

Portable Manual

LBP5000 Series
LBP5000

Canon

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Application

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Caution

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



Symbols Used

This documentation uses the following symbols to indicate special information:

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

The following rules apply throughout this Service Manual:

1. Each chapter contains sections explaining the purpose of specific functions and the relationship between electrical and mechanical systems with reference to the timing of operation.

In the diagrams,  represents the path of mechanical drive; where a signal name accompanies the symbol, the arrow  indicates the direction of the electric signal.

The expression "turn on the power" means flipping on the power switch, closing the front door, and closing the delivery unit door, which results in supplying the machine with power.

2. In the digital circuits, '1' is used to indicate that the voltage level of a given signal is "High", while '0' is used to indicate "Low". (The voltage value, however, differs from circuit to circuit.) In addition, the asterisk (*) as in "DRMD*" indicates that the DRMD signal goes on when '0'.

In practically all cases, the internal mechanisms of a microprocessor cannot be checked in the field. Therefore, the operations of the microprocessors used in the machines are not discussed: they are explained in terms of from sensors to the input of the DC controller PCB and from the output of the DC controller PCB to the loads.

The descriptions in this Service Manual are subject to change without notice for product improvement or other purposes, and major changes will be communicated in the form of Service Information bulletins.

All service persons are expected to have a good understanding of the contents of this Service Manual and all relevant Service Information bulletins and be able to identify and isolate faults in the machine."

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Chapter 1 Maintenance and Inspection

1.1 Periodically Replaced Parts

1.1.1 Periodically Replaced Parts

The machine does not have parts that require periodical replacement.

1.2 Consumables

1.2.1 Durables Replaced by the User

The machine does not have durables that require replacement by the user.

1.2.2 Durables Replaced by the Service Person

The machine does not have parts that require replacement by the service person.

1.3 Periodical Service

1.3.1 Periodic Service

The printer has no parts that require periodic servicing.

1.4 Cleaning

1.4.1 Pickup Roller

Clean it with lint-free paper.

1.4.2 Separation Pad

Clean it with lint-free paper.

1.4.3 Registration Roller

Clean it with lint-free paper. If the soiling cannot be removed, use alcohol.

1.4.4 Registration Sub Roller

Clean it with lint-free paper. If the soiling cannot be removed, use alcohol.

1.4.5 Registration Shutter

Clean it with lint-free paper. If the soiling cannot be removed, use alcohol.

1.4.6 Transport Guide

Clean it with lint-free paper. If the soiling cannot be removed, use alcohol.

1.4.7 Delivery Roller

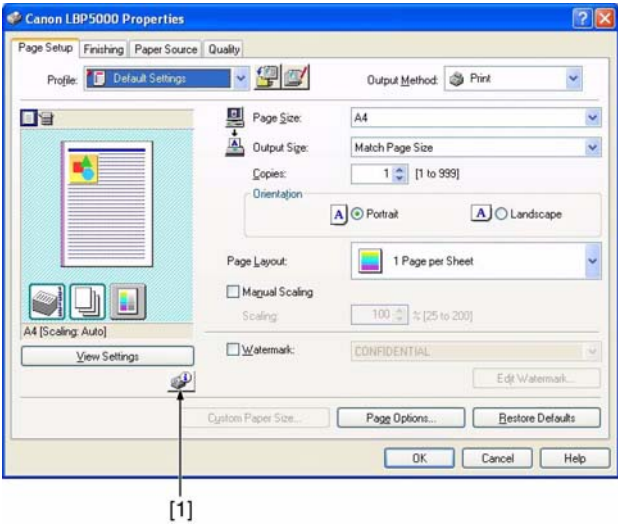
Clean it with lint-free paper. If the soiling cannot be removed, use alcohol.

1.4.8 Fixing Inlet Guide

Clean it using a cloth moistened with alcohol.

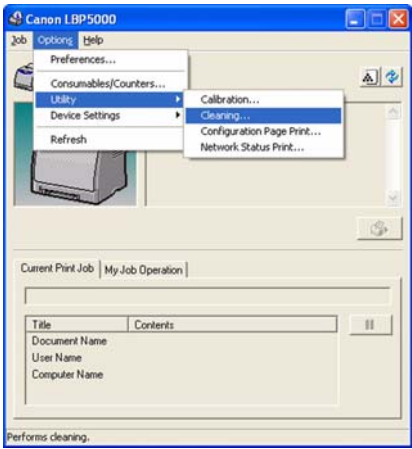
1.4.9 Fixing Pressure Roller

- 1) Start up the printer driver.
- 2) Click [printer status window icon] [1] found under [page setup] of [Printer Properties].



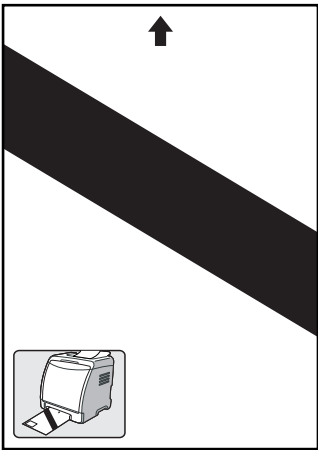
F-1-1

3) Make the following selections: option>utility>cleaning.



F-1-2

4) Click the OK button to print out the cleaning page.



F-1-3

5) Place the printout with the printed side facing up. The printout will be fed into the machine, thereby cleaning the fixing pressure roller.

1.5 Service Tools

1.5.1 Standard Tools

The table below lists the standard tools required for servicing the printer.

