W8200

SERVICE MANUAL

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Canon

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W8200

SERVICE
MANUAL

Canon

Target Readers

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I. ABOUT THIS MANUAL

This manual is divided into five parts containing the information required for servicing the W8200 printer.

Part 1: Safety and Precautions
> This part contains information on how to service the unit safety. It is very important, and must be read.

Part 2: Product Specifications
> This part outlines the product and its specifications.

Part 3: Operating Instructions
> This part explains how to operate the unit properly, how it is installed, and how to use the service mode.

Part 4: Technical Reference
> This part outlines the unit operation giving a technically.

Part 5: Maintenance
> This part explains maintenance of the unit. It includes details of disassembly / assembly, adjustments required when assembling, troubleshooting procedures, and wiring / circuit diagrams, etc.

REF. | This manual does not contain complete information required for disassembling and assembling the printer. Please also refer to the separate Parts Catalog.

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IV. TABLE INDEX

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Part 1

SAFETY AND PRECAUTIONS

1. SAFETY PRECAUTIONS

1.1 Moving Parts

Be careful not to get your hair, clothes, or accessories caught in the moving parts of the printer.

These include the carriage unit and carriage belt activated by the carriage motor; a caterpillar unit that interlocks with the carriage and protects the ink tube and flexible cable and; motor-driven feed roller, purge unit, cutter unit and roll media tray activated by their own motors.

To prevent accidents, the upper cover of the printer is locked during printing so that it does not open. If the manual feed tray is opened during printing, the carriage moves to the right or left to return to the home position, and the carriage motor and feed motor are immediately stopped. If the upper cover is opened in the online/offline mode, the carriage motor, feed motor, and other driving power supplies are turned off.
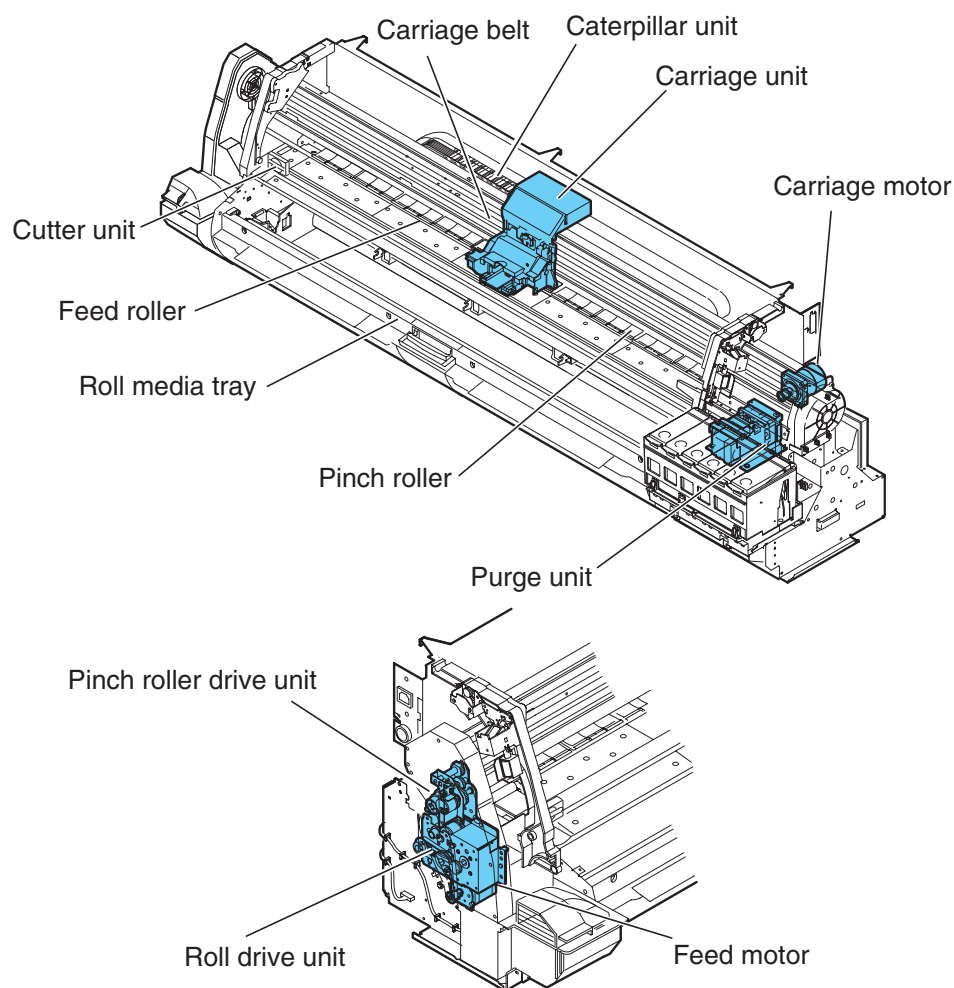
Figure 1-1 Moving Parts of the Printer

1.2 Ink
1.2.1 Ink passages

Be careful not to touch the ink passages of the printer or to allow ink to stain the workbench, hands, clothes or the printer under repair.

The ink flows through the ink tank unit, carriage unit, purge unit, maintenance-jet tray waste ink absorber unit and the ink tubes that relay ink to each unit.

> **CAUTION**
>
> Although the ink is not harmful to the human body, it contains organic solvents.
> 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 doctor immediately.
>
> **Black/Photo Cyan/Photo Magenta/Magenta inks**
> > Glycerin 56-81-5, Ethylene glycol 107-21-1,
> > Diethylene glycol 111-46-6, Isopropyl alcohol 67-63-0
>
> **Cyan ink**
> > Glycerin 56-81-5, Ethylene glycol 107-21-1,
> > Diethylene glycol 111-46-6, Isopropyl alcohol 67-63-0,
> > Copper compound
>
> **Yellow ink**
> > Diethylene glycol 111-46-6, Isopropyl alcohol 67-63-0
>
> Since this ink contains dyes, stains will not come out of clothing.
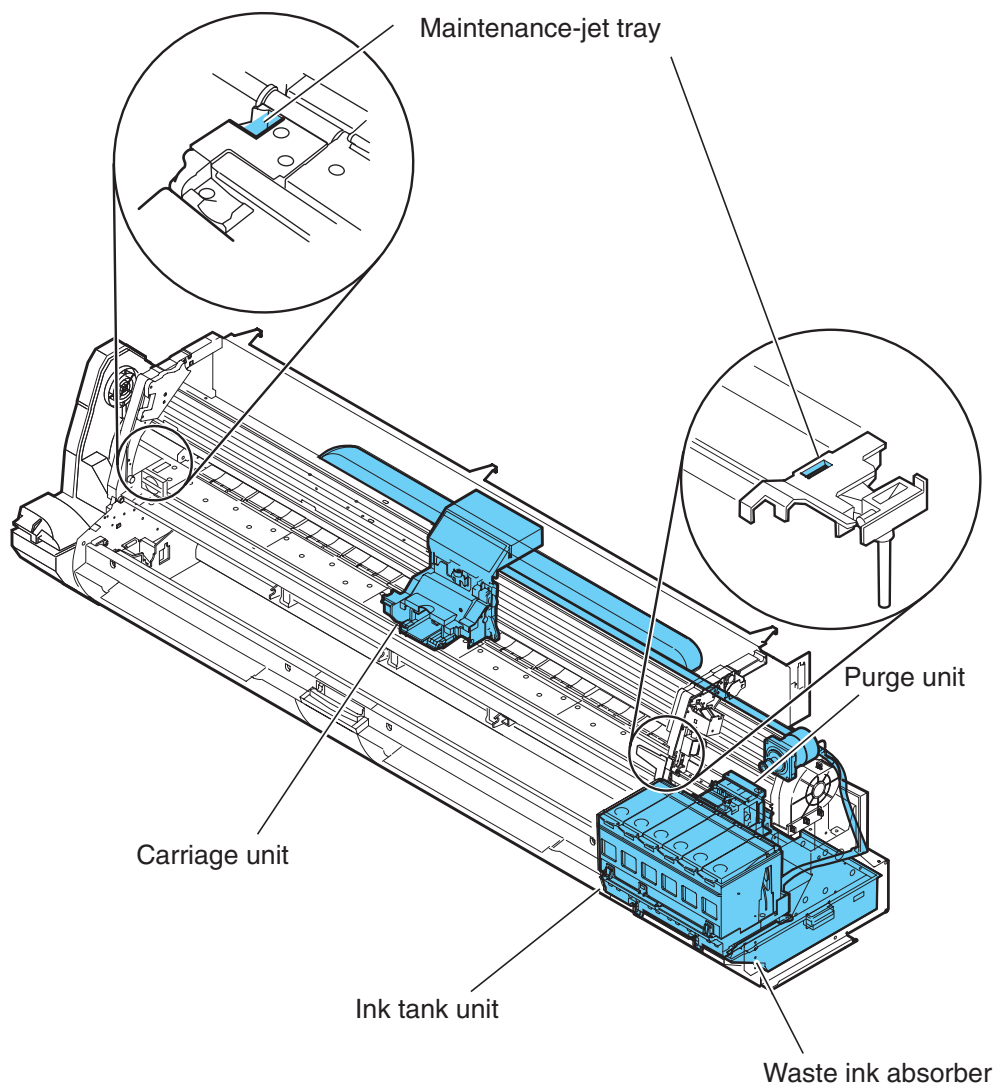
Figure 1-2 Ink Passages

1.2.2 Ink mist

Since the printhead prints by squirting ink onto the media, a minute amount of ink mist 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.
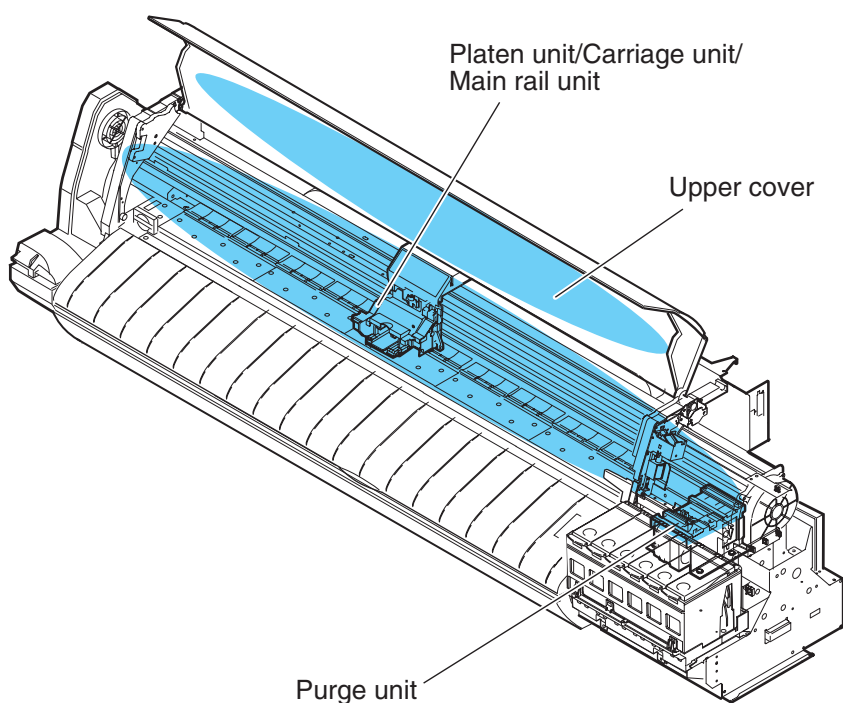
Figure 1-3 Ink Mist

1.3 Electrical Parts

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 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.
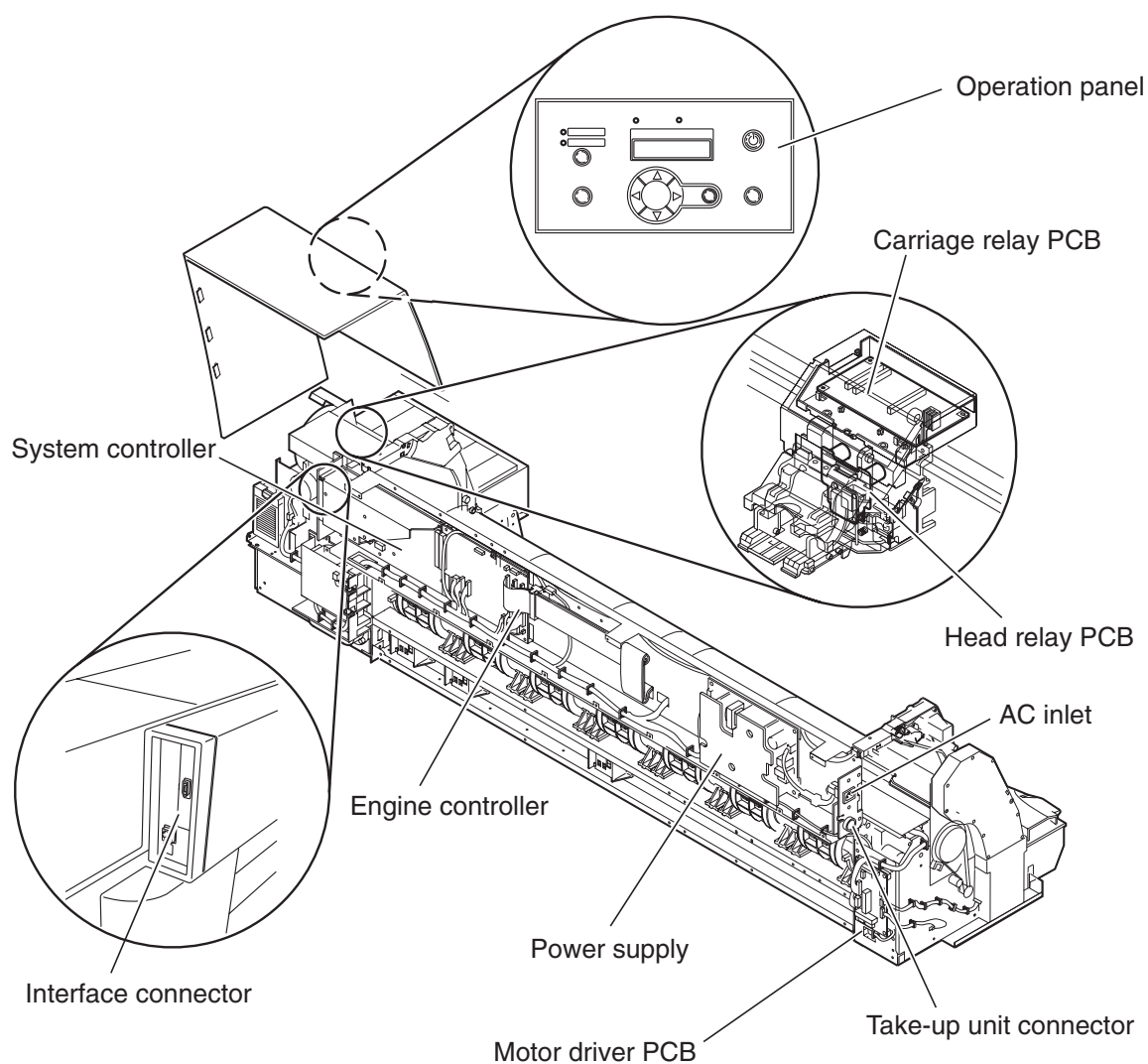
Figure 1-4 Electrical Parts

1.4 Size and Weight of the Printer

This printer has service parts which are large and heavy.

Be careful not to get your fingers caught when carrying the printer or setting down the parts during assembly or disassembly.

The printer stand sticks out of the body in front and behind. Take special care when carrying large or heavy parts.

TABLE 1-1 TYPICAL HEAVY SERVICE PARTS

Service parts	Dimensions of package box: width x depth x height (mm)	Weight (kg)
Roll media tray unit	1311 x 373 x 155	12

2. OTHER PRECAUTIONS

2.1 Printhead
2.1.1 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.

NOTE
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.
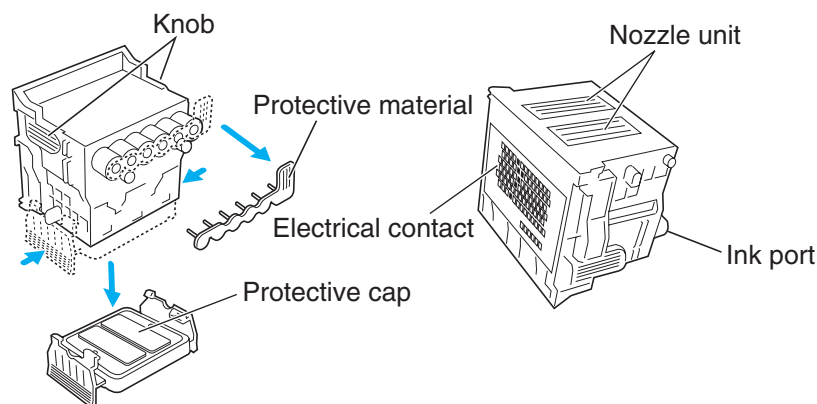
Figure 1-5 Printhead

2.1.2 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.

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

2.1.3 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.

CAUTION	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 re-installed. Even if the head remains installed, the nozzle may dry out and cause printing failure if the ink is drained for transport.

2.1.4 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.

CAUTION	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.

2.2 Ink Tank
2.2.1 Opening the ink tank
Do not open the ink tank until ready to use.
To prevent foreign matter from entering the ink supply unit, install the opened Ink tank immediately.

2.2.2 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.

Ink tank
Ink tank cover
Ink port
Terminal section
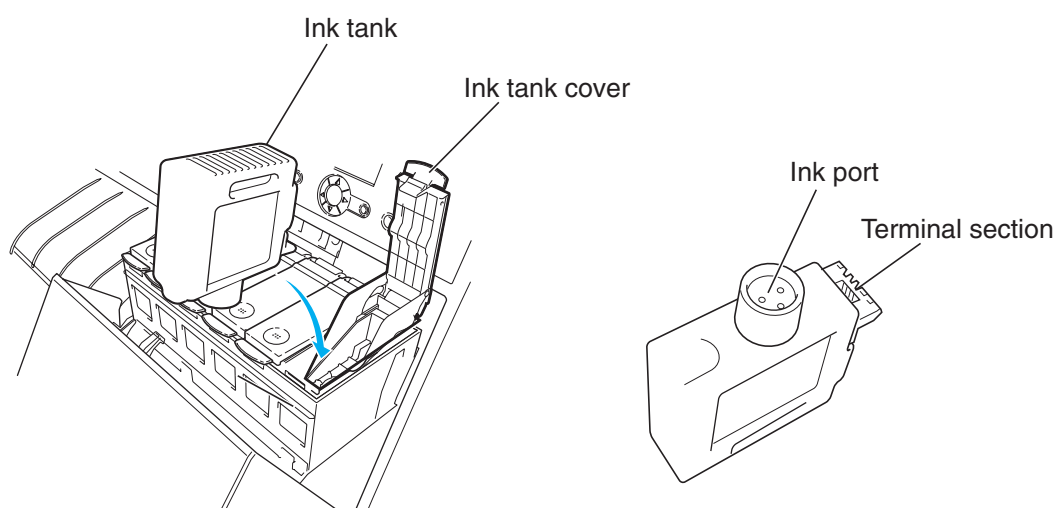
Figure 1-6 Installing the Ink tank

2.3 Handling the Printer
2.3.1 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.
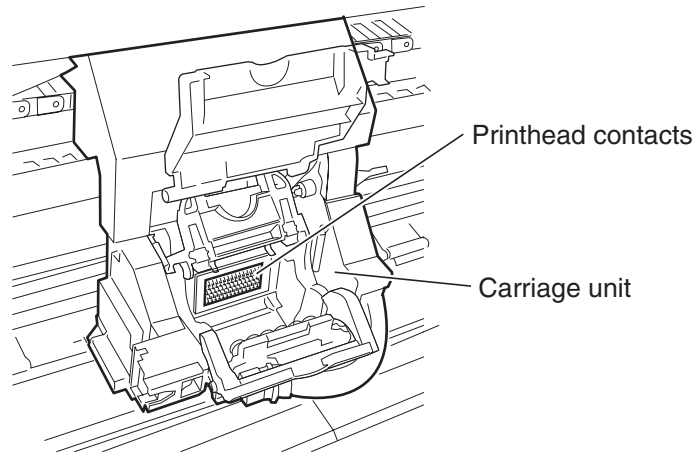
Figure 1-7 Precautions Against Static Electricity

2.3.2 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 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.

Belt stopper
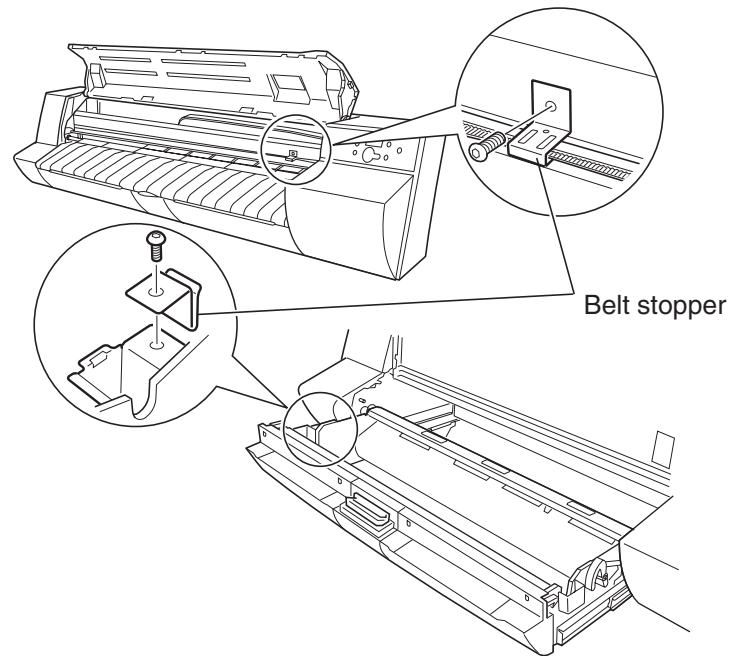
Figure 1-8 Capping Position

2.3.3 Replacing the waste ink absorber

When the waste ink absorber becomes full, an error occurs to indicate that the tank 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 waste ink absorber from the printer.

When the waste ink is full, the air flow fan unit is hold approx. 3.0kg, the maintenance-jet absorber unit is hold approx. 0.3kg and the waste ink absorber unit is hold approx. 10.5kg in the printer.

> **CAUTION**
>
> When replacing the waste ink absorber unit in the printer, same time replacing the air flow fan unit and the maintenance-jet absorber unit. (Refer to *Part 5:* 5.2.11 Waste ink absorber unit)
>
> After replacing the waste ink absorber in the printer, be sure to always clear the counter value of the waste ink absorber using the Service mode. The counter value of the waste ink absorber is stored in the EEPROM (IC428) on the engine controller. Therefore, when replacing the engine controller, be sure to refer to *Part 5:* 5.2.12 Boards.

2.3.4 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.

3. PRECAUTIONS WHEN SERVICING THE PRINTER

3.1 Stored Data

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 (IC36) and in the engine controller EEPROM (IC428) 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.

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.

4) After replacing the waste ink absorber

The information in the waste ink counter is generated from the waste ink absorber. Initialize (clear) the waste ink counter information after replacing the waste ink absorber.

CAUTION	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.

REF.	For the "Each Controller Replacement Procedures," see *Part 5:* 5.2.12 Boards.

3.2 Firmware Confirmation

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.

> REF. For how to upgrade each board, please refer to *Part 3:* 7. PRINTER SERVICE SOFTWARE.

3.3 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.
To prevent this, discharge any static buildup by touching a grounded metal fitting before you start disassembling the printer.

3.4 Precautions for Disassembly/Assembly

The Parts Catalog describes the disassembly/assembly procedures. See the Parts Catalog when assembling/disassembling the printer. The precautions for disassembly/assembly are described in *Part 5:* 5. DISASSEMBLY/REASSEMBLY.

3.5 Self-Diagnostic Feature

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 *Part 3:* 5.2 Error Indicators.

3.6 Disposing of Waste Ink

Dispose of the waste ink according to local regulations.

3.7 Disposing of Lithium Battery

Dispose of the lithium battery according to local regulations.

> NOTE One lithium battery is installed in the Engine Controller of the printer is not a replacement part.

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Part 2

PRODUCT SPECIFICATIONS

1. PRODUCT OVERVIEW

1.1 Product Overview

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.
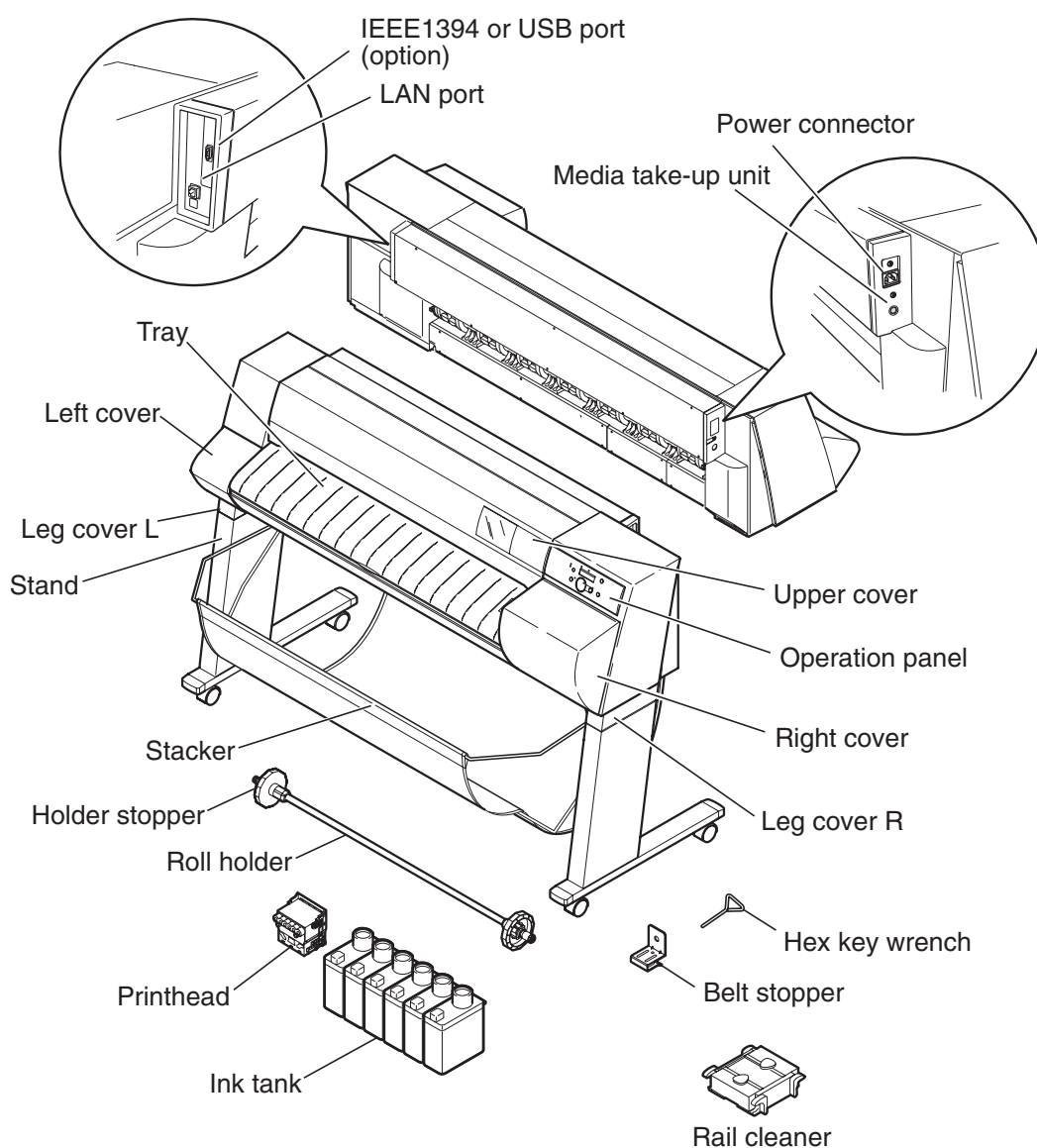
Figure 2-1 External View of Printer

1.2 Features

- High quality photo printing with a high resolution of 1200x1200 dpi and dye inks in 6 colors (Bk, PC, C, PM, M and Y).
- Bi-directional printing control for high-speed printing
  A one-inch (1280 nozzles) printhead with six rows of integrated nozzles is installed on the carriage.
- The printhead is completely separated from the high-capacity ink tank (330 ml). Ink is supplied to each printhead from the ink tank through its own tube.
- Roll media can be fed automatically from the roll media tray.
- Cut sheets can be fed manually from the tray.
- Capable of feeding wide paper (up to 44 inches)
- Capable of printing long paper up to 18 m in length
- Cutter is provided for automatic cutting of media.
- Convenient front operations, including feeding and delivery of media and replacement of ink tanks

1.3 Printhead

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 12 months after you have opened the package. The reference number of printable pages for each model is shown below.

Approx. 1,100 sheets (Standard mode (6-pass, Bi-directional), A0 size, 20% duty pattern for each color)
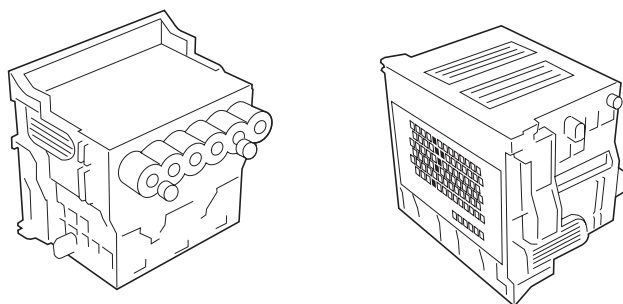
Figure 2-2 Printhead

1.4 Ink Tank

The ink tank is disposable.

There are six colors of dye based Black (Bk), Photo Cyan (PC), Cyan (C), Photo Magenta (PM), Magenta (M) and Yellow (Y).

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 12 months after you have opened the package. The reference number of printable pages for each model is shown below.

Bk/Approx. 1200 sheets, PC/Approx. 180 sheets, C/Approx. 780 sheets, PM/Approx. 140 sheets, M/Approx. 530 sheets, Y/Approx. 270 sheets (Standard mode (6-pass, Bi-directional), A0 size, Bicycle (ISO No.5) pattern)
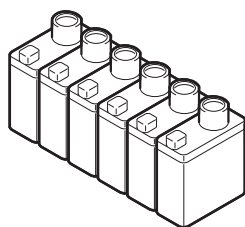
Figure 2-3 Ink Tank

1.5 Cutter

The cutter mounted on the cutter unit is a round-blade disposable type cutter.
Replace the cutter blade with a new one when the blade is no longer sharp.
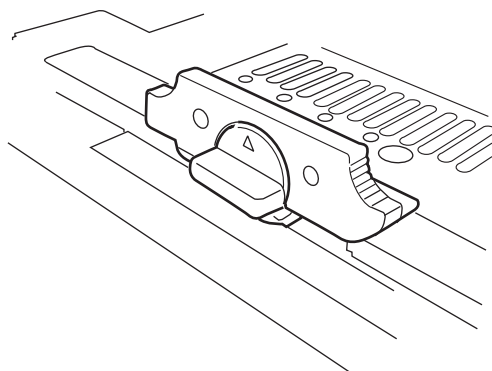
Figure 2-4 Cutter

1.6 Roll Holder

One roll holder can be installed in the roll media tray.
The roll holder for a 2-inch inner diameter paper tube is shipped with the printer.
Also, a roll holder with a 3-inch inner diameter paper tube is available as an option.
The roll holder locks into the cardboard tube of roll media with an outer diameter not
more than 130mm.
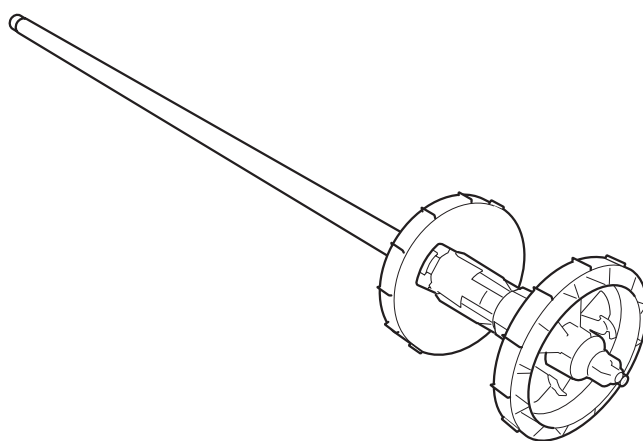
Figure 2-5 Roll holder

1.7 Consumables
1.7.1 Printhead

The printhead for this printer is a consumable. This consumable printhead is the same as the printhead shipped with the printer.
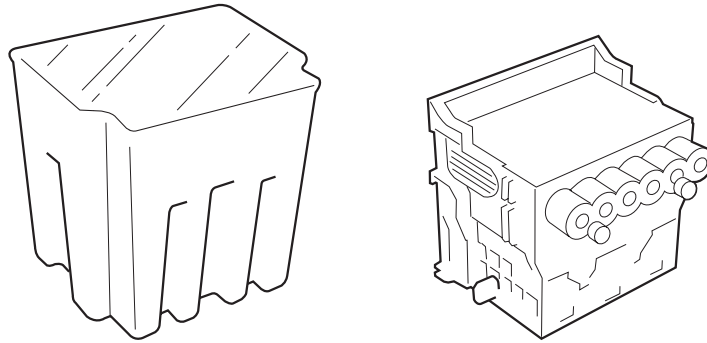
Figure 2-6 Printhead

1.7.2 Ink tank

The ink tanks are consumable and are available in six colors Black (Bk), Photo Cyan (PC), Cyan (C), Photo Magenta (PM), Magenta (M) and Yellow (Y). Consumable ink tanks are the same as the ink tanks shipped with the printer except for the package. Each bottle has a life of 12 months from the time the package is opened.
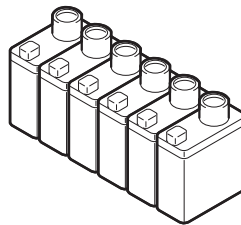
Figure 2-7 Ink Tank

1.7.3 Cutter blade

The cutter blade in this printer is a consumable. The consumable cutter blades are identical to the cutter blades supplied with the printer.

Figure 2-8 Cutter blade

2. SPECIFICATIONS

2.1 General Specifications

1. Type

W8200: Bubble jet printer (Stand type)

2. Feeding system

Roll media: Automatic feeding
Cut sheet: Manual setting

3. Feeding capacity

Roll media: one of the roll media tray (outer diameter: 130mm or less)
           Standard roll holder (provided with the product): inner diameter of the
           paper tube: 50.8mm (2")
           Option roll holder: inner diameter of the paper tube: 76.2mm (3")
Cut sheet: 1 sheet

4. Delivery system

Delivers the media with its printed side up in the forward direction

5. Sheet delivery capability

1 sheet (Delivered in stacker)

6. Cutter

Automated replaceable cartridge-type cutter

7. Type of media

Plain paper, Coated paper, Heavy coated paper, Glossy paper, Glossy film, BPF[1],
Proofing paper, Photo semi-glossy paper, Photo glossy paper
[1] Use the BPF (Back Print Film) in an environment with humidity of 30% to 80%.

8. Supported thickness

80μm to 500μm

9. Media size

Media	Width	Length
Roll media*[1]	297mm (11.69") to 1117.6mm (44")	210mm (8.27") to 18m (708.66")
Cut sheet	210mm (8.27")*[2] to 1117.6mm (44")	210mm (8.27")*[2] to 1600mm (63")

*[1] Outer diameter of roll:130mm or less.

*[2] ISO A4 : 210.0mm x 297.0mm (8.27" x 11.69") or more.

10. Printable area

Printable area : Inner part of media excluding the area specified in "11. Margins"

Max. recommended printing area : Max. standard-size of 1117.6mm x 1574.8mm (44" x 62") or less.

11. Margins

	Roll media	Cut Sheet
Leading edge	20mm	20mm
Trailing edge	23mm	23mm
Left edge	5mm	5mm
Right edge	5mm	5mm

12. Printing speed and direction*[1]

*[1] Typical speeds when a JIS SCID No.5 (ISO400) that has been enlarged to A0 full-size is used as a test image.

Media type	Mode	Print resolution (dpi)	Print-pass	Printing direction	Print speed*[2]
Plain paper	Draft	300x1200	2-pass	Bi-directional	Approx. 2.0 min.
	Standard	600x1200	4-pass	Uni-directional	Approx. 6.0 min.
Coated paper	Draft	300x1200	2-pass	Bi-directional	Approx. 2.0 min.
	Standard	600x1200	6-pass	Bi-directional	Approx. 6.0 min.
	Hight	600x1200	8-pass	Bi-directional	Approx. 10.0 min.
Proofing paper	Standard	600x1200	6-pass	Bi-directional	Approx. 6.0 min.
	Hight	1200x1200	8-pass	Bi-directional	Approx. 10.0 min.
	Highest	1200x1200	10-pass	Bi-directional	Approx. 15.0 min.
Other media	Standard	600x1200	6-pass	Bi-directional	Approx. 6.0 min.
	Hight	600x1200	8-pass	Bi-directional	Approx. 10.0 min.
	Highest	600x1200	10-pass	Bi-directional	Approx. 15.0 min.

*[2] Speeds represent the time period from when the carriage starts moving until the final band is printed, excluding the data transmission time.

13. Emulation

None

14. Interface

Network (compliance with IEEE802.3 standards)
Compliance with USB specification 2.0 standards (option)
Compliant with IEEE1394-1995 standards and P1394a (draft2.0) (option)

15. Printhead/Ink Tank

Printhead and separate ink tanks

Printhead	BC-1400
Architecture	Six rows of integrated nozzles arranged in parallel One row of nozzles: 1280 nozzles arranged in a staggered pattern
Maximum number of sheets that a printhead can print	Approx. 1,100 sheets (Standard mode (6-pass, Bi-directional), A0 size, 20% duty pattern for each color)

Ink tank	BCI-1411 Bk/PC/C/PM/M/Y
Ink type	Dye ink
Ink capacity	Approx. 330 ml
Maximum number of sheets that an ink tank can print	Bk/Approx. 1200 sheets, PC/Approx. 180 sheets, C/Approx. 780 sheets, PM/Approx. 140 sheets, M/Approx. 530 sheets, Y/Approx. 270 sheets (Standard mode (6-pass, Bi-directional), A0 size, Bicycle (ISO No.5) pattern)

16. Detection functions

Presence of media	: Detectable	Media leading and trailing edge	: Detectable
Media width	: Detectable	Skewed feeding	: Detectable
Roll media level	: Not Detectable	Feed roller rotation	: Detectable
Carriage position	: Detectable	Presence of printhead	: Detectable
Presence of ink tank	: Detectable	Ink level	: Detectable
Full waste ink absorber	: Detectable	Paper release lever position	: Detectable
Roll media tray opened	: Detectable	Cover open	: Detectable

17. Noise during operation

Average during standby: 35dB (A) or less

Average during printing: 55dB (A) or less

(In conformance with ISO9296 sound pressure level)

18. Environmental Conditions

Operating environment

Temperature: 5°C to 35°C   Humidity: 10% to 90% RH*

Environment where the printing quality is assured

Temperature: 15°C to 30°C   Humidity: 10% to 80% RH*

* Use the BPF (Back Print Film) in an environment with humidity of 30% to 80%.

19. Power source

AC100V (-15%) to AC240V (+10%)

48Hz to 62Hz

20. Power consumption

	AC100V to AC240V
Max.	160W or less
Printing mode*	108W or less
Standby mode	30W or less
Average in the power-save mode	30W or less

* Average values when printed in the Standard mode (6-pass, Bi-directional).

21. Outer dimensions of the body

W1,842mm x D860mm x H1,175mm (including the stand)

22. Weight

Approx. 112kg (including the stand. Approx. 85kg is only the printer.)

2.2 Interface Specifications

2.2.1 Network

1) Interface format

Interface complying with IEEE802.3 standards

2) Data transfer

10Base-T/100Base-TX

3) Signal level

Input : threshold

100 Base-TX :	turn-on +1000mV diff pk-pk
	turn-off +200mV diff pk-pk
10 Base-T :	max +585mV
	min +300mV

Output:

| 100 Base-TX : | +0.95V ~ +1.05V |
| 10 Base-T : | +2.2V ~ +2.8V |

4) Interface cable

Category 5 (STP or UTP) cable, 100 m max.

Compliance with EIA/TIA-568A or EIA/TIA-568B standards

5) Interface connector

Printer side: IEEE802.3 standards, and compliance with ANSI X3.263 standards

Cable side: IEEE802.3 standards, RJ-45 type

6) Input/output signals and pin configuration

For details, see *Part 5:* 8. CONNECTOR POSITION AND PIN ARRANGEMENT.

2.2.2 USB (option)

1) Interface format

Interface complying with USB 2.0, IEEE1284.4 (draft D1.30) standards

2) Data transfer

Control transfer

Bulk transfer

3) Signal level

Input:

Input sensitivity difference: +0.2 V (Max.)

Common mode difference: +0.8 V to +2.5 V

Output:

Static output High: +2.8 V to +3.6 V

Static output Low: +0.3 V max.

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

6) Input/output signals and pin configuration

For details, see *Part 5:* 8. CONNECTOR POSITION AND PIN ARRANGEMENT.

2.2.3 IEEE1394 (option)

1) Interface format

Interface complying with IEEE1394-1995, P1394a (draft 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 (draft 2.0) standards

5) Interface connector

Printer side: IEEE1394 standards, 6-pin connector (socket)

Cable side: IEEE1394 standards, 6-pin connector (plug)

6) Input/output signals and pin configuration

For details, see *Part 5:* 8. CONNECTOR POSITION AND PIN ARRANGEMENT.

2.3 Printer Driver Types

The relationship between the required operating environment and drivers for this printer and the supplied software is shown in the table below.

	Windows XP	Windows 2000	Windows NT 4.0	Windows Me	Windows 98	Windows 95	MacOS X	MacOS 8.6/9.x
GARO Printer Driver	◎	◎	◎	◎	◎	◎	◎	◎
LPR Port	–	–	–	○	○	○	✕	✕
USB Driver	–	–	✕	– (*1)	○	✕	–	–
IEEE1394 Driver	○	○	✕	○	✕	✕	○	✕ /○
NetSpot Suite Service	◎	◎	◎	◎	◎	◎	✕	✕
NetSpot Job Monitor	△	△	△	△	△	△	✕	✕
NetSpot Console	△	△	△	△	△	✕	✕	✕
Remote User Interface	△	△	△	△	△	△	△	△
Device Status Extension	△	△	✕	✕	✕	✕	✕	✕
Port Setting Tool	–	–	–	△	△	△	–	–

◎ : Installation required   ○ : Installation required for some interfaces

△ : Install if necessary   – : Installation not necessary

✕ : Not supported

*1 : Only inf file is necessary

NOTE

The abbreviation GARO displayed in the printer driver stands for "Graphic Arts Language with Raster Operations." GARO is a printer language for creating raster image data.

Part 3

OPERATING INSTRUCTIONS

1. NAMES AND FUNCTIONS OF COMPONENTS

1.1 Names and Functions of Components

The names and functions of the printer parts are shown below.

1.1.1 Front

Upper cover
This cover is opened when installing the printhead, sets cut sheets, removing paper jams inside the printer, and other operations.

Tray
The tray sets cut sheets and discharges printed sheets. The tray is opened when loading the roll media.

Operation panel
The operation panel includes the Power button, Online button, and display.

Roll media tray
This tray is for loading the roll holder. This tray is pulled out when loading the roll media.

Right cover
This cover is opened when replacing the ink tanks. This cover is normally locked.

Stacker
This is a cloth tray where the printed media are stacked.

Stand
This is a platform with casters that supports the printer unit.
The inside of the stand can be equipped with a stacker or optional take-up unit.

Figure 3-1 Front View of the Printer

1.1.2 Rear

Ground cable connector
The ground cable is connected here.

Power connector
The power cord is connected here.

Take-up unit connector
The take-up unit (optional) is connected here.

Expansion slot (option)

LAN port
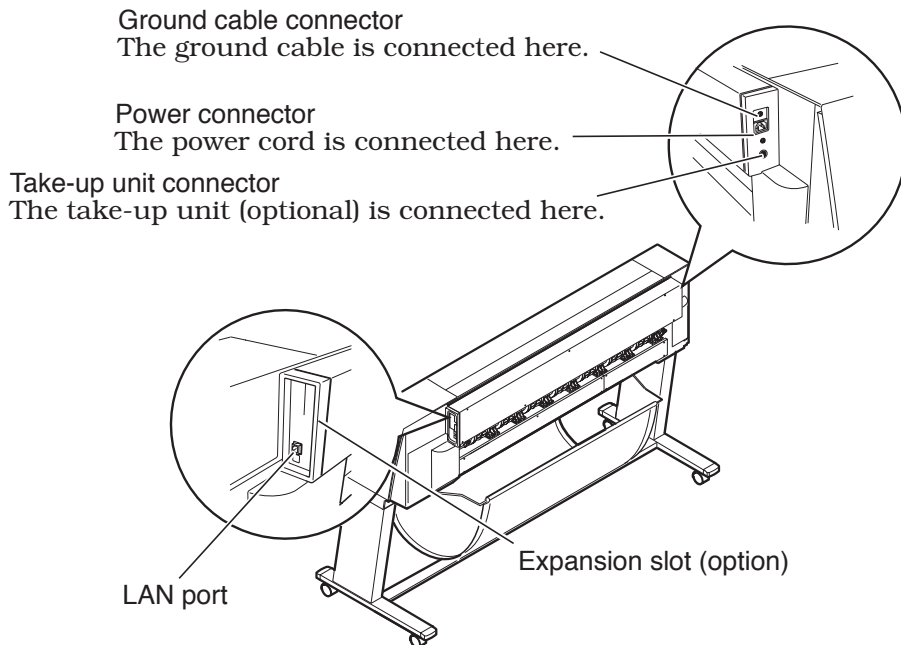
Figure 3-2 Rear View of the Printer

1.1.3 Carriage unit

Printhead lock cover
This cover is used to lock the printhead. This is opened when installing the printhead.

Carriage cover
This cover protects the carriage. This cover is opened when installing the printhead.

Printhead

Carriage

Print head lock lever
This lever is used to lock the printhead lock cover. This lever is opened when installing the printhead.
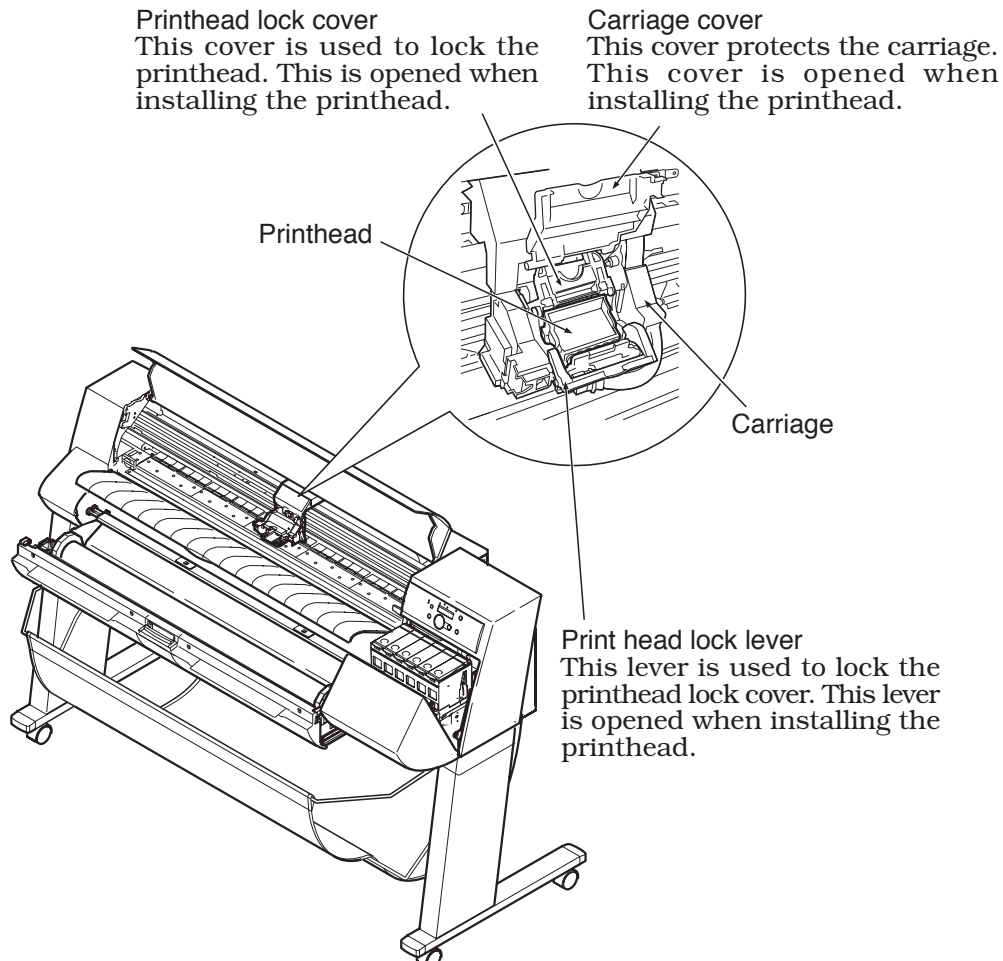
Figure 3-3 Carriage Unit

1.1.4 Internal part

Air filter

Paper release lever
This lever is used to release the pinch roller when loading cut sheets and when a paper jam occurs.

Air filter
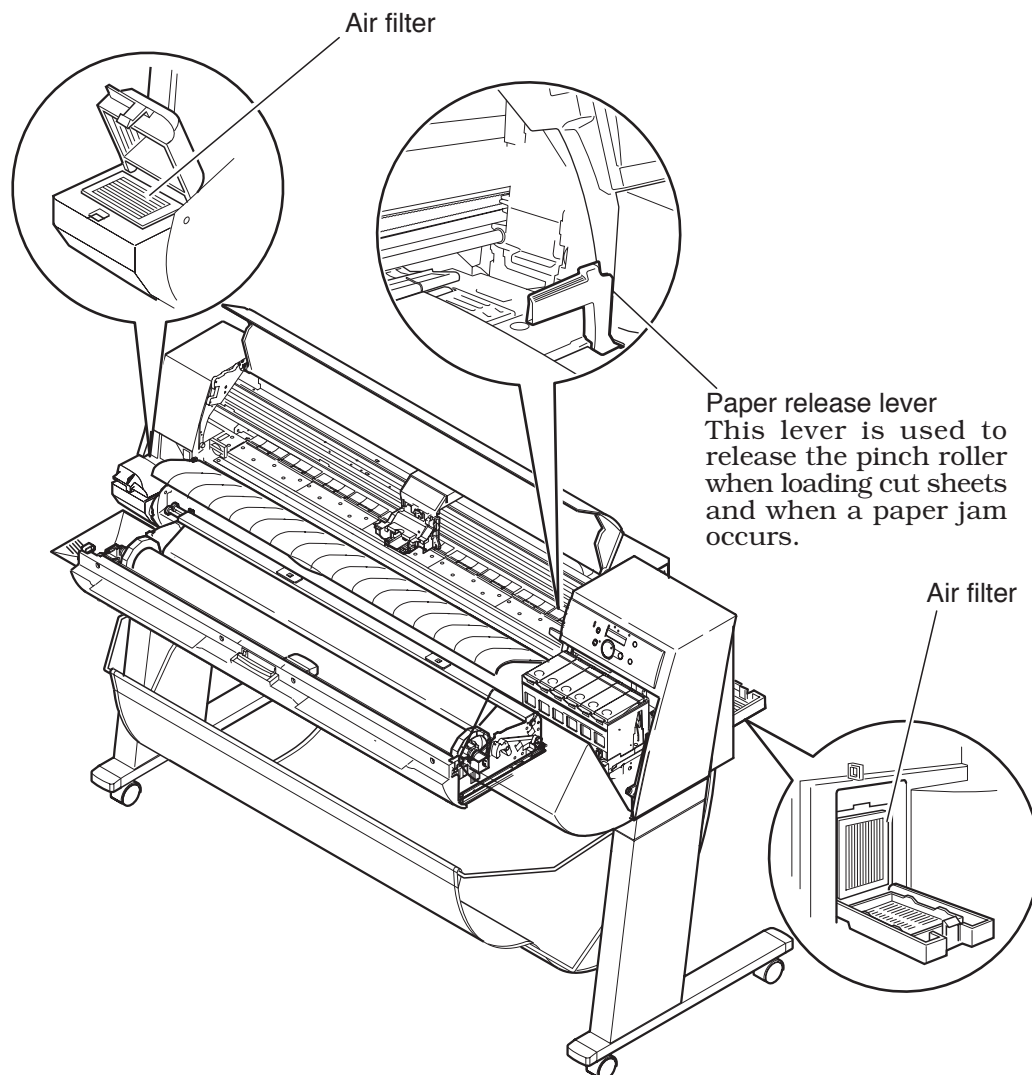
Figure 3-4 Internal Parts of the Printer

1.1.5 Roll media tray unit

Belt stopper
The belt stopper is used for locking the carriage into place when moving the printer.

Roll release lever
This lever is used to release the pressure for the roll feed roller.

Tray open lever
This lever is used to pull out the roll media tray.
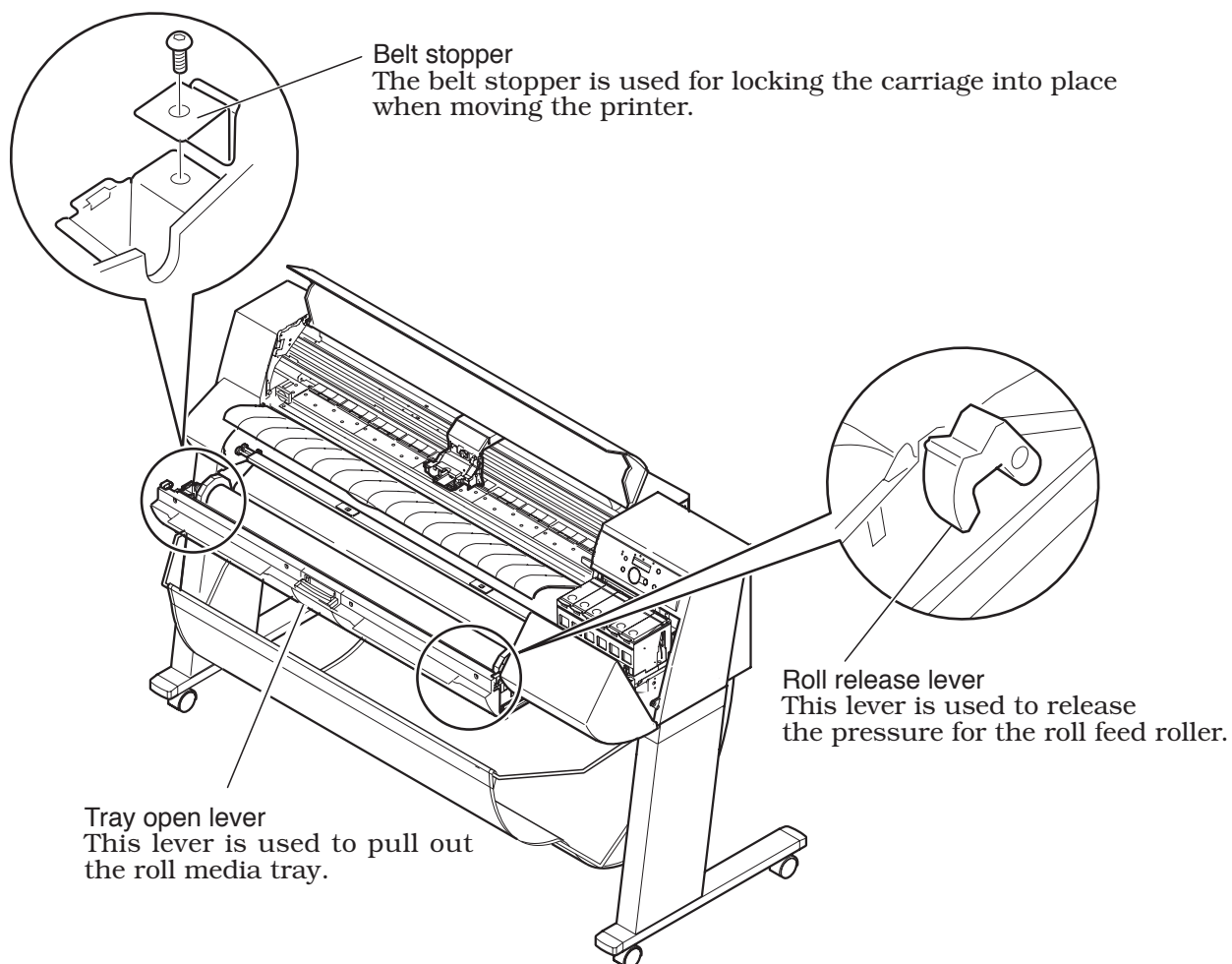
Figure 3-5 Roll Media Tray Unit

2. PRINTER SETUP

2.1 Installation

In addition to the printer unit, an accessory kit is needed when installing the printer. The accessory kits are prepared separately for each region.

CAUTION

Take the following precautions when installing the printer.

- Always hold the handles when lifting and moving the printer. Never hold the printer by any other parts.
- The printer unit weight approx. 85 kg. At least two people are required to unpack the printer and take it out from the box.
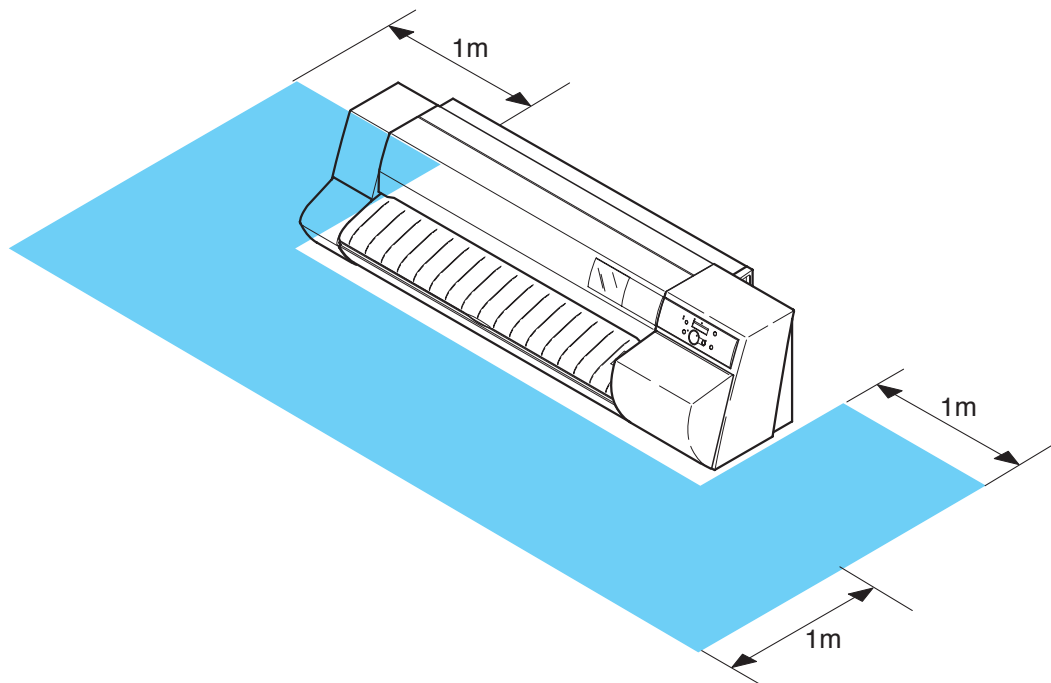
Figure 3-6 Required Space when Removing from Box

2.1.1 Installation environment

Leave a clear space around the printer to ensure easy operation and maintenance.

Height and Width
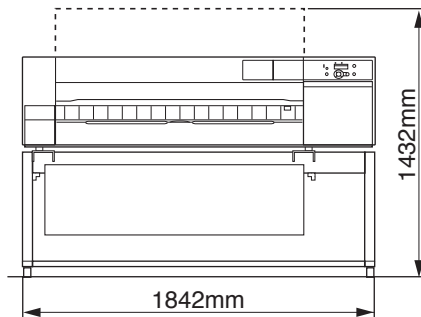
Depth
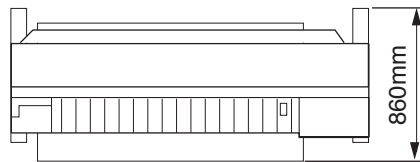
Installation space
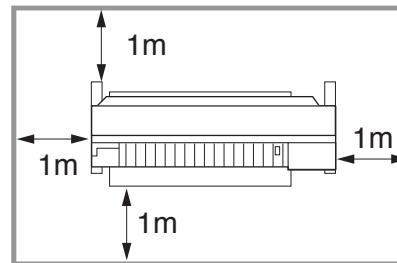
Figure 3-7 Space Required for Installation

CAUTION	Follow the precautions below when choosing the location.

- Do not subject the printer to extremely high or low temperature. Also avoid extremely high or low humidity. The operating temperature is 5°C - 35°C with humidity 10% - 90% RH.
- Avoid direct sunlight. Use curtains if there is no alternative.
- Avoid abrupt changes in temperature.
- Avoid dusty locations.
- Avoid placing it in the vicinity of an air conditioner or an electric fan. Their air currents may damage the printer.
- Avoid places prone to vibrations.
- Install the printer unit on a stable floor which safely supports the printer weight (approx. 112 kg (including stand) and will not subject the printer to vibrations. Do not install the printer on a carpeted floor where it cannot remain level and stable. Doing so can harm the print quality. If the printer must be installed on a weak surface due to unavoidable circumstances, install it on top of a sturdy plate (such as an iron plate) which is broad enough to accommodate the printer.

2.1.2 Unpacking
a) Unpacking the printer
1) Open the package and make sure that the items below have been included:

Accessory kit

Hex key wrench

Rail cleaner

Roll holder &
holder stopper

Power cord

Printhead

Ink tank
(Bk,C,PC,M,PM,Y)

Setup Guide
Quick Reference Guide

User Softwere CD-ROM
Manual CD-ROM
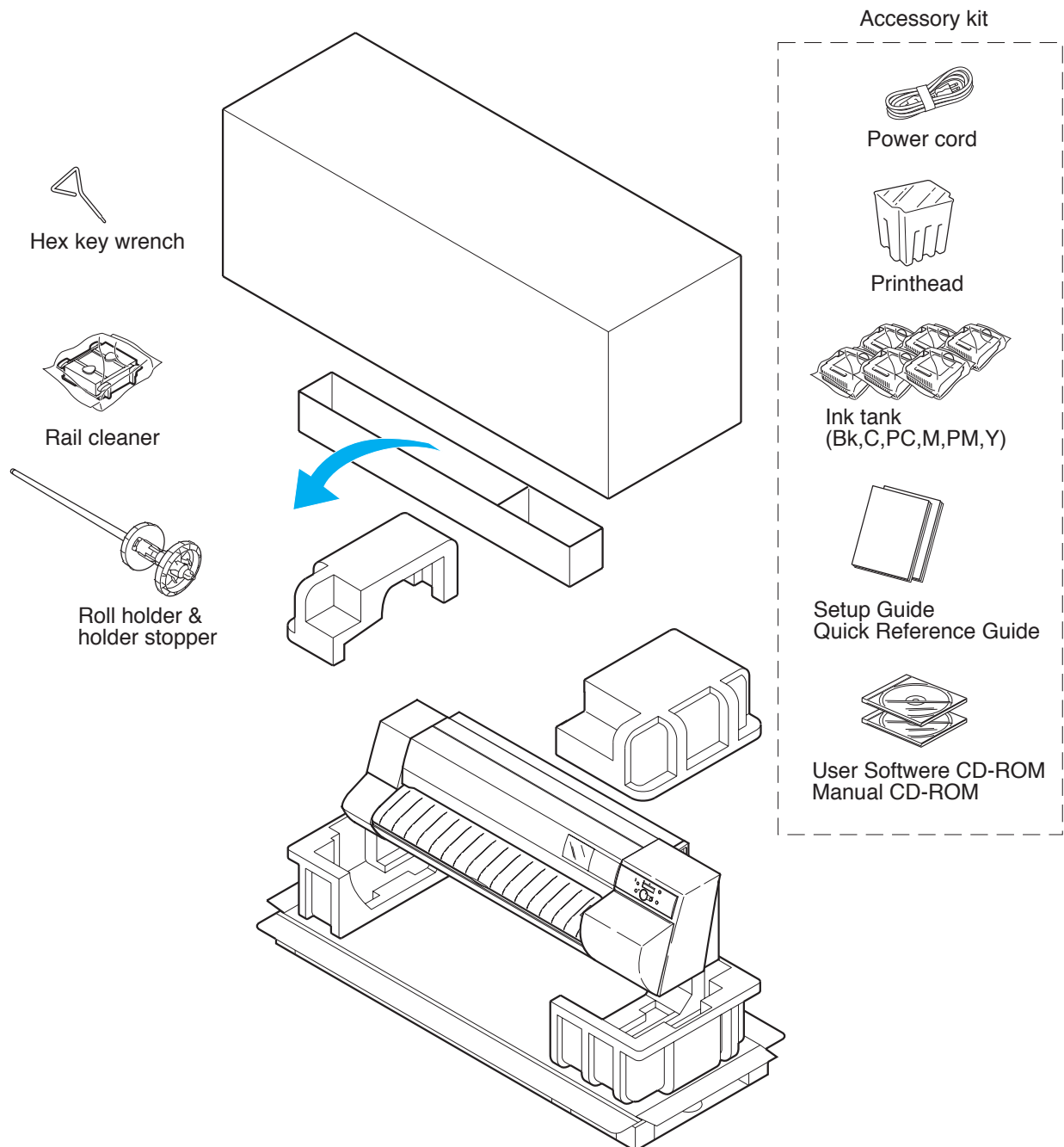
Figure 3-8 Unpacking the Printer

3-7

CAUTION   Follow the precautions below when unpacking the printer.

• Always hold the handles when lifting and moving the printer. Holding the printer by its cover can deform the cover.
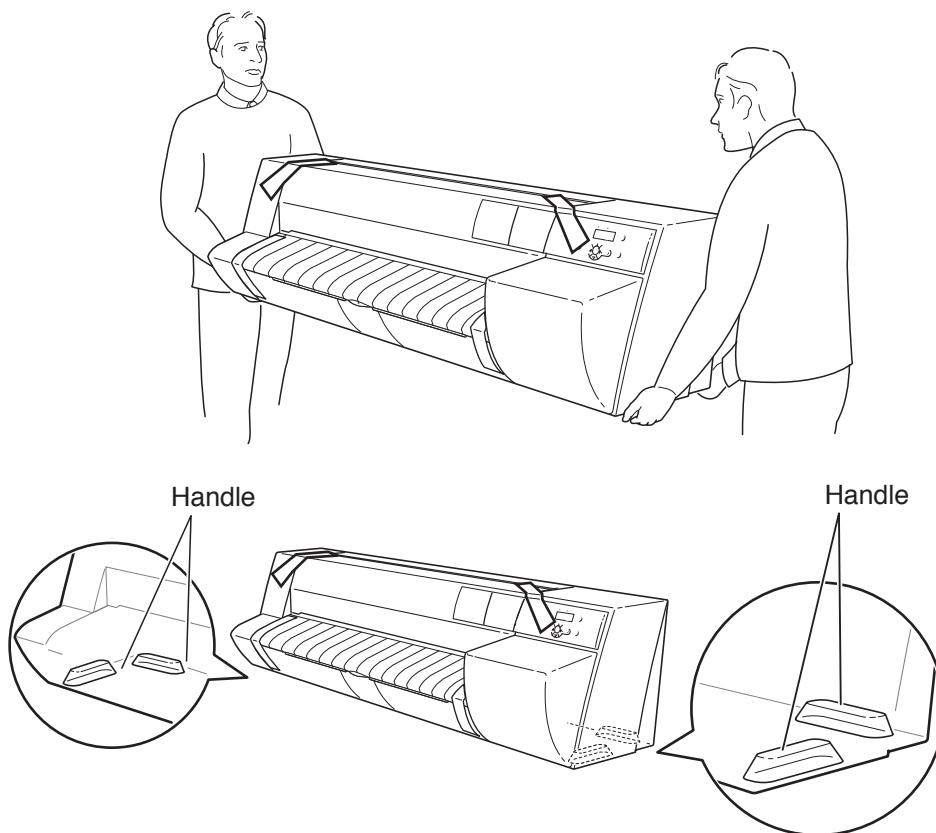
Figure 3-9 Handles the Printer

b) Unpacking the accessory kit

Unpack the accessory kit and make sure that the items below have been included:

- Power cord   • Quick reference guide
- Printhead   • User softwere CD-ROM
- Ink tank   • Manual CD-ROM
- Set-up Guide

NOTE
- Other types of power cords are also available. Make sure to use the correct type of accessory kit in accordance with the region (country) where the printer is installed.
- A interface cable is needed to connect the printer to a computer.

c) Unpacking the stand

Unpack the stand, and check that the items shown below are provided.
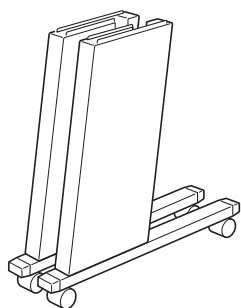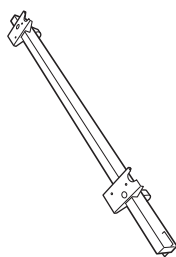
Stand leg L,R   Stand upper stay   Stand lower stay
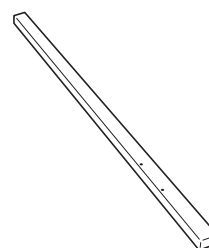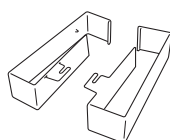
Leg cover L,R
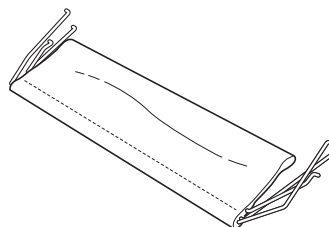
Stacker
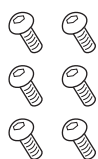
Hex screw (16 pcs.)   Hex key wrench   Anti-slip sheet (2 sheets)
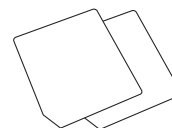
Figure 3-10 Unpacking the Stand

2.1.3 Assembling the stand

The stacker, leg cover L, leg cover R, anti-slip sheets (2 sheets) are used after the printer is installed on the stand.
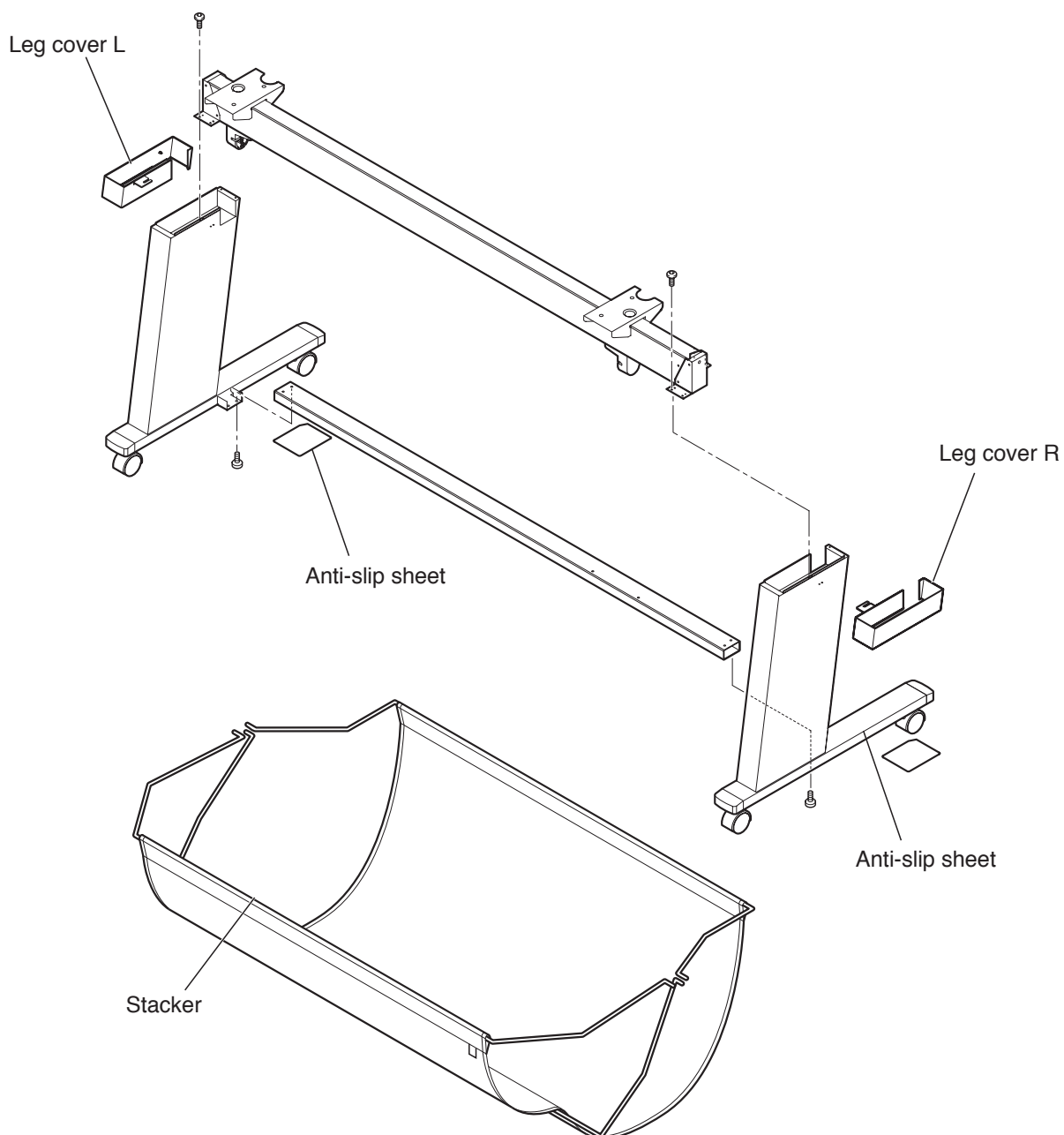
Figure 3-11 Assembling the Stand

2.1.4 Installing the printer
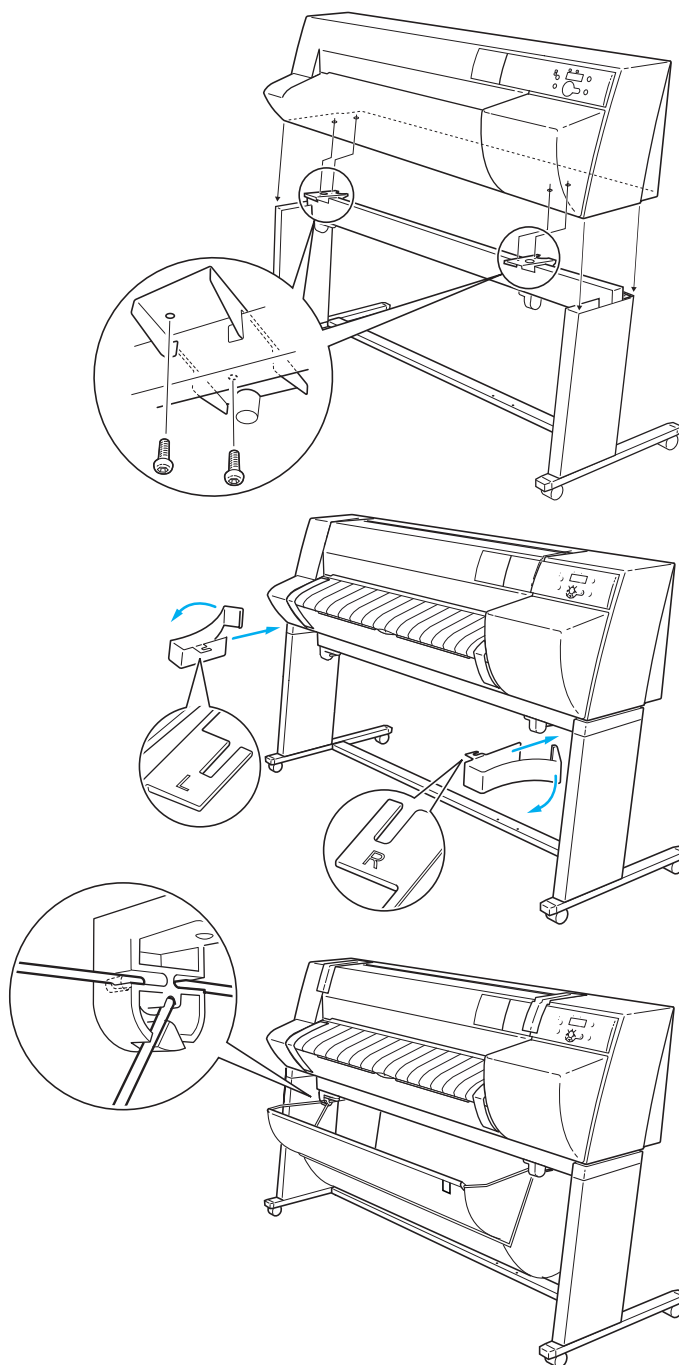
Figure 3-12 Installing the Printer

> ⚠ **CAUTION**
> Always hold the handles when lifting and moving the printer. Holding the printer by its cover can deform the cover.

