	SERVICE2	Service total counter 2
	TTL	Total counter
	COPY	Total copy counter
	PDL-PRT	PDL print counter
	FAX-PRT	Fax print counter
	REP-PRT	Report print counter
	2-SIDE	Double-sided copy/print counter
	SCAN	Scan counter
PICK-UP (Paper pickup counter)	C1	Cassette 1 jam counter
	C2	Cassette 2 jam counter
	C3	Cassette 3 jam counter
	C4	Cassette 4 jam counter
	MF	Manual feed tray pickup total counter
	2-SIDE	Double-sided paper pickup total counter
FEEDER (Feeder related counters)	FEED	Feeder pickup total counter
	DFOP-CNT	ADF open/close hinge counter
JAM (Jam counters)	TTL	Unit total jam count
	FEEDER	Feeder total jam count
	SORTER	Finisher total jam count
	2-SIDE	Duplex unit jam counter
	MF	Manual feed tray jam counter
	C1	Cassette 1 jam counter
	C2	Cassette 2 jam counter
	C3	Cassette 3 jam counter
	C4	Cassette 4 jam counter
MISC (Other required counter)	WST-TNR	Waste toner counter

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Parts counter list			
Item	**Counter**	**Explanation**	**Service life**
DRBL-1 (Unit supplies)	FX-UNIT	Fixing unit paper pass count	150,000
	TR-ROLL	Transfer charger roller high-voltage ON count	150,000
	DV-UNT-C	Developing unit rotation count (not used)	-
	M-PU-RL	Manual feed tray pickup roller paper pass count	150,000
	M-SP-PD	Manual feed tray separation pad paper pass count	150,000

14.10.2 Clearing Counters

- Maintenance/parts counter all clear
Execute service mode > CLEAR > COUNTER to clear all maintenance/parts counters.

- Counter clear on parts replacement
Press the numeric keypad key 0 after displaying the counter for a part just replaced, and the counter will be cleared individually.

14.11 Report Output (REPORT)

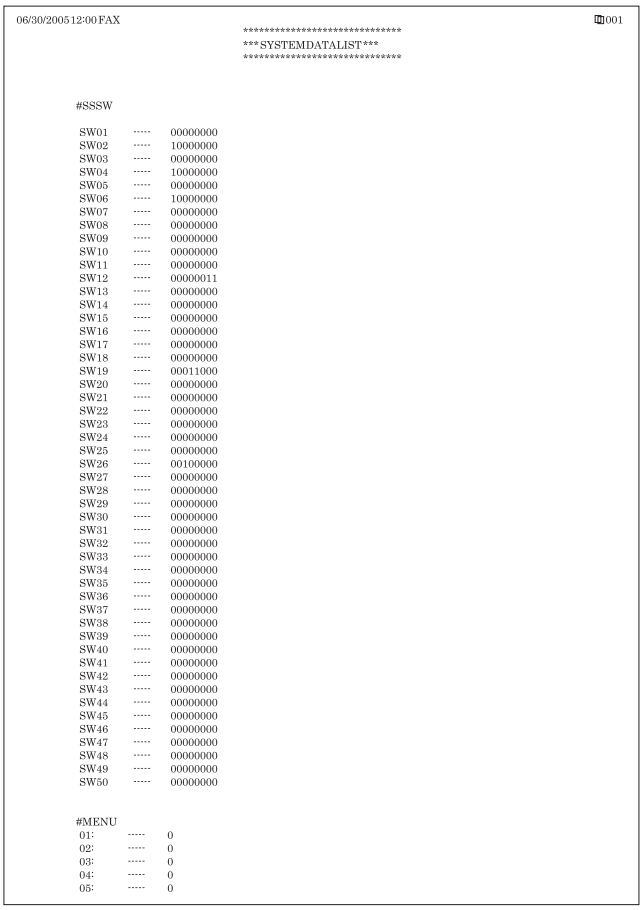
14.11.1 Report Output

The table below lists the kinds of reports that are supported.

Item	Explanation
SERVICE DATA LIST	Service mode service soft switch output (SSSW, MENU, NUMERIC Param., SPECIAL, NCU, SCAN, PRINT, SYSTEM, ROM, start date)
SYSTEM DATA LIST	Service mode service soft switch output (SSSW, MENU, NUMERIC Param., SPECIAL, NCU, SCAN, PRINT, SYSTEM, ROM, start date) System dump list output
SYSTEM DUMP LIST	Transmission count, reception count, record chart count, error count and other outputs
COUNTER REPORT	Counter output
ERROR LOG LIST	Jam and error history output
SPEC LIST	Type setting, print speed, memory size, ROM indication, adjustment data and other outputs
SERVICE LABEL	Output of an entry format for the service label affixed to the rear cover as shipped

14.11.2 System Data List

Use it to check the settings associated with the service soft switch and service parameters.



06/30/2005 12:00 FAX 001

****
*** SYSTEMDATALIST***
****

#SSSW

SW01	-----	00000000
SW02	-----	10000000
SW03	-----	00000000
SW04	-----	10000000
SW05	-----	00000000
SW06	-----	10000000
SW07	-----	00000000
SW08	-----	00000000
SW09	-----	00000000
SW10	-----	00000000
SW11	-----	00000000
SW12	-----	00000011
SW13	-----	00000000
SW14	-----	00000000
SW15	-----	00000000
SW16	-----	00000000
SW17	-----	00000000
SW18	-----	00000000
SW19	-----	00011000
SW20	-----	00000000
SW21	-----	00000000
SW22	-----	00000000
SW23	-----	00000000
SW24	-----	00000000
SW25	-----	00000000
SW26	-----	00100000
SW27	-----	00000000
SW28	-----	00000000
SW29	-----	00000000
SW30	-----	00000000
SW31	-----	00000000
SW32	-----	00000000
SW33	-----	00000000
SW34	-----	00000000
SW35	-----	00000000
SW36	-----	00000000
SW37	-----	00000000
SW38	-----	00000000
SW39	-----	00000000
SW40	-----	00000000
SW41	-----	00000000
SW42	-----	00000000
SW43	-----	00000000
SW44	-----	00000000
SW45	-----	00000000
SW46	-----	00000000
SW47	-----	00000000
SW48	-----	00000000
SW49	-----	00000000
SW50	-----	00000000

#MENU

01:	-----	0
02:	-----	0
03:	-----	0
04:	-----	0
05:	-----	0

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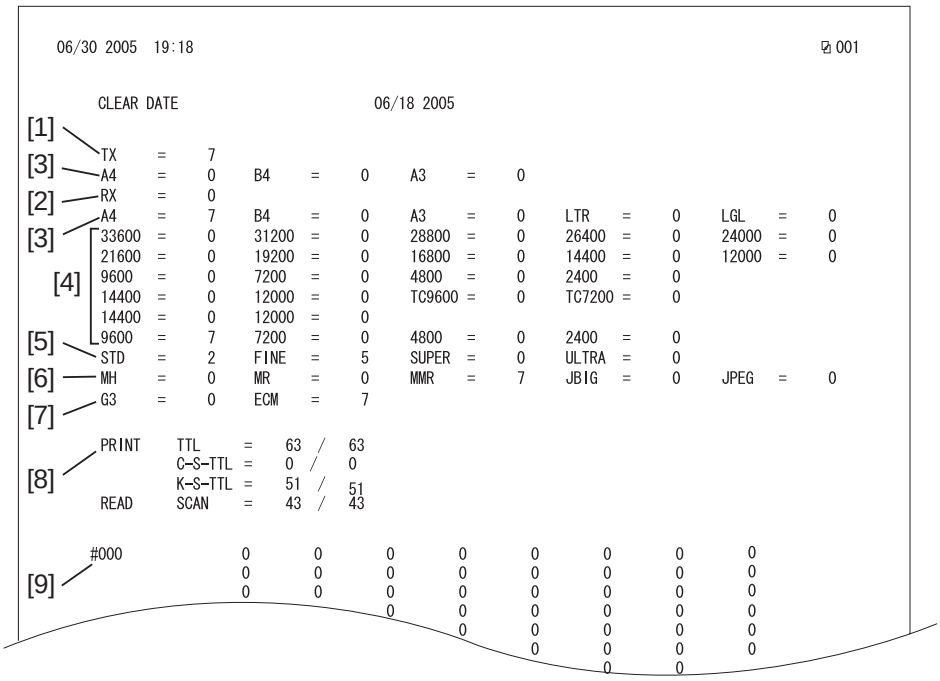
14.11.3 System Dump List

- System Dump List
Use it to check the history of communications, both successful and error.



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*1: TX, number of total pages transmission.
*2: Total number of pages transmitted/received according to original size.
*3: RX, number of total pages reception.
*4: Total number of pages transmitted and received for each modem speed
*5: Total number of pages transmitted/received in connection with different modem speeds (Standard, Fine, Super Fine, Ultra Fine).
*6: Total number of pages transmitted and received for each coding method
*7: Total number of pages transmitted and received in each mode
*8: Total number of pages printed/scanned
*9: Total number of occurrences for error code

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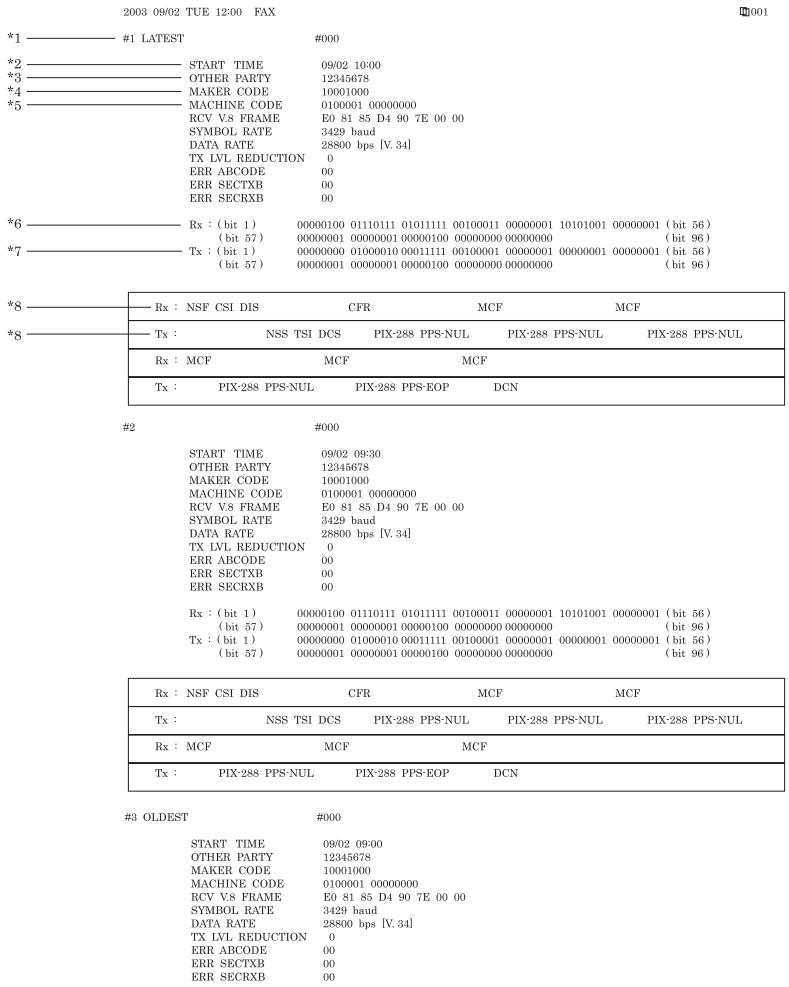
Indication sample					
##280	1	7	3	0	0
	##280 number of errors	##281 number of errors	##282 number of errors		

It provides error information on the 3 most recent communications.



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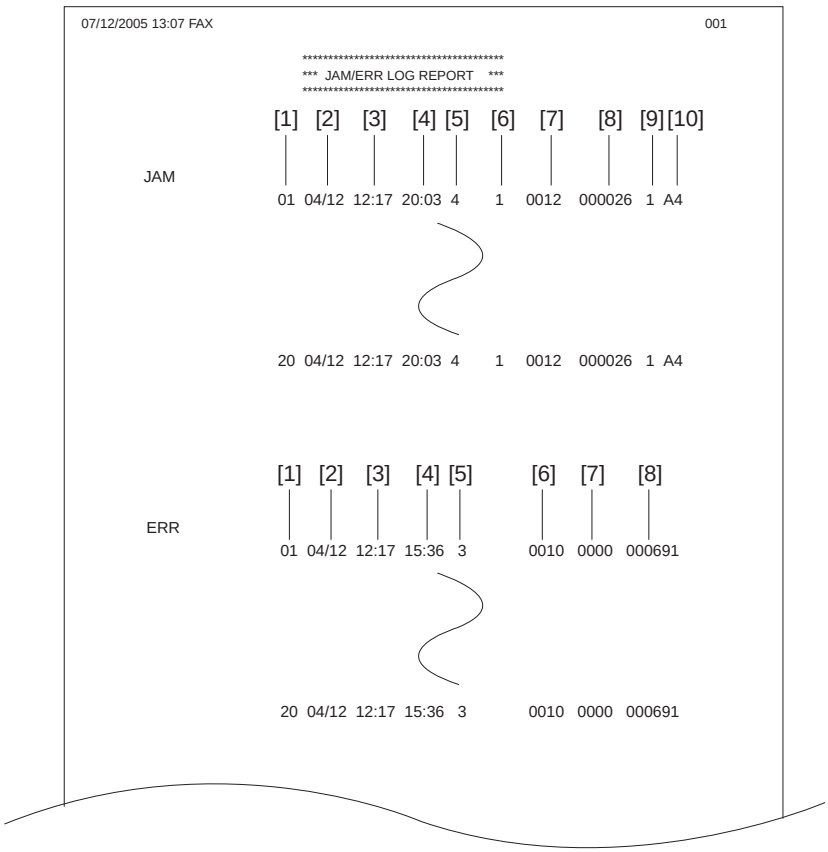
*1: service error code.
*2: START TIME, date and time (in 24-hr notation).
*3: OTHER PARTY, telephone number sent by the other party.
*4: MAKER CODE, manufacturer code.
*5: MACHINE CODE, model code.
*6: bit 1 through bit 96 of DIS, DCS, or DTC that has been received.
*7: bit 1 through bit 96 of DIS, DCS, or DTC that has been transmitted.
*8: RX, procedural signal received; TX, procedural signal transmitted.

14.11.4 Counter List

Explanation: Maintenance/supplies counter output.
(For more detailed information about the maintenance/supplies counter output, execute service mode > Display counter information > Counters.)

14.11.5 Error Log List



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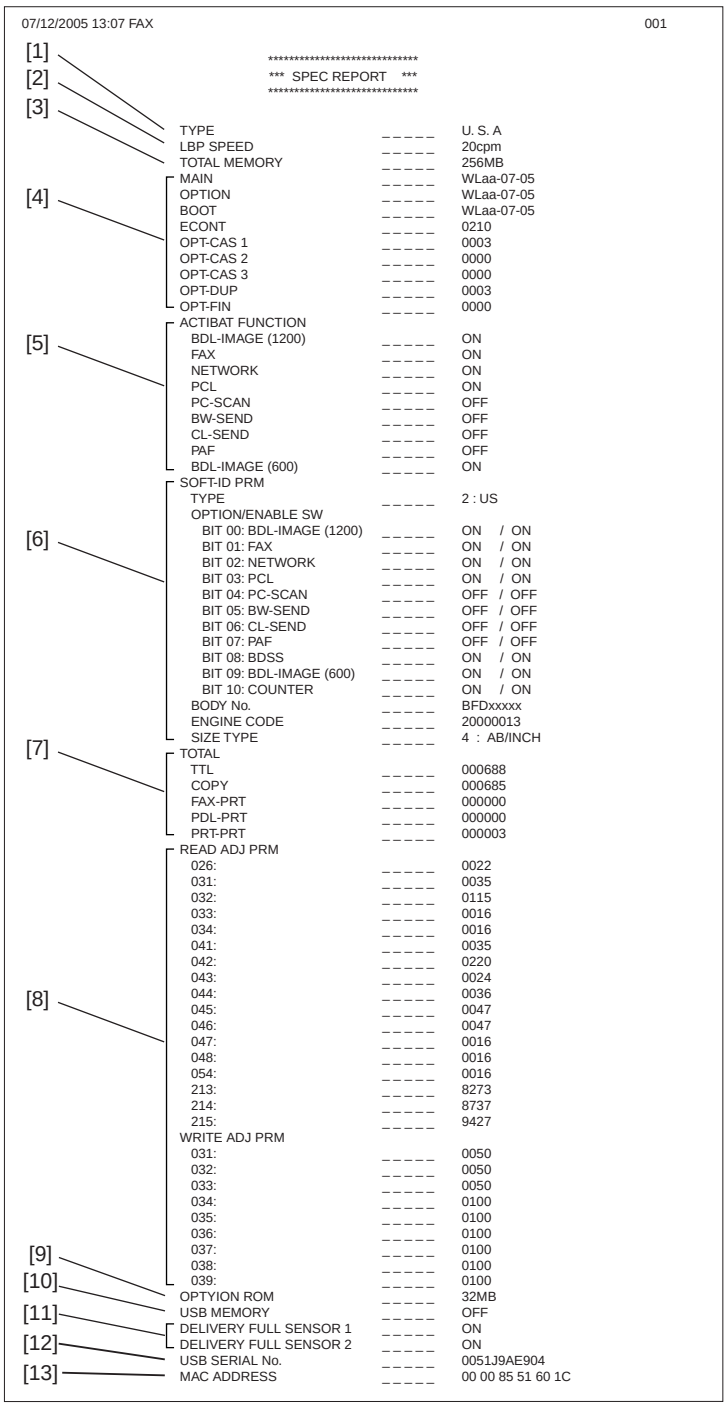
Jam history description (JAM)		
	Item	**Explanation**
[1]	Number	The larger the number of a jam, the more recently it has occurred.
[2]	Jam date	Date of jam occurrence
[3]	Jam time	
[4]	Jam recovery time	
[5]	Location	3: Host machine, 4: ADF, 5: Finisher
[6]	Occurrence category	0: Host machine, 1: ADF, 2: Finisher

Jam history description (JAM)			
	Item	**Explanation**	
[7]	Jam code	Code	Jam cause
	Host machine	0104	Pickup assembly delay jam
		0208	Pickup assembly stationary jam
		010c	Delivery assembly jam
		010e	Second delivery assembly delivery delay jam
		0210	Delivery stationary jam
		0212	Second delivery assembly stationary jam
		0214	Host machine retention paper jam
		1118	Door open jam
		0120	Duplexing paper sensor 1 delay jam
		0221	Duplexing paper sensor 1 stationary jam
		0124	Duplexing paper sensor 2 delay jam
		0228	Duplexing paper sensor 2 stationary jam
	ADF	0000	Unknown jam
		0007	Initial stationary
		0008	Read sensor delay jam
		0009	Read sensor stationary jam
		000a	Paper absence (Pull out the document.)
		000c	Delivery reversal sensor delay jam
		000d	Delivery reversal sensor stationary jam
		000e	ADF cover open error
		000f	User ADF open error
		0010	Pickup NG
	Finisher	0130	Inlet sensor delivery delay jam
		0231	Inlet sensor delivery stationary jam
		0033	Bundle delivery jam
		0035	Stapler jam
		1036	Power-on jam
		1137	Door open jam
[8]	Total counter display		
[9]	Pickup stage position	0: Manual feed tray, 1: Cassette 1, 2: Cassette 2, 3: Cassette 3, 4: Cassette 4	
[10]	Paper size		

Error history description (ERR)		
	Item	**Explanation**
[1]	Number	The larger the number of an error, the more recently it has occurred.
[2]	Error date	Date of error occurrence
[3]	Error time	
[4]	Location	3: Main unit, 5: Finisher
[5]	Error code	Error code (4-digit code; for a definition of the code, see the "Error Code" Chapter.)
[6]	Detail code	Detail code of the error code (4-digit code; for a definition of the code, see the "Error Code" Chapter.)
[7]	Total counter display	

14.11.6 Spec List



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[1] Type setting
[2] Print speed
[3] Memory size
[4] ROM version (MAIN/BOOT/ECONT/option cassette/duplex unit/finisher)
[5] Activation function ON/OFF
[6] Soft ID information
[7] Total counter (TOTAL/COPY/FAX/PDL/REPORT record counts)
[8] Adjustment data (factory scan/record adjustment values)
[9] Option ROM availability
[10] USB memory availability
[11] No. 1/No. 2 paper full sensor sensor availability
[12] USB serial number
[13] MAC address

14.11.7 Service Label

Enter the value given in the service label affixed to the rear cover when it has been replaced with a new one.

#PRINT>#PRINT NUMERIC					#SCAN>#SCAN NUMERIC				
	FACTORY	1	2	3		FACTORY	1	2	3
031	50				026				
032	50				031				
033	50				032				
034	100				033				
035	100				034				
036	100				041				
037	100				042				
038	100				043				
039	100				044				
					045				
					046				
					047				
#SCAN>#SCAN NUMERIC					048				
					054				
					213				
					214				
body No:BFDxxxxx					215				

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14.12 Download (DOWNLOAD)

14.12.1 Download

The following parts of this unit can be upgraded by executing download mode using the service support tool (SST) (for more information, see the "Upgrading" section):

Main unit
- Flash ROM (system + boot) mounted on the image processor PCB

Accessory
- ROM mounted on the finisher controller PCB
- ROM mounted on the PCL board

14.13 Data Initialization Mode (CLEAR)

14.13.1 Clear

Group	Item	Explanation
TEL & USER DATA		Clears all user-registered and -set areas of telephone registration data and user data. (Telephone registration refers to the registration of codes on one-touch dialing, abbreviated dialing, and group dialing.)
SERVICE DATA		Clears the system dump list, except for counters and clear dates.
COUNTER		Clears the maintenance counter, parts counter and mode-specific counters. Initializes the counter (numerator) in the system dump list.
TYPE		Initializes user data and service data to suit specified destination settings.
SOFT-CNT		Not used
HST	ACTIVITY	Initializes the activity report
	ACCOUNT	Clears print histories.
	JAM	Clears the jam history.
	ERR	Clear the error (error code) history.
	ALARM	Clears the alarm history.
CARD		Clears department management information held in the controller before the card reader is demounted.
ERR	E355	Not used
	E719	Clears card reader errors.
PWD		Clears the system administrator's password.
FILE SYSTEM		Delete unnecessary language files in the USB memory.
FORMAT	USB MEMORY	Format the USB memory. (This mode is used when the USB memory error is damaged and E744 occurs.)
	LICENSE DRIVE	Not used
ALL		Clears user and service data (except for some scan parameters and print parameters), and the counter setting/registration data in the system dump list, except for the print count.

14.14 Error Display (ERROR DISPLAY)

14.14.1 Error Display

An error code is displayed when a service error has occurred. The E code is displayed in the upper step, and the detail code is displayed the bottom step.

14.15 ROM Management (ROM)

14.15.1 ROM Display

The table below lists the items of ROM display mode that are supported.

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Item	Explanation
MAIN	Displays the version number of the ROM (SYSTEM) mounted on the image processor PCB.
MAIN2	Displays the version of the ROM (BOOT) mounted on the image processor PCB.
ECONT	Displays the version number of the ROM mounted on the DC controller PCB.
OPROM	Displays the version number of the option ROM.

14.16 Test Mode (TEST)

14.16.1 Overview

14.16.1.1 Outline

Test mode must be executed by keeping track the flow of menu items appearing on the touch panel (LCD). Menu items in test mode are organized into seven blocks as described below. Numerals enclosed in parentheses denote a numeric keypad key to be pressed each.

1. D-RAM test ((1) D-RAM)
Checks to see if data can be correctly written to and read from D-RAM.

2. Scan test ((2) SCAN TEST)
Used to adjust contact sensor output and the position at which a document fed from the ADF is scanned.

3. Print test ((3) PRINT TEST)
Used to generate service test patterns.

4. Modem test ((4) MODEM TEST)
Performs relay actuation, modem DTMF and tonal signal transmission/reception tests.

5. Aging test ((5) AGING TEST)
Not used.

6. Function test ((6) FUNCTION TEST)
Used to verify the operations of microswitches, sensors, speakers and ADF functions.

7. Roller cleaning mode ((0) ROLLER CLEAN)
Used to clean the delivery roller or ADF pickup roller by idling them.

14.16.1.2 Test Mode Menu List

Test mode menu list
To invoke test mode, follow these steps:

1) Enter service mode.
Sequentially press the Additional functions key, 2 key, 8 key, and Additional functions key on the operation panel.
2) Press the arrow key on the touch panel to display "TEST MODE".
3) Press [OK].

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Numerals enclosed in parentheses denote a numeric keypad key to be pressed each.					
Group	**Subgroup**	**Item 1**	**Item 2**	**Item 3**	**Explanation**
TEST MODE [1] - [9], [#]					
(1) DRAM [1] - [2]					D-RAM data check
	(1) D-RAM TEST				Write/read check
	(2) D-RAM TEST				Read check
(2) SCAN TEST [1] - [8]					
	(1) SHADING				Automatic gain adjustment
	(3) SHEET POS ADJ				CS position adjustment
	(4) TRASH DETECT				Dust detection
	(5), (6), (9), (*)				Not used
(3) PRINT TEST [1] - [9]					
	(1)				Not used
	(2)				All-black output
	(3)				Not used
	(4)				Back belt output
	(5), (6), (7), (8), (9), (*)				Not used
(4) MODEM TEST [1] - [9]					

Numerals enclosed in parentheses denote a numeric keypad key to be pressed each.					
Group	**Subgroup**	**Item 1**	**Item 2**	**Item 3**	**Explanation**
	(1) RELAY TEST [1] - [2]				
		(1) RELAY TEST 1			NCU relay (and switch) ON/OFF test
		(2) RELAY TEST 2			230 V common NCU test
	(2) FREQ TEST [0] - [6]				Frequency test
		(0) FREQ TEST 462Hz			
		(1) FREQ TEST 1100Hz			
		(2) FREQ TEST 1300Hz			
		(3) FREQ TEST 1500Hz			
		(4) FREQ TSST 1650Hz			
		(5) FREQ TEST 1850Hz			
		(6) FREQ TEST 2100Hz			
	(4) G3 SIGNAL TX TEST [0] - [8]				G3 signal transmission test
		(0) G3 SIGNAL TX TEST 300bps			
		(1) G3 SIGNAL TX TEST 2400bps			
		(2) G3 SIGNAL TX TEST 4800bps			
		(3) G3 SIGNAL TX TEST 7200bps			
		(4) G3 SIGNAL TX TEST 9600bps			
		(5) G3 SIGNAL TX TEST TC7200bps			
		(6) G3 SIGNAL TX TEST TC9600bps			
		(7) G3 SIGNAL TX TEST 12000bps			
		(8) G3 SIGNAL TX TEST 14400bps			
	(5) DTMF TEST [0] - [9], * , #				DTMF transmission test
		(0) G3 SIGNAL TX TEST 300bps			
		(1) G3 SIGNAL TX TEST 2400bps			
		(2) G3 SIGNAL TX TEST 4800bps			
		(3) G3 SIGNAL TX TEST 7200bps			
		(4) G3 SIGNAL TX TEST 9600bps			
		(5) G3 SIGNAL TX TEST TC7200bps			
		(6) G3 SIGNAL TX TEST TC9600bps			
		(7) G3 SIGNAL TX TEST 12000bps			
		(8) G3 SIGNAL TX TEST 14400bps			
		(9) G3 SIGNAL TX TEST TC9600bps			
		(*) G3 SIGNAL TX TEST 12000bps			
		(#) G3 SIGNAL TX TEST 14400bps			
	(6) MODEM TEST				Tonal sign reception test
	(8) G3 V.34 Tx TEST				V34 G3 signal transmission test
	(9)				Not used
(5) AGING TEST					Not used
(6) FUNCTION TEST [1] - [9]					

Numerals enclosed in parentheses denote a numeric keypad key to be pressed each.					
Group	**Subgroup**	**Item 1**	**Item 2**	**Item 3**	**Explanation**
	(1) FUNCTION TEST G3 4800bps				G3 4800 bps signal transmission test
	(3) 6-3 SENSOR [1] - [6]				Sensor checks
		(1) SENSOR CHECK 0:NORMAL 1:LATCH			
			(0) SENSOR NORMAL [0] - [2]		
				(0) CAS 0 REG 0 DEL 0 MULTI 0	
				(1) TONER 0 FULL 0 2ND-DEL 0000	
				(2) OP1 0000 OP2 0000 OP3 0000 PATH 0000	
			(1) SENSOR LATCH [0] - [2]		
				(0) CAS 0 REG 0 DEL 0 MULTI 0	
				(1) TONER 0 FULL 0 2ND-DEL 0000	
				(2) OP1 0000 OP2 0000 OP3 0000 PATH 0000	
		(2) SWITCH CHECK [0] - [1]			
			(0) CAS 0000 LOCK 0000		
			(1) OP1 0000 OP2 0000 OP3 0000		
		(3) DS ON DES of HPS ON BCVS of			
		(4) REF xxx ANT xxx |ANT-REF| xxx			
		(5) BSCT on BDAC[A3] BDSS3-0 [of of of of]			
		(6) NCR Sts: NCR xxxxx DPT MGN OK RDY 0101			
	(4) ADF FEED TEST				ADF delivery operation test
	(5) BOOK FEED TEST				Book copy operation test
	(6) 6-6 SPEAKER FREQ:[1] VOL:[2]				Speaker volume and buzzer frequency test
	(7) Not used				
	(8) FUNCTION TEST LAMP TEST ALL				Lamp test
	(9) LINE TEST [1] - [3]				Line signal reception test
(0) ROLLER CLEAN 0:PRT 1:ADF					Printer and ADF roller cleaning
	(0) PRT ROL CLEAN Press start key				
	(1) ADF ROL CLEAN Press start key				

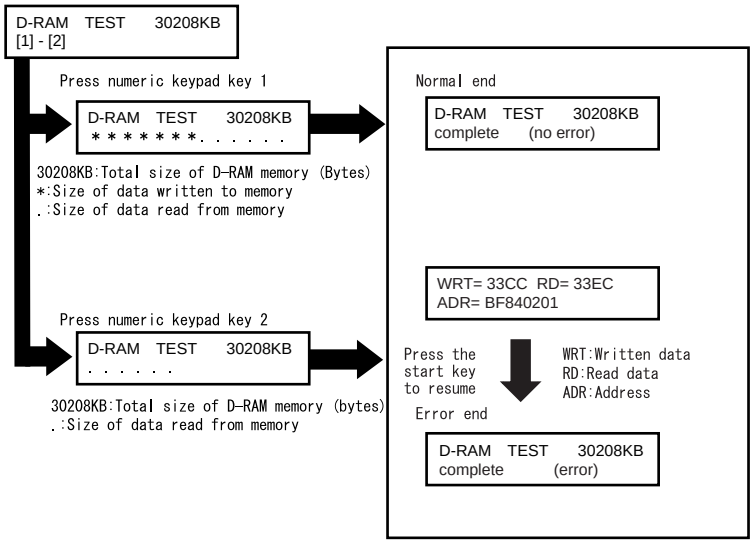
14.16.2 DRAM Test

14.16.2.1 D-RAM test<(1) D-RAM TEST>

D-RAM Test((1) D-RAM)
Press the numeric keypad key 1 on the test mode menu to select the D-DRAM test.
Press numeric keypad keys 1 and 2 during the D-DRAM test to carry out the individual tests described below.

Numeric keypad key 1
Checks to see if data can be correctly written to and read from all areas of D-RAM (SDRAM). If an error occurs making this check, the test is aborted, with an error appearing on the LCD.

Numeric keypad key 2
Checks to see if data can be correctly read from all areas of D-RAM (SDRAM). If an error occurs making this check, the test is aborted, with an error appearing on the touch panel (LCD).



F-14-12

14.16.3 Scan Test

14.16.3.1 Scan Test ((2) SCAN TEST)

Scan test ((2) SCAN TEST)

Press the numeric keypad key 2 on the test mode menu to select the CCD test.
Press numeric keypad keys 1, 3 and 4 during the CCD test to carry out the individual tests described below.

Numeric keypad key 1
Corrects the LED output of the contact sensor and sets its parameters automatically. (AGC adjustment)

Numeric keypad key 3
Adjusts the document scan position (only on models with the ADF feature installed). Adjusts the position of the contact sensor for scanning documents fed from the ADF automatically.

Numeric keypad key 4
Detects trash at reader scan positions A/B/C.
Pos A: Reference read position
Pos B: About 0.5 mm inside of the roller from the reference position
Pos C: About 1.0 mm inside of the roller from the reference position

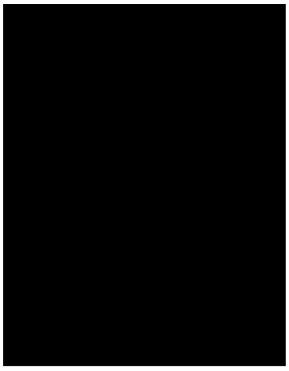
14.16.4 Print Test

14.16.4.1 Print Test ((3) PRINT TEST)

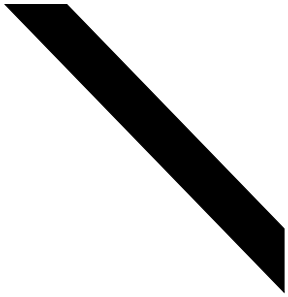
Print test ((3) PRINT TEST)
Press the numeric keypad key 3 on the test mode menu to select the print test.
Press numeric keypad keys 2 and 4 during the print test to generate test patterns as described below. Two kinds of service test patterns are available. Other test patterns are reserved for factory/development purposes.

