KYOCERA

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FS-1124MFP

SERVICE MANUAL

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First Edition

CAUTION

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

It may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste officials for details in your area for proper disposal.

ATTENTION

IL Y A UN RISQUE D'EXPLOSION SI LA BATTERIE EST REMPLACEE PAR UN MODELE DE TYPE INCORRECT. METTRE AU REBUT LES BATTERIES UTILISEES SELON LES INSTRUCTIONS DONNEES.

Il peut être illégal de jeter les batteries dans des eaux d'égout municipales. Vérifiez avec les fonctionnaires municipaux de votre région pour les détails concernant des déchets solides et une mise au rebut appropriée.

Revision history

Revision	Date	Replaced pages	Remarks

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Safety precautions

This booklet provides safety warnings and precautions for our service personnel to ensure the safety of their customers, their machines as well as themselves during maintenance activities. Service personnel are advised to read this booklet carefully to familiarize themselves with the warnings and precautions described here before engaging in maintenance activities.

Safety warnings and precautions

Various symbols are used to protect our service personnel and customers from physical danger and to prevent damage to their property. These symbols are described below:

⚠**DANGER:** High risk of serious bodily injury or death may result from insufficient attention to or incorrect compliance with warning messages using this symbol.

⚠**WARNING:** Serious bodily injury or death may result from insufficient attention to or incorrect compliance with warning messages using this symbol.

⚠**CAUTION:** Bodily injury or damage to property may result from insufficient attention to or incorrect compliance with warning messages using this symbol.

Symbols

The triangle (△) symbol indicates a warning including danger and caution. The specific point of attention is shown inside the symbol.

 General warning.

 Warning of risk of electric shock.

 Warning of high temperature.

⃠ indicates a prohibited action. The specific prohibition is shown inside the symbol.

 General prohibited action.

 Disassembly prohibited.

● indicates that action is required. The specific action required is shown inside the symbol.

 General action required.

 Remove the power plug from the wall outlet.

 Always ground the copier.

1. Installation Precautions

⚠ WARNING

- Do not use a power supply with a voltage other than that specified. Avoid multiple connections to one outlet: they may cause fire or electric shock. When using an extension cable, always check that it is adequate for the rated current. .....

- Connect the ground wire to a suitable grounding point. Not grounding the copier may cause fire or electric shock. Connecting the earth wire to an object not approved for the purpose may cause explosion or electric shock. Never connect the ground cable to any of the following: gas pipes, lightning rods, ground cables for telephone lines and water pipes or faucets not approved by the proper authorities. .....

⚠ CAUTION:

- Do not place the copier on an infirm or angled surface: the copier may tip over, causing injury. .....

- Do not install the copier in a humid or dusty place. This may cause fire or electric shock. .....

- Do not install the copier near a radiator, heater, other heat source or near flammable material. This may cause fire. .....

- Allow sufficient space around the copier to allow the ventilation grills to keep the machine as cool as possible. Insufficient ventilation may cause heat buildup and poor copying performance. .....

- Always handle the machine by the correct locations when moving it. .....

- Always use anti-toppling and locking devices on copiers so equipped. Failure to do this may cause the copier to move unexpectedly or topple, leading to injury. .....

- Avoid inhaling toner or developer excessively. Protect the eyes. If toner or developer is accidentally ingested, drink a lot of water to dilute it in the stomach and obtain medical attention immediately. If it gets into the eyes, rinse immediately with copious amounts of water and obtain medical attention. .....

- Advice customers that they must always follow the safety warnings and precautions in the copier's instruction handbook. .....

2. Precautions for Maintenance

⚠WARNING

- Always remove the power plug from the wall outlet before starting machine disassembly. 
- Always follow the procedures for maintenance described in the service manual and other related brochures. 
- Under no circumstances attempt to bypass or disable safety features including safety mechanisms and protective circuits. 
- Always use parts having the correct specifications. 
- Always use the thermostat or thermal fuse specified in the service manual or other related brochure when replacing them. Using a piece of wire, for example, could lead to fire or other serious accident. 
- When the service manual or other serious brochure specifies a distance or gap for installation of a part, always use the correct scale and measure carefully. 
- Always check that the copier is correctly connected to an outlet with a ground connection. 
- Check that the power cable covering is free of damage. Check that the power plug is dust-free. If it is dirty, clean it to remove the risk of fire or electric shock. 
- Never attempt to disassemble the optical unit in machines using lasers. Leaking laser light may damage eyesight. 
- Handle the charger sections with care. They are charged to high potentials and may cause electric shock if handled improperly. 

⚠CAUTION

- Wear safe clothing. If wearing loose clothing or accessories such as ties, make sure they are safely secured so they will not be caught in rotating sections. 
- Use utmost caution when working on a powered machine. Keep away from chains and belts. 
- Handle the fixing section with care to avoid burns as it can be extremely hot. 
- Check that the fixing unit thermistor, heat and press rollers are clean. Dirt on them can cause abnormally high temperatures. 

- Do not remove the ozone filter, if any, from the copier except for routine replacement. .....

- Do not pull on the AC power cord or connector wires on high-voltage components when removing them; always hold the plug itself. .....

- Do not route the power cable where it may be stood on or trapped. If necessary, protect it with a cable cover or other appropriate item. .....

- Treat the ends of the wire carefully when installing a new charger wire to avoid electric leaks. .....

- Remove toner completely from electronic components. .....

- Run wire harnesses carefully so that wires will not be trapped or damaged. .....

- After maintenance, always check that all the parts, screws, connectors and wires that were removed, have been refitted correctly. Special attention should be paid to any forgotten connector, trapped wire and missing screws. .....

- Check that all the caution labels that should be present on the machine according to the instruction handbook are clean and not peeling. Replace with new ones if necessary. .....

- Handle greases and solvents with care by following the instructions below: .....
  · Use only a small amount of solvent at a time, being careful not to spill. Wipe spills off completely.
  · Ventilate the room well while using grease or solvents.
  · Allow applied solvents to evaporate completely before refitting the covers or turning the power switch on.
  · Always wash hands afterwards.

- Never dispose of toner or toner bottles in fire. Toner may cause sparks when exposed directly to fire in a furnace, etc. .....

- Should smoke be seen coming from the copier, remove the power plug from the wall outlet immediately. .....

3. Miscellaneous

⚠WARNING

- Never attempt to heat the drum or expose it to any organic solvents such as alcohol, other than the specified refiner; it may generate toxic gas. .....

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CONTENTS

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1-1-1 Specifications

Type	Desktop
Printing method	Electrophotography by semiconductor laser, single drum system
Originals	Sheet, Book, 3-dimensional objects (maximum original size: Folio/Legal)
Original feed system	Contact glass: fixed Document processor (optional): sheet-through
Paper weight	Cassette: 60 to 120 g/m^2 Manual feed tray: 60 to 220 g/m^2
Paper type	Cassette: Plain, Rough, Recycled, Preprinted, Bond, Color (Colour), Prepunched, Letterhead, High Quality, Custom 1 to 8 Manual feed tray: Plain, Transparency, Rough, Vellum, Labels, Recycled, Preprinted, Bond, Cardstock, Color (Colour), Prepunched, Letterhead, Thick, Envelope, High Quality, Custom 1 to 8
Paper size	Cassette: Maximum: 8 1/2 × 14"/A4 Minimum: 5 1/2 × 8 1/2"/A6 Manual feed tray: Maximum: 8 1/2 × 14"/A4 Minimum: 3 5/8 × 6 1/2"/C5
Zoom level	Manual mode: 25 - 400%, 1% increments Fixed magnifications: 400%, 200%, 141%, 129%, 115%, 90%, 86%, 78%, 70%, 64%, 50%, 25%
Printing speed	A4R: 24 ppm LetterR: 24 ppm Legal: 20 ppm B5R: 17 ppm A5R: 12 ppm A6R: 12 ppm
First print time	(A4, feed from cassette) 3 in 1 model (without FAX): 8.5 s or less 4 in 1 model (with FAX) When using the document processor: 7.5 s or less When the document processor is not used: 8.5 s or less
Warm-up time	(22 °C/71.6 °F, 60%RH) Power on: 20 s Recovery from the low power mode: 10 s Recovery from the sleep mode: 15 s
Paper capacity	Cassette: 250 sheets (80 g/m^2) Manual feed tray: 1 sheet (80 g/m^2, plain paper, Letter/A4 or less)
Output tray capacity	150 sheets (80 g/m^2)
Continuous printing	1 to 99 sheets
Photoconductor	OPC drum (diameter 30 mm)
Image write system	Semiconductor laser (1 beam)
Charging system	Scorotron (positive charging)
Developing system	Mono component dry developing method Toner replenishing: Automatic from the toner container
Transfer system	Transfer roller (negative-charged)
Separation system	Small diameter separation, discharger brush
Cleaning system	Drum: Counter blade
Charge erasing system	Exposure by eraser lamp (LED)
Fusing system	Heat roller system
Memory	Standard: 256 MB
Resolution	600 × 600 dpi
Operating environment	Temperature: 10 to 32.5 °C/50 to 90.5 °F Humidity: 15 to 80% Altitude: 2,500 m/8,202 ft or less Brightness: 1,500 lux or less

Dimensions (W × H × D)	3 in 1 model (without FAX) 494 × 410 × 366 mm 19 7/16 ×16 1/8 ×14 7/16" 4 in 1 model (with FAX) 494 × 430 × 448 mm 19 7/16 ×16 15/16 ×17 11/16"
Weight	3 in 1 model (without FAX) 15 kg/33 lb 4 in 1 model (with FAX) 17 kg/38 lb
Floor requirements (W × D)	640 × 646 mm 25 3/16 × 25 7/16"
Power source	120 V AC, 60 Hz, more than 7.8 A 220 - 240 V AC, 50/60 Hz, more than 4.0 A

Printing functions

Printing speed	Same as copying speed.
First print time	7.5 s or less (A4, feed from cassette)
Resolution	600 dpi
Compatible operation system	Windows XP, Windows XP Professional, Windows Server 2003, Windows Server 2003 x64 Edition, Windows Vista x86 Edition, Windows Vista x64 Edition, Windows 2008 Server, Windows Server 2008 x64 Edition, Windows 7
Interface	USB: 1 port (Hi-speed USB 2.0) USB host: 1 port
Page description language	Host-based (PCL5e)

Scanning functions

Compatible operation system	Windows XP, Windows Vista, Windows Server 2003, Windows Server 2008, Windows 7
System requirements	IBM PC/AT compatible CPU: Celeron 600 MHz or higher RAM: 128 MB or more HDD free space: 20 MB or more
Resolution	600 dpi, 400 dpi, 300 dpi, 200 dpi
File format	TIFF, PDF
Scanning speed *1	1-sided: B/W 7 images/min Color 7 images/min (A4 landscape, 600 dpi, Image quality: Text/Photo original)
Interface	USB2.0 (Hi-Speed USB)
Transmission system	TWAIN scan*1 WIA scan*2

*1 Available Operating System: Windows XP, Windows Vista, Windows 7
*2 Available Operating System: Windows Vista, Windows 7

Fax functions (4 in 1 model)

Compatibility	G3
Communication line	Subscriber telephone line
Transmission time	4 s or less (33600 bps, MMR, ITU-T A4 #1 chart)
Transmission speed	33600/31200/28800/26400/24000/21600/19200/16800/14400/12000/9600/7200/4800/2400 bps
Coding scheme	MMR/MR/MH
Error correction	ECM
Original size	Max. width: 8 1/2"/215 mm Max. length: 14"/355.6 mm
Automatic document feed	Max. 50 sheets
Scanner resolution	Horizontal × Vertical 200 × 100 dpi Normal (8 dot/mm × 3.85 line/mm) 200 × 200 dpi Fine (8 dot/mm × 7.7 line/mm) 200 × 400 dpi Super fine (8 dot/mm × 15.4 line/mm) 400 × 400 dpi Ultra fine (16 dot/mm × 15.4 line/mm)
Printing resolution	600 × 600 dpi
Gradations	256 shades (Error diffusion)
One-Touch key	4 keys
Multi-Station transmission	Max. 100 destinations
Substitute memory reception	256 sheets or more (when using ITU-T A4 #1)
Image memory capacity	3.5 MB (standard) (for incoming faxed originals)
Report output	Sent result report, FAX RX result report, Activity report, Status page

NOTE: These specifications are subject to change without notice.

1-1-2 Parts names

(1) Overall

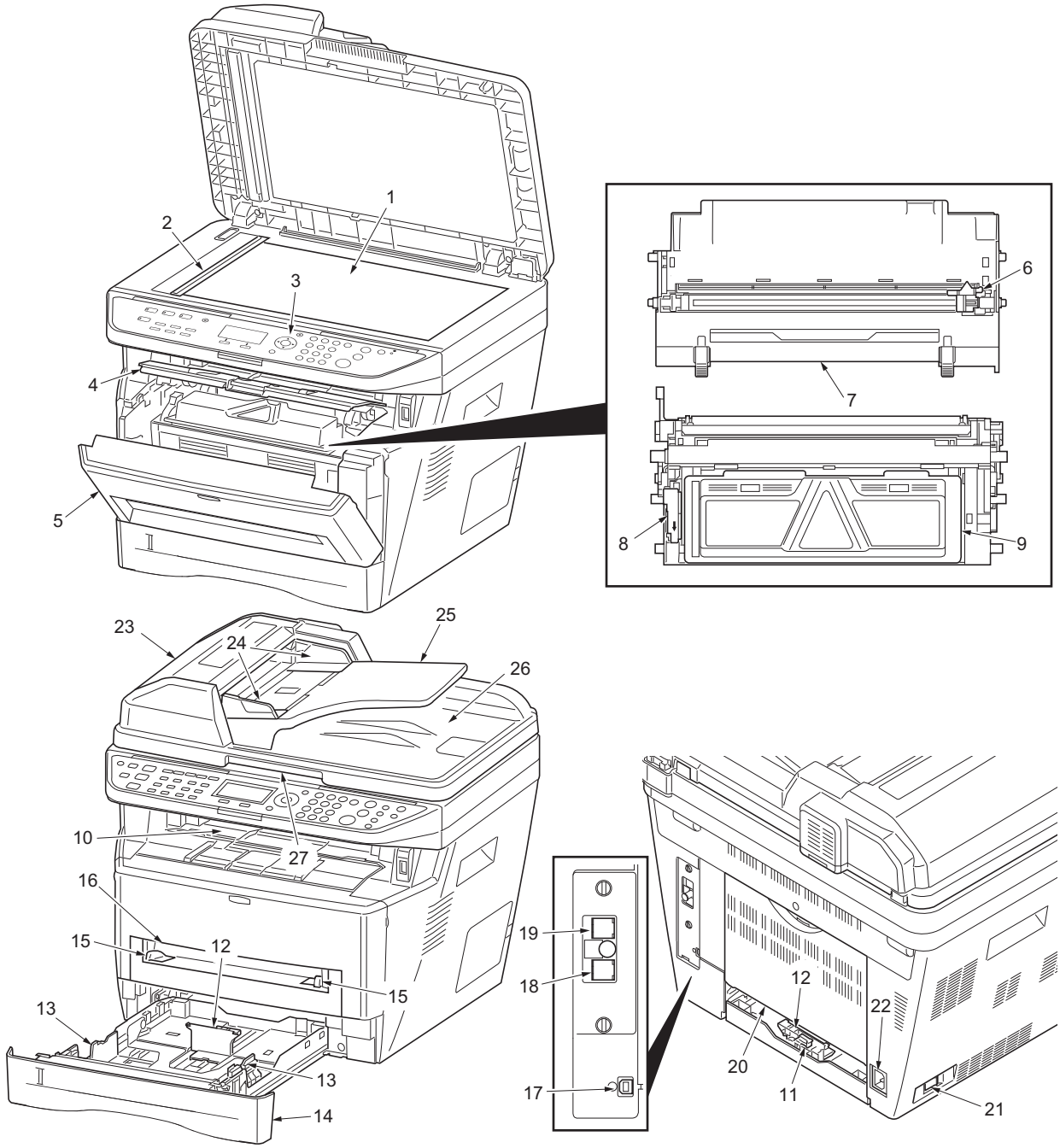

Figure 1-1-1

1. Platen (contact glass)
2. Original size Indicator plate
3. Operation panel
4. Top cover
5. Front cover
6. Main charger cleaner
7. Drum unit
8. Lock lever
9. Toner container
10. Top tray
11. Paper length guide
12. Paper stopper
13. Paper width guides
14. Cassette
15. Paper width guides (Manual feed tray)
16. Manual feed tray
17. USB Interface connector
18. Tel connector (T1)*
19. Line connector (L1)*
20. Rear cover
21. Main power switch
22. Power cord connector
23. Top cover*
24. Original width guides*
25. Original table*
26. Original eject table*
27. Opening handle*

*: 4 in 1 model (with FAX) only.

(2) Operation panel

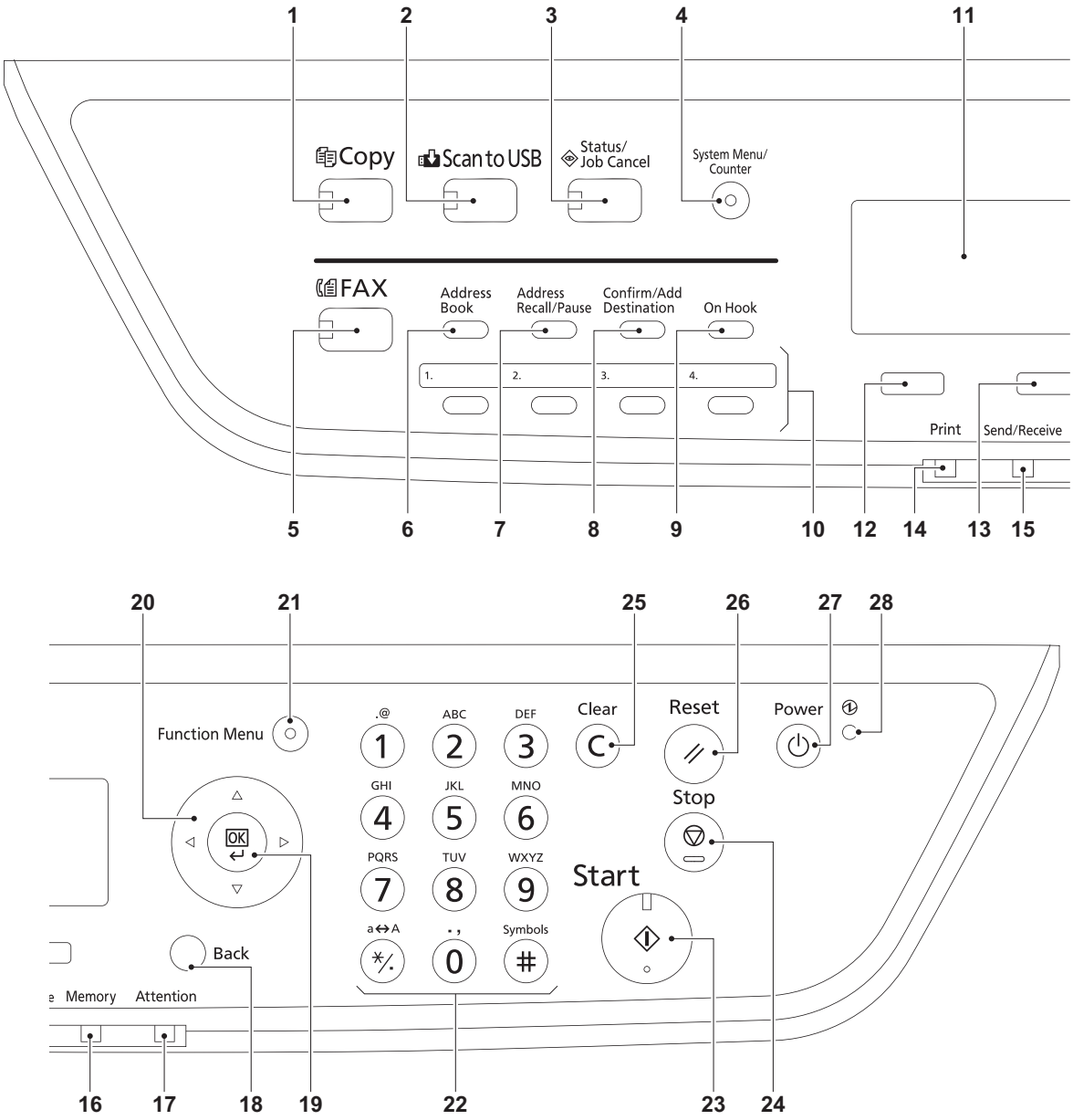

Figure 1-1-2

1. Copy key (LED)
2. Scan to USB key (LED)
3. Status/Job Cancel key (LED)
4. System menu/Counter key (LED)
5. FAX key (LED)
6. Address Book key
7. Address Recall/Pause key
8. Confirm Destination key
9. On Hook key
10. One-touch keys
11. Message display
12. Left Select key
13. Right Select key
14. Print indicator
15. Send/Receive indicator
16. Memory indicator
17. Attention indicator
18. Back key
19. OK key
20. Cursor keys
21. Function Menu key (LED)
22. Numeric keys
23. Start key (LED)
24. Stop key
25. Clear key
26. Reset key
27. Power key
28. Main power LED

1-1-3 Machine cross section

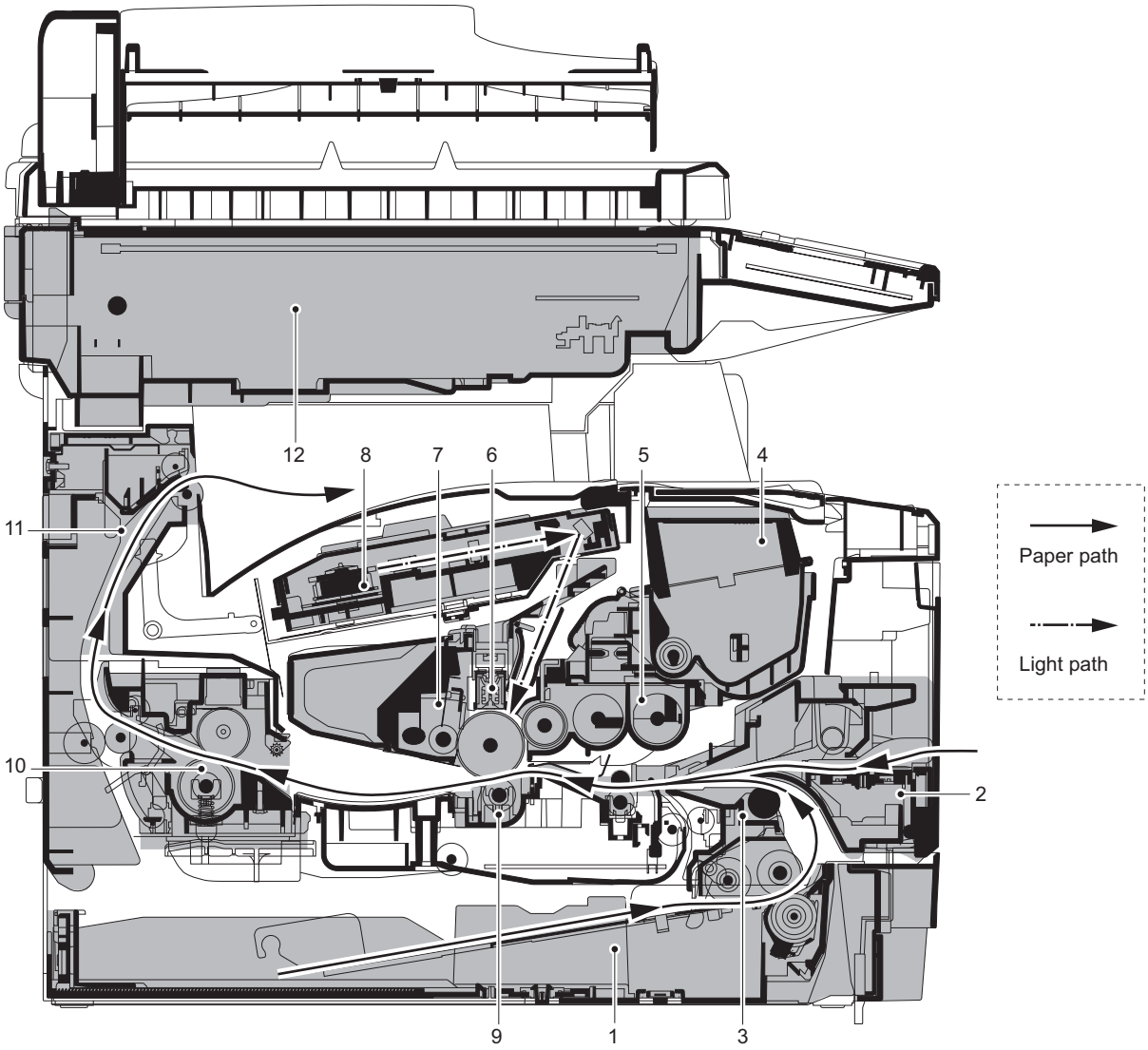

Figure 1-1-3

1. Cassette
2. Manual feed tray
3. Paper feed/conveying section
4. Toner container
5. Developing unit
6. Main charger unit
7. Drum unit
8. Laser scanner unit (LSU)
9. Transfer/separation section
10. Fuser section
11. Exit section
12. Scanner section

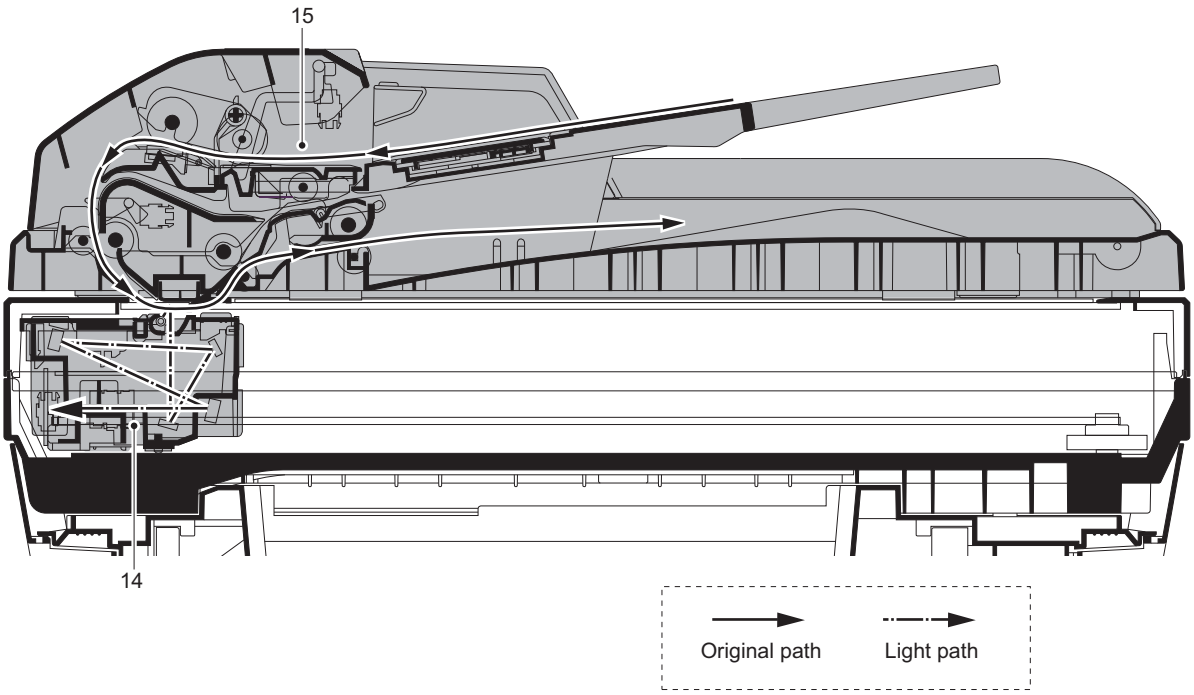

Figure 1-1-4

13. Image scanner unit (ISU)
14. Document processor (DP)
    (4 in 1 model (with FAX) only)

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1-2-1 Installation environment

1. Temperature: 10 to 32.5°C/50 to 90.5°F
2. Humidity: 15 to 80%RH
3. Power supply: 120 V AC, 7.8 A
   220 - 240 V AC, 4.0 A
4. Power source frequency: 50 Hz ±0.3%/60 Hz ±0.3%
5. Installation location
   Avoid direct sunlight or bright lighting. Ensure that the photoconductor will not be exposed to direct sunlight or other strong light when removing paper jams.
   Avoid locations subject to high temperature and high humidity or low temperature and low humidity; an abrupt change in the environmental temperature; and cool or hot, direct air.
   Avoid places subject to dust and vibrations.
   Choose a surface capable of supporting the weight of the machine.
   Place the machine on a level surface (maximum allowance inclination: 1°).
   Avoid air-borne substances that may adversely affect the machine or degrade the photoconductor, such as mercury, acidic of alkaline vapors, inorganic gasses, NOx, SOx gases and chlorine-based organic solvents.
   Select a well-ventilated location.
6. Allow sufficient access for proper operation and maintenance of the machine.

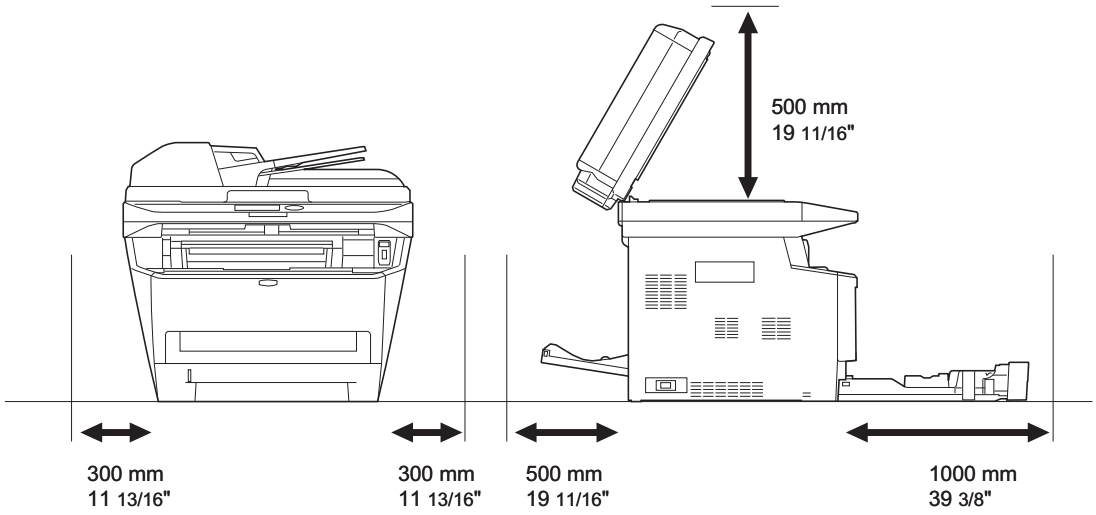

Figure 1-2-1

1-2-2 Unpacking

(1) Unpacking

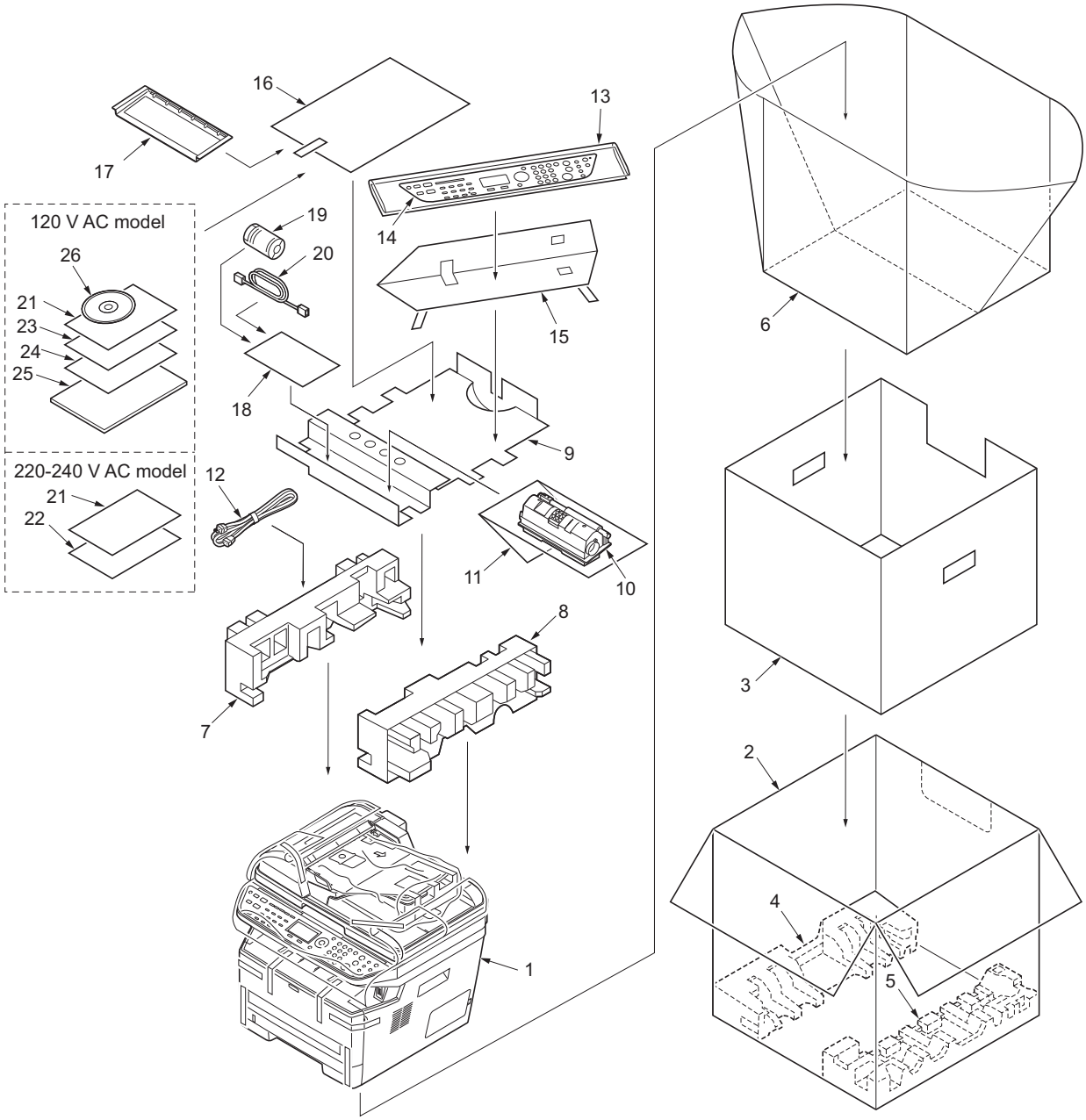

Figure 1-2-2

1. Machine
2. Outer case
3. Inner frame
4. Bottom pad L
5. Bottom pad R
6. Machine cover
7. Top pad L
8. Top pad R
9. Accessory spacer
10. Toner container
11. Plastic bag
12. Power cord
13. Plastic bag (250 × 600)
14. Operation labels
15. Operation label pad
16. Plastic bag (240 × 350)
17. Operation guide holder
18. Plastic bag
19. Ferrite core
20. Modular cable*
21. Operation panel leaflet
22. EEA information leaflet**
23. Setup guide*
24. Quick guide*
25. Operation guide*
26. CD-ROM*

* 120 V AC model only.
** 220-240 V AC model only.

(2) Removing the tapes

<Procedure>

1. Remove two tapes.
2. Open the sheet.

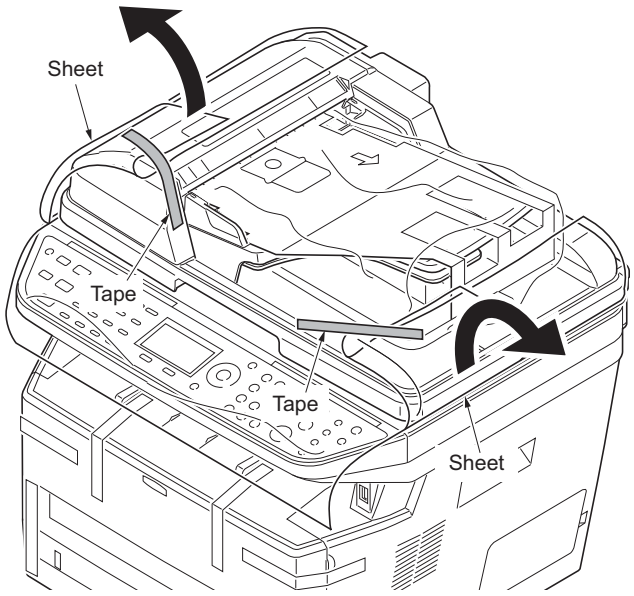

Figure 1-2-3

3. Remove two tapes A.
4. Open the top cover.
5. Remove the tape B and then remove the spacer.
6. Close the top cover.

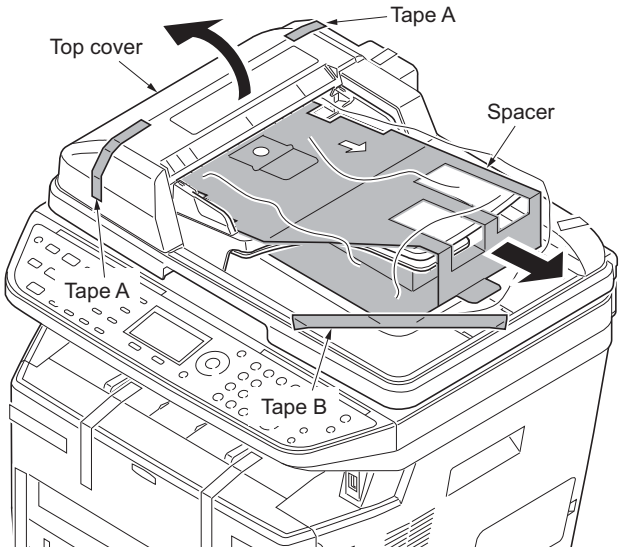

Figure 1-2-4

7. Remove four tapes.

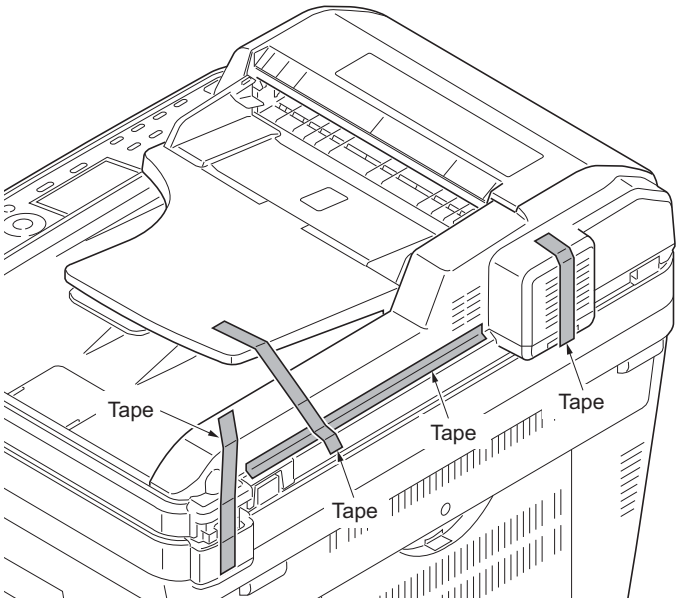

Figure 1-2-5

8. Open the DP.
9. Remove the sheet.
10. Remove the paper.

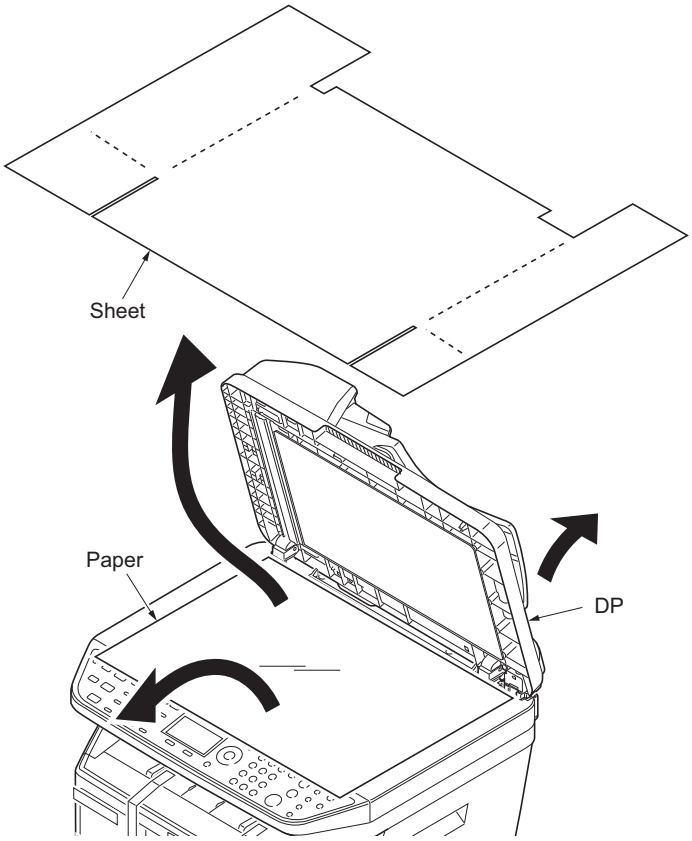

Figure 1-2-6

11. Remove nine tapes.
12. Close the DP.

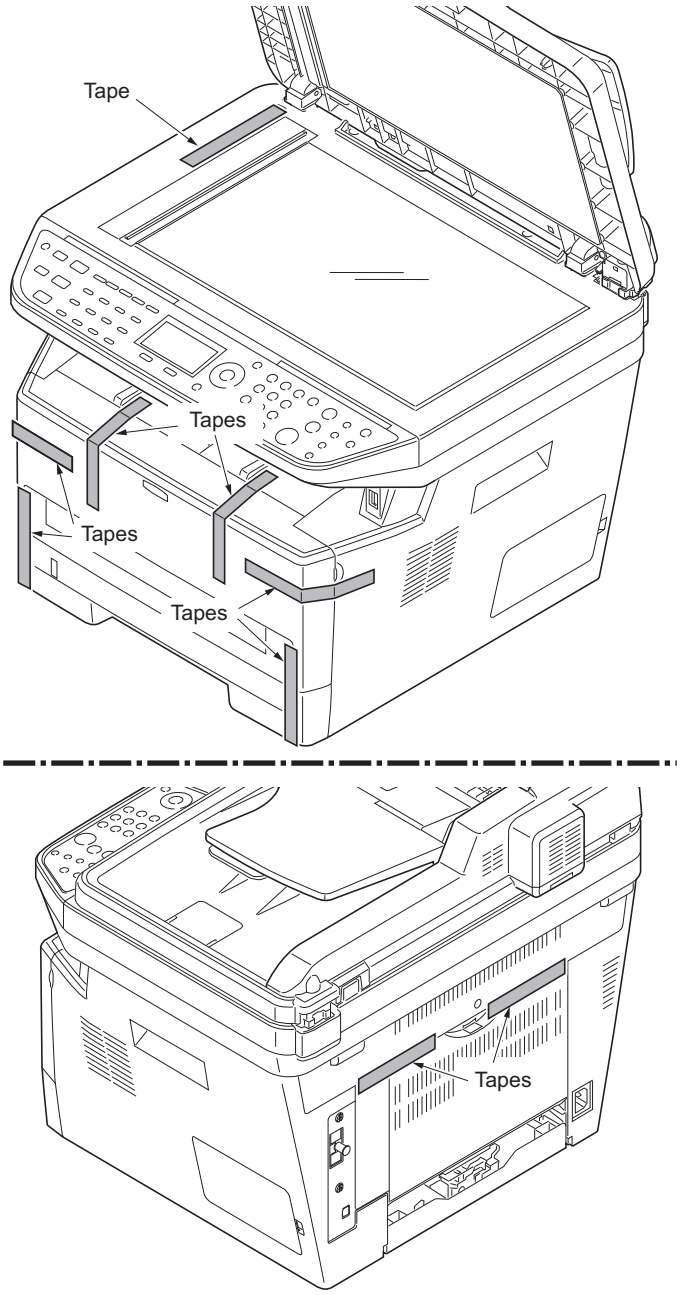

Figure 1-2-7

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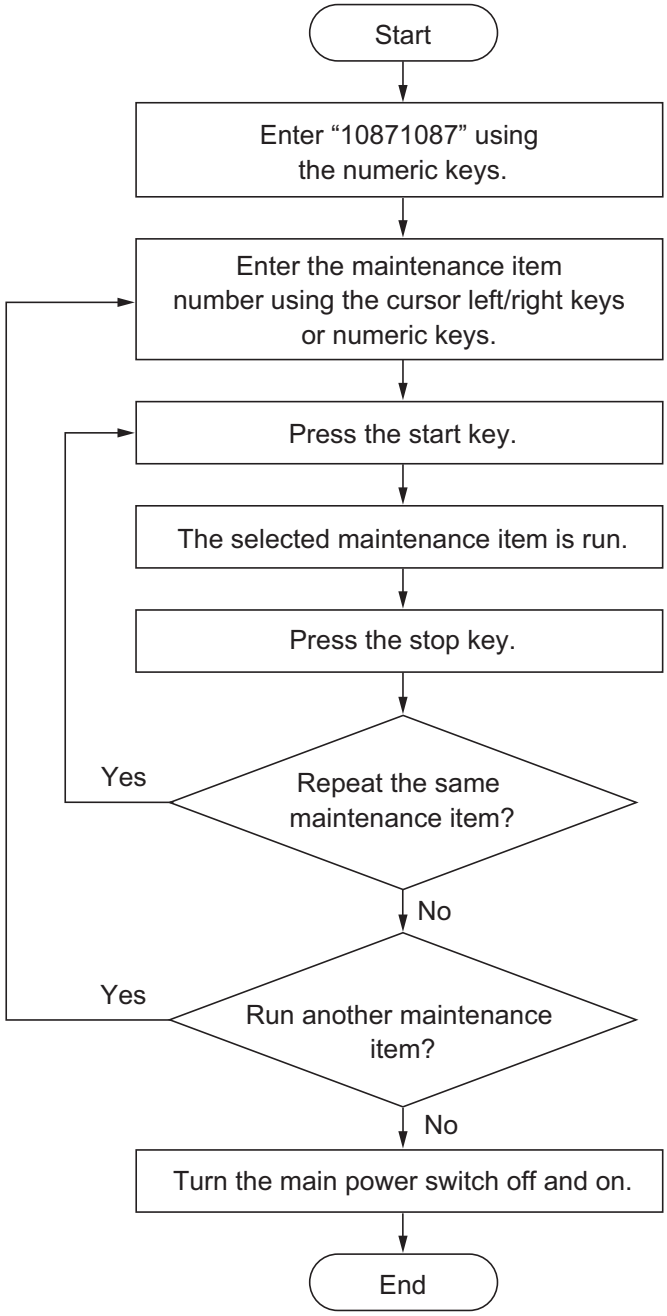
1-3-1 Maintenance mode

The machine is equipped with a maintenance function which can be used to maintain and service the machine.

(1) Executing a maintenance item



・・・・・ Maintenance mode is entered.

・・・・・ The maintenance item is selected.

・・・・・ Maintenance mode is exited and the system is restarted to initialize it and to reflect the setting changes.

(2) Maintenance modes item list

Section	Item No.	Content of maintenance item	Initial setting
General	U000	Outputting an own-status report	-
	U002	Setting the factory default data	-
	U004	Displaying the machine number	-
High voltage	U111	Checking/clearing the drum drive time	-
Operation panel and support equipment	U203	Checking DP operation	-
Mode setting	U250	Setting the maintenance cycle	100000
	U251	Checking/clearing the maintenance count	-
	U253	Switching between double and single counts	Double count
	U260	Selecting the timing for copy counting	EJECT
	U285	Setting service status page	ON
	U332	Setting the size conversion factor	1.0
	U345	Setting the value for maintenance due indication	0
Image processing	U411	Adjusting the scanner automatically	-
	U425	Setting the target	-
Fax	U600	Initializing all data	-
	U601	Initializing permanent data	-
	U603	Setting user data 1	DTMF*2
	U604	Setting user data 2	2 (120 V)*2 1 (220-240 V)*2
	U605	Clearing data	-
	U610	Setting system 1 Setting the number of lines to be ignored when receiving a fax at 100% magnification Setting the number of lines to be ignored when receiving a fax in the auto reduction mode Setting the number of lines to be ignored when receiving a fax (A4R/LetterR) in the auto reduction mode	 3 0 0
	U611	Setting system 2 Setting the number of adjustment lines for automatic reduction Setting the number of adjustment lines for automatic reduction when A4 paper is set Setting the number of adjustment lines for automatic reduction when letter size paper is set	 7 22 26
	U612	Setting system 3 Selecting if auto reduction in the auxiliary direction is to be performed Setting the automatic printing of the protocol list Setting how trailing edge margins are detected	 ON OFF ON
	U620	Setting the remote switching mode	ONE
	U625	Setting the transmission system 1 Setting the auto redialing interval Setting the number of times of auto redialing	 3 (120 V) 2 (220-240 V) 2 (120 V) 3 (220-240 V)

Section	Item No.	Content of maintenance item	Initial setting
FAX	U630	Setting communication control 1 Setting the communication starting speed Setting the reception speed Setting the waiting period to prevent echo problems at the sender Setting the waiting period to prevent echo problems at the receiver	 14400bps/V17 14400bps 300 75
	U631	Setting communication control 2 Setting ECM transmission Setting ECM reception Setting the frequency of the CED signal	 ON ON 2100
	U632	Setting communication control 3 Setting the DIS signal to 4 bytes Setting the CNG detection times in the fax/telephone auto select mode	 OFF 2TIME
	U633	Setting communication control 4 Enabling/disabling V.34 communication Setting the V.34 symbol speed (3429 Hz) Setting the number of times of DIS signal reception Setting the reference for RTN signal output	 ON ON ONCE 15%
	U634	Setting communication control 5	0*2
	U640	Setting communication time 1 One-shot detection time for remote switching Continuous detection time for remote switching	 7 80
	U641	Setting communication time 2 Setting the T0 time-out time Setting the T1 time-out time Setting the T2 time-out time Setting the Ta time-out time Setting the Tb1 time-out time Setting the Tb2 time-out time Setting the Tc time-out time Setting the Td time-out time	 56 36 69 30 20 80 60 9 (120 V) 6 (220-240 V)
	U650	Setting modem 1 Setting the G3 transmission cable equalizer Setting the G3 reception cable equalizer Setting the modem detection level	 0dB 0dB 43dBm
	U651	Setting modem 2 Modem output level DTMF output level (main value) DTMF output level (level difference)	 9 (120 V) 10 (220-240 V) 5 (120 V) 10.5 (220-240 V) 2 (120 V) 2.5 (220-240 V)
	U660	Setting the NCU Setting the connection to PBX/PSTN Setting PSTN dial tone detection Setting busy tone detection Setting for a PBX Setting the loop current detection before dialing	 PSTN ON ON LOOP ON
	U670	Outputting lists	-
	U695	FAX function customize	ON/OFF
	U699	Setting the software switches	-

Section	Item No.	Content of maintenance item	Initial setting
Others	U910	Clearing the black ratio data	-
	U917	Setting backup data reading/writing	-
	U927	Clearing the all copy counts and machine life counts (one time only)	-
	U977	Data capture mode	-

(3) Contents of the maintenance mode items

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U000</td><td>
Outputting an own-status report
Description
Outputs lists of the current settings of the maintenance items and paper jam and service call occurrences. Outputs the event log. Also sends output data to the USB memory.
Purpose
To check the current setting of the maintenance items, or paper jam or service call occurrences. Before initializing or replacing the backup RAM, output a list of the current settings of the maintenance items to reenter the settings after initialization or replacement.
Method
1. Press the start key.
2. Select the item to be output using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Output list</th></tr>
<tr><td>MAINTENANCE</td><td>List of the current settings of the maintenance modes</td></tr>
<tr><td>EVENT</td><td>Outputs the event log</td></tr>
<tr><td>ALL</td><td>Outputs the all reports</td></tr>
</table>
3. Press the start key. The interrupt print mode is entered and a list is output.
When A4/Letter paper is available, a report of this size is output. If not, specify the paper feed location.
When output is complete, the screen for selecting an item is displayed.

Method: Send to the USB memory
1. Press the power key on the operation panel, and after verifying the main power indicator has gone off, switch off the main power switch.
2. Insert USB memory in USB memory slot.
3. Turn the main power switch on.
4. Enter the maintenance item.
5. Press the start key.
6. Select the item to be send.
7. Select [TEXT] or [HTML].
<table>
<tr><th>Display</th><th>Output list</th></tr>
<tr><td>Print</td><td>Outputs the report</td></tr>
<tr><td>USB (TEXT)</td><td>Sends output data to the USB memory (text type)</td></tr>
<tr><td>USB (HTML)</td><td>Sends output data to the USB memory (HTML type)</td></tr>
</table>
8. Press the start key.
Output will be sent to the USB memory.
</td></tr>
</table>

Maintenance item No.	Description
U000	**Event log**

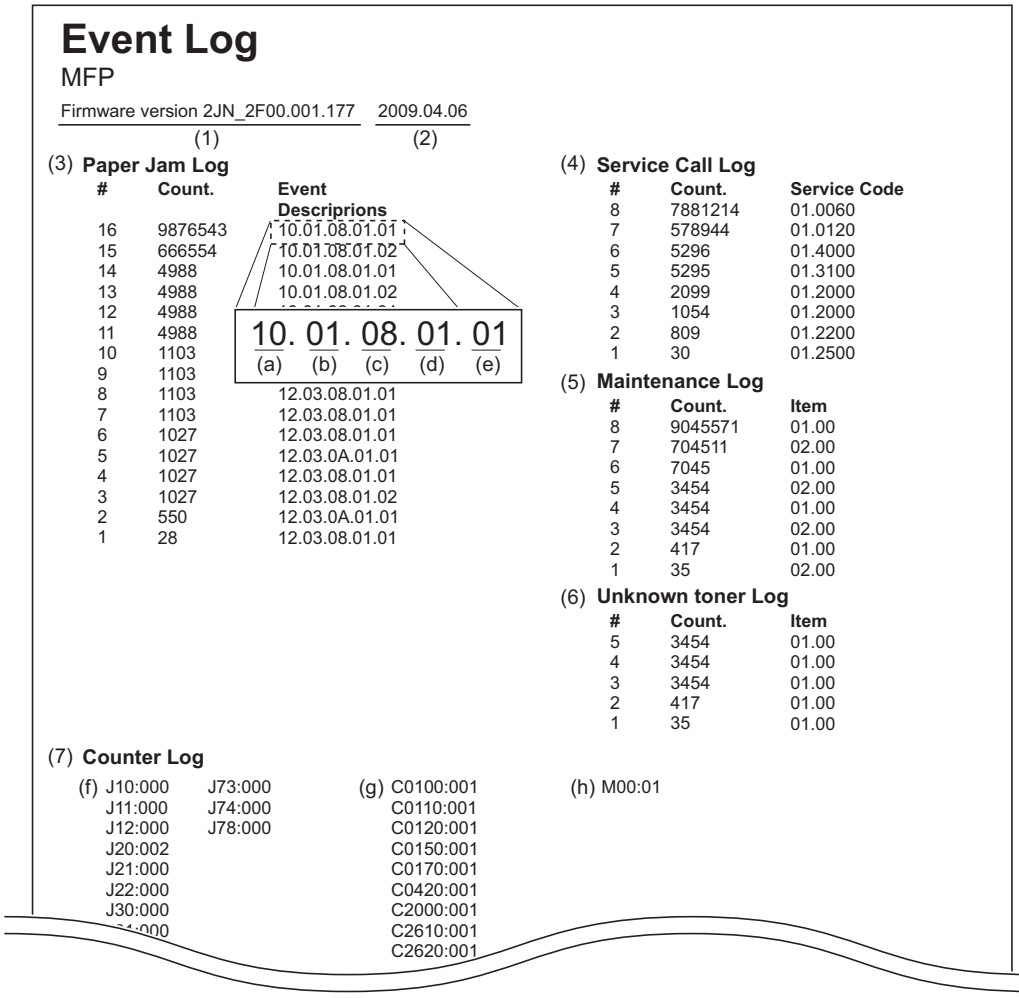


Figure 1-3-1

Detail of event log

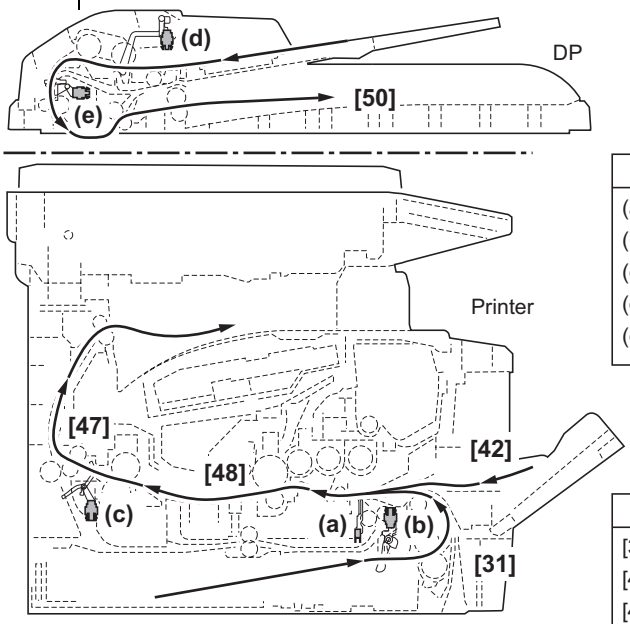
No.	Items	Description		
(1)	System version			
(2)	System date			
(3)	Paper Jam Log	#	Count.	Event
		Remembers 1 to 16 of occurrence. If the occurrence of the previous paper jam is less than 16, all of the paper jams are logged. When the occurrence excesseds 16, the oldest occurrence is removed.	The total page count at the time of the paper jam.	Log code (2 digit, hexadecimal, 5 categories) (a) Cause of a paper jam (b) Paper source (c) Paper size (d) Paper type (e) Paper eject

Maintenance item No.	Description
U000	

No.	Items	Description
(3) cont.	Paper Jam Log	(a) Cause of paper jam (Hexadecimal)

10: Paper does not arrive at the registration sensor. (Cassette) [31]
11: Paper does not pass the registration sensor. [48]
12: Paper remains at the registration sensor when power is turned on. [48]
20: Paper does not arrive at the exit sensor. [48]
21: Paper does not pass the exit sensor. [47]
22: Paper remains at the exit sensor when power is turned on. [47]
70: No original feed. (DP) [50]
71: An original jam in the original conveying section 1. (DP) [50]
72: An original jam in the original conveying section 2. (DP) [50]
78: Top cover open. (DP) [50]
E0: Paper misfeed occurs due to forced stop when an error occurs during printing. (such as opening of a cover) [00]
F0 to FE: Paper misfeed by another cause. [00]

Note:
Values (hexadecimal) within [ ] indicate paper misfeed locations.