2.1.5 Removing packing materials

After installing the printer on a stand, remove all of the packing materials attached to the printer.
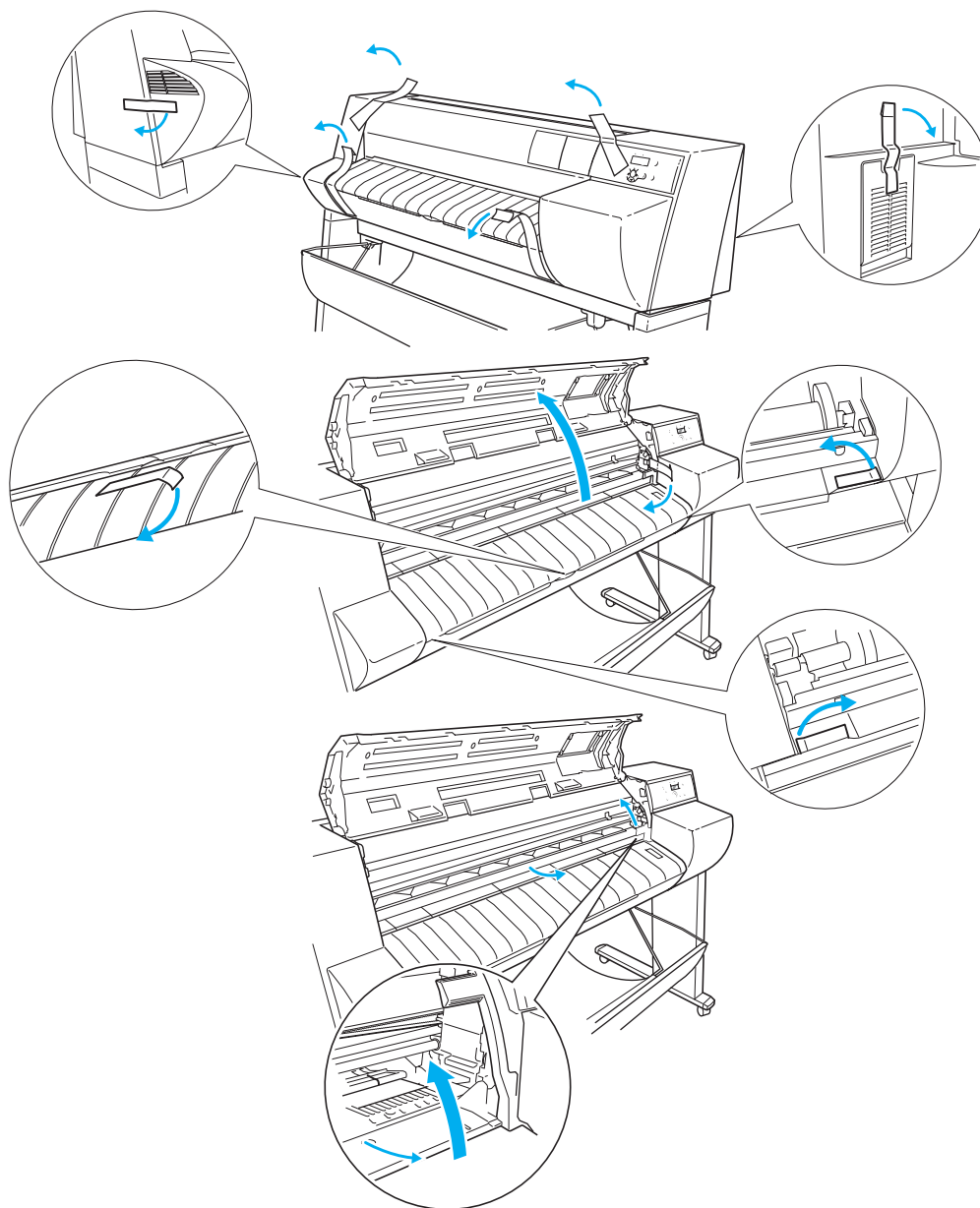
Figure 3-13 Removing Packing Materials

2.1.6 Removing the belt stopper

Remove the belt stopper (1 screw).

The belt stopper is needed when transporting the printer, and so store the belt stopper by screwing it to the left side of the roll media tray.

CAUTION	When removing the belt stopper, be careful not to bring it into contact with the linear scale. If the linear scale is scratched, the printer may not operate properly.
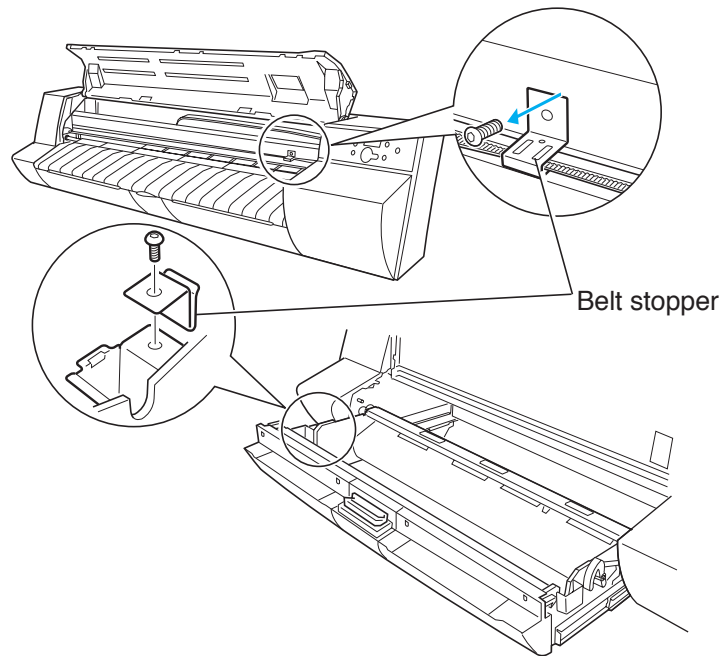
Figure 3-14 Removing and Storing the Belt Stopper

NOTE	To prevent ink leakage and damage to the printhead, be sure to always use the belt stopper to secure the carriage before moving the printer.

2.1.7 Connecting the power supply

1) Connect the power cord and the ground wire to the printer.
2) Connect the ground wire to a ground terminal. Connect the power plug to an electrical outlet.
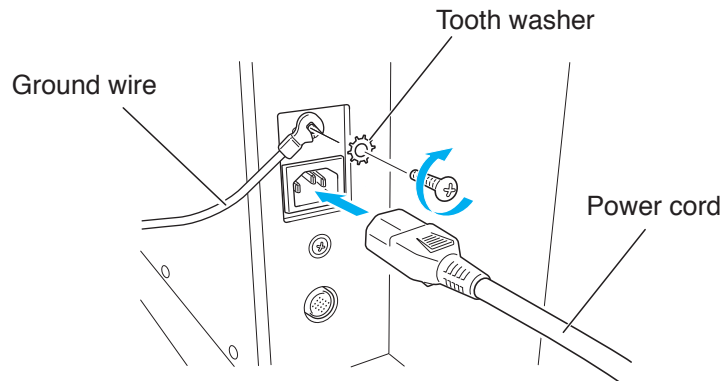
Figure 3-15 Connenting the Power Supply

CAUTION	• Be sure to connect the ground wire if a groundless power cord is being used. Failure to connect the ground wire can result in electric shocks.
	• You may connect the ground wire to:
	    1. Grounding terminals of electrical outlets.
	    2. Terminals used to make a connection to a ground.

2.1.8 Installing the printhead

Follow the steps below to install the printhead.

1) Check that all covers are closed.
2) Press the *[Power] button* to turn on the printer.
3) Open the upper cover.
4) Remove the tape from the carriage cover.
5) Open the carriage cover, printhead lock lever, and printhead lock cover until they stop.
6) Open the package containing the printhead.
7) Remove the orange protective material and cap on the printhead.
8) Install the printhead in the carriage.
9) Close the printhead lock cover, printhead lock lever, and the carriage cover, in that order, and then lock the printhead into position.
10) Close the upper cover.
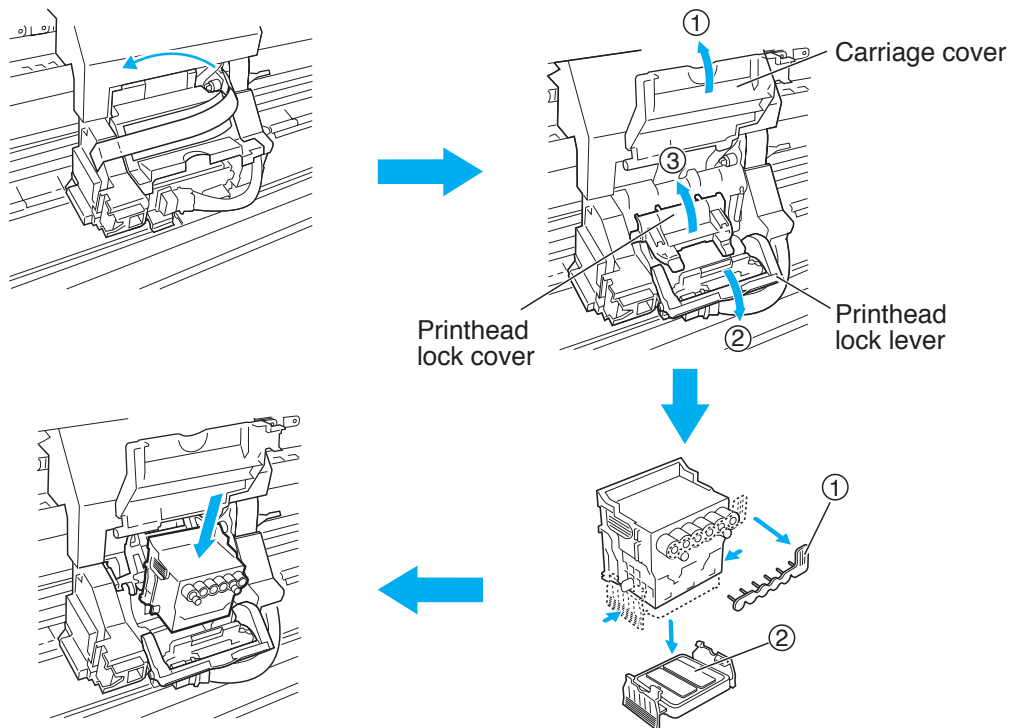
Figure 3-16 Installing Printhead

CAUTION

Take the following precautions when handling the printhead.
- Unseal the package of the printhead only when you are ready to install it.
- Do not replace the orange protective cap once you have removed it from the printhead. If there is foreign matter stuck to the protective cap, it may scratch the printhead.
- Never put a printhead on racks or tables with the nozzles facing downward. If the head becomes scratched or dirty, it may result in poor quality printing.
- Never touch the head area or the electrodes. If those areas become soiled by dirt or finger grease, it may result in poor quality printing.

2.1.9 Installing the ink tanks
Follow the steps below to install the ink tanks.

1) After installing the printhead, open the right cover.
2) Open the package containing the ink tank.
3) Install the ink tank while holding up the ink tank cover.
4) Press down the ink tank cover firmly until you feel a click as the ink tank is locked into position.
5) Repeat steps 2) to 4) until the ink tanks are installed for all 6 colors.
6) Close the right cover. The message "Ink Filling" is shown on the display, and the initial filling of the ink is started automatically. The times until the initial filling is completed are approx. 11 minutes.
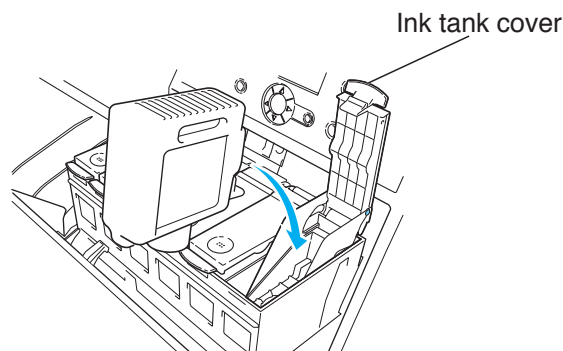
Ink tank cover

Figure 3-17 Installing an Ink Tank

NOTE   The ink tank covers have a mark which indicates which ink color goes in a particular slot, and each tank can be installed only in the correct slot. Never try to force a tank into a wrong slot, as this may damage the printer. Install Black (Bk), Photo Cyan (PC), Cyan (C), Photo Magenta (PM), Magenta (M) and Yellow (Y) from left to right.

BK PC C PM M Y
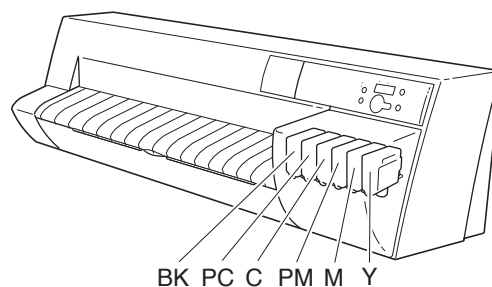
Figure 3-18 Installing Order of Ink Tanks

2.1.10 Language setting

This feature allows the user to specify which language should be used for message display. Select from the following six languages: English, Japanese, French, German, Italian and Spanish.

Follow the steps below to specify the language.

```
Language
      English
```

```
Offline
```

Enter the setting language.

Select the setting language.
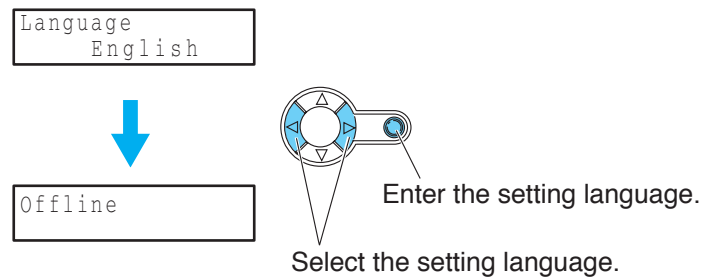
Figure 3-19 Specifying Language

NOTE
- To change the language setting, refer to *Part 3:* 4.4 Main Menu and select the "Language" menu.
- After making the language setting, all messages are displayed in the specified language except for those in Service mode. The messages in Service mode are displayed in English regardless of the language setting made in the menu.

2.1.11 Loading paper

Roll media and cut sheet media are available for this printer. Refer to *Part 3:* 4.1 User Replacements for how to load the print media.

2.1.12 Checking and adjusting the print status

After installing the printer, perform a nozzle check print and print position adjustment to confirm that the printer is operating properly.

> NOTE
>
> The printer may not produce satisfactory printing results when printing on paper types other than those used for the adjustment or when the vertical position of a printhead has been changed. It is recommended that you make the "Adjust Printer" setting before a print job for producing optimum print quality when a new paper type has been selected or when the vertical position of a printhead has been changed.

a) Nozzle check

1) Select the media to be used. (Roll media or cut sheets that are A3 size or larger are needed.)
2) Enter the Main menu. (Refer to *Part 3:* 4.4.1 Main Menu operations.)
3) Select "Test Print" --> "Nozzle Check".
4) After printing, confirm that the check pattern printout is normal.

b) Adjusting the printhead position

1) Select the media to be used for adjustment. (Roll media or cut sheets that are A3 size or larger are needed.)
2) Enter the Main menu. (Refer to *Part 3:* 4.4.1 Main Menu operations.)
3) Select "System Setup" --> "Adjust Printer" --> "Print Pattern A".
4) After printing, check the adjustment pattern, and then perform adjustment.

c) Adjusting the sheet feeding rate

1) Select the media to be used for adjustment. (Roll media or cut sheets that are A3 size or larger are needed.)
2) Enter the Main menu. (Refer to *Part 3:* 4.4.1 Main Menu operations.)
3) Select "System Setup" --> "Adjust Printer" --> "Print Pattern B".
4) After printing, check the adjustment pattern, and then perform adjustment.

2.1.13 Connecting the interface cable

A LAN port interface is provided as standard in this printer.

USB 2.0 port and IEEE1394 port interfaces are available as options, and one of these port interfaces can be added at the expansion slot. Connect to these ports according to the computer that you are using and the connection method.

Note that this printer does not include an interface cable. Please obtain the suitable cable (available commercially) for the required length and connection method that you are using.

NOTE | The available interfaces on the printer are 10Base-T/100Base-TX and USB 2.0 (option) or IEEE1394 (option). Use the following lengths for the connected interface cable.
10Base-T/100Base-TX: 100 m max., USB: 5.0 m max., IEEE1394: 4.5 m max.

CAUTION | The printer can be damaged if the connectors of the interface cable are connected in the wrong direction. Be sure to check the direction of the connectors before connecting the interface cable.
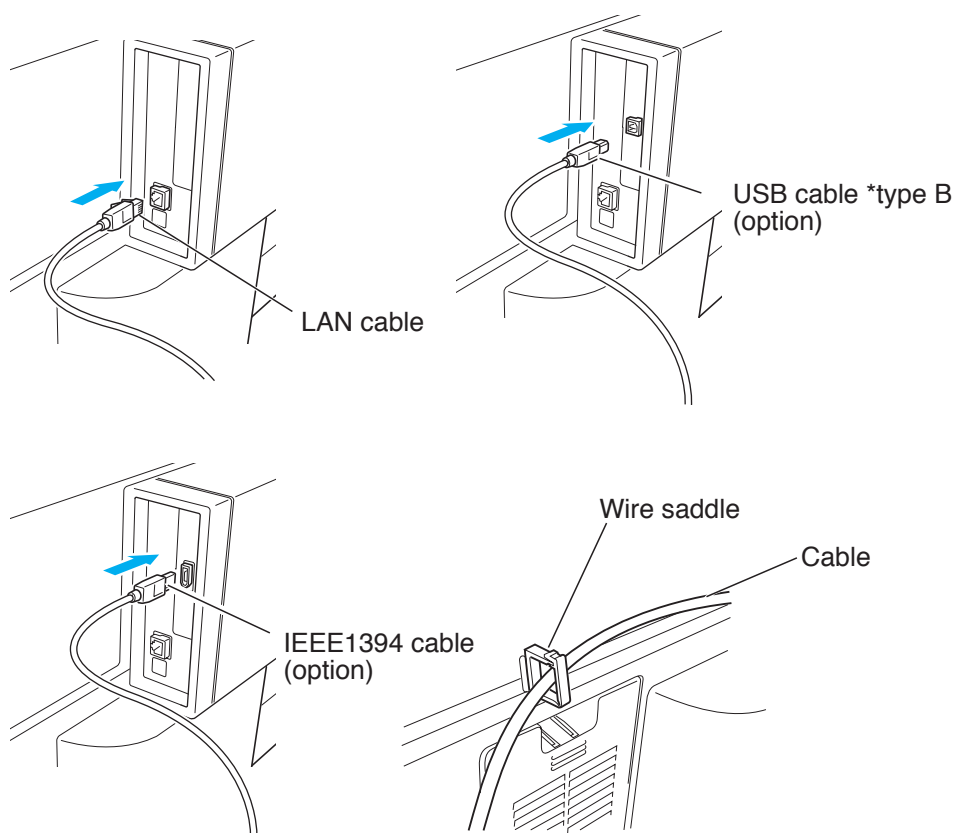
Figure 3-20 Connecting the Interface Cable

3. TRANSPORTING THE PRINTER

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.

3.1 Transporting the Printer

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 3.1.1 Moving the printer on the same floor.

When moving it elsewhere, follow the steps shown in 3.1.2 How to transport the printer to a different floor to a Different Floor and Means of Transportation to prevent ink leakage during transportation.

| CAUTION | Always hold the 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. |

3.1.1 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.

CAUTION	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) Open the roll media tray, and wind the roll media back into the media cassette.
5) Remove the roll media from the roll media tray, and then close the roll media tray.
6) Remove the interface cable and power cord (ground wire) from the printer.
7) Unlock the casters on the stand.
8) Grasp the printer by the handles at the bottom, and then slowly move the printer.

CAUTION	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.

3.1.2 How to transport the printer to a different floor

If the take-up unit mounted on it, remove these devices and have them packed for transportation.

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

CAUTION	Before starting the operation, be sure to always check the value for COUNTER > PRINTER > LIFE under Service mode. If the LIFE value exceeds 9,000 sheets, the waste ink may leak when the printer is temporarily tilted or stood upright. To prevent the waste ink from leaking, drain the ink, and then remove the waste ink absorber unit, air flow fan unit and maintenance jet absorber unit. Package the removed waste ink absorber unit, air flow fan unit and maintenance jet absorber unit separately so that the waste ink does not leak from them.

1) Turn on the [***Power***] ***button*** on the printer
2) Open the roll media tray, and wind the roll media back into the media cassette.
3) Remove the roll media from the roll media tray, and then close the roll media tray.
4) While referring to *Part 3:* 4.4 Main Menu, enter the Main menu, and then select "System Setup" > "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.

CAUTION	• 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. If the operation is canceled accidentally, restart the procedure from step 4). • The "Move Printer" operation will drain ink from the printer to the waste ink absorber. The drain ink amounts are approx. 38g per color.

5) Once the "Move Printer" operation is completed, turn off the [***Power***] ***button***.
6) Open the upper cover, check that the heads are capped, and then use the belt stopper to secure the carriage in place. (Refer to *Part 1:* 2.3.2 Fixing the carriage.)

CAUTION	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.

7) Close the upper cover.

8) Disconnect the interface cable and power cord from the printer.

9) If the value for COUNTER > PRINTER > LIFE under Service mode that was checked before operation exceeds 9,000 sheets, remove the waste ink absorber unit, air flow fan unit and maintenance jet absorber unit, and package them separately so that waste ink does not leak from them.
   Reattach the parts removed in the process of removing the waste ink absorber unit, air flow fan unit and maintenance jet absorber unit to the printer.

10) While referring to *Part 3:* 2.1.5 Removing the Packing Materials, attach the cushioning materials and tape.

11) Remove the printer from the stand.

12) 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 (ground wire) from the printer.

3) Open the roll media tray, and wind the roll media back into the media cassette.

4) Remove the roll media from the roll media tray, and then close the roll media tray.

5) While referring to *Part 5:* 5.5.2 Manual Ink Drainage, drain the ink from the printer.

6) While referring to *Part 3*: 3.1.3 Manual Capping, perform the capping operation.

7) Remove the waste ink absorber unit, air flow fan unit and maintenance jet absorber unit, and then package them separately so that the waste ink does not leak from them.
   Reattach the parts to the printer that were taken off in the process of removing the waste ink absorber unit, air flow unit and maintenance jet absorber unit.

8) Attach all of the exterior covers

9) Open the upper cover, and then use the belt stopper to secure the carriage in place. (Refer to *Part 1:* 2.3.2 Fixing the carriage.)

10) Close the upper cover.

11) While referring to *Part 3:* 2.1.5 Removing the Packing Materials, attach the cushioning materials and tape.

12) Remove the printer from the stand.

13) 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.

3.1.3 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 *Part 5:* 5.3.1 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 *Part 5:* 5.3.1 Opening the caps and releasing the carriage lock pins.

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

Carriage unit

Move until it comes to a stop.
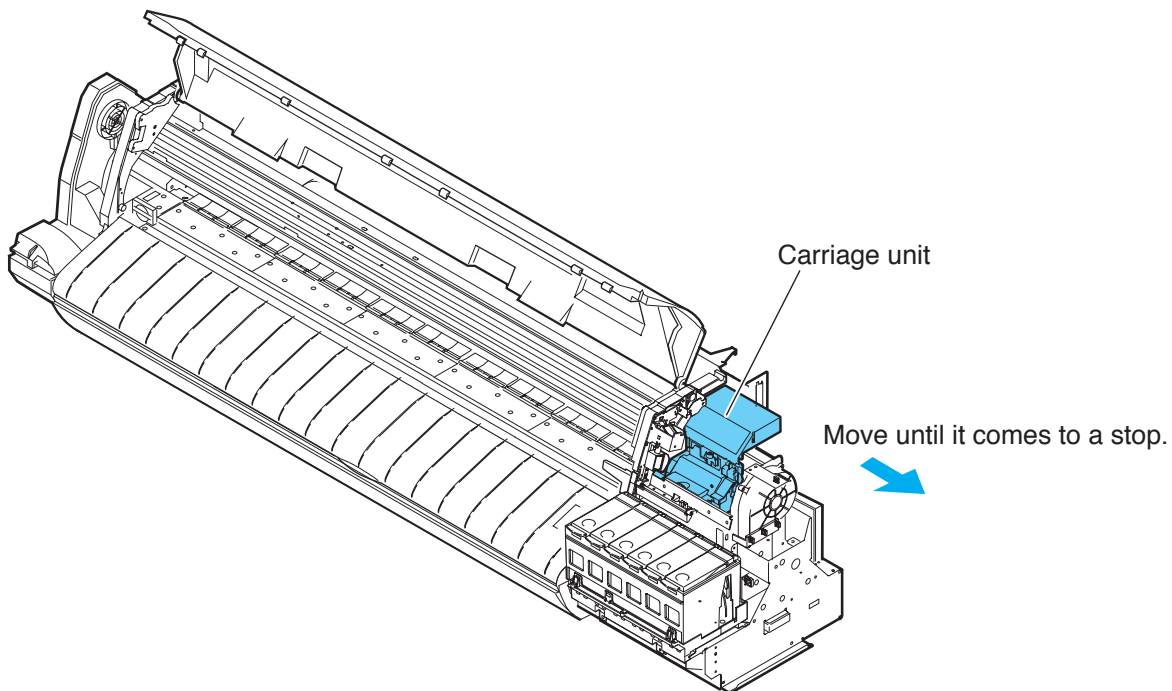
Figure 3-21 Position of the Carriage During Manual Capping

3.2 Reinstalling the Printer

3.2.1 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. Refer to *Part 3:* 2.1.12 Checking and adjusting the print status.

3.2.2 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.
2) Remove the cushioning materials and tape. Refer to *Part 3:* 2.1.2 Unpacking and *Part 3:* 2.1.5 Removing packing materials.
3) Remount the waste ink absorber unit, air flow fan unit and maintenance jet absorber unit if they were removed.
4) Remove the belt stopper. Refer to *Part 3:* 2.1.6 Removing the belt stopper.
5) Connect the power cord and ground wire. Refer to *Part 3:* 2.1.7 Connecting the power supply.
6) Install the ink tanks. Refer to *Part 3:* 2.1.9 Installing the ink tanks.
7) Load the media, and perform the operation check. Refer to *Part 3:* 2.1.12 Checking and adjusting the print status.

4. OPERATION

4.1 User Replacements

The print media, the ink tanks, the printhead, and the cutter blade can be replaced by the user as required. When it is necessary to replace the ink tanks a message is shown on the display.

4.1.1 Replacing print media

The printer can load roll media and cut sheet.

NOTE: When loading the print media, always hold the paper edges, outside the print area. If you hold the print area, finger grease or foreign matter may adhere to the paper surface, which may affect the print quality.

4.1.2 When to replace roll media

Each roll media tray has a window indicating the amount of roll media remaining. This window allows you to check visually the approximate amount of roll media remaining in the tray.

Roll holder
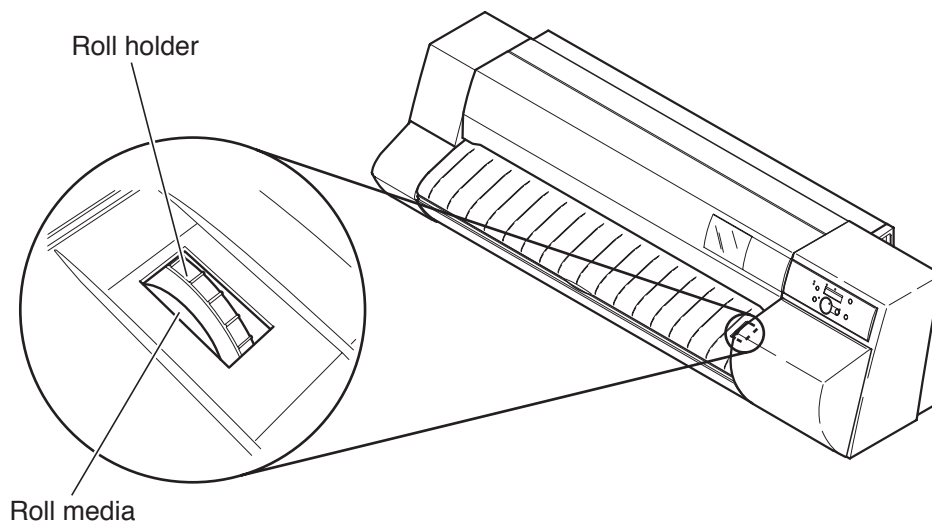
Roll media

Figure 3-22 Remaining Roll Media Window

4.1.3 How to replace roll media

1) Pull out the roll media tray until it moves no more.
2) Wind back the media, and then hold both ends of the roll holder to remove it from the roll cassette.
3) Remove the holder stopper from the roll holder, and then pull out the roll holder from the roll media.
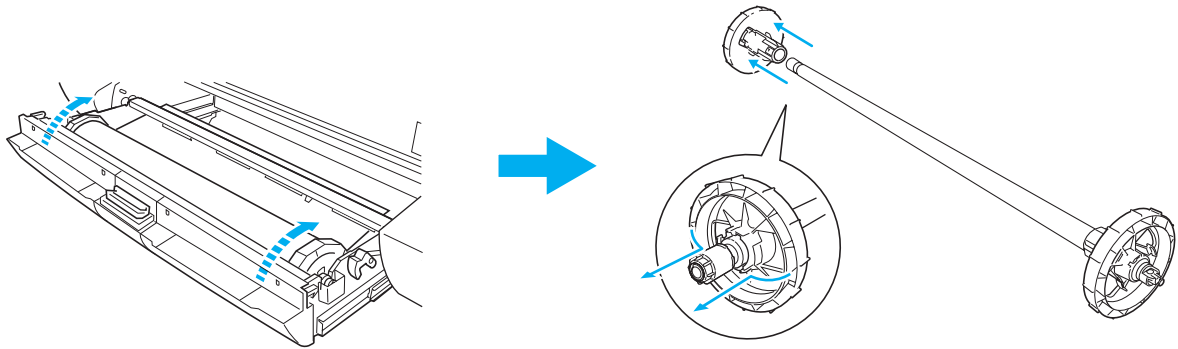
Figure 3-23 Loading the Roll Media (1/5)

4) Prepare a new roll media.
5) Place the roll media sideways on a desk or other flat surface, and then insert the roll holders while paying attention to the winding direction.
6) Attach the holder stopper.
7) Load the roll holder with the mounted roll media into the roll media tray.
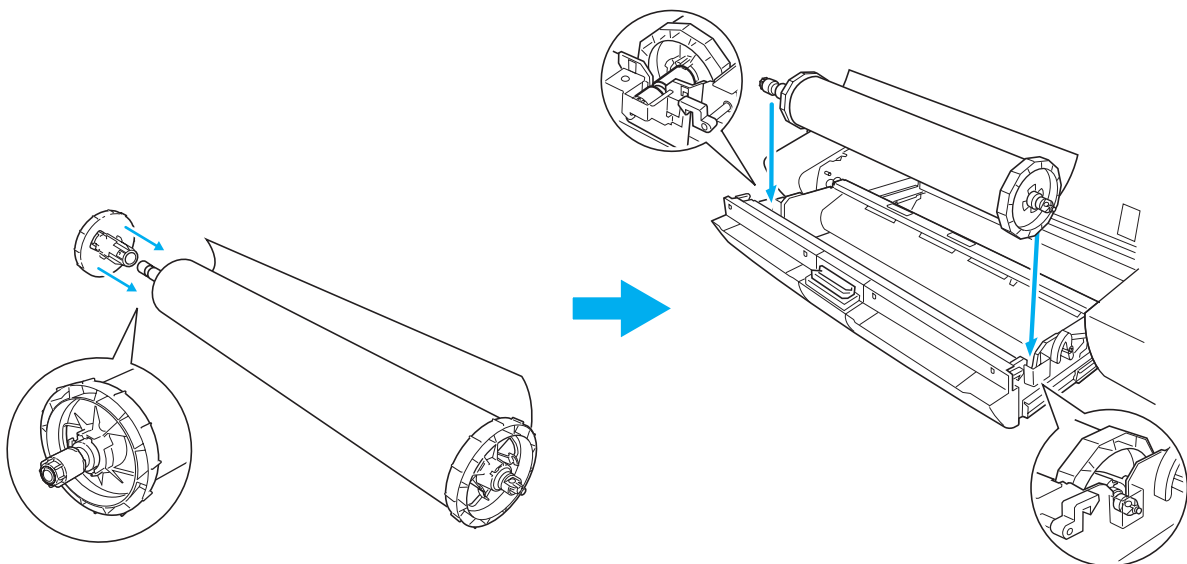
Figure 3-24 Loading the Roll Media (2/5)

8) Flip the roll release lever to the back to release the paper guide.

9) Pull out the roll media with the leading end facing up, and then insert it between
     the paper guides.
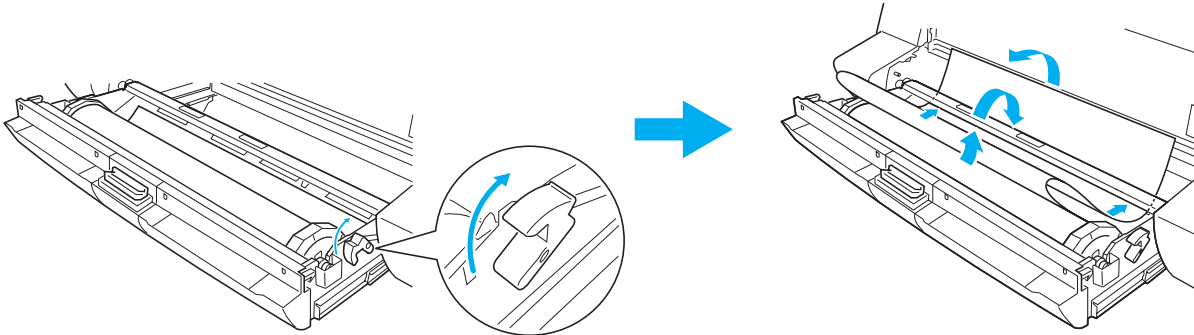
Figure 3-25 Loading the Roll Media (3/5)

10) Pull out the media edge evenly up to the roll media so that the right and left edges
     are parallel. Using the edges of the roll media as a guide, pull out the right and left
     edges evenly.

11) While holding down the center of the roll media, turn the roll holder in the
     direction shown in the figure below to take up any slack.
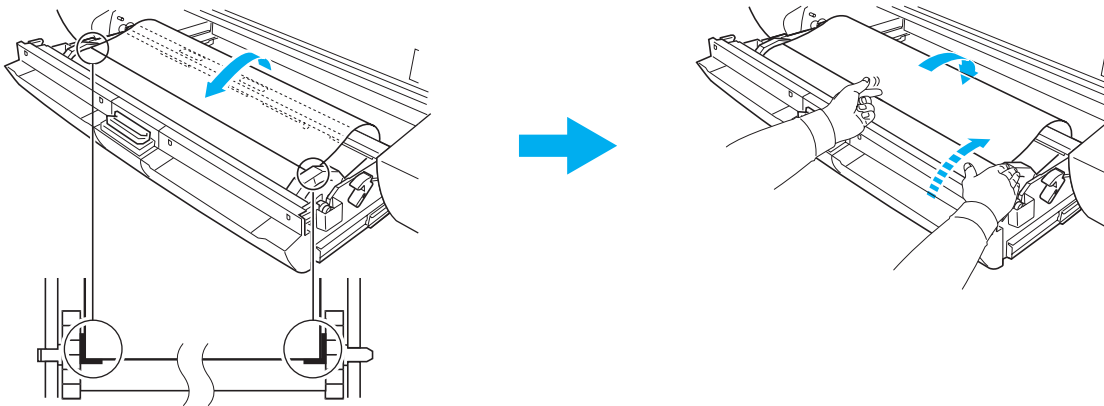
Figure 3-26 Loading the Roll Media (4/5)

12) Pull the roll release lever forward while pressing down the roll holder to lock the paper guides.

13) Turn the right and left roll holders in the direction of the arrows, and wind the leading edge of the media so that approximately 1 to 2 mm is visible from the edge of the paper guides.

1~2mm
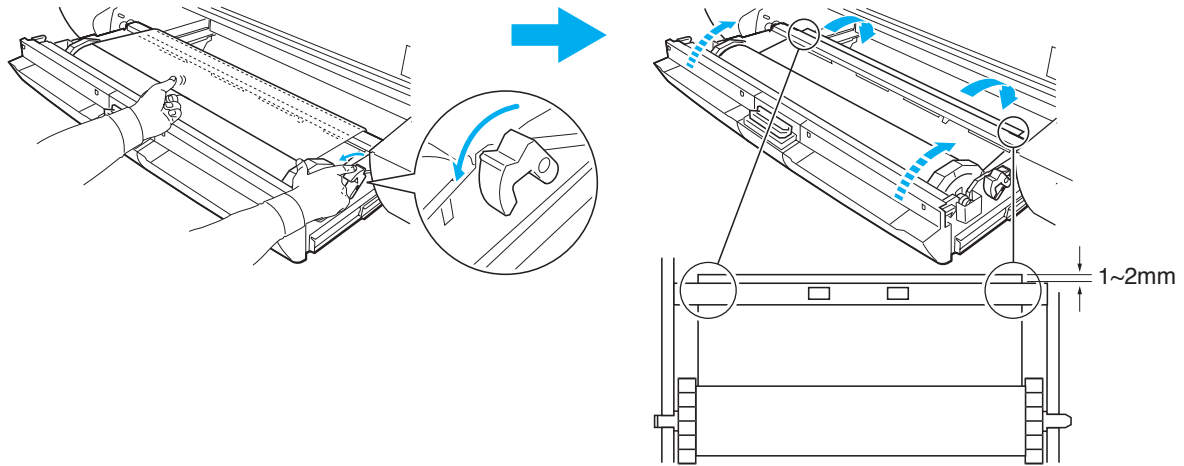
Figure 3-27 Loading the Roll Media (5/5)

NOTE   Make sure that the leading edge of the loaded media is straight and clean. If it is not, unwind and trim the media as necessary. Slide a cutter along the guide plate to cut the media.
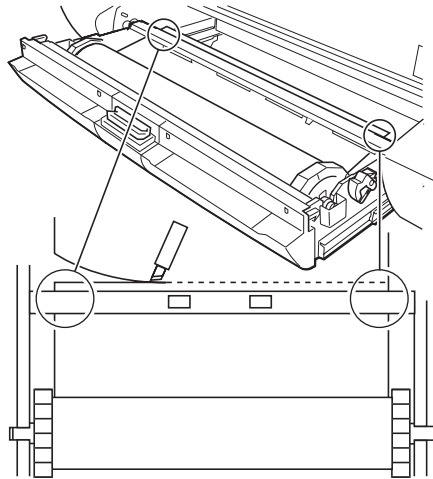
Figure 3-28 Cutting the Roll Media

14) Close the roll media tray. The message display will ask you to specify the type of media to be loaded in the media tray.

   Select the media type, and then press the *[Enter] button*. The printer feeds the paper forward, cuts off about 100 mm from the leading edge, and then winds it back to the print starting position on the platen.

NOTE   • The selected media type can be checked on the printer driver screen.
        • If the roll media tray is pulled out of the printer, the printer assumes that the media has been changed, and it will display the roll media type menu.

4.1.4 Loading the cut sheets

1) Press the *[Online] button*, and then select either "Offline" or "Main Menu".
2) Press the *[Paper Source] button* so that the *[Cut Sheet] lamp* turns on. The paper release lever raises up, and the roll media is automatically rewound to the standby position.
3) Open the upper cover.
4) With the printing surface of the cut sheets facing upward, insert the sheet flatly under the pinch roller, load in alignment with the right-side guide and rear-side guides, and then close the upper cover.
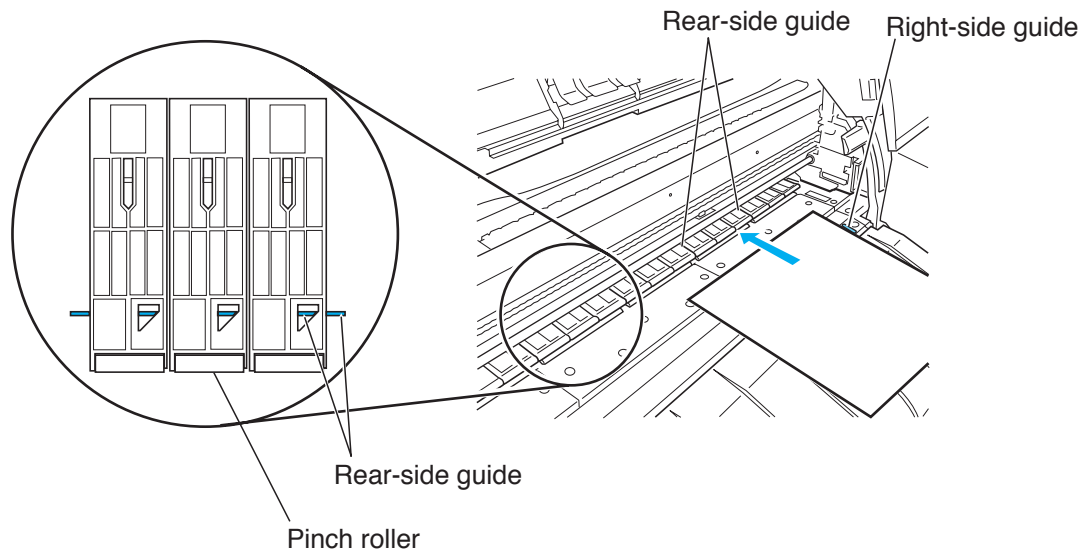
Figure 3-29 Loading the Cut Sheet Media

5) Closing the upper cover shows the screen on the display for selecting the media type that is loaded. Select the media type, and then press the *[Enter] button*.

NOTE
You can not use the roll media while the cut sheet media is loaded. If the roll media has been selected but cut sheet media is loaded, the printer will eject the cut sheet automatically.
Likewise it is impossible to load the cut sheet media while the roll media is being fed.

4.1.5 Replacing the printhead

The printer prints using one printhead. The printhead has six rows of integrated nozzles.

a) When to replace the printhead

If white lines appear on the printed image, it is possible that ink is not being discharged due to clogging of the nozzles in the printhead. In this case, enter Main menu, and perform the "Cleaning" operation two or three times, and then select "Nozzle Check" under "Test Print" menu to print the check pattern. Verify the check pattern, and then replace the printhead if there are any clogged nozzles.

b) How to replace the printhead

1) Enter the Main menu. (Refer to *Part 3:* 4.4.1 Main Menu operations.)
2) Select "Replace Head" under the "System Setup" menu.
   The printer uncaps the printhead, and the carriage moves over the platen.
3) Open the upper cover.
4) Open the carriage cover, printhead lock lever, and printhead lock cover until they come to a stop.
5) Open the package containing the printhead, and take out the printhead.
6) Remove the printhead from the carriage.

Carriage cover

Printhead lock lever

Printhead

Printhead lock cover
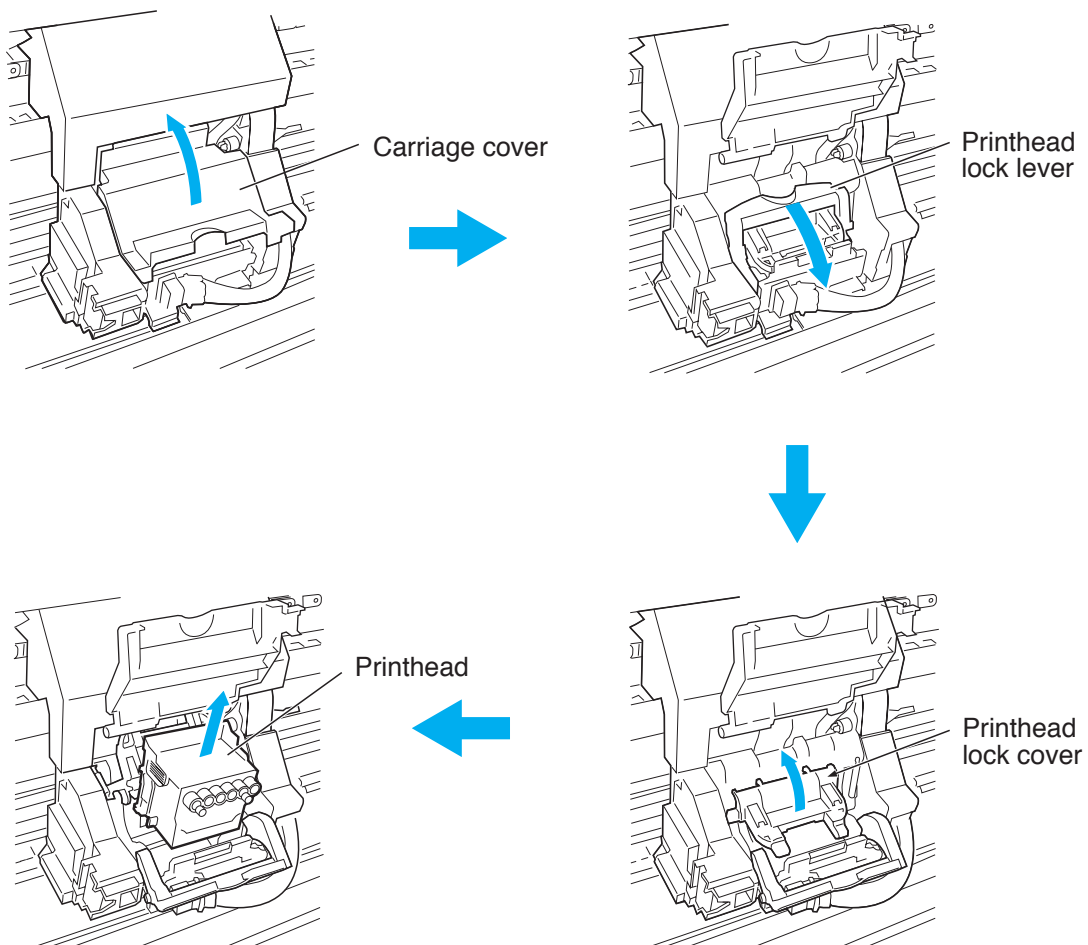
Figure 3-30 Replacing the Printhead (1/2)

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7) Remove the orange protective material and cap from the new printhead.
8) Install the new printhead in the carriage.
9) Lower the printhead lock cover.
10) Lower the Printhead locking lever to secure the Printhead in place.
11) Close the carriage cover.
12) Close the upper cover.
13) The carriage moves to the home position, and filling of the ink starts.
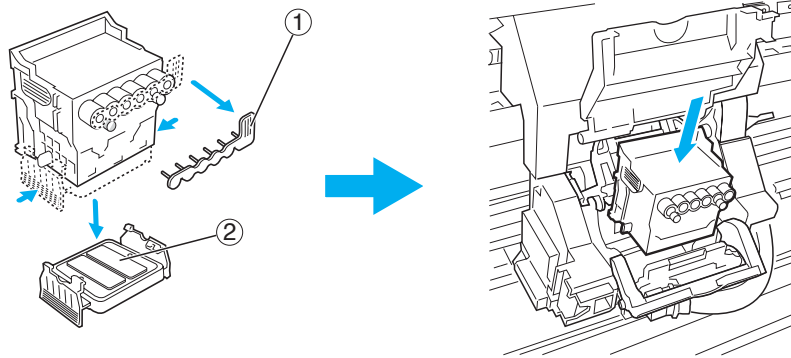
Figure 3-31 Replacing the Printhead (2/2)

CAUTION
• Unseal the package containing the printhead only when you are ready to install it.
• Do not replace the orange protective cap once you have removed it from the printhead. If there is any foreign matter on the protective cap, it may scratch the printhead.
• Never put a printhead on any surface with the nozzles facing downward. If the head becomes scratched or dirty, it may produce poor quality printing.
• Never touch the head area or the electrodes. If these areas become soiled by dirt or finger grease, this may result in poor quality printing.

4.1.6 Replacing the ink tank

The printer supplies ink from the six separate ink tanks. Each ink tank is replaceable.

a) When to replace the ink tank

When the printer detects no ink in the ink tank, the "Replace X Tank" message appears on the message display (X = the ink color).

If the "Replace X Tank" message appears on the message display during printing, the printer will stop printing.

b) Replacing the ink tanks

1) Enter the Main menu.
2) Select "Rep. Ink Tank". The lock on the right cover is released, and the right cover is opened.
3) Open the ink tank cover for the ink tank to be replaced.
4) Grasp the finger slots on the ink tank, and then remove the ink tank in the upward direction. Put the removed ink tanks into a plastic bag, and then close the bag.

Ink tank cover   Ink tank
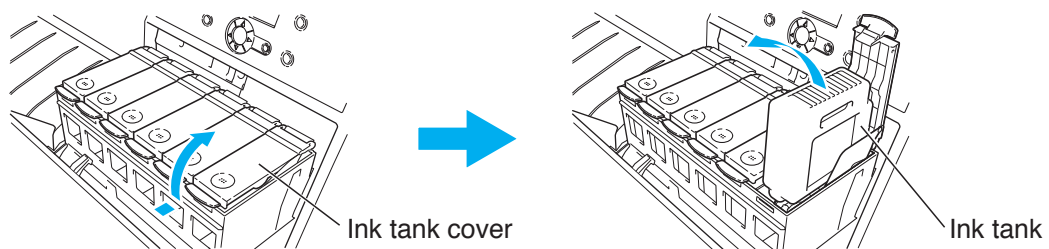
Figure 3-32 Replacing the Ink Tank (1/2)

5) Open the package containing the new ink tank.
6) Hold the grip and push the ink tank all the way into the slot.
7) Press down the ink tank cover firmly until you feel a click as the ink tank is
   locked in position.
8) Close the right cover.
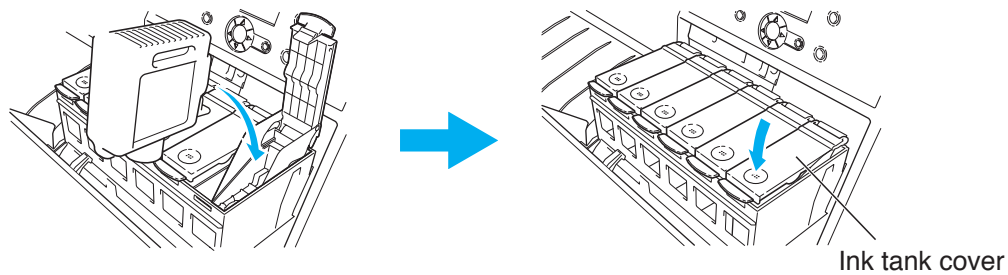
Ink tank cover

Figure 3-33 Replacing the Ink Tank (2/2)

CAUTION	Do not raise or lower the ink tank cover unnecessarily once the ink tank is installed. The hollow needle may widen the holes in the ink supplier and the air passage, causing ink -supply problems.

c) When using ink not designated for this printer

The ink tanks specified for use with this printer are provided with an ink level detection function to prevent the tanks from running out of ink during printing and to prevent damage to the printhead.

When using refilled ink tanks, the printer cannot detect the ink level and stop printing due to ink shortage. If you use such ink tanks, then the ink level detection function must be switched off.

Printing with the ink level detection function switched off could damage the printer, especially the printhead, or could cause the printer to operate abnormally in other ways. Canon is not responsible for damages or injuries caused by such actions.

> **CAUTION**
> - Once the ink level detection feature is switched off, the ink level detection information cannot be recovered. If you want to display the ink level detection information, you must switch the ink level detection function on and then install new ink tanks specified for use with this printer.
> - Repeatedly removing the same ink tanks from the printer could cause ink to leak from the tank and damage the printer.

Turning off the ink level detection function

1) Enter the Main menu.
2) Select "Ink Check Off" in System Setup.
3) Select the corresponding ink tank, and then press the *[Enter] button*.
4) After the message "Execute?" is displayed, select "Yes", and then press the *[Enter] button*.

   The ink level detection function for the selected ink tank is turned off.

> **NOTE**
> To cancel the above operation while it is in progress, press the *[Online] button*.

Printing

After the ink level detection function is turned off for even one color, the message "Ink Level ?" is displayed on the operation panel each time that printing is performed, and then the printer switches to offline.

To execute printing, press the *[Online] button*.

4.1.7 Replacing the cutter blade

This printer uses a round-shaped cutter blade in the separate cutter unit.

a) When to replace the cutter blade

Replace the cutter when the blade is no longer sharp.

b) How to replace the cutter blade

1) Open the upper cover.
2) Check that the cutter holder is at the left end, grasp the knob of the cutter blade, and then remove the cutter blade from the cutter holder.
   If the cutter holder is not already at the left end, grasp the cutter holder with your hand, and then move it to the left end.
3) Mount the new cutter blade in the cutter holder.
4) Close the upper cover.
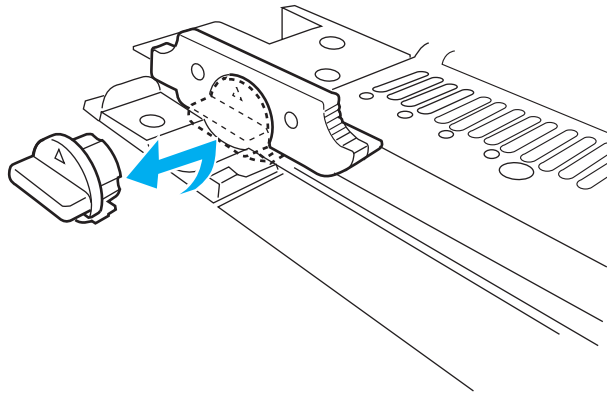
Figure 3-34 Replacing the Cutter Blade

CAUTION	Do not touch the blade section of the cutter blade. This could cause an injury.

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4.2 Operation Panel

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

Buttons
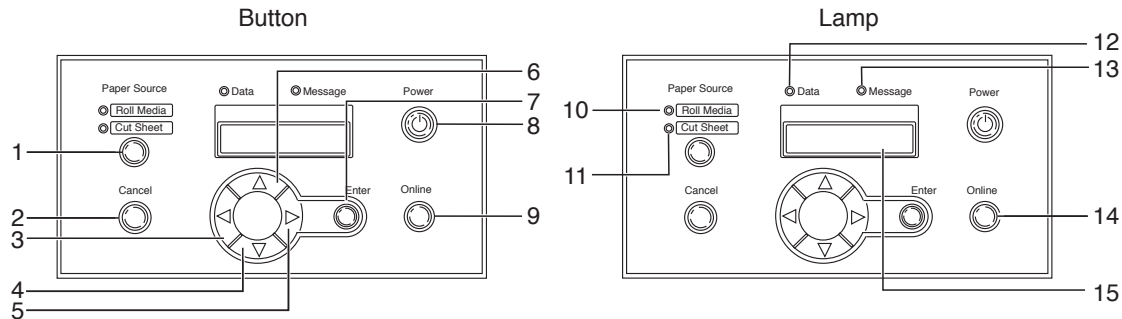
Figure 3-35 Operation Panel

1) *[Paper Source] button*

   Offline status: This button switches the paper source between roll media and cut sheets. However, if sheets are loaded on the take-up reel, the paper source is fixed at roll media.

2) *[Cancel] button*

   Offline status: Holding down this button for 0.5 seconds or longer aborts the job in progress or ink drying and then discharges the media.

   Pause status: Holding down this button for 0.5 seconds or longer aborts the paused job and discharges the media.

3) *[Left arrow] button*

   Offline status: When the upper cover is closed, holding down this button for about 1 second or longer aborts the carriage moves to the left.

   When a menu is displayed: This button functions as a selector button and is used to display the previous option.

4) *[Lower arrow] button*

   Offline status: When roll media is loaded, this button functions as a manual feed button and feeds the media. When a cut sheet is loaded, the sheet is discharged.

   When a menu is displayed: This button is used to go to the next lower-level menu.

5) *[Right arrow] button*

   Offline status: When the upper cover is closed, holding down this button for about 1 second or longer aborts the carriage moves to the left.

   When a menu is displayed: This button functions as a selector button and is used to display the next option.

6) *[Upper arrow] 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.

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

8) *[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.

9) *[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. When an 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.

10) Roll Media lamp
    On: This indicates that roll media has been selected as the paper source.

11) Cut Sheet lamp
    On: This indicates that cut sheets have been selected as the paper source.

12) DATA lamp
    On: This indicates that a job is being received or processing.
    Flashing: This indicates that there is a job that has been stopped in pause status.
    Off: This indicates that there are no jobs.

13) Message lamp
    On: This indicates that a warning is displayed.
    Flashing: This indicates that an error has occurred.
    Off: This indicates that operation is normal.

14) Online lamp
    On: This indicates that the printer is in online status or job processing status.
    Flashing: This indicates that media are being loaded.
    Off: This indicates that the printer is in offline status, pause status, or turned off.

15) Display
    The display shows the printer status and menu options. (16 characters x 2 lines)

4.3 Change of Printer Status

The chart below illustrates the various states of the printer and how they are changed by means of key operations.
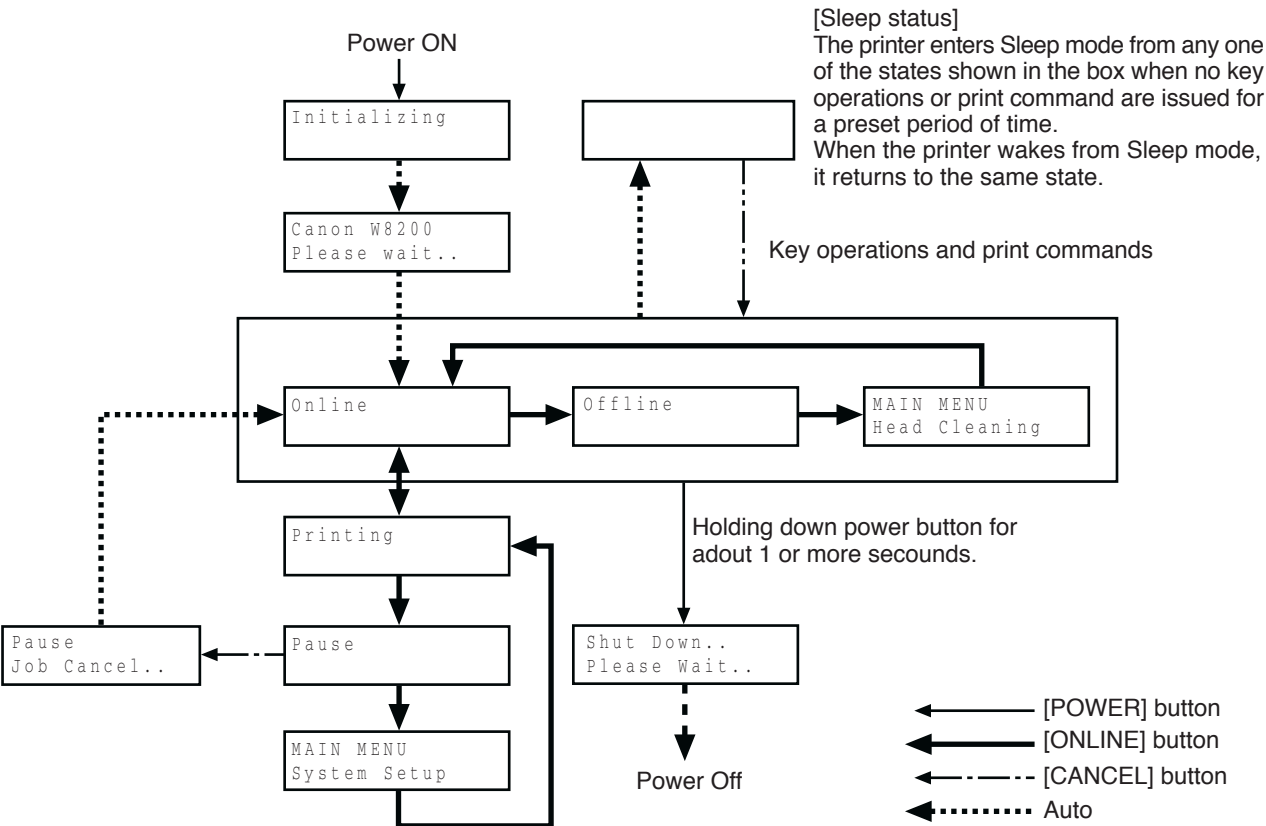
Figure 3-36 Change of Printer States
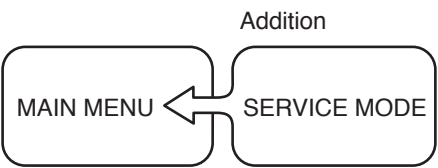
Figure 3-37 Correlation Diagram for Each Mode

4.4 Main Menu

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.

4.4.1 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: *[Left arrow] button* or *[Right arrow] button*
- Entering a lower-level menu: *[Lower arrow] button*
- Entering a higher-level menu: *[Upper arrow] button*
- Setting menus and parameters: *[Enter] button*

4.4.2 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 the media type (Refer to Figure 3-41 Map of the Media Type)
*2: Displayed only when the cutter is enabled

*3: Displayed only in roll media mode
*4: Displayed only in cut sheet mode
*5: Displayed only when the take-up reel is enabled

```
MAIN MENU ──┬── Head Cleaning
            │       ├── Head Cleaning A
            │       └── Head Cleaning B
            ├── Force Cutting *2 *3
            │       ├── Yes
            │       └── No
            ├── Auto Feed *3 *5
            │       ├── Yes
            │       └── No
            ├── Take-up Reel
            │       ├── Disable
            │       └── Enable
            ├── Cut Sheet Type *4
            │       ├── *1
            │       ┊
            ├── Roll Media Type
            │       ├── *1
            │       ┊
            ├── Rep. Ink Tank
            │       ├── No
            │       └── Yes
            ├── Auto Cut *3
            │       ├── Yes
            │       ├── Print Cut Line
            │       └── No
            ├── Interface Setup ──┬── IP Setting
            │                     │    ├── IP Address
            │                     │    │     └── 0-255. 0-255. 0-255. 0-255.
            │                     │    │        (192. 168. 0. 215)
            │                     │    ├── Subnet Mask
            │                     │    │     └── 0-255. 0-255. 0-255. 0-255.
            │                     │    │        (255. 255. 255. 0)
            │                     │    └── Default G/W
            │                     │          └── 0-255. 0-255. 0-255. 0-255.
            │                     │             (0. 0. 0. 0)
            │                     └── EOP Timer
            │                          ├── 10 sec.
            │                          ├── 30 sec.
            │                          ├── 1 min.
            │                          ├── 2 min.
            │                          ├── 5 min.
            │                          ├── 10 min.
            │                          ├── 30 min.
            │                          └── 60 min.
            ┊
         (System Setup)
```

Figure 3-38 Map of the Main Menu (1/3)

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(Interface Setup)

```
                    System Setup ———— Cutter
                                        ├── Enable
                                        └── Disable
                                      Buzzer
                                        ├── On
                                        └── Off
                                      Sleep Timer
                                        ├── Off
                                        ├── 5 min.
                                        ├── 10 min.
                                        ├── 20 min.
                                        ├── 30 min.
                                        ├── 40 min.
                                        ├── 50 min.
                                        └── 60 min.
                                      Replace P. head
                                        ├── No
                                        └── Yes
                                      Adjust Printer
                                        ├── Auto Print
                                        │     ├── On
                                        │     └── Off
                                        ├── Print Pattern A
                                        └── Print Pattern B
                                      Move Printer
                                        ├── No
                                        └── Yes
```

(Test Print)   (Cut Dust Reduct)
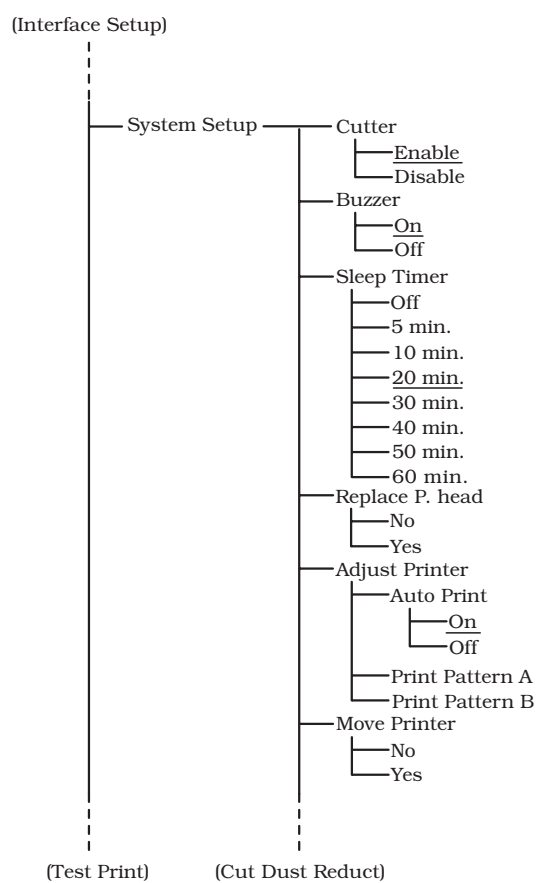
Figure 3-39 Map of the Main Menu (2/3)

(System Setup)   (Move Printer)

Cut Dust Reduct. ──── *1
                        ├── Off
                        └── On

Nozzle Check
  ├── Off
  ├── 1page
  └── 10pages

Ink Check Off ──────── Bk Ink Tank
                        ├── No
                        └── Yes
                       PC Ink Tank
                        ├── No
                        └── Yes
                       C Ink Tank
                        ├── No
                        └── Yes
                       PM Ink Tank
                        ├── No
                        └── Yes
                       M Ink Tank
                        ├── No
                        └── Yes
Language   Y Ink Tank
  ├── English   ├── No
  ├── カタカナ   └── Yes
  ├── Francais
  ├── Deutsch
  ├── Italiano
  └── Espanol

Test Print
  ├── Status Print
  └── Nozzle Check
Information
  ├── Ink
  ├── Version
  ├── Memory
  ├── Interface
  ├── Ext. Interface
  ├── MAC Address
  └── ERROR

Figure 3-40 Map of the Main Menu (3/3)

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* Default values are underlined

```
        ┌─── Plain paper
        │
        ├─── Coated Paper
        │
        ├─── Heavy Coated
        │
        ├─── Glossy Paper
        │
        ├─── Photo Glossy
        │
        ├─── Photo Semi-Glos
        │
        ├─── Glossy Film
        │
        ├─── Back Print Film
        │
        ├─── Proofing Paper
        │
        ├─── Special 1
        │
        ├─── Special 2
        │
        ├─── Special 3
        │
        ├─── Special 4
        │
        └─── Special 5
```
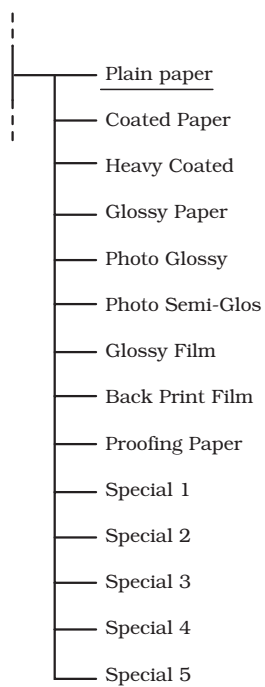
Figure 3-41 Map of the Media Type

4.4.3 Contents of main menu
The available options in the main menu are described below.

1) Head Cleaning

This option cleans the printhead to prevent nozzles from getting clogged and to recover nozzles that are already clogged.