Numeric keypad key 2
(2) BLACK: All-black output
Numeric keypad key 4
(4) ENDURANCE: Black belt output

To cancel test printing, press the stop key.



Use it to make sure that the print pattern does not have white lines or uneven image.



Use it to make sure that the print pattern does not have contraction/ elongation of an image or dirt/black line.s

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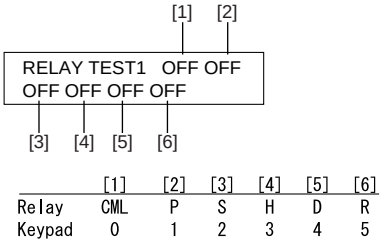
14.16.5 Modem Test

14.16.5.1 MODEM Test((4) MODEM TEST)

MODEM test((4) MODEM TEST)
These tests test modem and NCU transmission and reception. The modem tests check whether signals are sent correctly from the modem by comparing the sound of the signals from the speaker with the sounds from a normal modem.
End this test by pressing the Stop key.

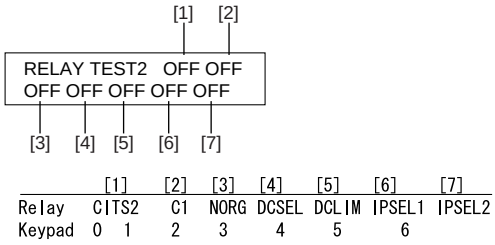
Keypad	Type	Description
1	Relay test	Use it to turn on/off a selected relay to execute a switch-over test
2	Frequency test	The modem sends tonal signals from the modular jack and the speaker.
4	G3 signal transmission test	The modem sends G3 signals from the modular jack and the speaker.
5	DTMF signal reception test	Use it to generate the DTMF signal coming from the modem using the telephone line terminal and the speaker.
6	Tonal signal reception test	Use it to monitor a specific frequency and the DTMF signal received from the telephone line terminal by causing them to be indicated on the LCD (i.e., the presence/absence as detected). The reception signal is generated by the speaker.
8	V.34 G3 signal transmission test	The modem sends V.34 G3 signals from the modular jack and the speaker.

Relay Test
Press '1'or '2' on the keypad on the Modem test menu to select relay test mode. Use the keypad to operate the various relays of the NCU. '2' on the keypad is used for 230V machine.
Numeric keypad key 1
The input key and relay are shown below:



F-14-14

Numeric keypad key 2
The input key and relay are shown below:



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The touchpanel (LCD) is turned on or off in relation to the transmission of the relay operation signal as is operated on the keypad; for this reason, you cannot use the touch panel (LCD) to check a fault on a single relay.

Frequency Test
A press on '2' on the keypad from the MODEM test menu selects the frequency test.
In this test, signals of the following frequencies from the modem are transmitted using the telephone line terminal and the speaker. To select a different frequency, use the keypad.

Keypad	Frequency
1	462Hz
2	1100Hz
3	1300Hz
4	1500Hz
5	1650Hz
6	1850Hz
7	2100Hz

MEMO:
The frequency and the output level of individual frequencies are in keeping with the output level set in service mode.

G3 Signal Transmission Test
A press on '4' on the keypad from the MODEM test menu selects the G3 signal transmission test. In this test, the following G3 signals from the modem are transmitted using the telephone line terminal and the speaker. To select a different transmission speed, use the keypad.

Keypad	Transmission speed
0	300bps
1	2400bps
2	4800bps
3	7200bps
4	9600bps
5	TC7200bps
6	TC9600bps
7	12000bps
8	14400bps

MEMO:
The output level of individual signals is in keeping with the setting made in service mode.

DTMF Signal Transmission Test
A press on '5' on the MODEM test menu selects the DTMF signal transmission test. In the test, the following DTMF signals from the modem are transmitted using the telephone line terminal and the speaker. The number pressed on the keypad selects a specific DTMF signal.

MEMO:
The output level of individual signals is in keeping with the setting made in service mode.

Tonal/DTMF Signal Reception Test
A press on '6' on the keypad from the MODEM test menu selects the tonal signal/DTMF signal reception 0 test. In this signal, the tonal signal/DTMF signal received from the telephone line terminal can be checked to find out if it was detected by the modem.

Tonal signal reception test

```
MODEM TEST
OFF OFF OFF
```

OFF OFF OFF
- changes from '0' to '1' in response to detection of a signal of 462 ± 25 Hz.
- changes from '0' to '1' in response to detection of a signal of 1100 ± 30 Hz.
- changes from '0' to '1' in response to detection of a signal of 2100 ± 25 Hz.

DTMF signal reception test

```
MODEM TEST
OFF OFF OFF  5
```

The received DTMF signals are indicated starting from the right using the 2nd character of the display.

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V.34 G3 Signal Transmission Test
A press on '8' on the keypad from the MODEM test menu selectes the V.34 G3 signal transmission test. The V.34 G3 signals below are sent from the modem using the modular jack and the speaker by pressing the start key. The Baud rate can be changed with the keypad, and the Speed can be changed with the left/right arrow key.

Keypad	Baud rate
0	3429baud
1	3200baud
2	3000baud
3	2800baud
4	2743baud
5	2400baud

Left/right arrow key	Transmission speed
	2400bps
	4800bps
	7200bps
	9600bps
<	12000bps
	14400bps
	16800bps
	19200bps
	21600bps
>	24000bps
	26400bps
	28800bps
	31200bps
	33600bps

14.16.6 Faculty Test

14.16.6.1 Function Test ((6) FUNCTION TEST)

Function test ((6) FUNCTION TEST)
Press the numeric keypad key 6 on the test mode menu to select the function test.
Press numeric keypad keys 1 and 3 to 9 during the function test to enter the menus listed below.

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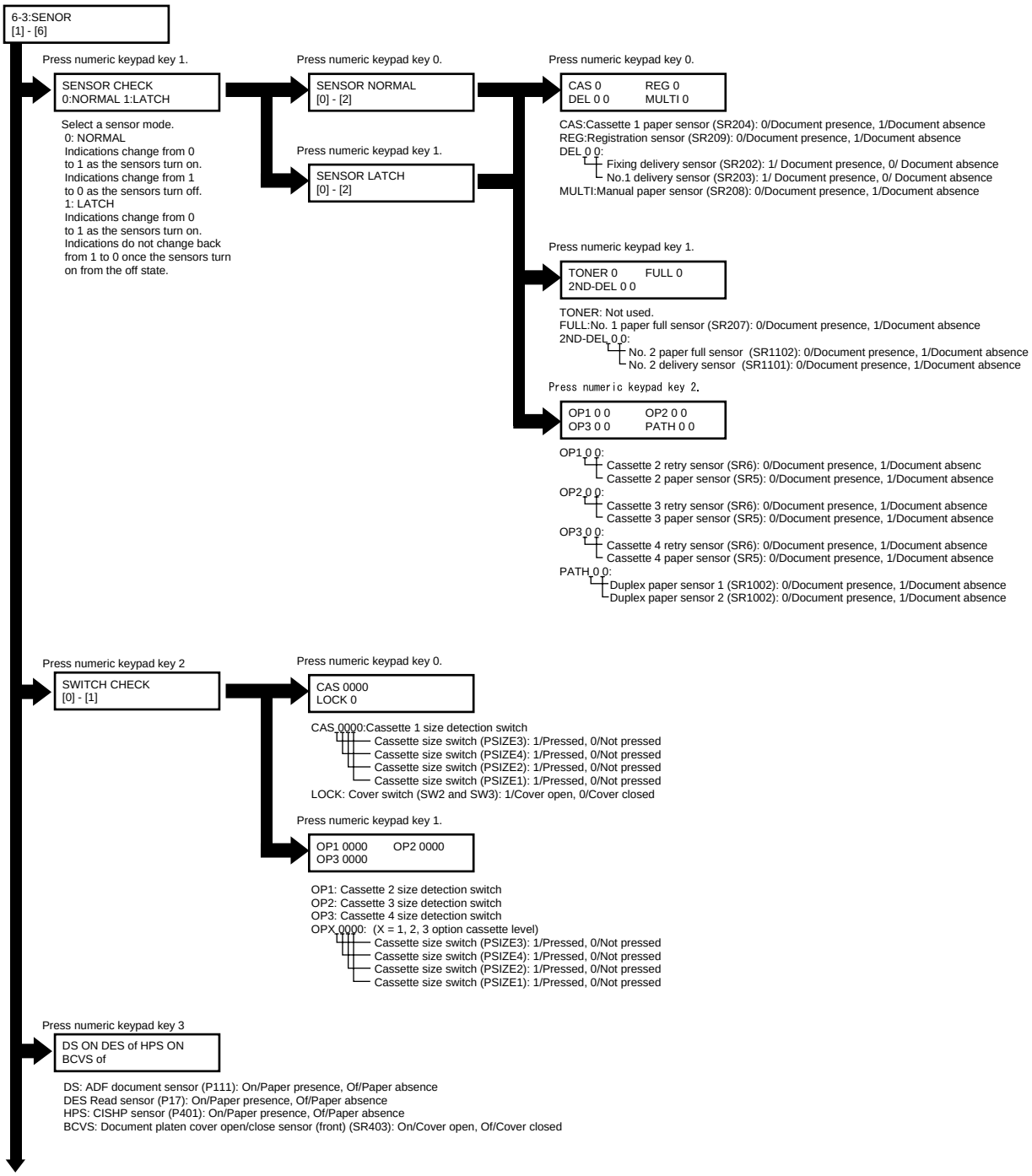
Keypad	Item	Explanation
1	G3 signal transmission test	Transmits 4800-bps G3 signals to a telephone line and speaker.
2	Not used	
3	Sensor test	Sensor actuation test
4	ADF test	ADF operation test
5	Book test	Host machine operation test
6	Speaker test	Speaker operation test
7	Not used	
8	Lamp test	Contact sensor illumination test
9	Line signal reception test	NCU board signal sensor and frequency counter operation test

G3 signal transmission test (6-1: G3 480 bps Tx)
Press numeric keypad key 1 on the FUNCTION TEST menu to select the G3 signal transmission test. This test transmits 4800-bps G3 signals from the telephone line connection terminal and speaker.

Sensor test (6-3: SENSOR)
This mode is used to verify the status of the unit sensors from the touch panel (LCD) indications. Press numeric keypad key 3 on the FUNCTION TEST menu to select the sensor test. The touch panel (LCD) indications change as the associated sensors turn on and off.


6-3:SENOR
[1] - [6]
Press numeric keypad key 1.
SENSOR CHECK
0:NORMAL 1:LATCH
Select a sensor mode.
0: NORMAL
Indications change from 0 to 1 as the sensors turn on.
Indications change from 1 to 0 as the sensors turn off.
1: LATCH
Indications change from 0 to 1 as the sensors turn on.
Indications do not change back from 1 to 0 once the sensors turn on from the off state.
Press numeric keypad key 0.
SENSOR NORMAL
[0] - [2]
Press numeric keypad key 1.
SENSOR LATCH
[0] - [2]
Press numeric keypad key 0.
CAS 0 REG 0
DEL 0 0 MULTI 0
CAS:Cassette 1 paper sensor (SR204): 0/Document presence, 1/Document absence
REG:Registration sensor (SR209): 0/Document presence, 1/Document absence
DEL 0 0:
Fixing delivery sensor (SR202): 1/ Document presence, 0/ Document absence
No.1 delivery sensor (SR203): 1/ Document presence, 0/ Document absence
MULTI:Manual paper sensor (SR208): 0/Document presence, 1/Document absence
Press numeric keypad key 1.
TONER 0 FULL 0
2ND-DEL 0 0
TONER: Not used.
FULL:No. 1 paper full sensor (SR207): 0/Document presence, 1/Document absence
2ND-DEL 0 0:
No. 2 paper full sensor (SR1102): 0/Document presence, 1/Document absence
No. 2 delivery sensor (SR1101): 0/Document presence, 1/Document absence
Press numeric keypad key 2.
OP1 0 0 OP2 0 0
OP3 0 0 PATH 0 0
OP1 0 0:
Cassette 2 retry sensor (SR6): 0/Document presence, 1/Document absenc
Cassette 2 paper sensor (SR5): 0/Document presence, 1/Document absence
OP2 0 0:
Cassette 3 retry sensor (SR6): 0/Document presence, 1/Document absence
Cassette 3 paper sensor (SR5): 0/Document presence, 1/Document absence
OP3 0 0:
Cassette 4 retry sensor (SR6): 0/Document presence, 1/Document absence
Cassette 4 paper sensor (SR5): 0/Document presence, 1/Document absence
PATH 0 0:
Duplex paper sensor 1 (SR1002): 0/Document presence, 1/Document absence
Duplex paper sensor 2 (SR1002): 0/Document presence, 1/Document absence
Press numeric keypad key 2
SWITCH CHECK
[0] - [1]
Press numeric keypad key 0.
CAS 0000
LOCK 0
CAS 0000:Cassette 1 size detection switch
Cassette size switch (PSIZE3): 1/Pressed, 0/Not pressed
Cassette size switch (PSIZE4): 1/Pressed, 0/Not pressed
Cassette size switch (PSIZE2): 1/Pressed, 0/Not pressed
Cassette size switch (PSIZE1): 1/Pressed, 0/Not pressed
LOCK: Cover switch (SW2 and SW3): 1/Cover open, 0/Cover closed
Press numeric keypad key 1.
OP1 0000 OP2 0000
OP3 0000
OP1: Cassette 2 size detection switch
OP2: Cassette 3 size detection switch
OP3: Cassette 4 size detection switch
OPX 0000: (X = 1, 2, 3 option cassette level)
Cassette size switch (PSIZE3): 1/Pressed, 0/Not pressed
Cassette size switch (PSIZE4): 1/Pressed, 0/Not pressed
Cassette size switch (PSIZE2): 1/Pressed, 0/Not pressed
Cassette size switch (PSIZE1): 1/Pressed, 0/Not pressed
Press numeric keypad key 3
DS ON DES of HPS ON
BCVS of
DS: ADF document sensor (P111): On/Paper presence, Of/Paper absence
DES Read sensor (P17): On/Paper presence, Of/Paper absence
HPS: CISHP sensor (P401): On/Paper presence, Of/Paper absence
BCVS: Document platen cover open/close sensor (front) (SR403): On/Cover open, Of/Cover closed

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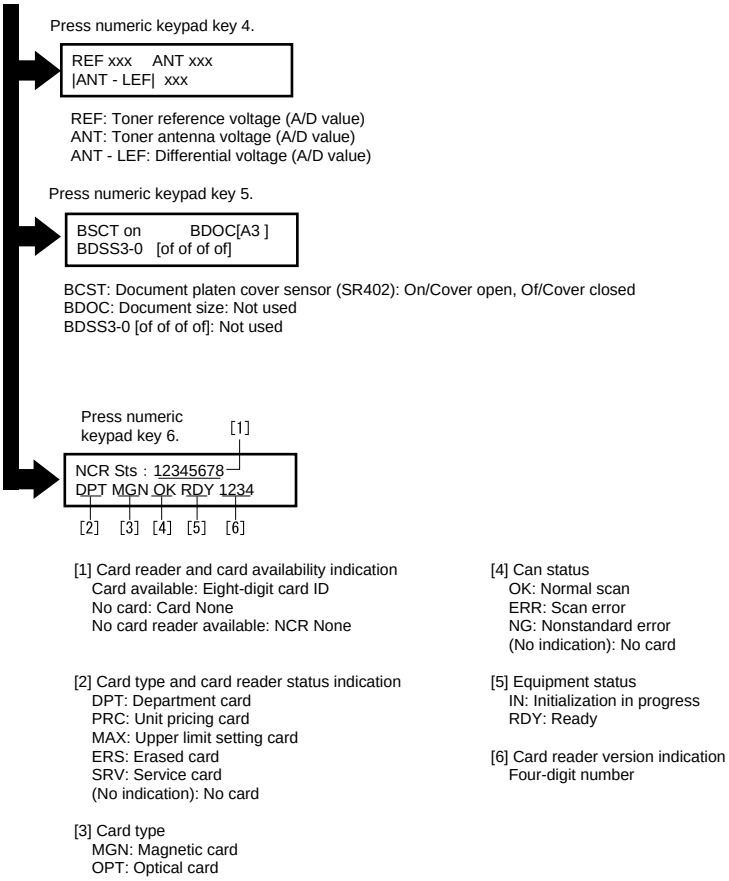

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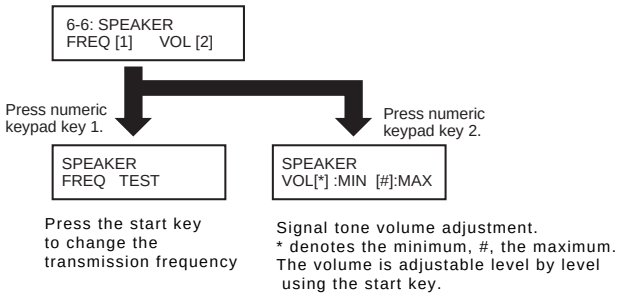
ADF feed test (6-4: ADF FEED TEST)
ADF operation verification mode. Press numeric keypad key 4 on the FUNCTION TEST menu to select the ADF feed test. Place a document on the document platen and press the start key to transfer the document at the speed matched to the scan resolution setting. In this test, enter a transfer speed between 500 and 2000 (mm/s) from the numeric keypad and verify the transfer speed. Select between the ON and OFF states with the left and right cursor keys to select between single-sided document feed (OFF) and double-sided document feed (ON).

Book feed test (6-5: BOOK FEED TEST)
Performs a book feed operation with a specified magnification and in a specified size.

Speaker test (6-6: SPEAKER)
Speaker operation verification mode. Press numeric keypad key 6 on the FUNCTION TEST menu to select the speaker test. In this test, the speaker generates tonal signals at 100 Hz intervals, from 200 Hz to 5 kHz, in varying sound volumes. Signal output from the speaker is thus verified.



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Lamp test (6-8: LAMP TEST)
Press numeric keypad key 8 on the FACULTY menu to select the scan lamp illumination mode. The test checks to see if the scan lamp is on or not.
Numeric keypad key 1 selects LAMP TEST ALL. Press the start key to turn on all scan lamps. LAMP TEST AGC is not used.
Line signal reception test (6-9 LINE DETECT)
Press numeric keypad key 9 on the FACULTY menu to select the line signal reception test. In this test, verify the successful operations of the NCU signal sensor and the frequency counter. Menu 1 detects the CI state, while menu 3 detects the CNG signal.

Test menu 1
Press numeric keypad key 1 on the LINE DETECT menu to select test menu 1. When CI is detected on the telephone line connection terminal, the touch panel (LCD) display changes from OFF to ON, indicating the received frequency. The touch panel (LCD) also displays the on-hook or off-hook state of an external telephone set as detected. The touch panel (LCD) displays, from left to right, CI, CI frequency, hook port and FC with indications of 1:ON and 0:OFF.

Test menu 2
Press numeric keypad key 2 on the LINE DETECT menu to select test menu 2. When the CNG signal is detected on the telephone line connection terminal, the touch panel (LCD) display changes from OFF to ON, indicating the received frequency. The touch panel (LCD) displays the status of CML, CNG and FED detection, from left to right, with ON/OFF indications. Numeric keypad key 2 turns on the CML relay to detect CNG.

Test menu 3

Press numeric keypad key 3 on the LINE DETECT menu to select test menu 3. When the CNG signal is detected on the telephone line connection terminal, the touch panel (LCD) display changes from OFF to ON, indicating the received frequency. The touch panel (LCD) displays the status of CML, CNG and FED detection, from left to right, with ON/OFF indications. Numeric keypad key 3 turns off the CML relay to detect CNG.

14.16.7 Cleaning Mode

14.16.7.1 Roller Cleaning Mode ((0) ROLLER CLEAN)

Roller cleaning mode ((0) ROLLER CLEAN)
Press numeric keypad key 0 in test mode to select roller cleaning mode. Press numeric keypad keys 1 and 2 during this test to enter the following menus:
Numeric keypad key 1
Press the start key clean the ADF pickup/feed rollers by idling.

Press the stop key to exit this mode.

Numeric keypad key 2
Press the start key clean the unit transfer rollers by idling.
Press the stop key to exit this mode.

Chapter 15 Upgrading

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15.1 Outline

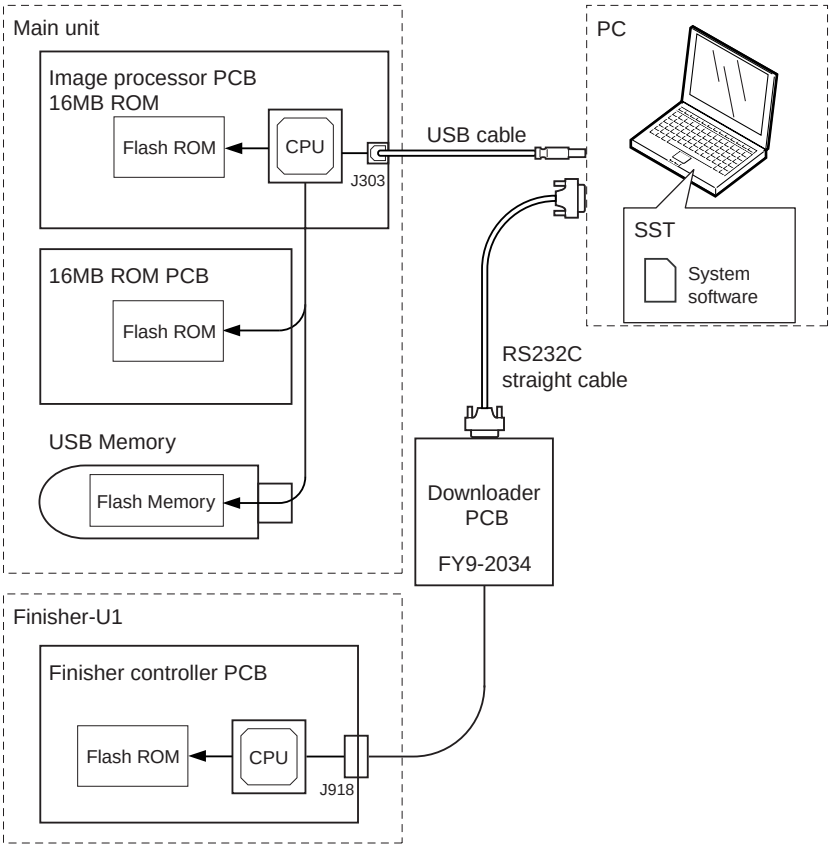
15.1.1 Overview of Upgrade

This machine and options can be upgraded by downloading system software programs from the personal computer (hereafter called as the PC) in which a service support tool (hereafter called SST) has been loaded.
System software programs and upgrade tools are listed in the following table:

T-15-1

Type	System software type	Upgrade tool	Remarks
		SST	
Main unit	System (main controller)	Yes	Main controller also controls the reader.
	Boot (boot program)	Yes	
	Language (language module)	Yes	USB memory
	PCL	Yes	16MB ROM PCB
Option	Fin_U1 (Finisher-U1)	Yes	Dedicated service tool (Downloader PCB: FY9-2034)

15.1.2 Overview of Service Support Tool



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When using the SST, select "#DOWNLOAD" in the service mode to place the main unit in the download mode. (The finisher need not enter the download mode.)

15.2 Making Preparations

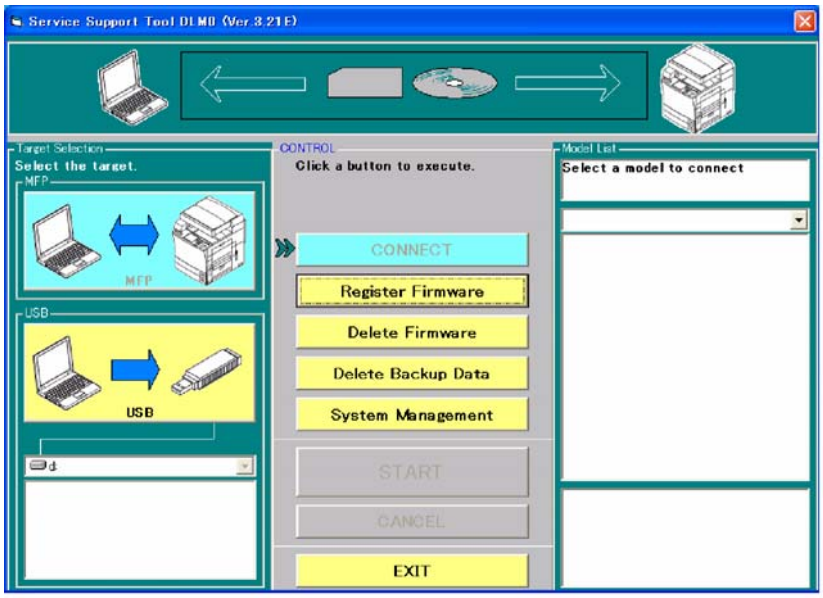
15.2.1 Registering the System Software

System software programs to be downloaded need to be registered in the SST.
The system software programs are registered with the names listed below.

<Software Programs Preinstalled in Main Unit>
Machine name: iR2020i_MF7200
Unit name:
- Main controller: System
- Boot program: Boot
- 16MB ROM PCB: PCL_op
- 32MB ROM PCB: PCL_Common (No use for this model)

[Preparation]
Have the following ready:
- PC in which SSTv3.21 or later is installed
- System CD supplied with iR2020i/MF7200

[System Software Registration Procedure]
1) Start the PC.
2) Insert the system CD in the PC.
3) Start SST.
4) Click the "Register Firmware" button.



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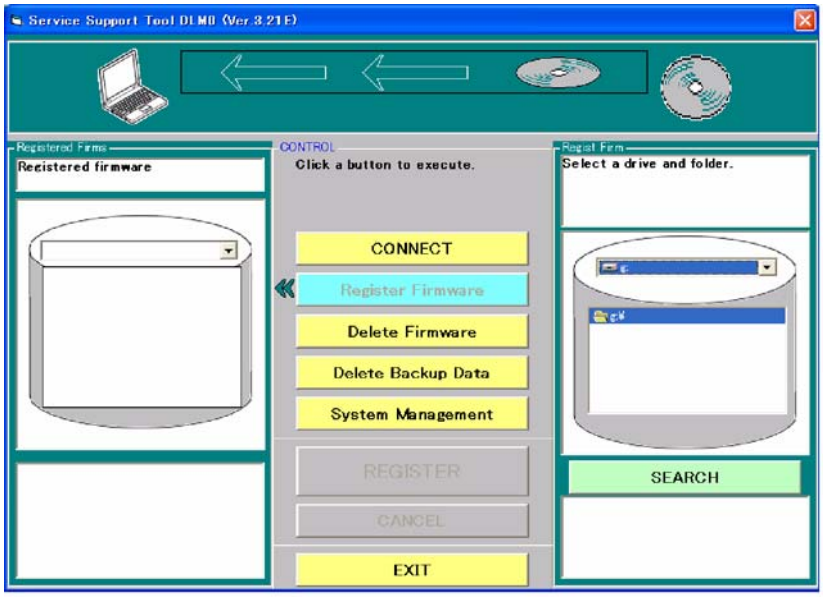
5) Select the drive in which the system CD is inserted, and then click the "SEARCH" button.



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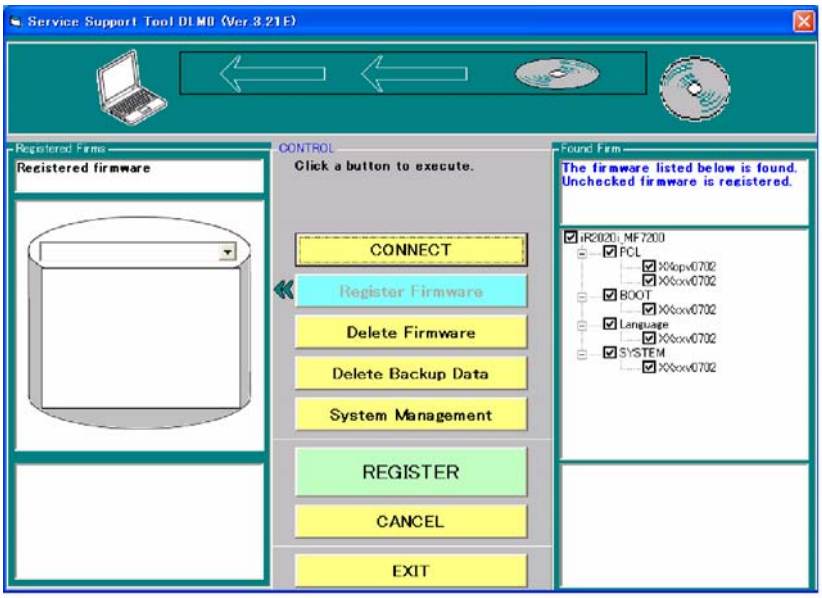
6) A list of system software programs contained in the system CD is displayed. Uncheck the checkboxes of unnecessary folders and system software programs, and then click the "REGISTER" button.

⚠

This machine allows two or more system software programs to be register at the same time. However, it does not allow two or more them to be downloaded at the same time. If two or more software programs need to be upgraded, download them one by one.



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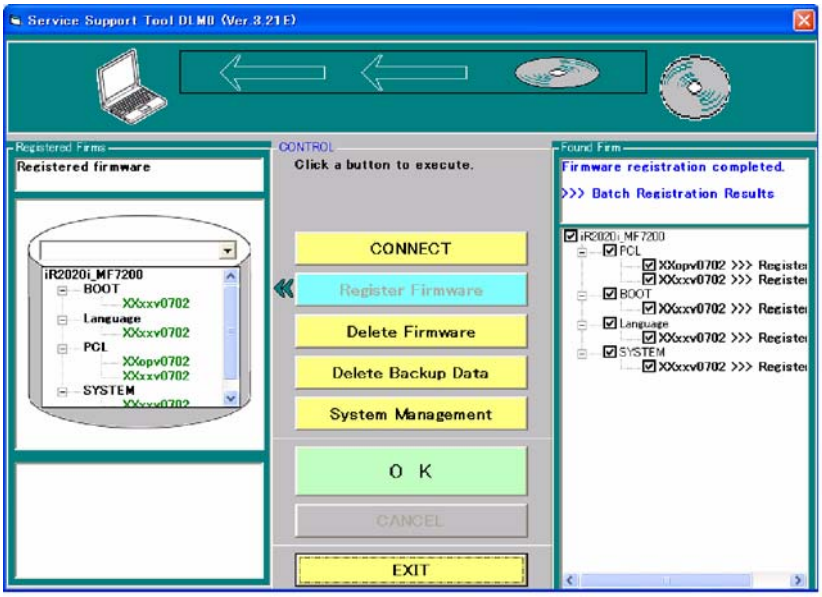
7) When the system software program registration result appears, click the OK button.



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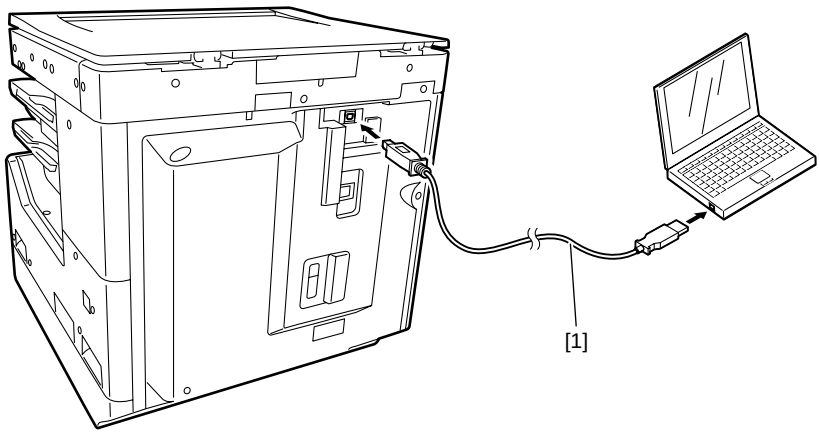
15.2.2 Connection

1) Turn off the main power switch of this machine, and then disconnect the cables connected to this machine.
2) Connect USB connector on the back of this machine to the PC using the USB cable [1].



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15.3 Downloading System Software

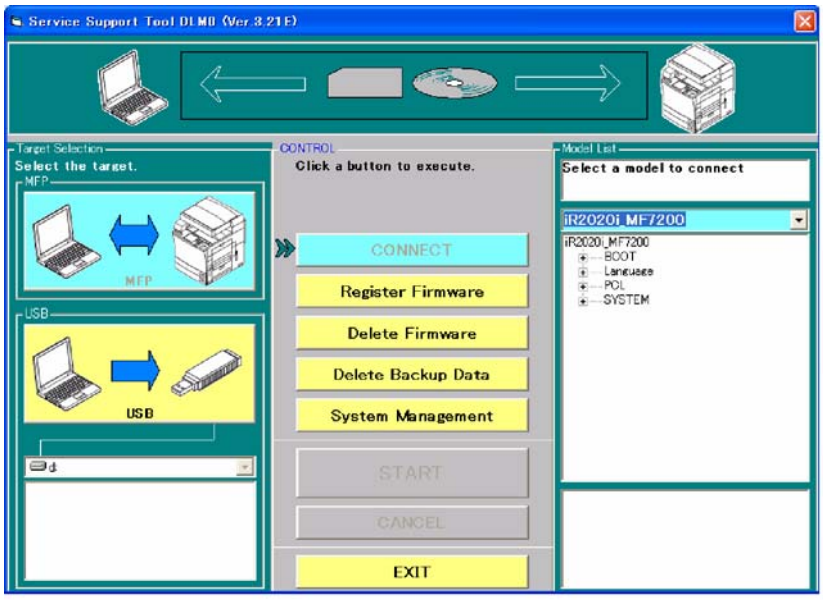
15.3.1 Downloading the System Software

15.3.1.1 Downloading Procedure

1) Turn on the power switch of the PC and start SST.
2) When the power switch is turned on, the Found New hardware Wizard appears. Click "Cancel".