Sensor
(a) Registration sensor
(b) Paper sensor
(c) Paper exit sensor
(d) DP original sensor
(e) DP timing sensor

Paper jam location
[31] Cassette
[42] Manual feed tray
[47] Fuser/Exit section
[48] Printer inside
[50] DP

Figure 1-3-2

Maintenance item No.	Description
U000	

No.	Items	Description		
(3) cont.	Paper Jam Log	(b) Detail of paper source (Hexadecimal)		
		00: Manual feed tray 01: Cassette 02 to 09: Reserved		
		(c) Detail of paper size (Hexadecimal)		
		01: Monarch 02: Business 03: International DL 04: International C5 05: Executive 06: Letter-R 86: Letter-E 07: Legal 08: A4R 88: A4E 09: B5R 89: B5E 0A: A3 0B: B4	0C: Ledger 0D: A5 0E: A6 0F: B6 10: Commercial #9 11: Commercial #6 12: ISO B5 13: Custom size 1E: C4 1F: Postcard 20: Reply-paid postcard 21: Oficio II 22: Special 1 23: Special 2	24: A3 wide 25: Ledger wide 26: Full bleed paper (12 x 8) 27: 8K 28: 16K-R A8: 16K-E 32: Statement-R B2: Statement-E 33: Folio 34: Western type 2 35: Western type 4
		(d) Detail of paper type (Hexadecimal)		
		01: Plain 02: Transparency 03: Preprinted 04: Labels 05: Bond 06: Recycled 07: Vellum 08: Rough 09: Letterhead	0A: Color 0B: Prepunched 0C: Envelope 0D: Cardstock 0E: Coated 0F: 2nd side 10: Media 16 11: High quality	15: Custom 1 16: Custom 2 17: Custom 3 18: Custom 4 19: Custom 5 1A: Custom 6 1B: Custom 7 1C: Custom 8
		(e) Detail of paper exit location (Hexadecimal)		
		01: Face down (FD)		
(4)	Service Call Log	#	Count.	Service Code
		Remembers 1 to 8 of occurrence of self diagnostics error. If the occurrence of the previous diagnostics error is less than 8, all of the diagnostics errors are logged.	The total page count at the time of the self diagnostics error.	Self diagnostic error code (See page 1-4-3) Example: 01.6000 01: Self diagnostic error 6000: Self diagnostic error code number

Maintenance item No.	Description
U000	

No.	Items	Description		
(5)	Maintenance Log	#	Count.	Item
		Remembers 1 to 8 of occurrence of replacement. If the occurrence of the previous replacement of toner container is less than 8, all of the occurrences of replacement are logged.	The total page count at the time of the replacement of the toner container.	Code of maintenance replacing item (1 byte, 2 categories) First byte (Replacing item) 01: Toner container 02: Maintenance kit Second byte (Type of replacing item) 00: Black 01: MK-1100/MK-1102
(6)	Unknown Toner Log	#	Count.	Item
		Remembers 1 to 5 of occurrence of unknown toner detection. If the occurrence of the previous unknown toner detection is less than 5, all of the unknown toner detection are logged.	The total page count at the time of the toner empty error with using an unknown toner container.	Unknown toner log code (1 byte, 2 categories) First byte 01: Fixed (Toner container) Second byte 00: Fixed (Black)
(7)	Counter Log Comprised of three log counters including paper jams, self diagnostics errors, and replacement of the toner container.	(f) Paper jam	(g) Self diagnostic error	(h) Maintenance item replacing
		Indicates the log counter of paper jams depending on location. Refer to Paper Jam Log. All instances including those are not occurred are displayed.	Indicates the log counter of self diagnostics errors depending on cause. (See page 1-4-3) Example: C6000: 4 Self diagnostics error 6000 has happened four times.	Indicates the log counter depending on the maintenance item for maintenance. T: Toner container 00: Black M: Maintenance kit 00: MK-1100/MK-1102 Example: T00: 1 The toner container has been replaced once.

Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U002</td><td>
Setting the factory default data
Description
Restores the machine conditions to the factory default settings.
Purpose
To move the mirror frame of the scanner to the position for transport (position in which the frame can be fixed).
Method
1. Press the start key.
2. Select [MODE1(ALL)] using the cursor up/down keys.
3. Press the start key.
The mirror frame of the scanner returns to the position for transport.
4. Turn the main power switch off and on.

An error code is displayed in case of an initialization error.
When errors occurred, turn main power switch off then on, and execute initialization using maintenance item U002.

Error codes
<table>
<tr><th>Codes</th><th>Description</th></tr>
<tr><td>ERROR 01</td><td>Configuration initialization error</td></tr>
<tr><td>ERROR 02</td><td>Counter initialization error</td></tr>
<tr><td>ERROR 03</td><td>One-touch initialization error</td></tr>
<tr><td>ERROR 04</td><td>Panel program initialization error</td></tr>
<tr><td>ERROR 05</td><td>Event log initialization error</td></tr>
<tr><td>ERROR 06</td><td>Account initialization error</td></tr>
<tr><td>ERROR 07</td><td>Address book initialization error</td></tr>
<tr><td>ERROR 08</td><td>Department initialization error</td></tr>
<tr><td>ERROR 09</td><td>Document box initialization error</td></tr>
<tr><td>ERROR 0a</td><td>Permissibility initialization error</td></tr>
<tr><td>ERROR 0b</td><td>Job log initialization error</td></tr>
<tr><td>ERROR 20</td><td>Engine initialization error</td></tr>
<tr><td>ERROR 40</td><td>Scanner initialization error</td></tr>
</table>
</td></tr>
<tr><td>U004</td><td>
Displaying the machine number
Description
Displays the machine number.
Purpose
To check the machine number.
Method
Press the start key. The currently machine number is displayed.
Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U111</td><td>
Checking/clearing the drum drive time
Description
Displays and clears the drum drive time for checking a figure, which is used as a reference when correcting the high voltage based on time.
Purpose
To check the drum status.
Also to clear the drum drive time during maintenance service (replacing the maintenance kit).
(See page 1-5-29)
Method
1. Press the start key. The drum drive time is displayed.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>TIME(min)</td><td>Drum drive time</td></tr>
</table>
Clearing
1. Select [CLEAR] using the cursor up/down keys.
2. Press the start key. The count is cleared.
Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U203</td><td>
Checking DP operation
Description
Simulates the original conveying operation separately in the DP.
Purpose
To check the DP operation.
Method
1. Press the start key.
2. Place an original in the DP if running this simulation with paper.
3. Select the speed to be operated using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>NORMAL SPEED</td><td>Normal reading (600 dpi)</td></tr>
<tr><td>HIGH SPEED</td><td>High-speed reading</td></tr>
</table>
4. Press the start key.
5. Select the item to be operated using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>CCD ADP (NON P)</td><td>Without paper, single-sided original of CCD (continuous operation)</td></tr>
<tr><td>CCD ADP</td><td>With paper, single-sided original of CCD</td></tr>
<tr><td>CCD RADP (NON P)</td><td>Without paper, double-sided original of CCD (continuous operation)</td></tr>
<tr><td>CCD RADP</td><td>With paper, double-sided original of CCD</td></tr>
</table>
6. Press the start key. The operation starts.
7. To stop continuous operation, press the stop key.
Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U250</td><td>
Setting the maintenance cycle
Description
Displays and changes the maintenance cycle.
Purpose
To check and change the maintenance cycle.
Method
1. Press the start key. The currently set maintenance cycle is displayed.
Setting
1. Select [M.CNT A] using the cursor up/down keys.
2. Change the setting using the cursor left/right keys or numeric keys.
<table>
<tr><th>Description</th><th>Setting range</th><th>Initial setting</th></tr>
<tr><td>Maintenance cycle</td><td>0 to 9999999</td><td>100000</td></tr>
</table>
3. Press the start key. The value is set.
Clearing
1. Select [CLEAR] using the cursor up/down keys.
2. Press the start key. The count is cleared.
Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U251</td><td>
Checking/clearing the maintenance count
Description
Displays, clears and changes the maintenance count.
Purpose
To check the maintenance count.
Also to clear the count during maintenance service (replacing the maintenance kit).
(See page 2-4-4, page 1-5-28 and page 1-5-29)

Method
1. Press the start key. The maintenance count is displayed.
Setting
1. Select [M.CNT A] using the cursor up/down keys.
2. Enter a count using the cursor left/right keys or numeric keys.
3. Press the start key. The count is set.
Clearing
1. Select [CLEAR] using the cursor up/down keys.
2. Press the start key. The count is cleared.
Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U253</td><td>
Switching between double and single counts
Description
Switches the count system for the total counter and other counters.
Purpose
Used to select, according to the preference of the user (copy service provider), if folio size paper is to be counted as one sheet (single count) or two sheets (double count).
Setting
1. Press the start key.
2. Select the count system using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>SGL COUNT(ALL)</td><td>Single count for all size paper</td></tr>
<tr><td>DBL COUNT(FOLIO)</td><td>Double count for Folio size or larger</td></tr>
</table>
Initial setting: DBL COUNT(FOLIO)
3. Press the start key. The setting is set.
Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U260</td><td>
Selecting the timing for copy counting
Description
Changes the copy count timing for the total counter and other counters.
Purpose
To be set according to user request.
Setting
1. Press the start key.
2. Select the copy count timing using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>FEED</td><td>When secondary paper feed starts</td></tr>
<tr><td>EJECT</td><td>When the paper is ejected</td></tr>
</table>
Initial setting: EJECT
3. Press the start key. The setting is set.
Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U285</td><td>
Setting service status page
Description
Determines displaying the ptint coverage report on reporting.
Purpose
According to user request, changes the setting.
Setting
1. Press the start key.
2. Select ON or OFF using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>ON</td><td>Displays the ptint coverage</td></tr>
<tr><td>OFF</td><td>Not to display the ptint coverage</td></tr>
</table>
Initial setting: ON
3. Press the start key. The setting is set.
Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U332</td><td>
Setting the size conversion factor
Sets the coefficient of nonstandard sizes in relation to the A4/Letter size. The coefficient set here is used to convert the black ratio in relation to the A4/Letter size and to display the result in user simulation.
Purpose
To set the coefficient for converting the black ratio for nonstandard sizes in relation to the A4/Letter size.
Setting
1. Press the start key.
2. Change the setting using the cursor left/right keys or numeric keys.
<table>
<tr><th>Display</th><th>Description</th><th>Setting range</th><th>Initial setting</th></tr>
<tr><td>Calc. Rate</td><td>Size parameter</td><td>0.1 to 3.0</td><td>1.0</td></tr>
</table>
3. Press the start key. The value is set.
Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U345</td><td>
Setting the value for maintenance due indication
Description
Sets when to display a message notifying that the time for maintenance is about to be reached, by setting the number of copies that can be made before the current maintenance cycle ends.
When the difference between the number of copies of the maintenance cycle and that of the maintenance count reaches the set value, the message is displayed.
Purpose
To change the time for maintenance due indication.
Setting
1. Press the start key.
2. Select [COUNT] using the cursor up/down keys.
3. Change the setting using the cursor left/right keys.
<table>
<tr><th>Display</th><th>Description</th><th>Setting range</th></tr>
<tr><td>COUNT</td><td>Time for maintenance due indication
(Remaining number of copies that can be made before the current maintenance cycle ends)</td><td>0 to 9999</td></tr>
</table>
Initial setting: 0
4. Press the start key. The value is set.
Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

Maintenance item No.	Description
U411	**Adjusting the scanner automatically** **Description** Uses the adjustment original suppled with DP and automatically adjusts the following items in the scanner and the DP scanning sections. Scanner section: Original size magnification, leading edge timing, center line, input gamma, input gamma in monochrome mode and matrix DP scanning section: Original size magnification, leading edge timing, center line **Purpose** To perform automatic adjustment of various items in the scanner and the DP scanning sections. **Method** 1. Press the start key.

Display	Description	Original to be used for adjustment (P/N)
ALL	Performs automatic adjustment in the DP scanning section following automatic adjustment in the scanner section	302FZ56990/ 303LJ57010
ADJUST TABLE	Automatic adjustment in the scanner section	302FZ56990
ADJUST DP	Automatic adjustment in the DP scanning section	303LJ57010

Method: TABLE

1. Enter the target values which are shown on the specified original (P/N: 302FZ56990) executing maintenance item U425.
2. Set a specified original (P/N: 302FZ56990) on the platen.
3. Enter maintenance item U411.
4. Select [ADJUST TABLE] using the cursor up/down keys.
5. Press the start key. Auto adjustment starts.
   When automatic adjustment has normally completed, [OK] is displayed. If a problem occurs during auto adjustment, [NG XX] (XX is replaced by an error code) is displayed and operation stops. Should this happen, determine the details of the problem and either repeat the procedure from the beginning, or adjust the remaining items manually by running the corresponding maintenance items.
6. To return to the screen for selecting an item, press the stop key.

Method: DP

1. Select [ADJUST DP] using the cursor up/down keys.
2. Set a specified original (P/N: 303LJ57010) in the DP.
3. Press the start key. Auto adjustment starts.
   When automatic adjustment has normally completed, [OK] is displayed. If a problem occurs during auto adjustment, [NG XX] (XX is replaced by an error code) is displayed and operation stops. Should this happen, determine the details of the problem and either repeat the procedure from the beginning, or adjust the remaining items manually by running the corresponding maintenance items.
4. To return to the screen for selecting an item, press the stop key.

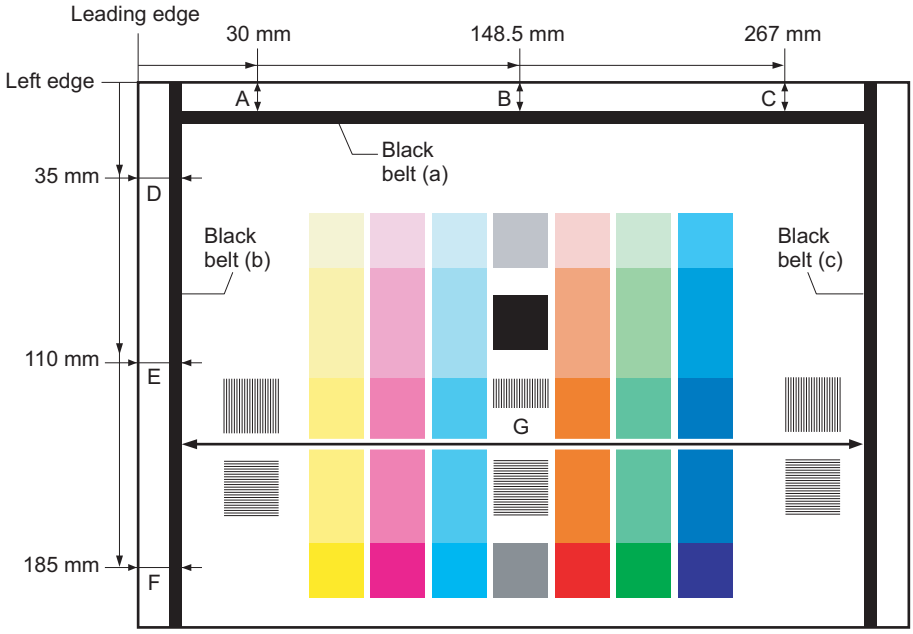
Completion

Press the stop key. The screen for selecting a maintenance item is displayed.

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U425</td><td>
Setting the target
Description
Enters the lab values that is indicated on the back of the chart (P/N: 302FZ56990) used for adjustment.
Purpose
Performs data input in order to correct for differences in originals during automatic adjustment.
Method
1. Press the start key.
2. Select the item to be set using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>N875</td><td>Setting the N875 patch for the original for adjustment</td></tr>
<tr><td>N475</td><td>Setting the N475 patch for the original for adjustment</td></tr>
<tr><td>N125</td><td>Setting the N125 patch for the original for adjustment</td></tr>
<tr><td>CYAN</td><td>Setting the cyan patch for the original for adjustment</td></tr>
<tr><td>MAGENTA</td><td>Setting the magenta patch for the original for adjustment</td></tr>
<tr><td>YELLOW</td><td>Setting the yellow patch for the original for adjustment</td></tr>
<tr><td>RED</td><td>Setting the red patch for the original for adjustment</td></tr>
<tr><td>GREEN</td><td>Setting the green patch for the original for adjustment</td></tr>
<tr><td>BLUE</td><td>Setting the blue patch for the original for adjustment</td></tr>
<tr><td>ADJUST ORIGINAL</td><td>Setting the main and auxiliary scanning directions</td></tr>
</table>
3. Select the item to be set using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Description</th><th>Setting range</th></tr>
<tr><td>L</td><td>Setting the L value</td><td>0.0 to 100.0</td></tr>
<tr><td>a</td><td>Setting the a value</td><td>-200.0 to 200.0</td></tr>
<tr><td>b</td><td>Setting the b value</td><td>-200.0 to 200.0</td></tr>
</table>
4. Enters the value that is indicated on the back of the chart using the cursor left/right keys or numeric keys.
5. Press the start key. The value is set.
6. To return to the screen for selecting an item, press the stop key.

Setting: [ADJUST ORIGINAL]
1. Measure the distance from the left edge to the black belt (a) of the original at A, B and C.
Measurement procedure
1) Measure the distance from the edge to the black belt (a) of the original at A (30 mm from the leading edge), B (148.5 mm from the leading edge) and C (267 mm from the leading edge), respectively.
2) Apply the following formula for the values obtained: ((A + C) / 2 + B) / 2
2. Enter the values solved using the cursor left/right keys or numeric keys in [MAIN].
3. Press the start key. The value is set.
4. Measure the distance from the leading edge to the black belt (b) of the original at D, E and F.
Measurement procedure
1) Measure the distance from the edge to the black belt (b) of the original at D (35 mm from the left edge), E (110 mm from the left edge) and F (185 mm from the left edge), respectively.
2) Apply the following formula for the values obtained: ((D + F) / 2 + E) / 2
5. Enter the values solved using the cursor left/right keys or numeric keys in [SUB LEAD].
6. Press the start key. The value is set.
7. Measure the length (G) from the edge of the black belt (b) to edge of the black belt (c) of the original.
8. Enter the measured value using the cursor left/right keys or numeric keys in [SUB TAIL].
9. Press the start key. The value is set.
10. To return to the screen for selecting an item, press the stop key.
</td></tr>
</table>

Maintenance item No.	Description
U425	



[MAIN] =
((A + C) / 2 + B) / 2

[SUB LEAD] =
((D + F) / 2 + E) / 2

[SUB TAIL] = G

Original for adjustment (P/N: 302FZ56990)

Figure 1-3-3

Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U600</td><td>
Initializing all data
Description
Initializes software switches and all data in the backup data on the FAX PWB, according to the destination and OEM.
Executes the check of the file system, when abnormality of the file system is detected, initializes the file system, communication past record and register setting contents.
Purpose
To initialize the FAX PWB.
Method
1. Press the start key.
2. Select [Execute]. The screen for entering the destination code and OEM code is displayed.
3. Select [Country Code] and enter a destination code using the numeric keys (refer to the destination code list on following for the destination code).
4. Press the start key.
There is no operation necessary on this screen.
The destination code and the OEM code are displayed with the values currently set.
5. Press the start key. Data initialization starts. To cancel data initialization, press the stop key.
6. After data initialization, the entered destination, OEM codes and ROM version are displayed. A ROM version displays three kinds, application, boot, and IPL.

Destination code list
<table>
<tr><th>Code</th><th>Destination</th><th>Code</th><th>Destination</th><th>Code</th><th>Destination</th></tr>
<tr><td>000</td><td>Japan</td><td>156</td><td>Singapore</td><td>253</td><td>Sweden</td></tr>
<tr><td>009</td><td>Australia</td><td>159</td><td>South Africa</td><td></td><td>France</td></tr>
<tr><td>038</td><td>China</td><td>169</td><td>Thailand</td><td></td><td>Austria</td></tr>
<tr><td>080</td><td>Hong Kong</td><td>181</td><td>U.S.A.</td><td></td><td>Switzerland</td></tr>
<tr><td>084</td><td>Indonesia</td><td>242</td><td>South America</td><td></td><td>Belgium</td></tr>
<tr><td>088</td><td>Israel</td><td>253</td><td>CTR21 (European nations)</td><td></td><td>Denmark</td></tr>
<tr><td>108</td><td>Malaysia</td><td></td><td>Italy</td><td></td><td>Finland</td></tr>
<tr><td>126</td><td>New Zealand</td><td></td><td>Germany</td><td></td><td>Portugal</td></tr>
<tr><td>136</td><td>Peru</td><td></td><td>Spain</td><td></td><td>Ireland</td></tr>
<tr><td>137</td><td>Philippines</td><td></td><td>U.K.</td><td></td><td>Norway</td></tr>
<tr><td>152</td><td>Saudi Arabia</td><td></td><td>Netherlands</td><td>254</td><td>Taiwan</td></tr>
</table>
</td></tr>
<tr><td>U601</td><td>
Initializing permanent data
Description
Initializes software switches on the FAX PWB according to the destination and OEM.
Purpose
To initialize the FAX PWB without changing user registration data.
Method
1. Press the start key.
2. Select [Execute]. The screen for entering the destination code and OEM code is displayed.
3. Select [Country Code] and enter a destination code using the numeric keys (refer to the destination code list for the destination code).
4. Press the start key.
There is no operation necessary on this screen.
The destination code and the OEM code are displayed with the values currently set.
5. Press the start key. Data initialization starts. To cancel data initialization, press the back key.
6. After data initialization, the entered destination, OEM codes and ROM version are displayed. A ROM version displays three kinds, application, boot, and IPL.
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U603</td><td>
Setting user data 1
Description
Makes user settings to enable the use of the machine as a fax.
Purpose
To be run after installation of the facsimile kit if necessary.
Method
1. Press the start key.
2. Select [LINE TYPE]. The current setting is displayed in reverse.
3. Select the setting using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>DTMF</td><td>DTMF</td></tr>
<tr><td>10PPS</td><td>10 PPS</td></tr>
<tr><td>20PPS</td><td>20 PPS</td></tr>
</table>
Initial setting: DTMF
4. Press the start key. The value is set.
Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U604</td><td>
Setting user data 2
Description
Makes user settings to enable the use of the machine as a fax.
Purpose
Use this if the user wishes to adjust the number of rings that occur before the unit switches into fax receiving mode when fax/telephone auto-select is enabled.
Method
1. Press the start key. The current setting is displayed.
2. Select [RINGS(F/P)#].
3. Change the setting using the cursor left/right keys or numeric keys.
<table>
<tr><th>Description</th><th>Setting range</th><th>Initial setting</th></tr>
<tr><td>Number of fax/telephone rings</td><td>0 to 15</td><td>2 (120 V)/1 (220-240 V)</td></tr>
</table>
If you set this to 0, the unit will start fax reception without any ringing.
4. Press the start key. The value is set.
Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U605</td><td>
Clearing data
Description
Initializes data related to the fax transmission such as transmission history.
Purpose
To clear the transmission history.
Method
1. Press the start key.
2. Select [CLEAR COM.REC.].
3. Press the start key. Initialization processing starts. When processing is finished, the screen for selecting a maintenance item No. is displayed.
Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U610</td><td>
Setting system 1
Description
Makes settings for fax reception regarding the sizes of the fax paper and received images and automatic printing of the protocol list.
Start
1. Press the start key. The current setting is displayed in each item.
2. Select the item to be set using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>CUT LINE:100%</td><td>Sets the number of lines to be ignored when receiving a fax at 100% magnification.</td></tr>
<tr><td>CUT LINE:AUTO</td><td>Sets the number of lines to be ignored when receiving a fax in the auto reduction mode.</td></tr>
<tr><td>CUT LINE:A4</td><td>Sets the number of lines to be ignored when receiving a fax (A4R/LetterR) in the auto reduction mode.</td></tr>
</table>
Setting the number of lines to be ignored when receiving a fax at 100% magnification
Sets the maximum number of lines to be ignored if the received data volume exceeds the recording capacity when recording the data at 100% magnification. If the number of excess lines is below the setting, those lines are ignored. If over the setting, they are recorded on the next page.
1. Change the setting using the cursor left/right keys or numeric keys.
<table>
<tr><th>Description</th><th>Setting range</th><th>Initial setting</th><th>Change in value per step</th></tr>
<tr><td>Number of lines to be ignored when receiving at 100%</td><td>0 to 22</td><td>3</td><td>16 lines</td></tr>
</table>
Increase the setting if a blank second page is output, and decrease it if the received image does not include the entire transmitted data.
2. Press the start key. The value is set.
Setting the number of lines to be ignored when receiving a fax in the auto reduction mode
Sets the maximum number of lines to be ignored if the received data volume exceeds the recording capacity when the data is recorded in the auto reduction mode. If the number of excess lines is below the setting, those lines are ignored. If over the setting, the entire data on a page is further reduced so that it can be recorded on the same page.
1. Change the setting using the cursor left/right keys or numeric keys.
<table>
<tr><th>Description</th><th>Setting range</th><th>Initial setting</th><th>Change in value per step</th></tr>
<tr><td>Number of lines to be ignored when receiving in the auto reduction mode</td><td>0 to 22</td><td>0</td><td>16 lines</td></tr>
</table>
Increase the setting if a page received in the reduction mode is over-reduced and too much trailing edge margin is left. Decrease it if the received image does not include all transmitted data.
2. Press the start key. The value is set.
Setting the number of lines to be ignored when receiving a fax (A4R/LetterR) in the auto reduction mode
Sets the maximum number of lines to be ignored if the received data volume exceeds the recording capacity when the data is recorded in the auto reduction mode onto A4R or LetterR paper under the conditions below. If the number of excess lines is below the setting, those lines are ignored. If over the setting, the entire data on a page is further reduced so that it can be recorded on the same page.
With A4R present and folio absent in the cassette
With letterR paper present and legal paper absent in the cassette
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U610 (cont.)</td><td>
1. Change the setting using the cursor left/right keys or numeric keys.
<table>
<tr><th>Description</th><th>Setting range</th><th>Initial setting</th><th>Change in value per step</th></tr>
<tr><td>Number of lines to be ignored when receiving a fax (A4R, letter) in the auto reduction mode</td><td>0 to 22</td><td>0</td><td>16 lines</td></tr>
</table>
Increase the setting if a page received in the reduction mode is over-reduced and too much trailing edge margin is left. Decrease it if the received image does not include all transmitted data.
2. Press the start key. The value is set.
Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U611</td><td>
Setting system 2
Description
Sets the number of adjustment lines for automatic reduction.
Start
1. Press the start key. The current setting is displayed in each item.
2. Select the item to be set using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>ADJ LINES</td><td>Sets the number of adjustment lines for automatic reduction.</td></tr>
<tr><td>ADJ LINES (A4)</td><td>Sets the number of adjustment lines for automatic reduction when A4 paper is set.</td></tr>
<tr><td>ADJ LINES (LT)</td><td>Sets the number of adjustment lines for automatic reduction when letter size paper is set.</td></tr>
</table>
Setting the number of adjustment lines for automatic reduction
Sets the number of adjustment lines for automatic reduction.
1. Change the setting using the cursor left/right keys or numeric keys.
<table>
<tr><th>Description</th><th>Setting range</th><th>Initial setting</th></tr>
<tr><td>Number of adjustment lines for automatic reduction</td><td>0 to 22</td><td>7</td></tr>
</table>
2. Press the start key. The value is set.
Setting the number of adjustment lines for automatic reduction when A4 paper is set
Sets the number of adjustment lines for automatic reduction when A4 paper is set.
1. Change the setting using the cursor left/right keys or numeric keys.
<table>
<tr><th>Description</th><th>Setting range</th><th>Initial setting</th></tr>
<tr><td>Number of adjustment lines for automatic reduction when A4 paper is set</td><td>0 to 22</td><td>22</td></tr>
</table>
2. Press the start key. The value is set.
Setting the number of adjustment lines for automatic reduction when letter size paper is set
Sets the number of adjustment lines for automatic reduction when letter size paper is set.
1. Change the setting using the cursor left/right keys or numeric keys.
<table>
<tr><th>Description</th><th>Setting range</th><th>Initial setting</th></tr>
<tr><td>Number of adjustment lines for automatic reduction when letter size paper is set</td><td>0 to 26</td><td>26</td></tr>
</table>
2. Press the start key. The value is set.
Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

Maintenance item No.	Description
U612	**Setting system 3** **Description** Makes settings for fax transmission regarding operation and automatic printing of the protocol list. This determines how trailing edge margin is detected (to prevent image from being mutilated) while printing a received Fax. **Start** 1. Press the start key. 2. Select the item to be set using the cursor up/down keys.

Display	Description
AUTO REDUCTION	Selects if auto reduction in the auxiliary direction is to be performed.
PROTOCOL LIST	Sets the automatic printing of the protocol list.
DETECT TRAIL	Sets how trailing edge margins are detected

Selecting if auto reduction in the auxiliary direction is to be performed
Sets whether to receive a long document by automatically reducing it in the auxiliary direction or at 100% magnification.

1. Select the setting using the cursor left/right keys.

Display	Description
ON	Auto reduction is performed if the received document is longer than the fax paper.
OFF	Auto reduction is not performed.

Initial setting: ON

2. Press the start key. The setting is set.

Setting the automatic printing of the protocol list
Sets if the protocol list is automatically printed out.

1. Select the setting using the cursor left/right keys.

Display	Description
OFF	The protocol list is not printed out automatically.
ERROR	The protocol list is automatically printed out after communication only if a communication error occurs.
ON	The protocol list is automatically printed out after communication.

Initial setting: OFF

2. Press the start key. The setting is set.

Setting how trailing edge margins are detected
This determines whether trailing edge margin is detected (to prevent image from being mutilated) while printing a received Fax.

1. Select ON or OFF using the cursor left/right keys.

Display	Description
ON	Detects trailing edge margin
OFF	Does not detect trailing edge margin

Initial setting: ON

2. Press the start key. The setting is set.

Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U620</td><td>
Setting the remote switching mode
Description
Sets the signal detection method for remote switching. Be sure to change the setting according to the type of telephone connected to the machine.
Method
1. Press the start key.
2. Select the setting using the cursor left/right keys.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>ONE</td><td>One-shot detection</td></tr>
<tr><td>CONT</td><td>Continuous detection</td></tr>
</table>
Initial setting: ONE
3. Press the start key. The setting is set.
Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U625</td><td>
Setting the transmission system 1
Description
Makes settings for the auto redialing interval and the number of times of auto redialing.
Purpose
Change the setting to prevent the following problems: fax transmission is not possible due to too short redial interval, or fax transmission takes too much time to complete due to too long redial interval.
Start
1. Press the start key.
2. Select the item to be set.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>INTERVAL</td><td>Setting the auto redialing interval</td></tr>
<tr><td>TIMES</td><td>Setting the number of times of auto redialing</td></tr>
</table>
Setting the auto redialing interval
1. Change the setting using the cursor left/right keys.
<table>
<tr><th>Description</th><th>Setting range</th><th>Initial setting</th></tr>
<tr><td>Redialing interval</td><td>1 to 9 (min.)</td><td>3 (120 V)/2 (220-240 V)</td></tr>
</table>
2. Press the start key. The value is set.
Setting the number of times of auto redialing
1. Change the setting using the cursor left/right keys or numeric keys.
<table>
<tr><th>Description</th><th>Setting range</th><th>Initial setting</th></tr>
<tr><td>Number of redialing</td><td>0 to 15</td><td>2 (120 V)/3 (220-240 V)</td></tr>
</table>
When set to 0, no redialing is performed.
2. Press the start key. The value is set.
Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

Maintenance item No.	Description
U630	**Setting communication control 1** **Description** Makes settings for fax transmission regarding the communication. **Start** 1. Press the start key. 3. Select the item to be set using the cursor up/down keys.

Display	Description
TX SPEED	Sets the communication starting speed.
RX SPEED	Sets the reception speed.
TX ECHO	Sets the waiting period to prevent echo problems at the sender.
RX ECHO	Sets the waiting period to prevent echo problems at the receiver.

Setting the communication starting speed

Sets the initial communication speed when starting transmission. When the destination unit has V.34 capability, V.34 is selected for transmission, regardless of this setting.

1. Select the setting using the cursor up/down keys.

Display	Description
14400bps/V17	V.17, 14400 bps
9600bps/V29	V.17, 9600 bps
4800bps/V27ter	V.27ter, 4800 bps
2400bps/V27ter	V.27ter, 2400 bps

Initial setting: 14400bps/V17

2. Press the start key. The setting is set.

Setting the reception speed

Sets the reception speed that the sender is informed of using the DIS or NSF signal. When the destination unit has V.34 capability, V.34 is selected, regardless of the setting.

1. Select the setting using the cursor up/down keys.

Display	Description
14400bps	V.17, V.33, V.29, V.27ter
9600bps	V.29, V.27ter
4800bps	V.27ter
2400bps	V.27ter (fallback only)

Initial setting: 14400bps

2. Press the start key. The setting is set.

Setting the waiting period to prevent echo problems at the sender

Sets the period before a DCS signal is sent after a DIS signal is received. Used when problems occur due to echoes at the sender.

1. Select the setting using the cursor up/down keys.

Display	Description
500	Sends a DCS 500 ms after receiving a DIS.
300	Sends a DCS 300 ms after receiving a DIS.

Initial setting: 300

2. Press the start key. The setting is set.

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U630 (cont.)</td><td>
Setting the waiting period to prevent echo problems at the receiver
Sets the period before an NSF, CSI or DIS signal is sent after a CED signal is received. Used when problems occur due to echoes at the receiver.
1. Select the setting using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>500</td><td>Sends an NSF, CSI or DIS 500 ms after receiving a CED.</td></tr>
<tr><td>75</td><td>Sends an NSF, CSI or DIS 75 ms after receiving a CED.</td></tr>
</table>
Initial setting: 75
2. Press the start key. The setting is set.
Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U631</td><td>
Setting communication control 2
Description
Makes settings regarding fax transmission.
Start
1. Press the start key.
2. Select the item to be set using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>ECM TX</td><td>Sets ECM transmission.</td></tr>
<tr><td>ECM RX</td><td>Sets ECM reception.</td></tr>
<tr><td>CED FREQ.</td><td>Sets the frequency of the CED signal.</td></tr>
</table>
Setting ECM transmission
To be set to OFF when reduction of transmission costs is of higher priority than image quality.
This should not be set to OFF when connecting to the IP (Internet Protocol) telephone line.
1. Select the setting using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>ON</td><td>ECM transmission is enabled.</td></tr>
<tr><td>OFF</td><td>ECM transmission is disabled.</td></tr>
</table>
Initial setting: ON
2. Press the start key. The setting is set.
Setting ECM reception
To be set to OFF when reduction of transmission costs is of higher priority than image quality.
This should not be set to OFF when connecting to the IP (Internet Protocol) telephone line.
1. Select the setting using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>ON</td><td>ECM reception is enabled.</td></tr>
<tr><td>OFF</td><td>ECM reception is disabled.</td></tr>
</table>
Initial setting: ON
2. Press the start key. The setting is set.
Setting the frequency of the CED signal
Sets the frequency of the CED signal. Used as one of the measures to improve transmission performance for international communications.
1. Select the setting using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>2100</td><td>2100 Hz</td></tr>
<tr><td>1100</td><td>1100 Hz</td></tr>
</table>
Initial setting: 2100
2. Press the start key. The setting is set.
Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

Maintenance item No.	Description
U632	**Setting communication control 3** **Description** Makes settings for fax transmission regarding the communication. **Start** 1. Press the start key. 2. Select the item to be set using the cursor up/down keys.

Display	Description
DIS 4BYTE	Sets the DIS signal to 4 bytes.
NUM OF CNG(F/T)	Sets the CNG detection times in the fax/telephone auto select mode.

Setting the DIS signal to 4 bytes

Sets if bit 33 and later bits of the DIS/DTC signal are sent.

1. Select the setting using the cursor up/down keys.

Display	Description
ON	Bit 33 and later bits of the DIS/DTC signal are not sent.
OFF	Bit 33 and later bits of the DIS/DTC signal are sent.

Initial setting: OFF

2. Press the start key. The setting is set.

Setting the CNG detection times in the fax/telephone auto select mode

Sets the CNG detection times in the fax/telephone auto select mode.

1. Select the setting using the cursor up/down keys.

Display	Description
1TIME	Detects CNG once.
2TIMES	Detects CNG twice.

Initial setting: 2TIMES

2. Press the start key. The setting is set.

Completion

Press the stop key. The screen for selecting a maintenance item No. is displayed.

Maintenance item No.	Description
U633	**Setting communication control 4** **Description** Makes settings for fax transmission regarding the communication. **Purpose** To reduce transmission errors when a low quality line is used. **Start** 1. Press the start key. 2. Select the item to be set using the cursor up/down keys.

Display	Description
V.34	Enables or disables V.34 communication.
V.34-3429Hz	Sets the V.34 symbol speed (3429 Hz).
DIS 2RES	Sets the number of times of DIS signal reception.
RTN CHECK	Sets the reference for RTN signal output.

Enabling/disabling V.34 communication

Sets whether V.34 communication is enabled/disabled for transmission and reception.

1. Select the setting using the cursor up/down keys.

Display	Description
ON	V.34 communication is enabled for both transmission and reception.
TX	V.34 communication is enabled for transmission only.
RX	V.34 communication is enabled for reception only.
OFF	V.34 communication is disabled for both transmission and reception.

Initial setting: ON

2. Press the start key. The setting is set.

Setting the V.34 symbol speed (3429 Hz)

Sets if the V.34 symbol speed 3429 Hz is used.

1. Select the setting using the cursor up/down keys.

Display	Description
ON	V.34 symbol speed 3429 Hz is used.
OFF	V.34 symbol speed 3429 Hz is not used.

Initial setting: ON

2. Press the start key. The setting is set.

Setting the number of times of DIS signal reception

Sets the number of times to receive the DIS signal to once or twice. Used as one of the correction measures for transmission errors and other problems.

1. Select the setting using the cursor up/down keys.

Display	Description
ONCE	Responds to the first signal.
TWICE	Responds to the second signal.

Initial setting: ONCE

2. Press the start key. The setting is set.

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U633 (cont.)</td><td>
Setting the reference for RTN signal output
Sets the error line rate as the reference for RTN signal output. If transmission errors occur frequently due to the quality of the line, they can be reduced by lowering this setting.
1. Select the setting using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>5%</td><td>Error line rate of 5%</td></tr>
<tr><td>10%</td><td>Error line rate of 10%</td></tr>
<tr><td>15%</td><td>Error line rate of 15%</td></tr>
<tr><td>20%</td><td>Error line rate of 20%</td></tr>
</table>
Initial setting: 15%
2. Press the start key. The setting is set.
Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U634</td><td>
Setting communication control 5
Description
Sets the maximum number of error bytes judged acceptable when receiving a TCF signal. Used as a measure to ease transmission conditions if transmission errors occur.
Method
1. Press the start key.
2. Change the setting using the cursor left/right keys or numeric keys.
<table>
<tr><th>Description</th><th>Setting range</th><th>Initial setting</th></tr>
<tr><td>Number of allowed error bytes when detecting TCF</td><td>0 to 255</td><td>0</td></tr>
</table>
3. Press the start key. The value is set.
Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U640</td><td>
Setting communication time 1
Description
Sets the detection time when one-shot detection is selected for remote switching. (This setting item will be displayed, but the setting made is ineffective.)
Sets the detection time when continuous detection is selected for remote switching. (This setting item will be displayed, but the setting made is ineffective.)
Method
1. Press the start key.
2. Select the item to be set using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Description</th><th>Setting range</th><th>Initial setting</th></tr>
<tr><td>TIME (ONE)</td><td>Sets the one-shot detection time for remote switching.</td><td>0 to 255</td><td>7</td></tr>
<tr><td>TIME (CONT)</td><td>Sets the continuous detection time for remote switching.</td><td>0 to 255</td><td>80</td></tr>
</table>
3. Change the setting using the cursor left/right keys or numeric keys.
4. Press the start key. The value is set.
Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

Maintenance item No.	Description
U641	**Setting communication time 2** **Description** Sets the time-out time for fax transmission. **Purpose** To improve transmission performance for international communications mainly. **Start** 1. Press the start key. 2. Select the item to be set using the cursor up/down keys.

Display	Description
T0 TIME OUT	Sets the T0 time-out time.
T1 TIME OUT	Sets the T1 time-out time.
T2 TIME OUT	Sets the T2 time-out time.
Ta TIME OUT	Sets the Ta time-out time.
Tb1 TIME OUT	Sets the Tb1 time-out time.
Tb2 TIME OUT	Sets the Tb2 time-out time.
Tc TIME OUT	Sets the Tc time-out time.
Td TIME OUT	Sets the Td time-out time.

Setting the T0 time-out time

Sets the time before detecting a CED or DIS signal after a dialing signal is sent.
Depending on the quality of the exchange, or when the auto select function is selected at the destination unit, a line can be disconnected. Change the setting to prevent this problem.

1. Change the setting using the cursor left/right keys.

Description	Setting range	Initial setting
T0 time-out time	30 to 90 s	56

2. Press the start key. The value is set.

Setting the T1 time-out time

Sets the time before receiving the correct signal after call reception. No change is necessary for this maintenance item.

1. Change the setting using the cursor left/right keys.

Description	Setting range	Initial setting
T1 time-out time	30 to 90 s	36

2. Press the start key. The value is set.
3. To return to the screen for selecting an item, press the stop/clear key.

Setting the T2 time-out time

The T2 time-out time decides the following.
From CFR signal output to image data reception
From image data reception to the next signal reception
In ECM, from RNR signal detection to the next signal reception

1. Change the setting using the cursor left/right keys.

Description	Setting range	Initial setting	Change in value per step
T2 time-out time	1 to 255	69	100 ms

2. Press the start key. The value is set.

Maintenance item No.	Description
U641 (cont.)	

Setting the Ta time-out time

In the fax/telephone auto select mode, sets the time to continue ringing an operator through the connected telephone after receiving a call as a fax machine (see figure 1-3-4). A fax signal is received within the Ta set time, or the fax mode is selected automatically when the time elapses. In fax/telephone auto select mode, change the setting when fax reception is unsuccessful or a telephone fails to receive a call.

1. Change the setting using the cursor left/right keys.

Description	Setting range	Initial setting
Ta time-out time	1 to 255	30

2. Press the start key. The value is set.

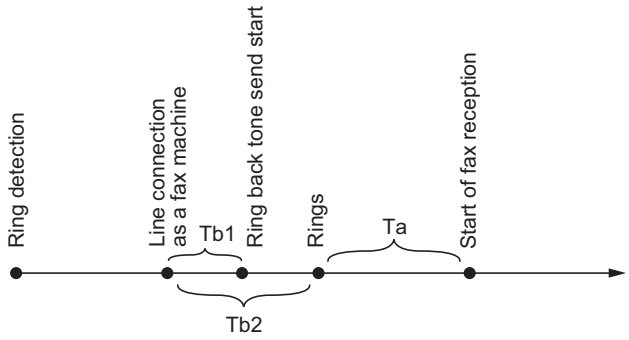


Figure 1-3-4 Ta/Tb1/Tb2 time-out time

Setting the Tb1 time-out time

In the fax/telephone auto select mode, sets the time to start sending the ring back tone after receiving a call as a fax machine (see figure 1-3-4). In fax/telephone auto select mode, change the setting when fax reception is unsuccessful or a telephone fails to receive a call.

1. Change the setting using the cursor left/right keys.

Description	Setting range	Initial setting	Change in value per step
Tb1 time-out time	1 to 255	20	100 ms

2. Press the start key. The value is set.

Setting the Tb2 time-out time

In the fax/telephone auto select mode, sets the time to start ringing an operator through the connected telephone after receiving a call as a fax machine (see figure 1-3-4). In the fax/telephone auto select mode, change the setting when fax reception is unsuccessful or a telephone fails to receive a call.

1. Change the setting using the cursor left/right keys.

Description	Setting range	Initial setting	Change in value per step
Tb2 time-out time	1 to 255	80	100 ms

2. Press the start key. The value is set.

Setting the Tc time-out time

In the TAD mode, set the time to check if there are any triggers for shifting to fax reception after a connected telephone receives a call. Only the telephone function is available if shifting is not made within the set Tc time. In the TAD mode, change the setting when fax reception is unsuccessful or a telephone fails to receive a call.

1. Change the setting using the cursor left/right keys.

Description	Setting range	Initial setting
Tc time-out time	1 to 255 s	60

2. Press the start key. The value is set.

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U641 (cont.)</td><td>
Setting the Td time-out time
Sets the length of the time required to determine silent status (fax), one of the triggers for Tc time check. In the TAD mode, change the setting when fax reception is unsuccessful or a telephone fails to receive a call. Be sure not to set it too short; otherwise, the mode may be shifted to fax while the unit is being used as a telephone.
1. Change the setting using the cursor left/right keys.
<table>
<tr><th>Description</th><th>Setting range</th><th>Initial setting</th></tr>
<tr><td>Td time-out time</td><td>1 to 255 s</td><td>9 (120 V)/6 (220-240 V)</td></tr>
</table>
2. Press the start key. The value is set.
Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U650</td><td>
Setting modem 1
Description
Sets the G3 cable equalizer.
Sets the modem detection level.
Start
1. Press the start key.
2. Select the item to be set using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>REG. G3 TX EQR</td><td>Sets the G3 transmission cable equalizer.</td></tr>
<tr><td>REG. G3 RX EQR</td><td>Sets the G3 reception cable equalizer.</td></tr>
<tr><td>RX MODEM LEVEL</td><td>Sets the modem detection level.</td></tr>
</table>
Setting the G3 transmission cable equalizer
Perform the following adjustment to make the equalizer compatible with the line characteristics.
1. Select [0dB], [4dB], [8dB] or [12dB] using the cursor up/down keys.
Initial setting: 0dB
2. Press the start key. The setting is set.

Setting the G3 reception cable equalizer
Perform the following adjustment to make the equalizer compatible with the line characteristics.
1. Select [0dB], [4dB], [8dB] or [12dB] using the cursor up/down keys.
Initial setting: 0dB
2. Press the start key. The setting is set.

Setting the modem detection level
To improve the transmission performance when a low quality line is used.
1. Select [33dBm], [38dBm], [43dBm] or [48dBm] using the cursor up/down keys.
Initial setting: 43dBm
2. Press the start key. The setting is set.

Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U651</td><td>
Setting modem 2
Description
Sets the modem output level.
Sets the DTMF output level of a push-button dial telephone.
Purpose
Used if problems occur when sending a signal with a push-button dial telephone.
Start
1. Press the start key.
2. Select the item to be set using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Description</th><th>Setting range</th><th>Initial setting</th></tr>
<tr><td>SGL LV MDM</td><td>Modem output level</td><td>1 to 15</td><td>9 (120 V)
10 (220-240 V)</td></tr>
<tr><td>DTMF LV(C)</td><td>DTMF output level (main value)</td><td>0 to 15.0</td><td>5 (120 V)
10.5 (220-240 V)</td></tr>
<tr><td>DTMF LV(D)</td><td>DTMF output level (level difference)</td><td>0 to 5.5</td><td>2 (120 V)
2.5 (220-240 V)</td></tr>
</table>
3. Change the setting using the cursor left/right keys or numeric keys.
4. Press the start key. The setting is set.
Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

Maintenance item No.	Description
U660	**Setting the NCU** **Description** Makes setting regarding the network control unit (NCU). **Purpose** To be set when installing the facsimile kit. **Start** 1. Press the start key. 2. Select the item to be set using the cursor up/down keys.

Display	Description
EXCHANGE	Sets the connection to PBX/PSTN.
DIAL TONE	Sets PSTN dial tone detection.
BUSY TONE	Sets busy tone detection.
PBX SETTING	Setting for a PBX.
DC LOOP	Sets the loop current detection before dialing.

Setting the connection to PBX/PSTN

Selects if a fax is to be connected to either a PBX or public switched telephone network.

1. Select the setting using the cursor up/down keys.

Display	Description
PSTN	Connected to the public switched telephone network.
PBX	Connected to a PBX.

Initial setting: PSTN

2. Press the start key. The setting is set.

Setting PSTN dial tone detection

Selects if the dial tone is detected to check the telephone is off the hook when a fax is connected to a public switched telephone network.

1. Select the setting using the cursor up/down keys.

Display	Description
ON	Detects the dial tone.
OFF	Does not detect the dial tone.

Initial setting: ON

2. Press the start key. The setting is set.

Setting busy tone detection

When a fax signal is sent, sets whether the line is disconnected immediately after a busy tone is detected, or the busy tone is not detected and the line remains connected until T0 time-out time.
Fax transmission may fail due to incorrect busy tone detection. When set to 2, this problem may be prevented. However, the line is not disconnected within the T0 time-out time even if the destination line is busy.

1. Select the setting using the cursor up/down keys.

Display	Description
ON	Detects busy tone.
OFF	Does not detect busy tone.

Initial setting: ON

2. Press the start key. The setting is set.

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U660 (cont.)</td><td>
Setting for a PBX
Selects the mode to connect an outside call when connected to a PBX.
According to the type of the PBX connected, select the mode to connect an outside call.
1. Select the setting using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>EARTH</td><td>Earth mode</td></tr>
<tr><td>FLASH</td><td>Flashing mode</td></tr>
<tr><td>LOOP</td><td>Code number mode</td></tr>
</table>
Initial setting: LOOP
2. Press the start key. The setting is set.

Setting the loop current detection before dialing
Sets if the loop current detection is performed before dialing.
1. Select the setting using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>ON</td><td>Performs loop current detection before dialing.</td></tr>
<tr><td>OFF</td><td>Does not perform loop current detection before dialing.</td></tr>
</table>
Initial setting: ON
2. Press the start key. The setting is set.
Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U670</td><td>
Outputting lists
Description
Outputs a list of data regarding fax transmissions.
Printing a list is disabled either when a job is remaining in the buffer or when [Pause All Print Jobs] is pressed to halt printing.
Purpose
To check conditions of use, settings and transmission procedures of the fax.
Method
1. Press the start key.
2. Select the item to be output using the cursor up/down keys.
3. Press the start key. The selected list is output.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>SETTING LIST</td><td>Outputs a list of software switches, self telephone number, confidential boxes, ROM versions and other information.</td></tr>
<tr><td>ACTION LIST</td><td>Outputs a list of error history, transmission line details and other information.</td></tr>
<tr><td>SELF ST REPORT</td><td>Outputs a list of settings in maintenance mode (own-status report) regarding fax transmission only.</td></tr>
<tr><td>PROTOCOL LIST</td><td>Outputs a list of transmission procedures.</td></tr>
<tr><td>ERROR LIST</td><td>Outputs a list of error.</td></tr>
<tr><td>ADDR BOOK(No.)</td><td>Outputs address book in order IDs were added</td></tr>
<tr><td>ADDR BOOK(Name)</td><td>Outputs address book in order of names</td></tr>
<tr><td>ONE-TOUCH LIST</td><td>Outputs a list of one-touch.</td></tr>
<tr><td>GROUP LIST</td><td>Outputs a list of group.</td></tr>
</table>
Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U695</td><td>
FAX function customize
Description
Sets fax batch transmission ON/OFF. Also changes the print size priority at the time of small size reception.
Purpose
To be executed as required.
Setting
1. Select the setting using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>FAX BULK TX</td><td>fax batch transmission ON/OFF</td></tr>
<tr><td>A5 PT PRI CHG</td><td>Change of print size priority at the time of small size reception</td></tr>
</table>
Setting: [FAX BULK TX]
1. Select ON or OFF using the cursor left/right keys.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>ON</td><td>Fax batch transmission is enabled.</td></tr>
<tr><td>OFF</td><td>Fax batch transmission is disabled.</td></tr>
</table>
Initial setting: ON
2. Press the start key. The setting is set.

Setting: [A5 PT PRI CHG]
1. Select ON or OFF using the cursor left/right keys.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>ON</td><td>At the time of A5 size reception: A5→B5→A4</td></tr>
<tr><td>OFF</td><td>At the time of A5 size reception: A5→A4→B5</td></tr>
</table>
Initial setting: OFF
2. Press the start key. The setting is set.

Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

Maintenance item No.	Description
U699	**Setting the software switches** **Description** Sets the software switches on the FAX PWB individually. **Purpose** To change the setting when a problem such as split output of received originals occurs. Since the communication performance is largely affected, normally this setting need not be changed. **Method** 1. Press the start key. 2. Press [SW No.]. 3. Enter the desired software switch number (3 digits) using the numeric keys and press the enter key. 4. Use numeric keys 7 to 0 to switch each bit between 0 and 1. 5. Press the start key to set the value. **Completion** Press the stop key. The screen for selecting a maintenance item No. is displayed. **List of Software Switches of Which the Setting Can Be Changed** **<System setting>**

No.	Bit	Item
39	21	Declaration of reception size in automatic paper source selection for fax

<Communication control procedure>

No.	Bit	Item
31	2	Automatic reception level adjustment (V. 17)
	1	Automatic reception level adjustment (V. 29)
	0	Automatic reception level adjustment (V. 27ter)
36	7654	Coding format in transmission
	3210	Coding format in reception
37	5	33600 bps/V34
	4	31200 bps/V34
	3	28800 bps/V34
	2	26400 bps/V34
	1	24000 bps/V34
	0	21600 bps/V34
38	7	19200 bps/V34
	6	16800 bps/V34
	5	14400 bps/V34
	4	12000 bps/V34
	3	9600 bps/V34
	2	7200 bps/V34
	1	4800 bps/V34
	0	2400 bps/V34
41	3	FSK detection in V.8
42	2	FIF length in transmission of more than 4 times of DIS/DTC signal
	0	Automatic reception level adjustment (V. 33)
43	76543210	Adjustment width in automatic reception level adjustment

Maintenance item No.	Description
U699 (cont.)	**List of Software Switches of Which the Setting Can Be Changed**

<Communication time setting>

No.	Bit	Item
53	76543210	T3 timeout setting
54	76543210	T4 timeout setting (automatic equipment)
55	76543210	T5 timeout setting
60	76543210	Time before transmission of CNG (1100 Hz) signal
63	76543210	T0 timeout setting (manual equipment)
64	7	Phase C timeout in ECM reception
66	76543210	Timeout 1 in countermeasures against echo
67	76543210	Timeout 2 in countermeasures against echo
68	76543210	Timeout for FSK detection start in V.8

<Modem setting>

No.	Bit	Item
89	76543	RX gain adjust

<NCU setting>

No.	Bit	Item
121	7654	Dial tone/busy tone detection pattern
122	7654	Busy tone detection pattern
	2	Dial tone detection before dialing
	1	Busy tone detection in automatic FAX/TEL switching
125	76543210	Access code registration for connection to PSTN
126	7654	FAX/TEL automatic switching ringback tone ON/OFF cycle
127	10	Pseudo-ringer duty ratio

<Calling time setting>

No.	Bit	Item
133	76543210	DTMF signal transmission time
134	76543210	DTMF signal pause time
141	76543210	Ringer detection cycle (minimum)
142	76543210	Ringer detection cycle (maximum)
143	76543210	Ringer ON time detection
144	76543210	Ringer OFF time detection
145	76543210	Ringer OFF non-detection time
147	76543210	Dial tone detection time (continuous tone)
148	76543210	Allowable dial tone interruption time
149	76543210	Time for transmitting selection signal after closing the DC circuit
151	76543210	Ringer frequency detection invalid time

<table>
<tr><th>Maintenance item No.</th><th>Description</th></tr>
<tr><td>U910</td><td>
Clearing the black ratio data
Description
Clears the accumulated black ratio data for A4 sheet.
Purpose
To clear data as required at times such as during maintenance service.
Method
1. Press the start key.
2. Select [ALL CLEAR] using the cursor up/down keys.
3. Press the start key. The accumulated black ratio data is cleared.
Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
<tr><td>U917</td><td>
Setting backup data reading/writing
Description
Retrieves the backup data to a USB memory from the machine; or writes the data from the USB memory to the machine.
Purpose
To store and write data when replacing the control PWB.
Method
1. Press the power key on the operation panel, and after verifying the power indicator has gone off, switch off the main power switch.
2. Insert USB memory in USB memory slot.
3. Turn the main power switch on.
Wait for 10 seconds to allow the machine to recognize the USB memory.
4. Enter the maintenance item.
5. Press the start key.
6. Select [Export] or [Import] using the cursor up/down keys and press the start key.
<table>
<tr><th>Display</th><th>Description</th></tr>
<tr><td>IMPORT</td><td>Writing data from the USB memory to the machine</td></tr>
<tr><td>EXPORT</td><td>Retrieving from the machine to a USB memory</td></tr>
</table>
7. Select the item using the cursor up/down keys.
<table>
<tr><th>Display</th><th>Description</th><th>Description</th></tr>
<tr><td>ADDRESS BOOK</td><td>Address book</td><td>-</td></tr>
<tr><td>ONE TOUCH</td><td>Information on one-touch</td><td>Address book</td></tr>
<tr><td>FAX FORWARD</td><td>FAX transfer information</td><td>-</td></tr>
</table>
*: Since data are dependent with each other, data other than those assigned are also retrieved or written in.
8. Select [ON] using the cursor left/right keys.
9. Press the start key. Starts reading or writing.
The progress of selected item is displayed in %.
When an error occurs, the operation is canceled and an error code is displayed.
10. When normally completed, [FIN] is displayed.
11. Turn the main power switch off and on after completing writing when selecting [IMPORT].

Supplement
The following restrictions apply to the data which were imported from 4 in 1 model (with FAX) to 3 in 1 model (without FAX).
Personal address book: FAX-related data are not imported.
Group address book: Group addresses including FAX addresses are not imported.
One-touch data: Groups assigned with FAX addresses or those including FAX are not imported.

Completion
Press the stop key. The screen for selecting a maintenance item No. is displayed.
</td></tr>
</table>

Maintenance item No.	Description
U927	**Clearing the all copy counts and machine life counts (one time only)** **Description** Resets all of the counts back to 0. **Purpose** To start the counters with value 0 when installing the machine. **Supplement** The total account counter and the machine life counter can be cleared only once if all count values are 1000 or less. **Method** 1. Press the start key. 2. Select [EXECUTE]. 3. Press the start key. All copy counts and machine life counts are cleared. **Completion** Press the stop key. The screen for selecting a maintenance item No. is displayed.
U977	**Data capture mode** **Description** Store the print data sent to the machine into USB memory. **Purpose** In case to occur the error at printing, check the print data sent to the machine. **Method** 1. Insert USB memory in USB memory slot. 2. Turn the main power switch on. 3. Enter the maintenance item. 4. Press the start key. 5. Select [EXECUTE]. 6. Press the start key. 7. Send the print data to the machine. Once the print data is stored into USB memory, OK will be displayed. **Completion** Press the stop key. The screen for selecting a maintenance item No. is displayed.

