Mimaki

JV33-160
JV33-130

MAINTENANCE MANUAL

Revision 1.1
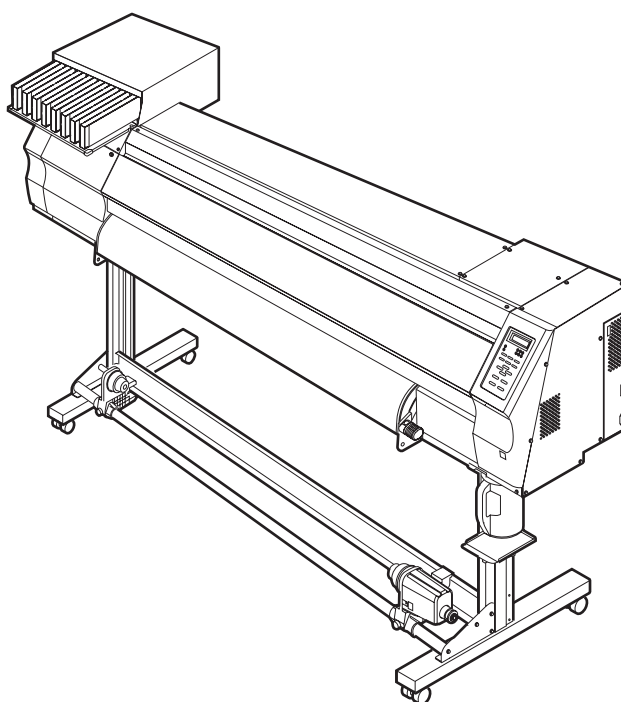
MAINTENANCE MANUAL

D500346-11

About this Maintenance Manual

This manual covers the instructions and useful information to be given to the service personnel on maintenance of the color inkjet printer JV33-130/160. Perform maintenance work according to the instructions given in this manual and the related documents listed below.

Constitution

This manual consists of the following chapters:

CHAPTER 1 Outline of Maintenance
Describes the specifications and other information of the printer, including precautions to be taken in maintenance work.

CHAPTER 2 Operation Principle and Functions
Explains the operation of each unit, and describes the functions and setting items of the printer.

CHAPTER 3 Overhaul / Adjustment
Describes procedures for removal and reinstallation of major parts.
Adjusting or testing methods, or mechanical adjusting methods using jigs and tools are also described.

CHAPTER 4 Troubleshooting
Describes how to determine the cause of trouble and how to repair the printer.

CHAPTER 5 Explanation of Electrical Parts
Describes information about PCBs and electrical parts.

Related Documents

The following documents relate to JV33-130/160. Refer to them whenever necessary.
• OPERATION MANUAL (Packed with main unit)
• MECHANICAL DRAWING
• SETUP GUIDE (for Service Engineers)

Safety Symbols

Symbols

The following symbols are used in this manual. Understand the symbols, and be sure to observe the instructions.

In text	Name of symbol	Meaning
	"WARNING" mark	Failure to observe the instructions given with this symbol can result in death or serious injuries to personnel.
	"CAUTION" mark	Failure to observe the instructions given with this symbol can result in injuries to personnel or damage to property.
	"IMPORTANT" mark	Important notes on maintenance work are given with this symbol. Understand the instructions thoroughly, and perform maintenance work properly.
	"Tips" mark	Useful information for maintenance work is given with this symbol.
(P.1-10)	Reference page	Related description is given on the page shown by this symbol. Be sure to refer to the specified page.

Caution Label

A caution label is stuck on the printer as shown below. Check the label before work. If it is illegible due to stains or coming off, replace it with a new one after getting user's consent.

☐ Locations of labels

The front cover is open.

Those are put on the right and left media holders.

~ Front ~

~ Rear ~

❶ **(Reorder: M901549)**

⚠ 注 意	⚠ 注 意	⚠ CAUTION	⚠ ACHTUNG	⚠ ATTENTION
滚轮转动时, 请勿将手插入前面外盖的内部。	キャリッジ動作中は、フロントカバーの中に指を入れないでください。	-MOVING CARRIAGE- Do not put fingers inside this area	-Beweglicher Wagen- Finger nicht in diesen Bereich bringen.	-CHARIOT MOBILE- Ne pas mettre de doigts dans cette zone.

❷ **(Reorder: M903239)**

❸ **(Reorder: M903330)**

❹ **(Reorder: M903405)**

❺ **(Reorder: M904810)**

Contents

Outline of Maintenance

Operation Principle and Functions

Overhaul / Adjustment

Troubleshooting

Explanation of Electrical Parts

CHAPTER 1 Outline of Maintenance

Contents

1-1. Precautions in Maintenance

1-1-1. Notes on repair

Warning

- ■Be sure to turn the power off and unplug the power cable from the main body inlet before starting work.
- ■To prevent the ink from getting into your eyes, be sure to wear safety goggles and gloves when cleaning the print head or replacing the S pump L assembly or if the ink is anticipated to scatter. If the ink sticks to your hand, the skin may be get rough and dry.
- ■Danger of explosion if battery is incorrectly replaced.
  Replace only with the same or equivalent type recommended by the manufacture.
  Dispose of used batteries according to the manufacturer's instructions.

Caution

- ■Take sufficient care so that leaked ink does not adhere to other parts. Ink droplets attached to FPCs or connectors may cause shortcircuit or a bad electric contact at inserting/removing a damper, thereby the ink discharge trouble or breakage of head/PCB may occur.
- ■Properly and carefully connect the FFC cable of the ink slider PCB from the main PCB according to the connector number. Failure to do so may cause a breakage of the PCB because of short-circuit of the power supply.
- ■Pay sufficient attention on arrangement of 2 FFC cables connecting the ink slider PCB to the head. Wrong arrangement of the FFC cables causes short-circuit of the power supply.
- ■Do not turn off the power during firmware upgrading. Doing so may disable restarting.

Observe the following precautions in maintenance work.

- ■ Be sure to fully understand precautions given in "For safe operation" in the operation manual for the JV33 series.
- ■ Some error conditions observed may be due to misoperation. First judge whether or not the error condition is caused by misoperation.
- ■ Provide adequate space for the maintenance work.
- ■ When performing tests with the electrical circuit box open, be careful not to receive an electric shock from any live part and not to drop screws or any other parts into the circuit box.
- ■ Take care to avoid insufficient insertion or skewed insertion of any connector or FFC.
- ■ Do not touch the FFC directly. Doing so may cause contact failure.
- ■ Move the lever on the FFC connector up or down gently to release or lock the connector, since the lever breaks easily.
- ■ In the case where it is necessary to conduct maintenance works with the power on, carefully observe the movement of the head. (Keep any part of your body away from the moving parts.)
- ■ Shift the media (in the X-direction) and the head (in the Y-direction) using the jog keys. If it is necessary to shift the paper and the head by hand with the power turned off, exercise care to shift them slowly.

■ Do not tilt the printer with the ink cartridges filled with ink. Doing so can give rise to leakage of ink. In principle, the following procedures should be taken in prior to the transportation and the transportation should be conducted using exclusive packaging material.

1. Remove the ink from the tube with MAINTENANCE in [HD.MAINTENANCE]-[DISCHARGE&WASH] or [#ADJUST] - [HEAD WASH].

2. Remove the cleaner from the tube with MAINTENANCE in [HD.MAINTENANCE] - [MaintWashLiquid] (if this action is not performed in Step 1.)

3. Detach the waste ink tank.

4. Fix the head with the head stopper. (As for the detail, see Setup Guide)

■ If the main unit is removed from the legs and placed directly on the floor, be careful of the following points.

• Unplug the take-up unit power cord.

• Remove the ink waste tank and the fitting bracket.
(Plug the tube up with a cloth to prevent ink from spilling over.)

1-1-2. Preliminary checks

Before starting work, make sure that the following conditions are all met.

☐ The following conditions for the power supply system are all met:

• The power supply voltage must be within the specification limits.

• The printer must be grounded properly.

• The power cable must be free from damage, broken wire, etc. Many cables must not be connected to one outlet.

• Connected to an electrical outlet with a removable plug in cases where smoke or flame has been emitted from the socket.

☐ Make sure that the printer is not located under any of the following conditions:

• In a place where the printer is exposed to direct sunlight.

• On an inclined surface.

• In an environment of too high or low temperature, or too high or low humidity, or in a place where temperature or humidity varies significantly.

• In a place where vibration occurs.

• In a place where the printer is exposed to direct air flow from an air conditioner or the like.

• Around a place where flame is used.

• In a dusty atmosphere.

• Around a place where strong electromagnetic waves are generated.

☐ The media (sheets) to be used must conform to the specifications.

1-2.   Tools required for maintenance work

The tables below show the tools and measuring instruments required for maintenance work.

1-2-1.   Tools to be used at disassembly and reassembly

Name	Remarks

Phillips screwdriver   Type 1
                                            Type 2
                                            Type 2
	For M2
	For M3 to 5 (L=260 or more)
	for M3 to 5

Slotted screwdriver	Long side 2.5 mm for removing E-rings
Spanner (Box wrench)	Width across flats: 5 mm Width across flats: 5.5 mm Width across flats: 7 mm
Hexagon wrench	1.5mm for M3 SSWP 2.0mm for M4 SSWP 2.5mm for M3 cap bolts 5.0mm for M6 cap bolts 6.0mm for M8 cap bolts
Spanner	Width across flats: 5.0 mm Width across flats: 5.5 mm for M3 nuts and hexagon stud Width across flats: 7.0 mm for M4 nuts
Tweezers	To prevent the cable from being pulled when disconnecting the connector.
Long-nose pliers	
Nippers	
Soldering iron, Solder	
Scale	150, 500 mm
Loupe	About 50x to 60x magnification
Protection glasses	
Gloves	To keep hands clean, and for safety.
Adhesive agent	LOCKTITE242 (for locking screws)
Insulation lock	L=150 or less (UL-approved product)

1-2-2.   Adjustment tools

Name	Code	Remarks
Trimmer adjustment screwdriver		For adjustment of trimmers on the power supply PCB.
Tester		
Bar type tension gauge		500 g
Ink line airtight tester	OPT-J0094	

1-3. Specifications of the main unit

☐ Basic Specifications of the Unit

Item		Specifications		Notice
		JV33-130	JV33-160	
Head		On demand piezoelectric head (IH47V*1 head stagger array)		Solvent capable head
Printing resolution		540, 720, 1440 dpi		Variable dot capable
Print mode (Scan x Feed)		720 x 540dpi VD: 540 or 720 x 720dpi VD : 540 x 900dpi VD : 540 or 720 x 1080dpi VD : 720 x 1440dpi VD : 1440 x 1440dpi :		In the following case, fewer nozzles are used for printing due to memory restrictions: 4-color : 1440 x 1440dpiVD 6-color : 720 x 1440dpiVD 1440 x 1440dpiALL 6-color + white : 540 x 1080dpi VD 720 x 1080dpi VD 720 x 1440dpi VD 1440 x 1440dpi ALL
Ink	6-color + white loading (SS21 ink only)	K • M • C • Y • Lc • Lm • W • W		Total 8 IC chip mounted cartridges
	6-color loading	K • M • C • Y • Lc • Lm/K • M • BI • Y • LBI • Lm		
	4-color loading	K • M • C • Y/K • M • BI • Y		
Ink supply		(4-color only)Supplying by 2 cartridges with toggle switching (replacement of cartridges at printing is allowed) Ink end is detected with the cartridge end board detection method.		
Ink capacity	6-color + white loading	White ;2 x 220 cc cartridges Except for white : 1 x 440 cc cartridge of each color		
	6-color loading	1 cartridges of 440cc for each color. 440cc/1color		At 6-color, 880cc for only CM
	4-color loading	2 cartridges of 440cc for each color. 880cc/1 color		
Available media		FF, Tarpaulin, Polyvinyl chloride film (However, drying of the media must be allowed in the specified print mode.)		Print quality confirmation media is MIMAKI genuine.
Maximum drawing range	At standard scan	1361 mm	1610 mm	When left and right drawing margin is set to the minimum.
Media specification	Maximum width	1371 mm	1620 mm	
	Minimum width	210 mm		
	Thickness	Less than 1.0 mm		
	Roll O.D.	Less than ø180 mm		
	Roll weight	Less than 25 kg (In the range that feeding error caused by bending with its own weight when both ends of the roll are held does not occur.)		
	Tube I.D.	2 inches, 3 inches		
	Drawing face	Outside (over wrap)		
	End of winding	Taping or weak pasting to the paper tube		
	Maximum winding O.D.	ø180 mm or less		
Print margin	Roll	Left and Right: 15 mm (default value) Top : 40.0 mm Bottom: 0.0 mm		Margin of left and right whose tolerance excluding meandering of media is ± 2mm can be changed. Minimun 5mm
	Leaf	Left and Right : 15 mm (default value) Top : 40.0 mm Bottom : 98.5 mm		
Distance accuracy	Precision	± 0.3 mm or ± 0.3% of specified distance, whichever larger		Expansion and contraction of test media, photo paper or gloss paper is excluded. Meandering just after the setting is excluded.
	Repeatability	± 0.2 mm or ± 0.1% of specified distance, whichever larger		

Item		Specifications		Notice
		JV33-130	JV33-160	
Perpendicularity		± 0.5 mm/1000 mm		
Media skew		5 mm or less /10 m		
Print gap		2.0 mm or 3.0 mm (from the platen surface). 2 level adjustment.		
Media heater		PRE/PRINT/AFTER (3-system independent control)		
Media cutting		Cutting in the Y direction with a tool on the head Cutting accuracy (step height) less than 0.5mm		Cutting tool is a consumable
Waste ink tank		Bottle type (2000cc)		
Interface	Standard equipment	USB2.0		*Cables are maintenance supplies.
Command		MRL-III		
Noise	At standby	Less than 58dB (FAST-A, back and forth and around 1m)		
	Continuous	Less than 65dB		
	Temporal	Less than 70dB		
Compatible specification		VCCI Class A FCC Class A UL 60950 CE Marking (EMC Directive, Low Voltage Directive) CB Report RoHS Compliant		
Power source specifications		Single-phase AC 100V ~ 120V ± 10%, 220V ~ 240V ± 10% Lower than 15A 50/60Hz ± 1Hz		With the sleep function
Power consumption		Lower than 1440VA		Main body including heater Excluding optional devices
Environment	Operating temperature limit	20 °C~35 °C		Ink discharge stability declines in an environment out of the range listed in the left.
	Relative humidity	35~65%Rh (non condensing)		
	Accuracy assurance temperature	20 °C~25 °C		
	Temperature gradient	Less than ± 10 °C/h		
	Dust	Equivalent to office environment		
Weight	Main body	Less than 145 kg	Less than 160 kg	
Outside dimension	(W)	2289 mm	2538 mm	
	(D)	739 mm	739 mm	
	(H)	1424 mm	1424 mm	

CHAPTER 2 Operation Principle and Functions

Contents

2-1. Operation Principle

2-1-1. Sequence at Power-on

The following is the sequence after power-on.

No.	Item	Process content
1	Initial setting of CPU and H/W	
2	BOOT display	
3	SD-RAM check	R/W check of SD-RAM When an error is detected, the system is brought down with displaying ERROR02 (MAIN RAM)
4	F-ROM check	Hashing check of F-ROM **\<At occurrence of hashing error\>** ■Occurrence in boot system area: The system is brought down with displaying ERROR01 (MAIN ROM). ■Occurrence in main system area: F/W update mode (See Special Key Function *(p. 2-38)*) starts.
5	Voltage check	Voltage check When an error is detected, the system is brought down with displaying ERROR03.
6	FPGA configuration	Configuration of PDC and HDC.
7	Device configuration decision	Checking of a head and memory
8	Version information display	Machine type name and main body F/W version are displayed. At a maintenance open, revision and PDC/HDC version are also displayed. Key input during the version information displaying starts special mode (See Special Key Function *(p. 2-38)*).
9	Parameter check	Parameter initialization at the first starting after F/W version-up. (The flowing parameters are initialized.) ■MAINTE. ■INKSYSTEM ■INKinfor. ■INKSEQUENCE ■INKTYPE ■SERVO ■TEST Checksum of parameter area is executed, ERROR04 (Flash ROM) is displayed and indicates that the system is down.
10	Initial operation	

2-1-2. Origin Point Detection

Detection of each original point of the device

\<Operation sequence at original point detection\>

No.	Item	Content	Notice
1	Wiper original point	Wiper original point detection (wiper motor drive) If the detection fails, the system is brought to down (ERROR46)	If an error occurs in each original point detection at maintenance open, inputting of **[ENTER]** causes retry operation. Also, FUNCTION features can be operated. (**[FUNCTION]** effective)
2	Y-original point *	Y-original point detection (Y-axis motor drive) If the detection fails, the system is brought to down.(ERROR51)	
3	Cap	Returning the carriage to the Y-original point.	

* Retry operation is not conducted even at the Maintenance Open.

2-1-3.   Set Up

Machine Configuration

The following required resources are checked.

<Model determination>

No.	Item	Content
1	HDC connection determination	When configuration of HDC is not completed, a HDC error (ERROR09) is displayed and the system is brought to down.
2	Head connection determination	An effective head connection is determined.
3	Head memory check	Determines the head connection.
4	SDRAM check	If size of SDRAM is 0, ERROR203 (SD-RAM size) is displayed and the system is brought to down.

<Required SDRAM size>
128 MB

2-1-4.   Media Detection

Media width and media thickness are detected.

<Media detection operation sequence>

No.	Item	Content	Notice
1	Media right end detection	After moving the carriage to the media detection position, media right end is detected. (media sensor)	Up the lever to stop the detection.
2	Media left end detection	*1.* After moving the carriage, media left end is detected. (media sensor) *2.* After measuring the distance between the left end and the right end, media width is calculated (linear encoder) *** During carriage moving of the media width detection, the linear encoder is tested.** **If an error is detected, drawing is disabled. (ERROR8)** [ERROR8 detailed information] DIRECTION: ± of counter of the linear encoder is wrong COUNT: Count number of the linear encoder is error SENSOR: Count failure *** When the media width can not be detected, ERROR50**. (Up the lever to release) Returning the carriage to the Y-original point and cap ON. * Distance accuracy adjusting is automatically executed in the media detection.	Up the lever to stop the detection.
3	Media length inputting	When "MEDIA RESIDUAL" of the MAINTENANCE function is set to ON and media return end detection failed, input media length. Set value: 1 ~ 500m (unit:1m)	

2-1-5.   Sequence of Maintenance Function

☐ CARRIDGE OUT

<CARRIDGE OUT operation sequence>

No.	Item	Content	Notice
1	Start	*1.* Cap OFF *2.* After moving the carriage to the maintenance position, wiper-ON and servo motor-OFF.	
2	Maintenance	No action during the maintenance. (Waiting for inputting **[ENTER]** of maintenance end.)	
3	End	Wiper-OFF and after moving the carriage, initial operation (origin point detection)	

Note : In order to avoid dehydration of nozzle surface and inside of the cap, a warning beep is made every 30 seconds.
(Only at maintenance closing)

☐ WIPER EXCHANGE

<WIPER EXCHANGE operation sequence>

No.	Item	Content	Notice
1	Start	*1.* Cap OFF *2.* After moving the carriage to the maintenance position, wiper-ON and servo motor-OFF.	
2	Maintenance 2	No action during the maintenance. (Waiting for inputting **[ENTER]** of maintenance end.)	
3	End	Wiper-OFF and after moving the carriage, initial operation (origin point detection)	

Note : After finishing, wiping execution number of times of running parameter is cleared.
In order to avoid dehydration of nozzle surface and inside of the cap, a warning beep is made every 30 seconds.
(Only at maintenance closing)

☐ NOZZLE WASH

<NOZZLE WASH operation sequence>

No.	Item	Operation content	Notice
1	Start	*1.* Cap OFF *2.* After moving the carriage to the maintenance position, wiper-ON and servo motor-OFF. *3.* Pump tube is locked.	
2	Maintenance (Wiper)	No action during the wiper cleaning. (Waiting for inputting **[ENTER]** of wiper cleaning end.)	
3	Maintenance (Nozzle wash)	*1.* Wiper OFF *2.* The pump tube is locked and a message of "Fill the liquid." is displayed. (Waiting for inputting of **[ENTER]**). *3.* Input "being left time". (Waiting for inputting **[ENTER]**) Set value: 1 ~ 99 min (time unit: 1 min) *4.* After moving the carriage and initial operation (original point detection), no action for designated time.	
4	Maintenance (End)	*1.* Execution of cleaning. *2.* End	

Note : In order to avoid dehydration of nozzle surface and inside of the cap, a warning beep is made every 30 seconds.
(Only at maintenance closing)

❑ **PUMP TUBE WASH**

Cleaning of ink discharge path. Operation sequence is as the following.

<PUMP TUBE WASH cleaning operation sequence>

No.	Item	Operation content	Notice
1	Start	*1.* Cap OFF *2.* Moving the carriage to the maintenance position, wiper ON, servo motor OFF.	
2	Maintenance (Nozzle wash)	The following operations are repeated until **[ENTER]** is input. *1.* Pump tube lock *2.* 10 seconds No action *3.* 5 seconds dry suction	Cleaner is injected into the cap when you press the **[FUNCTION]** key.
3	End	*1.* 20 seconds dry suction *2.* Execution of initial operation (original position detection)	

Note : In order to avoid dehydration of nozzle surface and inside of the cap, a warning beep is made every 30 seconds.
(Only at maintenance closing)

CR.MAINTENANCE

Execution of carriage maintenance (cleaning in the vicinity of head)

<CR.MAINTENANCE operation sequence>

No.	Item	Content	Notice
1	Start	*1.* Cap OFF *2.* Move he carriage to the maintenance position in the left end, servo motor OFF.	
2	Maintenance	No action during the maintenance. (Waiting for inputting **[ENTER]** of maintenance end.)	
3	End	Move the carriage, and execute initial operation (original position detection)	

Note : In order to avoid dehydration of nozzle surface and inside of the cap, a warning beep is made every 30 seconds.
(Only at maintenance closing)

HD.MAINTENANCE

The following maintenance items of head are executed.

❑ **FILL UP INK**

Select a head to fill ink

<FILL UP INK operation sequence>

No.	Item	Content	Notice
1	Start	When a waste ink tank warning occurs, a warning is displayed. As for the detail of "About the waste ink tank warning" *(p. 2-6)* .	
2	Filling	Open cartridge valve and drive ink suction motor. The operation is stopped when a warning is detected in ink cartridge during the filling.	Use a cartridge having smaller residual ink quantity. (4-color UISS only)
3	End	Stop the pump motor.	