2) Force Cutting

This option is displayed only when "Cutter" is set to "Enable" in Roll Media mode. This option is used to cut the media at any selected position when in Roll Media mode.

However, if the cutting position is within 10 cm of the media leading edge, the media will be fed until there is 10 cm at the edge of the media.

The operation will end without cutting if the media is not fed to the cutting position.

3) Auto Feed

This option is displayed in "Take-up Reel" is set to "Enable" and the roll media is already loaded in Roll Media mode.

When media are loaded in the take-up reel, the setting is changed to "Enable". In this case, the operation is identical to operation when "Auto Cut" is set to "No". Cutting can be performed, however, by selecting the "Force Cutting" option in the Main menu.

4) Take-up Reel

This option is set when the take-up reel is used.

When the "Enable" setting is made, the "Auto Feed" option is displayed in the Main menu.

5) Cut Sheet Type

This option is displayed only in Cut Sheet mode.

This is used to select the media type loaded on the tray.

6) Roll Media Type

This is used to select the media type loaded in the roll media tray.

7) Rep. Ink Tank

Select this option when replacing the ink tank. It unlocks and opens the right cover so that the ink tank can be replaced.

8) Auto Cut

This option is displayed only in Roll Media mode.

When printing in Roll Media mode, this is used to select the operation that is performed at the trailing edge of each media after printing is finished.

To cut the media, select the "Yes" setting. To print a cut line at the cut position without cutting, select the "Print Cut Line" setting. Also, to print without cutting, select the "No" setting.

9) System Setup

   a. Cutter
     This option prohibits all cutting operations when "Disable" is set.

   b. Buzzer
     When this option is selected, the buzzer sounds whenever a warning or error
     occurs. The buzzer sounds once for warnings and three times at approximately 0.2
     second intervals for errors.
     The buzzer does not sound when this setting is at OFF.

   c. Sleep Timer
     This sets the time until the device enters the sleep state.

   d. EOP Timer
     This sets the timeout time for a printing job.

   e. Replace P.Head
     Select this option when replacing the printhead. This operation uncaps the
     printhead and moves the carriage over the platen so that the printhead on the
     printer can be replaced.

   f. Adjust Printer
     This option allows the user to check if the nozzles are discharging normally or if
     the discharge positions are misaligned.
     Check each test pattern, and make the proper adjustment settings.
     Print Pattern B can be set for all media types.
     When Auto Print is set to "On", Print Pattern A is performed automatically after the
     printhead is replaced.

- Print Pattern A
  Pattern for even and odd adjustment, bi-directional adjustment, and color separation adjustment.

  Even and Odd adjustment   : 1200dpi, 8-pass, Uni-directional printing
  Bi-directional adjustment   : 600dpi, 2-pass, Bi-directional printing
  Color separation adjustment : 600dpi, 1-pass, Uni-directional printing
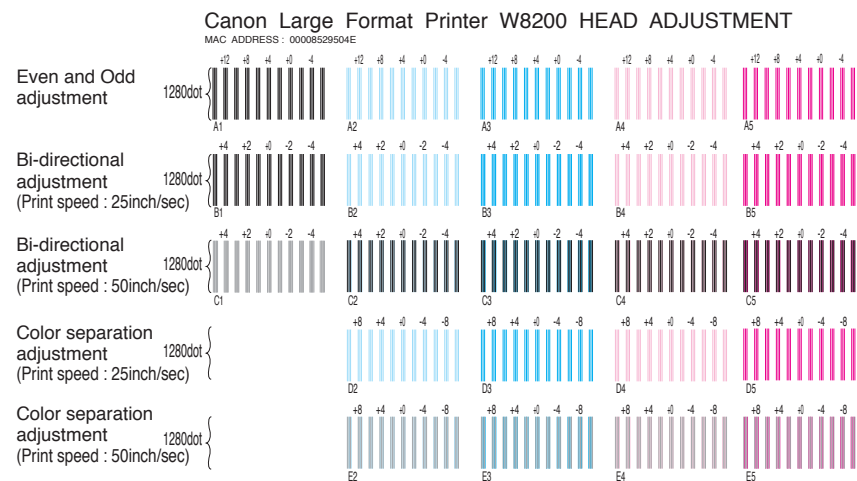
Figure 3-42 Pattern A (Image)

• Print Pattern B (Pattern for band separation correction)
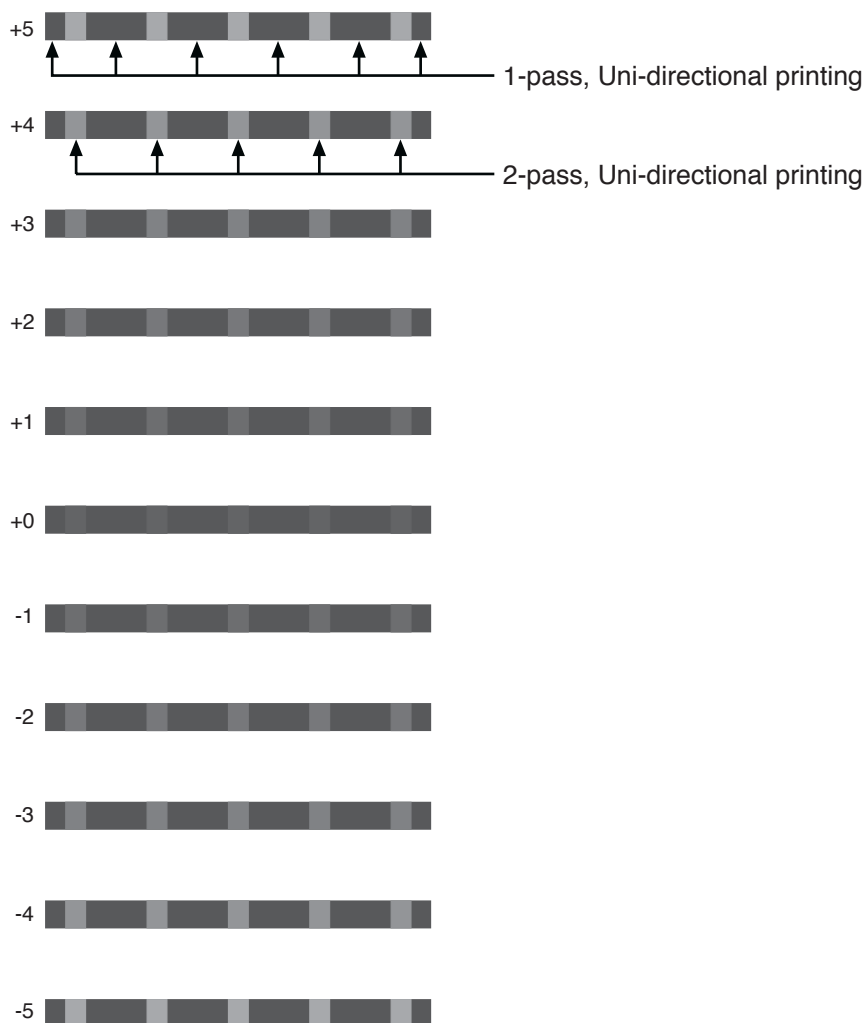
Figure 3-43 Pattern B (Image)

g. Move Printer
   This option is selected when transporting the printer or moving it to another floor
   after installation.
   For details, refer to *Part 3:* 3.1.2 How to transport the printer to a different floor.

h. IP Setting
   This option sets the IP address, subnet mask, and default gateway.

i. Cut Dust Reduct.
   This option reduces the scattering of cutting dust during roll media printing by
   printing a line at the cutting position.
   This option can be set for all media types.

j. Nozzle Check
   This sets the interval that nozzle discharge failures are detected.

k. Ink Check Off
   This turns off the ink level detection function for filled ink tanks.
   This option can be set for each individual ink color.
   (When this option is set, the ink level of the corresponding color appears as "?"
   under MAIN MENU>Information>Ink.)
   Also, the execution history of this option can be checked under
   SERVICE MODE>DISPLAY>INK CHECK.

l. Language
   This option is used to change the language for messages on the display.
   The available languages are Japanese, English, French, German, Italian, and
   Spanish.

10) Test Print

This option allows printing of Status Print or Nozzle Check.

In Status Print, a status sheet is printed that contains the setting values, adjustment values, and other data in the "Information" option.

In Nozzle Check, a nozzle check pattern is printed to check that the discharge from the nozzles is normal.

If a check of the pattern reveals that the nozzles are not discharging properly, perform the "Head Cleaning" option from the Main menu. If the clogging of the nozzles is not improved after two or three cleanings, perform the "Replace P.Head" operation to replace the printhead.

Canon Large Format Printer W8200 STATUS PRINT
```
 S/C : Ver.1.00   S/BOOT : Ver.1.00
 E/C : Ver.1.00   E/Rel :Ver.0001   E/BOOT:Ver.1.00
 MAC Address : 00008529504E RAM : 128MB   Mode : Dye
Panel Status
 Cut Sheet Type : Plain Paper  Roll Media Type :Glossy Film
 Auto Cut : Yes   Take-up Reel : Disable
 Cutter : Enable   Buzzer : On   Sleep Timer : 20 min.   EOP Timer : 60 min.
 Nozzle Check : 10min   Language : Japanese
Adjust Printer
 Auto Print : On
 A1:+2 A2:+2 A3:+2 A4:+0 A5:+2
 B1:+2 B2:+0 B3:+0  B4:+0 B5:+0 D2:+0 D3:+0 D4:+0 D5:+0
 C1:+2 C2:+2 C3:+0 C4:+0 C5:+0 E2:+0 E3:+0 E4:+0 E5:+0
Cut Dust Reduction
 Plain Paper : Off   Coated Paper : Off   Heavy Coated : Off   Glossy Paper : Off   Photo Glossy : Off
 Photo Semi-Glossy Paper : Off   Glossy Film : Off   Back Print Film : Off Proofing Paper : Off
 Special 1 : Off   Special 2 : Off   Special 3 : Off   Special 4 : Off   Special 5 : Off
Ink
 Bk : 80%  C : 80%  M : 80%  Y : 80% PC : 80%  PM : 80%  F1 : 1
Interface : LAN
 Ext. Interface : No
Warning
 01:W0100F 02:W0100F 03:W01021 04:W01021 05:W01021
Error
 01:E02010 02:E02005 03:E00000 04:E00000 05:E00000
TCP/IP
 Frame Type : Ethernet II   IP Address : 172.19.103.215
 Subnet Mask : 255.255.255.0   Default G/W : 172.19.103.254
 DHCP : Off  BOOTP : Off  RARP :Off
Apple Talk
 Phase Type : Phase2 Network Number : 65280 Node ID : 128
 Name : Canon NB-12FB
 Zone : *
 Type : GARO
Net Ware
 Frame Type : Disabled   Network Number : 00000000   Node Number : 000000000000
 Print Service : NDS PServer
 Tree Name :
 Context Name :
 Print Server Neme :
 Print Server Password : No Pserver password
 Polling Interval : 5second
```

Figure 3-44 Status Print (Image)

The nozzle check pattern is printed in the Standard mode for each media type.

Canon Large Format Printer W8200 NOZZLE CHECK
MAC ADDRESS : 000085184004
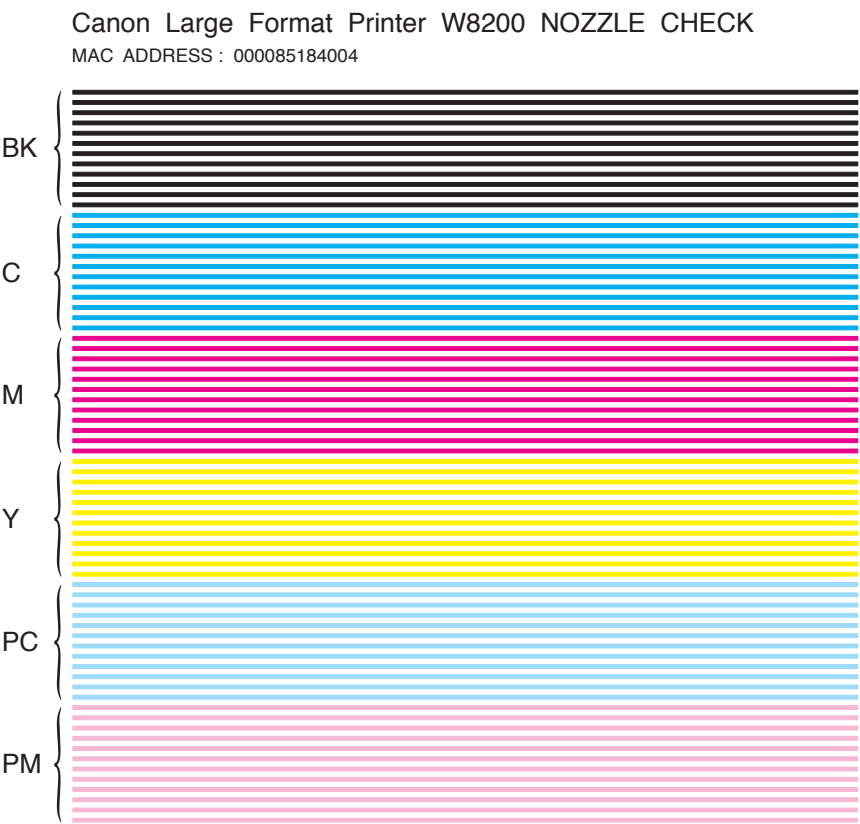
Figure 3-45 Nozzle Check Pattern (Image)

11) Information

This option displays the ink level remaining in the ink tanks, versions of the system controller and engine controller, RAM capacity, interface name, MAC address, and warning and error history.

```
Version                    Version
S/C    :    XXXX           S/Boot :    XXXX
```

```
Version                    Version                    Version
E/C    :    XXXX           E/Rel  :    XXXX           E/Boot :    XXXX
```
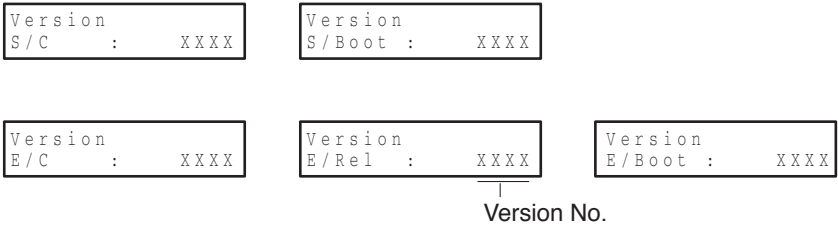
Version No.

Figure 3-46 Viewing the Software Version

5. PRINTER SERVICING FUNCTIONS

5.1 Service Mode
This mode is used for servicing the printer.

5.1.1 Service mode operation
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 *[Online] button*.
3) Check that "Canon W8200" is shown on the display, and then release the buttons.
4) Next, "SERVICE MODE" is shown on the display. (If sheets are inserted, this will be displayed after the sheets are loaded.)
5) Use the *[Lower arrow] 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: *[Left arrow] button* or *[right arrow] button*
• Entering a lower-level menu: *[Lower arrow] button*
• Entering a higher-level menu: *[Upper arrow] button*
• Setting menus and parameters: *[Enter] button*

5.1.2 Map of the service mode

The hierarchy of menus and parameters in the Service mode is as shown below.
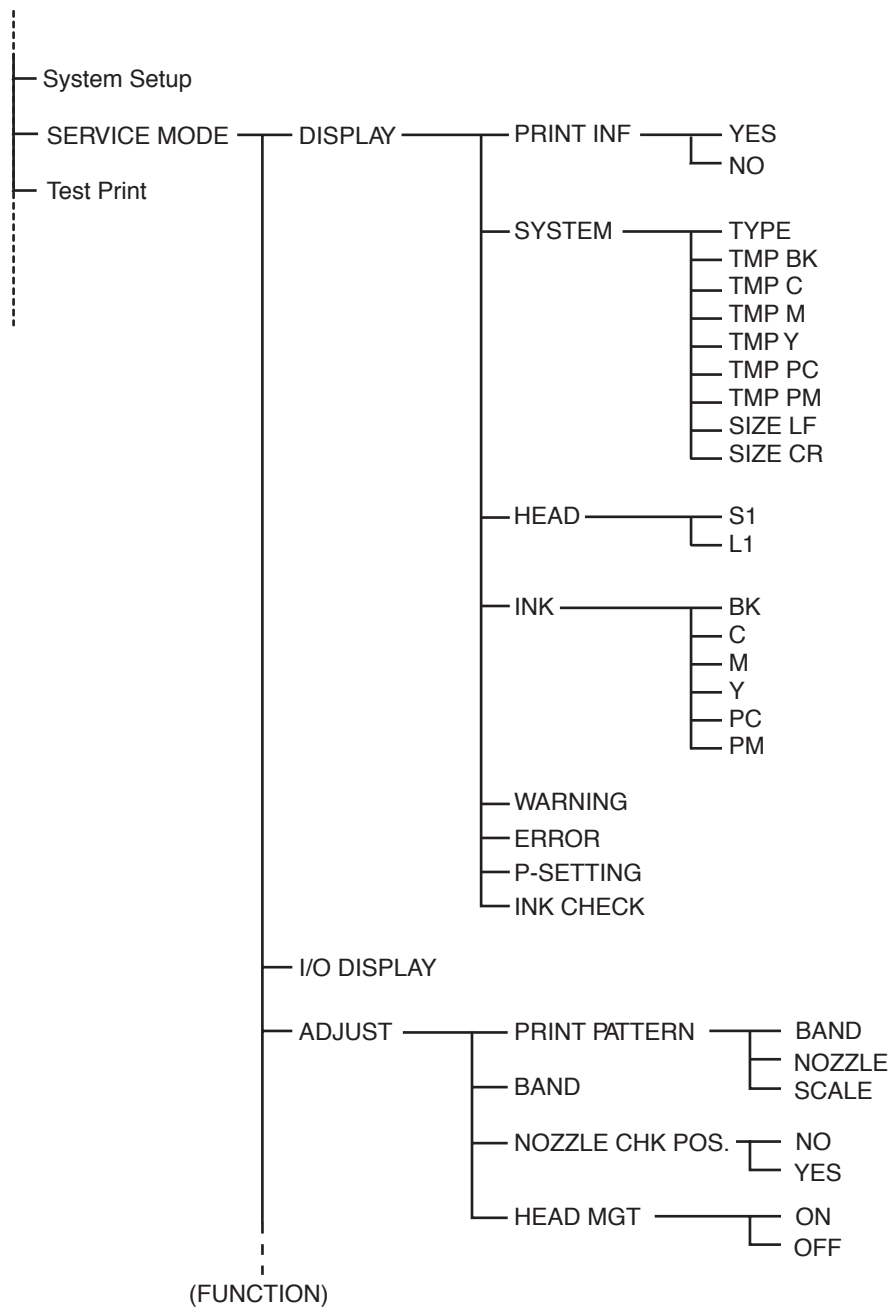
Figure 3-47 Map of the Service Mode (1/3)

```
(ADJUST)
    |
    |
    |------ FUNCTION ------------- PANEL LED/LCD
    |                           -- PANEL KEY
    |                           -- PLATEN FAN
    |                           -- AIR FLOW FAN
    |                           -- PURGE
    |                           -- INK VALVE
    |                           -- PINCH ROLLER
    |                           -- LF MOTOR
    |                           -- CR MOTOR
    |                           -- CUTTER
    |
    |--- COUNTER ------------- PRINTER ------------- LIFE
    |                                             -- POWER ON
    |                                             -- W-INK
    |                                             -- CUTTER
    |
    |                       -- CARRIAGE ----------- PRINT
    |                                             -- DRIVE
    |
    |                       -- PURGE ------------- CLN
    |                                            -- CLN-A
    |                                            -- CLN-M
    |
    |                       -- INK --------------- INK BK
    |                                            -- INK C
    |                                            -- INK M
    |                                            -- INK Y
    |                                            -- INK PC
    |                                            -- INK PM
    |
    |                       -- HEAD -------------- DOT
    |                                            -- DOT BK
    |                                            -- DOT C
    |                                            -- DOT M
    |                                            -- DOT Y
    |                                            -- DOT PC
    |                                            -- DOT PM
    |
    |
(INITIALIZE)        (CUT SHEET)
```
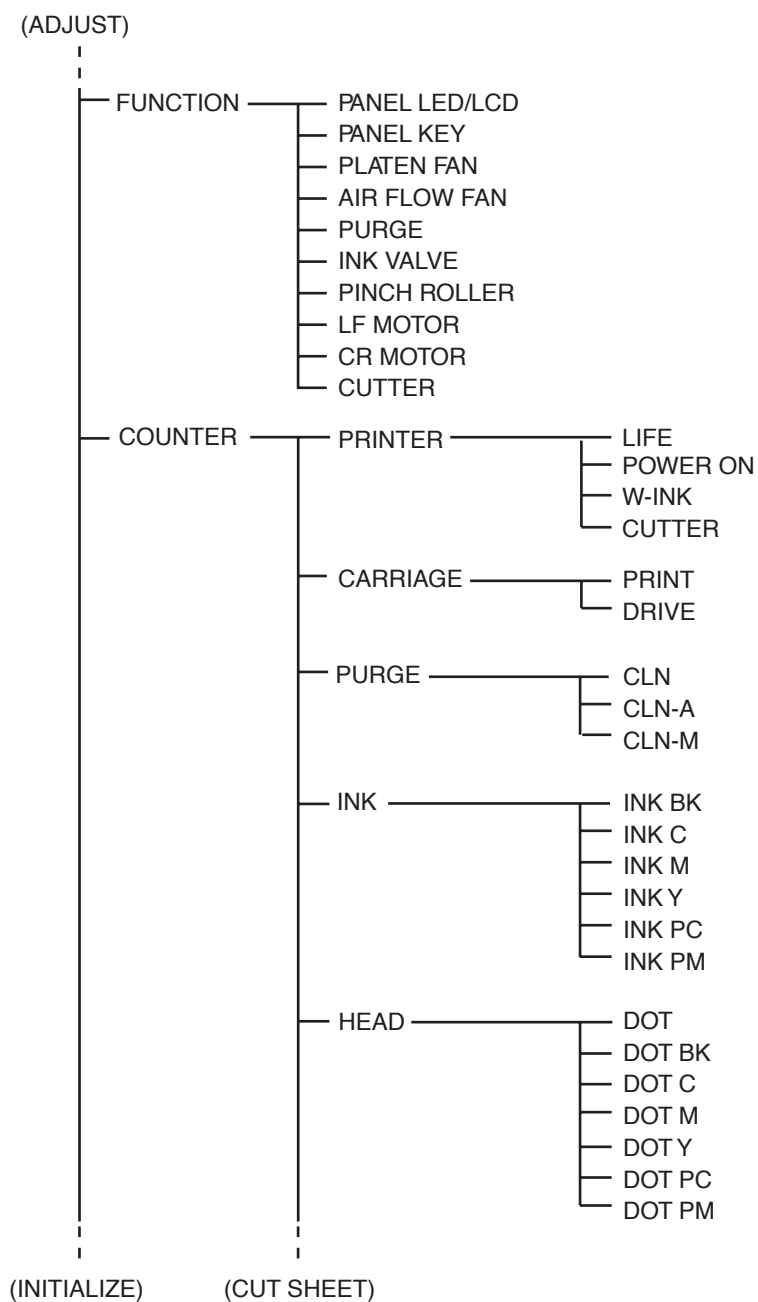
Figure 3-48 Map of the Service Mode(2/3)

(COUNTER)   (HEAD)

├── CUT SHEET ———— - - - *1

├── ROLL MEDIA ———— - - - *1

├── MEDIA-ALL ————┬── 00
│   ├── 01
│   ├── 02
│   ├── 03
│   ├── 04
│   ├── 05
│   ├── 06
│   ├── 07
│   └── OTHER

├── MEDIA-00 ———— - - - *1

├── MEDIA-01 ———— - - - *1

├── MEDIA-02 ———— - - - *1

├── MEDIA-03 ———— - - - *1

├── MEDIA-04 ———— - - - *1

├── MEDIA-05 ———— - - - *1

├── MEDIA-06 ———— - - - *1

├── MEDIA-07 ———— - - - *1

├── MEDIA-OTHER ——— - - - *1

INITIALIZE ———┬── WARNING   *1: ┬── 42
              ├── ERROR   ├── 36
              ├── P-SETTING   ├── 30
              ├── ADJUST   ├── 24
              ├── W-INK   └── OTHER
              ├── CUTTER
              ├── CARRIAGE
              ├── PURGE
              ├── INK
              ├── HEAD
              └── INK CHECK
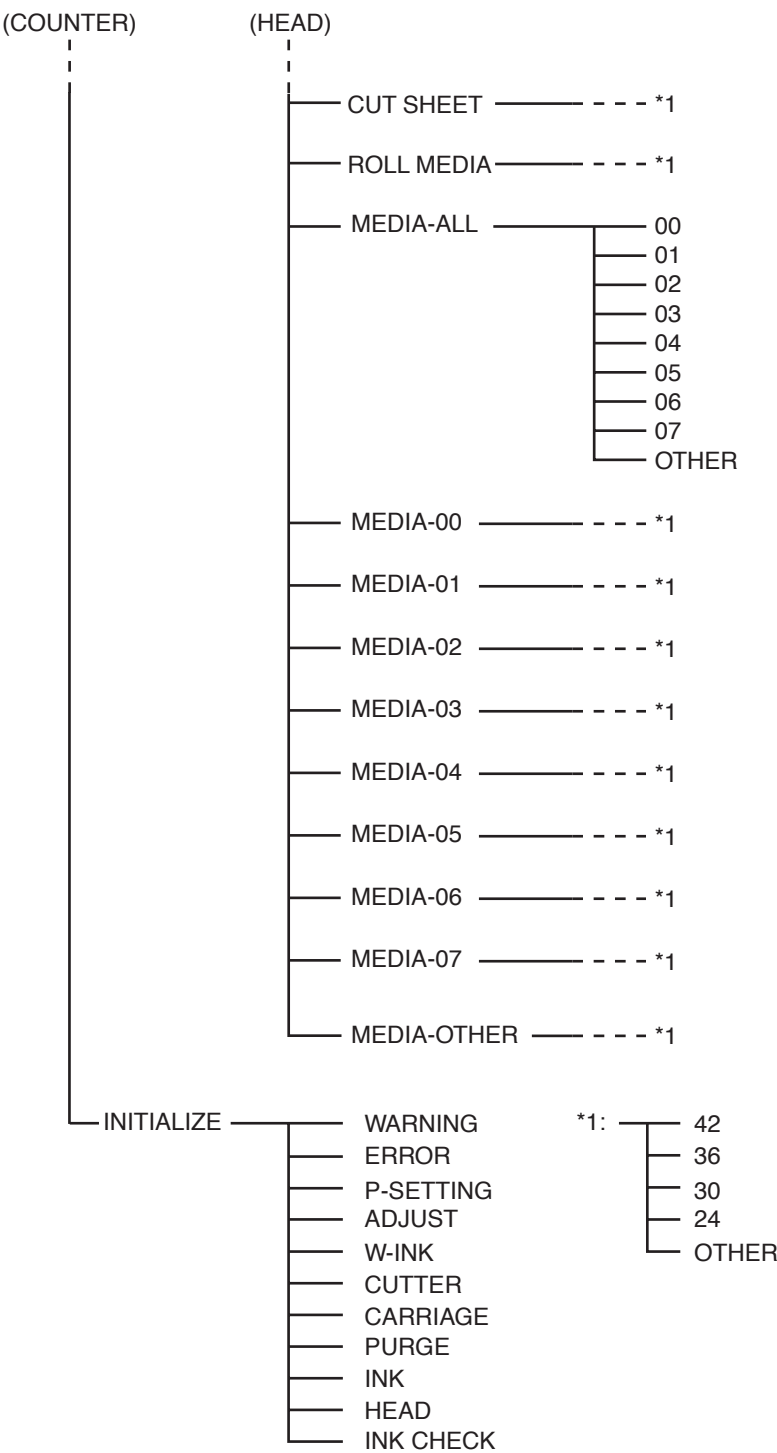
Figure 3-49 Map of the Service Mode(3/3)

5.1.3 Details of service mode
The details of the Service mode menus are as shown below.

a) DISPLAY
Displays and prints the printer information.

1) PRINT-INF

Prints the following information.
- DISPLAY > SYSTEM
- DISPLAY > WARNING
- DISPLAY > ERROR
- DISPLAY > P-SETTING
- DISPLAY > INK CHECK
- ADJUST
- COUNTER

```
PRINT INF
Canon Large Format Printer W8200
 SYSTEM
    TYPE:DYE   TMP BK:23.0   TMP C:24.0   TMP M:24.0   TMP Y:23.0   TMP PC:23.0   TMP PM:24.0        2)
    SIZE-LF:  0.0   SIZE-CR:   913.3
 HEAD                                                                                               3)
    S1:000F454E   L1:D62D25A0
 INK                                                                                                4)
    BK:F1250710   C:F1241810   M:F1242910   Y:F1250810   PC:F1242310   PM:F1242410
 WARNING
    01:W0100F 02:W0100F 03:W01021 04:W01021 05:W01021 06:W00000 07:W00000 08:W00000 09:W00000 10:W00000    5)
    11:W00000 12:W00000 13:W00000 14:W00000 15:W00000 16:W00000 17:W00000 18:W00000 19:W00000 20:W00000
 ERROR
    01:E02010 02:E02005 03:E00000 04:E00000 05:E00000 06:E00000 07:E00000 08:E00000 09:E00000 10:E00000    6)
    11:E00000 12:E00000 13:E00000 14:E00000 15:E00000 16:E00000 17:E00000 18:E00000 19:E00000 20:E00000
    21:E00000 22:E00000 23:E00000 24:E00000 25:E00000 26:E00000 27:E00000 28:E00000 29:E00000 30:E00000
 P-SETTING                                                                                               7)
    01:R101308W0823-  02:R101ZZ6W0053- 03:100ZZ4S0050W  04:100302W0047W  05:R10336001928-   06:R103368W1901- 07:R103368W1858W
    08:0000000000000   09:0000000000000   10:0000000000000   11:0000000000000   12:0000000000000   13:0000000000000   14:0000000000000
    15:0000000000000   16:0000000000000   17:0000000000000   18:0000000000000   19:0000000000000   20:0000000000000
 INK CHECK
    0    0    0    0    0    0
 ADJUST
  → A1:+0   A2:+0   A3:+2   A4:+1   A5:+1
    B1:-4   B2:-4   B3:-2   B4:-3   B5:-3   D2:+0   D3:+0   D4:+0   D5:+0
    C1:-3   C2:-1   C3:-1   C4:-2   C5:-2   E2:+0   E3:+0   E4:-1   E5:-1
  → L:+0   M:+0   N:+0   P:+0    Q:+0    R:+0    S:+0   T:+0   U:+0   V:+0   W:+0   X:+0   Y:+0   Z:+0       e)
 COUNTER
    PRINTER    :    6      79     805     28
    CARRIAGE   :    1       1
    PURGE      :    2       2       0
    INK        :    3       3       3       3       3       2
    HEAD       :  655     108     109     108     108     111     111
    CUT SHEET  :    0       0       1       0       0
    ROLL MEDIA :    4       0       1       0       0
    MEDIA-ALL  :    1       1       0       4       0       0        0       0       0
    MEDIA-00   :    0       0       1       0       0   MEDIA-01:    0       0       1       0       0
    MEDIA-02   :    0       0       0       0       0   MEDIA-03:    4       0       0       0       0
    MEDIA-04   :    0       0       0       0       0   MEDIA-05:    0       0       0       0       0
    MEDIA-06   :    0       0       0       0       0   MEDIA-07:    0       0       0       0       0
    MEDIA-OTHER:    0       0       0       0       0
```

Adjustment settings of MAIN MENU "Pattern A".
Adjustment settings of MAIN MENU "Pattern B".

L: Plain Paper	Q: Photo Glossy	V: Spesial 1
M: Coated Paper	R: Photo Semi-Glos	W: Spesial 2
N: Heavy Coated	S: Glossy Film	X: Spesial 3
P: Glossy Paper	T: Back Print Film	Y: Spesial 4
	U: Proofing Paper	Z: Spesial 5

Figure 3-50 PRINT-INF (Image)

2) SYSTEM

Displays the printer information shown below.

Display	*Description*
TYPE	Engine controller type setting
H-TMP BK	Calibrated temperature of head temperature sensor (Bk)
H-TMP C	Calibrated temperature of head temperature sensor (C)
H-TMP M	Calibrated temperature of head temperature sensor (M)
H-TMP Y	Calibrated temperature of head temperature sensor (Y)
H-TMP PC	Calibrated temperature of head temperature sensor (PC)
H-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.

Display	Description
S1	Printhead serial number
L1	Printhead lot number

4) INK

Displays the following EEPROM information in the ink tank.

Display	Description
BK	Bk ink lot number
C	C ink lot number
M	M ink lot number
Y	Y ink lot number
PC	PC ink lot number
PM	PM ink lot number

5) WARNING

Displays the warning history (up to 20 events). The newest event has the smallest history number.

```
WARNING
01:    Wxxxxx
```
Record No.   Warning code
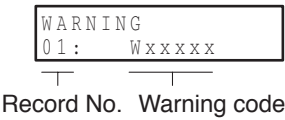
Figure 3-51 WARNING

6) ERROR

Displays the error history (up to 30 events). The newest event has the smallest history number.

```
ERROR
01:    Exxxxx
```
Record No.   Error code
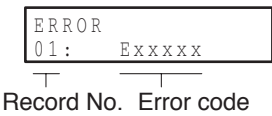
Figure 3-52 ERROR

7) P-SETTING

Displays the print setting history (up to 20 events). The newest event has the smallest history number.
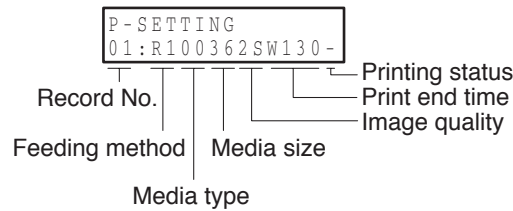
Figure 3-53 P-SETTING

Classification	Display	Description
Feeding method	R1	Roll media feeding
	C1	Cut sheet feeding
Media type	00	Plain paper
	01	Coated Paper, Heavy Coated
	02	Glossy Paper
	03	Photo Glossy, Photo Semi-Glos
	04	Glossy Film
	05	Not used.
	06	Back Print Film
	07	Not used.
	ZZ	All other types
Media size	42	42 inches or more
	36	36 to less than 42 inches
	30	30 to less than 36 inches
	24	24 to less than 30 inches
	LL	Banner-size sheets exceeding the maximum fixed size
	ZZ	Other sizes
Image quality	2W	2-pass, Bi-directional (draft)
	4S	4-pass, Uni-directional (standard)
	6W	6-pass, Bi-directional (standard)
	8W	8-pass, Bi-directional (high)
	AW	10-pass, Uni-directional (highest)
Print end time	0000	Seconds
Printing status	-	Printing ends normally
	W	Warning occurs during printing
	E	Error occurs during printing

8) INK CHECK

Display the execution history of "Ink Check Off" in the Main Menu.

0= No execution history

1= One or more execution histories exist
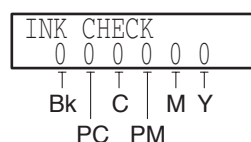
Figure 3-54 INK CHECK

b) I/O DISPLAY

Displays the status of the port I/O signal of the sensors and other devices connected to the engine controller.

```
┌─────────────────────┐
│I/O DISPLAY          │
│ 000000000000000     │
└─────────────────────┘
   ┬                 ┬
  bit14             bit0
```
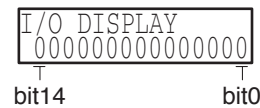
Figure 3-55 I/O DISPLAY

Bit	Sensor name	Description
0	Not used.	
1	Pump homeposition sensor	1: Homeposition
2	Carriage homeposition sensor	1: Homeposition
3	Roll media tray set sensor	1: Open
4	Pinch roller sensor	0: Cancel
5	Right cover sensor	0: Open
6	Feed sensor	0: With media
7	Cap sensor	0: With flag
8	Roll media set sensor	0: Set
9	Tray sensor	0: Open
10	Roll media end sensor	0: No roll media
11	Upper cover sensor	1: Open
12	Carriage cover sensor	0: Open
13	Right cutter sensor	1: With cutter holder
14	Left cutter sensor	1: With cutter holder

c) ADJUST

Performs adjustment and prints the adjustment and check patterns needed for adjusting the printer parts.

The adjustment values under this option can be printed using the "PRINT-INF" option.

• PRINT PATTERN > BAND

The same pattern as Print Pattern B in the Main menu is adjusted to the media width and printed over the entire area.

• 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.
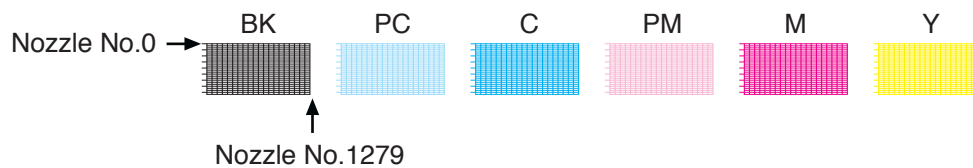
Figure 3-56 NOZZLE (Image)

• PRINT PATTERN > SCALE
  Maintenance test pattern
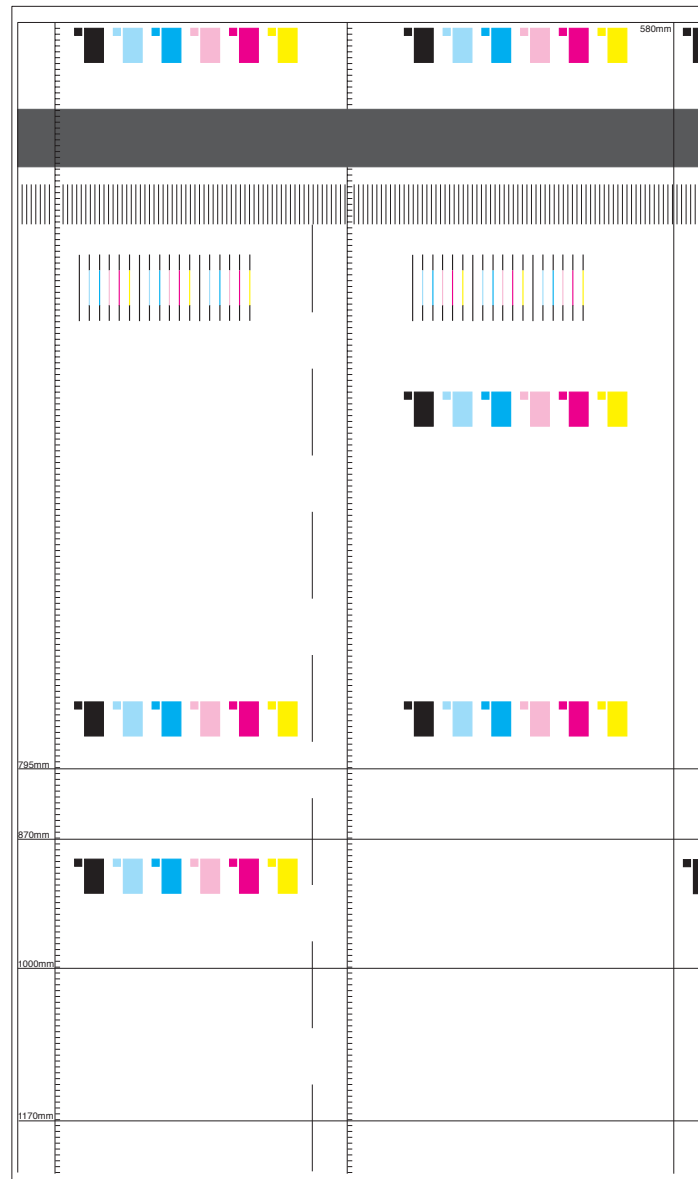
Figure 3-57 SCALE (Image)

• BAND
  This mode performs the same adjustment as Print Pattern B in the Main Menu.
  However, in contrast to Print Pattern B, which performs correction between bands
  for each media type, the internal parameters of this mode result in a single batch
  correction between bands for all media types. (Adjustment range: -5 to +5)
  Use the following media, and enter the adjustment values for this mode based on the
  image obtained from executing the PRINT PATTERN>BAND command.
      Glossy film
• NOZZLE CHK POS.
  This command is executed after replacing the linear scale, and it is used to adjust
  the optical axis of the head management sensor.

• HEAD MGT
This command is used to check if the data detected by the head management sensor has been applied to head management. (Default value: ON)
The same image is printed in both the HEAD MGT=OFF and HEAD MGT=ON states, and the images are compared visually.
The printhead needs to be replaced when there is an error in the image, even if the head management is functioning normally.

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

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 upper arrow 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 right and left fans rotate for five seconds at maximum speed and then rotate for five seconds at minimum speed.
AIR FLOW FAN	This checks operation of the air flow fans. The right and left fans rotate simultaneously for 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.
PINCH ROLLER	This checks the up/down operation of the pinch roller. After the carriage is moved to the homeposition, the release (up) and pressure (down) operations are performed each time the *[Enter] button* is pressed.
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.
CUTTER	This checks operation of the cutter. If this mode is executed when the printer is set to roll media mode, the printer repeats the operation of feeding the roll media by approximately 100 mm and cutting until the specified number of times is reached regardless of whether roll media is loaded or not. (Setting range: 1 to 999 times) The printer switches to the roll media setting if this mode is executed when the printer is in cut sheet mode.

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

Display	Description	Unit
LIFE	Number of printed media expressed as A0 equivalent (for checking printer durability)	sheets
POWER ON	Cumulative power-on time	Hours
W-INK	Waste ink full detection counter	ml
CUTTER	Number of cutter usages	times

• CARRIAGE   Counter for carriage unit

Display	Description	Unit
PRINT	Cumulative printing time	Hours
DRIVE	Cumulative carriage driving time	Hours

• PURGE   Counter for purge unit

Display	Description	Unit
CLN	Number of automatic and manual cleanings	times
CLN-A	Number of automatic cleanings Each type (cleaning object) of automatic cleaning is counted as one cleaning.	times
CLN-M	Number of manual (main menu) cleanings	times

• INK   Counter for ink tank

Display	Description	Unit
INK xx	Number of times ink tank is replaced (xx indicates the color)	times

• HEAD   Counter for printhead

Display	Description	Unit
DOT	Total amount of ink discharged from integrated printhead	Display value (minimum unit = 100 million dots)
DOT xx	Amount of ink discharged (xx indicates the color)	

• CUT SHEET   Cumulative printing length of cut sheets for different media widths
• ROLL MEDIA   Cumulative printing length of roll media for different media widths

Display	Description	Unit
42	42" or more	m
36	36" to less than 42"	m
30	30" to less than 36"	m
24	24" to less than 30"	m
OTHER	Less than 24"	m

• MEDIA-ALL   Cumulative printing length for different media types

Display	Description	Unit
00	Plain Paper	m
01	Coated Paper, Heavy Coated	m
02	Glossy Paper	m
03	Photo Glossy, Photo Semi-Glos	m
04	Glossy Film	m
05	Not used.	m
06	Back Print Film	m
07	Not used.	m
OTHER	Other media	m

	Cumulative printing length for different media widths
MEDIA-00	(Plain Paper)
MEDIA-01	(Coated Paper, Heavy Coated)
MEDIA-02	(Glossy Paper)
MEDIA-03	(Photo Glossy, Photo Semi-Glos)
MEDIA-04	(Glossy Film)
MEDIA-05	Not used.
MEDIA-06	(Back Print Film)
MEDIA-07	Not used.
MEDIA-OTHER	(Other media)

Display	Description	Unit
42	42" or more	m
36	36" to less than 42"	m
30	30" to less than 36"	m
24	24" to less than 30"	m
OTHER	Less than 24"	m

f)　INITIALIZE

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

Display	*Description*
WARNING	Initialization of DISPLAY>WARNING
ERROR	Initialization of DISPLAY>ERROR
P-SETTING	Initialization of DISPLAY>P-SETTING
ADJUST	Initialization of ADJUST and Main menu
W-INK	Initialization of COUNTER>PRINTER>W-INK
CUTTER	Initialization of COUNTER>PRINTER>CUTTER
CARRIAGE	Initialization of COUNTER>CARRIAGE
PURGE	Initialization of COUNTER>PURGE
INK	Initialization of COUNTER>INK
HEAD	Initialization of COUNTER>HEAD
INK CHECK	Initialization of DISPLAY>INK CHECK

5.2 Error Indicators

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 *Part 5:* 7 TROUBLESHOOTING for the remedy procedures when warning and errors occur.

5.2.1 Overview of warning and error codes

Codes*	Problem type
W0100z	Ink warning
W0100a	Other warning
W0102x	Media warning
W0103x	GARO warning
E020xx	Media feeding error
E020Bx	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	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.

5.2.2 Warning and error codes
a) Warnings

Code*[1]	Display message	Status	Maintenance No.*[2]
(W01000)	Bk Ink Check	Bk ink tank is almost empty	7.2.1
(W01001)	Y Ink Check	Y ink tank is almost empty	
(W01002)	M Ink Check	M ink tank is almost empty	
(W01003)	C Ink Check	C ink tank is almost empty	
(W01004)	PM Ink Check	PM ink tank is almost empty	
(W01005)	PC Ink Check	PC ink tank is almost empty	
(W01006)	W-Ink Full Soon	Waste ink absorber is almost full	7.2.2
(W0100C)	Memory Overflow	Data fault due to insufficient memory	7.2.3
(W0100F)	Feed Limit..	Manual feed limit	7.2.4
W01021	Incorrect Media	Media type is not correct	7.2.5
W01030	GARO W1030	Unsupported command in GARO image mode	7.2.6
W01031	GARO W1031	Invalid number of parameters in GARO image mode	
W01032	GARO W1032	Required item was omitted in GARO image mode	
W01033	GARO W1033	Data out of range 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	

*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.

*2: The maintenance numbers correspond to the section title numbers in *Part 5:* 7
    TROUBLESHOOTING.

b) Errors

Code*1	Status	Maintenance No.*2
E02000	No roll media	7.3.1
E02005	Roll media feeding jam	7.3.2
E0200A	Media sensor light intensity adjustment error	7.3.3
E0200B	Media loading position error	7.3.3
E0200C	Media leading edge not detected	7.3.3
E0200D	Cut sheet trailing edge not detected	7.3.2
E0200E	Media is too small	7.3.3
E0200F	Media is too large	7.3.3
E02010	Media is skewed	7.3.3
E02011	Roll media tray was opened during loading or printing	7.3.4
E02015	Cutting failure	7.3.5
E02016	Cut sheet trailing edge error during printing	7.3.2
E02017	Media right edge not detected	7.3.3
E02018	Media left edge not detected	7.3.3
E02400	Cut sheets were loaded even though the received data indicated roll media	7.3.6
E02401	Roll media was not loaded even though the received data indicated roll media	7.3.6
E02402	Cut sheets were not loaded even though the received data indicated cut sheets	7.3.6
E02403	Media was too small during printing of adjustment pattern	7.3.6
E02500	No ink (Bk)	7.3.7
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)	7.3.8
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".	7.3.9
E02777	Communication error between controllers	7.3.10
E02800	No head	7.3.11
E02801	Head overheating	7.3.11
E02802	Incorrect head was installed	7.3.11
E02803	Head EEPROM error	7.3.11

*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.
*2: The maintenance numbers correspond to the section title numbers in *Part 5: 7 TROUBLESHOOTING*.

Code*1	Status	Maintenance No.*2
E02804	Incorrect ink tank was installed (Bk)	7.3.12
E02805	Incorrect ink tank was installed (Y)	
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)	7.3.12
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	7.3.11
E02812	Engine controller internal error	7.3.13
E02813	Head management sensor error	7.3.14
E02814	Head management sensor positioning adjustment error	7.3.14
E02A00	Engine controller internal error	7.3.13
E02A01		
E02A02		
E02A03		
E02B01	Manual feed tray was opened during loading or printing	7.3.15
E02B04	Upper cover was opened when upper cover was locked	7.3.16
E02B05	Right cover error	7.3.17
E02B06	Carriage cover was opened when upper cover was locked	7.3.18
E02D00	Unable to detect home position of purge motor	7.3.19
E02D01	Unable to detect home position of pump motor	7.3.19
E02D02	Unable to detect home position of carriage motor	7.3.20
E02D03	Feed motor timeout	7.3.21
E02D04	Roll feed motor timeout	7.3.22
E02D05	Air flow fan was locked	7.3.23
E02D06	Switching operation failure in ink supply valve	7.3.24
E02E01	Cannot move carriage	7.3.25
E02E02	Paper holder opening/closing failure	7.3.26
E02E03	Pinch roller up/down failure	7.3.27
E02E05	Carriage movement timeout	7.3.25
E02E10	IEEE1394 interface error	7.3.28
E02F00	System controller internal error	7.3.29

*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.

*2: The maintenance numbers correspond to the section title numbers in *Part 5:* 7
   TROUBLESHOOTING.

c) Service call error list

Code*1	Display message	Status	Maintenance No.*2
(E04000)	Printhead Error!	Head voltage error	7.4.1
(E04001)	Waste Ink FULL!	Waste ink absorber is full	7.4.2
(E04002)	Scale Read Error	Linear scale reading error	7.4.3

*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.

*2: The maintenance numbers correspond to the section title numbers in *Part 5:* 7
   TROUBLESHOOTING.

5.2.3 Description of warning and error codes

a) Warning description

1) x Ink Check (the ink color is indicated by x)
This is displayed when the electrodes mounted to the hollow needle detect that the ink is below the prescribed level.

2) W-Ink Full Soon
This is displayed when a nearly full (approx. 95% capacity of the waste ink absorber) waste ink level is detected in the waste ink absorber.

3) Memory Overflow
This is displayed when a data fault occurs due to insufficient memory.

4) Feed Limit..
This is displayed when the engine controller has detected the feed limit during manual feeding.
During back feeding, the print standby position (on feed roller) is the feed limit.
"Feed Limit" is displayed when the roll media end sensor detects no roll media during forward feed.

5) Incorrect Media
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.

6) GARO W0103x (number is indicated by x)
During data reception, this is displayed when an error occurs in the data reception GARO command.

b) Error description

1) E02000
End of Roll
This is displayed when a roll media end sensor has detected the roll media trailing edge during printing or loading of the roll media.

2) E02005
Media Jam
This is displayed when the feed sensor could not detect the roll media even after feeding the prescribed length during loading of the roll media.

3) E0200A
Size undetected
This is displayed when the light intensity of the media sensor could not be adjusted during media loading.

4) E0200B
Size undetected
This is displayed when the media sensor has detected a media loading position error during detection of the media right edge.

5) E0200C
Size undetected
This is displayed when the media sensor could not detect the media leading edge during detection.

6) E0200D
Size undetected
This is displayed when the feed sensor could not detect the cut sheet trailing edge even after feeding the prescribed length during cut sheet loading.

7) E0200E
Media Too Small
This is displayed when the media sensor has detected a media smaller than the prescribed size during media loading.
Media width: Less than 200 mm
Media length: Less than 100 mm

8) E0200F
Media Too Large
This is displayed when the media sensor has detected a media larger than the prescribed size during media loading.
Media width: More than 1128 mm
Media length (roll media): More than 18 m
Media length (cut sheets): More than 1.6 m

9) E02010
Media Skewed
This is displayed when the media sensor detects slanting that exceeds the prescribed amount during media loading.

10) E02011
Close Roll Tray (cut sheet mode) / Remove Roll Media (roll media mode)
This is displayed when a roll media tray set sensor has detected that the roll media tray has been pulled out during printing or loading of the roll media.

11) E02015

Cut Failed

This occurs during media cutting when the cutter sensor could not detect the cutter unit 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.

12) E02016

Load Cut Sheet

This is displayed during printing when the feed sensor has detected the cut sheet trailing edge at a different position from the media loading position.

13) E02017

Size undetected

This is displayed when the media sensor could not detect the media right edge during media loading.

14) E02018

Size undetected

This is displayed when the media sensor could not detect the media left edge during media loading.

15) E02400

Eject Cut Sheet

This is displayed when the loaded media is a cut sheet when the received data is designated for roll media.

16) E02401

Load Roll Media

This is displayed when the roll media is not loaded when the received data is designated for roll media.

17) E02402

Load Cut Sheet

This is displayed when the cut sheet is not loaded when the received data is designated for cut sheets.

18) E02403

Media Too Small

This is displayed when the loaded media is smaller than the prescribed size during printing of the adjustment pattern.

19) E02500/E02501/E02502/E02503/E02504/E02505

Replace x Tank (the ink color is indicated by x)

This is displayed when no ink is detected in the ink tank.

The final digit indicates the ink color. <0:Bk, 1:Y, 2:M, 3:C, 4:PM, 5:PC>

20) E02506/E02507/E02508/E02509/E0250A/E0250B

No x Ink Tank (the ink color is indicated by x)

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

This error is canceled when the required ink tank is installed and the right cover is closed.

The final digit indicates the ink color. <6:Bk, 7:Y, 8:M, 9:C, A:PM, B:PC>

21) E02520
Ink level ?
This occurs when a color is set to "Yes" in MAIN MENU>System Setup>Ink Check Off.
(When this option is set, the ink level of the corresponding color appears as "?" under MAIN MENU>Information>Ink.)
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 *[Cancel] 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.

22) E02777
Turn Power Off!!
This is displayed when a communication error was detected in communication between the system controller and engine controller.

23) E02800
No Printhead
This is displayed when no printhead is detected.

24) E02801
Check Printhead
This is displayed when unusually high temperatures are detected in the printhead.

25) E02802
Check Printhead
This is displayed when an incorrect printhead is installed.

26) E02803
Check Printhead
This is displayed when a checksum error is detected in the printhead EEPROM.

27) E02804/E02805/E02806/E02807/E02808/E02809
Check x Tank (the ink color is indicated by x)
This is displayed when an incorrect ink tank is installed.
The final digit indicates the ink color. <4:Bk, 5:Y, 6:M, 7:C, 8:PM, 9:PC>

28) E0280A/E0280B/E0280C/E0280D/E0280E/E0280F
Check x Tank (the ink color is indicated by x)
This is displayed when a checksum error is detected in the ink tank EEPROM.
The final digit indicates the ink color. <A:Bk, B:Y, C:M, D:C, E:PM, F:PC>

29) E02811
Check Printhead
This is displayed when a DI correction failure is detected in the printhead.

30) E02812
Turn Power Off!!
This is displayed when an error has occurred in the EEPROM of the engine controller.

31) E02813
Turn Power Off!!
This is displayed when the head management sensor detects an ink discharge error.

32) E02814
  Turn Power Off!!
  This is displayed when a sensor sensitivity error is detected during position
  adjustment of the head management sensor.

33) E02A00
  Turn Power Off!!
  This is displayed when an error occurs in the firmware of the engine controller.

34) E02A01/E02A02/E02A03
  Turn Power Off!!
  This is displayed when an error occurs in the FLASH ROM of the engine controller.

35) E02B01
  Close Tray
  This is displayed when the manual feed tray sensor has detected that the tray is
  open during media loading or printing.

36) E02B04
  Close Upper Cover
  This is displayed when the upper cover sensor has detected that the upper cover is
  open while the upper cover is locked.

37) E02B05
  Close Right Cover
  This is displayed when the right cover sensor has detected that the right cover has
  been opened not using operations from the main menu.
  Turn Power Off!!
  This is displayed when the right cover sensor has detected that the right cover is
  closed even though the right cover opening operation has been performed the
  prescribed number of times.

38) E02B06
  Close CRG Cover
  This is displayed when the carriage cover sensor has detected that the carriage cover
  is open while the upper cover is locked.

39) E02D00/E02D01
  Turn Power Off!!
  This is displayed when sensors for the purge unit could not detect the positions of
  the motors within the prescribed time.

40) E02D02
  Turn Power Off!!
  This is displayed when the carriage homeposition sensor could not detect the home
  position of the carriage motor within the prescribed time.

41) E02D03
  End of Roll
  This is displayed when the feed motor could not reach the prescribed speed within
  the prescribed time or the feed roller sensor could not detect the prescribed number
  of steps from the encoder slit.

42) E02D04
  Turn Power Off!!
  This is displayed when the roll feed motor could not reach the prescribed speed
  within the prescribed time.

43) E02D05

  Turn Power Off!!

  This message is displayed when a fan lock is detected when the air flow fan is running.

44) E02D06

  Turn Power Off!!

  This is displayed when the valve cam sensor could not detect valve cam rotation during switching of the ink supply valve.

45) E02E01

  Turn Power Off!!

  This is displayed when a jam or other physical problem puts an excessive load on the carriage motor so that the carriage cannot operate.

46) E02E02

  Turn Power Off!!

  This is displayed when the roll media set sensor could not detect positional changes by the paper holder during the paper holder opening and closing operations.

47) E02E03

  Turn Power Off!!

  This is displayed when the pinch roller up/down sensor could not detect positional changes by the pinch roller during the pinch roller up/down operations.

48) E02E05

  Turn Power Off!!

  This is displayed when the carriage motor could not reach the prescribed speed within the prescribed time.

49) E02E10

  Turn Power Off!!

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

50) E02F00

  Turn Power Off!!

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

c) Service call error description

  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.

1) Printhead Error!

  This is displayed when a voltage error occurs in the printhead.

2) Waste Ink FULL!

  This is displayed when a full waste ink absorber is detected.

3) Scale Read Error

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

6. PRINTER SPECIAL MODE

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

6.1 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 "*Part 5:* 5.2.12 Boards".

6.2 Download Mode

This mode is used for troubleshooting when upgrading the firmware.
For details about entering and operating this mode, refer to "*Part 3:* 7.3.1 Firmware
Recovery Procedure".

7. PRINTER SERVICE SOFTWARE

7.1 Overview of Service Software

In this printer, the service tools can be used to update the versions of the firmware for the system controller installed in the printer.

The service tools can also be used to access various types of information from the printer.

The required operating environment and conditions for upgrading the firmware and obtaining service information are shown below.

	Software	OS	Printer port	Interface cable
Updating the firmware	CNWFUT01.exe*[1]	Windows95/98/Me, WindowsNT4.0/2000/XP	LAN (10Base-T/ 100Base-TX)	Cross type cable or straight cable + hub
Recovery of the firmware	com_fut.exe	Windows 98, Windows 2000, XP	RS-232C (9-pin, male)	Crossover type
Obtaining service information	hypertrm.exe *[2]	Windows 95, 98, Me, Windows NT, 2000, XP	RS-232C (9-pin, male)	Crossover type

*[1]: Usage period is limited.

*[2]: Included in standard installations of Windows 95, 98, Me, Windows NT, 2000, and XP.

7.1.1 Firmware updating software

This tool allows updating of the firmware for the system controller and engine controller during normal operation.

Software	OS	Printer port	Interface cable
CNWFUT01.exe*[3]	Windows95/98/Me, WindowsNT4.0/2000/XP	LAN (10Base-T/100Base-TX)	Cross type cable or straight cable + hub

*[3]: Usage period is limited.

> **CAUTION**
>
> This tool (CNWFUT01.exe *[3]) is identical to the firmware update tool for W7200/W7250 users.
>
> This tool is for service only and shall be used as a countermeasure in case some failure occurs befor the firmware for the W8200 is updated for the first time. If the firmware for the W8200 is updated in the future, as the W8200 firmware update tool for both users and service will be released, please use this instead.

7.1.2 Firmware recovery software

This tool is able to recover the boot firmware of System Controller.

The required operating environment and conditions are shown below.

Software	OS	Printer port	Interface cable
com_fut.exe	Windows 98, Windows 2000, XP	RS-232C (9-pin, male)	Crossover type

7.1.3 Service information access software

This tool is used to access various types of Service mode information from the system controller.

The required operating environment and conditions are shown below.

Software	OS	Printer port	Interface cable
hypertrm.exe (*)	Windows 95, 98, Me, Windows NT, 2000, XP	RS-232C (9-pin, male)	Crossover type

*: Included in standard installations of Windows 95, 98, Me, Windows NT, 2000, and XP.

7.2 Firmware Updating Software

This tool allows updating of the firmware for the system controller and engine controller during normal operation.
For the specific operating procedure, follow the screen instructions displayed on the computer when running the file "CNWFUT01.exe".
This section only contains notes for using "CNWFUT01.exe".

<table>
<tr>
<td>

CAUTION

</td>
<td>

- "CNWFUT01.exe" shall be used until the W8200 firmware update tool is released.
- Copy the file "CNWFUT01.exe" to your computer's hard disk drive.
- Copy the firmware to the folder containing "CNWFUT01.exe".
- Check the IP address of the printer before running "CNWFUT01.exe".
- Follow the on-screen instructions for "CNWFUT01.exe", and enter the IP address of the printer.

</td>
</tr>
</table>

7.3 Firmware recovery Software of the System Controller

This tool is used to fix problems if the firmware is not updated properly due to a power outage or other cause when using the firmware update tool (CNWFUT01.exe).
The usage procedure for this case is described below in one of the remedy procedures.

There are three troubleshooting procedures separated into two cases based on the display message after the power is turned on again when a problem occurs.

a. When the controller stops operating after displaying "Initializing...." (4 periods):
Download the firmware again.
b. When the controller stops operating before displaying "Initializing... " (3 periods):
b-1. Recover using the Firmware Recovery Tool: AY3-4207-000 (com_fut.exe).
b-2. Replace the system controller, and then download the latest firmware again.

7.3.1 Firmware recovery procedure

a. When the controller stops operating after displaying "Initializing...." (4 periods)
1) Check that the printer is turned off, and then connect the printer and computer with a LAN, USB, or IEEE1394 cable.
2) Turn on the printer while holding down the *[Paper Source] button*, *[Enter] button*, and *[Online] button*.
3) Check that "Download Mode" appears on the display, and then release the buttons.
   * The Message lamp turns on when the printer enters Download mode.
   * It takes about 40 seconds to enter Download mode after the power is turned on.
4) Use CNWFUT01.exe to update the firmware to the latest version.
5) Check that the printer starts up normally and that the firmware has been upgraded properly.

b. When the controller stops operating before displaying "Initializing... " (3 periods)
b-1. Recover using the Firmware Recovery Tool: AY3-4207-000 (com_fut.exe).
1) Make the following settings at the serial port of the computer.
   - Baud rate   : 9600
   - Data bits   : 8
   - Parity   : None
   - Stop bit   : 1
   - Flow control : None

2) Check that the printer is turned off, and then connect the computer and printer with an RS-232C cable.
   * The printer's RS-232C connector is located above the system controller.

3) Turn on the printer while holding down the *[Paper Source]* **button** and *[Upper arrow]* **button**, and then release your hand from the buttons.
   ("INITIALIZING" is shown briefly on the display, and then nothing is shown.)
4) Start com_fut.exe.
5) Open the Configuration menu, and select COM PORT.
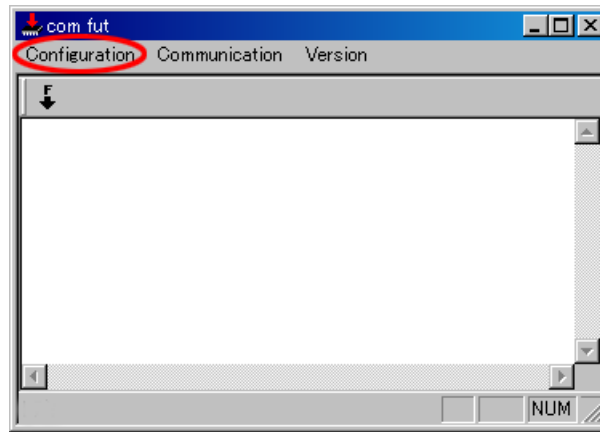
Figure 3-58com_fut.exe (Startup)

6) Select the serial port of the computer where the RS-232C cable is connected, and then click the OK button.
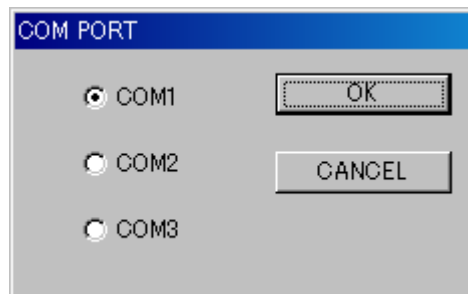
Figure 3-59 com_fut.exe (Setup 1)

7) Click the F button.
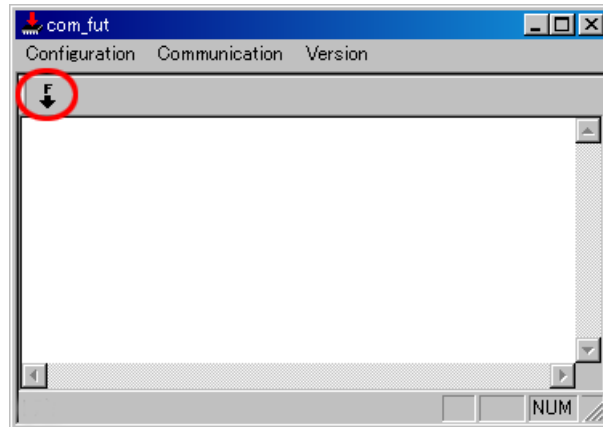
Figure 3-60 com_fut.exe (Setup 2)

8) Click the Reference button, and then select the System Controller firmware for boot recovery (W8200_SC_V0100.rom).
9) Click the Send button, and then send the System Controller firmware for boot recovery (W8200_SC_V0100.rom) to the printer
 • Nothing is shown on the printer display while the firmware upgrade is in progress.
   The transmission status can be checked using the progress bar and data counter in the download dialog box.
 • It takes about 20 minutes to complete the transmission after the Send button is pressed.
 • Pressing the Stop button cancels transmission of the firmware for the system controller and closes the download dialog box.
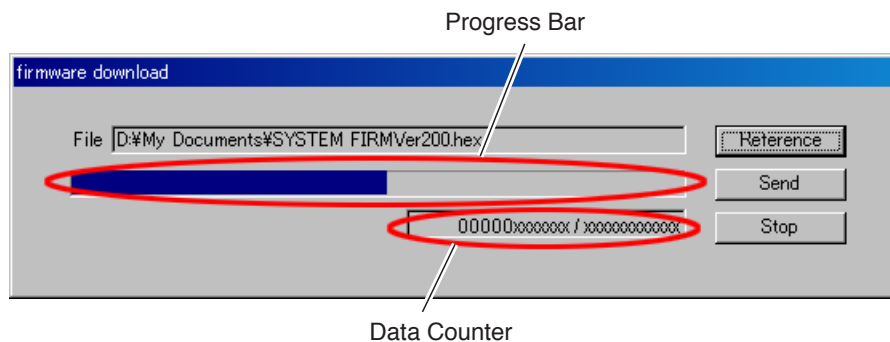
Figure 3-61 com_fut.exe (Send Image)

10) The following message box is displayed when the firmware update of the system controller is completed normally. Click the OK button to close the message box.
 • It takes about one minute to display this message box after transmission is completed.
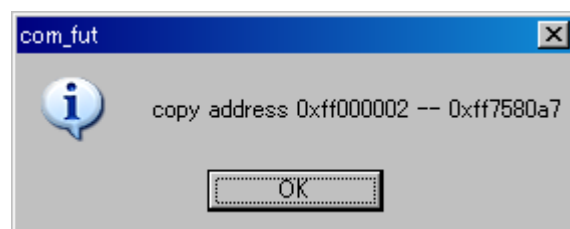
Figure 3-62 com_fut.exe (Transmission is completed)

3-82

11) Click the X button to exit com_fut.exe.
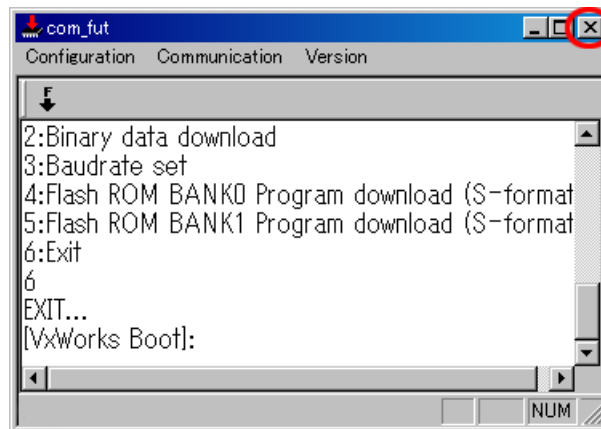
Figure 3-63 com_fut.exe (Completed Image)

NOTE | If a failure occurs during the update process (such as disconnection of the serial cable during transmission), the progress bar and data counter will stop, and the OK button will not be displayed.
In this case, exit com_fut.exe, and then unplug the power cord of the printer from the outlet. Then, plug the power cord of the printer back into the outlet, and restart from step 3).

12) Unplug the power cord of the printer from the outlet, and then turn off the printer.
13) Insert the power cord of the printer back into the outlet.
14) Continue using the procedure for "a. When the controller stops operating after displaying "Initializing...." (4 periods)".

CAUTION | Be sure to always perform the above operations before starting the printer in Normal mode.

b-2. Replace the system controller, and then download the latest firmware again.
  1) Check that the printer is turned off, and then replace the system controller.
  2) Follow steps 1) to 4) of *Part 3:* 7.3.1 a. When the controller stops operating after displaying "Initializing.... (4 periods) to update the firmware to the latest version.
  3) Follow steps 2) to 6) of *Part 5:* 5.2.12 a) Replacing the system controller to pass the backup data in the Engine Controller to the System Controller.
  4) Start in Normal mode, and check the version and its operation.

CAUTION | • Be sure to always follow the above procedure when the version upgrade fails and the system controller is replaced. If you perform any of these steps in the wrong order, the backup data in the engine controller EEPROM could be erased.
• Replacing the system controller initializes the IP settings, WARNING history, ERROR history, and P-SETTING values.

7.4 Service Information Access Software

Use the HyperTerminal software supplied in the standard installation in Windows 95, 98, Me, NT, 2000, and XP.

HyperTerminal is a software tool used to connect the serial cable to the serial port on the sysytem controller.

The following service information can be accessed based on the code that is entered.

a) Access service mode information

Entering the code below will display as log data all the information for the Service mode and Main menu stored in the printer.