T-1-1

No.	Tool name	Tool No.	Remark
1	Tool case	TKN-0001	With a clip 0.02 to 0.3 mm 0 to 600 g for checking the cassette spring pressure M4, M5 Length : 363 mm
2	Jumper wire	TKN-0069	
3	Clearance gauge	CK-0057	
4	Compression spring scale	CK-0058	
5	Phillips screwdriver	CK-0101	M3, M4 Length: 155 mm M4, M5 Length: 191 mm M4, M5 Length: 85 mm 6-piece set
6	Phillips screwdriver	CK-0104	
7	Phillips screwdriver	CK-0105	
8	Phillips screwdriver	CK-0106	
9	Flat-blade screwdriver	CK-0111	
10	Precision flat-blade screwdriver set	CK-0114	5-piece set M4 Length: 107 mm
11	Allen wrench set	CK-0151	
12	File, fine	CK-0161	
13	Allen (hex) screwdriver	CK-0170	
14	Diagonal cutting pliers	CK-0201	
15	Needle-nose pliers	CK-0202	Applied to the axis ring Employed to measure 150 mm
16	Pliers	CK-0203	
17	Retaining ring pliers	CK-0205	
18	Crimper	CK-0218	
19	Tweezers	CK-0302	
20	Ruler	CK-0303	100cc 500SH/PKG
21	Mallet, plastic head	CK-0314	
22	Brush	CK-0315	
23	Penlight	CK-0327	
24	Plastic bottle	CK-0327	
25	Lint-free paper	CK-0336	30cc 30cc
26	Oiler	CK-0349	
27	Plastic jar	CK-0351	
28	Digital multi-measure	FY9-2032	

1.5.2 Solvent/Oil List

T-1-2

No.	Name	Uses	Remarks
1	Ethyl alcohol	cleaning; e.g., oil, toner stain on metal area	- Do not bring close to fire. - Procure locally.
2	Lubricant	- gear - between shaft and bearing	- tool No.: HY9-0007
3	Lubricant	- between shaft of pressure roller and grounding plate	- tool No.: CK-8007



Do not use alcohol to wipe external covers. Use a moist cloth (well wrung) to clean them.

Chapter 2 Standards and Adjustments

2.1 Adjustment of Fixing System

2.1.1 Checking the Nip Width (fixing pressure roller)

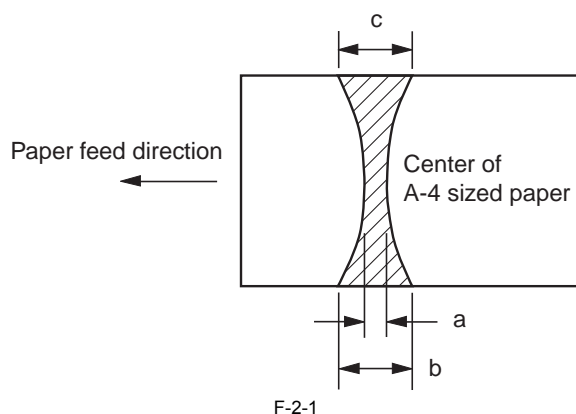


Before removing the print paper, be sure to turn on the machine and see that the machine is in a jam state. Otherwise, the fixing film can suffer a tear.

The machine can start to show poor fixing when the nip of its fixing assembly is not correct. Check the nip of the fixing assembly first if poor fixing is noted. You will not be able to adjust the nip. If the nip is wrong, replace the assembly.

How to Check the Nip

- 1) Make a solid black print on A4/LTR paper, and take it to the user's.
- 2) Place the print in the machine's cassette with its printed side facing down.
- 3) Press the test print switch.
- 4) As soon as the leading edge of the print has appeared from the delivery slot, turn off the power, and wait for about 10 sec, leaving the machine alone.
- 5) Turn on the machine, and check to see that the machine is in a jam state. Thereafter, remove the print with care.
- 6) On the print, measure the width of the area with shiny toner to see if it is as indicated:
 - middle (a): 6 +/-0.5 mm
 - difference between left/right and middle (b - a, c - a): 0mm to 1mm
 - difference between left and right ((b - c): 0.8 mm or less



Chapter 3 Error Code

3.1 Error Code Table

3.1.1 Error Code

T-3-1

Code	Description	Remedial action
E001	The fixing assembly is overheating.	
0000	Particulars The reading of the main thermistor is 225 deg C (equivalent of 0.84 V) or more for 0.5 sec or more. Cause The main thermistor is faulty. The DC controller PCB is faulty.	<ul style="list-style-type: none"> - Check the connector of the low-voltage power supply PCB. - Replace the fixing film unit. - Replace the DC controller PCB.
0001	Particulars The reading of the sub thermistor is 245 deg C (equivalent of 2.12 V) or more for 0.5 sec or more. Cause The sub thermistor is faulty. The DC controller PCB is faulty.	
E002	The warm-up of the fixing assembly is faulty.	
	Particulars The reading of the main thermistor fails to reach 5 deg C (0 deg C if at power-on) or more within 1 sec after the heater is supplied with power. Cause The main thermistor has an open circuit. The fixing heater has an open circuit. The DC controller PCB is faulty.	<ul style="list-style-type: none"> - Check the connector of the low-voltage power supply PCB. - Replace the fixing film unit. - Replace the DC controller PCB.
E003	The temperature of the fixing assembly is abnormally low.	
0000	Particulars The reading of the main thermistor is 100 deg C (equivalent of 2.60 V) or less for 0.5 sec or more. Cause The low-voltage power supply PCB is faulty. The main thermistor has an open circuit. The DC controller PCB is faulty.	<ul style="list-style-type: none"> - Replace the low-voltage power supply PCB. - Replace the fixing film unit. - Replace the DC controller PCB.
0001	Particulars The reading of the sub thermistor is less than 100 deg C (equivalent of 0.38 V) for 0.5 sec or more after the heater is supplied with power. Cause The sub thermistor is faulty. The DC controller is faulty.	
E004	The fixing power supply drive circuit is faulty.	
	Particulars A zero-cross signal cannot be detected for a specific period of time. Cause The fixing control circuit is faulty.	<ul style="list-style-type: none"> - Replace the low-voltage power supply PCB.
E012	The main motor is faulty.	
0000	Particulars The revolution of the main motor fails to reach a specific value within 100 msec after the main motor is started. Cause The main motor is faulty. The DC controller PCB is faulty.	<ul style="list-style-type: none"> - Replace the main motor. - Replace the DC controller.
0001	Particulars The revolution of the main motor reached a specific value, but thereafter has deviated continuously for 100 msec or more. Cause The main motor is faulty. The DC controller is faulty.	
E020	The density sensor is faulty.	
	Particulars The amount of light fails to reach a specific value when the density of the image is being checked. Cause The density sensor is soiled. The density sensor is faulty. The DC controller PCB is faulty. The toner cartridge is faulty.	<ul style="list-style-type: none"> - Replace the ETB unit. - Suspect a high-voltage contact is faulty. (Check the contacts between the high-voltage contact of each color to the high-voltage PCB.) - Replace the DC controller PCB. - Replace the toner cartridge.
E024	The toner level sensor is faulty.	