❏ **DISCHARGE&WASH**

Ink in head, damper and tube is discharged to execute cleaning.

<DISCHARGE&WASH operation sequence>

No.	Item	Operation content	Notice
1	Ink discharging	*1.* Taking out cartridges (all slots) (Cartridge sensor monitoring) *2.* Discharging ink (Ink suction motor driving) As for the detail of "About the waste ink tank warning" *(p. 2-6)* .	Cartridge valve is closed.
2	Washing	*1.* Inserting washing solution cartridges (all slots) (Cartridge sensor monitoring*[1]) *2.* Cleaning inside of tube. (Opening cartridge valve, ink suction motor driving) As for the detail of "About the waste ink tank warning" *(p. 2-6)* . *3.* Head vibrating operation (Y-axis motor) is executed.	
3	Discharging of washing solution	*1.* Taking out washing solution cartridges (all slots). (Cartridge sensor monitoring) *2.* Discharging washing solution (ink suction pump motor driving) As for the detail of "About the waste ink tank warning" *(p. 2-6)* .	Cartridge valve is closed.
4	Repeating	3~4 are executed again.	
5	Operation selection	[▶] Re-Wash : No.3 →4 are executed again [◀] COMPLETED : (to next No.)	
6	Confirmation of maintenance washing solution discharge	[◀] No : to No.9 (End) [▶] DISCHARGE : (to next No.)	
7	Maintenance washing solution discharge	*See the next item, "Maintenance washing solution fill/discharge operation sequence"*	
8	End	(When cleaning is executed, the state is Not-filling at discharging ink.)	

*1 As an IC chip is not placed in a pre-fill up solution cartridge, it is recognized that IC chip read error means normal.

❏ **Washing solution/fill up/discharge**

Dedicated washing solution for PUMP TUBE WASH is filled.

<Washing solution filling operation sequence>

No.	Item	Operation content	Notice
1	Start	Washing solution suction (ink suction motor driving) If a warning arises in the washing solution cartridge, filling is not executed. As for the detail of "About the waste ink tank warning" *(p. 2-6)* .	Waste ink tank cleaning
2	Filling	*1.* Run the pump. *2.* Cartridge valve open. (until washing solution is filled in the wiper cleaning valve) *3.* Cartridge valve close. *4.* Pump stop.	

Note: At discharging
    1. Remove a cartridge
    2.Run the ink/suction pump, and eject the ink.
    At filling
    1. Set a cartridge
    2. Run the ink/suction pump, and fill with ink.

❏ **About the waste ink tank warning**

The amount of ink discharged is monitored by the counter in the firmware, and depending on the situation, before operations involving suction (cleaning, filling, and discharge), a prompt to replace the waste ink tank may be displayed.

When reached to near full:The options "CONTINUE" and "EXCHANGE" is displayed.

When reached to full:　　Only the option "EXCHANGE" is displayed.

■When "CONTINUE" is selected: The operation continues.

The warning is displayed again at the next suction operation.

(The counter value is not cleared.)

■When "EXCHANGE" is selected:Replace or empty the waste ink tank.

The operation continues.

(The counter value is cleared.)

When "!WASTE TANK" is displayed locally:

Displayed when the internal counter is at near full or higher. When it is displayed, sleep and regular operations (refresh, pump tube washing, cleaning) are not performed. When you cancel the warning message, be sure to replace the waste ink tank, then execute [MAINTENANCE] - [InkTankExchange] (clear internal counter).

2-1-6.　Ink System

Ink Supply Control

□ Ink filling method of JV33 is a suction system with roller pump, a pressure damper with a self sealing valve is used. Ink supply at drawing is a siphon supply. The sealing valve is opened by discharging pressure reduction to supply ink, and when the damper ink chamber is filled, the sealing valve is closed. The ink path pressure at carriage moving conveyed to the meniscus of head is eased by the sealing valve.

□ Longer consecutive drawing time than conventional products and replacement of cartridges during the drawing are allowed by toggle switching of 2 cartridges for 1 supply path (4-color only). Since there is 1 path per cartridge for except for 4-color, replacement during use is not possible.

□ During the ink end cartridge replacement, in order to avoid dehydration of ink supply system, a WARNING is displayed if a cartridge is not placed for more than 10 minutes.

□ A supply valve is placed for each cartridge to supply ink at the supply valve OPEN. The supply valve is usually in CLOSE state, and when ink supply is necessary, the supply valve turns to OPEN state. Ink supply is conducted at discharging operation (drawing and flashing) and suction operation (cleaning and filling). The supply valve is not opened for a cartridge having an error not to supply ink.

□ 2 types of LED (Green: control LED / Red: Error LED) are placed for each cartridge to allow a user to check a state of cartridge in visual. Since all 8 cartridges for except for 4-color are control cartridges, the green LED is on for cartridges where there is no error.

□ JV33 switches the supply valve at occurrence of "INK NEAR END" or "INK END" in the cleaning to use a cartridge having smaller residual quantity. As for details, see " Ink wear-up cleaning (4-color only)" (*P.2-16*). (4-color only)

Device configuration

The device configuration of ink supply path is shown below.

The firmware switches select whether the inkset configured at the initial filling is 4-color or not.

☐ 4-color filling

2 paths of the same color are linked directly after the cartridge valve. Normally the valve of 1 cartridge per color is opened by toggle switching, supplying ink to a 2-nozzle row. Thereafter, the cartridge on the side with the open valve is referred to as the control cartridge, while the other is referred to as the sub cartridge.
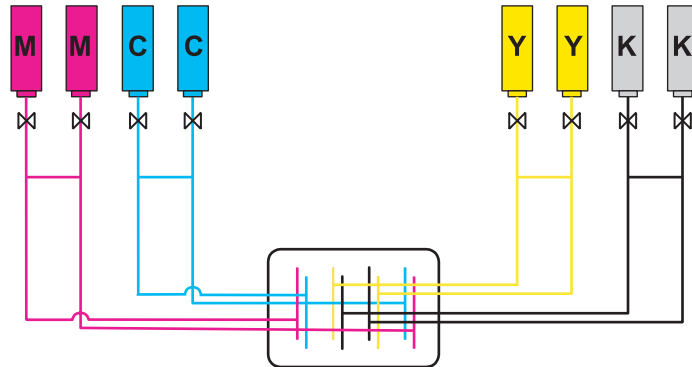
Fig.2-1   Ink Supply Path Diagrammatic Illustration (4-Color Filling)

☐ Except for 4-color filling
Since 1 cartridge is linked to 1 nozzle, toggle switching is not used, and all cartridges are control cartridges.
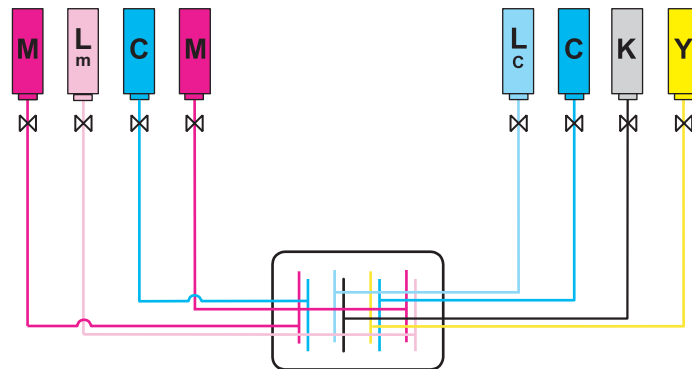
Fig.2-2   Ink Supply Path Diagrammatic Illustration (6-Color Filling)
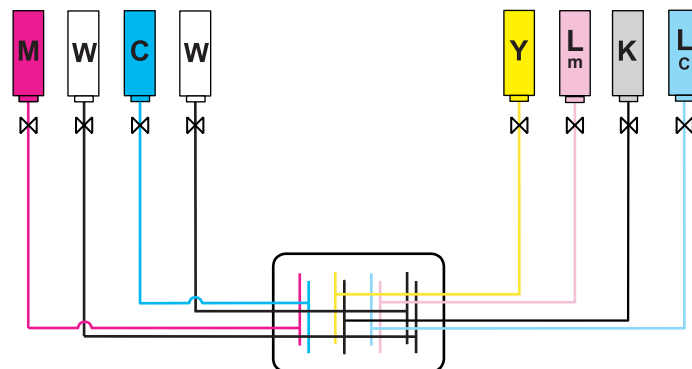
*Fig.2-3   Ink Supply Path Diagrammatic Illustration (6-Color+white Filling) *Only when loaded with SS21*

Flow of the ink supply control

The ink supply control flow can be divided as the followings.

1. Error check of the cartridge.
2. Selection/determination of a supply cartridge (depends on a state of the cartridge). (4-color only)
   (Except for 4-color, all cartridges are supply cartridges.)
3. Updating of each LED (depends on a state of the supply/error cartridge).
4. Supply valve open/close operation of the cartridge selected in "2" with a valve operation instruction.

□ Error check of a cartridge

The error check of a cartridge is executed periodically (every 30 ms) to select a supply cartridge according to an error state and ink residual quantity.
The supply cartridge notifies being under control with lighting the control LED (Green).
The error cartridge lights/blink the error LED (Red) to urge replacement of cartridges.
A valve of the cartridge indicated by lighting of the control LED is opened with a valve-open instruction.

When an error occurs in a supply cartridge while the valve is opened (at drawing or at cleaning), if there is a cartridge which can supply ink, the valve is switched to continue the operation, if a supply cartridge is removed, drawing is aborted and cleaning is terminated to return to the local state.

Since all 8 cartridges for except for 4-color are supply cartridges, when an error occurs, plotting stops, cleaning finishes, and the status returns to local.

□ Selection/determination of a supply cartridge (4-color only)

As ink is supplied by toggle switching of 2 cartridges for 1 supply path in JV33, a supply cartridge should be selected. The followings are selection conditions of a supply cartridge.
Since all 8 cartridges for 6-color are supply cartridges, switching is not used.

a) When there is a cartridge having an error in 1 supply path.

- If another cartridge can supply, the cartridge is selected.
- The selection conditions depend on occurrence of an error, contents of the error and ink supply timing. The ink supply is executed at discharging operation (drawing, flushing and so on) or at suction operation (cleaning and filling).
  The followings are cartridge selection conditions. As for errors, see

\<Cartridge selection conditions\>

Error content	Discharging operation	Suction operation
Normal cartridge	○	○
Cartridge near end	○	Δ
Cartridge ink end	×	Δ
Residual quantity 0 cartridge	×	×
No cartridge	×	×
InK IC *	×	×

Note ○ : Supply is effective.
      Δ : Supply is effective when another cartridge is normal.
      × : Supply is not effective

* Ink IC: NON-ORIGINAL INK, WRONG INK IC, Kind of INK, Color of INK, WRONG CARTRIDGE, Expiration:2MONTH

b) When there are plural of effective cartridges in 1 supply path.

Priority	Content
1	A cartridge having smaller ink residual quantity.
2	When "1" is the same, a cartridge having closer expiration date.
3	When both "1" and "2" are the same, a cartridge having smaller slot number.

Occurrence timing of supply cartridge switching

- At power-on
- When an error occurs in the currently selected cartridge.
- When a cartridge superior to the currently selected cartridge is inserted.
  (Switching is not executed at drawing or cleaning. It is executed when returned to the local state.)

Based on a) and b), effectiveness of ink supply in variety of cartridge states is shown in the table below.

<Ink supply effectiveness>

Cartridge 2 / Cartridge 1	Normal cartridge	Cartridge near end	Cartridge ink end	Residual quantity 0 cartridge	No cartridge	Ink IC
Normal cartridge	○	○	○	○	○	○
Cartridge near end	○	Δ	Δ	Δ	Δ	Δ
Cartridge ink end	○	Δ	×	×	×	×
Residual quantity 0 cartridge	○	Δ	×	×	×	×
No cartridge	○	Δ	×	×	×	×
Ink IC	○	Δ	×	×	×	×

Note ○: Discharge is allowed and suction is allowed.
Δ: Discharge is allowed and suction is not allowed (Near end error).
×: Discharge is not allowed and suction is not allowed (Ink end error). As for details, see " Ink system error monitoring" (*P.2-14*).

The table below shows the switching timing of supply cartridges.

<Conditions for supply cartridge switching timing>   Active side: Cartridge which is selected now

Non-active / Active	Normal cartridge	Cartridge near end	Cartridge ink end	Residual quantity 0 cartridge	No cartridge	Ink IC
Normal cartridge	Δ	○	–	–	–	–
Cartridge near end	–	Δ	–	–	–	–
Cartridge ink end	○	○	–	–	–	–
Residual quantity 0 cartridge	○	○	–	–	–	–
No cartridge	○	○	–	–	–	–
Ink IC	○	○	–	–	–	–

Note ○: Switch
Δ: Switch according to the condition of priority.
 –: Not switched
During the cleaning an operation may not follow the conditions above. As for details, see " Ink wear-up cleaning (4-color only)" (*P.2-16*).

❑ **Cartridge LED**

Lighting/blinking of 2 types of LED informs cartridge states to show the timing of replacement.
  When the Control LED (Green) lights   : At supplying
  When the Error LED (Red) lights/blinks   : Occurrence of an error
Lighting/blinking conditions for each LED are shown in the table below.

<Conditions for lighting/blinking of LED>

LED		State
Control LED (Green)	Not light	Supply cartridge is not selected
	Blinking	–
	Light	■At selecting a supply cartridge (Except for 4-color, the LEDs for all are ON unless an error has occurred.) ■At ink wear-up cleaning (See " Ink wear-up cleaning (4-color only)" (*P. 2-16*)) (4-color only)
Error LED (Red)	Not light	At normal state
	Blinking	Occurrence of an error (Blinks at occurrence of the following errors). ■Cartridge near end ■Cartridge ink end ■1 months passed after ink expiration date
	Light	Occurrence of an error (Lights at occurrence of the following errors) ■Residual quantity 0 cartridge ■No cartridge ■Ink IC*

  * Ink IC: NON-ORIGINAL INK, WRONG INK IC, Kind of INK, Color of INK, WRONG CARTRIDGE, Expiration:2MONTH

Examples of cartridge switching and LED operation patterns are shown in the table below.

<LED operation pattern>

Event	Valve operation	4-color				Except for 4-color	
		Cartridge 1		Cartridge 2		Cartridge 1	
		Control LED	Error LED	Control LED	Error LED	Control LED	Error LED
Online drawing start No problem on both cartridge	Cartridge 1 valve open	Light	–	–	–	Light	–
Cartridge 1 Cartridge near end occurs	Not changed	Light	Blink	–	–	Light	Blink
Cartridge 1 Cartridge ink end occurs	Switched to cartridge 2	–	Blink	Light	–	–	Blink
Cartridge 2 Cartridge near end occurs	Not changed	–	Blink	Light	Blink		
Cartridge 1 Take out to replace	Not changed	–	Light	Light	Blink	–	Light
Cartridge 1 Set a normal cartridge	Not changed	–	–	Light	Blink	Light	–
Cartridge 2 Cartridge ink end occurs	Switched to cartridge 1	Light	–	–	Blink		
Online drawing end	Close all supply valves	Light	–	–	Blink	Light	–

☐ **Open/close instruction for supply valve**

Generally, a supply valve is in the CLOSE state, and OPEN is instructed when ink supply is necessary. Timing of open/close instruction is shown in the table below.

<Supply valve operation instruction timing>

Timing		Supply valve operation instruction	
		OPEN	CLOSE
Flushing	Before execution	O	–
	After execution	–	O
Cleaning/filling	Before execution	O	–
	After execution	–	O
Wash	Before execution	O	–
	After execution	–	O
Before drawing operation		O	–
Before Capping		–	O
Replacement of supply cartridges during ink supplying		O	O
At occurrence of an system error		–	O
At power-off		–	O

Note   O: Operation instruction

Cartridge Control

☐ For 4-color

2 ink cartridges are used per 1 supply system (1 nozzle row), total 8 cartridges can be loaded. Supply cartridge is always 1 per 1 supply system, and a cartridge having smaller residual quantity is used first with toggle switching. LED (Green, Red) of each slot indicates cartridge states shown below.

☐ Except for 4-color (6-color or 6-color + white filling)

Since there is 1 ink cartridge per supply system, all 8 cartridges are supply cartridges.

<Cartridge states indicated by LED>

Green LED	Light	Supply cartridge
Red LED	Blink	INK END, INK NEAR END, Expiration:1MONTH
	Light	Ink IC warning[1], Residual quantity 0 cartridge[2], No cartridge

　　*1 Ink IC warning:　　　　　　Errors related PIC such as NON-ORIGINAL INK, WRONG INK IC, Kind of INK, Color of INK, WRONG CARTRIDGE and Expiration:2MONTH.
　　*2 Residual quantity 0 cartridge: A cartridge having no residual quantity after execution of the ink wear-up cleaning (a function to conduct cleaning with preferentially using a cartridge having NEAR END or INK END error). (4-color only)

Switching of supply cartridges occurs under the conditions shown below. (4-color only)

■"INK END" during the drawing

■"INK NEAR END" during the filling

■Ink IC warning

■When a cartridge is taken off.

■Ink wear up cleaning

If the filling is not 4-color, or if the filling is 4-color and switching is not possible within 1 supply system, the warning for the current supply cartridge is displayed. The followings are relations between warnings and operations.

Local/Remote idle warning display (state of supply system unit)		Guidance function warning display in detail (state of cartridge unit)	Cleaning	Filling	Drawing
NEAR END		INK NEAR END	×	×	*1
INK END	!CAR	INK END	×	×	×
		NO CARTRIDGE			
		NON-ORIGINAL INK			
		WRONG INK IC			
		Kind of INK			
		Color of INK			
		WRONG CARTRIDGE			
		Expiration:2MONTH			
		Expiration:1MONTH	○	○	*2
		Expiration	○	○	○

*1 Transition to the LOCAL mode is executed after each completion of drawing.

*2 In case of a month next to the ink expiration month, transition to the LOCAL mode is executed after each completion of drawing.

Ink system error monitoring

☐ Operation at occurrence of an ink system error

Error check on ink system/cartridge is executed periodically (every 30 ms), and operation is restricted according to the error state.

Error contents/operation restrictions are shown in the table below.

<Ink system error>

Priority	Ink system error	Executions at error				Error contents
		CL/ Filling	Drawing	Head cleaning	Pump cleaning	
H	Waste ink tank	✕	✕	✕	✕	When there is a certain increase after waste ink near full counted by the firmware is displayed.
	Initial filling is not executed	✕	✕	✕	✕	Initial filling is not executed.
	Ink end error	✕	✕	○	○	Errors occurred in both cartridges and drawing & suction operation can not be executed.
	Ink near end error	✕	○	○	○	■Errors occurred in both cartridges and drawing & suction operation can not be executed. ■Returns to the local state at each completion of 1 file drawing.
	A waste ink tank is FULL soon now.	✕	○	✕	✕	Waste ink tank is almost full. (Counted by the F/W)
	No cartridge	○	○	○	○	Cartridge is not installed.
	Ink IC *	○	○	○	○	■An error related to the cartridge IC occurs. ■Ink supply is disabled.
	Residual quantity 0 cartridge (4-color only)	○	○	○	○	■Ink in the cartridge is used up. ■Ink supply is disabled.
	Cartridge ink end	○	○	○	○	■Quantity of ink in the cartridge reached to the predetermined amount. ■Ink supply is disabled (CL can be used).
	Cartridge near end	○	○	○	○	■The near end sensor detection board detects the state close to ink end. ■Can be used for ink supplying at drawing or CL.
	1 months passed after ink expiration date	○	○	○	○	1 months passed after ink expiration date.
	Announcement of nozzle cleaning execution	○	○	○	○	Urging execution of nozzle cleaning.
	Wiper replacement	○	○	○	○	The number of usage times of a wiper exceeds the predetermined replacement number.
	WashLiquidCart.NONE	○	○	○	✕	Washing solution cartridge is not installed.
L	Washing solution cartridge	○	○	○	✕	Troubles on the ink washing solution cartridge.
	Wash Liquid END	○	○	○	✕	The washing solution cartridge is empty.
	Ink expiration of limitation period.	○	○	○	○	Ink expiration of limitation period.

* Ink IC: NON-ORIGINAL INK, WRONG INK IC, Kind of INK, Color of INK, WRONG CARTRIDGE, Expiration:2MONTH

Ink residual quantity control

Residual quantity of cartridge ink is calculated by subtracting ink consumption quantity obtained by calculation of number of ink shot times of drawing and flashing and ink suction amount by cleaning and filling from the ink residual quantity.

When ink residual quantity is updated, writing to the ink IC chip is executed.

A cartridge error is issued according to the residual quantity.

□ Calculation of ink consumption quantity

The followings are calculation of ink consumption quantity at drawing, cleaning etc.

a) At drawing and flashing (ink discharging)

Ink consumption quantity at ink discharging is calculated with counting the number of ink shot times.

> In JV33, as each dot size is counted at unit of each nozzle array, Small, Middle, Large, smaller error between actual measured value and calculated value can be expected.

b) At cleaning and filling (ink suction)

Ink consumption quantity at each operation is shown in the table below.

\<Ink consumption quantity at ink suction (with 4-color)\>

Type		Ink consumption quantity in 1 supply path [cc]
Soft cleaning		0.3
Normal cleaning		1.16
High power cleaning		5.8
Maintenance filling		13.0
Initial filling (No replacement)	Main suction	43.0
	Cobble filling	4.1
Initial filling (At replacement)	Main suction	43.0
	Cobble filling	4.1

□ Updating of ink residual quantity

The ink residual quantity is updated at the following timings, and written in the ink IC chip.

\<Ink residual quantity updating timing\>

Updating timing	Conditions
At pre-capping operation	When ink is consumed by drawing or flashing. Mainly at capping after completion of drawing.
At completion of cleaning and filling operation	Ink is consumed by cleaning and filling. Cartridge residual quantity at using main suction is updated.
When the following events occur at drawing and cleaning or filling. ■Cover OPEN ■Lever UP ■Media end	Ink consumption quantity until just before the events shown in the left is updated.
When the following errors occur at drawing. ■Cartridge near end ■Cartridge ink end ■Cartridge error	Updated just after occurrence of the error not waiting for writing at the capping pre-operation. Update before replacing of cartridge during the drawing.

☐ **Errors related to ink residual quantity**

Errors related to ink residual quantity are shown in the table below.