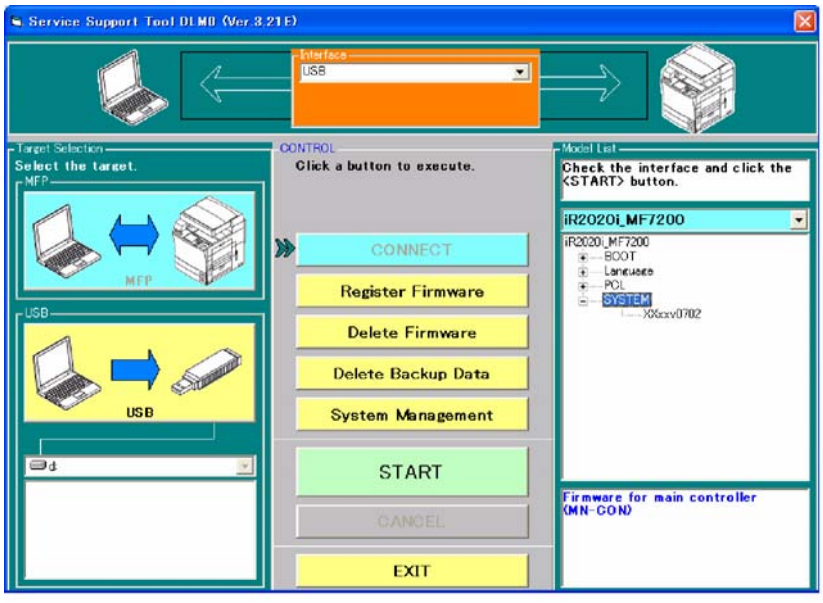
F-15-7

3) Select "MFP" in "Target Selection", and then select "iR2020i_MF7200" in "Model List".



F-15-8

4) Double-click the "System" folder in "Model List" to check the system software version. Select "USB" in "Interface", and then click the "START" button.

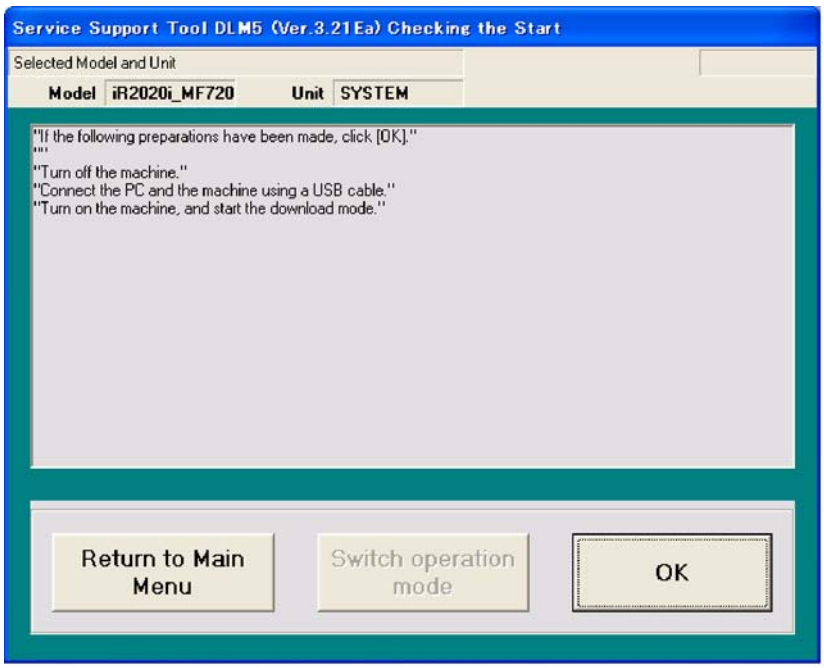


F-15-9

5) Turn on the power switch of the host machine.
6) Press the following keys on the control panel to enter the service mode.

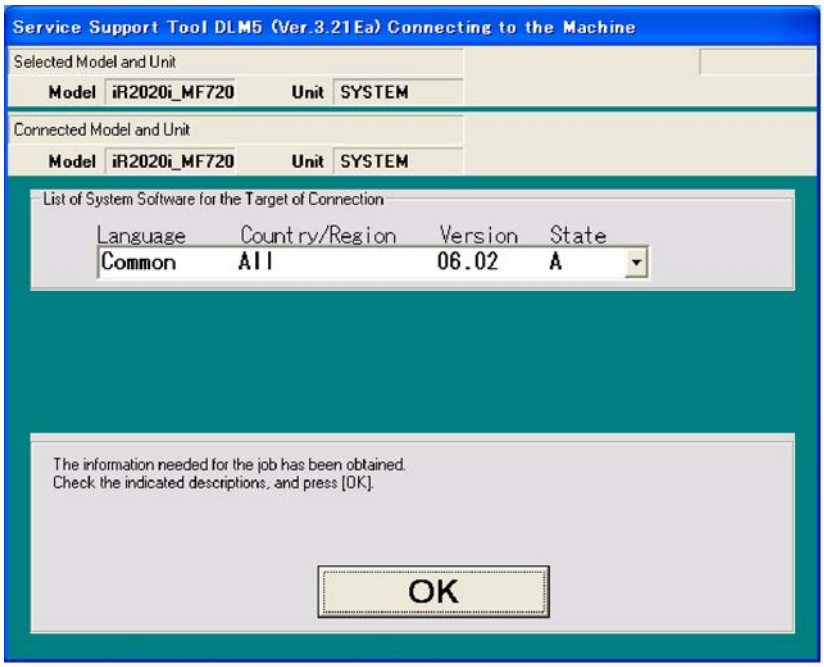
> 2 Key > 8 Key >

7) Using ◀ or ▶, select "#DOWNLOAD".
8) Press the OK key on the control panel to place the host machine in the downloading wait mode (No indicated on LCD).
9) Press the OK button on the SST screen displayed on the display of the PC.



F-15-10

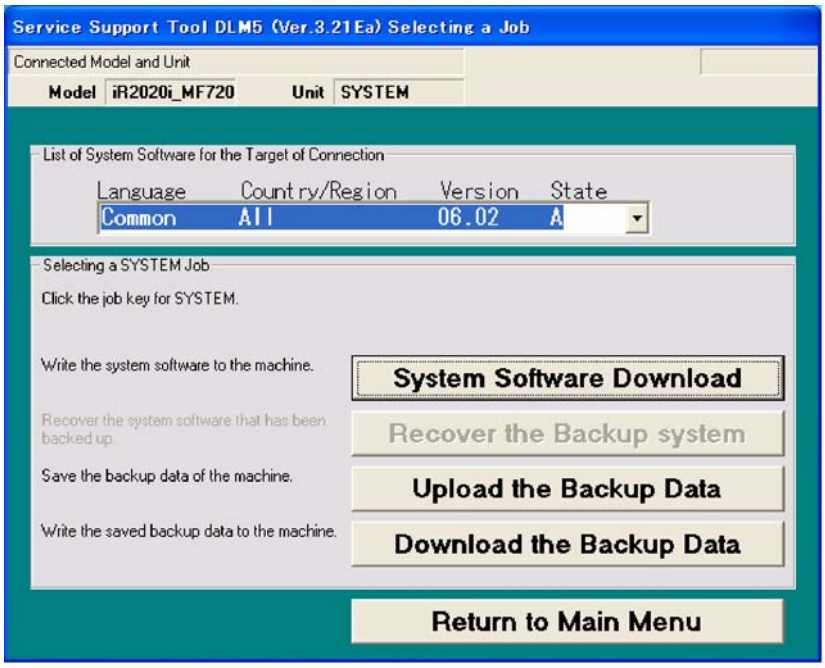
10) When connection is complete, the following screen appears. Click the OK button.



F-15-11

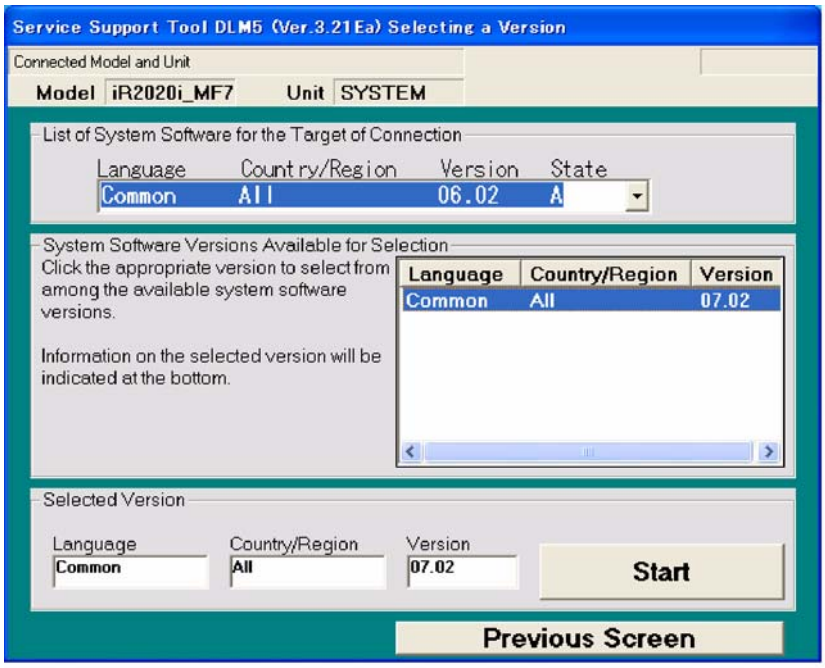
11) Click "System Software Download" on the Selecting a Job screen.

MEMO:
This machine does not use the "Upload the Backup Data" and "Download the Backup Data" functions not displayed on the Selecting a Job screen.



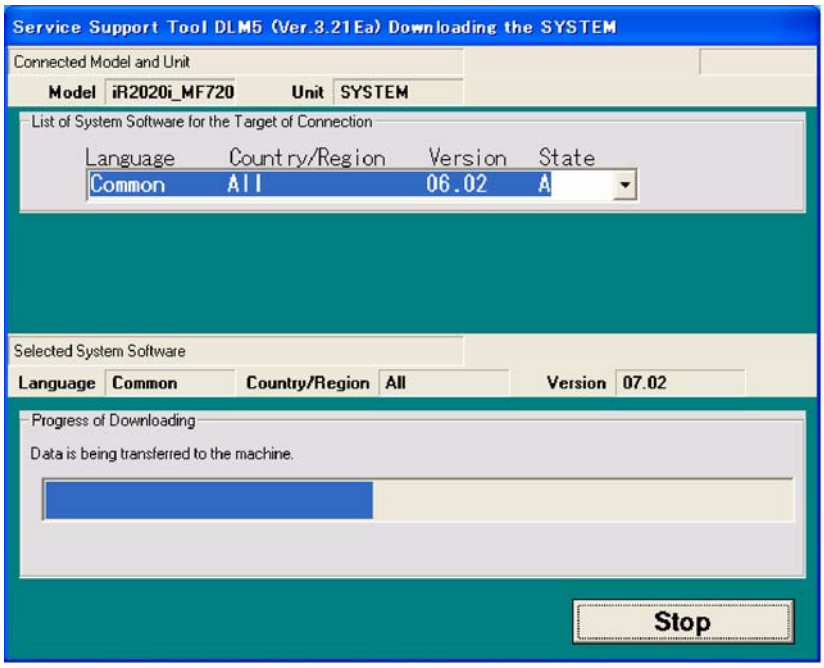
F-15-12

12) Select the version of the system software to download from the list. Check that the selected version is displayed in "Selected Version", and then click the "START" button.



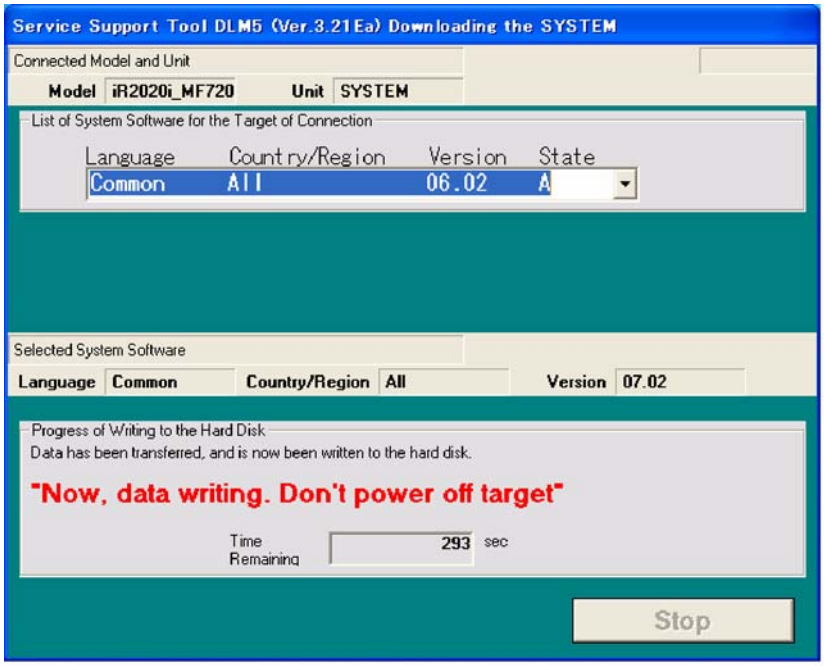
F-15-13

13) When downloading starts, the progress of downloading is displayed by the progress bar.



F-15-14

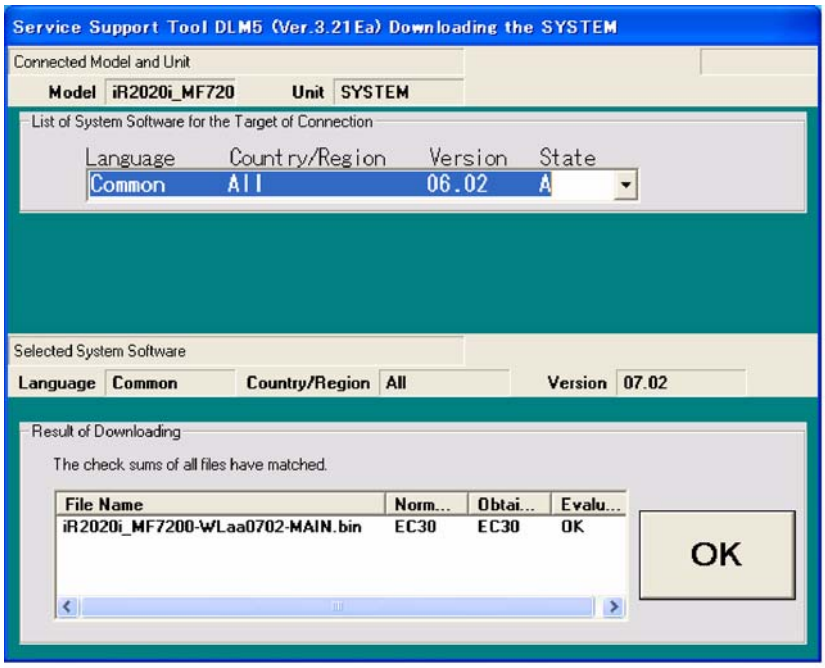
14) While the received data is being written to the flash ROM after completion of downloading, the following screen is displayed:



F-15-15

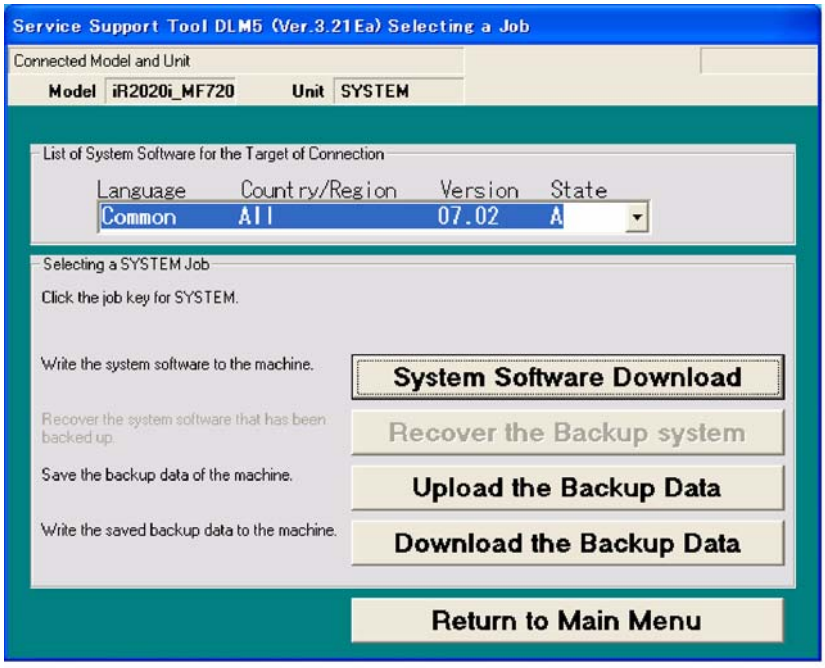
⚠
Never turn off the power switch of the machine while the data is being written to the flash ROM. If it becomes impossible to start this machine after turning its power switch off, the image processor PCB must be replaced.

15) When writing of the data to the Flash ROM is complete, its result is displayed. Click the OK button.



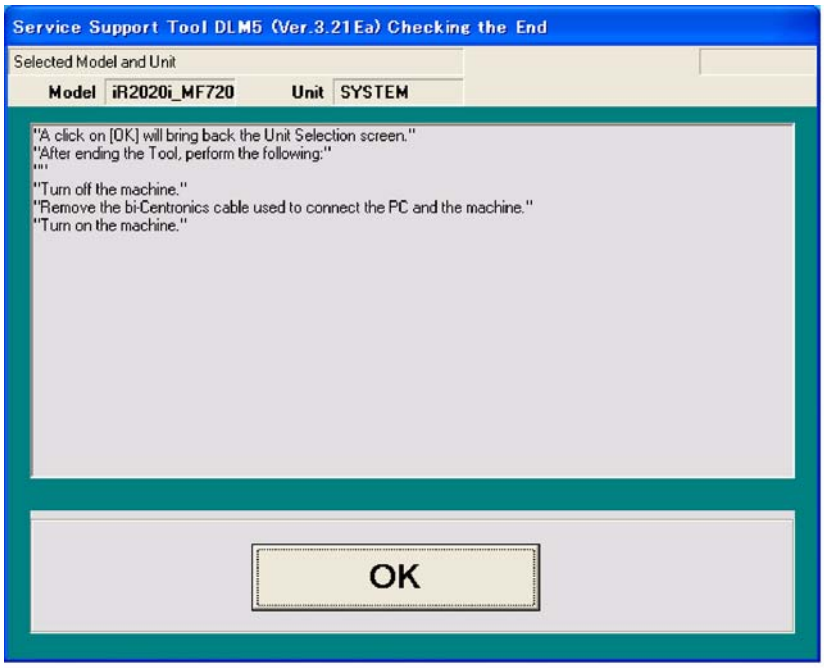
F-15-16

16) When the Selecting a Job screen appears, click "Return to Main Menu".



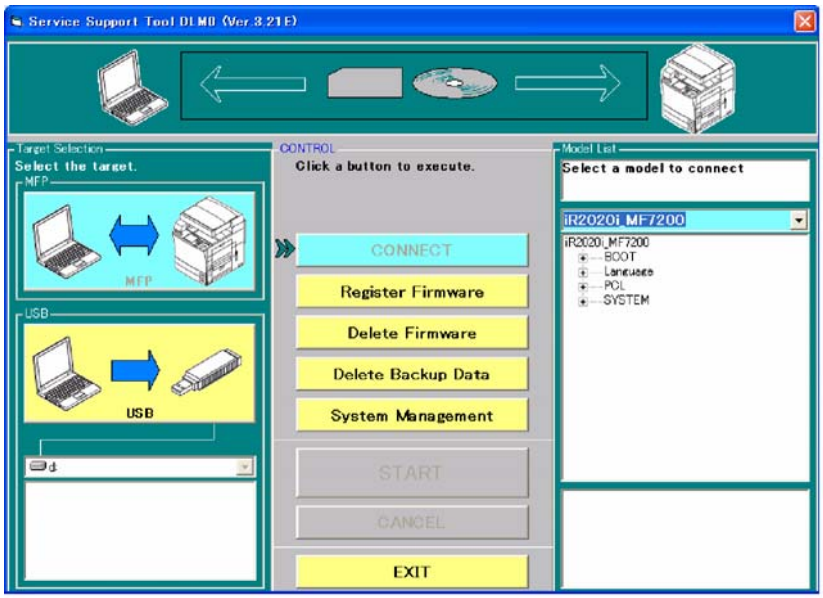
F-15-17

17) Click the "OK" button to return to the menu screen of SST.



F-15-18

17) If the other firmware is upgraded continuously, follow each downloading procedure. If the downloading is finished, click the "Exit" button and turn OFF/ON the main power switch.



F-15-19

15.3.2 Downloading the Boot Software

15.3.2.1 Downloading Procedure

To download the boot software, use the steps given for the system software.

15.3.3 Downloading the Language Module

15.3.3.1 Downloading Procedure

To download the language software, use the steps given for the system software.

15.3.4 Otehr Upgrade Methods

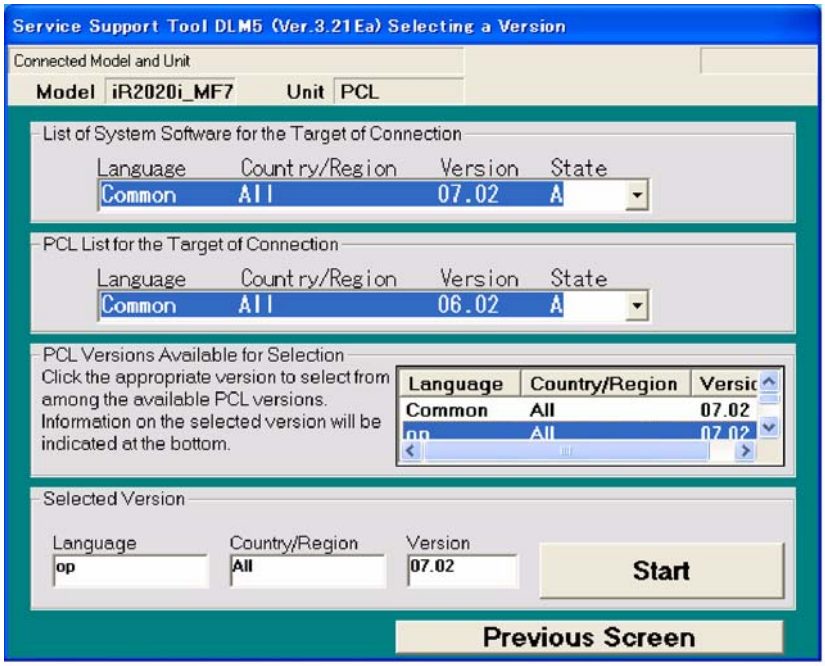
15.3.4.1 Downloading the PCL Software

To download the software for 16MB ROM PCB of the extension slot, use the steps given for the system software.

⚠

When selecting a download version on the following screen, be sure to select the version for 16MB ROM. This machine does not support the version for 32MB ROM.

	Language	Country/Region
Version for 32MB ROM	Common	All
Version for 16MB ROM	op	All



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Chapter 16 Service Tools

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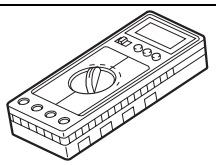
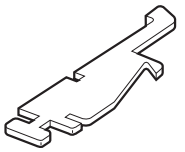
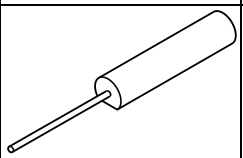
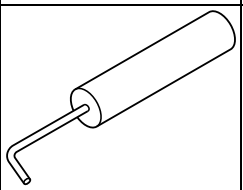
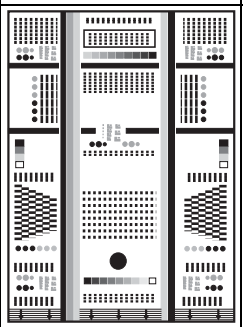
16.1 Service Tools

16.1.1 Special Tools

In addition to the standard tools set, you will need the following special tools for servicing of the machine:

T-16-1

Tool name	Tool No.	Rank	Shape	Uses
Digital multimeter	FY9-2002	A		For making electrical checks.
Cover switch	TKN-0093	A		
Tester extension pin	FY9-3038	A		As an addition when making an electrical check.
Tester extension pin (L-shipped)	FY9-3039	A		As an addition when making an electrical check.
NA-3 Test Chart	FY9-9196	A		For checking and adjusting images.

Key to Notation (rank)
A: each service engineer is expected to carry one.
B: each group of 5 service engineers is expected to carry one.
C: each workshop is expected to carry one.

16.1.2 Oils and Solvents

T-16-2

Name	Uses	Composition	Remarks
Alcohol	cleaning; e.g., glass, plastic, rubber; external covers	fluoride-family hydrocarbon alcohol surface activating agent water	- Do not bring near fire. - Procure locally. - IPA (isopropyl alcohol) may be substituted.
Solvent	cleaning; e.g., metal; soiling with oil or toner	fluorine-family hydrocarbon chlorine-family hydrocarbon alcohol	- Do not bring near fire. - Procure locally. - MEK may be substituted.
Lubricant		mineral oil (paraffin family)	- CK-0524 (100 cc)
Lubricant	drive mechanism, sliding mechanism, scanner rail	silicone oil	- CK-0551 (20 g)
Lubricant (EM-50L)	gear	special oil special solid lubricating agent lithium soap	- HY9-0007

PARTS CATALOG

MF7170i/imageCLASS MF7120/MF7280

Canon

Jan 30 2006

PREFACE

This Parts Catalog contains listings of parts used

Diagrams are provided with the listings to aid the service technician in identifying clearly, the item to be orderd.
Whenever ordering parts, consult this Parts Catalog for all of the information pertaining to each item. Be sure to include, in the Parts Request, the full item description, the item part number, and the quantity.

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Use of this manual should be strictly supervised to avoid disclosure of confidential information.

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FC6-4315-000	141 - 2	FC6-4478-000	102 - 3	FC6-5426-000	130 - 2
FC6-4316-000	141 - 11	FC6-4479-000	810 - 7	FC6-5427-000	130 - 3
FC6-4317-000	141 - 3	FC6-4480-000	810 - 8	FC6-5428-000	130 - 4
FC6-4324-000	141 - 4	FC6-4481-000	810 - 9	FC6-5429-000	130 - 5
FC6-4326-000	311 - 10	FC6-4482-000	102 - 4	FC6-5430-000	130 - 6
FC6-4337-000	300 - 5	FC6-4484-000	350 - 15	FC6-5431-000	130 - 7
FC6-4348-000	311 - 11	FC6-4492-000	810 - 10	FC6-5433-000	130 - 8
FC6-4350-000	311 - 12	FC6-4495-000	103 - 10	FC6-6706-000	312 - 5
FC6-4350-000	313 - 36	FC6-4497-000	250 - 3	FC6-6707-000	312 - 29
FC6-4351-000	311 - 27	FC6-4499-000	X01 - 2	FC6-6710-000	312 - 22
FC6-4352-000	311 - 13	FC6-4500-000	X01 - 3	FC6-6712-000	310 - 15
FC6-4352-000	313 - 25	FC6-4501-000	810 - 11	FC6-6712-000	312 - 24
FC6-4355-000	311 - 14	FC6-4502-000	350 - 7	FC6-6714-000	312 - 17
FC6-4355-000	313 - 26	FC6-4503-000	810 - 42	FC6-6720-000	312 - 1
FC6-4356-000	311 - 28	FC6-4504-000	350 - 19	FC6-6740-000	S20 - 23
FC6-4356-000	313 - 41	FC6-4506-000	210 - 30	FC6-6752-000	S20 - 1
FC6-4357-000	310 - 3	FC6-4511-000	210 - 37	FC6-6753-000	S20 - 2

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FC6-6754-000	S20 - 15	FF3-4631-000	P33 - 19	FK2-1068-000	311 - 17
FC6-6755-000	S20 - 3	FF3-4632-000	P33 - 20	FK2-1070-000	140 - 21
FC6-6756-000	S20 - 4	FF3-4633-000	P33 - 16	FK2-1072-000	140 - 22
FC6-6757-000	S20 - 5	FF3-4634-000	P11 - 8	FK2-1074-000	103 - 13
FC6-6758-000	S20 - 6	FF3-4636-000	P33 - 17	FK2-1075-000	103 - 13
FC6-6759-000	S20 - 7	FF6-1610-000	313 - 34	FK2-1080-000	103 - 47
FC6-6759-000	S50 - 2	FF6-1621-000	311 - 16	FK2-1081-000	103 - 12
FC6-6760-000	S20 - 8	FF6-1621-000	313 - 28	FK2-1082-000	311 - 18
FC6-6764-000	S20 - 24	FG3-3501-000	810 - 12	FK2-1084-000	140 - 8
FC6-6765-000	S20 - 9	FG3-4036-000	P12 -	FK2-1085-000	104 - 8
FC6-6767-000	S20 - 10	FG3-4037-000	P31 -	FK2-1086-000	104 - 8
FC6-6768-000	S20 - 11	FG3-4038-000	P33 -	FK2-1101-000	104 - 23
FC6-6769-000	S20 - 25	FG3-4039-000	P11 - 22	FK2-1104-000	313 - 29
FC6-6776-000	S20 - 12	FG3-4040-000	P33 - 18	FK2-1114-000	S20 - 17
FC6-6777-000	S20 - 13	FG3-4041-000	P31 - 14	FK2-1134-000	930 - R153
FC6-6778-000	S01 - 5	FG3-4043-000	P31 - 10	FK2-1135-000	930 - R140
FC6-6779-000	S50 - 3	FG3-4044-000	P31 - 15	FK2-1136-000	930 - R141
FC6-6780-000	S50 - 4	FG3-4045-000	P31 - 16	FK2-1265-000	X90 - 1
FC6-6781-000	S50 - 1	FG6-8440-000	312 - 6	FK2-1268-000	104 - 22
FC6-6782-000	S01 - 1	FH2-7206-000	P11 - 32	FK2-1329-000	001 - 1
FC6-6783-000	S01 - 2	FH2-7207-000	P12 - 10	FK2-1329-010	001 - 1
FC6-6784-000	S01 - 3	FH2-7208-000	P12 - 11	FK2-1331-000	001 - 1
FC6-7092-000	101 - 7	FH2-7209-000	P33 - 25	FK2-1332-010	001 - 1
FC6-7103-000	140 - 7	FH2-7210-000	P11 - 33	FK2-1333-010	001 - 1
FC6-8669-000	102 - 25	FH2-7211-000	P11 - 25	FK2-1334-010	001 - 1
FC6-8670-000	102 - 26	FH2-7212-000	P12 - 12	FK2-1831-000	103 - 13
FC6-8671-000	102 - 27	FH3-5235-000	930 - T3	FK2-1844-000	102 - 10
FC6-8672-000	101 - 27	FH3-5238-000	930 - T1	FK2-2150-010	001 - 1
FC6-8673-000	100 - 17	FH3-5239-000	930 - T2	FL2-3180-000	102 - 11
FC6-8674-000	100 - 18	FH3-5240-000	930 - T4	FL2-3181-000	102 - 12
FC6-8679-000	100 - 15	FH3-5257-000	930 - T7	FL2-3188-000	210 - 53
FC7-1017-000	101 - 22	FH5-1142-000	P33 - 49	FL2-3200-000	140 - 23
FC7-1018-000	101 - 22	FH5-3543-000	141 - 5	FL2-3201-000	140 - 25
FC7-1019-000	101 - 22	FH5-3730-000	P11 - 34	FL2-3202-000	140 - 26
FC7-1020-000	130 - 9	FH5-3731-000	P12 - 13	FL2-3207-000	210 - 24
FC7-1027-000	100 - 2	FH6-0772-000	130 - 10	FL2-3208-000	210 - 24
FC7-1028-000	100 - 2	FH6-5136-000	P11 - 26	FL2-3209-000	210 - 24
FC7-1029-000	101 - 29	FH7-7569-000	210 - 26	FL2-3212-000	311 - 22
FC7-1749-000	104 - 17	FH7-7569-000	210 - 26	FL2-3213-000	103 - 15
FC7-1760-000	900 - 6	FK2-0216-000	P11 - 20	FL2-3214-000	141 - 6
FC7-1770-000	311 - 44	FK2-0331-000	910 - IC14	FL2-3220-000	350 - 8
FC7-1771-000	810 - 44	FK2-0949-000	900 - IC140	FL2-3229-000	104 - 15
FE5-4048-000	311 - 29	FK2-0949-000	910 - IC140	FL2-3230-000	210 - 21
FE5-4048-000	313 - 42	FK2-1058-000	104 - 2	FL2-3231-000	210 - 51
FF3-4621-000	P11 - 5	FK2-1059-000	104 - 3	FL2-3233-000	210 - 52
FF3-4624-000	P11 - 7	FK2-1060-000	210 - 7	FL2-3268-000	100 - 22
FF3-4625-000	P12 - 4	FK2-1061-000	210 - 18	FL2-3269-000	100 - 23
FF3-4626-000	P12 - 6	FK2-1062-000	102 - 8	FL2-3280-000	210 - 24
FF3-4627-000	P12 - 8	FK2-1063-000	X01 - 1	FL2-3286-000	210 - 38
FF3-4628-000	P12 - 9	FK2-1064-000	210 - 8	FL2-3463-000	130 - 11
FF3-4629-000	P31 - 8	FK2-1066-000	210 - 28	FL2-3736-000	312 - 20
FF3-4630-000	P31 - 9	FK2-1067-000	102 - 9	FL2-3744-000	S20 - 26