Code	Description	Remedial action
0000	Particulars The light-receiving segment continues to receive light while the stirring plate of yellow cartridge rotates 5 times. Cause The memory controller PCB is faulty. The DC controller PCB is faulty. The toner cartridge is faulty.	<ul style="list-style-type: none"> - Replace the toner cartridge. - Replace the memory controller PCB. - Replace the DC controller PCB.
0001	Particulars The light-receiving segment continues to receive light while the stirring plate of magenta rotates 5 times. Cause The memory controller PCB is faulty. The DC controller PCB is faulty. The toner cartridge is faulty.	
0002	Particulars The light-receiving segment continues to receive light while the stirring plate of cyan cartridge rotates 5 times. Cause The memory controller PCB is faulty. The DC controller PCB is faulty. The toner cartridge is faulty.	
0003	Particulars The light-receiving segment continues to receive light while the stirring plate of black cartridge rotates 5 times. Cause The memory controller PCB is faulty. The DC controller PCB is faulty. The toner cartridge is faulty.	
E066	The environment sensor is faulty.	
	Particulars The output of the environment sensor is faulty. Cause The environment sensor is faulty. The DC controller PCB is faulty.	<ul style="list-style-type: none"> - Replace the environment sensor. - Replace the DC controller PCB.
E100	The scanner motor is faulty. The laser unit is faulty. The beam detector is faulty.	
0000	Particulars The yellow scanner mechanism is faulty. Cause The laser scanner unit is faulty. The DC controller PCB is faulty.	<ul style="list-style-type: none"> - Replace the laser scanner unit. - Replace the DC controller PCB.
0001	Particulars The magenta scanner mechanism is faulty. The DC controller PCB is faulty.	
0002	Particulars The cyan scanner mechanism is faulty. The laser scanner unit is faulty. The DC controller PCB is faulty.	
0003	Particulars The black scanner mechanism is faulty. Cause The laser scanner mechanism is faulty. The DC controller PCB is faulty.	
E194	The CPR sensor is faulty.	
	Particulars The color displacement detection pattern is not recognized. The result of measurement is outside a specific range. Cause The color displacement sensor is soiled. The color displacement sensor is faulty. The DC controller PCB is faulty. The toner cartridge is faulty.	<ul style="list-style-type: none"> - Replace the ETB unit. - Suspect that a high-voltage contact is faulty. (Check the contacts from the high-voltage contact of each color to the high-voltage PCB.) - Replace the DC controller. - Replace the toner cartridge.
E197	An error has occurred in engine communication	
	An error has occurred in engine communication	Replace the DC controller PCB.
E198	The DC controller memory is faulty.	
	Particulars The DC controller has gone out of order. Cause The DC controller PCB is faulty.	- Replace the DC controller PCB.
E747	An EEPROM error has occurred.	
	Particulars An EEPROM error has occurred. Cause The video controller PCB is faulty.	- Replace the video controller PCB.
E806	The fan motor is out of order.	
	Particulars The fan lock detection signal (FANLCK) is continuously High for 10 sec or more while the fan motor is rotating. Cause The fan motor is faulty. The DC controller PCB is faulty.	<ul style="list-style-type: none"> - Replace the cartridge fan. - Replace the DC controller PCB.
E840	The unlocking mechanism is faulty.	
	Particulars The unlocking mechanism of the fixing assembly is faulty. Cause The shift sensor is faulty. The shift sensor lever is damaged. The fixing drive assembly is faulty. The fixing/delivery motor is faulty. The DC controller PCB is faulty.	<ul style="list-style-type: none"> - Replace the shift sensor. - Replace the shift sensor lever. - Replace the fixing drive assembly. - Replace the DC controller PCB.

Chapter 4 Service Mode

4.1 Outline

4.1.1 Outline

The machine is equipped with service mode to enable the service person to check its condition. On a PC, enter the appropriate ID from the keyboard to add a special menu to the Printer Status Window screen.

Starting Service Mode

1. Turn on the power so that the Printer Driver screen appears.
2. On the Drive screen, bring up the Status window [1].
3. Enter the appropriate password (*28*) from the keyboard.
4. See that service mode [2] has appeared on the Option menu of the Status Window screen.

4.2 Test Printing

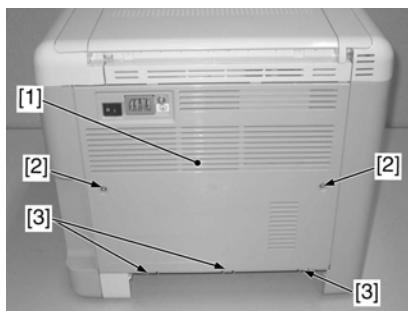
4.2.1 Test Print

This test print is conducted in order to check if the printer engine works normally.

When the printer is in stand-by mode, a sheet with test pattern (horizontal lines) can be output if pressing the test print switch on the DC controller PCB at the back side of the printer.

