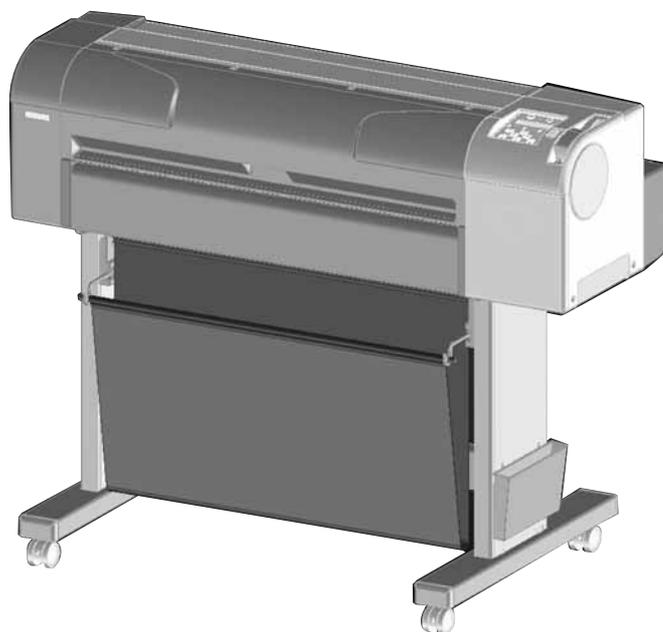


MUTOH

MAINTENANCE MANUAL

Full-Color Inkjet Plotter RJ-900C / RJ-901C



Use this manual for the maintenance
and inspection of machine.

Rev.

RJ91C90-M-02

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.

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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 Plotter (RJ-901C and RJ-900C).

This is a common maintenance manual for RJ-901C and RJ-900C.
If not mentioned, the descriptions are common for the both models.

This manual is prepared for the maintenance personnel of this plotter.
Before using this plotter, 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 plotter for the both operators of the plotter and maintenance personnel.
2 Product Overview	Explains the features, part names, and functions of the plotter.
3 Specifications	Explains the specifications of the plotter.
4 Parts Replacement	Explains the procedures of replacement and removal of the service parts of the plotter.
5 Self-Diagnostic Mode	Explains the self-diagnostic functions of the plotter.
6 Maintenance Mode2	Explains the maintenance mode2 of the plotter.
7 Adjustment	Explains the adjusting procedures of the plotter parts.
8 Maintenance	Explains daily maintenance of the plotter.
9 Troubleshooting	Explains troubles that may occur when using the plotter and how to solve them.
10 Appendix	Explains the maintenance information and the exploded views for this plotter.

NOTE

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

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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 plotter 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

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 plotter in the following areas. Doing so may result in the plotter 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 plotter. Doing so may result in the plotter tipping or falling over and causing injury.
 - Do not cover the ventilation hole of your plotter with cloth, such as a blanket or table cloth. Doing so could obstruct ventilation and cause fire.
 - Do not place the plotter in humid and dusty areas. Doing so may result in electrical shock or fire.
 - Make sure to use the power cable packed with the plotter 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 plotter.
 - 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 plotter.
Failure to do so could result in damage to the plotter.
-

 **CAUTION**

- Assembling and disassembling of the plotter 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 plotter 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.
- There are some remaining ink in the tubes. Be careful that the ink is not spilled from the tube outlet onto the plotter or items close to the plotter.
- If you need to operate the plotter with the cover removed for maintenance, be careful not to get hurt by the driving parts.
- Never lube the plotter mechanism with lube other than that designated by MUTOH. Doing so may damage the parts or shorten the lifetime.
- 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 shortcircuit 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 shortcircuit the inner terminal of the connector. That may damage the elements on the board.
- Make sure the followings when performing cutter endurance operation.
 - Install usable ink cartridges.
 - Make sure media initialization is finished.
Performing cutter endurance operation without an ink cartridge may make the cutter go down beyond the cutting range and damage the product.
- Make sure the power of the plotter is OFF before performing the parameter backup.
Performing the parameter backup with the power ON may damage the main board or the data may not be installed properly.
- Make sure the power of the plotter is OFF before installing the firmware. Installing the firmware with the power ON may damage the main board assembly or the data may not be properly installed.

- Make sure there is sufficient space around the plotter 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 plotter 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

The locations of warning labels are shown below.

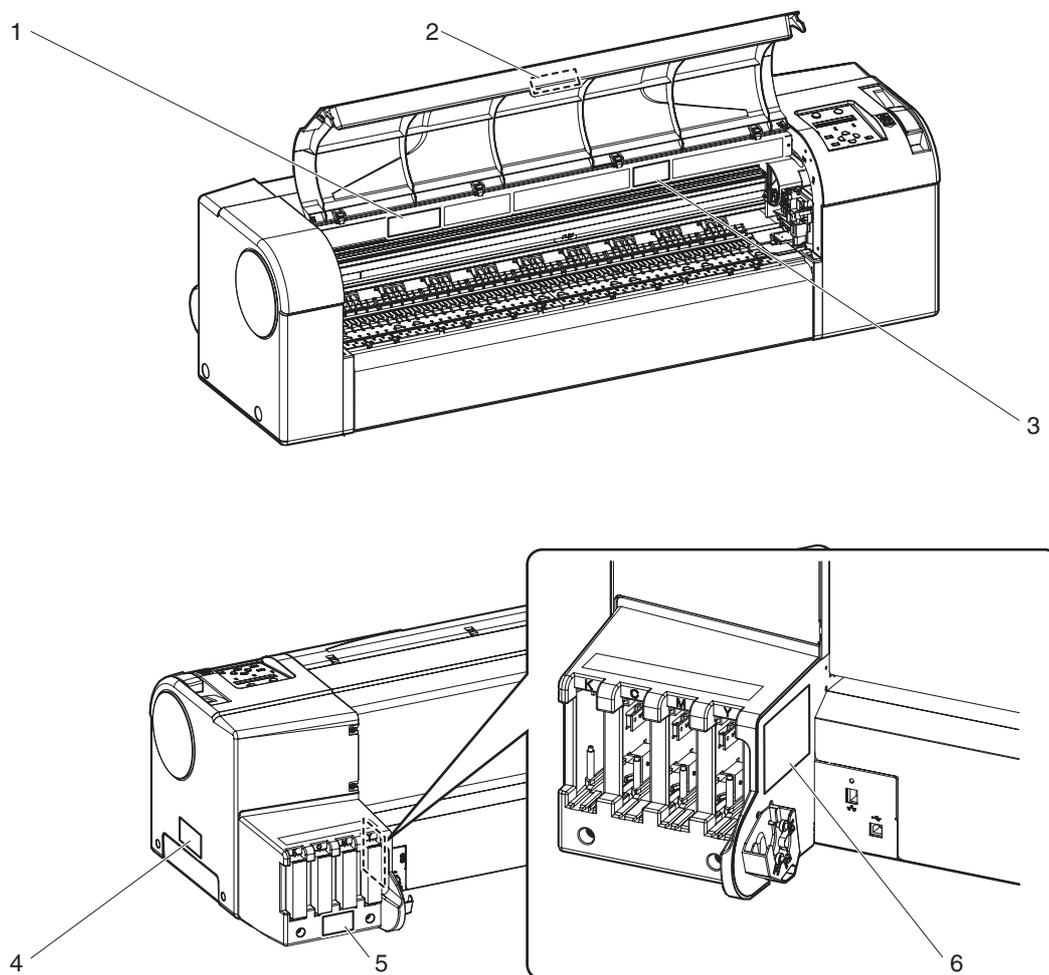
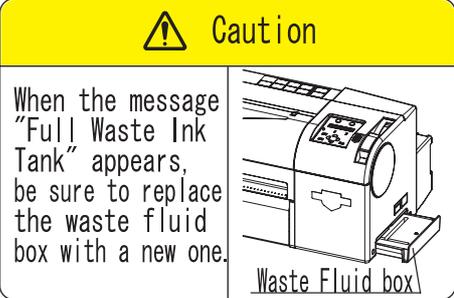
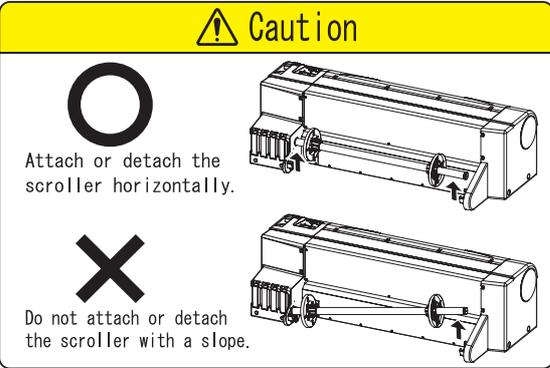


Table 1-2 List of Warning Labels

No.	Warning label type
1	<p data-bbox="715 1574 970 1603">(T fence handling caution)</p> <div data-bbox="555 1615 1126 1841" style="border: 1px solid black; padding: 5px;">  </div>

Table 1-2 List of Warning Labels

No.	Warning label type
2	<p>(Front cover open/close caution)</p> 
3	<p>(Cutter caution)</p> 
4	<p>(Waste fluid box full caution)</p> 
5	<p>(Ink replacement caution)</p> 
6	<p>(Scroller desorption caution)</p> 

1.5 Operation Labels

This chapter describes the operation labels including their types and attaching positions. The operation labels are attached on the product to provide the brief instructions for the particularly important operations. Learn the instructions and the attaching positions before operation.

1.5.1 Handling the Operation Labels

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

NOTE

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

1.5.2 Locations and Types of Operation Labels

The locations of operation labels are shown below.

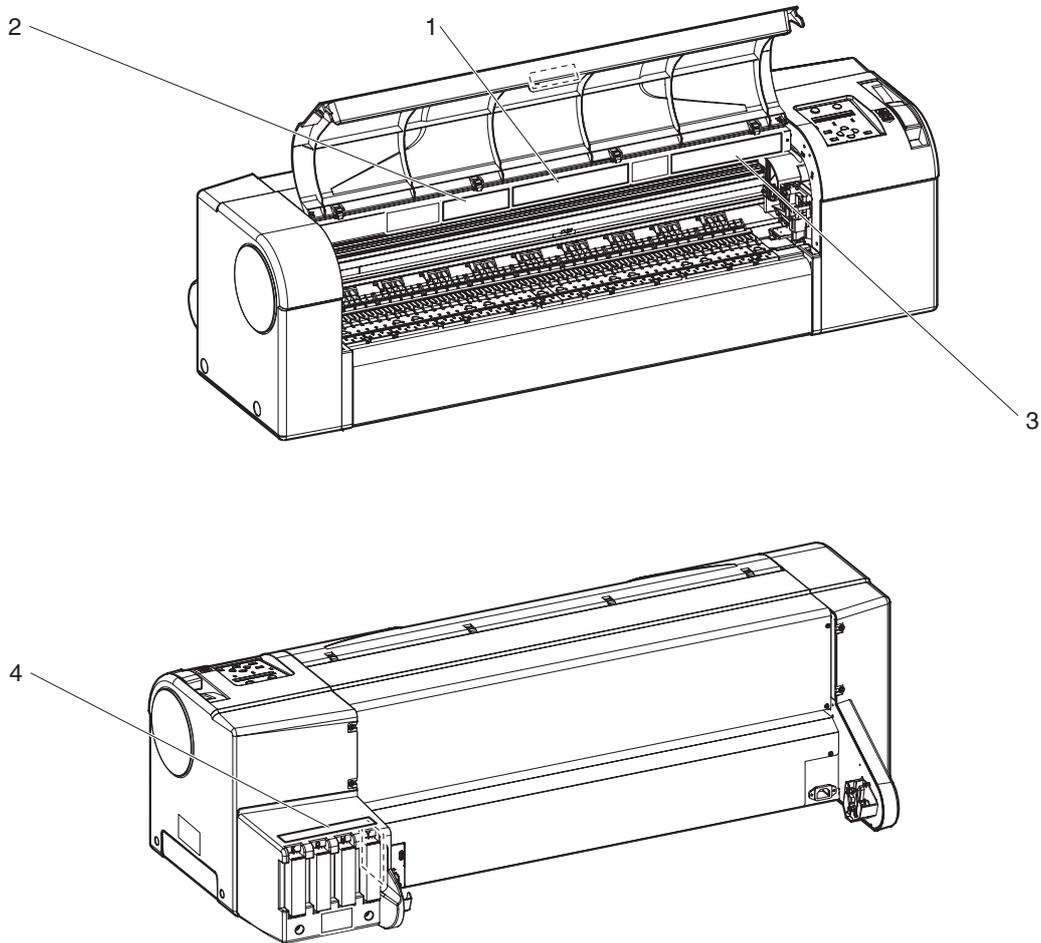


Table 1-3 List of Operation Labels

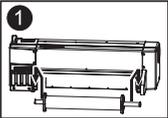
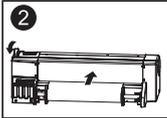
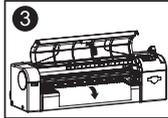
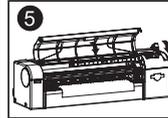
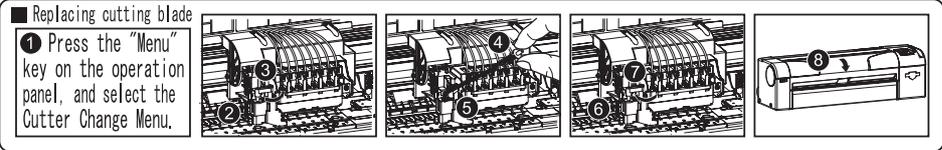
No.	Operation label type
1	<p style="text-align: center;">(Roll media setting)</p> <div style="border: 1px solid black; padding: 5px;"> <div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> <p>■ Loading roll media</p> </div> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>1</p>  </div> <div style="text-align: center;"> <p>2</p>  </div> <div style="text-align: center;"> <p>3</p>  </div> <div style="text-align: center;"> <p>4</p>  </div> <div style="text-align: center;"> <p>5</p>  </div> </div> </div> <p style="text-align: center;">☞ "Operation manual" Setting Roll Media</p> </div>

Table 1-3 List of Operation Labels(Continued)

No.	Operation label type
2	<p style="text-align: center;">(Cut media setting)</p> <div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: fit-content;"> <p>■ Loading sheet media</p>  </div> <p style="text-align: center;">☞ "Operation manual" Setting Cut Media</p>
3	<p style="text-align: center;">(Cutter replacement)</p> <div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: fit-content;"> <p>■ Replacing cutting blade</p> <p>① Press the "Menu" key on the operation panel, and select the Cutter Change Menu.</p>  </div> <p style="text-align: center;">☞ "Operation manual" Replacing Cutter</p>
4	<p style="text-align: center;">(Ink arrangement)</p> <div style="border: 1px solid black; padding: 10px; margin: 10px auto; width: fit-content;">  </div> <p style="text-align: center;">☞ "Operation manual" Replacing Ink Cartridges</p>

2 Product Overview

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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) High Resolution Image Quality

This model uses the on-demand piezo head with a high performance in its high image quality and high product quality.

Realizing True1440dpi and 2880dpi (pseudo) enables sharper and finer output for both lines and images as required for CAD drawings.

(2) Ink Supply System with Cartridge Separated from Print Head

This model uses the ink supply system with cartridge separated from print head. For this separation, you do not have to concern about getting your hands stained with ink while replacing ink.

For black ink commonly used for line drawing, pigment ink is used. This has improved affinity for tracing paper and high-quality paper, etc. which had been difficult to be handled. Light resistance has also improved.

(3) Operation Efficiency Improvement

Loading roll media or cut sheet as well as replacing ink cartridges can be done from the front side of the product.

(4) Operability Improvement

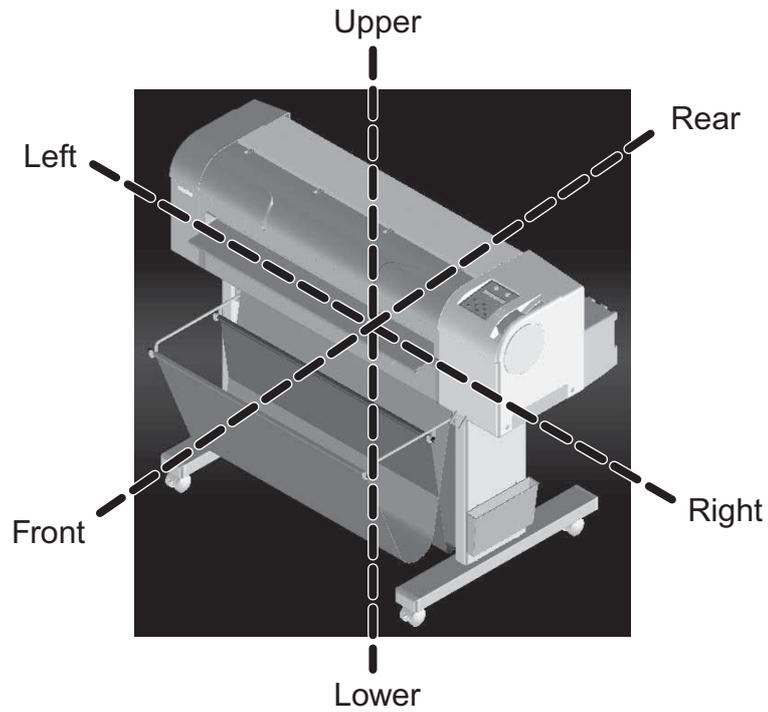
Settings for the plotter main unit can be configured easily from the LCD panel built in the unit. In addition, the properties window for Windows driver is completely updated. Operability for Windows environment has also improved.

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

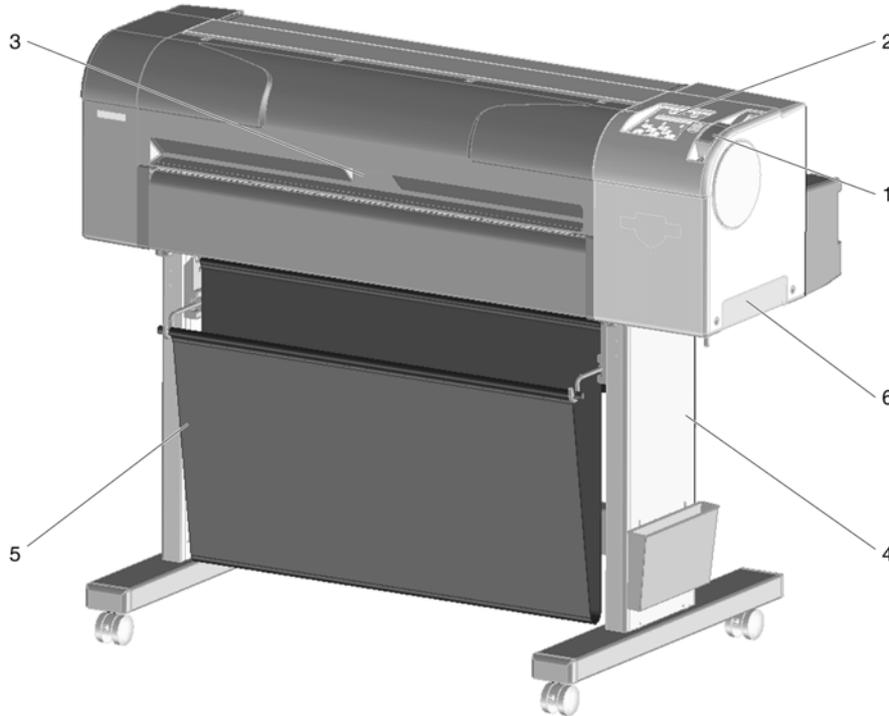


Table 2-1 Part Names and Functions of Front Section

No.	Name	Function
1	Media set lever	This lever is used to fix or release the media.
2	Operation panel	This panel is used to set operational conditions, the status of the plotter, and other functions.
3	Front cover	This cover keeps the operator safe from the drive parts of the plotter while it is operating. This is opened/closed when replacing the cutter or paper is jammed. This should be closed during normal use.
4	Stand (optional)	This stand is used to install the plotter on a flat floor surface.
5	Output tray	This is a part of the stand. This tray holds the ejected media.
6	Waste fluid tray	This tray is used to store waste ink discharged from print head.

2.3.2 Rear Section

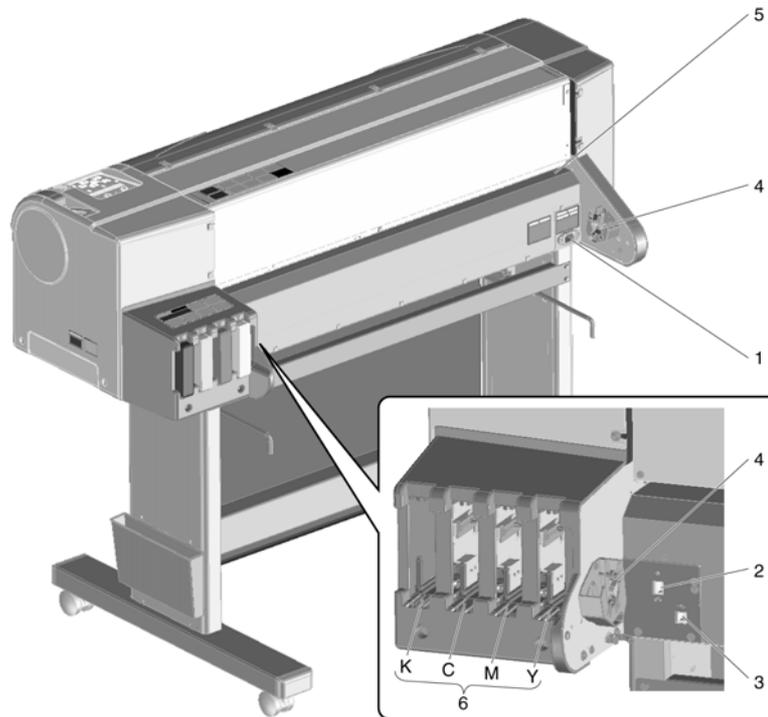


Table 2-2 Part Names and Functions of Rear Section

No.	Name	Function
1	AC inlet	For inserting the power cable plug.
2	Network interface connector	Connector to connect a network interface cable.
3	USB cable connector	Connector to connect USB cable.
4	Scroller receiver	The scroller is set here when using roll media.
5	Media feed slot	Insert media from here when feeding media.
6	Ink cartridge slot	This holds the ink cartridge.

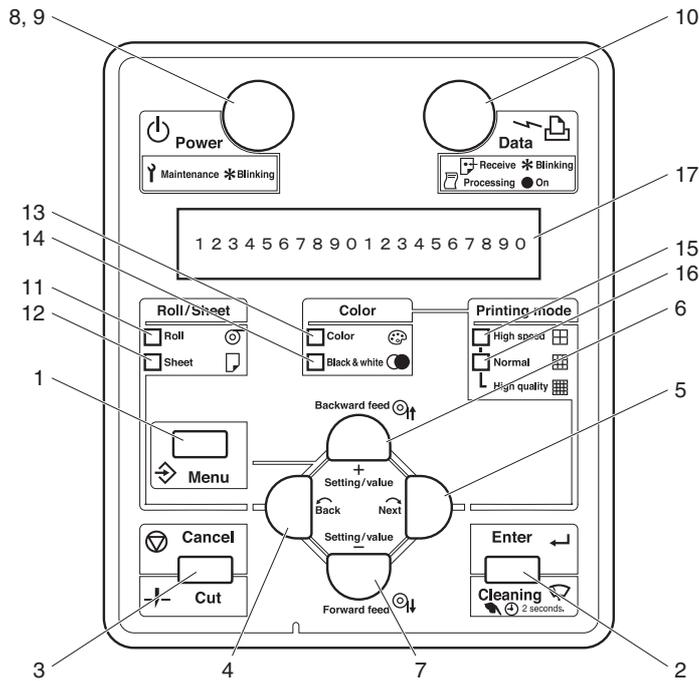
2.3.3 Operation Panel

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.2-9 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	Stops the buzzer at "Little ink" and "No ink" errors.	- 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. - During ink drying time wait status: Releases the ink drying time wait status and ejects the media.	- Returns to the previous menu hierarchy. Changed parameter values are disabled. - Changes the setup menu display status to normal status.
	[Cut] key	If roll media is set, cuts the media at the present position.	-
4	[Back] key	Sets the media type. - The lamp for the type that is set lights on (green).	Changes the menu in reverse order.
5	[Next] key	Sets the plot mode and color mode. - The lamp for the plot mode and color mode that is set lights on (green).	Changes the menu in forward order.
6	[Backward feed] key	Feeds the media in the reverse direction.	-
	[Setting/value +] key	-	- Changes the setting value in the forward direction. - Increases the value when inputting values.

No.	Name	Normal	Setup menu display
7	[Forward feed] key	Feeds the media in the forward direction.	-
	[Setting/value -] key	-	- Changes the setting value in the reverse direction. - Decreases the value when inputting values.
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	Red	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	Roll lamp	Green	On	The media loaded in the plotter is set to roll media.
			Off	The media loaded in the plotter is set to cut media.
12	Sheet lamp	Green	On	The media loaded in the plotter is set to cut sheet.
			Off	The media loaded in the plotter is set to roll sheet.
13	Color lamp	Red	On	The plot mode is set to color.
			Off	The plot mode is set to monochrome.
14	Black & white lamp	Red	On	The plot mode is set to monochrome.
			Off	The plot mode is set to color.
15	High speed lamp	Green	On	- The plot mode is set to High speed. - When the Normal lamp is also on, the print mode is set to High quality.
			Off	The plot mode is set to Normal.
16	Normal lamp	Green	On	- The plot mode is set to Normal. - When the Normal lamp is also on, the print mode is set to High quality.
			Off	The plot mode is set to High speed.
17	LCD monitor	-	-	This monitor displays the operation status and error messages of the plotter.

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 Mode2

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 Mode2" p.6-1**

3 Specifications

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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		RJ-901C	RJ-900C
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	Cut media	Front feeding/front paper ejection	
	Roll media	Front feeding/front paper ejection	
Media type		Tracing paper, plain paper, film, coated paper, glossy paper	
Roll media outer diameter	2-inch	100 mm or less	150 mm or less
	3-inch	100 mm or less	150 mm or less
Maximum loadable media length	Cut media	1200 mm (47.2 in.)	1600 mm (63.0 in.)
	Roll media	50 m (164.0 ft.)	
Maximum loadable media width		610 mm (24.0 in.)	1080 mm (42.5 in.)
Maximum Plot length	Cut media	1180 mm (46.4 in.)	1580 mm (62.2 in.)
	Roll media	18 m (59.1 ft.)	
Maximum media width		604 mm (23.8 in.)	1074 mm (42.3 in.)
Plotting margins	Cut media	Top: 3mm, Bottom: 17mm, Left:3mm, Right: 3 mm	
	Roll media	Top: 3mm, Bottom: 3mm, Left:3mm, Right: 3 mm	
Media cutting method		Lateral auto-cut	
Head height adjustment		2 levels: Normal / High	
Distance accuracy		± 0.25 mm or $\pm 0.1\%$ of moving distance or less <ul style="list-style-type: none"> • Used media: Matte film 50μm • Operating temperature: 20°C (68F) • Operating humidity: 60% • Plot mode: High quality 	
Right angle accuracy		± 0.1 mm or less against the moving distance (500.0mm) <ul style="list-style-type: none"> • Used media: Matte film 50μm • Operating temperature: 20°C (68F) • Operating humidity: 60% • Plot mode: High quality 	

Item		Specifications		
CPU		64Bit RISC CPU		
Memory		128MB	256MB	
Command		MH-GL, MH-GL2, MH-RTL (RTL-PASS)		
Interface		<ul style="list-style-type: none"> • USB (USB 1.1/2.0 is supported) • Network Interface (IEEE802.3) 		
Ink	Supply method	Tube supply from separate four cartridges		
	Cartridge	Black, cyan, magenta, yellow: 110ml ± 5ml for each color		
Head life expectancy		2 billion dots per nozzle (in case of sequence discharging under the condition of the temperature of 25°C (77F) with no dust)		
Environmental conditions		Temperature	Humidity	
	Operation environment	10°C (50F) to 35°C (95F)	20% to 80%, with no condensation	
	Plotting accuracy warranty range	15°C (59F) to 28°C (82.4F)	40% to 60%, with no condensation	
	Rate of change	2°C/hour or less	5%/hour or less	
	Storage environment	Without ink	-10°C (14F) to 60°C (140F)	5% to 85%, with no condensation
		With ink	-10°C (14F) to 40°C (104F)	20% to 85%, with no condensation
Power source	Voltage	AC 90 - 132V		
	Frequency	50Hz/60Hz ±1Hz		
Power consumption	During Plotting	100W or less		
	During standby	35W or less		
Outer dimensions	Height	352 mm (13.9 in.) * with leg section: 983mm (38.7 in.)	983mm (38.7 in.) * including optional stand	
	Width	1186 mm (46.7 in.)	1766 mm (69.5 in.)	
	Depth	496 mm (19.5 in.)		
Weight	Main body	39.5 kg (87.1 lb.)	58.7 kg (129.4 lb.)	
	Stand	15.0 kg (33.1 lb.)	18.8 kg (41.4 lb.)	

(2) Plot Operation Specifications

Plot mode		Media type						
		Monochrome tracing paper	Color tracing paper	High-quality paper	Film	Coated paper	Glossy paper	
High-speed	Monochrome	Plot image quality	Drawing	Drawing	Drawing	Drawing	Drawing	-
		Plot resolution	360 × 360dpi	360 × 360dpi	360 × 360dpi	360 × 720dpi	360 × 720dpi	-
		Plot direction	Bidirectional	Bidirectional	Bidirectional	Bidirectional	Bidirectional	-
		Ink amount (Black)	-	-	-	-	-	-
		Ink drying time	30 sec.	60 sec.	0sec.	60sec.	0sec.	0sec.
		Head height						
		Paper quality						
	Color	Plot image quality	-	Drawing	Drawing	Drawing	Photo	Photo
		Plot resolution	-	360 × 360dpi	360 × 360dpi	360 × 360dpi	360 × 360dpi	360 × 360dpi
		Plot direction	-	Bidirectional	Bidirectional	Bidirectional	Bidirectional	Bidirectional
		Ink amount (Black)	-	-	-	-	-	-
		Ink amount (Color)	-	-	-	-	-	-
		Ink drying time	30 sec.	60sec.	0sec.	60sec.	0sec.	0sec.
		Head height	-	-	-	-	-	-
Paper quality	-	-	-	-	-	-		

Plot mode		Media type						
		Monochrome tracing paper	Color tracing paper	High-quality paper	Film	Coated paper	Glossy paper	
Standard	Monochrome	Plot image quality	Drawing	Drawing	Drawing	Drawing	Drawing	-
		Plot resolution	720 × 720dpi	720 × 720dpi	720 × 720dpi	720 × 720dpi	720 × 720dpi	-
		Plot direction	Bidirectional	Bidirectional	Bidirectional	Bidirectional	Bidirectional	-
		Ink amount (Black)	-	-	-	-	-	-
		Ink amount (Color)	-	-	-	-	-	-
		Ink drying time	60 sec.	120 sec.	0sec.	90sec.	0sec.	-
		Head height	-	-	-	-	-	-
		Paper quality	-	-	-	-	-	-
	Color	Plot image quality	-	Drawing	Drawing	Drawing	Drawing	Photo
		Plot resolution	-	720 × 720dpi	720 × 720dpi	720 × 720dpi	720 × 720dpi	720 × 720dpi
		Plot direction	-	Bidirectional	Bidirectional	Bidirectional	Bidirectional	Unidirectional
		Ink amount (Black)	-	-	-	-	-	-
		Ink amount (Color)	-	-	-	-	-	-
		Ink drying time	60 sec.	120 sec.	0sec.	90sec.	0sec.	30sec.
		Head height	-	-	-	-	-	-
Paper quality		-	-	-	-	-	-	

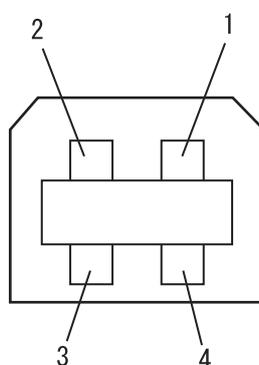
Plot mode		Media type						
		Monochrome tracing paper	Color tracing paper	High-quality paper	Film	Coated paper	Glossy paper	
High quality	Monochrome	Plot image quality	Drawing	Drawing	Drawing	Drawing	Drawing	-
		Plot resolution	1440 × 1440dpi	720 × 720dpi	720 × 720dpi	1440 × 1440dpi	1440 × 1440dpi	-
		Plot direction	Unidirectional	Unidirectional	Unidirectional	Unidirectional	Unidirectional	-
		Ink amount (Black)	-	-	-	-	-	-
		Ink drying time	90 sec.	120 sec.	0sec.	120sec.	0sec.	-
		Head height						-
		Paper quality						-
	Color	Plot image quality	-	Drawing	Drawing	Drawing	Photo	Photo
		Plot resolution	-	720 × 720dpi	720 × 720dpi	1440 × 1440dpi	1440 × 1440dpi	1440 × 1440dpi
		Plot direction	-	Unidirectional	Unidirectional	Unidirectional	Unidirectional	Unidirectional
		Ink amount (Black)	-	-	-	-	-	-
		Ink amount (Color)	-	-	-	-	-	-
		Ink drying time	-	120 sec.	0sec.	120sec.	0sec.	30 sec.
		Head height	-	-	-	-	-	-
Paper quality	-	-	-	-	-	-		

3.3 Interface Specifications

This section explains the specification of the interfaces supported for this plotter.

3.3.1 USB Interface Specifications

Item	Specifications
Interface	Universal Serial Bus Specifications Revision 2.0 Universal Serial Bus Device Class Definition for Plotting Devices Version 1.1
Data format	NRZI
Transmission speed	11Mbps (USB1.1) / 480Mbps (USB2.0)
Applicable connector	USB Series B
Allowable cable length	3 m



Pin number	Signal name	Input/output	Function
1	VCC	-	Cable power supply
2	- Data	Bidirectional	Data
3	+ Data	Bidirectional	Data
4	Ground	-	Cable ground

3.3.2 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, ARP, RARP, ICMP

3.4 Options/Supplies List

3.4.1 Options

(1) Stand

Name	Model	Sales units
Optional stand for RJ-901	RJ9-STD	1 box (includes one set)

(2) Other Options

Name	Model	Sales units
Scroller (flange diameter: 2 in.)	RJ3-3R12	1 box (1 piece per box)
Scroller (flange diameter: 3 in.)	RJ3-SR13	1 box (1 piece per box)
3-inch spacer	RJ9-FS03	1 box (2 pieces per box)

TIP

The scroller is supplied with the movable media stopper.

3.4.2 Supplies

NOTE

- For more information about the following items, contact your local dealer.
 - Ink Cartridges
 - Roll Media
 - Cut Media
 - Cleaning Wiper and Cleaning Cloth
 - Replacement cutter blade
 - Problems occurred with due to usage of media other than those recommended are not guaranteed.
-

3.5 Choosing a Place for the Plotter



WARNING

- Do not place the plotter 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 plotter 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 plotter with cloth, such as a blanket or table cloth. Doing so could prevent the plotter from ventilating and cause fire.
- Keep the plotter 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 plotter installation following the requirements of the table below.

Table 3-1 Installation Environment Requirements List

Installation space		5m ² or more, 2.6m or more is required for the width	
Floor loading capability		2940Pa (300kgf/m ²) or over	
Electrical specifications	Voltage	AC 100 V - 120 V ± 10% or AC 200 V - 240 V ± 10% (auto-switching)	
	Frequency	50/60Hz ± 1Hz	
	Capacity	10A or more	
Environmental conditions		Temperature	Humidity
	Operation environment	10° C (50F) to 35°C (95F)	20% to 80%, with no condensation
	Plotting accuracy warranty range	15°C (59F) to 28°C (82.4F)	20% to 60%, with no condensation
	Rate of change	2°C/hour or less	5%/hour or less

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 plotter should be installed where air conditioning can be adjusted easily.

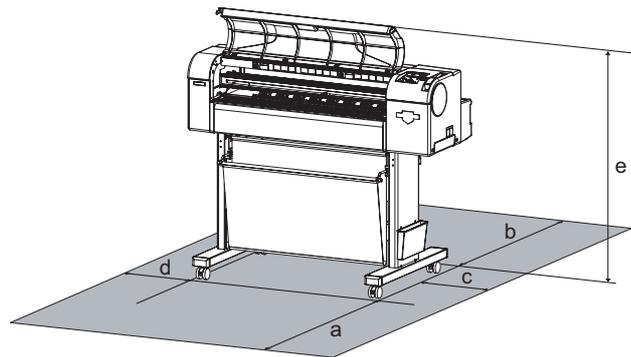
(2) Required Space

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

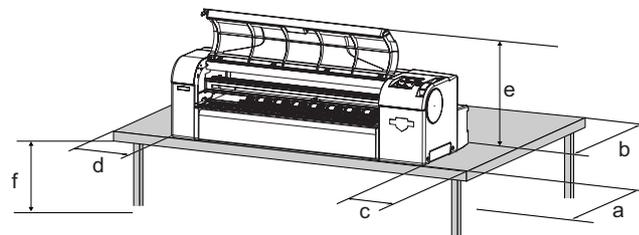
- The place to install plotter with the optional stand should have enough loading capacity.

NOTE

For the plotter and the optional stand, refer to "[3.2 Product Specifications](#)" p.3-2.



a=450mm (17.7 inch)
 b=300mm (11.8 inch)
 c=480mm (18.9 inch)
 d=180mm (7.1 inch)
 e=1198mm (47.2 inch)



a=300mm (11.8 inch)
 b=500mm (19.7 inch)
 c=300mm (11.8 inch)
 d=100mm (3.9 inch)
 e=567mm (22.3 inch)
 f=600~800mm (23.6~31.5 inch)

* Do not use RJ-900C without optional stand.

4 Parts Replacement

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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 machine.
Otherwise, the machine may be damaged.

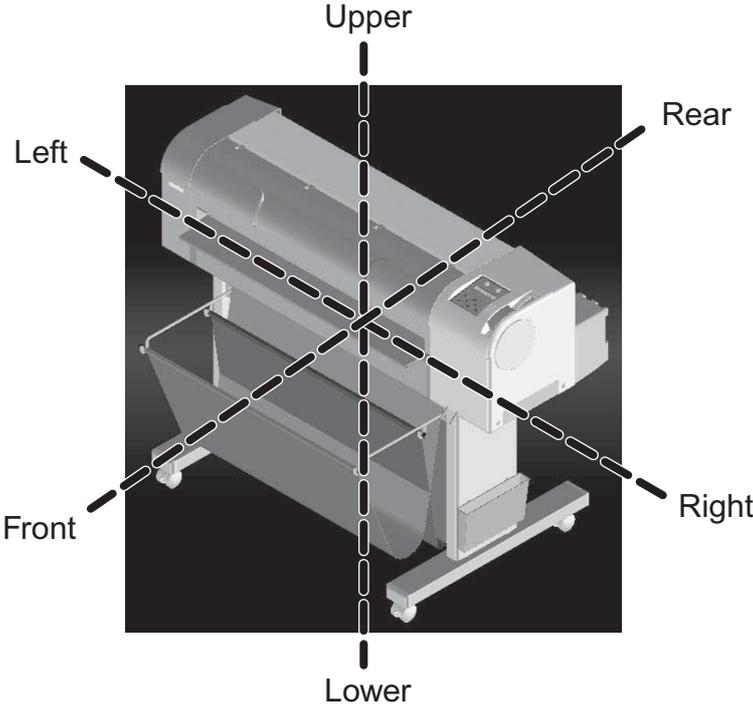
CAUTION

The components in the machine 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 machine 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 **"8.4 Lubrication/Bonding" p.8-6**.



4.2 Removal of Covers

Before replacing any service parts in the machine, some external covers must be removed. This section describes the procedure to remove covers.

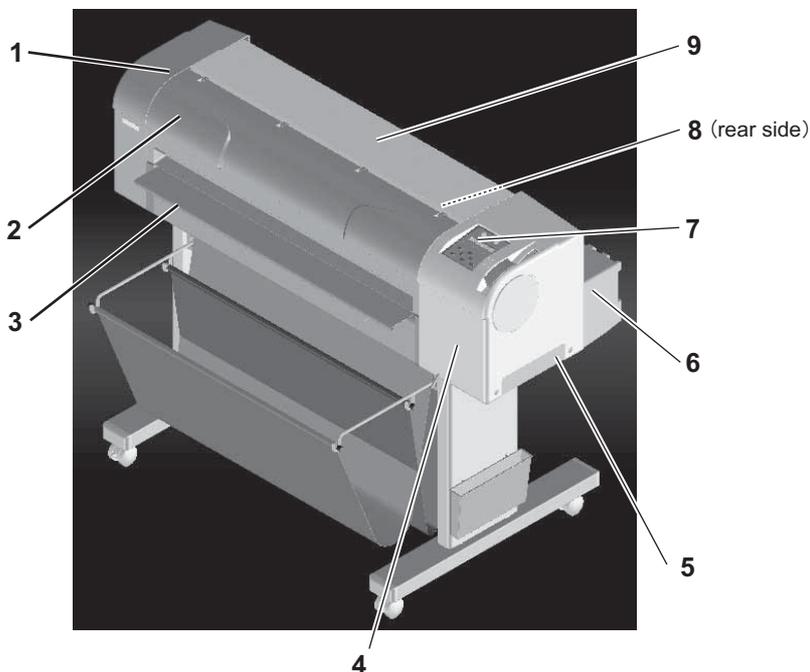


Table 4-1 Cover Component List

No.	Part name
1	L side cover
2	Front cover
3	Media guide F
4	R side cover
5	Waste fluid cassette
6	Ink Holder(I/H) cover
7	Operation panel unit assembly
8	Media guide R2 (rear side)
9	Top cover

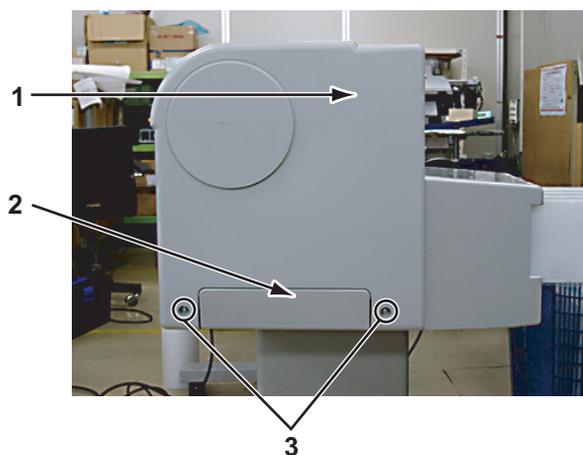
4.2.1 Removing R Side Cover

1. Move down the pressure lever backward.



No.	Part name
1	Pressure lever cap
2	Pressure lever cap screw

2. Remove the pressure lever cap-retaining screw (M4 × 10, P tight binding black: 1pc).
3. Remove the waste fluid cassette.



No.	Part name
1	R side cover
2	Waste fluid cassette
3	R side cover outer screw

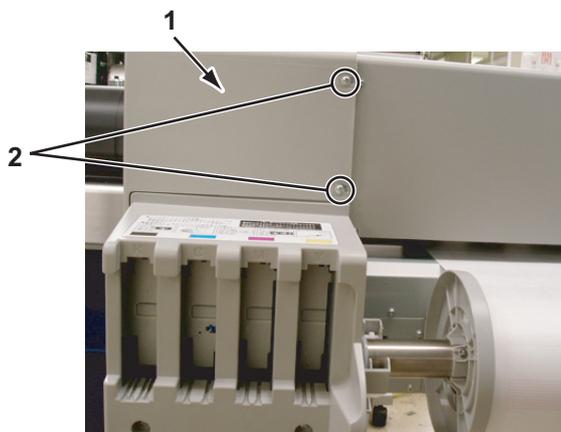
4. Remove the R side cover outer screw (tapping screw M4 × 8, S tight cup: 2pcs).
5. Open the front cover.

6. Remove the R side cover inner screw (tapping screw M4 × 12, P tight binding black: 2pcs).



No.	Part name
1	R side cover
2	R side cover inner screw

7. Remove the R side cover rear screw (tapping screw M4 × 12, S tight cup: 2pcs).



No.	Part name
1	R side cover
2	R side cover rear screw

8. Return the pressure lever forward and remove the R side cover to the upper right direction.

9. Replace the parts inside the product.

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

4.2.2 Removing Operation Panel Unit

TIP

Before removing the operation panel unit, perform the following work.

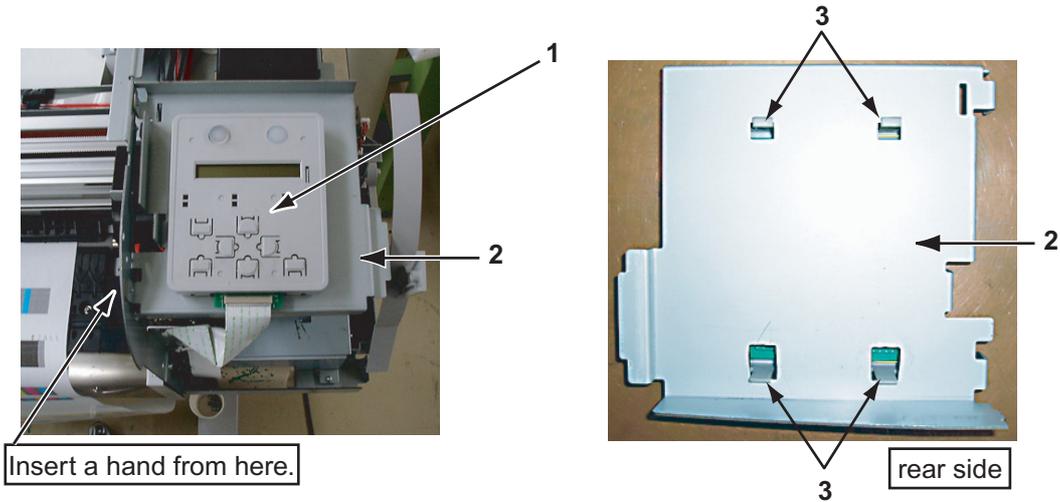
- Removing the R side cover: ["4.2.1 Removing R Side Cover" p.4-6](#)
- Unlocking and moving the carriage.

1. Remove the operation panel unit tape wire (FFC).

CAUTION

When connecting or removing the tape wire (FFC) to the connector of operation panel unit, always pull or push the wire perpendicularly to the connector. Pulling or pushing the wire slantwise may damage/short/break the terminals in the connectors, resulting in a breakdown of the on-board devices.

2. Release the tab on the rear side of the operation panel unit from the panel stay.

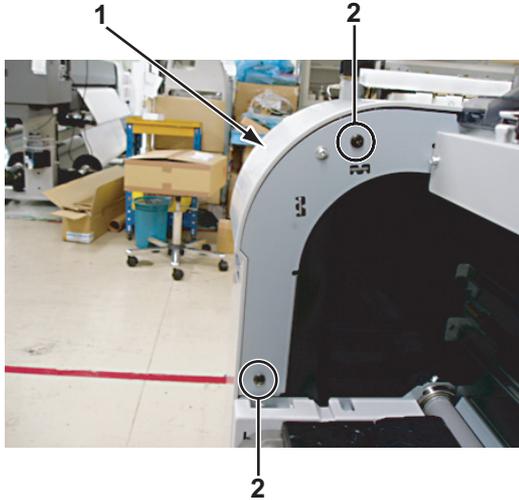


No.	Part name
1	Operation panel unit
2	Panel stay
3	Operation panel unit-retaining tab

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

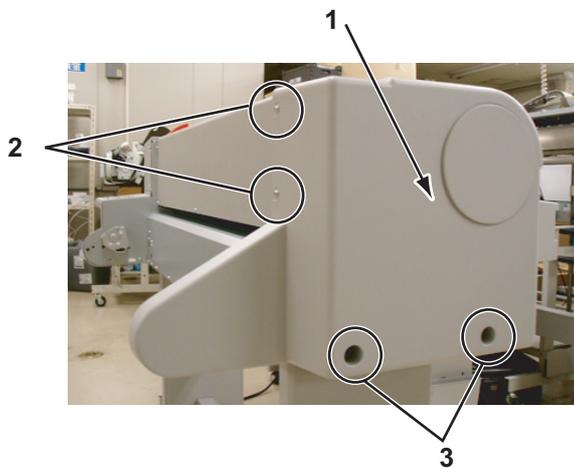
4.2.3 Removing L Side Cover

1. Remove the L side cover front screw (tapping screw M4 × 12, P tight binding black: 2pcs).



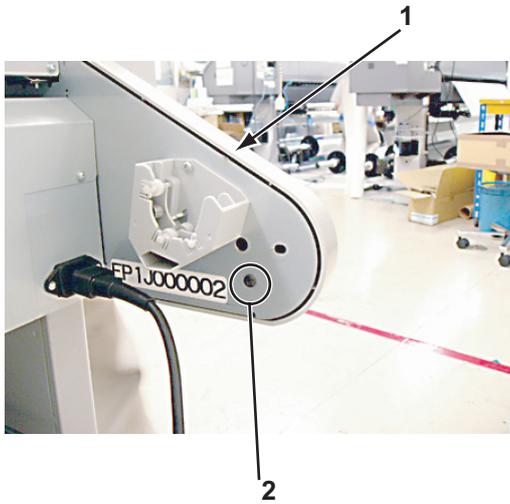
No.	Part name
1	L side cover
2	L side cover inner screw

2. Remove the L side cover rear screw (tapping screw M4 × 8, S tight cup: 2pcs).
3. Remove the L side cover right screw (tapping screw M4 × 8, S tight cup: 2pcs).



No.	Part name
1	L side cover
2	L side cover rear screw
3	L side cover right screw

4. Remove the L side cover roll receiver side screw (tapping screw M4 × 12, P tight binding black: 1pcs).



No.	Part name
1	L side cover
2	Roll receiver side screw

5. Remove the L side cover.
6. To reassemble the unit, reverse the removal procedure.

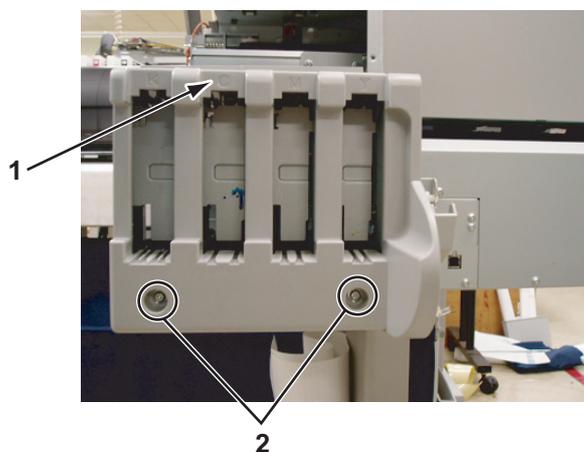
4.2.4 Removing Ink Holder (I/H) Cover

NOTE

Before removing the ink holder (I/H) cover, remove the following parts.

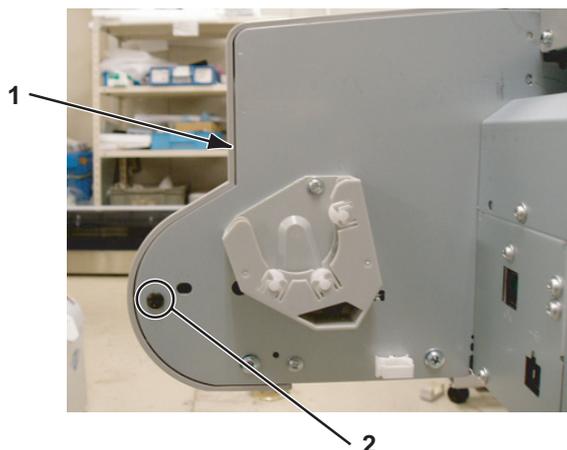
- L side cover:  ["4.2.3 Removing L Side Cover" p.4-9](#)

1. Remove the ink cartridge.
2. Remove the I/H cover rear screw (tapping screw M4 × 8, S tight cup: 2pcs).



No.	Part name
1	I/H cover
2	I/H cover screw

3. Remove the I/H cover side (scroller receiver side) screw (tapping screw M4 × 12, P tight binding black: 1pce).

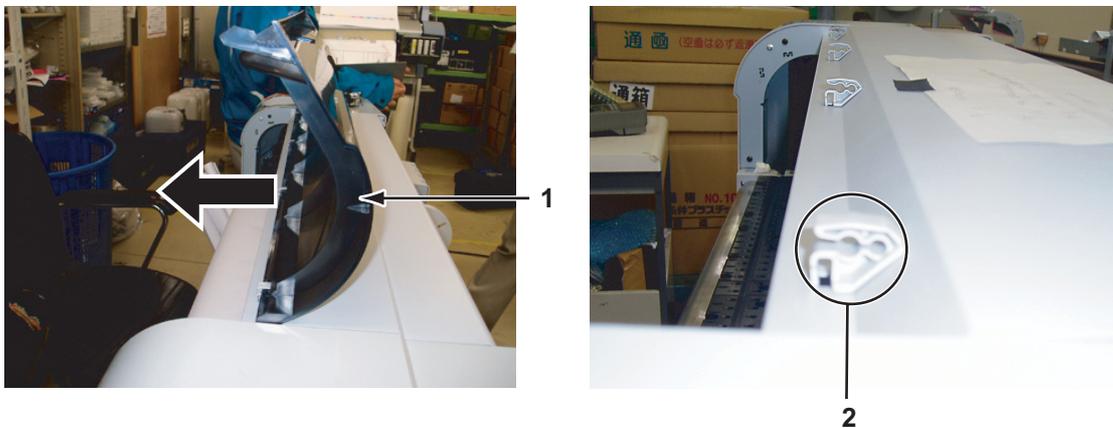


No.	Part name
1	I/H cover
2	I/H cover side screw

4. Remove the I/H cover.
5. To reassemble the unit, reverse the removal procedure.

4.2.5 Removing Front Cover

1. Open the front cover.
2. Remove the front cover by pulling it toward the direction of the arrow shown below.



No.	Part name
1	Front cover
2	Front cover receiver

NOTE

Do not remove the front cover by force. It may damage or deform the resin.

3. Replace the parts inside the product.
4. To reassemble the unit, reverse the removal procedure.

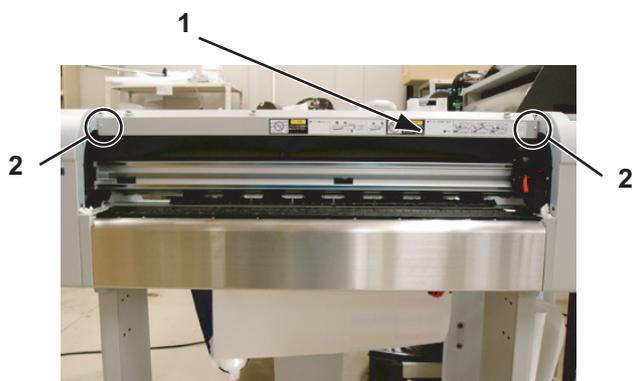
4.2.6 Removing Top Cover

NOTE

Before removing the top cover, remove the following parts.

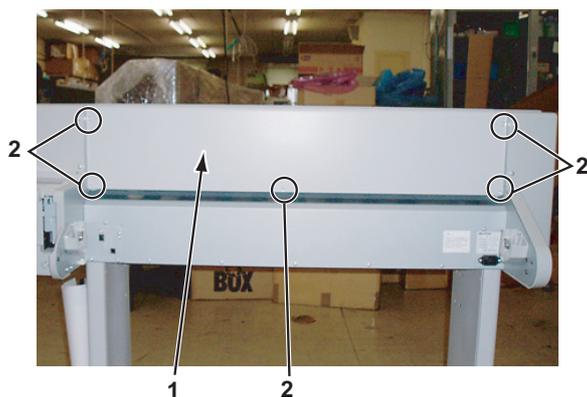
- Front cover:  ["4.2.5 Removing Front Cover" p.4-12](#)

1. Remove the top cover front side-retaining screw (pan-head screw with spring washer and flat washer M3 × 5: 2pcs).



No.	Part name
1	Top cover
2	Top cover front side screw

2. Remove the top cover rear side-retaining screw (pan-head screw with spring washer and flat washer M3 × 5).
The number of screws varies depending on models.
RJ-901C: 5pcs
RJ-900C: 7pcs



No.	Part name
1	Top cover
2	Top cover rear side screw

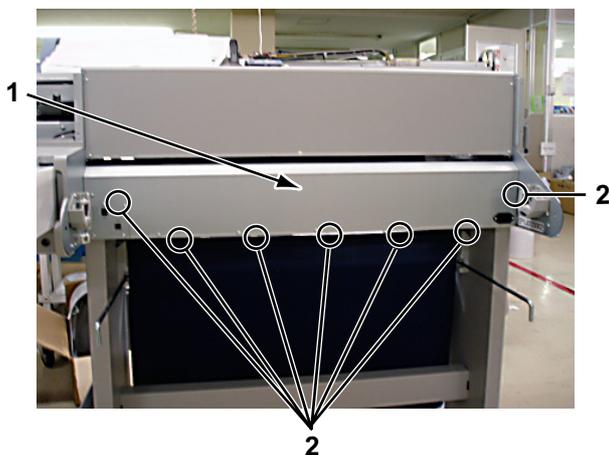
3. Remove the top cover.
4. Replace the parts inside the product.
5. To reassemble the unit, reverse the removal procedure.

4.2.7 Removing Media Guide R2

1. Remove the media guide R2-retaining screw (tapping screw M3 × 6, S tight cup: 7pcs). The number of screws varies depending on models. (The diagram below shows RJ-901C.)

RJ-901C: 7pcs

RJ-900C: 11pcs



No.	Part name
1	Rear cover
2	Rear cover rear side screw

2. Remove the media guide R2 by pulling it backward.
3. Replace the parts inside the product.
4. To reassemble the unit, reverse the removal procedure.

4.2.8 Removing Scroller Receiver (L, R)

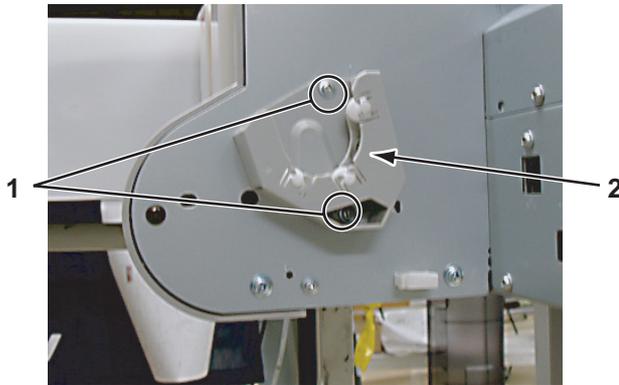
1. Remove the scroller receiver L-retaining screw (tapping screw M3 × 6, S tight cup: 2pcs).



No.	Part name
1	Scroller receiver L screw
2	Scroller receiver L

2. Remove the scroller receiver L.

3. Remove the scroller receiver L-retaining screw (tapping screw M3 × 6, S tight cup: 2pcs).



No.	Part name
1	Scroller receiver R screw
2	Scroller receiver R

4. Remove the scroller receiver R.
5. To reassemble the unit, reverse the removal procedure.

4.3 Replacement of Board Base Section Components

This section describes replacement procedures of power board assembly, main board assembly, network interface card (NIC), and cooling fan.

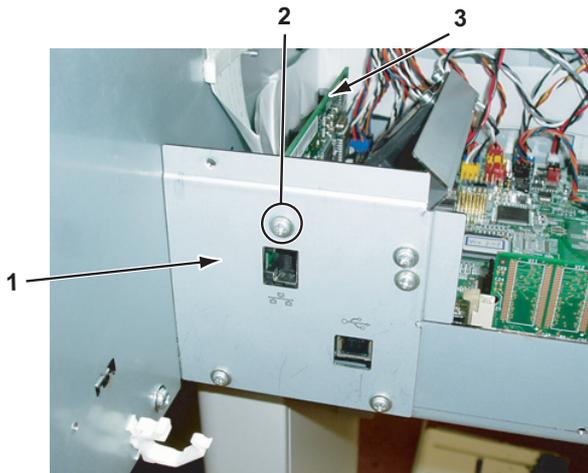
CAUTION

When you handle a circuit board, do not touch any elements on it with bare hands. Doing so may cause electrostatic discharge and damage the elements.

4.3.1 Replacing Connector Panel, Network Interface Card (NIC), Cooling Fan

(1) Replacing NIC

1. Remove the bracket network interface card screw (tapping screw M3 × 6, S cup: 1pcs).



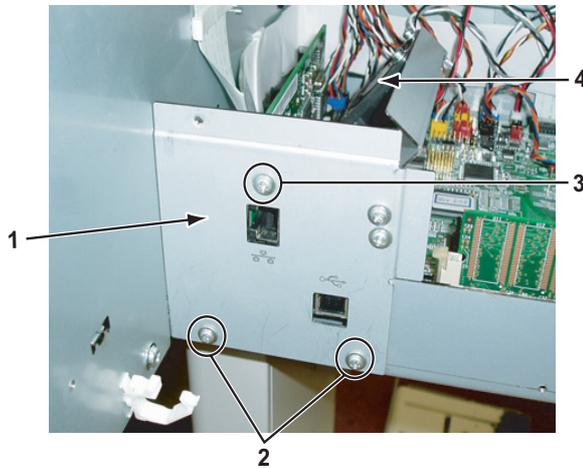
No.	Part name
1	Connector panel
2	Bracket network interface card screw
3	NIC

2. Remove the NIC from the main board and replace it.

(2) Removing Connector Panel

1. Remove the cooling fan (5V) connector.
2. Remove the cooling fan (5V) cable from the clamp.

- Remove the connector panel screw (tapping screw M3 × 6, S cup: 2pcs) bracket network interface card screw (tapping screw M3 × 6, S cup: 2pcs).

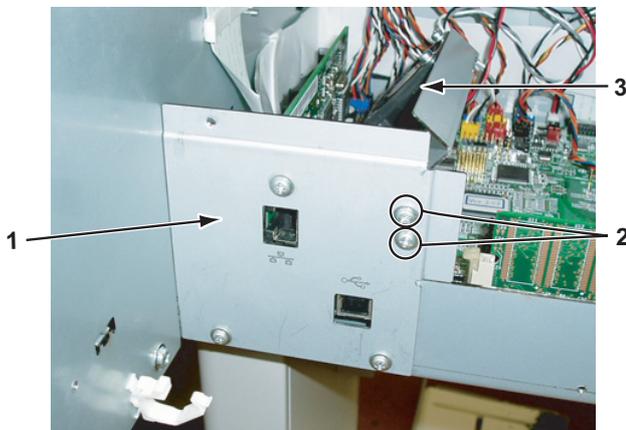


No.	Part name
1	Connector panel
2	Connector panel screw
3	Bracket network interface card screw
4	Cooling fan (5V)

- Remove the connector panel.

(3) Replacing Cooling Fan (5V)

- Remove the cooling fan (5V) connector.
- Remove the fan bracket screw (tapping screw M3 × 6, S cup: 2pcs).



No.	Part name
1	Connector panel
2	Fan bracket screw
3	Cooling fan (5V)

- Remove the cooling fan screw (pan-head screw with spring washer and flat washer M3 × 20: 2pcs) from the fan bracket.
- Replace the cooling fan.

4.3.2 Removing Board Bracket

NOTE

Before replacing the board assemblies, remove the following parts.