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FL2-3746-000	S01 - 4	FM2-4412-000	210 - 44	FM2-5944-000	104 - 9
FL2-3856-000	S20 - 14	FM2-4413-000	103 - 41	FM2-5945-000	104 - 9
FL2-4784-000	130 - 12	FM2-4414-000	104 - 12	FM2-5946-000	104 - 9
FL2-4786-000	130 - 12	FM2-4416-000	104 - 18	FM2-5951-000	103 - 14
FL2-4787-000	130 - 12	FM2-4417-000	140 - 43	FM2-5952-000	130 - 17
FL2-4789-000	100 - 7	FM2-4418-000	210 - 10	FM2-5954-000	930 -
FL2-4790-000	100 - 7	FM2-4419-000	210 - 11	FM2-5957-000	104 - 18
FL2-4791-000	100 - 7	FM2-4420-000	103 - 1	FM2-6347-000	141 -
FL2-4792-000	100 - 7	FM2-4421-000	140 - 27	FM2-6350-000	140 -
FL2-4793-000	100 - 7	FM2-4422-000	210 - 23	FM2-6351-000	810 -
FL2-4875-000	100 - 7	FM2-4423-000	210 - 45	FM2-6352-000	810 - 13
FL2-4876-000	100 - 7	FM2-4424-000	103 - 48	FM2-6354-000	130 - 18
FM2-2753-000	130 - 13	FM2-4425-000	104 - 11	FM2-6355-000	130 - 18
FM2-2790-020	X90 - 2	FM2-4427-000	210 - 34	FM2-6356-000	130 - 18
FM2-3294-000	315 -	FM2-4428-000	210 - 47	FM2-6685-000	350 -
FM2-3319-000	310 - 4	FM2-4433-000	101 - 8	FM2-9199-000	910 -
FM2-3320-000	311 -	FM2-4434-000	X01 - 4	FS1-1205-000	311 - 30
FM2-3325-000	300 - 8	FM2-4435-000	910 - 1	FS1-1205-000	313 - 43
FM2-3326-000	300 - 17	FM2-4435-000	X01 - 6	FS2-1707-000	P11 - 27
FM2-3344-000	250 -	FM2-4483-000	312 - 11	FS2-1708-000	P31 - 17
FM2-3345-000	810 -	FM2-4484-000	313 -	FS2-1708-000	P33 - 26
FM2-3346-000	810 - 13	FM2-4493-000	S50 -	FS2-1709-000	P33 - 27
FM2-3348-000	810 - 19	FM2-4495-000	312 - 19	FS2-1710-000	P31 - 18
FM2-3349-000	810 - 20	FM2-4496-000	312 - 30	FS2-1710-000	P33 - 28
FM2-3350-000	280 -	FM2-4497-000	312 - 23	FS2-1711-000	P33 - 29
FM2-3351-000	350 -	FM2-4499-000	312 - 25	FS2-3885-000	P33 - 22
FM2-3352-000	810 -	FM2-4500-000	312 - 27	FS2-3886-000	P33 - 30
FM2-3353-000	810 - 13	FM2-4515-000	S20 - 41	FS2-3887-000	P33 - 31
FM2-3383-000	102 - 13	FM2-4516-000	S01 - 8	FS2-9567-000	P11 - 35
FM2-3384-000	102 - 13	FM2-4517-000	S20 - 30	FS2-9567-000	P33 - 32
FM2-4006-000	140 -	FM2-4518-000	S20 - 31	FS2-9568-000	P11 - 28
FM2-4010-000	130 -	FM2-4519-000	S20 - 32	FS2-9569-000	P11 - 29
FM2-4011-000	130 -	FM2-4520-000	S20 - 33	FS2-9569-000	P12 - 14
FM2-4012-000	130 -	FM2-4536-000	210 - 47	FS2-9569-000	P31 - 20
FM2-4013-000	130 - 14	FM2-4538-000	104 - 25	FS2-9569-000	P33 - 33
FM2-4020-000	101 - 16	FM2-4540-000	X01 - 8	FS2-9570-000	P11 - 36
FM2-4053-000	900 - 1	FM2-4540-000	X90 - 3	FS2-9570-000	P33 - 51
FM2-4055-000	900 - 3	FM2-4541-000	104 - 5	FS2-9571-000	P11 - 30
FM2-4056-000	900 - 3	FM2-4542-000	104 - 14	FS2-9572-000	P12 - 15
FM2-4058-000	104 - 10	FM2-4773-000	910 -	FS2-9573-000	P31 - 19
FM2-4060-000	900 - 5	FM2-4777-000	X90 - 4	FS4-0644-000	P33 - 34
FM2-4399-000	130 - 15	FM2-4778-000	X90 - 4	FS4-0645-000	P33 - 23
FM2-4400-000	210 - 41	FM2-4780-000	104 - 24	FS4-0646-000	P33 - 35
FM2-4401-000	102 - 24	FM2-4784-000	130 - 16	FS4-0647-000	P33 - 36
FM2-4402-000	102 - 22	FM2-4785-000	103 - 14	FS4-0648-000	P33 - 37
FM2-4403-000	310 - 7	FM2-4786-000	103 - 14	FS4-0649-000	P33 - 38
FM2-4404-000	104 - 13	FM2-4787-000	103 - 14	FS4-0650-000	P33 - 39
FM2-4405-000	810 - 24	FM2-4789-000	350 - 16	FS4-0651-000	P33 - 40
FM2-4408-000	103 - 44	FM2-4791-000	210 - 36	FS4-0652-000	P33 - 41
FM2-4409-000	102 - 19	FM2-4893-000	900 - 1	FS4-0653-000	P33 - 42
FM2-4410-000	104 - 4	FM2-5941-000	104 - 9	FS4-0654-000	P31 - 21

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FS4-0658-000	P12 - 17	FU5-1522-000	350 - 10	FU6-0791-000	250 - 8
FS4-0659-000	P33 - 43	FU5-1527-000	140 - 28	FU6-0792-000	250 - 9
FS4-0660-000	P33 - 44	FU5-1528-000	140 - 29	FU6-0793-000	250 - 10
FS4-2743-000	P11 - 31	FU5-1529-000	140 - 30	FU6-0794-000	103 - 38
FS4-2744-000	P33 - 45	FU5-1530-000	140 - 31	FU6-0795-000	250 - 11
FS4-2745-000	P33 - 46	FU5-2470-000	810 - 18	FU6-0796-000	103 - 39
FS4-2746-000	P33 - 21	FU5-2476-000	141 - 9	FU6-0799-000	810 - 30
FS4-2747-000	P31 - 22	FU5-3339-000	210 - 32	FU6-0800-000	810 - 31
FS4-2749-000	P33 - 52	FU5-3340-000	210 - 33	FU6-0801-000	810 - 32
FS4-2752-000	P33 - 24	FU5-8575-000	810 - 28	FU6-0802-000	280 - 1
FS4-2753-000	P33 - 47	FU5-8576-000	810 - 29	FU6-0803-000	102 - 15
FS4-2754-000	P31 - 1	FU5-8581-000	210 - 25	FU6-0804-000	280 - 2
FS5-9714-000	313 - 52	FU5-8584-000	300 - 15	FU6-0806-000	103 - 17
FS6-2917-000	300 - 20	FU5-8585-000	310 - 8	FU6-0813-000	140 - 32
FS7-0207-000	300 - 21	FU5-8586-000	310 - 13	FU6-0814-000	140 - 33
FS7-0225-000	311 - 31	FU5-8587-000	300 - 16	FU6-0933-000	S20 - 18
FS7-0225-000	313 - 44	FU5-8588-000	300 - 14	FU6-0934-000	S20 - 19
FS7-0226-000	311 - 32	FU5-8589-000	315 - 9	FU6-0935-000	S20 - 34
FS7-0226-000	313 - 45	FU5-8590-000	210 - 25	FU6-0936-000	S20 - 20
FS7-0227-000	313 - 46	FU5-8591-000	210 - 27	FU6-0937-000	S20 - 35
FS7-0228-000	311 - 33	FU5-8592-000	210 - 25	FU6-0938-000	S20 - 27
FS7-0228-000	313 - 47	FU5-8595-000	210 - 27	FU6-0939-000	S20 - 28
FS7-0229-000	311 - 34	FU5-8596-000	210 - 27	FU6-0940-000	S20 - 36
FS7-0229-000	313 - 48	FU5-8597-000	210 - 27	FU6-2148-000	103 - 21
FS7-0230-000	311 - 35	FU5-8598-000	210 - 25	FU6-2149-000	103 - 22
FS7-0230-000	313 - 49	FU5-8600-000	300 - 23	FU6-2150-000	103 - 23
FS7-8335-000	102 - 14	FU5-8601-000	300 - 22	FU6-2151-000	103 - 24
FS9-0195-000	P01 - 6	FU5-8601-000	300 - 22	FU6-2152-000	103 - 25
FS9-0196-000	P01 - 6	FU5-8604-000	315 - 9	FU6-2156-000	103 - 28
FS9-0197-000	P11 - 21	FU5-8605-000	315 - 8	FU6-2157-000	103 - 29
FS9-0198-000	P11 - 6	FU5-8606-000	103 - 42	FU6-2158-000	103 - 30
FS9-0200-000	P01 - 9	FU5-8607-000	140 - 1	FU6-2159-000	103 - 31
FS9-0201-000	P01 - 9	FU5-8609-000	300 - 22	FU6-2160-000	140 - 44
FS9-0202-000	P01 - 9	FU5-8610-000	101 - 18	FU6-2162-000	140 - 45
FS9-0203-000	P11 - 9	FU5-8612-000	100 - 27	FU6-2170-000	310 - 12
FS9-0206-000	P01 - 10	FU5-8680-000	312 - 21	FU6-2171-000	141 - 8
FS9-0207-000	P01 - 10	FU5-8696-000	S20 - 16	FU6-2173-000	141 - 10
FS9-0208-000	P01 - 10	FU5-8697-000	S01 - 6	FU6-2174-000	311 - 41
FS9-0210-000	P12 - 7	FU5-8699-000	140 - 46	FU6-2175-000	311 - 42
FS9-0211-000	P01 - 7	FU5-8699-000	S01 - 7	FU6-2175-000	313 - 53
FS9-0211-000	P01 - 10	FU5-9139-000	P01 - 5	FU6-2176-000	103 - 16
FS9-0212-000	P01 - 11	FU5-9140-000	P01 - 4	FU6-2177-000	141 - 13
FS9-0213-000	P01 - 8	FU5-9340-000	900 - 2	FU6-2178-000	140 - 47
FS9-0214-000	P01 - 8	FU6-0766-000	250 - 5	FU6-2180-000	140 - 34
FS9-0217-000	P01 - 11	FU6-0767-000	250 - 6	FU6-2181-000	140 - 35
FS9-0224-000	P01 - 8	FU6-0769-000	311 - 36	FU6-2182-000	140 - 36
FS9-0248-000	P01 - 11	FU6-0770-000	311 - 37	FU6-2183-000	140 - 37
FU5-0732-000	350 - 9	FU6-0771-000	311 - 38	FU6-2184-000	250 - 12
FU5-0744-000	141 - 12	FU6-0775-000	311 - 39	FU6-2185-000	810 - 33
FU5-1498-000	102 - 17	FU6-0776-000	311 - 40	FU6-2186-000	810 - 34
FU5-1519-000	810 - 26	FU6-0788-000	250 - 4	FU6-2188-000	810 - 23

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FU6-2193-000	210 - 3
FU6-2194-000	101 - 15
FU6-2195-000	103 - 32
FU6-2198-000	103 - 26
FU6-2199-000	103 - 33
FU6-2206-000	350 - 12
FU6-2207-000	102 - 16
FU6-2207-000	350 - 12
FU6-2208-000	810 - 40
FU6-2209-000	103 - 45
FU6-2210-000	350 - 17
FU6-2236-000	210 - 1
FU6-2387-000	S20 - 37
FU6-2388-000	S20 - 38
HH2-2824-000	X01 - 9
HK1-0511-000	900 - IC1
HK1-0544-000	X01 - 10
HK1-0547-000	X01 - 10
HK1-0551-000	X01 - 10
NPN	001 -
NPN	100 -
NPN	101 -
NPN	102 -
NPN	103 -
NPN	104 -
NPN	210 -
NPN	300 -
NPN	310 -
NPN	312 -
NPN	900 -
NPN	P01 -
NPN	P11 -
NPN	S01 -
NPN	S20 -
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NPN	X90 -
RB2-1850-000	250 - 13
VS1-7177-002	140 - 38
VS1-7177-002	312 - 10
VS1-7177-003	102 - 23
VS1-7177-003	140 - 39
VS1-7177-004	140 - 40
VS1-7177-004	210 - 6
VS1-7177-010	104 - 6
VS1-7177-013	312 - 26
VS1-7207-006	104 - 19
VS1-7207-007	104 - 20
VS1-7207-012	S01 - 9
VT2-5177-005	900 - 4
WC2-5332-000	310 - 6
WC2-5332-000	312 - 8
WE8-5841-000	X01 - 7
WE8-5841-000	X90 - 5
WE8-6346-000	104 - 21
WG8-5624-000	313 - 50
WG8-5696-000	101 - 20
WG8-5696-000	103 - 37
WG8-5696-000	140 - 41
WG8-5696-000	210 - 43
WG8-5696-000	311 - 43
WG8-5696-000	350 - 18
WG8-5696-000	810 - 35
WG8-5696-000	P12 - 1
WG8-5696-000	P33 - 48
WG8-5696-000	S20 - 39
WG8-5696-000	X01 - 5
WK1-5134-000	900 - BAT951
XA9-0702-000	810 - 15
XA9-1116-030	S20 - 21
XA9-1386-000	101 - 23
XA9-1415-000	210 - 22
XA9-1567-000	100 - 24
XA9-1567-000	101 - 6
XA9-1567-000	102 - 18
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XA9-1567-000	210 - 46
XB1-1401-407	101 - 501
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XB1-2300-407	130 - 501
XB1-2300-407	900 - 501
XB1-2400-607	312 - 502
XB2-4300-605	P11 - 501
XB2-7300-607	250 - 501
XB2-7300-607	311 - 503
XB2-7300-607	312 - 504
XB2-7300-607	313 - 502
XB2-8400-805	210 - 502
XB4-5300-807	130 - 502
XB4-5401-005	100 - 501
XB4-5401-005	103 - 501
XB4-5401-005	140 - 501
XB4-5401-005	141 - 501
XB4-5401-005	310 - 501
XB4-5401-005	315 - 501
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XB4-5401-007	S20 - 501
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XB4-7401-009	101 - 502
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XB4-7401-209	350 - 501
XB6-7300-407	210 - 501
XB6-7300-609	311 - 502
XB6-7300-609	313 - 503
XB6-7300-609	S01 - 502
XB6-7300-805	102 - 501
XB6-7300-805	104 - 501
XB6-7300-805	X01 - 501
XB6-7300-805	X90 - 501
XB6-7300-807	104 - 502
XD1-1106-231	210 - 503
XD1-1106-235	312 - 503
XD2-1100-322	P33 - 501
XD2-1100-502	P31 - 501
XD2-1100-502	P33 - 503
XD2-1100-642	P33 - 502
XD3-1200-122	313 - 35
XD3-2200-102	P11 - 502
XD3-2200-102	P31 - 502
XD9-0133-000	311 - 23
XD9-0133-000	313 - 37
XD9-0134-000	810 - 14
XD9-0136-000	140 - 42
XD9-0136-000	210 - 35
XD9-0136-000	311 - 24
XD9-0136-000	312 - 18
XD9-0136-000	313 - 38
XD9-0136-000	810 - 37
XD9-0136-000	S20 - 22
XF2-1109-040	S20 - 29
XF2-1112-240	S20 - 40
XF2-1607-240	P33 - 50
XF2-4620-340	210 - 4
XF2-4661-440	210 - 9
XH9-0135-000	310 - 14
XH9-0135-000	312 - 28

MF7170i/imageCLASS MF7120/ MF7280

Satera MF7210

100V	**F18-9012-000**	**SGK**	

Satera MF7240

100V	**F18-9014-000**	**SGL**	

imageCLASS MF 7280

120V	**F18-9038-000**	**SGM**	

Satera MF7110

100V	**F18-9011-000**	**SGN**	

Satera MF7140

100V	**F18-9013-000**	**SGP**	

imageCLASS MF 7120

230V	**F18-9061-000**	**SGQ**	CN

MF7170i

230V	**F18-9095-000**	**SGR**	EUR

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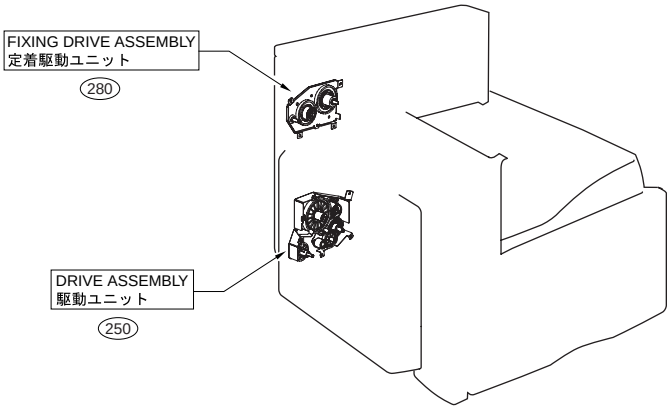
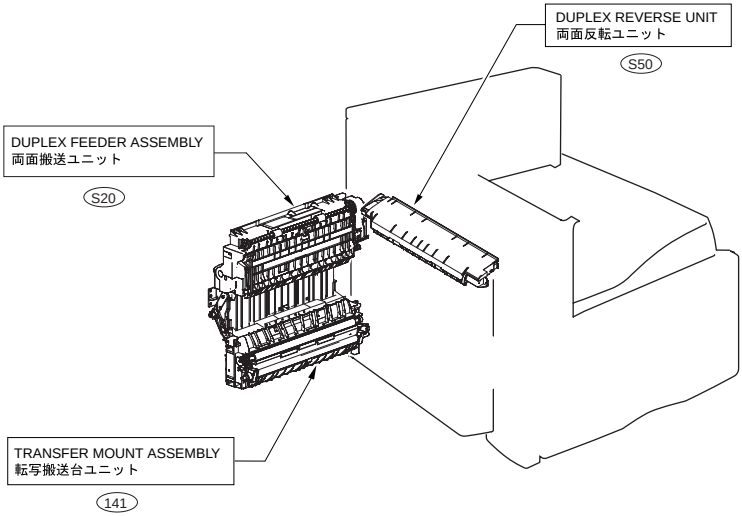
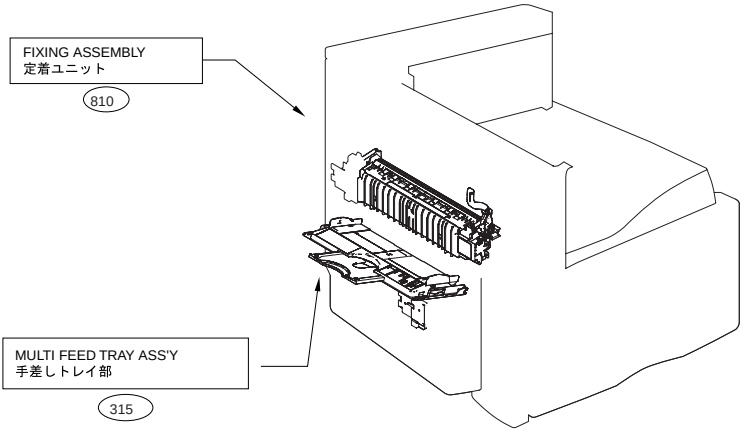
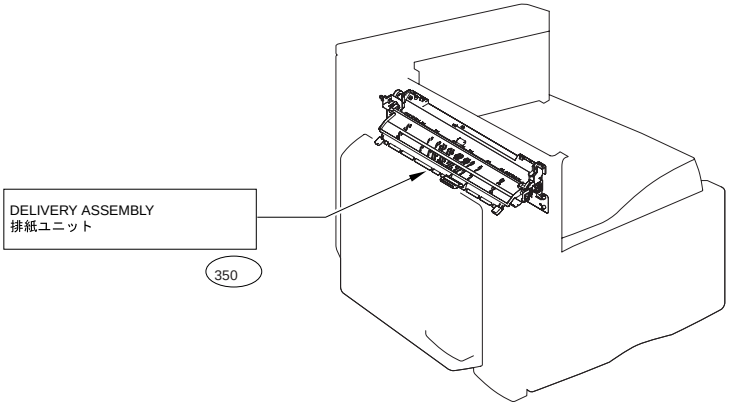
FIGURE A
ASSEMBLY LOCATION DIAGRAM






FIXING ASSEMBLY
定着ユニット
810
MULTI FEED TRAY ASS'Y
手差しトレイ部
315


DELIVERY ASSEMBLY
排紙ユニット
350

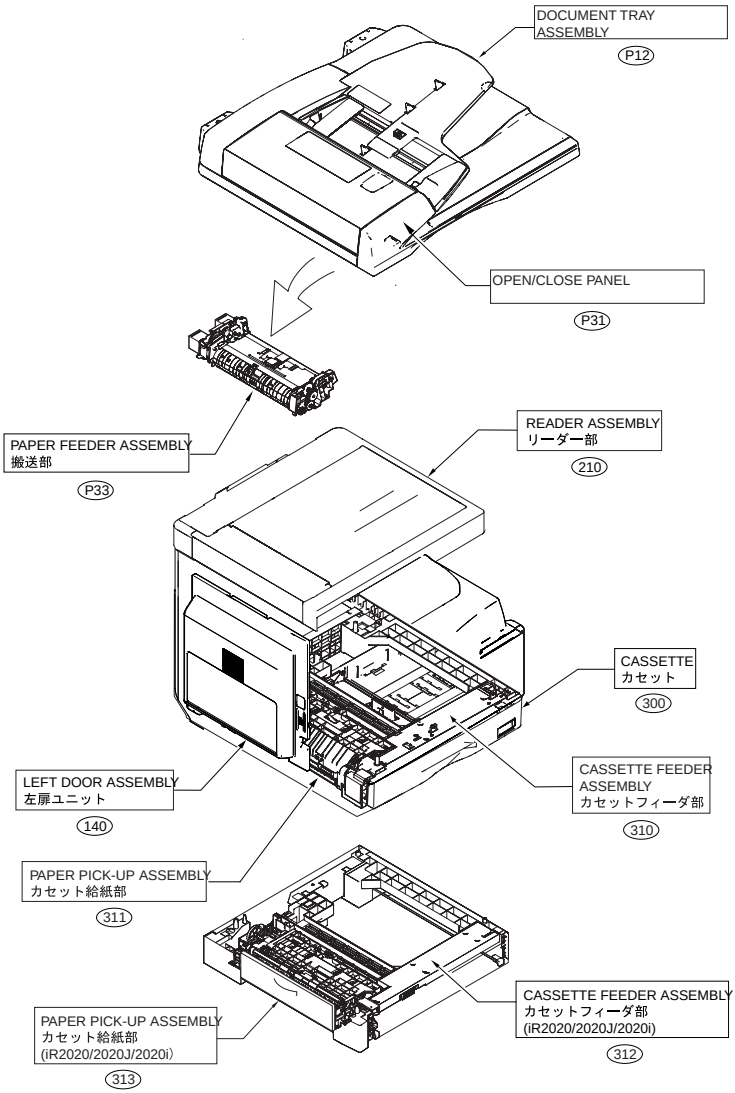
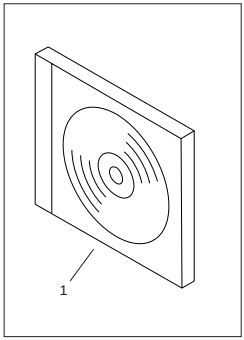

DOCUMENT TRAY ASSEMBLY
P12
OPEN/CLOSE PANEL
P31
PAPER FEEDER ASSEMBLY
搬送部
P33
READER ASSEMBLY
リーダー部
210
CASSETTE
カセット
300
LEFT DOOR ASSEMBLY
左扉ユニット
140
CASSETTE FEEDER ASSEMBLY
カセットフィーダ部
310
PAPER PICK-UP ASSEMBLY
カセット給紙部
311
CASSETTE FEEDER ASSEMBLY
カセットフィーダ部
(iR2020/2020J/2020i)
312
PAPER PICK-UP ASSEMBLY
カセット給紙部
(iR2020/2020J/2020i)
313

FIGURE 001
ACCESSORIES



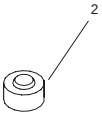


FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.001	NPN		RF	ACCESSORIES		
1	FK2-1331-000		1	CD-ROM, FAX DRIVER	SGL/SGP	
1	FK2-1329-000		1	CD-ROM, FAX DRIVER	SGM	
1	FK2-2150-010		1	CD-ROM, FAX DRIVER	SGQ	
1	FK2-1329-010		1	CD-ROM, FAX DRIVER	SGR	
1	FK2-1332-010		1	CD-ROM, FAX DRIVER	SGR	
1	FK2-1333-010		1	CD-ROM, FAX DRIVER	SGR	
1	FK2-1334-010		1	CD-ROM, FAX DRIVER	SGR	
2	FB5-9410-000		1	STAMPER	SGL/SGM/SGP	

FIGURE 100
EXTERNAL COVERS, PANELS, ETC.

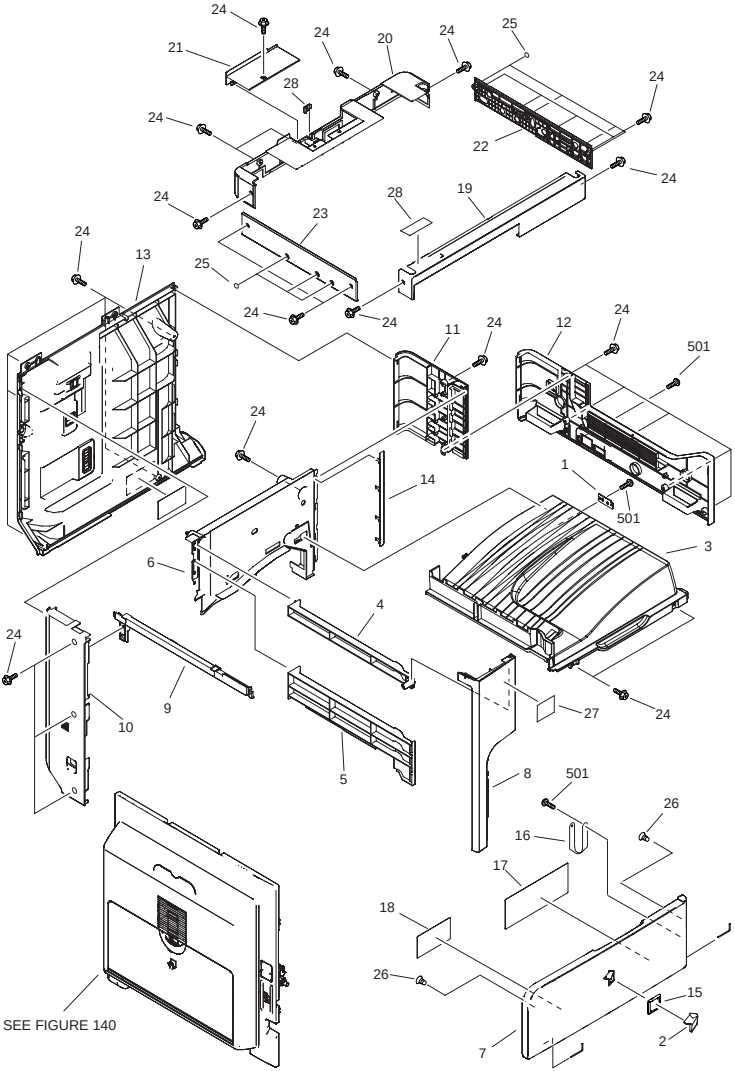


FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.100	NPN		RF	EXTERNAL COVERS, PANELS, ETC.		
1	FC6-4476-000		1	PLATE, SUPPORT, COVER		
2	FC7-1027-000		1	EMBLEM	100V	
2	FC7-1028-000		1	EMBLEM	120V/230V	
3	FC6-4259-000		1	TRAY, DELIVERY		
4	FC6-4260-000		1	COVER, PAPER FEED A	EXCEPT MF7280	
5	FC6-4261-000		1	COVER, PAPER FEED B		
6	FC6-4262-000		1	COVER, REAR, DELIVERY		
7	FL2-4789-000		1	COVER, FRONT	SGK	
7	FL2-4790-000		1	COVER, FRONT	SGL	
7	FL2-4791-000		1	COVER, FRONT	SGM	
7	FL2-4792-000		1	COVER, FRONT	SGN	
7	FL2-4793-000		1	COVER, FRONT	SGP	
7	FL2-4875-000		1	COVER, FRONT	SGQ	
7	FL2-4876-000		1	COVER, FRONT	SGR	
8	FC6-4264-000		1	COVER, LEFT, FRONT		
9	FC6-4265-000		1	COVER, LEFT, CENTER		
10	FC6-4266-000		1	COVER, REAR, LEFT		
11	FC6-4267-000		1	COVER, RIGHT, UPPER		
12	FC6-4268-000		1	COVER, RIGHT, LOWER		
13	FC6-4269-000		1	COVER, REAR		
14	FC6-4272-000		1	COVER, BLIND		
15	FC6-8679-000		1	MOUNT,EMBLEM		
16	FC6-4273-000		1	STRAP, COVER SUPPORT		
17	FC6-8673-000		1	LABEL,CRG EXCHANGE		
18	FC6-8674-000		1	LABEL, LOCK CAUTION		
19	FC6-4519-000		1	COVER, READER, FRONT		
20	FC6-4529-000		1	COVER, READER, REAR		
21	FC6-4580-000		1	WINDOW, PCB		
22	FL2-3268-000		1	COVER, READER, RIGHT		
23	FL2-3269-000		1	COVER, READER, LEFT		
24	XA9-1567-000		AR	SCREW, RS, M3X8.5		

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
25	FC6-4513-000		6	SEAL		
26	FA9-3870-000		2	CATCH, MAGNET		
27	FU5-8612-000		1	LABEL, SUPER G3	US	
28	FC6-4724-000		1	COVER, CABLE, DF		
501	XB4-5401-005		2	SCREW, P, M4X10		