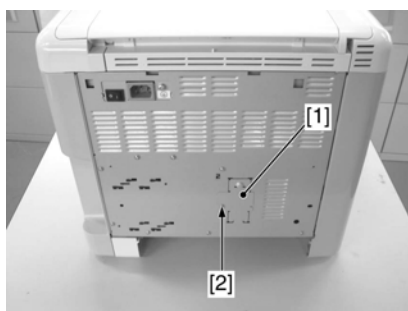
Accessing the Test Print Switch

- 1) Remove the rear cover [1].
 - 2 screws [2]
 - 3 claws [3]

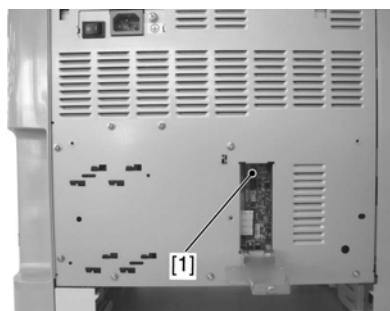


F-4-1

- 2) Remove the plate [1].
 - 1 screw [2]

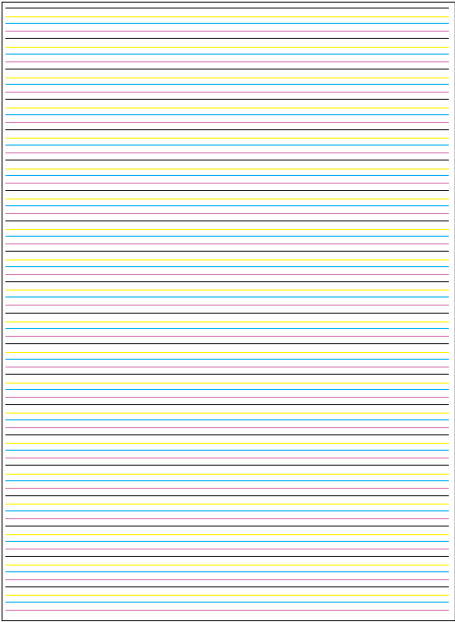


F-4-2



F-4-3

[1]: Test print switch



F-4-4

4.3 Service Mode Table

4.3.1 Service Mode Items

T-4-1

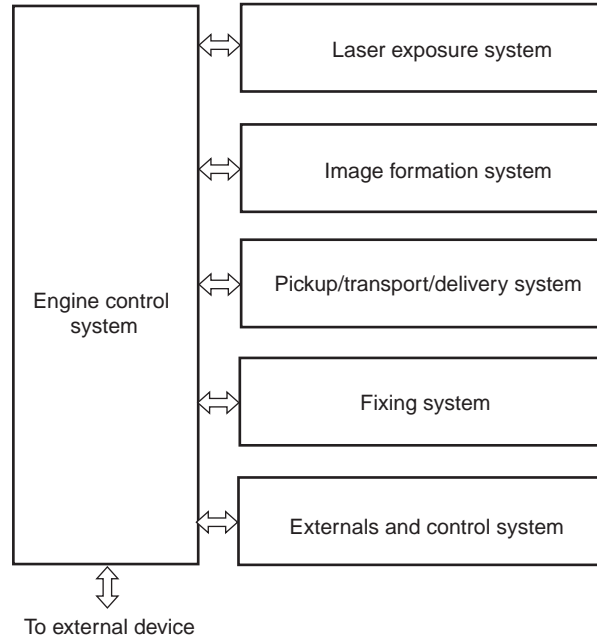
Group		Description	Settings
Service Chart Print		Service Chart Print 1	
Service Chart Print		Service Chart Print 2	
Counter Details		Use it to check the number of printed pages using respective toner cartridges.	
Service Settings	Fixing Temperature	Use it to set the fixing temperature.	-1 to 1
Service Settings	Transfer Bias	Use it to set the offset value for the transfer bias.	-1 to 1
configuration page print B		configuration page print B	

Chapter 5 System Construction

5.1 Construction

5.1.1 Outline

The machine may be broadly divided into the following 6 functional blocks: engine control system, laser exposure system, image formation system, pickup/transport/delivery system, fixing system, and externals/auxiliary control system.

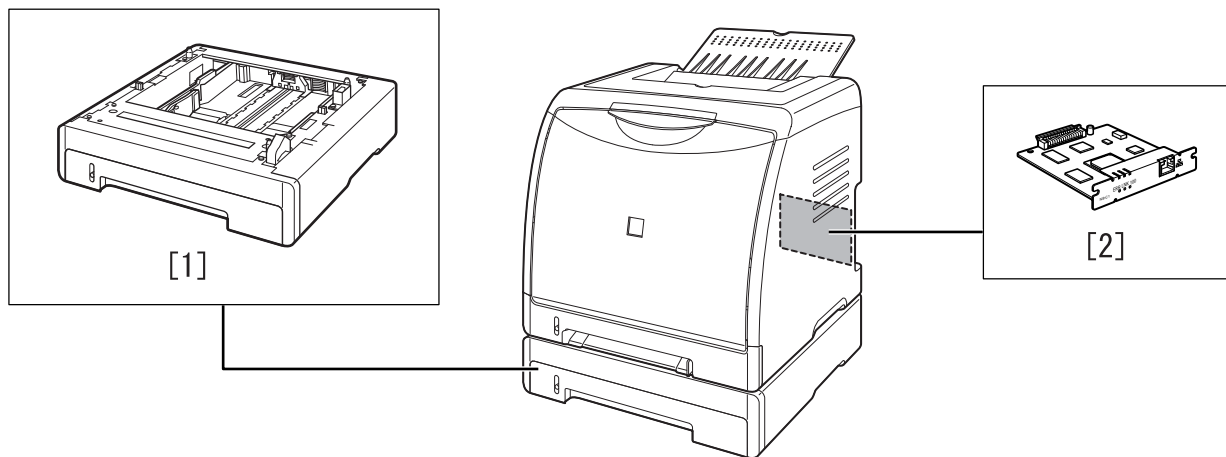


F-5-1

5.2 System Construction

5.2.1 System Construction

The following shows the machine's system construction:



F-5-2

- [1] Paper Feeder PF-92
[2] Network Board NB-C1

5.3 Product Specifications

5.3.1 Product Specifications

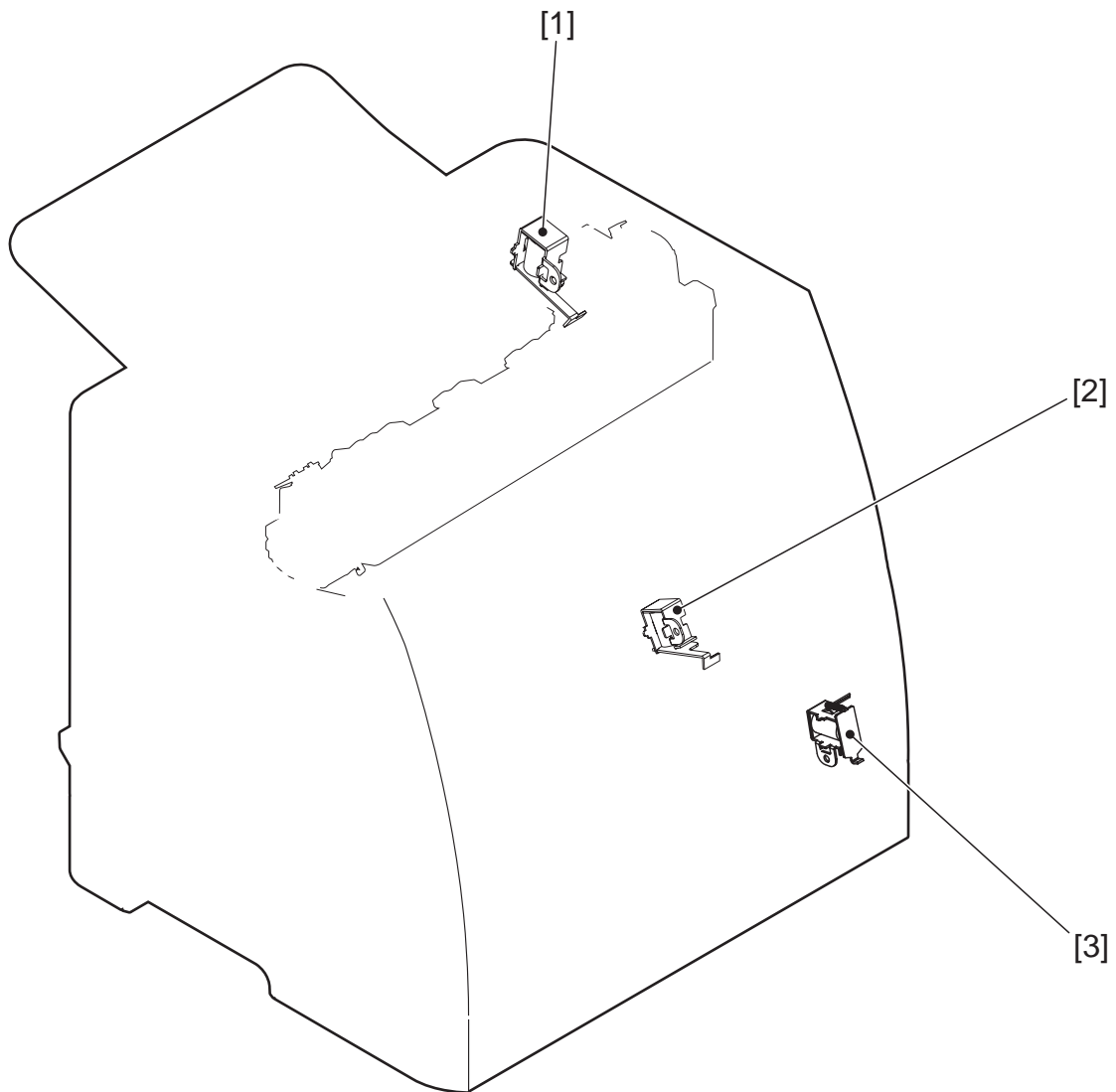
Body installation method	Desktop page printer
Photosensitive medium	OPC drum
Charging method	Roller charging

Exposure method	Laser scanning
Development method	Toner projection development
Transfer method	By Electrostatic Transportation Belt
Separation method	Curvature
Pickup method	By cassette/manual feeder
Cassette pickup method	By separation pad
Drum cleaning method	By blade
Transfer cleaning method	Drum static collection
Fixing method	On-demand
Delivery method	Face-down
Contrast adjustment function	Auto
Toner level detection function	Available
Toner type	non-magnetic, 1-component dry toner
Toner supply type	By EP cartridge (for A4/LTR, about 2500 impressions of Bk; about 2000 impressions of M, C, and Y)
Warm-up time	195 sec or less (approx.; at power-on, at 20 deg C)
Image margin (Leading edge)	5.0+1.5/-1.5mm
Image margin (Trailing edge)	5.0+1.5/-1.5mm
Image margin (Left/right)	5.0+1.0/-1.0mm
Number of gradations	16 gradations
Printing resolution	600dpi×600dpi
First print time	20 sec or less (approx.; both mono- and full-color)
Print speed (A4)	8 impressions/min (approx.; both mono- and full color)
Cassette paper size	A4, B5, LGL, LTR, Executive, Index Card, envelope, user-defined sheet (762 to 215.9 mm in length, 127.0 to 355.6 mm in width)
Multifeeder paper size	Same as for cassette
Cassette paper type	Plain paper (60 to 90 g/m ²), heavy paper (91 to 163 g/m ²), envelope (Envelope DL, Envelope COM10, Envelope C5, Envelope Monarch, Envelope B5), label sheet, transparency ((Black and white printing only)
Multifeeder tray paper type	Same as for cassette
Cassette capacity	250 sheets (64 g/m ²)
Multifeeder tray capacity	1 sheet
Delivery tray stack	125 sheets (plain paper, 64 g/m ²)
Memory	8 MB (addition not possible)
Auto gradation correction	Available
Operating environment (Temperature range)	10Å` 30Åé
Operating environment (Humidity range)	10 Å` 80%RH
Operating environment (Atmospheric pressure)	1810.6 to 1013.3 hpa (0.8 to 1.0 atm)
Noise	25 dB or less (standby); 50 dB or less (print)
Power supply rating	110 - 127 V (±10 %) 50/60 Hz (±2 Hz) 220 - 240 V (±10 %) 50/60 Hz (±2 Hz)
Power consumption (Maximum)	ãÖ638W or less (approx.)
Power consumption	18W or less (approx., operating; reference only); 220W or less (approx., operating; reference only)
Dimensions	407mm(W) x 367mm(D) x 376mm(H)
Weight	15.7 kg (approx.; excluding cartridges)