- Media guide R2:  ["4.2.7 Removing Media Guide R2" p.4-14](#)
- Connector panel:  ["4.3.1 Replacing Connector Panel, Network Interface Card \(NIC\), Cooling Fan" p.4-16](#)

1. Remove the following connectors from the main board assembly.

CAUTION

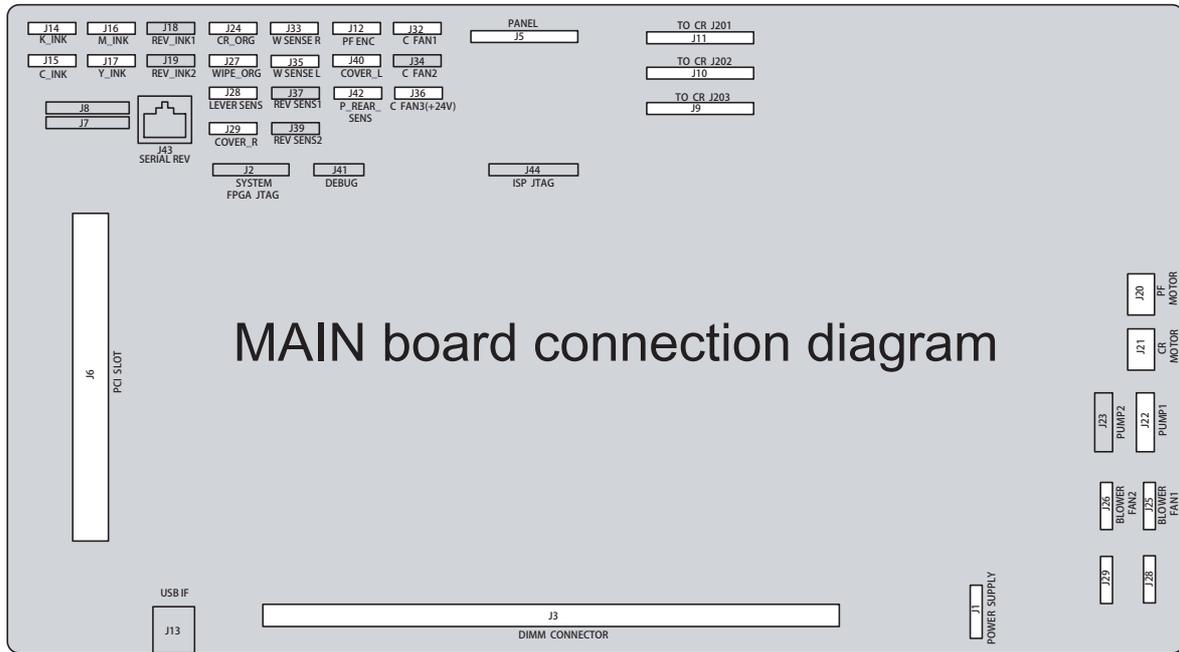
When connecting or removing the FFC type cables to the main board assembly connector, always pull or push the cables perpendicularly to the connector. Pulling or pushing the wire slantwise may damage/short/break the terminals in the connectors, resulting in a breakdown of the on-board elements.

Table 4-3 Connectors to Main Board Assembly

No.	Connector No.	# of pins	Color	Connect to	Remarks
1	J1	14	White	Power board assembly	
2	J5	FFC	Black	Operation panel unit assembly	
3	J9	FFC	Black	CR board assembly J203	
4	J10	FFC	Black	CR board assembly J202	
5	J11	FFC	Black	CR board assembly J201	
6	J12	4	White	PF ENC assembly	
7	J14	8	Black	Ink sensor K assembly	
8	J15	8	Blue	Ink sensor C assembly	
9	J16	8	Red	Ink sensor M assembly	
10	J17	8	Yellow	Ink sensor Y assembly	
11	J20	2	White	PF motor assembly	
12	J21	3	White	CR motor assembly	
13	J22	4	White	Pump motor assembly	
14	J24	3	White	CR_ORG sensor	
15	J25	2	White	Suction fan 1 assembly	
16	J26	2	Black	Suction fan 2 assembly	
17	J27	3	Black	Wiper origin sensor	
18	J30	3	Blue	Lever sensor assembly	

Table 4-3 Connectors to Main Board Assembly (Continued)

No.	Connector No.	# of pins	Color	Connect to	Remarks
19	J32	2	White	Cooling fan (5V) assembly	
20	J33	3	Red	WASTE (waste fluid) sensor R	
21	J36	2	Red	Cooling fan (24V) assembly	
22	J38	3	Yellow	Cover R sensor	
23	J40	4	Blue	Cover L sensor	
24	J42	4	Black	P_REAR sensor	

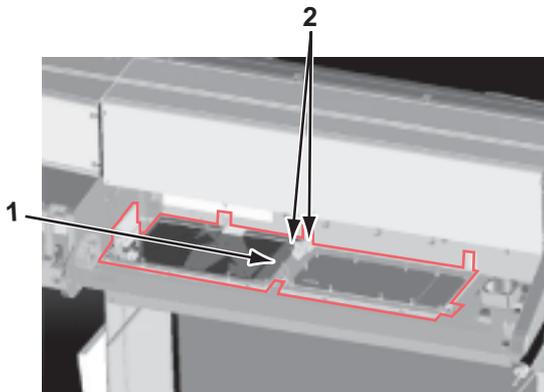


2. Remove the following connectors from the power board assembly.

Table 4-2 Connectors to Power Board Assembly

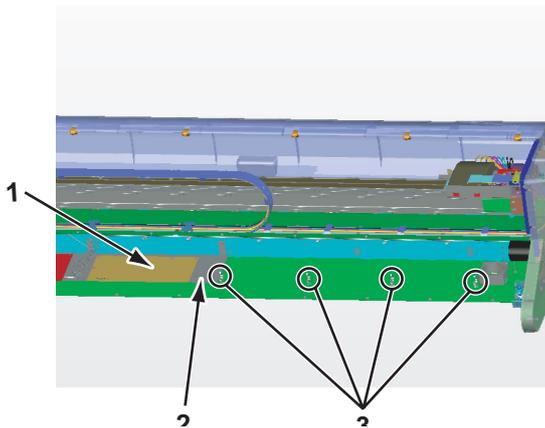
No.	Connector No.	# of pins	Color	Connect to	Remarks
1	CN001	3 pins	White	Inlet assembly	

- Remove the cable from the two clamps on the board bracket.



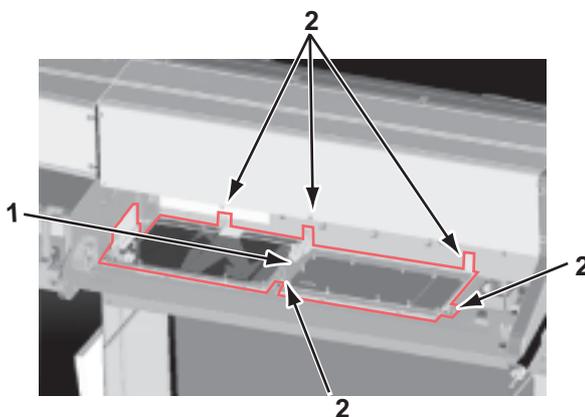
No.	Part name
1	Board bracket
2	Clamp

- (RJ-900 only) Remove the noise filter cable A0 assembly from the clamps (four points) that retaining the assembly to the frame.



No.	Part name
1	Board bracket
2	Board bracket screw
3	Clamp

- Remove the board bracket-retaining screws (tapping screw M3 × 6, S tight cup: 5pcs).



No.	Part name
1	Board bracket
2	Board bracket screw

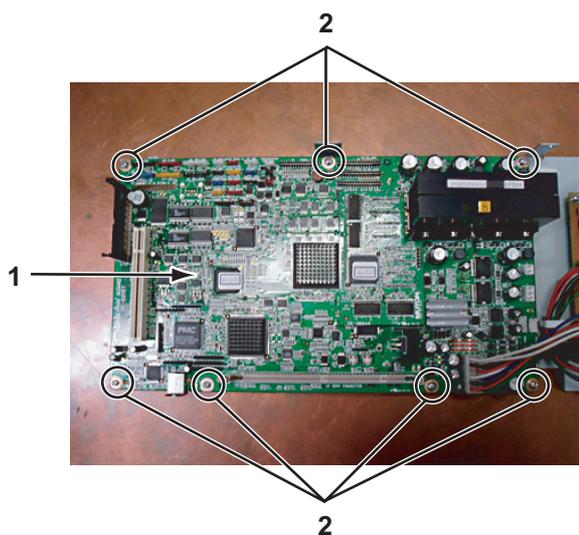
- Slide the board bracket to the right then lift from the front side and remove it.

4.3.3 Replacing Main Board Assembly

NOTE

- When replacing the main board assembly, make sure to back up the parameters by following the instructions in **"7.3.1 Parameter Backup" p.7-10**. Otherwise, the life counters on the waste fluid box or the tube cannot be updated and ink may overflow inside the product. Perform other adjustments by following the instructions in **"7.2 Adjustment Item" p.7-3**.
- Before replacing the main board assembly, remove the following parts.
 - Media guide R2:  **"4.2.7 Removing Media Guide R2" p.4-14**
 - Connector panel:  **"4.3.1 Replacing Connector Panel, Network Interface Card (NIC), Cooling Fan" p.4-16**
 - Board bracket:  **"4.3.2 Removing Board Bracket" p.4-18**

1. Remove the screws retaining the main board assembly to the board bracket (cup screw M3 × 6: 7pcs).



No.	Part name
1	Main board assembly
2	Main board assembly screw

2. Replace the main board assembly
3. To reassemble the unit, reverse the removal procedure.
4. Input the parameters and install the firmware by following the instructions in **"7.3 Working with Dedicated Network Software" p.7-10**.
5. Perform adjustment on media edge sensor and the P_REAR sensor by following the instructions in **"7.2 Adjustment Item" p.7-3**.

4.3.4 Replacing Power Board Assembly

CAUTION

- When removing the power board assembly, remove the power cable and wait for at least 5 minutes before taking it out; this will discharge the residual electrical charge of the electrolytic capacitor.
If you handle these boards before the capacitor charge is fully discharged, you may suffer electric shock.
- To avoid electric shock, never touch the back of the power board. When handling the power board, take the side of the board.
- To avoid a short circuit, do not place the power board assembly directly on conductive objects.

NOTE

Before replacing the power board assembly, remove the following parts.

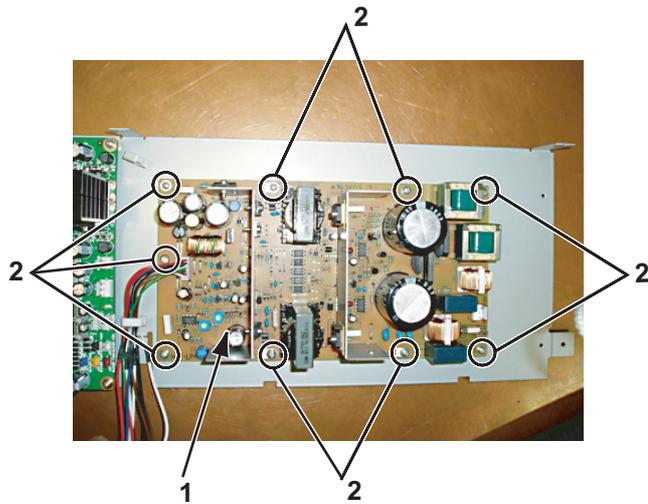
- Rear cover:  ["4.2.7 Removing Media Guide R2" p.4-14](#)
- Connector panel:  ["4.3.1 Replacing Connector Panel, Network Interface Card \(NIC\), Cooling Fan" p.4-16](#)
- Board bracket:  ["4.3.2 Removing Board Bracket" p.4-18](#)

1. Remove the following connectors from the power board assembly.

Table 4-3 Connectors to Power Board Assembly

No.	Connector No.	# of pins	Color	Connect to	Remarks
1	CN301	14	White	Main board assembly	

2. Remove the power board assembly-retaining screw (cup screw M3 × 6 white: 9pcs).



No.	Part name
1	Power board assembly
2	Power board assembly screw

3. Replace the power board assembly
4. To reassemble the unit, reverse the removal procedure.

4.3.5 Replacing Inlet Assembly

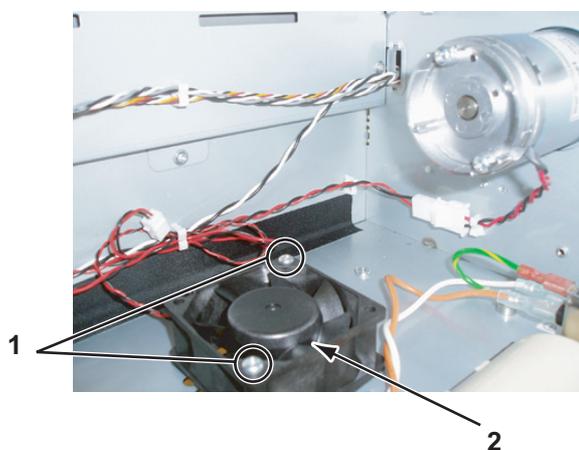
NOTE

Before replacing the inlet assembly, remove the following parts.

- Media guide R2: ["4.2.7 Removing Media Guide R2" p.4-14](#)

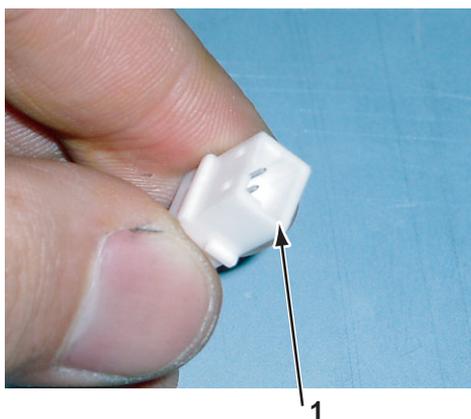
(1) Removing Cooling Fan (24V)

- Remove the screw retaining the cooling fan (24V) (pan-head machine screw M 4 × 30: 2pcs).



No.	Part name
1	Cooling fan (24V) screw
2	Cooling fan (24V)

- Remove the cooling fan (24V) cable connector.

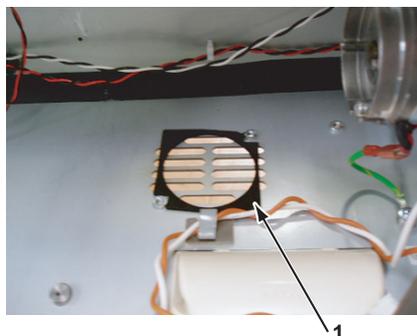


No.	Part name
1	Cooling fan (24V) connector

- Replace the cooling fan.
- To reassemble the unit, reverse the removal procedure.

TIP

- When reassembling the cooling fan, spread the fan seal (shown in the diagram below) under the fan, then screw the fan on it

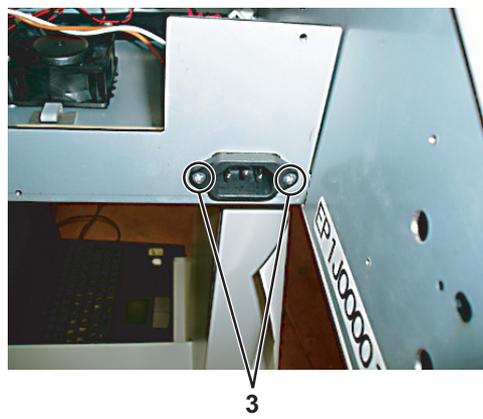
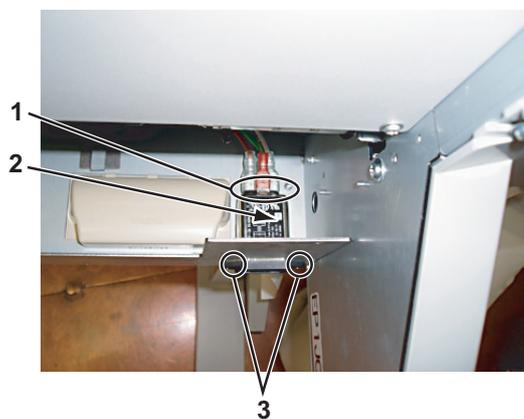


No.	Part name
1	Fan seal

- Installation direction of the cooling fan assembly (sealing surface and cable pulling direction) is specified. Install it with the sealing surface facing up.

(2) Replacing Inlet Assembly

- Remove the connectors from the inlet assembly.
- Remove the inlet assembly-retaining screw (countersunk head screw M3 × 6 white: 2pcs).



No.	Part name
1	Inlet assembly connector
2	Inlet assembly
3	Inlet assembly screw

- Replace the inlet assembly

- To reassemble the unit, reverse the removal procedure.

TIP

- Installation direction of the inlet assembly is specified. Install it with the sealing surface facing up.
- When installing the inlet assembly, match the corresponding color connectors.

4.4 Replacement of PF Driving Section Components

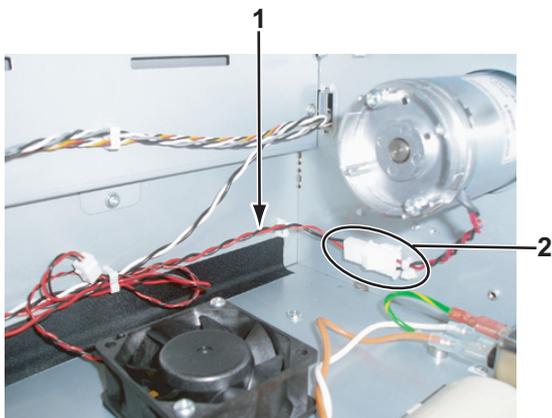
4.4.1 Replacing PF Motor Assembly

NOTE

Before replacing parts in the PF motor assembly, remove the following covers.

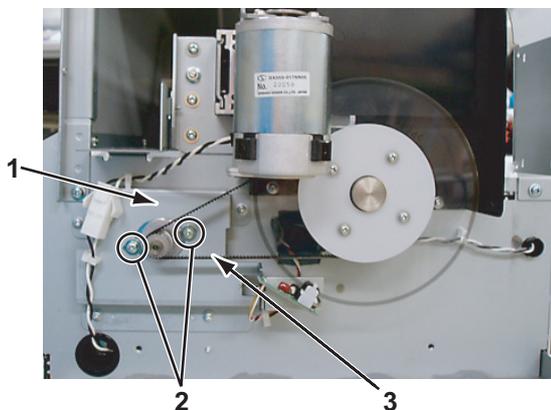
- L side cover: [☞ "4.2.3 Removing L Side Cover" p.4-9](#)
- Media guide R2: [☞ "4.2.7 Removing Media Guide R2" p.4-14](#)

- Remove the PF motor assembly connectors out through the PF motor cable assembly.



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

- Remove the screw retaining the PF motor to the PF bracket (M4 × 8 pan-head screw with spring washer and flat washer: 2pcs).



No.	Part name
1	PF bracket:
2	PF motor screw
3	PF speed reduction belt

- Replace the PF motor assembly.
- To reassemble the unit, reverse the removal procedure.

NOTE

Move the PF speed reduction pulley with your hand to check if the PF speed reduction belt is equally balanced on the pulley center section of the PF motor assembly.

- Perform adjustments by following the instructions in **"7.2 Adjustment Item" p.7-3**.

4.4.2 Replacing PF_ENC Assembly

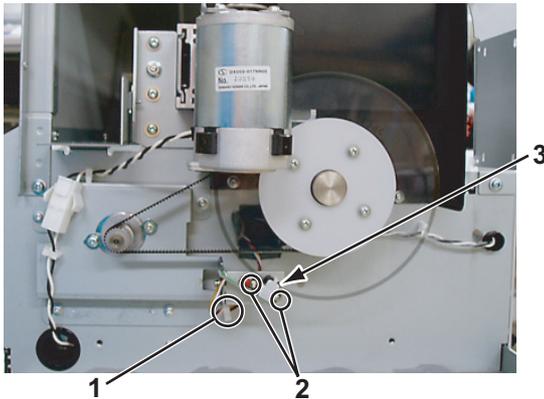
NOTE

Before replacing parts in the PF_ENC assembly, remove the following covers.

- L side cover: [☞ "4.2.3 Removing L Side Cover" p.4-9](#)
- Rear cover: [☞ "4.2.7 Removing Media Guide R2" p.4-14](#)

- Remove the PF_ENC assembly connectors from the main board assembly.
- Take the PF_ENC assembly cable off the clamp, then pull it out through the L frame cable inlet.

- Remove the PF_ENC assembly-retaining screw (tapping screw M2 × 5: 2pcs).



No.	Part name
1	Clamp
2	PF_ENC assembly screw
3	PF_ENC assembly

- Replace the PF_ENC assembly.
- To reassemble the unit, reverse the removal procedure.
- Perform adjustments by following the instructions in ["7.2 Adjustment Item" p.7-3](#).

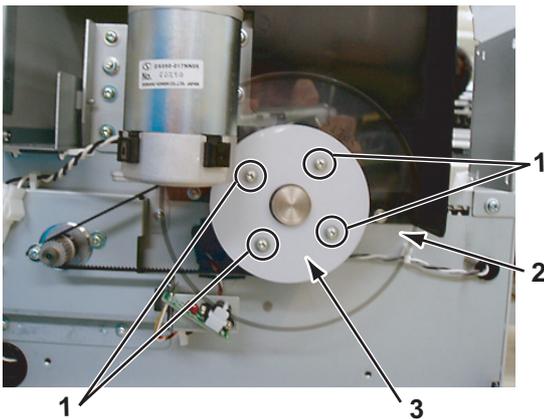
4.4.3 Replacing PF_ENC Scale

NOTE

Before replacing parts in the PF_ENC scale assembly, remove the following parts.

- L side cover: [☞ "4.2.3 Removing L Side Cover" p.4-9](#)

- Remove the ENC holder-retaining screw (tapping screw M3 × 6, P tight cup).



No.	Part name
1	ENC holder screw
2	PF_ENC scale
3	ENC holder

- Replace the PF scale.
- To reassemble the unit, reverse the removal procedure.

NOTE

When handling the PF scale, note the following.

- Do not damage or bend the PF scale. Do not touch the peripheral surface of the PF scale.
 - Make sure that no double-sided tape remains on the slit mounting flange.
-

4. Perform adjustments by following the instructions in **"7.2 Adjustment Item" p.7-3**.

4.5 Replacement of CR Driving Section Components

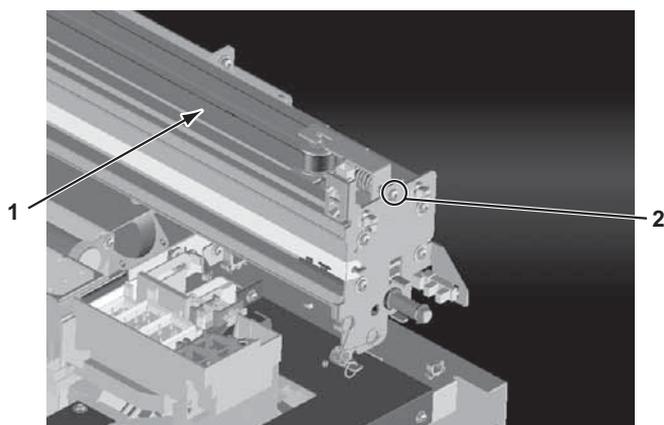
4.5.1 CR Motor Assembly

NOTE

Before replacing parts in the CR motor assembly, remove the following covers.

- R side cover:  ["4.2.1 Removing R Side Cover" p.4-6](#)
- L side cover:  ["4.2.3 Removing L Side Cover" p.4-9](#)

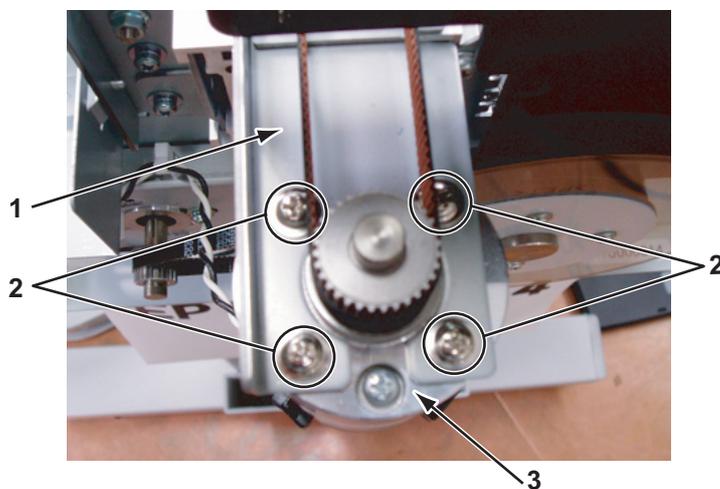
1. Detach the CR motor assembly connector from the cable connector.
2. Take the CR motor assembly cable off the clamp.
3. Release the CR locker by pushing it with your finger, then move the carriage from the capping position to the left.
4. Loosen the CR tension mounting shaft on the R side frame, then release the CR belt tension.



No.	Part name
1	CR belt
2	CR tension mounting shaft

5. Take the CR belt off the CR motor assembly pulley on the L side frame.

- Remove the screws retaining the CR motor assembly to the CR motor mounting material (cup screw M4 × 8: 4pcs).



No.	Part name
1	CR motor mounting material
2	CR motor screw
3	CR motor

- Replace the CR motor assembly.
- To reassemble the unit, reverse the removal procedure.
- Perform adjustments by following the instructions in **"7.2 Adjustment Item" p.7-3**.

4.5.2 Replacing CR_HP Sensor

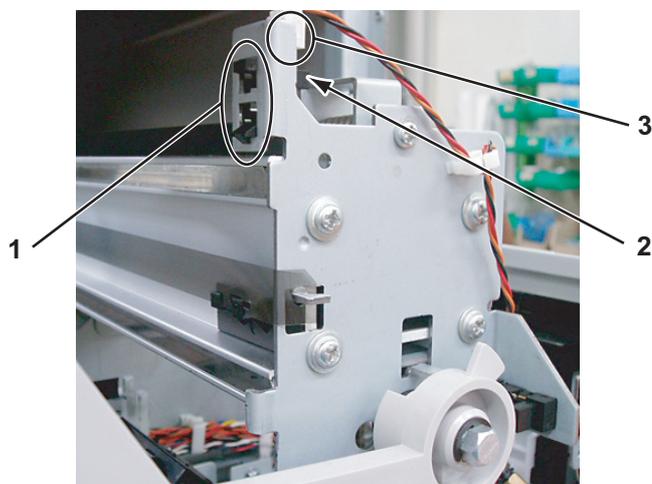
NOTE

Before replacing parts in the CR_HP sensor assembly, remove the R side cover.

- R side cover:  **"4.2.1 Removing R Side Cover" p.4-6**

- Release the CR locker by pushing it with your finger, then move the carriage from the capping position to the left.

2. Pull out the CR_HP cable assembly connector from the CR_HP sensor.



No.	Part name
1	Hook
2	CR_HP sensor
3	Connector

3. Release the hook retaining the CR_HP sensor, then remove the CR_HP sensor.
4. Replace the CR_HP sensor.
5. To reassemble the unit, reverse the removal procedure.
6. Perform adjustments by following the instructions in **"7.2 Adjustment Item" p.7-3**.

4.5.3 Replacing Lever Sensor

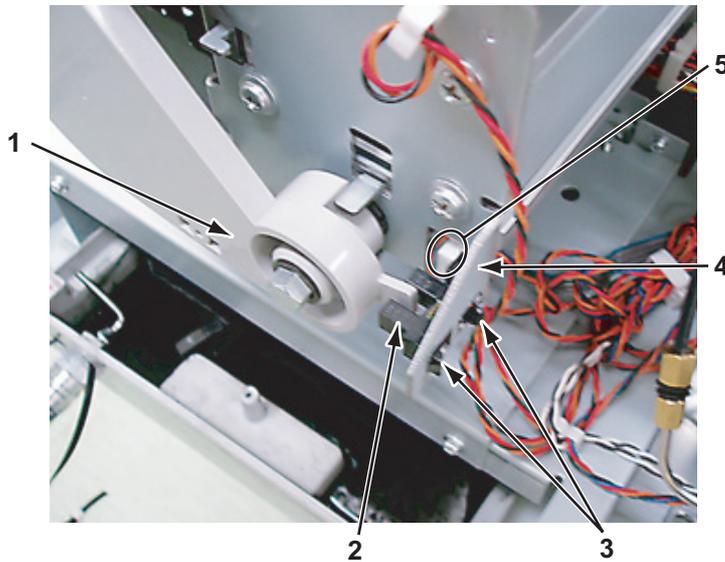
NOTE

Before replacing the lever sensor, remove the following covers.

- R side cover:  **"4.2.1 Removing R Side Cover" p.4-6**

1. Move down the pressure lever forward (downward).

- Detach the lever sensor cable assembly connector from the lever sensor.



No.	Part name
1	Pressure lever
2	Lever sensor
3	Hook
4	Sensor mounting plate
5	Lever sensor cable assembly connector

- Release the hook retaining the lever sensor, then replace the lever sensor.
- To reassemble the unit, reverse the removal procedure.

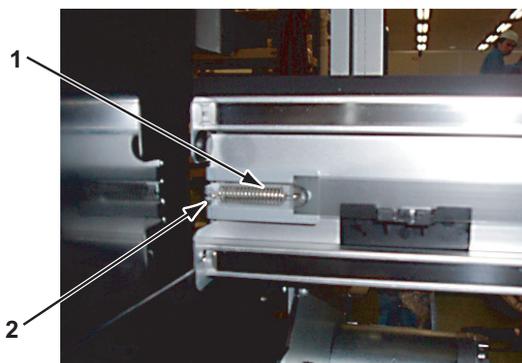
4.5.4 Replacing T Fence

NOTE

Before replacing the T fence, remove the following covers.

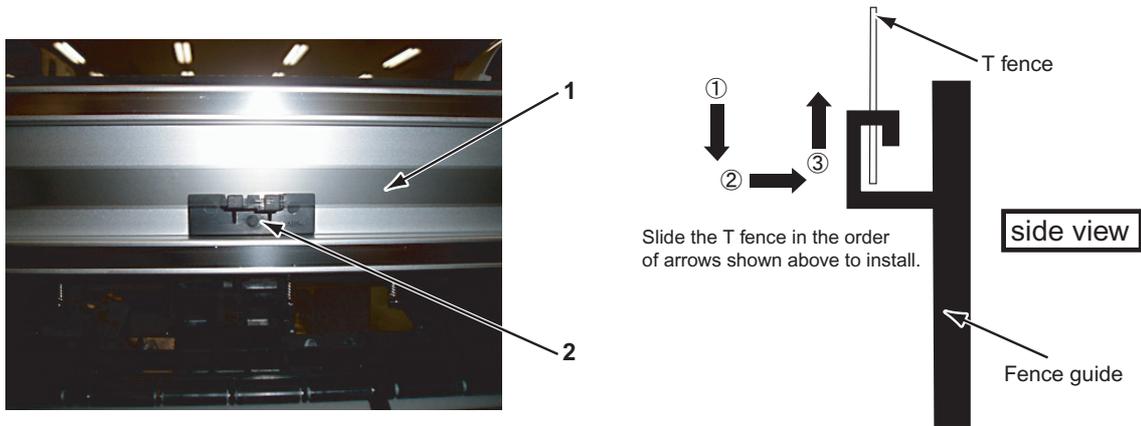
- R side cover: [☞ "4.2.1 Removing R Side Cover" p.4-6](#)
- L side cover: [☞ "4.2.3 Removing L Side Cover" p.4-9](#)

- Remove the T fence spring from T fence spring hook on the L frame side.



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

2. From the three fence guides, remove the T fences by following instructions in the diagram below.



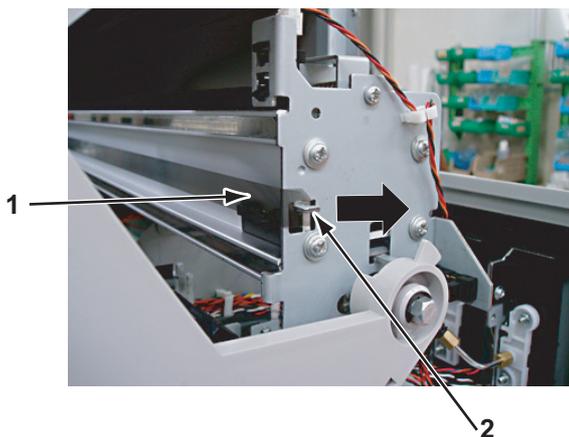
No.	Part name
1	T fence
2	Fence guide

CAUTION

When removing the T fence, note the following.

- Do not pull the T fence by force; the fence guide can be easily broken.
- Pay attention not to damage or break the T fence.

3. Remove the T fence from the CR rail frame R hook on the R frame side, then pull it out toward the direction of the arrow in the diagram.



No.	Part name
1	T fence
2	T fence hook

4. Replace the T fence.

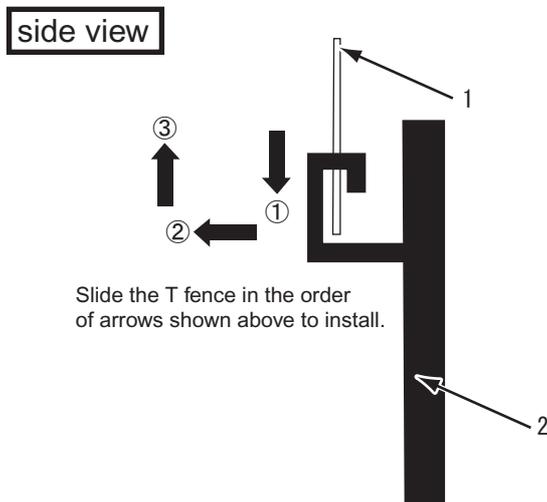
5. Fold a new T fence to the outside (90 degrees) at the point 9 mm from the edge, then install it to the CR rail frame hook.

6. Insert the T fence into the CR encoder assembly.



No.	Part name
1	T fence
2	CR encoder assembly

7. Install the T fence to the fence guide.



No.	Part name
1	T fence
2	Fence guide

8. Install the T fence spring to the T fence spring hook on the L frame side.

9. Perform adjustments by following the instructions in **"7.2 Adjustment Item"** p.7-3.

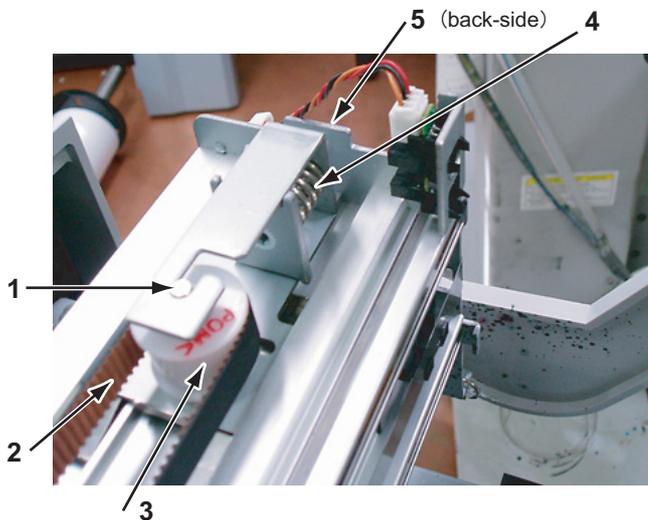
4.5.5 Replacing CR Driven Pulley

NOTE

Before replacing CR driven pulley assembly, remove the following covers.

- R side cover: [☞ "4.2.1 Removing R Side Cover" p.4-6](#)
- L side cover: [☞ "4.2.3 Removing L Side Cover" p.4-9](#)
- Top cover: [☞ "4.2.6 Removing Top Cover" p.4-13](#)

1. Release the CR locker by pushing it with your finger, then move the carriage from the capping position to the left.
2. Loosen the CR tension mounting shaft on the R side frame, then release the CR belt tension.



No.	Part name
1	Driven pulley shaft
2	CR belt
3	CR driven pulley
4	Tension spring
5	CR tension mounting shaft

3. Take the CR belt off the CR motor assembly pulley on the L frame side.
4. Remove the CR driven pulley.
5. Remove the CR driven pulley shaft from the CR driven pulley.
6. To reassemble the unit, reverse the removal procedure.

NOTE

- Installation direction of the driven pulley shaft is specified. Thin shaft side faces down. Also refer to [☞ "10.5 Exploded View" p.10-10](#).
- After installing the CR driven pulley, move the carriage with your hand from side to side, and check if the CR belt is equally balanced on the pulley center section of the CR motor assembly.

7. Perform adjustments by following the instructions in ["7.2 Adjustment Item" p.7-3](#).

4.6 Replacement of Head Section Components

4.6.1 Replacing Print Head

NOTE

Before replacing the print head, remove the R side cover or the top cover.

☞ "4.2.1 Removing R Side Cover" p.4-6

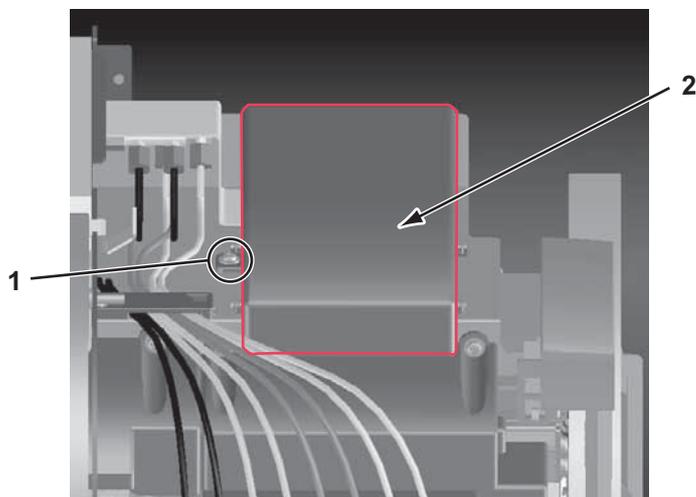
☞ "4.2.6 Removing Top Cover" p.4-13

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

TIP

☞ "5.5.13 Head Cleaning Menu" p.5-45

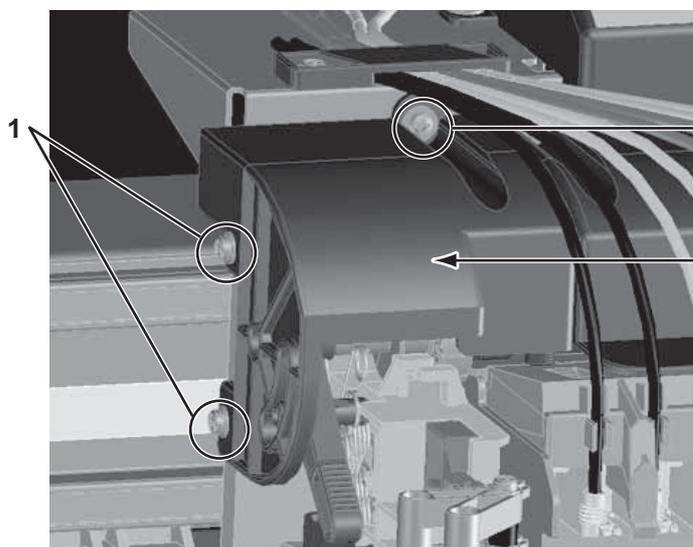
2. Release the CR locker by pushing it with your finger, then move the carriage from the capping position to the left.
3. Remove the CR board cover-retaining screw (M3 × 8, S tight cup: 1pce).



No.	Part name
1	CR board cover screw
2	CR board cover

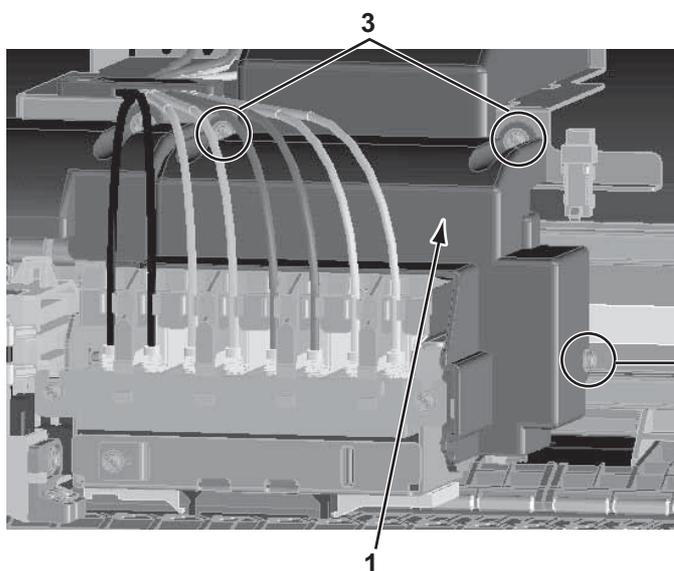
4. Remove the CR board cover.

- Remove the cable cover L-retaining screw (pan-head screw with spring washer and flat washer M3 × 8 W sems: 2) (tapping screw M3 × 8, S tight cup: 1pce).



No.	Part name
1	Cable cover L screw (M3 × 8 pan-head screw with spring washer and flat washer W sems)
2	Cable cover L
3	Cable cover L screw (M3 × 8, S tight cup)

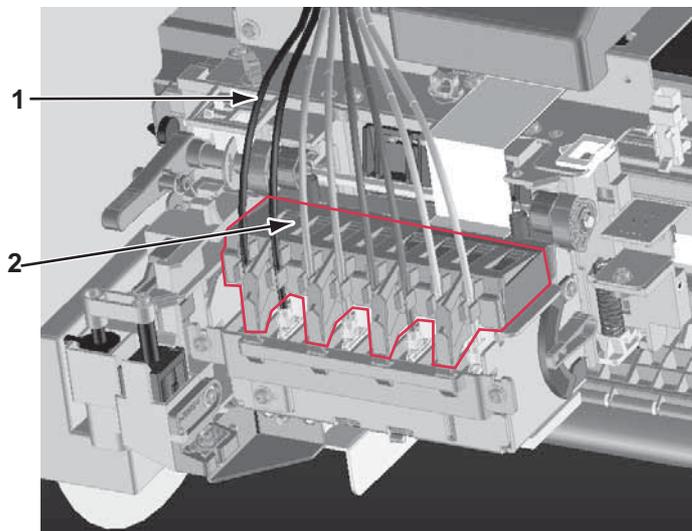
- Remove the cable cover R-retaining screw (tapping screw M3 × 8, S tight cup: 2pce) (pan-head screw with spring washer and flat washer M3 × 8 W sems: 1).



No.	Part name
1	Cable cover R
2	Cable cover R screw (M3 × 8 pan-head screw with spring washer and flat washer W sems: 1)
3	Cable cover R screw (M3 × 8, S tight cup: 2)

- Remove the cable cover.

8. While rotating the damper fixing material, remove the eight ink tubes from the damper fixing material hook.



No.	Part name
1	Ink tube
2	Damper fixing material

9. Remove the damper fixing material.
10. Remove the eight damper assemblies connected to the print head that needs to be replaced, with a flat-head driver or other tools.

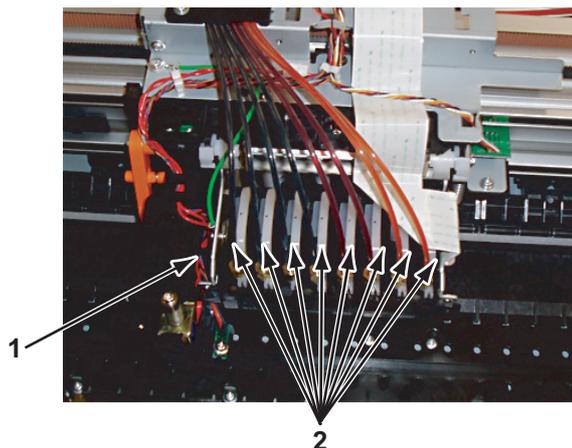
CAUTION

- Do not press the transparent film on the damper assembly with your hand. Doing so may discharge the ink filled inside the damper assembly.
- Be careful not to damage the transparent film on the damper assembly.

NOTE

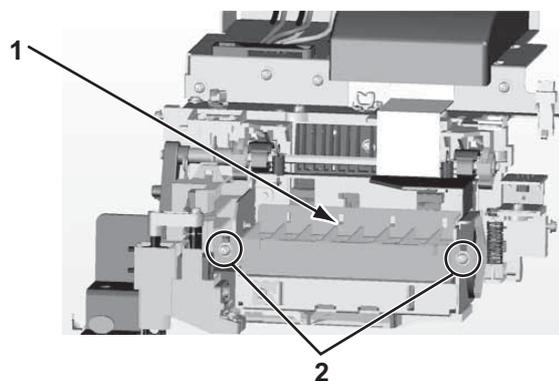
When removing the damper assembly, note the following.

- To easily remove the damper assembly, insert a flat-head driver between the carriage and the damper assembly left protruding part, then pry out the damper assembly.
- To avoid residual ink leakage, place the removed damper on a rag.



No.	Part name
1	Flat-head driver insertion point
2	Damper assembly

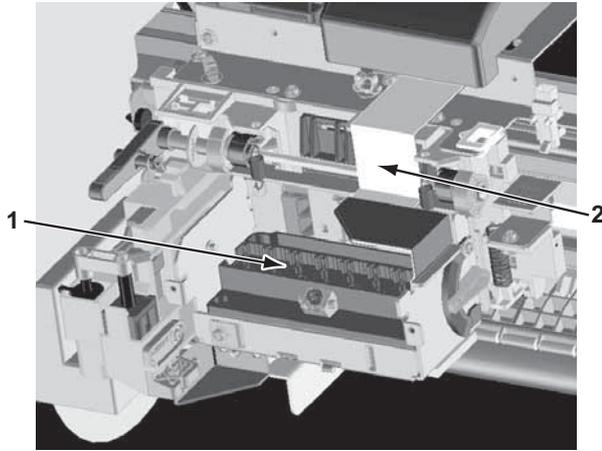
11. Remove the damper locating material-retaining screw (pan-head screw with spring washer and flat washer M3 × 6 W sems: 2pce).



No.	Part name
1	Damper locating material
2	Damper locating material screw

12. Remove the damper locating material.

13. Remove the print head from the carriage.



No.	Part name
1	Print head
2	Head tape wire

14. Remove the two head tape wire from the print head.

CAUTION

- Do not touch the nozzles of the print head. Make sure that the nozzles do not get any dust.
- When connecting or removing the tape wire (FFC), always pull or push the wire perpendicularly to the connector. Pulling or pushing the wire slantwise may damage/short/break the terminals in the connectors, resulting in a breakdown of the print head.
- The folding orientation of the FFC (tape wire) differs between head side and the CR board side. Make sure to attach the tape wire in the appropriate orientation.

15. Replace the print head.

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

17. Perform adjustments by following the instructions in ["7.2 Adjustment Item" p.7-3](#).

4.6.2 Replacing Cutter Holder Assembly

(1) Replacing Cutter Holder Assembly

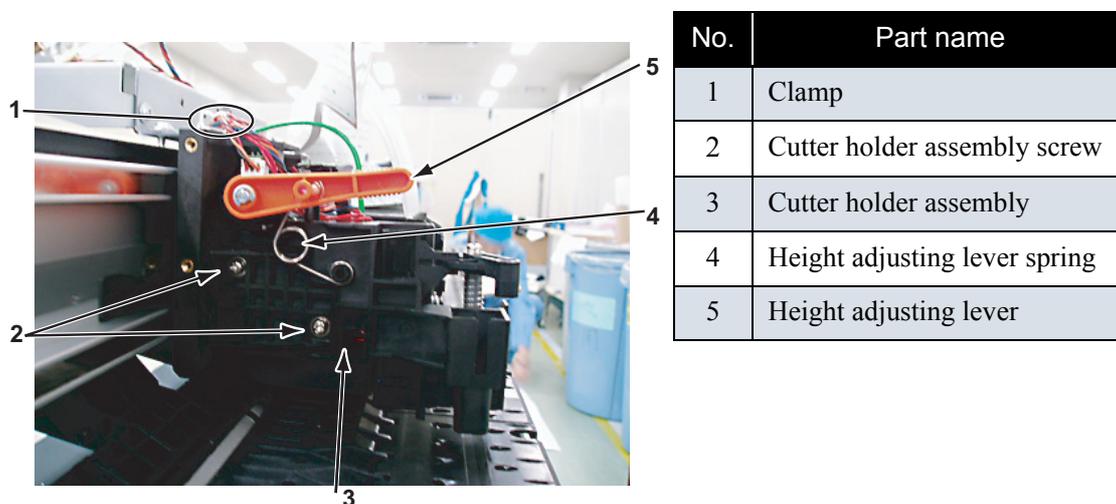
NOTE

Before replacing parts in the cutter holder assembly, remove the following parts referring to the instructions shown below.

Removing the cable cover L, R: refer to ["4.6.1 Replacing Print Head" p.4-37](#)

Removing the P_EDGE sensor, cutter sensor connector: refer to ["4.10.1 Replacing CR Board Assembly" p.4-64](#)

1. Release the sensor cables in the front of the cutter holder assembly from the clamps (3 points) on the front of the cutter holder assembly.

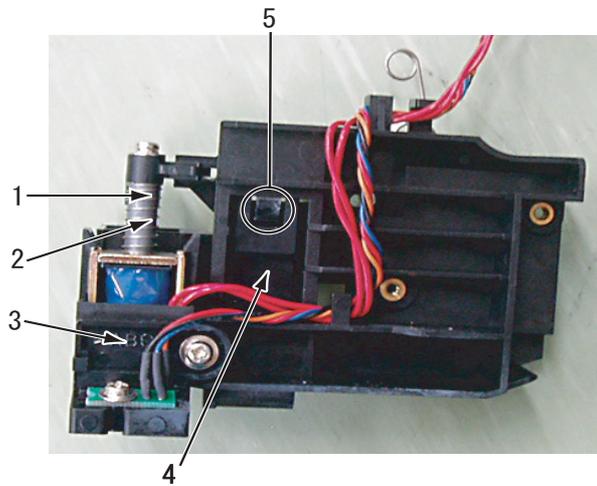


2. Remove the height adjusting lever spring from the height adjusting lever.
3. Remove the cutter holder-retaining screw (pan-head screw with spring washer and flat washer M3 × 8 W sems: 2pcs).
4. Remove the cutter holder assembly from the carriage.
5. Replace the parts.
6. To reassemble the unit, reverse the removal procedure.
7. Perform adjustments by following the instructions in **"7.2 Adjustment Item" p.7-3**.

(2) Replacing Cutter Solenoid Assembly

1. Remove the cutter holder assembly.

2. Push the tab of the CR lock kicker with a sharp-pointed tool or a flat-head driver to remove the CR lock kicker.



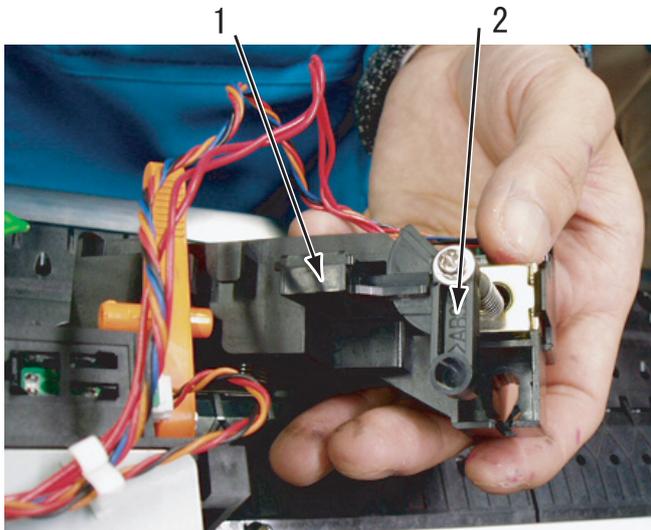
No.	Part name
1	Cutter solenoid assembly iron-core
2	Cutter solenoid spring
3	Cutter solenoid assembly
4	CR lock kicker
5	CR lock kicker tab

3. Remove the cutter solenoid assembly iron-core and the cutter solenoid spring.
4. While opening the cutter holder assembly upper tab, push out the cutter solenoid assembly from the cutter holder assembly bottom with a flat-head driver or other tools, then remove it.
5. Remove the cutter solenoid terminal connector.
6. Replace the cutter solenoid assembly.
7. To reassemble the unit, reverse the removal procedure.

NOTE

When installing the cutter solenoid, note the following.

- Joint the cutter cap and the CR lock kicker, push down the cutter cap and the CR lock kicker together to install them onto the cutter holder.

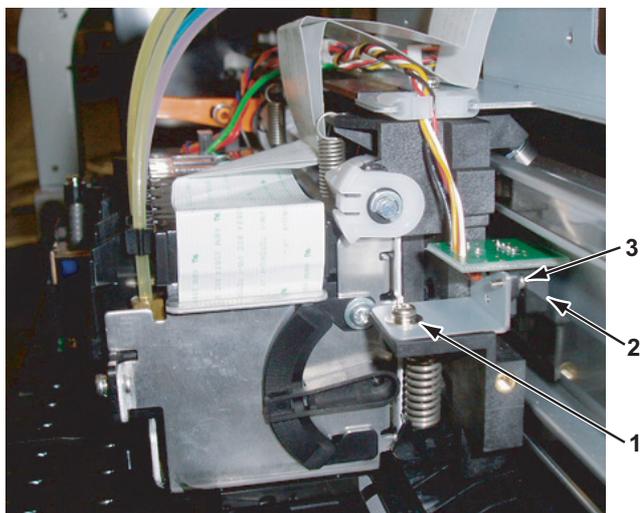


No.	Part name
1	CR lock kicker
2	Cutter cap

- Make sure to join the cutter cap and the CR lock kicker. Otherwise, when turning the power ON, the carriage cannot move from the origin point to the left.

(3) Replacing CR_ENC Assembly

1. Remove the cutter holder assembly.
2. Remove the CR_ENC assembly-retaining screw (pan-head screw with spring washer and flat washer M 3 × 8 W sems: 1pce).

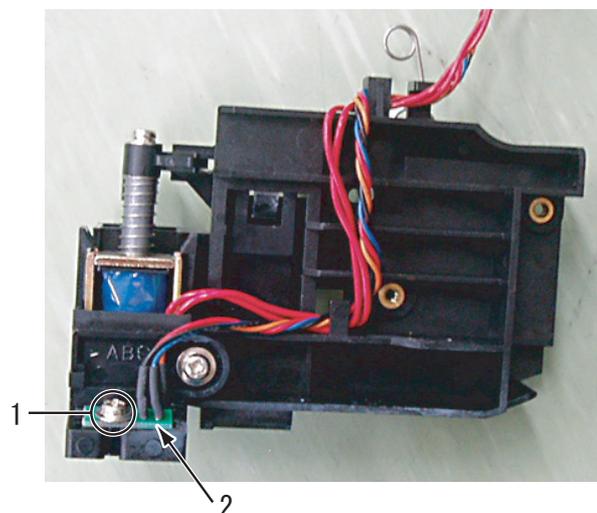


No.	Part name
1	Mounting plate screw
2	CR_ENC assembly
3	CR_ENC assembly screw

3. Detach the cable from the three clamps.
4. Remove the CR_ENC assembly.
5. To reassemble the unit, reverse the removal procedure.

(4) Replacing P_EDGE Sensor Assembly

1. Remove the cutter holder assembly.
2. Remove the P_EDGE sensor assembly-retaining screw (M3 × 6, P tight cup: 1pce).



No.	Part name
1	P_EDGE sensor assembly screw
2	P_EDGE sensor assembly

3. Detach the cable from the three clamps.
4. Remove the P_EDGE sensor assembly.
5. To reassemble the unit, reverse the removal procedure.

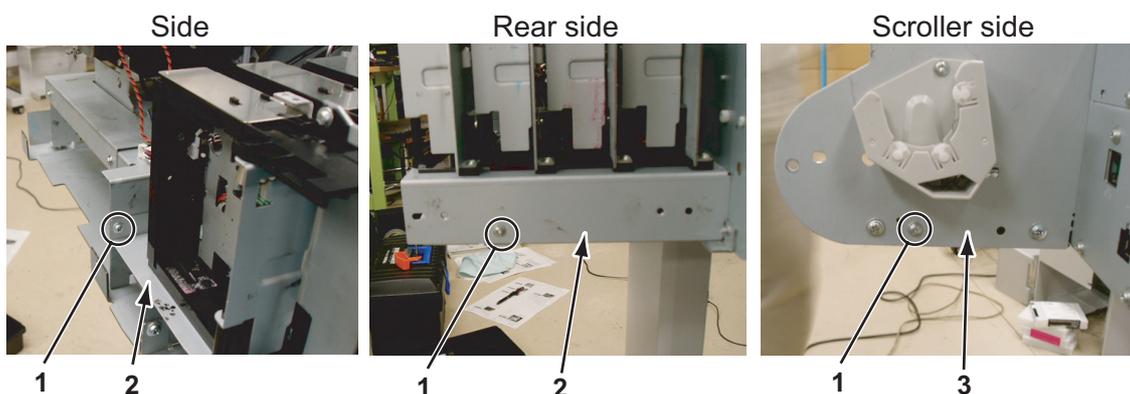
4.7 Replacement of Maintenance Section Components

4.7.1 Removing Maintenance Base Assembly

NOTE

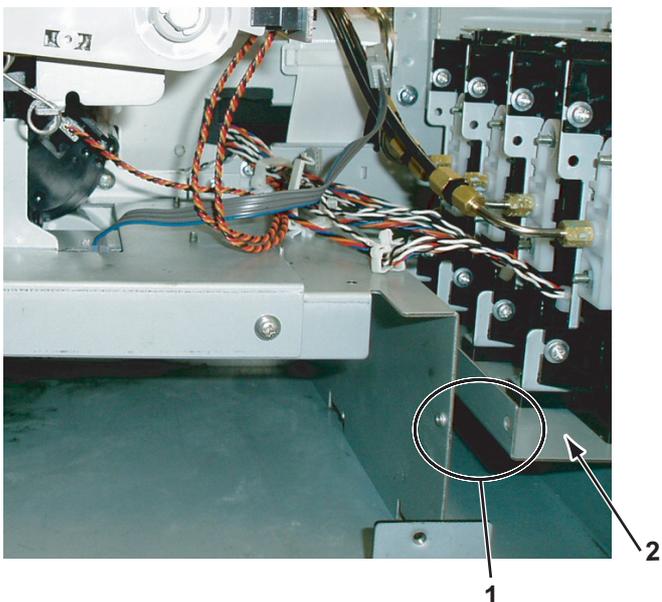
- When replacing the parts inside the maintenance assembly, make sure to reset the following counter parameters.
 - “Waste Ink” or “Cleaning”: [☞ "6.3.1 Counter Display Menu" p.6-3](#)
- Before replacing the parts in the pump cap assembly, remove the following parts.
 - R side cover: [☞ "4.2.1 Removing R Side Cover" p.4-6](#)
 - Ink holder cover: [☞ "4.2.4 Removing Ink Holder \(I/H\) Cover" p.4-11](#)

1. Remove the screws (xx: 3pce) retaining the IC holder mounting plate.



No.	Part name
1	IC holder mounting plate-retaining screw (XX)
2	IC holder mounting plate
3	Frame

- To ensure enough workspace, shift the ink holder base backward and get a clearance of about 20mm.

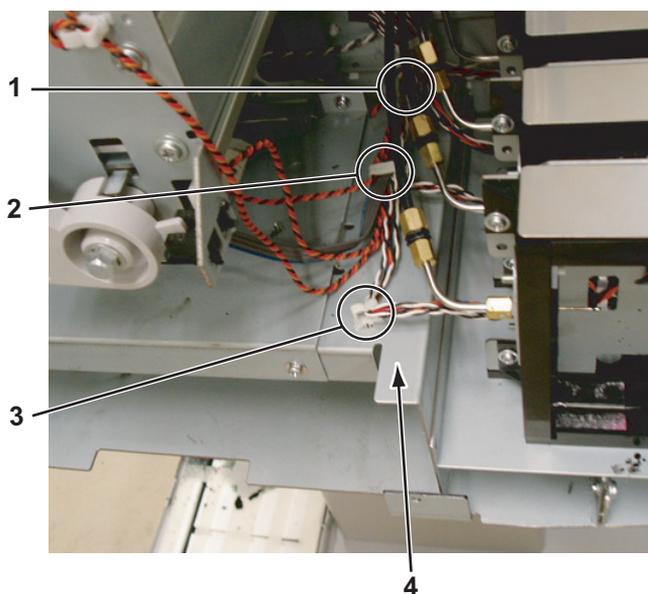


No.	Part name
1	Clearance to ink holder base (approx. 20mm)
2	Ink holder base

NOTE

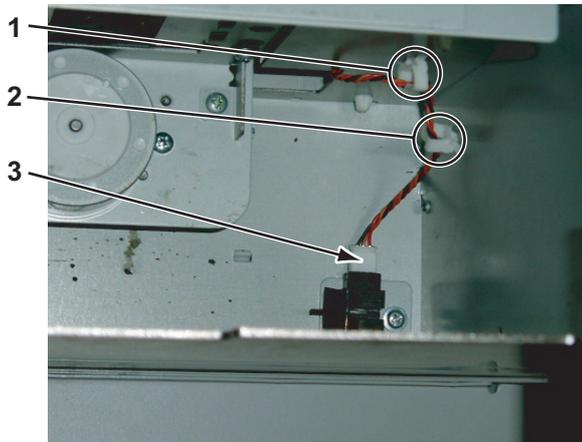
If the ink holder is shifted more than necessary, the tube may be come off. Do not shift the ink holder more than the length specified.

- Remove the cable above the maintenance base 1 from the clamps.



No.	Part name
1	Clamp 1
2	Clamp 2
3	Clamp 3
4	Maintenance base 1

- Remove the waste fluid box sensor connector, then remove the cable from the clamp.

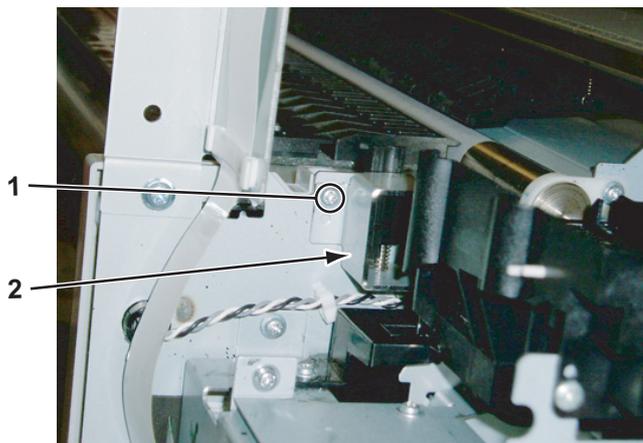


No.	Part name
1	Clamp 1
2	Clamp 2
3	Waste fluid box sensor connector

- Remove the flushing box assembly.

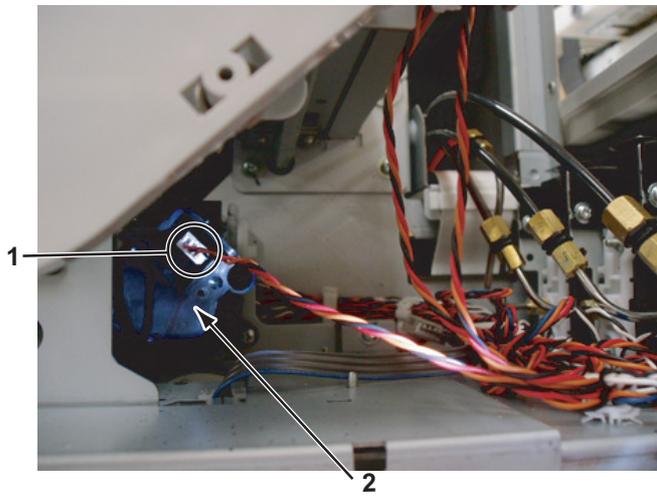
☞ "4.7.4 Replacing Flushing Box Assembly" p.4-54

- Remove the Lock bracket-retaining screw (Tapping screw M3x6, S tight cup: 1pce).