<Errors related to ink residual quantity>

Item	Content
Cartridge near end	Error arising timing:Residual quantity detection by the near end detection board. Set value of each cartridge is as the followings. 220 cc cartridge: 20 cc 440 cc cartridge: 40 cc Restrictions after arising of an error: Initial filling is not allowed (drawing and cleaning is allowed).
Cartridge ink end	Error arising timing:Arising at consumption of predetermined quantity after the near end detection. Restrictions after arising of an error:Drawing and initial filling are not allowed (cleaning is allowed).
Residual quantity 0 cartridge (4-color only)	Error arising timing:Arising at residual quantity 0 after arising of ink end. This error may arise only after cleaning by the ink wear-up cleaning. Restrictions after arising of an error: Drawing, initial filling and cleaning are not allowed.
Cartridge error	Error arising timing:Arises when the ink end does not arise even if ink consumption quantity exceeds about double of ink cartridge capacity*. Restrictions after arising of an error: Drawing, initial filling and cleaning are not allowed.

* Arises at 220cc cartridge: 400cc, 440cc cartridge: 800cc.

Ink wear-up cleaning (4-color only)

■ The purpose of this cleaning is subduing ink consumption of a normal cartridge by using residual ink of a cartridge having "Cartridge near end" error or "Cartridge ink end" error by priority.

■ When one cartridge is normal at starting of cleaning, residual ink side is sucked and after suction, switched to the normal cartridge to continue cleaning.

■ When residual ink is used up (soft counter), "Residual quantity 0 cartridge" error is arisen to disable the cartridge.

Ink wear-up cleaning control is only effective in the normal cleaning, and it can not be executed at other cleanings or at initial filling.

Ink Suction and Discharge Control

Outline of control

■ A roller pump (ink suction pump) is used for ink suction and ejection.

■ The amount of ink discharged to the waste ink tank is counted by the firmware, and warnings are issued depending on the level. They are displayed in sequences involving ink suction and discharge, or locally. (See About the waste ink tank warning *(p. 2-6)*)

■ To prevent coagulation of ink in the ejection path tube between the cap and waste tank, there is a function for cleaning it automatically (pump tube cleaning). Cleaning is performed by drawing cleaning fluid from the cleaning fluid cartridge to the cap using the siphon principle.
It is performed periodically when the power is turned on/off.

Device configuration

The device configuration of ink suction and discharge is shown in a diagrammatic illustration below.
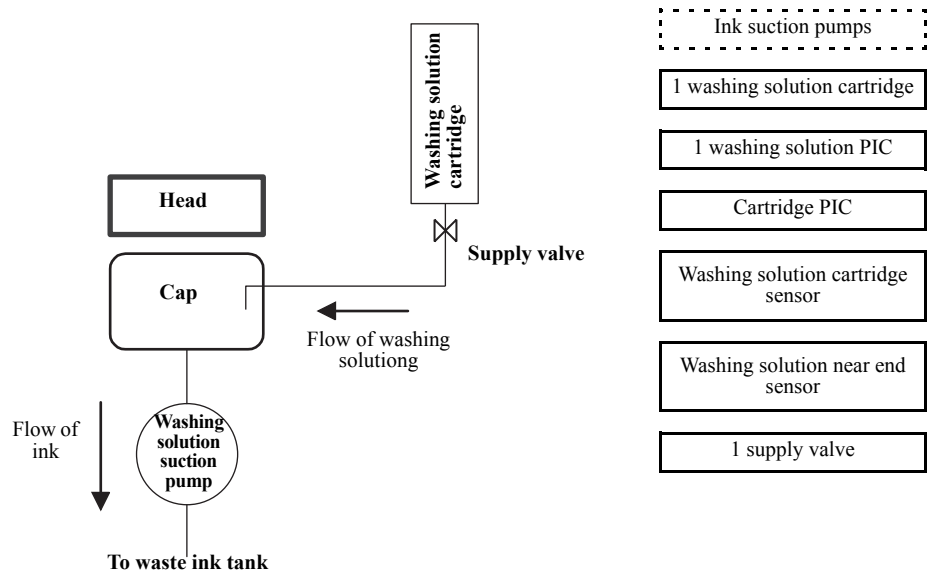
Fig.2-4   Diagrammed illustration of Ink Suction and Discharge Path

Outline flow

Points to note with 4-color filling

In initial filling, to eject air completely from the ink paths, suction is divided into 2 stages, (1) filling up to the coupler, and (2) filling up to the nozzle. Each uses the sub cartridge and control cartridge.

4-color filling

1. Filling up to the coupler (sub cartridge selected)

2. Filling up to the nozzle (controlled cartridge selected)

6-color filling

Filling up to the nozzle
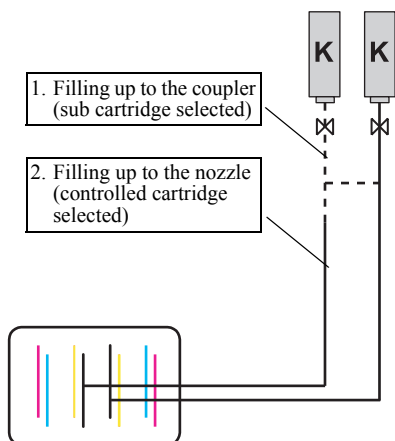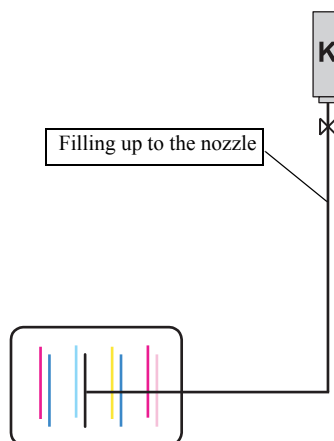
Initial Filling

At device starting, when ink is not filled, initial filling is conducted. Operation sequence is as the following.

<Initial filling operation sequence>

No.	Item	Content
1	Selection of model	A set value is selected among values shown below. **Set value: SOLVENT-INK spec, AQUEOUS-INK spec** ■Select only for initial filling at setup.
2	Selection of ink type (Ink type)	When SOLVENT-INK spec. is chosen, select the following setting values. **Set value: ES3 Sol, SS21 Sol** When AQUEOUS-INK spec. is chosen, select the following setting values. **Set value: PIG, Sb51**
3	Selection of number of colors (Ink set)	Except with Sb51, select the setting value below. **Set value: 4-Color (MMCCYYKK), 6-Color (MmCMcCKY),** **6+W Color (MWCWYmKc)** *Only when SS21 selected With Sb51, select the setting value below. **Set value: 4-Color (MMBBYYKK), 6-Color (MmBMbBKY)**
4	Preparing to fill the pre-fill up solution	Discharging of the transportation liquid remaining in the ink paths.
5	Filling of the pre-fill up solution	Insert a pre-fill up solution cartridge in all slot to be sucked (All 8 cartridges) ■Skipped with the AQUEOUS-INK spec. ■If there is an occurrence of warning* in a pre-fill up solution cartridge, suction is not conducted. ■Displayed when a waste ink tank warning occurs.
6	Discharging of the pre-fill up solution	Discharging of the pre-fill up solution.

7	Filling of the ink	Inserting ink cartridges into all slots and ink filling is conducted.
		
		<4-color filling>
		1. Filling to the coupler
		   Within the same supply system, open the valves in the order of even columns -> odd columns, and fill the ink up to the coupler.
		2. Fill up to the damper (head).
		<6-color filling>
		1. Open all of the valves and fill the ink up to the damper (head).
		
		■If a warning occurs in the ink cartridge, filling is not conducted.
		■Displayed when a waste ink tank warning occurs.
		■If a cartridge warning occurs during filling to the damper (head), filling is continued with replacing cartridges. (4-color only)
		   Filling is stopped when ink supply fails in one supply system.

8	Filling of the maintenance washing solution	Filling of exclusive washing solution for pump tube cleaning. Insertion of the washing solution cartridge into a slot is confirmed and filling is conducted. If a warning occurs in the washing solution cartridge, filling is not conducted. Displayed when a waste ink tank warning occurs.

* As an IC chip is not placed in a pre-fill up solution cartridge, it is recognized that IC chip read error means normal.

* If performing a 6 (8)-color fill when installing the device, the couplers need to be change before the fill.

2-2.   Functions

2-2-1.   ADJUST Function

#ADJUST function comprises the following items executed at factory shipping or maintenance operation.

<Adjust functions>

Item	Content	Reference page
HEAD ADJUST	Slant adjust, Dot position adjust.	P.3-9
HEAD WASH	Cleaning of head, damper, tube	P.2-21
MANUALhead WASH	Manual cleaning of head, damper and tube at head replacement and so on.	P.2-22
DEFAULT SET	Initialization of the selection parameter	P.2-22
CAPPING	Capping, wiping position adjustment	P.3-13
HEAD ID	Head ID inputting	P.2-23
MOTOR CURRENT	Adjusting power current of X-axis motor, Y-axis motor	P.2-23
SERIAL No	Confirmation and input of device serial No.	P.2-24
DEALER No	Confirmation and input to device dealer No.	P.2-24
EDGE ADJUST	Adjusting margin in both sides of paper	P.2-24
MEDIA COMP.2	Media basic feed amount compensation	P.2-25
POINTER OFFSET	LED pointer position adjust.	P.2-25
EXCHANGE PARTS	Display and input of parts, units replacement history	P.2-26

HEAD WASH

Cleaning head, damper and tube.

> As it is non- filling state after the completion of cleaning, the Initial Filling *(p. 2- 19)* or filling of corresponding head is required.

<Head wash operation sequence>

No.	Item	Operation content	Notice
1	Preparation	Confirm the change of ink set. During the initial filling after cleaning the head, select "Yes" if you changed the ink set. (The ink set cannot be changed except when the device is first shipped, because the coupler needs to be changed)	
2	Discharging of ink	*1.* Taking out cartridges (all slots). (Cartridge sensor monitoring) *2.* Discharging ink (Ink suction motor driving) Execute after the confirmation display when a waste ink tank warning occurs.	
3	Cleaning	*1.* Inserting washing solution cartridges (all slots). (Cartridge sensor monitoring*[1]*) *2.* Cleaning inside of tube (Opening cartridge valve, ink suction motor driving) *3.* Head vibrating operation (Y-axis motor) is executed	
4	Discharging of washing solution	*1.* Taking out cleaning cartridges (all slots). (Cartridge sensor monitoring) *2.* Discharging washing solution (ink suction pump motor driving)	
5	Repeating	3 ~ 4 are executed again.	

6	Wiper Cleaning	*1.* Cap OFF
		2. Wiper ON (after moving the carriage to the maintenance position)
		    Waiting for wiper cleaning end
		    (**[ENTER]** pressing to start the following No.)	

7	Operation selection	Press one of a key below to select an operation.
		    [◀] : Transit to No. 10 (END)
		    [▶] : Transit to No. 8 (CONTINUE)
		    [▼] : Transit to No. 3 (Re-WASH)	

8	Filling of transportation liquid	*1.* Insert transportation liquid cartridge (all slots). (Cartridge sensor monitoring) *2.* Fill head, damper and tube with transportation liquid (Cartridge valve OPEN, Ink suction pump motor driving).	
9	Discharging of transportation liquid	*1.* Taking out of transportation liquid cartridges (all slots). (Cartridge sensor monitoring) *2.* Discharge transportation liquid.(with leaving appropriate amount) (Cartridge valve OPEN, Ink suction pump motor driving)	

10	Operation selection	Press one of a key below to select an operation.
		    [◀] : End of head cleaning(END)
		    [▶] : Transit to No. 11 (DISCHARGE) (Maintenance washing solution discharge)	

11	Maintenance washing solution discharge	*1.* Taking out the maintenance washing solution cartridge. (maintenance washing solution slot) *2.* Discharging maintenance washing solution.(pump motor driving)	

12	Operation selection	Press one of a key below to select an operation.
		    [◀] : End of head cleaning (END)
		    [▶] : Transit to No. 13 (FillUP) (Transportation liquid suction and discharge)	

13	Transportation liquid suction and discharge	*1.* Inserting transportation liquid cartridge. (maintenance washing solution slot) *2.* Transportation liquid suction (pump motor driving) *3.* Taking out of transportation liquid cartridges. (maintenance washing solution slot) *4.* Discharging transportation liquid (pump motor driving)	

*[1] As an IC chip is not placed in a washing solution cartridge, it is recognized that IC chip read error means normal

MANUALhead WASH

At head cleaning with a syringe (after head replacement and so on), cap off to execute dry suction.

<Manual head cleaning operation sequence>

No.	Item	Operation content	Notice
1	Suction	*1.* Cap OFF *2.* Dry suction (pressing **[ENTER]** to drive corresponding motor) If a warning on waste ink tank arises, filling is not conducted. (Waste tank sensor monitoring)	
2	End	Press **[ENTER]** to stop pump motor and return to 1.	

DEFAULT SET

Setting initial value to a selected parameter.

<Default set>

No.	Selection Item	Operation content	Notice
1	SETUP PARAMETER	*1.* Initialization of user operation setting value *2.* Set user No. to 1 *3.* Initialization of language to be used *4.* Initialization of User dot position compensation value *5.* Set to maintenance close	Always selectable
2	MAINTE. PARAM.	Initializing the parameter in question	
3	CUSTOM. PARAM.	Initializing the parameter in question	
4	RUNNING PARAM.	Initializing the parameter in question	
5	EXCHANGE PARAM.	Initializing the parameter in question	
6	INKSYSTEMparam.	Initializing the parameter in question	
7	INKinfor.PARAM.	Initializing the parameter in question	Quasi-disclosure parameter (Selectable only at releasing)
8	INKinfor.PARAM.	Initializing the parameter in question	
9	INKSEQUENCEpara	Initializing the parameter in question	
10	HEADunit PARAM.	**Unit selection: UNIT-1~4, ALL**	
11	SERVO PARAMETER	Initializing the parameter in question	
12	TEST PARAMETER	Initializing the parameter in question	
13	CORRECT PARAM.	Initializing the parameter in question	
14	ADJUST PARAM.	Initializing the parameter in question	

HEAD ID

■ Contents: Head ID input of JV33 is automatically executed by the system.
The head memory PCB Assy is equipped on the head unit Assy (M007034, IH47V Head Unit Assy), the ID information is written in the head memory Assy.

Head ID is for compensating differences of discharge amount of ink among each head. A label on which a compensation value (ID) is written is attached on a head at shipping.
Storing the ID in the Parameter of JV33 makes print quality constant.

Important! **Manual input of the ID information is required in the following cases.**
■**In a case that the ID information is not stored in the head memory PCB Assy.**
"HEAD ID Un-Input" is displayed on the panel (at the power ON)

■**In a case that the head ID is not identical to the ID information in the PCB Assy. (when a PCB of another head is placed, for example).**
As the error is not displayed on the panel, taking care is required at replacing.
Manual ID input is recommended if there is a doubt on agreement between the ID of a head and the ID information in the memory PCB.

MOTOR CURRENT

☐ STOP ADJUST

■ Contents: Adjusting of power current of X-, Y-axis motor. Adjust value is stored in the system parameter.
X-, Y-axis motor power current value and corresponding D/A value are displayed.

■ Key operation
[ENTER]:Transit to adjust mode
[◀], [▶]:Motor selection
[▲], [▼]:Change of D/A value

☐ X MOVING ADJUST/ Y MOVING ADJUST

■ Contents: Adjust current value with driving X- or Y-axis motor.
Current value of X- or Y-axis motor and corresponding D/A value are displayed.
The operation sequence is as same as that of [#TEST] - [MOTOR TEST] - [XY SERVO MOTOR].
Adjust the D/A value with [▲] [▼] during the operation under designated conditions.
The set value is stored at stopping with **[END]**.

SERIAL No

■ Contents: Confirmation and setting of serial ID.

       8 characters of alphabet and numeral (0~9, A~Z) can be input.

■ Key operation

[▲], [▼]:Change value (cursor position)

[◀], [▶]:Moving the cursor

               (When the cursor is in the left end or the right end, key input does not work)

[ENTER]:Setting

[END]:Input cancel

Important!   **Cannot be changed if the serial number is set.**

DEALER No

■ Contents: Confirmation and setting of dealer ID.

       8 characters of alphabet and numeral (0~9, A~Z) can be input.

■ Key operation

[▲], [▼]:Change value (cursor position)

[◀], [▶]:Moving the cursor

               (When the cursor is in the left end or the right end, key input does not work)

[ENTER]:Setting

[END]: Input cancel

EDGE ADJUST

■ Contents:Adjust dead space size of both left and right ends of paper

■ Key operation

[◀]:Set adjust value of L, R to default (15.0 mm).

[▶]: Execute media width detection to draw an adjust pattern.

[▲], [▼]:Change adjust values

[END]:Input cancel

■ Adjust value:0.0~35.0 mm   (unit: 0.1 mm)

       Input actual measurement from media end to the pattern as an adjust value.

       If the unit is changed to inch, convert the value to inch to adjust.
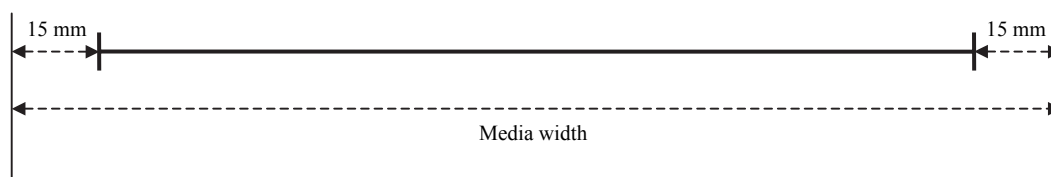
Fig.2-5

Note: The set value is stored in the system parameter No.2 R GRIP, No.3 L GRIP as "current parameter value + (15 mm-input value)".

MEDIA COMP.2

■ Contents:Basic feeding amount of media is compensated.

■ Key operation
[ENTER]:Drawing an adjusting pattern

[▶]: Input compensation value without drawing the adjusting pattern

[END]: Complete drawing and input compensation value.

■ Compensation value:-500 ~ 500

In actual feeding amount compensation, compensation for each media set in the SET UP function is added to this compensation value.

OK — A pattern having width of media is drawn. Resolution is 720dpi

NG — Compensation value is too large

NG — Compensation value is too small
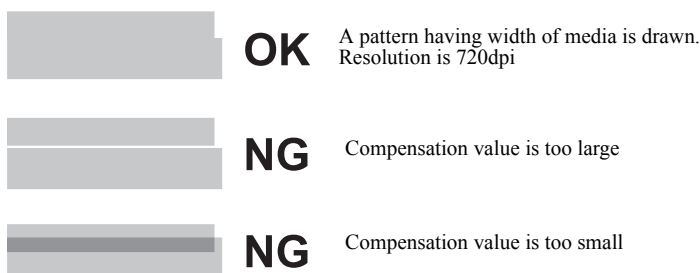
Fig.2-6

POINTER OFFSET

■ Contents:Plots an adjustment pattern, and adjusts the position of the LED pointer and plotting origin (nozzle A array).

■ Key operation
[ENTER]:Drawing start

After completion of plotting

[▲], [▼], [◀], [▶]: LED pointer positioning

Focuses the LED pointer on the following pattern position (intersection point of lines).

[ENTER]:Setting

[END]: Input cancel

LED pointer
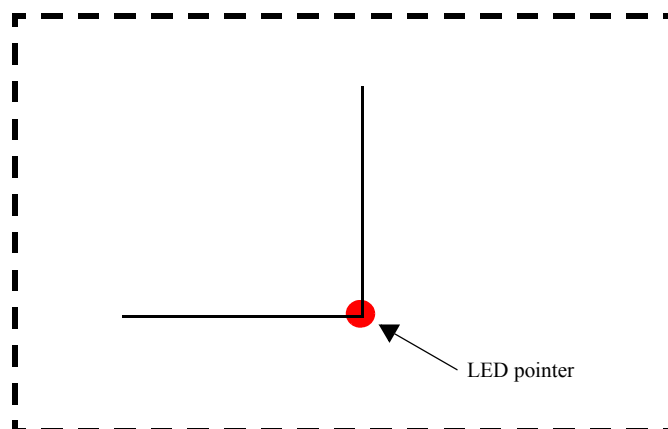
Fig.2-7

EXCHANGE PARTS

Displaying of replacement date history of parts/unit, or registering of replacement date.

❑ REGISTRATION

Parts replacement history is registered.

Select a part to be registered and input date and part number. Effective part numbers are as the followings.

Type	Part number
Pump	Number is not input
Cap	Number is not input
Damper	A~H registration (nozzle number)

Important! **JV33 determines timing of replacement of above parts.**
When a part in question is replaced, never forget to register the replacement date.

❑ HISTORY

The latest history is displayed at starting. (Switching is allowed with [▲], [▼])
As for a head, as it is recorded automatically at first starting after replacement, registration is not required. (Confirmation of history is allowed)
Layout of each part is shown in the following drawing.

Damper

Designate with nozzle row (A~H)
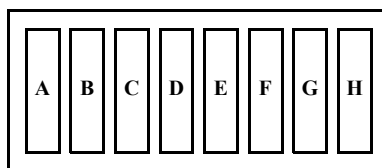
~Top view of head~

Fig.2-8

2-2-2.   TEST Function

The test function comprises the following items executed in shipping, and the maintenance operation.