Chapter 6 Outline of Components

6.1 Clutch/Solenoid

6.1.1 Solenoids

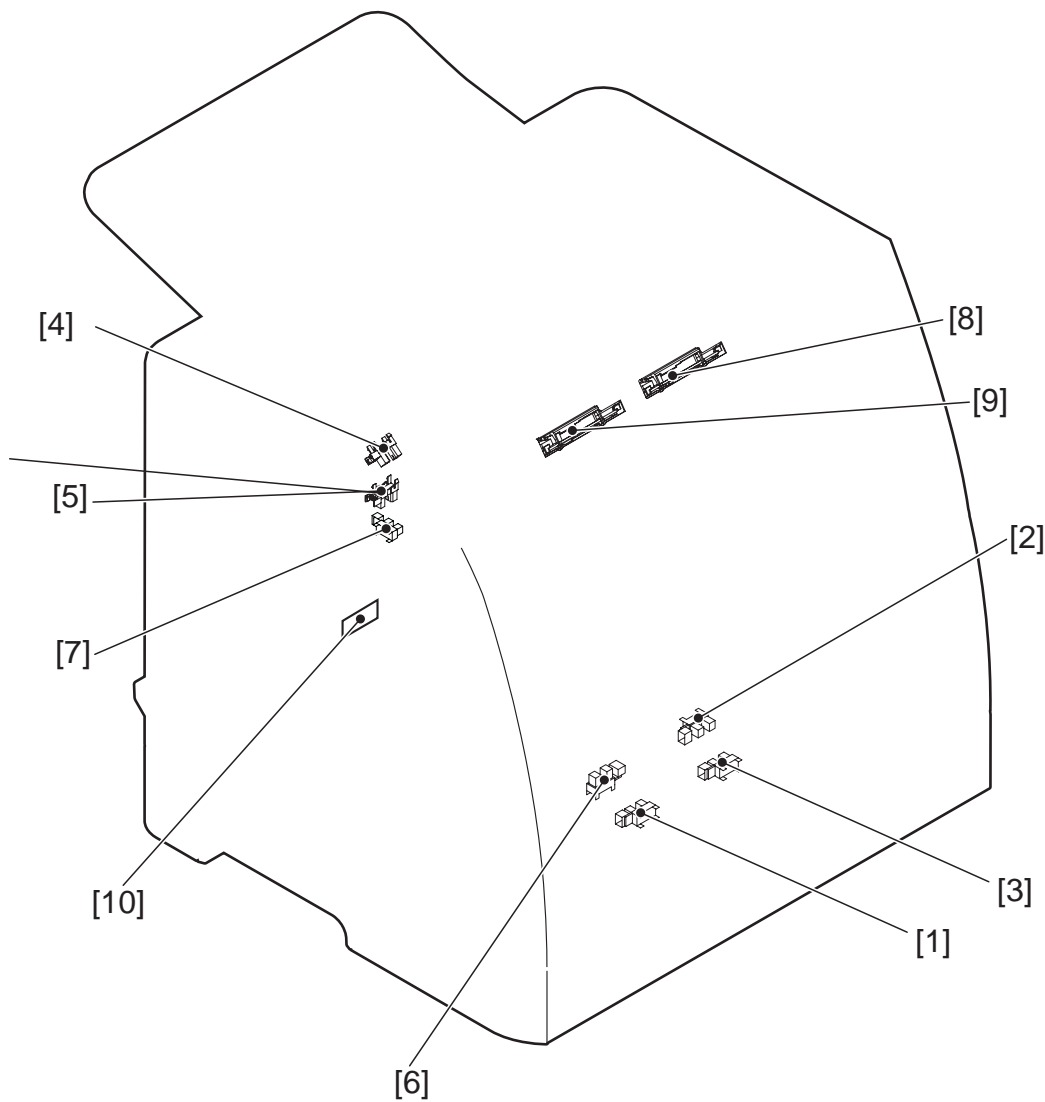


F-6-1

Ref.	Notation	Name
[1]	SL1	Pickup solenoid
[2]	SL2	MCY developing cylinder drive solenoid
[3]	SL3	Bk developing cylinder drive solenoid