Input code: ssw

```
ssw
MachineType:36"
TMP:26.0 TMP BK:25.0 TMP C:26.0 TMP M:25.0 TMP Y:26.0 TMP PC:25.0 TMP PM:25.0
SIZE-LF:0.0 SIZE-CR:914.3
HeadEEPLotNo:001B01A0
HeadSerialNo:00017BB3
TankLotNo BK:20222810
TankLotNo  C:21240310
TankLotNo  M:21240310
TankLotNo  Y:20212510
TankLotNo PC:21240310
TankLotNo PM:21240310
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
ERROR 01:E02000 02:E02005 03:E02005 04:E02D03 05:E02D03 06:E02D03 07:E02D03
      08:E02D03 09:E02010 10:E02010 11:E02000 12:E02B04 13:E00000 14:E00000
      15:E00000 16:E00000 17:E00000 18:E00000 19:E00000 20:E00000
P-SETTING 01:R101ZZ8W0244- 02:R101248W0420- 03:R101368W0235- 04:R101368W1206-
          05:C103368W1030- 06:R103368W0002E 07:R101308W0924- 08:R101308W0757-
          09:R100ZZ4S0049W 10:0000000000000 11:0000000000000 12:0000000000000
ADJUST  A:+0 B:+1 C:+1 D:+0 E:+1 F:+0 G:+0 H:+1 I:+0 J:+2 K:+2
        L:+4 M:+2 N:+2 P:+2 Q:+2 R:+2 V:+0 W:+0 X:+0 Y:+0 Z:+0
COUNTER  PRINTER:   19  7131    59
         CARRIAGE:   2   2
         PURGE:   5   5   0
         INK:    2   2   2   2   2   2
         HEAD:   10   1   1   1   1   1   1
         CUT SHEET:   0   0   0   0
         ROLL MEDIA:   0   0   0   0
         MEDIA ALL:   0   0   0   0   0   0
         MEDIA-00:   0   0   0   0
         MEDIA-01:   0   0   0   0
         MEDIA-02:   0   0   0   0
         MEDIA-03:   0   0   0   0
         MEDIA-OTHER:   0   0   0   0
S/C:Ver. 00.34.00  S/BOOT:Ver. 01.00.00  E/C:Ver. 0.13  E/Rel:Ver. 00010.01
MAC Address:00008518408F RAM:64MB
Current Path:1  CutSheetType:Glossy Film  RollMediaType:Coated Paper
AutoCut:Yes  TakeUpReel:Disable
Cutter:Enable  Buzzer:On  SleepTimer:20 min.  EOPTimer:30 sec.
Stand:J504Only  Language:Japanese
Auto Adjust:On
Adjust  A:+0 B:+1 C:+1 D:+0 E:+1 F:+0 G:+0 H:+1 I:+0 J:+2 K:+2
        L:+4 M:+2 N:+2 P:+2 Q:+2 R:+2 V:+0 W:+0 X:+0 Y:+0 Z:+0
CutDustReduct  Plain:Off Coated:Off HeavyCoated:Off
               GlossyPaper:Off Semi-Glossy:Off GlossyFilms:On BPF:Off
               Special1:Off Special2:Off Special3:Off Special4:Off Special5:Off
InkBk:100%  InkC:100%  InkM:100%  InkY:100%  InkPC:100%  InkPM:100%
Interface:LAN/USB1.1 00000000208F  Ext.Interface:IEEE1394 00008514000004DC
Warning 01:W00000  02:W00000  03:W00000  04:W00000  05:W00000
Error 01:E02000  02:E02005  03:E02005  04:E02D03  05:E02D03
TCP/IP FrameType:Ethernet II  IPAddress:192.168.0.215  SubnetMask:255.255.255.0
  DefaultG/W:0.0.0.0
DHCP:Off  BOOTP:Off  RARP:Off
Apple Talk PhaseType:Phase2  NetworkNo:65280  NodeID:128
Name:Canon NB-12FB
Zone:*
Type:GARO
value = 10 = 0xa
->
```

Figure 3-64 ssw (Image)

b) Access printhead EEPROM information

Entering the code below will display as log date the serial number and all other information stored in the printhead EEPROM.

Input code: ssw_head

```
ssw_head
Head EEPROM Dump
003E  0401  EAD8  0000
0012  0410  3D3D  423A
3A3C  0000  0000  0000
0000  0000  0000  0606
0706  0505  0000  0000
0000  0000  0000  0000
0000  0000  0000  0000
0000  0000  0000  0000
0000  0000  0000  0000
0000  0000  0000  0000
0000  0000  0000  0000
0000  0000  0000  0000
0000  0000  0000  0000
0000  0000  0000  0000
0000  0000  0000  0000
0000  4102  003E  0401
EAD8  0000  0012  0410
3D3D  423A  3A3C  0000
0000  0000  0000  0000
0000  0606  0706  0505
0000  0000  0000  0000
0000  0000  0000  0000
0000  0000  0000  0000
0000  0000  0000  0000
0000  0000  0000  0000
0000  0000  0000  0000
0000  0000  0000  0000
0000  0000  0000  0000
0000  0000  0000  0000
0000  0000  0000  0000
0000  0000  0000  4102
0000  0000  0002  0003
value = 3 = 0x3
->
```

Figure 3-65 ssw_head (Image)

c) Access ink tank EEPROM information

Entering the code below will display the serial numbers and all other information stored in each color's ink tank EEPROM in the form of log data for the six colors simultaneously.

Input code: ssw_ink

```
ssw_ink
InkTank EEPROM Dump
Black Tank
4341  4E4F  4E20  494E
432E  1401  424B  F122
0521  0000  0000  0000
F122  0521  0000  0001
DBF4  0001  D4BF  6100
0001  43F4  0001  DBF4
0001  D4BF  6100  0001
43F4  0000  3134  3031
0000  8979  0001  FBD0
0001  DBF4  0061  0001
0000  7953  0001  DBF4
0061  0001  0000  7953
0000  0000  0000  0000
0000  0000  0000  0000
0000  0000  0000  0000
0000  0000  0000  0000
Light Cyan Tank
              520 494E

0000  0000
Yellow Tank
4341  4E4F  4E20  494E
432E  1401  5900  F122
0822  0000  0000  0000
F122  0822  0000  0001
A8B0  0000  2C0F  6100
0001  1FE9  0001  A8B0
0000  2C0F  6100  0001
1FE9  0000  3134  3031
0000  8354  0001  FBD0
0001  A8B0  0061  0001
0000  AC97  0001  A8B0
0061  0001  0000  AC97
0000  0000  0000  0000
0000  0000  0000  0000
0000  0000  0000  0000
0000  0000  0000  0000
value = 3 = 0x3
->
```

Figure 3-66 ssw_ink (Image)

7.4.1 Service information access procedure

1) Connect the printer and computer with a serial cable, and then turn on the printer.
2) Check that the printer is in the Online or Offline mode, and then start the computer.
3) At the Run command of the start menu, enter "hypertrm.exe", and then click OK.
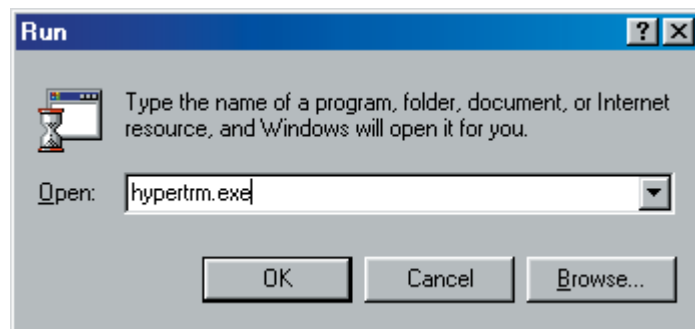
Figure 3-67 Service Information Access Software (Startup 1)

4) Enter the name, select the icon, and then click OK.
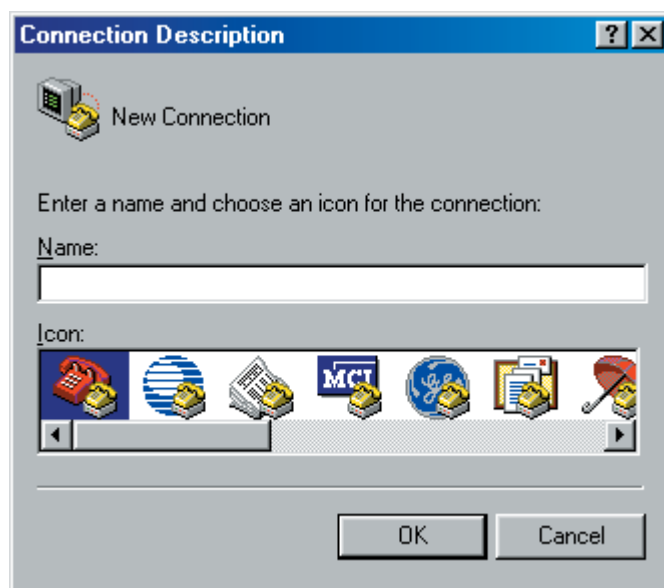
Figure 3-68 Service Information Access Software (Startup 2)

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5) Once the screen shown below is displayed, select the serial port of the computer that is used, and then click OK.

Figure 3-69 Service Information Access Software (Setup 1)

6) Once the screen shown below is displayed, set the values as indicated below, and then click OK,
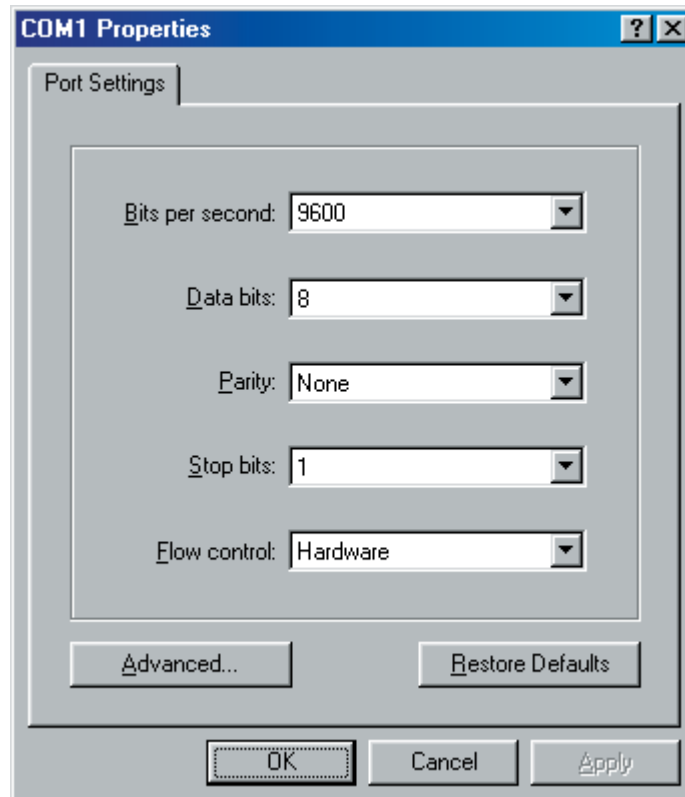
Figure 3-70 Service Information Access Software (Setup 2)

7) Enter the access information cade, and then press Enter.
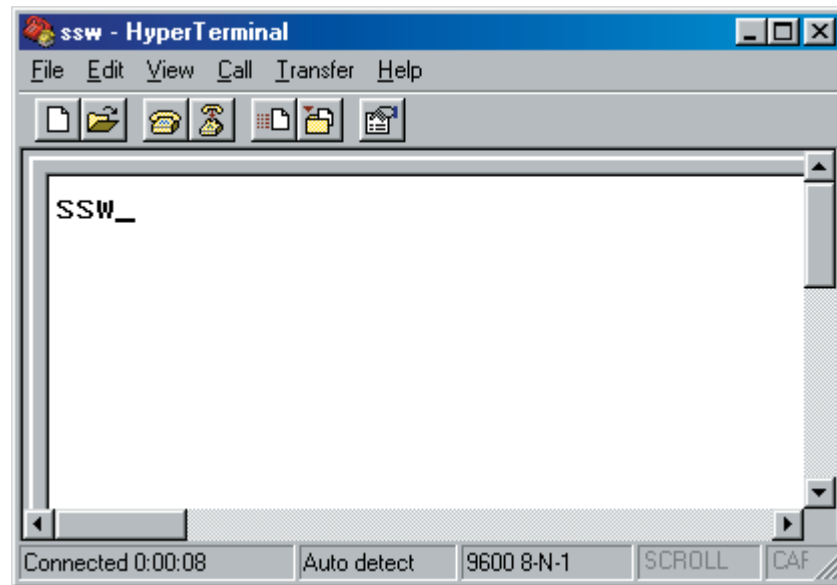
Figure 3-71 Service Information Access Software (Code Input)

8) The log data corresponding to the input code is displayed.
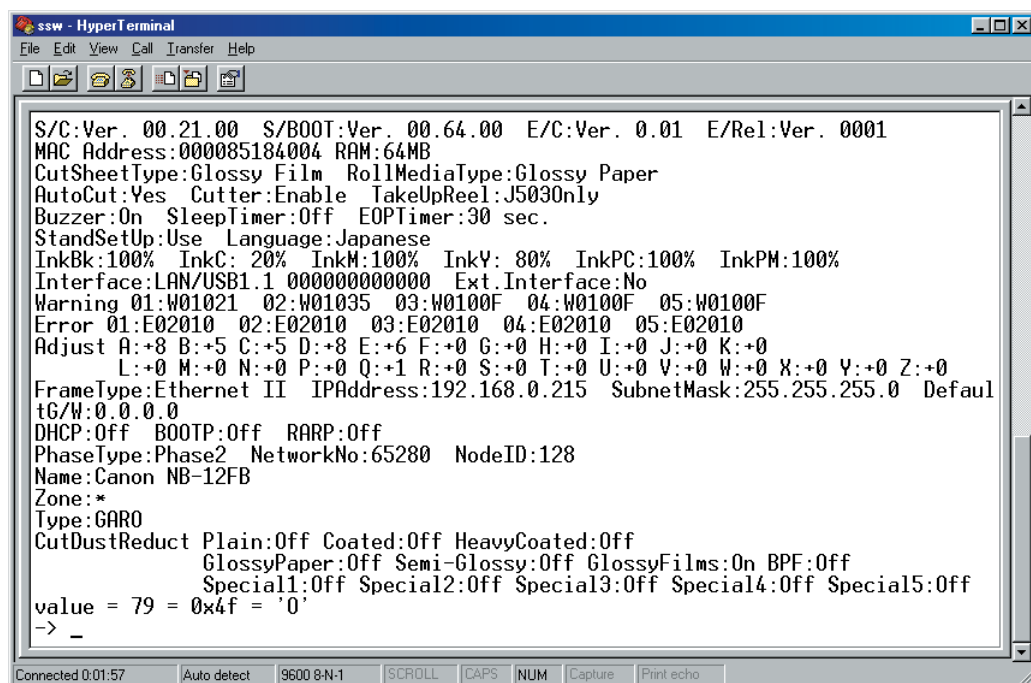
Figure 3-72 Service Information Access Software (Access Information Image)

Part 4
TECHNICAL REFERENCE

1. OVERVIEW

1.1 Printer Block Diagram

A block diagram of the printer is shown in Figure 4-1 below.
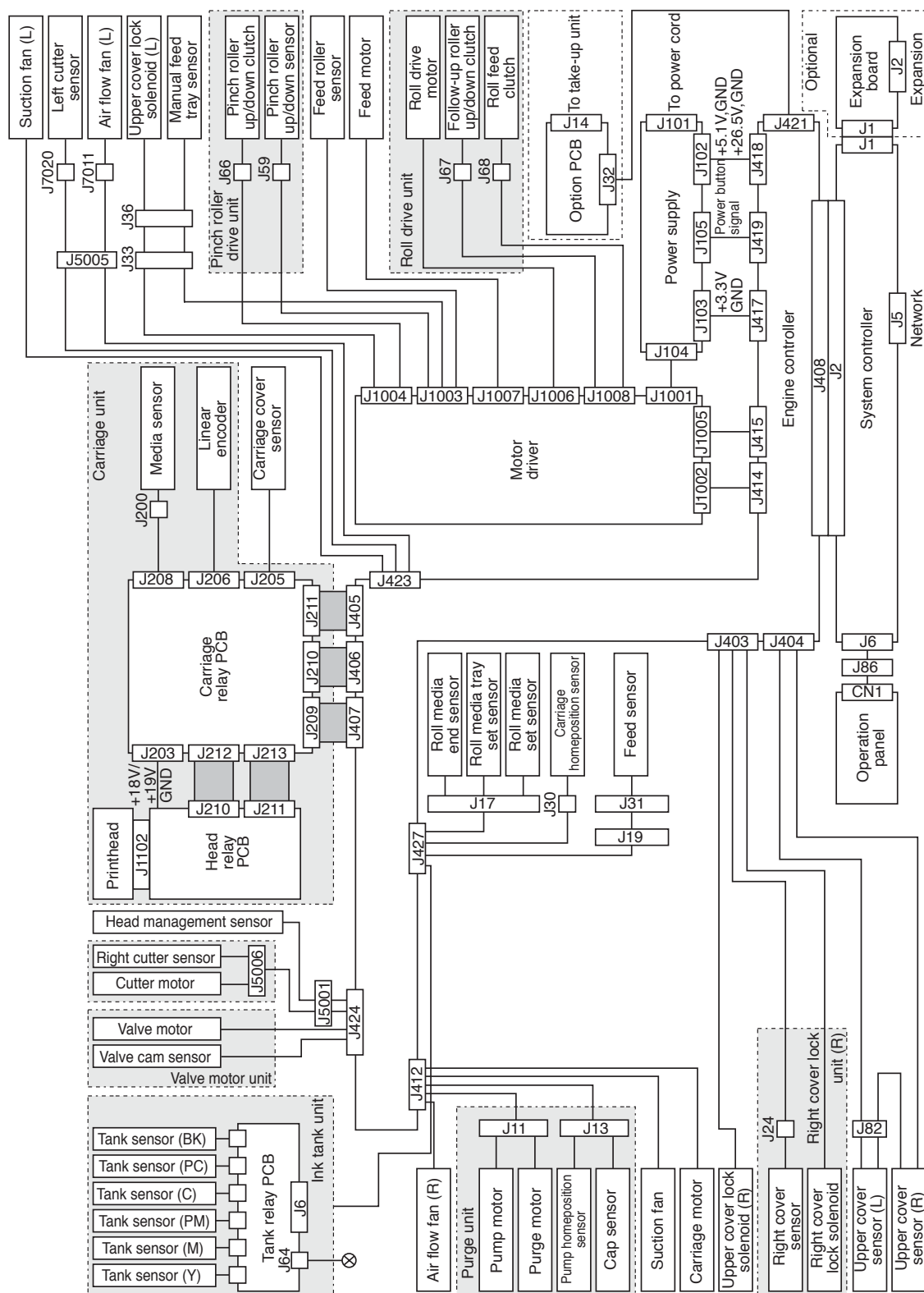
Figure 4-1 Printer Block Diagram

4-1

1.2 Print Signal Sequence

The signal sequence from when the printer receives the print signals until printing starts is shown in Figure 4-2 below.
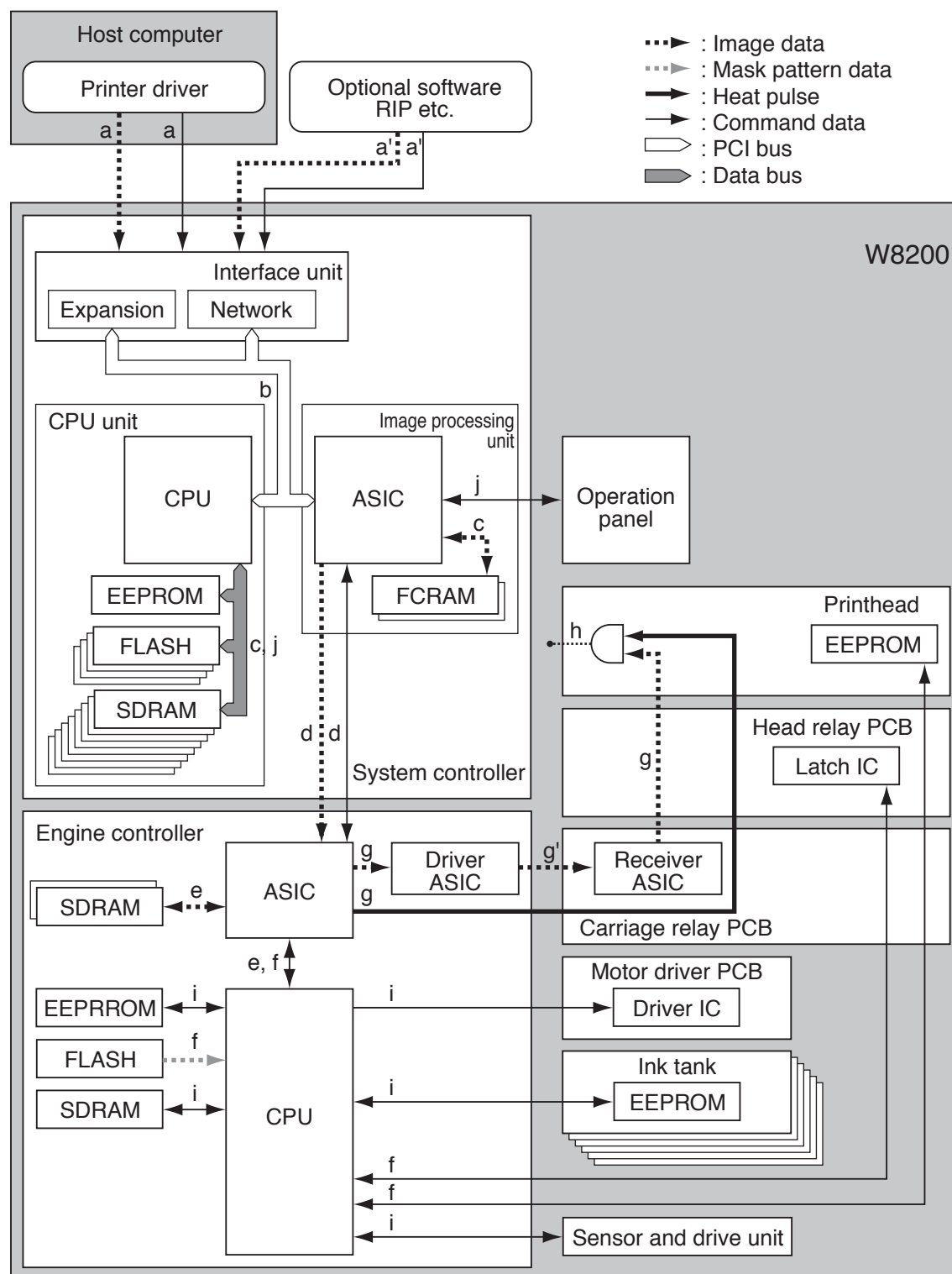
Figure 4-2 Print Signal Sequence

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 the interfaces controlled by the interface unit of the system controller.
The received print data is sent to the CPU or ASIC.

c) The system controller extracts the print data that was sent to the CPU or ASIC, and then performs resolution conversion, color conversion process, and six-color binary conversion while storing the data in the SDRAM or FCRAM at the optimal timing.

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 signals undergo differential processing by the driver ASIC to reduce noise and then are restored by the receiver ASIC.

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 controlling the motor driver and 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.

1.3 Print Driving

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_DTBK1, DTBK2, DTLC1, DTLC2, DTC1, DTC2, DTLM1, DTLM2, DTM1, DTM2, DTY1, DTY2) and odd nozzle data (O_DTBK1, DTBK2, DTLC1, DTLC2, DTC1, DTC2, DTLM1, DTLM2, DTM1, DTM2, DTY1, DTY2). These two data types are sent according to the timing determined by the data transfer clock (HSCLK) and data latch pulse (LTH).

The drive control signals include heat enable signals (HE_BK, LC, C, LM, M, Y) for ejecting ink from the printhead nozzle and subheat enable signals (SHE_BK, LC, C, LM, M, Y) for maintaining stable ink discharge rates by raising the temperature of the head when it is lower than the optimum operating temperature.

1.3.1 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.

The pattern is repeated until 1280 nozzles is reached.
The 1280th nozzle ends at block 15.
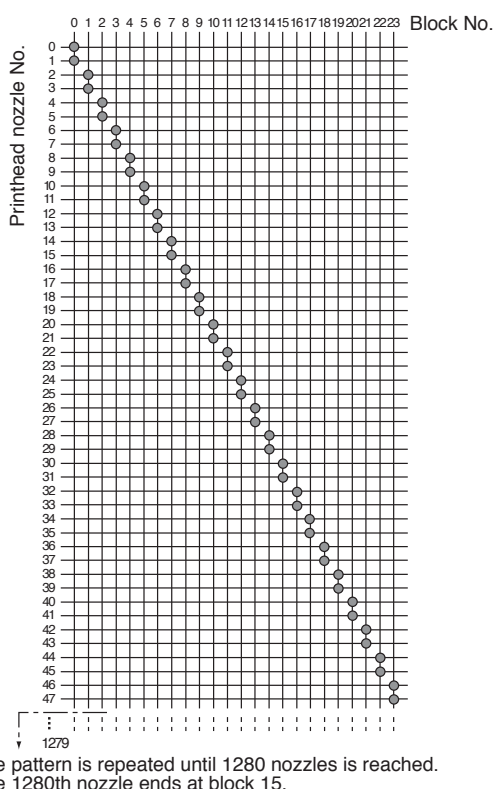
Figure 4-3 Conceptual Diagram of Nozzle Blocks

1.3.2 Print drive timing

Each printhead has six nozzle arrays (Bk, PC, C, PM, M, Y). These six arrays all use the data transfer clock (HSCLK) and data latch pulse (LTH) signals.

The even nozzle data (E_DTBK1, DTBK2, DTLC1, DTLC2, DTC1, DTC2, DTLM1, DTLM2, DTM1, DTM2, DTY1, DTY2), odd nozzle data (O_DTBK1, DTBK2, DTLC1, DTLC2, DTC1, DTC2, DTLM1, DTLM2, DTM1, DTM2, DTY1, DTY2), heat enable signals (HE_BK, LC, C, LM, M, Y), and subheat enable signals (SHE_BK, LC, C, LM, M, Y) 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 300-dpi pitch linear scale detection signals (CRENCA) and 90°-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 1200-dpi timing signals (XCOL-STR) that divide the CRENCA signals detected by the 300-dpi timing into four 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.
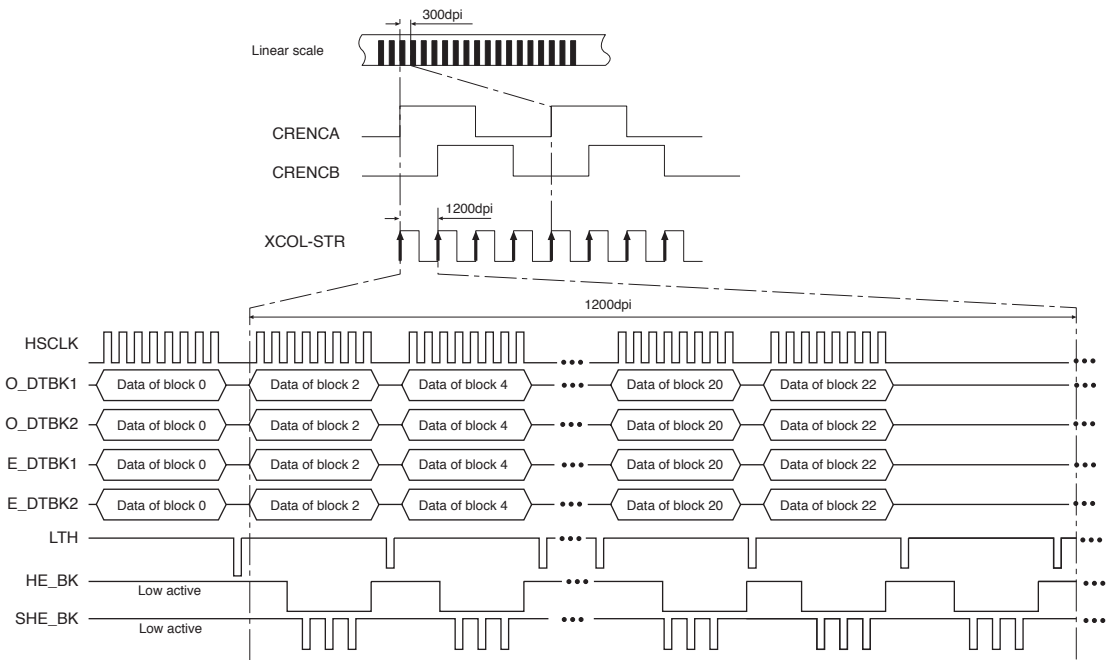
Figure 4-4 Example of Print Drive Timing (Nozzle Array Bk in Forward Printing)

2. FIRMWARE

2.1 Power On/Off

2.1.1 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.
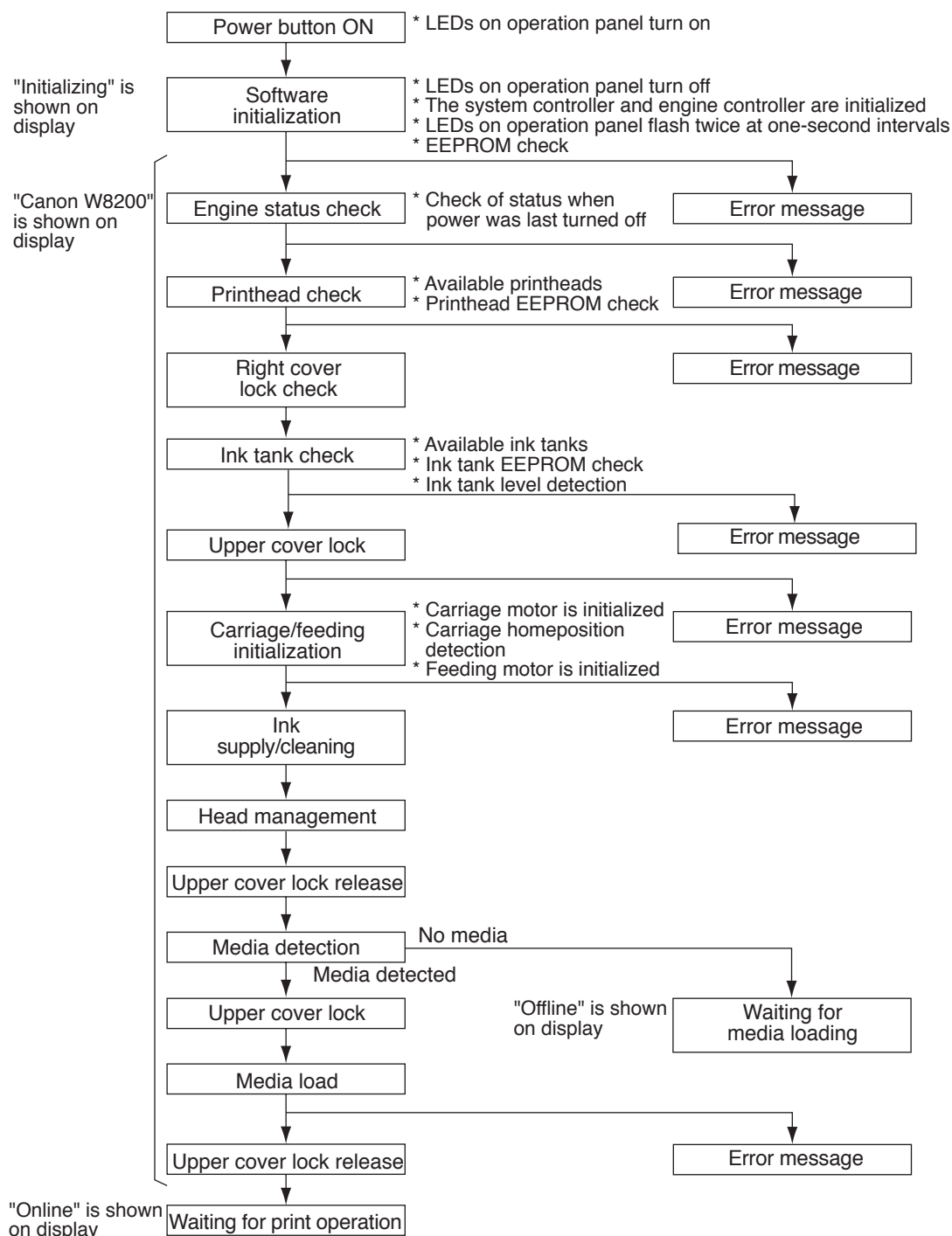
Figure 4-5 Flow chart after Power On

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2.2 Power Off

Turning off the power button will cut off the voltage to all driving systems that are supplied power. In this case, the power-off sequence by the firmware is started.

> **CAUTION**
>
> This printer immediately suspends all operations in progress and stops whenever the power cable is unplugged, or the upper cover, right cover, or roll media tray 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.

2.2.1 Power Off sequence
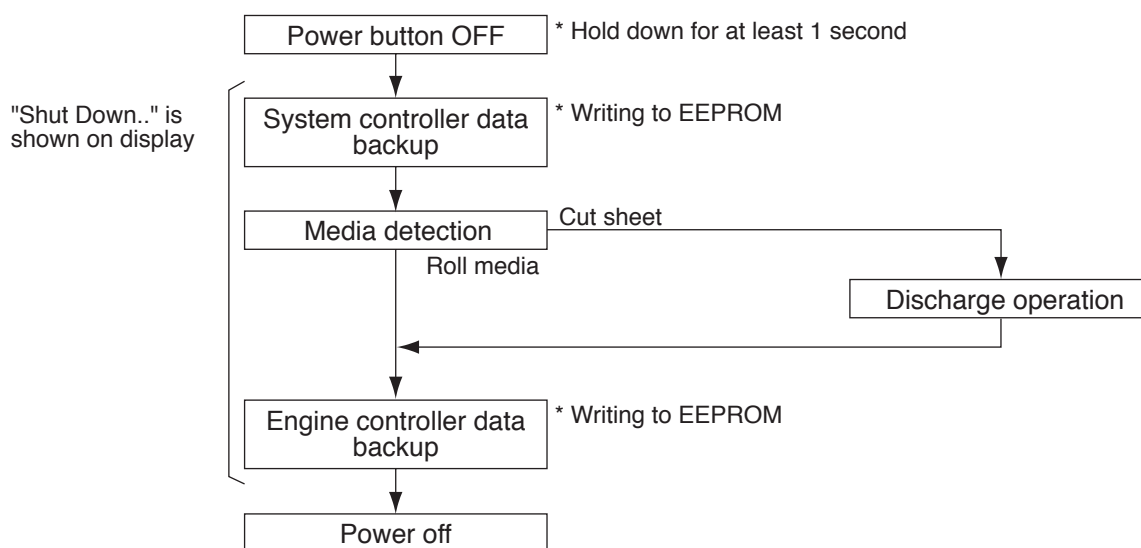
Figure 4-6 Power Off Flow chart

2.3 Print Control
2.3.1 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 allows less 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 for minimized bleeding.

The printer supports a maximum of 10-pass printing according to the required print quality.

a) Draft mode

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

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

The image data is allocated for each color by the mask pattern control, divided into two parts by the nozzle block control, and then printed by a 2-pass bidirectional.

b) Standard mode

In normal print mode, a single band (equivalent to the width of a nozzle array) is printed in 4-pass or 6-pass operation.

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

The printing operation varies depending on the sheet settings in the printer driver. If Plain Paper is selected in the sheet settings, the image data is divided into two parts for each color by the mask pattern control, then divided each into two by the nozzle block control, and printed by 4-pass single-directional.

If a media other than Plain Paper is selected in the sheet settings, the image data is divided into three parts for each color by the mask pattern control, then divided each into two by the nozzle block control, and printed by 6-pass bidirectional.

c) High mode

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

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

For the proofing paper, the image data is divided into four parts for each color by the mask pattern control, then divided each into two by the nozzle block control, and printed by 8-pass bidirectional.

For the media other than proofing paper, the image data is divided into eigth parts for each color by mask pattern control, and printed by 8-pass bidirectional.

d) Highest mode

In super-high quality print mode, a single band is printed using an 10-pass operation.

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

For proof paper, the mask pattern control divides the image data into five sections for each color, and then nozzle block control is used to divide this data into two sections for 10-pass bi-directional printing.

For other paper, the mask pattern control divides the image data into 10 sections for each color for 10-pass bi-directional printing.

Table 4-1 PRINT MODES

Mode	Print resolution (dpi)	Print pass	Print direction	Media type
Draft	300x1200	2-pass	Bi-directional	Plain paper, Coated paper
Standard	600x1200	4-pass	Uni-directional	Plain paper
	600x1200	6-pass	Bi-directional	Except Plain paper
Hight	600x1200	8-pass	Bi-directional	Except Plain paper and Proofing paper
	1200x1200	8-pass	Bi-directional	Proofing paper
Highest	600x1200	10-pass	Bi-directional	Except Plain paper, Coated paper and Proofing paper
	1200x1200	10-pass	Bi-directional	Proofing paper

2.4 Print Position Adjustment

For instructions on how to perform print position adjustments, see *Part 3:* 4.4.3 Contents of main menu.

2.4.1 Print position adjustment

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

The print position is adjusted by first printing the print position adjustment patterns with slightly modified conditions and setting the adjustment values observed visually from the operation panel.

The print position adjustment requires a roll media or cut sheet that is A3 size or larger.

2.5 Head Management

This printer has a head management function to detect any non-ejecting nozzles (nozzles that cannot spray ink for some reason).

When this is detected, the printer performs the printhead cleaning operations.

Also, changing the mask pattern used for printing automatically allows non-discharging nozzles to be supplemented by other nozzles.

If the non-discharging nozzles cannot be supplemented, a "Print Check" message is displayed.

Detection timing	Automatic	During power-on of the printer.
		When starting print operations after the printing of 10 sheets.*1
		When the head is replaced.
		(The state of the carriage cover being open is detected.)

*1: Change is possible at Main Menu>System Setup>Nozzele Check. (Refer to *Part 3:* 4.4.3 Contents of main menu)

NOTE	If the "Print Check" message is displayed, execute the Head Cleaning command under the Main Menu.
	Replace the printhead with a new one if performing a head cleaning does not eliminate this error.

2.6 Overheating Protection Control of Printhead

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°C, 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°C.

Protection level 2:

If the head temperature sensor detects a temperature above 120°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.

2.7 Pause between Pages

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 user can set the wait time from the printer driver. This function is particularly useful for film-type and other sheets that need extra time to dry.

2.8 White Raster Skip

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.

2.9 Sleep Mode

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. See *Part 3:* 4.4.3 Contents of main menu for the procedure for changing this setting.

3. PRINTER MECHANICAL SYSTEM

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 and a carriage unit where printhead are installed, purge unit, and waste ink absorber unit and performs the supply, circulation, and suction/removal of ink.

The paper path includes the roll media tray, roll media feeder, paper feeder and performs two types of feeding, transport, and discharge of media.

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

Roll media feeder

Carriage unit

Purge unit

Roll media tray unit

Paper feed

Ink tank unit
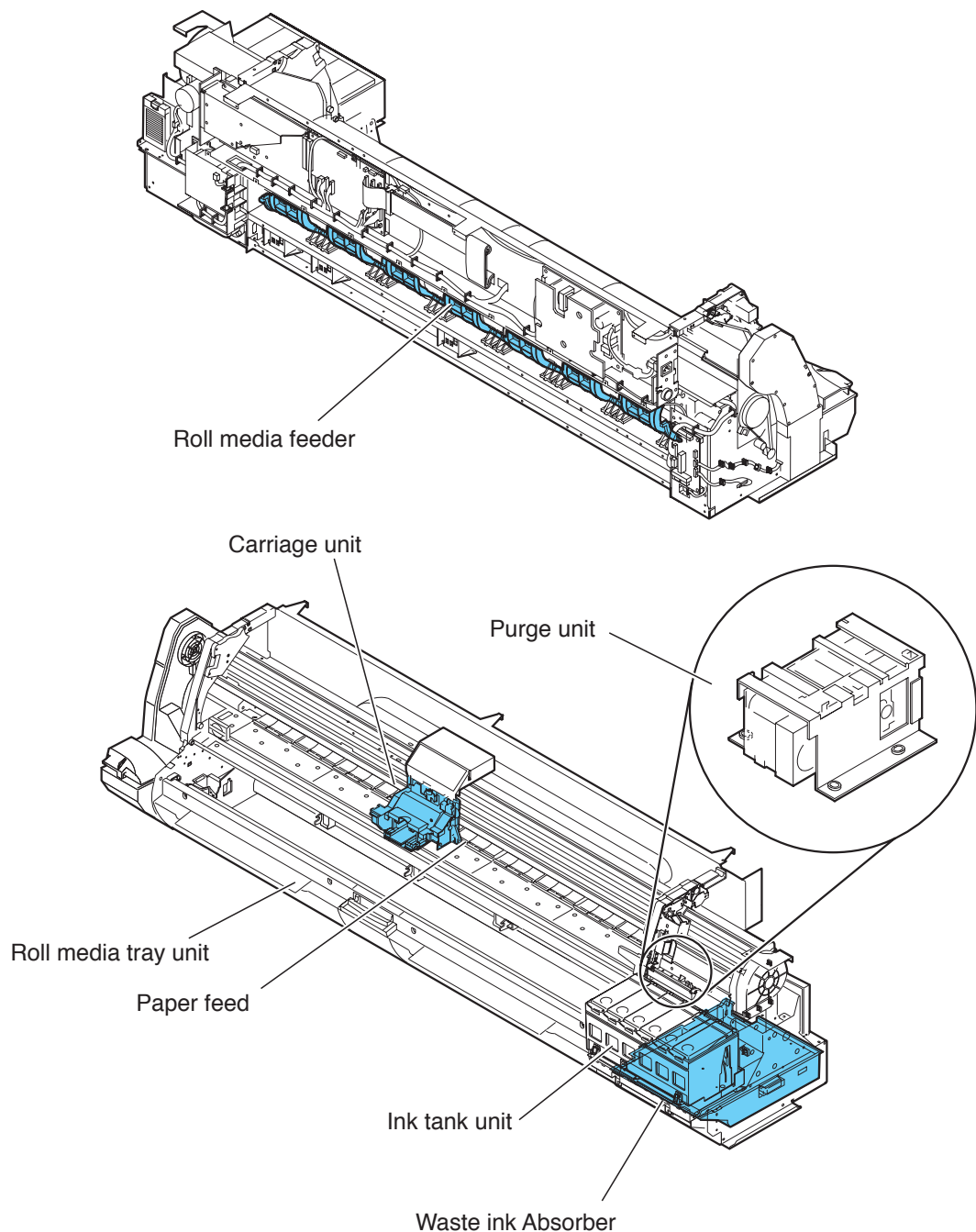
Waste ink Absorber

Figure 4-7 Printer Mechanical System

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3.1 Ink Passage
3.1.1 Overview of the ink passage

The ink passage consists of the ink tanks, printhead, caps, maintenance jet tray, waste ink absorber, 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.
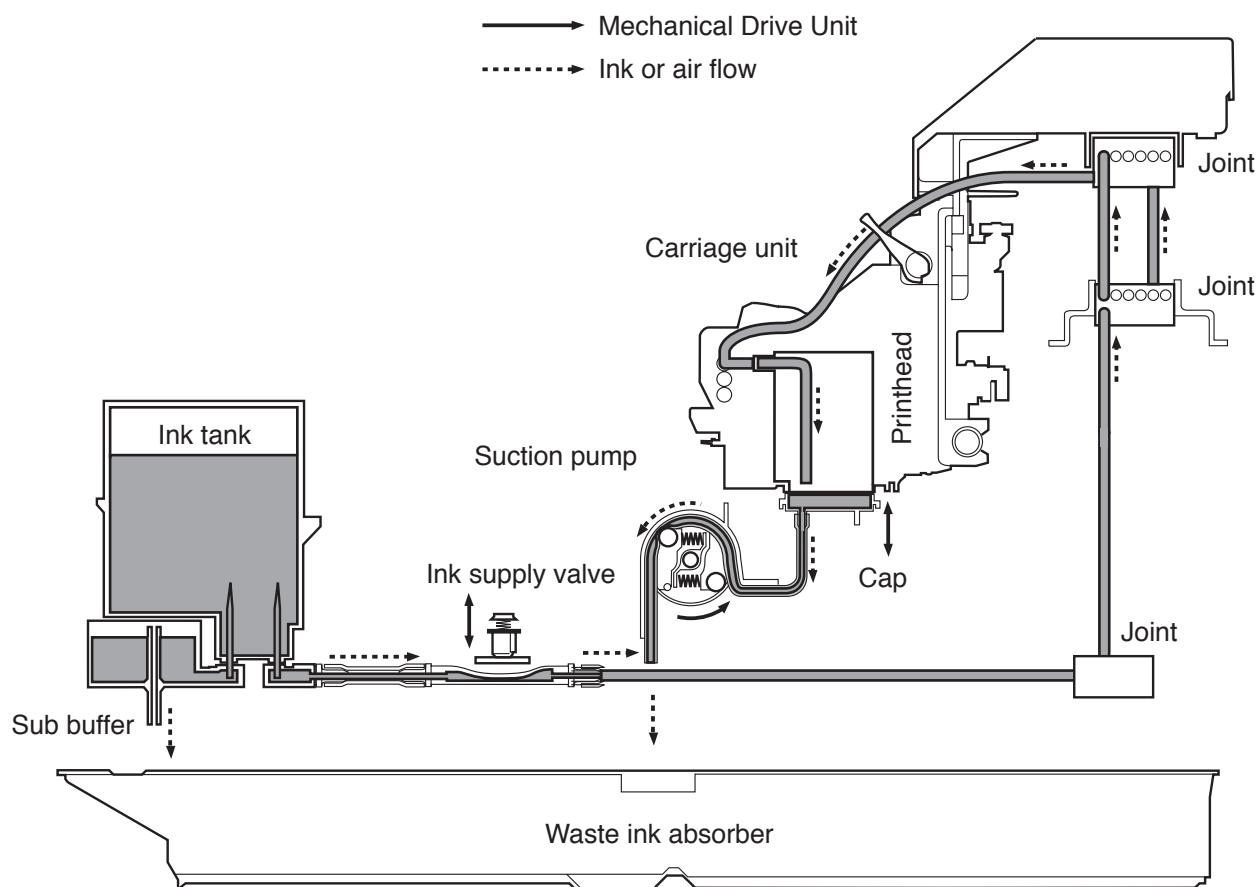
Figure 4-8 Schematic Diagram of the Ink Passage (for One Color)

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 waste ink absorber.

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 waste ink absorber.

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 right maintenance jet tray flows to the waste ink absorber.

> **CAUTION**
>
> 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.

3.2 Ink Tank Unit
3.2.1 Structure of ink tank unit

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.
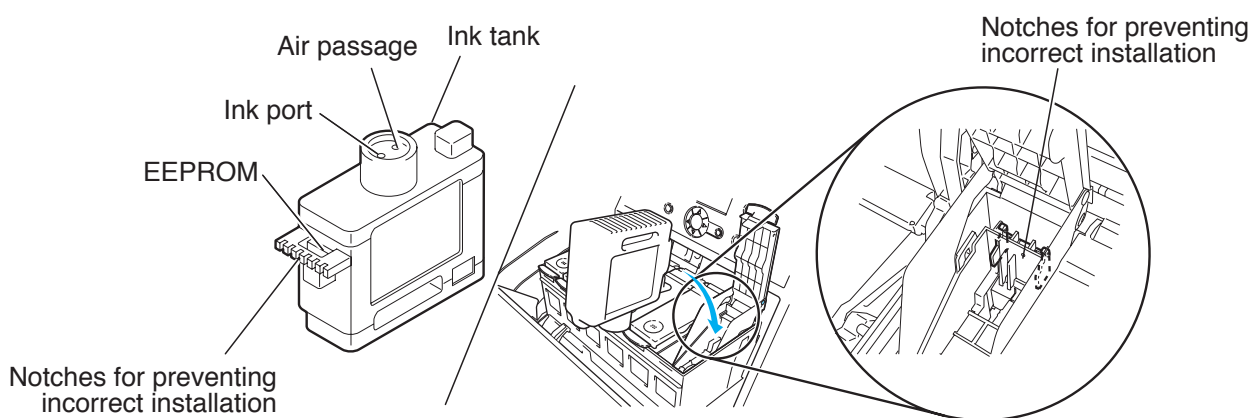
Figure 4-9 Ink Tank

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.

The ink supply valve is opened and closed by the valve cam, which turns based on the power of the valve motor.
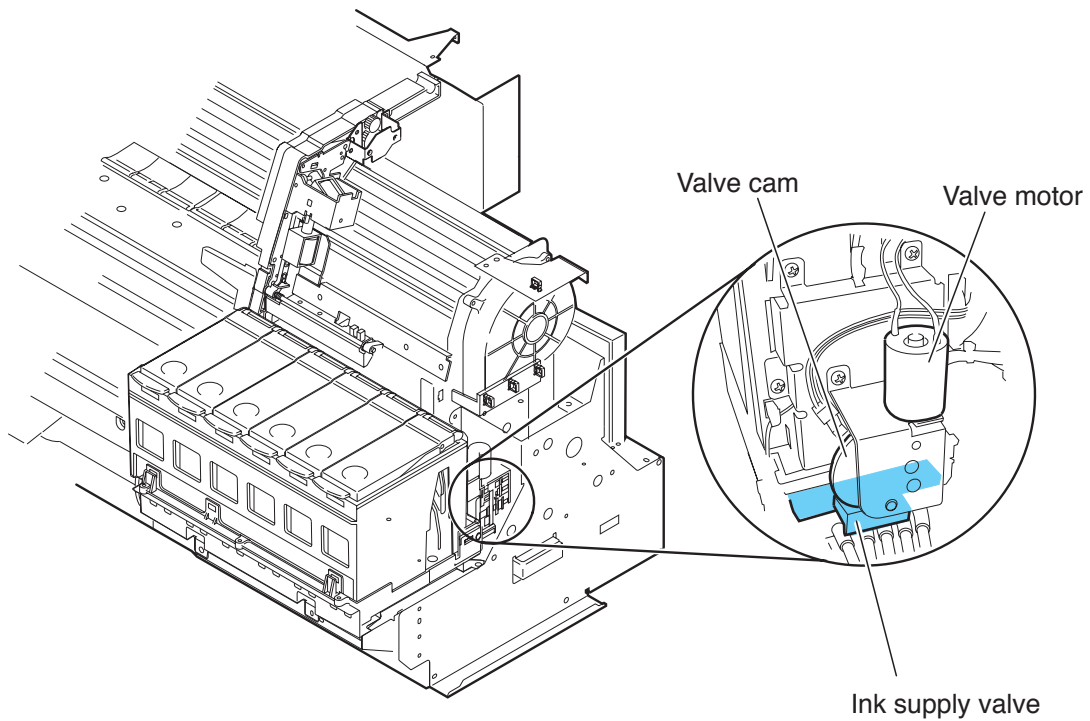
Figure 4-10 Ink Supply Valve

3.3 Carriage Unit
3.3.1 Carriage functions

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 media 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.

3.3.2 Structure of carriage

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 inside the frame-shape caterpillar and move in coordination with the carriage.
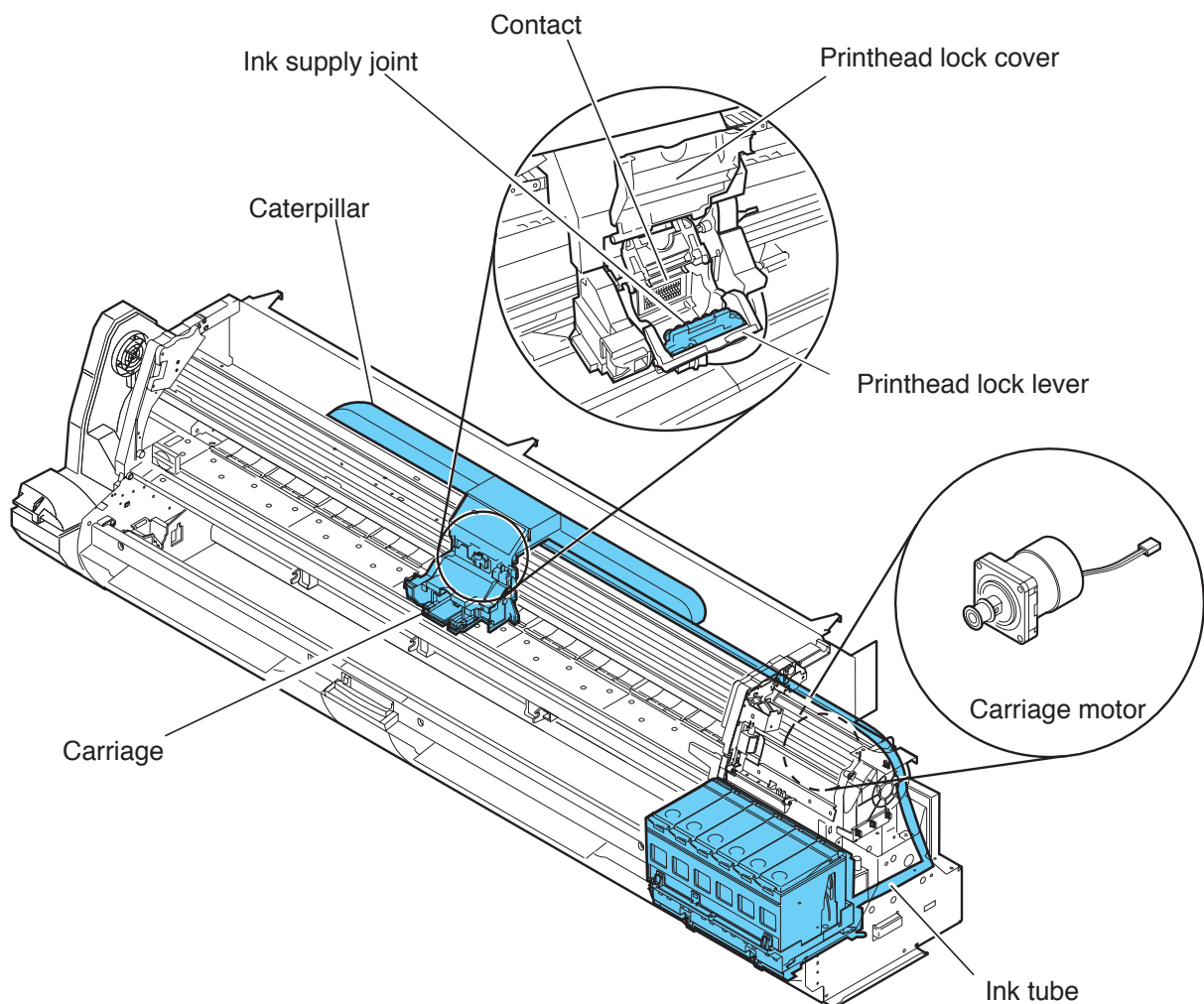
Figure 4-11 Carriage Unit (1)

4-19

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 is mounted on a frame-shaped caterpillar and moves in coordination with the carriage. 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 homeposition, which is also the capping position, is detected by the carriage homeposition edge on the right side of the carriage and the photo interrupter-type carriage homeposition sensor on the carriage 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.
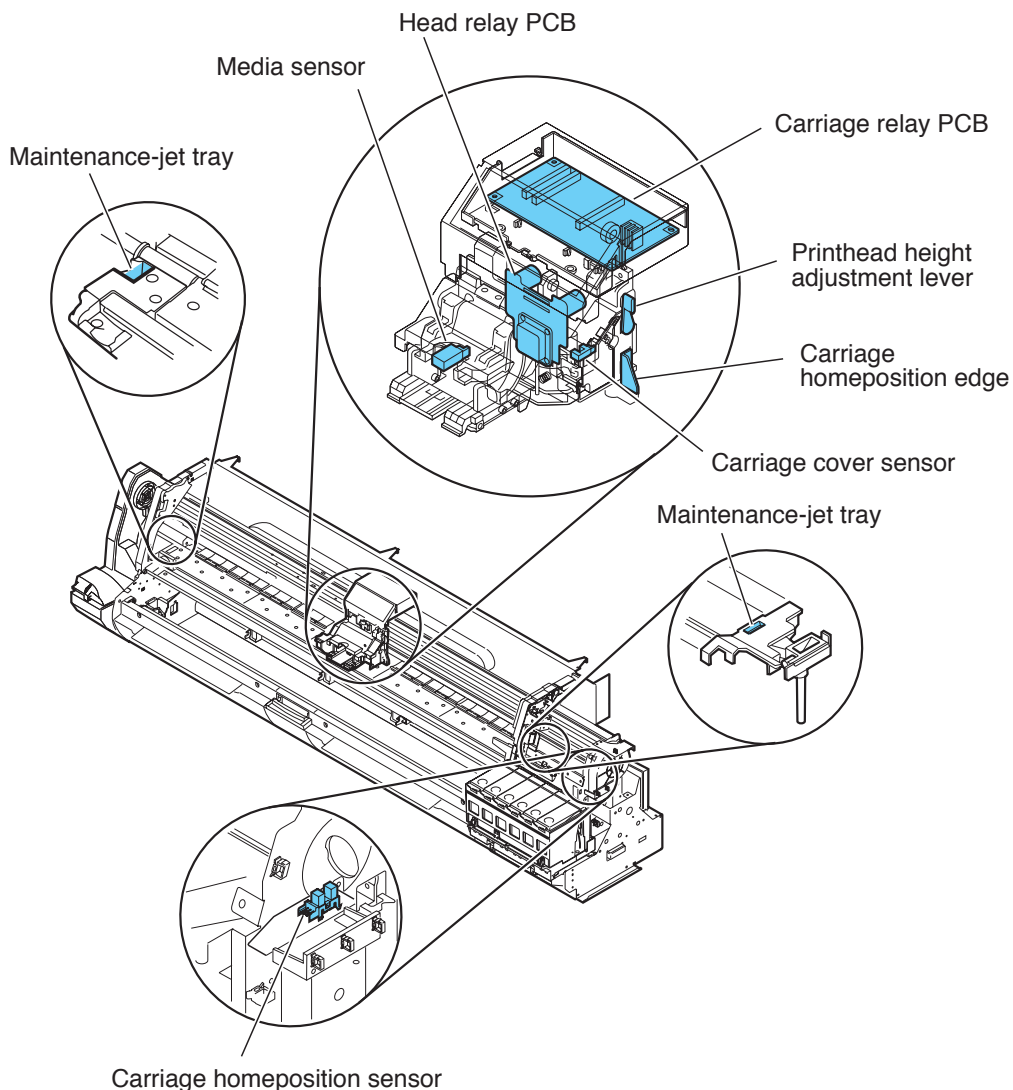
Figure 4-12 Carriage Unit (2)

4-20

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 at the left and 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 paper thickness 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.

g) Media sensor unit

The media sensor located at the bottom left of the carriage consists of an LED and photosensor.

h) Internal temperature detection

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

3.4 Printhead
3.4.1 Structure of printhead
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 1/600 inch and is arranged in a staggered pattern to form 1280 nozzles separated by an interval of 1/1200 inch.
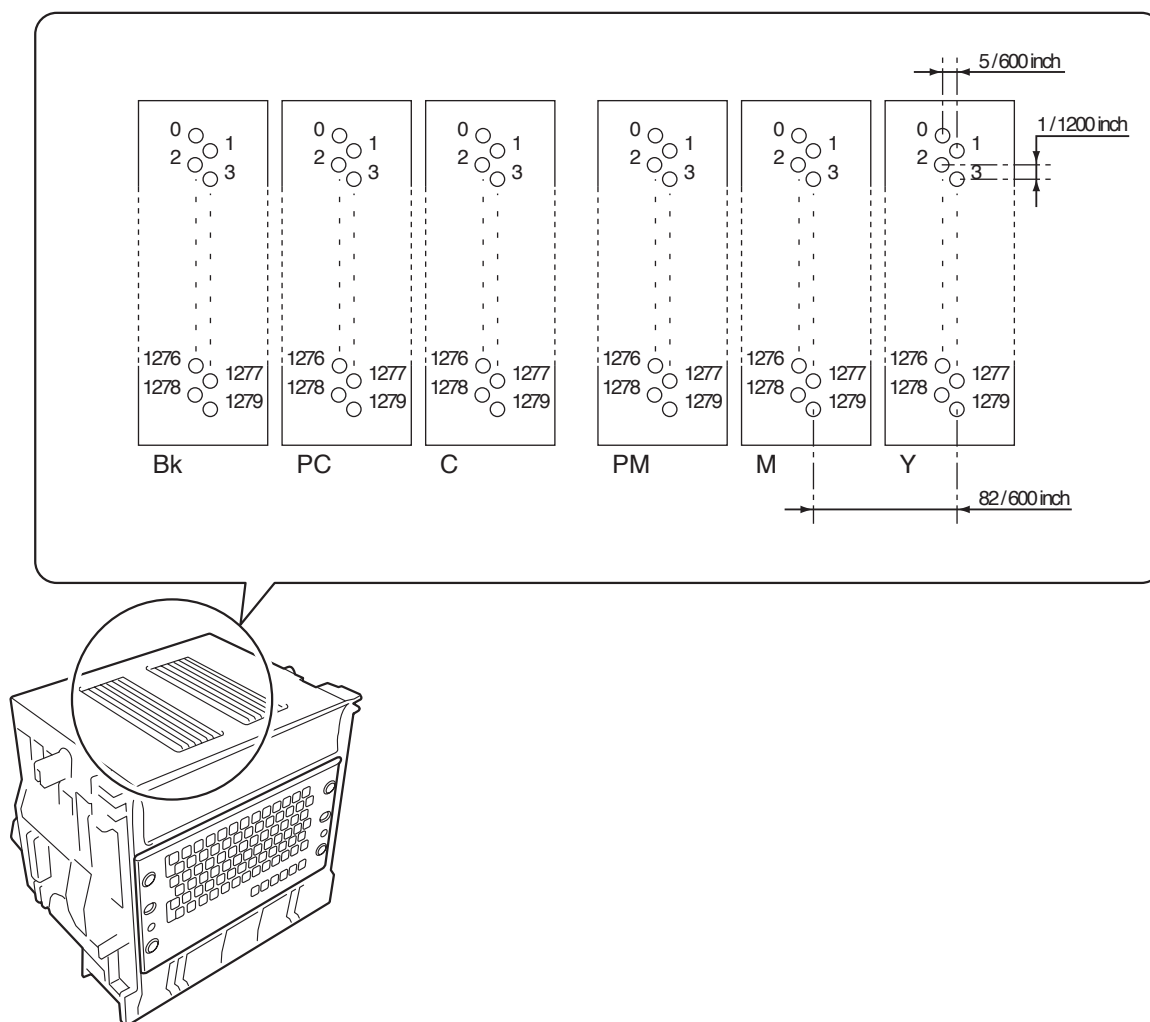
Figure 4-13 Nozzle Configuration

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.
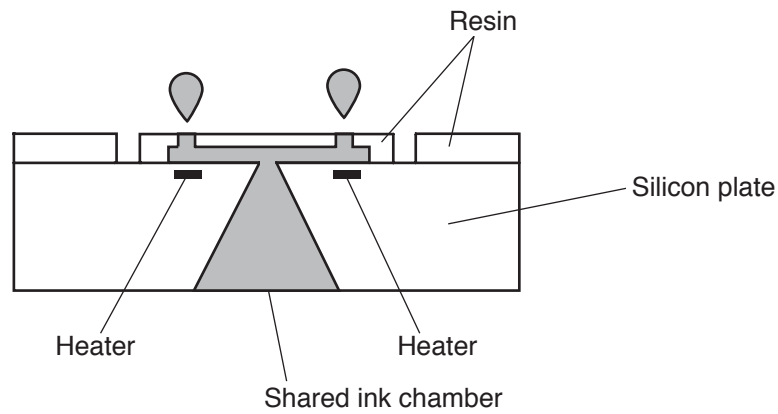
Figure 4-14 Nozzle Structure

c) Signal contact points

The signal contact points on the printhead are connected to the signal contact points on the head relay PCB so that print signals and other information are sent from the carriage relay PCB to the nozzles.
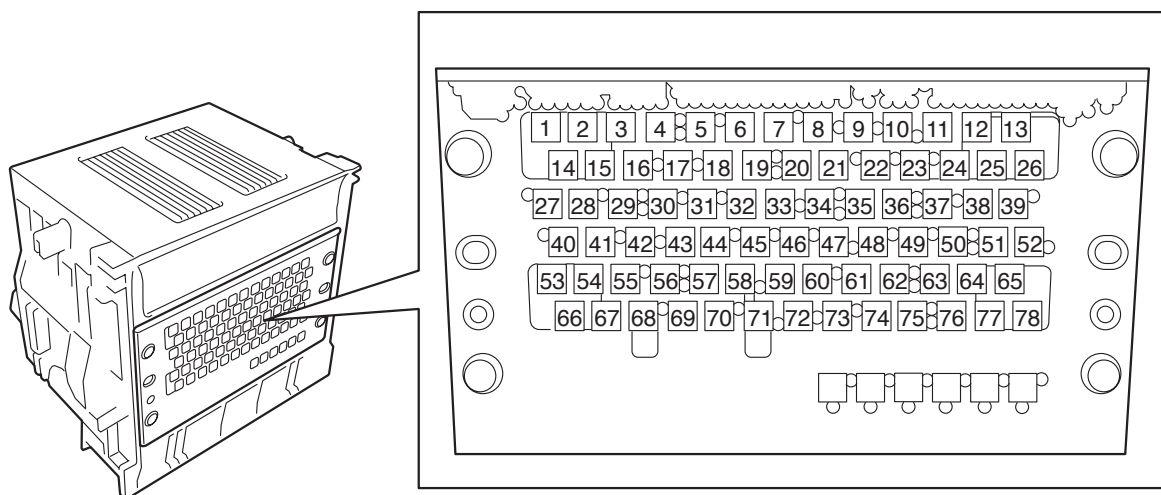
Figure 4-15 Signal Contact Points

Table 4-2 SIGNALS AND PIN NUMBERS OF SIGNAL CONTACT POINTS (1/2)

Pin number	Signal	IN/OUT	Function
1,2,3	HGND	-	GND
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	DIALC()	OUT	DI sensor signal (PC nozzle array)
28	DIAK()	OUT	DI sensor signal (Bk nozzle array)
29	DIAK()	OUT	DI sensor signal (Bk nozzle array)
30	O_DTBKI	IN	Nozzle data signal (Bk nozzle array/odd nozzle)

Table 4-2 SIGNALS AND PIN NUMBERS OF SIGNAL CONTACT POINTS (2/2)

Pin number	Signal	IN/OUT	Function
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	P_DTM2	OM	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	P_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	PECE	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	OUT	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)
71	H5V	IN	Head logic power supply (5.1 V)
72	EPCLK	IN	Head EEPROM clock signal
73	EPD1	IN	Head EEPROM write data signal
74	DIACI	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

3.5 Purge Unit
3.5.1 Functions of purge unit

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.

Printer status	Cleaning description	Ink consumption[1]
At installation	Initial refilling suction	Approx. 38 g
Power has been turned on after a predefined amount of ink has been discharged since the last cleaning C or initial refilling suction	Cleaning C	Approx. 13 g
Power has been turned on after at least 720 hours has elapsed since the last cleaning C or initial refilling suction	Cleaning C	Approx. 13 g
Before printing when less than 48 hours has elapsed since the last printing was completed	Wiping + Maintenance jet	Approx. 0.008 g
Before printing when between 48 hours and 168 hours has elapsed since the last printing was completed	Wiping + Maintenance jet	Approx. 0.016 g
Before printing when more than 168 hours has elapsed since the last printing was completed	Cleaning A	Approx. 1 g
Scan period during printing	Maintenance jet	5 discharges per nozzle
After printing is completed when a predefined amount of ink has been discharged since the last wiping[2]	Wiping + Maintenance jet	Approx. 0.008 g
After printhead replacement	Cleaning C	Approx. 13 g

Printer status	Cleaning description	Ink consumption[1]
Manual cleaning (Head Cleaning A)	Cleaning A	Approx. 1 g
Manual cleaning (Head Cleaning B)	Cleaning B suction	Approx. 6 g
When power is turned on within 72 hours from error end*[3]	Cleaning C	Approx. 13 g
When power is turned on after 72 hours from error end*[3]	Initial refilling suction	Approx. 38 g

*[1] Ink consumption amount for each nozzle array.

*[2] In the banner print mode, the cleaning operation starts upon reaching a predefined point.