<Test function item>

Item	Content	Reference page

CHECK PATTERN	Drawing of various type of check patterns.
	  100%, 50%, 25%, 12.5%, 6.25% (Density pattern)
	  NOZZLE CHECK, COLOR CHART, DROP.POS CHK
		P.2-28

ALL PATTERN	Drawing of adjusting pattern.	P.2-29

MOTOR TEST	Operation test of various motors.
	  X SERVO MOTOR, Y SERVO MOTOR, XY SERVO MOTOR,
	  WIPER MOTOR, PUMP MOTOR, TAKE-UP MOTOR
		P.2-29

HEATER TEST	Test of media heater TEMPERATURE, SSR	P.2-31
WARMING TEST	Test of head warming heater	P.2-32

ACTION TEST	Operation Test of various fan motor, cutter, valve
	  VACUUM FAN, BUILTinDEOD.FAN, Y-CUTTER, HDC 1&2 FAN,
	  DEOD.FAN & DRY FAN, LED pointer
		P.2-32

SENSOR TEST	Test of various sensors
	  SET LEVER, R.PAPER, Y-ORIGIN, WIPER, FRONT COVER, HEAD
	  HEIGHT
		P.2-33

OPTION	Check the connection status of take-up, dryer, and the exhaust fan.	P.2-33
KEYBOARD LED	Heater (CONSTANT, HEAT), and ACTIVE LED operation test.	P.2-33
PAPER SENSOR	Test of media width sensor	P.2-34
KEYBOARD TEST	Test of panel SW	P.2-34
LCD TEST	Test of LCD	P.2-34
TIMER CHECK	Confirmation and setting of device time	P.2-34
MEMORY CHECK	Check of various memory MAIN.SDRAM, MAIN.F-ROM, HEAD.EEPROM	P.2-35
SKEW CHECK	Media skew check	P.2-36
TEMPERATURE.CHK	Display of temperature around head HEAD TEMP., NOZZLE TEMP., HEAT SINK TEMP., SLIDER TEMP.	P.2-36
LINEAR ENCODER	Test of linear encoder.	P.2-37

INK CARTRIDGE	Test around cartridge.
	  PACK&END SENSOR, CARTRIDGE VALVE, CARTRIDGE LED, INK-IC
	  CHECK
		P.2-37

WASH CARTRIDGE	Test around cleaning cartridge. PACK&END SENSOR, CARTRIDGE VALVE, IC CHECK	P.2-37

CHECK PATTERN

The following 4 types of drawing are allowed in check pattern. Procedure of pattern drawing is shown in the table below

- Density pattern
- NOZZLE CHECK
- COLOR CHART
- DROP.POS CHK

<Check pattern drawing procedure>

No.	Item	Content
1	Selection of density*[2]	ALL, 100%, 50%, 25%, 12.5%, 6.25%
2	Selection of resolution	540x 720, 540x 900, 540x1080, 720x 540 720x 720, 720x1080, 720x1440, 1440x1440
3	Selection of can direction	Bi-D, Uni-D
4	Selection of No. of passes	Resolution Passes(4 color) Passes(6 color) 540x720: 2,4,8,16 4,8,16,32 540x900: 5,10,20,40 5,10,20,40 540x1080: 3,6,12,24 6,12,24,48 720x540: 3,6,12,24 3,6,12,24 720x720: 2,4,8,16 4,8,16,32 720x1080: 3,6,12,24 6,12,24,48 720x1440: 4,8,16,32 8,16,32,64 1440x1440: 8,16,32 16,32,64
5	Selection of drawing size	X size: 10 mm ~ paper length (unit: 10 mm) *Roll paper: 500000 mm Y size: 10 mm ~ paper width (unit: 10 mm)
6	Selection of drawing color*[1]	6 colors: M,C,Y,K,c,m (M, B, Y, K, b, m with Sublimation5 ink) 4 colors: M,C,Y,K (M, B, Y, K, with Sublimation5 ink)
7	Drawing start (waiting for key input)	**[ENTER]**: Drawing start **[TEST]**: Execution of test drawing **[(JOG)]**: JOG operation mode Press **[ENTER]** to start drawing with setting the current position as the original position. **[REMOTE]**: Setting of high speed scan ON/OFF **[END]**: END of drawing

*1 COLOR CHART, DROP.POS CHK do not have these items.

*2 Density pattern, NOZZLE CHECK and DROP.POS CHK do not have these items.

<Example of DROP.POS CHK pattern printing>
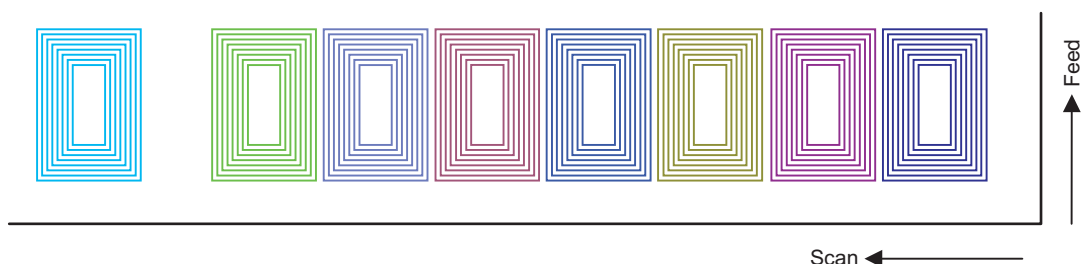
Fig.2-9

ALL PATTERN

The following check patterns are drawn in the block.

Check pattern	Reference page
Slant adjusting pattern	P.3-10
Y-impact position adjusting pattern (FINE Y Bi)	P.3-11

MOTOR TEST

The following 6 motors are tested.

<Motor>

Motor name	Reference page
X SERVO MOTOR	P.2-29
Y SERVO MOTOR	P.2-29
XY SERVO MOTOR	P.2-30
WIPER MOTOR	P.2-30
PUMP MOTOR	P.2-31
TAKE-UP MOTOR	P.2-31

☐ X SERVO MOTOR

Operation of X-servo motor is executed.

<X (Y)-servo motor test sequence>

No.	Item	Content	Notice
1	Speed designation	[▲], [▼]: Speed selection set value Set value: 1 ~ 150 mm/s (unit: 1 mm/s)　(at X-axis motor test) Set value: 1 ~ 1500 mm/s (unit: 1 mm/s)　(at Y-axis motor test)	[◄], [►]: Selection of item 2~4
2	Acceleration designation	[▲], [▼]: Acceleration selection Set value: 0.01 ~ 0.50G (unit: 0.01 G)　(at X-axis motor test) Set value: 0.05 ~ 2.00G (unit: 0.05 G)　(at Y-axis motor test)	
3	Moving amount designation	[▲], [▼]: Moving amount selection Set value: 1 mm ~ paper length (width)　(unit: 1 mm) 　　　　　When media is not detected X-axis motor: 1 mm~500000 mm	
4	Cap OFF		Only Y-moter Only after media detection
5	Move	[ENTER]: Reciprocating motion in the X (Y) direction with designated conditions is repeated.	
6	End	[END]: Return to the motion starting position and execute capping to end.	

Note: During the test, heater temperature control is allowed (When HEATER key is effective).

☐ Y SERVO MOTOR

Operation of Y-servo motor is executed.
Operation sequence is as same as that of X-axis motor test. (See the operation sequence above.)

☐ XY SERVO MOTOR

Operation test of XY-servo motor is executed.

< XY-servo motor test sequence>

No.	Item	Content	Notice
1	X speed designation	[▲], [▼]: Speed selection Set value: 1 ~ 150 mm/s (unit: 1 mm/s)	[◄], [►]: Selection of item 2~4 [ENTER]: Transit to setting in the Y direction (5~)
2	X acceleration designation	[▲], [▼]: Acceleration selection Set value: 0.01 ~ 0.50 G (unit: 0.01 G)	
3	X moving amount designation	[▲], [▼]: Moving amount selection Set value: 1 mm ~ Paper length (unit: 1 mm) 　　　When media is not detected: 1 mm ~ 500000 mm press **[ENTER]** to start Y-axis motor setting	
4	Y speed designation	[▲], [▼]: Speed selection Set value: 1 ~ 1500 mm/s (unit: 1 mm/s)	[◄], [►]: Selection of item 5~7 [ENTER]: Transit to the following step [END]: Transit to setting in the X direction (2~)
5	Y acceleration designation	[▲], [▼]: Acceleration selection Set value: 0.05 ~ 2.00 G (unit: 0.05 G)	
6	Y moving amount designation	[▲], [▼]: Moving amount selection Set value: 1 mm ~ Paper width (unit: 1 mm) 　　　When media is not detected: 1 mm ~ Mechanical limit size	
7	Cap OFF		Only after media detection
8	Moving	**[ENTER]**: The following motion is repeated with the designated conditions. (During the motion, No. of Y reciprocation is displayed.) a) Y designated distance moving b) X designated distance moving, Move to Y starting position	
9	End	**[END]**: Return to the motion starting position and execute capping to end.	

Note: During the test, heater temperature control is allowed (When HEATER key is effective).

☐ WIPER MOTOR

Operation test of wiper motor is executed.

<Wiper motor test sequence>

No.	Item	Content	Notice
1	Driving speed designation	[▲], [▼]: Selection of driving speed of the motor Set value: 100 ~ 4000 pps (unit: 100 pps)	[◄], [►]: Selection of item 1~3
2	WAIT designation	[▲], [▼]: Designating operation interval Set value: 0~60 sec (unit: 1 sec)	
3	Count designation	[▲], [▼]: Designating No. of operation times Set value: CONTINUE, 1~1000 count (unit: 1 count)	
4	Test start	**[ENTER]**: Driving the motor with designated conditions When CONTINUE is selected in count setting, finished with **[END]**	
5	Test end	Wiper is returned to the original position.	

❑ **PUMP MOTOR**

Operation test of pump motor is executed.

\<Pump motor test sequence\>

No.	Item	Content	Notice
1	Pump selection	[◀], [▶]: Pump selection (Move cursor) [▲], [▼]: Operation selection	[◀], [▶]: Selection of item 1~3
2	Rotation direction selection	[▲], [▼]: Pump rotation direction selection 　Set value: FORWARD, REVERSE	
3	Driving speed designation	[▲], [▼]: Select driving speed 　Set value: 100~4000 pps (unit: 100 pps)	
4	Carriage/Motor state selection	**[FUNCTION]**: Carriage/motor state at test selection menu is displayed 　\<Carriage\>　IN: Execution at cap position / OUT:　execution after carriage out 　　\<Motor\>　ON: Execution with Y-axis motor ON / OFF: execution with Y-axis motor OFF	
5	Test start	**[ENTER]**: Cap OFF, carriage is moved to maintenance position. Pump motor is driven with designated conditions. 　　**[END]**: End	During operation, open and close the cartridge valve with the **[FUNCTION]** key.
6	Test end	Test end	

Note: Be careful when executing (FORWARD) while the cap motor is on because this will become a vacuum suction..

❑ **TAKE-UP MOTOR**

Operation test of take-up motor is executed.

\<Take-up motor test sequence\>

No.	Item	Content	Notice
1	Test start	**[ENTER]**: Take-up motor is driven 　　(Switching of winding direction, or operation stop is allowed with SW of winding device)	
2	Test end	**[END]**: End	

HEATER TEST

Various tests of the media heater are executed.

\<Heater test\>

Item	Content
TEMPERATURE	Control test of heater set temperature is executed. 　Temperature settings of Pre, Print, After Heater are executed to control heater. 　　Set value (Celsius): OFF, 20 ~ 50 °C　(unit: 1 °C) 　　Set value (Fahrenheit): OFF, 68 ~ 122 °F　(as converted from celsius, unit is not 1 °F)
SSR	ON/OFF of heater is executed. 　Heater is turned to ON/OFF according to ON/OFF designation of pre, print, after heater. 　(Heater temperature control is not conducted)

Note1: Temperature is displayed with a unit selected in the UNIT SETUP of the MACHINE SETUP function.
Note2: A/D conversion value is also displayed.

WARMING TEST

Control test of the head warming heater ON/OFF is executed.

<Warming test>

Item	Content
TEMPERATURE	Controlling the heater temperature with the temperature setting of the warming heater (each head). Temperature and ON/OFF of each heater are displayed during the temperature control. Set value (Celsius): OFF, 20 ~ 45 °C (unit: 1 °C) Set value (Fahrenheit): OFF, 68 ~ 113 °F (as converted from celsius, unit is not 1°F)

Note1: Temperature is displayed with a unit selected in the UNIT SETUP of the MACHINE SETUP function.

ACTION TEST

Operation of the following parts/units is tested.

<Action test>

Item	Content
VACUUM FAN	Contents: Operation test of vacuum fan motor Set value: L.L, LOW, MID, HIGH, OFF
Y-CUTTER	Contents: Operation test of media cutter. Set value: UP, DOWN Operation interval of Y-cutter is set with **[FUNCTION]** [▲], [▼]: Operation interval setting Set value: 0 ~ 7200 sec (unit: 1 sec) **[ENTER]**: UP, Down is repeated with set interval Number count is displayed during the test.
HDC FAN 1&2	Contents: Operation test of HDC fan Set value: ON, OFF
DEOD.FAN & DRY FAN	Contents: Optional operation test of dryer/exhaust fan motor. Set value: ON, OFF
LED POINTER	Contents: Operation test of LED pointer. Set value: ON, OFF

SENSOR TEST

Various sensors are tested.
Before starting the test, turn the servo motor and stepping motor to OFF, after finishing the test, initial operation of original position detection is executed.

<Sensor test>

Sensor	Content	LCD display
SET LEVER	State display of clamp lever sensor	ON/OFF
R.PAPER	State display of rear paper sensor	ON/OFF
Y-ORIGIN	State display of Y-original position sensor.	ON/OFF
WIPER	State display of wiper sensor	ON/OFF
FRONT COVER	State display of cover sensor (front, maintenance LR)	ON/OFF
HEAD HEIGHT	Displaying the state of head height sensor	ON/OFF

OPTION

Connection check of all optional devices.

TAKE-UP: winding device
EXHAUST: exhaust fan
DRYER: dry fan

"OFF" when not connected, and "ON" when the respective device is connected in the correct location.

Since the shape of all the connectors is the same, they can be connected anywhere. However, if they are connected in the wrong place, the devices will not work.

KEYBOARD LED

ON/OFF test of the keyboard LEDs.

Heater LEDs: Pre, Print, and After heat LEDs
ACTIVE LED

Controls the LEDs above according to the ON/OFF designation.

PAPER SENSOR

Paper width sensor is tested.
Cap OFF (station moved to the lowest position), reading of paper width sensor is displayed.

  ∗∗∗ (@@@,$$$)   @@@ : Sensor reading at SLOP-ON
                 $$$: Sensor reading at SLOP-OFF
                  ∗∗∗: Difference between @@@ and $$$

Sensor reading is updated periodically (every 150 msec).

[◀], [▶]:Head move
[▲], [▼]:Alternately move to paper existing position and non-existing position in the right end of
        media.
[END]:After cap ON, paper sensor ends

KEYBOARD TEST

Panel SW is tested.
When a panel SW is pressed, name of the SW is displayed on LCD.

When no key is pressed, "NONE" is displayed.

When **[END]** is pressed, "END TEST" is displayed and the keyboard test ends.

LCD TEST

Characters are displayed on LCD.
When the LCD Test is started, scrolling of character code of 0x21 ~ 0xFF in one line is repeated. Press
[END] to stop the test.

TIMER CHECK

Confirmation and setting of date and time of the device.
Inputting of past date is only allowed present day -8H. Other date is an error.
*Machine setting →Same as the time setting

Set value:20YY.MM.DD   HH:MM:00
           YY   : 00~50
           MM   : 01~12
           DD   : 01~31
           HH   : 00~23
           MM   : 00~59

Returning to the last setting is allowed by pressing **[FUNCTION]** in the Date, Time Display State (not the
Entering State). (However, the time elapsed after the setting change is added.)

MEMORY CHECK

Variety of memory of the device is checked.

The memory check requires the following time. (1 count)

MAIN.SDRAM   : Approx. 12 min.

MAIN.F-ROM   : 1 sec.

HEAD.EEPROM   : Approx. 22 sec.

2-35

<Memory check>

Item	Content
MAIN.SDRAM[*1]	Read/Write check of SDRAM Select insert/not insert of wait time (30sec) between data write and read. In the checking the following process is counted as 1 and repeat until **[END]** is input. *1.* 00000000h is written into from address 0 to all area of SDRAM. *2.* Read vacant data from address 0 to all area of SDRAM sequentially to confirm the reading meet the writing data. *3.* FFFFFFFFh is written into from address 0 to all area of SDRAM. *4.* Read vacant data from address 0 to all area of SDRAM sequentially to confirm the reading meet the writing data. *5.* Write increment data of 00010203h, 04050607h, ... FCFDFE00h into from address 0 to all area of SDRAM. *6.* Read vacant data from address 0 to all area of SDRAM sequentially to confirm the reading meet the writing data.
MAIN.F-ROM	Hash check of F-ROM. In the checking, it is confirmed that long ward size SUM value from address 0 of F-ROM is 0001f000H[*2], that is counted as 1, the process is repeated until **[END]** is input. If the SUM value is not 0001f000H, the check process is aborted and an error is displayed.
HEAD.EEPROM[*1]	Read/Write check of HEAD.EEPROM Select a head unit to be checked. Before starting the checking, save contents of EEPROM in S-RAM (head unit parameter area). In the checking the following process is counted as 1 and repeat until **[END]** is input. *1.* Write 00h in from address 0 of HEAD.EEPROM, confirm that read value is 00h *2.* Write FFh in from address 0 of HEAD.EEPROM, confirm that read value is FFh. *3.* Write increment data of 00h, 01h, 02h, ..., FDh, FEh, 00h, ...in from address 0 of HEAD.EEPROM, confirm that read value agrees.

Note: No. of counts is displayed during the check.

*1 When data does not agree, the check process is aborted, and memory address, write/read data at occurrence of the error are displayed.

*2 As sector 1~10 used by parameter are passed, SUM value is not 0.

SKEW CHECK

Skewing of media is checked.
When media is not detected, an operation error (ERROR30) is displayed.

Feed distance is designated to execute feeding.
Feed distance: 1~500 m (unit: 1 m)

During the feeding, remaining of feed distance is displayed with unit of 10 mm.
[END]: Feeding abort, **[ENTER]**: Start feeding again.

□ Cut jig function

After the Skew check starts, (feed distance is not designated) the following operation starts the cut jig function.
[REMOTE] →**[FUNCTION]**

The cut jig function repeats media cut →feed with designating feed distance and number of cut times.
Number of cut times is displayed in count down during cut.

Feed distance: 10~10000 mm   (unit: 10 mm   Default: 500 mm)
Number of cut times: 1~1000 count   (unit: 1 count   Default: 25 count)

TEMPERATURE.CHK

<Temperature check test>

Item	Content
HEAD TEMP.	Environment temperature of head is displayed (A/D value is also displayed). Displaying of head temperature uses a unit selected in the UNIT SETUP of the MACHINE SETUP.
NOZZLE TEMP.	Nozzle temperature error check is executed. At Normal: OK is displayed At error: NG is displayed
HEAT SINK TEMP.	Temperature of HDC board heatsink is displayed (A/D value is also displayed). Displaying of heatsink temperature uses a unit selected in the "UNIT SETUP" of the MACHINE SETUP.
SLIDER TEMP.	Temperature read from the thermistor on the slider PCB is displayed (A/D value is also displayed).

LINEAR ENCODER

\<Encoder test\>

Item	Content
LINEAR ENCODER	Linear scale, Linear sensor are tested. Moving a carriage with designated distance (3 reciprocatings), difference of linear encoder value and Y-axis motor encoder value is displayed. If an error arises during the operation, the test is aborted. Moving distance: 100 mm ~ Maximum actual operation limit (unit: 100 mm) LCD display is as the following. (M∗: Y-axis motor encoder, E∗: linear encoder) • Moving distance: M=∗∗∗∗.∗ E=∗∗∗∗.∗ (unit: 0.1 mm) • Difference of encoder values before moving and after moving: Mc=∗∗∗∗.∗ Ec=∗∗∗∗.∗ (unit: 0.1 mm) • Encoder values before moving: Ms=∗∗∗∗∗ Es=∗∗∗∗∗ • Encoder values after moving: Mm=∗∗∗∗∗ Em=∗∗∗∗∗ • Encoder values after moving with designated distance: Mr=∗∗∗∗∗ Er=∗∗∗∗∗

INK CARTRIDGE

\<Ink cartridge test\>

Item	Content
PACK&END SENSOR	Displaying state of cartridge exist/non-exist sensor and end sensor. A slot number on which an error (No cartridge, Ink near end) is found is displayed. [−2−−−−−−−−−−−−] (Example of LCD display)
CARTRIDGE VALVE	Checking open/close of cartridge valve
CARTRIDGE LED	Light/Off of cartridge LED is tested.
INK-IC CHECK	Ink cartridge IC is checked. In the check, IC chip data is read, number of occurrence of errors at each cartridge is displayed.

WASH CARTRIDGE

\<Wash cartridge test\>

Item	Content
PACK&END SENSOR	Displaying state of cartridge exist/non-exist sensor and end sensor [ON, OFF] (Example of LCD display)
CARTRIDGE VALVE	Open/Close of cartridge valve is checked.
IC CHECK	Maintenance washing solution IC is checked. IC chip data is read to be checked and the number of error occurrences is displayed.

2-2-3.   Special Key Function

A function executed with pressing certain key SW at starting the device, the function starts the device with the following modes.

\<Special key mode\>

Mode	Starting operation		State after reset
F/W update mode	**[REMOTE]**	+ Main power ON	Keeping previous state
Parameter Up/Down load mode	[▲] + [▼]	+ Main power ON	Keeping previous state
Maintenance open mode	**[REMOTE]** + **[FUNCTION]**	+ Main power ON	User mode
System parameter input mode	[◀] + [▶] or **[ENTER]** + **[END]**	+ Main power ON + Main power ON	User mode

F/W update mode

Receiving ROM data from the host computer through USB2.0 I/F to update device F/W, or rewriting of ink information.

   Starting method: Starting with pressing **[REMOTE]**

> **Important!** **Only enabled when starting up with the main power supply (side of the equipment).**

In JV33, the following updates are allowed.

   • Main board F/W

Parameter Up/Down load mode

Parameter data, log data are Up/Down loaded via USB I/F with the Host computer.

   Starting method: Starting with pressing [▲] + [▼].

Upload, Download is instructed by the host PC (F/W update tool) with an exclusive maintenance command.
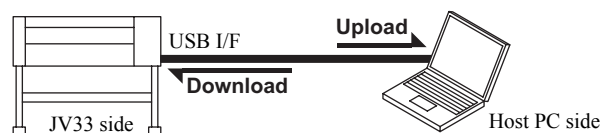
Fig.2-10

Maintenance Open Mode

Starts the device in maintenance open state

   Starting method: Start with pressing **[REMOTE]** + **[FUNCTION]**.

System Parameter Input Mode

Starts the device in system parameter input state of #PARAMETER function.
This function is for initializing parameters when starting of device is disabled to start because of parameter hash error and so on.

Starting method: Starts with pressing [◀] + [▶] (Or starts with pressing **[ENTER]** + **[END]**).

2-2-4.   PARAMETER Function

PARAMETER function is a function to confirm and set parameters in the device.

