

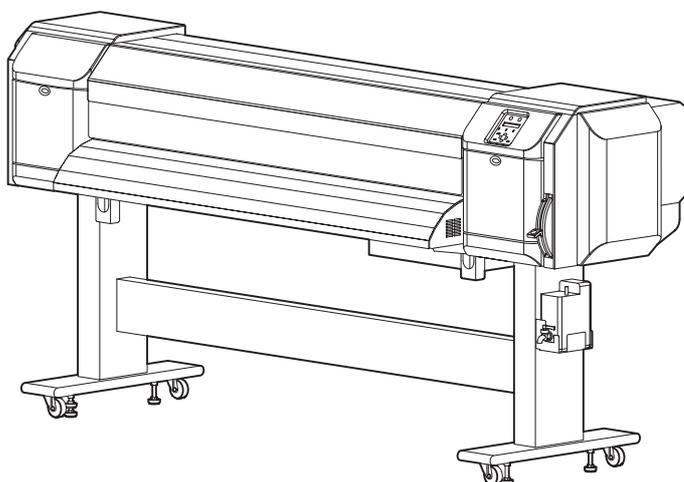
# MUTOH

# MAINTENANCE MANUAL

Full-Colour Inkjet Printer

*ValueJet*

## VJ-1604



Use this manual for the maintenance  
and inspection of machine.

Rev.

VJ1604E-M-00



## Important Notice

### 1. For Users in Europe

**Important:**

This is a Class A product approved for industrial environments. In a domestic environment this product may cause radio interference in which case you may be required to take adequate measures.

### 2. For Users in the United States

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

### 3. Trademark Mentioned in this Manual

- MUTOH, ValueJet, VJ-1604 are registered trademarks or product names of MUTOH INDUSTRIES LTD.
- Centronics and BiCentronics are registered trademarks or product names of Centronics Data Computer Corporation.
- Windows95, Windows98, Windows98SE, Windows NT4.0, Windows2000, Windows XP, and MS-DOS are registered trademarks or product names of Microsoft Corporation.
- Intel and Pentium are trademarks or registered trademarks of Intel Corporation.
- Other company and product names may be registered trademarks or product names.

- No part of this product or publication may be reproduced, copied, or transmitted in any form or by any means, except for personal use, without the permission of MUTOH INDUSTRIES LTD.
- The product and the contents of this publication may be changed without prior notification.
- MUTOH INDUSTRIES LTD. has made the best efforts to keep this publication free from error, but if you find any uncertainties or misprints, please call us or the shop where you bought this equipment.
- MUTOH INDUSTRIES LTD. shall not be liable for any damages or troubles resulting from the use of this equipment or this manual.

**Warranty Limitations**

1. MUTOH INDUSTRIES LTD. warrants part repair or replacement as a sole measure only if a failure is found in the system or in the materials and workmanship of the product the seller produced. However, if the cause of failure is uncertain, decide the action after due mutual consultation.
2. The warranty shall not apply to any direct or indirect loss, or compensation for the loss due to the product that has been subject to misuse, neglect, or improper alternation.

## About this Manual

### 1. Purpose and Target Readers

This manual explains preparations needed before maintaining and checking operations for MUTOH Full Color Ink Jet Printer (VJ-1604).

This manual is prepared for the maintenance personnel of this printer.

Before using this printer, fully understand the contents and directions in this manual.

### 2. Manual Configuration

Section	Contents
1 Safety Instructions	Explains types of warnings, cautions and warnings labeled on the printer for the both operators of the printer and maintenance personnel.
2 Product Overview	Explains the features, part names, and functions of the printer.
3 Specifications	Explains the specifications of the printer.
4 Parts Replacement	Explains the procedures of replacement and removal of the service parts of the printer.
5 Self-Diagnostic Mode	Explains the self-diagnostic functions of the printer.
6 Maintenance Mode	Explains the maintenance mode of the printer.
7 Adjustment	Explains the adjusting procedures of the printer parts.
8 Maintenance	Explains daily maintenance of the printer.
9 Troubleshooting	Explains troubles that may occur when using the printer and how to solve them.
10 Appendix	Explains the maintenance information and the exploded views for this printer.

Use the built-in self-diagnostic program to locate a defective part and adjust/check during maintenance.

### 3. Manual Notation

The following symbols are used in this manual for easier understanding of the information.

Symbol	Meaning
	Must be followed carefully to avoid death or serious bodily injury
	Must be observed to avoid slight or moderate bodily injury or damage to your equipment
	Contains important information and useful tips on the operation of the product
	Indicates useful tips for operating or understanding the equipment
	Indicates reference pages in this manual

# General Table of Contents

## 1 Safety Instructions

<b>1.1</b>	<b>Introduction</b> .....	<b>1-2</b>
<b>1.2</b>	<b>Warnings, Cautions and Notes</b> .....	<b>1-2</b>
<b>1.3</b>	<b>Important Safety Instructions</b> .....	<b>1-3</b>
<b>1.4</b>	<b>Warning Labels</b> .....	<b>1-6</b>
1.4.1	Handling the Warning Labels .....	1-6
1.4.2	Locations and Types of Warning Labels .....	1-7
<b>1.5</b>	<b>Operation Labels</b> .....	<b>1-9</b>
1.5.1	Handling the Operation Labels .....	1-9
1.5.2	Locations and Types of Operation Labels .....	1-10

## 2 Product Overview

<b>2.1</b>	<b>Introduction</b> .....	<b>2-2</b>
<b>2.2</b>	<b>Features</b> .....	<b>2-2</b>
<b>2.3</b>	<b>Part Names and Functions</b> .....	<b>2-3</b>
2.3.1	Front Section .....	2-4
2.3.2	Rear Section .....	2-5
2.3.3	Operation Panel .....	2-6
<b>2.4</b>	<b>Printer Status</b> .....	<b>2-9</b>
2.4.1	Normal .....	2-9
2.4.2	Setup Menu .....	2-9
2.4.3	Self-Diagnosis Function .....	2-9
2.4.4	Maintenance Mode .....	2-9

## 3 Specifications

<b>3.1</b>	<b>Introduction</b> .....	<b>3-2</b>
<b>3.2</b>	<b>Product Specifications</b> .....	<b>3-2</b>
<b>3.3</b>	<b>Interface Specifications</b> .....	<b>3-4</b>
3.3.1	USB Interface Specifications .....	3-4
3.3.2	Network Interface Specifications .....	3-5

---

<b>3.4 Options/Supplies List.</b> . . . . .	<b>3-5</b>
3.4.1 Options. . . . .	3-5
3.4.2 Supplies . . . . .	3-5
<b>3.5 Choosing a Place for the Printer</b> . . . . .	<b>3-6</b>
<b>4 Parts Replacement</b>	
<b>4.1 Introduction.</b> . . . . .	<b>4-4</b>
<b>4.2 Removal of Covers</b> . . . . .	<b>4-6</b>
4.2.1 Removing R Side Cover. . . . .	4-7
4.2.2 Removing Operation Panel Unit. . . . .	4-9
4.2.3 Removing L Side Cover . . . . .	4-10
4.2.4 Removing Ink Holder (I/H) Cover. . . . .	4-11
4.2.5 Removing Front Cover. . . . .	4-12
4.2.6 Removing Top Cover . . . . .	4-13
4.2.7 Removing Media Guide F . . . . .	4-14
4.2.8 Removing Media Guide R2 . . . . .	4-15
4.2.9 Removing Scroller Receiver (L, R). . . . .	4-15
<b>4.3 Replacement of Board Base Section Components</b> . . . . .	<b>4-17</b>
4.3.1 Removing Connector Panel and Cooling Fan . . . . .	4-17
4.3.2 Removing Main Board Bracket . . . . .	4-18
4.3.3 Replacing Main Board Assembly . . . . .	4-21
4.3.4 Replacing HEATER CONT board assembly . . . . .	4-22
4.3.5 Replacing HEATER RELAY board assembly . . . . .	4-25
4.3.6 Replacing Power Board Assembly. . . . .	4-27
4.3.7 Replacing Fuse . . . . .	4-28
4.3.8 Replacing Inlet Assembly. . . . .	4-29
<b>4.4 Replacement of PF Driving Section Components</b> . . . . .	<b>4-31</b>
4.4.1 Replacing PF Motor Assembly. . . . .	4-31
4.4.2 Replacing PF_ENC Assembly . . . . .	4-33
4.4.3 Replacing PF_ENC Scale . . . . .	4-34
4.4.4 Replacing Heater and Thermistor Assembly . . . . .	4-34
<b>4.5 Replacement of CR Driving Section Components</b> . . . . .	<b>4-38</b>
4.5.1 CR Motor Assembly . . . . .	4-38
4.5.2 Replacing CR_HP Sensor . . . . .	4-39
4.5.3 Replacing Lever Sensor. . . . .	4-40
4.5.4 Replacing T Fence. . . . .	4-41
4.5.5 Replacing CR Driven Pulley. . . . .	4-44
4.5.6 Replacing Pressure Arm Assembly . . . . .	4-46

---

<b>4.6 Replacement of Head Section Components</b> .....	<b>4-48</b>
4.6.1 Replacing Print Head .....	4-48
4.6.2 Replacing Cutter Holder Assembly .....	4-52
<b>4.7 Replacement of Maintenance Section Components</b> .....	<b>4-57</b>
4.7.1 Removing Maintenance Base Assembly .....	4-57
4.7.2 Replacing Pump Cap Assembly .....	4-61
4.7.3 Replacing Cleaner Head (Cleaning Wiper) .....	4-63
4.7.4 Replacing Flushing Box Assembly .....	4-64
<b>4.8 Replacement of Ink Supply Section Components</b> .....	<b>4-66</b>
4.8.1 Replacing Ink Holder (I/H) Assembly .....	4-66
4.8.2 Replacing Ink Sensor Assembly .....	4-68
4.8.3 Replacing Cover Sensor Assembly .....	4-70
4.8.4 Replacing Heater Junction Board .....	4-71
<b>4.9 Replacement of Frame Section Components</b> .....	<b>4-73</b>
4.9.1 Replacing Suction Fan Assembly .....	4-73
4.9.2 Replacing P_REAR Sensor Assembly .....	4-74
<b>4.10 Replacement of Cable Guide Section Components</b> .....	<b>4-75</b>
4.10.1 Replacing CR Board Assembly .....	4-75
4.10.2 Replacing Ink Tube .....	4-76
4.10.3 Replacing CR Tape Wire .....	4-79

## **5 Self-Diagnosis Mode**

<b>5.1 Introduction</b> .....	<b>5-4</b>
<b>5.2 Preparation</b> .....	<b>5-4</b>
5.2.1 Preparations on Machine .....	5-4
5.2.2 Starting Up .....	5-4
<b>5.3 Operations in Self-Diagnosis Mode</b> .....	<b>5-6</b>
5.3.1 Operating Self-Diagnosis Mode .....	5-6
5.3.2 Diagnosis Items in Self-Diagnosis Menu .....	5-8
<b>5.4 Platen Adjustment Menu</b> .....	<b>5-10</b>
<b>5.5 Inspection Menu</b> .....	<b>5-11</b>
5.5.1 Memory Size Menu .....	5-12
5.5.2 Version Menu .....	5-13
5.5.3 Operation Panel Menu .....	5-14
5.5.4 Sensor Menu .....	5-15
5.5.5 Encoder Menu .....	5-17
5.5.6 Fan Menu .....	5-17

---

5.5.7	History Menu . . . . .	5-18
5.5.8	Head Waveform Menu . . . . .	5-21
<b>5.6</b>	<b>Ink Charging Menu . . . . .</b>	<b>5-22</b>
<b>5.7</b>	<b>Adjustment Menu . . . . .</b>	<b>5-23</b>
5.7.1	Head Nozzle Check Menu . . . . .	5-24
5.7.2	Skew Check Menu . . . . .	5-27
5.7.3	Head Slant Check Menu . . . . .	5-28
5.7.4	Voltage Adjustment . . . . .	5-30
5.7.5	Uni-D / Bi-D Low Adjustment . . . . .	5-32
5.7.6	Uni-D / Bi-D High Adjustment . . . . .	5-36
5.7.7	Side Margin Adjustment Menu . . . . .	5-40
5.7.8	Test Printing Menu . . . . .	5-41
5.7.9	HeadWash Menu . . . . .	5-42
5.7.10	Software Counter Initialization Menu . . . . .	5-43
5.7.11	Feed Pitch Check Menu . . . . .	5-44
5.7.12	Solid Print Menu . . . . .	5-45
<b>5.8</b>	<b>Cleaning Menu . . . . .</b>	<b>5-46</b>
<b>5.9</b>	<b>Sample Printing Menu . . . . .</b>	<b>5-47</b>
<b>5.10</b>	<b>Time Setting . . . . .</b>	<b>5-48</b>
<b>5.11</b>	<b>Parameter Menu . . . . .</b>	<b>5-48</b>
5.11.1	Parameter Initialization Menu . . . . .	5-49
5.11.2	Parameter Update Menu . . . . .	5-51
<b>5.12</b>	<b>Servo Setting . . . . .</b>	<b>5-56</b>
<b>5.13</b>	<b>Endurance Running Menu . . . . .</b>	<b>5-58</b>
5.13.1	CR Motor Endurance Menu . . . . .	5-59
5.13.2	PF Motor Endurance Menu . . . . .	5-60
5.13.3	Wiper Motor Endurance Menu . . . . .	5-61
5.13.4	Pump Endurance Menu . . . . .	5-62
5.13.5	Print Head Endurance (Nozzle Print) Menu . . . . .	5-63
5.13.6	General Endurance Menu . . . . .	5-64
5.13.7	Endurance Running Check Menu . . . . .	5-65
<b>5.14</b>	<b>Media Feed Menu . . . . .</b>	<b>5-65</b>
<b>5.15</b>	<b>ExControl Menu . . . . .</b>	<b>5-66</b>
5.15.1	Version . . . . .	5-66
5.15.2	Sensor . . . . .	5-67
5.15.3	Heater . . . . .	5-68
5.15.4	History . . . . .	5-69

---

**5.16 PaperInitial Menu . . . . . 5-69**

## **6 Maintenance Mode**

**6.1 Introduction . . . . . 6-2**

**6.2 Operations in Maintenance Mode . . . . . 6-2**

    6.2.1 Starting Up the Maintenance Mode . . . . . 6-2

    6.2.2 Operating Maintenance Mode . . . . . 6-2

**6.3 Maintenance Menu . . . . . 6-3**

    6.3.1 Counter Display Menu . . . . . 6-3

    6.3.2 Counter Initialization Menu . . . . . 6-6

    6.3.3 Counter Print Menu . . . . . 6-7

    6.3.4 Media Feed Menu . . . . . 6-8

## **7 Adjustment**

**7.1 Introduction . . . . . 7-3**

**7.2 Adjustment Item . . . . . 7-3**

**7.3 Working with Dedicated Network Software . . . . . 7-8**

    7.3.1 Parameter Backup . . . . . 7-8

    7.3.2 Jigs and Tools . . . . . 7-8

    7.3.3 Required Environment . . . . . 7-9

    7.3.4 Receiving Parameters . . . . . 7-12

    7.3.5 Firmware Installation . . . . . 7-13

    7.3.6 Sending Parameters . . . . . 7-17

    7.3.7 Sub Controller Installation . . . . . 7-18

    7.3.8 RTC Date & Time Setting . . . . . 7-19

**7.4 PF Speed Reduction Belt Tension Adjustment . . . . . 7-20**

    7.4.1 Jigs and Tools . . . . . 7-20

    7.4.2 Adjustment Procedure . . . . . 7-20

**7.5 PF Encoder Assembly Position Adjustment . . . . . 7-22**

    7.5.1 Adjustment Procedure . . . . . 7-22

**7.6 CR Belt Tension Adjustment . . . . . 7-24**

**7.7 Head Alignment (Horizontal Height) . . . . . 7-25**

**7.8 Head Alignment (Vertical Slant) . . . . . 7-27**

**7.9 Cutter Holder Height Adjustment . . . . . 7-29**

    7.9.1 Jigs and Tools . . . . . 7-29

    7.9.2 Adjustment Procedure . . . . . 7-29

<b>7.10 PG Height Adjustment</b> .....	<b>7-31</b>
7.10.1 Jigs and Tools .....	7-31
7.10.2 Adjustment Procedure .....	7-31
<b>7.11 Media Sensor Sensitivity Adjustment</b> .....	<b>7-32</b>
7.11.1 P_EDGE Sensor Sensitivity Adjustment .....	7-32
7.11.2 P_REAR Sensor Adjustment .....	7-35

## **8 Maintenance**

<b>8.1 Introduction</b> .....	<b>8-2</b>
<b>8.2 Periodical Services</b> .....	<b>8-3</b>
<b>8.3 Part Life Information</b> .....	<b>8-4</b>
<b>8.4 Lubrication/Bonding</b> .....	<b>8-6</b>
<b>8.5 Transportation of Printer</b> .....	<b>8-7</b>

## **9 Troubleshooting**

<b>9.1 Introduction</b> .....	<b>9-2</b>
<b>9.2 Troubleshooting with Error Messages</b> .....	<b>9-2</b>
9.2.1 Operation Status .....	9-3
9.2.2 Errors with Message .....	9-5
9.2.3 Data Errors .....	9-12
9.2.4 Command Errors .....	9-14
9.2.5 Errors Requiring Reboot .....	9-15
9.2.6 Error Messages During File Transmission .....	9-29
<b>9.3 Troubleshooting Without Error Messages</b> .....	<b>9-33</b>
9.3.1 Initial Operation Problems .....	9-33
9.3.2 Media Feed Problems .....	9-42
9.3.3 Printing Problems .....	9-44
9.3.4 Noise Problems .....	9-62
9.3.5 Online Function Problems .....	9-65
9.3.6 Other Problems .....	9-68
9.3.7 Problems in Using Dedicated Network Software .....	9-71

## **10 Appendix**

<b>10.1 Introduction</b> .....	<b>10-2</b>
<b>10.2 Wiring Diagram</b> .....	<b>10-2</b>

**10.3 Maintenance Part List. . . . . 10-2**

**10.4 Jigs and Tools. . . . . 10-8**

    10.4.1 Required Tools. . . . . 10-8

**10.5 Exploded View. . . . . 10-10**



# 1 Safety Instructions

- 1.1 Introduction ..... 1- 2**
- 1.2 Warnings, Cautions and Notes ..... 1- 2**
- 1.3 Important Safety Instructions ..... 1- 3**
- 1.4 Warning Labels ..... 1- 6**
  - 1.4.1 Handling the Warning Labels..... 1-6
  - 1.4.2 Locations and Types of Warning Labels..... 1-7

## 1.1 Introduction

This chapter explains the meaning of safety terms for personnel who installs, operates, or maintains this equipment, important safety instructions, and the warning labels attached to the equipment.



Make sure to follow all instructions and warnings on this manual when installing, operating, or maintaining the equipment.

## 1.2 Warnings, Cautions and Notes

Safety terms in this manual and the contents of warning labels attached to the printer are categorized into the following three types depending on the degree of risk (or the scale of accident).

Read the following explanations carefully, and follow the instructions in this manual.

Table 1-1 Safety Terms Descriptions

Safety terms	Details
	Must be followed carefully to avoid death or serious bodily injury
	Must be observed to avoid slight or moderate bodily injury or damage to whole or part of the product
	Contains important information and useful tips on the operation of the product
	Indicates useful tips for operating or understanding the printer
	Indicates “prohibited” operations
	Indicates required operations
	Indicates reference page in this manual

## 1.3 Important Safety Instructions

General safety instructions that must be observed to use the equipment safely are explained below.

### **WARNING**



Do not place the printer in the following areas. Doing so may result in the printer tipping or falling over and causing injury.

- Unstable surfaces
- Angled place
- Areas subject to vibration by other equipment



Do not stand on or place heavy objects on your printer. Doing so may result in the printer tipping or falling over and causing injury. Doing so could obstruct ventilation and cause fire.



Do not cover the ventilation hole of your printer with cloth, such as a blanket or table cloth. Doing so may result in fire.



Do not place the printer in humid and dusty areas. Doing so may result in electrical shock or fire.



Make sure to use the power cable packed with the printer you purchased. Not doing so may result in electrical shock or fire.



Make sure that the following is performed before parts replacement.

- Turn off the power of the printer.
- Remove the power cable from the power outlet.  
Not doing so may cause electric shock or damage to the electric circuit.
- Unplug the cables connected to the printer.  
Failure to do so could result in damage to the printer.

 **CAUTION**

Assembling and disassembling of the printer are possible only for the parts that disassembling procedures are shown in this manual. Do not disassemble any frame parts or parts that disassembling procedures are not shown in this manual. Doing so may cause trouble that cannot be restored, as the printer is originally assembled in the factory with a high accuracy of 1/100 mm.



Do not touch the elements on the circuit board with bare hands. Doing so may cause static electricity and break the elements.



Do not press the transparent film on the damper assembly with your hands. Doing so may discharge the ink filled inside the damper assembly.

Be careful not to damage the transparent film on the damper assembly.



Do not touch the nozzles of the print head. Make sure that the nozzles do not get any dust.



Never lube the printer mechanism with lube other than that designated by MUTOH. Doing so may damage the parts or shorten the lifetime.



There are some remaining ink in the tubes. Be careful that the ink is not spilled from the tube outlet onto the printer or items close to the printer.



If you need to operate the printer with the cover removed for maintenance, be careful not to get hurt by the driving parts.



If the power board assembly needs to be removed, remove the power cable and wait for 5 minutes or more before taking it out; this will discharge the residual electrical charge of the electrolytic capacitor. Touching the board before the capacitor discharges may cause electric shock.



When connecting or removing an FFC type cable on a MAIN board assembly connector, make sure to connect or remove the cable perpendicular to the connector. Connecting or removing at a slant angle may damage, break or short circuit the inner terminal of the connector. That may damage the elements on the board.



When connecting or removing an FFC type cable on the CR board assembly connector, make sure to connect or remove the cable perpendicular to the connector. Connecting or removing at a slant angle may damage, break or short circuit the inner terminal of the connector. That may damage the elements on the board.



Make sure there is sufficient space around the printer when performing maintenance work.



Maintenance must be done by more than two person for the following work.

- When disassembling or reassembling the product and the optional stand
- When packing the printer for transportation

## 1.4 Warning Labels

The handling, attachment locations, and types of warning labels are explained below. Warning labels are attached to areas where care should be taken. Read and understand the positions and contents thoroughly before maintenance operation.

### 1.4.1 Handling the Warning Labels

Make sure to note the following when handling the warning labels.

**NOTE**

- Make sure that all warning labels can be recognized. If text or illustrations cannot be seen clearly, clean or replace the label.
  - When cleaning warning labels, use a cloth with water or neutral detergent. Do not use a solvent or gasoline.
  - If a warning label is damaged, lost, or cannot be recognized, replace the label.
-

## 1.4.2 Locations and Types of Warning Labels

### (1) Main Body

The locations of warning labels on the main body are shown below.

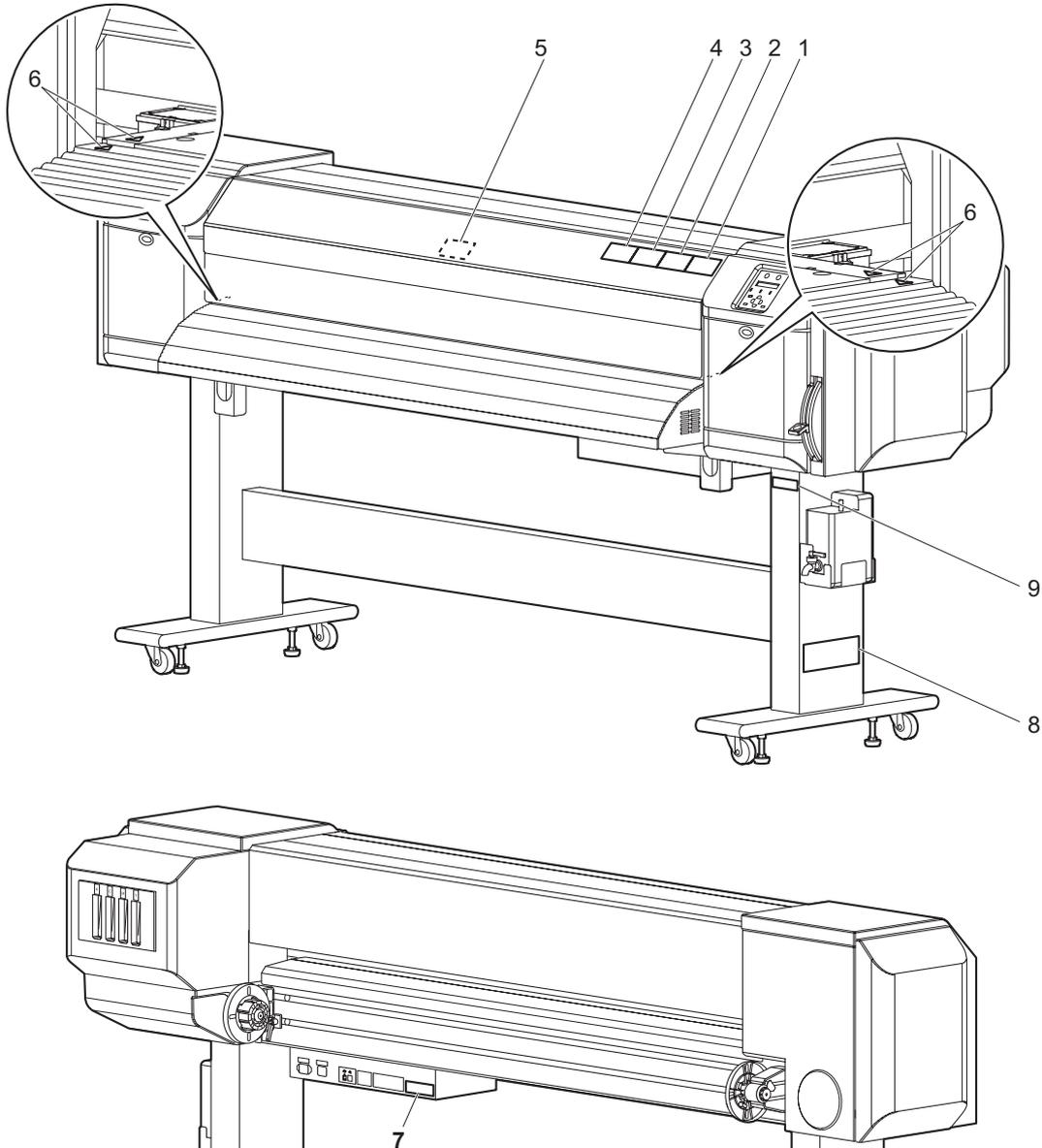
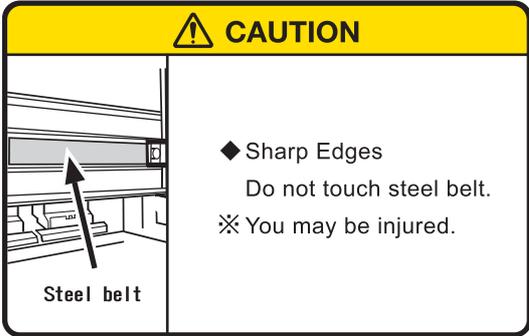
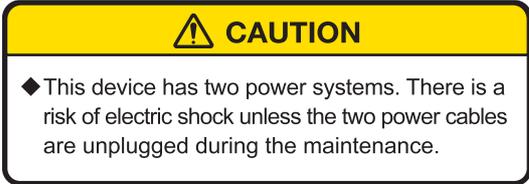
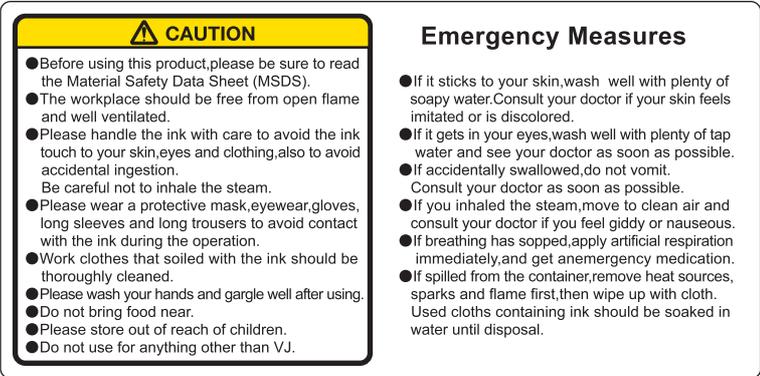


Table 1-2 List of Warning Labels

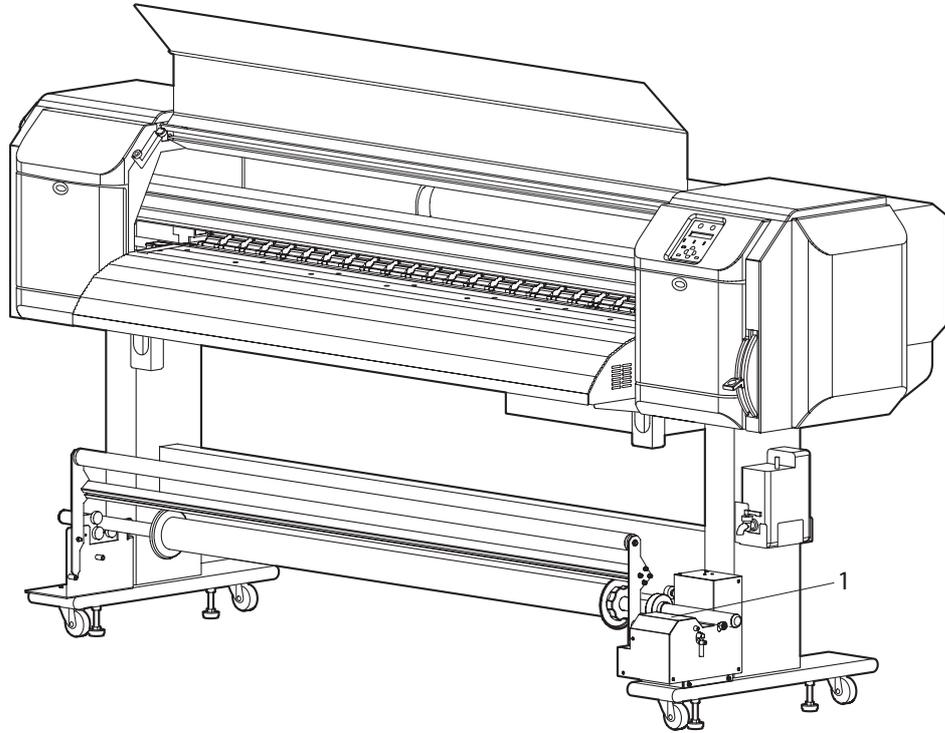
No.	Warning label type
1	<p style="text-align: center;">(Front cover open/close caution)</p> <div style="border: 1px solid black; padding: 10px;"> <p style="text-align: center;"> <b>CAUTION</b></p> <ul style="list-style-type: none"> <li>◆ Do not open the front cover while printing. Moreover, Do not touch the media while printing. Good printing result might not be obtained.</li> <li>※ Please remove the media and hold the lever up when not using for a long time. Due to the environment conditions, media float and wrinkle might happen that does not obtain the good result.</li> </ul> </div>
2	<p style="text-align: center;">(Head nozzle drying caution)</p> <div style="border: 1px solid black; padding: 10px;"> <p style="text-align: center;"> <b>CAUTION</b></p> <ul style="list-style-type: none"> <li>◆ Do not give a direct wind from a fan or air conditioner to the machine.</li> <li>※ A wind may dry the ink in the head nozzles causing clogging that affects ink jetting, and you will not be able to obtain satisfactory printing results.</li> </ul> </div>
3	<p style="text-align: center;">(Burn caution)</p> <div style="border: 1px solid black; padding: 10px;"> <p style="text-align: center;"> <b>CAUTION</b></p> <ul style="list-style-type: none"> <li>◆ Paper guides, platen and paper holding plate will become hot due to the heater temperature setting. Beware of being burned.</li> </ul> </div>
4	<p style="text-align: center;">(Cleaning caution)</p> <div style="border: 1px solid black; padding: 10px;"> <p style="text-align: center;"> <b>CAUTION</b></p> <ul style="list-style-type: none"> <li>◆ Normal cleaning should be done once a week if the printer is not used for a long period.</li> <li>※ If the printer is left without cleaning, the ink will be hardened inside the head nozzle, and may cause the head trouble.</li> </ul> </div>

Table 1-2 List of Warning Labels

No.	Warning label type
5	<p>(Steel belt caution)</p> 
6	<p>(High temperature caution)</p> 
7	<p>(Electric shock caution)</p> 
8	<p>(Ink handling caution)</p> 
9	<p>(Waste fluid tube handling caution)</p> 

(2) Scroller (Optional)

The locations of warning labels on the scroller are shown below.



No.	Warning label type
1	<p style="text-align: center;">(Catching caution)</p> <div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: fit-content;"> <p style="text-align: center;"><b>⚠ CAUTION 주의 注意</b></p> <ul style="list-style-type: none"> <li>◆ When the printer is working with the scroller mounted, please be careful not to let your clothing hair or fingers get caught between the scroller and the rollers, otherwise you may be injured.</li> <li>◆ 스크롤러의 장착시 및 프린터 작동중에는 스크롤러와 롤러 사이에 의류, 머리털, 손가락 등이 끼이지 않도록 주의해 주십시오. 말려들어 상처를 입을 우려가 있습니다.</li> <li>◆ 在安装传送轴或打印机正在工作时，请注意避免让衣服、头发或手指被夹在传送轴与滚轴之间。若衣服、头发或手指被夹，则有导致受伤的危险</li> </ul> </div>



## 2 Product Overview

<b>2.1</b>	<b>Introduction .....</b>	<b>2- 2</b>
<b>2.2</b>	<b>Features .....</b>	<b>2- 2</b>
<b>2.3</b>	<b>Part Names and Functions.....</b>	<b>2- 3</b>
2.3.1	Front Section .....	2-4
2.3.2	Rear Section .....	2-5
2.3.3	Scroller Section (Optional).....	2-6
2.3.4	Operation Panel .....	2-7
<b>2.4</b>	<b>Plotter Status.....</b>	<b>2- 10</b>
2.4.1	Normal .....	2-10
2.4.2	Setup Menu .....	2-10
2.4.3	Self-Diagnosis Function .....	2-10
2.4.4	Maintenance Mode .....	2-10

## 2.1 Introduction

This chapter explains the features, part names, and functions of the plotter.

## 2.2 Features

The features of the plotter are explained below.

### (1) Fast Print

This model uses the new head prints images faster.

Realizing printing width of 1615 mm in uni-direction printing mode.

### (2) Variety of Print Media

The height of the print head position can be set high/low, so that this model can print on the media of which thickness is between 0.08 and 0.3 mm.

### (3) Vivid Color Reproduction

For Vivid color reproduction, this model has high-capacity (220 ml) 4 color ink cartridges with exclusive smart IC chip on it. With the IC chip, you can manage the ink level of the cartridges and can get better productivity.

Also, With variable dot mechanism, this model enhances the level of color expression.

### (4) Multi-Heater System

The media-heating system which have been equipped to PJ series is changed to match the solvent ink. There are 3 heaters on Pre / Platen / After positions and improved the ink fixability and drying property.

### (5) Effective Utilization of Media

The JOG function for setting print start position on purpose is equipped. You can print on the margin(s) of a media which is already printed.

### (6) RIP

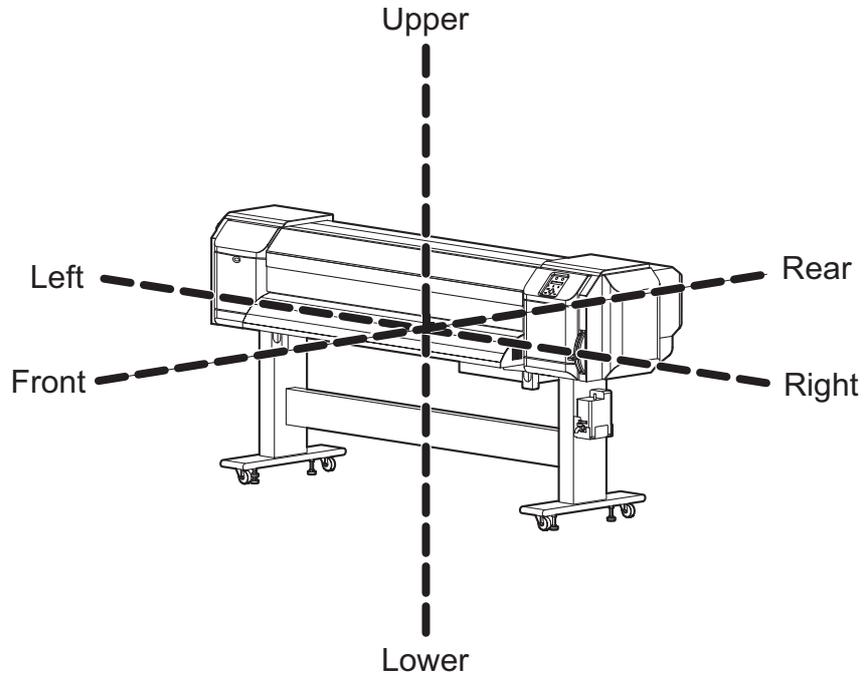
Special software RIP is sold for options.

## 2.3 Part Names and Functions

Part names and functions are explained below.

**NOTE**

For the directions described in this document, refer to the following figure.



### 2.3.1 Front Section

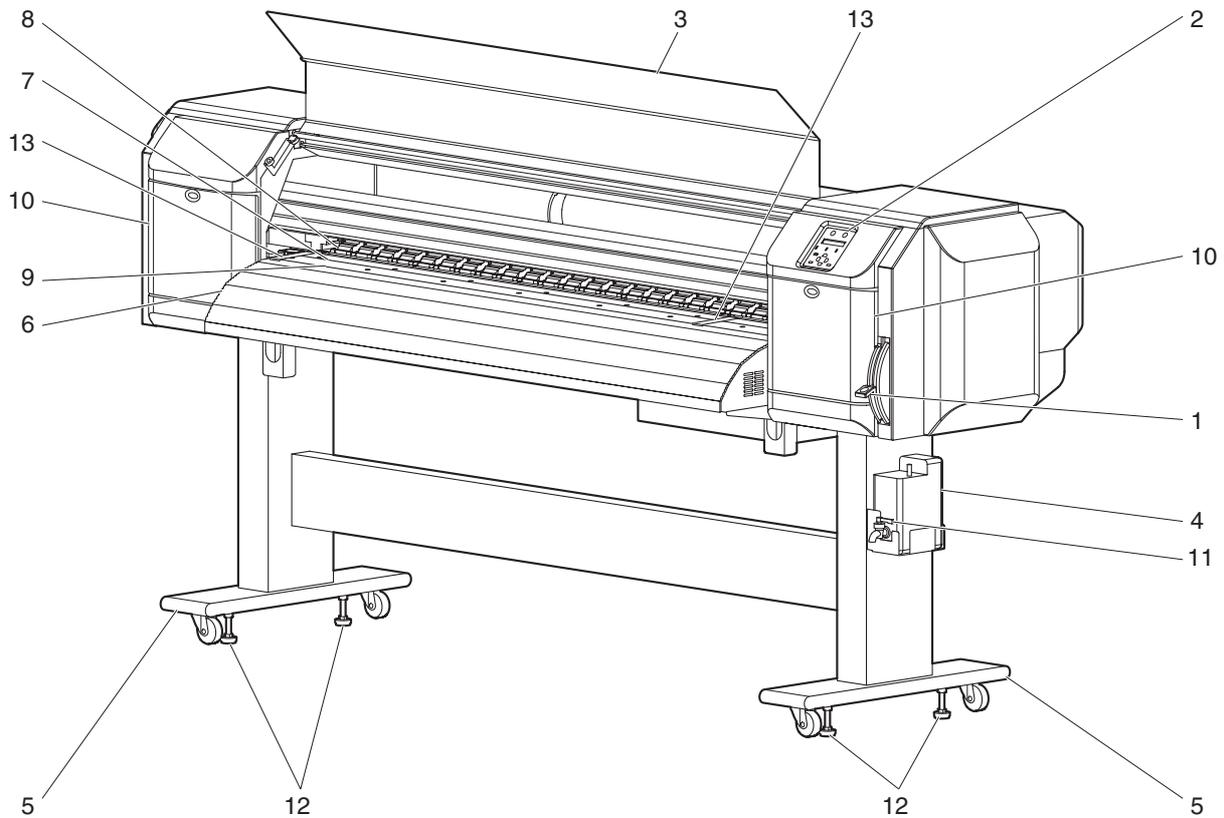


Table 2-1 Part Names and Functions of Front Section

No.	Name	Function
1	Media set lever	Used for fixing or releasing the media <ul style="list-style-type: none"> <li>• Lower the lever to fix the media</li> <li>• Lower the lever further to fix the media firmly</li> </ul> Used to improve the accuracy of media feeding * The accuracy of media feeding may decline depending on media. <ul style="list-style-type: none"> <li>• Raise the lever to release the media</li> </ul>
2	Operation panel	Used to set operational conditions, the status of the plotter, and other functions
3	Front cover	Keeps the operator safe from the drive parts of the plotter while it is operating. Opened and closed when media is set or jammed. It is normally closed.
4	Waste fluid tank	Used to store waste ink discharged from print head
5	Stand	Used to set the plotter on the level surface of the floor
6	Media Guide	Used to feed media smoothly when setting media and printing The heater (after-heater) for drying ink is installed inside.
7	Platen	Installed inside the front cover The heater (platen heater) for drying ink is installed.
8	Pressure roller	Installed inside the front cover Used to press the media from above and hold it when printing

Table 2-1 Part Names and Functions of Front Section (Continued)

No.	Name	Function
9	Media cut groove	Installed inside of the front cover Used to cut printed media straight
10	Maintenance cover	Used to protect users from the mechanical parts inside the plotter in the following cases: - Cleaning the cleaning wiper - Cleaning around the print head This cover must usually be closed.
11	Waste fluid cock	Opened/closed when discharging waste fluid from waste fluid tank. This cover must usually be closed.
12	Adjuster	Used to keep the plotter level
13	Media holding plate	Installed inside the front cover By attaching media holder plates to both sides of the media, it is possible to prevent media warp.

### 2.3.2 Rear Section

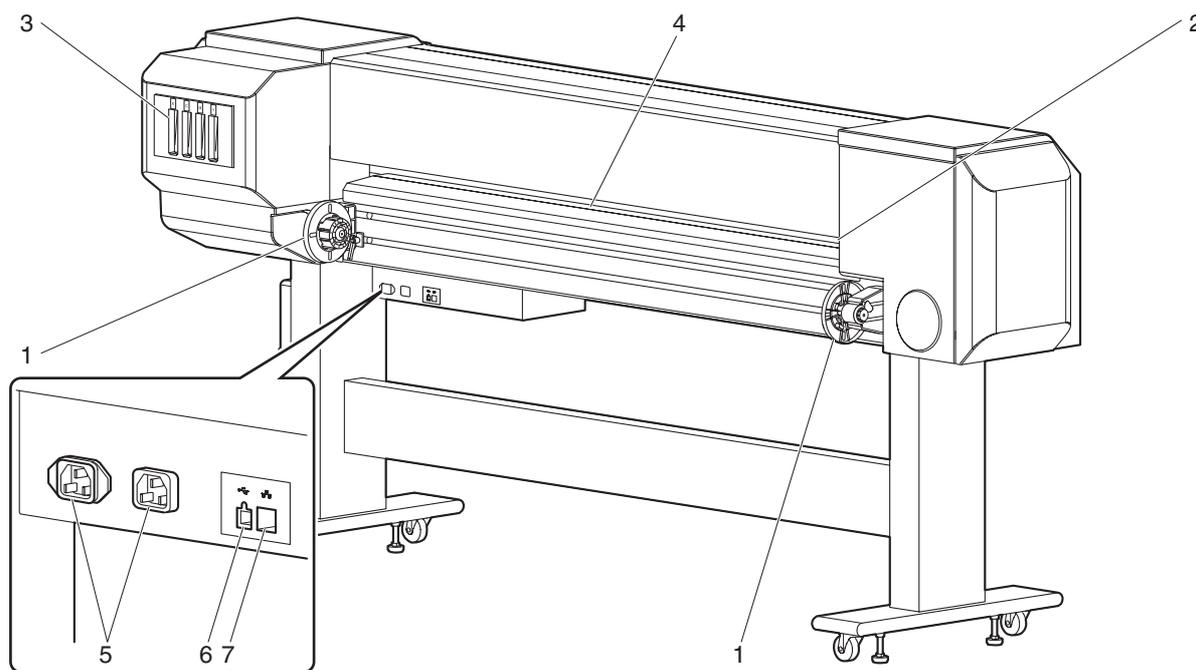


Table 2-2 Part Names and Functions of Rear Section

No.	Name	Function
1	Roll media holders	Used to load the roll media Include flanges where roll media is attached, and the levers that fix the roll media holders.
2	Media feed slot	Insert media from here when feeding media
3	Ink cartridge slot	Holds the ink cartridge

Table 2-2 Part Names and Functions of Rear Section (Continued)

No.	Name	Function
4	Media guide	Used for feeding media smoothly when the media is set or printed. The heater (pre-heater) to warm media is installed.
5	AC inlet	Used for connecting the power cable
6	USB connector	Not used for this printer
7	Network interface connector	Connector to connect a network interface cable

### 2.3.3 Scroller Section (Optional)

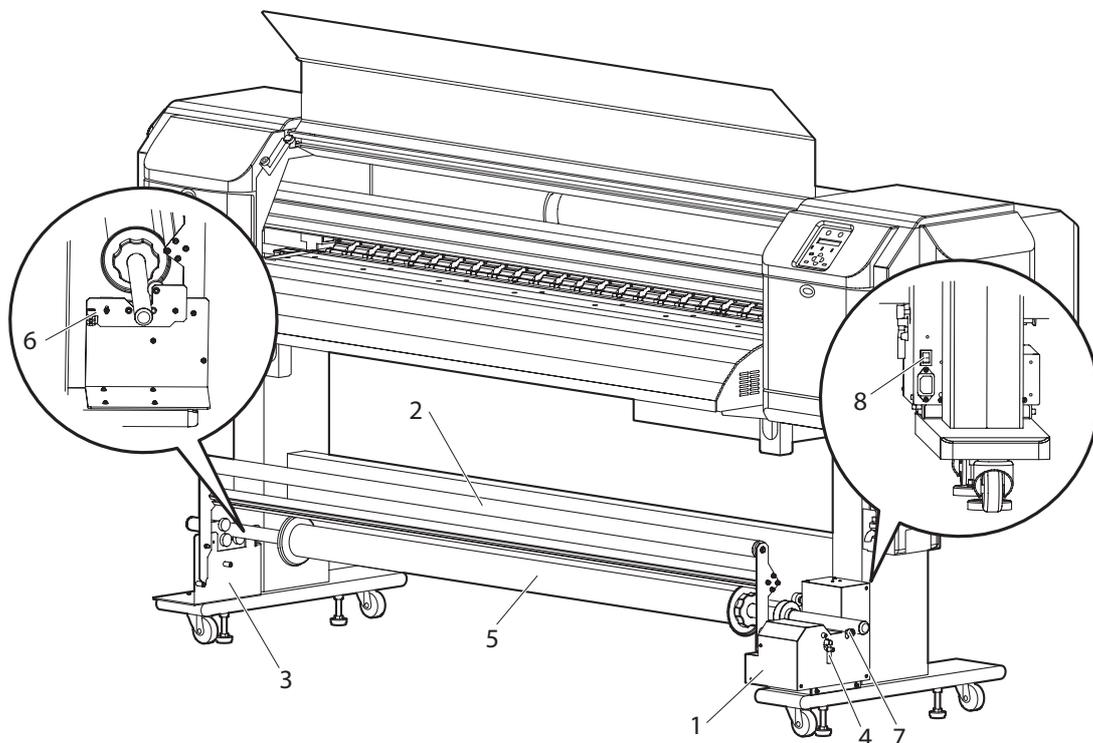


Table 2-3 Part Names and Functions of Scroller Section

No.	Name	Function
1	Take-up device	Used to take up printed media
2	Absorbing roller	Used to guide printed media to the scroller
3	Scroller receiver	Set the scroller for the take-up device here
4	Scroller release lever	Used to poise the scroller when rotating the scroller manually
5	Scroller	Used to take up printed media
6	Scroller height adjustment screw	Adjusts the height of scroller receiver

Table 2-3 Part Names and Functions of Scroller Section (Continued)

No.	Name	Function
7	Scroller horizontal position adjustment screw	Adjusts the horizontal position of the scroller
8	Power switch	Turns the plotter on/off

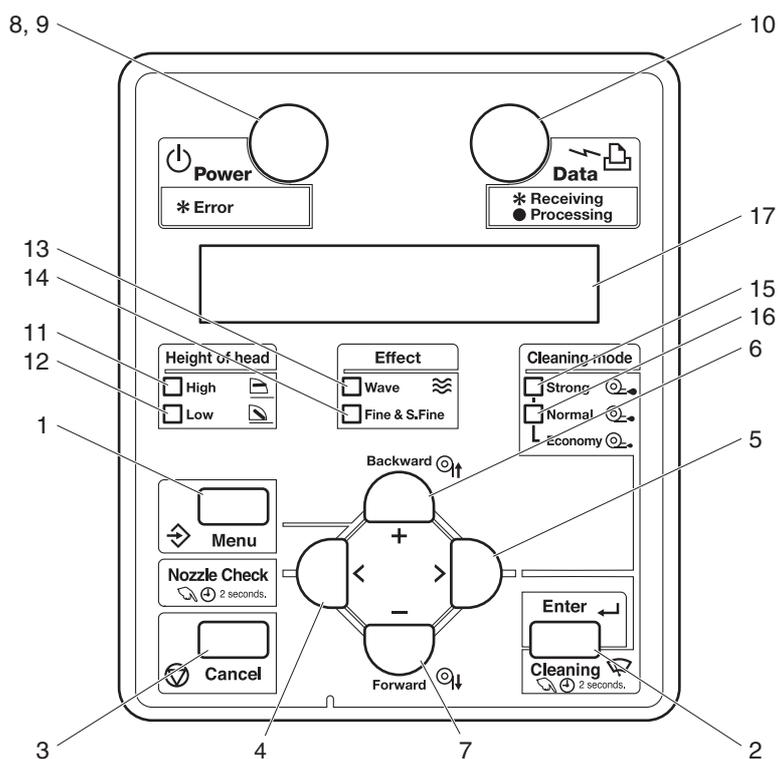
### 2.3.4 Operation Panel

The operation panel is used to set operational conditions, display the status of the plotter, and set other functions.

The names and functions of the operation keys and status lamps are explained below.

**TIP**

Operation manual



## (1) Operation Keys

**NOTE**

Some keys have multiple functions and names depending on the plotter status (normal or setup menu display). See "[2.4 Plotter Status](#)" p.2-10 for more details.

No.	Name	Normal	Setup menu display
1	[Menu] key	Changes the LCD monitor display to setup menu status.	Changes the setup menu display status to normal status.
2	[Enter] key	-	- Selects the menu to be set and shifts to the next hierarchy. - Determines and saves the parameter value.
	[Cleaning] key	If held down for 2 seconds or more, starts cleaning the plotter head.	-
3	[Cancel] key	- During plotting: Terminates printing forcibly and deletes 1 file of remaining data. - During reception/analysis: Deletes the data that has been already received/analyzed and ignores 1 file of data received after that. -	- Returns to the previous menu hierarchy. Changed parameter values are disabled. - Changes the setup menu display status to normal status.
4	[<] key		-Changes the setting value in the following menu: • Origin setting menu
	[Nozzle Check] key	If held down for 2 seconds or more, starts checking the plotter nozzle.	-
5	[>] key	Sets the cleaning mode. - The lamp for the cleaning mode lights on (green).	Displays lower rank menu items.
6	[Backward ↑] key	Feeds the media in the reverse direction.	-
	[+] key	-	-Changes the menu in forward order. -Changes the setting value in forward order. -Increases the value when inputting setting value.
7	[Forward ↓] key	Feeds the media in the forward direction.	-
	[-] key	-	- Changes the menu in the reverse direction. - Decreases the value when inputting values.

No.	Name	Normal	Setup menu display
8	[Power] key	Turns the plotter on and off.	Turns the plotter on and off.

## (2) LCD Monitor and Status Lamps

No.	Name	Color	Status	Function
9	Power lamp	Green	On	The plotter is switched on.
			Blinking	An error has occurred. The contents will be displayed on the LCD monitor.
			Off	The plotter is switched off.
10	Data lamp	Orange	On	- The plotter is analyzing received data. - The plotter is printing data.
			Blinking	The plotter is receiving data.
			Off	The plotter is not receiving, analyzing or printing data.
11	High lamp	Green	On	The print head height is set to High position.
			Off	The print head height is set to Low position.
12	Low lamp	Green	On	The print head height is set to Low position.
			Off	The print head height is set to High position.
13	Wave lamp	Green	On	The effect menu is set to Wave.
			Off	The effect menu is set to None.
14	Fine & S.Fine lamp	Green	On	The effect menu is set to either Fine or SuperFine.
			Off	The effect menu is set to Wave.
15	Strong lamp	Green	On	- The cleaning mode is set to Strong. - When the Normal lamp is also on, the cleaning mode is set to Economy.
			Off	- The effect menu is set to Wave. - When the Wave lamp is also off, the effect menu is set to None.
16	Normal lamp	Green	On	- The cleaning mode is set to Normal. - When the Strong lamp is also on, the cleaning mode is set to Economy quality.
			Off	The cleaning mode is set to Strong.
17	LCD monitor	-	-	This monitor displays the operation status and error messages of the plotter.

### TIP

When an error that requires plotter to restart (i.e. crucial failure for operation), all the lamps blinks with alarm sound.

## 2.4 Plotter Status

The status of the plotter is explained below.

### 2.4.1 Normal

Indicates that the plotter can print when media is loaded.

Each setup concerning printing can be operated by using operation panel.

TIP

☞ Operation manual

---

### 2.4.2 Setup Menu

Each setup concerning printing can be operated by using operation panel.

The settings required for normal printing are usually made on the plotter driver or application, but can also be made using the operation panel.

TIP

☞ Operation manual

---

### 2.4.3 Self-Diagnosis Function

Indicates that each settings concerning printing using the operation panel. Names and functions of the operation panel keys are the same as those of setup menu display.

TIP

☞ **"5 Self-Diagnosis Mode" p.5-1**

---

### 2.4.4 Maintenance Mode

Indicates that each setup concerning to the life counter on this plotter can be operated by using the operation panel. Names and functions of the operation panel keys are the same as those of setup menu display.

TIP

☞ **"6 Maintenance Mode 2" p.6-1**

---

# 3 Specifications

- 3.1 Introduction ..... 3- 2**
- 3.2 Product Specifications ..... 3- 2**
- 3.3 Interface Specifications..... 3- 4**
  - 3.3.1 Network Interface Specifications..... 3-4
- 3.4 Options/Supplies List ..... 3- 4**
  - 3.4.1 Options ..... 3-4
  - 3.4.2 Supplies ..... 3-4
- 3.5 Choosing a Place for the Printer ..... 3- 6**

## 3.1 Introduction

This chapter explains the specifications of the product, optional parts, and supplies. Installation environment requirements are also explained.

## 3.2 Product Specifications

### (1) Main Unit Specifications

Item		Specifications
Model name		VJ-1604
Plotting method		On-demand piezo drive
Motor driving method		Firmware servo / DC motor drive
Media feeding method		Multi-point pressure grid roller method
Media fixing method		Pressurizing roller manual-down method
Media supply and ejection	Roll media	Rear feeding / front ejection
Roll media outer diameter		150 mm (5.9 in.) or less
Roll media weight		30 kg (66 lb.) or less
Maximum media length		50 m (164 ft.)
Maximum media width		1625 mm (63.9 in.)
Maximum media thickness		0.3 mm (0.01 in.)
Maximum plot length		18 m (59.1 ft.)
Maximum plot width		1615 mm (63.6 in.)
Plotting margins		Top: 15 mm, Bottom: 5 mm, Left: 5-25 mm, Right: 5-25 mm
Media cutting method		Horizontal manual cut
Head height adjustment		2 levels: Normal / High
Distance accuracy		The larger value either $\pm 0.25$ mm or $\pm 0.1\%$ of moving distance <ul style="list-style-type: none"> <li>• Used media: Roll MF-3G</li> <li>• Plot length: 1219 mm (4 ft.)</li> <li>• Operating temperature: 22 to 30°C (71.6 to 86F)</li> <li>• Operating humidity: 40 to 60%</li> <li>• PG: Low</li> <li>• Plot mode: Graphics I</li> </ul>
Right angle accuracy		$\pm 0.1$ mm or less against the moving distance (500.0mm) <ul style="list-style-type: none"> <li>• Used media: Roll MF-3G</li> <li>• Operating temperature: 22 to 30°C (71.6 to 86F)</li> <li>• Operating humidity: 40 to 60%</li> <li>• Plot mode: Graphics I</li> </ul>
CPU		64Bit RISC CPU
Memory		256MB

Item		Specifications		
Command		MH-RTL (RTL-PASS)		
Interface		Network Interface (Ethernet IEEE802.3)		
Ink	Supply method	Tube supply from four separate cartridges		
	Cartridge	Black, cyan, magenta, yellow: 220ml ± 5ml for each color		
Environmental conditions		Temperature	Humidity	
Operation environment	Operation environment		20°C (68F) to 30°C (86F)	40% to 60%, with no condensation
	Plotting accuracy warranty range		22°C (71.6F) to 30°C (86F)	40% to 60%, with no condensation
	Rate of change		2°C/hour or less	5%/hour or less
	Storage environment	Without ink	-20°C (-4F) to 60°C (140F)	20% to 80%, with no condensation
With ink		-10°C (14F) to 40°C (104F)	20% to 80%, with no condensation	
Power source	Voltage	AC 90 - 132V		
	Frequency	50Hz / 60Hz ± 1Hz		
Power consumption	During Plotting	1200W (when heater is ON)		
	During standby	40W or less (when standby heater is OFF)		
Outer dimensions	Height	1262mm (49.7 in.) * including dedicated stand		
	Width	2698 mm (106in.)		
	Depth	845 mm (33.3 in.)		
Weight		173 kg (380.6 lb.)		

## 3.3 Interface Specifications

This section explains the specification of the interfaces Supported for this printer.

### 3.3.1 Network Interface Specifications

Item	Specifications
Network type	Ethernet IEEE802.3
Network I/F	10BASE-T / 100BASE-TX Auto-switching (RJ-45 connector twist pair cable) MDI / MDI-X Auto-switching
Corresponding protocol	TCP/IP

## 3.4 Options/Supplies List

### 3.4.1 Options

**TIP**

For more information about the take-up device (optional), contact the following.

- MUTOH distributor
- MUTOH sales office

### 3.4.2 Supplies

#### (1) Ink Cartridge

Name	Model	Sales units
Ink cartridge K (Black: 220 ml ± 5 ml)	VJ-MSINK3-BK220	1 box (1 piece per box)
Ink cartridge C (Cyan: 220 ml ± 5 ml)	VJ-MSINK3-CY220	1 box (1 piece per box)
Ink cartridge M (Magenta: 220 ml ± 5 ml)	VJ-MSINK3-MA220	1 box (1 piece per box)
Ink cartridge Y (Yellow: 220 ml ± 5 ml)	VJ-MSINK3-YE220	1 box (1 piece per box)
Cleaning cartridge (220 ml ± 5 ml)	VJ-MSINK3-CL220	1 box (1 piece per box)

## (2) Other Supplies

Name	Model	Sales units
Waste ink bottle	RJ8000-HET	1 box (1 piece per box)

## 3.5 Choosing a Place for the Printer



### WARNING

- Do not place the printer in a location under the following conditions. Doing so may cause the product to fall, become damaged, or cause injury.
  - Unstable surfaces
  - Slanted areas
  - Locations that are subject to vibration from other product
- Do not stand on the printer or place any heavy objects on it. Doing so may cause it to fall over, become damaged, or cause injury.
- Do not cover the ventilation hole of the printer with cloth, such as a blanket or table cloth. Doing so could prevent the printer from ventilating and cause fire.
- Keep the printer away from humid and dusty areas. Failure to do so may result in electrical shock or fire.

### (1) Installation Environment Requirements

Choose a place for printer installation following the requirements of the table below.

Table 3-1 Installation Environment Requirements List

Floor loading capability		2940Pa (300kgf/m <sup>2</sup> ) or over	
Electrical specifications	Voltage	AC 90-132 V	
	Frequency	50/60Hz ± 1Hz	
	Capacity	Main side: 8.5 A, Heater side: 8.5A	
Environmental conditions		Temperature	Humidity
	Operation environment	20° C (68F) - 32°C (86F)	40% - 60%, with no condensation
	Plotting accuracy warranty range	22°C (71.6F) - 30°C (86F)	40% - 60%, with no condensation
	Rate of change	2°C/hour or less	5%/hour or less
	Storage environment	-20°C - 60°C	20% - 80% No condensation (when ink is not charged)

**NOTE**

- Avoid the following temperature and humidity conditions. Otherwise, Plotted images may appear differently from what you expect.
  - Places where sudden changes in temperature and humidity are expected, even though the condition is within the range specified
  - Places where direct sunlight or excessive lighting are expected
  - Places where air conditioners blow directly
- MUTOH recommends that the printer should be installed where air conditioning can be adjusted easily.

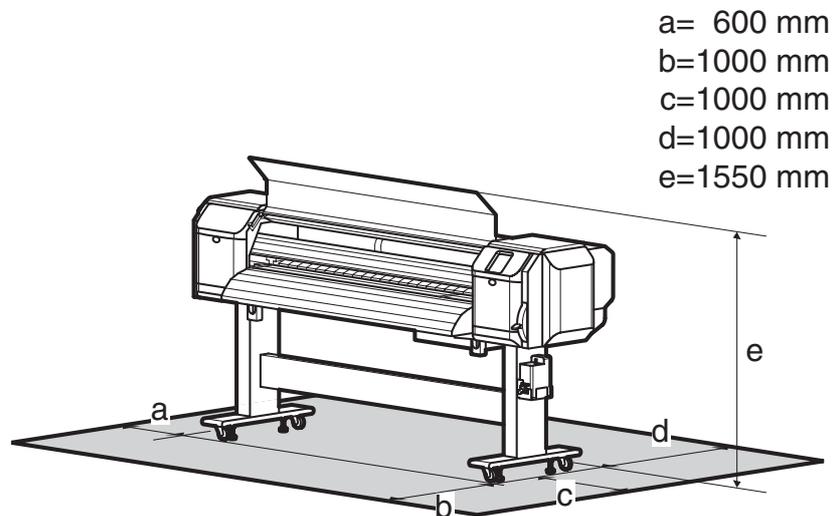
**(2) Required Space**

Install the printer on a flat surface that fulfills the following conditions.

- The place to install printer with the optional stand should have enough loading capacity.

**NOTE**

For the printer and the optional stand, refer to "**3.2 Product Specifications**" p.3-2.



\* Do not use VJ-1604 without stand.



---

## 4 Parts Replacement

<b>4.1</b>	<b>Introduction .....</b>	<b>4- 6</b>
<b>4.2</b>	<b>Removing Covers .....</b>	<b>4- 7</b>
4.2.1	Removing Panel Cover .....	4-9
4.2.2	Removing Maintenance Cover.....	4-9
4.2.3	Removing Maintenance Cover U.....	4-10
4.2.4	Removing Side Maintenance Cover R.....	4-11
4.2.5	Removing Side Maintenance Cover L .....	4-12
4.2.6	Removing Side Top Cover R .....	4-12
4.2.7	Removing Side Top Cover L.....	4-14
4.2.8	Removing Rear Side Cover .....	4-15
4.2.9	Removing Cartridge Cover (Upper) .....	4-17
4.2.10	Removing Cartridge Cover (middle) .....	4-18
4.2.11	Removing Cartridge Cover (lower) .....	4-19
4.2.12	Removing Switch Cover R.....	4-19
4.2.13	Removing Switch Cover L.....	4-20
4.2.14	Removing Front Cover.....	4-21
4.2.15	Removing Rear Top Cover .....	4-21
4.2.16	Removing Top Cover .....	4-23
4.2.17	Removing Media Guide F (Upper).....	4-24
4.2.18	Removing Media Guide R (Upper).....	4-27
4.2.19	Removing Media Guide R (Lower).....	4-29
<b>4.3</b>	<b>Replacing Covers.....</b>	<b>4- 30</b>
4.3.1	Replacing Panel Unit .....	4-30

---

4.3.2	Replacing Maintenance Cover Sensor .....	4-31
4.3.3	Replacing Front Cover Sensor .....	4-32
4.3.4	Replacing Front Cover Gear, Damper Gear (Sintered) .....	4-35
<b>4.4</b>	<b>Replacing Board Base (X Rail Section) .....</b>	<b>4- 39</b>
4.4.1	Opening Board Box 64 .....	4-40
4.4.2	Replacing Power Board Assembly .....	4-41
4.4.3	Replacing HEATER CONT Board .....	4-42
4.4.4	Replacing HEATER RELAY Board.....	4-44
4.4.5	Replacing Cooling Fan (24V) Assembly (for Main Board).....	4-46
4.4.6	Replacing Cooling Fan (24V) Assembly (in Media Guide F) .....	4-48
4.4.7	Replacing MAIN Board .....	4-49
4.4.8	Replacing Fuse.....	4-53
4.4.9	Replacing Inlet Assembly .....	4-55
<b>4.5</b>	<b>Replacing Board Base Section (Y Rail Section) .....</b>	<b>4- 58</b>
4.5.1	Replacing Heater Junction Board Assembly .....	4-58
<b>4.6</b>	<b>Replacing X Rail Section .....</b>	<b>4- 60</b>
4.6.1	Replacing PF Speed Reduction Belt .....	4-60
4.6.2	Replacing PF Motor Assembly .....	4-61
4.6.3	Replacing PF Encoder Assembly .....	4-63
4.6.4	Replacing PF_ENC Scale, PF Speed Reduction Pulley .....	4-64
4.6.5	Replacing P_REAR Sensor Assembly .....	4-65
4.6.6	Replacing Lever Up Sensor.....	4-67
4.6.7	Replacing Heater, Thermistor.....	4-68
4.6.8	Replacing Suction Fan .....	4-76

---

4.6.9	Replacing Platen Non-Reflective Tape .....	4-77
4.6.10	Replacing Media Holder.....	4-78
4.6.11	Replacing Flushing Tray .....	4-80
4.6.12	Replacing Flushing Absorber.....	4-82
<b>4.7</b>	<b>Replacing Y Rail Section.....</b>	<b>4- 84</b>
4.7.1	Replacing Steel Belt.....	4-84
4.7.2	Replacing CR Motor Assembly .....	4-87
4.7.3	Replacing CR Drive Pulley Assembly.....	4-89
4.7.4	Replacing T Fence.....	4-91
4.7.5	Replacing CR Origin Sensor.....	4-94
4.7.6	Replacing CR Driven Pulley.....	4-96
4.7.7	Replacing Steel Bearer .....	4-97
4.7.8	Replacing CR Tape Wire .....	4-99
4.7.9	Replacing Pressure Roller .....	4-101
4.7.10	Replacing Ink Tube .....	4-102
<b>4.8</b>	<b>Replacing Cursor Section .....</b>	<b>4- 105</b>
4.8.1	Releasing Head Lock.....	4-105
4.8.2	Removing CR Board Cover .....	4-106
4.8.3	Replacing CR Board Assembly.....	4-106
4.8.4	Replacing CR Encoder Assembly.....	4-108
4.8.5	Replacing PG Origin Sensor Assembly .....	4-109
4.8.6	Replacing Cursor Roller Arm Assembly.....	4-110
4.8.7	Removing Print Head Cover .....	4-110
4.8.8	Replacing Damper Assembly L_Assy.....	4-112

---

4.8.9	Replacing Print Head.....	4-114
4.8.10	Replacing Head FFC .....	4-116
4.8.11	Replacing P_EDGE Sensor Assembly .....	4-118
<b>4.9</b>	<b>Replacing Maintenance Section.....</b>	<b>4- 120</b>
4.9.1	Removing Maintenance Inner Cover .....	4-120
4.9.2	Replacing Cleaner Head .....	4-121
4.9.3	Replacing Maintenance Assembly .....	4-122
<b>4.10</b>	<b>Replacing IH Section.....</b>	<b>4- 125</b>
4.10.1	Replacing Ink ID Board Assembly .....	4-125
4.10.2	Replacing Frame Assembly, Needle .....	4-128
4.10.3	Replacing Ink Cartridge Control Cable .....	4-132
4.10.4	Replacing Cartridge Holder Assembly.....	4-132
4.10.5	Replacing two-way Valve .....	4-133
4.10.6	Replacing Sub-Tank Lower Absorber Assembly .....	4-135
<b>4.11</b>	<b>Replacing Leg Section .....</b>	<b>4- 136</b>
4.11.1	Replacing Waste Fluid Bottle .....	4-136
<b>4.12</b>	<b>Replacing Roll Media Holder Assembly .....</b>	<b>4- 138</b>
4.12.1	Replacing Roll Media Holder Assembly on the VJ16_L side.....	4-138
4.12.2	Replacing Roll Media Holder Assembly on the VJ16_R side.....	4-139
<b>4.13</b>	<b>Replacing Take-up Section.....</b>	<b>4- 140</b>
4.13.1	Removing Take-up Cover.....	4-140
4.13.2	Replacing Scroller .....	4-141
4.13.3	Replacing VJ Take-up CNT Board Assembly.....	4-143
4.13.4	Replacing CR_HP Sensor, Lever Sensor.....	4-150

### 4.13.5 Replacing Peripheral Devices of VJ Take-up Motor Assembly.. 4-153

## 4.1 Introduction

This chapter provides information on removal and replacement of service parts.

### **WARNING**

---

- Before starting part replacement, always perform the following operations.
  - Turn OFF the machine power.
  - Remove the power plug from the outlet.  
Otherwise, you may suffer electric shock or the system circuit may be damaged.
  - Remove any cables connected to the plotter.  
Otherwise, the plotter may be damaged.
- 

### **CAUTION**

---

The components in the plotter can be disassembled only if so instructed in this manual. Do not disassemble the frame components and other components that are not instructed to disassemble in the manual.

The plotter has been assembled in the MUTOH factory with extremely high precision up to 1/100mm. If disassembled inappropriately, it may not restore its normal functionality.

---

### **NOTE**

---

After replacing any service parts, perform necessary lubrication and bonding following the instructions in section "[8.5 Lubrication/Bonding](#)" p.8-7.

---

## 4.2 Removing Covers

This section describes the procedures to replace covers.

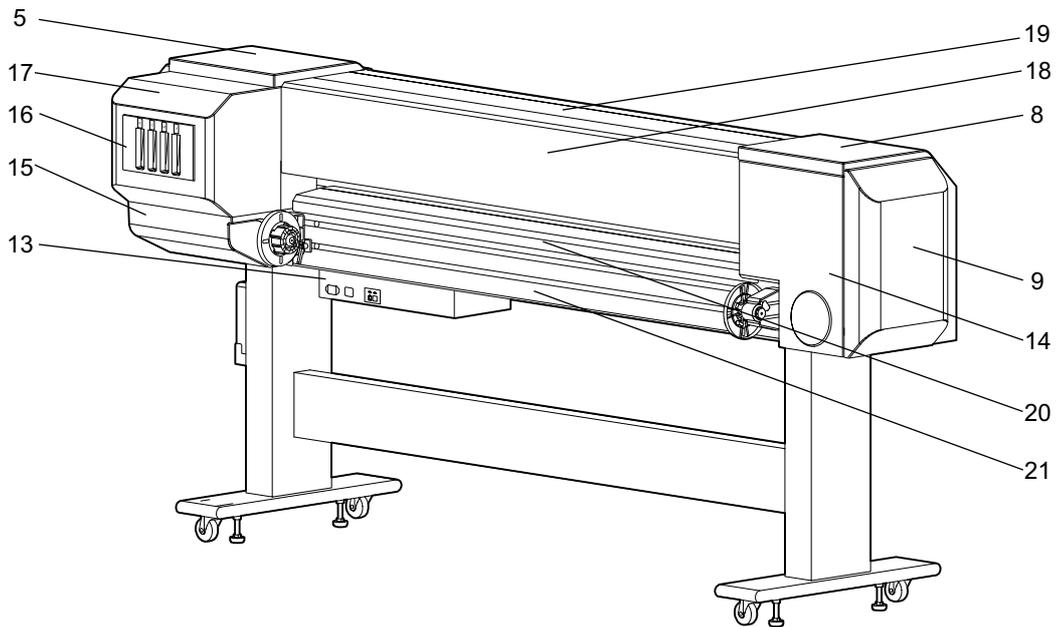
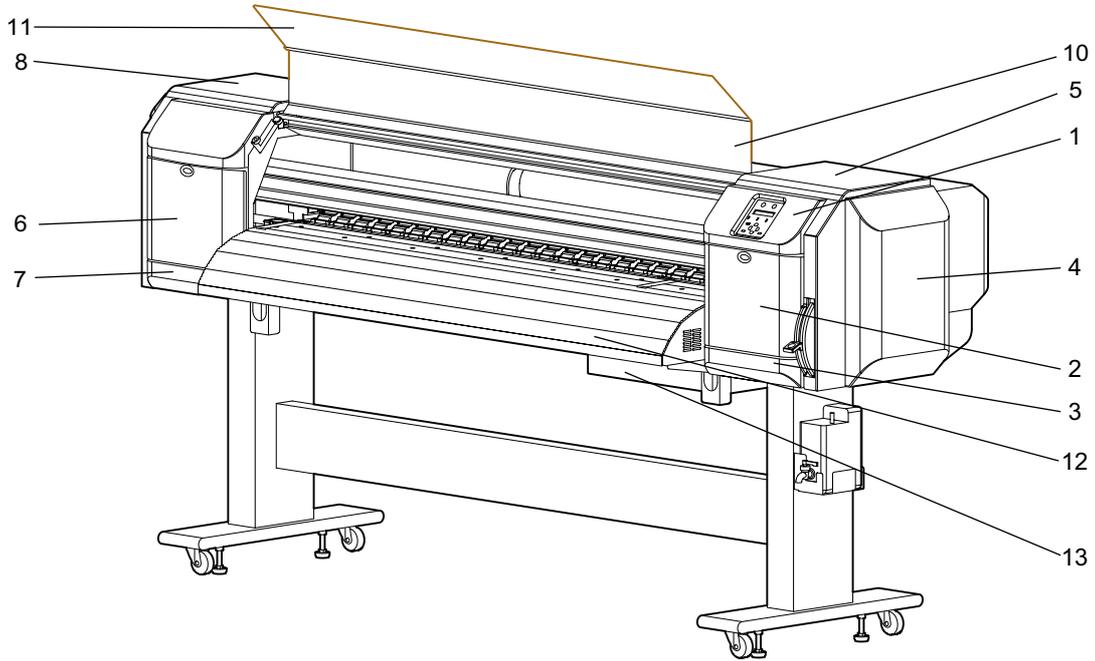


Table 4-1 Cover Component List

No.	Part name
1	Panel cover
2	Maintenance cover R
3	Maintenance cover U_R
4	Side maintenance cover R

Table 4-1 Cover Component List (Continued)

No.	Part name
5	Side top cover R
6	Maintenance cover L
7	Maintenance cover U_L
8	Side top cover L
9	Side maintenance cover L
10	Front cover
11	Acrylic plate
12	Media guide F (upper)
13	Board box 64
14	Rear side cover
15	Cartridge cover (lower)
16	Cartridge cover (middle)
17	Cartridge cover (upper)
18	Rear top cover
19	Top cover
20	Media guide R (upper)
21	Media guide R (lower)

### 4.2.1 Removing Panel Cover

1. Open the maintenance cover R.
2. Remove the screws (2 pieces) that retain the panel cover.



No.	Part name
1	Panel cover
2	Screws that retain the panel cover (pan-head screw with spring washer and flat washer M4 × 8)

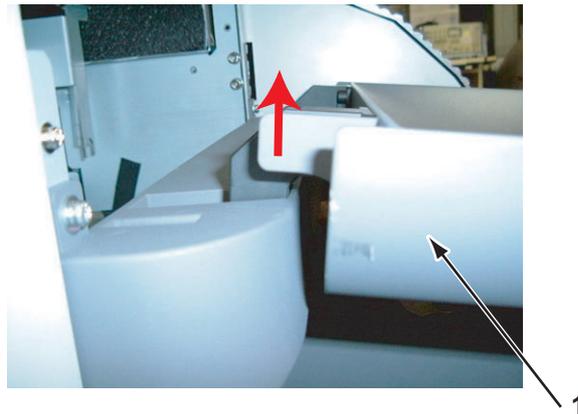
3. Remove the panel cover.
4. To reassemble the unit, reverse the removal procedure.

### 4.2.2 Removing Maintenance Cover

#### NOTE

The procedure to remove the maintenance cover R is the same as the one for the maintenance cover L.

1. Open the maintenance cover.
2. Lift up the maintenance cover.
3. Remove the maintenance cover.



No.	Part name
1	Maintenance cover

4. To reassemble the unit, reverse the removal procedure.

### 4.2.3 Removing Maintenance Cover U

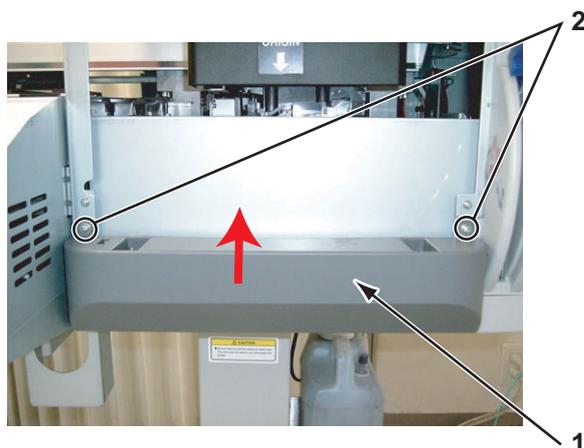
#### NOTE

The procedure to remove the maintenance cover U\_R is the same as the one for the maintenance cover U\_L.

1. Remove the maintenance cover.

☞ ["4.2.2 Removing Maintenance Cover" p.4-9](#)

- Remove the screws (2 pieces) that retain the maintenance cover U.

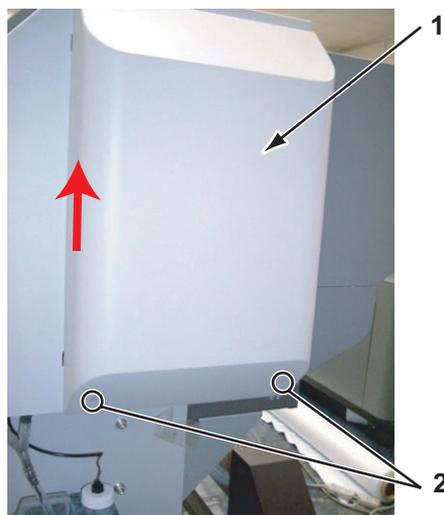


No.	Part name
1	Maintenance cover U
2	Screws that retain the maintenance cover U (pan-head screw with spring washer and flat washer M4 × 8)

- Remove the Maintenance cover U.
- To reassemble the unit, reverse the removal procedure.

### 4.2.4 Removing Side Maintenance Cover R

- Remove the screws (2 pieces) that retain the side maintenance cover R.

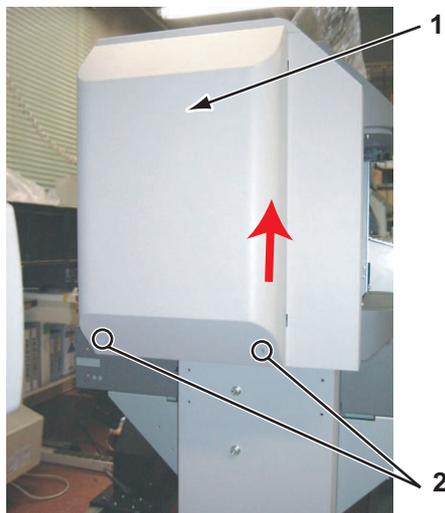


No.	Part name
1	Side maintenance cover R
2	screws that retain the side maintenance cover R (pan-head screw with spring washer and flat washer M4 × 8)

2. Lift up and remove the side maintenance cover R.
3. To reassemble the unit, reverse the removal procedure.

#### 4.2.5 Removing Side Maintenance Cover L

1. Remove the screws (2 pieces) that retain the side maintenance cover L.



No.	Part name
1	Side maintenance cover L
2	Screws that retain the side maintenance cover L (pan-head screw with spring washer and flat washer M4 × 8)

2. Lift up and remove the side maintenance cover L.
3. To reassemble the unit, reverse the removal procedure.

#### 4.2.6 Removing Side Top Cover R

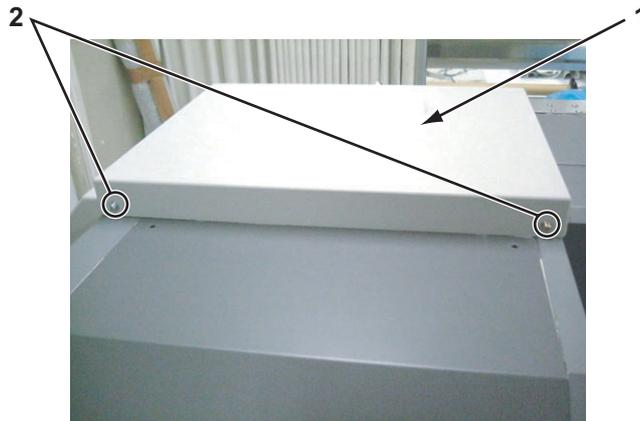
##### NOTE

Before removing the side top cover R, close the front cover.

1. Remove the side maintenance cover R.

 ["4.2.4 Removing Side Maintenance Cover R" p.4-11](#)

2. Remove the screws (2 pieces) that retain the side top cover R.



No.	Part name
1	Side top cover R
2	Screws that retain the side top cover R (pan-head screw with spring washer and flat washer M4 × 8)

3. Remove the side top cover R to the direction shown in the picture below.



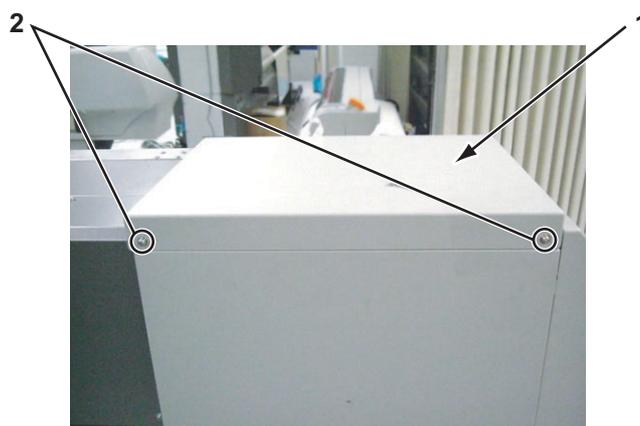
4. To reassemble the unit, reverse the removal procedure.

## 4.2.7 Removing Side Top Cover L

**NOTE**

Before removing the side top cover L, close the front cover.

1. Remove the side maintenance cover L.  
☞ "4.2.5 Removing Side Maintenance Cover L" p.4-12
2. Remove the screws (2 pieces) that retain the side top cover L.



No.	Part name
1	Side top cover L
2	Screws that retain the side top cover L (pan-head screw with spring washer and flat washer M4 × 8)

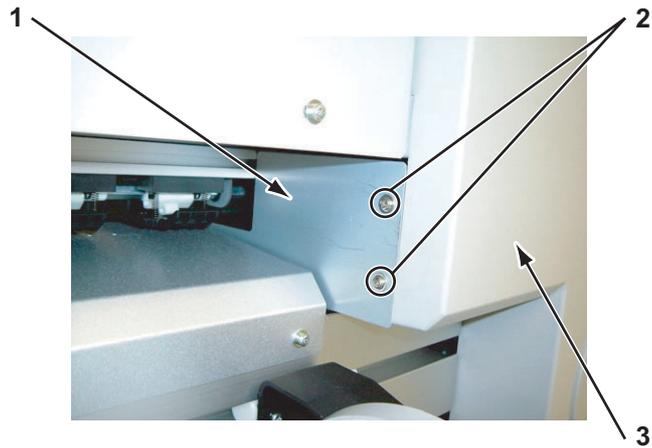
3. Remove the side top cover L to the direction shown in the picture below.



4. To reassemble the unit, reverse the removal procedure.

### 4.2.8 Removing Rear Side Cover

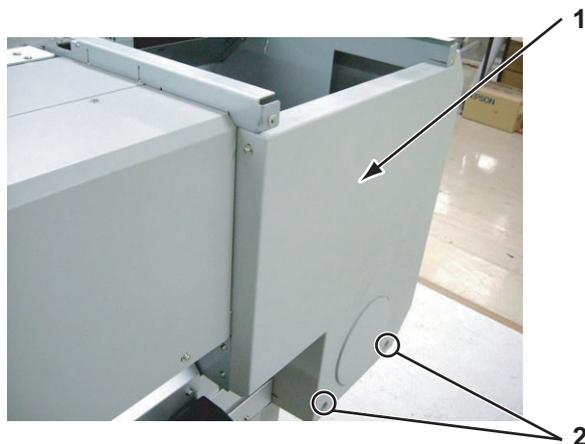
1. Remove the side maintenance cover L.  
 ↳ "4.2.5 Removing Side Maintenance Cover L" p.4-12
2. Remove the side top cover L.  
 ↳ "4.2.7 Removing Side Top Cover L" p.4-14
3. Remove the screws (2 pieces) that retain the rear side cover 3.



No.	Part name
1	Rear side cover 3
2	Screws that retain the rear side cover 3 (tapping screw M3 × 8)
3	Rear side cover

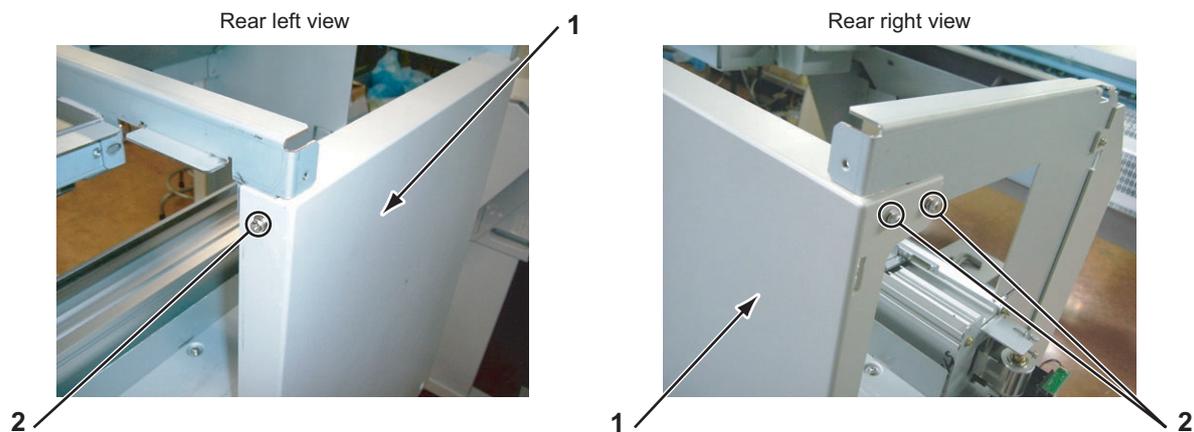
4. Remove the rear side cover 3.

5. Remove the screws (2 pieces) on the lower part of the rear side cover.



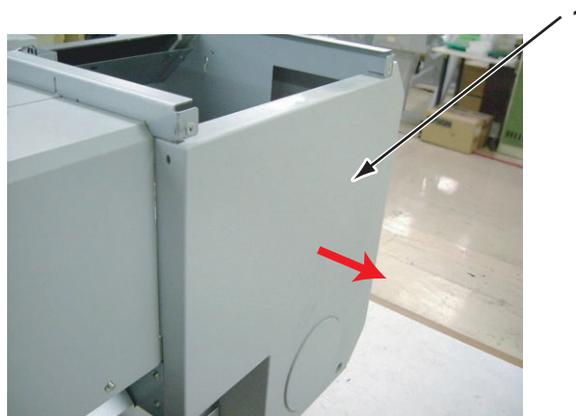
No.	Part name
1	Rear side cover
2	Screws that retain the rear side cover (pan-head screw with spring washer and flat washer M4 × 8)

6. Remove the screws (3 pieces) on the left and right side of the rear side cover.



No.	Part name
1	Rear side cover
2	Screws that retain the rear side cover (pan-head screw with spring washer and flat washer M4 × 8)

7. Remove the rear side cover.

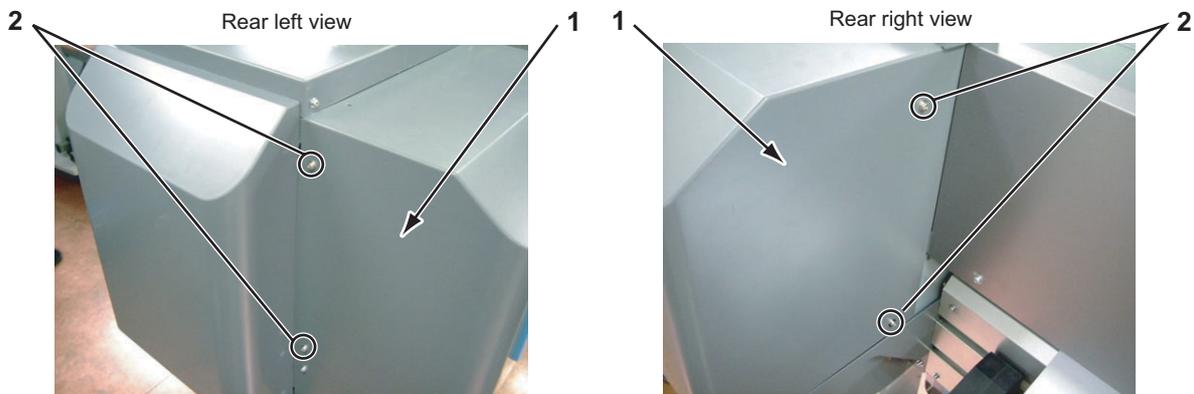


No.	Part name
1	Rear side cover

8. To reassemble the unit, reverse the removal procedure.

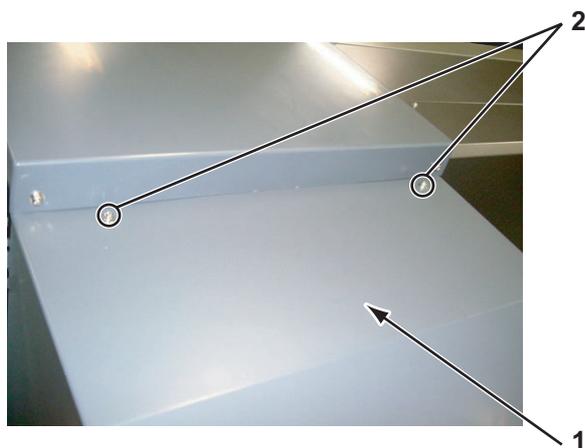
### 4.2.9 Removing Cartridge Cover (Upper)

1. Remove the ink cartridge (6 pieces).
2. Remove the screws (4 pieces) that retain the left and right part of the cartridge cover (upper).



No.	Part name
1	Cartridge cover (Upper)
2	Screws that retain the cartridge cover (Upper) (pan-head screw with spring washer and flat washer M4 × 8)

- Remove the screws (2 pieces) on the upper part of the Cartridge cover (Upper).

