Service Manual

W8400 Series
W8400

Canon

Apr 5 2005

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."

Contents

Chapter 1 PRODUCT DESCRIPTION

Contents

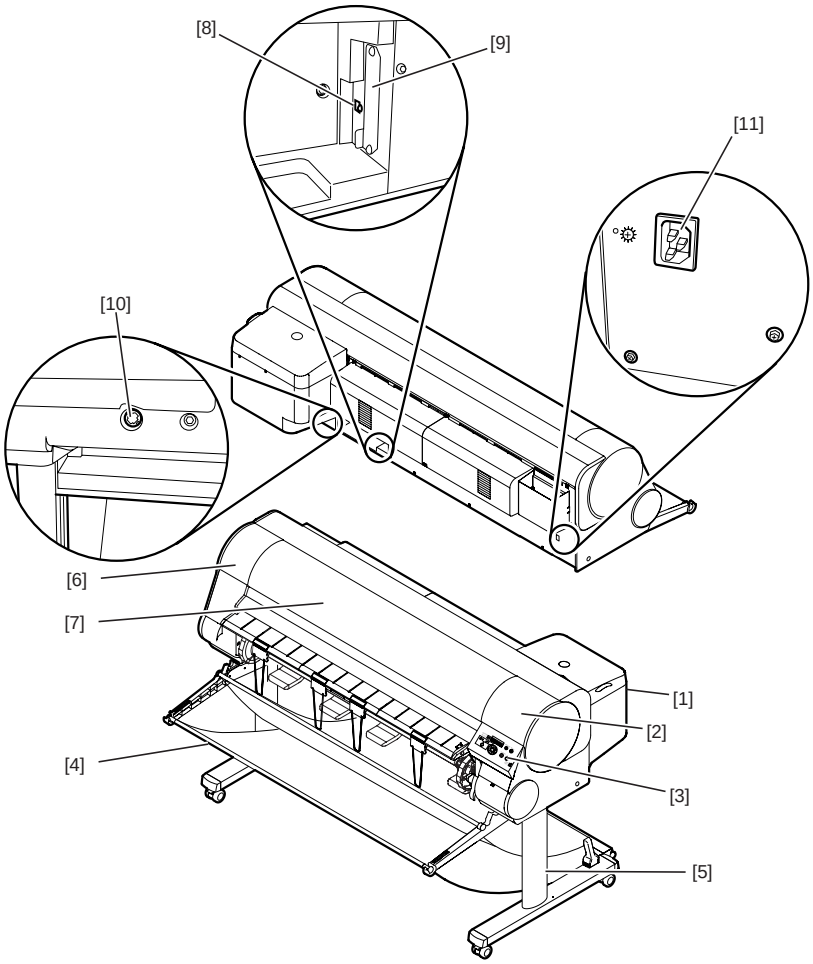
1.1 Product Overview

1.1.1 Product Overview

0008-3099

This printer is a large format printer which is capable of high-speed, photo-quality printing on large-size paper up to 44 inches wide (B0 size with index lines).
The printer is a stand-mounted. The printer is capable of output to either roll media or cut sheet.

External View of Printer (1/2)



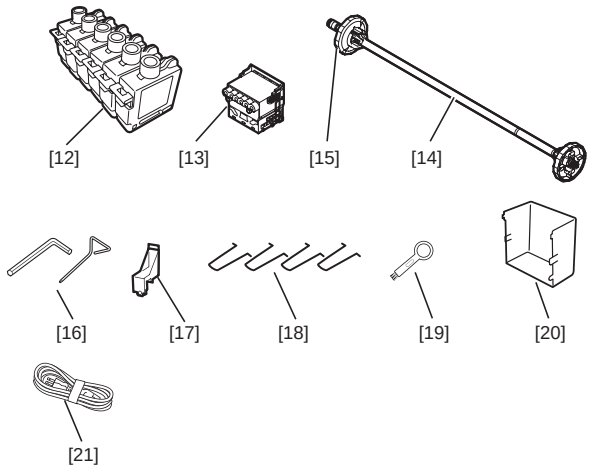
F-1-1

T-1-1

[1]	Right cover	[7]	Upper cover
[2]	Upper right cover	[8]	USB port
[3]	Operation panel	[9]	Expansion board slots (a network interface board or IEEE1394 expansion board. *1)
[4]	Output stacker	[10]	Connector for the Media take-up unit
[5]	Stand (option except for USA model)	[11]	Power supply connector
[6]	Upper left cover		

*1: The Network board is installed as a standard item for USA model.

External View of Printer (2/2)



F-1-2

T-1-2

[12]	Ink tank	[17]	Belt stopper
[13]	Print head	[18]	Snag prevention stay
[14]	Roll holder	[19]	Cleaner brush
[15]	Holder stopper	[20]	Accessory pocket
[16]	Hex key wrench	[21]	Poewr cord

1.2 Features

1.2.1 Features

0008-3103

- Reduced size with ink tank placed in rear.
- Printable on a variety of print media with the use of two types of black ink (replaceable).

Photo Black: This ink has excellent gloss and black density for glossy media and proof media.Nearly all types of media can be printed, including glossy media.

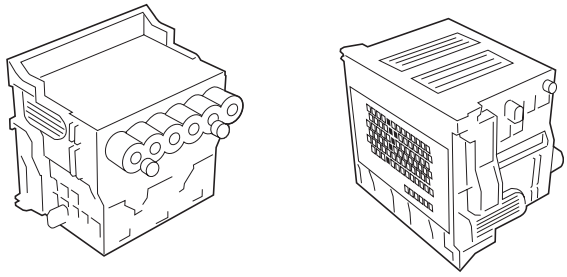
Matte Black: This ink has excellent black density for standard paper, fine art media, and matte media. It cannot be used for glossy media.

- Remaining roll media control made possible by barcode printed on roll media.
- Four-sides borderless printing support (roll media) eliminates tedious cutting and simplifies poster creation.
- High quality photo finish with 2400 x 1200 dpi maximum resolution using highly lightfast, water-proof, and ozone-proof six color (C, M, Y, Bk, MBk, PC, PM) pigment ink. (Choose either Bk or MBk)
- High-speed printing with bidirectional print control using 1 inch (1280-nozzles) head for each color.
- Tubing type ink supply completely separating print head and large capacity ink tank.
- Support for roll media and cut sheets.
- Roll media with width from 203.2 to 609.6 mm and length up to 18 m can be used.
- Standard carriage mounted cutter enables automatic sheet cutting. In addition, optional cutter unit enables cutting of additional types of media.
- Cut sheet feeding, media discharge, and ink tank replacement can be performed easily from the front.
- Standard support for high-speed USB2.0 interface. Optional support for 10Base-T/100Base-TX TCP/IP network or IEEE1394.

1.2.2 Printhead

0009-1059

On the carriage, disposable printhead is installed, each of which contains six rows of integrated nozzles.
Each row consists of 1280 nozzles, which are arranged in a staggered pattern for printing efficiency.
If print quality does not improve despite carrying out cleaning, the printhead should be replaced with a new one. Generally, it is recommended that the print head be replaced about 6 months after you have opened the package.

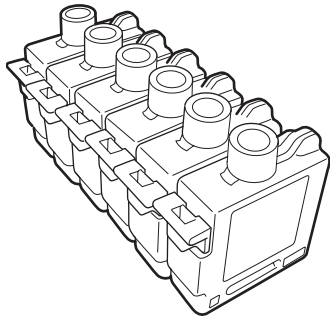


F-1-3

1.2.3 Ink Tank

0009-1061

The ink tank is disposable.
There are six colors: Black (Bk), Photo Cyan (PC), Cyan (C), Photo Magenta (PM), Magenta (M) and Yellow (Y), each using pigment based ink. Either Black (Bk) or Matte Black (MBk) can be selected for Black.
There are the following features in two kinds of black ink.
-Photo Black
This ink has excellent gloss and black density for glossy media and proof media. Nearly all types of media can be printed, including glossy media.
-Matte Black
This ink has excellent black density for standard paper, fine art media, and matte media. It cannot be used for glossy media.
To install an ink tank, open the right cover of the printer and insert the tank. The printer features a mechanism by which only the correct color ink tank will fit in its given slot.
When the "No Ink" message is displayed, replace the ink tank with a new one. Also, the ink tanks should generally be replaced 6 months after you have opened the package.



F-1-4

1.2.4 Cutter Unit

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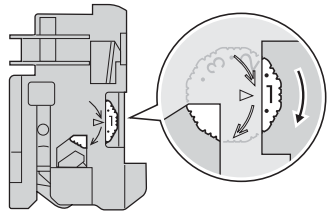
A disposable cutter unit is mounted on the carriage.
When the cutter becomes dull, increment the position adjustment dial by 1. If the dial is at 3, replace with a new cutter unit.

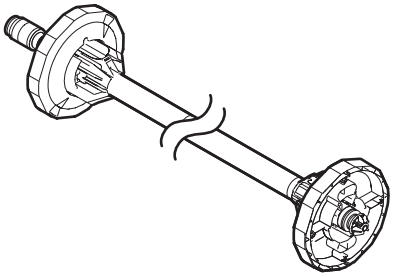


F-1-5

1.2.5 Roll Holder

0009-1094

A roll holder for a 2-inch inner diameter paper tube is included as standard accessory. Roller holders for 2-inch inner diameter paper tube and 3-inch inner diameter paper tube are set as option.
Both roll holders lock into the cardboard tube of roll media with an outer diameter not more than 6 inch (150 mm).

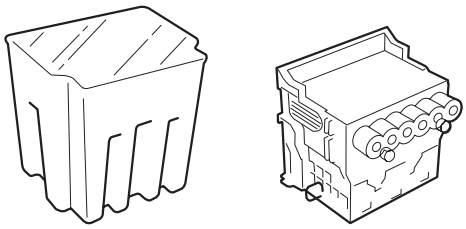


F-1-6

1.2.6 Consumables

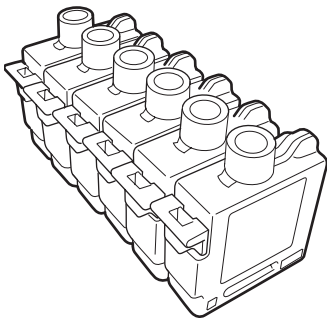
0009-1139

Printhead
This consumable printhead is the same as the printhead shipped with the printer.



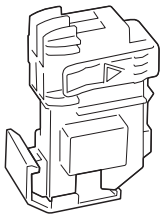
F-1-7

Ink tank
Seven types of consumable ink tank are available in six colors: Black (Bk), Matte Black (MBk), Photo Cyan (PC), Cyan (C), Photo Magenta (PM), Magenta (M), and Yellow (Y). They are all identical with the ink tank shipped with the printer.
Each bottle has a life of 6 months from the time the package is opened.



F-1-8

Cutter unit
The consumable cutter unit is the same as the cutter unit shipped with the printer.



F-1-9

1.3 Product Specifications

1.3.1 General Specifications

0008-3121

Type	Bubble jet printer (Desktop type)
Feeding system	Roll media: Manual (rear setting) Cut sheet: Manual (front setting)
Feeding capacity	Roll media: 1 roll (outer diameter: 150 mm or less) Standard roll holder: inner diameter of the paper tube: 50.8 mm (2") Optional roll holder: inner diameter of the paper tube: 50.8 mm (2") Optional roll holder: inner diameter of the paper tube: 76.2 mm (3") Cut sheet: 1 sheet
Delivery method	Delivers the media with its printed side up in the forward direction
Sheet delivery capability	1 sheet (Delivered in outlet stacker)
Cutter	Automated replaceable cartridge-type cutter
Type of media	See to Product Description > Detailed Specification > Type of media.
Supported thickness	70 µm to 800 µm
Media size (Roll media)	Width: 254mm(10") to 1117.6mm(44") Length: 210.0mm(8.27") to 18m(709") *Outer diameter of roll:150mm or less.
Media size (Cut sheet)	Width: 203.2mm(8") to 1117.6mm(44") Length: 203.2mm(8") to 1574.8mm(62")
Printable area (Roll media)	Area excluding 5 mm from the top, 5 mm from the bottom, and 5 mm from the left and right edges * Printable area may depend on the media.
Printable area (Cut sheet)	Area excluding 5 mm from the top, 23 mm from the bottom, and 5 mm from the left and right edges * Printable area may depend on the media.
Printing assurance area (Roll media)	Inside area excluding 20 mm from the top, 23 mm from the bottom, and 5 mm from the left and right edges
Printing assurance area (Cut sheet)	Inside area excluding 20 mm from the top, 23 mm from the bottom, and 5 mm from the left and right edges
Margins (Roll media)	Leading edge 5mm, Trailing edge 5mm, Left edge 5mm, Right edge 5mm
Margins (Cut sheet)	Leading edge 20mm, Trailing edge 23mm, Left edge 5mm, Right edge 5mm
Emulation	None
Interface	Compliance with USB specification 2.0 standards Network 10 Base-T/100 Base-TX (compliance with IEEE802.3 standards) (option except for USA model) Compliant with IEEE1394-1995 standards and P1394a (Version2.0) (option)
Printhead/Ink Tank type	Printhead and separate ink tanks
Printhead	BCI-1350 Architecture: Six rows of integrated nozzles arranged in parallel One row of nozzles: 1280 nozzles arranged in a staggered pattern
Ink tank	BCI-1421: Bk, PC, C, PM, M BCI-1441: MBk, Y Ink type: Pigment ink Ink capacity: Approx. 330 ml

Detection functions (Cover system)	Covers open/close detection: Yes
Detection functions (Ink passage system)	Ink tank detection: Yes Ink level detection: Yes Maintenance cartridge detection: Yes Waste ink full detection: Yes
Detection functions (Carriage system)	Printhead detection: Yes Carriage position detection: Yes Carriage home position detection: Yes Carriage cover open/close detection: Yes Carriage temperature detection: Yes Carriage head position detection: Yes Non-discharging nozzle detection: Yes Non-discharging nozzles back-up function: Yes
Detection functions (Paper path system)	Paper detection: Yes Paper leading and trailing edge detection: Yes Paper width detection: Yes Skew detection: Yes Paper release lever position detection: Yes Roll media trailing edge detection: Yes Remaining roll media detection: Yes Feed roller rotation detection: Yes
Operating noise	During printing: Approx. 54dB (A) max. (6.9Bels max.) During standby: Approx. 35dB (A) max.
Operating environment	Operating environment: Temperature 5 deg C to 35 deg C Humidity 10 % to 90 % RH
Print quality guaranteed environment	Print quality guaranteed environment: Temperature 15 deg C to 30 deg C Humidity 10 % to 80 % RH
Power supply	AC100 V to 240 V, 50 Hz/60 Hz
Power consumption (Maximum)	Maximum: 160 W max.
Power consumption	Power save mode 100 to 115V: 6 W max. 220 to 240V: 9 W max. Power off: 1 W max. * If an option has been mounted, this may be different.
Printer unit dimensions (WxDxH)	W1,642 mm x D715 mm x H478 mm (not including the stand) W1,642 mm x D971 mm x H1,075 mm (including the stand)
Weight	Weight Approx. 80 kg (without stand) Weight Approx. 98 kg (including stand)

1.4 Detailed Specification

1.4.1 Type of media

0009-8740

T-1-3

Classification	Media Type
Photo	Photo Glossy Paper, Photo Semi-Glossy Paper, Heavyweight Glossy Photo Paper, Heavyweight Semi-Glossy Photo Paper
Art	Fine Art Photo, Fine Art Heavyweight Photo, Fine Art Textured, Canvas Matte, Canvas Semi-Glossy
Japanese Paper Washi	Japanese Paper Washi
Coated Paper	Coated Paper, Heavy Coated Paper, Extra Heavyweight Coated Paper, Colored Coated Paper
Generic	Plain Paper, Plain Paper (High Quality)
CAD	CAD Plain Paper, CAD Tracing Paper, CAD Translucent Matte Film, CAD clear film
Proof	Proofing Paper 2, Newsprint for Proofing
Synthetic Paper	Synthetic Paper, Adhesive Synthetic Paper
Film	Back Light Film
Cloth	Flame-Resistant cloth, Cloth

1.4.2 Printing Speed and Direction

0009-8505

Image is used by enlarging JIS SCID No.5 (ISO) to A0 full size.

T-1-4

Media type	Mode	Print-pass	Printing direction	Print resolution (dpi)	Print speed *1
Plain paper, Plain paper (High Quality)	Draft	2-pass	Bi-directional	1200x1200dpi	Approx. 1.3 min.
	Standard	6-pass		1200x1200dpi	Approx. 3.0 min.
Coated Paper, Heavy Coated Paper, Extra Heavy Coated Paper	Draft	4-pass		1200x1200dpi	Approx. 2.0 min.
	Standard	6-pass		1200x1200dpi	Approx. 3.0 min.
	High	8-pass		2400x1200dpi	Approx. 6.7 min.
Photo Glossy Paper, Photo Semi-Glossy Paper, Photo Glossy Paper (HW), Photo Semi-Glossy Paper (HW), Special1 - 5	Standard	8-pass		1200x1200dpi	Approx. 3.9 min.
	High	8-pass		2400x1200dpi	Approx. 6.7 min.
	Highest	16-pass		2400x1200dpi	Approx. 13.1 min.
Fine Art (Photo), Fine Art (Photo HW), Fine Art (Textured), Canvas (Matte), Canvas (Semi-Glossy)	Draft	8-pass		1200x1200dpi	Approx. 3.9 min.
	Standard	8-pass		2400x1200dpi	Approx. 6.7 min.
	High	16-pass		2400x1200dpi	Approx. 13.1 min.
Japanese Paper, Synthetic Paper, Adhesive Synthetic Paper, Flame-Resistant Cloth, Cloth	Standard	8-pass		1200x1200dpi	Approx. 3.9 min.
	High	16-pass		2400x1200dpi	Approx. 13.1 min.
Back Light Film	Standard	8-pass		2400x1200dpi	Approx. 6.7 min.
	High	16-pass		2400x1200dpi	Approx. 13.1 min.
Proofing Paper 2	Standard	8-pass		1200x1200dpi	Approx. 3.9 min.
	High	8-pass		2400x1200dpi	Approx. 6.7 min.
Newspaper Proofing Paper 1 - 3	Draft	4-pass		1200x1200dpi	Approx. 2.0 min.
	Standard	6-pass		1200x1200dpi	Approx. 3.0 min.
Color Coated Paper	Draft	4-pass		1200x1200dpi	Approx. 2.0 min.
	Standard	6-pass		1200x1200dpi	Approx. 3.0 min.

*1: From the time when carriage starts moving under the following environment until the final band is output. Excluding data transfer, processing, or drying time.
OS: Windows 2000 SP4
PC: Pentium4 2.2GHz/RAM:512MB
Application: Adobe Photoshop 6.0
I/F: USB2.0
Image: ISO JIS-SCID No.5 chart enlarged to A0 size

1.4.3 Interface Specifications

0009-8506

a. USB
1) Interface format
USB 2.0, Full Speed (12Mbit/sec), High Speed (480Mbit/sec)
2) Data transfer
Control transfer
Bulk transfer
3) Signal level
Compliance with USB standards
4) Interface cable
Twisted-pair shielded cable, 5.0 m max.
Compliance with USB standards
Wire materials AWG No. 28, data wire pair (AWG: American Wire Gauge)
AWG No. 20 to No. 28, wire pair
5) Interface connector
Printer side: USB standards, series B receptacle
Cable side: USB standards, series B plug

b. IEEE1394 (option)

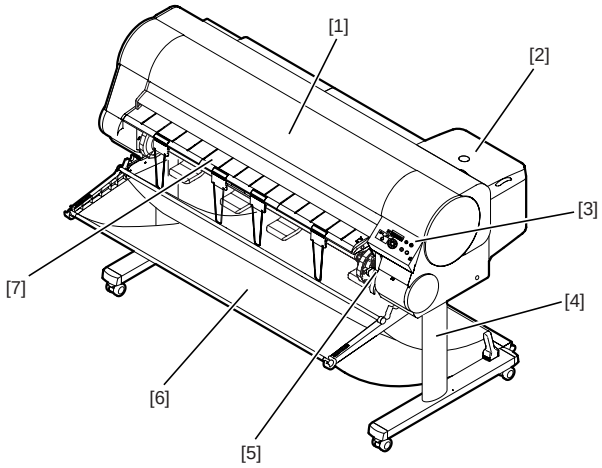
1) Interface format
Interface complying with IEEE1394-1995, P1394a (Version 2.0) standards
2) Data transfer
Asynchronous transfer
3) Signal level
Input:
Differential input voltage: S100 During negotiation period +173 mV to +260 mV
During data reception +142 mV to +260 mV
S200 During negotiation period +171 mV to +262 mV
During data reception +132 mV to +260 mV
S400 During negotiation period +168 mV to +265 mV
During data reception +118 mV to +260 mV
Output:
Differential output voltage: +172 mV to +265 mV
4) Interface cable
Twisted-pair shielded cable, 4.5 m max.
Compliance with IEEE1394-1995 standards or P1394a (Version 2.0) standards
5) Interface connector
Printer side: IEEE1394 standards, 6-pin connector (socket)
Cable side: IEEE1394 standards, 6-pin connector (plug)

c.Network (option except for USA model)
1) Interface format
Interface complying with IEEE802.3 standards
2) Data transfer
10Base-T/100Base-TX
3) Signal level
Input : threshold
10 Base-T : max +585mV
min +300mV
100 Base-TX : turn-on +1000mV diff pk-pk
turn-off +200mV diff pk-pk
Output:
10 Base-T : +2.2V to +2.8V
100 Base-TX : +0.95V to +1.05V
4) Interface cable
Category 5 (UTP or FTP) cable, 100 m max.
Compliance with ANSI/EIA/TIA-568A or ANSI/EIA/TIA-568B standards
5) Interface connector
Printer side: IEEE802.3 standards, compliance with ANSI X3.263 standards, and ISO/IEC60603-7 standards
Cable side: Compliance with ANSI/EIA/TIA-568A or ANSI/EIA/TIA-568B standards, RJ-45 type

1.5 Names and Functions of Components

1.5.1 Front

0009-8428



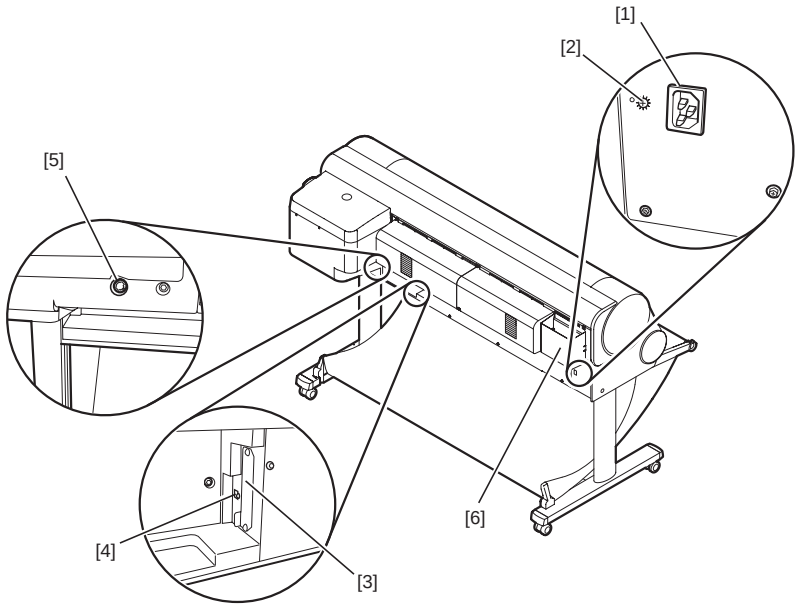
F-1-10

T-1-5

[1]	Upper Cover	Remove this cover to install the print head, to load media, or to remove sheets of paper jammed in the printer.
[2]	Right Cover	Open to replace ink tanks.
[3]	Operation Panel	Provides the display panel and the operation panel buttons.
[4]	Stand	This is a table designed specially for this printer. Casters are attached to the legs to make it easy to move. An optional Media Take-up Unit can also be installed.
[5]	Release Lever	The lever that releases the media. If you are loading or manually feeding paper, pull up this lever and open the paperweight bar.
[6]	Output stacker	A cloth tray that catches print media ejected from the printer.
[7]	Paper Catch Tray	Printed media is delivered to the paper catch tray. Open the paper catch tray to load the roll media.

1.5.2 Rear

0009-8429



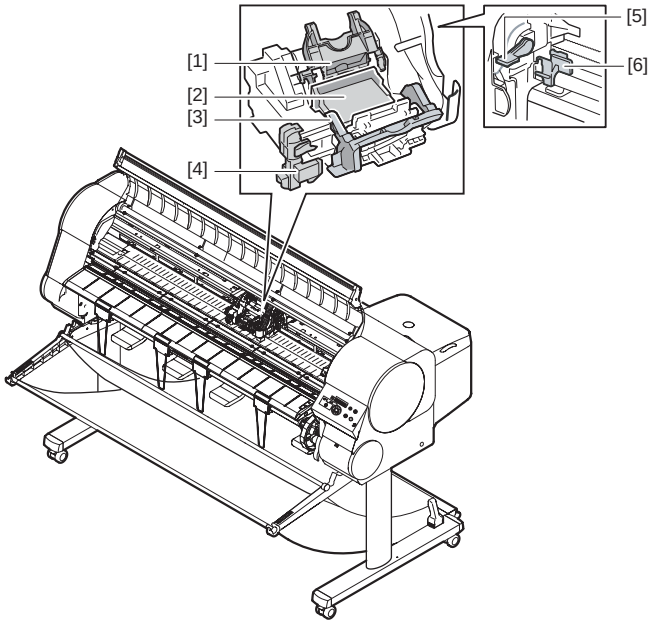
F-1-11

T-1-6

[1]	Power Supply Connector	Provides a connection point for the printer power cord.
[2]	Grounding Wire Connector	Provides a connection point for the grounding wire. (onlly JP model)
[3]	Expansion Board Slots	Provided for installing a network interface board or IEEE1394 expansion board.
[4]	USB Port	This is the communication port for USB High Speed 2.0. Connect the USB cable here to connect the printer to the computer via USB.
[5]	Media Take-up Unit Connector	Provides a connection point for the optional media take-up unit
[6]	Accessory Pocket	Holds the printer manual, tools for assembly, and extra ink tanks.

1.5.3 Carriage

0009-8430



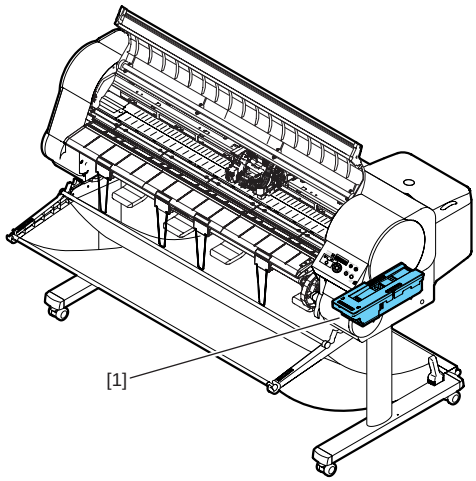
F-1-12

T-1-7

[1]	Print Head Lock Cover	This cover locks and holds the print head in place.
[2]	Print Head	An important component that is equipped with the print nozzles.
[3]	Print Head Lock Lever	This is the lever that locks the printhead lock cover. Open this lever to open the print head cover.
[4]	Cutter Blade	The cutter unit that cuts print media automatically.
[5]	Print Head Height Adjustment Lever	Use to adjust the height of the printhead. You will need to adjust the height of the printhead for high quality printing and printing on special media.
[6]	Shaft Cleaner	The shaft cleaner prevents the carriage shaft from becoming dirty. This cleaner must be replaced at the same time as the maintenance cartridge is replaced.

1.5.4 Internal part

0009-8431



F-1-13

T-1-8

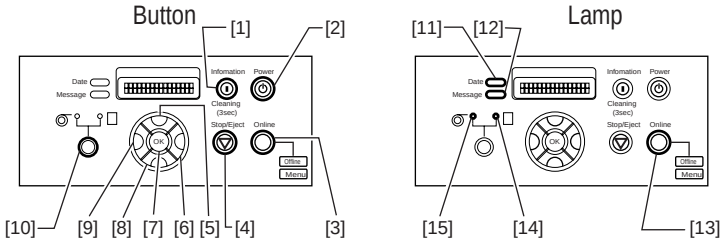
[1]	Maintenance Cartridge	The cartridge that vacuums and collects excess ink. Replace the maintenance cartridge when a message appears prompting you to replace the cartridge.

1.6 Basic Operation

1.6.1 Operation Panel

0009-1536

This section describes the function of the buttons and the meaning of the LEDs on the operation panel.



F-1-14

[1] [Information] button
This button displays a submenu. The submenu shows ink and maintenance cartridge, media, head height, head life and parts life information. "Head Cleaning A" is performed when it is pressed for at least 3 seconds.

[2] [Power] button
This button is used to turn the printer on and off.
When the power is off: Pressing this buttons turns on the power.
When the power is on: Holding down this button for about 1 or more seconds turns off the power.

[3] [Online] button
This button switches between online status, offline status, and menu display.
Online status: This button switches to offline status.
Offline status: This button switches to menu display.
Menu display: This button cancels the menu operation and switches to online status. Also, when maintenance card error is displayed, the printer can be switched online by temporarily resetting the error. When any other error message is displayed or media is not loaded, however, the printer does not switch to online status until the problem is resolved.
Job processing: This button switches to the pause status and pauses processing of the job.

[4] [Stop/Eject] button
Online status / Offline status / Menu display: Holding down this button for 1 second or longer aborts the job in progress or ink drying and then discharges the media.
Pause status: Holding down this button for 1 seconds or longer aborts the paused job and discharges the media.

[5] [^] button
Offline status: When roll media is loaded, this button functions as a manual feed button and reverse-feeds the media. When a cut sheet is loaded, the sheet is discharged.
When a menu is displayed: This button is used to return to the next higher-level menu.

[6] [>] button
Offline status: Holding down this button for 1 second or longer moves the carriage to the center of platen.
When a menu is displayed: This button functions as a selector button and is used to display the next option. This button functions as a selector button and displays the next item/setting.

[7] [OK] button
When setting values are displayed: This button sets or executes the selected value or operation.

[8] [v] button
Offline status: When roll media is loaded, this button functions as a manual feed button and feeds the media.
When a menu is displayed: This button is used to go to the next lower-level menu.

[9] [<] button
Offline status: Holding down this button for 1 second or longer moves the carriage to the center of platen.
When a menu is displayed: This button functions as a selector button and is used to display the next option. This button functions as a selector button and displays the previous item/setting.

[10] [Paper Source] button
Online status / Offline status / Menu display: This button switches the paper source between roll media and cut sheets. However, the printer status cannot be switched while the upper cover is opened.

[11] DATA lamp
Flashing: When the printer is printing, this lamp indicates that the printer is receiving or processing a job. When the printer is idle, it indicates that there is a paused job, the printer is receiving a job that cannot be processed, or is receiving firmware data.
Off: This indicates that there are no jobs.

[12] Message lamp
On: This indicates that a warning is displayed.
Flashing: This indicates that there is an error or the printer is in service mode.
Off: This indicates that operation is normal.

[13] Online lamp

On: This indicates that the printer is in online status, job processing status, or sleep status.
Off: This indicates that the printer is paused, displaying a menu, power on initializing, or turned off.

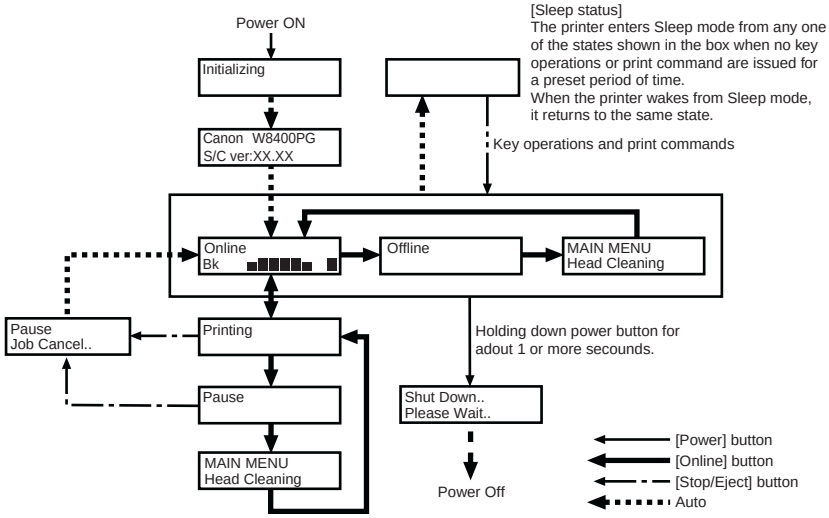
[14] Cut Sheet lamp
On: This indicates that cut sheets have been selected as the paper source.

[15]Roll Media lamp
On: This indicates that roll media has been selected as the paper source.

1.6.2 Change of Printer Status

0009-1537

The chart below illustrates the various states of the printer and how they are changed by means of key operations.



F-1-15

1.6.3 Main Menu

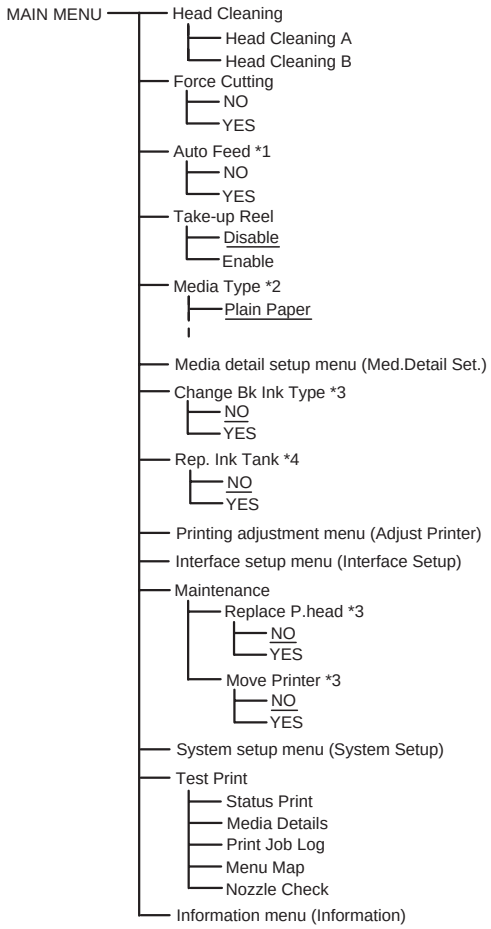
0009-1538

The printer has a Main Menu which provides the user with access to various adjusting and configuring features, for example: adjusting print position; performing cleaning or other maintenance features; auto-cutting, ink drying time and other print settings; message language and other parameter settings.
1. Main menu operations
a) How to enter the Main Menu
To enter the Main menu, press the printer's [Online] button several times.

b) How to exit the Main Menu
Press the [Online] button once to exit the Main menu.

c) Buttons used in the Main Menu
- Selecting menus and parameters: [<] button or [>] button
- Entering a lower-level menu: [V] button
- Entering a higher-level menu: [^] button
- Setting menus and parameters: [OK] button

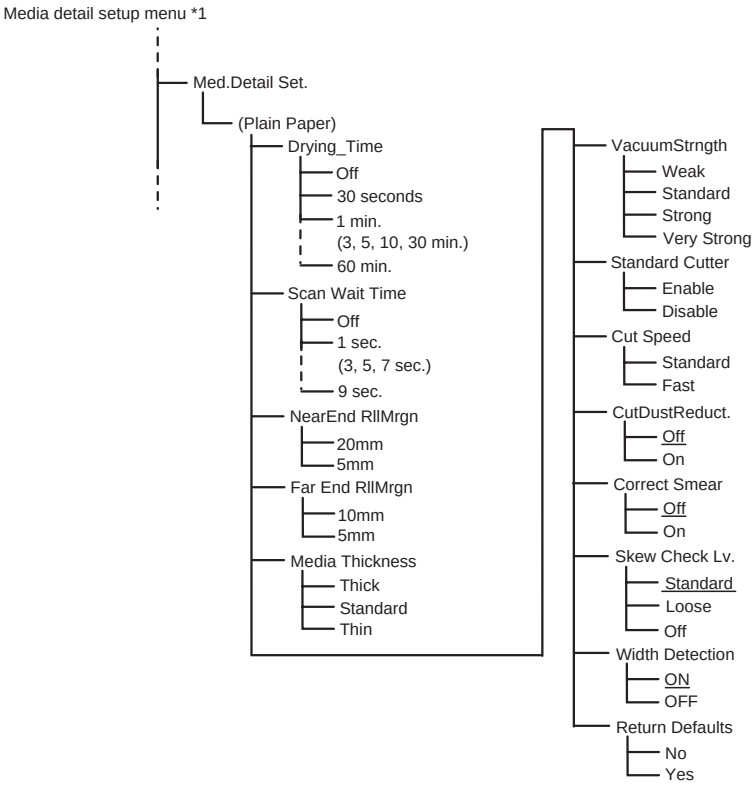
2. Map of the main menu
The hierarchy of menus and parameters in the Main Menu is as shown below.



* Default values are underlined

*1 Displayed only when Enable is selected as the Take-up Reel.
*2 Displayed only when media is loaded.
*3 Not displayed during maintenace cartridge warning.
*4 Displayed only during printing.

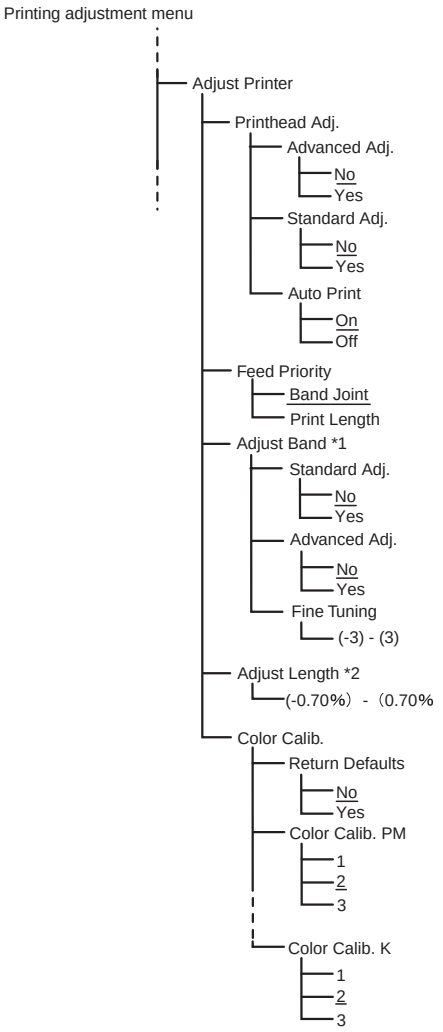
F-1-16



* Default values are underlined

*1 The initial value without an underline changes with kinds of paper.

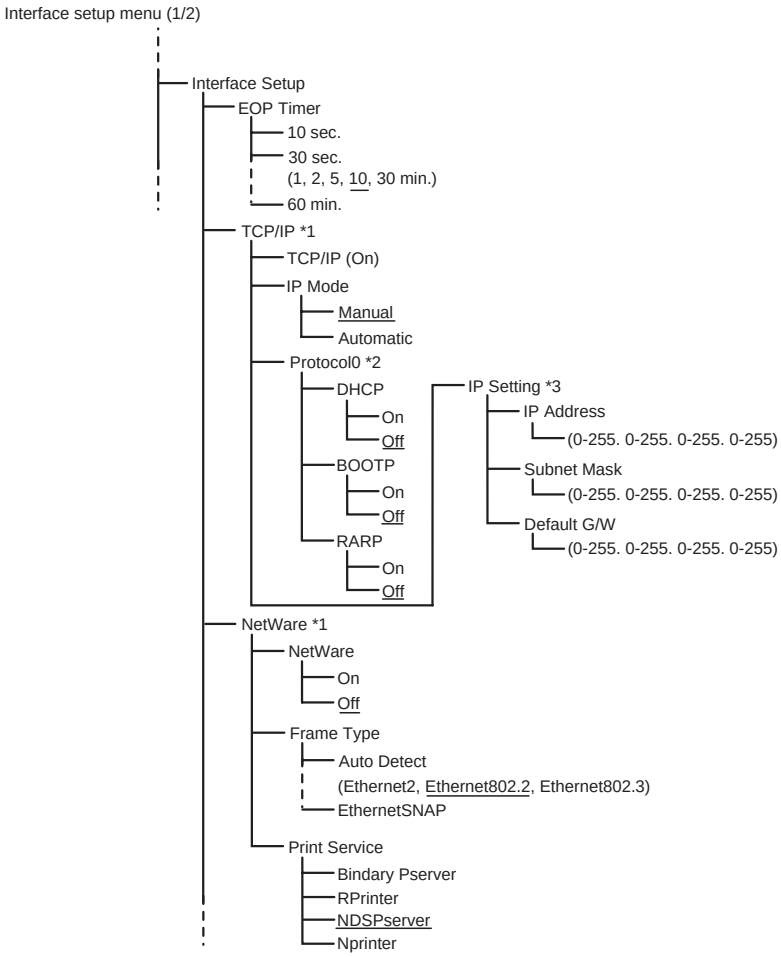
F-1-17



* Default values are underlined

*1 Displayed when "Band Joint" is selected for "Feed Priority"
*2 Displayed when "Print Length" is selected for "Feed Priority"

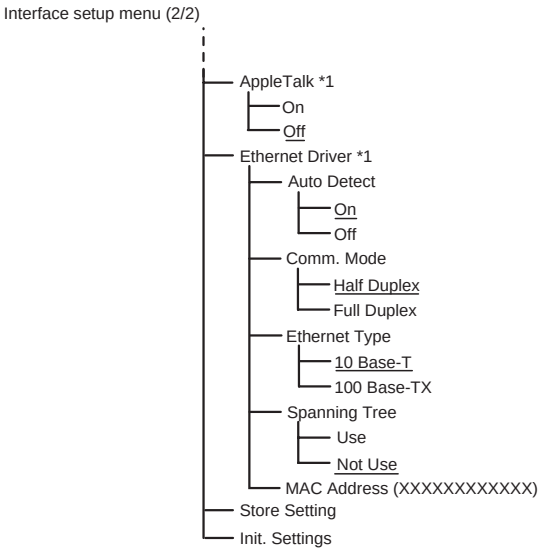
F-1-18



* Default values are underlined

*1 Displayed only when NIC is installed
*2 Displayed only when Automatic is selected as the IP Mode.
*3 Displayed only when Manual is selected as the IP Mode.

F-1-19



* Default values are underlined

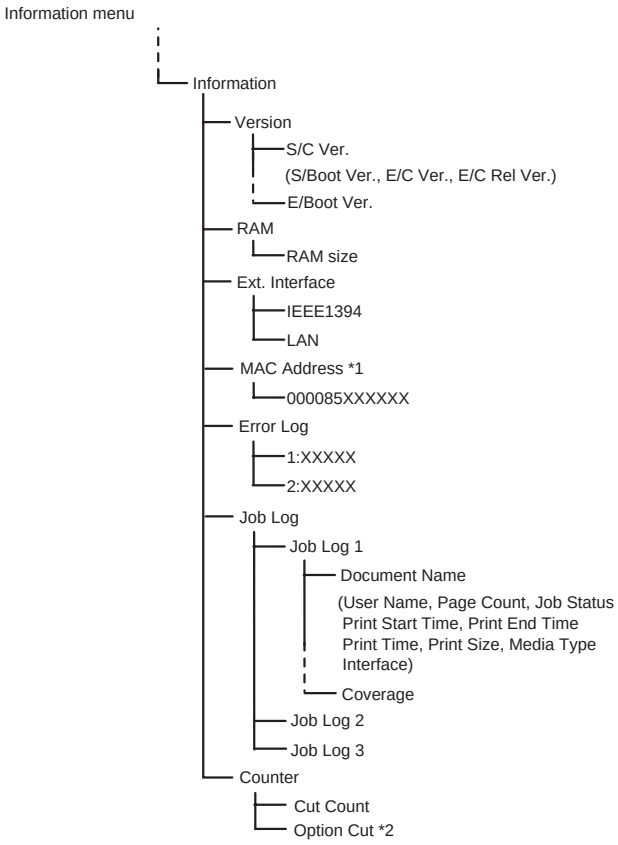
*1 Displayed only when NIC is installed

F-1-20

* Default values are underlined

*1 Displays a screen to check whether to issue a Media type mismatch (W01021) or whether the media is replaced

F-1-21



* Default values are underlined

*1 Displayed only when NIC is installed.
*2 Displayed only when optional Cutter Unitis installed.

F-1-22

1.7 Safety and Precautions

1.7.1 Safety Precautions

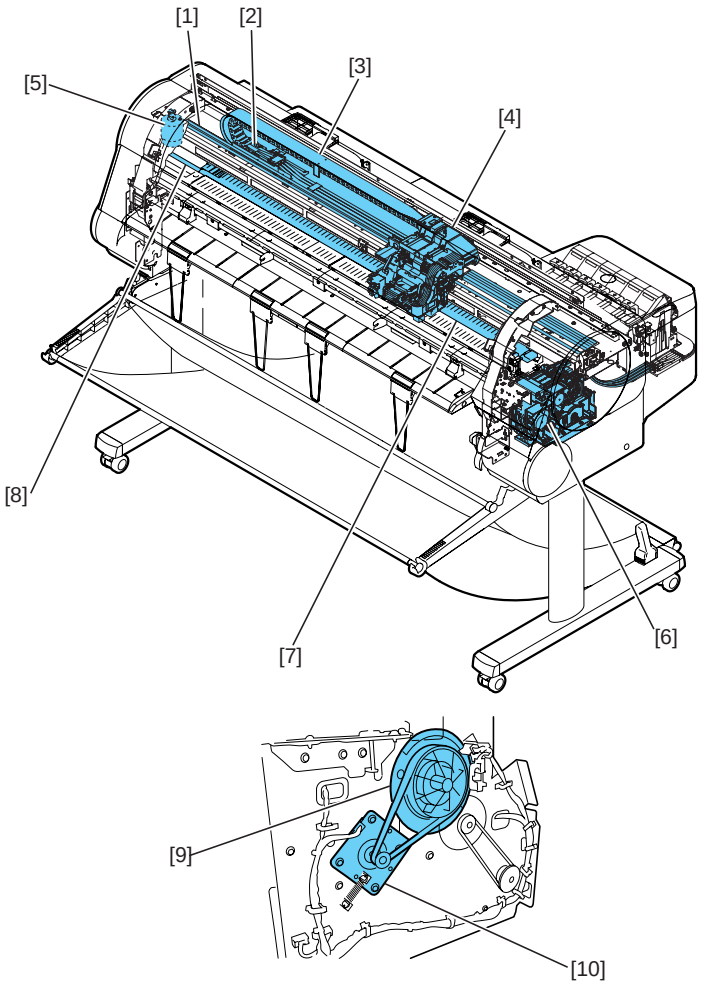
1.7.1.1 Moving Parts

0009-1213

Be careful not to get your hair, clothes, or accessories caught in the moving parts of theprinter.
These include the carriage unit, carriage belt, ink tube and flexible cable activated bythe carriage motor; feed motor-driven feed roller and pinch roller; and purge motor-driven purge unit.
To prevent accidents, the upper cover of the printer is locked during printing so that itdoes not open. If the upper cover is opened in the online/offline mode, the carriage motor, feed motor, and other driving power supplies are turned off.

T-1-9

[1]	Carriage belt	[6]	Purge unit
[2]	Ink tube	[7]	Pinch roller
[3]	Flexible cable	[8]	Feed roller
[4]	Carriage unit	[9]	Delivery unit
[5]	Carriage motor	[10]	Feed motor



F-1-23

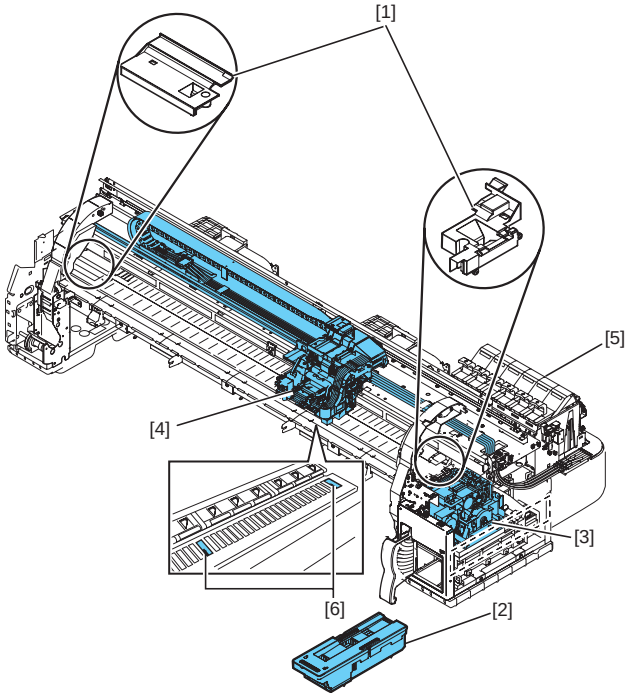
1.7.1.2 Ink

0009-1214

1. Ink passages
Be careful not to touch the ink passages of the printer or to allow ink to stain theworkbench, hands, clothes or the printer under repair.
The ink flows through the ink tank unit, carriage unit, purge unit, maintenance-jet tray, bordless print ink groove, maintenance cartridge and the ink tubes that relay ink to each unit.

T-1-10

[1]	Maintenance-jet tray	[4]	Carriage unit
[2]	Maintenance cartridge	[5]	Ink tank unit
[3]	Purge unit	[6]	Borderless print ink groove



F-1-24

Although the ink is not harmful to the human body, it contains organicsolvents.
Avoid getting the ink in your mouth or eyes.
Flush well with water and see a doctor if contact occurs.
In case of accidental ingestion of a large quantity, call a doctorimmediately.

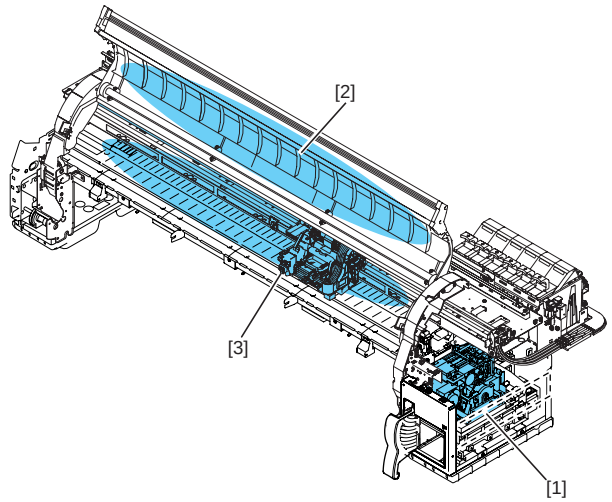
Black ink
Glycerine 56-81-5, Carbon black 1333-86-4, Heterocyclic compound
Matte Black ink
Glycerine 56-81-5, Diethylene glycol 111-46-6, Triol
Photo Magenta ink
Glycerine 56-81-5, Ethylene glycol 107-21-1, Heterocyclic compound
Photo Cyan ink
Glycerine 56-81-5, Ethylene glycol 107-21-1, Heterocyclic compound, Triol
Magenta ink
Glycerine 56-81-5, Heterocyclic compound
Cyan ink
Glycerine 56-81-5, Ethylene glycol 107-21-1, Heterocyclic compound, Copper compound
Yellow ink
Glycerine 56-81-5, Glycol, Lactum

Since this ink contains pigment, stains will not come out of clothing.

2. Ink mist
Since the printhead prints by squirting ink onto the media, a minute amount of inkmist is generated in the printing unit during printing. The ink mist is collected in the printer by the airflow. However, uncollected ink mist may stain the platen unit,carriage unit, main rail unit, external unit, or purge unit. These stains may soil the print media or hands and clothes when servicing the printer, wipe them off carefully with a soft, well-wrung damp cloth.

T-1-11

[1]	Purge unit	[3]	Platen unit/Carriage unit/Main rail unit
[2]	Top cover		



F-1-25

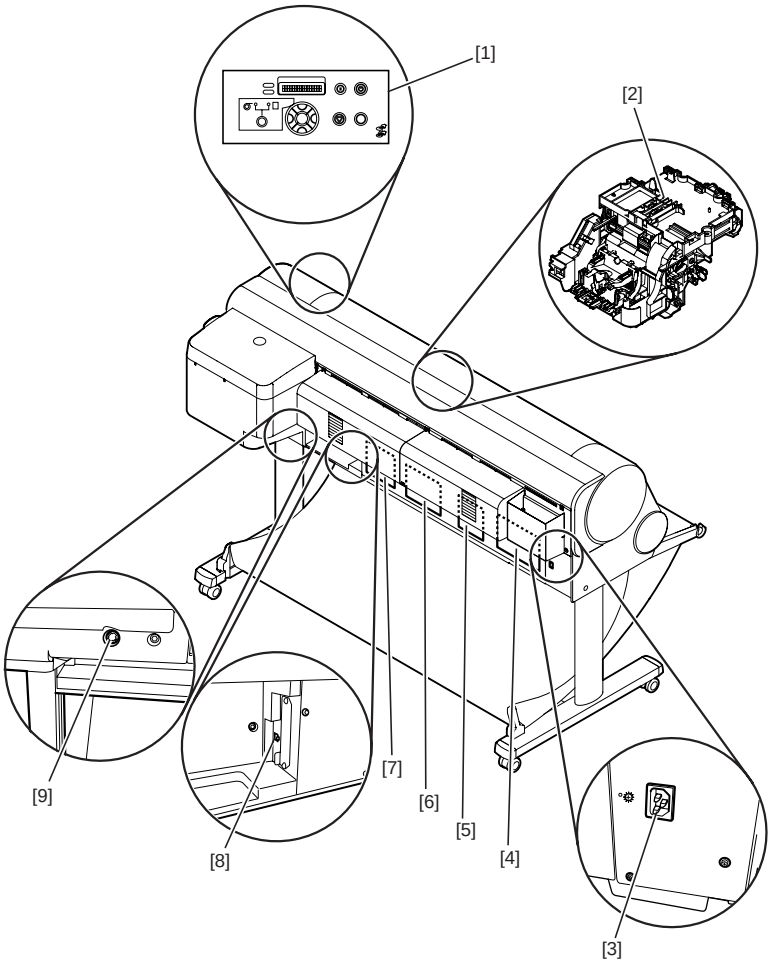
1.7.1.3 Electrical Parts

0009-1216

The electrical unit of the printer is activated when connected to the AC power supply.
At the rear of the printer are the system controller, engine controller, power supply, motor driver PCB, interface connector, and optional Take-up Unit connector. The head relay PCB and carriage relay PCB are incorporated in the carriage unit, and the operation panel is located on the upper right cover.
When servicing the printer with the cover removed, be extremely careful to avoid electric shock and shorting contacts.

T-1-12

[1]	Operation panel	[6]	Engine controller
[2]	Carriage relay PCB	[7]	System controller
[3]	AC inlet	[8]	Interface connector
[4]	Power supply	[9]	Take-up unit connector
[5]	Motor driver PCB		



F-1-26

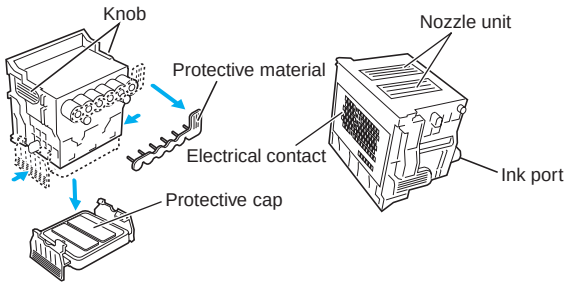
1.7.2 Other Precautions

1.7.2.1 Printhead

0009-1485

1. How to handle the printhead
Do not open the printhead package until you are ready to install the head.
When installing the printhead in the printer, hold the knob, and then remove the protective material and protective cap, in that order. Do not replace the protective cap once you have removed it from the printhead, since the cap may scratch the nozzles.
To prevent the nozzles from getting clogged with foreign matter or dried ink, install the printhead immediately after you remove the protective cap. Also make sure to press down the locking lever of the printhead until you feel a click.
In addition, to prevent clogging of the nozzles, never touch the nozzle unit or ink supply unit of the printhead, or wipe it with tissue paper or anything else. Also, be careful not to touch the electrical contact.
Never attempt to disassemble the printhead or to wash it with water.

MEMO:
If the nozzles are clogged or purging operation is poor, white horizontal lines can appear in the printed output. If the problem is not resolved by cleaning operations, replace the printhead with a new one.



F-1-27

2. Capping
The printer will perform the capping operation when printing has finished or during standby due to errors, in order to protect the printhead and avoid ink leakage.
If the power cord is accidentally unplugged, turn the power button off, reconnect the power cord, and turn the power button on to confirm that the printer starts up properly and changes to the "Online" or "Offline" state, then power off the printer using the power button.

⚠
Improper 'capping' may cause clogged printhead nozzles due to dried ink or ink leakage from the printhead.

3. When the printer is not used for a long time
Keep the printhead installed in the printer even when it is not used for an extended period of time.

⚠
If the printhead is left uninstalled, printing failure may arise from clogged nozzles due to the depositing of foreign matter or dried ink when it is reinstalled. Even if the head remains installed, the nozzle may dry out and cause printing failure if the ink is drained for transport.

4. Conductivity of ink
The ink used in this printer is electrically conductive. If ink leaks into the mechanical unit, wipe clean with a soft, well-wrung damp cloth. If ink leaks onto electrical units, wipe them completely using tissue paper. In particular, if ink penetrates beneath the IC chips on the logic board and you cannot remove it completely, replace with a new logic board.

⚠
If electrical units are powered on when ink has leaked, the units may be damaged.
Never connect the power cord when ink has leaked on the electrical units.

1.7.2.2 Ink Tank

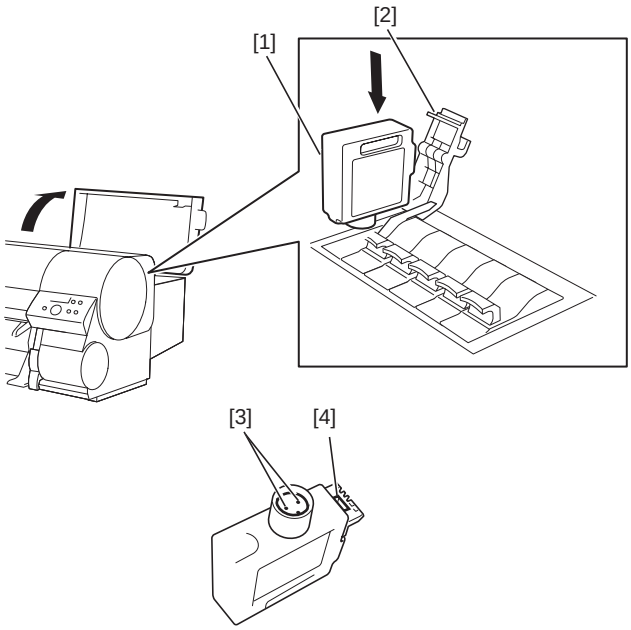
0009-1486

1. Opening the ink tank
Do not open the ink tank until ready to use.
When installing the ink tank, shake it slowly 7 to 8 times before opening the seal. Otherwise, the ink ingredients may precipitate and reduce the print quality.
To prevent foreign matter from entering the ink supply unit, install the opened Ink tank mmediately.

2. Handling the ink tank
To prevent foreign matter from entering the ink flow path and causing ink suction and printing problems, never touch the ink port or terminal section of the ink tank.
When you press down the ink tank cover, the needle enters the ink supply unit, which allows ink to flow between the printer and ink tank.
Do not raise or lower the ink tank lever, except when replacing the ink tank.

T-1-13

[1]	Ink tank	[3]	Terminal section
[2]	Ink tank cover	[4]	Ink port

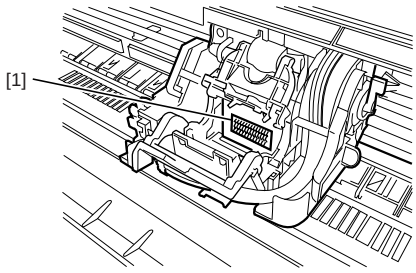


F-1-28

1.7.2.3 Handling the Printer

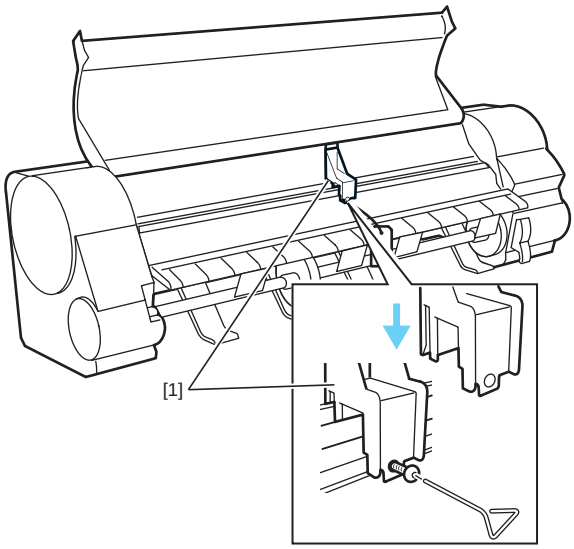
0009-1487

1. Precautions against static electricity
Certain clothing may generate static electricity, causing an electrical charge to build up on your body. Such a charge can damage electrical devices.
In particular, never touch the printhead contacts [1].



F-1-29

2. Fixing the carriage
After printing, the carriage caps the printhead and uses the lock arm inside the purge unit to apply a mechanical lock.
When transporting the printer, use belt stoppers [1] to secure the carriage at the carriage home position so that the carriage does not become separated from the lock arm. This will prevent damage and ink leakage during transportation.



F-1-30

3. Replacing the maintenance cartridge
When the maintenance cartridge detects that tank is full, the "Replace MT cartridge" error appears. In this case the maintenance cartridge must be replaced. The printer will not operate until the error is canceled.
Be careful that the waste ink does not splash when you remove the used maintenance cartridge from the printer.

MEMO:
This printer has an EEPROM in the maintenance cartridge and the maintenance cartridge status is controlled by the engine firmware which reads and writes the content of that EEPROM. Therefore, the counter information need not be initialized when the maintenance cartridge is replaced.

4. Refilling the ink
After removing the ink in the printer according to the automatic or manual ink draining procedure to disassemble, reassemble, or transport/ship the printer, refill the ink as soon as possible upon completion of those tasks.
If the ink remaining in the printer after the removal has dried up, the ink deposits on the surfaces of the components may cause damage or abnormal operation.

1.7.3 Precautions When Servicing Printer

1.7.3.1 Stored Data

0009-1488

This printer counts the printing length, number of ink tank replacements, carriage driving time, number of cleanings, and the cutter usage, and stores this information in the system controller EEPROM (IC10) and in the engine controller EEPROM (IC28) as the service mode counter.
The counter holds important information for indicating printer usage status.
You can check the printer information in the counter by printing it in service mode or displaying it on the display.
Be sure to follow the precautions below when servicing the printer.
1) Repairing or replacing the PCB
Follow the "Each Controller Replacement Procedures" when replacing the system controller and engine controller.