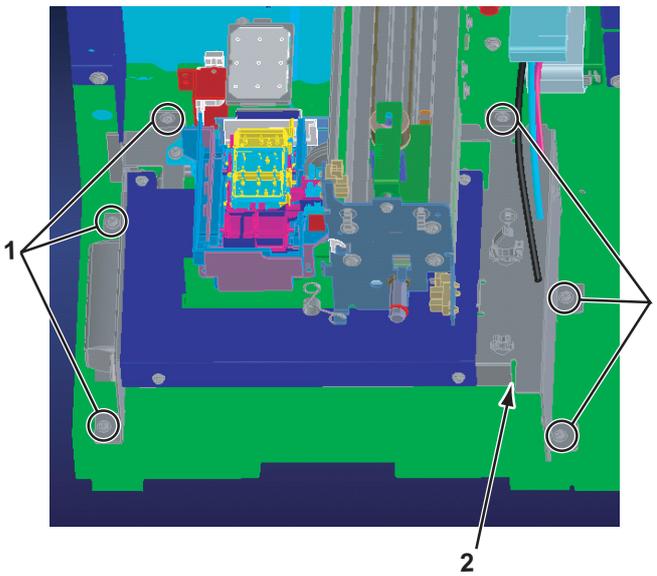
No.	Part name
1	Head lock-retaining screw (Tapping screw M3x6, S tight cup)
2	Lock bracket

7. Remove the wiper phase sensor connector.



No.	Part name
1	Wiper phase sensor connector
2	Pump unit

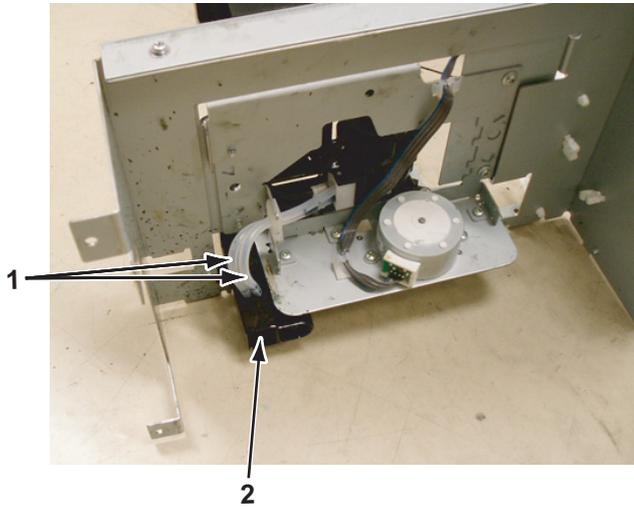
8. Remove the maintenance base 2-retaining screw (tapping screw M3 x 6, S tight cup: 6pcs).



No.	Part name
1	Maintenance base 2-retaining screw (tapping screw M3 x 6, S tight cup)
2	Maintenance base 2

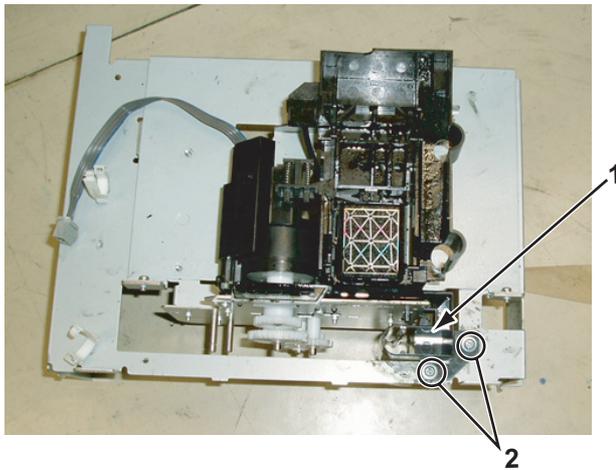
9. Remove the two tubes inserted in the waste fluid guide.

Back side of maintenance base assembly



No.	Part name
1	Waste fluid guide tube
2	Waste fluid guide

10. Remove the waste fluid guide-retaining screw (tapping screw M3 x 6, S tight cup: 2pcs).



No.	Part name
1	Waste fluid guide
2	Waste fluid guide-retaining screw (tapping screw M3 x 6, S tight cup)

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

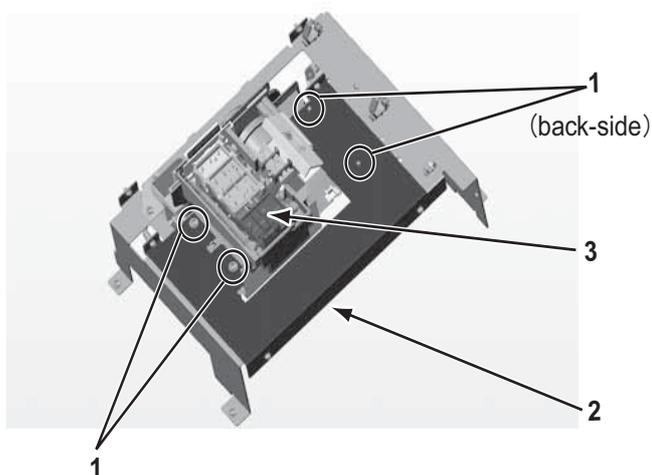
4.7.2 Replacing Pump Cap Assembly

NOTE

Before removing the pump cap assembly, remove the following parts.

- R side cover: [☞ "4.2.1 Removing R Side Cover" p.4-6](#)
- Flushing box: [☞ "4.7.4 Replacing Flushing Box Assembly" p.4-54](#)
- Maintenance base assembly: [☞ "4.7.1 Removing Maintenance Base Assembly" p.4-47](#)
- Ink holder cover: [☞ "4.2.4 Removing Ink Holder \(I/H\) Cover" p.4-11](#)

1. Remove the screw retaining the pump cap assembly to the maintenance base 1 (pan-head screw with spring washer and flat washer M3 × 6: 4pcs).



No.	Part name
1	Pump cap assembly screw
2	Maintenance base 1
3	Pump cap assembly

2. Replace the pump cap assembly
3. To reassemble the unit, reverse the removal procedure.

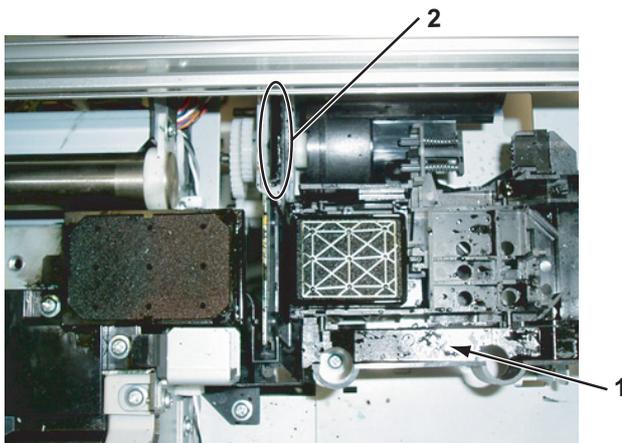
4.7.3 Replacing Cleaner Head (Cleaning Wiper)

NOTE

Before replacing the cleaner head, remove the following covers.

- R side cover:  ["4.2.1 Removing R Side Cover" p.4-6](#)

1. Remove the cleaner head upward with tweezers from the cleaner head holder.



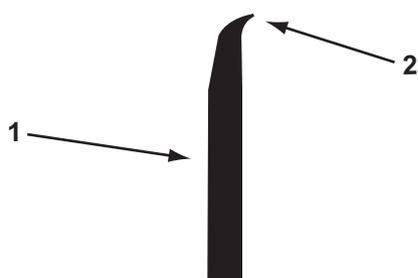
No.	Part name
1	Pump cap assembly
2	Cleaning wiper

2. Replace the cleaner head.
3. To reassemble the unit, reverse the removal procedure.

NOTE

When removing the cleaner head, note the following.

- Do not touch the cleaner head with your 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.

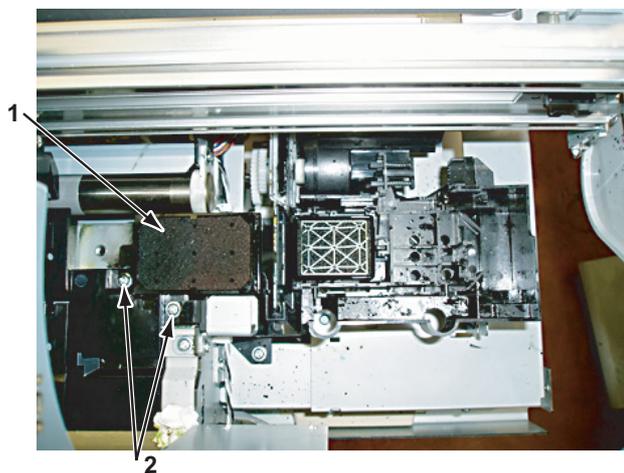


No.	Part name
1	Cleaner head
2	Head point

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

4.7.4 Replacing Flushing Box Assembly

1. Remove the screw retaining the flushing box assembly to the platen base (tapping screw M3 × 6, S tight cup: 2pcs).



No.	Part name
1	Flushing box assembly
2	Flushing box assembly screw

2. Replace the flushing box assembly
3. To reassemble the unit, reverse the removal procedure.

4.8 Replacement of Ink Supply Section Components

Four Ink Holder (I/H) assemblies are installed in this product. The replacement procedures for one of these I/H assemblies are explained in this section.

NOTE

Before replacing parts in the I/H assembly, remove the following covers.

- R side cover: [☞ "4.2.1 Removing R Side Cover" p.4-6](#)
- I/H cover: [☞ "4.2.4 Removing Ink Holder \(I/H\) Cover" p.4-11](#)

4.8.1 Replacing Ink Holder (I/H) Assembly

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

TIP

[☞ "5.5.13 Head Cleaning Menu" p.5-45](#)

2. Remove the ink sensor assembly connector (4 pieces) from the main board assembly.

TIP

[☞ "4.3.2 Removing Board Bracket" p.4-18](#)

3. Take the removed sensor assembly cable off the clamp (2 points).



No.	Part name
1	Clamp
2	I/H assembly

4. Remove the joint screw (M6) connecting the I/H assembly and the SUS pipe, and remove the o-ring inside.



No.	Part name
1	Joint screw
2	I/H assembly

5. Remove the screw retaining the I/H assembly to the I/H base (tapping screw M3 × 10, S cup: 2pcs).
6. Replace the I/H assembly.

NOTE

The components of the different color I/H assembly are compatible each other except the following parts.

- Incompatible parts: Ink sensor assembly

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

NOTE

When tighten the joint screw, use the optional jig and pay attention to the fastening torque.

☞ **"10.4 Jigs and Tools" p.10-7**

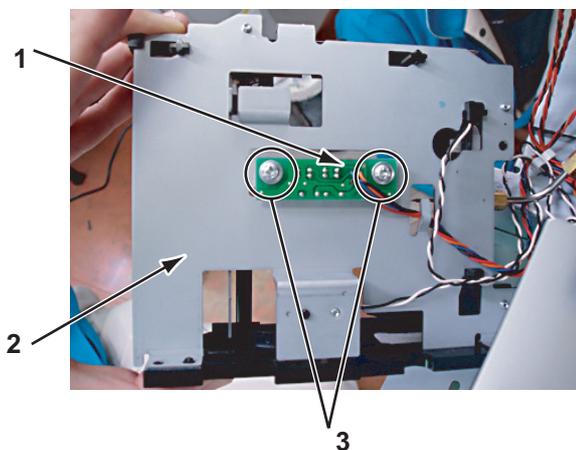
4.8.2 Replacing Ink Sensor Assembly

NOTE

Before replacing the ink ID sensor assembly, remove the following parts.

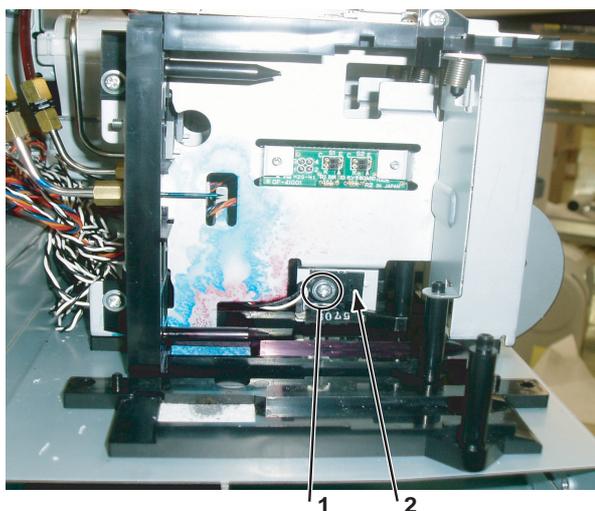
- I/H assembly: ["4.8.1 Replacing Ink Holder \(I/H\) Assembly" p.4-55](#)

1. Detach the ink ID sensor assembly cable from the hooks (2 pieces) on the back of the I/H assembly.
2. Remove the screw retaining the ink ID sensor to the IC holder mounting plate (tapping screw M3 × 6, S cup: 2).



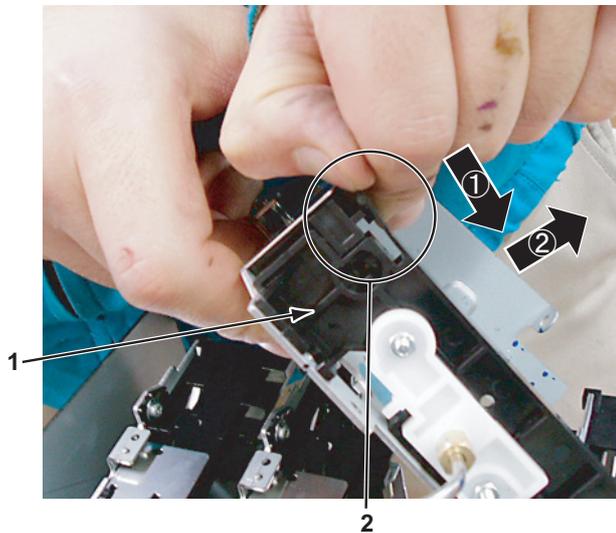
No.	Part name
1	Ink ID sensor
2	IC holder mounting plate
3	Ink ID sensor screw

3. Remove the screw retaining the ink END sensor to the IC holder mounting plate (tapping screw M3 × 10, S cup: 1pce).



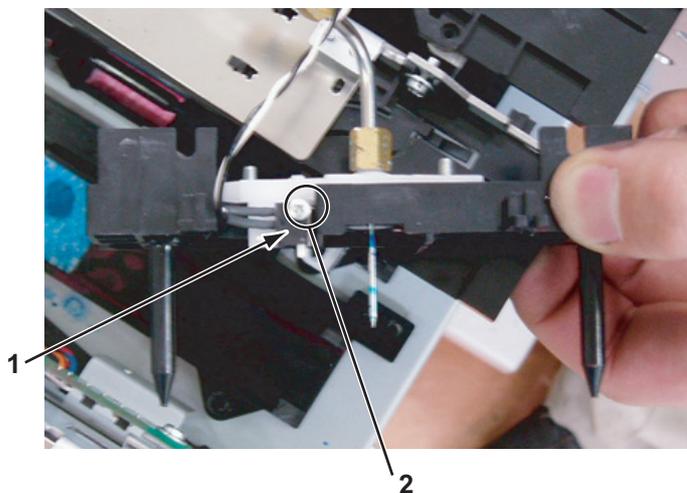
No.	Part name
1	Ink END sensor screw
2	Ink END sensor

4. Release the tab of the frame assembly needle, push down and slide it sideways (see the directions of the arrows), then remove the cartridge frame assembly.



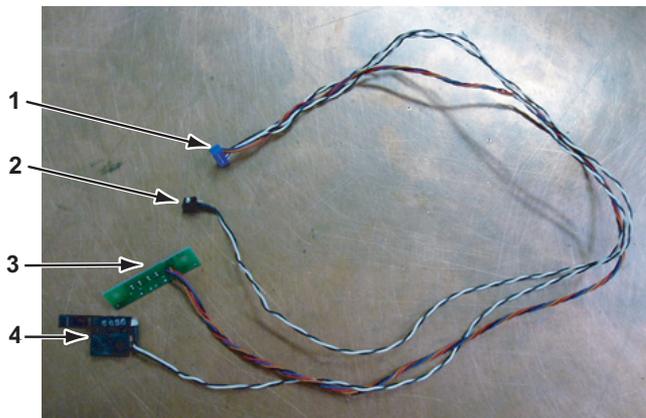
No.	Part name
1	Frame assembly needle
2	Frame assembly needle tab

5. Remove the screw retaining the ink NOT sensor to the I/H assembly (M2 × 8, S tight binding: 1pce).



No.	Part name
1	Ink NOT sensor
2	Ink NOT sensor screw

6. Replace the ink sensor assembly.



No.	Part name
1	Ink sensor assembly connector
2	Ink NOT sensor
3	Ink ID sensor
4	Ink END sensor

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

NOTE

When reassembling the unit, note the following sensor fastening torque.

- Ink NOT sensor: Slight overtorque may damage the parts. Gradually torque the sensor to avoid tightening it too much.
- Ink END sensor: Tighten the sensor to avoid rattling.

4.8.3 Replacing Cover Sensor Assembly

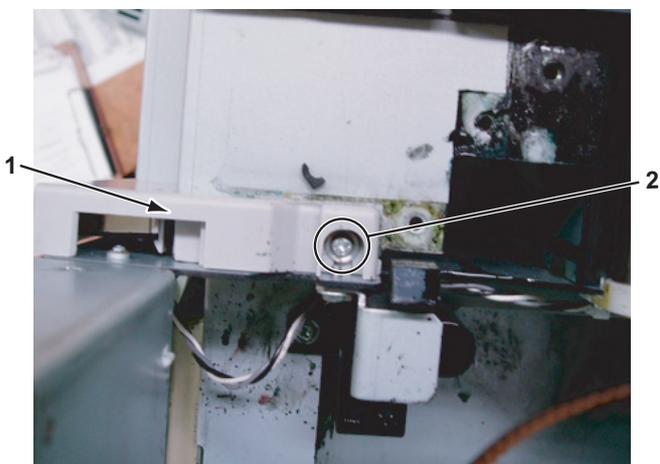
NOTE

Before replacing the cover sensor assembly, remove the parts as follows.

☞ "4.2.1 Removing R Side Cover" p.4-6

☞ "4.2.3 Removing L Side Cover" p.4-9

1. Remove the screw retaining the sensor cover (L/R) to the frame (tapping screw M3 × 6, S tight cup: 1pce per cover). (The diagram below shows the sensor cover R).

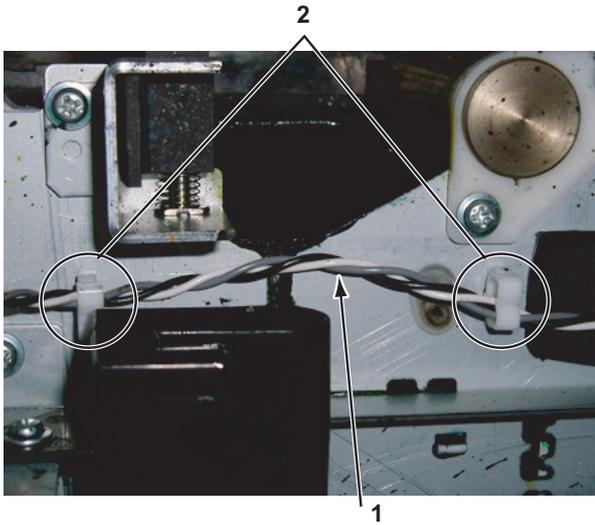


No.	Part name
1	Sensor cover R
2	Sensor cover R screw

2. Remove the cover sensor connector from the main board.

☞ "4.3.2 Removing Board Bracket" p.4-18

3. Detach the cable from the cover (L/R) sensor cable-retaining clamp.(The diagram below shows the cover R sensor).



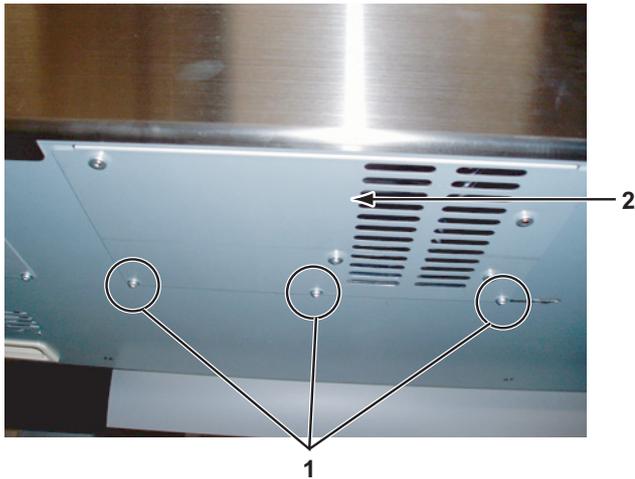
No.	Part name
1	Clamp
2	Cover R sensor cable

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

4.9 Replacement of Frame Section Components

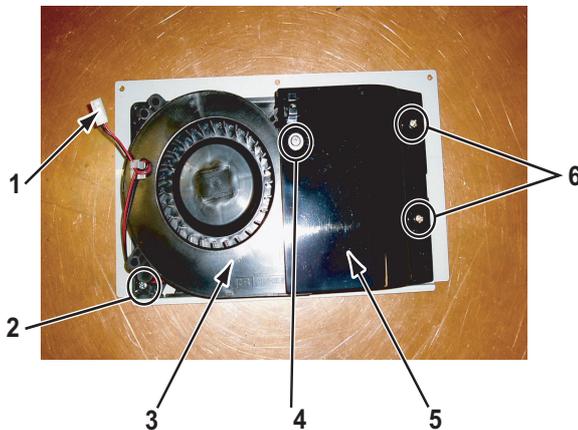
4.9.1 Replacing Suction Fan Assembly

1. Remove the screw retaining the fan plate to the B frame (tapping screw M3 × 6, S tight cup), then remove the suction fan assembly.



No.	Part name
1	Fan plate screw (M3 × 6, S tight cup)
2	Fan plate

2. Remove the suction fan assembly cable connector, then remove the suction fan assembly from the B frame.



No.	Part name
1	Suction fan cable connector
2	Suction fan screw (M4 × 8 pan-head machine screw)
3	Suction fan
4	Suction fan screw (M4 × 40 pan-head screw with spring washer and flat washer polished)
5	Fan duct
6	Fan duct screw (M4 × 5 pan-head machine screw)

3. Remove the screw retaining the fan duct (pan-head machine screw M4 × 5: 2pcs), then remove the fan duct.
4. Remove the suction fan assembly retaining-screw (pan-head screw with spring washer and flat washer M4 × 40 polished: 1) (pan-head machine screw M4 × 8: 1pce).
5. Replace the suction fan assembly
6. To reassemble the unit, reverse the removal procedure.

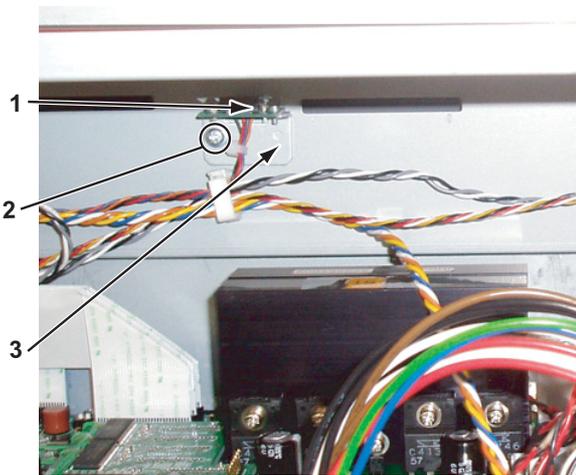
4.9.2 Replacing P_REAR Sensor Assembly

NOTE

Before replacing parts in the P_REAR sensor assembly, remove the following covers.

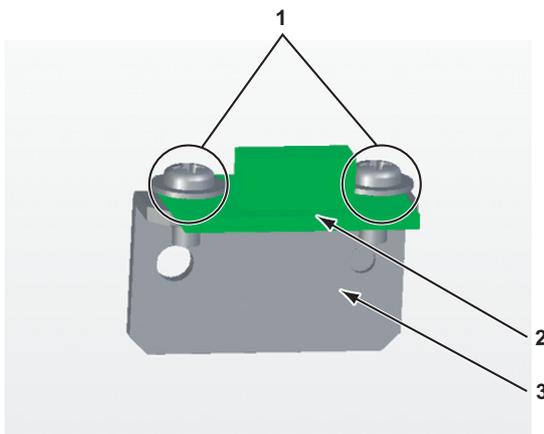
- Rear cover: ["4.2.7 Removing Media Guide R2" p.4-14](#)

1. Remove the PF_REAR sensor assembly connector from the main board assembly.
2. Take the P_REAR sensor assembly cable off the clamp.
3. Remove the screw retaining the PE sensor plate to the frame (tapping screw M3 × 6, S tight cup: 1pce).



No.	Part name
1	P_REAR sensor assembly
2	PE sensor plate screw
3	PE sensor plate

4. Remove the screw retaining the P_REAR sensor assembly to the PE sensor plate (cup screw M2 × 6: 2pce).



No.	Part name
1	P_REAR sensor assembly screw
2	P_REAR sensor assembly
3	PE sensor plate

5. Replace the P_REAR sensor assembly.

- To reassemble the unit, reverse the removal procedure.

4.10 Replacement of Cable Guide Section Components

4.10.1 Replacing CR Board Assembly

NOTE

Before replacing CR board assembly, remove the following covers.

- Top cover: refer to ["4.2.6 Removing Top Cover" p.4-13](#)
- CR board cover: refer to the instructions up to step 4 in ["4.6.1 Replacing Print Head" p.4-37](#).

- Remove the following connectors from the CR board assembly.

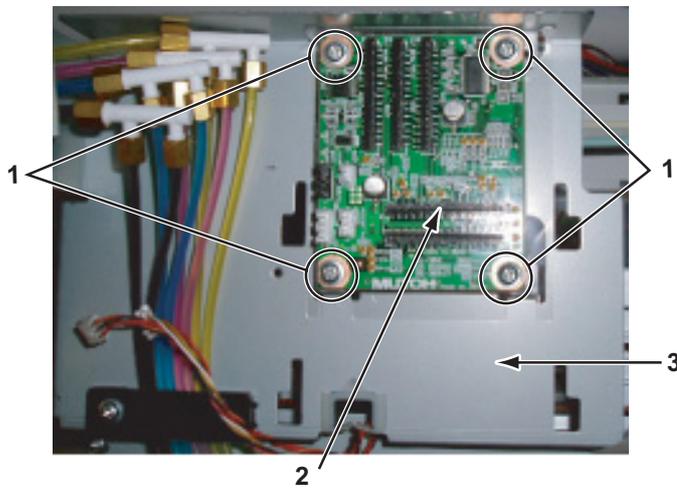
CAUTION

When connecting or removing the FFC type cables to the CR board assembly connector, always pull or push the cables perpendicularly to the connector. Pulling or pushing the wire slantwise may damage/short/break the terminals in the connectors, resulting in a breakdown of the on-board elements.

Table 4-4 Connectors to CR Board Assembly

No.	Connector No.	# of pins	Color	Connect to	Remarks
1	J204	31 pins	Black	Print head CN1	
2	J205	31 pins	Black	Print head CN2	
3	J201	31 pins	Black	Main board assembly J11	
4	J202	31 pins	Black	Main board assembly J10	
5	J203	31 pins	Black	Main board assembly J9	
6	J207	4 pins	White	CR_ENC assembly	
7	J206	2 pins	White	Cutter solenoid assembly	
8	J208	4 pins	Black	P_EDGE sensor assembly	
9	J209	3 pins	White	PG origin point sensor assembly	

- Remove the CR board assembly-retaining screw (tapping screw M3 × 8, S tight cup: 4pce).



No.	Part name
1	CR board screw
2	CR board
3	CR board mounting plate

- Replace the CR board assembly.
- To reassemble the unit, reverse the removal procedure.

4.10.2 Replacing Ink Tube

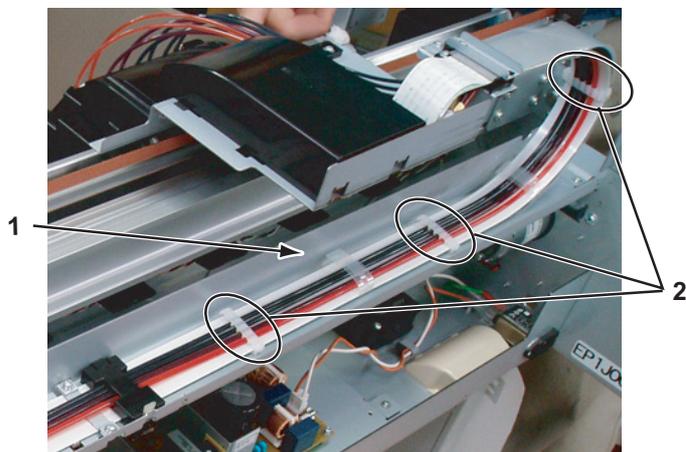
NOTE

Before replacing the ink tube, remove the following covers.

- R side cover: [☞ "4.2.1 Removing R Side Cover" p.4-6](#)
- I/H cover: [☞ "4.2.4 Removing Ink Holder \(I/H\) Cover" p.4-11](#)
- Top cover: [☞ "4.2.6 Removing Top Cover" p.4-13](#)
- Media guide R2: [☞ "4.2.7 Removing Media Guide R2" p.4-14](#)

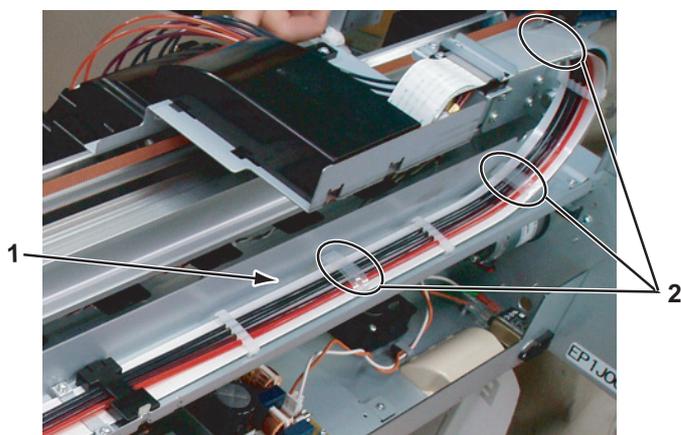
(1) Preparation of Replacing Ink Tube

1. Perform ink discharge operation to discharge ink entirely from the ink paths.
2. Remove the tube clamps (3 points).



No.	Part name
1	Tube guide
2	Tube clamp

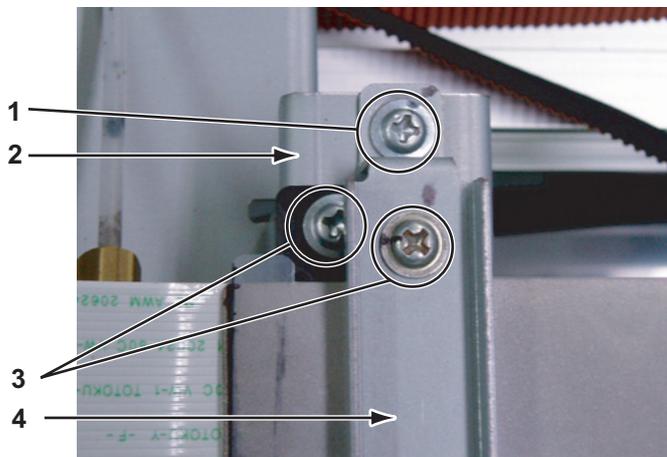
3. Remove the tube film guide retainers (3 points).



No.	Part name
1	Tube guide
2	Tube film guide retainer

4. Remove the CR board cover.
 ☞ Up to step 4 in **"4.6.1 Replacing Print Head" p.4-37**
5. Remove the CR tape wire from the CR board.

- Remove the screw retaining the bearer mounting material and the bearer fixing material (tapping screw M3 × 8, S tight cup: 2pcs) (M3 × 8, P tight cup: 1pce).



No.	Part name
1	Bearer mounting material screw (M3 × 8, P tight)
2	Bearer mounting material
3	Screw retaining the bearer mounting material and the bearer fixing material (M3 × 8, S tight)
4	Bearer fixing material

- Remove the bearer mounting material and the bearer fixing material.

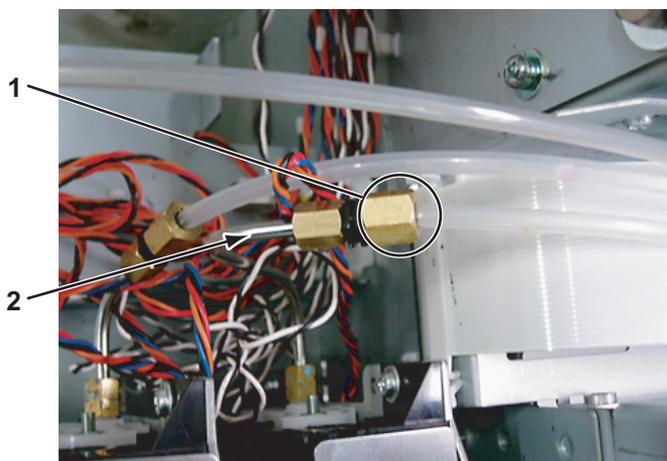
(2) Replacing Ink Tube

- Loosen the joint screw (M7) connecting the ink tube and the F branch.



No.	Part name
1	Joint screw
2	F branch

- Loosen the joint screw (M7) connecting the ink tube and the cartridge pipe.



No.	Part name
1	Joint screw
2	Cartridge pipe

- Remove the ink tube.
- Remove the following parts from the ink tube.
 - Joint screw (M7: 2 pieces)
 - O-ring, large: 2 pieces)
- Replace the ink tube.
- To reassemble the unit, reverse the removal procedure.

4.10.3 Replacing CR Tape Wire

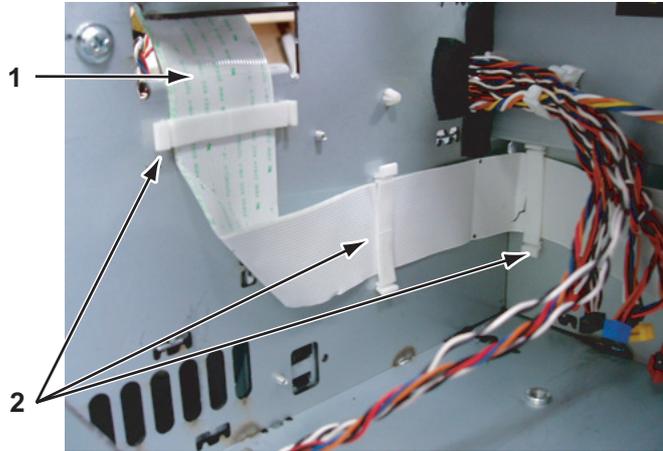
NOTE

Before replacing the CR tape wire, remove the following covers.

- R side cover: [☞ "4.2.1 Removing R Side Cover" p.4-6](#)
- L side cover: [☞ "4.2.3 Removing L Side Cover" p.4-9](#)
- I/H cover: [☞ "4.2.4 Removing Ink Holder \(I/H\) Cover" p.4-11](#)
- Top cover: [☞ "4.2.6 Removing Top Cover" p.4-13](#)
- Media guide R2: [☞ "4.2.7 Removing Media Guide R2" p.4-14](#)
- CR board cover and the cable clamp: [☞ "4.10.2 Replacing Ink Tube" p.4-65](#)

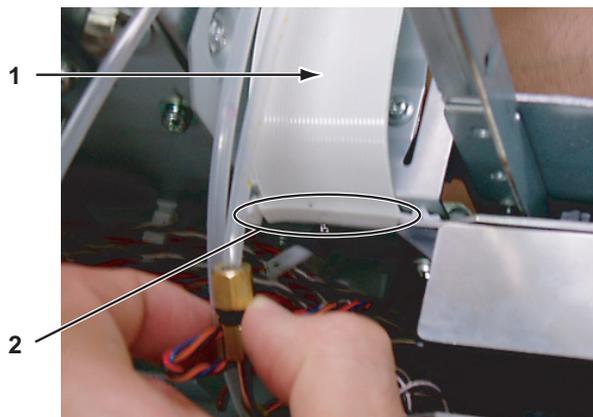
- Remove the three CR tape wires from the main board assembly.

2. Take the CR tape wires off the clamps nearby the main board, then pull them out through the R frame cable inlet.



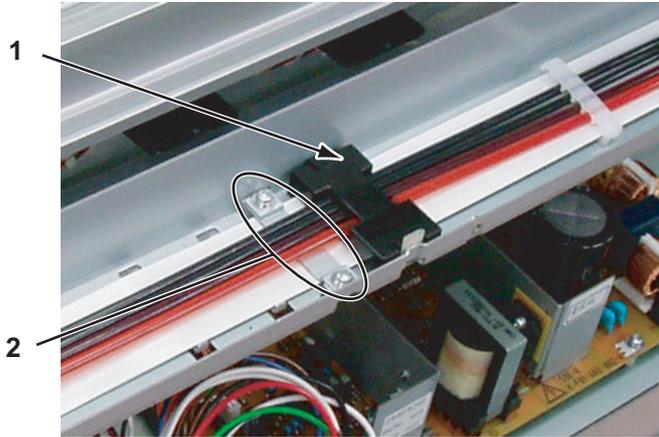
No.	Part name
1	CR tape wire
2	Clamp

3. Take the CR tape wire off the clamp (one point) nearby the R frame cable inlet (I/H assembly side).



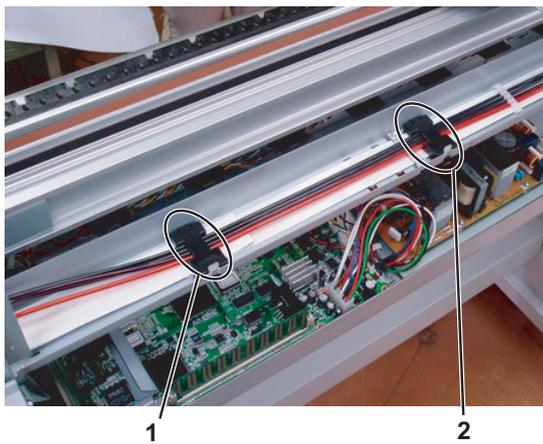
No.	Part name
1	CR tape wire
2	Clamp

- Remove the bearer holder-retaining screw (pan-head screw with spring washer and flat washer M3 × 6: 2pcs), then remove the bearer holder.



No.	Part name
1	Tube holder 2
2	Bearer holder and bearer holder screw

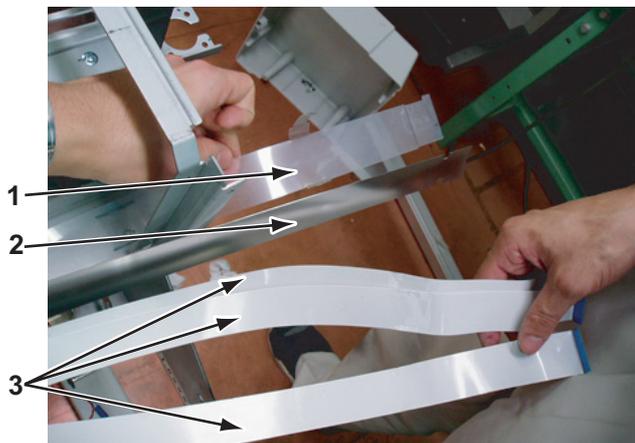
- Remove the tube holder 1 and the tube holder 2.



No.	Part name
1	Tube holder 1
2	Tube holder 2

6. Remove the following parts from the I/H backing plate.

- Tube guide film
- Steel bearer assembly
- CR cable (3 cables)



No.	Part name
1	Tube guide film
2	Steel bearer
3	CR cable

7. Replace the CR cable.

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

NOTE

When connecting the CR cable, note the following.

- The CR cable has three layers. Make sure to match the corresponding connector numbers.
- Remove or insert the CR cable terminal perpendicularly to the CR board connector. Pulling or pushing the wire slantwise may damage/short/break the terminals in the connectors.

5 Self-Diagnosis Mode

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5.9.9 Media Feed Menu 5-69

5.1 Introduction

This chapter provides information on the self-diagnosis function.

The self-diagnosis function can adjust the printing accuracy, and check the condition of each major part. It is used in the manufacturing process, adjustment, and maintenance.

This 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 using the self-diagnosis function, the machine need to be ready to run the 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 roll media.
- During adjustment, use coated paper for the media.

(2) Connecting Power Cable

Connect the power cable to the power inlet of the plotter and insert the power plug into the power outlet.

NOTE

Do not connect three or more power plugs to one outlet.

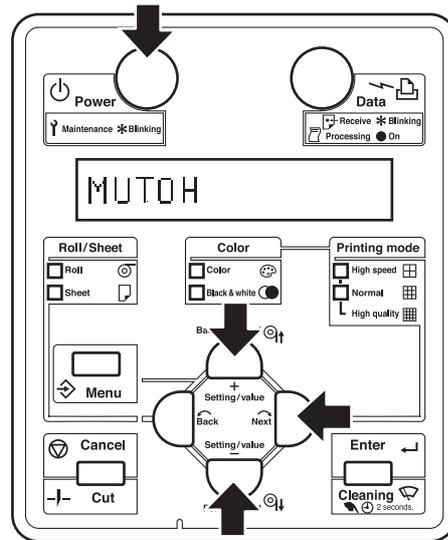
5.2.2 Starting Up

To use the self-diagnosis function, at first run 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 [Backward feed] key, [Forward feed] key and [Printing mode] 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

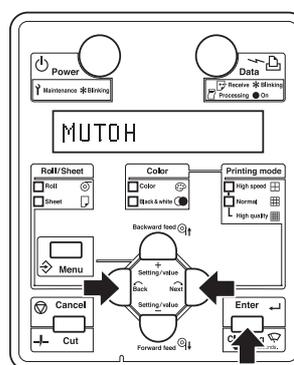
Follow the operation flow shown below to operate the self-diagnosis mode.

TIP

For more detailed operation steps, refer to the flow chart of the applicable diagnosis item.

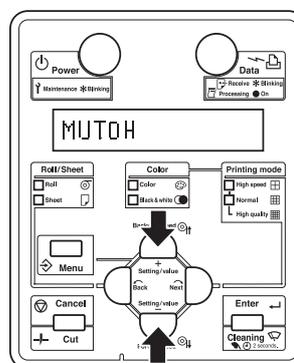
1. Press [Next] key or [Back] key in the operation panel to select the menu. Then, press [Enter] key to confirm the mode to be diagnosed.

- 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.

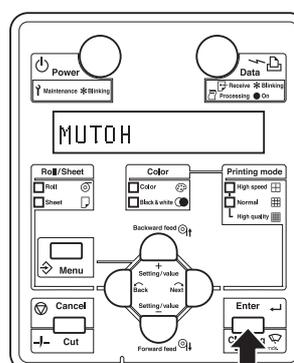


3. To save the modified value, press [Enter] key in the operation panel.

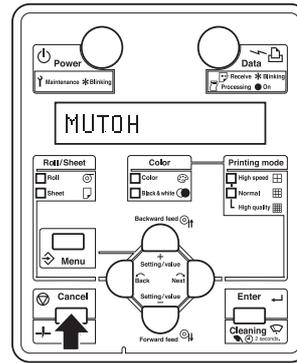
The modified set value is stored and the next item is displayed

NOTE

If you press [Cancel] key, or, [Setting/value +] key or [Setting/value -] key, instead of [Enter] key, the value modified is not stored.



4. To quit the diagnosis, press [Cancel] key in the operation panel.
The system returns to an upper hierarchy of the diagnosis menu.



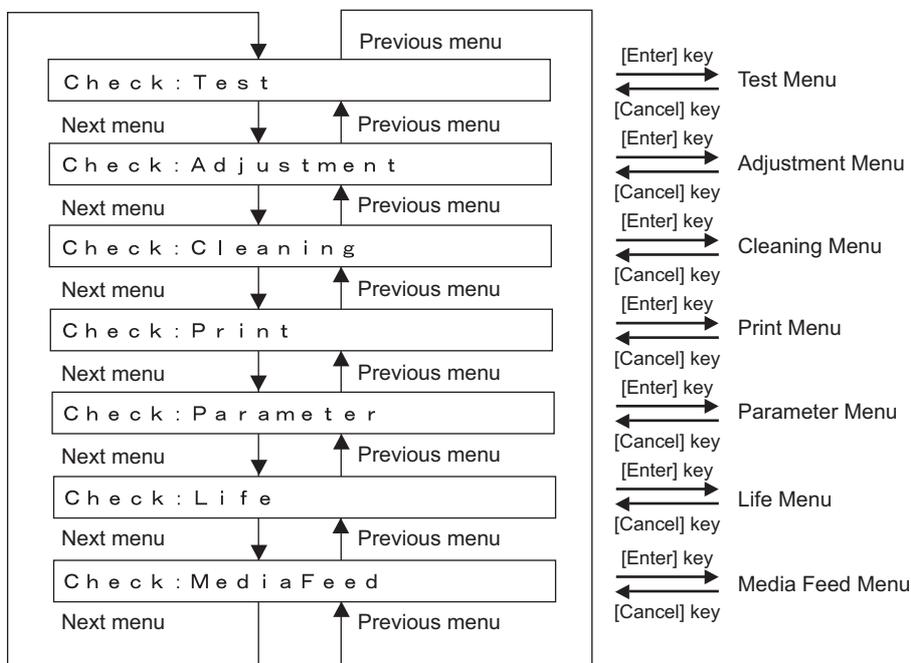
5. To exit the self-diagnosis menu, press [Power] key.

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

Inspection Menu	Performs various inspections on the circuit boards, sensors, and fans.	☞ "5.4 Inspection Menu" p.5-9
Adjustment Menu	Performs various adjustments for the plotter mechanism.	☞ "5.5 Adjustment Menu" p.5-21
Cleaning Menu	Performs cleaning of the print head.	☞ "5.5.15 Feed Pitch Check Menu" p.5-46
Print Menu	Performs sample printing necessary for adjustment.	☞ "5.7 Sample Printing Menu" p.5-50
Parameter Menu	Configures various adjustment parameters.	☞ "5.8 Parameter Menu" p.5-51
Endurance Running Menu	Performs endurance running of the plotter mechanism.	☞ "5.9 Endurance Running Menu" p.5-60
Media feed Menu	Feeds media into the plotter forward or backward.	

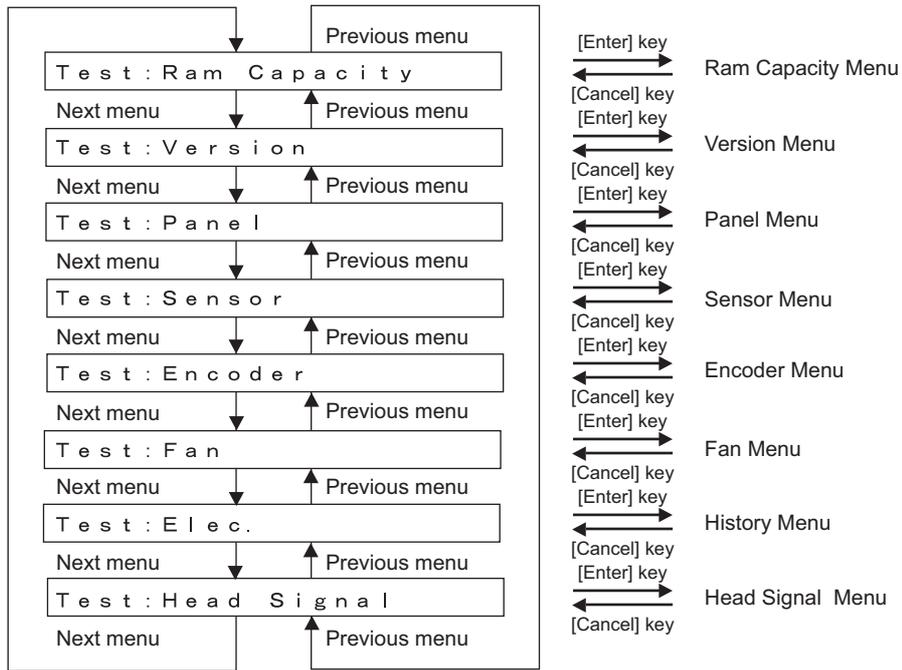


5.4 Inspection Menu

In the inspection menu, the various inspections on the circuit boards, sensors, and fans are available. 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	 "5.4.1 Memory Size Menu" p.5-10
Version	Displays the versions of the firmware and main board assembly <ul style="list-style-type: none"> • Firmware version • Backup parameter version • Setting of DIP switches • Revision of main board assembly 	 "5.4.2 Version Menu" p.5-11
Operation panel	Used to check the functions of the operation panel keys, LCD, and LED.	 "5.4.3 Operation Panel Menu" p.5-12
Sensor	Displays the status of the following sensors. <ul style="list-style-type: none"> • CR_ORG sensor • Cover sensor • Lever sensor • Head slide sensor • Waste fluid box sensor • P_EDGE sensor • P_REAR sensor • Head transistor thermistor sensor • Head thermistor sensor • Ink ID sensor • Ink NOT sensor • Ink END sensor 	 "5.4.4 Sensor Menu" p.5-13
Encoder	Displays the detected values from the following encoders. <ul style="list-style-type: none"> • CR (Carriage) • PF (Media feed) 	 "5.4.5 Encoder Menu" p.5-16
Fan	Used to check if the following fans operate normally by turning them ON and OFF. <ul style="list-style-type: none"> • Suction fan • Cooling fan 	 "5.4.6 Fan Menu" p.5-16
History	Used to check the following records. Used to initialize the serious error history. <ul style="list-style-type: none"> • Maintenance history • Serious error history 	 "5.4.7 History Menu" p.5-17
Head waveform	Used to check the head-driving waveform.	 "5.4.8 Head Waveform Menu" p.5-19



5.4.1 Memory Size Menu

This menu displays the size of memories installed on the main board assembly.



NOTE

Memory Size Menu displays the total size of the memories (128MB or 256MB) installed on the main board assembly.

5.4.2 Version Menu

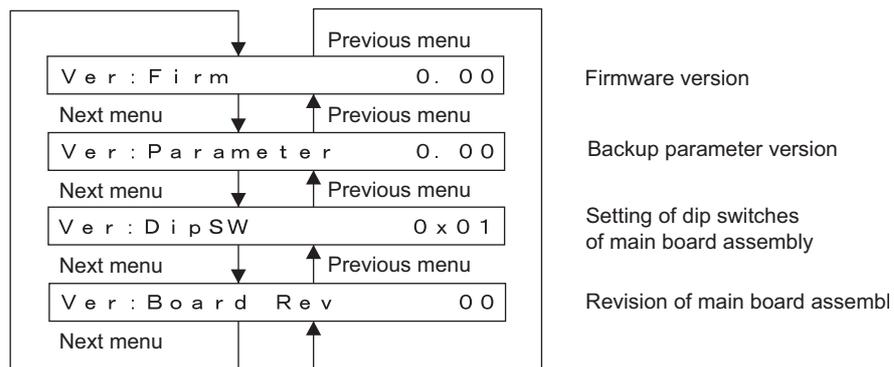
This menu displays the following contents about the firmware and main board assembly.

- 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



5.4.3 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 pressing 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.

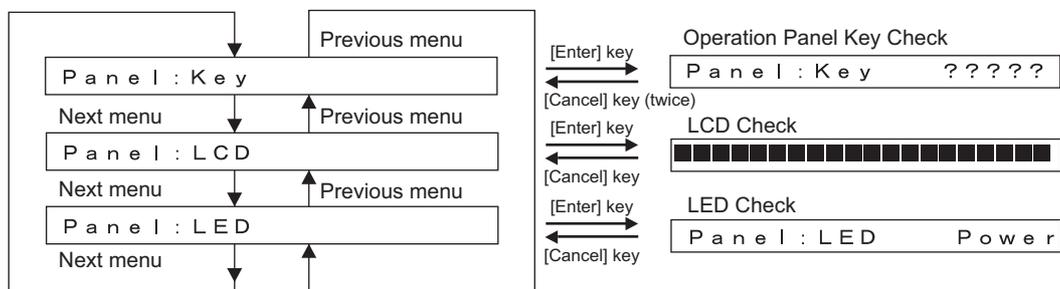
(2) LCD Check

The entire LCD screen is filled in black. The function to check for any missing dots are available.

(3) LED Check

The following LEDs light up in order. The LCD displays the name of the LED that is actually illuminated

- Power lamp
- Data lamp
- Roll lamp
- Sheet lamp
- Color lamp
- Black & white lamp
- High speed lamp
- Normal lamp



5.4.4 Sensor Menu

This menu displays the sensor status on the operation panel.

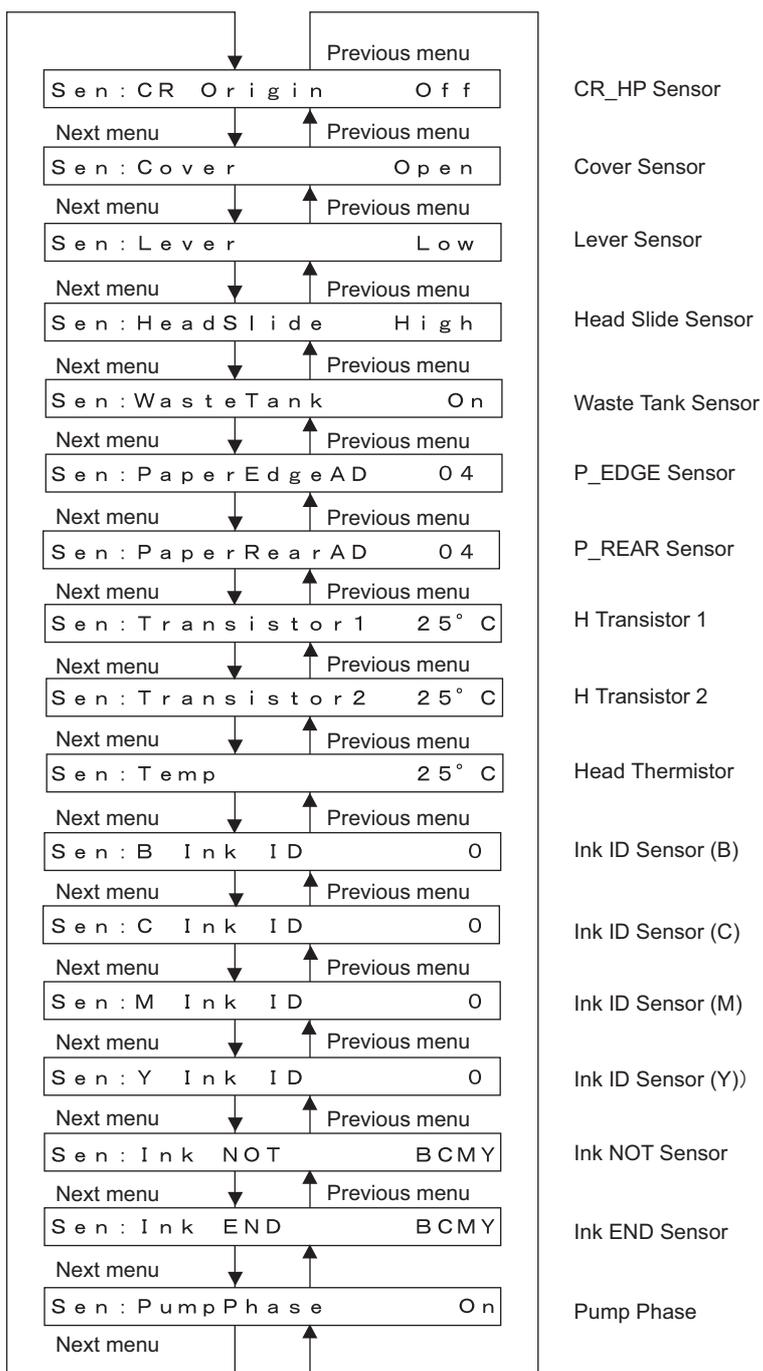
If the displayed sensor status does not match the actual machine status, replace or adjust the relevant sensor referring to the table below.

Table 5-3 Inspection Items in Sensor Menu

No.	Sensor name	Status in display	Reference
1	CR_HP sensor	ON / OFF	 "4.5.2 Replacing CR_HP Sensor" p.4-31
2	Cover sensor	Open / Close	-
3	Lever sensor	Up / Down	 "4.5.3 Replacing Lever Sensor" p.4-32
4	Head slide	Low / High	-
5	Waste fluid box sensor	ON / OFF	-
6	P_EDGE sensor	0 to 255	 "7.11.1 P_EDGE Sensor Sensitivity Adjustment" p.7-34
7	P_REAR sensor	0 to 255	 "7.11.2 P_REAR Sensor Adjustment" p.7-36
8	Head transistor thermistor	ON / OFF	-
9	Thermistor, head	** °C	 "4.6.1 Replacing Print Head" p.4-37
10	Ink ID Sensor (K, C, M, Y)	0 to 3	 "4.8.1 Replacing Ink Holder (I/H) Assembly" p.4-55
11	Ink NOT sensor	BCMY	 "4.8.1 Replacing Ink Holder (I/H) Assembly" p.4-55
12	Ink END sensor	BCMY	 "4.8.1 Replacing Ink Holder (I/H) Assembly" p.4-55
13	Pump phase	ON / OFF	-

NOTE

- For the following sensors, the sensor sensitivity is displayed in decimal number.
 - P_EDGE sensor
 - P_REAR sensor, Waste fluid box sensor
 - For the ink ID sensor, installed ink cartridge type is displayed using the following ID numbers:
 - 0: Cleaning liquid or shipping liquid
 - 1: Dye-based ink (CMY)
 - 2: Dye-based ink (K)
 - 3: Undefined
 - For the ink NOT sensor, the color of the ink whose cartridge is not inserted is displayed.
 - For the ink end sensor, the color of the ink that has run out is displayed.
-



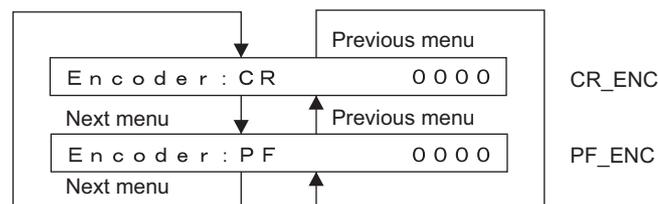
5.4.5 Encoder Menu

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.

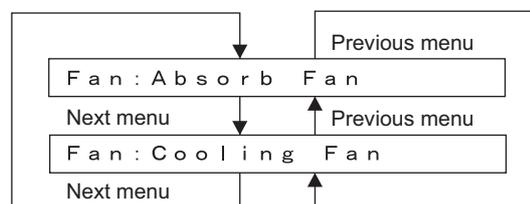


5.4.6 Fan Menu

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.

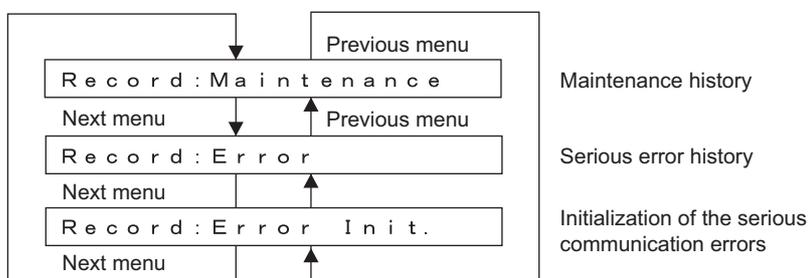
If pressing [Cancel] key, the suction fan is deactivated and the cooling fan is resumed, also, the display shifts to "Inspection:Fan".



5.4.7 History Menu

The maintenance history and serious error history can be checked on this menu.

This menu is used to check maintenance history and serious error history and to initialize serious error history.



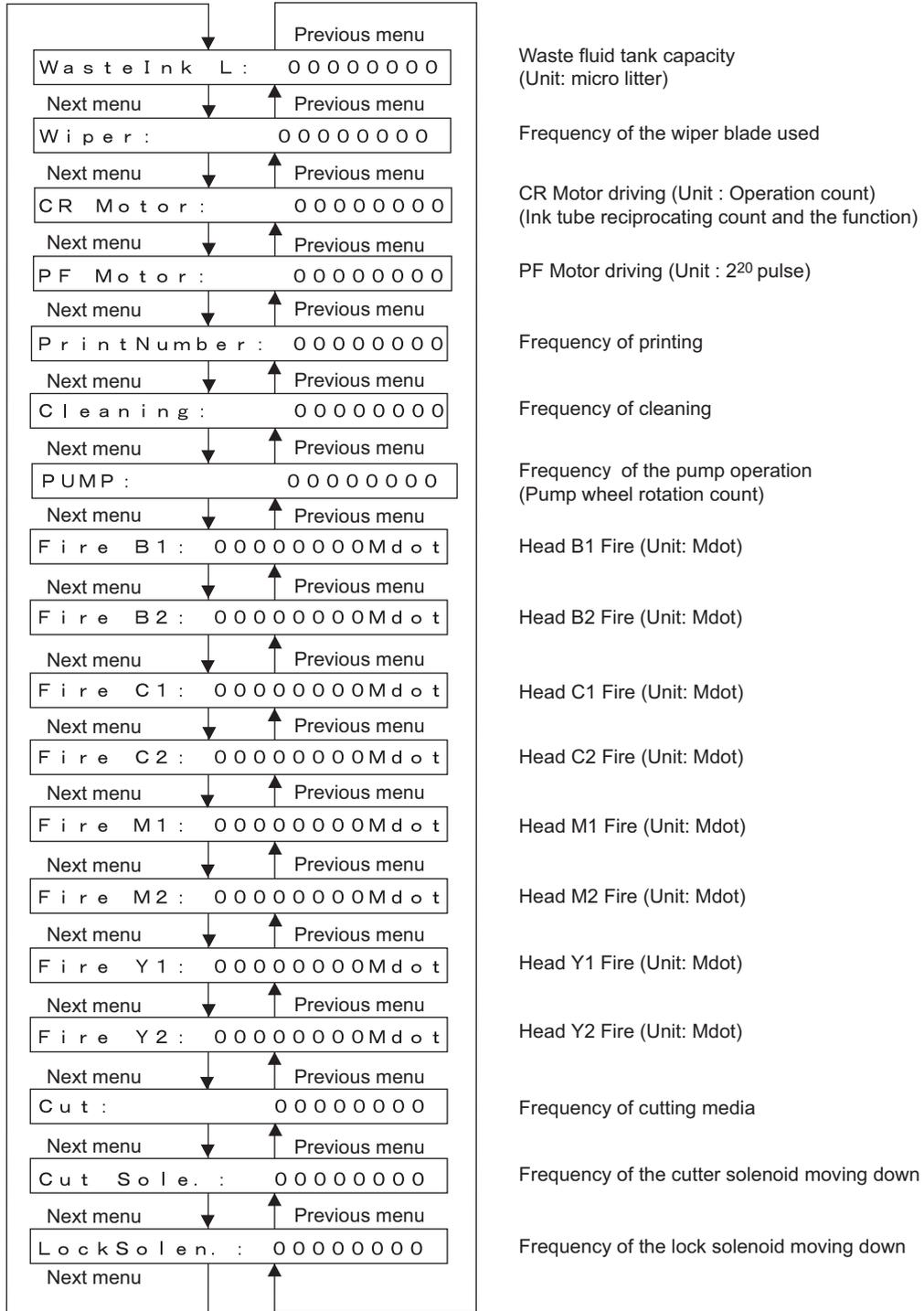
(1) Maintenance History

This displays the past maintenance records on the following components.

- Waste fluid box capacity
- Number of CR motor activation cycles
- Number of PF motor activation cycles
- Number of printed copies
- Number of cleaning cycles
- Pump count (number of pump wheel cycles)
- Discharged amount of heads (K. C. M. Y)
- Number of media cuts
- Number of cutter solenoid downs
- Number of lock solenoid downs

NOTE

All values of maintenance history are indicated in hexadecimal form.