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1-4-1 Paper misfeed detection

(1) Paper misfeed indication

When a paper misfeed occurs, the machine immediately stops printing and displays the paper misfeed message on the operation panel. To remove paper misfed in the machine, pull out the paper cassette, open the front cover or rear cover, or remove the drum unit.

(2) Paper misfeed detection condition

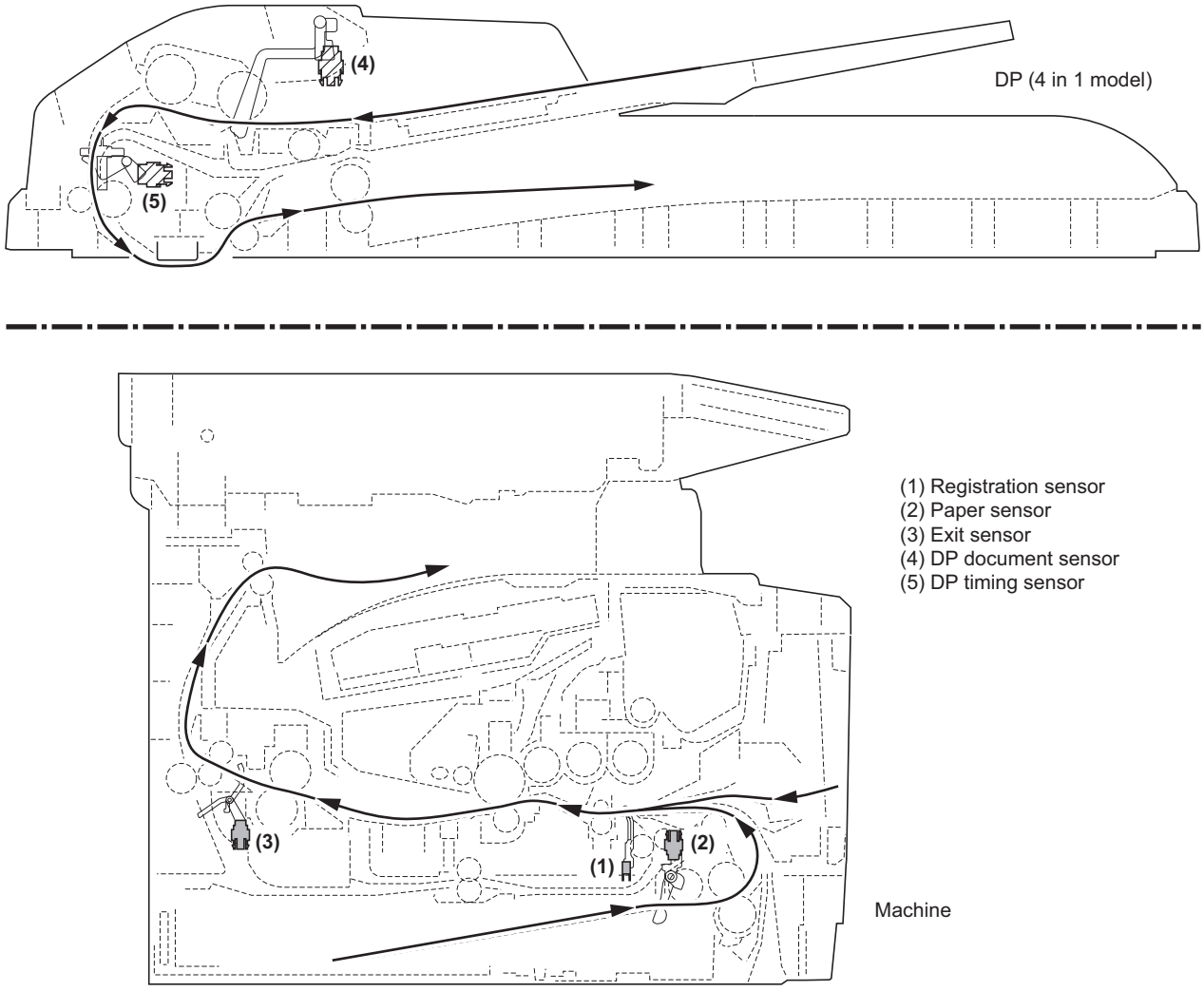


Figure 1-4-1

1-4-2 Self-diagnostic function

(1) Self-diagnostic function

This machine is equipped with self-diagnostic function. When a problem is detected, the machine stops printing and display an error message on the operation panel. An error message consists of a message prompting a contact to service personnel, total print count, and a four-digit error code indicating the type of the error. (The display varies depending on the type of the error.)

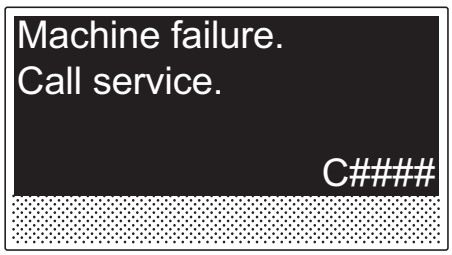


Figure 1-4-2

(2) Self diagnostic codes

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
0030	**FAX PWB system error** Processing with the fax software was disabled due to a hardware problem.	Defective FAX PWB.	Replace the FAX PWB (See page 1-5-48).
0070	**FAX PWB incompatible detection Error** Abnormal detection of FAX PWB incompatibility In the initial communication with the FAX PWB, any normal communication command is not transmitted.	Defective fax software.	Install the fax software.
		Defective FAX PWB.	Replace the FAX PWB (See page 1-5-48).
0100	**Backup memory device error**	Defective flash memory.	Replace the control PWB (See page 1-5-38).
		Defective control PWB.	Replace the control PWB (See page 1-5-38).
0130	**Backup memory read/write error**	Defective flash memory.	Replace the control PWB (See page 1-5-38).
		Defective control PWB.	Replace the control PWB (See page 1-5-38).
0140	**Backup memory data error**	Defective flash memory.	Replace the control PWB (See page 1-5-38).
		Defective control PWB.	Replace the control PWB (See page 1-5-38).
0150	**Control PWB EEPROM error** Detecting control PWB EEPROM (U17) communication error.	Improper installation control PWB EEPROM (U17).	Check the installation of the EEPROM (U17) and remedy if necessary (See page 1-5-38).
		Defective control PWB.	Replace the control PWB (See page 1-5-38).
		Data damage of control PWB EEPROM (U17).	Contact the Service Administrative Division.
0170	**Billing counting error**	Defective control PWB.	Replace the control PWB (See page 1-5-38).
		Data damage of control PWB EEPROM (U17).	Contact the Service Administrative Division.
0180	**Machine number mismatch** Machine number of main and engine does not match.	Data damage of control PWB EEPROM (U17).	Contact the Service Administrative Division.

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
0830	**FAX PWB flash program area checksum error** A checksum error occurred with the program of the FAX PWB.	Defective fax software.	Install the fax software.
		Defective FAX PWB.	Replace the FAX PWB (See page 1-5-48).
0840	**Faults of RTC** The time is judged to go back based on the comparison of the RTC time and the current time or five years or more have passed.	Defective control PWB.	Replace the control PWB (See page 1-5-38).
		The battery is disconnected from the control PWB.	Check visually and remedy if necessary.
0870	**FAX PWB to control PWB high capacity data transfer problem** High-capacity data transfer between the FAX PWB and the control PWB of the machine was not normally performed even if the data transfer was retried the specified times.	Improper installation FAX PWB.	Reinstall the FAX PWB (See page 1-5-48).
		Defective FAX PWB or control PWB.	Replace the FAX PWB or control PWB and check for correct operation. (See page 1-5-48 or 1-5-38).
0920	**Fax file system error** The backup data is not retained for file system abnormality of flash memory of the FAX PWB.	Defective FAX PWB.	Replace the FAX PWB (See page 1-5-48).
2000	**Main motor error** The main motor ready input is not given for 2 s during the main motor is ON.	Defective harness between main motor (CN1) and control PWB (YC17), or improper connector insertion.	Reinsert the connector. Also check for continuity within the connector harness. If none, remedy or replace the harness (See page 1-5-38).
		Defective drive transmission system of the main motor.	Check if the rollers and gears rotate smoothly. If not, grease the bushings and gears. Check for broken gears and replace if any.
		Defective main motor.	Replace the main motor (See page 1-5-49).
		Defective control PWB.	Replace the control PWB (See page 1-5-38).

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
3100	**ISU home position error**	Defective FFC between CCD PWB (YC1) and control PWB (YC8).	Replace the image scanner unit (ISU) (See page 1-5-20).
		Defective FFC between control PWB (YC6) and scanner PWB (YC103), or improper FFC insertion.	Reinsert the FFC. Also check for continuity within the FFC. If none, remedy or replace the FFC.
		Defective home position sensor.	Replace the home position sensor.
		Defective harness between ISU motor and scanner PWB (YC104), or improper connector insertion.	Reinsert the connector. Also check for continuity within the connector harness. If none, remedy or replace the harness.
		Defective ISU motor.	Replace the ISU motor.
3200	**Exposure lamp error** The exposure lamp is not turned on.	Defective FFC between scanner PWB (YC103) and control PWB (YC6), or improper FFC insertion.	Reinsert the FFC. Also check for continuity within the FFC. If none, remedy or replace the FFC.
		Defective FFC between CCD PWB (YC1) and control PWB (YC8).	Replace the image scanner unit (ISU) (See page 1-5-20).
		Defective harness between CCD PWB (YC3) and inverter PWB (YC101), or improper connector insertion.	Reinsert the connector. Also check for continuity within the connector harness. If none, remedy or replace the harness.
		Defective harness between inverter PWB (YC102) and exposure lamp, or improper connector insertion.	Reinsert the connector. Also check for continuity within the connector harness. If none, remedy or replace the harness.
		Defective exposure lamp.	Replace the exposure lamp (See page 1-5-26).
		Defective inverter PWB.	Replace the inverter PWB (See page 1-5-20).
		Defective control PWB.	Replace the control PWB (See page 1-5-38).

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
3300	**AGC error** After AGC, correct input is not obtained at CCD.	Defective FFC between CCD PWB (YC1) and control PWB (YC8).	Replace the image scanner unit (ISU) (See page 1-5-20).
		Defective exposure lamp.	Replace the exposure lamp (See page 1-5-26).
		Defective CCD PWB.	Replace the CCD PWB.
		Defective control PWB.	Replace the control PWB (See page 1-5-38).
3500	**CPU - ASIC (CCD PWB) communication error** An error code is detected.	Defective FFC between CCD PWB (YC1) and control PWB (YC8).	Replace the image scanner unit (ISU) (See page 1-5-20).
		Defective CCD PWB.	Replace the CCD PWB.
		Defective control PWB.	Replace the control PWB (See page 1-5-38).
4000	**Polygon motor (laser scanner unit) error** The polygon motor ready input is not given for 6 s during the polygon motor is ON.	Defective harness between polygon motor and control PWB (YC10), or improper connector insertion.	Reinsert the connector. Also check for continuity within the connector harness. If none, remedy or replace the harness.
		Defective laser scanner unit.	Replace the laser scanner unit (See page 1-5-16).
		Defective control PWB.	Replace the control PWB (See page 1-5-38).
4200	**BD error (laser scanner unit) error**	BD sensor does not detect laser beam due to condensation on the polygon mirror.	Turn machine power off for at least 30 minutes, then turn machine on again. If not cured, replace the laser scanner unit (See page 1-5-16).
		Defective laser scanner unit.	Replace the laser scanner unit (See page 1-5-16).
		Defective control PWB.	Replace the control PWB (See page 1-5-38).

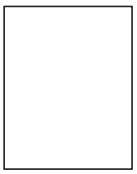
Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
6000	**Broken fuser heater lamp wire** The fuser temperature does not rise after the fuser heater lamp has been turned on.	Poor contact in the fuser thermistor connector terminals.	Reinsert the connector (See page 1-5-33).
		Poor contact in the fuser heater lamp connector terminals.	Reinsert the connector (See page 1-5-33).
		Fuser thermistor installed incorrectly.	Replace the fuser unit (See page 1-5-33).
		Fuser thermal cut-out triggered.	Replace the fuser unit (See page 1-5-33).
		Fuser heater lamp installed incorrectly.	Replace the fuser unit (See page 1-5-33).
		Broken fuser heater lamp wire.	Replace the fuser unit (See page 1-5-33).
6020	**Abnormally high fuser thermistor temperature** Fuser thermistor detects abnormally temperature.	Shorted fuser thermistor.	Replace the fuser unit (See page 1-5-33).
		Defective control PWB.	Replace the control PWB (See page 1-5-38).
6030	**Broken fuser thermistor wire** Input from fuser thermistor is 0 (A/D value).	Poor contact in the fuser thermistor connector terminals.	Reinsert the connector (See page 1-5-33).
		Broken fuser thermistor wire.	Replace the fuser unit (See page 1-5-33).
		Fuser thermistor installed incorrectly.	Replace the fuser unit (See page 1-5-33).
		Fuser thermal cut-out triggered.	Replace the fuser unit (See page 1-5-33).
		Fuser heater lamp installed incorrectly.	Replace the fuser unit (See page 1-5-33).
		Broken fuser heater lamp wire.	Replace the fuser unit (See page 1-5-33).

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
6400	**Zero cross signal error** The zero cross signal does not reach the control PWB for specified time.	Defective harness between high voltage PWB (YC202) and control PWB (YC23), or improper connector insertion.	Reinsert the connector. Also check for continuity within the connector harness. If none, remedy or replace the harness (See page 1-5-38).
		Defective connection between power source PWB (YC103) and high voltage PWB (YC201).	Reinsert the connector.
		Defective power source PWB.	Replace the power source PWB (See page 1-5-41).
		Defective control PWB.	Replace the control PWB (See page 1-5-38).
7990	**Waste toner full** The waste toner sensor has detected that the waste toner reservoir (drum unit) is full.	Waste toner reservoir (drum unit) is full.	Turn the main power switch off/on to restart the machine. If the error is not resolved, replace the drum unit (See page 1-5-29).
		Defective waste toner sensor.	Replace the waste toner sensor.
		Defective control PWB.	Replace the control PWB (See page 1-5-38).
F000	**Control PWB - Operation panel PWB communication error**	Defective harness between operation panel PWB (YC1) and control PWB (YC7), or improper connector insertion.	Reinsert the connector. Also check for continuity within the connector harness. If none, remedy or replace the harness.
		Defective operation panel PWB.	Replace the operation panel PWB.
		Defective control PWB.	Replace the control PWB (See page 1-5-38).
F020	**Control PWB RAM checksum error**	Defective main memory (RAM) on the control PWB.	Turn the main power switch off/on to restart the machine. If the error is not resolved, replace control PWB (See page 1-5-38).
		Defective expanded memory (DIMM).	Replace the expanded memory (DIMM).
F040	**Control PWB engine communication error** A communication error is detected.	Defective control PWB.	Turn the main power switch off/on to restart the machine. If the error is not resolved, replace control PWB (See page 1-5-38).
F041	**Control PWB - scanner PWB communication error** A communication error is detected.	Defective control PWB or scanner PWB.	Turn the main power switch off/on to restart the machine. If the error is not resolved, replace control PWB or scanner PWB (See page 1-5-38 or 1-5-47).

Code	Contents	Remarks	
		Causes	Check procedures/corrective measures
F050	**Control PWB engine checksum error**	Some error may have occurred when downloading the firmware of the control PWB.	Download the firmware of the control PWB again (See page 1-6-1).
		Defective control PWB.	Turn the main power switch off/on to restart the machine. If the error is not resolved, replace control PWB (See page 1-5-38).
F186	**Control PWB video data control error**	Defective control PWB.	Turn the main power switch off/on to restart the machine. If the error is not resolved, replace control PWB (See page 1-5-38).

1-4-3 Image formation problems

(1)Completely blank printout.

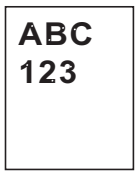


See page 1-4-11

(2)All-black printout.

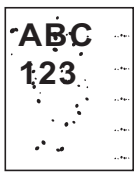
See page 1-4-11

(3)Dropouts.



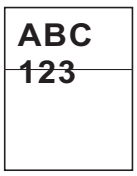
See page 1-4-12

(4)Black dots.



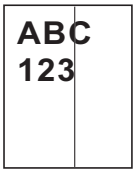
See page 1-4-12

(5)Black horizontal streaks.



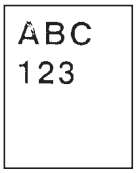
See page 1-4-12

(6)Black vertical streaks.



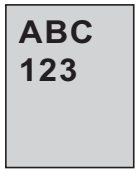
See page 1-4-13

(7)Unsharpness.



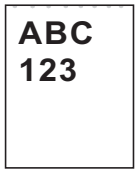
See page 1-4-13

(8)Gray background.



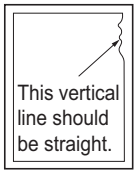
See page 1-4-13

(9)Dirt on the top edge or back of the paper.



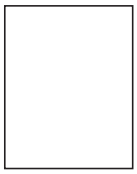
See page 1-4-14

(10)Undulated printing at the right edge (scanning start position).



See page 1-4-14

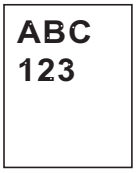
(1) Completely blank printout.

Print example	Causes	Check procedures/corrective measures
	Defective harness between DP and scanner PWB (YC105,YC108, YC109), or improper connector insertion.	Reinsert the connector. Also check for continuity within the connector harness. If none, remedy or replace the harness.
	Defective drum unit or developing unit.	Open the front cover and check that the drum unit and developing unit are correctly seated (See page 1-5-29 and 1-5-28). Investigate that the terminals between the main charger unit and the drum unit are not in loose contact (See page 1-5-29)
	Defective transfer bias output or developing bias output.	Replace the high voltage PWB (See page 1-5-44).
	Poor contact of developing bias terminal (spring) and high voltage output terminal B (J401, J402, J403) on the high voltage PWB. Poor contact of transfer bias terminal (spring) and transfer bias terminal T (J201, J202, J203) on the high voltage PWB.	Check the high voltage PWB visually and correct or replace if necessary (See page 1-5-44).
	Defective laser scanner unit.	Replace the laser scanner unit (See page 1-5-16).
	Defective control PWB.	Replace the control PWB (See page 1-5-38).

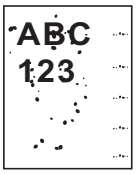
(2) All-black printout.

Print example	Causes	Check procedures/corrective measures
	Defective main charger unit.	Open the front cover and check that the drum unit and developing unit are correctly seated (See page 1-5-29 and 1-5-28). Investigate that the terminals between the main charger unit and the drum unit are not in loose contact (See page 1-5-29)
	Poor contact of main charger terminal (spring) and main charger output terminal M on the high voltage PWB.	Check the high voltage PWB visually and correct or replace if necessary (See page 1-5-44).
	Defective main charging output.	Replace the high voltage PWB (See page 1-5-44).
	Broken main charger wire.	Replace the main charger unit (See page 1-5-30).
	Defective control PWB.	Replace the control PWB (See page 1-5-38).

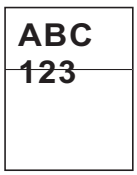
(3) Dropouts.

Print example	Causes	Check procedures/corrective measures
	Defective developing roller (developing unit).	If the defects occur at regular intervals of 62.8 mm/2 1/2" (See page 2-4-3), the problem may be the damaged developing roller (in the developing unit). Replace the developing unit (See page 1-5-28).
	Defective drum unit.	If the defects occur at regular intervals of 94 mm/3 11/16" (See page 2-4-3), the problem may be the damaged drum (in the drum unit). Replace the drum unit (See page 1-5-29).
	Defective fuser unit (heat roller or press roller).	If the defects occur at regular intervals of 73.162 mm/2 7/8", or 78.5 mm/3 1/16" (See page 2-4-3), the problem may be the damaged heat roller or press roller (in the fuser unit). Replace fuser unit (See page 1-5-33).
	Defective paper specifications.	Paper with rugged surface or dump tends to cause dropouts. Replace paper with the one that satisfies the paper specifications.
	Defective transfer roller installation.	The transfer roller must be supported by the bushes at the both ends. Clean the bush to remove oil and debris. Replace the transfer roller if necessary (See page 1-5-31).
	Defective transfer bias output.	Replace the high voltage PWB or control PWB (See page 1-5-44 or 1-5-38).

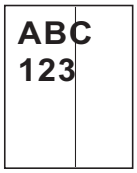
(4) Black dots.

Print example	Causes	Check procedures/corrective measures
	Defective drum unit or developing unit.	If the defects occur at regular intervals of 94 mm/3 11/16" (See page 2-4-3), the problem may be the damaged drum (in the drum unit). Replace drum unit (See page 1-5-29). If the defects occur at random intervals, the toner may be leaking from the developing unit or drum unit. Replace the developing unit or drum unit (See page 1-5-28 or 1-5-29).

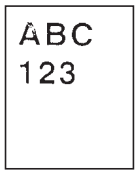
(5) Black horizontal streaks.

Print example	Causes	Check procedures/corrective measures
	Defective drum unit's ground.	Check that the drum shaft and the grounding tab (machine) are in good contact. Apply the grounding tab a small amount of electroconductive grease as required.
	Defective drum unit.	Replace the drum unit (See page 1-5-29).

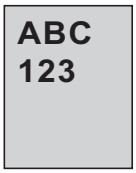
(6) Black vertical streaks.

Print example	Causes	Check procedures/corrective measures
	Adhesion of oxide to main charger wire.	Remove the drum unit (See page 1-5-29). Slide the charger cleaner (green) left and right 2 or 3 times to clean the charger wire, then return it to its original position (CLEANER HOME POSITION). Refer to the operation guide.
	Defective drum unit.	A streak of toner remaining on drum after printing means that the cleaning blade (in the drum unit) is not working properly. Replace the drum unit (See page 1-5-29).
	Defective developing roller (developing unit).	Replace the developing unit (See page 1-5-28).

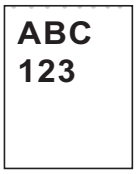
(7) Unsharpness.

Print example	Causes	Check procedures/corrective measures
	Defective paper specifications.	Replace paper with the one that satisfies the paper specification.
	Defective transfer roller installation.	The transfer roller must be supported by the bushes at the both ends. Clean the bush to remove oil and debris. Replace the transfer roller if necessary (See page 1-5-31).
	Defective transfer bias output.	Replace the high voltage PWB or control PWB (See page 1-5-44 or 1-5-38).
	EcoPrint mode setting.	The EcoPrint mode can provides faint, unsharp printing because it acts to conserve toner for draft printing purpose. For normal printing, turn the EcoPrint mode off by using the operator panel. For details, refer to the operation guide.

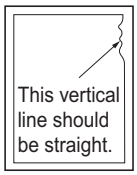
(8) Gray background.

Print example	Causes	Check procedures/corrective measures
	Print density setting.	The print density may be set too high. Try adjusting the print density. For details, refer to the operation guide.
	Defective potential on the drum surface.	Replace the drum unit (See page 1-5-29).
	Defective main charger grid.	Clean the main charger grid (See page 1-5-29).
	Defective developing roller (developing unit).	If a developing unit which is known to work normally is available for check, replace the current developing unit in the machine with the normal one. If the symptom disappears, replace the developing unit with a new one (See page 1-5-28).

(9) Dirt on the top edge or back of the paper.

Print example	Causes	Check procedures/corrective measures
	Toner contamination in various parts.	Dirty edges and back of the paper can be caused by toner accumulated on such parts as the paper chute guide, paper conveying paths, the bottom of the drum and developing unit, and the fuser unit inlet. Clean these areas and parts to remove toner.
	Defective transfer roller.	If the transfer roller is contaminated with toner, clean the transfer roller using a vacuum cleaner or by continuously printing a low density page until the symptom has faded away.

(10) Undulated printing at the right edge (scanning start position).

Print example	Causes	Check procedures/corrective measures
	Defective polygon motor (laser scanner unit).	Replace the laser scanner unit (See page 1-5-16).
	Defective control PWB.	Replace the control PWB (See page 1-5-38).

1-4-4 Electric problems

Problem	Causes	Check procedures/corrective measures
(1) The machine does not operate when the main power switch is turned on.	No electricity at the power outlet.	Measure the input voltage.
	The power cord is not plugged in properly.	Check the contact between the power plug and the outlet.
	The top cover is not closed completely.	Check the top cover.
	Broken power cord.	Check for continuity. If none, replace the cord.
	Defective main power switch.	Check for continuity across the contacts. If none, replace the power source PWB (See page 1-5-41).
	Blown fuse in the power source PWB.	Check for continuity. If none, remove the cause of blowing and replace the power source PWB (See page 1-5-41).
	Defective interlock switch.	Check for continuity across the contacts of interlock switch. If none, replace the power source PWB (See page 1-5-41).
	Defective power source PWB.	Replace the power source PWB (See page 1-5-41).
	Defective control PWB.	Replace the control PWB (See page 1-5-38).
(2) Right cooling fan motor does not operate.	Broken right cooling fan motor coil.	Check for continuity across the coil. If none, replace the right cooling fan motor.
	Defective harness between right cooling fan motor and control PWB (YC27), or improper connector insertion.	Reinsert the connector. Also check for continuity within the connector harness. If none, remedy or replace the harness.
	Defective control PWB.	Replace the control PWB (See page 1-5-38).
(3) Left cooling fan motor does not operate.	Broken left cooling fan motor coil.	Check for continuity across the coil. If none, replace the left cooling fan motor.
	Defective harness between left cooling fan motor and control PWB (YC104), or improper connector insertion.	Reinsert the connector. Also check for continuity within the connector harness. If none, remedy or replace the harness.
	Defective control PWB.	Replace the control PWB (See page 1-5-38).
(4) Power source fan motor does not operate.	Broken power source fan motor coil.	Check for continuity across the coil. If none, replace the power source fan motor.
	Defective harness between power source fan motor and control PWB (YC107), or improper connector insertion.	Reinsert the connector. Also check for continuity within the connector harness. If none, remedy or replace the harness.
	Defective control PWB.	Replace the control PWB (See page 1-5-38).
(5) Registration clutch does not operate.	Broken registration clutch coil.	Check for continuity across the coil. If none, replace the registration clutch.
	Defective harness between registration clutch and control PWB (YC20), or improper connector insertion.	Reinsert the connector. Also check for continuity within the connector harness. If none, remedy or replace the harness.
	Defective control PWB.	Replace the control PWB (See page 1-5-38).

Problem	Causes	Check procedures/corrective measures
(6) Paper feed clutch does not operate.	Broken paper feed clutch coil.	Check for continuity across the coil. If none, replace the paper feed clutch.
	Defective harness between paper feed clutch and control PWB (YC20), or improper connector insertion.	Reinsert the connector. Also check for continuity within the connector harness. If none, remedy or replace the harness.
	Defective control PWB.	Replace the control PWB (See page 1-5-38).
(7) Developing clutch does not operate.	Broken developing clutch coil.	Check for continuity across the coil. If none, replace the developing clutch.
	Defective harness between developing clutch and control PWB (YC20), or improper connector insertion.	Reinsert the connector. Also check for continuity within the connector harness. If none, remedy or replace the harness.
	Defective control PWB.	Replace the control PWB (See page 1-5-38).
(8) Eraser lamp does not turn on.	Defective harness between eraser lamp (YC701) and control PWB (YC28), or improper connector insertion.	Reinsert the connector. Also check for continuity within the connector harness. If none, remedy or replace the harness.
	Defective eraser lamp (PWB).	Replace the eraser lamp (PWB).
	Defective control PWB.	Replace the control PWB (See page 1-5-38).
(9) Paper indicator is flashing when paper is present in the cassette.	Defective paper sensor.	Replace the paper sensor.
	Defective harness between paper sensor and control PWB (YC18), or improper connector insertion.	Reinsert the connector. Also check for continuity within the connector harness. If none, remedy or replace the harness.
(10) A paper jam in the paper feed/conveying section or fuser section is indicated when the main power switch is turned on.	A piece of paper torn from paper is caught around registration sensor or exit sensor.	Check and remove if any.
	Defective registration sensor on the high voltage PWB.	Replace the high voltage PWB (See page 1-5-44).
	Defective exit sensor.	Replace the exit sensor.
(11) Attention indicator is lit when the front cover is closed.	Defective interlock switch on the power source PWB.	Check for continuity across the interlock switch. If there is no continuity when the interlock switch is on, replace the power source PWB (See page 1-5-41).

Problem	Causes	Check procedures/corrective measures
(12) The DP paper feed motor does not operate.	Defective harness between DP and scanner PWB (YC105,YC108, YC109), or improper connector insertion.	Reinsert the connector. Also check for continuity within the connector harness. If none, remedy or replace the harness.
	Defective harness between DP paper feed motor and DP driver PWB (YC3), or improper connector insertion.	Reinsert the connector. Also check for continuity within the connector harness. If none, remedy or replace the harness.
	Defective drive transmission system.	Check if the rollers and gears rotate smoothly. If not, grease the bushings and gears. Check for broken gears and replace if any.
	Defective DP paper feed motor.	Replace the DP paper feed motor.
	Defective DP driver PWB.	Replace the DP driver PWB.
	Defective scanner PWB.	Replace the scanner PWB (See page 1-5-38).
(13) A message indicating cover open is displayed when the top cover is closed correctly.	Defective harness between DP open/close sensor and DP driver PWB (YC2), or improper connector insertion.	Reinsert the connector. Also check for continuity within the connector harness. If none, remedy or replace the harness.
	Defective DP open/close sensor.	Replace the DP open/close sensor.
(14) An original jams when the main power switch is turned on.	A piece of paper torn from an original is caught around the DP timing sensor.	Remove any found.
	Defective DP timing sensor.	Replace the DP timing sensor.

1-4-5 Mechanical problems

Problem	Causes/check procedures	Corrective measures
(1)No primary paper feed.	Check if the surfaces of the paper feed roller is dirty with paper powder.	Clean with isopropyl alcohol.
	Check if the paper feed roller is deformed.	Check visually and replace any deformed paper feed roller (assembly) (See page 1-5-6).
	Defective paper feed clutch installation.	Check visually and remedy if necessary.
(2)No secondary paper feed.	Check if the surfaces of the upper and lower registration rollers are dirty with paper powder.	Clean with isopropyl alcohol.
	Defective registration clutch installation.	Check visually and remedy if necessary.
(3)Skewed paper feed.	Paper width guide in a cassette installed incorrectly.	Check the paper width guide visually and correct or replace if necessary.
(4)Multiple sheets of paper are fed at one time.	Check if the separator pad or MPF separation pad is worn.	Replace the separator pad if it is worn.
	Check if the paper is curled.	Replace the paper.
(5)Paper jams.	Check if the paper is excessively curled.	Replace the paper.
	Check if the contact between the upper and lower registration rollers is correct.	Check visually and remedy if necessary.
	Check if the heat roller or press roller is extremely dirty or deformed.	Replace the fuser unit (See page 1-5-33).
	Check if the contact between the ejection roller and fuser ejection pulley is correct.	Check visually and remedy if necessary.
(6)Toner drops on the paper conveying path.	Check if the drum unit or developing unit is extremely dirty.	Clean the drum unit or developing unit (See page 1-5-29 or 1-5-28).
(7)Abnormal noise is heard.	Check if the pulleys, rollers and gears operate smoothly.	Grease the bearings and gears.
	Check if the following electromagnetic clutches are installed correctly: Paper feed clutch, registration clutch and developing clutch.	Check visually and remedy if necessary.
(8) No primary original feed.	The surfaces of the forwarding pulley, feed pulley or separation pad are dirty with paper powder.	Check and clean them with isopropyl alcohol if they are dirty (see page 1-5-4 or page 1-5-7).
	Check if the forwarding pulley or the feed pulley is deformed.	If so, replace (see page 1-5-4).
	Electrical problem with the DP paper feed motor.	See page 1-4-17.
(9) Originals jam.	Originals outside the specifications are used.	Use only originals conforming to the specifications.
	The surfaces of the forwarding pulley, feed pulley or separation pad are dirty with paper powder.	Check and clean them with isopropyl alcohol if they are dirty (see page 1-5-4 or page 1-5-7).
	Check if the contact between the eject roller and exit pulley is correct.	Check visually and remedy if necessary.

1-4-6 Error codes

(1) Error code

Error codes are listed on the communication reports, activity report, etc. The codes consist of an error code indication U followed by a 5-digit number. (Error codes for V34 communication errors start with an E indication, followed by five digits.) The upper three of the five digits indicate general classification of the error and its cause, while the lower two indicate the detailed classification. Items for which detailed classification is not necessary have 00 as the last two digits.

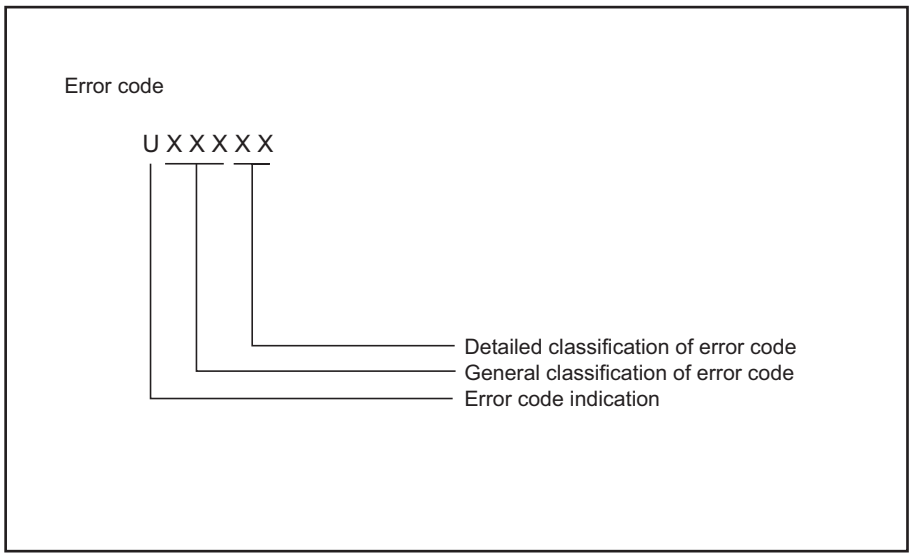


Figure 1-4-3

(2) Table of general classification

Error code	Description
U00000	No response or busy after the set number of redials.
U00100	Transmission was interrupted by a press of the stop/clear key.
U00200	Reception was interrupted by a press of the stop/clear key.
U00300	Recording paper on the destination unit has run out during transmission.
U004XX	A connection was made but interrupted during handshake with the receiver unit (refer to 1-4-22 U004XX error code table).
U006XX	Communication was interrupted because of a machine problem (refer to 1-4-22 U006XX error code table).
U00700	Communication was interrupted because of a problem in the destination unit.
U008XX	A page transmission error occurred in G3 mode (refer to 1-4-22 U008XX error code table).
U009XX	A page reception error occurred in G3 mode (refer to 1-4-22 U009XX error code table).
U010XX	Transmission in G3 mode was interrupted by a signal error (refer to 1-4-23 U010XX error code table).
U011XX	Reception in G3 mode was interrupted by a signal error (refer to 1-4-24 U011XX error code table).
U01400	An invalid one-touch key was specified during communication.
U01500	A communication error occurred when calling in V.8 mode.
U01600	A communication error occurred when called in V.8 mode.
U017XX	A communication error occurred before starting T.30 protocol during transmission in V.34 mode (refer to 1-4-24 U017XX error code table).
U018XX	A communication error occurred before starting T.30 protocol during reception in V.34 mode (refer to 1-4-25 U018XX error code table).
U03000	No document was present in the destination unit when polling reception started.
U03200	In interoffice subaddress-based bulletin board reception, data was not stored in the box specified by the destination unit.
U03300	In polling reception from a unit of our make, operation was interrupted due to a mismatch in permit ID or telephone number. Or, in interoffice subaddress-based bulletin board reception, operation was interrupted due to a mismatch in permit ID or telephone number.
U03400	Polling reception was interrupted because of a mismatch in individual numbers (destination unit is either of our make or by another manufacturer).
U03500	In interoffice subaddress-based bulletin board reception, the specified Subaddress confidential box number was not registered in the destination unit.
U03600	An interoffice subaddress-based bulletin board reception was interrupted because of a mismatch in the specified subaddress confidential box number.
U03700	Interoffice subaddress-based bulletin board reception failed because the destination unit had no subaddress-based bulletin board transmission capability, or data was not stored in any subaddress confidential box in the destination unit.
U04000	In interoffice subaddress-based transmission mode, the specified subaddress box number was not registered in the destination unit.
U04100	Subaddress-based transmission failed because the destination unit had no subaddress-based reception capability.
U04200	In encrypted transmission, the specified encryption box was not registered in the destination unit.
U04300	Encrypted transmission failed because the destination unit had no encrypted communication capability.
U04400	Encrypted transmission was interrupted because encryption keys did not agree.

Error code	Description
U04500	Encrypted reception was interrupted because of a mismatch in encryption keys.
U05100	Password check transmission or restricted transmission was interrupted because the permit ID's did not agree with.
U05200	Password check reception or restricted reception was interrupted because the permit ID's did not match, the rejected FAX number's did match, or the destination receiver did not return its phone number.
U05300	The password check reception or the restricted reception was interrupted because the permitted numbers did not match, the rejected numbers did match, or the machine in question did not acknowledge its phone number.
U14000	Memory overflowed during confidential reception. Or, in subaddress-based confidential reception, memory overflowed.
U14100	In interoffice subaddress-based transmission, memory overflowed in the destination unit.
U19000	Memory overflowed during memory reception.
U19100	Memory overflowed in the destination unit during transmission.
U19300	Transmission failed because an error occurred during JBIG encoding.

(2-1) U004XX error code table: Interrupted phase B

Error code	Description
U00430	Polling request was received but interrupted because of a mismatch in permit number. Or, subaddress-based bulletin board transmission request was received but interrupted because of a mismatch in permit ID in the transmitting unit.
U00431	An subaddress-based bulletin board transmission was interrupted because the specified subaddress confidential box was not registered.
U00432	An subaddress-based bulletin board transmission was interrupted because of a mismatch in Subaddress confidential box numbers.
U00433	Subaddress-based bulletin board transmission request was received but data was not present in the subaddress confidential box.
U00440	Subaddress-based confidential reception was interrupted because the specified subaddress box was not registered.
U00450	The destination transmitter disconnected because the permit ID's did not agree with while the destination transmitter is in password-check transmission or restricted transmission.
U00460	Encrypted reception was interrupted because the specified encryption box number was not registered.
U00462	Encrypted reception was interrupted because the encryption key for the specified encryption box was not registered.

(2-2) U006XX error code table: Problems with the unit

Error code	Description
U00601	Document jam or the document length exceeds the maximum.
U00613	Image writing section problem
U00656	Data was not transmitted to a modem error.
U00690	System error.

(2-3) U008XX error code table: Page transmission error

Error code	Description
U00800	A page transmission error occurred because of reception of a RTN or PIN signal.
U00811	A page transmission error reoccurred after retry of transmission in the ECM mode.

(2-4) U009XX error code table: Page reception error

Error code	Description
U00900	An RTN or PIN signal was transmitted because of a page reception error.
U00910	A page reception error remained after retry of transmission in the ECM mode.

(2-5) U010XX error code table: G3 transmission

Error code	Description
U01000	An FTT signal was received for a set number of times after TCF signal transmission at 2400 bps. Or, an RTN signal was received in response to a Q signal (excluding EOP) after transmission at 2400 bps.
U01001	Function of the unit differs from that indicated by a DIS signal.
U01016	An MCF signal was received but no DIS signal was received after transmission of an EOM signal, and T1 timeout was detected.
U01019	No relevant signal was received after transmission of a CNC signal, and the preset number of command retransfers was exceeded (between units of our make).
U01020	No relevant signal was received after transmission of a CTC signal, and the preset number of command retransfers was exceeded (ECM).
U01021	No relevant signal was received after transmission of an EOR.Q signal, and the preset number of command retransfers was exceeded (ECM).
U01022	No relevant signal was received after transmission of an RR signal, and the preset number of command retransfers was exceeded (ECM).
U01028	T5 time-out was detected during ECM transmission (ECM).
U01052	A DCN signal was received after transmission of an RR signal (ECM).
U01080	A PIP signal was received after transmission of a PPS.NULL signal.
U01092	During transmission in V.34 mode, communication was interrupted because of an impossible combination of the symbol speed and communication speed.
U01093	A DCN or other inappropriate signal was received during phase B of transmission.
U01094	The preset number of command retransfers for DCS/NSS signals was exceeded during phase B of transmission.
U01095	No relevant signal was received after transmission of a PPS (Q) signal during phase D of transmission, and the preset number of command transfers was exceeded.
U01096	A DCN signal or invalid command was received during phase D of transmission.
U01097	The preset number of command retransfers was exceeded after transmission of an RR signal or no response.

(2-6) U011XX error code table: G3 reception

Error code	Description
U01100	Function of the unit differs from that indicated by a DCS signal.
U01101	Function of the unit (excl. communication mode select) differs from that indicated by an NSS signal.
U01102	A DTC (NSC) signal was received when no transmission data was in the unit.
U01110	No response after transmission of a DIS signal.
U01111	No response after transmission of a DTC (NSC) signal.
U01113	No response after transmission of an FTT signal.
U01125	No response after transmission of a CNS signal (between units of our make).
U01129	No response after transmission of an SPA signal (short protocol).
U01141	A DCN signal was received after transmission of a DTC signal.
U01143	A DCN signal was received after transmission of an FTT signal.
U01155	A DCN signal was received after transmission of an SPA signal (short protocol).
U01160	During message reception, transmission time exceeded the maximum transmission time per line.
U01162	Reception was aborted due to a modem malfunction during message reception.
U01191	Communication was interrupted because an error occurred during an image data reception sequence in the V.34 mode.
U01193	There was no response, or a DCN signal or invalid command was received, during phase C/D of reception.
U01194	A DCN signal was received during phase B of reception.
U01195	No message was received during phase C of reception.
U01196	Error line control was exceeded and a decoding error occurred for the message being received.

(2-7) U017XX error code table: V.34 transmission

Error code	Description
U01700	A communication error occurred in phase 2 (line probing).
U01720	A communication error occurred in phase 4 (modem parameter exchange).
U01721	Operation was interrupted due to the absence of a common communication speed between units.

U01700: A communication error that occurs at the transmitting unit in the period after transmission of INFO0 before entering phase 3 (primary channel equivalent device training). For example, INFO0/A/Abar (B/Bbar, for polling transmission)/INFOh was not detected.

U01720: A communication error that occurs at the transmitting unit in the period after initiating the control channel before entering the T.30 process. For example, PPh/ALT/MPh/E was not detected.

U01721: In the absence of a common communication speed between units (including when an impossible combination of communication speed and symbol speed occurs) after MPh exchange; 1) a DCN signal was received from the destination unit, and the line was cut; or 2) a DIS (NSF, CSI) signal was received from the destination unit and, in response to the signal, the unit transmitted a DCN signal, and the line was cut.

(2-8) U018XX error code table: V.34 reception

Error code	Description
U01800	A communication error occurred in phase 2 (line probing).
U01810	A communication error occurred in phase 3 (primary channel equivalent device training).
U01820	A communication error occurred in phase 4 (modem parameter exchange).
U01821	Operation was interrupted due to the absence of a common communication speed between units.

U01800: A communication error that occurs at the receiver unit in the period after transmission of INFO0 before entering phase 3 (primary channel equivalent device training). For example, INFO0/B/Bbar (A/Abar, for polling reception)/ probing tone was not detected.

U01810: A communication error that occurs at the receiver unit in phase 3 (primary channel equivalent device training). For example, S/Sbar/PP/TRN was not detected.

U01820: A communication error that occurs at the receiver unit in the period after initiating the control channel before entering the T.30 process. For example, PPh/ALT/MPh/E was not detected.

U01821: In the absence of a common communication speed between units (including when an impossible combination of communication speed and symbol speed occurs) after MPh exchange, a DCN signal was transmitted to the destination unit and the line was cut.

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1-5-1 Precautions for assembly and disassembly

(1) Precautions

Before starting disassembly, press the Power key on the operation panel to off. Make sure that the Power lamp is off before turning off the main power switch. And then unplug the power cable from the wall outlet.
When the fax kit is installed, be sure to disconnect the modular code before starting disassembly.
When handling PWBs (printed wiring boards), do not touch parts with bare hands.
The PWBs are susceptible to static charge.
Do not touch any PWB containing ICs with bare hands or any object prone to static charge.
When removing the hook of the connector, be sure to release the hook.
Take care not to get the cables caught.
To reassemble the parts, use the original screws. If the types and the sizes of screws are not known, refer to the PARTS LIST.

(2) Drum

Note the following when handling or storing the drum.
When removing the drum unit, never expose the drum surface to strong direct light.
Keep the drum at an ambient temperature between -20°C/-4°F and 40°C/104°F and at a relative humidity not higher than 90% RH. Avoid abrupt changes in temperature and humidity.
Avoid exposure to any substance which is harmful to or may affect the quality of the drum.
Do not touch the drum surface with any object. Should it be touched by hands or stained with oil, clean it.

(3) Toner

Store the toner container in a cool, dark place.
Avoid direct light and high humidity.

(4) How to tell a genuine Kyocera Mita toner container

As a means of brand protection, the Kyocera Mita toner container utilizes an optical security technology to enable visual validation. A validation viewer is required to accomplish this.

Hold the validation viewer over the left side part of the brand protection seal on the toner container. Through each window of the validation viewer, the left side part of the seal should be seen as follows:

A black-colored band when seen through the left side window (●)

A shiny or gold-colored band when seen through the right side window (☼)

The above will reveal that the toner container is a genuine Kyocera Mita branded toner container, otherwise, it is a counterfeit.

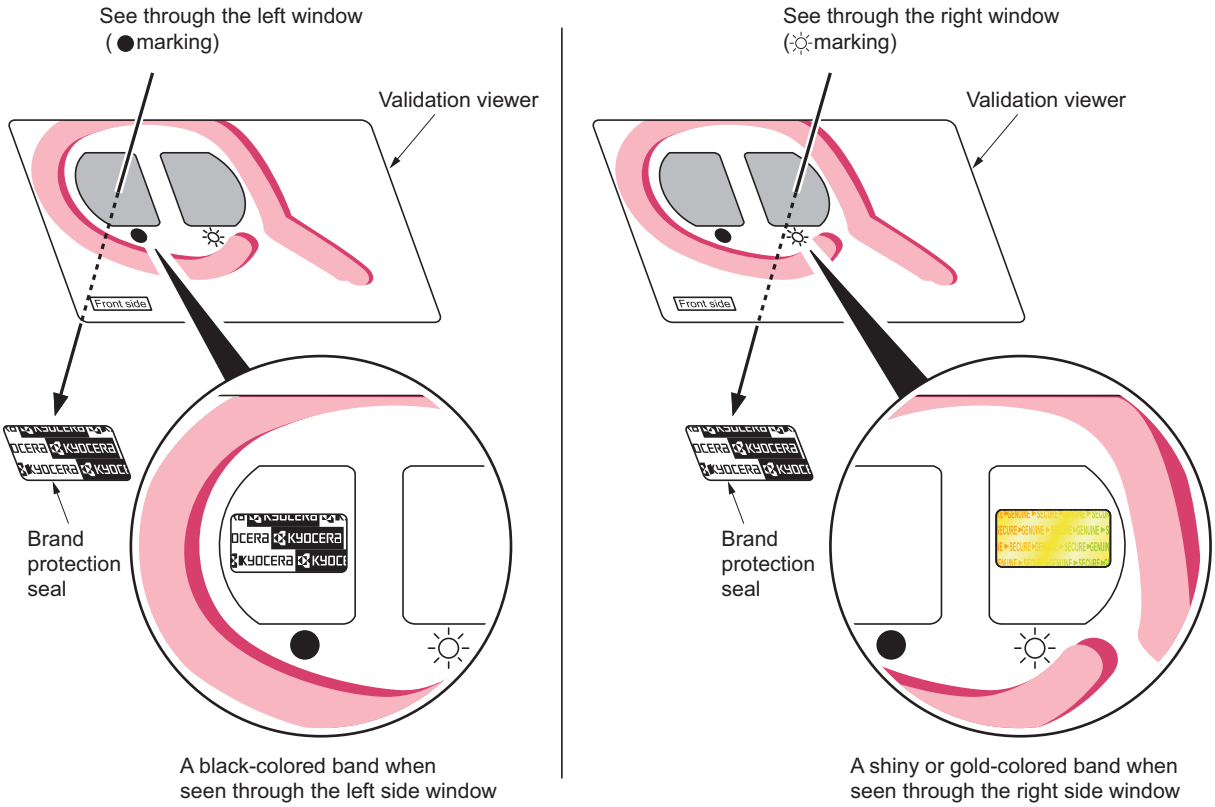

Figure 1-5-1

The brand protection seal has an incision as shown below to prohibit reuse.

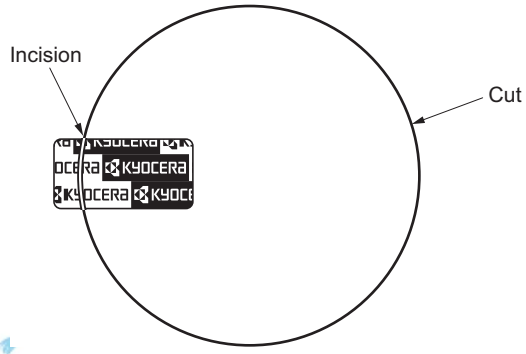

Figure 1-5-2

1-5-2 Outer covers

(1) Detaching and refitting the left cover and right cover

Procedure

1. Remove the screw.
2. Unhook four hooks and then remove the rear upper cover.
3. Remove the cassette (See page 1-5-6).
4. Open the front cover.

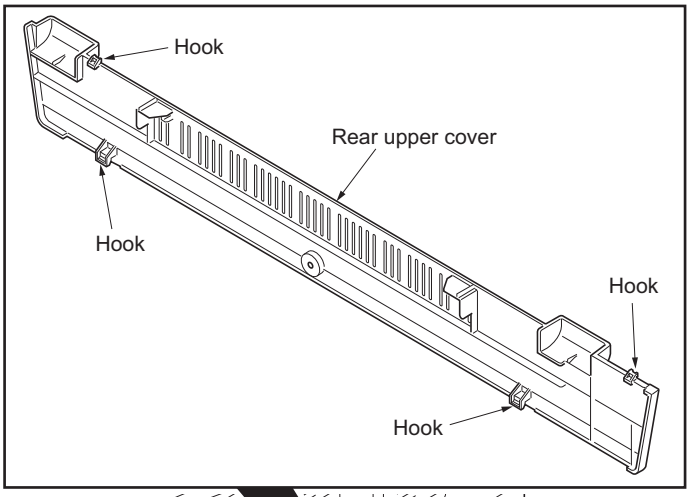

Figure 1-5-3

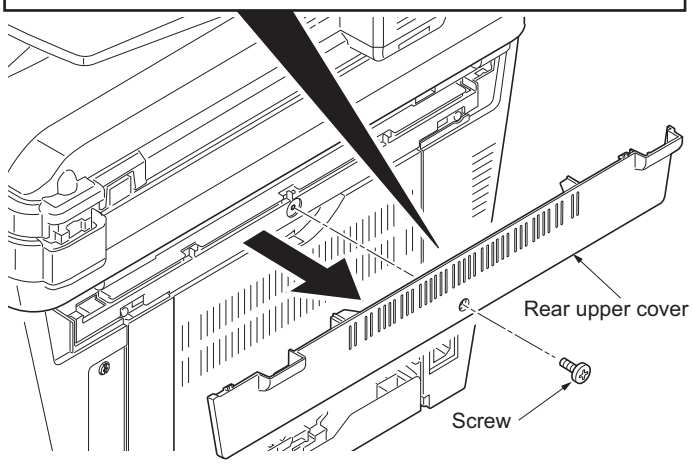

Figure 1-5-4

5. Unhook seven hooks and then remove the right cover.

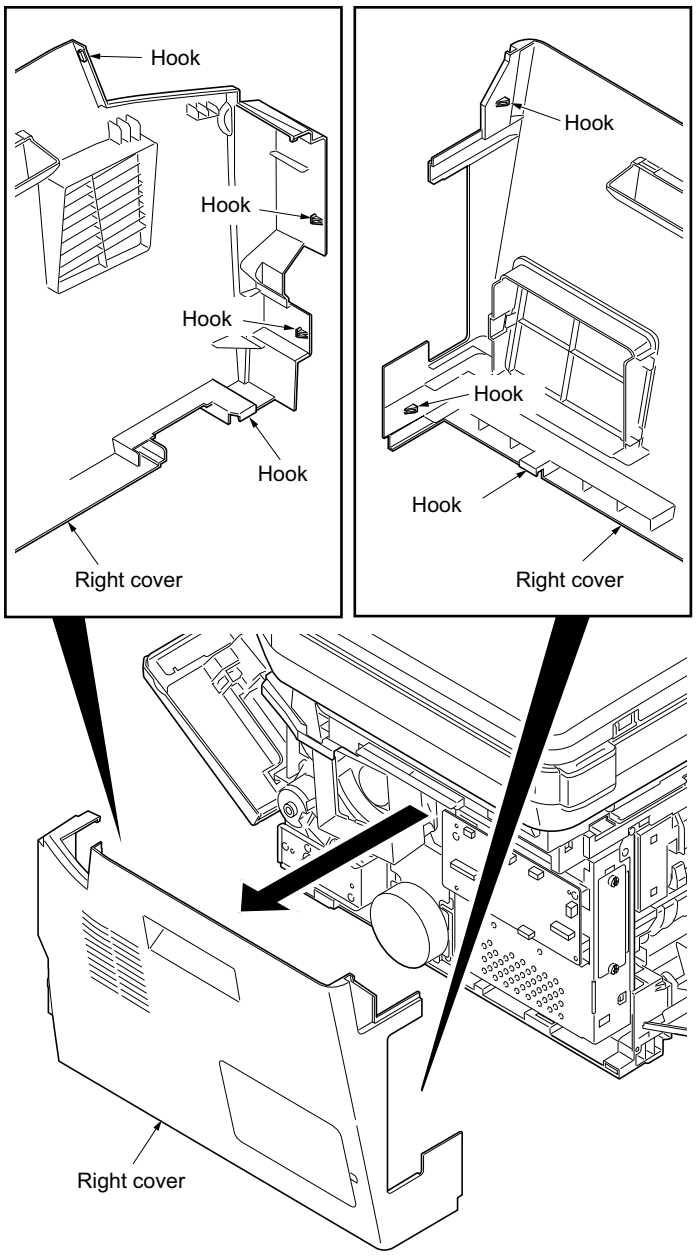

Figure 1-5-5

6. Unhook six hooks and then remove the left cover.

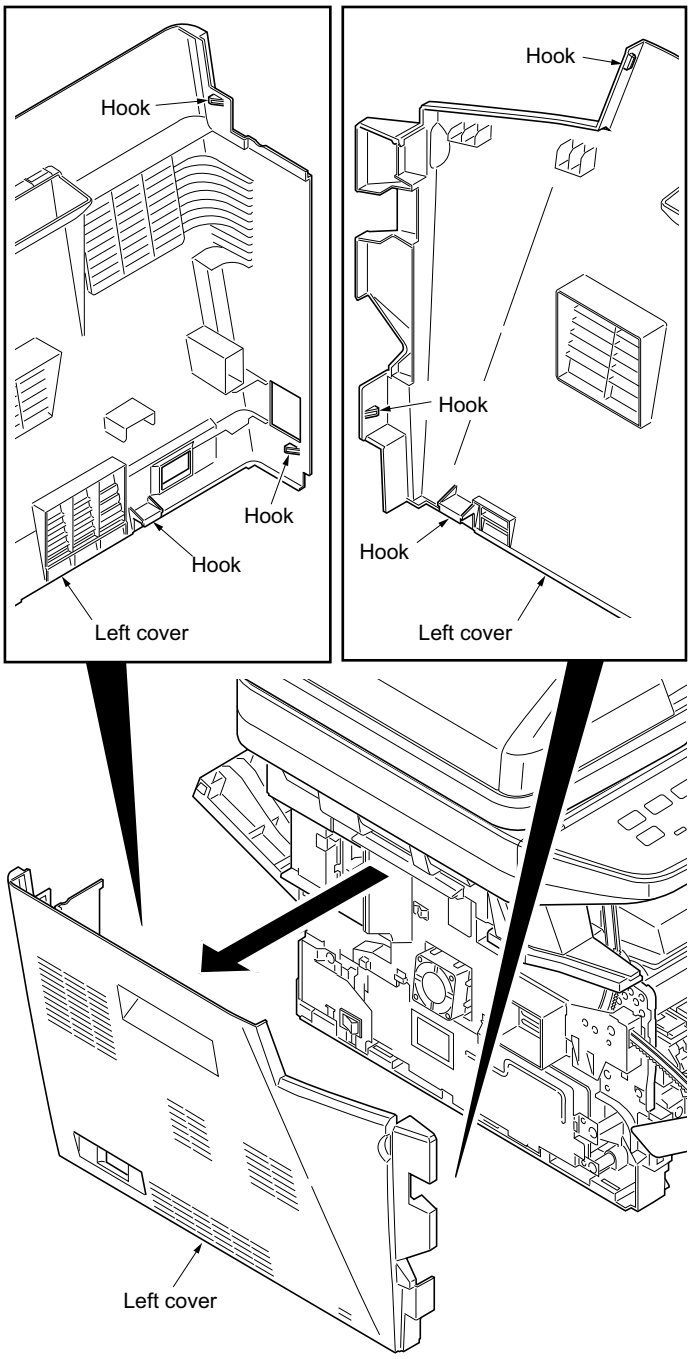

Figure 1-5-6

1-5-3 Paper feed section

(1) Detaching and refitting the paper feed assembly (paper feed roller and pickup roller)

Procedure

1. Remove the cassette.

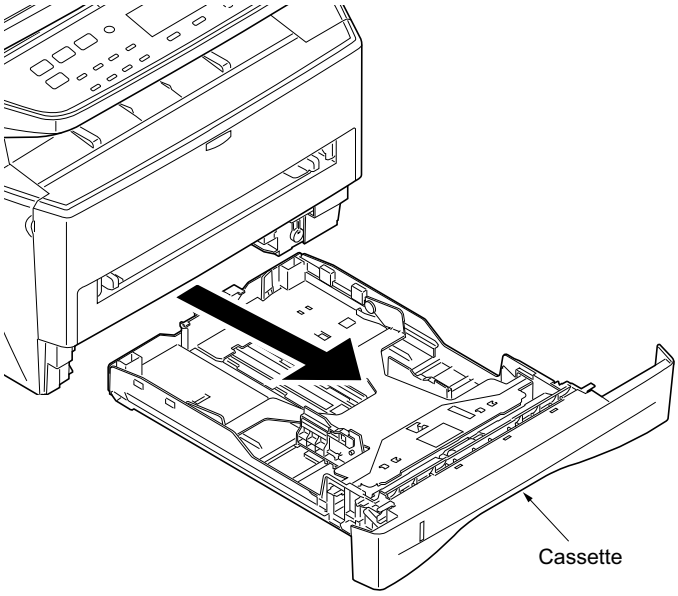

Figure 1-5-7

2. Slide the feed shaft.
3. While pressing the lever and then remove the paper feed roller assembly.

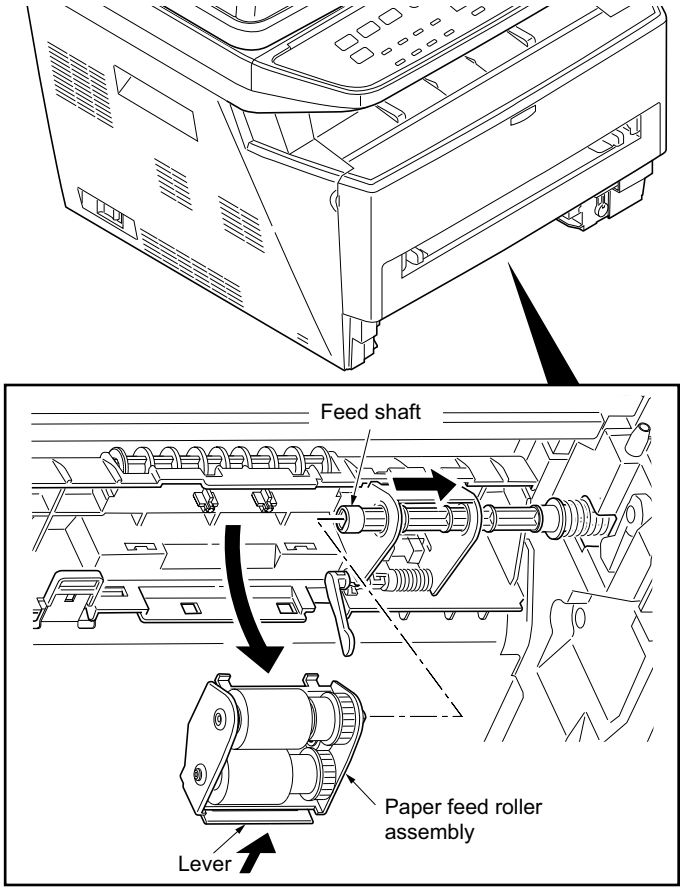

Figure 1-5-8

4. Check or replace the paper feed assembly and refit all the removed parts.

   When refitting the paper feed roller assembly, be sure to align the paper feed roller pivot with the slotted hole on the feed shaft.