Reference:
For the "Each Controller Replacement Procedures," **see Disassembly/Reassembly> Points to Note on Disassembly and Reassembly> PCBs**.

2) After replacing the carriage unit
The information on the carriage driving time is generated from the carriage unit.
Initialize (clear) the carriage driving time information after replacing the carriage unit.

3) After replacing the purge unit
The information on the number of cleanings is generated from the purge unit. Initialize (clear) the number of cleanings information after replacing the purge unit.

⚠
You cannot check the counter information once it is initialized (cleared).
Be careful that you do not perform the initialization before checking the information.
Also, you cannot modify the counter information from the operation panel.

1.7.3.2 Firmware Confirmation

0009-1489

Firmware has been downloaded to each of a System Controller and Engine Controller.
When replacing each board with the one with Service Parts, confirm that each firmware is the latest version. If it is not the latest version, please update it to the latest version.

Reference:
For how to upgrade each board, please refer to **TROUBLESHOOTING> Version Up**.

1.7.3.3 Precautions Against Static Electricity

0009-1490

Certain clothing may generate static electricity, causing an electrical charge to build up on your body. Such a charge can damage electrical devices.
To prevent this, discharge any static buildup by touching a grounded metal fitting before you start disassembling the printer.

1.7.3.4 Precautions for Disassembly/Reassembly

0009-1492

The precautions for disassembly/Reassembly are described in DISASSEMBLY/REASSEMBLY.

1.7.3.5 Self-Diagnostic Feature

0009-1493

The printer has a diagnostic feature which analyzes printer problems (which may occur).
The diagnostic results will be displayed on the display and indicated by a light.
For detailed information, see ERROR CODE.

1.7.3.6 Disposing of Lithium Battery

0009-1494

Dispose of the lithium battery according to local regulations.

MEMO:
This printer has a lithium battery mounted on the engine controller. The lithium battery is not replaceable.

Chapter 2 TECHNICAL REFERENCE

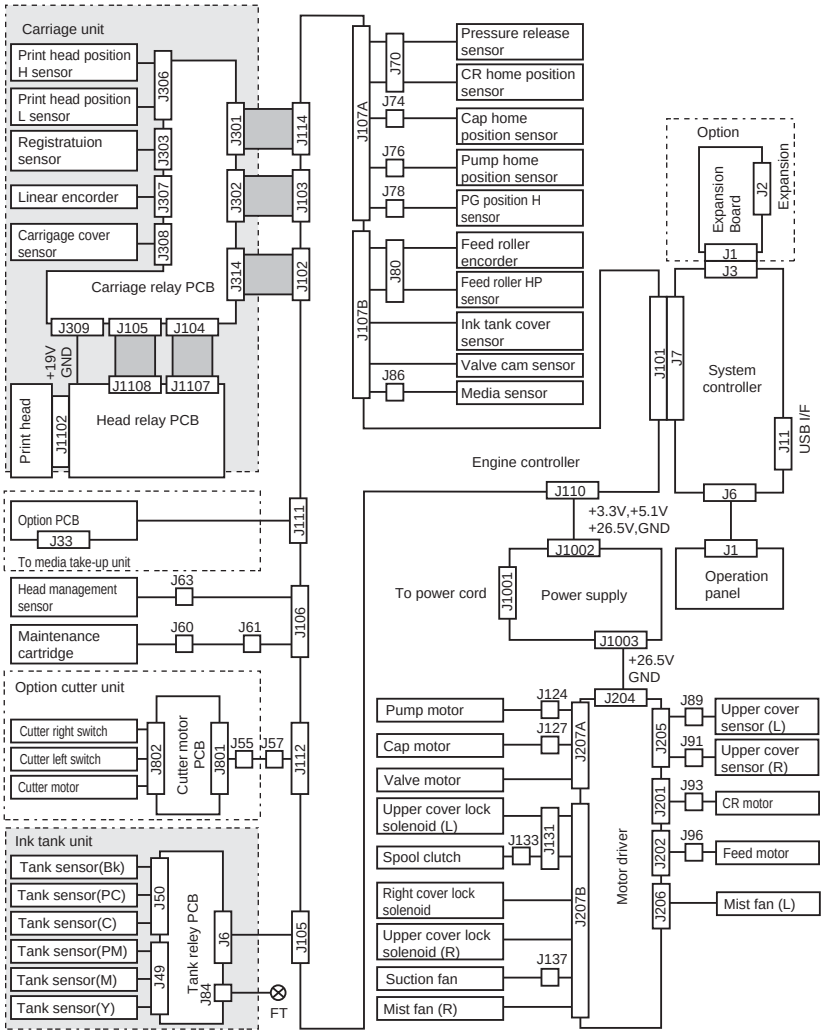
Contents

2.1 Basic Operation Outline

2.1.1 Printer Block Diagram

0009-1495

A block diagram of the printer is shown in below.

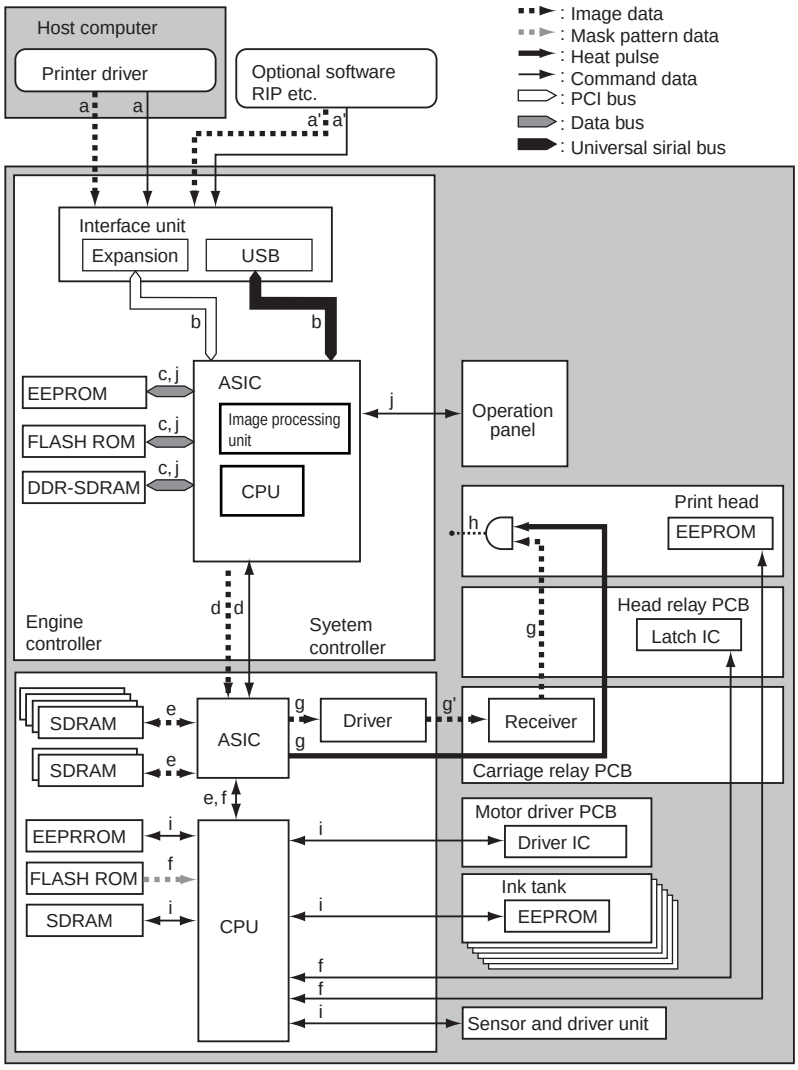


F-2-1

2.1.2 Print Signal Sequence

0009-1496

The signal sequence from when the printer receives the print signals until printing starts is shown in Figure.



F-2-2

a) The printer driver in the host PC compresses the image data, and then sends the command data and other print data to the printer.The resolution conversion, color conversion process, and six-color binary conversion process for the image data are not performed.The image process table data is used in the color conversion process, binary conversion process, and other operations of the image data to achieve a high-quality image output. This data is created and sent as command data based on the Paper Type setting specified in the printer driver.

a') An optional software RIP performs resolution conversion of the image and then sends this image data to the printer together with the command data after a color conversion process or six-color binary conversion is performed.

b) This printer receives the print data from each interface of the system controller. The received print data is sent to the ASIC.

c) The system controller expands the print data that was sent to the ASIC, and then performs resolution conversion, color conversion process, and six-color binary conversion while timely storing the data in DDR-SDRAM.

d) The ASIC in the system controller converts the print data to six-color binary image data and command data and sends the data to the ASIC in the engine controller.

e) The ASIC in the engine controller stores the received image data in the SDRAM at the optimal timing, and the data is combined with the mask data in the ASIC and output in coordination with the discharge timing. The ASIC also sends the command data from the system controller to the CPU.

f) The CPU in the engine controller obtains the mask pattern data from the FLASH ROM based on the command data, printhead information from the EEPROM in the printhead, and internal temperature from the latch IC on the head relay PCB, and sends this data to the ASIC.

g) The ASIC in the engine controller sends the image data combined with the mask pattern to the printhead as print signals while converting to data corresponding to the printhead information and internal temperature. During this operation, heat pulses are sent to the printhead for performing the optimal head driving.

g') The print signal is sent to the driver and received by the receiver.

h) The printhead convert the received print signals internally, which are in serial format, into the parallel data used by a single nozzle array, and then perform heat pulse and AND processing to carry out the printing.

i) The CPU in the engine controller manages the overall print drive operations while monitoring the status of the printer components based on the

adjustment values stored in the EEPROM.The SDRAM is used as work memory.

j) The CPU in the system controller manages the overall image processing operations while controlling key operation and message display based on the adjustment values stored in the EEPROM.The firmware is stored in the FLASH ROM.

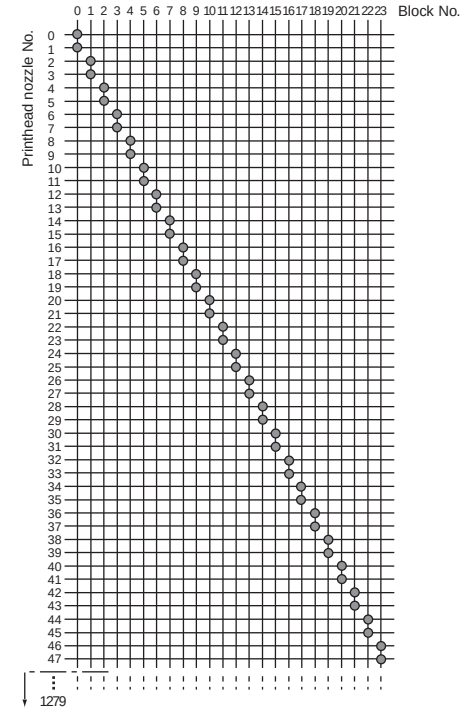
2.1.3 Print Driving

0009-1497

In this printer, the print signals and control signals pass through the carriage relay PCB and head relay PCB and are output to the printhead. This allows the printhead to perform printing operations by discharging ink from the printhead nozzles.
The printhead has six nozzle arrays (Bk, PC, C, PM, M, and Y from the left with the carriage installed).
The print signals received by each printhead include even nozzle data (E_DATA_X X=BK0, BK1, LC0, LC1, C0, C1, LM0, LM1, M0, M1, Y0, Y1) and odd nozzle data (O_DATAX X=BK0, BK1, LC0, LC1, C0, C1, LM0, LM1, M0, M1, Y0, Y1). These two data types are sent according to the timing determined by the data transfer clock (HDCLKN, HDCLKP) and data latch pulse (HDLTN, HDLTP).
The drive control signals include heat enable signals (BK_HENB, LC_HENB, C_HENB, LM_HENB, M_HENB, Y_HENB) for ejecting ink from the printhead nozzle and subheat enable signals (BK_SUBH, LC_SUBH, C_SUBH, LM_SUBH, M_SUBH, Y_SUBH) for maintaining stable ink discharge rates by raising the temperature of the head when it is lower than the optimum operating temperature.

1.Print drive control

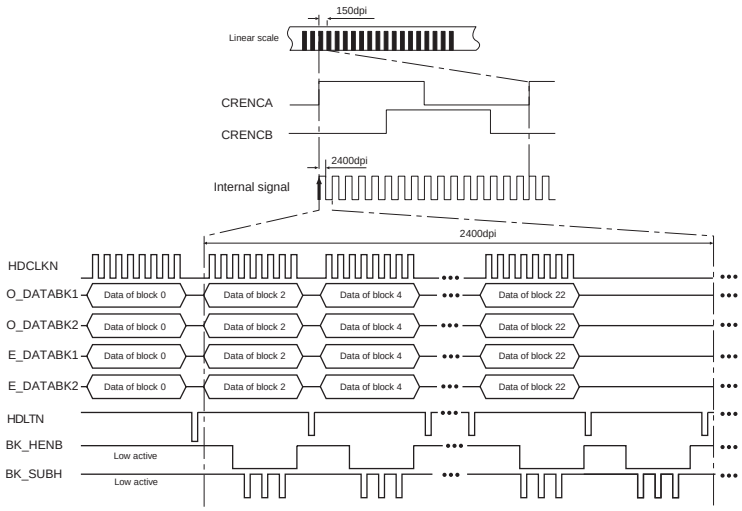
Each nozzle array on a printhead has 1280 nozzles.
The nozzles used for discharging ink are selected by the block enable information in the even nozzle data and odd nozzle data and are separated into 24 blocks. (The 1280th nozzle ends at block number 15.) There are 54 nozzles in blocks 0 to 15, and 52 nozzles in blocks 16 to 23.
In the printhead nozzles in the selected block, heat enable signals and subheat enables signals are applied to adjust the pulse width according to the head rank, head temperature, internal temperature, and other factors to ensure optimal ink discharge, and then the heat board in the printhead nozzle is driven so that ink is discharged.
The optimal nozzle block is selected based on the printing pass.



F-2-3

2. Print drive timing

Each printhead has six nozzle arrays (Bk, PC, C, PM, M, Y). These six arrays all use the data transfer clock (HDCLKN, HDCLKP) and data latch pulse (HDLTN, HDLTP) signals.
The even nozzle data (E_DATA_X X=BK0, BK1, LC0, LC1, C0, C1, LM0, LM1, M0, M1, Y0, Y1), odd nozzle data (O_DATA_X X=BK0, BK1, LC0, LC1, C0, C1, LM0, LM1, M0, M1, Y0, Y1), heat enable signals (BK_HENB, LC_HENB, C_HENB, LM_HENB, M_HENB, Y_HENB), and subheat enable signals (BK_SUBH, LC_SUBH, C_SUBH, LM_SUBH, M_SUBH, Y_SUBH) are sent to a specific array as required to control each array separately.
Printing is performed in both the carriage forward and reverse directions.
The encoder sensor installed on the carriage generates 150-dpi pitch linear scale detection signals (CRENCA) and 120"-phase shift signals (CRENCB). The carriage recognizes the movement direction by the state of the CRENCB signals with respect to the rising of the CRENCA signals.
The printhead is driven using the 2400-dpi timing signals (internal signal) that divide the CRENCA signals detected by the 150-dpi timing into 16 equal parts.
Forward printing is based on the rising of the detection signals (CRENCA).
Reverse printing is based on the falling of the detection signals (CRENCA) and is performed in the same manner as forward printing, except that the transmission order of the even nozzle data and odd nozzle data reverses the heating order of the printhead nozzles.


150dpi
Linear scale
CRENCA
CRENCB
2400dpi
Internal signal
2400dpi
HDCLKN
O_DATABK1
O_DATABK2
E_DATABK1
E_DATABK2
Data of block 0
Data of block 2
Data of block 4
Data of block 22
HDLTN
BK_HENB
Low active
BK_SUBH
Low active

F-2-4

2.2 Firmware

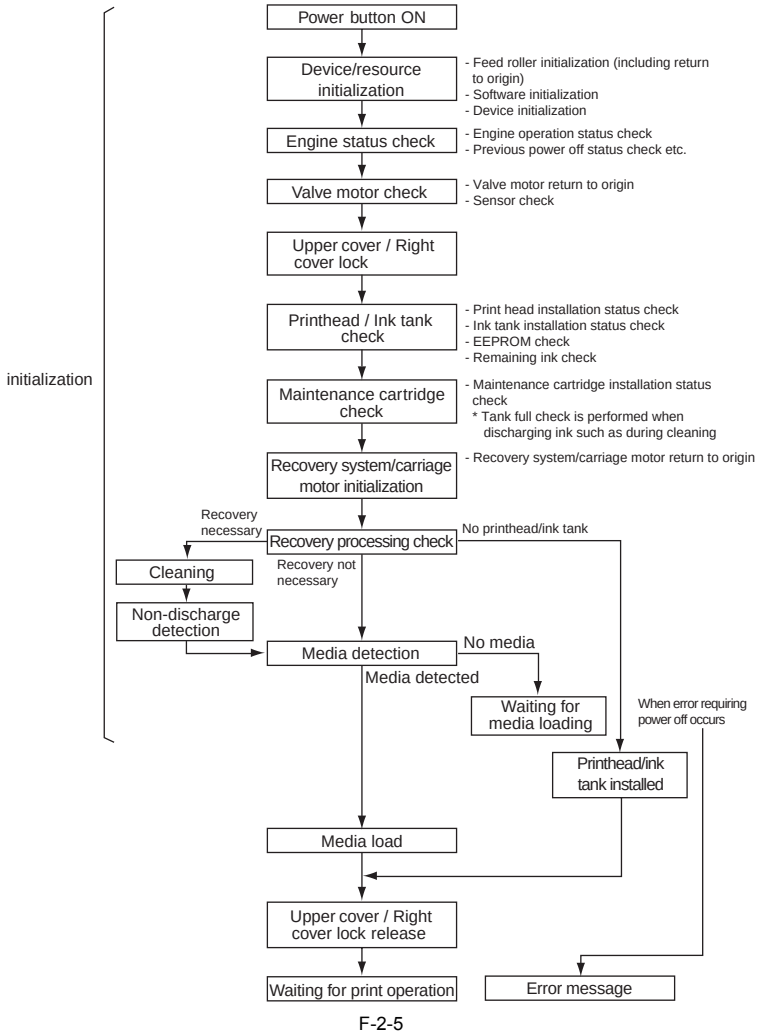
2.2.1 Power On/Off

0009-1499

1. Power On

The initialization sequence when the power is turned on and before the printer enters the online state is shown in the flow chart below. The printer requires about 2 minutes* to perform the initialization sequence.

* This does not include the time required for supplying ink and cleaning after storage for an extended period of time.



F-2-5

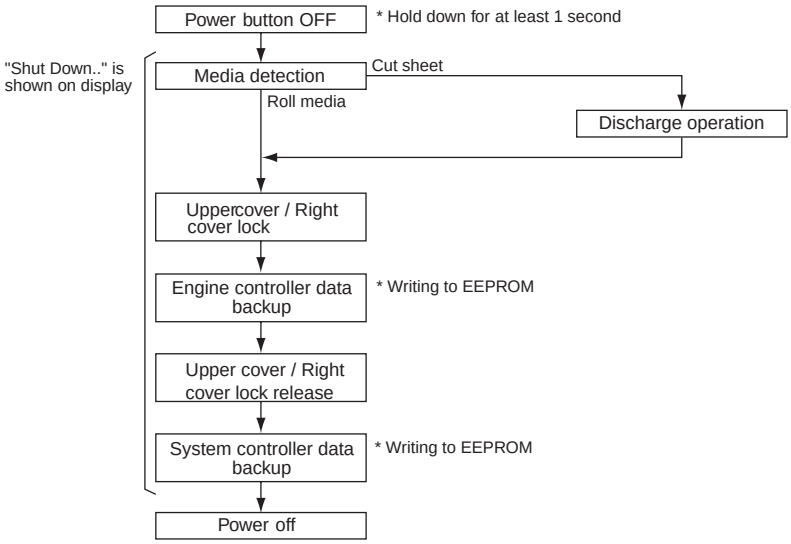
2.2.2 Power Off

0009-1500

Turning off the power cuts off the voltage to all drive systems being supplied power and starts the firmware power-off sequence.

This printer immediately suspends all operations in progress and stops whenever the power cable is unplugged, or the upper cover, right cover are opened. In this case, the printer may stop without performing the regular capping operation for the printhead. If the power was turned off by unplugging the power cable, plug the power cable into the outlet and turn the power on again so that the printer enters the online state, and then press the power button to turn off the power.

1. Power Off sequence



F-2-6

2.2.3 Print Control

0009-1501

1. Print mode

This printer is capable of fast, high-quality printing without blurring or inconsistent ink density by changing the carriage operation, sheet feeding operation, and other printing methods according to the selected paper, print quality, and print data.

Printing is performed for each color using multiple passes. This enables reduction of concentration irregularities caused by the range of discharge amounts for each nozzle, and the print timing is shifted so that the printed ink is virtually fixed before the next ink layer is applied in order to minimized bleeding. The printer supports a maximum of 16-pass printing according to the required print quality.

a) Draft mode

In the high-speed (draft) print mode, the image data is thinned out and a single band (equivalent to the width of a nozzle array) is printed in a 2-pass, 4-pass or 8-pass operation.

This mode is used by selecting the "Draft" option under Print Quality settings in the printer driver.

The printer operation in high-speed mode depends on the printer driver sheet setting. When printing in 2-pass bi-directional format, the image data is divided into two parts for each color under nozzle block control.

When printing in 4-pass bi-directional format, the mask pattern control divides the image data into two parts for each color, and then nozzle block control is used to further divide this data into two parts.

When printing in 8-pass bi-directional format, the mask pattern control divides the image data into four parts for each color, and then nozzle block control is used to further divide this data into two parts for printing.

b) Standard mode

In normal print mode, a single band (equivalent to the width of a nozzle array) is printed in 6-pass or 8-pass operation.

This mode is used by selecting the "Standard" option under Print Quality settings in the printer driver.

The printer operation in standard mode depends on the printer driver sheet setting. When printing in 6-pass bi-directional format, the image data is divided into three parts for each color under mask pattern control and then nozzle block control is used to further divide this data into two parts for printing.

When printing in 8-pass bi-directional format, the mask pattern control divides the image data into four parts for each color, and then nozzle block control is used to further divide this data into two parts for printing.

c) High mode

In high quality print mode, a single band is printed using 8-pass or 16-pass operation.

This mode is used by selecting the "High" option under Print Quality settings in the printer driver.

The printer operation in high-speed mode depends on the printer driver sheet setting. When printing in 8-pass bi-directional format, the image data is divided into four parts for each color under mask pattern control and then nozzle block control is used to further divide this data into two parts for printing.

When printing in 16-pass bi-directional format, the mask pattern control divides the image data into eight parts for each color, and then nozzle block control is used to further divide this data into two parts for printing.

d) Highest mode

In super-high quality print mode, a single band is printed using an 16-pass operation.

This mode is used by selecting the "Highest" Fine option under Print Quality settings in the printer driver.

The mask pattern control divides the image data into eight parts for each color, and then nozzle block control is used to divide this data into two parts for 16-pass bi-directional printing.

Print modes

T-2-1

Mode	Print resolution (dpi)	Processing resolution (ppi)*	Print pass	Print direction	Media type
Draft	1200x1200	300	2	Bi-directional	Plain paper, Plain paper (High Quality)
	1200x1200	300	4	Bi-directional	Newspaper Proofing Paper, Coated Paper, Heavy Coated Paper, Extra Heavy Coated Paper, Color Coated Paper, Plain paper (CAD), Tracing paper (CAD)
	1200x1200	300	8	Bi-directional	Fine Art (Photo), Fine Art (Photo HW), Fine Art (Textured), Canvas (Semi-Glossy)
Standard	1200x1200	300	6	Bi-directional	Plain paper, Plain paper (High Quality), Coated Paper, Heavy Coated Paper, Extra Heavy Coated Paper, Color Coated Paper, Newspaper Proofing Paper 1, Newspaper Proofing Paper 2, Newspaper Proofing Paper 3
	1200x1200	600	6	Bi-directional	Plain paper (CAD), Tracing paper (CAD), Translucent Matte Film (CAD), CAD clear film
	1200x1200	300	8	Bi-directional	Photo Glossy Paper, Photo Semi-Glossy Paper, Photo Glossy Paper (HW), Photo Semi-Glossy Paper (HW), Japanese Paper, Proofing Paper 2, Synthetic Paper, Adhesive Synthetic Paper, Flame-Resistant Cloth, Cloth
	2400x1200	600	8	Bi-directional	Fine Art (Photo), Fine Art (Photo HW), Fine Art (Textured), Canvas (Semi-Glossy), Vanvas Matte, Back Light Film
High	2400x1200	600	8	Bi-directional	Photo Glossy Paper, Photo Semi-Glossy Paper, Photo Glossy Paper (HW), Photo Semi-Glossy Paper (HW), Proofing Paper 2, Coated Paper, Heavy Coated Paper, Extra Heavy Coated Paper, Tracing paper (CAD), Translucent Matte Film (CAD), CAD clear film
	2400x1200	600	16	Bi-directional	Fine Art (Photo), Fine Art (Photo HW), Fine Art (Textured), Canvas (Semi-Glossy), Japanese Paper, Synthetic Paper, Adhesive Synthetic Paper, Back Light Film Flame-Resistant Cloth, Cloth
Highest	2400x1200	600	16	Bi-directional	Photo Glossy Paper, Photo Semi-Glossy Paper, Photo Glossy Paper (HW), Photo Semi-Glossy Paper (HW)

* Resolution of the data inputted from the driver

2.2.4 Print position adjustment

0009-1502

This printer incorporates a print position adjustment function for automatic or manual adjustment of the vertical/horizontal positions, bidirectional printing position, and sheet feeding rate of the printhead installed on the carriage.

The printhead adjustment cannot proceed if the loaded roll paper or cut sheets are not at least A3 size or larger.

2.2.5 Head Management

0009-8545

This printer has a head management function to detect any non-discharging nozzle. When a non-discharging nozzle is detected, the printer performs the printhead cleaning operations. Also, changing the mask pattern used for printing automatically allows non-discharging nozzles to be backed up by other nozzles. If the non-discharging nozzles cannot be backed up, a "Check Printhead" message is displayed.

Detection timing:

- Power On
- When starting print operations after printing every 10 sheets. *1
- When the head is replaced (when carriage cover is detected)

*1: Can be changed by selecting "System Setup" > "Nozzle Check" from the Main Menu.

MEMO:

If the "Check Printhead" message is displayed, select "Head Cleaning A or B" from the Main Menu. Replace the printhead with a new one if performing a head cleaning does not eliminate this error.

2.2.6 Overheating Protection Control of Printhead

0009-1503

This printer is provided with an overheating protection control function that detects abnormally high temperatures in the printhead.
The printhead can overheat, for instance, when the printing process continues for some time with no ink supplied to the printhead nozzles. The overheating protection control function prevents a printhead nozzle from becoming permanently clogged or damaged due to excessive heat.
The overheating protection control process is based on the detected temperature of the head temperature sensors in each nozzle array. If overheating is detected in a single nozzle array, control is performed in one of the two stages below according to the temperature.

Protection level 1:

If the head temperature sensor detects a temperature above 80 deg C (*1), the printer allows the carriage to continue in the direction of its scanning pass and then stops it at the scan end position. The wait control is activated to allow the heat to dissipate.
Printing resumes when the temperature drops below 80 deg C (*2).
*1 When using MBk ink, when the Bk nozzle head temperature sensor detects temperature of 70 deg C or higher.
*2 When using MBk ink, when the Bk nozzle head temperature sensor detects temperature below 70 deg C.

Protection level 2:

If the head temperature sensor detects a temperature above 120 deg C, the printer immediately stops the printing operation, and the carriage returns to the home position where capping is performed. An error message is shown on the display.

2.2.7 Pause between Pages

0009-1504

To prevent ink blots from forming, this printer discharges printed pages so that they hang down from the platen and dry and is provided with a Pause between Pages function for discharging sheets after a specified wait time. The wait time depends on the sheet type with default set to 0 to 3 minutes. This function can also be set from the Main Menu or with the printer driver and is particularly useful for film-type and other sheets that need extra time to dry.

2.2.8 White Raster Skip

0009-1505

To improve the printing throughput, this printer incorporates a White Raster Skip function for skipping the carriage scan operation for continuous blank segments of print data.

2.2.9 Sleep Mode

0009-1506

This printer has a Sleep mode for reducing the standby power.
The printer automatically enters Sleep mode (Power Save mode) when there are no user operations and no print data has been received for a preset period of time in the Online or Offline mode. The printer wakes from Sleep mode whenever the user performs any key operations on operation manual or print data is received from the host computer.
The time until the printer enters Sleep mode can be changed from the operation panel.

2.3 Printer Mechanical System

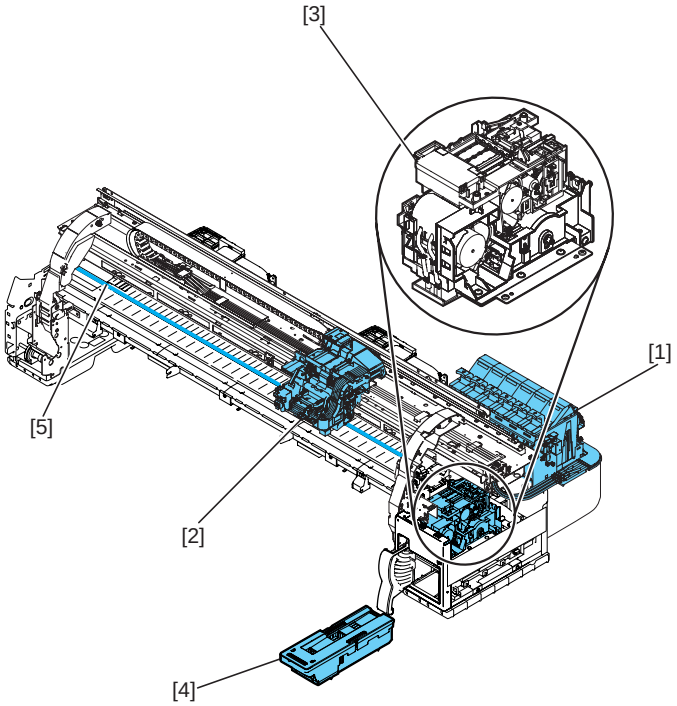
2.3.1 Outline

2.3.1.1 Outline

0009-1508

The printer mechanical system can be roughly divided into two major components: the ink passage and paper path.
The ink passage consists of ink tank unit[1] and a carriage unit[2] where printhead are installed, purge unit[3], and maintenance cartridge[4] and performs the supply, circulation, and suction/removal of ink.
The paper path is comprised of the paper feeder[5] and performs two types of paper feeding, transport, and discharge of media.

This section presents an overview of the components of the mechanical system.



F-2-7

2.3.2 Ink Passage

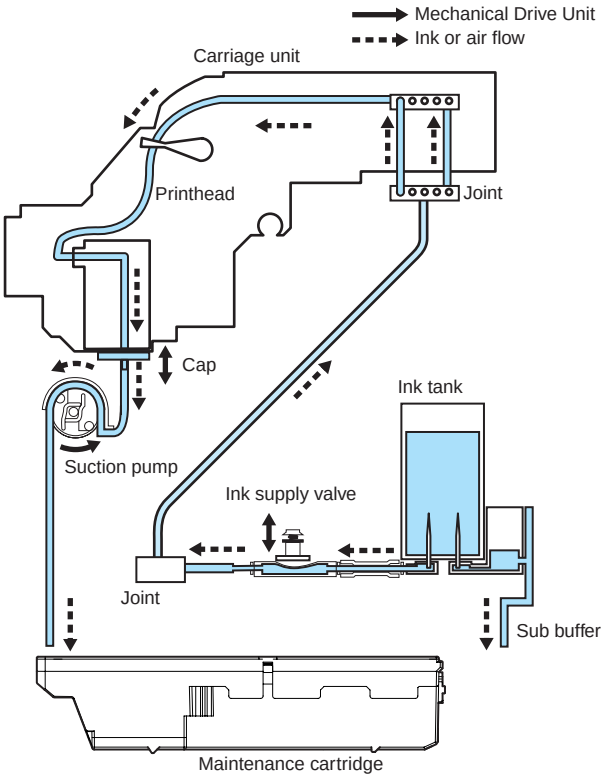
2.3.2.1 Ink Passage

2.3.2.1.1 Overview of the ink passage

0009-1509

The ink passage consists of the ink tanks, printhead, caps, maintenance jet tray, maintenance cartridge, ink tubes for connecting the mechanical components, and ink suction pump that is activated when ink is removed. These components are used to perform the supply, circulation, and suction/removal of ink.

A schematic diagram of the ink passage (for one color) and the ink flow are shown in the figure below.



F-2-8

a) Ink supply from ink tank to ink supply valve
The ink tank contains ink which is supplied to the printhead.
Ink flows from the ink tank to the ink supply valve due to the fluid level difference.

b) Ink inflow from ink tank to sub buffer
Although ink flows from the ink tank to the sub buffer due to the fluid level difference, air also enters from the air passage of the sub buffer to maintain the pressure inside the ink tank at a fixed level. If the ink inside the sub buffer exceeds a certain level, the ink passes through the air passage and flows to the maintenance cartridge.

c) Ink supply from ink supply valve to printhead
Ink is supplied from the ink tank to the printhead by opening the ink supply valve, capping the heads, and then driving the suction pump. The ink removed from the caps flows to the maintenance cartridge.

d) Ink supply during printing
During the printing operation, ink is constantly filling the printhead from the ink tank due to the negative pressure applied to the printhead nozzle by the opening of the ink supply valve and discharging of the print ink.
Waste ink removed by the cleaning operation and waste ink in the maintenance jet tray flows to the maintenance cartridge.

If all of the ink passages are opened (ink tank is not installed, ink supply valve is opened, and printhead lock lever is opened) when ink fills the ink tube, the ink in the ink tube may reverse-flow due to the difference in the water head, and ink may leak from the ink supply needle. Therefore, do not open all of the ink passages at the same time when the ink tube is filled with ink.

2.3.2.2 Ink Tank Unit

2.3.2.2.1 Structure of ink tank unit

0009-1510

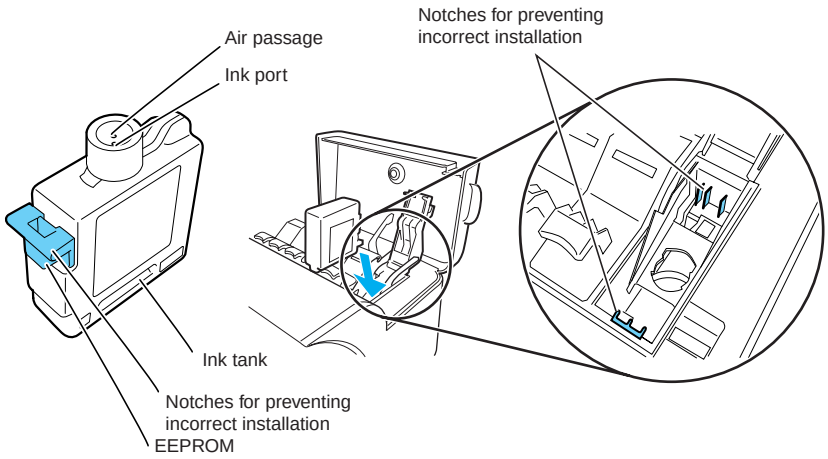
a) Ink tank
The ink tanks contain ink (approx. 330 ml) for each color.
The amount of ink is stored in the EEPROM mounted on the ink tank.
The remaining ink level in the ink tank is detected using a dot count based on the EEPROM information.
When the electrodes mounted to the hollow needle detect that there is no electrical current, a message appears on the display indicating that the ink is nearly empty. If the dot count reaches the prescribed value from this state, the ink tank is considered to be empty.

b) Ink port
The hollow needle enters the ink port (covered by a rubber plug) when the ink tank lever of the printer is pressed down to the ink tank fixing position, and this establishes an ink passage between the printer and ink tank.

c) Air passage
The open hollow needle enters the air passage (covered by a rubber plug) when the ink tank lever of the printer is pressed down to the ink tank fixing

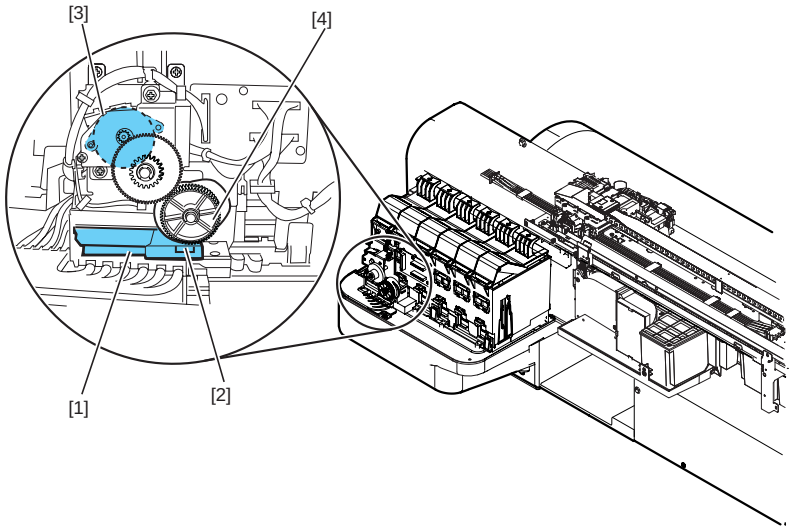
position, and the internal pressure of the ink tank is opened so that the internal pressure is maintained at a fixed level.

d) Notches for preventing incorrect installation
The ink tanks have notches for preventing incorrect installation. The wrong ink tanks cannot be inserted and set because of these notches.
The ink tank lever can be lowered only when the ink tank has been installed in the set position, and the ink supply will not start unless the ink tank lever is lowered.



F-2-9

e) Ink supply valve
The ink supply valve is located between the ink tank and ink tube. This valve presents ink leakage from occurring when the ink tube on the ink tank side is opened during replacement of the ink tank.
An ink supply valve has two kinds, all colors [1] and a black [2].
The ink supply valve is opened and closed by the valve cam [4], which turns based on the power of the valve motor [3]. A separate ink supply valve is provided for black ink to allow the ink tank to be changed between Black and Matte Black.



F-2-10

2.3.2.3 Carriage Unit

2.3.2.3.1 Carriage functions

0009-1511

a) Printhead mounting
The carriage mechanically locks the printhead and connects them to the terminals on the head relay PCB.

b) Control
A carriage relay PCB and encoder are installed on the carriage. The carriage relay PCB communicates the drive signal of the printhead, and the encoder detects the carriage position and generates print timing signals. The carriage relay PCB is connected to the engine controller by flexible cable.

c) Carriage drive
The carriage belt moves the carriage back and forth on the platen. The carriage belt is driven by the power from the carriage motor.

d) Printhead maintenance
This printer has a cleaning function that performs wiping and suction of the printhead when the carriage is stopped at the carriage homeposition.

e) Media thickness adjustment

The gap between the bottom face of the printhead and the media surface can be adjusted according to the media thickness. Although the print quality is higher when the gap is narrow, ink blots may form on the print surface due to contact of the media with the printhead face, or the printhead nozzles may be damaged. In this printer, the user can use the printhead height adjustment lever to select the gap width according to the media thickness (3 positions).

f) Paper width/skew detection
A registration sensor is installed at the bottom left of the carriage for detecting the paper width and skewing of the paper on the platen.

g) Internal temperature detection
Thermistors installed in the printhead relay PCBs are used to detect the internal temperature in the vicinity of the printhead.

h) Auto printhead position adjustment
The adjustment pattern print result is read with the registration sensor installed at bottom left of the carriage to automatically adjust the printhead position.

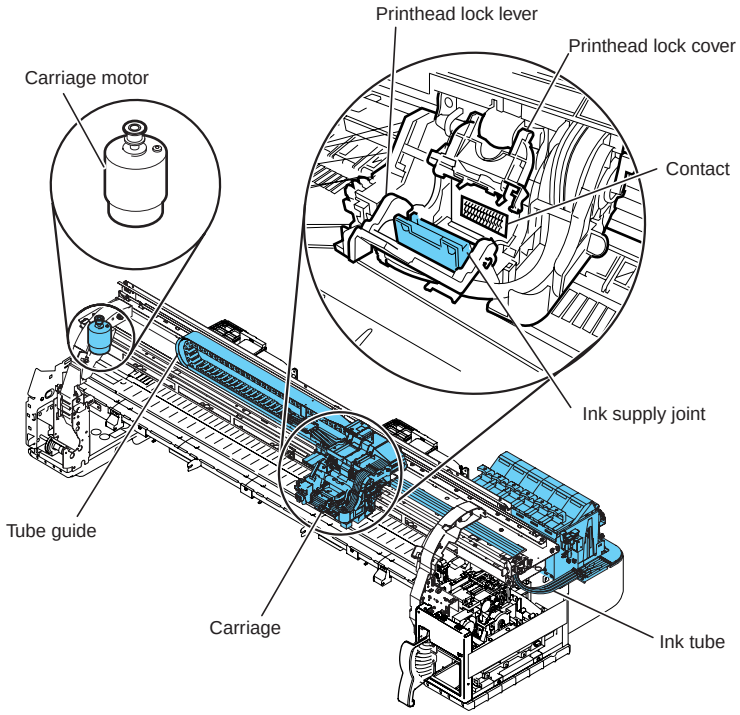
i) Roll media remaining detection
This printer prints a barcode when the roll media is removed and can detect the amount of remaining roll media with the registration sensor installed at the bottom left of the carriage.

2.3.2.3.2 Structure of carriage

0009-1512

a) Printhead mounting unit
The printhead are mounted to the carriage by the printhead lock cover and printhead lock lever. When the printhead are fixed to the carriage, the signal contact point of the head relay PCB contacts the signal contact point of the printhead, and this results in the transmission of print signals. Also, the ink passage from the ink tank passes through the ink tube and connects to the printhead.

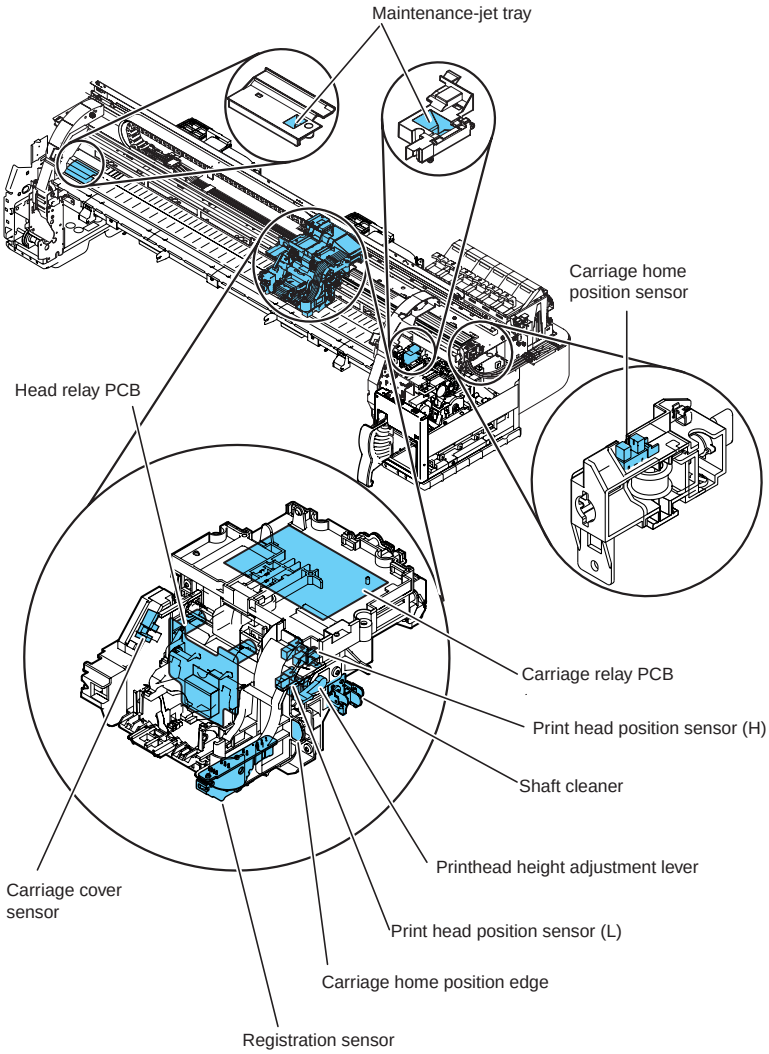
b) Ink port
Ink passes through the ink tube and is supplied to the printhead.
The ink tubes run through the joints and the tube guide and as they move in coordination with the carriage.



F-2-11

c) Control unit
The carriage relay PCBs are connected to the head relay PCBs by short flexible cables. The flexible cable between the engine controller and carriage relay PCB moves in coordination with the carriage together with the tube guide.
A photocoupler-type encoder is mounted at the bottom of the rear of the carriage for reading the linear scale during carriage movement.

d) Carriage drive unit
Mechanical misalignment of the installed printhead in the vertical/horizontal direction and in bidirectional printing can be corrected by using the "Adjust Printer" command in the Main Menu to shift the print timing.
The carriage belt, which is driven by the power from the DC motor-type carriage motor, moves the carriage in the sheet horizontal direction.
The carriage home position which is the capping position is detected by the sensor plug (printhead height adjustment lever) on the right side of the carriage and the photo interrupter-type carriage home position/head height sensor on the main body right-side plate. The position on the linear scale that corresponds to the detected carriage homeposition is recorded as the homeposition, and this position is set as the reference point for position control. The carriage motor is then driven and controlled using the control signals generated by the engine controller.



F-2-12

e) Printhead maintenance unit
The printer performs cleaning operations of the printhead at the carriage homeposition.
In the wiping operation, the printhead installed in the carriage are wiped as the purge motor rotates when the carriage is stopped at the carriage homeposition. The maintenance jets are the carriage passes through the maintenance jet tray, located on the right side of the platen, while the carriage is moving forward. The suction operation is performed using the suction cap of the purge unit.

f) Gap adjustment unit
The printhead height adjustment lever located on the right side of the carriage works in coordination with the height adjustment cam. The height adjustment rollers located at the bottom-right edge of the carriage front are moved up and down by this mechanism, and this moves the head holder position up or down to change the gap between the face of the printhead and the media. Detection of the vertical height of a print head height adjustment lever is performed by print head position H sensor H/L.

g) Registration sensor unit
The resistration sensor at left bottom of the carriage consists of two LEDs and receiver sensor.

h) Rail cleaner unit
The rail cleaner at far right of the carriage is used to prevent contamination of the rail.

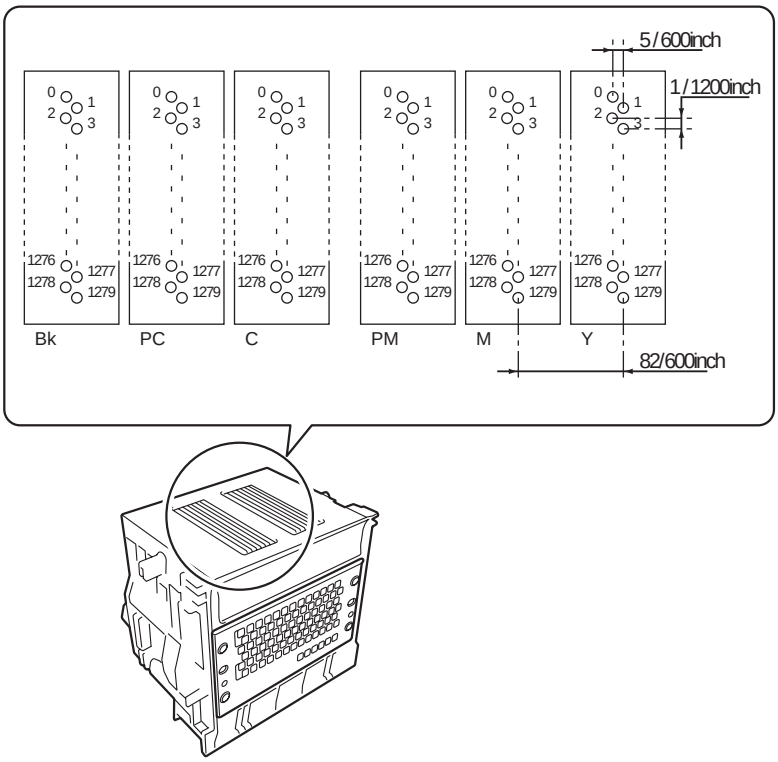
i) Internal temperature detection
A thermistor for measuring the internal temperature is installed on the head relay PCB on the rear of the head holder.

2.3.2.4 Printhead

2.3.2.4.1 Structure of printhead

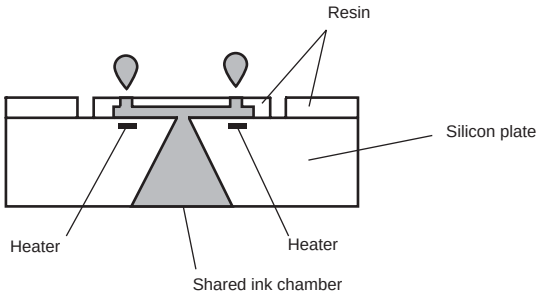
0009-1513

A printhead has six nozzle arrays. Each nozzle can be controlled individually so that a six-color discharge action is performed by a single printhead.
a) Nozzle arrays
Each nozzle array provides 1280 nozzles arranged in a two-column staggered pattern. Each column is comprised of 640 nozzles separated by an interval of 1/600inch and is arranged in a staggered pattern to form 1280 nozzles separated by an interval of 1/1200 inch.



F-2-13

b) Nozzle structure
Ink is supplied from the ink tank, passes through by a mesh ink filter, and is sent to the nozzles.
Ink is supplied from the shared ink chamber to the nozzles. When the head driving current is applied to the nozzle heater, this causes the ink to boil and form bubbles so that ink droplets are discharged from the nozzles.



F-2-14

2.3.2.5 Purge Unit

2.3.2.5.1 Functions of purge unit

0009-1514

To maintain high print quality, the purge unit performs maintenance of the nozzles in the printhead.
The functions of the purge unit include capping, cleaning, and ink supply.

a) Capping
Capping prevents nozzle drying and dust adhesion by pressing the cap of the purge unit to the face plate on the nozzle section of the printhead.
Capping is performed when printing is completed, at the start of the suction operation, and when switching to the standby state due to an error.
The capping operation also connects the ink passage between the printhead and purge unit.

b) Cleaning
Cleaning includes a wiping operation for removing paper fibers and dried ink deposits adhering to the nozzle face plates of the printhead, a suction operation for removing ink from the nozzles and drawing new ink to refresh the nozzles, and a maintenance jet operation where ink is sprayed from the nozzles to the cap or maintenance jet tray to remove bubbles in the nozzles and dust and other foreign particles near the nozzles. The combination of these three maintenance operations improves nozzle discharge performance.

Details of the cleaning function are shown in the table below.

T-2-2

Cleaning Mode	Name	Cleaning Description
Cleaning 1	Normal cleaning (Head Cleaning A)	Removes ink adhered due to nozzle drying, ink accumulated on the face, and paper particles.
Cleaning 2	Ink level adjustment cleaning	Adjusts the ink level in the head by suction and then performs normal cleaning.
Cleaning 3	Initial filling cleaning	Fills the ink when there is no ink in the tube (during initial installation) and then performs normal cleaning.
Cleaning 4	Ink extraction during head replacement	Extracts the ink to replace the head. (Extracts only ink in the head.)
Cleaning 5	Ink extraction during secondary transport	Extract the ink in the head and tube for secondary transport.
Cleaning 6	Normal (strong) cleaning (Head Cleaning B)	Performs suction stronger than when adjusting the ink filling amount in the head or normal cleaning in order to clear clogged nozzles.
Cleaning 7	Bk aging	Performs Bk aging when ink is changed after head replacement and then performs normal cleaning. (Bk only)
Cleaning 8	-	-
Cleaning 9	-	-
Cleaning 10	Ink filling during secondary transport	Fills the ink when there is no ink in the tube (during installation after secondary transport) and then performs normal cleaning.
Cleaning 11	Sub-buffer ink extraction	Extracts the ink in sub-buffer in order to change ink from Bk to MBk or MBk to Bk.
Cleaning 12	Ink change (ink replacement)	Replaces the ink from Bk to MBk or from MBk to Bk.
Cleaning 13	-	-
Cleaning 14	-	-
Cleaning 15	Y dot count suction	Performs suction to remove Y ink adhered due to nozzle drying/Y ink accumulated on face when the Y dot count reaches a prescribed value or every 20 sheets.

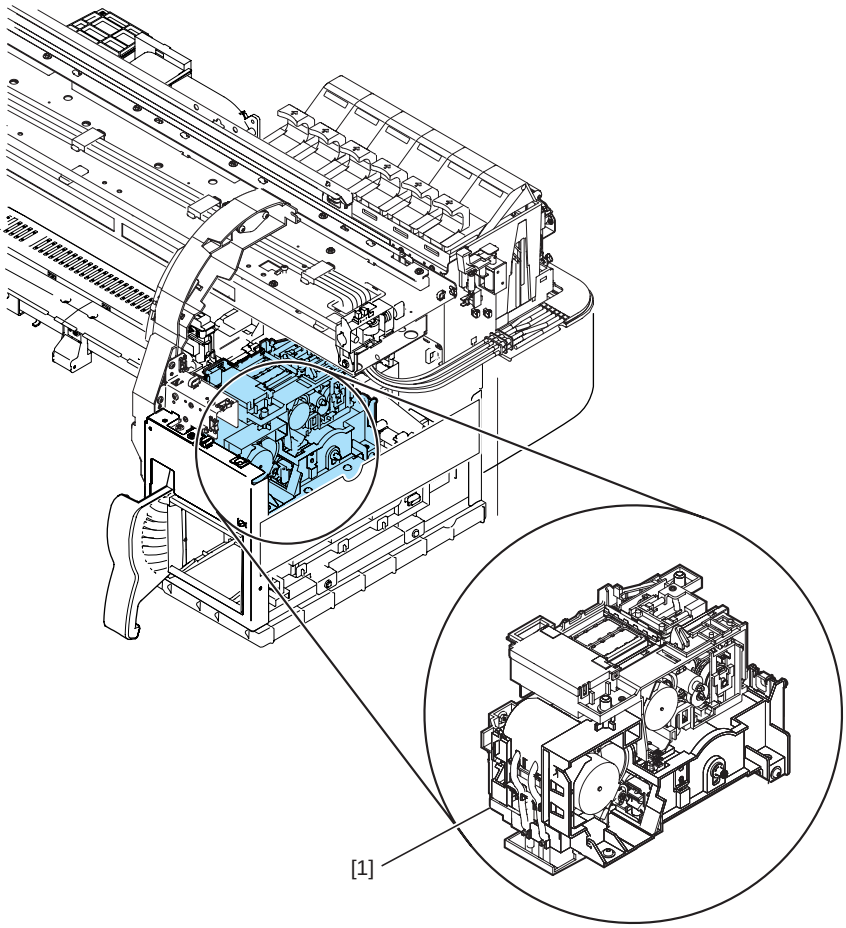
Details of the cleaning function are shown in the table below.
*1: Ink consumption amount for each nozzle array.
*2: If the power is not turned on within 360 hours, perform cleaning 2 because the unattended timer stops.
*3: When the power button was not pressed and capping could not be performed, such as during a power outage or when the power cable is unplugged.

T-2-3

Printer Status		Cleaning Description	Consumption (reference)*1
At power on	Initial installation	Cleaning 3 (initial filling cleaning)	Approx. 35g
	When the power is turned ON at least 1440 hours but less than 2160 hours have elapsed since the previous ink level adjustment suction or initial filling suction. *2	Cleaning 2 (ink level adjustment cleaning)	Approx. 11g
	When the power is turned ON at least 2160 hours have elapsed since the previous ink level adjustment suction or initial filling suction. *2	Cleaning 3 (initial filling cleaning)	Approx. 35g
	Power ON within 72 hours after printing ends abnormally *3	Cleaning 1 (normal cleaning)	Approx. 1g
	Power ON when 72 hours have elapsed since printing ends abnormally *3	Cleaning 6 (normal (strong) cleaning)	Approx. 6g
Before printing	Before printing within 48 hours since previous print end	Wiping and maintenance jet (Y/M/PM: 2000 shots C/PC: 1400 shots Bk: 700 shots)	Approx. 0.06g
	Before printing after at least 48 hours but less than 96 hours since the previous end of printing	Cleaning 15 (Y dot count suction)	Approx. 0.3g
	Before printing after at least 96 hours since the previous end of printing	Cleaning 1 (normal cleaning)	Approx. 1g
	When prescribed amount of ink is discharged after previous ink level adjustment suction.	Cleaning 6 (normal (strong) cleaning)	Approx. 6g
	When at least 1440 hours but less than 2160 hours have elapsed since the previous ink level adjustment suction.	Cleaning 2 (ink level adjustment cleaning)	Approx. 11g
	At least 2160 hours have elapsed since the previous ink level adjustment suction	Cleaning 3 (initial filling cleaning)	Approx. 35g
	When an error occurs before printing	Cleaning 1 (normal cleaning)	Approx. 1g

Printer Status		Cleaning Description	Consumption (reference)*1
During printing	Scan interval during printing	Maintenance jet	Bk 1 nozzle Bk/M/Y 26 shots other 10 shots Bk 1 nozzle 26 shots
After printing ends	When printing ends	Wiping + maintenance edge	Approx. 0.02g
When "Head Cleaning" menu is selected	Manual cleaning (Head Cleaning A)	Cleaning 1 (normal cleaning)	Approx. 1g
	Manual cleaning (Head Cleaning B)	Cleaning 6 (normal (strong) cleaning)	Approx. 6g
When "Replace P.head" menu is selected	After printhead replacement	Cleaning 2 (ink level adjustment cleaning) + Cleaning 4 (ink extraction during head replacement)	Bk approx 24g MBk approx 18g
When "Move Printer" menu is selected	When Move Printer is selected from the Main Menu	Cleaning 5 (ink extraction during secondary transport)	Approx. 38g
	After power ON at secondary installation	Cleaning 10 (ink filling after secondary transport)	Approx. 37 to 105g
When "Change Bk Ink Type" menu is selected	When Ink Change Menu is selected (before ink replacement)	Cleaning 11 (sub-buffer ink extraction)	Approx. 10g
	When Ink Change Menu is selected (after ink replacement)	Cleaning 12 (ink change)	Approx. 10g

c) Ink supply
The suction pump of the purge unit [1] operates in coordination with the ink supply valve to deliver the ink in the ink tank to the printhead during the initial refilling and ink level adjustment.



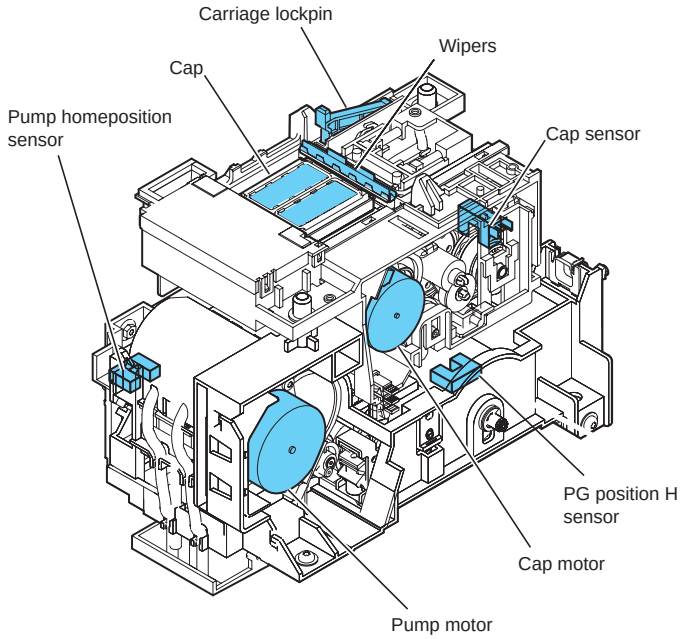
F-2-15

2.3.2.5.2 Structure of purge unit

0009-1515

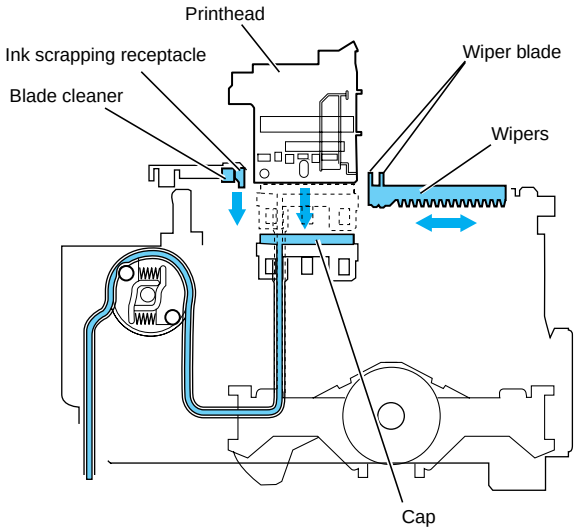
a) Caps
The caps are used to cap the nozzle arrays on the printhead during the capping and cleaning operations. The rubber section of the cap touches the face plate of the nozzle array. Each printhead (six nozzle arrays) installed in the carriage has two caps.

The caps are activated during the capping operation and are used to protect the nozzle arrays. The caps are raised by the cap cams operated by the cap motor to cover the arrays when the carriage has moved to the homeposition.
Capping is also performed during the cleaning operation, and the suction pump is then used to remove ink from the printhead.



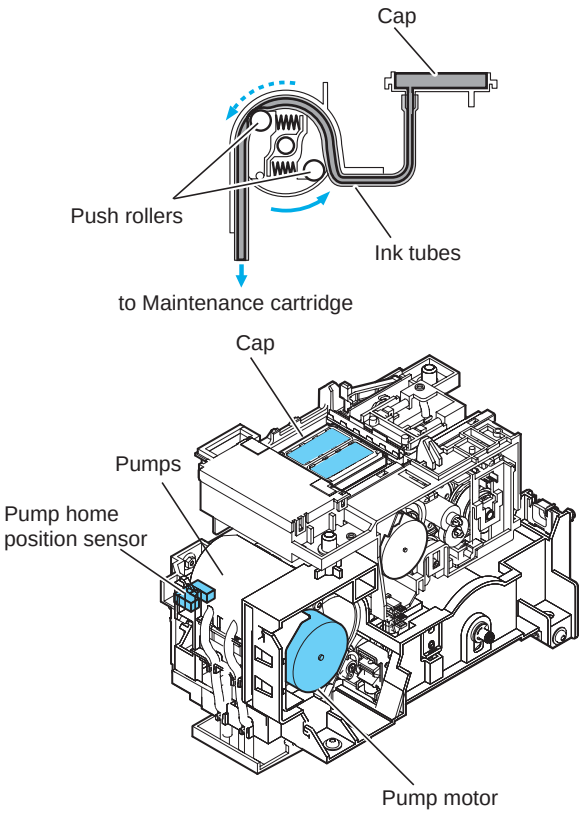
F-2-16

b) Wipers
The wipers are operated by the purge motor and perform the wiping of six nozzle arrays simultaneously of the printhead. One pairs of wiper blades are used to provide improved wiping performance. The wiping operation is performed in a "slide wipe" style where the wiper blades slide based on the forward rotation of the purge motor. This action is performed after the printing or suction operations using a constant-speed movement in the front direction as viewed from the printer front.
The wiper cam raises the wiper unit to the wiping position. The wiper blade, which is positioned perpendicular to the printhead, wipes the entire face plate of the printhead, and then the narrow blade is used to wipe the nozzle array.
After wiping, the wiper blades are cleaned before they are set at the wiping position so that maximum wiping performance can be maintained.
In the wiper blade cleaning, ink that was wiped from the head section is rubbed off by an ink scrapping receptacle connected to the maintenance cartridge, and then the blades are wiped off with a blade cleaner.