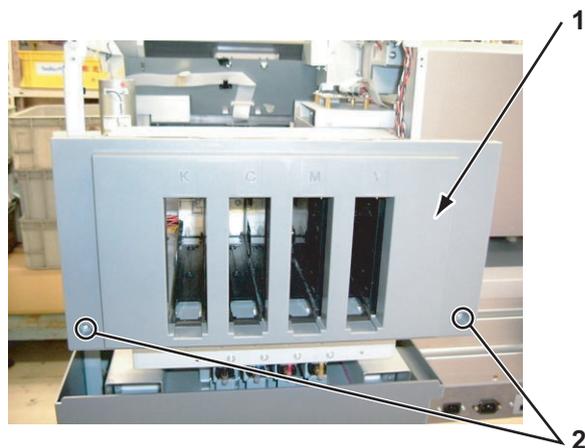


No.	Part name
1	Cartridge cover (upper)
2	Screws that retain the cartridge cover (upper) (pan-head screw with spring washer and flat washer M4 × 8)

- Remove the cartridge cover (upper).
- To reassemble the unit, reverse the removal procedure.

### 4.2.10 Removing Cartridge Cover (middle)

- Remove the cartridge cover (upper).  
 🔗 ["4.2.9 Removing Cartridge Cover \(Upper\)" p.4-17](#)
- Remove the screws (2 pieces) that retain the cartridge cover (middle).

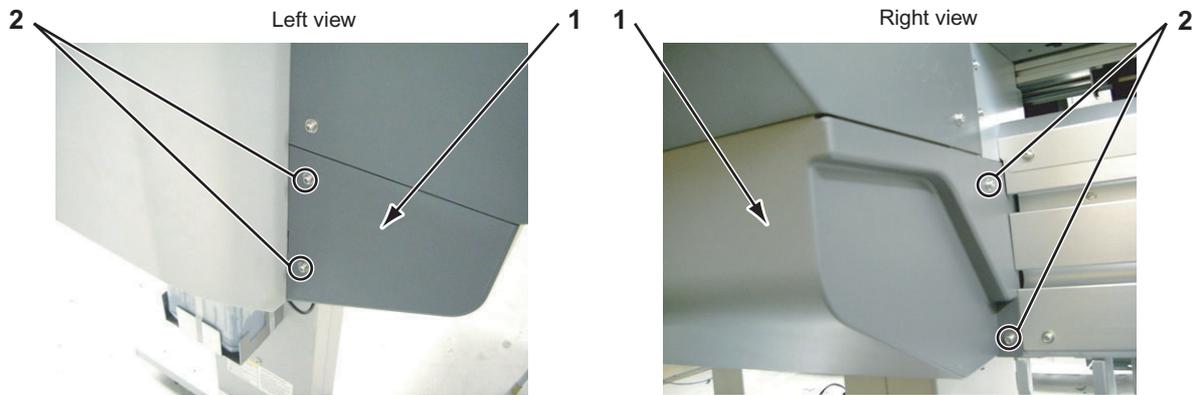


No.	Part name
1	Cartridge cover (middle)
2	Screws that retain the cartridge cover (middle) (pan-head screw with spring washer and flat washer M3 × 8)

3. Remove the cartridge cover (middle).

### 4.2.11 Removing Cartridge Cover (lower)

1. Remove the screws (4 pieces) that retain the cartridge cover (lower).



No.	Part name
1	Cartridge cover (lower)
2	Screws that retain the cartridge cover (lower) (pan-head screw with spring washer and flat washer M4 × 8)

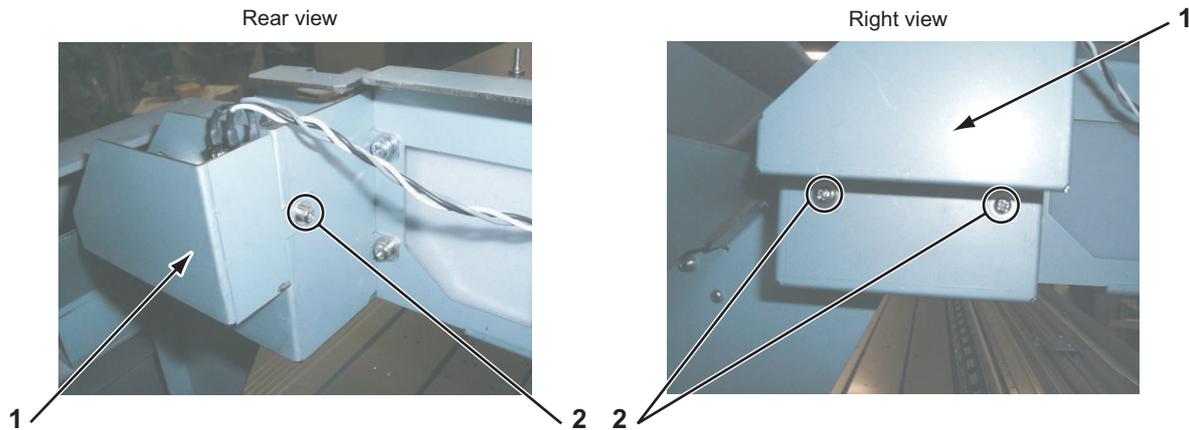
2. Remove the cartridge cover (lower).
3. To reassemble the unit, reverse the removal procedure.

### 4.2.12 Removing Switch Cover R

1. Remove the side top cover R.

☞ ["4.2.6 Removing Side Top Cover R" p.4-12](#)

- Remove the screws (3 pieces) that retain the switch cover R.

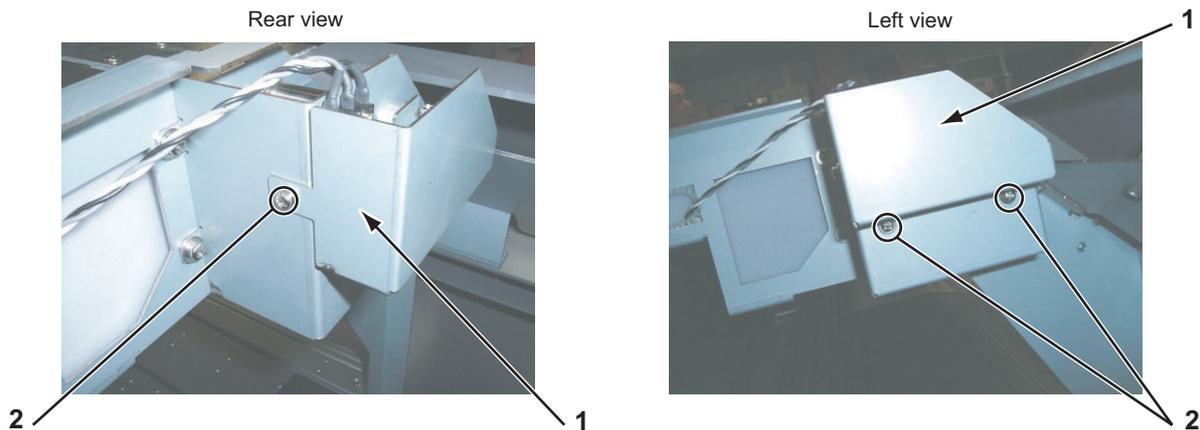


No.	Part name
1	Switch cover R
2	Screws that retain the switch cover R (pan-head screw with spring washer and flat washer M3 × 8)

- Remove the switch cover R.
- To reassemble the unit, reverse the removal procedure.

### 4.2.13 Removing Switch Cover L

- Remove the side top cover L.  
 ☞ ["4.2.7 Removing Side Top Cover L" p.4-14](#)
- Remove the screws (3 pieces) that retain the switch cover L.



No.	Part name
1	Switch cover L
2	Screws that retain the switch cover L (pan-head screw with spring washer and flat washer M3 × 8)

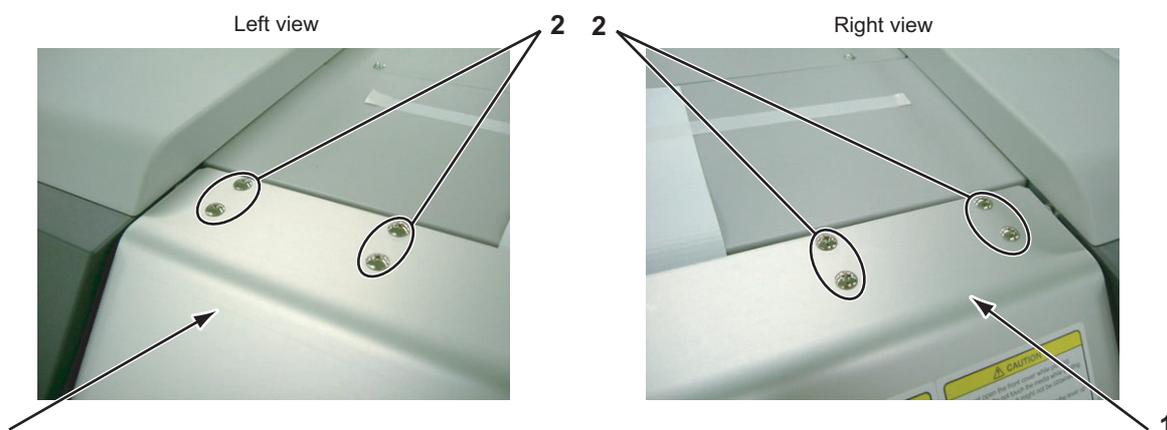
3. Remove the switch cover L.
4. To reassemble the unit, reverse the removal procedure.

### 4.2.14 Removing Front Cover



Front cover removal must be done by two or more persons.

1. Remove the screws that retain the left and right side of the front cover (4 pieces respectively).



No.	Part name
1	Front cover
2	Screws that retain the front cover (Trusco screw M4 × 6)

2. Remove the front cover.
3. To reassemble the unit, reverse the removal procedure.

### 4.2.15 Removing Rear Top Cover



Rear top cover removal must be done by 2 or more persons.

1. Remove the Side Top Cover R.  
[☞ "4.2.6 Removing Side Top Cover R" p.4-12](#)
2. Remove the Rear side cover.  
[☞ "4.2.8 Removing Rear Side Cover" p.4-15](#)

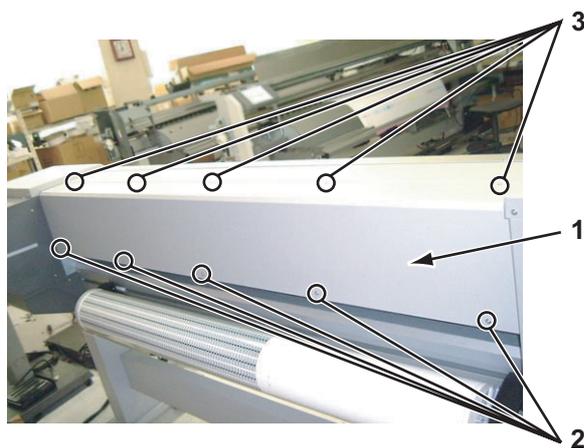
- Remove the Side Top Cover L.

☞ "4.2.7 Removing Side Top Cover L" p.4-14

- Remove the Cartridge cover (upper).

☞ "4.2.9 Removing Cartridge Cover (Upper)" p.4-17

- Remove the screws (5 pieces) on the back of the rear top cover.
- Remove the screws (5 pieces) on the upper side of the rear top cover.



No.	Part name
1	Rear top cover
2	Screws that retain the rear top cover (pan-head screw with spring washer and flat washer M4 × 8)
3	Screws that retain the rear top cover (cup screw M3 × 8)

- Remove the rear top cover.
- To reassemble the unit, reverse the removal procedure.

### 4.2.16 Removing Top Cover



Top cover removal must be done by 2 or more persons.

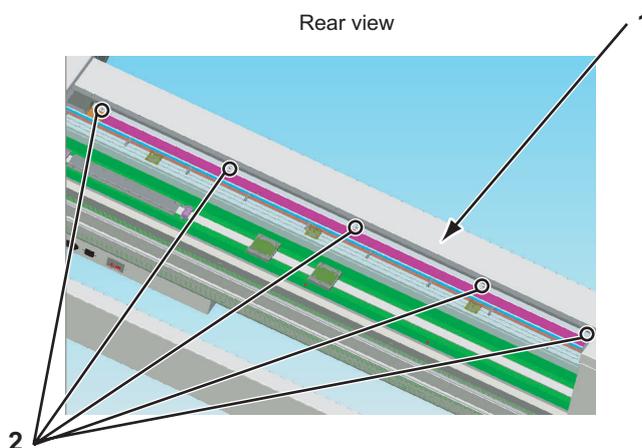
1. Remove the front cover.

["4.2.14 Removing Front Cover" p.4-21](#)

2. Remove the rear top cover.

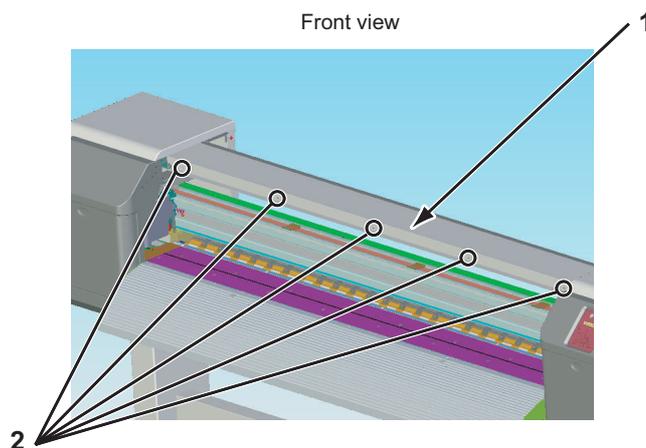
["4.2.15 Removing Rear Top Cover" p.4-21](#)

3. Remove the screws (6 pieces) that retain the back of the top cover.



No.	Part name
1	Top cover
2	Screws that retain the top cover (pan-head screw with spring washer and flat washer M3 × 8)

- Remove the screws (5 pieces) that retain the front of the top cover.



No.	Part name
1	Top cover
2	Screws that retain the top cover (pan-head screw with spring washer and flat washer M3 × 8)

- Remove the top cover.
- To reassemble the unit, reverse the removal procedure.

#### 4.2.17 Removing Media Guide F (Upper)

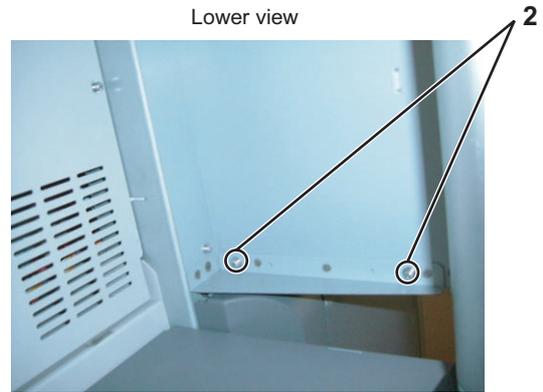
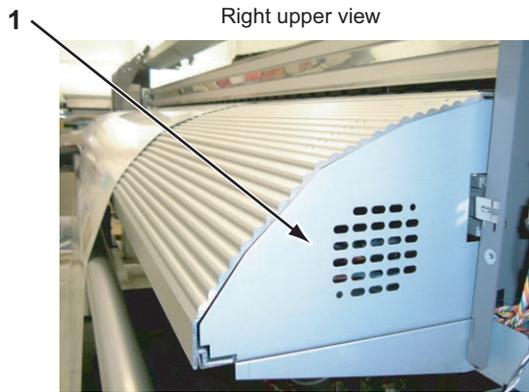


Media guide F (upper) removal must be done by 2 or more persons.

- Remove the maintenance cover.

☞ ["4.2.2 Removing Maintenance Cover" p.4-9](#)

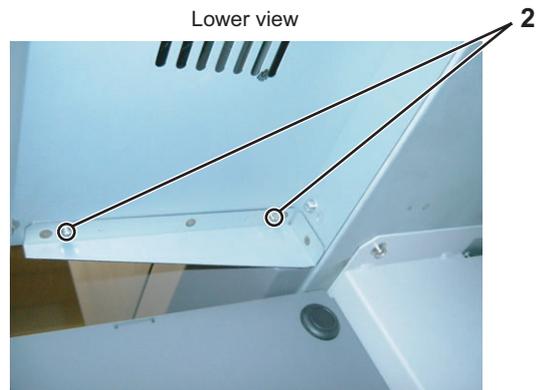
2. Remove the screws (2 pieces) that retain the media guide FR.



No.	Part name
1	Media guide FR
2	Screws that retain the media guide FR (pan-head screw with spring washer and flat washer M4 × 8)

3. Remove the media guide FR.

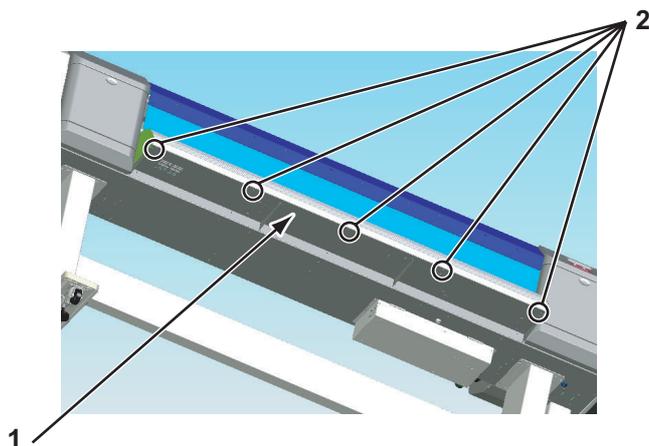
4. Remove the screws (2 pieces) that retain the media guide FL.



No.	Part name
1	Media guide FL
2	Screws that retain the media guide FL (pan-head screw with spring washer and flat washer M4 × 8)

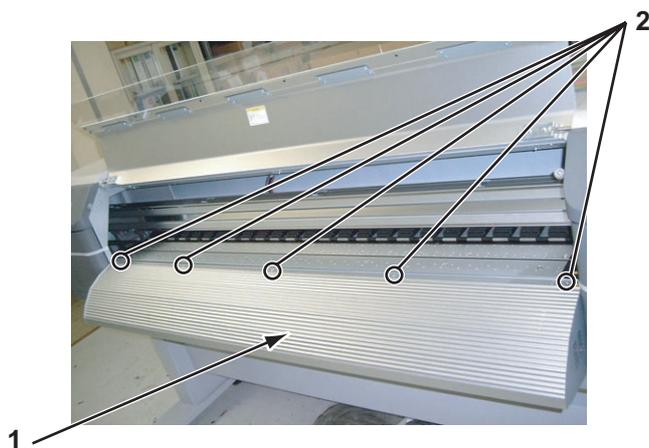
5. Remove the media guide FL.

6. Remove the screws (5 pieces) that retain the bottom of the media guide F (upper).



No.	Part name
1	Media guide F (upper)
2	Screws that retain the media guide F (upper) (pan-head screw with spring washer and flat washer M4 × 8)

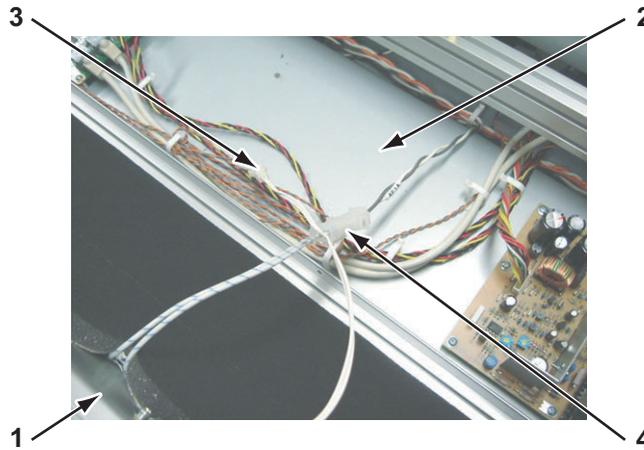
7. Remove the screws (5 pieces) that retain the media guide F (upper).



No.	Part name
1	Media guide F (upper)
2	Screws that retain the media guide F (upper) (binding small screw M3 × 6)

8. Lift up the media guide F (upper).

- Remove the two connectors to the after-heater and the two connectors to the after-thermistor that are inside the media guide F (upper).



No.	Part name
1	Media guide F (upper)
2	Media guide F (lower)
3	Connector to the after-thermistor
4	Connector to the after-heater

- Remove the media guide F (upper).
- To reassemble the unit, reverse the removal procedure.

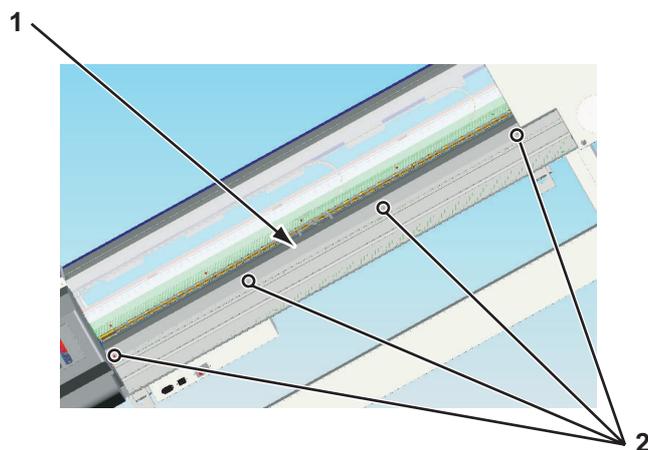
### 4.2.18 Removing Media Guide R (Upper)

**CAUTION**

Media guide R (upper) removal must be done by 2 or more persons.

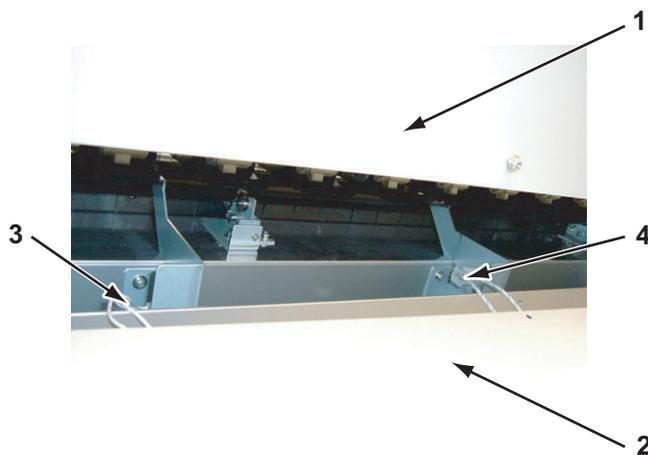
- Remove media.

- Remove the screws (4 pieces) that retain the media guide R (upper).



No.	Part name
1	Media guide R (upper)
2	Screws that retain the media guide R (upper) (pan-head screw with spring washer and flat washer M4 × 8)

- Push backward the media guide R (upper).
- Remove the two connectors to the pre-heater and the two connectors to the pre-thermistor that are in side the media guide R (upper).



No.	Part name
1	Rear top cover
2	Media guide R (upper)
3	Connector to the pre-thermistor
4	Connector to the pre-heater

- Remove the media guide R (upper).
- To reassemble the unit, reverse the removal procedure.

### 4.2.19 Removing Media Guide R (Lower)

**CAUTION**

Media guide R (lower) removal must be done by 2 or more persons.

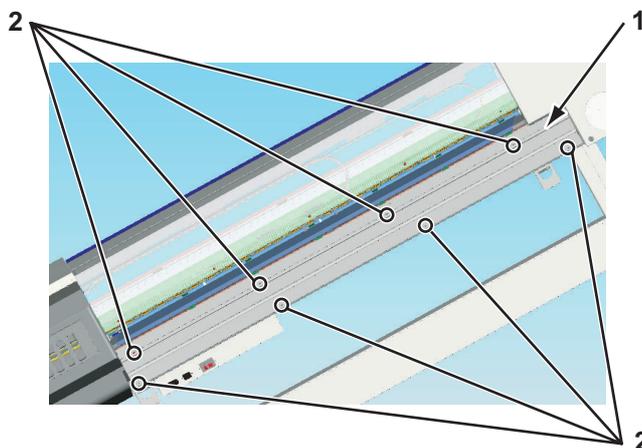
1. Remove the media guide R (upper).

☞ "4.2.18 Removing Media Guide R (Upper)" p.4-27

**NOTE**

If the roll media holder overlaps the screw holes, displace the roll media holder.

2. Remove the screws (8 pieces) that retain the media guide R (lower).



No.	Part name
1	Media guide R (lower)
2	Screws that retain the media guide R (lower) (pan-head screw with spring washer and flat washer M4 × 8)

3. Remove the media guide R (lower).
4. To reassemble the unit, reverse the removal procedure.

## 4.3 Replacing Covers

This section describes the procedures to replace the covers.

### 4.3.1 Replacing Panel Unit

**CAUTION**

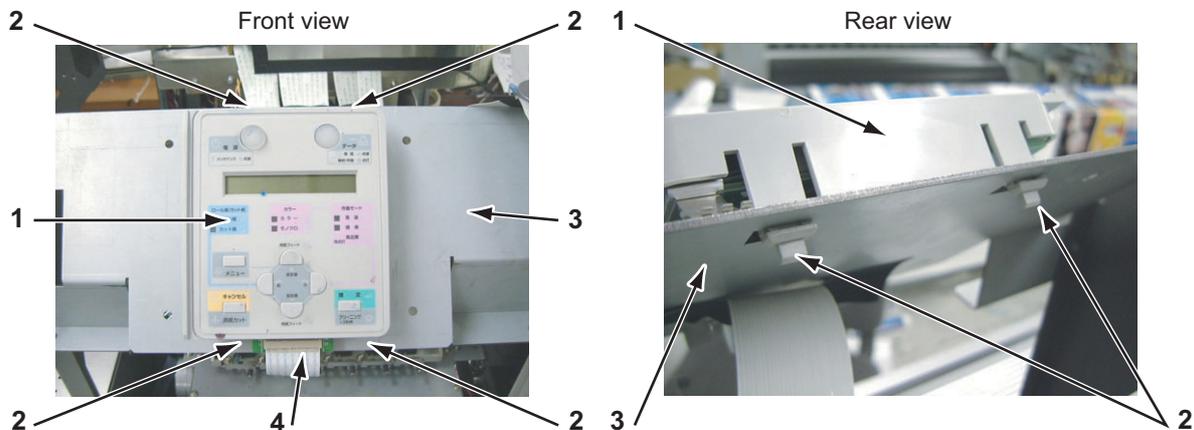
- When replacing the panel unit, first pull out the AC cable.  
Power may be turned on depending on how the cable is connected, and that may damage the board.
- When connecting and removing the FFC type cables (panel tape wires), always pull or push the cables perpendicularly.  
Pulling or pushing them slantwise may damage/short/break the terminals in the connectors, causing a breakdown of the on-board devices.
  - The cables can be connected or removed up to 5 times.

1. Remove the panel cover.

☞ ["4.2.1 Removing Panel Cover" p.4-9](#)

2. Remove the panel to conversion board tape wire.

3. Release the four panel unit back tabs (4 pieces) from the panel stay.



No.	Part name
1	Panel unit
2	Panel unit tab
3	Panel stay
4	Panel FFC

4. Remove the panel unit.

5. Replace the panel unit.

6. To reassemble the unit, reverse the removal procedure.

### 4.3.2 Replacing Maintenance Cover Sensor

#### (1) Replacing Maintenance Cover Sensor R

1. Remove the maintenance cover U.  
☞ **"4.2.3 Removing Maintenance Cover U" p.4-10**
2. Detach the connector for the maintenance cover sensor assembly.
3. Remove the screws (2 pieces) that retain the maintenance cover sensor assembly.

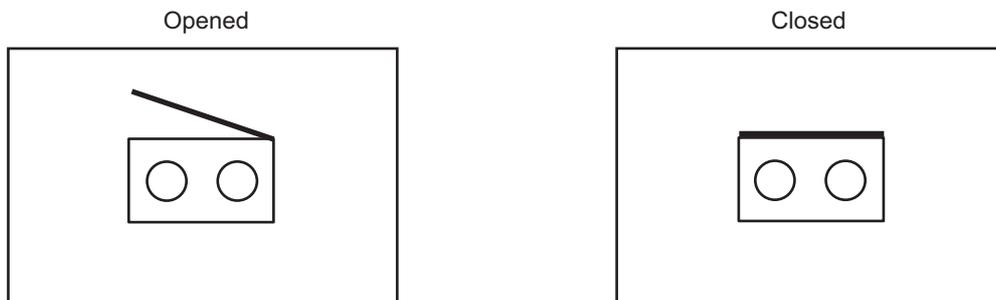


No.	Part name
1	Maintenance cover sensor assembly
2	Screws that retain the maintenance cover sensor assembly (pan-head screw with spring washer and flat washer M2 × 6)
3	Connector for the maintenance cover sensor assembly

4. Remove the maintenance cover sensor assembly.
5. Replace the maintenance cover sensor assembly.
6. To reassemble the unit, reverse the removal procedure.

**TIP**

The maintenance cover sensor looks like the following.



## (2) Replacing Maintenance Cover Sensor L

The procedure to replace the maintenance cover sensor L is the same as the one for the maintenance cover sensor R.

### 4.3.3 Replacing Front Cover Sensor

#### (1) R Side

1. Remove the Side top cover R.  
 ["4.2.6 Removing Side Top Cover R" p.4-12](#)
2. Remove the switch cover R.  
 ["4.2.12 Removing Switch Cover R" p.4-19](#)
3. Detach the connector for the cover sensor (C) assembly\_R.

- Remove the screws (2 pieces) that retain the cover sensor (C) assembly\_R.

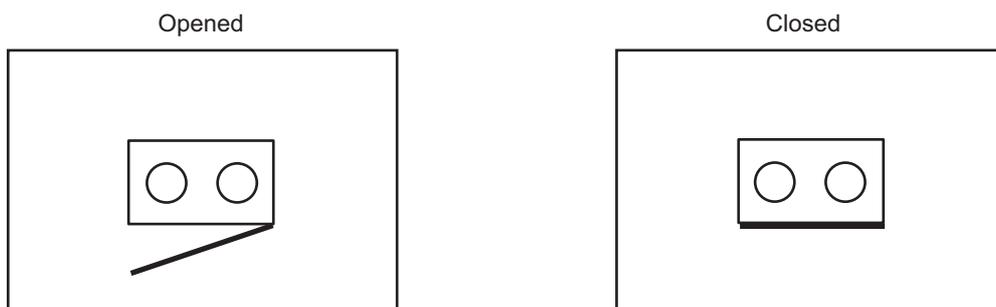


No.	Part name
1	Cover sensor (C) assembly_R
2	Screws that retain the cover sensor (C) assembly_R (pan-head screw with spring washer and flat washer M2 × 12)
3	Damper cover R

- Remove the cover sensor (C) assembly\_R.
- To reassemble the unit, reverse the removal procedure.

**TIP**

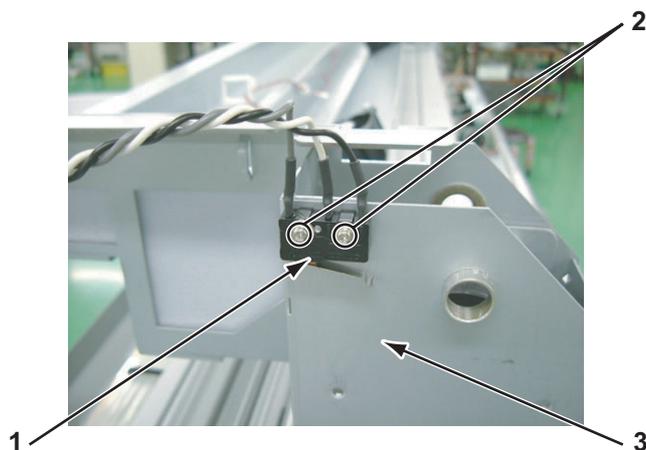
The cover sensor looks like the following.



**(2) L Side**

- Remove the Side top cover L.  
[☞ "4.2.7 Removing Side Top Cover L" p.4-14](#)
- Remove the switch cover L.  
[☞ "4.2.13 Removing Switch Cover L" p.4-20](#)
- Detach the connector for the cover sensor (C) assembly\_L.

4. Remove the screws (2 pieces) that retain the cover sensor (C) assembly\_L.

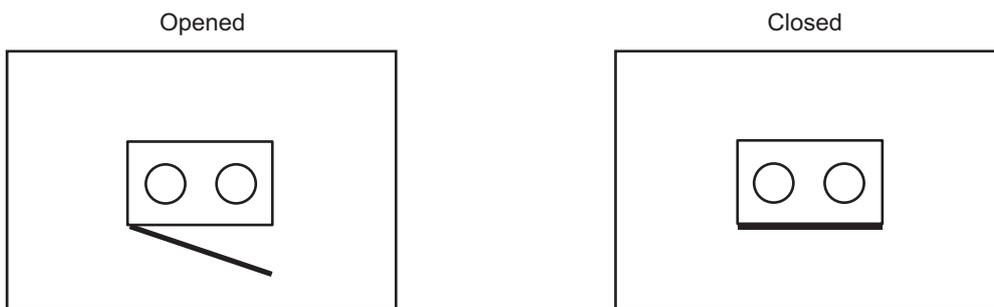


No.	Part name
1	Cover sensor (C) assembly_L
2	Screws that retain the cover sensor (C) assembly_L (pan-head screw with spring washer and flat washer M2 × 12)
3	Damper cover L

- 5. Remove the cover sensor (C) assembly\_L.
- 6. To reassemble the unit, reverse the removal procedure.

**TIP**

The cover sensor looks like the following.



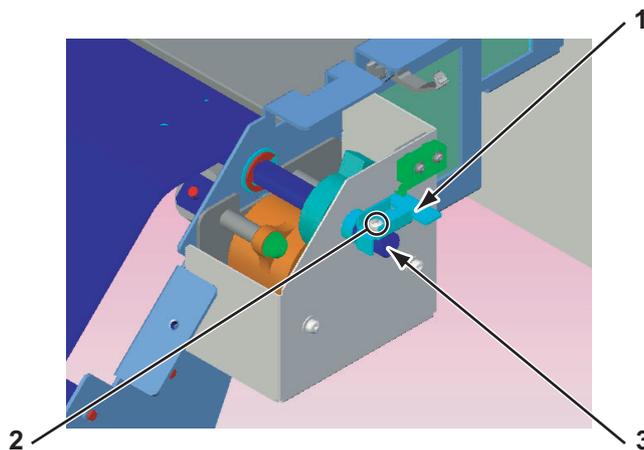
### 4.3.4 Replacing Front Cover Gear, Damper Gear (Sintered)

#### (1) R Side

1. Remove the switch cover R.

☞ "4.2.12 Removing Switch Cover R" p.4-19

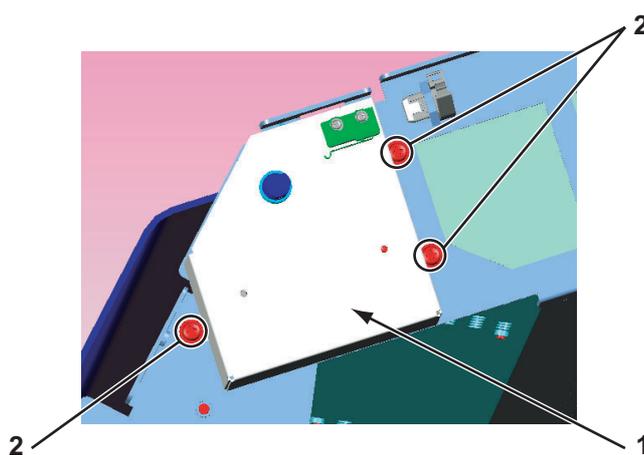
2. Remove the screw (1 piece) that retain the switch plate R.



No.	Part name
1	Switch plate R
2	Screws that retain the switch plate R. (pan-head screw with spring washer and flat washer M3 × 8)
3	Front cover axis

3. Remove the switch plate.

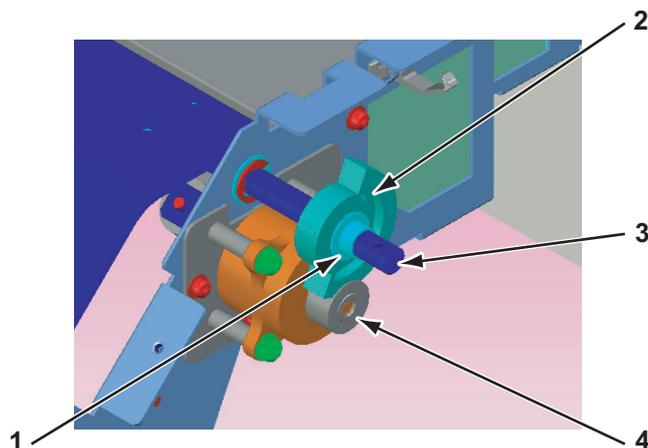
4. Remove the screws (3 pieces) that retain the damper cover R.



No.	Part name
1	Damper cover R

No.	Part name
2	Screws that retain the damper cover R (pan-head screw with spring washer and flat washer M4 × 8)

5. Remove the damper cover R.
6. Remove the flange bushing.



No.	Part name
1	Flange bushing
2	Front cover gear
3	Front cover axis
4	Damper gear (sintered)

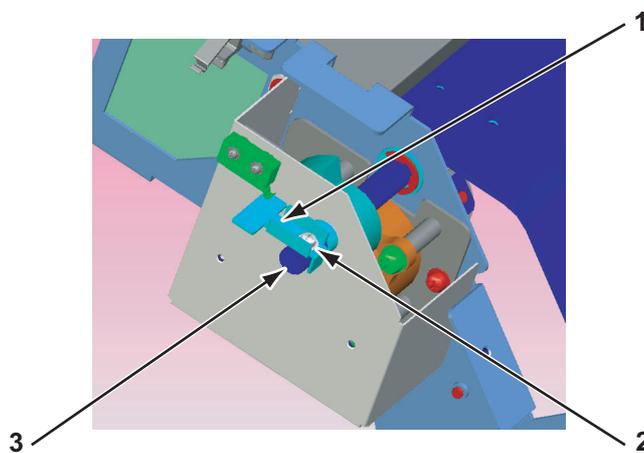
7. Replace the front cover gear.
8. Replace the damper gear (sintered).
9. To reassemble the unit, reverse the removal procedure.

(2) L Side

1. Remove the switch cover L.

☞ "4.2.13 Removing Switch Cover L" p.4-20

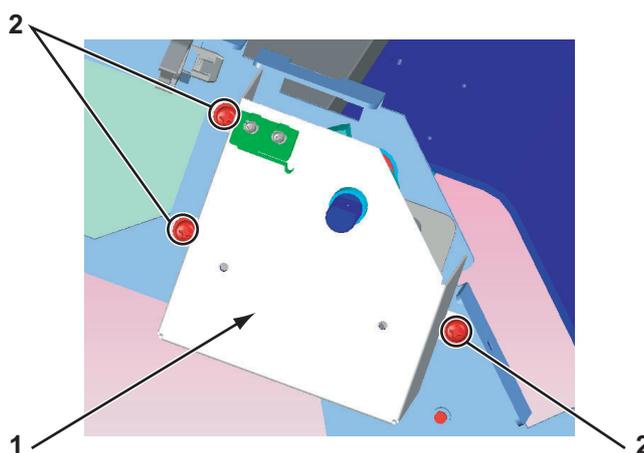
2. Remove the screw (1 piece) that retain the switch plate L.



No.	Part name
1	Switch plate L
2	Screws that retain the switch plate L (pan-head screw with spring washer and flat washer M3 × 8)
3	Front cover axis

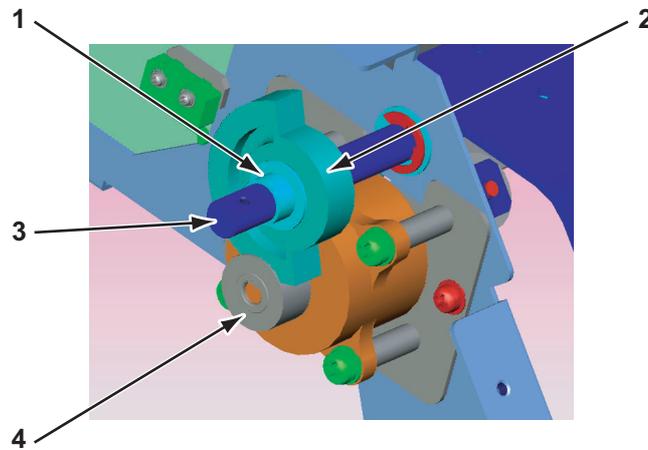
3. Remove the switch plate.

4. Remove the screws (3 pieces) that retain the damper cover L.



No.	Part name
1	Damper cover L
2	Screws that retain the damper cover L (pan-head screw with spring washer and flat washer M4 × 8)

5. Remove the damper cover L.
6. Remove the flange bushing.



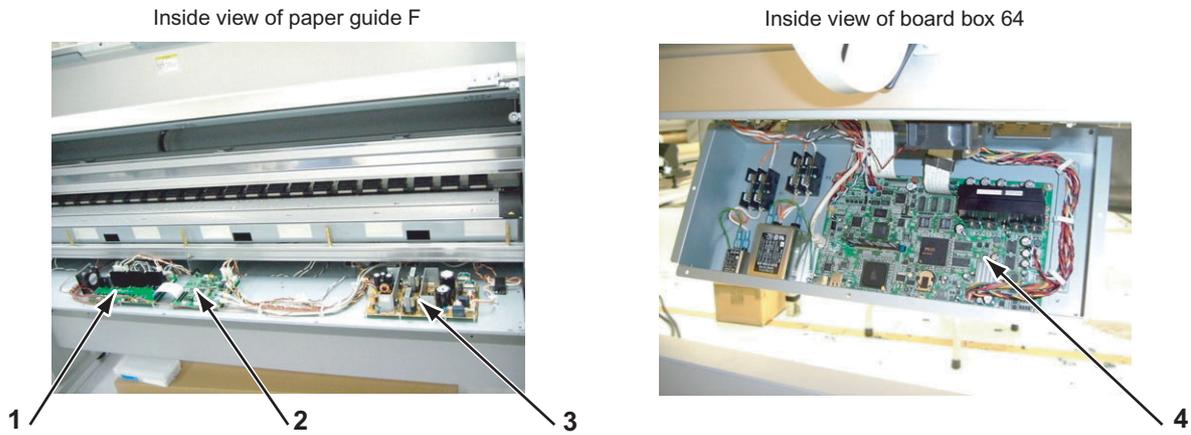
No.	Part name
1	Flange bushing
2	Front cover gear
3	Front cover axis
4	Damper gear (sintered)

7. Replace the front cover gear.
8. Replace the damper gear (sintered).
9. To reassemble the unit, reverse the removal procedure.

## 4.4 Replacing Board Base (X Rail Section)

This section describes the procedure to replace the power supply or the board in the X rail section.

The boards are arranged as follows.



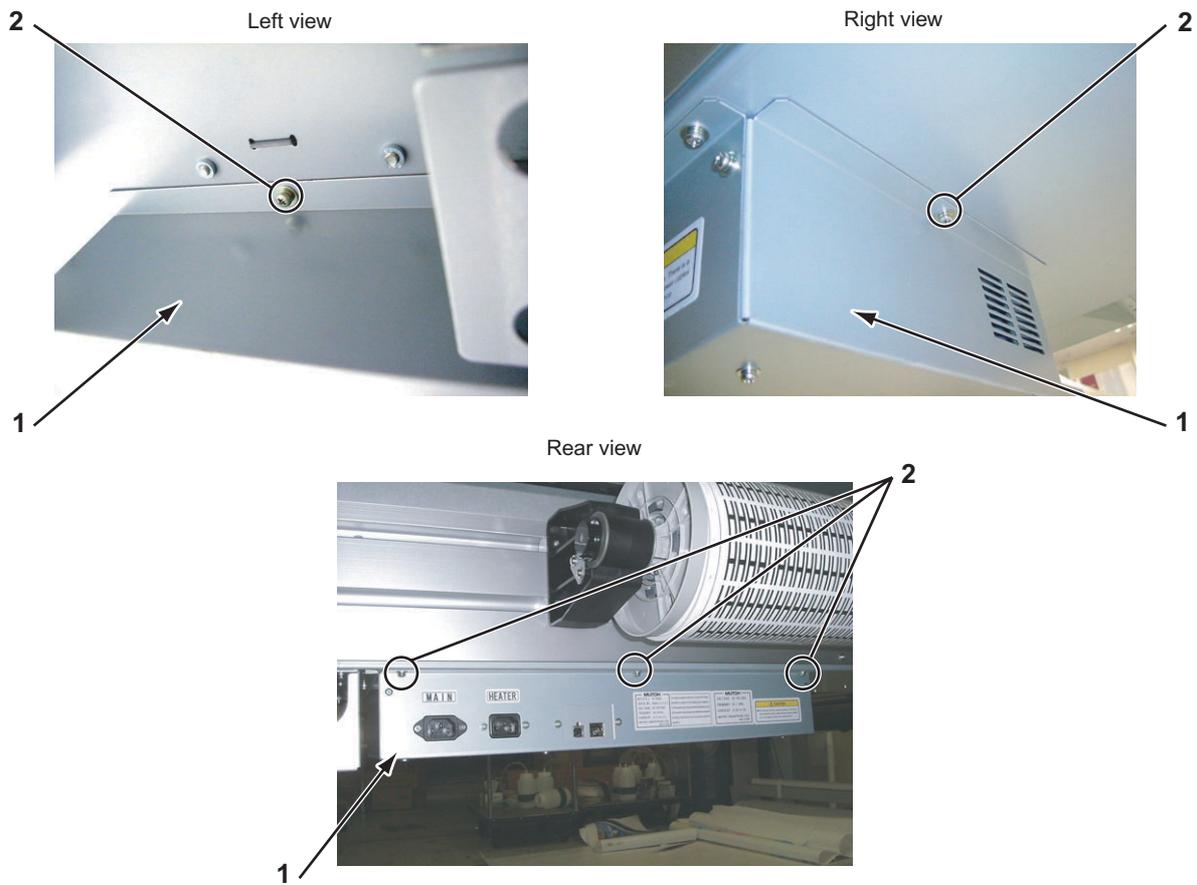
No.	Part name
1	HEATER RELAY board assembly
2	HEATER-CONT board assembly
3	Power board assembly
4	Main board assembly

### 4.4.1 Opening Board Box 64

1. Remove the AC inlet cables (2 pieces), and the other cables (LAN, USB).
2. Remove the screws (5 pieces) that retain the board box 64.



If you remove the screws that retain the board box 64, the box opens downwards because of its weight. Remove the last screw while holding the box by hand, or you may be injured.



No.	Part name
1	Board box 64
2	Screws that retain the board box 64 (pan-head screw with spring washer and flat washer M4 × 8)

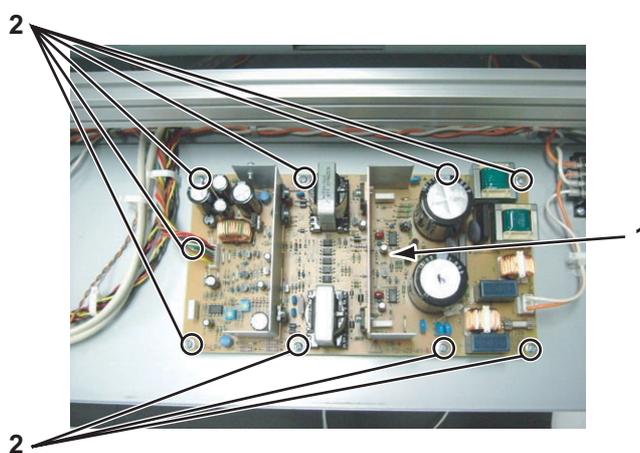
3. Open the board box 64 downwardly.
4. To close the unit, reverse the opening procedure.

### 4.4.2 Replacing Power Board Assembly

**CAUTION**

If the power board assembly needs to be removed, remove the power cable and wait for 5 minutes or more before dismount the assembly; this will discharge the residual electrical charge of the electrolytic capacitor.  
 Touching the board before the capacitor discharges may cause electric shock.

1. Remove the media guide F (upper).  
 ➔ **"4.2.17 Removing Media Guide F (Upper)" p.4-24**
2. Remove the connectors.
3. Remove the screws (9 pieces) that retain power board assembly.



No.	Part name
1	Power board assembly
2	Screws that retain the power board assembly (cup screw M3 × 6)

4. Remove the power board assembly.
5. Replace the power board assembly.
6. To reassemble the unit, reverse the removal procedure.

### 4.4.3 Replacing HEATER CONT Board

**CAUTION**

- Before you replace a board assembly, remove the AC inlet cable. You may suffer electric shock due to standby current.
  - When you handle a circuit board, do not touch any devices on it with bare hands. Doing so may cause electrostatic discharge and damage the devices.
  - When connecting and removing the FFC type cables to/from the MAIN board assembly connectors, always pull or push the cables perpendicularly. Pulling or pushing them slantwise may damage/short/break the terminals in the connectors, causing a breakdown of the on-board devices.
    - The cables can be connected or removed up to 5 times.
- 

1. Remove the media guide F (upper).

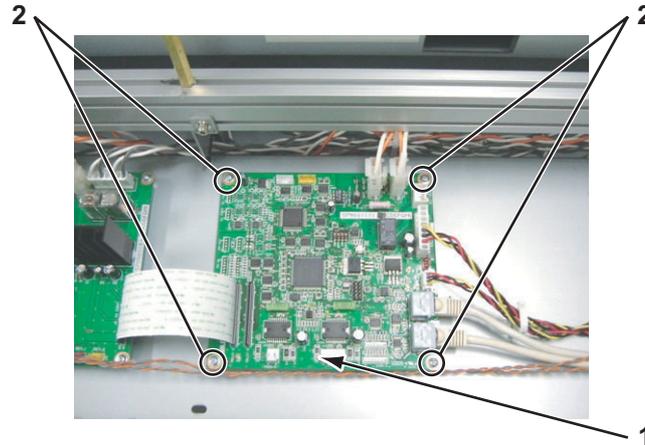
 ["4.2.17 Removing Media Guide F \(Upper\)" p.4-24](#)

2. Detach the connectors listed below from the HEATER CONT board.

Table 4-2 Connectors to HEATER CONT board

No.	Connector No.	# of Pins	Color	Connect to	Remark
1	J1	8	Black	Config CN	
2	J2	2	White	Feeder Motor	
3	J3	6	White	Feeding Unit Sensor	
4	J4	4	White	Roll Motor	
5	J5	7	White	Roll Unit Sensor	
6	J6	40	Black	HEATER RELAY A (J3)	FFC
7	J7	40	Black		Not in use
8	J8	4	White	DC IN [HEATER JUNCTION (J2)]	
9	J9	8	Gray	Communication [HEATER JUNCTION (J3)]	LAN
10	J10	8	Gray	LVS [MAIN (143)]	LAN
11	J11	5	White	Debug	
12	J12	5	Yellow	SMARTCARD	Not in use
13	J13			RSV IN 1	Not in use
14	J14			RSV OUT 1	Not in use
15	J15			RSV OUT 2	Not in use
16	J16			RSV IN 2	Not in use
17	J17			THRM 1	Not in use
18	J18			THRM 2	Not in use
19	J19	8	White	DC IN -> [MAIN J46]	
20	J20	2	White	AC OUT -> DC5V/24V (CN1)	
21	J21	3	Red	POW-ON -> POW [MAIN (J45)]	
22	J22	2	White	AC-IN -> Terminal Stand	
23	J23	2	White	EXT-AC-OUT -> HEATER RELAY A (J1)	

- Remove the screws (4 pieces) that retain the HEATER CONT board.



No.	Part name
1	HEATER CONT board
2	Screws that retain the HEATER CONT board. (cup screw M3 × 6)

- Replace the HEATER CONT board.
- To reassemble the unit, reverse the removal procedure.

#### 4.4.4 Replacing HEATER RELAY Board

##### CAUTION

- Before you replace a board assembly, remove the AC inlet cable. You may suffer electric shock due to standby current.
- When you handle a circuit board, do not touch any devices on it with bare hands. Doing so may cause electrostatic discharge and damage the devices.
- When connecting and removing the FFC type cables to/from the MAIN board assembly connectors, always pull or push the cables perpendicularly. Pulling or pushing them slantwise may damage/short/break the terminals in the connectors, causing a breakdown of the on-board devices.
  - The cables can be connected or removed up to 5 times.

- Remove the Media guide F (upper).

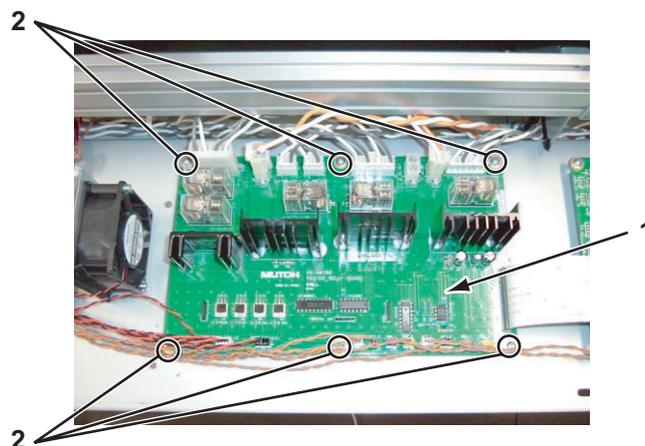
 ["4.2.17 Removing Media Guide F \(Upper\)" p.4-24](#)

2. Detach the connectors listed below from the heater relay board.

Table 4-3 Connectors to Heater Relay Board

No.	Connector No.	# of Pins	Color	Connect to	Remark
1	J1	2	White	EX-AC-OUT [HEATER CONT (J23)]	
2	J2	4	White	Plt_Heat 1	
3	J3	40	Black	HEATER CONT (J6)	FFC
4	J4	2	White		Not in use
5	J5	4	White	Plt_Heat 2	
6	J6	2	White	Inlet (Large)	
7	J7	2	White	Pre_Heat	
8	J8	2	White	Pre_Heat	
9	J9	4	White	Aft_Heat	
10	J10	2	Blue	Cooling FAN	
11	J11	4	White	Vacum FAN (#1, #2)	
12	J12	2	White	Platen_Thrm 1	
13	J13	2	Black	Platen_Thrm 2	
14	J14	4	Black	Vacum FAN (#3, #4)	
15	J15	2	Red	Pre_Thrm 1	
16	J16	2	Yellow	Pre_Thrm 2	
17	J17	3	White	Aft_Thrm 1	
18	J18	3	Black	Aft_Thrm 2	
19	J19	3	Red	Reserve 1 Thrm	
20	J20	3	Yellow	Reserve 2 Thrm	

- Remove the screws (6 pieces) that retain the heater relay board.



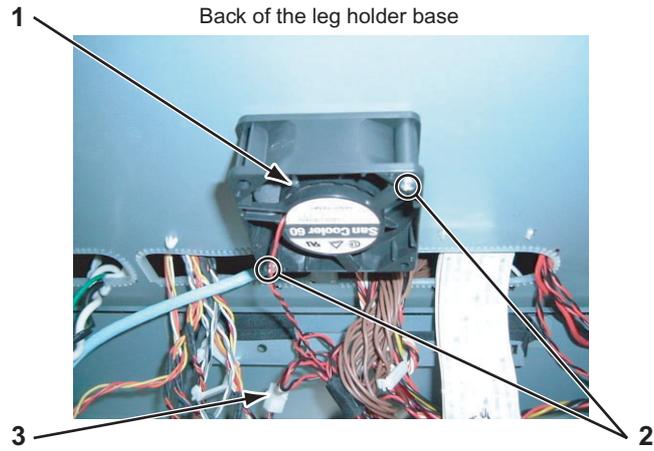
No.	Part name
1	Heater relay board
2	Screws that retain the heater relay board (cup screw M3 × 6)

- Remove the heater relay board.
- Replace the heater relay board.
- To reassemble the unit, reverse the removal procedure.

#### 4.4.5 Replacing Cooling Fan (24V) Assembly (for Main Board)

- Open the board box 64.  
[☞ "4.4.1 Opening Board Box 64" p.4-40](#)
- Detach the connector to the cooling fan (24V) assembly.

3. Remove the screws (2 pieces) that retain the cooling fan (24V) assembly.

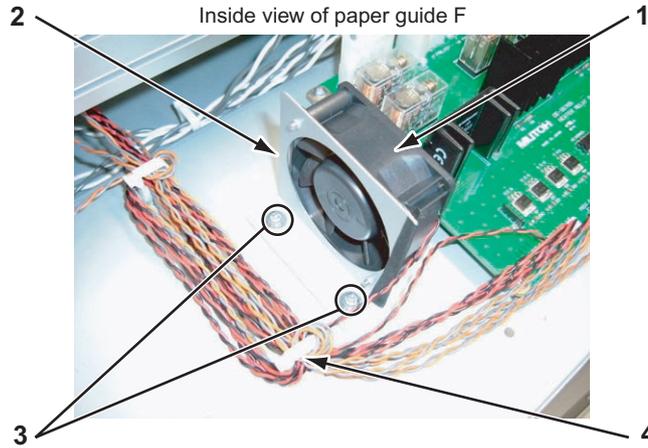


No.	Part name
1	Cooling fan (24V) assembly
2	Screws that retain the cooling fan (24V) assembly (pan-head screw with spring washer and flat washer M3 × 30)
3	Connector to the cooling fan (24V) assembly

- 4. Replace the cooling fan (24V) assembly.
- 5. To reassemble the unit, reverse the removal procedure.

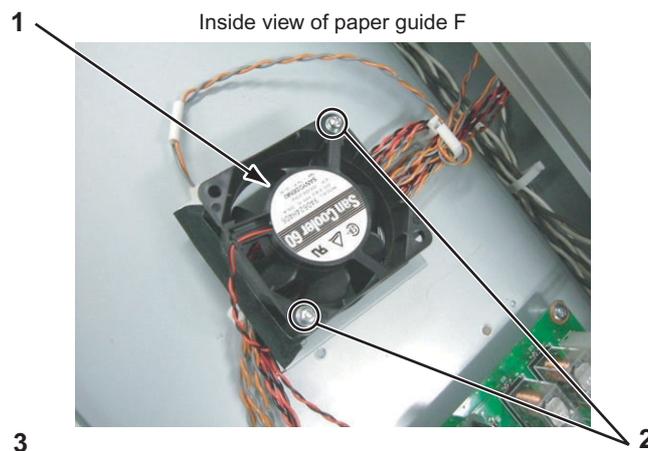
### 4.4.6 Replacing Cooling Fan (24V) Assembly (in Media Guide F)

1. Remove the Media guide F (upper).  
 ↳ "4.2.17 Removing Media Guide F (Upper)" p.4-24
2. Remove the connector to the cooling fan (24V) assembly.
3. Remove the screws (2 pieces) that retain the cooling fan (24V) assembly.



No.	Part name
1	Cooling fan (24V) assembly
2	Cooling fan mounting plate
3	Screws that retain the cooling fan mounting plate (pan-head screw with spring washer and flat washer M4 × 6)
4	Connector to the cooling fan (24V) assembly

4. Remove the cooling fan mounting plate.
5. Remove the screws (2 pieces) that retain the cooling fan (24V) assembly.



No.	Part name
1	Cooling fan (24V) assembly

No.	Part name
2	Screws that retain the cooling fan (24V) assembly (pan-head screw with spring washer and flat washer M3 × 30)

6. Remove the cooling fan (24V) assembly.
7. To reassemble the unit, reverse the removal procedure.

#### 4.4.7 Replacing MAIN Board

##### CAUTION

- Before you replace a board assembly, remove the AC inlet cable.  
You may suffer electric shock due to standby current.
- When you handle a circuit board, do not touch any devices on it with bare hands.  
Doing so may cause electrostatic discharge and damage the devices.

##### NOTE

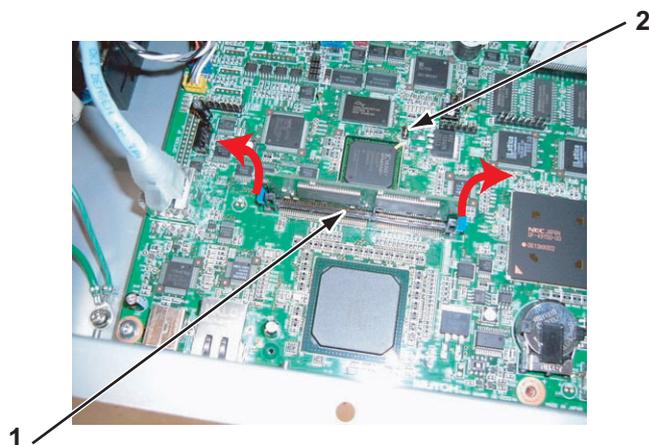
Be sure to back up the parameters before replacing the MAIN board assembly.

 ["7.3.1 Parameter Backup" p.7-7](#)

## (1) Replacing SODIMM

1. Open the board box 64.

 ["4.4.1 Opening Board Box 64" p.4-40](#)



No.	Part name
1	SODIMM
2	Main board assembly

2. Open the lock to both sides.
3. Remove the SODIMM.
4. Replace the SODIMM.

### NOTE

Push in the SODIMM following the notches until click sound occurs.

5. To reassemble the unit, reverse the removal procedure.

## (2) Replacing Main Board Assembly

1. Remove the board box 64.

 ["4.4.1 Opening Board Box 64" p.4-40](#)

2. Remove the SODIMM.

 ["\(1\) Replacing SODIMM" p.4-50](#)

3. Detach the connectors listed below from the MAIN board assembly.

 **CAUTION**

When connecting and removing the FFC type cables to/from the MAIN board assembly connectors, always pull or push the cables perpendicularly. Pulling or pushing them slantwise may damage/short/break the terminals in the connectors, causing a breakdown of the on-board devices.

- The cables can be connected or removed up to 5 times.

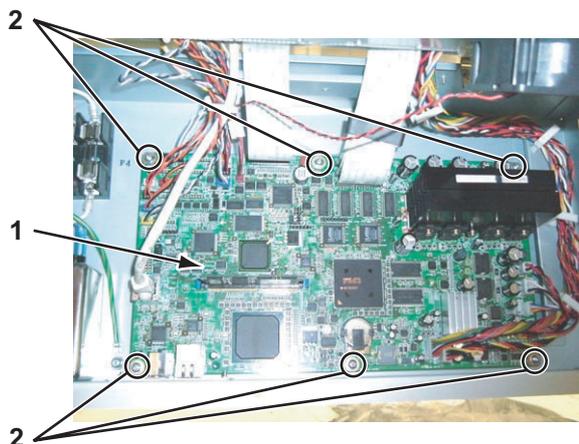
Table 4-4 Connectors to Main Board Assembly

No.	Connector No.	# of Pins	Colors	Connect to	Remark
1	J1	14	White	P/S (CON301)	FFC
2	J2	6	Black	Config_CN	
3	J3	144	Black	SODIMM	
4	J4	6	Black	CLKDV_JTAG	
5	J5	28	Black	PANEL_UNIT	
6	J6	8	Silver	LAN	
7	J7			Option_IF	Not in use
8	J8			Option_IF	Not in use
9	J9	30	Black	CR Board (J206)	FFC
10	J10	30	Black	CR Board (J202)	FFC
11	J11	30	Black	CR Board (J201)	FFC
12	J12	4	White	PF_ENC	
13	J13			USB	
14	J14	8	Black	Maint.Cover_Sensor	
15	J15	8	Blue	Ink_Sensor_C	
16	J16	8	Red	Ink_Sensor_M	
17	J17	8	Yellow	Ink_Sensor_Y	
18	J18				
19	J19				
20	J20	2	White	PF_MT	
21	J21	3	White	CR_MT	
22	J22	4	White	PUMP_MT	
23	J23				

Table 4-4 Connectors to Main Board Assembly (Continued)

No.	Connector No.	# of Pins	Colors	Connect to	Remark
24	J24	3	White	CR_ORG	
25	J25	2	White	Vacum_FAN_1	
26	J26	2	White	Vacum_FAN_1	
27	J27	3	Black	W_ORG	
28	J28	2	Red	Vacum_FAN_3	
29	J29	2	Yellow	Vacum_FAN_4	
30	J130	3	Blue	Lever_up	
31	J31				
32	J32	2	White	COOLING_FAN_1	
33	J33	3	Red	Waste_Fluid_Full_Sensor	
34	J34			COOLING_FAN_2	
35	J35	4	Yellow	Waste_Box_Sensor_L	
36	J36	2	Red	COOLING_FAN_3	
37	J37				
38	J38	3	Yellow	F_Cover_R_Sensor	
39	J39				
40	J40	4	Blue	F_Cover_L_Sensor	
41	J41	5	Black	Debug CN	
42	J42	4	Black	P_REAR_R	
43	J43	8	Silver	LDVS -> [HEATER CONT (J10)]	LAN
44	J44	8	Black	CPLD	
45	J45				Not in use
46	J46	4	White	HEATER CONT (J19)	

4. Remove the screws (6 pieces) that retain the MAIN board assembly.



No.	Part name
1	Main board assembly
2	Screws that retain the MAIN board assembly (cup screw M3 × 6)

5. Remove the MAIN board assembly.
6. Replace the MAIN board assembly.
7. To reassemble the unit, reverse the removal procedure.
8. Install the firmware.  
 🔗 ["7.3.5 Firmware Installation" p.7-12](#)
9. Install the parameters backup.  
 🔗 ["7.3.1 Parameter Backup" p.7-7](#)
10. To reassemble the unit, reverse the removal procedure.

#### 4.4.8 Replacing Fuse

**⚠ CAUTION**

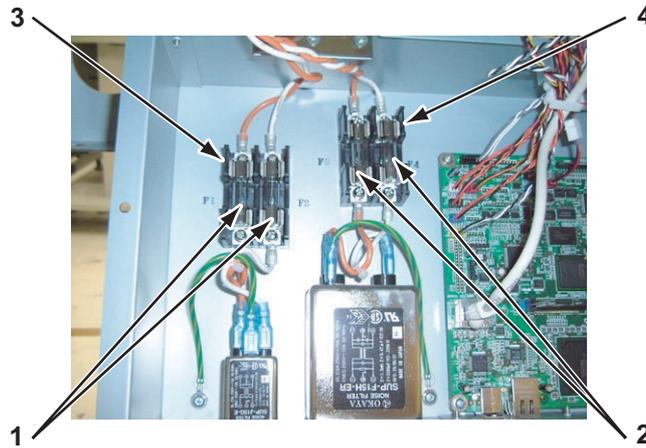
- Remove the AC inlet cable to replace the fuse before performing work. You may suffer electric shock due to standby current.
- When replacing fuses, install the fuse which conforms to the specifications (250V-15A,  $\phi 10.31\text{mm} \times 38.1\text{mm}$ ).
- The double pole/neutral line has a fuse.

1. Open the board box 64.  
 🔗 ["4.4.1 Opening Board Box 64" p.4-40](#)
2. Replace the blown fuses.

- There are two fuses for one power supply (four fuses in total).

**CAUTION**

Don't touch the cap of a fuse with bare hands.



No.	Part name
1	Fuse (main side)
2	Fuse (heater side)
3	Fuse holder (main side)
4	Fuse holder (heater side)

- To reassemble the unit, reverse the removal procedure.

**TIP**

The fuses are called F1, F2, F3, F4 from the left. Each functions as follows.

No.	Function
F1	MAIN LIVE
F2	MAIN NEUTRAL
F3	HEATER LIVE
F4	HEATER NEUTRAL

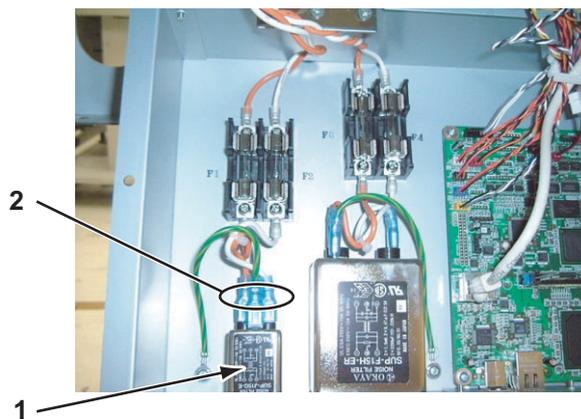
### 4.4.9 Replacing Inlet Assembly

**CAUTION**

- Remove the AC inlet cable to replace the fuse before replacing the AC inlet. You may suffer electric shock due to standby current.

#### (1) Replacing AC Inlet Small (Main Side)

- Open the board box 64.  
 ↳ ["4.4.1 Opening Board Box 64" p.4-40](#)
- Remove the connectors (3 pieces).



No.	Part name
1	AC inlet small
2	Connector

3. Remove the screws (2 pieces) that retain the AC inlet small.



No.	Part name
1	AC inlet small
2	Screws that retain the AC inlet small (countersunk head screw M3 × 6)

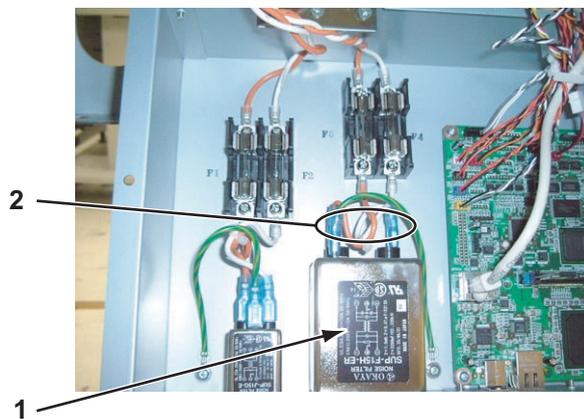
4. Remove the AC inlet small from outside.
5. Replace the AC inlet small.
6. To reassemble the unit, reverse the removal procedure.

(2) Replacing AC Inlet Large (Heater Side)

1. Open the board box 64.

 "4.4.1 Opening Board Box 64" p.4-40

2. Remove the connectors (3 pieces).



No.	Part name
1	AC inlet large
2	Connector

3. Remove the screws (2 pieces) that retain the AC inlet large.



No.	Part name
1	AC inlet large
2	Screws that retain the AC inlet large (pan-head screw with spring washer and flat washer M3 × 8)

4. Remove the AC inlet large from inside.
5. Replace the AC inlet large.
6. To reassemble the unit, reverse the removal procedure.

## 4.5 Replacing Board Base Section (Y Rail Section)

This section describes the procedure to replace the boards in the Y rail section.

### 4.5.1 Replacing Heater Junction Board Assembly

#### CAUTION

- Before you replace a board assembly, remove the AC inlet cable.  
You may suffer electric shock due to standby current.
- When you handle a circuit board, do not touch any devices on it with bare hands.  
Doing so may cause electrostatic discharge and damage the devices.

1. Move the carriage to the opposite side of the origin.  
 ["4.8.1 Releasing Head Lock" p.4-105](#)
2. Remove the side top cover R.  
 ["4.2.6 Removing Side Top Cover R" p.4-12](#)
3. Remove the cartridge cover (upper).  
 ["4.2.9 Removing Cartridge Cover \(Upper\)" p.4-17](#)
4. Detach the connector to the heater junction board assembly.

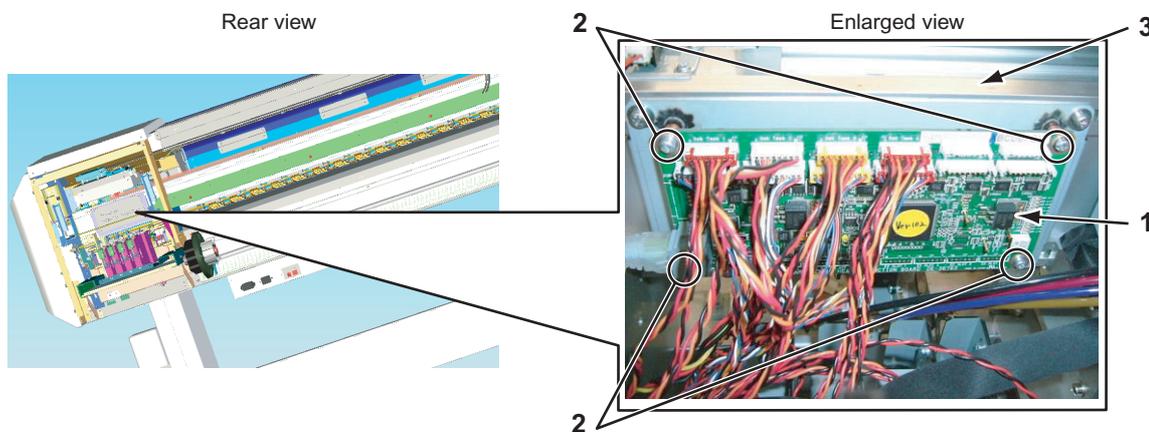
Table 4-5 Connectors to Heater Junction Board Assembly

No.	Connector No.	# of Pins	Color	Connect to	Remark
1	J1			Config CN	
2	J2	4	White	DC IN -> HEATER CONT (J8)	
3	J3			Communication -> HEATER CONT (J9)	LAN
4	J4	10	White	HEATER CONT (J10)	Option
5	J5	10	White	INK SLOT1	
6	J6	10	White	INK SLOT2	
7	J7	10	White	INK SLOT3	
8	J8	10	White	INK SLOT4	
9	J9	10	White		Not in use
10	J10	10	White		Not in use
11	J11	8	White	SubTank1	
12	J12	8	White	SubTank2	
13	J13	8	White	SubTank3	

Table 4-5 Connectors to Heater Junction Board Assembly (Continued)

No.	Connector No.	# of Pins	Color	Connect to	Remark
14	J14	8	White	SubTank4	
15	J15	8	White		Not in use
16	J16	8	White		Not in use
17	J17			EX ACT1	Not in use
18	J18			EX SLOT1	Not in use
19	J19			EX ACT2	Not in use
20	J20			EX SLOT2	Not in use
21	J21			EX ACT3	Not in use
22	J22			EX ACT4	Not in use
23	J23			EX SLOT3	Not in use
24	J24			EX SLOT4	Not in use
25	J25			EX DC OUT	Not in use

5. Remove the screws (4 pieces) that retain the heater junction board assembly.



No.	Part name
1	Heater junction board assembly
2	Screws that retain the heater junction board assembly (cup screw M3 × 6)
3	Y rail assembly

**NOTE**

Use a ratchet to remove the screws that retain the heater junction board assembly.

6. Replace the heater junction board assembly
7. To reassemble the unit, reverse the removal procedure.

## 4.6 Replacing X Rail Section

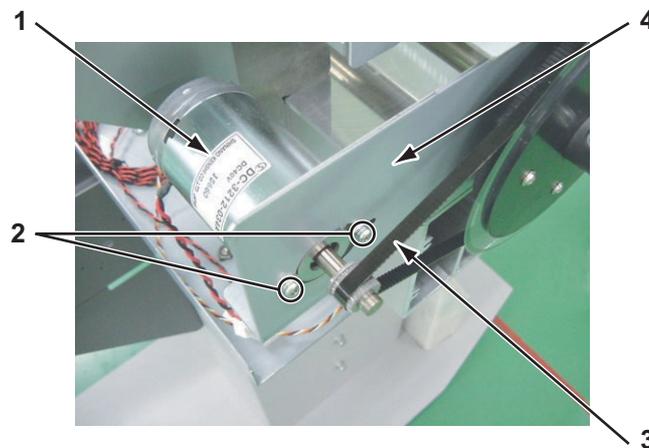
This section describes the procedure to replace the X rail section.

### 4.6.1 Replacing PF Speed Reduction Belt



Do not touch the motor right after starting-up the plotter. Otherwise, you may be burned.

1. Open the maintenance cover L.
2. Remove the side maintenance cover L.  
["4.2.5 Removing Side Maintenance Cover L" p.4-12](#)
3. Remove the rear side cover.  
["4.2.8 Removing Rear Side Cover" p.4-15](#)
4. Loosen the screws (2 pieces) that retain the PF motor.



No.	Part name
1	PF motor
2	Screws that retain the PF motor (pan-head screw with spring washer and flat washer M4 × 8)
3	PF speed reduction belt
4	PF drive mounting plate

5. Confirm that the PF speed reduction belt has been loosened.

6. Detach the PF speed reduction belt.

**NOTE**

When installing the PF motor assembly, ensure that the PF speed reduction belt is evenly guided along the center part of the PF motor assembly pulley by moving the speed reduction pulley by hand.

7. Replace the PF speed reduction belt.
8. Retain the PF motor by pushing the motor backward.
9. Confirm that the PF speed reduction belt is not loosened.
10. To reassemble the unit, reverse the removal procedure.

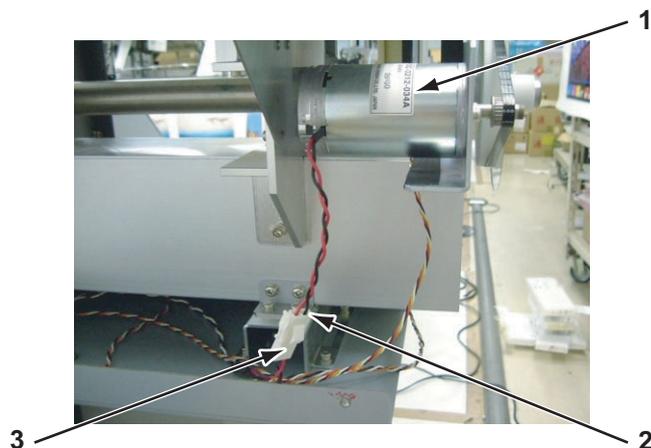
## 4.6.2 Replacing PF Motor Assembly

**CAUTION**

Do not touch the motor right after starting-up the plotter. Otherwise, you may be burned.

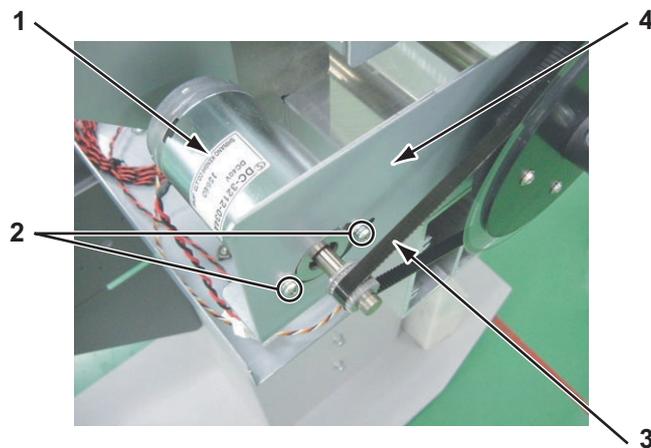
1. Initialize the PF motor counter.  
☞ **"5.11.1 Parameter Initialization Menu" p.5-47**
2. Open the maintenance cover L.
3. Remove the side maintenance cover L.  
☞ **"4.2.5 Removing Side Maintenance Cover L" p.4-12**
4. Remove the rear side cover.  
☞ **"4.2.8 Removing Rear Side Cover" p.4-15**
5. Detach the PF speed reduction belt.  
☞ **"4.6.1 Replacing PF Speed Reduction Belt" p.4-60**

6. Detach the PF motor cable from the motor connector.



No.	Part name
1	PF motor
2	PF motor connector
3	PF motor cable assembly

7. Remove the screws (2 pieces) that retain the PF motor.



No.	Part name
1	PF motor
2	Screws that retain the PF motor (pan-head screw with spring washer and flat washer M4 × 8)
3	PF speed reduction belt
4	PF drive mounting plate

8. Remove the PF motor.

9. Replace the PF motor.

10. Lightly tighten the screws that retain the PF motor.

11. Install the PF speed reduction belt.

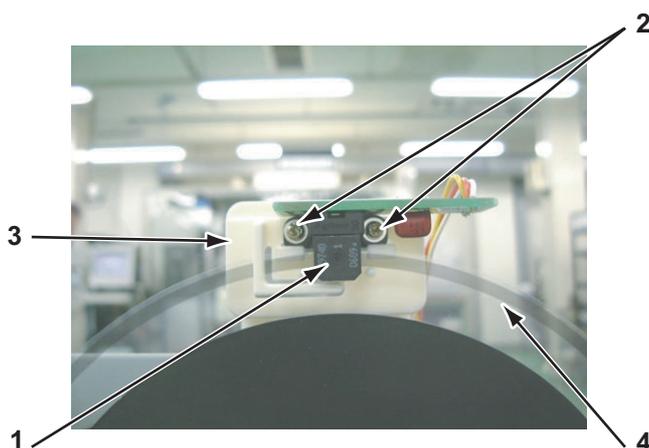
**NOTE**

When installing the PF motor assembly, ensure that the PF speed reduction belt is evenly guided along the center part of the PF motor assembly pulley by moving the speed reduction pulley by hand.

12. Retain the PF motor by pushing the PF motor backward.
13. Confirm that the PF speed reduction belt is not loosened.
14. To reassemble the unit, reverse the removal procedure.

### 4.6.3 Replacing PF Encoder Assembly

1. Remove the side maintenance cover L.  
 🔗 ["4.2.5 Removing Side Maintenance Cover L" p.4-12](#)
2. Remove the screws (2 pieces) that retain the PF encoder assembly.



No.	Part name
1	PF encoder
2	Screws that retain the PF encoder
3	ENC scale holder
4	PF-ENC scale

3. Remove the PF encoder assembly.
4. Replace the PF encoder assembly.

**NOTE**

When reassemble the PF\_ENC assembly and the PF encoder bracket, make sure the embossed notch is in the correct position.

5. Adjust the PF\_ENC scale.

 **"7.5 PF Encoder Assembly Position Adjustment" p.7-25**

6. To reassemble the unit, reverse the removal procedure.

### 4.6.4 Replacing PF\_ENC Scale, PF Speed Reduction Pulley

**NOTE**

While replacing the PF scale assembly, make sure to avoid deforming the PF scale. If it is deformed, image quality may be affected.

1. Remove the side maintenance cover L.

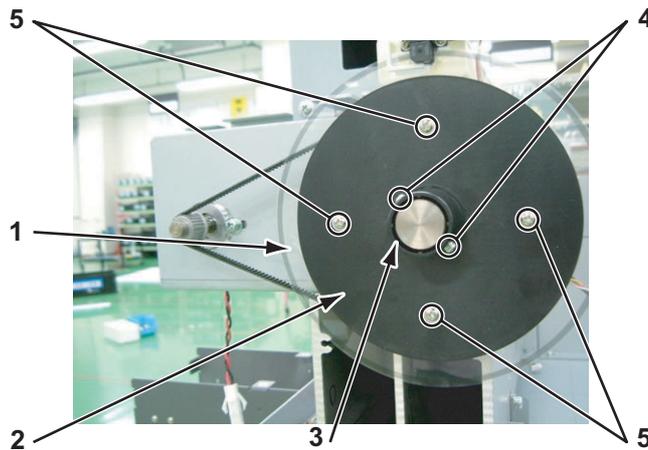
 **"4.2.5 Removing Side Maintenance Cover L" p.4-12**

2. Loosen the PF speed reduction belt.

 **"4.6.1 Replacing PF Speed Reduction Belt" p.4-60**

3. Remove the screws (2 pieces) that retain the PF speed reduction pulley to the PF connection axis.

4. Remove the screws (4 pieces) that retain the PF speed reduction pulley to the PF\_ENC scale.



No.	Part name
1	PF_ENC scale
2	ENC scale holder
3	PF speed reduction pulley
4	Screws that retain the PF speed reduction pulley to the PF connection axis (pan-head screw with spring washer and flat washer M3 × 8)
5	Screws that retain the PF speed reduction pulley to the PF_ENC scale (P tight cup screw M3 × 8)

5. Remove the ENC scale holder.

6. Remove the ENC scale
7. Remove the PF speed reduction belt.
8. Remove the PF speed reduction pulley.
9. Replace the PF speed reduction pulley.
10. Replace the PF\_ENC scale.
11. Adjust the PF\_ENC scale.  
🔧 **"7.5 PF Encoder Assembly Position Adjustment" p.7-25**
12. To reassemble the unit, reverse the removal procedure.

#### 4.6.5 Replacing P\_REAR Sensor Assembly

**TIP**

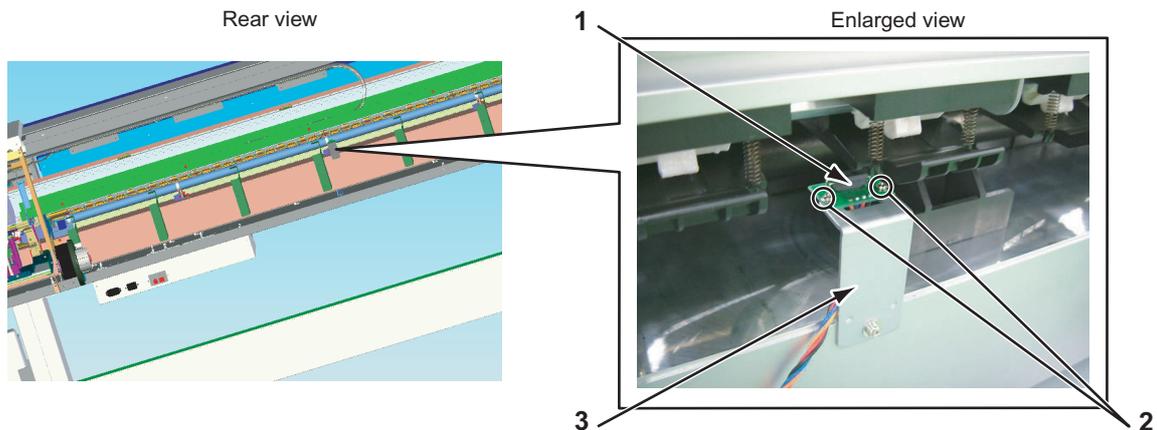
The P\_REAR sensor assembly is located near the center of the X rail (joint part of the grid roller).

1. Remove the media guide R (lower).  
🔧 **"4.2.19 Removing Media Guide R (Lower)" p.4-29**
2. Open the board box 64.  
🔧 **"4.4.1 Opening Board Box 64" p.4-40**
3. Detach the connector (MAIN J42) to the P\_REAR\_R sensor assembly.

**TIP**

The P\_REAR\_R sensor assembly cable is a stranded wire of red, black, blue, and orange.

- Remove the screws (2 pieces) that retain the P\_REAR\_R sensor assembly.

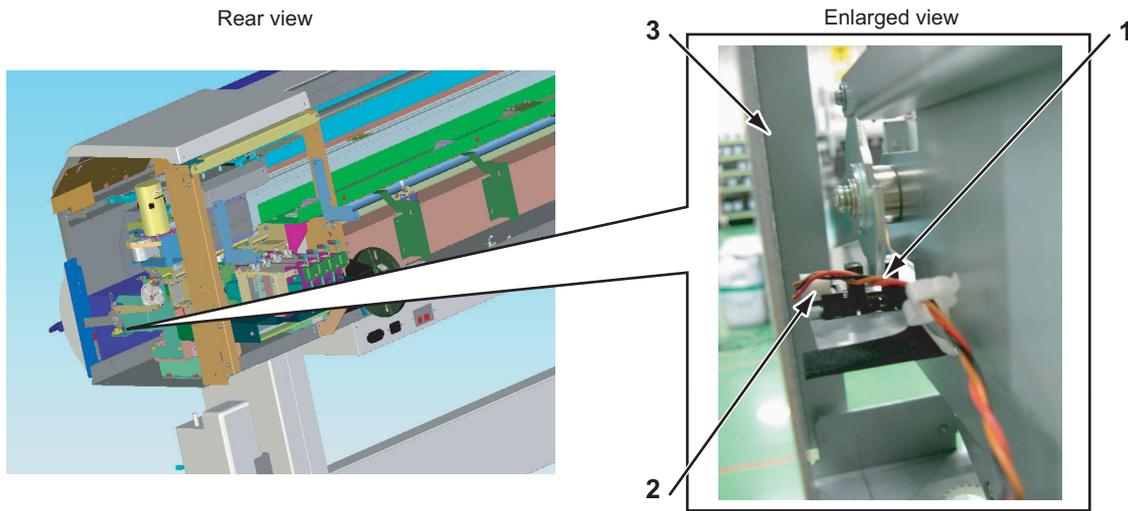


No.	Part name
1	P_REAR_R sensor assembly
2	Screws that retain the P_REAR_R sensor assembly (cup screw M2 × 5)
3	R sensor bracket

- Remove the P\_REAR\_R sensor assembly.
- Replace the P\_REAR\_R sensor assembly.
- To reassemble the unit, reverse the removal procedure.

### 4.6.6 Replacing Lever Up Sensor

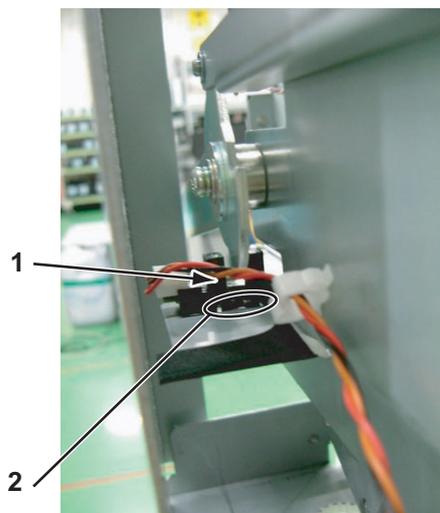
1. Open the maintenance cover.
2. Remove the side maintenance cover R.  
☞ "4.2.4 Removing Side Maintenance Cover R" p.4-11
3. Remove the lever up sensor cable assembly.
4. Remove the lever up sensor assembly.



No.	Part name
1	Lever up sensor cable assembly
2	Lever up sensor assembly
3	Cover stay RR

5. Replace the lever up sensor assembly.

6. Apply adhesive material.



No.	Part name
1	Lever up sensor assembly
2	Adhesive material application surface

7. To reassemble the unit, reverse the removal procedure.

#### 4.6.7 Replacing Heater, Thermistor

##### NOTE

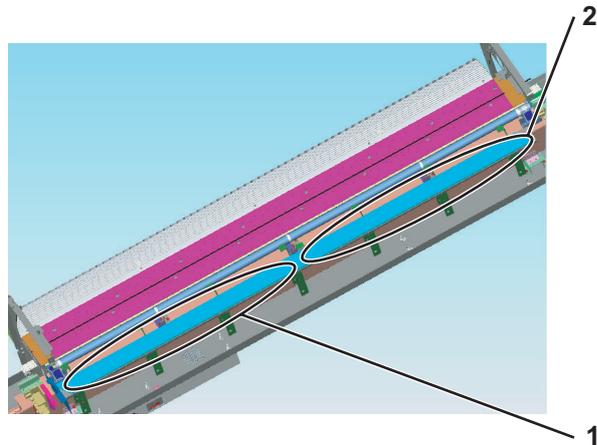
Set the heater to the original position without bending. The surface temperature of the platen changes and printing quality becomes poor if the heater assembly position is set insufficiently.

##### (1) Replacing the Pre-heater, Pre-thermistor

##### NOTE

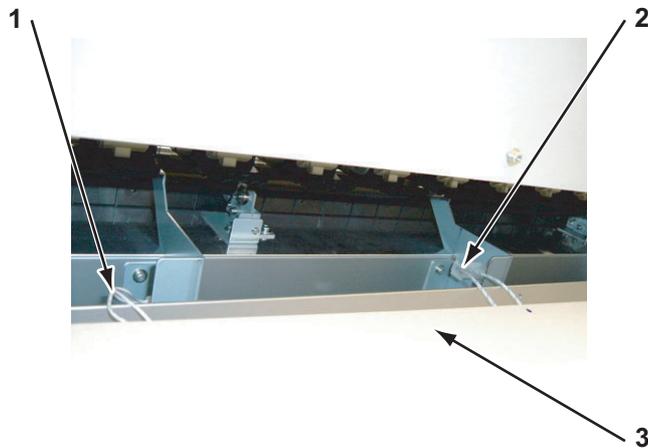
Set the heater to the original position without bending. The surface temperature of the platen changes and printing quality becomes poor if the heater assembly position is set insufficiently.

The pre-heater is arranged as follows.



No.	Part name
1	Pre-heater 1
2	Pre-heater 2

1. Lift up the media guide R (upper).  
 ☞ **"4.2.18 Removing Media Guide R (Upper)" p.4-27**
2. Detach the connectors (2 pieces) to the pre-heater and the connectors (2 pieces) to the pre-thermistor.



No.	Part name
1	Connectors to the pre-heater thermistor
2	Connectors to the pre-heater
3	Media guide R (upper)

- Remove the pre-heater heat insulator from the part where the heater or the thermistor is broken.