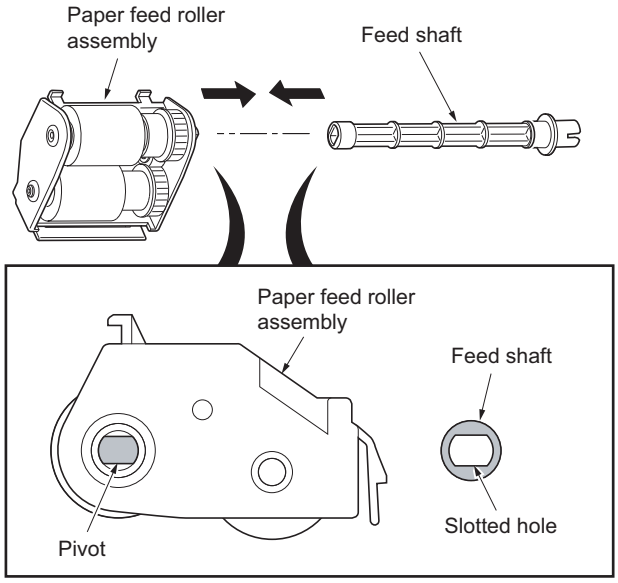

Figure 1-5-9

(2) Detaching and refitting the retard roller assembly

Procedure

1. Remove the cassette (See page 1-5-6).
2. Push the bottom plate down until it locks.
3. Unhook two hooks and then remove the retard guide.

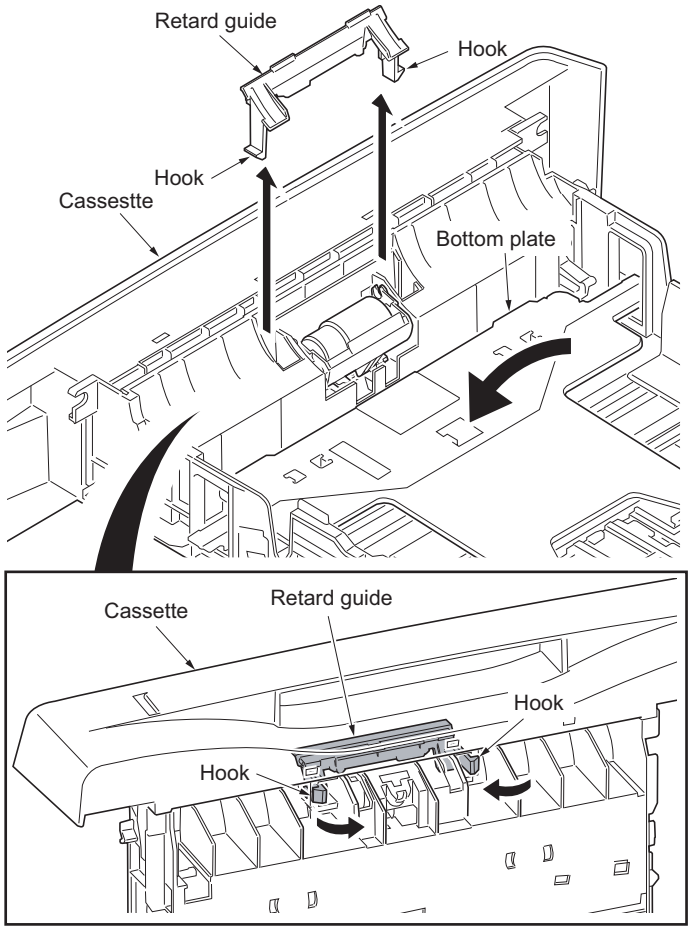

Figure 1-5-10

4. Remove the retard roller assembly.

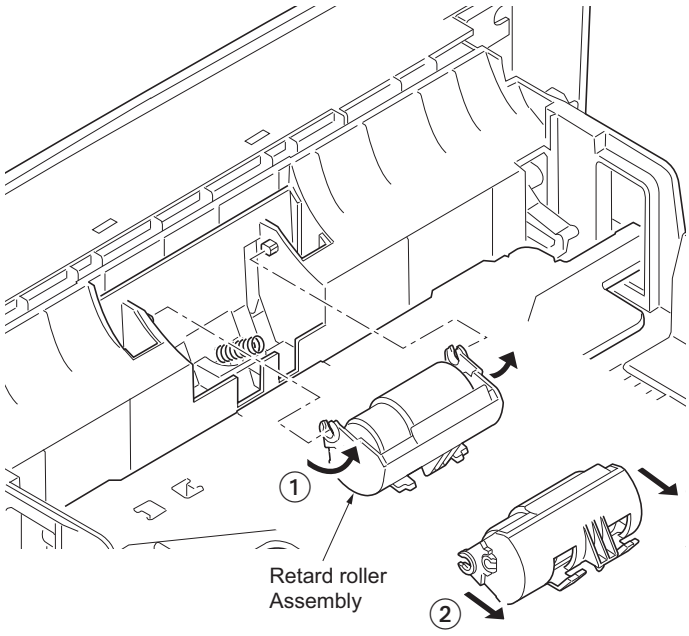

Figure 1-5-11

5. Check or replace the retard roller assembly and refit all the removed parts.

   Caution: Before refitting the retard roller assembly, firmly install the spring onto the projection of the retard roller assembly.

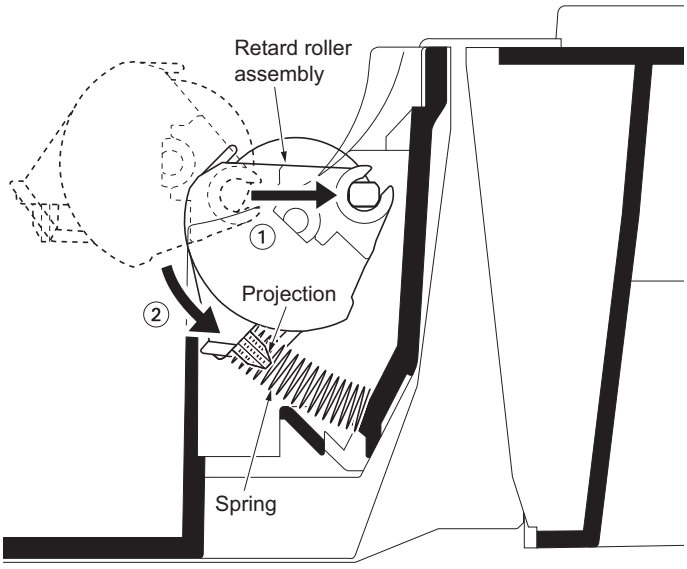

Figure 1-5-12

(3) Note on removing and Installing the upper registration roller and lower registration roller

When reinstalling the upper registration roller or lower registration roller, be sure to use a new registration L spring and registration R spring. Otherwise, paper feeding may be deteriorated due to the spring hooks possibly being distorted during the spring is unhooked.

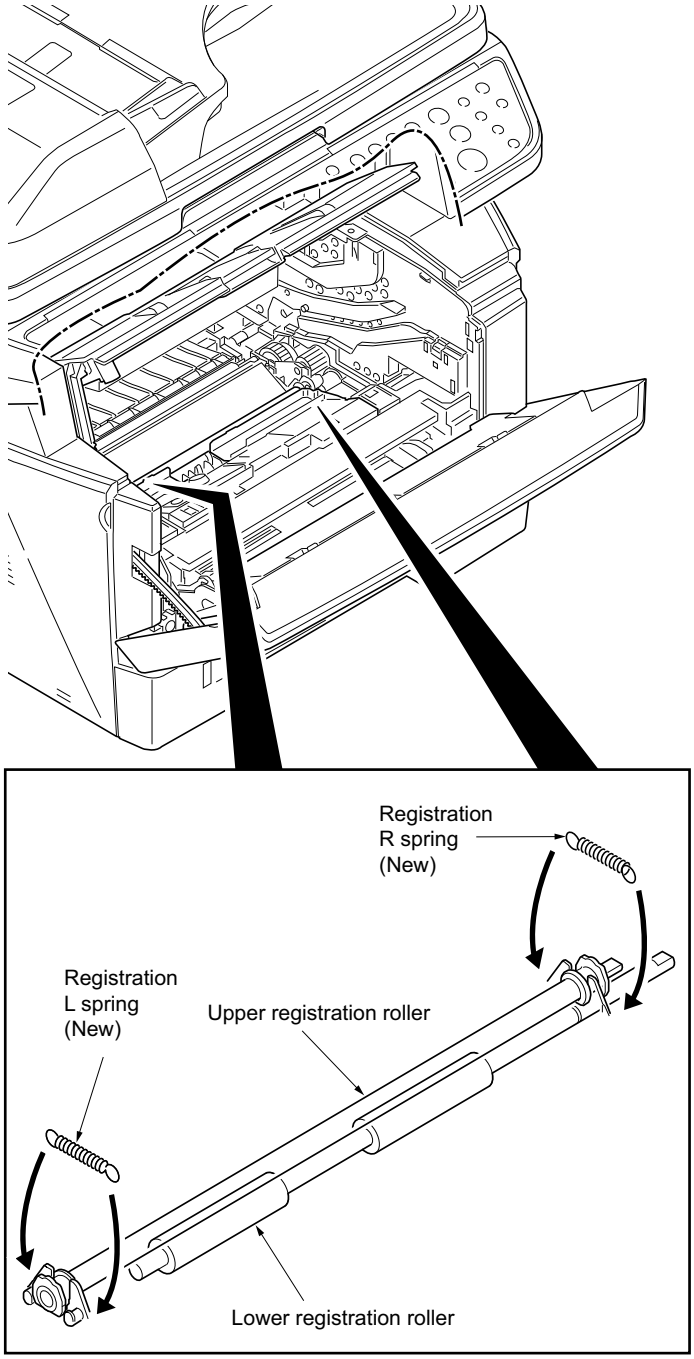

Figure 1-5-13

1-5-4 Optical section

(1) Detaching and refitting the DP

Procedure

1. Remove the left cover and right cover (See page 1-5-3).
2. Remove three connectors from the scanner PWB.

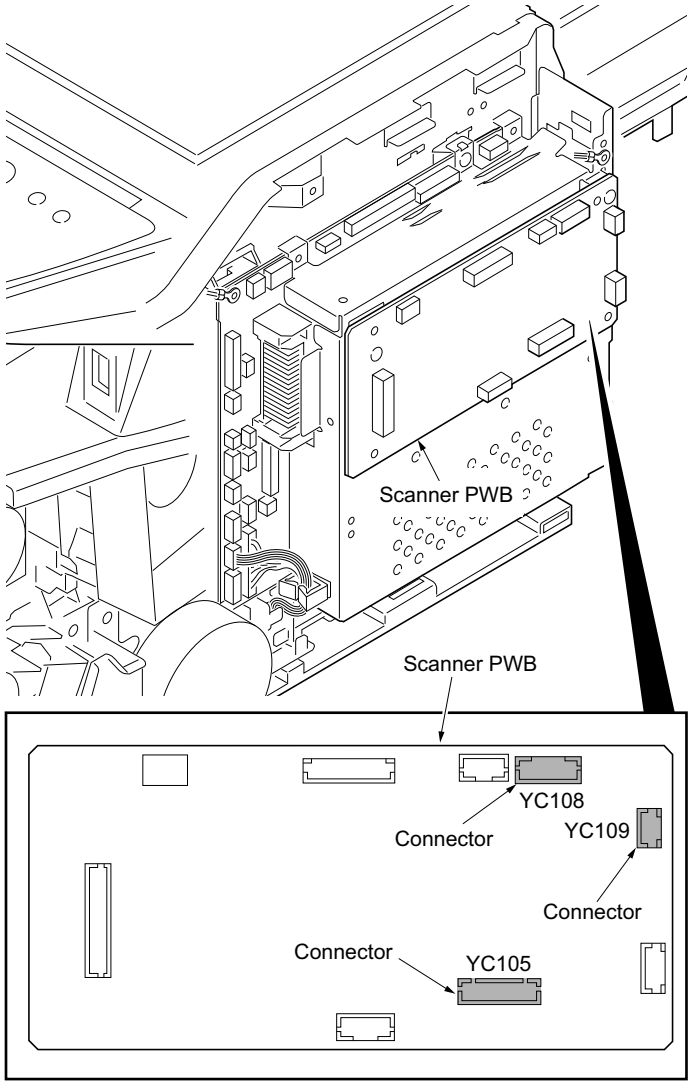

Figure 1-5-14

3. Release the clamp and then remove the wires.

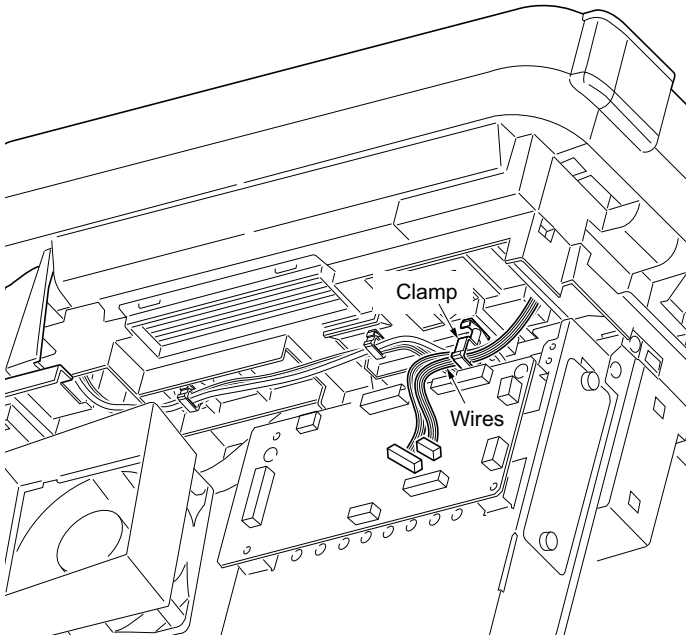

Figure 1-5-15

4. Pull the DP out.

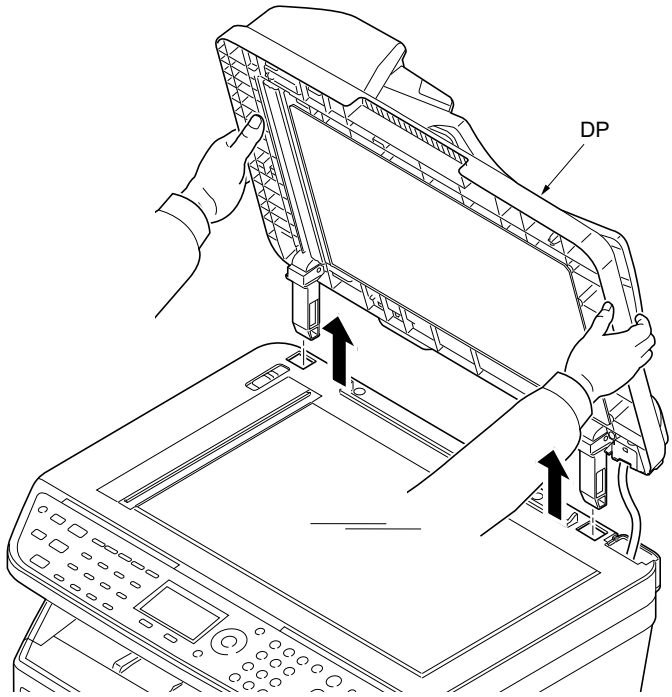

Figure 1-5-16

(2) Detaching and refitting the scanner unit

Procedure

1. Remove the DP (See page 1-5-11).
2. Remove the left cover and right cover (See page 1-5-3).
3. Remove the FFC and connector from the control PWB.
4. Remove the connector from the scanner PWB.

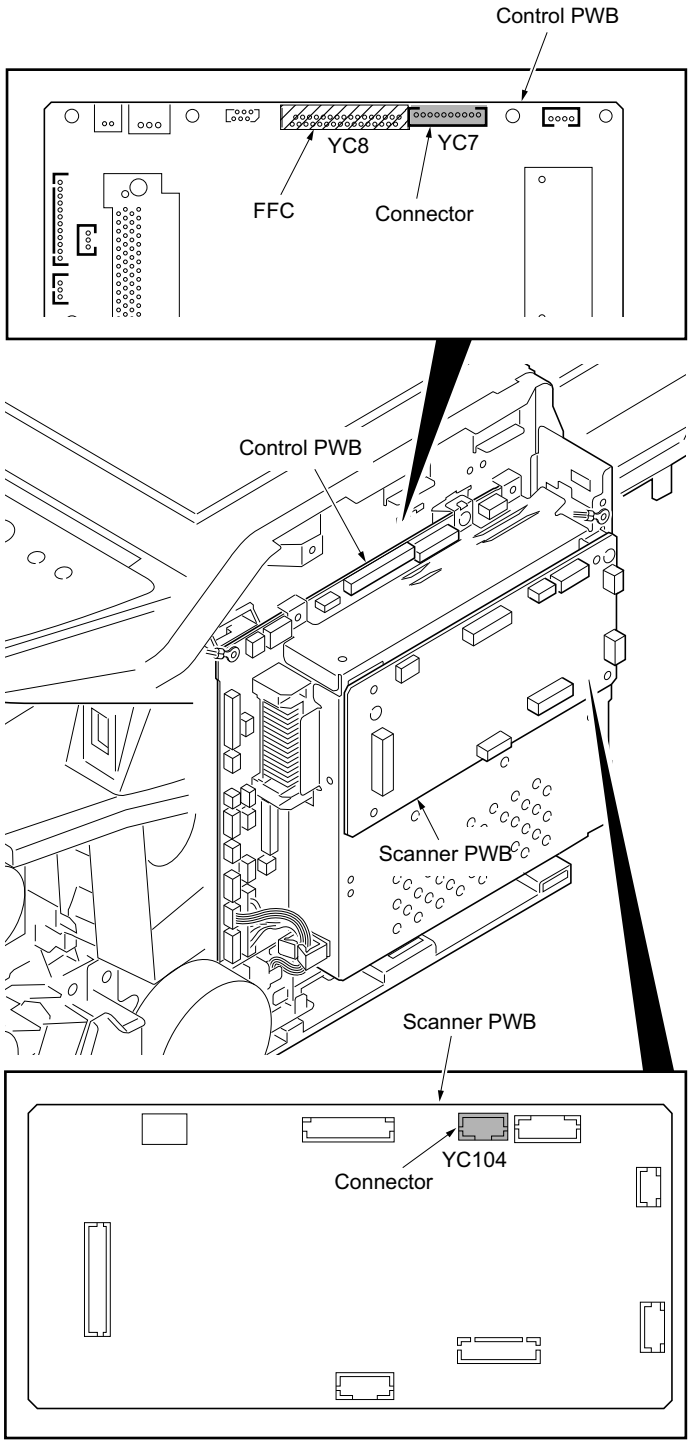

Figure 1-5-17

5. Release three clamps and then remove the wires.

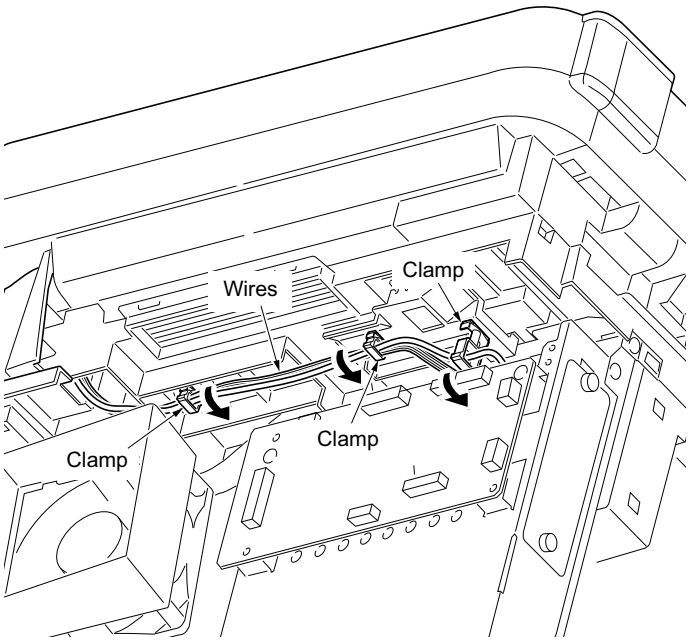

Figure 1-5-18

6. Remove two screws.

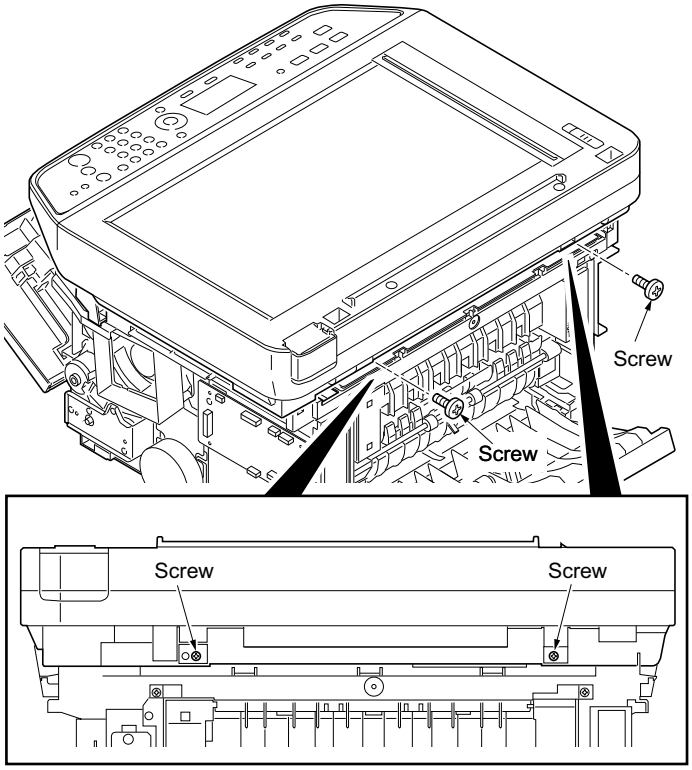

Figure 1-5-19

7. Unhook four hooks and then remove the scanner unit.

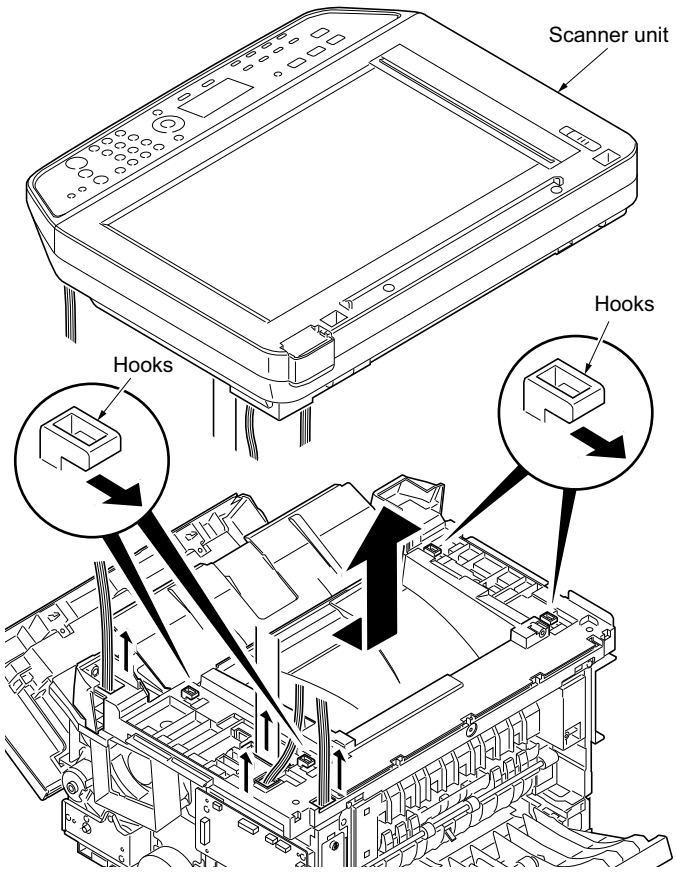

Figure 1-5-20

(3) Detaching and refitting the laser scanner unit (LSU)

Procedure

1. Remove the scanner unit (See page 1-5-13).
2. Remove the screw and then remove the grounding terminal.
3. Remove two connectors from the control PWB.

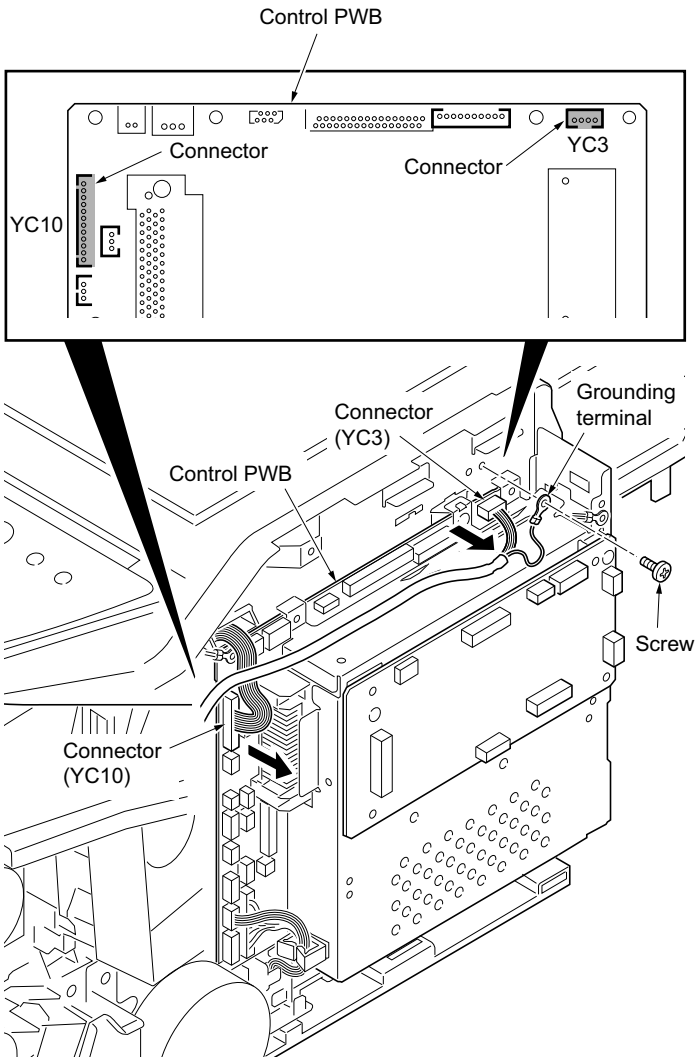

Figure 1-5-21

4. Remove the wires from three clamps.
5. Remove the connector from the power source PWB.

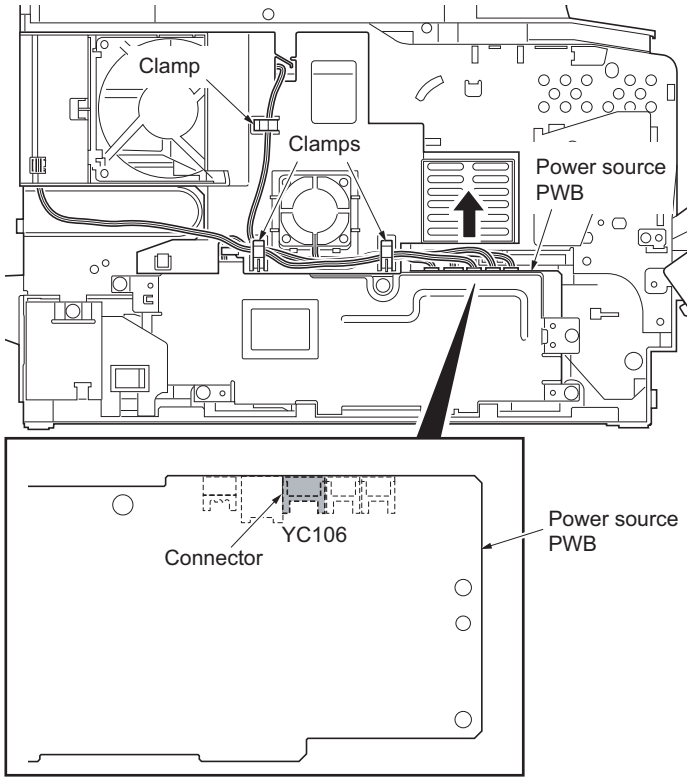

Figure 1-5-22

6. Unhook four hooks and then remove the frame left duct.
7. Remove the wires from the clamp.

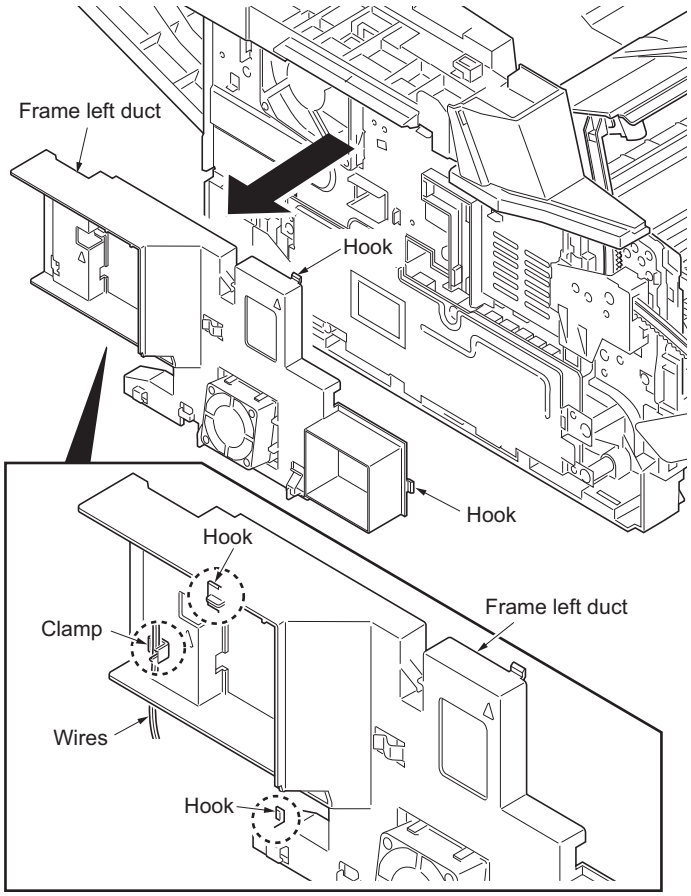

Figure 1-5-23

8. Remove the stopper and then remove the top cover rack-L from the top cover.

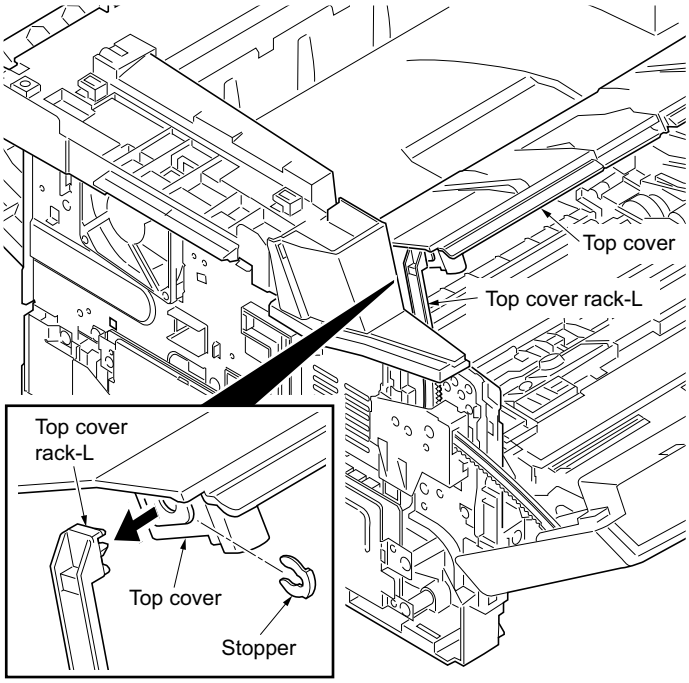

Figure 1-5-24

9. Remove four screws from the top cover.

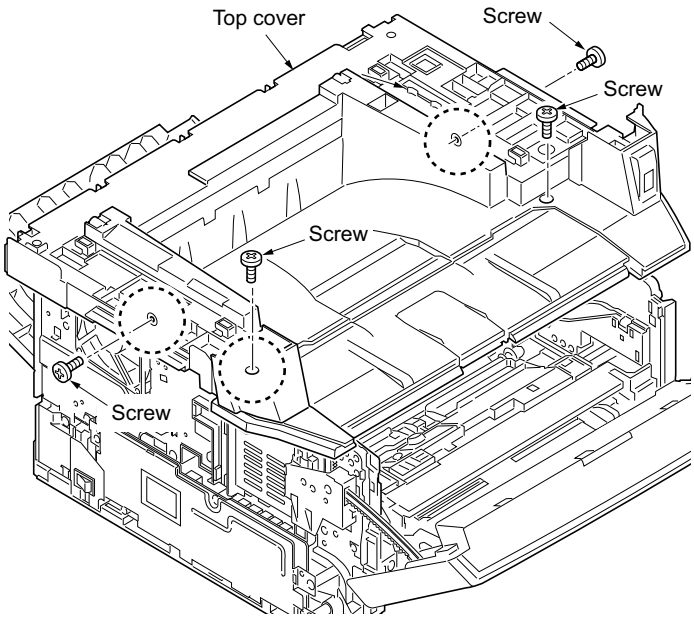

Figure 1-5-25

10. Unhook two hooks and then remove the top cover.
11. Remove the connector.

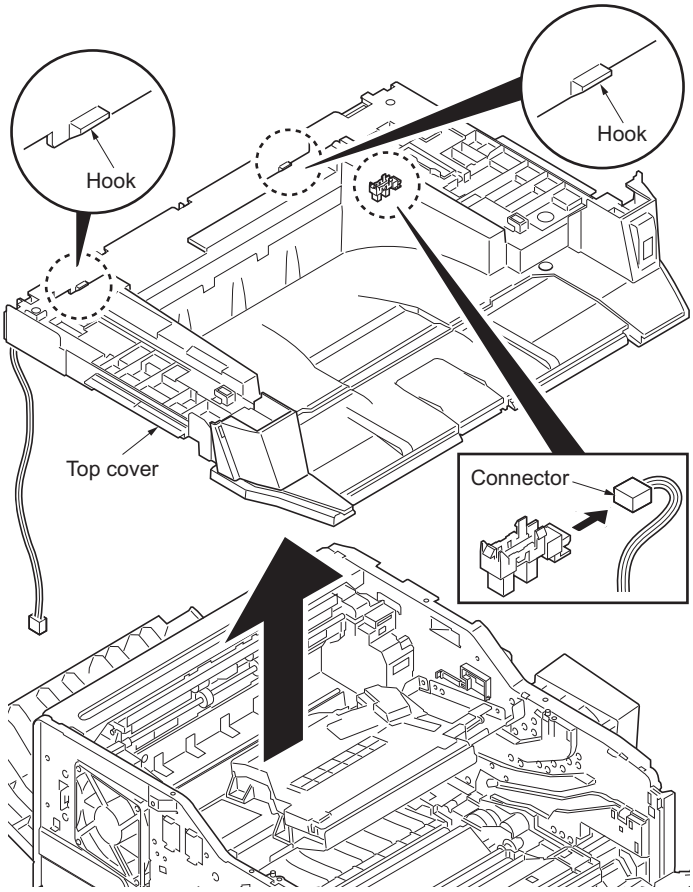

Figure 1-5-26

12. Release the clamp and then pull out the wires.
13. Remove four screws and then remove the laser scanner unit (LSU).
14. Check or replace the laser scanner unit (LSU) and refit all the removed parts.

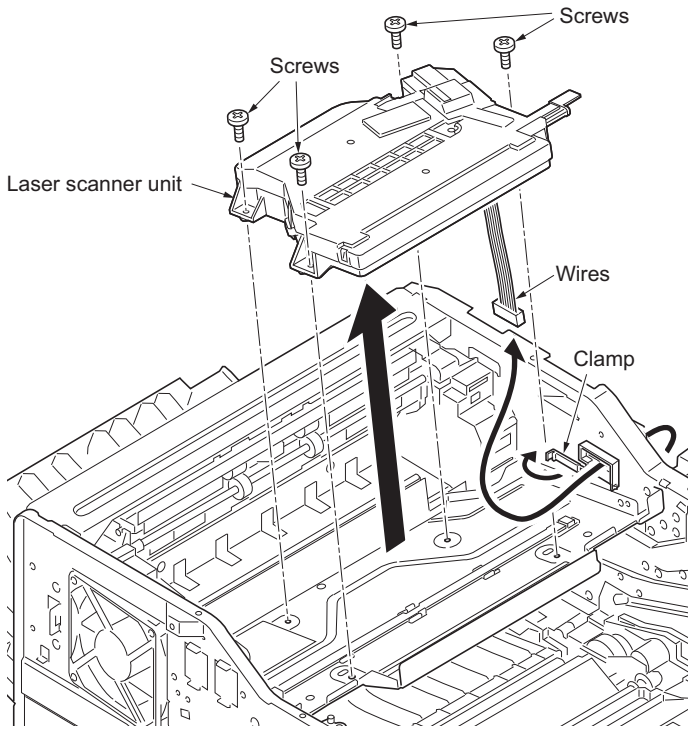

Figure 1-5-27

(4) Replacing the image scanner unit (ISU)

Procedure
Removing the image scanner unit (ISU)

1. Remove the DP (See page 1-5-11).
2. Unhook two hooks by using a flat screw-driver from the pits.
3. Remove the connector and then remove the operation panel.

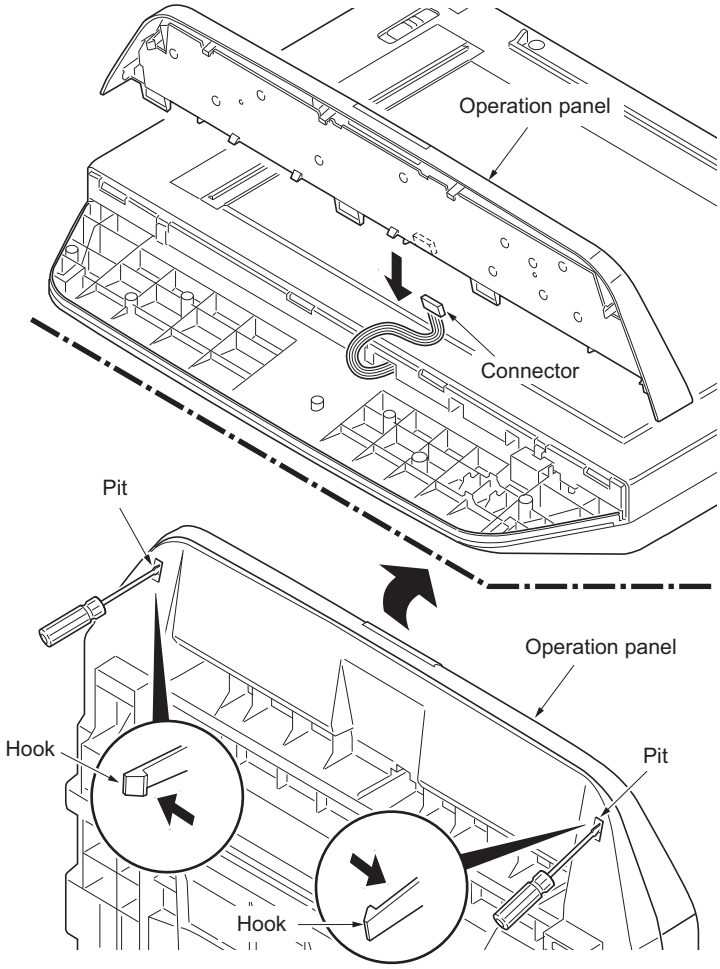

Figure 1-5-28

4. Remove two screws.
5. Unhook three hooks and then remove the ISU upper frame.

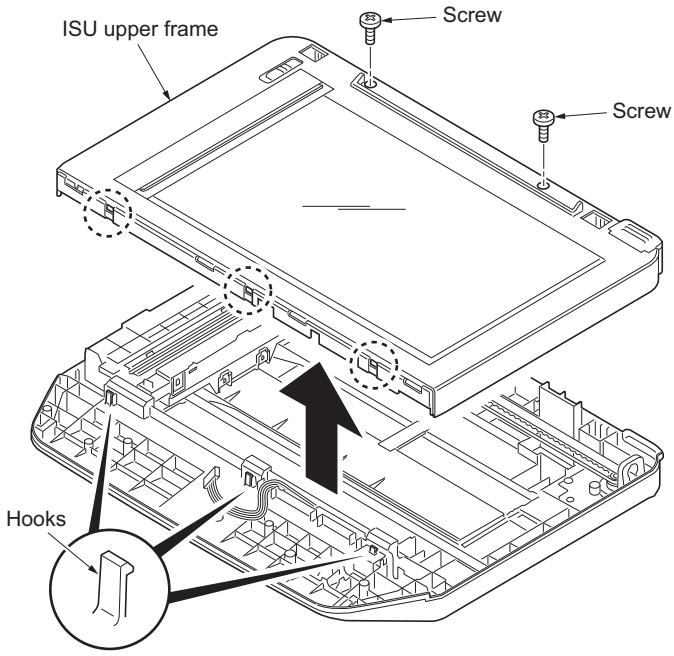

Figure 1-5-29

6. Move the image scanner unit (ISU) in the middle of the ISU shaft.
7. Detach the ISU shaft from the holder by lifting it.
8. Pull the ISU shaft out from the ISU.

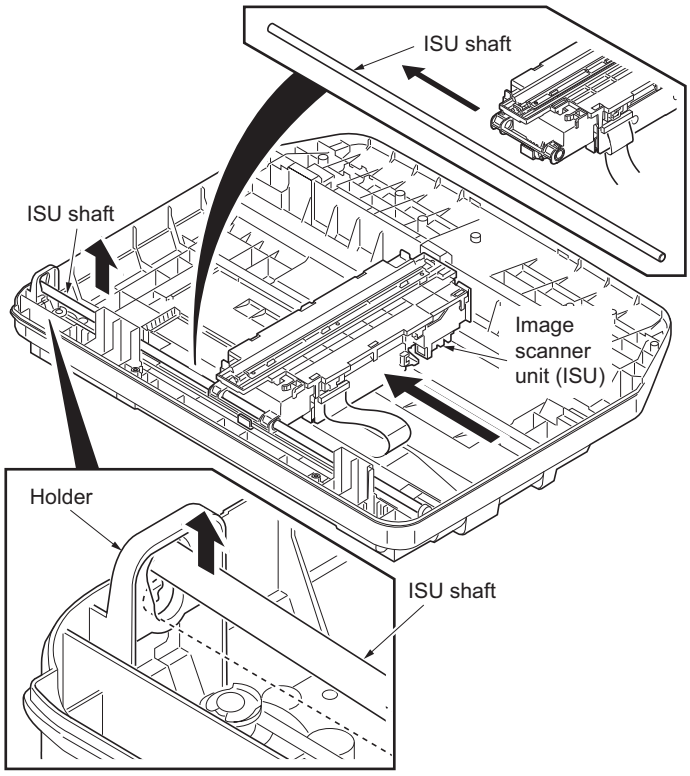

Figure 1-5-30

9. Remove the ISU belt from the tension pulley and ISU gear 63/32.
10. Remove the ISU belt from the hooks of the ISU.

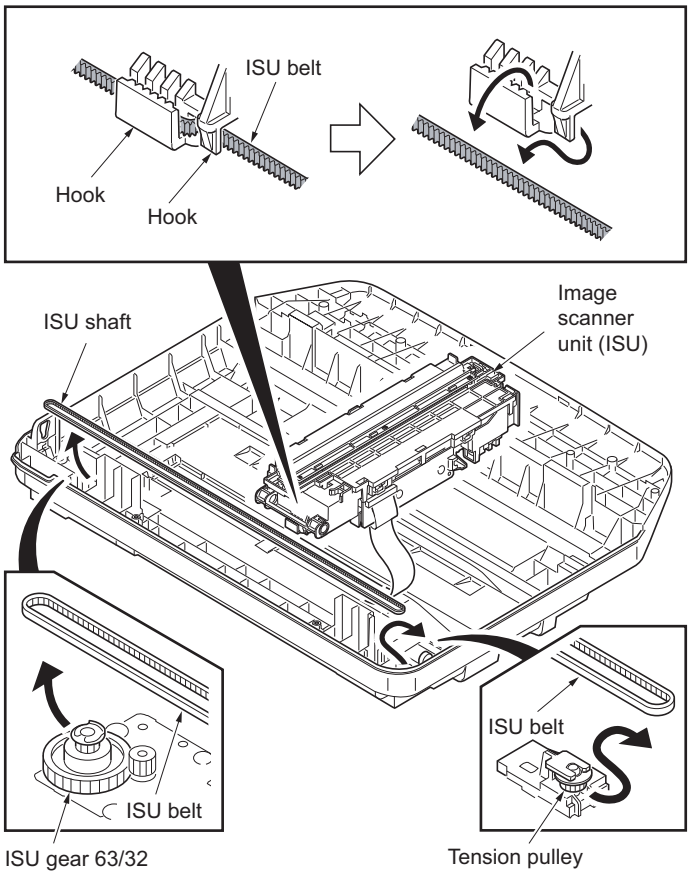

Figure 1-5-31

11. Remove the FFC center stopper.

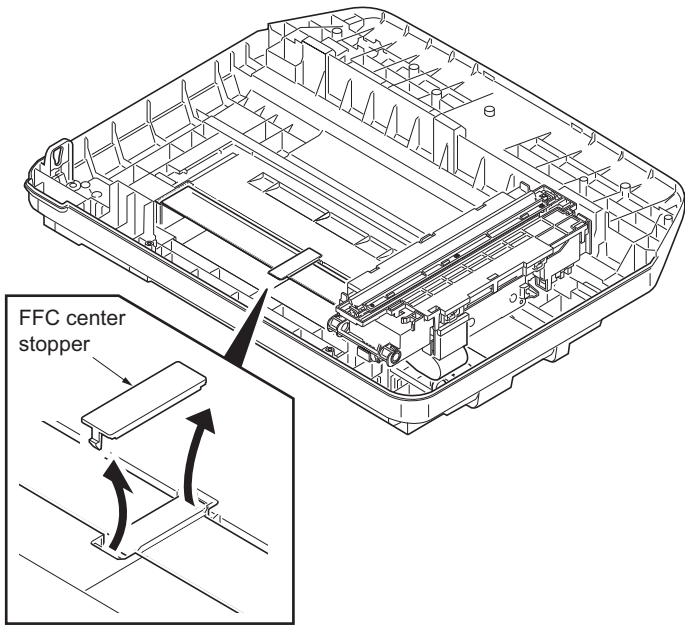

Figure 1-5-32

12. Remove the FFC from the FFC tape D.
13. Remove the ferrite core from the pit.
14. Remove the FFC from the FFC tape A.

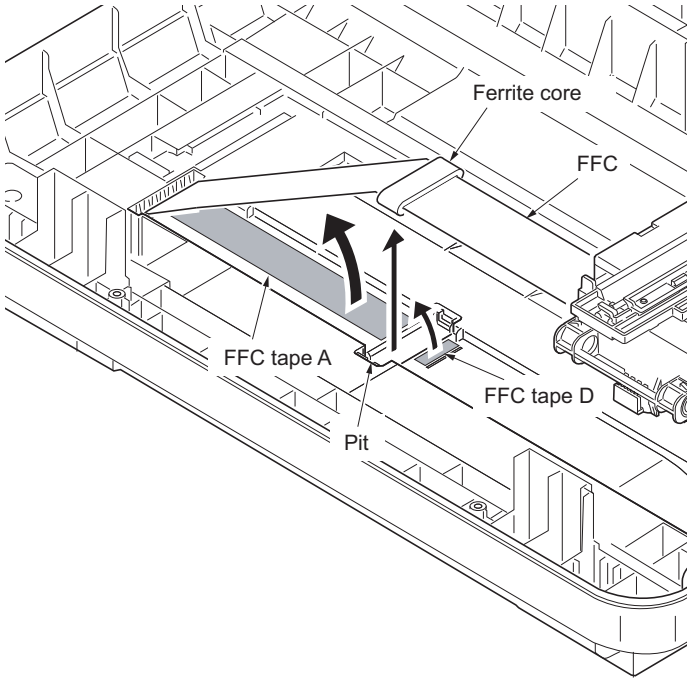

Figure 1-5-33

15. Fold the end of the FFC and then pull the FFC out from the ISU lower frame.
16. Remove the FFC tape D and A from the ISU lower frame.
17. Clean the adhesive residue of the FFC tape D and A.

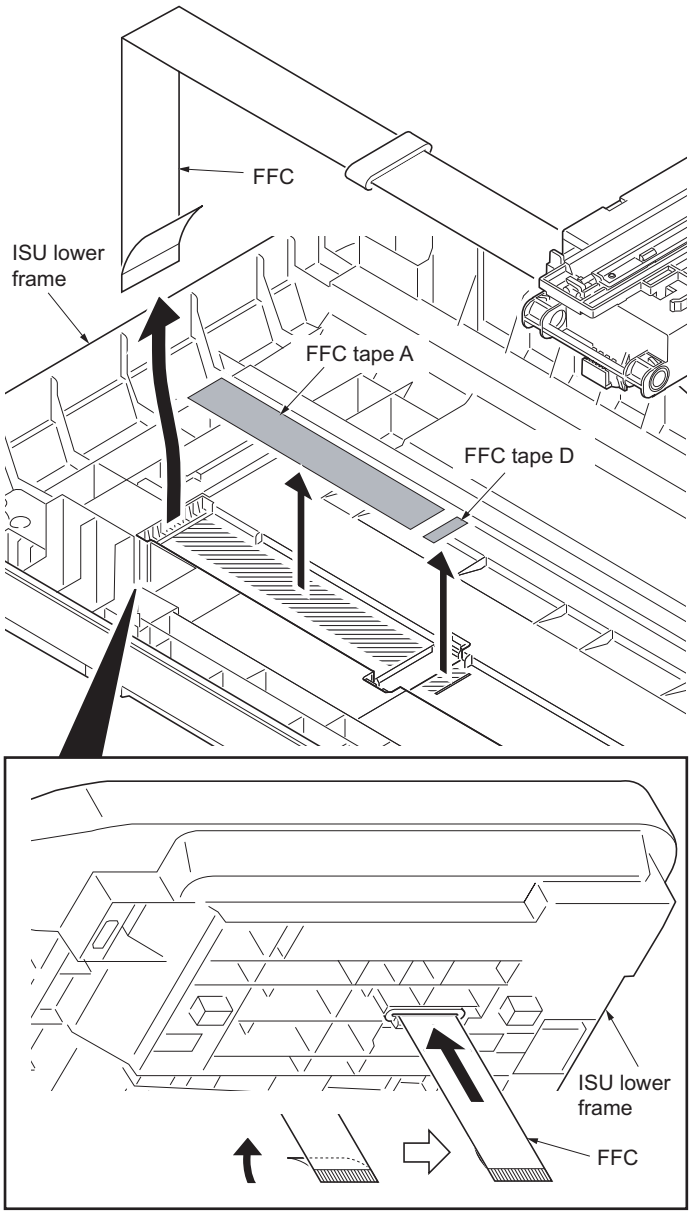

Figure 1-5-34

18. Remove the ferrite core from the FFC.

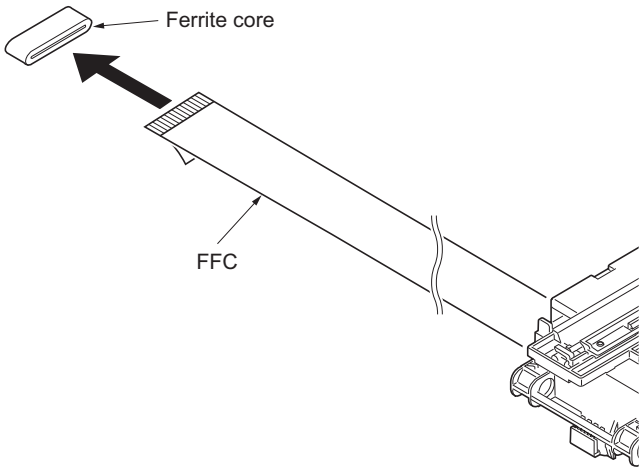

Figure 1-5-35

Installing the image scanner unit (ISU)

19. Peel off the protective seal on one side from the FFC tape D.
20. Stick the FFC tape D on the ISU lower frame, aligned with the marking of the frame.
    (Sticking standards: See right figure)
21. Peel off the protective seal on the other side of the FFC tape A.
22. Stick the FFC tape A on the ISU lower frame.
    (At the right for how to correctly sick the tape in position, see the figure.)

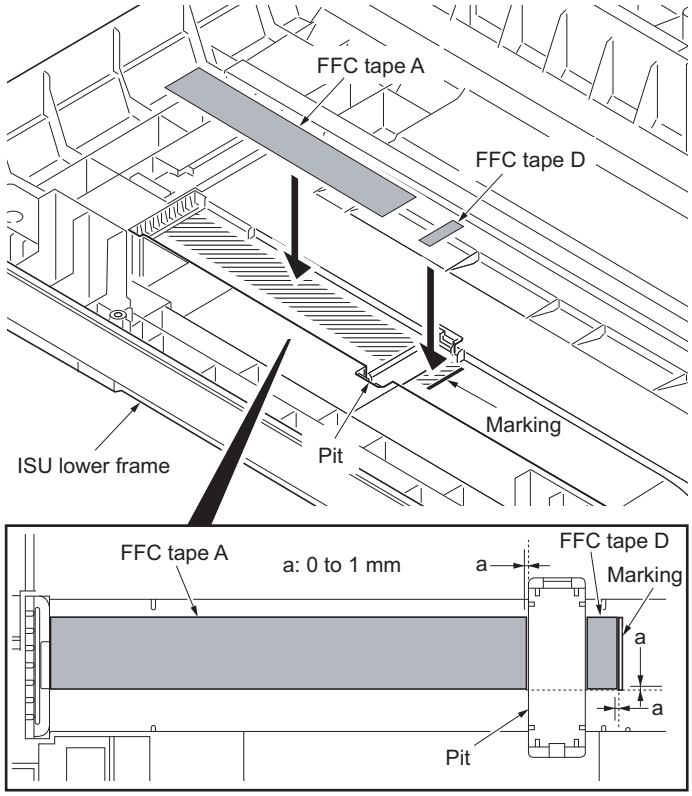

Figure 1-5-36

23. Fix the ferrite core onto the FFC.

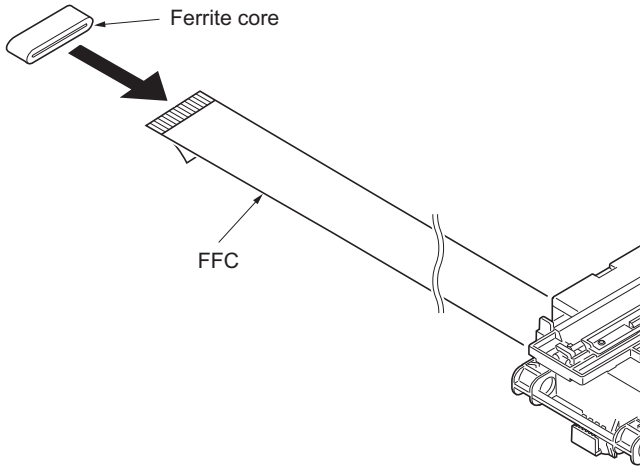

Figure 1-5-37

24. Peel off the protective seal from the FFC tape D.
25. Align the line marking on the FFC with the rib on the ISU lower frame, then fix the FFC to the FFC tape D.
26. Install the ferrite core in the pit.
27. Peel off the released paper from the FFC tape A.
28. Stick the FFC on the FFC tape A.