*[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.

c) Ink supply

The suction pump of the purge unit 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.
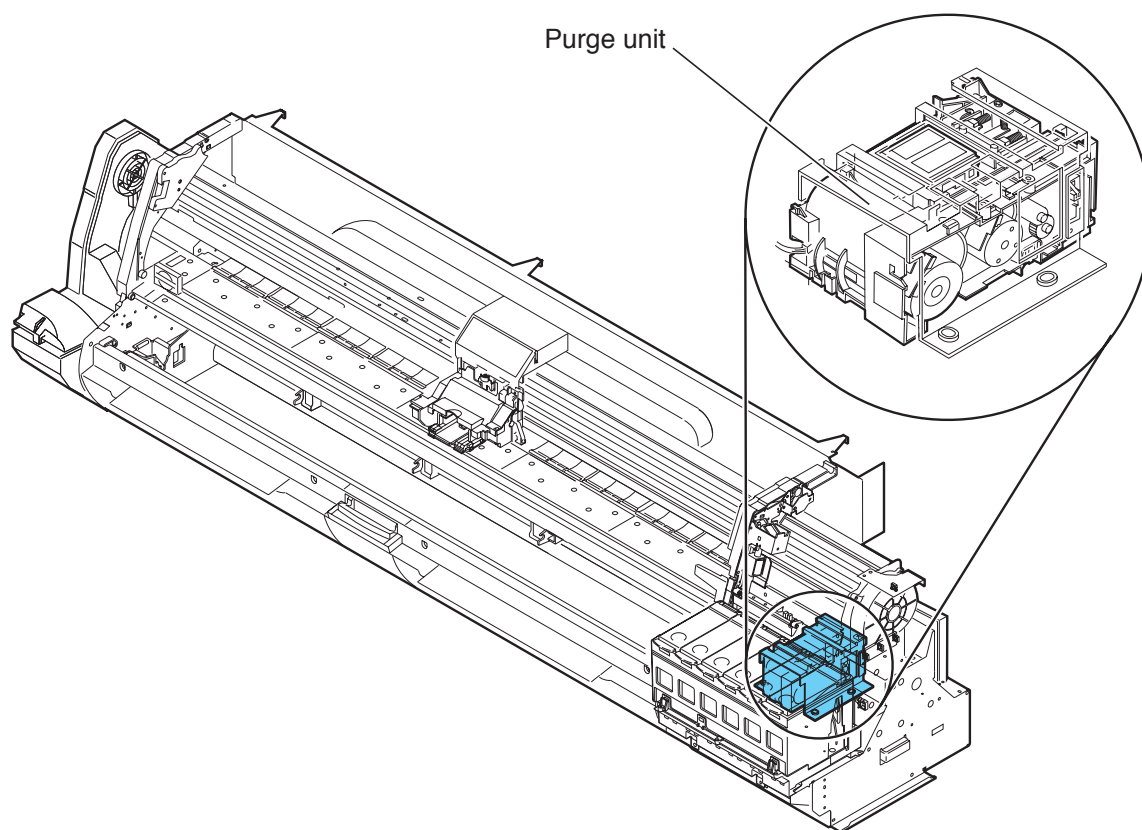
Purge unit

Figure 4-16 Purge Unit

3.5.2 Structure of purge unit

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 purge 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.
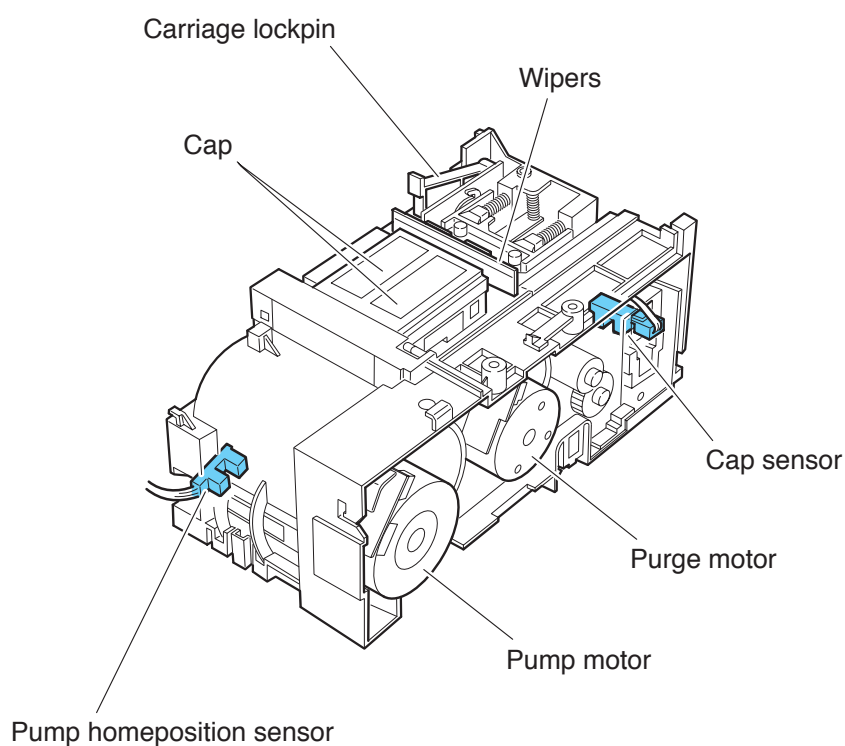
Figure 4-17 Caps

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 waste ink absorber, and then the blades are wiped off with a blade cleaner.
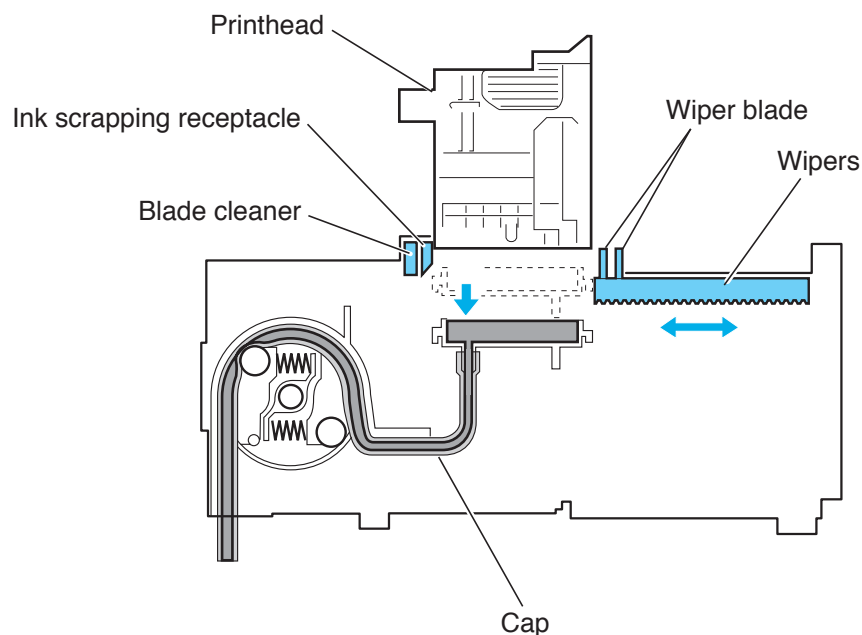
Figure 4-18 Wiping Operation (Image)

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).
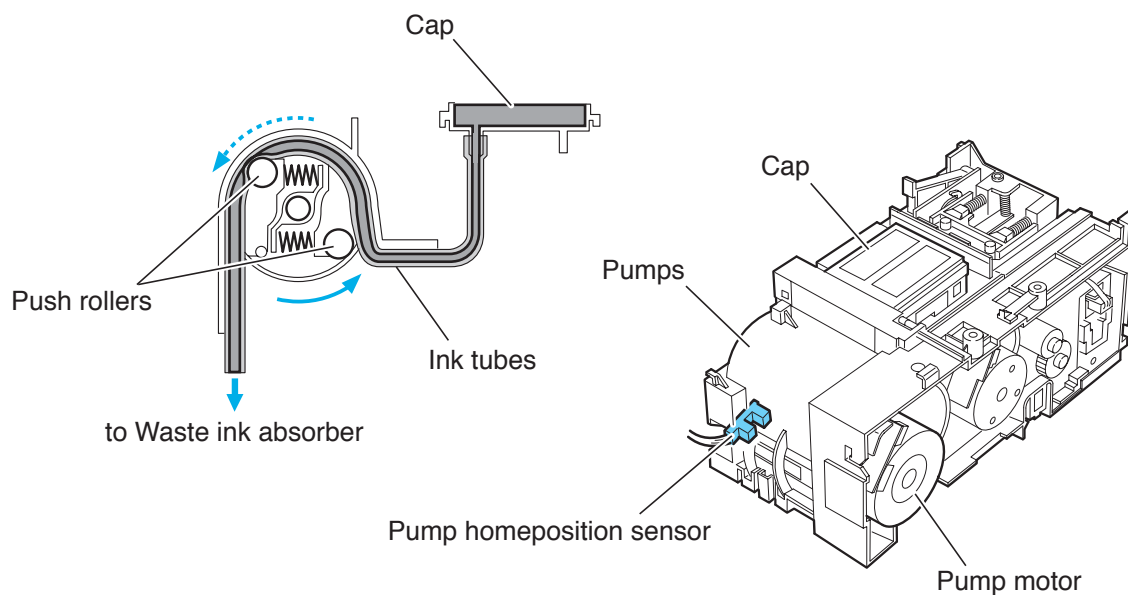
Figure 4-19 Pumps

d) Sensors

Sensors are located in the purge unit for detecting the status of the printer components.

For more information, see *Part 4*: 5. Detection Functions.

3.6 Waste Ink Absorber
3.6.1 Structure of waste ink absorber

a) Waste ink absorber

The waste ink absorber can hold up to approximately 14,400 ml of waste ink (including moisture evaporation in the waste ink).

b) Waste ink absorber full detection

The waste ink absorber full detection is calculated based on the dot count. When about 14,100ml or more of waste ink accumulates in the printer, a warning message appears on the display indicating that the waste ink is nearly full. Once about 14,400 ml of waste ink accumulates in the printer, an error occurs when printing is completed and operation is stopped.

> **CAUTION**
>
> After replacing the waste ink absorber in the printer, be sure to always clear the counter value of the waste ink absorber using the Service mode. The counter value of the waste ink absorber is stored in the EEPROM (IC428) on the engine controller. Therefore, when replacing the engine controller, be sure to refer to *Part 5:* 5.2.12 Boards.

> **NOTE**
>
> 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" command: Approx. 38 g per color
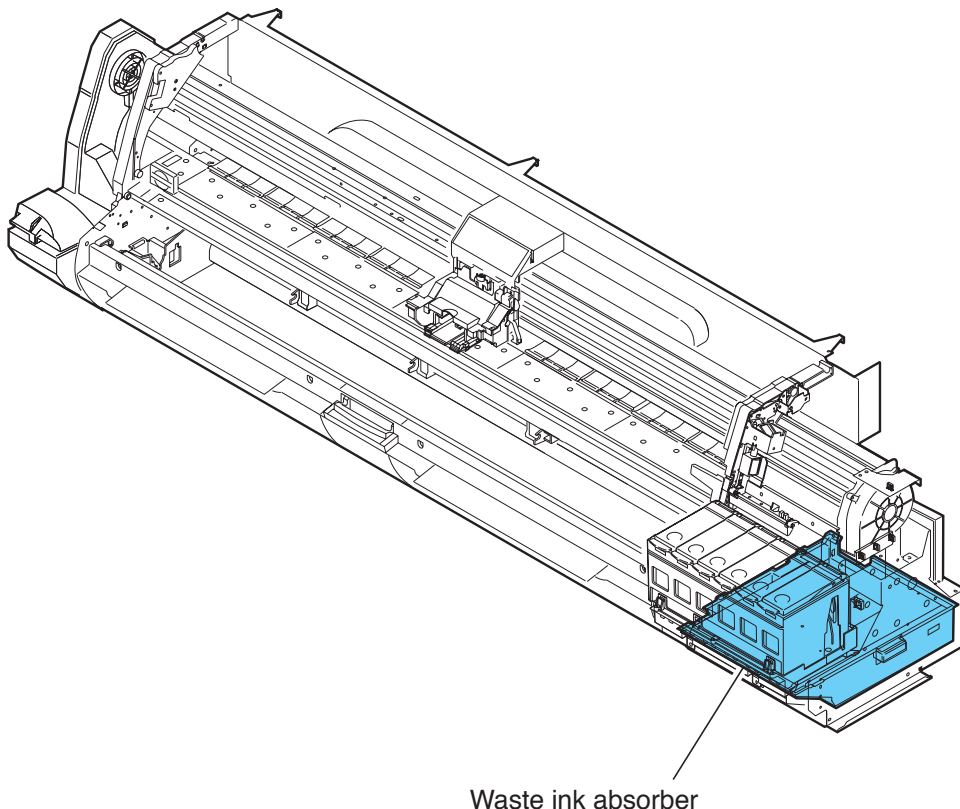
Waste ink absorber

Figure 4-20 Waste Ink absorber

3.7 Air Flow
3.7.1 Air flow

Ink mist that floats inside the printer or splashes from the paper during printing is collected by the waste ink absorber at the right side and the mist tank at the left side of the printer through the air flow inside the printer.

The suction fans at the right and left sides of the printer create an air current that carries the ink mist to the waste ink absorber and mist tank.

Air flow fan unit (L)

Air flow fan

Mist tank

Waste ink absorber
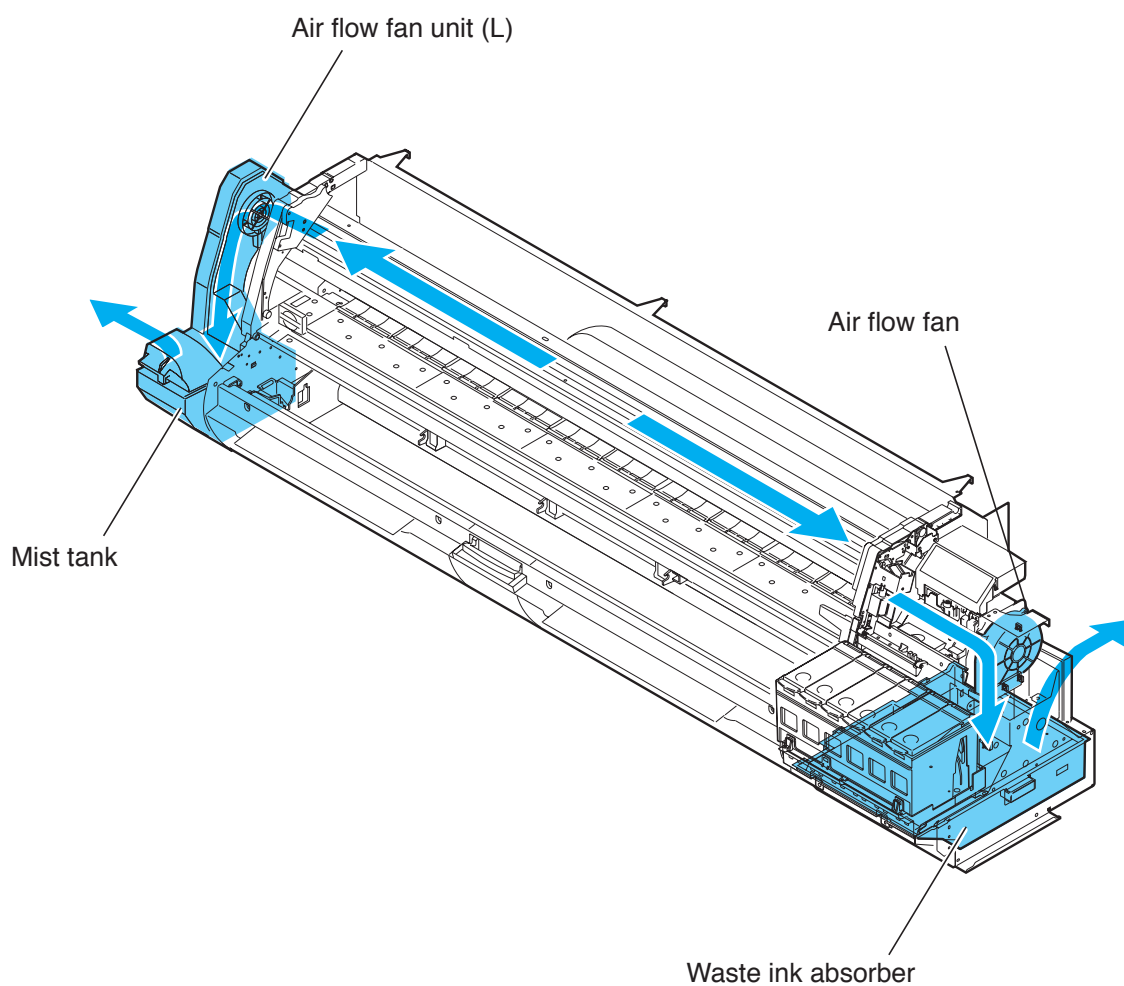
Figure 4-21 Air Flow

4-32

3.8 Paper Path
3.8.1 Overview of paper path

The paper path includes the following components: roll media tray, roll drive unit, roll feed unit, 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 automatic feeding for the roll media and manual feeding, transport, and delivery for the cut sheets.

The diagram below presents an overview of the paper path and its operations.

Figure 4-22 Paper Path

```
┌─────────────────────────┐
│ Roll media feeding starts │
└─────────────────────────┘
            ↓
┌─────────────────┐      Media is not in print standby position
│ Media detection │ ──────────────────────────────────────┐
└─────────────────┘                                        │
            │ Media is in print standby position           │
            ↓                                               ↓
┌──────────┐                                    ┌───────────────────────┐
│ Feeding  │                                    │ Feeding and transport │
└──────────┘                                    └───────────────────────┘
```

Feeding
1) Media is fed 50 mm forward from the media sensor

Feeding and transport
1) Media is supplied to the feed roller
2) Pinch rollers are pressed down
3) Media is fed 5 mm in reverse
4) Media is fed 40 mm forward from the media sensor
5) Pinch rollers are released
6) Media is fed 40 mm in reverse
7) Pinch rollers are pressed down
8) Madia is fed 50 mm forward

Media sensor calibration
1) Media sensor is moved over the media.
2) Sensor output is determined, and the sensor input value over the media is checked.
3) Media sensor is moved over the platen.
4) The sensor input value over the platen is checked. This is performed each time the media is loaded since the sensor input value varies depending on the media type.

Media leading edge detection
1) Media sensor is moved over the media.
2) The media is fed in reverse, and preliminary detection of the media leading edge is made. (Feeding stops when detection is made.)
3) The media is fed forward, and the media leading edge is detected.

Media width detection
1) The media sensor moves over the platen and the media is fed 50 mm forward.
2) The media left edge is detected. (The carriage forward movement is stopped momentarily when detection is made.)
3) Preliminary detection of the media right edge is made. (The carriage forward movement is stopped when detection is made.)
4) The media right edge is detected. (The carriage backward movement is stopped momentarily when detection is made.)

Media skewing detection
1) The media sensor moves over the platen at the media left edge and the media is fed 300 mm forward.
2) The media left edge is detected. (The carriage forward movement is stopped momentarily when detection is made.) This is compared with the media left edge found at media width detection to find the skewing amount. (The skewing amount must be ± 1 mm or less.)

Roll media feeding ends Print standby position

Print

Figure 4-23 Roll Media feed Sequence

a) Roll media tray feeding

Roll media fed in the roll media tray are transported by the roll media supply rollers, and feed rollers.

If roll media is fed when the roll media tray feeding option is selected, the roll drive motor and feed motor start operating once the roll media tray and tray are closed. When the roll media leading edge is detected by the feed sensor and moves a predetermined length from the feed sensor, the feeding operation is stopped momentarily.

Next, to remove the slack from the roll media, temporarily release the pinch roller unit, increase the suction rate of the suction fan, run the feed motor in reverse to rewind the prescribed amount, and apply pressure with the pinch roller to pause the feeding operation.

After performing calibration of the media sensor in this state, perform media leading edge detection, media width detection, and skewing detection, and then stop the roll media at the print standby position.

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

Cut sheet fed starts	
Media trailing edge detection	1) The sheet is fed forward, and preliminary detection of the sheet trailing edge is made by the feed sensor. (Feeding stops momentarily when detection is made.) 2) The sheet is fed in reverse, and the sheet trailing edge is detected by the feed sensor. (Feeding stops when detection is made.)
Media sensor calibration	1) Media sensor is moved over the sheet. 2) Sensor output is determined, and the sensor input value over the sheet is checked. 3) Media sensor is moved over the platen. 4) The sensor input value over the platen is checked. This is performed each time the media is loaded since the sensor input value varies depending on the media type.
Media width detection	1) The sheet left edge is detected. (The carriage forward movement is stopped momentarily when detection is made.) 2) Preliminary detection of the sheet right edge is made. (The carriage forward movement is stopped when detection is made.) 3) The sheet right edge is detected. (The carriage backward movement is stopped momentarily when detection is made.)
Media leading edge detection (start)	1) Media sensor is moved over the sheet. 2) The sheet is fed 300 mm in reverse. (Feeding stops when detection is made.)
Leading edge detection	Unable to detect / Detected

Media leading edge detection (continued): 1) The sheet is fed forward, and the sheet leading edge is detected.

Media leading edge detection (shutdown): 1) The media sensor moves over the platen at the sheet left edge.

Media skewing detection: 1) The sheet left edge is detected. (The carriage forward movement is stopped momentarily when detection is made.) This is compared with the sheet left edge found at media width detection to find the skewing amount. (The skewing amount must be ± 1 mm or less.)

Media leading edge detection (recovery): 1) The media sensor is moved to the leading edge detection shutdown position.
2) The sheet is fed in reverse, and preliminary detection of the sheet leading edge is made. (Feeding is stopped when detection is made.)
3) The sheet is fed forward, and the sheet leading edge is detected. (Feeding is stopped when detection is made.)

Media skewing detection: 1) The media sensor moves over the platen at the sheet left edge and the sheet is fed 50 mm forward.
2) The sheet left edge is detected. (The carriage forward movement is stopped momentarily when detection is made.) This is compared with the sheet left edge found at media width detection to find the skewing amount. (The skewing amount must be ± 1 mm or less.)

Cut sheet fed ends — Print standby position

Print

Figure 4-24 Cut Sheet feed Sequence

b) Tray feeding

Cut sheets that are loaded on the platen are transported by the feed rollers. If the cut sheets are loaded when the tray feeding option is selected, the feed motor starts operating once the upper cover is closed. The trailing edge of the cut sheets loaded on the platen is detected by the feed sensor. After performing calibration of the media sensor in this state, perform media leading edge detection, media width detection, and skewing detection, and then stop the cut sheet at the print standby position. The cut sheets are then fed by a length equivalent to the margin of the leading edge, and the printing operation is started. Feeding of the cut sheets during printing is performed by controlling the rotation of the feed rollers according to the printing mode.

c) Paper delivery

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 face down.
The roll media on the platen is wound back to the print standby position.
In continuous banner printing with roll media, the paper is not cut and waits in
pause mode for maintenance operations such as cleaning.
The printed cut sheets stop on the platen, and a message is displayed when printing
is finished.

d) Other paper feed operations
i) Roll media replacement sequence

This printer assumes that the roll media has been replaced when the sensor detects
that the tray is opened and closed.
When the roll media is replaced, the roll media is fed over the platen where the
media leading edge detection, media width detection, and skewing detection is
performed. If no skewing is detected, approximately 100 mm of the media leading
edge is trimmed, and the roll media is wound back to the print standby position on
the platen.
Media leading edge detection, media width detection, and skewing detection are
performed by the media sensor.
In media width detection, the media edges at the carriage homeposition side and at
the opposite side are detected at the position where the media leading edge is fed
approximately 50 mm from the media sensor to find the media width.
In skewing detection, the skewing amount is found using the media edge at the
carriage homeposition side found by media width detection and the shift of the
media edge at the same position when the media leading edge is fed approximately
300 mm from the media sensor.

ii) Roll media trailing edge detection sequence

The roll media is handled in the following manner according to the paper type.
  Recommended roll media:
  When the roll media end sensor detects the roll media trailing edge during the roll
  media feeding operation, the feeding operation is stopped, and a warning message
  is shown on the display.

  Non-recommended roll media:
  If the roll media trailing edge is secured by strong adhesive tape, the roll media
  trailing edge cannot be detected by the roll media end sensor. In this case, the roll
  feed sensor detects a media feeding error, the feeding operation is stopped, and a
  warning message is shown on the display.

3.9 Structure of Paper Path
3.9.1 Structure of roll media tray

a) Roll media load unit
One roll media can be loaded in the roll media tray with the roll holder as the shaft. The roll drive motor transmits its power to the roll media load unit through the gear train, and feeding of the roll media is performed.

b) Roll media detection unit
The roll media is detected by the roll media end sensor of the roll media load unit. The remaining amount of roll media can be checked visually from the small window at the right side of the tray.
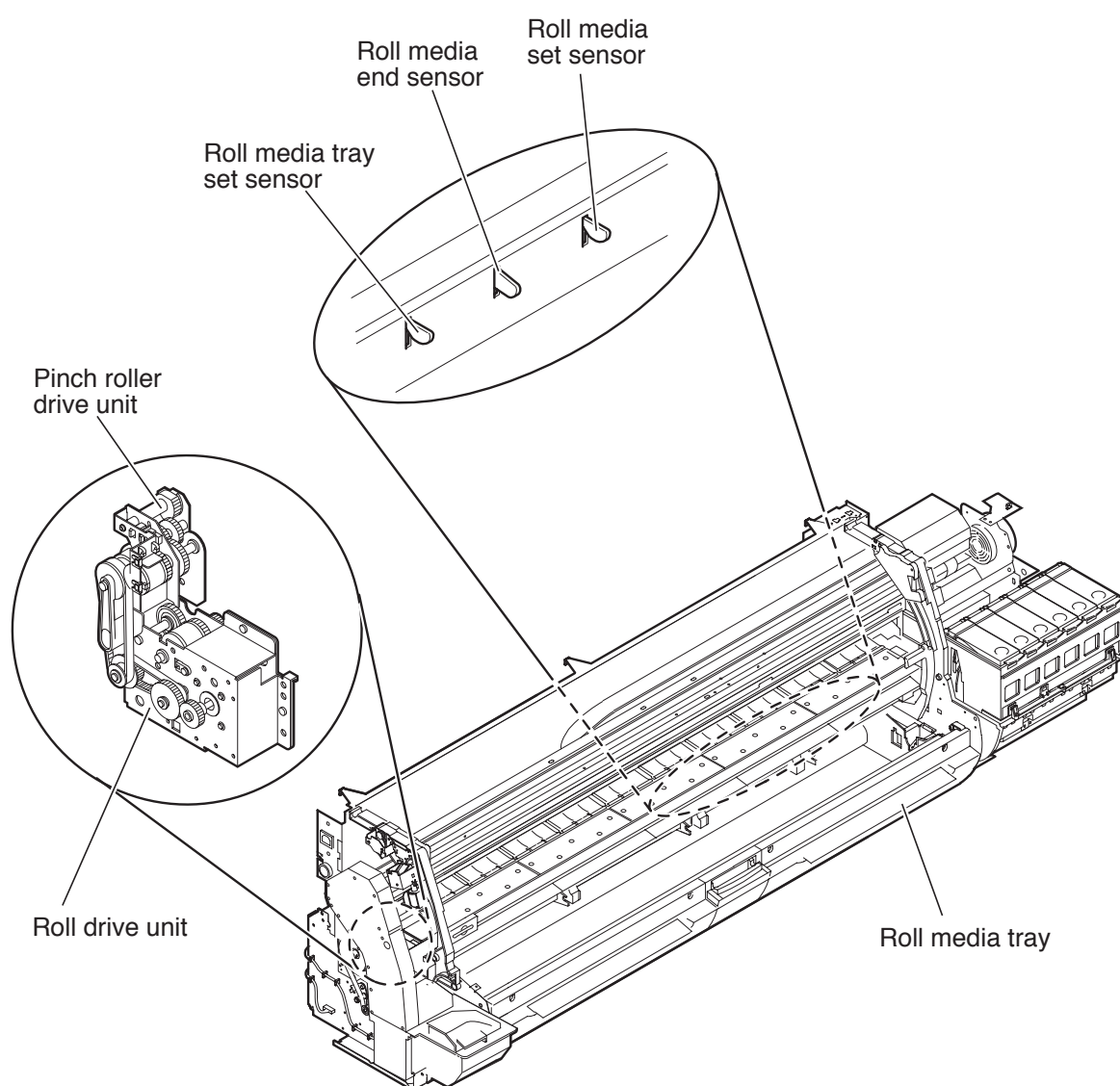
Figure 4-25 Roll Media Tray

3.9.2 Structure of feed rollers

a) Paper feed unit

The paper feed unit consists of paper path parts, including the paper guides and platen; and 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 *Part 4: 5.* DETECTION FUNCTIONS.
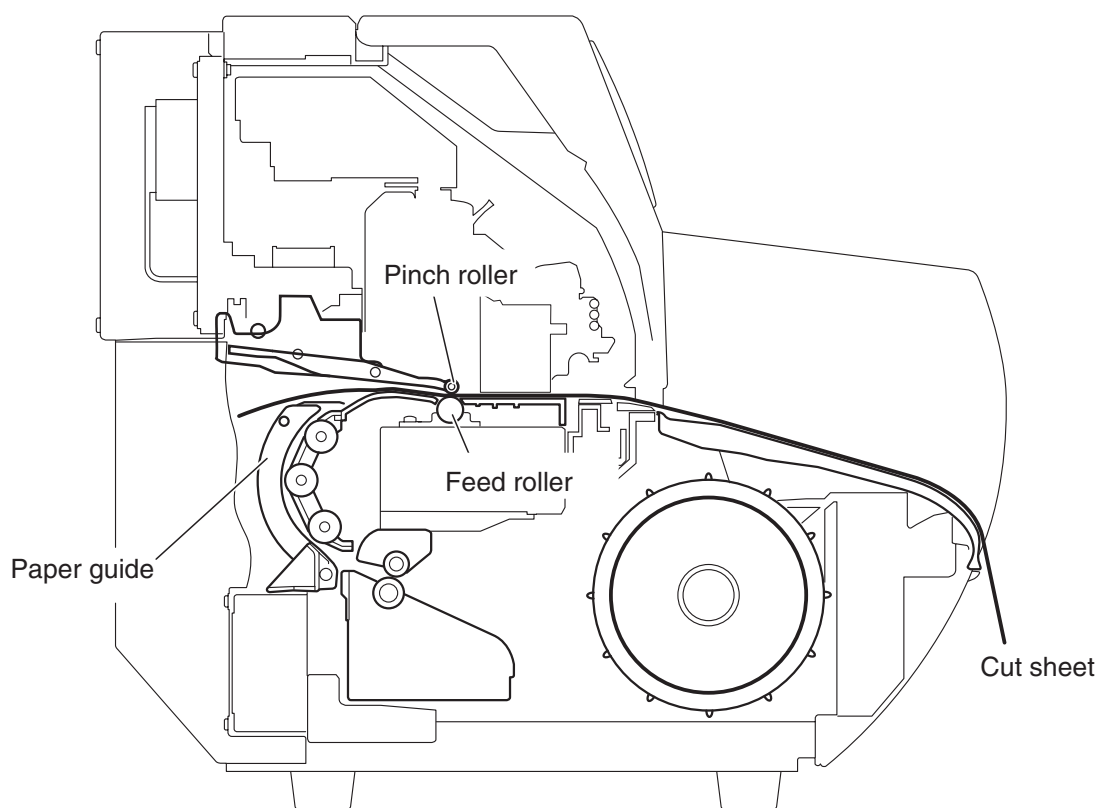
Figure 4-26 Manual Feed Tray/Paper Feed Unit

3.9.3 Structure of cutter unit

a) Sheet cutter

When "Autocut: Yes" is selected in the Main Menu, the cutter blade mounted on the left side of the printer automatically cuts the roll media.

Except when cutting roll media, the cutter unit 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 is driven so that the driving belt moves the cutter unit from the left to the right, and then the roll media is cut.
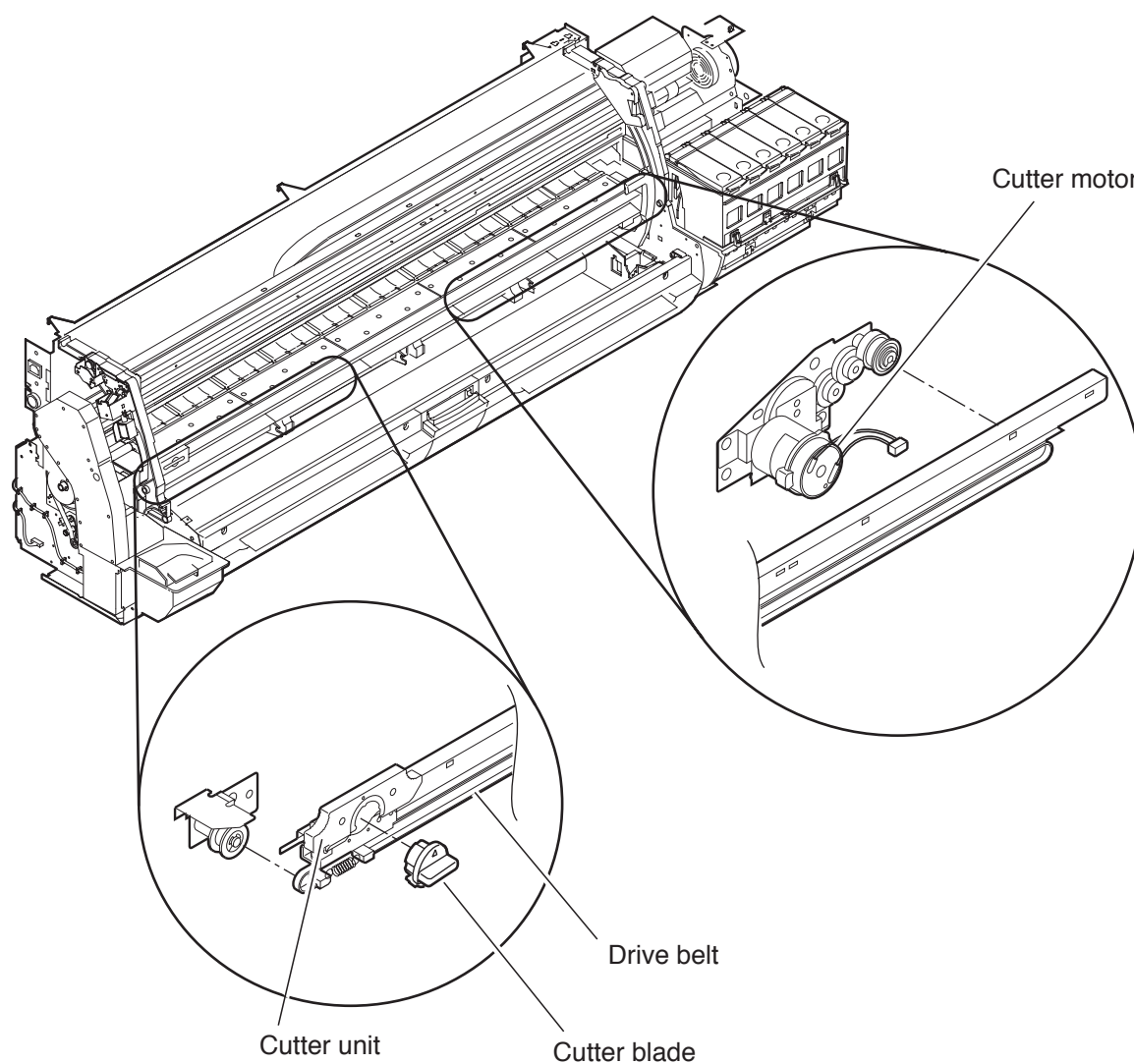
Figure 4-27 Cutter Unit

4. PRINTER ELECTRICAL SYSTEM

4.1 Overview

The printer electrical system consists of the system controller, engine controller, motor driver PCB, 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.
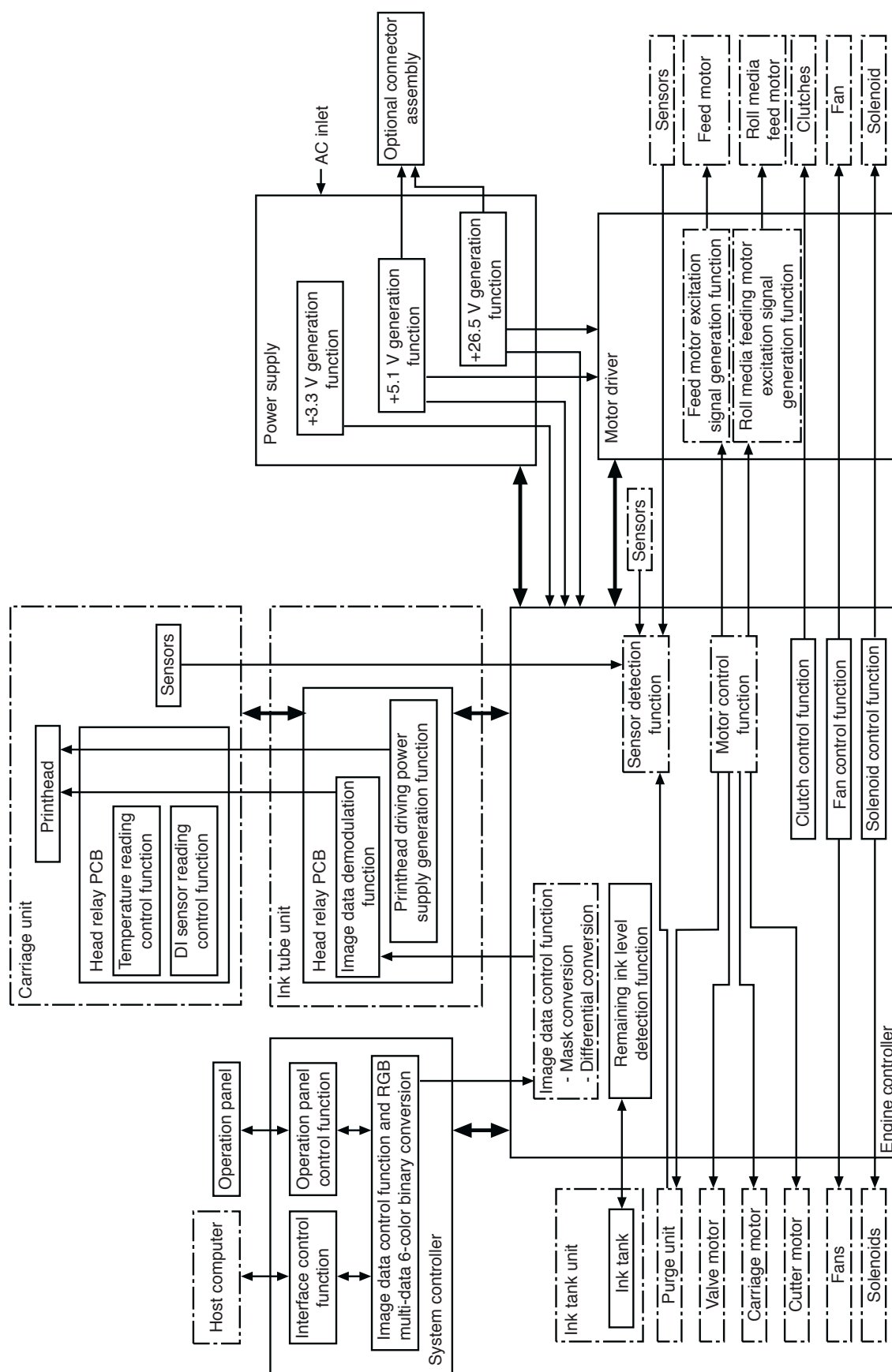
Figure 4-28 Printer Electrical Section

4.2 System Controller
4.2.1 System controller components
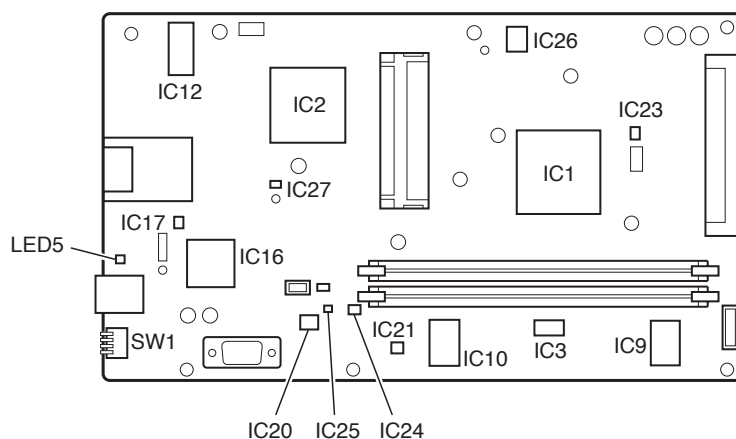
Figure 4-29 System Controller

a) CPU (IC1)

The CPU, with a 32-bit internal bus, operates in synchronization with the 266-MHz internal clock that is generated from a 33.333-MHz external clock.
The CPU is connected to one 128-MB DIMM board, two 2-MB ROM chips, and a 4-Kbit EEPROM chip. The CPU has the following functions.

DMA controller

The DMA controller manages the network, expansion card slots, and other input interfaces and DMA transfer of the data stored in the SDRAM.

Interrupt controller

The interrupt controller receives and processes the external interrupts from the network, image process ASIC (IC2), and the expansion card slots, in addition to the internal interrupts.

b) Image process ASIC (IC2)

The image process 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 process ASIC has the following functions.

Engine controller communication control

This function controls serial communication with the engine controller.

Operation panel control

This function controls serial communication with the operation panel.

c) Network device controller (IC16)

The network device controller receives print data sent from the host computer after passing through the interface connectors.

d) DIMM

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

e) FLASH ROM (IC9, IC10)

The 4-MB FLASH ROM is connected to the 8-bit data bus and 64-bit data bus and stores a printer control program.

f) EEPROM (IC21)

The 4-Kbit EEPROM stores the setting values and adjustment values from the Main Menu.

g) FCRAM (IC12)

The 8-MB FCRAM is connected to the image process ASIC and is used as the image buffer when print data is received.

h) LED (LED5)

This LED turns green when network communication is being performed.

i) DIP switches (SW1)

This is for setting the network communication speed and transfer mode.
Once the settings are modified, the power must be turned off and then on again.

No.	ON	OFF
1	Manual	Automatic
2	100 Mbps	10 Mbps
3	Full duplex mode	Half duplex mode
4	Using the hub spanning tree function	Not using the hub spanning tree function

The current communication settings can be checked using the LED of the LAN port.
Green : 100 Mpbs
Yellow : 10 Mbps

4.3 Engine Controller
  4.3.1 Engine controller components
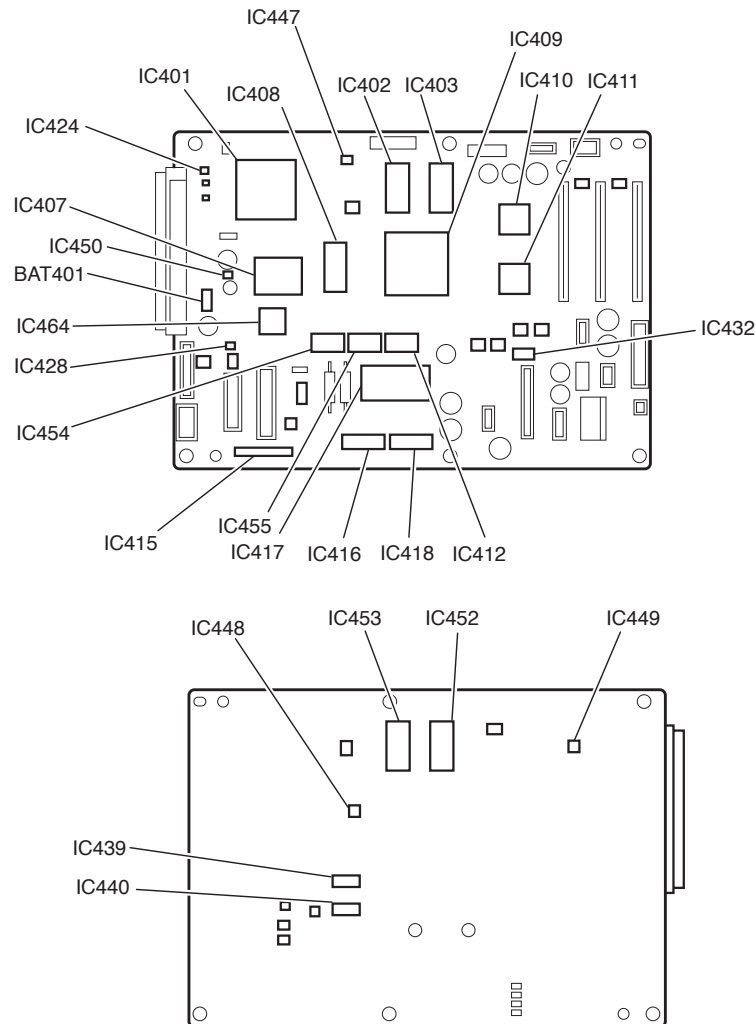
Figure 4-30 Engine Controller

a) CPU (IC401)

The CPU, with a 32-bit internal bus, operates in synchronization with the 132-MHz internal clock that is generated from a 33-MHz external clock.
The CPU is used 8-MB SDRAM (IC408) and 16-Kbit EEPROM (IC428). The CPU performs parameter control and has the following functions.

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 that is input after passing through the system controller.

Timer function

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

Ink tank EEPROM control
This function controls the reading and writing of data to the EEPROM mounted on the ink tank for each color.

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 (IC409)
The ASIC, with a 32-bit internal bus, operates in synchronization with the 66-MHz internal clock that is generated from a 33-MHz external clock.
The CPU is used four 16-MB SDRAM chips and two driver ASIC chips. The ASIC has the following functions.

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

Image data reception
This function receives the image data from the system controller and stores it in the SDRAM (IC402, IC403, IC452, IC453).

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 (IC408).
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 300-dpi timing signal.

1200-dpi timing generation
This function divides the linear scale 300-dpi timing into four equal parts to generate the 1200-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) Driver ASIC (IC464)

Head management function
This performs sampling and generates the control signals for ink discharge detection of the printhead.

Cutter motor control function
This performs forward rotation and reverse rotation driving of the cutter motor through the motor driver based on the control signals from the CPU.

Valve motor control function
This performs forward rotation and reverse rotation driving of the valve motor through the motor driver based on the control signals from the CPU.

I/O port function
This performs input control from each sensor and control of the motors.

d) Driver ASIC (IC410, IC411)
The image data generated by the ASIC (IC409) undergoes differential processing to reduce noise and then is sent to the carriage relay PCB.

e) SDRAM (IC402, IC403, IC452, IC453)
The 16-MB SDRAM is connected to the 32-bit data bus and is used as an image buffer when receiving the print data.

f) Flash ROM (IC407)
The 8-MB FLASH ROM is connected to the 16-bit data bus and stores a printer control program and mask patterns.

g) SDRAM (IC408)
The 8-MB SDRAM is connected to the 16-bit data bus and is used as a CPU work memory.

h) EEPROM (IC428)
The 16-Kbit EEPROM stores the printer adjustment values.
It also is used to store the service mode history (P-SETTING, WARNING, ERROR).

i) Motor driver (IC412, IC417)
This motor driver is used to drive the carriage motor, which is a DC motor with built-in software servo.

j) Motor driver (IC415)

This motor driver is used to perform constant-voltage driving of the pump motor, which is a two-phase stepping motor.

k) Motor driver (IC416, IC418)

This motor driver is used to perform constant-current driving of the purge motor, which is a two-phase stepping motor.

l) Motor driver (IC454)

This drives the cutter motor, which is a DC brush motor.

m) Motor driver (IC455)

This drives the valve motor, which is a DC brush motor.

n) Regulator IC (IC448)

The regulator IC generates the ASIC internal driving power supply (2.5 V).

o) Regulator IC (IC449)

The regulator IC generates the CPU internal driving power supply (1.9 V)

p) Regulator IC (IC450)

The regulator IC generates the RTC driving power supply (1.8 V) in the CPU.

q) D/A converter (IC432)

This converter is used to drive the media sensor LEDs.

r) D/A converter (IC439)

This converter is used to set the driving current of the roll feed motor.

s) D/A converter (IC440)

This converter is used to set the driving current of the feed motor.

t) Reset IC (IC424)

The reset IC initializes the engine controller based on the control signals from the system controller.

u) Lithium battery (BAT401)

The lithium battery is connected to the RTC in the CPU. The battery can performs backups for approximately two weeks with the AC power unconnected.

4.4 Carriage Relay PCB
4.4.1 Carriage relay PCB components
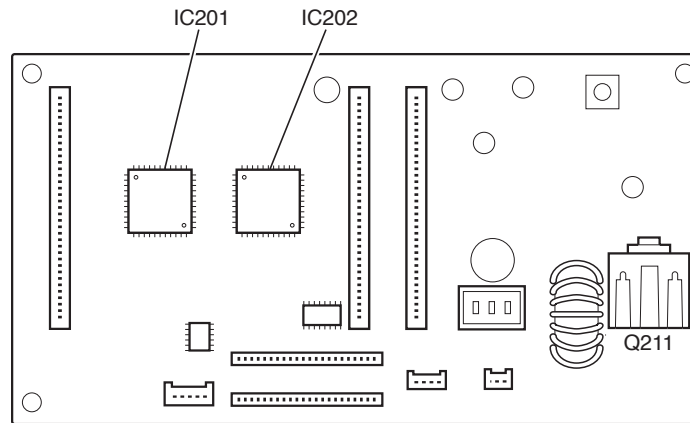
Figure 4-31 Carriage Relay PCB

a) Receiver ASIC (IC201, IC202)

The receiver ASIC receives and recovers the image data that has undergone differential processing by the driver ASIC (IC410, IC411) in the engine controller, and then sends this data to the printhead.

b) Regulator IC (Q211)

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

4.5 Head Relay PCB
4.5.1 Head relay PCB components
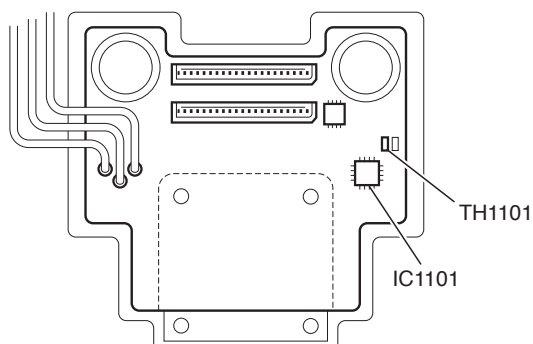
Figure 4-32 Head Relay PCB

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.

4.6 Motor Driver
4.6.1 Motor driver components
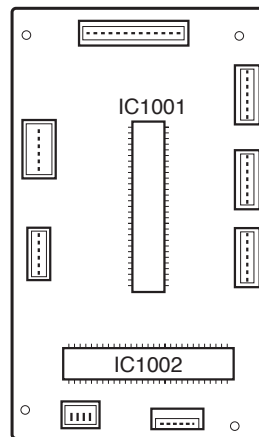
Figure 4-33 Motor Driver

a) Feed motor driver (IC1001)

This driver generates and sends the excitation signals for the feed motor based on the control signals from the engine controller.

b) Roll feed motor driver (IC1002)

This driver generates and sends the excitation signals for the roll feed motor based on the control signals from the engine controller.

4.7 Power Supply
4.7.1 Power supply block diagram
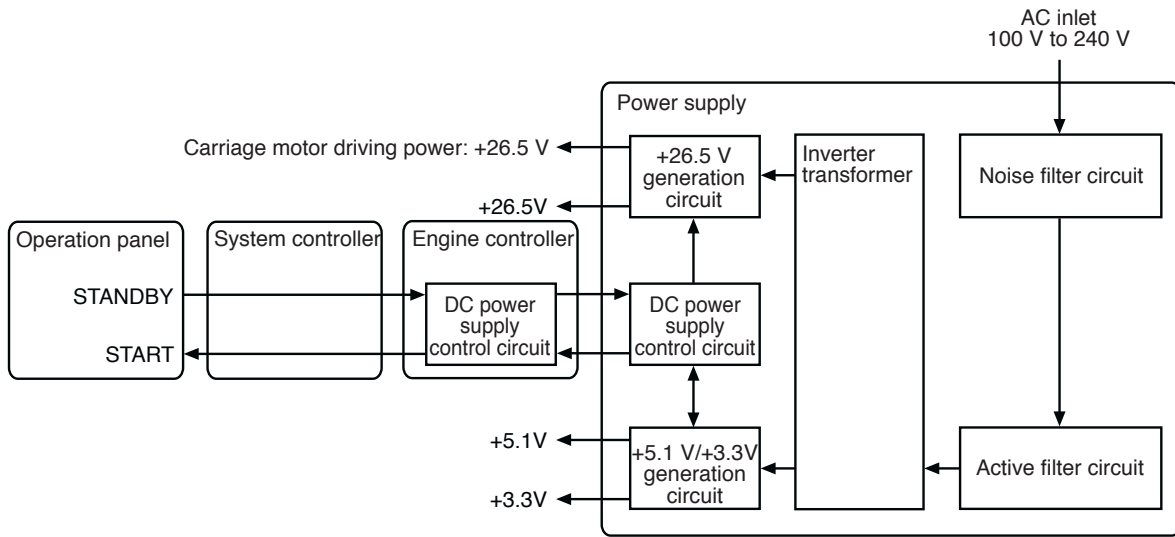
Figure 4-34 Power Supply Block Diagram

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. Also, only the carriage motor driving +26. 5 V power is turned off
when the upper cover is opened.

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5. DETECTION FUNCTIONS

5.1 Detection Functions Based on Sensors
5.1.1 Sensors for covers/roll media tray
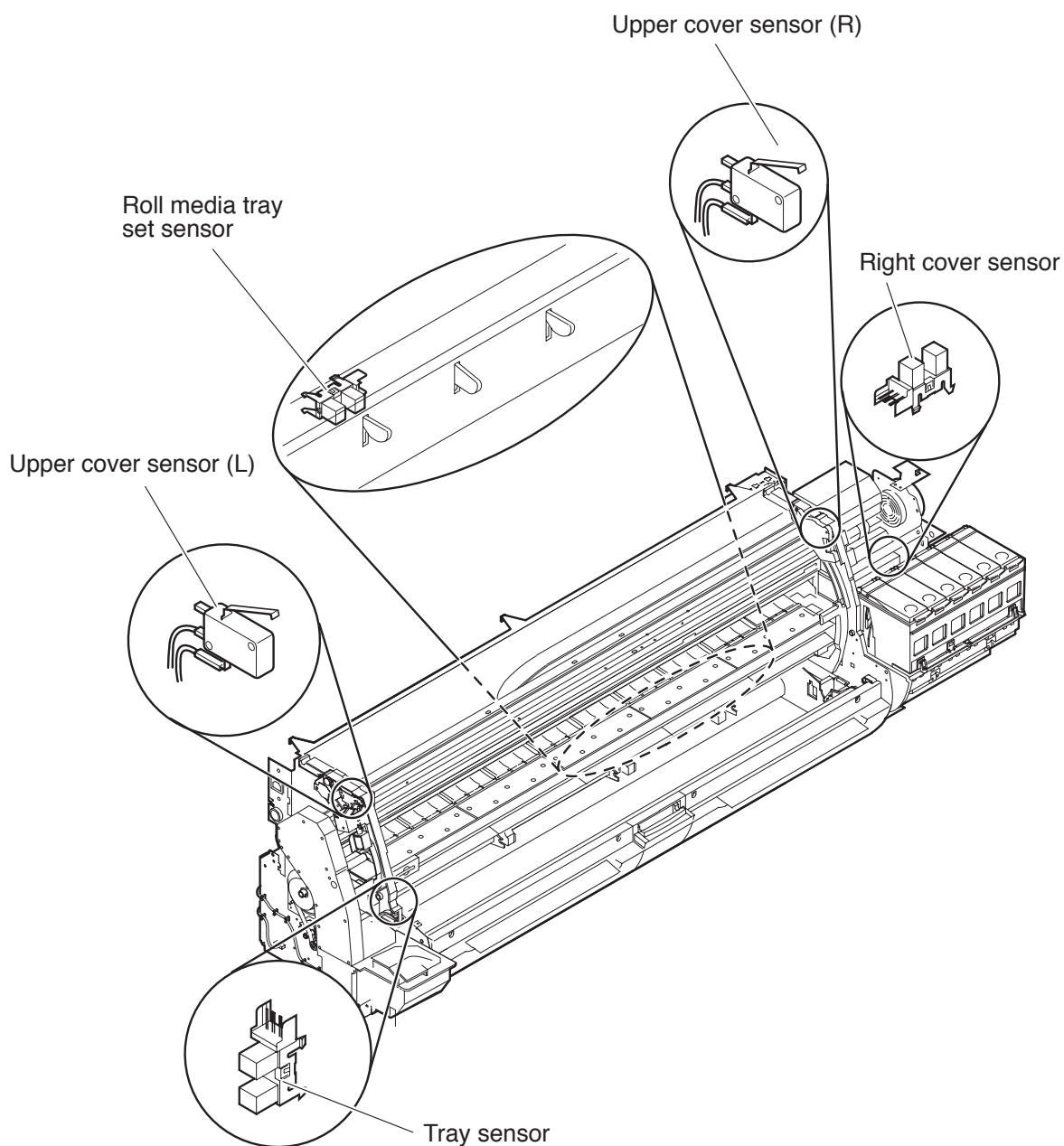
Figure 4-35 Layout of Sensors for Covers/Roll Media Tray

Upper cover sensors

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.

Tray sensor

This photo interrupter-based tray sensor detects when the tray is opened and closed. When the tray is closed, the sensor light is cut off by the sensor arm, and this notifies the sensor that the tray is closed.

Roll media tray set sensor

The photo interrupter-based roll media tray set sensor detects the opening and closing of the roll media tray.

When the roll media tray is closed, the sensor light is transmitted through the sensor arm, and this notifies the sensor that the roll media tray is closed.

NOTE) 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.

5.1.2 Ink passage system

Head management sensor unit

Pump homeposition sensor

Cap sensor

Valve cam sensor
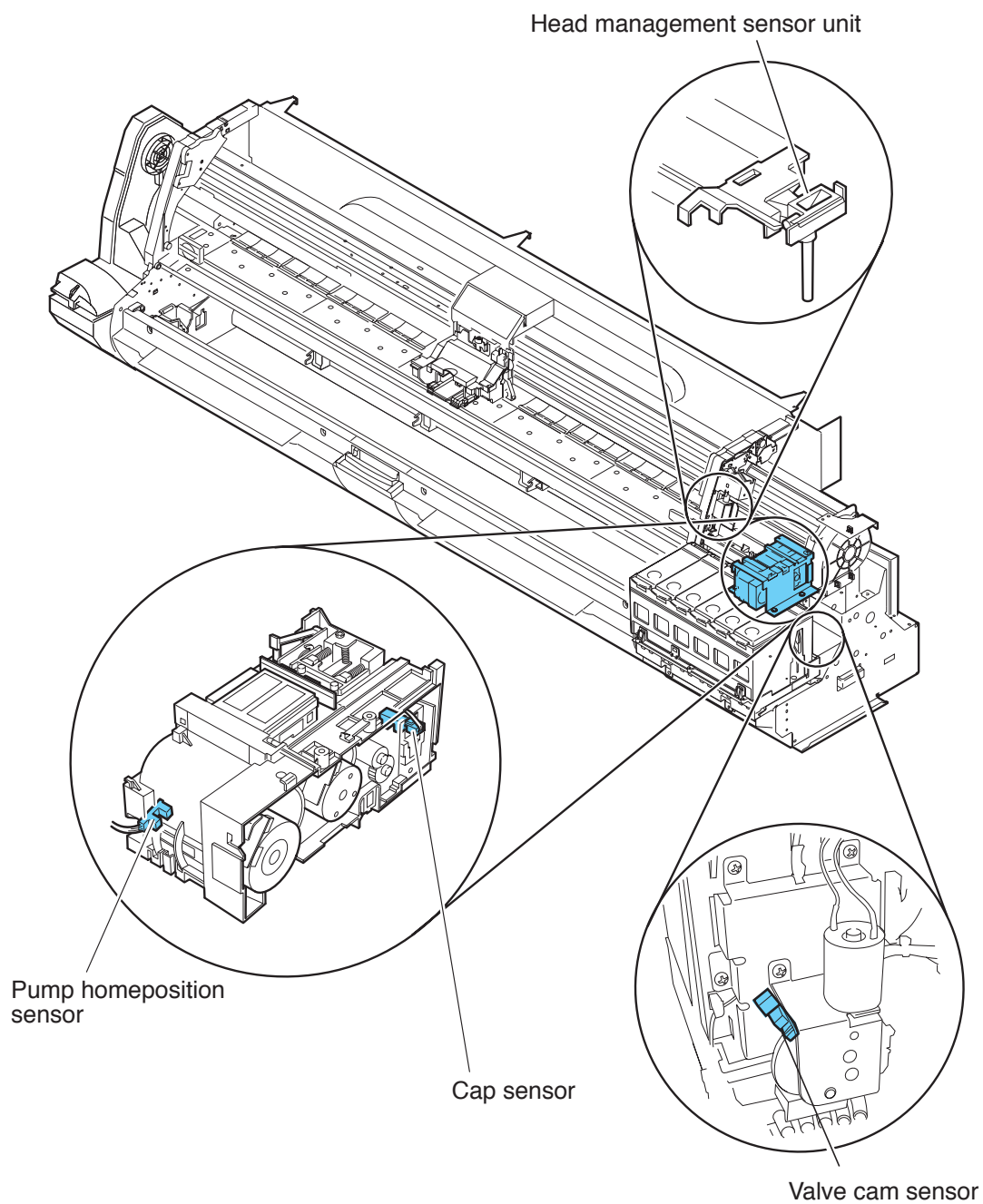
Figure 4-36 Layout of Sensors for Ink Passage System

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.
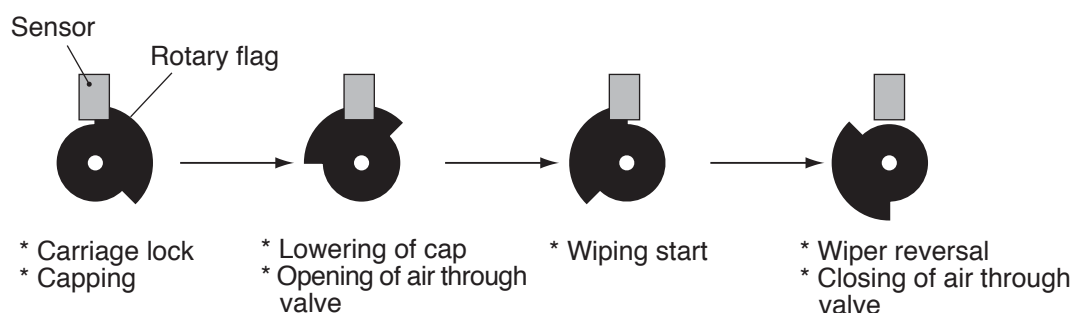
Figure 4-37 Cap Sensor Flag

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.
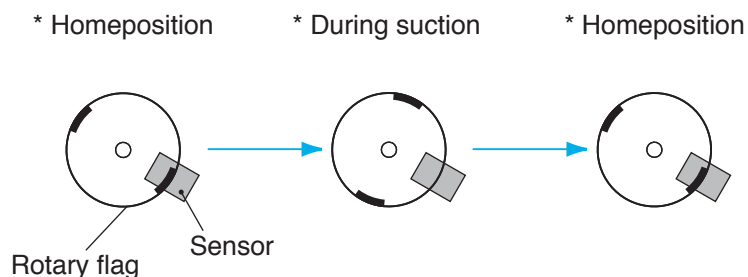
Figure 4-38 Pump Sensor Flag

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.
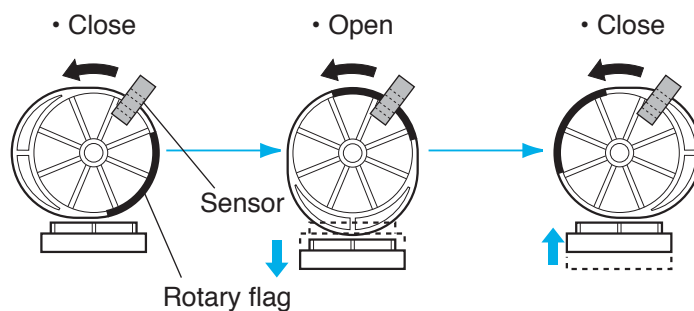
Figure 4-39 Valve Cam Sensor

Head management sensor

The head management sensor, a photo transmission sensor, detects whether a specific nozzle of the printhead's nozzle array is ejects ink correctly.

When the carriage arrives at the location for detection, it stops and the ink is ejected from one nozzle of the nozzle array at a time until all the nozzles are checked for their normal ink ejecting 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 ejected from a nozzle and the voltage measured by the sensor changes, that nozzle is proved to work correctly.
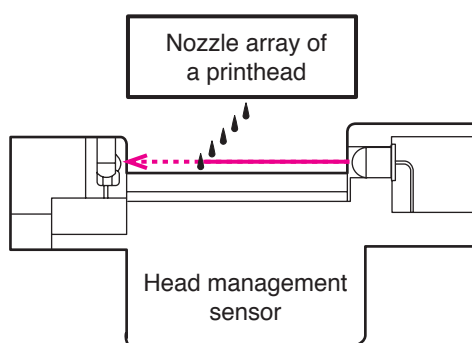
Figure 4-40 Head Management Sensor (Conceptual Representation)

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5.1.3 Carriage system

Madia sensor

Head relay PCB
Environment
temperature sensor

Linear encoder

Carriage cover sensor

Linear scale

Carriage homeposition sensor
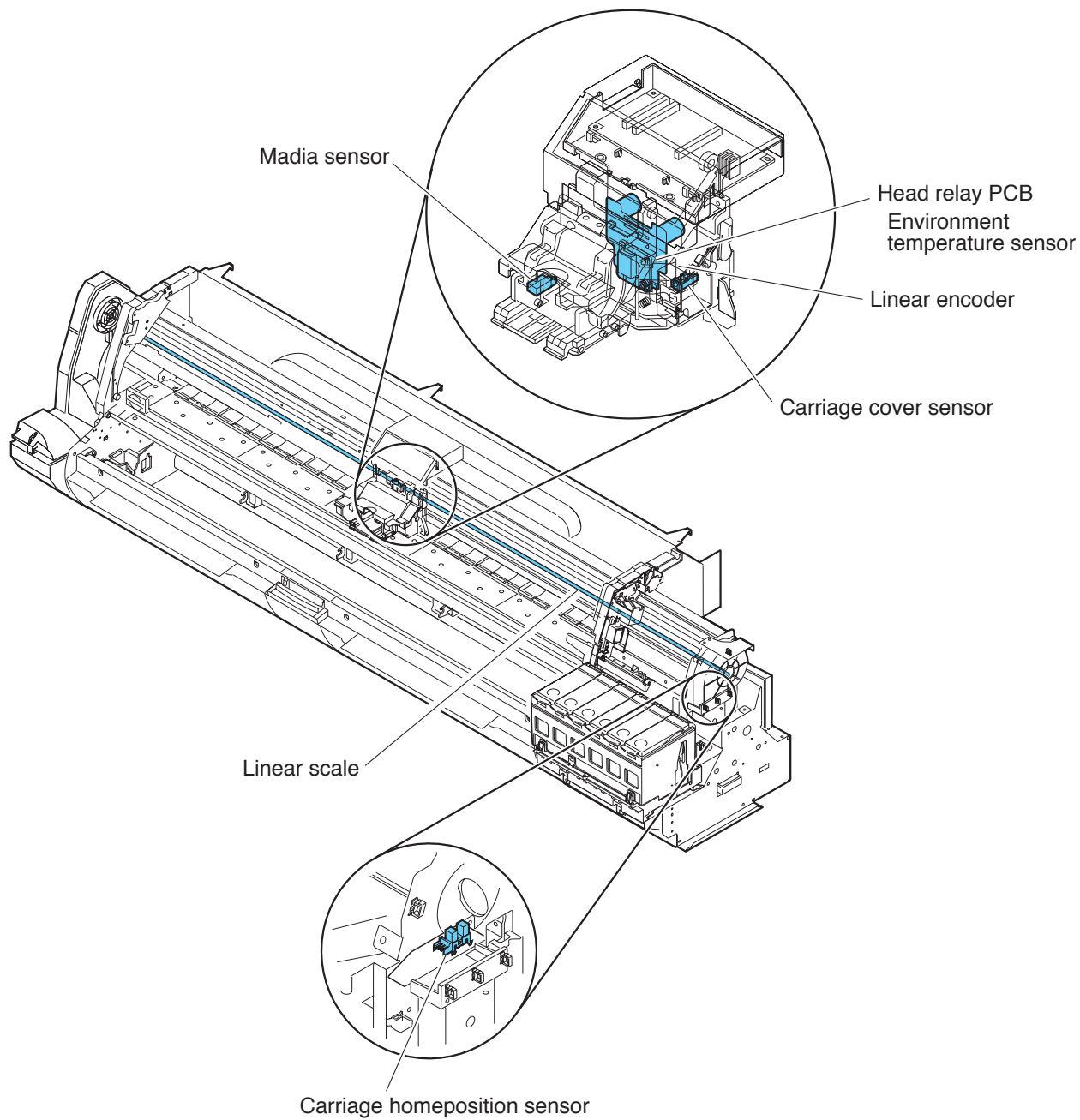
Figure 4-41 Layout of Sensors for Carriage System

Media sensor

The photo reflection-based media sensor detects the edges of the media. The sensor detects the edges by monitoring the change in voltage with respect to changes in the reflection density from the media.

Since the sensor light uses infrared light, light emission cannot be confirmed visually.
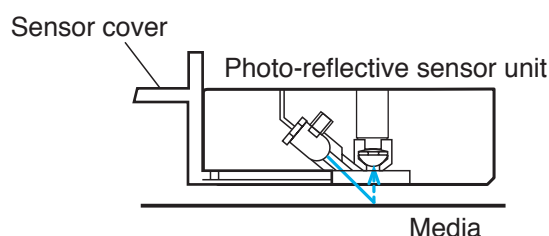
Figure 4-42 Media Sensor (Image)

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 homeposition sensor

The photo interrupter-based carriage homeposition sensor detects the home position of the carriage.

The sensor, located on the right-side plate, detects the carriage homeposition edge on the carriage unit during carriage moving.

The carriage homeposition is defined based on the location where the edge 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.

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.

4-61

5.1.4 Paper path system
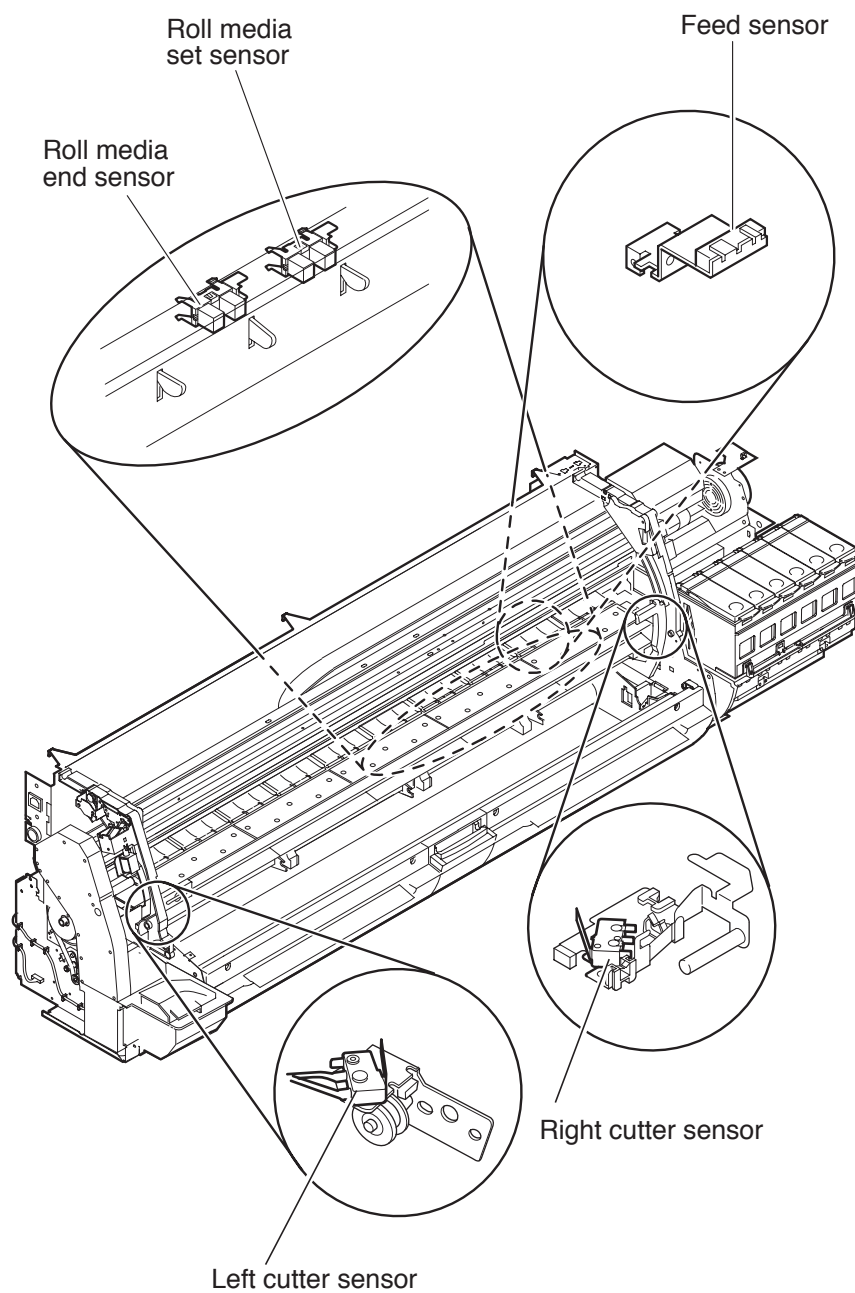
Figure 4-43 Layout paperpath sensor

Roll media set sensor

　The photo interrupter-based roll media set sensor detects the opening and closing of
　the paper holder by the paper release lever.
　When the paper holder is closed and the roll media tray is closed, the sensor light is
　transmitted through the sensor arm, and this notifies the sensor that the paper
　holder is closed.

Roll media end sensor

　The photo interrupter-based roll media end sensor detects the feed of paper from the
　roll media tray. The sensor light is blocked by the sensor arm when the paper is fed,
　and this notifies the sensor that paper is available in the tray.

Feed sensor

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

Cutter sensor

　The microswitch-type cutter sensors detect if a cutter unit is installed.
　The sensors detect when the switch has been pressed and a cutter unit is installed if
　the cutter unit is in the specified position.
　This printer has right and left sensors to detect operation of the cutter unit.

Part 5

MAINTENANCE

1. MAINTENANCE

1.1 List of Regular Replacement Parts

Level	Regular replacement part
User	None
Service personnel	None

1.2 List of Consumables

For details, refer to *Part 2:* PRODUCT SPECIFICATIONS

Level	Consumable
User	Printhead
	Air filter (Included with printhead)
	Ink tank (black)
	Ink tank (photo cyan)
	Ink tank (cyan)
	Ink tank (photo magenta)
	Ink tank (magenta)
	Ink tank (yellow)
	Cutter blade
Service personnel	None

1.3 List of Regular Maintenance

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

2. SERVICE TOOLS

2.1 List of Tools

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
LAN cable (Crossover cable)	For upgrading the firmware version
RS-232C cable (9-pin, male, crossover cable)	For obtaining service information

Special-purpose tools	Application
Cover switch tool (QY9-0103-000)	Pressing the cover switch (see *Part5:* 2.2 Using the Cover Switch Tool)
Syringe (CK-0541-000)	Draining the ink manually (see *Part5:* 5.5.2 Manual ink drainage)
Tube (QA2-6161-000)	Draining the ink manually (see *Part5:* 5.5.2 Manual ink drainage)
Grease PERMALUBE G-2 (CK-0551-020)	Applying to specified locations (see *Part5:* 3. APPLYING THE GREASE)
Grease MOLYKOTE PG-641 (CK-0562-020)	Applying to specified locations (see *Part5:* 3. APPLYING THE GREASE)
Firmware updating software (CNWFUT01.exe[1])	For upgrading the firmware. (see *Part3:* 7. PRINTER SERVICE SOFTWARE)
Firmware recovery software (com_fut.exe)	For recovering the boot firmware of System controller. (see *Part3:* 7. PRINTER SERVICE SOFTWARE)

*1 : Usage period is limited.