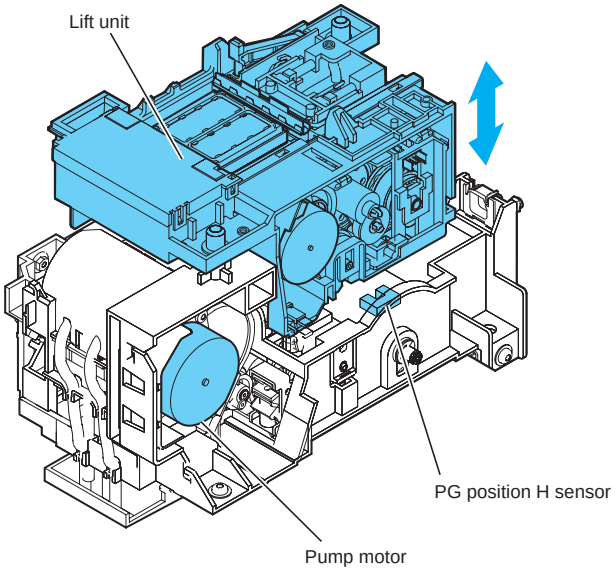
F-2-17

c) Pumps
In this printer, tube pumps press on the ink tubes using push rollers to produce negative pressure and enable suction of the ink. Two rollers are used to press a single tube one after the other to allow flexible control over the ink suction volume.
The rotation timing of the push rollers in the suction pump is detected by the pump home position sensor, and the rotation speed is controlled by the driving of the pump motor (stepping motor).



F-2-18

d) Lift unit
The lift unit raises the cap and wiper units by reverse rotation of the pump motor when the carriage returns to the home position for capping, wiping, and cleaning. Also, during scan, the lift unit is kept lowered to enable back and forth movement of the carriage on the purge unit. The up/down movement timing is detected by the PG position H sensor and the rotation is controlled by the pump motor (stepping motor).



F-2-19

d) Sensors
Sensors are located in the purge unit for detecting the status of the printer components.
For more information, see **Technical Reference > Detection Functions Based Sensors**.

2.3.2.6 Maintenance Cartridge

2.3.2.6.1 Maintenance cartridge

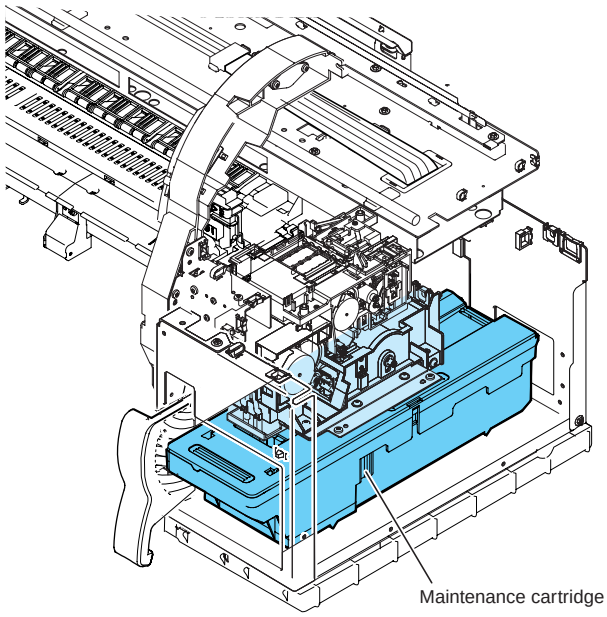
0009-1516

a) Maintenance cartridge
The maintenance cartridge can hold up to approximately 1200 ml (approx. 1200g) of waste ink (including moisture evaporation in the waste ink).

b) Detection of waste ink in maintenance cartridge
The quantity of the waste ink in the maintenance cartridge is measured by counting dots.
When about 960 ml (about 960 g) of waste ink has been collected in the maintenance cartridge, a warning message "MTCart Full Soon" appears to indicate that the maintenance cartridge is nearly full.
Printing can be continued even if the warning message appears.
When about 1200 ml (about 1200 g) of waste ink has been collected in the maintenance cartridge, an error message "Replace MT-Cart." appears to indicate that the maintenance cartridge is full.
When the printer judges the maintenance cartridge as being full of waste ink, it stops printing immediately.
The printer will not operate unless the maintenance cartridge is replaced with a new one.

MEMO:
- This printer has an EEPROM in the maintenance cartridge and the maintenance cartridge status is controlled by the engine firmware which reads and writes the content of that EEPROM. Therefore, the counter information need not be initialized when the maintenance cartridge is replaced.
- The ink discharge rate from the ink tubes and subbuffer resulting from execution of the Move Printer command in the Main menu is counted during the initial filling suction.

Ink discharge rate occurring from "Move Printer" menu: Approx. 38 g per color
- A maximum of 300 pages can be printed (A1 size, 18% duty for each color) from the moment the warning message appears to the moment the error message appears.



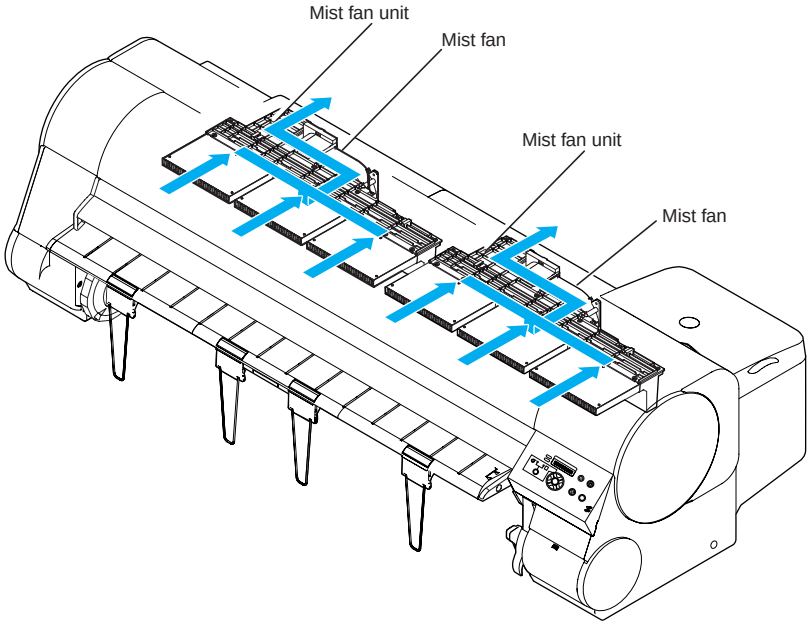
F-2-20

2.3.2.7 Air Flow

2.3.2.7.1 Air flow

0009-1519

Ink mist that floats inside the printer or splashes from the paper during printing is collected by the air flow inside the printer into the mist fan unit.
The mist fans at the rear of the printer create an air current that carries the ink mist to the mist fan unit.



F-2-21

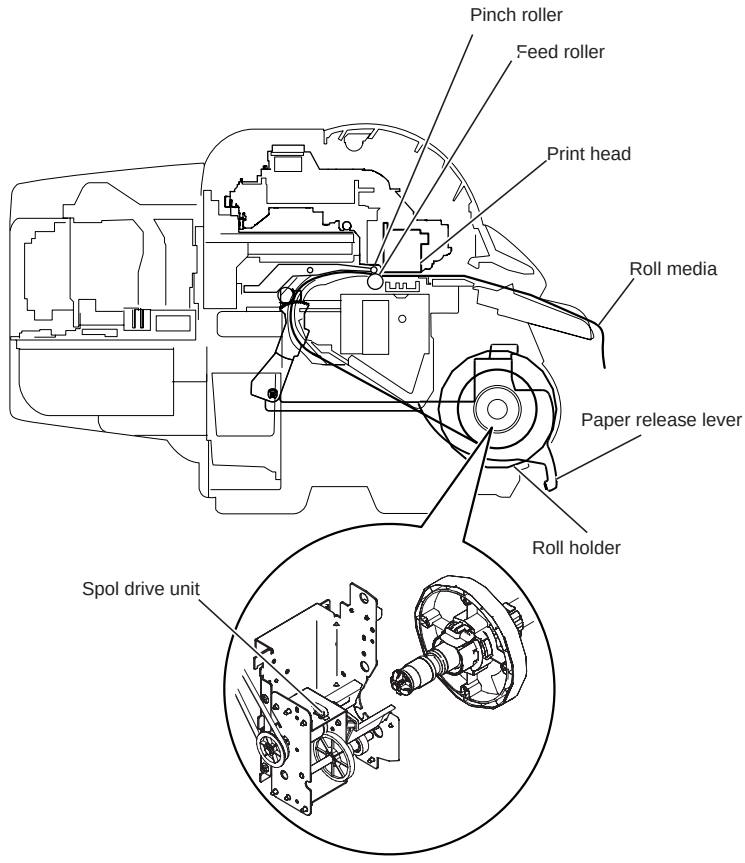
2.3.3 Paper Path

2.3.3.1 Outline

2.3.3.1.1 Overview of paper path

0009-1521

The paper path includes the following components: feed rollers, pinch roller drive unit for pressing and releasing the pinch rollers, and sensors for detecting the media feeding status. The paper path performs manual feeding, transport, and delivery for the roll media and cut sheets.



F-2-22

2.3.3.1.2 Roll media feeding

0009-9374

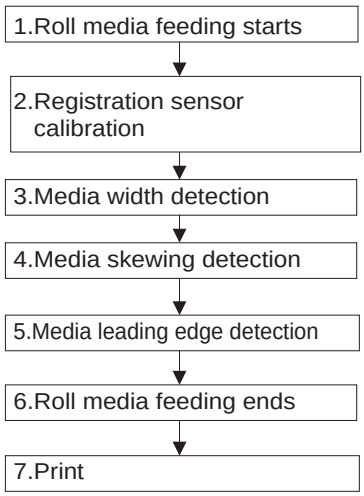
Roll media feeding is performed mainly when the power is turned on or when the media is replaced. When replacing the roll media, pre-feeding is performed (to assist the user when pulling the roll media on the platen) to load the roll media when setting the media. Also, when replacing the media, since the roll media may have a barcode pattern containing media information at the leading edge of the media, the barcode pattern is read and then cut after loading the media if the settigs to cut is ON.

<1.Roll media feeding when the power is on>

The load command is executed when the printer power is turned on while the roll media is set.

After calibrating the registration sensor, media width detection, skewing detection, and media leading edge detection are performed and then the roll media is stopped at the print standby position.

The roll media is then fed by a length equivalent to the margin of the leading edge, and printing is started. Feeding of the roll media during printing is performed by controlling the rotation of the feed rollers according to the printing mode.



F-2-23

1.Roll media feeding starts

2.Registration sensor calibration

1) Feed 133mm forward from the media set position.
2) Drive the carriage and move the registration sensor over the media.
3) Determine sensor output and check the registration sensor input value over the media.
4) Drive the carriage and move the registration sensor over the platen
5) Check the sensor input value over the platen.
6) Determine the sheet edge threshold.
7) Retract the head from the media (to prevent head wear).
8) Feed the media 133mm backward.

3.Media width detection

1) Feed 133mm forward from the media set position.
2) Drive the carriage and move the registration sensor over the media.
3) Drive the carriage and detect the media left edge (momentarily stop carriage return movement when detected).
4) Drive the carriage and move the registration sensor to position over the media.
5) Drive the carriage and tentatively detect the media right edge (momentarily stop carriage forward movement when detected).
6) Drive the carriage and move the registration sensor to media right edge detection start position (30mm inside the media right edge tentative detection position: on media).
7) Drive the carriage and detect the media right edge (momentarily stop carriage forward movement when detected).

4.Media skewing detection

1) Feed 300mm forward from the media set position.
2) Drive the carriage and move the registration sensor to media right edge detection start position.
3) Drive the carriage and detect the media right edge (stop carriage return movement when detected), compare with media right edge determined during media width detection, and determine the skew amount (skew amount depends on the detection precision).

5.Media leading edge detection

1) Feed 300mm forward from the media set position.
2) Drive the carriage and move the registration sensor 30mm in the forward direction from the media left edge (10mm in the forward direction when in cutting dust reduction mode).
3) Feed the media backward and detect temporary the leading edge of the media (stop feeding when detected).
4) Drive the carriage and move the registration sensor 30mm in the forward direction from the media left edge (10mm in the forward direction when in cutting dust reduction mode).
5) Feed the media 50mm forward.
6) Feed the media backward and detect the leading edge of the media (stop feeding when detected).

6.Roll media feeding ends

1) Print standby position

7.Print

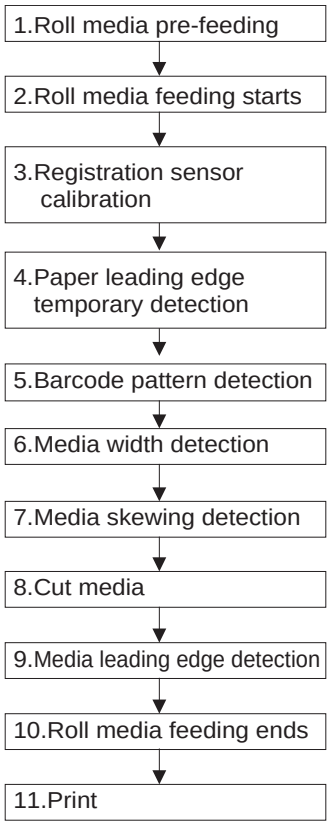
<2.Roll media feeding during media replacement>

When replacing the media, the user adjusts the skew of the roll media on the platen and then presses a key on the control panel to feed the media.

When replacing the media, barcode data is always scanned before feeding because a barcode pattern (media information) may be printed on the leading edge of the media.

If media information is detected after barcode data scanning, the leading edge of the media is cut.

After calibrating the registration sensor, media end temporary detection, barcode pattern detection, media width detection, skewing detection, media cutting, and media leading edge detection are performed and then the roll media is stopped at the print standby position.



F-2-24

1.Roll media pre-feeding
1) Media is moved 33 mm forward 2 seconds after the media sensor status changes from no media to media present during standby with pinch roller closed.
2) The media is moved 77 mm forward after waiting 2 more seconds (then the user is prompted to reset the media)

2.Roll media feeding starts

3.Registration sensor calibration
1) Feed 133mm forward from the media set position.
2) Drive the carriage and move the registration sensor over the media.
3) Determine sensor output and check the registration sensor input value over the media.
4) Drive the carriage and move the registration sensor over the platen
5) Check the sensor input value over the platen.
6) Determine the sheet edge threshold.

4.Paper leading edge temporary detection
Performed to accurately detect the barcode standard pattern printed on the leading edge of the media.
1) Drive the carriage and move the registration sensor over the media.
2) Drive the carriage and detect the media left edge (momentarily stop carriage return movement when detected).
3) Drive the carriage and move the registration sensor over the media.
4) Drive the carriage and tentatively detect the media right edge (momentarily stop carriage forward movement when detected).
5) Drive the carriage and move the registration sensor to media right edge detection start position (30mm inside the media right edge tentative detection position: on media).
6) Drive the carriage and detect the media right edge (momentarily stop carriage forward movement when detected).
7) Drive the carriage and move the registration sensor 10mm in the forward direction from the media right edge.
8) Feed the media backward and detect the leading edge of the media (stop feeding when detected).
9) Drive the carriage and move the registration sensor 30mm in the forward direction from the media left edge (10mm in the forward direction when in cutting dust reduction mode).
10) Feed the media 50mm forward.
11) Feed the media backward and detect the leading edge of the media (stop feeding when detected).

5.Barcode pattern detection
1) Drive the carriage and feed roller and move to barcode reference pattern detection position.
2) Drive the carriage and detect the barcode reference pattern.
3) Drive the carriage and feed roller and move to barcode data pattern detection position.
4) Drive the carriage and detect the barcode data pattern.
5) Move the carriage to home position, drive the feed roller, and feed so that the media leading edge is 58mm* from the center of the pinch roller.
* When minimum print cut length is set to 50mm (the feed length above depends on the media type setting).

6.Paper width detection
1) Retract the head from the media (to prevent head wear).
2) Feed 133mm forward from the media set position.
3) Drive the carriage and move the registration sensor over the media.
4) Drive the carriage and detect the media left edge (momentarily stop carriage return movement when detected).
5) Drive the carriage and move the registration sensor over the media.
6) Drive the carriage and tentatively detect the media right edge (momentarily stop carriage forward movement when detected).
7) Drive the carriage and move the registration sensor to media right edge detection start position (30mm inside the media right edge tentative detection position: on media).
8) Drive the carriage and detect the media right edge (momentarily stop carriage forward movement when detected).

7.Media skewing detection
1) Feed the media 300mm forward.
2) Drive the carriage and move the registration sensor to media right edge detection start position.
3) Drive the carriage and detect the media right edge (stop carriage return movement when detected), compare with media right edge determined during media width detection, and determine the skew amount (skew amount depends on the detection precision).

8.Cut media
1) Retract the head from the media (to prevent head wear).
2) Feed the media 367mm backward (342mm if mounted the option cutter unit).
3) The carriage is pushed against the wall opposite the home position and the cutter is dropped in the cutter groove.
4) Drive the carriage in the home position direction, cut the media, and store the cutter.
5) Feed the media 390mm forward (355mm if mounted the option cutter unit).
6) Feed the media 443mm forward (468mm if mounted the option cutter unit).

9.Media leading edge detection
1) Drive the carriage and move the registration sensor 30mm in the forward direction from the media left edge (10mm in the forward direction when in cutting dust reduction mode).
2) Feed the media 50mm forward.
3) Feed the media backward and detect the leading edge of the media (stop feeding when detected).

10.End roll media feeding
Print standby position

11.Print

<3. Cutter OFF sequence>
If the cutter is turned OFF when feeding the roll media (cutter not used or flat-blade cut disabled), the position where the media should be cut is set as the leading edge of the media and roll media feeding is completed.

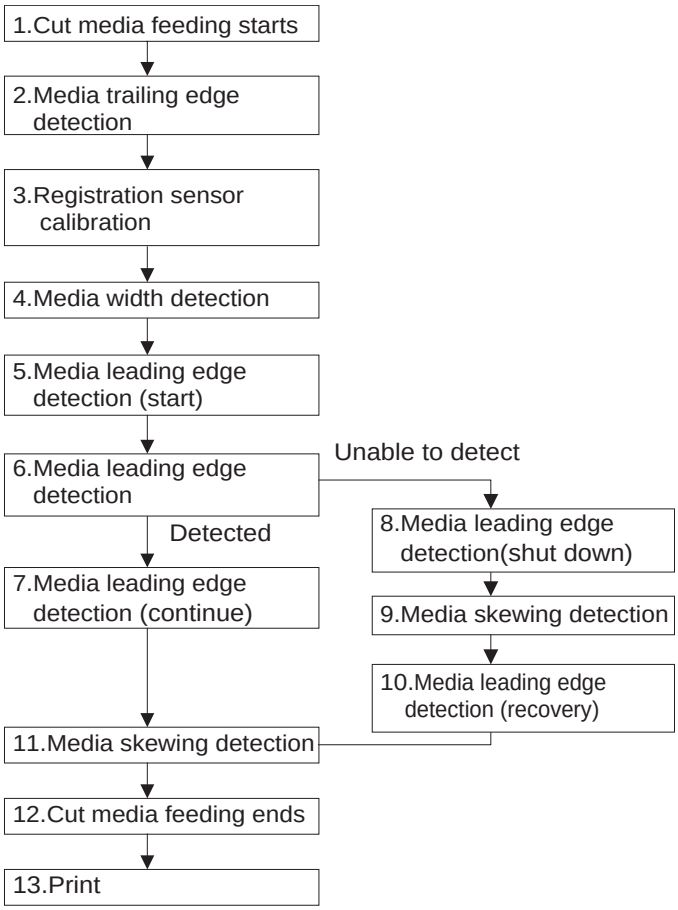
<4. Skew detection sequence>
The user can change the skew error detection amount from the control panel. If skew detection precision OFF is selected, no skew detection is performed during the roll media feed sequence.

2.3.3.1.3 Cut media feeding

0009-9375

Cut sheet feeding is performed mainly when skew detection is on and when skew detection is off. For media feeding when skew detection is on, media width detection is performed at the trailing end of the cut media. For media feeding when skew detection is off, media width detection is performed at the leading end of the cut sheet without performing skew detection.

<1.Cut sheet feeding when skew detection is on>
Cut sheets that are loaded on the platen are transported by the feed rollers.
When cut sheets are loaded with the cut sheet option selected, the upper cover is closed by returning the media release lever, and then the sheet type is set, the feed motor turns forward and the media sensor detects the trailing edge of the cut sheets loaded on the platen.
After calibrating the registration sensor in this state, media width detection, media leading edge detection, and skewing detection are performed and then the cut sheet is stopped at the print standby position.
The cut sheets are then fed by a length equivalent to the margin of the leading edge, and printing is started. Feeding of the cut sheets during printing is performed by controlling the rotation of the feed rollers according to the printing mode.



F-2-25

1.Cut media feeding starts
2.Media trailing edge detection
1) Feed the media forward and tentatively detect the media trailing edge with the media sensor (temporarily stop feeding when detected).
2) Feed the media backward and detect the media trailing edge with the media sensor (stop feeding when detected).
3.Registration sensor calibration
1) Move the registration sensor over the media.
2) Determine sensor output and check the registration sensor input value over the media.
3) Drive the carriage and move the registration sensor over the media.
4) Check the sensor input value over the platen.
5) Determine the sheet edge threshold.This is performed each time the media is loaded since the sensor input value varies depending on the media type.
4.Media width detection
1) Drive the carriage and move the registration sensor over the media to detect the media left edge.
2) Drive the carriage and detect the media left edge (momentarily stop carriage return movement when detected).
3) Drive the carriage and move the registration sensor over the media.
4) Detect tentatively the media right edge (temporarily stop return movement of the carriage when detected).
5) Drive the carriage and move the registration sensor to media right edge detection start position (30mm inside the media right edge tentative detection position: on media).
6) Drive the carriage and detect the media right edge (momentarily stop carriage forward movement when detected).
5.Media leading edge detection (start)
1) Drive the carriage and move the registration sensor 30mm in the forward direction from the media right edge.
2) Feed 300mm forward from the media set position.
6.Media leading edge detection
1) Drive the carriage and move the registration sensor 30mm in the forward direction from the media left edge.
2) Feed 50mm forward from the media set position.
3) Feed the media backward and detect the leading edge of the media (stop feeding when detected).
7.Media leading edge detection (continue)
1) Drive the carriage and move the registration sensor 30mm in the forward direction from the media left edge.
2) Feed 50mm forward from the media set position.
3) Feed the media backward and detect the leading edge of the media (stop feeding when detected).
8.Media leading edge detection(shut down)
9.Media skewing detection
1) Drive the carriage and detect the media right edge (stop carriage forward movement when detected).
2) Compare with media right edge determined during media width detection, and determine the skew amount (skew amount depends on the detection precision).
10.Media leading edge detection (recovery)
1) Move the media sensor to the leading edge detection interrupt position.
2) Feed the media backward and tentatively detect the media leading edge (stop feeding when detected).

3) Drive the carriage and move the registration sensor 30mm in the forward direction from the media left edge.
4) Feed the media 50mm forward.
5) Feed the media backward and detect the leading edge of the media (stop feeding when detected).

11.Media skewing detection

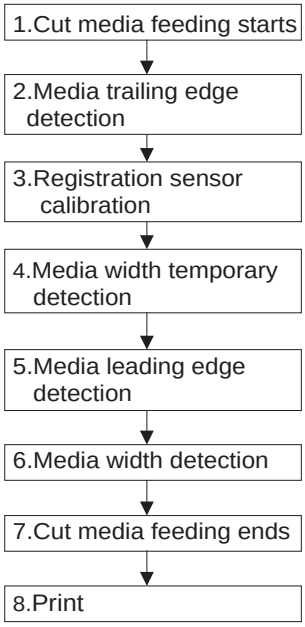
1) Feed the media 500mm forward.
2) Drive the carriage and move the registration sensor to media right edge detection start position.
3) Drive the carriage and detect the media right edge (stop carriage forward movement when detected).
4) Compare with media right edge determined during media width detection, and determine the skew amount (skew amount depends on the detection precision).

12.Cut media feeding ends

13.Print

<2.Cut sheet feeding when skew detection is off>

When skew detection is off, media width detection which is performed at the trailing edge of the media is performed simply to determine the position for the next media leading edge detection and the actual media width used for printing is detected at the trailing edge of the media after media leading edge detection.
Cut sheets that are loaded on the platen are transported by the feed rollers.
When cut sheets are loaded with the cut sheet option selected, the upper cover is closed by returning the media release lever, and then the sheet type is set, the feed motor turns forward and the media sensor detects the trailing edge of the cut sheets loaded on the platen.
After calibrating the registration sensor in this state, media leading edge detection and media width detection are performed and then the cut sheet is stopped at the print standby position.
The cut sheets are then fed by a length equivalent to the margin of the leading edge, and printing is started. Feeding of the cut sheets during printing is performed by controlling the rotation of the feed rollers according to the printing mode.



F-2-26

1.Cut media feeding starts

2.Media trailing edge detection

1) Feed the media forward and tentatively detect the media trailing edge with the media sensor (temporarily stop feeding when detected).
2) Feed the media backward and detect the media trailing edge with the media sensor (stop feeding when detected).

3.Registration sensor calibration

1) Move the registration sensor over the media.
2) Determine the sensor output and check the sensor input value over the media checked.
3) Move the registration sensor over the platen.
4) Check the sensor input value over the platen.
5) Determine the sheet edge threshold. This is performed each time the media is loaded since the sensor input value varies depending on the media type.

4.Media width detection

1) Drive the carriage and move the registration sensor over the media to detect the media left edge.
2) Drive the carriage and detect the media left edge (momentarily stop carriage return movement when detected).
3) Drive the carriage and move the registration sensor over the media.
4) Detect tentatively the media right edge (temporarily stop return movement of the carriage when detected).
5) Drive the carriage and move the registration sensor to media right edge detection start position (30mm inside the media right edge tentative detection position: on media).
6) Drive the carriage and detect the media right edge (momentarily stop carriage forward movement when detected).

5.Media leading edge detection

1) Drive the carriage and move the registration sensor 30mm in the forward direction from the media left edge (10mm in the forward direction when in cutting dust reduction mode).
2) Feed the media backward and detect temporary the leading edge of the media (stop feeding when detected).
3) Drive the carriage and move the registration sensor 30mm in the forward direction from the media left edge (10mm in the forward direction when in cutting dust reduction mode).
4) Feed the media 50mm forward.
5) Feed the media backward and detect the leading edge of the media (stop feeding when detected).

6.Media width detection

1) Feed 85mm forward from the media set position.
2) Drive the carriage and move the registration sensor over the media to detect the media left edge.

3) Drive the carriage and detect the media left edge (momentarily stop carriage return movement when detected).
4) Drive the carriage and move the registration sensor over the media.
5) Detect tentatively the media right edge (temporarily stop return movement of the carriage when detected).
6) Drive the carriage and move the registration sensor to media right edge detection start position (30mm inside the media right edge tentative detection position: on media).
7.End cut media feeding
8.Print

2.3.3.1.4 Media delivery

0009-9376

If the cutter is enabled when using roll media, the media is fed to the cut position after printing and cut using the cutter. Then, the roll media on the platen is fed by approximately 100 mm, and the cut roll media is pushed out. The discharged sheet is stacked on the stacker with the printed side faced down.
The roll media on the platen returns to the print standby position.
For continuous banner printing with roll media, the printer pauses without cutting the paper and performs maintenance operations such as print head cleaning.
The printed cut sheet stops on the platen, and a message is displayed when printing is finished.

MEMO:

When offline, press the [V] key to discharge the media and the [^] key to rewind the media.

2.3.3.2 Paper Path

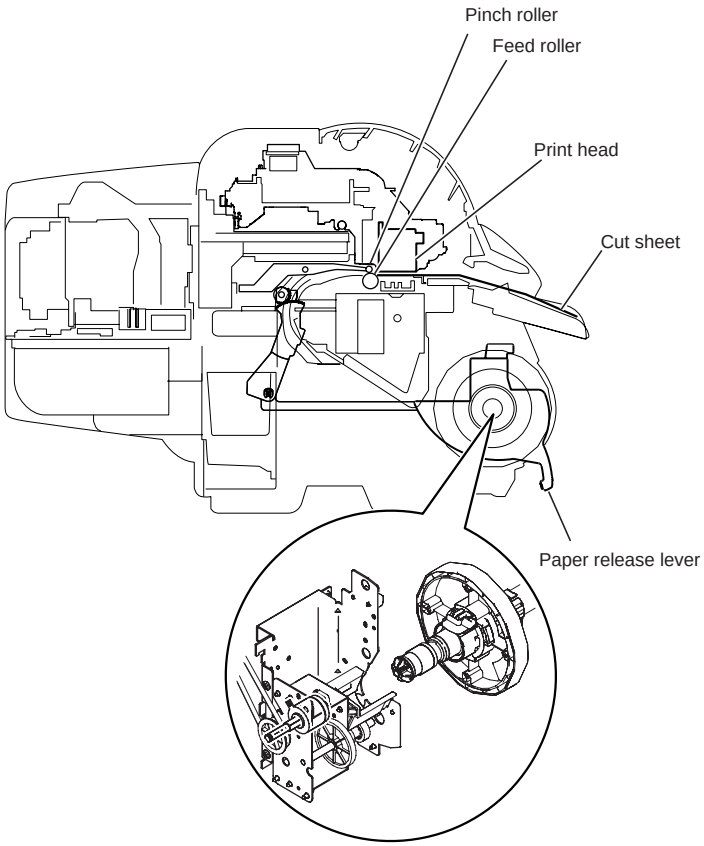
2.3.3.2.1 Structure of feed rollers

0009-1522

a) Feed roller unit
The feed roller unit consists of media feeding mechanisms, including feed rollers driven by the feed motor and the pinch roller unit operating in conjunction with the feed rollers.
To ensure that no waves form on the media, the paper remains flat as it passes over the platen so that it is carried horizontally as it passes under the printhead of the carriage.

b) Detection unit
The paper feed unit includes sensors for monitoring the media feeding status and sensors for monitoring the status of the component parts of the paper path. For more information, see Technical Reference > Detection Functions Based Sensors.

c) Roll media spool unit
The paper feed unit has a roll media spool drive unit to prevent the media from sagging when feeding. The spool drive unit rewinds the roll media when the spool clutch is activated.
The spool clutch is activated only when the roll media is fed backward during feeding. The drive force is conveyed from the feed motor and winds the media by rotating the roll holder. The spool clutch is deactivated when feeding forward.



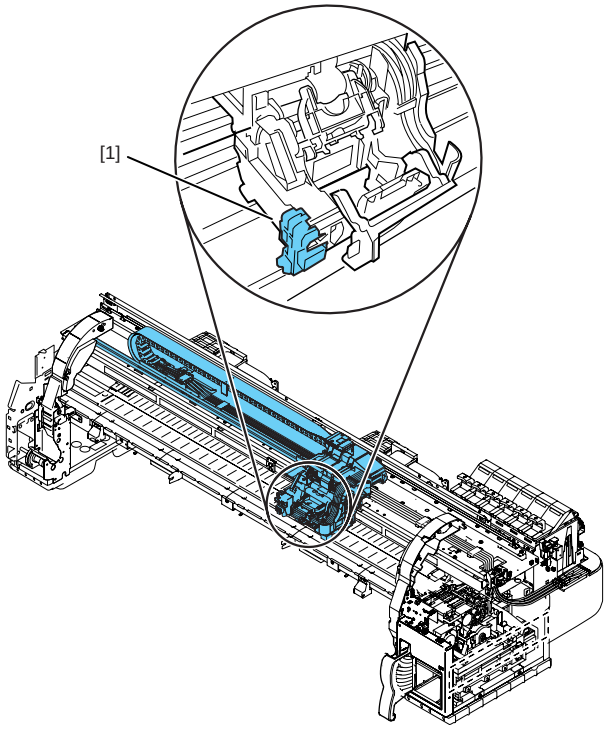
F-2-27

2.3.3.3 Cutter Unit

2.3.3.3.1 Structure of cutter unit

0009-1523

a) Sheet cutter
When "Autocut: Yes" is selected in the Printer Driver, the cutter unit mounted on the left side of the carriage automatically cuts the roll media. However, the roll media is not cut if it is suppressed by the Printer driver.

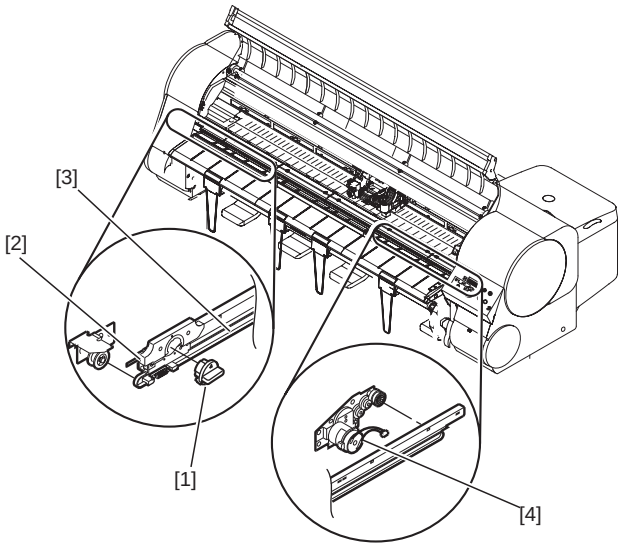


F-2-28

2.3.3.3.2 Structure of cutter unit (Option cutter unit)

0010-1819

a) Sheet cutter
When "Autocut: Yes" is selected in the Main Menu, the cutter blade [1] mounted on the left side of the printer automatically cuts the roll media. Except when cutting roll media, the cutter unit [2] is in standby at the cutter home position at the printer left side.
Once the roll media is fed to the cut position, the cutter motor [4] is driven so that the driving belt [3] moves the cutter unit from the left to the right, and then the roll media is cut.



F-2-29

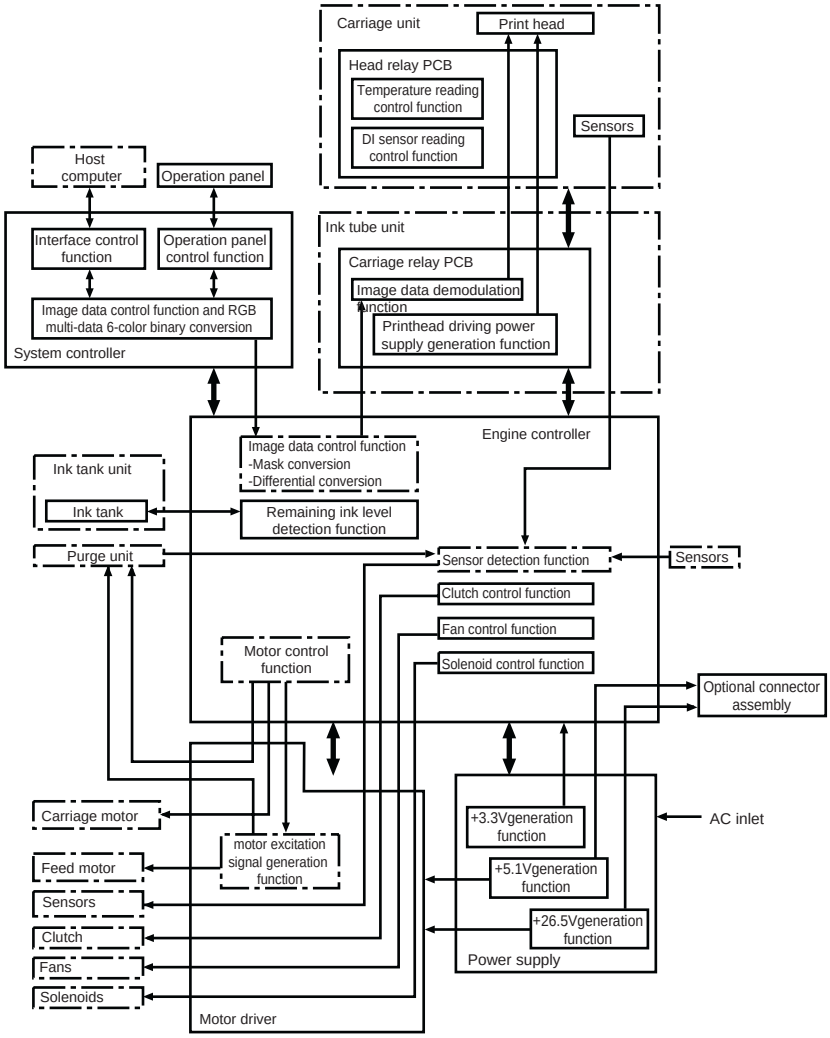
2.4 Printer Electrical System

2.4.1 Outline

2.4.1.1 Overview

0009-1524

The printer electrical system consists of the system controller, engine controller, motor driver, and power supply, all of which are mounted at the rear of the printer; the carriage relay PCBs, head relay PCBs, and printhead, which are located in the carriage unit; the operation panel on the upper right cover; and other electrical components, such as the sensors and motors.
The system controller manages image data, and the engine controller manages all electrical components. The other relay PCBs and drivers control the various functions under the management of the engine controller.

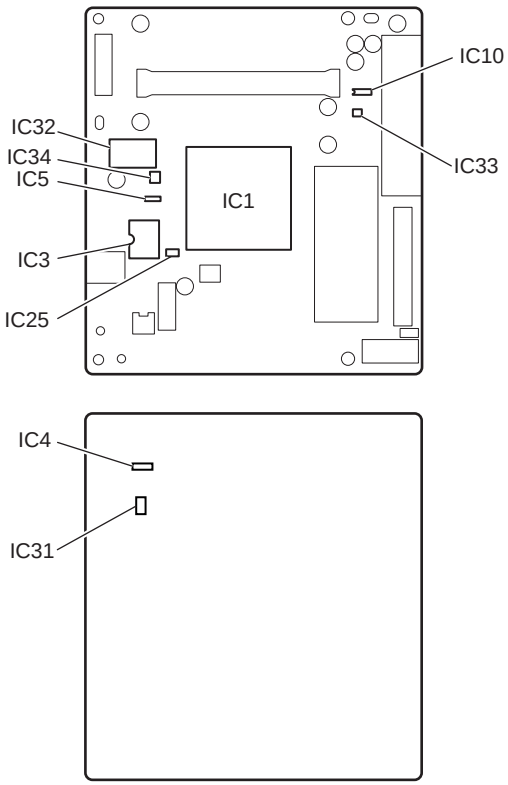


F-2-30

2.4.2 System Controller

2.4.2.1 System controller components

0009-1525



F-2-31

a) ASIC (IC1)
The ASIC of this printer integrates conventional image processing ASIC and CPU on a single chip. The function of the image processing unit and the CPU are described below.

Image processing unit
The image processing ASIC converts the RGB multi-value image data and YMCK multi-value image data from the host computer received after passing through the interface connectors to six-color binary image data. In addition, the image processing ASIC has the following functions.
1) Engine controller communication control
This function controls serial and parallel communication with the engine controller.
2) Operation panel control
This function controls serial communication with the operation panel.

CPU
The 64-bits internal bus CPU runs in synchronization with the 264MHz internal clock. The internal clock is generated within the ASIC using the 132MHz external clock input from a clock generator.
The CPU is connected to one 128MB DIMM board, one 4MB ROM chips, and one 8KB EEPROM chip. The CPU has the following functions.
1) DMA controller
The DMA controller manages the USB, expansion card slots, and other input interfaces and DMA transfer of the data stored in the DDR-SDRAM.
2) Interrupt controller
The interrupt controller receives and processes external interrupts from USB, image processing unit, and expansion card slots, in addition to the internal interrupts.
3) Power supply on/off control
This function performs on/off control of the drive power (26.5 V, 5.1 V, and 3.3 V) supplied from the power supply based on the power button push-down signal.

b) DIMM
The 128MB DIMM is connected to the 64-bit data bus and is used as the work area.
The DIMM is used as the image buffer when print data is received.

c) FLASH ROM (IC3)
The 4MB FLASH ROM is connected to the 8-bit data bus and stores the printer control program.

d) EEPROM (IC10)
The 8KB EEPROM stores the setting values and adjustment values from the Main Menu.

e) 1.5V regulator IC (IC32)
This regulator IC generates the ASIC internal driving power supply (1.5 V).

f) 2.5V regulator IC (IC31)

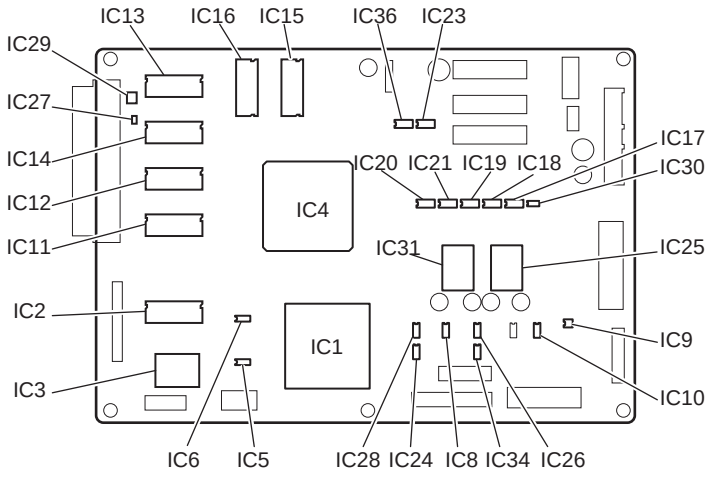
This regulator IC generates the ASIC internal driving and DDR-SDRAM power supply (2.5V).

g) 1.25V regulator IC (IC4)
This regulator IC generates the termination power supply and reference power supply (1.25V).

2.4.3 Engine Controller

2.4.3.1 Engine controller components

0009-1526



F-2-32

a) CPU (IC1)
The CPU, with a 32-bit internal bus, operates in synchronization with the 132-MHz internal clock that is generated from a 66-MHz external clock.
The CPU is used 8-MB SDRAM (IC2), and 32-KB EEPROM (IC28). The CPU performs parameter control and has the following functions.

Timer function
This function is used for the cleaning functions.
The internal RTC and lithium battery allow the timer to operate even when the AC power supply is off for performing the cleaning function.

EEPROM control function
In addition to the EEPROM with on-board, it controls the six color independent ink tank EEPROM, maintenance cartridge EEPROM, and head EEPROM.

Ink tank level detection
This function detects the remaining ink level for each color based on the signals from the electrodes mounted on the hollow needle.

b) ASIC (IC4)
The ASIC, with a 32-bit internal bus, operates in synchronization with the 100-MHz internal clock that is generated from a 50-MHz external clock.
It uses four 32MB SDRAMs and two 8MB SDRAMs having the following functions:

System controller communication control
This function controls communication with the system controller.

Image data reception
Receives image data from the system controller, stores in SDRAM (IC15, IC16), and then converts to image data and stores in SDRAM (IC11, IC12, IC13, IC14).

Image data generation/output
This function generates the image data for printing each color from the image data received from the system controller and mask pattern corresponding to the print mode in the SDRAM (IC11, IC12, IC13, IC14) and stores it in SDRAM (IC15, IC16).
This function also controls the output of the generated image data to the carriage relay PCB.

Heat enable signal control
This functions uses the pulse width to perform variable control of the time that the heat enable signal is applied to the nozzle heater board for each nozzle array in the printhead.

Linear scale count
This function reads the linear scale during carriage driving and generates the 150dpi timing signal.

2400-dpi timing generation
This function divides the linear scale 150-dpi timing into sixteen equal parts to generate the 2400-dpi timing signal.

Dot count
This function counts the discharge dots used as information for the heat enable signal function, maintenance jet control, cleaning function, and remaining ink level for each nozzle array.

PWM control
This function performs driving control of the carriage motor, and suction fan and temperature control of the printhead based on the control signals from the CPU.

Feed motor control

This function performs rotation detection of the encoder slit after passing through the motor driver and control of the feed motor speed and position based on the control signals from the CPU.

I/O port
This function performs I/O control from the sensors and controls the driving units of the motors, clutch, solenoids, and other parts.

c) SDRAM (IC15, IC16)
The 8MB SDRAM is connected to the 32-bit data bus and is used as a receive buffer and mask data buffer when receiving the print data.

d) SDRAM (IC11, IC12, IC13, IC14)
The 32MB SDRAM is connected to the 32-bit data bus and is used as an image buffer that converts data when receiving the print data.

e) FLASH MEMORY (IC3)
The 8-MB FRASH MEMORY is connected to the 16-bit data bus and stores a printer control program and mask patterns.

f) SDRAM(IC2)
The 8-MB SDRAM is connected to the 32-bit data bus and is used as a CPU work memory.

g) EEPROM(IC28)
The 32-Kbit EEPROM stores the printer adjustment values.

h) Regulator IC(IC25)
The regulator IC generates the CPU and ASIC internal driving power supply (3.3 V)

i) Regulator (IC31)
The regulator IC generates the CPU and ASIC internal driving power supply (1.8 V)

j) RTC (IC7)
Used as timer.

k) Reset IC (IC7)
Initializes the power on engine controller.

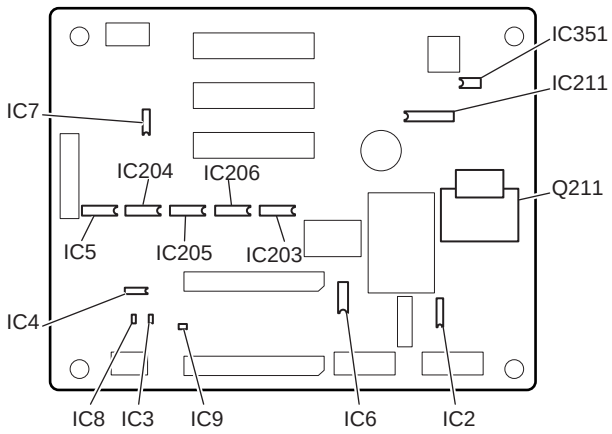
l) Lithium battery (BAT1)
The lithium battery is connected to the RTC in the CPU. The battery can performs backups for approximately three months with the AC power unconnected.

m) Driver IC (IC17, IC18, IC19, IC20, IC21)
Sends image data received by ASIC (IC4) to carriage relay board.

2.4.4 Carriage Relay PCB

2.4.4.1 Carriage relay PCB components

0009-1528



F-2-33

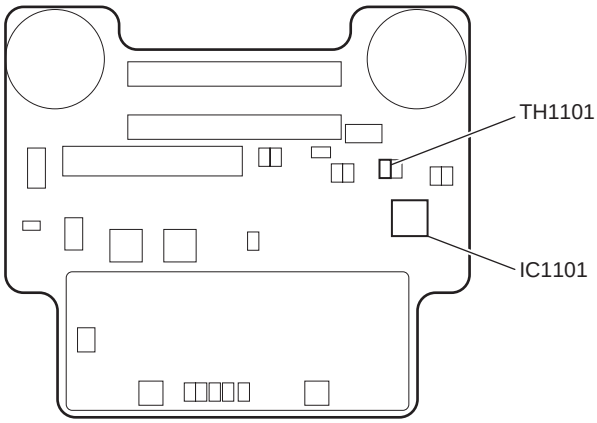
a) Receiver IC (IC203, IC204, IC205, IC206)
Receives image data sent from engine controller driver IC (IC17, IC18).

b) Regulator IC (IC211)
The regulator IC is used to generate the discharge drive power supply (18 V) of the printhead from +26.5 V.

2.4.5 Head Relay PCB

2.4.5.1 Head relay PCB components

0009-1529



F-2-34

a) Latch IC (IC1101)
DI sensor reading control
The DI sensor value in the printhead and head rank are obtained for each color and sent to the engine controller based on the control signals that are sent from the engine controller.

Environment temperature reading control
The environment temperature detected by the thermistor (TH1101) on the head relay PCB is sent to the engine controller based on the control signals that are sent from the engine controller.

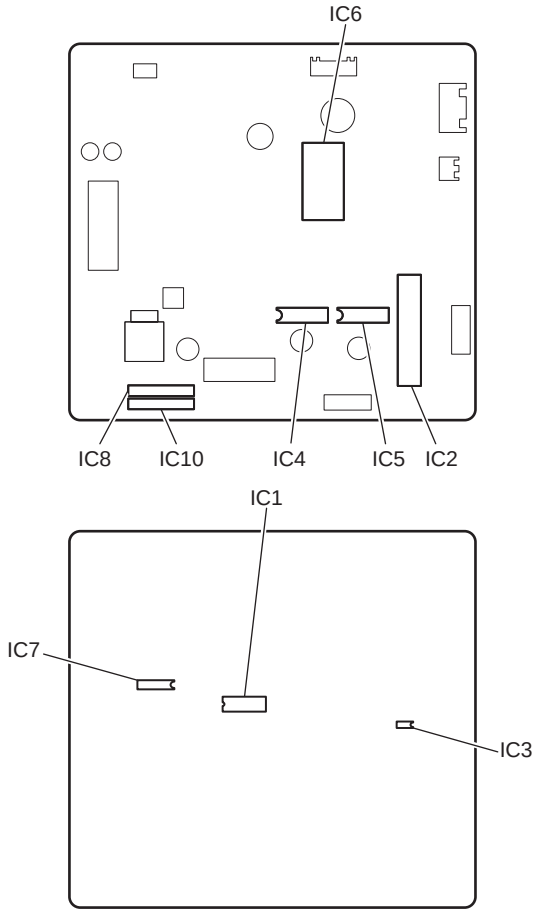
Relay for head logic driving power supply
The logic driving power (5 V) is supplied to the printhead based on the control signals that are sent from the engine controller.

b) Thermistor (TH1101)
The thermistor sends the environment temperature in the vicinity of the head relay PCB to the engine controller after passing through the carriage relay PCB.

2.4.6 Motor Driver

2.4.6.1 Motor driver PCB components

0009-7032



F-2-35

a) Carriage motor driver (IC1,IC6)
This driver generates and sends the control signals for the carriage motor based on the control signals from the engine controller.

b) Feed motor driver (IC2)
This driver generates and sends the excitation signals for the feed motor based on the control signals from the engine controller.

c) Pump motor driver (IC4, IC5)
This driver generates and sends the excitation signals for the pump motor based on the control signals from the engine controller.

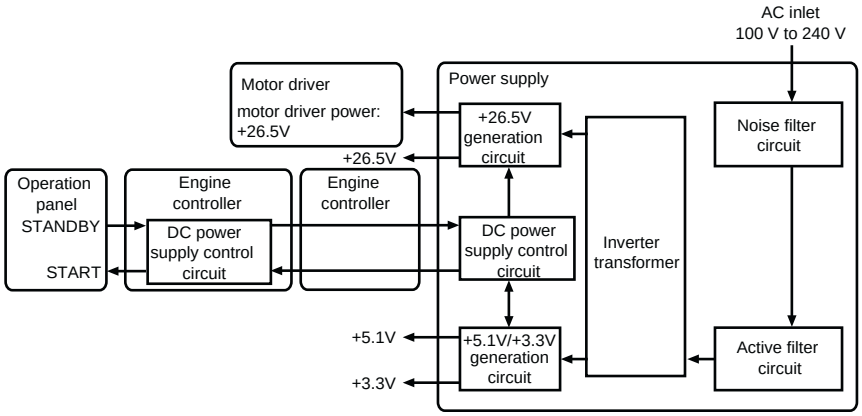
d) Cap motor driver (IC8)
This driver generates and sends the control signals for the cap motor based on the control signals from the engine controller.

e) Valve motor driver (IC10)
This driver generates and sends the excitation signals for the valve motor based on the control signals from the engine controller.

2.4.7 Power Supply

2.4.7.1 Power supply block diagram

0009-1530



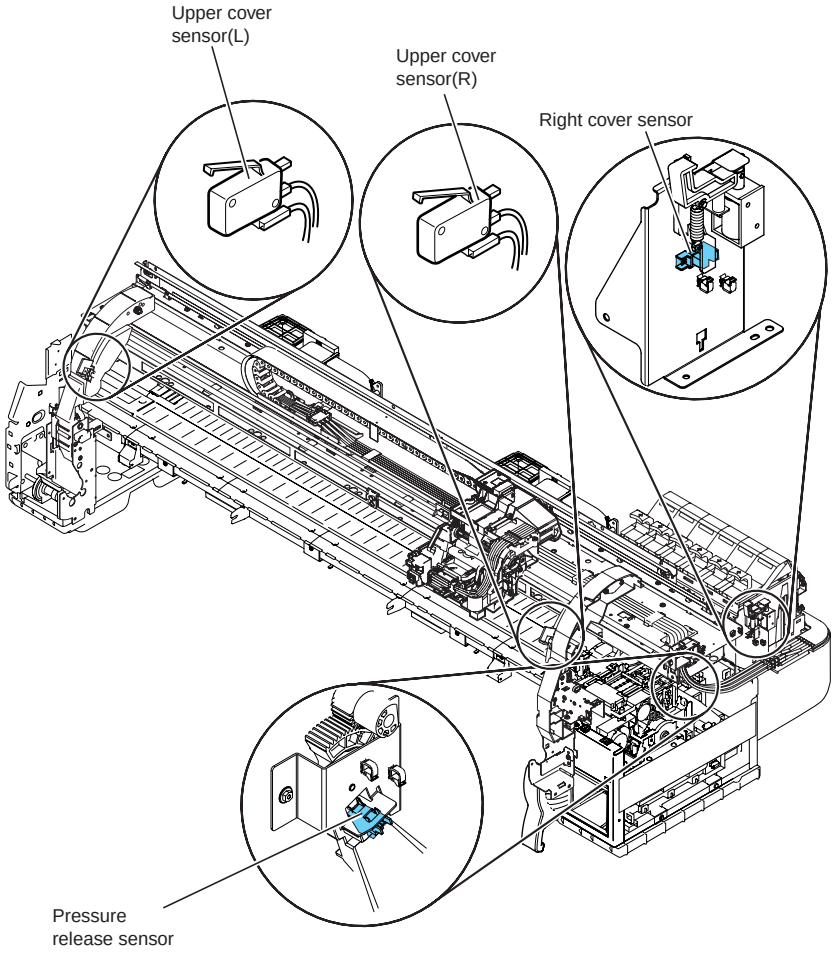
F-2-36

The universal power supply converts AC voltages ranging from 100 V to 240 V supplied from the AC inlet to DC voltages for supplying the driving voltages of ICs, motors, and other parts.
The voltage generating circuits are divided into the power supply system for driving the motors (+26.5 V) and sensors (+5.1 V) and the power supply system for driving the logic circuits (+3.3 V).
The +26.5 V/+5.1 V system uses a combination of START signals sent regularly from the power supply and power button signals to control the STANDBY signals and turn the power on and off.
During power save mode, the STANDBY signals are controlled to turn off the +26.5 V/+5.1 V output.
In addition, a switch to turn ON/OFF the carriage motor drive +26.5V power only is provided on the upper cover. The carriage motor drive +26.5V power goes OFF when the upper cover is opened.

2.5 Detection Functions Based on Sensors

2.5.1 Sensors for covers

0008-3880



F-2-37

Upper cover safety switch (left)/(right)
The microswitch-based upper cover sensors detect opening and closing of the upper cover.
When the upper cover is closed, a switch is depressed to notify the sensor that the cover is closed.
To prevent the uneven fitting of the upper cover, sensors are located on both the right and left sides.

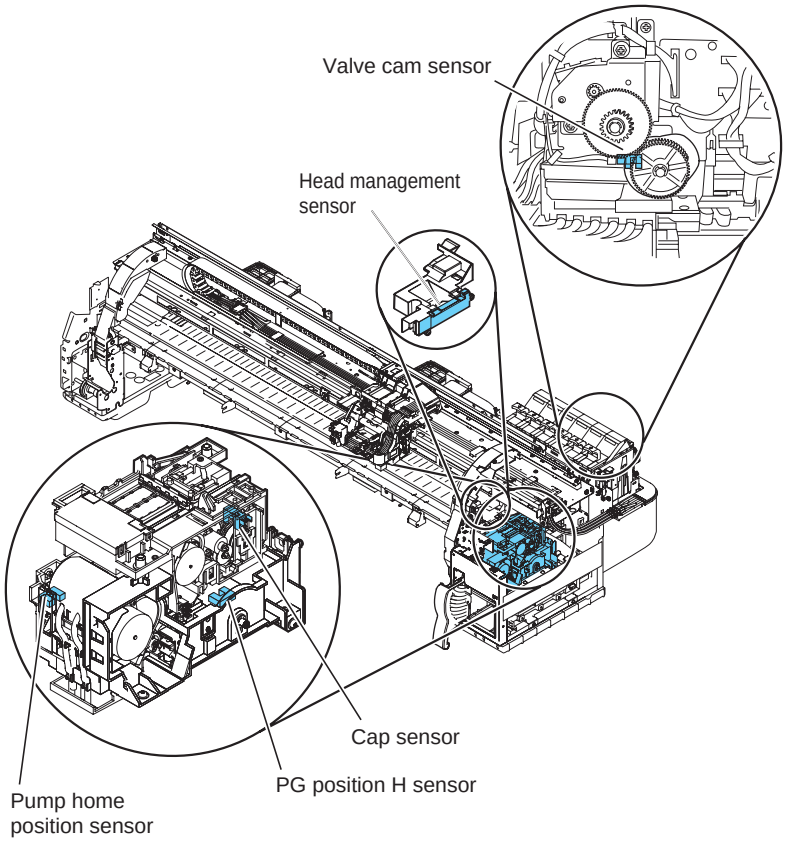
Right cover sensor
The photo interrupter-based right cover sensor detects the opening and closing of the right cover.
When the right cover is closed, the sensor light is cut off by the sensor arm, and this notifies the sensor that the right cover is closed.

Pressure release sensor
The photo interrupter-based pressure release sensor detects the opening and closing of the paper release lever.
When the paper release lever is closed, the sensor light is cut off by the sensor arm, and this notifies the sensor that the paper release lever is closed.

MEMO:
When the upper cover is closed, the +26.5 V power is supplied by the power supply to drive the carriage motor and feed motor.

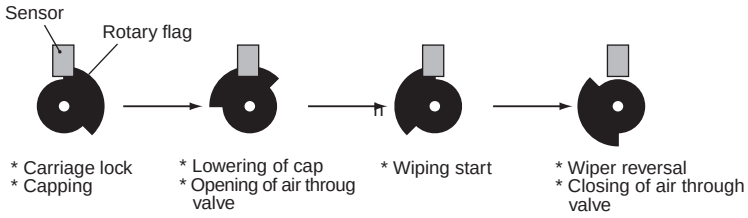
2.5.2 Ink passage system

0008-3881



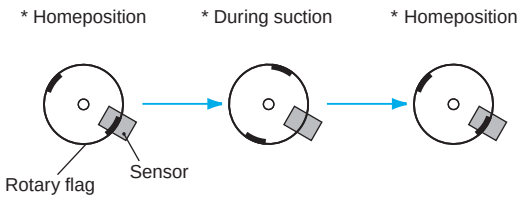
F-2-38

Cap sensor
The photo inerrupter-based cap sensor detects the status of the caps on the purge unit.
The sensor determines that the cap is closed when the rotary flag, which operates in conjunction with the cap cam shaft, cuts off the sensor light. The other states are determined by the number of pulses from the pulse motor based on the timing when the sensor light is cut off.



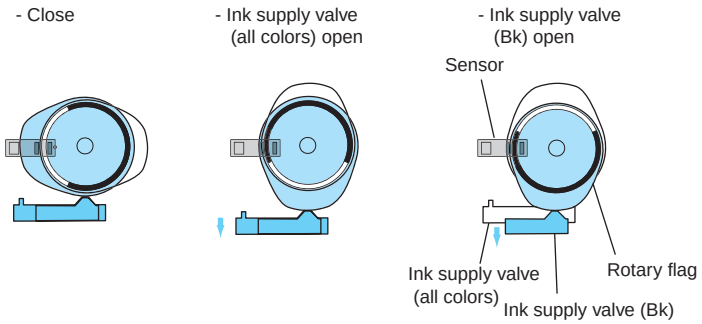
F-2-39

Pump homeposition sensor
The photo interrupter-based pump sensor detects the homeposition of the suction pump rollers.
The homeposition of the pump is defined as the position where the rotary flag, which operates in conjunction with the drive gear shaft of the rollers, cuts off the sensor light.



F-2-40

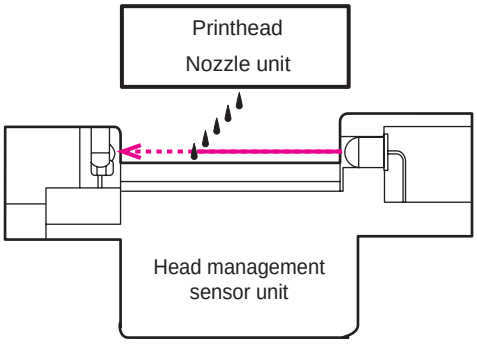
Valve cam sensor
The photo inerrupter-based valve cam sensor detects the status of the valve cam on the ink tank unit.
The sensor determines that the ink supplyer valve is opened when the rotary flag, which operates in conjunction with the valve cam, cuts off the sensor light.



F-2-41

PG position H sensor
The photo inerrupter-based pg position H sensor detects the status of the lift assebmly in the purge unit.
The sensor determines that the lift assebmly is lifted when the rotary flag, which operates in conjunction with the lift cam, cuts off the sensor light.