**TIP**

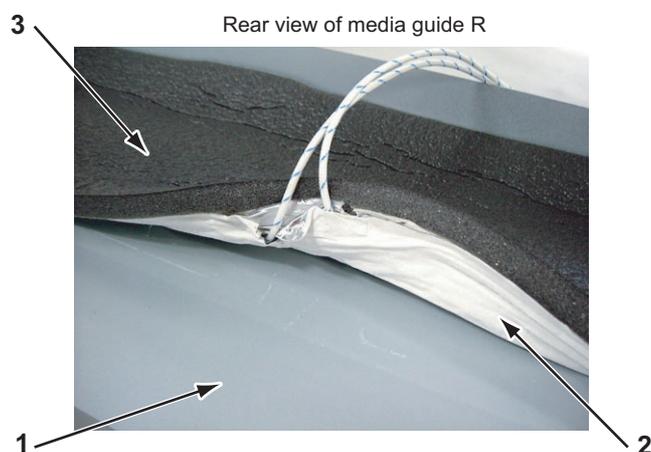
The pre-heater heat insulator and the pre-heater are affixed using double-faced tape.

- Mark the location of the broken pre-heater.

**NOTE**

Affix the pre-heater at the correct position. If not, the temperature of the media guide R cannot be appropriate and image quality may be affected.

- Remove the broken pre-heater.

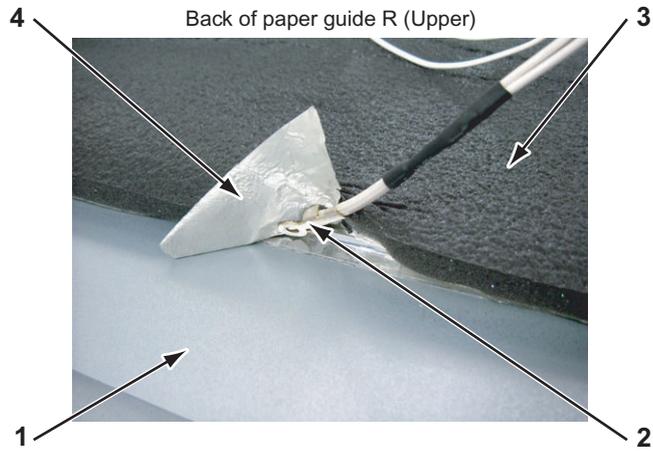


No.	Part name
1	Media guide R (upper)
2	Pre-heater
3	Pre-heater heat insulator

- Replace the pre-heater.
- Remove the thermistor film.
- Remove the pre-thermistor.

**TIP**

The pre-thermistor is affixed using thermistor film.

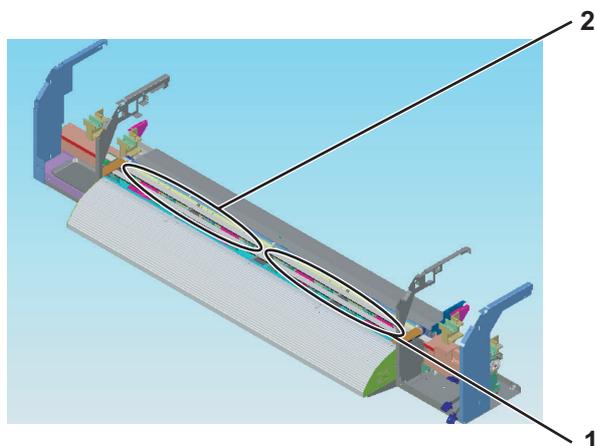


No.	Part name
1	Media guide R (upper)
2	Pre-thermistor
3	Pre-heater heat insulator
4	Thermistor film

9. Remove the pre-thermistor.
10. Replace the pre-thermistor.
11. To reassemble the unit, reverse the removal procedure.

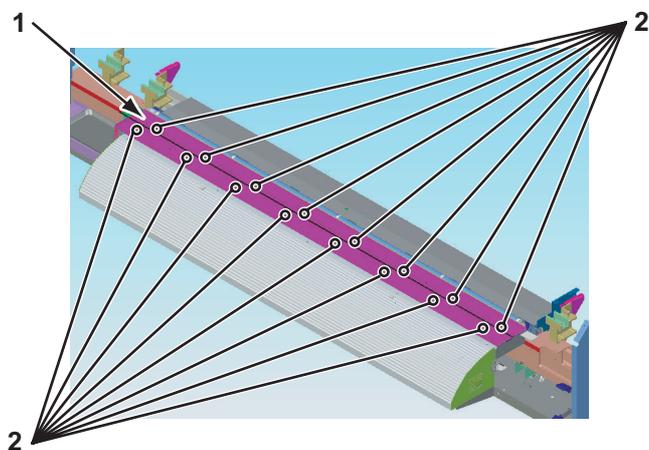
(2) Replacing Platen Heater, Platen Thermistor

The platen heater is arranged as follows.



No.	Part name
1	Platen heater 1
2	Platen heater 2

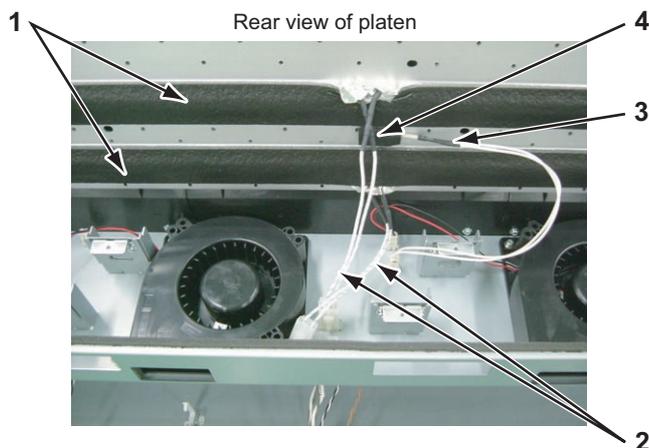
1. Open the front cover.
2. Remove the screws (16 pieces) that retain the platen.



No.	Part name
1	Platen
2	Screws that retain the platen

3. Lift up the platen.

- Remove the connectors (2 pieces) to the platen heater and the connectors (2 pieces) to the platen thermistor.



No.	Part name
1	Heat insulator platen
2	Connectors to the platen heater
3	Connectors to the platen thermistor
4	Heat insulator thermistor

- Remove the heat insulator heater or the heat insulator thermistor from the part where the heater or the thermistor is broken.

**TIP**

The heat insulator platen, the heat insulator thermistor and the platen heater are affixed using double-faced tape.

- Mark the location of the broken platen heater.

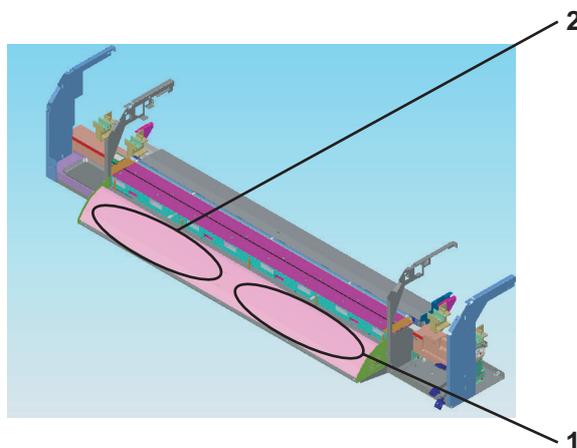
**NOTE**

Affix the platen heater at the correct position. If not, the temperature of the platen cannot be appropriate and image quality may be affected.

- Remove the broken platen heater.
- Replace the platen heater.
- Remove the screw (1 piece) that retains the platen thermistor holder.
- Detach the platen thermistor holder.
- Replace the platen thermistor.
- To reassemble the unit, reverse the removal procedure.

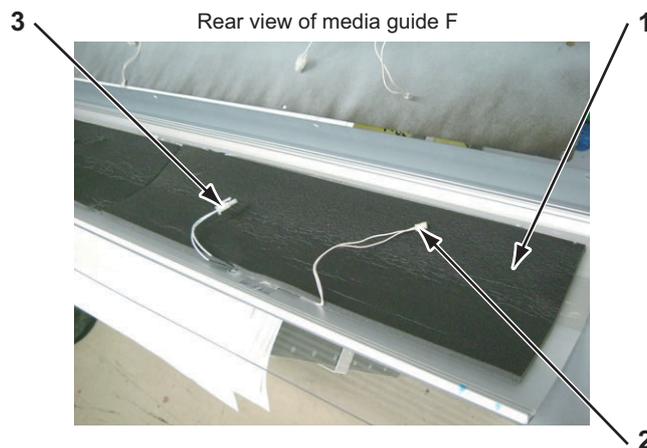
### (3) Replacing After-Heater, After-Thermistor

The after-heater is arranged as follows.



No.	Part name
1	After-heater 1
2	After-heater 2

- Lift up the media guide F (upper).  
 🔧 ["4.2.17 Removing Media Guide F \(Upper\)" p.4-24](#)
- Detach the connectors (2 pieces) to the after-heater and the connectors (2 pieces) to the after-thermistor inside the media guide F (upper).



No.	Part name
1	After-heater heat insulator
2	Connectors to the after-thermistor
3	Connectors to the after-heater

- Remove the media guide F (upper).

- Remove the after-heater heat insulator from the part where the heater or the thermistor is broken.

**TIP**

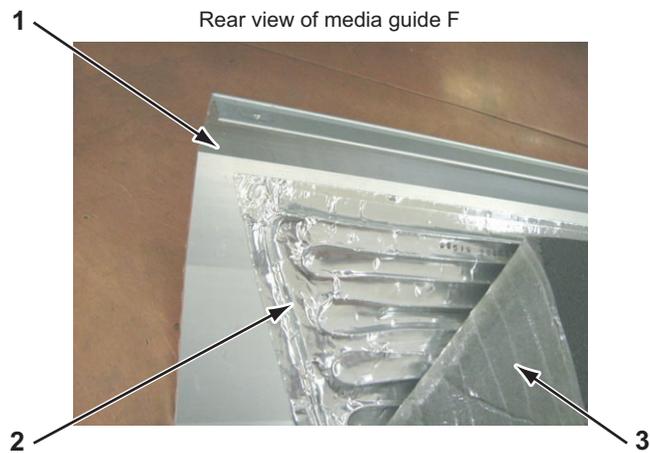
The after-heater heat insulator and the after-heater are affixed using double-faced tape.

- Mark the part where the after-heater is broken.

**NOTE**

Affix the after-heater at the correct position. If not, the temperature of the media guide F (upper) cannot be appropriate and image quality may be affected.

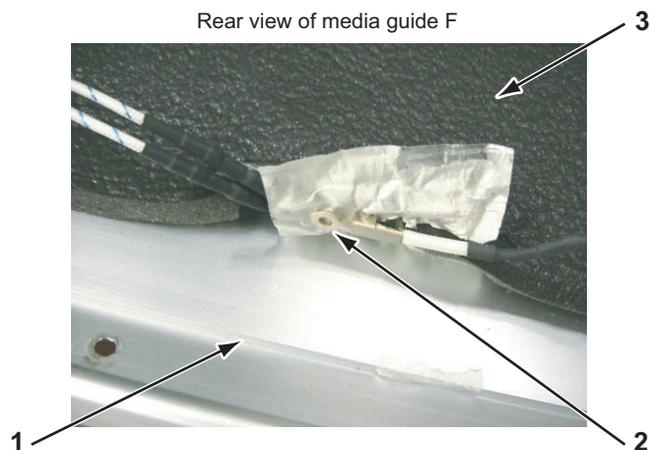
- Remove the broken after-heater.



No.	Part name
1	Media guide F (upper)
2	After-heater
3	After-heater heat insulator

- Replace the after-heater.

8. Remove the after-thermistor.



No.	Part name
1	Media guide F (upper)
2	After-heater thermistor
3	After-heater heat insulator

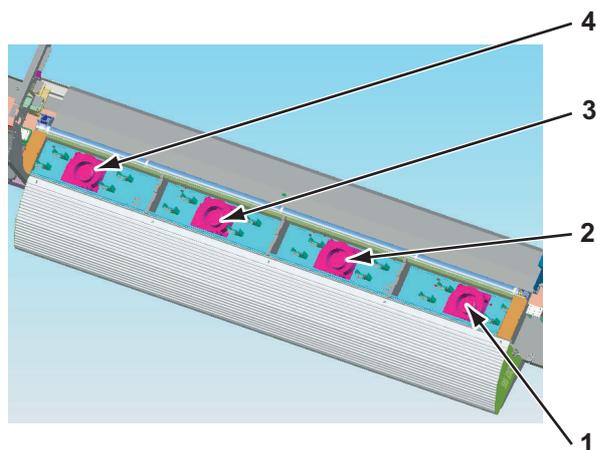
9. Remove the after-thermistor.

10. Replace the after-thermistor.

11. To reassemble the unit, reverse the removal procedure.

### 4.6.8 Replacing Suction Fan

The suction fan is arranged as follows.

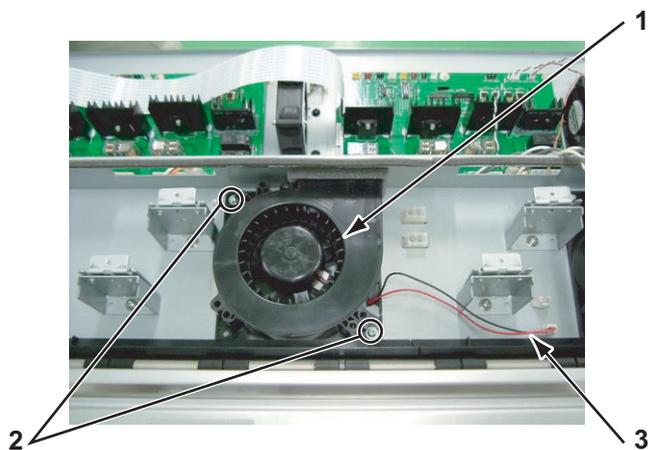


No.	Part name
1	Suction fan 1
2	Suction fan 2
3	Suction fan 3
4	Suction fan 4

1. Remove the platen.

 **"(2) Replacing Platen Heater, Platen Thermistor" p.4-72**

2. Remove the connector to the suction fan.
3. Remove the screws (2 pieces) that retain the suction fan.

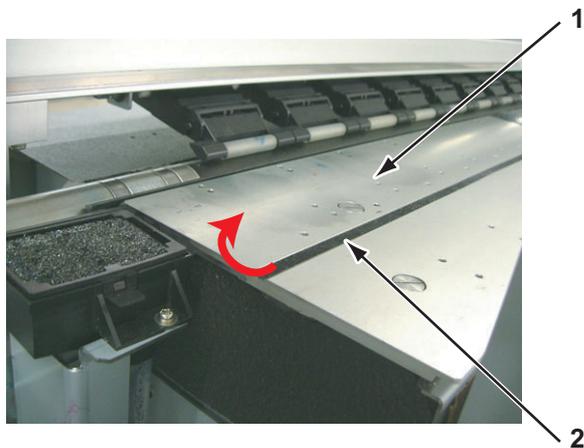


No.	Part name
1	Suction fan
2	Screws that retain the suction fan (pan-head screw with spring washer and flat washer M4 × 10)
3	Connector to the suction fan

4. Remove the suction fan.
5. Replace the suction fan.
6. To reassemble the unit, reverse the removal procedure.

#### 4.6.9 Replacing Platen Non-Reflective Tape

1. Open the front cover.
2. Strip the platen non-reflective tape.



No.	Part name
1	Platen
2	Platen non reflective tape

**NOTE**

Once the platen non-reflective tape is stripped, it must not be reused.

---

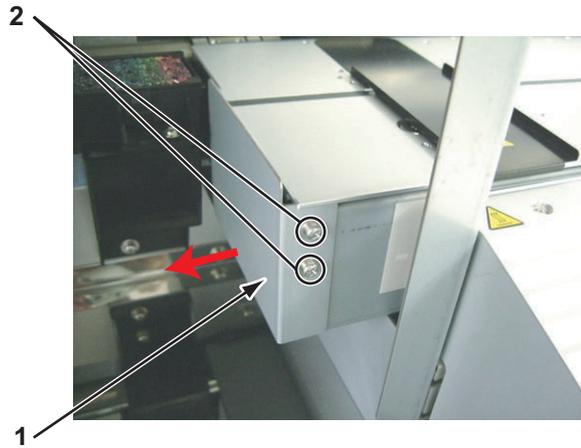
3. Replace the platen non-reflective tape.

#### 4.6.10 Replacing Media Holder

1. Open the front cover.
2. Remove the media guide F (upper).

 ["4.2.17 Removing Media Guide F \(Upper\)" p.4-24](#)

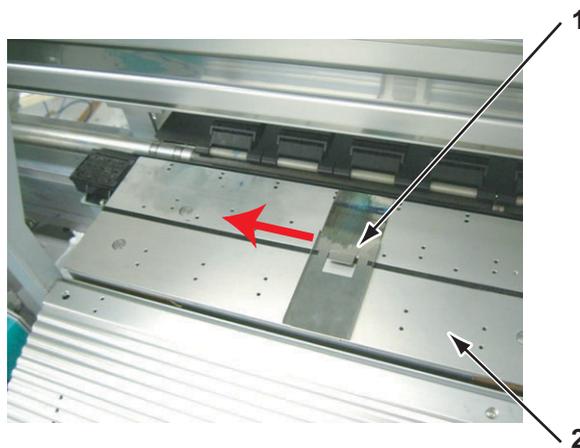
3. Remove the screws (2 pieces) that retain the media holder stopper.



No.	Part name
1	Media holder stopper
2	Screws that retain the media holder stopper (pan-head screw with spring washer and flat washer M3 × 8)

4. Remove the media holder stopper.

5. Pull out the media holder from the left side (the opposite side of the origin).



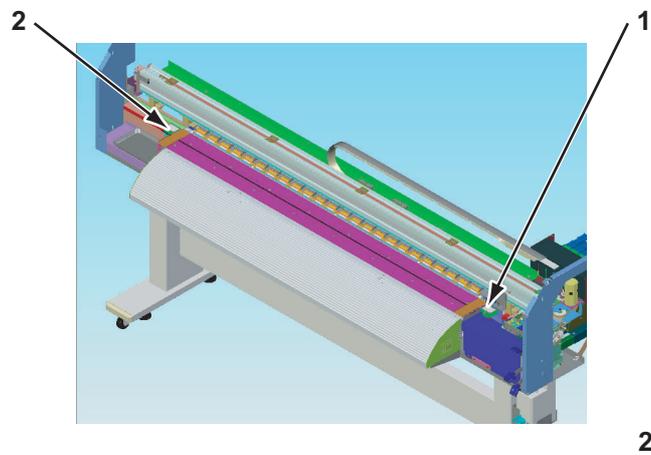
No.	Part name
1	Media holder
2	Platen

6. Replace the media holder.

7. To reassemble the unit, reverse the removal procedure.

### 4.6.11 Replacing Flushing Tray

The flushing tray is arranged as follows.



No.	Part name
1	Flushing tray R
2	Flushing tray L

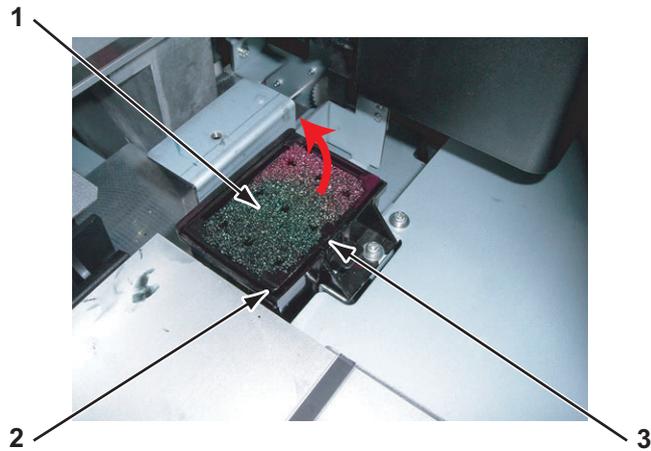


When replacing the flushing tray, wear rubber gloves

#### (1) Replacing Flushing Tray R

1. Open the front cover.
2. Open the maintenance cover R.

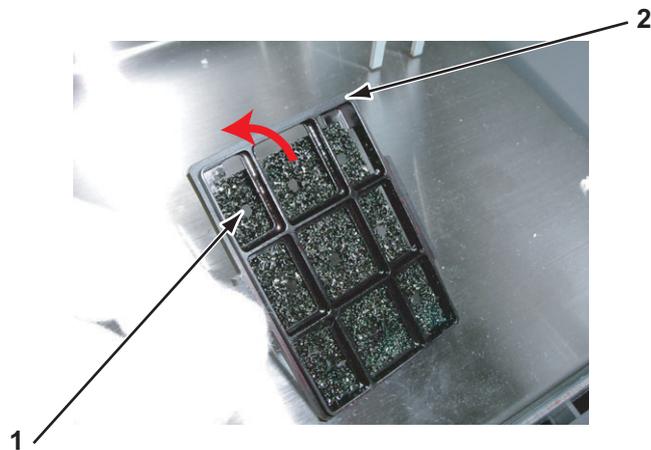
3. Lift up the flushing frame hook.



No.	Part name
1	Flushing tray
2	Flushing frame
3	Flushing frame hook

4. Remove the flushing frame.

5. Detach the flushing tray by pushing the flushing tray from behind the flushing frame.



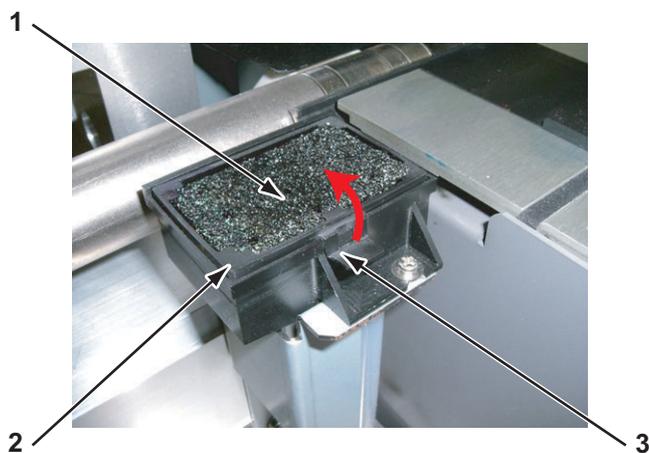
No.	Part name
1	Flushing tray
2	Flushing frame

6. Replace the flushing tray.

7. To reassemble the unit, reverse the removal procedure.

## (2) Replacing Flushing Tray L

1. Open the maintenance cover L.
2. Lift up the flushing frame hook.



No.	Part name
1	Flushing tray
2	Flushing frame
3	Flushing frame hook

3. Remove the flushing frame.
4. Detach the flushing tray by pushing the flushing tray from behind the flushing frame.
5. Replace the flushing tray.
6. To reassemble the unit, reverse the removal procedure.

### 4.6.12 Replacing Flushing Absorber



**CAUTION**

When replacing the flushing absorber, wear rubber gloves.

1. Remove the flushing frame.

☞ ["4.6.11 Replacing Flushing Tray" p.4-80](#)

2. Replace the flushing absorber (3 pieces).



No.	Part name
1	Flushing absorber

**TIP**

The flushing absorbers are three thicknesses.

3. To reassemble the unit, reverse the removal procedure.

## 4.7 Replacing Y Rail Section

This section describes the procedure to replace the Y rail section.

### 4.7.1 Replacing Steel Belt

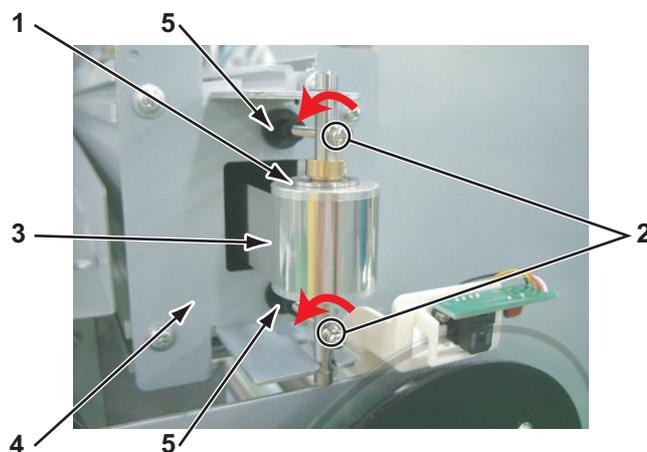
#### **CAUTION**

- When replacing the steel belt, be careful not to cut your hand with the steel belt.
- Steel belt replacement must be done by 2 or more persons.

#### **NOTE**

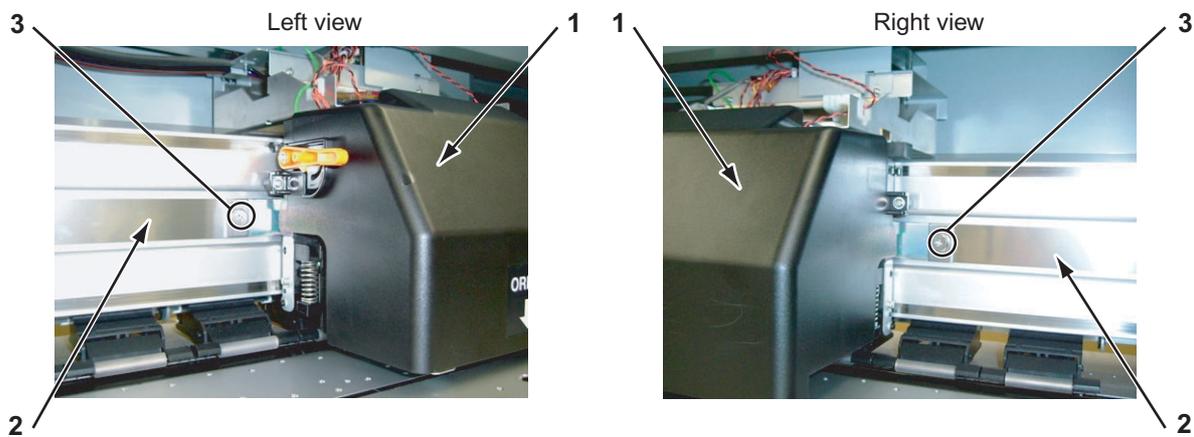
Pay close attention in handling the steel belt. Bending or dust on the steel belt may cause steel belt breakage.

1. Open the maintenance cover R.
2. Open the maintenance cover L.
3. Remove the side top cover R.  
[☞ "4.2.6 Removing Side Top Cover R" p.4-12](#)
4. Remove the side top cover L.  
[☞ "4.2.7 Removing Side Top Cover L" p.4-14](#)
5. Open the front cover.
6. Move the carriage to the left side (opposite side of the origin).  
[☞ "4.8.1 Releasing Head Lock" p.4-105](#)
7. Loosen the steel belt adjustment screws (2 pieces).



No.	Part name
1	CR driven pulley
2	Steel belt adjustment screws (pan-head screw with spring washer and flat washer M3 × 40)
3	Steel belt
4	Return pulley mounting plate
5	Screw cap

8. Remove the screws (2 pieces) that retain the belt.



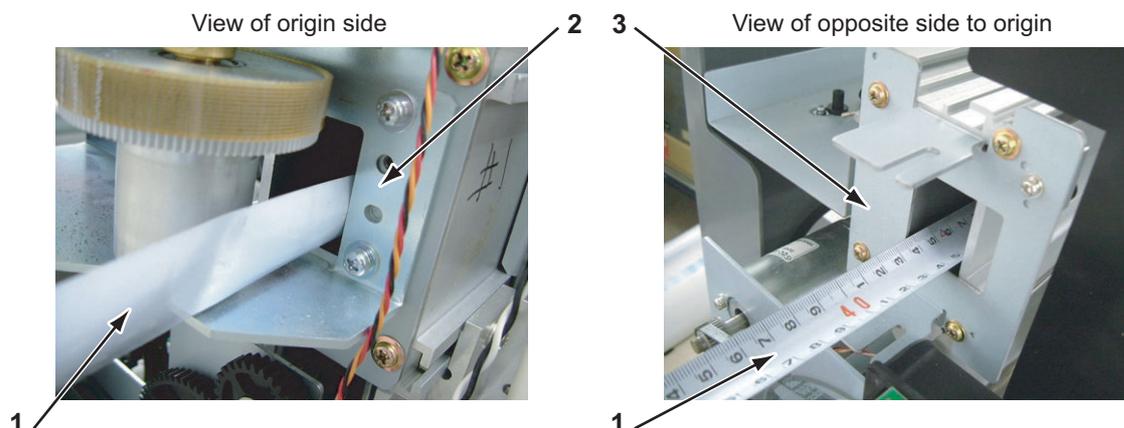
No.	Part name
1	Head cover
2	Steel belt
3	Screws that retain the belt

9. Pull off the steel belt.

10. Remove the CR driven pulley.

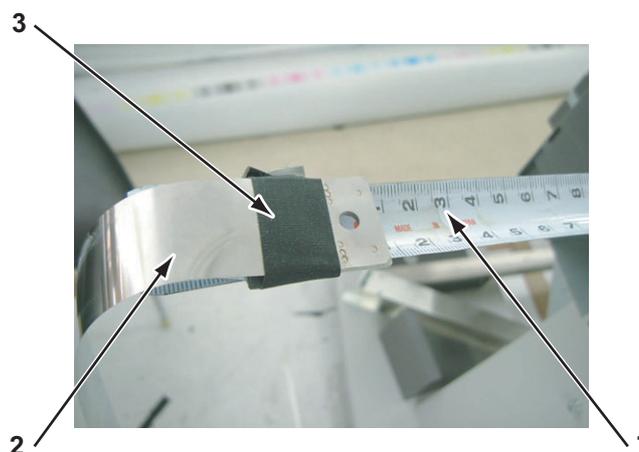
11. Insert the measure through the hole of the Y drive base to the inside of Y rail.

12. Pull out the measure from the hole of the return pulley mounting plate.



No.	Part name
1	Measure
2	Y drive base
3	Return pulley mounting plate

13. Affix the steel belt to the tip of the measure using tape.



No.	Part name
1	Measure
2	Steel belt
3	Tape

14. Wind up the measure with the steel belt affixed to it.

15. Detach the steel belt from the measure after the tip of the measure comes out from the hole of the Y drive base.

16. Affix one side of the steel belt to the right side of the carriage.

17. Install the CR driven pulley.

18. Affix the other side of the steel belt to the left side of the carriage.
19. Adjust the steel belt tension.  
 ["7.4 Steel Belt Tension Adjustment" p.7-22](#)
20. To reassemble the unit, reverse the removal procedure.

## 4.7.2 Replacing CR Motor Assembly



### CAUTION

Do not touch the motor after continuous operation. You may get burned by the motor heated up.

1. Remove the side maintenance cover R.  
 ["4.2.4 Removing Side Maintenance Cover R" p.4-11](#)
2. Remove the side top cover R.  
 ["4.2.6 Removing Side Top Cover R" p.4-12](#)
3. Remove the CR motor cable assembly.

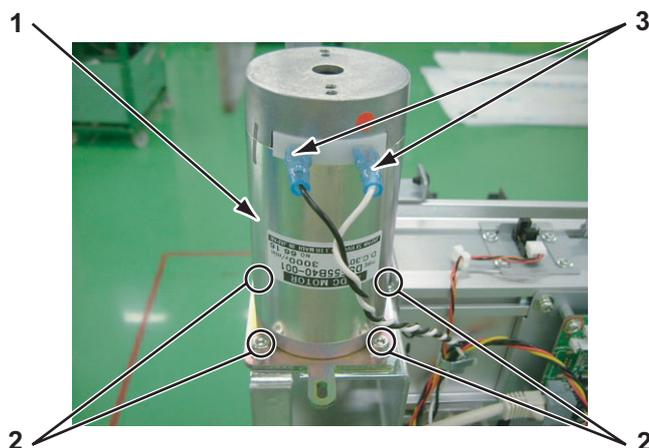
### TIP

Connect the white cable of the CR motor cable assembly to the side of the CR motor assembly where the red seal is affixed.

The polarity of the CR motor assembly and CR motor cable assembly is as follows.

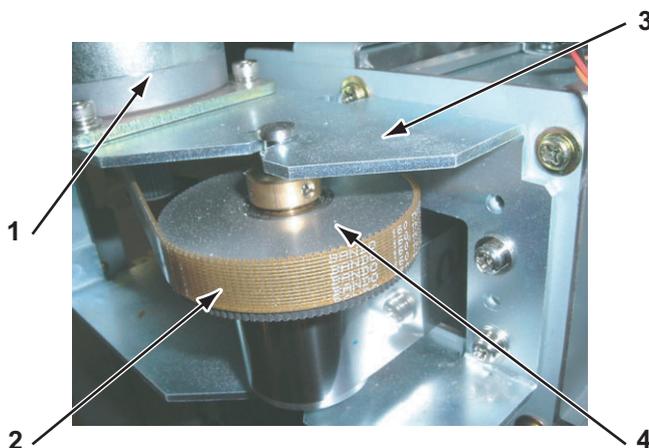
- Red seal: +
- White cable: +
- Black cable: -

4. Loosen the hexagon socket screws (4 pieces) that retain the CR motor assembly.



No.	Part name
1	CR motor assembly
2	CR motor spacer
3	Hexagon socket screws (M4 × 6)
4	CR motor cable assembly

5. Confirm that the CR speed reduction belt is loosened.



No.	Part name
1	CR motor assembly
2	CR speed reduction belt
3	Y drive base
4	CR drive pulley

6. Remove the CR speed reduction belt.

7. Remove the hexagon socket screws (4 pieces) that retain the CR motor assembly.

8. Remove the CR motor assembly.

- Replace the CR motor assembly.

**NOTE**

When installing the CR motor assembly, ensure that the steel belt is evenly guided along the center part of the CR motor assembly pulley by moving the carriage by hand.

- Adjust the CR speed reduction belt tension.

☞ ["7.6 CR Speed Reduction Belt Tension Adjustment" p.7-27](#)

- To reassemble the unit, reverse the removal procedure.

### 4.7.3 Replacing CR Drive Pulley Assembly

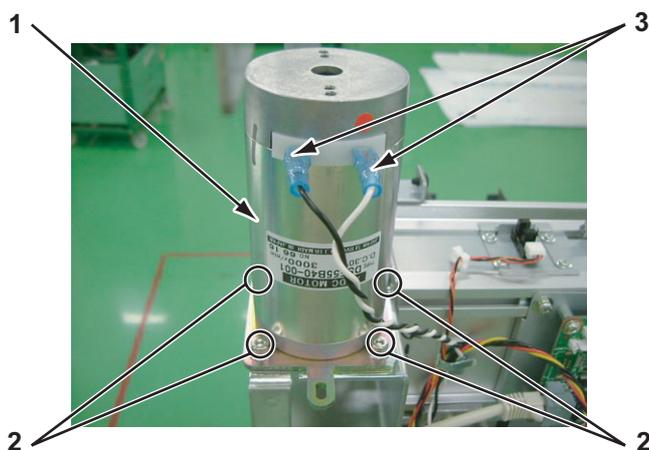
- Remove the side maintenance cover R.

☞ ["4.2.4 Removing Side Maintenance Cover R" p.4-11](#)

- Remove the side top cover R.

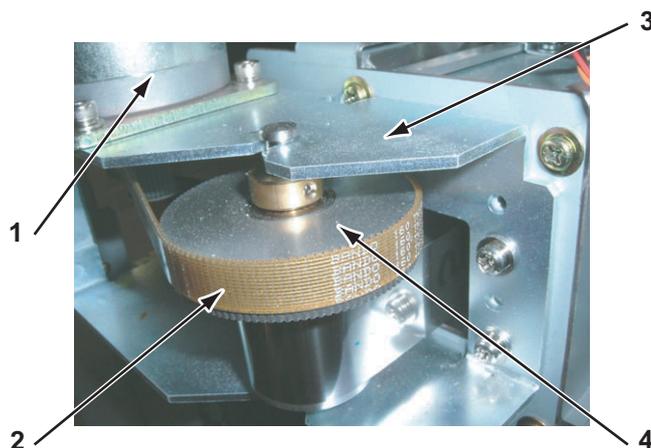
☞ ["4.2.6 Removing Side Top Cover R" p.4-12](#)

- Loosen the hexagon socket screws (4 pieces) that retain the CR motor assembly to loosen the CR speed reduction belt.



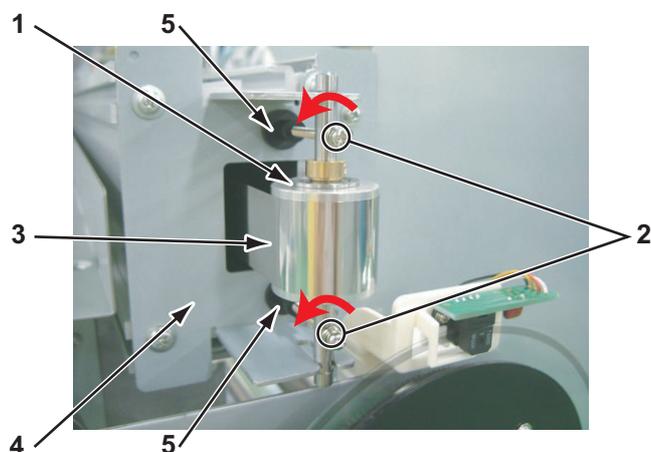
No.	Part name
1	CR motor assembly
2	Hexagon socket screws (M4 × 6)
3	CR motor cable assembly

4. Confirm that the CR speed reduction belt is loosened.



No.	Part name
1	CR motor assembly
2	CR speed reduction belt
3	Y drive base
4	CR drive pulley

5. Loosen the steel belt adjustment screws (2 pieces).



No.	Part name
1	CR driven pulley
2	Steel belt adjustment screws (pan-head screw with spring washer and flat washer M3 × 40)
3	Steel belt
4	Return pulley mounting plate

6. Remove the CR drive pulley.

7. Remove the CR speed reduction belt.
8. Replace the CR drive pulley assembly.

**NOTE**

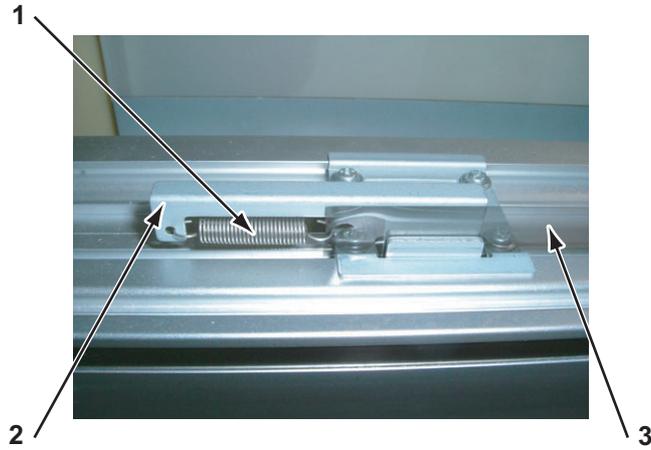
- The parts accompanied when removing the CR drive pulley are collectively called CR drive pulley assembly.
- When replacing the CR speed reduction belt, reuse the CR drive pulley assembly that is currently used.

9. To reassemble the unit, reverse the removal procedure.
10. Adjust the CR speed reduction belt tension.  
☞ **"7.6 CR Speed Reduction Belt Tension Adjustment" p.7-27**
11. Adjust the steel belt tension.  
☞ **"7.4 Steel Belt Tension Adjustment" p.7-22**

#### 4.7.4 Replacing T Fence

1. Open the maintenance cover R.
2. Open the maintenance cover L.
3. Remove the side top cover R.  
☞ **"4.2.6 Removing Side Top Cover R" p.4-12**
4. Remove the side top cover L.  
☞ **"4.2.7 Removing Side Top Cover L" p.4-14**
5. Open the front cover.
6. Move the carriage to the left side (opposite side of the origin)  
☞ **"4.8.1 Releasing Head Lock" p.4-105**
7. Detach the T fence spring from the T fence spring hook in the left side of the Y rail (opposite side of the origin).

8. Detach the T fence from the T fence spring.



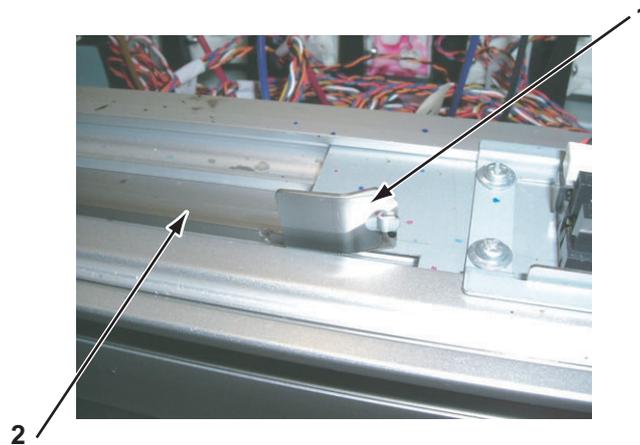
No.	Part name
1	T fence spring
2	T fence spring hook
3	T fence

9. Detach the T fence from the T fence guide plate (3 pieces).



No.	Part name
1	T fence guide plate
2	T fence

10. Detach the T fence from the hook of the T fence clamping plate.



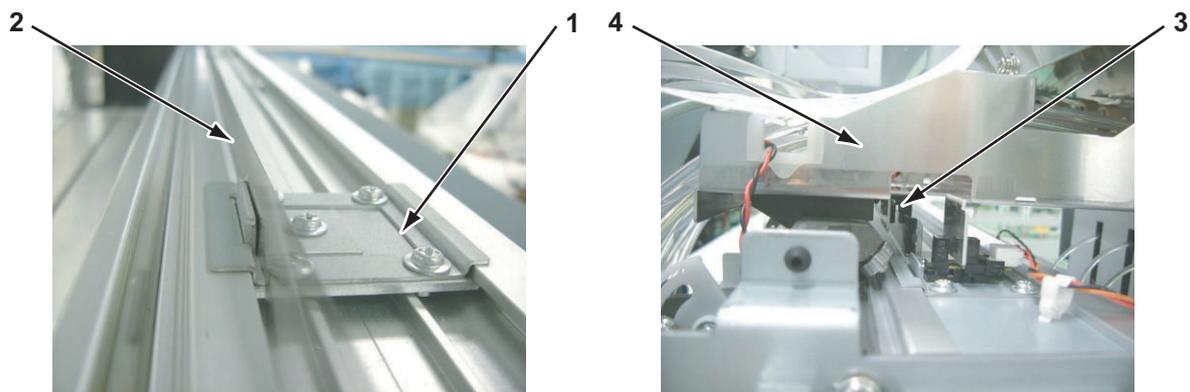
No.	Part name
1	T fence clamping plate
2	T fence

11. Replace the T fence.

#### NOTE

When assembling the T fence, make sure to follow the instructions below.

- If the T fence is coated with protective film, remove the film and attach the T fence correctly.
- Correctly attach the T fence to the hook on the T fence bracket referring to the figure for step 8.
- Allow a margin between the T fence and the hook of the clamping plate.
- When retaining the clamping plate with screws, allow a margin so that the T fence can slightly move.
- Referring to the following figures, insert the T fence in the T fence guide plate and CR\_ENC assembly.



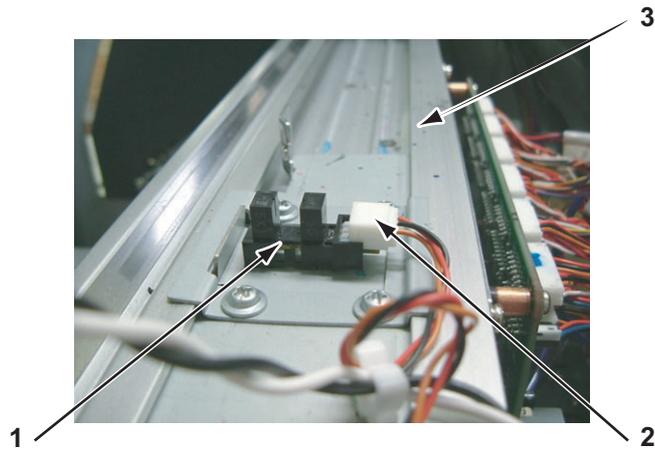
No.	Part name
1	T fence guide plate
2	T fence
3	CR_ENC assembly
4	Carriage

12. To reassemble the unit, reverse the removal procedure.

#### 4.7.5 Replacing CR Origin Sensor

1. Open the maintenance cover R.
2. Remove the side top cover R.  
[☞ "4.2.6 Removing Side Top Cover R" p.4-12](#)
3. Move the carriage to the left side (opposite side of the origin)  
[☞ "4.8.1 Releasing Head Lock" p.4-105](#)
4. Remove the CR\_ORG cable assembly.

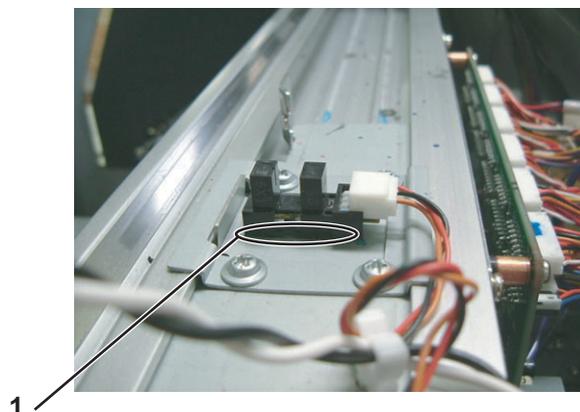
5. Remove the CR origin sensor.



No.	Part name
1	CR origin sensor
2	CR_ORG cable assembly
3	Y rail

6. Replace the CR origin sensor.

7. Apply adhesive material.



No.	Part name
1	Adhesive material application surface

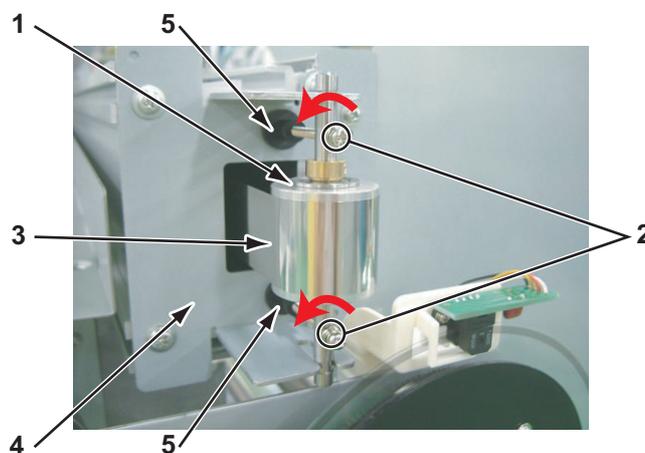
8. To reassemble the unit, reverse the removal procedure.

### 4.7.6 Replacing CR Driven Pulley

#### NOTE

After installing the CR driven pulley, always ensure that the steel belt is evenly guided along the center part of the CR motor assembly pulley by moving the carriage left and right by hand.

1. Remove the side maintenance cover L.  
☞ "4.2.5 Removing Side Maintenance Cover L" p.4-12
2. Remove the Side top cover L.  
☞ "4.2.7 Removing Side Top Cover L" p.4-14
3. Remove the steel belt adjustment screws (2 pieces).



No.	Part name
1	CR driven pulley
2	Adjustment screws (pan-head screw with spring washer and flat washer M3 × 40)
3	Steel belt
4	Return pulley mounting plate
5	Screw cap

4. Confirm that the steel belt is loosened.
5. Remove the CR driven pulley.
6. Remove the screw caps (2 pieces).
7. Replace the CR driven pulley assembly.

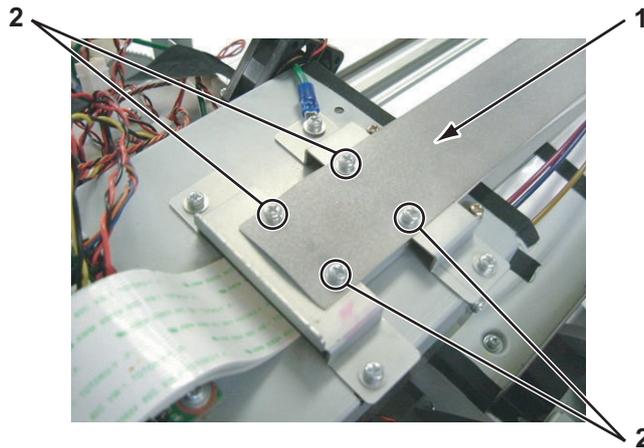
**NOTE**

Seven parts are accompanied when removing the CR drive pulley. They are collectively called CR driven pulley assembly except for the screw caps.

- 8. To reassemble the unit, reverse the removal procedure.
- 9. Adjust the steel belt tension.  
 ↳ ["7.4 Steel Belt Tension Adjustment" p.7-22](#)

### 4.7.7 Replacing Steel Bearer

- 1. Remove the Side top cover R.  
 ↳ ["4.2.6 Removing Side Top Cover R" p.4-12](#)
- 2. Remove the rear top cover.  
 ↳ ["4.2.15 Removing Rear Top Cover" p.4-21](#)
- 3. Remove the screws (4 pieces) that retain the steel bearer.



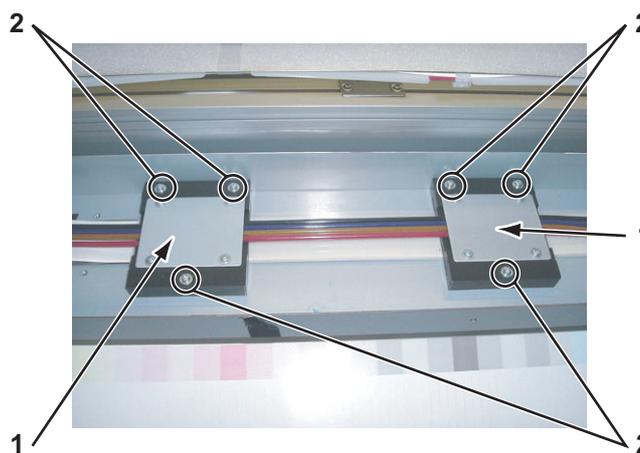
No.	Part name
1	Steel bearer
2	Screws that retain the steel bearer (pan-head screw with spring washer and flat washer M3 × 6)

4. Remove the film FFC retainers (6 pieces).



No.	Part name
1	Steel bearer
2	Film FFC retainer

5. Remove the screws (3 pieces each) that retain the cable guides (2 pieces).



No.	Part name
1	Cable guide
2	Screws that retain the cable guide (pan-head screw with spring washer and flat washer M3 × 18)

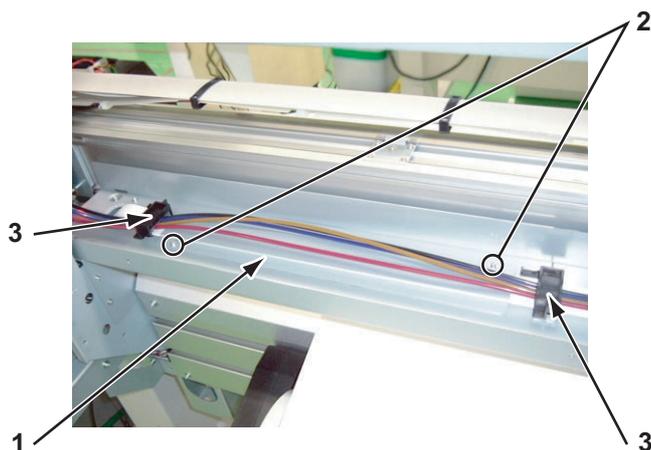
6. Remove the cable guide.
7. Remove the steel bearer.
8. Replace the steel bearer.
9. To reassemble the unit, reverse the removal procedure.

### 4.7.8 Replacing CR Tape Wire

**CAUTION**

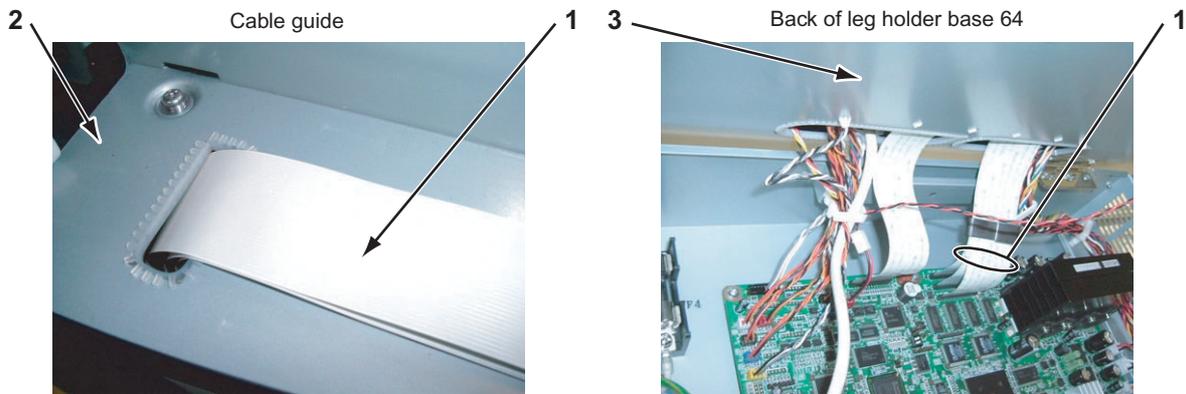
- When replacing the board or connecting and removing FFC, first remove the power plug and leave it for a while. Overcurrent may occur and damage the board.
- When connecting and removing the FFC type cables to/from the CR board assembly connectors, always pull or push the cables perpendicularly to the connector. Pulling or pushing them slantwise may damage/short/break the terminals in the connectors, resulting in a breakdown of the on-board devices.
  - The cables can be connected or removed up to 5 times.

1. Remove the CR cover.  
 ↳ "4.8.2 Removing CR Board Cover" p.4-106
2. Remove the steel bearer.  
 ↳ "4.7.7 Replacing Steel Bearer" p.4-97
3. Remove the board box cover 64.  
 ↳ "4.4.1 Opening Board Box 64" p.4-40
4. Detach CR-FFC (3 pieces) from the CR board assembly (J201 - J203).]
5. Detach CR-FFC (3 pieces) from the MAIN board assembly (J9 - J11).
6. Remove the screws (2 pieces) that retain the FFC guide (1 piece).
7. Remove the FFC guide.
8. Remove the FT guide material.



No.	Part name
1	FFC guide
2	Screws that retain the FFC guide (pan-head screw with spring washer and flat washer M3 × 6)
3	FT guide

9. Pull out the CR\_FFC from the hole on the origin side of the cable guide.
10. Pull out the CR\_FFC from the hole on the leg holder base (64).

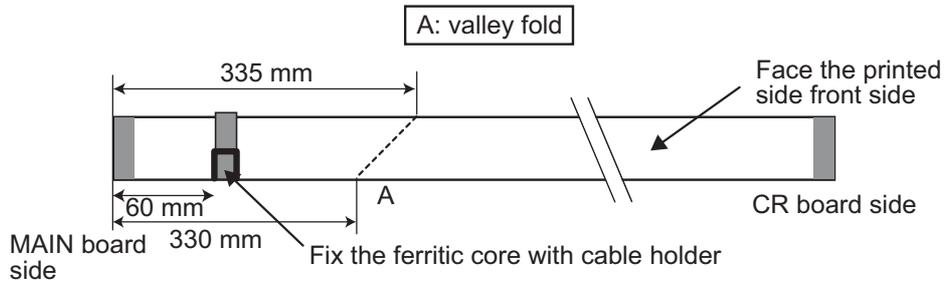


No.	Part name
1	CR_FFC
2	Cable guide
3	Leg holder base (64)

11. Replace the CR\_FFC.

**TIP**

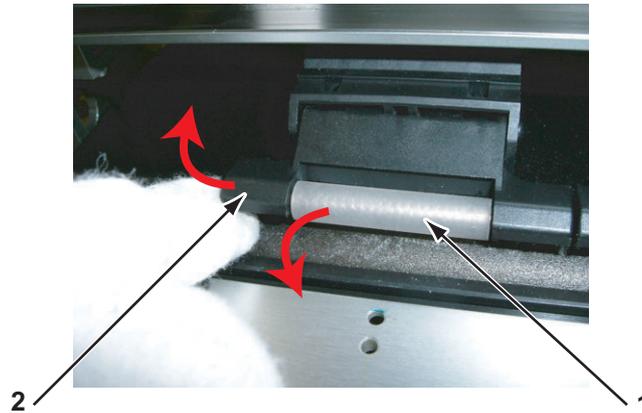
Fold the CR\_FFC as follows.



12. Connect the CR\_FFC (3 pieces) to the CR board assembly (J201 - J203).
13. Draw the CR\_FFC through the same path as above.
14. Connect the CR\_FFC to the MAIN board assembly (J9 - J11).
15. To reassemble the unit, reverse the removal procedure.

### 4.7.9 Replacing Pressure Roller

1. Open the front cover.
2. Lift up one end of the pressure arm slightly with a finger and hold it.
3. Pull down the other end of the pressure roller.



No.	Part name
1	Pressure roller
2	Pressure arm

4. Confirm that one end of the pressure roller is detached.
5. Pull down the other end of the pressure roller.
6. Remove the pressure roller.
7. Replace the pressure roller.
8. To reassemble the unit, reverse the removal procedure.

### 4.7.10 Replacing Ink Tube

1. Perform ink discharge operation to discharge ink entirely from the ink paths.

☞ ["5.7.8 HeadWash Menu" p.5-40](#)

2. Remove the rear top cover.

☞ ["4.2.15 Removing Rear Top Cover" p.4-21](#)

3. Remove the cartridge cable cover plate.

☞ ["4.10.1 Replacing Ink ID Board Assembly" p.4-125](#)

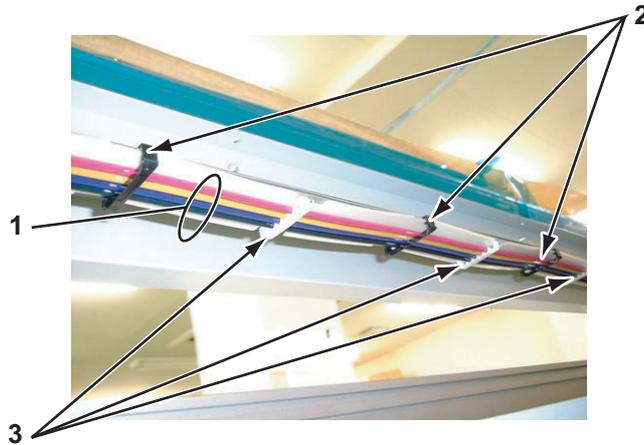
4. Remove the screws (4 pieces each) that retain the tube guide plate.



No.	Part name
1	Cable guide plate
2	Screws that retain the cable guide plate (P tight cup screws M3 × 8)

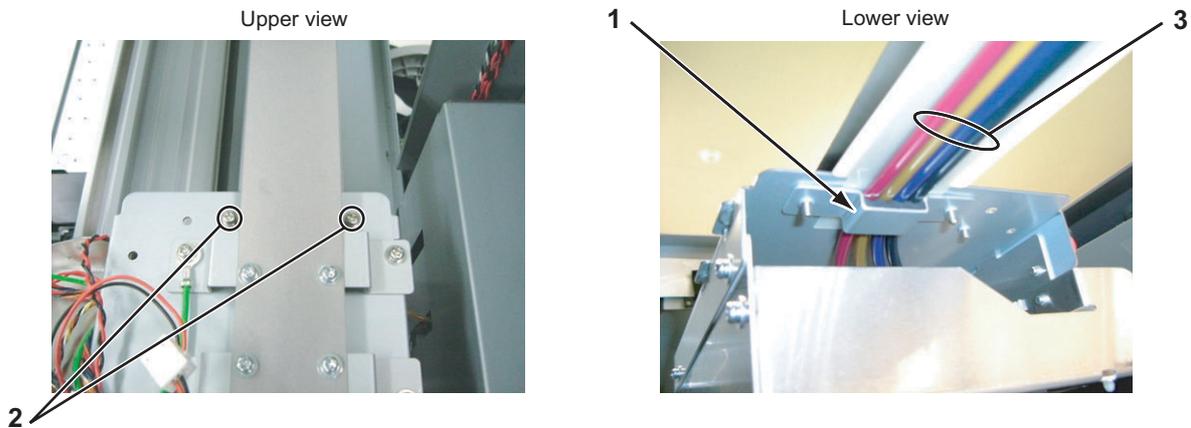
5. Remove the tube guide plates (2 pieces).
6. Remove the FFC guides (6 pieces).

7. Remove the tube clamp (6 pieces).



No.	Part name
1	Ink tube
2	Film FFC guide
3	Tube clamp

8. Remove the screws (2 pieces) that retain the tube guide plate.

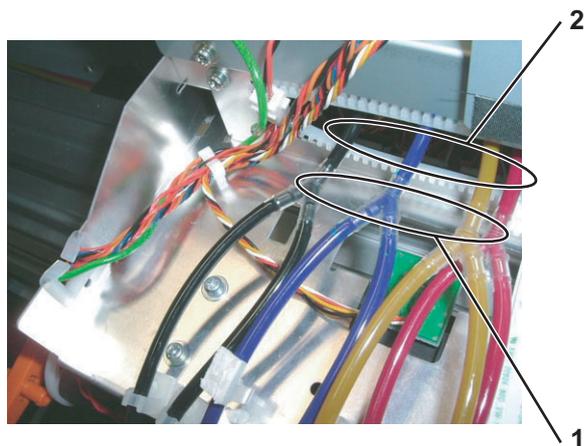


No.	Part name
1	Tube guide plate
2	Screws that retain the tube guide plate (pan-head screw with spring washer and flat washer M3 × 8)
3	Ink tube

9. Remove the tube guide plate.

10. Detach the ink tube from the three-way joint.

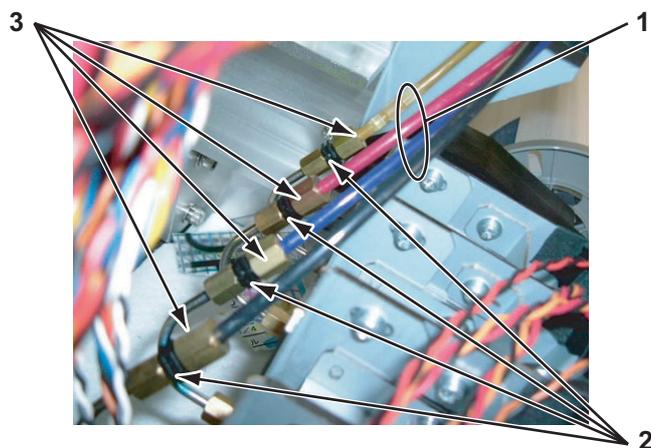
11. Pull out the ink tube from inside the carriage.



No.	Part name
1	Three-way joint
2	Ink tube

12. Loosen the joint screw on the tip of the sub tank.

13. Detach the ink tube from the joint tube.



No.	Part name
1	Ink tube
2	Joint tube
3	Joint screw

14. Remove the ink tube.

15. Replace the ink tube.

16. To reassemble the unit, reverse the removal procedure.

17. Charge ink.

 ["5.6 Ink Charging Menu" p.5-22](#)

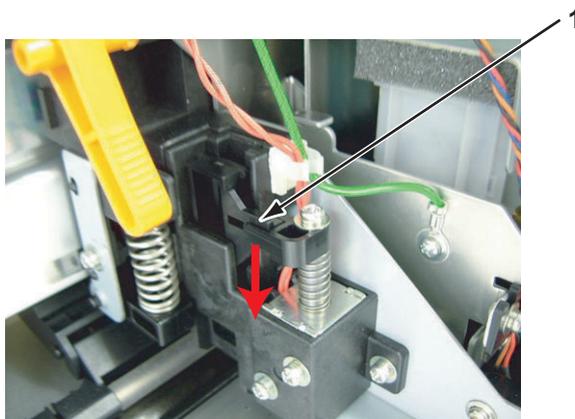
## 4.8 Replacing Cursor Section

This section describes the procedure to replace the cursor section.

### 4.8.1 Releasing Head Lock

When head lock is released on the software, the carriage moves to the origin position after the power is turned off. This section describes the procedure to release head lock with the power turned off.

1. Open the maintenance cover R.
2. Push down the cap on the left side of carriage.



No.	Part name
1	Cap

3. Move the carriage to the opposite side to the origin while holding down the cap.

#### NOTE

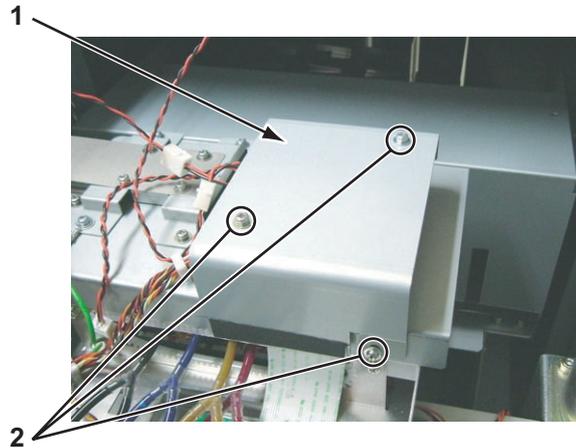
For enabling head lock again, the cap does not need to be pushed down. Move back the carriage to the position where the carriage is fixed with a sound.

### 4.8.2 Removing CR Board Cover

1. Remove the side top cover R.

 ["4.2.6 Removing Side Top Cover R" p.4-12](#)

2. Remove the screws (2 pieces) that retain the CR board cover.



No.	Part name
1	CR board cover
2	Screws that retain the CR board cover (pan-head screw with spring washer and flat washer M3 × 6)

3. Remove the CR board cover.

### 4.8.3 Replacing CR Board Assembly

#### CAUTION

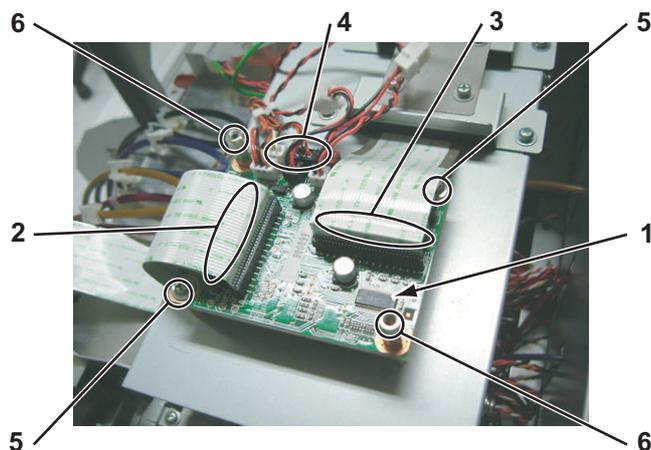
- When replacing the board or connecting and removing FFC, first remove the power plug and leave it for a while. Overcurrent may occur and damage the board.
- When connecting and removing the FFC type cables to/from the CR board assembly connectors, always pull or push the cables perpendicularly to the connector. Pulling or pushing them slantwise may damage/short/break the terminals in the connectors, resulting in a breakdown of the on-board devices.
  - The cables can be connected or removed up to 5 times.

1. Remove the CR board cover.

 ["4.8.2 Removing CR Board Cover" p.4-106](#)

2. Remove the head FFC (2 pieces).

3. Remove the CR\_FFC (3 pieces).



No.	Part name
1	CR board assembly
2	Head FFC
3	CR_FFC
4	Connector
5	Screws that retain the CR board assembly 1 (cup screw M3 × 6)
6	Hexagon spacer

4. Detach the connectors to the CR board assembly listed below.

Table 4-6 Connectors to CR board assembly

No.	Connector No.	# of Pins	Color	Connect to	Remark
1	J201	30	Black	MAIN (J11)	FFC
2	J202	30	Black	MAIN (J10)	FFC
3	J203	30	Black	MAIN (J9)	FFC
4	J204	30	Black	MAIN (J1)	FFC
5	J205	30	Black	MAIN (J2)	FFC
6	J206	2	White	CUTTER_SOL	
7	J207	4	White	CR_ENC	
8	J208	4	Black	P_EDGE	
9	J209	3	White	PG_ORIGIN	
10	J210	2	Black	HEAD_FAN_1	
11	J211	2	Red	HEAD_FAN_2	

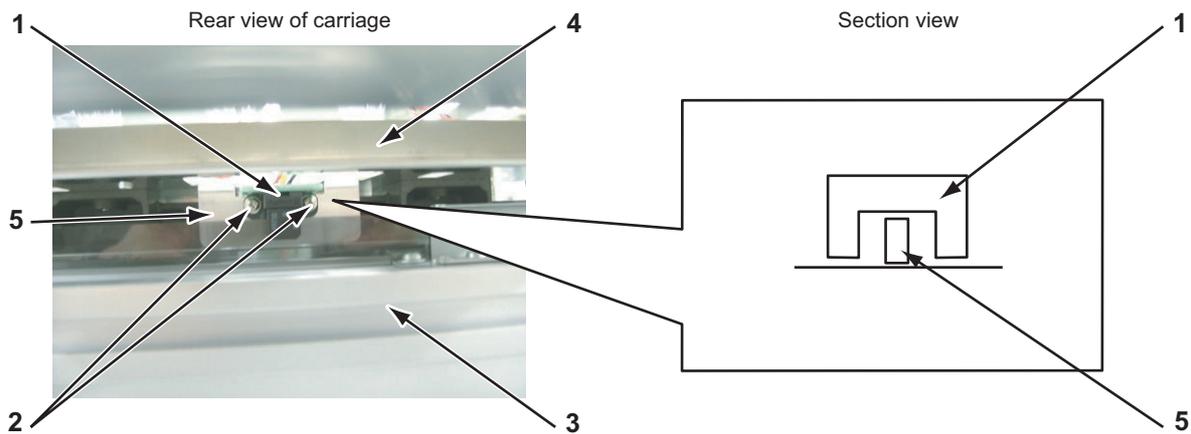
5. Remove the screws (2 pieces) that retain the CR board assembly and the hexagon spacer (2 pieces).
6. Remove the CR board assembly.
7. Replace the CR board assembly.
8. To reassemble the unit, reverse the removal procedure.

### 4.8.4 Replacing CR Encoder Assembly

**NOTE**

When removing the CR\_ENC assembly, pay attention to avoid nicking the T fence.

1. Move the carriage to the opposite side of the origin.
2. Open the maintenance cover L.
3. Open the rear side cover.
4. Detach the connector to the CR encoder assembly.
5. Remove the screws (2 pieces) that retain the CR encoder assembly.

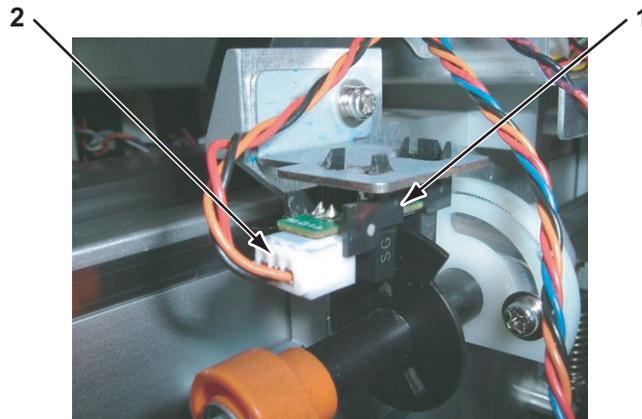


No.	Part name
1	CR encoder assembly
2	Screws that retain the CR encoder assembly (pan-head screw with spring washer and flat washer M2 × 6)
3	Y rail assembly
4	CR board mounting base
5	T fence

6. Remove the CR encoder assembly.
7. Replace the CR encoder assembly.
8. To reassemble the unit, reverse the removal procedure.

### 4.8.5 Replacing PG Origin Sensor Assembly

1. Open the maintenance cover R.
2. Open the side top cover R.  
 **"4.2.6 Removing Side Top Cover R" p.4-12**
3. Remove the PG origin sensor relay assembly.
4. Remove the PG origin sensor assembly.



No.	Part name
1	PG origin sensor relay assembly
2	PG origin sensor assembly

5. Replace the PG origin sensor assembly.
6. To reassemble the unit, reverse the removal procedure.

### 4.8.6 Replacing Cursor Roller Arm Assembly

1. Remove the head cover.

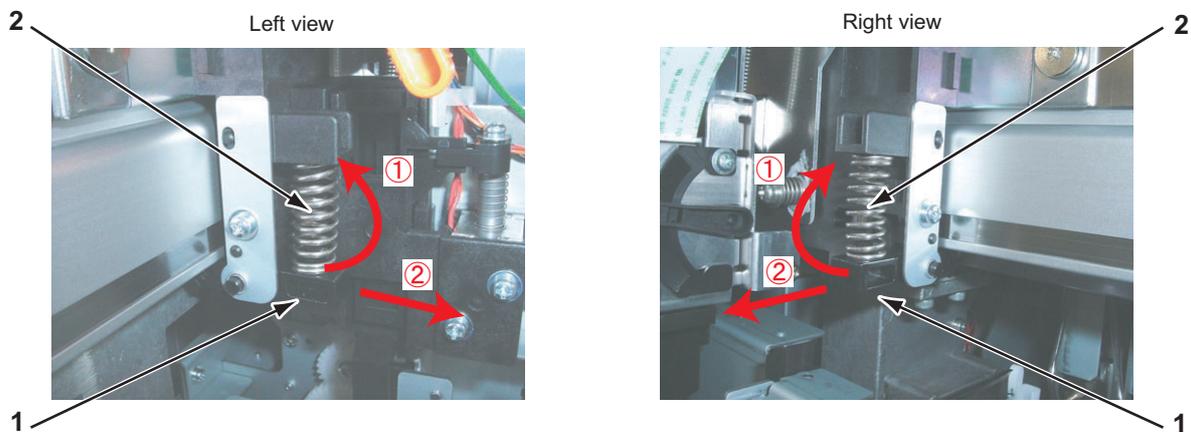
☞ "4.8.6 Replacing Cursor Roller Arm Assembly" p.4-110

2. Lift up the cursor roller arm assembly to the direction shown below, and lift up the cursor arm spring.



Note that the tension of the cursor arm spring is high.

3. Confirm that the bearing is detached from the cursor guide.
4. Pull off the cursor roller arm to the direction shown below with the cursor arm spring being lifted up.



No.	Part name
1	Cursor roller arm
2	Cursor arm spring

5. Replace the cursor roller arm assembly.

#### NOTE

Five parts are accompanied when removing the cursor roller arm. They are collectively called cursor roller arm assembly except for the cursor arm spring.

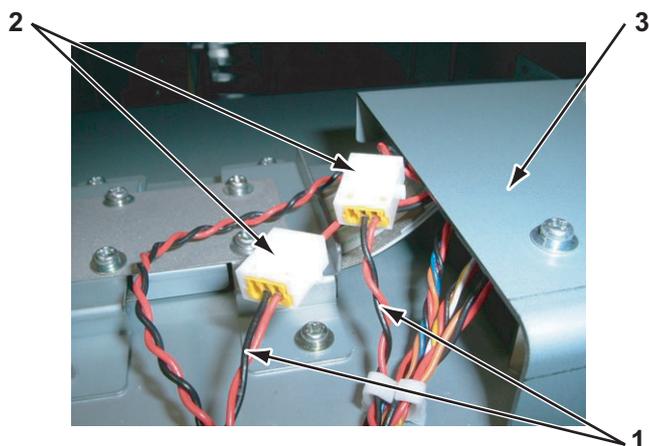
6. To reassemble the unit, reverse the removal procedure.

### 4.8.7 Removing Print Head Cover

1. Open the maintenance cover R.
2. Remove the side top cover R.

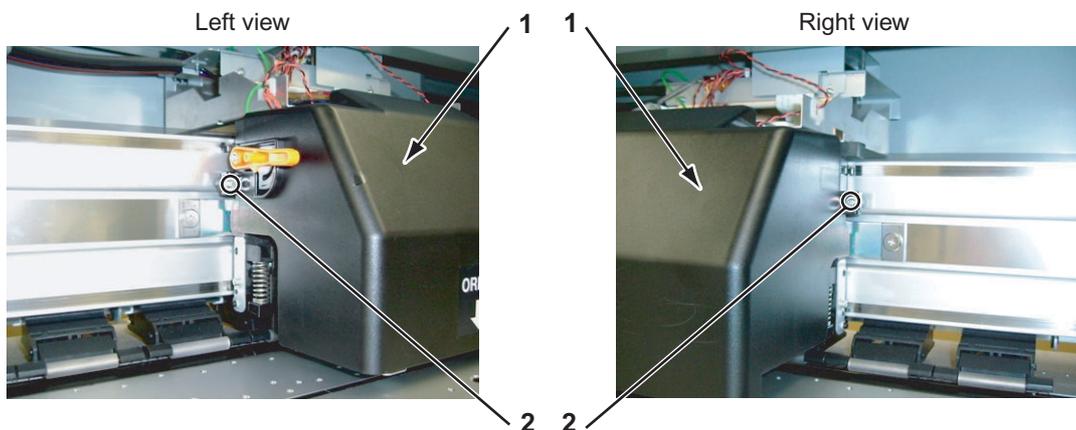
☞ "4.2.6 Removing Side Top Cover R" p.4-12

3. Detach the connectors (2 pieces) to the head fan assembly from the head fan relay assembly.



No.	Part name
1	Connector to the head fan assembly
2	Head fan relay assembly
3	CR board cover

4. Remove the screws (2 pieces) that retain the print head cover.



No.	Part name
1	Print head cover
2	Screws that retain the print head cover (pan-head screw with spring washer and flat washer M3 × 8)

5. Remove the print head cover.

### 4.8.8 Replacing Damper Assembly L\_Assy

#### **CAUTION**

- When connecting and removing the FFC type cables to/from the MAIN board assembly connectors, always pull or push the cables perpendicularly. Pulling or pushing them slantwise may damage/short/break the terminals in the connectors, causing a breakdown of the on-board devices. The cables can be connected or removed up to 5 times.

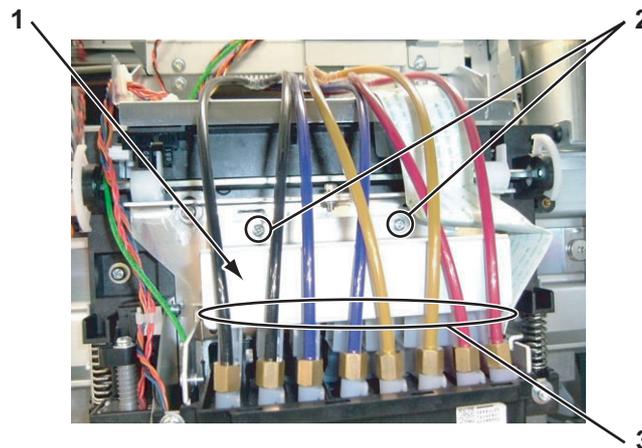
1. Perform ink discharge operation to discharge ink entirely from the ink paths.

☞ **"5.7.8 HeadWash Menu" p.5-40**

2. Remove the print head cover.

☞ **"4.8.7 Removing Print Head Cover" p.4-110**

3. Remove the screws (3 pieces) that retain the damper guide plate.



No.	Part name
1	Damper guide plate
2	Screws that retain the damper guide plate (pan-head screw with spring washer and flat washer M3 × 6)
3	Ink tube

4. Remove the damper guide plate.
5. Remove the joint screws (2 pieces) of the related color.
6. Remove the head tubes (2 pieces) of the related color.
7. Remove the damper assembly L (2 pieces) of the related colors.
8. Replace the damper assembly L\_Assy.

**CAUTION**

- Don't touch the transparent film on the side of the damper assembly L. Ink charged in the damper assembly L will discharge.
- Take care not to damage the transparent film on the side of the damper assembly L.
- Place cotton waste under the detached damper to prevent residual ink discharging.



No.	Part name
1	Damper assembly L
2	Joint screw M7
3	VJ tube 3-4

9. Replace the damper assembly L.

**NOTE**

The damper assembly L and the O ring are combined so that it is collectively called damper assembly L\_assembly.

10. To reassemble the unit, reverse the removal procedure.

11. Charge ink.

[☞ "5.6 Ink Charging Menu" p.5-22](#)

### 4.8.9 Replacing Print Head

#### **CAUTION**

- While operation, pay special attention not to touch the head nozzles or contaminate them with foreign objects.
- The print head assembly has been adjusted. Do not disassemble it.
- When connecting and removing the FFC type cables to/from the MAIN board assembly connectors, always pull or push the cables perpendicularly. Pulling or pushing them slantwise may damage/short/break the terminals in the connectors, causing a breakdown of the on-board devices. The cables can be connected or removed up to 5 times.

1. Remove the CR board cover.

☞ **"4.8.2 Removing CR Board Cover" p.4-106**

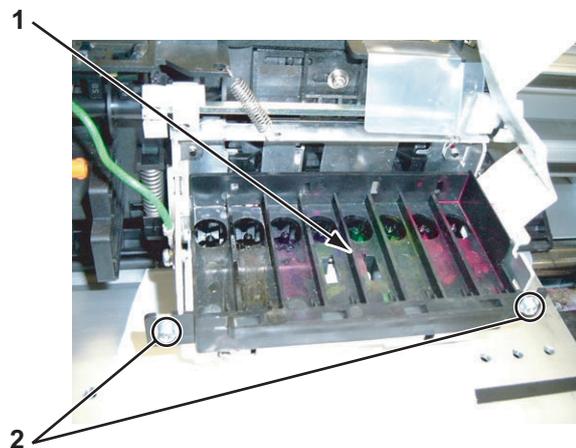
2. Remove the head cover.

☞ **"4.8.7 Removing Print Head Cover" p.4-110**

3. Remove the damper L assembly.

☞ **"4.8.8 Replacing Damper Assembly L\_Assy" p.4-112**

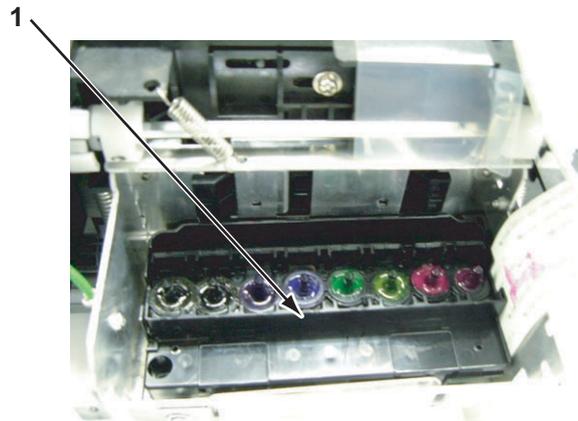
4. Remove the screws (2 pieces) that retain the print head guide.



No.	Part name
1	Print head guide
2	Screws that retain the print head guide (pan-head screw with spring washer and flat washer M3 × 6)

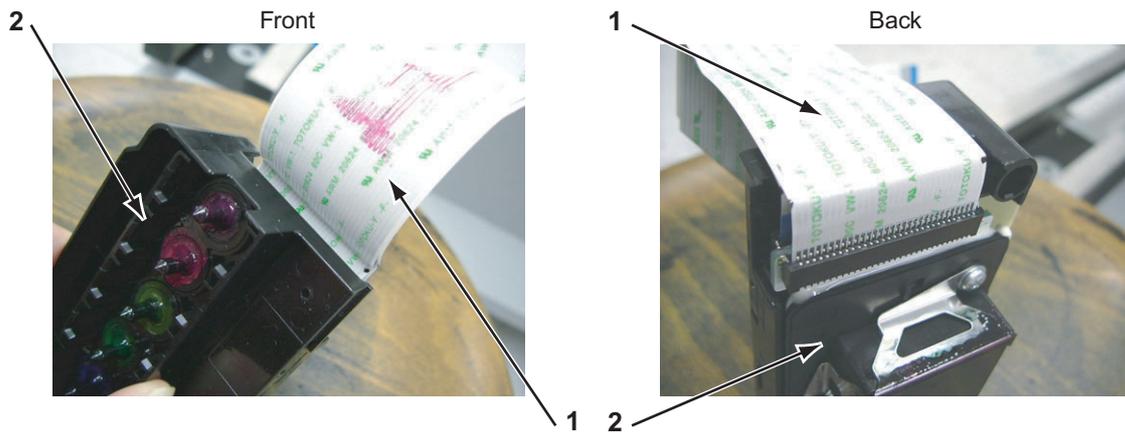
5. Remove the print head guide.

6. Remove the print head.



No.	Part name
1	Print head

7. Remove the head FFC (2 pieces) from the print head.



No.	Part name
1	Head FFC
2	Print head

8. Replace the print head.

9. To reassemble the unit, reverse the removal procedure.

### 4.8.10 Replacing Head FFC

**CAUTION**

- While operation, pay special attention not to touch the head nozzles or contaminate them with foreign objects.
- The print head assembly has been adjusted. Do not disassemble it.
- When connecting and removing the FFC type cables to/from the MAIN board assembly connectors, always pull or push the cables perpendicularly. Pulling or pushing them slantwise may damage/short/break the terminals in the connectors, causing a breakdown of the on-board devices. The cables can be connected or removed up to 5 times.

1. Perform ink discharge operation to discharge ink entirely from the ink paths.

☞ **"5.7.8 HeadWash Menu" p.5-40**

2. Initialize the head counter.

☞ **"5.7.10 Software Counter Initialization Menu" p.5-41**

3. Remove the head cover.

☞ **"4.8.7 Removing Print Head Cover" p.4-110**

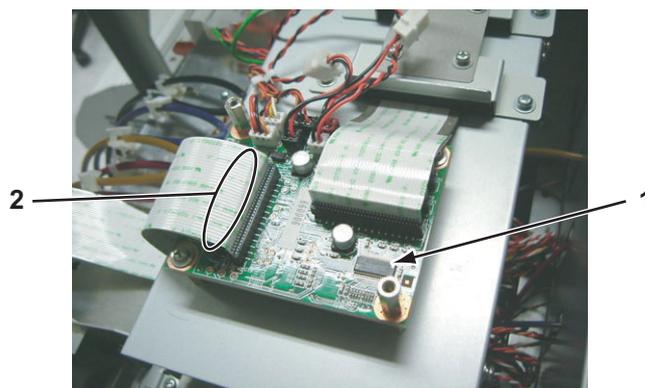
4. Remove the damper assembly L.

☞ **"4.8.8 Replacing Damper Assembly L\_Assy" p.4-112**

5. Remove the damper fixing material.

6. Remove the print head.

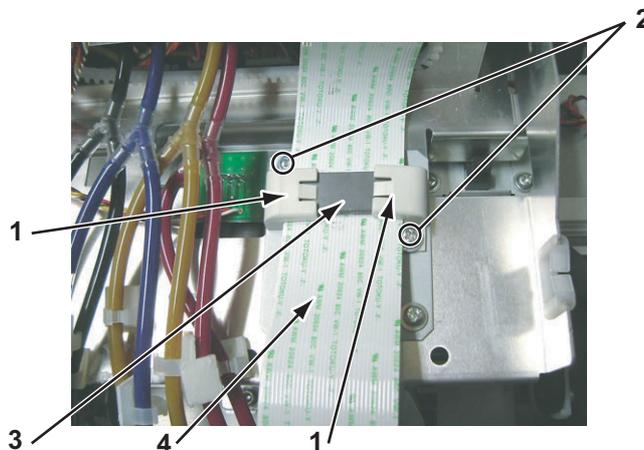
☞ **"4.8.9 Replacing Print Head" p.4-114**



No.	Part name
1	CR board assembly
2	Head FFC

7. Remove the screws (2 pieces) that retain the flat core holder.

8. Remove the flat core holder (2 pieces).
9. Remove the flat core (2 pieces).

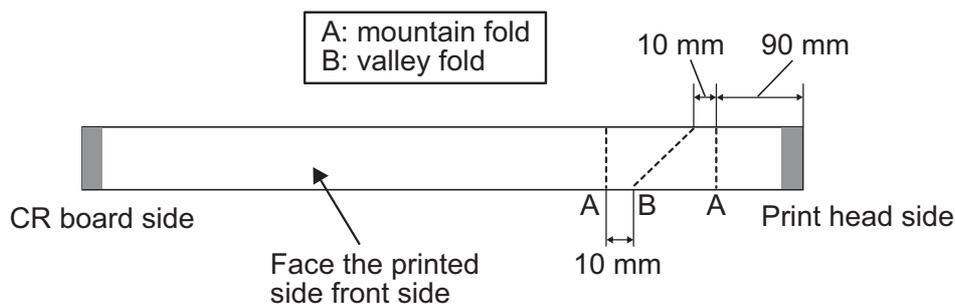


No.	Part name
1	Flat core holder
2	Screws that retain the flat core holder
3	Flat core
4	Head FFC

10. Replace the head FFCs (2 pieces).

**NOTE**

Fold the head FFC as follows.

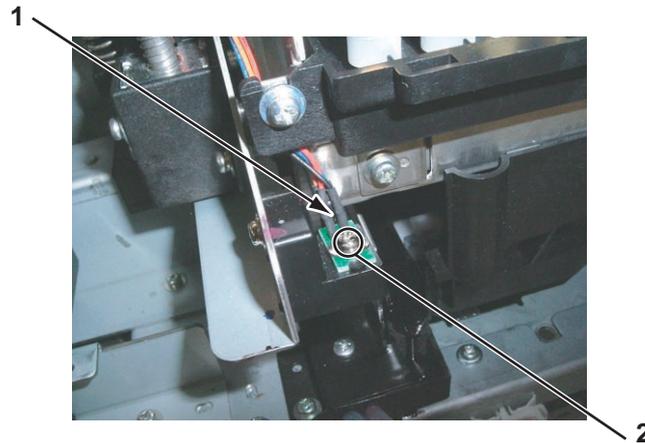


- Turn the second one inside out to fold the same way.
- Contact the non-engraved surfaces of the head FFC with each other so that the engraved surfaces face outwardly.

11. To reassemble the unit, reverse the removal procedure.

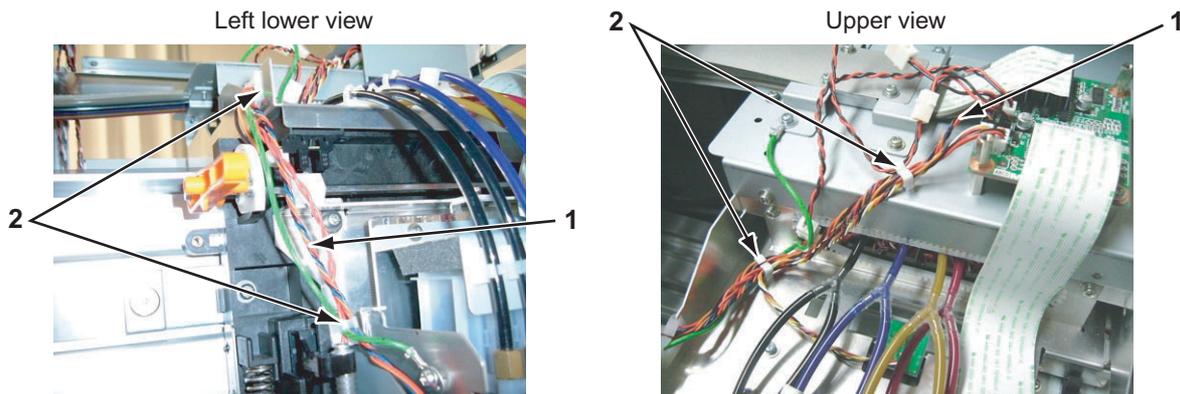
### 4.8.11 Replacing P\_EDGE Sensor Assembly

1. Remove the head cover.  
 ↳ "4.8.7 Removing Print Head Cover" p.4-110
2. Detach the connector to the P\_EDGE sensor assembly from the CR board assembly (J208).  
 ↳ "4.8.3 Replacing CR Board Assembly" p.4-106
3. Remove the screw (1 piece) that retain the P\_EDGE sensor assembly.