6.2 Sensor

6.2.1 Sensors

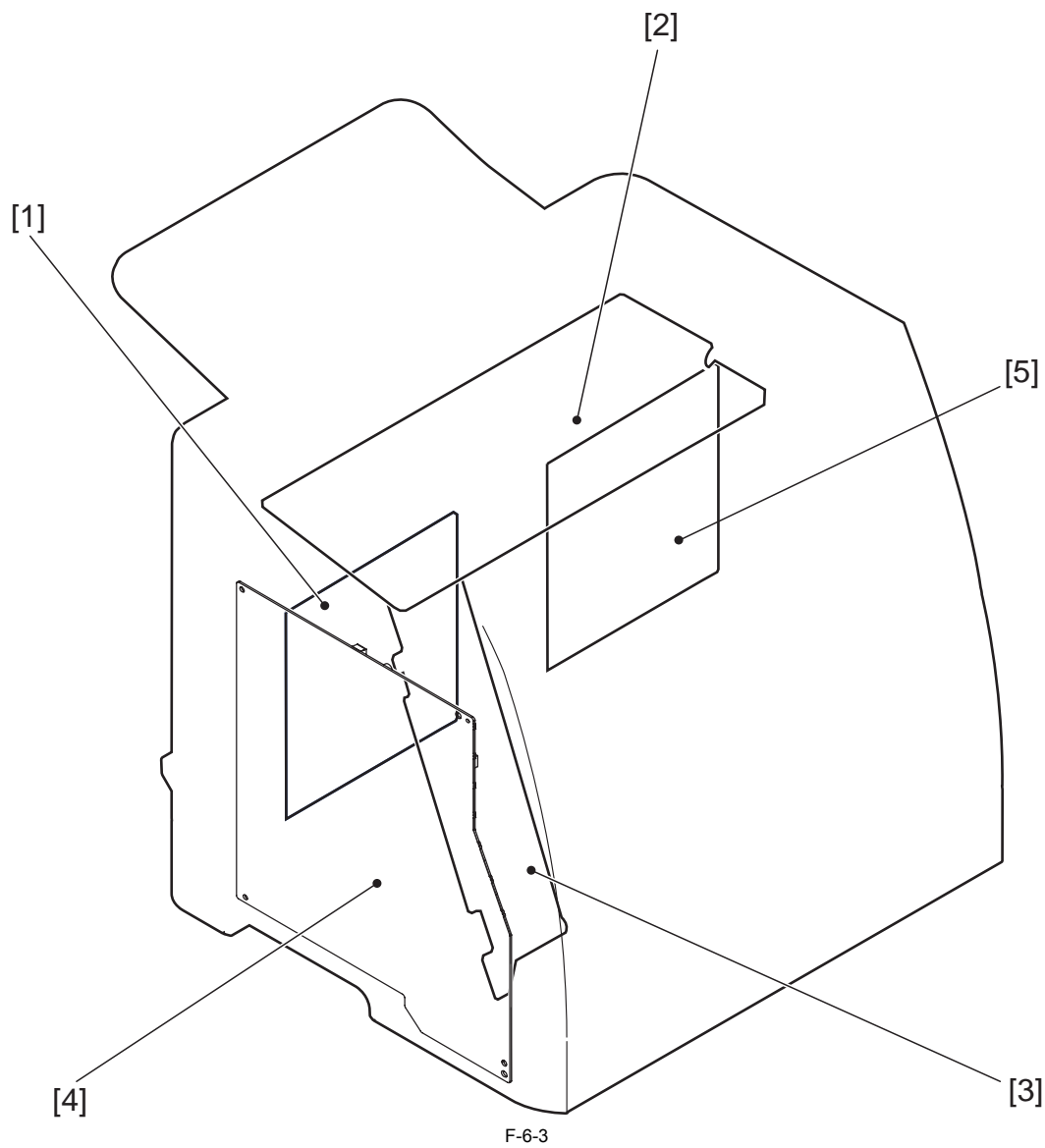


F-6-2

Ref.	Notation	Name
[1]	SR1	Registration paper sensor
[2]	SR2	Cassette paper sensor
[3]	SR3	Manual feeder paper sensor
[4]	SR4	Fixing delivery paper sensor
[5]	SR5	Pre-fixing paper sensor
[6]	SR8	Paper width sensor
[7]	SR9	Pressure alienation sensor
[8]	--	Color misregistration/Density sensor
[9]	--	Color misregistration sensor
[10]	--	Environment sensor