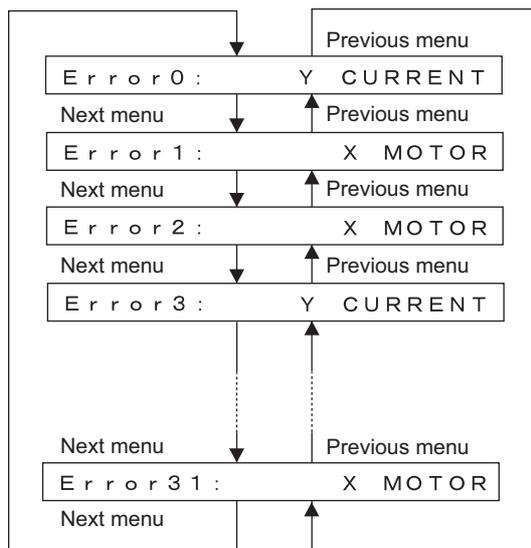


(2) Serious Error History

Indicates serious error history.

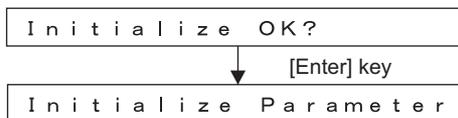
NOTE

- 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.

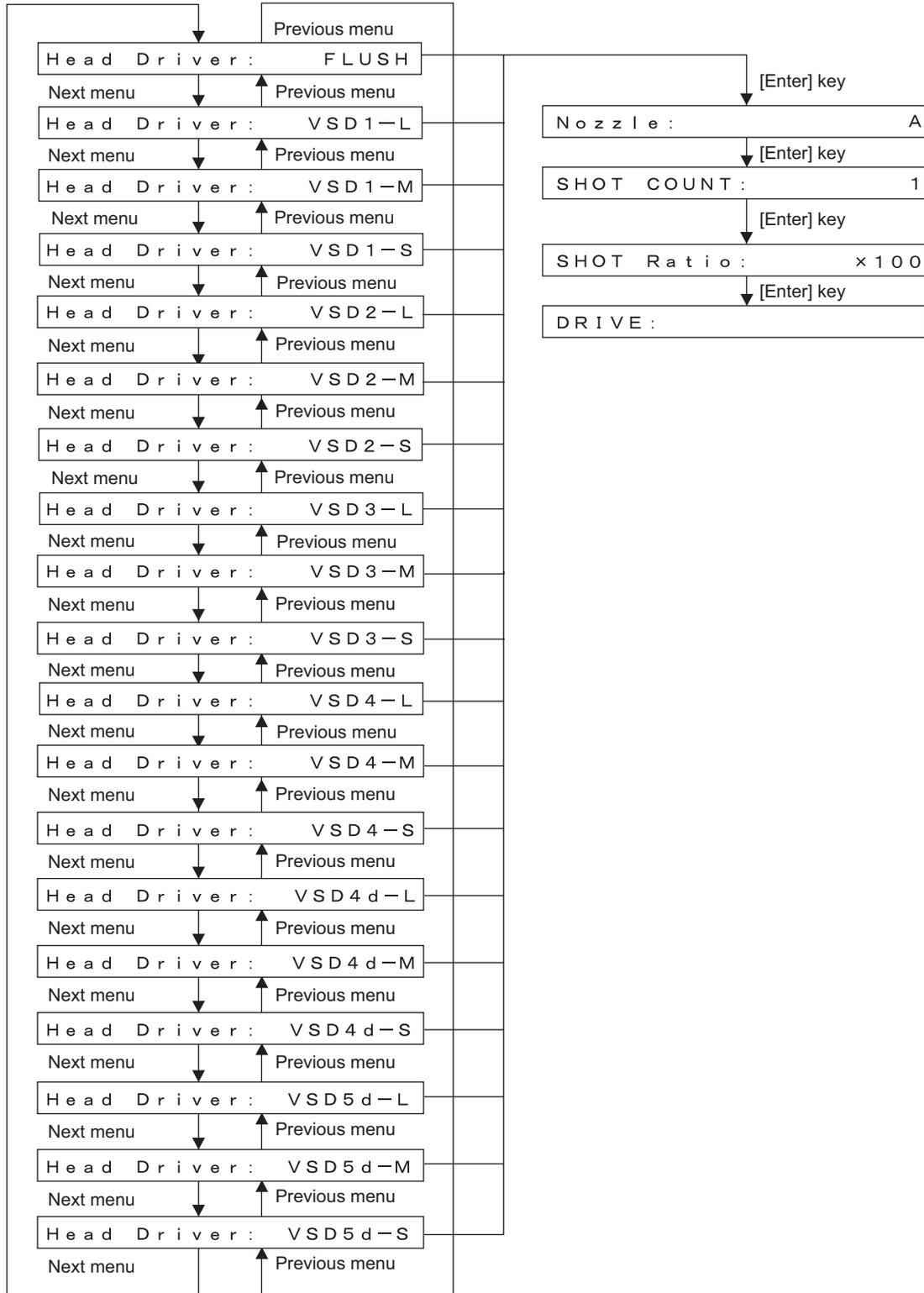


5.4.8 Head Waveform Menu

This menu is used to check the head-driving waveform.

NOTE

Magnification can be selected from the range of x1 - 100000. Nozzle can be selected among A - H and ALL.



5.5 Adjustment Menu

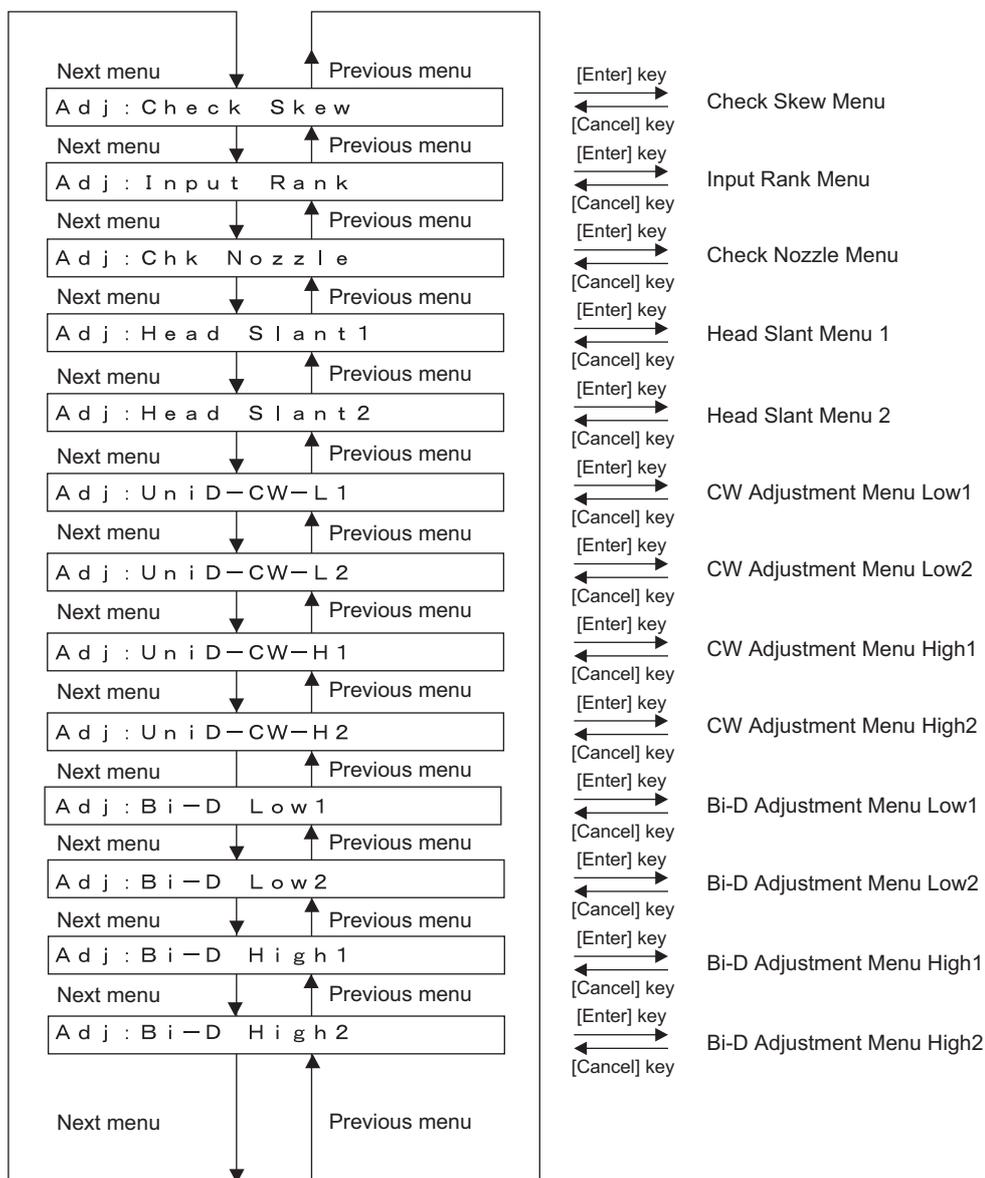
In this menu, the printing position can be aligned and media feed operation can be corrected. The adjustment menu includes the following diagnosis menus.

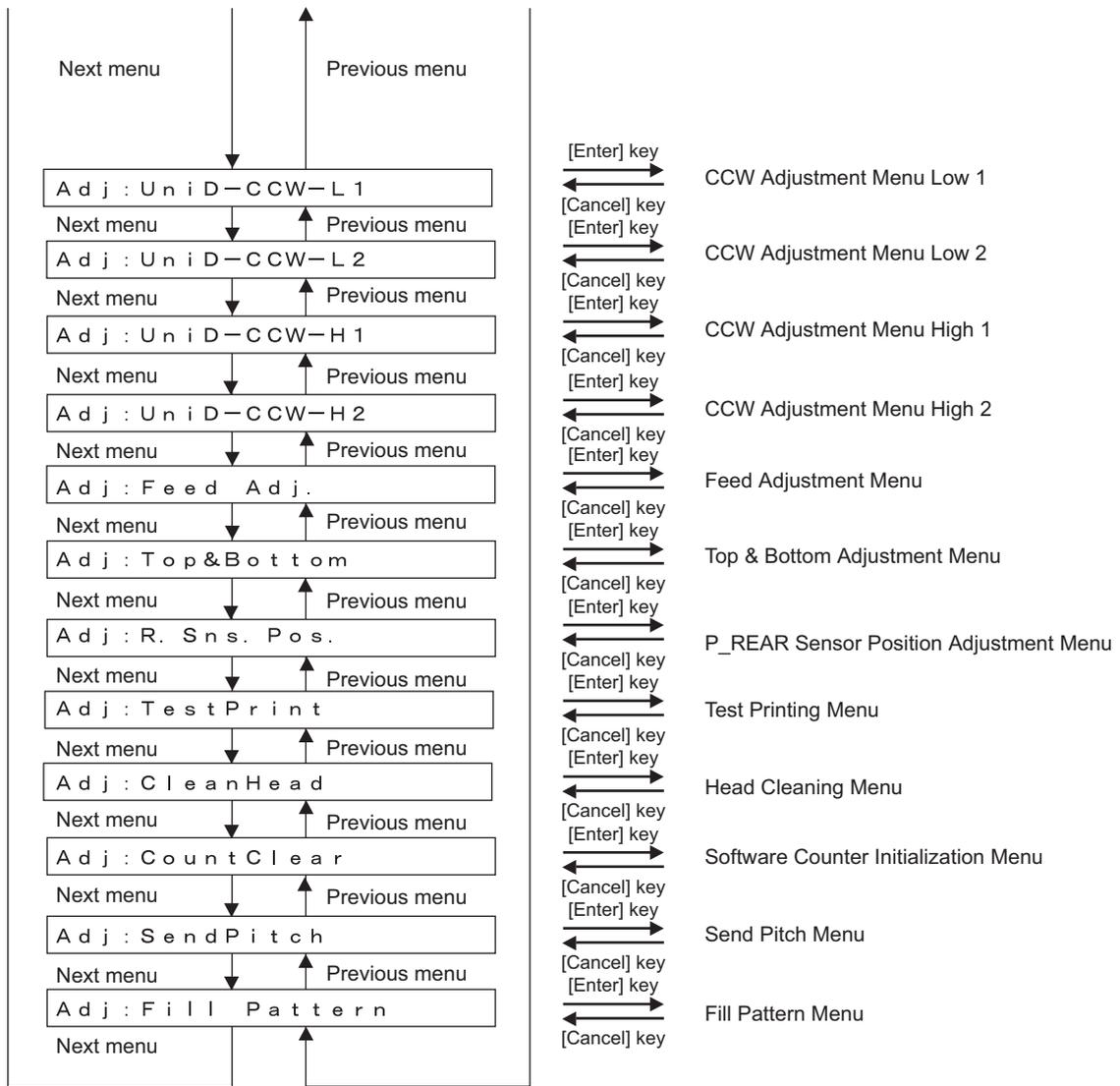
Table 5-4 Diagnosis Items in Adjustment Menu

Diagnosis item	Contents	Reference
Skew check	Performs media feed and detects the degree of skew in media feed by the sensor.	 "5.5.1 Skew Check Menu" p.5-24
Head rank input	Enters the characteristic value of the print heads in use. After the entry, charge ink.	 "5.5.2 Head Rank Input Menu" p.5-25
Head nozzle check	Prints out a printing to check the ink discharge performance of the head nozzles.	 "5.5.3 Head Nozzle Check Menu" p.5-26
Head slant check 1	Prints out a printing to check for print head slant (horizontal direction). Mechanical adjustment must be performed as necessary.	 "5.5.4 Head Slant Check Menu 1" p.5-28
Head slant check 2	Prints out a printing to check for print head slant (vertical direction). Mechanical adjustment must be performed as necessary.	 "5.5.5 Head Slant Check Menu 2" p.5-29
CW adjustment	Prints out a printing to adjust uni-direction (CW direction) printing between nozzles. Low 1: PG Low 3-peak waveform Low 2: PG Low 6-peak waveform High 1: PG High 3-peak waveform High 2: PG High 6-peak waveform	 "5.5.6 CW Adjustment" p.5-31
Repeatability adjustment	Prints out a printing to align the positions of the repeated printings. Low 1: PG Low 3-peak waveform Low 2: PG Low 6-peak waveform High 1: PG High 3-peak waveform High 2: PG High 6-peak waveform	 "5.5.7 Repeatability Adjustment Menu" p.5-35
CCW adjustment	Prints out a printing to adjust uni-direction (CCW direction) printing between nozzles. Low 1: PG Low 3-peak waveform Low 2: PG Low 6-peak waveform High 1: PG High 3-peak waveform High 2: PG High 6-peak waveform	 "5.5.8 CCW Adjustment" p.5-38
Band feed correction	Prints out a printing to correct the media feed amount for each pass.	 "5.5.9 Band Feed Correction Menu" p.5-41
Top & bottom adjustment	Sets the top & bottom margins.	 "5.5.10 Top and Bottom Adjustment Menu" p.5-42
P_REAR sensor position adjustment	Adjusts the P_REAR sensor position using cut media.	 "5.5.11 P_REAR Sensor Position Adjustment Menu" p.5-43

Table 5-4 Diagnosis Items in Adjustment Menu (Continued)

Diagnosis item	Contents	Reference
Test printing	Prints out a nozzle check pattern and adjustment variables.	"5.5.12 Test Printing Menu" p.5-44
Head cleaning	Cleans the tubes and heads using cleaning liquid.	"5.5.13 Head Cleaning Menu" p.5-45
Software counter initialization	Clears various software counters.	"5.5.14 Software Counter Initialization Menu" p.5-46
Feed amount check	Used to check the media feed amount per band.	"5.5.15 Feed Pitch Check Menu" p.5-46
Solid print check	Performs solid nozzle print check (color selection, nozzle selection and print direction selection are available).	"5.5.16 Solid Print Menu" p.5-48





5.5.1 Skew Check Menu

Feed the paper to check the skew size using sensor.

When selecting 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

The plotter determines the setting reference position of the media during the first detection at left edge of the media.

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.

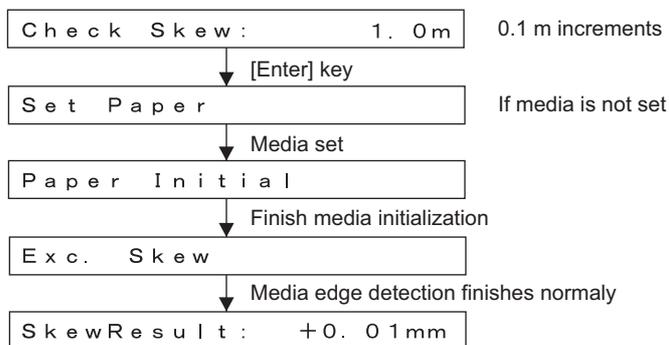


Table 5-5 Skew Amount Specification

Condition		Specification
Cut sheet		1.5 mm or less
Roll media	7 m	2.5 mm or less
	50 m	10 mm or less

5.5.2 Head Rank Input Menu

This menu is used to input the head rank.

The head rank is used to determine the head-driving voltage and correct the head temperature.

To input the head rank, follow the steps below.

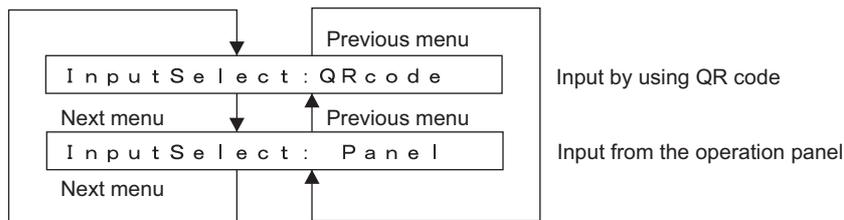
(1) Input Method Selection

When inputting the head rank, select either of the following methods:

- Input with QR code
- Input with operation panel

NOTE

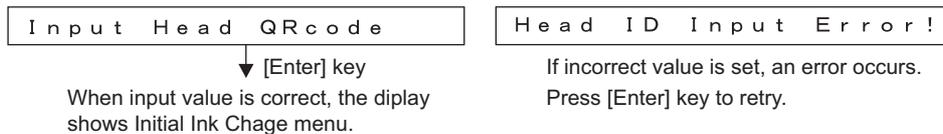
If you do not use a QR code reader, do not select "Input Rank: QR Code". If you select it, press [Cancel] key to return to the rank input selection menu.



(2) When Input with QR Code is Selected

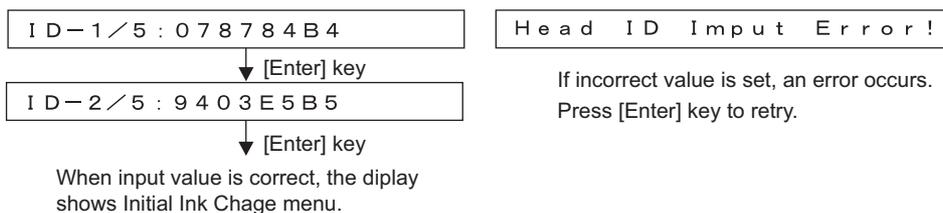
Check that the operation panel displays "Input QR code".

Enter the QR code from QR code reader.



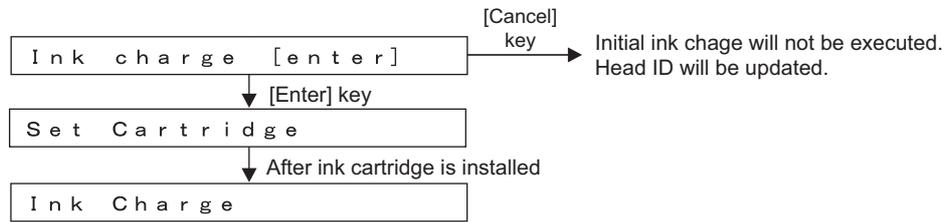
(3) When Input with Operation Panel is Selected

Using the keys in the operation panel, enter the parameter values on the upper level and lower level of head rank.



(4) Initial Charging Menu

If the input head rank is determined, the plotter performs initial charging.

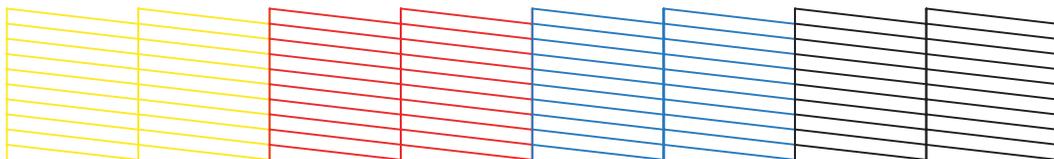


5.5.3 Head Nozzle Check Menu

In this menu, the head nozzle printing to confirm ink is fired from nozzles correctly after the ink charge, are available. To check the head nozzle condition, follow the steps below. 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, unidirectional
 - 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

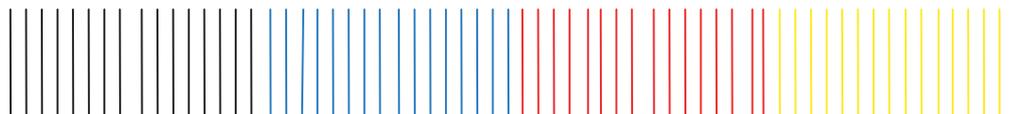
Nozzle check: Prints the patterns in the order of A to H.



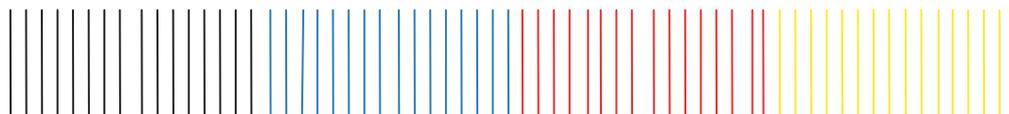
Vertical nozzle alignment check: Prints the patterns in the order of A to H.



Horizontal nozzle alignment check (CW direction): Prints the patterns in the order of A to H.



Horizontal nozzle alignment check (CCW direction): Prints the patterns in the order of A to H.

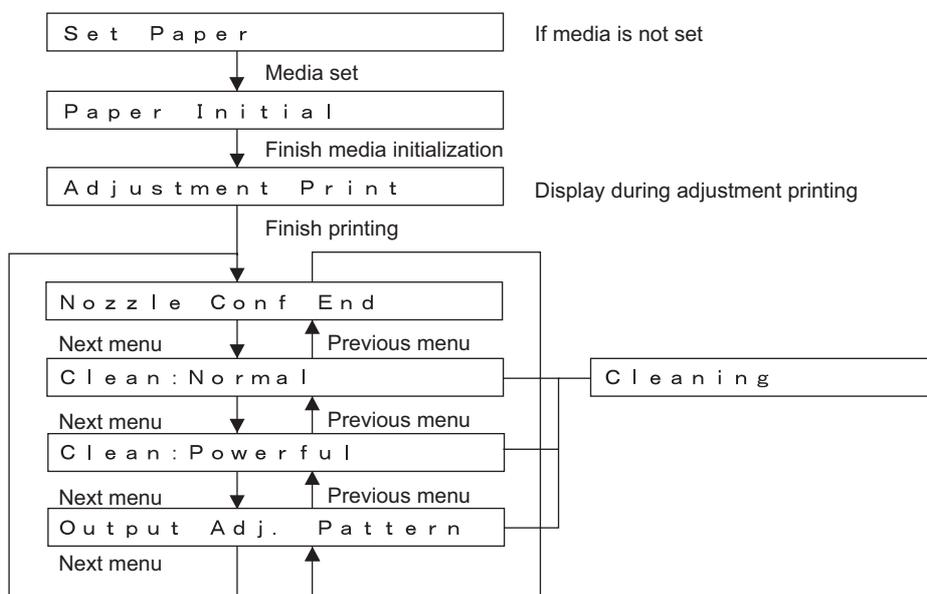


- If any abnormal conditions are found in the ink discharge status of the head nozzles, perform cleaning.

TIP

☞ **"5.5.15 Feed Pitch Check Menu" p.5-46**

- After cleaning, make the machine print out head nozzle check patterns again.



5.5.4 Head Slant Check Menu 1

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 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:
 - Head slant

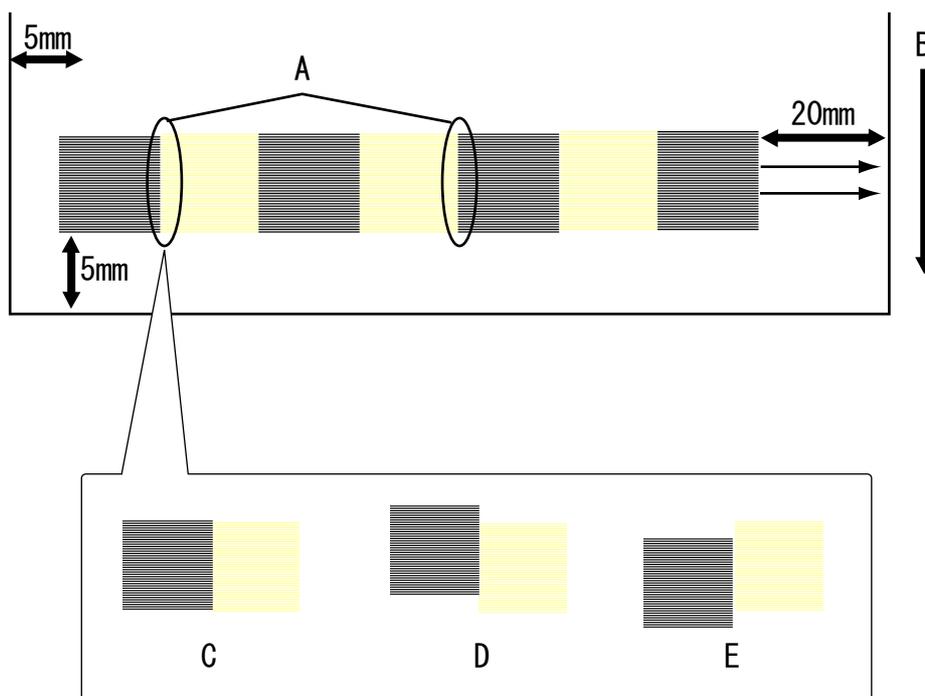
A: Check the point to check the slant.

B: Media feed direction

C: OK

D: Move the head adjusting cam upward.

E: Move the head adjusting cam downward.

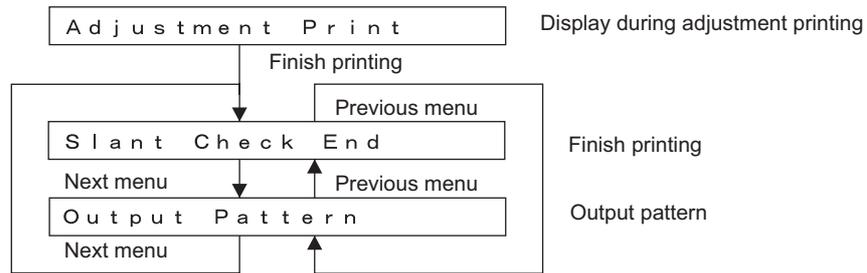


4. If any head slant is found, perform mechanical adjustment.

TIP

🔗 ["7.7 Head Alignment Adjustment\(Horizontal Height\)" p.7-26](#)

5. After mechanical adjustment, make the machine print out head nozzle check patterns again.



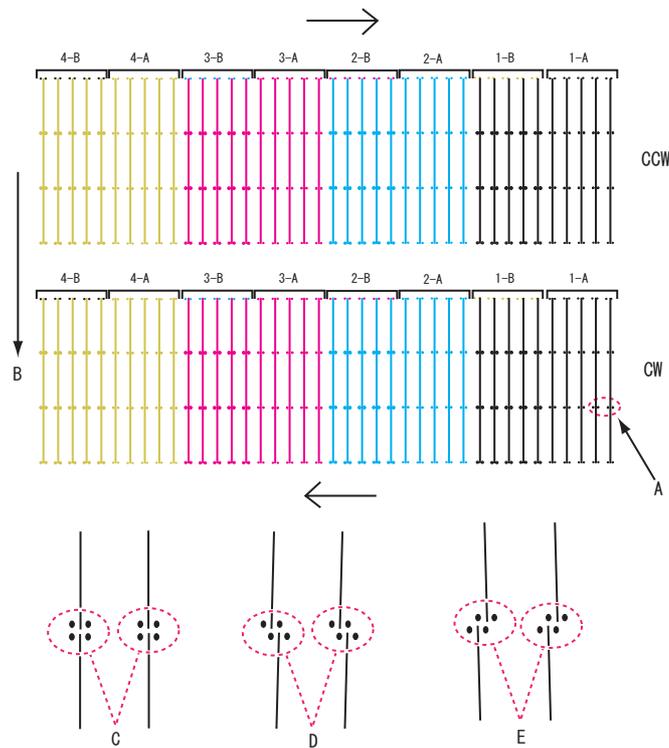
5.5.5 Head Slant Check Menu 2

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 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.

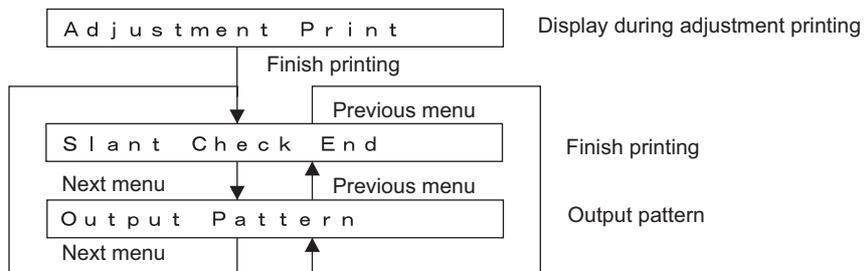


4. If any head slant is found, perform mechanical adjustment.

TIP

☞ "7.8 Head Alignment Adjustment(Slant)" p.7-28

5. After mechanical adjustment, make the machine print out head nozzle check patterns again.



5.5.6 CW Adjustment

This menu is used to adjust the gap of the print positions caused by CR passes.

To adjust the gap of it, at first print out Uni-D printing and confirm the differences of print position. Then, enter the difference for the relevant parameters.

Adjustment items are shown in the tables below.

Table 5-6 Uni-D Menu Items

Item	Contents
CW adjustment Low 1	CW adjustment for low head height, PG 1 value, using 3-peak waveform
CW adjustment Low 2	CW adjustment for low head height, PG 1 value, using 6-peak waveform
CW adjustment High 1	CW adjustment for high head height, PG 2 value, using 3-peak waveform
CW adjustment High 2	CW adjustment for high head height, PG 2 value, using 6-peak waveform

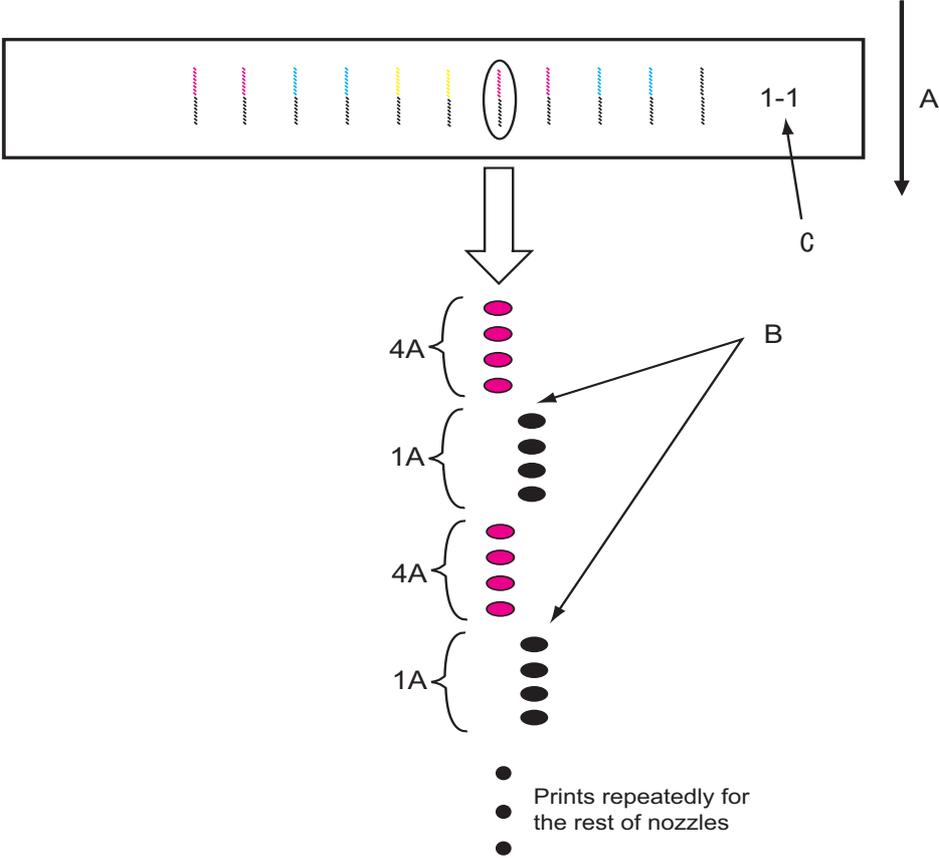
Table 5-7 Uni-D Adjustment Items

Item	Contents
Gap1A-1B	Uni-D (CW) adjustment of nozzle row B to nozzle row A
Gap1A-2A	Uni-D (CW) adjustment of nozzle row C to nozzle row A
Gap1A-2B	Uni-D (CW) adjustment of nozzle row D to nozzle row A
Gap1A-3A	Uni-D (CW) adjustment of nozzle row E to nozzle row A
Gap1A-3B	Uni-D (CW) adjustment of nozzle row F to nozzle row A
Gap1A-4A	Uni-D (CW) adjustment of nozzle row G to nozzle row A
Gap1A-4B	Uni-D (CW) adjustment of nozzle row H to nozzle row A

The actual procedure is as follows.

1. Set media as necessary.
2. After media is set, the machine prints out CW adjustment check patterns.

- 3. Check the printed CW adjustment check patterns for the following points.
(The following shows a case for CW adjustment Low 1)
Print the patterns in the order of A&B / A&C / A&D / A&E / A&F / A&G / A&H.



A: Media feed direction

B: Adjust the setting value so that the printed dots are aligned at this connecting point.

C: The number shows the performed adjustment items.

1-1: CW adjustment Low 1

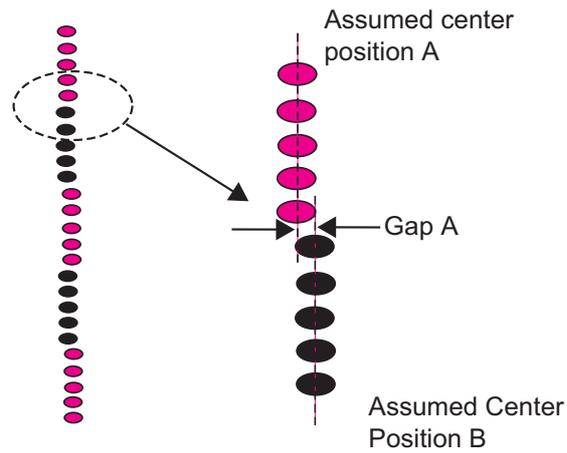
1-2: CW adjustment Low 2

2-1: CW adjustment High 1

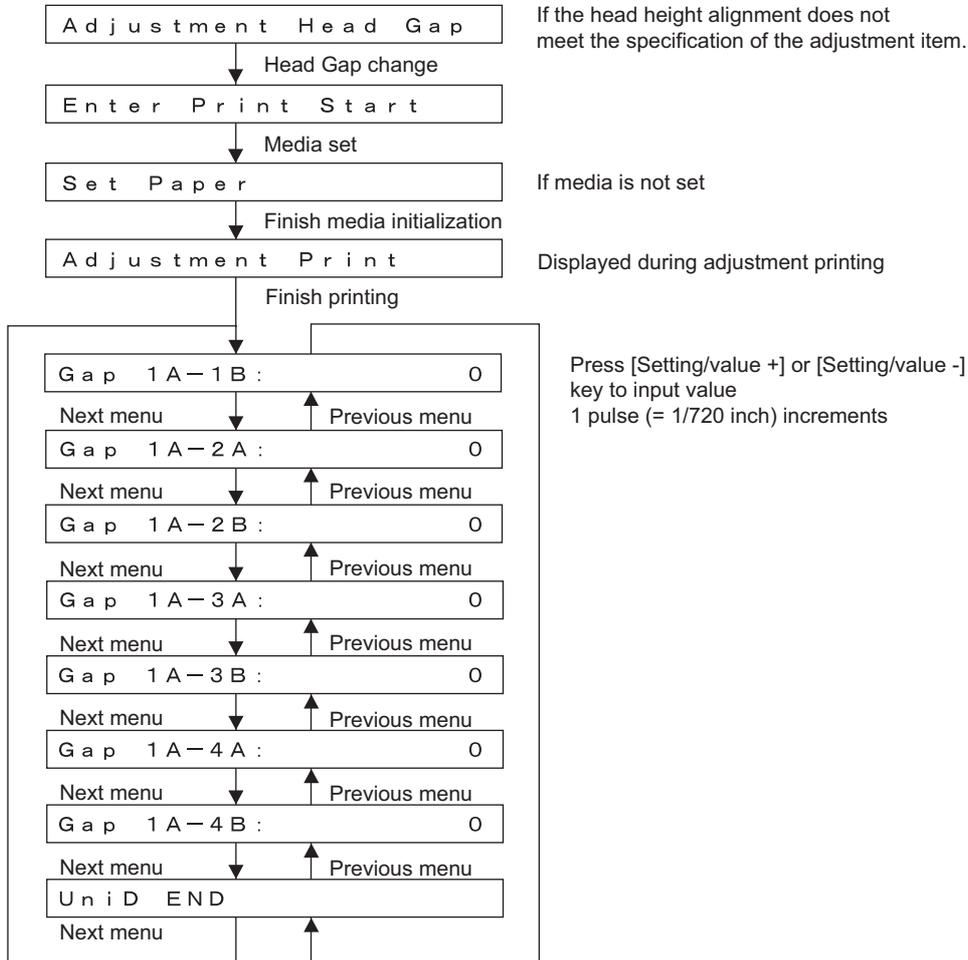
2-2: CW adjustment High 2

* For CW adjustment Low 2, High 1 and High 2, perform adjustment using the same procedure.

** Detail on B is as follows. Make an adjustment so that the size of the gap A below is smaller than the half size of the dot.



4. If any abnormal conditions are found, identify the gap of the print positions and enter it as the CW adjustment parameter.
 After entering the parameter, make the machine print out the check patterns again as necessary.
 (The following shows a case for CW adjustment Low 1)



5.5.7 Repeatability Adjustment Menu

This menu is used to align the head positions for repeatability printing.

To align the head position for repeatability printing, at first print out a Bi-D printing and identify the difference between the CW printing position and the CCW printing position. Then, enter the difference between the relevant parameters.

Due to head characteristics, only one adjustment value is used for all nozzle rows. Therefore, adjust the setting value so that performance of each row becomes average.

Adjustment items are shown in the tables below.

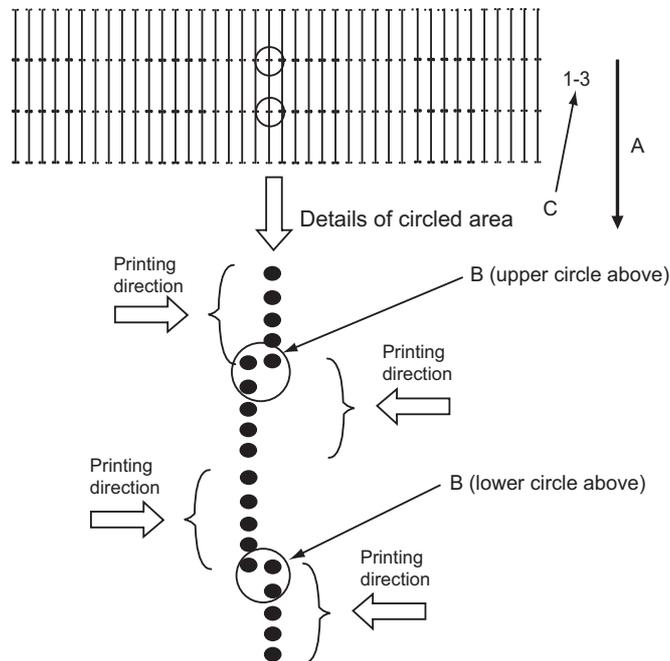
Table 5-8 Bi-D Items

Adjustment Item	Contents
Repeatability adjustment Low 1	Bi-D adjustment for low head height, PG 1 value, using 3-peak waveform
Repeatability adjustment Low 2	Bi-D adjustment for low head height, PG 1 value, using 6-peak waveform
Repeatability adjustment High 1	Bi-D adjustment for high head height, PG 2 value, using 3-peak waveform
Repeatability adjustment High 2	Bi-D adjustment for high head height, PG 2 value, using 6-peak waveform

The actual procedure is as follows.

1. Set media as necessary.
2. After media is set, the machine prints out repeatability adjustment patterns.

3. Check the printed repeatability adjustment patterns for the following points.
 * The pattern is printed with Bk row only.
 (The following shows a case for repeatability adjustment Low 1)

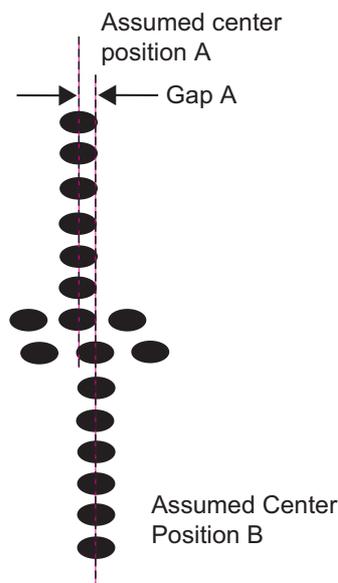


A. Media feed direction

B. Adjust the setting value so that the printed dots are aligned at this connecting point.

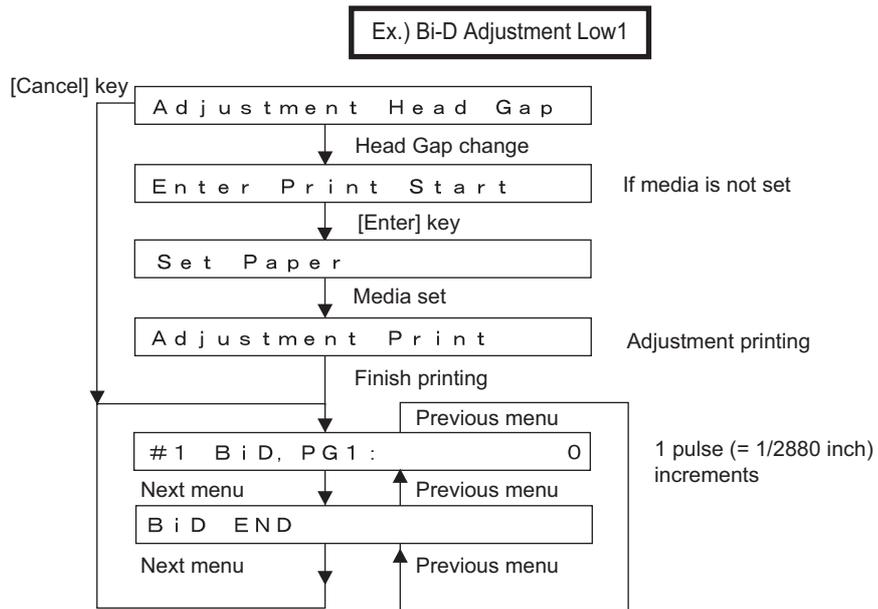
* Also for repeatability adjustment Low 2, High 1 and High 2, perform adjustment using the same procedure.

* Detail on B is as follows. Make an adjustment so that the size of the gap A below is smaller than the half size of the dot.



4. If any abnormal conditions are found, identify the difference between the CW printing position and the CCW printing position and enter the difference as the repeatability adjustment parameter.

5. If any parameters are changed, make sure to update the parameters.



5.5.8 CCW Adjustment

This menu is used to adjust the gap of the print positions caused by CR passes.

To adjust the gap of the print positions, at first print out a Uni-D printing and identify the difference of the print positions. Then, enter the difference for the relevant parameters..

Adjustment items are shown in the tables below.

Table 5-9 Uni-D Menu Items

Item	Contents
CCW adjustment Low 1	CCW adjustment for low head height, PG 1 value, using 3-peak waveform
CCW adjustment Low 2	CCW adjustment for low head height, PG 1 value, using 6-peak waveform
CCW adjustment High 1	CCW adjustment for high head height, PG 2 value, using 3-peak waveform
CCW adjustment High 2	CCW adjustment for high head height, PG 2 value, using 6-peak waveform

表 5-10 Uni-D Adjustment Items

Item	Contents
Gap1A-1B	Uni-D (CCW) adjustment of nozzle row B to nozzle row A
Gap1A-2A	Uni-D (CCW) adjustment of nozzle row C to nozzle row A
Gap1A-2B	Uni-D (CCW) adjustment of nozzle row D to nozzle row A
Gap1A-3A	Uni-D (CCW) adjustment of nozzle row E to nozzle row A
Gap1A-3B	Uni-D (CCW) adjustment of nozzle row F to nozzle row A
Gap1A-4A	Uni-D (CCW) adjustment of nozzle row G to nozzle row A
Gap1A-4B	Uni-D (CCW) adjustment of nozzle row H to nozzle row A

The actual procedure is as follows.

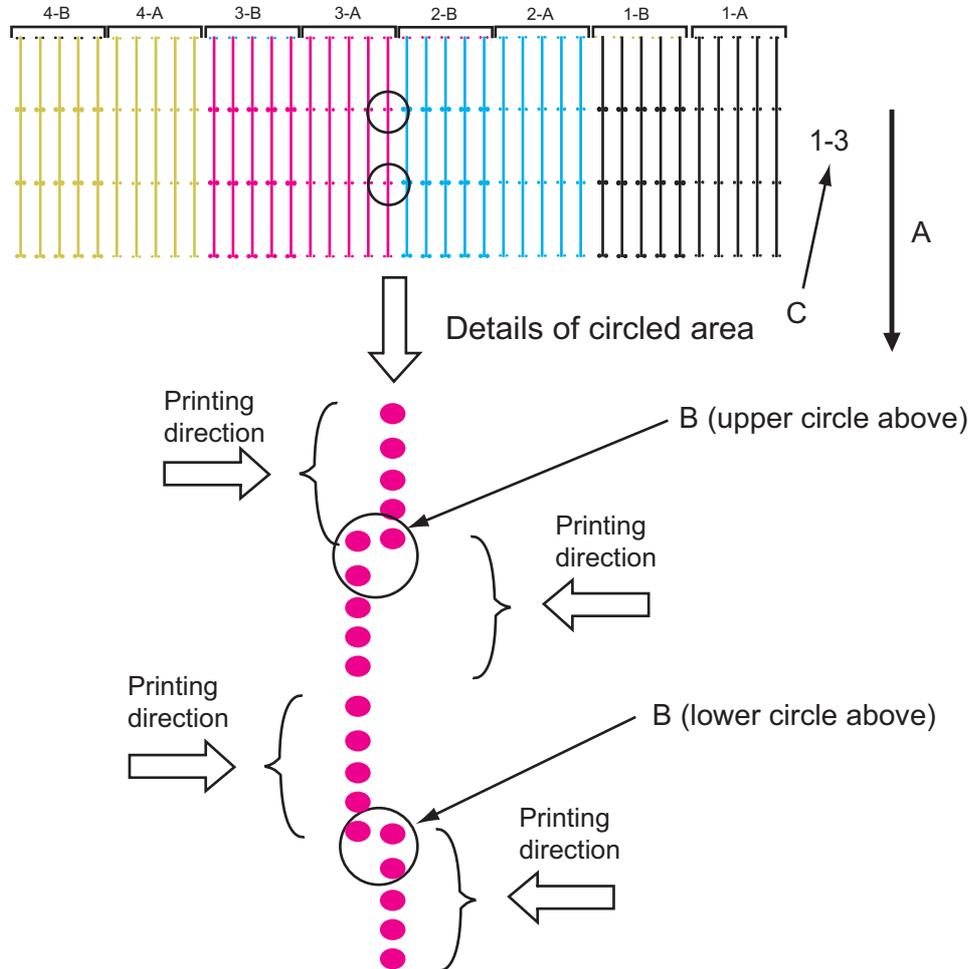
1. Set media as necessary.
2. After media is set, the machine prints out CCW adjustment check patterns.

3. Check the printed CCW adjustment check patterns for the following points.

(The following shows a case for CCW adjustment Low 1)

Print the patterns in the order of A/B/C/D/E/F/G/H.

*Also for CCW adjustment Low 2, High 1 and High 2, perform adjustment using the same procedure.



A: Media feed direction

B: Adjust the setting value so that the printed dots are aligned at this connecting point.

C: The number shows the performed adjustment items.

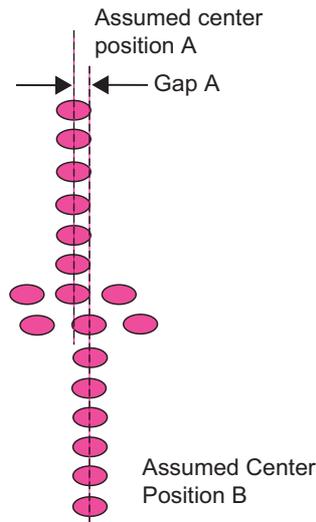
1-3: CCW adjustment Low 1

1-4: CCW adjustment Low 2

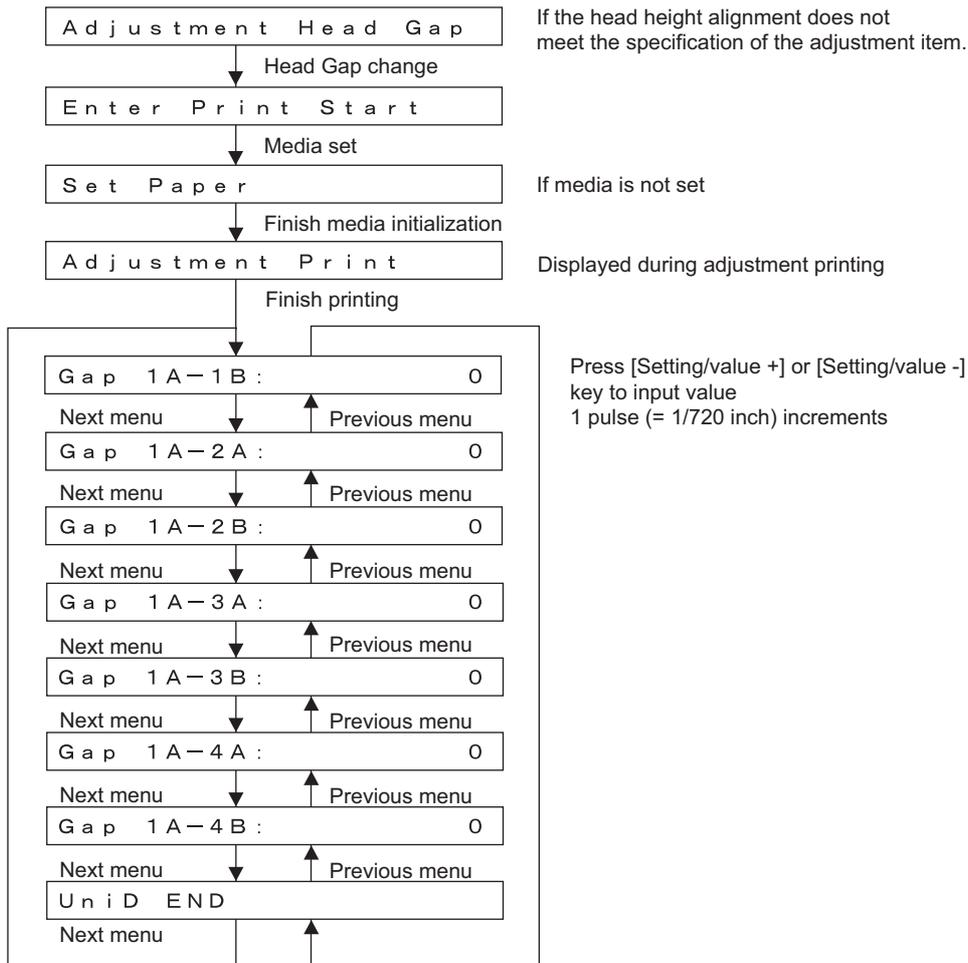
2-3: CCW adjustment High 1

2-4: CCW adjustment High 2

* Detail on B is as follows. Make an adjustment so that the size of the gap A is smaller than the half size of the dot.



4. If any abnormal conditions are found, identify the gap of the print positions and enter it as the CW adjustment parameter.
 After entering the parameter, print out the check patterns again as necessary.
 (The following shows a case for CCW adjustment Low 1)



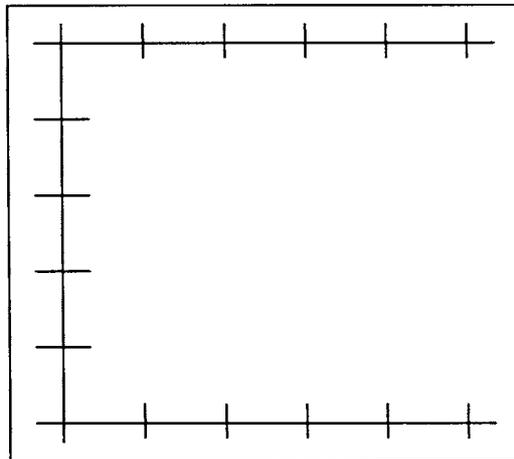
5.5.9 Band Feed Correction Menu

In this menu, the media feed distance can be adjusted.

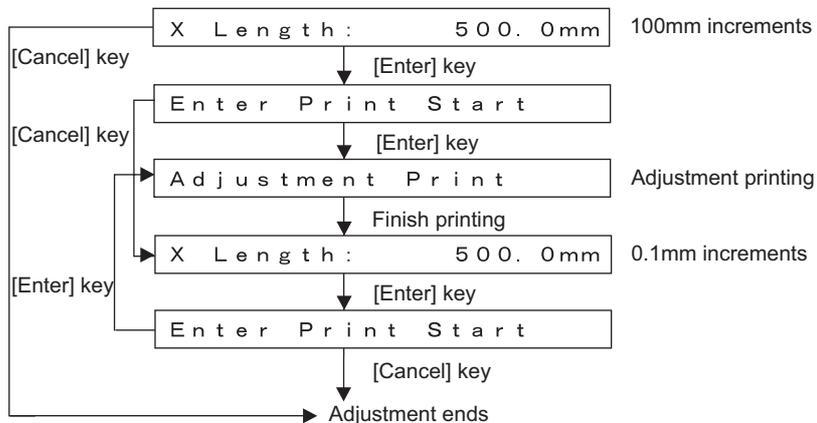
To correct the media feed distance, at first print out check patterns to measure the distance between lines drawn in the media feed direction. By entering the measured value, the system will determine the PF encoder resolution parameter in the firmware.

The actual procedure is as follows.

1. Set media as necessary.
2. After media is set, the machine prints out band feed correction patterns in the following modes.
 - Length: 300 - 1000 mm
 - 1 pass Uni-D
 - PF: 360 dpi, CR: 360 dpi
3. Check the printed band feed correction patterns for the following point.
 - Media feed amount



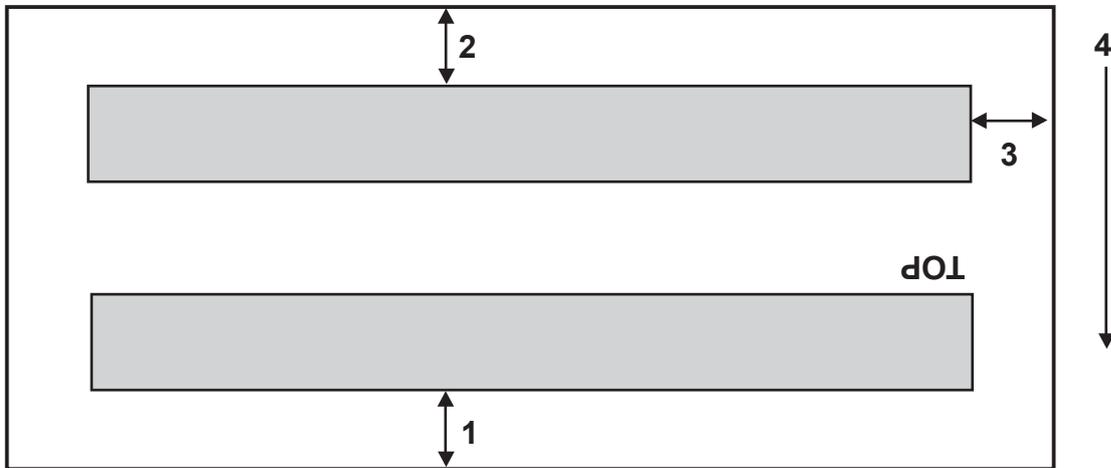
4. Enter the measured value as the media feed distance parameter.



5.5.10 Top and Bottom Adjustment Menu

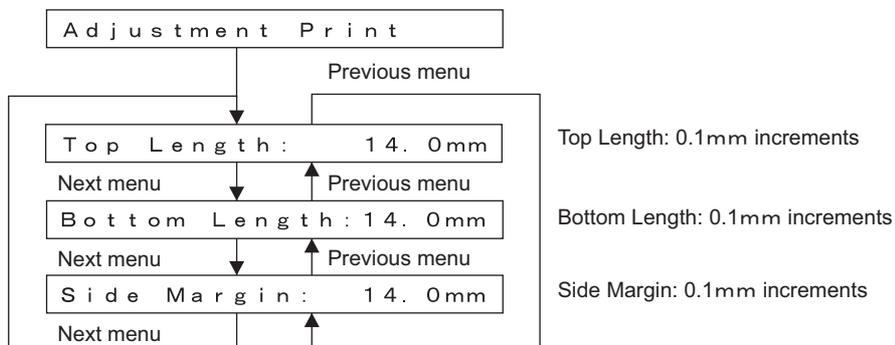
This menu is used to adjust the printing margins.
To adjust the margins, follow the steps below.

1. Set media as necessary.
2. After media is set, the machine prints out band feed correction adjustment patterns and cuts the media in the following modes.
 - Black, 1 pass, unidirectional, 360 dpi
3. Check the printed top & bottom adjustment patterns for the following points.
 - Top distance
 - Bottom distance
 - Side margin



- 1: Top distance
- 2: Bottom distance
- 3: Side margin
- 4: Media feed direction

4. Enter each measured value as the parameter.



5.5.11 P_REAR Sensor Position Adjustment Menu

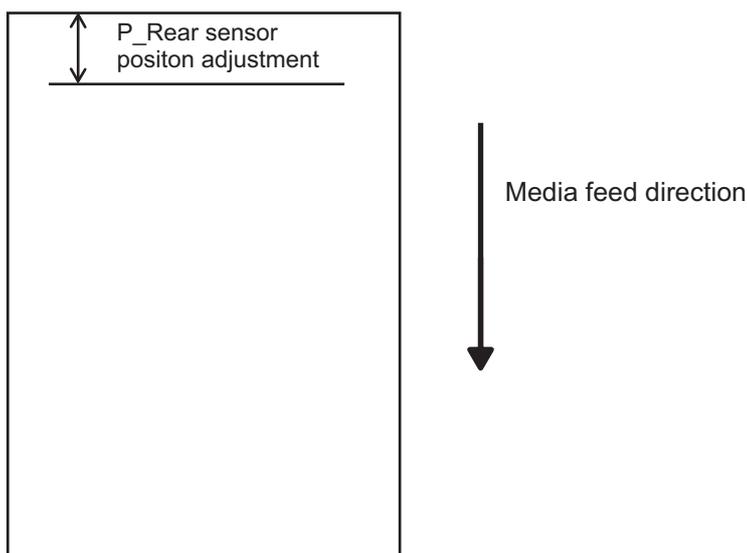
This menu is used to adjust the P_REAR sensor position for the detection of the correct cut sheet length.. In this adjustment, the P_REAR sensor position can be corrected in the firmware using nozzle print as a reference, in order to maximize the printable area based on the end of media. To adjust the margins, follow the steps below.

1. Set media as necessary.

NOTE

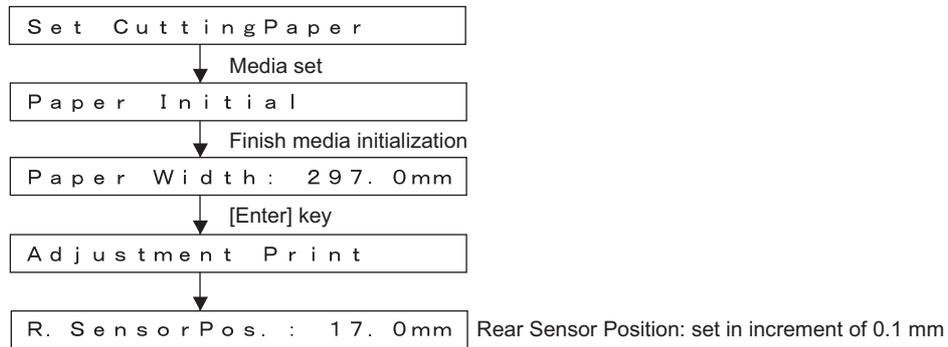
- For P_REAR sensor position adjustment, cut media is used. Set A3 or A4 cut sheet in the longitudinal direction.
- P_REAR sensor position adjustment is required in the manufacturing process. Even if band feed correction is performed, there is no need to perform this adjustment.

2. After media is set, the machine prints out P_REAR sensor position adjustment patterns as follows.
 - Plot a horizontal line(black 1-dot line) for 17mm from the media end.



3. Measure the distance from the media end to the plotted line.

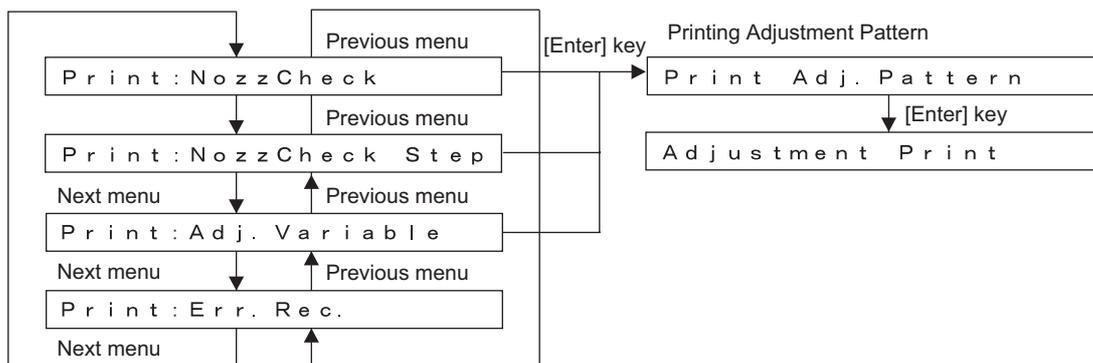
4. Enter the measured value as the P_REAR sensor position parameter.



5.5.12 Test Printing Menu

In this menu, adjustment patterns for checking various adjustment items can be printed. The actual procedure is as follows.

1. Set media as necessary.
2. After media is set, the machine prints out the following test printings.
 - Nozzle check: Prints head nozzle check patterns.
 - Nozzle check steps: Prints head nozzle check patterns of lines only.
 - Adjustment parameters: Prints setting values for each adjustment item.
 - Error history: Evaluates the serious error history.
3. Press the [Enter] key in the operation panel to start the selected test printing.