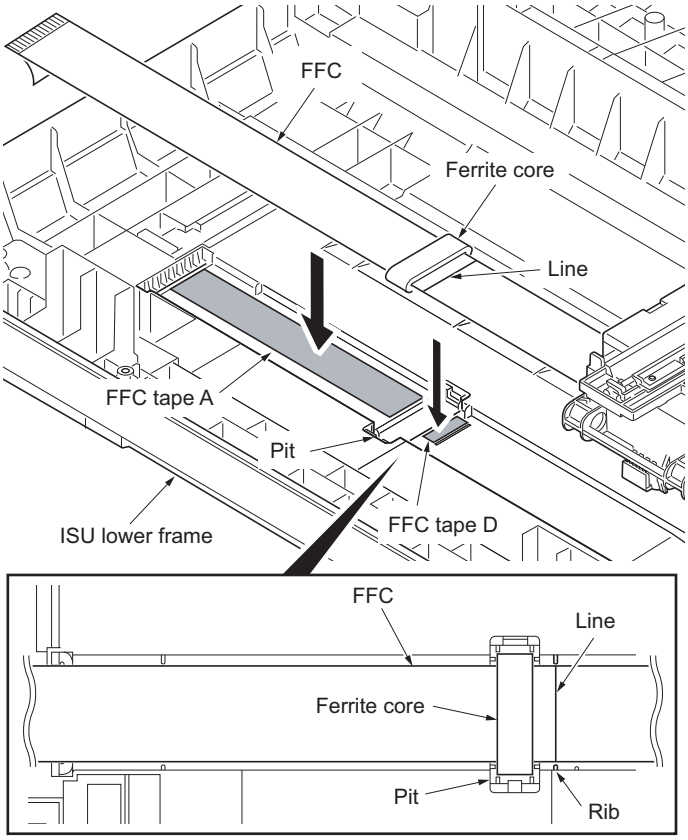

Figure 1-5-38

29. Thread an end of the FFC through the ISU lower frame.
30. Refer to the step 11 to 1 and refit all the removed parts.

NOTE:
When the replacing the image scanner unit (ISU), perform following maintenance modes.

1. U425 Setting the target (see page 1-3-16)
2. U411 Adjusting the scanner automatically (see page 1-3-15)

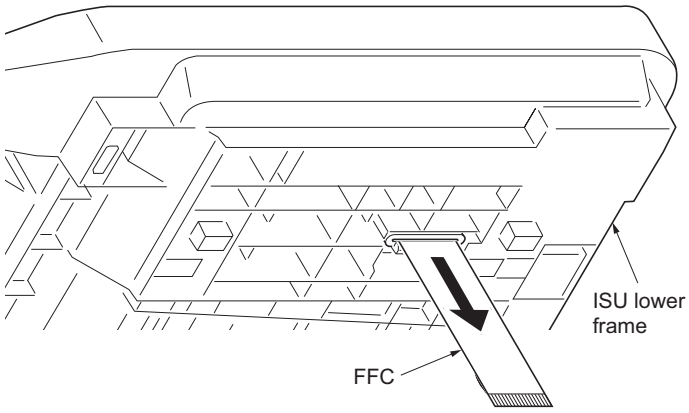

Figure 1-5-39

(5) Detaching and refitting the exposure lamp and inverter PWB

Procedure

1. Remove the DP (See page 1-5-11).
2. Move the image scanner unit (ISU) unit to the center.
3. Unhook five hooks and then remove the lamp mount.
4. Remove the connector.

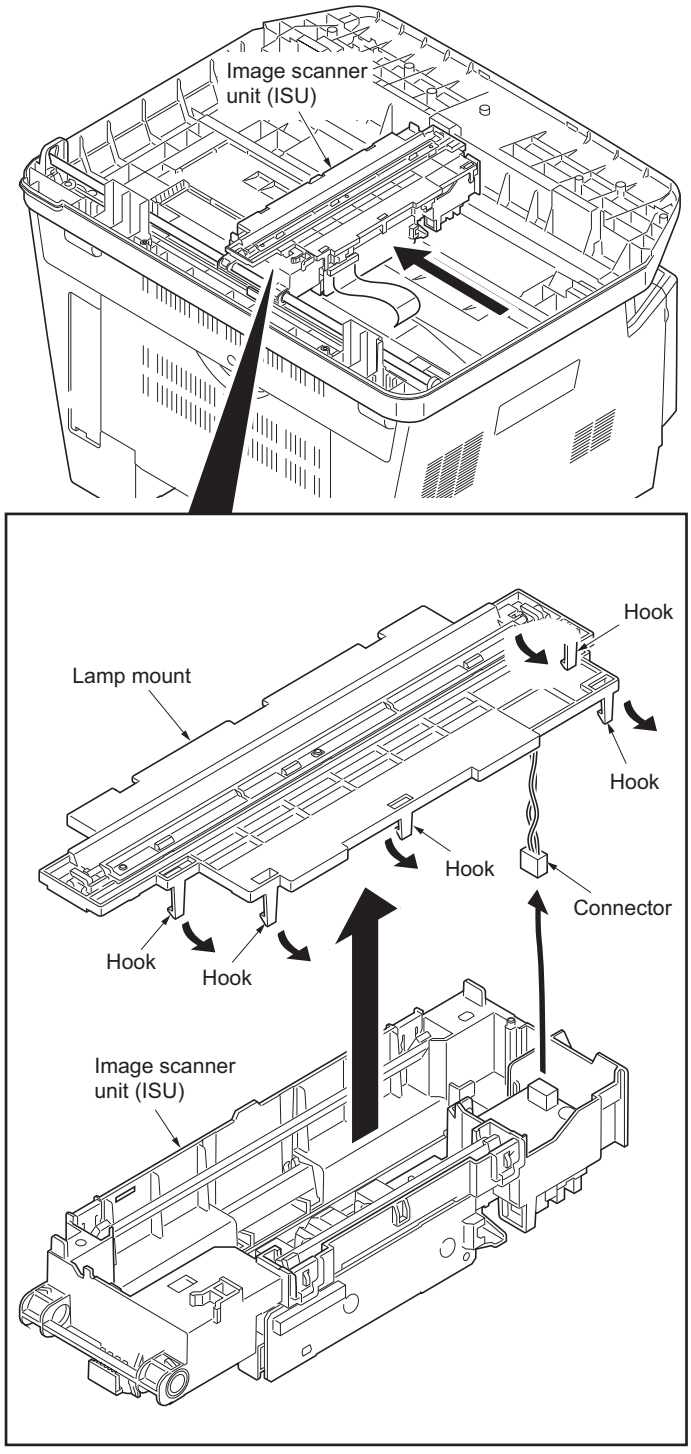

Figure 1-5-40

5. Remove the connector.
6. Remove the screw and then remove the inverter PWB.
7. Check or replace the inverter PWB and refit all the removed parts.

   Caution: Replace F1 with a fuse rated 250 V ac, 0.75 A, non-time delay, (when F1 fuse is replaced.)

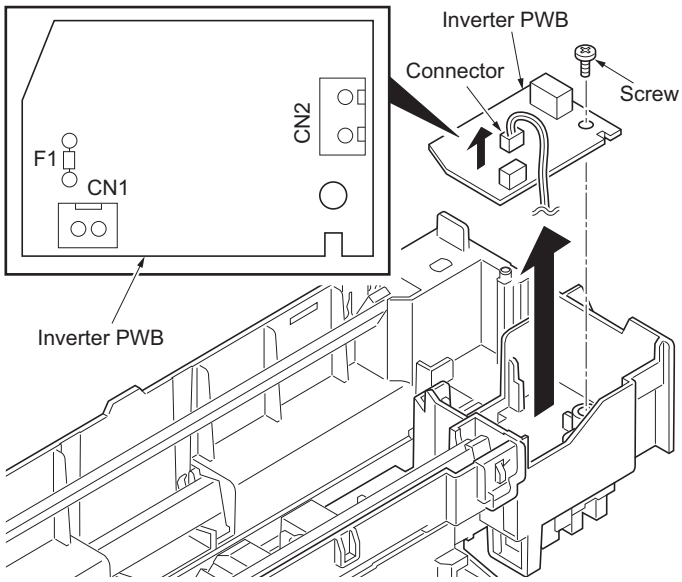

Figure 1-5-41

8. Unhook three hooks and then remove the ISU reflector.

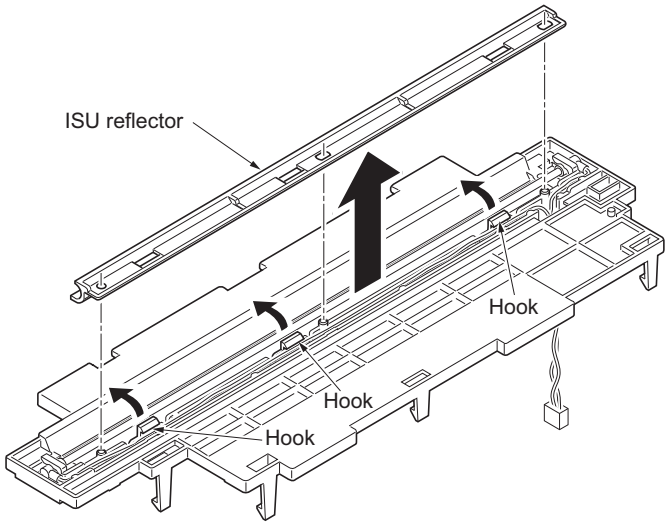

Figure 1-5-42

9. Remove the exposure lamp from the holders.
10. Check or replace the exposure lamp and refit all the removed parts.

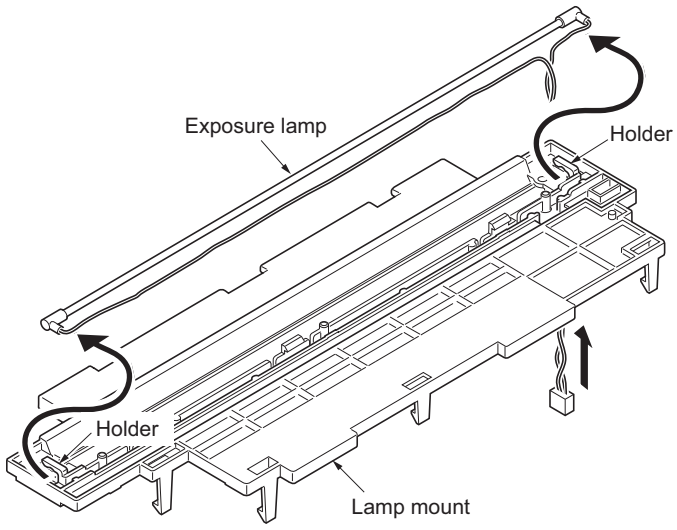

Figure 1-5-43

1-5-5 Developing section

(1) Detaching and refitting the developing unit

Procedure

1. Open the front cover.
2. Remove the developing unit.
3. Check or replace the developing unit and refit all the removed parts.

NOTE:
When the periodic maintenance (replacing the maintenance kit, see page 2-4-4), perform following maintenance modes.

1. U251 Clearing the maintenance count (see page 1-3-12)

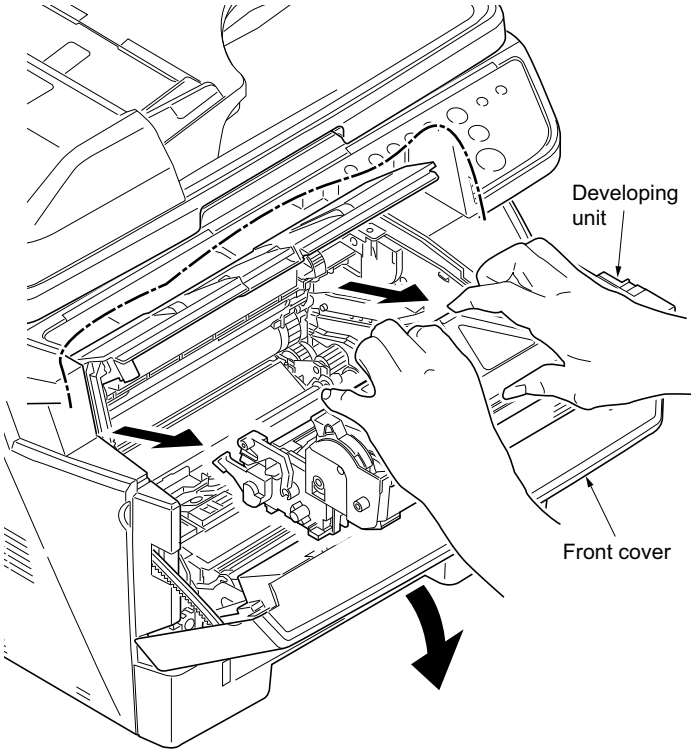

Figure 1-5-44

1-5-6 Drum section

(1) Detaching and refitting the drum unit

Procedure

1. Remove the developing unit (See page 1-5-28).
2. Remove the drum unit.
3. Check or replace the drum unit and refit all the removed parts.

NOTE:
When the periodic maintenance (replacing the maintenance kit, see page 2-4-4), perform following maintenance modes.

1. U251 Clearing the maintenance count (see page 1-3-12)
2. U111 Clearing the drum drive time (see page 1-3-11)

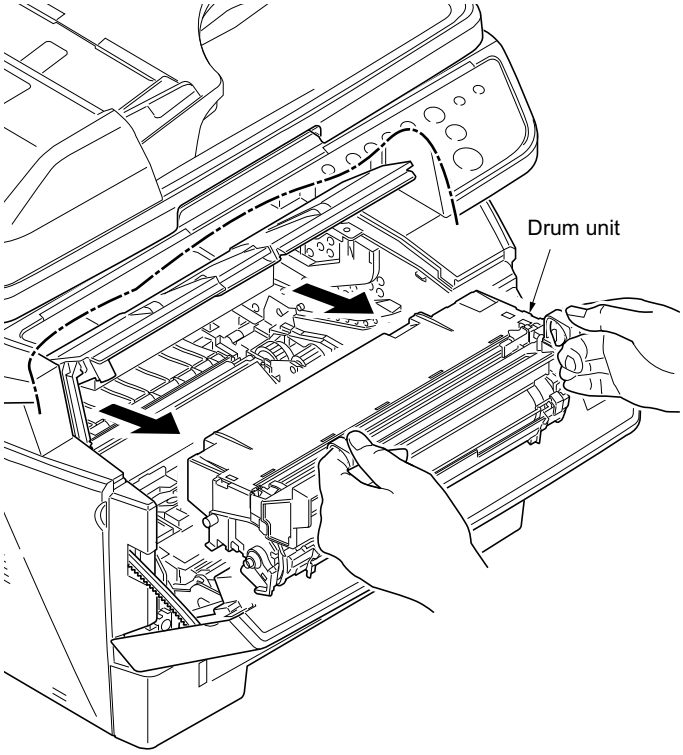

Figure 1-5-45

(2) Detaching and refitting the main charger unit

Procedure

1. Remove the developing unit (See page 1-5-28).
2. Remove the drum unit (See page 1-5-29).
3. Remove the tape.
4. While pushing on the main plate ①, slide the main charger unit ②.

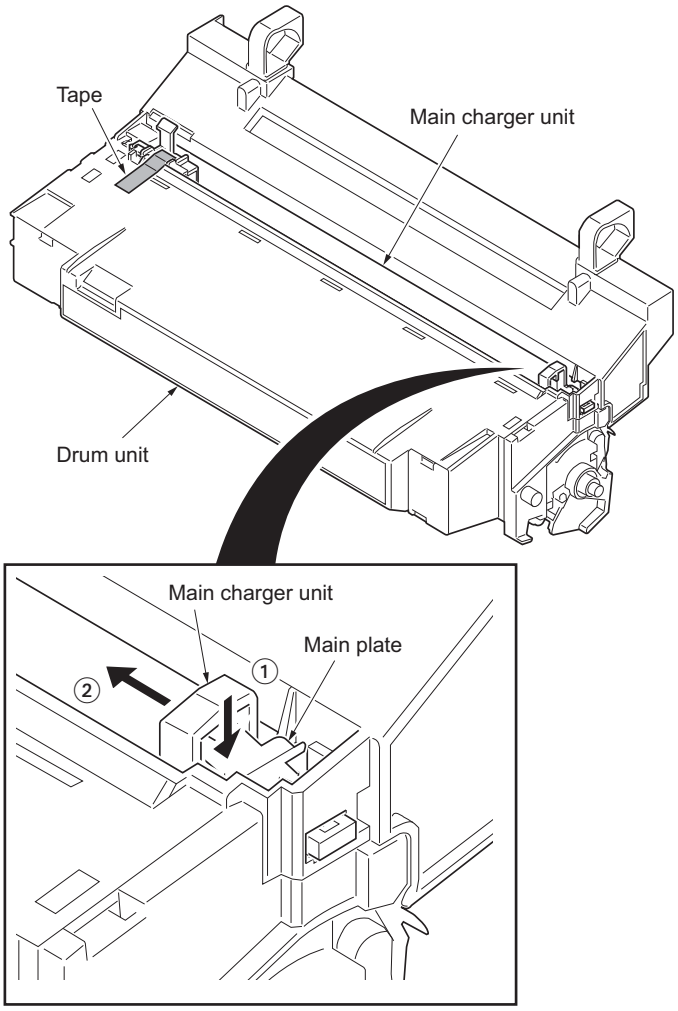

Figure 1-5-46

5. Remove the main charger unit by lifting it.
6. Check or replace the main charger unit and refit all the removed parts.

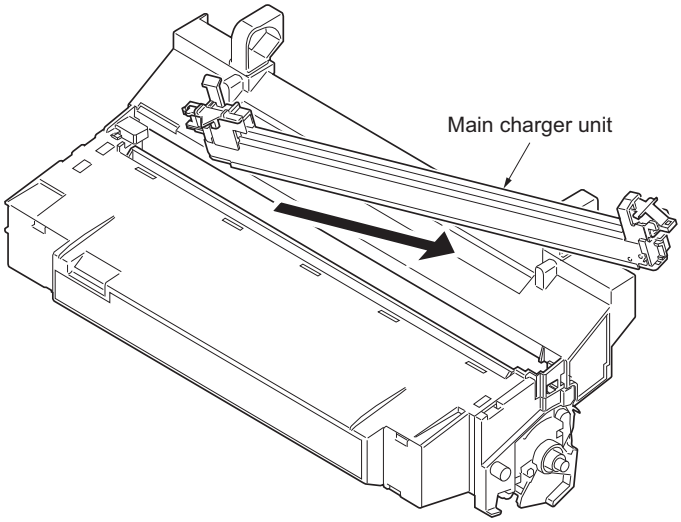

Figure 1-5-47

1-5-7 Transfer/separation section

(1) Detaching and refitting the transfer roller

Procedure

1. Remove the developing unit (See page 1-5-28).
2. Remove the drum unit (See page 1-5-29).
3. Slide the paper chute guide and unhook the hooks.
4. Remove the paper chute guide.

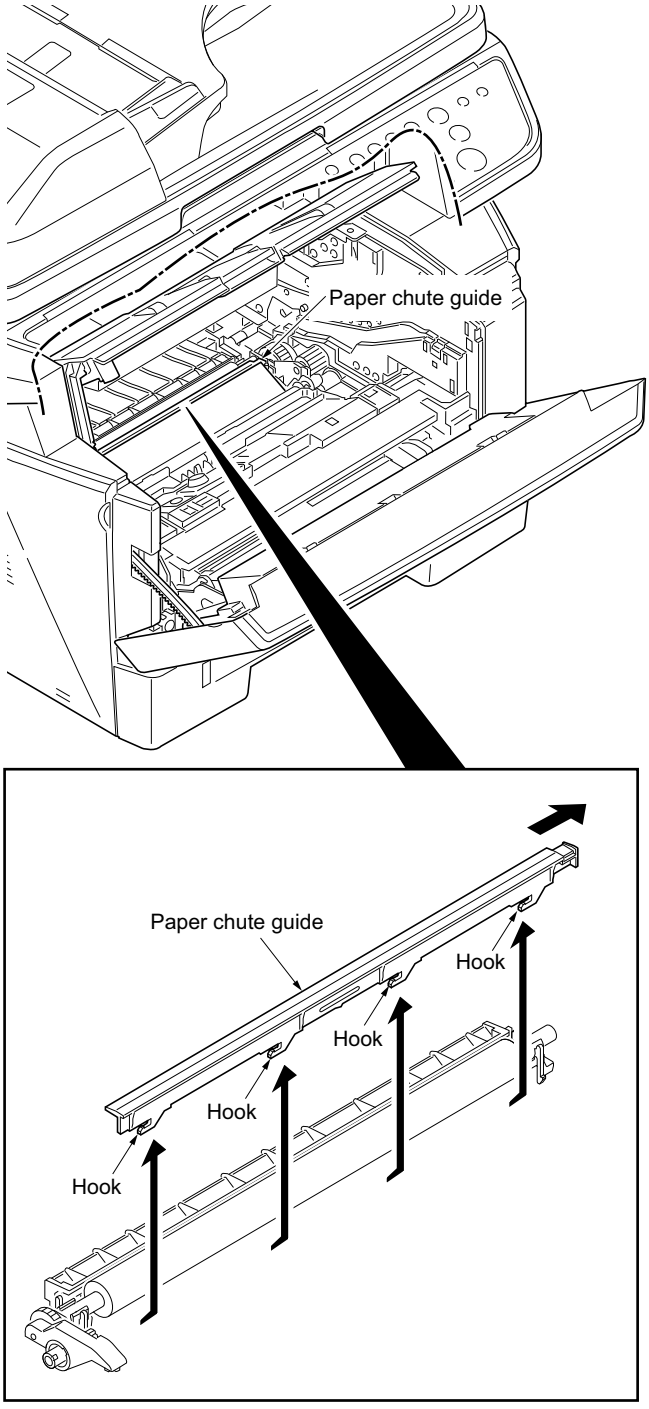

Figure 1-5-48

5. Remove the transfer roller's shaft from the both transfer bushes.
6. Remove the gear Z16 from the transfer roller.

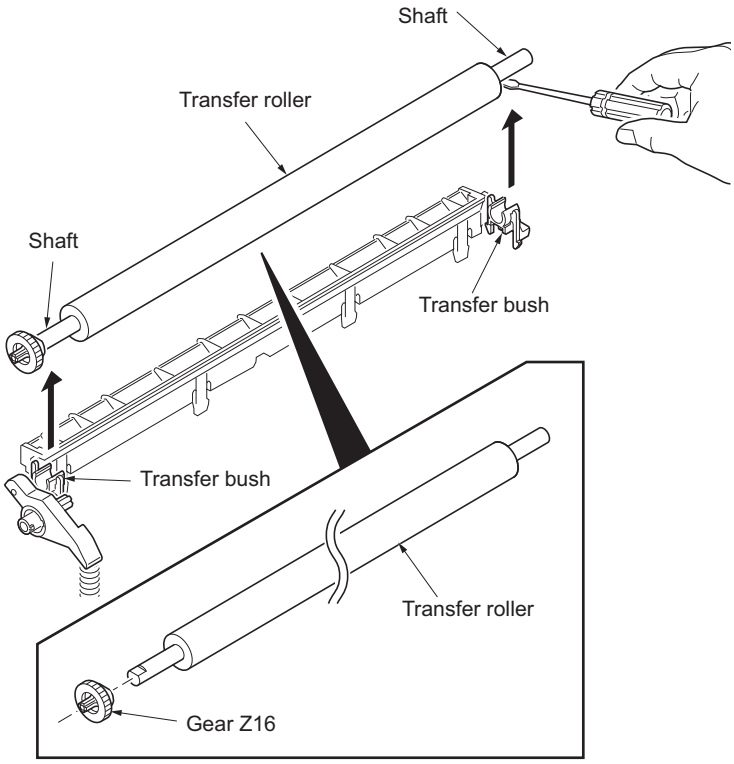

Figure 1-5-49

7. Check or replace the transfer roller and refit all the removed parts.

   Caution: When refitting the transfer roller, be careful about following point.
   Push the release lever to raise the lever end, then insert the front of gear Z16 under the release lever end.

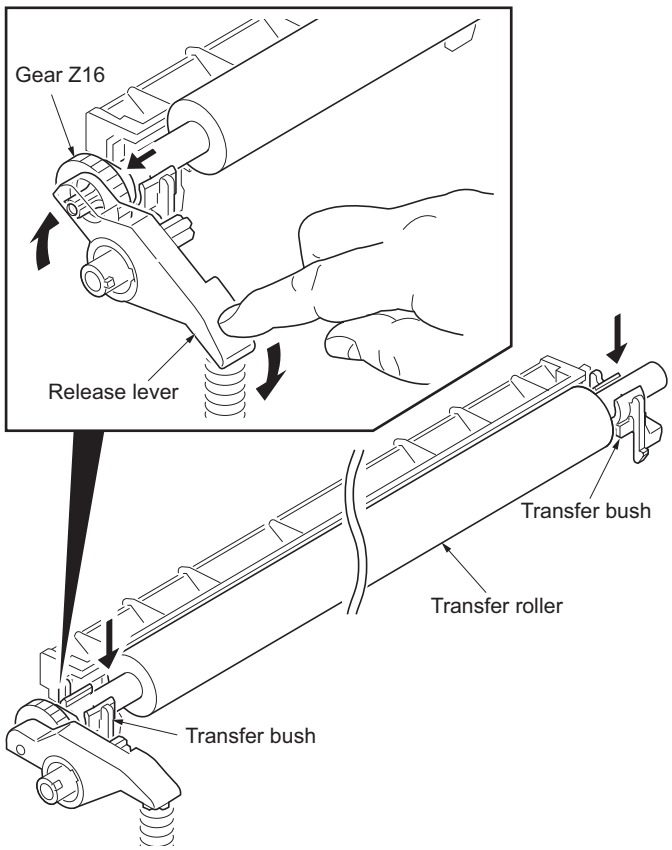

Figure 1-5-50

1-5-8 Fuser section

(1) Detaching and refitting the fuser unit

Procedure

1. Remove the left cover and right cover (See page 1-5-3).
2. Remove the wires from three clamps.
3. Remove the connector from the power source PWB.

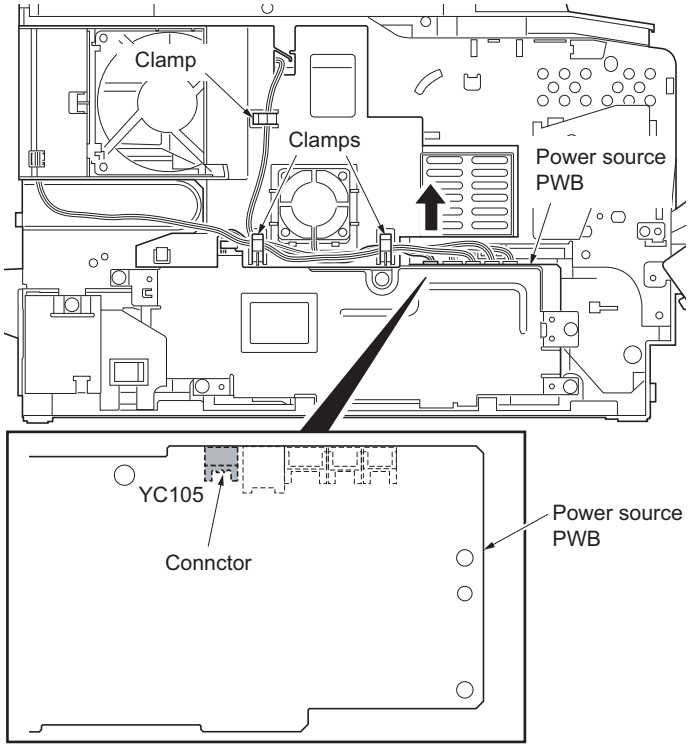

Figure 1-5-51

4. Unhook four hooks and then remove the frame left duct.
5. Remove the wires from the clamp.

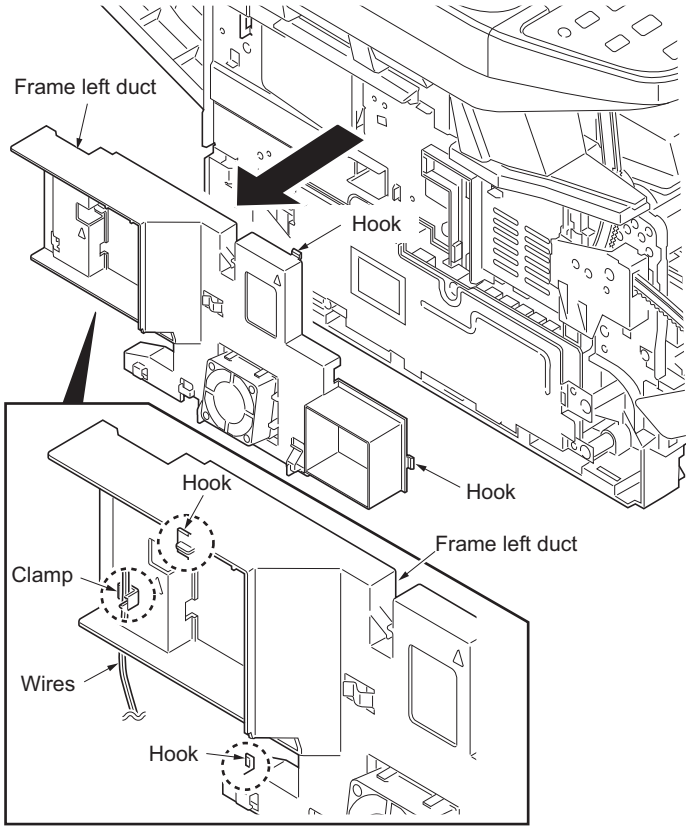

Figure 1-5-52

6. Remove the connector from the power source PWB.

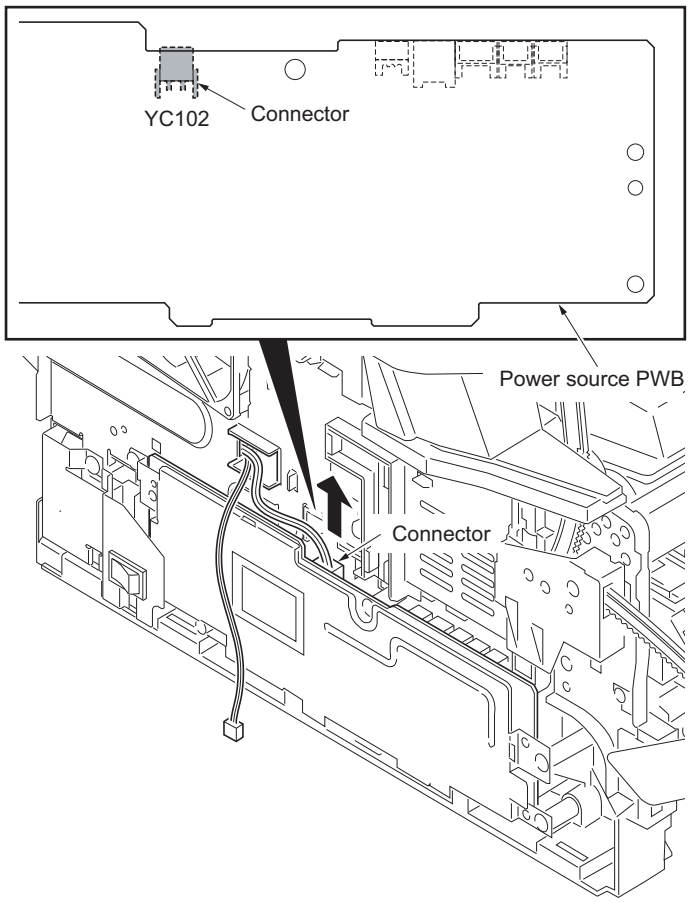

Figure 1-5-53

7. Remove the connector from the control PWB.

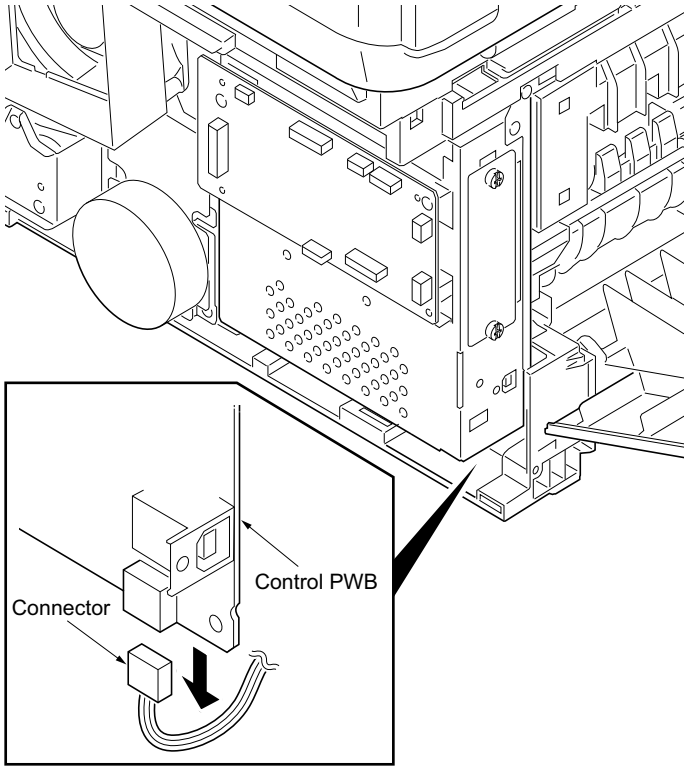

Figure 1-5-54

8. Remove the rear cover.

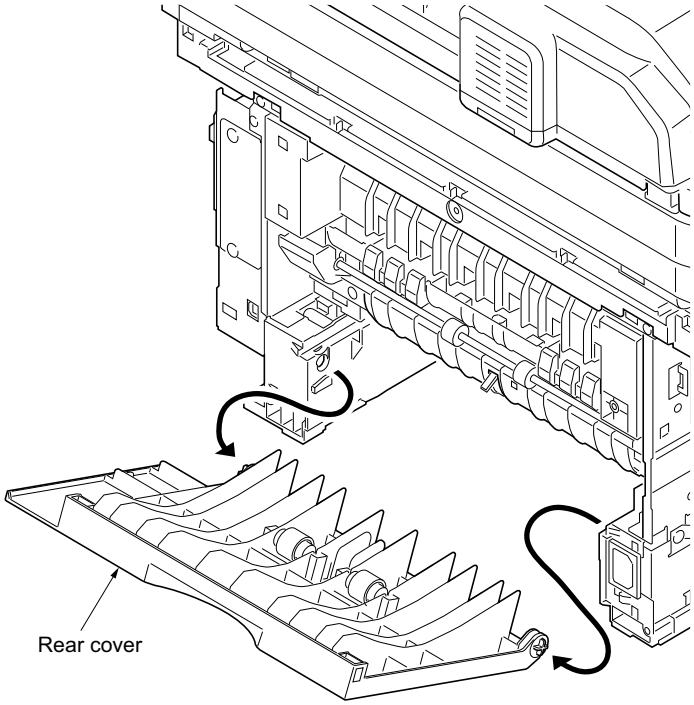

Figure 1-5-55

9. Remove two screws and then remove the fuser unit.

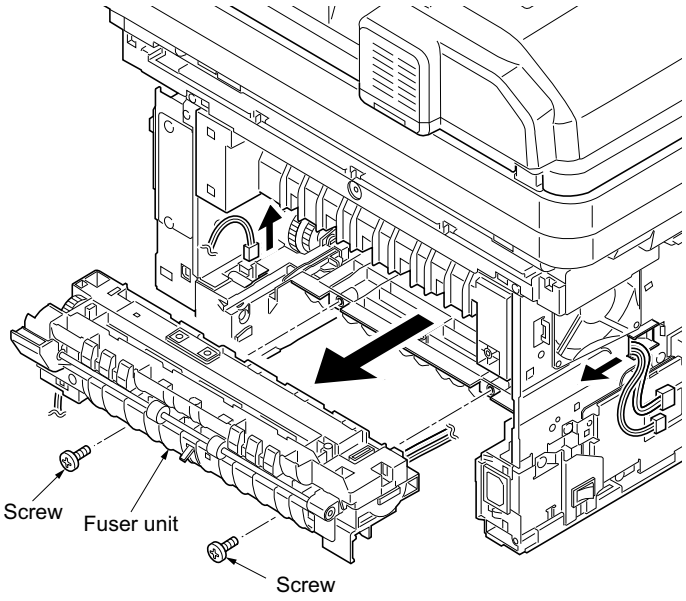

Figure 1-5-56

10. Check or replace the fuser unit and refit all the removed parts.

    Caution: When reinstalling the fuser unit, tighten up a screw while pressing the fuser unit in order of 1 to 2.

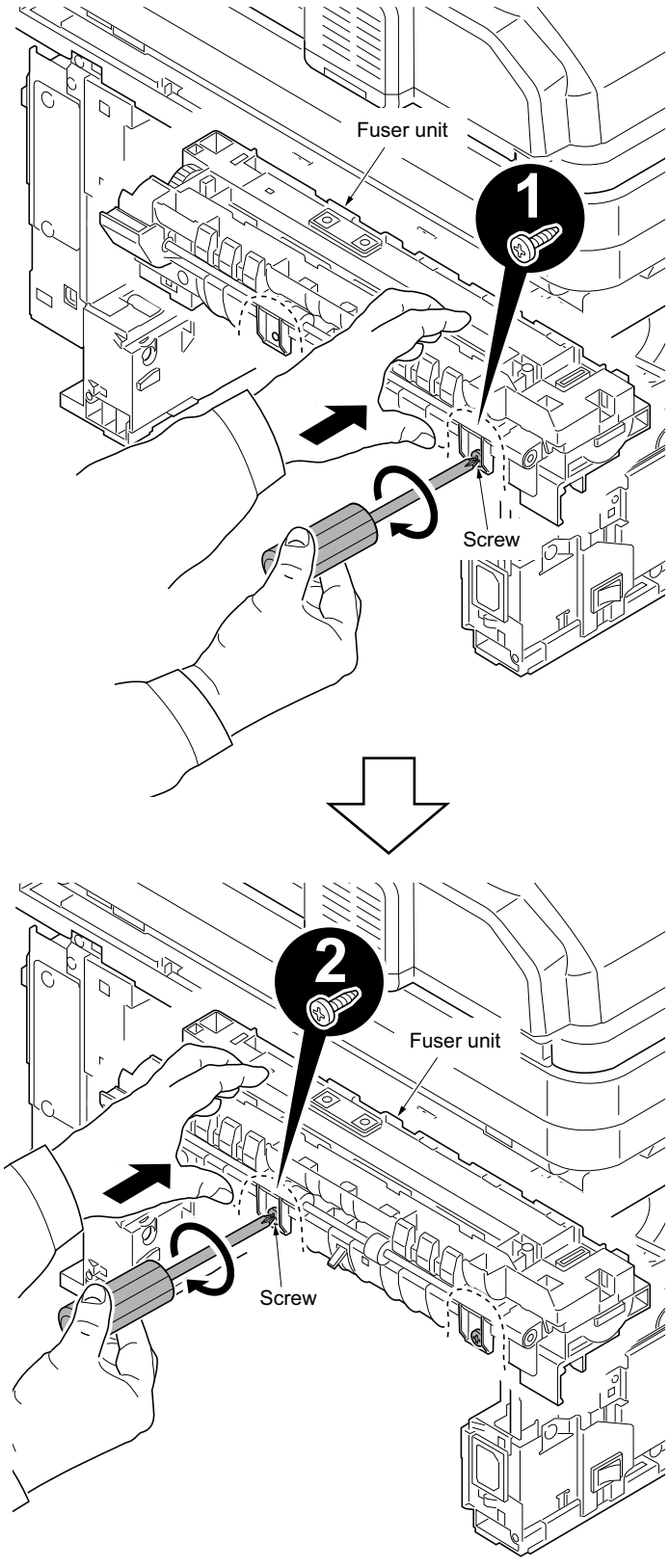

Figure 1-5-57

(2) Switching the fuser pressure

The fuser pressure may be decreased to suppress the print quality problems such as paper creases and curls.
It must be cautioned that decreasing the fuser pressure could cause loose toner fusing.

Procedure

1. Remove the cassette (See page 1-5-6).
2. Slide the fuser lever R and L.
   Normal: Flush with the front of the machine.
   Fuser pressure decreased: Flush with the rear of the machine.

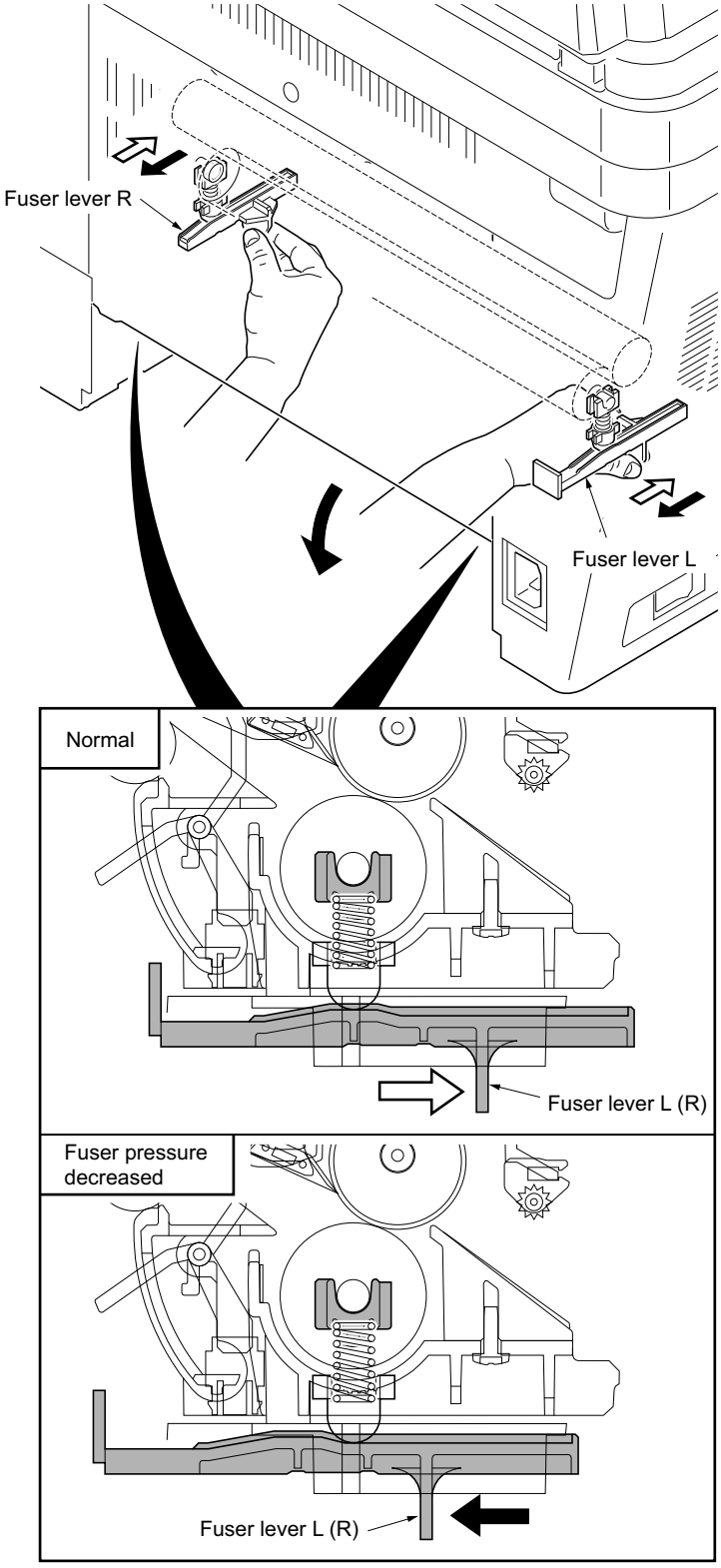

Figure 1-5-58

1-5-9 PWBs

(1) Detaching and refitting the control PWB

Procedure

1. Remove the FAX PWB (See page 1-5-48).
2. Remove the right cover (See page 1-5-3).
3. Remove the five connectors from the scanner PWB.
4. Remove all connectors from the control PWB.
5. Remove the wires from the clamp.

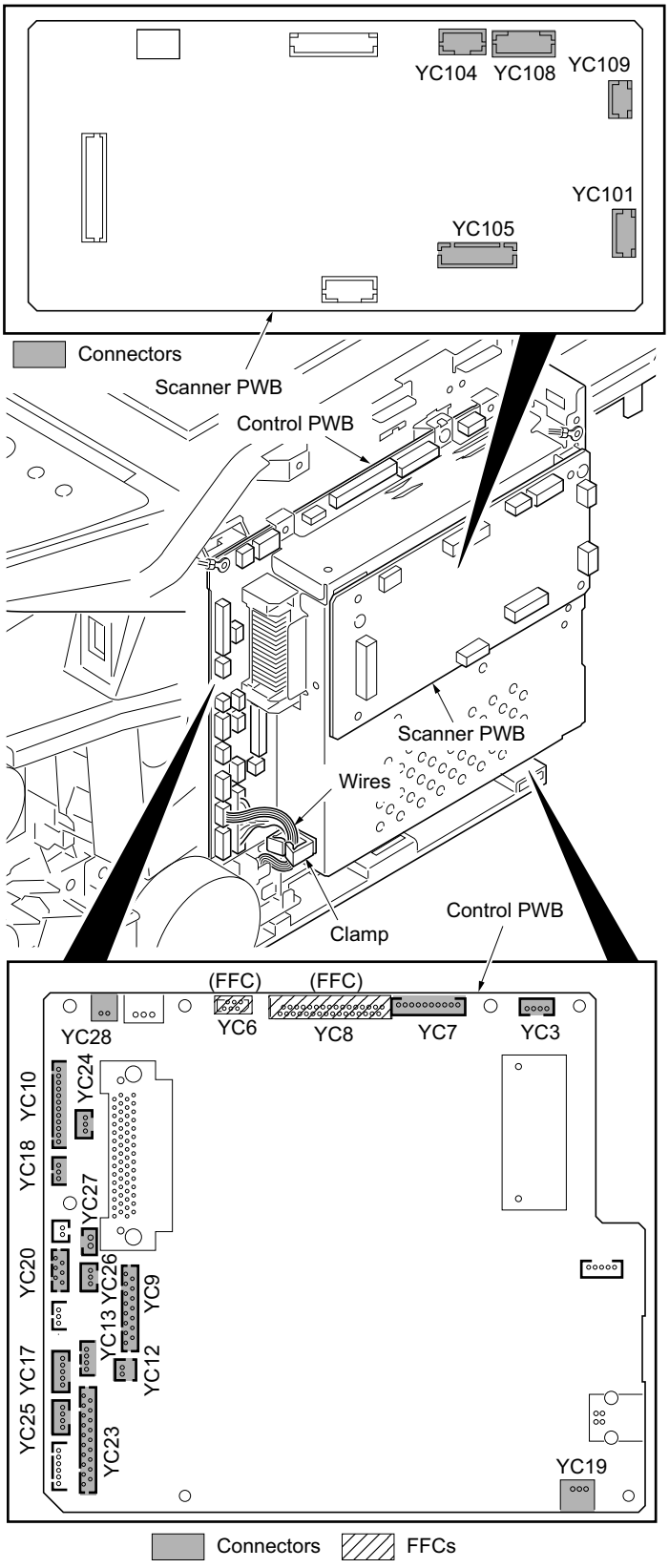

Figure 1-5-59

6. Remove six screws and two grounding terminals.

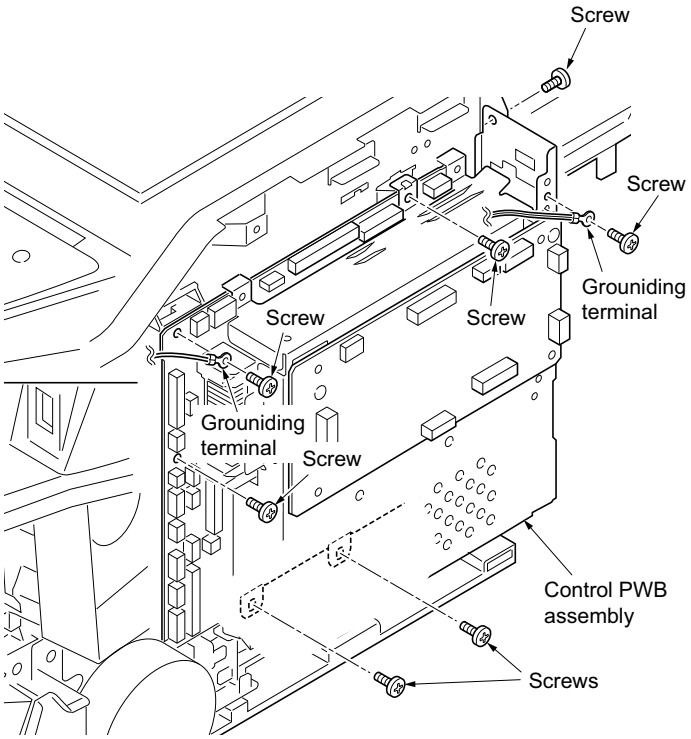

Figure 1-5-60

7. Unhook the hook and then remove the control PWB assembly.

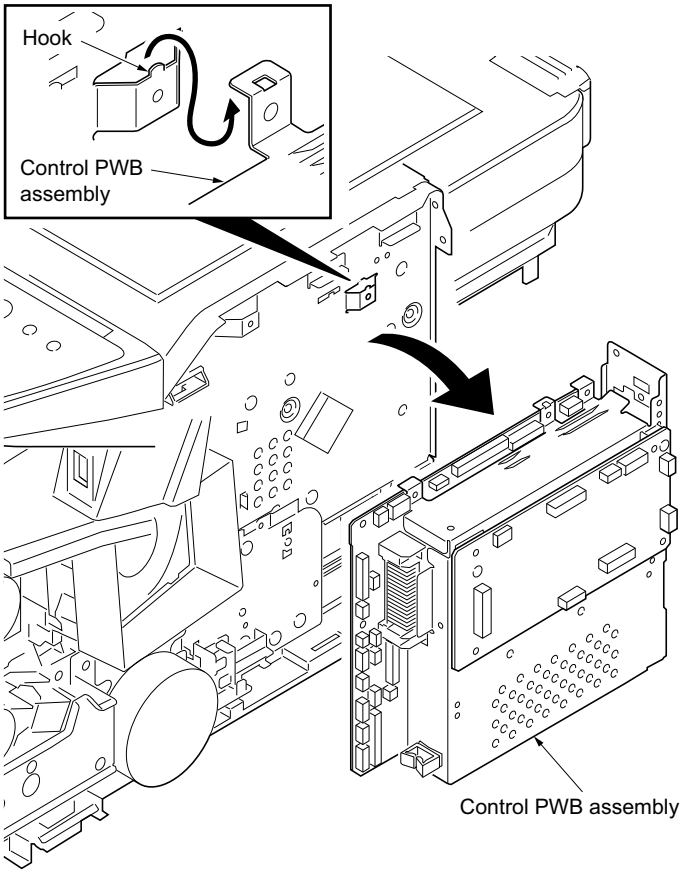

Figure 1-5-61

8. Remove five screws and then remove the control PWB.
9. Check or replace the control PWB and refit all the removed parts.

   To replace the control PWB, remove the EEPROM (U17) from the old control PWB and mount it to the new control PWB.

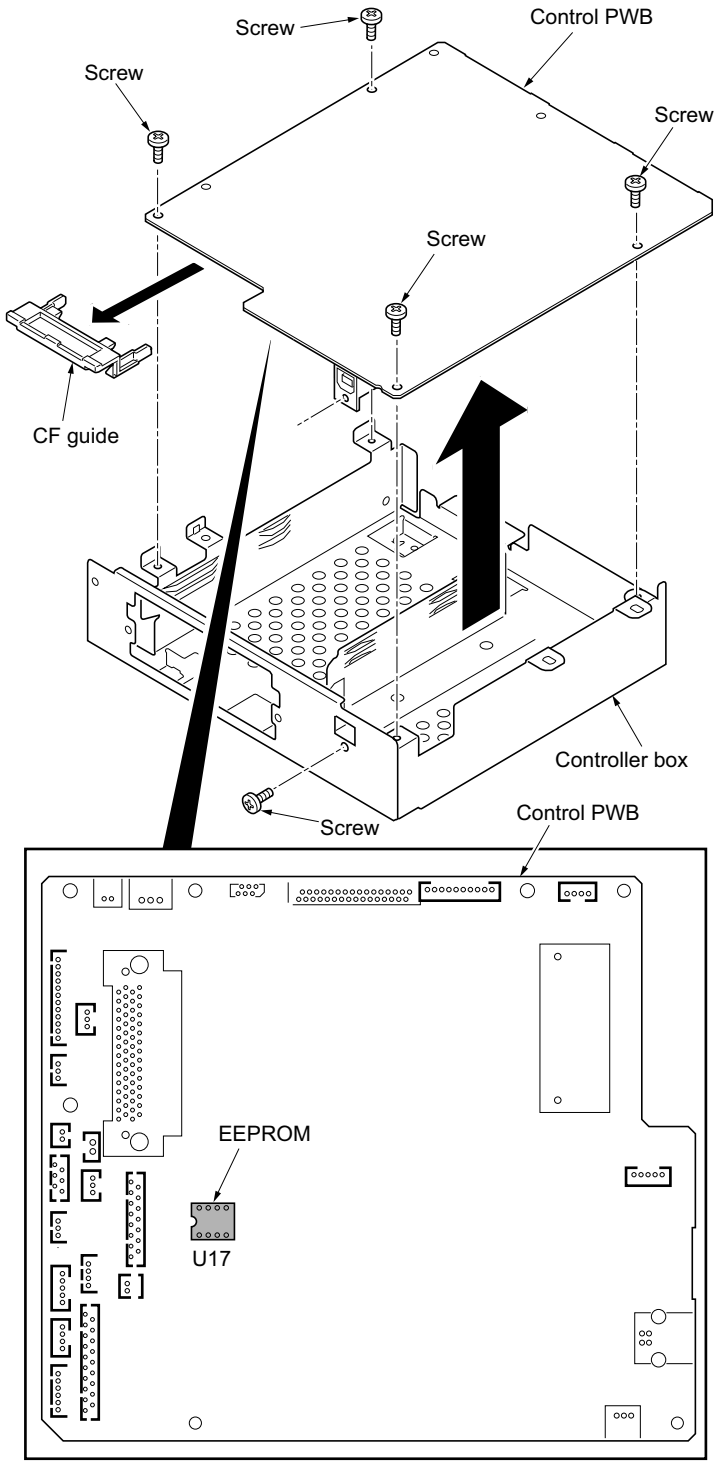

Figure 1-5-62

(2) Detaching and refitting the power source PWB

Procedure

1. Remove the left cover (See page 1-5-3).
2. Remove the wires from three clamps.
3. Remove five connectors from the power source PWB.

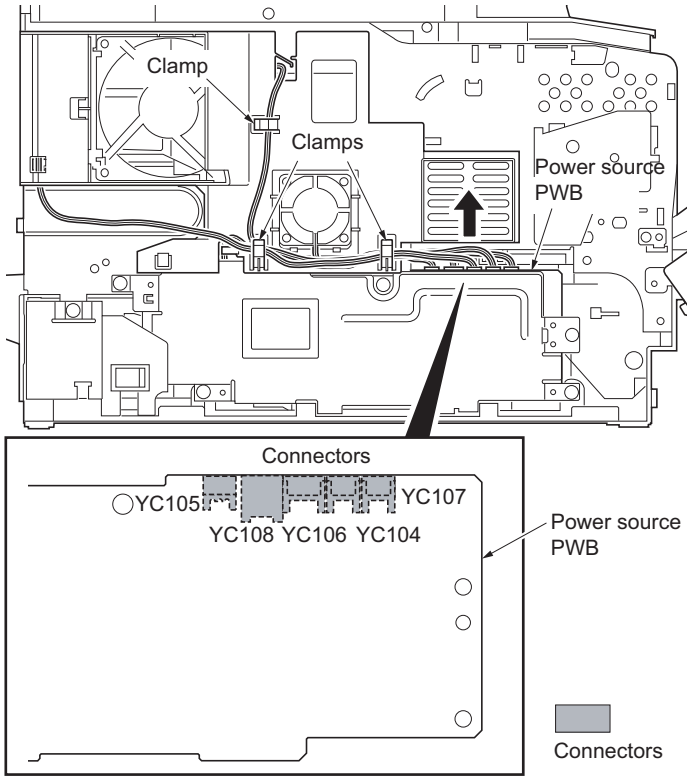

Figure 1-5-63

4. Unhook four hooks and then remove the frame left duct.
5. Remove the wire from the clamp.

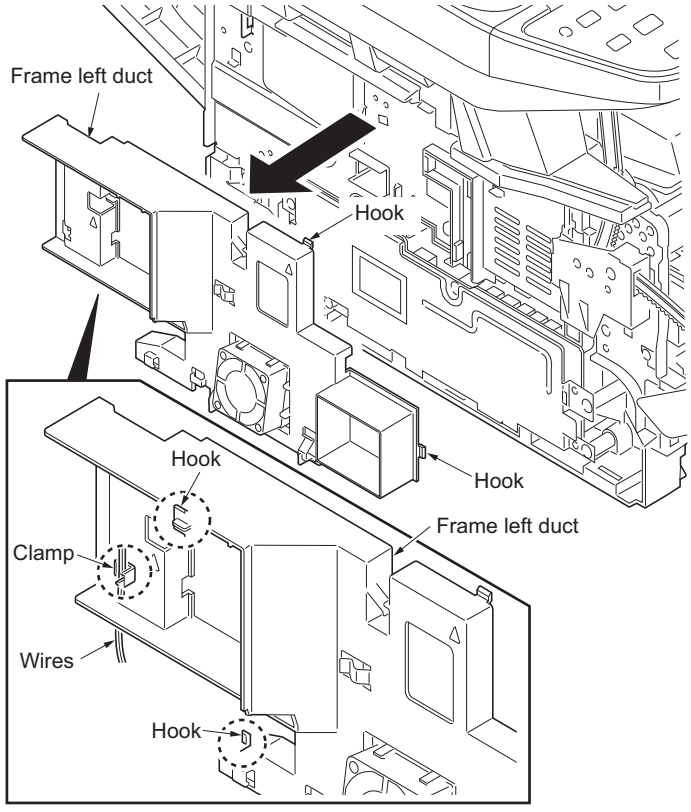

Figure 1-5-64

6. Remove the screw and then detach the inlet mount.

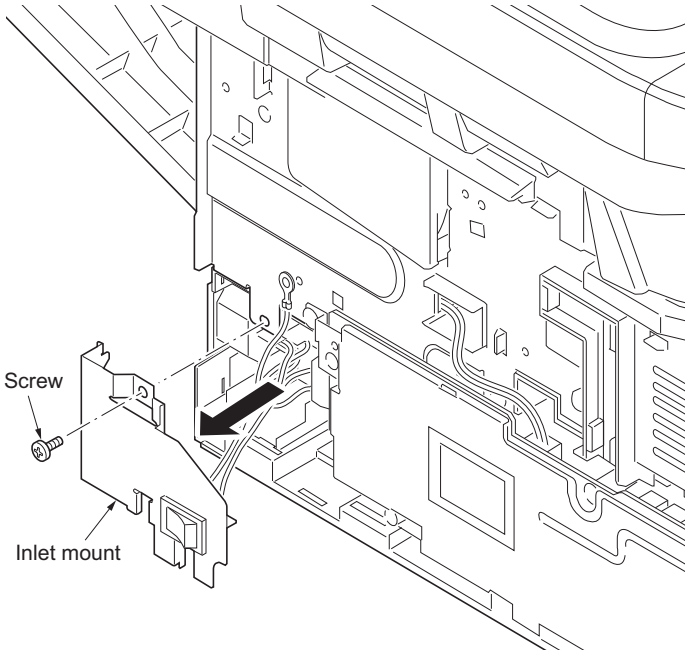

Figure 1-5-65

7. Remove five screws.
8. Remove three connectors and then remove the power source PWB assembly.

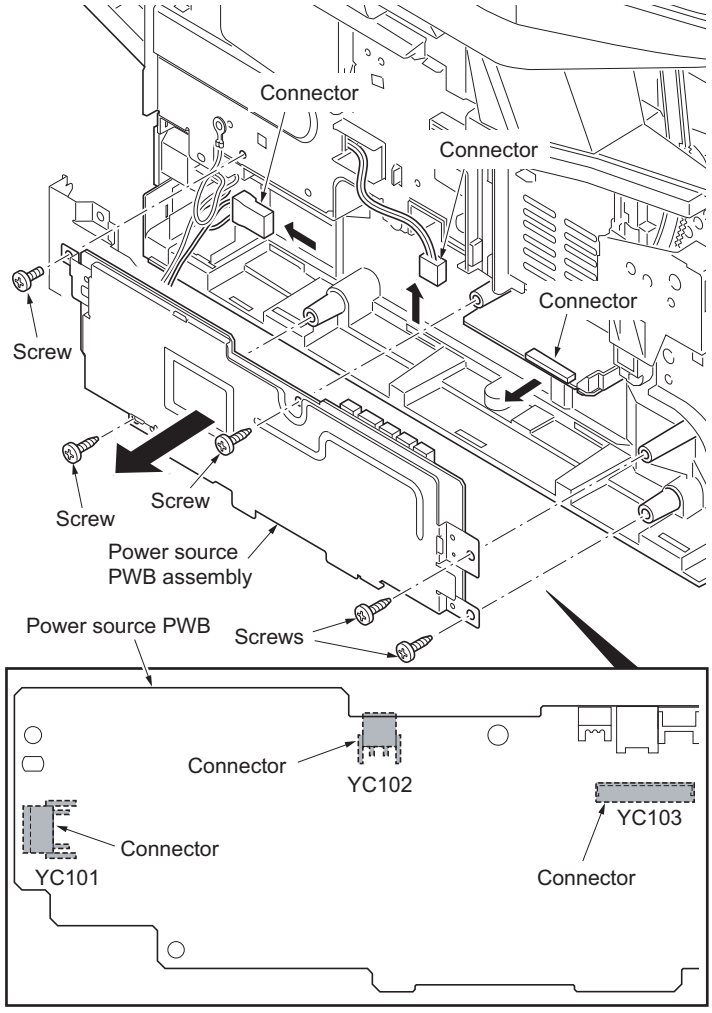

Figure 1-5-66

9. Remove four screws and then remove the power source PWB from the power source PWB plate.
10. Check or replace the power source PWB and refit all the removed parts.