No.	Part name
1	P_EDGE sensor assembly
2	Screws that retain the P_EDGE sensor assembly (P tight cup screw M3 × 6)

4. Detach the cable of the P\_EDGE sensor assembly from the clamp (4 pieces).



No.	Part name
1	Cable of the P_EDGE sensor assembly
2	Clamp

5. Replace the P\_EDGE sensor assembly.

**TIP**

The cable of the P\_EDGE sensor assembly is a stranded wire of red, black, blue and orange.

---

6. To reassemble the unit, reverse the removal procedure.

## 4.9 Replacing Maintenance Section

This section describes the procedure to replace the maintenance section.

### 4.9.1 Removing Maintenance Inner Cover

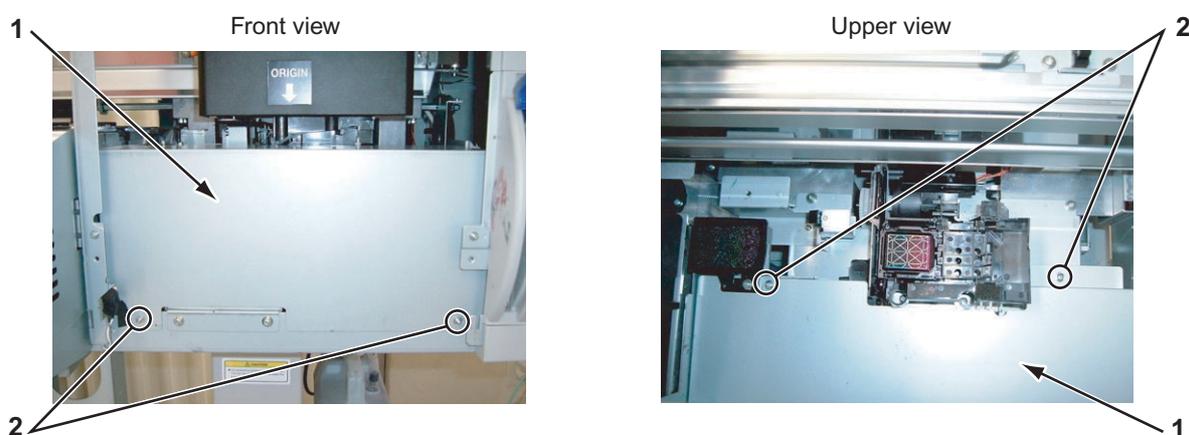
1. Remove the maintenance cover U.

☞ "4.2.3 Removing Maintenance Cover U" p.4-10

2. Move the carriage to the opposite side of the origin.

☞ "4.8.1 Releasing Head Lock" p.4-105

3. Remove the screws (4 pieces) that retain the maintenance inside cover.



No.	Part name
1	Maintenance inside cover
2	Screws that retain the maintenance inside cover (pan-head screw with spring washer and flat washer M3 × 8)

4. Remove the maintenance inside cover.

### 4.9.2 Replacing Cleaner Head

1. Move the carriage to the opposite side of the origin.

☞ "4.9.1 Removing Maintenance Inner Cover" p.4-120

2. Using tweezers, detach the cleaner head from the hook at the cleaner head retaining section, and remove it upwardly.



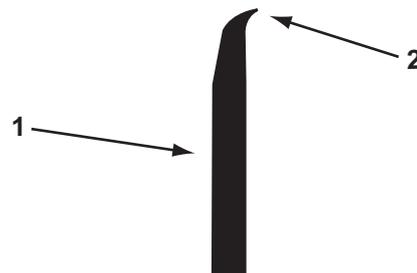
No.	Part name
1	Cleaner head

3. Replace the cleaner head.

**NOTE**

When reassemble the cleaner head, pay attention to the following.

- Do not touch the cleaner head with bare hands.
- Make sure that the cleaner head get no dust or oil.
- Install the cleaner head so that the point of the cleaner head is located to the observer's right side.



No.	Part name
1	Cleaner head
2	Head point

- Insert the cleaner head into the holder to the full depth securely and hook it.

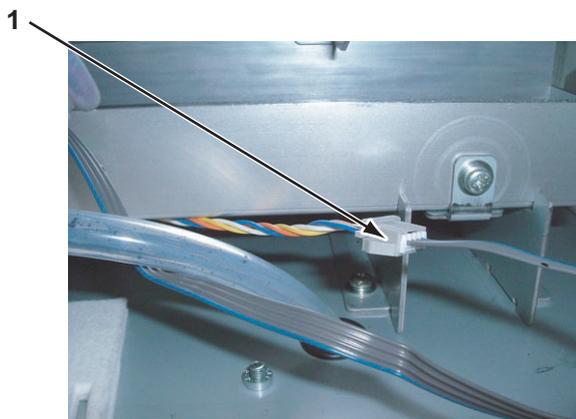
4. To reassemble the unit, reverse the removal procedure.

### 4.9.3 Replacing Maintenance Assembly

#### NOTE

There are some remaining ink in the tubes. Be careful that the ink is not spilled from the tube outlet onto the plotter or the covers.

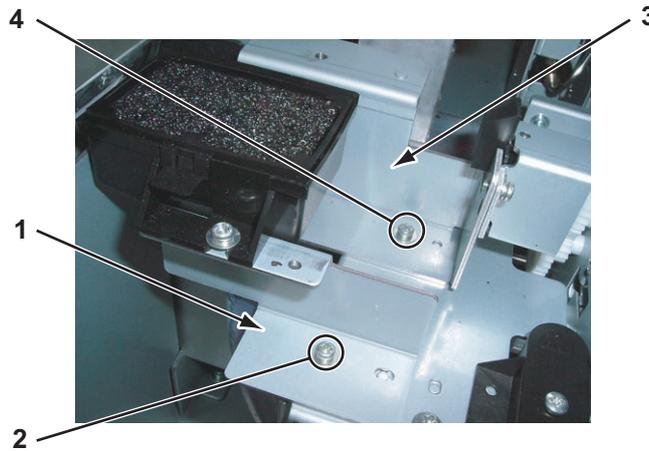
1. Perform ink discharge operation to discharge ink entirely from the ink paths.  
 🔗 ["5.7.8 HeadWash Menu" p.5-40](#)
2. Remove the cleaner head.  
 🔗 ["4.9.2 Replacing Cleaner Head" p.4-121](#)
3. Remove the maintenance inner cover.  
 🔗 ["4.9.1 Removing Maintenance Inner Cover" p.4-120](#)
4. Detach the connector to the wiper origin sensor relay assembly from the MAIN board assembly (J27).  
 🔗 ["4.4.7 Replacing MAIN Board" p.4-49](#)
5. Detach the connector to the pump motor relay assembly.



No.	Part name
1	Connector to the wiper origin relay cable

6. Remove the screws (1 piece) that retain flushing box holder.
7. Remove the flushing box holder.
8. Remove the screws (1 piece) that retain the head lock holder.

9. Remove the head lock holder.



No.	Part name
1	Flushing box holder
2	Screws that retain the flushing box holder (pan-head screw with spring washer and flat washer M3 × 6)
3	Head lock holder
4	Screws that retain the head lock holder (pan-head screw with spring washer and flat washer M3 × 6)

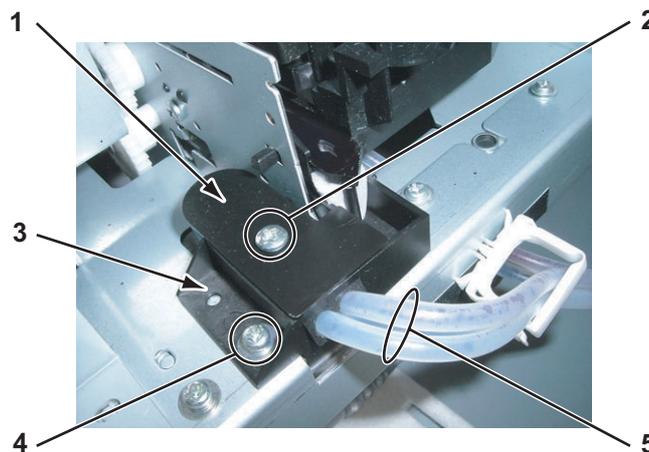
10. Remove the screws (1 piece) that retain the waste fluid guide cover.

11. Remove the waste fluid guide cover.

12. Pull off the waste fluid tube.

13. Remove the screws (4 pieces) that retain the waste fluid guide.

14. Replace the waste fluid guide.

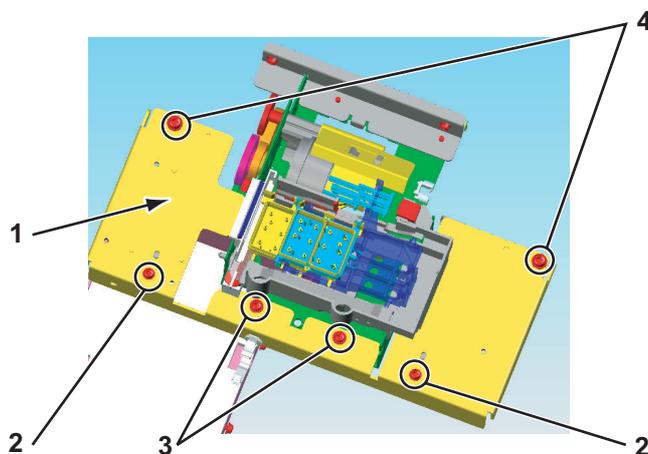


No.	Part name
1	Waste fluid guide cover

No.	Part name
2	Screws that retain the waste fluid guide cover (tapping screw M3 × 6)
3	Waste fluid guide
4	Screws that retain the waste fluid guide (pan-head screw with spring washer and flat washer M3 × 6)
5	Waste fluid tube

15. Remove the screws (2 pieces) that retain the maintenance holder.

16. Remove the screws (6 pieces) that retain the maintenance base.



No.	Part name
1	Maintenance base
2	Pan-head screw with spring washer and flat washer M3 × 6
3	Tapping screw M3 x 6
4	Pan-head screw with spring washer and flat washer M4 × 8

17. Remove the maintenance base.

18. Replace the maintenance assembly.

19. To reassemble the unit, reverse the removal procedure.

## 4.10 Replacing IH Section

This section describes the procedure to replace the IH section.

### 4.10.1 Replacing Ink ID Board Assembly

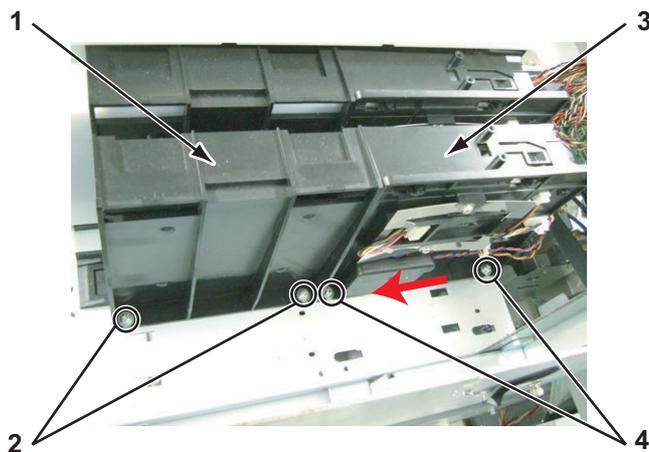
1. Remove the cartridge cover (upper).  
 ↳ "4.2.9 Removing Cartridge Cover (Upper)" p.4-17
2. Remove the cartridge cover (middle).  
 ↳ "4.2.10 Removing Cartridge Cover (middle)" p.4-18
3. Remove the screws (2 pieces) that retain the cartridge cable cover plate.



No.	Part name
1	Cartridge cable cover plate
2	Screws that retain the cartridge cable cover plate (pan-head screw with spring washer and flat washer M3 × 6)

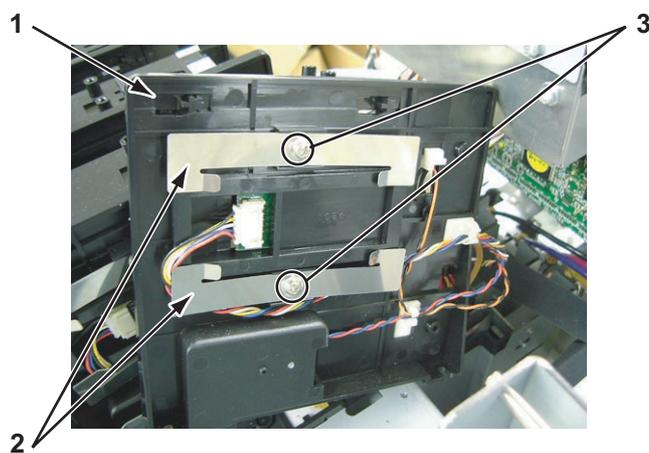
4. Remove the cartridge cable cover plate.
5. Remove the screws (2 pieces) that retain the I/C slide (2).
6. Remove the I/C slide (2).
7. Remove the screws (2 pieces) that retain the cartridge side plate.

8. Remove the cartridge side plate.



No.	Part name
1	I/C slide (2)
2	Screws that retain the I/C slide (2) (pan-head screw with spring washer and flat washer M3 × 8)
3	Cartridge side plate
4	Screws that retain the cartridge side plate (pan-head screw with spring washer and flat washer M3 × 8)

9. Remove the screws (2 pieces) that retain the holder pressure spring (4 pieces).



No.	Part name
1	Cartridge side plate
2	Holder pressure spring
3	Screws that retain the holder pressure spring (P tight cup screw M3 × 6)

10. Remove the holder pressure spring.

**TIP**

There are two holder pressure springs respectively in the upper and lower portion.

- 11. Detach the cable of the ink ID board assembly from the clamp.
- 12. Detach the ink cartridge control cable from the ink ID board assembly.
- 13. Remove the ink ID board assembly.



No.	Part name
1	Ink ID board assembly
2	Ink cartridge control cable
3	Clamp
4	Cartridge side plate

14. Replace the ink ID board assembly.

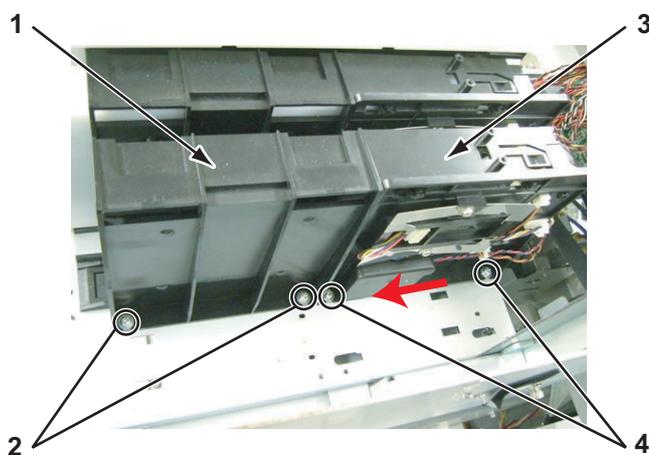
**NOTE**

The card board holder is accompanied when removing the ink ID board assembly. They are collectively called ink ID board assembly.

15. To reassemble the unit, reverse the removal procedure.

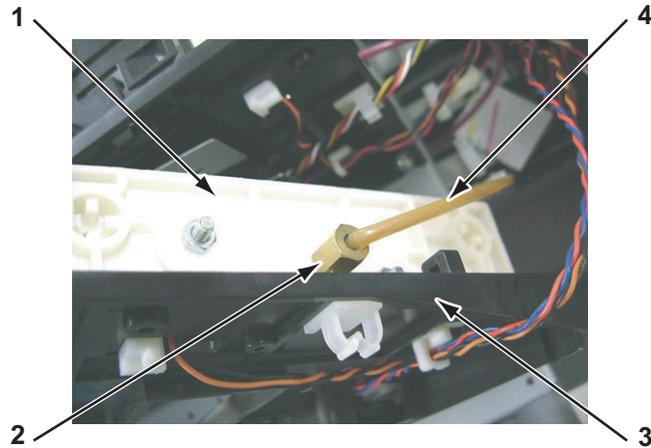
## 4.10.2 Replacing Frame Assembly, Needle

1. Remove the cartridge cover (upper).  
 ↳ "4.2.9 Removing Cartridge Cover (Upper)" p.4-17
2. Remove the cartridge cover (middle).  
 ↳ "4.2.10 Removing Cartridge Cover (middle)" p.4-18
3. Remove the screws (2 pieces) that retain the I/C slide (2).
4. Remove the I/C slide (2).
5. Remove the screws (2 pieces) that retain the cartridge side plate.
6. Remove the cartridge side plate.



No.	Part name
1	I/C slide (2)
2	Screws that retain the I/C slide (2) (pan-head screw with spring washer and flat washer M3 × 8)
3	Cartridge side plate
4	Screws that retain the cartridge side plate (pan-head screw with spring washer and flat washer M3 × 8)

7. Remove the joint screw M6.

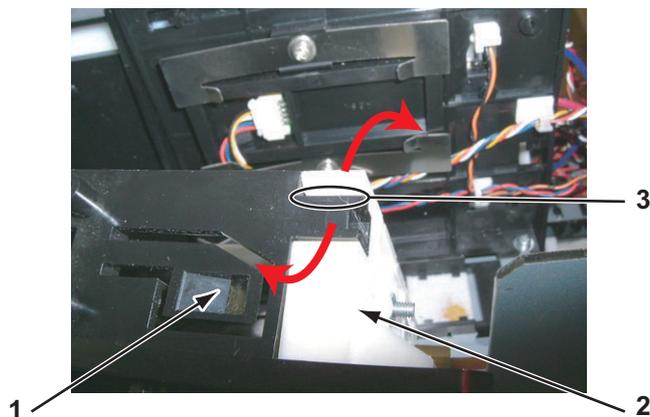


No.	Part name
1	Frame assembly, needle
2	Joint screw M6
3	Cartridge side plate
4	Ink tube

**NOTE**

- An O ring is inside the joint screw. Be careful not to lose the O ring.
- Soak the O ring in the specified cleaning fluid before installing.

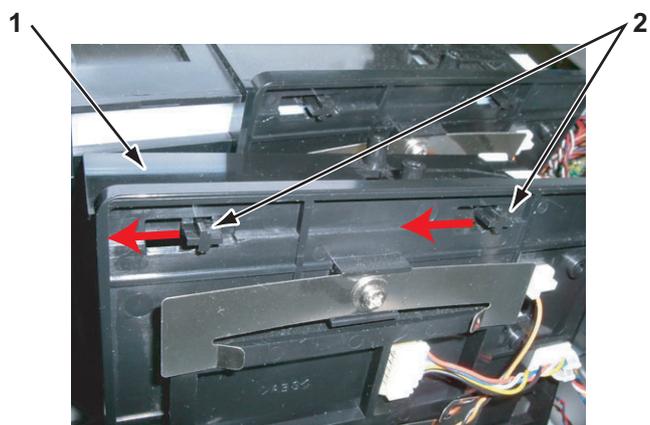
8. Detach the hook of the cartridge slide.



No.	Part name
1	Cartridge slide
2	Frame assembly, needle
3	Hook

9. Move the hook of the cartridge slide to the direction shown below.

10. Remove the cartridge slide.

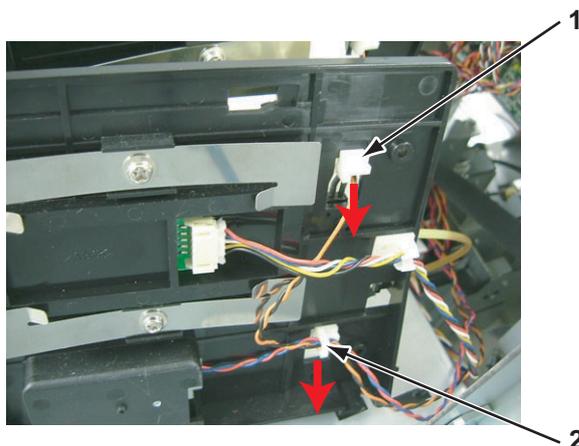


No.	Part name
1	Cartridge slide
2	Hook of the cartridge slide

11. Detach the ink cartridge control cable from the clamp.

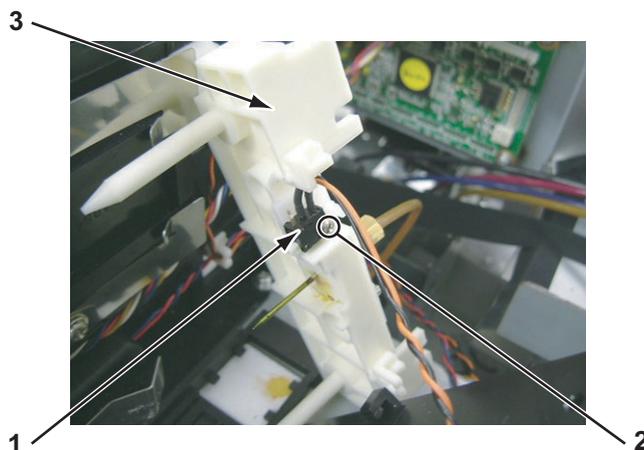
12. Move the frame assembly and the needle to the direction shown below.

13. Remove the frame assembly and the needle.



No.	Part name
1	Hook of the frame assembly and the needle
2	Clamp

14. Remove the screw (1 piece) that retains the ink cartridge control cable to the frame assembly and the needle.



No.	Part name
1	Ink cartridge control cable
2	Screws that retain the ink cartridge control cable (B tight band screw M2 x 8)
3	Frame assembly, needle

15. Remove the ink cartridge control cable.

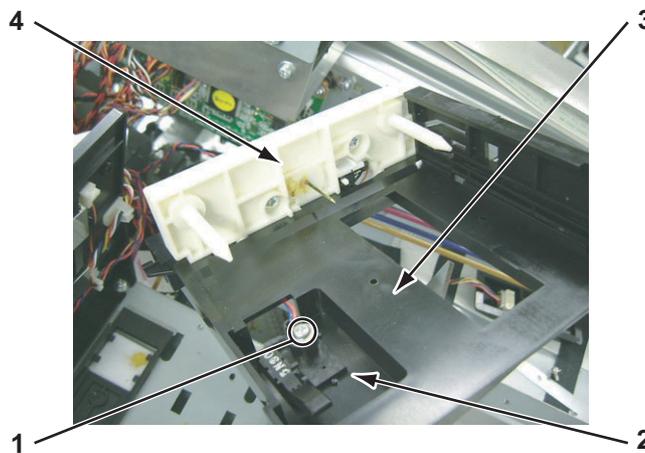
16. To reassemble the unit, reverse the removal procedure.

### 4.10.3 Replacing Ink Cartridge Control Cable

**TIP**

There are three connectors to the ink cartridge control cable.

1. Detach the ink cartridge control cable from the ink ID board assembly.  
 ↳ **"4.10.1 Replacing Ink ID Board Assembly" p.4-125**
2. Detach the ink cartridge control cable from the frame assembly and the needle.  
 ↳ **"4.10.2 Replacing Frame Assembly, Needle" p.4-128**
3. Remove the screw (1 piece) that retains the ink cartridge control cable to the cartridge side plate.



No.	Part name
1	Ink cartridge control cable
2	Screws that retain the ink cartridge control cable (P tight cup screw M3 × 10)
3	Cartridge side plate
4	Frame assembly, needle

4. Remove the connector to the ink cartridge control cable from the HEATER JUNCTION board assembly (J5 - J10).
5. Replace the ink cartridge control cable.
6. To reassemble the unit, reverse the removal procedure.

### 4.10.4 Replacing Cartridge Holder Assembly

1. Remove the cartridge cover (upper).  
 ↳ **"4.2.9 Removing Cartridge Cover (Upper)" p.4-17**
2. Remove the cartridge cover (middle)  
 ↳ **"4.2.10 Removing Cartridge Cover (middle)" p.4-18**

3. Remove the I/C slide (2).
4. Remove the cartridge side plate.
5. Remove the joint screw M6.  
 ↳ **"4.10.2 Replacing Frame Assembly, Needle" p.4-128**
6. Detach the ink cartridge control cable from the clamp.  
 ↳ **"4.10.3 Replacing Ink Cartridge Control Cable" p.4-132**
7. Replace the cartridge holder assembly.

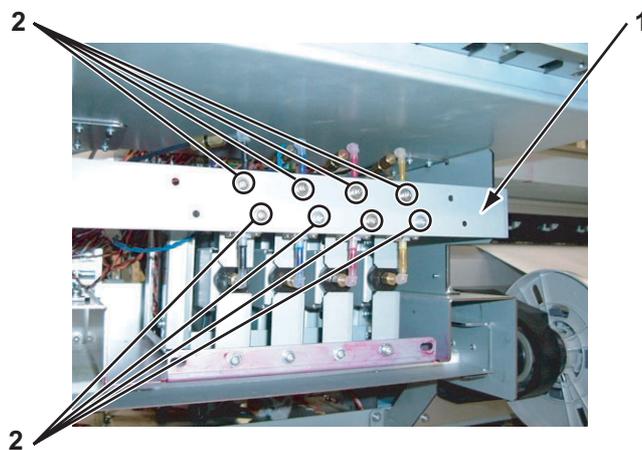
**NOTE**

The cartridge holder assembly is composed of many parts. Refer to exploded view for details.

8. To reassemble the unit, reverse the removal procedure.

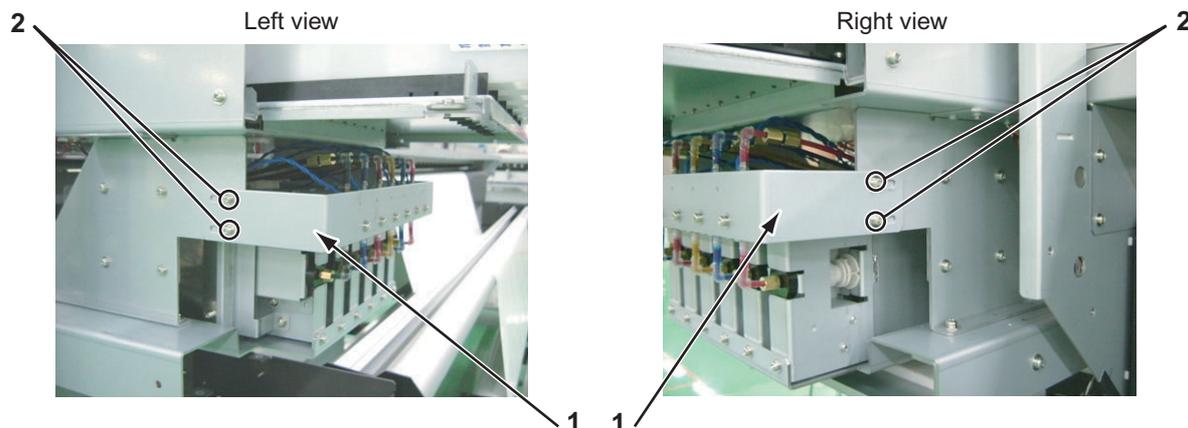
### 4.10.5 Replacing two-way Valve

1. Remove the cartridge cover (lower).  
 ↳ **"4.2.11 Removing Cartridge Cover (lower)" p.4-19**
2. Remove the cartridge cover (upper).  
 ↳ **"4.2.9 Removing Cartridge Cover (Upper)" p.4-17**
3. Remove the screws (8 pieces) that retain the two-way valve.



No.	Part name
1	Two-way valve mounting plate
2	Screws that retain the two-way valve (pan-head screw with spring washer and flat washer M3 × 6)

4. Remove the screws (4 pieces) that retain the two-way valve mounting plate.

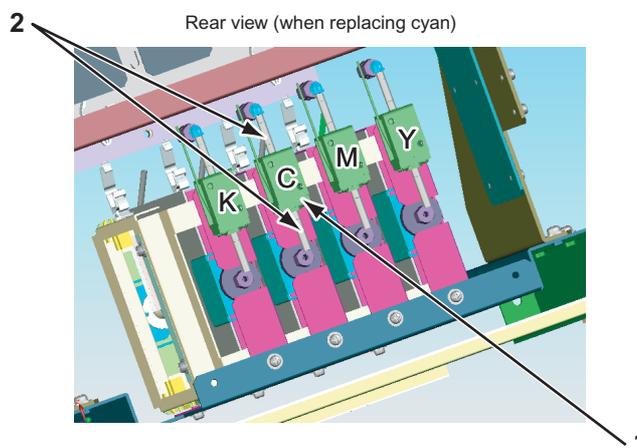


No.	Part name
1	Two-way valve mounting plate
2	Screws that retain the two-way valve (pan-head screw with spring washer and flat washer M3 × 6)

5. Remove the Two-way valve mounting plate.

6. Detach the ink tube (2 pieces) from the two-way valve.

7. Remove the two-way valve.



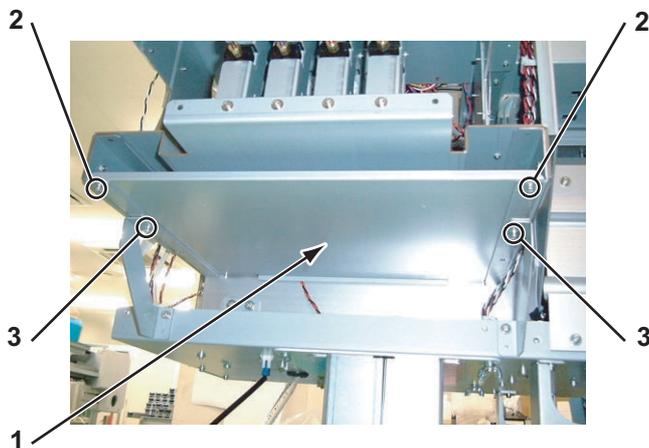
No.	Part name
1	Two-way valve
2	Ink tube

8. Replace the two-way valve.

9. To reassemble the unit, reverse the removal procedure.

### 4.10.6 Replacing Sub-Tank Lower Absorber Assembly

1. Remove the cartridge cover (lower).  
 ☞ "4.2.11 Removing Cartridge Cover (lower)" p.4-19
2. Remove the screws (4 pieces) that retain the absorber mounting plate.



No.	Part name
1	Absorber mounting plate
2	Screws that retain the absorber mounting plate (pan-head screw with spring washer and flat washer M4 × 8)
3	Screws that retain the absorber mounting plate (pan-head screw with spring washer and flat washer M3 × 6)

3. Pull out the absorber mounting plate.
4. Replace the sub-tank lower absorber assembly.

**NOTE**

The sub-tank lower absorber is accompanied when removing the absorber mounting plate. They are collectively called sub-tank lower absorber assembly.

5. To reassemble the unit, reverse the removal procedure.

## 4.11 Replacing Leg Section

This section describes the procedure to replace the leg section.

### 4.11.1 Replacing Waste Fluid Bottle

#### NOTE

- Discharge waste fluid fully to replace the waste fluid bottle.
- Confirm that there remains no waste fluid in the waste fluid tube.

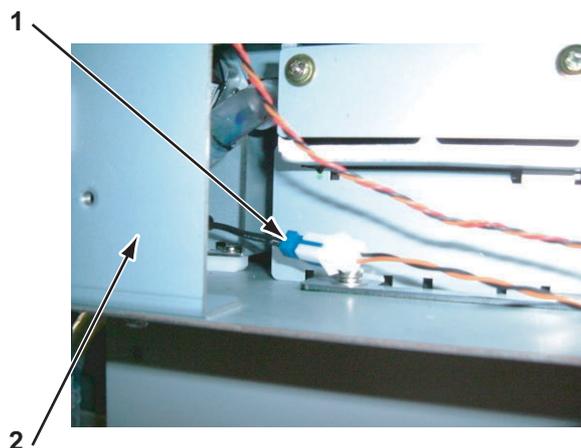
1. Initialize the waste fluid counter.

☞ ["5.11.1 Parameter Initialization Menu" p.5-47](#)

2. Remove the side maintenance cover R.

☞ ["4.2.4 Removing Side Maintenance Cover R" p.4-11](#)

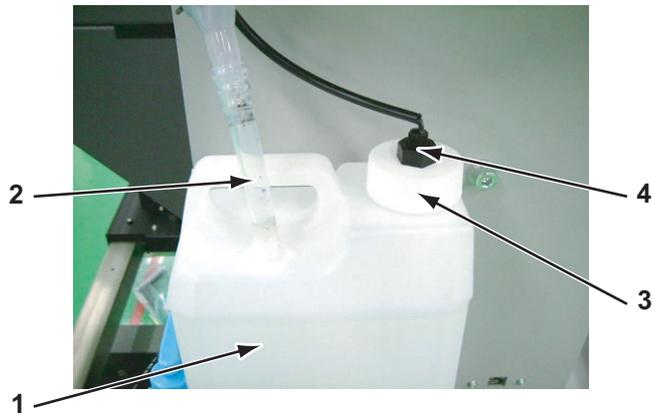
3. Remove the connector to the level switch (waste fluid).



No.	Part name
1	Connector to the level switch (waste fluid)
2	Cover stay RR

4. Remove the waste fluid tube.
5. Loosen the cap of the waste fluid bottle.

6. Loosen the nut of the level switch (waste fluid).



No.	Part name
1	Waste fluid bottle
2	Waste fluid tube
3	Cap of the waste fluid bottle
4	Nut of the level switch (waste fluid)

7. Pull out the nut of the level switch (waste fluid) and the cap of the waste fluid bottle from the connector side of the level switch (waste fluid).



No.	Part name
1	Cap of the waste fluid bottle
2	Nut of the level switch (waste fluid)

- 8. Replace the waste fluid bottle.
- 9. Replace the level switch (waste fluid).
- 10. To reassemble the unit, reverse the removal procedure.

## 4.12 Replacing Roll Media Holder Assembly

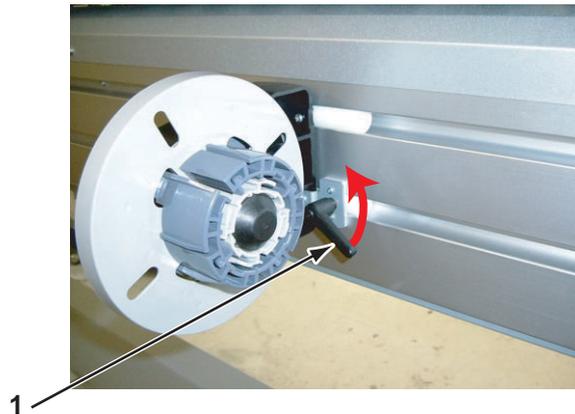
This section describes the procedure to replace the roll media holder assembly.

### 4.12.1 Replacing Roll Media Holder Assembly on the VJ16\_L side

1. Remove the media guide R (lower).

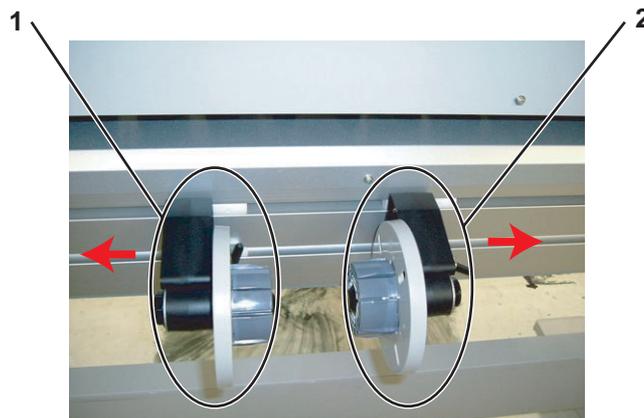
☞ "4.2.19 Removing Media Guide R (Lower)" p.4-29

2. Release the roll media fixing lever.



No.	Part name
1	Roll media fixing lever

3. Pull out the roll media holder assembly on the VJ16\_L side from the left side.



No.	Part name
1	Roll media Holder assembly on the VJ16_L side
2	Roll media Holder assembly on the VJ16_R side

4. Replace the roll media holder assembly on the VJ16\_L side.

**NOTE**

The roll media holder assembly on the VJ16\_L side is an integral part.

---

5. To reassemble the unit, reverse the removal procedure.

#### 4.12.2 Replacing Roll Media Holder Assembly on the VJ16\_R side

- Follow the same procedures as for the replacement of the roll media holder assembly on the VJ16\_L side.  
 ["4.12.2 Replacing Roll Media Holder Assembly on the VJ16\\_R side" p.4-139](#)
- Pull out the roll media holder assembly on the VJ16\_R side from the right side.

## 4.13 Replacing Take-up Section

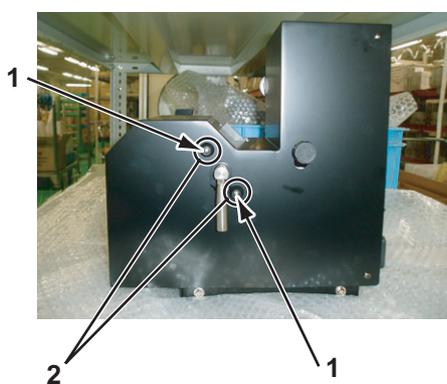
This section describes the procedure to replace the take-up section.

### 4.13.1 Removing Take-up Cover

#### NOTE

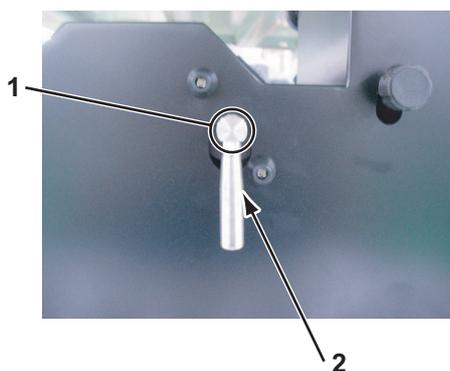
Lower the release lever to the FREE side before removing the take-up cover.

1. Remove the screws (pan-head machine screw M3 × 8: 2 pieces) that retain the rubber foot.



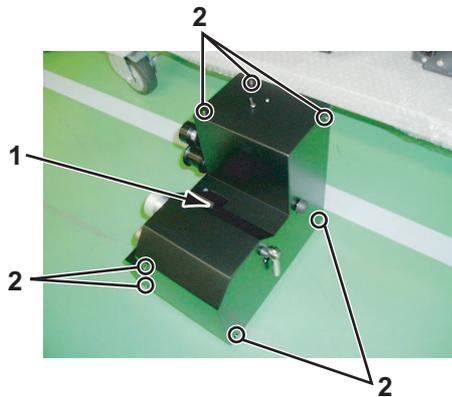
No.	Part name
1	Rubber foot
2	Screws that retain the rubber foot

2. Detach the lever from the release cam.



No.	Part name
1	Release cam
2	Lever

- Remove the screws (binding small screw M3 × 5: 7 pieces) that retain the take-up cover.



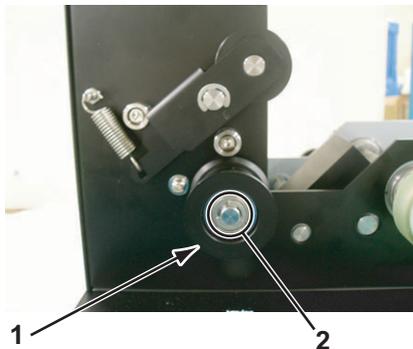
No.	Part name
1	Take-up cover
2	Screws that retain the take-up cover

- Remove the take-up cover.
- To reassemble the unit, reverse the removal procedure.

### 4.13.2 Replacing Scroller

#### (1) Replacing Holding Roller

- Remove the E ring (E-6) that retains the holding roller using a driver.

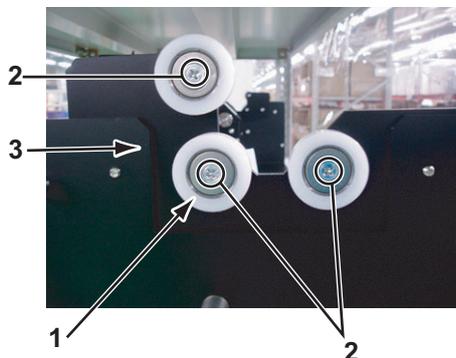


No.	Part name
1	holding roller
2	E ring that retains the holding roller

- Remove the holding roller and the bearing.
- Fit the E ring (E-6) to the holding axis using a long-nose pliers.

## (2) Replacing Holding Roller L

1. Remove the screw that retains the holding roller L on the scroller receiver (left).

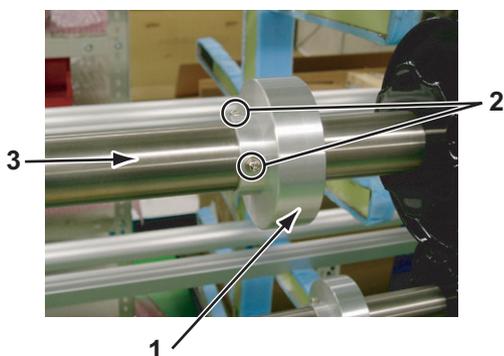


No.	Part name
1	Holding roller L
2	Screws that retain the holding roller L
3	Scroller receiver (left)

2. Remove the scroller receiver (left).
3. To reassemble the unit, reverse the removal procedure.

## (3) Replacing Drive Collar

1. Remove the screws (pan-head screw with spring washer and flat washer M3 × 8: 2 pieces) that retain the drive collar on the take-up scroller (left).



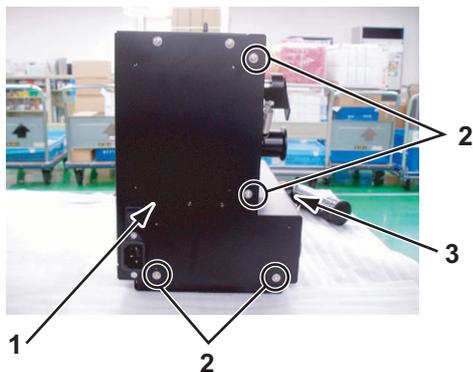
No.	Part name
1	Drive collar
2	Screws that retain the drive collar
3	Take-up scroller (left)

2. Remove the drive collar.
3. To reassemble the unit, reverse the removal procedure.

### 4.13.3 Replacing VJ Take-up CNT Board Assembly

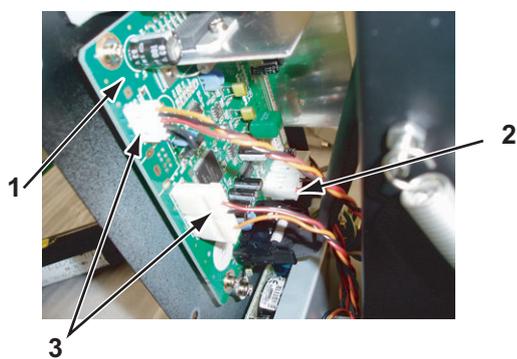
#### (1) Removing Board Chassis

1. Remove the screws (pan-head screw with spring washer and flat washer M3 × 6: 4 pieces) that retain the board chassis on the chassis (out).



No.	Part name
1	Board chassis
2	Screws that retain the board chassis
3	Chassis (out)

2. Detach the motor cable, W\_ON sensor relay assembly and the W\_OFF sensor relay assembly from the connector to the VJ take-up CNT board assembly that appears.



No.	Part name
1	VJ take-up CNT board assembly
2	Motor cable
3	W_ON sensor relay assembly, the W_OFF sensor relay assembly

3. To reassemble the unit, reverse the removal procedure.

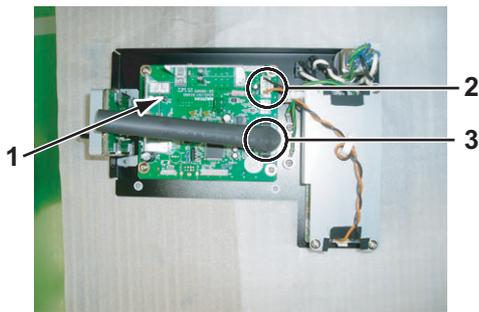
(2) Replacing VJ Take-up CNT Board Assembly

**NOTE**

Remove the screw that retains the board chassis.

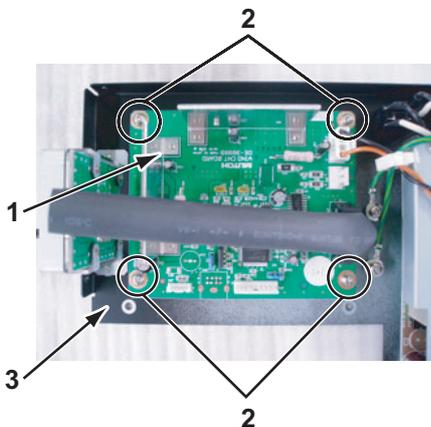
☞ "(1) Removing Board Chassis" p.4-143

1. Remove the cable of the DC cable assembly and the VJ take-up SW board assembly from the connector to the VJ take-up CNT board assembly.



No.	Part name
1	VJ take-up CNT board assembly
2	DC cable assembly
3	VJ take-up SW board assembly

2. Remove the screws (pan-head screw with spring washer and flat washer polished M3 × 6: 4 pieces) that retain the VJ take-up CNT board assembly on the board chassis.



No.	Part name
1	VJ take-up CNT board assembly
2	Screws that retain the VJ take-up CNT board assembly
3	Board chassis

3. Remove the VJ take-up CNT board assembly.
4. To reassemble the unit, reverse the removal procedure.

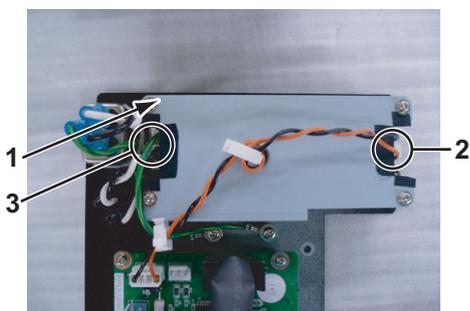
(3) Replacing Power Board Assembly (of take-up section for foreign use)

**NOTE**

Remove the screws that retains the board chassis before replacing the power board assembly.

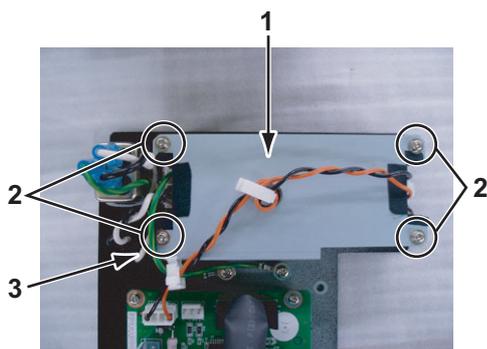
☞ "(1) Removing Board Chassis" p.4-143

1. Detach the AC cable assembly and the DC cable assembly from the connector to the power board assembly (of take-up section for foreign use).



No.	Part name
1	Power board assembly (of take-up section for foreign use)
2	AC cable assembly
3	DC cable assembly

2. Remove the screws (pan-head screw with spring washer and flat washer polished M 4 × 8: 4 pieces) that retain the power supply cover on the hexagon spacer.



No.	Part name
1	Power supply cover
2	Screws that retain the power supply cover
3	Hexagon spacer

3. Detach the hexagon spacers (4 pieces) from the power board assembly.
4. Detach the power board assembly (of take-up section for foreign use) from the board chassis.
5. To reassemble the unit, reverse the removal procedure.

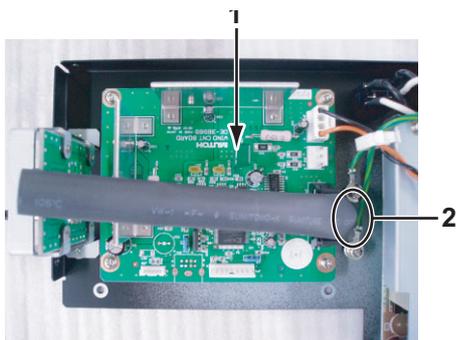
(4) Replacing VJ Take-up SW Board Assembly

**NOTE**

Remove the screws that retains the board chassis before replacing the VJ take-up SW board assembly.

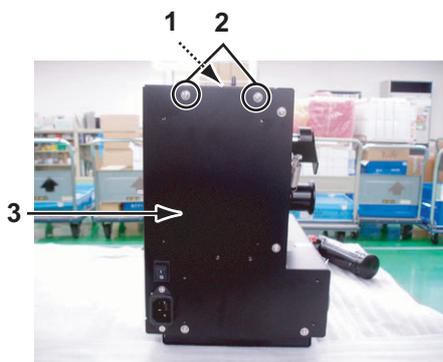
☞ "(1) Removing Board Chassis" p.4-143

1. Detach the cable of the VJ Take-up SW Board Assembly from the connector to the VJ take-up CNT board assembly.



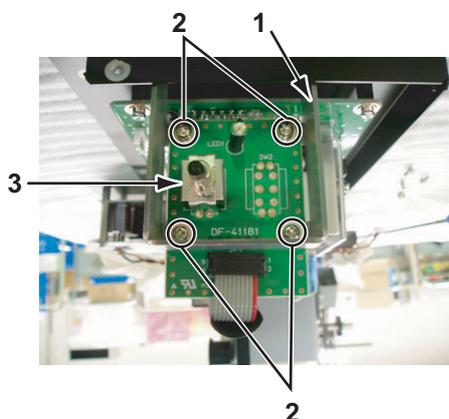
No.	Part name
1	VJ take-up CNT board assembly
2	Cable of the VJ take-up SW board assembly

2. Remove the screws (undersunk head screw M3 × 6: 2 pieces) that retain the SW mounting plate on the board chassis.



No.	Part name
1	SW mounting plate
2	Screws that retain the SW mounting plate
3	Board chassis

- Remove the screws (pan head screw M3 × 8: 4 pieces) that retain the VJ take-up SW board assembly on the SW mounting plate.



No.	Part name
1	VJ take-up SW board assembly
2	Screw that retains the VJ take-up SW board assembly
3	SW mounting plate

- Remove the VJ take-up SW board assembly.
- To reassemble the unit, reverse the removal procedure.

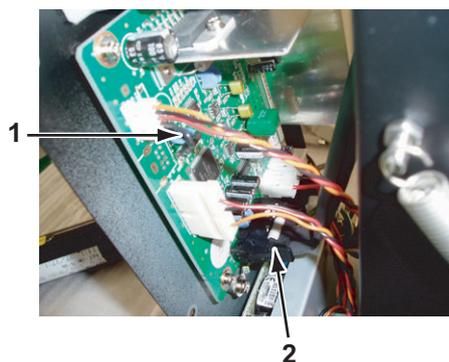
### (5) Replacing AC Cable Assembly

**NOTE**

Remove the screws that retains the board chassis before replacing the AC cable assembly.

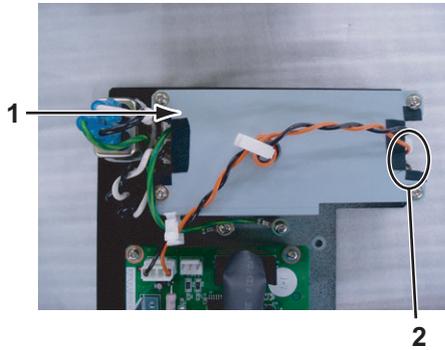
☞ "(1) Removing Board Chassis" p.4-143

- Remove the cable of the VJ take-up SW board assembly from the connector to the VJ take-up CNT board assembly.



No.	Part name
1	VJ take-up CNT board assembly
2	Cable of the VJ take-up SW board assembly

- Detach the AC cable assembly from the connector to the power board assembly (of take-up section for foreign use).



No.	Part name
1	Power board assembly (of take-up section for foreign use)
2	AC cable assembly

- Replace the AC cable assembly.
- To reassemble the unit, reverse the removal procedure.

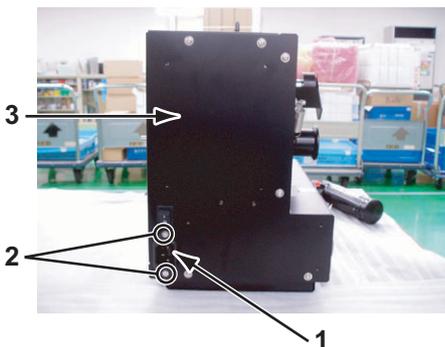
### (6) Replacing DC Cable Assembly

**NOTE**

Remove the screws that retain the board chassis before replacing the DC cable assembly.

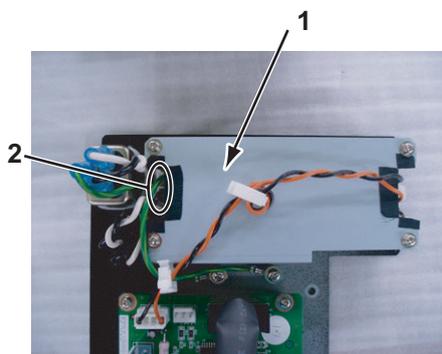
☞ "(1) Removing Board Chassis" p.4-143

- Remove the screws that retain the DC cable assembly on the board chassis (pan-head screw with spring washer and flat washer polished M4 × 8: 2 pieces).



No.	Part name
1	DC cable assembly
2	Screws that retain the DC cable assembly
3	Board chassis

2. Detach the DC cable assembly from the connector to the power board assembly (of take-up section for foreign use).



No.	Part name
1	Power board assembly (of take-up section for foreign use)
2	DC cable assembly

3. Cut the KI tie that retain the DC cable assembly to replace the DC cable assembly.
4. To reassemble the unit, reverse the removal procedure. Retain the DC cable assembly using the KI tie.

### 4.13.4 Replacing CR\_HP Sensor, Lever Sensor

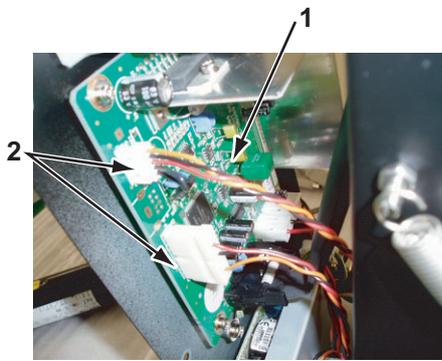
#### (1) Replacing W\_ON Sensor Relay Assembly, W\_OFF Sensor Relay Assembly

**NOTE**

Remove the screws that retains the board chassis before replacing W\_ON sensor relay assembly or W\_OFF sensor relay assembly.

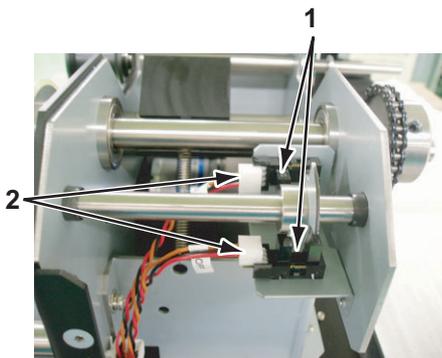
☞ "(1) Removing Board Chassis" p.4-143

1. Remove the cable of the W\_ON sensor relay assembly and W\_OFF sensor relay assembly from the connector to the VJ take-up CNT board assembly.



No.	Part name
1	VJ take-up CNT board assembly
2	Cable of W_ON sensor relay assembly and W_OFF sensor relay assembly

2. Detach the W\_ON sensor relay assembly and the W\_OFF sensor relay assembly from the CR\_HP sensor and the lever sensor.



No.	Part name
1	CR_HP sensor, lever sensor
2	W_ON sensor relay assembly, W_OFF sensor relay assembly

3. Replace the W\_ON sensor relay assembly and W\_OFF sensor relay assembly
4. To reassemble the unit, reverse the removal procedure.

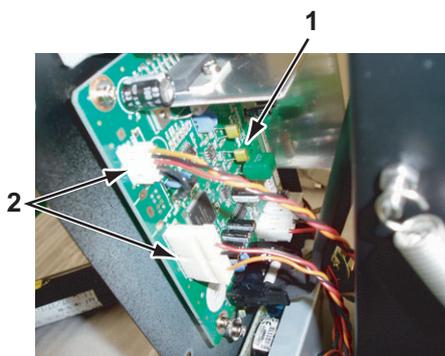
(2) Replacing CR\_HP Sensor, Lever Sensor

**NOTE**

Remove the screws that retains the board chassis before replacing the CR\_HP sensor or the lever sensor.

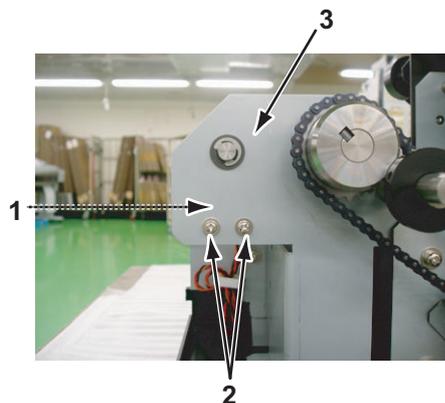
☞ "(1) Removing Board Chassis" p.4-143

1. Remove the cable of the W\_ON sensor relay assembly and W\_OFF sensor relay assembly from the connector to the VJ take-up CNT board assembly.



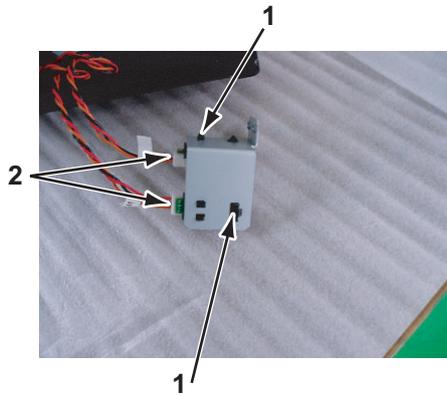
No.	Part name
1	VJ take-up CNT board assembly
2	W_ON sensor relay assembly, W_OFF sensor relay assembly

2. Remove the screws (pan-head screw with spring washer and flat washer polished M3 × 6: 2 pieces) that retains the sensor mounting plate (87NX) on the right of the inside chassis.



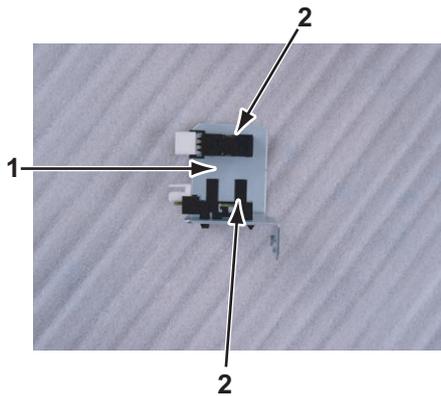
No.	Part name
1	Sensor mounting plate (87NX)
2	Screws that retains the sensor mounting plate (87NX)
3	Right of the inside chassis

- Detach the W\_ON sensor relay assembly and the W\_OFF sensor relay assembly from the CR\_HP sensor and lever sensor.



No.	Part name
1	CR_HP sensor, the lever sensor
2	W_ON sensor relay assembly, W_OFF sensor relay assembly

- Detach the CR\_HP sensor and the lever sensor from the sensor mounting plate (87NX).



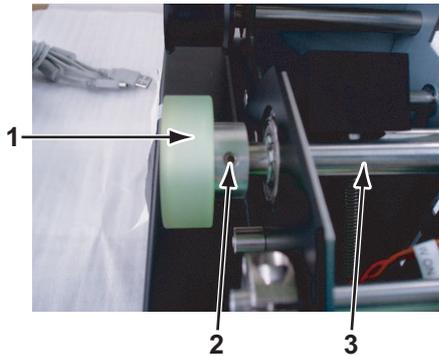
No.	Part name
1	Sensor mounting plate (87NX)
2	CR_HP sensor, the lever sensor

- To reassemble the unit, reverse the removal procedure.

### 4.13.5 Replacing Peripheral Devices of VJ Take-up Motor Assembly

#### (1) Replacing Drive Roller

1. Remove the flat head screws (set screw with thin tip M4 × 6; 2 pieces) that retain the drive roller on the drive axis C.



No.	Part name
1	Drive roller
2	Screws that retain the drive roller
3	Drive axis C

2. Remove the drive roller.
3. To reassemble the unit, reverse the removal procedure.

(2) Replacing VJ Take-up Motor Assembly

**CAUTION**

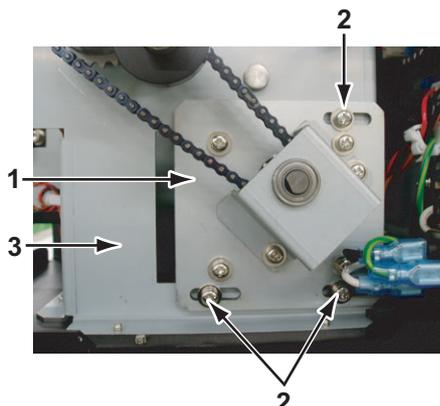
Do not touch the motor right after starting-up the plotter. Otherwise, you may be burned.

**NOTE**

Remove the following parts before replacing the VJ take-up motor assembly.

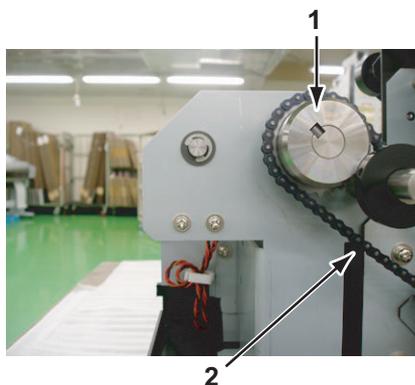
- Take-up cover: [☞"4.13.1 Removing Take-up Cover" p.4-140](#)
- Screw for the board chassis: [☞"\(1\) Removing Board Chassis" p.4-143](#)

1. Remove the screws (pan-head screw with spring washer and flat washer polished M4 × 10: 3 pieces) that retain the motor mounting plate on the right of the inside chassis.



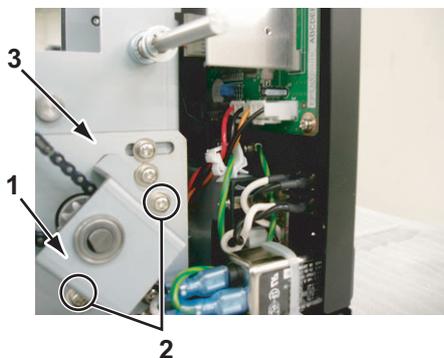
No.	Part name
1	Motor mounting plate
2	Screws that retain the motor mounting plate
3	Right of the inside chassis

2. Detach the chain from the sprocket large.



No.	Part name
1	Chain
2	Sprocket large

3. Remove the screws (pan-head screw with spring washer and flat washer polished M4 × 6:2 pieces) that retain the axis holder on the motor mounting plate.



No.	Part name
1	Axis holder
2	Axis holder
3	Motor mounting plate

4. Remove the bearings.
5. Replace the VJ take-up motor assembly.
6. To reassemble the unit, reverse the removal procedure.



---

## 5 Self-Diagnosis Mode

<b>5.1</b>	<b>Introduction .....</b>	<b>5- 4</b>
<b>5.2</b>	<b>Preparation .....</b>	<b>5- 4</b>
5.2.1	Preparations on Machine .....	5-4
5.2.2	Starting Up .....	5-4
<b>5.3</b>	<b>Operations in Self-Diagnosis Mode .....</b>	<b>5- 6</b>
5.3.1	Operating Self-Diagnosis Mode .....	5-6
5.3.2	Diagnosis Items in Self-Diagnosis Menu .....	5-8
<b>5.4</b>	<b>Platen Adjustment Menu .....</b>	<b>5- 10</b>
<b>5.5</b>	<b>Inspection Menu.....</b>	<b>5- 11</b>
5.5.1	Memory Size Menu .....	5-12
5.5.2	Version Menu .....	5-13
5.5.3	Operation Panel Menu .....	5-14
5.5.4	Sensor Menu .....	5-15
5.5.5	Encoder Menu .....	5-17
5.5.6	Fan Menu .....	5-17
5.5.7	History Menu .....	5-18
5.5.8	Head Waveform Menu .....	5-21
<b>5.6</b>	<b>Ink Charging Menu.....</b>	<b>5- 22</b>
<b>5.7</b>	<b>Adjustment Menu .....</b>	<b>5- 23</b>
5.7.1	Head Nozzle Check Menu .....	5-25
5.7.2	Skew Check Menu .....	5-27
5.7.3	Head Slant Check Menu .....	5-28
5.7.4	Voltage Adjustment.....	5-31

---

5.7.5	Uni-D/Bi-D Low/High Adjustment .....	5-33
5.7.6	Side Margin Adjustment Menu .....	5-38
5.7.7	Test Printing Menu .....	5-39
5.7.8	HeadWash Menu .....	5-40
5.7.9	HeadWash Menu 2.....	5-40
5.7.10	Software Counter Initialization Menu .....	5-41
5.7.11	Feed Pitch Check Menu .....	5-42
5.7.12	Solid Print Menu .....	5-43
<b>5.8</b>	<b>Cleaning Menu .....</b>	<b>5- 44</b>
<b>5.9</b>	<b>Sample Printing Menu .....</b>	<b>5- 45</b>
<b>5.10</b>	<b>Time Setting .....</b>	<b>5- 46</b>
<b>5.11</b>	<b>Parameter Menu.....</b>	<b>5- 47</b>
5.11.1	Parameter Initialization Menu .....	5-47
5.11.2	Parameter Update Menu .....	5-49
<b>5.12</b>	<b>Servo Setting .....</b>	<b>5- 54</b>
<b>5.13</b>	<b>Endurance Running Menu .....</b>	<b>5- 56</b>
5.13.1	CR Motor Endurance Menu .....	5-57
5.13.2	PF Motor Endurance Menu .....	5-58
5.13.3	Pump Endurance Menu.....	5-59
5.13.4	Print Head Endurance (Nozzle Print) Menu .....	5-60
5.13.5	General Endurance Menu .....	5-61
5.13.6	Endurance Running Check Menu.....	5-62
<b>5.14</b>	<b>Media Feed Menu.....</b>	<b>5- 62</b>

**5.15 ExControl Menu ..... 5- 63**

5.15.1 Version..... 5-63

5.15.2 Sensor ..... 5-64

5.15.3 Mist Fan ..... 5-66

5.15.4 Heater ..... 5-66

5.15.5 History..... 5-66

**5.16 PaperInitial Menu ..... 5- 67**

## 5.1 Introduction

This chapter provides information on the self-diagnosis function.

The self-diagnosis function adjusts the printing accuracy. It is used in the manufacturing process, adjustment, and maintenance.

The self-diagnosis function is implemented in the system firmware. All functions are available from the operation panel.

### TIP

☞ "2.3 Part Names and Functions" p.2-3

## 5.2 Preparation

Before you can use the self-diagnosis function, you must make the machine ready to call up the self-diagnosis menu.

### 5.2.1 Preparations on Machine

Before starting up the self-diagnosis function, perform the following preparations.

#### (1) Setting Printing Media

Set a roll media for adjustment.

### NOTE

- In the self-diagnosis menu display status, the media type is automatically set to MF-3G.
- During adjustment, use coated paper for the media.

#### (2) Connecting Power Cable

Connect the power cable to the machine's inlet assembly and insert the power plug into an outlet.

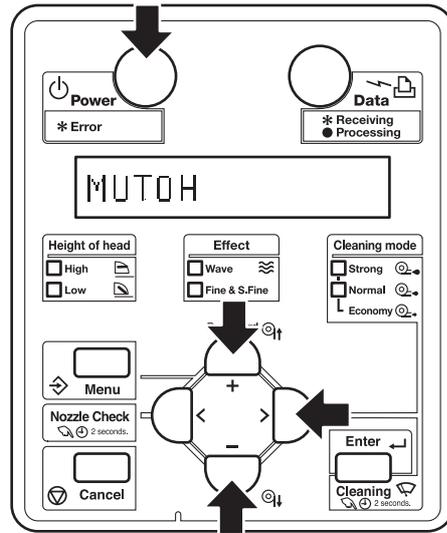
### NOTE

Do not connect three or more power plugs to one outlet.

### 5.2.2 Starting Up

To use the self-diagnosis function, you must first call up the self-diagnosis menu on the operation panel. The self-diagnosis menu is completely independent of the normal operation mode and self-diagnosis display mode. To call up the self-diagnosis menu, follow the steps below.

1. If the system is in the operation mode or the self-diagnosis menu mode, press [Power] key to turn the plotter off.
2. While holding down [Setting/value -] key, [Setting/value +] key and [>] key in the operation panel simultaneously, press [Power] key.  
The system will enter the self-diagnosis mode and display the self-diagnosis menu.



## 5.3 Operations in Self-Diagnosis Mode

This section explains how to operate in the self-diagnosis mode as well as providing the list of available diagnosis items.

### 5.3.1 Operating Self-Diagnosis Mode

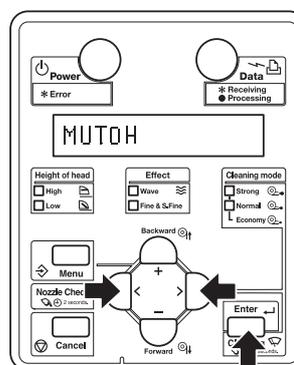
Follow the operation flow shown below to operate the self-diagnosis mode.

#### TIP

For more detailed operation steps, refer to the flow chart of the applicable diagnosis item.

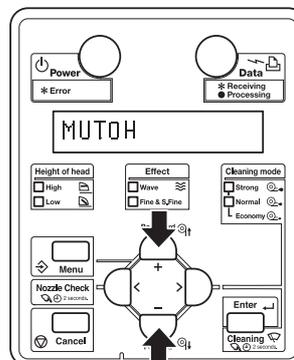
1. Press [<] key or [>] key in the operation panel to select the item to be diagnosed, and press [Enter] key.

- The selected item is accepted.
- If the item has a sub menu, the sub menu is displayed.



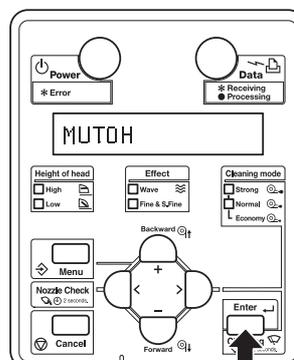
2. When the LCD monitor in the operation panel indicates a setting value, the value can be modified.

Press [Setting/value +] key or [Setting/value -] key in the operation panel to modify the value.



3. To save the modified value, press [Enter] key in the operation panel.

The modified set value is stored and the next item is displayed

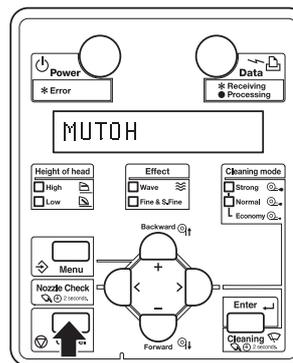


#### NOTE

If you press [Cancel] key, or, [Setting/value +] key or [Setting/value -] key, instead of [Enter] key, the modification is not stored.

- To quit the diagnosis, press [Cancel] key in the operation panel.

The system returns to an upper hierarchy of the diagnosis menu.



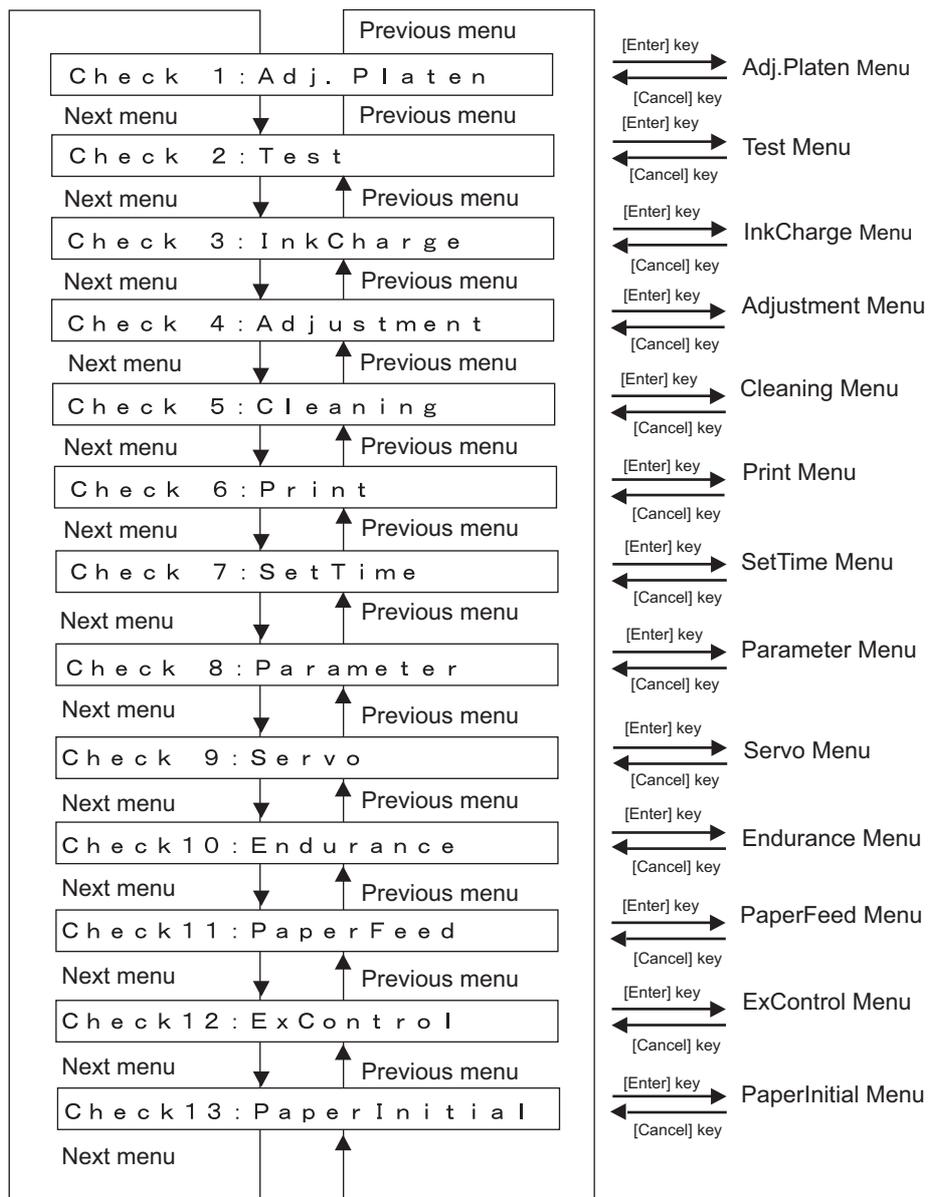
- To exit the self-diagnosis menu, press [Power] key.

### 5.3.2 Diagnosis Items in Self-Diagnosis Menu

The self-diagnosis menu includes the following diagnosis items.

Table 5-1 Diagnosis Items in Self-Diagnosis Menu

Diagnosis item	Contents	Reference
Platen Adjustment Menu	Performs temperature setting for the platen heater to 42 °C.	 <b>"5.4 Platen Adjustment Menu" p.5-10</b>
Inspection Menu	Performs various inspections on the circuit boards, sensors, and fans.	 <b>"5.5 Inspection Menu" p.5-11</b>
Ink Charging Menu	Performs ink charging.	 <b>"5.6 Ink Charging Menu" p.5-22</b>
Adjustment Menu	Performs various adjustments for the plotter mechanism.	 <b>"5.7 Adjustment Menu" p.5-23</b>
Cleaning Menu	Performs cleaning of the print head.	 <b>"5.8 Cleaning Menu" p.5-44</b>
Print Menu	Performs sample printing necessary for adjustment.	 <b>"5.9 Sample Printing Menu" p.5-45</b>
Time Setting Menu	Performs setting the time of the plotter.	 <b>"5.10 Time Setting" p.5-46</b>
Parameter Menu	Configures various adjustment parameters.	 <b>"5.11 Parameter Menu" p.5-47</b>
Servo Menu	Performs adjustment for the servo motor.	 <b>"5.12 Servo Setting" p.5-54</b>
Endurance Running Menu	Performs endurance running of the plotter mechanism.	 <b>"5.13 Endurance Running Menu" p.5-56</b>
Media feed Menu	Feeds media into the plotter forward or backward.	 <b>"5.14 Media Feed Menu" p.5-62</b>
ExControl Menu	Diagnoses the controller board.	 <b>"5.15 ExControl Menu" p.5-63</b>
PaperInitial Menu	Performs initialization and media detection setting.	 <b>"5.16 PaperInitial Menu" p.5-67</b>



## 5.4 Platen Adjustment Menu

In the platen adjustment menu, you can set the temperature of the pre-heater and platen heater to 42°C. Parts assembly and adjustment should be done in the condition.

\* This item displays platen temperature only.

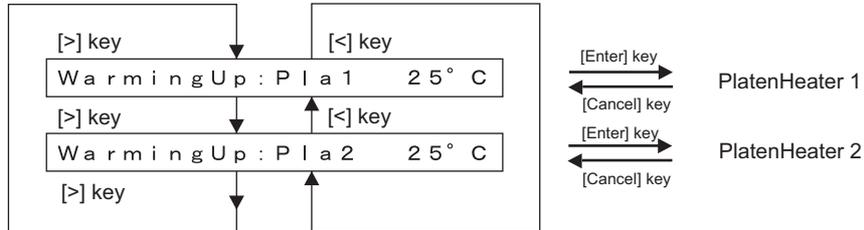


Fig. 5-1 If the heater temp. does not reach 42°C

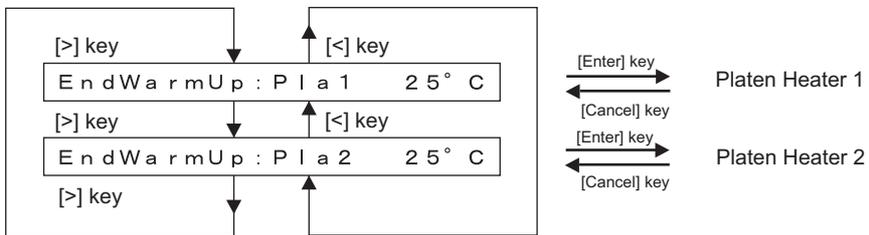


Fig. 5-2 If Pla1 reaches 42°C

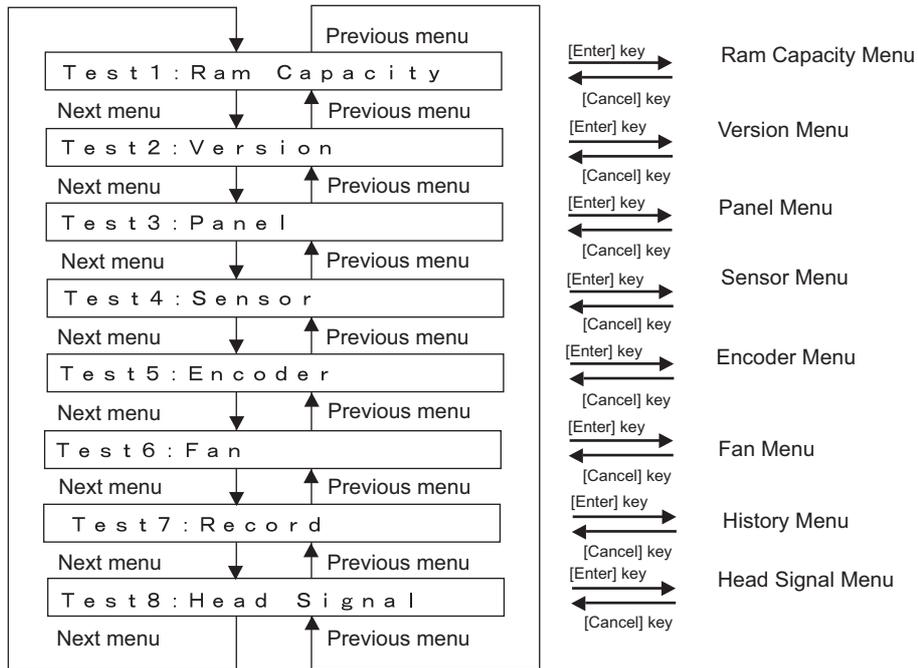
\* Pla2 is a reference value. Though Pla2 does not reach 42°C, Pla1 reaches 42°C and it will be complete.

## 5.5 Inspection Menu

In the inspection menu, you can perform various inspections on the circuit boards, sensors, and fans. The inspection menu includes the following diagnosis items.

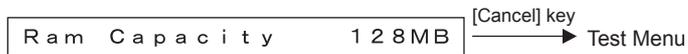
Table 5-2 Diagnosis Items for Inspection Menu

Diagnosis item	Contents	Reference
Memory size	Displays the size of memories installed on the MAIN board assembly	 <a href="#">"5.5.1 Memory Size Menu" p.5-12</a>
Version	Displays the versions of the firmware and MAIN board assembly <ul style="list-style-type: none"> <li>• Firmware version</li> <li>• Backup parameter version</li> <li>• Setting of dip switches</li> <li>• Revision of MAIN board assembly</li> </ul>	 <a href="#">"5.5.2 Version Menu" p.5-13</a>
Operation panel	Used to check the functions of the operation panel keys, LCD, and LED.	 <a href="#">"5.5.3 Operation Panel Menu" p.5-14</a>
Sensor	Displays the status of the following sensors. <ul style="list-style-type: none"> <li>• CR_ORG sensor</li> <li>• Wiper sensor</li> <li>• Cover sensor</li> <li>• Lever sensor</li> <li>• Head slide sensor</li> <li>• Waste fluid box sensor</li> <li>• P_EDGE sensor</li> <li>• P_REAR sensor</li> <li>• Head transistor thermistor sensor</li> <li>• Head thermistor sensor</li> </ul>	 <a href="#">"5.5.4 Sensor Menu" p.5-15</a>
Encoder	Displays the detected values from the following encoders. <ul style="list-style-type: none"> <li>• CR (Carriage)</li> <li>• PF (Media feed)</li> </ul>	 <a href="#">"5.5.5 Encoder Menu" p.5-17</a>
Fan	Used to check if the following fans operate normally by turning them ON and OFF. <ul style="list-style-type: none"> <li>• Suction fan</li> <li>• Cooling fan</li> <li>• Head fan</li> </ul>	 <a href="#">"5.5.6 Fan Menu" p.5-17</a>
History	Used to check the following records. Used to initialize the serious error history. <ul style="list-style-type: none"> <li>• Maintenance history</li> <li>• Serious error history</li> </ul>	 <a href="#">"5.5.7 History Menu" p.5-18</a>
Head waveform	Used to check the head-driving waveform.	 <a href="#">"5.5.8 Head Waveform Menu" p.5-21</a>



### 5.5.1 Memory Size Menu

This menu displays the size of memories installed on the MAIN board assembly.



### 5.5.2 Version Menu

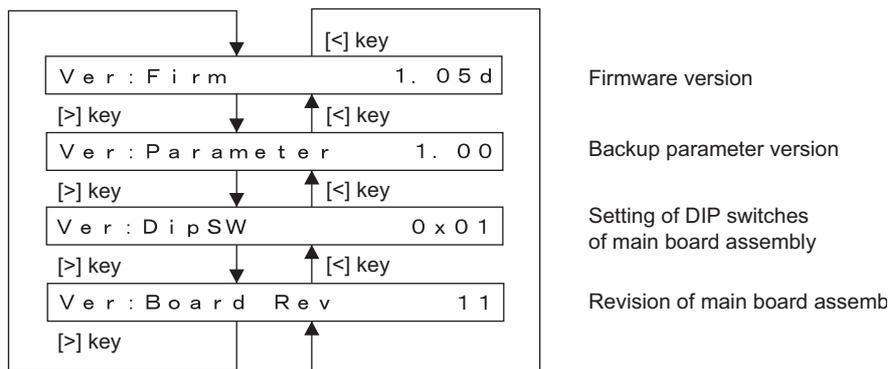
This menu displays the following contents about the firmware and MAIN board assembly.

- Firmware version
- Backup parameter version
- Setting of dip switches of MAIN board assembly
- Revision of MAIN board assembly

**TIP**

Settings for the DIP switch on the MAIN board assembly are displayed as follows:

- ON: 0, OFF: 1
- Switch No.1: LSB
- Switch No.2: MSB



Firmware version

Backup parameter version

Setting of DIP switches of main board assembly

Revision of main board assemb

### 5.5.3 Operation Panel Menu

This menu is used to check the functions of the operation panel keys, LCD, and LEDs.

#### (1) Operation Panel Key Check

When you press a key in the operation panel, the name of the key is displayed on the LCD. To exit the operation panel key check, press [Cancel] key twice.

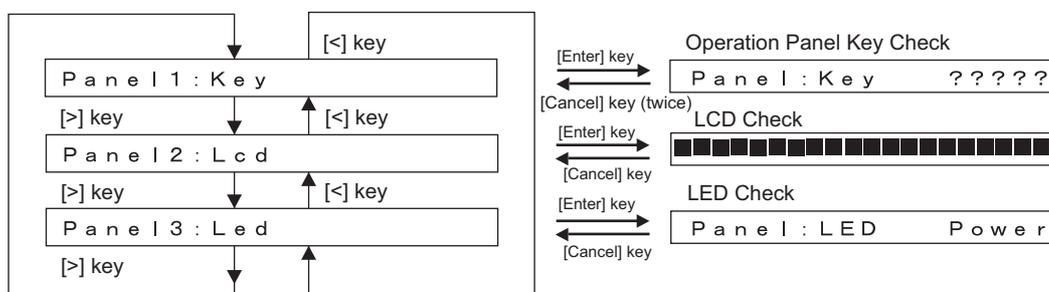
#### (2) LCD Check

The entire LCD screen is filled in black. You can check for any missing dots.

#### (3) LED Check

The following LEDs light up in the following order. The LCD displays the name of the LED that is currently illuminated.

- Power lamp
- Data lamp
- High lamp
- Low lamp
- Wave lamp
- Fine & S.Fine lamp
- Strong lamp
- Normal lamp



## 5.5.4 Sensor Menu

This menu displays the sensor status on the operation panel.

If the displayed sensor status does not match the actual machine status, replace or adjust the relevant sensor referring to the table below.

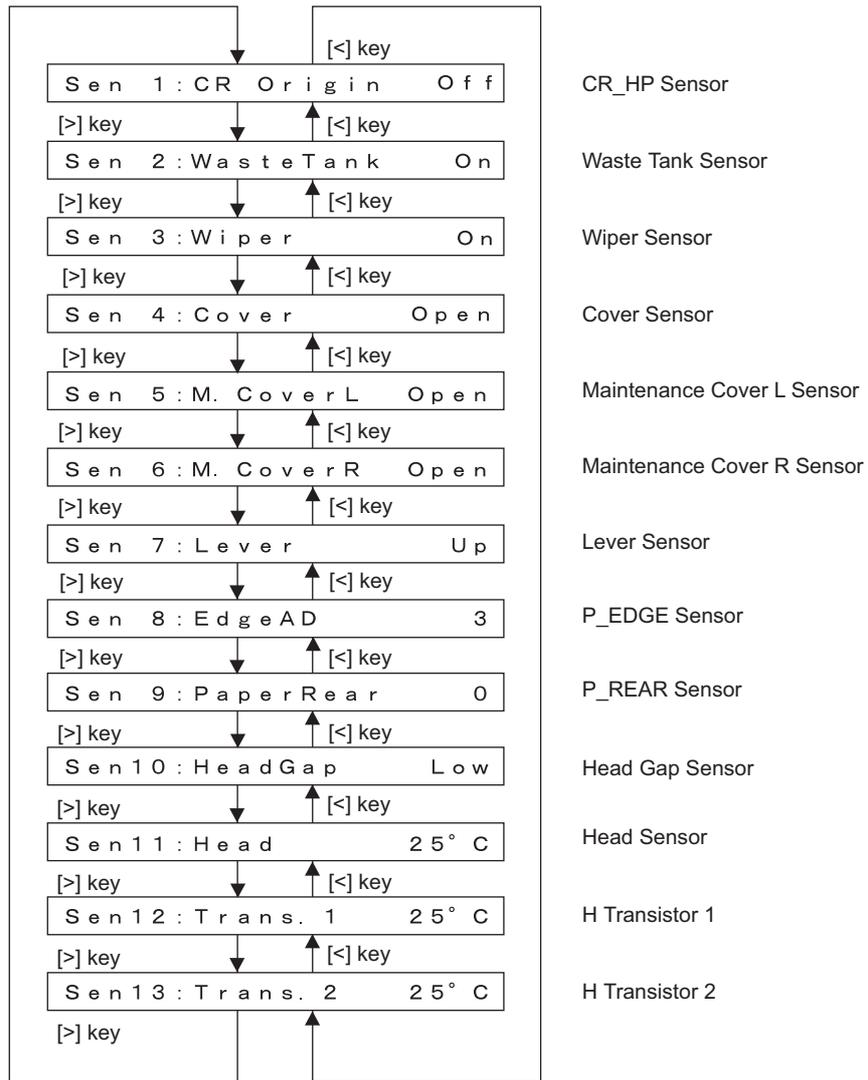
Table 5-3 Inspection Items in Sensor Menu

No.	Sensor name	Status in display	Reference
1	CR_HP sensor	ON / OFF	☞ "4.13.4 Replacing CR_HP Sensor, Lever Sensor" p.4-150
2	Waste fluid tank sensor	ON / OFF	-
3	Wiper sensor	ON / OFF	-
4	Maintenance cover sensor (L/R)	Open / Close	-
5	Lever sensor	Up / Down	☞ "4.6.6 Replacing Lever Up Sensor" p.4-67
6	P_EDGE sensor	0 to 255	☞ "4.8.11 Replacing P_EDGE Sensor Assembly" p.4-118
7	P_REAR sensor	0 to 255	☞ "4.6.5 Replacing P_REAR Sensor Assembly" p.4-65
8	Headslide	Low / High	
9	Head thermistor	** °C	☞ "4.8.9 Replacing Print Head" p.4-114
10	H transistor 1, 2	** °C	-

### NOTE

For the following sensors, the sensor sensitivity is displayed in decimal number.

- P\_EDGE sensor



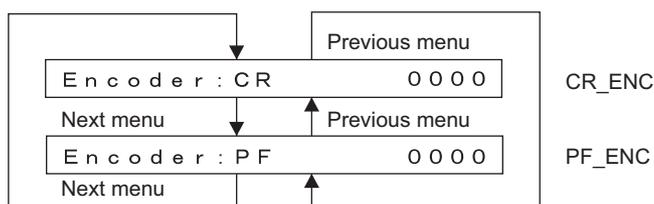
### 5.5.5 Encoder Menu

This menu displays the detected values from the following encoders.

- CR\_ENC (Carriage)
- PF\_ENC (Media feed)

**NOTE**

For the encoder-detected values, the encoder pulse numbers are displayed in hexadecimal number.

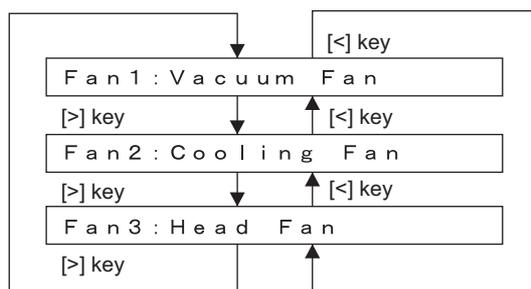


### 5.5.6 Fan Menu

This menu is used to check if the fans operate normally by turning them ON and OFF. If this operation is selected, the fans operate as follows:

- Suction fan: Turns to ON
- Cooling fan: Turns to OFF
- Head fan: Turns to ON

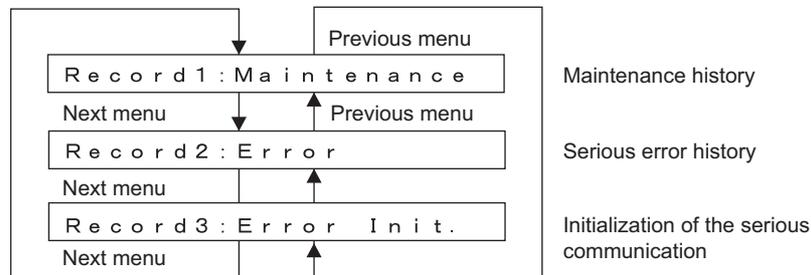
If you press [Cancel] key, the suction fan is deactivated and the cooling fan is resumed, and the display shifts to "Inspection: Fan".



## 5.5.7 History Menu

This menu is used to check maintenance history and serious error history.

This menu is used to check maintenance history and serious error history and to initialize serious error history.