5.5.13 Head Cleaning Menu

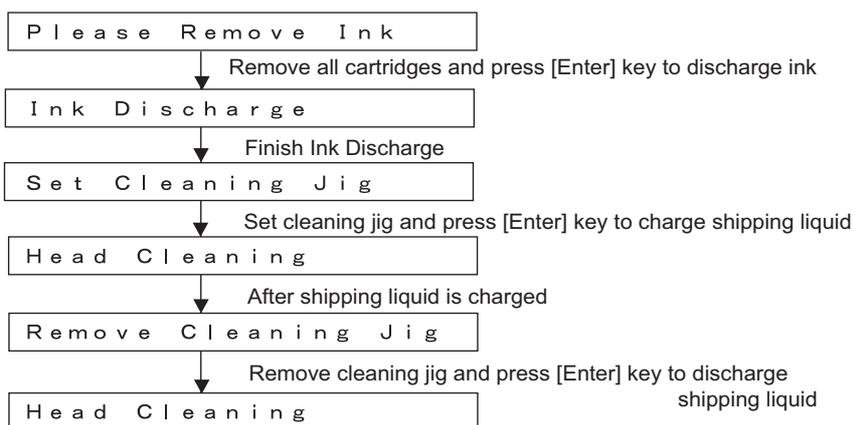
This menu is used to purge ink and clean the heads at the end of the manufacturing process and before print head replacement.

The actual procedure is as follows.

TIP

In this process, it is possible to use cleaning liquid instead of shipping liquid.

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 shipping liquid.
6. After shipping liquid is charged, remove the head cleaning jig.



5.5.14 Software Counter Initialization Menu

This menu is used to initialize the software counters such as the waste ink counter.

NOTE

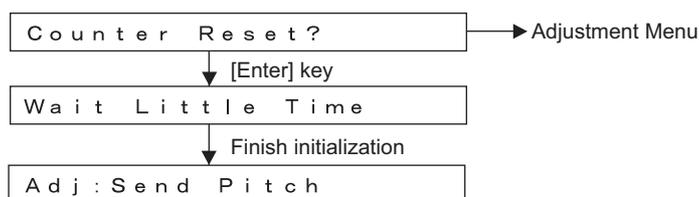
The counters are initialized before delivery. Do not initialize them during maintenance.

The software counters that can be initialized through this menu are as follows.

Table 5-11 Software Counters to be Initialized

Counter	Initial value
Waste ink amount counter	0
Ink consumption counter K	0
Ink consumption counter C	0
Ink consumption counter M	0
Ink consumption counter Y	0
Cumulative plot timer	0
Initial ink charge flag	1
Ink ID mask	0

Pressing the [Enter] key in the operation panel performs the software counter initialization. Pressing [Cancel] key cancels the initialization.



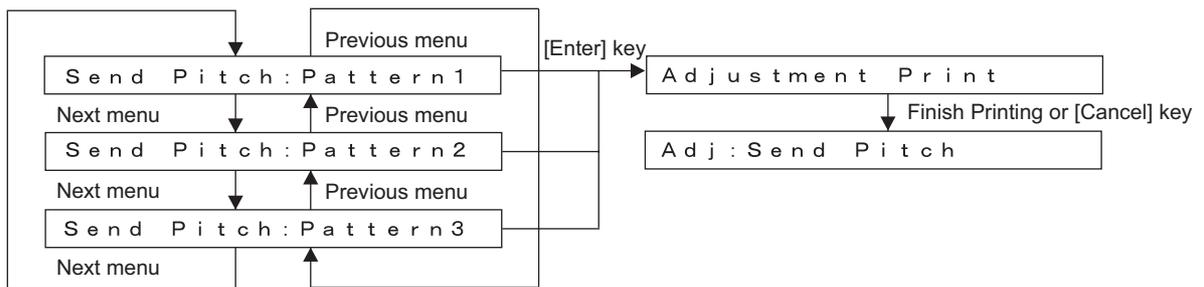
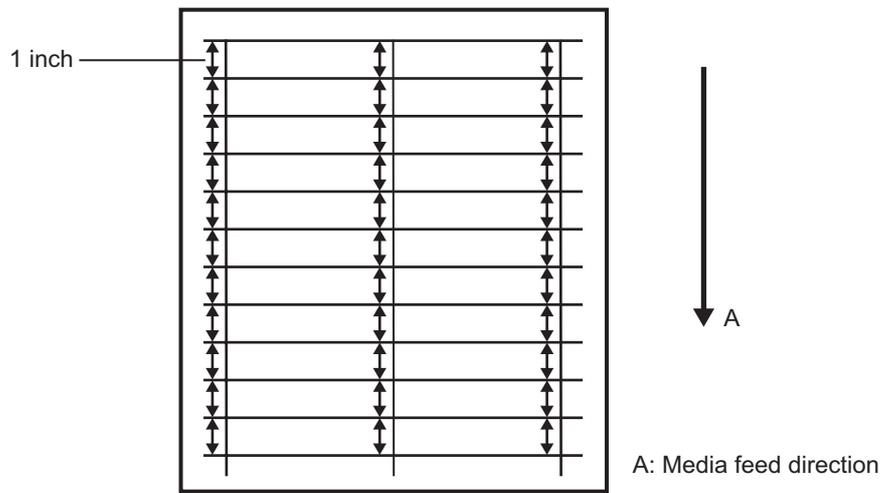
5.5.15 Feed Pitch Check Menu

In this menu, a function to confirm media feed amount for the one band is available. No adjustment can be made on this menu.

To check the feed pitch, follow the steps below.

1. Set media as necessary.
2. Select "Adj: Send Pitch".
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.

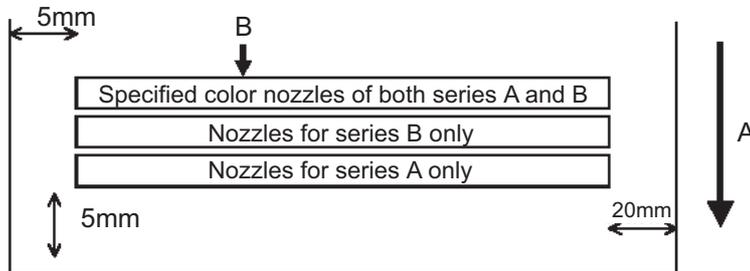
4. Pattern 1 is printed as shown below.



5.5.16 Solid Print Menu

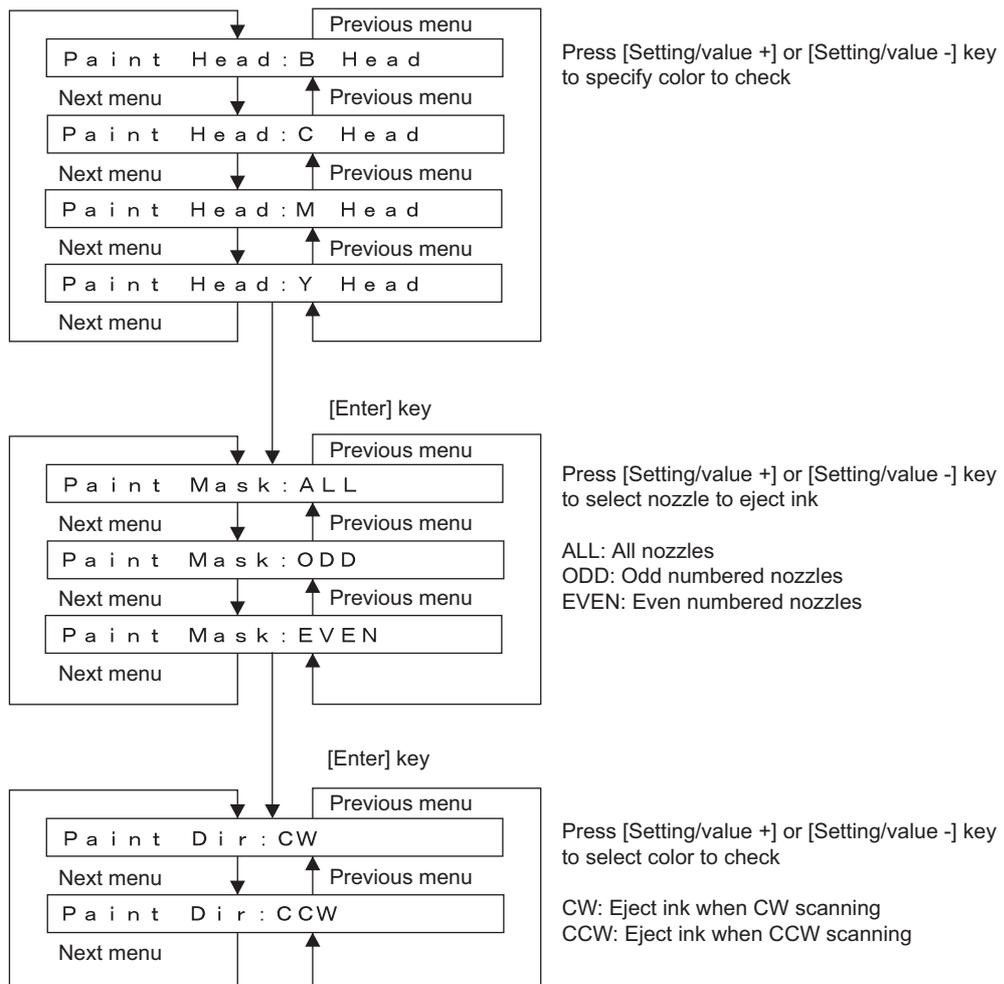
This menu is used to print solid print patterns with head on both ends.

- Print pattern



A: Media feed direction
 B: 100% printing

Print the pattern in the order of 1A&1B, 1B&1B, 1A&1A.

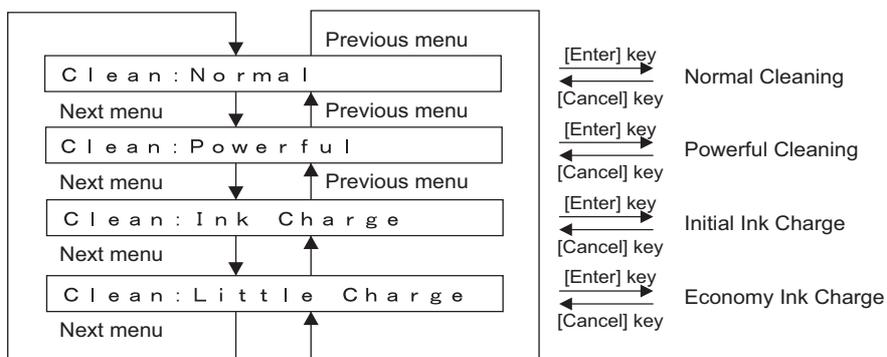


5.6 Cleaning Menu

In this menu, print head can be cleaned.
 The cleaning menu includes the following diagnosis items.

Table 5-12 Diagnosis Items in Cleaning Menu

Diagnosis item	Contents
Normal	Performs normal cleaning.
Powerful	Executes main suction part of normal cleaning with 10 times as many steps.
Initial ink charge	Performs initial ink charge.
Economy ink charge	Performs economy ink charge.



5.7 Sample Printing Menu

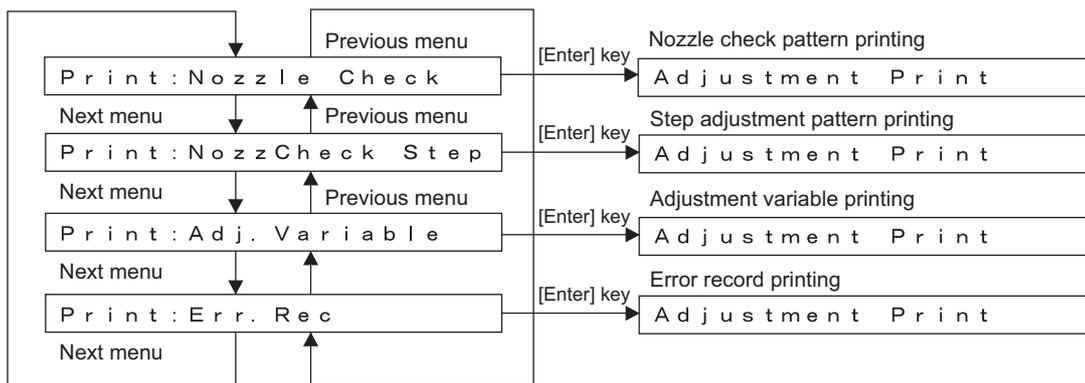
This menu prints out a sample printing.
 The sample printing menu includes the following items.

Table 5-13 Diagnosis Items in Sample Printing Menu

Nozzle check	Prints head nozzle check patterns.
Nozzle check	Prints head nozzle step check patterns.
Adjustment variables	Prints out the set values of various adjustment items.
Error history	Prints serious error history.

NOTE

If the serial number of the machine is not resisted, enter the number before starting the adjustment variable printing.

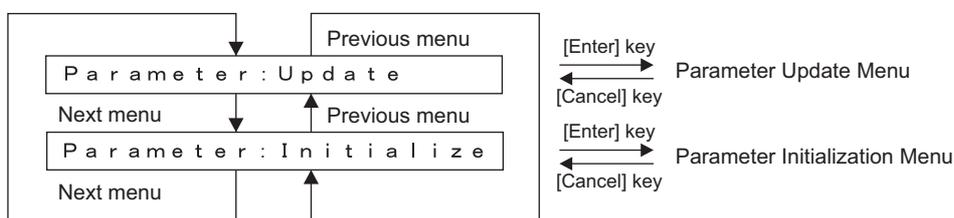


5.8 Parameter Menu

In this menu, the set of various adjustment items (adjustment parameters) can be adjusted. The parameter menu includes the following items.

Table 5-14 Diagnosis Items in Parameter Menu

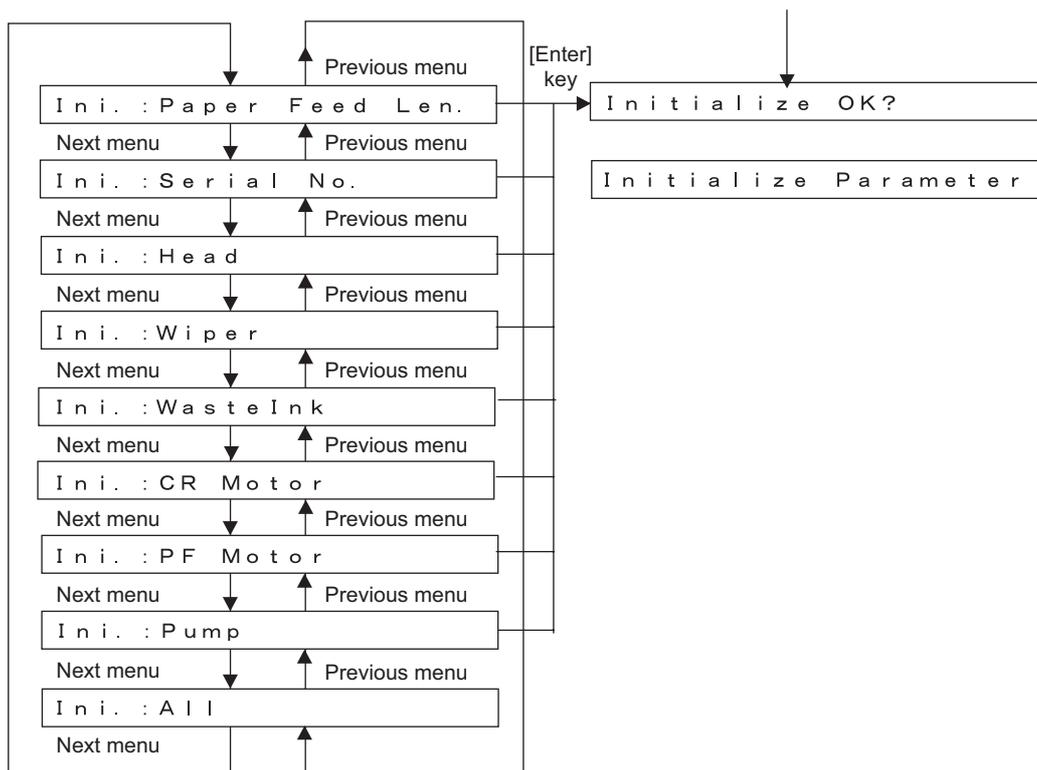
Diagnosis item	Contents	Reference
Update	Updates the adjustment parameters.	☞ "5.8.2 Parameter Update Menu" p.5-52
Initialization	Initializes the adjustment parameters.	☞ "5.8.1 Parameter Initialization Menu" p.5-52



5.8.1 Parameter Initialization Menu

This menu initializes the adjustment parameters. The parameters that can be initialized through this menu are as follows.

- Media feed distance
- Serial number
- Maintenance history (head, wiper, waste ink, CR motor, PF motor, and pump count)
- Initialization of all items



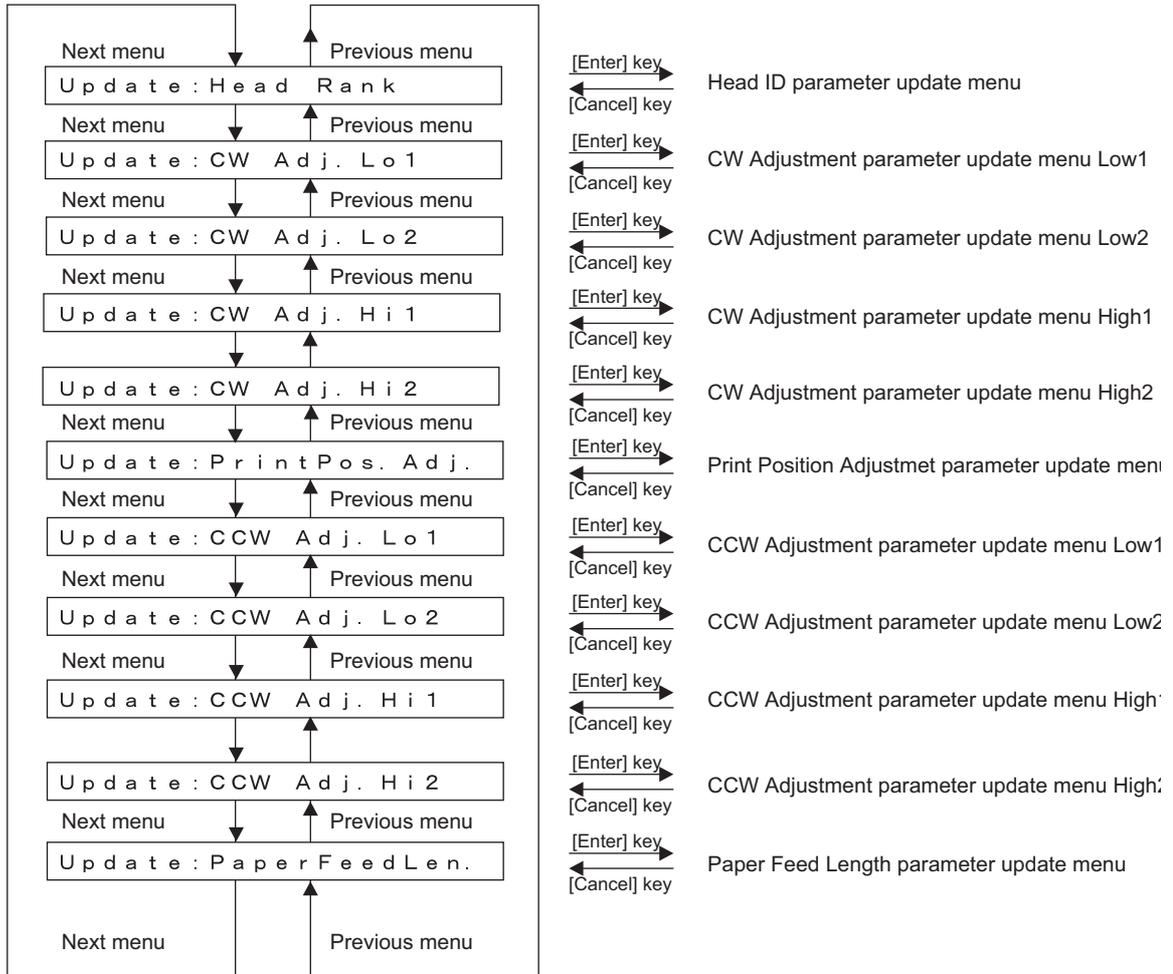
5.8.2 Parameter Update Menu

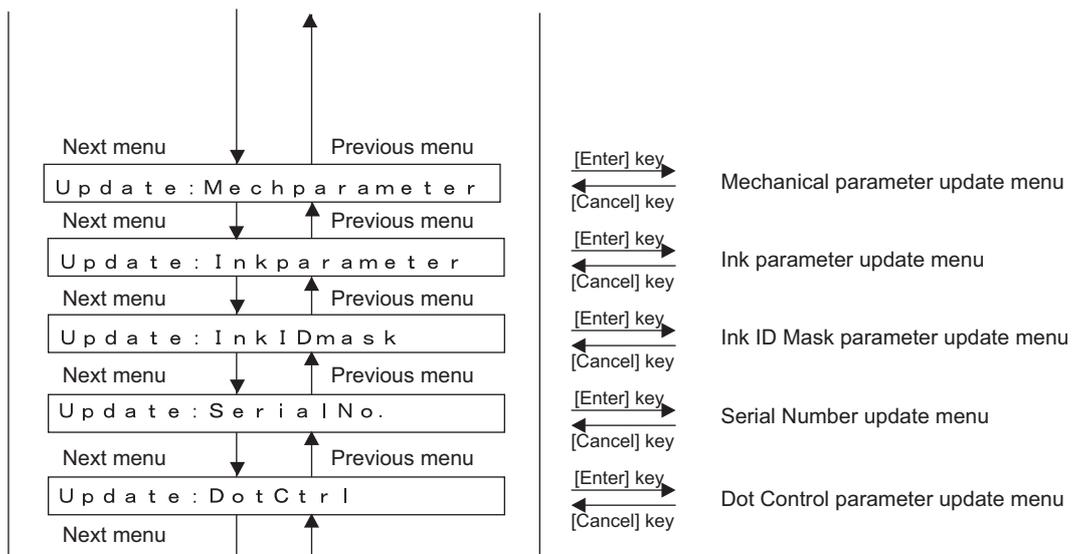
This menu updates the adjustment parameters. The parameters that can be updated through this menu are as follows.

- Head rank
- CW adjustment
- Printing position alignment
- CCW adjustment
- Media feed distance
- Mechanism parameter
- Ink parameter
- Ink ID mask
- Serial number
- Dot size

NOTE

If you update any parameter in the parameter update menu, always turn the power OFF after quitting the menu. The updated parameters will not be stored in the flash memory unless the system power is turned OFF as normal procedure..

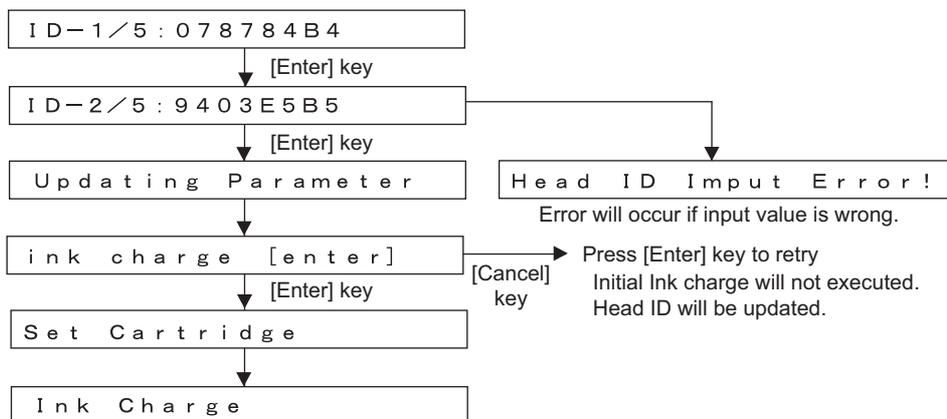




(1) Head Rank

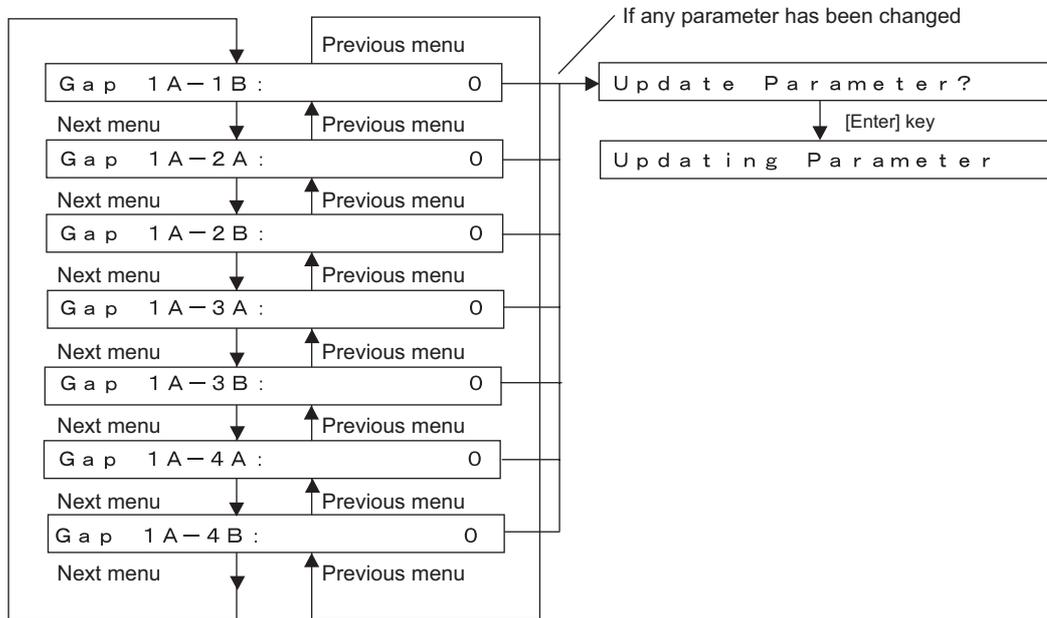
This menu updates the head rank parameters. The head rank is used to determine the print head driving voltage and correct the head temperature.

After head rank is entered, the system shifts to the Ink Charge Menu.



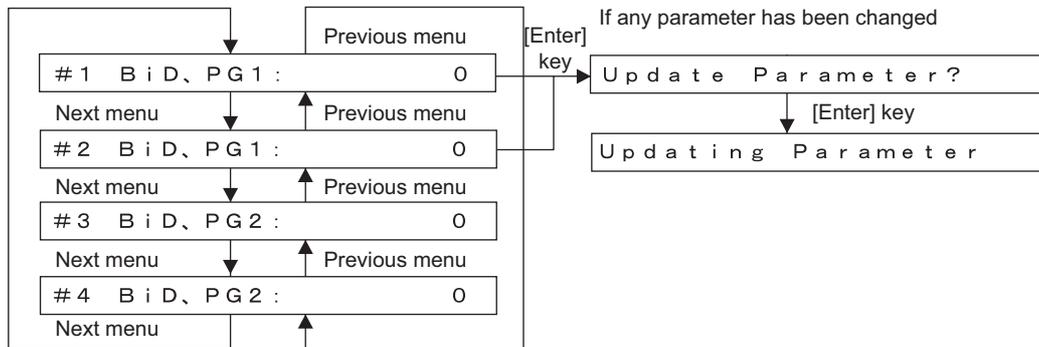
(2) CW Adjustment (Four Types: Low 1, Low 2, High 1, High 2)

This updates the CW adjustment parameters.



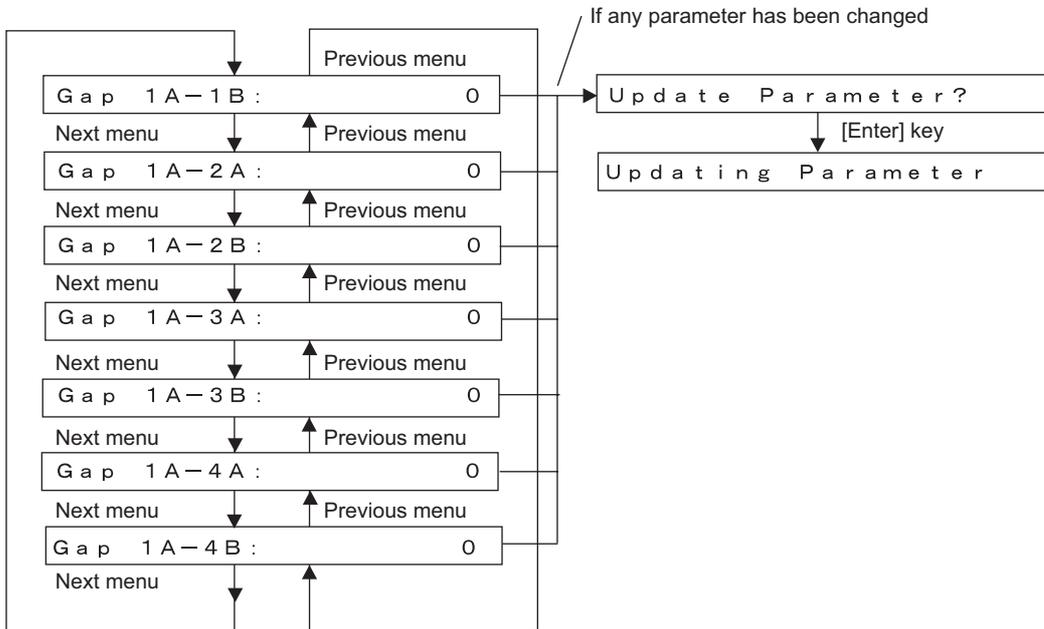
(3) Printing Position Alignment

This menu updates the printing position alignment parameters.



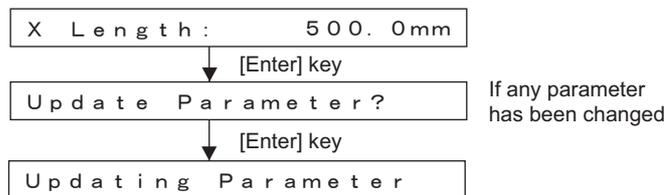
(4) CCW Adjustment (Four Types: Low 1, Low 2, High 1, High 2)

This updates the CCW adjustment parameters.



(5) Media Feed Distance

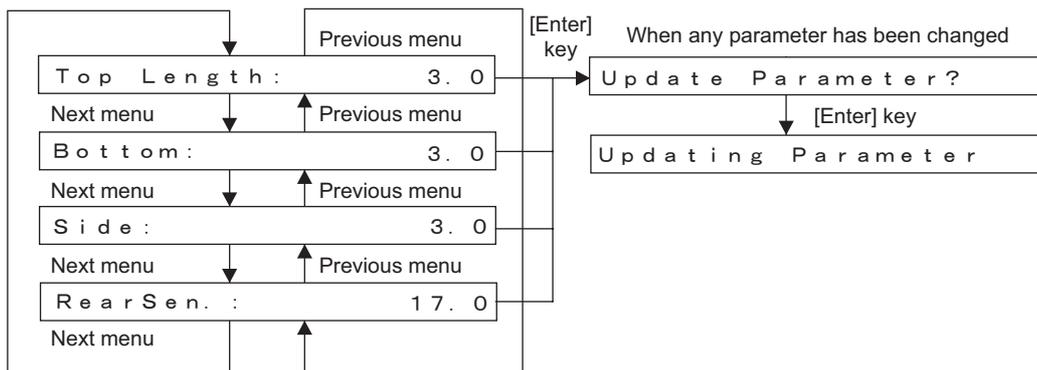
This updates the media feed distance parameters.



(6) Mechanical Parameter

This menu updates the mechanical position parameters. Setting items are as follows:

- Top distance
- Bottom distance
- Side margin
- P_REAR sensor position



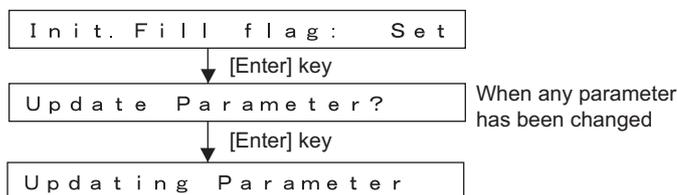
(7) Ink Parameter

This updates the ink parameter. The available options are as follows.

- Set: Ink not charged
- Reset: Ink charged

NOTE

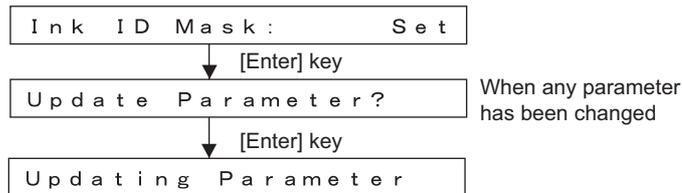
Selecting "Set" in the Ink Parameter Update Menu will terminate the self-diagnosis mode. When activated in the normal mode, the plotter performs initial charging. When selecting "Set", be sure to install the cartridge.



(8) Ink ID Mask

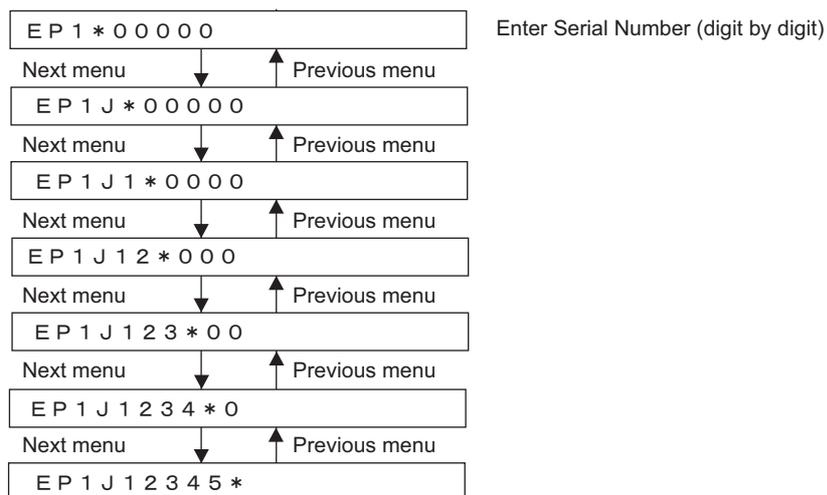
This menu updates the ink ID mask parameters. Setting items are as follows:

- Set: Fixes the ink ID.
 - K ink: Pigment
 - CMY ink: Dye
- Reset: Cancels the ink ID mask.



(9) Serial Number Entry

This is for entering the serial number.



(10) Dot Size

This menu fixes/releases waveform and dot size used for printing.

If the dot size is set to fixed, all printings are performed with the set waveform and dot size.

NOTE

Do not change the setting that is optimized before delivery.

DotCtrl OFF Press [Enter] key to set parameter

Dot size setting	Driving waveform	Contents
VSD1-L	VSD1	Large
VSD1-M	VSD1	Middle
VSD1-S	VSD1	Small
VSD2-L	VSD2	Large
VSD2-M	VSD2	Middle
VSD2-S	VSD2	Small
VSD3-L	VSD3	Large
VSD3-M	VSD3	Middle
VSD3-S	VSD3	Small
VSD4-L *	CAD_Bk	Large
VSD4-M *	CAD_Bk	Middle
VSD4-S *	CAD_Bk	Small
VSD4d-L *	CAD_Bk	Large
VSD4d-M *	CAD_Bk	Middle
VSD4d-S *	CAD_Bk	Small

* In the settings, the available waveform is specified as follows.

VSD4

Bk ink: 6-peak waveform for pigments available

CMY ink: 6-peak waveform for dyes available

VSD4d

Bk ink: the first half of the 6-peak waveform for pigments and micro-vibration available

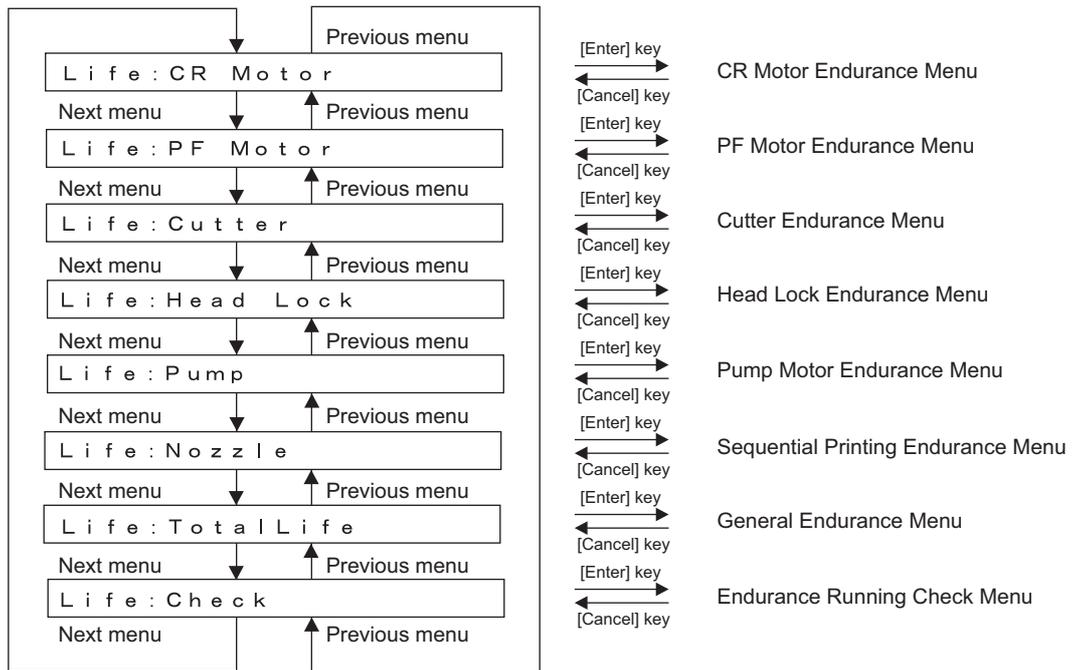
CMY ink: 6-peak waveform for dyes and micro-vibration available

5.9 Endurance Running Menu

Performs endurance running of mechanicals and the head.
The endurance running menu includes the following items.

Table 5-15 Diagnosis Items in Endurance Running Menu

Diagnosis item	Contents	Reference
CR motor	Performs carriage stroke.	☞ "5.9.1 CR Motor Endurance Menu" p.5-62
PF motor	Drives the PF motor.	☞ "5.9.2 PF Motor Endurance Menu" p.5-63
Cutter	Performs media cut.	☞ "5.9.3 Cutter Endurance Menu" p.5-64
Head lock	Performs head lock operation. (lock / free continuous)	☞ "5.9.4 Head Lock Endurance Menu" p.5-65
Pump	Drives the pump motor assembly.	☞ "5.9.5 Pump Endurance Menu" p.5-66
Sequential printing	Prints out a printing by print heads repeatedly.	☞ "5.9.6 Print Head Endurance (Nozzle Print) Menu" p.5-67
General endurance	Performs endurance running on the CR and PF concurrently.	☞ "5.9.7 General Endurance Menu" p.5-68
Confirmation	Confirms the number of endurance running cycles.	☞ "5.9.8 Endurance Running Check Menu" p.5-69



5.9.1 CR Motor Endurance Menu

In this endurance menu, the carriage shuttling can be operate according to the value set. You can operate the carriage stroke according to your desired settings. The available settings are shown below.

Table 5-16 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)	100, 120, 160, 200, 240, 320, 400	Unit: cps
Number of endurance running cycles	Set the number of endurance running cycles	-1 to 10000	

CAUTION

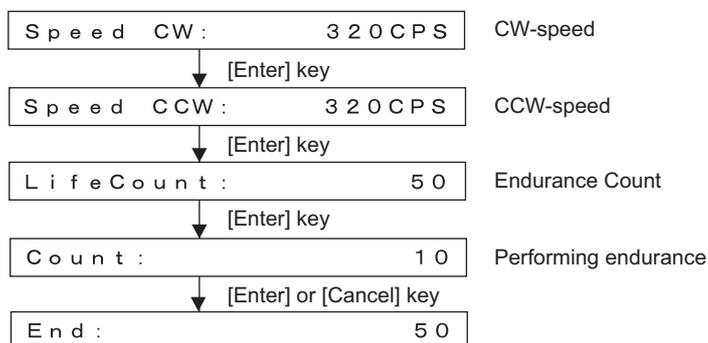
When the CR motor endurance running is performed, note the following;

- 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.



5.9.2 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 5-17 Set Items in PF Motor Endurance Menu

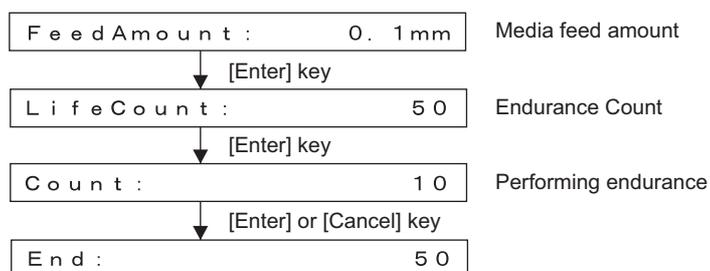
Set item	Contents	Set value	Remark
Media feed amount	Set the media feed amount per endurance running cycle	0.1 to 100	Unit: mm
Number of endurance running cycles	Set the number of endurance running cycles	-1 to 10000	

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.



5.9.3 Cutter Endurance Menu

In this endurance menu, media can be cut according to the value set.
You can cut the media according to your desired settings.

CAUTION

When performing cutter endurance, note the following;

- Install available ink cartridges.
- Confirm that media initialization has completed.

If performing cutter endurance operation without ink cartridge, Ink in the ink tube may leak out from Ink Holder(I/H) while carriage is shuttling.

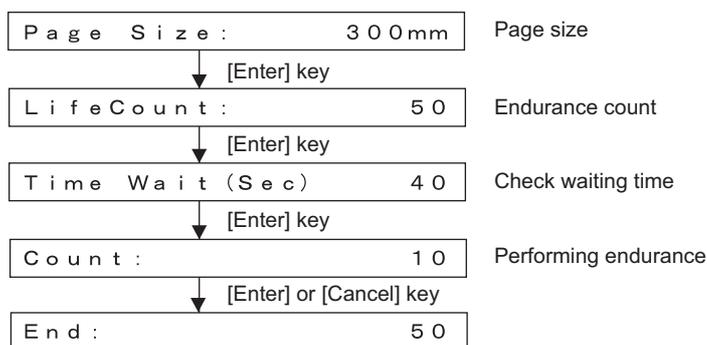
The available settings are shown below.

Table 5-18 Set Items in Cutter Endurance Menu

Set item	Contents	Set value	Remark
Page size	Set the media feed amount per endurance running cycle.	50 to 3000	Unit: mm
Number of endurance running cycles	Set the number of endurance running cycles	-1 to 10000	
Waiting interval	Set the waiting interval per endurance running cycle completion.	40	Unit: sec.

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 minimum configurable feeding amount is 50mm.
- 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 waiting time is not modifiable.



5.9.4 Head Lock Endurance Menu

This menu performs endurance running for the head lock.

In this endurance menu, the head lock operation can be performed according to the value set.

CAUTION

When the head lock endurance running is performed, note the following;

- Install available ink cartridges.

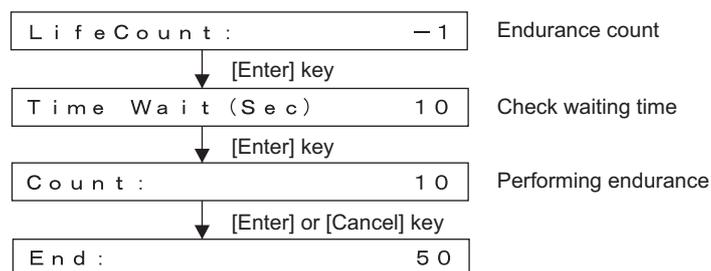
If the head lock endurance running is performed without ink cartridges, ink inside the tube may leak through the ink holder during the carriage movement.

Table 5-19 Set Items in Head Lock Endurance Menu

Set item	Contents	Set value	Remark
Waiting interval	Set the waiting interval per endurance running cycle completion.	10	Unit: sec.
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 repeat 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 waiting time is not modifiable.



5.9.5 Pump Endurance Menu

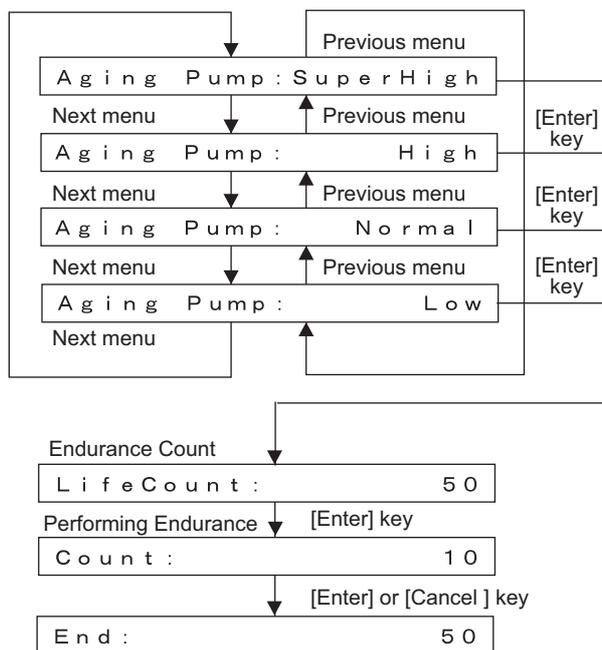
This menu performs endurance running for the pump motor assembly. In this menu, pump motor can be driven according to the value set. The available settings are shown below.

Table 5-20 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	
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 9999999 (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.

5.9.6 Print Head Endurance (Nozzle Print) Menu

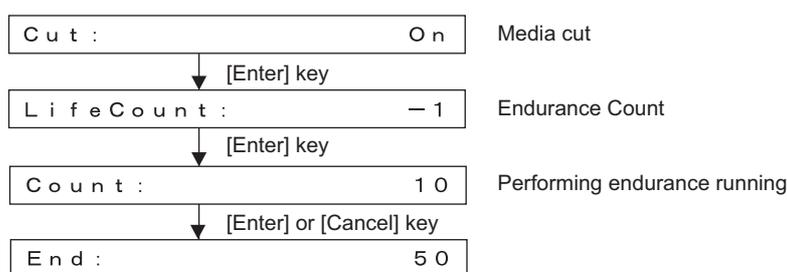
This menu performs endurance running for the plot head. In this menu, continuous printing operation can be performed according to the value set. The available settings are shown below.

Table 5-21 Set Items in Sequential Plotting Endurance Menu

Set item	Contents	Set value	Remark
Media cut	Set whether or not to cut the media per plot.	On / Off	Unit: mm
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.



5.9.7 General Endurance Menu

This menu performs the general endurance running.

In this menu, various driven systems operation can be performed according to the value set..

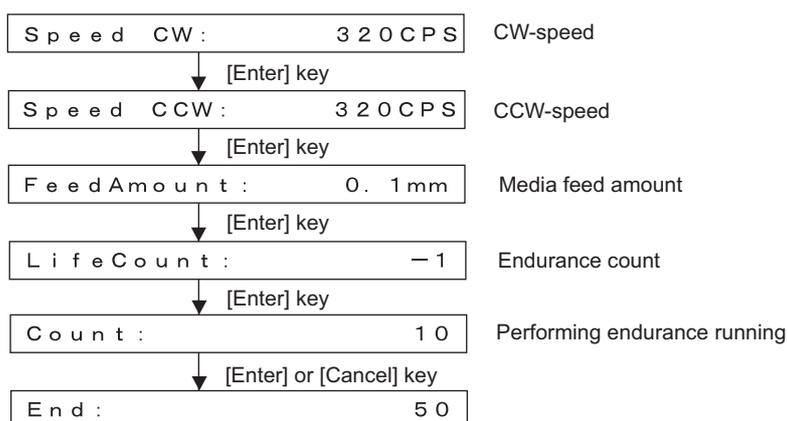
The available settings are shown below.

Table 5-22 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)	100, 120, 160, 200	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	

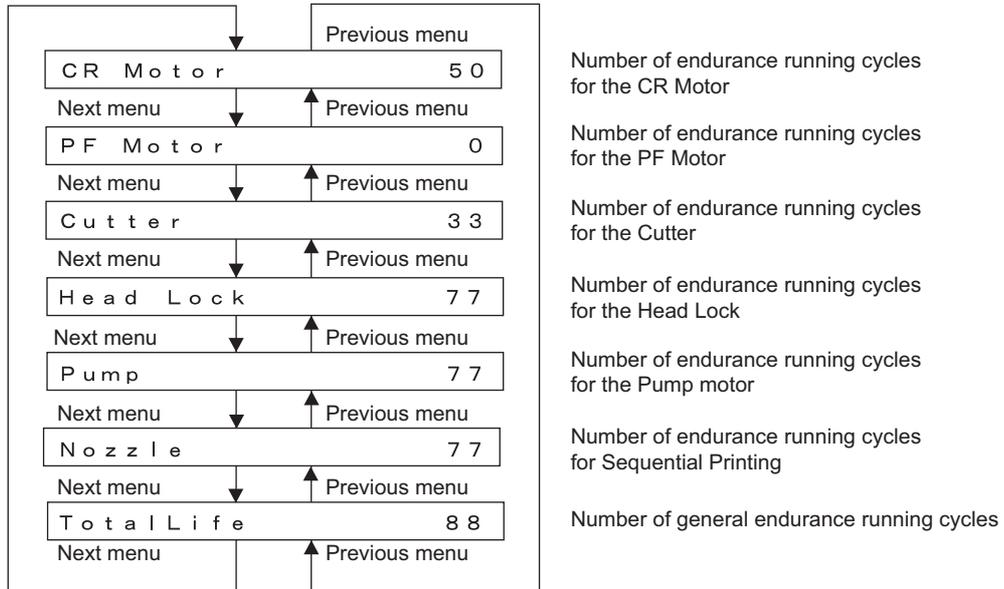
TIP

- 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.



5.9.8 Endurance Running Check Menu

In this menu, the number of endurance running cycles that have been already finished can be confirmed. The number of endurance running cycles is stored in NVRAM in the system. Therefore, even if a serious error occurs during endurance running, the number of finished cycles just before the occurrence of the serious error can be confirmed.



5.9.9 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.

Front : - Back : +

6 Maintenance Mode2

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6.2	Operations in Maintenance Mode2.....	6- 2
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6.1 Introduction

This chapter provides information on the maintenance mode2.

The maintenance mode2 provides the user with functions of displaying and initializing the life counters. It is used in the manufacturing process, adjustment, and maintenance.

The maintenance mode2 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 Mode2

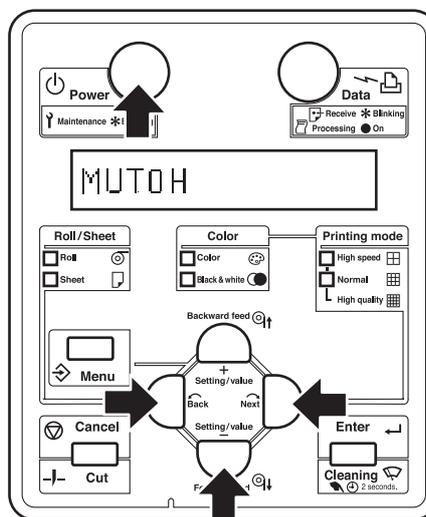
This section explains how to start up and operate the maintenance mode2 as well as provides the list of available diagnosis items.

6.2.1 Starting Up the Maintenance Mode2

To use the maintenance mode2, 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 [Roll/Sheet] key, [Backward feed] key and [Printing mode] key in the operation panel simultaneously, press [Power] key.

The maintenance mode2 will start running and display the maintenance menu.



6.2.2 Operating Maintenance Mode2

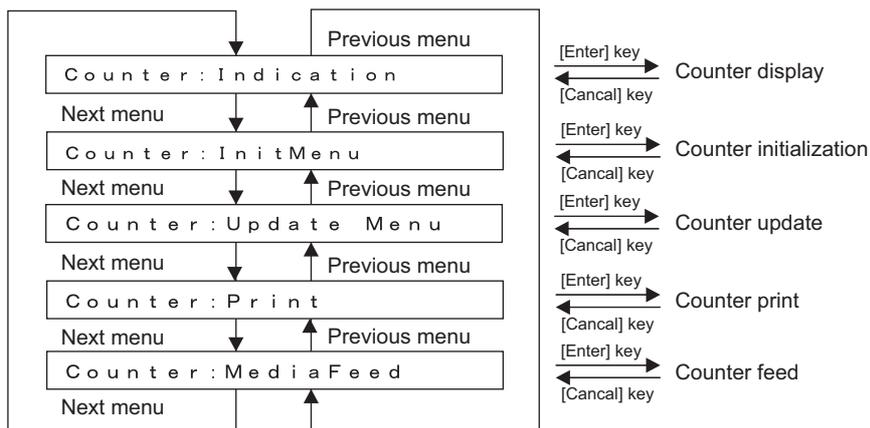
☞ "5.3 Operations in Self-Diagnosis Mode" p.5-6

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: InitMenu	Initializes the life counter	"6.3.2 Counter Initialization Menu" p.6-6
Counter: UpdateMenu	Updates the life counter	"6.3.3 Counter Update Menu" p.6-7
Counter: Print	Prints the life counter values	"6.3.4 Counter Print Menu" p.6-9
MediaFeed	Feeds media into the plotter forward or backward	"6.3.5 Media Feed Menu" p.6-9



6.3.1 Counter Display Menu

This menu displays the life counters. It consists of the following diagnosis items.

NOTE

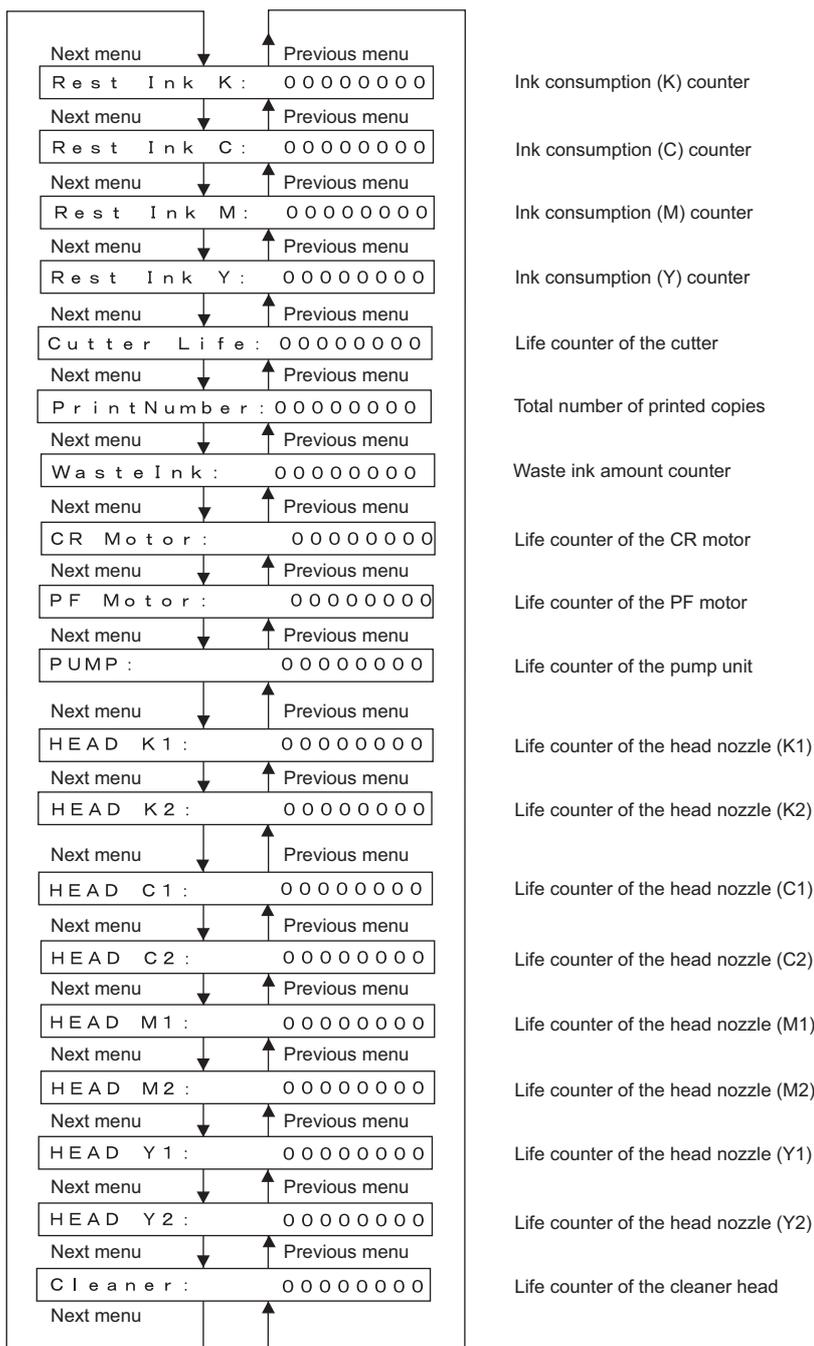
All life counters are displayed in decimal number.

Table 6-2 Diagnosis Items in Counter Display Menu

Diagnosis item	Contents
Rest Ink K	Displays the ink consumption (K) counter.
Rest Ink C	Displays the ink consumption (C) counter.
Rest Ink M	Displays the ink consumption (M) counter.

Table 6-2 Diagnosis Items in Counter Display Menu(Continued)

Diagnosis item	Contents
Rest Ink Y	Displays the ink consumption (Y) counter.
Cutter Life	Displays the life counter of the cutter.
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.

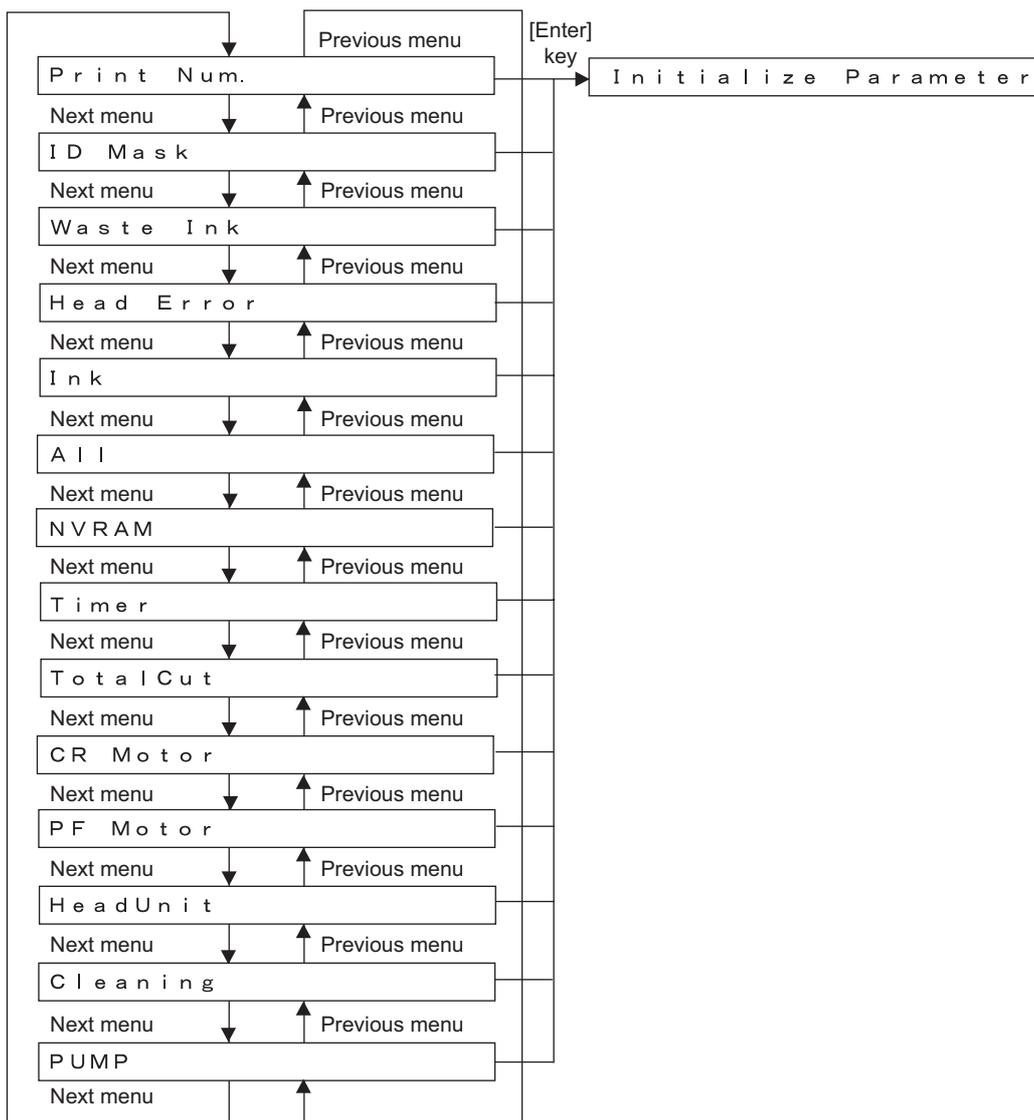


6.3.2 Counter Initialization Menu

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

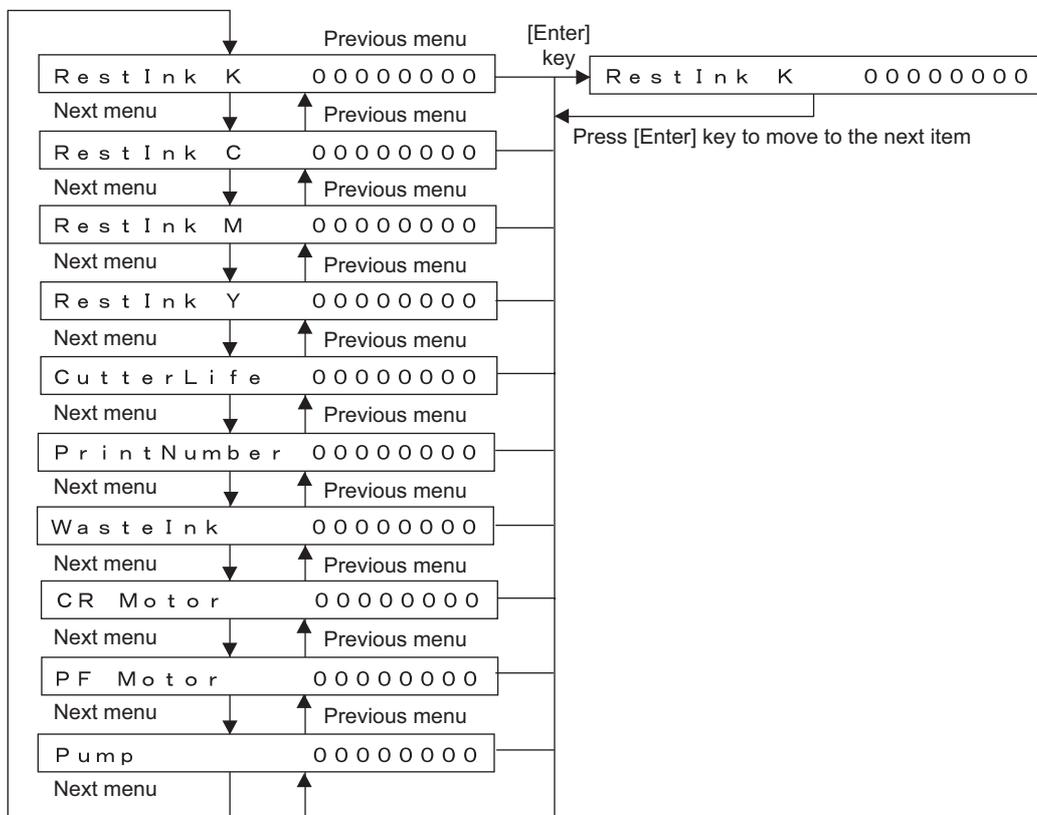
Diagnosis item	Contents
Print Num.	Initializes the total print counter.
ID Mask	Cancels the ink ID mask.
Waste Ink	Initializes the waste ink amount counter.
Head Error	Releases serious errors caused by head overcurrent.
Ink	Initializes the ink amount counter.
All	Initializes the life counter.
NVRAM	Initializes the NVRAM.
Timer	Initializes the timer.
Total Cut	Initializes the cutter cumulative counter.
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.