2.2 Using the Cover Switch Tool

Use the cover switch tool by inserting the hook into the cover switch.
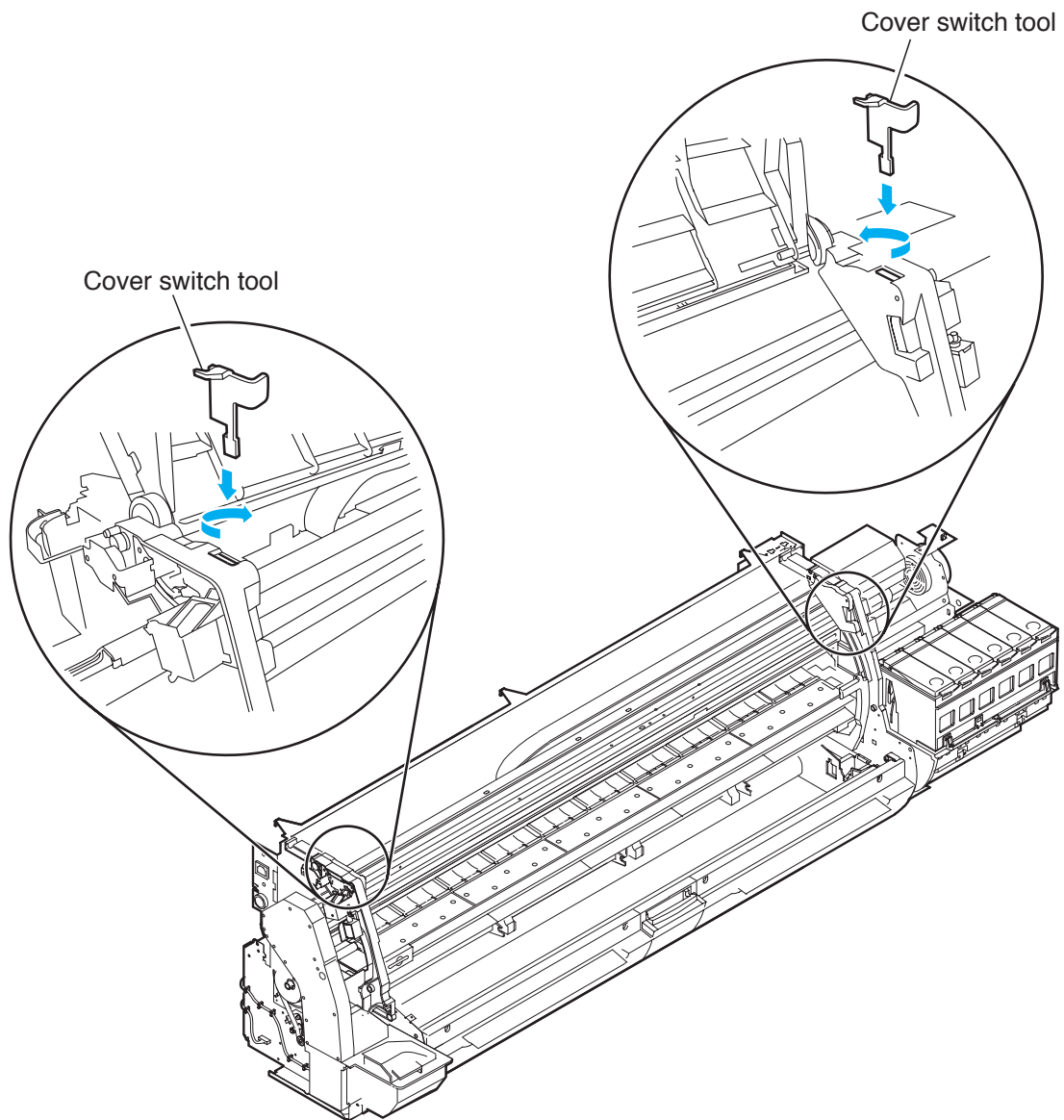
Figure 5-1 Using the Cover Switch Tool

3. APPLYING THE GREASE

Apply the grease at the location shown below.
Smear the grease lightly and evenly with a flat brush.
See *Part 5:* 5. DISASSEMBLY/REASSEMBLY and the Parts Catalog for reassembling and disassembling the printer.

> **CAUTION**
>
> 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.

Permalub G No.2
approx. 24mg

Permalub G No.2
approx. 24mg
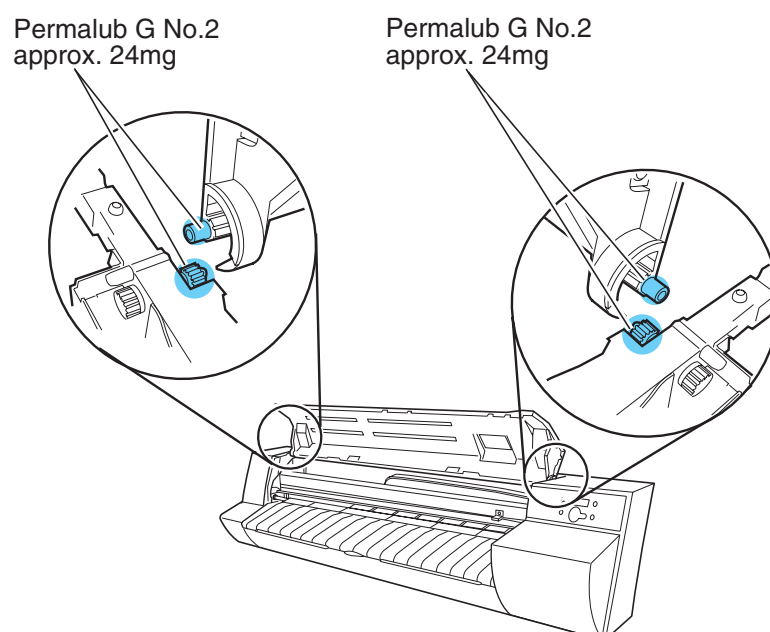
Figure 5-2 Apply the grease of upper cover

Plate spring : Permalub G No.2
approx. 12mg

Cam : Permalub G No.2
approx. 12mg

Lock pin :
Permalub G No.2 approx. 12mg

Joint :
Molykote PG-641 approx. 24mg
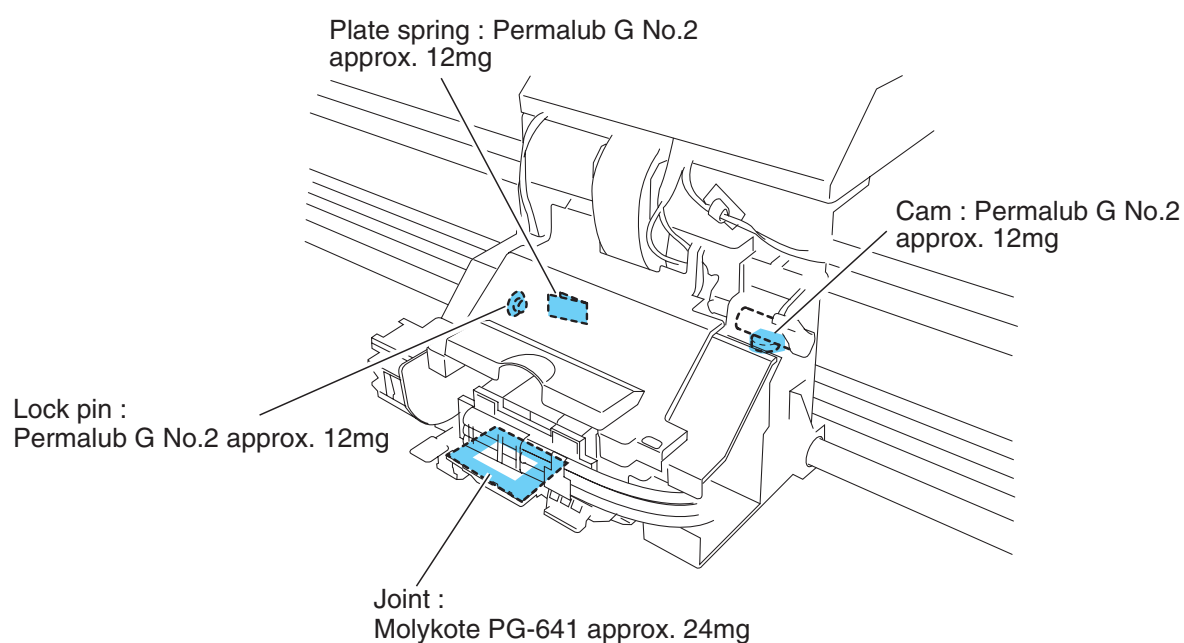
Figure 5-3 Applying the grase of carriage

Molykote PG-641
approx. 24mg
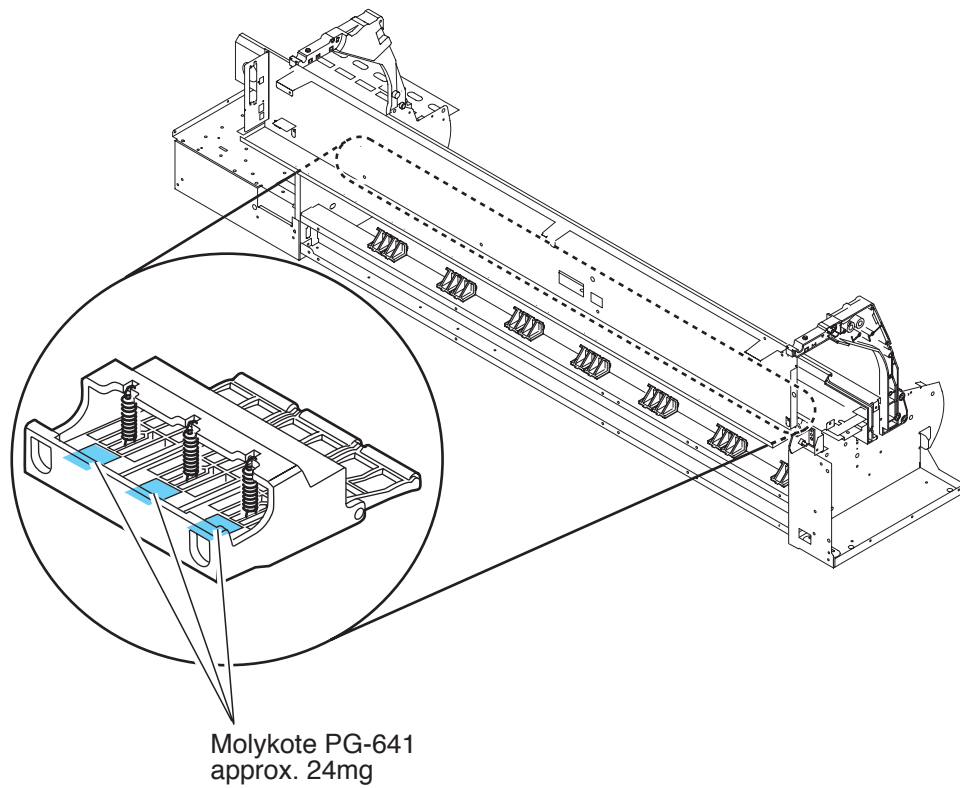
Figure 5-4 Applying the grease of pinch roller unit

Feed roller

Permalube G No.2 approx. 24mg
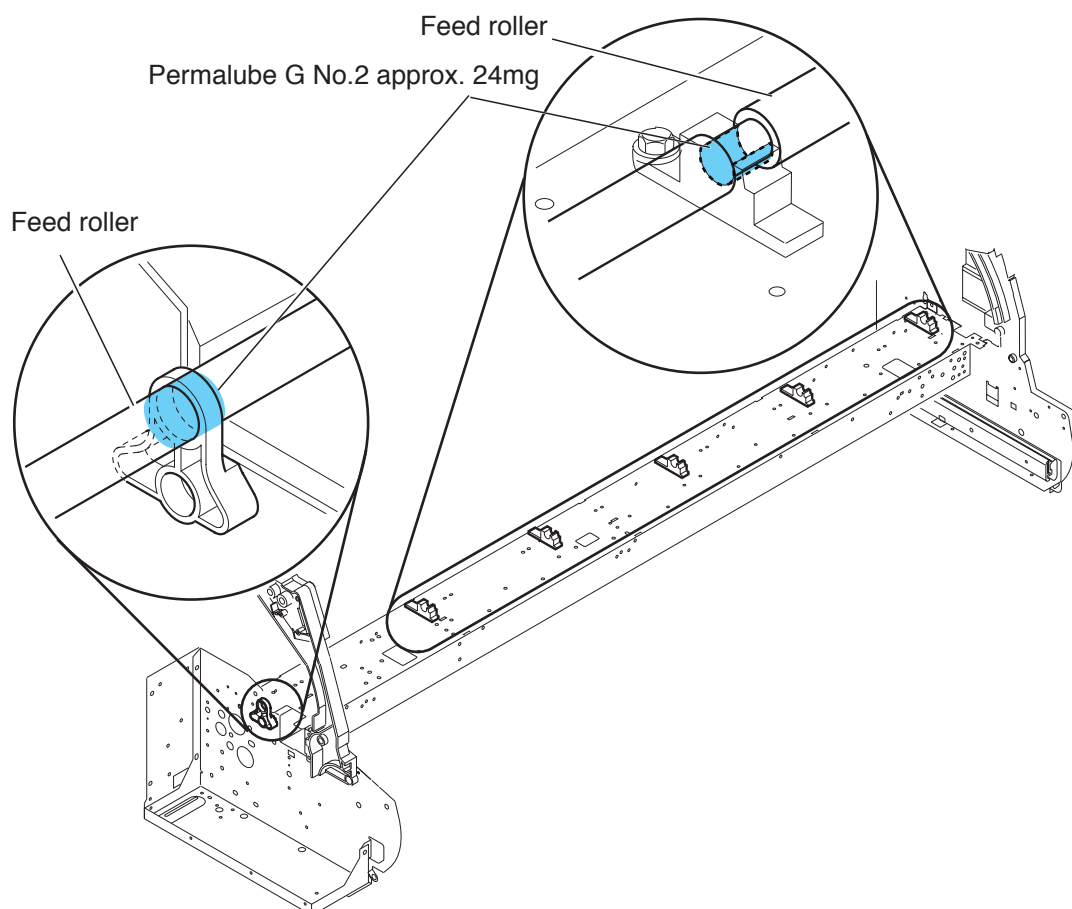
Feed roller

Figure 5-5 Applying the grease of feed roller

4. SERVICE PARTS

4.1 Service Parts
The service parts indicated below require careful handling.

4.1.1 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.

Figure 5-6 "Right side up" Sign

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 *Part 5:* 5.2.8 d) Handling of the feed roller.

5. DISASSEMBLY/REASSEMBLY

5.1 Disassembly/Reassembly

See Parts Catalog for the process of disassembly and reassembly.

The parts layout illustrations have figure numbers according to the disassembly procedure of the product.

5.1.1 Disassembly/assembly flowcharts for major parts

Symbol Meanings
c: Connector, e: E-ring, h: Holder, s: Screw
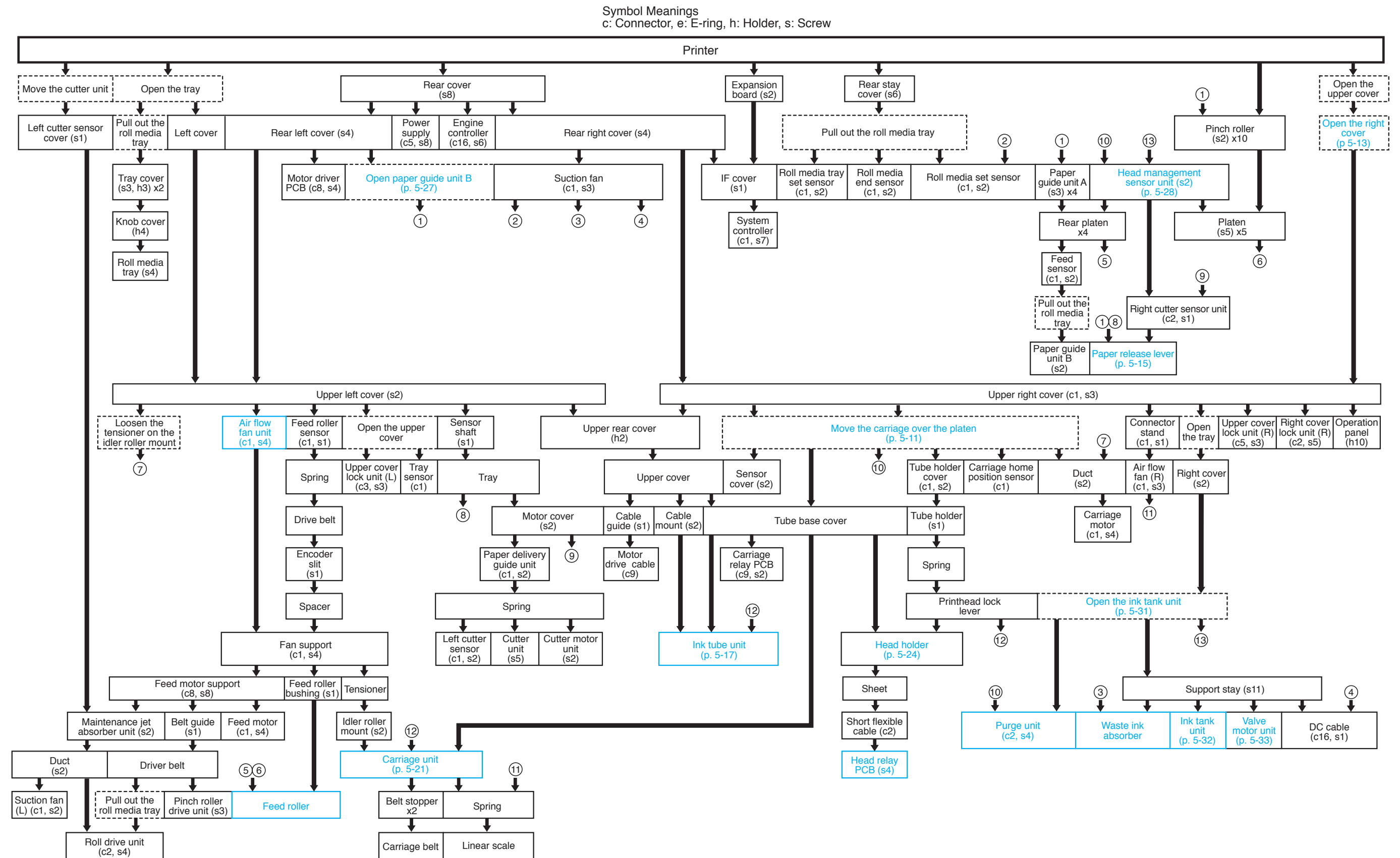
Figure 5-7 Disassembly/Assembly Flowcharts for Major Parts

5.2 Points to Note on Disassembly and Reassembly

Points to note on disassembly and reassembly are illustrated below.

5.2.1 Note on locations prohibited from disassembly

Locations that are prohibited from disassembly and cannot be adjusted outside of the factory have red screws instead of the regular-colored screws. The printer has 45 of these red screws.

Total number of red screws indicating disassembly is prohibited: 45 screws

The red screws are also shown in the Parts Catalog as red color.

View from AA

View from A

View from BB

View from B
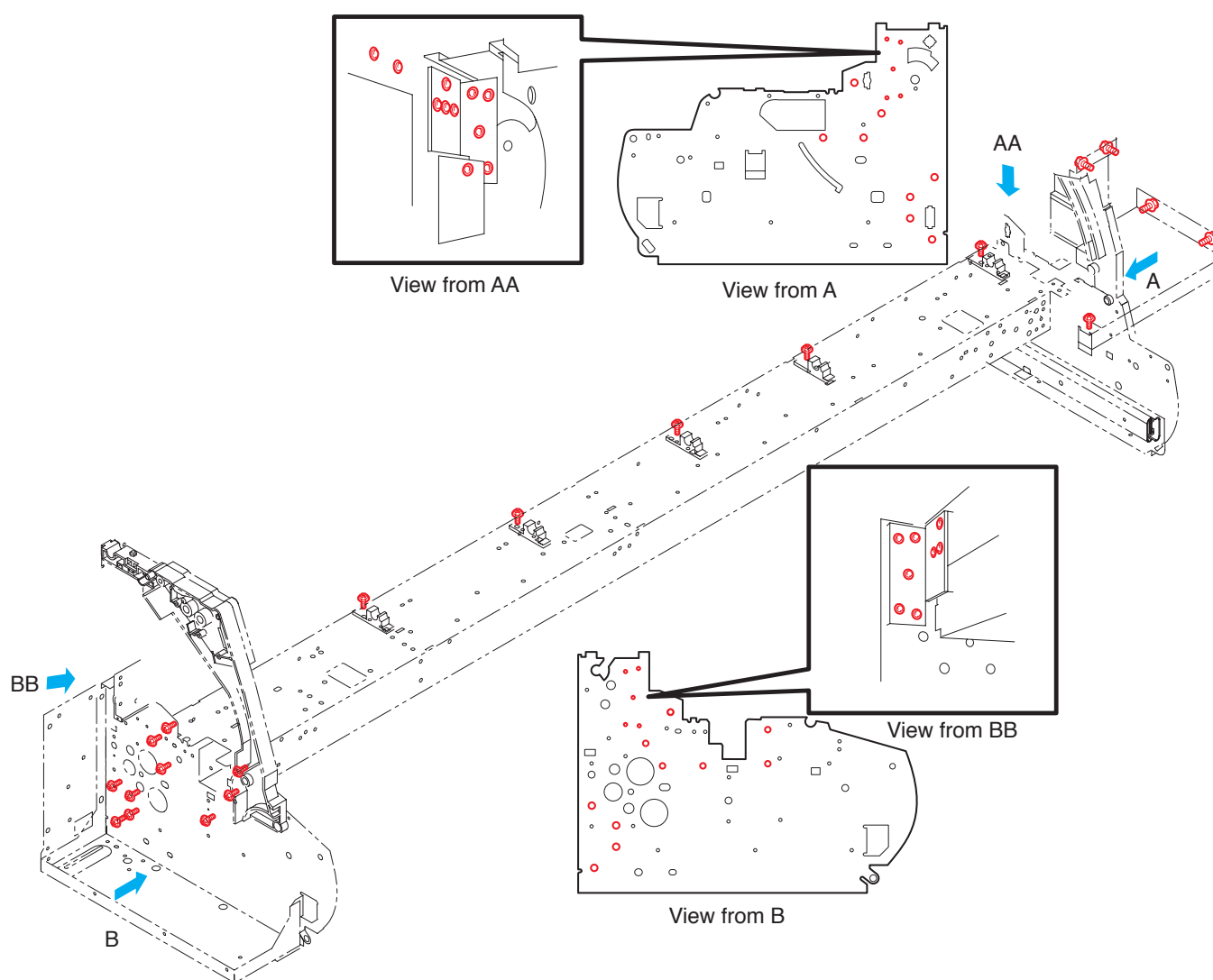
Figure 5-8 Units Needing to be Drained of Ink When the Printer is Disassembled

5.2.2 Manual carriage movement

The carriage is moved by holding down the left arrow button on the operation panel for at least 0.5 seconds when the printer is offline. However, when the power is turned off such as during assembly or disassembly, move the carriage by holding the grips shown in the figure below.

> **CAUTION**
>
> Move the carriage as required during assembly and disassembly to prevent contact of the carriage with the parts that are removed.
> The carriage does not move when capping has been performed. Refer to the procedures in *Part 5:* 5.3 Opening the Caps and Moving the Wiper Unit to remove the caps and move the carriage.
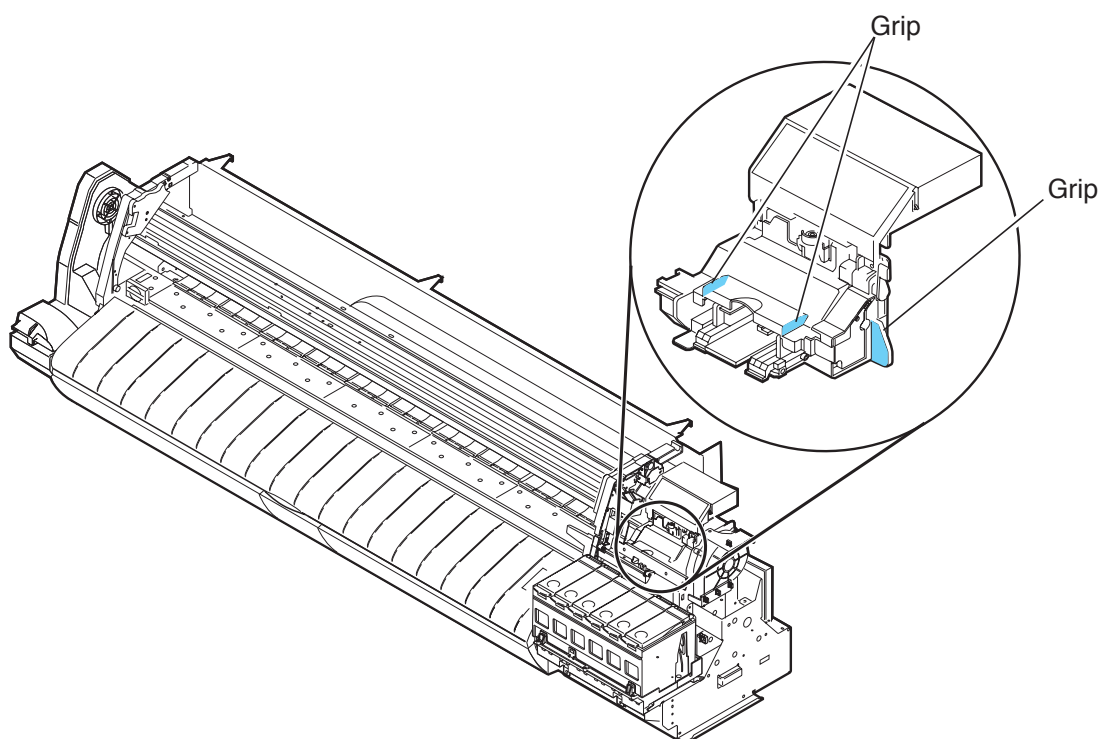
Figure 5-9 Manual Carriage Movement

5.2.3 Units required for draining the ink

When disassembling the following units of the ink passage, drain the filled ink to prevent an ink leak. To drain the ink, refer to *Part 5:* 5.5 Draining the Ink.

* Head holder
  Refer to page 5-24.
* Carriage unit
  Refer to page 5-21.
* Ink tube unit
  Refer to page 5-17.
* Ink tank unit
  Refer to page 5-31.

Ink tube unit

Carriage unit
(Include head holder)

Ink tank unit
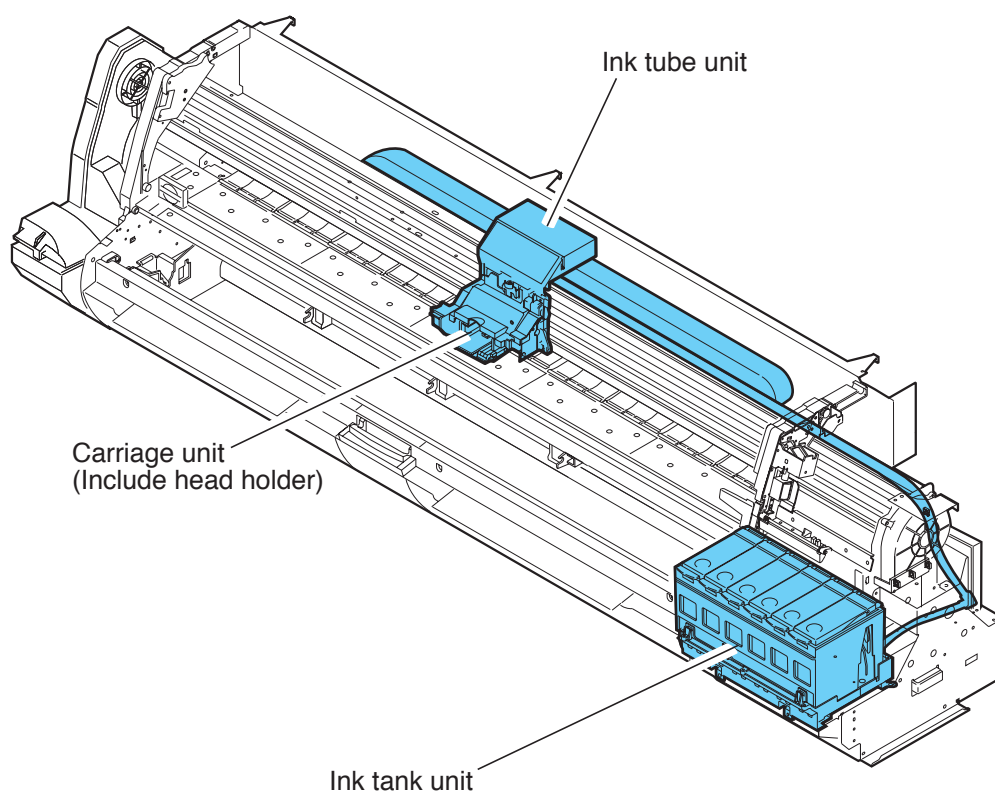
Figure 5-10 Units Required for Draining the Ink

5.2.4 Outer covers

a) Opening the right cover

Unlock the right cover by manual opening the upper cover and pressing down the right cover switching solenoid lever inside the cover with your finger, and then open the right cover.

Right cover open/close solenoid

Right cover

Press down with your finger
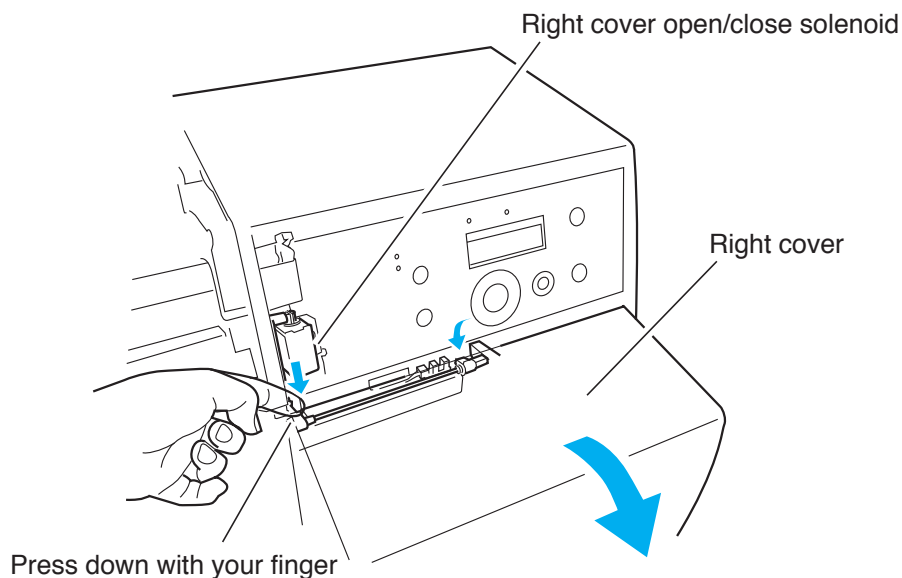
Figure 5-11 Opening the Right Cover

b) Rear right cover and rear left cover

The hooks under the rear right cover and the rear left cover are engaged with the frame. Therefore, remove the covers by sliding them in the rear direction.

If printer unit is stacked on the stand, operation can be facilitated by removing the covers of the stand beforehand.

Hook

Hook

Leg cover R

Leg cover L

Rear right cover
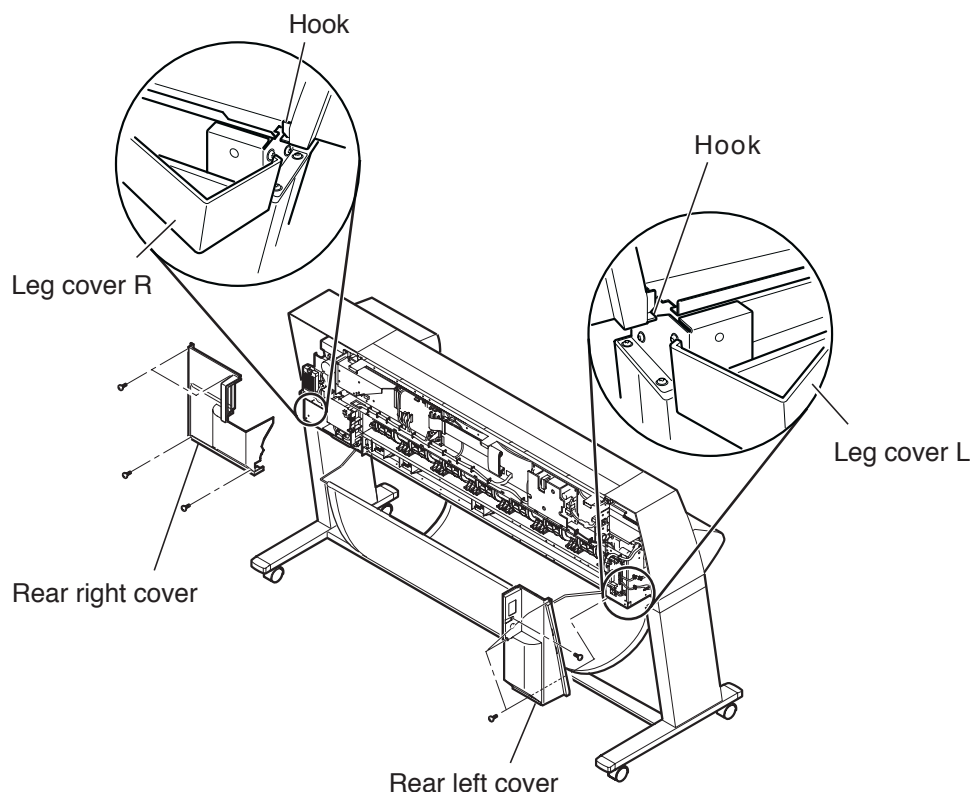
Rear left cover

Figure 5-12 Rear Right Cover and Rear Left Cover

c) Upper rear cover

The supporting section of this cover holds the upper cover. Therefore, remove the upper rear cover in the direction of the arrow. Also, when attaching the upper rear cover, be careful not to pinch the cable inside the arm stay.
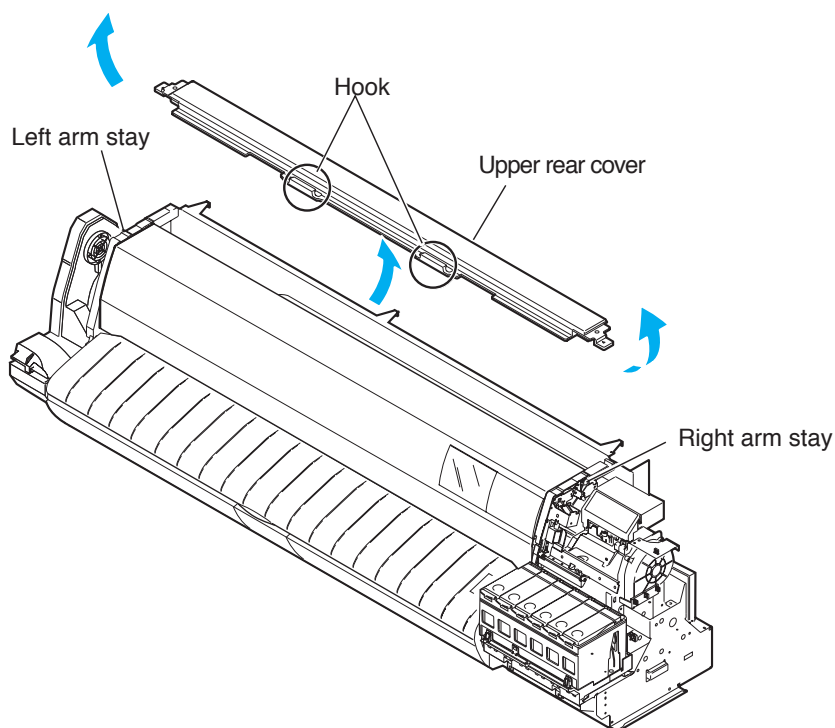
Figure 5-13 Upper Rear Cover

d) Upper cover

Open the upper cover while opening the left arm stay to the outside, and then remove the upper cover.
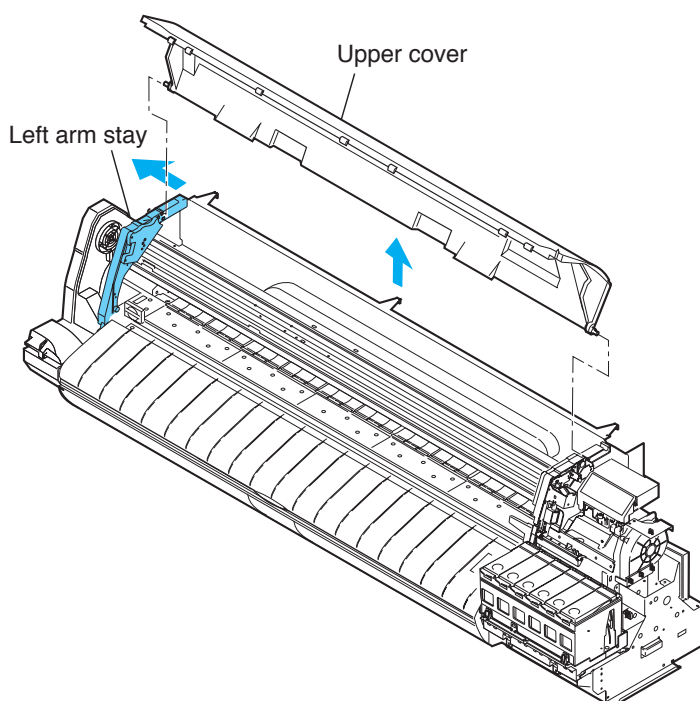
Figure 5-14 Upper Cover

e) Paper release lever

A hook is engaged with the right arm stay. Therefore, apply pressure to the pinch
roller when removing the paper release lever.

To attach the paper release lever, align the marks (phases) on the paper release lever
gear unit and receiving side gear unit.
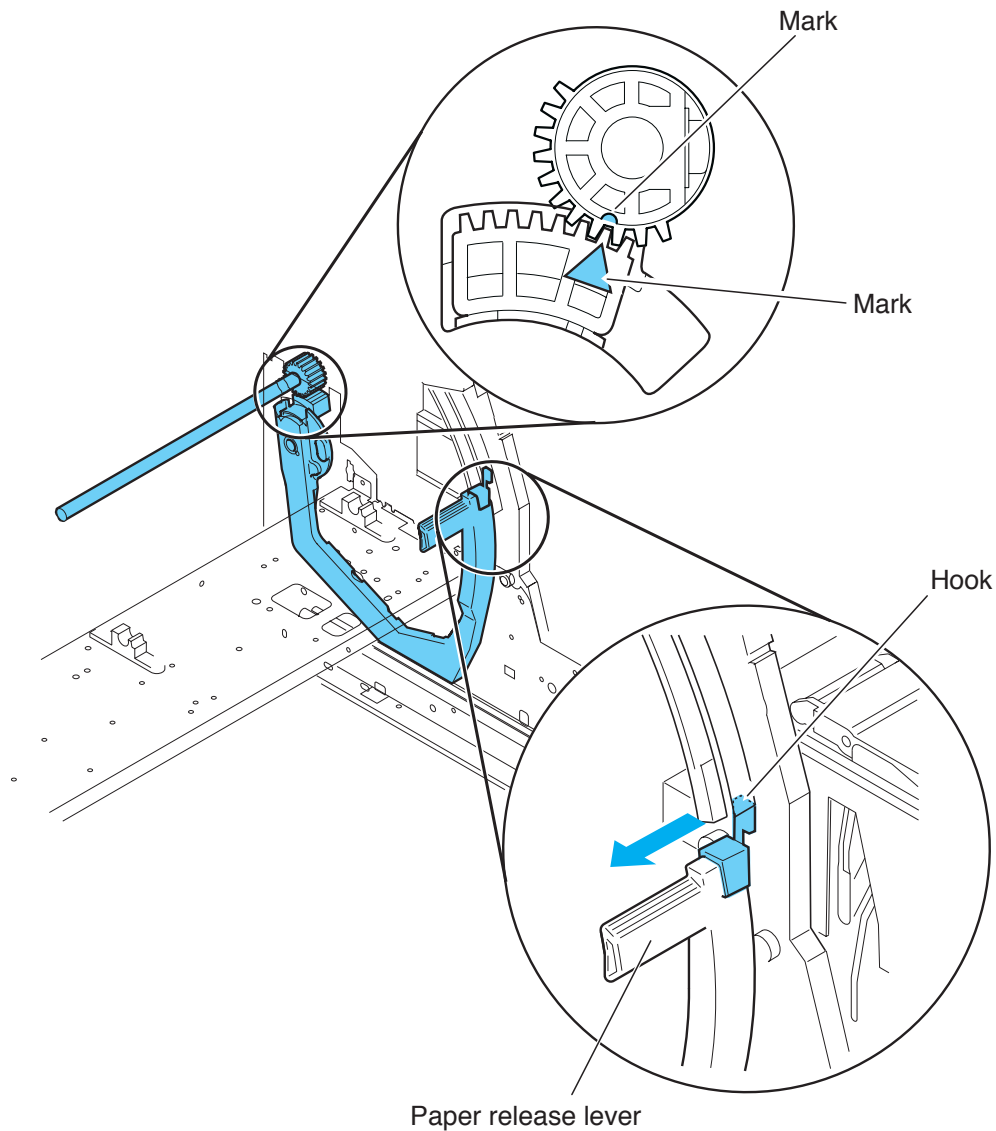
Figure 5-15 Paper Release Lever

5.2.5 Driving unit

a) Drive belt (for driving the feed roller)

To mount the drive belt for driving the feed roller, loosen the setscrews of the tensioner, and then use the spring pressure to determine the tension of the drive belt. Once the belt is mounted, use the setscrews to secure the tensioner in place.
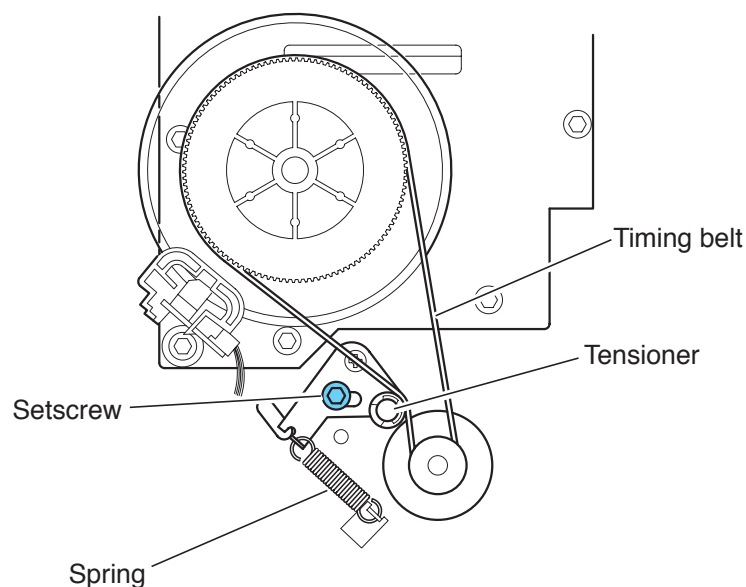
Figure 5-16 Drive Belt (for driving the feed roller)

b) Fan support

When mounting the fan support, align the edge of the fan support with the edge of the top casing, and then secure in place.
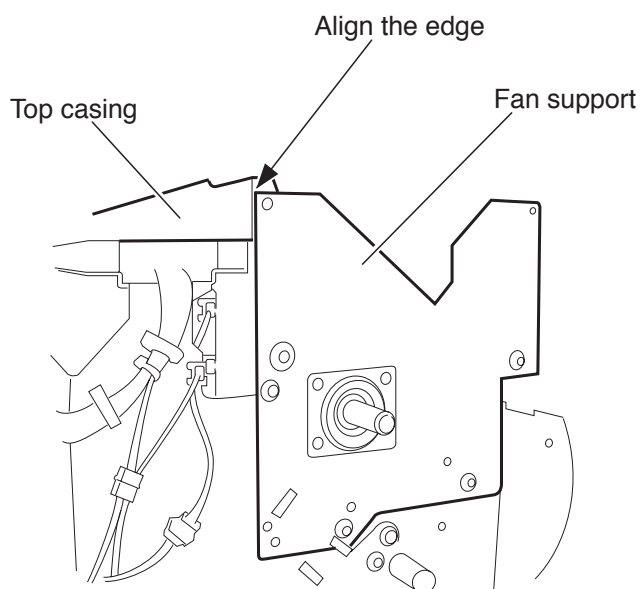
Figure 5-17 Fan Support

5.2.6 Ink tube unit

a) **Removing the ink tube unit**

1) Drain the ink. For details, refer to *Part 5:* 5.5 Draining the Ink.
2) Turn off the power, and then move the carriage over the platen. For details, refer to *Part 5:* 5.3 Opening the Caps and Moving the Wiper Unit.
3) Remove the support stay, tube base cover, and tube holder cover.
4) Remove the three flexible cables from the engine controller.
5) Remove all the connectors on the carriage relay PCB.
6) Remove the joint on the ink tube unit and ink tank unit.
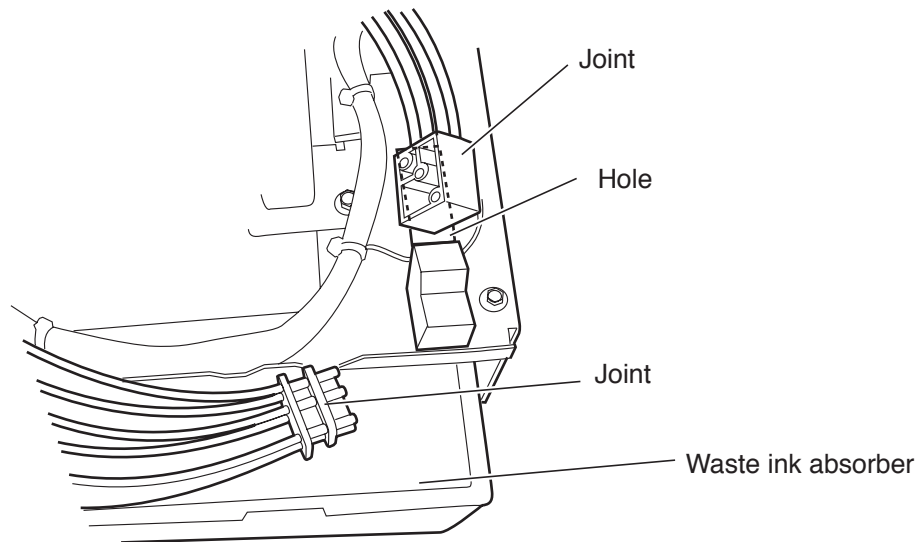
Figure 5-18 Joints

7) Place the joint on the ink tube unit side on the waste ink absorber, and then release the printhead lock lever to allow all of the ink remaining in the tube to flow to the waste ink absorber.

8) Remove the printhead.

9) Remove the printhead lock lever.

10) Wrap the joint on the ink tube unit with a plastic bag or other covering so that no ink splashes or leaks, and then close the plastic bag.

Printhead side

Ink tank side
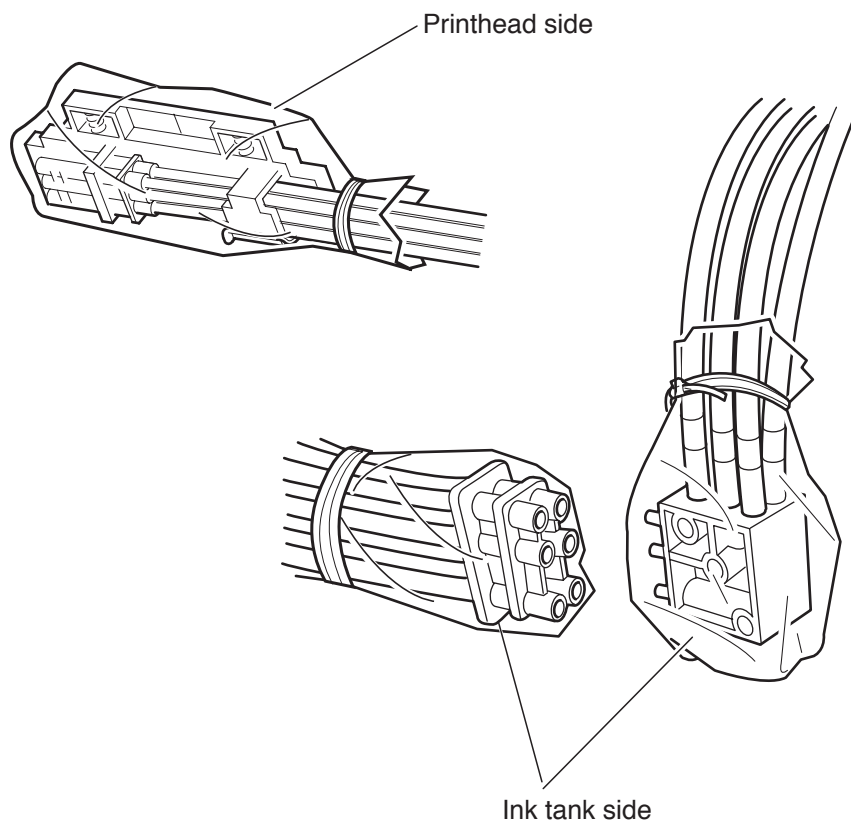
Figure 5-19 Prevention of ink leaks

11) Remove the two screws, and take off the cable mount from the frame.
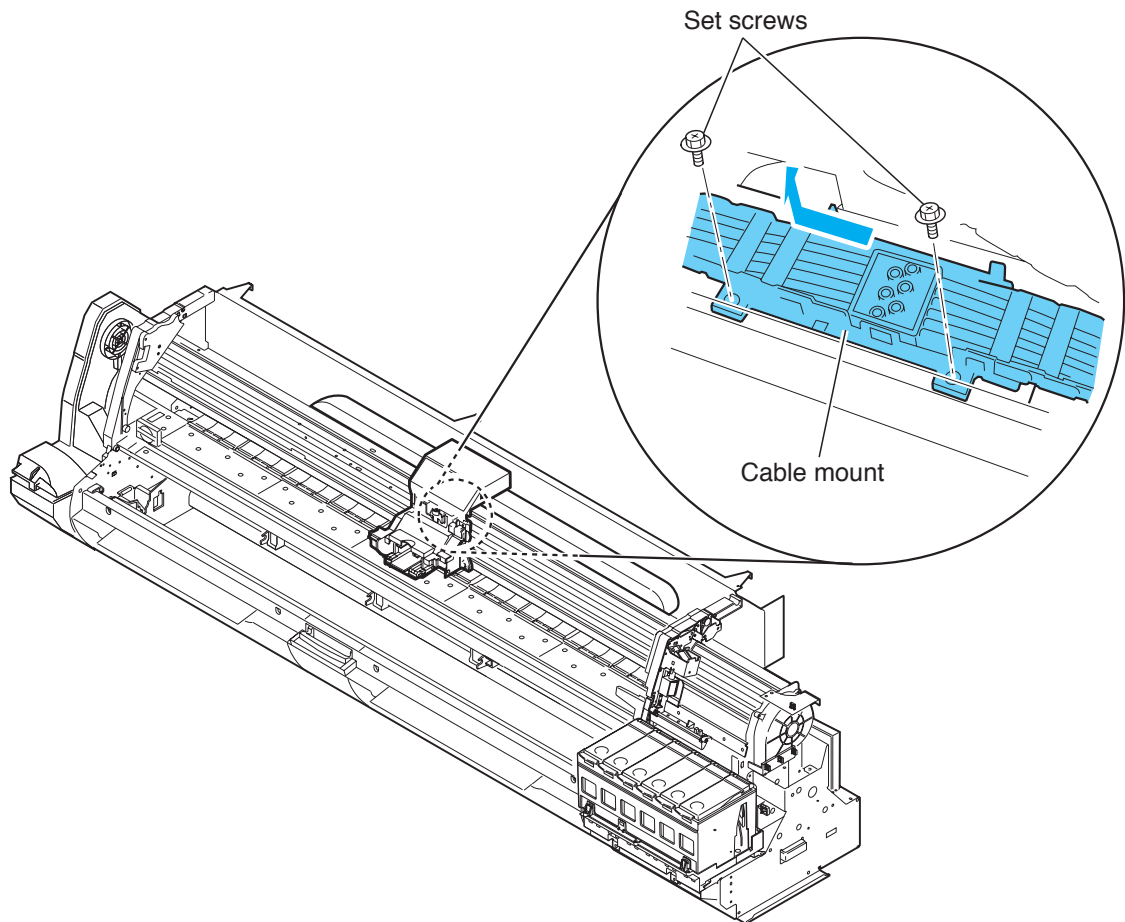
Figure 5-20 Cable Mount

12) Remove the two screws, and take off the ink tube unit.
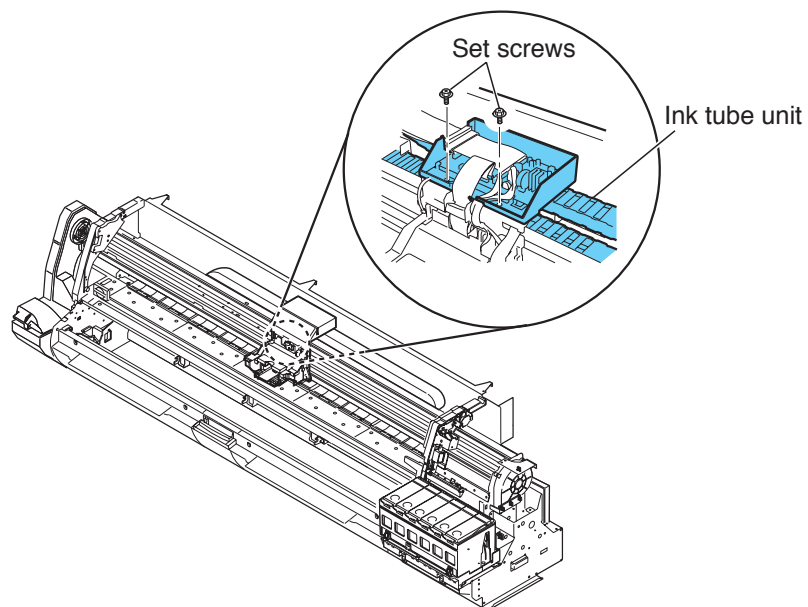
Figure 5-21 Ink Tube Unit

b) Assembling the ink tube unit

If replacing the ink tube unit, turn on the power when the printhead and ink tank are not installed, and then install the printhead and ink tank by following the messages and refill the ink.

5.2.7 Carriage unit

a) Removing the carriage unit

1) Drain the ink. For details, refer to *Part 5:* 5.5 Draining the Ink.

2) Turn off the power, and then move the carriage over the platen. For details, refer to *Part 5:* 5.3 Opening the Caps and Moving the Wiper Unit.

3) Remove the tube base cover and tube holder cover.

4) Remove the printhead.

5) Remove all the connectors on the carriage relay PCB.

6) Remove the printhead lock lever.

7) Wrap the joint on the ink tube unit with a plastic bag or other covering so that no ink splashes or leaks, and then close the plastic bag.

Printhead side

Ink tank side
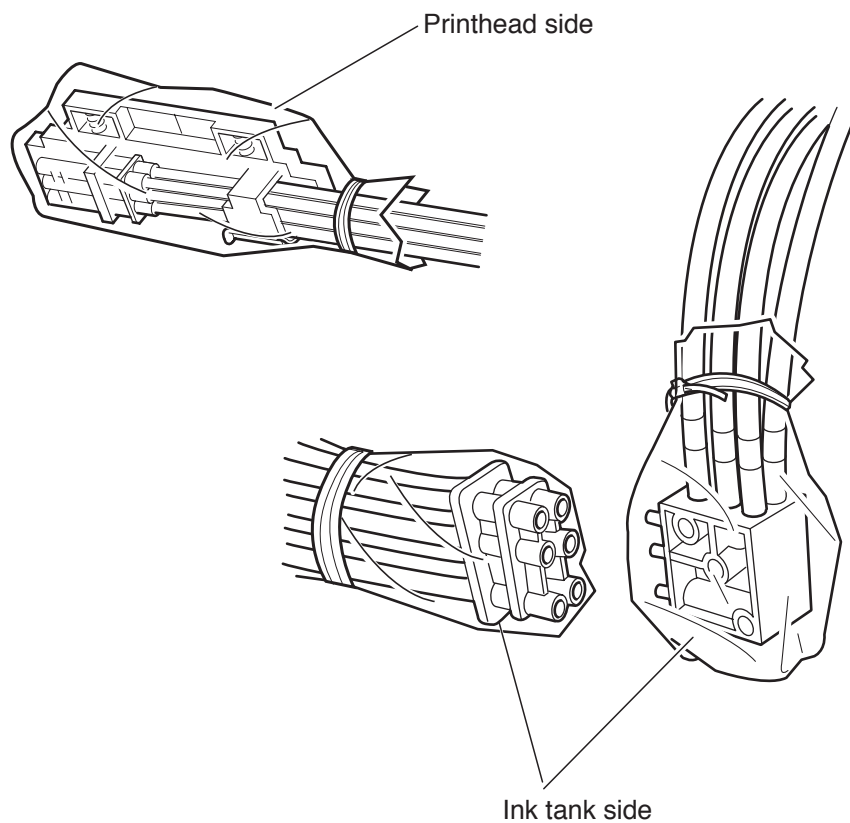
Figure 5-22 Prevention of ink leaks

8) Remove the two screws, and take off the ink tube unit from the carriage.
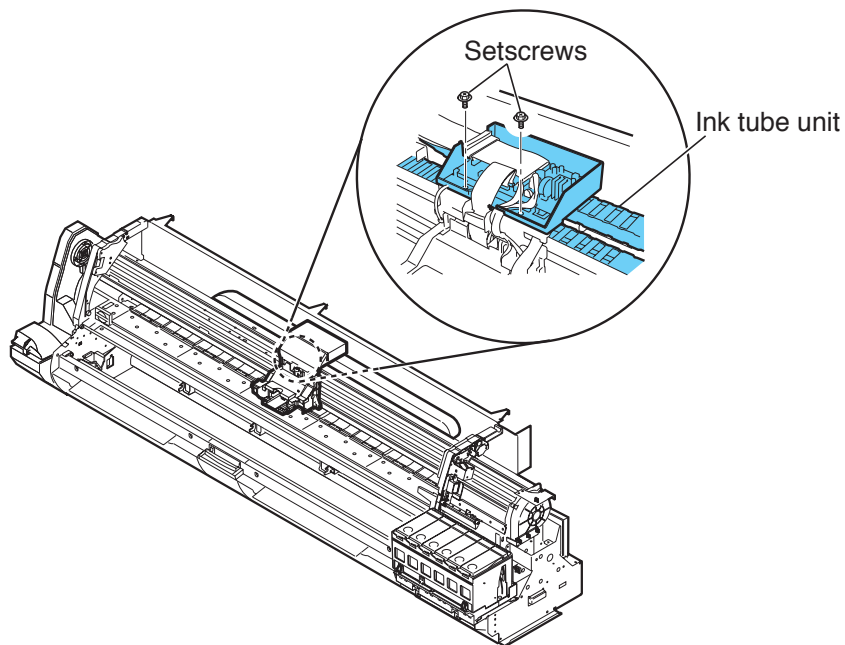
Figure 5-23 Ink Tube Unit

9) Remove the idler roller mount, and take off the carriage unit from the printer left side.
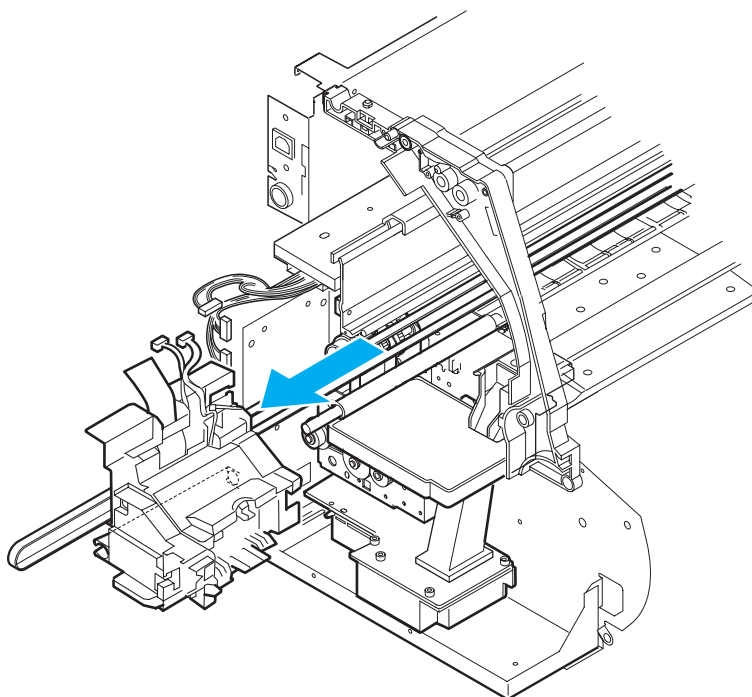
Figure 5-24 Carriage Unit

b) Mounting the carriage belt

To mount the carriage belt, align the all notches of the carriage belt with the belt stopper.
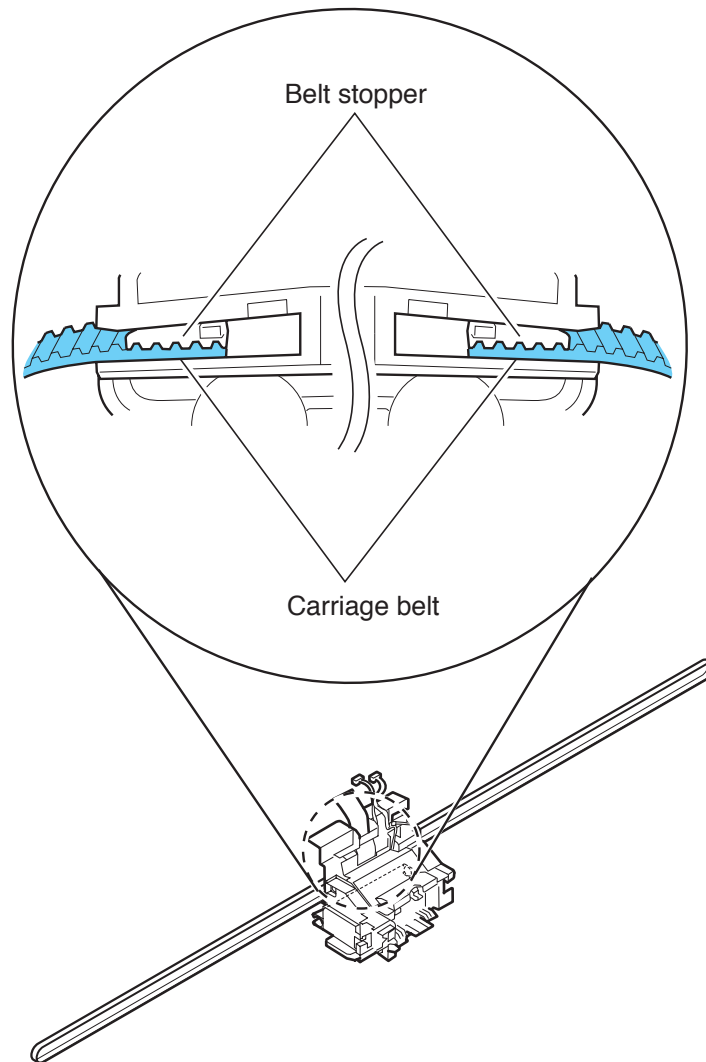
Figure 5-25 Belt Stopper

c) Removing the head holder

1) Drain the ink. For details, refer to *Part 5:* 5.5 Draining the Ink.
2) Turn off the power, and then move the carriage over the platen. For details, refer to *Part 5:* 5.3 Opening the Caps and Moving the Wiper Unit.
3) Remove the tube base cover, tube holder cover, and tube holder.
4) Remove the printhead.
5) Remove all the connectors on the carriage relay PCB.
6) Remove the printhead lock lever.
7) Wrap the joint on the ink tube unit with a plastic bag or other covering so that no ink splashes or leaks, and then close the plastic bag.

Printhead side

Ink tank side
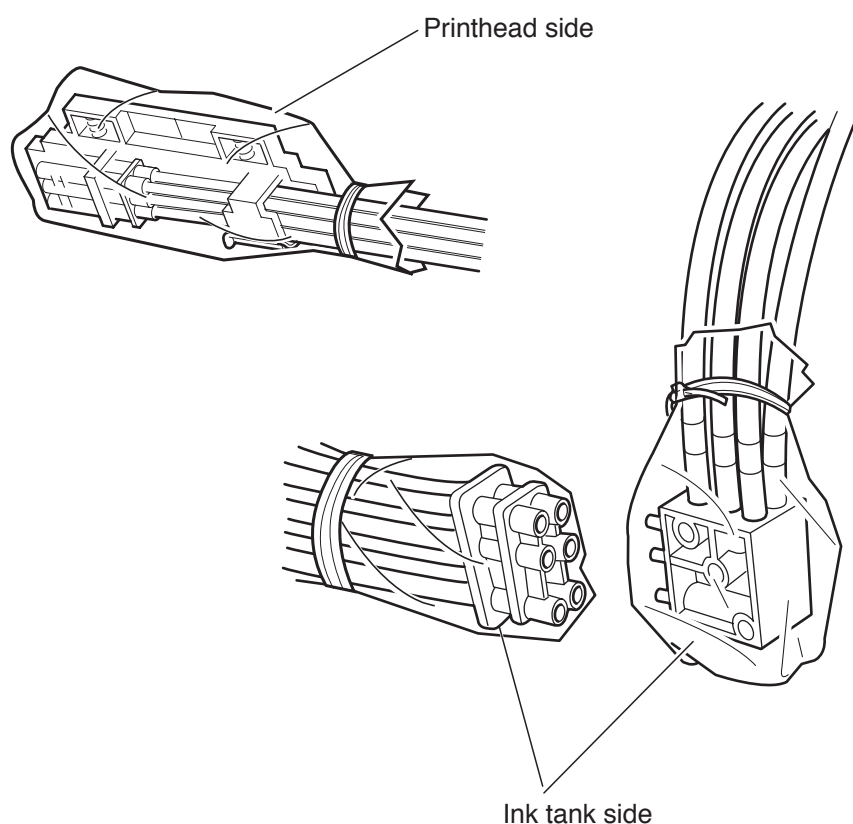
Figure 5-26 Prevention of ink leaks

8) Use a flat-head screwdriver or other tool to press the lock pin at the left-rear side
   of the head holder in the direction of the arrow and open the head holder.
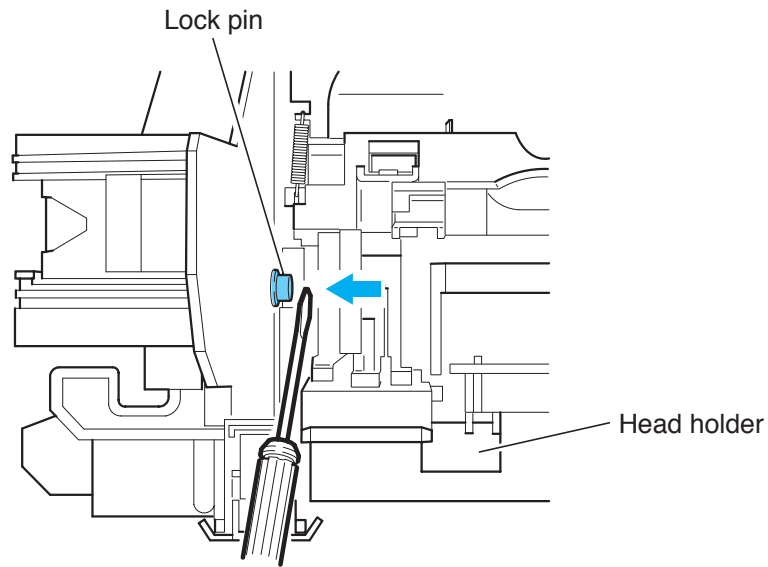
Figure 5-27 Lock Pin of Head Holder

9) Open the grips of the head holder and remove the head holder.
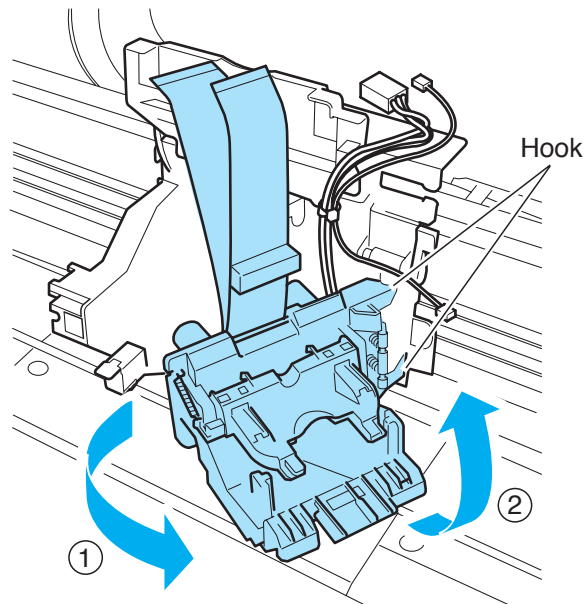
Figure 5-28 Removing the Head Holder

5-25

d) Assembling the head holder

After assembling the head holder, check that the head holder rises or falls in conjunction with the operation of the printhead height adjustment lever.

Printhead height adjustment lever

Head holder
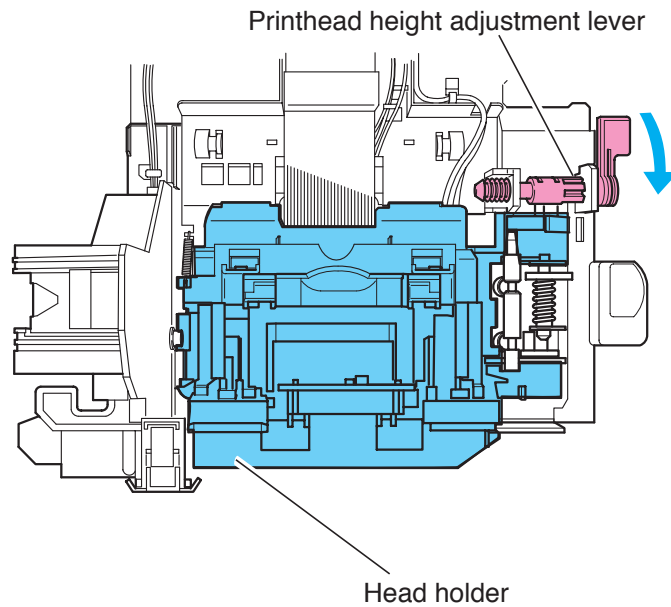
Figure 5-29 Checking the Printhead Height Adjustment Lever

5.2.8 Feeder unit

a) Mounting the pinch roller unit

The pinch roller units include those with marks and those without marks.