<Parameter function item>

No.	Item	Stored place	Notice
1	SYSTEM PARAM.	F-ROM sector 2	
2	MAINTE PARAM.	F-ROM sector 2	
3	CUSTOM PARAM.	F-ROM sector 2	
4	RUNNING PARAM.	F-ROM sector 1 /Backup SRAM	
5	EXCHANGE PARAM.	F-ROM sector 2	
6	INKSYSTEM PARAM	F-ROM sector 2	
7	INKinfor.PARAM.	F-ROM sector 2,8,9	
8	INKSEQUENCEpara	F-ROM sector 2,8,9	
9	INKTYPE PARAM.	F-ROM sector 2,8,9	
10	HEADunit PARAM.	F-ROM sector 1 /Backup SRAMHEAD.EEPROM	
11	SERVO PARAMETER	F-ROM sector 2	
12	TEST PARAMETER	F-ROM sector 2	
13	CORRECT PARAM.	F-ROM sector 2	
14	ADJUST PARAM.	F-ROM sector 2	

Note: While accessing F-ROM and HEAD.EEPROM, display [F-ROM WRITING] and light up BUSY LED (red).
     No.1~6:   Default selection is allowed
     No.7~14: Selection is allowed only at the maintenance open

2-3. Operation Flow

2-3-1. Outline

The followings are items to be operational at the maintenance open. As for the operation flow at the maintenance close, see the operation manual.


```
(PRINT)FUNCTION
```

FUNCTION / ∧ / V

```
FUNCTION
SETUP          <ENT>
```
──ENTER──→ `SETUP`   *See p.2-41*

FUNCTION / ∧ / V

```
FUNCTION
MAINTENANCE    <ENT>
```
──ENTER──→ `MAINTENANCE`   *See p.2-43*

FUNCTION / ∧ / V

```
FUNCTION
MACHINE SETUP  <ENT>
```
──ENTER──→ `MACHINE SET`   *See p.2-46*

FUNCTION / ∧ / V

```
FUNCTION
MACHINE SETUP2 <ENT>
```
──ENTER──→ `COMMON SETUP`   *See p.2-47*

FUNCION / ∧ / V

```
FUNCTION
INFORMATION    <ENT>
```
──ENTER──→ `INFORMATION`   *See p.2-48*

FUNCION / ∧ / V

```
FUNCTION
DISPLAY        <ENT>
```
──ENTER──→
```
DISPLAY
Japanese       <ent>
  English      <ent>
  German       <ent>
  French       <ent>
  Spanish      <ent>
  Italian      <ent>
  Portuguese   <ent>
```
──ENTER──→ Display is switched to the selected language

FUNCION / ∧ / V

```
FUNCTION
#ADJUST        <ENT>
```
──ENTER──→ `ADJUST`   *See p.2-49*

FUNCION / ∧ / V

```
FUNCTION
#TEST          <ENT>
```
──ENTER──→ `TEST`   *See p.2-52*

FUNCION / ∧ / V

```
FUNCTION
#PARAMETER     <ENT>
```
──ENTER──→ `PARAMETER`   *See p.2-56*

Effective at the maintenance open

2-3-2. SETUP

```
                          ┌─────────────┐
                          │  SETUP  2   │
                          └─────────────┘
                                │
                        FUNCION / Λ / V
                                │
        ┌──────────────┐   ENTER   ┌──────────────────┐      ┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
        │[1]           │──ENTER──▶│[1]COLOR PATTERN  │       Plots a pattern from the plotting
        │COLOR PATTERN <ent>│◀─/END─│SETUP        :ON │       origin. The edge of the image is
        └──────────────┘          └──────────────────┘       offset about18 mm from the
                                          [:OFF]              plotting origin.
                                                              └ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘
                        FUNCION / Λ / V

        ┌──────────────┐   ENTER   ┌──────────────────┐
        │[1]           │──ENTER──▶│[1]REFLESH        │
        │REFRESH    <ent>│◀─/END─│SETUP     :LEVEL3 │
        └──────────────┘          └──────────────────┘
                                     [LEVEL 0~3]

                        FUNCION / Λ / V

        ┌──────────────┐   ENTER   ┌──────────────────┐     ┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
        │[1]           │──ENTER──▶│[1]VACUUM         │      SETUP     :OFF
        │VACUUM     <ent>│◀─/END─│SETUP   :STANDARD │      SETUP     :WEAK
        └──────────────┘          └──────────────────┘      SETUP     :Little WEAK
                                                            SETUP     :STRONG
                                                            └ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘
                        FUNCION / Λ / V

        ┌──────────────┐   ENTER   ┌──────────────────┐     ┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
        │[1]           │──ENTER──▶│[1]FeedSPEED LEVEL│      The feed speed for bidirectional
        │FeedSPEED LEVEL<ent>│◀─/END─│LEVEL      :10%  │      plotting is different (acceleration
        └──────────────┘          └──────────────────┘      does not change).
                                      [10~200%]             └ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘
                        FUNCION / Λ / V
```

```
        ┌──────────────┐   ENTER   ┌─────────────────────┐ FUNC   ┌ ─ ─ ─ Movement using the [PRIORITY] (HOST /PANEL individual selection ) key
        │[1]           │──ENTER──▶│[1]PRIORITY         │───────  Forward: [ENTER] or [>]
        │PRIORITY   <ent>│◀─/END─│SETUP :INDIVIDUALLY │           [ENTER] at the last item to quit (return to the menu)
        └──────────────┘          └─────────────────────┘           [>] at the last item to move to the first item
                                    [SETUP   :ALL HOST ]          Return: [<] ([<] at the first item moves to the last item)
                                    [SETUP   :ALL PANEL]          Quit : END (Quits from any display)
                                                                    Changes up to the previous item are available (the current item is canceled)
```

```
                            ┌──────────────────┐  ENTER  ┌──────────────────┐
                            │[1]PRIORITY      │─────────▶│[1]PRIORITY      │
                            │MEDIA COMP. :HOST│          │HEATER     :HOST │
                            └──────────────────┘ [PANEL]  └──────────────────┘ [PANEL]
                                                        ENTER

                            ┌──────────────────┐  ENTER  ┌──────────────────┐  ENTER  ┌──────────────────┐
                            │[1]PRIORITY      │─────────▶│[1]PRIORITY      │─────────▶│[1]PRIORITY      │
                            │PRINT MODE  :HOST│          │INK LAYERS  :HOST│          │DRYING TIME :HOST│
                            └──────────────────┘ [PANEL]  └──────────────────┘ [PANEL]  └──────────────────┘ [PANEL]
                                                        ENTER

                            ┌──────────────────┐  ENTER  ┌──────────────────┐  ENTER  ┌──────────────────┐
                            │[1]PRIORITY      │─────────▶│[1]PRIORITY      │─────────▶│[1]PRIORITY      │
                            │AUTO CUT    :HOST│          │PRE-FEED    :HOST│          │MARGIN      :HOST│
                            └──────────────────┘ [PANEL]  └──────────────────┘ [PANEL]  └──────────────────┘ [PANEL]
                                                        ENTER

                            ┌──────────────────┐  ENTER  ┌──────────────────┐  ENTER  ┌──────────────────┐
                            │[1]PRIORITY      │─────────▶│[1]PRIORITY      │─────────▶│[1]PRIORITY      │
                            │COLOR PATTERN:HOST│          │REFRESH     :HOST│          │VACUUM      :HOST│
                            └──────────────────┘ [PANEL]  └──────────────────┘ [PANEL]  └──────────────────┘ [PANEL]
                                                        ENTER

                                                        ┌──────────────────┐
                                                        │[1]PRIORITY      │
                                                        │FEED SPD.LEVEL:HOST│
                                                        └──────────────────┘ [PANEL]
```

```
                        FUNCION / Λ / V

        ┌──────────────┐   ENTER   ┌──────────────────┐ FUNC  ┌──────────────────┐
        │[1]           │──ENTER──▶│[1]AUTO CLEANING │──ENTER─▶│INTERVAL   :TYPE │
        │AUTO CLEANING <ent>│◀─/END─│SETUP       :ON  │◀──────│1000mm    :NORMAL│
        └──────────────┘          └──────────────────┘       └──────────────────┘
                                      [:OFF]                  [◁], [▷]: Moving the cursor

                        FUNCION / Λ / V

        ┌──────────────┐   ENTER   ┌──────────────────┐ FUNC  ┌──────────────────┐
        │[1]           │──ENTER──▶│[1]Print. CLEANING│──ENTER─▶│INTERVAL   :TYPE │
        │Print. CLEANING<ent>│◀─/END─│SETUP       :ON  │◀──────│1000mm    :NORMAL│
        └──────────────┘          └──────────────────┘       └──────────────────┘
                                      [:OFF]                  [◁], [▷]: Moving the cursor

                        FUNCION / Λ / V

        ┌──────────────┐   ENTER   ┌──────────────────┐  ENTER  ┌──────────────────┐
        │[1]           │──ENTER──▶│[1]MEDIA DETECT  │─────────▶│[1]MEDIA DETECT  │
        │MEDIA DETECT <ent>│◀─END──│DETECT METHOD <ent>│◀─/END─│DETECT METHOD:SELECT│
        └──────────────┘          └──────────────────┘        └──────────────────┘
                                          Λ V                  [DETECT METHOD :WIDTH]

        ┌──────────────┐          ┌──────────────────┐  ENTER  ┌──────────────────┐
        │              │          │[1]MEDIA DETECT  │─────────▶│[1]MEDIA DETECT  │
        FUNCION / Λ / V│◀──END────│CUTTING DETECT <ent>│◀─/END─│DETECT :BOTH EDGE│
        └──────────────┘          └──────────────────┘        └──────────────────┘
                                                              [DETECT    :LEFT EDGE]
                                                              [DETECT    :RIGHT EDGE]
                                                              [DETECT    :NONE]

        ┌──────────────┐   ENTER   ┌──────────────────┐  ENTER  ┌──────────────────┐
        │[1]           │──ENTER──▶│[1]SETUP RESET   │─────────▶│   Parameter     │
        │SETUP RESET <ent>│◀─END──│RESET        :ent│          │  Initialization │
        └──────────────┘          └──────────────────┘        └──────────────────┘
                                      │                                  │
                                      └──────────── END ─────────────────┘
```

2-3-3. MAINTENANCE

```
┌─────────────────┐
│  MAINTENANCE    │
└─────────────────┘
        ↑
  FUNCTION / ∧ / ∨
```

```
MAINTENANCE          ─ENTER→  ST. MAINTENANCE      ─ENTER→  ST. MAINTENANCE     ─ENTER→  Close a cover   ─(CLOSE)→  RESTART
ST. MAINTENANCE <ent> ←END   CARRIAGE OUT    <ent>          COMPLETED     :ent
                                    ↑ ∧ /∨                ··········· After the cover is closed ···········

                     ─END→    ST. MAINTENANCE      ─ENTER→  ST. MAINTENANCE     ─ENTER→  Close a cover   ─(CLOSE)→  RESTART
                              WIPER EXCHANGE  <ent>          COMPLETED     :ent
                                    ↑ ∧ /∨                ··········· After the cover is closed ···········

                     ─END→    ST. MAINTENANCE      ─ENTER→  WIPER CLEANING       ─ENTER→  Fill the liquid
                              NOZZLE WASH     <ent>          COMPLETED(NEXT):ent           COMPLETED(NEXT):ent
                                    ↑ ∧ /∨                                      ─ENTER→
                                                           ST. MAINTENANCE      ─ENTER→  Close a cover   ─(CLOSE)→  RESTART
                                                           LEAVING TIME  :1min
                                                                                ··········· After the cover is closed ···········

                     ─END→    ST. MAINTENANCE      ─ENTER→  ST. MAINTENANCE     ─ENTER→  Close a cover   ─(CLOSE)→  RESTART
                              PUMP TUBE WASH  <ent>          COMPLETED     :ent
                                    ↑ ∧ /∨                ··········· After the cover is closed ···········

                     ─END→    ST. MAINTENANCE      ─ENTER→  WIPER CLEANING       ─ENTER→  Fill the liquid
                              CUSTODY WASH    <ent>          COMPLETED(NEXT):ent           COMPLETED(NEXT):ent
                                                           ST. MAINTENANCE      ─ENTER→  Close a cover   ─(CLOSE)→  RESTART
                                                           LEAVING TIME  :1min
                                                                                ··········· After the cover is closed ···········
```

```
MAINTENANCE          ─ENTER→  CR. MAINTENANCE     ─ENTER→  Close a cover   ─(CLOSE)→  RESTART
CR. MAINTENANCE <ent>         COMPLETED     :ent
                                                  ··········· After the cover is closed ···········
        ↓
  FUNCTION / ∧ / ∨
```

```
MAINTENANCE          ─ENTER→  HD. MAINTENANCE     ─ENTER→  FILLING UP NOW.
HD. MAINTENANCE <ent> ←END    FILL UP INK    <ent>          00:00
                                    ↑ ∧ /∨

                     ─ENTER→  HD. MAINTENANCE     ─ENTER→  See p.2-45
                              DISCHARGE&WASH <ent> ←END
                                    ↑ ∧ /∨

                     ─ENTER→  HD. MAINTENANCE     ─ENTER→  MaintWashLiquid     ─ENTER→  MaintWashLiquid     MaintWashLiquid
                     ←END     MaintWashLiquid<ent>         FILLING UP    <ent> ←END    CARRIDGE : none     FILLING UP START:ent
                                                              ↑ ∧ /∨               ··· If a cartridge is loaded or the status is normal ···

                                                           MaintWashLiquid     ─ENTER→  MaintWashLiquid     MaintWashLiquid
                                                           DISCHARGE     <ent> ←END    There is a CARTRIDGE  DISCHARGE START :ent
                                                                                ··· If the cartridge is removed ···
        ↓
  FUNCTION / ∧ / ∨
```

```
MAINTENANCE          ─ENTER→  DROP POSITION       ─ENTER→  PRINTING        Drawing   DROP POSITION
DROP POSITION  <ent>  ←END    PRINT START   :ent           PLEASE WAIT     end / END  PATTERN1    = 0.0
                                                                                     ┌─────────────┐   The correction values are
                                                                                     │PATTERN 1~2  │   stored in the correction
                                                                                     │-40.0~40.0   │   parameters by user type
                                                                                     └─────────────┘
        ↓
  FUNCTION / ∧ / ∨
```

```
┌─────────────────┐
│  MAINTENANCE 2  │
└─────────────────┘
```

```
┌─────────────────────┐
│  MAINTENANCE  2     │
└─────────────────────┘
```

FUNCION / ∧ / V

```
MAINTENANCE          ──ENTER→   SLEEP SETUP          ──ENTER→   SLEEP SETUP
SLEEP SETUP  <ent>   ←─END──    REFRESH      <ent>   ←ENTER/END  REFLESHinterval=1h
                                                                 ┌──────────────┐
                                                                 │OFF, 1~168h   │
                                                                 └──────────────┘
```

∧ / V

《When washing solution filling is required》

```
                     ──END──    SLEEP SETUP          ──ENTER→   SLEEP SETUP          OFF→ON→  ** Washing Liquid **
                                PUMP TUBE WASH <ent>  ←ENTER/END  WASH INTERVAL   =4h
                                                                 ┌──────────────┐
                                                                 │OFF, 1~168h   │
                                                                 └──────────────┘
```

∧ / V

FUNCION / ∧ / V

```
                     ──END──    SLEEP SETUP          ──ENTER→   SLEEP SETUP          ─FUNC→   SLEEP SETUP
                                CLEANING     <ent>   ←ENTER/END  CLEAN.INTERVAL =OFF  ←END──   CLEAN.TYPE  :NORMAL
                                                                 ┌──────────────┐              ┌────────────────────┐
                                                                 │OFF, 1~168h   │              │CLEAN.TYPE   :SOFT  │
                                                                 └──────────────┘              │CLEAN.TYPE   :HARD  │
                                                                                               └────────────────────┘
```

```
MAINTENANCE          ──ENTER→   ROUTINE SETUP        ──ENTER→   ROUTINE WIPING       ──ENTER→   ROUTINE WIPING
ROUTINE SETUP <ent>  ←─END──    ROUTINE WIPING<ent>  ←─END──    SCAN COUNT    <ent>  ←ENTER/END  SCAN COUNT     = 50
```

∧ / V   ∧ / V

```
                                                     ──END──    ROUTINE WIPING       ──ENTER→   ROUTINE WIPING
                                                                TEMP.difference<ent> ←ENTER/END  TEMP.Difference=20°C
```

```
                     ──END──    ROUTINE SETUP        ──ENTER→   ROUTINE SETUP
                                REFRESH      <ent>   ←ENTER/END  REFLESHinterval=1h
                                                                 ┌──────────────┐
                                                                 │OFF, 1~168h   │
                                                                 └──────────────┘
```

∧ / V

FUNCION / ∧ / V

《When washing solution filling is required》

```
                     ──END──    ROUTINE SETUP        ──ENTER→   ROUTINE SETUP        OFF→ON→  ** Washing Liquid **
                                PUMP TUBE WASH <ent>  ←ENTER/END  WASH INTERVAL   =4h
                                                                 ┌──────────────┐
                                                                 │OFF, 1~168h   │
                                                                 └──────────────┘
```

∧ / V

```
                     ──END──    ROUTINE SETUP        ──ENTER→   ROUTINE SETUP        ─FUNC→   ROUTINE SETUP
                                CLEANING     <ent>   ←ENTER/END  CLEAN.INTERVAL =OFF  ←ENTER/END  CLEAN.TYPE  :NORMAL
                                                                 ┌──────────────┐              ┌────────────────────┐
                                                                 │OFF, 1~168h   │              │CLEAN.TYPE   :SOFT  │
                                                                 └──────────────┘              │CLEAN.TYPE   :HARD  │
                                                                                               └────────────────────┘
```

```
MAINTENANCE          ──ENTER→   WIPER LEVEL
WIPER LEVEL   <ent>  ←ENTER/END  LEVEL       :10/10
                                 ┌──────────────┐
                                 │9/10~1/10     │
                                 └──────────────┘
```

FUNCION / ∧ / V

```
MAINTENANCE          ──ENTER→   InkTankExchange
InkTankExchange<ent> ←ENTER/END  EXCHANGE      :ent
                                 ┌──────────────┐
                                 │9/10~1/10     │
                                 └──────────────┘
```

FUNCION / ∧ / V

```
MAINTENANCE          ──ENTER→   MEDIA RESIDUAL
MEDIA RESIDUAL <ent> ←ENTER/END  SETUP        :OFF
                                 ┌──────┐
                                 │:ON   │
                                 └──────┘
```

□ DISCHARGE&WASH

```
┌─────────────────────┐   ENTER   ┌─────────────────────┐
│ HEAD MAINTENANCE    │ ─────────→│ Remove:InkCartridges│
│ DISCHARGE&WASH <ent>│ ←──────── │      MMCC YYKK      │
└─────────────────────┘   END     └─────────────────────┘
```

Confirmation of the state

Incomplete discharge

```
* DISCHARGE *
   00:00
```

End process

Discharge status check

End of discharge

```
Set:WashingCartridge
     1234 5678
```

Confirmation of the state

Incomplete suction

```
* ABSORPTION *
    00:00
```

End process

Suction status check

End of suction

```
Remove:Cartridges
    1234 5678
```

Confirmation of the state

Incomplete discharge

```
* DISCHARGE *
   00:00
```

End process

Discharge status check

End of discharge

```
Set:WashingCartridge
     1234 5678
```

Confirmation of the state

Incomplete suction

```
* ABSORPTION *
    00:00
```

End process

Suction status check

End of suction

```
Remove:Cartridges
    1234 5678
```

Confirmation of the state

Incomplete discharge

```
* DISCHARGE *
   00:00
```

End process

Discharge status check

End of discharge

```
SELECT:
END <        > Re-Wash
```

```
Maint.WashLiquid
END <        >DISCHARGE
```

```
Remove:Maint.Wash
Liquid
```

Confirmation of the state

```
* DISCHARGE *
 PLEASE WAIT
```

End of discharge

Effective at the maintenance open

2-3-4. MACHINE SET

MACHINE SETUP

FUNCTION / ∧ / ∨

| MACHINE SETUP | | ─ENTER→ | DEODORIZE FAN | | ─ENTER→ | DEODORIZE FAN |
| DEODORIZE FAN | \<ent\> | ←─END─ | STOP TIME | \<ent\> | ←ENTER /END─ | STOP TIME : 120Min |

CONTINUE 0∼240

OFF is only settable at maintenance open

∧ / ∨

| | | ←─END─ | DEODORIZE FAN | | ─ENTER→ | DEODORIZE FAN |
| | | | RENEW | \<ent\> | ←ENTER /END─ | RENEW : ON |

OFF

FUNCTION / ∧ / ∨

| MACHINE SETUP | | ─ENTER→ | DRYNESS FEED | |
| DRYNESS FEED | \<ent\> | ←ENTER /END─ | SETUP : ON | |

: OFF

FUNCTION / ∧ / ∨

Only settable at maintenance open

| MACHINE SETUP | | ─ENTER→ | STAMP SETUP | | ─FUNC→ | STAMP SETUP | | ─ENTER→ | TEST DRAW: PAGE No |
| STAMP SETUP | \<ent\> | ←ENTER /END─ | STAMP : OFF | | ←─END─ | ITEM | \<ent\> | ←ENTER /END─ | OFF : OFF |

: ON

∧ ∨

| | | ←─────END─────── | STAMP SETUP | | ─ENTER→ | STAMP SETUP |
| | | | PRINT EXTEND | \<ent\> | ←ENTER /END─ | PRINT : ONLINE |

PRINT : ALL

FUNCTION / ∧ / ∨

| MAINTENANCE | | ─ENTER→ | WasteInkWarning | |
| WasteInkWarning\<ent\> | | ←ENTER /END─ | SETUP : ON | |

OFF

FUNCTION / ∧ / ∨

Only settable at maintenance open

| MACHINE SETUP | | ─ENTER→ | MRL COMMAND |
| MRL COMMAND | \<ent\> | ←ENTER /END─ | SELECT:MRL-III(JV33) |

SELECT :MRL-II (JV3)