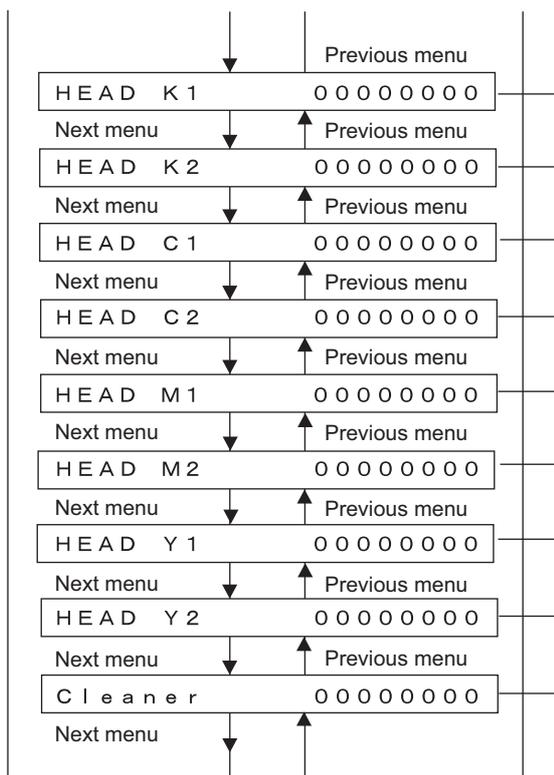


6.3.3 Counter Update Menu

This menu updates the life counters. The parameters that can be updated in this menu are as follows.

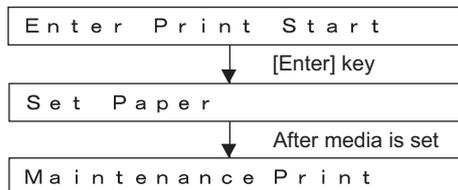
Diagnosis item	Contents
Ink Consumption K	Updates the ink consumption (K) counter.
Ink Consumption C	Updates the ink consumption (C) counter.
Ink Consumption M	Updates the ink consumption (M) counter.
Ink Consumption Y	Updates the ink consumption (Y) counter.
Cutter Life	Updates the cutter life counter values.
Print Num.	Updates the total print counter values
Waste Ink	Updates the waste ink amount counter values.
CR Motor	Updates the CR motor life counter values.
PF Motor	Updates the PF motor life counter values.
Pump	Updates the pump unit life counter values.
Head K1, K2	Updates the head unit (K) life counter.
Head C1, C2	Updates the head unit (C) life counter.
Head M1, M2	Updates the head unit (M) life counter.
Head Y1, Y2	Updates the head unit (Y) life counter.
Cleaner	Updates the cleaning unit life counter values.





6.3.4 Counter Print Menu

This menu prints the life counter values. The parameters that can be updated in this menu are as follows.



6.3.5 Media Feed Menu

This menu feeds media into the plotter forward or backward. The mechanical initialization should be performed, if it is not performed yet.



7 Adjustment

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7.1 Introduction

This chapter provides information on necessary adjustment items and procedures.

TIP

☞ "10.4 Jigs and Tools" p.10-7

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 printout 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)	☞ "5.5.2 Head Rank Input Menu" p.5-25 ☞ "5.9.6 Print Head Endurance (Nozzle Print) Menu" p.5-67
	2	Head nozzle check	☞ "5.5.3 Head Nozzle Check Menu" p.5-26
	3	Head slant check (horizontal)	☞ "5.5.4 Head Slant Check Menu 1" p.5-28
	4	Head slant check (vertical)	☞ "5.5.5 Head Slant Check Menu 2" p.5-29
	5	Head slant adjustment (horizontal)	☞ "7.7 Head Alignment Adjustment(Horizontal Height)" p.7-26
	6	Head slant adjustment (vertical)	☞ "7.8 Head Alignment Adjustment(Slant)" p.7-28
	7	Repeatability adjustment	☞ "5.5.7 Repeatability Adjustment Menu" p.5-35
	8	Test printing	☞ "5.5.12 Test Printing Menu" p.5-44
	9	Reset of head unit life counter	☞ "5.8.1 Parameter Initialization Menu" p.5-52

Table 7-1 Adjustment Item List(Continued)

Part replaced or adjusted	Adjustment order	Adjustment item	Reference
Main board assembly	1	Parameter backup	☞ "5.5.2 Head Rank Input Menu" p.5-25
	2	Firmware installation	☞ "5.5.3 Head Nozzle Check Menu" p.5-26
	3	Voltage input (no need for initial ink charge)	☞ "5.5.2 Head Rank Input Menu" p.5-25
	4	Head nozzle check	☞ "5.5.3 Head Nozzle Check Menu" p.5-26
	5	Repeatability adjustment	☞ "5.5.7 Repeatability Adjustment Menu" p.5-35
	6	Band feed correction	☞ "5.5.9 Band Feed Correction Menu" p.5-41
	7	Top & bottom adjustment	☞ "5.5.10 Top and Bottom Adjustment Menu" p.5-42
	8	P_REAR sensor position adjustment	☞ "5.5.11 P_REAR Sensor Position Adjustment Menu" p.5-43
	9	Media sensor sensitivity adjustment	☞ "7.11 Media Sensor Sensitivity Adjustment" p.7-33
	10	Test printing	☞ "5.5.12 Test Printing Menu" p.5-44
CR motor assembly	1	CR belt tension adjustment	☞ "7.6 CR Belt Tension Adjustment" p.7-25
	2	Repeatability adjustment	☞ "5.5.7 Repeatability Adjustment Menu" p.5-35
	3	Top & bottom adjustment	☞ "5.5.10 Top and Bottom Adjustment Menu" p.5-42
	4	Test printing	☞ "5.5.12 Test Printing Menu" p.5-44

Table 7-1 Adjustment Item List(Continued)

Part replaced or adjusted	Adjustment order	Adjustment item	Reference
PF motor assembly	1	PF speed reduction belt tension adjustment	☞ "(2) Confirming Completion of Installation to Plotter" p.7-17
	2	Band feed correction	☞ "5.5.9 Band Feed Correction Menu" p.5-41
	3	Top & bottom adjustment	☞ "5.5.10 Top and Bottom Adjustment Menu" p.5-42
	4	P_REAR sensor position adjustment	☞ "5.5.11 P_REAR Sensor Position Adjustment Menu" p.5-43
	5	Test printing	☞ "5.5.12 Test Printing Menu" p.5-44
P_EDGE sensor assembly	1	Media sensor sensitivity adjustment	☞ "7.11 Media Sensor Sensitivity Adjustment" p.7-33
	2	Top / bottom adjustment	☞ "5.5.10 Top and Bottom Adjustment Menu" p.5-42
P_REAR sensor assembly	1	Media sensor sensitivity adjustment	☞ "7.11 Media Sensor Sensitivity Adjustment" p.7-33
	2	P_REAR sensor position adjustment	☞ "5.5.11 P_REAR Sensor Position Adjustment Menu" p.5-43
Cover sensor assembly	1	Cover sensor assembly mounting position adjustment	☞ "7.7 Head Alignment Adjustment(Horizontal Height)" p.7-26

Table 7-1 Adjustment Item List(Continued)

Part replaced or adjusted	Adjustment order	Adjustment item	Reference
PF_ENC assembly	1	PF_ENC assembly mounting position adjustment	☞ "7.11 Media Sensor Sensitivity Adjustment" p.7-33
	2	PF_ENC inspection	☞ "5.4.5 Encoder Menu" p.5-16
	3	Band feed correction	☞ "5.5.9 Band Feed Correction Menu" p.5-41
	4	Top & bottom adjustment	☞ "5.5.10 Top and Bottom Adjustment Menu" p.5-42
	5	Test printing	☞ "5.5.12 Test Printing Menu" p.5-44
Sub platen assembly	1	Cutter endurance operation check	☞ "5.9.7 General Endurance Menu" p.5-68
T fence	1	CR encoder inspection	☞ "5.4.5 Encoder Menu" p.5-16
	2	Repeatability adjustment	☞ "5.5.7 Repeatability Adjustment Menu" p.5-35
	3	Top & bottom adjustment	☞ "5.5.10 Top and Bottom Adjustment Menu" p.5-42
	4	Test printing	☞ "5.5.12 Test Printing Menu" p.5-44
CR driven pulley	1	CR belt tension adjustment	☞ "7.6 CR Belt Tension Adjustment" p.7-25

Table 7-1 Adjustment Item List(Continued)

Part replaced or adjusted	Adjustment order	Adjustment item	Reference
Cutter holder assembly	1	Cutter holder assembly mounting position adjustment	☞ "7.8 Head Alignment Adjustment(Slant)" p.7-28
	2	P_EDGE sensor adjustment	☞ "7.11.1 P_EDGE Sensor Sensitivity Adjustment" p.7-34
	3	Print margin adjustment	☞ "5.5.10 Top and Bottom Adjustment Menu" p.5-42
	4	Cutter endurance operation check	☞ "5.9.3 Cutter Endurance Menu" p.5-64
Carriage assembly	1	CR belt tension adjustment	☞ "7.6 CR Belt Tension Adjustment" p.7-25
	2	CR encoder inspection	☞ "5.4.5 Encoder Menu" p.5-16
	3	Cutter holder assembly mounting position adjustment	☞ "7.8 Head Alignment Adjustment(Slant)" p.7-28
	4	P_EDGE sensor adjustment	☞ "7.11.1 P_EDGE Sensor Sensitivity Adjustment" p.7-34
	5	Cutter endurance operation check	☞ "5.9.3 Cutter Endurance Menu" p.5-64
	6	Sequential printing endurance operation check	☞ "5.9.6 Print Head Endurance (Nozzle Print) Menu" p.5-67
	7	Head rank input	☞ "5.5.2 Head Rank Input Menu" p.5-25 ☞ "5.9.6 Print Head Endurance (Nozzle Print) Menu" p.5-67

Table 7-1 Adjustment Item List(Continued)

Part replaced or adjusted	Adjustment order	Adjustment item	Reference
Carriage assembly (Continued)	8	Print margin adjustment	☞ "5.5.10 Top and Bottom Adjustment Menu" p.5-42
	9	Head nozzle check	☞ "5.5.3 Head Nozzle Check Menu" p.5-26
	10	Head slant check (horizontal)	☞ "5.5.4 Head Slant Check Menu 1" p.5-28
	11	Head slant check (vertical)	☞ "5.5.5 Head Slant Check Menu 2" p.5-29
	12	Head slant adjustment (horizontal)	☞ "7.7 Head Alignment Adjustment(Horizontal Height)" p.7-26
	13	Head slant adjustment (vertical)	☞ "7.7 Head Alignment Adjustment(Horizontal Height)" p.7-26
	14	Repeatability adjustment	☞ "5.5.7 Repeatability Adjustment Menu" p.5-35
	15	Test printing	☞ "5.5.12 Test Printing Menu" p.5-44

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.7-11](#)
2. Receiving parameters:  ["7.3.4 Receiving Parameters" p.7-14](#)
3. Replacing main board:  ["4.3.3 Replacing Main Board Assembly" p.4-21](#)
4. Transferring firmware to plotter:  ["\(1\) Firmware Transfer" p.7-15](#)
5. Confirming completion of installation to plotter:  ["\(2\) Confirming Completion of Installation to Plotter" p.7-17](#)
6. Sending parameters:  ["7.3.6 Sending Parameters" p.7-19](#)

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: Windows98/Windows98SE/WindowsMe/Windows2000/WindowsXP
 - 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

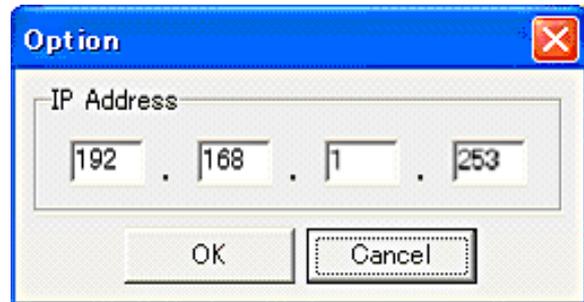
Once "MUTOH Maintenance Engineer Assistant" is started, there is no need to exit it until a series of processes completes.

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].



 **CAUTION**

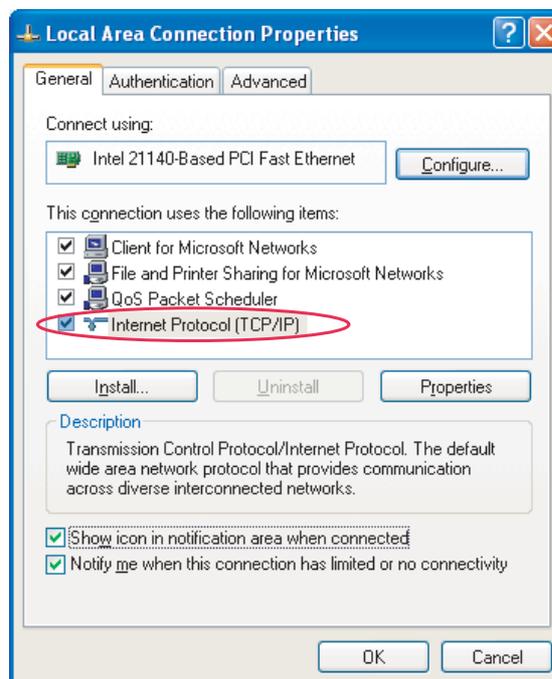
For the IP address, use the default value as much as possible. If you want to use other IP address, consult with the network administrator of the network to be connected.

(2) PC IP Address Setting

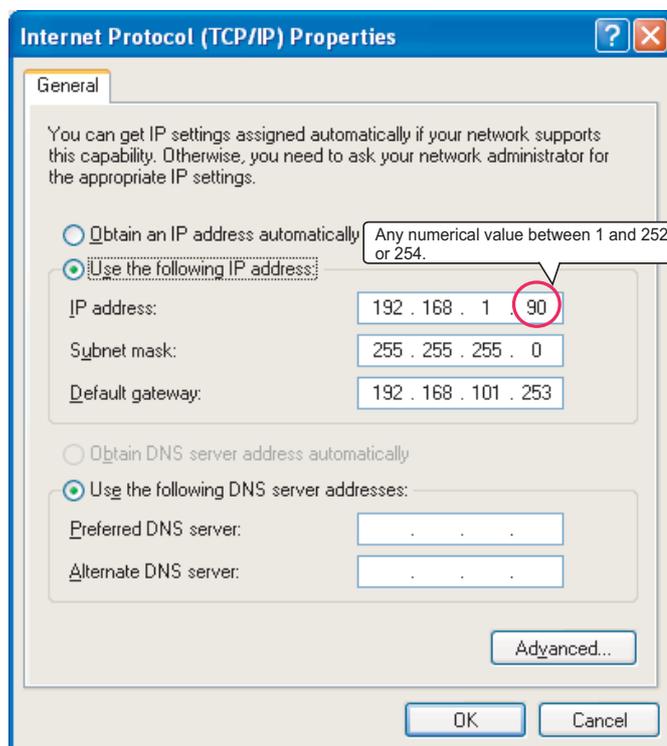
To set up on Windows XP with the default IP address on the plotter, follow the steps below.

1. From [Control Panel], open [Network Connections].

- Right-click [Local Area Connection] and select [Properties].
- Double-click [Internet Protocol (TCP/IP)].



- 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 Port Manager Mode

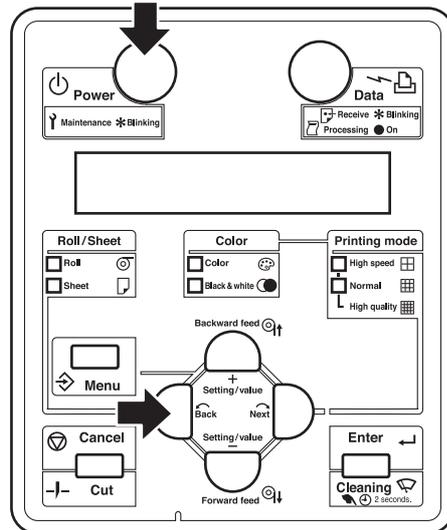
1. Connect the plotter network port and PC network port with a network cable.

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".

2. When the plotter is in the operation status or in the menu display status, press [Power] key to turn the plotter off.
3. 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 [Forward feed] and [Backward feed], and press [Enter]. Then, "waiting for command" will be displayed.

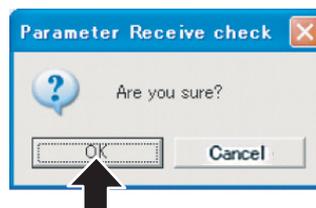
7.3.4 Receiving Parameters

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.

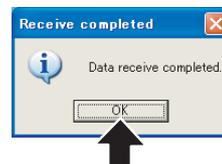
1. Click [Parameter Receive].



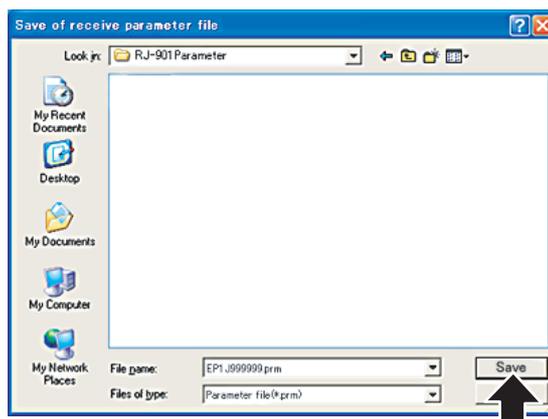
2. In the "Parameter receive check" window, click [OK]. Installation will start.



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.

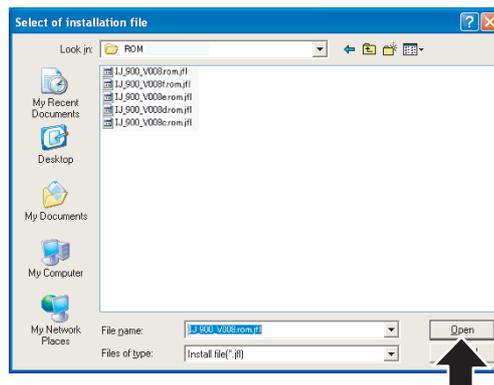
NOTE

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".

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.

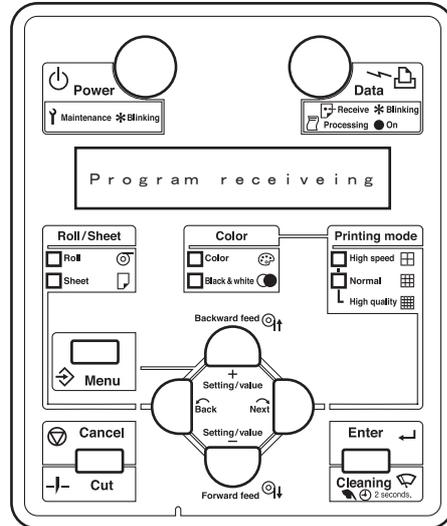
**CAUTION**

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

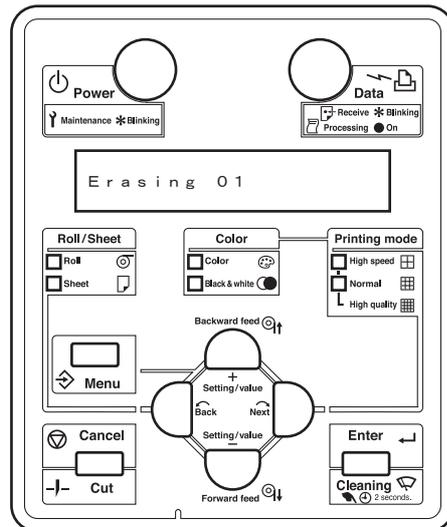
Program installation to plotter continues even after the "Transfer completed" window is closed. Check whether the program is properly installed from the operation panel.

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:

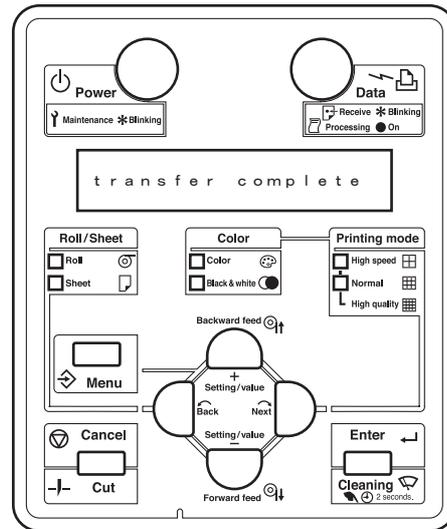
- Erasing xx (xx is numeric)
- Copying xx (xx is numeric)
- Comparing xx (xx is numeric)



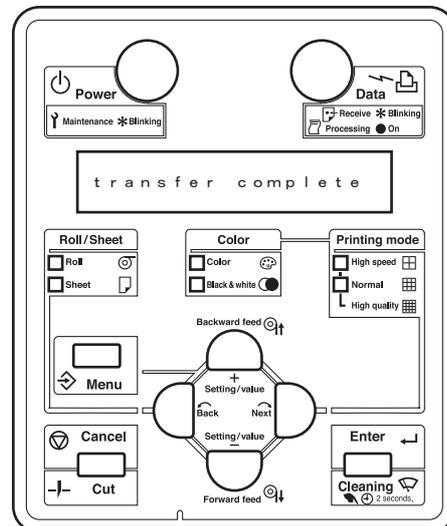
CAUTION

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 recv (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

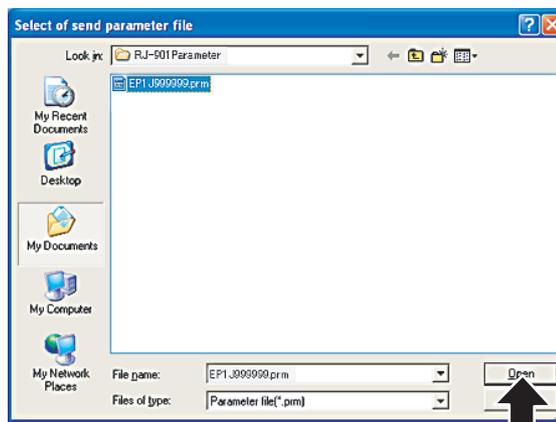
Before sending parameters, perform the following work.

- Receiving parameters: ["7.3.4 Receiving Parameters" p.7-14](#)
- Firmware installation: ["7.3.5 Firmware Installation" p.7-15](#)

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.



4. 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.

7.4 PF Speed Reduction Belt Tension Adjustment

This section describes the procedure to adjust the tension of the PF speed reduction belt. When you have removed and installed the PF speed reduction belt, such as for PF motor removal, always adjust the PF speed reduction belt tension. Using PF belt tension adjustment jig, adjust the PF encoder position and the PF belt tension.

7.4.1 Jigs and Tools

The jigs and tools required for PF speed reduction belt tension adjustment are as follows.

- Special jig (incl. tension gauge): for measuring Max. 4,000gf (39N)

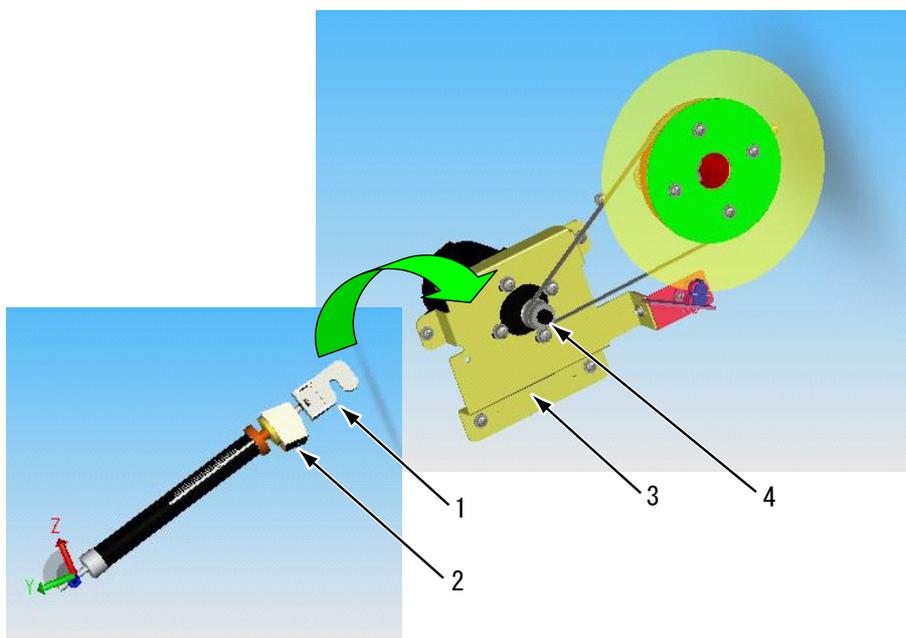
TIP

☞ "10.4 Jigs and Tools" p.10-7

7.4.2 Adjustment Procedure

To adjust the PF speed reduction belt tension, follow the steps below.

1. Hook the tip of the PF belt tension adjusting jig to the PF motor shaft.



No.	Part name
1	PF belt tension adjusting jig tip
2	Tension base
3	PF bracket
4	PF motor

2. Turn the tension base and hook it to the PF bracket.
3. Turn the tension gauge until the graduation of PF belt tension adjusting jig indicates $40.0 \pm 0.5\text{N}$, and then tighten the screw.

 **CAUTION**

During the operation, note the following points.

- The PF speed reduction belt tension specification is $40.0 \pm 2.0\text{N}$
 - Since the specification includes the tension gauge error (1.5N), adjust to $40.0 \pm 0.5\text{N}$ in actual adjustment, setting the error limit to half of one graduation (0.5N).
-

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 with a jig.

7.5.1 Jigs and Tools

The jigs and tools required for PF encoder assembly position adjustment are as follows.

- PF encoder adjusting jig

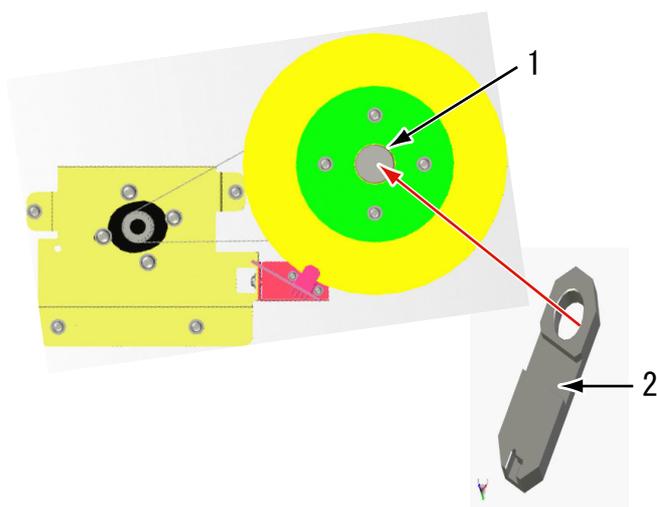
NOTE

☞ "10.4 Jigs and Tools" p.10-7

7.5.2 Adjustment Procedure

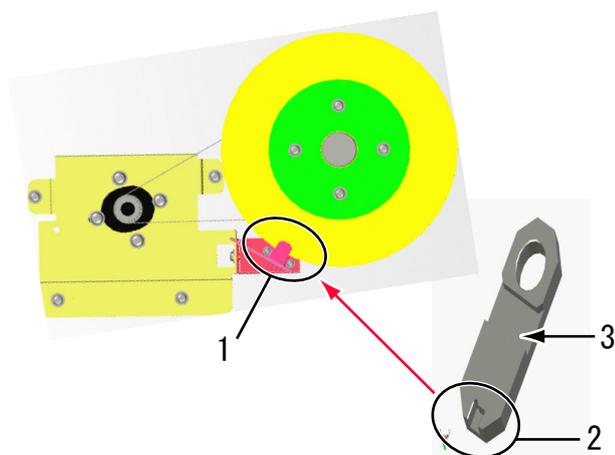
To adjust PF encoder, follow the steps below.

1. Align the hole on the PF encoder adjusting jig with the grid roller.



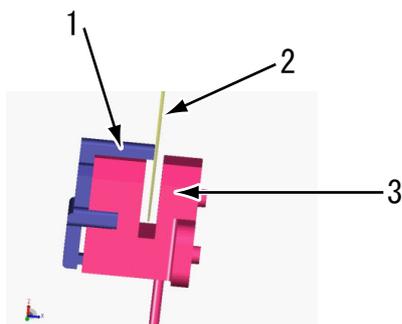
No.	Part name
1	Grid roller
2	PF encoder adjusting jig

- Align the PF encoder assembly with the indented part in the PF encoder adjusting jig, and fix the PF encoder assembly with screws.



No.	Part name
1	PF encoder assembly
2	Indented part in PF encoder adjusting jig
3	PF encoder adjusting jig

- Attach the slit guide to the PF encoder assembly



No.	Part name
1	Slit guide
2	Scale
3	PF scale assembly

- 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.

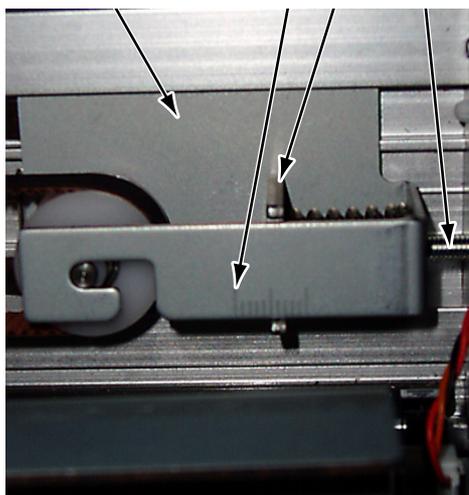
NOTE

There is no problem even if the scale hits the slit guide when turned around.

7.6 CR Belt Tension Adjustment

This section describes the procedure to adjust the tension of the CR belt. When you have removed and installed the CR belt, adjust the CR belt tension.

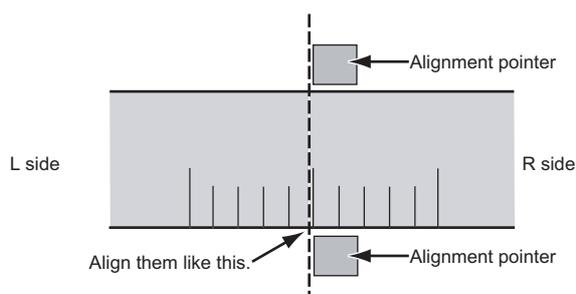
1. Tighten the CR tension mounting shaft, and align the left side (viewed from the front of the plotter) of the graduation alignment pointer with the center line of graduations on the driven pulley base.



No.	Part name
1	Driven pulley base
2	Driven pulley base graduations
3	Graduation alignment pointer
4	CR tension mounting shaft

CAUTION

To align the graduation alignment pointer with the center line of driven pulley base, align the left side (viewed from the front of the plotter) of the pointer with the center line as shown below.



7.7 Head Alignment Adjustment(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

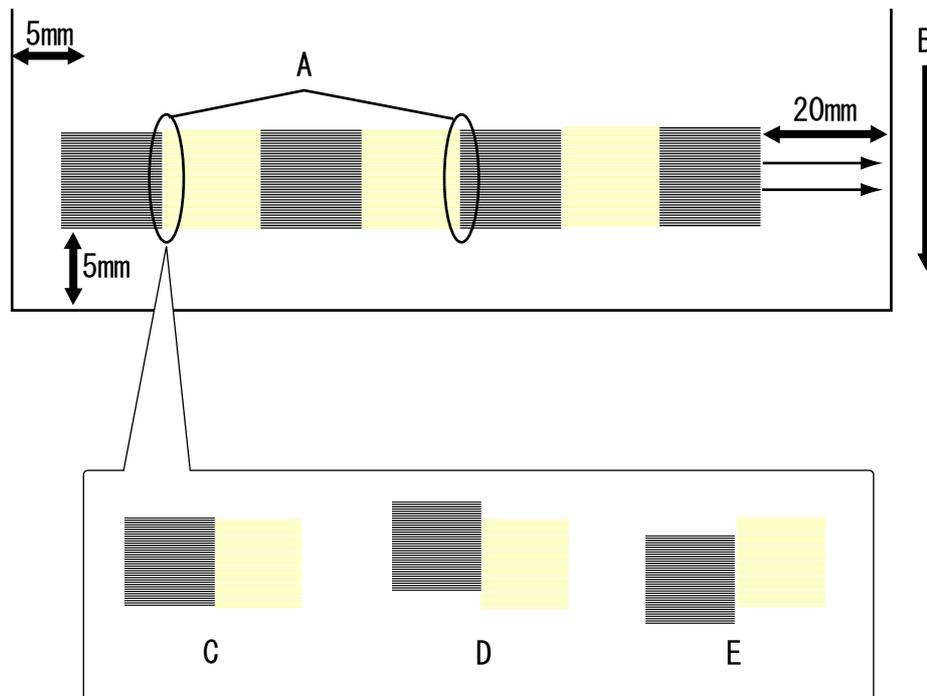
Before starting adjustment, remove the following parts.

- CR board cover: [☞ "4.6.1 Replacing Print Head" p.4-37](#)
- Cable cover R: [☞ "4.6.1 Replacing Print Head" p.4-37](#)

1. Start the system in self-diagnosis function mode and print the adjustment patterns in "Head Slant Check Menu 1".

[☞ "5.5.4 Head Slant Check Menu 1" p.5-28](#)

2. Make adjustment based on the printed adjustment patterns.



A: Check the slant at this point.

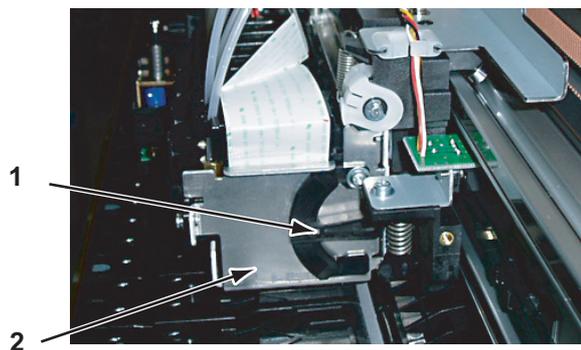
B: Media feed direction

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

7.8 Head Alignment Adjustment(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

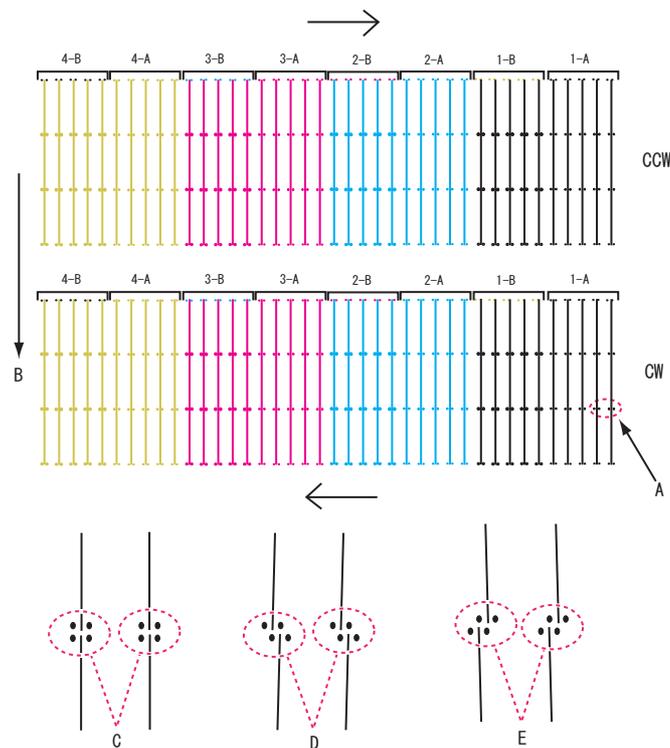
Before starting adjustment, remove the following parts.

- CR board cover:  ["4.6.1 Replacing Print Head" p.4-37](#)
- Cable cover R:  ["4.6.1 Replacing Print Head" p.4-37](#)

1. Start the system in self-diagnosis function mode and print the adjustment patterns in "Head Slant Check Menu 2".

 ["5.5.5 Head Slant Check Menu 2" p.5-29](#)

2. Make adjustment based on the printed adjustment patterns.



A: Check the point to check the vertical slant angle.

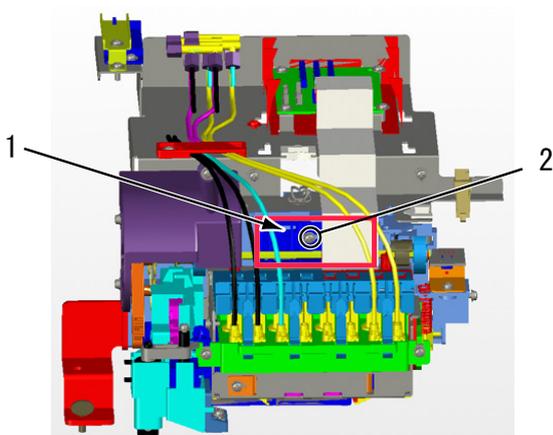
B: Media feed direction

C: OK

D: Move the vertical-slant adjusting tab to the right.

E: Move the vertical-slant adjusting tab to the left.

- Loosen the vertical-slant adjusting tab screw and move the tab left and right to adjust the head vertical angle.



No.	Part name
1	Vertical-slant adjusting tab
2	Vertical-slant adjusting tab screw

7.9 Cutter Holder Height Adjustment

This section describes the procedure to adjust the cutter holder height.

7.9.1 Jigs and Tools

The following jigs and tools are required for cutter holder height adjustment.

- Cutter holder height adjusting jig

TIP

☞ "10.4 Jigs and Tools" p.10-7

7.9.2 Adjustment Procedure

To make adjustment, follow the steps below.

NOTE

Before starting adjustment, remove the following parts.

- CR cover: Step 2 to 4 in ☞ "4.6.1 Replacing Print Head" p.4-37
- Cutter blade: Operation manual

(1) Media Guide L Mounting Position Adjustment

1. Loosen the three screws retaining the media guide L.

TIP

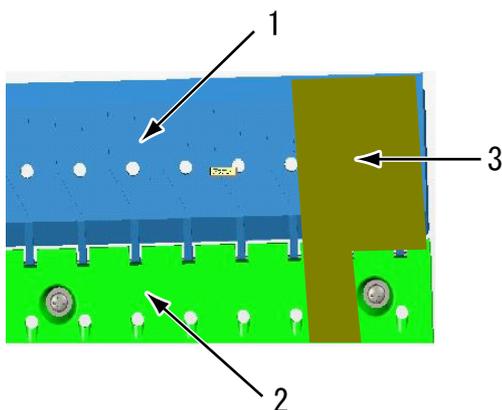
To loosen the leftmost screw on media guide L, use a Phillips screw driver by inserting it through the gap in I/H assembly.

2. Attach the cutter positioning jig near (right side of) the retaining screw of media guide L.

NOTE

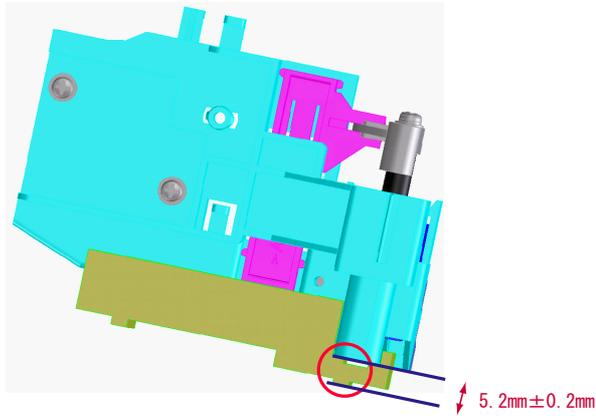
Before starting work, tentatively tighten the cutter holder.

3. Fully tighten the sub platen screw that is nearest to the origin, and place the cutter holder height adjusting jig to the left side of the tightened screw.



No.	Part name
1	Platen
2	Sub platen
3	Cutter holder height adjusting jig

- Place the cutter holder on the side face of the jig and hold the cutter holder down from above. While making sure that the part indicated by a circle in the figure is sustained, fasten the tentatively-tightened screw fully and determine the cutter holder height.



No.	Part name
1	Cutter holder
2	Cutter holder height adjusting jig

7.10 PG Height Adjustment

This section describes the procedure to check the carriage height (distance from the platen).

7.10.1 Jigs and Tools

The following jigs and tools are required for carriage height (distance from the platen) check.

- PG height checking jig

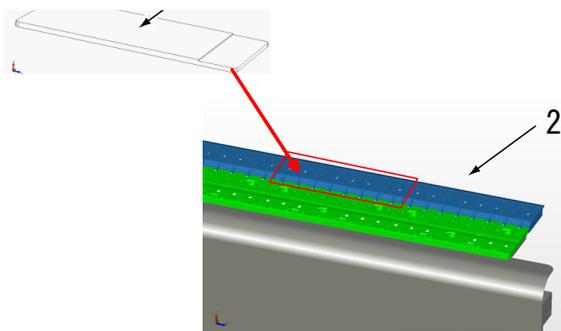
TIP

☞ "10.4 Jigs and Tools" p.10-7

7.10.2 Adjustment Procedure

Follow the steps below to adjust the platen height.

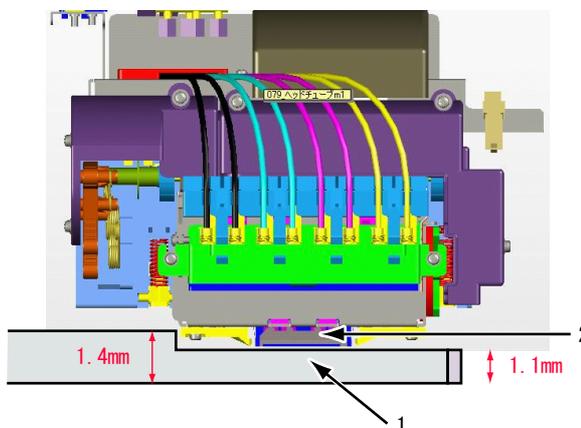
1. When moving the carriage, place the PG height checking jig on the second platen from the origin.



No.	Part name
1	PG height checking jig
2	Platen

2. Move the carriage from the origin side while the lever is in "LOW".

3. Check that the carriage can pass through a gap above the 1.1mm part of the PG height checking jig and cannot pass through a gap above the 1.4mm part.



No.	Part name
1	PG height checking jig
2	Head

4. Reverse the direction of the jig and move the carriage from the opposite side of the origin.
5. If this does not succeed, readjust the PG height.

7.11 Media Sensor Sensitivity Adjustment

This section describes the procedure to adjust the sensitivity of media sensor. When you have removed and installed the sensors below or main board assembly, always adjust the sensitivity of media sensor

- P_EDGE sensor
- P_REAR sensor

NOTE

- When you adjust the sensor sensitivity, note the following;
 - Any ambient light, such as sun light or room light, does not interfere with the sensor.
 - Hold the media with hand or the media holding lever so that the media is stable on the sensor during adjustment.
If media is not securely held, the sensor detection accuracy may be incorrect.
 - 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.
- Before adjusting sensor sensitivity, perform the following work.
 - Install all covers except for media guide R2.
☞ "4.2 Removal of Covers" p.4-5

7.11.1 P_EDGE Sensor Sensitivity Adjustment

(1) Jigs and Tools

The following jigs and tools are required for P_EDGE sensor sensitivity adjustment.

- Standard media: A4 matte film (Generic product: Dia Mat Super A4 provided by KIMOTO, Co.,Ltd.)

TIP

 ["10.4 Jigs and Tools" p.10-7](#)

(2) Adjustment Procedure

To adjust the P_EDGE sensor, follow the steps below.

1. Sets the standard media.
2. Start up the self-diagnosis function.

TIP

 ["5.2.2 Starting Up" p.5-4](#)

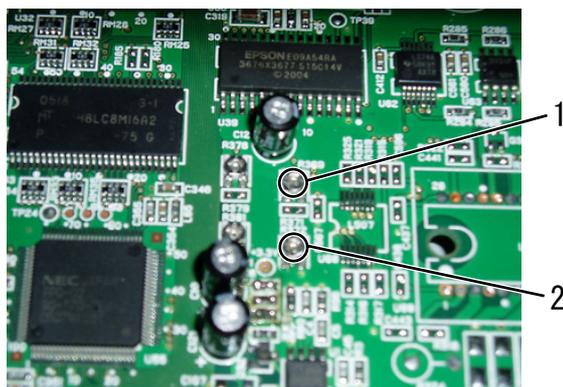
3. Select "Check: Test" from the self-diagnosis menu.
4. Select "Test: Sensor" from the inspection menu.
5. Select "Sen: PaperEdge AD" from the sensor menu.
6. Open the front cover.
7. Press the cutter cap with a finger and release the carriage lock.
8. Move the carriage to the position where the standard media is set.

9. Adjust the P_EDGE sensor adjusting volumes as shown below so that the value displayed in the operation panel becomes "75±5".

Counterclockwise: Sensitivity increases

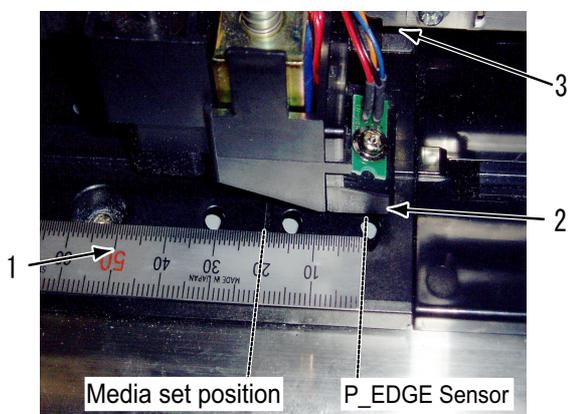
Clockwise: Sensitivity decreases

- Trimmer R369: Rough adjustment
- Trimmer R372: Fine adjustment



No.	Part name
1	Trimmer R369
2	Trimmer R372

10. Remove the standard media, then move the paper edge sensor to the position 20 mm apart from the media set position as shown below.



No.	Part name
1	Metal measure
2	P_EDGE sensor
3	Carriage

11. Check that the value displayed in the operation panel is "30" or less.

7.11.2 P_REAR Sensor Adjustment

(1) Jigs and Tools

The following jigs and tools are required for P_REAR sensor adjustment.

- Standard media: A4 matte film (Generic product: Dia Mat Super A4 provided by KIMOTO, Co.,Ltd.)

TIP

☞ ["10.4 Jigs and Tools" p.10-7](#)

(2) Adjustment Procedure

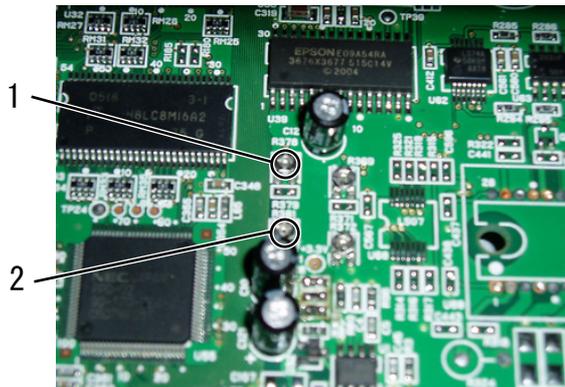
To adjust the P_REAR sensor, follow the steps below.

1. Sets the standard media.
2. Start up the self-diagnosis function.

TIP

☞ ["5.2.2 Starting Up" p.5-4](#)

3. Select "Check: Test" from the self-diagnosis menu.
4. Select "Test: Sensor" from the inspection menu.
5. Select "Sen: PaperRear AD" from the sensor menu.
6. Open the front cover.
7. Adjust the P_REAR sensor adjusting volumes as shown below so that the value displayed in the operation panel becomes "210-230".
Counterclockwise: Sensitivity increases
Clockwise: Sensitivity decreases
 - Trimmer R378: Rough adjustment
 - Trimmer R381: Fine adjustment



No.	Part name
1	Volume R378
2	Volume R381

8. Remove the standard media.
9. Check that the value displayed in the operation panel is "210-230".
10. Remove the standard media.
11. Check that the value displayed in the operation panel is "40".

8 Maintenance

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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 plotter 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 plotter.
Failure to do so could result in damage to the plotter.
-

CAUTION

- Make sure there is sufficient space around the plotter 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 plotter and the optional stand
 - When packing the plotter for transportation
-

8.2 Periodical Services

This section describes the periodical services required for this plotter.

The periodical services ensures stable plotting quality of the plotter.

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 L Sub platen front surface	Several times per year	<ul style="list-style-type: none"> • Media dust accumulation • Foreign objects • Damages 	Clean it. <div style="border: 1px solid black; border-radius: 10px; padding: 5px; display: inline-block;">NOTE</div> 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"> • Media dust accumulation • Foreign objects • Damages 	Clean it. If any damages are found, replace the part.
Rail on the CR guide frame	Several times per year	Foreign objects	Clean it.
P_REAR sensor front surface	Several times per year	<ul style="list-style-type: none"> • Media dust accumulation • Foreign objects 	Clean it.
Cleaner head (Cleaning wiper)	Several times per year	<ul style="list-style-type: none"> • Ink deposits • Damages 	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 mode2.

TIP

☞ **"6.3.1 Counter Display Menu" p.6-3**

Part life information of this plotter 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
Cutter	Approx. 2,000 sheets	Not displayed	By pressing [Enter] key when replacing the counter to the new one	Cutter (replaced by users)	-
Waste fluid tank	Warning at 900,000 times of counting (equivalent to 900cc)	Full Waste Ink Tank	By pressing [Enter] key while replacing the counter to the new one.	Waste ink box (Replaced by users)	-
Cleaning unit	9,000 sheets *1 (Warning at 3,000 times of wiping)	Warning Wiper Life	Counter clear	<ul style="list-style-type: none"> • Ink system • Cleaner head (Cleaning wiper) • Flushing box • Absorber under the maintenance base absorber 	☞ "4.7.2 Replacing Pump Cap Assembly" p.4-52 "4.7.3 Replacing Cleaner Head (Cleaning Wiper)" p.4-53 "4.7.4 Replacing Flushing Box Assembly" p.4-54

Table 8-2 List of Parts Life Expectancy (Continued)

Part	Life expectancy	Warning display	How to restore	Replacement parts	References
CR motor	Approx. 20,000 sheets (4600,000 passes *2)	E-161 Error Ink Tube	Counter clear	At the first warning: <ul style="list-style-type: none"> • CR motor • CR Driven pulley (Check the ink tube and the CR cable.) At the next warning: <ul style="list-style-type: none"> • CR cable besides above 	 "4.5.1 CR Motor Assembly" p.4-30 "4.5.5 Replacing CR Driven Pulley" p.4-36 "4.10.2 Replacing Ink Tube" p.4-65 "4.10.3 Replacing CR Tape Wire" p.4-68
PF motor	Counted only, not displayed	-	Counter clear	Replace as necessary	 "4.4.1 Replacing PF Motor Assembly" p.4-26
Print head	Counted only, not displayed	-		Replace as necessary	 "4.6.1 Replacing Print Head" p.4-37

*1 Plotting on A1 sheet at 5% print ratio

*2 Continuous plotting on A0 sheet with "Plain Paper /Image Speed-Mode"

8.4 Lubrication/Bonding

This section covers the lubrication/bonding information.

After disassembling/assembling this plotter, always perform necessary lubrication/bonding according to [Table 8-3 "Lubricant List" \(p.6\)](#).



CAUTION

Only use specified lubricants and greases. The use of unauthorized lubricants and greases may damage the components and shorten the plotter life.

Table 8-3 Lubricant List

Parts		Item	Manufacturer	Type	Exploded view
Cover section (CAT5009-00)	Roll receiver (L, R)	Apply to the top cover contacting surface.	Dow Corning Asia Ltd.	EM-60L	
	Front cover support pin L	Apply to the top cover contacting surface.	Dow Corning Asia Ltd.	EM-60L	
CR section (CAT5004-00)	Cursor guide	Apply to the front surface.	Mitsubishi	Super multi-dia tetra No.32	
	Pressure shaft bearing	Apply to the peripheral surface.	Dow Corning Asia Ltd.	EM-60L	
	Pressure shaft stopper	Apply to the pressure lever springs.	Dow Corning Asia Ltd.	EM-60L	
Head section (CAT5003-00)	Head cable	Affix to each cable (for locating and holding)	Not specified	10mm- width double faced tape	
Cable guide section (CAT5007-00)	CR cable	Affix to each cable (for locating)	Not specified	10mm-width double faced tape	
	Tube guide	Affix to the tube guide (for locating)	Not specified	10mm-width double faced tape	
Others	Screw	Apply to the area screw-locking agent is applied.	Three Bond Co., Ltd.	1401	-

8.5 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. Turn the plotter power OFF.
2. Verify that the plotter is in normal state.
3. Remove all ink cartridges.
4. Turn off the plotter.
5. The operation panel shows “Transport Mode” and the plotter begins ink discharging operation.
6. It takes about two minutes for discharging ink.
7. Check that ink discharging is complete and the Power lamp is off.
8. Remove the scroller.
9. Remove all cables including the power cable.
10. Fit the plotter with protective materials.

TIP

☞ Operation manual

11. If the optional stand is used, separate the plotter from the stand.

TIP

☞ Operation manual

12. Package the plotter.

(2) Task After Transportation

1. Unpack, assemble, and install the plotter.
2. Make the plotter ready for operation.

9 Troubleshooting

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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.9-33.

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.	 " 9.2.1 Operation Status " p.9-3
2	Error with message	Displayed when an abnormal condition occurs during normal operation.	 " 9.2.2 Errors with Message " p.9-6
3	Data error	Displayed when a data communication error occurs between PC and the machine.	 " 9.2.3 Data Errors " p.9-15
4	Command error	Displayed when an abnormal condition occurs during analysis of PC commands.	 " 9.2.4 Command Errors " p.9-17
5	Error requiring reboot	Displayed when a serious error critical to the machine operation occurs.	 " 9.2.5 Errors Requiring Reboot " p.9-18

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.	 "4.8.3 Replacing Cover Sensor Assembly" p.4-60
2	Set media	Media holding lever is turned backward.	1. Does cover sensor assembly turns ON/OFF correctly as front cover opens and closes?	Adjust cover sensor assembly height.	 "7.7 Head Alignment Adjustment(Horizontal Height)" p.7-26
			2. Is cover sensor assembly cable connected securely?	Correctly connect cover sensor assembly cables to main board assembly connector J117.	 "4.3.3 Replacing Main Board Assembly" p.4-21
			3. Does pressure lever move smoothly?	Lubricate pressure cam.	 "8.4 Lubrication/ Bonding" p.8-6
			4. Is lever sensor assembly fitted correctly?	Adjust lever sensor assembly position.	 "4.5.4 Replacing T Fence" p.4-33
			5. Is sensor of lever sensor assembly contaminated?	Clean sensor face using a swab.	 "4.5.3 Replacing Lever Sensor" p.4-32
			6. Is lever sensor cable connected securely?	Correctly connect lever sensor assembly cables to main board assembly connector J132.	 "4.5.3 Replacing Lever Sensor" p.4-32
			7. Panel unit assembly may be damaged.	Replace panel unit assembly.	 "4.2.2 Removing Operation Panel Unit" p.4-8
			8. Panel cable may be damaged.	Replace panel cable.	 "4.2.2 Removing Operation Panel Unit" p.4-8

Table 9-2 Events and Check Items for Operation Status Messages(Continued)

No.	Message	Event/ symptom	Check item	Action	Reference
2			9. Check cover sensor assembly operation from "Sen: Cover" of self-diagnosis function.	Replace cover sensor assembly.	 "4.8.3 Replacing Cover Sensor Assembly" p.4-60
			10. Check lever sensor operation from "Sen: Lever" of self-diagnosis function.	Replace lever sensor assembly.	 "4.5.4 Replacing T Fence" p.4-33
			11. Main board assembly may be damaged.	Replace main board assembly.	 "4.3.3 Replacing Main Board Assembly" p.4-21
3	No media	Displayed in the following cases: <ul style="list-style-type: none"> • When media is not set • When printing finishes in cut media mode 	1. Is P_EDGE sensor assembly cable at the head section connected correctly?	Securely connect it to CR board assembly connector J211.	 "4.10.1 Replacing CR Board Assembly" p.4-64
			2. Is P_REAR sensor assembly under media guide R connected correctly?	Securely connect it to main board assembly connector J114.	 "4.3.3 Replacing Main Board Assembly" p.4-21
			3. Check sensor sensitivity from "Sen: PaperEdge AD" of self-diagnosis function.	Adjust with main board assembly volume (R117, R119). Replace P_EDGE sensor assembly.	 "7.11.1 P_EDGE Sensor Sensitivity Adjustment" p.7-34
			4. CR board assembly may be damaged.	Replace CR board assembly.	 "4.10.1 Replacing CR Board Assembly" p.4-64
			5. Check presence of media from "Sen: PaperRear AD" of self-diagnosis function.	When "No media" is displayed even if media is set, replace P_REAR sensor assembly.	 "4.9.2 Replacing P_REAR Sensor Assembly" p.4-63
			6. CR cable may be broken.	Replace CR cable.	 "4.10.3 Replacing CR Tape Wire" p.4-68

Table 9-2 Events and Check Items for Operation Status Messages(Continued)

No.	Message	Event/ symptom	Check item	Action	Reference
			7. Main board assembly may be damaged.	Replace main board assembly.	 "4.3.3 Replacing Main Board Assembly" p.4-21

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 J211.	 "4.10.1 Replacing CR Board Assembly" p.4-64
			2. Is P_REAR sensor under media guide R connected correctly?	Securely connect it to main board assembly connector J130, J131.	 "4.3.3 Replacing Main Board Assembly" p.4-21
			3. Check sensor sensitivity from "Sen: PaperEdge AD" of self-diagnosis function.	<ul style="list-style-type: none"> Adjust with main board assembly volume (R117, R119). Replace P_EDGE sensor assembly. 	 "7.11.1 P_EDGE Sensor Sensitivity Adjustment" p.7-34
			4. Is CR cable inserted obliquely?	Reconnect following connectors. <ul style="list-style-type: none"> Main board assembly: J110 - J114 CR board: J201 - J205 	 "4.3.3 Replacing Main Board Assembly" p.4-21  "4.10.1 Replacing CR Board Assembly" p.4-64
			5. CR cable may be broken.	Replace CR cable.	 "4.10.3 Replacing CR Tape Wire" p.4-68

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.	 "4.10.1 Replacing CR Board Assembly" p.4-64
			7. Check presence of media from "Sen: PaperRear AD" of self-diagnosis function.	When "No media" is displayed even if media is set, replace P_REAR sensor.	 "4.9.2 Replacing P_REAR Sensor Assembly" p.4-63
			8. Main board assembly may be damaged.	Replace main board assembly.	 "4.3.3 Replacing Main Board Assembly" p.4-21
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: Fan" of self-diagnosis function?	- Check connection of following main board assembly connectors. <ul style="list-style-type: none"> Suction fan 1 cable: J128 Suction fan 2 cable: J127 Suction fan L cable: J126 Replace suction fan assembly. Replace cable of suction fan that does not operate normally. 	 "4.9.1 Replacing Suction Fan Assembly" p.4-62
			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.	 "8.4 Lubrication/Bonding" p.8-6

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: Lever" of self-diagnosis function?	Check that LCD monitor does not display up/down as chattering when slowly raising/lowering pressure lever.	 "5.4.4 Sensor Menu" p.5-13
			3. Check contact of lever sensor assembly.	<ul style="list-style-type: none"> Reconnect main board assembly connector J132. If LCD displays as chattering, sensor may be damaged. Replace lever sensor assembly. 	 "4.3.3 Replacing Main Board Assembly" p.4-21  "4.5.3 Replacing Lever Sensor" p.4-32
			4. Is P_REAR sensor assembly under media guide R connected correctly?	Securely connect it to main board assembly connector J130, J131.	 "4.3.3 Replacing Main Board Assembly" p.4-21
			5. Check presence of media from "Sen: PaperRear AD" of self-diagnosis function.	When "No media" is displayed even if media is set, replace P_REAR sensor assembly.	 "4.9.2 Replacing P_REAR Sensor Assembly" p.4-63
			6. Main board assembly may be damaged.	Replace main board assembly.	 "4.3.3 Replacing Main Board Assembly" p.4-21

Table 9-3 Symptoms and Check Items for Errors with Message(Continued)

No.	Message	Event/symptom	Check item	Action	Reference
4	Media cut error	Even though cutting operation is performed, media is not cut off.	1. Does media dust accumulate in cutter groove?	Remove accumulated media dust along groove.	☞ Operation Manual
			2. Is cutter cap securely installed?	Reinstall cutter cap securely.	☞ Operation Manual
			3. Check cutter sliding up/down operation. When setting cutter, lower cutter with finger and check that cutter rises to upper end only by spring force.	<ul style="list-style-type: none"> When it does not rise: Refer to action in check item No. 4. When it rises: Refer to action in check item No. 5. 	-
			4. When setting cutter after removing cutter spring, does cutter lower to lower end by its own weight?	<ul style="list-style-type: none"> When it lowers: Cutter spring may be defective. Replace cutter spring referring to exploded views. When it does not lower: Cutter may be defective. Replace cutter. 	☞ "4.6.2 Replacing Cutter Holder Assembly" p.4-41
			5. Check if solenoid goes up/down from "Life: Cutter" of self-diagnosis function. a) Goes up/down: Check the position where cutter goes down to cutter groove.	<ul style="list-style-type: none"> OK: Cutter has reached the end of life or be damaged. Replace cutter with new one. NG: Adjust cutter holder position. 	☞ Operation Manual ☞ "4.6.2 Replacing Cutter Holder Assembly" p.4-41

Table 9-3 Symptoms and Check Items for Errors with Message(Continued)

No.	Message	Event/ symptom	Check item	Action	Reference
4			b) Does not go up/ down:	Connector may be poorly connected. Check connection of following connectors. <ul style="list-style-type: none"> • CR board assembly: J212 • CR board assembly: J201 - J205 • Main board assembly: J110 - J114 	🔗"4.10.1 Replacing CR Board Assembly" p.4-64 🔗"4.3.3 Replacing Main Board Assembly" p.4-21
			6. CR cable may be broken, solenoid assembly may be defective, or each board assembly may be defective. a) Replace CR cable with new one. b) Replace solenoid assembly with new one. (Check by connecting connectors directly) c) Replace CR board assembly. d) Replace main board assembly.	If solenoid goes up/ down, replace CR cable. If solenoid goes up/ down, replace solenoid assembly. After replacement, adjust sensor reflection amount from "Sen: PaperEdge AD" of "Test: Sensor" of self- diagnosis function. Before replacing main board, back up parameters and recover to new main board assembly. Then start operation check.	🔗"4.10.3 Replacing CR Tape Wire" p.4-68 🔗"4.6.2 Replacing Cutter Holder Assembly" p.4-41 🔗"4.10.1 Replacing CR Board Assembly" p.4-64 🔗"4.3.3 Replacing Main Board Assembly" p.4-21

Table 9-3 Symptoms and Check Items for Errors with Message(Continued)

No.	Message	Event/ symptom	Check item	Action	Reference
5	[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 "Sen: Ink NOT" of self-diagnosis function.	Remove all cartridges and lightly push the black resin lever of ink sensor assembly (K1, K2, C, M, Y) to check that the display of "Sen: Ink NOT" changes.	 "5.4.4 Sensor Menu" p.5-13
			2. Check contact of the ink sensor assembly.	Reconnect following connectors. <ul style="list-style-type: none"> • Connector J115(K1) • Connector J116(K2) • Connector J120(C) • Connector J121(M) • Connector J122(Y) 	 "4.3.3 Replacing Main Board Assembly" p.4-21
			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"> • If ink color display changes after replacing connector: Ink sensor assembly is damaged. Replace ink sensor assembly. • If ink color display does not change after replacing connector: Main board assembly may be damaged. Replace main board assembly. 	 "4.8.1 Replacing Ink Holder (I/H) Assembly" p.4-55  "4.3.3 Replacing Main Board Assembly" p.4-21

Table 9-3 Symptoms and Check Items for Errors with Message(Continued)

No.	Message	Event/ symptom	Check item	Action	Reference
6	[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 "Sen: Ink NOT" of self-diagnosis function.	Remove all cartridges and lightly push the switch of ink NOT sensor assembly (K1, K2, C, M, Y) with something with a flat tip such as ballpoint pen to check that the display of "Sen: Ink NOT" changes.	 "5.4.4 Sensor Menu" p.5-13
			3. Check contact of ink NOT sensor assembly connector.	Reconnect following connectors. <ul style="list-style-type: none"> • Connector J115(K1) • Connector J116(K2) • Connector J120(C) • Connector J121(M) • Connector J122(Y) 	 "4.3.3 Replacing Main Board Assembly" p.4-21
			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.	 "4.8.1 Replacing Ink Holder (I/H) Assembly" p.4-55  "4.3.3 Replacing Main Board Assembly" p.4-21

Table 9-3 Symptoms and Check Items for Errors with Message(Continued)

No.	Message	Event/ symptom	Check item	Action	Reference
7	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 "Ink Not" of self-diagnosis function.	If detection does not operate normally, replace following parts. <ul style="list-style-type: none"> • Ink sensor assembly • Main board assembly • Ink ID sensor assembly 	☞ "4.8.1 Replacing Ink Holder (I/H) Assembly" p.4-55 ☞ "4.3.3 Replacing Main Board Assembly" p.4-21
			4. Check contact of ink ID sensor assembly connector.	- Reconnect following main board assembly connectors. <ul style="list-style-type: none"> • J117(K1) • J118(K2) • J119(C) • J123(M) • J124(Y) If no change occurs, proceed to step (5).	☞ "4.3.3 Replacing Main Board Assembly" p.4-21

Table 9-3 Symptoms and Check Items for Errors with Message(Continued)

No.	Message	Event/ symptom	Check item	Action	Reference
7			5. For cartridge that is displayed as NG in "Sen: Ink NOT" of self-diagnosis function, switch ink ID sensor assembly connector with that of normally displayed cartridge.	<ul style="list-style-type: none"> If cartridge displayed as NG changes: Ink ID sensor assembly displayed as NG is damaged. Replace defective ink ID sensor assembly. 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. 	 "4.8.1 Replacing Ink Holder (I/H) Assembly" p.4-55  "4.3.3 Replacing Main Board Assembly" p.4-21
8	Warning: Waste fluid box full	Waste fluid box is almost full.	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. Waste ink in waste fluid box reaches full level.	Replace waste fluid box.	 Operation Manual
			3. Main board assembly may be damaged.	Replace main board assembly.	 "4.3.3 Replacing Main Board Assembly" p.4-21
9	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.	 "4.10.2 Replacing Ink Tube" p.4-65
			3. Main board assembly may be damaged.	Replace main board assembly.	 "4.3.3 Replacing Main Board Assembly" p.4-21

Table 9-3 Symptoms and Check Items for Errors with Message(Continued)

No.	Message	Event/symptom	Check item	Action	Reference
10	Out of memory DIMM 64MB	Memory is insufficient for data analysis/printing. Required memory size is displayed.	1. Check RAM size from "Test: Ram Capacity" of self-diagnosis function.	Memory size is as follows. 901C: 128MB 900C: 256MB If the displayed value is less than the memory size of the model, the SODIMM may be damaged. Replace the SODIMM.	 "5.4.1 Memory Size Menu" p.5-10
			2. Main board assembly may be damaged.	Replace main board assembly.	 "4.3.3 Replacing Main Board Assembly" p.4-21

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.	 "4.3.3 Replacing Main Board Assembly" p.4-21
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.	
6	I 11 error command []	Undefined ESC	1. Attempt communication using PC and cable on hand.	• Contact our customer support center.	 "4.3.3 Replacing Main Board Assembly" p.4-21
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"> Contact our customer support center. 	 "4.3.3 Replacing Main Board Assembly" p.4-21
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"> Replace application driver 	
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"> Obtain printing data. Contact our customer support center. 	
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"> Replace main board assembly. 	
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.	 "4.3.3 Replacing Main Board Assembly" p.4-21

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 plotter 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 plotter. 2. Main board assembly may be defective.	<ul style="list-style-type: none"> • Contact our customer support center. • Replace main board assembly. 	 "4.3.3 Replacing Main Board Assembly" p.4-21
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 plotter. 4. Main board assembly may be defective.	<ul style="list-style-type: none"> Contact our customer support center. Replace main board assembly. 	 "4.3.3 Replacing Main Board Assembly" p.4-21
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 plotter. 2. Main board assembly may be defective.	<ul style="list-style-type: none"> Contact our customer support center. Replace main board assembly. 	 "4.3.3 Replacing Main Board Assembly" p.4-21
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	1. Check AC power supply and plotter 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.) 3. Check serial number of the plotter. 4. Main board assembly may be defective.	<ul style="list-style-type: none"> Contact our customer support center. 	"4.3.3 Replacing Main Board Assembly" p.4-21
14	E 016 error CPU Err [13]	Trap exception error: Trap occurs		<ul style="list-style-type: none"> Contact our customer support center. 	
15	E 016 error CPU Err [15]	Floating point exception error: Abnormal condition in floating point process		<ul style="list-style-type: none"> Contact our customer support center. 	
16	E 016 error CPU Err [22]	Watch exception error: Abnormal condition in watch		<ul style="list-style-type: none"> Replace main board assembly. 	
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 plotter data.			