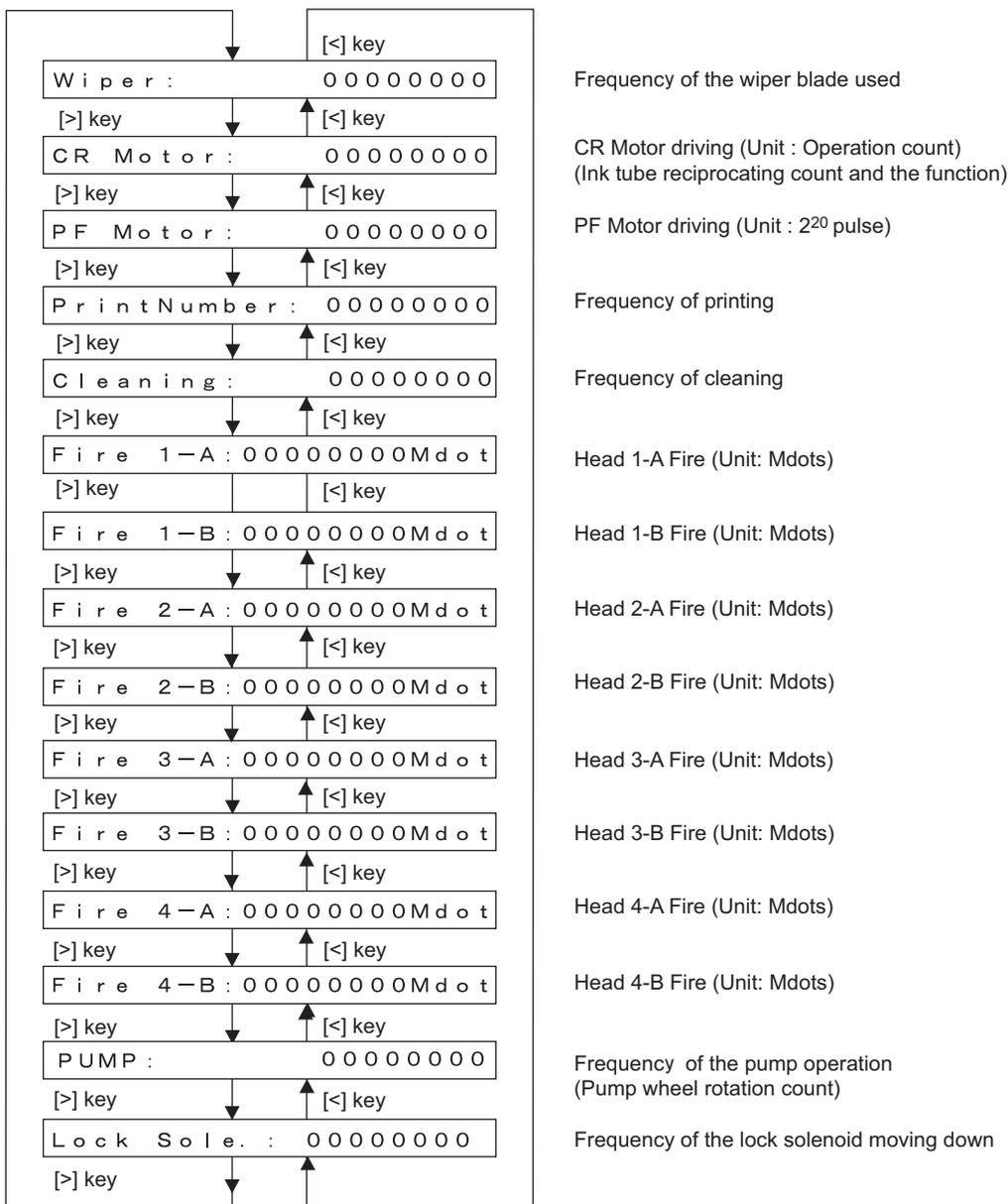
### (1) Maintenance History

This displays the past maintenance records on the following components.

- Number of wiping of wiper
- Number of CR motor activation cycles
- Number of PF motor activation cycles
- Number of printed copies
- Number of cleaning cycles
- Discharged amount of head ink (K, C, M, Y)
- Pump count (number of pump wheel cycles)
- Number of lock solenoid downs

#### NOTE

All values of maintenance history are indicated in hexadecimal form.

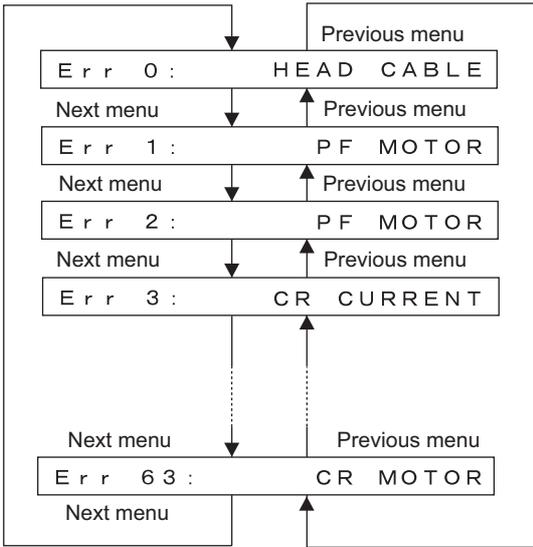


(2) Serious Error History

Indicates serious error history.

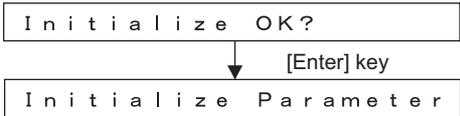
**NOTE**

- The serious error history does not include CPU error.
- The serious error history menu indicates the history up to 32.



(3) Error Initialization

This menu is used to initialize the serious error history.

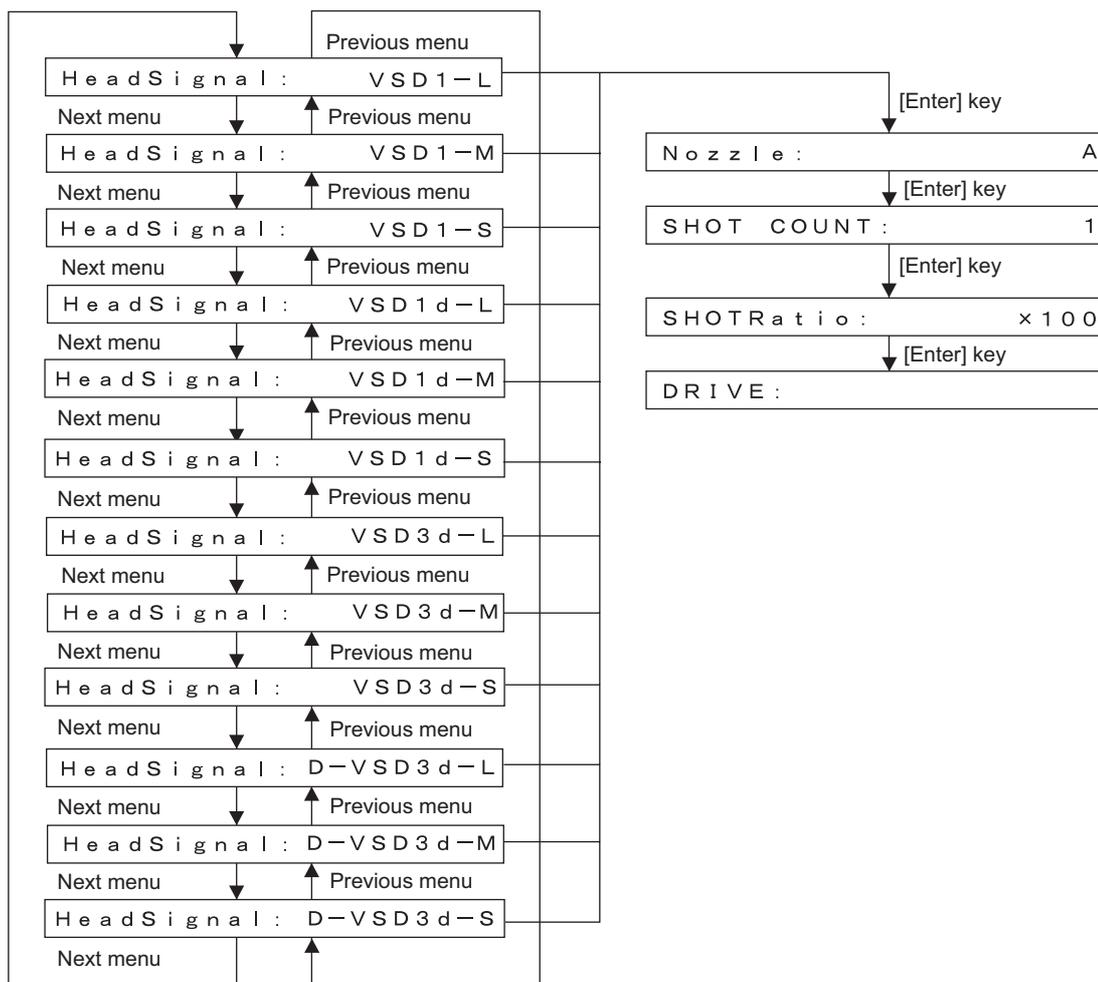


### 5.5.8 Head Waveform Menu

This menu is used to check the head-driving waveform.

**NOTE**

Magnification can be selected from the range of x1-1000000. Nozzle can be selected among A to H and ALL.

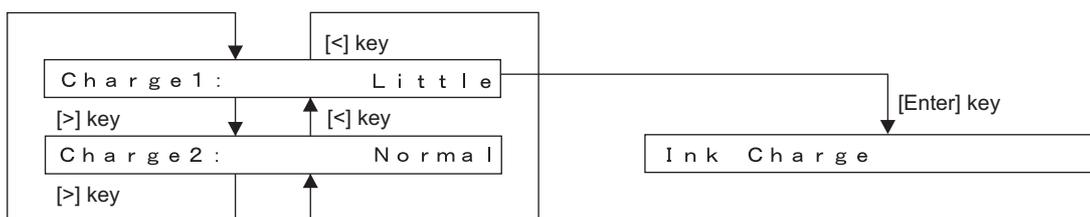


## 5.6 Ink Charging Menu

In the ink charging menu, you can charge ink.  
 The ink charging menu includes the following items.

Table 5-4 Ink Charging menu

Charging item	Contents
InkCharge	Performs initial ink charging.
LittleCharge	Performs a small amount of ink charging.



\* In “LittleCharge“ process, the plotter charges a small amount of ink, which is one-fourth of “InkCharge“ main suction steps.

## 5.7 Adjustment Menu

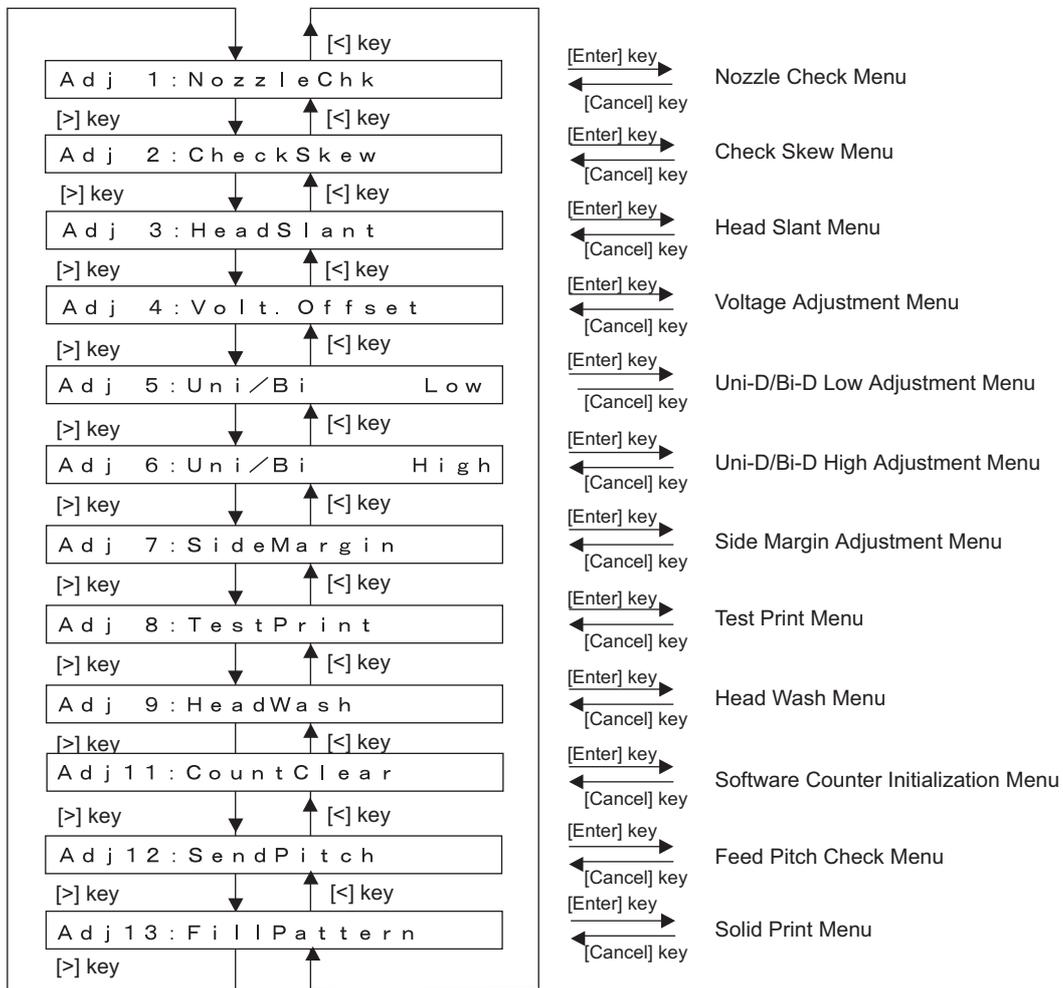
In this menu, you can align the printing position and correct the media feed operation. The adjustment menu includes the following diagnosis menus.

Table 5-5 Diagnosis Items in Adjustment Menu

Diagnosis item	Contents	Reference
Head nozzle check	Prints out a printing to check the ink discharge performance of the head nozzles.	 <a href="#">"5.7.1 Head Nozzle Check Menu" p.5-25</a>
Skew check	Performs media feed and detects the degree of skew in media feed by the sensor.	 <a href="#">"5.7.2 Skew Check Menu" p.5-27</a>
Head slant check	Prints out a printing to check for print head slant (horizontal and vertical direction). Mechanical adjustment must be performed as necessary.	 <a href="#">"5.7.3 Head Slant Check Menu" p.5-28</a>
Volt. adjustment	Adjusts the print position of VSD3 - small dot.	 <a href="#">"5.7.4 Voltage Adjustment" p.5-31</a>
Uni-D / Bi-D adjustment Low	Prints out a printing to align the nozzle line distance (Uni-D) of PG Low and the position of the repeated printing. Uni-D 240: 240 cps Uni-D 320: 320 cps Uni-D 240B: 240 cps (Banner) Uni-D 320B: 320 cps (Banner) Bi-D 240: 240 cps Bi-D 320: 320 cps Bi-D 240B: 240 cps (Banner) Bi-D 320B: 320 cps (Banner)	 <a href="#">"5.7.5 Uni-D/Bi-D Low/High Adjustment" p.5-33</a>
Uni-D / Bi-D adjustment High	Prints out a printing to align the nozzle line distance (Uni-D) of PG High and the position of the repeated printing. Uni-D 240: 240 cps Uni-D 320: 320 cps Uni-D 240B: 240 cps (Banner) Uni-D 320B: 320 cps (Banner) Bi-D 240: 240 cps Bi-D 320: 320 cps Bi-D 240B: 240 cps (Banner) Bi-D 320B: 320 cps (Banner)	 <a href="#">"5.7.5 Uni-D/Bi-D Low/High Adjustment" p.5-33</a>
Side margin adjustment	Sets the side margin.	 <a href="#">"5.7.6 Side Margin Adjustment Menu" p.5-38</a>
Test printing	Prints out a head nozzle check pattern, an adjustment pattern, adjustment parameters, serious error history or a dot pattern.	 <a href="#">"5.7.7 Test Printing Menu" p.5-39</a>
HeadWash	Cleans the tubes and heads using cleaning liquid.	 <a href="#">"5.7.8 HeadWash Menu" p.5-40</a>

Table 5-5 Diagnosis Items in Adjustment Menu (Continued)

Diagnosis item	Contents	Reference
HeadWash 2	Cleans the tube heads using shipping fluid to maintain the condition at the time of shipping.	"5.7.9 HeadWash Menu 2" p.5-40
Software counter initialization	Clears various software counters.	"5.7.10 Software Counter Initialization Menu" p.5-41
Feed amount check	Used to check the media feed amount per band.	"5.7.11 Feed Pitch Check Menu" p.5-42
Solid print check	Performs solid nozzle print check (color selection, nozzle selection and print direction selection are available).	"5.7.12 Solid Print Menu" p.5-43

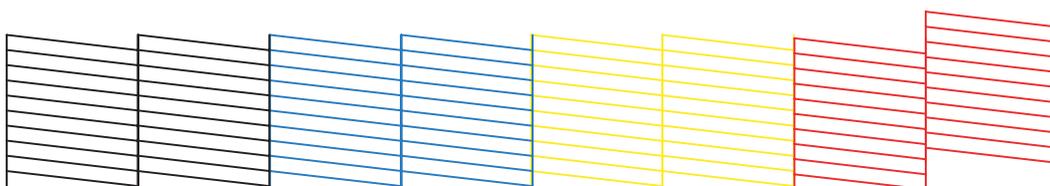


### 5.7.1 Head Nozzle Check Menu

In this menu, you can check if the head nozzles that has been charged can discharge ink correctly by printing a sample printing. To check the head nozzle, follow the steps below.

1. Set media as necessary.
2. After media is set, the machine prints out head nozzle check patterns in the following modes.
  - 1 pass, Uni-D
  - PF: 360 dpi
  - CR: 360 dpi
3. Check the printed head nozzle check patterns for the following points.
  - Ink nozzle discharge amount (omission, discontinuity, meandering)
  - Satellite
  - T fence
  - Nozzle alignment in vertical direction
  - Nozzle alignment in horizontal direction

Nozzle check: Prints out the pattern in the order of A to H



Nozzle alignment in vertical direction: Prints out the pattern in the order of A to H



Nozzle alignment in horizontal direction (CW direction): Prints out the pattern in the order of A to H



Nozzle alignment in horizontal direction (CCW direction): Prints out the pattern in the order of A to H

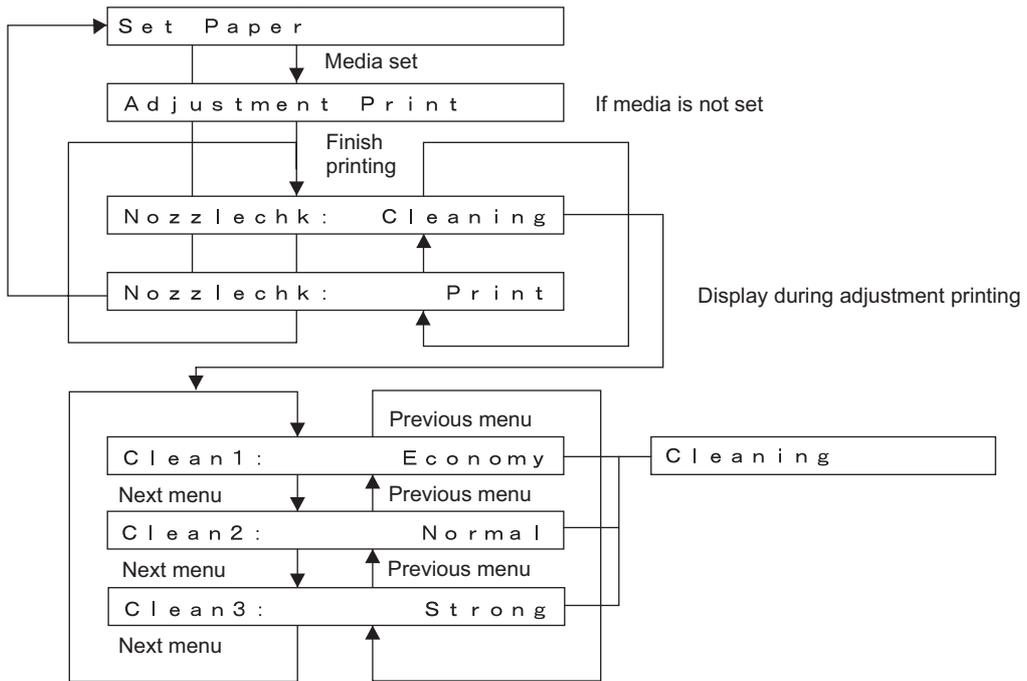


- 4. If any abnormal conditions are found in the ink discharge status of the head nozzles, perform cleaning.

**TIP**

"5.7.11 Feed Pitch Check Menu" p.5-42

- 5. After cleaning, make the machine print out head nozzle check patterns again.



### 5.7.2 Skew Check Menu

Feed the paper to check the skew size using sensor.

When you select this item from the Adjustment Menu, the plotter feeds the loaded media by one pass and checks difference of the media edge positions before and after the media feed detected by the sensor.

**NOTE**

Before performing skew check, ensure that the media is set correctly. The plotter determines the media setting reference position during first detection of media left edge. Therefore, the media that is not set correctly may cause errors as below.

- Media error occurs during skew check and plotter operation stops.
- During media initial operation after power is turned on or media is cut, "Undefined Paper" frequently occurs.

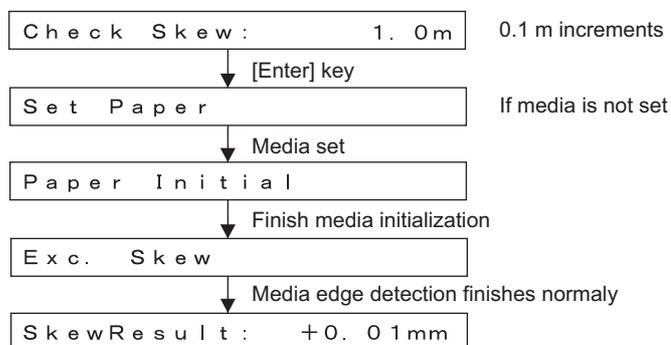


Table 5-6 Skew Amount Specification

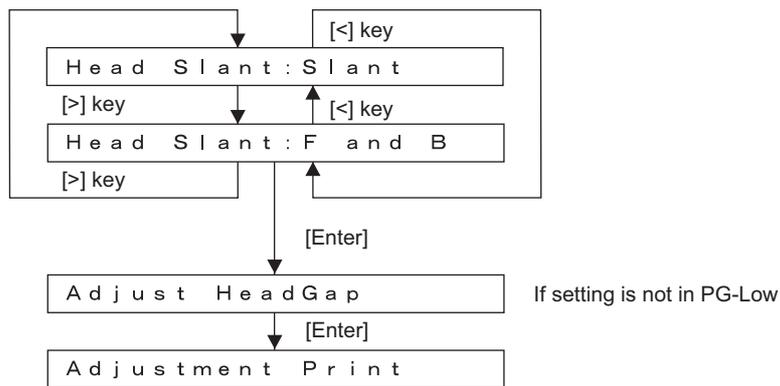
Condition		Specification
Roll media	7 m	2.5 mm or less
	50 m	10 mm or less

### 5.7.3 Head Slant Check Menu

The plotter has 8 nozzle lines per head. This menu adjusts the slant of each nozzle line evenly. Check the head slant from a sample printing, and perform mechanical adjustment if necessary.

Table 5-7 Head slant checking items

Items	Contents
Head slant in horizontal direction	Head slant check in horizontal direction
Head slant in vertical direction	Head slant check in vertical direction



#### (1) Horizontal Direction Checking

This menu prints out a sample printing to check for head slant in the horizontal direction. To perform head slant check, follow the steps below.

1. Set media as necessary.
2. After media is set, the plotter prints out head slant check patterns in the following modes.
  - 1 pass, Uni-D
  - PF: 360 dpi, CR: 360 dpi

3. Check the printed head slant check patterns. Checking items are as follows:

- Head slant

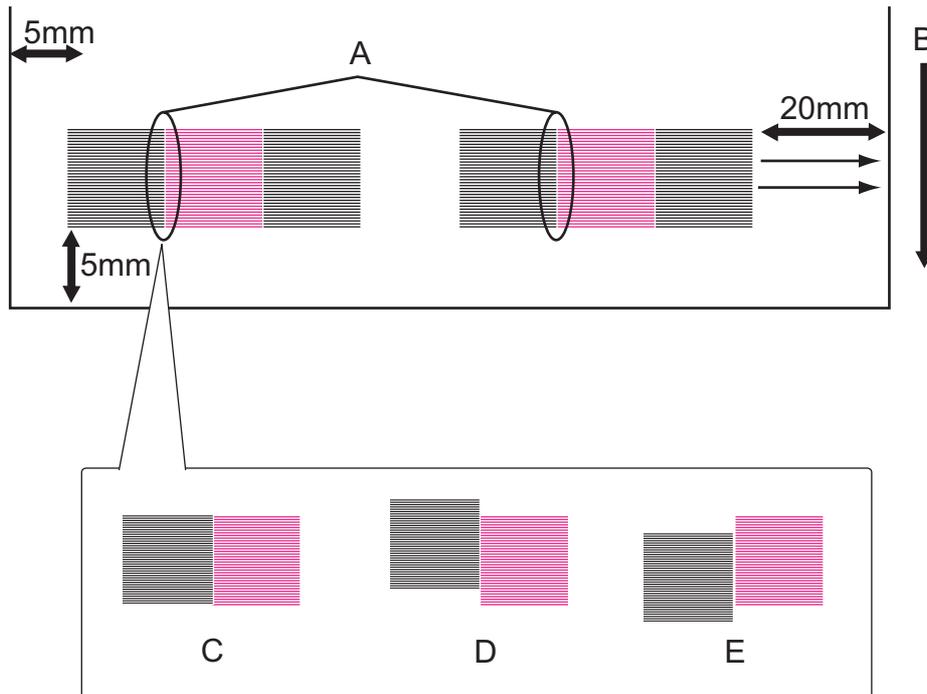
A: Check the point to check the slant.

B: Media feed direction

C: OK

D: Move the head adjustment cam upward

E: Move the head adjustment cam downward

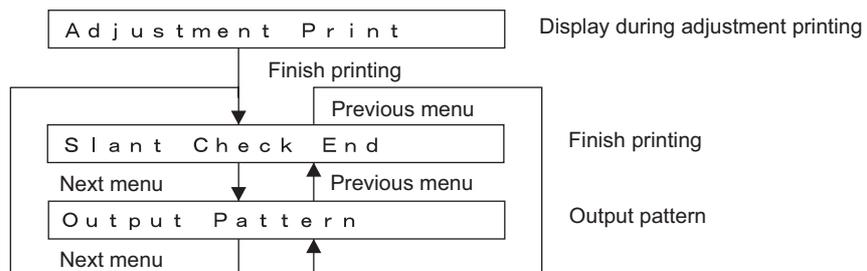


4. If any head slant is found, perform mechanical adjustment.

**TIP**

☞ "7.7.1 Head Alignment (Horizontal Height)" p.7-30

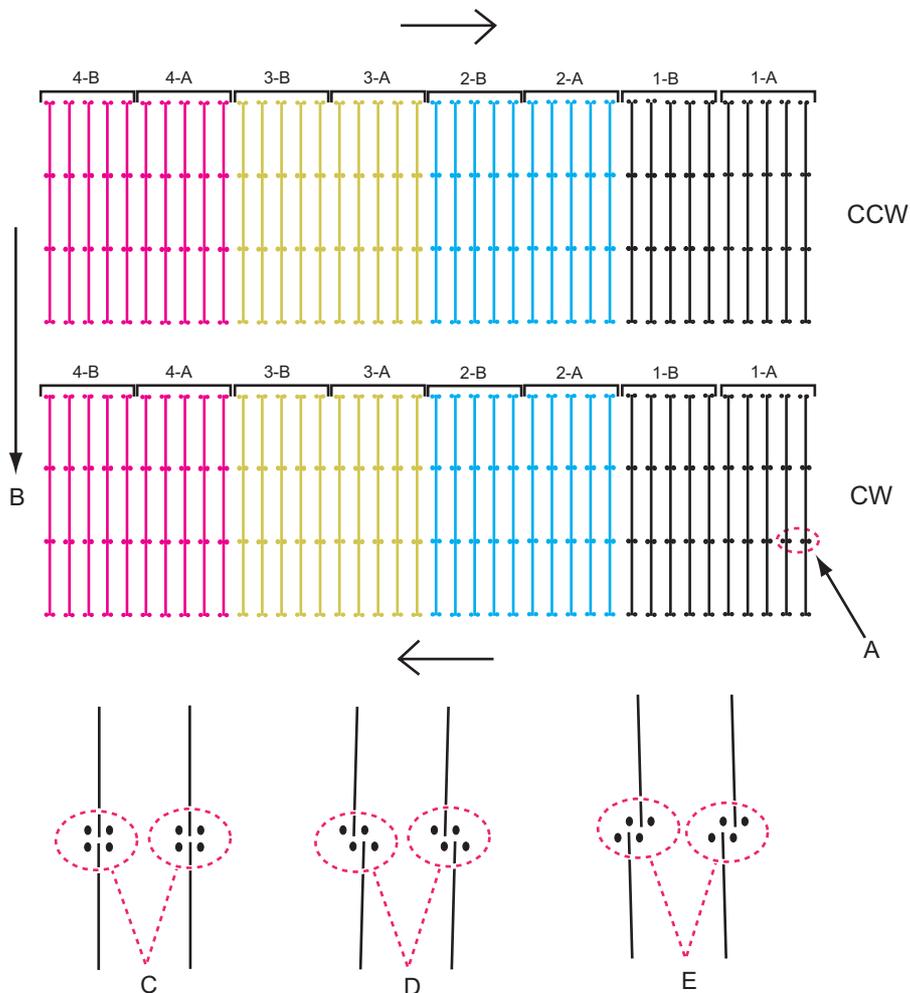
5. After mechanical adjustment, make the machine print out head nozzle check patterns again.



## (2) Vertical Direction Checking

This menu prints out a sample printing to check for head slant in the vertical direction.  
To perform head slant check, follow the steps below.

1. Set media as necessary.
2. After media is set, the machine prints out head slant check patterns in the following modes.
  - 1 pass, Uni-D
  - PF: 360 dpi, CR: 360 dpi
3. Check the printed head slant check patterns. Checking items are as follows:
  - A: Check the point to check the vertical slant.
  - B: Media feed direction
  - C: OK
  - D: Move the vertical-slant adjusting cam to the right.
  - E: Move the vertical-slant adjusting cam to the left.

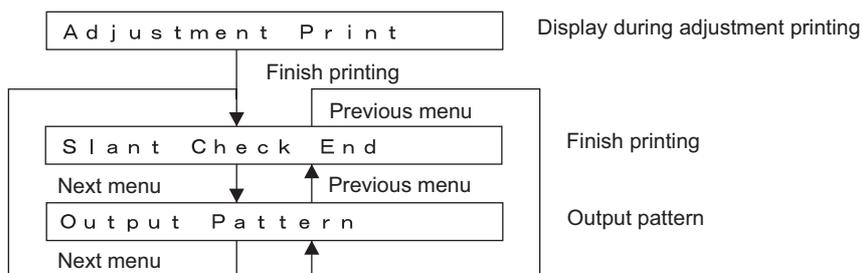


- If any head slant is found, perform mechanical adjustment.

**TIP**

☞ "7.7.2 Head Alignment (Vertical Slant)" p.7-32

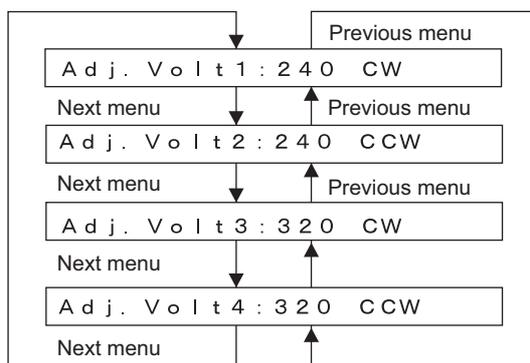
- After mechanical adjustment, make the machine print out head nozzle check patterns again.



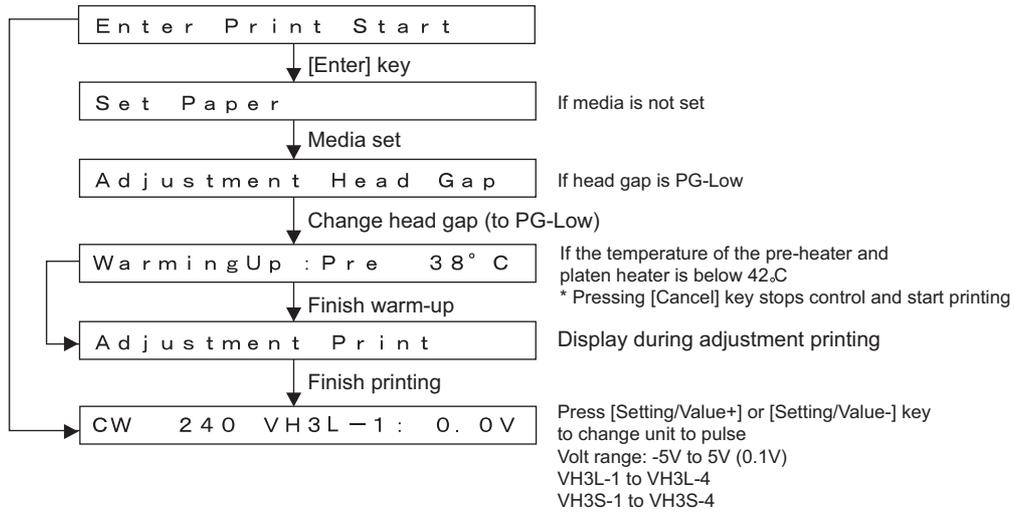
### 5.7.4 Voltage Adjustment

This menu is used to adjust the voltage of VSD 3 small dot so that the print position will be corrected. Check the small dot is on the center of the middle dots in the CR direction. When adjusting, change the voltage up to 5V (0.1V increment) considering the current voltage as a basis.

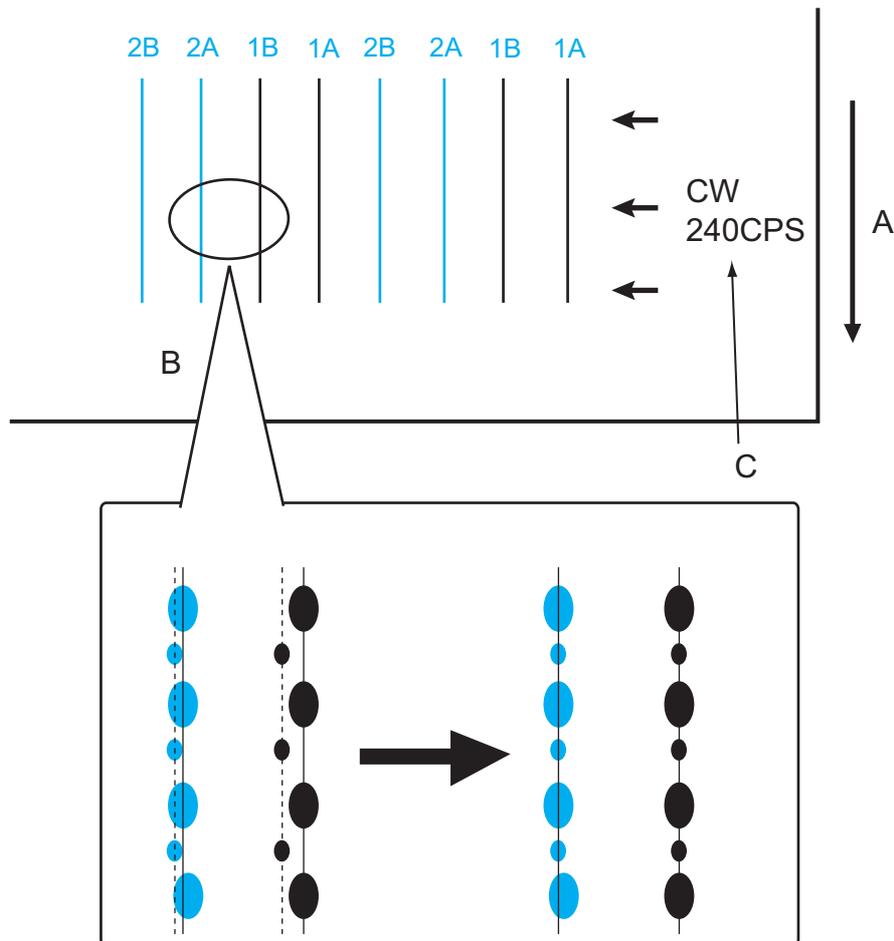
Items	Contents
240 CW	Adjusts the VSD 3-S at 240 cps / CW printing.
240 CCW	Adjusts the VSD 3-S at 240 cps / CCW printing.
320 CW	Adjusts the VSD 3-S at 320 cps / CW printing.
320 CCW	Adjusts the VSD 3-S at 320 cps / CCW printing.



The following figure shows a case for 240 CW.



Print pattern: 240 CW



A: Print direction

B: Adjust the voltage so that the small dot printed positions (shown as dot-line) are the same with the middle dot printed positions (in the CR direction).

C: Executed adjustment item is printed like this.

Items	Speed
240 CW	CW 240 CPS
320 CW	CW 320 CPS
240 CCW	CCW 240 CPS
320 CCW	CCW 320 CPS

\* Print pattern: Uni-D, 2 pass, 1A to 2B print

1st pass: prints middle dot

2nd pass: prints small dot

### 5.7.5 Uni-D/Bi-D Low/High Adjustment

Adjusts the gap of the print heads (in the CR moving direction) when the head is in the PG Low/High and the print position of the head in repeatability printing.

To adjust, perform printing in repeatability printing and correct CW and CCW printing positions by inputting parameters.

\* Check the plotout at the origin, center and the opposite side to origin, and perform adjustment so that the gap is even.

Adjustment items are shown below.

Table 5-8 Uni-D / Bi-D menu items

Item	Contents
Uni-D 240	Adjusts CW at 240 CPS. PG Low or High
Uni-D 320	Adjusts CW at 320 CPS. PG Low or High
Uni-D 240B	Adjusts CW at 240 CPS-Banner. PG Low or High
Uni-D 320B	Adjusts CW at 320 CPS-Banner. PG Low or High
Bi-D 240	Adjusts Bi-D at 240 CPS. PG Low or High
Bi-D 320	Adjusts Bi-D at 320 CPS. PG Low or High
Bi-D 240B	Adjusts Bi-D at 240 CPS-Banner. PG Low or High
Bi-D 320B	Adjusts Bi-D at 320 CPS-Banner. PG Low or High

Table 5-9 Uni-D / Bi-D adjustment items

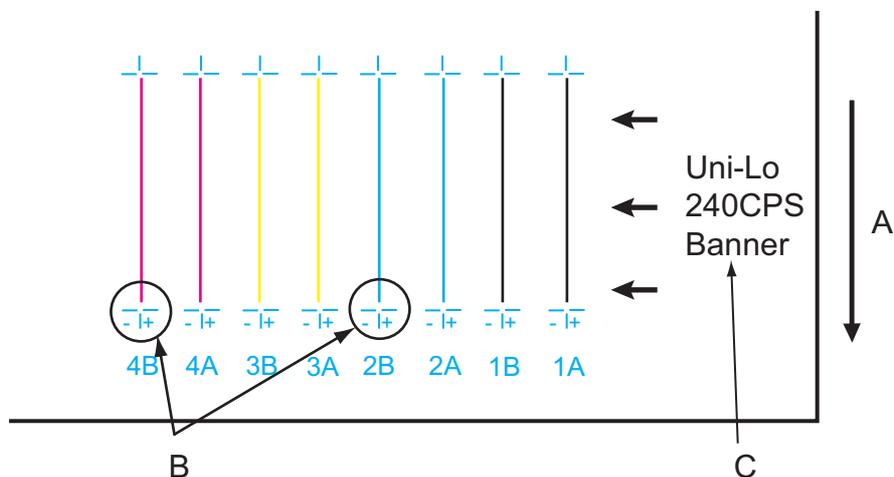
Item	Contents
Set up	Sets the selected parameter.
Print (when Bi-D is selected, Print 1 is displayed)	Prints pattern according to the selected item with the current parameter.

Table 5-9 Uni-D / Bi-D adjustment items (Continued)

Item	Contents
Print 2 (Print 2 is displayed only when Bi-D is selected)	Prints pattern according to the selected item with the current parameter, plus with the values of $\pm 2 / \pm 4 / \pm 6 / \pm 8$ to the current parameter. Check the gap of those printed patterns.

The actual procedure is as follows.

1. Set media as necessary.
2. After that, plotter starts printing automatically.
3. Check the printed pattern of CW adjustment.  
(The following shows a case for Uni-D 240 Low Print)  
Prints the pattern in the order of 1A to 4B.



A: Media feed direction

B: Adjust the setting value so that these point matches.

C: Executed adjustment item is printed like this.

Uni-D 240: Uni-Lo/Hi 240 CPS

Uni-D 320: Uni-Lo/Hi 320 CPS

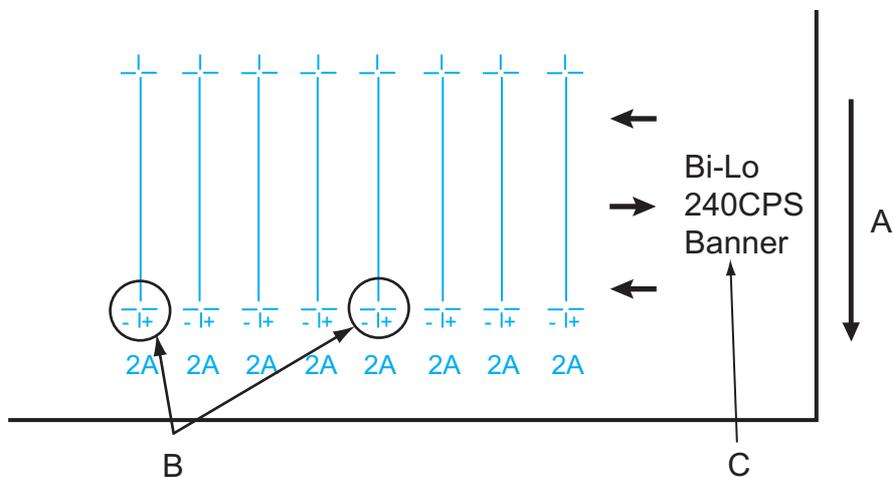
Uni-D 240B: Bi-Lo/Hi 240 CPS-Banner

Uni-D 320B: Bi-Lo/Hi 320 CPS-Banner

\* Either “Lo“ or “Hi“ is displayed where explained as “Lo/Hi“ above.

(The following shows a case for Bi-D 240 Low Print 1)  
 Prints the pattern by using 2A nozzle line.

\* Both Uni-D / Bi-D High should be adjusted in the same procedure.



A: Media feed direction

B: Adjust the setting value so that these point matches.

C: Executed adjustment item is printed like this.

Bi-D 240: Bi-Lo/Hi 240 CPS

Bi-D 320: Bi-Lo/Hi 320 CPS

Bi-D 240B: Bi-Lo/Hi 240 CPS-Banner

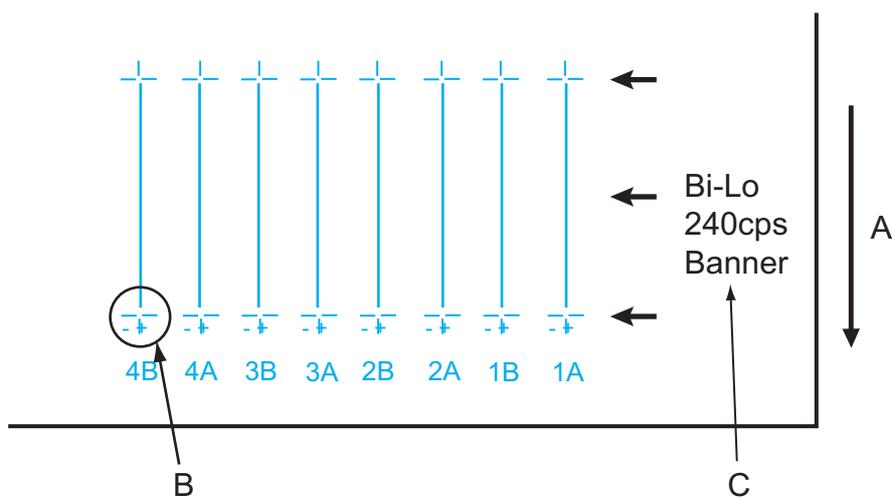
Bi-D 320B: Bi-Lo/Hi 320 CPS-Banner

\* Either “Lo“ or “Hi“ is displayed where explained as “Lo/Hi“ above.

(The following shows a case for Bi-D 240B Low Print 2)

Prints the pattern by using 2A nozzle line.

\* Both Uni-D / Bi-D High should be adjusted in the same procedure.



A: Media feed direction

B: Adjust the setting value so that these point matches.

C: Executed adjustment item is printed like this.

Bi-D 240: Bi-Lo/Hi 240 CPS

Bi-D 320: Bi-Lo/Hi 320 CPS

\* Either “Lo“ or “Hi“ is displayed where explained as “Lo/Hi“ above.

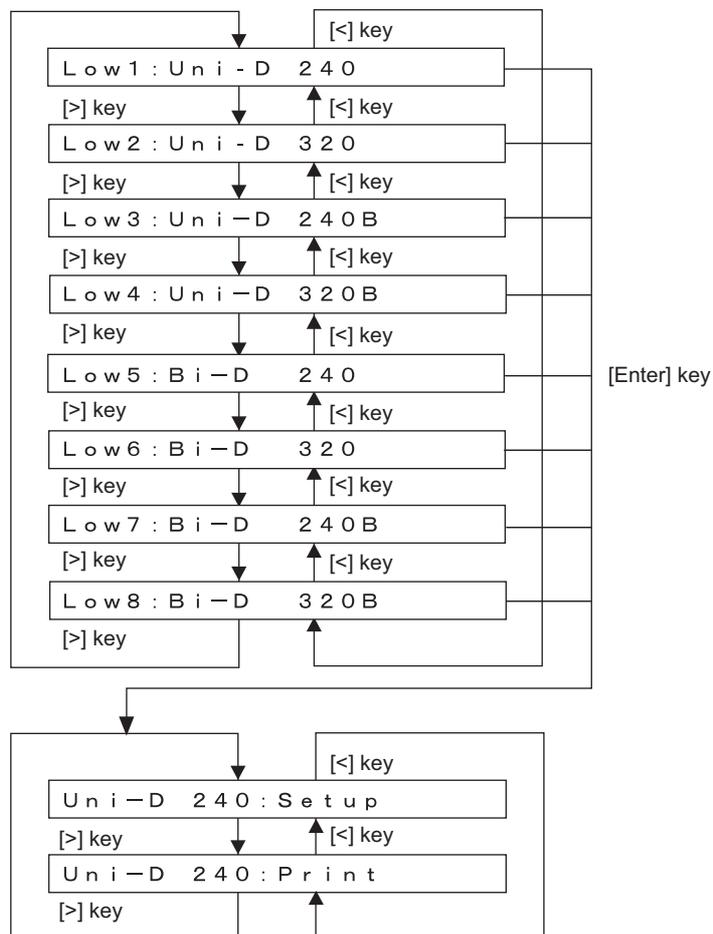
\* Both Uni-D / Bi-D High should be adjusted in the same procedure.

Check the plotout at the origin, center and the opposite side to origin, and perform adjustment so that the gap is even.

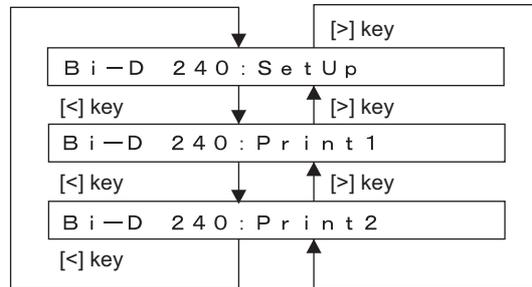
If any abnormal conditions are found, identify the gap of the print positions and enter it as the CW adjustment parameter.

After that, print test pattern again as necessary.

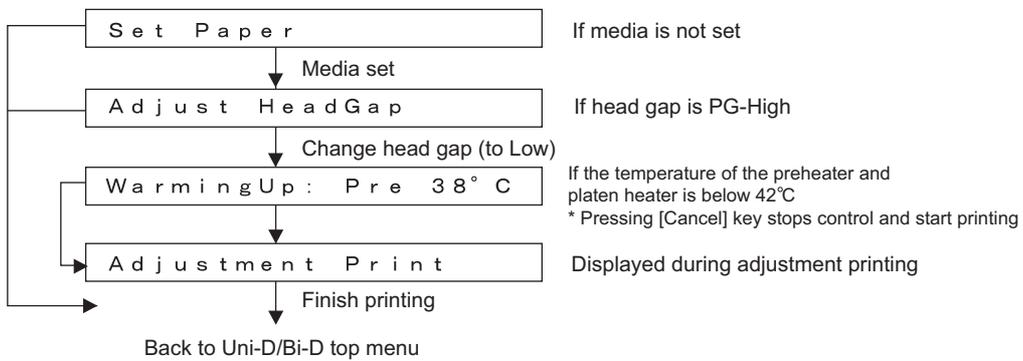
(The following shows a case for Uni-D 240.)



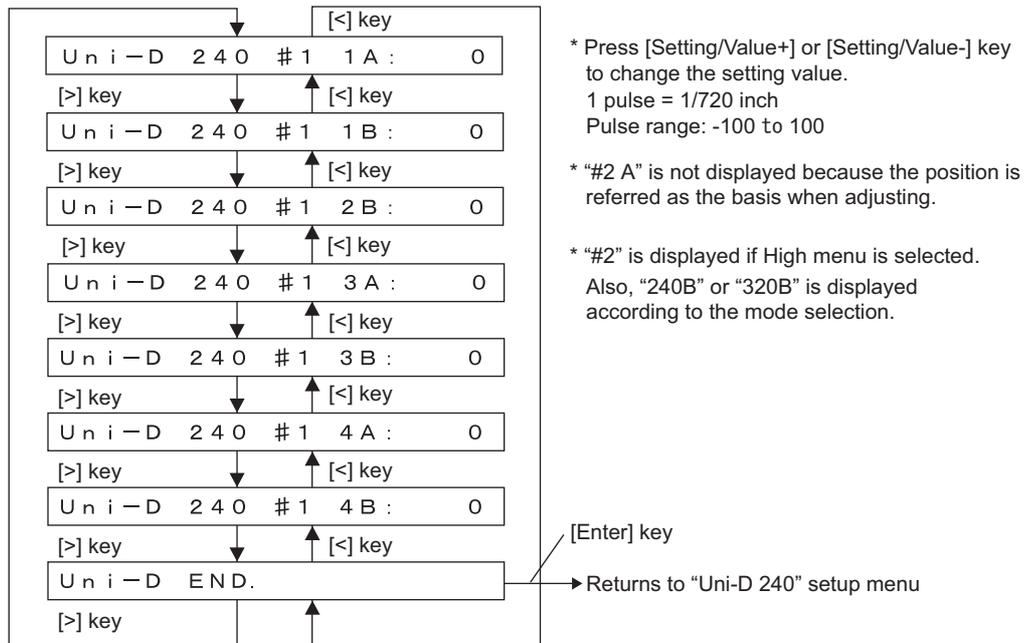
Enter parameters when Bi-D is selected as follows.  
 (The following shows a case for Bi-D 240.)



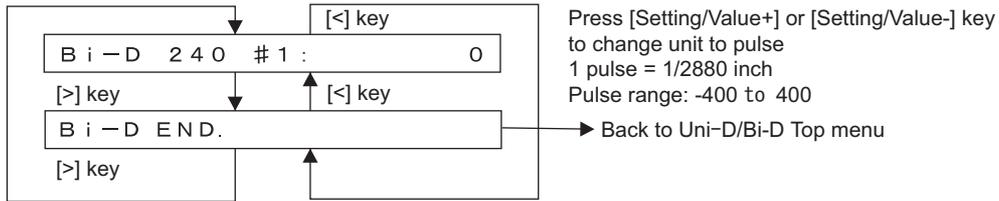
- The following shows a case for “Print” (or Print 1 / Print 2) is selected.  
 \* Common for Bi-D, Uni-D



- The following shows a case for “Set up” is selected (Uni-D 240).  
 Enter parameters when Uni-D is selected as follows.



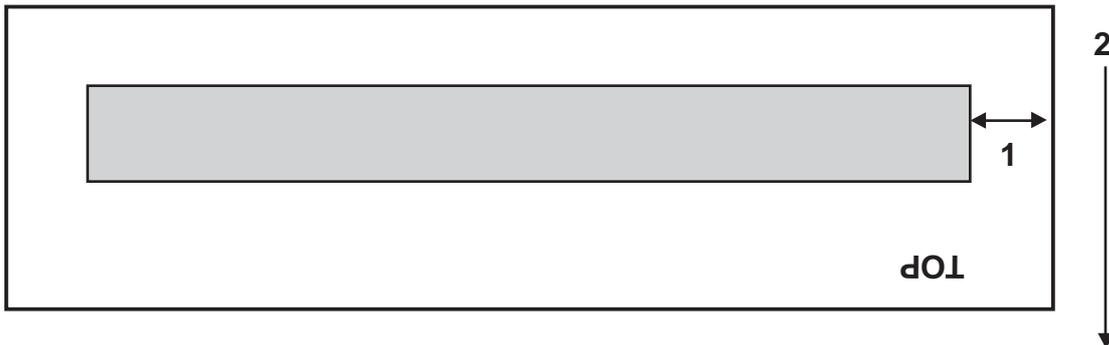
(The following shows a case for “Bi-D 240 - Setup” is selected.)



### 5.7.6 Side Margin Adjustment Menu

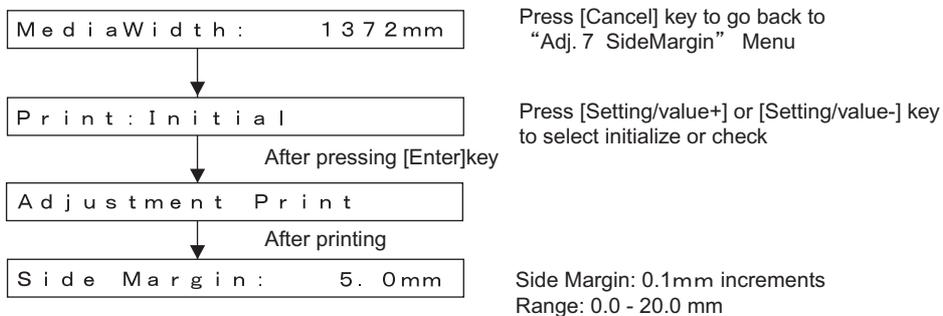
This menu is used to adjust the printing margins.  
To adjust the margins, follow the steps below.

1. Set media as necessary.
2. After media is set, the plotter prints out band feed correction adjustment patterns and cuts the media in the following modes.
  - Black, 1 pass, Uni-D, 360 dpi
  - \* If "check" is selected, black replaces magenta.
3. Check the printed side margin adjustment patterns for the measurement.



- 1: Side margin
- 2: Media feed direction

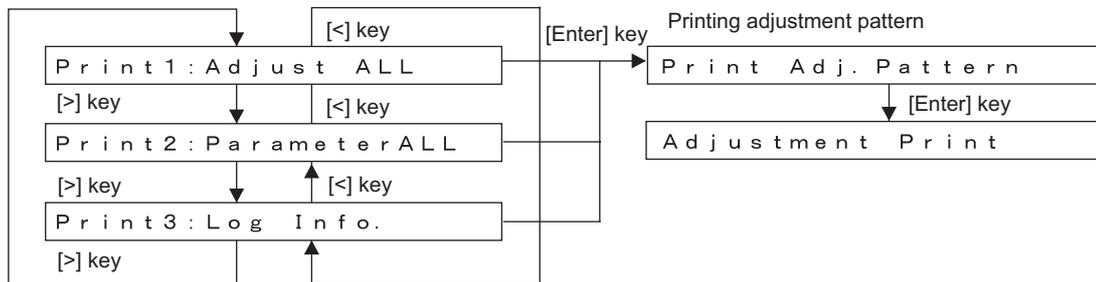
4. Enter each measured value as the parameter.  
(Input range: 0.0 to 20.0 mm (0.1 mm increments))



### 5.7.7 Test Printing Menu

In this menu, you can print out adjustment patterns for checking various adjustment items. The actual procedure is as follows.

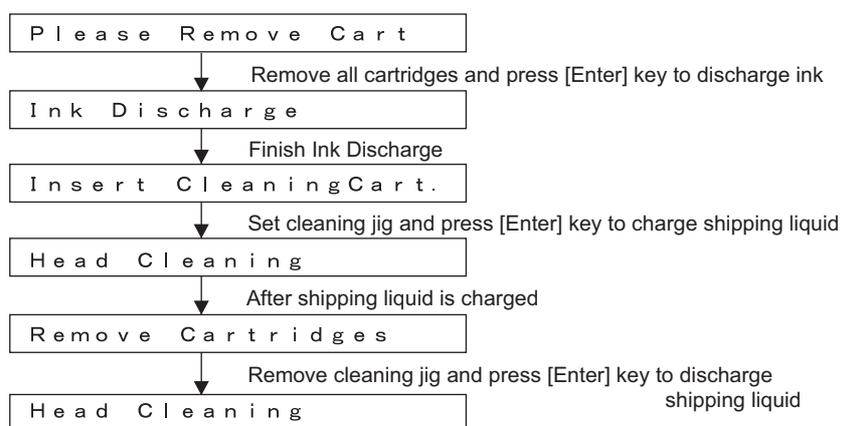
1. Set media as necessary.
2. After media is set, the machine prints out the following test printings.
  - Print1: Adjust ALL: Prints adjustment patterns.
  - Print2: Parameter ALL: Prints adjustment parameters.
  - Print3: Log Info: Prints the serious error history.
3. Press the [Enter] key in the operation panel to start the selected test printing.



### 5.7.8 HeadWash Menu

This menu is used to purge ink and clean the heads before print head replacement. The actual procedure is as follows.

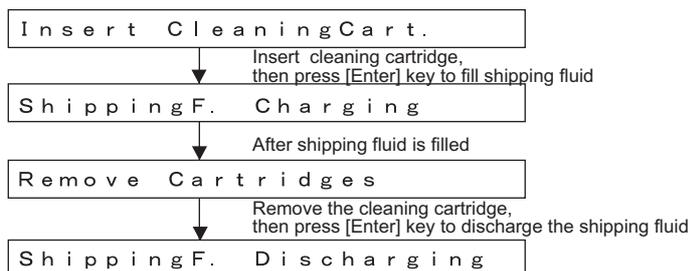
1. Press [Enter] key in the operation panel to determine the Head Cleaning Menu.
2. Remove all ink cartridges.
3. Press [Enter] key in the operation panel to discharge ink.
4. After ink is discharged, install the head cleaning jig.
5. Press [Enter] key in the operation panel to charge cleaning liquid.
6. After cleaning liquid is charged, remove the head cleaning jig.



### 5.7.9 HeadWash Menu 2

Maintain the conditions of the heads at the time of shipping by cleaning tubes and heads with shipping fluid. \* This function is not usually used in maintenance work.

Go to “Adj 10: HeadWash2“ after charging shipping fluid.



### 5.7.10 Software Counter Initialization Menu

This menu is used to initialize the software counters such as the ink consumption counter.

**NOTE**

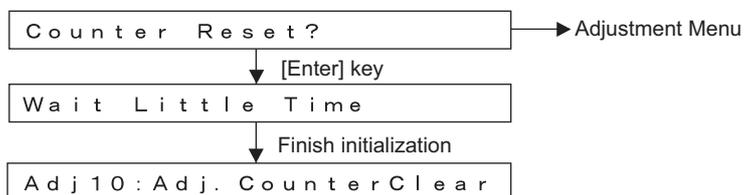
The counters are initialized before delivery. Do not initialize them during maintenance.

The software counters that can be initialized through this menu are as follows.

Table 5-10 Software Counters to be Initialized

Counter	Initial value
Ink consumption counter K	0
Ink consumption counter C	0
Ink consumption counter M	0
Ink consumption counter Y	0
Cumulative print timer	0
User not-filled flag	0
Not-filled flag	1

1. Pressing the [Enter] key in the operation panel performs the software counter initialization. Pressing [Cancel] key cancels the initialization.

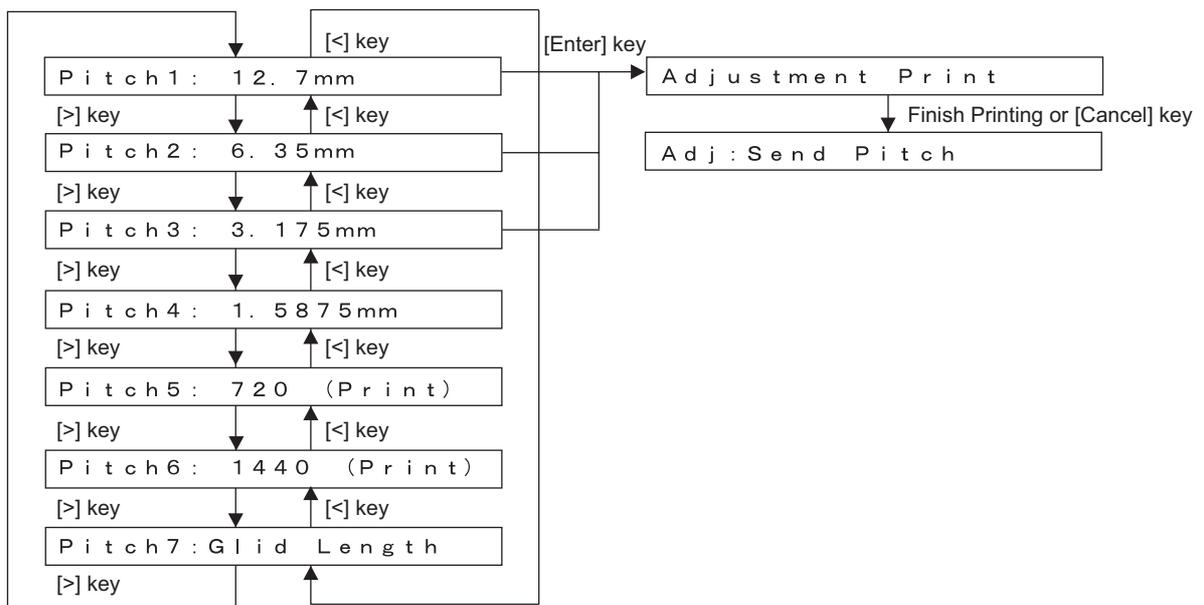
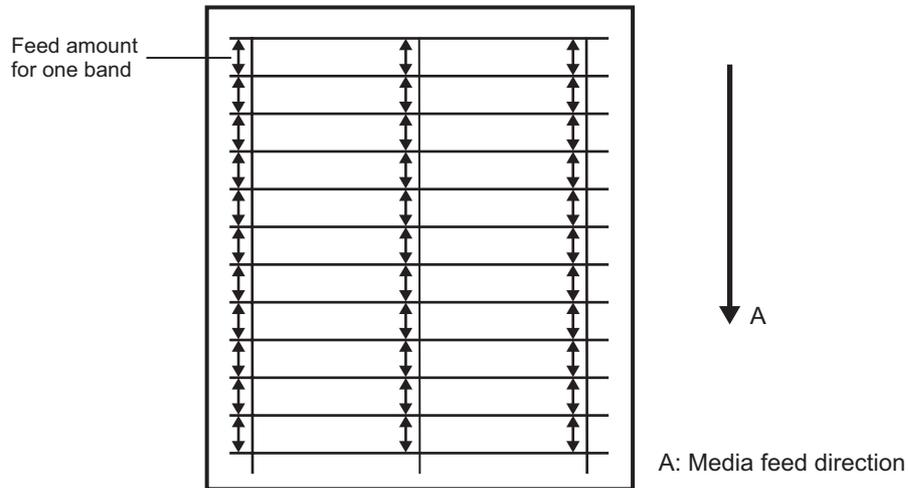


### 5.7.11 Feed Pitch Check Menu

In this menu, you can check the media feed amount for one band by reviewing a sample printing. There is no adjustment items.

To check the feed pitch, follow the steps below.

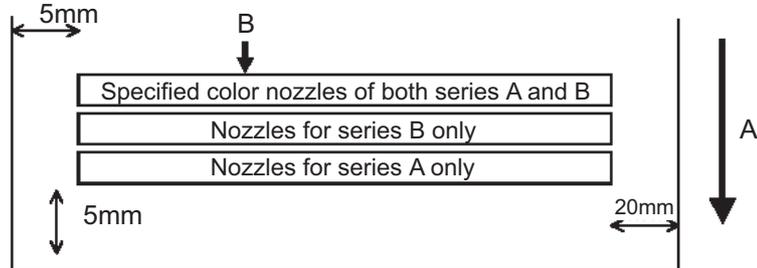
1. Set media as necessary.
2. Select "Adj 12: SendPitch".
3. Select the feed pitch.
  - Pattern 1: Prints at intervals of 360 (720) dpi. This resolution causes no gaps.
  - Pattern 2: Prints at intervals of 1440 dpi. This causes a gap in one line out of four lines.
4. Pattern 1 is printed as shown below.



### 5.7.12 Solid Print Menu

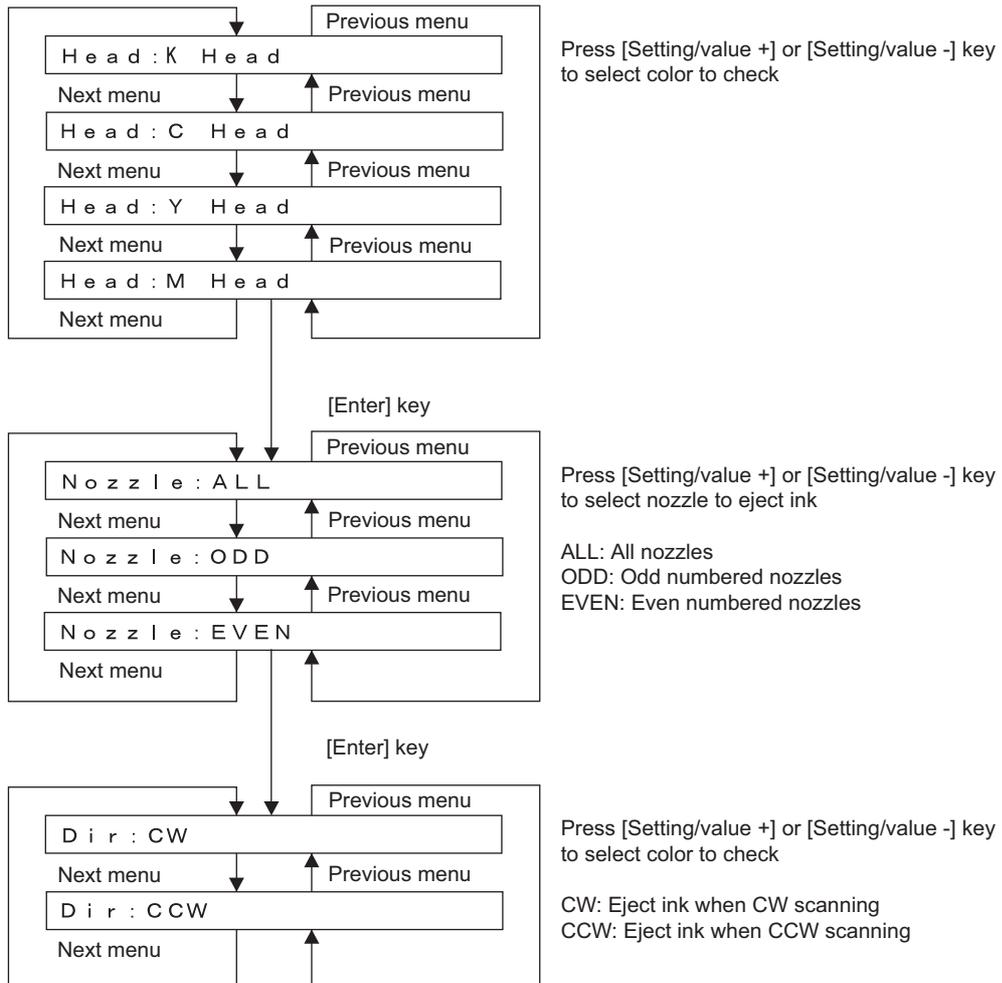
This menu is used to print solid print patterns with head on both ends.

- A printed patter is as follows.



A: Media feed direction  
 B: 100% printing

Print the pattern in the order of 1A&1B, 1B&1B, 1A&1A.

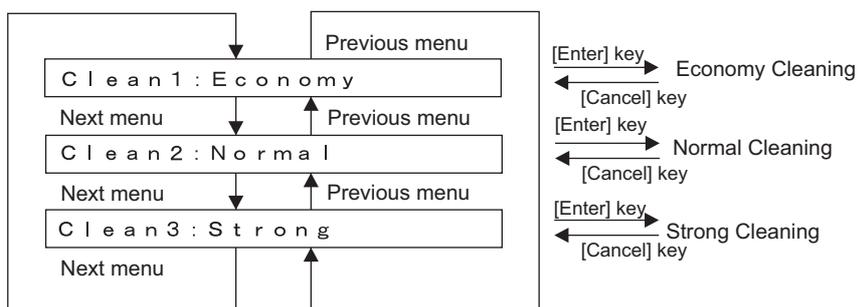


## 5.8 Cleaning Menu

In this menu, you can clean ink from the print heads.  
 The cleaning menu includes the following diagnosis items.

Table 5-11 Diagnosis Items in Cleaning Menu

Diagnosis item	Contents
Economy	Performs economy cleaning
Normal	Performs normal cleaning
Powerful	Performs powerful cleaning



## 5.9 Sample Printing Menu

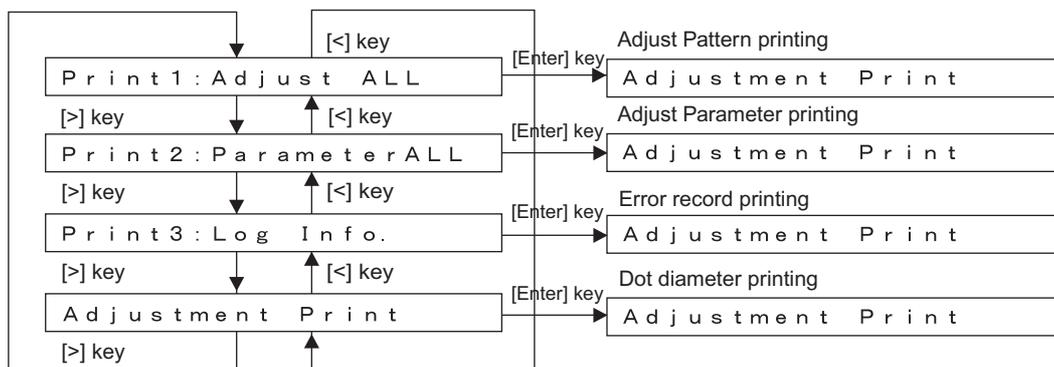
This menu prints out a sample printing.  
 The sample printing menu includes the following items.

Table 5-12 Diagnosis Items in Sample Printing Menu

Diagnosis item	Contents
Adjust ALL	Prints adjustment patterns.
Parameter ALL	Prints out the set values of various adjustment items.
Error history	Prints serious error history.

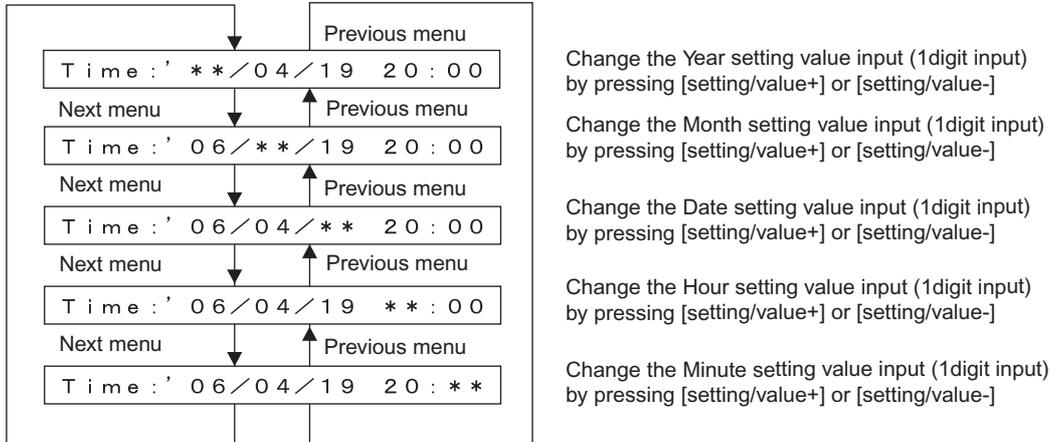
**NOTE**

If you have not registered the serial number of the machine, you must enter the number before you can start the adjustment variable printing.



## 5.10 Time Setting

Sets the calender controlled by RTC (Real Time Clock) on the MAIN board.

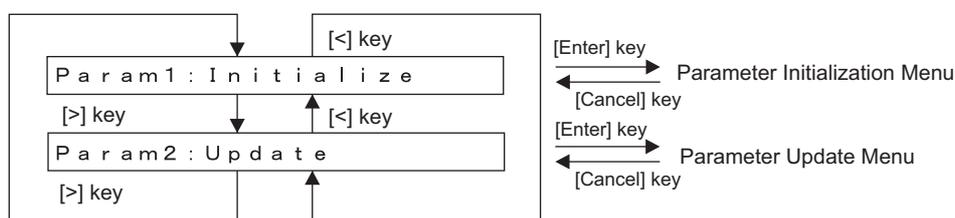


## 5.11 Parameter Menu

In this menu, you can modify the set values of various adjustment items (adjustment parameters). The parameter menu includes the following items.

Table 5-13 Diagnosis Items in Parameter Menu

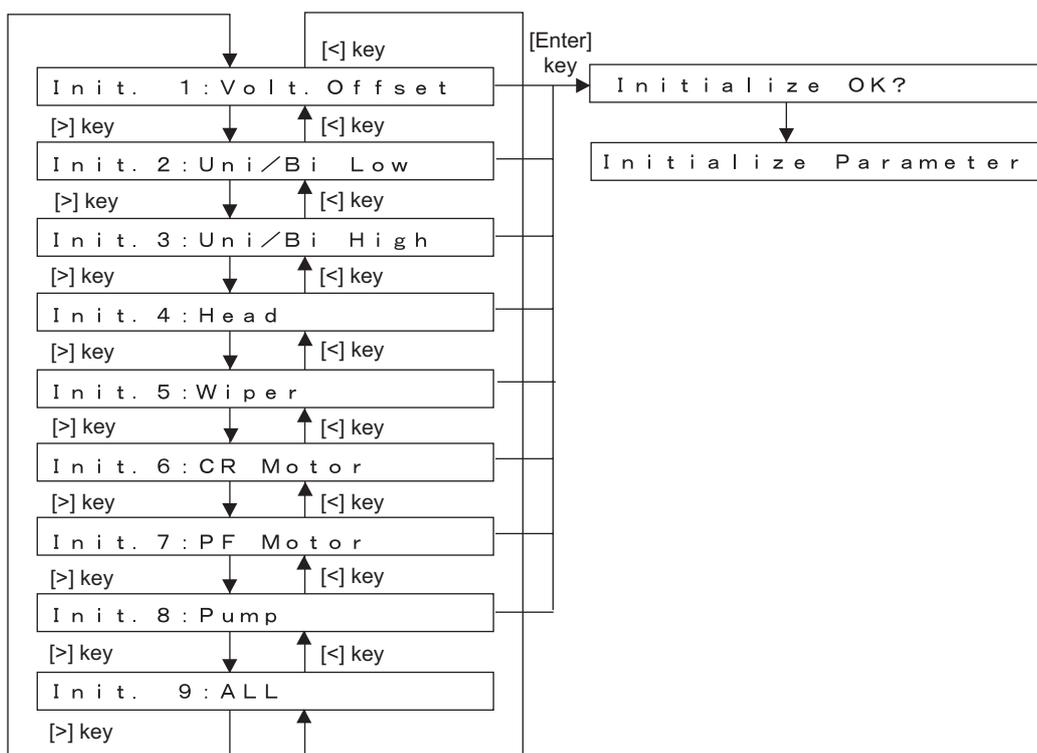
Diagnosis item	Contents	Reference
Initialization	Initializes the adjustment parameters.	"5.11.1 Parameter Initialization Menu" p.5-47
Update	Updates the adjustment parameters.	"5.11.2 Parameter Update Menu" p.5-49



### 5.11.1 Parameter Initialization Menu

This menu initializes the adjustment parameters. The parameters that can be initialized through this menu are as follows.

- Uni-D / Bi-D parameter, wiper, CR motor, PF motor, pump, waste ink)
- Initialization of all items

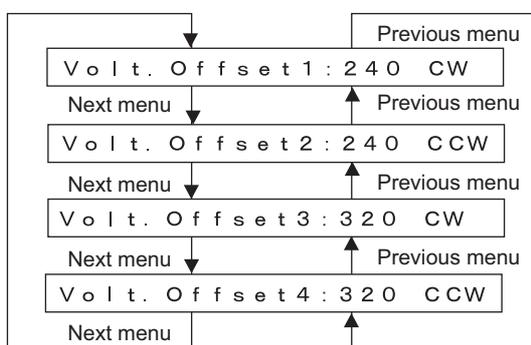


### (1) Voltage Adjustment

This menu updates the voltage adjustment parameter (VSD3 small dot).

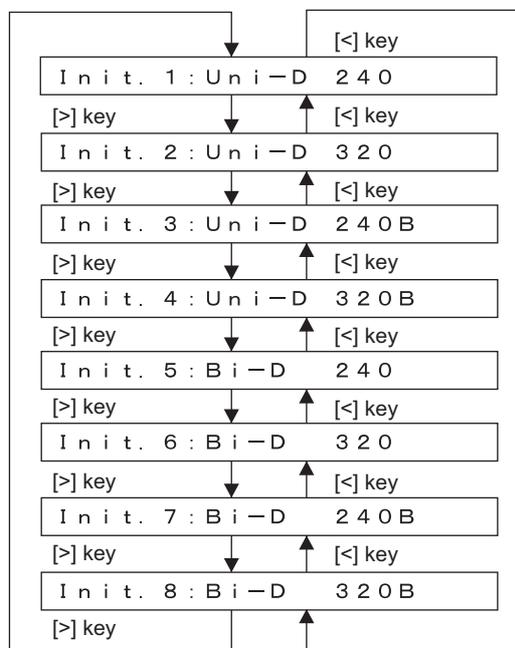
Table 5-14 Voltage adjustment item

Items	Contents
240 CW	Adjusts the VSD 3-S at 240 cps / CW printing.
240 CCW	Adjusts the VSD 3-S at 240 cps / CCW printing.
320 CW	Adjusts the VSD 3-S at 320 cps / CW printing.
320 CCW	Adjusts the VSD 3-S at 320 cps / CCW printing.



### (2) Uni-D/Bi-D Low/High

This menu updates the Uni-D/Bi-D adjustment parameter.



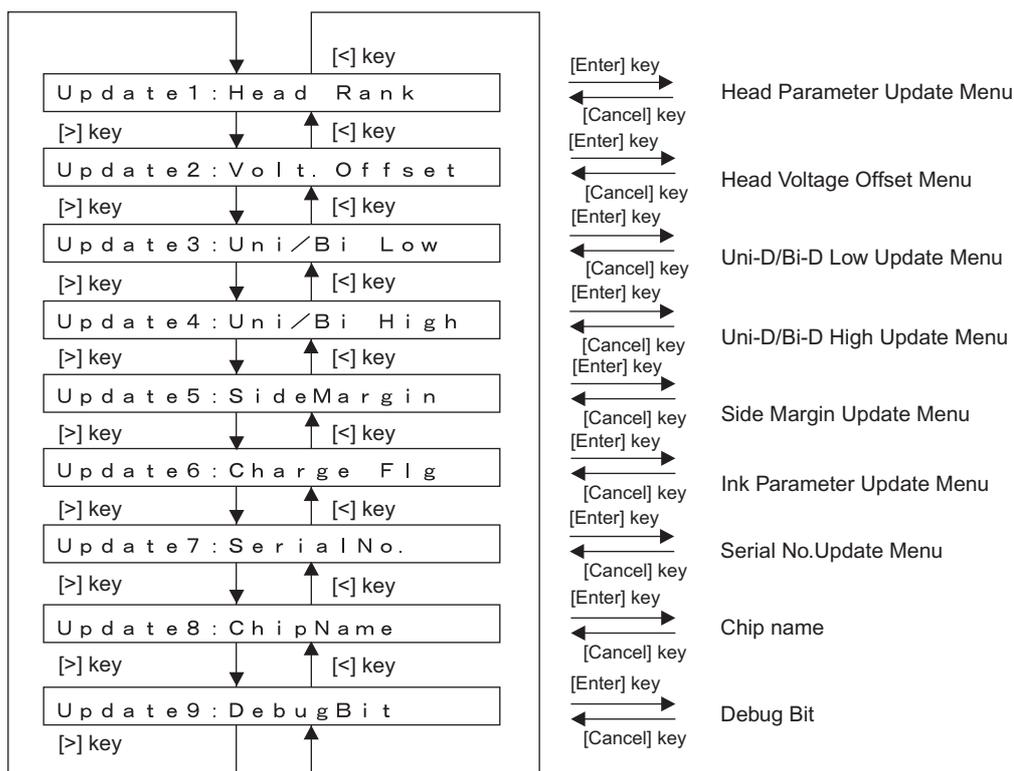
### 5.11.2 Parameter Update Menu

This menu updates the adjustment parameters. The parameters that can be updated through this menu are as follows.

**NOTE**

The updated parameters will not be stored in the flash memory unless the system power is turned OFF.

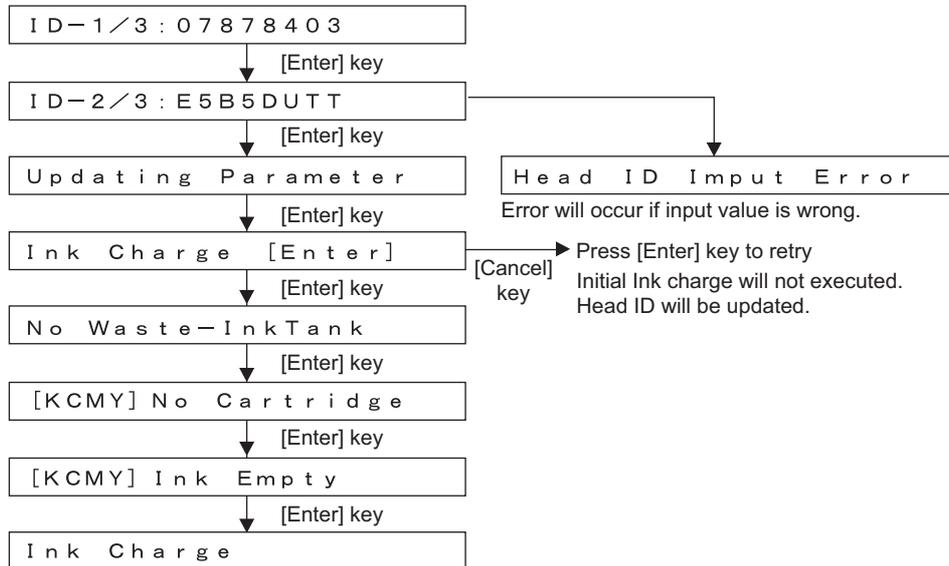
- Head rank
- Voltage adjustment
- Uni-D/Bi-D Low
- Uni-D/Bi-D High
- Side margin
- Not-filled flag
- Serial number
- Smart chip name update
- DebugBit



### (1) Head Rank

This menu updates the head rank parameters. The head rank is used to determine the print head driving voltage and correct the head temperature.

After head rank is entered, the system shifts to the Ink Charge Menu.

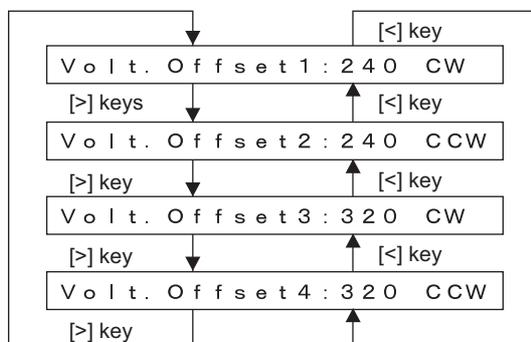


### (2) Voltage Adjustment

This menu updates the voltage adjustment parameter (VSD3 small dot).

Table 5-15 Voltage adjustment item

Items	Contents
240 CW	Adjusts the VSD 3-L (S) at 240 cps. CW printing.
240 CCW	Adjusts the VSD 3-L (S) at 240 cps. CCW printing.
320 CW	Adjusts the VSD 3-L (S) at 320 cps. CW printing.
320 CCW	Adjusts the VSD 3-L (S) at 320 cps. CCW printing.



If 240 CW is selected  
240 CW VH3L-1 : 1.0V

Offset range: -5V to 5V (0.1V increment)  
VH3L-1 to VH3L-4  
VH3S-1 to VH3S-4

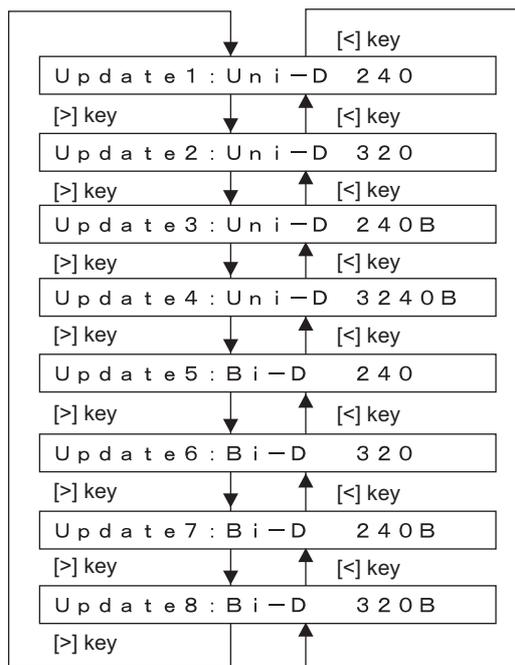
### (3) Uni-D / Bi-D Low

This menu updates the Uni-D/ Bi-D adjustment parameter.

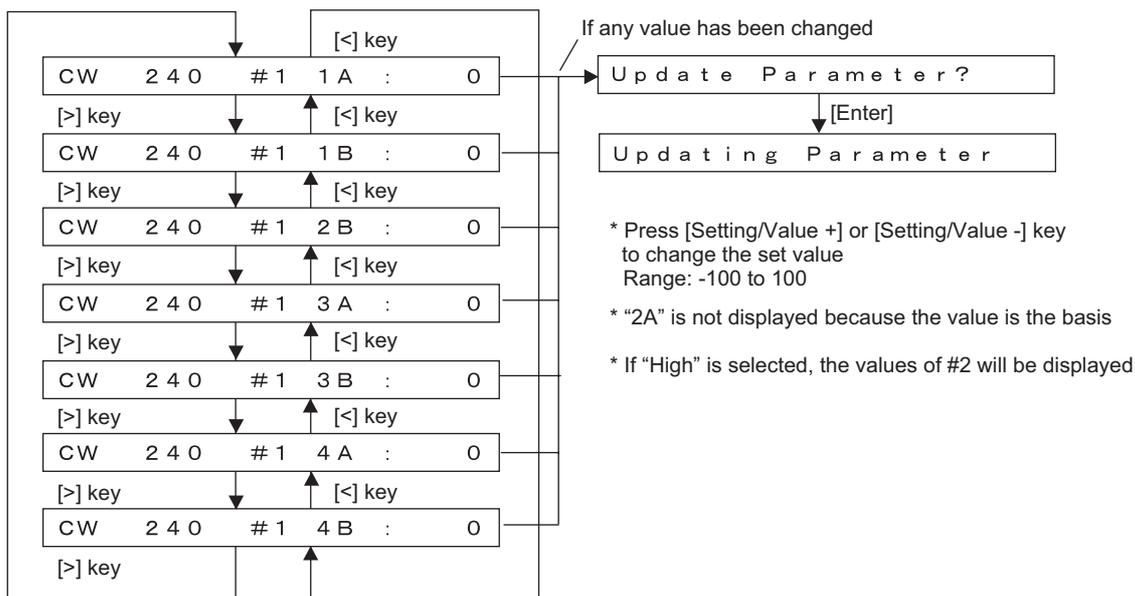
Table 5-16 Uni-D / Bi-D update Item

Item	Contents
Uni-D 240	Adjusts Uni-D at 240 CPS. PG Low or High
Uni-D 320	Adjusts Uni-D at 320 CPS. PG Low or High
Uni-D 240B	Adjusts Uni-D at 240 CPS-Banner. PG Low or High
Uni-D 320B	Adjusts Uni-D at 320 CPS-Banner. PG Low or High
Bi-D 240	Adjusts Bi-D at 240 CPS. PG Low or High
Bi-D 320	Adjusts Bi-D at 320 CPS. PG Low or High
Bi-D 240B	Adjusts Bi-D at 240 CPS-Banner. PG Low or High
Bi-D 320B	Adjusts Bi-D at 320 CPS-Banner. PG Low or High

Uni-D / Bi-D adjustment parameters are updated.

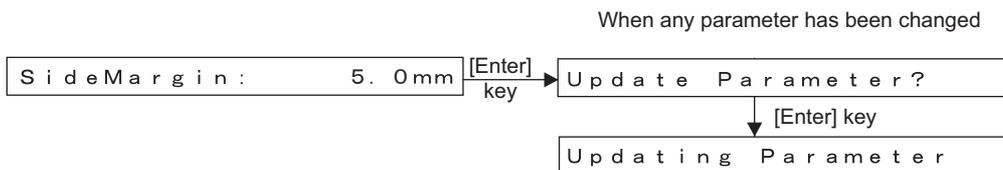


(The following shows a case for “Uni-D 240” is selected.)



#### (4) Side Margin

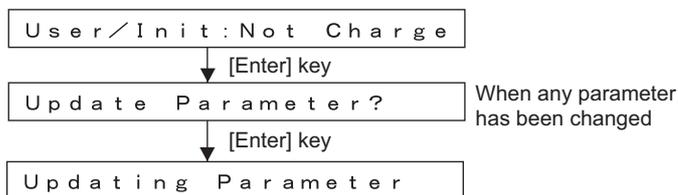
This updates the side margin parameters.



#### (5) Ink Not-filled Flag

This updates the ink parameter. The setting items are as follows.

- Not Charge: Cleaning is not completed, and ink is not charged
- UserCharge: Cleaning is completed, and ink is not charged
- User/Init Charge: Cleaning is completed, and ink is charged

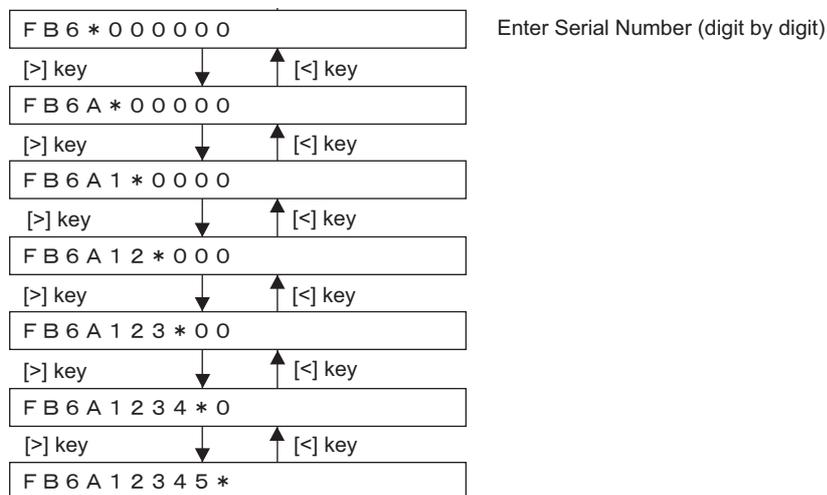


### NOTE

When selecting "Reset", be sure to install the cartridge.