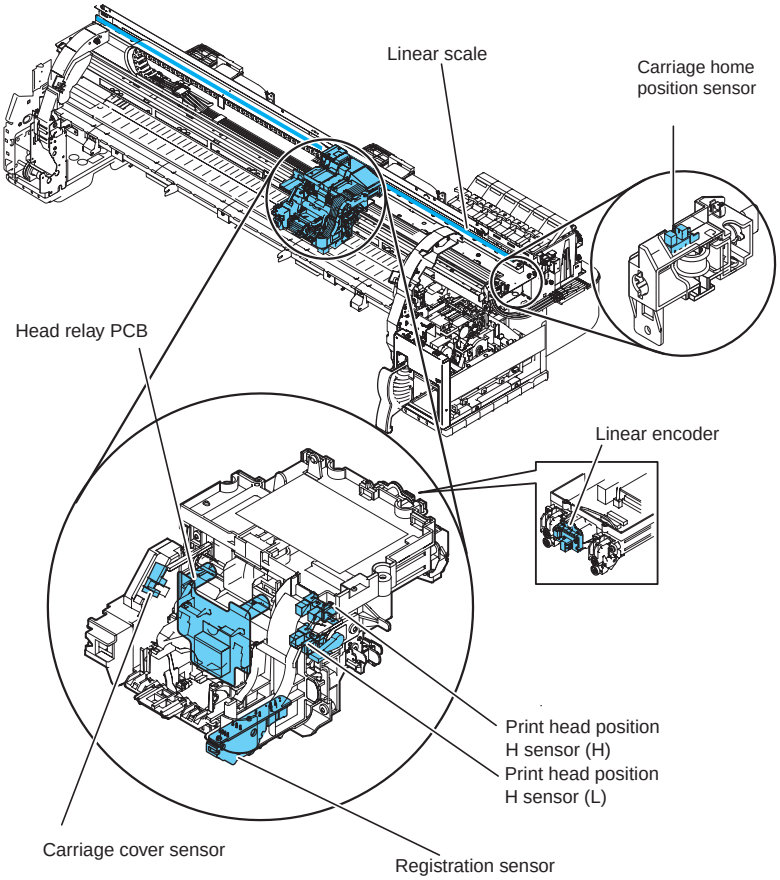
Head management sensor
The photo transmission sensor detects whether the printhead is discharging ink.
When the carriage arrives at the location for detection, it stops and the ink is discharged from one nozzle of the nozzle array at a time until all the nozzles are checked for their normal ink discharging operations. This process is repeated for the rest of the 5 nozzle arrays of the printhead.
If the sensor light is blocked by the ink discharged from a nozzle and the voltage measured by the sensor changes, that nozzle is proved to work correctly.



F-2-42

2.5.3 Carriage system

0008-3883



F-2-43

Carriage cover sensor
The photo interrupter-based carriage cover sensor detects opening and closing of the carriage cover.
When the carriage cover is closed, the sensor light is cut off by the sensor arm, and this notifies the sensor that the carriage cover is closed.

Carriage home position sensor
The photo interrupter-based carriage home position sensor detects the carriage home position.
The sensor, located on the right-side plate, detects the sensor flag on the carriage unit by controlling the movement of the carriage.
The carriage home position is defined based on the location where the sensor flag is detected.

Linear encoder
The linear encoder, installed on the rear of the carriage, detects the position of the carriage using the slits on the linear scale while the carriage is moving.

Registration sensor
The photo reflection-based registration sensor detects media skewing, media width, and media misalignment. The sensor detects the edges by monitoring the change in voltage with respect to changes in the reflection density from the media.

Print head position H sensor (H)/(L)
The print head position H sensor (H)/(L) located on the right-side of carriage unit detects the position of the print head height adjustment lever (3 positions).

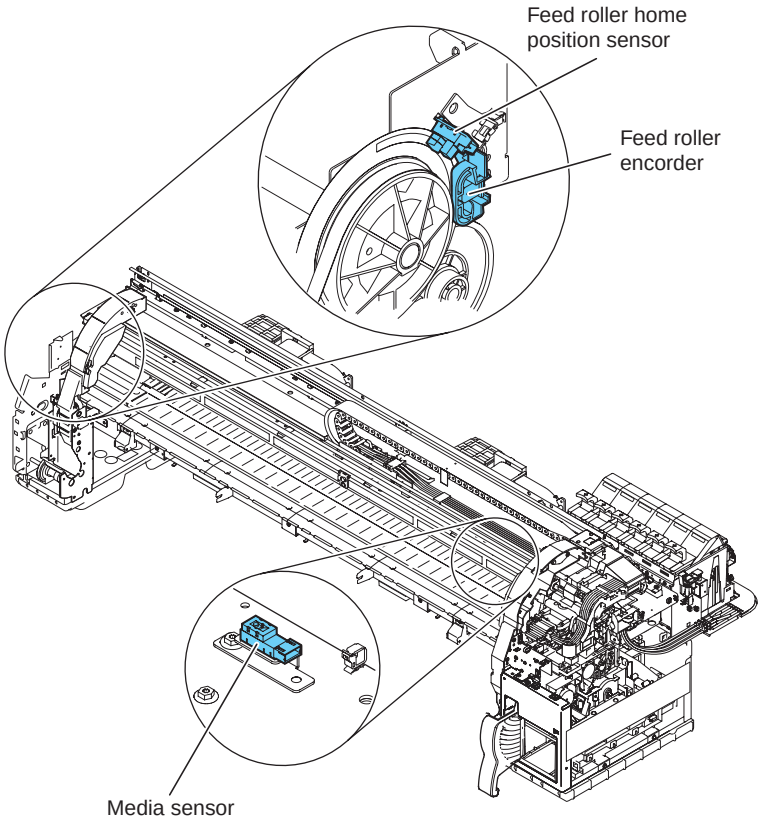
Environment temperature sensor
The environment temperature sensor (thermistor) installed on the head relay PCB detects the environment temperature in the vicinity of the carriage.
The resistance measured by the thermistor, which varies as the temperature inside the printer changes, is sent to the engine controller after passing through the carriage relay PCB.
The environment temperature is used to calibrate the head temperature sensor and to detect abnormal internal printer temperatures.

Head temperature sensor
A set of two diode head temperature sensors are installed at the top and bottom of the nozzle arrays of printhead to detect the temperature of the printhead.
The voltage produced by each diode, which varies as the temperature near the nozzle array changes, is sent to the engine controller after passing through the carriage relay PCB.
The head temperature information is used to control the operation of the head and to detect abnormal head temperatures.

Printhead contact detection
The status of direct contact between the contact faces of the printhead and the carriage is checked by testing the electrical conductivity.
The contact status between the two faces is detected from the voltage changes of the flexible cable connecting two separate terminals on the contact surface of the printhead, the power supply terminal, and the GND terminal.

2.5.4 Paper path system

0008-3898



F-2-44

Media sensor
The photo reflection-based media sensor detects if paper is on the platen.
The sensor detects the presence of paper by receiving the sensor light reflected from the paper.

Feed roller home position sensor
The feed roller home position sensor detects the change from white (transparent) to black (opaque) of the reference area of the scale on the code wheel when the power is turned on and sets the home position for LF decentration correction.

Feed roller encoder
The feed roller encoder detects the carriage position from the feed roller pulley slit when driving.

Chapter 3 INSTALLATION

Contents

3.1 Transporting the Printer

3.1.1 Transporting the Printer

3.1.1.1 Transporting The Printer

0009-1534

Do not remove the printhead once they are installed, as this may cause the nozzles to dry out or accumulate foreign matter. Also the head must be capped and stay in the carriage while transporting the printer. In spite of this precaution, shocks incurred during transportation can still damage the print heads. Print the "Nozzle Check" before moving the printer, print the "Nozzle Check" after installing in a new location, and compare the two printouts. If any deterioration is evident in the output quality, replace the printhead with new ones.

This subsection describes how to transport the printer.
When moving the printer to another place on the same floor of the building, move it slowly so that it does not receive any shocks. Follow the steps shown in "1. Moving the printer on the same floor".
When moving it elsewhere, follow the steps shown in "2. How to transport the printer to a different floor".

⚠
Always hold the carrying handles at the bottom of the printer when lifting and moving the printer. Holding the printer by its cover can deform the cover. Moving or transport operations where the printer needs to be temporarily tilted or stood upright must be performed by service personnel.

1. Moving the printer on the same floor
1) Turn off the [Power] button, and check that the heads are capped.
2) Open the upper cover, and mount the belt stopper.

⚠
When mounting the belt stopper, be careful not to move the carriage by applying too much pressure. If the carriage moves when the heads are capped, the rubber part of the cap may touch the nozzles on the heads and damage the printhead.

3) Close the upper cover.
4) Remove the roll holder from the roll holder slot.
5) Remove the interface cable and power cord from the printer.
6) If the printer is mounted on a stand, unlock the casters on the stand.
7) Hold the printer carrying handle at the bottom, and then slowly move the printer.

⚠
If the printer is subjected to strong vibrations when it is moved, it can cause ink leakage or damage to the printhead. Be sure to move the printer slowly and carefully.

2. How to transport the printer to a different floor
Follow the steps shown in a) When the printer is operating properly. When the printer is not operating properly due to breakdown or a power-supply problem, follow the steps shown in b) When the printer is not operating properly.
a) When the printer is operating properly

⚠
To prevent the waste ink from leaking, drain the ink, and then remove the maintenance cartridge. Package the removed maintenance cartridge so that the waste ink does not leak from it.

1) Turn on the [Power] button on the printer
2) Remove the roll holder from the roll holder slot.
3) Enter the Main menu, and then select "Maintenance" > "Move Printer". Follow the instructions in the messages, and remove all of the ink tanks.
Put the removed ink tanks in the plastic bag with the ink supply part upward and close the opening.
It takes about 4 minutes to complete the "Move Printer" operation.

⚠
- "Move Printer" cannot be selected when "MTCart Full Soon" is displayed. In this case, replace the maintenance cartridge first.
- Never disconnect the power cord, or open the covers while the "Move Printer" operation is in progress since this can cancel the operation. If the "Move Printer" operation is canceled while in progress, the printer will remain in offline mode, and it will not switch to online mode. "Ink Filling" is performed when the power is turned back on after canceling so repeat "Move Printer" from the beginning.
- The "Move Printer" operation will drain ink from the printer to the maintenance cartridge. The drain ink amounts are approx. 38g per color.

4) Once the "Move Printer" operation is completed, turn off the [Power] button.
5) Open the upper cover, check that the heads are capped, and then use the belt stopper to secure the carriage in place. (**PRODUCT DESCRIPTION > Safety and Precautions > Other Precautions > Handling the Printer > Fixing the carriage**.)

⚠

When mounting the belt stopper, be careful not to move the carriage by applying too much pressure. If the carriage moves when the heads are capped, the rubber part of the cap may touch the nozzles on the heads and damage the printhead.

6) Close the upper cover.
7) Disconnect the interface cable and power cord from the printer.
8) Wait 15 minutes after "Move Printer" and then remove the maintenance cartridge and package them so that used ink does not leak from them.

⚠
Check that used ink is no longer leaking after removing the maintenance cartridge. If it is leaking, install the maintenance cartridge and wait until leaking stops.

9) Attach the cushioning materials and tape.
10) If the printer is mounted on a stand, remove the printer from the stand.
11) Pack the printer into the packing box, and then put the roll media, ink tank, and optional devices in another packing box for moving. Use the original packing material for the printer and optional devices. If it is not available, pack them with a sufficient amount of cushioning materials.

b) When the printer is not operating properly

1) Make sure that the printer is turned off.
2) Disconnect the interface cable and power cord from the printer.
3) Remove the roll holder from the roll holder slot.
4) While referring to **DISASSEMBLY/REASSEMBLY > Draining the Ink > Manual Ink Drainage**, drain the ink from the printer.
5) While referring to **INSTALLATION > Transporting the Printer > Transporting the Printer> Manual Capping**, perform the capping operation.
6) Remove the maintenance cartridge, and then package it so that the waste ink does not leak from it.
7) Attach all of the exterior covers
8) Open the upper cover, and then use the belt stopper to secure the carriage in place. (Refer to **PRODUCT DESCRIPTION > Safety and Precautions > Other Precautions > Handling the Printer > Fixing the carriage**.)
9) Close the upper cover.
10) Attach the cushioning materials and tape.
11) If the printer is mounted on a stand, remove the printer from the stand.
12) Use the original packing material for the printer and optional devices. If it is not available, pack them with a sufficient amount of cushioning materials.

3. Manual capping

When transporting the printer, cap the Printhead to protect the nozzles from drying out and to keep them clean. Follow the procedures described below:
1) While referring to **DISASSEMBLY/REASSEMBLY > Points to Note on Disassembly and Reassembly > Opening the caps and releasing the carriage lock pins**, open all of the caps.
2) Move the carriage to the home position.
3) While referring to **DISASSEMBLY/REASSEMBLY > Points to Note on Disassembly and Reassembly > Opening the caps and releasing the carriage lock pins**, close all of the caps.

⚠
Manual capping is an emergency measure when the printer does not operate. Manual capping can damage the printhead.

3.1.2 Reinstalling the Printer

3.1.2.1 Reinstalling the Printer

0009-1535

1. Installing the printer on the same floor

If ink has not been drained from the printer when moving it to another place on the same floor, then an operation check (Test Print) needs to be performed after the printer is moved to a new location.

2. Installing the printer on a different floor

If ink has been drained when transporting the printer to a different floor, follow the installation procedure below. It is nearly identical to the procedure when installing for the first time.
1) Unpack the printer, and mount the printer on a stand if a stand is included.
2) Remove the cushioning materials and tape.
3) Reattach the maintenance cartridge.
4) Remove the belt stopper.
5) Connect the power cord.
6) Turn on the power and following the instruction in the message to install the ink tank. The ink is filled.
7) Load the media, and perform the operation check.

Chapter 4 DISASSEMBLY/REASSEMBLY

Contents

4.1 Service Parts

4.1.1 Service parts

0009-4791

The service parts indicated below require careful handling.

1. Keep all packages with the warning not to turn over.
Pay careful attention to all individually packaged service part (carriage unit, purge unit, ink tank unit, and other parts) boxes marked "This side up" and handle appropriately.

F-4-1

2. Feed roller
The feed roller is a functionally important part. Therefore, be careful that the roller is not scratched or marked during storage or transport of the service parts, when removing them from the individual boxes, when assembling, or performing any other
operations.
For details about handling of the feed roller, refer to **DISASSEMBLY/REASSEMBLY > Points to Note on Disassembly and Reassembly > Feeder unit a) Handling of the feed roller.**

4.2 Disassembly/Reassembly

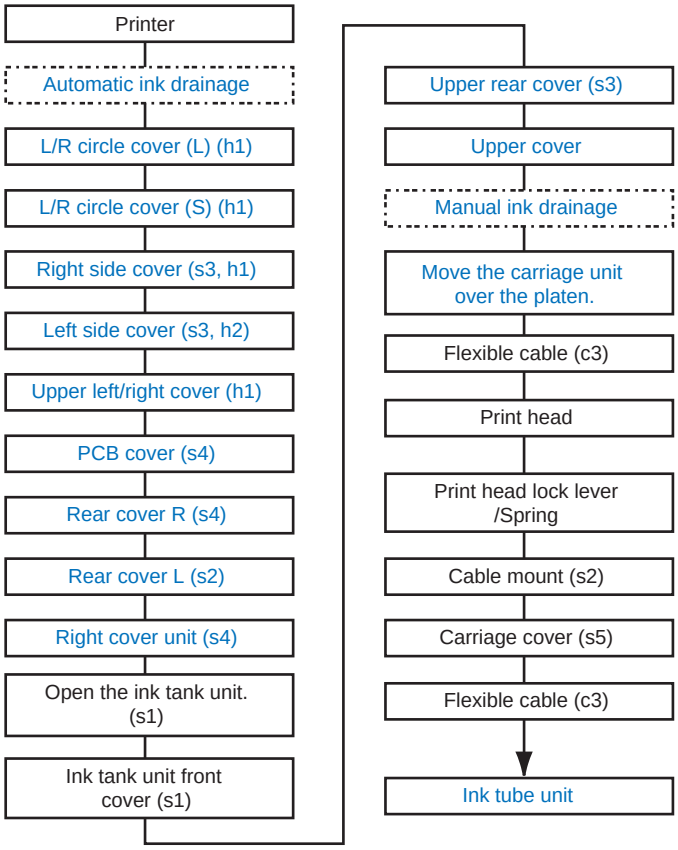
4.2.1 Disassembly/Reassembly

0009-4794

See Parts Catalog for the process of disassembly and reassembly except for the following main units.
Main units are the following four units.
1.Ink tube unit
2.Carriage unit
3.Purge unit
4.Ink tank unit
The parts layout illustrations have figure numbers according to the disassembly procedure of the product.
Main unit disassembly and assembly flows
* Ink drainage in a dotted line performs manual or automatic either.

1.Ink tube unit disassembly and assembly flow

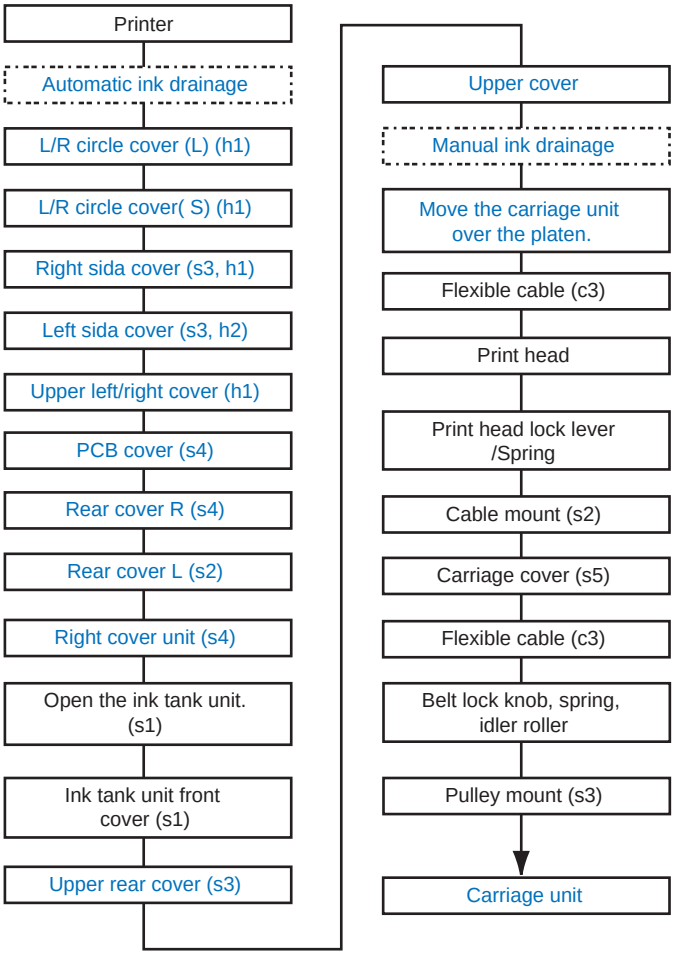
<Symbol Meanings> c: Connector, h: claw, s: Screw



F-4-2

2.Carriage unit disassembly and assembly flow

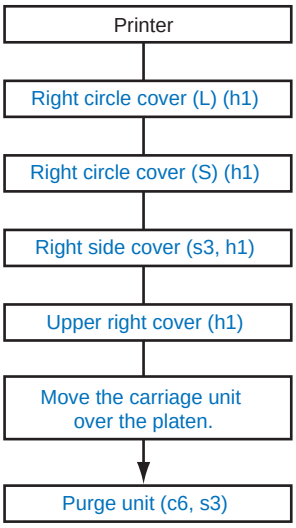
<Symbol Meanings> c: Connector, h: claw, s: Screw



F-4-3

3.Purge unit disassembly and assembly flow

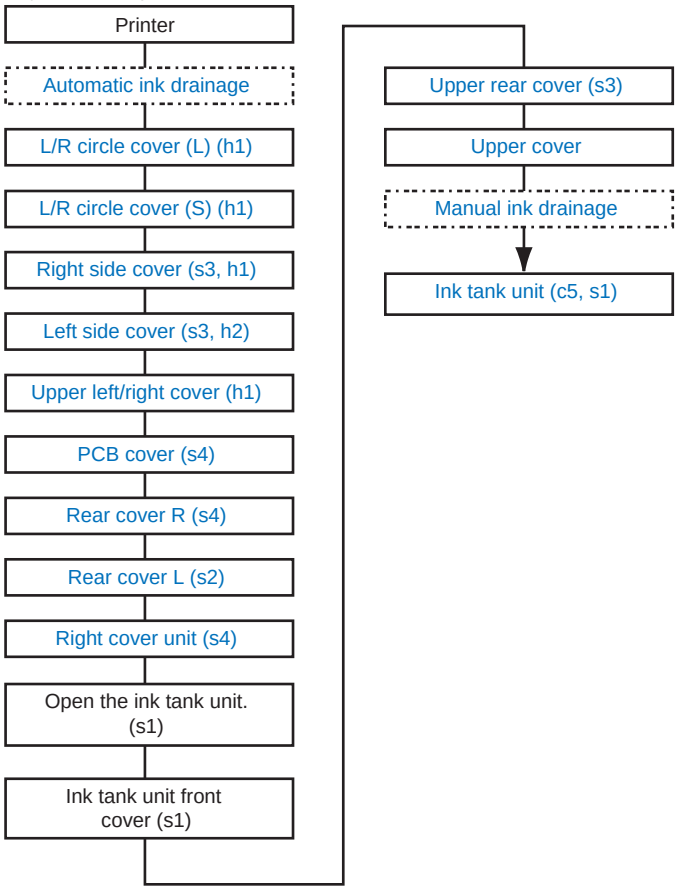
<Symbol Meanings> c: Connector, h: claw, s: Screw



F-4-4

4.Ink tank unit disassembly and assembly flow

<Symbol Meanings> c: Connector, h: claw, s: Screw



F-4-5

4.3 Points to Note on Disassembly and Reassembly

4.3.1 Note on locations prohibited from disassembly

0009-4793

Locations that are prohibited from disassembly and cannot be adjusted outside of the factory have red screws instead of the regular-colored screws.
Also, note that in addition to the previous red screw, another type of red screw is added.

<Additional Do Not Disassemble red screw>

<Previous Do Not Disassemble red screw>

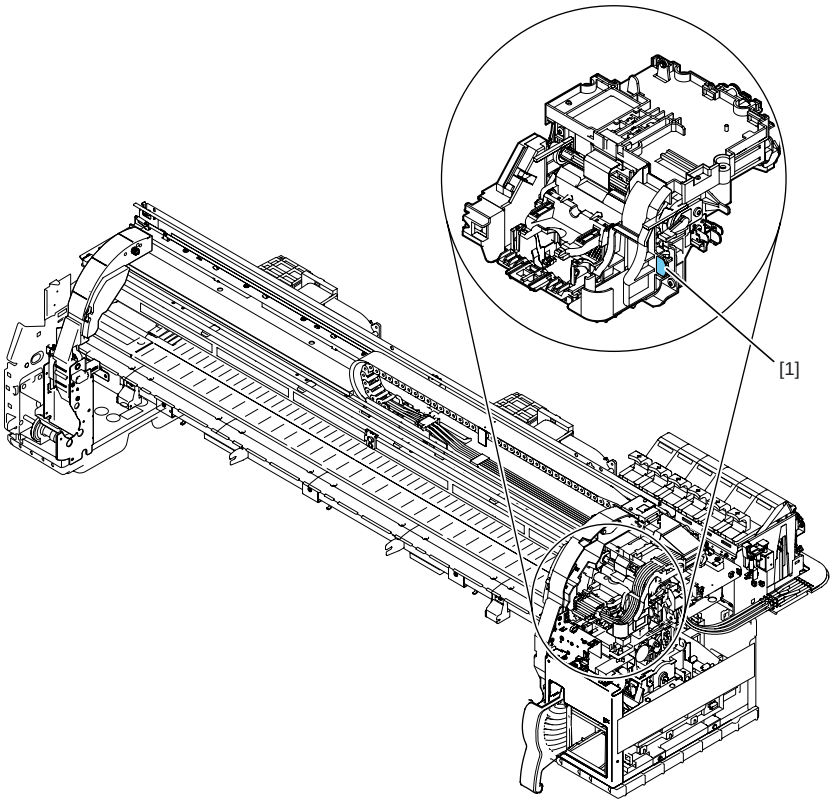
F-4-6

4.3.2 Moving the carriage manually

0009-4797

Move the carriage by holding down the [<] button on the operation panel for at least 0.5 seconds when the carriage is offline.
However, when the power is turned off such as during assembly or disassembly, move the carriage by holding the knobs [1] shown in the figure below.

⚠
Move the carriage as required during assembly and disassembly to prevent the carriage from contacting the parts to be removed.
You cannot move the carriage when capping has been performed. Refer to **DISASSEMBLY/REASSEMBLY > Points to Notes on Disassembly and Reassembly > Opening the caps and moving the wiper unit** to remove the caps, and then move the carriage.

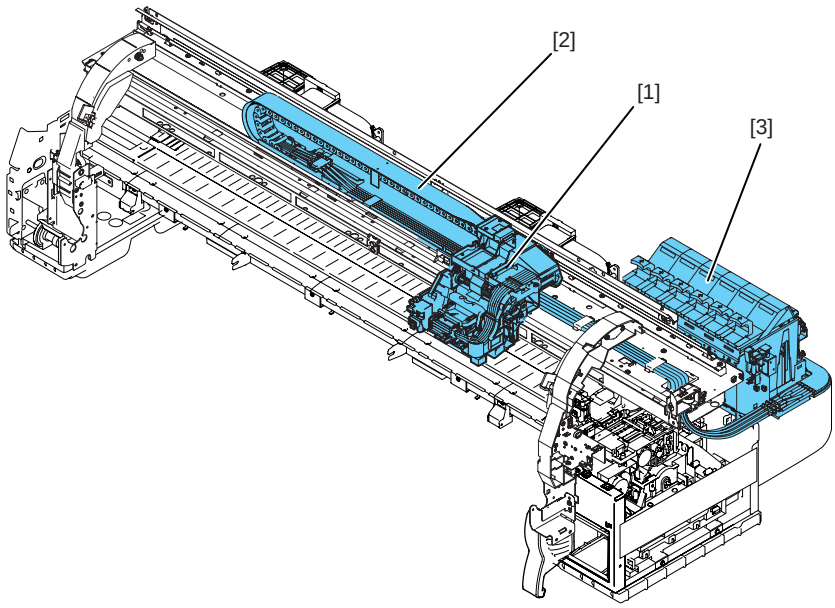


F-4-7

4.3.3 Units requiring draining of ink

0009-4799

When disassembling the following units of the ink passage, drain the filled ink completely to prevent ink leakage. For how to drain the ink, refer to **DISASSEMBLY/REASSEMBLY > Points to Notes on Disassembly and Reassembly > Draining the ink.**
[1] Carriage unit
Refer to DISASSEMBLY/REASSEMBLY > Points to Notes on Disassembly and Reassembly > Carriage unit.
[2] Ink tube unit
Refer to DISASSEMBLY/REASSEMBLY > Points to Notes on Disassembly and Reassembly > Ink tube unit.
[3] Ink tank unit
Refer to DISASSEMBLY/REASSEMBLY > Points to Notes on Disassembly and Reassembly >Ink tank unit.



F-4-8

4.3.4 External covers

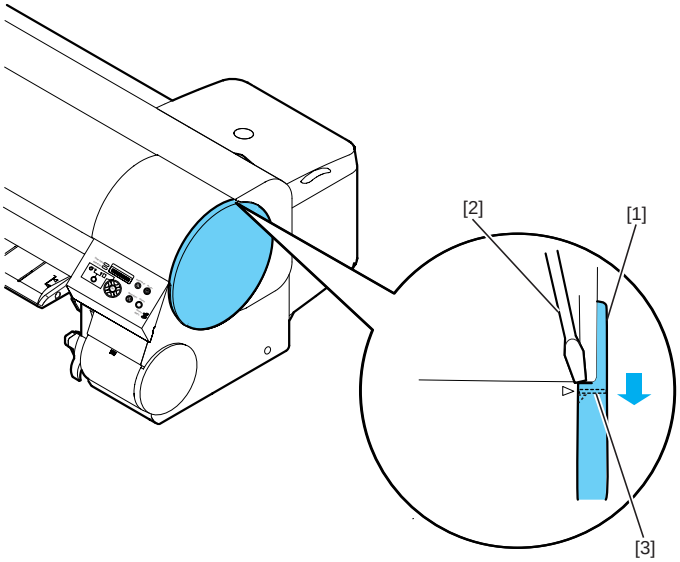
0009-4801

a) Left circle cover (L) /right circle cover (L)
Removing the left circle cover (L) /right circle cover (L)

Clicking the figure number under the video mark allows you to view the movie showing the procedure.

F-4-9

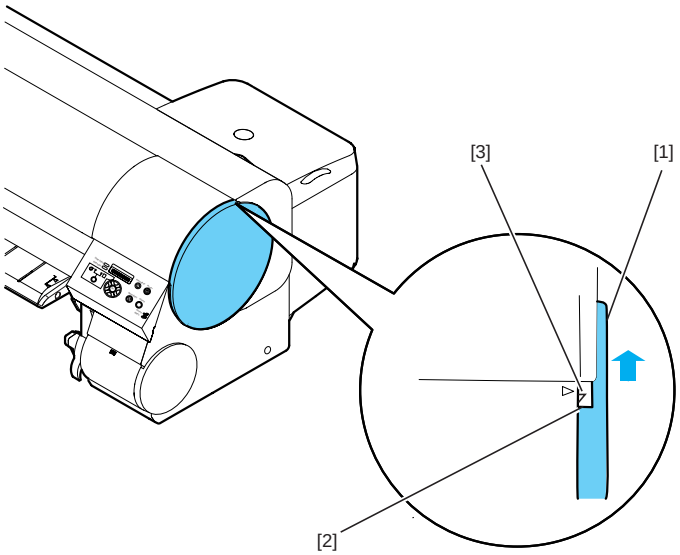
1) When removing the circle cover (L) [1], insert the blade of the flathead screwdriver [2] as shown in the figure below, disengage the hook [3], and turn the circle cover forward to remove it.



F-4-10

Installing the left circle cover (L) /right circle cover (L)

1) When installing the circle cover (L) [1], engage the portion [2] (shown in the figure below) of the circle cover in the portion [3] (indicated by the arrow) of the right side cover and turn the circle cover backward.



F-4-11

b) Left circle cover (S) /right circle cover (S)

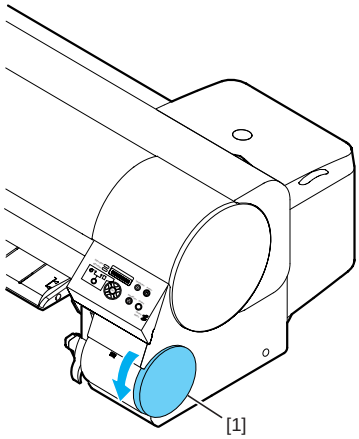
Removing the left circle cover (S) /right circle cover (S)

Clicking the figure number under the video mark allows you to view the movie showing the procedure.

F-4-12

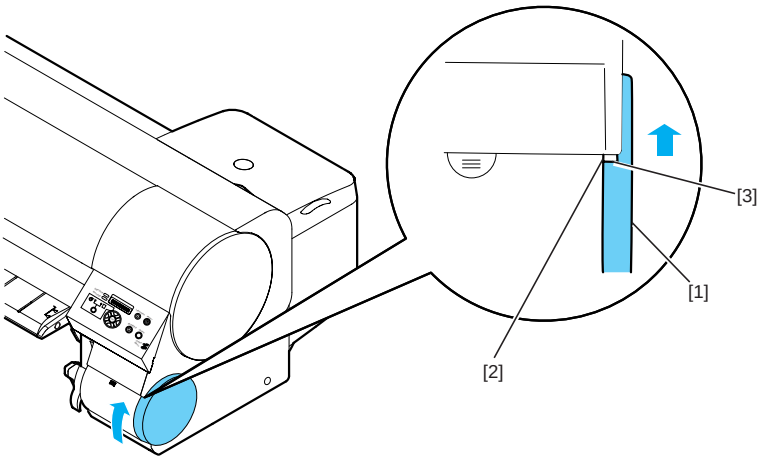
---

1) When removing the circle cover (S) [1], turn it forward to disengage the hook.



F-4-13

Installing the left circle cover (S)/right circle cover (S)
1) When installing the circle cover (S) [1], engage the portion [2] (shown in the figure below) of the circle cover (S) with the portion [3] (shown in the figure below) of the right side cover and turn the circle cover backward.



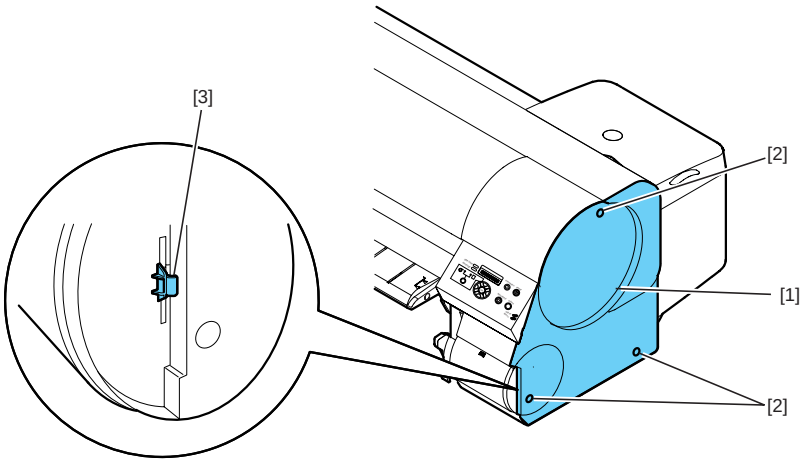
F-4-14

c) Right side cover
Removing the right side cover

Clicking the figure number under the video mark allows you to view the movie showing the procedure.

F-4-15

1) When removing the right side cover [1], remove the right circle cover (L) and right circle cover (S).
2) Remove the three screws [2], disengage one hook [3] and then remove the right side cover while opening its bottom.



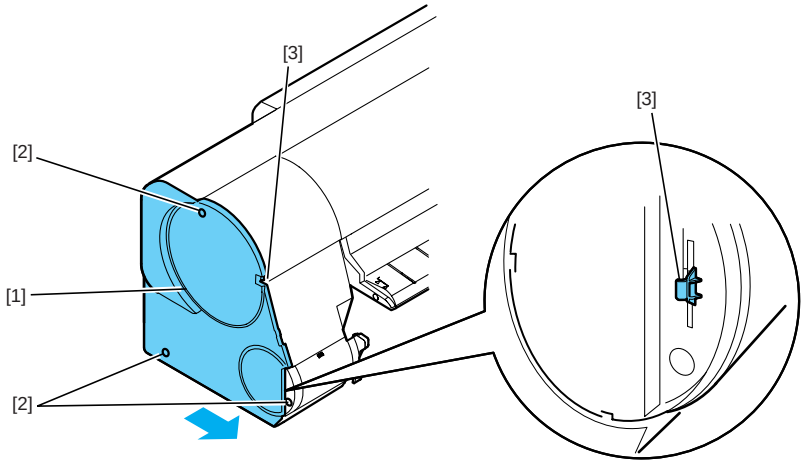
F-4-16

d) Left side cover
Removing the left side cover

Clicking the figure number under the video mark allows you to view the movie showing the procedure.

F-4-17

1) When removing the left side cover [1], remove the left circle cover (L) and left circle cover (S).
2) Remove the three screws [2] and two hooks [3] and then slide the left side cover to remove it.



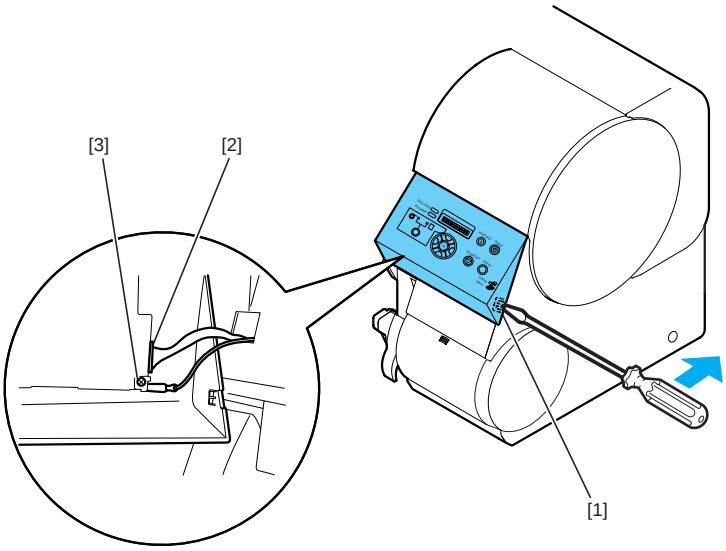
F-4-18

e) Operation panel
Removing the operation panel

Clicking the figure number under the video mark allows you to view the movie showing the procedure.

F-4-19

1) When removing the operation panel, disengage the hook [1] with a flathead screwdriver and then remove the connector [2] and screw [3].



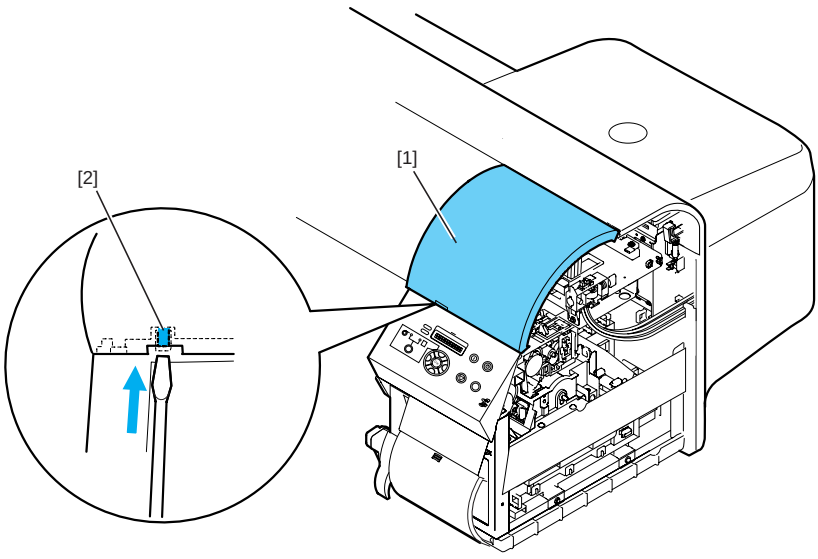
F-4-20

f) Upper left cover/upper right cover
Removing the upper left cover/upper right cover

Clicking the figure number under the video mark allows you to view the movie showing the procedure.

F-4-21

1) When removing the upper left/upper right cover [1], remove the left/right circle cover (L), left/right circle cover (S), and left-right side cover.
2) Insert the flathead screwdriver at the position shown in the figure below and disengage the hook [2] to remove the upper left/upper right cover.



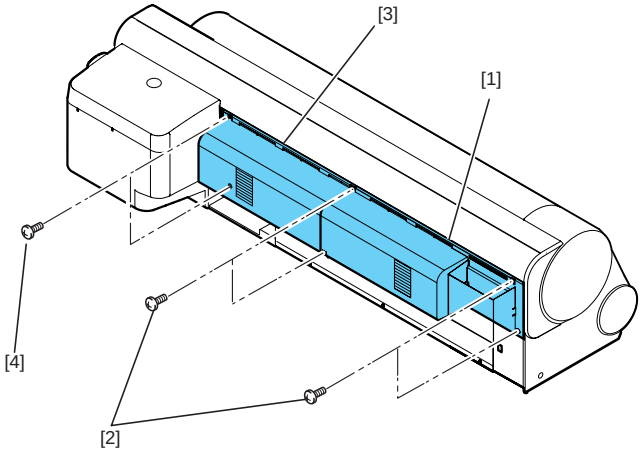
F-4-22

g) Rear cover (left)/rear cover (right)
Removing the r ear cover (left)/rear cover (right)

Clicking the figure number under the video mark allows you to view the movie showing the procedure.

F-4-23

1) When removing the rear cover (left) [1], remove the four screws [2].
2) When removing the rear cover (right) [3], remove the left cover (left) and then remove the two screws [4].



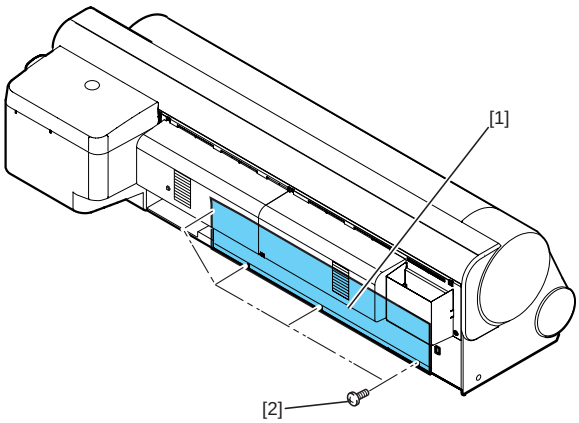
F-4-24

h) PCB cover
Removing the PCB cover

Clicking the figure number under the video mark allows you to view the movie showing the procedure.

F-4-25

1) When removing the PCB cover [1], remove the four screws [2].



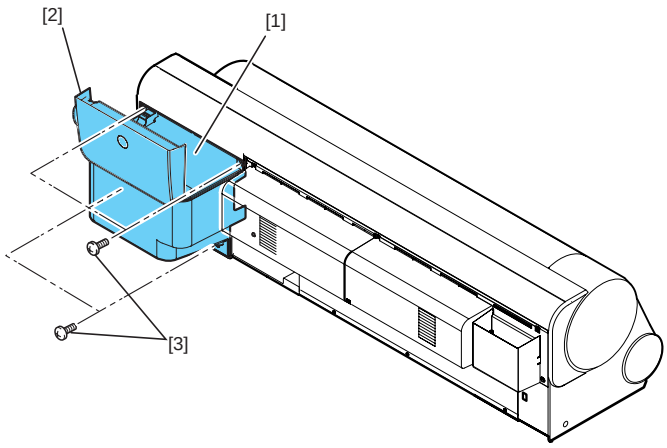
F-4-26

i) Right cover unit
Removing the right cover unit

Clicking the figure number under the video mark allows you to view the movie showing the procedure.

F-4-27

1) When removing the right cover unit [1], open the right cover [2] and then remove the four screws [3].



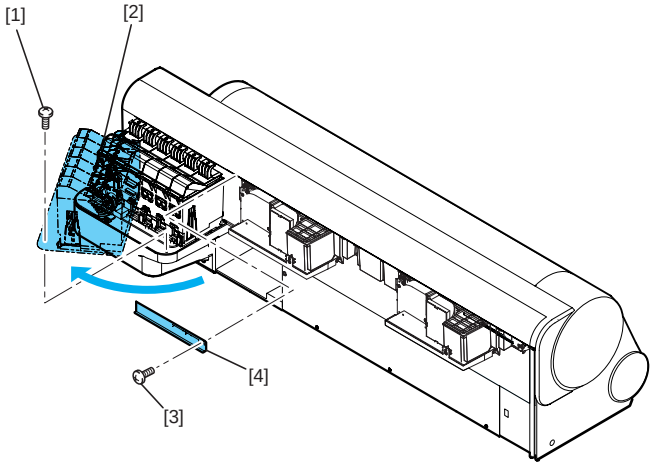
F-4-28

j) Upper rear cover
Removing the upper rear cover

Clicking the figure number under the video mark allows you to view the movie showing the procedure.

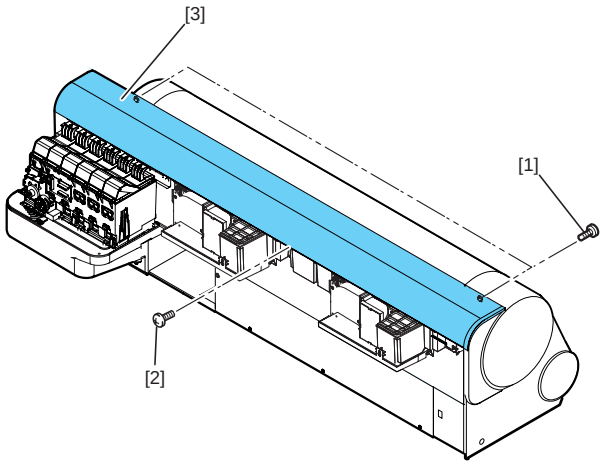
F-4-29

1) When removing the upper rear cover, remove the left/right circle cover (L), left/right circle cover (S), left/right side cover, upper left/upper right cover, rear cover (left)/(right), and right cover unit.
2) Remove the screw [1] and open the ink tank unit [2].
3) Remove the screw [3] and remove the ink tank front cover [4].



F-4-30

4) Remove the two screws [1] at the front and one screw [2] at the back and then remove the upper rear cover [3].



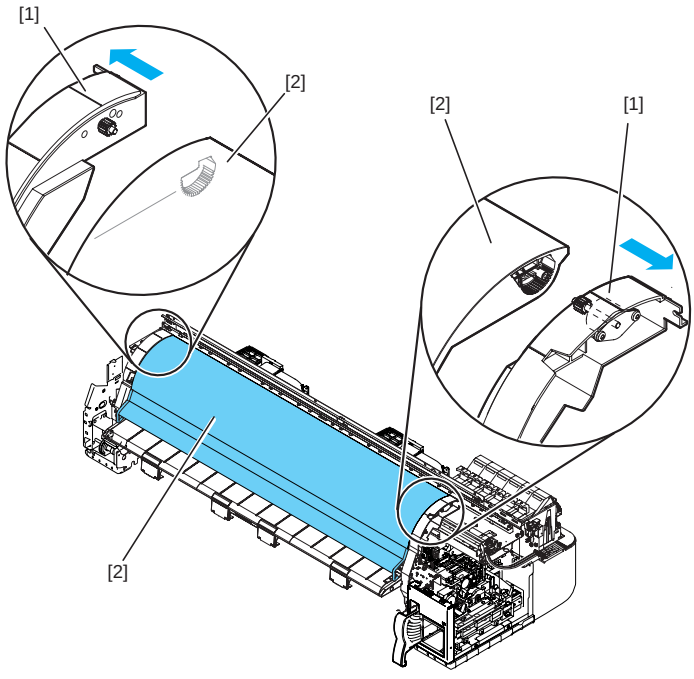
F-4-31

k) Upper cover
Removing the upper cover

Clicking the figure number under the video mark allows you to view the movie showing the procedure.

F-4-32

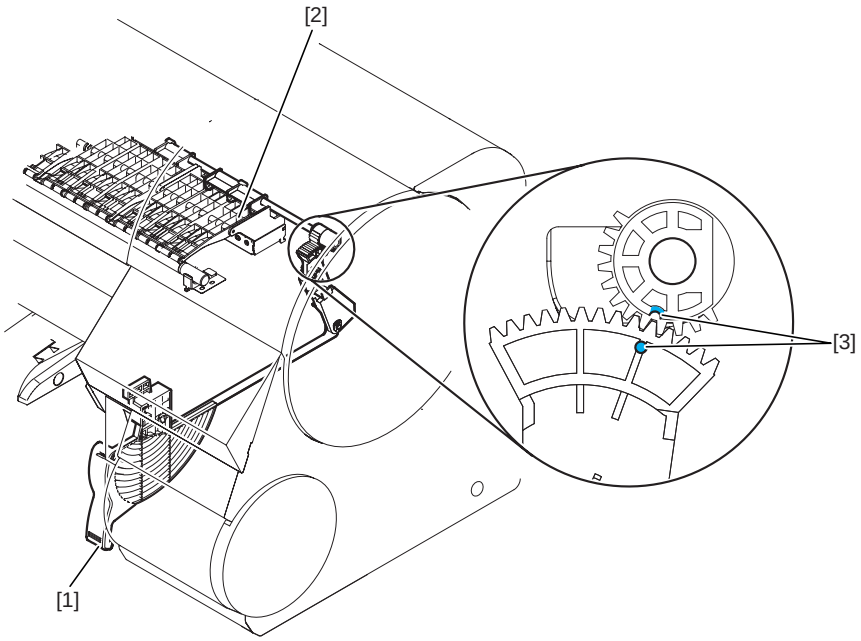
1) When removing the upper cover, remove the left/right circle cover (L), left/right circle cover (S), left/right side cover, upper left/upper right cover, rear cover (left)/(right), right cover unit, and upper rear cover.
2) While opening the left and right arm stays [1] one after another, remove the upper cover [2].



F-4-33

l) Paper release lever
Removing the paper release lever
1) When removing the paper release lever [1], remove the purge unit and purge unit base in advance. To facilitate phase matching during gear installation, remove the paper release lever with pressure applied to the pinch roller [2].

Installing the paper release lever
1) When installing the paper release lever, align the marks (phases) [3] on the paper release lever gear unit and receiving-side gear unit.



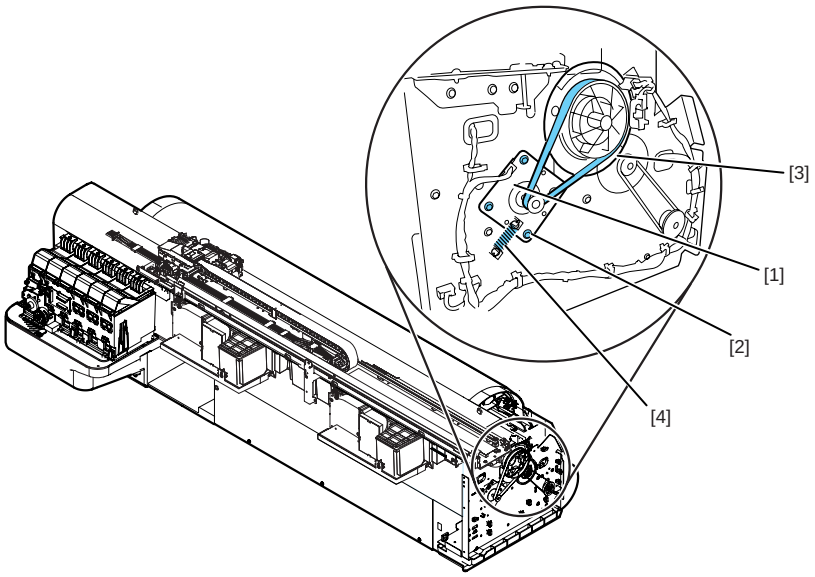
F-4-34

4.3.5 Drive unit

0009-4802

a) Feed motor
Removing the feed motor
1) When removing the feed motor [1], loosen the four screws [2] and then remove the timing belt [3] and spring [4].
2) Remove the four loosened screws [2], take out the feed motor [1], and then disconnect the connector.

Installing the feed motor
When installing the drive belt [3] for driving the feed roller, use the pressure of the spring [4] to determine the tension of the timing belt [3]. Next, secure the feed motor [1].



F-4-35

b) Action to take after replacing the feed roller home position sensor, feed roller encoder, or feed roller
Eccentricity of the feed roller is factory-corrected (variation in the paper feed distance per rotation is compensated for) to enhance the media feed accuracy. Therefore, when you have replaced the feed roller home position sensor, feed roller encoder, or feed roller related to correction of feed roller eccentricity, adjustment is required.
Use the service mode under the following conditions:
Service mode: SERVICE MODE > ADJUST > PRINT PATTERN > LF
Carriage: LOW position
Media type: Glossy photo
Media size: media width 36 inch or more

4.3.6 Ink tube unit

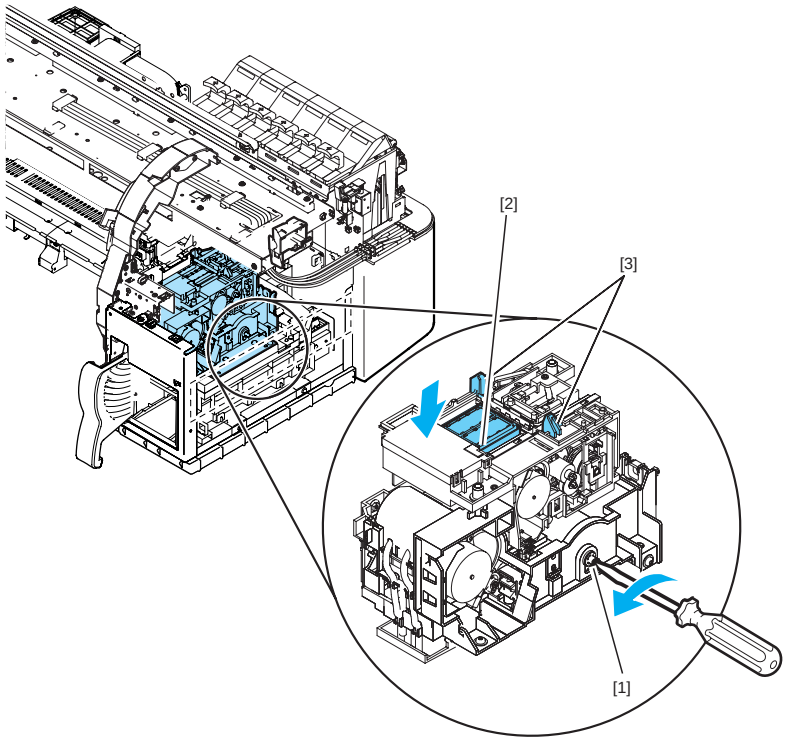
0009-4804

a) Removing the ink tube unit

Clicking the figure number under the video mark allows you to view the movie showing the procedure.

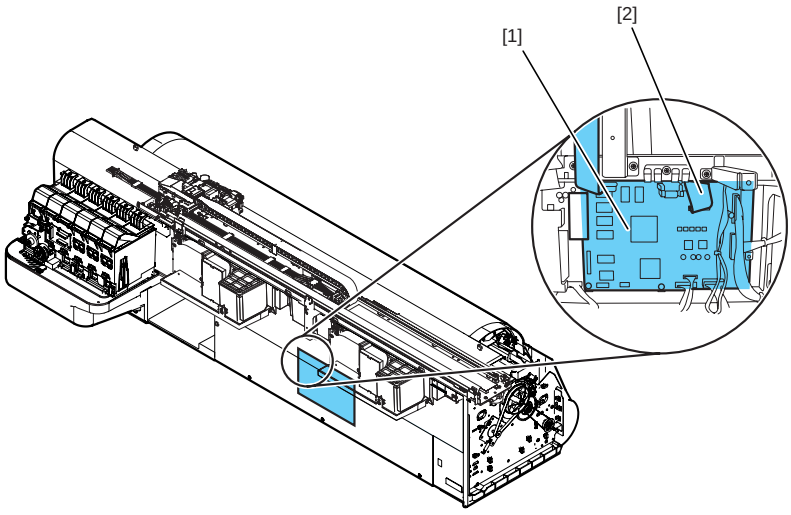
F-4-36

1) Drain the ink. For details, refer to **DISASSEMBLY/REASSEMBLY > Points to Notes on Disassembly and Reassembly > Draining the ink.**
2) Turn off the power and move the carriage over the platen. If the carriage is fixed at the home position, insert the flathead screwdriver in the slot [1] in the purge unit's elevation unit from the right and turn the screwdriver clockwise. The cap [2] and lock pin [3] lower, allowing you to move the carriage.



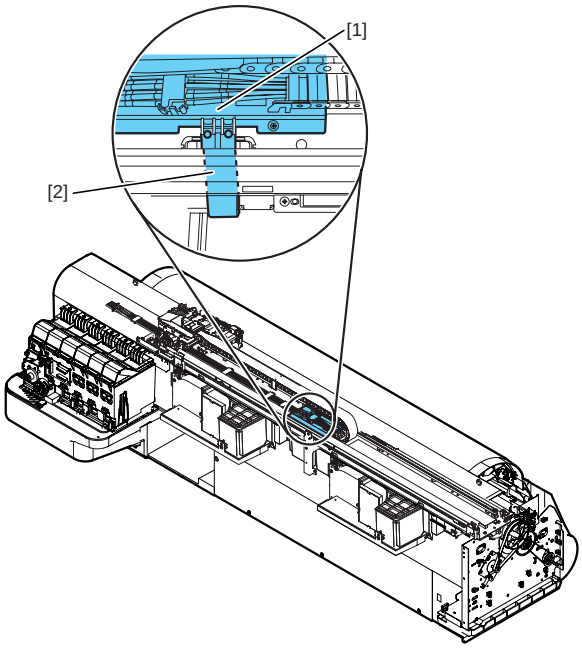
F-4-37

3) Disconnect the three flexible cable [2] from the engine controller [1].



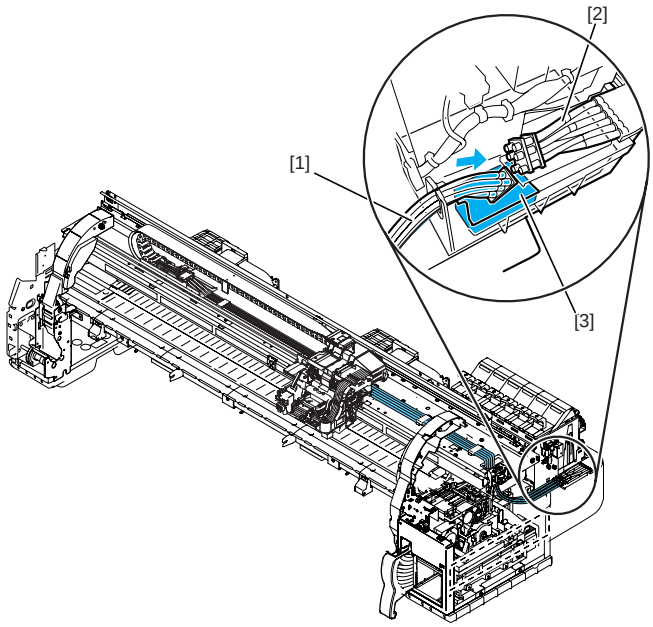
F-4-38

4) Disconnect the flexible cable [2] extending to the cable mount [1] from the clamp and guide.



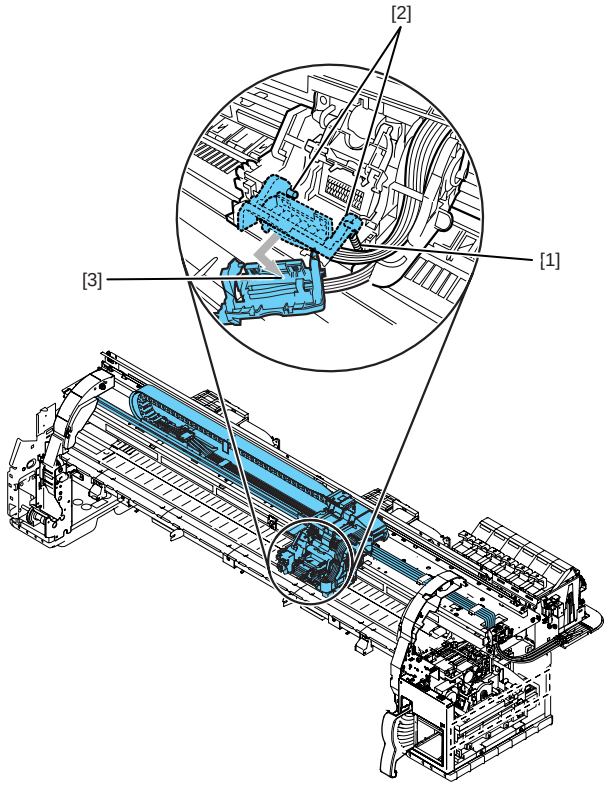
F-4-39

5) When ink has been drained automatically, remove the ink tube unit joint [1] and ink tank unit joint [2]. Insert the ink-tube-unit-side joint in the ink supply base having an ink absorber [3] so that the joint is not disconnected accidentally.
6) When ink has been drained automatically, unlock the print head lock lever to allow the ink for all six colors in the ink tubes to flow simultaneously to the ink absorber [3].



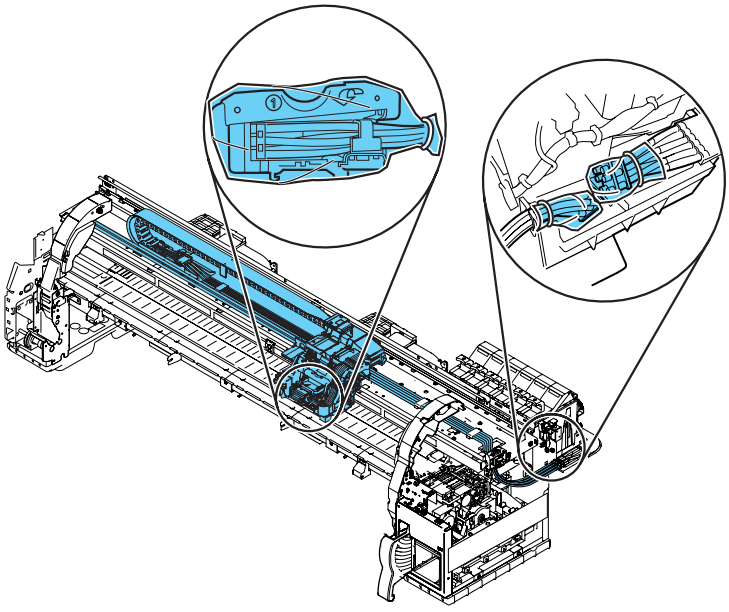
F-4-40

7) Remove the print head.
8) Remove the spring [1] and shaft [2] and then remove the slide the print head lock lever [3] by sliding it forward.



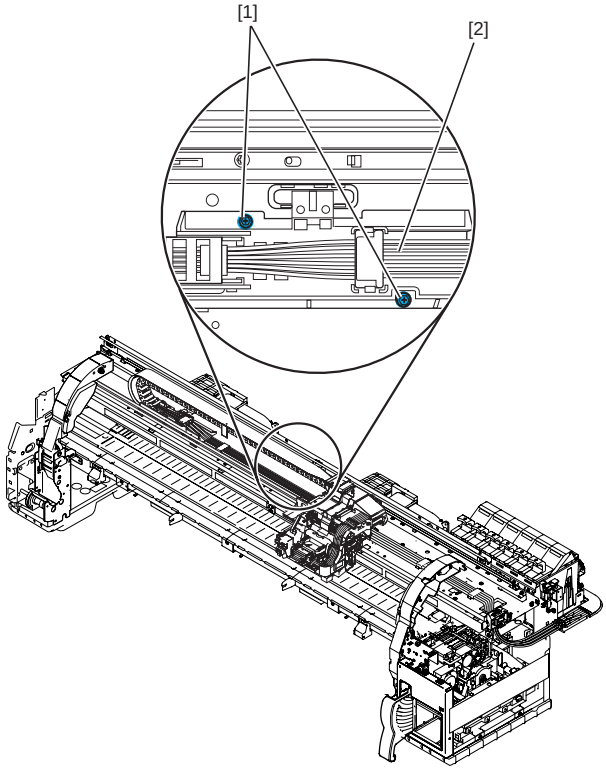
F-4-41

9) Wrap the joint with a plastic bag or the like so that no ink splashes or leaks, and then close the plastic bag.