Table 9-6 Symptoms and Check Items for CPU System Serious Errors(Continued)

No.	Message	Event/ symptom	Check item	Action	Reference
20	E 129 error NVRAM	Abnormal condition in NVRAM in main board assembly that memorizes product settings.	Main board assembly may be defective.	Replace main board assembly.	 "4.3.3 Replacing Main Board Assembly" p.4-21

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 X motor	Abnormal condition in PF motor (X-axis) during plotter operation. Displayed if the difference between motor command value and feedback from encoder is large.	<ol style="list-style-type: none"> 1. Check error history from "Test: Elec." of self-diagnosis function. 2. Set the number of endurance running cycles to 50 or more from "Life: PF motor" of self-diagnosis function, and check if "X motor error" occurs. 3. Check "Encoder: PF" from "Test: Encoder" of self-diagnosis function. 4. Check if Main Power Board normally supplies DC24V. 5. PF motor assembly may be defective. 6. Main board assembly may be defective. 	<p>-</p> <p>Check connection of following main board assembly connectors.</p> <ul style="list-style-type: none"> • PF motor cable assembly connector: J107 • PF_ENC assembly connector: J129 • If NG, check connection of main board assembly connector: J129. • Replace PF motor assembly. • Replace main board assembly. 	<p> "5.4.7 History Menu" p.5-17</p> <p> "4.3.3 Replacing Main Board Assembly" p.4-21</p> <p> "4.4.1 Replacing PF Motor Assembly" p.4-26</p> <p> "4.3.3 Replacing Main Board Assembly" p.4-21</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 X encoder	Abnormal condition in media feed amount (X-axis) during plotter operation. Displayed if there is no feedback from encoder.	<ol style="list-style-type: none"> 1. Check error history from "Test: Elec." of self-diagnosis function. 2. Set the number of endurance running cycles to 50 or more from "Life: PF motor" of self-diagnosis function, and check if "X motor error" occurs. 3. Check "Encoder: PF" from "Test: Encoder" of self-diagnosis function. 4. Check if Main Power Board normally supplies DC24V. 5. PF motor assembly may be defective. 6. Main board assembly may be defective. 	<p>-</p> <p>Check connection of following main board assembly connectors.</p> <ul style="list-style-type: none"> • PF motor cable assembly connector: J107 • PF_ENC assembly connector: J129 • If NG, check connection of main board assembly connector: J129. • Replace PF motor assembly. • Replace main board assembly. 	<p> "5.4.7 History Menu" p.5-17</p> <p> "4.3.3 Replacing Main Board Assembly" p.4-21</p> <p> "4.4.1 Replacing PF Motor Assembly" p.4-26</p> <p> "4.3.3 Replacing Main Board Assembly" p.4-21</p>

Table 9-7 Symptoms and Check Items for Mechanical Serious Errors (Continued)

No.	Message	Event/symptom	Check item	Action	Reference
3	E069 error X time-out	Time-out condition in media feed amount (X-axis) during plotter operation. Displayed if pressure roller does not reach the defined position.	<ol style="list-style-type: none"> 1. Check error history from "Test: Elec." of self-diagnosis function. 2. Set the number of endurance running cycles to 50 or more from "Life: PF motor" of self-diagnosis function, and check if "X motor error" occurs. 3. Check "Encoder: PF" from "Test: Encoder" of self-diagnosis function. 4. Check if Main Power Board normally supplies DC24V. 5. PF motor assembly may be defective. 6. Main board assembly may be defective. 	<p>-</p> <p>Check connection of following main board assembly connectors.</p> <ul style="list-style-type: none"> • PF motor cable assembly connector: J107 • PF_ENC assembly connector: J129 • If NG, check connection of main board assembly connector: J129. • Replace PF motor assembly. • Replace main board assembly. 	<p> "5.4.7 History Menu" p.5-17</p> <p> "4.3.3 Replacing Main Board Assembly" p.4-21</p> <p> "4.4.1 Replacing PF Motor Assembly" p.4-26</p> <p> "4.3.3 Replacing Main Board Assembly" p.4-21</p>

Table 9-7 Symptoms and Check Items for Mechanical Serious Errors (Continued)

No.	Message	Event/ symptom	Check item	Action	Reference
6	E 066 error Y motor	Abnormal condition in CR motor (Y-axis) during plotter operation. Displayed if the difference between motor command value and feedback from encoder is large.	<ol style="list-style-type: none"> 1. Check error history from "Test: Elec." of self-diagnosis function. 2. Move carriage in both directions while the plotter is turned off, and check if there is any position where carriage does not move smoothly. 3. Set the number of endurance running cycles to 50 or more from "Life: CR motor" of self-diagnosis function, and check if "Y motor error" occurs. 	<p>-</p> <ul style="list-style-type: none"> • Clean and lubricate CR rail roller guide. • Check connection of following connectors. <p>Main board:</p> <ul style="list-style-type: none"> • CR motor assembly connector: J106 • CR cable connector: J110 - J114 <p>CR board:</p> <ul style="list-style-type: none"> • CR cable connector: J201 - J205 • TF_ENC assembly connector: J210 	<p> "5.4.7 History Menu" p.5-17</p> <p> "8.4 Lubrication/Bonding" p.8-6</p> <p> "4.3.3 Replacing Main Board Assembly" p.4-21</p>
7	E 068 error Y encoder	Abnormal condition in head travel distance (Y-axis) during plotter 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 Y time-out	Time-out condition in head travel distance (Y-axis) during plotter 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"> If grease or dust collect: Wipe fence with a dry cloth. If ink deposit presents: Wipe it off with cloth dampened with neutral detergent. If contamination or deposit is too heavy: Replace T fence. 	<p> "4.5.4 Replacing T Fence" p.4-33</p> <p> "4.5.4 Replacing T Fence" p.4-33</p>
9	E 072 error Y overcurrent	Overload condition in CR motor (Y-axis) during plotter operation.	5. Check "Y Encoder" from "Test: Encoder" of self-diagnosis function.	a) If NG: Check following cable connection.	<p> "4.5.4 Replacing T Fence" p.4-33</p> <p> "4.5.1 CR Motor Assembly" p.4-30</p> <p> "4.10.1 Replacing CR Board Assembly" p.4-64</p> <p> "4.10.3 Replacing CR Tape Wire" p.4-68</p> <p> "4.3.3 Replacing Main Board Assembly" p.4-21</p>
10	E080 error Y2 overcurrent			b) Replace following parts. <ul style="list-style-type: none"> T fence CR motor assembly CR board assembly CR cable 	
			6. Main board assembly may be damaged.	<ul style="list-style-type: none"> Replace main board assembly. 	

Table 9-7 Symptoms and Check Items for Mechanical Serious Errors (Continued)

No.	Message	Event/symptom	Check item	Action	Reference
11	E 073 error Y origin	CR_HP detection is not possible.	1. Check CR_HP sensor from "Sen: CR Origin" of self- diagnosis function.	• Check connection of CR_HP sensor cable assembly connector.	 "5.4.4 Sensor Menu" p.5-13
			2. CR_HP sensor may be damaged.	• Replace CR_HP sensor.	 "4.5.2 Replacing CR_HP Sensor" p.4- 31
			3. Main board assembly may be damaged.	• Replace main board assembly	 "4.3.3 Replacing Main Board Assembly" p.4-21
12	E 074 error cover	Abnormal condition in cover sensor.	1. Check cover sensor from "Sen: Cover" of self-diagnosis function.	• Check connection of cover sensor assembly connector.	 "5.4.4 Sensor Menu" p.5-13
			2. Cover sensor assembly may be damaged.	• Replace cover sensor assembly.	 "4.8.3 Replacing Cover Sensor Assembly" p.4-60
13			3. Main board assembly may be damaged.	• Replace main board assembly.	 "4.3.3 Replacing Main Board Assembly" p.4-21

Table 9-7 Symptoms and Check Items for Mechanical Serious Errors (Continued)

No.	Message	Event/ symptom	Check item	Action	Reference
14	E 075 error H overcurrent	Abnormal condition in print head during plotter operation due to overload.	1. Check connection of head cable connectors on CR board assembly side and head side.	Reconnect head cable.	☞ "4.6.1 Replacing Print Head" p.4-37 ☞ "4.10.1 Replacing CR Board Assembly" p.4-64
			<ul style="list-style-type: none"> • Is head cable inserted obliquely? • Is it locked securely? 		
			2. CR board assembly may be damaged.	<ul style="list-style-type: none"> • Replace CR board assembly. • Cancel head error. 	☞ "4.10.1 Replacing CR Board Assembly" p.4-64 ☞ "6.3.2 Counter Initialization Menu" p.6-6
			3. Main board assembly may be damaged.	<ul style="list-style-type: none"> • Replace main board assembly. • Cancel head error. 	☞ "4.3.3 Replacing Main Board Assembly" p.4-21 ☞ "6.3.2 Counter Initialization Menu" p.6-6
			4. Print head assembly may be damaged.	<ul style="list-style-type: none"> • Replace Print head assembly. • Cancel head error. 	☞ "4.3.3 Replacing Main Board Assembly" p.4-21 ☞ "6.3.2 Counter Initialization Menu" p.6-6
15	E 077 error H overheat	Abnormal condition in head driver.	1. Main board assembly may be damaged.	Replace main board assembly.	☞ "4.3.3 Replacing Main Board Assembly" p.4-21

Table 9-7 Symptoms and Check Items for Mechanical Serious Errors (Continued)

No.	Message	Event/ symptom	Check item	Action	Reference
16	E 078 error H 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.	 "4.6.1 Replacing Print Head" p.4-37  "4.10.1 Replacing CR Board Assembly" p.4-64
			2. Is head cable broken?	Replace head cable.	 "4.6.1 Replacing Print Head" p.4-37  "4.10.1 Replacing CR Board Assembly" p.4-64
			3. Head thermistor may be faulty.	Replace Print head assembly.	 "4.6.1 Replacing Print Head" p.4-37
17	E 097 error NVRAM	Abnormal condition in NVRAM.		Replace main board assembly.	 "4.3.3 Replacing Main Board Assembly" p.4-21
18	E 161 error Y life	Carriage motor has reached the end of life.	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. The number of endurance running cycles of carriage motor has reached the specified value.	Replace Carriage motor	 "4.5.1 CR Motor Assembly" p.4-30
			3. Main board assembly may be damaged.	Replace main board assembly.	 "4.3.3 Replacing Main Board Assembly" p.4-21

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.	 "7.3.5 Firmware Installation" p.7-15
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 plotter 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 Incompatible F/W	Incompatible firmware.	Check if program file is appropriate.	After confirming it, install firmware again.	 "7.3.5 Firmware Installation" p.7-15
6	Transfer failed Flash erase error	ROM erase error.	Board may be defective.	Replace board.	 "4.3.3 Replacing Main Board Assembly" p.4-21
7	Transfer failed Flash write error	ROM writing error.			
8	Transfer failed Flash compare error	ROM writing error.			
9	Transfer failed Flash error FFF	ROM writing error.			

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.	 "4.2.2 Removing Operation Panel Unit" p.4-8
		2. Panel unit assembly may be damaged.	Replace panel unit assembly.	 "4.2.2 Removing Operation Panel Unit" p.4-8
		3. Inlet assembly may be defective.	Replace inlet assembly.	 "4.3.5 Replacing Inlet Assembly" p.4-24
		4. Power board assembly may be defective.	Replace power board assembly.	 "4.3.4 Replacing Power Board Assembly" p.4-22
2	Abnormal LCD operation (no displays/garbled characters)	1. Check power supply voltage (AC100V).	Replace power board assembly.	 "4.3.4 Replacing Power Board Assembly" p.4-22
		2. Check power supply voltage (DC5V).	Replace power board assembly.	 "4.3.4 Replacing Power Board Assembly" p.4-22
		3. Check power supply voltage (DC24V, DC42V).	Replace power board assembly.	 "4.3.4 Replacing Power Board Assembly" p.4-22

Table 9-9 Symptoms, Check Items and Actions for Initial Operation Problems (Continued)

No.	Symptom	Check item	Action	Reference
2		4. Check panel cable for proper connection at operation panel unit assembly side and main board assembly side. <ul style="list-style-type: none"> • Is the panel cable inserted obliquely? • Is the connector securely locked? 	Reconnect following connectors. <ul style="list-style-type: none"> • Main board: J125 • Operation panel unit assembly 	 "4.3.3 Replacing Main Board Assembly" p.4-21
		5. Panel cable may be damaged.	Replace panel cable.	 "4.2.2 Removing Operation Panel Unit" p.4-8
		6. Is operation panel unit assembly LCD damaged?	Replace panel board assembly.	 "4.2.2 Removing Operation Panel Unit" p.4-8
		7. Main board assembly may be damaged.	Replace main board assembly.	 "4.3.3 Replacing Main Board Assembly" p.4-21
3	Initial ink charge not available	1. Is "Sen: Cover open" displayed on LCD with front cover closed?	<ul style="list-style-type: none"> • Check connection of cover sensor assembly connector. • Replace cover sensor assembly. 	 "4.8.3 Replacing Cover Sensor Assembly" p.4-60

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"> • Is the panel cable inserted obliquely? • Is the connector securely locked? 	Reconnect following connectors. <ul style="list-style-type: none"> • Main board assembly: J125 • Operation panel unit assembly 	 "4.3.3 Replacing Main Board Assembly" p.4-21
		3. Is "Sen: Lever up" displayed on LCD with media set lever lowered?	Adjust lever sensor.	 "4.5.4 Replacing T Fence" p.4-33
		4. Check main board assembly connectors J132 for proper connection.	<ul style="list-style-type: none"> • Reconnect the connector. • Replace lever sensor assembly. 	 "4.3.3 Replacing Main Board Assembly" p.4-21
		5. Are the following self-diagnosis functions judged as normal when checked with specified cartridge securely inserted? <ul style="list-style-type: none"> • Detection of presence of ink from "Sen: Ink NOT" • Detection of presence of cartridge from "Ink Not" 	<ul style="list-style-type: none"> • Follow the steps for the message "[K1K2CMY] No Cartridge". • After adjustment/replacement, execute initial ink charge from "Adj: Input Rank" of self-diagnosis function. 	 "4.3.3 Replacing Main Board Assembly" p.4-21  "5.5.2 Head Rank Input Menu" p.5-25
		6. Is specified cartridge status judged as normal when checked through "Ink Not" of self-diagnosis function with specified cartridge securely inserted?	<ul style="list-style-type: none"> • Follow the steps for the message "Insert specified cartridge". • After adjustment/replacement, execute initial ink charge from "Adj: Input Rank" of self-diagnosis function. 	 "4.3.3 Replacing Main Board Assembly" p.4-21  "5.5.2 Head Rank Input Menu" p.5-25

Table 9-9 Symptoms, Check Items and Actions for Initial Operation Problems (Continued)

No.	Symptom	Check item	Action	Reference
3		7. Main board assembly may be damaged.	<ul style="list-style-type: none"> Replace main board assembly. After replacement, execute initial ink charge from "Adj: Input Rank" of self-diagnosis function. 	 "4.3.3 Replacing Main Board Assembly" p.4-21
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"> If the part is detached, remount it. If the part is damaged, replace ink system assembly. 	 "4.7.2 Replacing Pump Cap Assembly" p.4-52
5	Though ink reaches head, ink is not discharged from head.	Is capping position appropriate?	<ul style="list-style-type: none"> If ink inflow is confirmed, execute initial ink charge. 	 Operation Manual
6	Ink is not discharged though ink charge is finished.	1. Are damper assembly, ink tube and SUS pipe joint screws (K1, K2, Y, M, C) securely tightened? Is O-ring properly installed?	<ul style="list-style-type: none"> Remove head cover and check damper assembly. Remove side cover (L, R) and cartridge cover, and check ink tube and SUS pipe joint screws. 	 "4.2.1 Removing R Side Cover" p.4-6  "4.2.3 Removing L Side Cover" p.4-9  "4.2.4 Removing Ink Holder (I/H) Cover" p.4-11
		2. Does shield part of damper assembly have air leak?	<ul style="list-style-type: none"> Replace damper assembly and check if cleaning operation causes ink inflow. If ink inflow is confirmed, execute initial ink charge. 	 "4.6.1 Replacing Print Head" p.4-37
		3. Is ink tube in ink system assembly bent?	<ul style="list-style-type: none"> Replace ink system assembly and check if cleaning operation causes ink inflow. If ink inflow is confirmed, execute initial ink charge. 	 "4.7.2 Replacing Pump Cap Assembly" p.4-52

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"> • Reconnect main board assembly connector J102, J103. • Replace pump motor. • Replace main board assembly. 	 "4.3.3 Replacing Main Board Assembly" p.4-21  "4.7.1 Removing Maintenance Base Assembly" p.4-47
		5. When cleaning operation is performed, are gears damaged or poorly engaged?	Replace maintenance base assembly.	 "4.7.1 Removing Maintenance Base Assembly" p.4-47
		6. When cleaning operation is performed, is transmission gear shaft damaged?	Replace maintenance base assembly.	 "4.7.1 Removing Maintenance Base Assembly" p.4-47
		7. Does ink tube have bend, scratch, or leak?	<ul style="list-style-type: none"> • Replace damaged ink tube and check if cleaning operation causes ink inflow after each replacement. • If ink inflow is confirmed, execute initial ink charge. 	 "4.10.2 Replacing Ink Tube" p.4-65
		8. Check connection of head cable connectors on CR board assembly side and head side. <ul style="list-style-type: none"> • Is head cable inserted obliquely? • Is it locked securely? 	Reconnect head cable.	 "4.6.1 Replacing Print Head" p.4-37  "4.10.1 Replacing CR Board Assembly" p.4-64

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.	☞ "4.6.1 Replacing Print Head" p.4-37 ☞ "4.10.1 Replacing CR Board Assembly" p.4-64
		10. Is print head assembly damaged?	Replace print head assembly.	☞ "4.6.1 Replacing Print Head" p.4-37
		11. Is CR board assembly damaged?	Replace CR board assembly.	☞ "4.10.1 Replacing CR Board Assembly" p.4-64
		12. Check connection of CR cable connectors on CR board assembly side and main board assembly side. • Is head cable inserted obliquely? • Is it locked securely?	Reconnect following connectors. • CR board assembly connector: J201 - J205 • Main board assembly connector: J110 - J114	☞ "4.10.1 Replacing CR Board Assembly" p.4-64 ☞ "4.3.3 Replacing Main Board Assembly" p.4-21
		13. Is CR cable broken?	Replace CR cable.	☞ "4.10.3 Replacing CR Tape Wire" p.4-68
		14. Main board assembly may be defective.	Replace main board assembly.	☞ "4.3.3 Replacing Main Board Assembly" p.4-21

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 plotter cover closed? Or, is cover sensor assembly function detected as normal when checked through "Test: Sensor" of self-diagnosis function?	<ul style="list-style-type: none"> Adjust cover sensor assembly height. Check main board assembly connector J105. Replace cover sensor assembly. 	 "7.7 Head Alignment Adjustment(Horizontal Height)" p.7-26  "4.3.3 Replacing Main Board Assembly" p.4-21  "4.8.3 Replacing Cover Sensor Assembly" p.4-60
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"> Is panel cable inserted obliquely? Is it locked securely? 	Reconnect following connectors. <ul style="list-style-type: none"> Main board assembly: J125 Operation panel unit assembly 	 "4.3.3 Replacing Main Board Assembly" p.4-21
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"> Check main board assembly connector J132. Replace lever sensor assembly. 	 "4.3.3 Replacing Main Board Assembly" p.4-21  "4.5.3 Replacing Lever Sensor" p.4-32
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: Sensor" of self-diagnosis function?	<ul style="list-style-type: none"> Check main board assembly connector J130, J131. Replace P_REAR sensor Assembly. 	 "4.3.3 Replacing Main Board Assembly" p.4-21  "4.9.2 Replacing P_REAR Sensor Assembly" p.4-63

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.	 "4.3.4 Replacing Power Board Assembly" p.4-22
		6. Check power supply voltage (DC24V, DC42V).	Replace power board assembly.	 "4.3.4 Replacing Power Board Assembly" p.4-22
		7. Is DC cable assembly connected correctly between power board assembly and main board assembly?	<ul style="list-style-type: none"> • Reconnect DC cable assembly. • Replace DC cable assembly. 	 "4.3.4 Replacing Power Board Assembly" p.4-22
		8. Main board assembly may be defective.	Replace main board assembly.	 "4.3.3 Replacing Main Board Assembly" p.4-21
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"> • Detection of presence of ink from "Sen: Ink NOT " • Detection of presence of cartridge from "Ink Not" 	<ul style="list-style-type: none"> • Follow the steps for the message "[K1K2CMY] No Cartridge". • After adjustment/replacement, execute initial ink charge from "Adj: Input Rank" of self-diagnosis function. 	 "5.5.2 Head Rank Input Menu" p.5-25
		2. Is specified cartridge status detected as normal when checked through "Ink Not" of self-diagnosis function with specified cartridge securely inserted?	<ul style="list-style-type: none"> • Follow the steps for the message "Insert specified cartridge". • After adjustment/replacement, execute initial ink charge from "Adj: Input Rank" of self-diagnosis function. 	 "5.5.2 Head Rank Input Menu" p.5-25

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"> • Is panel cable inserted obliquely? • Is it locked securely? 	Reconnect following connectors. <ul style="list-style-type: none"> • Main board assembly: J125 • Operation panel unit assembly 	 "4.3.3 Replacing Main Board Assembly" p.4-21
		3. Operation panel unit assembly may be damaged.	Replace panel unit assembly.	 "4.2.2 Removing Operation Panel Unit" p.4-8
		4. Main board assembly may be malfunctioning.	Replace main board assembly.	 "4.3.3 Replacing Main Board Assembly" p.4-21
14	Machine prints nothing though it receives data.	1. Refer to "9.3.6 Online Function Problem".	-	 "9.3.6 Online Function Problems" p.9-72

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: Sensor" of self-diagnosis function?	<ul style="list-style-type: none"> • Check following connectors. <ul style="list-style-type: none"> • Main board assembly: J130, J131 • CR board assembly: J211 • Replace P_REAR sensor assembly and P_EDGE sensor assembly. 	<p> "4.3.3 Replacing Main Board Assembly" p.4-21</p> <p> "4.10.1 Replacing CR Board Assembly" p.4-64</p> <p> "4.9.2 Replacing P_REAR Sensor Assembly" p.4-63</p> <p> "4.6.2 Replacing Cutter Holder Assembly" p.4-41</p>
2	Media runs obliquely or meanders during media set initialization or printing.	1. Is suction fan run as normal when checked through "Test: Fan" of self-diagnosis function?	<ul style="list-style-type: none"> • Check connection of following main board assembly connectors. <ul style="list-style-type: none"> • Suction fan 1 cable: J128 • Suction fan 2 cable: J127 • Suction fan L cable: J126 • Replace suction fan assembly. • Replace cable of suction fan that does not operate normally. 	<p> "4.9.1 Replacing Suction Fan Assembly" p.4-62</p>
3	Media crinkles during media set initialization or printing.	1. Is shielding material secured at specified position?	Remount it at specified position.	<p> "4.9.1 Replacing Suction Fan Assembly" p.4-62</p>

Table 9-10 Symptoms, Check Items and Actions for Media Feed Problems(Continued)

No.	Symptom	Check item	Action	Reference
4	Media jams during media set initialization or printing.	1. When pressure lever is moved backward and forward, does pressure assembly move smoothly in synchronization with it?	Lubricate pressure cam.	 "8.4 Lubrication/Bonding" p.8-6
5	Media is torn during media set initialization or printing.	1. 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
		2. Does media guide have large distortion or foreign objects?	<ul style="list-style-type: none"> • If media guide collects media dust or other foreign objects on it, remove them. • Replace media guide. 	 "4.2.7 Removing Media Guide R2" p.4-14
		3. 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.	1. 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

Table 9-10 Symptoms, Check Items and Actions for Media Feed Problems(Continued)

No.	Symptom	Check item	Action	Reference
7	Tracing paper and thin paper cannot be detected.	2. Is P_REAR sensor assembly and P_EDGE assembly sensor judged as normal when checked through "Test: Sensor" of plotter self-diagnosis?	<ul style="list-style-type: none"> • Check connection of following main board assembly connectors. <ul style="list-style-type: none"> • Main board assembly: J130, J131 • CR board assembly: J211 • Replace P_REAR sensor assembly and P_EDGE sensor assembly. 	 "4.3.3 Replacing Main Board Assembly" p.4-21  "4.10.1 Replacing CR Board Assembly" p.4-64  "4.9.2 Replacing P_REAR Sensor Assembly" p.4-63  "4.6.2 Replacing Cutter Holder Assembly" p.4-41
		3. Check sensor reflection amount from "Sen: PaperEdge AD" of self-diagnosis function.	Adjust with main board assembly trimmer (R117, R119). Replace P_EDGE sensor assembly.	 "7.11.1 P_EDGE Sensor Sensitivity Adjustment" p.7-34  "4.6.2 Replacing Cutter Holder Assembly" p.4-41
		4. Check panel cable connectors at operation panel unit assembly side and main board assembly side. <ul style="list-style-type: none"> • Is panel cable inserted obliquely? • Is it locked securely? 	Reconnect following connectors. <ul style="list-style-type: none"> • Main board assembly: J125 • Operation panel unit assembly 	 "4.3.3 Replacing Main Board Assembly" p.4-21
		5. Panel cable may be damaged.	Replace panel cable.	 "4.2.2 Removing Operation Panel Unit" p.4-8

Table 9-10 Symptoms, Check Items and Actions for Media Feed Problems(Continued)

No.	Symptom	Check item	Action	Reference
		6. Is operation panel unit assembly LCD damaged?	Replace operation panel unit assembly.	 "4.2.2 Removing Operation Panel Unit" p.4-8
		7. Main board assembly may be defective.	Replace main board assembly.	 "4.3.3 Replacing Main Board Assembly" p.4-21

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. Plotter driver may be defective.	Update plotter driver.	 "7.3.5 Firmware Installation" p.7-15
		2. Program ROM may be defective.	Update firmware.	 "7.3.5 Firmware Installation" p.7-15
		3. Main board assembly may be damaged.	Replace main board assembly.	 "4.3.3 Replacing Main Board Assembly" p.4-21
2	Media feed after printing is excessive.	1. Is P_REAR sensor assembly judged as normal when checked through "Test: Sensor" of self-diagnosis function?	<ul style="list-style-type: none"> Reconnect main board assembly connector J130, J131. Replace P_REAR sensor assembly. 	 "4.3.3 Replacing Main Board Assembly" p.4-21  "4.9.2 Replacing P_REAR Sensor Assembly" p.4-63
		2. Program ROM may be defective.	Update firmware.	 "7.3.5 Firmware Installation" p.7-15
		3. Main board assembly may be damaged.	Replace main board assembly.	 "4.3.3 Replacing Main Board Assembly" p.4-21
		4. Main board assembly may be damaged.	Replace main board assembly.	 "4.3.3 Replacing Main Board Assembly" p.4-21

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 initial ink charge.	☞ Operation Manual
		3. Perform "Print: Nozzle Check" of plotter self-diagnosis or "Test Print".	If the nozzle check patterns are printed correctly, refer to the action in check item No. 4.	☞ "5.5.12 Test Printing Menu" p.5-44
		4. Does pump motor rotate during cleaning operation?	<ul style="list-style-type: none"> • Reconnect main board assembly connector J102, J103. • Replace Pump motor assembly. • Replace main board assembly. 	☞ "4.3.3 Replacing Main Board Assembly" p.4-21 ☞ "4.7.1 Removing Maintenance Base Assembly" p.4-47
		5. Are gears and transmission gear shaft damaged or poorly engaged during cleaning operation?	Replace maintenance base assembly.	☞ "4.7.1 Removing Maintenance Base Assembly" p.4-47
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"> • If the part is detached, remount it. • If the part is damaged, replace ink system assembly. 	☞ "4.7.2 Replacing Pump Cap Assembly" p.4-52
		2. Check cleaning wiper condition.	<ul style="list-style-type: none"> • Wipe cleaning wiper surface with accessory cleaning wiper cleaning cloth dampened with small amount of purified water. After wiping cleaning wiper, perform cleaning twice consecutively. • If cleaning wiper is sticky with ink, replace it with a new one. 	☞ Operation Manual ☞ "4.7.3 Replacing Cleaner Head (Cleaning Wiper)" p.4-53

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.	 "4.7.3 Replacing Cleaner Head (Cleaning Wiper)" p.4-53
		4. Is registered head rank different from actual head rank?	Enter correct head rank.	 "5.5.2 Head Rank Input Menu" p.5-25
		5. Does residual ink collect on print head assembly or in nozzles?	Clean head as follows. 1. Clean head from "Adj: Clean Head" of plotter self-diagnosis. 2. Perform initial ink charge from "Adj: Input Rank". 3. Check printouts again.	 "5.5.13 Head Cleaning Menu" p.5-45  "5.5.2 Head Rank Input Menu" p.5-25
		6. Check if TF_ENC assembly and T fence contact with each other.	<ul style="list-style-type: none"> If they contact with each other, adjust TF_ENC assembly and T fence positions. If problem remains even after position adjustment, replace CR board assembly and T fence. 	 "4.10.1 Replacing CR Board Assembly" p.4-64  "4.5.4 Replacing T Fence" p.4-33
		7. Is ink tube in ink system assembly bent?	<ul style="list-style-type: none"> Replace ink system assembly and check if cleaning operation causes ink inflow. If ink inflow is confirmed, execute initial ink charge. 	 "4.7.2 Replacing Pump Cap Assembly" p.4-52
		8. Is print head damaged?	Replace damaged print head.	 "4.6.1 Replacing Print Head" p.4-37
		9. Main board assembly may be damaged.	Replace main board assembly.	 "4.3.3 Replacing Main Board Assembly" p.4-21

Table 9-11 Symptoms, Check Items and Actions for Printing Problems(Continued)

No.	Symptom	Check item	Action	Reference
5	No printing.	1. Check power supply voltage (DC24, DC42V).	Replace power board assembly.	 "4.3.4 Replacing Power Board Assembly" p.4-22
6	Particular color is missing.	2. Is spring of ink system assembly detached or damaged?	<ul style="list-style-type: none"> • If the part is detached, remount it. • If the part is damaged, replace ink system assembly. 	 "4.7.2 Replacing Pump Cap Assembly" p.4-52
		3. Is CR cable inserted obliquely?	Reconnect main board assembly connectors J110 - J114 and CR board assembly connectors J201 - J205.	 "4.3.3 Replacing Main Board Assembly" p.4-21  "4.10.1 Replacing CR Board Assembly" p.4-64
		4. CR cable may be damaged.	Replace CR cable assembly.	 "4.10.3 Replacing CR Tape Wire" p.4-68
		5. Are damper assembly, ink tube and SUS pipe joint screws (K1, K2, C, M, Y) securely tightened? Is O-ring properly installed?	<ul style="list-style-type: none"> • Remove head cover and check damper assembly. • Remove side cover (L, R) and I/H cover, and check ink tube and SUS pipe joint screws. 	 "4.2.1 Removing R Side Cover" p.4-6  "4.2.3 Removing L Side Cover" p.4-9
		6. Does shield part of damper have air leak?	<ul style="list-style-type: none"> • Replace damper assembly and check if cleaning operation causes ink inflow. • If ink inflow is confirmed, execute initial ink charge. 	
		7. Is ink tube in ink system assembly bent?	<ul style="list-style-type: none"> • Replace ink system assembly and check if cleaning operation causes ink inflow. • If ink inflow is confirmed, execute initial ink charge. 	 "4.7.2 Replacing Pump Cap Assembly" p.4-52

Table 9-11 Symptoms, Check Items and Actions for Printing Problems(Continued)

No.	Symptom	Check item	Action	Reference
5 6		8. Does ink tube have bend, scratch, or leak?	<ul style="list-style-type: none"> Replace damaged ink tube and check if cleaning operation causes ink inflow after each replacement. If ink inflow is confirmed, execute initial ink charge. 	 "4.10.2 Replacing Ink Tube" p.4-65
		9. Are the following self-diagnosis functions detected as normal when checked with specified cartridge securely inserted? <ul style="list-style-type: none"> Detection of presence of ink from "Sen: Ink NOT" Detection of presence of cartridge from ""Ink Not" 	<ul style="list-style-type: none"> Follow the steps for the message "[K1K2CMY] No Cartridge". After adjustment/replacement, execute initial ink charge from "Adj: Input Rank" of self-diagnosis function. 	 "5.5.2 Head Rank Input Menu" p.5-25
		10. Is ink tube in ink system assembly bent?	<ul style="list-style-type: none"> Replace ink system assembly and check if cleaning operation causes ink inflow. If ink inflow is confirmed, execute initial ink charge. 	 "4.7.2 Replacing Pump Cap Assembly" p.4-52
		11. Does pump motor rotate during cleaning operation?	<ul style="list-style-type: none"> Reconnect main board assembly connector J102, J103. Replace Pump motor assembly. Replace main board assembly. 	 "4.3.3 Replacing Main Board Assembly" p.4-21  "4.7.1 Removing Maintenance Base Assembly" p.4-47
		12. When cleaning operation is performed, does transmission gear rotate properly?	Replace maintenance base assembly.	 "4.7.1 Removing Maintenance Base Assembly" p.4-47

Table 9-11 Symptoms, Check Items and Actions for Printing Problems(Continued)

No.	Symptom	Check item	Action	Reference
5 6		13. When cleaning operation is performed, is transmission gear shaft damaged?	Replace maintenance base assembly.	 "4.7.1 Removing Maintenance Base Assembly" p.4-47
		14. Check head cable connectors at CR board assembly side and print head assembly side. <ul style="list-style-type: none"> • Is head cable inserted obliquely? • Is it locked securely? 	Reconnect head cable.	 "4.6.1 Replacing Print Head" p.4-37  "4.10.1 Replacing CR Board Assembly" p.4-64
		15. Is print head damaged?	Replace damaged print head.	 "4.6.1 Replacing Print Head" p.4-37
		16. CR board assembly may be defective.	Replace CR board assembly.	 "4.10.1 Replacing CR Board Assembly" p.4-64
		17. Main board assembly may be damaged.	Replace main board assembly.	 "4.3.3 Replacing Main Board Assembly" p.4-21

Table 9-11 Symptoms, Check Items and Actions for Printing Problems(Continued)

No.	Symptom	Check item	Action	Reference
7	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.	 "4.6.1 Replacing Print Head" p.4-37  "4.10.1 Replacing CR Board Assembly" p.4-64
		2. Is CR cable inserted obliquely?	Reconnect main board assembly connectors J110 - J114 and CR board assembly connectors J201 - J205.	 "4.3.3 Replacing Main Board Assembly" p.4-21  "4.10.1 Replacing CR Board Assembly" p.4-64
		3. CR cable assembly may be damaged.	Replace CR cable assembly.	 "4.10.3 Replacing CR Tape Wire" p.4-68
		4. Is print head damaged?	Replace damaged print head assembly.	 "4.6.1 Replacing Print Head" p.4-37
		5. CR board assembly may be malfunctioning.	Replace CR board assembly.	 "4.10.1 Replacing CR Board Assembly" p.4-64
		6. Main board assembly may be damaged.	Replace main board assembly.	 "4.3.3 Replacing Main Board Assembly" p.4-21
8 9 10 11	Blocky printing quality. Blocky image printing. CR line seems dotted. White or black lines appear. (No missing or ink crooking in step patters in location 1G - 7G in "Test Print")	1. Is working environment appropriate?	Use machine under specified environment.	 "3.5 Choosing a Place for the Plotter" p.3-10

Table 9-11 Symptoms, Check Items and Actions for Printing Problems(Continued)

No.	Symptom	Check item	Action	Reference
8 9 10 11		2. Have you started printing immediately after initial charge?	Printing just after initial charge may cause following symptoms. <ul style="list-style-type: none"> • Printed line blurs. • White lines appear. 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.	 Operation Manual
		3. Is suction fan run as normal when checked through "Test: Fan" of self-diagnosis function?	<ul style="list-style-type: none"> • Check connection of following main board assembly connectors. • Suction fan 1 cable: J128 • Suction fan 2 cable: J127 • Suction fan L cable: J126 • Replace suction fan assembly. • Replace cable of suction fan that does not operate normally. 	 "4.9.1 Replacing Suction Fan Assembly" p.4-62

Table 9-11 Symptoms, Check Items and Actions for Printing Problems(Continued)

No.	Symptom	Check item	Action	Reference
8 9 10 11		4. Is shielding material secured at specified position?	Remount it at specified position.	 "4.9.1 Replacing Suction Fan Assembly" p.4-62
		5. If the media in problem is roll media, does scroller rotate evenly?	Adjust roll receiver assembly position. Replace roll receiver assembly.	 "4.2.8 Removing Scroller Receiver (L, R)" p.4-14
		6. Is PF belt tension adjusted to specification?	Adjust PF reduction belt tension.	 "(2) Confirming Completion of Installation to Plotter" p.7-17
		7. Check cleaning wiper condition.	<ul style="list-style-type: none"> Wipe cleaning wiper surface with accessory cleaning wiper cleaning cloth dampened with small amount of purified water. After wiping cleaning wiper, perform cleaning twice consecutively. If cleaning wiper is sticky with ink, replace it with a new one. 	 Operation Manual
		8. Is nozzle face wiped/rubbed correctly?	Check wiper installation condition and secure it correctly.	 "4.7.3 Replacing Cleaner Head (Cleaning Wiper)" p.4-53
		9. Is T fence contaminated?	<ul style="list-style-type: none"> Clean T fence. If T fence is still contaminated or damaged, replace T fence. 	 "4.5.4 Replacing T Fence" p.4-33
		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
8 9 10 11		11. Does pump motor rotate during cleaning operation?	<ul style="list-style-type: none"> Reconnect main board assembly connector J102, J103. Replace pump motor assembly. Replace main board assembly. 	 "4.3.3 Replacing Main Board Assembly" p.4-21  "4.7.1 Removing Maintenance Base Assembly" p.4-47  "4.3.3 Replacing Main Board Assembly" p.4-21
		12. When cleaning operation is performed, does transmission gear rotate properly?	Replace maintenance base assembly.	 "4.7.1 Removing Maintenance Base Assembly" p.4-47
		13. When cleaning operation is performed, are gears and transmission gear shaft damaged?	Replace maintenance base assembly.	 "4.7.1 Removing Maintenance Base Assembly" p.4-47
		14. Is spring of ink system assembly detached or damaged?	<ul style="list-style-type: none"> If the part is detached, remount it. If the part is damaged, replace ink system assembly. 	 "4.7.2 Replacing Pump Cap Assembly" p.4-52
		15. Is ink tube in ink system assembly bent?	<ul style="list-style-type: none"> Replace ink system assembly and check if cleaning operation causes ink inflow. If ink inflow is confirmed, execute initial ink charge. 	 "4.7.2 Replacing Pump Cap Assembly" p.4-52
		16. Is registered head voltage different from actual head voltage?	Enter correct head voltage.	 "5.5.2 Head Rank Input Menu" p.5-25

Table 9-11 Symptoms, Check Items and Actions for Printing Problems(Continued)

No.	Symptom	Check item	Action	Reference
8 9 10 11		17. Does residual ink collect on head assembly or in nozzles?	Clean head as follows. 1. Clean head through "Adj: Clean Head" of self-diagnosis function. 2. Perform initial charge through "Adjustment: Voltage input". 3. Check plotouts again.	 "5.5.13 Head Cleaning Menu" p.5-45  "5.5.2 Head Rank Input Menu" p.5-25
		18. Is print head damaged?	Replace damaged print head.	 "4.6.1 Replacing Print Head" p.4-37
		19. Are the following self-diagnosis functions judged as normal when checked with specified cartridge securely inserted? - Detection of presence of ink from "Sen: Ink NOT" - Detection of presence of cartridge from ""Ink Not"	<ul style="list-style-type: none"> Follow the steps for the message "[K1K2CMY] No Cartridge". After adjustment/replacement, execute initial ink charge from "Adj: Input Rank" of self-diagnosis function. 	 "5.5.2 Head Rank Input Menu" p.5-25
		20. CR board assembly may be malfunctioning.	Replace CR board assembly.	 "4.10.1 Replacing CR Board Assembly" p.4-64
		21. Main board assembly may be damaged.	Replace main board assembly.	 "4.3.3 Replacing Main Board Assembly" p.4-21

Table 9-11 Symptoms, Check Items and Actions for Printing Problems(Continued)

No.	Symptom	Check item	Action	Reference	
12	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.	☞ "4.10.3 Replacing CR Tape Wire" p.4-68	
		4. Is print head damaged?	Replace damaged print head.	☞ "4.6.1 Replacing Print Head" p.4-37	
		5. CR board assembly may be malfunctioning.	Replace CR board assembly.	☞ "4.10.1 Replacing CR Board Assembly" p.4-64	
		6. Main board assembly may be damaged.	Replace main board assembly.	☞ "4.3.3 Replacing Main Board Assembly" p.4-21	
13	Many satellites (unnecessary dots)	1. Is working environment appropriate?	Use machine under specified environment.	☞ "3.5 Choosing a Place for the Plotter" p.3-10	
14	Shaggy plotout	2. Is the ink level remained sufficient?	Replace ink cartridge with new one.	☞ Operation Manual	
15	Uneven lines (plotted with stains)		3. Perform purge three times consecutively.	Plot out drawing again.	☞ Operation Manual
			4. Perform test printing.	If nozzle check patterns are plotted correctly, refer to step (6)	
			5. Have you started plottout immediately after initial charge?	Be sure to wait 6 hours or more after initial ink charge. Plotout before ink charge stabilization will not provide adequate plotting quality.	☞ Operation Manual
			6. Is CR belt tension adjusted to specification?	Adjust CR belt tension.	☞ "7.6 CR Belt Tension Adjustment" p.7-25

Table 9-11 Symptoms, Check Items and Actions for Printing Problems(Continued)

No.	Symptom	Check item	Action	Reference
13 14 15		7. Check if TF_ENC assembly and T fence contact with each other.	<ul style="list-style-type: none"> • If they contact with each other, adjust TF_ENC assembly and T fence positions. • If problem remains even after position adjustment, replace CR board assembly and T fence. 	<p> "4.10.1 Replacing CR Board Assembly" p.4-64</p> <p> "4.5.4 Replacing T Fence" p.4-33</p>
		8. Check cleaning wiper condition.	<ul style="list-style-type: none"> • Wipe cleaning wiper surface with accessory cleaning wiper cleaning cloth dampened with small amount of purified water. After wiping cleaning wiper, perform cleaning twice consecutively. • If cleaning wiper is sticky with ink, replace it with a new one. 	<p> Operation Manual</p> <p> "4.7.3 Replacing Cleaner Head (Cleaning Wiper)" p.4-53</p>
		9. Is nozzle face wiped/rubbed correctly?	Check wiper installation condition and secure it correctly.	<p> "4.7.3 Replacing Cleaner Head (Cleaning Wiper)" p.4-53</p>
		10. Is registered head voltage different from actual head voltage?	Enter correct head voltage.	<p> "5.5.2 Head Rank Input Menu" p.5-25</p>

Table 9-11 Symptoms, Check Items and Actions for Printing Problems(Continued)

No.	Symptom	Check item	Action	Reference
13 14 15		11. Does pump motor rotate during cleaning operation?	<ul style="list-style-type: none"> Reconnect main board assembly connector J102 and J103. Replace pump motor assembly. Replace main board assembly. 	 "4.3.3 Replacing Main Board Assembly" p.4-21  "4.7.1 Removing Maintenance Base Assembly" p.4-47
		12. When cleaning operation is performed, are gears and transmission gear shaft damaged?	Replace maintenance base assembly.	 "4.7.1 Removing Maintenance Base Assembly" p.4-47
		13. Is spring of ink system assembly detached or damaged?	<ul style="list-style-type: none"> If the part is detached, remount it. If the part is damaged, replace ink system assembly. 	 "4.7.2 Replacing Pump Cap Assembly" p.4-52
		14. Is ink tube in ink system assembly bent?	<ul style="list-style-type: none"> Replace ink system assembly and check if cleaning operation causes ink inflow. If ink inflow is confirmed, execute initial ink charge. 	 "4.7.2 Replacing Pump Cap Assembly" p.4-52
		15. Does residual ink collect on print head assembly or in nozzles?	Clean head as follows. <ol style="list-style-type: none"> Clean head from "Adj: Clean Head" of plotter self-diagnosis. Perform initial ink charge from "Adj: Input Rank". Check printouts again. 	 "5.5.13 Head Cleaning Menu" p.5-45  "5.5.2 Head Rank Input Menu" p.5-25
		16. Is print head assembly damaged?	Replace damaged print head assembly.	 "4.6.1 Replacing Print Head" p.4-37

Table 9-11 Symptoms, Check Items and Actions for Printing Problems(Continued)

No.	Symptom	Check item	Action	Reference
13 14 15		17. Main board assembly may be damaged.	Replace main board assembly.	 "4.3.3 Replacing Main Board Assembly" p.4-21
16	Mixed color lines are not overlaid.	1. Is CR belt tension adjusted to specification?	Adjust CR belt tension.	 "7.6 CR Belt Tension Adjustment" p.7-25
		2. Is registered head voltage different from actual head voltage?	Enter correct head voltage.	 "5.5.2 Head Rank Input Menu" p.5-25
		3. Is head slant inappropriate?	Adjust head slant.	 "7.6 CR Belt Tension Adjustment" p.7-25
		4. Are Bi-Directional printing positions aligned correctly?	Align Bi-Directional printing positions.	 "5.5.6 CW Adjustment" p.5-31
		5. Is CW adjustment inappropriate?	Perform CW adjustment.	 "5.5.6 CW Adjustment" p.5-31
17	Black and other colors do not align.	1. Check if TF_ENC assembly and T fence contact with each other.	<ul style="list-style-type: none"> • If they contact with each other, adjust TF_ENC assembly and T fence positions. • If problem remains even after position adjustment, replace CR board assembly and T fence. 	 "4.10.1 Replacing CR Board Assembly" p.4-64  "4.5.4 Replacing T Fence" p.4-33

Table 9-11 Symptoms, Check Items and Actions for Printing Problems(Continued)

No.	Symptom	Check item	Action	Reference
18	Poor accuracy of segment length in head travel direction (main scan direction).	1. Is working environment appropriate?	Use machine under specified environment.	 "3.5 Choosing a Place for the Plotter" p.3-10
		2. Is CR belt tension adjusted to specification?	Adjust CR belt tension.	 "7.6 CR Belt Tension Adjustment" p.7-25
		3. Is T fence contaminated?	<ul style="list-style-type: none"> • Clean T fence. • If T fence is still contaminated or damaged, replace T fence. 	 "4.5.4 Replacing T Fence" p.4-33
		4. Internal process of main board assembly may be abnormal.	Initialize parameters and reenter or modify them. Then, check machine operation again.	 "5.8.1 Parameter Initialization Menu" p.5-52
19	Poor linearity in head scan direction (straightness)	1. Is suction fan run as normal when checked through "Test: Fan" of self-diagnosis function?	<ul style="list-style-type: none"> • Check connection of following main board assembly connectors. <ul style="list-style-type: none"> • Suction 1 fan cable: J128 • Suction 2 fan cable: J127 • Suction L fan cable: J126 • Replace suction fan assembly. • Replace cable of suction fan that does not operate normally. 	 "4.9.1 Replacing Suction Fan Assembly" p.4-62
		2. Is PF driving pulley loose?	Replace PF motor assembly.	 "4.4.1 Replacing PF Motor Assembly" p.4-26
		3. Is PF speed reduction belt tension adjusted to specification?	Adjust PF speed reduction belt tension.	 "(2) Confirming Completion of Installation to Plotter" p.7-17

Table 9-11 Symptoms, Check Items and Actions for Printing Problems(Continued)

No.	Symptom	Check item	Action	Reference
19		4. If the media in problem is roll media, does scroller rotate evenly?	<ul style="list-style-type: none"> Adjust roll receiver assembly position. Replace roll receiver assembly. 	 "4.2.8 Removing Scroller Receiver (L, R)" p.4-14
		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
20	Poor accuracy of segment length in media feed direction (sub scan direction)	1. Is working environment appropriate?	Use machine under specified environment.	 "3.5 Choosing a Place for the Plotter" p.3-10
		2. Have you performed distance correction with media in use?	Perform distance correction.	 "5.5.9 Band Feed Correction Menu" p.5-41
		3. Is PF driving pulley loose	Replace PF motor assembly.	 "4.4.1 Replacing PF Motor Assembly" p.4-26
		4. Is PF belt tension adjusted to specification?	Adjust PF speed reduction belt tension.	 "(2) Confirming Completion of Installation to Plotter" p.7-17
		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
		6. 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
		7. Is grid roller rotation heavy? Does rattling occur when it rotates?		
		8. 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.	 "4.2.8 Removing Scroller Receiver (L, R)" p.4-14

Table 9-11 Symptoms, Check Items and Actions for Printing Problems(Continued)

No.	Symptom	Check item	Action	Reference
21	Poor linearity in media feed direction (media splicing accuracy)	1. Is registered head voltage different from actual head voltage?	Enter correct head voltage.	 "5.5.2 Head Rank Input Menu" p.5-25
		2. Adjust head slant.	Adjust head slant.	 "7.6 CR Belt Tension Adjustment" p.7-25
		3. Is CR belt tension adjusted to specification?	Adjust CR belt tension.	 "7.6 CR Belt Tension Adjustment" p.7-25
		4. Are Bi-Directional printing positions aligned correctly?	Align two-way printing positions.	 "5.5.6 CW Adjustment" p.5-31
		5. Is T fence contaminated?	Clean T fence. If T fence is still contaminated or damaged, replace T fence.	 "4.5.4 Replacing T Fence" p.4-33
		6. Check if vertical lines plotted from "Adj: Black Slant" are not connected even though nozzle check pattern from "Adj: Chk Nozzle" of self-diagnosis function is adjusted properly.	Replace steel bearer assembly.	 "4.10.3 Replacing CR Tape Wire" p.4-68
		7. Is carriage assembly loose?	Replace carriage assembly.	-
22	Poor right angle accuracy	1. Is suction fan judged as normal when checked through "Test: Fan" of self-diagnosis function?	<ul style="list-style-type: none"> • Check connection of following maintenance board assembly connectors. <ul style="list-style-type: none"> • Suction fan 1 cable: J128 • Suction fan 2 cable: J127 • Suction fan L cable: J126 • Replace suction fan assembly. • Replace cable of suction fan that does not operate normally. 	 "4.9.1 Replacing Suction Fan Assembly" p.4-62

Table 9-11 Symptoms, Check Items and Actions for Printing Problems(Continued)

No.	Symptom	Check item	Action	Reference
22		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.	 "4.9.1 Replacing Suction Fan Assembly" p.4-62
		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.	 "4.9.1 Replacing Suction Fan Assembly" p.4-62
		4. Main board assembly may be malfunctioning.	Replace main board assembly.	 "4.9.1 Replacing Suction Fan Assembly" p.4-62
		5. Power board assembly may be defective.	Replace power board assembly.	 "4.3.4 Replacing Power Board Assembly" p.4-22

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"> Power board assembly Main board assembly CR board assembly Print head assembly 	 "4.3.4 Replacing Power Board Assembly" p.4-22  "4.3.3 Replacing Main Board Assembly" p.4-21  "4.6.1 Replacing Print Head" p.4-37
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 Removal of Covers" p.4-5
		3. Is rattling noise heard when moving carriage laterally?	<ul style="list-style-type: none"> Remove dust from carriage bearing and roller strip. After cleaning roller strip, always apply thin lubricant film over its surface using a grease-sprayed cloth. 	-
		4. Is abnormal noise heard from CR cable?	<ul style="list-style-type: none"> Remove twists from CR cable. If abnormal noise sounds from between steel bearer and tube guide, replace tube guide. 	 "4.10.3 Replacing CR Tape Wire" p.4-68

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"> If they contact with each other, adjust TF_ENC assembly and T fence positions. If problem remains even after position adjustment, replace TF_ENC assembly and T fence. 	 "4.10.3 Replacing CR Tape Wire" p.4-68
		6. Check if TF_ENC assembly and T fence contact with each other.		
		7. Is abnormal noise heard from CR driven pulley bearing?	Replace it.	 "4.5.5 Replacing CR Driven Pulley" p.4-36
		8. Is CR belt tension adjusted to specification?	Adjust CR belt tension.	 "7.6 CR Belt Tension Adjustment" p.7-25
		9. Is abnormal noise heard from CR motor assembly?	Replace CR motor assembly.	 "4.5.1 CR Motor Assembly" p.4-30
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.	 "4.4.1 Replacing PF Motor Assembly" p.4-26
		2. Is abnormal noise heard from PF motor assembly?	Replace PF motor assembly.	 "4.4.1 Replacing PF Motor Assembly" p.4-26
		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

Table 9-12 Symptoms, Check Items, and Actions for Noise Problems(Continued)

No.	Symptom	Check item	Action	Reference
5	Abnormal noise is heard during media cut.	1. Is cutter cap on upper side of cutter set securely?	Remount cutter cap.	 "4.6.2 Replacing Cutter Holder Assembly" p.4-41
		2. Does cutter move up and down smoothly?	<ul style="list-style-type: none"> • Remount cutter spring. • Remove foreign objects, if any. 	 "4.6.2 Replacing Cutter Holder Assembly" p.4-41
		3. Are there any foreign objects attached on cutter groove and surface of media guide L?	Remove foreign objects.	-
		4. Are media guide L cutter groove and cutter blade parallel?	Perform adjustment.	 "7.9 Cutter Holder Height Adjustment" p.7-29
		5. Cutter may be defective.	Replace cutter.	 "4.6.2 Replacing Cutter Holder Assembly" p.4-41
		6. CR board assembly may be defective.	Replace CR board assembly.	 "4.10.1 Replacing CR Board Assembly" p.4-64
		7. CR cable may be damaged.	Replace CR cable.	 "4.10.3 Replacing CR Tape Wire" p.4-68
		8. Power board assembly may be defective.	Replace power board assembly.	 "4.3.4 Replacing Power Board Assembly" p.4-22

9.3.5 Media Cutting Problems

Table 9-13 Symptoms, Check Items, and Actions for Media Cutting Problems

No.	Event/symptom	Check item	Action	Reference
1	Cutting operation is abnormal.	1. Is cutter blade tip chipped off or deteriorated?	Replace cutter.	 "4.6.2 Replacing Cutter Holder Assembly" p.4-41
		2. Is cutter cap on upper side of cutter set securely?	Remount cutter cap.	 "4.6.2 Replacing Cutter Holder Assembly" p.4-41
		3. Does cutter move up and down smoothly?	<ul style="list-style-type: none"> • Remount cutter spring. • Remove foreign objects, if any. 	 "4.6.2 Replacing Cutter Holder Assembly" p.4-41
		4. Are there any foreign objects attached on cutter groove and surface of media guide L part?	Remove foreign objects.	-
		5. Are media guide L part cutter groove and cutter blade parallel?	Perform adjustment.	 "7.9.2 Adjustment Procedure" p.7-29
		6. Check cutter up/down operation from "Life: Cutter" of plotter self-diagnosis.	Check connection of following connectors. <ul style="list-style-type: none"> • CR board assembly connector J212 	 "4.10.1 Replacing CR Board Assembly" p.4-64
		7. Is CR cable inserted obliquely?	Check connection of following connectors. <ul style="list-style-type: none"> • CR board assembly connector J201 - J205 • Main board assembly connector J110 - J114 	 "4.10.1 Replacing CR Board Assembly" p.4-64  "4.3.3 Replacing Main Board Assembly" p.4-21
		8. CR board assembly may be malfunctioning.	Replace CR board assembly.	 "4.10.1 Replacing CR Board Assembly" p.4-64

Table 9-13 Symptoms, Check Items, and Actions for Media Cutting Problems(Continued)

No.	Event/symptom	Check item	Action	Reference
		9. Main board assembly may be malfunctioning.	Replace main board assembly.	 "4.3.3 Replacing Main Board Assembly" p.4-21
2	Cutting operation occurs during printing.	1. Plotter driver may be defective.	Update plotter driver.	 Operation Manual
		2. Program ROM may be defective.	Update firmware.	 "7.3.5 Firmware Installation" p.7-15
		3. Is CR cable inserted obliquely?	Check connection of following connectors. <ul style="list-style-type: none"> • CR board assembly connector J201 - J205 • Main board assembly connector J110 - J114 	 "4.10.1 Replacing CR Board Assembly" p.4-64  "4.3.3 Replacing Main Board Assembly" p.4-21
		4. CR board assembly may be defective.	Replace CR board assembly.	 "4.10.1 Replacing CR Board Assembly" p.4-64
		5. Main board assembly may be defective.	Replace main board assembly.	 "4.3.3 Replacing Main Board Assembly" p.4-21
3	Media cannot be cut in spite of normal cutting operation.	1. Is cutter blade tip chipped off or deteriorated?	Replace cutter.	 "4.6.2 Replacing Cutter Holder Assembly" p.4-41

Table 9-13 Symptoms, Check Items, and Actions for Media Cutting Problems(Continued)

No.	Event/symptom	Check item	Action	Reference
4	Media jams due to poor cutting operation.	1. Is cutter cap on upper side of cutter set securely?	Remount cutter cap.	 "4.6.2 Replacing Cutter Holder Assembly" p.4-41
		2. Does cutter move up and down smoothly?	<ul style="list-style-type: none"> • Remount cutter spring. • Remove foreign objects, if any. 	 "4.6.2 Replacing Cutter Holder Assembly" p.4-41
		3. Are there any foreign objects attached on cutter groove and surface of media guide L?	Remove foreign objects.	-
		4. Are media guide L cutter groove and cutter blade parallel?	Perform adjustment.	 "7.9 Cutter Holder Height Adjustment" p.7-29
5	Media cannot be cut off in spite of normal cutting operation.	1. Is media guide surface cleaned on a daily basis?	Clean media guide surface.	 Operation Manual
		2. Media guide L or media may have static electricity.	<ul style="list-style-type: none"> • Perform grounding correctly. • Check humidity of operation environment and set it within specified operation environmental conditions. 	 Operation Manual