FIGURE 101
MACHINE FRONT PLATE

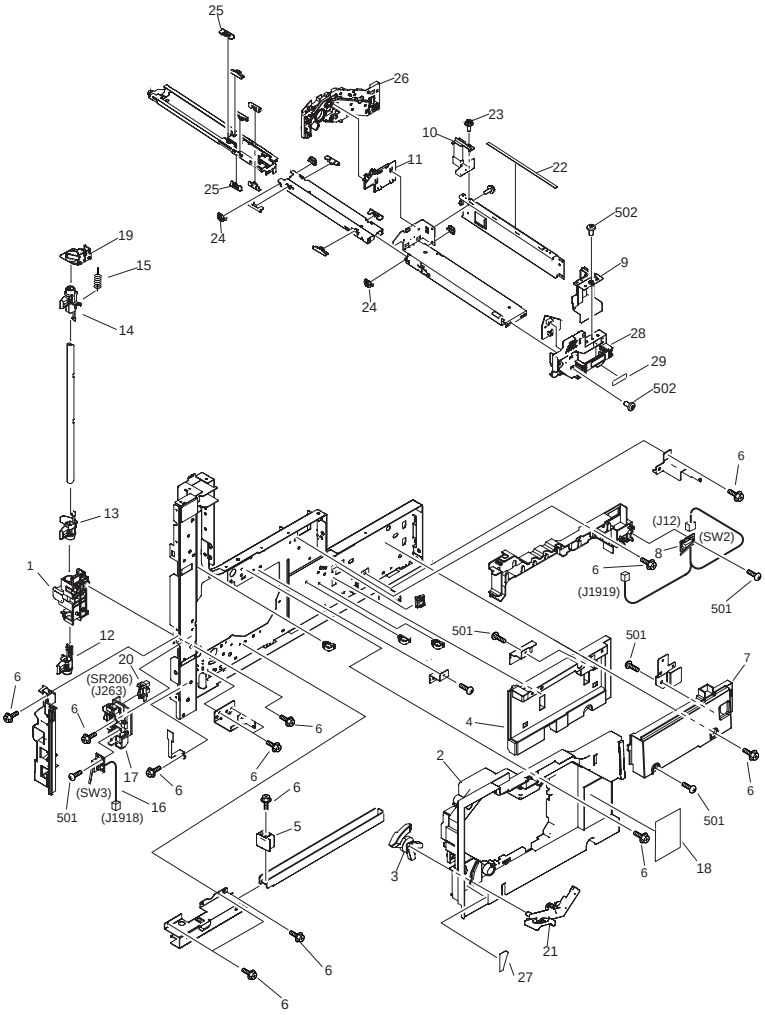


FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.101	NPN		RF	MACHINE FRONT PLATE		
1	FC6-4113-000		1	BUSHING, HOOK		
2	FC6-5408-000		1	PANEL, INNER		
3	FC6-5410-000		1	ARM, RELEASE, LEFT DOOR		
4	FC6-4149-000		1	PANEL, INNER, RIGHT		
5	FC6-4690-000		1	CAP, GRIP, FRONT		
6	XA9-1567-000		AR	SCREW, RS, M3X8.5		
7	FC6-7092-000		1	PANEL, INNER, UPPER		
8	FM2-4433-000		1	DOOR SWITCH PCB ASS'Y 2	SW2 J12,1919	
9	FC6-5414-000		1	GUIDE, CRG. F		
10	FC6-5415-000		1	GUIDE, CRG. R		
11	FC6-5401-000		1	PANEL,CRG.POSITION,R		
12	FC6-4114-000		1	HOOK, DOOR, LOWER		
13	FC6-4115-000		1	HOOK, DOOR, MIDDLE		
14	FC6-4120-000		1	HOOK, DOOR, UPPER		
15	FU6-2194-000		1	SPRING, TENSION		
16	FM2-4020-000		1	DOOR SWITCH PCB ASS'Y	SW3 J1918	
17	FC6-4147-000		1	GUIDE, SENSOR, TONER FULL		
18	FU5-8610-000		1	LABEL, CAUTION, LASER		
19	FC6-4116-000		1	BUSHING, DOOR HOOK, UPPER		
20	WG8-5696-000		1	PHOTO INTERRUPTER, TLP1243	SR206 J263	
21	FC6-5409-000		1	LEVER, CRG LOCK		
22	FC7-1019-000		1	LABEL, DRAW OPERATION	100V/CN	
22	FC7-1017-000		1	LABEL, DRAW OPERATION	120V	
22	FC7-1018-000		1	LABEL, DRAW OPERATION	EU	
23	XA9-1386-000		AR	SCREW, RS, M3X8		
24	FC6-5417-000		4	SLIDER 2		
25	FC6-5399-000		16	SLIDER		
26	FC6-5405-000		1	PANEL, INTERNAL, REAR		
27	FC6-8672-000		1	LABEL, LEVER POSITION		
28	FC6-5400-000		1	COVER, CARTRIDGE, FRONT		
29	FC7-1029-000		1	LABEL, HANDLE		

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
501	XB1-1401-407		1	SCREW, MACH.,PAN HEA		
502	XB4-7401-009		5	SCREW, TAPPING,PAN HEAD,M4X10		

FIGURE 102
INTERNAL COMPONENTS 1

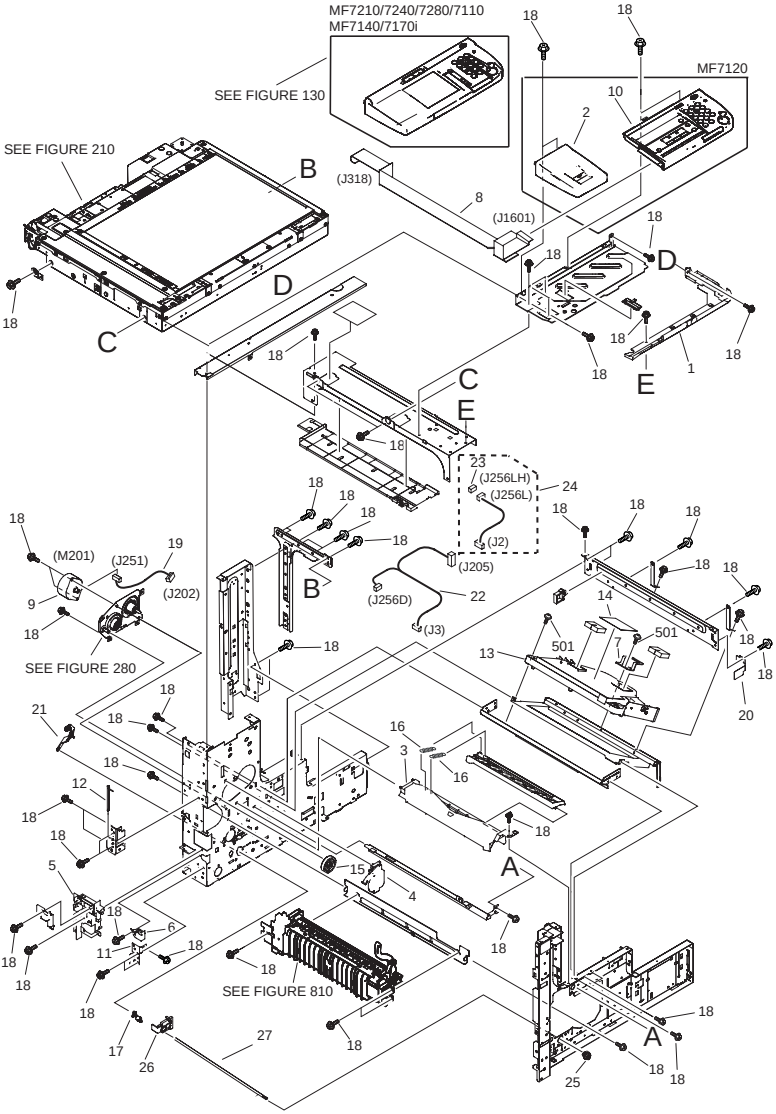


FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.102	NPN		RF	INTERNAL COMPONENTS		
1	FC6-4235-000		1	COVER, OPERATOR, LOWER		
2	FC6-4236-000		1	COVER, OPERATOR, LEFT	CN ONLY	
3	FC6-4478-000		1	DUCT, AIR		
4	FC6-4482-000		1	COVER, GEAR		
5	FC6-4710-000		1	BLOCK, POSITIONING, DOOR		
6	FC6-4720-000		1	BLOCK, POSITIONING, DOOR		
7	FC6-4734-000		1	WASHER, SQUARE		
8	FK2-1062-000		1	CABLE, FLAT, OPERATION	J318,1601	
9	FK2-1067-000		1	MOTOR, STEPPING, DC24V	M201	
10	FK2-1844-000		1	CONTROL PANEL ASSEMBLY	CN ONLY	
11	FL2-3180-000		1	PLATE, HINGE, LOWER		
12	FL2-3181-000		1	HINGE PIN UNIT		
13	FM2-3384-000		1	LASER SCANNER ASSEMBLY	MF7120	
13	FM2-3383-000		1	LASER SCANNER ASSEMBLY	MF7210/MF7240 / MF7280/MF7110/MF7140/ MF7170i	
14	FS7-8335-000		1	LABEL, LASER WARNING		
15	FU6-0803-000		1	GEAR, 31T		
16	FU6-2207-000		2	SPRING, TORSION		
17	FU5-1498-000		1	BUSHING, DEVELOPING, REAR		
18	XA9-1567-000		88	SCREW, RS, M3X8.5		
19	FM2-4409-000		1	CABLE, FIXING MOTOR	J202,251	
20	FC6-4693-000		1	SPRING, LEAF		
21	FC6-4244-000		1	ARM, RELEASE, DEVELOPPING		
22	FM2-4402-000		1	CABLE, BD-POLYGON	J3,205,256D	
23	VS1-7177-003		1	CONNECTOR, SNAP TIGHT, BK	J256LH	
24	FM2-4401-000		1	CABLE, BD	J2,256L	
25	FC6-8669-000		1	BUSH,DRV RELEASE F		
26	FC6-8670-000		1	BUSH,DRV RELEASE R		
27	FC6-8671-000		1	GUIDE,DRV RLS BUSH		
501	XB6-7300-805		3	SCREW, BH3X8		

FIGURE 103
INTERNAL COMPONENTS 2

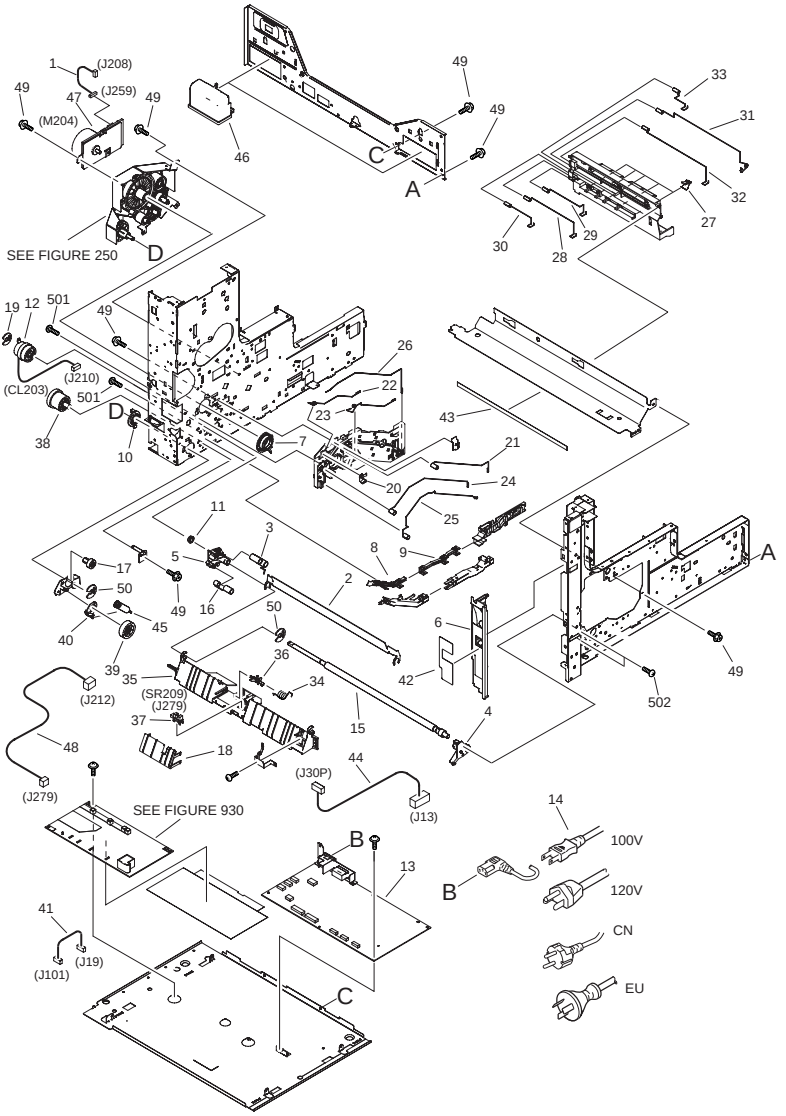


FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.103	NPN		RF	INTERNAL COMPONENTS		
1	FM2-4420-000		1	CABLE, MAIN MOTOR	J208,259	
2	FC6-4305-000		1	GUIDE, TRANSFER, UPPER		
3	FC6-4306-000		1	SPRING		
4	FC6-4311-000		1	BUSHING, TRANSFER, FRONT		
5	FC6-4312-000		1	BUSHING, TRANSFER, REAR		
6	FC6-4399-000		1	COVER, INNER, LEFT-UP		
7	FC6-4435-000		1	BUSHING		
8	FC6-4446-000		1	LID, AC-1		
9	FC6-4447-000		1	LID, AC-2		
10	FC6-4495-000		1	BUSHING		
11	FA9-2112-000		1	BUSHING, PL		
12	FK2-1081-000		1	CLUTCH, REGISTRATION	CL203 J210	
13	FK2-1831-000		1	POWER SUPPLY ASS'Y	100V	
13	FK2-1074-000		1	POWER SUPPLY ASS'Y	120V	
13	FK2-1075-000		1	POWER SUPPLY ASS'Y	230V	
14	FM2-5951-000		1	CORD, POWER 100V	100V	
14	FM2-4787-000		1	CORD, POWER 230V	CN	
14	FM2-4786-000		1	CORD, POWER 230V	EU	
14	FM2-4785-000		1	CORD, POWER 120V	UL	
15	FL2-3213-000		1	ROLLER, REGISTRATION		
16	FU6-2176-000		1	SPRING, EARTH		
17	FU6-0806-000		1	GEAR, 17T		
18	FC6-4360-000		1	GUIDE, PRE-REGIST SENSOR		
19	FA3-8727-000	N	1	RING, RETAINING		
20	FC6-4148-000		1	TERMINAL, LEAF, FIXING BIAS		
21	FU6-2148-000		1	TERMINAL, CHARGE		
22	FU6-2149-000		1	TERMINAL, DEVELOPING		
23	FU6-2150-000		1	TERMINAL, DETECTION		
24	FU6-2151-000		1	TERMINAL, STATIC ELIMINATOR		
25	FU6-2152-000		1	TERMINAL, TRANSFER		
26	FU6-2198-000		1	TERMINAL, FIXING		

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
27	FC6-4138-000		5	TERMINAL, LEAF, HVT		
28	FU6-2156-000		1	TERMINAL, CHARGE		
29	FU6-2157-000		1	TERMINAL, DEVELOPING		
30	FU6-2158-000		1	TERMINAL, DETECTION		
31	FU6-2159-000		1	TERMINAL, STATIC ELIMINATOR		
32	FU6-2195-000		1	TERMINAL, TRANSFER		
33	FU6-2199-000		1	TERMINAL, FIXING		
34	FC6-4308-000		1	SPRING, TORSION		
35	FC6-4309-000		1	GUIDE, PRE-REGIST, UPPER		
36	FC6-4310-000		1	FLAG, SENSOR, PRE-REGIST		
37	WG8-5696-000		1	PHOTO INTERRUPTER, TLP1243	SR209 J279	
38	FU6-0794-000		1	GEAR, 29T		
39	FU6-0796-000		1	GEAR, 33T		
40	FC6-4191-000		1	STOPPER, MULTI FEED		
41	FM2-4413-000		1	CABLE, HVT POWER	J19,101	
42	FU5-8606-000		1	LABEL, JAM CLEARING	EXCEPT MF7280	
43	FC6-4205-000		1	SHEET, CLEANING		
44	FM2-4408-000		1	CABLE, FIXING HEATER	J13,30P	
45	FU6-2209-000		1	SPRING, TENSION		
46	FC6-4689-000		2	HANDLE		
47	FK2-1080-000		1	MOTOR, DC24V	M204	
48	FM2-4424-000		1	CABLE, RESIST SENSOR	J212,279	
49	XA9-1567-000		AR	SCREW, RS, M3X8.5		
50	FA4-1159-000		2	RING, RETAINING		
501	XB4-5401-005		AR	SCREW, P, M4X10		
502	XB4-7401-009		AR	SCREW,TAPPING,PAN HEAD,M4X10		

FIGURE 104
MACHINE REAR PLATE

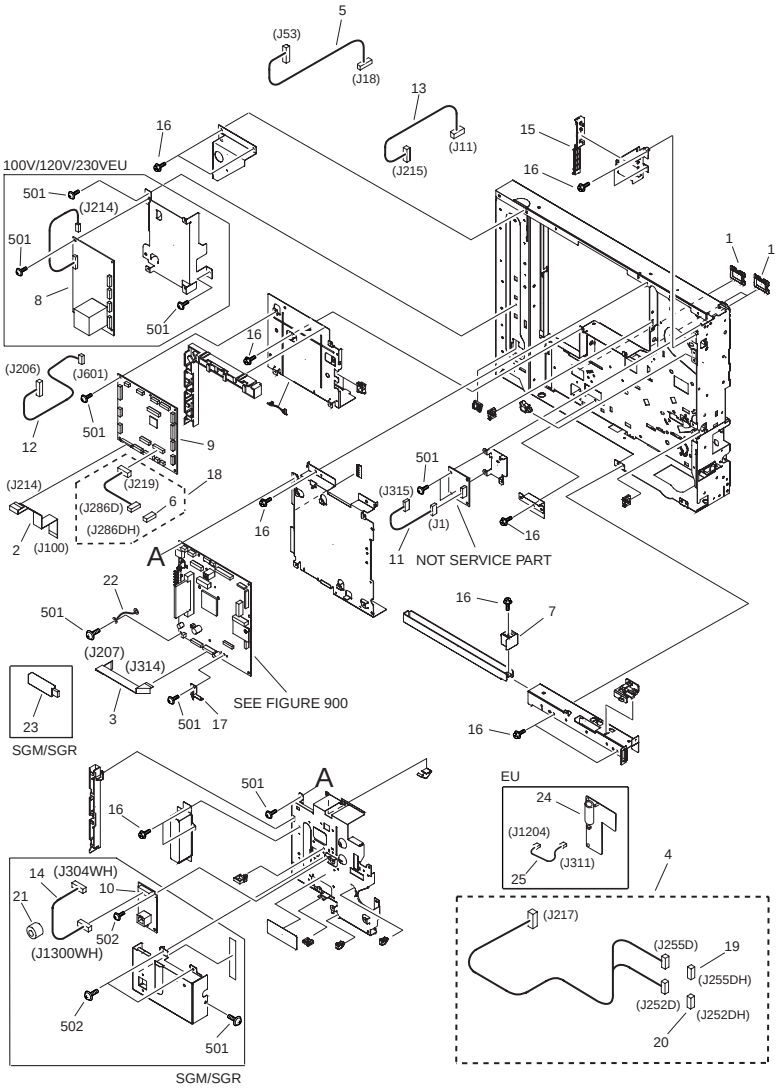
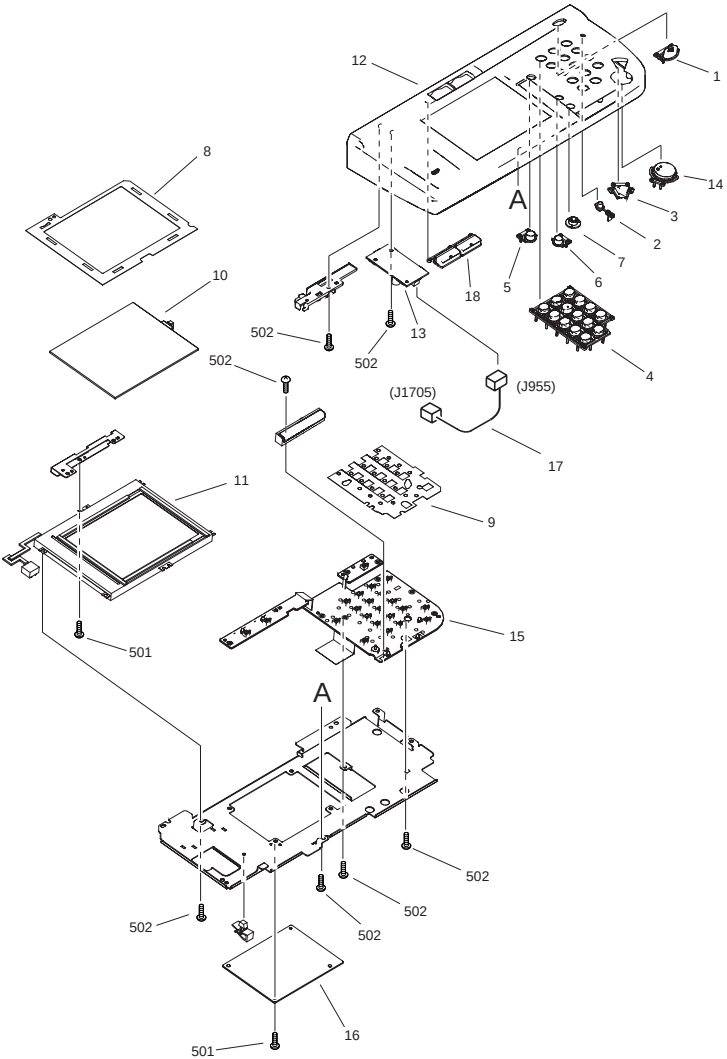


FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.104	NPN		RF	MACHINE REAR PLATE		
1	FB6-1722-000		3	BUSHING, SQUARE		
2	FK2-1058-000		1	CABLE, FLAT, HVT	J100,214	
3	FK2-1059-000		1	CABLE, FLAT, DC	J207,314	
4	FM2-4410-000		1	CABLE, FIXING ASSEMBLY	J217,252D,255D	
5	FM2-4541-000		1	CABLE, OPTION POWER SUPPLY	J18,53	
6	VS1-7177-010		1	CONNECTOR, SNAP TIGHT, BK	J286DH	
7	FC6-4691-000		1	CAP, GRIP, REAR		
8	FK2-1085-000		1	SUB POWER SUPPLY ASS'Y	100V/120V	
8	FK2-1086-000		1	SUB POWER SUPPLY ASS'Y	230V EU	
9	FM2-5942-000		1	DC CONTROLLER PCB ASSEMBLY	100V SGK/SGL	
9	FM2-5941-000		1	DC CONTROLLER PCB ASSEMBLY	100V SGN/SGP	
9	FM2-5944-000		1	DC CONTROLLER PCB ASSEMBLY	120V	
9	FM2-5946-000		1	DC CONTROLLER PCB ASSEMBLY	CN	
9	FM2-5945-000		1	DC CONTROLLER PCB ASSEMBLY	EU	
10	FM2-4058-000		1	LAN PCB ASSEMBLY	SGM/SGR	
11	FM2-4425-000		1	CABLE, SOFT ID	J1,315	
12	FM2-4414-000		1	CABLE, LASER	J206,601	
13	FM2-4404-000		1	CABLE, DC CONTROLLER	J11,215	
14	FM2-4542-000		1	CABLE, IP-LAN		
15	FL2-3229-000		1	CORE UNIT		
16	XA9-1567-000		AR	SCREW, RS, M3X8.5		
17	FC7-1749-000		1	PLATE, LEAF		
18	FM2-5957-000		1	CABLE, LEFT DOOR	100V J219,286D,286DH	
18	FM2-4416-000		1	CABLE, LEFT DOOR	120V/230V J219,286D,286DH	
19	VS1-7207-006		1	CONNECTOR, SNAP TIGHT	J255DH	
20	VS1-7207-007		1	CONNECTOR, SNAP TIGHT	J252DH	
21	WE8-6346-000		1	CORE,RING	120V	
22	FK2-1268-000		1	CABLE, GROUNDING		
23	FK2-1101-000		1	MEMORY, USB FLASH, 128M	SGM/SGR	
24	FM2-4780-000		1	CAPACITOR PCB ASSEMBLY	EU	

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
25	FM2-4538-000		1	CABLE, IP-CAP	SGL/SGM/SGP J311,1204	
501	XB6-7300-805		AR	SCREW, BH3X8 S		
502	XB6-7300-807		AR	SCREW, TAP TIGHT, BINDING HEAD		

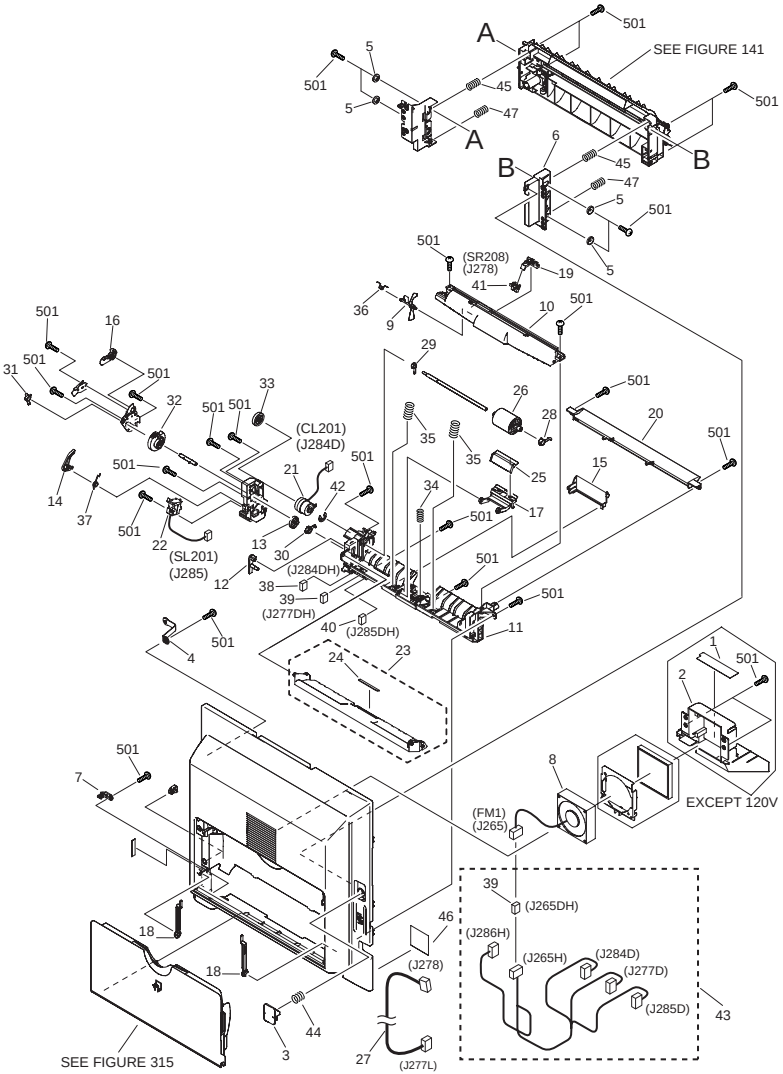
FIGURE 130
CONTROL PANEL ASSEMBLY



NOTE : This unit is used for EXCEPT MF7120
注：このユニットはMF7120以外に使用します。

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.130	FM2-4010-000		1	CONTROL PANEL ASSEMBLY	100V	
Fig.130	FM2-4011-000		1	CONTROL PANEL ASSEMBLY	120V	
Fig.130	FM2-4012-000		1	CONTROL PANEL ASSEMBLY	230V EU	
1	FC6-5425-000		1	KEY TOP, POWER SUPPLY		
2	FC6-5426-000		1	KEY TOP, COUNTER		
3	FC6-5427-000		1	KEY TOP, STOP		
4	FC6-5428-000		1	KEY TOP, NUMBERS		
5	FC6-5429-000		1	KEY TOP, RESET		
6	FC6-5430-000		1	KEY TOP, USER MODE		
7	FC6-5431-000		1	DIAL, CONTRAST		
8	FC6-5433-000		1	SHEET, LCD		
9	FC7-1020-000		1	SHEET, ELECTROSTATIC		
10	FH6-0772-000	N	1	PANEL, TOUCH		
11	FL2-3463-000		1	LCD CONTROL PANEL UNIT		
12	FL2-4784-000		1	CONTROL PANEL UNIT	100V	
12	FL2-4787-000		1	CONTROL PANEL UNIT	120V	
12	FL2-4786-000		1	CONTROL PANEL UNIT	230V EU	
13	FM2-2753-000		1	C.PANEL INVERTER PCB ASSEMBLY		
14	FM2-4013-000		1	KEY TOP, START		
15	FM2-4399-000		1	SWITCH PCB ASSEMBLY		
16	FM2-4784-000		1	CONTROL PANEL CPU PCB ASSEMBLY		
17	FM2-5952-000		1	CABLE, CPU-INVERTER		
18	FM2-6354-000		1	KEY TOP, SYSTEM	100V	
18	FM2-6355-000		1	KEY TOP, SYSTEM	120V	
18	FM2-6356-000		1	KEY TOP, SYSTEM	EU	
501	XB1-2300-407		5	SCREW, BH3X4 (S)		
502	XB4-5300-807		19	SCREW, P, M3X8		

FIGURE 140
LFET DOOR ASSEMBLY



NOTE 1 : This assembly includes the assemblies shown in Figure 141 and 315.
注 1 : このユニットはFigure 141,315のユニットを含みます。

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.140	FM2-4006-000		1	LEFT DOOR ASSEMBLY	SEE NOTE	
Fig.140	FM2-6350-000		1	LEFT DOOR ASSEMBLY	SEE NOTE EXCEPT MF7280	
1	FU5-8607-000		1	LABEL, WARNING, ROLLER		
2	FC6-4376-000		1	HOLDER, FAN		
3	FC6-4386-000		1	BUTTON, PUSH		
4	FC6-4388-000		1	STOPPER, DOOR		
5	FC6-4413-000		4	SPACER, FRAME, FEED		
6	FC6-4414-000		1	MOUNT, FRAME, FEED		
7	FC6-7103-000		1	BLOCK, COVER		
8	FK2-1084-000		1	FAN	FM1 J265	
9	FC6-4209-000		1	FLAG, SENSOR		
10	FC6-4210-000		1	COVER, ROLLER		
11	FC6-4211-000		1	GUIDE, MULTI FEED		
12	FC6-4224-000		1	SUPPORT, CAM, LIFTING		
13	FC6-4226-000		1	CAM, LIFTING PLATE		
14	FC6-4227-000		1	ARM, MULTI FEED		
15	FC6-4232-000		1	COVER, HARNESS		
16	FC6-4233-000		1	STOPPER, SWING PLATE		
17	FC6-4234-000		1	ARM, PAD, SEPARATION		
18	FC6-4238-000		2	STOPPER, MULTI FEED		
19	FC6-4239-000		1	HOLDER, SENSOR		
20	FC6-4377-000		1	GUIDE, FEED		
21	FK2-1070-000		1	CLUTCH, ELECTROMAGNETIC	CL201 J284D	
22	FK2-1072-000		1	SOLENOID	SL201 J285	
23	FL2-3200-000		1	LIFTING PLATE ASSEMBLY		
24	FC5-0543-000		1	SHEET, SEPARATION		
25	FL2-3201-000		1	SEPARATION PAD ASS'Y		
26	FL2-3202-000		1	ROLLER, PICK-UP		
27	FM2-4421-000		1	HARNESS, SENSOR, PAPER	J277L,278	
28	FU5-1527-000		1	BUSHING, ROLLER, PICK-UP		
29	FU5-1528-000		1	BUSHING, SHAFT, PICK-UP		

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
30	FU5-1529-000		1	BUSHING, SHAFT, CAM (F)		
31	FU5-1530-000		1	BUSHING, SHAFT, CAM (R)		
32	FU6-0813-000		1	GEAR, MULTI FEED		
33	FU6-0814-000		1	GEAR, 25T		
34	FU6-2180-000		1	SPRING, COMPRESSION		
35	FU6-2181-000		2	SPRING, COMPRESSION		
36	FU6-2182-000		1	SPRING, TORSION		
37	FU6-2183-000		1	SPRING, TORSION		
38	VS1-7177-002		1	CONNECTOR, SNAP TIGHT, BK	J284DH	
39	VS1-7177-003		2	CONNECTOR, SNAP TIGHT, BK	J265DH,277DH	
40	VS1-7177-004		1	CONNECTOR, SNAP TIGHT, BK	J285DH	
41	WG8-5696-000		1	PHOTO INTERRUPTER, TLP1243	SR208 J278	
42	XD9-0136-000		1	RING, E		
43	FM2-4417-000		1	CABLE, LEFT DOOR	J277D,284D,285D	
44	FU6-2160-000		1	SPRING, COMPRESSION		
45	FU6-2162-000		2	SPRING, COMPRESSION		
46	FU5-8699-000		1	LABEL, JAM CLEARING		
47	FU6-2178-000		2	SPRING, COMPRESSION		
501	XB4-5401-005		27	SCREW, P, M4X10		