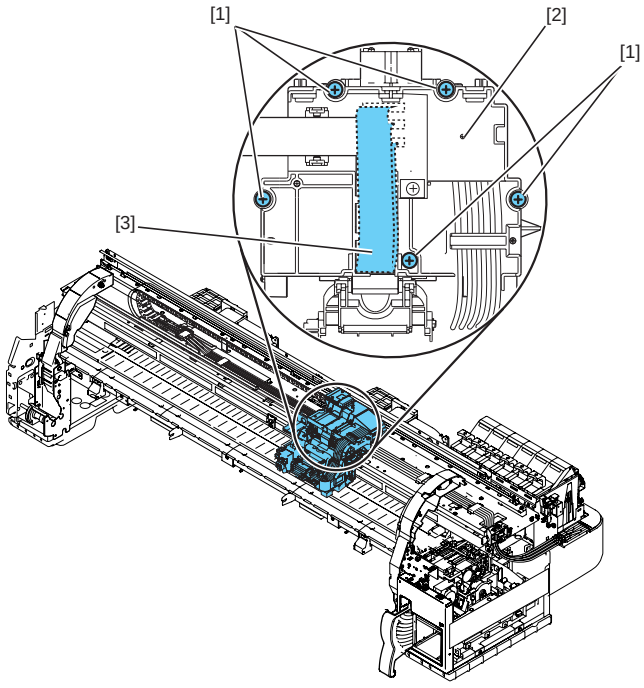
F-4-42

10) Remove the two screws [1] and detach the cable mount [2] from the frame.



F-4-43

11) Remove the five screws [1] and detach the carriage cover [2].
12) Disconnect the three flexible cables [3] on the carriage relay PCB.



F-4-44

13) Remove the clamp securing the ink tube and remove the ink tube unit from the frame paying attention to ink splash and contact with the linear scale.

b) Reassembling the ink tube unit

After replacing the ink tube unit, turn on the power with the print head and ink tank uninstalled, install the print head and ink tank according to the messages, and then fill the ink tank with ink.

4.3.7 Carriage unit

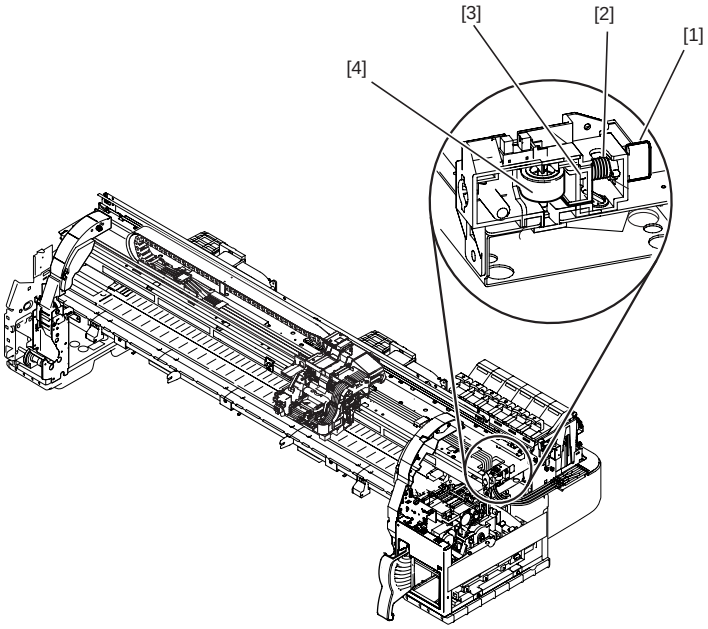
0009-4805

a) Removing the carriage unit

Clicking the figure number under the video mark allows you to view the movie showing the procedure.

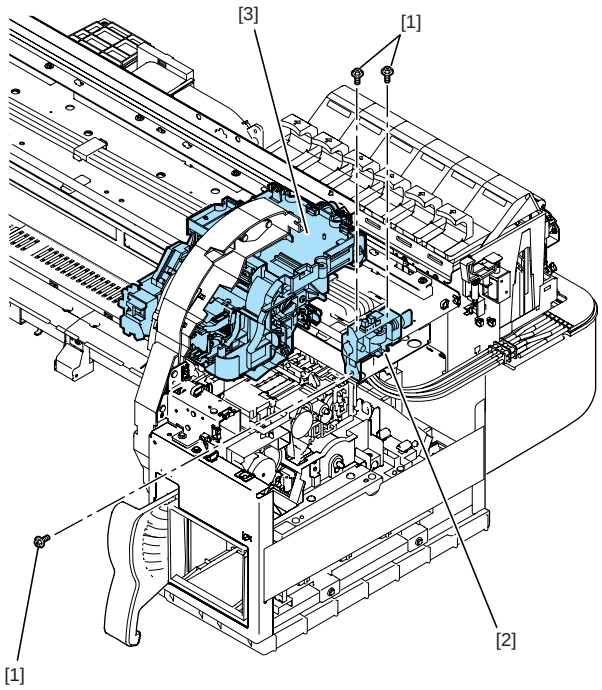
F-4-45

1) Drain the ink. For details, refer to **DISASSEMBLY/REASSEMBLY > Points to Notes on Disassembly and Reassembly >Draining the ink.**
2) Turn off the power and then move the carriage over the platen. For details, refer to **DISASSEMBLY/REASSEMBLY > Points to Notes on Disassembly and Reassembly > Opening the caps and moving the wiper unit.**
3) Remove the print head.
4) Remove the carriage cover. For steps 11 and 12, refer to **DISASSEMBLY/REASSEMBLY > Points to Notes on Disassembly and Reassembly >Ink Tube Unit.**
5) Disconnect the flexible cable (cable end connected to the engine controller) on the carriage relay PCB.
6) Remove the spring and print head lock lever.
7) Wrap the print head side joint on the ink tube unit with a plastic bag or the like so that no ink splashes or leaks, then close the plastic bag.
8) Remove the belt lock knob [1] by turning it, and then remove the spring [2] and guide [3], idler roller [4].



F-4-46

9) Remove the three screws [1] to remove the pulley mount [2], and then detach the carriage unit [3] from the right side of the printer.



F-4-47

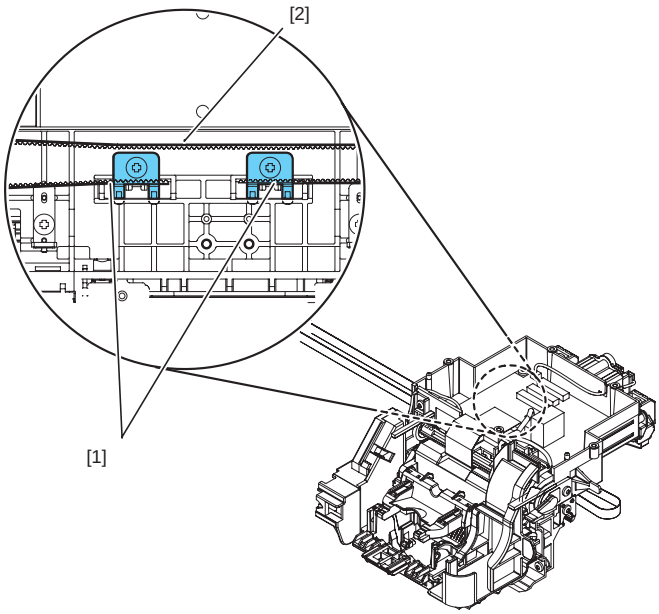
When removing the carriage unit, make sure to keep it level so that the linear scale does not damage. If the linear scale damages, the printer can malfunction.

b) Mounting the carriage belt

Clicking the figure number under the video mark allows you to view the movie showing the procedure.

F-4-48

When mounting the carriage belt [2], align all notches of the carriage belt with the belt stopper [1].



F-4-49

c) Action to take after replacing the carriage unit

Clicking the figure number under the video mark allows you to view the movie showing the procedure.

F-4-50

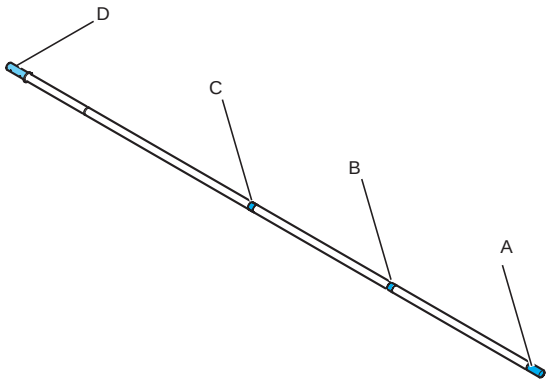
d) Action to take after replacing the carriage unit or registration sensor
Since the distance between the registration sensor (in the carriage unit) and the nozzle (in the print head) varies between printers, the optical axis is factory-adjusted to tune the image write start point. Therefore, when you have replaced the carriage unit or registration sensor, adjustment is required.
Use the service mode under the following conditions:
Service mode: SERVICE MODE > ADJUST > PRINT PATTERN > OPTICAL AXIS
Head height: Low position
Media type: Glossy photo
Media wide: paper width 36inch or more

4.3.8 Feeder unit

0009-4806

a) Handling the feed roller

⚠
The feed roller is a functionally important part. Therefore, be sure to note the following points when handling the roller.
- Do not hold the roller with one hand or warp its shape.
- Do not touch the roller surface (coated surface).
- Do not allow the roller to get scratched or marked.
- Hold the roller at two points; location D and one of the locations A, B, or C as shown in the figure below.



F-4-51

b) Action to take after replacing the feed roller home position sensor, feed roller encoder, or feed roller
Eccentricity of the feed roller is factory-corrected (variation in the paper feed distance per rotation is compensated for) to enhance the media feed accuracy. Therefore, when you have replaced the feed roller home position sensor, feed roller encoder, or feed roller related to correction of feed roller eccentricity, adjustment is required.
Use the service mode under the following conditions:
Service mode: SERVICE MODE > ADJUST > PRINT PATTERN > LF
Carriage: Low position
Media type: Glossy photo

4.3.9 Purge unit

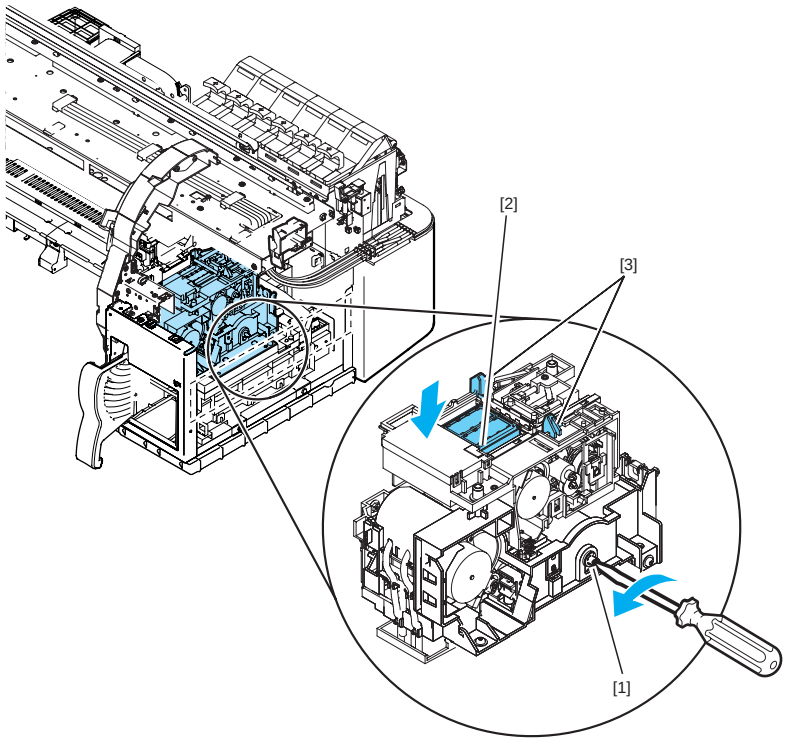
0009-4807

a) Removing the purge unit

Clicking the figure number under the video mark allows you to view the movie showing the procedure.

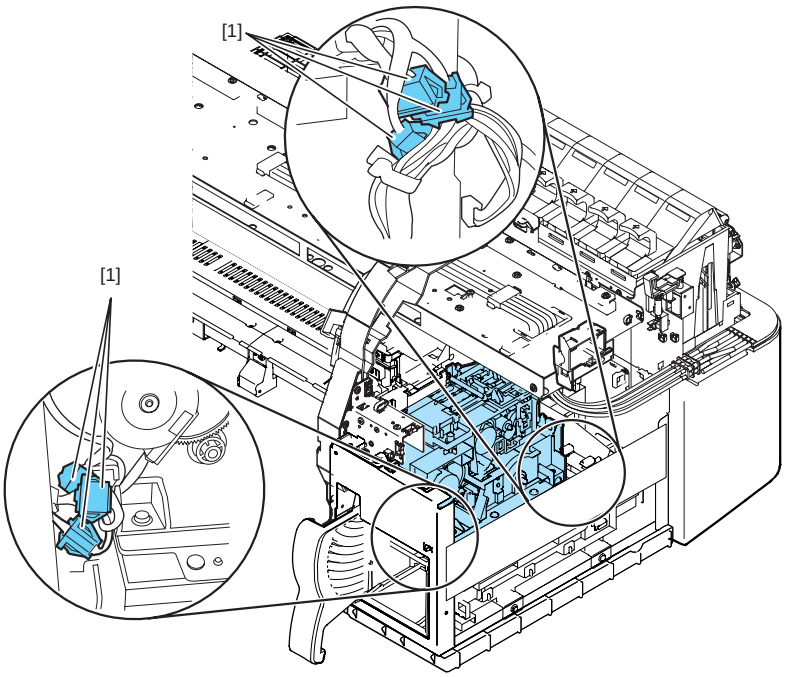
F-4-52

1) Turn off the power and move the carriage over the platen. If the carriage is fixed at the home position, insert the flathead screwdriver in the slot [1] in the purge unit's elevation unit from the right and turn the screwdriver clockwise. The cap [2] and lock pin [3] lower, allowing you to move the carriage.



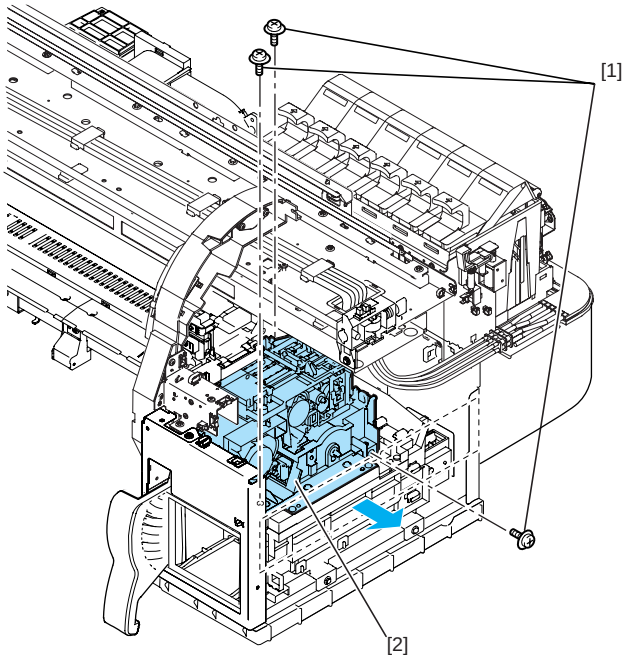
F-4-53

2) Remove the connector [6] and then remove the harness from the harness guide.



F-4-54

3) Remove the three screws [1] and then remove the purge unit [2].



F-4-55

4.3.10 Ink tank unit

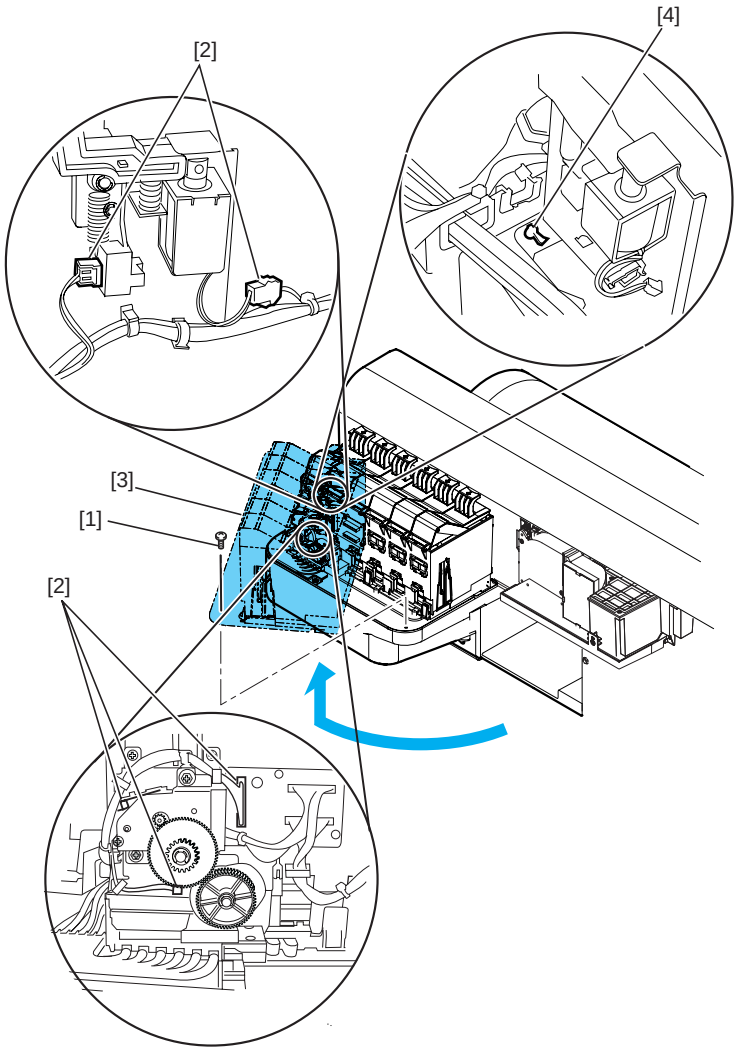
0009-4808

a) Removing the ink tank unit

Clicking the figure number under the video mark allows you to view the movie showing the procedure.

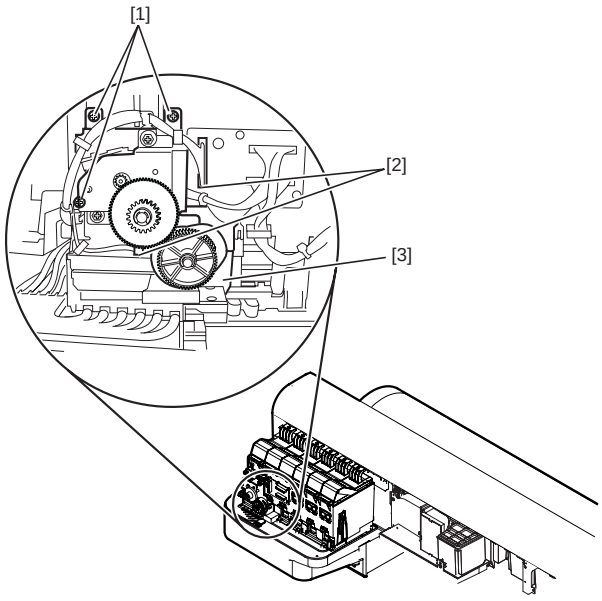
F-4-56

1) Drain the ink. For details, refer to **DISASSEMBLY/REASSEMBLY > Points to Notes on Disassembly and Reassembly > Draining the ink.**
2) Remove the joint on the ink tube unit and ink tank unit.
3) Place the ink-tube-unit-side joint in the ink flow path at the back of the ink tank unit.
4) Remove one screw and five connectors of the ink tank unit, and then remove the ink tank unit [3] by turning it around the fulcrum [4].



F-4-57

b) Removing the valve motor unit
1) When removing the upper valve motor unit, remove the ink tank cover.
2) Remove the three screws [1] and two connectors [2], and then remove the valve motor unit.

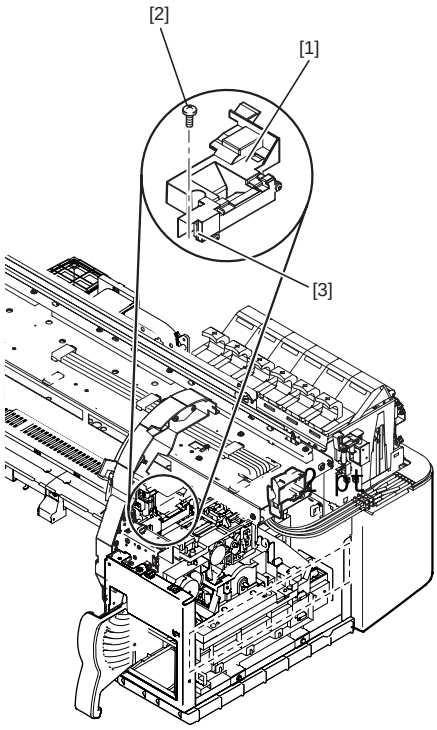


F-4-58

4.3.11 Head management sensor

0009-9439

a) Removing the head management sensor
1) When removing the head management sensor [1], remove one screw [2].
2) Take the head management sensor out of the printer, and then disconnect the connector [3].



F-4-59

b) Action to take after replacing the head management sensor
Since the distance between the head management sensor and the carriage unit varies between printers, the optical axis is factory-adjusted to tune the no ink jet detection position. Therefore, when you have replaced head management sensor, adjustment is required.
User the service mode under the following conditions:
SERVICE MODE > ADJUST > NOZZLE CHK POS. > YES

4.3.12 PCBs

0009-4809

Clicking the figure number under the video mark allows you to view the movie showing the procedure.

F-4-60

Do not replace the system controller and engine controller at the same time.
Each controller has important stored information such as the setting values and carriage driving time. To retain this information, the information in the controller is temporarily stored in the other controller using internal communication before a controller is replaced. After the replacement, the information is automatically written into the new controller. Therefore, the two controllers cannot be replaced at the same time.
Also, when you have replaced the system controller and engine controller as service parts, check that the firmware version is the latest available. If it is not, update the firmware to the latest version.

a) Replacing the system controller

⚠
When replacing the system controller original information of the following items in the MAIN MENU are not backed up and not restored in the new system controller.
Save the original information accordingly, prior to the replacement of the system controller in case of need.
- MAIN MENU> Interface Setup > TCP/IP > IP Setting

1) Turn off the power and disconnect the power plug from the outlet.
2) Replace the system controller.
3) Connect the power plug to the outlet and turn the printer on while pressing the [Paper Selection] button, [V] button, and [Stop] button. (The printer starts in the Board Replace mode.)
4) Make sure that "Initializing" appears on the display, and then release the buttons. (The message lamp goes on when the printer enters the Board Replace mode.)
5) Wait until "REPLACE MODE" appears on the display.
6) Select "S/C REPLACE" and press the [OK] button.
7) Make sure that "TURN OFF THE POWER" appears on the display, and then turn off the printer.
8) Turn on the printer.
9) Check the firmware version. If the firmware version is not the latest, update the firmware to the latest version.
10) In the Main menu, select Interface Setup --> IP Setting, and then make the settings again.

b) Replacing the engine controller

1) Turn off the power and disconnect the power plug from the outlet.
2) Replace the engine controller.
3) Connect the power plug to the outlet and turn the printer on while pressing the [Paper Selection] button, [V] button, and [Stop] button. (The printer starts in the Board Replace mode.)
4) Make sure that "Initializing" appears on the display, and then release the buttons. (The message lamp goes on when the printer enters the Board Replace mode.)
5) Wait until "REPLACE MODE" appears on the display.
6) Select "E/C REPLACE" and press the [OK] button.
7) Make sure that "TURN OFF THE POWER" appears on the display, and then turn off the printer.
8) Turn on the printer.
9) Check the firmware version. If the firmware version is not the latest, update the firmware to the latest version.

4.3.13 Opening the caps and moving the wiper unit

0009-4810

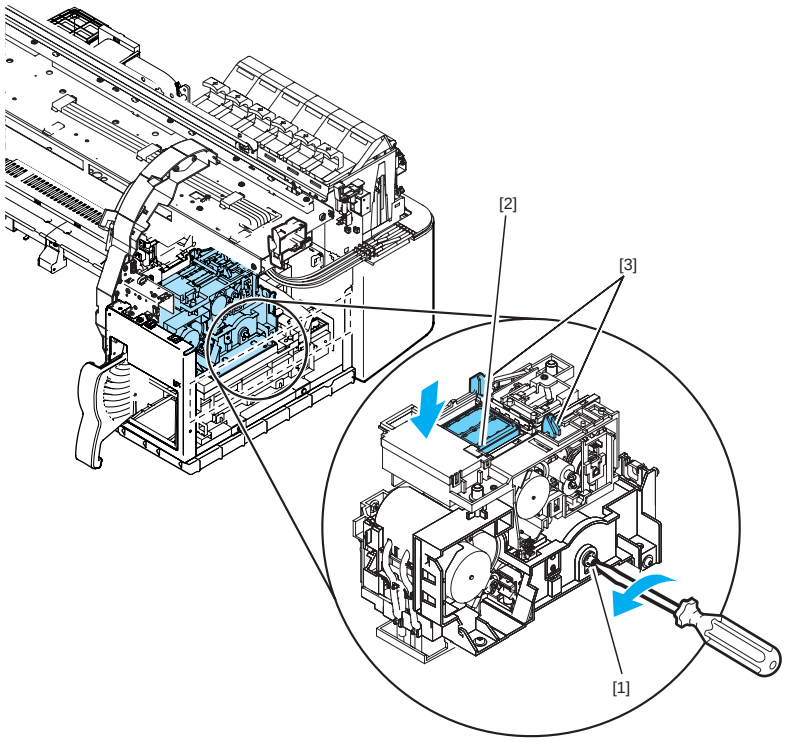
The procedures for manually opening the caps and ink supply valves are presented below.
The carriage lock pin and caps need to be released manually when moving the carriage with the power off. For details on the sensors and flags, refer to **TECHNICAL REFERENCE > Detection Functions Based on Sensors.**

1. Opening the caps and releasing the carriage lock pins

Clicking the figure number under the video mark allows you to view the movie showing the procedure.

F-4-61

1) Remove the right circle cover (L), right circle cover (S), right side cover, and upper right cover.
2) Insert the flathead screwdriver in the slot [1] in the purge unit's elevation unit from the right and turn the screwdriver clockwise. The cap [2] and lock pin [3] lower, allowing you to move the carriage.



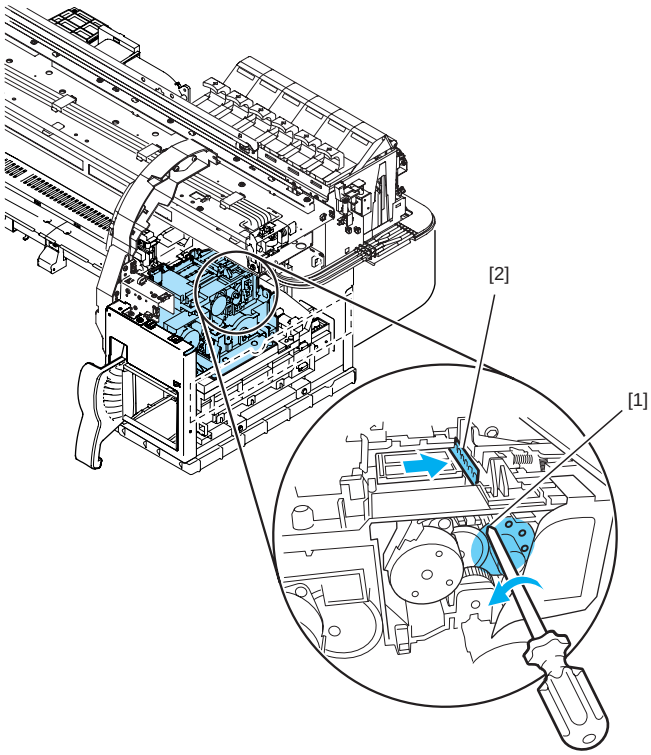
F-4-62

2. Moving the wiper unit

Clicking the figure number under the video mark allows you to view the movie showing the procedure.

F-4-63

1) Remove the right circle cover (L), right circle cover (S), and right side cover.
2) From the right side of the printer, insert the head of the Phillips screwdriver in the through hole in the purge gear [1].
3) Turn the purge gear counterclockwise, and then move the wiper unit [2].



F-4-64

4.3.14 Opening and closing the ink supply valve

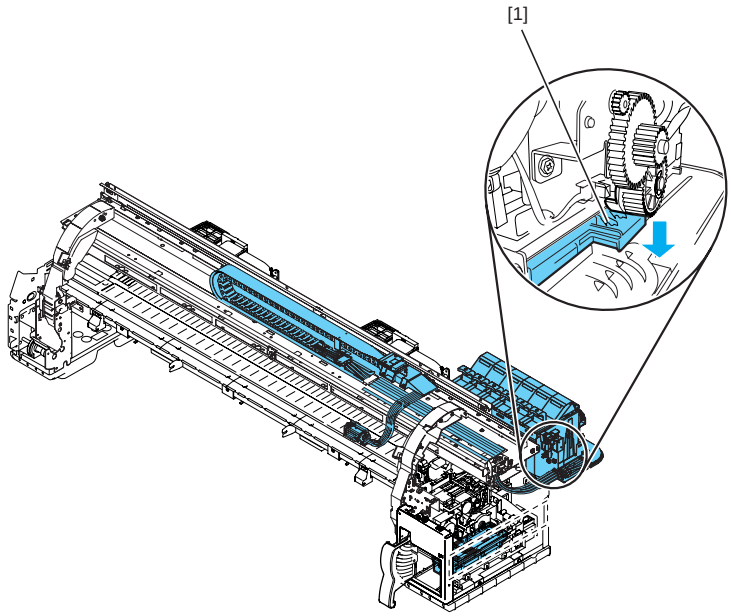
0009-4811

Clicking the figure number under the video mark allows you to view the movie showing the procedure.

F-4-65

1) Remove the right side cover.
2) Press the valve lever [1] with your finger to open the ink supply valve. (Normally, the ink supply valve is closed, that is, the supply valve cam does not press the valve lever or the supply valve is closed.)

⚠
- If the tube is filled with ink and the print head lock lever is unlocked with the ink supply valve closed, the ink in the tube may flow in the reverse direction and the ink may leak from the ink supply needle.
- If the ink supply valve remains open, such as when an ink supply valve open/close error (E02D06) occurs, remove the valve motor unit (refer to **DISASSEMBLY/REASSEMBLY > Points to Notes on Disassembly and Reassembly > Ink tank unit**) and then close the ink supply valve.



F-4-66

4.3.15 Draining the ink

0009-4812

Clicking the figure number under the video mark allows you to view the movie showing the procedure.

F-4-67

There are two methods of removing the ink, a manual method and an automatic method.
When the ink is drained, the ink inside the ink passage totaling approximately 228 g (approximately 38 g x 6 colors) is drained as waste ink.

To prevent ink from leaking, be sure to remove the ink inside the ink passage when disassembling or transporting the parts of the ink passage section.

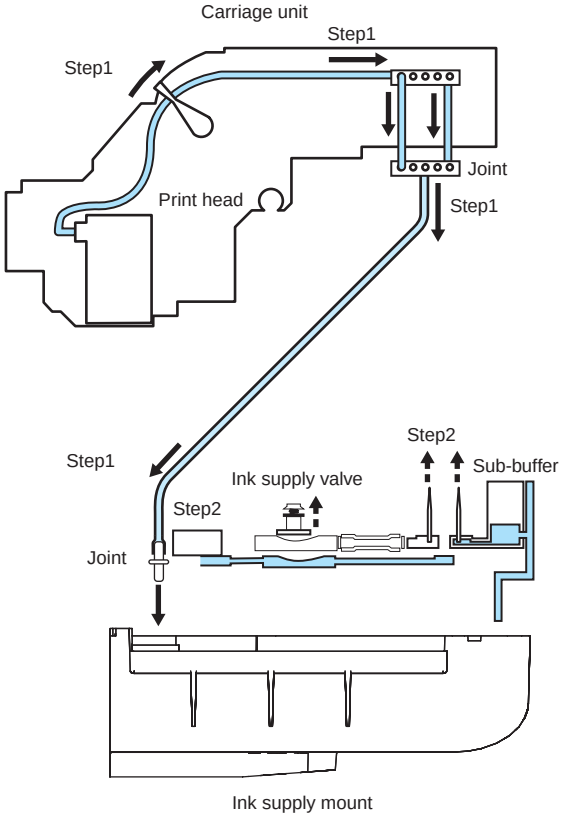
1. Automatic ink drainage
To perform automatic ink drainage, go to the main menu and select "Maintenance" > "Move Printer". It takes about 4 minutes for automatic ink drainage to be completed.

If a power outage or other cause shuts off the power during the operation for automatic ink drainage, perform automatic ink drainage again.

2. Manual ink drainage
A syringe or other implement is used to remove the ink inside the ink passages one color at a time in the event of a printer electrical failure, firmware error, or failure in supplying power to the printer.
a) Preparation
Prepare the following items before starting the manual ink drainage procedure.
1) Syringe having approx. 50-ml capacity (CK-0541-000) with connecting tube (QA2-6161-000)
If possible, try to use separate syringes for each color.
If the syringes are severely stained or if the tubes are attached to different-color needles, flush and wash the tubes (syringes) with water and allow them to fully dry to prevent mixing of ink colors.

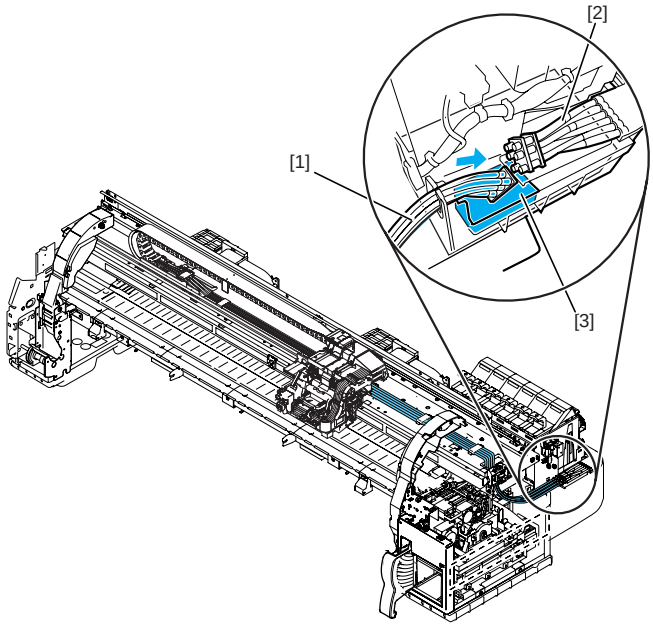
b) Overview of manual ink drainage
Perform manual ink drainage using the three steps described below.
Step 1: Simultaneously flow ink from all ink tubes (for six colors) to the ink absorber in the ink supply mount .
Step 2: Drain the ink in the ink tank to the cartridge one color at a time.
Step 3: Repeat step 2 for the remaining five colors.

If all of the ink passages are opened (no ink tank is installed, the ink supply valve is opened, and the print head lock lever is opened) when an ink tube is filled with ink, the ink in the ink tube may reverse-flow due to the difference in the water head, and ink may leak from the ink supply needle. Therefore, do not open all of the ink passages at the same time when the ink tube is filled with ink.



F-4-68

c) Draining the ink manually
Step 1
1) Remove the right circle cover (L), right circle cover (S), right side cover, upper right cover, and right cover unit. Refer to **DISASSEMBLY/ REASSEMBLY > Points to Notes on Disassembly and Reassembly > Outer covers.**
2) Remove the ink tank.
3) Move the carriage over the platen. Refer to **DISASSEMBLY/REASSEMBLY > Points to Notes on Disassembly and Reassembly > Opening the caps and moving the wiper unit.**
4) Remove the joint [1] for the ink tube unit and the joint [2] for the ink tank unit. Insert the ink-tube-unit-side joint [1] in the ink supply base having an ink absorber [3] so that the joint is not disconnected accidentally.
5) Unlock the print head lock lever to allow the ink for all six colors in the ink tubes to flow simultaneously to the ink absorber [3].

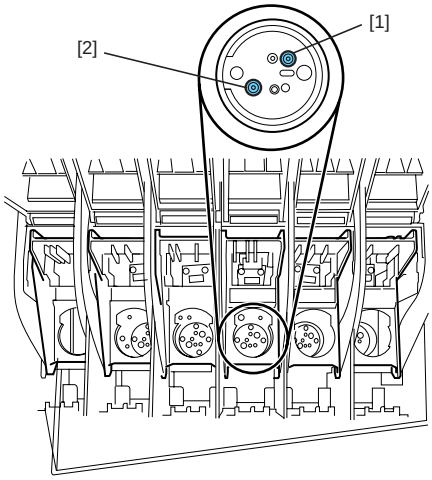


F-4-69

The ink absorber [3] can absorb the ink manually drained two times. Replace the ink absorber [3] as required.

Step 2

6) Connect the syringe ink tube to the needle [1] of the sub-buffer. Pull the plunger of the syringe to remove the ink inside the sub-buffer and discard to the ink absorber in the ink supply mount. Repeat this until there is no more ink left.
7) Open the ink supply valve. For details, refer to **DISASSEMBLY/REASSEMBLY > Points to Notes on Disassembly and Reassembly > Opening and closing the ink supply valve.**
8) Connect the syringe ink tube to the needle [2] of the ink supply side. Pull the plunger of the syringe to remove the ink inside the ink supply unit and discard to the ink absorber in the ink supply mount. Repeat this until there is no more ink left. For details, refer to **DISASSEMBLY/REASSEMBLY > Points to Notes on Disassembly and Reassembly > Opening and closing the ink supply valve.**

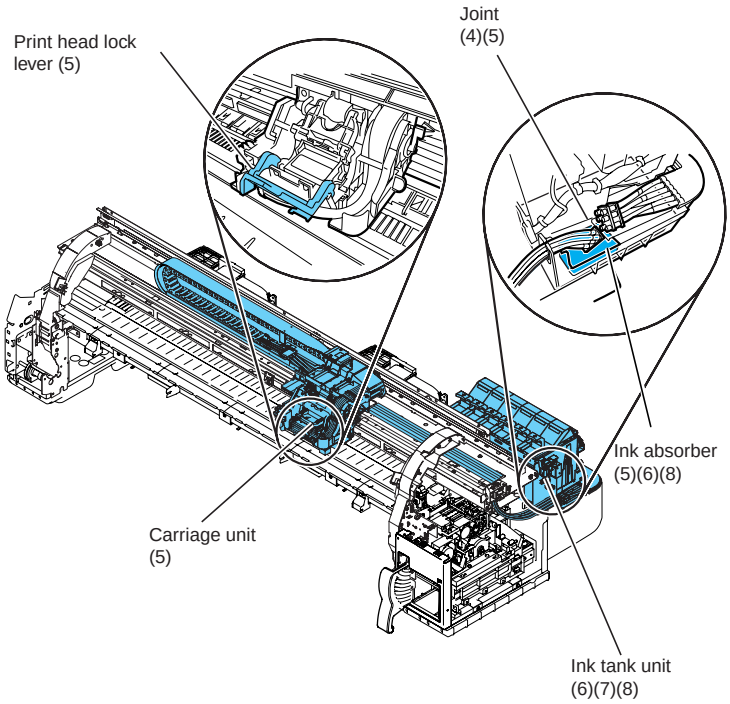


F-4-70

Step 3

9) Repeat Step 2 for all colors until there is no ink left.

* This figure shows the main access points for manual ink drainage.
The numbers in parentheses correspond to the numbers of the manual ink drainage procedure.


Print head lock lever (5)
Joint (4)(5)
Ink absorber (5)(6)(8)
Carriage unit (5)
Ink tank unit (6)(7)(8)

F-4-71

4.4 Applying the Grease

4.4.1 Applying the Grease

0009-4822

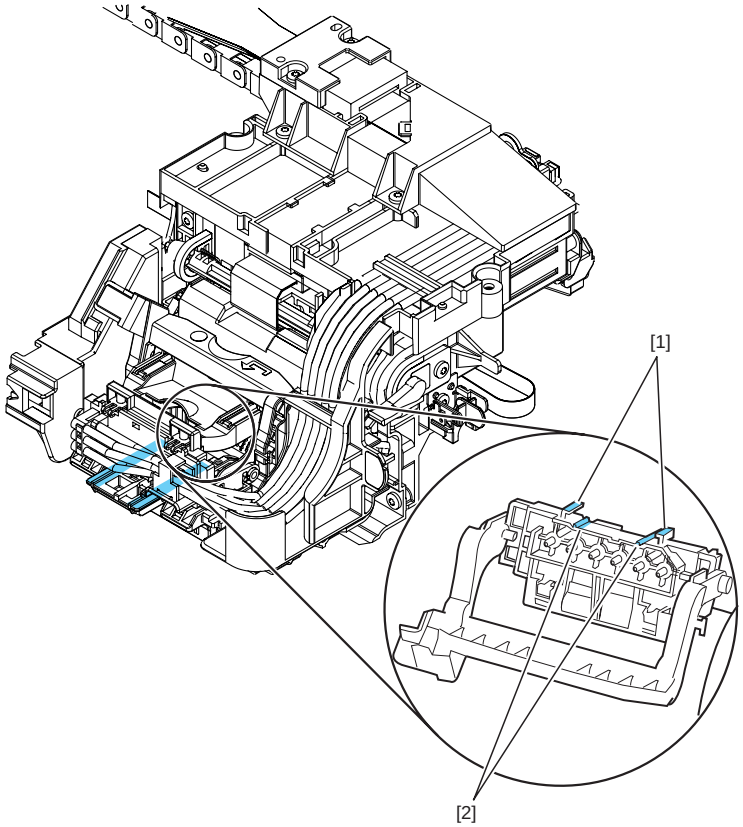
Apply the grease at the location shown below.
Smear the grease lightly and evenly with a flat brush.

Don't apply the grease to locations other than those designated. Unwanted grease may cause poor print quality, take particular care that grease does not get onto the wiper, cap, or the linear scale.

T-4-1

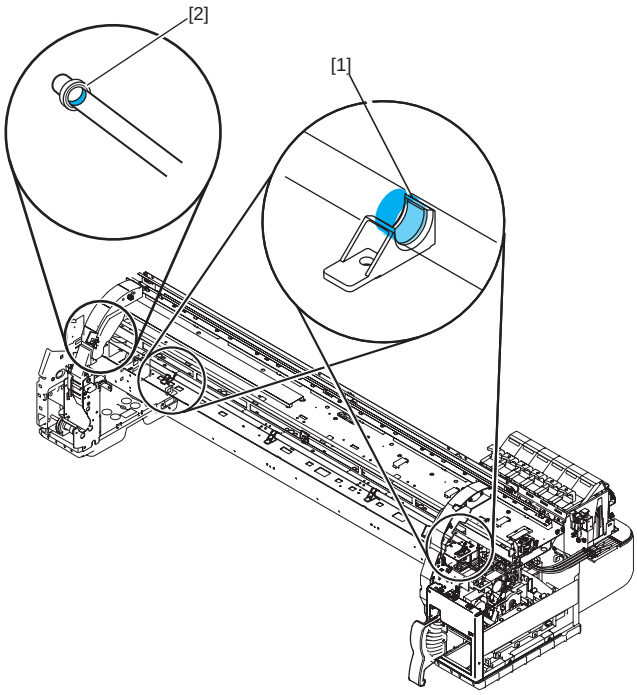
No.	Place	Kind	Quantity	Note
1	The joint unit rail [1] and rib [2] of a carriage	Molykote PG-641	Smear the grease lightly	
2	Two feed roller backup [1]	Permalub G No.2	approx.12mg	Don't apply to central backup with bearing.
3	Feed roller bearing [2]	Permalub G No.2	approx.24mg	Apply if remove bearing from a feed roller.
4	Pinch roller release cam three points[1] X 10 parts	Permalub G No.2	Smear the grease lightly	
5	Upper cover stay shaft hole [1]	Permalub G No.2	approx.24mg	
	The shaft [2] of the upper cover stay gear	Permalub G No.2	approx.24mg	
	Upper cover stay shaft end [3]	Permalub G No.2	approx.24mg	
	The tooth face [4] of an upper cover stay gear	Permalub G No.2	Smear the grease lightly	

1.The joint unit rail [1] and rib [2] of a carriage



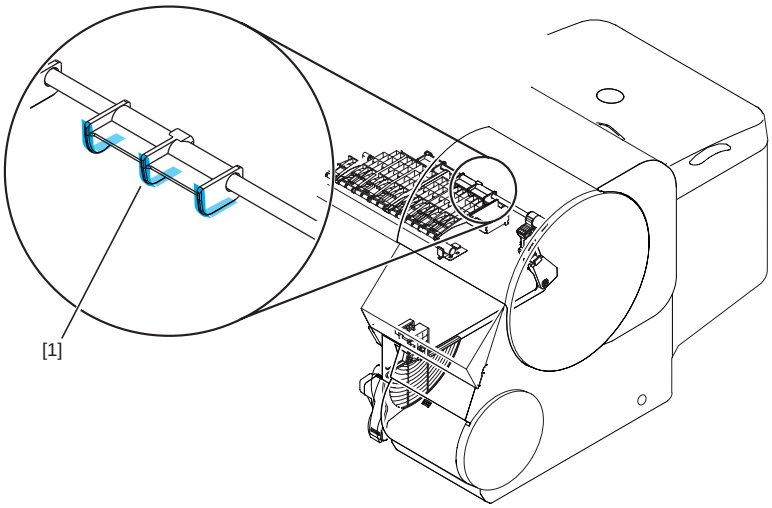
F-4-72

2. Two feed roller backup [1]
3. Feed roller bearing [2]



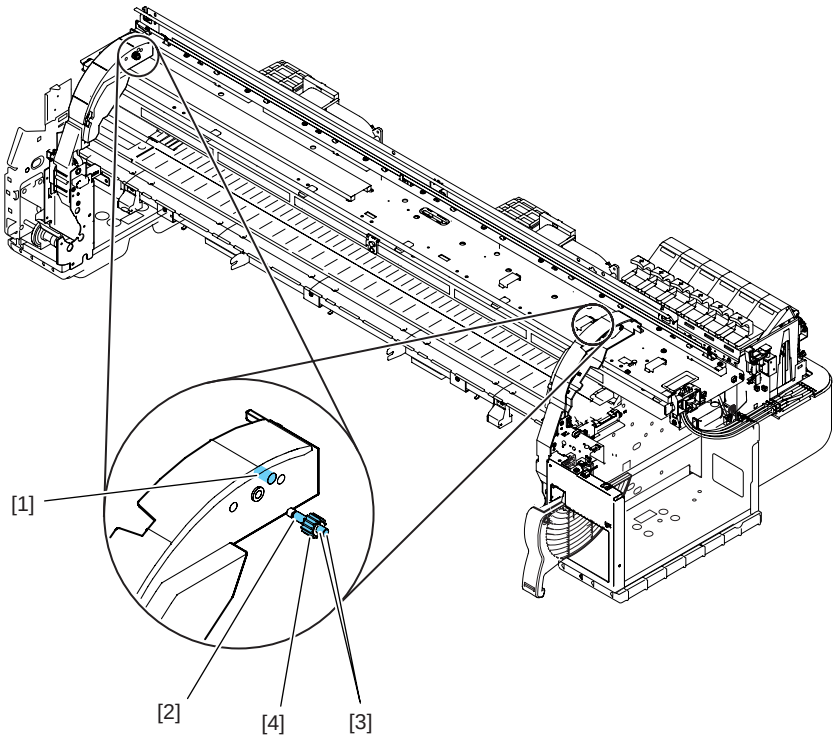
F-4-73

4.Pinch roller release cam three points[1] X 10 parts



F-4-74

5.Upper cover stay shaft hole [1] /Gear shaft[2] /Shaft end [3] /Gear tooth face [4]



F-4-75

4.5 Adjustment and Setup Items

4.5.1 Action to take after replacing the feed roller home position sensor, feed roller encoder, and feed roller

0009-9492

Eccentricity of the feed roller is factory-corrected (variation in the paper feed distance per rotation is compensated for) to enhance the media feed accuracy. Therefore, when you have replaced the feed roller home position sensor, feed roller encoder, or feed roller related to correction of feed roller eccentricity, adjustment is required.
Use the service mode under the following conditions:
Service mode: SERVICE MODE > ADJUST > PRINT PATTERN > LF
Carriage: Low position
Media type: Glossy photo
Media size: Media width 36 inch or more

4.5.2 Action to take after replacing the carriage unit or registration sensor

0009-9500

Since the distance between the registration sensor (in the carriage unit) and the nozzle (in the print head) varies between printers, the optical axis is factory-adjusted to tune the image write start point. Therefore, when you have replaced the carriage unit or registration sensor, adjustment is required.

Use the service mode under the following conditions:
Service mode: SERVICE MODE > ADJUST > PRINT PATTERN > OPTICAL AXIS
Head height: Low position
Media type: Glossy photo
Media size: Media width 36 inch or more

4.5.3 Action to take after replacing the head management sensor

0009-9496

Since the distance between the head management sensor and the carriage unit varies between printers, the optical axis is factory-adjusted to tune the no ink jet detection position. Therefore, when you have replaced head management sensor, adjustment is required.
User the service mode under the following conditions:
SERVICE MODE > ADJUST > NOZZLE CHK POS. > YES

Chapter 5 MAINTENANCE

Contents

5.1 Regular Replacement Parts

5.1.1 Regular Replacement Parts

0009-6209

T-5-1

Level	Regular replacement part
User	None
Service personnel	None

5.2 Consumables

5.2.1 Consumables

0009-6210

T-5-2

Level	Consumable
User	Printhead
	Ink tank (black)
	Ink tank (matte black)
	Ink tank (photo cyan)
	Ink tank (cyan)
	Ink tank (photo magenta)
	Ink tank (magenta)
	Ink tank (yellow)
	Cutter blade (standard or option)
	Maintenance cartridge
	Rail cleaner (Included with maintenance cartridge)
Service personnel	None

5.3 Regular Maintenance

5.3.1 Regular Maintenance

0009-6211

T-5-3

Level	Regular maintenance
User	Cleaning of ink mist and other substances (When necessary and when replacing the printhead)
Service personnel	None

Chapter 6 TROUBLESHOOTING

Contents

6.1 Troubleshooting

6.1.1 Outline

6.1.1.1 Outline of Troubleshooting

0009-6212

1. Outline
There are two types of trouble: trouble which is reported by the messages shown on the display ("Warning," "Error" and "Service call error"); and trouble not shown on the display.
In this manual, a colon (:) is used to distinguish the first and second lines of the message.
The alphanumeric code indicating the type of error, that is the "warning", or "error," will be displayed on the printer's display. The letters at the end of the code indicates the following: W for the "warning" and E for the "error".
2. Notice for Troubleshooting
1. Obtain information about the system environment and the type of media used for printing.
2. Before performing troubleshooting, make sure that all cables are connected properly.
3. When servicing the printer with the external cover is removed and the AC power connected, pay special attention when handling the electrical parts or the boards to avoid an electric shock or short circuit.
4. In the following sections, the troubleshooting steps (action) are described such that the component related to the most probable cause of the problem will be repaired or replaced first, following by components with less failure probability. If multiple components are the same probability of predicted failure, the steps are indicated based on how easy the servicing is.

After performing a step, check to see if the problem has been solved by executing a test print. If not resolved, proceed with the next step.
5. When the service has been completed, check to ensure that all connectors/cables are reinstalled and screws are firmly tightened.
6. After performing replacement or repair services, run test prints to check whether the problem has been solved.

6.1.2 Troubleshooting by the Phenomenon

6.1.2.1 Incorrect Value: Check Value

0009-7061

<Cause>
Invalid input value detected for 'Interface Setup > TCP/IP > IP Setting > IP Address, Subnet Mask, Default G/W' from the Main Menu.

<Probable problem locations>
Operating procedure, system controller

<Remedy>
1. Operation check
Check that the message turns off when proper value is entered in [IP Address], [Subnet Mask], or [Default G/W].
2. Replace the system controller.

6.1.2.2 Offline: Load Roll Media

0009-7062

<Cause>
This is displayed when the media sensor detects no roll media during roll media mode.

<Probable problem locations>
Operating procedure, media sensor, engine controller and system controller

<Remedy>
1. Operation check
Load the roll media and check if the message changes.
2. Visual check
Remove any foreign objects adhering to the media sensor.
3. Media sensor
Check operation using SERVICE MODE>I/O DISPLAY, and replace if anything does not function normally.
4. Cable connection check
Replace the cable connecting the media sensor and engine controller if the connection is not functioning normally.
5. Replace the engine controller.
6. Replace the system controller.

6.1.2.3 Offline: Load Cut Sheet Offline: Remove Cut Sheet

0009-7063

<Cause>
This is displayed when the media sensor detects no sheets in cut sheet mode.
This is displayed when the media sensor detects sheets when switching from cut sheet mode to roll media mode.

<Probable problem locations>
Operating procedure, media sensor, engine controller, system controller

<Remedy>
1. Operation check
Check that the message changes when the cut sheets are loaded or when the cut sheets are removed.
2. Visual check
Remove any foreign objects adhering to the media sensor.
3. Media sensor
Check operation using SERVICE MODE>I/O DISPLAY, and replace if anything does not function normally.
4. Cable connection check
Replace the cable between the media sensor and engine controller if the connection is not functioning normally.
5. Replace the engine controller.
6. Replace the system controller.

6.1.2.4 Offline: Open Upper Cover

0009-7064

<Cause>
In Cut Sheet mode, unloaded paper was detected while the upper cover was closed.

<Probable problem locations>
Operating procedure, upper cover, upper cover sensor (L/R), upper cover lock unit, engine controller and system controller

<Remedy>
1. Operation check
Check that the message changes when the upper cover is opened.
2. Visual check
Replace if the upper cover sensor (L/R) is damaged, deformed or otherwise does not function normally.
Remove any foreign objects adhering to the upper cover lock unit.
3. Upper cover upper cover sensor (L/R)
Check operation using SERVICE MODE>I/O DISPLAY, and replace if anything does not function normally.
4. Cable connection check
Replace the cable connecting the upper cover sensor (L/R) and engine controller if the connection is not functioning normally.
5. Replace the engine controller.
6. Replace the system controller.

6.1.2.5 Printer Setup: Open Upper Cover

0009-7065

<Cause>
This is displayed when no printhead is detected when the power is turned on.

<Probable problem locations>
Operating procedure, printhead, carriage relay PCB, carriage unit, engine controller, system controller

<Remedy>
1. Operation check
Check that the message changes when the printhead is installed.
2. Visual check
Remove any foreign objects adhering to the printhead contact face.
3. Replace the printhead.
4. Cable connection check
Replace the cable between the head relay PCB and carriage relay PCB if the connection is not functioning normally.
5. Replace the carriage relay PCB.
6. Replace the carriage unit.
7. Cable connection check
Replace the cable between the carriage relay PCB and engine controller if the connection is not functioning normally.
8. Replace the engine controller.
9. Replace the system controller.

6.1.2.6 Printer Setup: Open Right Cover

0009-7067

<Cause>
This is displayed when no ink tank is detected when the power is turned on.

<Probable problem locations>
Operating procedure, ink tank, ink tank unit, engine controller, system controller

<Remedy>
1. Operation check
Check that the message changes when the ink tanks for all colors are installed.
2. Visual check
Remove any foreign objects adhering to the contact face.
3. Cable connection check
Replace the cable between the ink tank unit and engine controller if the connection is not functioning normally.
4. Replace the ink tank.
5. Replace the ink tank unit.
6. Replace the engine controller.
7. Replace the system controller.

6.1.2.7 Printer does not turn on

0009-7068

<Condition example>
Nothing is shown on the display when the Power button is pressed.

<Cause>
Broken connection in connector, faulty inlet unit, faulty power supply, faulty operation panel, faulty engine controller, faulty system controller

<Remedy>
1. Power cord
Reconnect the power cord.
2. Connector check
Reconnect the connectors for the operation panel (J1), system controller (J6, J7), engine controller (J101, J109, J110), and power supply (J1001, J1002, J1003).
3. Fuse check
Replace if the fuse for the power supply is blown.
4. Cable connection check

Replace the cable between the operation panel and system controller if the connection is not functioning normally.
Replace the cable between the engine controller and power supply if the connection is not functioning normally.
Replace the cable between the power supply and inlet unit if the connection is not functioning normally.
5. Replace the power supply.
6. Replace the operation panel.
7. Replace the engine controller.
8. Replace the system controller.

6.1.2.8 The power goes off during power on or while printing

0009-7131

<Condition example>
The power goes off during power on or while printing.

<Cause>
Printhead, carriage relay PCB, carriage unit

<Remedy>
1. Replace the printhead.
2. Replace the carriage relay PCB.
3. Replace the carriage unit.
4. Replace the engine controller.
5. Replace the system controller.

"Printhead Error! (E040000)" may appear when the power is turned off and then turned back on.
In this case, turn off the power once more and then start the printer in service mode.
Codes in parentheses are not displayed when a service call error occurs.
Service call errors can be check in the error history by selecting SERVICE MODE > DISPLAY > ERROR.

6.1.2.9 Network is not connected

0009-7069

<Condition example>
Printing cannot be performed from the network.

<Cause>
Cable is not connected properly, incompatibility with hub, system controller fault

<Remedy>
1. Check the cable.
Reconnect the LAN cable.
2. Check the communication settings.
Auto-negotiation cannot be performed for some configurations of the connected hub. Therefore, reset the network transmission speed and transfer mode by matching each item of the [Ethernet Driver] in the [Interface Setting] menu with the specification of the hub that is used from the operation panel.
3. Replace the hub.
Explain to the customer that there is no problem with the printer unit.
4. Replace the sysytem controller.

6.1.2.10 Right cover does not open

0009-7071

<Condition example>
The right cover does not open. (No error message is shown on the display.)

<Cause>
Connector is not connected properly, engine controller fault

<Remedy>
1. Check the connector
Reconnect the right cover lock solenoid connector (J134) and right cover sensor (J82).
2. Replace the engine controller.

6.1.2.11 Printing problems (ink is full)

0009-7073

<Condition example>
Step 1
- Interface is not recognized.
- A test print can be printed, but printing from the host computer is not functioning normally.

Step 2
- No printing can be performed.
- Printing of the test print and printing from the host computer are not functioning normally.
- Textures appear in the image.

<Cause>
Faulty host computer, faulty interface cable, faulty expansion interface board, dirty carriage rail, improper position for head tilt lever, faulty printhead, faulty purge unit, faulty linear scale, faulty carriage unit, faulty carriage relay PCB, faulty engine controller, faulty system controller

Step 1 remedy
1. Interface cable
Replace the interface cable if a visual check reveals that the connectors are damaged, deformed, or otherwise do not function normally.

2. Computer
Install the printer drivers to a computer, and connect to the printer. If the print data can be sent normally, instruct the customer to replace his computer.
3. If you are using an expansion interface board, replace the expansion interface board (network board or IEEE1394 board).
4. Replace the system controller.

Step 2 remedy
1. Dirty carriage rail
Use rail cleaner to clean the carriage rails if a visual check reveals that they are dirty or other abnormalities.
2. Head tilt lever
Check if changing the position of the head tilt lever fixes the problem.
3. Purge unit
Perform a visual check, and remove any foreign objects adhering to the caps and wipers.
4. Print adjustment check
Execute [Adjust Printer] > [Printhead Adj.] > [Advanced Adj.] and adjust the shift between nozzle arrays.
5. Printhead
Execute head cleaning, and replace the printhead if the result is not improved.
6. Linear scale
Clean the linear scale if it is dirty. Replace it if this does not solve the problem.
7. Replace the carriage unit.
8. Replace the carriage relay PCB.
9. Replace the engine controller.
10. Replace the system controller.

6.1.2.12 Printing problems (ink is not full)

0010-0347

<Condition example>
- No printing can be performed.
- A specific ink is not printed.
- Ink is not filled to the ink tube for the printhead lock lever.
- Ink is not filled to the ink tube before the ink tank unit.

<Cause>
Faulty ink tank, faulty printhead, faulty purge unit, faulty valve motor unit, faulty ink tank unit, faulty ink tube unit, faulty engine controller, faulty system controller

<Remedy>
1. Visual check
Remove the ink tube if it is bent or otherwise not functioning normally.
2. Ink tank
Remount the ink tank.
3. Ink supply valve
Refer to **DISASSEMBLY/REASSEMBLY > Points to Note on Disassembly and Reassembly > Ink tank unit**, and check the ink supply valve.
4. Ink filling
Check if there is any ink inside the ink tube, and then remove the printhead and ink tanks, and turn on the power. Then, follow the messages to install the printhead and ink tanks and fill the ink.
5. Replace the printhead.
6. Replace the purge unit.
7. Replace the valve motor unit.
8. Replace the ink tank unit.
9. Replace the ink tube unit.
10. Replace the engine controller.
11. Replace the system controller.

6.1.2.13 Other printing problems

0009-7074

<Condition example>
Soiled media

<Cause>
Soiling due to ink mist or other substances.

<Remedy>
1. Moisten the upper cover interior or feed unit, and then clean using a soft, fullwrung cloth.

6.1.3 Troubleshooting When Warnings Occur

6.1.3.1 Ink Check (W01000/ W01001/ W01002/ W01003/ W01004/ W01005)

0009-7076

Codes in parentheses are not displayed when a warning occurs. These codes can be checked in the warning history by using **SERVICE MODE>DISPLAY> WARNING**.

<Cause>
This is displayed when the electrodes mounted to the hollow needle in the ink tank unit detect that the ink is below the prescribed level.

<Probable problem locations>
Ink tank, ink tank unit, engine controller, system controller

<Remedy>
1. Check the ink level.
2. Replace the ink tank.
3. Check the connectors of the ink tank unit.
4. Replace the ink tank unit.
5. Replace the engine controller.

6. Replace the system controller.

6.1.3.2 MTCart Full Soon (W01006)

0009-7077

<Cause>
This is displayed when an almost full (80 percent or more) maintenance cartridge is detected.

<Probable problem locations>
Maintenance cartridge, engine controller and system controller

<Remedy>
1. Maintenance Cartridge
Use SERVICE MODE>COUNTER>PRINTER>W-INK to check the waste ink absorber. Replace if the waste ink level is near the limit (1200ml).
2. Replace the engine controller.
3. Replace the system controller.

6.1.3.3 Mist Full Soon (W01007)

0009-7079

<Cause>
This is displayed when a almost full (approx. 80% capacity of the total capacity) waste ink level is detected in the platen waste ink box and the mist fan unit.

<Probable problem locations>
Platen waste ink box, mist fan unit, engine controller and system controller

<Remedy>
1. Replace the platen waste ink box and the mist fan unit.
After replacing the platen waste ink box and the mist fan unit, perform SERVICE MODE> INITIALIZE> MIST COUNT.
2. Replace the engine controller.
3. Replace the system controller.

6.1.3.4 Feed Limit..(W0100F)

0009-7080

<Cause>
This is displayed when the engine controller has detected the feed limit of the media during manual feeding.
During back feeding, the print standby position (on feed roller) is the feed limit.
During forward feeding, the media sensor detects no roll media.

<Probable problem locations>
Engine controller, system controller

<Remedy>
1. Replace the engine controller.
2. Replace the system controller.

6.1.3.5 Incorrect Media (W01021)

0009-7082

<Cause>
During data reception, this is displayed when the media type required by the received data is different from the media type that is currently loaded.