Only settable at maintenance open

2-3-5. COMMON SETUP

2-47

```
                        ┌─────────────────┐
                        │  COMMON SETUP   │
                        └─────────────────┘
                                 │
                        FUNCION / Λ / V
                                 │
  ┌──────────────────┐  ─ENTER→ ┌──────────────────┐  ─ENTER→  ┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
  │ COMMON SETUP     │          │ CONFIRM.FEED     │           │ CONFIRM.FEED      │
  │ CONFIRM.FEED <ent>│◄─END──  │ FEED        :ON  │◄──END──   │ BACK FEED    :ON  │
  └──────────────────┘          │          :OFF    │           │            :OFF   │
                                 └──────────────────┘          └ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘
                                                         Only settable when CONFIRMFEED is ON
           │
    FUNCION / Λ / V
           │
  ┌──────────────────┐  ─ENTER→ ┌─────────────────────┐ ─ENTER→ ┌─────────────────────┐
  │ COMMON SETUP     │          │ TIME SET            │  ENTER  │ TIME SET            │
  │ TIME SET   <ent> │◄─END──   │ 2007.10.05 21:36:00 │◄─/END── │ 2007.10.05 21:36:00 │
  └──────────────────┘          └─────────────────────┘         └─────────────────────┘
           │
    FUNCION / Λ / V
           │
  ┌──────────────────┐  ─ENTER→ ┌──────────────────┐
  │ COMMON SETUP     │   ENTER  │ TEMP.  : LENGTH  │
  │ UNIT SETUP  <ent>│◄─/END──  │ ˚C     :   mm    │
  └──────────────────┘          └──────────────────┘
                                 ┌ ─ ─ ─ ─ ─ ─ ─ ─ ┐
                                 │ TEMP.   :˚ F    │
                                 │ LENGTH  : inch  │
                                 └ ─ ─ ─ ─ ─ ─ ─ ─ ┘
           │
    FUNCION / Λ / V
           │
  ┌──────────────────┐  ─ENTER→ ┌──────────────────┐
  │ COMMON SETUP     │   ENTER  │ MACHINE NAME     │
  │ MACHINE NAME <ent>│◄─/END── │     JV33-01      │
  └──────────────────┘          └──────────────────┘
           │
    FUNCION / Λ / V
           │
  ┌──────────────────┐  ─ENTER→ ┌──────────────────┐
  │ COMMON SETUP     │   ENTER  │ KEY BUZZER       │
  │ KEY BUZZER  <ent>│◄─/END──  │ SETUP       :ON  │
  └──────────────────┘          └──────────────────┘
```

2-3-6. INFORMATION

```
                    ┌──────────────┐
                    │ INFORMATION  │
                    └──────────────┘
                           │
                   FUNCION / ∧ / ∨
                           │
┌──────────────────┐  ENTER  ┌──────────────────┐        ┌──────────────────┐
│ INFORMATION      │───────→ │ ERROR HISTRY     │←────── │ ***** ERROR 09 *****│
│ ERROR HISTRY <ent>│←─────── │ [01] 05.09.29 08:18│        │      HDC ERROR    │
└──────────────────┘  END    └──────────────────┘        └──────────────────┘
                           │     Select with the up/down keys    Select with the up/down keys
                   FUNCION / ∧ / ∨
                           │
┌──────────────────┐  ENTER  ┌──────────────────┐
│ INFORMATION      │───────→ │ [01] 05.09.29 08:18│
│ MAINTE.HISTRY <ent>│←─────── │ CARRIAGE OUT     │
└──────────────────┘  END    └──────────────────┘
                           │     Select with the up/down keys
                   FUNCION / ∧ / ∨
                           │
┌──────────────────┐  ENTER  ┌──────────────────┐        ┌──────────────────┐
│ INFORMATION      │───────→ │ [01] 720x1080  .12│←────── │ PRINTmode HIST.  │
│ PRINTmode HIST.<ent>│←─────── │ Bd.Vd.x1.1L: 12.34m│        │ [01] 05.09.29 09:57│
└──────────────────┘  END    └──────────────────┘        └──────────────────┘
                           │     Select with the up/down keys   Select with the up/down keys
                   FUNCION / ∧ / ∨
                           │
┌──────────────────┐  ENTER  ┌──────────────────┐
│ INFORMATION      │───────→ │ LIST             │
│ LIST        <ent>│←─────── │   ** PRINTING ** │
└──────────────────┘  END    └──────────────────┘
```

If there is no history record.
* No history record! *

Effective at the maintenance open

```
┌──────────────────┐  ENTER  ┌──────────────────┐  ENTER  ┌──────────────────┐
│ INFORMATION      │───────→ │ JV33-160S  V1.00 │───────→ │ FPGA-PDC   V1.00 │
│ VERSION     <ent>│←─────── │ MRL-III    V1.00 │←─────── │ FPGA-HDC   V1.00 │
└──────────────────┘  END    └──────────────────┘  END    └──────────────────┘
                           │
                   FUNCION / ∧ / ∨
                           │
┌──────────────────┐  ENTER  ┌──────────────────┐
│ INFORMATION      │───ENTER→│ S/N = ******** │
│ Serial&DealerNo<ent>│←────── │ D/N = ******** │
└──────────────────┘ ENTER/END└──────────────────┘
```

Effective at the maintenance open

```
┌──────────────────┐  ENTER  ┌──────────────────┐
│ INFORMATION      │───────→ │ 05.09.20 09:57[  0]│
│ EVENT LOG   <ent>│←─────── │ 0823-01-01.0000.0000│
└──────────────────┘  END    └──────────────────┘
                           │     Select with the up/down keys
                   FUNCION / ∧ / ∨
                           │
┌──────────────────┐  ENTER  ┌──────────────────┐        ┌──────────────────┐
│ INFORMATION      │───────→ │ REPLACE COUNTER  │        │ Select cartridge  x8│
│ REPLACE COUNTER<ent>│←─────── │ CART. 1: 0       │        └──────────────────┘
└──────────────────┘  END    └──────────────────┘           CART. 1 8
                               CART. 1 8
                                ∧ / ∨
                           ┌──────────────────┐
                           │ REPLACE COUNTER  │
                           │ SCAN : 0         │
                           └──────────────────┘
                                ∧ / ∨
                           ┌──────────────────┐
                           │ REPLACE COUNTER  │
                           │ TIME : 0h        │
                           └──────────────────┘
                                ∧ / ∨
                           ┌──────────────────┐
                           │ REPLACE COUNTER  │
                           │ WIPER  : 0       │
                           └──────────────────┘
                                ∧ / ∨
                           ┌──────────────────┐        ┌──────────────────┐        ┌──────────────────┐
                           │ H1A:ALL =123,456,789│←────── │ H1A:Mdot=123,456,789│        │ Select nozzle A ~H x2│
                           │     Sdot= 13,579,135│        │ Ldot= 13,579,135 │        └──────────────────┘
                           └──────────────────┘        └──────────────────┘
                              H1A H
                                ∧ / ∨
                           ┌──────────────────┐
                           │ REPLACE COUNTER  │
                           │ PUMP : 0         │
                           └──────────────────┘
                              PUMP 1 4
                                ∧ / ∨
                           ┌──────────────────┐
                           │ REPLACE COUNTER  │
                           │ LENGTH : 0m      │
                           └──────────────────┘
                                ∧ / ∨
                           ┌──────────────────┐
                           │ REPLACE COUNTER  │
                           │ AREA   : 0m²     │
                           └──────────────────┘
                                ∧ / ∨
                           ┌──────────────────┐
                           │ SLEEP REF.:  0H00M│
                           │ CNT   : 0        │
                           └──────────────────┘
                                ∧ / ∨
                           ┌──────────────────┐
                           │ SLEEP CLN.:  0H00M│
                           │ CNT   : 0        │
                           └──────────────────┘
                                ∧ / ∨
                           ┌──────────────────┐
                           │ SLEEP TUBE:  0H00M│
                           │ CNT   : 0        │
                           └──────────────────┘
                                ∧ / ∨
                           ┌──────────────────┐        ┌──────────────────┐
                           │ REPLACE COUNTER  │        │ Select cartridge  x8│
                           │ INK PIC 1: 0     │        └──────────────────┘
                           └──────────────────┘
                              CART. 1 8
```

2-3-7. ADJUST

#ADJUST

As for the detail of "ADJUST Function" *(p. 2-20)* .

FUNCION / ∧ / ∨

#ADJUST / PRINT
HEAD ADJUST   ⟨ent⟩

ENTER → ← END

#HEAD ADJUST
SLANT ADJSUT   ⟨ent⟩

ENTER → ← END

JOG operation is allowed

#SLANT ADJSUT
PRINT START   :ent

ENTER → ← END

Adjust pattern drawing

∧ / ∨

#HEAD ADJUST
DROP.POS ADJSUT⟨ent⟩

ENTER → ← END

#DROP.POS.   MODE
SELECT :HiSPEED SCAN

SELECT :Normal SCAN

ENTER → ← END

#DROP.POS.   HsLg
SELECT   :DRAFT

DRAFT, FINE

ENTER

END

#DROP.POS.   HsLgDRFT
ADJUST :Y Bi

ENTER → ← END

#DROP.POS.   HsLgDRFT
Y Bi DRAW   :ent

ENTER → ← END

Adjust pattern drawing

Drawing End / END →

#DROP.POS.   HsLgDRFT
Y Bi   : 0.0

∧ / ∨

#DROP.POS.   HsLgDRFT
ホセイ   :FINE Y Bi

ENTER → ← END

#DROP.POS.   HsLgDRFT
FINE-Y Bi DRAW   :ent

ENTER → ← END

Adjust pattern drawing

Drawing End / END →

#DROP.POS.   HsLgDRFT
Y Bi   : 0.0

FUNCION / ∧ / ∨

#ADJUST / PRINT
EDGE ADJSUT   ⟨ent⟩

ENTER → ← END

#EDGE ADJSUT
CLEAR⟨   ⟩PRINT

Adjust pattern drawing

Drawing End / END →

#EDGE ADJSUT
L=15.0   R=15.0

∧

FUNCION / ∧ / ∨

#ADJUST / PRINT
MEDIA COMP.2   ⟨ent⟩

ENTER → ← END

#MEDIA COMP.2
PRINT START   :ent

ENTER → ← END

Adjust pattern drawing

Drawing End / END →

#MEDIA COMP.2
VALUE   = 0

FUNCION / ∧ / ∨

#ADJUST
POINTER OFFSET ⟨ent⟩

ENTER → ← END

#POINTER OFFSET
PRINT START   :ent

ENTER → ← END

Adjust pattern drawing

Drawing End / END →

#POINTER OFFSET
X=0.0   Y=0.0

FUNCION / ∧ / ∨

#ADJUST / PRINT
CAPPING   ⟨ent⟩

ENTER → ← END

#CAPPING
CAPPING POS= 0.0mm

Adjust with the [◁] / [▷] keys

ENTER → ← END

#CAPPING
AirPullPOS.= 0.0mm

Adjust with the [◁] / [▷] keys

ENTER → ← END

#CAPPING
FlushingPOS= 0.0mm

Adjust with the [◁] / [▷] keys

ENTER

END

#CAPPING
WiperPOS(X)= 0mm

Adjust with the [◁] / [▷] keys

ENTER → ← END

#CAPPING
WiperPOS(Y)= 0.0mm

Adjust with the [◁] / [▷] keys

FUNCION / ∧ / ∨

#ADJUST / PRINT
HEAD ID   ⟨ent⟩

ENTER → ← ENTER /END

#HEAD ID / ********
******** ********

Change and enter the text with the [∧] / [∨] keys

FUNCION / ∧ / ∨

#ADJUST / PRINT
HEAD WASH   ⟨ent⟩

ENTER → ← END

See p.2-51

FUNCION / ∧ / ∨

#ADJUST / PRINT
MANUALhead WASH⟨ent⟩

ENTER → ← END

#MANUALhead WASH
SUCTION START   :ent

End the operation with the [END] key

FUNCION / ∧ / ∨

#ADJUST 2

#ADJUST 2

FUNCION / Λ / V

#ADJUST
MOTOR CURRENT <ent>

— ENTER →
— END ←

#MOTOR CURRENT
STOP ADJUST   <ent>

— ENTER →
— END ←

X = 0   Y = 0
(****)   (****)

0〜255

Operation start

— ENTER →

#X MOVING ADJ. *RUN*
xxx   (****)

Λ / V

S=***mm/s   A=*.**G
X=*****mm

#Y MOVING ADJ. *RUN*
xxx   (****)

Λ / V

S=****mm/s   A=*.**G
Y=****mm

FUNCTION / Λ / V

Λ / V

#MOTOR CURRENT
X MOVING ADJUST<ent>

— ENTER →
— END ←

S=***mm/s   A=*.**G
X=*****mm

— END ←

Operation start

— ENTER →

Λ / V

— END ←

#MOTOR CURRENT
Y MOVING ADJUST<ent>

— ENTER →
— END ←

S=***mm/s   A=*.**G
Y=*****mm

— END ←

#ADJUST
SERIAL No.   <ent>

— ENTER →
— END ←

#SERIAL No.
****

┌ Λ V : Value change
│ < > : Column shift
└ ENTER : Setting

FUNCTION / Λ / V

#ADJUST
DEALER No.   <ent>

— ENTER →
— END ←

#DEALER No.
****

┌ Λ V : Value change
│ < > : Column shift
└ ENTER : Setting

FUNCTION / Λ / V

#ADJUST
DEFAULT SET   <ent>

— ENTER →
— END ←

#DEFAULT SET
SETUP PARAMETER<ent>

— ENTER →
— END ←

SETUP PARAMETER
INITIALIZE OK? :ent

— ENTER →

Parameter
Initialization

Λ / V

— END ←

Parameters

┌ Parameters are linked to items
│ that are selectable with
└ "#PARAMETER"

FUNCTION / Λ / V

#ADJUST
EXCHANGE PARTS <ent>

— ENTER →
— END ←

#EXCHANGE PARTS
REGISTRATION   <ent>

— ENTER →
— END ←

#REGISTRATION
PARTS :PUMP

— ENTER →
— ENTER /END ←

*PUMP
05.07.?? : No.1

Λ / V

#REGISTRATION
PARTS :CAP

— END ←

— ENTER →
— ENTER /END ←

*CAP
05.07.?? : No.1

Λ / V

#REGISTRATION
PARTS :DUMPER

— END ←

— ENTER →
— ENTER /END ←

*DUMPER
05.07.?? : No.1-A

Λ / V

Switch the display with
the [Λ] / [V] key

If there is no history record.

#EXCHANGE PARTS
HISTRY   <ent>

— ENTER →
— END ←

*HEAD
[0] 06.10.10 :

No histry record!

□ HEAD WASH

```
#ADJUST          ──ENTER──→  Remove:InkCartridge
HEAD WASH    <ent>  ──END──      MCYK KYCM

                   Confirmation of the state

                        * DISCHARGE *
                          00:00
                        End process
Incomplete
discharge               Discharge status check

                   End of discharge

                   Set:WashingCartridge
                      1234 5678

                   Confirmation of the state

                        * ABSORPTION *
                          00:00
                        End process
Incomplete
suction                 Suction status check

                   End of suction

                   Remove:Cartridge
                      1234 5678

                   Confirmation of the state

                        * DISCHARGE *
                          00:00
                        End process
Incomplete
discharge               Discharge status check

                   End of discharge

                   Set:WashingCartridge
                      1234 5678

                   Confirmation of the state

                        * ABSORPTION *
                          00:00
                        End process
Incomplete
suction                 Suction status check

                   End of suction

                   Remove:Cartridge
                      1234 5678

                   Confirmation of the state

                        * DISCHARGE *
                          00:00
                        End process
Incomplete
discharge               Discharge status check

                   End of discharge

                   Clean a wiper.
                   COMPLETED      :ent
                          ENTER
```

```
END<        >CONTINUE
  V Re-WASH

Set:TRANS Liquid
   1234 5678

Confirmation of the state

     * ABSORPTION *
       00:00
     End process
Incomplete
suction              Suction status check

End of suction

Remove:TRANS Liquid
   1234 5678

Confirmation of the state

     * DISCHARGE *
       00:00
     End process
Incomplete
discharge            Discharge status check

End of discharge

Maint.WashLiquid
END <      >DISCHARGE

Remove:Maint.Wash
Liquid

Confirmation of the state

     * DISCHARGE *
      PLEASE WAIT

End of discharge

TRANS Liquid
END<          >FillUp

Set:TRANS Liquid

Confirmation of the state

     * FILLING UP *
      PLEASE WAIT
     End process
Incomplete
suction              Suction status check

End of suction

Remove:Cartridge

Confirmation of the state

     * DISCHARGE *
      PLEASE WAIT
     End process
Incomplete
discharge            Discharge status check

End of discharge
```

2-3-8.   TEST

#TEST

As for the detail of "TEST Function" *(p.2-27)* .

FUNCION / ∧ / ∨

```
#TEST                    PATTERN  :50%, 25%, 12.5%, 6. 25%
CHECK PATTERN  <ent>              NOZZLE CHECK
```

```
#CHECK PATTERN     ENTER   DPI        :360x360   ENTER   X=123450  Y=1234
PATTERN:100%       END     SCAN:Uni-D / PASS:1    END    COLOR          :KMCY
```

```
6-Colors =: KMCYmc
8-Colors =: KMCY 1234
```

∧ / ∨

```
#CHECK PATTERN     ENTER   DPI        :360x360   ENTER   X=123450  Y=1234
PATTERN:COLOR CHART END    SCAN:Uni-D / PASS:1    END    DENSITY        :ALL
```

∧ / ∨

```
#CHECK PATTERN     ENTER   DPI        :360x360   ENTER   X=123450  Y=1234
PATTERN:DROP. POS CHK END   SCAN:Uni-D / PASS:1   END
```

ENTER

FUNCION / ∧ / ∨

```
JOG operation is allowed
```

```
#CHECK PATTERN  /100%   ENTER   PATTERN DRAWING        360x360. V1.  4P. Uni
DRAW            :ent                                   x1. H1        0. 00m
```

<— Alternatively displayed at drawing —>

ENTER /END

```
#CHECK PATTERN  100%
Hi-SPEED SCAN    :OFF
```

REMOTE

ON

TEST ——— TEST DRAWING

```
PRE   PRT   AFT
35°C  40°C  50°C
```

ENTER

```
40°C  50°C  35°C
( 35   40   50  )
```

HEATER
/END
/ 30sec
/ Error

HEATER

```
[<] [>]:Select (Pre/Print /After)
[∧] [∨]:Adjust temperature
The operation for Y and XY
SERVO is the same.
```

FUNCION / ∧ / ∨

```
#TEST              ENTER   #ALL PATTERN
ALL PATTERN  <ent>  END    PRINT START    :ent
```

FUNCION / ∧ / ∨

```
#TEST              ENTER   #MOTOR TEST        ENTER   #X SERVO MOTOR     ENTER   Operation start
MOTOR TEST  <ent>          X SERVO MOTOR  <ent>       S=*** A=*. ** X=****
```

```
                                                                       #X SERVO * RUNNING *
                                                                       COUNT= 0
```
END

∧ / ∨

```
S=***mm/s   A=*. **G   Check the operating
X=*****mm              conditions set
```

∧ / ∨

```
#MOTOR TEST        ENTER   #Y SERVO MOTOR     ENTER   Operation start
Y SERVO MOTOR  <ent>       S=*** A=*. ** Y=****
```

```
                                                                       #Y SERVO * RUNNING *
                                                                       COUNT= 0
```
END

∧ / ∨

```
S=****mm/s   A=*. **G   Check the operating
Y=****mm               conditions set
```

∧ / ∨

```
#MOTOR TEST        ENTER   S=*** A=*. ** X=****  ENTER   Operation start
XY SERVO MOTOR <ent>       S=*** A=*. ** Y=****
```

```
                                                                       #XY SERVO* RUNNING *
                                                                       COUNT= 0
```
END

∧ / ∨

```
S=*** A=*. ** X=****   Check the operating
S=*** A=*. ** Y=****   conditions set
```

∧ / ∨

End of count

```
#MOTOR TEST        ENTER   SPEED  :WAIT :COUNT   ENTER   Cap OFF
WIPER MOTOR  <ent>         100    : 0  :CONT.            Test operation start
                                                         Return to the state
                                                         before starting the test
```
FUNC

```
                                                                       WIPER    * RUNNING *
                                                                       COUNT= 0
```

```
100~4000pps(at 100pps unit)
CONTINUE,1~1000times
(at 1time unit)
```

Terminate with
[END] key at
CONTINUE

∧ / ∨

```
SPEED  :WAIT :COUNT   Check the operating
100    : 0  :CONT.    conditions set
```

∧ / ∨

End of count

```
#MOTOR TEST        ENTER   #PUMP MOTOR        ENTER   Cap OFF/Valve CLOSE
PUMP MOTOR  <ent>          DIR=FORW.  SPD=1017         Test operation start
                                                       Return to the state
                                                       before starting the test
```
ENTER

FORW. /REVE.

```
                   FUNC   CONT. / 100 ~ 4000
```

ENTER

```
<CARRIAGE>:< MOTOR >   Set the status of the operating
OUT    :    ON        carriage and motor
```

```
                                                                       PUMP     * RUNNING *
                                                                       COUNT= 0
```

Terminate with
[END] key at
CONTINUE

∧ / ∨

```
PUMP     * RUNNING *   Check the operating
DIR=FORW.  SPD=1017    conditions set
```

∧ / ∨

```
#MOTOR TEST        ENTER   #TAKE-UP MOTOR     ENTER   Test Operation start   ENTER   #TAKE-UP MOTOR
TAKE-UP MOTOR <ent>        START        :ent                                        *** RUNNING ***
```

#TEST 2

#TEST 2

FUNCTION / ∧ / ∨

```
#TEST
HEATER TEST    <ent>
```
—ENTER→ / ←END—
```
#HEATER TEST
TEMPERATURE    <ent>
```
—ENTER→ / ←END—
```
PRE    PRT    POST
35°C   40°C   50°C
```
—ENTER/HEATER→ / ←ENTER—
```
40°C   40°C   50°C
( OFF    OFF    OFF )
```

[<] [>]:Select(Pre/Print/After)
[∧] [∨]:Adjust temperature
Range : OFF, 20~50

∧ / ∨

—END→
```
#HEATER TEST
SSR            <ent>
```
—ENTER→ / ←END—
```
<15F> <1E2> <1F0>
 OFF   OFF   OFF
```
—FUNC→
```
PRE    PRT    POST
35°C   40°C   50°C
```

[∧] [∨]:Switch (ON/OFF)
[<] [>]:Select (Pre/Print/Post)

Heater temperature control is cut off
Temperature and AD input value are
displayed in a range of 0~100°C.