FIGURE 141
PAPER FEEDER FRAME ASSEMBLY

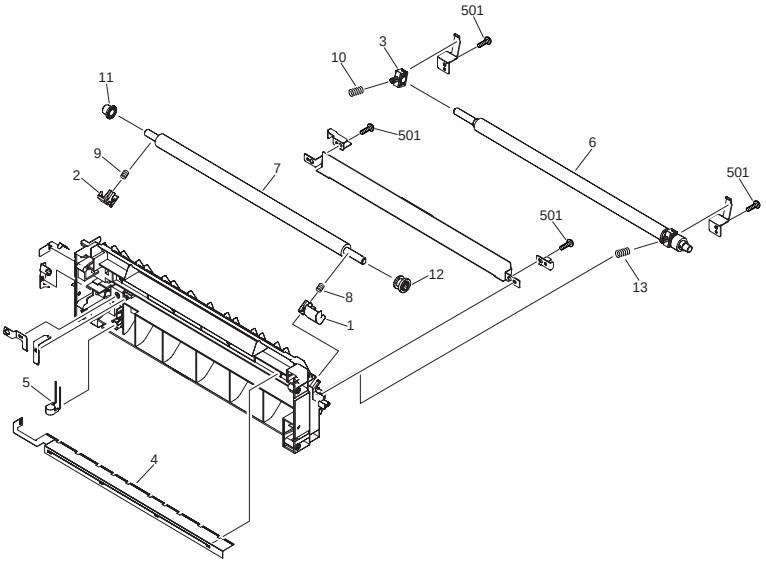
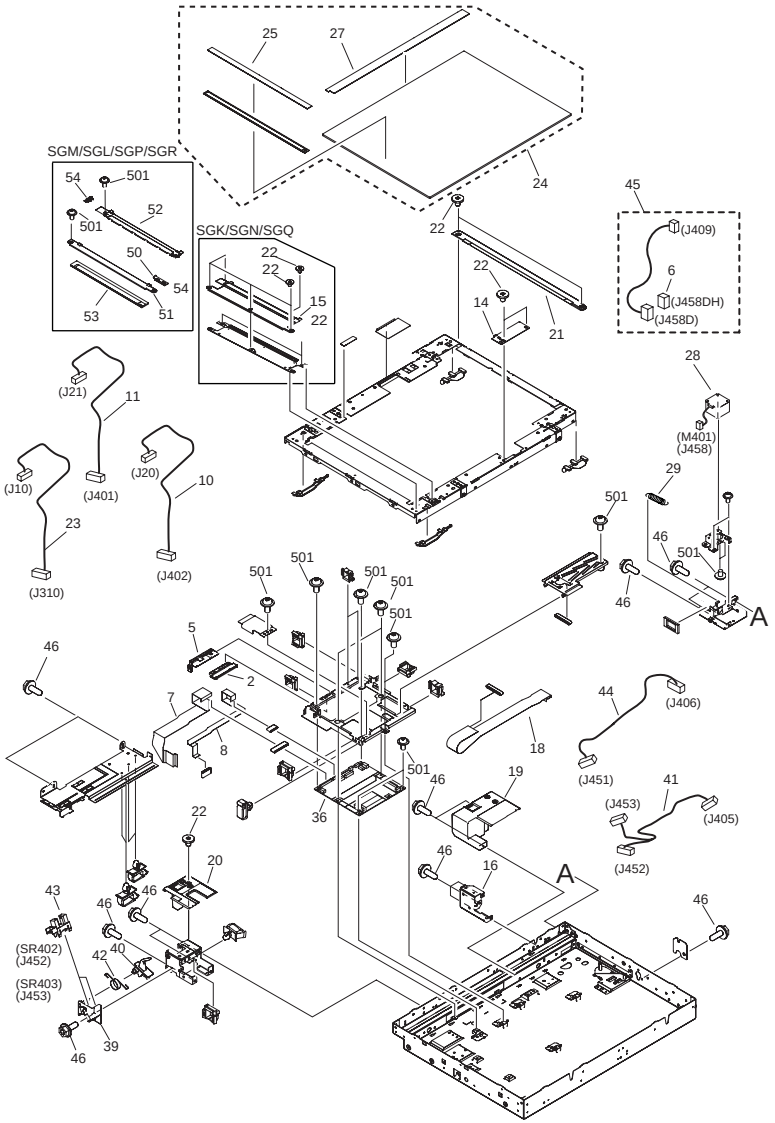


FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.141	FM2-6347-000		1	PAPER FEEDER FRAME ASSEMBLY	SEE NOTE	
1	FC6-4314-000		1	BUSHING, TRANSFER, FRONT		
2	FC6-4315-000		1	BUSHING, TRANSFER, LOWER		
3	FC6-4317-000		1	BUSHING, REGIST ROLLER		
4	FC6-4324-000		1	ELIMINATOR, STATIC CHARGE		
5	FH5-3543-000		1	VARISTOR		
6	FL2-3214-000		1	REGIST ROLLER ASSEMBLY		
7	FC6-4313-000		1	ROLLER, TRANSFER		
8	FU6-2171-000		1	SPRING, TRANSFER ROLLER, LEFT		
9	FU5-2476-000		1	SPRING, TRANSFER ROLLER, RIGHT		
10	FU6-2173-000		1	SPRING,COMPRESSION		
11	FC6-4316-000		1	ROLLER		
12	FU5-0744-000		1	GEAR, 31T		
13	FU6-2177-000		1	SPRING, COMPRESSION		
501	XB4-5401-005		4	SCREW, P, M4X10		

FIGURE 210
READER ASSEMBLY



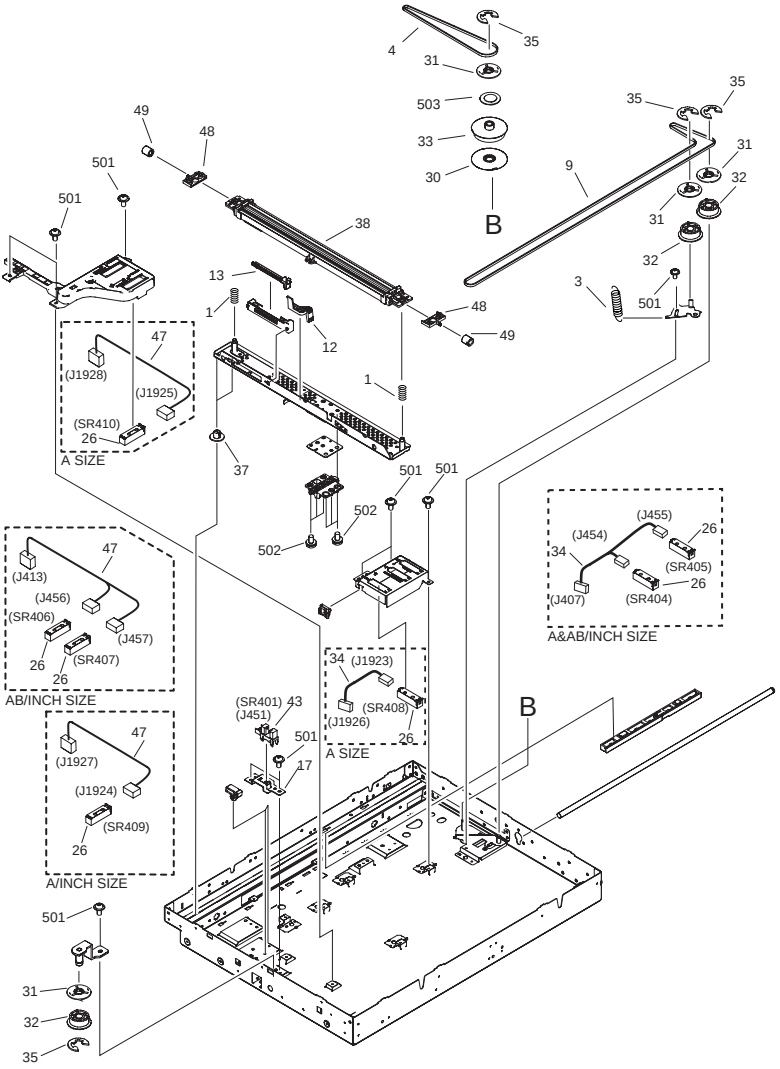

4
35
31
503
33
30
B
49
48
501
501
38
13
1
12
48
49
1
47
(J1928)
(J1925)
(SR410)
26
A SIZE
37
501
501
502
502
35
35
31
9
32
31
32
3
501
(J455)
(J454)
26
34
(SR405)
(J407)
(SR404)
26
A&AB/INCH SIZE
47
(J413)
(J456)
(SR406)
(J457)
26
(SR407)
26
AB/INCH SIZE
34
(J1923)
(SR401)
43
(J451)
(SR408)
(J1926)
26
A SIZE
B
47
(J1927)
(J1924)
(SR409)
26
A/INCH SIZE
501
17
501
31
32
35

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.210	NPN		RF	READER ASSEMBLY		
1	FU6-2236-000		2	SPRING, COMPRESSION		
2	FC6-4522-000		1	HOLDER, CORE		
3	FU6-2193-000		1	SPRING, TENSION		
4	XF2-4620-340		1	BELT, TIMING		
5	FC6-4582-000		1	CLAMP,FLEXIBLE		
6	VS1-7177-004		1	CONNECTOR, SNAP TIGHT, BK	J458DH	
7	FK2-1060-000		1	CABLE, FLAT, READER 1	J309,404	
8	FK2-1064-000		1	CABLE, FLAT, READER 2	J308,403	
9	XF2-4661-440		1	BELT, TIMING		
10	FM2-4418-000		1	CABLE, READER CONTROLLER 1	J20,402	
11	FM2-4419-000		1	CABLE, READER CONTROLLER 2	J21,401	
12	FC5-0792-000		1	RETAINER, BELT		
13	FC5-1444-000		1	HOLDER, FFC		
14	FC6-4528-000		1	LID, GRASS RETAINER		
15	FC6-4541-000		1	COVER, LEFT, UPPER	SGK/SGN/SGQ	
16	FC6-4573-000		1	PLATE, HINGE, RIGHT		
17	FC6-4727-000		1	HOLDER, SENSOR		
18	FK2-1061-000		1	CABLE, FLAT, READER	J408,460	
19	FC6-4562-000		1	COVER, HINGE, RIGHT		
20	FC6-4558-000		1	COVER, HINGE, LEFT		
21	FL2-3230-000		1	RETAINER, GLASS (R)		
22	XA9-1415-000		12	SCREW, FLAT HEAD, M4		
23	FM2-4422-000		1	CABLE, READER CONTROLLER	J10,310	
24	FL2-3207-000		1	GLASS, COPYBOARD	A INCH SIZE	
24	FL2-3208-000		1	GLASS, COPYBOARD	A SIZE	
24	FL2-3280-000		1	GLASS, COPYBOARD	AB INCH SIZE	
24	FL2-3209-000		1	GLASS, COPYBOARD	AB SIZE	
25	FU5-8592-000		1	PLATE, WIDTH INDEX	A INCH SIZE	
25	FU5-8581-000		1	PLATE, WIDTH INDEX	A SIZE	
25	FU5-8590-000		1	PLATE, WIDTH INDEX	AB INCH SIZE	
25	FU5-8598-000		1	PLATE, WIDTH INDEX	AB SIZE	

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
26	FH7-7569-000		3	DOCUMENT SIZE SENSOR UNIT	A INCH SIZE SR404,405,407,409	
26	FH7-7569-000		4	DOCUMENT SIZE SENSOR UNIT	AB INCH SIZE SR404,405,406,407	
27	FU5-8595-000		1	PLATE, LENGTH INDEX	A INCH SIZE	
27	FU5-8596-000		1	PLATE, LENGTH INDEX	A SIZE	
27	FU5-8597-000		1	PLATE, LENGTH INDEX	AB INCH SIZE	
27	FU5-8591-000		1	PLATE, LENGTH INDEX	AB SIZE	
28	FK2-1066-000		1	MOTOR, STEPPING	M401 J458	
29	FU6-2190-000		1	SPRING, TENSION		
30	FC6-4506-000		1	FLANGE		
31	FC6-4514-000		4	FLANGE		
32	FU5-3339-000		3	PULLEY		
33	FU5-3340-000		1	PULLEY		
34	FM2-4427-000		1	CABLE, DOCUMENT SIZE SENSOR	100V/120V J407,454,455	
35	XD9-0136-000		4	RING, E		
36	FM2-4791-000		1	READER CONTROLLER PCB ASSEMBLY		
37	FC6-4511-000		2	SLIDER		
38	FL2-3286-000		1	CONTACT IMAGE SENSOR		
39	FC6-4559-000		1	HOLDER, SENSOR		
40	FC6-4561-000		1	LEVER, SENSOR		
41	FM2-4400-000		1	CABLE, SENSOR	J405,452,453	
42	FU6-2191-000		1	SPRING, SENSOR		
43	WG8-5696-000		3	PHOTO INTERRUPTER, TLP1243	SR401,402,403 J451,452,453	
44	FM2-4412-000		1	CABLE, HP SENSOR	J406,451	
45	FM2-4423-000		1	CABLE, READER MOTOR	J409,458D	
46	XA9-1567-000		38	SCREW, RS, M3X8.5		
47	FM2-4428-000		1	CABLE, DOCUMENT SIZE SENSOR	100V J413,456,457	
47	FM2-4536-000		1	CABLE, DOCUMENT SIZE SENSOR	120V J1924,1927	
48	FB6-1336-000		2	GUIDE, CIS		
49	FB6-1337-000		2	COLLAR		
50	FC6-4525-000		1	RETAINER, GLASS	SGL/SGM/SGP/SGR	

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
51	FL2-3231-000		1	RETAINER, GLASS, LEFT	SGL/SGM/SGP/SGR	
52	FL2-3233-000		1	GUIDE, PAPER	SGL/SGM/SGP/SGR	
53	FL2-3188-000		1	GLASS, READER		
54	FC5-1427-000		1	COVER, EDGE		
501	XB6-7300-407		4	SCREW, TP, M3X4		
502	XB2-8400-805		6	SCREW, W/WASHER, M4X8		
503	XD1-1106-231		1	WASHER,COP		

FIGURE 250
MAIN DRIVE ASSEMBLY

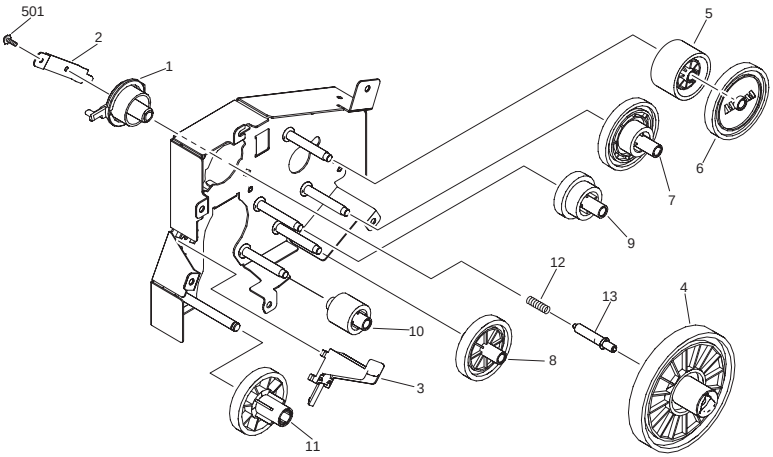


FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.250	FM2-3344-000		1	MAIN DRIVE ASSEMBLY		
1	FC6-4436-000		1	BUSHING		
2	FC6-4437-000		1	PLATE, EARTH		
3	FC6-4497-000		1	STOPPER, GEAR		
4	FU6-0788-000		1	GEAR, 161T		
5	FU6-0766-000		1	GEAR, 13T		
6	FU6-0767-000		1	GEAR, 9T		
7	FU6-0790-000		1	GEAR, 25T/91T		
8	FU6-0791-000		1	GEAR, 53T		
9	FU6-0792-000		1	GEAR, 37T/28T		
10	FU6-0793-000		1	GEAR, 25T		
11	FU6-0795-000		1	GEAR, 55T		
12	FU6-2184-000		1	SPRING, EARTH		
13	RB2-1850-000		1	PIN		
501	XB2-7300-607		1	SCREW,W/WASHER,M3X6		

FIGURE 280
FIXING DRIVE ASSEMBLY

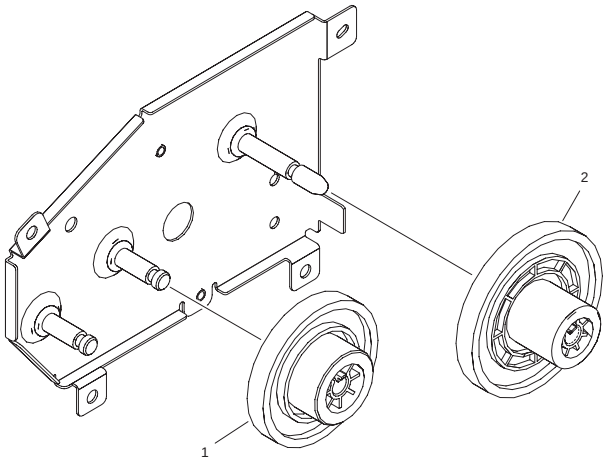


FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.280	FM2-3350-000		1	FIXING DRIVE ASSEMBLY		
1	FU6-0802-000		1	GEAR, 80T/17T		
2	FU6-0804-000		1	GEAR, 91T/19T		

FIGURE 300
CASSETTE

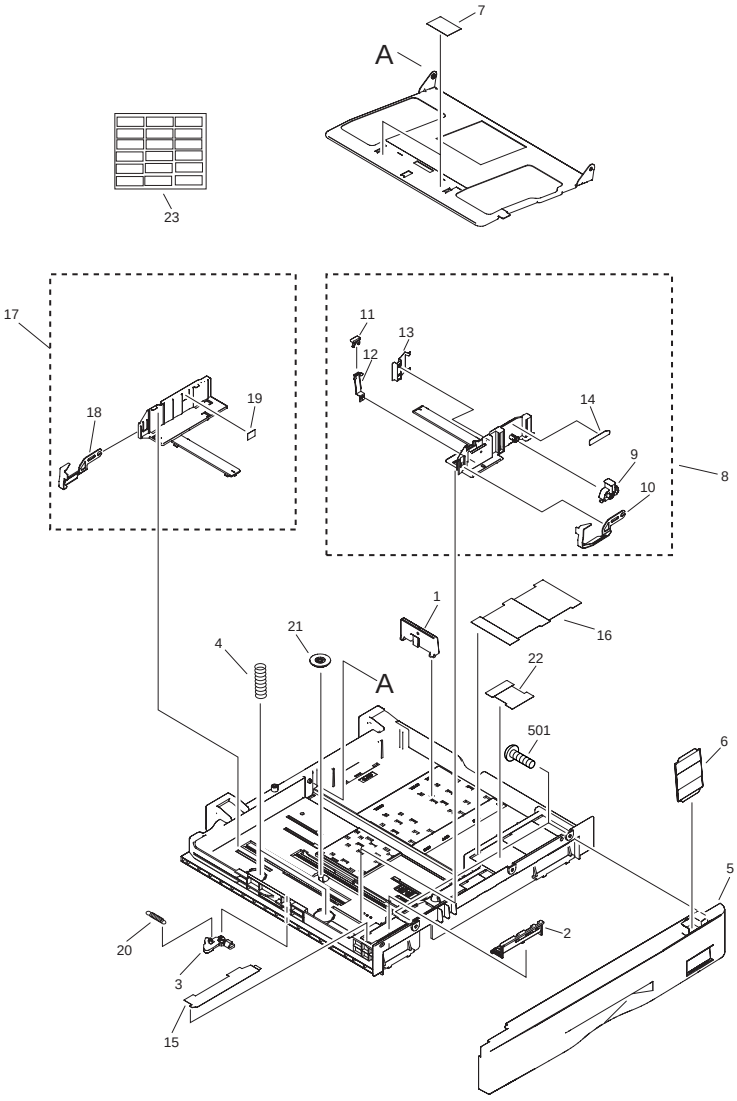


FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.300	NPN		RF	CASSETTE		
1	FB4-5814-000		1	PLATE, SIZE, REAR		
2	FB6-1640-000		1	LEVER, PAPER SIZE		
3	FB6-1644-000		1	LOCK, PAPER LIFTING PLATE		
4	FB6-2000-000		2	SPRING, COMPRESSION		
5	FC6-4337-000		1	COVER, CASSETTE		
6	FC6-4361-000		1	PLATE, SIZE INDICATOR		
7	FB6-1650-000		2	SHEET, SEPARATION		
8	FM2-3325-000		1	PAPER SIDE GUIDE (F) UNIT		
9	FB4-5809-020		1	LEVER, LOCK		
10	FB4-5813-020		1	PLATE, HOLD-DOWN TAB		
11	FB4-5810-000		1	PLATE, PAPER CONTACT		
12	FB6-1646-000		1	SPRING, LEAF		
13	FB6-1649-000		1	SPRING, LEAF		
14	FU5-8588-000		1	LABEL, SIDE LOCK		
15	FU5-8584-000		1	SHEET, PAPER SIZE SETTING		
16	FU5-8587-000		1	SHEET, PAPER SUPPLY		
17	FM2-3326-000		1	PAPER SIDE GUIDE (R) UNIT		
18	FB4-5808-020		1	PLATE, HOLD-DOWN TAB		
19	FB4-5824-000		1	LABEL, LIMIT		
20	FS6-2917-000		1	SPRING, TENSION		
21	FS7-0207-000		1	GEAR, 20T		
22	FU5-8609-000		1	SHEET, WARNING	100V/230 CN	
22	FU5-8601-000		1	SHEET, WARNING	100V/230 EU	
22	FU5-8601-000		2	SHEET, WARNING	120V	
23	FU5-8600-000		1	LABEL, PAPER SIZE		
501	XB4-7401-009		2	SCREW, TAPPING, PAN HEAD		

FIGURE 310
CASSETTE FEEDER ASSEMBLY

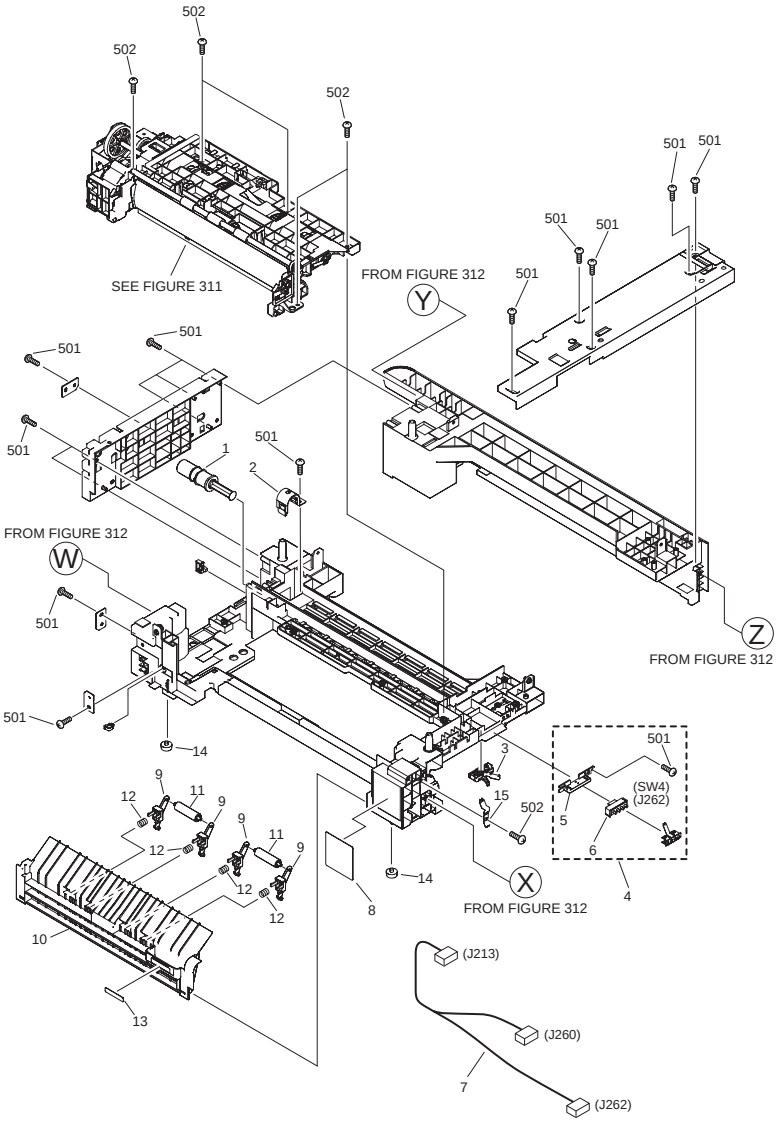


FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.310	NPN		RF	CASSETTE FEEDER ASSEMBLY		
1	FB4-5532-000		1	DAMPER		
2	FB6-1608-000		1	HOLDER, DAMPER		
3	FC6-4357-000		1	BLOCK, POSITION		
4	FM2-3319-000		1	SIZE DETECTION ASS'Y		
5	FB6-1910-000		1	MOUNT, SIZE SENSOR		
6	WC2-5332-000		1	SWITCH, PAPER SIZE	SW4 J262	
7	FM2-4403-000		1	CABLE, CASSETTE	J213,260,262	
8	FU5-8585-000		1	LABEL, JAM CLEARING		
9	FC6-4297-000		4	BUSHING, ROLLER, VERTICAL		
10	FC6-4298-000		1	COVER, CASSETTE, LEFT		
11	FC6-4300-000		2	ROLLER, VERTICAL PASS		
12	FU6-2170-000		4	SPRING, COMPRESSION		
13	FU5-8586-000		1	LABEL, COVER		
14	XH9-0135-000		2	FOOT, RUBBER		
15	FC6-6712-000		1	PLATE, EARTH		
501	XB4-5401-005		15	SCREW, P, M4X10		
502	XB4-5401-007		5	SCREW, M4X10		

FIGURE 311
PAPER PICK-UP ASSEMBLY

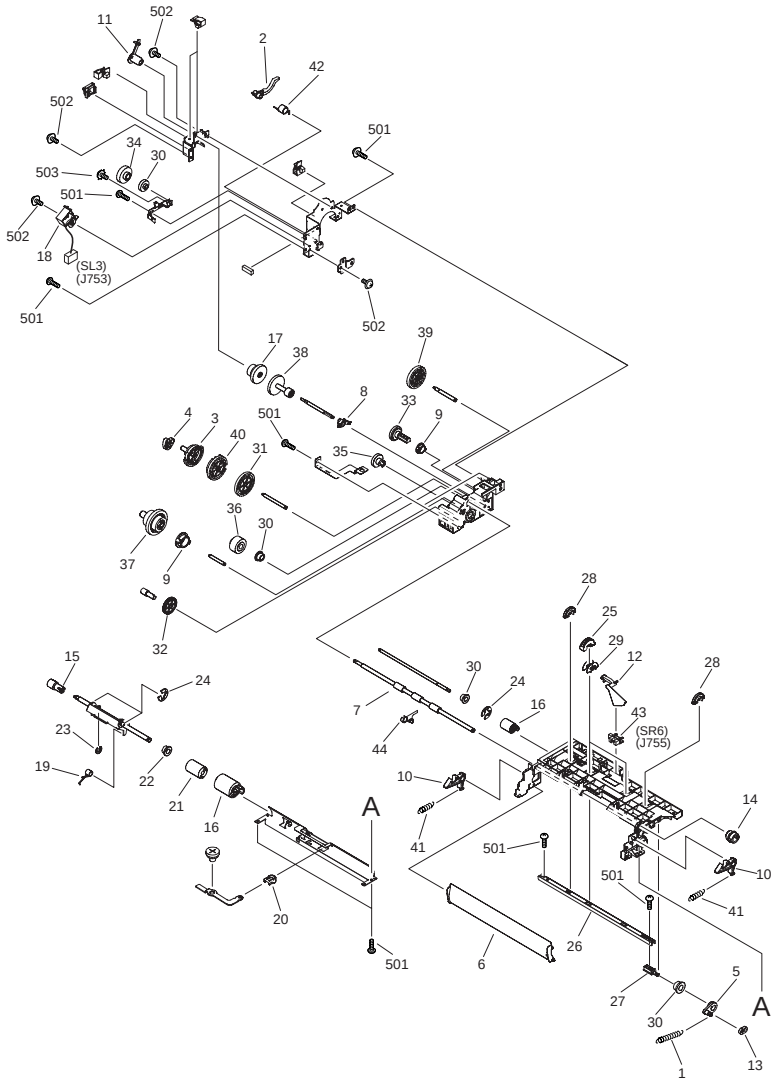


FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.311	FM2-3320-000		1	PAPER PICK-UP ASSEMBLY		
1	FB6-1550-000		1	SPRING, TENSION		
2	FB6-1626-000		1	LEVER, COUPLING		
3	FB6-1633-000		1	GEAR, 27T/50T		
4	FB6-1660-000		1	CAM		
5	FB6-1909-000		1	BUSHING		
6	FC6-4285-000		1	GUIDE, TURN		
7	FC6-4286-000		1	ROLLER, VERTICAL PASS		
8	FC6-4291-000		1	BUSHING, CLUTCH		
9	FC6-4304-000		2	BUSHING, ROLLER, PICK-UP		
10	FC6-4326-000		2	LOCK, VERTICAL PASS		
11	FC6-4348-000		1	BUSHING, CLUTCH, REAR		
12	FC6-4350-000		1	ARM, DETECTION, PAPER		
13	FC6-4352-000		1	COLLAR, SPRING		
14	FC6-4355-000		1	BUSHING		
15	FC6-4358-000		1	JOINT, RETARD		
16	FF6-1621-000		2	ROLLER, SEPARATION		
17	FK2-1068-000		1	CLUTCH, ELECTROMAGNETIC		
18	FK2-1082-000		1	SOLENOID		
19	FB6-1902-000		1	SPRING, TORSION		
20	FB6-1908-000		1	CAP		
21	FC6-4290-000		1	LIMITER, TORQUE		
22	FL2-3212-000		1	SHAFT, ROLLER		
23	XD9-0133-000		1	RING, E		
24	XD9-0136-000		3	RING, E		
25	FB4-9817-030		2	ROLLER, PICK-UP		
26	FC6-4284-000		1	SHAFT, ROLLER, PICK-UP		
27	FC6-4351-000		1	SHAFT, ROLLER		
28	FC6-4356-000		2	ROLLER, LOOP		
29	FE5-4048-000		2	BLOCK, PICK-UP ROLLER ADPTER		
30	FS1-1205-000		4	BUSHING		
31	FS7-0225-000		1	GEAR, 53T		

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
32	FS7-0226-000		1	GEAR, 36T		
33	FS7-0228-000		1	GEAR, 31T		
34	FS7-0229-000		1	GEAR, 18T		
35	FS7-0230-000		1	GEAR, 27T		
36	FU6-0769-000		1	GEAR, 17T		
37	FU6-0770-000		1	GEAR, 21T/37T/22T		
38	FU6-0771-000		1	GEAR, 16T/34T		
39	FU6-0775-000		1	GEAR, 39T		
40	FU6-0776-000		1	GEAR, 29T		
41	FU6-2174-000		2	SPRING, TENSION		
42	FU6-2175-000		1	SPRING, TORSION		
43	WG8-5696-000		1	PHOTO INTERRUPTER, TLP1243	SR6 J755	
44	FC7-1770-000		1	BUSHING		
501	XB4-7401-009		8	SCREW,TAPPING,PAN HEAD,M4X10		
502	XB6-7300-609	N	4	SCREW, MACH, PAN HEAD, M3X8		
503	XB2-7300-607		1	SCREW, CROOSS-RECESS, FCH		

FIGURE 312
CASSETTE FEEDER ASSEMBLY(MF7280)

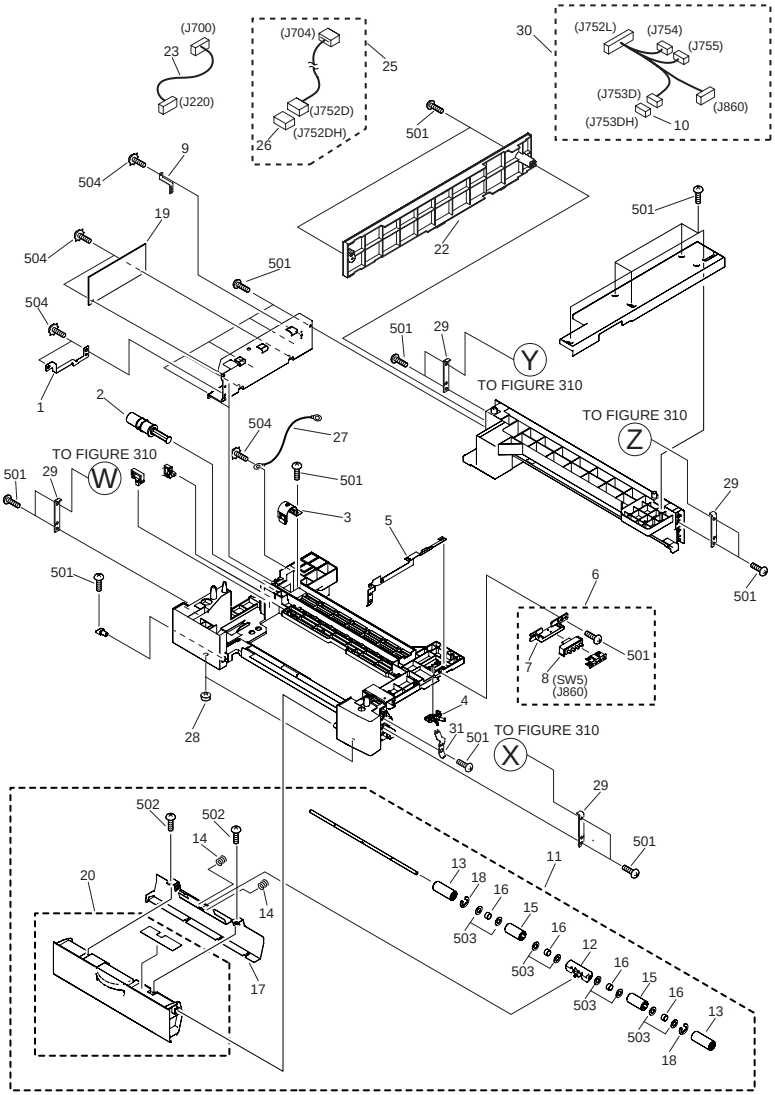


FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.312	NPN		RF	CASSETTE FEEDER ASSEMBLY	MF7280	
1	FC6-6720-000		1	PLATE, GROUNDING		
2	FB4-5532-000		1	DAMPER		
3	FB6-1608-000		1	HOLDER, DAMPER		
4	FC6-4357-000		1	BLOCK, POSITION		
5	FC6-6706-000		1	PLATE, EARTH		
6	FG6-8440-000		1	SIZE SENSOR UNIT		
7	FB6-1910-000		1	MOUNT, SIZE SENSOR		
8	WC2-5332-000		1	SWITCH, PAPER SIZE	SW5,J860	
9	FB6-1614-000		1	PLATE, GROUNDING		
10	VS1-7177-002		1	CONNECTOR, SNAP TIGHT, BK	J753D	
11	FM2-4483-000		1	VERTICAL PATH UNIT		
12	FB4-5671-000		1	MOUNT, ROLLER		
13	FB6-1536-000		2	ROLLER		
14	FB6-1920-000		2	SPRING, COMPRESSION		
15	FB6-1996-000		2	ROLLER, VERTICAL PATH		
16	FB6-1997-000		4	SPRING, COMPRESSION		
17	FC6-6714-000		1	GUIDE, VERTICAL PATH		
18	XD9-0136-000		2	RING, E		
19	FM2-4495-000		1	FEEDER CONTROLLER PCB ASS'Y		
20	FL2-3736-000		1	COVER, VERTICAL PATH		
21	FU5-8680-000		1	LABEL,JAM		
22	FC6-6710-000		1	COVER, CASSETTE, REAR		
23	FM2-4497-000		1	CABLE, INTERFACE, 1	J220,700	
24	FC6-6712-000		1	PLATE, EARTH		
25	FM2-4499-000		1	CABLE, FEEDER	J704,752D	
26	VS1-7177-013		1	CONNECTOR, SNAP TIGHT	J752DH	
27	FM2-4500-000		2	CABLE, EARTH		
28	XH9-0135-000		2	FOOT, RUBBER		
29	FC6-6707-000		4	PLATE, JOINT		
30	FM2-4496-000		1	CABLE, FEEDER	J752,754,755,860	
501	XB4-5401-007		22	SCREW, M4X10		