Table 9-13 Symptoms, Check Items, and Actions for Media Cutting Problems(Continued)

No.	Event/symptom	Check item	Action	Reference
6	Poor accuracy of media cutting	1. Is cutter blade tip chipped off or deteriorated?	Replace cutter.	 "4.6.2 Replacing Cutter Holder Assembly" p.4-41
		2. Is cutter cap on upper side of cutter set securely?	Remount cutter cap.	 "4.6.2 Replacing Cutter Holder Assembly" p.4-41
		3. Does cutter move up and down smoothly?	<ul style="list-style-type: none"> • Remount cutter spring. • Remove foreign objects, if any. 	 "4.6.2 Replacing Cutter Holder Assembly" p.4-41
		4. Are there any foreign objects attached on cutter groove and surface of media guide L?	Remove foreign objects.	-
		5. Are media guide L cutter groove and cutter blade parallel?	Perform adjustment.	 "7.9 Cutter Holder Height Adjustment" p.7-29
		6. Cutter may be defective.	Replace cutter.	 "4.6.2 Replacing Cutter Holder Assembly" p.4-41
7	Cutting operation occurs some time after printing.	1. Can built-in sample printing be output without any problems?	Take actions referring to "5 No printing" in "9.3.3 Printing Problems" p.9-46.	-
8	Blank media is cut.	1. Plotter driver may be defective.	Update plotter driver.	 Operation Manual
		2. Program ROM may be defective.	Update firmware.	 "7.3.5 Firmware Installation" p.7-15
		3. Main board assembly may be defective.	Replace main board assembly.	 "4.3.3 Replacing Main Board Assembly" p.4-21

9.3.6 Online Function Problems

Table 9-14 Symptoms, Check Items, and Actions for Online Function Problems

No.	Event/symptom	Check item	Action	Reference
1	USB interface cannot establish communication.	1. Does computer in use support USB?	Windows95 does not support USB officially. If you use Windows95, use computer with Windows98 or higher OS installed.	-
		2. Does the same error occur even if you use another USB port on the computer?	Use another USB port on the computer.	-
		3. Are you using USB hub?	<ul style="list-style-type: none"> • Cascade connection using USB hub is available up to 5 stages. • If the plotter operates normally without using USB hub, replace USB hub. • Instruct users to use USB hubs compliant with USB2.0 Hi-Speed standard. 	-
		4. Attempt communication with PC on hand.	Replace USB cable.	-
		5. Does the same error occur even if interface cable is changed?	Communication error may be caused by an open circuit in interface cable or too long cable length. Instruct users to use cables compliant with USB2.0 Hi-Speed standard.	-
		6. Plotter driver may be defective.	Update plotter driver.	-
		7. Program ROM may be defective.	Update firmware.	 "7.3.5 Firmware Installation" p.7-15
		8. Main board assembly may be defective.	Replace main board assembly.	 "4.3.3 Replacing Main Board Assembly" p.4-21
2	Scaling does not work correctly.	1. Plotter driver may be defective.	Update plotter driver.	 Operation Manual

Table 9-14 Symptoms, Check Items, and Actions for Online Function Problems(Continued)

No.	Event/symptom	Check item	Action	Reference
2	Mirror function does not work correctly.	2. Program ROM may be defective.	Update firmware.	 "7.3.5 Firmware Installation" p.7-15
	Other functions do not work correctly.	3. Main board assembly may be damaged.	Replace main board assembly.	 "4.3.3 Replacing Main Board Assembly" p.4-21
3	Printing position is incorrect.	1. Is CW adjustment inappropriate?	Perform adjustment.	 "5.5.6 CW Adjustment" p.5-31
		2. Is adjustment of top/bottom margin distance inappropriate between front sensor and head and between cutter and head?	Perform adjustment.	 "5.5.11 P_REAR Sensor Position Adjustment Menu" p.5-43
		3. Plotter driver may be defective.	Update plotter driver.	 Operation Manual
		4. Program ROM may be defective.	Update firmware.	 "7.3.5 Firmware Installation" p.7-15
		5. Main board assembly may be damaged.	Replace main board assembly.	 "4.3.3 Replacing Main Board Assembly" p.4-21

Table 9-14 Symptoms, Check Items, and Actions for Online Function Problems(Continued)

No.	Event/symptom	Check item	Action	Reference
4	Some data are not printed (missing). Some data change to garbage.	1. Plotter driver may be defective.	Update plotter driver.	☞ Operation Manual
		2. Program ROM may be defective.	Update firmware.	☞ "7.3.5 Firmware Installation" p.7-15
		3. Is T fence contaminated or worn out?	<ul style="list-style-type: none"> • If grease or dust collect: Wipe fence with a dry cloth. • If ink deposit presents: Wipe it off with cloth dampened with neutral detergent. • If contamination or deposit is too heavy: Replace T fence. 	☞ "4.5.4 Replacing T Fence" p.4-33
		4. Check "CR Encoder" from "Test: Encoder" of self-diagnosis function.	<ul style="list-style-type: none"> • 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 J129. • Replace T fence. • Replace TF_ENC assembly. • Replace CR motor assembly. • Replace CR board assembly. • Replace CR cable. 	☞ "4.3.3 Replacing Main Board Assembly" p.4-21 ☞ "4.5.4 Replacing T Fence" p.4-33 ☞ "4.5.1 CR Motor Assembly" p.4-30 ☞ "4.10.1 Replacing CR Board Assembly" p.4-64 ☞ "4.10.3 Replacing CR Tape Wire" p.4-68
		5. Main board assembly may be malfunctioning.	Replace main board assembly.	☞ "4.3.3 Replacing Main Board Assembly" p.4-21

Table 9-14 Symptoms, Check Items, and Actions for Online Function Problems(Continued)

No.	Event/symptom	Check item	Action	Reference
5	Media feed after printout is excessive.	1. Are print start position and layout method set properly?	Check the media type setting.	☞ Operation Manual
		2. Plotter driver setting may be unsuitable.	<ul style="list-style-type: none"> • Modify the value to an appropriate value(Media size). • Update plotter driver. 	☞ Operation Manual
		3. Program ROM may be defective.	Update firmware.	☞ "7.3.5 Firmware Installation" p.7-15
		4. Main board assembly may be damaged.	Replace main board assembly.	☞ "4.3.3 Replacing Main Board Assembly" p.4-21

9.3.7 Other Problems

Table 9-15 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.7-10
		2. Main board assembly may be damaged.	Replace main board assembly.	☞ "4.3.3 Replacing Main Board Assembly" p.4-21

Table 9-15 Symptoms, Check Items, and Actions (Continued)

No.	Event/symptom	Check item	Action	Reference
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 (AC100V).	Replace power board assembly.	 "4.3.4 Replacing Power Board Assembly" p.4-22
		4. Check power supply voltage (DC5V).	Replace power board assembly.	 "4.3.4 Replacing Power Board Assembly" p.4-22
		5. Check power supply voltage (DC24V, DC42V).	Replace power board assembly.	 "4.3.4 Replacing Power Board Assembly" p.4-22
		6. Power board assembly may be defective.	Replace power board assembly.	 "4.3.4 Replacing Power Board Assembly" p.4-22
3	Ink cartridge cannot be inserted.	1. Is pointer of ink sensor assembly deformed or damaged?	Replace ink sensor assembly.	 "4.8.1 Replacing Ink Holder (I/H) Assembly" p.4-55
		2. Is ink NOT sensor (black resin lever switch) of ink sensor assembly damaged?	Replace ink sensor assembly.	 "4.8.1 Replacing Ink Holder (I/H) Assembly" p.4-55

Table 9-15 Symptoms, Check Items, and Actions (Continued)

No.	Event/symptom	Check item	Action	Reference
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 "Ink Not" 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 "Sen: No cartridge" changes.	 "5.4.4 Sensor Menu" p.5-13
		3. Is waste fluid tube coming out of flushing box bent?	Reinstall it.	 "4.7.4 Replacing Flushing Box Assembly" p.4-54
5	Ink spills out of flushing box.	1. Is flushing box clogged with dust?	<ul style="list-style-type: none"> Remove dust. Replace flushing box assembly. 	 "4.7.4 Replacing Flushing Box Assembly" p.4-54
		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.	 "4.7.4 Replacing Flushing Box Assembly" p.4-54

Table 9-15 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"> Remove maintenance base assembly and check if extension tube is connected. Replace pump motor assembly. Replace ink system assembly. 	<p> "4.7.1 Removing Maintenance Base Assembly" p.4-47</p> <p> "4.7.2 Replacing Pump Cap Assembly" p.4-52</p>
		2. Ink tube may be cut.	Replace ink tube.	 "4.7.2 Replacing Pump Cap Assembly" p.4-52
		3. Print head, main board assembly and CR board assembly may be defective.	After removing ink cartridge, check if each board operates properly.	<p> "4.3.3 Replacing Main Board Assembly" p.4-21</p> <p> "4.6.1 Replacing Print Head" p.4-37</p> <p> "4.10.1 Replacing CR Board Assembly" p.4-64</p>

9.3.8 Problems in Using Dedicated Network Software

Table 9-16 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.	 RJ-90x Network Administration Manual

Table 9-16 Problems in Using Dedicated Network Software(Continued)

No.	Event/symptom	Check item	Action	Reference
2	"Transfer failed (Data timeout)" is displayed during transfer.	1. Are plotter 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 plotter and PC correctly.	☞ "7.3.3 Required Environment" p.7-11
		2. Is network interface card installed properly in plotter?	Yes: Proceed to (3). No: Install network interface card properly.	☞ "(1) Replacing NIC" p.4-16
		3. Is PC IP address appropriate?	Yes: Proceed to (4). No: Adjust TCP/IP properties from [Properties] of [Local Area Connection] in [Network Connections] setting of PC. PC and plotter must have the same subnet address (i.e. 192.168.1.1/24 and 192.168.1.253).	☞ "7.3.3 Required Environment" p.7-11
		4. Is any device of the same IP address as PC or plotter connected to hub?	Yes: Disconnect the applicable device from network. No: Proceed to (5).	-
		5. Is plotter started in board manager mode and only POWER LED turned on?	Yes: Proceed to (6). No: Start plotter 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.)	☞ "7.3.3 Required Environment" p.7-11
		6. Is plotter IP address appropriate? (Check address according to Section 6.3.)	Yes: Proceed to (7). No: If LCD displays "No Network Interface", check implementation condition of network interface card. If network interface card is implemented properly, engine component or network interface card may be defective.	☞ "(1) Replacing NIC" p.4-16 "4.3.3 Replacing Main Board Assembly" p.4-21

Table 9-16 Problems in Using Dedicated Network Software(Continued)

No.	Event/symptom	Check item	Action	Reference
2		7. Is LAN communication between PC and other device available?	<p>Yes: Connect PC with other device with LAN cable and check with method such as ping command.</p> <p>No: PC may be defective, or network interface card or engine board may be defective.</p>	 "(1) Replacing NIC" p.4-16 "4.3.3 Replacing Main Board Assembly" p.4-21
3	"Error received: Buffer overflow." is displayed during transfer.	Firmware size is too large. Check if transferred firmware is an appropriate file.	<p>Plotter 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 style="text-align: center;">Transfer failed Data format error</p> <p>To stop the buzzer, press any key except for the power key once. To return to status in which installation is available, press any key except for the power key once again.</p>	 "7.3.5 Firmware Installation" p.7-15

10 Appendix

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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

Table 10-1 Maintenance Part List

Section name	Part name	Part number	Remarks
Cover section	Panel unit assembly	DF-48977	
	Panel cable assembly	DF-49014	
	Front cover receiver assembly	DF-49056	
	Scroller receiver roller assembly	DF-49063	
	Roll receiver R assembly	DF-49066	
	Roll receiver L assembly	DF-49067	
	Cover R sensor assembly	DF-49011	
	Cover L sensor A1 assembly	DF-49012	Exclusive for RJ-901 series
	Cover L sensor A0 assembly	DF-49013	Exclusive for RJ-900 series
	Sensor cover L assembly	DF-49057	
	Sensor cover R assembly	DF-49058	

Table 10-1 Maintenance Part List

Section name	Part name	Part number	Remarks
Board section	Power board assembly	DF-48975	
	Cooling fan assembly	DF-49023	
	Main board (TMPR) assembly	DF-49714	
	SODIMM 128 assembly	DF-49715	Exclusive for RJ-901 series
	SODIMM 256 assembly	DF-48716	Exclusive for RJ-900 series
	Noise filter assembly	DF-48981	
	Cooling fan cable A1 assembly	DF-48998	Exclusive for RJ-901 series
	Cooling fan cable A0 assembly	DF-48999	Exclusive for RJ-900 series
	Noise filter cable A1 assembly	DF-49005	Exclusive for RJ-901 series
	Noise filter cable A0 assembly	DF-49006	Exclusive for RJ-900 series
	Noise filter FG assembly	DF-49019	
	Cooling fan (24V) assembly	DF-49022	
	PF driving section	PF motor assembly	DF-49020
PF motor cable A1 assembly		DF-48989	Exclusive for RJ-901 series
PF motor cable A0 assembly		DF-48990	Exclusive for RJ-900 series
X speed reduction belt assembly		DF-49046	
PF_ENC A1 assembly		DF-48984	Exclusive for RJ-901 series
PF_ENC A0 assembly		DF-48985	Exclusive for RJ-900 series
PF_ENC scale assembly		DF-49028	
Sliding bearing assembly		DF-49048	
Grid roller bearing assembly		DF-49049	
Sliding support assembly		DF-49050	
Speed reduction pulley assembly		DF-49051	
CR section	CR motor assembly	DF-49021	

Table 10-1 Maintenance Part List

Section name	Part name	Part number	Remarks	
CR section	CR motor cable A1 assembly	DF-48991	Exclusive for RJ-901 series	
	CR motor cable A0 assembly	DF-48992	Exclusive for RJ-900 series	
	CR driven pulley assembly	DF-49047		
	CR belt A1	DF-49044	Exclusive for RJ-901 series	
	CR belt A0	DF-49045	Exclusive for RJ-900 series	
	CR_HP sensor, lever sensor	DF-49471		
	Lever sensor cable assembly	DF-49004		
	CR origin sensor cable assembly	DF-49000		
	T fence A1 assembly	DF-49024	Exclusive for RJ-901 series	
	T fence A0 assembly	DF-49025	Exclusive for RJ-900 series	
	T fence spring assembly	DF-49026		
	Fence guide assembly	DF-49027		
	Pressure arm assembly	DF-49052		
	Pressure roller assembly	DF-49053		
	Pressure roller shaft assembly	DF-49054		
	Pressure spring assembly	DF-49055		
	Tube guide A1 assembly	DF-49039	Exclusive for RJ-901 series	
	Tube guide A0 assembly	DF-49040	Exclusive for RJ-900 series	
	Steel bearer A1 assembly	DF-49042	Exclusive for RJ-901 series	
	Steel bearer A0 assembly	DF-49043	Exclusive for RJ-900 series	
	CR cable A1 assembly	DF49015	Exclusive for RJ-901 series	
	CR cable A0 assembly	DF49016	Exclusive for RJ-900 series	
	Ink tube 1 A1 assembly	DF-49032	Exclusive for RJ-901 series	
	Ink tube 1 A0 assembly	DF-49034	Exclusive for RJ-900 series	
	Tube clamp assembly	DF-49041		
	Ink tube 2 A1 assembly	DF-49033	Exclusive for RJ-901 series	
	Ink tube 2 A0 assembly	DF-49035	Exclusive for RJ-900 series	
	Carriage section	CR board assembly	DF-48976	

Table 10-1 Maintenance Part List

Section name	Part name	Part number	Remarks
	Print head assembly	DF-49029	
	Head cable assembly	DF-49017	
	Damper assembly	DF-42229	
	Cutter solenoid assembly	DF-42234	
	Solenoid spring assembly	DF-49062	
	Cutter spring	DF-44025	
	CR_ENC assembly	DF-48986	
	P_EDGE assembly	DF-48983	
	Head fixing material	DF-49068	
	Solenoid terminal assembly	DF-49003	
	PG origin sensor terminal assembly	DF-49001	
	Head FG assembly	DF-49018	
	Head tube A assembly	DF-49036	
	Head tube B assembly	DF-49037	
	Tube clamp	DF-49041	
Carriage section	Carriage assembly	DF-49064	
	Roller arm assembly	DF-49065	
IH section	Ink sensor K assembly	DF-49007	
	Ink sensor C assembly	DF-49008	
	Ink sensor M assembly	DF-49009	
	Ink sensor Y assembly	DF-49010	
	Cartridge frame assembly	DF-40127	
	O-ring, large	DF-40488	
	O-ring, joint	DF-42267	
Frame section	Suction fan	DF-46328	
	Suction fan cable 1 assembly	DF-48994	
	Suction fan cable 2 assembly	DF-48995	
	Suction fan cable 3 assembly	DF-48996	

Table 10-1 Maintenance Part List

Section name	Part name	Part number	Remarks
	Suction fan cable 4 assembly	DF-48997	
	Lock arm assembly	DF-49059	
	Lock arm spring assembly	DF-49060	
Media guide section	P_REAR sensor assembly	DF-48982	
Maintenance section	Waste fluid sensor cable assembly	DF-48987	
	Waste fluid sensor cable 2 assembly	DF-48988	
	Wiper origin cable assembly	DF-49002	
	Pump cap assembly	DF-49030	
	Flushing tray assembly	DF-49038	
	Pump motor cable assembly	DF-48993	
	Cleaner head assembly	DF-49031	
Accessory assembly	Power cable assembly	DF-47788	-
Others	A0 leg assembly	DF-49069	Exclusive for RJ-900 series
	Caster with a lock assembly	DF-49070	
	Free caster assembly	DF-49071	
	Basket cloth A1 assembly	DF-49072	Exclusive for RJ-901 series
	Basket cloth A0 assembly	DF-49073	Exclusive for RJ-900 series
	Stay cap assembly	DF-49074	
	Arm holder assembly	DF-49075	
	Book holder assembly	DF-49076	
	Basket arm assembly	DF-49077	
	Basket stay A1 assembly	DF-49078	Exclusive for RJ-901 series
	Basket stay A0 assembly	DF-49079	Exclusive for RJ-900 series
	Inshulock tie (200M)	DF-42281	
	K1 tie (100MM)	DF-42280	
	RoHS adaptation kit	DF-49601	

10.4 Jigs and Tools

This section provides lists of jigs and tools required for service operations.

10.4.1 Required Tools

(1) Tools for Part Replacement

Table 10-2 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	
5	Longnose plier	Generic product	
6	Tweezers	Generic product	
7	Hex wrench (opposite side: 6mm)	Optional stand accessory (Generic product)	Required only when disassembling legs
8	Head washer jig assembly	JD-30410	- Including optional rubber bush, mini fitting - Required four sets per product
9	Rubber bush	JD-42052	Consumable (To be replaced every 20 times)
10	Mini-fitting	JD-42053/Generic product	Manufacturer: Iuchi Seieidou
11	Shipping liquid S46 (C)	JD-42263	Volume: 18 liters

(2) Tools for Adjustment

Table 10-3 Tools for Adjustment

No.	Name	Part number	Remarks
1	Personal computer	Generic product	
2	Tension gauge	Generic product	Max. 10,000gf (100N) for measurement
3	Tension gauge	Generic product	Max. 4,000gf (40N) for measurement
4	A4 matte film	"Dia mat super A4" manufactured by Kimoto Co.,Ltd	Used for media sensor adjustment (P_REAR sensor and P_EDGE sensor)
5	Coated paper	Exclusive use media	For plot quality adjustment
6	Straight scale (1000mm)	Generic product	

Table 10-3 Tools for Adjustment (Continued)

No.	Name	Part number	Remarks
7	Jig cutter holder	JD-42715	
8	PG height check tool	JD-42624	
9	Tension base B	JD-42618	
10	Tension base A	JD-30693	
11	Rounded spring type tension gauge	JD-42622	
12	Tension adjusting screw	JD-42620	
13	Tension fixing screw	JD-42619	
14	O-ring A0040G	JD-42621	
15	Pan-head machine screw M4 x 12 (former JIS)	JD-42623	
16	Tension arm	JD-30692	
17	PF encoder adjusting jig	JD-42632	

10.4.2 Required Screws

Table 10-4 Required Screws

No	Name
1	Pan-head machine screw M2 x 4
2	Pan-head machine screw and flat washer M3 x 5
3	Binding head machine screw M3 x 12, Ni-3
4	Tapping screw M4 x 6, S tight cup
5	Tapping screw M4 x 8, S tight cup
6	P tight binding screw M4 x 10, Ni-3
7	Tapping screw M4 x 12, P tight binding (black)
8	P tight cup screw M3 x 6, Ni-3
9	Pan-head machine screw M4 x 30
10	Pan-head screw with spring washer and flat washer M3 x 6
11	Pan-head screw with spring washer and flat washer (polished) M3 x 20
12	Pan-head screw with spring washer and flat washer (polished) M4 x 6
13	Cup screw M3 x 6, Zn-CM2

Table 10-4 Required Screws(Continued)

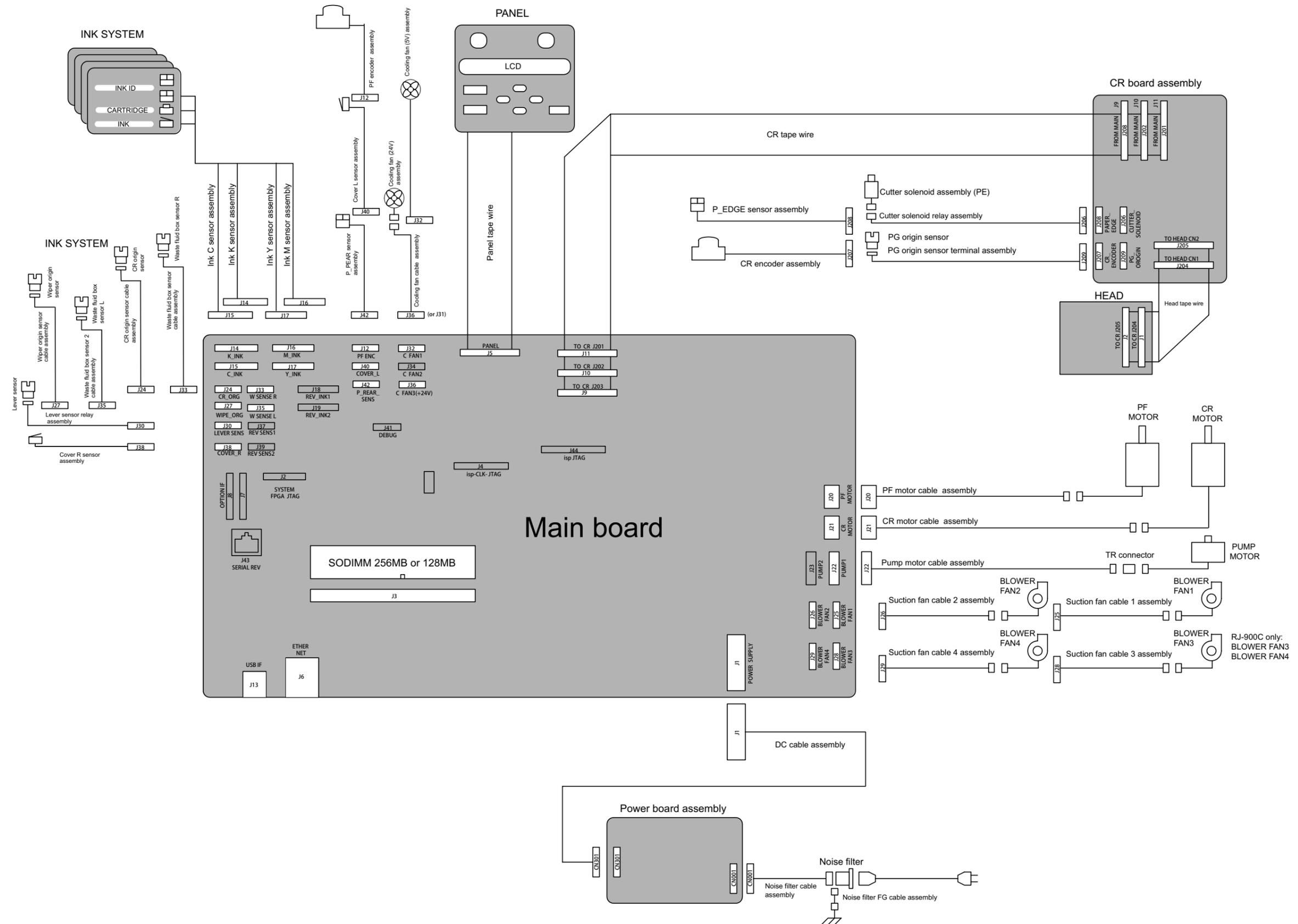
No	Name
14	Countersunk head screw, Zn-CM2
15	Pan-head screw with spring washer and flat washer (polished) M2 x 6, Ni-3
16	Pan-head screw with spring washer and flat washer M3 x 8
17	Pan-head screw with spring washer and flat washer M4 x 8
18	Tapping screw M3 x 8, P tight cup
19	Cup screw M4 x 8, Ni-3
20	Tapping screw M3 x 6, S tight cup
21	Tapping screw M4 x 16, S tight cup
22	Pan-head screw with spring washer and flat washer M3 x 8, Ni-3
23	Binding head machine screw M3 x 5, Ni-3bk
24	S tight cup M3 x 6, Ni-3
25	Tapping screw M3 x 8, S tight cup
26	Joint screw M6
27	Joint screw M7
28	S tight binding screw M2 x 8, Zn-CM2
29	Tapping screw M3 x 10, S tight cup
30	Pan-head machine screw M4 x 5, Ni-3
31	Pan-head machine screw M4 x 8
32	Pan-head screw with flat washer (polished) M4 x 20
33	Pan-head screw with spring washer and flat washer (polished) M4 x 40
34	Cup screw M2 x 6, Ni-3
35	Hexagon socket head screw with spring washer and flat washer M3 x 6, Ni-3

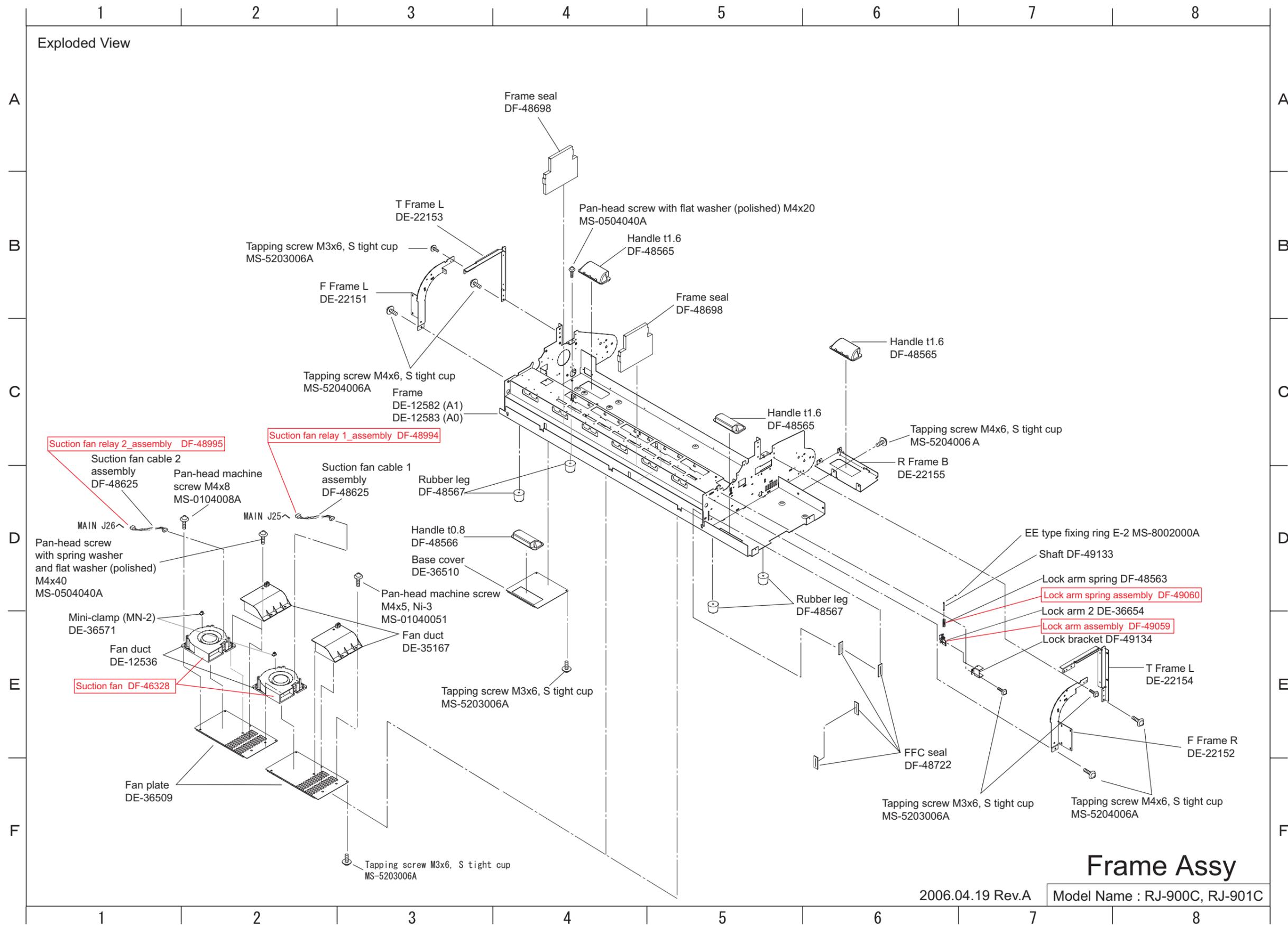
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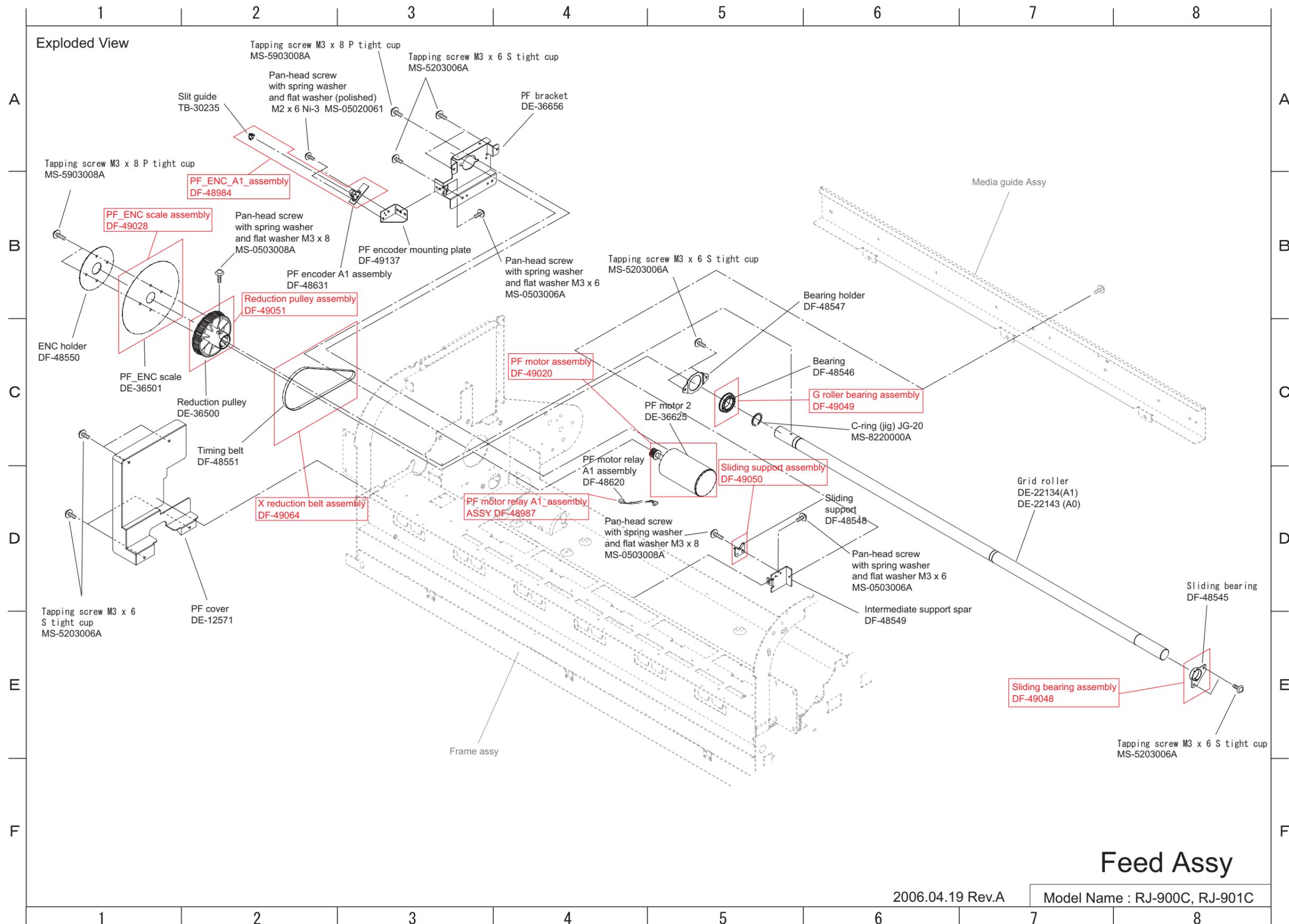
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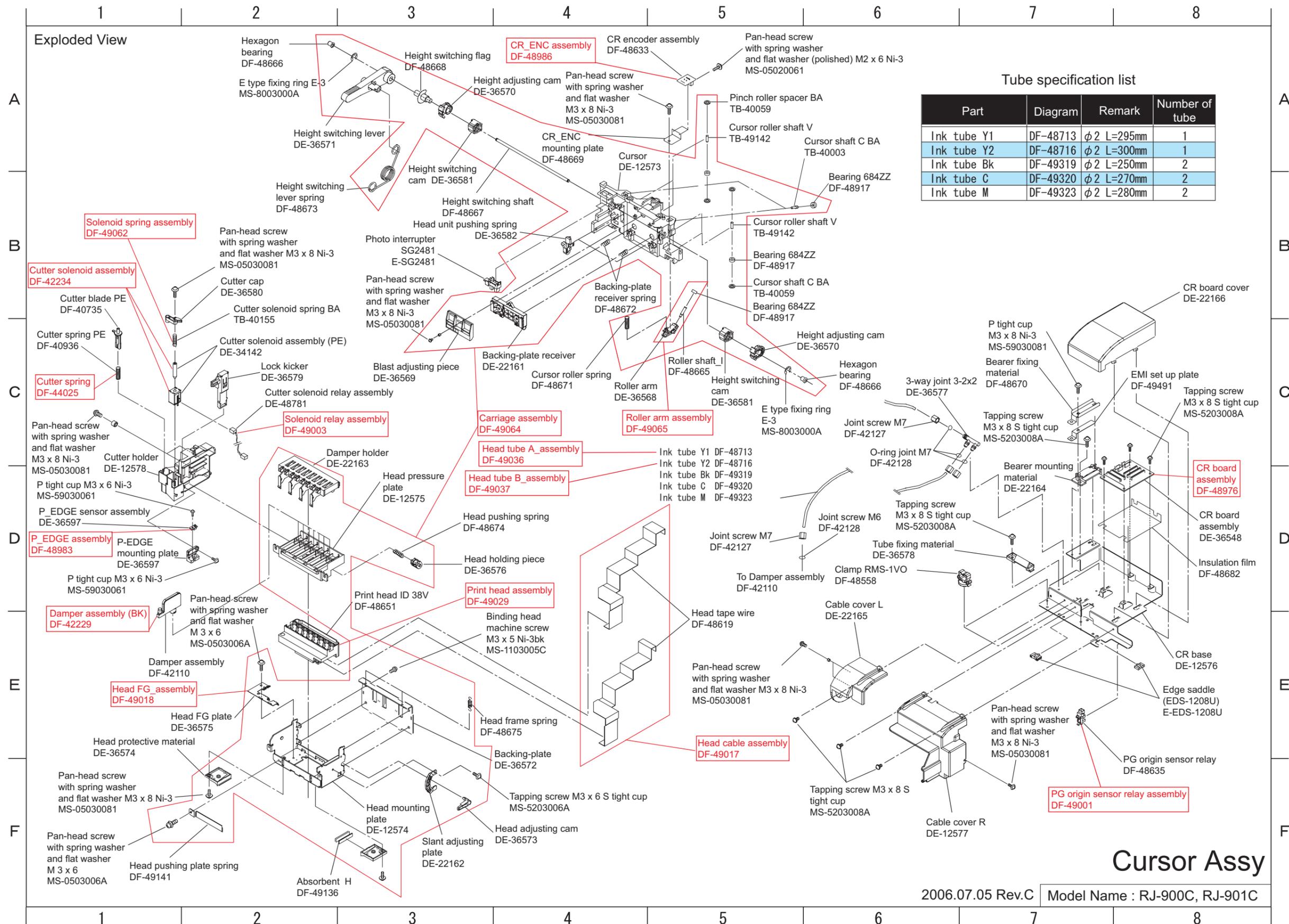
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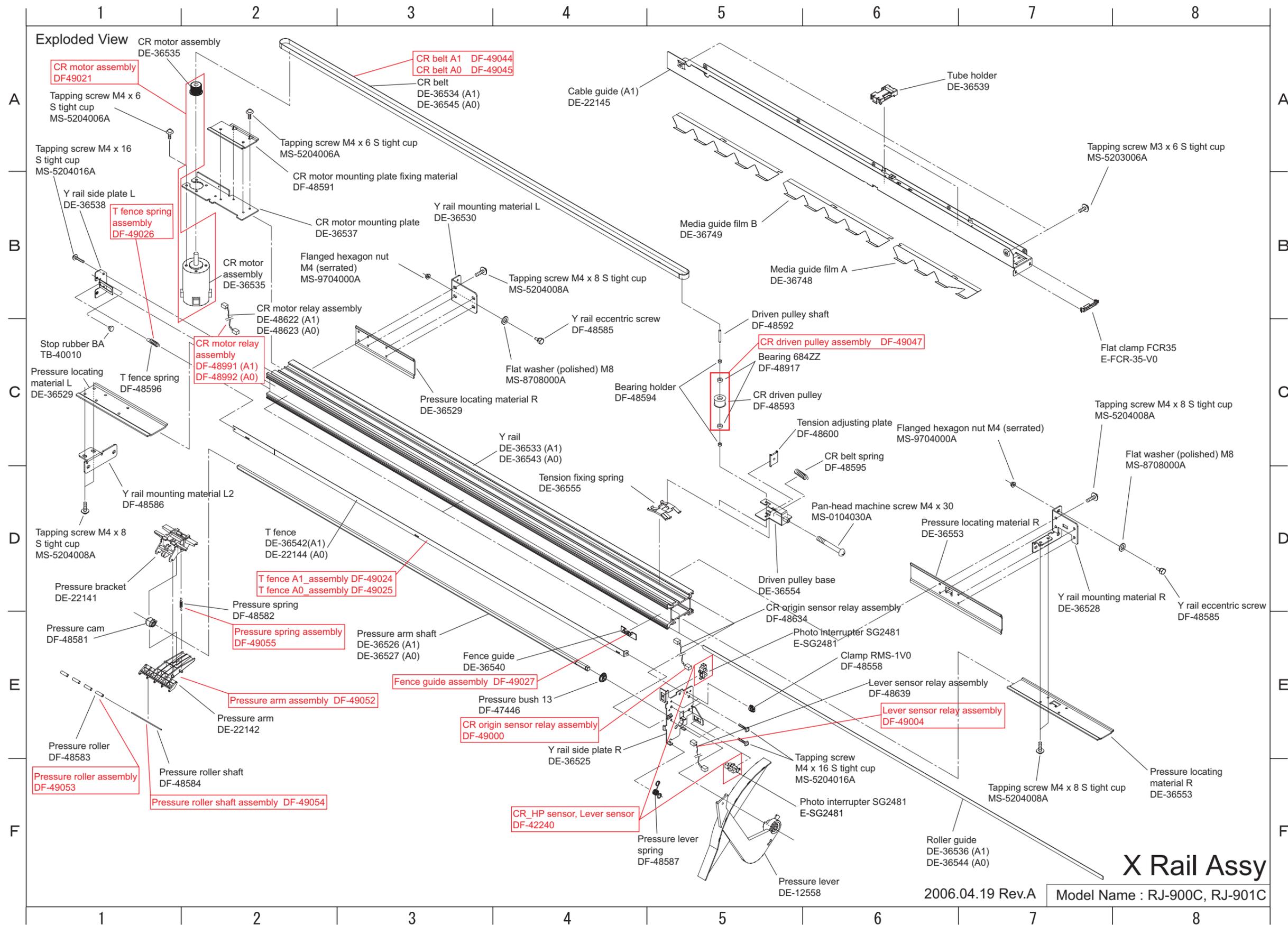
 [Separate sheet “Exploded View” p.2-p.10](#)

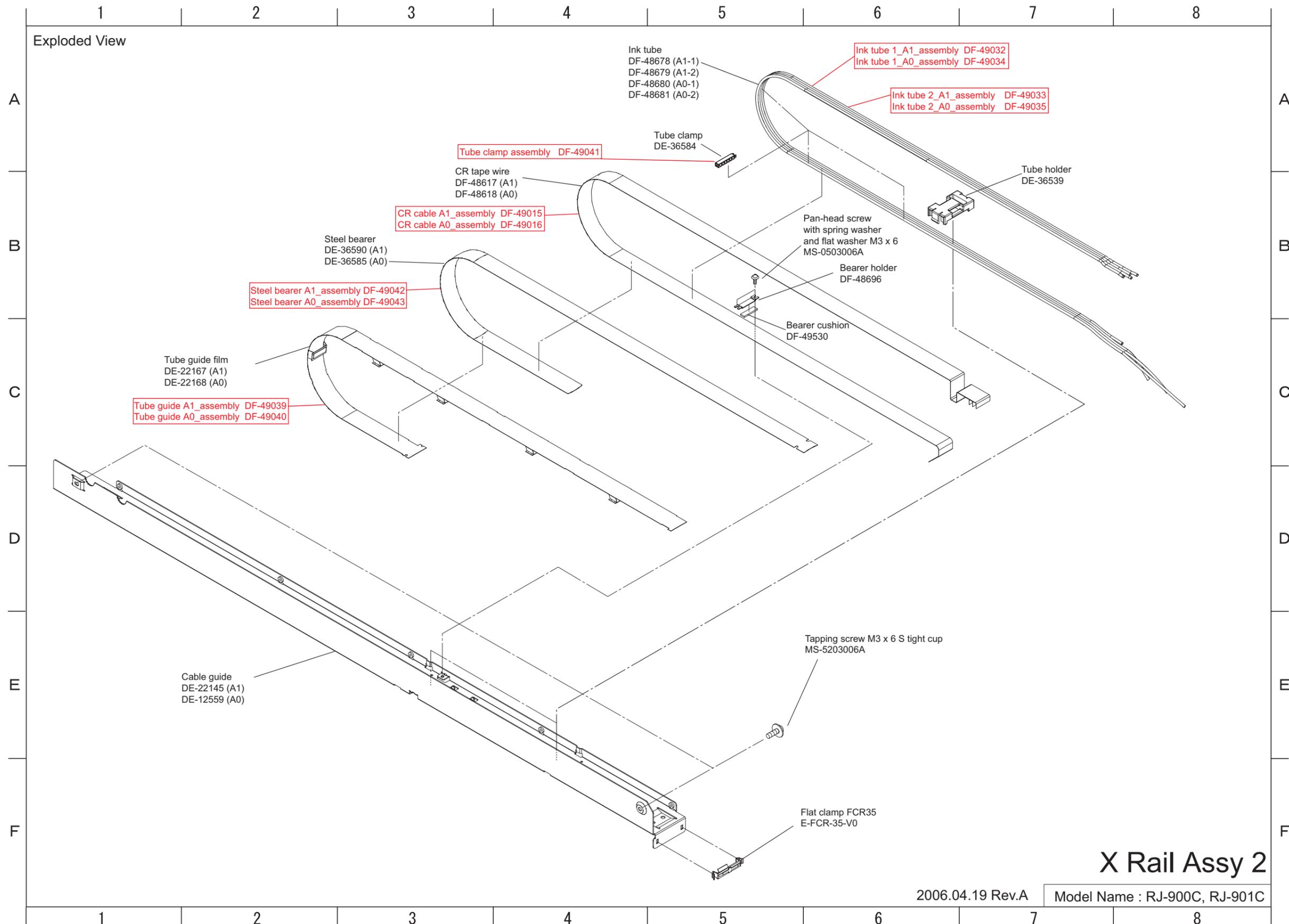


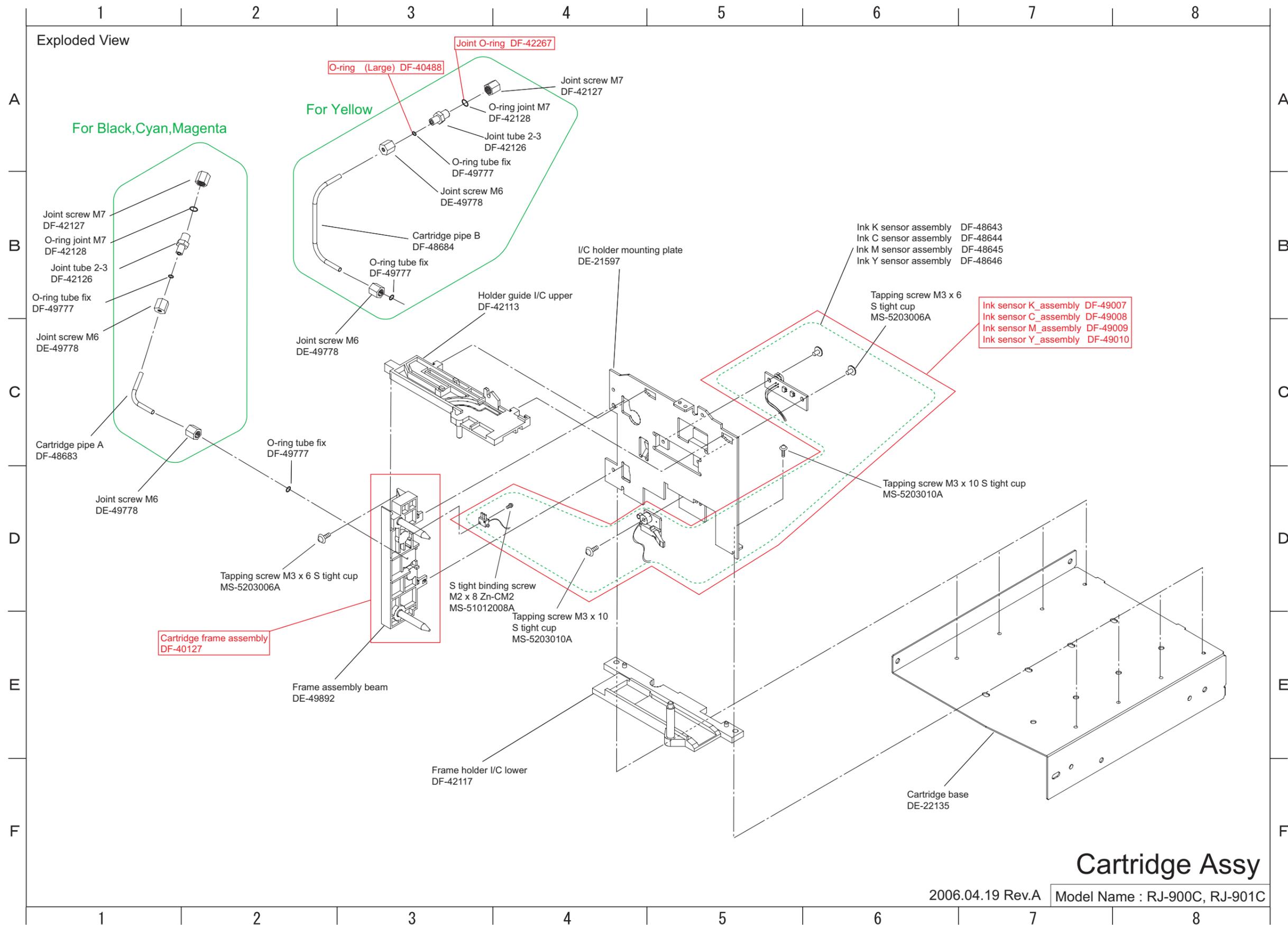






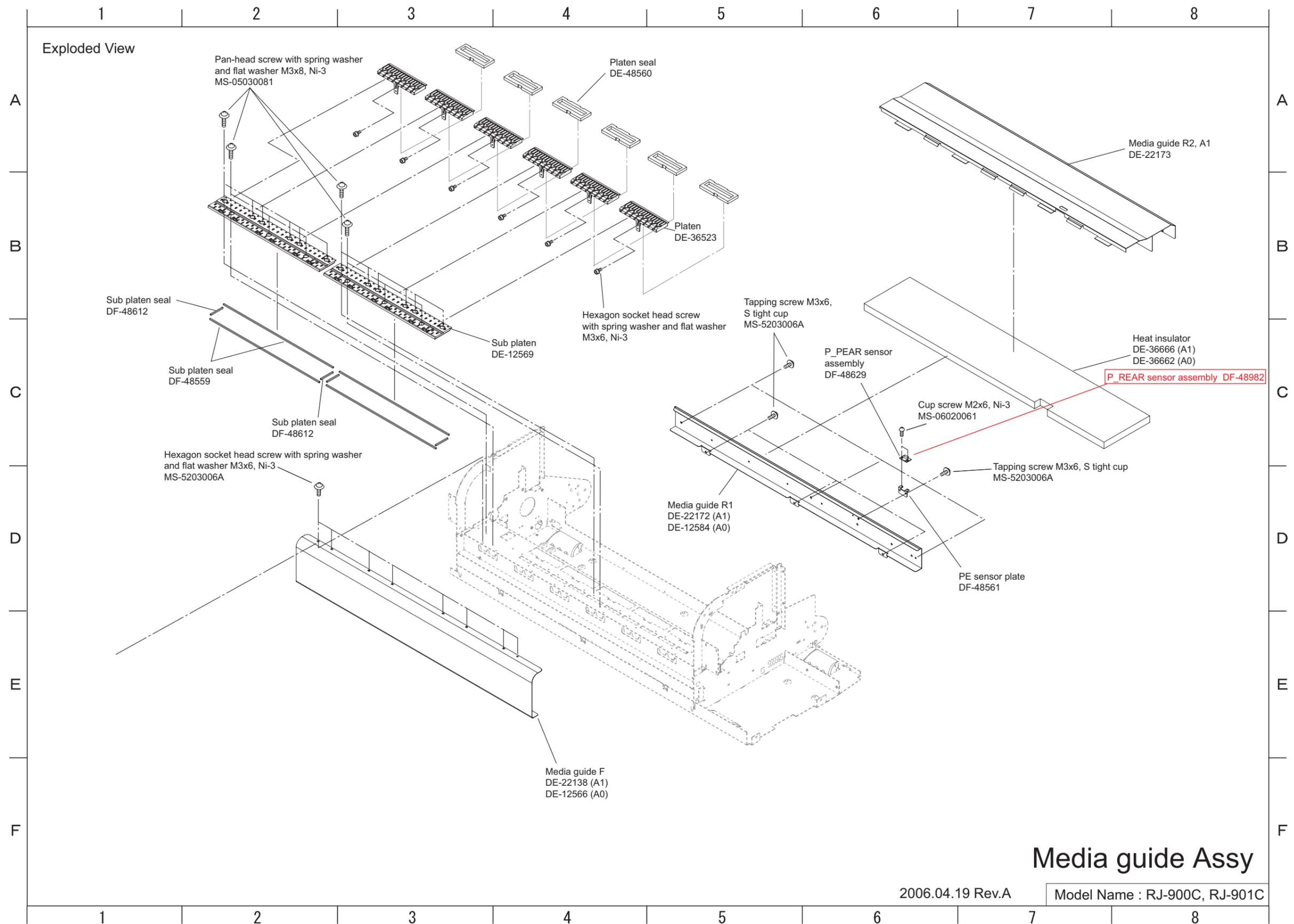


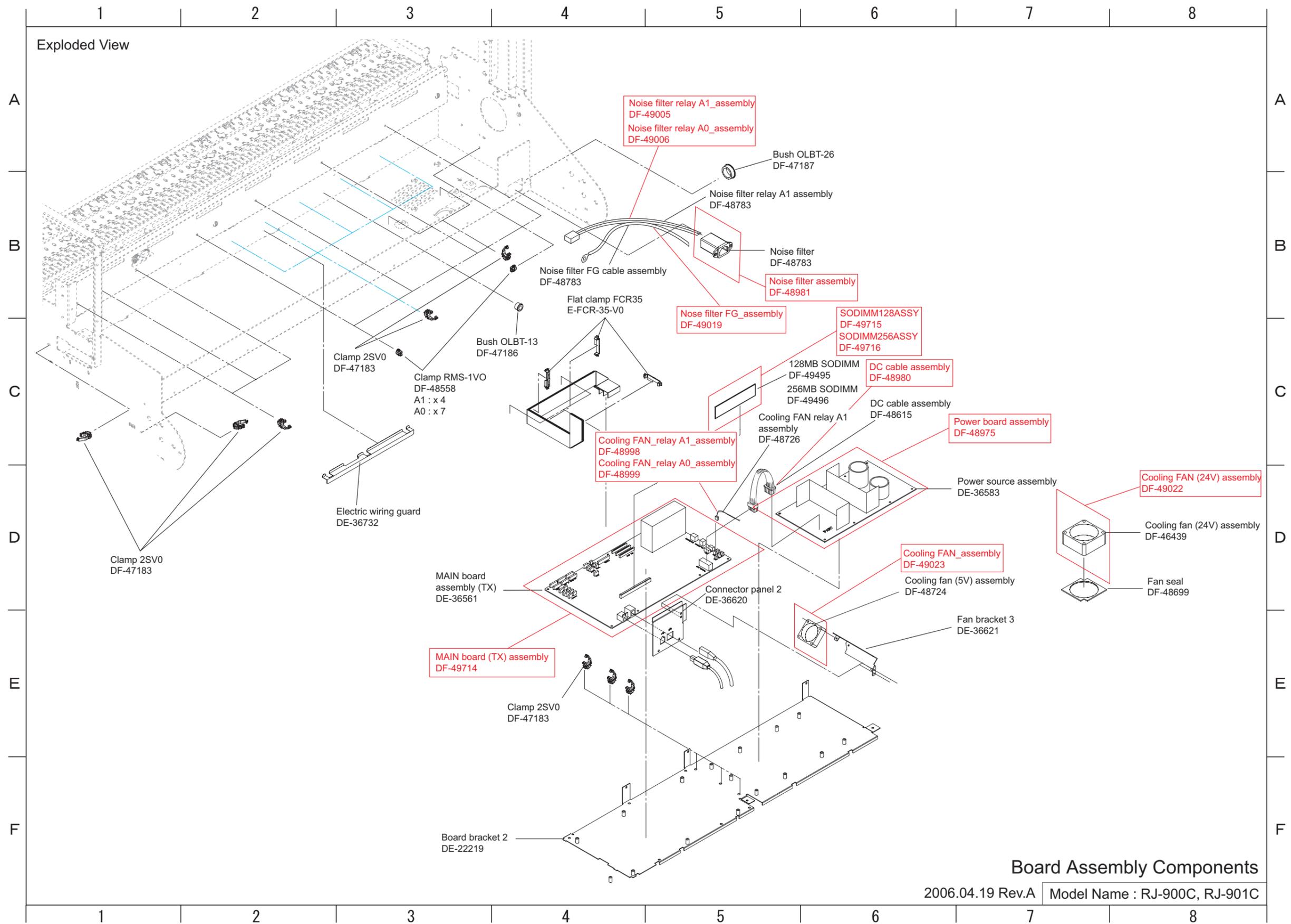


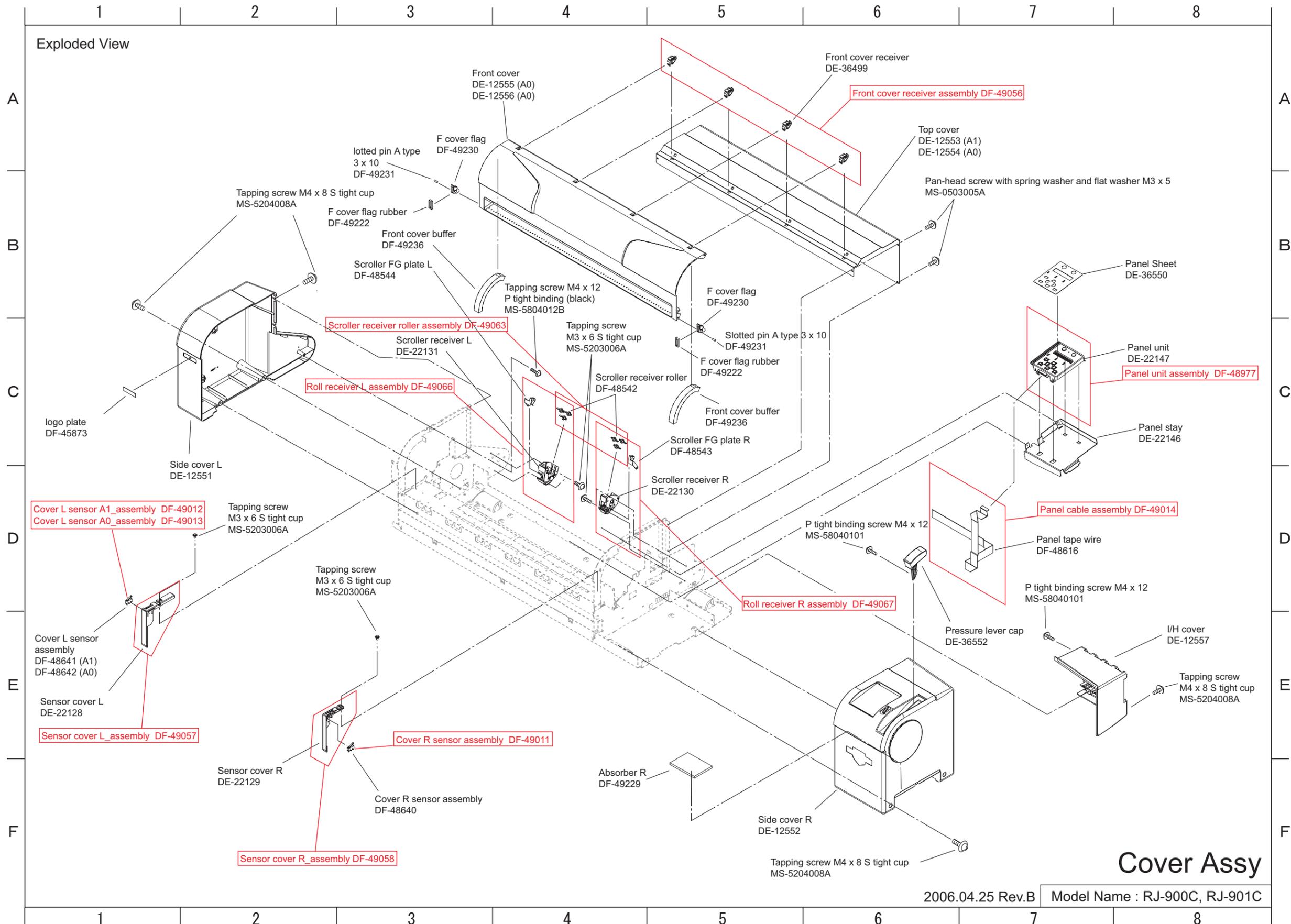


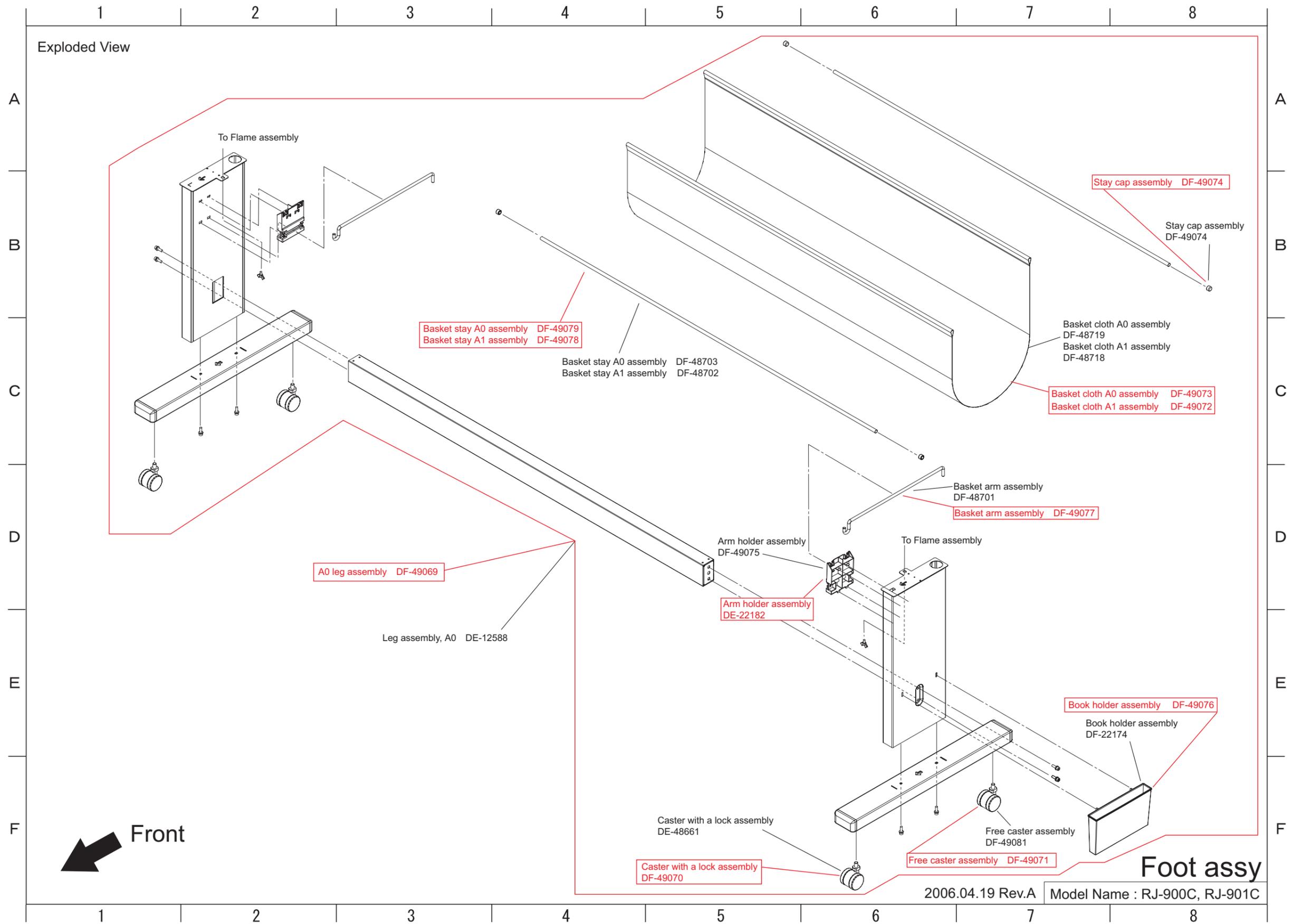
Cartridge Assy

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