<Probable problem locations>
Operation error, engine controller, system controller

<Remedy>
1. Check the operating procedures and reprint.
2. Replace the engine controller.
3. Replace the system controller.

6.1.3.6 W01030/W01031/W01032/W01034/W01035/W01036/W01037/W01038/W01039: GARO W0103x (number is indicated by x)

0009-9973

<Cause>
During data reception, this is displayed when an error occurs in the data reception GARO command.

<Probable problem locations>
Operation error, system controller

<Remedy>
1. Check the operating procedures and reprint.
2. Replace the system controller.

6.1.4 Troubleshooting When Errors Occur

6.1.4.1 E02000/ Roll media end error

0009-7087

<Cause>
This is displayed when the media sensor has detected the roll media trailing edge during printing or loading of the roll media.

<Probable problem locations>
Roll media, media sensor, engine controller and system controller

<Remedy>
1. Roll media
Install the roll media if there is none.
2. Media sensor
Check operation using SERVICE MODE>I/O DISPLAY, and replace if anything does not function normally.
3. Cable connection check
Replace the cable between the feed sensor and engine controller if the connection is not functioning normally.
4. Replace the engine controller.
5. Replace the system controller.

6.1.4.2 E0200D/ E02016/ Cut sheet end error

0009-7089

<Cause>
This is displayed when the media sensor cannot detect the cut sheet trailing edge, even after feeding the prescribed length during cut sheet loading.
This is displayed during printing when the media sensor has detected the cut sheet trailing edge at a different position from the media loading position.

<Probable problem locations>
Paper path, media sensor, engine controller and system controller

<Remedy>
1. Visual check
Remove any foreign objects adhering to the paper path and media sensor.
Replace the paper path if the feeding surface or sliding section of the paper path is damaged, deformed, or otherwise does not function normally.
2. Media sensor
Use SERVICE MODE>I/O DISPLAY to check operation, and replace if faulty.
3. Cable connection check
Replace the cable between the media sensor and engine controller if the connection is not functioning normally.
4. Replace the engine controller.
5. Replace the system controller.

6.1.4.3 E0200A/ E0200B/ E0200C/ E0200E/ E0200F/ E02010/ E02017/E02018/ Registration sensor error

0009-7090

<Cause>
This is displayed when the light intensity of the registration sensor could not be adjusted during media loading.
This is displayed when the registration sensor has detected a media loading position error during detection of the media right edge.
This is displayed when the registration sensor could not detect the media leading edge during detection of the media leading edge.
This is displayed when the registration sensor has detected a media smaller than the prescribed size during media loading.
This is displayed when the registration sensor has detected a media larger than the prescribed size during media loading.
This is displayed when the registration sensor detects slanting that exceeds the prescribed amount during media loading.
This is displayed when the registration sensor could not detect the media right edge during media loading.
This is displayed when the registration sensor could not detect the media left edge during media loading.

<Probable problem locations>
Media, media loading procedure, paper path, registration sensor, carriage relay PCB, engine controller and system controller

<Remedy>
1. Media check
Replace any media that have printing or soiling at the detection position or that are outside the prescribed size.
2. Media loading check
Reload the media if there is anything abnormal about the media loading status.
3. Visual check
Remove any foreign objects adhering to the registration sensor.
4. Registration sensor
Use SERVICE MODE> DISPLAY> SYSTEM> SIZE CR to check the reading of the registration sensor. Replace if it is not functioning normally.
5. Cable connection check
Replace the cable between the registration sensor and carriage relay PCB if the connection is not functioning normally.
6. Replace the carriage relay PCB.
7. Cable connection check
Replace the cable between the carriage relay PCB and engine controller if the connection is not functioning normally.
8. Replace the engine controller.
9. Replace the system controller.

6.1.4.4 E02013/ Cutter motor time-out error

0009-9974

<Cause>
After cutter motor starting of an option cutter unit, the cutter sensor could not detect the cutter right switch or the cutter left switch within the required time.
This is displayed when the media sensor could not detect the media leading edge during detection after cutting of the roll media.

<Probable problem locations>
Cutter right switch/cutter left switch/cutter motor of option cutter unit, cutter unit

<Remedy>
1.Cable connection check
Reconnect the cable between the cutter unit and printer.
2.Cutter right switch, cutter left switch
Check operation using SERVICE MODE>I/O DISPLAY, and replace if anything does not function normally.
3. Replace the option cutter motor.
4. Replace the option cutter unit.

6.1.4.5 E02014/ Cutter unit fuse failure error

0009-9998

Blown cutter unit fuse
<Cause>
The fuse in an option cutter unit PCB is broken.

<Probable problem locations>
Option cutter unit PCB

<Remedy>
1. Replace the option cutter unit.

6.1.4.6 E02015/ Cutter error

0009-7092

<Cause>
This is displayed when the registration sensor could not detect the media leading edge during detection after cutting of the roll media.

<Probable problem locations>
Media, registration sensor, cutter unit, engine controller and system controller

<Remedy>
1. Media check
Replace any media that have printing or soilling at the detection position or that are outside the prescribed.
2. Registration sensor error
If the errors E0200A, E0200B, E0200C, E0200E, E0200F, E02010, E02017, or E02018 are displayed during a printer operation other than media cutting, see Registration sensor error.
3. Visual check
Remove any foreign matter and resolve any other problems affecting the cutter unit.
Replace cutter unit if it is damaged, deformed or otherwise malfunctioning.
4. Replace the engine controller
5. Replace the system controller

6.1.4.7 E02400/ E02401/ E02402/ E02403/ Path mismatch error

0009-7094

<Cause>
This is displayed when the loaded media is a cut sheet when the received data is designated for roll media.
This is displayed when the roll media is not loaded when the received data is designated for roll media.
This is displayed when the cut sheet is not loaded when the received data is designated for cut sheet.
This is displayed if the loaded media is roll media when the received data is designated for cut sheet.
This is displayed when printing the adjustment pattern if the loaded media is smaller than the prescribed size of the adjustment pattern.

<Probable problem locations>
Media, engine controller, system controller

<Remedy>
1. Media check
Check the media loading status, and reload the media if the media are different from the transmit data, the media are not loaded, or the loaded media are outside of the prescribed size.
2. Replace the engine controller.
3. Replace the system controller.

6.1.4.8 E02405/ E02406/ E02407/ Borderless printing error

0009-7096

<Cause>
Current media loading position is unsuitable for Borderless Printing.
Data not compatible with borderless printing was received.
Media with width not allowed for borderless printing is set.

<Probable problem locations>
Printer operating procedure error.

<Remedy>
1. Check correct operating procedure and retry print operation.

6.1.4.9 E02500/ E02501/ E02502/ E02503/ E02504/ E02505/ Ink empty error

0009-7097

<Cause>
This is displayed when no ink is detected in the ink tank.

<Probable problem locations>
Ink tank, engine controller, system controller

<Remedy>
1. Replace the ink tank.
2. Replace the engine controller.
3. Replace the system controller.

6.1.4.10 E02506/ E02507/ E02508/ E02509/ E0250A/ E0250B/ Ink tank uninstalled error (during ink tank replacement)

0009-7099

<Cause>

This is displayed when the sensor detects that the right cover is closed with an ink tank removed during ink tank replacement.

<Probable problem locations>
Operating procedure, ink tank, right cover sensor, ink tank unit, engine controller, system controller

<Remedy>
1. Operation check
Install the ink tank.
2. Visual check
Remove any foreign objects adhering to the ink tank contacts and right cover sensor.
3. Replace the ink tank.
4. Right cover sensor
Check operation using SERVICE MODE>I/O DISPLAY, and replace if anything does not function normally.
5. Cable connection check
Replace the cable between the right cover sensor and engine controller if the connection is not functioning normally.
6. Replace the ink tank unit.
7. Cable connection check
Replace the cable between the ink tank unit and engine controller if the connection is not functioning normally.
8. Replace the engine controller.
9. Replace the system controller.

6.1.4.11 E02520/ Ink level unknown error

0009-7101

<Cause>
Even one of the colors that should be set to "Main Menu> System Setup> Stop Ink Check" may have been changed to "Yes."
(When this option is set, the ink level of the corresponding color becomes "?".)

The display of this error indicates normal status if the setting is made by the user intentionally or due to an operation mistake.
In this case, the error message is displayed whenever printing is started, but it can be temporarily canceled by pressing the [Online] button to start printing or pressing the [Stop/Eject] button to cancel printing.
To cancel this error and recover the ink level detection function, replace with a new ink tank designated for this printer.
Perform the following procedure whenever this error is displayed even though the ink level of the corresponding color is "?".

<Probable problem locations>
Engine controller, system controller

<Remedy>
1. Replace the engine controller.
2. Replace the system controller.

6.1.4.12 E02521/ E02522/ E02523/ E02524/ E02525/ E02526/ Ink level low error

0009-7103

<Cause>
Ink level has declined to approximately 33ml.

This error can be canceled by opening the right cover and printing can continue until the ink empty errors E02500 to E02505 appear.

<Probable problem locations>
Ink tank, engine controller and system controller

<Remedy>
1. Replace ink tank
2. Replace engine controller.
3. Replace system controller.

6.1.4.13 E02530/ Ink type error

0010-0007

<Cause>
The received data is different from the Bk ink being used.
<Probable problem locations>
Printer operating procedure error.

<Remedy>
1. Execute Maintenance > Update Ink Information from the printer driver and update the print driver ink information.
2. Send image data that has the same ink characteristic as the ink being used (Bk or MBk).

6.1.4.14 E02800/ E02801/ E02802/ E02803/ E02811/ Printhead error

0009-7105

<Cause>
This is displayed when no printhead is detected.
This is displayed when unusually high temperatures are detected in the printhead.
This is displayed when installation of an incorrect printhead is detected.
This is displayed when a checksum error occurs in the printhead EEPROM.

This is displayed when a DI correction failure is detected in the printhead.

<Probable problem locations>
Printhead, carriage relay PCB, carriage unit, engine controller, system controller

<Remedy>
1. Replace the printhead.
2. Cable connection check
Replace the cable between the head relay PCB and carriage relay PCB if the connection is not functioning normally.
3. Replace the carriage relay PCB.
4. Cable connection check
Replace the cable between the carriage relay PCB and engine controller if the connection is not functioning normally.
5. Replace the carriage unit.
6. Replace the engine controller.
7. Replace the system controller.

6.1.4.15 E02804/ E02805/ E02806/ E02807/ E02808/ E02809/ E0280A/E0280B/ E0280C/ E0280D/ E0280E/ E0280F/ Ink tank error

0009-7106

<Cause>
This is displayed when installation of an incorrect ink tank is detected.
This is displayed when a checksum error occurs in the ink tank EEPROM.

<Probable problem locations>
Ink tank, ink tank unit, engine controller, system controller

<Remedy>
1. Replace the ink tank.
2. Replace the ink tank unit.
3. Cable connection check
Replace the cable between the ink tank unit and engine controller if the connection is not functioning normally.
4. Replace the engine controller.
5. Replace the system controller.

6.1.4.16 E02812/ E02A00/ E02A01/ E02A02/ E02A03/ Engine controller internal error

0009-7107

<Cause>
This is displayed when an error occurs in the engine controller EEPROM.
This is displayed when an error occurs in the firmware of the engine controller.
This is displayed when an error occurs in the FLASH ROM of the engine controller.

<Probable problem locations>
Engine controller, system controller

<Remedy>
1. Turn the power off and then on again.
2. Replace the engine controller.
3. Replace the system controller.

6.1.4.17 E02813/ E02814/ Head management sensor error

0010-0038

<Cause>
The head management sensor has detected an ink discharge error.
A sensor sensitivity error was detected during position adjustment of the head management sensor.

<Probable problem locations>
Printhead, head management sensor, engine controller and system controller

<Remedy>
1. Replace the printhead.
2. Visual check
Remove any foreign objects adhering to the head management sensor.
3. Replace the head management sensor.
4. Cable connection check
Replace the cable between the head management sensor and engine controller if the connection is not functioning normally.
5. Replace the engine controller.
6. Replace the system controller.

6.1.4.18 E02816/ E02817/ E02818 /E02819/ Maintenance cartridge error

0009-7108

<Cause>
Fault in maintenance cartridge EEPROM.
Maintenance cartridge ID error.
Maintenance cartridge not installed.
Maintenance cartridge full.

<Probable problem locations>
Maintenance cartridge, engine controller and system controller

<Remedy>
1. Replace maintenance cartridge.

2. Replace engine controller.
3. Replace system controller.

6.1.4.19 E02820/ E02821/ E02822/ E02823/ E02824/ Adjustment error

0010-0053

<Cause>
Adjustment cannot be performed because the result of reading adjustment pattern by performing Auto Head Adjustment from the User Menu is abnormal.
Adjustment cannot be performed because the result of reading adjustment pattern by performing Auto LF Adjustment from the User Menu or Service Mode is abnormal.
Adjustment cannot be performed because the result of reading correction pattern by performing Decentration Compensation from Service Mode is abnormal.
Adjustment cannot be performed because the result of reading head verification pattern by performing Auto LF Adjustment from the User Menu or Service Mode is abnormal.
Adjustment cannot be performed because the result of reading adjustment pattern by performing Optical Axis Adjustment from Service Mode is abnormal.

⚠
Check whether you are using photo glossy paper when adjusting by selecting SERVICE MODE > ADJUST > PRINT PATTERN > OPTICAL AXIS or SERVICE MODE > ADJUST > PRINT PATTERN > LF.

<Probable problem locations>
Operating procedure, printhead, registration sensor, head relay PCB, carriage relay PCB, engine controller, system controller

<Remedy>
1. Check that the media selected from the operation panel is the same as the media type of the printed adjustment pattern. If not, set the same media as the one selected from the operation panel and repeat adjustment.
2. If the media causes excessive ink seepage, change the media.
3. Clean the head and repeat adjustment. Replace the head if adjustment is still not possible after cleaning the head.
4. Replace the registration sensor and repeat adjustment.
5. Replace the carriage unit.
6. Replace the engine controller.
7. Replace the system controller.

6.1.4.20 E02B04/ Upper cover sensor error

0009-7109

<Cause>
This is displayed when the upper cover sensor (L/R) has detected upper cover open status even though it is locked.

<Probable problem locations>
Upper cover, upper cover safety switch, upper cover lock unit, engine controller and system controller

<Remedy>
1. Operation check
Replace the sensor if the upper cover sensor flag or upper cover sensor (L/R) is damaged, deformed or is otherwise malfunctioning.
Remove any foreign objects adhering to the upper cover lock unit.
2. Upper cover sensor (L/R)
Check operation using SERVICE MODE>I/O DISPLAY, and replace if anything does not function normally.
3. Cable connection check
Replace the cable connecting the upper cover sensor (L/R) and engine controller if the connection is not functioning normally.
4. Upper cover lock unit
Check operation, and replace if it is not functioning normally.
5. Cable connection check
Replace the cable between the upper cover lock unit and engine controller if the connection is not functioning normally.
6. Replace the engine controller.
7. Replace the system controller.

6.1.4.21 E02B05/ E02B07/ Right cover sensor error

0009-7110

<Cause>
This is displayed when the right cover sensor has detected right cover open status even though it is locked.

<Probable problem locations>
Right cover, right cover lock unit, right cover sensor, engine controller, system controller

<Remedy>
1. Visual check
Replace the right cover or right cover lock unit if any of them are damaged, deformed, or otherwise does not function normally.
2. Right cover sensor
Check operation using SERVICE MODE>I/O DISPLAY, and replace if anything does not function normally.
3. Cable connection check
Replace the cable between the right cover sensor and engine controller if the connection is not functioning normally.
4. Replace the engine controller.
5. Replace the system controller.

6.1.4.22 E02B06/ Carriage cover sensor error

0009-7111

<Cause>
This is displayed when the carriage cover sensor has detected that the carriage cover is open while the upper cover is locked.

<Probable problem locations>
Operating procedure, carriage cover sensor, carriage relay PCB, engine controller, system controller

<Remedy>
1. Operation check
Close the carriage cover firmly.
2. Visual check
Replace the carriage cover if it is damaged, deformed, or otherwise does not function normally.
3. Carriage cover sensor
Check operation using SERVICE MODE>I/O DISPLAY, and replace if anything does not function normally.
4. Cable connection check
Replace the cable between the carriage cover sensor and carriage relay PCB if the connection is not functioning normally.
5. Replace the carriage cover sensor.
6. Cable connection check
Replace the cable between the carriage relay PCB and engine controller if the connection is not functioning normally.
7. Replace the carriage relay PCB.
8. Replace the engine controller.
9. Replace the system controller.

6.1.4.23 E02B08/ Paper release lever error

0010-0042

<Cause>
The pressure release sensor has detected that the paper release lever is open while the upper cover is locked.

<Probable problem locations>
Operating procedure, pressure release sensor, engine controller, system controller

<Remedy>
1. Operation check
Close the paper release lever firmly.
2. Visual check
Replace the paper release lever if it is damaged, deformed, or otherwise does not function normally.
3. Pressure release sensor
Check operation using SERVICE MODE>I/O DISPLAY, and replace if anything does not function normally.
4. Cable connection check
Replace the cable between the pressure release sensor and engine controller if the connection is not functioning normally.
5. Replace the engine controller.
6. Replace the system controller.

6.1.4.24 E02D00/ E02D01/ E02D0A/ E02D0B/ Sensor error in purge unit

0009-7113

<Cause>
This is displayed when sensors in the purge unit could not detect the positions of the motors within the prescribed time.

<Probable problem locations>
Purge unit, engine controller, system controller

<Remedy>
1. Home position sensor
Check operation using SERVICE MODE>I/O DISPLAY, and replace the purge unit if anything does not function normally.
- Cap home position sensor
- Pump home position sensor
- PG position H sensor
2. Cable connection check
Replace the cable between the sensors and engine controller if the connection is not functioning normally.
3. Replace the engine controller.
4. Replace the system controller.

6.1.4.25 E02D02/ Carriage home position error

0009-7114

<Cause>
This is displayed when the carriage home position sensor could not detect the carriage within the prescribed time.

<Probable problem locations>
Foreign object in carriage contact section, carriage home position sensor, linear scale, linear encoder, engine controller, system controller

<Remedy>
1. Visual check
Remove any foreign objects adhering to the carriage contact section, carriage home position sensor, linear scale, and linear sensor.
2. Carriage home position sensor
Check operation using SERVICE MODE>I/O DISPLAY, and replace if anything does not function normally.
3. Cable connection check
Replace the cable between the carriage home position sensor and engine controller if the connection is not functioning normally.
4. Replace the linear scale.
5. Replace the linear encoder.
6. Replace the engine controller.
7. Replace the system controller.

6.1.4.26 E02D03/ Feed motor error

0009-7115

<Cause>

This is displayed when the feed motor could not reach the prescribed speed within the prescribed time or the feed roller encoder could not detect the prescribed number of steps from the encoder slit.

<Probable problem locations>
Feed roller encoder, encoder slit, feed motor, engine controller and system controller

<Remedy>
1. Visual check
Remove any foreign objects adhering to the feed roller encoder and encoder slit.
2. Replace the feed roller encoder.
3. Cable connection check
Replace the cable connecting the feed roller encoder and the engine controller if the connection is not functioning normally.
4. Replace the feed motor.
5. Cable connection check
Replace the cable between the feed motor and motor driver if the connection is not functioning normally.
6. Replace the motor driver.
7. Cable connection check
Replace the cable connecting the motor driver and the engine controller if the connection is not functioning normally.
8. Replace the engine controller.
9. Replace the system controller.

6.1.4.27 E02D05/ Mist fan error

0009-7116

<Cause>
Fan rotation could not be detected while the mist fan was running.

<Probable problem locations>
Mist fan, engine controller and system controller

<Remedy>
1. Cable connection check
Replace the cable connecting the mist fan and engine controller if the connection is not functioning properly.
2. Replace the mist fan.
3. Replace the engine controller.
4. Replace the system controller.

6.1.4.28 E02D06/ Ink supply valve switching error

0009-7117

<Cause>
The valve cam sensor could not detect valve cam rotation during switching of the ink supply valve.

<Probable problem locations>
Valve motor unit, engine controller, system controller

<Remedy>
1. Visual check
Check if there are any foreign objects adhering to the motor, gears, and sensors of the valve motor unit, and remove if any abnormalities are found.
2. Valve motor unit
Check operation by using SERVICE MODE>FUNCTION>INK VALVE, and replace if there are any abnormalities.
3. Cable connection check
Replace the cables between the valve motor and the motor driver if any abnormalities are found in the cable connections.
4. Replace the motor driver.
5. Cable connection check
Replace the cables between the motor driver and the engine controller if any abnormalities are found in the cable connections.
6. Cable connection check
Replace the cables between the valve cam sensor and the engine controller if any abnormalities are found in the cable connections.
7. Replace the engine controller.
8. Replace the system controller.

6.1.4.29 E02D07/ Feed roller home position sensor error

0010-0051

<Cause>
During power on, the feed roller home position sensor could not detect the change from white to black of the reference area from the scale at the encoder slit.

<Probable problem locations>
Encoder slit, feed roller home position sensor, feed motor, engine controller, system controller

<Remedy>
1. Visual check
Remove any scratches or adhered foreign objects from the encoder slit.
2. Feed roller home position sensor
Check operation using SERVICE MODE>I/O DISPLAY, and replace if anything does not function normally.
3. Cable connection check
Replace the cable between the feed roller home position sensor and engine controller if the connection is not functioning normally.
4. Cable connection check
Replace the cable between the feed motor and motor driver if the connection is not functioning normally.
5. Replace the motor driver.
6. Cable connection check
Replace the cable between the motor driver and engine controller if the connection is not functioning normally.
7. Replace the engine controller.
8. Replace the system controller.

6.1.4.30 E02D09/ Suction fan lock error

0010-0052

<Cause>
Lock signal is detected longer than prescribed interval while driving the suction fan.

<Probable problem locations>
Suction fan, engine controller and system controller

<Remedy>
1. Suction fan
Check operation by using SERVICE MODE>FUNCTION>PLATEN FAN, and replace if there are any abnormalities.
2. Cable connection check
Replace the cable connecting the suction fan and motor driver if the connection is not functioning properly.
3. Replace the motor driver.
4. Cable connection check
Replace the cable connecting the suction fan and engine controller if the connection is not functioning properly.
5. Replace the engine controller.
6. Replace the system controller.

6.1.4.31 E02E01/ E02E05/ E02E06/ Carriage motor error

0009-7112

<Cause>
This is displayed when a jam or other physical problem puts an excessive load on the carriage motor so that the carriage could not operate.
This is displayed when the carriage motor could not reach the prescribed speed within the prescribed time.

<Probable problem locations>
Foreign object in carriage movement path, carriage rail, carriage belt, linear scale, linear encoder, carriage motor, engine controller, system controller

<Remedy>
1. Carriage movement path check
Remove any foreign objects (jammed sheet) in the carriage movement path.
2. Carriage rail
Use rail cleaner to clean the carriage rails if a visual check reveals that they are dirty.
3. Carriage belt
If a visual check reveals slack in the carriage belt, remount the belt.
4. Replace the linear scale.
5. Replace the linear encoder.
6. Replace the carriage motor.
7. Cable connection check
Replace the cable between the carriage motor and engine controller if the connection is not functioning normally.
8. Replace the engine controller.
9. Replace the system controller.

6.1.4.32 E02E10/ IEEE1394 error

0009-7119

<Cause>
This is displayed when an error has occurred in the IEEE1394 interface.

<Probable problem locations>
IEEE1394 interface board, system controller

<Remedy>
1. Turn the power off and then on again.
2. IEEE1394 interface board
Remount the IEEE1394 interface board, and then turn on the power again.
Replace the IEEE1394 interface board if it still is not functioning normally.
3. Replace the system controller.

6.1.4.33 E02F00/ System controller internal error

0009-7120

<Cause>
This is displayed when an error has occurred in the firmware of the system controller.

<Probable problem locations>
System controller

<Remedy>
1. Turn the power off and then on again.
2. Replace the system controller.

6.1.5 Troubleshooting When Service Call Errors Occur

6.1.5.1 Outline

0009-7121

When a service call error occurs, the error is not cleared and the error display remains on the operation panel even if printer power goes off and on.
This is to avoid thet the user can cleare service call errors preventing the printer from damage.
Service call errors can be cleared, however, by starting up the printer with the service mode.

Codes in parentheses are not displayed when a service call error occurs.
These codes can be checked in the error history by using SERVICE MODE> DISPLAY> ERROR.

6.1.5.2 Printhead error! (E04000)

0009-7122

<Cause>
This is displayed when a drive voltage error occurs in the printhead.

<Probable problem locations>
Printhead, carriage relay PCB, carriage unit, engine controller, system controller

<Remedy>
1. Replace the printhead.
2. Replace the carriage relay PCB.
3. Replace the carriage unit.
4. Replace the engine controller.
5. Replace the system controller.

6.1.5.3 Mist Count Error (E04001)

0010-0068

<Cause>
This is displayed when a full waste ink level is detected in the platen waste ink box and the mist fan unit.

<Probable problem locations>
platen waste ink box, mist fan unit, engine controller and system controller

<Remedy>
1.Replace the platen waste ink box and the mist fan unit.
After replacing the platen waste ink box and the mist fan unit, perform SERVICE MODE> INITIALIZE> MIST COUNT.
2. Replace engine controller.
3. Replace system controller.

6.1.5.4 Scale read error! (E04002)

0009-7123

<Cause>
This is displayed when the carriage sensor could not read the linear scale.

<Probable problem locations>
Linear scale, carriage sensor, carriage relay PCB, carriage unit, engine controller, system controller

<Remedy>
1. Visual check
Replace the linear scale if it is dirty, damaged, deformed, or otherwise does not function normally.
Remove any foreign objects adhering to the carriage sensor.
2. Cable connection check
Replace the cable between the carriage sensor and carriage relay PCB if the connection is not functioning normally.
3. Replace the carriage relay PCB.
4. Cable connection check
Replace the cable between the carriage relay PCB and engine controller if the connection is not functioning normally.
5. Replace the carriage unit.
6. Replace the engine controller.
7. Replace the system controller

6.1.5.5 Turn Power Off!! (S04010)

0009-7124

<Cause>
System controller RTC not found (S04010).

<Probable problem locations>
Lithium battery and system controller

<Remedy>
1. Replace engine controller.

6.1.5.6 Turn Power Off!! (E02777)

0009-7125

<Cause>
Communication error between system controller and engine controller.

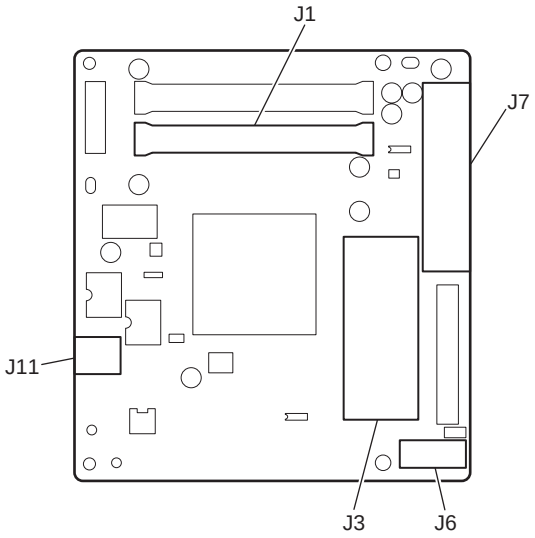
<Probable problem locations>
Firmware, engine controller and system controller

<Remedy>
1. Update firmware.
2. Replace engine controller.
3. Replace system controller.

6.2 Connector Positions and Pin Arrangement

6.2.1 System Controller

0009-9776



F-6-1

T-6-1

J3(Expansion board I/F)			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	GND	-	GND
2	GND	-	GND
3	GND	-	GND
4	+3.3R	OUT	Power supply (+3.3V)(OFF during sleep mode)
5	+3.3R	OUT	Power supply (+3.3V)(OFF during sleep mode)
6	+3.3R	OUT	Power supply (+3.3V)(OFF during sleep mode)
7	+3.3R	OUT	Power supply (+3.3V)(OFF during sleep mode)
8	+3.3R	OUT	Power supply (+3.3V)(OFF during sleep mode)
9	+3.3R	OUT	Power supply (+3.3V)(OFF during sleep mode)
10	N.C.	-	N.C.
11	GND	-	GND
12	PME	IN	Power management enable signal
13	INTA	IN	Interrupt signal
14	GND	-	GND
15	RST	OUT	Reset signal
16	CLK	OUT	Clock signal
17	GNT	OUT	Ground signal
18	GND	-	GND
19	REQ	IN	Request signal
20	AD31	IN/OUT	Address and data signal
21	AD30	IN/OUT	Address and data signal
22	AD29	IN/OUT	Address and data signal
23	AD28	IN/OUT	Address and data signal
24	GND	-	GND
25	AD27	IN/OUT	Address and data signal
26	AD26	IN/OUT	Address and data signal
27	AD25	IN/OUT	Address and data signal
28	AD24	IN/OUT	Address and data signal
29	CBE3	OUT	Bus command and byte enable signal
30	IDSEL	IN/OUT	Initialization device select signal
31	GND	-	GND
32	GND	-	GND

J3(Expansion board I/F)			
Pin number	**Signal name**	**IN/OUT**	**Function**
33	AD23	IN/OUT	Address and data signal
34	AD22	IN/OUT	Address and data signal
35	AD21	IN/OUT	Address and data signal
36	AD20	IN/OUT	Address and data signal
37	GND	-	GND
38	AD19	IN/OUT	Address and data signal
39	AD18	IN/OUT	Address and data signal
40	AD17	IN/OUT	Address and data signal
41	AD16	IN/OUT	Address and data signal
42	CBE2	OUT	Bus command and byte enable signal
43	GND	-	GND
44	FRAME	IN/OUT	Cycle frame signal
45	IRDY	IN/OUT	Initiator ready signal
46	TRDY	IN/OUT	Target ready signal
47	DEVSEL	IN/OUT	Device select signal
48	GND	-	GND
49	STOP	IN/OUT	Stop signal
50	LOCK	IN/OUT	Lock signal
51	PERR	IN/OUT	Parity error signal
52	SERR	IN/OUT	System error signal
53	PAR	IN/OUT	Parity signal
54	CBE1	OUT	Bus command and byte enable signal
55	GND	-	GND
56	GND	-	GND
57	AD15	IN/OUT	Address and data signal
58	AD14	IN/OUT	Address and data signal
59	AD13	IN/OUT	Address and data signal
60	AD12	IN/OUT	Address and data signal
61	GND	-	GND
62	AD11	IN/OUT	Address and data signal
63	AD10	IN/OUT	Address and data signal
64	AD9	IN/OUT	Address and data signal
65	AD8	IN/OUT	Address and data signal
66	CBE0	OUT	Bus command and byte enable signal
67	GND	-	GND
68	AD7	IN/OUT	Address and data signal
69	AD6	IN/OUT	Address and data signal
70	AD5	IN/OUT	Address and data signal
71	AD4	IN/OUT	Address and data signal
72	GND	-	GND
73	AD3	IN/OUT	Address and data signal
74	AD2	IN/OUT	Address and data signal
75	AD1	IN/OUT	Address and data signal
76	AD0	IN/OUT	Address and data signal
77	GND	-	GND
78	HDD_LED	-	N.C.
79	+5.0R	OUT	-
80	+5.0R	OUT	-
81	+5.0R	OUT	-
82	+3.3U	OUT	Power supply (+3.3V)(always ON)
83	+3.3U	OUT	Power supply (+3.3V)(always ON)
84	+3.3U	OUT	Power supply (+3.3V)(always ON)
85	GND	-	GND
86	GND	-	GND
87	GND	-	GND
88	GND	-	GND

T-6-2

J6(Operation panel I/F)			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	+3.3V	OUT	Power supply (+3.3V)
2	PCS	OUT	Select signal to operation panel
3	PDO	OUT	Transmit data to operation panel
4	PCK	OUT	Clock signal to operation panel
5	PDI	IN	Receive data from operation panel
6	GND	-	GND
7	START	OUT	Software SW steady state input power supply (+3.3V)
8	STANDBY	IN	Software SW power supply ON/OFF signal
9	+5V	OUT	Power supply (+5.0V)

T-6-3

J7(Engine controller I/F)			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	GND	-	GND
2	E_RDY	IN	Engine ready signal
3	C_WAKE	IN	Controller wake command signal
4	C_RDY	OUT	Controller ready signal
5	GND	-	GND
6	reserved	-	-
7	SRITR_CLK	OUT	Serial send clock signal
8	GND	-	GND
9	SRIINDATA	IN	Serial receive data signal
10	E_INT	IN	Serial status send request interrupt
11	GND	-	GND
12	S-REQ	IN	Engine status request signal
13	GND	-	GND
14	S-ACK	OUT	Engine status acknowledge signal
15	ENABLE	OUT	Image data enable signal
16	GND	-	GND
17	GND	-	GND
18	GND	-	GND
19	D1	IN/OUT	Parallel communication data signal
20	GND	-	GND
21	D4	IN/OUT	Parallel communication data signal
22	D5	IN/OUT	Parallel communication data signal
23	D7	IN/OUT	Parallel communication data signal
24	GND	-	GND
25	D10	IN/OUT	Parallel communication data signal
26	D11	IN/OUT	Parallel communication data signal
27	D13	IN/OUT	Parallel communication data signal
28	GND	-	GND
29	reserved	-	-
30	START	IN	Software SW steady state input power supply (+3.3V)
31	VCC2	IN	Power supply (+5.0V)(OFF during sleep mode)
32	AUXVCC1	IN	Controller power supply (+3.3V) (always ON)
33	AUXVCC1	IN	Controller power supply (+3.3V) (always ON)
34	AUXVCC1	IN	Controller power supply (+3.3V) (always ON)
35	AUXVCC1	IN	Controller power supply (+3.3V) (always ON)
36	AUXVCC1	IN	Controller power supply (+3.3V) (always ON)
37	EVCC_ON	IN	Power supply output from engine control signal
38	reserved	-	-
39	GPDATA22	IN/OUT	General purpose input/output terminal (unconnected)
40	GND	-	GND
41	GND	-	GND
42	reserved	-	-
43	GND	-	GND

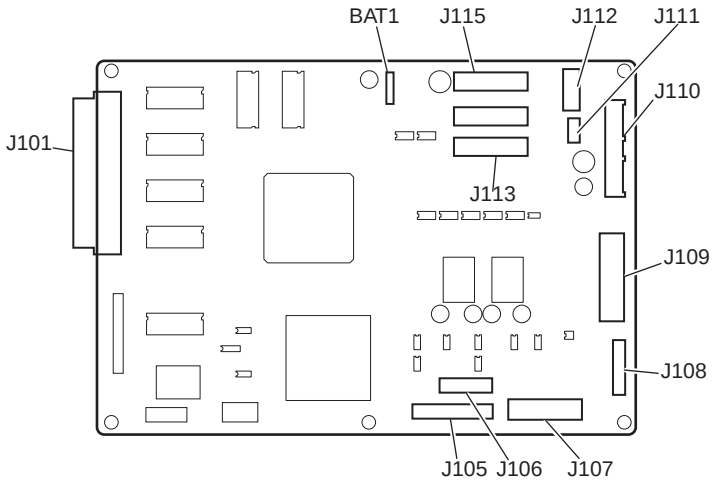
J7(Engine controller I/F)			
Pin number	**Signal name**	**IN/OUT**	**Function**
44	reserved	-	-
45	GND	-	GND
46	GND	-	GND
47	SRIOUTDATA	OUT	Serial output data signal
48	GND	-	GND
49	SRIRE_CLK	IN	Serial receive clock signal
50	GND	-	GND
51	GND	-	GND
52	C-REQ	OUT	Command request signal
53	C-ACK	IN	Command acknowledge signal
54	GND	-	GND
55	READY	IN	Engine image data input ready signal
56	GND	-	GND
57	CLK	OUT	Image data transfer clock signal
58	GND	-	GND
59	D0	IN/OUT	Parallel communication data signal
60	D2	IN/OUT	Parallel communication data signal
61	D3	IN/OUT	Parallel communication data signal
62	GND	-	GND
63	D6	IN/OUT	Parallel communication data signal
64	D8	IN/OUT	Parallel communication data signal
65	D9	IN/OUT	Parallel communication data signal
66	GND	-	GND
67	D12	IN/OUT	Parallel communication data signal
68	D14	IN/OUT	Parallel communication data signal
69	D15	IN/OUT	Parallel communication data signal
70	STANDBY	OUT	Software SW power supply ON/OFF signal
71	VCC2	IN	Power supply (+5.0V)(OFF during sleep mode)
72	AUXVCC1	IN	Controller power supply (+3.3V) (always ON)
73	AUXVCC1	IN	Controller power supply (+3.3V) (always ON)
74	AUXVCC1	IN	Controller power supply (+3.3V) (always ON)
75	AUXVCC1	IN	Controller power supply (+3.3V) (always ON)
76	VCC1	IN	Controller power supply (+3.3V) (OFF during sleep mode)
77	CVCC_ON	OUT	Power supply output from controller control signal
78	reserved	-	-
79	reserved	-	-
80	GND	-	GND

T-6-4

J11(USB I/F)			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	VBUS	OUT	Power supply (+3.3V)
2	D-	IN/OUT	Data (-)
3	D+	IN/OUT	Data (+)
4	AGND	-	GND
5	SHIELD	-	Shield
6	SHIELD	-	Shield

6.2.2 Engine Controller

0009-9166



F-6-2

T-6-5

J101			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	GND	-	GND
2	E_READY		Ready signal
3	C_WAKE	IN	Wake signal from sleep mode
4	C_READY		Ready signal
5	GND		GND
6	N.C.	-	N.C.
7	SRI_IN_CLK	IN	Serial input signal
8	GND	-	GND
9	SRI_OUT_DATA	OUT	Serial output signal
10	SRI_INT*	IN	Serial interrupt signal
11	GND	-	GND
12	ENG_S_REQ*	OUT	Status request signal
13	GND	-	GND
14	ENG_S_ACK	IN	Status acknowledge signal
15	N.C.	-	N.C.
16	GND	-	GND
17	GND	-	GND
18	GND	-	GND
19	ENG_D1	IN/OUT	Bidirectional data bus (bit1)
20	GND	-	GND
21	ENG_D4	IN/OUT	Bidirectional data bus (bit4)
22	ENG_D5	IN/OUT	Bidirectional data bus (bit5)
23	ENG_D7	IN/OUT	Bidirectional data bus (bit7)
24	GND	-	GND
25	ENG_D10	IN/OUT	Bidirectional data bus (bit10)
26	ENG_D11	IN/OUT	Bidirectional data bus (bit11)
27	ENG_D13	IN/OUT	Bidirectional data bus (bit13)
28	GND	-	GND
29	DEBUG_RESET*	IN	Controller reset signal
30	START	OUT	Steady-state input power supply (+3.3V)
31	+5V	OUT	Power supply (+5.1V)
32	AUXVCC	OUT	Power supply (+3.3V)
33	AUXVCC	OUT	Power supply (+3.3V)
34	AUXVCC	OUT	Power supply (+3.3V)
35	AUXVCC	OUT	Power supply (+3.3V)
36	AUXVCC	OUT	Power supply (+3.3V)

J101			
Pin number	**Signal name**	**IN/OUT**	**Function**
37	EVCC_ON	OUT	Power ON/OFF signal of Engine system self-starting
38	N.C.	-	N.C.
39	N.C.	-	N.C.
40	GND	-	GND
41	GND	-	GND
42	N.C.	-	N.C.
43	GND	-	GND
44	N.C.	-	N.C.
45	GND	-	GND
46	GND	-	GND
47	SRI_IN_DATA	IN	Serial input signal
48	GND	-	GND
49	SRI_OUT_CLK	OUT	Serial output signal
50	GND	-	GND
51	GND	-	GND
52	ENG_C_REQ*	IN	Command request signal
53	ENG_C_ACK*	OUT	Command acknowledge signal
54	GND	-	GND
55	ENG_READY*	OUT	Engine ready signal
56	GND	-	GND
57	ENG_D_CLK	IN	Data clock
58	GND	-	GND
59	ENG_D0	IN/OUT	Bidirectional data bus (bit0)
60	ENG_D2	IN/OUT	Bidirectional data bus (bit2)
61	ENG_D3	IN/OUT	Bidirectional data bus (bit3)
62	GND	-	GND
63	ENG_D6	IN/OUT	Bidirectional data bus (bit6)
64	ENG_D8	IN/OUT	Bidirectional data bus (bit8)
65	ENG_D9	IN/OUT	Bidirectional data bus (bit9)
66	GND	-	GND
67	ENG_D12	IN/OUT	Bidirectional data bus (bit12)
68	ENG_D14	IN/OUT	Bidirectional data bus (bit14)
69	ENG_D15	IN/OUT	Bidirectional data bus (bit15)
70	STANDBY	IN	Power ON/OFF signal
71	+5V	OUT	Power supply (+5.1V)
72	AUXVCC	OUT	Power supply (+3.3V)
73	AUXVCC	OUT	Power supply (+3.3V)
74	AUXVCC	OUT	Power supply (+3.3V)
75	AUXVCC	OUT	Power supply (+3.3V)
76	N.C.	-	N.C.
77	CVVCC_ON	IN	Engine system power ON/OFF signal
78	N.C.	-	N.C.
79	N.C.	-	N.C.
80	GND	-	GND

T-6-6

J105			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	TANK_3.3V	OUT	Power supply (+3.3V)
2	GND	-	GND
3	TANK_EEPWD	OUT	Tank EEPROM write data signal
4	TANKEEP_RD_IN	IN	Tank EEPROM read data signal
5	TANK_EEPCLK	OUT	Tank EEPROM data clock signal
6	TANKCS5_BK	OUT	Tank EEPROM select signal (BK)
7	TANKCS4_C	OUT	Tank EEPROM select signal (C)
8	TANKCS3_LC	OUT	Tank EEPROM select signal (LC)
9	TANKCS2_M	OUT	Tank EEPROM select signal (M)
10	TANKCS1_LM	OUT	Tank EEPROM select signal (LM)

J105			
Pin number	**Signal name**	**IN/OUT**	**Function**
11	TANKCS0_Y	OUT	Tank EEPROM select signal (Y)
12	GND	-	GND
13	INK_DETECT_LM	IN	Ink level detection signal (LM)
14	INK_DETECT_LC	IN	Ink level detection signal (LC)
15	INK_DETECT_Y	IN	Ink level detection signal (Y)
16	INK_DETECT_M	IN	Ink level detection signal (M)
17	INK_DETECT_C	IN	Ink level detection signal (C)
18	INK_DETECT_BK	IN	Ink level detection signal (BK)

T-6-7

J106			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	CS	OUT	Maintenance cartridge EEPROM select signal
2	CLK	OUT	Maintenance cartridge EEPROM data clock signal
3	RD	IN	Maintenance cartridge EEPROM read data signal
4	WD	OUT	Maintenance cartridge EEPROM write data signal
5	GND	-	GND
6	+3.3V	OUT	Power supply (+3.3V)
7	+5V	OUT	Power supply (+5.1V)
8	FUTO_CMP_IN	IN	Maintenance-jet CMP signal
9	FUTO_ON*	OUT	Maintenance-jet ON signal
10	FUTO_CLMP*	OUT	Maintenance-jet CLMP signal
11	GND	-	GND

T-6-8

J107			
Pin number	**Signal name**	**IN/OUT**	**Function**
A1	+3.3V	OUT	Power supply (+3.3V)
A2	GND	-	GND
A3	ATUKAIJO	IN	Pressure release sensor detection signal
A4	+3.3V	OUT	Power supply (+3.3V)
A5	GND	-	GND
A6	CR_HP	IN	Carriage home pisition detection signal
A7	+3.3V	OUT	Power supply (+3.3V)
A8	GND	-	GND
A9	CAP&WIP_HP	IN	Cap and wipe home pisition detection signal
A10	+3.3V	OUT	Power supply (+3.3V)
A11	GND	-	GND
A12	KAIFUKU_HP	IN	Pump home position detection signal
A13	+3.3V	OUT	Power supply (+3.3V)
A14	GND	-	GND
A15	KAIFUKU_POS_H	IN	Purge unit home pisition detection signal
A16	N.C.	-	N.C.
B1	LF_ENCB	IN	Feed roller encoder rotation detect signal (B phase)
B2	+5V	OUT	Power supply (+5.1V)
B3	LF_ENCA	IN	Feed roller encoder rotation detect signal (A phase)
B4	GND	-	GND
B5	+3.3V	OUT	Power supply (+3.3V)
B6	GND	-	GND
B7	LF_HP	IN	Feed motor home pisition detection signal
B8	+3.3V	OUT	Power supply (+3.3V)
B9	GND	-	GND
B10	TANK_COVER	IN	Right cover open/close detection signal
B11	+3.3V	OUT	Power supply (+3.3V)

J107			
Pin number	**Signal name**	**IN/OUT**	**Function**
B12	GND	-	GND
B13	BEN_HP	IN	Valve motor home pisition detection signal
B14	GND	-	GND
B15	MEDIA_R*	IN	Media detection signal
B16	+5V	OUT	Power supply (+5.1V)

T-6-9

J109			
Pin number	**Signal name**	**IN/OUT**	**Function**
A1	CAPM3_BX_N1	OUT	Cap motor phase excitation signal (BN)
A2	CAPM1_B	OUT	Cap motor phase excitation signal (B)
A3	PUMPM3_BX_N1*	OUT	Pump motor phase excitation signal (BN)
A4	PUMPM1_B	OUT	Pump motor phase excitation signal (B)
A5	INKM_M3_BX_N1*	OUT	Valve motor phase excitation signal (BN)
A6	INKM_M1_B	OUT	Valve motor phase excitation signal (B)
A7	GND	-	GND
A8	MISTFAN	OUT	Mist fan drive signal
A9	KYUINFAN_PWM*	OUT	Suction fan drive PWM signal
A10	DCOVER_SOL*	OUT	Upper cover solenoid drive signal
A11	LF_CURRENT	OUT	Feed motor constant current control signal
A12	MISTFAN_ALM	IN	Mist fan alarm detect signal
A13	KYUINFAN_ALM	IN	Suction fan alarm detect signal
A14	GND	-	GND
A15	LFSP_REST	OUT	Feed motor driver reset signal
A16	LFSP_DIR	OUT	Feed motor rotation direction control signal
A17	CR_DIR	OUT	Carriage motor rotation direction control signal
A18	CR_BRAKE	OUT	Carriage motor brake signal
A19	GND	-	GND
A20	+5V	OUT	Power supply (+5.1V)
B1	+3.3V	OUT	Power supply (+3.3V)
B2	CR_START	OUT	Carriage motor start control signal
B3	CR_PWMOUT	OUT	Carriage motor speed control signal
B4	GND	-	GND
B5	LFSP_CLK	OUT	Feed motor speed control signal
B6	LFSP_ENB	OUT	Feed motor operation control signal
B7	DOOR*	IN	Upper cover open/close detect signal
B8	LF_MOI	IN	Feed motor driver phase excitation signal monitor
B9	GND	-	GND
B10	GND	-	GND
B11	TCOVER_SOL*	OUT	Right cover solenoid drive signal
B12	MISTFAN_V	OUT	Mist fan drive voltage change signal
B13	SPOOL_CL*	OUT	Spool clatch drive signal
B14	INK_M0_A	OUT	Valve motor phase excitation signal (A)
B15	INKM_M2_AX_N0*	OUT	Valve motor phase excitation signal (AN)
B16	PUMP0_A	OUT	Pump motor phase excitation signal (A)
B17	PUMPM2_AX_N0*	OUT	Pump motor phase excitation signal (AN)
B18	CMPM0_A	OUT	Cap motor phase excitation signal(A)
B19	CAPM2_AX_N0	OUT	Cap motor phase excitation signal(AN)
B20	GND	-	GND

T-6-10

J110			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	+3.3U	IN	Power supply (+3.3V)
2	+3.3U	IN	Power supply (+3.3V)
3	GND	-	GND
4	GND	-	GND
5	CVCC_ON	OUT	Engine system power ON/OFF signal
6	STANDBY	IN	Power ON/OFF signal
7	START	OUT	Steady-state input power supply (+3.3V)
8	+24V	IN	Power supply (+26.5V)
9	+24V	IN	Power supply (+26.5V)
10	MGND	-	GND
11	MGND	-	GND
12	+5V	IN	Power supply (+5.1V)
13	V5V	IN	Power supply (+5.1V)
14	GND	-	GND
15	GND	-	GND

T-6-11

J111			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	+24V	OUT	Power supply (+26.5V)
2	GND	-	GND
3	+5V	OUT	Power supply (+5.1V)
4	GND	-	GND

T-6-12

J112			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	GND	-	GND
2	CUT UNIT*	IN	Cutte unit detection siganal
3	CUT_L*	IN	Cutter position detect signal (left)
4	CUT_R*	IN	Cutter position detect signal (right)
5	CUTTER_D2	OUT	Cutter motor drive signal 2
6	CUTTER_D1	OUT	Cutter motor drive signal 1
7	GND	-	GND
8	+24V	OUT	Power supply (+26.5V)

T-6-13

J113			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	GND	-	GND
2	SNS_R_I	IN	Registration sensor signal (R)
3	SNS_S_I	IN	Registration sensor signal (S)
4	DSOUT2_A_I	IN	ASIC output analog signal 2
5	DSOUT1_A_I	IN	ASIC output analog signal 3
6	CRPOS_L_I	IN	Carriage height position sensor signal (L)
7	CRPOS_H_I	IN	Carriage height position sensor signal (H)
8	GND	-	GND
9	EEPCLK_0	OUT	Head EEPROM data transfer clock
10	GND	-	GND
11	EEPWD_0	OUT	Head EEPROM write data
12	GND	-	GND
13	R_CLR_0*	OUT	Registration sensor data cleare signal

J113			
Pin number	**Signal name**	**IN/OUT**	**Function**
14	GND	-	GND
15	O_DATA_LM0_I2	OUT	Even nozzle data 0 (LM)
16	GND	-	GND
17	O_DATA_LM1_I2	OUT	Even nozzle data 1 (LM)
18	GND	-	GND
19	E_DATA_LM0_I2	OUT	Odd nozzle data 0 (LM)
20	GND	-	GND
21	E_DATA_LM1_I2	OUT	Odd nozzle data 1 (LM)
22	GND	-	GND
23	O_DATA_LC0_I2	OUT	Even nozzle data 0 (LC)
24	GND	-	GND
25	O_DATA_LC1_I2	OUT	Even nozzle data 1 (LC)
26	GND	-	GND
27	E_DATA_LC0_I2	OUT	Odd nozzle data 0 (LC)
28	GND	-	GND
29	E_DATA_LC1_I2	OUT	Odd nozzle data 1 (LC)
30	GND	-	GND
31	O_DATA_BK0_I2	OUT	Even nozzle data 0 (BK)
32	GND	-	GND
33	O_DATA_BK1_I2	OUT	Even nozzle data 1 (BK)
34	GND	-	GND
35	E_DATA_BK0_I2	OUT	Odd nozzle data 0 (BK)
36	GND	-	GND
37	E_DATA_BK1_I2	OUT	Odd nozzle data 1 (BK)
38	GND	-	GND
39	O_DATA_Y0_I2	OUT	Even nozzle data 0 (Y)
40	GND	-	GND
41	O_DATA_Y1_I2	OUT	Even nozzle data 1 (Y)
42	GND	-	GND
43	E_DATA_Y0_I2	OUT	Odd nozzle data 0 (Y)
44	GND	-	GND
45	E_DATA_Y1_I2	OUT	Odd nozzle data 1 (Y)
46	GND	-	GND
47	GND	-	GND
48	HDCLKN_0	OUT	Head data transfer clock N (differential)
49	HDCLKP_0	OUT	Head data transfer clock P (differential)
50	GND	-	GND

T-6-14

J114			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	GND	-	GND
2	CRENCA_I	IN	Linear scale phase signal A
3	CRENCB_I	IN	Linear scale phase signal B
4	HDCVR_I	IN	Head cover sensor signal
5	HEADEEPRD_I	IN	Head EEPROM read data
6	DCDC_OVP_I*	IN	DC/DC converter error detection signal
7	GND	-	GND
8	Y_HENB*	OUT	Heat pulse output (Y)
9	GND	-	GND
10	M_HENB*	OUT	Heat pulse output (M)
11	GND	-	GND
12	C_HENB*	OUT	Heat pulse output (C)
13	GND	-	GND
14	LM_HENB*	OUT	Heat pulse output (LM)
15	GND	-	GND
16	LC_HENB*	OUT	Heat pulse output (LC)
17	GND	-	GND

J114			
Pin number	**Signal name**	**IN/OUT**	**Function**
18	BK_HENB*	OUT	Heat pulse output (BK)
19	GND	-	GND
20	C0_SUBH <Y>	OUT	Subheat pulse output (Y)
21	GND	-	GND
22	C1_SUBH <M>	OUT	Subheat pulse output (M)
23	GND	-	GND
24	C2_SUBH <C>	OUT	Subheat pulse output (C)
25	GND	-	GND
26	C3_SUBH <LM>	OUT	Subheat pulse output (LM)
27	GND	-	GND
28	C4_SUBH <LC>	OUT	Subheat pulse output (LC)
29	GND	-	GND
30	C5_SUBH <BK>	OUT	Subheat pulse output (BK)
31	GND	-	GND
32	O_DATA_M0_I2	OUT	Even nozzle data 0 (M)
33	GND	-	GND
34	O_DATA_M1_I2	OUT	Even nozzle data 1 (M)
35	GND	-	GND
36	E_DATA_M0_I2	OUT	Odd nozzle data 0 (M)
37	GND	-	GND
38	E_DATA_M1_I2	OUT	Odd nozzle data 1 (M)
39	GND	-	GND
40	O_DATA_C0_I2	OUT	Even nozzle data 0 (C)
41	GND	-	GND
42	O_DATA_C1_I2	OUT	Even nozzle data 1 (C)
43	GND	-	GND
44	E_DATA_C0_I2	OUT	Odd nozzle data 0 (C)
45	GND	-	GND
46	E_DATA_C1_I2	OUT	Odd nozzle data 1 (C)
47	GND	-	GND
48	HDLTP_0*	OUT	Head data latch siganal P (differential)
49	HDLTN_0*	OUT	Head data latch siganal N (differential)
50	GND	-	GND

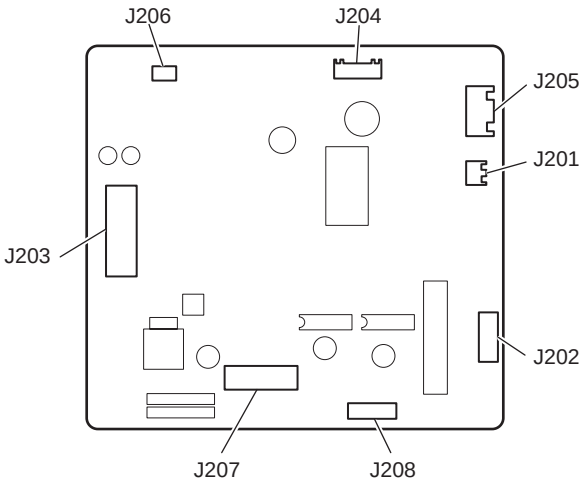
T-6-15

J115			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	GND	-	GND
2	GND	-	GND
3	GND	-	GND
4	GND	-	GND
5	GND	-	GND
6	GND	-	GND
7	GND	-	GND
8	GND	-	GND
9	GND	-	GND
10	GND	-	GND
11	GND	-	GND
12	GND	-	GND
13	N.C.	-	N.C.
14	+24V	OUT	Power supply (+26.5V)
15	+24V	OUT	Power supply (+26.5V)
16	+24V	OUT	Power supply (+26.5V)
17	+24V	OUT	Power supply (+26.5V)
18	+24V	OUT	Power supply (+26.5V)
19	+24V	OUT	Power supply (+26.5V)
20	+24V	OUT	Power supply (+26.5V)
21	+24V	OUT	Power supply (+26.5V)

J115			
Pin number	**Signal name**	**IN/OUT**	**Function**
22	+24V	OUT	Power supply (+26.5V)
23	+24V	OUT	Power supply (+26.5V)
24	+24V	OUT	Power supply (+26.5V)
25	+24V	OUT	Power supply (+26.5V)
26	SNS5V_O	OUT	Power supply (+5.1V)
27	L0GIC5_O	OUT	Power supply (+5.1V)
28	GND	-	GND
29	+5V	OUT	Power supply (+5.1V)
30	+5V	OUT	Power supply (+5.1V)
31	+5V	OUT	Power supply (+5.1V)
32	GND	-	GND
33	+3.3V	OUT	Power supply (+3.3V)
34	GND	-	GND
35	LICC2_CLK_O	OUT	LICC2 data clock
36	GND	-	GND
37	LICC2_LD_O	OUT	LICC2 data latch signal
38	GND	-	GND
39	LICC2_DT_O	OUT	LICC2 data L
40	GND	-	GND
41	VHENB_O	OUT	Head drive voltage on/off control signal
42	GND	-	GND
43	HEADEEPCS_O	OUT	Head EEPROM chip select signal
44	GND	-	GND
45	ADTRG_O	OUT	LICC2 sample hold signal
46	GND	-	GND
47	CMOUT_I	IN	Head overcurrent detection
48	GND	-	GND
49	GND	-	GND
50	GND	-	GND

6.2.3 Motor drive

0009-9171



F-6-3

T-6-16

J201			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	CR OUTC	OUT	Carriage motor phase signal (C)
2	CR OUTB	OUT	Carriage motor phase signal (B)

T-6-17

J202			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	LF_A	OUT	Feed motor phase excitation signal (A)
2	+24V	OUT	Power supply (+26.5V)
3	LF_AN	OUT	Feed motor phase excitation signal (AN)
4	LF_BN	OUT	Feed motor phase excitation signal (BN)
5	+24V	OUT	Power supply (+26.5V)
6	LF_B	OUT	Feed motor phase excitation signal (B)

T-6-18

J203			
Pin number	**Signal name**	**IN/OUT**	**Function**
A1	+5V	OUT	Power supply (+5.1V)
A2	GND	-	GND
A3	CR_BRAKE	OUT	Carriage motor brake signal
A4	CR_DIR	OUT	Carriage motor rotation direction control signal
A5	LFSP_DIR	OUT	Feed motor rotation direction control signal
A6	LFSP_REST	OUT	Feed motor drive reset signal
A7	GND	-	GND
A8	KYUINFAN_ALM	IN	Suction fun alarm detect signal
A9	MISTFAN_ALM	IN	Mist fun alarm detect signal
A10	LF_CURRENT	OUT	Feed motor constant current control signal
A11	DCOVER_SOL*	OUT	Upper solenoid drive signal
A12	KYUINFAN_PWM*	OUT	Suction fan drive PWM signal
A13	MISTFAN	OUT	Mist fan drive signal
A14	GND	-	GND
A15	INKM_M1_B	OUT	Valve motor phase excitation signal (B)
A16	INKM_M3_BX_N1*	OUT	Valve motor phase excitation signal (BN)
A17	PUMPM1_B	OUT	Pump motor phase excitation signal (B)
A18	PUMPM3_BX_N1*	OUT	Pump motor phase excitation signal (BN)
A19	CAPM1_B	OUT	Cap motor phase excitation signal (B)
A20	CAPM3_BX_N1	OUT	Cap motor phase excitation signal (BN)
B1	GND	-	GND
B2	CAPM2_AX_N0	OUT	Cap motor phase excitation signal (AN)
B3	CMPM0_A	OUT	Cap motor phase excitation signal (A)
B4	PUMPM2_AX_N0*	OUT	Pump motor phase excitation signal (A)
B5	PUMP0_A	OUT	Pump motor phase excitation signal (A)
B6	INKM_M2_AX_N0*	OUT	Valve motor phase excitation signal (AN)
B7	INK_M0_A	OUT	Valve motor phase excitation signal (A)
B8	SPOOL_CL*	OUT	Spool clatch drive signal
B9	MISTFAN_V	OUT	Mist fan drive voltage change signal
B10	TCOVER_SOL*	OUT	Right cover solenoid drive signal
B11	GND	-	GND
B12	GND	-	GND
B13	LF_MOI	IN	Feed motor driver phase excitation signal monitor
B14	DOOR*	IN	Upper cover open/close detect signal
B15	LFSP_ENB	OUT	Feed motor operation control signal
B16	LFSP_CLK	OUT	Feed motor speed control signal
B17	GND	-	GND
B18	CR_PWMOUT	OUT	Carriage motor speed control signal
B19	CR_START	OUT	Carriage motor start control signal
B20	+3.3V	OUT	Power supply (+3.3V)

T-6-19

J204			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	+24V	OUT	Power supply (+26.5V)
2	+24V	OUT	Power supply (+26.5V)
3	+24V	OUT	Power supply (+26.5V)
4	GND	-	GND
5	GND	-	GND
6	GND	-	GND

T-6-20

J205			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	+24V	OUT	Power supply (+26.5V)
2	(+24V)	OUT	Power supply (+26.5V)
3	(DOOR)	OUT	Upper cover safety switch signal
4	DOOR	OUT	Upper cover safety switch signal

T-6-21

J206			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	+24V	OUT	Power supply (+26.5V)
2	FAN_ALRAM*	IN	Mist fan alarm signal (left)
3	GND	-	GND

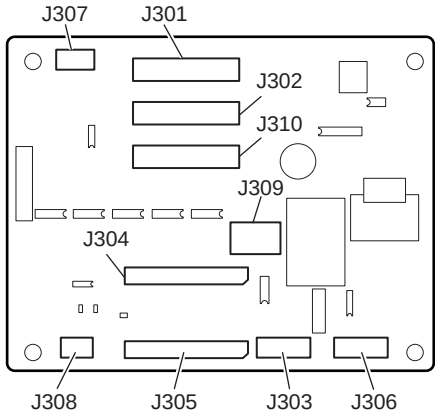
T-6-22

J207			
Pin number	**Signal name**	**IN/OUT**	**Function**
A1	PUMP1_A	OUT	Pump motor phase excitation signal (A)
A2	PUMP1_B	OUT	Pump motor phase excitation signal (B)
A3	PUMP1_BN	OUT	Pump motor phase excitation signal (BN)
A4	PUMP1_AN	OUT	Pump motor phase excitation signal (AN)
A5	+24V	OUT	Power supply (+26.5V)
A6	CAP1_A	OUT	Cap motor phase excitation signal (A)
A7	CAP1_AN	OUT	Cap motor phase excitation signal (B)
A8	CAP1_B	OUT	Cap motor phase excitation signal (BN)
A9	CAP1_BN	OUT	Cap motor phase excitation signal (AN)
A10	+24V	OUT	Power supply (+26.5V)
A11	INK1_A	OUT	Valve motor phase excitation signal (A)
A12	INK1_AN	OUT	Valve motor phase excitation signal (B)
A13	INK1_B	OUT	Valve motor phase excitation signal (BN)
A14	INK1_BN	OUT	Valve motor phase excitation signal (AN)
A15	N.C.	-	N.C.
B1	+24V	OUT	Power supply (+26.5V)
B2	DCOVER_SOL*	OUT	Upper cover lock solenoid drive signal (left)
B3	+24V	OUT	Power supply (+26.5V)
B4	SPOOL_CL*	OUT	Spool clatch drive signal
B5	+24V	OUT	Power supply (+26.5V)
B6	TCOVER_SOL*	OUT	Right cover lock solenoid drive signal
B7	+24V	OUT	Power supply (+26.5V)
B8	DCOVER_SOL*	OUT	Upper cover lock solenoid drive signal (right)
B9	+24V	OUT	Power supply (+26.5V)
B10	FAN_ALRAM*	IN	Suction fan alarm signal
B11	KYUUINFAN_PWM*	OUT	Suction fan drive signal