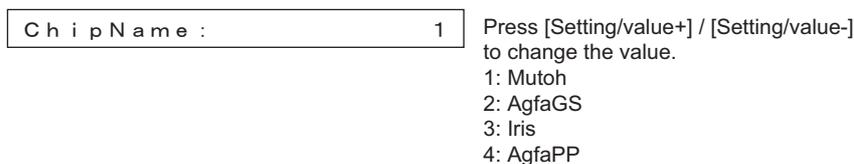
### (6) Serial Number Entry

This is for entering the serial number.



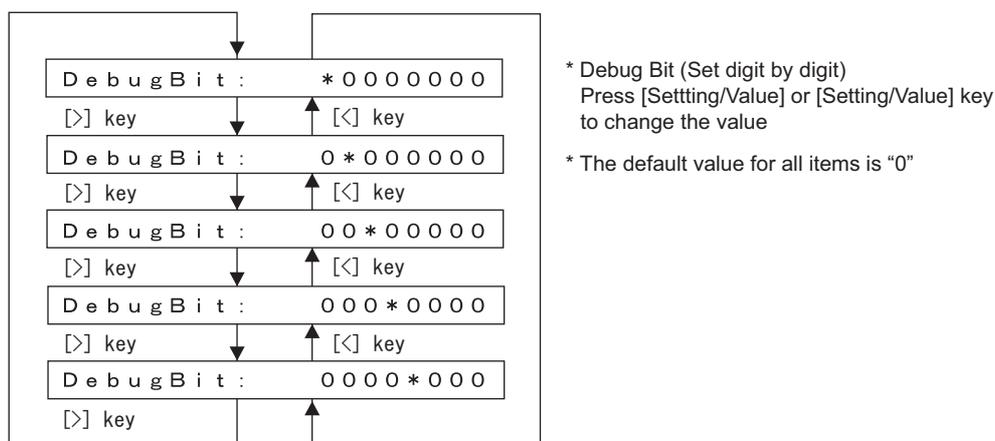
### (7) ChipName Update

This menu is for updating company name on the smart chip.



### (8) Debug bit

\* This menu is for experiment and not used for ordinary maintenance work.



## 5.12 Servo Setting

\* Do not change the parameters. This menu is basically for check.

Table 5-17 Servo setting item

Items	Contents
240 cps CW	Servo setting at CR CW direction, 240 cps
240 cps CCW	Servo setting at CR CCW direction, 240 cps
320 cps CW	Servo setting at CR CW direction, 320 cps
320cps CCW	Servo setting at CR CCW direction, 320 cps

Table 5-18 Servo adjustment item

Items	Contents
Proportional gain	Sets proportional gain/
Integral gain	Sets integral gain
Low-pass filter	Sets low-pass filter
PWM scale	Sets PWM scale
$\omega$ C	Sets $\omega$ C

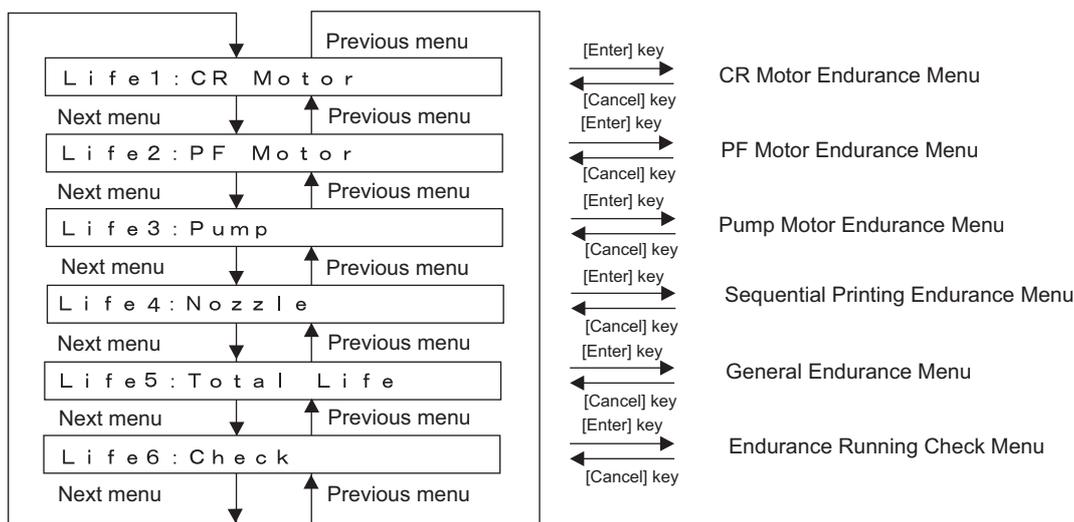


## 5.13 Endurance Running Menu

Performs endurance running of mechanicals and the head.  
The endurance running menu includes the following items.

Table 5-19 Diagnosis Items in Endurance Running Menu

Diagnosis item	Contents	Reference
CR motor	Performs carriage stroke.	<a href="#">☞ "5.13.1 CR Motor Endurance Menu" p.5-57</a>
PF motor	Drives the PF motor.	<a href="#">☞ "5.13.2 PF Motor Endurance Menu" p.5-58</a>
Pump	Drives the pump motor assembly.	<a href="#">☞ "5.13.3 Pump Endurance Menu" p.5-59</a>
Nozzle print	Performs sequential print operation of the print head.	<a href="#">☞ "5.13.4 Print Head Endurance (Nozzle Print) Menu" p.5-60</a>
General endurance	Performs endurance running on the CR and PF concurrently.	<a href="#">☞ "5.13.5 General Endurance Menu" p.5-61</a>
Confirmation	Confirms the number of endurance running cycles.	<a href="#">☞ "5.13.6 Endurance Running Check Menu" p.5-62</a>



### 5.13.1 CR Motor Endurance Menu

This menu performs endurance running for the CR motor. You can operate the carriage stroke according to your desired settings. The available settings are shown below.

Table 5-20 Set Items in CR Motor Endurance Menu

Set item	Contents	Set value	Remark
Running speed (CW, CCW)	Set the carriage running speed (CW direction, CCW direction)	240, 320, (400) * 400 CPS cannot be selected depending on versions.	Unit: cps
Number of endurance running cycles	Set the number of endurance running cycles	-1 to 10000	

**CAUTION**

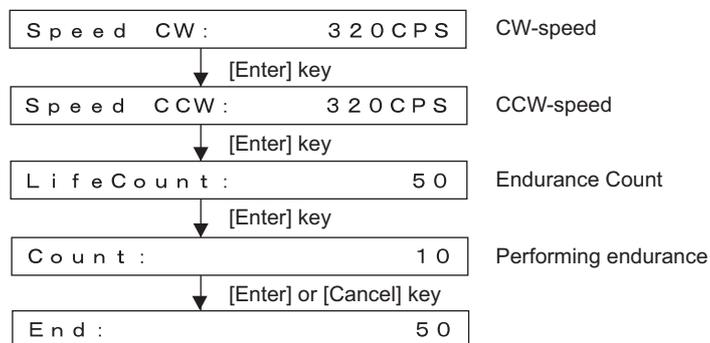
When the CR motor endurance running is performed, note the following;

- Install available ink cartridges.

If the CR motor endurance running is performed without ink cartridges, ink inside the tube may leak through the ink holder during the carriage movement.

**TIP**

- If the number of endurance running cycles is set to -1, the carriage continuously repeats endurance running until cancel input is given from the operation panel.
- The maximum counter value for endurance running cycles is 99999999 (up to 8-digit number). If the number of cycles exceeds the maximum value, the counter is reset to 0.
- The carriage moving distance is fixed to the maximum value of print area.



### 5.13.2 PF Motor Endurance Menu

This menu performs endurance running for the PF motor. You can drive the PF motor according to your desired settings. The available settings are shown below.

Table 5-21 Set Items in PF Motor Endurance Menu

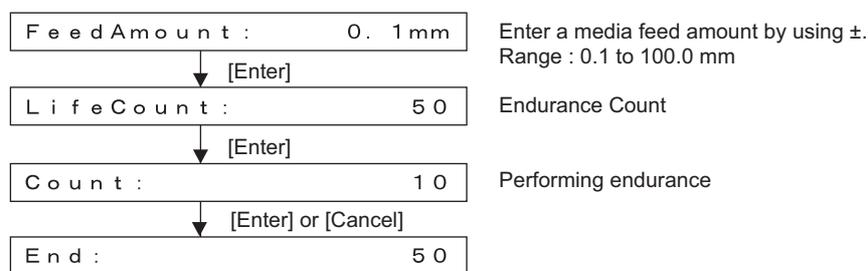
Set item	Contents	Set value	Remark
Media feed amount	Set the media feed amount per endurance running cycle	0.1 to 100	Unit: mm
Number of endurance running cycles	Set the number of endurance running cycles	-1 to 10000	

**TIP**

- The following table shows the motor moving parameters to media feed amount.

Speed	35CPS
Acceleration	0.1G
Deceleration	0.1G

- If the number of endurance running cycles is set to -1, the carriage continuously repeats endurance running until cancel input is given from the operation panel.
- The maximum counter value for endurance running cycles is 99999999 (up to 8-digit number). If the number of cycles exceeds the maximum value, the counter is reset to 0.



### 5.13.3 Pump Endurance Menu

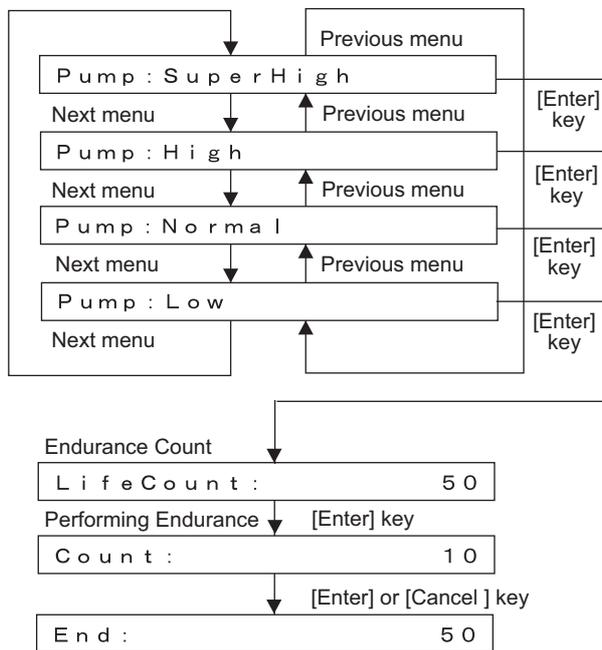
This menu performs endurance running for the pump motor assembly. You can drive the pump motor assembly according to your desired settings. The available settings are shown below.

Table 5-22 Set Items in Pump Motor Assembly Endurance Menu

Set item	Contents	Set value	Remark
Running speed	Set the running speed of pump motor assembly.	Super high / High / Normal / Low	
Number of endurance running cycles	Set the number of endurance running cycles	-1 to 10000	

**TIP**

- If the number of endurance running cycles is set to -1, the carriage continuously repeats endurance running until cancel input is given from the operation panel.
- The maximum counter value for endurance running cycles is 99999999 (up to 8-digit number). If the number of cycles exceeds the maximum value, the counter is reset to 0.



The pump endurance running sequence is as follows.

1. Pump endurance running starts.
2. Pump phase detection is performed.
3. Rotates with the specified suction speed. This rotation is counted as one cycle. Step 2 above is repeated the number of times specified as follows.
  - Super high: 4000
  - High: 3000
  - Normal: 2000
  - Low: 1000
4. Pump release is performed.
5. Pump endurance running ends.

### 5.13.4 Print Head Endurance (Nozzle Print) Menu

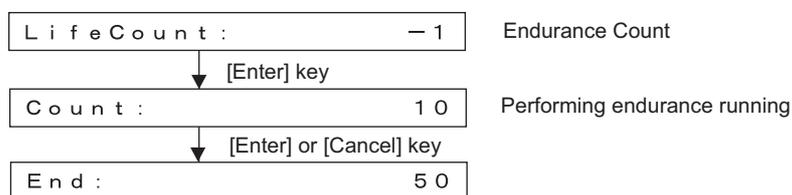
This menu performs endurance running for the plot head.

In the sequential plotting endurance menu you can operate sequential plotting endurance operation on the plot head according to your desired settings.

Set item	Contents	Set value	Remark
Number of endurance running cycles	Sets the number of endurance running cycles	-1 to 10000	-

#### TIP

- If the number of endurance running cycles is set to -1, the carriage continuously repeats endurance running until cancel input is given from the operation panel.
- The maximum counter value for endurance running cycles is 99999999 (up to 8-digit number). If the number of cycles exceeds the maximum value, the counter is reset to 0.



### 5.13.5 General Endurance Menu

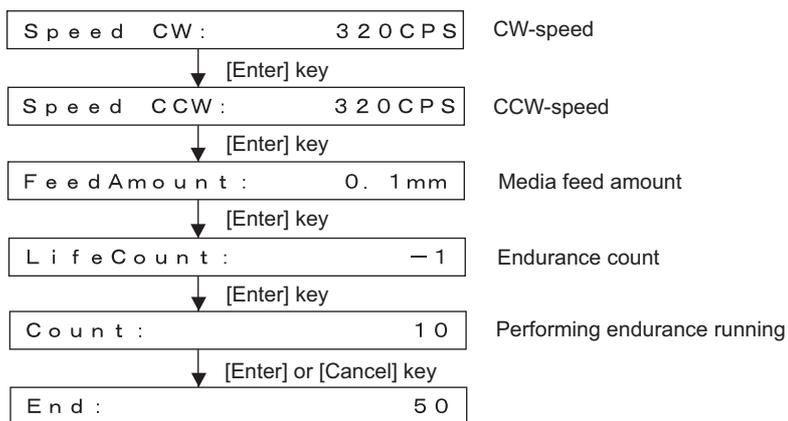
This menu performs the general endurance running.  
 You can operate various driving systems according to your desired settings.  
 The available settings are shown below.

Table 5-23 Set Items in General Endurance Menu

Set item	Contents	Set value	Remark
Running speed (CW, CCW)	Set the carriage running speed (CW direction, CCW direction)	240, 320, (400) * 400 CPS cannot be selected depending on versions.	Unit: cps
Media feed amount	Set the media feed amount per cycle	0.1 to 100	Unit: mm
Number of endurance running cycles	Set the number of endurance running cycles	-1 to 10000	

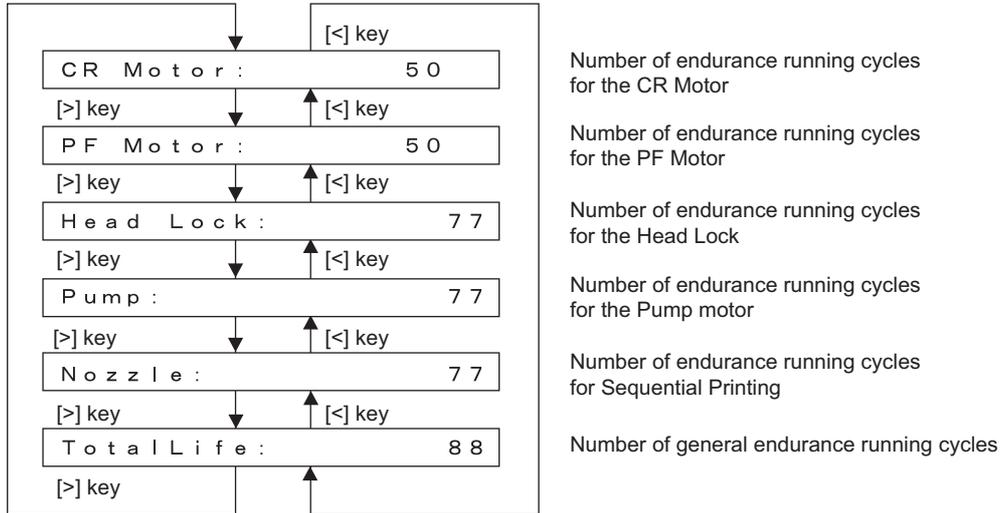
**TIP**

- In the general endurance menu, the following operations are performed as one cycle of endurance running
  - Carriage stroking: 1 stroke
  - Media feed: 1 cycle
- If the number of endurance running cycles is set to -1, the carriage continuously repeats stroking until cancel input is given from the operation panel.
- The maximum counter value for endurance running cycles is 99999999 (up to 8-digit number). If the number of cycles exceeds the maximum value, the counter is reset to 0.



### 5.13.6 Endurance Running Check Menu

In this menu, you can confirm the number of endurance running cycles that have been already finished. The number of endurance running cycles is stored in NVRAM in the system. Therefore, even if a serious error occurs during endurance running, you can confirm the number of finished cycles just before the occurrence of the serious error.



### 5.14 Media Feed Menu

In this menu, you can feed media into the plotter frontward or backward. The mechanical initialization should be done if it is not performed yet.

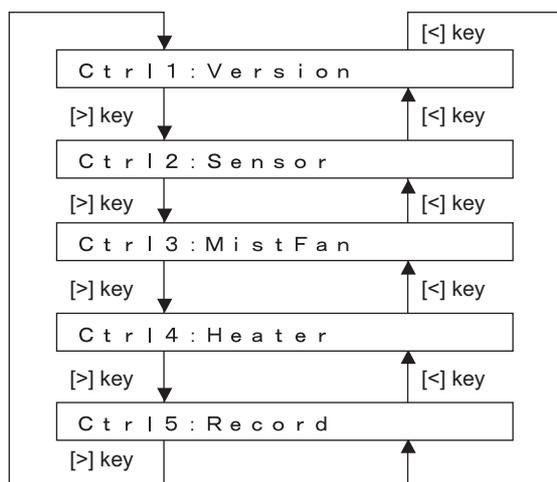


## 5.15 ExControl Menu

In this menu, you can diagnose the equipment on the controller board.

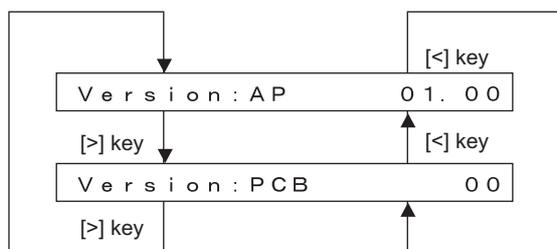
Table 5-24 Controller Board Check Item

Items	Contents	
Version	Firmware, board revision	-
Sensors	Tank status, Electromagnetic valve, Pre-heater thermistor, platen thermistor 1/2, after-heater thermistor, Ink ID for 4 cartridges, Ink NOT sensor for 4 cartridges, ink END sensor for 4 cartridges	-
Mist fan	Checks mist fan operation	-
Heater	Pre-heater, platen heater, after-heater	-
History	Maintenance history confirmation	-



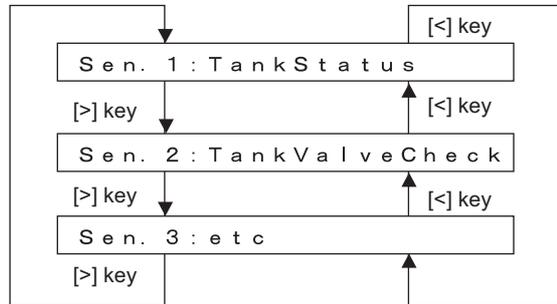
### 5.15.1 Version

In this menu, you can check the ROM version of the controller board firmware, and the version of the controller board. The firmware version (AP version) is displayed as “XX.XX“. The controller board version is displayed in hex format (2 digits).



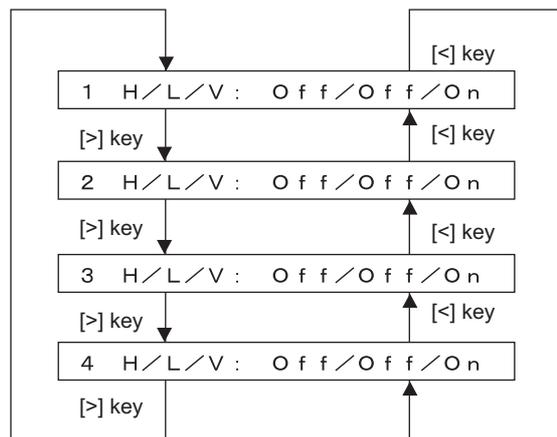
### 5.15.2 Sensor

The status of the following sensors on the controller board is displayed.



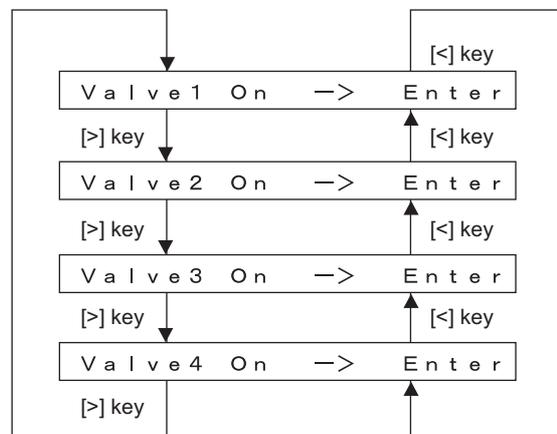
#### (1) Tank Status

Displays the status of sub tank and electromagnetic valve.

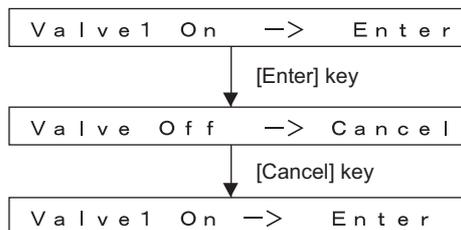


#### (2) Electromagnetic Valve Check

Checks if the electromagnetic valve on the sub tank operates correctly.



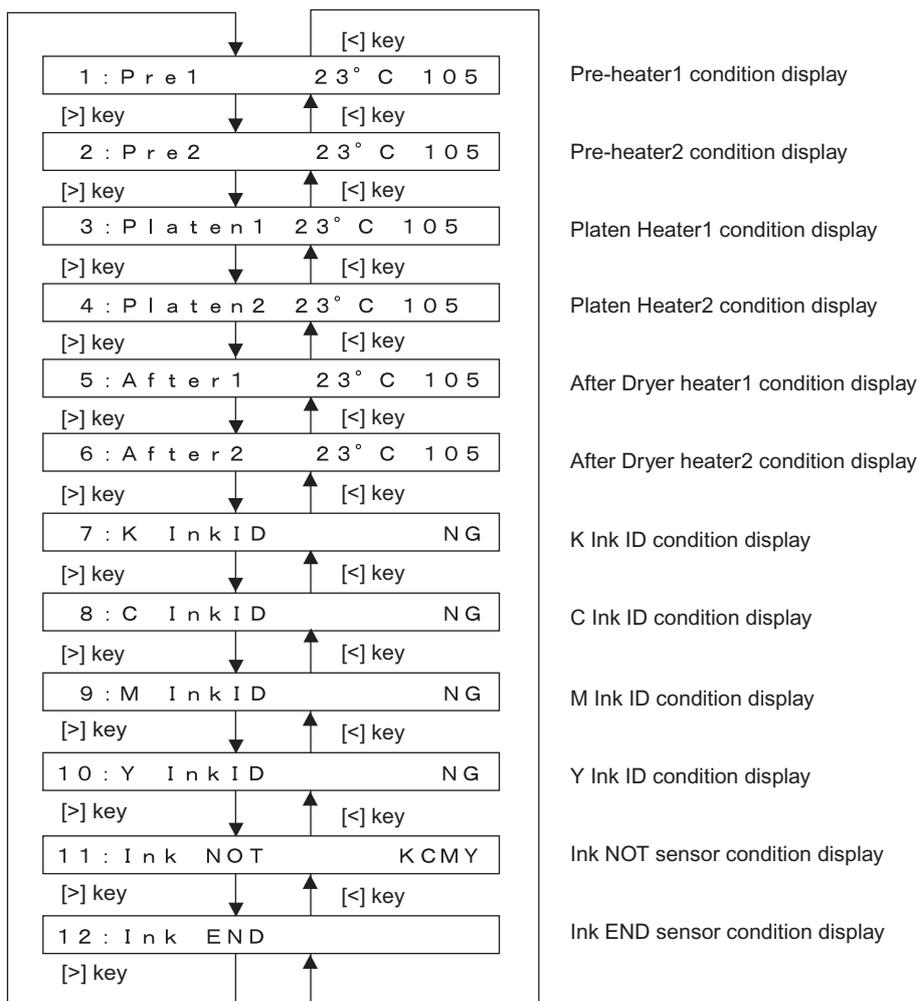
Pressing [Enter] key or [Cancel] key turns on/off the electromagnetic valve.



### (3) Miscellaneous

Displays the status of the following sensors on the panel.

- Pre-heater thermistor
- Platen heater thermistor
- After-heater thermistor
- Ink ID for 4 cartridges
- Ink NOT sensor for 4 cartridges
- Ink END sensor for 4 cartridges



### 5.15.3 Mist Fan

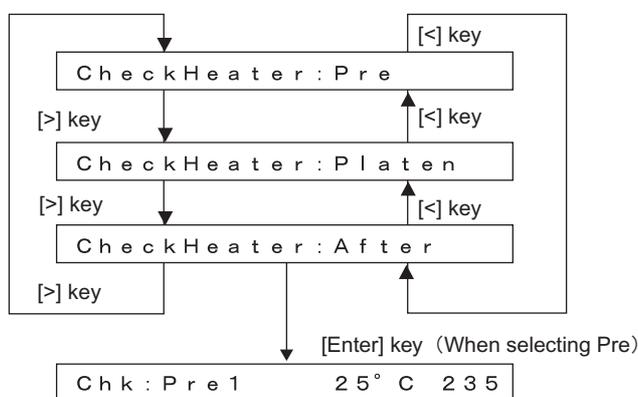
Checks if the mist fan operates correctly.  
 When this menu is selected, the mist fan is turned on (activated).

「Cancel」End

### 5.15.4 Heater

In this menu, you can check whether pre-heater, platen heater, and after-heater works properly or not. The plotter sets the temperature at 50°C and controls the selected heater process. Press [Cancel] key to stop the operation.

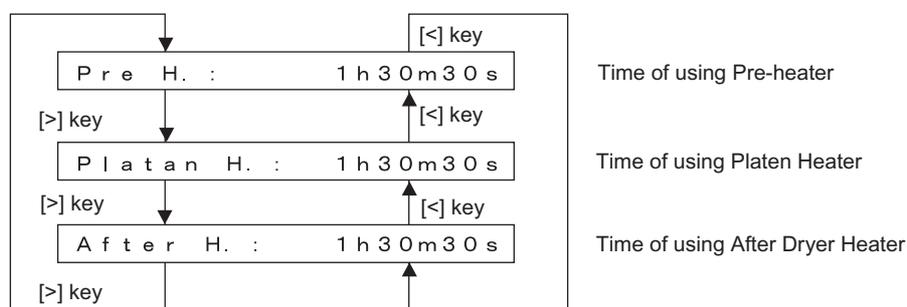
If the temperature reaches to the set value, the plotter keeps the temperature control.



### 5.15.5 History

You can check the maintenance history of the controller board control device.  
 The history is displayed in H (hour) / M (min.) / S (sec.).

Total operating time of each heater shows the period from when the plotter is used in self-diagnosis mode.  
 Daily operating time is not counted.



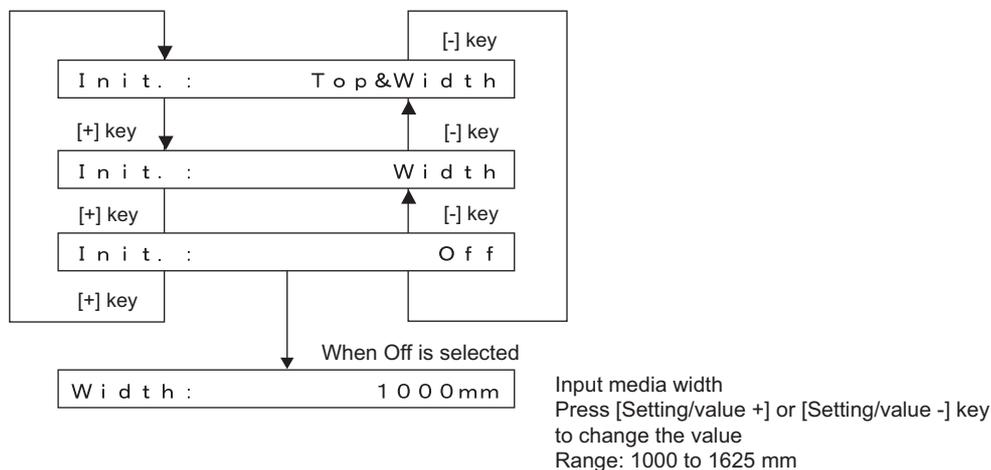
## 5.16 PaperInitial Menu

In this menu, you can set the media detection method in the self-diagnosis mode. The default value is the same as the one in the normal operation mode.

Select either Top & Width / Width / Off. When Off is selected, you can set the media width in the media width setting menu.

Table 5-25 Media Detection Item

Items	Contents
Top & Width	Normal media detection mode
Width	Detects media width.
Off	Does not detect media.





## 6 Maintenance Mode 2

<b>6.1</b>	<b>Introduction .....</b>	<b>6- 2</b>
<b>6.2</b>	<b>Operations in Maintenance Mode.....</b>	<b>6- 2</b>
6.2.1	Starting Up the Maintenance Mode .....	6-2
6.2.2	Operating Maintenance Mode.....	6-2
<b>6.3</b>	<b>Maintenance Menu.....</b>	<b>6- 3</b>
6.3.1	Counter Display Menu .....	6-3
6.3.2	Counter Initialization Menu .....	6-6
6.3.3	Counter Print Menu.....	6-7
6.3.4	Media Feed Menu.....	6-8

## 6.1 Introduction

This chapter provides information on the maintenance mode.

The maintenance mode provides the user with functions of displaying and initializing the life counters. It is used in the manufacturing process, adjustment, and maintenance.

The maintenance mode is implemented in the system firmware. All functions are available from the operation panel.

TIP

☞ "2.3 Part Names and Functions" p.2-3

## 6.2 Operations in Maintenance Mode 2

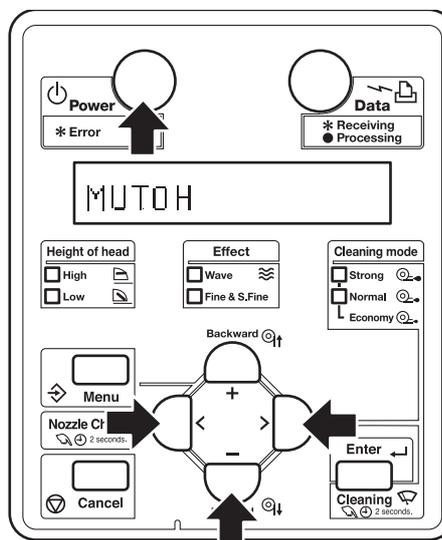
This section explains how to start up and operate the maintenance mode as well as provides the list of available diagnosis items.

### 6.2.1 Starting Up the Maintenance Mode 2

To use the maintenance mode 2, you must first call up the maintenance menu on the operation panel. The maintenance menu is completely independent of the normal operation mode and setup menu display mode. To run the maintenance menu, follow the steps below.

1. If the system is in the operation mode or the setup menu mode, press the [Power] key to turn the power off.
2. While holding down [Setting/value] key, [>] key and [<] key in the operation panel simultaneously, press [Power] key.

The maintenance mode will start running and display the maintenance menu.



## 6.2.2 Operating Maintenance Mode 2

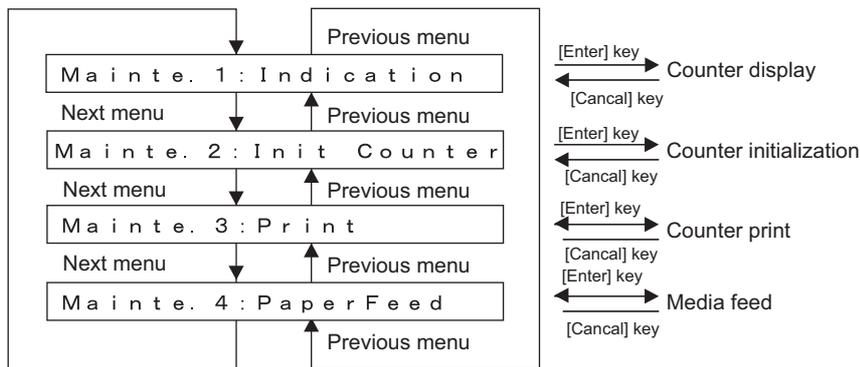
☞ "5.3 Operations in Self-Diagnosis Mode" p.5-6

## 6.3 Maintenance Menu

The maintenance menu includes the following diagnosis items.

Table 6-1 Diagnosis Items in Maintenance Menu

Diagnosis item	Contents	Reference
Counter: Indication	Displays the life counter	☞ "6.3.1 Counter Display Menu" p.6-3
Counter: Init Counter	Initializes the life counter	☞ "6.3.2 Counter Initialization Menu" p.6-6
Counter: Print	Prints the life counter values	☞ "6.3.3 Counter Print Menu" p.6-7
PaperFeed	Feeds media into the printer frontward or backward	☞ "6.3.4 Media Feed Menu" p.6-8



### 6.3.1 Counter Display Menu

This menu displays the life counters. It consists of the following diagnosis items.

**NOTE**

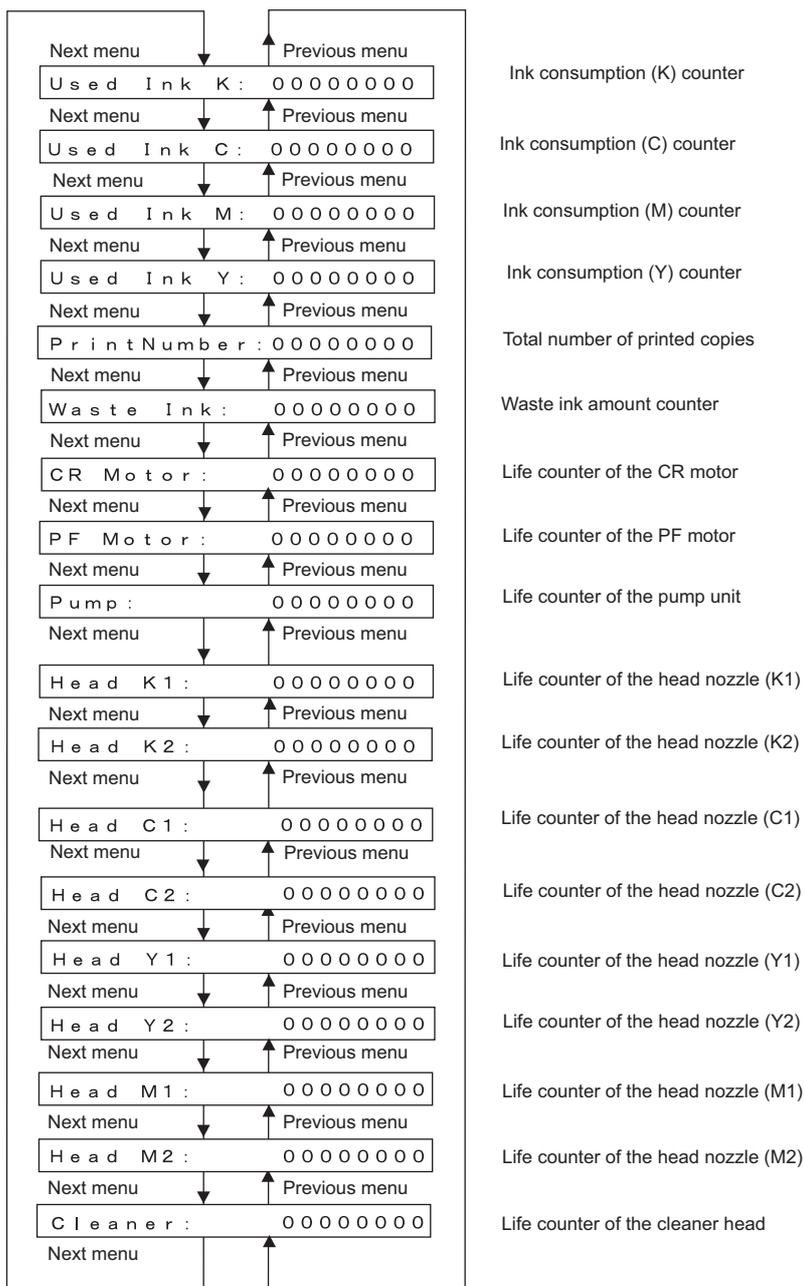
All life counters are displayed in decimal number.

Table 6-2 Diagnosis Items in Counter Display Menu

Diagnosis item	Contents
Used Ink K	Displays the ink consumption (K) counter.
Used Ink C	Displays the ink consumption (C) counter.

Table 6-2 Diagnosis Items in Counter Display Menu(Continued)

Diagnosis item	Contents
Used Ink M	Displays the ink consumption (M) counter.
Used Ink Y	Displays the ink consumption (Y) counter.
Print Number	Displays the total number of printed copies.
Waste Ink	Displays the waste ink amount counter.
CR Motor	Displays the life counter of the CR motor.
PF Motor	Displays the life counter of the PF motor.
PUMP	Displays the life counter of the pump unit.
HEAD K1, K2	Displays the life counter of the head nozzle (K).
HEAD C1, C2	Displays the life counter of the head nozzle (C).
HEAD M1, M2	Displays the life counter of the head nozzle (M).
HEAD Y1, Y2	Displays the life counter of the head nozzle (Y).
Cleaner	Displays the life counter of the cleaning unit.

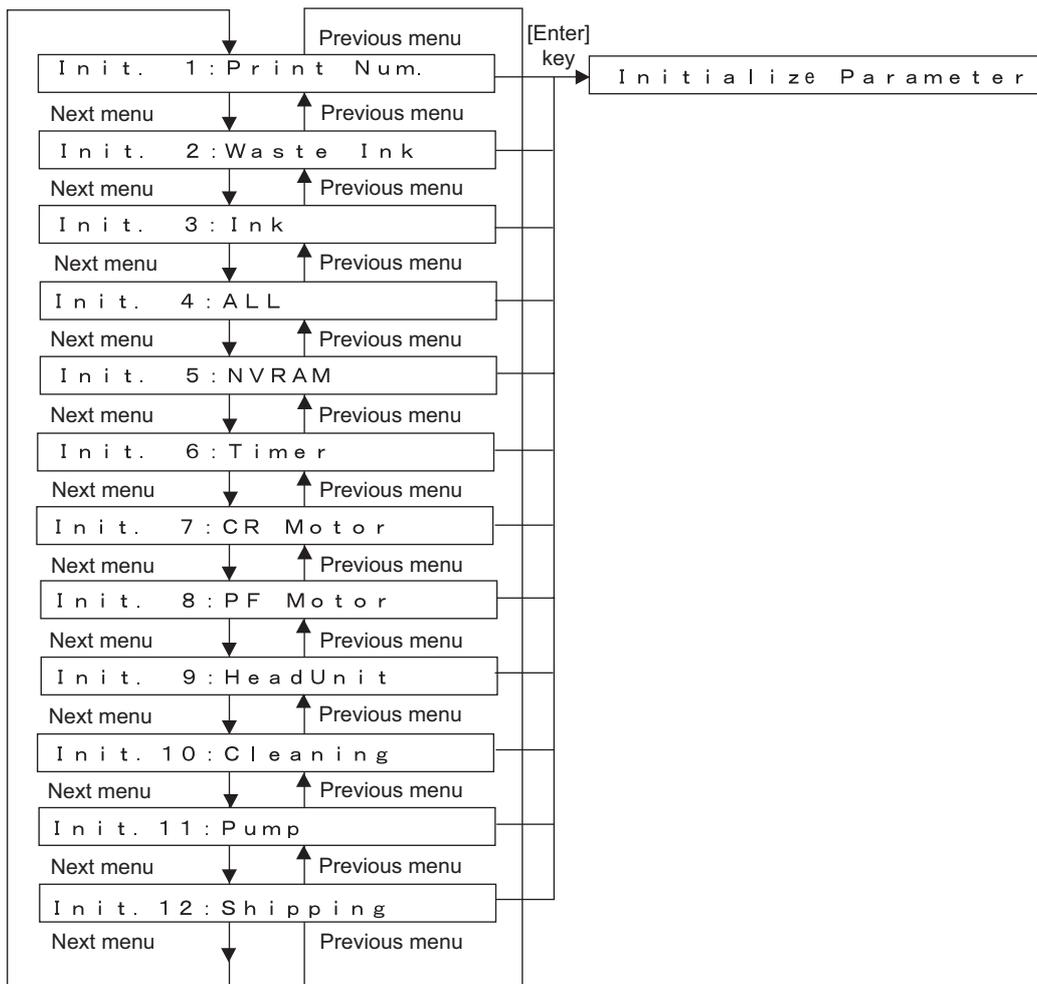


### 6.3.2 Counter Initialization Menu

This menu initializes the life counters. The parameters that can be initialized in this menu are as follows.

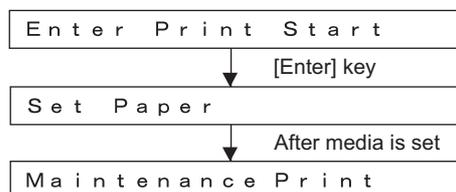
Table 6-3 Diagnosis Items in Counter Initialization Menu

Diagnosis item	Contents
Print Num.	Initializes the total print counter.
Ink	Initializes the ink amount counter.
All	Initializes the life counter.
NVRAM	Initializes the NVRAM.
Timer	Initializes the timer.
CR Motor	Initializes the CR motor life counter.
PF Motor	Initializes the PF motor life counter.
Head Unit	Initializes the head nozzle life counter.
Cleaning	Initializes the life counter of the cleaning unit.
PUMP	Initializes the life counter of the pump unit.
Shipping	Batch initializing before shipping (Print Num., CR Motor, PF Motor, Cleaning)



### 6.3.3 Counter Print Menu

This menu prints the life counter values.



### 6.3.4 Media Feed Menu

This menu feeds media into the printer frontward or backward.  
The mechanical initialization should be performed, if it is not performed yet.

Front : -	Back : +
-----------	----------

---

## 7 Adjustment

<b>7.1</b>	<b>Introduction .....</b>	<b>7- 2</b>
<b>7.2</b>	<b>Adjustment Item.....</b>	<b>7- 2</b>
<b>7.3</b>	<b>Working with Dedicated Network Software.....</b>	<b>7- 6</b>
7.3.1	Parameter Backup .....	7-6
7.3.2	Jigs and Tools.....	7-6
7.3.3	Required Environment.....	7-7
7.3.4	Receiving Parameters.....	7-10
7.3.5	Firmware Installation.....	7-11
7.3.6	Sending Parameters .....	7-15
7.3.7	Sub Controller Installation.....	7-16
7.3.8	RTC Date & Time Setting .....	7-19
<b>7.4</b>	<b>Steel Belt Tension Adjustment.....</b>	<b>7- 21</b>
7.4.1	Jigs and Tools.....	7-21
7.4.2	Adjustment Procedure .....	7-21
<b>7.5</b>	<b>PF Encoder Assembly Position Adjustment.....</b>	<b>7- 24</b>
7.5.1	Adjustment Procedure .....	7-24
<b>7.6</b>	<b>CR Speed Reduction Belt Tension Adjustment.....</b>	<b>7- 26</b>
7.6.1	Jigs and Tools.....	7-26
7.6.2	Adjustment Procedures.....	7-26
<b>7.7</b>	<b>Head Accuracy Adjustment .....</b>	<b>7- 29</b>
7.7.1	Head Alignment (Horizontal Height) .....	7-29
7.7.2	Head Alignment (Vertical Slant).....	7-31

- 7.8 PG Height Adjustment .....7- 33**
  - 7.8.1 Jigs and Tools ..... 7-33
  - 7.8.2 Adjustment Procedure ..... 7-33
- 7.9 P\_EDGE Sensor Sensitivity Adjustment .....7- 35**
  - 7.9.1 Jigs and Tools ..... 7-36
  - 7.9.2 Adjustment Procedure ..... 7-36

## 7.1 Introduction

This chapter provides information on necessary adjustment items and procedures.

**TIP**

☞ "8.4 Jigs and Tools" p.8-6

## 7.2 Adjustment Item

This section describes the adjustment items required in part replacement procedures.

When you adjust or replace any of the maintenance parts listed in "Table 7-1 Adjustment Item List", you must always adjust the plotout quality using the self-diagnosis function referring to Table 7-1 "Adjustment Item List" (p.7-3).

Table 7-1 Adjustment Item List

Part replaced or adjusted	Adjustment order	Adjustment item	Reference
Printer head	1	Head rank input (including initial ink charge)	☞ "(1) Head Rank" p.5-50 ☞ "5.6 Ink Charging Menu" p.5-22
	2	Head nozzle check	☞ "5.7.1 Head Nozzle Check Menu" p.5-25
	3	Head slant check	☞ "5.7.3 Head Slant Check Menu" p.5-28 ☞ "7.7 Head Accuracy Adjustment" p.7-30
	4	Uni-D / Bi-D Low Adjustment Uni-D / Bi-D High Adjustment	☞ "5.7.5 Uni-D/Bi-D Low/High Adjustment" p.5-33
	5	Test printing	☞ "5.7.7 Test Printing Menu" p.5-39
	6	Reset of head unit life counter	☞ "5.11.1 Parameter Initialization Menu" p.5-47

Table 7-1 Adjustment Item List(Continued)

Part replaced or adjusted	Adjustment order	Adjustment item	Reference
Main board assembly	1	Parameter backup	☞ "7.3.1 Parameter Backup" p.7-7
	2	Firmware installation	☞ "7.3.5 Firmware Installation" p.7-12
	3	Head rank input (no need for initial ink charge)	☞ "(1) Head Rank" p.5-50
	4	Head nozzle check	☞ "5.7.1 Head Nozzle Check Menu" p.5-25
	5	Uni-D / Bi-D Low Adjustment Uni-D / Bi-D High Adjustment	☞ "5.7.5 Uni-D/Bi-D Low/High Adjustment" p.5-33
	6	Side margin adjustment	☞ "5.7.6 Side Margin Adjustment Menu" p.5-38
	7	P_EDGE sensor sensitivity adjustment	☞ "7.9 P_EDGE Sensor Sensitivity Adjustment" p.7-36
	8	Test printing	☞ "5.7.7 Test Printing Menu" p.5-39
CR motor assembly	1	CR belt tension adjustment	☞ "7.6 CR Speed Reduction Belt Tension Adjustment" p.7-27
	2	Uni-D / Bi-D Low Adjustment Uni-D / Bi-D High Adjustment	☞ "5.7.5 Uni-D/Bi-D Low/High Adjustment" p.5-33
	3	Side margin adjustment	☞ "5.7.6 Side Margin Adjustment Menu" p.5-38
	4	Test printing	☞ "5.7.7 Test Printing Menu" p.5-39
PF motor assembly	1	Side margin adjustment	☞ "5.7.6 Side Margin Adjustment Menu" p.5-38
	2	P_ENC position adjustment	☞ "7.5 PF Encoder Assembly Position Adjustment" p.7-25
	3	Test printing	☞ "5.7.7 Test Printing Menu" p.5-39

Table 7-1 Adjustment Item List(Continued)

Part replaced or adjusted	Adjustment order	Adjustment item	Reference
P_EDGE sensor assembly	1	P_EDGE sensor sensitivity adjustment	☞ "7.9 P_EDGE Sensor Sensitivity Adjustment" p.7-36
	2	Side margin adjustment	☞ "5.7.6 Side Margin Adjustment Menu" p.5-38
PF_ENC assembly	1	PF_ENC assembly mounting position adjustment	☞ "7.5 PF Encoder Assembly Position Adjustment" p.7-25
	2	PF_ENC inspection	☞ "5.5.5 Encoder Menu" p.5-17
	3	Side margin adjustment	☞ "5.7.6 Side Margin Adjustment Menu" p.5-38
	4	Test printing	☞ "5.7.7 Test Printing Menu" p.5-39
T fence	1	CR encoder inspection	☞ "5.5.5 Encoder Menu" p.5-17
	2	Uni-D / Bi-D Low Adjustment Uni-D / Bi-D High Adjustment	☞ "5.7.5 Uni-D/Bi-D Low/High Adjustment" p.5-33
	3	Side margin adjustment	☞ "5.7.6 Side Margin Adjustment Menu" p.5-38
	4	Test printing	☞ "5.7.7 Test Printing Menu" p.5-39
CR driven pulley	1	CR belt tension adjustment	☞ "7.6 CR Speed Reduction Belt Tension Adjustment" p.7-27
	2	Side margin adjustment	☞ "5.7.6 Side Margin Adjustment Menu" p.5-38

Table 7-1 Adjustment Item List(Continued)

Part replaced or adjusted	Adjustment order	Adjustment item	Reference
Carriage assembly	1	PG height adjustment	☞ "7.8 PG Height Adjustment" p.7-34
	2	CR belt tension adjustment	☞ "7.6 CR Speed Reduction Belt Tension Adjustment" p.7-27
	3	CR encoder inspection	☞ "5.5.5 Encoder Menu" p.5-17
	4	P_EDGE sensor adjustment	☞ "7.9 P_EDGE Sensor Sensitivity Adjustment" p.7-36
	5	Sequential printing endurance operation check	☞ "5.13.4 Print Head Endurance (Nozzle Print) Menu" p.5-60
	6	Head rank input	☞ "(1) Head Rank" p.5-50 ☞ "5.13.4 Print Head Endurance (Nozzle Print) Menu" p.5-60
	7	Side margin adjustment	☞ "5.7.6 Side Margin Adjustment Menu" p.5-38
	8	Head nozzle check	☞ "5.7.1 Head Nozzle Check Menu" p.5-25
	9	Head slant check	☞ "5.7.3 Head Slant Check Menu" p.5-28
	10	Uni-D / Bi-D Low Adjustment Uni-D / Bi-D High Adjustment	☞ "5.7.5 Uni-D/Bi-D Low/High Adjustment" p.5-33
	11	Test printing	☞ "5.7.7 Test Printing Menu" p.5-39

## 7.3 Working with Dedicated Network Software

On this plotter, adjustment parameters can be downloaded and installed, also, the firmware can be installed via network by using dedicated software. In case of MAIN board replacement, work in the following order.

1. Setting up working environment:  ["7.3.3 Required Environment" p.7-8](#)
2. Receiving parameters:  ["7.3.4 Receiving Parameters" p.7-11](#)
3. Replacing MAIN board:  ["4.4.7 Replacing MAIN Board" p.4-49](#)
4. Transferring firmware to plotter:  ["\(1\) Firmware Transfer" p.7-12](#)
5. Confirming completion of installation to plotter:  ["\(2\) Confirming Completion of Installation to Plotter" p.7-14](#)
6. Sending parameters:  ["7.3.6 Sending Parameters" p.7-16](#)

### 7.3.1 Parameter Backup

The NVRAM (Flash-ROM) installed on the MAIN board assembly stores various parameters for the system operation.

The available backup parameters are as follows.

- . Panel setting parameters
- . Mechanism adjustment parameters
- . Main board-unique adjustment parameters

#### TIP

The MAIN board-unique adjustment parameters cannot be erased or modified.

If the MAIN board assembly is found to need replacement during maintenance operations, make sure to back up the parameters. The backup data can be used to restore the original system status, omitting some adjustment steps.

### 7.3.2 Jigs and Tools

The following jigs and tools are required for parameter backup.

- Windows PC:
  - CPU: Pentium 400MHz or higher, Installed memory: 128MB or more
  - With one of the following installed: Windows 98 / Windows 98 SE / Windows Me / Windows 2000 / Windows XP
  - Equipped with network port (RJ-45) (10M/100M Ethernet interface)
  - With dedicated network software (MUTOH Maintenance Engineer Assistant) installed
- Network crossover cable (For hub connection, network straight cable)

### 7.3.3 Required Environment

Before starting work, set up the following environment.

#### (1) Dedicated Network Software Startup and Plotter IP Address Check

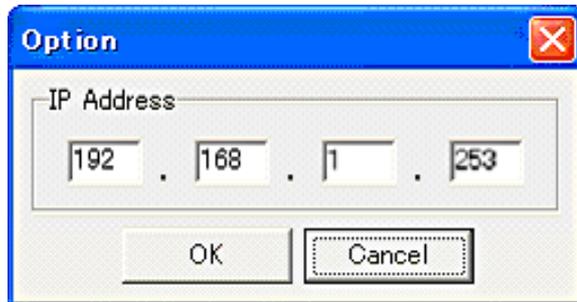
Once "MUTOH Maintenance Engineer Assistant" is started, there is no need to exit it until a series of processes completes.

1. Start "Mutoh Maintenance Engineer Assistant" from the shortcut on the desk top.

 **CAUTION**

Never provide "MUTOH Maintenance Engineer Assistant" to users because the software enables upload of plotter internal parameters to PCs.

2. From [Setup] menu, select [Option] and check if the displayed address matches the plotter IP address. The default plotter IP address is "192.168.1.253". Then, click [OK].



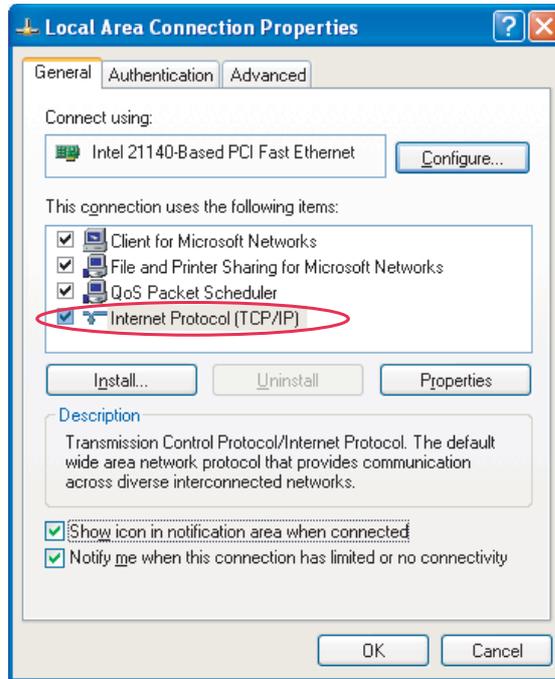
**NOTE**

For the IP address, use the default value as much as possible. If you want to use other IP address, consult with the network administrator of the network to be connected.

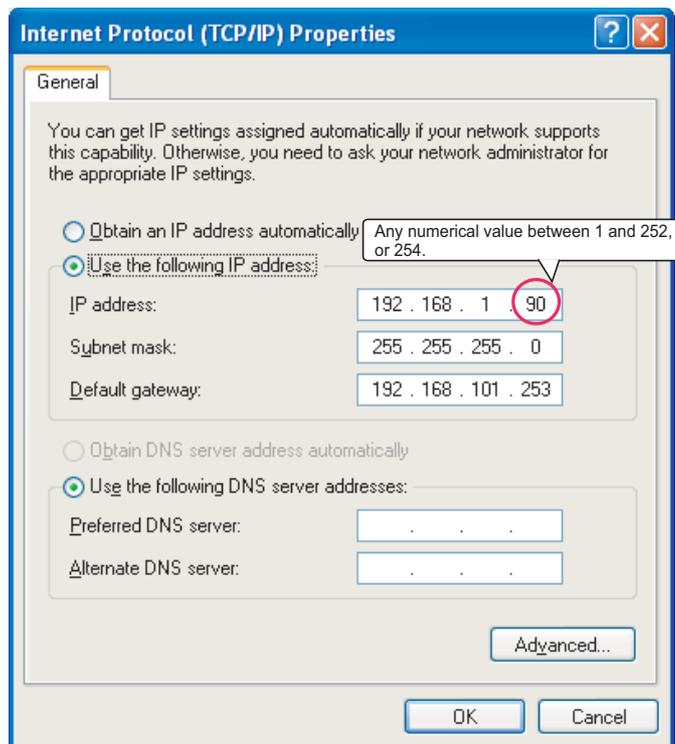
## (2) PC IP Address Setting

To set up on Windows XP with the default IP address on the plotter, follow the steps below.

1. From [Control Panel], open [Network Connections].
2. Right-click [Local Area Connection] and select [Properties].
3. Double-click [Internet Protocol (TCP/IP)].



4. In [IP address], input any value of "192.168.1.1" to 192.168.1.252" or "192.168.1.254".



- Click [OK] to finish the setting.

### **CAUTION**

When the plotter and PC are not directly connected with crossover cable but connected via hub, the IP address needs to be different from that of devices on the network to be connected. To connect via hub, consult with the network administrator.

## (3) Starting Board Manager Mode

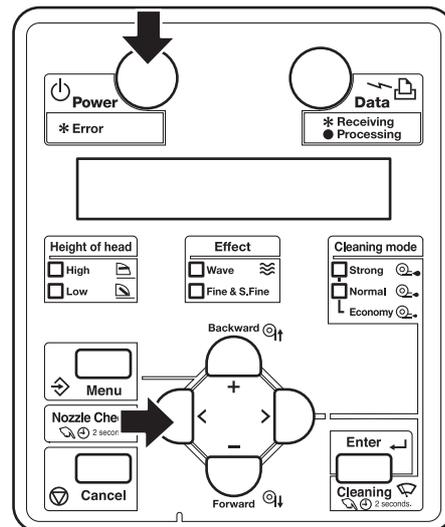
- Connect the plotter network port and PC network port with a network cable.

### **NOTE**

When connecting the plotter and PC on a one-to-one basis, use a "crossover cable". When connecting the plotter and PC via hub, use a "straight cable".

- When the plotter is in the operation status or in the menu display status, press [Power] key to turn the plotter off.
- While holding down [Back] key in the operation panel, press [Power] key.

The LCD displays "Board Manager Mode". If [Back] key is released, the display turns to "Waiting for command".



### **NOTE**

If "waiting for command" is not displayed, follow the steps below.

If IP address that is not default is displayed on the board, releasing [Back] key will display [IP192.168.xxx.xxx] (depending on the set address) on the LCD. In this case, display either of the default IP (IP 192.168.001.253) or the set IP address using [+] key and [-] key, and press [Enter]. Then, "Waiting for command" will be displayed.

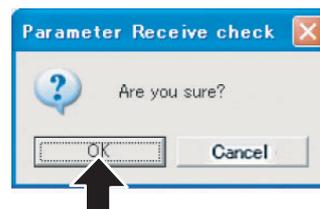
### 7.3.4 Receiving Parameters

This section describes the procedure to record backup parameters to the PC from the existing MAIN board assembly. To download backup parameters, follow the steps below.

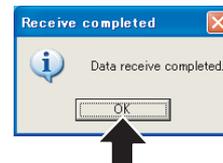
1. Click [Parameter Receive].



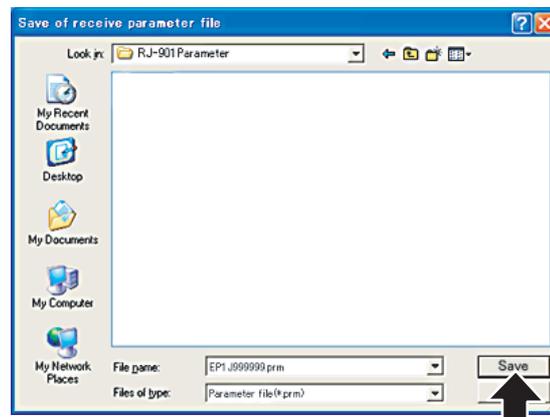
2. In the "Parameter receive check" window, click [OK]. Installation will start.



3. In the "Receive completed" window, click [OK]. "Save of receive parameter file" window opens.



4. Confirm the location to save and click [Save] to determine it.



### 7.3.5 Firmware Installation

This section describes the procedure to install the firmware.

The NVRAM (Flash-ROM) on the MAIN board assembly stores the programs (firmware) that control the machine operations.

When performing the following maintenance works, always install the firmware.

- Replacing the MAIN board assembly
- Updating the firmware

#### CAUTION

- Installing wrong firmware may disable plotter startup. In this case, reinstallation with special jig is required. Pay careful attention to the transferred file types.

#### (1) Firmware Transfer

The following explains the procedure to transfer firmware.

Follow the steps below.

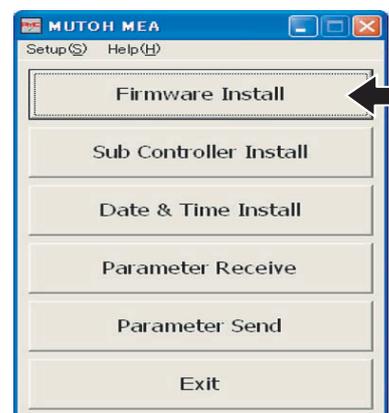
#### NOTE

When connecting the plotter and PC on a one-to-one basis, use "crossover cable". When connecting the plotter and PC via hub, use "straight cable".

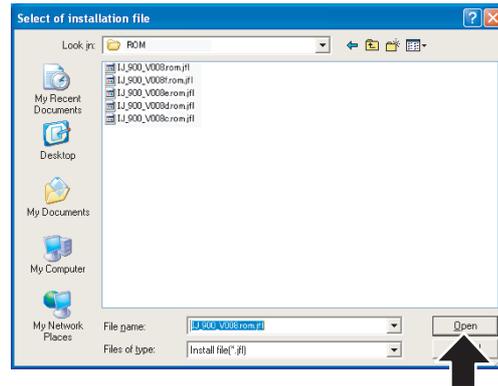
#### TIP

The extension of the firmware file is ".jfl".

1. Click [Firmware Install].  
The "Select of installation file" window is displayed.



2. Select a file to be transferred from the folder where the firmware is saved, and click [Open].



3. In the "Firm installation check" window, click [OK].  
Installation will start.



4. If the "Transfer completed" window opens, click [OK] to close the window.



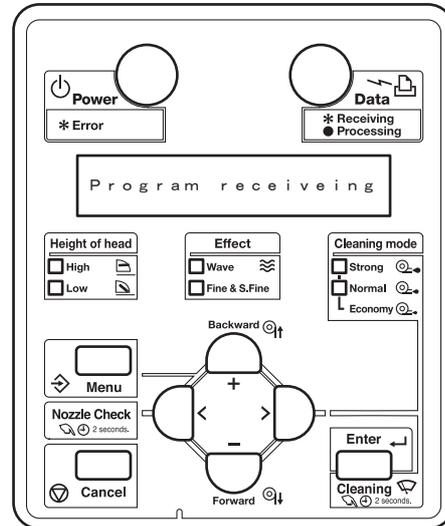
**CAUTION**

Even after the "Transfer completed" window is closed, program installation to the plotter is not completed. Never power off the plotter during the operation.

## (2) Confirming Completion of Installation to Plotter

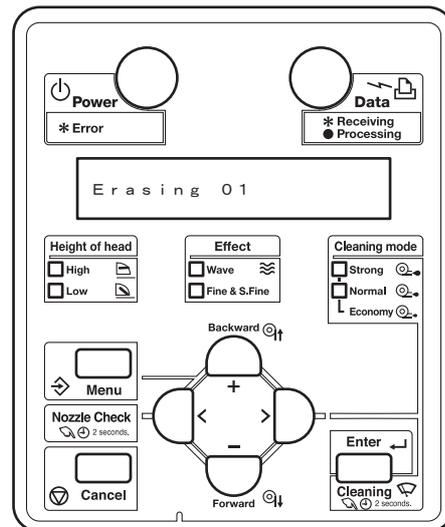
Program installation to plotter continues even after the "Transfer completed" window is closed. Check whether the program is properly installed from the operation panel.

1. When firmware transfer starts, the LCD display on the plotter's operation control panel changes to [Program receiving].  
The Data LED flashes.



2. The LCD display changes as follows:

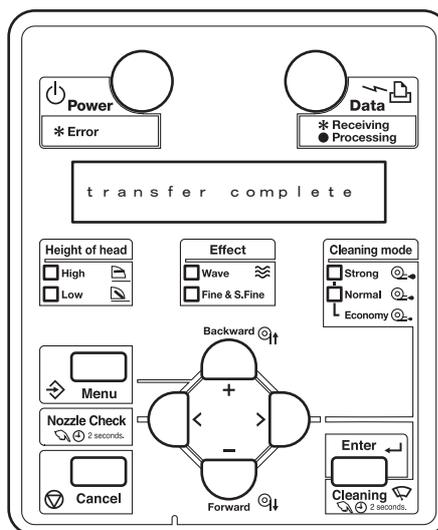
Erasing xx (xx is numeric)  
Copying xx (xx is numeric)  
Comparing xx (xx is numeric)



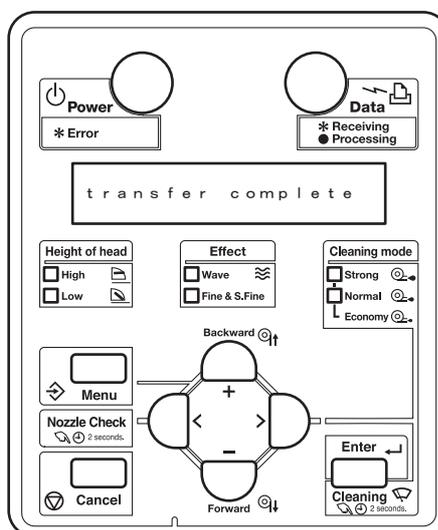
### **CAUTION**

While the LCD display is in the Erasing to Comparing status, the power key is disabled. In this situation, never disconnect the plug of the plotter. Doing so may disable plotter startup, which will require reinstallation with special jig.

3. If the LCD displays [transfer complete], the buzzer sounds three times and only the Power LED turns on among all LEDs.



4. When [xxxxxx bytes rcv (xx is numeric)] is displayed, installation completes. Turn off the plotter and restart it. Then check the version number displayed on the LCD.



**NOTE**

If an error occurs during installation, the buzzer sounds at intervals of 0.25 second, while the LCD displays error message and all LEDs of Roll, Sheet, Color and Black & white flash. In this case, follow the troubleshooting instructions. To stop the buzzer, press any key except for the power key once. Pressing the key once again will return the LCD display to “waiting for command” and only the Power LED on.

### 7.3.6 Sending Parameters

#### NOTE

Before sending parameters, perform the following work.

- Receiving parameters:  ["7.3.4 Receiving Parameters" p.7-11](#)
- Firmware installation:  ["7.3.5 Firmware Installation" p.7-12](#)

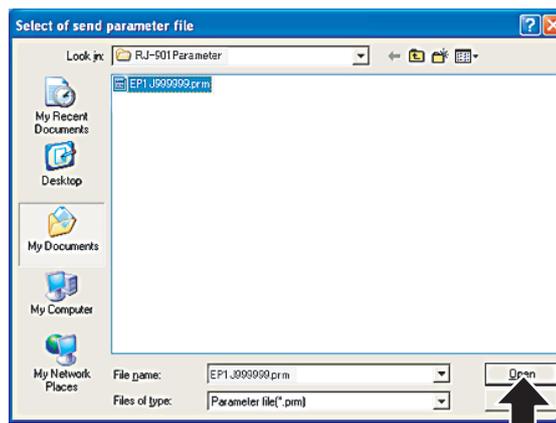
#### TIP

The extension of the firmware file is .jfl.

1. Click [Parameter Send].



2. When the "Select of send parameter file" window opens, select the parameter file to be transferred and click [Open].



3. In the "Parameter Send check" window, click [OK].  
Sending will start.



- When sending completes and the "Send completed" window opens, click [OK].



**NOTE**

Almost as soon as the "Send completed" window is displayed, writing to plotter also finishes. If writing to plotter finishes successfully, the LCD displays the following:

Transfer complete

Buzzer sounds three times and only Power LED turns on. Then, when the LCD displays

16372 bytes recv

parameter writing completes.

### 7.3.7 Sub Controller Installation

This section describes installation procedures of HEATER\_CONT board firmware.

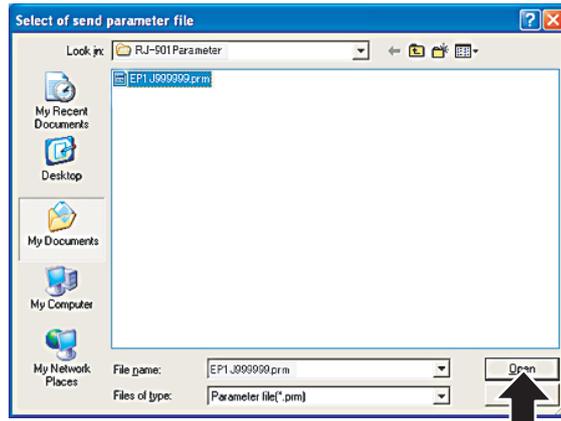
**TIP**

The extension of the sub controller file is .mfl.

- Click [Sub Controller Install].



- 2. When the "Select of File to Install" window opens, select the file to be installed and click [Open].



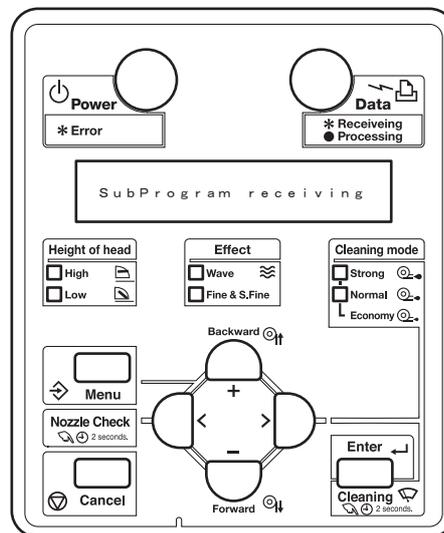
- 3. In the "Sub Controller Install Confirm" window, click [OK]. Sending will start.



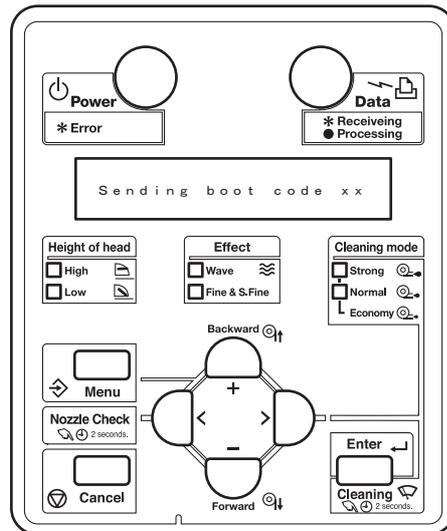
- 4. When sending completes and the "Send completed" window opens, click [OK].



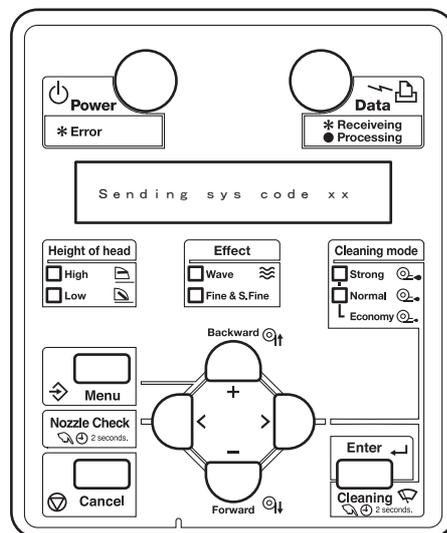
- 5. When starting sub controller firmware installation, LCD display on the plotter control panel changes to [Subprogram receiving].



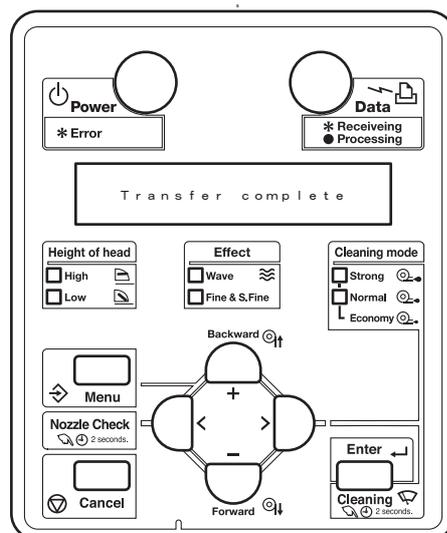
- When starting boot record installation on sub controller board, LCD display on the plotter control panel changes to [Sending boot code xx].



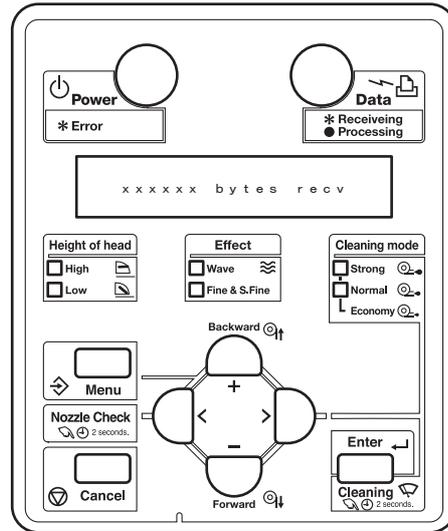
- When starting system record installation on sub controller board, LCD display on the plotter control panel changes to [Sending sys code xx]. This process takes several minutes to complete.



- When completing sub controller firmware installation, LCD display on the plotter control panel changes to [Transfer complete]. Buzzer sounds three times.



- When [xxxxxx bytes recv (xx is numerical value)] is displayed, installation is completed. Pressing any key goes back to [Waiting for command] status.



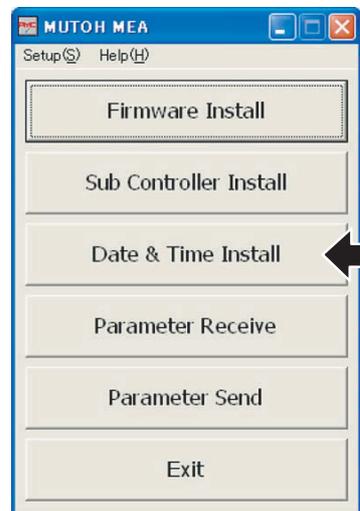
### 7.3.8 RTC Date & Time Setting

\* Normally, this function is not used because this setting should be made in the “Time setting“ of the self-diagnosis function.

☞ ["5.10 Time Setting" p.5-46](#)

This section describe the procedure to transfer time setting on a PC to the RTC (Real Time Clock) on the MAIN board.

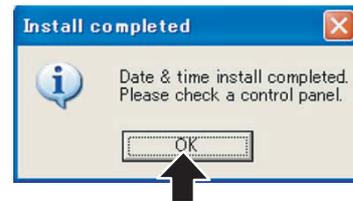
- Click [Date & Time Install].



- When the "Date & time installation check" window opens, click [OK]. Installing will start.



3. When installing completes and the "Install completed" window opens, confirm that the installed date is correct, and click [OK].



## 7.4 Steel Belt Tension Adjustment

This section describes the procedure to adjust the tension of the steel belt.  
When you have removed and installed the steel belt, always adjust the steel belt tension.

### 7.4.1 Jigs and Tools

The jigs and tools required for steel belt tension adjustment are as follows.

- Tension gauge: for measuring Max. 2N (204gf)
- Adhesive material

#### TIP

Refer to "[8.4 Jigs and Tools](#)" p.8-6 for the details of jigs and tools required for this work.

### 7.4.2 Adjustment Procedure

To adjust the steel belt tension, follow the steps below.

1. Open the front cover.
2. Remove the side maintenance cover L.  
☞ "[4.2.5 Removing Side Maintenance Cover L](#)" p.4-12
3. Press the tension gauge at the center position of the steel belt.

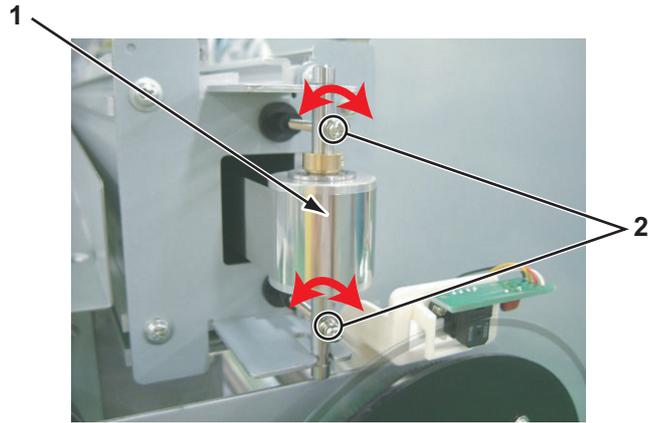


No.	Part name
1	Steel belt
2	Tension gauge
3	Y tension attachment

**TIP**

- The steel belt tension specification is  $0.98\text{N} \pm 0.09\text{N}$  ( $100\text{gf} \pm 10\text{gf}$ ).
- The range where the steel belt moves up and down in the pulley is 1 mm or less.

4. If the tension of the steel belt does not agree to the specification, adjust the tension with a steel belt tension screw.

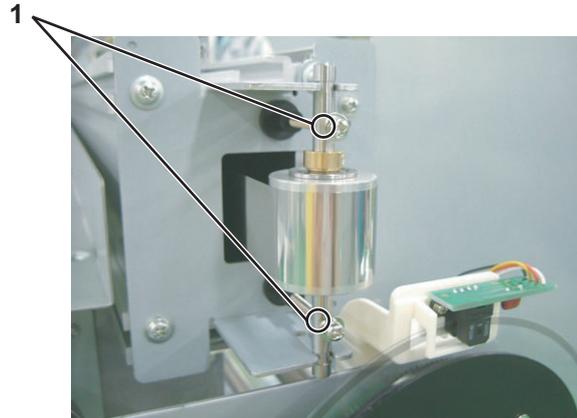


No.	Part name
1	Steel belt
2	Steel belt tension screw

**CAUTION**

Adjust the steel belt so that the steel belt is equally balanced. If not, the steel belt may be cut.

5. Apply adhesive material.



No.	Part name
1	Adhesive material applying surface

6. Close all the covers.

## 7.5 PF Encoder Assembly Position Adjustment

This section describes the procedure to adjust the PF encoder assembly.  
After replacing the PF encoder, adjust the PF encoder position.

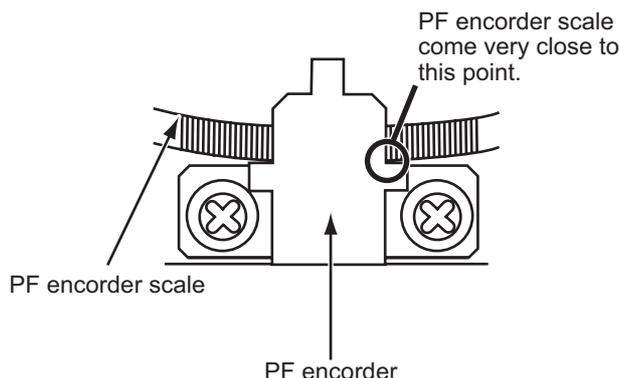
### 7.5.1 Adjustment Procedure

To adjust PF encoder, follow the steps below.

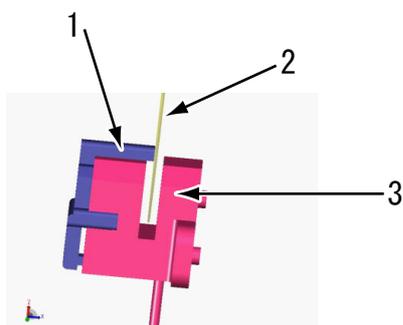
1. Remove the side maintenance cover L.  
**"4.2.5 Removing Side Maintenance Cover L" p.4-12**
2. Loosen the screws that retain PF encoder.
3. Align the PF encoder assembly so that the corner covers the periphery of the PF encoder scale, then retain the PF encoder assembly with screws.

**NOTE**

Align the PF encoder so that the encoder scale slit periphery came very close to the corners of the PF encoder.



4. Attach the slit guide to the PF encoder assembly.



No.	Part name
1	Slit guide
2	Scale
3	PF scale assembly

5. Turn the scale around to check that the scale does not swing toward the speed reduction pulley from the center of the encoder gap. If it swings, adjust the PF encoder assembly position again.

**NOTE**

There is no problem even if the scale hits the slit guide when turned around.

---

6. Close the side maintenance cover L.

## 7.6 CR Speed Reduction Belt Tension Adjustment

This section describes the procedure to adjust the tension of the CR speed reduction belt. When you have removed and installed the CR speed reduction belt, adjust the CR speed reduction belt tension.

### 7.6.1 Jigs and Tools

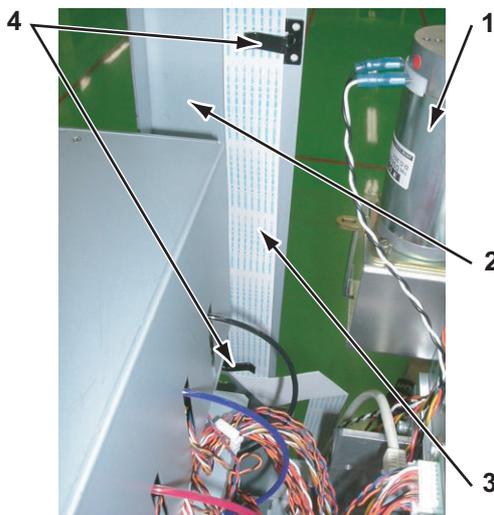
The jigs and tools required for CR speed reduction belt tension adjustment are as follows.

- Tension gauge: for measuring Max. 40N (4080gf)

☞ ["8.4 Jigs and Tools" p.8-6](#)

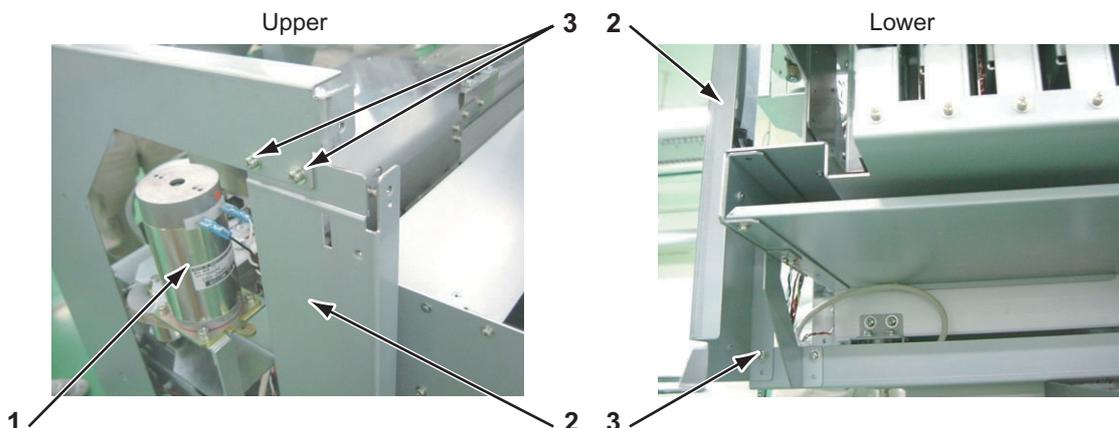
### 7.6.2 Adjustment Procedures

1. Remove the side maintenance cover L.  
☞ ["4.2.5 Removing Side Maintenance Cover L" p.4-12](#)
2. Remove the side top cover R.  
☞ ["4.2.6 Removing Side Top Cover R" p.4-12](#)
3. Remove the panel to conversion board tape wire from the flat cramps (2 pieces) on the back of the cartridge cover stay.



No.	Part name
1	CR motor assembly
2	Cartridge cover stay
3	Panel to conversion board tape wire
4	Flat cramp

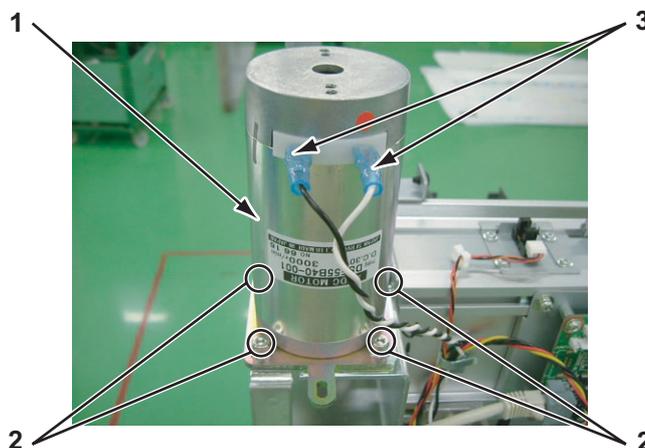
4. Remove the screws (3 pieces) that retain cartridge cover stay R.



No.	Part name
1	CR motor assembly
2	Cartridge cover stay R
3	Screws that retain cartridge cover stay R (pan-head screw with spring washer and flat washer M4 × 8)

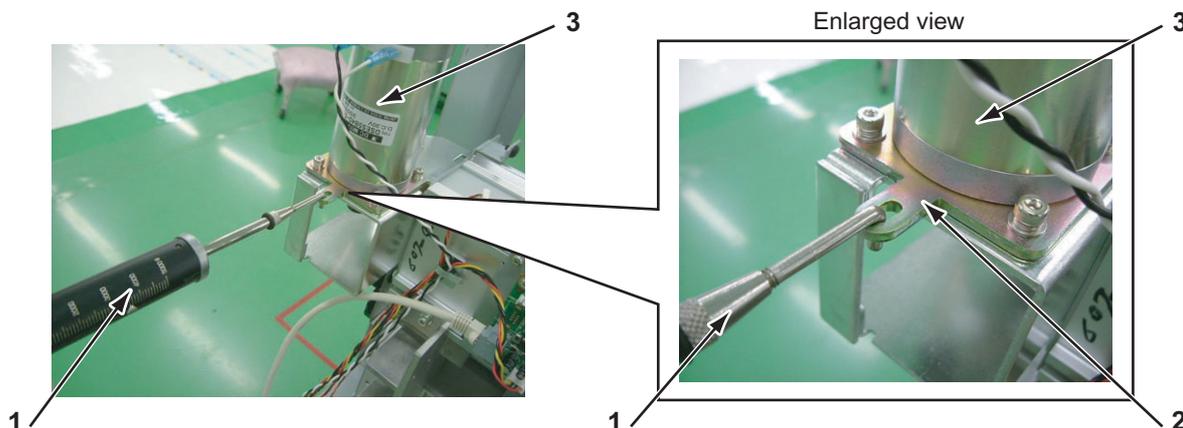
5. Remove the cartridge cover stay R.

6. Loosen the hexagon bolts (4 pieces) that retain CR motor mounting plate.



No.	Part name
1	CR motor assembly
2	Cartridge cover stay R
3	Screws that retain cartridge cover stay R (pan-head screw with spring washer and flat washer M4 × 8)

7. Mount a tension gauge to CR motor mounting plate.



No.	Part name
1	Tension gauge
2	CR motor mounting plate
3	CR motor assembly

8. Pull the tension gauge in a direction perpendicular to CR motor assembly so that the tension of the CR speed reduction belt equals the specification.

**TIP**

The tension specification of the CR speed reduction belt is  $34.32\text{N} \pm 3.42\text{N}$  ( $3,500\text{gf} \pm 350\text{gf}$ ).

- 9. Tighten the hexagon bolts (4 pieces) that retain the CR motor mounting plate.
- 10. Continue adjusting until the tension of the CR speed reduction belt equals the specification.
- 11. Remove the tension gauge from the CR motor mounting plate.
- 12. Close all the covers.

## 7.7 Head Accuracy Adjustment

This section describes the procedure to adjust the head slant.

When you have removed and installed the head assembly, such as head assembly replacement, always adjust the head slant following the steps below.

### 7.7.1 Head Alignment (Horizontal Height)

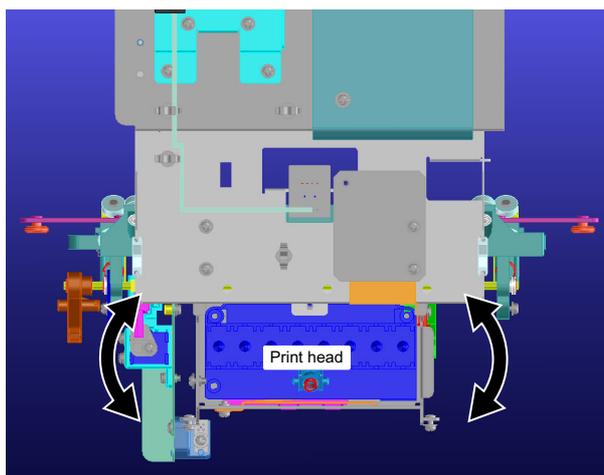
This section describes the procedure to adjust the head slant in horizontal direction.

When you have removed and installed the head assembly, such as for head assembly replacement, always adjust the head slant and depth following the steps below.

#### NOTE

Before starting adjustment, remove the following parts.

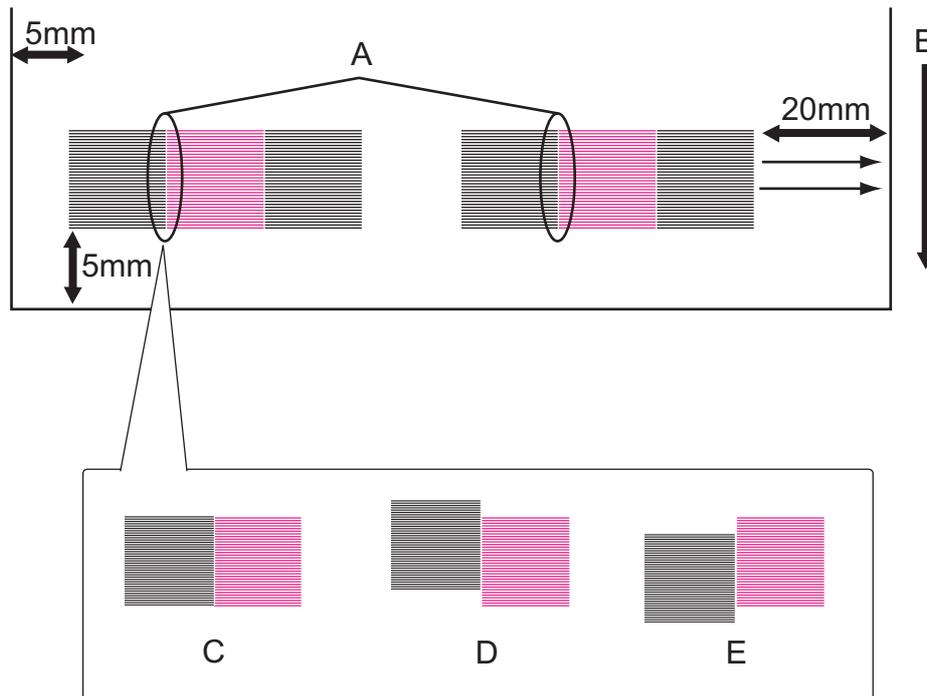
- CR cover: [☞ "4.8.2 Removing CR Board Cover" p.4-106](#)
- Adjust the horizontal height of the head alignment before adjusting the vertical alignment slant of head alignment.
- In this procedure, align the print head in the direction shown below.