Pinch roller units with marks should be mounted at the same mark position on the rear stay.
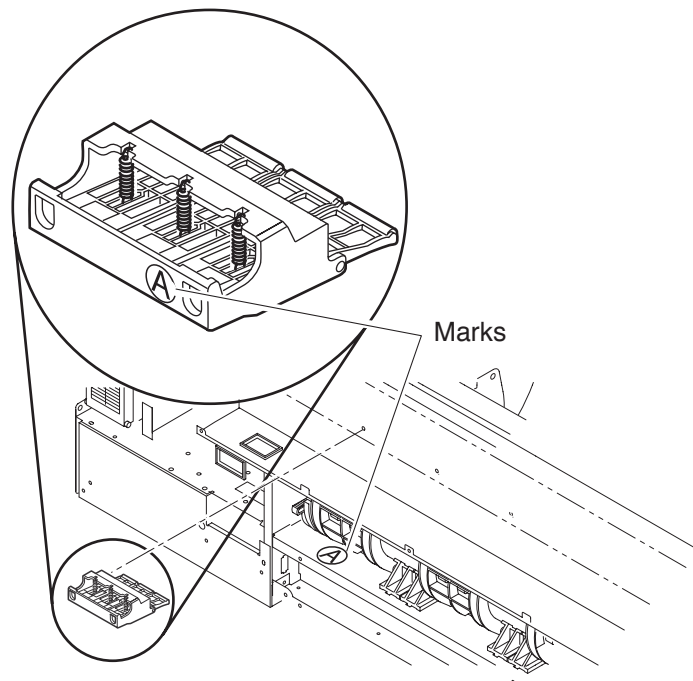
Figure 5-30 Pinch Roller Unit

b) Opening paper guide B

1) Remove the spring.
2) Remove the two lock screws of the lever.
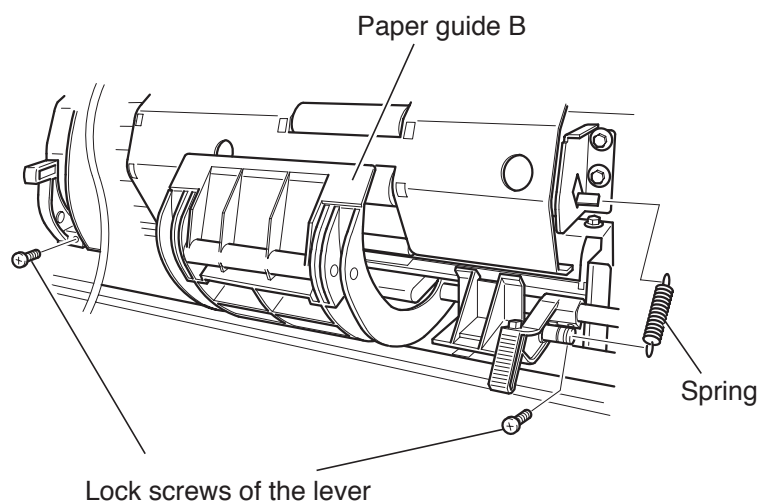
Figure 5-31 Paper Guide B

c) Removing the head management sensor unit

   1) Turn off the power, and then move the carriage over the platen. For details, refer
      to *Part 5:* 5.3 Opening the Caps and Moving the Wiper Unit.
   2) Move the carriage unit until it contacts the left side.
   3) Remove the two setscrews of the head management sensor unit.
   4) Raise the paper release lever, and then remove the head management sensor unit.

Setscrew

Carriage   Paper release lever

Head management sensor unit
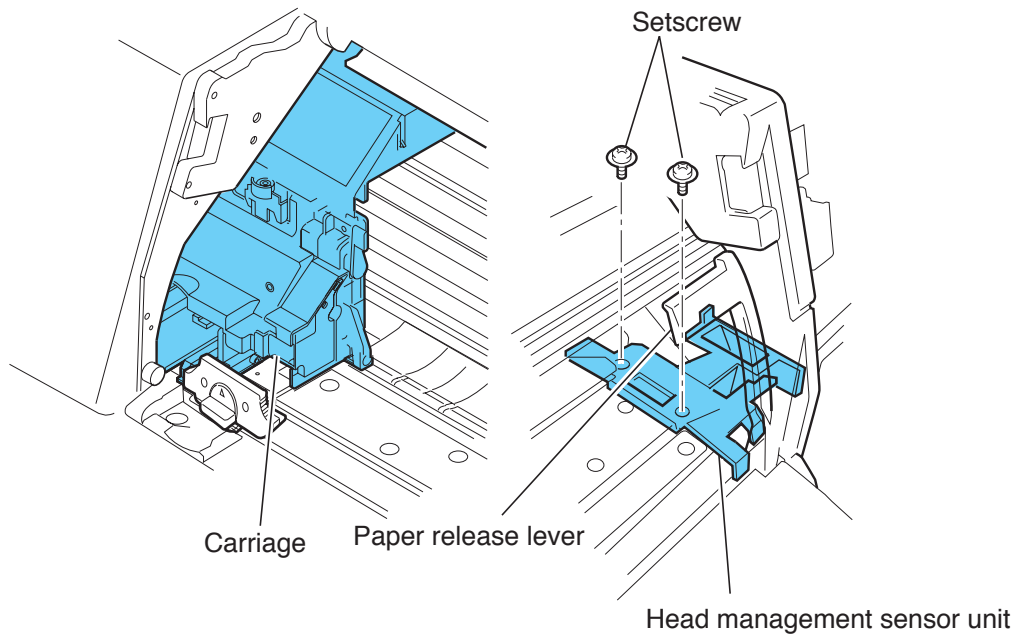
Figure 5-32 Removing the Head Management Sensor Unit

d) Handling of the feed roller

CAUTION

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 in 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 A and one of the locations B, C, or
  D as shown in the figure below.

D

C

B

A
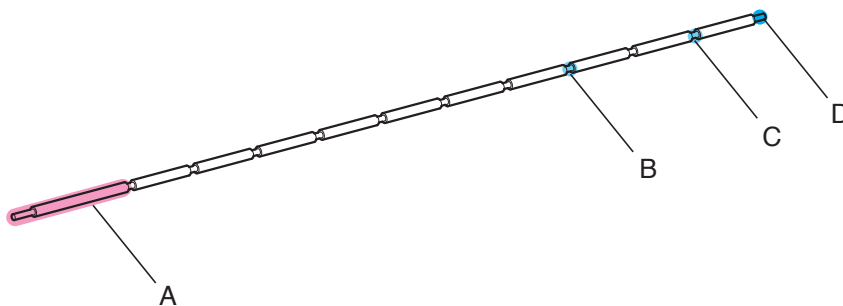
Figure 5-33 Feed Roller

e) Removing the cutter unit
1) Pull out the roll media tray, and then remove the cutter motor cover.
2) Remove the paper delivery guide unit.
3) Take out the spring.
4) Remove the cutter unit.
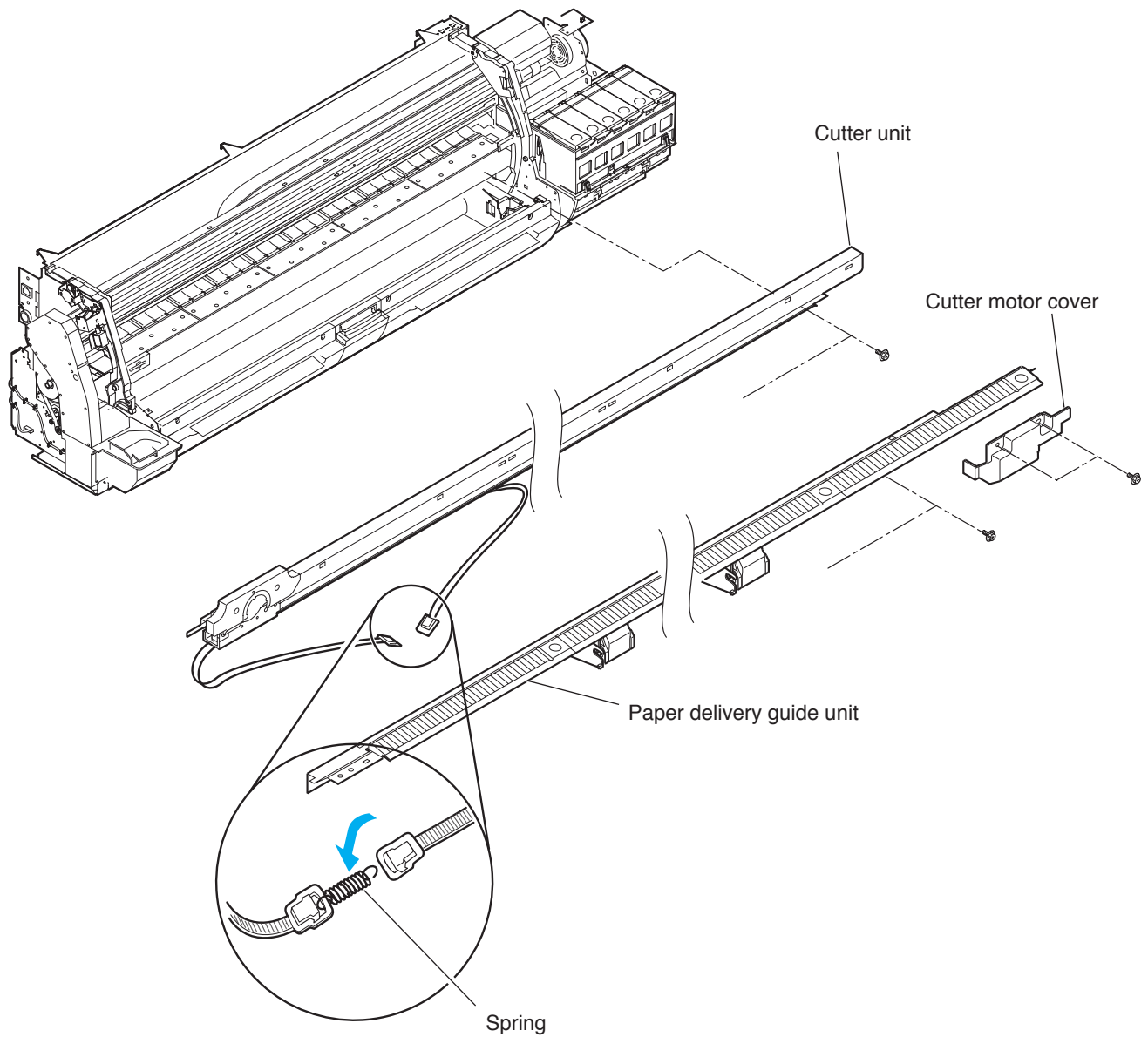
Figure 5-34 Cutter Unit

5.2.9 Purge unit

a) Removing the purge unit

1) Turn off the power, and then move the carriage over the platen. For details, refer to *Part 5:* 5.3 Opening the Caps and Moving the Wiper Unit .
2) Open the ink tank unit. For details, refer to *Part 5:* 5.2.10 Ink tank unit.
3) Remove the two connectors, and then remove the cable from the cable guide.
4) Remove the four screws, and then remove the purge unit.
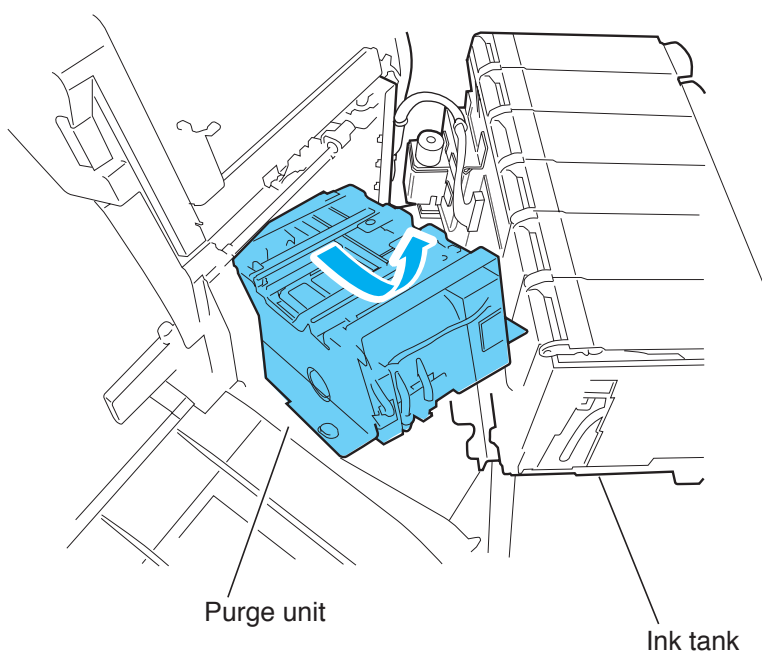
Purge unit

Ink tank

Figure 5-35 Removing the Purge Unit

5.2.10 Ink tank unit

a) Opening the ink tank unit

> **CAUTION**
>
> When opening the ink tank unit, be careful that the joint parts do not become separated. Also, if the ink tank unit is left open for long time, stress can occur in the joint parts, resulting in separation of these parts. If the ink tank unit must be left open for long time, drain the ink before performing any work.

1) Remove the two set screws of the ink tank unit, and then loosen the fulcrum screw.
2) Open the ink tank unit.
3) Use the screw removed in step 1 to secure the ink tank unit in a temporary position.

Fulcrum screw

Hole for temporarily securing

Setscrews
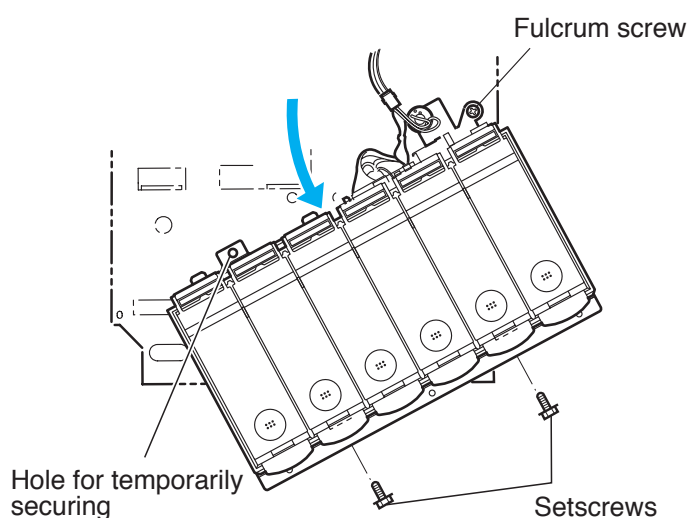
Figure 5-36 Opening the Ink Tank Unit

b) Removing the ink tank unit

1) Drain the ink. For details, refer to *Part 5:* 5.5 Draining the Ink.
2) Remove the support stay.
3) Remove joint on the ink tube unit and ink tank unit.
4) Place the joint for the ink tube unit side on the waste ink absorber.
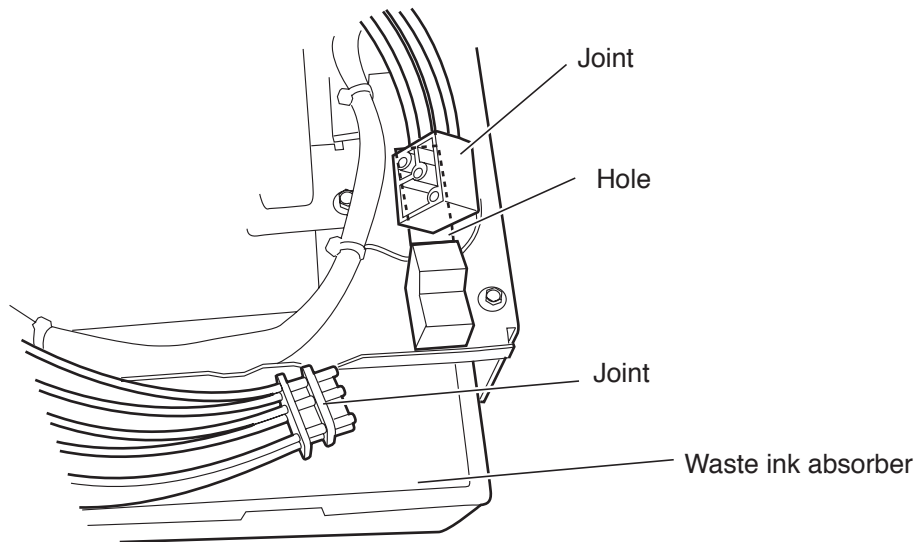
Figure 5-37 Joints

5) Remove the three screws and two connectors of the ink tank unit, and then remove the ink tank unit.

c) Removing the valve motor unit

  1) Remove the two set screws and one supporting screw of the ink tank unit.

  2) Move the ink tank unit to the outer side.

  3) Use a screw removed in step 1, and secure the ink tank unit in a temporary
     position.
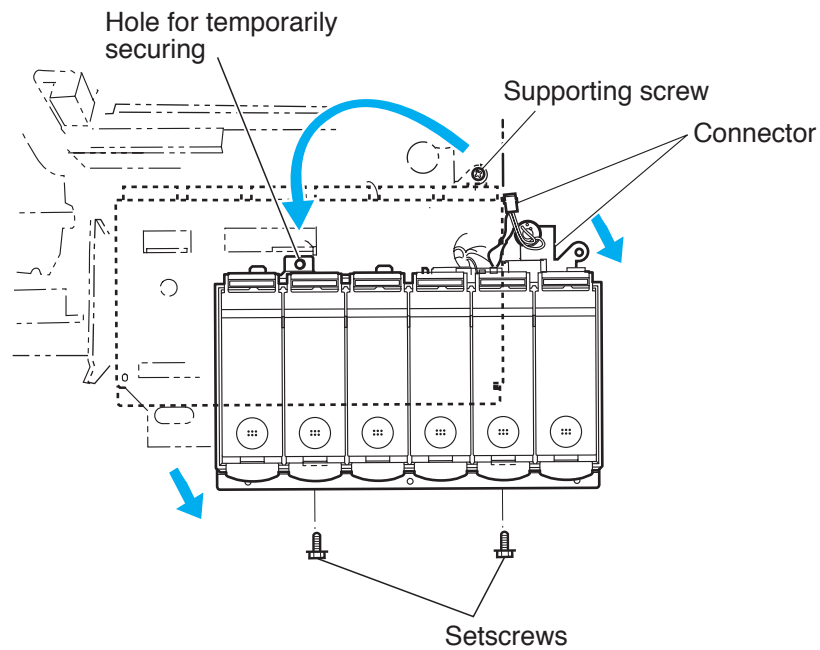
Figure 5-38 Moving and Securing the Ink Tank Unit

  4) Remove the valve motor unit.
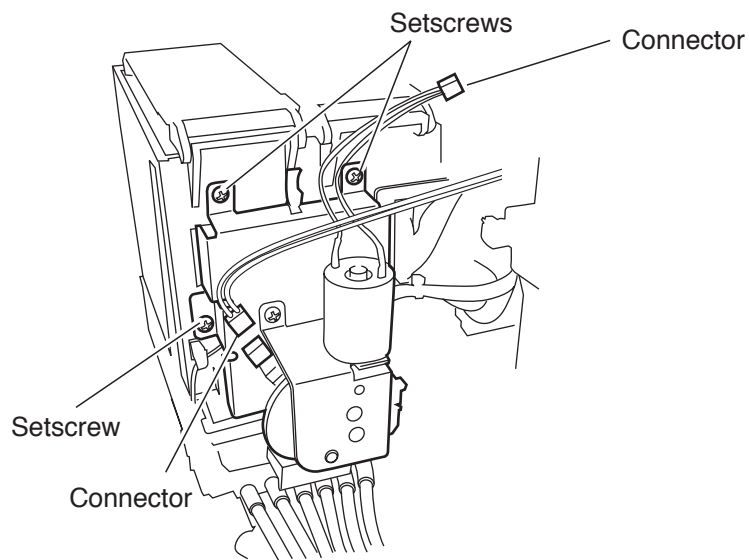
Figure 5-39 Valve Motor Unit

5.2.11 Waste ink absorber

The capacity of the waste ink absorber is approx. 10.5 kg, and the maintenance jet absorber unit is approx. 0.3 kg. The air flow fan unit also has a capacity of approx 3.0 kg.
When removing the waste ink absorber, maintenance jet absorber unit and air flow fan unit from the printer, be careful that the waste ink does not spill.

Air flow fan unit

Waste ink absorber

Maintenance jet absorber unit
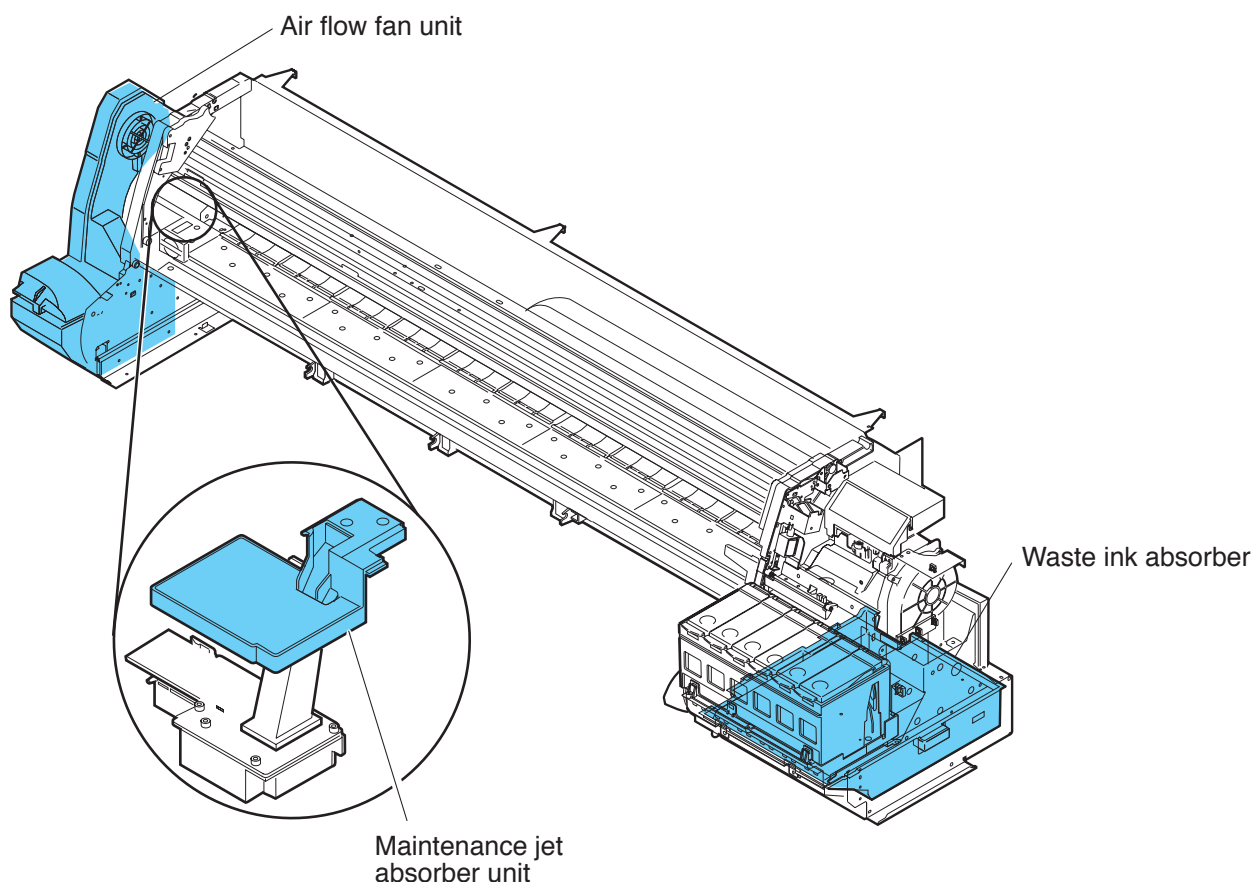
Figure 5-40 Waste Ink Absorber

CAUTION	In this printer, refilling detection is based on the capacity of the waste ink absorber. Although the air flow fan unit can be replaced separately, be sure to also always replace the maintenance jet absorber unit and air flow fan unit when replacing the waste ink absorber. After replacing the waste ink absorber, execute the INITIALIZE>W-INK command in Service mode to cancel any refilling detection errors. Do not execute the INITIALIZE>W-INK command in Service mode when the air flow fan unit is replaced separately. Do not replace the maintenance jet absorber units separately.

5.2.12 Boards

Do not replace the system controller and engine controller at the same time.
Each controller has important stored information such as the setting values, the waste ink counter, and the carriage driving time. To retain this information, before a controller is replaced, the information in the controller is temporarily stored in the other controller using internal communication and automatically updated. Therefore, the two controllers cannot be replaced at the same time.

Also, when the system controller and engine controller are replaced 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

> **CAUTION**
>
> When replacing the system controller original information of the following items in the MAIN MENU and the SERVICE MODE 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>System Setup>IP Setting
> • SERVICE MODE>DISPLAY>WARNING
> • SERVICE MODE>DISPLAY>ERROR
> • SERVICE MODE>DISPLAY>P-SETTING

1) Turn off the power, and replace the system controller.
2) Turn on the power while holding down the *[Cancel] button*, *[Enter] button*, and Online button.
   (The printer is started in Board Replace mode.)
3) Check that "Canon W8200" appears on the display, and then release the buttons.
   (The message lamp turns on when the printer enters Board Replace mode.)
4) Wait until "REPLACE MODE" appears on the display.
5) Select "S/C REPLACE", and then press the *[Enter] button*.
6) Check that "Turn Power Off!!" appears on the display, and then turn off the power.
7) Turn on the power.
8) Check the firmware version. If it is not the latest version, update the firmware to the latest version.
9) In the Main menu, select System Setup --> IP Setting, and then make the settings again.

b) Replacing the engine controller

1) Turn off the power, and replace the system controller.
2) Turn on the power while holding down the *[Cancel] button*, *[Enter] button*, and Online button.
   (The printer is started in Board Replace mode.)
3) Check that "Canon W8200" appears on the display, and then release the buttons.
   (The message lamp turns on when the printer enters Board Replace mode.)
4) Wait until "REPLACE MODE" appears on the display.
5) Select "E/C REPLACE", and then press the *[Enter] button*.
6) Check that "Turn Power Off!!" appears on the display, and then turn off the power.
7) Turn on the power.
8) Check the firmware version. If it is not the latest version, update the firmware to the latest version.

5.3 Opening the Caps and Moving the Wiper Unit

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 if moving the carriage when the power is turned off. For details on the sensors and flags, refer to *Part 4:* 5. DETECTION FUNCTIONS.

5.3.1 Opening the caps and releasing the carriage lock pins

1) Remove the rear cover, rear right cover, and upper right cover.
2) Insert a long Phillips-head screwdriver into the hole in the purge gear from the printer right side.
3) Rotate the purge gear in the counter-clockwise direction until the carriage lock pin drops while checking the carriage lock pin from the printer rear side.

Carriage motor

Carriage lock pin

Suction fan

Purge unit
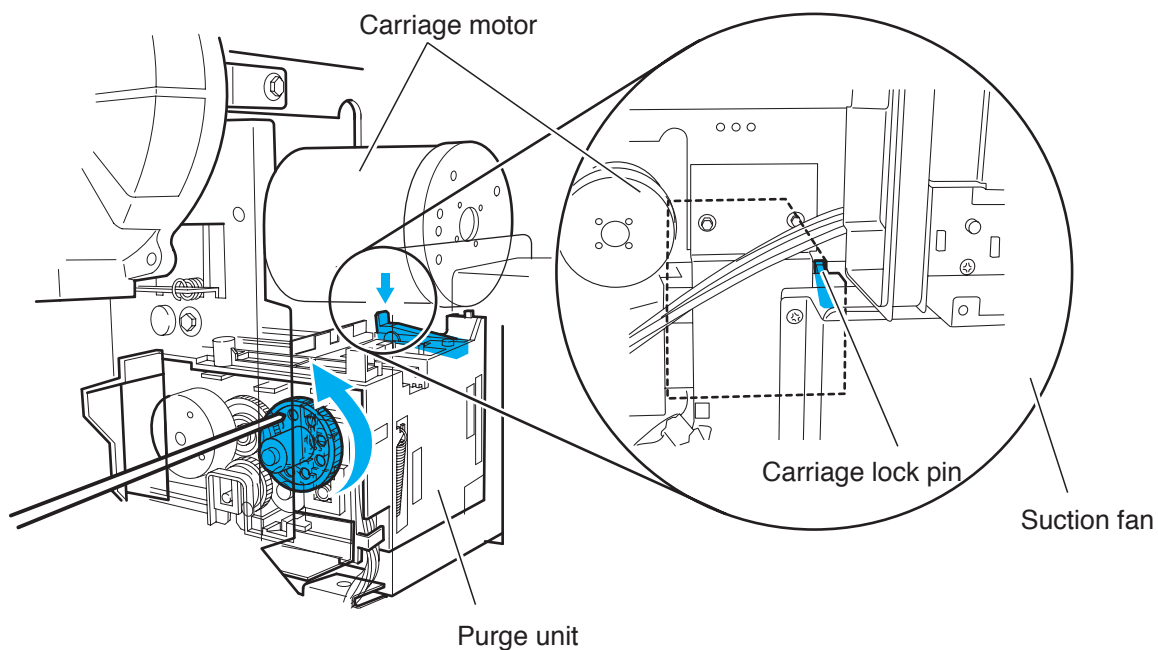
Figure 5-41 Opening the Caps and Releasing the Carriage Lock Pins

NOTE : After opening the caps and removing the carriage lock pin, rotating the gear further will close the caps after the wiper unit has completed the return movement, and the carriage lock pin will rise and lock the carriage.

5.3.2 Moving the wiper unit

1) Remove the rear cover, rear right cover, and upper right cover.
2) Insert a long Phillips-head screwdriver into the hole in the purge gear from the printer right side.
3) Rotate the purge gear in the counter-clockwise direction, and then move the wiper unit.

5.4 Opening and Closing the Ink Supply Valve

1) Remove rear cover, rear right cover, and upper right cover.
2) Press the valve lever with your finger to open the ink supply valve. (Normally, the ink supply valve is closed.)

CAUTION	• If the tube is filled with ink and the printhead lock lever is unlocked while the ink supply valve is opened, the ink in the tube may reverse-flow due to the difference in the water head, and ink may leak from the ink supply needle. • If the ink supply valve remains open, such as when an ink supply valve switching error (E02D06) occurs, remove the valve motor unit (see 5.2.10, Ink tank unit), and then close the ink supply valve.
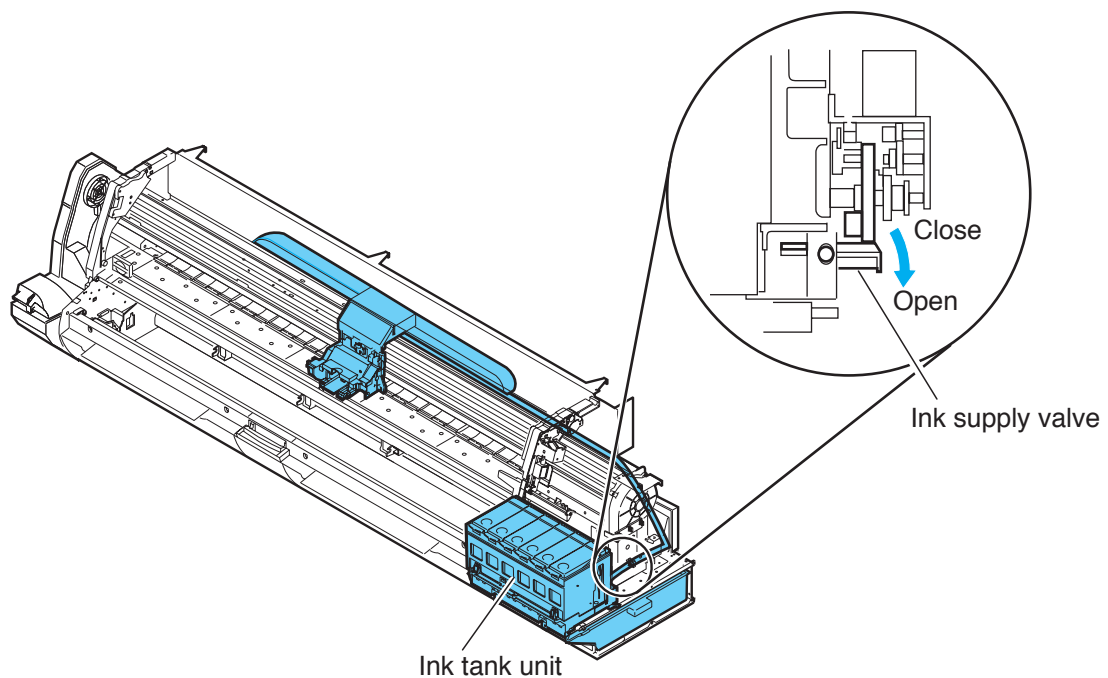
Figure 5-42 Opening and Closing the Ink Supply Valve

5.5 Draining the Ink

There are two methods of removing the ink, using a manual method or automatic method.

When the ink is drained, the ink inside the ink passage totaling approximately 230 g (38 g x 6 colors) is drained as waste ink.

> **CAUTION**
>
> To prevent ink leaks, be sure to always remove the ink inside the ink passage when disassembling or transporting the parts of the ink passage section.

5.5.1 Automatic ink drainage

Automatic ink drainage is performed by selecting Main Menu --> System Setup --> Move Printer from the operation panel. It takes about 4 minutes for automatic ink drainage to be performed.

> **CAUTION**
>
> Perform automatic ink drainage again if a power outage or other cause shuts off the power during the operation for automatic ink drainage.

5.5.2 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 malfunction 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

Manual ink drainage is performed using the three steps below.

Step 1 The ink in the ink tube unit flows to the waste ink absorber for all six colors simultaneously.

Step 2 The ink in the ink tank unit flows to the waste ink absorber for all six colors simultaneously.

Step 3 The ink in the subbuffer is removed separately for each color.

Step 4 Step 3 is repeated for the remaining five colors.

> ⚠ **CAUTION**
>
> 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.
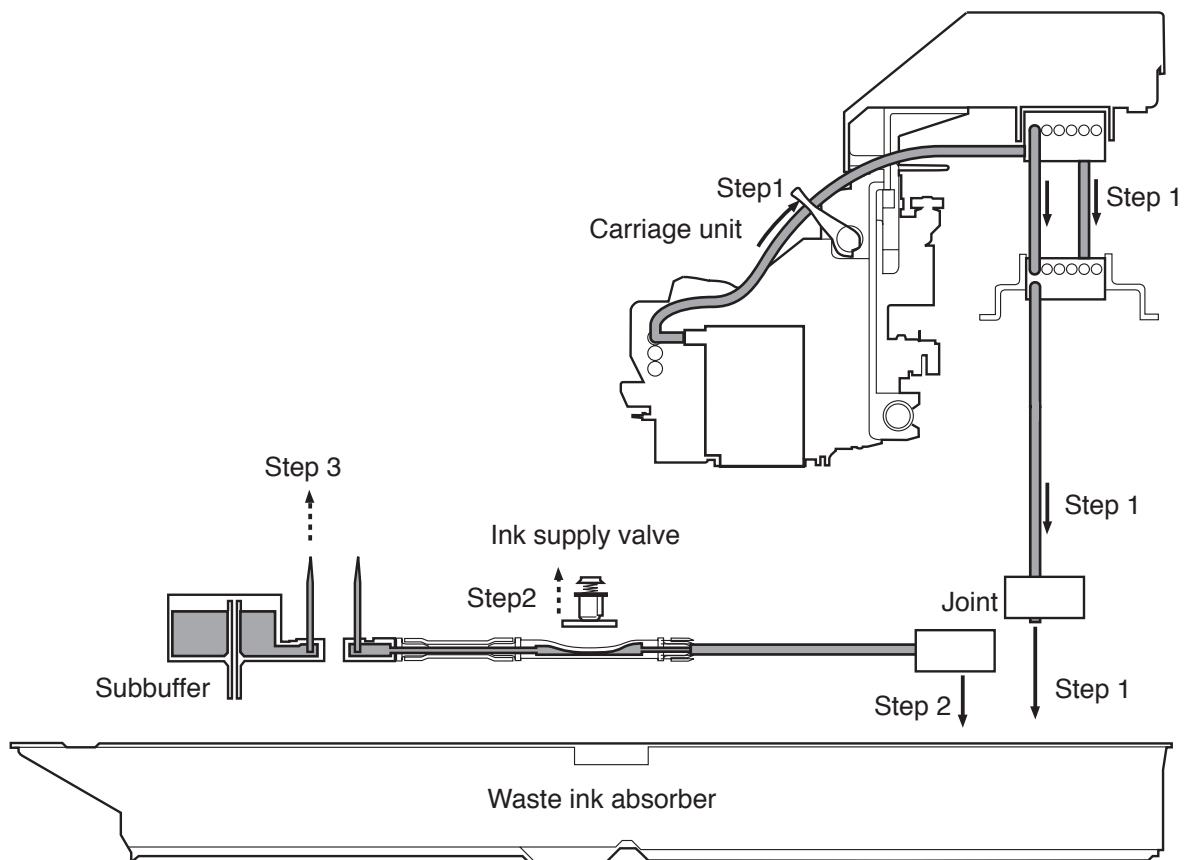
Step 4 Repeated for the remaining five colors.

Figure 5-43 Overview of Manual Ink Drainage (single color)

c) Manual ink drainage procedure
Step 1
　1) Open the right cover. For details, refer to *Part 5:* 5.2.4 Outer covers.
　2) Remove the ink tank.
　3) Remove all the joints for the ink tube unit and ink tank unit. For details, refer to
　　Part 5: 5.2.10 Ink tank unit.
　4) The joint part on the ink tube unit side is inserted and secured in the hole on top
　　of the right frame.
　5) Move the carriage over the platen. For details, refer to *Part 5:* 5.3 Opening the Caps
　　and Moving the Wiper Unit.
　6) Unlock the printhead lock lever to allow all the ink in the ink tubes to flow to the
　　waste ink absorber for all six colors simultaneously.

Step 2
　7) Place the joint of the ink tank unit side on the waste ink absorber and secure in
　　place.
　8) Press the valve lever with your finger, and then open the ink supply valve.
　　The ink in the tube on the ink supply pin side of the ink tank unit flows to the
　　waste ink absorber simultaneously for all six colors.

Step 3
　9) Connect the syringe ink tube to the needle of the subbuffer. Pull the plunger of
　　the syringe to remove the ink inside the subbuffer and drain the waste ink
　　absorber. Repeat until there is no more ink left.

Ink supply side needle

Subbuffer side needle
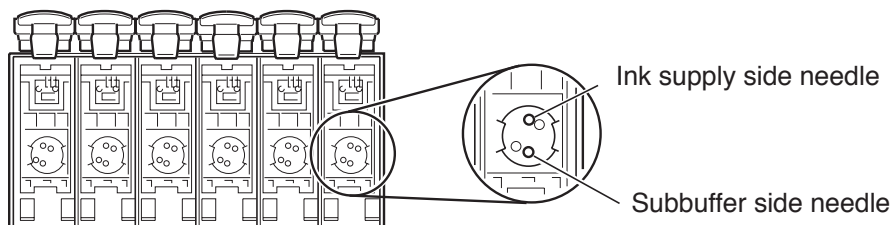
Figure 5-44 Top View of Ink Tank Unit

Step 4

10) Repeat step 3 for each color until all of the ink is removed.

* 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.

Printhead lock lever (6)

Joint (3)(4)

Carriage unit (5)

Ink tank unit (7)(8)(9)

Waste ink absorber (4)(6)(7)(8)(9)
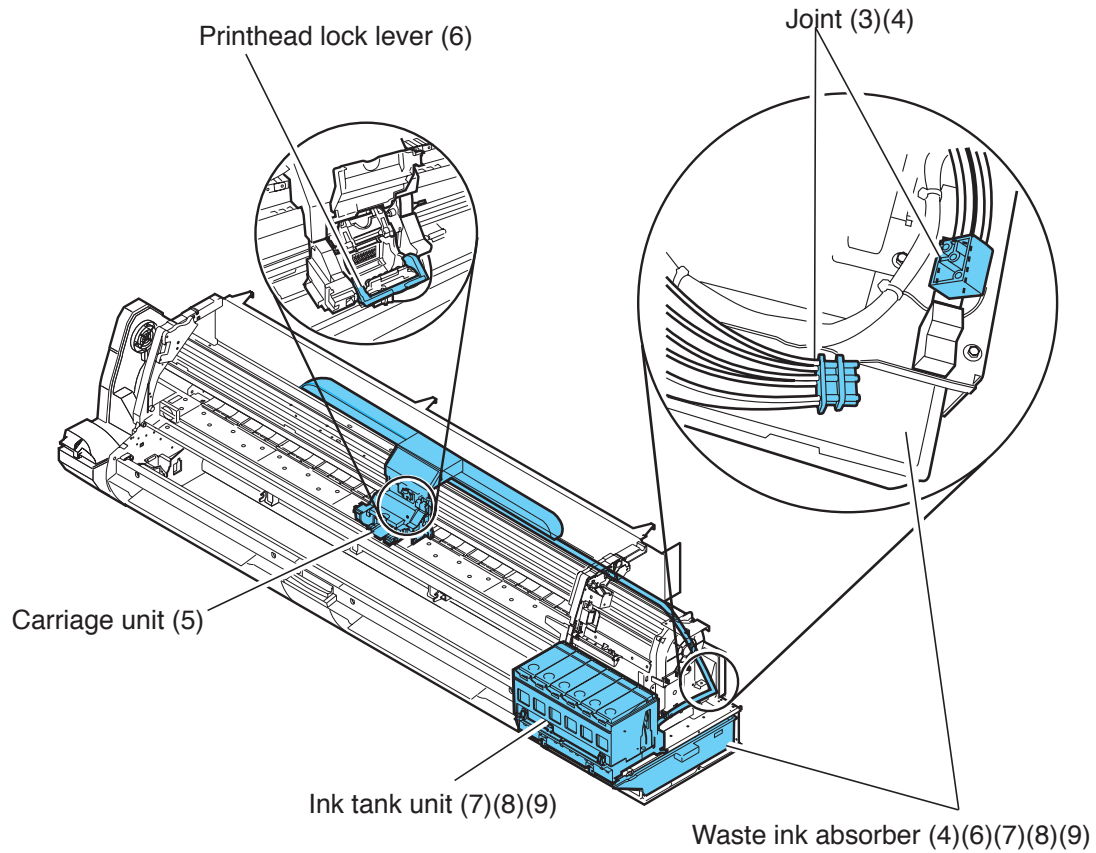
Figure 5-45 Manual Ink Drainage

6. ADJUSTMENT AND SETUP

6.1 Adjustment and Setup Items
6.1.1 Mistaken insertion of ink tanks prevention mechanism setting
This is activated when a mistaken setting is made at the time of initial installation, such as when the user touches the mechanism for preventing mistaken insertion before installing the ink tanks.

6.1.2 Adjustment of head holder tilt lever
This procedure is performed when the edge sections of the image are not sharp when printing in Draft mode (2-pass).

6.2 Adjustment and Setup Procedures
6.2.1 Mistaken insertion of ink tanks prevention mechanism setting

This setting restores the ink tanks to their default status when a mistaken setting is made at the time of initial installation, such as when the user touches the mechanism for preventing mistaken insertion before installing the ink tanks.

1) Open the right cover (see 5.2.4, Outer cover), and then open the ink tank cover of the respective color.
2) Use the flat-head screwdriver to flip the insertion prevention flag forward.
3) Use the flat-head screwdriver to move the insertion prevention lever to the center.

Insertion prevention lever

Insertion prevention flag
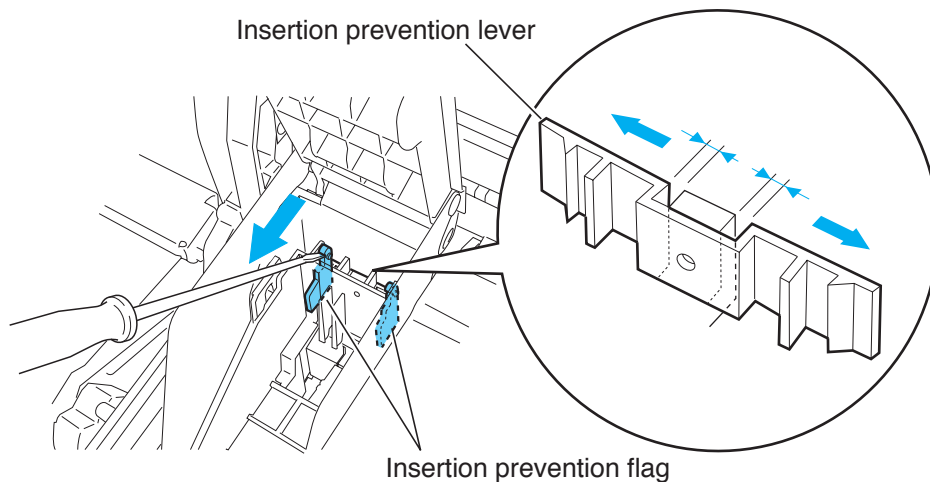
Figure 5-46 Mistaken Insertion of Ink Tanks Prevention Mechanism

Insertion prevention lever

② • Factory setting position

①

Insertion prevention flag
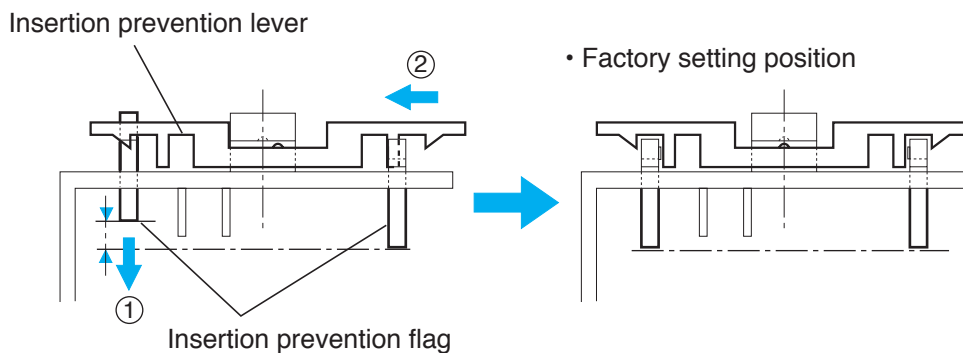
Figure 5-47 Mistaken Insertion of Ink Tanks Prevention Mechanism
Top View (Image of Restoration to Default Status)

6.2.2 Adjustment of the head holder tilt lever

This adjustment is performed when the edge sections of the image are not sharp when printing in Draft mode (2-pass).

After adjusting the head holder tilt lever, mark the number visible from the window of the head holder tilt lever with the number inside the sensor cover.

Sensor cover

Head holder tilt lever

Mark
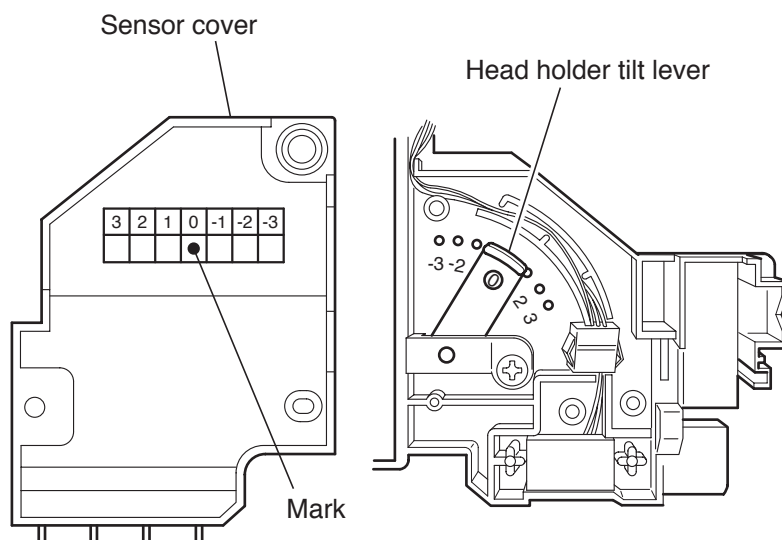
Figure 5-48 Adjusting the Head Holder Tilt Lever

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7. TROUBLESHOOTING

7.1 Outline of Troubleshooting

7.1.1 Outline

There are two types of trouble: trouble which is reported by the messages indicated on the display, including "operator call," "warning," "error," "service call error," and "firmware error"; and trouble not indicated on the message 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".

See *Part 3:* 5.2 Error Indications for a list of the problems which can be detailed on the message display.

7.1.2 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.

7.2 Troubleshooting When Warnings Occur

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.

7.2.1 x Ink Check (the ink color is indicated by x) (W01000, W01001, W01002, W01003, W01004, W01005)

\<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.

7.2.2 W-Ink Full Soon (W01006)

\<Cause\>

This is displayed when a nearly full (approx. 95% capacity of the waste ink absorber) waste ink level is detected in the waste ink absorber.

\<Probable problem locations\>

Waste ink absorber, engine controller, system controller

\<Remedy\>

1. Waste ink absorber
   Use SERVICE MODE>COUNTER>PRINTER>W-INK to check the waste ink absorber. Replace if the waste ink level is near the limit (14400).
   After replacing the tank, perform SERVICE MODE>INITIALIZE>W-INK.
2. Replace the engine controller.
3. Replace the system controller.

7.2.3   Memory Overflow
(W0100C)

<Cause>
   This is displayed when a data fault occurs due to insufficient memory.

<Probable problem locations>
   Operation error, system controller

<Remedy>
   1. Check the operating procedure and transmit data.
   2. Replace the system controller.

7.2.4   Feed Limit..
(W0100F)

<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, until the roll media end sensor detects no roll media.

<Probable problem locations>
   Engine controller, system controller

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

7.2.5   Incorrect Media
(W01021)

<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.

7.2.6   W01030/W01031/W01032/W01033/W01034/W01035/W01036/ W01037/W01038/W01039: GARO W0103x (number is indicated by x)

<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.

7.3 Troubleshooting When Errors Occur

7.3.1 E02000
Roll media end sensor error

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

\<Probable problem locations\>
Roll media, roll media end sensor, engine controller, system controller

\<Remedy\>
1. Roll media
   Install the roll media if there is none.
2. Visual check
   Replace the sensor if the sensor flag is damaged, deformed, or otherwise does not function normally.
3. Roll media end 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 roll media end sensor and engine controller if the connection is not functioning normally.
5. Replace the engine controller.
6. Replace the system controller.

7.3.2 E02005/E0200D/E02016
Feed sensor error

\<Cause\>
This is displayed when the feed sensor could not detect the roll media even after feeding the prescribed length during loading of the roll media.
This is displayed when the feed sensor could not detect the cut sheet trailing edge even after feeding the prescribed length during cut sheet loading.
This is displayed during printing when the feed sensor has detected the cut sheet trailing edge at a different position from the media loading position.

\<Probable problem locations\>
Paper path, roll drive unit, feed sensor, engine controller, system controller

\<Remedy\>
1. Visual check
   Remove any foreign objects adhering to the paper path and feed 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.
   Replace the roll drive unit if it is damaged, deformed, or otherwise does not function normally.
2. Feed sensor
   Use SERVICE MODE>I/O DISPLAY to check operation, and replace if faulty.
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.

7.3.3 E0200A/E0200B/E0200C/E0200E/E0200F/E02010/E02017/E02018 Media sensor error

\<Cause\>

This is displayed when the light intensity of the media sensor could not be adjusted during media loading.

This is displayed when the media sensor has detected a media loading position error during detection of the media right edge.

This is displayed when the media sensor could not detect the media leading edge during detection of the media leading edge.

This is displayed when the media sensor has detected a media smaller than the prescribed size during media loading.

Media width: Less than 200 mm

Media length: Less than 100 mm

This is displayed when the media sensor has detected a media larger than the prescribed size during media loading.

Media width: More than 1128 mm

Media length (roll media): More than 18 m

Media length (cut sheet): More than 1.6 m

This is displayed when the media sensor detects slanting that exceeds the prescribed amount during media loading.

This is displayed when the media sensor could not detect the media right edge during media loading.

This is displayed when the media sensor could not detect the media left edge during media loading.

\<Probable problem locations\>

Media, media loading procedure, media sensor, carriage relay PCB, engine controller, 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 media sensor.

4. Media sensor

   Use SERVICE MODE>DISPLAY>SYSTEM>SIZE CR to check the reading of the media sensor. Replace if it is not functioning normally.

5. Cable connection check

   Replace the cable between the media 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.

7.3.4   E02011
Roll media tray set sensor error

<Cause>
This is displayed when a roll media tray set sensor has detected that the roll media tray unit has been pulled out during printing or loading of the roll media.

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

<Remedy>
1. Operation check
   Reload the roll media tray unit.
2. Visual check
   Remove any foreign objects adhering to the roll media tray set sensor.
   Replace the sensor if the sensor flag is damaged, deformed, or otherwise does not function normally.
3. Roll media tray set 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 roll media tray set sensor and engine controller if the connection is not functioning normally.
5. Replace the engine controller.
6. Replace the system controller.

7.3.5　　E02015
　　　　　Cutter error

\<Cause\>

During media cutting, the cutter sensor could not detect the cutter unit 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\>

Media, media sensor, cutter blade, cutter unit, cutter sensor, cutter motor unit, engine controller, 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. Media 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 *Part 5:* 7.3.3 Media sensor error.
3. Visual check
   Remove any problems or foreign objects on the cutter blade, right and left cutter sensors, and driving unit of the cutter unit.
   Replace the driving unit of the cutter unit if it is damaged, deformed, or otherwise does not function properly.
4. Cable connection check
   Replace the cable between the cutter motor and engine controller if power does not flow properly.
   Replace the cables between the cutter sensors and engine controller if power does not flow properly.
5. Replace the cutter sensor
6. Replace the cutter motor unit
7. Replace the engine controller
8. Replace the system controller

7.3.6   E02400/E02401/E02402/E02403
Path mismatch error

<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 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.

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

<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.

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

\<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.

7.3.9　E02520
Ink level unknown error

\<Cause\>

A color is set to "Yes" in MAIN MENU>System Setup>Ink Check Off.
(When this option is set, the ink level of the corresponding color appears as "?"
under MAIN MENU>Information>Ink.)

CAUTION	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 **[Cancel] 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 if the ink level of the corresponding color does not appear as "?" under MAIN MENU>Information>Ink.

\<Probable problem locations\>

Engine controller, system controller

\<Remedy\>

1. Replace the engine controller.
2. Replace the system controller.

7.3.10　E02777
Communication error

\<Cause\>

A communication error was detected in communication between the system
controller and engine controller.

\<Probable problem locations\>

Firmware, system controller, engine controller

\<Remedy\>

1. Update the versions of the firmware.
2. Replace the system controller.
3. Replace the engine controller.

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

\<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, head relay PCB, carriage relay PCB, engine controller, system controller

\<Remedy\>

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

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

\<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.

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

<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.

7.3.14 E02813/ E02814
Head management sensor error

<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, 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.

7.3.15   E02B01
Tray sensor error

<Cause>
This is displayed when the tray sensor has detected that the tray is open during media loading or printing.

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

<Remedy>
1. Operation check
   Open / close the tray.
2. Visual check
   Remove any foreign objects adhering to the tray sensor.
3. Tray 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 tray sensor and engine controller if the connection is not functioning normally.
5. Replace the engine controller.
6. Replace the system controller.

7.3.16 E02B04
Upper cover sensor error

\<Cause\>

This is displayed when the upper cover sensor has detected that the upper cover is open while the upper cover is locked.

\<Probable problem locations\>

Upper cover, upper cover sensor, upper cover lock unit, engine controller, system controller

\<Remedy\>

1. Operation check
   Replace the sensor if the upper cover sensor flag or upper cover sensor is damaged, deformed, or otherwise does not function normally.
   Remove any foreign objects adhering to the upper cover lock unit.
2. Upper 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 upper cover sensor 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.

7.3.17 E02B05
Right cover sensor error

\<Cause\>

This is displayed when the right cover sensor has detected that the right cover has been opened not using operations from the main menu.

\<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.

7.3.18   E02B06
Carriage cover sensor error

\<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 relay PCB.
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 engine controller.
8. Replace the system controller.

7.3.19   E02D00/E02D01
Sensor error in purge unit

\<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. Homeposition sensor
   Check operation using SERVICE MODE>I/O DISPLAY, and replace the purge unit if anything does not function normally.
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.

7.3.20 E02D02
Carriage homeposition error

<Cause>

This is displayed when the carriage homeposition sensor could not detect the carriage within the prescribed time.

<Probable problem locations>

Foreign object in carriage contact section, carriage homeposition sensor, linear scale, linear encoder, engine controller, system controller

<Remedy>

1. Visual check
   Remove any foreign objects adhering to the carriage contact section, carriage homeposition sensor, linear scale, and linear sensor.
2. Carriage homeposition 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 homeposition 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.

7.3.21   E02D03
Feed motor error

<Cause>

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

<Probable problem locations>

Feed roller sensor, encoder slit, feed motor, motor driver PCB, engine controller, system controller

<Remedy>

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

7.3.22   E02D04
Roll media feed motor error

<Cause>

This is displayed when the roll media feed motor could not reach the prescribed speed within the prescribed time.

<Probable problem locations>

Roll media feed motor, engine controller, system controller

<Remedy>

1. Replace the roll media feed motor
2. Cable connection check
   Replace the cable between the roll media feed motor and engine controller if the connection is not functioning normally.
3. Replace the engine controller.
4. Replace the system controller.

7.3.23 E02D05
Air flow fan error

<Cause>

Fan rotation could not be detected while the air flow fan was running.

<Probable problem locations>

Air flow fan, engine controller, system controller

<Remedy>

1. Cable connection check
   Replace the cable between the air flow fan and engine controller if the connection is not functioning normally.
2. Replace the air flow fan.
3. Replace the engine controller.
4. Replace the system controller.

7.3.24 E02D06
Ink supply valve switching error

<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 valve cam sensor and the engine controller if any abnormalities are found in the cable connections.
4. Replace the engine controller.
5. Replace the system controller.

7.3.25   E02E01/E02E05
Carriage motor error

\<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.

7.3.26   E02E02
Roll media set sensor error

\<Cause\>

This is displayed when the roll media set sensor could not detect positional changes by the paper guide during the paper guide opening and closing operations.

\<Probable problem locations\>

Roll media set sensor, roll media tray unit, roll drive unit, motor driver PCB, engine controller, system controller

\<Remedy\>

1. Visual check
   Remove any foreign objects adhering to the roll media set sensor.
2. Roll media set 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 roll media set sensor and engine controller if the connection is not functioning normally.
4. Roll media tray unit
   Replace the unit if a visual check reveals that the gears are damaged, deformed, or otherwise do not function normally.
   Replace the unit if an operation check reveals that the roll release lever does not function normally.
5. Roll drive unit
   Replace the unit if a visual check reveals that the gears are damaged, deformed, or otherwise do not function normally.
6. Cable connection check
   Replace the cable between the roll drive unit and motor driver PCB if the connection is not functioning normally.
7. Replace the motor driver PCB.
8. Cable connection check
   Replace the cable between the motor driver PCB and engine controller if the connection is not functioning normally.
9. Replace the engine controller.
10. Replace the system controller.

7.3.27   E02E03
Pinch roller up/down sensor error

<Cause>

This is displayed when the pinch roller up/down sensor could not detect positional changes by the pinch roller during the pinch roller up/down operations.

<Probable problem locations>

Pinch roller up/down sensor, pinch roller drive unit, motor driver PCB, engine controller, system controller

<Remedy>

1. Visual check
   Remove any foreign objects adhering to the pinch roller up/down sensor.
2. Pinch roller up/down 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 pinch roller up/down sensor and motor driver PCB if the connection is not functioning normally.
4. Pinch roller drive unit
   Replace the unit if a visual check reveals that the gears are damaged, deformed, or otherwise do not function normally.
5. Cable connection check
   Replace the cable between the pinch roller drive unit and motor driver PCB if the connection is not functioning normally.
6. Replace the motor driver PCB.
7. Cable connection check
   Replace the cable between the motor driver PCB and engine controller if the connection is not functioning normally.
8. Replace the engine controller.
9. Replace the system controller.

7.3.28   E02E10
IEEE1394 error

<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.

7.3.29 E02F00
System controller internal error

\<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.

7.4 Troubleshooting When Service Call Errors Occur

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.

7.4.1   Printhead error! (E04000)

<Cause>

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

<Probable problem locations>

Printhead, head relay PCB, carriage relay PCB, engine controller, system controller

<Remedy>

1. Replace the printhead.
2. Replace the head relay PCB.
3. Replace the carriage relay PCB.
4. Replace the engine controller.
5. Replace the system controller.

7.4.2   Waste ink full! (E04001)

<Cause>

This is displayed when a full waste ink absorber is detected.

<Probable problem locations>

Waste ink absorber, engine controller, system controller

<Remedy>

1. Replace the waste ink absorber.
   Use SERVICE MODE>COUNTER>PRINTER>W-INK to check the waste ink absorber. Replace if the waste ink level is near the limit (14400).
   After replacing the tank, perform SERVICE MODE>INITIALIZE>W-INK.
2. Replace the engine controller.
3. Replace the system controller.

7.4.3 Scale read error! (E04002)

\<Cause\>

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

\<Probable problem locations\>

Linear scale, carriage sensor, carriage unit, carriage relay PCB, 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. Replace the carriage unit.
3. Cable connection check
   Replace the cable between the carriage sensor and carriage relay PCB if the connection is not functioning normally.
4. Replace the carriage relay PCB.
5. Cable connection check
   Replace the cable between the carriage relay PCB and engine controller if the connection is not functioning normally.
6. Replace the engine controller.
7. Replace the system controller

7.5 Troubleshooting for Other Problems Indicated on the Display

7.5.1 Incorrect Value: Check Value

<Cause>
This is displayed when it is detected that the Interface Setup > IP Setting > Default G/W input value does not match the IP address.

<Probable problem locations>
Operating procedure, system controller

<Remedy>
1. Operation check
   Check that the message turns off when the proper value is entered in the Default G/W.
2. Replace the system controller.

7.5.2 Offline: Load Roll Media

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

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

<Remedy>
1. Operation check
   Check that the message changes when the roll media is loaded and the roll media tray is closed.
2. Visual check
   Remove any foreign objects adhering to the sensors.
   Replace the sensor if the sensor flag is damaged, deformed, or otherwise does not function normally.
3. Roll media end sensor/roll media set 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 sensors and engine controller if the connection is not functioning normally.
5. Replace the engine controller.
6. Replace the system controller.

7.5.3 Offline: Load Cut Sheet
Offline: Remove Cut Sheet

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

<Probable problem locations>
Operating procedure, feed 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 feed sensor.
3. Feed 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 feed sensor and engine controller if the connection is not functioning normally.
5. Replace the engine controller.
6. Replace the system controller.

7.5.4 Offline: Open Upper Cover

<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, upper cover lock unit, engine controller, system controller

<Remedy>
1. Operation check
   Check that the message changes when the upper cover is opened.
2. Visual check
   Replace the sensor if the upper cover sensor flag or upper cover sensor is damaged, deformed, or otherwise does not function normally.
   Remove any foreign objects adhering to the upper cover lock unit.
3. Upper 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 upper cover sensor and engine controller if the connection is not functioning normally.
5. Replace the engine controller.
6. Replace the system controller.

7.5.5 Offline: Open Tray

<Cause>
When the tray sensor has detected that the tray is closed, the roll media tray set sensor has detected that the roll media tray is opened.

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

<Remedy>
1. Operation check
   Check that the message changes when the tray is opened.
2. Visual check
   Remove any foreign objects adhering to the sensors.
3. Tray sensor/roll media end 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 sensors and engine controller if the connection is not functioning normally.
5. Replace the engine controller.
6. Replace the system controller.

7.5.6 Off line: Open Roll Tray

<Cause>
In Roll Media mode, the roll media end sensor has detected no roll media, the tray sensor has detected that the tray is opened, and the roll media tray set sensor has detected that the roll media tray is closed.

<Probable problem locations>
Operating procedure, roll media end sensor, roll media tray set sensor, engine controller, system controller

<Remedy>
1. Operation check
   Check that the message changes when the roll media tray is opened.
2. Visual check
   Remove any foreign objects adhering to the sensors.
3. Roll media end sensor/tray sensor/roll media tray set 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 sensors and engine controller if the connection is not functioning normally.
5. Replace the engine controller.
6. Replace the system controller.

7.5.7 Printer Setup: Open Upper Cover

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

<Probable problem locations>
Operating procedure, printhead, head relay PCB, carriage relay PCB, 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. Replace the head relay PCB.
5. Cable connection check
   Replace the cable between the head relay PCB 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.

7.5.8 Printer Setup: Ins. Ink Tank OK

<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.

7.6 Troubleshooting for Problems Not Indicated on the Display

7.6.1 Printer does not turn on

\<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 (CN1), relay connector (J86), system controller (J6, J2), engine controller (J408, J417, J418, J419), and power supply (J101, J102, J103, J105).
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.

7.6.2 Network is not connected

\<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. Use the DIP switches (SW1) on the system controller to reset the network transmission speed and transfer mode according to the specifications of the hub that is used.
3. Replace the hub.
   Explain to the customer that there is no problem with the printer unit.
4. Replace the sysytem controller.

7.6.3 Right cover does not open

<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

    Connect the connector (J42) for the right cover lock solenoid and the relay
    connector (J24) for the right cover sensor to the connectors having the same color.

    White: Connector for right cover lock solenoid (J42)

    Blue: Relay connector for right cover sensor (J24)

2. Replace the engine controller.

7.6.4 Printing problems (ink is full)

<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, 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. 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 print adjustment, 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
     Replace the linear scale if it is dirty or otherwise does not function normally.
  7. Replace the carriage unit.
  8. Replace the carriage relay PCB.
  9. Replace the engine controller.
  10. Replace the system controller.

7.6.5 Printing problems (ink is not full)

<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 *Part 5:* 5.2.10 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.

7.6.6 Other printing problems

<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, full-
   wrung cloth.