FUNCTION / ∧ / ∨

```
#TEST
WARMING TEST   <ent>
```
—ENTER→ / ←END—
```
#WARMING TEST
40 [°C]   ( 40 )
```

FUNCTION / ∧ / ∨

```
#TEST
ACTION TEST    <ent>
```
—ENTER→ / ←END—
```
#ACTION TEST
VACUUM FAN     :LOW
```
—ENTER /<>→
```
#ACTION TEST
Y-CUTTER       :DOWN
```
—ENTER /<>→
```
#ACTION TEST
LED POINTER    :OFF
```
—ENTER /<>→

:MID
:HIGH
:L.L.
:Poff

:UP
ON
ON
ON

```
#ACTION TEST
EXHAUST FAN    :OFF
```
—ENTER /<>→
```
#ACTION TEST
DRYING FAN     :OFF
```
—ENTER /<>→
```
HDC FAN1 : HDC FAN2
 OFF    :    OFF
```
—ENTER /<>→

FUNCTION / ∧ / ∨

```
#TEST
SENSOR TEST    <ent>
```
—ENTER→ / ←END—
```
#SENSOR TEST
SET LEVER      :OFF
```
—ENTER /<>→
```
#SENSOR TEST
R.PAPER        :OFF
```
—ENTER /<>→
```
#SENSOR TEST
Y-ORIGIN       :OFF
```
—ENTER /<>→
```
#SENSOR TEST
WIPER          :OFF
```
—ENTER /<>→

```
#SENSOR TEST
FRONT COVER    :OFF
```
—ENTER /<>→
```
#SENSOR TEST
HEAD HEIGHT    :OFF
```
—ENTER /<>→

—END→ RESTART

FUNCTION / ∧ / ∨

```
#TEST
OPTION         <ent>
```
—ENTER→ / ←END—
```
#OPTION / REEL = OFF
EXH.= OFF DRY  = OFF
```

ON/OFF is switched according
to the connection status

FUNCTION / ∧ / ∨

```
#TEST
KEYBOARD LED   <ent>
```
—ENTER→ / ←END—
```
PRINT :o   CUT :o
CONST. :ooo HEAT:ooo
```

[∧] [∨]:Switch(ON/OFF)
[<] [>]:LED pattern changing

```
ACTIVE:o
CONST. :ooo HEAT:ooo
```

FUNCTION / ∧ / ∨

```
#TEST
PAPER SENSOR   <ent>
```
—ENTER→ / ←END—
```
#PAPER SENSOR
***( ***, ***)
```

JOG operation is allowed

FUNCTION / ∧ / ∨

```
#TEST
KEYBOARD TEST  <ent>
```
—ENTER→ / ←END—
```
#KEYBOARD TEST
Key-> NONE
```

Indication of a name
of the pushed key
```
#KEYBOARD TEST
Key->[USER TYPE]
```
```
#KEYBOARD TEST
[END]-> TEST END
```

FUNCTION / ∧ / ∨

```
#TEST
LCD TEST       <ent>
```
—ENTER→ / ←END—
```
!!!!!!!!!!!!!!!!!!!!!
```

Displayed items are changed
at predetermined interval
and at 1 line unit
```
!!!!!!!!!!!!!!!!!!!!!
"""""""""""""""""""""
```

FUNCTION / ∧ / ∨

```
#TEST
TIMER CHECK    <ent>
```
—ENTER→ / ←END—
```
#TIMER CHECK
2005.01.01  01:23:45
```
—ENTER→ / ←ENTER/END—
```
#TIMER CHECK
2005.01.01  01:23:00
```

FUNCTION / ∧ / ∨

#TEST 3

```
#TEST 3

#TEST
MEMORY CHECK    <ent>

  ENTER → #MEMORY CHECK
  END      CHECK:MAIN.SDRAM
           ENTER → #MAIN.SDRAM CHECK
                    WAIT TIME    :OFF
                              [ON]
                    ENTER → #MAIN.SDRAM CHECK
                             COUNT= 1
                       ERROR → * MAIN.SDRAM ERROR *
                                address = h'********
                                Λ/V
                                WriteData=h'********
                                Read Data=h'********

  END → #MEMORY CHECK
        CHECK:MAIN.F-ROM
        ENTER → #MAIN.F-ROM CHECK
                 COUNT= 1
           ERROR → ***** ERROR 85 *****
                          ROM HASH

  END → #MEMORY CHECK
        CHECK:32M SDRAM
        ENTER → #32M SDRAM CHECK
                 COUNT= 1
           ERROR → * 32M SDRAM ERROR *
                    address = h'********
                    Λ/V
                    WriteData=h'********
                    Read Data=h'********

  END → #MEMORY CHECK
        CHECK:HEAD.EEPROM
        ENTER → #HEAD.EEPROM CHECK
                 COUNT= 1
           ERROR → *HEAD.EEPROM ERROR*
                    address = h'********
                    Λ/V
                    WriteData=h'********
                    Read Data=h'********

#TEST
SKEW CHECK      <ent>
  ENTER → #SKEW CHECK
  END      FEED      :1m
           ENTER → #SKEW CHECK
           END      ** FEED    1m **
                    Counted down
           REMOTE→FUNC → #MEDIA CUTTING TOOL
                          LENGTH    :500mm
                  ENTER → #MEDIA CUTTING TOOL
                  END      COUNT      :10
                     ENTER → #MEDIA CUTTING TOOL
                              COUNT      :10
                      Counted down with each cut

#TEST
TEMP. CHECK     <ent>
  ENTER → #TEMPERATURE
  END      HEAD TEMP.    <ent>
           ENTER → #HEAD TEMP.
           END      ***°C (****)
  END → #TEMPERATURE
        NOZZLE TEMP.   <ent>
        ENTER → #NOZZLE TEMP.
        END      CHECK = OK
  END → #TEMPERATURE
        HEAT SINK TEMP.<ent>
        ENTER → #HEAT SINK TEMP.
        END      ***°C (****)
  END → #TEMPERATURE
        SLIDER TEMP.   <ent>
        ENTER → #SLIDER TEMP.
        END      ***°C (****)

#TEST
LINEAR ENCODER  <ent>
  ENTER → #LINEAR ENCODER
  END      ActiveWIDTH  :****mm
           ENTER → Check operations :
                   3 times reciprocating
              Normal END → M =****.*  E =****.*
                           Mc=  0.0  Ec=  0.0
                   FUNC → << Coord.Of point >>
                           Ms=****** Es=*****
                           Λ/V
                           Mm=****** Em=*****
                           Mr=****** Er=*****
                           Λ/V
                           <<CommonCoord.SYS >>
                           ERR(ME-LE) = **.**mm
                           Λ/V
                           MotorENC = ****.**mm
                           LinearEND= ****.**mm
              Abnormal → ***** ERROR O8 *****
                         ActiveWIDTH  :****mm

#TEST 4
```

#TEST 4

FUNCION / ∧ / v

| #TEST
INK CARTRIDGE <ent> | ──ENTER──►
◄──END── | #INK CARTRIDGE
PACK&END SENSOR<ent> | ──ENTER──►
◄──END── | PACK   1234 5678
END   1234 5678 | The cartridge number
changes according to the
sensor status |

∧ /v

| ──END── | #INK CARTRIDGE
CARTRIDGE VALVE<ent> | ──ENTER──►
◄──END── | #CARTRIDGE VALVE
    ooooo.oo | [∧] [V]:Status change
OPEN = " o" /CLOSE = " . " |

∧ /v

| ──END── | #INK CARTRIDGE
INK-IC CHECK   <ent> | ──ENTER──►
◄──END── | #INK-IC CHECK
    12345_78 | ──ENTER──►
◄──END── | CNT=*
   12__ _67_ | ──END──► | CNT=*   NG=*
   12__ _67_ |

Select by moving the cursor
with the [◄] / [►] keys. Check
the number of slot errors

∧ /v

| ──END── | #INK CARTRIDGE
CARTRIDGE LED <ent> | ──ENTER──►
◄──END── | ERROR   : oooo oooo
ACTIVE : oo.o oooo | [∧] [V]:Status change ON/OFF
(ON= "o" OFF= ".")
[FUCTION]:Switching ERROR/ACTIVE
(Moving the cursor) |

FUNCION / ∧ / v

| #TEST
WASH CARTRIDGE <ent> | ──ENTER──►
◄──END── | #WASH CARTRIDGE
PACK&END SENSOR<ent> | ──ENTER──►
◄──END── | #PACK&END SENSOR
PACK :ON   EMD :OFF |

∧ /v

| ──END── | #WASH CARTRIDGE
CARTRIDGE VALVE<ent> | ──ENTER──►
◄──END── | #CARTRIDGE VALVE
       OPEN | [∧] [V]:Status change
OPEN /close |

∧ /v

When there is a cartridge

| ──END── | #WASH CARTRIDGE
IC CHECK   <ent> | ──ENTER──►
◄──END── | #IC CHECK
CHECK START   :ent | ──ENTER──►
◄──END── | #IC CHECK
CNT=1   NG=0 | ──END──► | #IC CHECK
CNT=1   NG=0 |

When there is no cartridge(inoperable)

#IC CHECK
    NO CARTRIDGE

2-3-9. PARAMETER

| PARAMETER | As for the detail of "PARAMETER Function" *(p. 2-39)* .

```
#PARAMETER              SYSTEM PARAMETER              ----> 1
SYSTEM PARAM.  <ent> ──ENTER── 000:COMP. X = 0 ──ENTER── 000:COMP. X = 0
```

```
                                          ALL PARAMETER              Initialization of
                     ── If INITIAL=1 ──  INITIALIZE OK ? :ent ──ENTER──  all parameters
```

```
                                          SYSTEM PARAMETER           Initialization of
                     ── If INITIAL=2 ──  INITIALIZE OK ? :ent ──ENTER──  system parameters
```

```
                                          CLOSED PARAMETER           Initialization of
                     ── If INITIAL=3 ──  INITIALIZE OK ? :ent ──ENTER──  non-discharged
                                                                     parameters
```

```
#PARAMETER              MAINTENANCEparameter          ----> 1            MAINTENANCEparameter
MAINTE PARAM.  <ent> ──ENTER── 000:DIR    = 0 ──ENTER── 000:DIR    = 0   INITIALIZE OK ? :ent
```

```
#PARAMETER              CUSTOMIZE PARAMETER           ----> 100          CUSTOMIZE PARAMETER
CUSTOM PARAM.  <ent> ──ENTER── 000:EDGE LV = 50 ──ENTER── 000:EDGE LV = 50  INITIALIZE OK ? :ent
```

```
#PARAMETER              RUNNING PARAMETER             ----> 3000         RUNNING PARAMETER
RUNNING PARAM. <ent> ──ENTER── 000:CAPC.H1 = 0 ──ENTER── 000:CAPC.H1 = 0  INITIALIZE OK ? :ent
```

```
#PARAMETER              EXCHANGE PARAMETER            ----> 3
EXCHANGE PARAM.<ent> ──ENTER── 000:Hd.nn01 = 0 ──ENTER── 000:Hd.nn01 = 0
```

```
#PARAMETER              INK-SYSTEM PARAMETER          ----> 1            INK-SYSTEM PARAMETER
INKSYSTEM PARAM<ent> ──ENTER── 000:LEVELsw = 0 ──ENTER── 000:LEVELsw = 0  INITIALIZE OK ? :ent
```

| PARAMETER 2 |

```
┌─────────────────┐
│  PARAMETER 2    │
└────────┬────────┘
         │
┌────────┼──────────────────────────────────────────────────────────────────────────────┐
│        │                                                                                 │
│  ┌─────────────────┐                          ┌─────────────────┐   ┌─────────────────┐ │
│  │#PARAMETER       │──────────ENTER──────────→│INK INFOR. PARAMETER│─ENTER→│   ----> 101     │ │
│  │INKinfor.PARAM. <ent>│                      │000:VERSION = 100 │   │000:VERSION = 100│ │
│  └─────────────────┘                          └─────────────────┘   └─────────────────┘ │
│        │ ∧ /∨                                 ┊Displayed only for the ink type filled┊   │
│        │                                                                                 │
│  ┌─────────────────┐                          ┌─────────────────┐   ┌─────────────────┐  ┌─────────────────┐
│  │#PARAMETER       │──────────ENTER──────────→│INKsequencePARAMETER│─ENTER→│   ----> 12345   │  │INKsequencePARAMETER│
│  │INKSEQUENCEpara<ent>│                       │000:POWON.F = 0   │   │000:POWON.F = 0  │  │INITIALIZE OK ? :ent│
│  └─────────────────┘                          └─────────────────┘   └─────────────────┘  └─────────────────┘
│        │ ∧ /∨                                 ┊Displayed only for the ink type filled┊   │
│        │                                                                                 │
│  ┌─────────────────┐                          ┌─────────────────┐   ┌─────────────────┐  ┌─────────────────┐
│  │#PARAMETER       │──────────ENTER──────────→│INK-TYPE PARAMETER│─ENTER→│   ----> 0x0060  │  │INK-TYPE PARAMETER│
│  │INKTYPE PARAM. <ent>│                       │000:DEODOsw = 0   │   │000:DEODOsw = 0x0040│ │INITIALIZE OK ? :ent│
│  └─────────────────┘                          └─────────────────┘   └─────────────────┘  └─────────────────┘
│        │ ∧ /∨                                 ┊Displayed only for the ink type filled┊   │
│        │                                                                                 │
│  ┌─────────────────┐            ┌─────────────────┐  ┌─────────────────┐  ┌─────────────────┐  ┌─────────────────┐
│  │#PARAMETER       │──ENTER────→│#HEADunit-1 PARAM.│─ENTER→│HEADunit-1PARA/ 0 +│─ENTER→│   ----> 1       │  │HEADunit-1 PARAM.│
│  │HEADunit PARAM. <ent>│        │RANGE SEL. :0 - 511│      │000:SHOT1.0 = 0   │   │000:SHOT1.0 = 0  │  │INITIALIZE OK ? :ent│
│  └─────────────────┘            └─────────────────┘  └─────────────────┘  └─────────────────┘  └─────────────────┘
│        │ ∧ /∨                   ┊RANGE SEL :512-1023┊                                           │
│        │                                                                                        │
│  ┌─────────────────┐                          ┌─────────────────┐   ┌─────────────────┐  ┌─────────────────┐
│  │#PARAMETER       │──────────ENTER──────────→│SERVO PARAMETER   │─ENTER→│   ----> 0x000d  │  │SERVO PARAMETER  │
│  │SERVO PARAMETER<ent>│                       │000:Cycle  = 0x000c│   │000:Cycle = 0x000c│  │INITIALIZE OK ? :ent│
│  └─────────────────┘                          └─────────────────┘   └─────────────────┘  └─────────────────┘
│        │ ∧ /∨                                                                                   │
│        │                                                                                        │
│  ┌─────────────────┐                          ┌─────────────────┐   ┌─────────────────┐  ┌─────────────────┐
│  │#PARAMETER       │──────────ENTER──────────→│TEST PARAMETER    │─ENTER→│   ----> 1       │  │TEST PARAMETER   │
│  │TEST PARAMETER <ent>│                       │000:H1A.drv = 0   │   │000:H1A.drv = 0  │  │INITIALIZE OK ? :ent│
│  └─────────────────┘                          └─────────────────┘   └─────────────────┘  └─────────────────┘
│        │ ∧ /∨                                                                                   │
│        │                                                                                        │
│  ┌─────────────────┐  ┌─────────────────┐        ┌─────────────────┐   ┌─────────────────┐     │
│  │#PARAMETER       │─ENTER→│#CORRECT PARAMETER│──ENTER─→│USER CORRECT PARAM.│─ENTER→│   ----> -1      │     │
│  │CORRECT PARAM. <ent>│   │SELECT  :USER CRCT│         │000:U1.V1ST = 0   │   │000:U1.V1ST = 0  │     │
│  └─────────────────┘  └─────────────────┘        └─────────────────┘   └─────────────────┘     │
│        │ ∧ /∨              │ ∧ /∨                                                                │
│        │              ┌─────────────────┐  ┌─────────────────┐  ┌─────────────────┐  ┌─────────────────┐
│        │              │#CORRECT PARAMETER│─ENTER→│#HEAD CORRECT PARAM.│─ENTER→│HEADcrct.PARAM/Ybase│─ENTER→│   ----> 0       │
│        │              │SELECT  :HEAD CRCT│      │SELECT     :COM-1 │   │000:RESERVE = 0   │   │000:RESERVE = 0  │
│        │              └─────────────────┘  └─────────────────┘  └─────────────────┘  └─────────────────┘
│        │                                  ┊SELECT    :COM-2┊
│        │                                  ┊SELECT    :COM-3┊
│        │                                  ┊SELECT    :COM-4┊
│        │                                  ┊SELECT    :COM-5┊
│        │                                  ┊SELECT    :COM-6┊
│        │                                  ┊SELECT    :COM-7┊
│        │                                  ┊SELECT    :COM-8┊
│        │                                  ┊SELECT    :Y BASE┊
│        │                                                                                        │
│  ┌─────────────────┐                          ┌─────────────────┐   ┌─────────────────┐         │
│  │#PARAMETER       │──────────ENTER──────────→│ADJUST PARAMETER  │─ENTER→│   ----> 0       │         │
│  │ADJUST PARAM.  <ent>│                       │000:RESERVE = 0   │   │000:RESERVE = 0  │         │
│  └─────────────────┘                          └─────────────────┘   └─────────────────┘         │
│                                                                                                 │
└─────────────────────────────────────────────────────────────────────────────────────────────┘
```

CHAPTER 3 Overhaul / Adjustment

Contents

3-1. Outline

This chapter describes disassembly and reassembly of JV33-130/160. The description given here is chiefly of disassembly procedures. As a rule, reverse the disassembly procedure for reassembly. For reassembly, however, description is added as needed, for example, if the procedure is different from the reversed disassembly procedure or if any precautions are to be taken.

Where any adjustment is to be made in reassembly process, the adjustment procedure is described with the heading "Adjust/Confirm".

3-1-1.   Precautions for disassembly and reassembly

Be sure to follow the precautions shown below before starting disassembly and reassembly.

- Be sure to turn off the main power switch (behind the printer) unless otherwise instructed, to prevent human electric shock or circuit damage. (Turning off the power switch on the front panel is insufficient.)

- For disassembly and reassembly, be sure to wear gloves to avoid injury.

- For servicing, place the printer on a firm floor with sufficient space around it.

- Take great care to handle the printer, which is very heavy. At least five persons must cooperate to install or remove the leg assembly to or from the main body.

- Use only the specified tools. (See *P.3-3*)

- Do not use any lubricants or adhesives other than specified.

- When handling a PCB assembly, never touch any elements on the PCB assembly with your bare hand; otherwise static electricity may arise to damage elements.
  To touch any element, be sure to use a grounding band.

- In reassembly, put wiring for every electric part in position.
  (Otherwise, a cable may come in contact with a sharp edge or the noise resistance margin may decrease.)

- If it is needed to operate the printer with cover removed, take care not to get injured with any moving part.

- Be very careful to handle cutter blade to avoid human injury or damage of peripheral elements. It is very sharp.

- Be sure to certainly join connectors and FPCs. Be careful to avoid insufficient or skewed insertion.

- To remove a part for which procedure is not described, carefully observe its installation status in advance. Refer to the part catalog as needed.

3-1-2. Tools and jigs

☐ Tools to be used at disassembly and reassembly

Name		Remarks
Phillips screwdriver	Type 1 Type 2 Type 2	For M2 For M3 to 5 (L=260 or more) for M3 to 5
Slotted screwdriver		Long side 2.5 mm for removing E-rings
Hexagon wrench		1.5 mm for M3 SSWP 2.0 mm for M4 SSWP 2.5 mm for M3 cap bolts (L=170) 5.0 mm for M6 cap bolts 6.0 mm for M8 cap bolts
Spanner		Width across flats: 5.0 mm Width across flats: 5.5 mm for M3 nuts and hexagon stud Width across flats: 7.0 mm for M4 nuts
Tweezers		To prevent the cable from being pulled when disconnecting the connector.
Long-nose pliers		
Nippers		
Soldering iron		
Solder		
Scale		150, 500 mm
Bar type tension gauge		500 g
Loupe		About 50x to 60x magnification
Protection glasses		
Gloves		To keep hands clean, and for safety.
Adhesive agent		LOCKTITE242 (for locking screws)
Insulation lock		L=150 or less (UL-approved product)
Goggle		
Nitroflon tape or acetate fabric tape		As required (UL-approved product)
Waste cloth		
Cotton swab		

☐ Adjustment tools

Name	Code	Remarks
Trimmer adjustment screwdriver		For adjustment of trimmers on the power supply PCB.
Tester		
Bar type tension gauge		500 g
Ink line airtight tester	OPT-J0094	

3-2.   Overhaul of Covers

The cover parts for the JV33-130/160 are as follows.

Printer Front Panel

Left Cover U
1. Remove the screws (x4)
2. Remove the cover

Head Cover
1. Remove the screws (x2)
2. Remove the cover

KB Cover
1. Remove the screws (x4)
2. Remove the cover

Maintenance Cover L
1. Remove the screws (x5)
2. Remove the cover

Unit Frame Cover
1. Remove the screws (x2)
2. Remove the cover

Right Cover
1. Remove the screws (x9)
2. Remove the cover

Heater Connector Cover
1. Remove the screw (x1)
2. Remove the cover

Maintenance Cover
1. Remove the screws (x4)
2. Remove the cover

Y Cover C
1. Remove the screws (x4)
2. Lift the cover upwards and remove it

Roller Cover
1. Remove the screws (x4)
2. Remove the cover

Front Cover
1. Loosen the screws on the left and right sides (x4) and open the cover upwards
2. Slide the cover locking parts (left and right) into the center
3. Lift the cover upwards and remove it

Station Cover
1. Remove the screws (x5)
2. Remove the cover

Printer Rear Panel

Wiring Cover
1. Remove the screws (x6)
2. Remove the connector
3. Remove the cover

PC Cartridge Cover
1. Remove the screws (x4)
2. Remove the cover

Exhaust Cover
1. Remove the screws (x4)
2. Remove the cover

Power BOX Cover
1. Loosen the lower screws (x2)
2. Remove the screws (x6)
3. Remove the cover

Rear Cover
1. Remove the screws (x6)
2. Loosen the lower screws (x2)
3. Remove the cover

Platen Cover
1. Remove the screws (x8)
2. Loosen the screws (x5)
3. Remove the cover

Y Cover
1. Remove the screws (x4)
2. Remove the cover

ICU Cover
1. Remove the screws (x4)
2. Remove the cover

Left Cover
1. Remove the screws (x6)
2. Remove the cover

ICU Cover R
1. Remove the screws (x6)
2. Loosen the lower screws (x2)
3. Remove the cover

Put cover inside the washer of loosened screws to tighten them.

OK

NG

The washer of the screw is outside of the cover.

The washer of the screw is inside of the cover.

3-3. Overhaul of Ink-related Parts

Ink-related parts of the JV33-130/160 are shown below.