1. Start the plotter in the self-diagnosis function mode and print the adjustment patterns in "Head Slant: Slant 1".

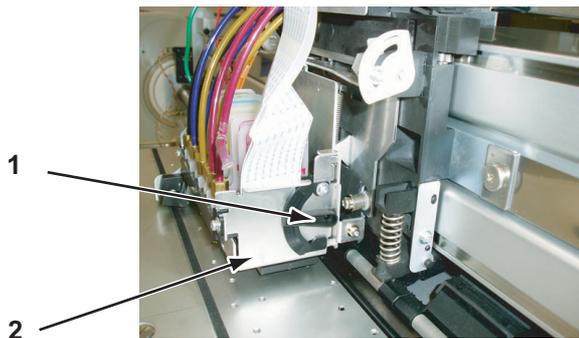
[☞ "5.7.3 Head Slant Check Menu" p.5-28](#)

2. Make adjustment based on the printed adjustment patterns.



- A: Check the slant at this point
- B: Media feed direction
- C: OK
- D: Move the head adjusting cam upward
- E: Move the head adjusting cam downward

3. Move the head adjusting cam lever to adjust head slant.



No.	Part name
1	Head adjusting cam
2	Head mounting plate

## 7.7.2 Head Alignment (Vertical Slant)

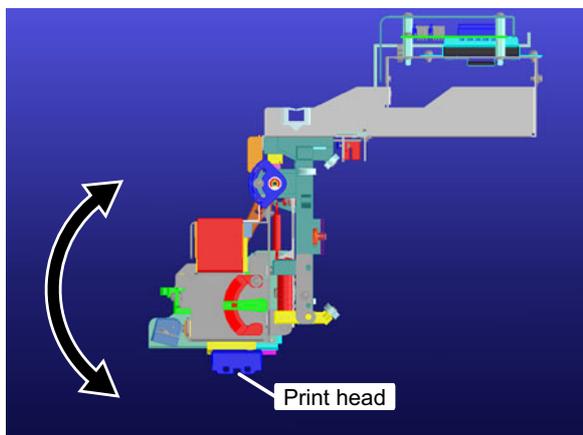
This section describes the procedure to adjust the head slant in vertical direction.

After operation such as head assembly replacement, adjust the head slant according to the steps below.

### NOTE

- Before starting adjustment, remove the following parts.  
CR cover: [☞ "4.8.3 Replacing CR Board Assembly" p.4-106](#)
- Before aligning print head in vertical direction, perform the alignment in horizontal direction.  
[☞ "7.7.1 Head Alignment \(Horizontal Height\)" p.7-30](#)

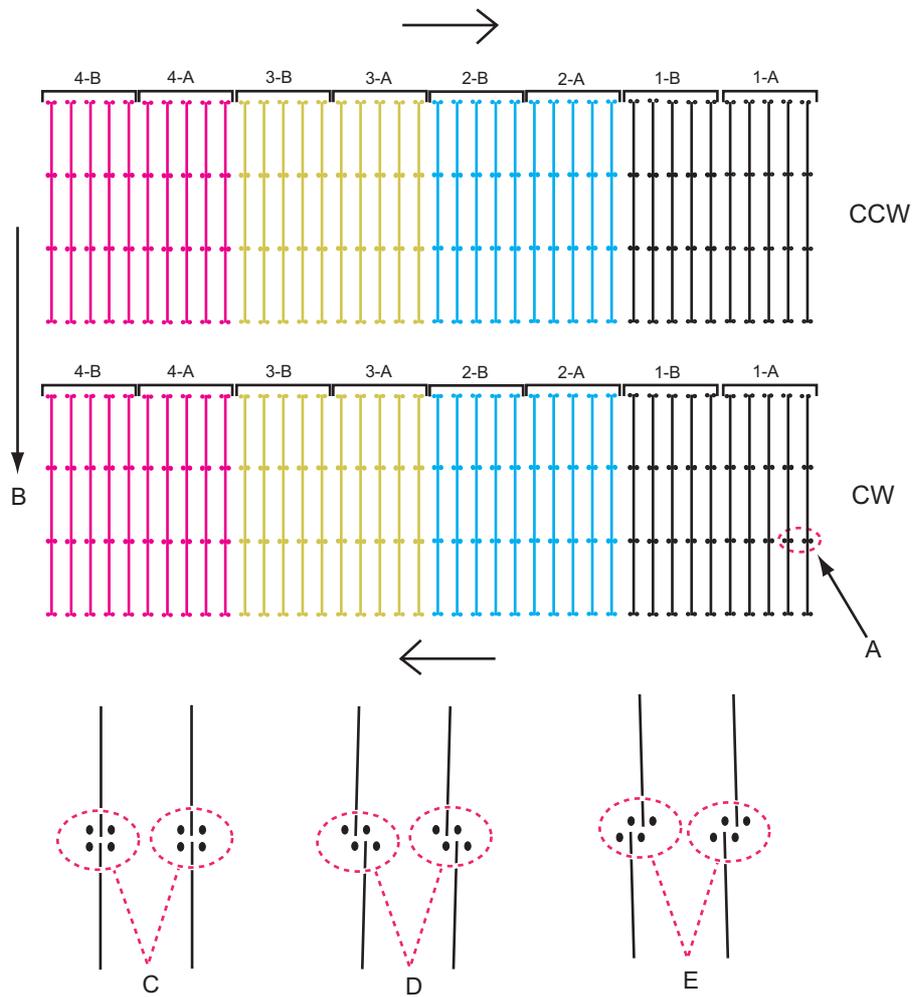
In this procedure, align the print head in the direction shown below.



1. Start the plotter in the self-diagnosis function mode and select "Head Slant: Slant 2".

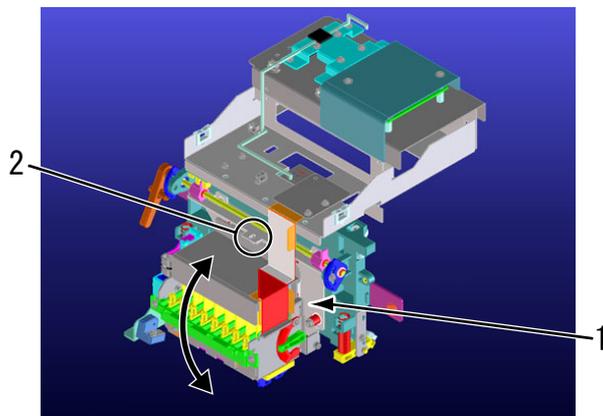
[☞ "5.7.3 Head Slant Check Menu" p.5-28](#)

2. Make adjustment based on the printed adjustment patterns.



- A: Check the point to check the vertical slant angle.
- B: Media feed direction
- C: OK
- D: Move the vertical-slant adjusting tab to the right.
- E: Move the vertical-slant adjusting tab to the left.

- Loosen the head base mounting plate screw and move the head base mounting plate up and down to adjust the head vertical angle.



No.	Part name
1	Head base mounting plate
2	Head base mounting plate screw

## 7.8 PG Height Adjustment

This section describes the procedure to adjust the carriage height (distance between carriage and platen).

### 7.8.1 Jigs and Tools

The following jigs and tools are required for carriage height adjustment.

- PG height check jig

**TIP**

☞ ["8.4 Jigs and Tools" p.8-6](#)

### 7.8.2 Adjustment Procedure

To make adjustment, follow the steps below.

- Open the front cover.
- Unlock the head lock.

☞ ["4.8.1 Releasing Head Lock" p.4-105](#)

- Place the PG height check jig on the platen.

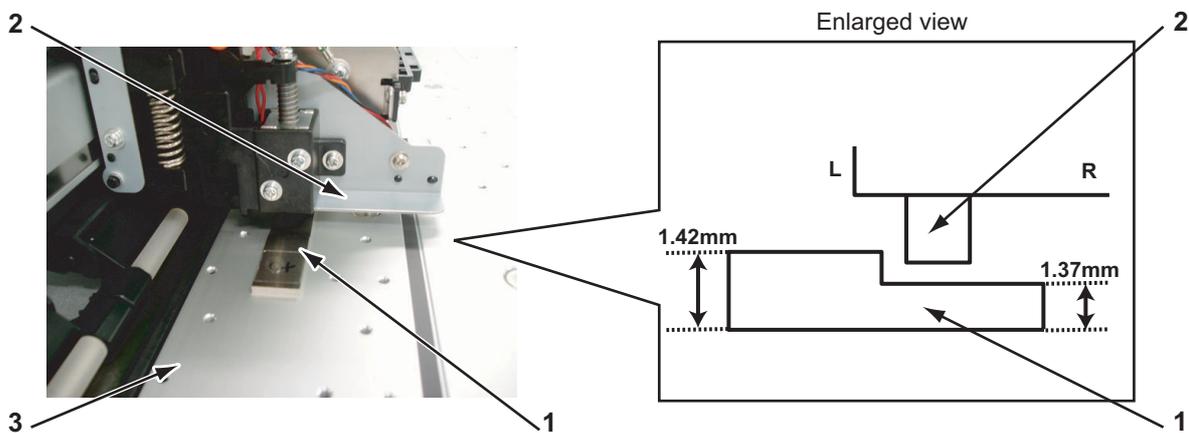
**NOTE**

Place the PG height check jig where print heads pass over the jig when moving the carriage.



No.	Part name
1	PG height check jig

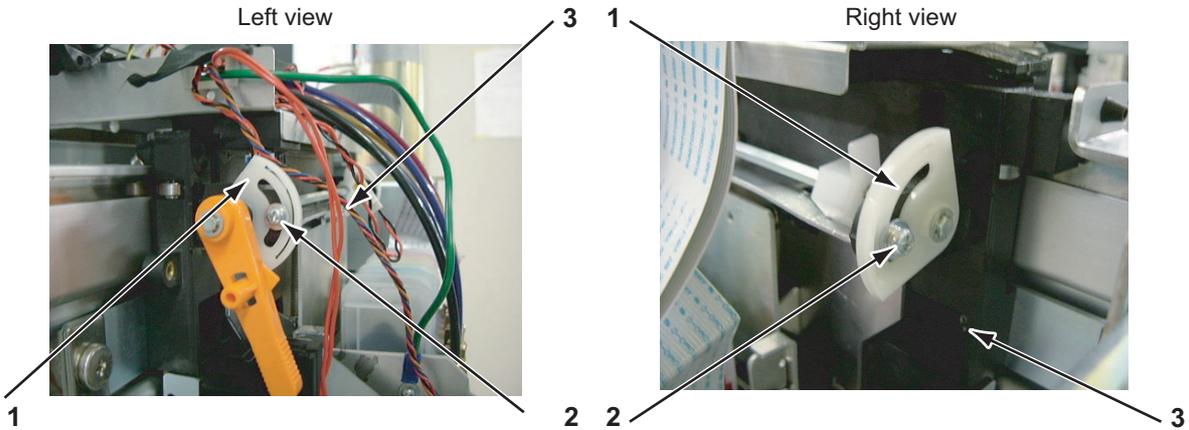
- Move the carriage from the origin side with the lever "ON".
- Check if the carriage passes over the 1.37mm part of the PG height check jig, but not over the 1.42mm part.



No.	Part name
1	PG height check jig
2	Print head
3	Platen

- Reverse the jig and move the carriage from the opposite side of the jig.

- If the carriage passes over the 1.42mm part of the PG height check jig, loosen the screws (2 pieces on each side) on the left and right side of the carriage that retain the head UD collar to lower the PG.



No.	Part name
1	Head UD collar
2	Screws that retain the head UD collar (pan-head screw with spring washer and flat washer M3 x 8)
3	Carriage

- Loosen the screws (2 pieces on each side) that retain the head UD collar to fix the height of the head.
- Move the carriage back to the origin.
- Close all the covers.

## 7.9 P\_EDGE Sensor Sensitivity Adjustment

This section describes the procedure to adjust the P\_EDGE sensor sensitivity. When you have removed and installed the P\_EDGE sensor or the MAIN board assembly, adjust the P\_EDGE sensor sensitivity.

**NOTE**

- When you adjust the P\_EDGE sensor sensitivity, note the following;
  - Any ambient light, such as sun light or room light, does not interfere with the sensor.
  - Keep the media holding lever down so that the media is stable on the sensor during adjustment. If media is not securely held, the sensor detection accuracy may be decreased.
  - Use non-conductive screwdriver when operating the trimmer on the MAIN board assembly. If a conductive screwdriver contacts with electronic component on the MAIN board or frame, it may cause a short-circuit.

## 7.9.1 Jigs and Tools

The following jigs and tools are required for P\_EDGE sensor sensitivity adjustment.

- Test media: MF-3G (A4)

### TIP

🔗 ["8.4 Jigs and Tools" p.8-6](#)

## 7.9.2 Adjustment Procedure

To adjust the P\_EDGE sensor, follow the steps below.

### TIP

The adjustment parameters are as follows;

- HIGH level (with media): 216 to 226
- LOW level (without media): 0 to 80

1. Remove the board box cover.

🔗 ["4.4.1 Opening Board Box 64" p.4-40](#)

### NOTE

Start the self-diagnosis function before setting the test media. Otherwise, the suction fan does not rotate and you cannot get correct setting value.

2. Start the system in self-diagnosis function mode.

🔗 ["5.2.2 Starting Up" p.5-4](#)

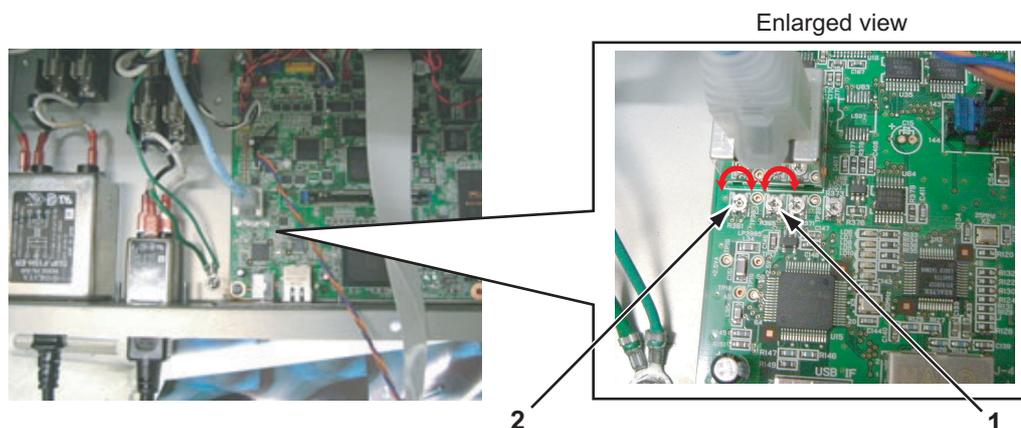
3. Select "Check 2: Test" from the self-diagnosis menu.
4. After confirming that the "Check 2: Test" is displayed in the operation panel, set the test media on the media base position and down the media hold lever to confirm that the suction fan starts rotating.

### NOTE

The suction fan will not rotate if the [Enter] key is pressed before setting the test media. Make sure to press the [Enter] key after setting the test media.

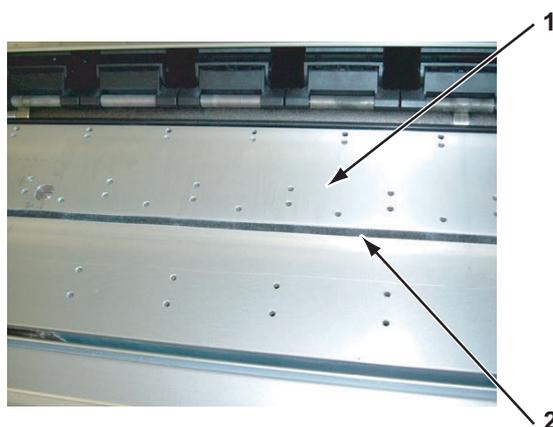
5. Select "Test 4: Sensor" from the inspection menu.
6. Select "Sen 8: EdgeAD" from the sensor menu.
7. Move the carriage to the center of the test media.

8. Adjust the P\_EDGE sensor adjusting volumes as shown below so that the value displayed in the operation panel becomes between 216 and 226.  
 Counterclockwise: Sensitivity increases  
 Clockwise: Sensitivity decreases
- Trimmer R361: Rough adjustment
  - Trimmer R365: Fine adjustment



No.	Part name
1	Trimmer R361
2	Trimmer R365

9. Move the carriage and adjust the P\_EDGE sensor adjusting volumes so that the value displayed in the operation panel becomes between 216 and 226.
10. Move the carriage so that the P\_EDGE sensor is moved from the media setting position to the non reflective tape area.



No.	Part name
1	Platen
2	Non reflective tape

11. Check that the value displayed in the operation panel is "80" or less.
12. Move the carriage back to the origin.
13. Close all the covers.

# 8 Maintenance

- 8.1 Introduction ..... 8- 2**
- 8.2 Periodical Services ..... 8- 3**
- 8.3 Part Life Information..... 8- 4**
- 8.4 Jigs and Tools ..... 8- 6**
  - 8.4.1 Required Tools..... 8-6
- 8.5 Lubrication/Bonding..... 8- 7**
- 8.6 Transportation of Plotter ..... 8- 10**

## 8.1 Introduction

This chapter provides information about the periodical services, part life, lubrication/bonding, and transport.

 **WARNING**

Before starting any maintenance work, always perform the following operations.

- Turn the printer power OFF.
- Remove the power cable from the power outlet.  
Not doing so may cause electric shock or damage to the electric circuit.
- Unplug the cables connected to the printer.

Failure to do so could result in damage to the printer.

---

 **CAUTION**

- Make sure there is sufficient space around the printer when performing maintenance work.
  - When servicing the machinery inside with some covers removed, pay special attention not to be injured by the driving mechanisms.
  - Maintenance must be done by more than two person for the following work.
    - When disassembling or reassembling the printer and the optional stand
    - When packing the printer for transportation
-

## 8.2 Periodical Services

This section describes the periodical services required for this printer.

The periodical services ensures stable plotting quality of the printer.

Perform periodical inspections according to [Table 8-1 "Periodical Inspection Part List"\(p.3\)](#) and perform cleaning and part replacement as necessary.

**TIP**

-  Operation manual
-  [Separate sheet “Exploded view” P.2-P.10](#)

Table 8-1 Periodical Inspection Part List

Part	Timing	Check point	Action
Media guide F Platen front surface	Several times per year	<ul style="list-style-type: none"> <li>• Media dust accumulation</li> <li>• Foreign objects</li> <li>• Damages</li> </ul>	Clean it.  If ink deposits are present, remove them with a dampened cloth and wipe the area with a clean dry cloth.
Timing fence (CR encoder detection slit plate)	Several times per year	<ul style="list-style-type: none"> <li>• Media dust accumulation</li> <li>• Foreign objects</li> <li>• Damages</li> </ul>	Clean it.  If any damages are found, replace the part.
P_REAR sensor front surface	Several times per year	<ul style="list-style-type: none"> <li>• Media dust accumulation</li> <li>• Foreign objects</li> </ul>	Clean it.
Cleaner head (Cleaning wiper)	Several times per year	<ul style="list-style-type: none"> <li>• Ink deposits</li> <li>• Damages</li> </ul>	Clean it.
Pressure roller	Several times per year	<ul style="list-style-type: none"> <li>• Ink deposits</li> <li>• Damages</li> </ul>	Clean it.

## 8.3 Part Life Information

This section shows how to check the life of the service parts.

To know the life of the service parts, check the maintenance counter from the counter display menu in the maintenance mode.

**TIP**

 **"6.3.1 Counter Display Menu" p.6-3**

Part life information of this printer is shown in the table below.

Table 8-2 List of Parts Life Expectancy

Part	Life expectancy	Warning display	How to restore	Replacement parts	References
Cleaning unit	9,000 sheets *1 (Warning at 3,000 times of wiping)	-	Counter clear	<ul style="list-style-type: none"> <li>Ink system</li> <li>Cleaner head (Cleaning wiper)</li> <li>Flushing box</li> <li>Absorber under the maintenance base absorber</li> </ul>	 <b>"4.9.2 Replacing Cleaner Head" p.4-121</b>  <b>"4.6.12 Replacing Flushing Absorber" p.4-82</b>
CR motor	Approx. 20,000 sheets (4600,000 passes *2)	Check Life [CR motor]	Counter clear	At the first warning: <ul style="list-style-type: none"> <li>CR motor</li> <li>CR Driven pulley (Check the ink tube and the CR cable.)</li> </ul> At the next warning: <ul style="list-style-type: none"> <li>CR cable besides above</li> </ul>	 <b>"4.7.2 Replacing CR Motor Assembly" p.4-87</b>  <b>"4.7.6 Replacing CR Driven Pulley" p.4-96</b>  <b>"4.7.10 Replacing Ink Tube" p.4-102</b>  <b>"4.7.8 Replacing CR Tape Wire" p.4-99</b>
PF motor	Counted only, not displayed		Counter clear	Replace as necessary	 <b>"4.6.2 Replacing PF Motor Assembly" p.4-61</b>

Table 8-2 List of Parts Life Expectancy (Continued)

Part	Life expectancy	Warning display	How to restore	Replacement parts	References
Print head	6 billion dots	Check Life [Head]		Replace as necessary	 <b>"4.8.9 Replacing Print Head" p.4-114</b>
Pump	182,000 times	Check Life [Pump]	Counter clear	Replace as necessary	 <b>"4.9.3 Replacing Maintenance Assembly" p.4-122</b>

\*1 Plotting on A1 sheet at 5% print ratio

\*2 Continuous plotting on A0 sheet with "Plain Paper /Image /Speed-Mode"

## 8.4 Jigs and Tools

This section provides lists of jigs and tools required for service operations.

### 8.4.1 Required Tools

#### (1) Tools for Part Replacement

Table 8-3 Tools for Part Replacement

No.	Name	Part number	Remarks
1	Phillips driver No.2	Generic product	More than 250mm shaft length is recommended
2	Phillips driver No.2	Generic product	Less than 50mm shaft length is recommended
3	Phillips driver No.1	Generic product	
4	Flat-head driver	Generic product	For replacing E rings
5	Box driver	Generic product	For replacing CR board assemblies
6	Ratchet	Generic product	
7	Long-nose pliers	Generic product	
8	Tweezers	Generic product	
9	Hex wrench (opposite side: 1.5 to 6mm)	Generic product	
10	E ring holder (E-2.5)	Generic product	Name: JIS E-2.5 Manufacturer: Iwata Denko Co., Ltd
11	E ring holder (E-5)	Generic product	Name: JIS E-5 Manufacturer: Iwata Denko Co., Ltd
12	Penlight	Generic product	
13	C ring pliers	Generic product	For replacing take-up flange assemblies

#### (2) Tools for Adjustment

Table 8-4 Tools for Adjustment

No.	Name	Part number	Remarks
1	Personal computer	Generic product	Printer port mounted
2	Cross cable	Generic product	For installing firmware
3	Tension gauge	Generic product	Max. 4,080gf (40N) for measurement Manufacturer: Ohba Keiki Seisakusho Co., Ltd.
4	Tension gauge	Generic product	Max. 204gf (2N) for measurement Manufacturer: Ohba Keiki Seisakusho Co., Ltd.

Table 8-4 Tools for Adjustment (Continued)

No.	Name	Part number	Remarks
5	Straight scale (100mm)	Generic product	
6	MF-3G	Exclusive use media	For P_EDGE sensor, for print accuracy adjustment
7	PG height check tool (64)	JD-42796	

## 8.5 Lubrication/Bonding

This section covers the lubrication/bonding information.

After disassembling/assembling this plotter, always perform necessary lubrication/bonding according to "Table 8-5 Lubricant List" p.8-7.



Only use specified lubricants and greases. The use of unauthorized lubricants and greases may damage the components and shorten the plotter life.

Table 8-5 Lubricant List

Parts		Item	Manufacturer	Type
PF drive section	Up/down gear on pressure lever	Apply to gear	Kanto Kasei Co., Ltd.	FLOIL G-MK-1
	PF motor bracket / Middle gear inner diameter	Apply to middle gear inner diameter	Kanto Kasei Co., Ltd.	FLOIL G-MK-1
	Speed reduction pulley	Apply to drive pulley	Kanto Kasei Co., Ltd.	FLOIL G-MK-1
	Medium tray slide, Grit medium tray	Apply to the areas the plates contact each other.	Kanto Kasei Co., Ltd.	FLOIL G-MK-1

Table 8-5 Lubricant List (Continued)

Parts		Item	Manufacturer	Type
CR drive section	Y rail machining diagram	Apply to the hole securing Y drive base.	Kanto Kasei Co., Ltd.	FLOIL G-MK-1
		Apply to the hole securing the return pulley bracket.	Kanto Kasei Co., Ltd.	FLOIL G-MK-1
	Y rail and roller guide	While inserting roller guide, apply to the downside of the roller guide.	Kanto Kasei Co., Ltd.	FLOIL G-MK-1
	Pressure shaft bearing	Apply to the upside and the shaft insertion part.	Kanto Kasei Co., Ltd.	FLOIL G-MK-1
	Pressure cam	Apply to cam part.	Kanto Kasei Co., Ltd.	FLOIL G-MK-1
	Roller guide	Apply to the front surface of roller guide.	Mitsubishi	Super multi-dia tetrat No.32
	Drive pulley	Apply to drive pulley.	Kanto Kasei Co., Ltd.	FLOIL G-MK-1
Cursor section	Head U/D collar	Apply to head U/D collar.	Kanto Kasei Co., Ltd.	FLOIL G-MK-1
	Head U/D cam	Apply to head U/D cam.	Kanto Kasei Co., Ltd.	FLOIL G-MK-1
	Slide gear	Apply to gear.	Kanto Kasei Co., Ltd.	FLOIL G-MK-1
Head base section	Head bracket	Apply to the position of the screw hole securing shoulder screw.	Kanto Kasei Co., Ltd.	FLOIL G-MK-1
	Head slide base	Apply to the part contacting with the CR cursor.	Kanto Kasei Co., Ltd.	FLOIL G-MK-1

Table 8-6 Adhesive List

Parts		Item	Manufacturer	Type
PF drive section	Set screw	Apply screw-locking agent to the coupling set screw.	Three Bond Co., Ltd.	1401
CR drive section	CR driven pulley adjusting screw	After adjusting steel belt, apply screw-locking agent.	Three Bond Co., Ltd.	1401
Others	Screw	Apply to the area screw-locking agent is applied.	Three Bond Co., Ltd.	1401

Table 8-7 Tape List

Parts		Item	Manufacturer	Type
Others	The areas sharpened edge is likely to emerge	Attach acetate tapes to the tape wires or harnesses where sharpened edge is likely to emerge.	Not specified	

## 8.6 Transportation of Plotter

This section describes how to transport the plotter.

Before transporting the plotter, you must package it in the same manner as it was delivered using protective materials and packaging materials so that the plotter will not be subject to excessive impact and vibrations during the transportation.

Follow the steps below to package the plotter.

### (1) Task Before Transportation

1. Start the Self-Diagnosis Mode.  
☞ **"5.2.2 Starting Up" p.5-4**
2. Start the Head Cleaning Menu 2.  
☞ **"5.7.8 HeadWash Menu" p.5-40**
3. Discharge ink of all heads.
4. Remove all ink cartridges.
5. Install the cleaning jigs.
6. Fill shipping liquid.
7. Remove the cleaning jigs.
8. Turn the plotter power off.
9. Remove all cables including the power cable.
10. Treat the waste fluid.
11. Fit the plotter with protective materials.
12. Package the plotter.

**TIP**

☞ Operation manual

---

### (2) Task After Transportation

1. Unpack, assemble, and install the plotter.
2. Make the plotter ready for operation.

---

## 9 Troubleshooting

<b>9.1</b>	<b>Introduction .....</b>	<b>9- 2</b>
<b>9.2</b>	<b>Troubleshooting with Error Messages .....</b>	<b>9- 2</b>
9.2.1	Operation Status.....	9-3
9.2.2	Errors with Message .....	9-5
9.2.3	Data Errors.....	9-12
9.2.4	Command Errors.....	9-14
9.2.5	Errors Requiring Reboot .....	9-15
9.2.6	Error Messages During File Transmission.....	9-29
<b>9.3</b>	<b>Troubleshooting Without Error Messages .....</b>	<b>9- 34</b>
9.3.1	Initial Operation Problems.....	9-34
9.3.2	Media Feed Problems.....	9-44
9.3.3	Printing Problems.....	9-46
9.3.4	Noise Problems.....	9-65
9.3.5	Online Function Problems.....	9-68
9.3.6	Other Problems.....	9-70
9.3.7	Problems in Using Dedicated Network Software .....	9-72

## 9.1 Introduction

This chapter provides information on possible causes of machine errors/damage and recovery actions.

If the machine is malfunctioning and an error message is displayed on the operation panel, refer to "**9.2 Troubleshooting with Error Messages**" p.9-2. If the machine is malfunctioning but no error messages are displayed, refer to "**9.3 Troubleshooting Without Error Messages**" p.9-34.

If cause of errors/damage and recovery actions are not found in this chapter, or the machine cannot restore to normal status, please contact the distributor your purchased the product from or our customer support center.

## 9.2 Troubleshooting with Error Messages

This section describes the messages displayed in normal operation and upon an error occurrence as well as how to correct the error.

The available messages are as follows.

Table 9-1 Error Message Type

Priority	Message type	Contents	Reference
1	Operation status	Displayed when the machine is operating normally.	 " <b>9.2.1 Operation Status</b> " p.9-3
2	Error with message	Displayed when an abnormal condition occurs during normal operation.	 " <b>9.2.2 Errors with Message</b> " p.9-5
3	Data error	Displayed when a data communication error occurs between PC and the machine.	 " <b>9.2.3 Data Errors</b> " p.9-12
4	Command error	Displayed when an abnormal condition occurs during analysis of PC commands.	 " <b>9.2.4 Command Errors</b> " p.9-14
5	Error requiring reboot	Displayed when a serious error critical to the machine operation occurs.	 " <b>9.2.5 Errors Requiring Reboot</b> " p.9-15

## 9.2.1 Operation Status

This section describes the message contents, check items, and recovery actions for normal operation.

Table 9-2 Events and Check Items for Operation Status Messages

No.	Message	Event/ symptom	Check item	Action	Reference
1	Cover open	Front cover is open.	1. Is cover sensor assembly loose?	Tighten cover sensor assembly screws.	 "4.3.3 Replacing Front Cover Sensor" p.4-32
2	Set media	Media holding lever is turned backward.	1. Are front cover R sensor assembly cable and front cover L sensor assembly cable connected securely?	Correctly connect front cover R sensor assembly cable to MAIN board assembly connector J38, and front cover L sensor assembly cable MAIN board assembly connector J40.	 "4.4.7 Replacing MAIN Board" p.4-49
			2. Does pressure lever move smoothly?	Lubricate pressure cam.	 "8.5 Lubrication/Bonding" p.8-7
			3. Is lever sensor assembly fitted correctly?	Adjust lever sensor assembly position.	 "4.6.6 Replacing Lever Up Sensor" p.4-67
			4. Is sensor of lever sensor assembly contaminated?	Clean sensor face using a swab.	 "4.6.6 Replacing Lever Up Sensor" p.4-67
			5. Is lever sensor cable connected securely?	Correctly connect lever sensor assembly cables to MAIN board assembly connector J32.	 "4.6.6 Replacing Lever Up Sensor" p.4-67
			6. Panel unit assembly may be damaged.	Replace panel unit assembly.	 "4.3.1 Replacing Panel Unit" p.4-30
			7. Panel cable may be damaged.	Replace panel cable.	 "4.3.1 Replacing Panel Unit" p.4-30

Table 9-2 Events and Check Items for Operation Status Messages(Continued)

No.	Message	Event/ symptom	Check item	Action	Reference
2			8. Check cover sensor assembly operation from "Sen: Cover" of self-diagnosis function.	Replace cover sensor assembly.	 <a href="#">"4.3.3 Replacing Front Cover Sensor" p.4-32</a>
			9. Check lever sensor operation from "Sen 7: Lever" of self-diagnosis function.	Replace lever sensor assembly.	 <a href="#">"4.6.6 Replacing Lever Up Sensor" p.4-67</a>
			10. Main board assembly may be damaged.	Replace MAIN board assembly.	 <a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a>
3	No media	Displayed in the following cases: <ul style="list-style-type: none"> <li>When media is not set</li> </ul>	1. Is P_EDGE sensor assembly cable at the head section connected correctly?	Securely connect it to CR board assembly connector J208.	 <a href="#">"4.8.3 Replacing CR Board Assembly" p.4-106</a>
			2. Is P_REAR sensor assembly under media guide R connected correctly?	Securely connect it to MAIN board assembly connector J42.	 <a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a>
			3. Check sensor sensitivity from "Sen 8:EdgeAD 3" of self-diagnosis function.	Adjust with MAIN board assembly volume (R361, R365). Replace P_EDGE sensor assembly.	 <a href="#">"7.9 P_EDGE Sensor Sensitivity Adjustment" p.7-36</a>
			4. CR board assembly may be damaged.	Replace CR board assembly.	 <a href="#">"4.8.3 Replacing CR Board Assembly" p.4-106</a>
			5. Check presence of media from "Sen 9: PaperRear" of self-diagnosis function.	When "No media" is displayed even if media is set, replace P_REAR sensor assembly.	 <a href="#">"4.6.5 Replacing P_REAR Sensor Assembly" p.4-65</a>
			6. CR cable may be broken.	Replace CR cable.	 <a href="#">"4.7.8 Replacing CR Tape Wire" p.4-99</a>

Table 9-2 Events and Check Items for Operation Status Messages(Continued)

No.	Message	Event/ symptom	Check item	Action	Reference
3			7. Main board assembly may be damaged.	Replace MAIN board assembly.	 <a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a>

## 9.2.2 Errors with Message

This section describes the contents of errors with messages as well as the check items and recovery actions. These messages are displayed when an abnormal condition occurs while the machine is running.

Upon an occurrence of an error with message, the machine stops its operation at the same time.

The error can be cancelled by removing the error causes. After that, the machine will restart its operation.

Table 9-3 Symptoms and Check Items for Errors with Message

No.	Message	Event/ symptom	Check item	Action	Reference
1	Media detection error	Media detection failed	1. Is P_EDGE sensor assembly cable at head connected correctly?	Securely connect it to CR board assembly connector J208.	 <a href="#">"4.8.3 Replacing CR Board Assembly" p.4-106</a>
			2. Is P_REAR sensor under media guide R connected correctly?	Securely connect it to MAIN board assembly connector J42.	 <a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a>
			3. Check sensor sensitivity from "Sen 8:EdgeAD 3" of self-diagnosis function.	<ul style="list-style-type: none"> <li>Adjust with MAIN board assembly volume (R361, R365).</li> <li>Replace P_EDGE sensor assembly.</li> </ul>	 <a href="#">"7.9 P_EDGE Sensor Sensitivity Adjustment" p.7-36</a>
			4. Is CR cable inserted obliquely?	Reconnect following connectors. <ul style="list-style-type: none"> <li>Main board assembly: J9 - J11</li> <li>CR board: J201 - J205</li> </ul>	 <a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a>  <a href="#">"4.8.3 Replacing CR Board Assembly" p.4-106</a>
			5. CR cable may be broken.	Replace CR cable.	 <a href="#">"4.7.8 Replacing CR Tape Wire" p.4-99</a>

Table 9-3 Symptoms and Check Items for Errors with Message(Continued)

No.	Message	Event/ symptom	Check item	Action	Reference
1			6. CR board assembly may be damaged.	Replace CR board assembly.	<a href="#">"4.8.3 Replacing CR Board Assembly" p.4-106</a>
			7. Check presence of media from "Sen 7:PaperRear" of self-diagnosis function.	When "No media" is displayed even if media is set, replace P_REAR sensor.	<a href="#">"4.6.5 Replacing P_REAR Sensor Assembly" p.4-65</a>
			8. Main board assembly may be damaged.	Replace MAIN board assembly.	<a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a>
2	Media skew error	Media is running obliquely.	1. Set media again and check reappearance.	If this error is caused by user's inappropriate media setting, instruct correct media setting procedure.	-
			2. Is suction fan judged as normal when checked through "Test 6: Fan" of self-diagnosis function?	- Check connection of following MAIN board assembly connectors. <ul style="list-style-type: none"> <li>Suction fan 1 cable: J25</li> <li>Suction fan 2 cable: J26</li> <li>Suction fan 3 cable: J28</li> <li>Suction fan 4 cable: J29</li> <li>Replace suction fan assembly.</li> <li>Replace cable of suction fan that does not operate normally.</li> </ul>	<a href="#">"4.6.8 Replacing Suction Fan" p.4-76</a>
			3. Is shielding material secured at specified position?	Remount it at specified position.	-
			4. Check pressure lever operation.	Apply grease (G501) to pressure cam and make adjustment.	<a href="#">"8.5 Lubrication/Bonding" p.8-7</a>

Table 9-3 Symptoms and Check Items for Errors with Message(Continued)

No.	Message	Event/ symptom	Check item	Action	Reference
3	Remove media	Displayed if lever is raised during printing or cutting media and then lowered without removing media.	1. Does the same message appear if turning machine OFF and turn it ON again?	If the message appears, refer to the action in check item No. 2.	-
			2. Is pressure lever detected as normal when checked through "Sen 7:Lever" of self-diagnosis function?	Check that LCD monitor displays lever status correctly when slowly raising/lowering pressure lever.	 <a href="#">"5.5.4 Sensor Menu" p.5-15</a>
			3. Check contact of lever sensor assembly.	<ul style="list-style-type: none"> <li>Reconnect MAIN board assembly connector J30.</li> <li>If LCD displays as chattering, sensor may be damaged. Replace lever sensor assembly.</li> </ul>	 <a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a>  <a href="#">"4.6.6 Replacing Lever Up Sensor" p.4-67</a>
			4. Is P_REAR sensor assembly under media guide R connected correctly?	Securely connect it to MAIN board assembly connector J42.	 <a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a>
			5. Check presence of media from "Sen 7:PaperRear" of self-diagnosis function.	When "No media" is displayed even if media is set, replace P_REAR sensor assembly.	 <a href="#">"4.6.5 Replacing P_REAR Sensor Assembly" p.4-65</a>
			6. Main board assembly may be damaged.	Replace MAIN board assembly.	 <a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a>

Table 9-3 Symptoms and Check Items for Errors with Message(Continued)

No.	Message	Event/ symptom	Check item	Action	Reference
4	[KCMY] Ink Near End [KCMY] Ink End	Ink is running short. Printing is possible. Ink has run out. Any printing operation stops immediately.	1. Check which cartridge has no ink from "Ctrl2: Sensor" -> "Sen.3: etc" -> "12: Ink END" of self-diagnosis function.	Remove all cartridges and lightly push the black resin lever of ink sensor assembly (K, C, M, Y) to check that the display of "[KCYM] INK END" changes.	 <b>"5.5.4 Sensor Menu" p.5-15</b>
			2. Check contact of the ink sensor assembly.	Reconnect following connectors. MAIN board: J43 HEATER JUNCTION board: <ul style="list-style-type: none"> <li>• Connector J5(K)</li> <li>• Connector J6(C)</li> <li>• Connector J7(M)</li> <li>• Connector J8(Y)</li> </ul>	 <b>"4.4.7 Replacing MAIN Board" p.4-49</b>
			3. For the ink color that is displayed as "Ink Near End" or "Ink End", switch ink sensor assembly connector with that of normally displayed ink color.	<ul style="list-style-type: none"> <li>• If ink color display changes after replacing connector: Ink sensor assembly is damaged. Replace ink sensor assembly.</li> <li>• If ink color display does not change after replacing connector: Main board assembly may be damaged. Replace MAIN board assembly.</li> </ul>	 <b>"4.10.3 Replacing Ink Cartridge Control Cable" p.4-132</b>   <b>"4.4.7 Replacing MAIN Board" p.4-49</b>

Table 9-3 Symptoms and Check Items for Errors with Message(Continued)

No.	Message	Event/ symptom	Check item	Action	Reference
5	[KCMY] No Cartridge	Cartridge is not installed.	1. Turn machine OFF. Turn it ON again and check if the same message appears.	If message appears: Refer to action in check item No. 2.	-
			2. Check presence of ink cartridge from "Ctrl 2:Sensor" -> "Sen.3: etc" -> "11:Ink NOT" of self-diagnosis function.	Remove all cartridges and lightly push the switch of ink NOT sensor assembly (K, C, M, Y) with something with a flat tip such as ballpoint pen to check that the display of "[KCYM] INK NOT" changes.	 <a href="#">"5.5.4 Sensor Menu" p.5-15</a>
			3. Check contact of ink NOT sensor assembly connector.	Reconnect following connectors. MAIN board: J43 HEATER JUNCTION board: <ul style="list-style-type: none"> <li>• Connector J5(K)</li> <li>• Connector J6(C)</li> <li>• Connector J7(M)</li> <li>• Connector J8(Y)</li> </ul>	 <a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a>
			4. For the ink color that is displayed as "Little ink" or "No ink", switch ink NOT sensor assembly connector with that of normally displayed ink color.	If ink color displayed as "No ink" changes after replacing connector: Ink sensor assembly is damaged. Replace ink sensor assembly.  If ink color displayed as "No ink" does not change after replacing connector: Main board assembly may be damaged. Replace MAIN board assembly.	 <a href="#">"4.10.1 Replacing Ink ID Board Assembly" p.4-125</a>   <a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a>

Table 9-3 Symptoms and Check Items for Errors with Message(Continued)

No.	Message	Event/ symptom	Check item	Action	Reference
6	Insert specified cartridge	Specified ink cartridge is not installed.	1. Check if the same message appear if turning machine OFF and turn it ON again.	If the message appears: Refer to the action in check item No. 2.	-
			2. Check if specified ink cartridge is used.	Replace ink cartridge with specified one.	 Operation Manual
			3. Check if ink cartridge status detection operates normally from "Ctrl 2: Sensor" -> "Sen.3:etc" -> "7-10:[KCMY] Ink ID" of self-diagnosis function.	If detection does not operate normally, replace following parts. <ul style="list-style-type: none"> <li>• Ink sensor assembly</li> <li>• Main board assembly</li> <li>• Ink ID sensor assembly</li> </ul>	 <b>"4.10.1 Replacing Ink ID Board Assembly" p.4-125</b>  <b>"4.4.7 Replacing MAIN Board" p.4-49</b>
			4. Check contact of ink ID sensor assembly connector.	- Reconnect following MAIN board assembly connectors. MAIN board: J43 HEATER JUNCTION board: <ul style="list-style-type: none"> <li>• Connector J5(K)</li> <li>• Connector J6(C)</li> <li>• Connector J7(M)</li> <li>• Connector J8(Y)</li> </ul> If no change occurs, proceed to step (5).	 <b>"4.4.7 Replacing MAIN Board" p.4-49</b>

Table 9-3 Symptoms and Check Items for Errors with Message(Continued)

No.	Message	Event/ symptom	Check item	Action	Reference
6			5. For cartridge that is displayed as NG in "Ctrl 2: Sensor" -> "Sen.3: etc" -> "7-10:[KCMY] Ink ID" of self-diagnosis function, replace ink ID sensor assembly connector with that of normally displayed cartridge.	<ul style="list-style-type: none"> <li>If cartridge displayed as NG changes: Ink ID sensor assembly displayed as NG is damaged. Replace defective ink ID sensor assembly.</li> <li>If cartridge displayed as NG does not change, or all units are displayed as NG: Main board assembly may be damaged. Replace MAIN board assembly.</li> </ul>	<p> <b>"4.10.1 Replacing Ink ID Board Assembly" p.4-125</b></p> <p> <b>"4.4.7 Replacing MAIN Board" p.4-49</b></p>
7	Warning: Ink tube life	Ink tube life has almost expired.	1. Turn machine OFF. Turn it ON again and check if the same message appears.	If the message appears: Refer to the action in check item No. 2.	-
			2. Use of ink tube has exceeded specified level.	Replace ink tube.	 <b>"4.7.10 Replacing Ink Tube" p.4-102</b>
			3. Main board assembly may be damaged.	Replace MAIN board assembly.	 <b>"4.4.7 Replacing MAIN Board" p.4-49</b>
8	Out of memory DIMM 128MB	Memory is insufficient for data analysis/ printing. Required memory size is displayed.	1. Check RAM size from "Test1:Ram Capacity" of self-diagnosis function.	Memory size is 128MB. If the displayed value is less than the memory size of the model, the DIMM may be damaged. Replace the DIMM.	 <b>"5.5.1 Memory Size Menu" p.5-12</b>
			2. Main board assembly may be damaged.	Replace MAIN board assembly.	 <b>"4.4.7 Replacing MAIN Board" p.4-49</b>

**NOTE**

- The square bracket pair in an error message contains the applicable ink color.
- If no ink and no cartridge occur at the same time, no cartridge message has priority to be displayed.

### 9.2.3 Data Errors

This section describes the message contents of data errors as well as the check items and recovery actions. These errors are displayed when a communication error occurs between the PC and the machine. Upon an occurrence of a data error, the machine stops its operation at the same time. The error can be cancelled by removing the error causes. After that, the machine will restart its operation.

Table 9-4 Symptoms and Check Items for Data Errors

No.	Message	Event/symptom	Check item	Action	Reference
1	I 15-1 error command [ ]	Online frame error	1. Attempt communication using PC and cable on hand.	• Contact our customer support center.	 "4.4.7 Replacing MAIN Board" p.4-49
2	I 15-2 error command [ ]	Overrun error			
3	I 15-3 error command [ ]	Online parity error	2. Is there any error statement in printing data?	• Replace application driver.	
4	I 05 error command [ ]	Sum check error		• Obtain printing data.	
5	I 07 error command [ ]	ECS parameter	3. Does the symptom remain the same even if application driver is replaced?	• Contact our customer support center.	
			4. Main board assembly may be defective.	• Replace MAIN board assembly.	

Table 9-4 Symptoms and Check Items for Data Errors(Continued)

No.	Message	Event/symptom	Check item	Action	Reference
6	I 11 error command [ ]	Undefined ESC	1. Attempt communication using PC and cable on hand.	• Contact our customer support center.	 <b>"4.4.7 Replacing MAIN Board" p.4-49</b>
7	I 12 error command [ ]	Unauthorized character ESC		• Replace application driver.	
8	I 13 error command [ ]	Numeral character ESC	2. Is there any error statement in printing data?	• Obtain printing data.	
9	I 14 error command [ ]	Parameter error ESC		• Contact our customer support center.	
10	I 16 error command [ ]	Buffer overflow	3. Does the symptom remain the same even if application driver is replaced?	• Replace MAIN board assembly.	
			4. Main board assembly may be defective.		

**NOTE**

The square bracket pair in a message may contain the applicable command code.

## 9.2.4 Command Errors

This section describes the message contents of command errors as well as the check items and recovery actions.

These errors are displayed when an abnormal condition is found during analysis of PC command data.

Upon an occurrence of a command error, the machine stops its operation at the same time.

The error can be cancelled by removing the error causes. After that, the machine will restart its operation.

Table 9-5 Symptoms and Check Items for Command Errors

No.	Message	Event/ symptom	Check item	Action	Reference
1	MH 01 Error Command [ ]	Undefined command: Command being analyzed is not defined in applicable command mode.	1. Attempt communication using PC and cable on hand.	<ul style="list-style-type: none"> <li>Contact our customer support center.</li> </ul>	 <a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a>
2	MH 02 Error Command [ ]	Parameter error: Number of parameters following command is inappropriate.	2. Is there any error statement in printing data?	<ul style="list-style-type: none"> <li>Replace application driver</li> </ul>	
3	MH 03 Error Command [ ]	Numeral value error: Number of parameters following command is inappropriate.	3. Does the symptom remain the same even if application driver is replaced?	<ul style="list-style-type: none"> <li>Obtain printing data.</li> <li>Contact our customer support center.</li> </ul>	
4	MH 04 Error Command [ ]	Undefined character set: Unknown character set is present.	4. Main board assembly may be defective.	<ul style="list-style-type: none"> <li>Replace MAIN board assembly.</li> </ul>	
5	MH 07 Error Command [ ]	Buffer overflow: Polygon buffer or downloadable character buffer overflows.			

**NOTE**

- The square bracket pair in a message may contain the applicable command code.
- For the PC settings, refer to your PC's operation manual.

## 9.2.5 Errors Requiring Reboot

This section describes the contents of reboot-requiring errors as well as the check items and recovery actions. These errors are issued when any of the following critical problems occurs.

- Obstacle that prevents the machine's operation
- Damage of electric circuits (boards, motors, sensors)
- Abnormal operation of control programs

When any of the above conditions occurs, the machine follows the steps shown below before stopping its operation.

1. Turn OFF the driving system power automatically.
2. Flash all lamps in the operation panel and generate intermittent audible alarm.
3. Display the applicable error message on the LCD.

The error can be cancelled by removing the error causes and restarting the machine.

### (1) CPU system serious error

Table 9-6 Symptoms and Check Items for CPU System Serious Errors

No.	Message	Event/symptom	Check item	Action	Reference
1	E 001 error DRAM	Standard DRAM error: Abnormal condition in standard memory mounted on MAIN board assembly	Main board assembly may be defective.	Replace MAIN board assembly.	 <a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a>

Table 9-6 Symptoms and Check Items for CPU System Serious Errors (Continued)

No.	Message	Event/ symptom	Check item	Action	Reference
2	E 016 error CPU Err [00]	Interruption exception error: Abnormal condition in interruption process.	1. Check AC power supply and printer surrounding equipment.  2. Check reappearance by turning ON/OFF the machine power several times. Make sure to perform this check repeatedly even if no problems seem to be present. (Make the same condition as user's.)	Contact our customer support center.	 Operation Manual
3	E 016 error CPU Err [02]	Command border exception/TLB exception (load or command fetch) error: Abnormal condition in command border. Or TLB exception in data load or command fetch.			
4	E 016 error CPU Err [03]	Data border exception/TLB exception (store) error: Abnormal condition in data border. Or TLB exception in data storing.	1. Check serial number of the printer.  2. Main board assembly may be defective.	<ul style="list-style-type: none"> <li>• Contact our customer support center.</li> <li>• Replace MAIN board assembly.</li> </ul>	 <b>"4.4.7 Replacing MAIN Board" p.4- 49</b>
5	E 016 error CPU Err [04]	Address exception error (load or command fetch): Address error in command load or fetch.			
6	E 016 error CPU Err [05]	Address exception error (store): Address error in saving process.			

Table 9-6 Symptoms and Check Items for CPU System Serious Errors (Continued)

No.	Message	Event/ symptom	Check item	Action	Reference
7	E 016 error CPU Err [06]	Address exception error (command fetch): Address error in command loading or storing	3. Check serial number of the printer. 4. Main board assembly may be defective.	<ul style="list-style-type: none"> <li>Contact our customer support center.</li> <li>Replace MAIN board assembly.</li> </ul>	 "4.4.7 Replacing MAIN Board" p.4- 49
8	E 016 error CPU Err [07]	Bus exception error (load or store): Bus error in command loading or storing	1. Check serial number of the printer. 2. Main board assembly may be defective.	<ul style="list-style-type: none"> <li>Contact our customer support center.</li> <li>Replace MAIN board assembly.</li> </ul>	 "4.4.7 Replacing MAIN Board" p.4- 49
9	E 016 error CPU Err [08]	System call exception error: Abnormal condition in system call			
10	E 016 error CPU Err [09]	Break point exception error: Abnormal condition in break point			
11	E 016 error CPU Err [10]	Reserved command exception error: Abnormal condition in reserved command			
12	E 016 error CPU Err [11]	Coprocessor disabled exception error: Abnormal condition in coprocessor			

Table 9-6 Symptoms and Check Items for CPU System Serious Errors (Continued)

No.	Message	Event/symptom	Check item	Action	Reference
13	E 016 error CPU Err [12]	Arithmetic overflow exception error: Overflow occurs	<ol style="list-style-type: none"> <li>1. Check AC power supply and printer surrounding equipment.</li> <li>2. Check reappearance by turning ON/OFF the machine power several times. Make sure to perform this check repeatedly even if no problems seem to be present. (Make the same condition as user's.)</li> <li>3. Check serial number of the printer.</li> <li>4. Main board assembly may be defective.</li> </ol>	<ul style="list-style-type: none"> <li>• Contact our customer support center.</li> <li>• Contact our customer support center.</li> <li>• Replace MAIN board assembly.</li> </ul>	<p> "4.4.7 Replacing MAIN Board" p.4-49</p>
14	E 016 error CPU Err [13]	Trap exception error: Trap occurs			
15	E 016 error CPU Err [15]	Floating point exception error: Abnormal condition in floating point process			
16	E 016 error CPU Err [22]	Watch exception error: Abnormal condition in watch			
17	E 016 error CPU Err [32]	Watchdog time-out exception error: Time-out in watchdog			
18	E 016 error CPU Err [33]	Abort error: Process aborted			
19	E 237 error Transfer memory	Transfer memory error: Abnormal condition in transfer of analyzed printer data.			

**NOTE**

For the PC settings, refer to your PC's operation manual.

(2) Mechanical Serious Errors

Table 9-7 Symptoms and Check Items for Mechanical Serious Errors

No.	Message	Event/symptom	Check item	Action	Reference
1	E 065 error PF motor	Abnormal condition in PF motor (X-axis) during printer operation. Displayed if the difference between motor command value and feedback from encoder is large.	<ol style="list-style-type: none"> <li>1. Check error history from "Test 7: Record" of self-diagnosis function.</li> <li>2. Set the number of endurance running cycles to 50 or more from "Life 2: PF Motor" of self-diagnosis function, and check if "X motor error" occurs.</li> <li>3. Check "Encoder: PF" from "Check 2: Test" -&gt; "Test 5: Encoder" of self-diagnosis function.</li> <li>4. Check if Main Power Board normally supplies DC24V.</li> <li>5. PF motor assembly may be defective.</li> <li>6. Main board assembly may be defective.</li> </ol>	<p>-</p> <p>Check connection of following MAIN board assembly connectors.</p> <ul style="list-style-type: none"> <li>• PF motor cable assembly connector: J20</li> <li>• PF_ENC assembly connector: J12</li> <li>• If NG, check connection of MAIN board assembly connector: J12.</li> <li>• Replace PF motor assembly.</li> <li>• Replace MAIN board assembly.</li> </ul>	<p> <a href="#">"5.5.7 History Menu" p.5-18</a></p> <p> <a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a></p> <p> <a href="#">"4.6.2 Replacing PF Motor Assembly" p.4-61</a></p> <p> <a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a></p>

Table 9-7 Symptoms and Check Items for Mechanical Serious Errors (Continued)

No.	Message	Event/ symptom	Check item	Action	Reference
2	E 067 error PF encoder	Abnormal condition in media feed amount (X-axis) during printer operation. Displayed if there is no feedback from encoder.	<ol style="list-style-type: none"> <li>1. Check error history from "Test 7: Record" of self-diagnosis function.</li> <li>2. Set the number of endurance running cycles to 50 or more from "Life 2:PF Motor" of self-diagnosis function, and check if "X motor error" occurs.</li> <li>3. Check "Encoder: PF" from "Check 2: Test" -&gt; "Test 5: Encoder" of self-diagnosis function.</li> <li>4. Check if Main Power Board normally supplies DC24V.</li> <li>5. PF motor assembly may be defective.</li> <li>6. Main board assembly may be defective.</li> </ol>	<p>-</p> <p>Check connection of following MAIN board assembly connectors.</p> <ul style="list-style-type: none"> <li>• PF motor cable assembly connector: J20</li> <li>• PF_ENC assembly connector: J12</li> <li>• If NG, check connection of MAIN board assembly connector: J12.</li> <li>• Replace PF motor assembly.</li> <li>• Replace MAIN board assembly.</li> </ul>	<p> <b>"5.5.7 History Menu" p.5-18</b></p> <p> <b>"4.4.7 Replacing MAIN Board" p.4-49</b></p> <p> <b>"4.6.2 Replacing PF Motor Assembly" p.4-61</b></p> <p> <b>"4.4.7 Replacing MAIN Board" p.4-49</b></p>

Table 9-7 Symptoms and Check Items for Mechanical Serious Errors (Continued)

No.	Message	Event/ symptom	Check item	Action	Reference
3	E069 error PF time-out	Time-out condition in media feed amount (X-axis) during printer operation. Displayed if pressure roller does not reach the defined position.	<ol style="list-style-type: none"> <li>1. Check error history from "Test 7: Record" of self-diagnosis function.</li> <li>2. Set the number of endurance running cycles to 50 or more from "Life 2:PF Motor" of self-diagnosis function, and check if "X motor error" occurs.</li> <li>3. Check "Encoder: PF" from "Check 2: Test" -&gt; "Test 5: Encoder" of self-diagnosis function.</li> <li>4. Check if Main Power Board normally supplies DC24V.</li> <li>5. PF motor assembly may be defective.</li> <li>6. Main board assembly may be defective.</li> </ol>	<p>-</p> <p>Check connection of following MAIN board assembly connectors.</p> <ul style="list-style-type: none"> <li>• PF motor cable assembly connector: J20</li> <li>• PF_ENC assembly connector: J12</li> <li>• If NG, check connection of MAIN board assembly connector: J12.</li> <li>• Replace PF motor assembly.</li> <li>• Replace MAIN board assembly.</li> </ul>	<p> <b>"5.5.7 History Menu" p.5-18</b></p> <p> <b>"4.4.7 Replacing MAIN Board" p.4-49</b></p> <p> <b>"4.6.2 Replacing PF Motor Assembly" p.4-61</b></p> <p> <b>"4.4.7 Replacing MAIN Board" p.4-49</b></p>

Table 9-7 Symptoms and Check Items for Mechanical Serious Errors (Continued)

No.	Message	Event/ symptom	Check item	Action	Reference
4	E071 error PF overcurrent	Overload condition in PF motor (X-axis) during printer operation.	1. Check error history from "Test 7: Record" of self-diagnosis function.	-	 <b>"5.5.7 History Menu" p.5-18</b>
5	E079 error PF2 overcurrent		2. Set the number of endurance running cycles to 50 or more from "Life 2: PF Motor" of self-diagnosis function, and check if "X motor error" occurs.	Check connection of following MAIN board assembly connectors. <ul style="list-style-type: none"> <li>• PF motor cable assembly connector: J20</li> <li>• PF_ENC assembly connector: J12</li> </ul>	 <b>"4.4.7 Replacing MAIN Board" p.4-49</b>
			3. Check "Encoder: PF" from "Check 2: Test" -> "Test 5: Encoder" of self-diagnosis function.	<ul style="list-style-type: none"> <li>• If NG, check connection of MAIN board assembly connector: J12.</li> </ul>	
			4. Check if Main Power Board normally supplies DC24V.	<ul style="list-style-type: none"> <li>• Replace PF motor assembly.</li> </ul>	 <b>"4.6.2 Replacing PF Motor Assembly" p.4-61</b>
			5. PF motor assembly may be defective.	<ul style="list-style-type: none"> <li>• Replace MAIN board assembly.</li> </ul>	
			6. Main board assembly may be defective.		 <b>"4.4.7 Replacing MAIN Board" p.4-49</b>

Table 9-7 Symptoms and Check Items for Mechanical Serious Errors (Continued)

No.	Message	Event/symptom	Check item	Action	Reference
6	E 066 error CR motor	Abnormal condition in CR motor (Y-axis) during printer operation. Displayed if the difference between motor command value and feedback from encoder is large.	<ol style="list-style-type: none"> <li>1. Check error history from "Test 7: Record" of self-diagnosis function.</li> <li>2. Move carriage in both directions while the printer is turned off, and check if there is any position where carriage does not move smoothly.</li> <li>3. Set the number of endurance running cycles to 50 or more from "Life 1: CR Motor" of self-diagnosis function, and check if "Y motor error" occurs.</li> </ol>	<p>-</p> <ul style="list-style-type: none"> <li>• Clean and lubricate CR rail roller guide.</li> <li>• Check connection of following connectors.</li> </ul> <p>Main board:</p> <ul style="list-style-type: none"> <li>• CR motor assembly connector: J21</li> <li>• CR cable connector: J9 - J11</li> </ul> <p>CR board:</p> <ul style="list-style-type: none"> <li>• CR cable connector: J201 - J205</li> </ul>	<p> <a href="#">"5.5.7 History Menu" p.5-18</a></p> <p> <a href="#">"8.5 Lubrication/Bonding" p.8-7</a></p> <p> <a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a></p>
7	E 068 error CR encoder	Abnormal condition in head travel distance (Y-axis) during printer operation. Displayed if there is no feedback from encoder.			

Table 9-7 Symptoms and Check Items for Mechanical Serious Errors (Continued)

No.	Message	Event/symptom	Check item	Action	Reference
8	E 070 error CR time-out	Time-out condition in head travel distance (Y-axis) during printer operation. Displayed if carriage does not reach the defined position.	4. Check if T fence is contaminated or worn out.	<ul style="list-style-type: none"> <li>If grease or dust collect: Wipe fence with a dry cloth.</li> <li>If ink deposit presents: Wipe it off with cloth dampened with neutral detergent.</li> <li>If contamination or deposit is too heavy: Replace T fence.</li> </ul>	<p> <b>"4.7.4 Replacing T Fence" p.4-91</b></p> <p> <b>"4.7.4 Replacing T Fence" p.4-91</b></p>
9	E 072 error CR overcurrent	Overload condition in CR motor (Y-axis) during printer operation.	5. Check "Encoder: CR" from "Check 2: Test" -> "Test 5: Encoder" of self-diagnosis function.	<p>a) If NG: Check following cable connection.</p> <ul style="list-style-type: none"> <li>CR board assembly connector J207</li> </ul> <p>b) Replace following parts.</p> <ul style="list-style-type: none"> <li>T fence</li> <li>CR motor assembly</li> <li>CR board assembly</li> <li>CR cable</li> </ul> <ul style="list-style-type: none"> <li>Replace MAIN board assembly.</li> </ul>	<p> <b>"4.7.4 Replacing T Fence" p.4-91</b></p> <p> <b>"4.7.2 Replacing CR Motor Assembly" p.4-87</b></p> <p> <b>"4.8.3 Replacing CR Board Assembly" p.4-106</b></p> <p> <b>"4.7.8 Replacing CR Tape Wire" p.4-99</b></p> <p> <b>"4.4.7 Replacing MAIN Board" p.4-49</b></p>
10	E074 error CR2 overcurrent				

Table 9-7 Symptoms and Check Items for Mechanical Serious Errors (Continued)

No.	Message	Event/symptom	Check item	Action	Reference
11	E 081 error CR origin	CR_HP detection is not possible.	1. Check CR_HP sensor from "Sen 1: CR Origin" of self- diagnosis function.	• Check connection of CR_HP sensor cable assembly connector.	<a href="#">"5.5.4 Sensor Menu" p.5-15</a>
			2. CR_HP sensor may be damaged.	• Replace CR_HP sensor.	<a href="#">"4.13.4 Replacing CR_HP Sensor, Lever Sensor" p.4- 150</a>
			3. Main board assembly may be damaged.	• Replace MAIN board assembly	<a href="#">"4.4.7 Replacing MAIN Board" p.4- 49</a>
12	E 082 error wiper sensor	Abnormal condition in wiper sensor.	<ul style="list-style-type: none"> <li>• Wiper sensor assembly may be faulty.</li> <li>• Main board assembly may be faulty.</li> </ul>	<ol style="list-style-type: none"> <li>1. Check connection of wiper sensor connector.</li> <li>2. Replace wiper sensor.</li> <li>3. Replace MAIN board assembly.</li> </ol>	<a href="#">"4.9.2 Replacing Cleaner Head" p.4- 121</a> <a href="#">"4.4.7 Replacing MAIN Board" p.4- 49</a>

Table 9-7 Symptoms and Check Items for Mechanical Serious Errors (Continued)

No.	Message	Event/ symptom	Check item	Action	Reference
13	E 075 error head cable	Abnormal condition in head cable or head thermistor.	1. Check connection of head cable connectors on CR board assembly side and head side.  • Is head cable inserted obliquely?  • Is it locked securely?	Reconnect head cable.	 "4.8.9 Replacing Print Head" p.4-114  "4.8.3 Replacing CR Board Assembly" p.4-106
			2. Is head cable broken?	Replace head cable.	 "4.8.9 Replacing Print Head" p.4-114  "4.8.3 Replacing CR Board Assembly" p.4-106
			3. Head thermistor may be faulty.	Replace Print head assembly.	 "4.8.9 Replacing Print Head" p.4-114
14	E 076 error pre-heater system	Abnormal condition in pre-heater system (thermistor, heater).	Disconnection of connector, wrong wiring, or heater malfunction of thermistor and heater may be occurred.	1. Reconnect connector of thermistor and heater.  2. Check connection of board section.  3. Replace heater.	 "4.6.7 Replacing Heater, Thermistor" p.4-68  "4.4.7 Replacing MAIN Board" p.4- 49
15	E 077 error platen heater system	Abnormal condition in platen heater system (thermistor, heater).	Disconnection of connector, wrong wiring, or heater malfunction of thermistor and heater may be occurred.	1. Reconnect connector of thermistor and heater.  2. Check connection of board section.  3. Replace heater.	 "4.6.7 Replacing Heater, Thermistor" p.4-68
16	E 078 error after-heater system	Abnormal condition in after-heater system (thermistor, heater).			

Table 9-7 Symptoms and Check Items for Mechanical Serious Errors (Continued)

No.	Message	Event/ symptom	Check item	Action	Reference
17	E 079 error communication error	Abnormal condition in serial communication between MAIN board to controller board during printing operation.	<ul style="list-style-type: none"> <li>Communication cable may be faulty.</li> <li>F/W on controller board may be faulty.</li> <li>Controller board assembly may be faulty.</li> </ul>	<ol style="list-style-type: none"> <li>Check connection between MAIN board to controller board.</li> <li>Check connection between junction board to controller board.</li> <li>Check firmware version and install the latest version.</li> </ol>	<p> <a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a></p> <p> <a href="#">"5.5.2 Version Menu" p.5-13</a></p> <p> <a href="#">"7.3.5 Firmware Installation" p.7-12</a></p>
18	E 080 error junction error	Abnormal condition in serial communication between junction board to controller board during printing operation.		<ol style="list-style-type: none"> <li>Replace controller board or MAIN board.</li> </ol>	
19	E 084 error head identification	Installed head is incorrect.	Installed head is not manufactured by other vendor.	Replace head.	 <a href="#">"4.8.9 Replacing Print Head" p.4-114</a>
20	E 085 error head overheat	Abnormal condition in head driver.	Main board assembly may be damaged.	Replace MAIN board assembly.	 <a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a>
21	E 086 error head OVP	Abnormal condition in head driver	Head or head cable may be damaged.	<ol style="list-style-type: none"> <li>Check connection of head cable.</li> <li>Replace head.</li> </ol>	 <a href="#">"4.8 Replacing Cursor Section" p.4-105</a>
22	E 087 error head transistor thermistor	Abnormal condition in head transistor	Temperature abnormality of head transistor on MAIN board or sensor abnormality of thermistor may be occurred.	<ol style="list-style-type: none"> <li>Replace thermistor.</li> <li>Replace MAIN board.</li> </ol>	<p> <a href="#">"4.6.7 Replacing Heater, Thermistor" p.4-68</a></p> <p> <a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a></p>

Table 9-7 Symptoms and Check Items for Mechanical Serious Errors (Continued)

No.	Message	Event/ symptom	Check item	Action	Reference
23	E 093 error sub tank L sensor error	Abnormal condition in sub tank L sensor	Sub tank L sensor, two- way valve or junction board may be defective.	<ol style="list-style-type: none"> <li>1. Replace sub tank L sensor.</li> <li>2. Replace two-way valve.</li> <li>3. Replace junction board.</li> </ol>	
24	E 097 error NVRAM	Abnormal condition in NVRAM	-	Replace MAIN board assembly.	 <b>"4.4.7 Replacing MAIN Board" p.4-49</b>
25	E 118- E 121 error sub tank Lo	Abnormal condition in error sub tank Lo sensor	Sub tank Lo sensor, two-way valve or junction board may be defective.	<ol style="list-style-type: none"> <li>1. Replace sub tank Lo sensor.</li> <li>2. Replace two-way valve.</li> <li>3. Replace junction board.</li> </ol>	

## 9.2.6 Error Messages During File Transmission

This section describes the error messages displayed when sending backup parameters and firmware using dedicated online software, as well as their recovery actions.

Table 9-8 Error Messages During File Transmission

No.	Message	Event/ symptom	Check item	Action	Reference
1	Transfer failed Data format error	Firmware data format is inappropriate.	Check if transferred firmware is an appropriate file.	After confirming it, install firmware again.	 <b>"7.3.5 Firmware Installation" p.7-12</b>
2	Transfer failed Aborted by the HOST	Cancel button on PC has been pressed.	-	Transfer firmware again.	
3	Transfer failed Data timeout	Communication time-out occurred.	Check connection between printer and PC.	After resolving problem, transfer firmware again.	
4	Transfer failed Check-sum error	File checksum error.	-	1. Transfer firmware again.  2. If error message is still displayed, check if transferred firmware is an appropriate file.	
5	Transfer failed Wrong size xxxxxxx	Received wrong size data.	Check if program file is appropriate.	After confirming it, transfer data again.	
6	Transfer failed Incompatible F/W	Incompatible firmware.	Check if program file is appropriate.	After confirming it, install firmware again.	 <b>"7.3.5 Firmware Installation" p.7-12</b>
7	Transfer failed Flash erase error	ROM erase error.	Board may be defective.	Replace MAIN board.	 <b>"4.4.7 Replacing MAIN Board" p.4- 49</b>
8	Transfer failed Flash write error	ROM writing error.			
9	Transfer failed Flash compare error	ROM comparing error.			
10	Transfer failed Unknown Flash size	FROM written in unknown method is detected.	Normally not detected. FROM may be defective.		

Table 9-8 Error Messages During File Transmission (Continued)

No.	Message	Event/ symptom	Check item	Action	Reference
11	Internal Error Memory Exhausted	No memory area is available.	Normally not occurred. SODIMM may be defective.	<ul style="list-style-type: none"> <li>Replace SODIMM.</li> <li>Replace MAIN board.</li> </ul>	 " 4 . 4 . 7 <b>Replacing MAIN Board"</b> p.4- <b>49</b>
12	Transfer failed Block replay timeout	"Block reply timeout" occurred during system code transfer.	Check connection between control board and MAIN board.	<ul style="list-style-type: none"> <li>Reconnect control board and MAIN board.</li> <li>Replace the cable connecting control board and MAIN board.</li> <li>Replace control board.</li> <li>Replace MAIN board.</li> </ul>	 " 4 . 4 . 3 <b>Replacing HEATER CONT Board"</b> p.4- <b>42</b>  " 4 . 4 . 7 <b>Replacing MAIN Board"</b> p.4- <b>49</b>
13	Transfer failed Block replay error xx	Invalid value is received during system code transfer.			
14	Transfer failed Final reply timeout	"Final reply timeout" occurred during system code transfer.			
15	Transfer failed Final reply error xx	Invalid value is received during final system code transfer.			

Table 9-8 Error Messages During File Transmission (Continued)

No.	Message	Event/ symptom	Check item	Action	Reference
16	Boot Transfer failed Opening seq. failed	Opening sequence of boot code transfer failed.	<ul style="list-style-type: none"> <li>• Check connection between control board and MAIN board.</li> <li>• Check if the green LED on control board is lit.</li> <li>• Check if the red LED on control board is blinking.</li> </ul>	<ul style="list-style-type: none"> <li>• Reconnect control board and MAIN board. Otherwise, replace the cable connecting control board and MAIN board.</li> <li>• If the green LED on control board is off after the power is turned on, replace the control board.</li> <li>• If the red LED is blinking and there is no problem at connection between control board and MAIN board, try to reinstall firmware.</li> <li>• If the red LED is off, perform the following procedures.                             <ol style="list-style-type: none"> <li>1. Turn off the power, then switch the DIP switch as follows: 1: ON 2: ON 3: ON 4: OFF</li> <li>2. Start the board manager mode.</li> <li>3. Reinstall firmware.</li> <li>4. Turn off the power, then switch the DIP switch as follows: 1: ON 2: OFF 3: ON 4: OFF</li> <li>5. Turn on the power, then check if the red LED is blinking.</li> </ol> </li> </ul>	<p> "4.4.3 Replacing HEATER CONT Board" p.4-42</p> <p> "4.4.7 Replacing MAIN Board" p.4-49</p> <p> "7.3 Working with Dedicated Network Software" p.7-7</p>

Table 9-8 Error Messages During File Transmission (Continued)

No.	Message	Event/ symptom	Check item	Action	Reference
17	Boot Transfer failed 55-AA Timeout	AA did not replied to Step 55 of boot code transfer.	Check connection between control board and MAIN board.	<ul style="list-style-type: none"> <li>Reconnect control board and MAIN board.</li> <li>Replace the cable connecting control board and MAIN board.</li> <li>Replace control board.</li> <li>Replace MAIN board.</li> </ul>	 " 4 . 4 . 3 <b>Replacing HEATER CONT Board"</b> p.4-42  " 4 . 4 . 7 <b>Replacing MAIN Board"</b> p.4-49
18	Boot Transfer failed 55-AA reply error xx	xx replied to Step 55 of boot code transfer.			
19	Boot Transfer failed End code xx	An error (xx) replied to transfer end of boot code.			
20	Boot Transfer failed Echo timeout	Transfer sequence echo of boot code did not reply.			
21	Boot Transfer failed Echo error xx	Invalid transfer sequence echo of boot code did not reply.			
22	Internal error Parameter save error	Failed in writing parameter.	Normally not occurred. FROM may be defective.	Replace MAIN board.	 " 4 . 4 . 7 <b>Replacing MAIN Board"</b> p.4-49
23	Transfer failed Wrong year xxxx	Invalid year data (xxxx) received.	SODIMM or MAIN board may be defective.	<ul style="list-style-type: none"> <li>Replace SODIMM.</li> <li>Replace MAIN board.</li> </ul>	
24	Transfer failed Wrong month xx	Invalid month data (xx) received.			
25	Transfer failed Wrong date xx	Invalid day data (xx) received.			
26	Transfer failed Wrong hour xx	Invalid hour data (xx) received.			
27	Transfer failed Wrong min xx	Invalid minute data (xx) received.			

Table 9-8 Error Messages During File Transmission (Continued)

No.	Message	Event/ symptom	Check item	Action	Reference
28	Transfer not ready	Transfer is not available.	Check if LED display on operation panel is in waiting status of board manager mode.	Press any button on operation panel to make the panel display waiting state. Then, reinstall the software.	 " 7 . 3 Working with Dedicated Network Software" p.7-7

## 9.3 Troubleshooting Without Error Messages

This section describes the symptoms of errors without an error message as well as the check items and recovery actions.

### 9.3.1 Initial Operation Problems

Table 9-9 Symptoms, Check Items and Actions for Initial Operation Problems

No.	Symptom	Check item	Action	Reference
1	Machine power cannot be turned ON	1. Is operation panel unit assembly cable broken or shorted?	Replace panel cable.	 "4.3.1 Replacing Panel Unit" p.4-30
		2. Panel unit assembly may be damaged.	Replace panel unit assembly.	 "4.3.1 Replacing Panel Unit" p.4-30
		3. Inlet assembly may be defective.	Replace inlet assembly.	 "4.4.9 Replacing Inlet Assembly" p.4-55
		4. Power board assembly may be defective.	Replace power board assembly.	 "4.4.2 Replacing Power Board Assembly" p.4-41
2	Abnormal LCD operation (no displays/garbled characters)	1. Check power supply voltage (DC5V).	Replace power board assembly.	 "4.4.2 Replacing Power Board Assembly" p.4-41
		2. Check power supply voltage (DC24V).	Replace power board assembly.	 "4.4.2 Replacing Power Board Assembly" p.4-41

Table 9-9 Symptoms, Check Items and Actions for Initial Operation Problems (Continued)

No.	Symptom	Check item	Action	Reference
2		3. Check panel cable for proper connection at operation panel unit assembly side and MAIN board assembly side. <ul style="list-style-type: none"> <li>• Is the panel cable inserted obliquely?</li> <li>• Is the connector securely locked?</li> </ul>	Reconnect following connectors. <ul style="list-style-type: none"> <li>• Main board assembly: J5</li> <li>• Operation panel unit assembly</li> </ul>	 <b>"4.4.7 Replacing MAIN Board" p.4-49</b>
		4. Panel cable may be damaged.	Replace panel cable.	 <b>"4.3.1 Replacing Panel Unit" p.4-30</b>
		5. Is operation panel unit assembly LCD damaged?	Replace panel board assembly.	 <b>"4.3.1 Replacing Panel Unit" p.4-30</b>
		6. Main board assembly may be damaged.	Replace MAIN board assembly.	 <b>"4.4.7 Replacing MAIN Board" p.4-49</b>
3	Initial ink charge not available	1. Is "Sen: Cover open" displayed on LCD with front cover closed?	<ul style="list-style-type: none"> <li>• Check connection of cover sensor assembly connector.</li> <li>• Replace cover sensor assembly.</li> </ul>	 <b>"4.3.3 Replacing Front Cover Sensor" p.4-32</b>

Table 9-9 Symptoms, Check Items and Actions for Initial Operation Problems (Continued)

No.	Symptom	Check item	Action	Reference
3		2. Check panel cable for proper connection at operation panel unit assembly side and MAIN board assembly side. <ul style="list-style-type: none"> <li>• Is the panel cable inserted obliquely?</li> <li>• Is the connector securely locked?</li> </ul>	Reconnect following connectors. <ul style="list-style-type: none"> <li>• Main board assembly: J5</li> <li>• Operation panel unit assembly</li> </ul>	 <a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a>
		3. Is "Sen: Lever up" displayed on LCD with media set lever lowered?	Adjust lever sensor.	 <a href="#">"4.7.4 Replacing T Fence" p.4-91</a>
		4. Check MAIN board assembly connectors J30 for proper connection.	<ul style="list-style-type: none"> <li>• Reconnect the connector.</li> <li>• Replace lever sensor assembly.</li> </ul>	 <a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a>
		5. Are the following self-diagnosis functions judged as normal when checked with specified cartridge securely inserted? <ul style="list-style-type: none"> <li>• Detection of presence of ink from "Ctrl 2: Sensor" -&gt; "Sen.3: etc" -&gt; "12: Ink END".</li> <li>• Detection of presence of cartridge from "Ink Not"</li> </ul>	<ul style="list-style-type: none"> <li>• Follow the steps for the message "[KCMY] No Cartridge".</li> <li>• After adjustment/replacement, execute initial ink charge from "Update 1: Head Rank" of self-diagnosis function.</li> </ul>	 <a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a>  <a href="#">"(1) Head Rank" p.5-50</a>
		6. Is specified cartridge status judged as normal when checked through "Ctrl 2: Sensor" -> "Sen.3: etc" -> "11: Ink NOT KCMY" of self-diagnosis function with specified cartridge securely inserted?	<ul style="list-style-type: none"> <li>• Follow the steps for the message "Insert specified cartridge".</li> <li>• After adjustment/replacement, execute initial ink charge from "Update 1: Head Rank" of self-diagnosis function.</li> </ul>	 <a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a>  <a href="#">"(1) Head Rank" p.5-50</a>

Table 9-9 Symptoms, Check Items and Actions for Initial Operation Problems (Continued)

No.	Symptom	Check item	Action	Reference
		7. Main board assembly may be damaged.	<ul style="list-style-type: none"> <li>• Replace MAIN board assembly.</li> <li>• After replacement, execute initial ink charge from "Adj: Input Rank" of self-diagnosis function.</li> </ul>	☞ "4.4.7 Replacing MAIN Board" p.4-49
4	Though initial charge has started, ink does not reach head.	Is spring of ink system assembly detached or damaged?	<ul style="list-style-type: none"> <li>• If the part is detached, remount it.</li> <li>• If the part is damaged, replace ink system assembly.</li> </ul>	☞ "4.10.1 Replacing Ink ID Board Assembly" p.4-125
5	Though ink reaches head, ink is not discharged from head.	Is capping position appropriate?	<ul style="list-style-type: none"> <li>• If ink inflow is confirmed, execute initial ink charge.</li> </ul>	☞ Operation Manual

Table 9-9 Symptoms, Check Items and Actions for Initial Operation Problems (Continued)

No.	Symptom	Check item	Action	Reference
6	Ink is not discharged though ink charge is finished.	1. Are damper assembly, ink tube and SUS pipe joint screws (K, Y, M, C) securely tightened? Is O-ring properly installed?	<ul style="list-style-type: none"> <li>• Remove head cover and check damper assembly.</li> <li>• Remove side cover (L, R) and cartridge cover, and check ink tube and SUS pipe joint screws.</li> </ul>	 <b>"4.2.4 Removing Side Maintenance Cover R" p.4-11</b>  <b>"4.2.5 Removing Side Maintenance Cover L" p.4-12</b>  <b>"4.2.11 Removing Cartridge Cover (lower)" p.4-19</b>
		2. Does shield part of damper assembly have air leak?	<ul style="list-style-type: none"> <li>• Replace damper assembly and check if cleaning operation causes ink inflow.</li> <li>• If ink inflow is confirmed, execute initial ink charge.</li> </ul>	 <b>"4.8.9 Replacing Print Head" p.4-114</b>
		3. Is ink tube in ink system assembly bent?	<ul style="list-style-type: none"> <li>• Replace ink system assembly and check if cleaning operation causes ink inflow.</li> <li>• If ink inflow is confirmed, execute initial ink charge.</li> </ul>	 <b>"4.10.1 Replacing Ink ID Board Assembly" p.4-125</b>

Table 9-9 Symptoms, Check Items and Actions for Initial Operation Problems (Continued)

No.	Symptom	Check item	Action	Reference
6		4. Does pump motor rotate during cleaning operation?	<ul style="list-style-type: none"> <li>• Reconnect MAIN board assembly connector J22.</li> <li>• Replace pump motor.</li> <li>• Replace MAIN board assembly.</li> </ul>	<p> "4.4.7 Replacing MAIN Board" p.4-49</p> <p> "4.2.2 Removing Maintenance Cover" p.4-9</p>
		5. When cleaning operation is performed, are gears damaged or poorly engaged?	Replace maintenance base assembly.	<p> "4.2.2 Removing Maintenance Cover" p.4-9</p>
		6. When cleaning operation is performed, is transmission gear shaft damaged?	Replace maintenance base assembly.	<p> "4.2.2 Removing Maintenance Cover" p.4-9</p>
		7. Does ink tube have bend, scratch, or leak?	<ul style="list-style-type: none"> <li>• Replace damaged ink tube and check if cleaning operation causes ink inflow after each replacement.</li> <li>• If ink inflow is confirmed, execute initial ink charge.</li> </ul>	<p> "4.7.10 Replacing Ink Tube" p.4-102</p>
		8. Check connection of head cable connectors on CR board assembly side and head side. <ul style="list-style-type: none"> <li>• Is head cable inserted obliquely?</li> <li>• Is it locked securely?</li> </ul>	Reconnect head cable.	<p> "4.8.9 Replacing Print Head" p.4-114</p> <p> "4.8.3 Replacing CR Board Assembly" p.4-106</p>

Table 9-9 Symptoms, Check Items and Actions for Initial Operation Problems (Continued)

No.	Symptom	Check item	Action	Reference
6		9. Is head cable broken?	Replace head cable.	 <b>"4.8.9 Replacing Print Head" p.4-114</b>  <b>"4.8.3 Replacing CR Board Assembly" p.4-106</b>
		10. Is print head assembly damaged?	Replace print head assembly.	 <b>"4.8.9 Replacing Print Head" p.4-114</b>
		11. Is CR board assembly damaged?	Replace CR board assembly.	 <b>"4.8.3 Replacing CR Board Assembly" p.4-106</b>
		12. Check connection of CR cable connectors on CR board assembly side and MAIN board assembly side. <ul style="list-style-type: none"> <li>• Is head cable inserted obliquely?</li> <li>• Is it locked securely?</li> </ul>	Reconnect following connectors. <ul style="list-style-type: none"> <li>• CR board assembly connector: J201 - J205</li> <li>• Main board assembly connector: J9 - J11</li> </ul>	 <b>"4.8.3 Replacing CR Board Assembly" p.4-106</b>  <b>"4.4.7 Replacing MAIN Board" p.4-49</b>
		13. Is CR cable broken?	Replace CR cable.	 <b>"4.7.8 Replacing CR Tape Wire" p.4-99</b>
		14. Main board assembly may be defective.	Replace MAIN board assembly.	 <b>"4.4.7 Replacing MAIN Board" p.4-49</b>

Table 9-9 Symptoms, Check Items and Actions for Initial Operation Problems (Continued)

No.	Symptom	Check item	Action	Reference
7	Machine makes no operations after turned ON.	1. Is "Sen: Cover open" displayed on LCD with printer cover closed? Or, is cover sensor assembly function detected as normal when checked through "Test 4: Sensor" of self-diagnosis function?	<ul style="list-style-type: none"> <li>Check MAIN board assembly connector J38, J40.</li> <li>Replace cover sensor assembly.</li> </ul>	 <a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a>  <a href="#">"4.3.2 Replacing Maintenance Cover Sensor" p.4-31</a>
8	After turned ON, machine displays "Initializing" and resets itself.	2. Check panel cable connectors at operation panel unit assembly and MAIN board assembly. <ul style="list-style-type: none"> <li>Is panel cable inserted obliquely?</li> <li>Is it locked securely?</li> </ul>	Reconnect following connectors. <ul style="list-style-type: none"> <li>Main board assembly: J5</li> <li>Operation panel unit assembly: J1</li> </ul>	 <a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a>
9	Machine does not perform initialization even if media is set.	3. Is "Set Paper" displayed on LCD with pressure arm lowered?	<ul style="list-style-type: none"> <li>Check MAIN board assembly connector J30.</li> <li>Replace lever sensor assembly.</li> </ul>	 <a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a>  <a href="#">"4.6.6 Replacing Lever Up Sensor" p.4-67</a>
10	Machine does not start operation even if front cover is closed.	4. Is P_REAR sensor assembly judged as normal when checked through "Test 4: Sensor" of self-diagnosis function?	<ul style="list-style-type: none"> <li>Check MAIN board assembly connector J42.</li> <li>Replace P_REAR sensor Assembly.</li> </ul>	 <a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a>  <a href="#">"4.6.5 Replacing P_REAR Sensor Assembly" p.4-65</a>

Table 9-9 Symptoms, Check Items and Actions for Initial Operation Problems (Continued)

No.	Symptom	Check item	Action	Reference
11	Machine does not stop even if front cover is opened.	5. Check power supply voltage (DC5V).	Replace power board assembly.	 "4.4.2 Replacing Power Board Assembly" p.4-41
		6. Check power supply voltage (DC24V, DC42V).	Replace power board assembly.	 "4.4.2 Replacing Power Board Assembly" p.4-41
		7. Is DC cable assembly connected correctly between power board assembly and MAIN board assembly?	<ul style="list-style-type: none"> <li>• Reconnect DC cable assembly.</li> <li>• Replace DC cable assembly.</li> </ul>	 "4.4.2 Replacing Power Board Assembly" p.4-41
		8. Main board assembly may be defective.	Replace MAIN board assembly.	 "4.4.7 Replacing MAIN Board" p.4-49

Table 9-9 Symptoms, Check Items and Actions for Initial Operation Problems (Continued)

No.	Symptom	Check item	Action	Reference
12	Ink cartridge cannot be detected even if installed.	1. Are the following self-diagnosis functions detected as normal when checked with specified cartridge securely inserted? <ul style="list-style-type: none"> <li>• Detection of presence of ink from "Ctrl 2: Sensor" -&gt; "Sen.3: etc" -&gt; "12: Ink END"</li> <li>• Detection of presence of cartridge from "Ctrl 2: Sensor" -&gt; "Sen.3: etc" -&gt; "11: Ink NOT KCMY"</li> </ul>	<ul style="list-style-type: none"> <li>• Follow the steps for the message "[KCMY] No Cartridge".</li> <li>• After adjustment/replacement, execute initial ink charge from "Update 1: Head Rank" of self-diagnosis function.</li> </ul>	 <b>"(1) Head Rank" p.5-50</b>
		2. Is specified cartridge status detected as normal when checked through "Ctrl 2: Sensor" -> "Sen.3: etc" -> "7-10: [KCMY]Ink ID" of self-diagnosis function with specified cartridge securely inserted?	<ul style="list-style-type: none"> <li>• Follow the steps for the message "Insert specified cartridge".</li> <li>• After adjustment/replacement, execute initial ink charge from "Update 1: Head Rank" of self-diagnosis function.</li> </ul>	 <b>"(1) Head Rank" p.5-50</b>

Table 9-9 Symptoms, Check Items and Actions for Initial Operation Problems (Continued)

No.	Symptom	Check item	Action	Reference
13	Operation panel accepts no inputs.	1. Is operation panel cover broken or contaminated?	Replace operation panel cover.	-
		2. Check panel cable connectors at operation panel unit assembly side and MAIN board assembly side. <ul style="list-style-type: none"> <li>• Is panel cable inserted obliquely?</li> <li>• Is it locked securely?</li> </ul>	Reconnect following connectors. <ul style="list-style-type: none"> <li>• Main board assembly: J5</li> <li>• Operation panel unit assembly: J1</li> </ul>	 <b>"4.4.7 Replacing MAIN Board" p.4-49</b>
		3. Operation panel unit assembly may be damaged.	Replace panel unit assembly.	 <b>"4.3.1 Replacing Panel Unit" p.4-30</b>
		4. Main board assembly may be malfunctioning.	Replace MAIN board assembly.	 <b>"4.4.7 Replacing MAIN Board" p.4-49</b>
14	Machine prints nothing though it receives data.	1. Refer to "9.3.5 Online Function Problem".	-	 <b>"9.3.5 Online Function Problems" p.9-68</b>

### 9.3.2 Media Feed Problems

Table 9-10 Symptoms, Check Items and Actions for Media Feed Problems

No.	Symptom	Check item	Action	Reference
1	Media comes off during media set initialization or printing.	1. Are P_REAR sensor assembly and P_EDGE sensor assembly detected as normal when checked through "Test 4: Sensor" of self-diagnosis function?	<ul style="list-style-type: none"> <li>Check following connectors. <ul style="list-style-type: none"> <li>Main board assembly: J42, J9 - J11</li> <li>CR board assembly: J208, J201 - J203</li> </ul> </li> <li>Replace P_REAR sensor assembly and P_EDGE sensor assembly.</li> </ul>	 <a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a>  <a href="#">"4.8.3 Replacing CR Board Assembly" p.4-106</a>  <a href="#">"4.6.5 Replacing P_REAR Sensor Assembly" p.4-65</a>
2	Media runs obliquely or meanders during media set initialization or printing.	2. Is suction fan run as normal when checked through "Test 6: Fan" of self-diagnosis function?	<ul style="list-style-type: none"> <li>Check connection of following MAIN board assembly connectors. <ul style="list-style-type: none"> <li>Suction fan cable assembly: J25 - J29</li> </ul> </li> </ul>	 <a href="#">"4.6.8 Replacing Suction Fan" p.4-76</a>
3	Media crinkles during media set initialization or printing.		<ul style="list-style-type: none"> <li>Replace suction fan assembly.</li> <li>Replace cable of suction fan that does not operate normally.</li> </ul>	
4	Media jams during media set initialization or printing.	3. When pressure lever is moved backward and forward, does pressure assembly move smoothly in synchronization with it?	Lubricate pressure cam.	 <a href="#">"8.5 Lubrication/Bonding" p.8-7</a>
5	Media is torn during media set initialization or printing.	4. Does pressure roller drag when pressure lever is raised?	If pressure roller collects media dust on itself, wipe dust away using a wet soft cloth.	 Operation Manual
		5. Does media guide have large distortion or foreign objects?	<ul style="list-style-type: none"> <li>If media guide collects media dust or other foreign objects on it, remove them.</li> <li>Replace media guide.</li> </ul>	 <a href="#">"4.2.17 Removing Media Guide F (Upper)" p.4-24</a>

Table 9-10 Symptoms, Check Items and Actions for Media Feed Problems (Continued)

No.	Symptom	Check item	Action	Reference
		6. When using roll media, are flanges attached correctly?	Insert flanges correctly into core pipe of media roll.	☞ Operation Manual
6	Machine registers wrong media size after media set initialization.	Is media in use a recommended one?	Set recommended media and check printout again. With non-authorized media, media sensor may fail to detect media correctly.	☞ Operation Manual

### 9.3.3 Printing Problems

Table 9-11 Symptoms, Check Items and Actions for Printing Problems

No.	Symptom	Check item	Action	Reference
1	Machine cannot print sequentially.	1. printer driver may be defective.	Update printer driver.	 <a href="#">"7.3.5 Firmware Installation" p.7-12</a>
		2. Program ROM may be defective.	Update firmware.	 <a href="#">"7.3.5 Firmware Installation" p.7-12</a>
		3. Main board assembly may be damaged.	Replace MAIN board assembly.	 <a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a>
2	Media feed after printing is excessive.	1. Is P_REAR sensor assembly judged as normal when checked through "Test 4: Sensor" of self-diagnosis function?	<ul style="list-style-type: none"> <li>• Reconnect MAIN board assembly connector J42.</li> <li>• Replace P_REAR sensor assembly.</li> </ul>	 <a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a>  <a href="#">"4.6.5 Replacing P_REAR Sensor Assembly" p.4-65</a>
		2. Program ROM may be defective.	Update firmware.	 <a href="#">"7.3.5 Firmware Installation" p.7-12</a>
		3. Main board assembly may be damaged.	Replace MAIN board assembly.	 <a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a>

Table 9-11 Symptoms, Check Items and Actions for Printing Problems (Continued)

No.	Symptom	Check item	Action	Reference
3	Missing dots in printing.	1. Perform cleaning twice consecutively.		☞ Operation Manual
		2. Is ink tube filled with ink?	Perform drop ink charge.	☞ Operation Manual
		3. Perform "Check 4: Adjustment" -> "Adj 1: NozzleChk" of printer self-diagnosis or "Test Print".	If the nozzle check patterns are printed correctly, refer to the action in check item No. 4.	☞ <b>"5.7.7 Test Printing Menu" p.5-39</b>
		4. Does pump motor rotate during cleaning operation?	<ul style="list-style-type: none"> <li>Reconnect MAIN board assembly connector J22.</li> <li>Replace Pump motor assembly.</li> <li>Replace MAIN board assembly.</li> </ul>	☞ <b>"4.4.7 Replacing MAIN Board" p.4-49</b>
		5. Are gears and transmission gear shaft damaged or poorly engaged during cleaning operation?	Replace maintenance base assembly.	☞
4	Nozzle plugging or ink splash is not eliminated even after cleaning.	1. Is spring of ink system assembly detached or damaged?	<ul style="list-style-type: none"> <li>If the part is detached, remount it.</li> <li>If the part is damaged, replace ink system assembly.</li> </ul>	☞ <b>"4.10.1 Replacing Ink ID Board Assembly" p.4-125</b>
		2. Check cleaning wiper condition.	<ul style="list-style-type: none"> <li>Wipe cleaning wiper surface with accessory polynit wiper. After wiping cleaning wiper, perform cleaning twice consecutively.</li> <li>If cleaning wiper is sticky with ink, replace it with a new one.</li> </ul>	☞ Operation Manual  ☞ <b>"4.9.2 Replacing Cleaner Head" p.4-121</b>

Table 9-11 Symptoms, Check Items and Actions for Printing Problems (Continued)

No.	Symptom	Check item	Action	Reference
4	Nozzle plugging or ink splash is not eliminated even after cleaning. (Continued)	3. Is nozzle face wiped/rubbed correctly?	Check wiper installation condition and secure it correctly.	 <b>"4.9.2 Replacing Cleaner Head" p.4-121</b>
		4. Is registered head rank different from actual head rank?	Enter correct head rank.	 <b>"(1) Head Rank" p.5-50</b>
		5. Does residual ink collect on print head assembly or in nozzles?	Clean head as follows. 1. Clean head from "Adj 9: HeadWash" of printer self-diagnosis. 2. Perform initial ink charge from "Update 1: Head Rank". 3. Check printouts again.	 <b>"5.7.8 HeadWash Menu" p.5-40</b>   <b>"(1) Head Rank" p.5-50</b>
		6. Check if CR_ENC assembly and T fence contact with each other.	<ul style="list-style-type: none"> <li>• If they contact with each other, adjust CR_ENC assembly and T fence positions.</li> <li>• If problem remains even after position adjustment, replace CR board assembly and T fence.</li> </ul>	 <b>"4.8.3 Replacing CR Board Assembly" p.4-106</b>  <b>"4.7.4 Replacing T Fence" p.4-91</b>
		7. Is ink tube in ink system assembly bent?	<ul style="list-style-type: none"> <li>• Replace ink system assembly and check if cleaning operation causes ink inflow.</li> <li>• If ink inflow is confirmed, execute initial ink charge.</li> </ul>	 <b>"4.10.1 Replacing Ink ID Board Assembly" p.4-125</b>
		8. Is print head damaged?	Replace damaged print head.	 <b>"4.8.9 Replacing Print Head" p.4-114</b>
		9. Main board assembly may be damaged.	Replace MAIN board assembly.	 <b>"4.4.7 Replacing MAIN Board" p.4-49</b>

Table 9-11 Symptoms, Check Items and Actions for Printing Problems (Continued)

No.	Symptom	Check item	Action	Reference
5	No printing.  Particular color is missing.	1. Check power supply voltage (DC24V, DC42V).	Replace power board assembly.	 "4.4.2 Replacing Power Board Assembly" p.4-41
		2. Is spring of ink system assembly detached or damaged?	<ul style="list-style-type: none"> <li>If the part is detached, remount it.</li> <li>If the part is damaged, replace ink system assembly.</li> </ul>	 "4.10.1 Replacing Ink ID Board Assembly" p.4-125
		3. Is CR cable inserted obliquely?	Reconnect MAIN board assembly connectors J9 - J11 and CR board assembly connectors J201 - J205.	 "4.4.7 Replacing MAIN Board" p.4-49  "4.8.3 Replacing CR Board Assembly" p.4-106
		4. CR cable may be damaged.	Replace CR cable assembly.	 "4.7.4 Replacing T Fence" p.4-91
		5. Are damper assembly, ink tube and SUS pipe joint screws (K, C, M, Y) securely tightened? Is O-ring properly installed?	<ul style="list-style-type: none"> <li>Remove head cover and check damper assembly.</li> <li>Remove side cover (L, R) and I/H cover, and check ink tube and SUS pipe joint screws.</li> </ul>	 "4.2.4 Removing Side Maintenance Cover R" p.4-11  "4.2.5 Removing Side Maintenance Cover L" p.4-12
		6. Does shield part of damper have air leak?	<ul style="list-style-type: none"> <li>Replace damper assembly and check if cleaning operation causes ink inflow.</li> <li>If ink inflow is confirmed, execute initial ink charge.</li> </ul>	
		7. Is ink tube in ink system assembly bent?	<ul style="list-style-type: none"> <li>Replace ink system assembly and check if cleaning operation causes ink inflow.</li> <li>If ink inflow is confirmed, execute initial ink charge.</li> </ul>	 "4.10.1 Replacing Ink ID Board Assembly" p.4-125

Table 9-11 Symptoms, Check Items and Actions for Printing Problems (Continued)

No.	Symptom	Check item	Action	Reference
5		8. Does ink tube have bend, scratch, or leak?	<ul style="list-style-type: none"> <li>Replace damaged ink tube and check if cleaning operation causes ink inflow after each replacement.</li> <li>If ink inflow is confirmed, execute initial ink charge.</li> </ul>	 <b>"4.7.10 Replacing Ink Tube" p.4-102</b>
		9. Are the following self-diagnosis functions detected as normal when checked with specified cartridge securely inserted? <ul style="list-style-type: none"> <li>Detection of presence of ink from "Ctrl 2: Sensor" -&gt; "Sen.3: etc" -&gt; "12: Ink END"</li> <li>Detection of presence of cartridge from "Ctrl 2: Sensor" -&gt; "Sen.3: etc" -&gt; "11: Ink NOT"</li> </ul>	<ul style="list-style-type: none"> <li>Follow the steps for the message "[KCMY] No Cartridge".</li> <li>After adjustment/replacement, execute initial ink charge from "Update 1: Head Rank" of self-diagnosis function.</li> </ul>	 <b>"(1) Head Rank" p.5-50</b>
		10. Is ink tube in ink system assembly bent?	<ul style="list-style-type: none"> <li>Replace ink system assembly and check if cleaning operation causes ink inflow.</li> <li>If ink inflow is confirmed, execute initial ink charge.</li> </ul>	 <b>"4.10.1 Replacing Ink ID Board Assembly" p.4-125</b>
		11. Does pump motor rotate during cleaning operation?	<ul style="list-style-type: none"> <li>Reconnect MAIN board assembly connector J22, J23.</li> <li>Replace Pump motor assembly.</li> <li>Replace MAIN board assembly.</li> </ul>	 <b>"4.4.7 Replacing MAIN Board" p.4-49</b>
		12. When cleaning operation is performed, does transmission gear rotate properly?	Replace maintenance base assembly.	