J207			
Pin number	**Signal name**	**IN/OUT**	**Function**
B12	GND	-	GND
B13	+24V	OUT	Power supply (+26.5V)
B14	FAN_ALRAM*	IN	Mist fan alarm signal (right)
B15	GND	-	GND

6.2.4 Carriage Relay PCB

0009-9167



F-6-4

T-6-23

J301			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	GND		GND
2	GND		GND
3	GND		GND
4	CMOUT_I*	OUT	VH overcurrent detection signal
5	GND		GND
6	ADTRG_0	IN	AD signal
7	GND		GND
8	HEADEEPCS_0	IN	Head EEPROM serial communication CS siganl
9	GND		GND
10	VHENB_0	IN	VH enable signal
11	GND		GND
12	LICC2_DT_0	IN	LICC2 serial communication data siganl
13	GND		GND
14	LICC2_LD_0	IN	LICC2 serial communication LD
15	GND		GND
16	LICC2_CLK_0	IN	LICC2 serial communication clock
17	GND		GND
18	+3.3V	IN	Power supply (+3.3V)
19	GND		GND
20	+5V	IN	Power supply (+5.0V)
21	+5V	IN	Power supply (+5.0V)
22	+5V	IN	Power supply (+5.0V)
23	GND		GND
24	L0GIC5_0	IN	Data buffer (+5.0V)
25	SNS5V_0	IN	Sensor drive circuit (+5.0V)
26	+24V	IN	Head power supply (+26.5V)
27	+24V	IN	Head power supply (+26.5V)
28	+24V	IN	Head power supply (+26.5V)
29	+24V	IN	Head power supply (+26.5V)
30	+24V	IN	Head power supply (+26.5V)
31	+24V	IN	Head power supply (+26.5V)

J301			
Pin number	**Signal name**	**IN/OUT**	**Function**
32	+24V	IN	Head power supply (+26.5V)
33	+24V	IN	Head power supply (+26.5V)
34	+24V	IN	Head power supply (+26.5V)
35	+24V	IN	Head power supply (+26.5V)
36	+24V	IN	Head power supply (+26.5V)
37	+24V	IN	Head power supply (+26.5V)
38	NC	-	NC
39	GND		GND
40	GND		GND
41	GND		GND
42	GND		GND
43	GND		GND
44	GND		GND
45	GND		GND
46	GND		GND
47	GND		GND
48	GND		GND
49	GND		GND
50	GND		GND

T-6-24

J302			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	GND		GND
2	HDLTN_0*	IN	Head drive latch differential signal
3	HDLTP_0*	IN	Head drive latch differential signal
4	GND		GND
5	E_DATA_C1_I2	IN	Even data C1
6	GND		GND
7	E_DATA_C0_I2	IN	Even data C0
8	GND		GND
9	O_DATA_C1_I2	IN	Odd data C1
10	GND		GND
11	O_DATA_C0_I2	IN	Odd data C0
12	GND		GND
13	E_DATA_M1_I2	IN	Even data M1
14	GND		GND
15	E_DATA_M0_I2	IN	Even data M0
16	GND		GND
17	O_DATA_M1_I2	IN	Odd data M1
18	GND		GND
19	O_DATA_M0_I2	IN	Odd data M0
20	GND		GND
21	C5_SUBH <BK>	IN	BK subheat enable signal
22	GND		GND
23	C4_SUBH <LC>	IN	LC subheat enable signal
24	GND		GND
25	C3_SUBH <LM>	IN	LM subheat enable signal
26	GND		GND
27	C2_SUBH <C>	IN	C subheat enable signal
28	GND		GND
29	C1_SUBH <M>	IN	M subheat enable signal
30	GND		GND
31	C0_SUBH <Y>	IN	Y subheat enable signal
32	GND		GND
33	BK_HENB*	IN	BK heat enable signal
34	GND		GND
35	LC_HENB*	IN	LC heat enable signal

J302			
Pin number	**Signal name**	**IN/OUT**	**Function**
36	GND		GND
37	LM_HENB*	IN	LM heat enable signal
38	GND		GND
39	C_HENB*	IN	C heat enable signal
40	GND		GND
41	M_HENB*	IN	M heat enable signal
42	GND		GND
43	Y_HENB*	IN	Y heat enable signal
44	GND		GND
45	DCDC_OVP_I*	OUT	VH overvotage detection siganal
46	HEADEEPRD_I	OUT	Head EEPROM write data signal
47	HDCVR_I	OUT	Head cover sensor signal
48	CRENCB_I	OUT	Carriage encoder output signal B phase
49	CRENCA_I	OUT	Carriage encoder output signal A phase
50	GND		GND

T-6-25

J303			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	LED1	OUT	LED drive signal 1
2	LED2	OUT	LED drive signal 2
3	LED3	OUT	LED drive signal 3
4	Common K	OUT	Cathode common
5	GND	-	GND
6	Sensor Out	IN	Sensor input signal
7	+5R	OUT	Power supply (+5.1V)

T-6-26

J304			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	GND	-	GND
2	O_DATA_LM0	OUT	LM even nozzle data 0
3	O_DATA_LM1	OUT	LM even nozzle data 1
4	E_DATA_LM0	OUT	LM odd nozzle data 0
5	E_DATA_LM1	OUT	LM odd nozzle data 1
6	O_DATA_LC0	OUT	LC even nozzle data 0
7	O_DATA_LC1	OUT	LC even nozzle data 1
8	E_DATA_LC0	OUT	LC odd nozzle data 0
9	E_DATA_LC1	OUT	LC odd nozzle data 1
10	O_DATA_BK0	OUT	BK even nozzle data 0
11	O_DATA_BK1	OUT	BK even nozzle data 1
12	E_DATA_BK0	OUT	BK odd nozzle data 0
13	E_DATA_BK1	OUT	BK odd nozzle data 1
14	GND	-	GND
15	O_DATA_Y0	OUT	Y even nozzle data 0
16	O_DATA_Y1	OUT	Y even nozzle data 1
17	GND	-	GND
18	E_DATA_Y0	OUT	Y odd nozzle data 0
19	E_DATA_Y1	OUT	Y odd nozzle data 1
20	O_DATA_M0	OUT	M even nozzle data 0
21	O_DATA_M1	OUT	M even nozzle data 1
22	E_DATA_M0	OUT	M odd nozzle data 0
23	E_DATA_M1	OUT	M odd nozzle data 1
24	O_DATA_C0	OUT	C even nozzle data 0
25	O_DATA_C1	OUT	C even nozzle data 1
26	E_DATA_C0	OUT	C odd nozzle data 0

J304			
Pin number	**Signal name**	**IN/OUT**	**Function**
27	E_DATA_C1	OUT	C odd nozzle data 1
28	SLK_CL	OUT	Head data transfer clock
29	LATCH_CL*	OUT	Head data latch signal
30	GND	-	GND

T-6-27

J305			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	<Y> C0_HENB_B*	OUT	Y heat pulse output
2	<M> C1_HENB_B*	OUT	M heat pulse output
3	<C> C2_HENB_B*	OUT	C heat pulse output
4	<Y> C0SUBH	OUT	Y subheat pulse drive
5	<M> C1SUBH	OUT	M subheat pulse drive
6	<C> C2SUBH	OUT	C subheat pulse drive
7	<LM> C3SUBH	OUT	LM subheat pulse drive
8	<LC> C4SUBH	OUT	LC subheat pulse drive
9	<BK> C5SUBH	OUT	BK subheat pulse drive
10	<LM> C3_HENB_B*	OUT	LM heat pulse output
11	<LC> C4_HENB_B*	OUT	LC heat pulse output
12	<BK> C5_HENB_B*	OUT	BK heat pulse output
13	GND	-	GND
14	LICC2_CLK	OUT	LICC2 input data clock
15	GND	-	GND
16	DSOUT2	IN	LICC2 analog output
17	DSOUT1	IN	LICC2 analog output
18	LICC2_LT	OUT	LICC2 input data latch signal
19	LICC2_DT	OUT	LICC2 input data
20	ADTRG*	OUT	LICC2 output sample hold
21	GND	-	GND
22	HEADEEPCLK	OUT	Head EEPROM data transfer clock
23	HEADEEPRD	IN	Head EEPROM read signal
24	HEADEEPWD	OUT	Head EEPROM write signal
25	HEADEEPCS	OUT	Head EEPROM chip select signal
26	VHFBH	-	NC
27	HVHFBG	-	NC
28	C_MODEL_SEL*	-	NC
29	+5V	OUT	Power supply (+5.1V)
30	GND	-	GND

T-6-28

J306			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	+5R	OUT	Power supply (+5.1V)
2	CRPOS_H	IN	Carriage height position detect signal H
3	GND	-	GND
4	+5R	OUT	Power supply (+5.1V)
5	CRPOS_L	IN	Carriage height position detect signal L
6	GND	-	GND

T-6-29

J307			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	CR_ENCB	IN	Linear scale signal B phase
2	+5R	OUT	Power supply (+5.1V)
3	CR_ENCA	IN	Linear scale signal A phase
4	GND	-	GND

T-6-30

J308			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	+5R	OUT	Power supply (+5.1V)
2	GND	-	GND
3	HDCVR_B	IN	Head cover open/close detect signal

T-6-31

J309			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	VH	OUT	Head drive voltage
2	VHGND	-	VM GND
3	GNDR	-	GND

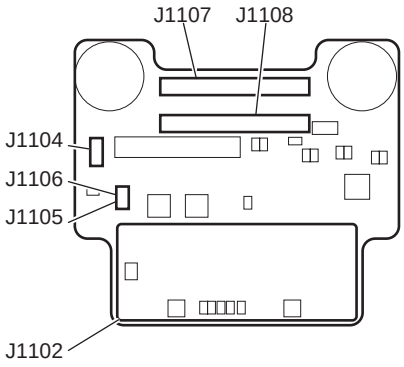
T-6-32

J310			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	GND		GND
2	HDCLKP_0	IN	Head drive clock differential signal
3	HDCLKN_0	IN	Head drive clock differential signal
4	GND		GND
5	GND		GND
6	E_DATA_Y1_I2	IN	Even data Y 1
7	GND		GND
8	E_DATA_Y0_I2	IN	Even data Y 0
9	GND		GND
10	O_DATA_Y1_I2	IN	Odd data Y 1
11	GND		GND
12	O_DATA_Y0_I2	IN	Odd data Y 0
13	GND		GND
14	E_DATA_BK1_I2	IN	Even data BK 1
15	GND		GND
16	E_DATA_BK0_I2	IN	Even data BK 0
17	GND		GND
18	O_DATA_BK1_I2	IN	Odd data BK 1
19	GND		GND
20	O_DATA_BK0_I2	IN	Odd data BK 0
21	GND		GND
22	E_DATA_LC1_I2	IN	Even data LC 1
23	GND		GND
24	E_DATA_LC0_I2	IN	Even data LC 0
25	GND		GND
26	O_DATA_LC1_I2	IN	Odd data LC 1
27	GND		GND
28	O_DATA_LC0_I2	IN	Odd data LC 0
29	GND		GND
30	E_DATA_LM1_I2	IN	Even data LM 1

J310			
Pin number	**Signal name**	**IN/OUT**	**Function**
31	GND		GND
32	E_DATA_LM0_I2	IN	Even data LM 0
33	GND		GND
34	O_DATA_LM1_I2	IN	Odd data LM 1
35	GND		GND
36	O_DATA_LM0_I2	IN	Odd data LM 0
37	GND		GND
38	R_CLR_0*	IN	Shift register reset signal
39	GND		GND
40	EEPWD_0	IN	Shift register data signal, Head EEPROM serial communication data siganal
41	GND		GND
42	EEPCLK_0	IN	Shift register clock signal, Head EEPROM serial communication clock siganal
43	GND		GND
44	CRPOS_H_I	OUT	Carriage height position detect signal H
45	CRPOS_L_I	OUT	Carriage height position detect signal L
46	DSOUT1_A_I	OUT	Temperature monitor sigana1
47	DSOUT2_A_I	OUT	Temperature monitor sigana2
48	NC	-	NC
49	SNS_R_I	OUT	Registration sensor signal (R)
50	GND		GND

6.2.5 Head Relay PCB

0009-9168



F-6-5

T-6-33

J1102			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	RGV19	OUT	Power supply for driving head
2	RGV19	OUT	Power supply for driving head
3	C0SUBH	OUT	Subheat pulse output (Y)
4	C3_HENB_B	OUT	Heat pulse output (C)
5	DIAC1	IN	DI sensor signal 1 (C)
6	HEADEEPWDX	OUT	Head EEPROM write signal
7	HEADEEPCLKX	OUT	Head EEPROM data transfer clock
8	H5V	OUT	Power supply for driving head logic (+5.1V)
9	C2_ODATA0	OUT	Even nozzle data 0 (PM)
10	DIALC1	IN	DI sensor signal 1 (PC)
11	VHT	OUT	Power supply for driving transistor in head
12	RGV19	OUT	Power supply for driving head
13	RGV19	OUT	Power supply for driving head
14	RGV19	OUT	Power supply for driving head
15	RGV19	OUT	Power supply for driving head

J1102			
Pin number	**Signal name**	**IN/OUT**	**Function**
16	C3_ODATA0	OUT	Even nozzle data 0 (C)
17	C1_EDATA0	OUT	Odd nozzle data 0 (M)
18	HEADEEPRDX	IN	Head EEPROM read signal
19	C3SUBH	OUT	Subheat pulse output (C)
20	HEADEEPCSX	OUT	Head EEPROM chip select signal
21	H5V	OUT	Power supply for driving head logic (+5.1V)
22	C2_EDATA1	OUT	Odd nozzle data 1 (PM)
23	C4_ODATA1	OUT	Even nozzle data 1 (PC)
24	C5_EDATA1	OUT	Odd nozzle data 1 (BK)
25	RGV19	OUT	Power supply for driving head
26	RGV19	OUT	Power supply for driving head
27	DIAM0	IN	DI sensor signal 0 (M)
28	C1_ODATA0	OUT	Even nozzle data 0 (M)
29	C0_ODATA0	OUT	Even nozzle data 0 (Y)
30	C0_ODATA1	OUT	Even nozzle data 1 (Y)
31	DIAY1	IN	DI sensor signal 1 (Y)
32	C1_HENB_B	OUT	Heat pulse output (M)
33	HDCLK	OUT	Head data transfer clock
34	DIAC0	IN	DI sensor signal 0 (C)
35	DIALM0	IN	DI sensor signal 0 (PM)
36	C5_HENB_B	OUT	Heat pulse output (BK)
37	C4_EDATA1	OUT	Odd nozzle data 1 (PC)
38	C5_EDATA0	OUT	Odd nozzle data 0 (BK)
39	C5_ODATA0	OUT	Even nozzle data 0 (BK)
40	C0_EDATA0	OUT	Odd nozzle data 0 (Y)
41	DIAY0	IN	DI sensor signal 0 (Y)
42	C1_ODATA1	OUT	Even nozzle data 1 (M)
43	C0_EDATA1	OUT	Odd nozzle data 1 (Y)
44	DIAM1	IN	DI sensor signal 1 (M)
45	C0_HENB_B	OUT	Heat pulse output (Y)
46	C1SUBH	OUT	Subheat pulse output (M)
47	DIALM1	IN	DI sensor signal 1 (PM)
48	C4_HENB_B	OUT	Heat pulse output (PC)
49	C5_ODATA1	OUT	Even nozzle data 1 (BK)
50	DIAK1	IN	DI sensor signal 1 (BK)
51	DIAK0	IN	DI sensor signal 0 (BK)
52	DIALC0	IN	DI sensor signal 0 (PC)
53	VHFBG	-	NC
54	HGND	-	GND
55	HGND	-	GND
56	HDLT	OUT	Head data latch signal
57	C1_EDATA1	OUT	Odd nozzle data 1 (M)
58	GND	-	GND
59	C2_HENB_B	OUT	Heat pulse output (PM)
60	C2SUBH	OUT	Subheat pulse output (PM)
61	C5SUBH	OUT	Subheat pulse output (BK)
62	C4_ODATA0	OUT	Even nozzle data 0 (PC)
63	C4SUBH	OUT	Subheat pulse output (PC)
64	HGND	-	GND
65	HGND	-	GND
66	HGND	-	GND
67	HGND	-	GND
68	C3_ODATA1	OUT	Even nozzle data 1 (C)
69	C3_EDATA1	OUT	Odd nozzle data 1 (C)
70	C3_EDATA0	OUT	Odd nozzle data 0 (C)
71	GND	-	GND
72	GND	-	GND
73	C2_ODATA1	OUT	Even nozzle data 1 (PM)
74	C4_EDATA0	OUT	Odd nozzle data 0 (PC)

J1102			
Pin number	**Signal name**	**IN/OUT**	**Function**
75	C2_EDATA0	OUT	Odd nozzle data 0 (PM)
76	HGND	-	GND
77	HGND	-	GND
78	HGND	-	GND

T-6-34

J1104			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	RGV19	IN	Power supply for driving head

T-6-35

J1105			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	MGND	-	GND for VM

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J1106			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	MGND	-	GND for VM

T-6-37

J1107			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	GND	-	GND
2	LATCH_CL*	IN	Head data latch signal
3	SLK_CL	IN	Head data transfer clock
4	E_DATA_C1	IN	C odd nozzle data 1
5	E_DATA_C0	IN	C odd nozzle data 0
6	O_DATA_C1	IN	C even nozzle data 1
7	O_DATA_C0	IN	C even nozzle data 0
8	E_DATA_M1	IN	M odd nozzle data 1
9	E_DATA_M0	IN	M odd nozzle data 0
10	O_DATA_M1	IN	M even nozzle data 1
11	O_DATA_M0	IN	M even nozzle data 0
12	E_DATA_Y1	IN	Y odd nozzle data 1
13	E_DATA_Y0	IN	Y odd nozzle data 0
14	GND	-	GND
15	O_DATA_Y1	IN	Y even nozzle data 1
16	O_DATA_Y0	IN	Y even nozzle data 0
17	GND	-	GND
18	E_DATA_BK1	IN	BK odd nozzle data 1
19	E_DATA_BK0	IN	BK odd nozzle data 0
20	O_DATA_BK1	IN	BK even nozzle data 1
21	O_DATA_BK0	IN	BK even nozzle data 0
22	E_DATA_LC1	IN	LC odd nozzle data 1
23	E_DATA_LC0	IN	LC odd nozzle data 0
24	O_DATA_LC1	IN	LC even nozzle data 1
25	O_DATA_LC0	IN	LC even nozzle data 0
26	E_DATA_LM1	IN	LM odd nozzle data 1
27	E_DATA_LM0	IN	LM odd nozzle data 0
28	O_DATA_LM1	IN	LM even nozzle data 1
29	O_DATA_LM0	IN	LM even nozzle data 0

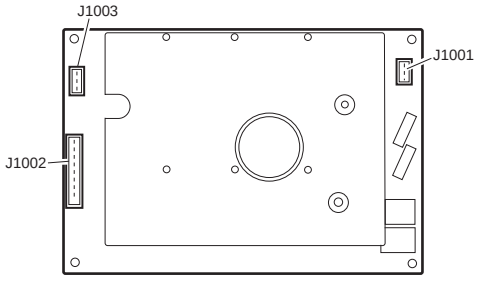
J1107			
Pin number	**Signal name**	**IN/OUT**	**Function**
30	GND	-	GND

T-6-38

J1108			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	GND	-	GND
2	+5V	IN	Power supply (+5.1V)
3	C_MODEL_SEL*	-	NC
4	HVHFBG	-	NC
5	VHFBH	-	NC
6	HEADEEPCS	IN	Head EEPROM chip select signal
7	HEADEEPWD	IN	Head EEPROM write signal
8	HEADEEPRD	OUT	Head EEPROM read signal
9	HEADEEPCLK	IN	Head EEPROM data transfer clock
10	GND	-	GND
11	ADTRG*	IN	LICC2 output sample hold
12	LICC2_DT	IN	LICC2 input data
13	LICC2_LT	IN	LICC2 input data latch signal
14	DSOUT1	OUT	LICC2 analog output
15	DSOUT2	OUT	LICC2 analog output
16	GND	-	GND
17	LICC2_CLK	IN	LICC2 input data clock
18	GND	-	GND
19	<BK> C5_HENB_B*	IN	BK heat pulse output
20	<LC> C4_HENB_B*	IN	LC heat pulse output
21	<LM> C3_HENB_B*	IN	LM heat pulse output
22	<BK> C5SUBH	IN	BK subheat pulse drive
23	<LC> C4SUBH	IN	LC subheat pulse drive
24	<LM> C3SUBH	IN	LM subheat pulse drive
25	<C> C2SUBH	IN	C subheat pulse drive
26	<M> C1SUBH	IN	M subheat pulse drive
27	<Y> C0SUBH	IN	Y subheat pulse drive
28	<C> C2_HENB_B*	IN	C heat pulse output
29	<M> C1_HENB_B*	IN	M heat pulse output
30	<Y> C0_HENB_B*	IN	Y heat pulse output

6.2.6 Power Supply

0009-9755



F-6-6

T-6-39

J1001			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	AC(H)	-	Power supply (AC 100V to AC 240V)
2	AC(H)	-	Power supply (AC 100V to AC 240V)

T-6-40

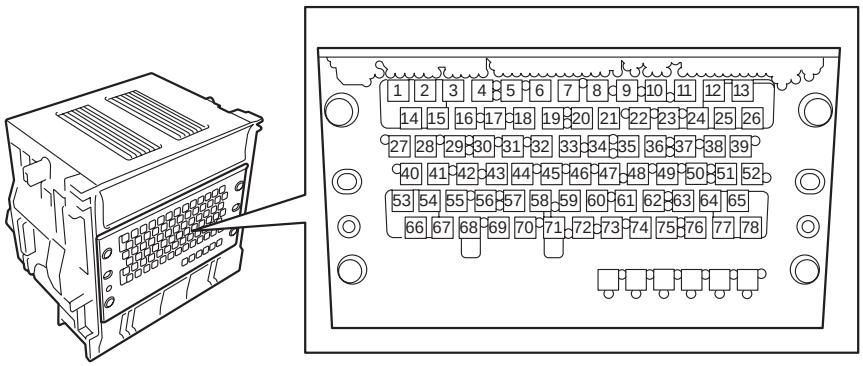
J1002			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	Vcc1	OUT	Power supply (+3.35V)
2	Vcc1	OUT	Power supply (+3.35V)
3	GND	-	GND
4	GND	-	GMD
5	VCC_ON	-	Sleep mode signal input port
6	STANDBY	IN	Power supply OFF signal input port
7	START	OUT	Power supply ON control signal
8	VM	OUT	Head power supply
9	VM	OUT	Head power supply
10	MGND	-	GMD
11	MGND	-	GND
12	Vcc2	OUT	Power supply (+5.1V)
13	Vcc2	OUT	Power supply (+5.1V)
14	GND	-	GND
15	GND	-	GND

T-6-41

J1003			
Pin number	**Signal name**	**IN/OUT**	**Function**
1	VM	OUT	Motor driver power supply
2	VM	OUT	Motor driver power supply
3	VM	OUT	Motor driver power supply
4	GND	-	GND
5	GND	-	GND
6	GND	-	GND

6.2.7 Printhead

0009-9170



F-6-7

T-6-42

Pin number	Signal name	IN/OUT	Function
1, 2, 3	HGND	-	GND

Pin number	Signal name	IN/OUT	Function
4	E_DTLM1	IN	Nozzle data signal (M nozzle array/even nozzle)
5	E_DTLC1	IN	Nozzle data signal (C nozzle array/even nozzle)
6	O_DTLM2	IN	Nozzle data signal (M nozzle array/odd nozzle)
7, 8	GND	-	GND
9	E_DTC1	IN	Nozzle data signal (C nozzle array/even nozzle)
10	E_DTC2	IN	Nozzle data signal (C nozzle array/even nozzle)
11	O_DTC2	IN	Nozzle data signal (C nozzle array/odd nozzle)
12, 13, 14, 15	HGND	-	GND
16	SHE_LC	IN	Sub heat enable signal (PC nozzle array)
17	O_DTLC1	IN	Nozzle data signal (PC nozzle array/odd nozzle)
18	SHE_BK	IN	Sub heat enable signal (Bk nozzle array)
19	SHE_LM	IN	Sub heat enable signal (PM nozzle array)
20	HE_LM	IN	Heat enable signal (PM nozzle array)
21	GND	-	GND
22	E_DTM2	IN	Nozzle data signal (M nozzle array/even nozzle)
23	LTH	IN	Data latch signal
24, 25	HGND	-	GND
26	VHFBG	-	NC
27	DIALC0	OUT	DI sensor signal (PC nozzle array)
28	DIAK0	OUT	DI sensor signal (Bk nozzle array)
29	DIAK0	OUT	DI sensor signal (Bk nozzle array)
30	O_DTBK1	IN	Nozzle data signal (Bk nozzle array/odd nozzle)
31	HE_LC	IN	Heat enable signal (PC nozzle array)
32	DIALM1	OUT	DI sensor signal (PM nozzle array)
33	SHE_M	IN	Sub heat enable signal (M nozzle array)
34	HE_Y	IN	Heat enable signal (Y nozzle array)
35	DIAM1	OUT	DI sensor signal (M nozzle array)
36	E_DTY2	IN	Nozzle data signal (Y nozzle array/odd nozzle)
37	O_DTM2	IN	Nozzle data signal (M nozzle array/even nozzle)
38	DIAY0	OUT	DI sensor signal (Y nozzle array)
39	E_DTY1	IN	Nozzle data signal (Y nozzle array/even nozzle)
40	O_DTBK1	IN	Nozzle data signal (Bk nozzle array/odd nozzle)
41	E_DTBK1	IN	Nozzle data signal (Bk nozzle array/even nozzle)
42	E_DTLC2	IN	Nozzle data signal (C nozzle array/even nozzle)
43	HE_BK	IN	Heat enable signal (Bk nozzle array)
44	DIALM0	OUT	DI sensor signal (PM nozzle array)
45	DIAC0	OUT	DI sensor signal (C nozzle array)
46	HSCLK	IN	Synchronous clock signal
47	HE_M	IN	Heat enable signal (M nozzle array)
48	DIAY1	OUT	DI sensor signal (Y nozzle array)
49	O_DTY2	IN	Nozzle data signal (Y nozzle array/odd nozzle)
50	O_DTY1	IN	Nozzle data signal (Y nozzle array/odd nozzle)
51	O_DTM1	IN	Nozzle data signal (M nozzle array/odd nozzle)
52	DIAM0	OUT	DI sensor signal (M nozzle array)
53	VHFBH	-	NC
54	VH	IN	Head drive power supply
55	E_DTBK2	IN	Nozzle data signal (Bk nozzle array/even nozzle)
56	O_DTLC2	IN	Nozzle data signal (C nozzle array/odd nozzle)
57	O_DTLM2	IN	Nozzle data signal (PM nozzle array/odd nozzle)
58	H5V	IN	Head logic power supply (5.1 V)
59	EPCE	IN	Head EEPROM chip select signal
60	SHE_C	IN	Sub heat enable signal (C nozzle array)
61	EPDO	OUT	Head EEPROM read data signal
62	E_DTM1	IN	Nozzle data signal (M nozzle array/even nozzle)
63	O_DTC1	IN	Nozzle data signal (C nozzle array/odd nozzle)
64, 65, 66, 67	VH	IN	Head drive power supply
68	VHT	IN	Power transistor drive power supply
69	DIALC1	OUT	DI sensor signal (PC nozzle array)
70	O_DTLM1	IN	Nozzle data signal (PM nozzle array/odd nozzle)

Pin number	Signal name	IN/OUT	Function
71	H5V	IN	Head logic power supply (5.1 V)
72	EPCLK	IN	Head EEPROM clock signal
73	EPDI	IN	Head EEPROM write data signal
74	DIAC1	OUT	DI sensor signal (C nozzle array)
75	HE_C	IN	Heat enable signal (C nozzle array)
76	SHE_Y	IN	Sub heat enable signal (Y nozzle array)
77, 78	VH	IN	Head drive power supply

6.3 Version Up

6.3.1 Firmware Update Tool

0009-9745

This printer can use the GARO Firmware Update Tool to update the versions of the firmware for the system controller installed in the printer.
The GARO Firmware Update Tool is the same as the one for the user.
For the specific operating procedure, follow the instructions displayed on the computer.

6.4 Service Tools

6.4.1 List of Tools

0009-9746

T-6-43

General-purpose tools	Application
Long Phillips screwdriver	Inserting and removing screws
Phillips screwdriver	Inserting and removing screws
Flat-head screwdriver (small)	Removing the E-ring
Needle-nose pliers	Inserting and removing the spring parts
Hex key wrench	Inserting and removing hexagonal screws
Penlight	Assisting in the manual capping procedure
Multimeter	Troubleshooting
Flat brush	Applying grease
Lint free paper	Wiping off ink
Rubber gloves	Preventing ink stains

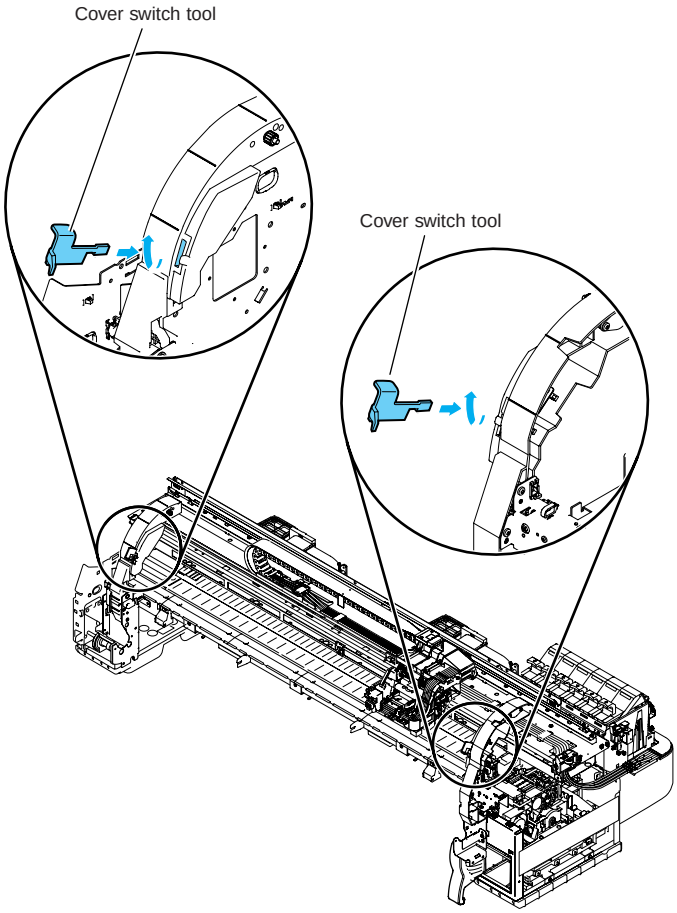
T-6-44

Special-purpose tools	Application
Cover switch tool (QY9-0103-000)	Pressing the cover switch
Syringe (CK-0541-000)	Draining the ink manually
Tube (QA2-6161-000)	Draining the ink manually
Grease PERMALUBE G-2 (CK-0551-020)	Applying to specified locations
Grease MOLYKOTE PG-641 (CK-0562-020)	Applying to specified locations
GARO Firmware Update Tool	For upgrading the firmware.

6.4.2 Using the Cover Switch Tool

0009-9747

Use the cover switch tool by inserting the hook into the cover switch.



F-6-8

Chapter 7 SERVICE MODE

Contents

7.1 Service Mode

7.1.1 Service Mode Operation

0009-9742

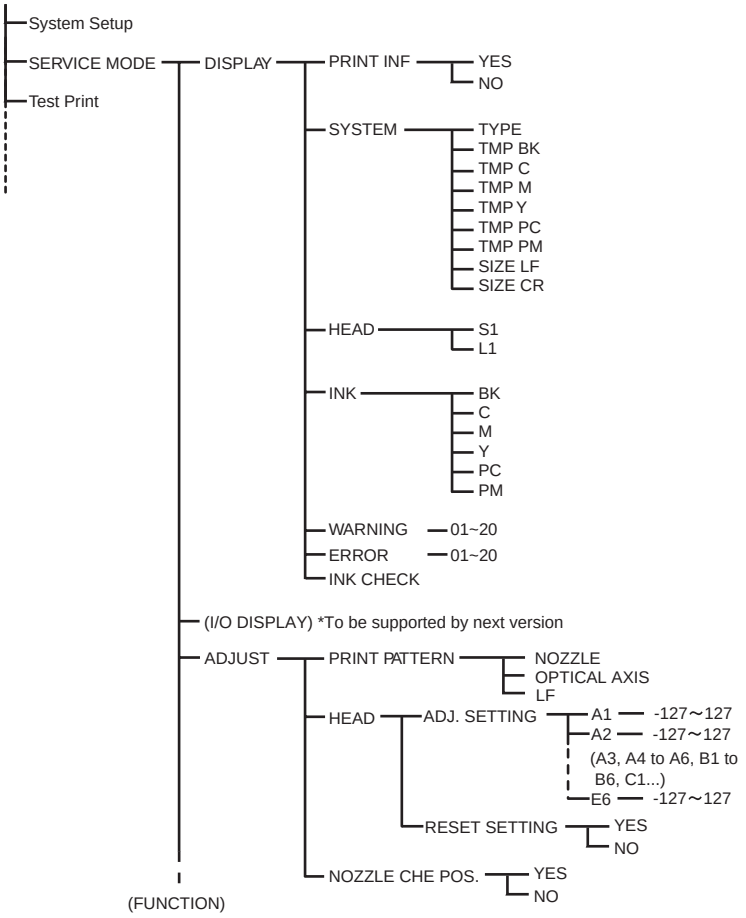
a) How to enter Service mode
Follow the procedure below to enter Service mode.
1) Turn off the printer.
2) Turn on the printer while holding down the [Paper Source] button and [Information] button.
3) Check that "Initializing" is shown on the display, and then release the buttons.
4) When paper has been loaded, pressing the [Online] button twice shows "SERVICE MODE" on the display. When no paper has been loaded, pressing the he [Online] button once shows "SERVICE MODE" on the display.
5) Use the [down] button to make a selection.

Service mode is added to the options in the Main menu.
Service mode can be entered even during error status (when Exxxx and Wxxxx are shown on the display) by turning the power off and then using the above key operation.
b) How to exit Service mode
To exit Service mode, turn off the printer.
c) Buttons used in Service mode
- Selecting menus and parameters: [<] button or [>] button
- Entering a lower-level menu: [∨] button
- Entering a higher-level menu: [∧] button
- Setting menus and parameters: [OK] button

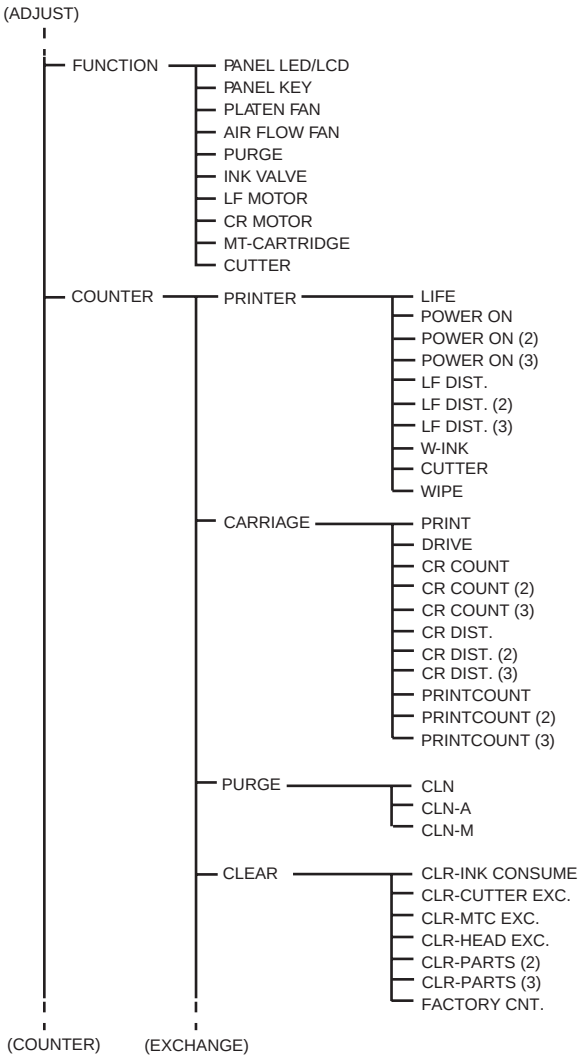
7.1.2 Map of the Service Mode

0009-9743

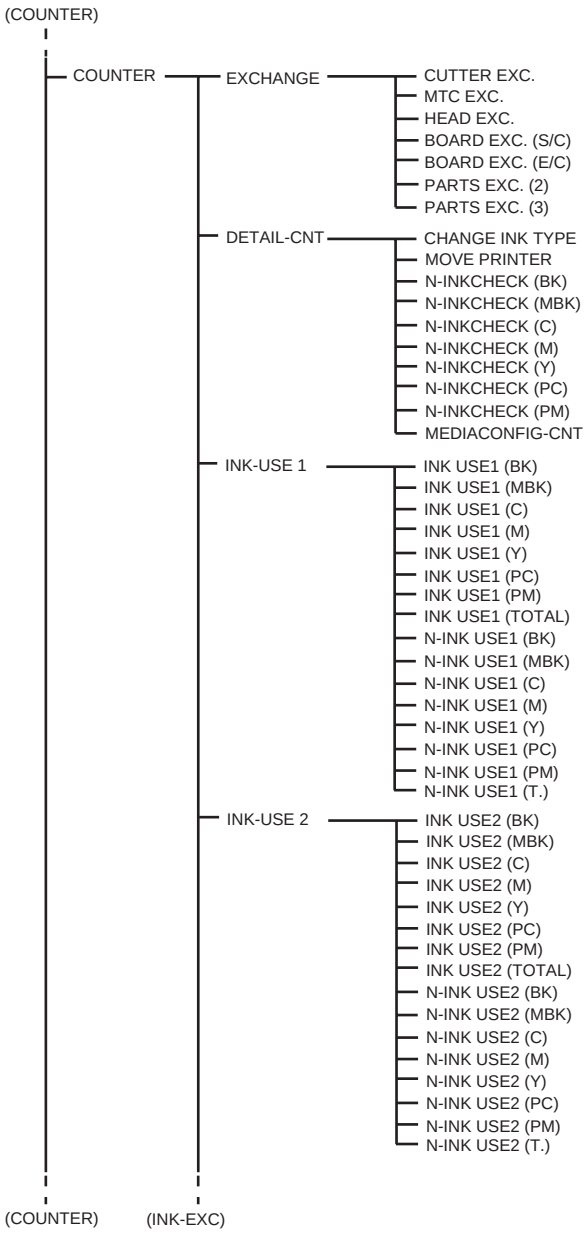
The hierarchy of menus and parameters in the Service mode is as shown below.



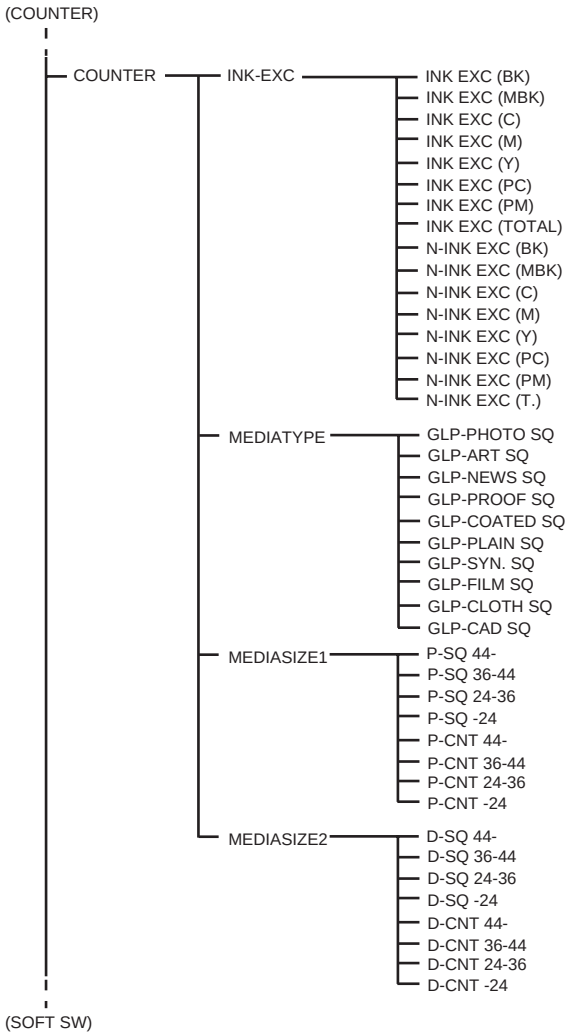
F-7-1


(ADJUST)
FUNCTION
PANEL LED/LCD
PANEL KEY
PLATEN FAN
AIR FLOW FAN
PURGE
INK VALVE
LF MOTOR
CR MOTOR
MT-CARTRIDGE
CUTTER
COUNTER
PRINTER
LIFE
POWER ON
POWER ON (2)
POWER ON (3)
LF DIST.
LF DIST. (2)
LF DIST. (3)
W-INK
CUTTER
WIPE
CARRIAGE
PRINT
DRIVE
CR COUNT
CR COUNT (2)
CR COUNT (3)
CR DIST.
CR DIST. (2)
CR DIST. (3)
PRINTCOUNT
PRINTCOUNT (2)
PRINTCOUNT (3)
PURGE
CLN
CLN-A
CLN-M
CLEAR
CLR-INK CONSUME
CLR-CUTTER EXC.
CLR-MTC EXC.
CLR-HEAD EXC.
CLR-PARTS (2)
CLR-PARTS (3)
FACTORY CNT.
(COUNTER)
(EXCHANGE)

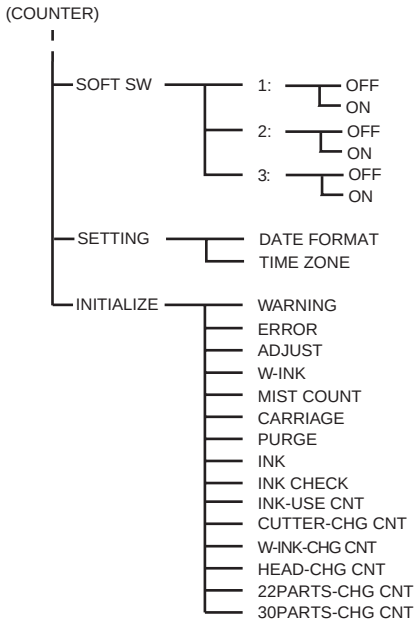
F-7-2


(COUNTER)
COUNTER
EXCHANGE
CUTTER EXC.
MTC EXC.
HEAD EXC.
BOARD EXC. (S/C)
BOARD EXC. (E/C)
PARTS EXC. (2)
PARTS EXC. (3)
DETAIL-CNT
CHANGE INK TYPE
MOVE PRINTER
N-INKCHECK (BK)
N-INKCHECK (MBK)
N-INKCHECK (C)
N-INKCHECK (M)
N-INKCHECK (Y)
N-INKCHECK (PC)
N-INKCHECK (PM)
MEDIACONFIG-CNT
INK-USE 1
INK USE1 (BK)
INK USE1 (MBK)
INK USE1 (C)
INK USE1 (M)
INK USE1 (Y)
INK USE1 (PC)
INK USE1 (PM)
INK USE1 (TOTAL)
N-INK USE1 (BK)
N-INK USE1 (MBK)
N-INK USE1 (C)
N-INK USE1 (M)
N-INK USE1 (Y)
N-INK USE1 (PC)
N-INK USE1 (PM)
N-INK USE1 (T.)
INK-USE 2
INK USE2 (BK)
INK USE2 (MBK)
INK USE2 (C)
INK USE2 (M)
INK USE2 (Y)
INK USE2 (PC)
INK USE2 (PM)
INK USE2 (TOTAL)
N-INK USE2 (BK)
N-INK USE2 (MBK)
N-INK USE2 (C)
N-INK USE2 (M)
N-INK USE2 (Y)
N-INK USE2 (PC)
N-INK USE2 (PM)
N-INK USE2 (T.)
(COUNTER)
(INK-EXC)

F-7-3


(COUNTER)
COUNTER
INK-EXC
INK EXC (BK)
INK EXC (MBK)
INK EXC (C)
INK EXC (M)
INK EXC (Y)
INK EXC (PC)
INK EXC (PM)
INK EXC (TOTAL)
N-INK EXC (BK)
N-INK EXC (MBK)
N-INK EXC (C)
N-INK EXC (M)
N-INK EXC (Y)
N-INK EXC (PC)
N-INK EXC (PM)
N-INK EXC (T.)
MEDIATYPE
GLP-PHOTO SQ
GLP-ART SQ
GLP-NEWS SQ
GLP-PROOF SQ
GLP-COATED SQ
GLP-PLAIN SQ
GLP-SYN. SQ
GLP-FILM SQ
GLP-CLOTH SQ
GLP-CAD SQ
MEDIASIZE1
P-SQ 44-
P-SQ 36-44
P-SQ 24-36
P-SQ -24
P-CNT 44-
P-CNT 36-44
P-CNT 24-36
P-CNT -24
MEDIASIZE2
D-SQ 44-
D-SQ 36-44
D-SQ 24-36
D-SQ -24
D-CNT 44-
D-CNT 36-44
D-CNT 24-36
D-CNT -24
(SOFT SW)

F-7-4


(COUNTER)
SOFT SW
1:
OFF
ON
2:
OFF
ON
3:
OFF
ON
SETTING
DATE FORMAT
TIME ZONE
INITIALIZE
WARNING
ERROR
ADJUST
W-INK
MIST COUNT
CARRIAGE
PURGE
INK
INK CHECK
INK-USE CNT
CUTTER-CHG CNT
W-INK-CHG CNT
HEAD-CHG CNT
22PARTS-CHG CNT
30PARTS-CHG CNT

F-7-5

7.1.3 Details of Service Mode

0010-0906

```
Canon imagePROGRAF W8400PG  PRONT INF
     S/C:Ver.XX.XX  S/BOOT:Ver.XX.XX
     E/C:Ver.XX.XX  E/Rel:Ver.XXXX  E/BOOT:Ver.X.XX
SYSTEM
     TYPE:44  TMP BK:28  TMP C:28  TMP M:28  TMP Y:28  TMP PC:28  TMP PM:28
     SIZE-LF:0.0  SIZE-CR:608.0
HEAD
     S1:0D5C373D  L1:264C01A0
INK
     Bk:624A0411  20041004  20061004
      C:624A0612  20041006  20061006
      M:624A0812  20041008  20061008
      Y:624A1511  20041015  20061015
     PC:62490811  20040908  20060908
     PM:62491511  20040915  20060915
WARNING
     01:W00000 02:W00000 03:W00000 04:W00000 05:W00000 06:W00000 07:W00000 08:W00000 09:W00000 10:W00000
     11:W00000 12:W00000 13:W00000 14:W00000 15:W00000 16:W00000 17:W00000 18:W00000 19:W00000 20:W00000
ERROR
     01:E02000 02:E02500 03:E02500 04:E02500 05:E00000 06:E00000 07:E00000 08:E00000 09:E00000 10:E00000
     11:E00000 12:E00000 13:E00000 14:E00000 15:E00000 16:E00000 17:E00000 18:E00000 19:E00000 20:E00000
INK CHECK  0  0  0  0  0  0  0
ADJUST
     A1:0 A2:0 A3:0 A4:0 A5:0 A6:0 B1:0 B2:0 B3:0 B4:0 B5:0 B6:0
     C2:0 C3:0 C4:0 C5:0 C6:0 D2:0 D3:0 D4:0 D5:0 D6:0
     E1:0 E2:0 E3:0 E4:0 E5:0 E6:0 F1:0 F2:0 F3:0 F4:0 F5:0 F6:0
     G1:0 G2:0 G3:0 G4:0 G5:0 G6:0 H1:0 H2:0 H3:0 H4:0 H5:0 H6:0
     I1:0 I2:0 I3:0 I4:0 I5:0 I6:0 J1:0 J2:0 J3:0 J4:0 J5:0 J6:0
     01:0 02:0 03:-1 04:-1 05:-1 06:-2 07:-2 08:-2 09:-1 10:-1
     11:-1 12:0 13:0 14:0 15:1 16:1 17:2 18:2 19:3 20:3
     21:3 22:3 23:3 24:3 25:3 26:2 27:2 28:1 29:1 30:0
COUNTER
     PRINTER     :0  432  57  246
                  15  16  16  515  515  515
     CARRIAGE    :1  1  5353  5353  5353
                  4182  4182  4182  29  29  29
     PURGE       :44  43  1
     CLEAR       :0  0  0  0  0  0  0
     EXCHANGE    :0  0  2  0  0  0  0
     DETAIL-CNT  :0  0  0
                  0  0  0  0  0  0  0
     INK-USE1    :235  0  219  219  219  219  219  1330
                  0  0  0  0  0  0  0  0
     INK-USE2    :235  0  219  219  219  219  219  1330
                  0  0  0  0  0  0  0  0
     INK-EXC     :3  0  3  3  3  3  3  18
                  0  0  0  0  0  0  0  0
     MEDIATYPE   :0  0  0  0  0
                  0  0  0  0  0
     MEDIASIZE1  :0  0  0  0
                  0  0  0  0
     MEDIASIZE2  :0  0  0  0
                  0  0  0  0
```

Registration adjustment values

Feed roller eccentricity adjustment values

F-7-6

2) SYSTEM
Displays the printer information shown below.

T-7-1

Display	Description
TYPE	Engine controller type setting
TMP BK	Calibrated temperature of head temperature sensor (Bk)
TMP C	Calibrated temperature of head temperature sensor (C)
TMP M	Calibrated temperature of head temperature sensor (M)
TMP Y	Calibrated temperature of head temperature sensor (Y)
TMP PC	Calibrated temperature of head temperature sensor (PC)
TMP PM	Calibrated temperature of head temperature sensor (PM)
SIZE LF	Detected size of loaded media (feeding direction)
SIZE CR	Detected size of loaded media (carriage direction)

3) HEAD
Displays the following EEPROM information in the printhead.

T-7-2

Display	Description
S1	Printhead serial number
L1	Printhead lot number

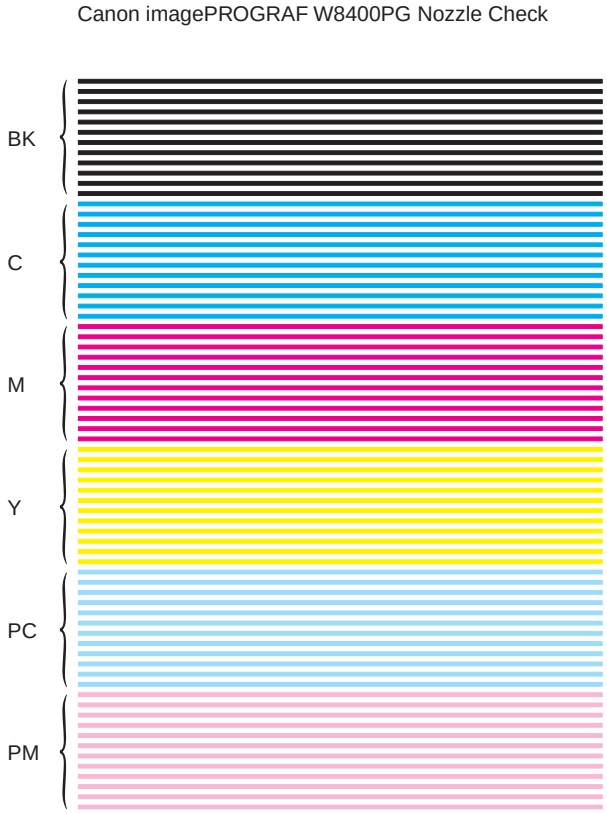
4) INK

Displays the following EEPROM information in the ink tank.

T-7-3

Display	Description
BK	Bk ink tank lot number / Date of manufacture / Expiration date
C	C ink tank lot number / Date of manufacture / Expiration date
M	M ink tank lot number / Date of manufacture / Expiration date
Y	Y ink tank lot number / Date of manufacture / Expiration date
PC	PC ink tank lot number / Date of manufacture / Expiration date
PM	PM ink tank lot number / Date of manufacture / Expiration date

5) WARNING
Displays the warning history (up to 20 events). The newest event has the smallest history number.
6) ERROR
Displays the error history (up to 20 events). The newest event has the smallest history number.
7) INK CHECK
Display the execution history of "Ink Check Off" in the Main Menu. (Bk, MBk, C, M, Y, PC, PM)
0= No execution history
1= One or more execution histories exist
b) I/O DISPLAY * To be supported by next version
Displays the status of the port I/O signal of the sensors and other devices connected to the engine controller.
c) ADJUST
Performs adjustment and prints the adjustment and check patterns needed for adjusting the printer parts.
- PRINT PATTERN > NOZZLE
This is used for a nozzle check pattern during servicing that prints in 1-pass and single direction. This is used to check for nozzles that are not discharging properly. It takes about 2 minutes to print this pattern.



F-7-7

- PRINT PATTERN > OPTICAL AXIS
This pattern is used to adjust registration sensor optical axis. It takes about 2 minutes to print this pattern. For details, refer to **Disassembly/Reassembly > Adjustment and Setup Items > Action to take after replacing the carriage unit or registration sensor**.
- PRINT PATTERN > LF
This pattern is used to adjust feed roller eccentricity. It takes about 10 minutes to print this pattern. For details, refer to **Disassembly/Reassembly > Adjustment and Setup Items > Action to take after replacing the feed roller home position sensor, feed roller encoder, and feed roller**.
- HEAD
In "ADJ. SETTING", any registration value can be entered within the range from -127 to 127. Select "SERVICE MODE" > "DISPLAY" > "PRINT INF" to record the registration value for later restoration of the registration value.
"RESET SETTING" can clear the registration adjustment value.

"ADJ.SETTING" is not the function that outputs a print adjustment pattern to allow you to perform manual adjustment.

- NOZZLE CHK POS.
This mode adjusts the optical axis of the head management sensor. For details, refer to **Disassembly/Reassembly > Adjustment and Setupb Items > Action to take after replacing the head management sensor**.

d) FUNCTION
Checks the operation of the buttons on the operation panel and printer parts.

T-7-4

Display	Description
PANEL LED/LCD	This checks the LEDs and LCD on the operation panel. The LEDs flash, and the squares in the LCD are displayed in a checkerboard pattern and flash alternately.
PANEL KEY	This checks the buttons on the operation panel. The name and symbol of the pressed button is displayed. Pressing the [up] button exits this mode after the key name is displayed. Also, pressing the [Power] button turns off the printer.
PLATEN FAN	This checks operation of the suction fan. The suction fan rotates for five seconds at maximum speed and then rotate for five seconds at minimum speed.
AIR FLOW FAN	This checks operation of the mist fans. The right and left fans rotate simultaneously for about 10 seconds.
PURGE	This checks operation of the recovery system. After the carriage is moved to the homeposition, the recovery suction operation is performed independently in the recovery system.
INK VALVE	Operation check of ink supply valve. This drives the valve motor and performs one rotation of the ink supply valve cam.
LF MOTOR	This checks operation of the feed motor. The media is moved forward 500 mm and then stopped regardless of whether media is loaded or not.
CR MOTOR	This checks operation of the carriage motor. The carriage moves back and forth once at the maximum printing width regardless of whether media is loaded or not.
MT-CARTRIDGE	This checks the presence of maintenance cartridge. "CHECK END" is displayed if a proper maintenance cartridge is installed. Otherwise "ERROR E02818" is displayed.
CUTTER	This checks operation of the cutter. The printer repeats the operation of cutting until the specified number of times is reached regardless of whether roll media is loaded or not. (Setting range: 1 to 999 times)

e) COUNTER
Displays the service life (number of operation times and time) of each unit and print counts for each media type.
The count values under this option can be printed using the "PRINT INF" option.
- PRINTER Counter for product life

T-7-5

Display	Description	Unit
LIFE	Number of printed media expressed as A0 equivalent (for checking printer durability)	sheets
POWER ON	Cumulative power-on time	Hours
POWER ON(2)	For factory	-
POWER ON(3)	For factory	-
LF DIST.	Cumulative feed distance of feed roller (210 mm/sheet)	sheets
LF DIST.(2)	For factory	-
LF DIST.(3)	For factory	-
W-INK	Maintenance cartridge tank full detection counter	ml
CUTTER	Number of cutter usages	times
WIPE	Wiping operation count	times

- CARRIAGE Counter for carriage unit

T-7-6

Display	Description	Unit
PRINT	Cumulative printing time	Hours
DRIVE	Cumulative carriage driving time	Hours
CR COUNT	Cumulative carriage scan count (one back-and-forth motion = 1)	times
CR COUNT(2)	For factory	-
CR COUNT(3)	For factory	-
CR DIST.	Cumulative carriage scan distance (210 mm/sheet)	sheets
CR DIST.(2)	For factory	-
CR DIST.(3)	For factory	-
PRINTCOUNT	Cumulative print end count	times
PRINTCOUNT(2)	For factory	-
PRINTCOUNT(3)	For factory	-

- PURGE Counter for purge unit

T-7-7

Display	Description	Unit
CLN	Number of automatic and manual cleanings	times
CLN-A	Number of automatic cleanings	times
CLN-M	Number of manual cleanings	times

- CLEAR Counter for counter initialization

T-7-8

Display	Description	Unit
CLR-INK CONSUME	Cumulative ink sectional consumption amount clearing count	times
CLR-CUTTER EXC.	Cumulative cutter replacement count clearing count	times
CLR-MTC EXC.	Maintenance cartridge replacement count clearing count	times
CLR-HEAD EXC.	Cumulative head replacement count clearing count	times
CLR-PARTS(2)	For factory	-
CLR-PARTS(3)	For factory	-
FACTORY CNT	For factory	-

- EXCHANGE Counter for parts replacement

T-7-9

Display	Description	Unit
CUTTER EXC.	Cutter replacement counter	times
MTC EXC.	Maintenance cartridge replacement counter	times
HEAD EXC.	Printhead replacement counter	times
BOARD EXC.(S/C)	System controller PCB replacement counter	times
BOARD EXC.(E/C)	Engine controller PCB replacement counter	times
PARTS EXC.(2)	For factory	-
PARTS EXC.(3)	For factory	-

- DETAIL-CNT Counter for ink

T-7-10

Display	Description	Unit
CHANGE INK TYPE	Ink change count	times
MOVE PRINTER	Secondary movement count	times
N-INKCHECK(BK)	Count of execution of "Ink Check Off" in main menu	times
N-INKCHECK(MBK)	Count of execution of "Ink Check Off" in main menu	times
N-INKCHECK(C)	Count of execution of "Ink Check Off" in main menu	times
N-INKCHECK(M)	Count of execution of "Ink Check Off" in main menu	times
N-INKCHECK(Y)	Count of execution of "Ink Check Off" in main menu	times
N-INKCHECK(PC)	Count of execution of "Ink Check Off" in main menu	times
N-INKCHECK(PM)	Count of execution of "Ink Check Off" in main menu	times
MEDIACONFIG-CNT	Count of media registration from media editor	times

- INK-USE1 Counter for ink

T-7-11

Display	Description	Unit
INK USE1 (BK)	Cumulative consumption amount of genuine ink	ml
INK USE1 (MBK)	Cumulative consumption amount of genuine ink	ml
INK USE1 (C)	Cumulative consumption amount of genuine ink	ml
INK USE1 (M)	Cumulative consumption amount of genuine ink	ml
INK USE1 (Y)	Cumulative consumption amount of genuine ink	ml
INK USE1 (PC)	Cumulative consumption amount of genuine ink	ml
INK USE1 (PM)	Cumulative consumption amount of genuine ink	ml
INK USE1 (TOTAL)	Cumulative consumption amount of genuine ink (total)	ml
N-INK USE1 (BK)	Cumulative amount of ink used to execute "Ink Check Off" in main menu	ml
N-INK USE1 (MBK)	Cumulative amount of ink used to execute "Ink Check Off" in main menu	ml
N-INK USE1 (C)	Cumulative amount of ink used to execute "Ink Check Off" in main menu	ml
N-INK USE1 (M)	Cumulative amount of ink used to execute "Ink Check Off" in main menu	ml
N-INK USE1 (Y)	Cumulative amount of ink used to execute "Ink Check Off" in main menu	ml
N-INK USE1 (PC)	Cumulative amount of ink used to execute "Ink Check Off" in main menu	ml
N-INK USE1 (PM)	Cumulative amount of ink used to execute "Ink Check Off" in main menu	ml
N-INK USE1 (T.)	Cumulative amount of ink used to execute "Ink Check Off" in main menu (total)	ml

- INK-USE2 Counter for ink

T-7-12

Display	Description	Unit
INK USE2 (BK)	Genuine ink sectional consumption amount	ml
INK USE2 (MBK)	Genuine ink sectional consumption amount	ml
INK USE2 (C)	Genuine ink sectional consumption amount	ml
INK USE2 (M)	Genuine ink sectional consumption amount	ml
INK USE2 (Y)	Genuine ink sectional consumption amount	ml
INK USE2 (PC)	Genuine ink sectional consumption amount	ml
INK USE2 (PM)	Genuine ink sectional consumption amount	ml
INK USE2 (TOTAL)	Genuine ink sectional consumption amount (total)	ml
N-INK USE2 (BK)	Sectional amount of ink used to execute "Ink Check Off" in main menu	ml
N-INK USE2 (MBK)	Sectional amount of ink used to execute "Ink Check Off" in main menu	ml
N-INK USE2 (C)	Sectional amount of ink used to execute "Ink Check Off" in main menu	ml
N-INK USE2 (M)	Sectional amount of ink used to execute "Ink Check Off" in main menu	ml
N-INK USE2 (Y)	Sectional amount of ink used to execute "Ink Check Off" in main menu	ml
N-INK USE2 (PC)	Sectional amount of ink used to execute "Ink Check Off" in main menu	ml
N-INK USE2 (PM)	Sectional amount of ink used to execute "Ink Check Off" in main menu	ml
N-INK USE2 (T.)	Sectional amount of ink used to execute "Ink Check Off" in main menu (total)	ml

- INK-EXC Counter for ink

T-7-13

Display	Description	Unit
INK EXC (BK)	Cumulative genuine ink replacement count	times
INK EXC(MBK)	Cumulative genuine ink replacement count	times
INK EXC (C)	Cumulative genuine ink replacement count	times
INK EXC (M)	Cumulative genuine ink replacement count	times
INK EXC (Y)	Cumulative genuine ink replacement count	times
INK EXC (PC)	Cumulative genuine ink replacement count	times
INK EXC (PM)	Cumulative genuine ink replacement count	times
INK EXC(TOTAL)	Cumulative genuine ink replacement count (total)	times
N-INK EXC (BK)	Cumulative replacement count of ink tank used to execute "Ink Check Off" in main menu	times
N-INK EXC (MBK)	Cumulative replacement count of ink tank used to execute "Ink Check Off" in main menu	times
N-INK EXC (C)	Cumulative replacement count of ink tank used to execute "Ink Check Off" in main menu	times
N-INK EXC (M)	Cumulative replacement count of ink tank used to execute "Ink Check Off" in main menu	times
N-INK EXC (Y)	Cumulative replacement count of ink tank used to execute "Ink Check Off" in main menu	times
N-INK EXC (PC)	Cumulative replacement count of ink tank used to execute "Ink Check Off" in main menu	times
N-INK EXC (PM)	Cumulative replacement count of ink tank used to execute "Ink Check Off" in main menu	times
N-INK EXC (T.)	Cumulative replacement count of ink tank used to execute "Ink Check Off" in main menu (total)	times

- MEDIATYPE Counter for media

T-7-14

Display	Description	Unit
GLP-PHOTO SQ	Cumulative print area of photo paper	m2
GLP-ART SQ	Cumulative print area of art paper	m2
GLP-NEWS SQ	Cumulative print area of newspaper proofing paper	m2
GLP-PROOF SQ	Cumulative print area of proofing paper	m2
GLP-COATED SQ	Cumulative print area of coated paper	m2
	Cumulative print area of plain paper	m2
	Cumulative print area of synthetic paper	m2
	Cumulative print area of film paper	m2
GLP-CLOTH SQ	Cumulative print area of cloth paper	m2
GLP-CAD SQ	Cumulative print area of CAD paper	m2

- MEDIASIZE1 Counter for media

T-7-15

Display	Description	Unit
P-SQ 44-	Cumulative print area of paper: 44 inch or more (Actually outputted paper size)	m2
P-SQ 36-44	Cumulative print area of paper: 36 to 44 inch (Actually outputted paper size)	m2
P-SQ 24-36	Cumulative print area of paper: 24 to 36 inch (Actually outputted paper size)	m2
P-SQ 24-	Cumulative print area of paper smaller than 24 inches (Actually outputted paper size)	m2
P-CNT 44-	Cumulative number of printed sheet: 44 inches or more (Actually outputted paper size)	m2
	Cumulative number of printed sheet: 36 to 44 inch (Actually outputted paper size)	m2
	Cumulative number of printed sheet: 24 to 36 inch (Actually outputted paper size)	m2
	Cumulative number of printed sheet: less than 24 inch (Actually outputted paper size)	m2

- MEDIASIZE2 Counter for media

T-7-16

Display	Description	Unit
D-SQ 44-	Cumulative print area of paper: 44 inch or more (Paper size specified by the driver)	m2
D-SQ 36-44	Cumulative print area of paper: 36 to 44 inch (Paper size specified by the driver)	m2
D-SQ 24-36	Cumulative print area of paper: 24 to 36 inch (Paper size specified by the driver)	m2
D-SQ 24-	Cumulative print area of paper: less than 24 inch (Paper size specified by the driver)	m2
D-CNT 44-	Cumulative number of printed sheet: 44 inches or more (Paper size specified by the driver)	m2
	Cumulative number of printed sheet: 36 to 44 inch (Paper size specified by the driver)	m2
	Cumulative number of printed sheet: 24 to 36 inch (Paper size specified by the driver)	m2
	Cumulative number of printed sheet: less than 24 inch (Paper size specified by the driver)	m2

f) SOFT SW
For factory.