    Caution: The power source PWB sheet must be installed in the specified position.

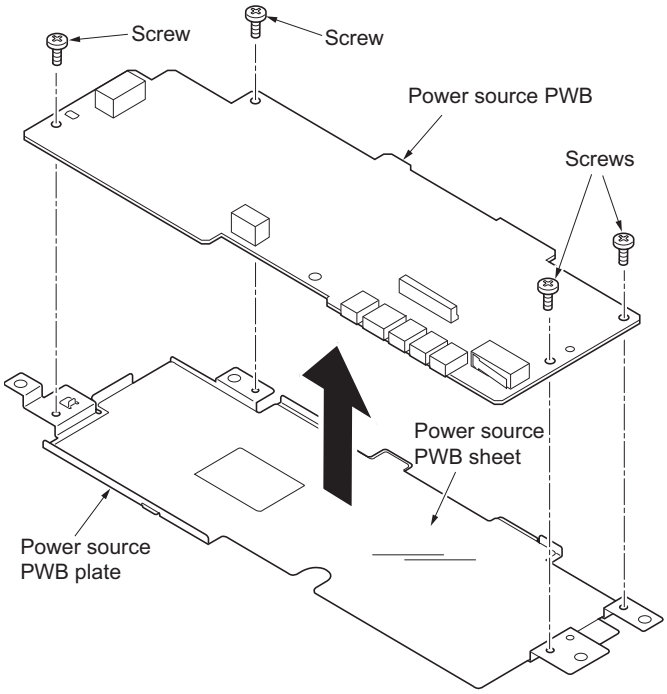

Figure 1-5-67

(3) Detaching and refitting the high voltage PWB

Procedure

1. Remove the developing unit (See page 1-5-28).
2. Remove the drum unit (See page 1-5-29).
3. Remove the cassette (See page 1-5-6).
4. Remove the left cover and right cover (See page 1-5-3).
5. Remove the power source PWB (See page 1-5-41).
6. Turn the machine with the front side up.
7. Remove four screws.
8. Unhook three hooks and then remove the lower base cover.

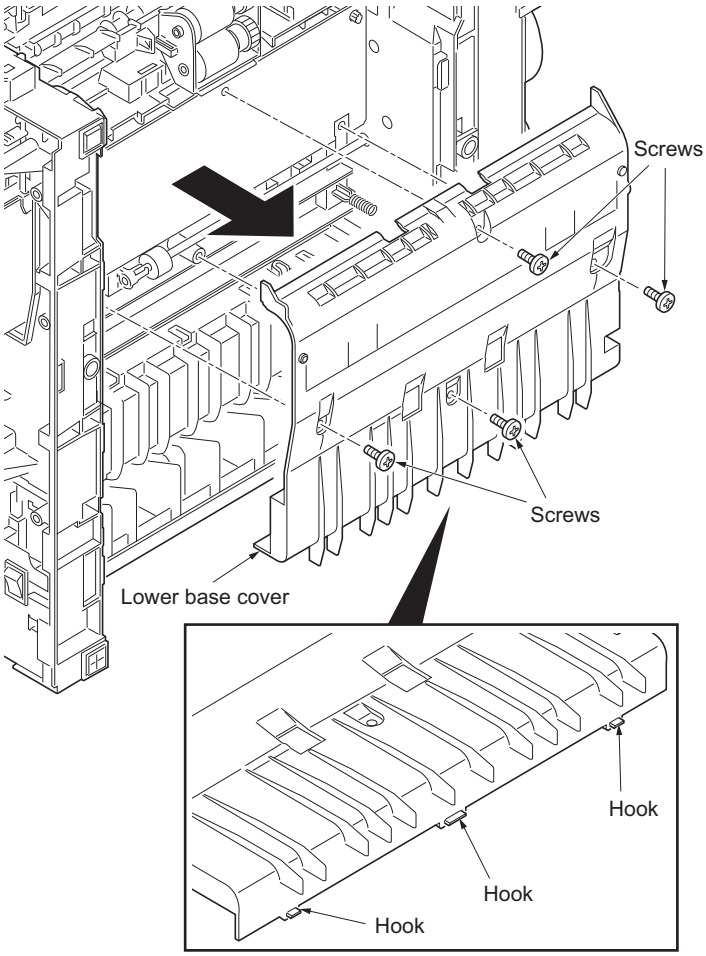

Figure 1-5-68

9. Remove the spring.
10. Remove the cassette pin.

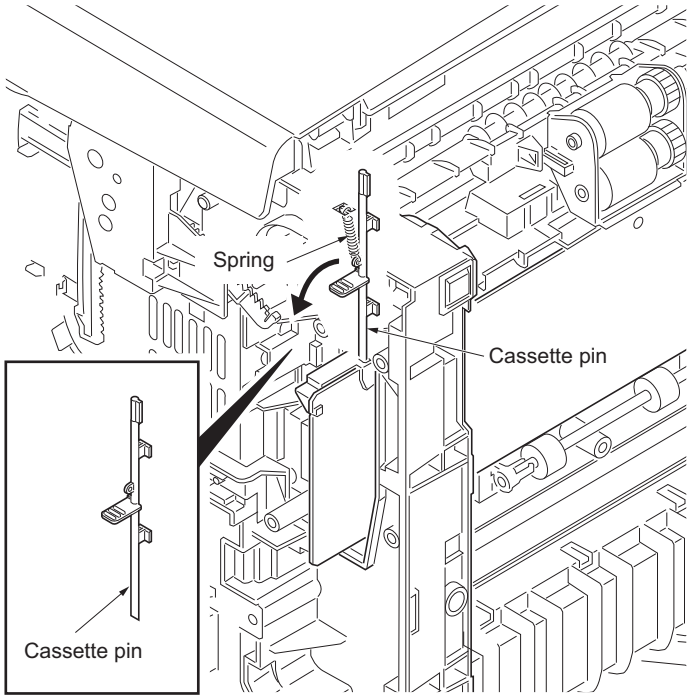

Figure 1-5-69

11. Remove two connectors and then remove the high voltage PWB.
12. Remove the cassette pin holder from the high voltage PWB.

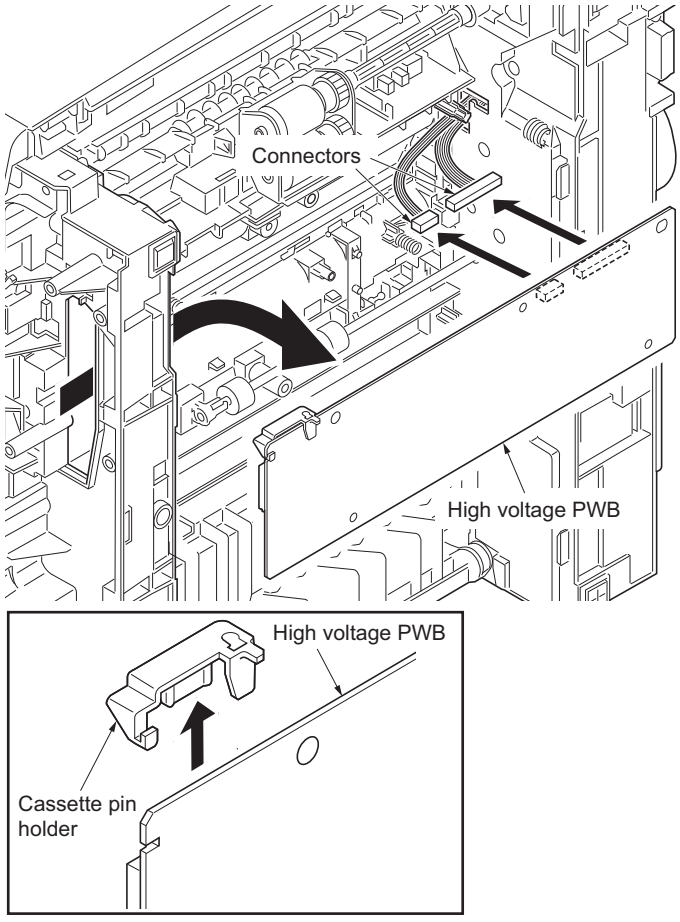

Figure 1-5-70

13. Check or replace the high voltage PWB and refit all the removed parts.

    When refitting the high voltage PWB, be careful about following points.

    - Position the ground plate so that it is atop the high voltage PWB.
    - Each interface is firmly in contact with each spring.
    - The bias contact pin must be installed in the specified position.
    - The cassette pin must be inserted in the cassette pin holder.

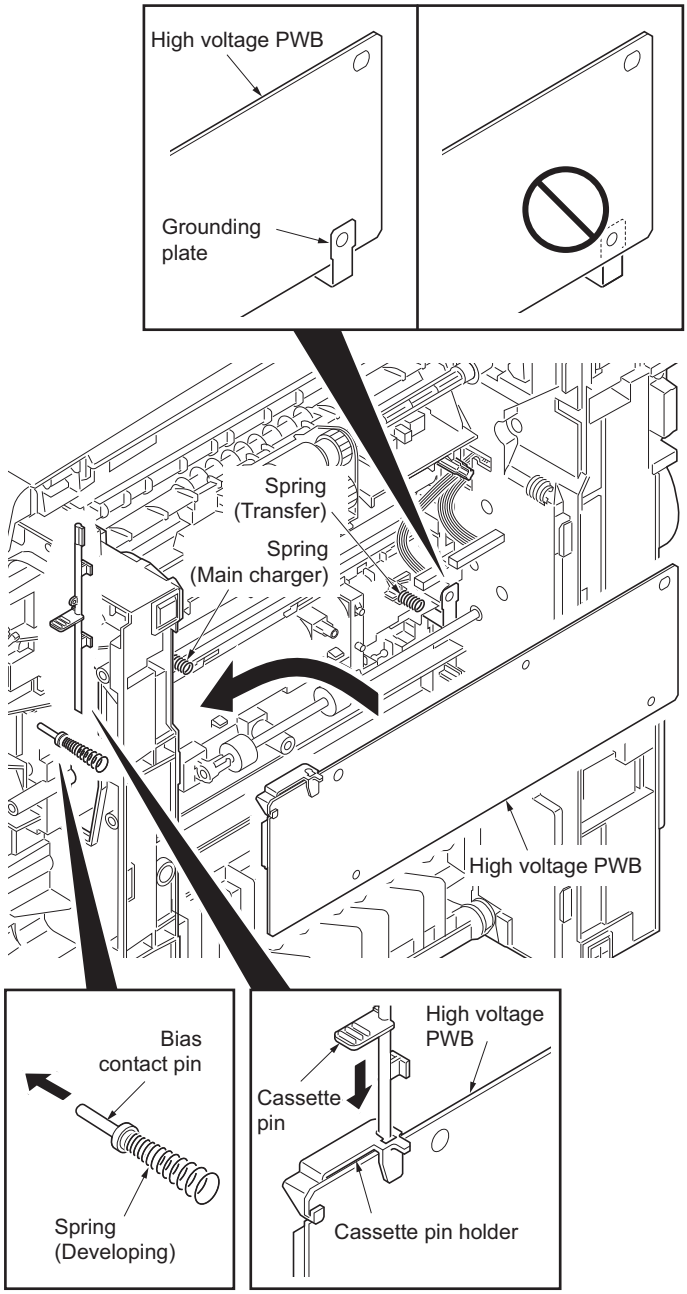

Figure 1-5-71

(4) Detaching and refitting the scanner PWB

Procedure

1. Remove the right cover (See page 1-5-3).
2. Remove six connectors and the FFC from the scanner PWB.

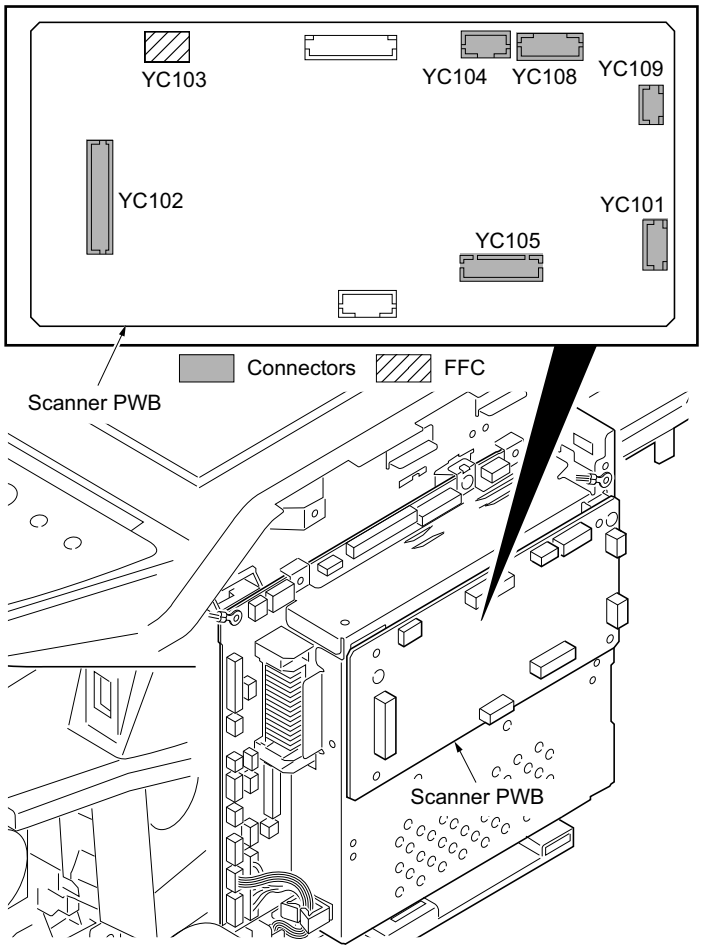

Figure 1-5-72

3. Remove four screws and then remove the scanner PWB.
4. Check or replace the scanner PWB and refit all the removed parts.

NOTE:
When the replacing the scanner PWB, perform following maintenance modes.

1. U425 Setting the target (see page 1-3-16)
2. U411 Adjusting the scanner automatically (see page 1-3-15)

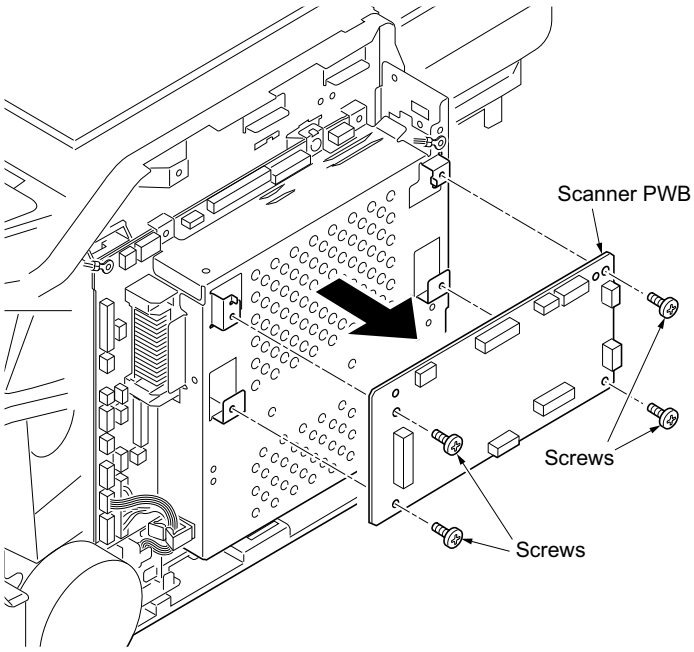

Figure 1-5-73

(5) Detaching and refitting the FAX PWB

Procedure

1. Remove two screws and then remove the FAX PWB.
2. Check or replace the FAX PWB and refit all the removed parts.

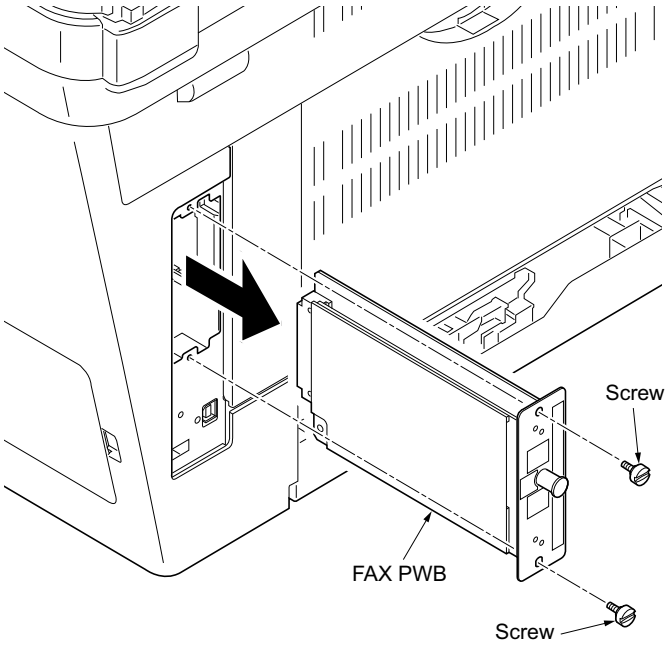

Figure 1-5-74

1-5-10 Others

(1) Detaching and refitting the main motor

Procedure

1. Remove the right cover (See page 1-5-3).
2. Remove the connector.
3. Remove the M3 screw and two M4 screws.
4. Remove the main motor.
5. Check or replace the main motor and refit all the removed parts.

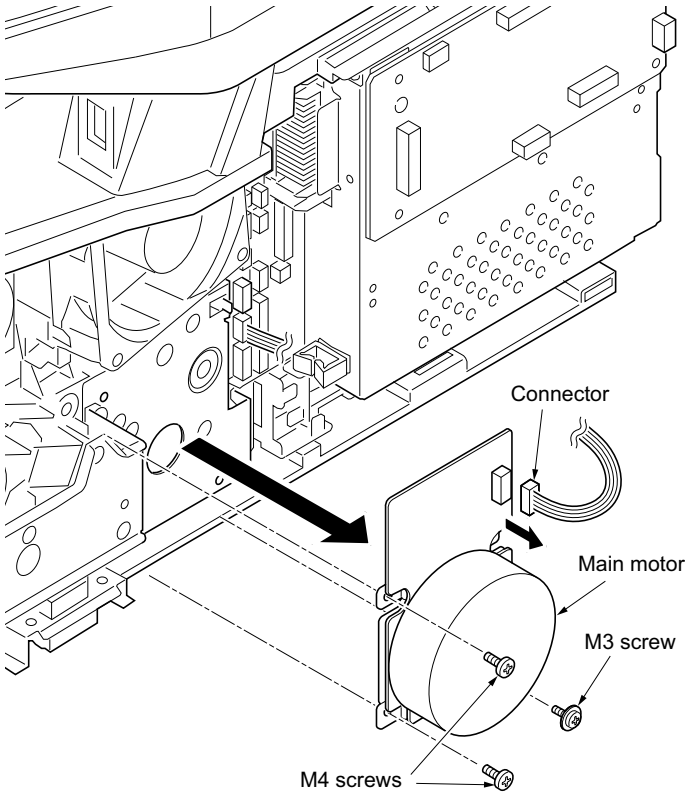

Figure 1-5-75

(2) Direction of installing the left cooling fan motor, right cooling fan motor and power source fan motor

When detaching or refitting a fan motor, be careful of the airflow direction (intake or exhaust).

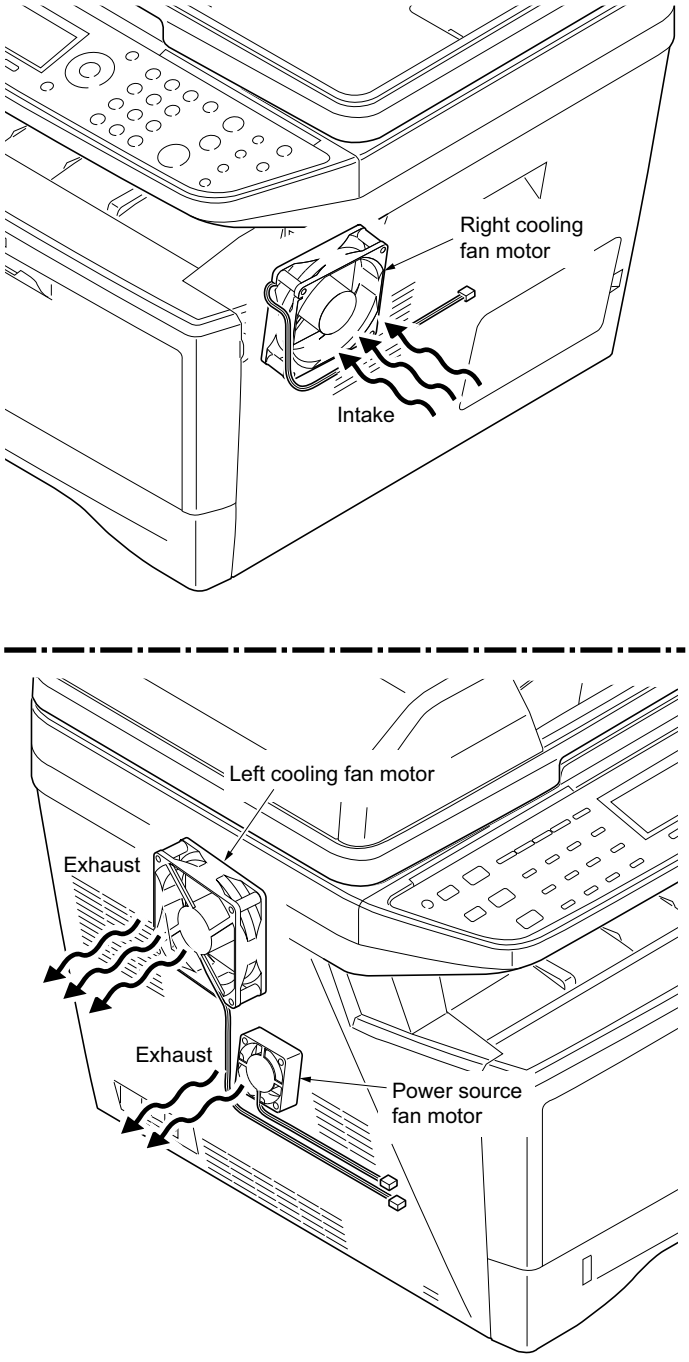

Figure 1-5-76

1-5-11 DP

(1) Detaching and refitting the DP rear cover and DP front cover

Procedure

1. Open the top cover.
2. Remove two screws.
3. Unhook the hook and then remove the DP rear cover.

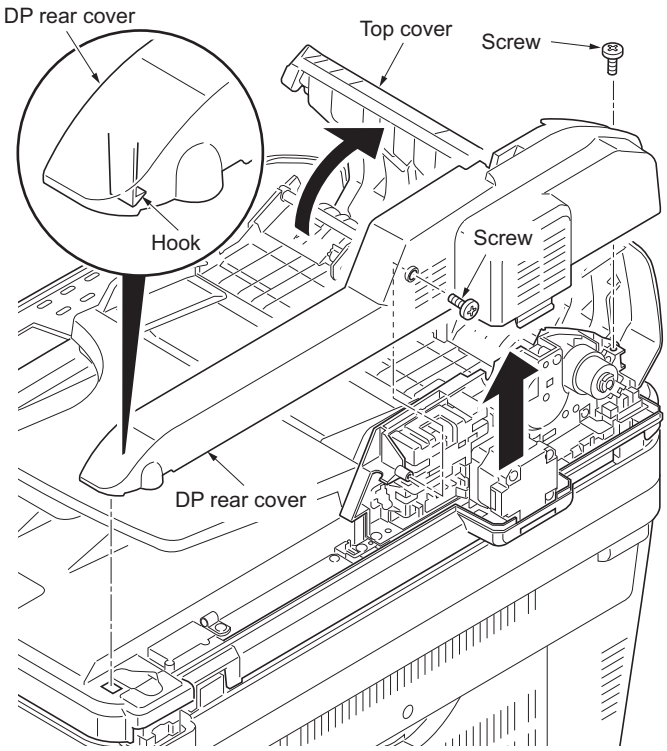

Figure 1-5-77

4. Unhook two hooks and then remove the DP front cover.

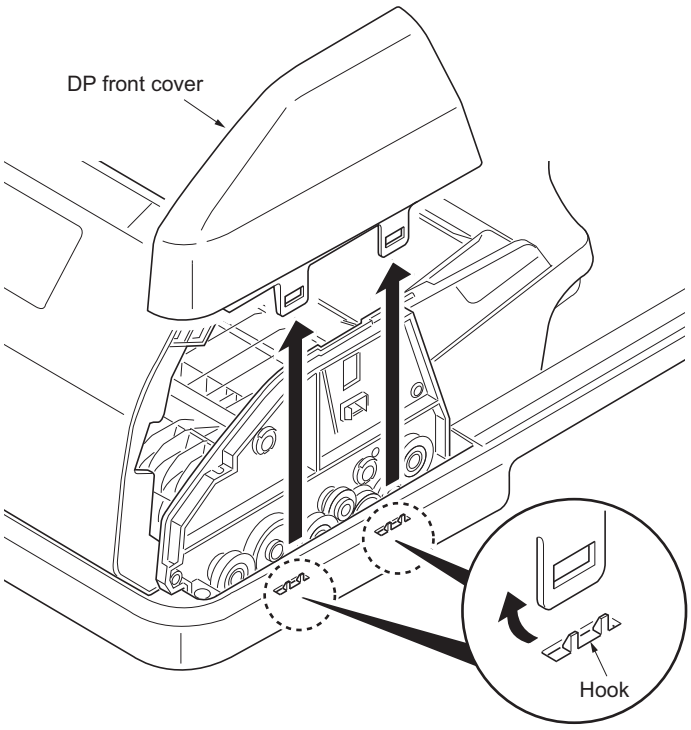

Figure 1-5-78

(2) Detaching and refitting the DP driver PWB

Follow the procedure below to check or replace the DP driver PWB.

Procedure

1. Remove the DP rear cover (See page 1-5-51).
2. Remove eight connectors from the DP driver PWB.
3. Remove the screw and then remove the DP driver PWB.
4. Check or replace the DP driver PWB. Refit all the removed parts.

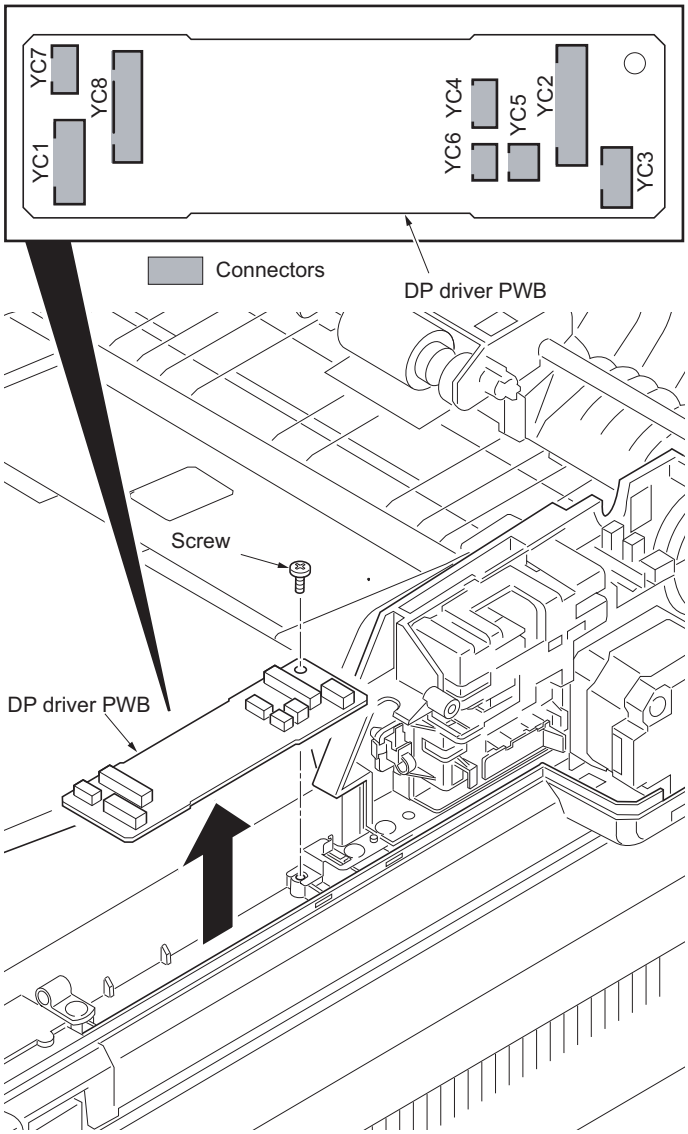

Figure 1-5-79

(3) Detaching and refitting the feed pulley and forwarding pulley

Follow the procedure below to clean or replace the feed pulley or forwarding pulley.

Procedure

1. Remove the DP rear cover and DP front cover (See page 1-5-51).
2. Remove the stopper.
3. Remove the bush.

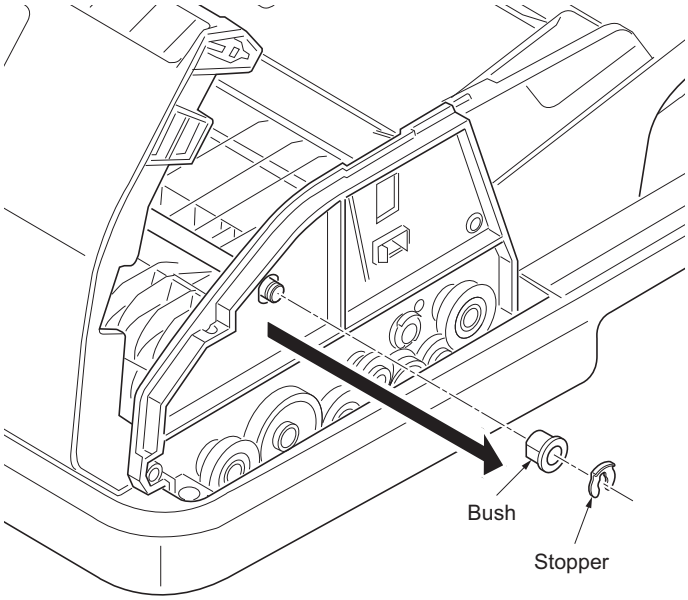

Figure 1-5-80

4. Remove the stopper A and then remove the DP paper feed clutch.
5. Remove the stopper B and then remove the PF collar, spring, spring collar S, pin and bush from the PF shaft.

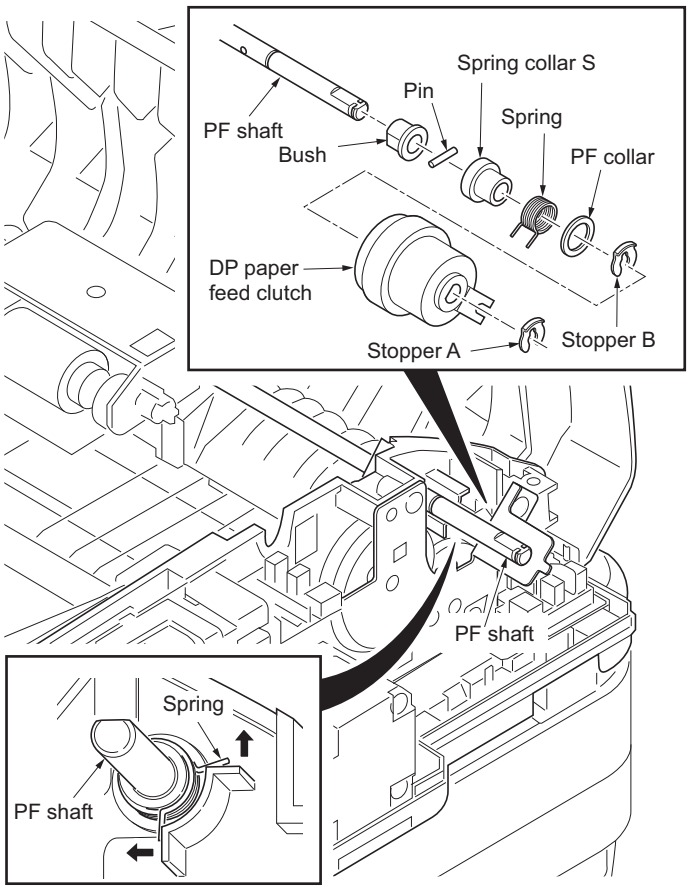

Figure 1-5-81

6. Remove the forwarding pulley assembly.

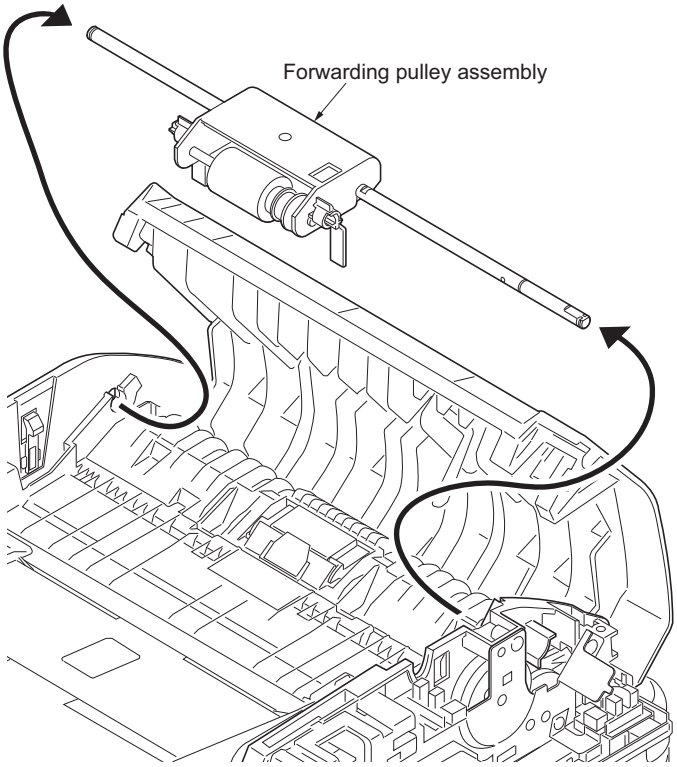

Figure 1-5-82

Detaching the feed pulley

7. Remove the stopper A.
8. Remove the feed pulley assembly from the LF holder.
9. Remove the stopper B.
10. Remove the PF collar, spring, spring collar S and pin from the PF shaft.
11. Remove the feed pulley, one-way clutch, PF pulley gear and pin from the PF shaft.

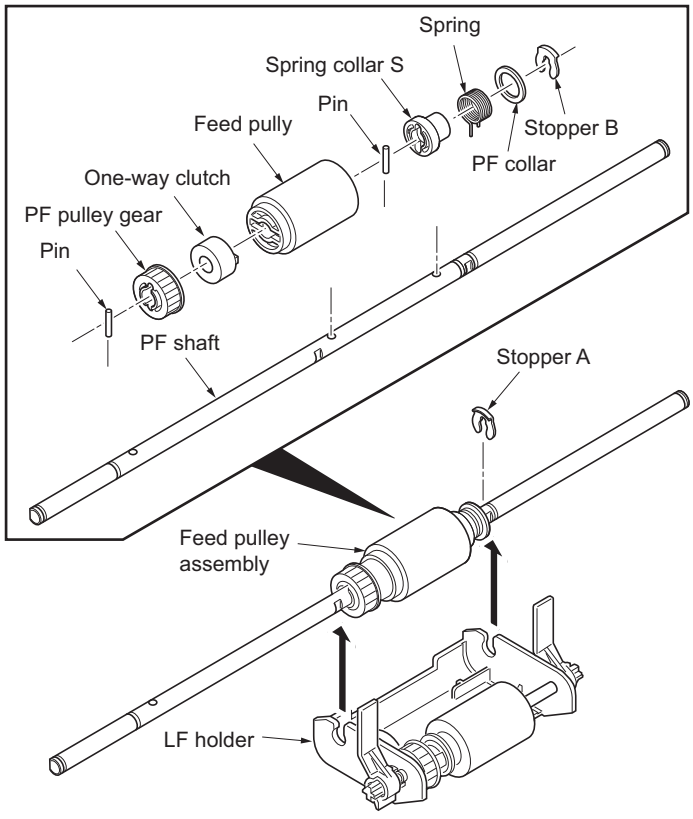

Figure 1-5-83

Detaching the forwarding pulley

12. Remove the PF stopper from the LF holder.
13. Remove the stopper.
14. Pull out the LF shaft and then remove the LF gear 18, forwarding feed joint gear and forwarding pulley.
15. Clean or replace the feed pulley and forwarding pulley.
    Refit all the removed parts.

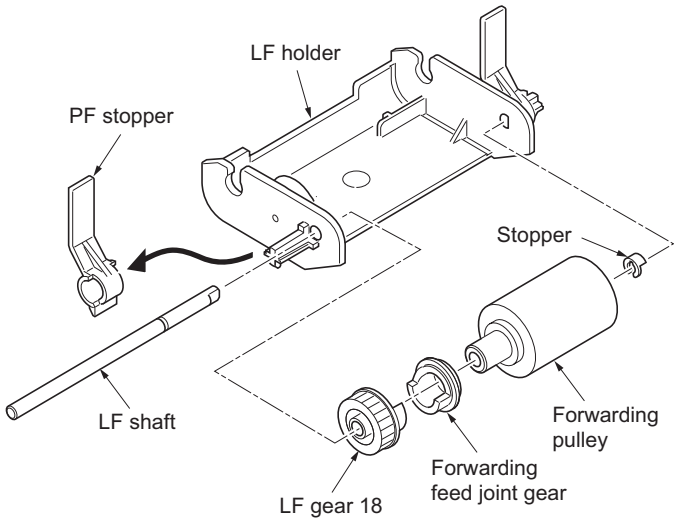

Figure 1-5-84

(4) Detaching and refitting the separation pad assembly

Follow the procedure below to clean or replace the separation pad assembly.

Procedure

1. Remove the forwarding pulley assembly (See page 1-5-53).
2. Remove the separation pad assembly.
3. Clean or replace the separation pad assembly.
   Refit all the removed parts.

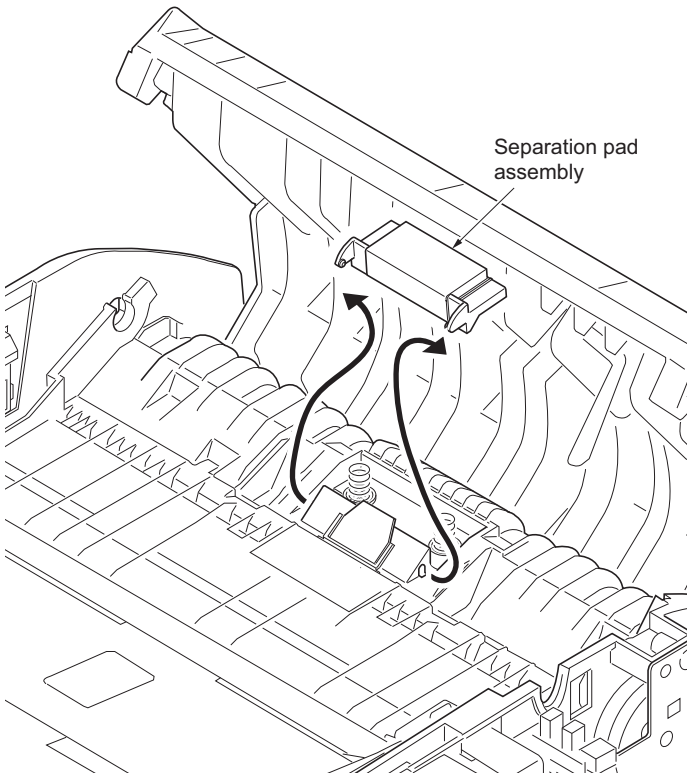

Figure 1-5-85

1-6-1 Upgrading the firmware

Follow the procedure below to upgrade the firmware of control PWB (main controller and engine) and scanner PWB.

Preparation

Extract the file that has the download firmware and put them in the USB Memory.

Procedure

1. Turn ON the main switch and confirm if the screen shows “Ready to print” then, turn OFF the main power switch.
2. Insert USB memory that has the firmware in the USB memory slot.
3. Turn ON the main power switch.
4. About 40 seconds later, “Firmware Update Downloading” will be displayed and blinking the memory LED (this shows to start the download).
5. Display the software that now upgrading (5 minutes).

   “Firmware Update Main”
   “Engine”
   “Scanner”

6. Display the completion of the upgrade (Memory LED is ON condition).

   Firmware Update
   Main: Completed
   Engine: Completed
   Scanner: Completed

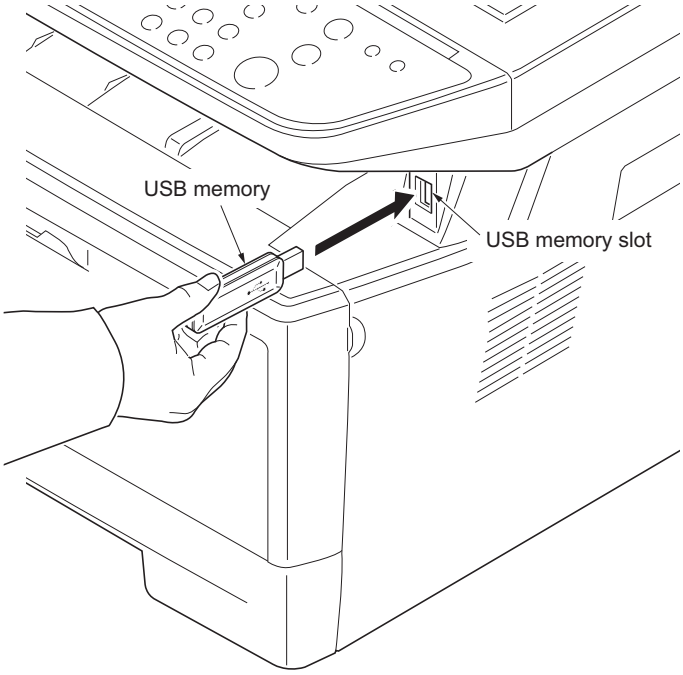

Figure 1-6-1

7. Turn OFF the main power switch and remove the USB memory.

1-6-2 Remarks on control PWB replacement

When replacing the control PWB, remove the EEPROM (U17) from the control PWB that has been removed and then reattach it to the new control PWB.

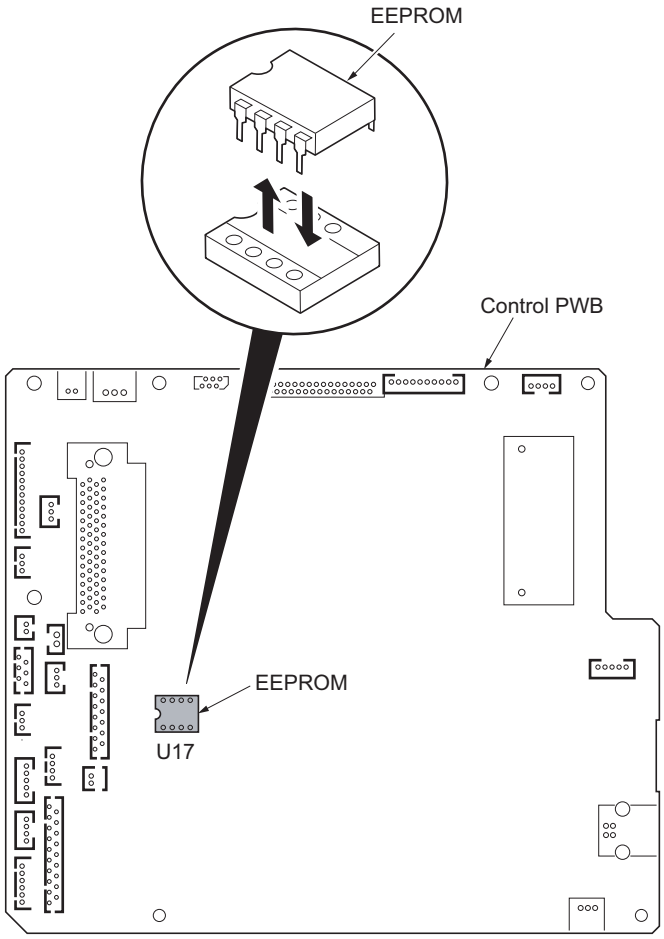

Figure 1-6-2

2-1-1 Paper feed/conveying section

Paper feed/conveying section consists of the paper feed unit that feeds paper from the cassette and the MP tray paper feed unit that feeds paper from the MP tray, and the paper conveying section that conveys the fed paper to the transfer/ separation section.

(1) Cassette paper feed section

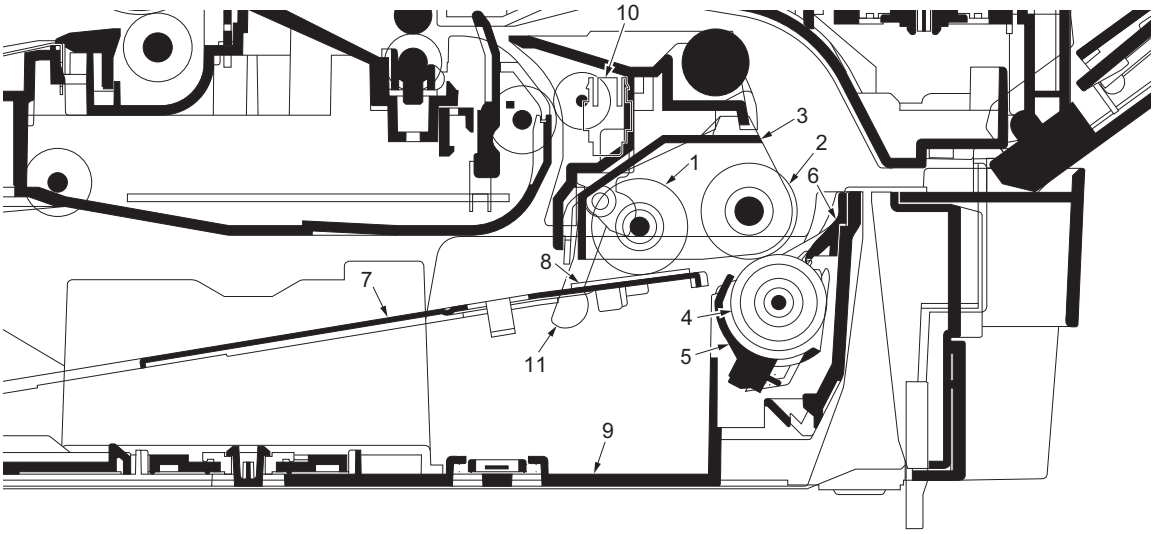

Figure 2-1-1 Cassette paper feed section

(1) Pickup roller
(2) Paper feed roller
(3) Feed holder
(4) Retard roller
(5) Retard holder
(6) Retard guide
(7) Bottom plate
(8) Bottom pad
(9) Cassette base
(10) Paper sensor
(11) Actuator (paper sensor)

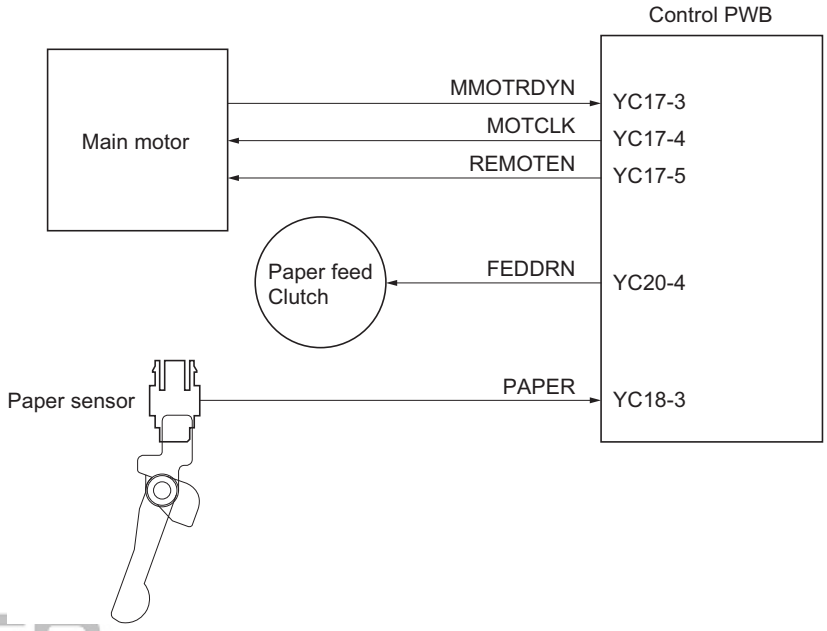

Figure 2-1-2Cassette paper feed section block diagram

(2) MP tray paper feed section

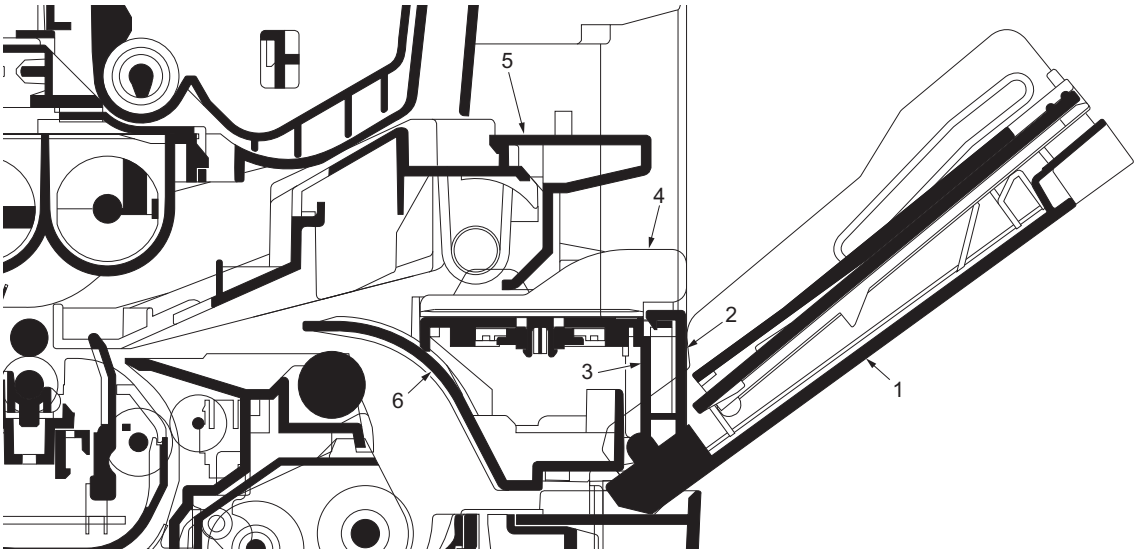

Figure 2-1-3 MP tray paper feed section

(1) MP upper cover
(2) MP lower cover
(3) MP base
(4) MP guide R/L
(5) MPF frame

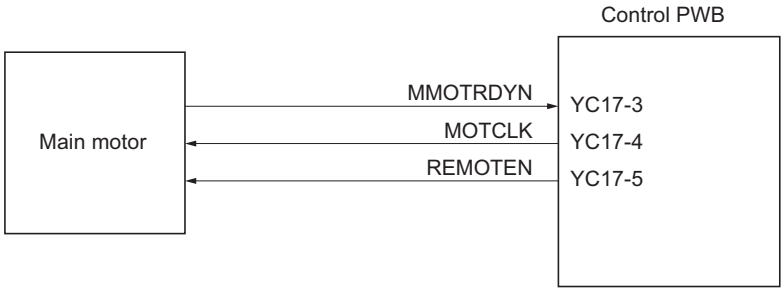

Figure 2-1-4 MP tray paper feed section block diagram

(3) Paper conveying section

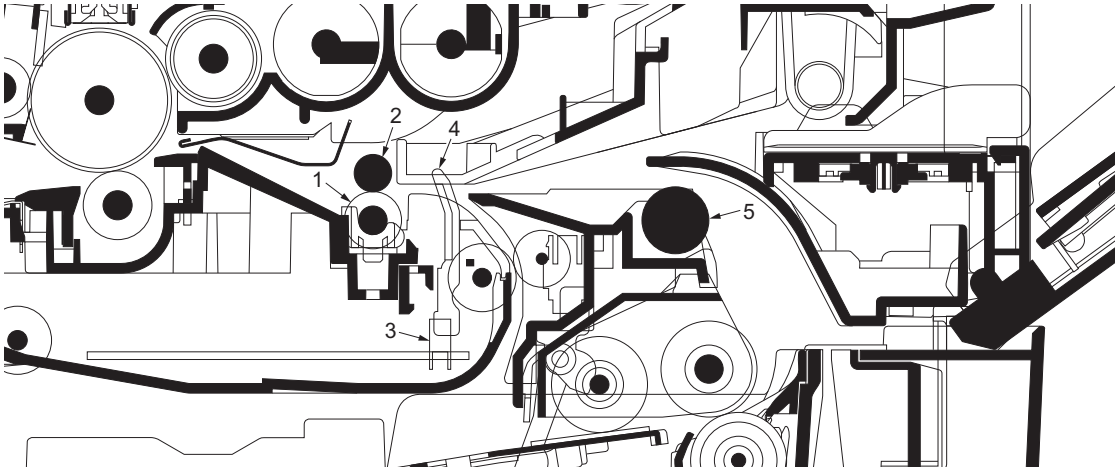

Figure 2-1-5 Paper conveying section

(1) Lower registration roller
(2) Upper registration roller
(3) Registration sensor
(4) Actuator (registration sensor)
(5) Feed pulley

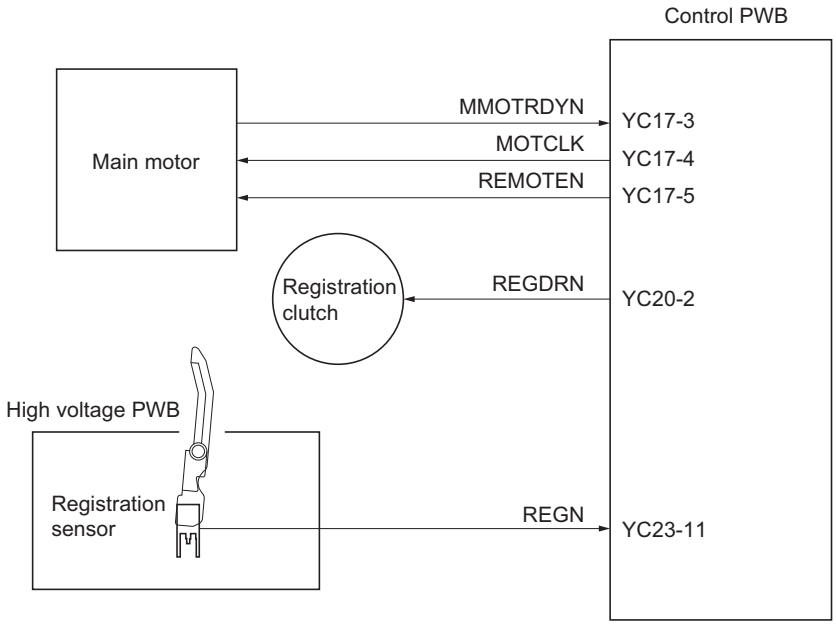

Figure 2-1-6 Paper conveying section block diagram

2-1-2 Drum section

(1) Drum section

The durable layer of organic photoconductor (OPC) is coated over the aluminum cylinder base. The OPC tend to reduce its own electrical conductance when exposed to light. After a cyclic process of charging, exposure, and development, the electrostatic image is constituted over the OPC layer.
Since the OPC is materialized by resin, it is susceptible to damage caused by sharp edges such as a screwdriver, etc., resulting in a print quality problem. Also, finger prints can cause deterioration of the OPC layer, therefore, the drum (in the drum unit) must be handled with care. Substances like water, alcohol, organic solvent, etc., should be strictly avoided.
As with all other OPC drums, the exposure to a strong light source for a prolonged period can cause a print quality problem. The limit is approximately 500 lux for less than five minutes. If the drum (drum unit) remains removed from the machine, it should be stored in a cool, dark place.
.