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8. CONNECTOR POSITIONS AND PIN ARRANGEMENT

8.1 System Controller
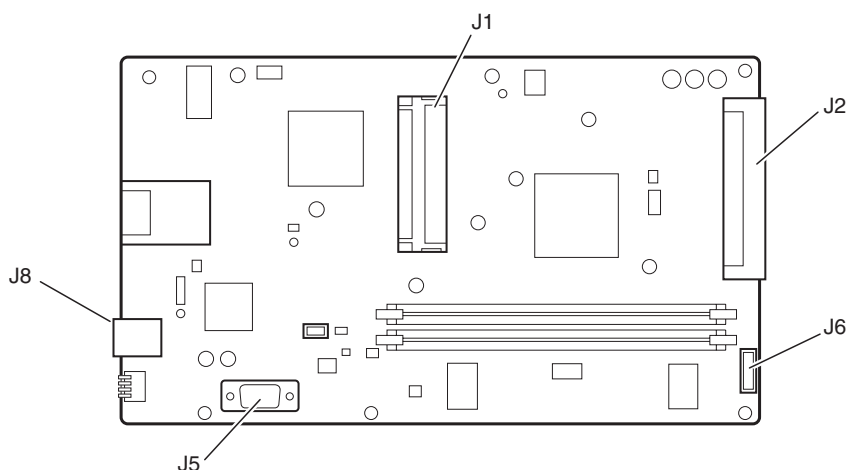
Figure 5-49 System Controller

J1

Pin number	Signal name	IN/OUT	Function
1	5V	OUT	Power supply (+5.0V)
2	TRST	IN	JTAG test reset signal
3	TMS	IN	JTAG test mode select signal
4	TDI	IN	JTAG test data input signal
5	GND	—	GND
6	RST	IN	Reset signal
7	GND	—	GND
8	GNT	IN	Grant signal
9	AD31	IN/OUT	Address and data signal
10	AD29	IN/OUT	Address and data signal
11	AD27	IN/OUT	Address and data signal
12	GND	—	GND
13	AD25	IN/OUT	Address and data signal
14	CBE3	OUT	Bus command and byte enable signal
15	AD23	IN/OUT	Address and data signal
16	AD21	IN/OUT	Address and data signal
17	GND	—	GND
18	AD19	IN/OUT	Address and data signal
19	AD17	IN/OUT	Address and data signal
20	CBE2	OUT	Bus command and byte enable signal
21	GND	—	GND
22	IRDY	OUT	Initiator ready signal
23	DEVSEL	IN	Device select signal
24	LOCK	OUT	Lock signal
25	GND	—	GND
26	SERR	OUT	System error signal
27	CBE1	OUT	Bus command and byte enable signal
28	AD14	IN/OUT	Address and data signal
29	GND	—	GND

Pin number	Signal name	IN/OUT	Function
30	AD12	IN/OUT	Address and data signal
31	AD10	IN/OUT	Address and data signal
32	AD8	IN/OUT	Address and data signal
33	GND	—	GND
34	AD7	IN/OUT	Address and data signal
35	AD5	IN/OUT	Address and data signal
36	AD3	IN/OUT	Address and data signal
37	AD1	IN/OUT	Address and data signal
38	GND	—	GND
39	3.3V	OUT	Power supply (+3.3V)
40	3.3V	OUT	Power supply (+3.3V)
41	GND	—	GND
42	TCK	IN	JTAG test clock signal
43	TDO	OUT	JTAG test data output signal
44	INTA	OUT	Interrupt signal
45	GND	—	GND
46	CLK	IN	Clock signal
47	GND	—	GND
48	REQ	OUT	Request signal
49	AD30	IN/OUT	Address and data signal
50	AD28	IN/OUT	Address and data signal
51	AD26	IN/OUT	Address and data signal
52	GND	—	GND
53	AD24	IN/OUT	Address and data signal
54	IDSEL	IN	Initialization device select signal
55	AD22	IN/OUT	Address and data signal
56	AD20	IN/OUT	Address and data signal
57	GND	—	GND
58	AD18	IN/OUT	Address and data signal
59	AD16	IN/OUT	Address and data signal
60	FRANE	OUT	Cycle frame signal
61	GND	—	GND
62	TRDY	IN	Target ready signal
63	STOP	IN	Stop signal
64	PERR	IN/OUT	Parity error signal
65	GND	—	GND
66	PAR	IN/OUT	Parity signal
67	AD15	IN/OUT	Address and data signal
68	AD13	IN/OUT	Address and data signal
69	GND	—	GND
70	AD11	IN/OUT	Address and data signal
71	AD9	IN/OUT	Address and data signal
72	CBE0	OUT	Bus command and byte enable signal
73	GND	—	GND
74	AD6	IN/OUT	Address and data signal
75	AD4	IN/OUT	Address and data signal
76	AD2	IN/OUT	Address and data signal
77	AD0	IN/OUT	Address and data signal
78	GND	—	GND
79	3.3V	OUT	Power supply (+3.3V)
80	3.3V	OUT	Power supply (+3.3V)

J2

Pin number	Signal name	IN/OUT	Function
1	GND	—	GND
2	NC	—	NC
3	NC	—	NC
4	NC	—	NC
5	GND	—	GND
6	NC	—	NC
7	NC	—	NC
8	GND	—	GND
9	NC	—	NC
10	NC	—	NC
11	GND	—	GND
12	SREQ	IN	Status request signal
13	GND	—	GND
14	SACK	OUT	Status acknowledge signal
15	NC	—	NC
16	GND	—	GND
17	GND	—	GND
18	GND	—	GND
19	CEDATA1	IN/OUT	Bidirectional data bus (bit1)
20	GND	—	GND
21	CEDATA4	IN/OUT	Bidirectional data bus(bit4)
22	CEDATA5	IN/OUT	Bidirectional data bus(bit5)
23	CEDATA7	IN/OUT	Bidirectional data bus(bit7)
24	GND	—	GND
25	CEDATA10	IN/OUT	Bidirectional data bus(bit10)
26	CEDATA11	IN/OUT	Bidirectional data bus(bit11)
27	CEDATA13	IN/OUT	Bidirectional data bus(bit13)
28	GND	—	GND
29	CEDATA16	IN/OUT	Bidirectional data bus(bit16)
30	CEDATA17	IN/OUT	Bidirectional data bus(bit17)
31	CEDATA19	IN/OUT	Bidirectional data bus(bit19)
32	GND	—	GND
33	CEDATA22	IN/OUT	Bidirectional data bus(bit22)
34	CEDATA23	IN/OUT	Bidirectional data bus(bit23)
35	CEDATA25	IN/OUT	Bidirectional data bus(bit25)
36	GND	—	GND
37	CEDATA28	IN/OUT	Bidirectional data bus(bit28)
38	CEDATA29	IN/OUT	Bidirectional data bus(bit29)
39	CEDATA31	IN/OUT	Bidirectional data bus(bit31)
40	STANDBY	OUT	Power supply ON/OFF signal
41	NC	—	NC
42	NC	—	NC
43	+3.3V	IN	Power supply (+3.3V)
44	+3.3V	IN	Power supply (+3.3V)
45	+3.3V	IN	Power supply (+3.3V)
46	+3.3V	IN	Power supply (+3.3V)
47	RESETC	OUT	Controller reset signal
48	NC	—	NC
49	NC	—	NC

Pin number	Signal name	IN/OUT	Function
50	GND	—	GND
51	GND	—	GND
52	NC	—	NC
53	GND	—	GND
54	NC	—	NC
55	GND	—	GND
56	GND	—	GND
57	NC	—	NC
58	GND	—	GND
59	NC	—	NC
60	GND	—	GND
61	GND	—	GND
62	CREQ	OUT	Command request signal
63	CACK	IN	Command acknowledge signal
64	GND	—	GND
65	READY	IN	Image data request signal
66	GND	—	GND
67	DCLK	OUT	Image data transfer synchronous signal
68	GND	—	GND
69	CEDATA0	IN/OUT	Bidirectional data bus(bit0)
70	CEDATA2	IN/OUT	Bidirectional data bus(bit2)
71	CEDATA3	IN/OUT	Bidirectional data bus(bit3)
72	GND	—	GND
73	CEDATA6	IN/OUT	Bidirectional data bus(bit6)
74	CEDATA8	IN/OUT	Bidirectional data bus(bit8)
75	CEDATA9	IN/OUT	Bidirectional data bus(bit9)
76	GND	—	GND
77	CEDATA12	IN/OUT	Bidirectional data bus(bit12)
78	CEDATA14	IN/OUT	Bidirectional data bus(bit14)
79	CEDATA15	IN/OUT	Bidirectional data bus(bit15)
80	GND	—	GND
81	CEDATA18	IN/OUT	Bidirectional data bus(bit18)
82	CEDATA20	IN/OUT	Bidirectional data bus(bit20)
83	CEDATA21	IN/OUT	Bidirectional data bus(bit21)
84	GND	—	GND
85	CEDATA24	IN/OUT	Bidirectional data bus(bit24)
86	CEDATA26	IN/OUT	Bidirectional data bus(bit26)
87	CEDATA27	IN/OUT	Bidirectional data bus(bit27)
88	GND	—	GND
89	CEDATA30	IN/OUT	Bidirectional data bus(bit30)
90	START	IN	Steady-state input power supply (+3.3V)
91	+5V	IN	Power supply (+5.0V)
92	NC	—	NC
93	+3.3V	IN	Power supply (+3.3V)
94	+3.3V	IN	Power supply (+3.3V)
95	+3.3V	IN	Power supply (+3.3V)
96	+3.3V	IN	Power supply (+3.3V)
97	WAKE	OUT	Wake signal from sleep mode
98	NC	—	NC
99	NC	—	NC
100	GND	—	GND

J5 (RS-232C)

Pin number	Signal name	IN/OUT	Function
1	CD	IN	Data Carrier Detect
2	RXD	IN	Receive data by serial communication
3	TXD	OUT	Transmit data by serial communication
4	DTR	OUT	Data Terminal ready
5	GND	—	GND
6	DSR	IN	Data set ready
7	RTS	OUT	Request to send
8	CTS	IN	Clear to send
9	RI	IN	Ring Indicate

J6

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	PCLK	OUT	Clock signal to operation panel
5	PDI	IN	Receive data from operation panel
6	GND	—	GND
7	SOFT_SW1	IN	Power supply ON/OFF signal
8	SOFT_SW2	OUT	Steady-state input power supply (+3.3V)

J8 (LAN)

Pin number	Signal name	IN/OUT	Function
1	TD+	OUT	10BASET-T/100BASE-TX differential output signal
2	TD-	OUT	10BASET-T/100BASE-TX differential output signal
3	TDCT	—	Pulse transfer center tap GND
4	GND	—	GND
5	GND	—	GND
6	RDCT	—	Pulse transfer center tap GND
7	RD+	IN	10BASET-T/100BASE-TX differential input signal
8	RD-	IN	10BASET-T/100BASE-TX differential input signal
9	G_LED+	—	Green LED anode
10	G_LED-	—	Green LED cathode
11	Y_LED+	—	Yellow LED anode
12	Y_LED-	—	Yellow LED cathode

8.2 Engin Controller
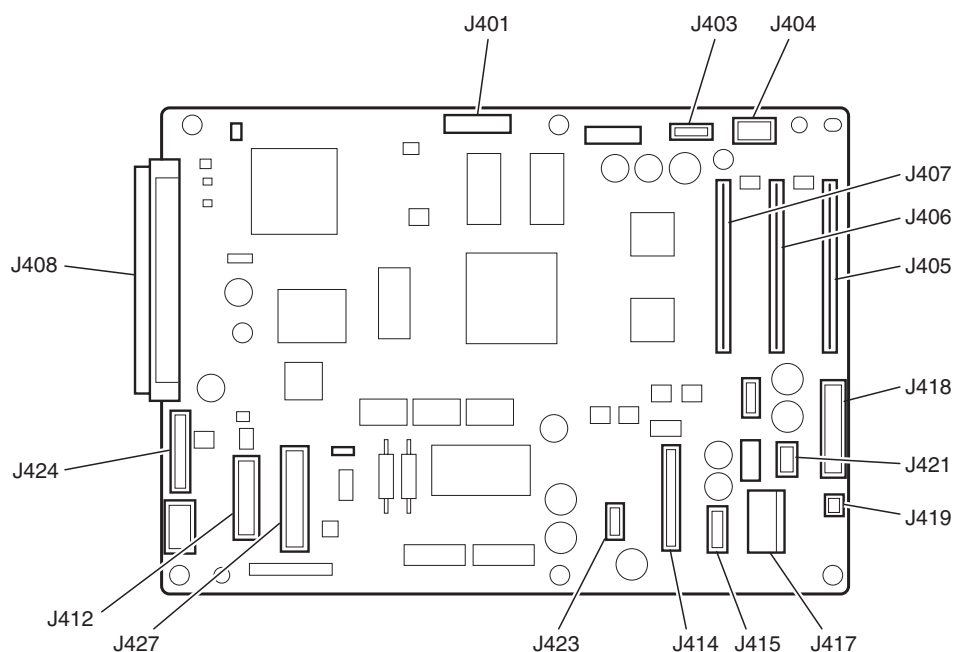
Figure 5-50 Engin Controller

J401

Pin number	Signal name	IN/OUT	Function
1	GND	—	GND
2	+3.3V	OUT	Power supply (+3.3V)
3	DIPSW5	—	For factory
4	DIPSW4	—	For factory
5	DIPSW3	—	For factory
6	DIPSW2	—	For factory
7	DIPSW1	—	For factory
8	DIPSW0	—	For factory

J403

Pin number	Signal name	IN/OUT	Function
1	GND	—	GND
2	TANKCVR	IN	Right cover opening and closing detection signal
3	+5V	OUT	Power supply (+5.1V)
4	VM	OUT	Power supply (+26.5V)
5	COVERSOL_R	OUT	Upper cover lock solenoid right drive signal
6	VM	OUT	Power supply (+26.5V)
7	TANKSOL	OUT	Right cover lock solenoid drive signal

J404

Pin number	Signal name	IN/OUT	Function
1	VM_CRM	OUT	Carriage motor drive power supply (+26.5V)
2	VM_CRM	IN	Carriage motor drive power supply (+26.5V)

J405

Pin number	Signal name	IN/OUT	Function
1	GND	—	GND
2	C2_SUBH	OUT	Subheat pulse output (PM)
3	C1_SUBH	OUT	Subheat pulse output (M)
4	C0_SUBH	OUT	Subheat pulse output (Y)
5	C2_HENB	OUT	Heat pulse output (PM)
6	C1_HENB	OUT	Heat pulse output (M)
7	C0_HENB	OUT	Heat pulse output (Y)
8	GND	—	GND
9	HDLTP	OUT	Head data latch signal + output
10	HDLTN	OUT	Head data latch signal - output
11	HDCLKP	OUT	Head data transfer clock + output
12	HDCLKN	OUT	Head data transfer clock - output
13	GND	—	GND
14	C2_EDATA1P	OUT	Odd nozzle data 1 + output (PM)
15	C2_EDATA1N	OUT	Odd nozzle data 1 - output (PM)
16	C2_EDATA0P	OUT	Odd nozzle data 0 + output (PM)
17	C2_EDATA0N	OUT	Odd nozzle data 0 - output (PM)
18	C2_ODATA1P	OUT	Even nozzle data 1 + output (PM)
19	C2_ODATA1N	OUT	Even nozzle data 1 - output (PM)
20	C2_ODATA0P	OUT	Even nozzle data 0 + output (PM)
21	C2_ODATA0N	OUT	Even nozzle data 0 - output (PM)
22	GND	—	GND
23	C1_EDATA1P	OUT	Odd nozzle data 1 + output (M)
24	C1_EDATA1N	OUT	Odd nozzle data 1 - output (M)
25	C1_EDATA0P	OUT	Odd nozzle data 0 + output (M)
26	C1_EDATA0N	OUT	Odd nozzle data 0 - output (M)
27	C1_ODATA1P	OUT	Even nozzle data 1 + output (M)
28	C1_ODATA1N	OUT	Even nozzle data 1 - output (M)
29	C1_ODATA0P	OUT	Even nozzle data 0 + output (M)
30	C1_ODATA0N	OUT	Even nozzle data 0 - output (M)
31	GND	—	GND
32	C0_EDATA1P	OUT	Odd nozzle data 1 + output (Y)
33	C0_EDATA1N	OUT	Odd nozzle data 1 - output (Y)
34	C0_EDATA0P	OUT	Odd nozzle data 0 + output (Y)
35	C0_EDATA0N	OUT	Odd nozzle data 0 - output (Y)
36	C0_ODATA1P	OUT	Even nozzle data 1 + output (Y)
37	C0_ODATA1N	OUT	Even nozzle data 1 - output (Y)
38	C0_ODATA0P	OUT	Even nozzle data 0 + output (Y)
39	C0_ODATA0N	OUT	Even nozzle data 0 - output (Y)
40	GND	—	GND

J406

Pin number	Signal name	IN/OUT	Function
1	GND	—	GND
2	C3_SUBH	OUT	Subheat pulse output (C)
3	C4_SUBH	OUT	Subheat pulse output (PC)
4	C5_SUBH	OUT	Subheat pulse output (BK)
5	C3_HENB	OUT	Heat pulse output (C)
6	C4_HENB	OUT	Heat pulse output (PC)
7	C5_HENB	OUT	Heat pulse output (BK)
8	GND	—	GND
9	C3_EDATA1P	OUT	Odd nozzle data 1 + output (C)
10	C3_EDATA1N	OUT	Odd nozzle data 1 - output (C)
11	C3_EDATA0P	OUT	Odd nozzle data 0 + output (C)
12	C3_EDATA0N	OUT	Odd nozzle data 0 - output (C)
13	C3_ODATA1P	OUT	Even nozzle data 1 + output (C)
14	C3_ODATA1N	OUT	Even nozzle data 1 - output (C)
15	C3_ODATA0P	OUT	Even nozzle data 0 + output (C)
16	C3_ODATA0N	OUT	Even nozzle data 0 - output (C)
17	GND	—	GND
18	C4_EDATA1P	OUT	Odd nozzle data 1 + output (PC)
19	C4_EDATA1N	OUT	Odd nozzle data 1 - output (PC)
20	C4_EDATA0P	OUT	Odd nozzle data 0 + output (PC)
21	C4_EDATA0N	OUT	Odd nozzle data 0 - output (PC)
22	C4_ODATA1P	OUT	Even nozzle data 1 + output (PC)
23	C4_ODATA1N	OUT	Even nozzle data 1 - output (PC)
24	C4_ODATA0P	OUT	Even nozzle data 0 + output (PC)
25	C4_ODATA0N	OUT	Even nozzle data 0 - output (PC)
26	GND	—	GND
27	C5_EDATA1P	OUT	Odd nozzle data 1 + output (BK)
28	C5_EDATA1N	OUT	Odd nozzle data 1 - output (BK)
29	C5_EDATA0P	OUT	Odd nozzle data 0 + output (BK)
30	C5_EDATA0N	OUT	Odd nozzle data 0 - output (BK)
31	C5_ODATA1P	OUT	Even nozzle data 1 + output (BK)
32	C5_ODATA1N	OUT	Even nozzle data 1 - output (BK)
33	C5_ODATA0P	OUT	Even nozzle data 0 + output (BK)
34	C5_ODATA0N	OUT	Even nozzle data 0 - output (BK)
35	GND	—	GND
36	ADC_DRET	IN	AD converter receive data
37	ADC_DSET	OUT	AC converter transmit data
38	ADC_CLK	OUT	Clock for AD converter data transfer
39	ADC_CS	OUT	Clock for AD converter data transfer
40	GND	—	GND

J407

Pin number	Signal name	IN/OUT	Function
1	MGND	—	GND
2	MGND	—	GND
3	MGND	—	GND
4	MGND	—	GND
5	MGND	—	GND
6	VM	OUT	Power supply (+26.5V)
7	VM	OUT	Power supply (+26.5V)
8	VM	OUT	Power supply (+26.5V)
9	VM	OUT	Power supply (+26.5V)
10	VM	OUT	Power supply (+26.5V)
11	GND	—	GND
12	+5V	OUT	Power supply (+5.1V)
13	+5V	OUT	Power supply (+5.1V)
14	LVDSENB	OUT	Differential IC (for reception) output enable signal
15	+3.3V	OUT	Power supply (+3.3V)
16	VHENB	OUT	Head drive voltage ON/OFF control signal
17	H5VENB	OUT	Head 5V power supply ON/OFF control signal
18	PIGMENT	OUT	Head drive voltage changing signal
19	GND	—	GND
20	PLEDON	OUT	LED ON/OFF control signal for media sensor
21	DCDC_OVP	IN	DC-DC converter error detection signal
22	PSNS	IN	Media sensor detection signal
23	PLED	OUT	LED light intensity control signal for media sensor
24	BAIAS	IN	Head overcurrent detection signal
25	JOINTSNS	IN	Carriage cover opening and closing detection signal
26	GND	—	GND
27	HEADEEPCLK	OUT	Head EEPROM data transfer clock signal
28	HEADEEPRD	IN	Head EEPROM read data
29	HEADEEPWD	OUT	Head EEPROM write data
30	HEADEEPCS	OUT	Head EEPROM chip select signal
31	CRENCB	IN	Linear scale phase signal B
32	CRENCA	IN	Linear scale phase signal A
33	GND	—	GND
34	DACLK	OUT	ASIC control data transfer clock signal
35	ADTRG	OUT	Head DI sensor output sample signal
36	DADT	OUT	ASIC control data signal
37	DLD	OUT	ASIC control data load signal
38	DSOUT1A	IN	ASIC output analog signal 1
39	DSOUT2A	IN	ASIC output analog signal 2
40	GND	—	GND

J408

Pin number	Signal name	IN/OUT	Function
1	GND	—	GND
2	NC	—	NC
3	NC	—	NC
4	NC	—	NC
5	GND	—	GND
6	NC	—	NC
7	NC	—	NC
8	GND	—	GND
9	NC	—	NC
10	NC	—	NC
11	GND	—	GND
12	SREQ	OUT	Status request signal
13	GND	—	GND
14	SACK	IN	Status acknowledge signal
15	NC	—	NC
16	GND	—	GND
17	GND	—	GND
18	GND	—	GND
19	CEDATA1	IN/OUT	Bidirectional data bus (bit1)
20	GND	—	GND
21	CEDATA4	IN/OUT	Bidirectional data bus (bit4)
22	CEDATA5	IN/OUT	Bidirectional data bus (bit5)
23	CEDATA7	IN/OUT	Bidirectional data bus (bit7)
24	GND	—	GND
25	CEDATA10	IN/OUT	Bidirectional data bus (bit10)
26	CEDATA11	IN/OUT	Bidirectional data bus (bit11)
27	CEDATA13	IN/OUT	Bidirectional data bus (bit13)
28	GND	—	GND
29	CEDATA16	IN/OUT	Bidirectional data bus (bit16)
30	CEDATA17	IN/OUT	Bidirectional data bus (bit17)
31	CEDATA19	IN/OUT	Bidirectional data bus (bit19)
32	GND	—	GND
33	CEDATA22	IN/OUT	Bidirectional data bus (bit22)
34	CEDATA23	IN/OUT	Bidirectional data bus (bit23)
35	CEDATA25	IN/OUT	Bidirectional data bus (bit25)
36	GND	—	GND
37	CEDATA28	IN/OUT	Bidirectional data bus (bit28)
38	CEDATA29	IN/OUT	Bidirectional data bus (bit29)
39	CEDATA31	IN/OUT	Bidirectional data bus (bit31)
40	STANDBY	IN	Power supply ON/OFF signal
41	NC	—	NC
42	NC	—	NC
43	+3.3V	OUT	Power supply (+3.3V)
44	+3.3V	OUT	Power supply (+3.3V)
45	+3.3V	OUT	Power supply (+3.3V)
46	+3.3V	OUT	Power supply (+3.3V)
47	RESETC	IN	Controller reset signal
48	NC	—	NC
49	NC	—	NC
50	GND	—	GND

Pin number	Signal name	IN/OUT	Function
51	GND	—	GND
52	NC	—	NC
53	GND	—	GND
54	NC	—	NC
55	GND	—	GND
56	GND	—	GND
57	NC	—	NC
58	GND	—	GND
59	NC	—	NC
60	GND	—	GND
61	GND	—	GND
62	CREQ	IN	Command request signal
63	CACK	OUT	Command acknowledge signal
64	GND	—	GND
65	READY	OUT	Image data request signal
66	GND	—	GND
67	DCLK	IN	Image data transfer synchronous signal
68	GND	—	GND
69	CEDATA0	IN/OUT	Bidirectional data bus (bit0)
70	CEDATA2	IN/OUT	Bidirectional data bus (bit2)
71	CEDATA3	IN/OUT	Bidirectional data bus (bit3)
72	GND	—	GND
73	CEDATA6	IN/OUT	Bidirectional data bus (bit6)
74	CEDATA8	IN/OUT	Bidirectional data bus (bit8)
75	CEDATA9	IN/OUT	Bidirectional data bus (bit9)
76	GND	—	GND
77	CEDATA12	IN/OUT	Bidirectional data bus (bit12)
78	CEDATA14	IN/OUT	Bidirectional data bus (bit14)
79	CEDATA15	IN/OUT	Bidirectional data bus (bit15)
80	GND	—	GND
81	CEDATA18	IN/OUT	Bidirectional data bus (bit18)
82	CEDATA20	IN/OUT	Bidirectional data bus (bit20)
83	CEDATA21	IN/OUT	Bidirectional data bus (bit21)
84	GND	—	GND
85	CEDATA24	IN/OUT	Bidirectional data bus (bit24)
86	CEDATA26	IN/OUT	Bidirectional data bus (bit26)
87	CEDATA27	IN/OUT	Bidirectional data bus (bit27)
88	GND	—	GND
89	CEDATA30	IN/OUT	Bidirectional data bus (bit30)
90	START	OUT	Steady-state input power supply (+3.3V)
91	+5V	OUT	Power supply (+5.1V)
92	NC	—	NC
93	+3.3V	OUT	Power supply (+3.3V)
94	+3.3V	OUT	Power supply (+3.3V)
95	+3.3V	OUT	Power supply (+3.3V)
96	+3.3V	OUT	Power supply (+3.3V)
97	WAKE	IN	Wake signal from sleep mode
98	NC	—	NC
99	NC	—	NC
100	GND	—	GND

J412

Pin number	Signal name	IN/OUT	Function
A1	VM	OUT	Power supply (+26.5V)
A2	MISTPWM_R	OUT	Air flow fan right drive signal
A3	ASF_A	OUT	Pump motor phase excitation signal A
A4	ASF_B	OUT	Pump motor phase excitation signal B
A5	ASF_BN	OUT	Pump motor phase excitation signal BN
A6	ASF_AN	OUT	Pump motor phase excitation signal AN
A7	NC	—	NC
A8	NC	—	NC
A9	VM	OUT	Power supply (+26.5V)
A10	PGA	OUT	Purge motor phase excitation signal A
A11	PGAN	OUT	Purge motor phase excitation signal AN
A12	PGB	OUT	Purge motor phase excitation signal B
A13	PGBN	OUT	Purge motor phase excitation signal BN
A14	NC	—	NC
B1	GND	—	GND
B2	ASFHP	IN	Pump motor home position signal
B3	+5V	OUT	Power supply (+5.1V)
B4	GND	—	GND
B5	PGHP	IN	Purge motor home position signal
B6	+5V	OUT	Power supply (+5.1V)
B7	NC	—	NC
B8	NC	—	NC
B9	NC	—	NC
B10	NC	—	NC
B11	NC	—	NC
B12	VM	OUT	Power supply (+26.5V)
B13	KYUINPWM_R	OUT	Suction fan drive signal
B14	GND	—	GND

J414

Pin number	Signal name	IN/OUT	Function
1	COVERSOL_L	OUT	Upper cover lock solenoid left drive signal
2	GND	—	GND
3	SUBLF_CL	OUT	Roll media feed clutch drive signal
4	PINCH_CL	OUT	Pinch roller up/down clutch drive signal
5	ATUKAI_CL	OUT	Follow roller up/down clutch drive signal
6	MISTPWM_L2	OUT	Air flow fan right drive signal
7	ROLLCVR	IN	Manual tray opening and closing detection signal
8	GND	—	GND
9	LFENCB	IN	Encoder slit rotation detection signal (B phase)
10	LFENCA	IN	Encoder slit rotation detection signal (A phase)
11	SUBLF_HP	IN	Pinch roller up/down detection signal
12	LFMAIN_A	OUT	Feed motor phase excitation signal (A)
13	LFMAIN_B	OUT	Feed motor phase excitation signal (B)
14	LFMAIN_AN	OUT	Feed motor phase excitation signal (AN)
15	LFMAIN_BN	OUT	Feed motor phase excitation signal (BN)
16	GND	—	GND
17	SUBLF_A	OUT	Roll media drive motor phase excitation signal (A)
18	SUBLF_B	OUT	Roll media drive motor phase excitation signal (B)
19	SUBLF_AN	OUT	Roll media drive motor phase excitation signal (AN)
20	SUBLF_BN	OUT	Roll media drive motor phase excitation signal (BN)

J415

Pin number	Signal name	IN/OUT	Function
1	GND	—	GND
2	SUBLF_OUT2	OUT	Roll media drive motor maximum phase current (Vref2)
3	SUBLF_OUT1	OUT	Roll media drive motor maximum phase current (Vref1)
4	GND	—	GND
5	LFMAIN_OUT2	OUT	Feed motor maximum phase current (Vref2)
6	LFMAIN_OUT1	OUT	Feed motor maximum phase current (Vref1)

J417

Pin number	Signal name	IN/OUT	Function
1	GND	—	GND
2	GND	—	GND
3	+3.3V	IN	Power supply (+3.3V)
4	+3.3V	IN	Power supply (+3.3V)

J418

Pin number	Signal name	IN/OUT	Function
1	GND	—	GND
2	+5V	IN	Power supply (+5.1V)
3	MGND	—	GND
4	VM	IN	Power supply (+26.5V)
5	MGND_CRM	—	GND for VM_CRM
6	MGND_CRM	—	GND for VM_CRM
7	VM_CRM	IN	Carriage motor drive power supply (+26.5V)
8	VM_CRM	IN	Carriage motor drive power supply (+26.5V)

J419

Pin number	Signal name	IN/OUT	Function
1	START	IN	Steady-state input power supply (+3.3V)
2	STANDBY	OUT	Power supply ON/OFF signal

J421

Pin number	Signal name	IN/OUT	Function
1	VM	OUT	Power supply (+26.5V)
2	MGND	—	GND
3	+5V	OUT	Power supply (+5.1V)
4	GND	—	GND

J423

Pin number	Signal name	IN/OUT	Function
1	GND	—	GND
2	CUTSNS_L	IN	Cutter unit left detection signal
3	MIST_L_GND	IN	GND for air flow fan left
4	MISTFAN_L	OUT	Air flow fan left drive signal
5	KYUINPWM_L	IN	Suction fan left drive signal
6	VM	OUT	Power supply (+26.5V)

J424

Pin number	Signal name	IN/OUT	Function
1	GND	—	GND
2	INK_HP	IN	Valve cam home position signal
3	+5V	OUT	Power supply (+5.1V)
4	INKM_P	IN/OUT	Valve motor rotation signal P
5	INKM_N	IN/OUT	Valve motor rotation signal N
6	+5V	OUT	Power supply (+5.1V)
7	NC	—	NC
8	FUTO_CLMP	OUT	Head management sensor contorol signal
9	FUTO_ON	OUT	Head management sensor ON signal
10	FUTO_CMP1	IN	Ink dots detection signal
11	NC	—	NC
12	GND	—	GND
13	CUTM_N	IN/OUT	Cutter motor rotation signal P
14	CUTM_P	IN/OUT	Cutter motor rotation signal N
15	CUTSNS_R	IN	Cutter unit right detection signal
16	GND	—	GND

J427

Pin number	Signal name	IN/OUT	Function
A1	+3.3V	OUT	Power supply (+3.3V)
A2	GND	—	GND
A3	EEPWD	OUT	Tank EEPROM write data signal
A4	TANKEEPRD	IN	Tank EEPROM read data signal
A5	EEPCLK	OUT	Tank EEPROM data clock signal
A6	TANKCS5	OUT	Tank EEPROM select signal (BK)
A7	TANKCS4	OUT	Tank EEPROM select signal (PC)
A8	TANKCS3	OUT	Tank EEPROM select signal (C)
A9	TANKCS2	OUT	Tank EEPROM select signal (PM)
A10	TANKCS1	OUT	Tank EEPROM select signal (M)
A11	TANKCS0	OUT	Tank EEPROM select signal (Y)
A12	GND	—	GND
A13	LM_SENSE	IN	Remaining ink level detection signal (PM)
A14	LC_SENSE	IN	Remaining ink level detection signal (PC)
A15	Y_SENSE	IN	Remaining ink level detection signal (Y)
A16	M_SENSE	IN	Remaining ink level detection signal (M)
A17	C_SENSE	IN	Remaining ink level detection signal (C)
A18	BK_SENSE	IN	Remaining ink level detection signal (BK)
B1	GND	—	GND
B2	ROLLEND	IN	Roll media end detection signal
B3	+5V	OUT	Power supply (+5.1V)
B4	GND	—	GND
B5	HIKIDASHISET	IN	Roll media tray set detection signal
B6	+5V	OUT	Power supply (+5.1V)
B7	GND	—	GND
B8	KAATSU	IN	Roll media set detection signal
B9	+5V	OUT	Power supply (+5.1V)
B10	GND	—	GND
B11	CRGHP	IN	Carriage homeposition detection signal
B12	+5V	OUT	Power supply (+5.1V)
B13	GND	—	GND
B14	MEDIA	IN	Media detection signal
B15	+5V	OUT	Power supply (+5.1V)
B16	NC	—	NC
B17	NC	—	NC
B18	NC	—	NC

8.3 Carriage Relay PCB
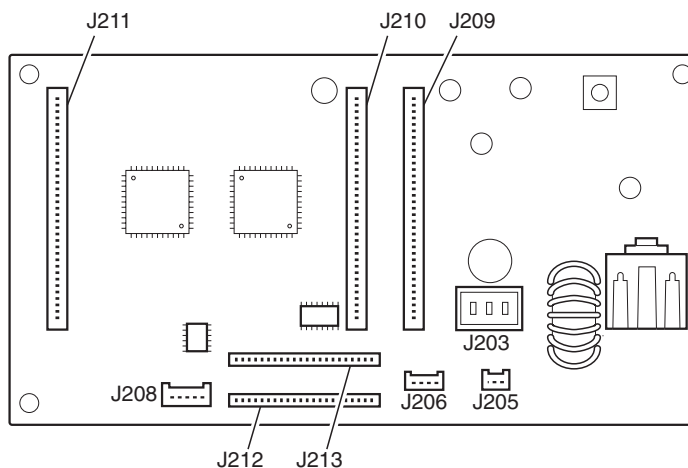
Figure 5-51 Carriage Relay PCB

J203

Pin number	Signal name	IN/OUT	Function
1	RGV19	OUT	Power supply for driving head
2	HGND	—	GND
3	GNDR	—	GND

J205

Pin number	Signal name	IN/OUT	Function
1	GND	—	GND
2	JOINTSNS	IN	Carriage cover opening and closing detection signal
3	+5V	OUT	Power supply (+5.1V)

J206

Pin number	Signal name	IN/OUT	Function
1	CRENCB	IN	Linear scale phase signal B
2	+5V	OUT	Power supply (+5.1V)
3	CRENCA	IN	Linear scale phase signal A
4	GND	—	GND

J208

Pin number	Signal name	IN/OUT	Function
1	PTC	OUT	Media sensor light-receiving element power supply
2	PTE	IN	Media sensor light-receiving element detection signal
3	PLED_A	OUT	Media sensor light-emitting element power supply
4	PLED_K	IN	Media sensor light-emitting element ON/OFF signal
5	NC	—	NC

J209

Pin number	Signal name	IN/OUT	Function
1	GND	—	GND
2	DSOUT2A	OUT	ASIC output analog signal 2
3	DSOUT1A	OUT	ASIC output analog signal 1
4	DLD	IN	ASIC control data load signal
5	DADT	IN	ASIC control data signal
6	ADTRG	IN	Head DI sensor output sample signal
7	DACLK	IN	ASIC control data transfer clock signal
8	GND	—	GND
9	CRENCA	OUT	Linear scale phase signal A
10	CRENCB	OUT	Linear scale phase signal B
11	HEADEEPCS	IN	Head EEPROM chip select signal
12	HEADEEPWD	IN	Head EEPROM write data
13	HEADEEPRD	OUT	Head EEPROM read data
14	HEADEEPCLK	IN	Head EEPROM data transfer clock signal
15	GND	—	GND
16	JOINTSNS	OUT	Carriage cover opening and closing detection signal
17	BAIAS	OUT	Head overcurrent detection signal
18	PLED	IN	LED control signal for media sensor
19	PSNS	OUT	Media sensor detection signal
20	DCDC_OVP	OUT	DC-DC converter error detection signal
21	PLEDON	IN	LED ON/OFF control signal for media sensor
22	GND	—	GND
23	PIGMENT	IN	Head drive voltage changing signal
24	H5VENB	IN	Head 5V power supply ON/OFF control signal
25	VHENB	IN	Head driving power supply ON/OFF control signal
26	+3.3V	IN	Power supply (+3.3V)
27	LVDSENB	IN	Differential IC (for reception) output enable signal
28	+5V	IN	Power supply (+5.1V)
29	+5V	IN	Power supply (+5.1V)
30	GND	—	GND
31	VM	IN	Power supply (+26.5V)
32	VM	IN	Power supply (+26.5V)
33	VM	IN	Power supply (+26.5V)
34	VM	IN	Power supply (+26.5V)
35	VM	IN	Power supply (+26.5V)
36	MGND	—	GND
37	MGND	—	GND
38	MGND	—	GND
39	MGND	—	GND
40	MGND	—	GND

J210

Pin number	Signal name	IN/OUT	Function
1	GND	—	GND
2	ADC_CS	IN	Clock for AD converter data transfer
3	ADC_CLK	IN	Clock for AD converter data transfer
4	ADC_DSET	IN	AD converter transmit data
5	ADC_DRET	OUT	AD converter receive data
6	GND	—	GND

Pin number	Signal name	IN/OUT	Function
7	C5_ODATA0N	IN	Even nozzle data 0- output (BK)
8	C5_ODATA0P	IN	Even nozzle data 0+ output (BK)
9	C5_ODATA1N	IN	Even nozzle data 1- output (BK)
10	C5_ODATA1P	IN	Even nozzle data 1+ output (BK)
11	C5_EDATA0N	IN	Odd nozzle data 0- output (BK)
12	C5_EDATA0P	IN	Odd nozzle data 0+ output (BK)
13	C5_EDATA1N	IN	Odd nozzle data 1- output (BK)
14	C5_EDATA1P	IN	Odd nozzle data 1+ output (BK)
15	GND	—	GND
16	C4_ODATA0N	IN	Even nozzle data 0- output (PC)
17	C4_ODATA0P	IN	Even nozzle data 0+ output (PC)
18	C4_ODATA1N	IN	Even nozzle data 1- output (PC)
19	C4_ODATA1P	IN	Even nozzle data 1+ output (PC)
20	C4_EDATA0N	IN	Odd nozzle data 0- output (PC)
21	C4_EDATA0P	IN	Odd nozzle data 0+ output (PC)
22	C4_EDATA1N	IN	Odd nozzle data 1- output (PC)
23	C4_EDATA1P	IN	Odd nozzle data 1+ output (PC)
24	GND	—	GND
25	C3_ODATA0N	IN	Even nozzle data 0- output (C)
26	C3_ODATA0P	IN	Even nozzle data 0+ output (C)
27	C3_ODATA1N	IN	Even nozzle data 1- output (C)
28	C3_ODATA1P	IN	Even nozzle data 1+ output (C)
29	C3_EDATA0N	IN	Odd nozzle data 0- output (C)
30	C3_EDATA0P	IN	Odd nozzle data 0+ output (C)
31	C3_EDATA1N	IN	Odd nozzle data 1- output (C)
32	C3_EDATA1P	IN	Odd nozzle data 1+ output (C)
33	GND	—	GND
34	C5_HENB	IN	Heat pulse output (BK)
35	C4_HENB	IN	Heat pulse output (PC)
36	C3_HENB	IN	Heat pulse output (C)
37	C5_SUBH	IN	Subheat pulse output (BK)
38	C4_SUBH	IN	Subheat pulse output (PC)
39	C3_SUBH	IN	Subheat pulse output (C)
40	GND	—	GND

J211

Pin number	Signal name	IN/OUT	Function
1	GND	—	GND
2	C0_ODATA0N	IN	Even nozzle data 0- output (Y)
3	C0_ODATA0P	IN	Even nozzle data 0+ output (Y)
4	C0_ODATA1N	IN	Even nozzle data 1- output (Y)
5	C0_ODATA1P	IN	Even nozzle data 1+ output (Y)
6	C0_EDATA0N	IN	Odd nozzle data 0- output (Y)
7	C0_EDATA0P	IN	Odd nozzle data 0+ output (Y)
8	C0_EDATA1N	IN	Odd nozzle data 1- output (Y)
9	C0_EDATA1P	IN	Odd nozzle data 1+ output (Y)
10	GND	—	GND
11	C1_ODATA0N	IN	Even nozzle data 0- output (M)
12	C1_ODATA0P	IN	Even nozzle data 0+ output (M)

Pin number	Signal name	IN/OUT	Function
13	C1_ODATA1N	IN	Even nozzle data 1- output (M)
14	C1_ODATA1P	IN	Even nozzle data 1+ output (M)
15	C1_EDATA0N	IN	Odd nozzle data 0- output (M)
16	C1_EDATA0P	IN	Odd nozzle data 0+ output (M)
17	C1_EDATA1N	IN	Odd nozzle data 1- output (M)
18	C1_EDATA1P	IN	Odd nozzle data 1+ output (M)
19	GND	—	GND
20	C2_ODATA0N	IN	Even nozzle data 0- output (PM)
21	C2_ODATA0P	IN	Even nozzle data 0+ output (PM)
22	C2_ODATA1N	IN	Even nozzle data 1- output (PM)
23	C2_ODATA1P	IN	Even nozzle data 1+ output (PM)
24	C2_EDATA0N	IN	Odd nozzle data 0- output (PM)
25	C2_EDATA0P	IN	Odd nozzle data 0+ output (PM)
26	C2_EDATA1N	IN	Odd nozzle data 1- output (PM)
27	C2_EDATA1P	IN	Odd nozzle data 1+ output (PM)
28	GND	—	GND
29	HDCLKN	IN	Head data transfer clock - output
30	HDCLKP	IN	Head data transfer clock + output
31	HDLTN	IN	Head data latch signal - output
32	HDLTP	IN	Head data latch signal + output
33	GND	—	GND
34	C0_HENB	IN	Heat pulse output (Y)
35	C1_HENB	IN	Heat pulse output (M)
36	C2_HENB	IN	Heat pulse output (PM)
37	C0_SUBH	IN	Subheat pulse output (Y)
38	C1_SUBH	IN	Subheat pulse output (M)
39	C2_SUBH	IN	Subheat pulse output (PM)
40	GND	—	GND

J212

Pin number	Signal name	IN/OUT	Function
1	C0_HENB_B	OUT	Heat pulse input (Y)
2	C1_HENB_B	OUT	Heat pulse input (M)
3	C2_HENB_B	OUT	Heat pulse input (PM)
4	C0SUBH	OUT	Subheat pulse input (Y)
5	C1SUBH	OUT	Subheat pulse input (M)
6	C2SUBH	OUT	Subheat pulse input (PM)
7	C3SUBH	OUT	Subheat pulse input (C)
8	C4SUBH	OUT	Subheat pulse input (PC)
9	C5SUBH	OUT	Subheat pulse input (BK)
10	C3_HENB_B	OUT	Heat pulse input (C)
11	C4_HENB_B	OUT	Heat pulse input (PC)
12	C5_HENB_B	OUT	Heat pulse input (BK)
13	GND	—	GND
14	DACLKX	OUT	Receiver ASIC input data clock
15	GND	—	GND
16	DSOUT2	IN	Receiver ASIC analog output
17	DSOUT1	IN	Receiver ASIC analog output
18	DLDX	OUT	Receiver ASIC input data latch signal

Pin number	Signal name	IN/OUT	Function
19	DADTX	OUT	Receiver ASIC input data
20	DASHX	OUT	Receiver ASIC output sample hold
21	GND	—	GND
22	HEADEEPCLKX	OUT	Head EEPROM data transfer clock
23	HEADEEPRDX	IN	Head EEPROM read signal
24	HEADEEPWDX	OUT	Head EEPROM write signal
25	HEADEEPCSX	OUT	Head EEPROM chip select signal
26	VHFBH	—	NC
27	VHFBG	—	NC
28	+5V	OUT	Power supply (+5.1V)
29	H5V	OUT	Power supply for driving head logic (+5.1V)
30	GND	—	GND

J213

Pin number	Signal name	IN/OUT	Function
1	GND	—	GND
2	C3_ODATA0	OUT	Even nozzle data 0 (C)
3	C3_ODATA1	OUT	Even nozzle data 1 (C)
4	C3_EDATA0	OUT	Odd nozzle data 0 (C)
5	C3_EDATA1	OUT	Odd nozzle data 1 (C)
6	C4_ODATA0	OUT	Even nozzle data 0 (PC)
7	C4_ODATA1	OUT	Even nozzle data 1 (PC)
8	C4_EDATA0	OUT	Odd nozzle data 0 (PC)
9	C4_EDATA1	OUT	Odd nozzle data 1 (PC)
10	C5_ODATA0	OUT	Even nozzle data 0 (BK)
11	C5_ODATA1	OUT	Even nozzle data 1 (BK)
12	C5_EDATA0	OUT	Odd nozzle data 0 (BK)
13	C5_EDATA1	OUT	Odd nozzle data 1 (BK)
14	GND	—	GND
15	C0_ODATA0	OUT	Even nozzle data 0 (Y)
16	C0_ODATA1	OUT	Even nozzle data 1 (Y)
17	GND	—	GND
18	C0_EDATA0	OUT	Odd nozzle data 0 (Y)
19	C0_EDATA1	OUT	Odd nozzle data 1 (Y)
20	C1_ODATA0	OUT	Even nozzle data 0 (M)
21	C1_ODATA1	OUT	Even nozzle data 1 (M)
22	C1_EDATA0	OUT	Odd nozzle data 0 (M)
23	C1_EDATA1	OUT	Odd nozzle data 1 (M)
24	C2_ODATA0	OUT	Even nozzle data 0 (PM)
25	C2_ODATA1	OUT	Even nozzle data 1 (PM)
26	C2_EDATA0	OUT	Odd nozzle data 0 (PM)
27	C2_EDATA1	OUT	Odd nozzle data 1 (PM)
28	HDCLK	OUT	Head data transfer clock
29	HDLT	OUT	Head data latch signal
30	GND	—	GND

8.4 Head Relay PCB
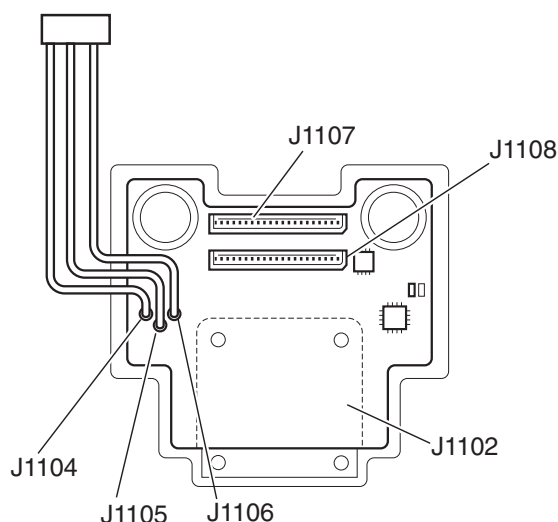
Figure 5-52 Head Relay PCB

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
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)

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

J1104

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

J1105

Pin number	Signal name	IN/OUT	Function
1	MGND	—	GND for VM

J1106

Pin number	Signal name	IN/OUT	Function
1	MGND	—	GND for VM

J1107

Pin number	Signal name	IN/OUT	Function
1	GND	—	GND
2	HDLT	IN	Head data latch signal
3	HDCLK	IN	Head data transfer clock
4	C2_EDATA1	IN	Odd nozzle data 1 (PM)
5	C2_EDATA0	IN	Odd nozzle data 0 (PM)
6	C2_ODATA1	IN	Even nozzle data 1 (PM)
7	C2_ODATA0	IN	Even nozzle data 0 (PM)
8	C1_EDATA1	IN	Odd nozzle data 1 (M)
9	C1_EDATA0	IN	Odd nozzle data 0 (M)
10	C1_ODATA1	IN	Even nozzle data 1 (M)
11	C1_ODATA0	IN	Even nozzle data 0 (M)
12	C0_EDATA1	IN	Odd nozzle data 1 (Y)
13	C0_EDATA0	IN	Odd nozzle data 0 (Y)
14	GND	—	GND
15	C0_ODATA1	IN	Even nozzle data 1 (Y)
16	C0_ODATA0	IN	Even nozzle data 0 (Y)
17	GND	—	GND
18	C5_EDATA1	IN	Odd nozzle data 1 (BK)
19	C5_EDATA0	IN	Odd nozzle data 0 (BK)
20	C5_ODATA1	IN	Even nozzle data 1 (BK)
21	C5_ODATA0	IN	Even nozzle data 0 (BK)
22	C4_EDATA1	IN	Odd nozzle data 1 (PC)
23	C4_EDATA0	IN	Odd nozzle data 0 (PC)
24	C4_ODATA1	IN	Even nozzle data 1 (PC)
25	C4_ODATA0	IN	Even nozzle data 0 (PC)
26	C3_EDATA1	IN	Odd nozzle data 1 (C)
27	C3_EDATA0	IN	Odd nozzle data 0 (C)
28	C3_ODATA1	IN	Even nozzle data 1 (C)
29	C3_ODATA0	IN	Even nozzle data 0 (C)
30	GND	—	GND

J1108

Pin number	Signal name	IN/OUT	Function
1	GND	—	GND
2	H5V	IN	Power supply for driving head logic (+5.1V)
3	+5V	IN	Power supply (+5.1V)
4	VHFBG	—	NC
5	VHFBH	—	NC
6	HEADEEPCSX	IN	Head EEPROM chip select signal
7	HEADEEPWDX	IN	Head EEPROM write signal
8	HEADEEPRDX	OUT	Head EEPROM read signal
9	HEADEEPCLKX	IN	Head EEPROM data transfer clock
10	GND	—	GND
11	DASHX	IN	ASIC output sample hold
12	DADTX	IN	ASIC input data
13	DLDX	IN	ASIC input data latch signal
14	DSOUT1	OUT	ASIC analog output
15	DSOUT2	OUT	ASIC analog output
16	GND	—	GND
17	DACLKX	IN	ASIC input data clock
18	GND	—	GND
19	C5_HENB_B	IN	Heat pulse input (BK)
20	C4_HENB_B	IN	Heat pulse input (PC)
21	C3_HENB_B	IN	Heat pulse input (C)
22	C5SUBH	IN	Subheat pulse input (BK)
23	C4SUBH	IN	Subheat pulse input (PC)
24	C3SUBH	IN	Subheat pulse input (C)
25	C2SUBH	IN	Subheat pulse input (PM)
26	C1SUBH	IN	Subheat pulse input (M)
27	C0SUBH	IN	Subheat pulse input (Y)
28	C2_HENB_B	IN	Heat pulse input (PM)
29	C1_HENB_B	IN	Heat pulse input (M)
30	C0_HENB_B	IN	Heat pulse input (Y)

8.5 Motor Driver PCB
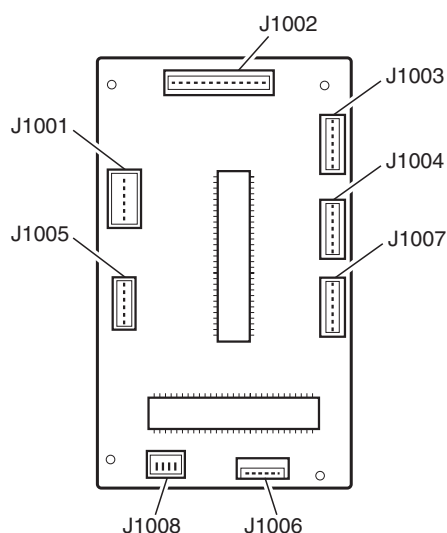
Figure 5-53 Motor Driver PCB

J1001

Pin number	Signal name	IN/OUT	Function
1	VM	IN	Power supply (+26.5V)
2	MGND	—	GND
3	+5V	IN	Power supply (+5.1V)
4	GND	—	GND

J1002

Pin number	Signal name	IN/OUT	Function
1	SUBLF_BN	IN	Roll media drive motor phase excitation signal (BN)
2	SUBLF_AN	IN	Roll media drive motor phase excitation signal (AN)
3	SUBLF_B	IN	Roll media drive motor phase excitation signal (B)
4	SUBLF_A	IN	Roll media drive motor phase excitation signal (A)
5	GND	—	GND
6	LFMAIN_BN	IN	Feed motor phase excitation signal (BN)
7	LFMAIN_AN	IN	Feed motor phase excitation signal (AN)
8	LFMAIN_B	IN	Feed motor phase excitation signal (B)
9	LFMAIN_A	IN	Feed motor phase excitation signal (A)
10	SUBLF_HP	OUT	Pinch roll up/down detection signal
11	LFENCA	OUT	Encoder slit rotation detection signal (A phase)
12	LFENCB	OUT	Encoder slit rotation detection signal (B phase)
13	GND	—	GND
14	ROLLCVR	OUT	Tray opening and closing detection signal
15	MISTPWM_L2	IN	Air flow fan right drive signal
16	ATUKAI_CL	IN	Follow roller up/down clutch drive signal
17	PINCH_CL	IN	Pinch roller up/down clutch drive signal
18	SUBLF_CL	IN	Roll media feed clutch drive signal
19	MISTPWM_L1	IN	Air flow fan left drive signal
20	COVERSOL_L	IN	Upper cover lock solenoid left drive signal

J1003

Pin number	Signal name	IN/OUT	Function
1	LFENCB	IN	Encoder slit rotation detection signal (B phase)
2	+5V	OUT	Power supply (+5.1V)
3	LFENCA	IN	Encoder slit rotation detection signal (A phase)
4	GND	—	GND
5	GND	—	GND
6	ROLLCVR	IN	Tray opening and closing detection signal
7	+5V	OUT	Power supply (+5.1V)
8	GND	—	GND
9	SUBLF_HP	IN	Pinch roll up/down detection signal
10	+5V	OUT	Power supply (+5.1V)

J1004

Pin number	Signal name	IN/OUT	Function
1	VM	OUT	Power supply (+26.5V)
2	NC	—	NC
3	PINCH_CL	OUT	Pinch roller up/down clutch drive signal
4	VM	OUT	Power supply (+26.5V)
5	COVERSOL_L	OUT	Upper cover lock solenoid left drive signal
6	VM	OUT	Power supply (+26.5V)
7	MISTPWM_L1	OUT	Air flow fan left drive signal

J1005

Pin number	Signal name	IN/OUT	Function
1	LFMAIN_OUT1	IN	Feed motor maximum phase current (Vref1)
2	LFMAIN_OUT2	IN	Feed motor maximum phase current (Vref2)
3	GND	—	GND
4	SUBLF_OUT1	IN	Roll media drive motor maximum phase current (Vref1)
5	SUBLF_OUT2	IN	Roll media drive motor maximum phase current (Vref2)
6	GND	—	GND

J1006

Pin number	Signal name	IN/OUT	Function
1	VM	OUT	Power supply (+26.5V)
2	VM	OUT	Power supply (+26.5V)
3	SUBLF_AN	OUT	Roll media drive motor phase excitation signal (AN)
4	SUBLF_A	OUT	Roll media drive motor phase excitation signal (A)
5	SUBLF_B	OUT	Roll media drive motor phase excitation signal (B)
6	SUBLF_BN	OUT	Roll media drive motor phase excitation signal (BN)

J1007

Pin number	Signal name	IN/OUT	Function
1	VM	OUT	Power supply (+26.5V)
2	VM	OUT	Power supply (+26.5V)
3	LFMAIN_A	OUT	Feed motor phase excitation signal (A)
4	LFMAIN_AN	OUT	Feed motor phase excitation signal (AN)
5	LFMAIN_B	OUT	Feed motor phase excitation signal (B)
6	LFMAIN_BN	OUT	Feed motor phase excitation signal (BN)
7	NC	—	NC

J1008

Pin number	Signal name	IN/OUT	Function
1	VM	OUT	Power supply (+26.5V)
2	SUBLF_CL	OUT	Roll media feed clutch drive signal
3	VM	OUT	Power supply (+26.5V)
4	ATUKAI_CL	OUT	Follow roller up/down clutch drive signal

8.6 Power Supply
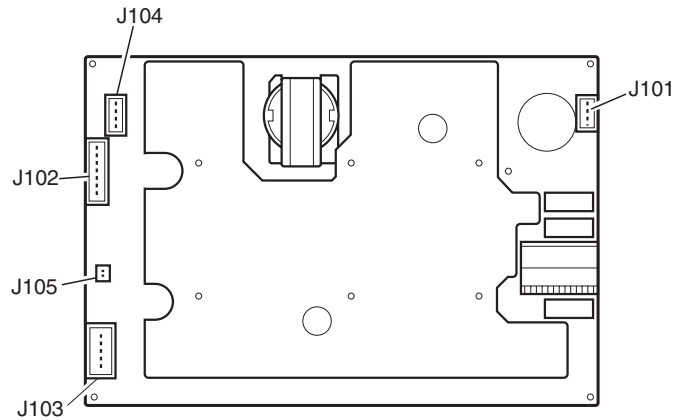
Figure 5-54 Power Supply

J101

Pin number	Signal name	IN/OUT	Function
1	—	—	Power supply (AC 100V to AC 240V)
2	—	—	Power supply (AC 100V to AC 240V)

J102

Pin number	Signal name	IN/OUT	Function
1	GND	—	GND
2	+5V	OUT	Power supply (+5.1V)
3	MGND	—	GND
4	VM	OUT	Power supply (+26.5V)
5	MGND_CRM	—	GND
6	MGND_CRM	—	GND
7	VM_CRM	OUT	Power supply (+26.5V)
8	VM_CRM	OUT	Power supply (+26.5V)

J103

Pin number	Signal name	IN/OUT	Function
1	GND	—	GND
2	GND	—	GND
3	+3.3V	OUT	Power supply (+3.3V)
4	+3.3V	OUT	Power supply (+3.3V)

J104

Pin number	Signal name	IN/OUT	Function
1	VM	OUT	Power supply (+26.5V)
2	MGND	—	GND
3	+5V	OUT	Power supply (+5.1V)
4	GND	—	GND

J105

Pin number	Signal name	IN/OUT	Function
1	START	OUT	Stead-state input power supply (+3.3V)
2	STANDBY	IN	Power supply ON/OFF signal

9. CIRCUIT DIAGRAM

Refer to Parts Catalog for the part layouts on each board.

9.1 General Circuit Diagram

General Circuit Diagram(1/5)

(To Carriage Relay PCB)   (To Carriage Relay PCB)   (To Carriage Relay PCB)

Engine Controller (1/4)

Power Supply

(To Motor Driver PCB)

Tank Relay PCB

PM   M   Y   BK   PC   C

Right cover sensor

Upper cover lock
solenoid (R)

SL2

Upper cover lock
solenoid

Right cover lock
solenoid

SL1

Upper cover
sensor (L)

Upper cover
sensor (R)

General Circuit Diagram(2/5)

Engine Controller (2/4)

Roll media
end sensor
SR2

Roll media tray
set sensor
SR1

Roll media
set sensor
SR12

Carriage home
position sensor
SR8

Feed
sensor
SR7

Air flow
fan (L)
FM4

Cutter left
switch
SW5

Suction
fan (L)
FM5

Air flow
fan (R)
FM3

Pump
motor
M5

Purge
motor
M4

Cap
sensor
SR9

Pump home
position sensor
SR10

Suction
fan (R)
FM1

Carriage
motor
M1

General Circuit Diagram(3/5)

Option Board

Engine Controller (3/4)

Feed motor

Roll drive motor

Tray sensor

Pinch roller sensor

SR14

SR13

Feed roller sensor

Motor Driver

Upper cover lock solenoid (L)

SL3

Pinch roller clutch
CL2

Pinch roller up/down clutch
CL3

Roll feed clutch
CL1

SR3
Cam sensor

M6
Valve motor

Valve Motor Unit

Head management sensor

Cutter motor
M7

SW6
Cutter right switch

Cutter right switch

From Power Supply

General Circuit Diagram(4/5)

8 7 6 5 4 3 2 1

F
E
D
C
B
A

System Controller

J2   J1

J1(Expand I/F)

CBE2 3.3V   FRANE 3.3V
AD17 3.3V   AD16 3.3V
AD19 GND   AD18 GND
GND AD1   GND AD0
AD21 AD3   AD20 AD2
AD23 AD5   AD22 AD4
CBE3 AD7   IOSEL AD6
AD29 GND   AD24 GND
GND AD8   GND CBE0
AD27 AD10   AD26 AD9
AD29 AD12   AD28 AD11
AD31 AD14   AD30 GND
GNT CBE1   REQ AD13
RST SERR   GND AD15
GND GND   CLK PAR
T0I LOCK   GND GND
TNS DEVSEL   INTA PERR
TRST IRDY   T00 STOP
5V GND   TCK TRDY
   GND GND

J2 (Engine I/F)

J408 (Controller I/F)

GND   NC   GND   NC
NC   WAKE   NC   RESETC
+3.3V   +3.3V   +3.3V   +3.3V
+3.3V   +3.3V   +3.3V   +3.3V
NC   +5V   NC   NC
START   STANDBY
GND   CEDATA30   CEDATA29   CEDATA31
CEDATA26   CEDATA27   GND   CEDATA28
CEDATA20   CEDATA24   CEDATA23   CEDATA25
GND   CEDATA21   GND   CEDATA22
CEDATA14   CEDATA18   CEDATA17   CEDATA19
GND   CEDATA15   GND   CEDATA16
CEDATA8   CEDATA12   CEDATA11   CEDATA13
GND   CEDATA9   GND   CEDATA10
CEDATA2   CEDATA6   CEDATA5   CEDATA7
GND   CEDATA3   GND   CEDATA4
GND   CEDATA0   GND   CEDATA1
GND   DCLK   GND   GND
GND   READY   SACK   NC
CREQ   CACK   SREQ   GND
NC   GND   NC   GND
GND   NC   NC   NC
GND   NC   GND   NC
NC   GND   NC   GND

Engine Controller (4/4)

J7

J13   1 2 3 4

J5
T0+
T0-
T0CT
GND
GND
R0CT
R0+
R0-
G_LED+
G_LED-
Y_LED+
Y_LED-

J4
NC   GND
NC   NC
+3.3V   NC
TRST   VDD
TCK
HALTED
TMS
SRESET
HRESET
CKSTP_OUT

J3
GND   RI
0TR   CTS
TX0   RTS
RX0   DSR
C0

J6   1 2 3 4 5 6 7 8

J85

MT2

+3.3V
PC90
PC00
PCLK
P0I
GND
SOFT_SW1
SOFT_SW2

J86D
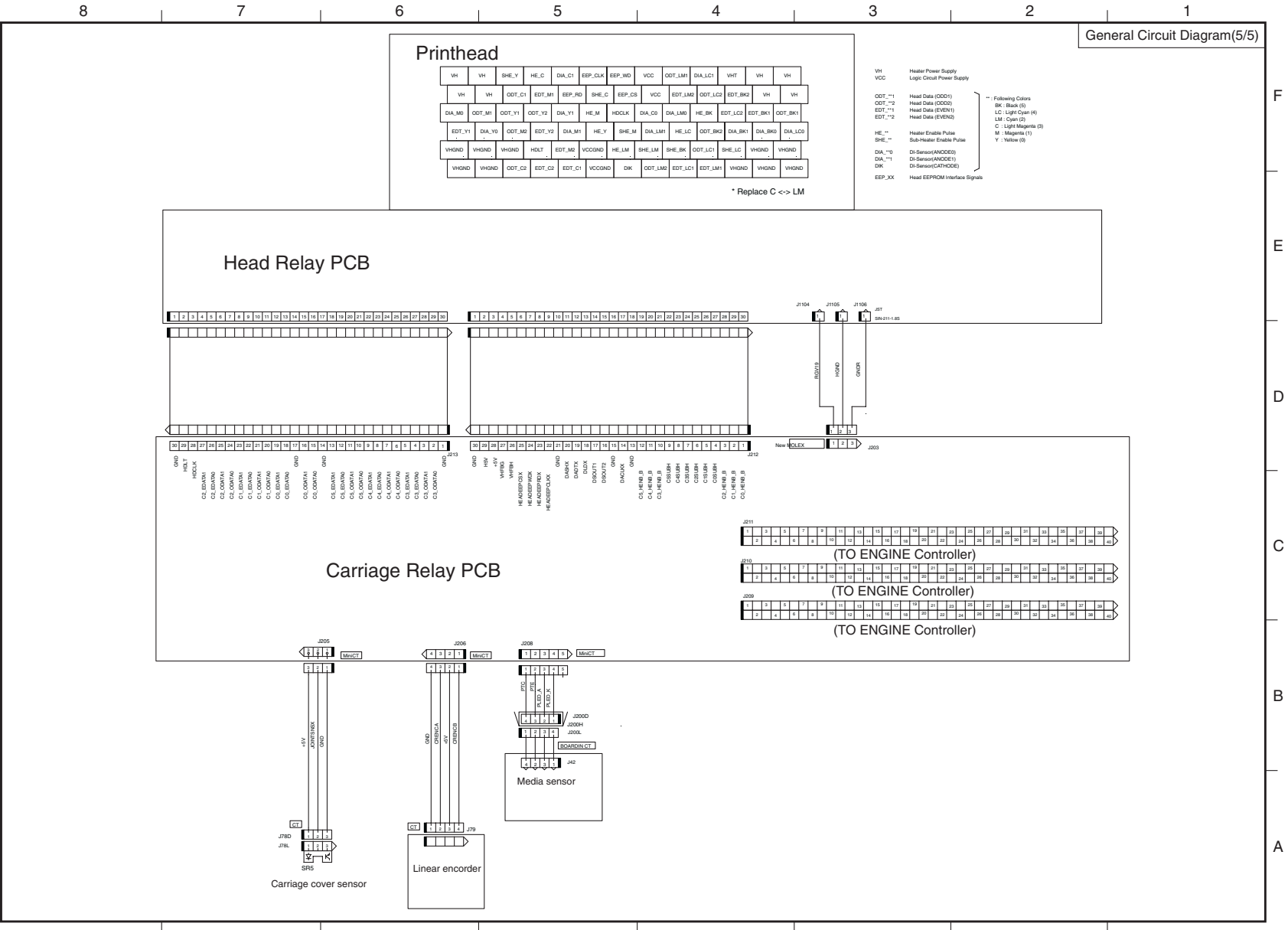J86H
J86L

J87   MT3
8 7 6 5 4 3 2 1
CN1

Operation Panel

(Board to Board)

Option
(IEEE1394 or USB)

5-113

General Circuit Diagram(5/5)

Printhead

VH	VH	SHE_Y	HE_C	DIA_C1	EEP_CLK	EEP_WD	VCC	ODT_LM1	DIA_LC1	VHT	VH	VH
VH	VH	ODT_C1	EDT_M1	EEP_RD	SHE_C	EEP_CS	VCC	EDT_LM2	ODT_LC2	EDT_BK2	VH	VH
DIA_M0	ODT_M1	ODT_Y1	ODT_Y2	DIA_Y1	HE_M	HDCLK	DIA_C0	DIA_LM0	HE_BK	EDT_LC2	EDT_BK1	ODT_BK1
EDT_Y1	DIA_Y0	ODT_M2	EDT_Y2	DIA_M1	HE_Y	SHE_M	DIA_LM1	HE_LC	ODT_BK2	DIA_BK1	DIA_BK0	DIA_LC0
VHGND	VHGND	VHGND	HDLT	EDT_M2	VCCGND	HE_LM	SHE_LM	SHE_BK	ODT_LC1	SHE_LC	VHGND	VHGND
VHGND	VHGND	ODT_C2	EDT_C2	EDT_C1	VCCGND	DIK	ODT_LM2	EDT_LC1	EDT_LM1	VHGND	VHGND	VHGND

* Replace C <-> LM

VH	Heater Power Supply
VCC	Logic Circuit Power Supply
ODT_**1	Head Data (ODD1)
ODT_**2	Head Data (ODD2)
EDT_**1	Head Data (EVEN1)
EDT_**2	Head Data (EVEN2)
HE_**	Heater Enable Pulse
SHE_**	Sub-Heater Enable Pulse
DIA_**0	DI-Sensor(ANODE0)
DIA_**1	DI-Sensor(ANODE1)
DIK	DI-Sensor(CATHODE)
EEP_XX	Head EEPROM Interface Signals

** : Following Colors
BK : Black (5)
LC : Light Cyan (4)
LM : Cyan (2)
C : Light Magenta (3)
M : Magenta (1)
Y : Yellow (0)

Head Relay PCB

J1104   J1105   J1106   JST
SIN-211-1.8S

RGW19   HGND   GNDR

Carriage Relay PCB

New MOLEX   1 2 3   J203

J213

GND HDLT HDCLK C2_EDATA0 C2_ODATA0 C2_EDATA1 C1_ODATA1 C1_EDATA1 C1_ODATA0 C0_EDATA0 GND C0_ODATA1 GND C0_ODATA0 C5_EDATA1 C5_ODATA1 C4_EDATA1 C4_ODATA1 C4_EDATA0 GND C4_ODATA0 C3_EDATA1 C3_ODATA1 C3_EDATA0 C3_ODATA0

J212

GND HSW +5V VHPRG VHPRH HEADEEPCS_X HEADEEPWDX HEADEEPCLK GND DA0RX DA0TX DLDX DSOUT1 DSOUT2 GND DACLKX C5_HEN0_B C4_HEN0_B C3_HEN0_B C4SUBH C3SUBH C1SUBH C0SUBH GND C2_HEN0_B C1_HEN0_B C0_HEN0_B

J211   (TO ENGINE Controller)

J210   (TO ENGINE Controller)

J209   (TO ENGINE Controller)

J205   MiniCT   J206   MiniCT   J208   MiniCT

+5V JOINTSNSX GND

GND OENCA +5V OENCB

PTC PTE PLED_A PLED_K

J200D
J200H
J200L
BOARDIN CT

J42

Media sensor

CT1
J78D
J78L

SR5

Carriage cover sensor

CT   J79

Linear encorder

9.2 System Controller

System Controller (1/15)

IC1 (1/4)

System Controller (2/15)

System Controller (3/15)

IC1 (3/4)

System Controller (4/15)

System Controller (5/15)

System Controller (7/15)

System Controller (8/15)

IC2 (1/5)

IC22

System Controller (9/15)

System Controller (10/15)

System Controller (11/15)

System Controller (12/15)

IC16

System Controller (13/15)

System Controller (14/15)

System Controller (15/15)

9.3 Engine Controller

Engine Controller (1/15)

This is a full-page schematic diagram.

Engine Controller (2/15)

SH3 Flash Memory

SH3 SDRAM

From SH3 — To ASIC,Memory

Engine Controller (3/15)

IC409
(1/6)

IC409
(2/6)

Engine Controller (4/15)

IC409
(3/6)

IC409
(4/6)

Engine Controller (5/15)

IC409
(5/6)

IC409
(6/6)

IC464

Engine Controller (6/15)

SDDATA[31:0]

SDRAM(ASIC PRINT BUFFER)

Engine Controller (7/15)

IC410

IC411

Carriage Interface Connector

Engine Controller (8/15)

Controller Interface Connector

Engine Controller (9/15)

Engine Controller (10/15)

Engine Controller (11/15)

Engine Controller (12/15)

Engine Controller (13/15)

Engine Controller (14/15)

Engine Controller (15/15)

9.4 Carriage Relay PCB

Carriage Relay PCB (1/9)

Engine Controller Interface Connector

J211

Pin	Signal
2	C0_ODATA0N
3	C0_ODATA0P
4	C0_ODATA1N
5	C0_ODATA1P
6	C0_EDATA0N
7	C0_EDATA0P
8	C0_EDATA1N
9	C0_EDATA1P
11	C1_ODATA0N
12	C1_ODATA0P
13	C1_ODATA1N
14	C1_ODATA1P
15	C1_EDATA0N
16	C1_EDATA0P
17	C1_EDATA1N
18	C1_EDATA1P
20	C2_ODATA0N
21	C2_ODATA0P
22	C2_ODATA1N
23	C2_ODATA1P
24	C2_EDATA0N
25	C2_EDATA0P
26	C2_EDATA1N
27	C2_EDATA1P
29	HDCLKN
30	HDCLKP
31	HDLTN
32	HDLTP

R303 C0_HENB
R302 C1_HENB
R301 C2_HENB

C0_SUBH
C1_SUBH
C2_SUBH

R272 R273 R274 +5V

J210

ADC_CSX
ADC_CLKX
ADC_DSETX
ADC_DRETX

C5_EDATA1P
C5_EDATA1N
C5_EDATA0P
C5_EDATA0N
C5_ODATA1P
C5_ODATA1N
C5_ODATA0P
C5_ODATA0N

C4_EDATA1P
C4_EDATA1N
C4_EDATA0P
C4_EDATA0N
C4_ODATA1P
C4_ODATA1N
C4_ODATA0P
C4_ODATA0N

C3_EDATA1P
C3_EDATA1N
C3_EDATA0P
C3_EDATA0N
C3_ODATA1P
C3_ODATA1N
C3_ODATA0P
C3_ODATA0N

R304 C5_HENB
R306 C4_HENB
R305 C3_HENB

C5_SUBH
C4_SUBH
C3_SUBH

R275 R276 R277 +5V

J209

IC209
DSOUT2_A
+5V
DSOUT2

IC209
DSOUT1_A
+5V
DSOUT1

DLDX
DADTX
DASHX
DACLKX

CRENCA
CRENCB
HEADEEPCSX
HEADEEPWDX
HEADEEPRDX
HEADEEPCLKX

JOINTSNSX
CMOUT
PLED
PSNS
OVP

OPEN

VH_CHANGE
H5VENB
VHENB

+3.3V +5V
R278
LVDSENB

C241 C243 C240 C242

+24V
CP204

CP207

Carriage Relay PCB (2/9)

LVDS Receiver Circuit 1

IC201

Carriage Relay PCB (3/9)

LVDS Receivet Circuit 2

IC202

8   7   6   5   4   3   2   1

Carriage Relay PCB (4/9)

Make_3.3V_LVDS_Circuit

Linear Encoder

Make_Ivdsenb_i_Circuit

Carriage Cocer Sensor

Carriage Relay PCB (5/9)

Media
Sensor

IC209

PLED

R356

C216

J208

+5V

R286

OPEN

IC209

PSNS

+5V

R283

HENB_BUFFER

IC203
245
VCC
GND

L207

C324   C325

+5V

IC203
245

C0_HENB
C1_HENB
C2_HENB
C3_HENB
C4_HENB
C5_HENB

A1
A2
A3
A4
A5
A6
A7
A8
DIR

B1
B2
B3
B4
B5
B6
B7
B8

R324
R329
R323
R325
R322
R320

C0_HENB_B
C1_HENB_B
C2_HENB_B
C3_HENB_B
C4_HENB_B
C5_HENB_B

+5V

LVDSENB

C331   C333   C323

C330   C332   C322

C335 C327

C334   C326   C328   C329

unmount

Carriage Relay PCB (6/9)

Sub Heater Driver Circuit

DC-DC Convertor Circuit

Carriage Relay PCB (7/9)

Carriage Relay PCB (9/9)

9.5 Head Relay PCB

Head Relay PCB (2/3)

9.6 Motor Driver

Motor Driver (1/3)

Motor Driver (2/3)

Sensor Circuit

Clach DRIVE CIRCUIT

FAN&SOLENOID

Motor Driver (3/3)

MOTOR_CONTROLL
SENSOR_OUT&CLATCH,FAN,SOLENOID_CONT Connector

J1002

Pin	Signal
1	SUBLFM_BN
2	SUBLFM_AN
3	SUBLFM_B
4	SUBLFM_A
5	
6	LFM_BN
7	LFM_AN
8	LFM_B
9	LFM_A
10	SUBLF_HP
11	XLFENCA
12	XLFENCB
13	
14	XROLLCVR
15	
16	ATUKAI_CL
17	PINCH_CL
18	SUBLF_CL
19	MISTPWM
20	COVERSOL_L

CLATCH_DRIVE Connector

J1008

+24V
D1001
1 2
SUBLFCL
1 2
ATUKAICL
D1002

CLATH&FAN&SOLENOID_DRIVE Connector

+24V
J1004
1
2
D1003
1 2
3
FU1003
4
1 2
1 2 D1004
PINCHCL
5
6
1 2 D1005
CVRSOL_L
7
MISTFAN_S

R1011
R1010
J1005
1
2
3
4
5
6
R1009
R1008

LFMAIN_OUT1
LFMAIN_OUT2
LFSUB_OUT1
LFSUB_OUT2

POWER SUPPLY Connector

+5V +24V
J1001
1
2
3
4
C1002 C1001

SENSOR_SNS Connector

+5V
J1003
LF_LHB
1
2
LF_LHA
3
4
5
6
ROLLCVR
7
8
9
SUBLF_HP
10

9.7 Power Supply

Canon