T-7-17

Display	Description
1:	For factory.
2:	For factory.
3:	For factory.

g) SETTING
- SETTING > DATE FORMAT
The date display format can be selected (YYYY/MM/DD, DD/MM/YYYY, or MM/DD/YYYY).
- SETTING > TIME ZONE
Set the time zone relative to GMT.

h) INITIALIZE
The DISPLAY histories, ADJUST settings, COUNTER values, and other parameters can be cleared individually.

T-7-18

Display	Description
WARNING	Initialization of DISPLAY > WARNING
ERROR	Initialization of DISPLAY > ERROR
ADJUST	Initialization of ADJUST
W-INK	Initialization of COUNTER > PRINTER > W-INK
MIST COUNT	Initialization of MIST COUNT
CARRIAGE	Initialization of COUNTER > CARRIAGE
PURGE	Initialization of COUNTER > PURGE
INK CHECK	Initialization of DISPLAY > INK CHECK
INK-USE CNT	Initialization of COUNTER > INK-USE2
CUTTER-CHG CNT	Initialization of COUNTER > EXCHANGE > CUTTER EXC.
W-INK-CHG CNT	Initialization of COUNTER > EXCHANGE > MTC EXC.
HEAD-CHG CNT	Initialization of COUNTER > EXCHANGE > HEAD EXC.
2PARTS-CHG CNT	For factory
3PARTS-CHG CNT	For factory

7.2 Special Mode

7.2.1 Printer Special Mode

0009-9073

In addition to Service mode, this printer is provided with the following special modes.
- Controller Replace Mode

1. Controller Replace Mode

This mode is used when replacing the system controller and engine controller.
This mode transfers the setting values, counter values, and other data before replacement in each controller to the new controller.
For details about entering and operating this mode, refer to **"Disassembly/Reassembly" > "Point to Note on Disassembly and Reassembly" > "PCBs".**

Chapter 8 ERROR CODE

Contents

8.1 Outline

8.1.1 Outline

0009-9741

The printer indicates errors using the display and LEDs.
If an error occurs while a print job is in progress, the printer status is also displayed on the status monitor of the printer driver.
There are three types of errors indicated on the display.
- Warnings
Status where the print operation can be continued without remedying the cause of the problem. This can, however, adversely affect the print results.
- Errors
Status where the print operation is stopped, and regular operation cannot be recovered until the cause of the problem is remedied.
- Service call error
When a service call error occurs, the error is not cleared and the error display remains on the operation panel even if printer power goes off and on.
This is to avoid that the user can cleare service call errors preventing the printer from damage.
Service call errors can be cleared, however, by starting up the printer with the service mode.

Refer to "Troubleshooting" for the remedy procedures when warning and errors occur.

Overview of warning and error codes

T-8-1

Codes*	**Problem type**
W0100z	Ink warning
W0100a	Other warning
W0102x	Media warning
W0103x	GARO warning
E020xx	Media feeding error
E02Bxx	Cover error
E024xx	Pass mismatch error
E025xx	Ink error
E028xx	Printhead/Ink tank error
E02Axx	Engine controller internal error
E02Dxx	Other error
E02Exx	Other error
E02Fxx	System controller internal error
E040xx, S040xx	Service call error

*: The above codes show "x" to indicate a number or letter, "a" to indicate a letter, and "z" to indicate a number.

8.2 Warning Table

8.2.1 Warnings

0009-9740

*1: The codes correspond to the numbers shown on the display in the service mode.
Codes in parentheses are not shown on the display when warning occurs.

T-8-2

Code*1	Display message	Status
(W01000)	Ink Check	Bk ink tank is almost empty
(W01001)	Ink Check	Y ink tank is almost empty
(W01002)	Ink Check	M ink tank is almost empty
(W01003)	Ink Check	C ink tank is almost empty
(W01004)	Ink Check	PM ink tank is almost empty
(W01005)	Ink Check	PC ink tank is almost empty
(W01006)	MTCart Full Soon	Maintenance cartridge is almost full
(W01007)	Mist Full Soon	Waste ink in platen waste ink box and waste ink in mist fan unit are almost full.
(W0100F)	Feed Limit..	Manual feed limit
(W01021)	Incorrect Media	Media type is not correct
(W01022)	No full bleed	Borderless printing is not allowed
W01030	GARO W1030	Unsupported command in GARO image mode
W01031	GARO W1031	Invalid number of parameters in GARO image mode
W01032	GARO W1032	Required item was omitted in GARO image mode
W01034	GARO W1034	Other warning in GARO image mode
W01035	GARO W1035	Unsupported command in GARO setting mode
W01036	GARO W1036	Invalid number of parameters in GARO setting mode
W01037	GARO W1037	Required item was omitted in GARO setting mode
W01038	GARO W1038	Data out of range in GARO setting mode
W01039	GARO W1039	Other warning in GARO setting mode

8.3 Error Table

8.3.1 Errors

0009-9739

*1: The codes correspond to the numbers shown on the display in the service mode.
Codes in parentheses are not shown on the display when error occurs.

T-8-3

Code*1	Status
E02000	No roll media
E0200A	Paper width not detected
E0200B	Media loading position error
E0200C	Media leading edge not detected
E0200D	Cut sheet trailing edge not detected
E0200E	Media is too small
E0200F	Media is too large
E02010	Media is skewed
E02013	Cutter motor timeout
E02014	Blown cutter unit fuse
E02015	Cutting failure
E02016	Paper became misaligned during printing
E02017	Media right edge not detected
E02018	Media left edge not detected
E02019	Printer has run out of roll paper during printing
E02400	Received data indicated roll media when cut sheets had been loaded.
E02401	Roll media was not loaded even though the received data indicated roll media
E02402	Cut sheets were not loaded even though the received data indicated cut sheets
E02403	Media was too small during printing of adjustment pattern
E02405	Invalid paper position for borderless printing
E02406	Data that does not allow borderless printing has been received
E02407	Width indicated by the received data does not match width of paper
E02500	No ink (Bk)
E02501	No ink (Y)
E02502	No ink (M)
E02503	No ink (C)
E02504	No ink (PM)
E02505	No ink (PC)
E02506	Ink tank not installed (Bk)
E02507	Ink tank not installed (Y)
E02508	Ink tank not installed (M)
E02509	Ink tank not installed (C)
E0250A	Ink tank not installed (PM)
E0250B	Ink tank not installed (PC)
E02520	Displayed before printing when "Ink Check Off" menu is set to "Yes".
E02521	Remaining ink low (Bk)
E02522	Remaining ink low (Y)
E02523	Remaining ink low (M)
E02524	Remaining ink low (C)
E02525	Remaining ink low (PM)
E02526	Remaining ink low (PC)
E02530	Received data does not match the Bk ink type
E02800	No head
E02801	Head overheating
E02802	Incorrect head was installed
E02803	Head EEPROM error
E02804	Incorrect ink tank was installed (Bk)
E02805	Incorrect ink tank was installed (Y)

Code*1	Status
E02806	Incorrect ink tank was installed (M)
E02807	Incorrect ink tank was installed (C)
E02808	Incorrect ink tank was installed (PM)
E02809	Incorrect ink tank was installed (PC)
E0280A	Ink tank EEPROM error (Bk)
E0280B	Ink tank EEPROM error (Y)
E0280C	Ink tank EEPROM error (M)
E0280D	Ink tank EEPROM error (C)
E0280E	Ink tank EEPROM error (PM)
E0280F	Ink tank EEPROM error (PC)
E02811	Unable to correct head DI
E02812	Engine controller internal error
E02813	Head management sensor error
E02814	Head management sensor position adjustment error
E02816	Wrong maintenance cartridge type (EEPROM error)
E02817	Wrong maintenance cartridge type (ID error)
E02818	Maintenance cartridge not installed
E02819	Maintenance cartridge tank full
E02820	Head registration improper adjustment
E02821	LF improper adjustment
E02822	Eccentricity improper adjustment
E02823	Print head check error
E02824	Optical axis improper adjustment
E02A00	Engine controller internal error
E02A01	
E02A02	
E02A03	
E02B04	Upper cover was opened when upper cover was locked
E02B05	Right cover error
E02B06	Carriage cover was opened when upper cover was locked
E02B07	Right cover is open
E02B08	Faulty release lever
E02D00	Unable to detect home position of purge motor
E02D01	Unable to detect home position of pump motor
E02D02	Unable to detect home position of carriage
E02D03	Feed motor timeout
E02D05	Mist fan was locked
E02D06	Switching operation failure in ink supply valve
E02D07	Feed roller home position sensor cannot detect home position
E02D09	Suction fan was locked
E02D0A	Pressure release sensor cannot detect home position
E02D0B	Cap sensor cannot detect rotation flag
E02E01	Cannot move carriage
E02E05	Carriage movement timeout
E02E06	Printer error (Carriage motor hardware error)
E02E10	IEEE1394 interface error
E02F00	System controller internal error

8.4 Sevice Call Table

8.4.1 Service call error list

0009-9737

*1: The codes correspond to the numbers shown on the display in the service mode.
Codes in parentheses are not shown on the display when service call error occurs.

T-8-4

Code*1	Display message	Status
(E04000)	Printhead Error!	Head voltage error
(E04001)	Mist Count Error	Waste ink in platen waste ink box and waste ink in mist fan unit are almost full.
(E04002)	Scale Read Error	Linear scale reading error
S04010	Turn Power Off!	RTC error
E02777	Turn Power Off!	Inter-controller communication error

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Canon

PARTS CATALOG

W8400

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CK-0562-000	12 - 5	QC1-6988-000	10 - 10	QK1-1394-000	01 - 13
CK1-0541-000	12 - 2	QC1-6999-000	09 - 3	QK1-1420-000	06 - 29
FA3-8727-000	07 - 26	QC1-7026-000	02 - 9	QL2-1044-000	07 - 4
FA3-8727-000	10 - 20	QC1-7034-000	10 - 14	QL2-1081-000	10 - 4
FA9-2112-000	09 - 2	QC1-7039-000	07 - 19	QL2-1082-000	10 - 3
FB1-0733-000	01 - 11	QC1-7043-000	10 - 13	QL2-1083-000	10 - 8
FH2-7092-000	01 - 19	QC1-7059-000	08 - 6	QL2-1084-000	10 - 7
NPN	01 -	QC1-7067-000	07 - 23	QL2-1085-000	10 - 6
NPN	01 - 1	QC1-7068-000	07 - 20	QL2-1086-000	08 - 3
NPN	01 - 2	QC1-7070-000	02 - 10	QL2-1087-000	08 - 2
NPN	01 - 2	QC1-7092-000	07 - 14	QL2-1100-000	06 - 2
NPN	01 - 2	QC1-7100-000	06 - 20	QL2-1103-000	06 - 14
NPN	01 - 2	QC1-7119-000	06 - 12	QL2-1104-000	06 - 23
NPN	01 - 2	QC1-7137-000	01 - 12	QL2-1108-000	02 - 12
NPN	01 - 2	QC1-7138-000	03 - 12	QL2-1109-000	02 - 5
NPN	01 - 2	QC1-7141-000	07 - 24	QL2-1110-000	02 - 6
NPN	02 -	QC1-7143-000	03 - 18	QL2-1113-000	08 - 8
NPN	03 -	QC1-7153-000	06 - 27	QL2-1114-000	06 - 25
NPN	04 -	QC1-7156-000	06 - 26	QL2-1115-000	10 - 5
NPN	05 -	QC1-7217-000	02 - 11	QL2-1122-000	01 - 3
NPN	06 -	QC1-7242-000	10 - 15	QL2-1134-000	R1 - 5
NPN	07 -	QC1-7243-000	10 - 16	QL2-1136-000	R1 - 4
NPN	08 -	QC1-7244-000	10 - 17	QM1-0658-000	07 - 9
NPN	09 -	QC1-7250-000	10 - 2	QM1-0666-000	06 - 17
NPN	10 -	QC1-7252-000	10 - 19	QM2-0662-000	06 - 7
NPN	11 -	QC1-7278-000	03 - 8	QM2-2452-000	07 - 11
NPN	12 -	QC1-7302-000	02 - 7	QM2-2458-000	06 - 15
NPN	R1 -	QC1-7303-000	06 - 5	QM2-2470-000	01 - 6
QA2-6161-000	12 - 3	QC1-7307-000	02 - 19	QM2-2475-000	01 - 8
QC1-0008-000	06 - 3	QC1-7313-000	05 - 6	QM2-2476-000	01 - 5
QC1-6847-000	07 - 6	QC1-7358-000	R1 - 7	QM2-2478-000	01 - 7
QC1-6921-000	10 - 9	QC1-7359-000	R1 - 8	QM2-2483-000	04 - 11
QC1-6924-000	03 - 14	QC1-7360-000	R1 - 9	QM2-2484-000	04 - 12
QC1-6925-000	03 - 15	QC1-7368-000	R1 - 1	QM2-2487-000	04 - 7
QC1-6926-000	03 - 16	QE1-1048-000	09 - 1	QM2-2488-000	04 - 1
QC1-6927-000	03 - 17	QE1-1063-000	07 - 18	QM2-2489-000	02 - 15
QC1-6930-000	02 - 1	QE1-1270-000	06 - 9	QM2-2490-000	02 - 16
QC1-6931-000	02 - 2	QE1-1281-000	06 - 28	QM2-2491-000	03 - 2
QC1-6934-000	03 - 4	QE1-1282-000	06 - 18	QM2-2495-000	03 - 5
QC1-6935-000	02 - 3	QE1-2304-000	04 - 14	QM2-2497-000	08 - 7
QC1-6936-000	03 - 3	QE1-2304-000	R1 - 6	QM2-2498-000	08 - 4
QC1-6937-000	03 - 11	QE1-2334-000	01 - 4	QM2-2501-000	09 - 5
QC1-6938-000	03 - 10	QE1-2334-000	10 - 22	QM2-2502-000	07 - 2
QC1-6939-000	02 - 14	QE1-2690-000	06 - 10	QM2-2505-000	08 - 1
QC1-6941-000	03 - 6	QE1-2691-000	06 - 8	QM2-2510-000	07 - 17
QC1-6942-000	02 - 4	QH2-2630-000	01 - 15	QM2-2511-000	07 - 15
QC1-6943-000	03 - 7	QH2-2631-000	01 - 16	QM2-2513-000	07 - 22
QC1-6944-000	03 - 13	QH2-2732-000	01 - 17	QM2-2514-000	07 - 21
QC1-6945-000	02 - 13	QK1-1383-000	04 - 2	QM2-2517-000	05 - 1
QC1-6960-000	01 - 10	QK1-1387-000	08 - 5	QM2-2526-000	07 - 13
QC1-6965-000	02 - 18	QK1-1392-000	01 - 18	QM2-2527-000	03 - 9

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QM2-2530-000	10 - 1	XA9-1501-000	01 - 9		
QM2-2531-000	05 - 2	XB1-2301-406	07 - 501		
QM2-2532-000	06 - 1	XB1-2400-806	06 - 501		
QM2-2535-000	06 - 11	XB1-2400-809	03 - 501		
QM2-2538-000	03 - 2	XB2-8401-009	07 - 503		
QM2-2540-000	06 - 22	XB3-6300-809	10 - 501		
QM2-2542-000	05 - 4	XB4-2400-806	04 - 501		
QM2-2543-000	05 - 3	XB4-5300-807	05 - 502		
QM2-2544-000	02 - 8	XB4-5400-806	07 - 502		
QM2-2545-000	03 - 1	XB4-7301-209	06 - 503		
QM2-2546-000	05 - 5	XB4-7400-809	04 - 502		
QM2-2557-000	09 - 4	XB4-7401-009	06 - 502		
QM2-2561-000	04 - 4	XB4-7401-206	R1 - 502		
QM2-2564-000	R1 - 2	XB4-7402-509	08 - 502		
QM2-2572-000	06 - 31	XB4-7404-009	08 - 501		
QM2-2586-000	R1 - 3	XB5-2400-809	05 - 501		
QM2-2624-000	04 - 5	XB6-7400-609	05 - 503		
QM2-2625-000	04 - 6	XB6-7400-809	09 - 502		
QM2-2626-000	06 - 21	XD2-1100-642	09 - 501		
QM2-2630-000	06 - 4	XD2-3100-152	10 - 502		
QM2-2632-000	04 - 9	XD3-2160-082	07 - 27		
QM2-2633-000	04 - 10	XD3-2200-222	07 - 28		
QM2-2662-000	04 - 8	XF2-4117-360	07 - 7		
QU1-0082-000	07 - 5	XF2-4119-790	07 - 3		
QU1-0083-000	07 - 8	XG9-0453-000	07 - 10		
QU1-0084-000	07 - 12				
QU1-1004-000	06 - 30				
QU1-2169-000	11 - 1				
QU1-2170-000	07 - 1				
QU1-2173-000	07 - 16				
QU1-2175-000	06 - 24				
QU1-2177-000	06 - 19				
QU1-2185-000	03 - 19				
QU1-6016-000	07 - 25				
QY9-0103-000	12 - 1				
WA7-3746-000	04 - 3				
WG8-5624-000	06 - 6				
WG8-5624-000	06 - 13				
WG8-5624-000	06 - 16				
WG8-5624-000	10 - 12				
WG8-5677-000	10 - 11				
XA9-0249-000	07 - 30				
XA9-0732-000	02 - 17				
XA9-0732-000	03 - 20				
XA9-0732-000	04 - 13				
XA9-0732-000	05 - 7				
XA9-0732-000	06 - 32				
XA9-0732-000	07 - 29				
XA9-0732-000	08 - 9				
XA9-0732-000	09 - 6				
XA9-0732-000	10 - 21				

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120V	Q51-1312-000
220V-240V	Q51-1314-000
JP	Q51-1317-000
	Q55-2020-000

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FIGURE 01
PRINTER & ACCESSORIES

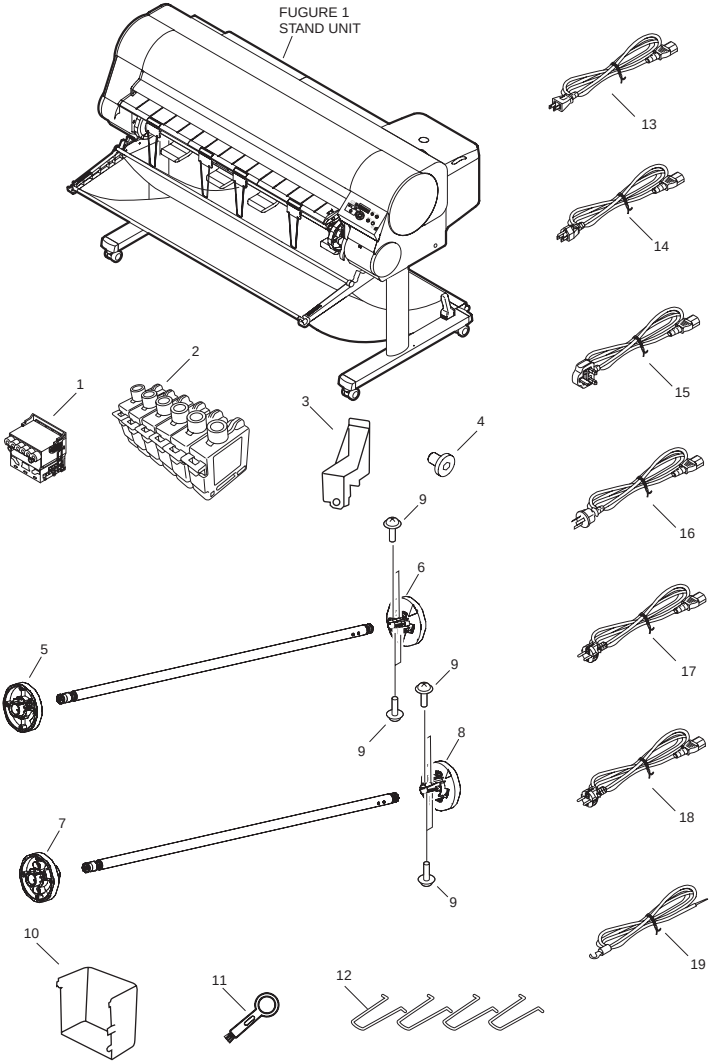

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.01	NPN		RF	PRINTER & ACCESSORISE		
1	NPN		RF	PRINT HEAD		
2	NPN		RF	INK TANK(M)		
2	NPN		RF	INK TANK(PM)		
2	NPN		RF	INK TANK(Y)		
2	NPN		RF	INK TANK(MBK)		
2	NPN		RF	INK TANK(BK)		
2	NPN		RF	INK TANK(PC)		
2	NPN		RF	INK TANK(C)		
3	QL2-1122-000		1	BELT, STOPPER		
4	QE1-2334-000		1	SCREW, ALLEN, M4X6		
5	QM2-2476-000		1	2 INCHI DRIVE SPOOL UNIT LEFT		
6	QM2-2470-000		1	2 INCH DRAIVE SPOOL UNIT RIGHT		
7	QM2-2478-000		1	3 INCH DRIVE SPOOL UNIT LEFT		
8	QM2-2475-000		1	3 INCI DRIVE SPOOL UNIT RIGHT		
9	XA9-1501-000		8	SCREW, RS, M3X10		
10	QC1-6960-000		1	POCKET		
11	FB1-0733-000		1	BRUSH, CLEANER		
12	QC1-7137-000		1	BAR, DELIVERY SUPPORT		
13	QK1-1394-000		1	CORD, POWER	100V	
14	QK1-1393-000		1	CORD, POWER	120V(UL)	
15	QH2-2630-000		1	CORD, POWER	240V(UK)	
16	QH2-2631-000		1	CORD, POWER	240V(AUS)	
17	QH2-2732-000		1	CORD, POWER	240V(KOR)	
18	QK1-1392-000		1	CORD, POWER	220V-240V	
19	FH2-7092-000		1	WIRE, GROUNDING		

FIGURE 02
COVER(1)

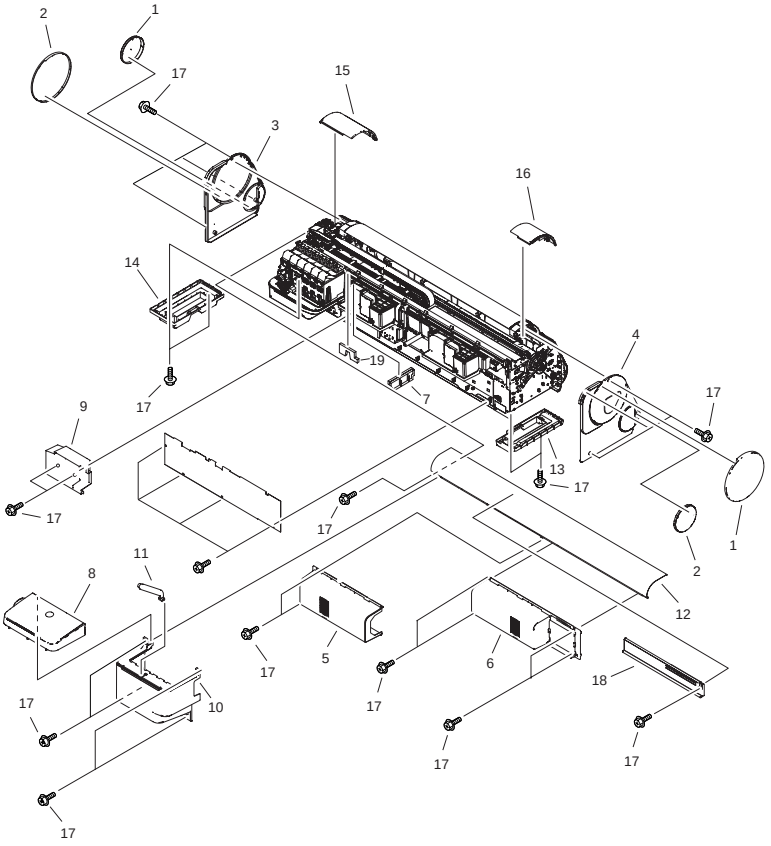

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.02	NPN		RF	COVERS(2)		
1	QC1-6930-000		2	COVER, CIRCLE(L)		
2	QC1-6931-000		2	COVER, CIRCLE(S)		
3	QC1-6935-000		1	COVER, SIDE,RIGHT		
4	QC1-6942-000		1	COVER, SIDE, LEFT		
5	QL2-1109-000		1	REAR COVER UNIT(R)		
6	QL2-1110-000		1	REAR COVER UNIT(L)		
7	QC1-7302-000		2	INK ABSORBER		
8	QM2-2544-000		1	TANK COVER UNIT		
9	QC1-7026-000		1	COVER, INTERFACE		
10	QC1-7070-000		1	COVER, TANK		
11	QC1-7217-000		1	STOPPER, COVER		
12	QL2-1108-000		1	UPPER REAR COVER UNIT		
13	QC1-6945-000		1	COVER(L), BOTTOM		
14	QC1-6939-000		1	COVER(R), BOTTOM		
15	QM2-2489-000		1	RIGHT COVER UNIT		
16	QM2-2490-000		1	LEFT COVER UNIT		
17	XA9-0732-000		24	SCREW, RS, M4		
18	QC1-6965-000		1	COVER ,TANK FRONT		
19	QC1-7307-000		1	INK ABSORBER		

FIGURE 03
COVER(2)

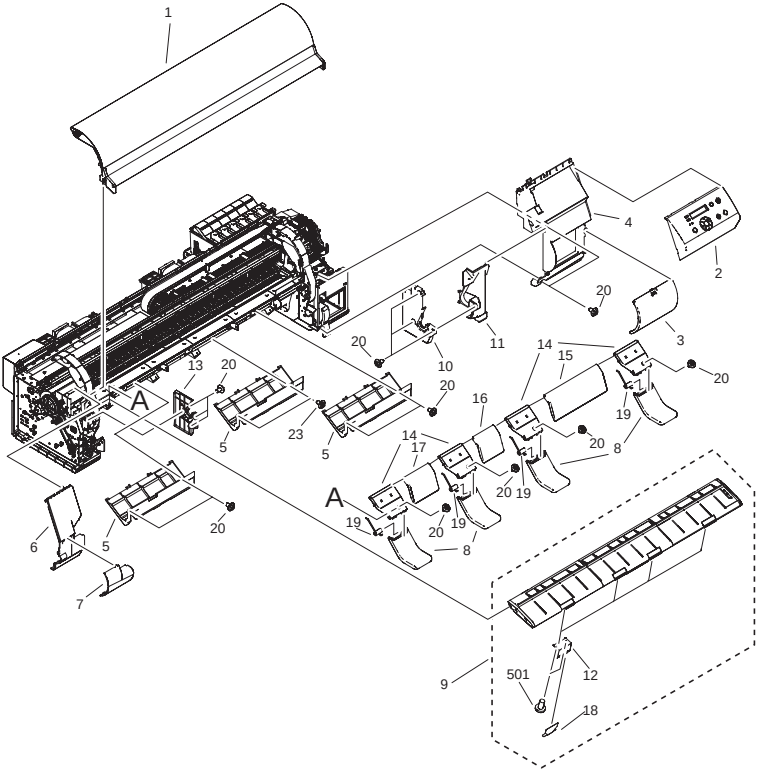

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.03	NPN		RF	COVERS(2)		
1	QM2-2545-000		1	UPPER COVER UNIT		
2	QM2-2491-000		1	OPERATION PANEL UNIT	ENGLISH	
2	QM2-2538-000		1	OPERATION PANEL UNIT	JAPANESE	
3	QC1-6936-000		1	COVER, MAINTENANCE		
4	QC1-6934-000		1	COVER, FRONT, RIGHT		
5	QM2-2495-000		3	FEED UPPER GUIDE UNIT		
6	QC1-6941-000		1	COVER, FRONT, LEFT		
7	QC1-6943-000		1	COVER, ROUND		
8	QC1-7278-000		4	ARM, LOWER GUIDE		
9	QM2-2527-000		1	ROLL PAPER COVER UNIT		
10	QC1-6938-000		1	COVER(R), BLIND		
11	QC1-6937-000		1	COVER, SPOOL RECEIVE		
12	QC1-7138-000		4	MOUNT, ASSIST, DELIVERY		
13	QC1-6944-000		1	COVER(L), BLIND		
14	QC1-6924-000		4	GUIDE A, FEED LOWER		
15	QC1-6925-000		1	GUIDE B, FEED LOWER		
16	QC1-6926-000		1	GUIDE C, FEED LOWER		
17	QC1-6927-000		1	GUIDE D, FEED LOWER		
18	QC1-7143-000		4	SHEET, DELIVERY ASSIST		
19	QU1-2185-000		4	SPRING, TORSION		
20	XA9-0732-000		17	SCREW, RS, M4		
501	XB1-2400-809		8	SCREW, BINDING HEAD M4X8		

FIGURE 04
ELECTRICAL PART

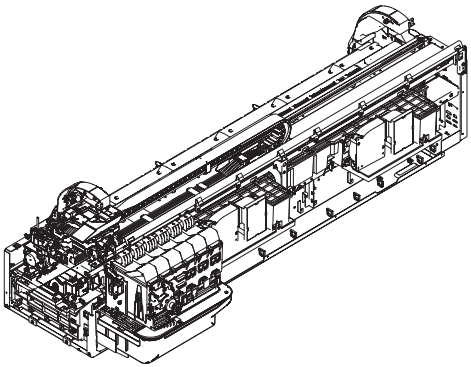

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.04	NPN		RF	ELECTRICAL PART		
1	QM2-2488-000		1	CONTROLLER ASS'Y		
2	QK1-1383-000		1	POWER SUPPLY ASS'Y		
3	WA7-3746-000		1	IC,SMD-N12866N1P-H, SO-DIMM		
4	QM2-2561-000		1	OPTION INLET UNIT		
5	QM2-2624-000		1	ENGINE CONTROLLER ASS'Y		
6	QM2-2625-000		1	MOTOR DRIVER UNIT		
7	QM2-2487-000		1	INLET UNIT		
8	QM2-2662-000		1	M/C BUFFER ASS'Y		
9	QM2-2632-000		1	CABLE ASS'Y		
10	QM2-2633-000		1	POWER SUPPLY CABLE ASS'Y		
11	QM2-2483-000		1	IEEE1394 I/F BOARD	OPTION	
12	QM2-2484-000		1	NETWORK I/F BOARD	OPTION EXCEPT USA	
13	XA9-0732-000		9	SCREW, RS, M4		
14	QE1-2304-000		2	SCREW, ALLEN, M4X8		
501	XB4-2400-806		13	SCREW, MACHINE M4X8		
502	XB4-7400-809		1	SCREW, M4X8		

FIGURE 05
INK TANK & PURGE UNIT

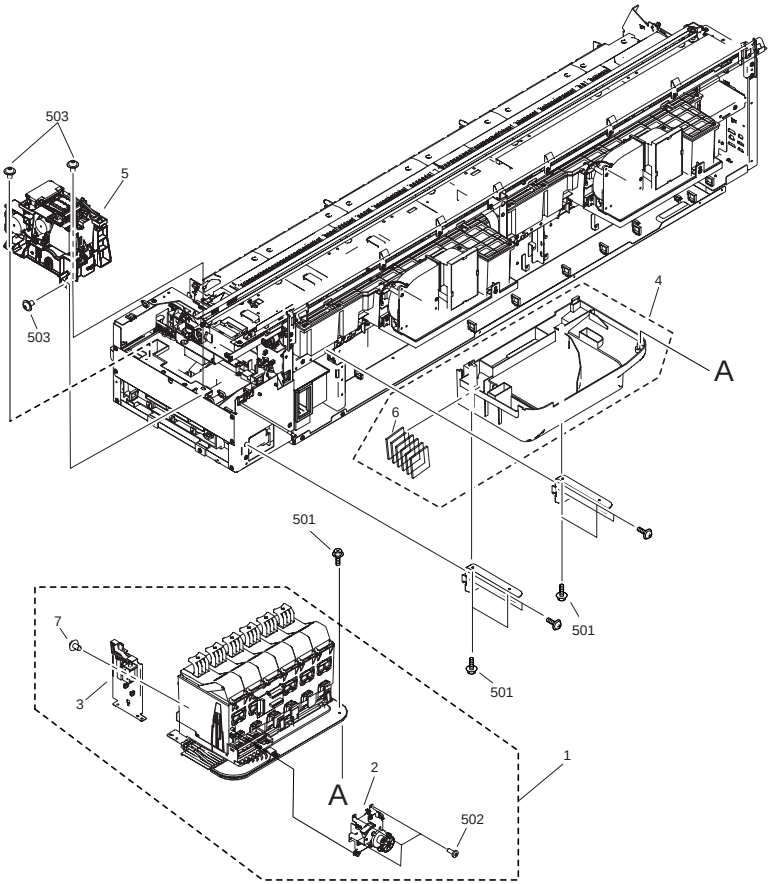

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.05	NPN		RF	INK TANK & PURGE UNIT		
1	QM2-2517-000		1	INK TANK UNIT		
2	QM2-2531-000		1	VALVE MOTOR UNIT		
3	QM2-2543-000		1	TANK COVER LOCK UNIT		
4	QM2-2542-000		1	INK SUPPLY MOUNY UNIT		
5	QM2-2546-000		1	PURGE UNIT		
6	QC1-7313-000		13	INK ABSORBER		
7	XA9-0732-000		3	SCREW,RS,M4		
501	XB5-2400-809		5	SCREW		
502	XB4-5300-807		3	SCREW		
503	XB6-7400-609		3	SCREW, MACHINE M4X6		

FIGURE 06
CARRIAGE UNIT

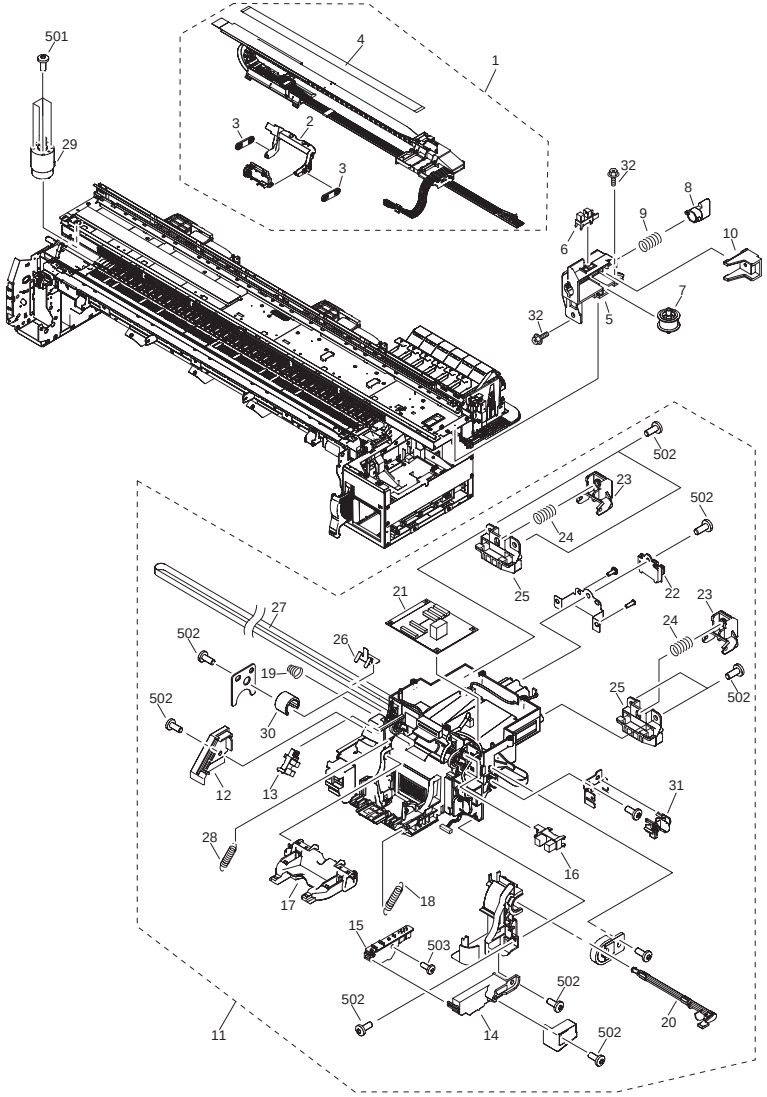

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.06	NPN		RF	CARRIAGE UNIT		
1	QM2-2532-000		1	INK TUBE UNIT		
2	QL2-1100-000		1	PRINRHEAD LOCK LEVER		
3	QC1-0008-000		2	LEVER, TUBE		
4	QM2-2630-000		1	FLEXIBLE CABLE ASS'Y		
5	QC1-7303-000		1	MOUNT, IDLER ROLLER		
6	WG8-5624-000		1	PHOTO-INTERRUPTER, TL TOSHIBA		
7	QM2-0662-000		1	IDLER ROLLER ASS'Y		
8	QE1-2691-000		1	LEVER, IDLER ROLLER		
9	QE1-1270-000		1	SPRING, COIL		
10	QE1-2690-000		1	GUIDE, IDLER ROLLER		
11	QM2-2535-000		1	CARRIAGE UNIT		
12	QC1-7119-000		1	COVER, SENSOR		
13	WG8-5624-000		1	PHOTO-INTERRUPTER, TL TOSHIBA		
14	QL2-1103-000		1	SENSOR COVER UNIT		
15	QM2-2458-000		1	SENSOR UNIT		
16	WG8-5624-000		2	PHOTO-INTERRUPTER, TL TOSHIBA		
17	QM1-0666-000		1	HEAD LEVER UNIT		
18	QE1-1282-000		1	SPRING, HOOK END COIL		
19	QU1-2177-000		1	SPRING, COIL		
20	QC1-7100-000		1	LEVER, HEAD GAP		
21	QM2-2626-000		1	CARRIAGE RELAY ASS'Y		
22	QM2-2540-000		1	SENSOR UNIT		
23	QL2-1104-000		2	IDLER ROLLER HOLDER UNIT		
24	QU1-2175-000		2	SPRING, COIL		
25	QL2-1114-000		2	IDLER ROLLER HOLDER UNIT		
26	QC1-7156-000		2	STOPPER, BELT		
27	QC1-7153-000		1	BELT, CARRIAGE		
28	QE1-1281-000		1	SPRING, HOOK END COIL		
29	QK1-1420-000		1	IDLER ROLLER ASS'Y		
30	QU1-1004-000		2	BEARING		
31	QM2-2572-000		1	RAIL CLEANER ASS'Y		

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
32	XA9-0732-000		2	SCREW,RS,M4		
501	XB1-2400-806		4	SCREW, NACH., TRUSS HEAD, M4X6		
502	XB4-7401-009		10	SCREW,TAPPING, M4X10		
503	XB4-7301-209		1	SCREW, TAPPING, M3X12		

FIGURE 07
FEED MOTOR ASS'Y

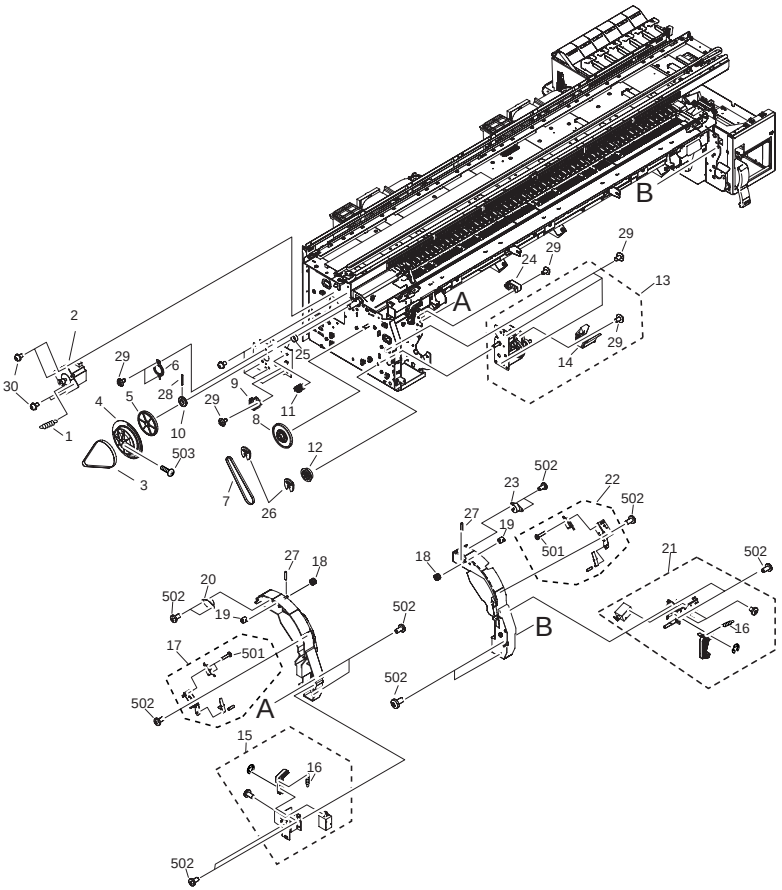

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.07	NPN		RF	FEED MOTOR ASS'Y		
1	QU1-2170-000		1	SPRING, HOOK END CPIL		
2	QM2-2502-000		1	FEED MOTOR ASS'Y		
3	XF2-4119-790		1	BELT,FEED		
4	QL2-1044-000		1	ENCODER SLIT ASS'Y		
5	QU1-0082-000		1	GEAR 76T		
6	QC1-6847-000		1	SUPPORT, BEARING		
7	XF2-4117-360		1	BELT, DRAIVE		
8	QU1-0083-000		1	GEAR, PULLY 76T/36T		
9	QM1-0658-000		1	FEED ROLLER SENSOR UNIT		
10	XG9-0453-000		1	BEARING, BALL 6902ZZNR		
11	QM2-2452-000		1	FEED ROLLER HP SENSOR UNIT		
12	QU1-0084-000		1	GEAR 56T		
13	QM2-2526-000		1	FEED MOTOR UNIT		
14	QC1-7092-000		1	COVER, GEAR		
15	QM2-2511-000		1	UPPER COVER LOCK UNIT L		
16	QU1-2173-000		2	SPRING, HOOK END COIL		
17	QM2-2510-000		1	UPPER COVER SWITCH UNIT L		
18	QE1-1063-000		2	GEAR 14T		
19	QC1-7039-000		2	COUOLING, DAMPER		
20	QC1-7068-000		1	DAMPER, LEAF		
21	QM2-2514-000		1	UPPER COVER LOCK UNIT R		
22	QM2-2513-000		1	UPPER COVER SWITCHUNIT R		
23	QC1-7067-000		1	DAMPER, RIGHT		
24	QC1-7141-000		1	STOPPER, COVER		
25	QU1-6016-000		1	SPACER		
26	FA3-8727-000		3	A-TYPE RETAINER		
27	XD3-2160-082		2	PIN, DOWELL, 1.6X8		
28	XD3-2200-222		1	SPRING, DOWEL		
29	XA9-0732-000		8	SCREW, RS, M4		
30	XA9-0249-000		4	SCREW, M4X8		
501	XB1-2301-406		2	SCREW,M3X14		

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
502	XB4-5400-806		14	SCREW, P, M4X8		
503	XB2-8401-009		1	BINDING HEAD WS-SCREW		

FIGURE 08
AIR FLOW FAN UNIT

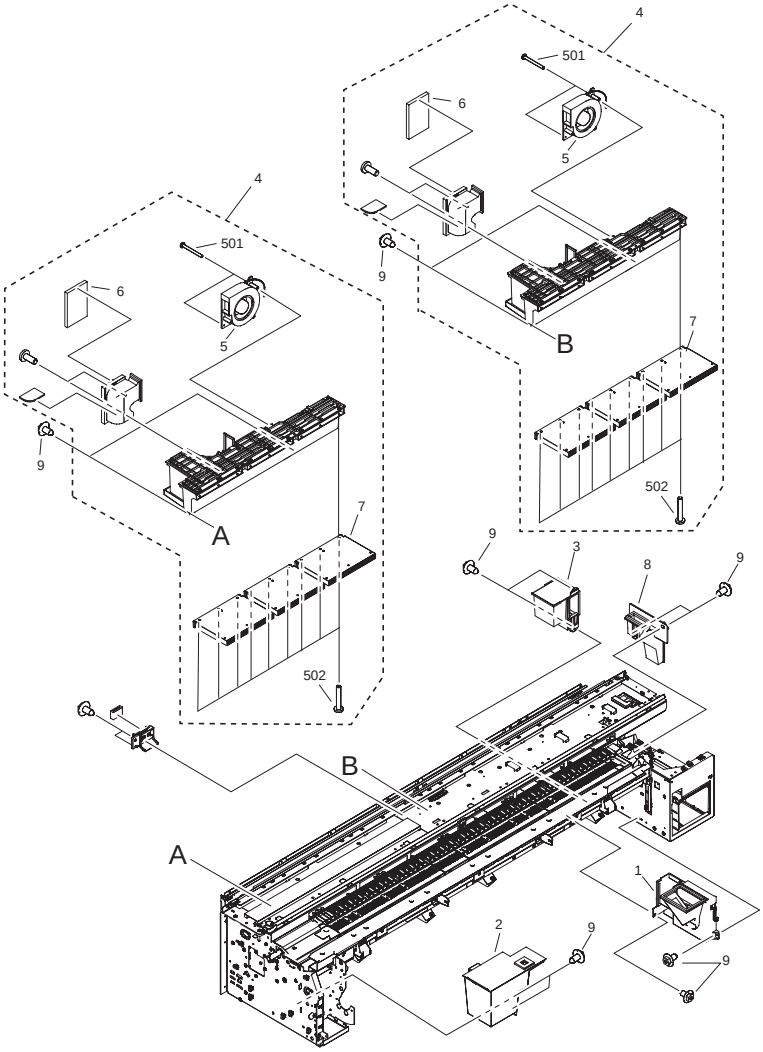

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.08	NPN		RF	AIR FLOW FAN UNIT		
1	QM2-2505-000		1	SUCTION FAN UNIT		
2	QL2-1087-000		1	WASTE ABSORBER UNIT		
3	QL2-1086-000		1	DUCT ASS'Y		
4	QM2-2498-000		2	FAN UNIT		
5	QK1-1387-000		2	FAN, MIST		
6	QC1-7059-000		2	FILTER, MIST		
7	QM2-2497-000		6	DUCT UNIT		
8	QL2-1113-000		1	DUCT ASS'Y		
9	XA9-0732-000		15	SCREW,RS,M4		
501	XB4-7404-009		4	SCREW,M4X40		
502	XB4-7402-509		18	SCREW,TAPPING,TRUSSHEAD,M4X25		

FIGURE 09
PINCH ROLLER UNIT

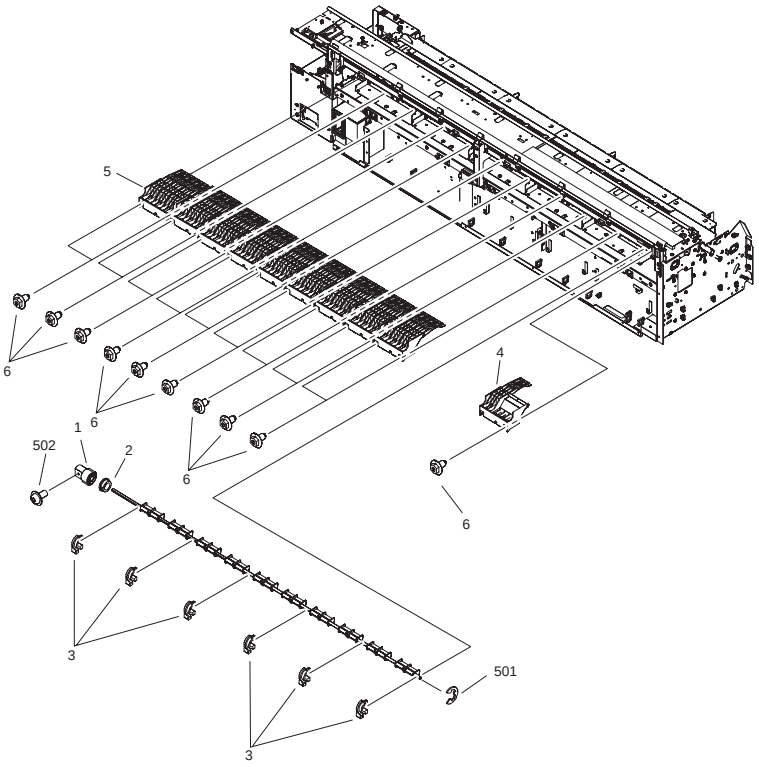

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.09	NPN		RF	PINCH ROLLER UNIT		
1	QE1-1048-000		1	GEAR		
2	FA9-2112-000		1	BUSHING		
3	QC1-6999-000		5	BUSHING		
4	QM2-2557-000		1	PINCH ROLLER UNIT B		
5	QM2-2501-000		9	PINCH ROLLER UNIT A		
6	XA9-0732-000		20	SCREW, RS, M4		
501	XD2-1100-642		1	E-TYPE RING ,M6.4		
502	XB6-7400-809		1	SCREW,TP M4X8		

FIGURE 10
PLATEN & FEED ROLLER

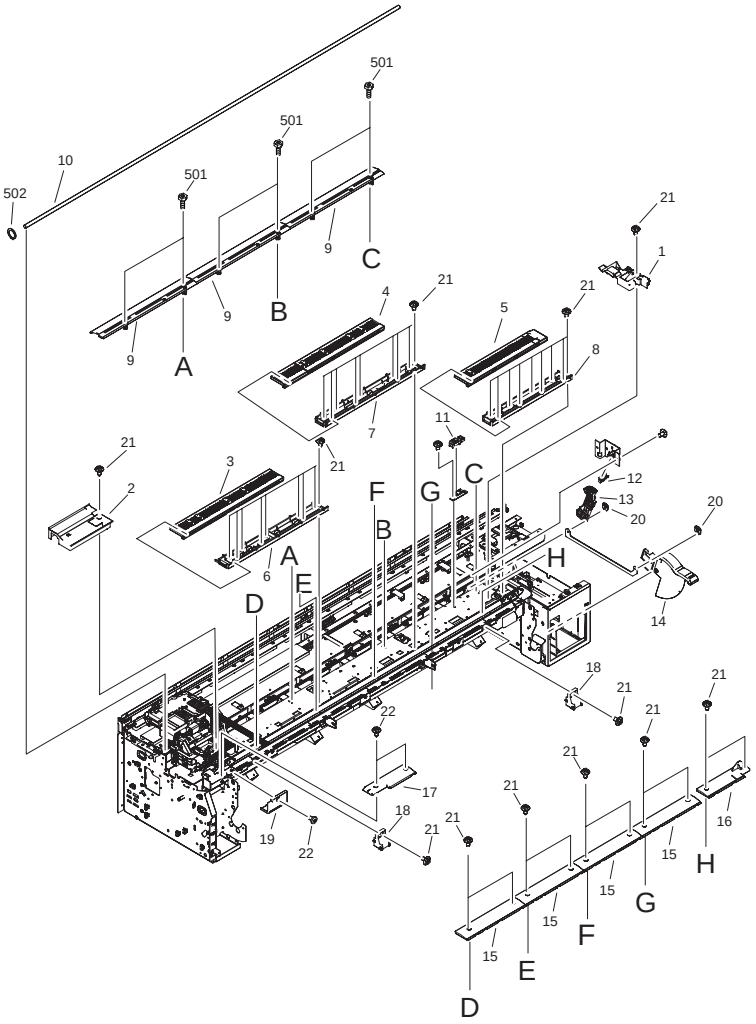

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.10	NPN		RF	PLATEN & FEED ROLLER		
1	QM2-2530-000		1	INK PRE-FIRE PLATEN UNIT R		
2	QC1-7250-000		1	PLATEN, INK PRE-FIRE, LEFT		
3	QL2-1082-000		1	PLATEN L		
4	QL2-1081-000		1	PLATE C		
5	QL2-1115-000		1	PLATEN, RIGHT		
6	QL2-1085-000		1	BASE, PLATEN L		
7	QL2-1084-000		1	BASE, PLATEN C		
8	QL2-1083-000		1	BASE, PLATEN R		
9	QC1-6921-000		3	PLATE, REAR		
10	QC1-6988-000		1	ROLLER, FEED		
11	WG8-5677-000		1	PHOTO-INTERRUPTER, GP2		
12	WG8-5624-000		1	PHOTO-INTERRUPTER, TL		
13	QC1-7043-000		1	GEAR, RELEASE		
14	QC1-7034-000		1	LEVER, RELEASE		
15	QC1-7242-000		4	GUIDE, DELIVERY		
16	QC1-7243-000		1	GUIDE, DELIVERY, RIGHT		
17	QC1-7244-000		1	GUIDE, DELIVERY, LEFT		
18	QM2-2528-000		2	COVER LOCK UNIT		
19	QC1-7252-000		1	COVER, CUTTER CABLE		
20	FA3-8727-000		2	RING, RETAINING		
21	XA9-0732-000		44	SCREW,RS,M4		
22	QE1-2334-000		1	SREW, ALLEN ,M4X6		
501	XB3-6300-809		6	SCREW, RS, M3X8		
502	XD2-3100-152		1	RING, C		

FIGURE 11
LINEAR SCALE

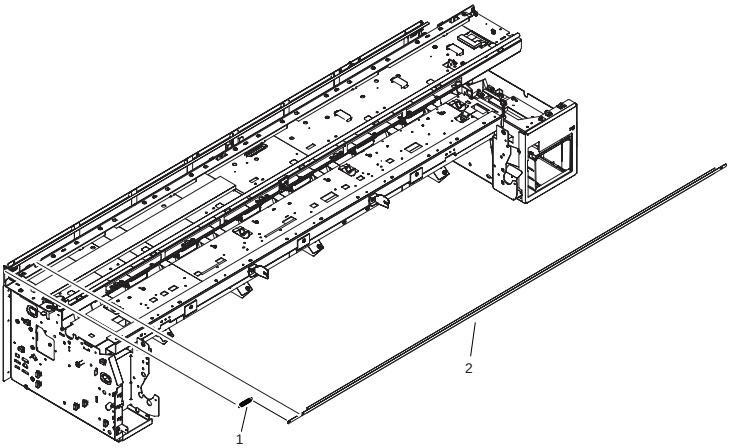

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.11	NPN		RF	LINEAR SCALE		
1	QU1-2169-000		1	SPRING, HOOK END COIL		
2	QC1-6983-000		1	SCALE LONEAR		

FIGURE 12
TOOL

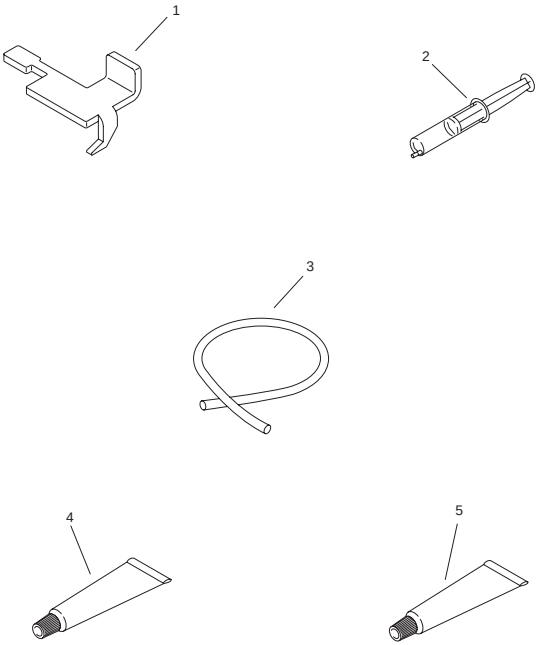

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.12	NPN		RF	TOOL		
1	QY9-0103-000		1	COVER SWITCH TOOL		
2	CK1-0541-000		1	SYRINGE		
3	QA2-6161-000		1	TUBE		
4	CK-0551-020		1	LUBE, PERMALUB G NO.2		
5	CK-0562-000		1	GREASE, MOLYKOTE PG-641		

FIGURE R1
STAND UNIT

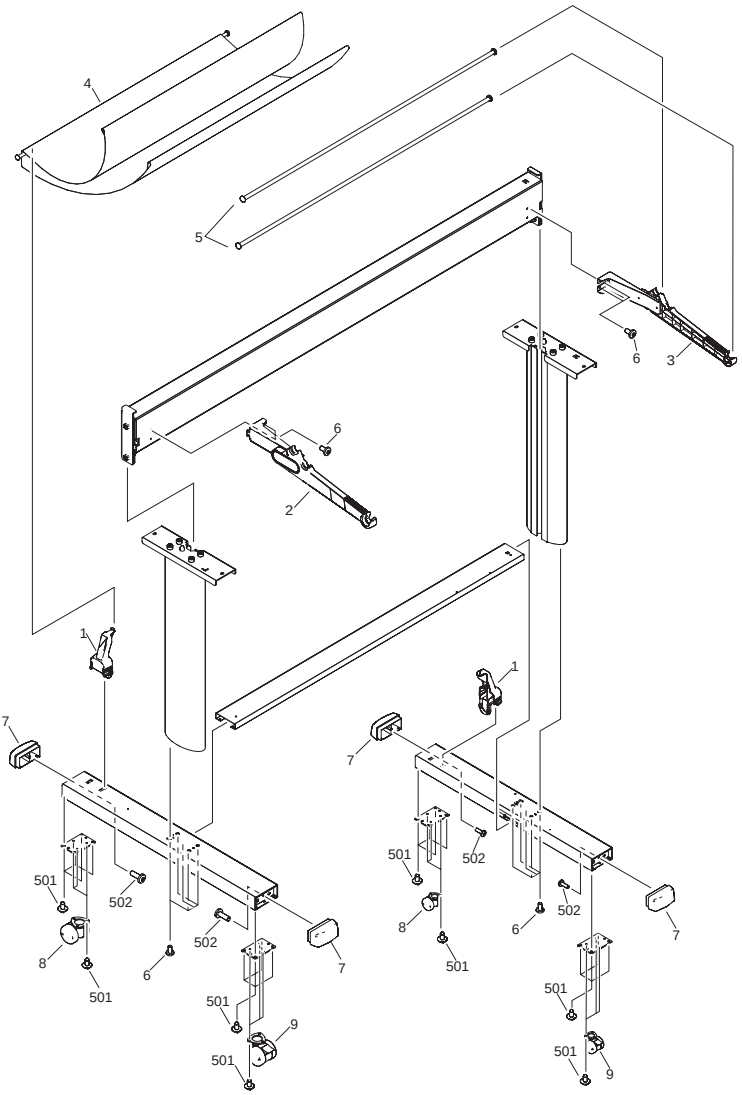

FIGURE & KEY NO.	PARTS NUMBER	RANK	Q'TY	DESCRIPTION	SERIAL NUMBER/ REMARKS	SVC
Fig.R1	NPN		RF	STAND UNIT	STAND UNIT	
1	QC1-7368-000		2	HOLDER, REAR		
2	QM2-2564-000		1	BASKET ARM UNIT		
3	QM2-2586-000		1	BASKET ARM UNIT R		
4	QL2-1136-000		1	BASKET		
5	QL2-1134-000		2	BASKET ROD		
6	QE1-2304-000		14	BOLT, M4X8		
7	QC1-7358-000		4	CAP, FOOT		
8	QC1-7359-000		2	CASTER		
9	QC1-7360-000		2	CASTER		
501	XA9-0732-000		28	SCREW, RS, M4		
502	XB4-7401-206		4	SCREW, SELF-TAPPING, P.HEAD		

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