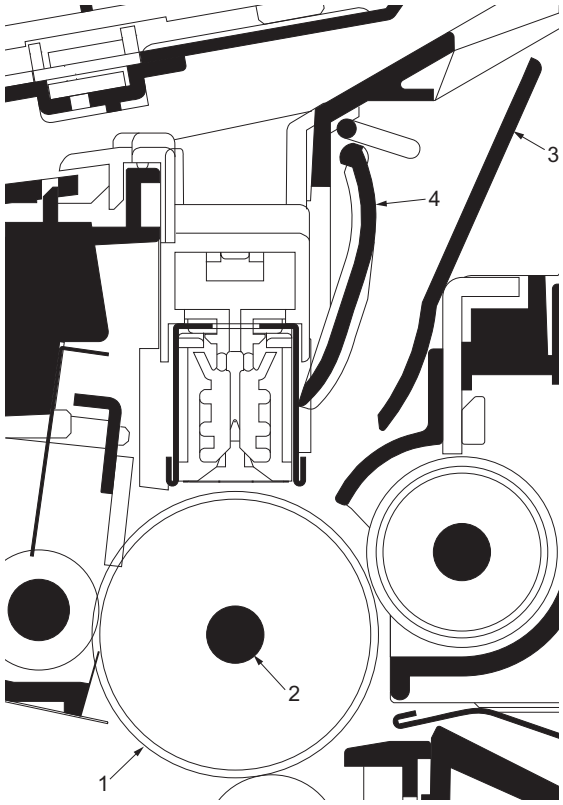

Figure 2-1-7 Drum unit

(1) Drum
(2) Drum shaft
(3) Drum cover A
(4) Drum cover B

(2) Main charger unit

As the drum rotates in a “clean (neutral)” state, its photoconductive layer is given a uniform, positive (+) corona charge dispersed by the main charger wire. Due to high-voltage scorotron charging, the charging wire can get contaminated by oxidization after a long run. Therefore, the charger wire must be cleaned at a specific interval. Cleaning the charging wire prevents print quality problems such as black streaks.

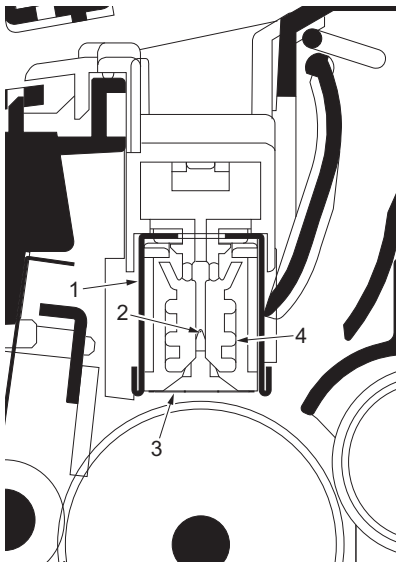

Figure 2-1-8 Main charger unit

(1) Main charger shield
(2) Main charger wire
(3) Main charger grid
(4) Main charger wire cleaner

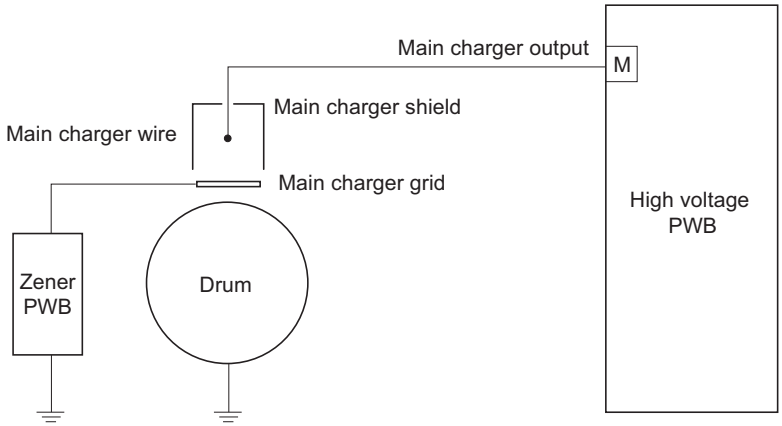

Figure 2-1-9 Drum unit and main charger unit block diagram

2-1-3 Optical section

(1) Scanner unit

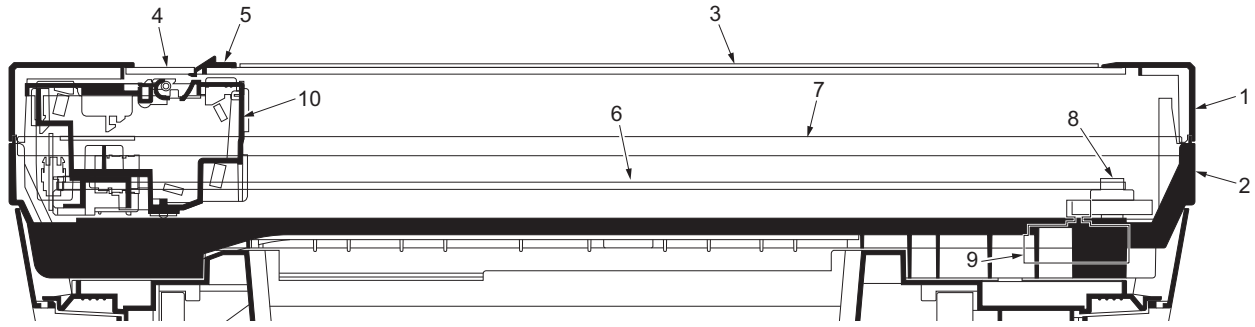

Figure 2-1-10Scanner unit

(1)	ISU top frame	(6)	ISU belt
(2)	ISU bottom frame	(7)	ISU shaft
(3)	Contact glass	(8)	ISU gear 63/32
(4)	DP contact glass	(9)	ISU motor
(5)	Size indicator plate	(10)	Image scanner unit (ISU)

(2) Image scanner unit (ISU)

The image scanner unit consists of an exposure lamp, four mirrors, a lens, a CCD PWB, and so on. Also an inverter PWB for driving the exposure lamp and a home position sensor for detecting the home position of the image scanner unit are incorporated.
The original on the contact glass is exposed to the light of the exposure lamp that is reflected by the ISU reflector. The image is input through reflection by the four mirrors and through the ISU lens to the CCD image sensor on the CCD PWB. The CCD image sensor scans one row of the image in the main scan direction, converts it to electric signals, and outputs them to the control PWB. Then the image scanner unit is moved in the sub scan direction along the sliding rod, and the CCD image sensor scans the next row of the image in the main scan direction. The operation described above is repeated for scanning the overall image of the original. If a document processor (DP) is used, the image scanner unit stops at the position of the DP contact glass and scans sequentially one row of the image on the original in synchronization with the moving timing of the original in the sub scan direction by driving the DP.

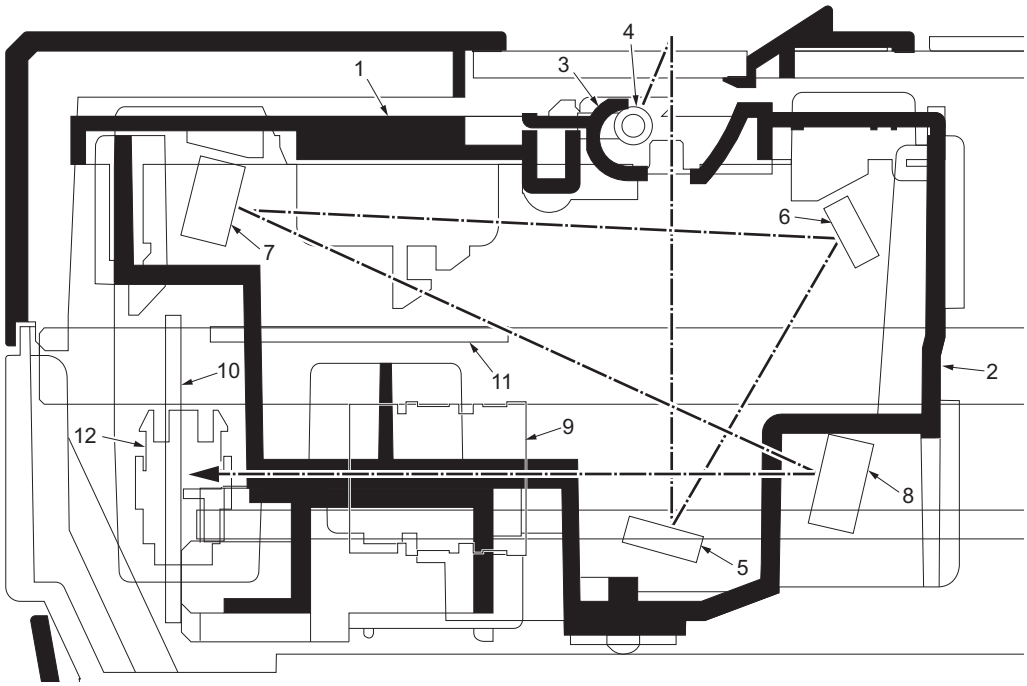

Figure 2-1-11Image scanner unit (ISU)

(1) Lamp mount
(2) ISU housing
(3) ISU reflector
(4) Exposure lamp
(5) Mirror A
(6) Mirror B
(7) Mirror C
(8) Mirror D
(9) ISU lens
(10) CCD PWB
(11) Inverter PWB
(12) Home position sensor

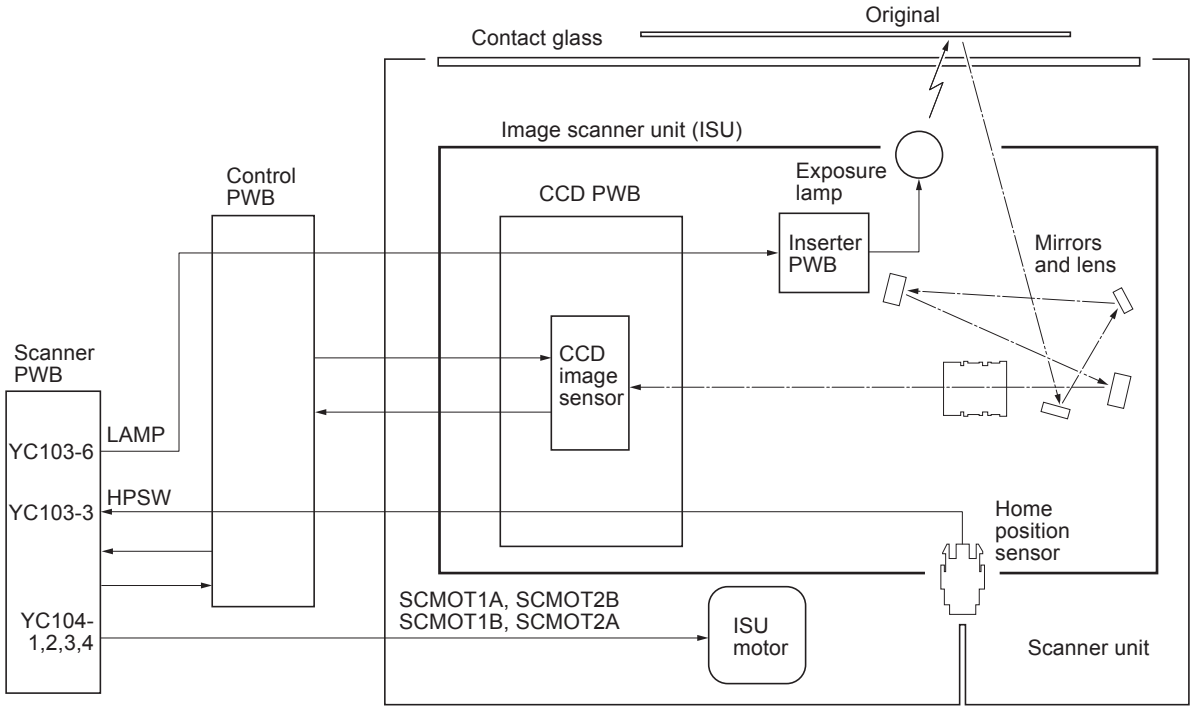

Figure 2-1-12 Scanner unit block diagram

(3) Laser scanner unit

The charged surface of the drum is then scanned by the laser beam from the laser scanner unit.
The laser beam (780 nm wavelength) beam is dispersed as the polygon motor revolves to reflect the laser beam over the drum. Various lenses and mirror are housed in the laser scanner unit, adjust the diameter of the laser beam, and focalize it at the drum surface.

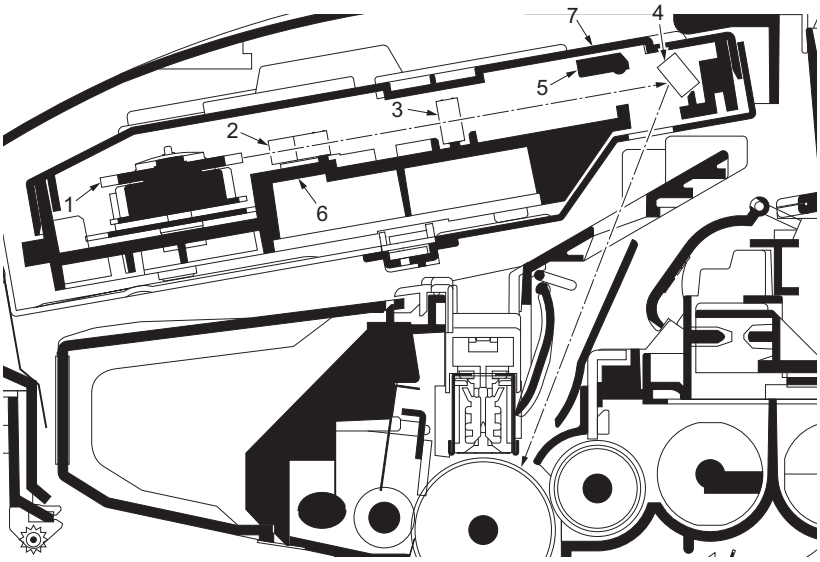

Figure 2-1-13 Laser scanner unit

(1) Polygon motor (mirror)
(2) F-θ lens
(3) F-θ lens
(4) LSU mirror
(5) LSU shutter
(6) LSU frame
(7) LSU cover

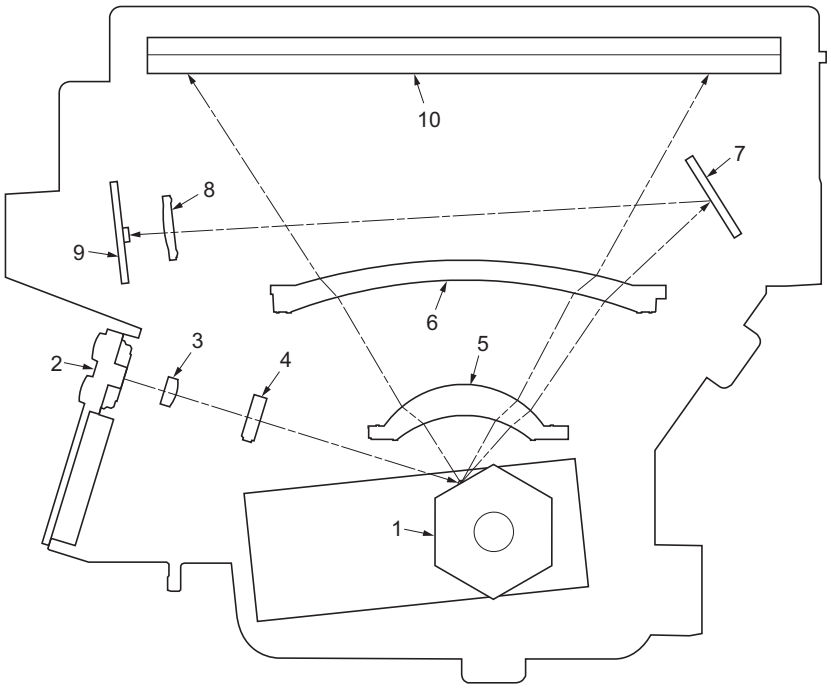

Figure 2-1-14 Laser scanner unit

(1) Polygon motor (mirror)
(2) Laser diode (APC PWB)
(3) Collimator lens
(4) Cylindrical lens
(5) F-θ lens
(6) F-θ lens
(7) PD mirror
(8) SOS lens
(9) Pin photo diode sensor (PD PWB)
(10) LSU mirror

2-1-4 Developing section

The latent image constituted on the drum is developed into a visible image. The developing roller contains a 3-pole (S-NS) magnet roller and an aluminum cylinder rotating around the magnet roller. Toner attracts to the magnet sleeve since it is powdery ink made of black resin bound to iron particles. Developing blade, magnetized by magnet, is positioned approximately 0.3 mm above the magnet sleeve to constitute a smooth layer of toner in accordance with the magnet sleeve revolution.

The developing roller is applied with the AC-weighted, positive DC power source. Toner on the magnet sleeve is given a positive charge. The positively charged toner is then attracted to the areas of the drum which was exposed to the laser light. (The gap between the drum and the magnet sleeve is approximately 0.32 mm.) The non-exposed areas of the drum repel the positively charged toner as these areas maintain the positive charge.
The developing roller is also AC-biased to ensure contrast in yielding by compensating the toner's attraction and repelling action during development.

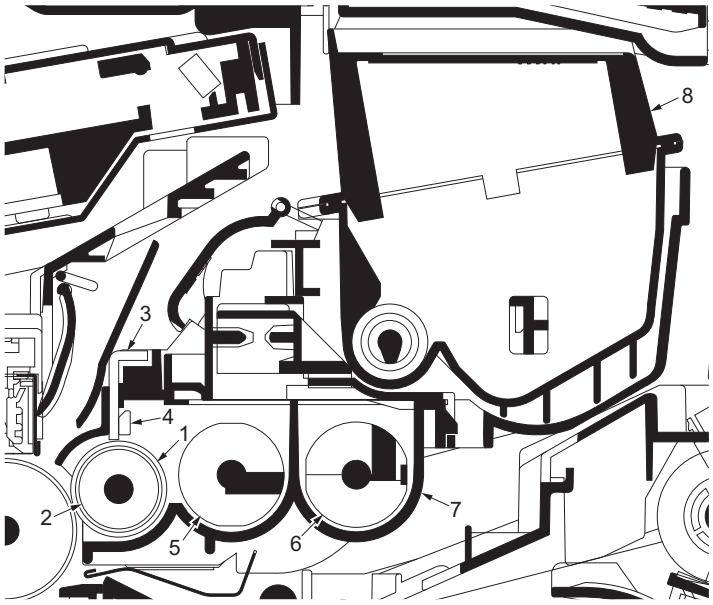

Figure 2-1-15Developing unit and toner container

(1)	Magnet sleeve	(5)	DLP screw A
(2)	Magnet roller	(6)	DLP screw B
(3)	Developing blade	(7)	DLP case
(4)	Blade magnet	(8)	Toner container

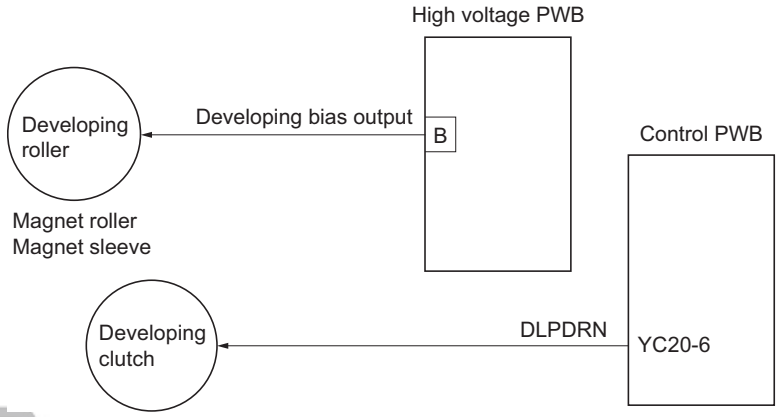

Figure 2-1-16 Developing section block diagram

2-1-5 Transfer/separation section

The transfer/separation section consists of the transfer roller, discharger brush and paper chute guide. A high voltage generated by the high voltage PWB is applied to the transfer roller for transfer charging. Paper after transfer is separated from the drum.

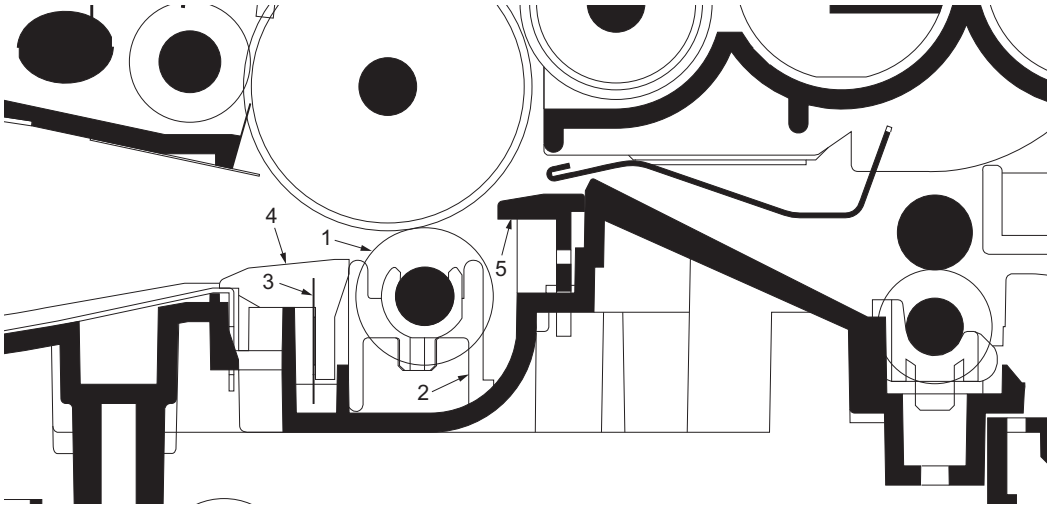

Figure 2-1-17 Transfer/separation section

(1) Transfer roller
(2) Transfer bushes
(3) Discharger brush
(4) DC brush holder
(5) Paper chute guide

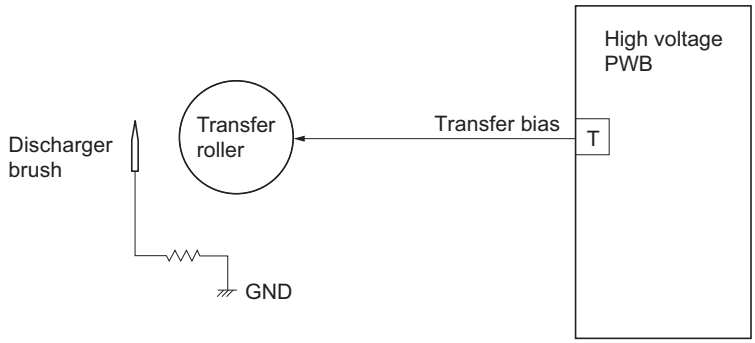

Figure 2-1-18 Transfer/separation section block diagram

2-1-6 Cleaning section

After the transferring process, the drum needs to be physically cleaned of toner which is residual after the development process. The cleaning blade is constantly pressed against the drum and scrapes the residual toner off to the sweep roller. The waste toner is collected at the output end of the sweep roller and sent back to the toner container, into the waste toner reservoir.
After the drum is physically cleaned, it then must be cleaned to the electrically neutral state. This is necessary to erase any residual positive charge, ready to accept the uniform charge for the next print process. The residual charge is canceled by exposing the drum to the light emitted from the eraser lamp (PWB). This lowers the electrical conductivity of the drum surface making the residual charge on the drum surface escape to the ground.

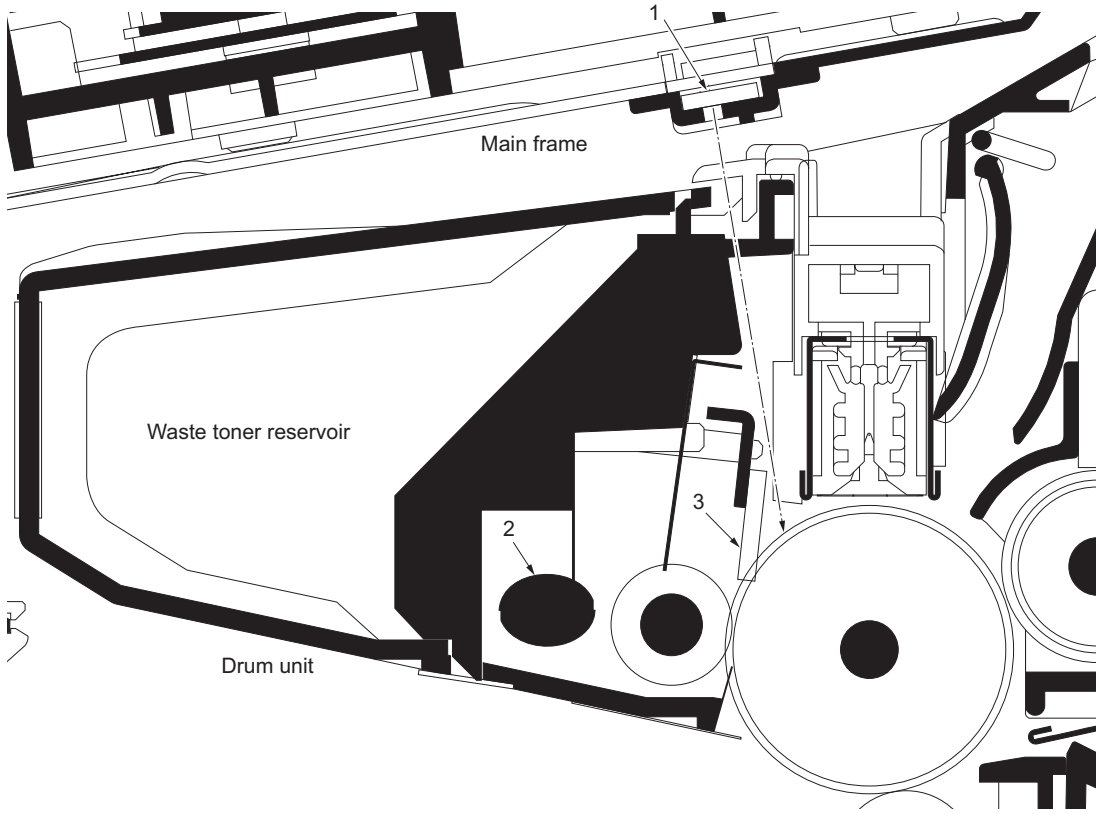

Figure 2-1-19 Cleaning section

(1) Eraser lamp (PWB)
(2) Sweep roller
(3) Cleaning blade

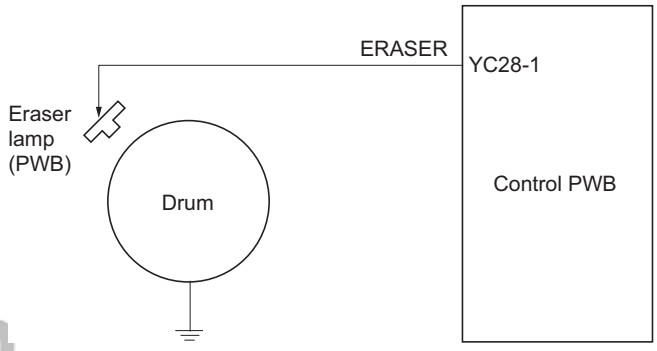

Figure 2-1-20 Cleaning section block diagram

2-1-7 Fuser section

The toner on the paper is molten and pressed into the paper as it passes between the heat roller and the press roller in the fuser unit. The heat roller has a heater lamp inside which continuously turns on and off by the fuser thermistor to maintain the constant temperature onto the heat roller surface. The heat roller is resin coated by florin to prevent toner from accumulating on the roller after a long run. Care must be taken while handling the heat roller not to scratch the roller surface as doing so may result in print problems. Fuser temperature is optimized to the paper type. The heat roller has four separators (claws) which are continuously in contact with its surface. These separators (claws) prevent the paper on which toner has been fused from being wound around the heat roller causing paper jam. The press roller is made of the heat-resistant silicon rubber. This roller is used to strongly press the paper towards the heat roller by means of press springs. The temperature of the heat roller is constantly monitored by the control PWB using the fuser thermistor. Should the temperature of the heat roller exceed the predetermined value, the fuser thermal cutout is activated to effectively disconnect the heater lamp from power.

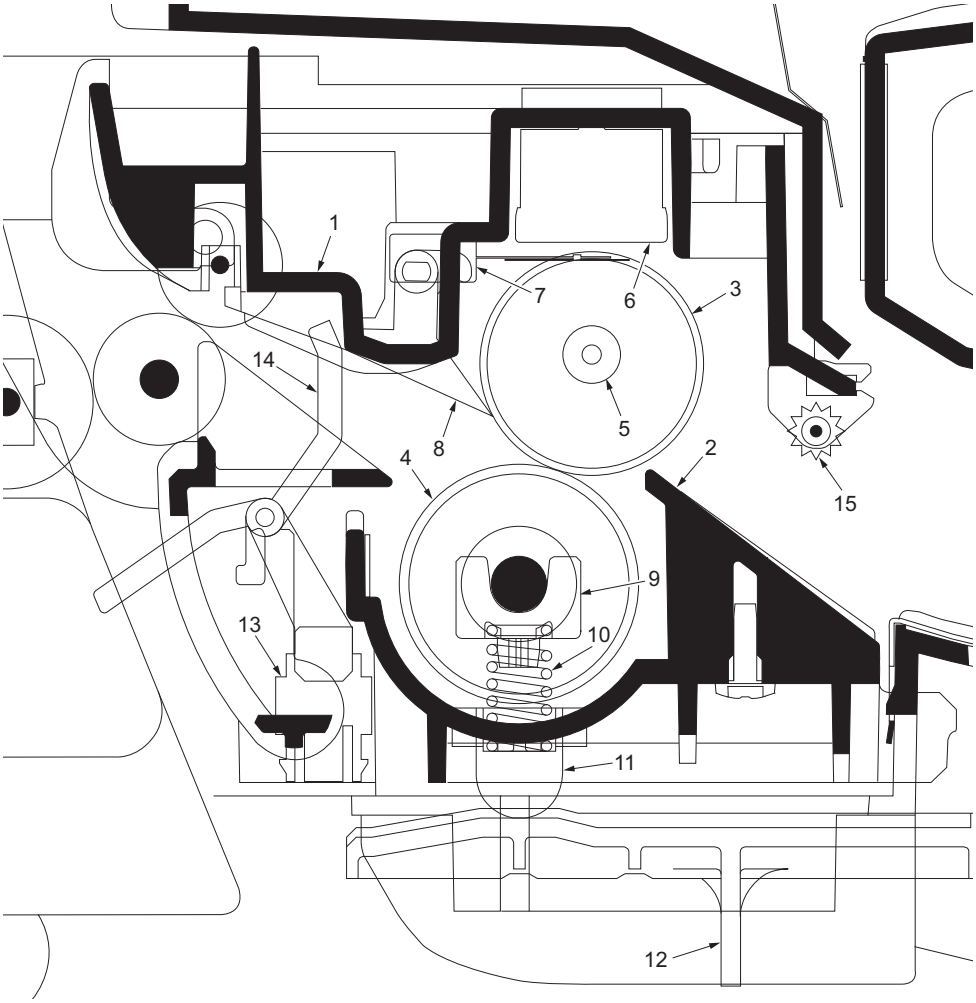

Figure 2-1-21 Fuser unit

(1) Upper fuser frame
(2) Lower fuser frame
(3) Heat roller
(4) Press roller
(5) Fuser heater lamp
(6) Fuser thermal cutout
(7) Fuser thermistor
(8) Separators
(9) Fuser bushes
(10) Press springs
(11) Press spring holders
(12) Fuser lever L (R)
(13) Exit sensor
(14) Actuator (exit sensor)
(15) Fuser guide pulley

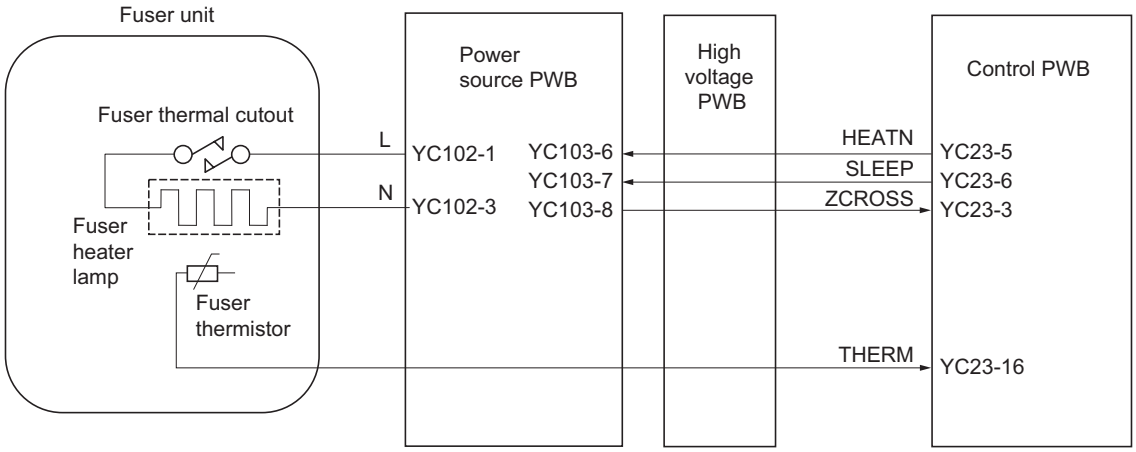

Figure 2-1-22 Fuser unit block diagram

2-1-8 Paper exit section

The paper exit section transports the paper which passed the fuser unit towards the top tray. The paper which passed through the fuser unit turns on the actuator (exit sensor) in the fuser unit, and is led by the guide comprised of the rear cover, frame and the FD cover guide, finally reaching the upper FD roller. The paper is delivered to the top tray by the rotation of the upper FD roller.

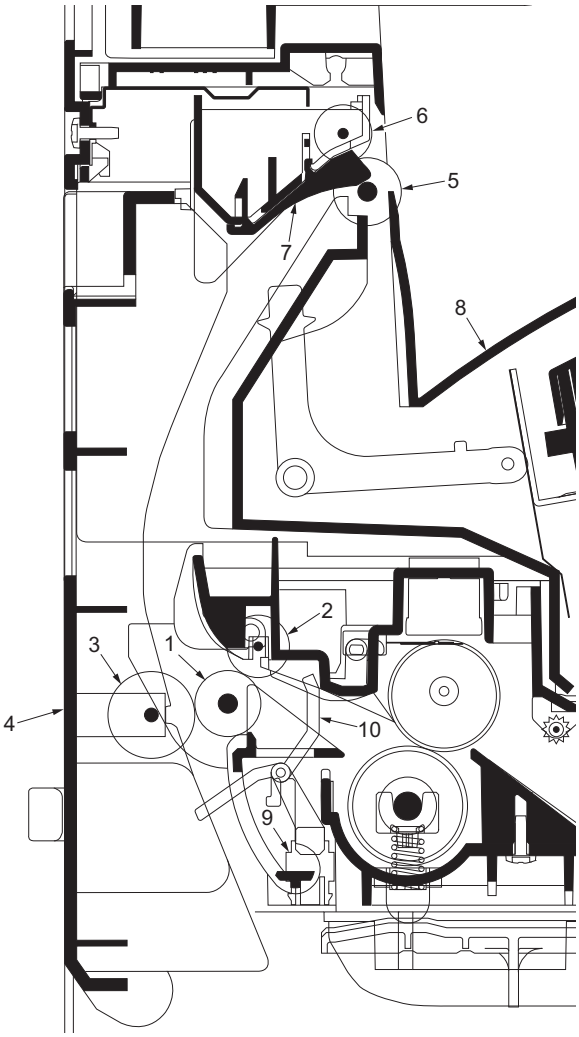

Figure 2-1-23 Paper exit section

(1) Exit roller
(2) Fuser exit pulley
(3) Middle pulley
(4) Rear cover
(5) Upper FD roller
(6) Exit pulley
(7) FD cover
(8) Top tray
(9) Exit sensor
(10) Actuator (exit sensor)

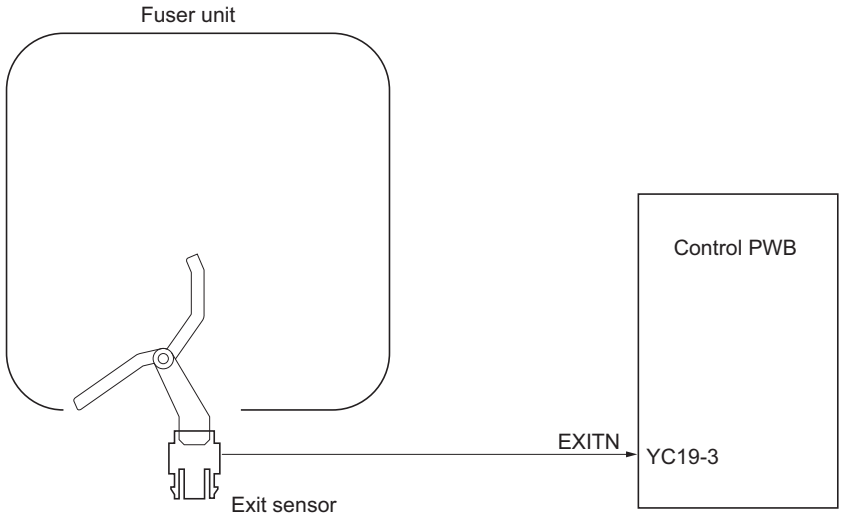

Figure 2-1-24 Paper exit section block diagram

2-1-9 DP section

(1) Original feed section

The original feed section consists of the parts shown in figure. An original placed on the original table is conveyed to the original conveying section. Original is fed by the rotation of the forwarding pulley and feed pulley.

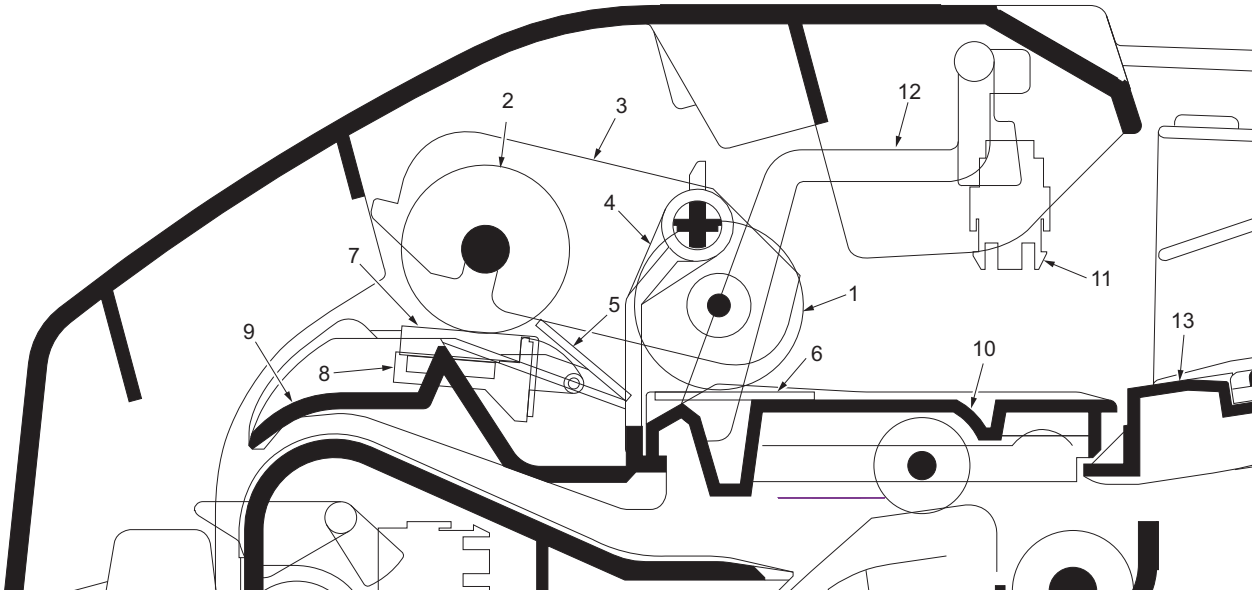

Figure 2-1-25 Original feed section

(1) Forwarding pulley
(2) Feed pulley
(3) LF holder
(4) PF stopper
(5) Front separation pad
(6) LF friction plate
(7) Separation pad
(8) Separation mount
(9) Upper guide
(10) Loop guide
(11) Original sensor
(12) Actuator (Original sensor)
(13) Original table

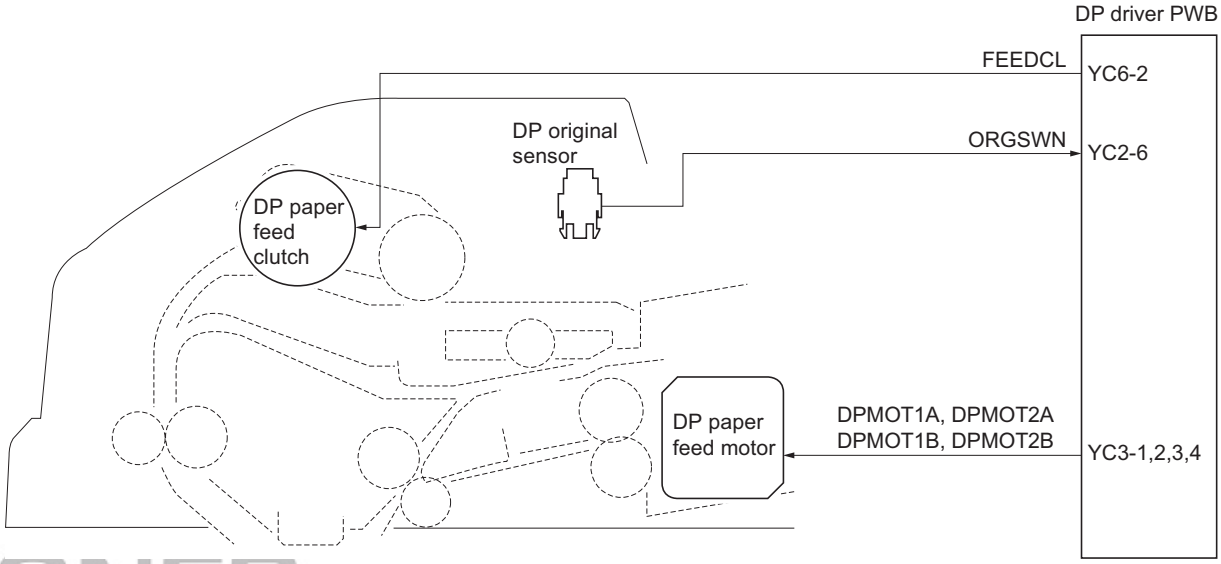

Figure 2-1-26Original feed section block diagram

(2) Original conveying section

The original conveying section consists of the parts shown in figure. A conveyed original is scanned by the optical section (CCD) of main machine when it passes through the DP contact glass of main machine.

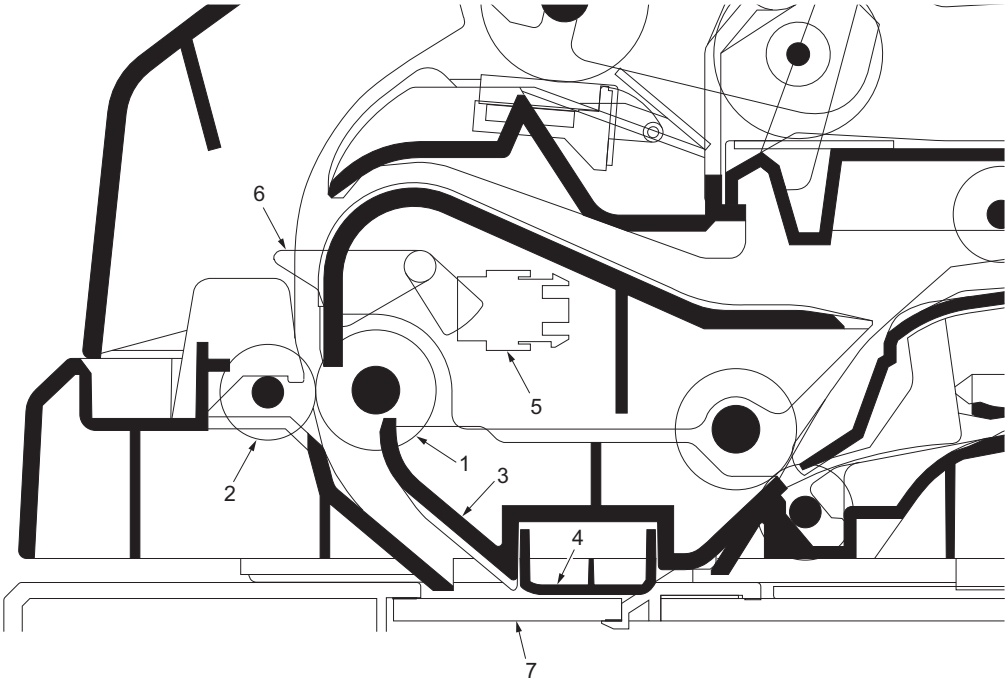

Figure 2-1-27Original conveying section

(1) Conveying roller A
(2) Conveying pulley
(3) Conveying bottom
(4) Reading guide
(5) DP timing sensor
(6) Actuator (DP timing sensor)
(7) DP contact glass (main machine)

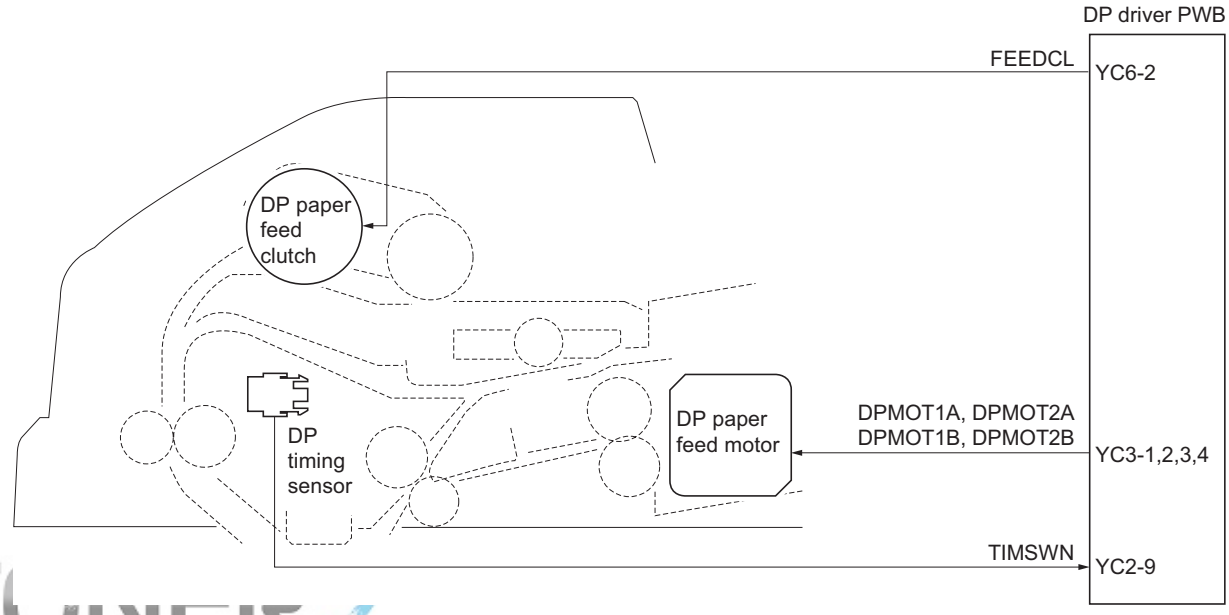

Figure 2-1-28Original conveying section block diagram

(3) Original eject section

The original eject section consists of the parts shown in figure. An original of which scanning is complete is ejected to the original eject table by the eject roller.

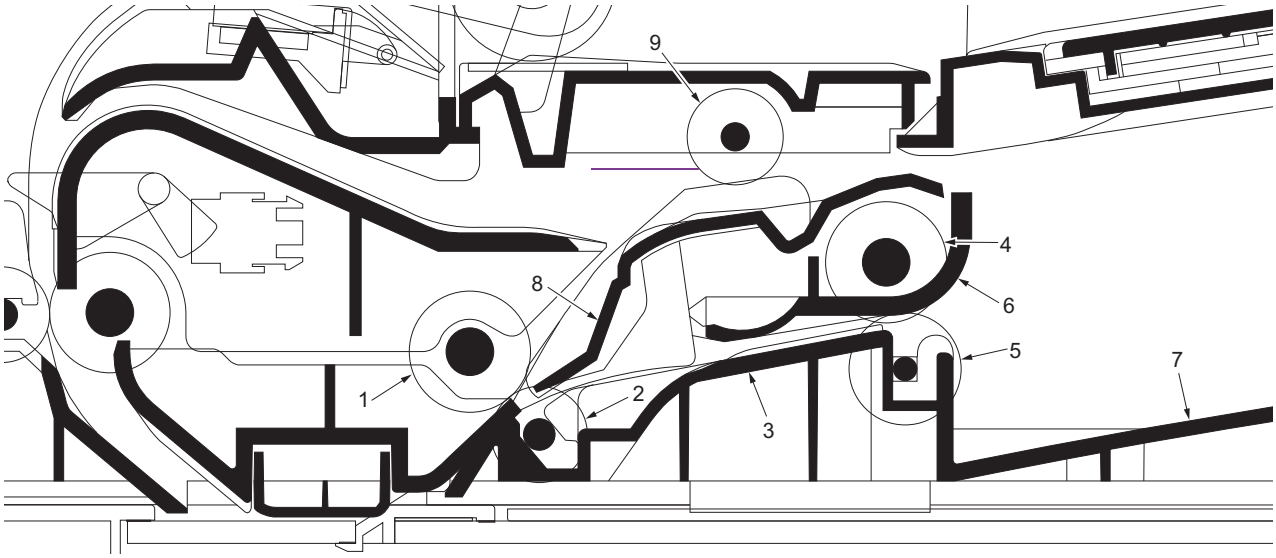

Figure 2-1-29Original switchback/eject sections

(1) Conveying roller B
(2) Conveying pulley
(3) DP base
(4) Eject roller
(5) Exit pulley
(6) PF housing
(7) Original eject table
(8) Switchback guide
(9) Switchback pulley

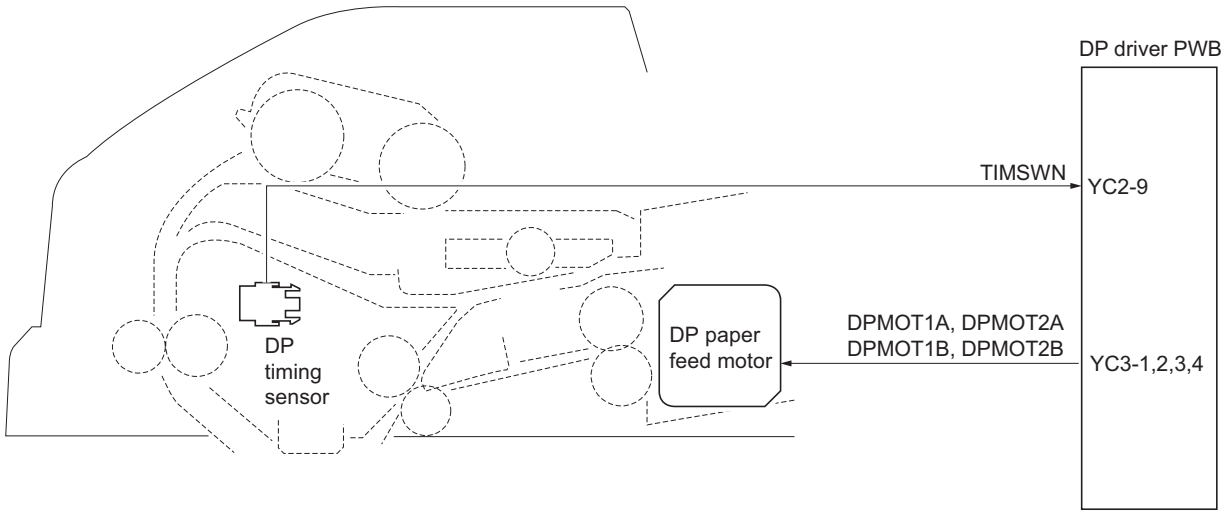

Figure 2-1-30Original switchback/eject sections block diagram

2-2-1 Electrical parts layout

(1) PWBs

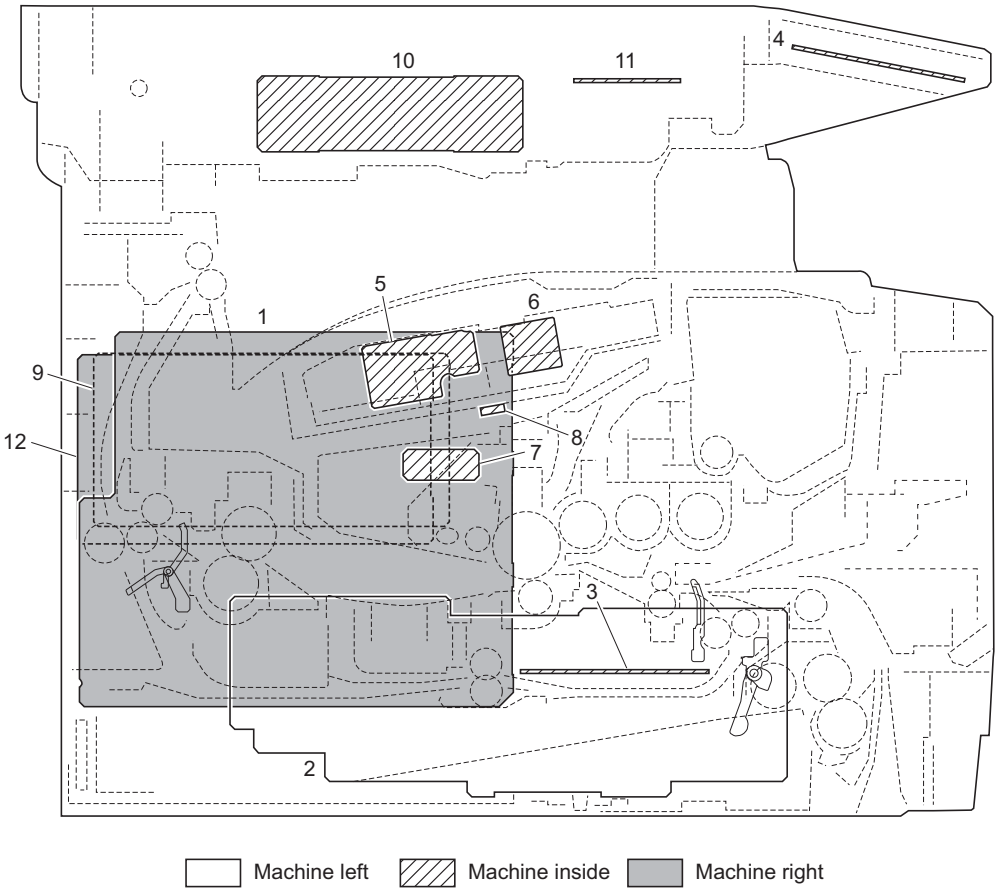

Figure 2-2-1 PWBs

1. Control PWB ..... Main controller: Controls the software such as the print data processing and provides the interface with computers.
   Engine: Controls machine hardware such as high voltage/bias output control, paper conveying system control, and fuser temperature control, etc.
2. Power source PWB ..... After full-wave rectification of AC power source input, switching for converting to 24 V DC for output. Controls the fuser heater lamp.
3. High voltage PWB ..... Generates main charging, developing bias and transfer bias.
4. Operation panel PWB ..... Consists the LCD, LED indicators and key switches.
5. APC PWB ..... Generates and controls the laser beam.
6. PD PWB ..... Controls horizontal synchronizing timing of laser beam.
7. Zener PWB ..... Adjusts the drum surface potential.
8. Eraser lamp PWB ..... Eliminates the residual electrostatic charge on the drum.
9. Scanner PWB ..... Controls the scanner section.
10. CCD PWB ..... Reads the image of originals.
11. Inverter PWB ..... Controls the exposure lamp.
12. FAX PWB ..... Modulates, demodulates, compresses, decompresses and smoothes out image data, and converts resolution of image data.