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
502	XB1-2400-607		2	SCREW, CROSS-RECESS, FCH		
503	XD1-1106-235		8	WASHER,COP		
504	XB2-7300-607		7	SCREW, W/WASHER, M3X6		

FIGURE 313
PAPER PICK-UP ASSEMBLY(MF7280)

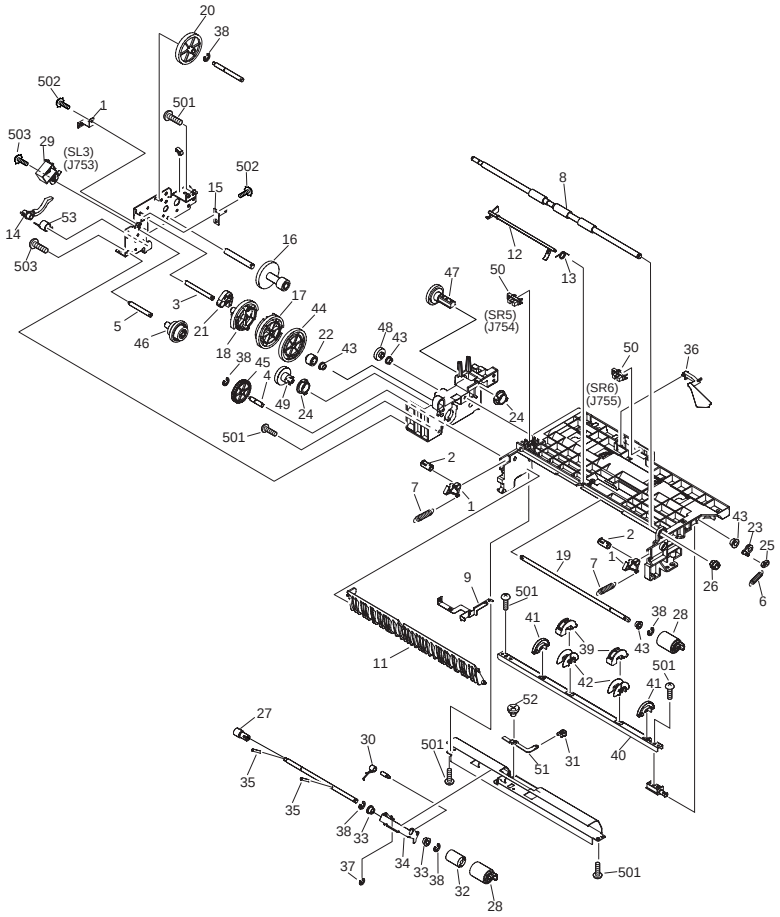
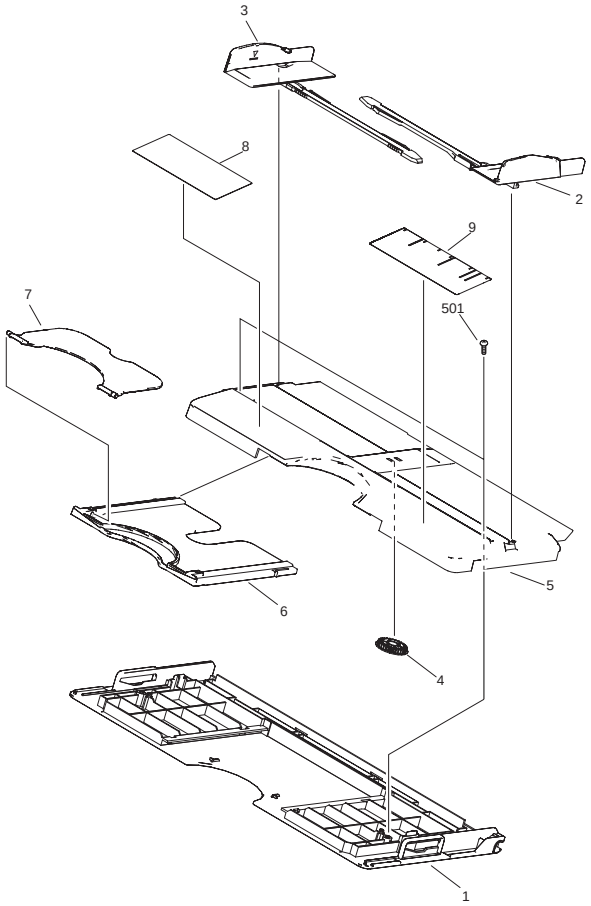


FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.313	FM2-4484-000		1	PAPER PICK-UP ASSEMBLY	MF7280	
1	FB4-5672-000		2	PAWL, LOCK		
2	FB4-5673-000		2	SHAFT, LOCK		
3	FB4-6032-000		1	SHAFT, CLUCH		
4	FB4-6033-000		1	SHAFT, IDLER		
5	FB4-6034-000		1	SHAFT		
6	FB6-1550-000		1	SPRING, TENSION		
7	FB6-1551-000		2	SPRING, TENSION		
8	FB6-1613-000		1	ROLLER, VERTICAL PATH		
9	FB6-1614-000		1	PLATE, GROUNDING		
10	FB6-1615-000		1	PLATE, GROUNDING		
11	FB6-1616-000		1	GUIDE, VERTICAL PATH		
12	FB6-1623-000		1	ARM, FEED SENSOR		
13	FB6-1624-000		1	SPRING, TORSION		
14	FB6-1626-000		1	LEVER, COUPLING		
15	FB6-1628-000		1	PLATE, GROUNDING		
16	FB6-1632-000		1	GEAR, 16T/34T		
17	FB6-1633-000		1	GEAR, 27T/50T		
18	FB6-1634-000		1	GEAR, 29T		
19	FB6-1635-000		1	SHAFT		
20	FB6-1636-000		1	GEAR, 39T		
21	FB6-1660-000		1	CAM		
22	FB6-1905-000		1	GEAR, 14T		
23	FB6-1909-000		1	BUSHING		
24	FC6-4304-000		2	BUSHING, ROLLER, PICK-UP		
25	FC6-4352-000		1	COLLAR, SPRING		
26	FC6-4355-000		1	BUSHING		
27	FC6-4358-000		1	JOINT, RETARD		
28	FF6-1621-000		2	ROLLER, SEPARATION		
29	FK2-1104-000		1	SOLENOID	SL3 J753	
30	FB6-1902-000		1	SPRING, TORSION		
31	FB6-1908-000		1	CAP		

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
32	FC6-4290-000		1	LIMITER, TORQUE		
33	FB6-1541-000		2	BUSHING		
34	FF6-1610-000		1	HOLDER, SEPARATION ROLLER		
35	XD3-1200-122		2	SPRING PIN		
36	FC6-4350-000		1	ARM, DETECTION, PAPER		
37	XD9-0133-000		1	RING, E		
38	XD9-0136-000		5	RING, E		
39	FB4-9817-030		2	ROLLER, PICK-UP		
40	FB6-1631-030		1	SHAFT, PICK-UP ROLLER		
41	FC6-4356-000		2	ROLLER, LOOP		
42	FE5-4048-000		2	BLOCK, PICK-UP ROLLER ADPTER		
43	FS1-1205-000		4	BUSHING		
44	FS7-0225-000		1	GEAR, 53T		
45	FS7-0226-000		1	GEAR, 36T		
46	FS7-0227-000		1	GEAR, 21T/33T/22T		
47	FS7-0228-000		1	GEAR, 31T		
48	FS7-0229-000		1	GEAR, 18T		
49	FS7-0230-000		1	GEAR, 27T		
50	WG8-5624-000		2	PHOTO-INTERRUPTER, TLP1241	SR5,6 J755	
51	FC6-4288-000		1	LEVER, PRESSURE		
52	FS5-9714-000		1	SCREW,STEPPED,M3		
53	FU6-2175-000		1	SPRING, TORSION		
501	XB4-7401-009		10	SCREW,TAPPING,PAN HEAD,M4X10		
502	XB2-7300-607		2	SCREW, W/WASHER, M3X6		
503	XB6-7300-609		1	SCREW, MACH,PAN HEAD, M3X8		

FIGURE 315
MULTI FEED TRAY ASSEMBLY



NOTE1:This assembly is included in the assmbly shown in Figure 140.
NOTE2:This assembly does not include the part shown with key No.9.
注１:このユニットはFigure140のユニットに含まれます。
注２:このユニットにKey No.9の部品は含まれません。

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.315	FM2-3294-000		1	MULTI FEED TRAY ASS'Y	SEE NOTE1	
1	FC6-4215-000		1	COVER, MULTI FEED		
2	FC6-4218-000		1	PLATE, LIMIT, FRONT		
3	FC6-4219-000		1	PLATE, LIMIT, REAR		
4	FC6-4220-000		1	GEAR, PINION		
5	FC6-4221-000		1	TRAY, MULTI FEED		
6	FC6-4222-000		1	TRAY, MULTI FEED, SUB (L)		
7	FC6-4223-000		1	TRAY, MULTI FEED, SUB (S)		
8	FU5-8605-000		1	LABEL, SET		
9	FU5-8604-000		1	LABEL, SIZE INSTRUCTION	CN SEE NOTE2	
9	FU5-8589-000		1	LABEL, SIZE INSTRUCTION	US SEE NOTE2	
501	XB4-5401-005		2	SCREW, P, M4X10		

FIGURE 350
PAPER DELIVERY ASSEMBLY

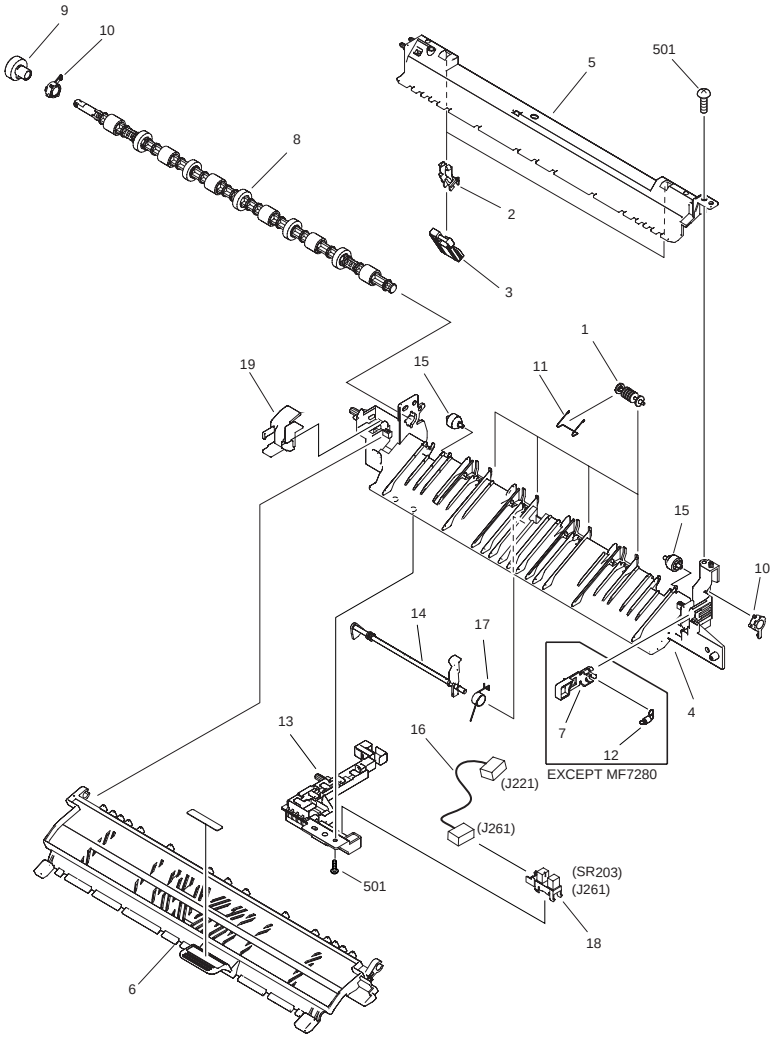


FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.350	FM2-3351-000		1	PAPER DELIVERY ASSEMBLY	100V/230V	
Fig.350	FM2-6685-000		1	PAPER DELIVERY ASSEMBLY	120V	
1	FC5-4847-000		4	ROLLER, FEEDING		
2	FC6-4438-000		2	HOLDER, RETAINING PLATE		
3	FC6-4477-000		2	PLATE,DELIVERY RETAINING		
4	FC6-4470-000		1	GUIDE, DELIVERY, LOWER		
5	FC6-4474-000		1	GUIDE, DELIVERY, UPPER		
6	FC6-4475-000		1	GUIDE, DELIVERY	100V/230V	
6	FL2-3746-000		1	GUIDE, DELIVERY	120V	
7	FC6-4502-000		1	STOPPER, DELIVERY GUIDE	EXCEPT MF7280	
8	FL2-3220-000		1	ROLLER, DELIVERY		
9	FU5-0732-000	N	1	GEAR, 17T		
10	FU5-1522-000		2	BUSHING, DELIVERY ROLLER		
11	FU6-2189-000		4	SPRING, TORSION		
12	FU6-2206-000		1	SPRING, TENSION	100V/230V	
12	FU6-2207-000		1	SPRING, TENSION	120V	
13	FC6-4465-000		1	HOLDER, SENSOR	SR203	
14	FC6-4473-000		1	LEVER, DELIVERY SENSOR		
15	FC6-4484-000		2	ROLLER		
16	FM2-4789-000		1	CABLE, SENSOR, DELIVERY	J221,261	
17	FU6-2210-000		1	SPRING, TORSION		
18	WG8-5696-000		1	PHOTO INTERRUPTER, TLP1243	SR203 J261	
19	FC6-4504-000		1	COVER, GEAR		
501	XB4-7401-209		1	SCREW,TAPPING,PAN HEAD,M4X10		

FIGURE 810
FIXING ASSEMBLY

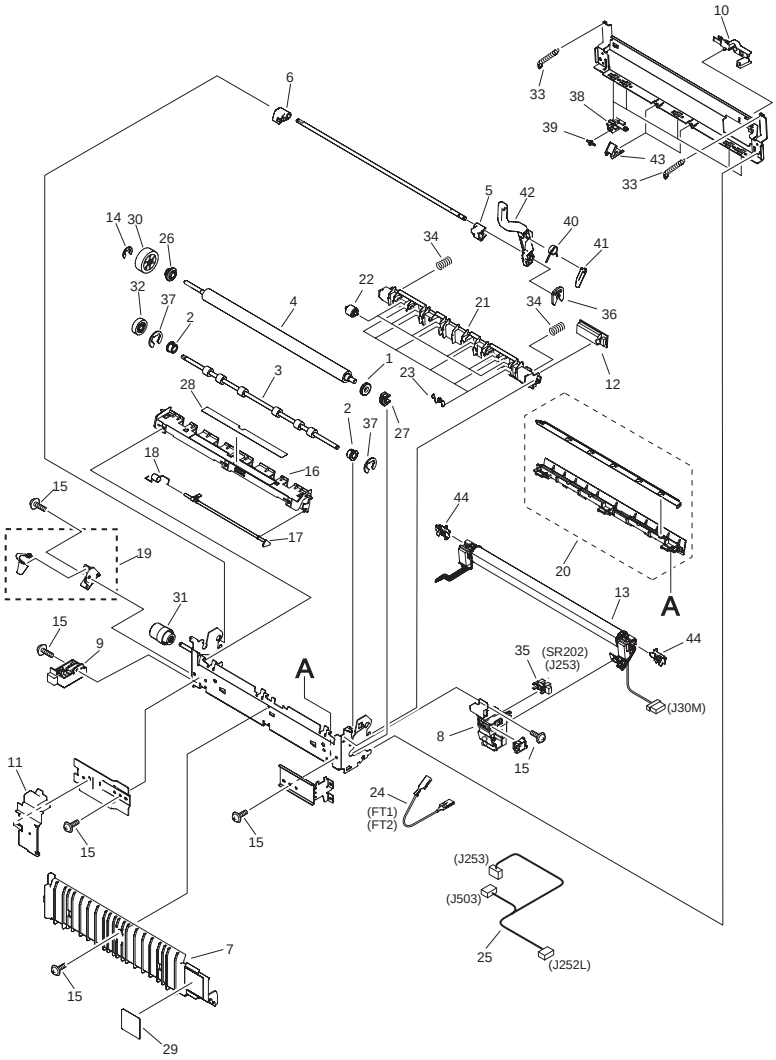
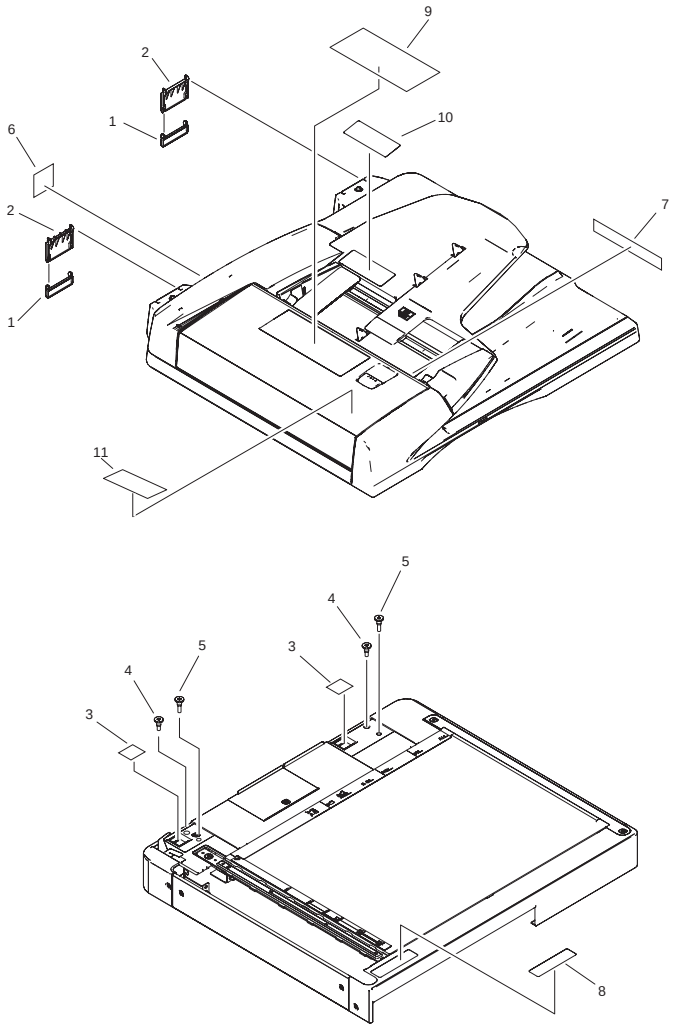


FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.810	FM2-6351-000		1	FIXING ASSEMBLY	100V	
Fig.810	FM2-3345-000		1	FIXING ASSEMBLY	120V	
Fig.810	FM2-3352-000		1	FIXING ASSEMBLY	230V	
1	FC5-4860-000		1	RUBBER RING,CONDUCTIVE		
2	FC5-5297-000		2	BUSHING		
3	FC6-4452-000		1	ROLLER, DELIVERY, MIDDLE		
4	FC6-4453-000		1	ROLLER, PRESSURE		
5	FC6-4462-000		1	BLOCK, PRESSURE RELEASE (F)		
6	FC6-4463-000		1	BLOCK, PRESSURE RELEASE (R)		
7	FC6-4479-000		1	COVER, FIXING, LEFT		
8	FC6-4480-000		1	GUIDE, FIXING CABLE (F)		
9	FC6-4481-000		1	GUIDE, FIXING CABLE (R)		
10	FC6-4492-000		1	GUIDE, FILM SENSOR CABLE		
11	FC6-4501-000		1	COVER, FIXING GEAR		
12	FG3-3501-000		1	FIXING FILM SENSOR ASS'Y		
13	FM2-6352-000		1	FIXING FILM ASSEMBLY	100V	
13	FM2-3346-000		1	FIXING FILM ASSEMBLY	120V	
13	FM2-3353-000		1	FIXING FILM ASSEMBLY	230V	
14	XD9-0134-000		1	RING, E		
15	XA9-0702-000		5	SCREW, W/WASHER, M3X6		
16	FC6-4449-000		1	GUIDE, DELIVERY, LOWER		
17	FC6-4450-000		17	LEVER, DELIVERY SENSOR		
18	FU5-2470-000		1	SPRING, TORSION		
19	FM2-3348-000		1	TERMINAL HOLDER ASSEMBLY		
20	FM2-3349-000		1	FIXING INLET GUIDE UNIT		
21	FC6-4448-000		1	GUIDE, DELIVERY, UPPER		
22	FC5-6805-000		6	ROLLER, DELIVERY, MIDDLE		
23	FU6-2188-000		6	SPRINGM, TORSION		
24	FM2-4405-000		1	CABLE, FILM BIAS	FT1,2	
25	FM2-4411-000		1	CABLE, FIXING SENSOR	J252L,253,503	
26	FU5-1519-000		1	BUSHING		
27	FU5-1520-000		1	BUSHING		

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
28	FU5-8575-000		1	LABEL, WARNING, HIGH TEMP.		
29	FU5-8576-000		1	LABEL, DRUM CAUTION		
30	FU6-0799-000		1	GEAR, 27T		
31	FU6-0800-000		1	GEAR, 17T		
32	FU6-0801-000		1	GEAR, 17T		
33	FU6-2185-000		2	SPRING, TENSION		
34	FU6-2186-000		2	SPRING, COMPRESSION		
35	WG8-5696-000		1	PHOTO INTERRUPTER, TLP1243	SR202 J253	
36	FA3-8727-000		1	RING,E		
37	XD9-0136-000		2	RING, E		
38	FC6-4458-000		1	MOUNT, ROWEL		
39	FB6-7091-000		5	ROWEL		
40	FU6-2208-000		1	SPRING, TORSION		
41	FC6-4454-000		1	BLOCK, LEVER RETURN		
42	FC6-4503-000		1	LEVER, RELEASE, FRONT		
43	FC6-4467-000		2	GUIDDE, PAPER LIMIT		
44	FC7-1771-000		2	CAP, PRESSURE		

FIGURE P01
PACKING KIT



NOTE : This unit is used for MF7240/7280/7140/7170i
注：このユニットはにMF7240/7280/7140/7170i使用します。

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.P01	NPN		RF	PACKING KIT	MF7240/7280/7140/7170i	
1	FC3-1571-000		2	COVER, HINGE		
2	FC3-1572-000		2	COVER, HINGE		
3	FC3-1547-000		2	SHEET, BLANKING		
4	FU5-9140-000		2	SCREW, STEPPED, (M4X10)		
5	FU5-9139-000		2	SCREW, STEPPED(M5X6)		
6	FS9-0195-000		1	LABEL, CAUTION	SGL/SGP	
6	FS9-0196-000		1	LABEL, CAUTION	SGR	
7	FS9-0211-000		1	LABEL, DOCUMENT SIZE		
8	FS9-0213-000		1	LABEL, CLEANING	SGL/SGP	
8	FS9-0224-000		1	LABEL, CLEANING	SGM	
8	FS9-0214-000		1	LABEL, CLEANING	SRG	
9	FS9-0201-000		1	LABEL, DOCUMENT PROHIBITION	A INCH SIZE AB INCH	
9	FS9-0202-000		1	LABEL, DOCUMENT PROHIBITION	A SIZE	
9	FS9-0200-000		1	LABEL, DOCUMENT PROHIBITION	AB SIZE	
10	FS9-0207-000		1	LABEL, DOCUMENT SIZE	A INCH SIZE	
10	FS9-0211-000		1	LABEL, DOCUMENT SIZE	A INCH SIZE AB INCH	
10	FS9-0208-000		1	LABEL, DOCUMENT SIZE	A SIZE	
10	FS9-0206-000		1	LABEL, DOCUMENT SIZE	AB SIZE	
11	FS9-0212-000		1	LABEL, CLEANING	SGL/SGP	
11	FS9-0248-000		1	LABEL, CLEANING	SGM	
11	FS9-0217-000		1	LABEL, CLEANING	SGR	

FIGURE P11
ADF ASSEMBLY

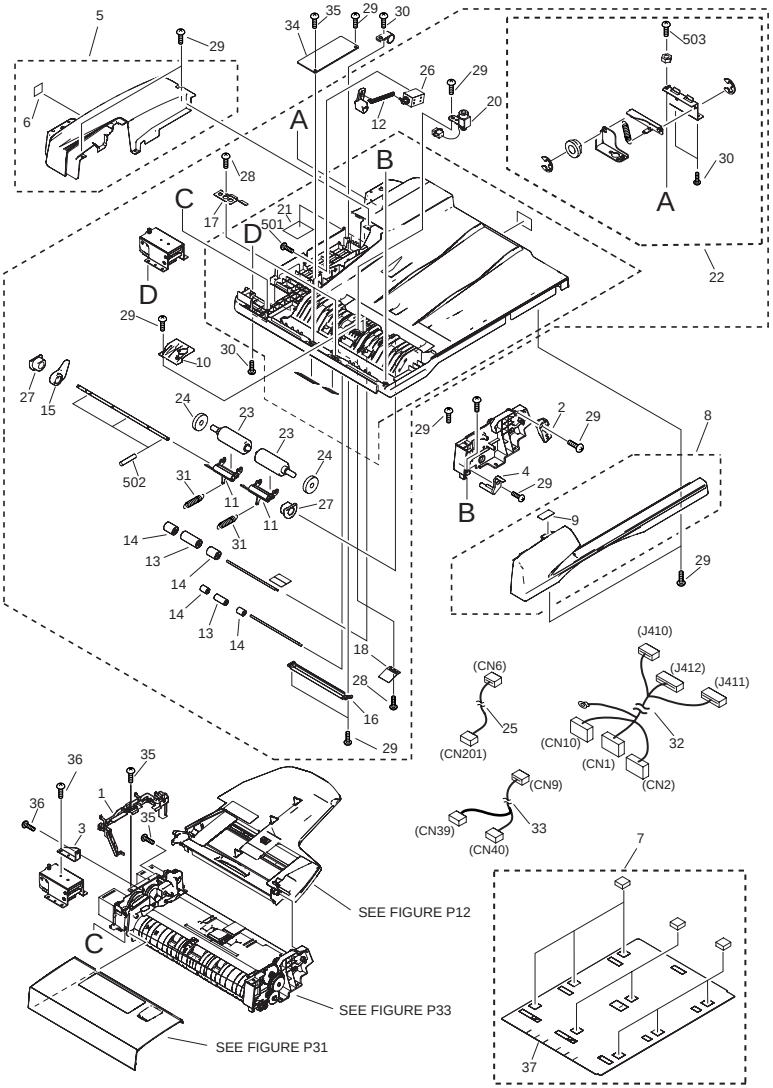


FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.P11	NPN		RF	ADF ASSEMBLY	MF7240/7280/7140/7170i	
1	FC3-1468-000		1	HOLDER, HARNESS		
2	FC3-1492-000		1	HOLDER, TRAY SHAFT		
3	FC3-1496-000		1	BRACKET, SUPPORT		
4	FC3-1539-000		1	HOLDER, FEEDER SHAFT		
5	FF3-4621-000		1	PANEL, REAR		
6	FS9-0198-000		1	LABEL, HINGE CAUTION		
7	FF3-4624-000		1	PANEL, COPYBOARD		
8	FF3-4634-000		1	PANEL, FRONT		
9	FS9-0203-000		1	LABEL, DIAL OPERATION		
10	FC3-1449-000		1	COVER, STAMP		
11	FC3-1450-000		2	HOLDER, DELIVERY RELEASE		
12	FC3-1452-000		1	ARM, SOLENOID		
13	FC3-1454-000		2	ROLLER, PAPER FEED, 1		
14	FC3-1455-000		4	ROLLER, PAPER, FEED, 2		
15	FC3-1491-000		1	ARM, DELIVERY RELEASE		
16	FC3-1495-000		1	COVER, FEED		
17	FC3-1497-000		2	SPRING, LEAF		
18	FC3-1498-000		2	SPRING, LEAF		
19	FC3-1549-000		3	CLIP		
20	FK2-0216-000		1	SOLENOID		
21	FS9-0197-000		1	LABEL, HINGE CAUTION		
22	FG3-4039-000		1	HINGE UNIT(RIGHT)		
23	FC3-1451-000		2	ROLLER		
24	FC3-1513-000		2	ROLLER, PRESS		
25	FH2-7211-000		1	CABLE, STAMP		
26	FH6-5136-000		1	SOLENOID		
27	FS2-1707-000		2	BUSHING, DELIVERY RELEASE		
28	FS2-9568-000		4	SCREW, M3X8		
29	FS2-9569-000		12	SCREW, M3X10		
30	FS2-9571-000		7	SCREW, M4X12		
31	FS4-2743-000		2	SPRING		

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
32	FH2-7206-000		1	CABLE, INTERFACE		
33	FH2-7210-000		1	CABLE, OPEN/CLOSE SENSOR		
34	FH5-3730-000		1	CONNECTION PCB UNIT		
35	FS2-9567-000		3	SCREW, M3X6		
36	FS2-9570-000		2	SCREW, M4X7		
37	FC3-1552-000		1	COVER, COPYBOARD		
501	XB2-4300-605		1	SCREW, W/WASHER, M3X6		
502	XD3-2200-102		3	PIN, PARALLEL		
503	XB1-1401-407		1	SCREW, M4X14		

FIGURE P12
DOCUMENT TRAY ASSEMBLY

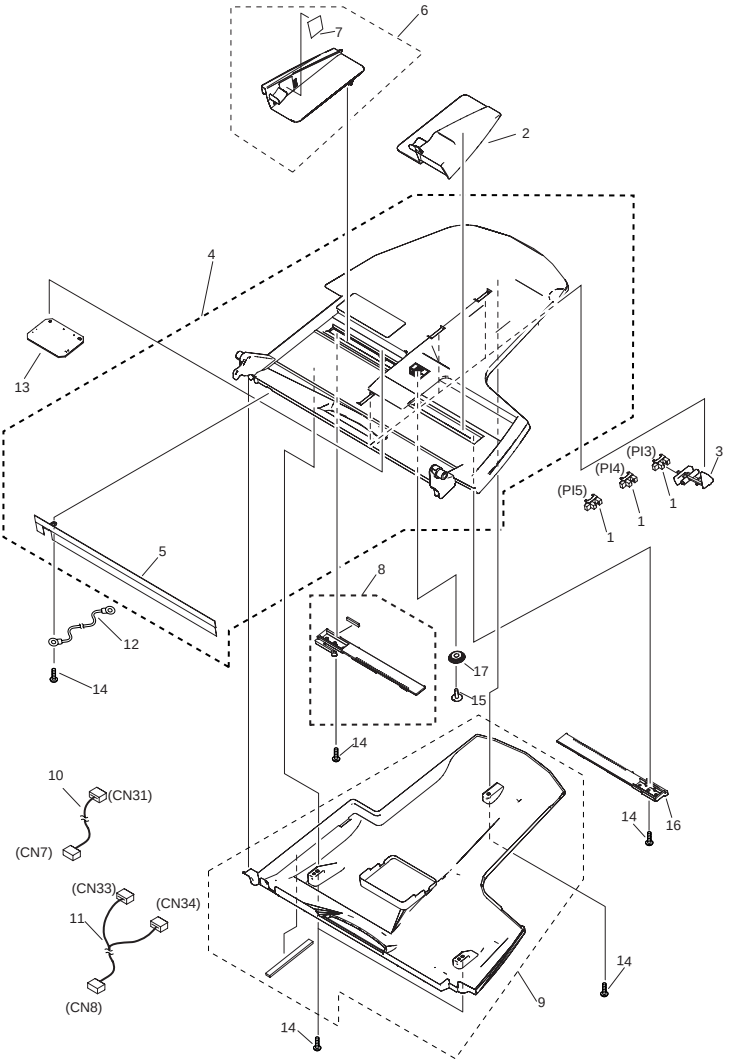


FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.P12	FG3-4036-000		1	DOCUMENT TRAY ASSEMBLY	MF7240/7280/7140/7170i	
1	WG8-5696-000		3	PHOTO INTERRUPTER, TLP1243		
2	FC3-1486-000		1	GUIDE, TRAY, FRONT		
3	FC3-1488-000		3	LEVER, TRAY SENSOR		
4	FF3-4625-000		1	TRAY, DOCUMENT, UPPER		
5	FC3-1529-000		1	ELIMINATOR, STATIC CHARGE		
6	FF3-4626-000		1	GUIDE, TRAY		
7	FS9-0210-000		1	LABEL, DOCUMENT HEIGHT LIMIT		
8	FF3-4627-000		1	RACK, TRAY		
9	FF3-4628-000		1	COVER, TRAY, LOWER		
10	FH2-7207-000		1	CABLE, DOCUMENT TRAY	CN7,31	
11	FH2-7208-000		1	CABLE, SIZE DETECTION SENSOR	CN8,33,34	
12	FH2-7212-000		1	CABLE, STATIC ELIMINATOR		
13	FH5-3731-000		1	CONNECTING PCB UNIT		
14	FS2-9569-000		6	SCREW, M3X10		
15	FS2-9572-000		1	SCREW, M3X10		
16	FS4-0657-000		1	RACK, TRAY		
17	FS4-0658-000		1	GEAR, 16T		