Table 9-11 Symptoms, Check Items and Actions for Printing Problems (Continued)

No.	Symptom	Check item	Action	Reference
5		13. When cleaning operation is performed, is transmission gear shaft damaged?	Replace maintenance base assembly.	
		14. Check head cable connectors at CR board assembly side and print head assembly side.  • Is head cable inserted obliquely? • Is it locked securely?	Reconnect head cable.	 "4.8.9 Replacing Print Head" p.4-114  "4.8.3 Replacing CR Board Assembly" p.4-106
		15. Is print head damaged?	Replace damaged print head.	 "4.8.9 Replacing Print Head" p.4-114
		16. CR board assembly may be defective.	Replace CR board assembly.	 "4.8.3 Replacing CR Board Assembly" p.4-106
		17. Main board assembly may be damaged.	Replace MAIN board assembly.	 "4.4.7 Replacing MAIN Board" p.4-49

Table 9-11 Symptoms, Check Items and Actions for Printing Problems (Continued)

No.	Symptom	Check item	Action	Reference
6	Machine outputs all black printing.	1. Check connection of head cable connectors on CR board assembly side and print head side.  • Is head cable inserted obliquely? • Is it locked securely?	Reconnect head cable.	 "4.8.9 Replacing Print Head" p.4-114  "4.8.3 Replacing CR Board Assembly" p.4-106
		2. Is CR cable inserted obliquely?	Reconnect MAIN board assembly connectors J9 - J11 and CR board assembly connectors J201 - J205.	 "4.4.7 Replacing MAIN Board" p.4-49  "4.8.3 Replacing CR Board Assembly" p.4-106
		3. CR cable assembly may be damaged.	Replace CR cable assembly.	 "4.7.8 Replacing CR Tape Wire" p.4-99
		4. Is print head damaged?	Replace damaged print head assembly.	 "4.8.9 Replacing Print Head" p.4-114
		5. CR board assembly may be malfunctioning.	Replace CR board assembly.	 "4.8.3 Replacing CR Board Assembly" p.4-106
		6. Main board assembly may be damaged.	Replace MAIN board assembly.	 "4.4.7 Replacing MAIN Board" p.4-49
7 8 9 10	Blocky printing quality. Blocky image printing. CR line seems dotted. White or black lines appear. (No missing or ink crooking in step patterns in location 1G - 7G in "Test Print")	1. Is working environment appropriate?	Use machine under specified environment.	 "3.5 Choosing a Place for the Printer" p.3-6

Table 9-11 Symptoms, Check Items and Actions for Printing Problems (Continued)

No.	Symptom	Check item	Action	Reference
7 8 9 10		2. Have you started printing immediately after initial charge?	<p>Printing just after initial charge may cause following symptoms.</p> <ul style="list-style-type: none"> <li>• Printed line blurs.</li> <li>• White lines appear.</li> </ul> <p>In such cases, perform cleaning two or three times and check printout again. If symptoms remain even after cleaning, leave machine unused for 1 hour or more. Then perform cleaning again and check printout. If symptoms still remains, refer to Operation Manual to contact the technical support.</p>	<p>☞ Operation Manual</p>
		3. Is suction fan run as normal when checked through "Test: Fan" of self-diagnosis function?	<ul style="list-style-type: none"> <li>• Check connection of following MAIN board assembly connectors.</li> <li>• Suction fan 1 - 4 assembly: J25 - 29</li> <li>• Suction fan 2 cable: J127</li> <li>• Suction fan L cable: J126</li> <li>• Replace suction fan assembly.</li> <li>• Replace cable of suction fan that does not operate normally.</li> </ul>	<p>☞ "4.6.8 Replacing Suction Fan" p.4-76</p>

Table 9-11 Symptoms, Check Items and Actions for Printing Problems (Continued)

No.	Symptom	Check item	Action	Reference
7 8 9 10		4. Is shielding material secured at specified position?	Remount it at specified position.	 <b>"4.6.8 Replacing Suction Fan" p.4-76</b>
		5. If the media in problem is roll media, does scroller rotate evenly?	Adjust roll receiver assembly position. Replace roll receiver assembly.	 <b>"4.6.10 Replacing Media Holder" p.4-78</b>
		6. Is PF belt tension adjusted to specification?	Adjust PF reduction belt tension.	 <b>"(2) Confirming Completion of Installation to Plotter" p.7-14</b>
		7. Check cleaning wiper condition.	<ul style="list-style-type: none"> <li>Wipe cleaning wiper surface with accessory polynit wiper. After wiping cleaning wiper, perform cleaning twice consecutively.</li> <li>If cleaning wiper is sticky with ink, replace it with a new one.</li> </ul>	 Operation Manual
		8. Is nozzle face wiped/rubbed correctly?	Check wiper installation condition and secure it correctly.	 <b>"4.9.2 Replacing Cleaner Head" p.4-121</b>
		9. Is T fence contaminated?	<ul style="list-style-type: none"> <li>Clean T fence.</li> <li>If T fence is still contaminated or damaged, replace T fence.</li> </ul>	 <b>"4.7.4 Replacing T Fence" p.4-91</b>
		10. Does pressure roller rotate harder when pressure arm is raised?	If pressure roller collects media dust on itself, wipe dust away using a wet soft cloth.	 Operation Manual

Table 9-11 Symptoms, Check Items and Actions for Printing Problems (Continued)

No.	Symptom	Check item	Action	Reference
7 8 9 10		11. Does pump motor rotate during cleaning operation?	<ul style="list-style-type: none"> <li>Reconnect MAIN board assembly connector J22.</li> <li>Replace pump motor assembly.</li> <li>Replace MAIN board assembly.</li> </ul>	 <b>"4.4.7 Replacing MAIN Board" p.4-49</b>   <b>"4.4.7 Replacing MAIN Board" p.4-49</b>
		12. When cleaning operation is performed, does transmission gear rotate properly?	Replace maintenance base assembly.	
		13. When cleaning operation is performed, are gears and transmission gear shaft damaged?	Replace maintenance base assembly.	
		14. Is spring of ink system assembly detached or damaged?	<ul style="list-style-type: none"> <li>If the part is detached, remount it.</li> <li>If the part is damaged, replace ink system assembly.</li> </ul>	 <b>"4.10.1 Replacing Ink ID Board Assembly" p.4-125</b>
		15. Is ink tube in ink system assembly bent?	<ul style="list-style-type: none"> <li>Replace ink system assembly and check if cleaning operation causes ink inflow.</li> <li>If ink inflow is confirmed, execute initial ink charge.</li> </ul>	 <b>"4.10.1 Replacing Ink ID Board Assembly" p.4-125</b>
		16. Is registered head voltage different from actual head voltage?	Enter correct head voltage.	 <b>"(1) Head Rank" p.5-50</b>

Table 9-11 Symptoms, Check Items and Actions for Printing Problems (Continued)

No.	Symptom	Check item	Action	Reference
7 8 9 10		17. Does residual ink collect on head assembly or in nozzles?	Clean head as follows. 1. Clean head through "Adj 9: HeadWash" of self-diagnosis function. 2. Perform initial charge through "Update 1: Head Rank". 3. Check plotouts again.	 <b>"5.7.8 HeadWash Menu" p.5-40</b>   <b>"(1) Head Rank" p.5-50</b>
		18. Is print head damaged?	Replace damaged print head.	 <b>"4.8.9 Replacing Print Head" p.4-114</b>
		19. Are the following self-diagnosis functions judged as normal when checked with specified cartridge securely inserted? - Detection of presence of ink from "Ctrl 2: Sensor" -> "Sen.3: etc" -> "11: Ink NOT" - Detection of presence of cartridge from "Ctrl 2: Sensor" -> "Sen.3: etc" -> "12: Ink END"	<ul style="list-style-type: none"> <li>Follow the steps for the message "[KCMY] No Cartridge".</li> <li>After adjustment/replacement, execute initial ink charge from "Update 1: Head Rank" of self-diagnosis function.</li> </ul>	 <b>"(1) Head Rank" p.5-50</b>
		20. CR board assembly may be malfunctioning.	Replace CR board assembly.	 <b>"4.8.3 Replacing CR Board Assembly" p.4-106</b>
		21. Main board assembly may be damaged.	Replace MAIN board assembly.	 <b>"4.8.3 Replacing CR Board Assembly" p.4-106</b>

Table 9-11 Symptoms, Check Items and Actions for Printing Problems (Continued)

No.	Symptom	Check item	Action	Reference
11	Printout borders blur.	1. Does purge correct symptom?	Perform purge twice consecutively.	☞ Operation Manual
		2. Is media in use a recommended one?	Set recommended media and check printout again. With non-authorized media, media sensor may fail to detect media correctly.	☞ Operation Manual
		3. CR cable assembly may be damaged.	Replace CR cable assembly wire.	☞ "4.7.8 Replacing CR Tape Wire" p.4-99
		4. Is print head damaged?	Replace damaged print head.	☞ "4.8.9 Replacing Print Head" p.4-114
		5. CR board assembly may be malfunctioning.	Replace CR board assembly.	☞ "4.7.8 Replacing CR Tape Wire" p.4-99
		6. Main board assembly may be damaged.	Replace MAIN board assembly.	☞ "4.4.7 Replacing MAIN Board" p.4-49



Table 9-11 Symptoms, Check Items and Actions for Printing Problems (Continued)

No.	Symptom	Check item	Action	Reference
		9. Is nozzle face wiped/rubbed correctly?	Check wiper installation condition and secure it correctly.	 <b>"4.9.2 Replacing Cleaner Head" p.4-121</b>
		10. Is registered head voltage different from actual head voltage?	Enter correct head voltage.	 <b>"(1) Head Rank" p.5-50</b>
12		11. Does pump motor rotate during cleaning operation?	<ul style="list-style-type: none"> <li>• Reconnect MAIN board assembly connector J22.</li> <li>• Replace pump motor assembly.</li> <li>• Replace MAIN board assembly.</li> </ul>	 <b>"4.4.7 Replacing MAIN Board" p.4-49</b>
		12. When cleaning operation is performed, are gears and transmission gear shaft damaged?	Replace maintenance base assembly.	
		13. Is spring of ink system assembly detached or damaged?	<ul style="list-style-type: none"> <li>• If the part is detached, remount it.</li> <li>• If the part is damaged, replace ink system assembly.</li> </ul>	 <b>"4.10.1 Replacing Ink ID Board Assembly" p.4-125</b>
		14. Is ink tube in ink system assembly bent?	<ul style="list-style-type: none"> <li>• Replace ink system assembly and check if cleaning operation causes ink inflow.</li> <li>• If ink inflow is confirmed, execute initial ink charge.</li> </ul>	 <b>"4.10.1 Replacing Ink ID Board Assembly" p.4-125</b>
		15. Does residual ink collect on print head assembly or in nozzles?	Clean head as follows. 1) Clean head from "Adj 9: HeadWash" of printer self-diagnosis. 2) Perform initial ink charge from "Update 1:Head Rank". 3) Check printouts again.	 <b>"5.7.8 HeadWash Menu" p.5-40</b>   <b>"5.7.4 Voltage Adjustment" p.5-31</b>
		16. Is print head assembly damaged?	Replace damaged print head assembly.	 <b>"4.8.9 Replacing Print Head" p.4-114</b>

Table 9-11 Symptoms, Check Items and Actions for Printing Problems (Continued)

No.	Symptom	Check item	Action	Reference
12		17. Main board assembly may be damaged.	Replace MAIN board assembly.	 <b>"4.4.7 Replacing MAIN Board" p.4-49</b>
13	Mixed color lines are not overlaid.	1. Is CR belt tension adjusted to specification?	Adjust CR belt tension.	 <b>"7.6 CR Speed Reduction Belt Tension Adjustment" p.7-27</b>
		2. Is registered head voltage different from actual head voltage?	Enter correct head voltage.	 <b>"(1) Head Rank" p.5-50</b>
		3. Is head slant inappropriate?	Adjust head slant.	 <b>"7.6 CR Speed Reduction Belt Tension Adjustment" p.7-27</b>
		4. Are bi-directional printing positions aligned correctly?	Align bi-directional printing positions.	 <b>"5.7.5 Uni-D/Bi-D Low/High Adjustment" p.5-33</b>
		5. Is CW adjustment inappropriate?	Perform CW adjustment.	 <b>"5.7.5 Uni-D/Bi-D Low/High Adjustment" p.5-33</b>
14	Black and other colors do not align.	1. Check if CR_ENC assembly and T fence contact with each other.	<ul style="list-style-type: none"> <li>• If they contact with each other, adjust CR_ENC assembly and T fence positions.</li> <li>• If problem remains even after position adjustment, replace CR board assembly and T fence.</li> </ul>	 <b>"4.8.3 Replacing CR Board Assembly" p.4-106</b>  <b>"4.7.4 Replacing T Fence" p.4-91</b>

Table 9-11 Symptoms, Check Items and Actions for Printing Problems (Continued)

No.	Symptom	Check item	Action	Reference
15	Poor accuracy of segment length in head travel direction (main scan direction).	1. Is working environment appropriate?	Use machine under specified environment.	 <b>"3.5 Choosing a Place for the Printer" p.3-6</b>
		2. Is CR belt tension adjusted to specification?	Adjust CR belt tension.	 <b>"7.6 CR Speed Reduction Belt Tension Adjustment" p.7-27</b>
		3. Is T fence contaminated?	<ul style="list-style-type: none"> <li>• Clean T fence.</li> <li>• If T fence is still contaminated or damaged, replace T fence.</li> </ul>	 <b>"4.7.4 Replacing T Fence" p.4-91</b>
		4. Internal process of MAIN board assembly may be abnormal.	Initialize parameters and reenter or modify them. Then, check machine operation again.	 <b>"5.11.1 Parameter Initialization Menu" p.5-47</b>
16	Poor linearity in head scan direction (straightness)	1. Is suction fan run as normal when checked through "Test 6: Fan" of self-diagnosis function?	<ul style="list-style-type: none"> <li>• Check connection of following MAIN board assembly connectors.                             <ul style="list-style-type: none"> <li>• Suction 1 - 4 cable: J25 - J29</li> </ul> </li> <li>• Replace suction fan assembly.</li> <li>• Replace cable of suction fan that does not operate normally.</li> </ul>	 <b>"4.6.8 Replacing Suction Fan" p.4-76</b>
		2. Is PF driving pulley loose?	Replace PF motor assembly.	 <b>"4.6.2 Replacing PF Motor Assembly" p.4-61</b>
		3. Is PF speed reduction belt tension adjusted to specification?	Adjust PF speed reduction belt tension.	 <b>"(2) Confirming Completion of Installation to Plotter" p.7-14</b>

Table 9-11 Symptoms, Check Items and Actions for Printing Problems (Continued)

No.	Symptom	Check item	Action	Reference
16		4. If the media in problem is roll media, does scroller rotate evenly?	<ul style="list-style-type: none"> <li>Adjust roll receiver assembly position.</li> <li>Replace roll receiver assembly.</li> </ul>	 <b>"4.6.10 Replacing Media Holder" p.4-78</b>
		5. Does pressure roller rotate harder when pressure arm is raised?	If pressure roller collects media dust on itself, wipe dust away using a wet soft cloth.	 Operation Manual
17	Poor accuracy of segment length in media feed direction (sub scan direction)	1. Is working environment appropriate?	Use machine under specified environment.	 <b>"3.5 Choosing a Place for the Printer" p.3-6</b>
		2. Is PF driving pulley loose	Replace PF motor assembly.	 <b>"4.6.2 Replacing PF Motor Assembly" p.4-61</b>
		3. Is PF belt tension adjusted to specification?	Adjust PF speed reduction belt tension.	 <b>"(2) Confirming Completion of Installation to Plotter" p.7-14</b>
		4. Does pressure roller rotate harder when pressure arm is raised?	If pressure roller collects media dust on itself, wipe dust away using a wet soft cloth.	 Operation Manual
		5. Is rough surface of grid roller partially worn out?	If grid roller is contaminated with media dust, clean roller with a nylon brush.	 Operation Manual
		6. Is grid roller rotation heavy? Does rattling occur when it rotates?		
		7. If the media in problem is roll media, does scroller rotate evenly?	Adjust roll receiver assembly position. Replace roll receiver assembly. Change media to be used.	 <b>"4.6.10 Replacing Media Holder" p.4-78</b>

Table 9-11 Symptoms, Check Items and Actions for Printing Problems (Continued)

No.	Symptom	Check item	Action	Reference
18	Poor linearity in media feed direction (media splicing accuracy)	1. Is registered head voltage different from actual head voltage?	Enter correct head voltage.	 <b>"(1) Head Rank" p.5-50</b>
		2. Adjust head slant.	Adjust head slant.	 <b>"7.6 CR Speed Reduction Belt Tension Adjustment" p.7-27</b>
		3. Is CR belt tension adjusted to specification?	Adjust CR belt tension.	 <b>"7.6 CR Speed Reduction Belt Tension Adjustment" p.7-27</b>
		4. Are bi-directional printing positions aligned correctly?	Align two-way printing positions.	 <b>"5.7.5 Uni-D/Bi-D Low/High Adjustment" p.5-33</b>
		5. Is T fence contaminated?	Clean T fence. If T fence is still contaminated or damaged, replace T fence.	 <b>"4.7.4 Replacing T Fence" p.4-91</b>
		6. Check if vertical lines plotted from "Adj 3: HeadSlant" are not connected even though nozzle check pattern from "Adj 1: NozzleChk" of self-diagnosis function is adjusted properly.	Replace steel bearer assembly.	 <b>"4.7.8 Replacing CR Tape Wire" p.4-99</b>
		7. Is carriage assembly loose?	Replace carriage assembly.	-
19	Poor right angle accuracy	1. Is suction fan judged as normal when checked through "Test 6: Fan" of self-diagnosis function?	<ul style="list-style-type: none"> <li>• Check connection of following maintenance board assembly connectors. <ul style="list-style-type: none"> <li>• Suction fan 1 - 4 assembly: J25 - J29</li> </ul> </li> <li>• Replace suction fan assembly.</li> <li>• Replace cable of suction fan that does not operate normally.</li> </ul>	 <b>"4.6.8 Replacing Suction Fan" p.4-76</b>

Table 9-11 Symptoms, Check Items and Actions for Printing Problems (Continued)

No.	Symptom	Check item	Action	Reference
2		2. Does pressure roller rotate harder when pressure arm is raised?	If pressure roller collects media dust on itself, wipe dust away using a wet soft cloth.	☞ Operation Manual
		3. Is rough surface of grid roller partially worn out?	If grid roller is contaminated with media dust, clean roller with a nylon brush.	☞ Operation Manual
		4. Is grid roller rotation heavy? Does rattling occur when it rotates?		

### 9.3.4 Noise Problems

Table 9-12 Symptoms, Check Items, and Actions for Noise Problems

No.	Symptom	Check item	Action	Reference
1	Abnormal noise is heard when media is suctioned.	1. Are there any foreign objects or obstacles around rotating fin of suction fan assembly?	Remove obstacles and foreign objects.	☞ "4.6.8 Replacing Suction Fan" p.4-76
		2. Check damage of cables and connection of connectors.	If damaged, replace damaged part.	-
		3. Suction fan assembly may be defective.	Replace suction fan assembly.	☞ "4.6.8 Replacing Suction Fan" p.4-76
		4. Main board assembly may be malfunctioning.	Replace MAIN board assembly.	☞ "4.6.8 Replacing Suction Fan" p.4-76
		5. Power board assembly may be defective.	Replace power board assembly.	☞ "4.4.2 Replacing Power Board Assembly" p.4-41

Table 9-12 Symptoms, Check Items, and Actions for Noise Problems (Continued)

No.	Symptom	Check item	Action	Reference
2	Abnormal noise in waiting mode	1. Are there any foreign objects or obstacles at noise-generating position?	Remove obstacles and foreign objects.	-
		2. Is abnormal noise heard from board?	Replace applicable one of the following board assemblies. <ul style="list-style-type: none"> <li>• Power board assembly</li> <li>• Main board assembly</li> <li>• CR board assembly</li> <li>• Print head assembly</li> </ul>	📖 "4.4.2 Replacing Power Board Assembly" p.4-41 📖 "4.4.7 Replacing MAIN Board" p.4-49 📖 "4.8.9 Replacing Print Head" p.4-114
3	Abnormal noise is heard while head is moving laterally.	1. Does customer recognize ink discharge noise as abnormal noise?	Explain machine operations.	-
		2. Is abnormal noise caused by loose screw in covers?	Additionally tighten screws.	📖 "4.2 Removing Covers" p.4-7
		3. Is rattling noise heard when moving carriage laterally?	<ul style="list-style-type: none"> <li>• Remove dust from carriage bearing and roller strip.</li> <li>• After cleaning roller strip, always apply thin lubricant film over its surface using a grease-sprayed cloth.</li> </ul>	-
		4. Is abnormal noise heard from CR cable?	<ul style="list-style-type: none"> <li>• Remove twists from CR cable.</li> <li>• If abnormal noise sounds from between steel bearer and tube guide, replace tube guide.</li> </ul>	📖 "4.7.8 Replacing CR Tape Wire" p.4-99

Table 9-12 Symptoms, Check Items, and Actions for Noise Problems (Continued)

No.	Symptom	Check item	Action	Reference
3		5. Does the cable connected to CR board assembly on carriage contact with CR cover?	<ul style="list-style-type: none"> <li>If they contact with each other, adjust the cable position.</li> <li>If problem remains even after position adjustment, replace the cable.</li> </ul>	 <b>"4.7.8 Replacing CR Tape Wire" p.4-99</b>
		6. Is abnormal noise heard from CR driven pulley bearing?	Replace it.	 <b>"4.7.6 Replacing CR Driven Pulley" p.4-96</b>
		7. Is CR belt tension adjusted to specification?	Adjust CR belt tension.	 <b>"7.6 CR Speed Reduction Belt Tension Adjustment" p.7-27</b>
		8. Is abnormal noise heard from CR motor assembly?	Replace CR motor assembly.	 <b>"4.7.2 Replacing CR Motor Assembly" p.4-87</b>
4	Abnormal noise is heard during media feeding.	1. Is PF speed reduction belt slipping between PF speed reduction pulleys?	Replace PF speed reduction belt.	 <b>"4.6.2 Replacing PF Motor Assembly" p.4-61</b>
		2. Is abnormal noise heard from PF motor assembly?	Replace PF motor assembly.	 <b>"4.6.2 Replacing PF Motor Assembly" p.4-61</b>
		3. Is rough surface of grid roller partially worn out? 4. Is grid roller rotation heavy? Does rattling occur when it rotates?	If grid roller is contaminated with media dust, clean roller with a nylon brush.	 Operation Manual

### 9.3.5 Online Function Problems

Table 9-13 Symptoms, Check Items, and Actions for Online Function Problems

No.	Event/symptom	Check item	Action	Reference
1	Scaling does not work correctly.	1. Printer driver may be defective.	Update printer driver.	☞ Operation Manual
2	Mirror function does not work correctly.	2. Program ROM may be defective.	Update firmware.	☞ "7.3.5 Firmware Installation" p.7-12
3	Other functions do not work correctly.	3. Main board assembly may be damaged.	Replace MAIN board assembly.	☞ "4.4.7 Replacing MAIN Board" p.4-49
4	Printing position is incorrect.	1. Is CW adjustment inappropriate?	Perform adjustment.	☞ "5.7.5 Uni-D/Bi-D Low/High Adjustment" p.5-33
		2. Is adjustment of P_EDGE sensor inappropriate?	Perform adjustment.	☞ "7.9 P_EDGE Sensor Sensitivity Adjustment" p.7-36
		3. Printer driver may be defective.	Update printer driver.	☞ Operation Manual
		4. Program ROM may be defective.	Update firmware.	☞ "7.3.5 Firmware Installation" p.7-12
		5. Main board assembly may be damaged.	Replace MAIN board assembly.	☞ "4.4.7 Replacing MAIN Board" p.4-49

Table 9-13 Symptoms, Check Items, and Actions for Online Function Problems(Continued)

No.	Event/symptom	Check item	Action	Reference
5	Some data are not printed (missing).  Some data change to garbage.	1. Printer driver may be defective.	Update printer driver.	 Operation Manual
		2. Program ROM may be defective.	Update firmware.	 <b>"7.3.5 Firmware Installation" p.7-12</b>
		3. Is T fence contaminated or worn out?	<ul style="list-style-type: none"> <li>• If grease or dust collect: Wipe fence with a dry cloth.</li> <li>• If ink deposit presents: Wipe it off with cloth dampened with neutral detergent.</li> <li>• If contamination or deposit is too heavy: Replace T fence.</li> </ul>	 <b>"4.7.4 Replacing T Fence" p.4-91</b>
		4. Check "Encoder CR" from "Check 2: Test" - > "Test 5: Encoder" of self-diagnosis function.	<ul style="list-style-type: none"> <li>• Move carriage in both directions and check the numeral value on LCD. If the numeral value doesn't change normally, check MAIN board assembly connector J12.</li> <li>• Replace T fence.</li> <li>• Replace CR motor assembly.</li> <li>• Replace CR board assembly.</li> <li>• Replace CR cable.</li> </ul>	 <b>"4.4.7 Replacing MAIN Board" p.4-49</b>   <b>"4.7.4 Replacing T Fence" p.4-91</b>   <b>"4.7.2 Replacing CR Motor Assembly" p.4-87</b>  <b>"4.8.3 Replacing CR Board Assembly" p.4-106</b>   <b>"4.7.8 Replacing CR Tape Wire" p.4-99</b>
		5. Main board assembly may be malfunctioning.	Replace MAIN board assembly.	 <b>"4.4.7 Replacing MAIN Board" p.4-49</b>

Table 9-13 Symptoms, Check Items, and Actions for Online Function Problems(Continued)

No.	Event/symptom	Check item	Action	Reference
6	Media feed after printout is excessive.	1. Are print start position and layout method set properly?	Update printer driver.	☞ Operation Manual
		2. Printer driver setting may be unsuitable.	Modify the value to an appropriate value (Media size).	☞ Operation Manual
		3. Program ROM may be defective.	Update firmware.	☞ "7.3.5 Firmware Installation" p.7-12
		4. Main board assembly may be damaged.	Replace MAIN board assembly.	☞ "4.4.7 Replacing MAIN Board" p.4-49

### 9.3.6 Other Problems

Table 9-14 Symptoms, Check Items, and Actions

No.	Event/symptom	Check item	Action	Reference
1	Machine hangs up.	1. Internal process of MAIN board assembly may be abnormal.	Initialize parameters and reenter or modify them.	☞ "7.3.1 Parameter Backup" p.7-7
		2. Main board assembly may be damaged.	Replace MAIN board assembly.	☞ "4.4.7 Replacing MAIN Board" p.4-49
2	Machine power is shut off during printing.	1. Is power cable shorted?	Check by a circuit tester.	-
		2. Is there any electric leakage?	Check for short to chassis ground due to damaged cable insulation.	-
		3. Check power supply voltage (DC5V).	Replace power board assembly.	☞ "4.4.2 Replacing Power Board Assembly" p.4-41
		4. Check power supply voltage (DC24V).	Replace power board assembly.	☞ "4.4.2 Replacing Power Board Assembly" p.4-41

Table 9-14 Symptoms, Check Items, and Actions (Continued)

No.	Event/symptom	Check item	Action	Reference
		5. Power board assembly may be defective.	Replace power board assembly.	 "4.4.2 Replacing Power Board Assembly" p.4-41
3	Ink cartridge cannot be inserted.	1. Is pointer of ink sensor assembly deformed or damaged?	Replace ink sensor assembly.	 "4.10.4 Replacing Cartridge Holder Assembly" p.4-132
		2. Is ink NOT sensor (black resin lever switch) of ink sensor assembly damaged?	Replace ink sensor assembly.	 "4.10.4 Replacing Cartridge Holder Assembly" p.4-132
4	Ink spills out of waste fluid box.	1. Check inside of waste fluid box.	Replace waste ink absorber sheet.	-
		2. Check presence of ink cartridge from "Ctrl 2: Sensor" -> "Sen.3: etc" -> "12: Ink END" of self-diagnosis function.	Remove all cartridges and lightly push the switch of ink NOT sensor (BK, C, M, Y) with something with a flat tip such as ballpoint pen to check that the display of "12: Ink END" changes.	 "5.5.4 Sensor Menu" p.5-15
		3. Is waste fluid tube coming out of flushing box bent?	Reinstall it.	 "4.6.11 Replacing Flushing Tray" p.4-80
5	Ink spills out of flushing box.	1. Is flushing box clogged with dust?	<ul style="list-style-type: none"> <li>Remove dust.</li> <li>Replace flushing box assembly.</li> </ul>	 "4.6.11 Replacing Flushing Tray" p.4-80
		2. Is waste fluid tube coming out of flushing box bent?	Reinstall waste fluid tube.	-
		3. Does ink accumulate in ink absorber sheet in flushing box?	Replace flushing box assembly.	 "4.6.11 Replacing Flushing Tray" p.4-80

Table 9-14 Symptoms, Check Items, and Actions (Continued)

No.	Event/symptom	Check item	Action	Reference
6	Ink spills around X rail.	1. Extension tube may be disconnected under ink system assembly.	<ul style="list-style-type: none"> <li>Remove maintenance base assembly and check if extension tube is connected.</li> <li>Replace pump motor assembly.</li> <li>Replace ink system assembly.</li> </ul>	 <a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a>   <a href="#">"4.10.1 Replacing Ink ID Board Assembly" p.4-125</a>
		2. Ink tube may be cut.	Replace ink tube.	 <a href="#">"4.7.10 Replacing Ink Tube" p.4-102</a>
		3. Print head, MAIN board assembly and CR board assembly may be defective.	After removing ink cartridge, check if each board operates properly.	 <a href="#">"4.4.7 Replacing MAIN Board" p.4-49</a>  <a href="#">"4.8.9 Replacing Print Head" p.4-114</a>  <a href="#">"4.8.3 Replacing CR Board Assembly" p.4-106</a>

### 9.3.7 Problems in Using Dedicated Network Software

Table 9-15 Problems in Using Dedicated Network Software

No.	Event/symptom	Check item	Action	Reference
1	MUTOH Maintenance Assistant does not start up.	-	Perform reinstallation and initial setting.	 Network Administration Manual
2	"Transfer failed (Data timeout)" is displayed during transfer.	1. Are printer and PC connected correctly with network cable (crossover cable for direct connection and straight cable for connection via hub)?	Yes: Proceed to (2). No: Connect printer and PC correctly.	 <a href="#">"7.3.3 Required Environment" p.7-8</a>

Table 9-15 Problems in Using Dedicated Network Software (Continued)

No.	Event/symptom	Check item	Action	Reference
		2. Is PC IP address appropriate?	Yes: Proceed to (3). No: Adjust TCP/IP properties from [Properties] of [Local Area Connection] in [Network Connections] setting of PC. PC and printer must have the same subnet address (i.e. 192.168.1.1/24 and 192.168.1.253).	 <b>"7.3.3 Required Environment" p.7-8</b>
		3. Is any device of the same IP address as PC or printer connected to hub?	Yes: Disconnect the applicable device from network. No: Proceed to (4).	-
		4. Is printer started in board manager mode and only POWER LED turned on?	Yes: Proceed to (5). No: Start printer in board manager mode. If LCD displays nothing, engine component may be defective or firmware may not be installed (including power cutoff due to power failure during installation or other causes.)	 <b>"7.3.3 Required Environment" p.7-8</b>
		5. Is printer IP address appropriate? (Check address according to Section 6.3.)	Yes: Proceed to (6). No: Engine board may be defective	 <b>"4.4.7 Replacing MAIN Board" p.4-49</b>
		6. Is LAN communication between PC and other device available?	Yes: Connect PC with other device with LAN cable and check with method such as ping command. No: PC or engine board may be defective.	 <b>"4.4.7 Replacing MAIN Board" p.4-49</b>

Table 9-15 Problems in Using Dedicated Network Software (Continued)

No.	Event/symptom	Check item	Action	Reference
3	"Error received: Buffer overflow." is displayed during transfer.	Firmware size is too large. Check if transferred firmware is an appropriate file.	<p>Printer repeats buzzer operation in short cycles as well as display of the message shown below on LCD. All LEDs of ROLL MEDIA, CUT MEDIA, COLOR and MONOCHROME also flash simultaneously.</p> <p>Transfer failed</p> <p>Data format error</p> <p>To stop the buzzer, press any key except for the power key once.</p> <p>To return to status in which installation is available, press any key except for the power key once again.</p>	 <b>"7.3.5 Firmware Installation"</b> <b>p.7-12</b>

# 10 Appendix

<b>10.1 Introduction .....</b>	<b>10- 2</b>
<b>10.2 Wiring Diagram .....</b>	<b>10- 2</b>
<b>10.3 Maintenance Part List.....</b>	<b>10- 2</b>
<b>10.4 Exploded View.....</b>	<b>10- 7</b>

## 10.1 Introduction

This chapter provides referential information such as service data and exploded views.

## 10.2 Wiring Diagram

For wiring diagram, see information below.

**TIP**

 Separate sheet “Wiring Diagram” p.1

## 10.3 Maintenance Part List

The following table lists the maintenance parts per unit. The part number below is identical to that of the exploded view.

Table 10-1 X Rail Assembly

No.	Part name	Part number	Remarks
1	X speed reduction belt	DF-43883	Common with VJ26
2	Thermistor assembly	DF-44115	For after-heater
3	Thermistor assembly	DF-46639	For platen heater
4	AC inlet, large, 15A	DF-48402	Common with VJ26
5	Power board assembly	DF-48975	Common with VJ12
6	PF_ENC_A0_assembly	DF-48985	Common with VJ26
7	PF motor assembly	DF-49020	Common with VJ26
8	Cooling fan (24V) assembly	DF-49022	Common in VJ series
9	CR_HP sensor, lever sensor	DF-49471	Common parts for the CR origin sensor and the lever sensor
10	HEATER RELAY board assembly	DF-49661	Common in VJ series
11	MAIN board assembly	DF-49658	Common with VJ12
12	HEATER CONT board assembly	DF-49660	Common with VJ12
13	Fuse	DF-49683	Common in VJ series
14	Suction fan	DG-40311	Common with VJ26
15	PF speed reduction pulley	DG-40312	Common with VJ26

Table 10-1 X Rail Assembly (Continued)

No.	Part name	Part number	Remarks
16	Media holder	DG-40313	Common with VJ26
17	Flushing tray (VJ)	DG-40317	Common with VJ26
18	Flushing absorber	DG-40318	Common with VJ26
19	Platen nonreflective tape	DG-40319	Common with VJ26
20	PF_ENC scale	DG-40320	Common with VJ26
21	CONTROL to RELAY FFC1 (VJ26)	DG-40321	Common with VJ26
22	VJ16 platen heater assembly	DG-40348	
23	P_REAR_R sensor assembly (VJ16)	DG-40349	
24	VJ16 after-heater assembly	DG-40350	
25	VJ16 pre-heater assembly	DG-40351	
26	Thermistor assembly	DG-?????	For pre-heater
27	Damper L_assembly	DF-48141	Common with RH2

Table 10-2 Y Rail Assembly

No.	Part name	Part number	Remarks
1	CR driven pulley assembly	DF-43868	Common with VJ26
2	CR motor assembly	DF-43869	Common with VJ26
3	CR drive pulley assembly	DF-43870	Common with VJ26
4	CR speed reduction belt	DF-43940	Common with VJ26
5	Pressure roller	DF-46666	Common with VJ26
6	CR_HP sensor, lever sensor	DF-49471	Common parts for the CR origin sensor and the lever sensor
7	T fence (64)	DF-43901	Common with 8000 series
8	Heater junction board assembly	DG-40135	Common in VJ series
9	VJ16_CR_FFC_assembly	DG-40352	
10	Steel belt (64)	DF-43937	Common with 8000 series

Table 10-3 Cursor Assembly

No.	Part name	Part number	Remarks
1	Cutter solenoid assembly	DF-42234	Common with VJ12
2	O-ring, M6	DF-46671	Common with VJ26
3	O-ring, M7	DF-46672	Common with VJ26
4	Damper L_assembly	DF-48141	Common with VJ26
5	CR_ENC assembly	DF-48986	Common with VJ26
6	P_EDGE assembly	DF-48983	Common with VJ12
7	Solenoid spring assembly	DF-49062	Common with VJ12
8	CR board assembly	DF-49659	Common with VJ12
9	Print head	DF-49684	Common with VJ12
10	VJ cursor roller arm assembly	DG-40326	Common with VJ26
11	VJ16 cursor head base assembly	DG-40353	
12	Head FFC (VJ16)	DG-40354	

Table 10-4 Maintenance Assembly

No.	Part name	Part number	Remarks
1	Maintenance assembly	DF-49686	Common with VJ12
2	Cleaner head assembly	DF-49687	Common with VJ12
3	VJ16 flushing box assembly	DG-40355	
4	VJ16 maintenance assembly	DG-40356	
5	VJ16 pump absorber assembly	DG-40357	

Table 10-5 IH Assembly

No.	Part name	Part number	Remarks
1	Ink ID board assembly	DF-43968	Common with VJ26
2	O-ring, M6	DF-46671	Common with VJ26
3	O-ring, M7	DF-46672	Common with VJ26
4	Frame assembly, hook	DF-46700	Common with VJ26
5	Two-way valve assembly	DF-47837	Common with VJ26

Table 10-5 IH Assembly (Continued)

No.	Part name	Part number	Remarks
6	VJ cartridge holder assembly	DG-40339	Common with VJ26
7	Ink cartridge control cable (VJ26)	DG-40340	Common with VJ26
8	VJ subtank assembly	DG-40341	Common with VJ26
9	VJ subtank lower absorber assembly	DG-40342	Common with VJ26

Table 10-6 Leg Assembly

No.	Part name	Part number	Remarks
1	Waste fluid level switch assembly	DF-44172	Common with VJ26
2	Waste fluid bottle	DF-47867	Common with VJ26

Table 10-7 Roll Media Tray Assembly

No.	Part name	Part number	Remarks
1	VJ16_L roll media holder assembly	DG-40358	
2	VJ16_R roll media holder assembly	DG-40359	

Table 10-8 Cover Assembly

No.	Part name	Part number	Remarks
1	Cover sensor (C) assembly	DF-47864	Common for the front cover sensor and the maintenance cover sensor
2	Panel unit assembly	DF-48977	Common in VJ series
3	Cooling fan (24V) assembly	DF-49022	Common with VJ26
4	Panel sheet	DG-40170	
5	Front cover gear	DG-40347	
6	Damper gear (sintered)	DG-40346	
7	Panel FFC (VJ16)	DG-40360	
8	F cover R sensor assembly (VJ16)	DG-40361	

Table 10-8 Cover Assembly (Continued)

No.	Part name	Part number	Remarks
9	F cover L sensor assembly (VJ16)	DG-40362	
10	Maintenance cover sensor	DG-40366	

Table 10-9 Take-up Unit Assembly (Optional)

No.	Part name	Part number	Remarks
1	VJ take-up motor assembly	DG-40471	Common with VJ12
2	Drive roller	DG-40472	Common with VJ12
3	Holder roller	DG-40473	Common with VJ12
4	Holder roller L	DG-40474	Common with VJ12
5	Drive collar	DG-40475	Common with VJ12
6	VJ take-up scroller 12	DG-40476	Common with VJ12
7	VJ take-up scroller 16	DG-40477	Common with VJ12
8	CR_HP sensor, lever sensor	DF-49471	Common with VJ12
9	VJ take-up CNT board assembly	DG-40478	Common with VJ12
10	Power source (for foreign use)	DF-44506	Common with RJ-8000
11	VJ take-up SW board assembly	DG-40479	Common with VJ12
12	W_ON sensor assembly	DG-40480	Common with VJ12
13	W_OFF sensor assembly	DG-40481	Common with VJ12
14	AC cable assembly	DG-40482	Common with VJ12
15	DC cable assembly	DG-40483	Common with VJ12
16	Power cable 10A (for U.S. use)	DG-40484	Common with VJ12
17	Power cable 7A (for domestic use)	DG-40485	Common with VJ12

## 10.4 Exploded View

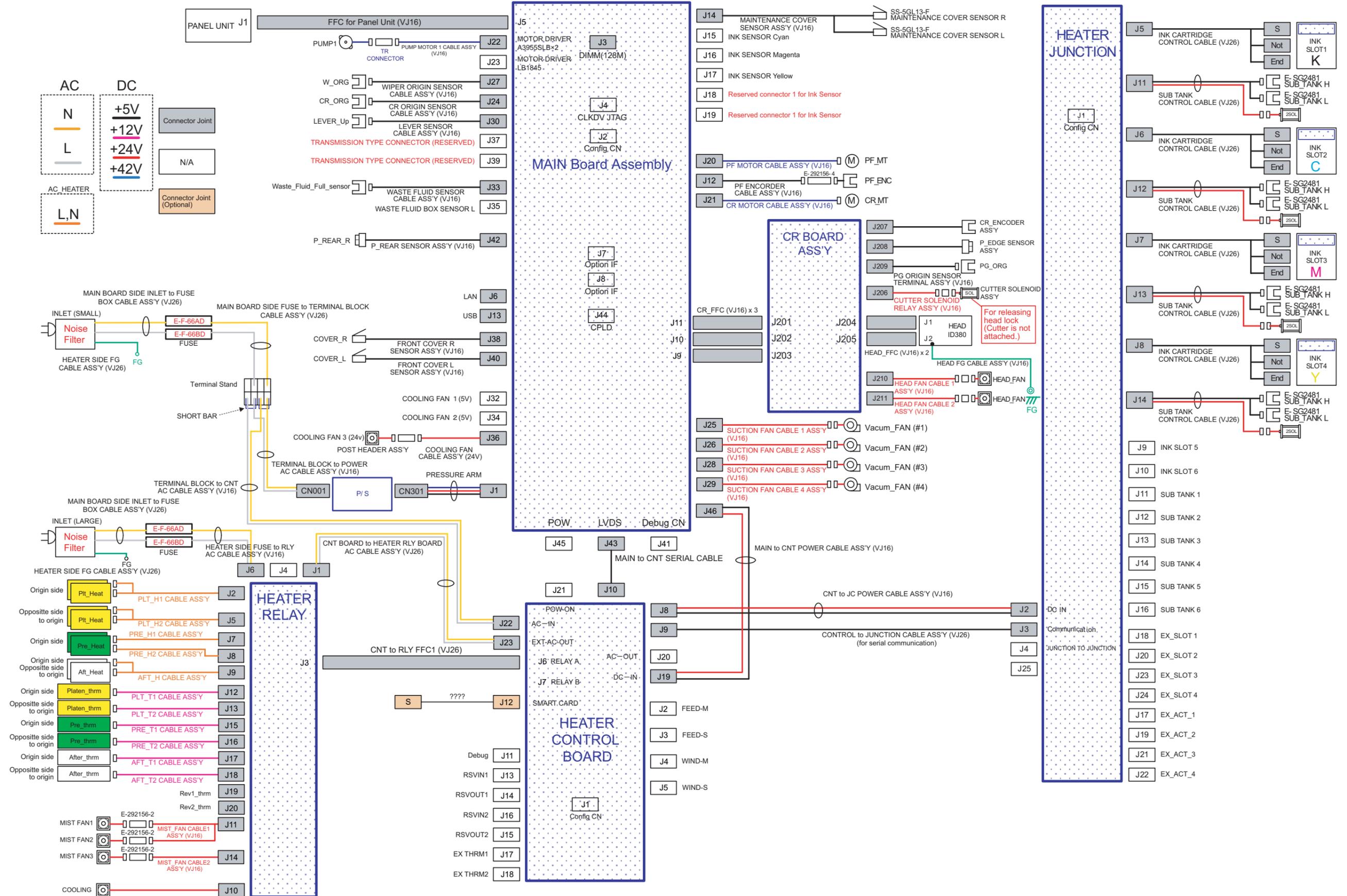
For exploded views and the maintenance parts, see information below.

TIP

 **Separate sheet “Exploded View” p.2-p.10**

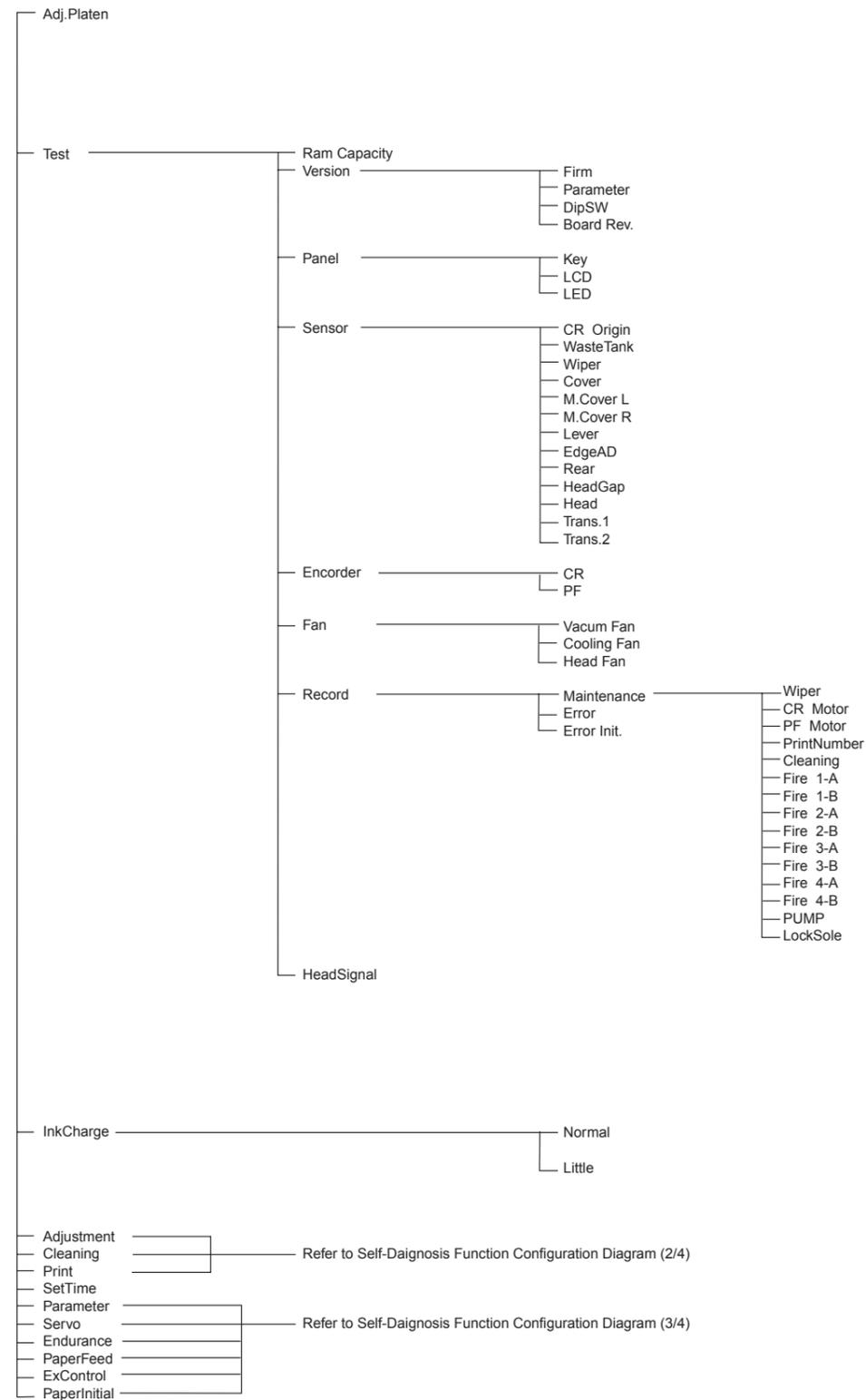
---



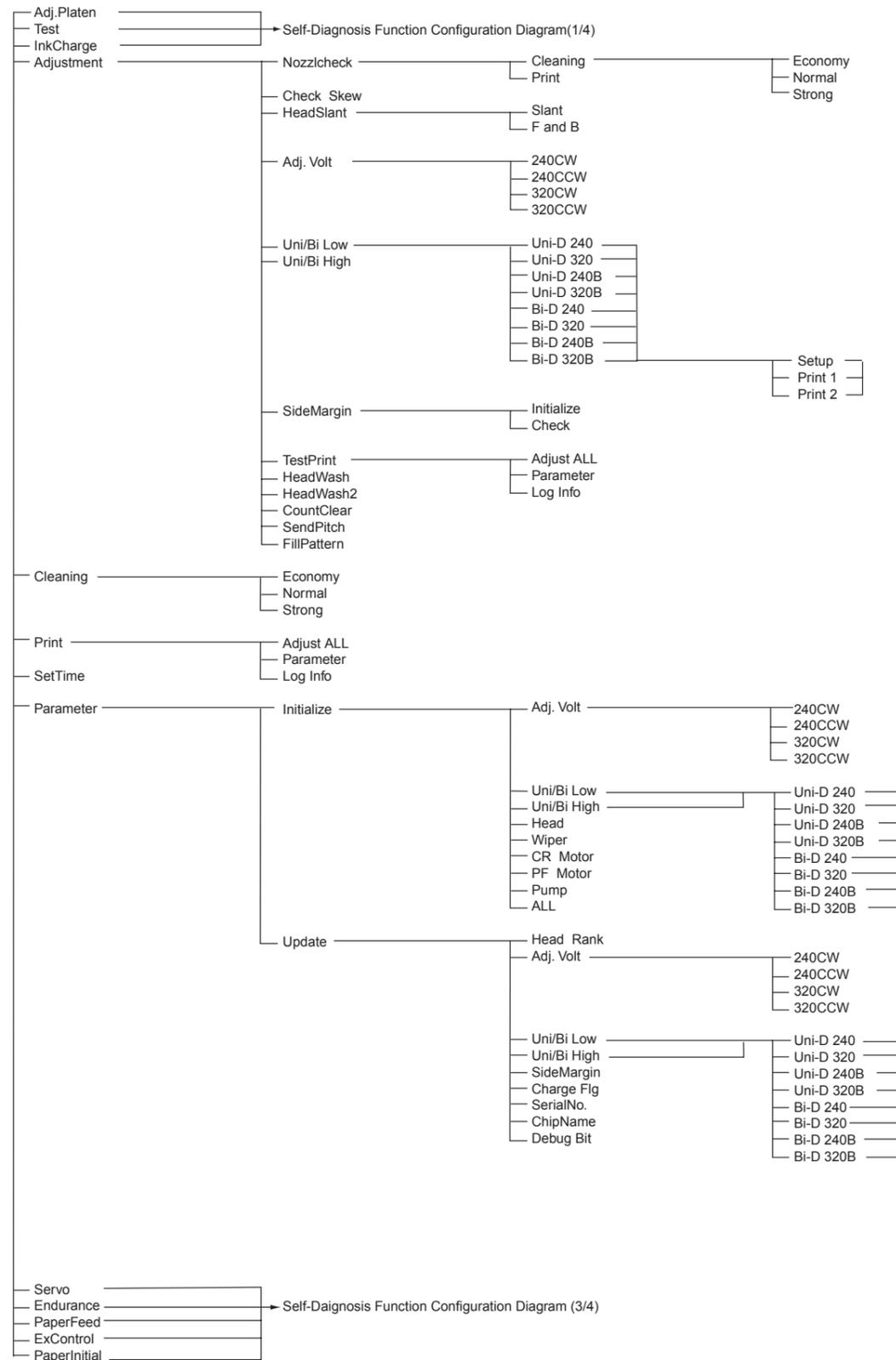


# Self-Diagnosis Function Configuration Diagram (1/3)

for Ver. 1.05d

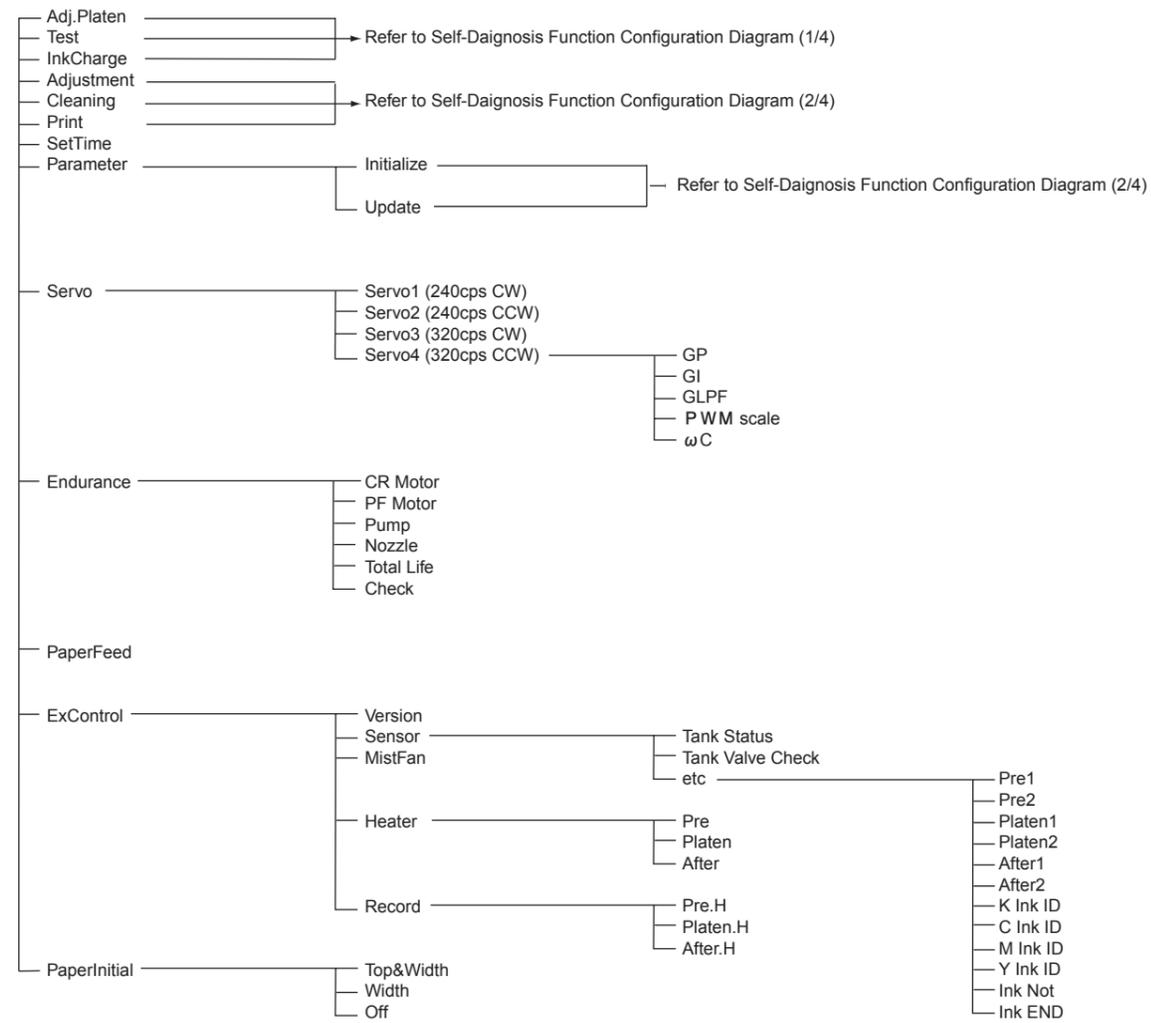


# Self-Diagnosis Function Configuration Diagram (2/3)

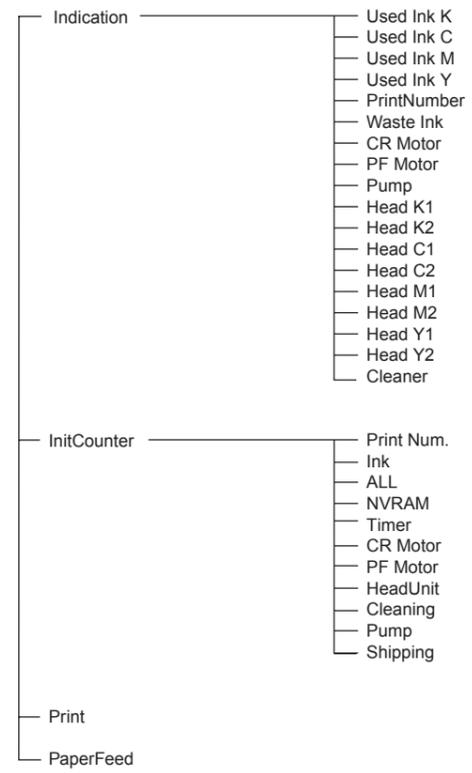


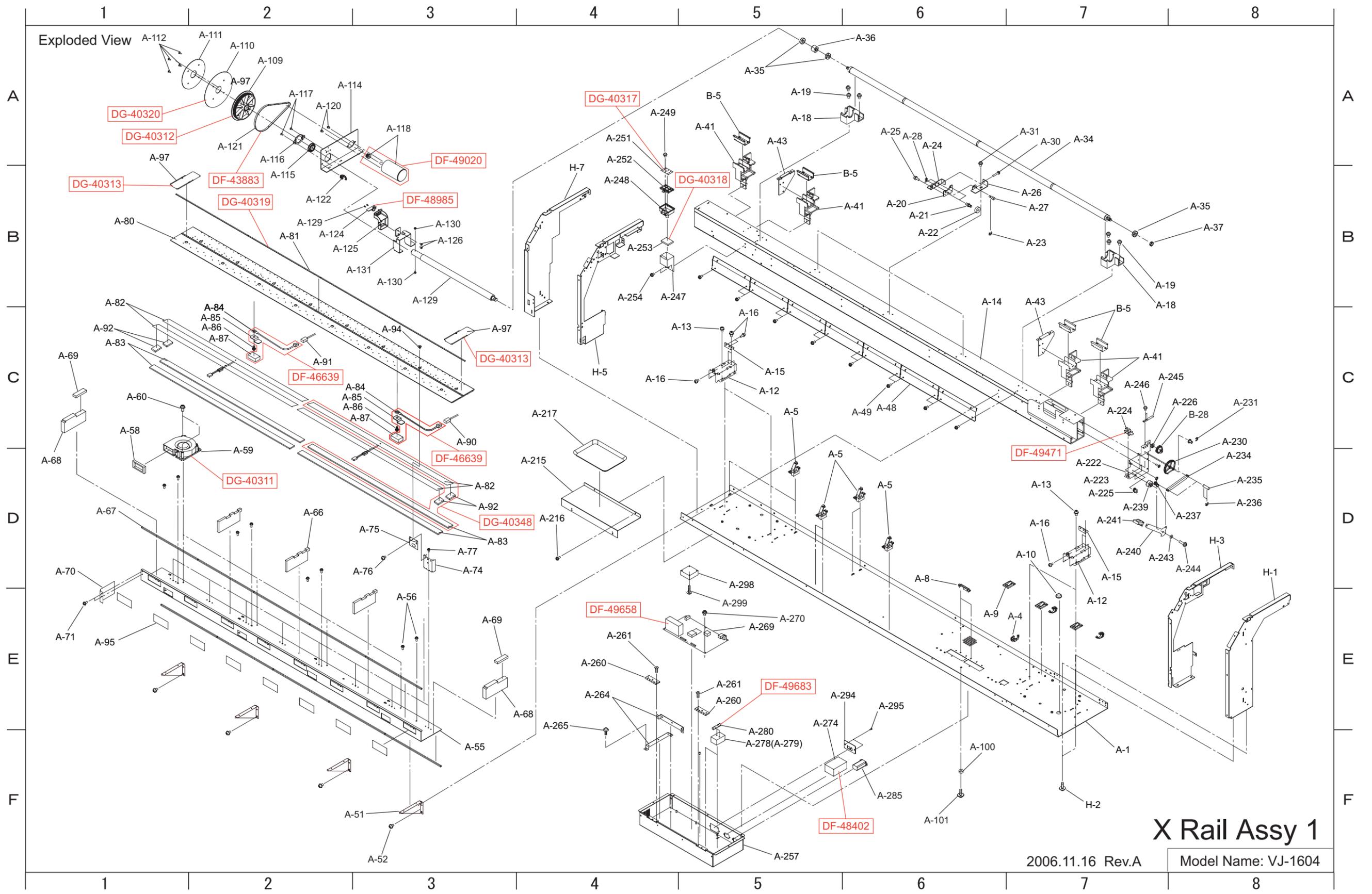
# Self-Diagnosis Function Configuration Diagram (3/3)

for Ver. 1.05d



# Maintenance Mode 2 Configuration Diagram for Ver.1.05d

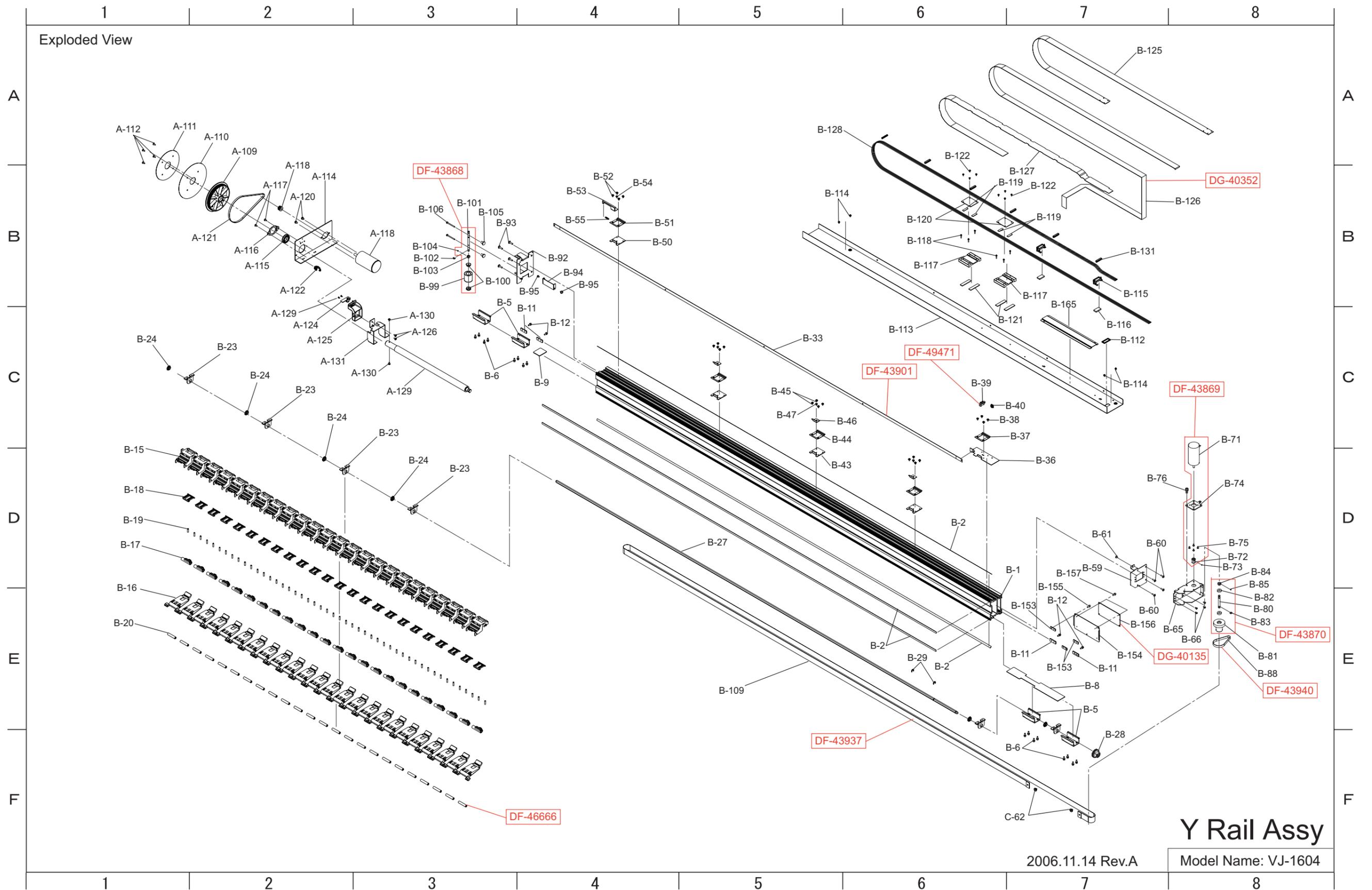


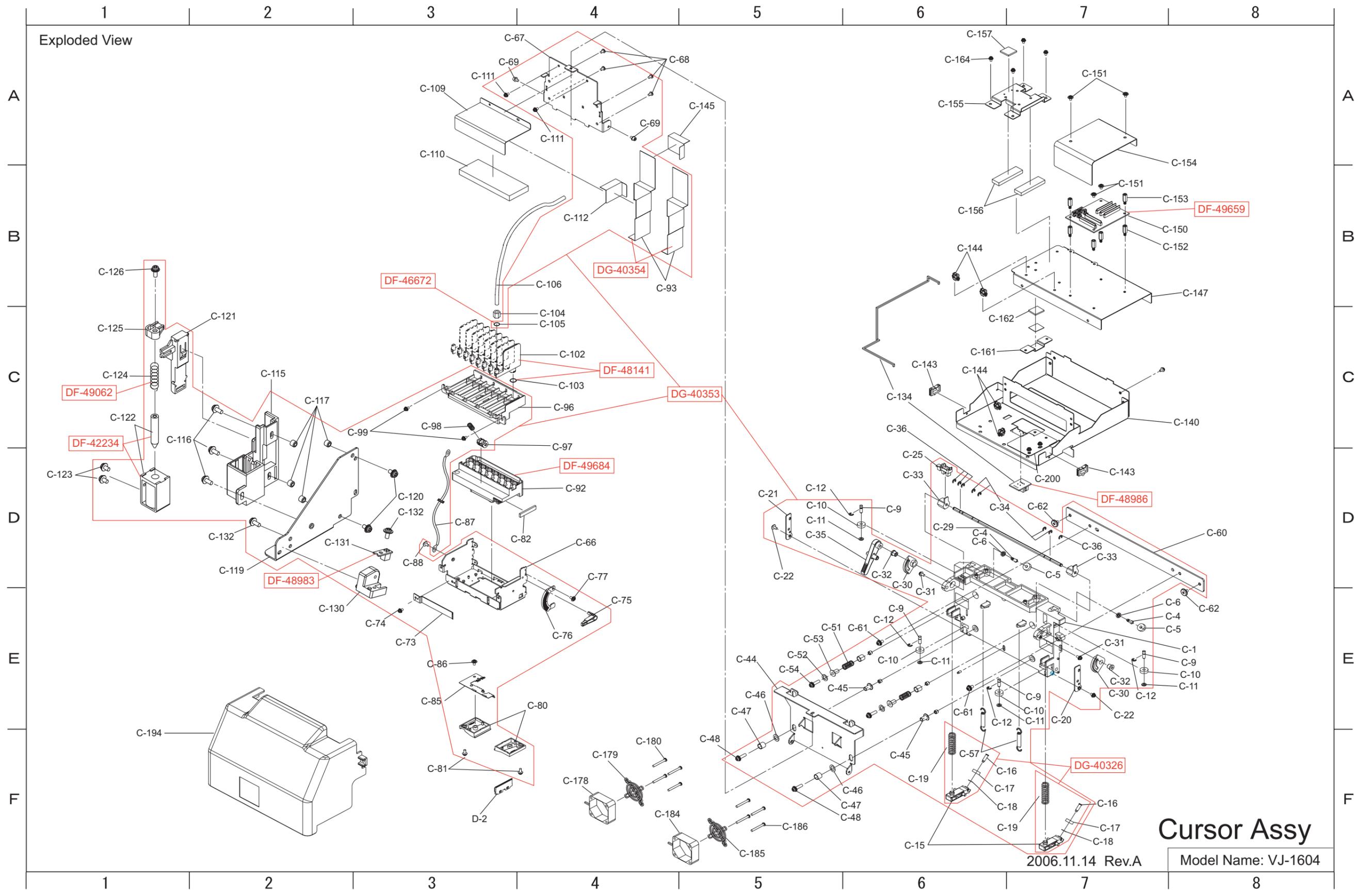


# X Rail Assy 1

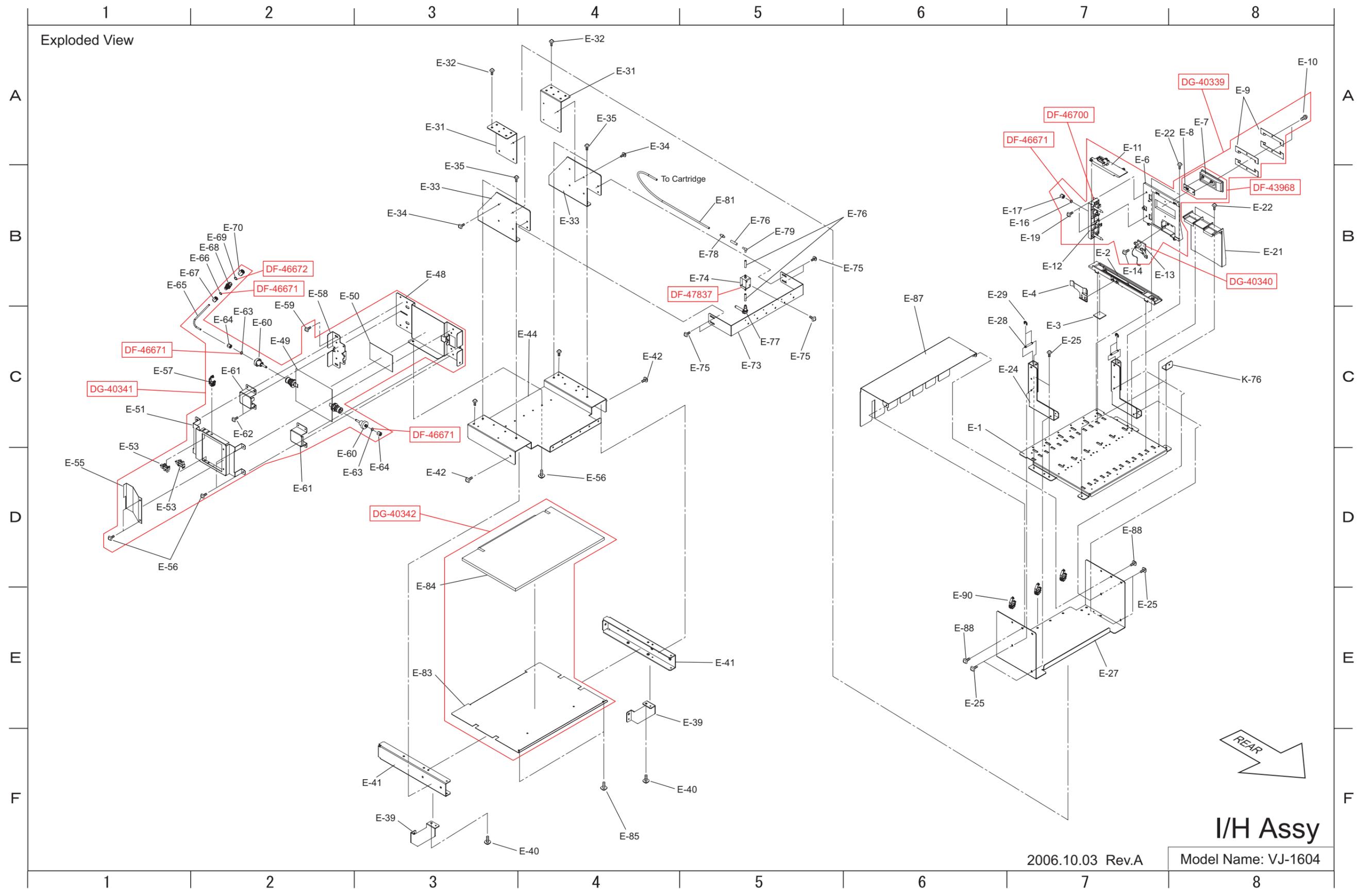
2006.11.16 Rev.A Model Name: VJ-1604

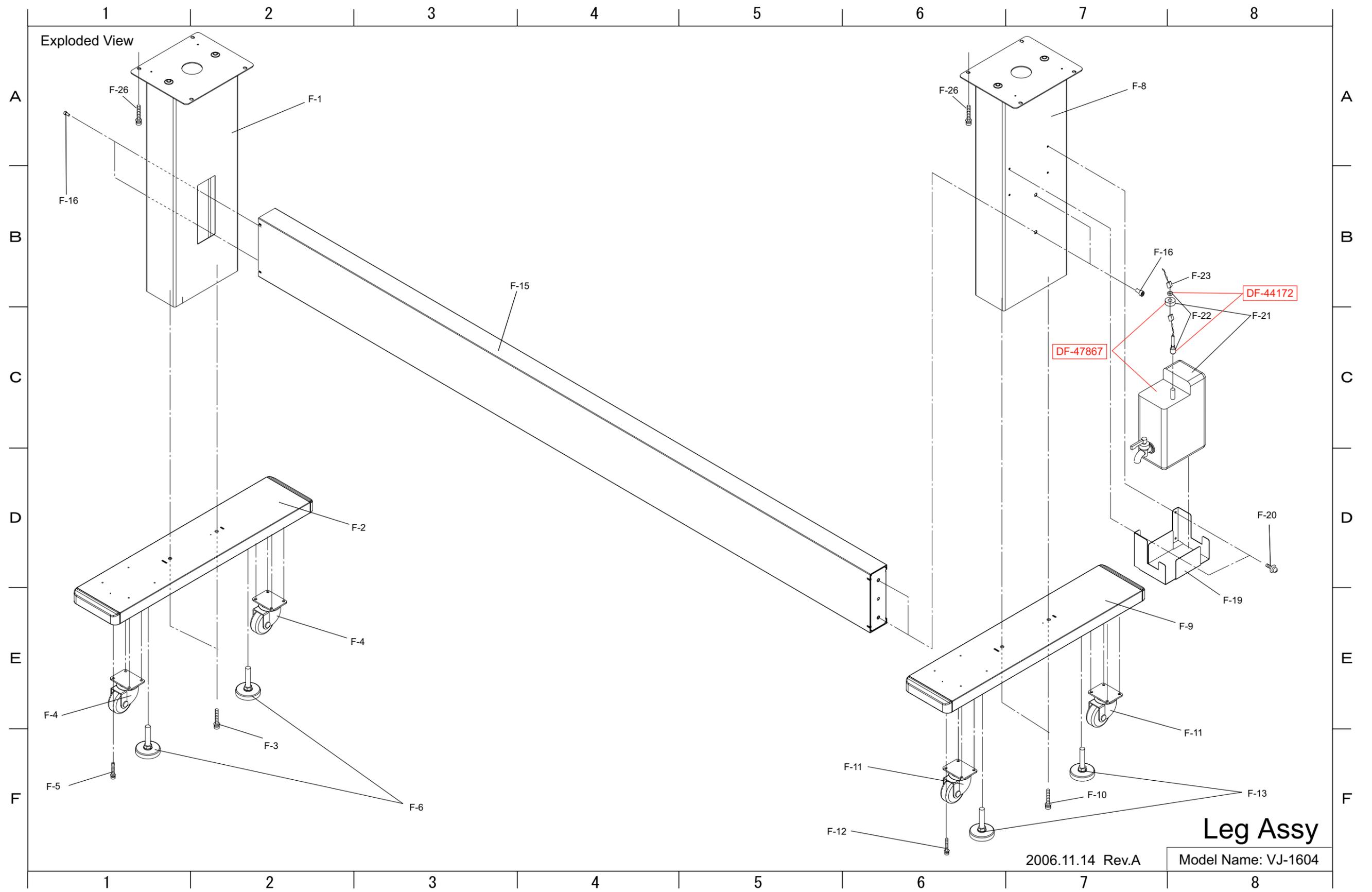


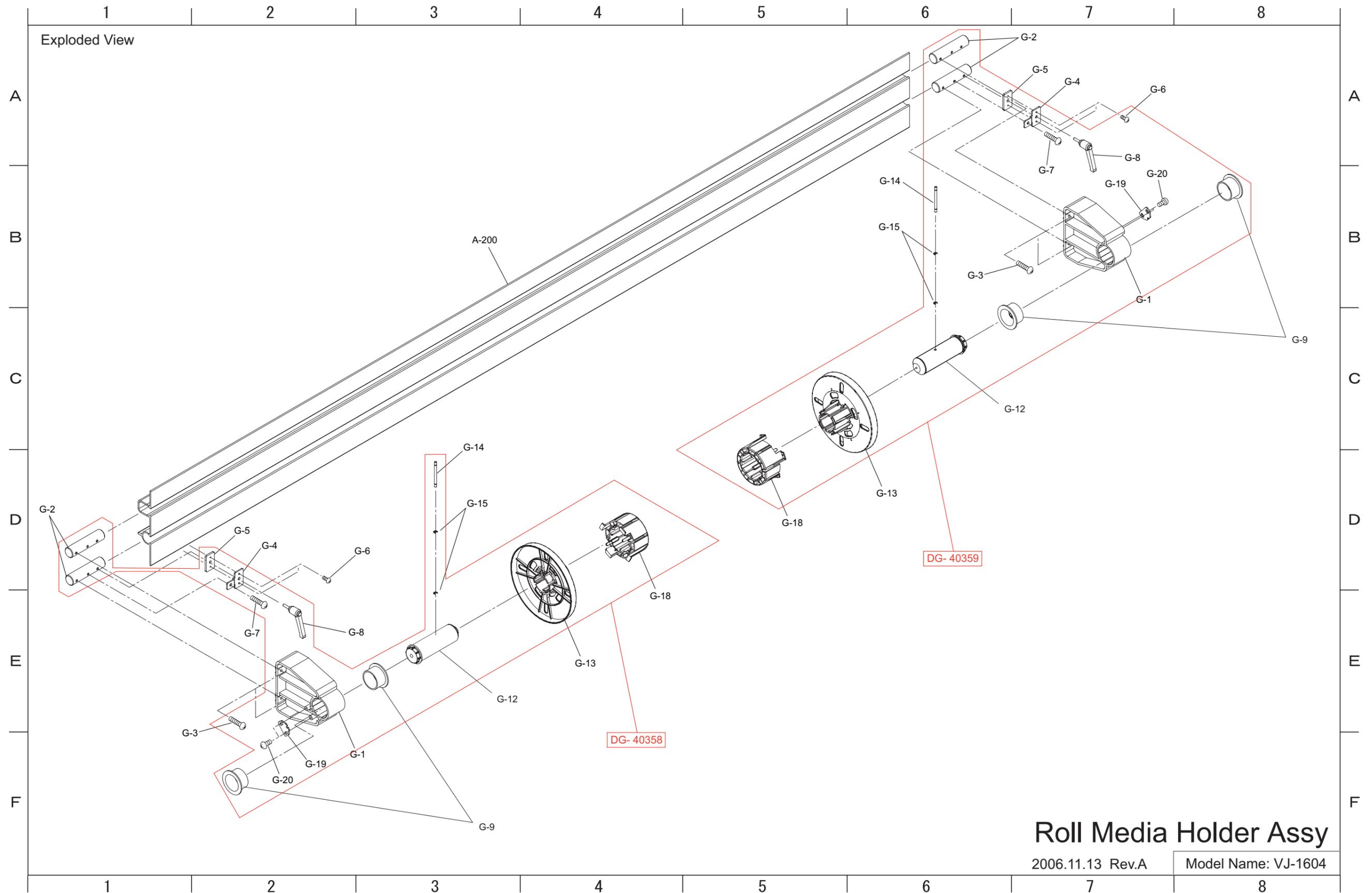








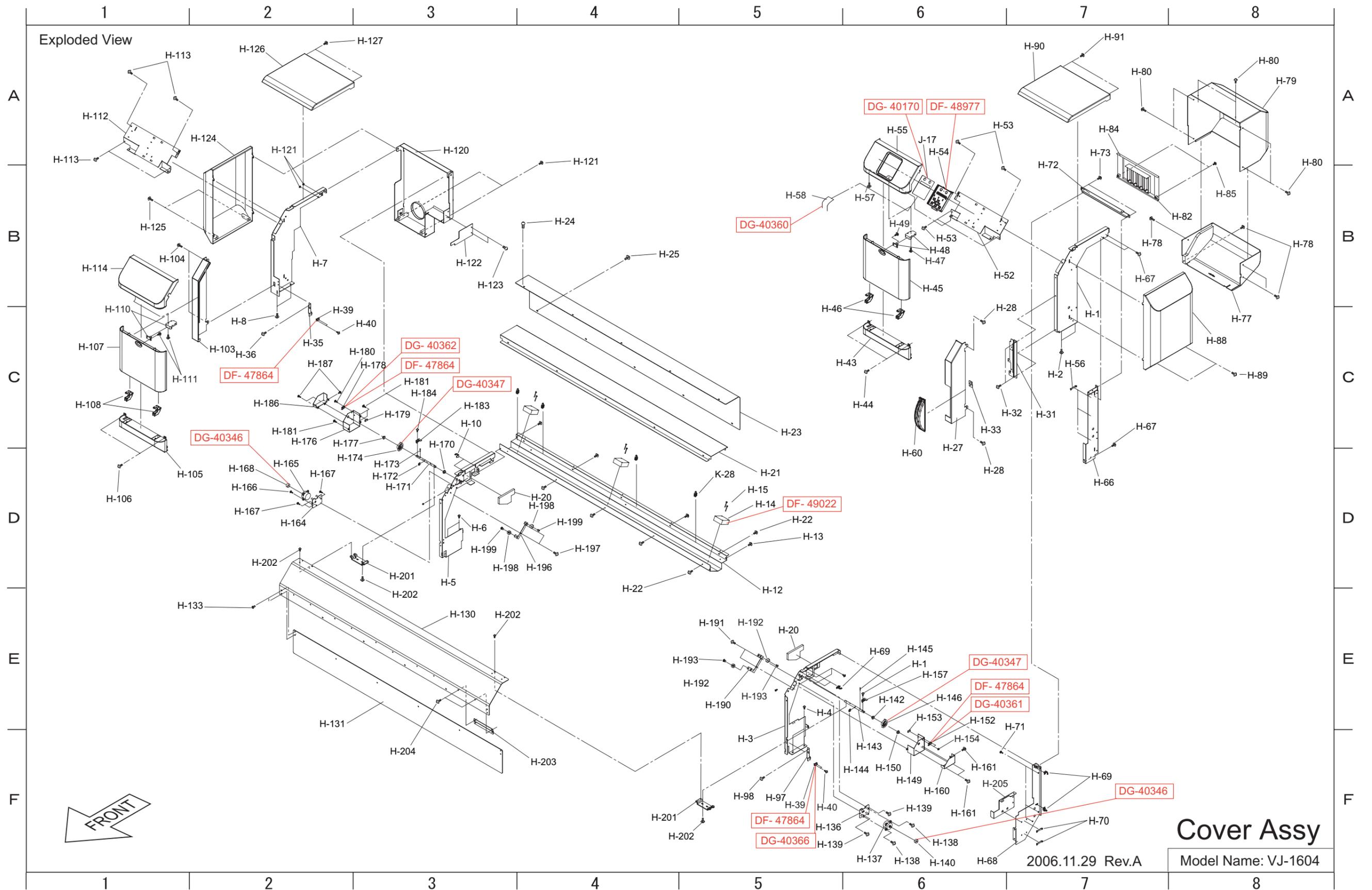




# Roll Media Holder Assy

2006.11.13 Rev.A

Model Name: VJ-1604









# MUTOH

---

**MUTOH INDUSTRIES LTD.**  
Tel.:81-(0)3-5486-7145  
Fax:81-(0)3-5486-7163  
E-mail:ibd@mutoh.co.jp  
<http://www.mutoh.co.jp>

**MUTOH AMERICA INC.**  
Tel.:1-480-968-7772  
Fax:1-480-968-7990  
E-mail:sales@mutoh.com  
<http://www.mutoh.com>

**MUTOH EUROPE N.V.**  
Tel.:32-(0)59-561400  
Fax:32-(0)59-807117  
E-mail:mutoh@mutoh.be  
<http://www.mutoh.be>

**MUTOH DEUTSCHLAND GmbH.**  
Tel.:49-(0)2159-913430  
Fax:49-(0)2159-913456  
E-mail:Mutoh-Sales@t-online.de