6.3 PCBs

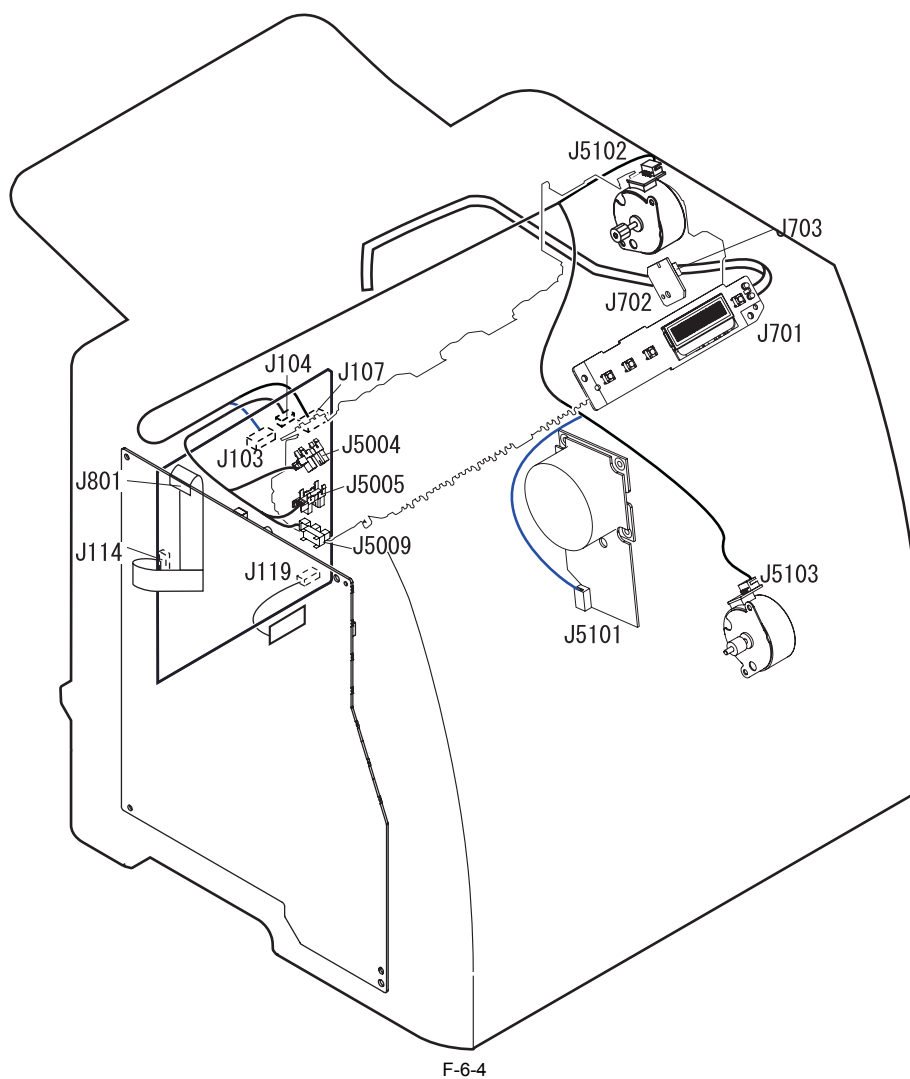
6.3.1 PCBs

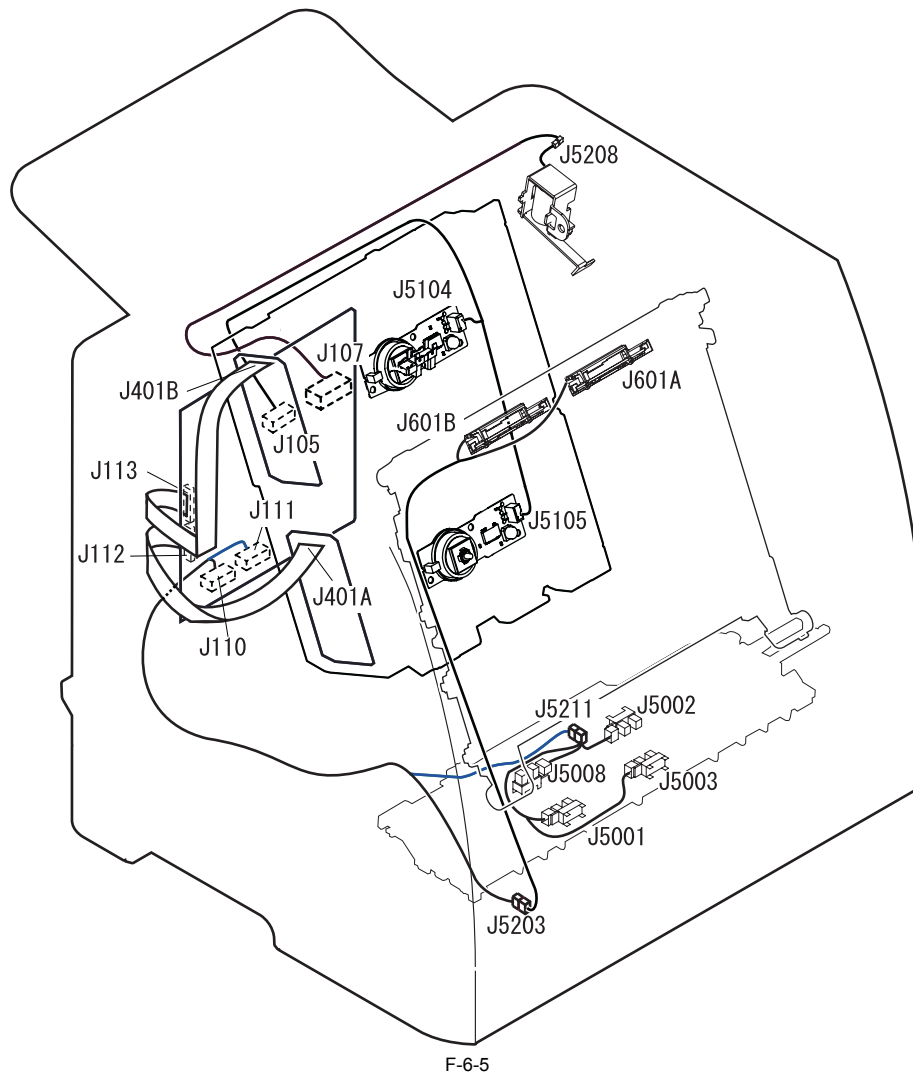


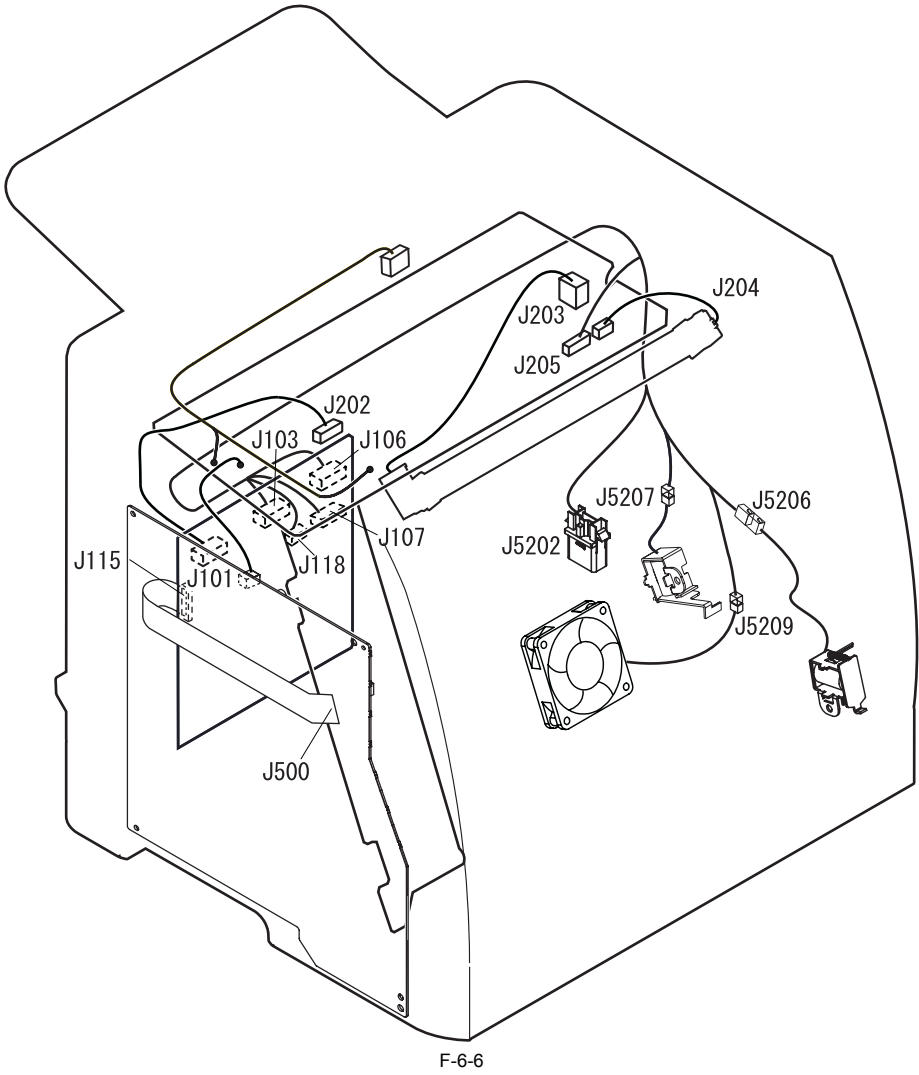
Ref.	Name
[1]	DC controller PCB
[2]	Low-voltage power supply PCB
[3]	High-voltage power supply PCB
[4]	Memory controller PCB
[5]	Video controller PCB

6.4 Location of Connectors

6.4.1 Connectors







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