FIGURE P31
OPEN/CLOSE PANEL ASSEMBLY

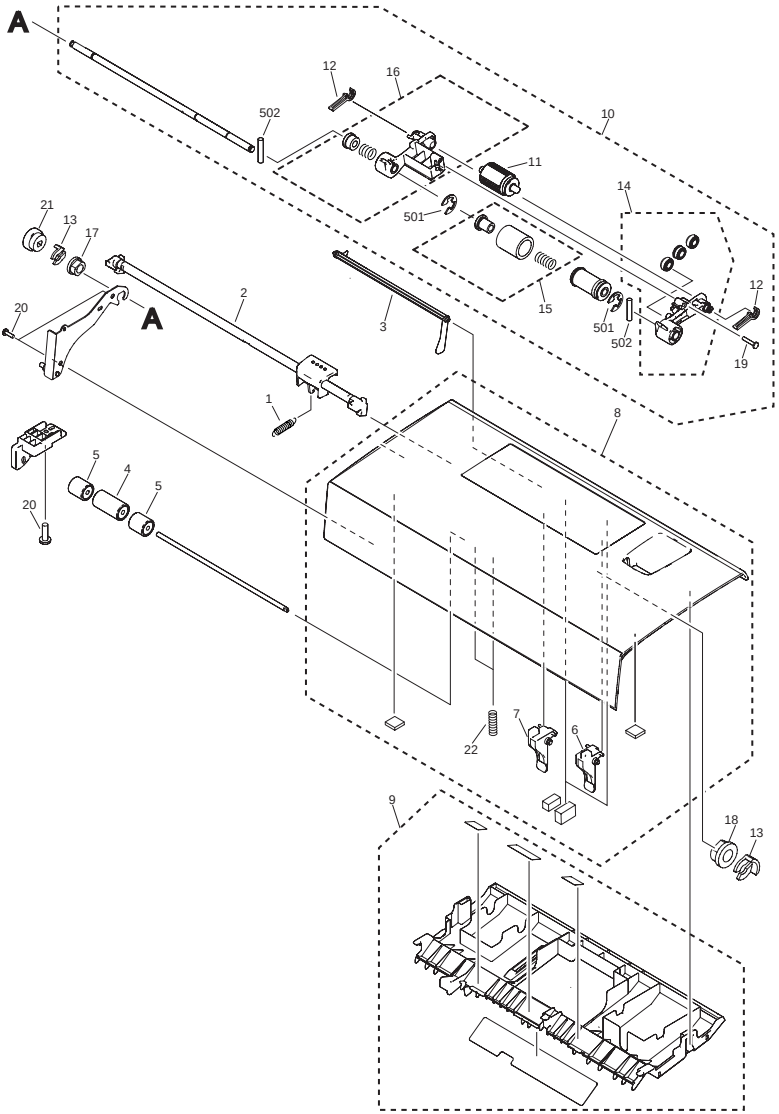


FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.P31	FG3-4037-000		1	OPEN/CLOSE PANEL ASSEMBLY	MF7240/7280/7140/7170i	
1	FS4-2754-000		1	SPRING, TENSION		
2	FC3-1477-000		1	LEVER, OPEN/CLOSE		
3	FC3-1478-000		1	LEVER, SENSOR		
4	FC3-1479-000		1	ROLLER, REGISTRATION, 1		
5	FC3-1480-000		2	ROLLER, REGISTRATION, 2		
6	FC3-1540-000		1	SHUTTER, FRONT		
7	FC3-1541-000		1	SHUTTER, REAR		
8	FF3-4629-000		1	PANEL, OPEN/CLOSE		
9	FF3-4630-000		1	GUIDE, OPEN/CLOSE		
10	FG3-4043-000		1	PICK-UP ROLLER ASSEMBLY		
11	FC3-1525-000		1	ROLLER, PICK-UP		
12	FC3-1542-000		2	STOPPER		
13	FC3-1549-000		2	CLIP		
14	FG3-4041-000		1	PICK-UP ARM UNIT, FRONT		
15	FG3-4044-000		1	SEPARATION ROLLER UNIT		
16	FG3-4045-000		1	PICK-UP ARM UNIT,REAR		
17	FS2-1708-000		1	BUSHING		
18	FS2-1710-000		1	BUSHING		
19	FS2-9573-000		1	SCREW, M3X16		
20	FS2-9569-000		4	SCREW, M3X10		
21	FS4-0654-000		1	GEAR, 25T		
22	FS4-2747-000		2	SPRING, COMPRESSION		
501	XD2-1100-502		2	RETAINING RING (E-TYPE)		
502	XD3-2200-102		2	PIN, PARALLEL		

FIGURE P33
PAPER FEEDER ASSEBLY

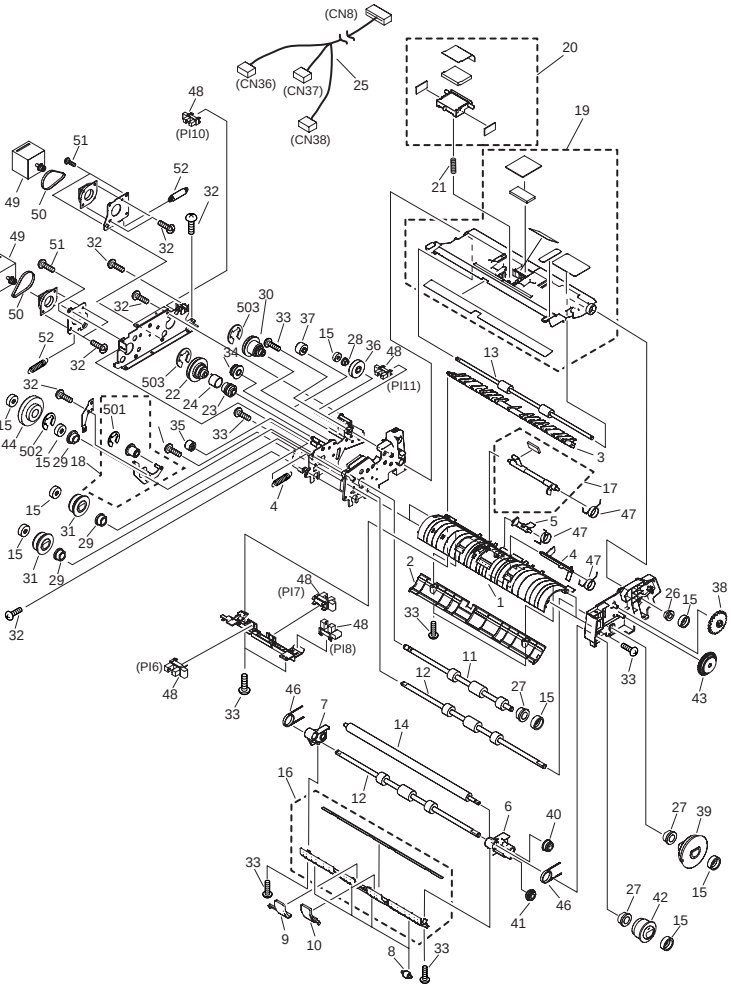


FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.P33	FG3-4038-000		1	PAPER FEEDER ASSEMBLY	MF7240/7280/7140/7170i	
1	FC3-1460-000		1	GUIDE, FEEDER		
2	FC3-1462-000		1	GUIDE, PLATEN		
3	FC3-1463-000		1	FLAPPER		
4	FC3-1465-000		1	FLAG, READ SENSOR		
5	FC3-1466-000		1	FLAG, DELIVERY REVERSE SENSOR		
6	FC3-1469-000		1	ARM, PLATEN, FRONT		
7	FC3-1470-000		1	ARM, PLATEN, REAR		
8	FC3-1471-000		4	ROLLER, PLATEN		
9	FC3-1493-000		1	SPACER, PLATEN, FRONT		
10	FC3-1494-000		1	SPACER, PLATEN, REAR		
11	FC3-1509-000		1	ROLLER, REGISTRATION, 1		
12	FC3-1510-000		2	ROLLER, READ		
13	FC3-1511-000		1	ROLLER, DELIVERY REVERSE		
14	FC3-1512-000		1	ROLLER, WHITE		
15	FC3-1549-000		9	CLIP		
16	FF3-4633-000		1	PLATEN GUIDE UNIT		
17	FF3-4636-000		1	REGISTRATION SENSOR UNIT		
18	FG3-4040-000		1	TENSION ROLLER UNIT		
19	FF3-4631-000		1	REVERSE GUIDE UNIT		
20	FF3-4632-000		1	SEPARATION PAD UNIT		
21	FS4-2746-000		1	SPRING, COMPRESSION		
22	FS2-3885-000		1	PULLEY, 57T,GEAR, 23T		
23	FS4-0645-000		1	GEAR, 16T		
24	FS4-2752-000		11	SPRING, TENSION		
25	FH2-7209-000		1	CABLE, FEEDER SENSOR	CN8,36,37,38	
26	FS2-1708-000		1	BUSHING		
27	FS2-1709-000		3	BUSHING		
28	FS2-1710-000		1	BUSHING		
29	FS2-1711-000		3	BUSHING		
30	FS2-3886-000		1	PULLEY, 57T/19T, GEAR, 23T		
31	FS2-3887-000		2	PULLEY, 27T		

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
32	FS2-9567-000		9	SCREW,M3X6		
33	FS2-9569-000		12	SCREW, M3X10		
34	FS4-0644-000		1	GEAR, 16T		
35	FS4-0646-000		1	GEAR, 19T		
36	FS4-0647-000		1	GEAR, 25T		
37	FS4-0648-000		1	GEAR, 23T		
38	FS4-0649-000		1	DIAL		
39	FS4-0650-000		1	GEAR, 31T		
40	FS4-0651-000		1	GEAR, 14T		
41	FS4-0652-000		1	GEAR, 15T		
42	FS4-0653-000		1	GEAR, 18T		
43	FS4-0659-000		1	GEAR, 54T/39T		
44	FS4-0660-000		1	GEAR, 33T		
45	FS4-2744-000		1	SPRING, TENSION		
46	FS4-2745-000		2	SPRING, TORSION		
47	FS4-2753-000		3	SPRING, TORSION		
48	WG8-5696-000		5	PHOTO INTERRUPTER, TLP1243	PI6,7,8,10,11	
49	FH5-1142-000		2	MOTOR, STEPPING		
50	XF2-1607-240		2	BELT, TIMING		
51	FS2-9570-000		4	SCREW, M4X7		
52	FS4-2749-000		2	SPRING, TENSION		
53	FC3-1568-000		1	PLATE, GROUNDING		
501	XD2-1100-322		1	RETAINING RING(E-TYPE)		
502	XD2-1100-642		1	RING, E		
503	XD2-1100-502		2	RETAINING RING(E-TYPE)		

FIGURE S01
DUPLEX MOUNTING HARDWARE(MF7280)

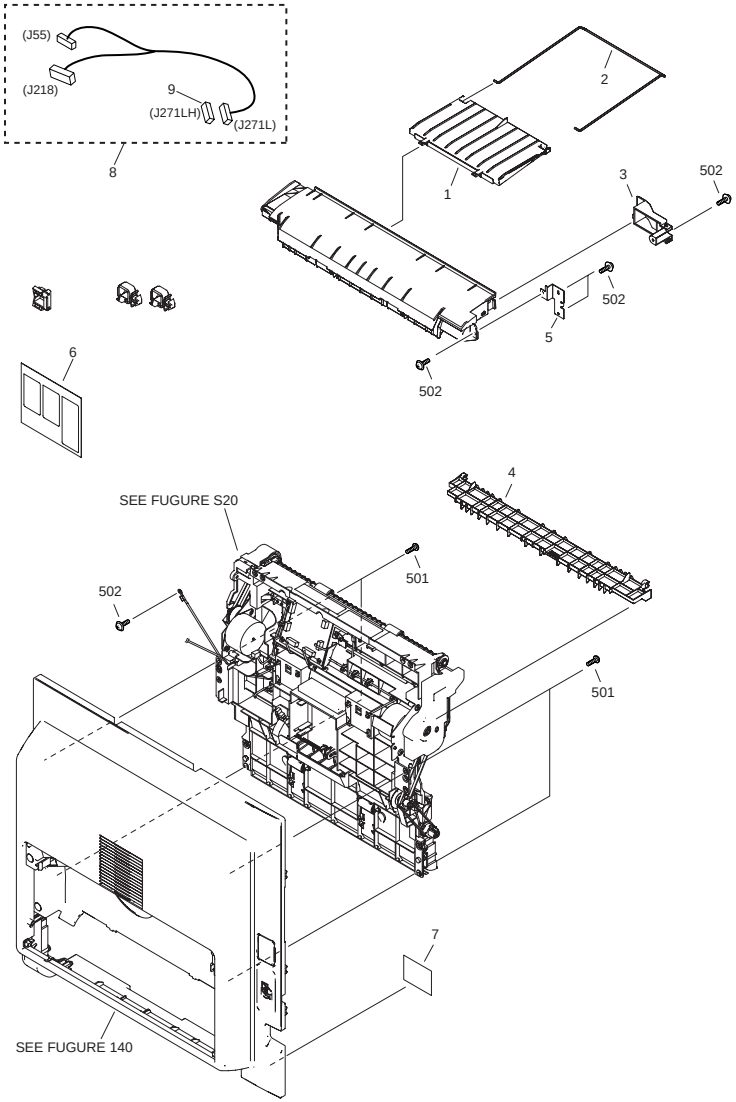


FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.S01	NPN		RF	DUPLEX MOUNTING HARDWARE	MF7280	
1	FC6-6782-000		1	TRAY, REVERSE		
2	FC6-6783-000		1	TRAY, SUB		
3	FC6-6784-000		1	COVER, REVERSE GUIDE		
4	FL2-3746-000		1	GUIDE, DELIVERY		
5	FC6-6778-000		1	MOUNT, REVERSE GUIDE		
6	FU5-8697-000		1	LABEL, JAM CLEAR		
7	FU5-8699-000		1	LABEL, JAM CLEAR		
8	FM2-4516-000		1	CABLE, DUPLEX UNIT		
9	VS1-7207-012		1	CONNECTOR		
501	XB4-5401-007		4	SCREW, M4X10		
502	XB6-7300-609		5	SCREW, MACH, PAN HEAD		

FIGURE S20
DUPLEX FEEDER ASSEMBLY(MF7280)

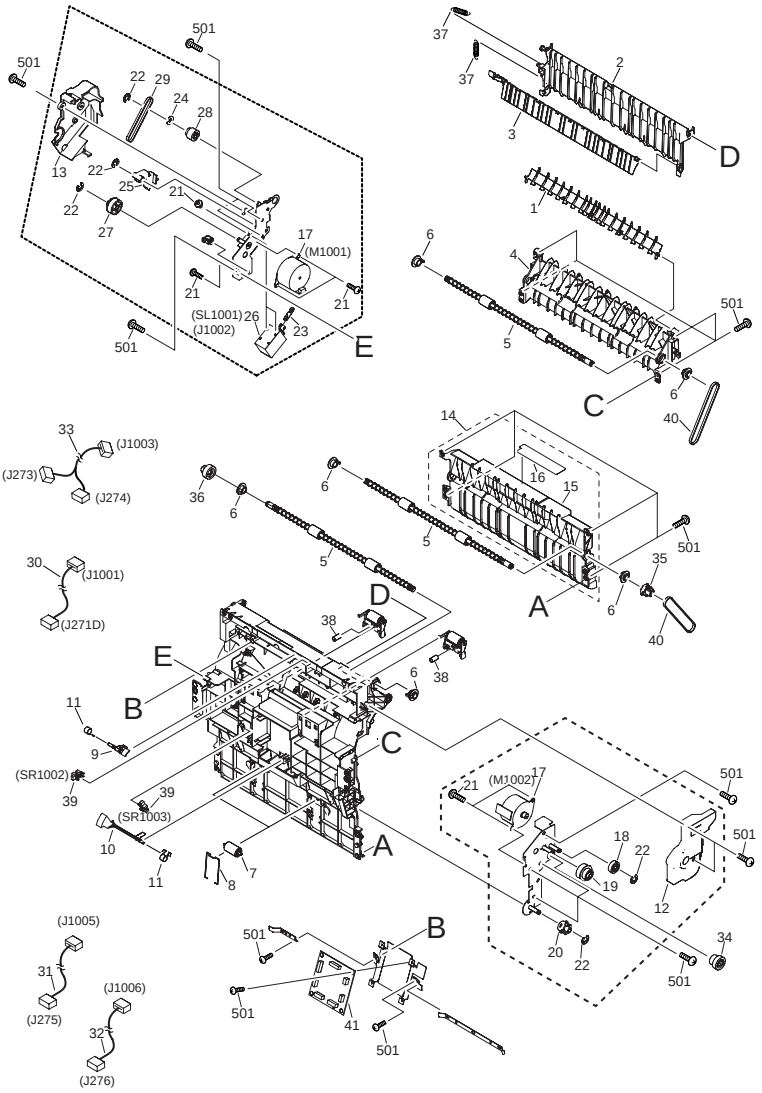


FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.S20	NPN		RF	DUPLEX FEEDER ASSEMBLY	MF7280	
1	FC6-6752-000		1	DEFLECTOR, REVERSE		
2	FC6-6753-000		1	GUIDE, DUPLEX SWING		
3	FC6-6755-000		1	DEFLECTOR, DUPLEX		
4	FC6-6756-000		1	GUIDE, RIGHT UPPER		
5	FC6-6757-000		3	ROLLER		
6	FC6-6758-000		6	BUSHING		
7	FC6-6759-000		4	ROLLER		
8	FC6-6760-000		2	SPRING, ROLLER		
9	FC6-6765-000		1	FLAG, REVERSE SENSOR		
10	FC6-6767-000		1	FLAG, FEEDER SENSOR		
11	FC6-6768-000		2	SPRING, TORSION		
12	FC6-6776-000		1	COVER, DUPLEX, FRONT		
13	FC6-6777-000		1	COVER, DUPLEX, REAR		
14	FL2-3856-000		1	GUIDE, RIGHT, LOWER		
15	FC6-6754-000		1	GUIDE, RIGHT, LOWER		
16	FU5-8696-000		1	LABEL, OPERATION PROHIBITION		
17	FK2-1114-000		2	MOTOR, STEPPING	M1001,1002	
18	FU6-0933-000		1	GEAR, 47T/17T		
19	FU6-0934-000		1	GEAR, 18T		
20	FU6-0936-000		1	GEAR, 28T		
21	XA9-1116-030		11	SCREW, 3X5		
22	XD9-0136-000		5	RING, E		
23	FC6-6740-000		1	PLATE, LINK		
24	FC6-6764-000		1	FLANGE		
25	FC6-6769-000		1	PLATE, LINK		
26	FL2-3744-000		1	SOLENOID	SL1001 J1002	
27	FU6-0938-000		1	GEAR, 47T/22T		
28	FU6-0939-000		1	GEAR, 22T/17T		
29	XF2-1109-040		1	BELT, TIMING		
30	FM2-4517-000		1	CABLE, DUPLEX RELAY	J271D,1001	
31	FM2-4518-000		1	CABLE, DUPLEX MOTOR	J275,1005	

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
32	FM2-4519-000		1	CABLE, REVERSE MOTOR	J276,1006	
33	FM2-4520-000		1	CABLE, DUPLEX SENSOR	J273,274,1003	
34	FU6-0935-000		1	GEAR, 21T/28T		
35	FU6-0937-000		1	GEAR, 28T		
36	FU6-0940-000		1	GEAR, 21T		
37	FU6-2387-000		2	SPRING, TENSION		
38	FU6-2388-000		2	SPRING, COMPRESSION		
39	WG8-5696-000		2	PHOTO INTERRRUPTER, RLP1243	SR1002,1003	
40	XF2-1112-240		2	BELT, TIMING		
41	FM2-4515-000		1	PWB, DUPLEX DRIVER		
501	XB4-5401-007		20	SCREW, M4X10		

FIGURE S50
DUPLEX REVERSE UNIT (MF7280)

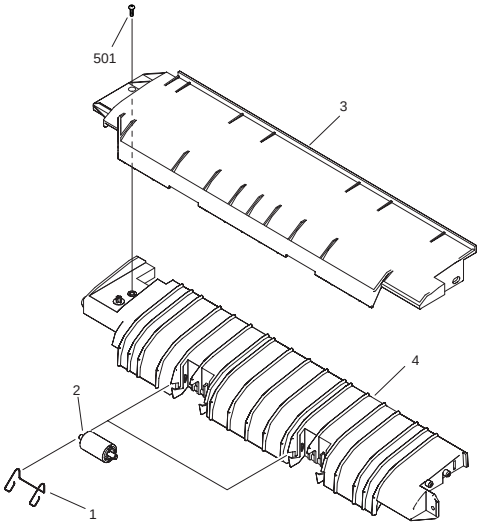


FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.S50	FM2-4493-000		1	DUPLEX REVERSE UNIT	MF7280	
1	FC6-6781-000		2	SPRING, ROLLER		
2	FC6-6759-000		2	ROLLER		
3	FC6-6779-000		1	GUIDE, REVERSE UPPER		
4	FC6-6780-000		1	GUIDE, REVERSE, LOWER		
501	XB4-5401-007		1	SCREW, M4X10		

FIGURE X01
PACKING KIT

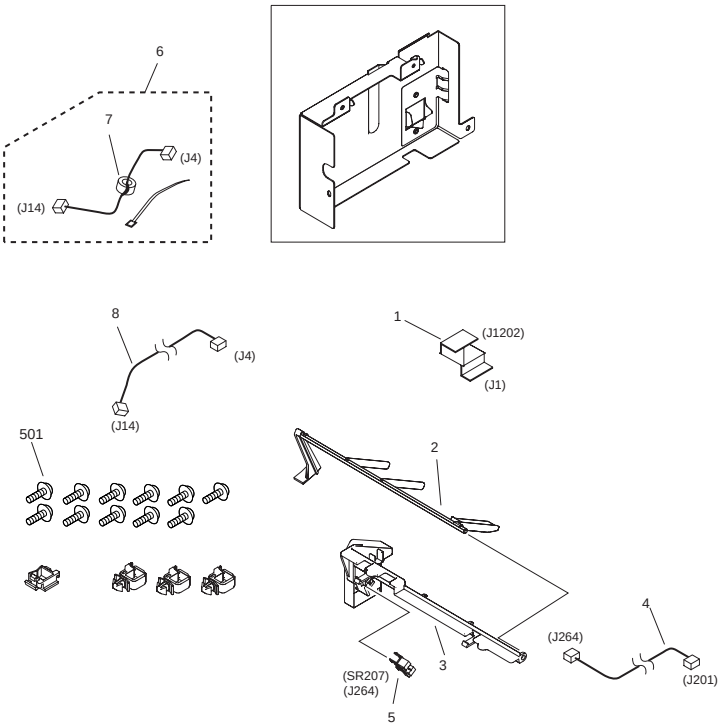


FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.X01	NPN		RF	PACKING KIT		
1	FK2-1063-000		1	CABLE, FLAT, MODEM	SGL/SGM/SGP J1,1202	
2	FC6-4499-000		1	LEVER, SENSOR	SGL/SGM/SGP	
3	FC6-4500-000		1	HOLDER, SENSOR	SGL/SGM/SGP	
4	FM2-4434-000		1	CABLE, SENSOR	J201,264	
5	WG8-5696-000		1	PHOTO INTERRUPTER, TLP1243	SR207 J264	
6	FM2-4435-000		1	CABLE, MODEM	SGL/SGM/SGP J1201,1921	
7	WE8-5841-000		1	CORE, RING		
8	FM2-4540-000		1	CABLE, NCU	SGL/SGM/SGP J4,14	
9	HH2-2824-000		1	MODULAR CORD	SGL/SGM/SGP/SGR	
10	HK1-0551-000		1	MODULAR CORD	EU ONLY	
10	HK1-0547-000		1	MODULAR CORD	EU ONLY	
10	HK1-0544-000		1	MODULAR CORD	EU ONLY	
501	XB6-7300-805		11	SCREW, BH3X8		

FIGURE 900
IMAGE PROCESSOR PCB ASSEMBLY

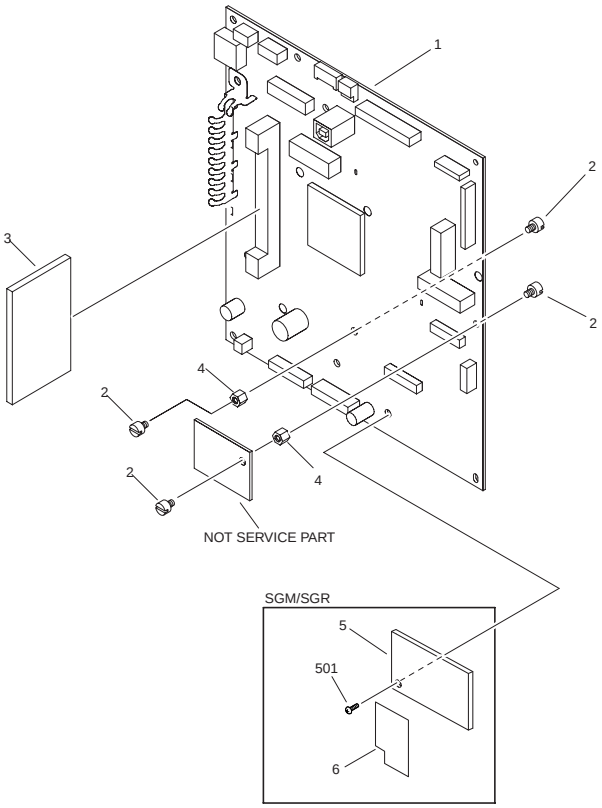


FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.900	NPN		RF	COUNTER PCB ASSEMBLY		
1	FM2-4053-000		1	IMAGE PROCESSOR PCB ASS'Y	CN	
1	FM2-4893-000		1	IMAGE PROCESSOR PCB ASS'Y	EXCEPT CN	
2	FU5-9340-000		4	SCREW, STEPPED, M3X4		
3	FM2-4056-000		1	DDR MODULE PCB ASS'Y	CN	
3	FM2-4055-000		1	DDR MODULE PCB ASS'Y	EXCEPT CN	
4	VT2-5177-005		2	SPACER, METAL		
5	FM2-4060-000		1	ROM PCB ASSEMBLY	SGM/SGR	
6	FC7-1760-000		1	SHEET, INSULATING		
501	XB1-2300-407		1	SCREW, BH3X4(S)		
IC1	HK1-0511-000		1	IC,ASIC UPD800009S1-011-F6-A		
IC140	FK2-0949-000		1	IC, UPD65942GC-Y24, GATE ARRAY		
BAT951	WK1-5134-000		1	BATTERY, LITHIUM, CR2032THJ6		

FIGURE 910
MODEM PCB ASSEMBLY

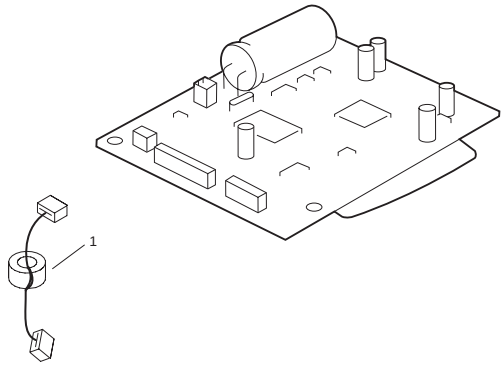


FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.910	FM2-9199-000		1	MODEM PCB ASSEMBLY	120V	
Fig.910	FM2-4773-000		1	MODEM PCB ASSEMBLY	SGL/SGP	
1	FM2-4435-000		1	CABLE, MODEM		
IC14	FK2-0331-000		1	IC, MSM6653A-631G3-K, CUSTOM	SGL/SGP	
IC140	FK2-0949-000		1	IC, UPD65942GC-Y24, GATE ARRAY		

FIGURE 930
HVT PCB ASSEMBLY

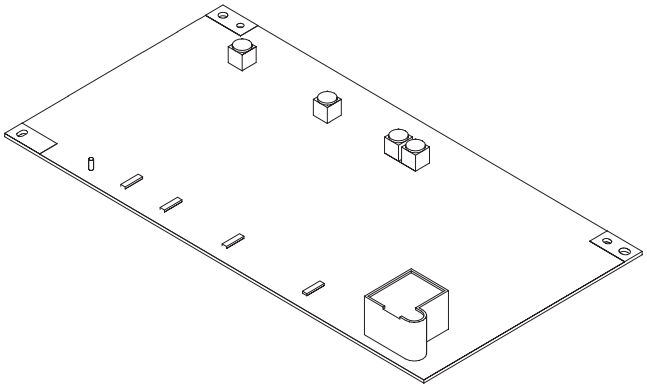


FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.930	FM2-5954-000		1	HVT PCB ASSEMBLY		
R140	FK2-1135-000		1	RESISTOR		
R141	FK2-1136-000		1	RESISTOR		
R153	FK2-1134-000		1	RESISTOR		
T1	FH3-5238-000		1	TRANSFORMER		
T2	FH3-5239-000		1	TRANSFORMER		
T3	FH3-5235-000		1	TRANSFORMER,INVERTER		
T4	FH3-5240-000		3	TRANSFORMER	T4,5,6	
T7	FH3-5257-000		1	TRANSFORMER, HIGH VOLTAGE		

FIGURE X90
FAX BOARD PCB ASSEMBLY

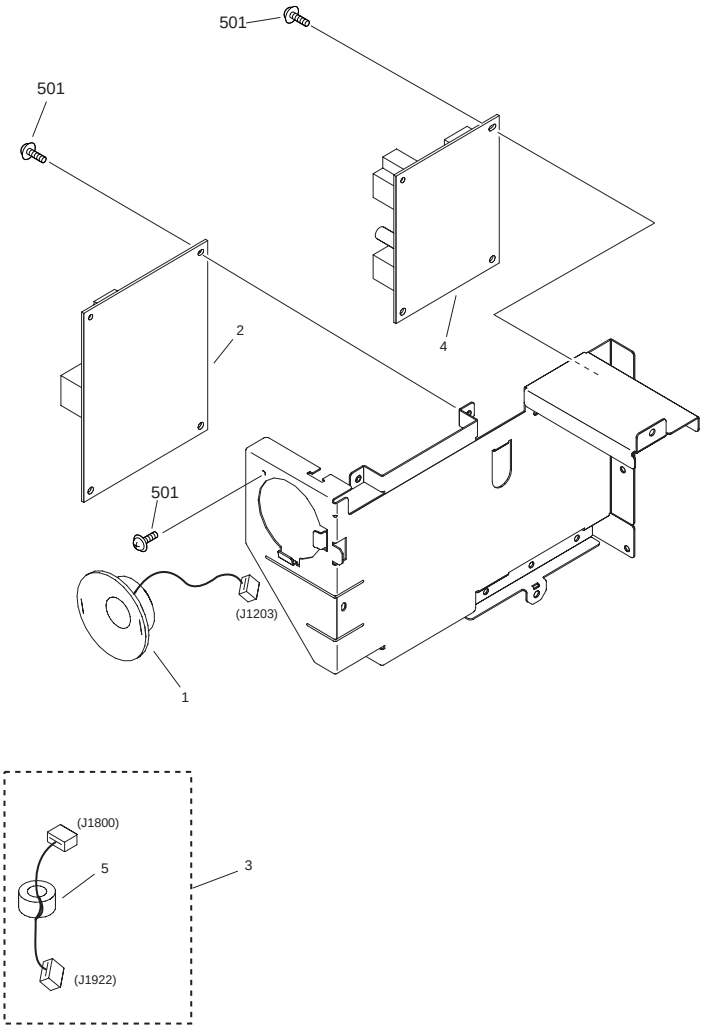


FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.X90	NPN		RF	FAX BOARD PCB ASSEMBLY	MF7240/7280/7140	
1	FK2-1265-000		1	SPEAKER	J1203	
2	FM2-2790-020		1	NCU PCB ASSEMBLY		
3	FM2-4540-000		1	CABLE, NCU		
4	FM2-4777-000		1	MODULAR PCB ASSEMBLY	120V	
4	FM2-4778-000		1	MODULAR PCB ASSEMBLY	SGL/SGP	
5	WE8-5841-000		1	CORE, RING	J1800,1922	
501	XB6-7300-805		16	SCREW, BH3X8		

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