List of correspondences of PWB names

No.	Name used in service manual	Name used in parts list
1	Control PWB	PARTS MAIN PWB ASSY FS SP
1	Control PWB	PARTS MAIN PWB ASSY FS SP EU
2	Power source PWB	PARTS SWITCHING REGULATOR 120V SP
2	Power source PWB	PARTS SWITCHING REGULATOR 230V SP
3	High voltage PWB	HIGH VOLTAGE UNIT
4	Operation panel PWB	PARTS PANEL PWB ASSY SP
5	APC PWB	-
6	PD PWB	-
7	Zener PWB	-
8	Eraser lamp PWB	-
9	Scanner PWB	PARTS SCANNER PWB ASSY SP
10	CCD PWB	-
11	Inverter PWB	-
12	FAX PWB	PARTS MAIN FAX ASSY U SP
12	FAX PWB	PARTS MAIN FAX ASSY E SP

(2) Switches and sensors

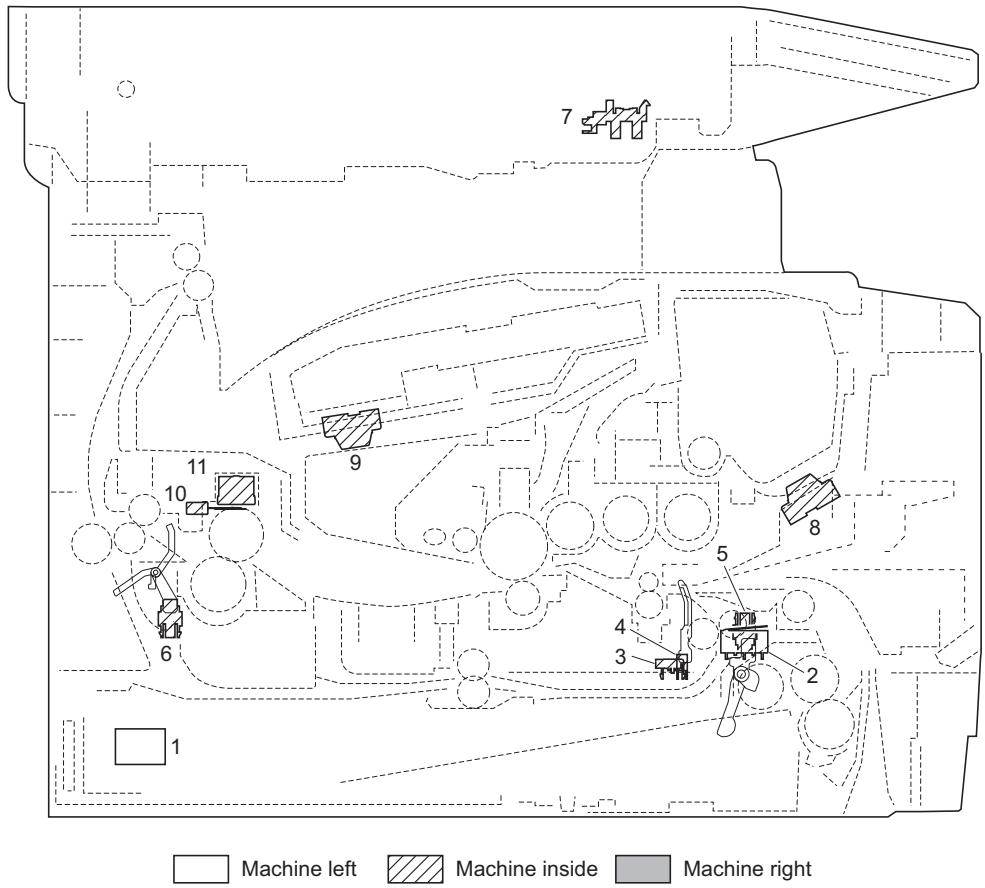

Figure 2-2-2 Switches and sensors

1. Main power switch ..... Turns ON/OFF the AC power source.
2. Interlock switch ..... Shuts off 24 V DC power line when the front cover is opened.
3. Cassette switch ..... Detects open/close cassette.
4. Registration sensor ..... Detects the timing of primary paper feed.
5. Paper sensor ..... Detects the presence of paper in the cassette.
6. Exit sensor ..... Detects paper jam in the fuser section.
7. Home position sensor ..... Detects the ISU in the home position.
8. Toner sensor ..... Detects the quantity of toner in a toner container.
9. Waste toner sensor ..... Detects when the waste toner reservoir (Drum unit) is full.
10. Fuser thermistor ..... Measures the heat roller temperature.
11. Fuser thermal cutout ..... Shuts off the power source to the fuser heater lamp when the heat roller reaches extremely high temperature.

(3) Other electrical components

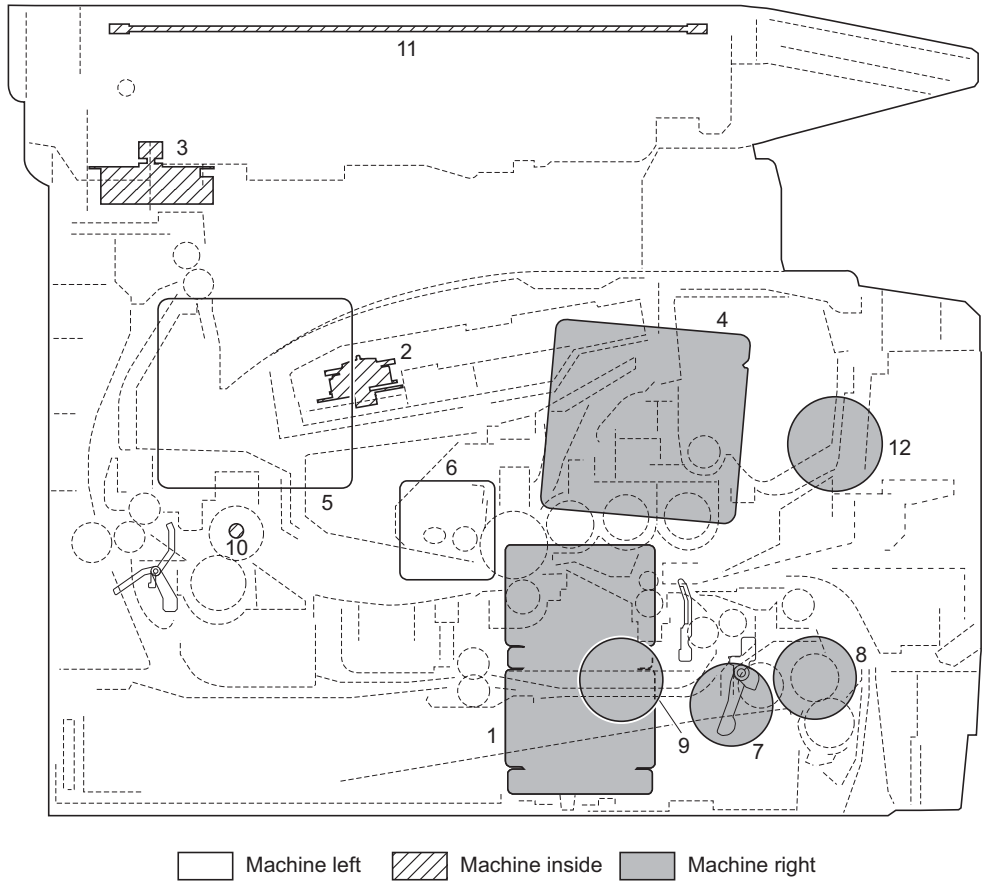

Figure 2-2-3 Other electrical components

1. Main motor ..... Drives the paper feed/conveying section and fuser unit.
2. Polygon motor ..... Drives the polygon mirror.
3. ISU motor ..... Drives the ISU.
4. Right cooling fan motor ..... Cools the interior of machine.
5. Left cooling fan motor ..... Cools the interior of machine.
6. Power source fan motor ..... Cools the interior of machine.
7. Registration clutch ..... Controls the secondary paper feed.
8. Paper feed clutch ..... Controls the paper cassette paper feed.
9. Developing clutch ..... Controls the toner feed.
10. Fuser heater lamp ..... Heats the heat roller.
11. Exposure lamp ..... Exposes originals.
12. Speaker ..... Outputs buzzer, monitoring and speaker sounds.

(4) DP

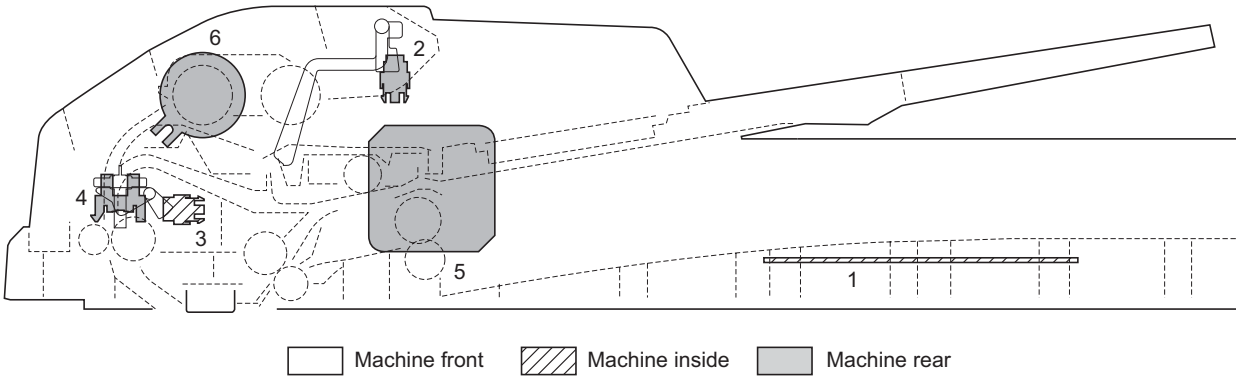

Figure 2-2-4 DP

1. DP driver PWB ..... Consists the solenoids and clutch driver circuit and wiring relay circuit.
2. DP original sensor ..... Detects the presence of an original.
3. DP timing sensor ..... Detects the original scanning timing.
4. DP open/close sensor ..... Detects the opening/closing of the DP.
5. DP paper feed motor ..... Drives the original feed section.
6. DP paper feed clutch ..... Controls the drive of the forwarding pulley and feed pulley.

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2-3-1 Power source PWB

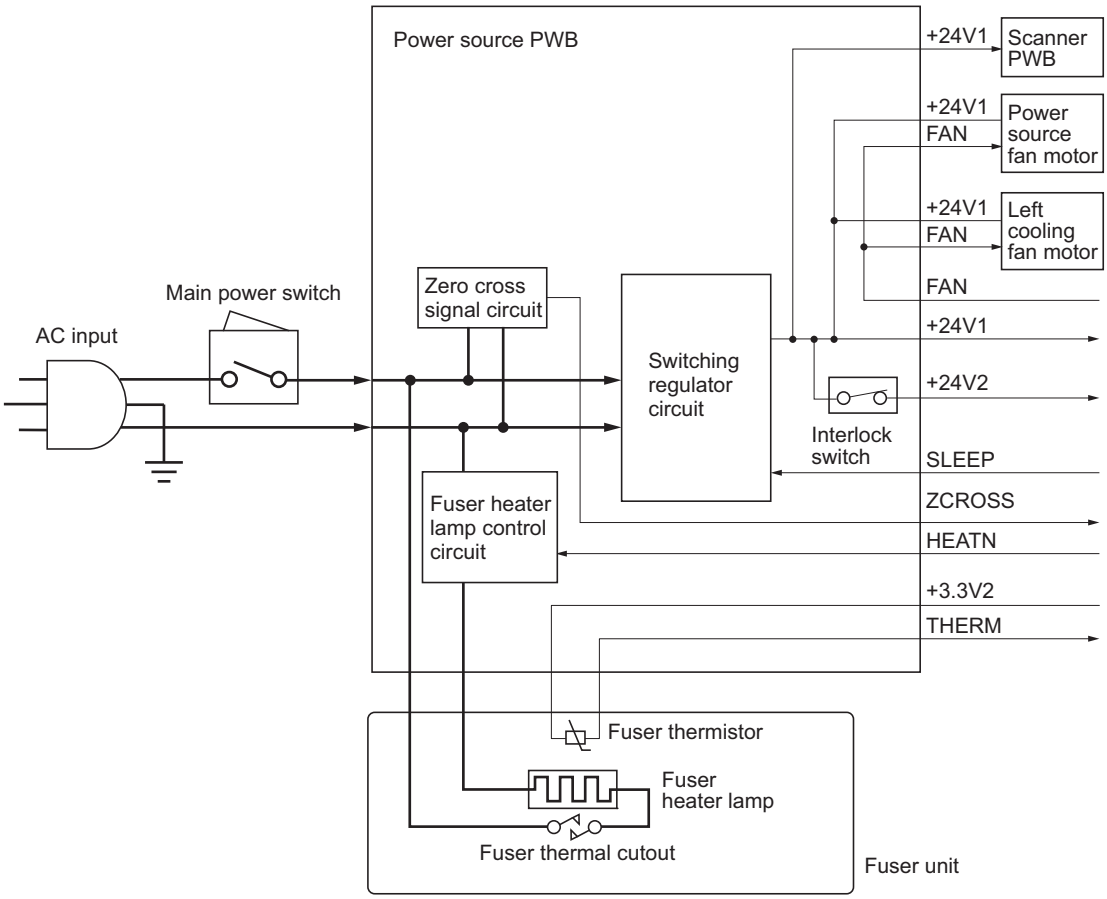

Figure 2-3-1 Power source PWB block diagram

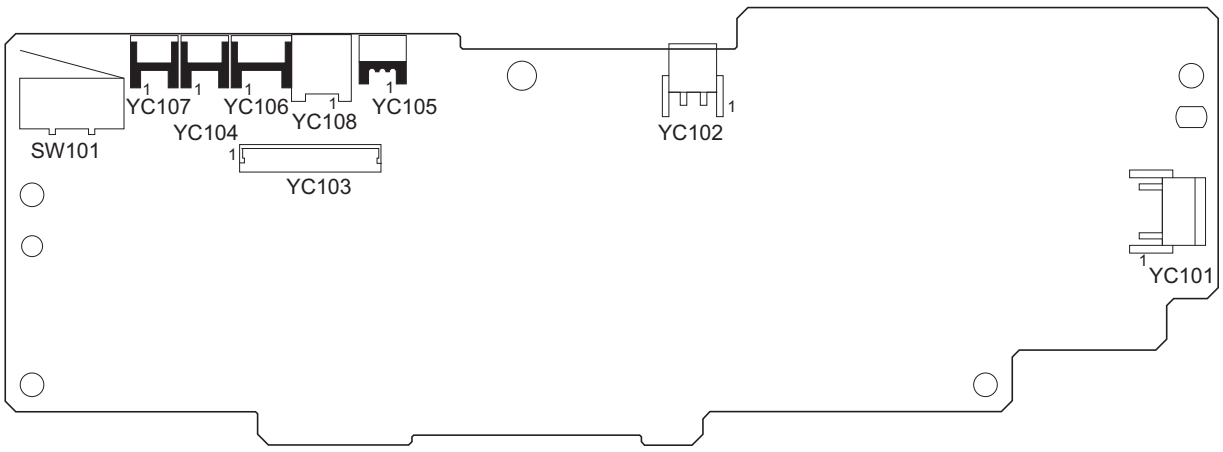

Figure 2-3-2 Power source PWB silk-screen diagram

Connector	Pin	Signal	I/O	Voltage	Description
YC101	1	NEUTRAL	I	120 V AC 220 - 240 V AC	AC power input
Connected to the AC inlet	2	LIVE	I	120 V AC 220 - 240 V AC	AC power input
YC102	1	LIVE	O	120 V AC 220 - 240 V AC	Fuser heater lamp output
Connected to the fuser heater lamp	2	NEUTRAL	O	120 V AC 220 - 240 V AC	Fuser heater lamp output
YC103	1	+24V1	O	24 V DC	24 V DC power source
Connected to the high voltage PWB	2	SGND	-	-	Ground
	3	FAN	I	0/24 V DC	Left cooling fan motor: On/Off
	4	THERM	O	Analog	Fuser thermistor detection voltage
	5	+3.3V1	I	3.3 V DC	3.3 V DC power source
	6	HEATN	I	0/3.3 V DC	Fuser heater lamp: On/Off
	7	SLEEP	I	0/3.3 V DC	Sleep mode signal: On/Off
	8	ZCROSS	O	0/3.3 V DC (pulse)	Zero cross signal
	9	+24V2	O	24 V DC	24 V DC power source (via interlock switch)
	10	+24V2	O	24 V DC	24 V DC power source (via interlock switch)
	11	PGND	-	-	Ground
	12	PGND	-	-	Ground
YC104	1	+24V1	O	24 V DC	24 V DC power source
Connected to the left cooling fan motor	2	FAN	O	0/24 V DC	Left cooling fan motor: On/Off
YC105	1	+3.3V1	O	3.3 V DC	3.3 V DC power source
Connected to the fuser thermistor	2	N.C.	-	-	Not used
	3	THERM	I	Analog	Fuser thermistor detection voltage
YC106	1	+24V1	O	24 V DC	24 V DC power source
Connected to the scan-ner PWB	2	N.C.	-	-	Not used
	3	GND	-	-	Ground
YC107	1	+24V1	O	24 V DC	24 V DC power source
Connected to the power source fan motor	2	FAN	O	0/24 V DC	Power source fan motor: On/Off
YC108	1	-	-	-	Frame ground (Control PWB)
Connected to the ground ter-minals	2	-	-	-	Frame ground (Frame)
	3	-	-	-	Frame ground (Frame)

2-3-2 Control PWB

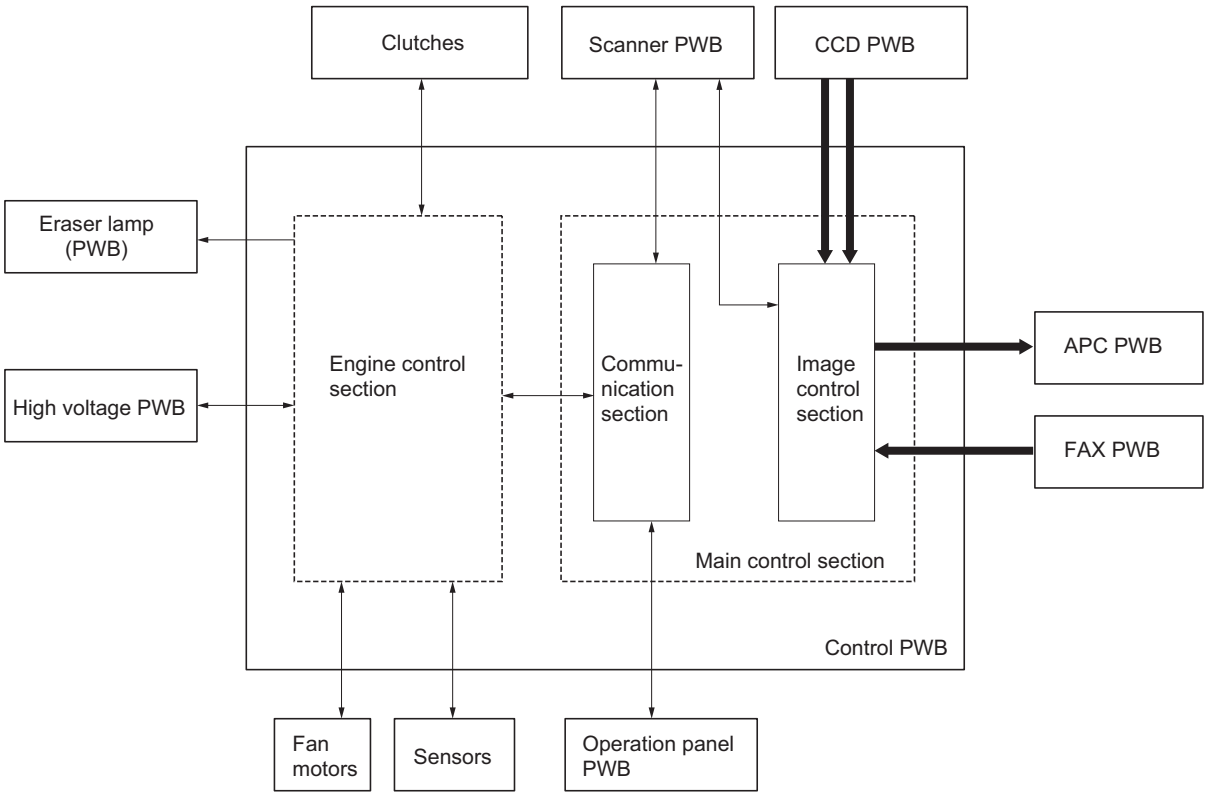

Figure 2-3-3 Control PWB block diagram

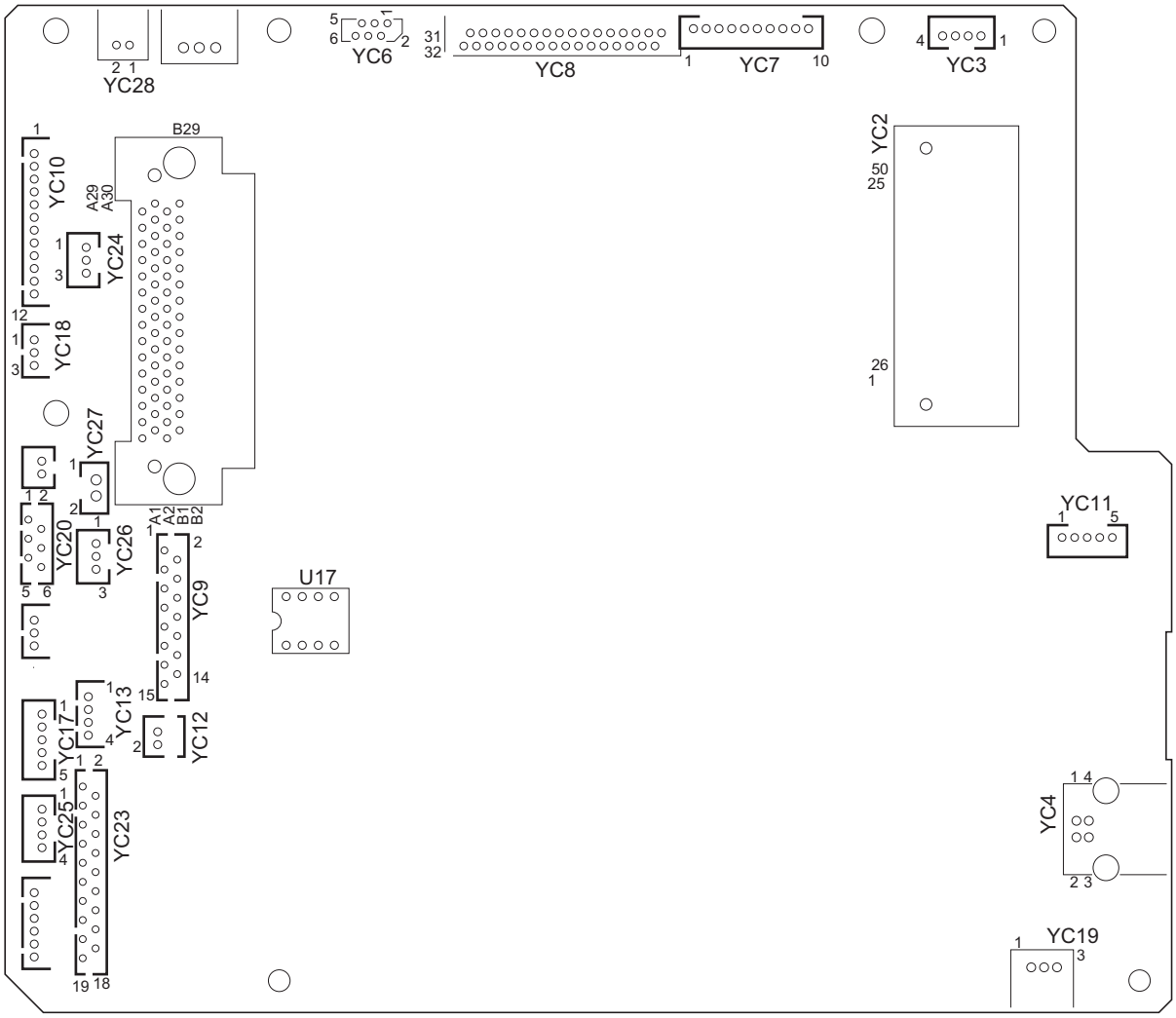

Figure 2-3-4 Control PWB silk-screen diagram

Connector	Pin	Signal	I/O	Voltage	Description
YC6	1	+12V	O	12 V DC	12 V DC power source
Connected to the scanner PWB	2	GND	-	-	Ground
	3	HPSW	O	0/3.3 V DC	Home position sensor: On/Off
	4	GND	-	-	Ground
	5	NC	-	-	Not used
	6	LAMP	I	0/24 V DC	Exposure lamp drive signal
YC7	1	GND	-	-	Ground
Connected to the operation panel PWB	2	PANCTS	I	0/3.3 V DC (pulse)	Transmitting enable signal
	3	PANRTS	O	0/3.3 V DC (pulse)	Receiving enable signal
	4	+3.3V1	O	0/3.3 V DC	Home position sensor: On/Off
	5	PANRXD	I	0/3.3 V DC (pulse)	Operation panel PWB receiving data
	6	PANTXD	O	0/3.3 V DC (pulse)	Operation panel PWB transmitting data
	7	FPRSTN	O	3.3/0 V DC	Operation panel PWB reset signal
	8	GND	-	-	Ground
	9	POWERKEY	I	3.3/0 V DC	Power key input signal
	10	+5V1	O	5 V DC	5 V DC power source
YC8	1	LAMP	O	0/24 V DC	Exposure lamp drive signal
Connected to the CCD PWB	2	NC	-	-	Not used
	3	GND	-	-	Ground
	4	GND	-	-	Ground
	5	HPSW	I	0/3.3 V DC	Home position sensor: On/Off
	6	+3.3V1	O	3.3 V DC	3.3 V DC power source
	7	NC	-	-	Not used
	8	CCDRSN	O	LVDS	CCD reset signal (-)
	9	CCDRSP	O	LVDS	CCD reset signal (+)
	10	NC	-	-	Not used
	11	CCDCLPP	O	LVDS	CCD reset signal (-)
	12	CCDCLPN	O	LVDS	CCD reset signal (+)
	13	NC	-	-	Not used
	14	CCDPH1N	O	LVDS	CCD shift register clock signal (-)
	15	CCDPH1P	O	LVDS	CCD shift register clock signal (+)
	16	NC	-	-	Not used
	17	CCDPH2N	O	LVDS	CCD shift register clock signal (-)
	18	CCDPH2P	O	LVDS	CCD shift register clock signal (+)
	19	NC	-	-	Not used
	20	CCDSH	O	LVDS	CCD shift gate signal (-)
	21	CCDSW	O	LVDS	CCD color/BW change signal (+)
	22	GND	-	-	Ground
	23	CCDDATAR	I	LVDS	CCD image output signal (Red)
	24	GND	-	-	Ground
	25	CCDDATAG	I	LVDS	CCD image output signal (Green)
	26	GND	-	-	Ground
	27	CCDDATAB	I	LVDS	CCD image output signal (Blue)
	28	GND	-	-	Ground
	29	+12V	O	12 V DC	12 V DC power source (For exposure lamp)
	30	GND	-	-	Ground
	31	+5V1	O	5 V DC	5 V DC power source
	32	+5V1	O	5 V DC	5 V DC power source

Connector	Pin	Signal	I/O	Voltage	Description
YC9	1	GND	-	-	Ground
Connected to the scanner PWB	2	+3.3V1	O	3.3 V DC	3.3 V DC power source
	3	CPUCLK	I	0/3.3 V DC (pulse)	Serial communications clock signal
	4	CPUSI	I	0/3.3 V DC (pulse)	Serial communications data input
	5	CPUSO	O	0/3.3 V DC (pulse)	Serial communications data output
	6	CPUSEL	I	0/3.3 V DC	Communications select signal
	7	CPURDY	O	0/3.3 V DC	Communications ready signal
	8	OVMONOUT	O	0/3.3 V DC	Communications ready signal
	9	PAGESET	O	0/3.3 V DC	Vertical synchronizing monitor signal
	10	SEGSO	I	0/3.3 V DC	Vertical synchronizing signal
	11	SSCKN	O	0/3.3 V DC (pulse)	Serial communications clock
	12	SEGSI	O	0/3.3 V DC (pulse)	Serial communications data input
	13	SSBSY	I	0/3.3 V DC	Impossible transmission/Completion notice signal
	14	SSDIR	I	0/3.3 V DC	Serial communications T/R switching signal
	15	SEGIR	I	0/3.3 V DC	Serial communications interruption demand signal
YC10	1	+24V3	O	24 V DC	24 V DC power source
Connected to the laser scanner unit	2	GND	-	-	Ground
	3	PLGDRN	O	0/3.3 V DC	Polygon motor: On/Off
	4	PLGRDY	I	0/3.3 V DC	Polygon motor ready signal
	5	PLGCLK	O	0/3.3 V DC (pulse)	Polygon motor clock signal
	6	PDN	I	0/3.3 V DC (pulse)	Horizontal synchronizing signal
	7	GND	-	-	Ground
	8	VDON	O	0/3.3 V DC (pulse)	Video data signal (+)
	9	VDOP	O	0/3.3 V DC (pulse)	Video data signal (-)
	10	OUTPEN	O	0/3.3 V DC	Laser output enable signal
	11	SAMPLEN	O	0/3.3 V DC	Sample/hold timing switching signal
	12	+3.3V1	O	3.3 V DC	3.3 V DC power source
YC12	1	OUT-	O	Analog	Speaker sound signal (-)
Connected to the speaker	2	OUT+	O	Analog	Speaker sound signal (+)
YC17	1	+24V3	O	24 V DC	24 V DC power source
Connected to the main motor	2	GND	-	-	Ground
	3	MMOTRDYN	I	0/3.3 V DC	Main motor ready signal
	4	MMOTCLK	O	0/3.3 V DC (pulse)	Main motor clock signal
	5	REMOTEN	O	0/3.3 V DC	Main motor: On/Off
YC18	1	PILED	O	3.3 V DC	3.3 V DC power source
Connected to the paper sensor	2	GND	-	-	Ground
	3	PAPER	I	0/3.3 V DC	Paper sensor: On/Off
YC19	1	PILED	O	3.3 V DC	3.3 V DC power source
Connected to the exit sensor	2	GND	-	-	Ground
	3	EXITN	I	0/3.3 V DC	Exit sensor: On/Off

Connector	Pin	Signal	I/O	Voltage	Description
YC20	1	+24V3	O	24 V DC	24 V DC power source
Connected to the regis-tration clutch, paper feed clutch and developing clutch	2	REGDRN	O	0/24 V DC	Registration clutch: On/Off
	3	+24V3	O	24 V DC	24 V DC power source
	4	FEDDRN	O	0/24 V DC	Paper feed clutch: On/Off
	5	+24V3	O	24 V DC	24 V DC power source
	6	DLPDRN	O	0/24 V DC	Developing clutch: On/Off
YC23	1	+24V1	I	24 V DC	24 V DC power source
Connected to the high voltage PWB	2	+3.3V1	O	3.3 V DC	3.3 V DC power source
	3	ZCROSS	I	0/3.3 V DC (pulse)	Zero cross signal
	4	FAN	O	0/24 V DC	Left cooling fan motor: On/Off
	5	HEATN	O	0/3.3 V DC	Fuser heater lamp: On/Off
	6	SLEEP	O	0/3.3 V DC	Sleep mode signal: On/Off
	7	MHVDR	O	0/3.3 V DC	Main charger output signal: On/Off
	8	RTHVDR	O	0/3.3 V DC	Transfer (reverse) bias output signal: On/Off
	9	PSEL1	O	0/3.3 V DC	Transfer (reverse) bias control signal: On/Off
	10	HVCLK	O	0/3.3 V DC (pulse)	Developing bias clock signal
	11	REGN	I	0/3.3 V DC	Registration sensor: On/Off
	12	TCNT	O	PWM	Transfer current control signal
	13	MCNT	O	PWM	Main charger output control signal
	14	THVDR	O	0/3.3 V DC	Transfer bias output signal: On/Off
	15	CASE	I	Analog	Cassette switch: On/Off
	16	THERM	I	Analog	Fuser thermistor detection voltage
	17	+24V3	O	24 V DC	24 V DC power source
	18	SGND	-	-	Ground
	19	SEPA	-	-	-
YC24	1	+3.3V1	O	3.3 V DC	3.3 V DC power source
Connected to the waste toner sensor	2	TNFULL	I	0/3.3 V DC	Waste toner full detection signal
	3	SGND	-	-	Ground
YC25	1	+24V2	I	24 V DC	24 V DC power source
Connected to the high voltage PWB	2	+24V2	I	24 V DC	24 V DC power source
	3	PGND	-	-	Ground
	4	PGND	-	-	Ground
YC26	1	+3.3V1	O	3.3 V DC	3.3 V DC power source
Connected to the toner sensor	2	TEMPTY	I	0/3.3 V DC	Toner quantity detection signal
	3	SGND	-	-	Ground
YC27	1	+24V1	O	24 V DC	24 V DC power source
Connected to the right cooling fan motor	2	FAN	O	0/24 V DC	Right cooling fan motor: On/Off
YC28	1	ERASER	O	0/24 V DC	Eraser lamp: On/Off
Connected to the eraser lamp	2	ERASRW	O	24 V DC	24 V DC power source

2-3-3 Scanner PWB

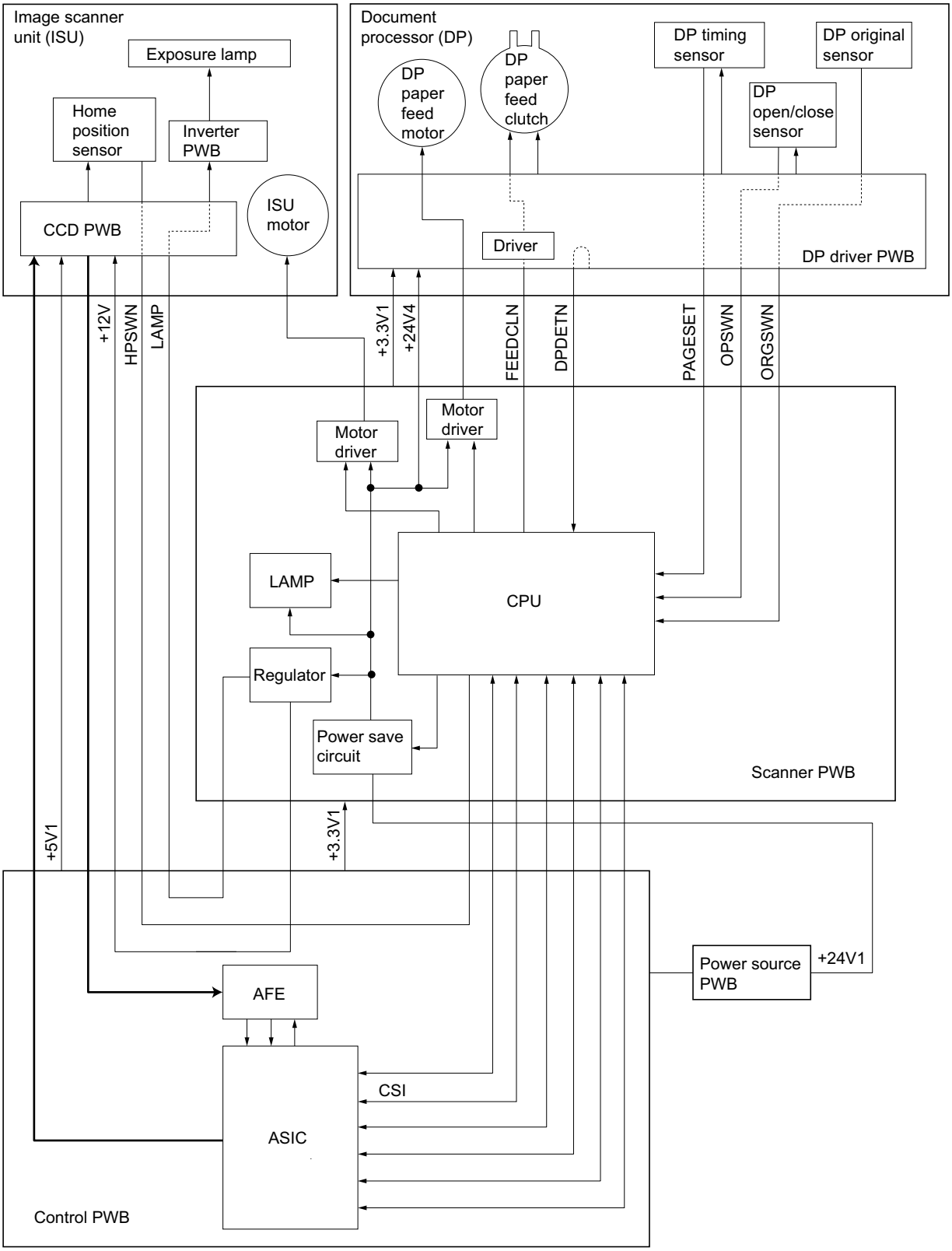

Figure 2-3-5Scanner PWB block diagram

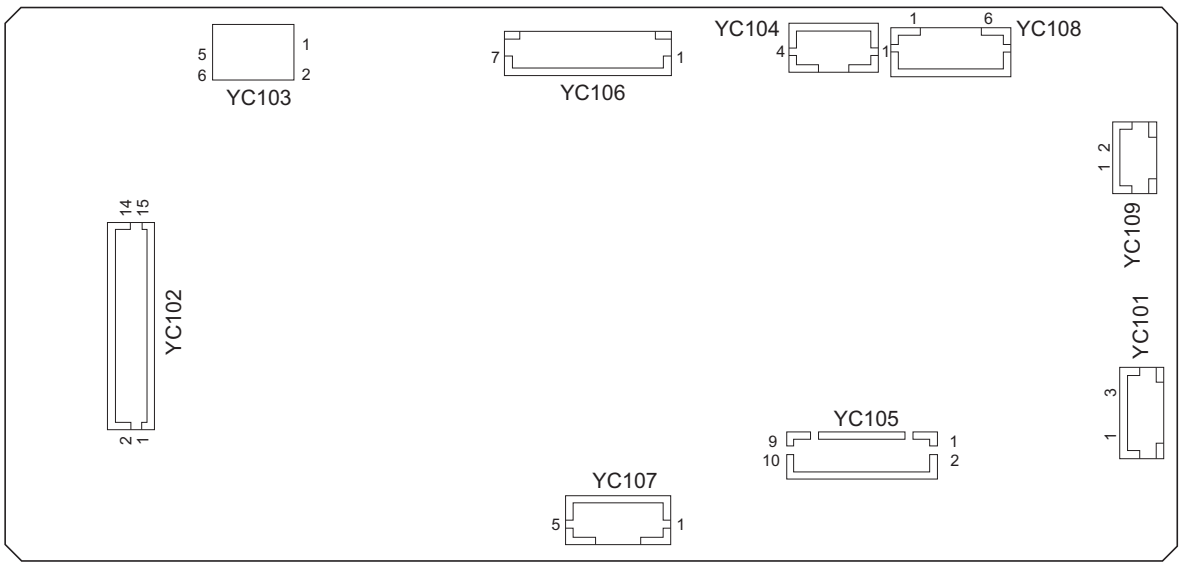

Figure 2-3-6Scanner PWB silk-screen diagram

Connector	Pin	Signal	I/O	Voltage	Description
YC101	1	+24V1	O	24 V DC	24 V DC power source
Connected to the power source PWB	2	N.C.	-	-	Not used
	3	GND	-	-	Ground
YC102	1	SEGIR	O	0/3.3 V DC	Serial communications interruption demand
Connected to the control PWB	2	SSDIR	O	0/3.3 V DC	Serial communications trans./recep. change
	3	SSBSY	O	0/3.3 V DC	Impossible transmission/Completion notice
	4	SEGSI	I	0/3.3 V DC (pulse)	Serial communications data output
	5	SSCKN	I	0/3.3 V DC (pulse)	Serial communications clock
	6	SEGSO	O	0/3.3 V DC	Vertical synchronizing signal
	7	PAGESET	I	0/3.3 V DC	Vertical synchronizing monitor signal
	8	OVMONOUT	I	0/3.3 V DC	Communications ready signal
	9	CPURDY	I	0/3.3 V DC	Communications ready signal
	10	CPUSEL	O	0/3.3 V DC	Communications select signal
	11	CPUSO	I	0/3.3 V DC (pulse)	Serial communications data input
	12	CPUSI	O	0/3.3 V DC (pulse)	Serial communications data output
	13	CPUCLK	O	0/3.3 V DC (pulse)	Serial communications clock signal
	14	+3.3V1	I	3.3 V DC	3.3 V DC power source
	15	GND	-	-	Ground
YC103	1	+12V	I	12 V DC	12 V DC power source
Connected to the control PWB	2	GND	-	-	Ground
	3	HPSW	I	0/3.3 V DC	Home position sensor: On/Off
	4	GND	-	-	Ground
	5	NC	-	-	Not used
	6	LAMP	I	0/24 V DC	Exposure lamp drive signal
YC104	1	SCMOT1A	O	0/24 V DC (pulse)	ISU motor drive pulse
Connected to the ISU motor	2	SCMOT2B	O	0/24 V DC (pulse)	ISU motor drive pulse
	3	SCMOT1B	O	0/24 V DC (pulse)	ISU motor drive pulse
	4	SCMOT2A	O	0/24 V DC (pulse)	ISU motor drive pulse

Connector	Pin	Signal	I/O	Voltage	Description
YC105	1	+3.3V1	O	3.3 V DC	3.3 V DC power source
Connected to the DP driver PWB	2	GND	-	-	Ground
	3	TIMSWN	I	0/3.3 V DC	DP timing sensor: On/Off
	4	ORGSWN	I	0/3.3 V DC	DP original sensor: On/Off
	5	OPSWN	I	0/3.3 V DC	DP open/close sensor: On/Off
	6	DPDETN	I	0/3.3 V DC	DP installation detection signal
	7	NC	-	-	Not used
	8	NC	-	-	Not used
	9	NC	-	-	Not used
	10	FEEDCL	O	0/24 V DC	DP paper feed clutch: On/Off
YC108	1	MOT1A	O	0/24 V DC (pulse)	DP paper feed motor drive pulse
Connected to the DP driver PWB	2	MOT2B	O	0/24 V DC (pulse)	DP paper feed motor drive pulse
	3	MOT1B	O	0/24 V DC (pulse)	DP paper feed motor drive pulse
	4	MOT2A	O	0/24 V DC (pulse)	DP paper feed motor drive pulse
	5	+24V4	O	24 V DC	24 V DC power source
	6	GND	-	-	Ground
YC109	1	+24V4	O	24 V DC	24 V DC power source
Connected to the DP driver PWB	2	GND	-	-	Ground

2-3-4 DP driver PWB

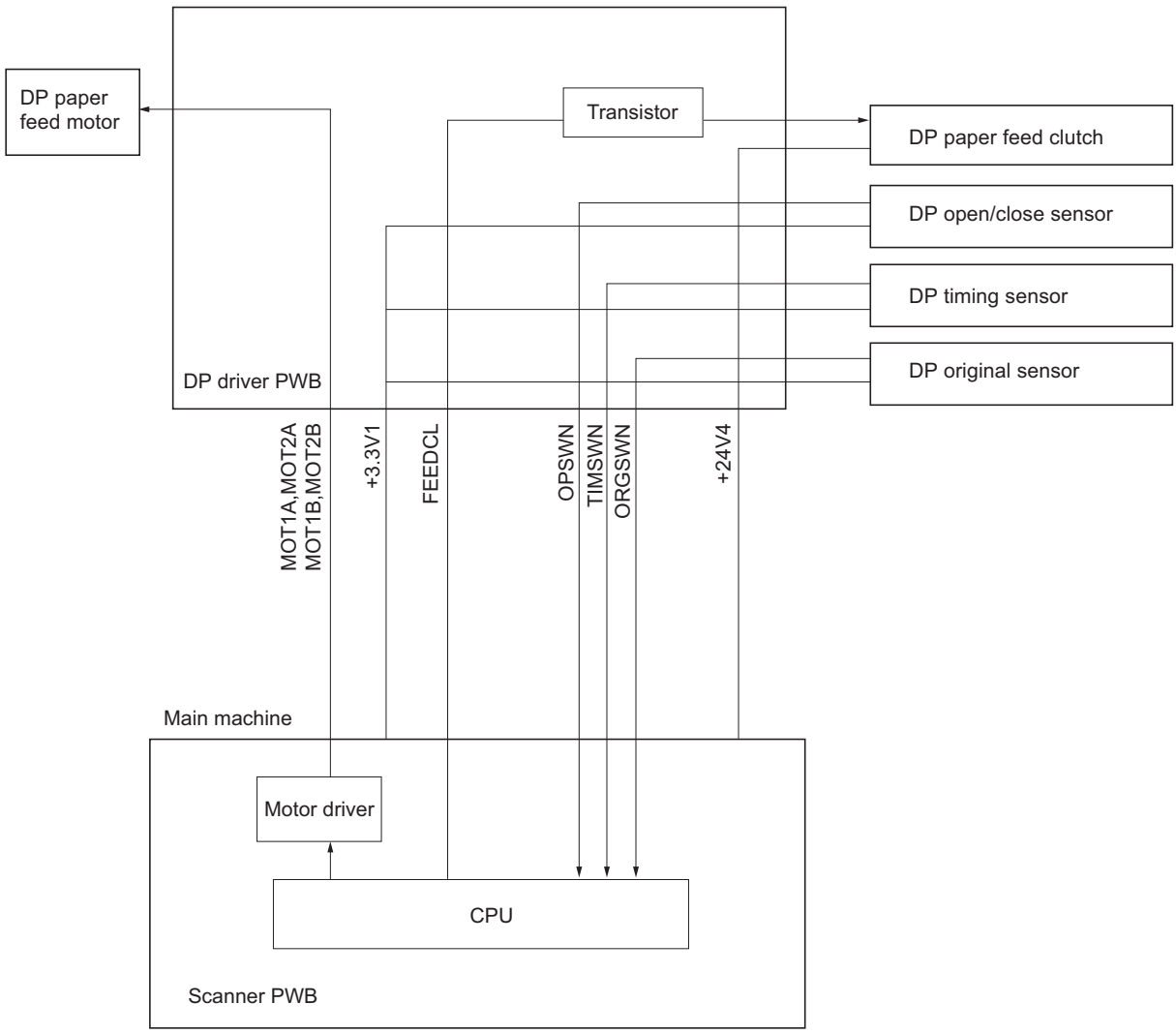

Figure 2-3-7 DP driver PWB block diagram

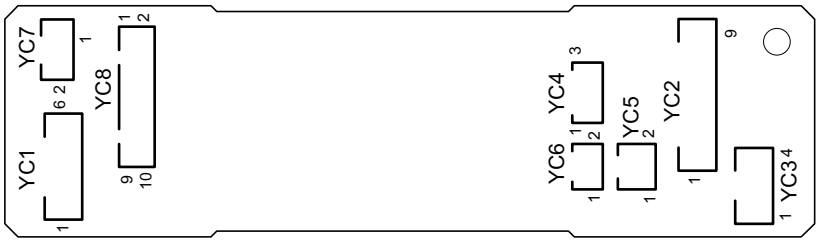

Figure 2-3-8 DP driver PWB silk-screen diagram

Connector	Pin No.	Signal	I/O	Voltage	Description
YC1	1	MOT1A	I	0/24 V DC (pulse)	DP paper feed motor drive pulse
Connected to the scanner PWB (Machine)	2	MOT2B	I	0/24 V DC (pulse)	DP paper feed motor drive pulse
	3	MOT1B	I	0/24 V DC (pulse)	DP paper feed motor drive pulse
	4	MOT2A	I	0/24 V DC (pulse)	DP paper feed motor drive pulse
	5	+24V4	I	24 V DC	24 V DC power source
	6	GND	-	-	Ground
YC2	1	PILED	O	3.3 V DC	3.3 V DC power source
Connected to the DP open/close sensor, DP original sensor and DP timing sensor	2	GND	-	-	Ground
	3	OPSWN	I	0/3.3 V DC	DP open/close sensor: On/Off
	4	PILED	O	3.3 V DC	3.3 V DC power source
	5	GND	-	-	Ground
	6	ORGSWN	I	0/3.3 V DC	DP original sensor: On/Off
	7	PILED	O	3.3 V DC	3.3 V DC power source
	8	GND	-	-	Ground
	9	TIMSWN	I	0/3.3 V DC	DP timing sensor: On/Off
YC3	1	MOT1A	O	0/24 V DC (pulse)	DP paper feed motor drive pulse
Connected to the DP paper feed motor	2	MOT2B	O	0/24 V DC (pulse)	DP paper feed motor drive pulse
	3	MOT1B	O	0/24 V DC (pulse)	DP paper feed motor drive pulse
	4	MOT2A	O	0/24 V DC (pulse)	DP paper feed motor drive pulse
YC6	1	+24V4	O	24 V DC	24 V DC power source
Connected to the DP paper feed clutch	2	FEEDCL	O	0/24 V DC	DP paper feed clutch: On/Off
YC7	1	+24V4	I	24 V DC	24 V DC power source
Connected to the scanner PWB (Main machine)	2	GND	-	-	Ground

Connector	Pin No.	Signal	I/O	Voltage	Description
YC8	1	+3.3V1	I	3.3 V DC	3.3 V DC power source
Connected to the scanner PWB (Main machine)	2	GND	-	-	Ground
	3	TIMSWN	O	0/3.3 V DC	DP timing sensor: On/Off
	4	ORGSWN	O	0/3.3 V DC	DP original sensor: On/Off
	5	OPSWN	O	0/3.3 V DC	DP open/close sensor: On/Off
	6	DPDETN	O	0/3.3 V DC	DP installation detection signal
	7	NC	-	-	Not used
	8	NC	-	-	Not used
	9	NC	-	-	Not used
	10	FEEDCL	I	0/3.3 V DC	DP paper feed clutch: On/Off

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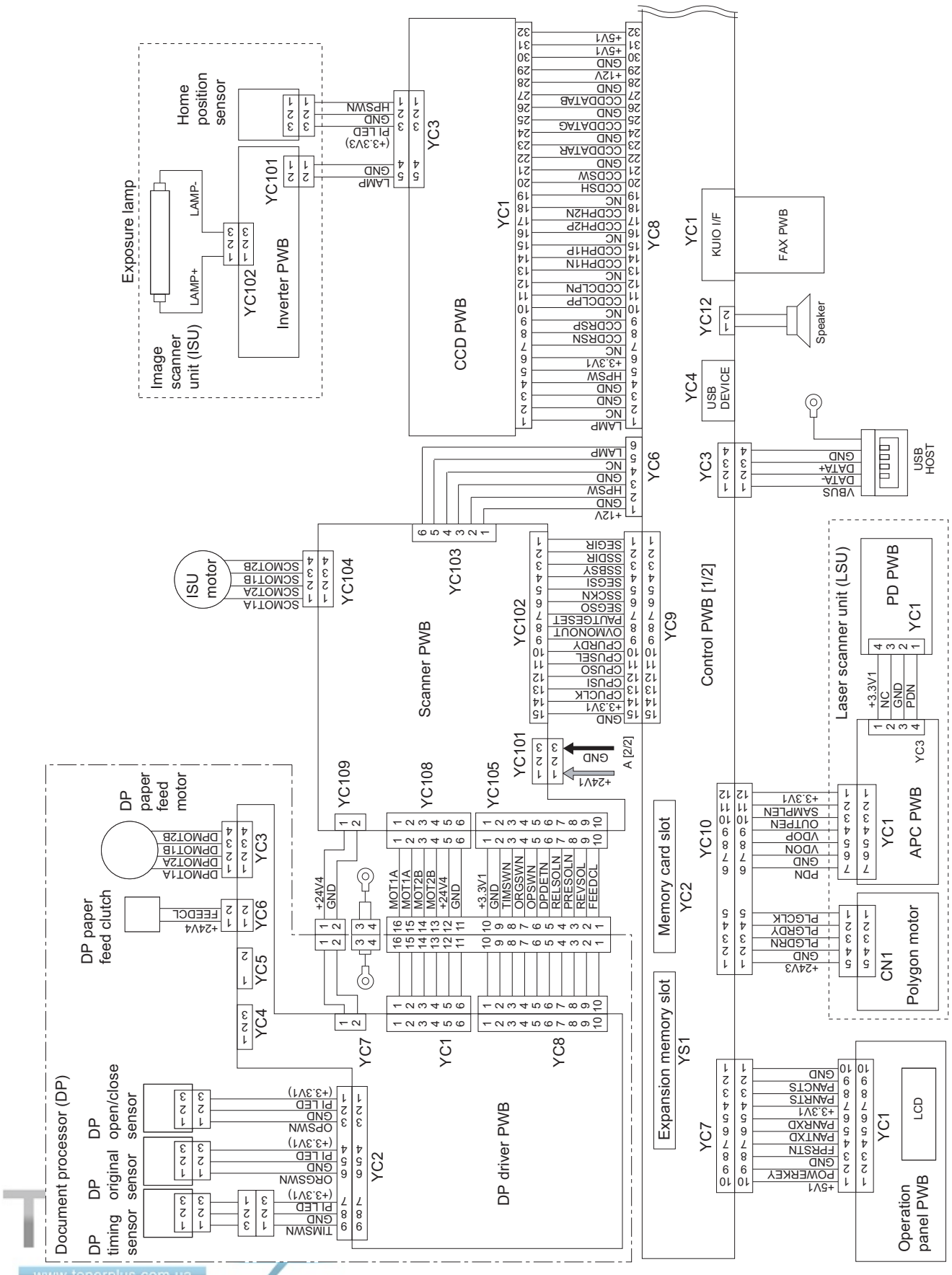
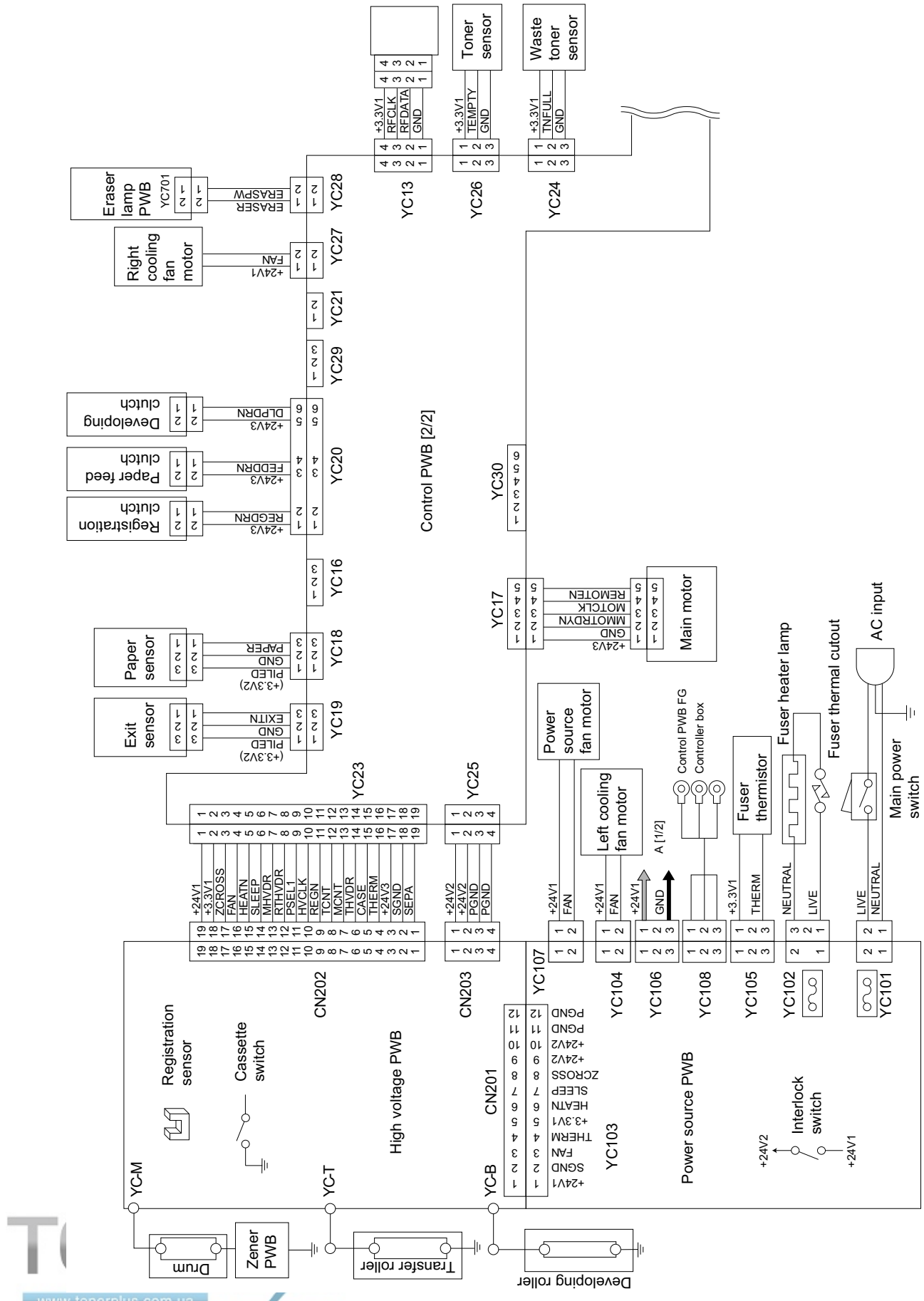
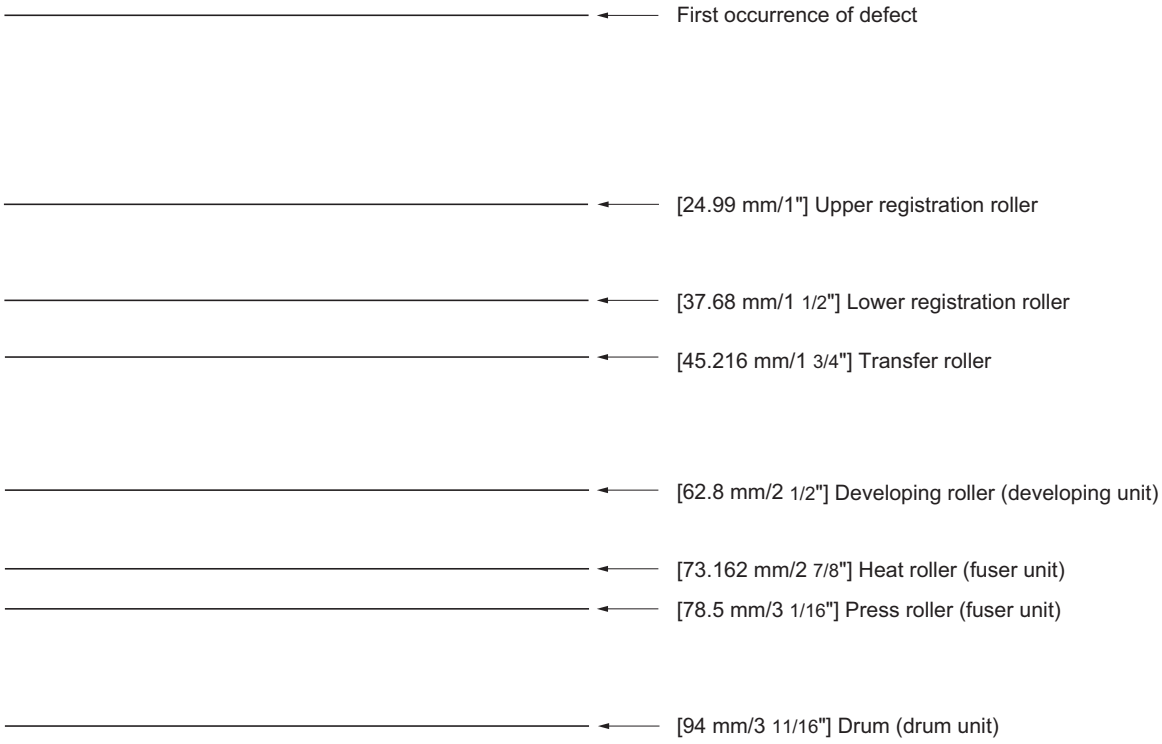
2-4-1 Appendixes

(1) Wiring diagram





(2) Repetitive defects gauge



(3) Maintenance parts list

Maintenance part name		Part No.	Alternative part No.
Name used in service manual	**Name used in parts list**		
Maintenance kit (120 V)	MK-1102/MAINTENANCE KIT DK-1105 DV-1102	1702M17UX0	072M17UX
Maintenance kit (220-240 V)	MK-1100/MAINTENANCE KIT DK-1105 DV-1100	1702M18NX0	072M18NX

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