~ Ink Cartridge ~

~ Head Assembly ~

Major Parts for Washing Cartridge Assembly

ID point of contact PCB

Near End Sensor

Head Unit

Washing Cartridge Assembly

Capping Assembly

Pump Motor
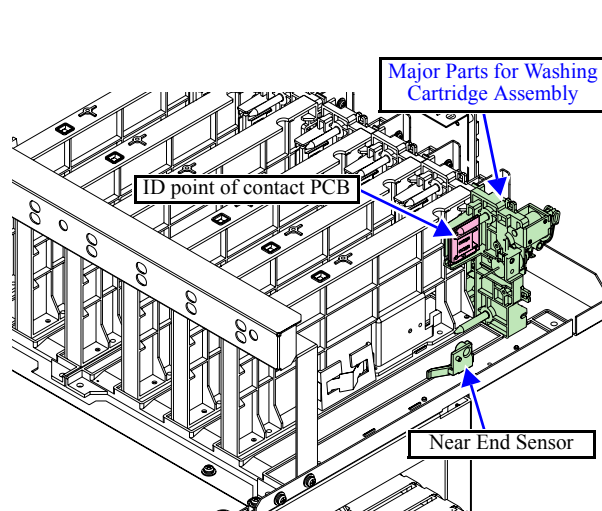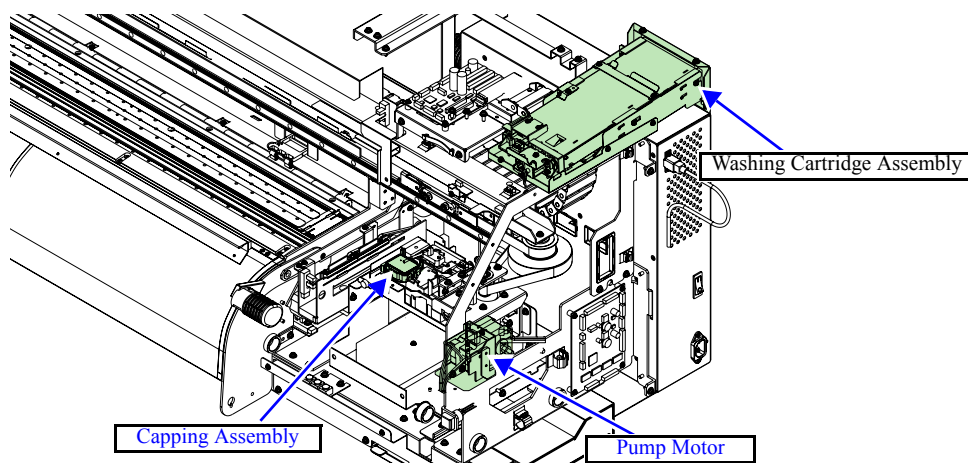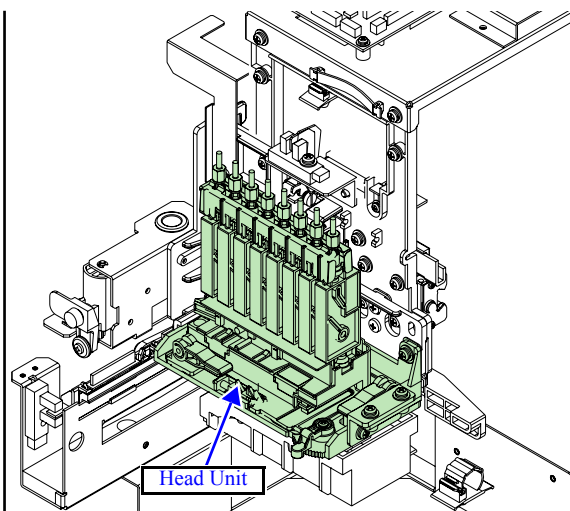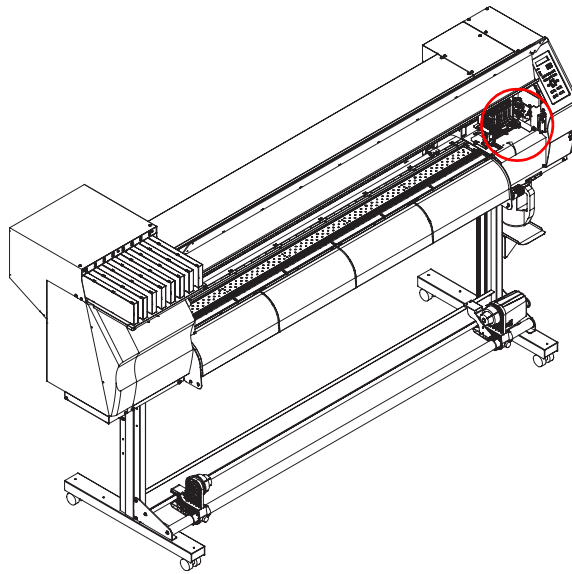
3-3-1.   Head Unit

□Content

General Procedures and instructions for Head Unit Replacement are described here.

Item	Description	Reference page
1. Preparation (Cleaning within Head)	Because the head is filled with water-based transportation liquid (S-46) on shipment, this will react with the solvent ink to form a precipitate. Use S Head Changing Wash (MILD SOLVENT WASHING LIQUID) to clean the head before replacement.	*p.3-8*
2. Remove the Head Unit	Refer to the video manual	
3. Reassemble Head Unit	Refer to the video manual	
4. Filling of Ink	Choose ink charge procedure according to change or no-change of Damper, and execute "TEST DRAW" after ink charge is completed.	*p.3-9*
5. Adjustment of the head angle	Mechanically adjust the angle of Head Unit.	*p.3-9*
6. Drop Position Correction	Correct dot positions.	*p.3-11*

□Tools and Jigs

- IH47V Head unit Assembly (M007034)
- Inside head washing tool (M005027) ←Equivalent to JV3
- Washings for replacement of S-head (M005026) ←Equivalent to JV3 (Only when filling with Solvent Ink)
- Phillips screwdriver (No.2 M3-M5)
- Hexagon wrench (Opposite side: 2.5 mm Bondhus type magnetized)
- Small slotted screwdriver
- Scope (approx. x50)
- Media for adjustment (Glossy type media)
- Waste cloth (non-woven paper, etc.)

⚠ **Caution**

Use protection glasses and gloves during works.
In some working conditions, ink may reach your eye or contact with ink may chap your skin.

💡 The Head Unit Replacement procedure is principally the same as for JV3. Damper construction is the same, while the appearance of the Head is different.

Preparation (Cleaning within Head)

⚠️ **Caution** — **Washing inside the head is only required when filling with Solvent Ink. Do not wash inside the head when using Aqueous Ink.**

1 Charge Head Change Washing.

Remove Damper Assembly from Washing Jig in the head, and charge Syringe with 12-16 cc of S-head Change Washing.

* Confirm the current type of ink when choosing the washing liquid. The type of washing liquid depends on the ink.
Each washing jig is exclusively for use with the corresponding washing liquid. Do not use a jig with a different washing liquid.

~ Types of Wash ~

ES3 Ink:

MILD SOLVENT WASHING LIQUID (SPC-0294)

S-damper Assembly   Syringe
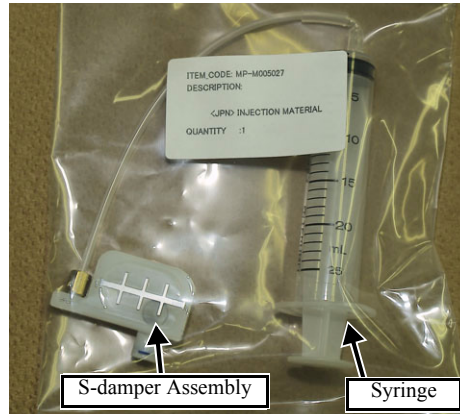
2 Connect Damper to Head.

Reassemble S-damper assembly with Syringe and join it with Damper Connector on Head.

* Be careful of MS washing liquid dripping on the operation of the damper. Dripping on the FPC connector may damage the head.
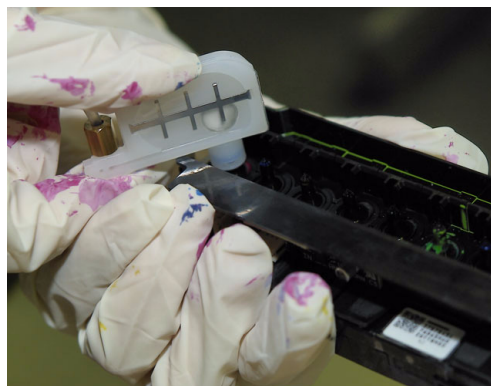
3 Slowly pour the washing liquid.

Pour 3-4 cc of washing liquid into each nozzle over about 30 seconds.

* Pour washing liquid slowly, or the Head may be damaged.
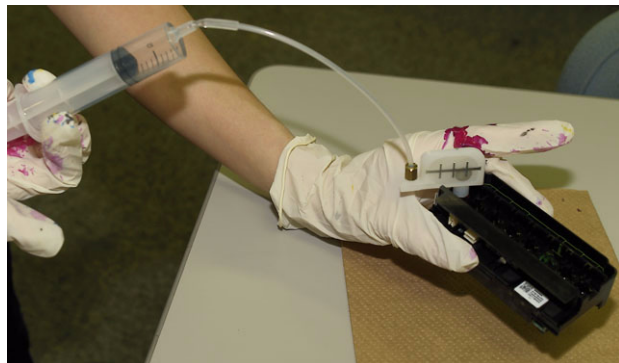
4 Use waste cloth to receive liquid that spills out of nozzle.

Conduct the above for every nozzle (x8). (Charge the syringe with washing liquid every 4 nozzles.)

* Do not touch the nozzle surface with waste cloth, nor rub the nozzle surface. Both may cause discharge failure.

Filling Ink

* Take the right procedure to save ink and improve work efficiency

1 **Set media and turn the power ON.**

2 **Execute "FILL UP INK".**

```
┌──────────┐     ┌─────────────────────┐     ┌─────────────────────┐
│Power ON. │ ──▶ │<LOCAL.1>      [#01] │ ──▶ │FUNCTION             │
└──────────┘     │                     │     │MAINTENANCE    <ent> │
                 └─────────────────────┘     └─────────────────────┘
                            [FUNC]                      │
                                                        ▼
┌──────────┐     ┌─────────────────────┐     ┌─────────────────────┐
│Fill up ink│◀── │HD.MAINTENANCE       │ ◀── │MAINTENANCE          │
└──────────┘     │FILL UP INK    <ent> │     │HD. MAINTENANCE<ent> │
                 └─────────────────────┘     └─────────────────────┘
```
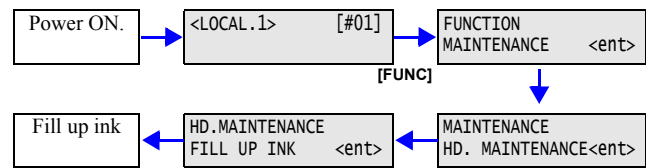
Adjustment of the head angle

1 **Select "SLANT ADJUST" from the operation menu to execute adjustment pattern drawing.**

```
┌──────────┐     ┌─────────────────────┐     ┌─────────────────────┐
│Power ON. │ ──▶ │<LOCAL.1>      [#01] │ ──▶ │FUNCTION             │
└──────────┘     │                     │     │ADJUST         <ent> │
                 └─────────────────────┘     └─────────────────────┘
                            [FUNC]                      │
                                                        ▼
                                            ┌─────────────────────┐
                                            │#ADJUST       /PRINT │
                                            │HEAD ADJUST    <ent> │
                                            └─────────────────────┘
                                                        │
                                                        ▼
┌──────────┐     ┌─────────────────────┐     ┌─────────────────────┐
│Adjust pat-│◀── │#SLANT ADJUST        │ ◀── │#HEAD ADJUST         │
│tern drawing│    │PRINT START    :ent │     │SLANT ADJUST   :ent │
└──────────┘     └─────────────────────┘     └─────────────────────┘
```
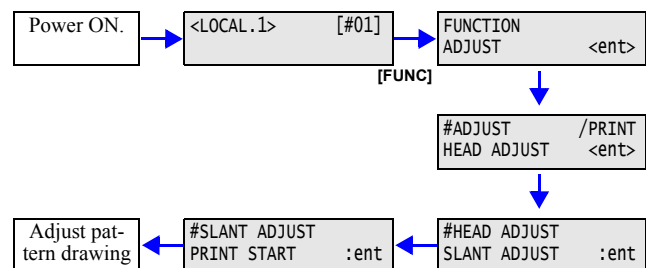
2 **Move the head over the platen.**

3 **Move the adjustment lever to adjust the head angle.**

Lift up the two AD locking levers to release the lock before moving the adjustment lever.

* Movement distance of one graduation of the adjustment lever is 40 μm

Adjustment lever

AD locking lever
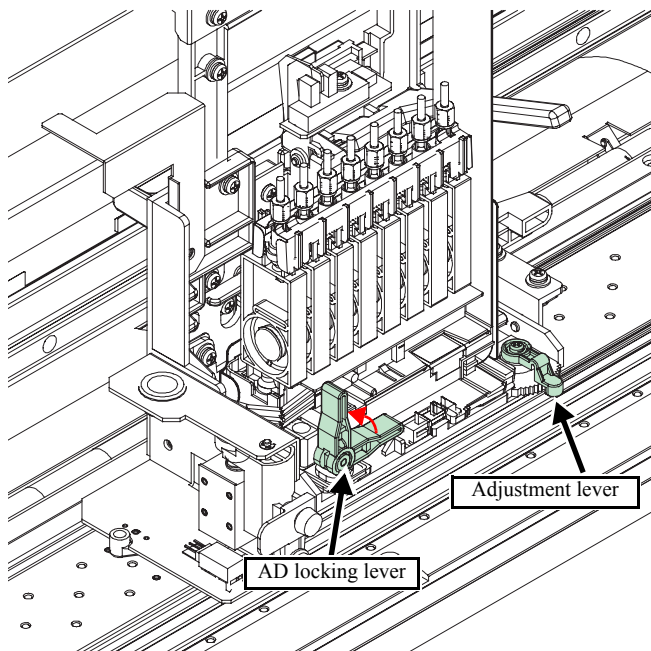
4 **Adjust the angle using the following procedure.**

The a column and b column patterns are printed alternatingly at a pitch of approximately 100 mm as shown in the figure on the right. The a column and b column can be identified by the magenta and cyan strips (indicates by the thick red arrows in the diagram) printed over the respective patterns at the top of head 1. These indicate that magenta = a column and cyan = b column.

Inclination confirmation point

b column   a column   b column   a column

a column   M   C
b column   C   M

<Actual Image>   <Scope Image>
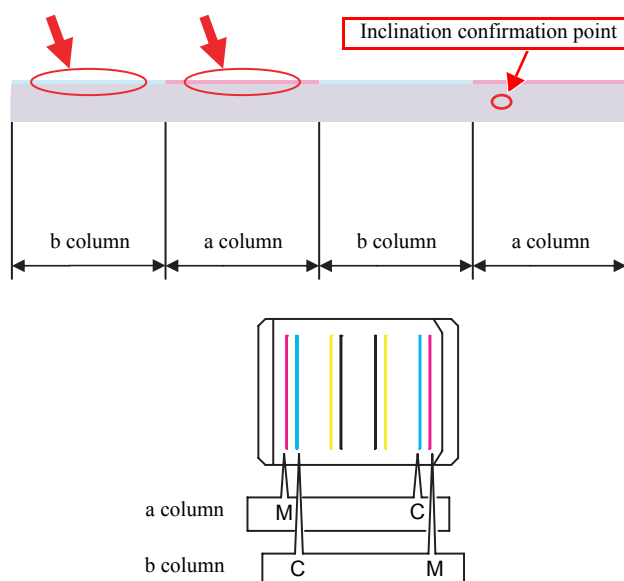
1. Check the inclination of each column. For the b column, the relationship between the points of impact and the inclination of the head is as shown in the diagram on the right.
For the a column, the pattern is reversed.

When tilted towards the back right
(move the adjustment lever in the clockwise direction)

When tilted towards the front right
(move the adjustment lever in the anti-clockwise direction)

<Adjustment Example>
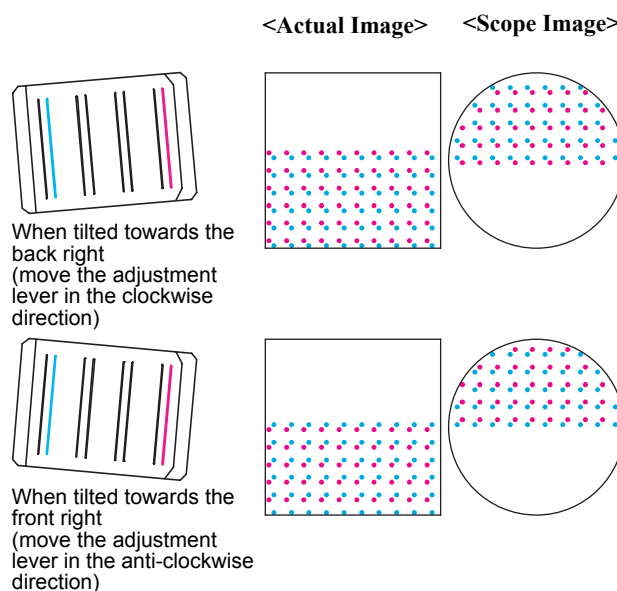
2. Perform an averaging adjustment. The standard colors for each column is a column = M, b column = c.
Move the adjustment lever and adjust the inclination.

In the diagram on the right, the b column is aligned but the a column is misaligned. In this case, adjust such that b becomes slightly misaligned and the degree of scattering of a and b becomes equal. (= intermediate adjustment)

b column   a column

3-10
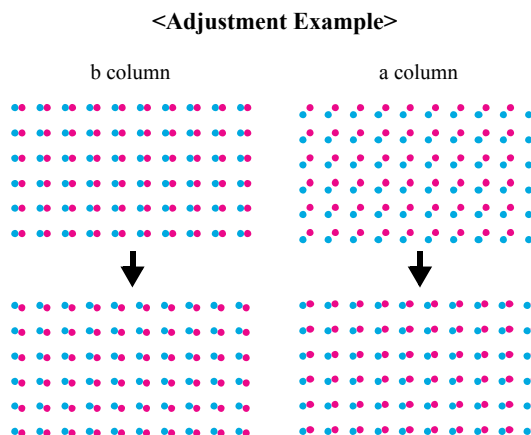
Drop Position Correction

1 **Select "DROP.POS ADJUST" from the operation menu.**

```
Power ON.  →  <LOCAL.1>    [#01]  →  FUNCTION
                                     #ADJUST      <ent>
                              [FUNC]
                                        ↓
#HEAD ADJUST          ←  #ADJUST      /PRINT
DROP.POS ADJUST<ent>     HEAD ADJUST   <ent>
```
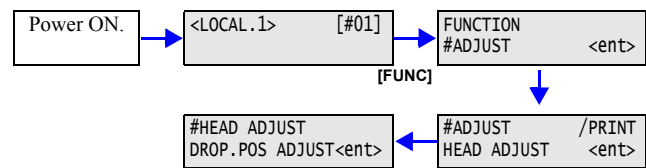
2 **Select a scan speed for the standard.**

Select standard or high-speed depending on the usage conditions.

* The factory default is "high-speed".

```
          ↓
#DROP.POS.      MODE      [▲]/[▼] : For Scan Speed
SELECT :HiSPEED SCAN      [ENTER] : Fix (to Next)
       ↓:Normal SCAN
```
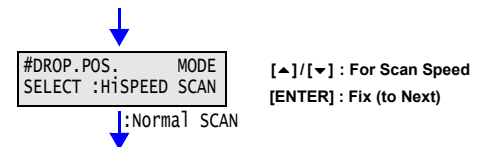
3 **Select the resolution for standard.**

*** DRAFT :540dpi
   FINE   :720dpi**

* Adjusts all of DRAFT, FINE, DRAFT2, and FINE2.

```
          ↓
#DROP.POS.      HsLg       [▲]/[▼] : For Resolution
SELECT        :DRAFT       [ENTER] : Fix (to Next)
        ↓:FINE
         :DRAFT2
         :FINE2
```
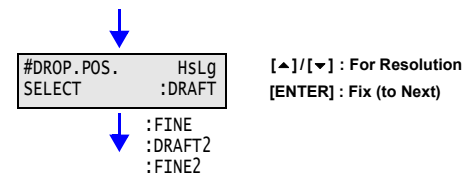
4 **Print the "Y return" and "Fine Y return" in order.**

After adjusting the Y return, perform fine adjustment of the fine Y return.

```
#DROP.POS.HsLgDRFT  →  #DROP.POS.HsLgDRFT  →  Adjust pat-
ADJUST      :Y Bi      Y Bi DRAW     :ent      tern drawing
       :FINE Y Bi
[▲]/[▼] : SW
```
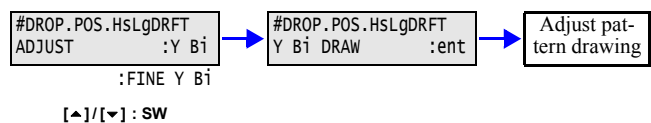
5 **Check the pattern.**

■ Y Bi

Check the overlapping parts of the pattern on the outward and return paths.

Compensation Value

Return Path / Outward Path
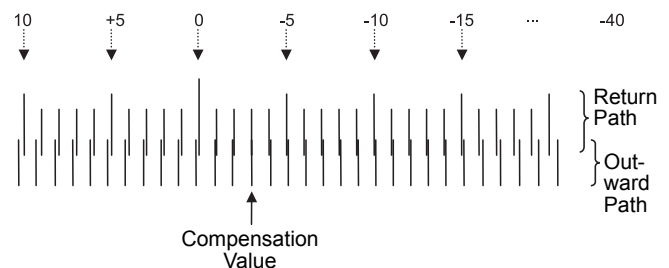
■ Fine Y Bi

Only D raw is used for the pattern drawing. Use the scope and adjust where the two lines overlap.

Adjusting value: -50~50.0 dot (unit: 0.1 dot)
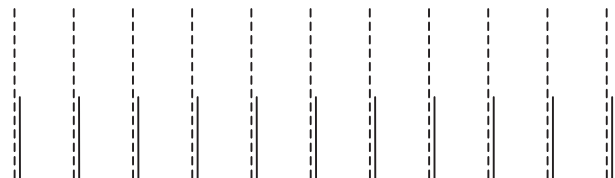
6 **Enter the adjustment value.**

```
          ↓
#DROP.POS.HsLgDRFT
Y Bi            : *.0
          ↓
```

3-11
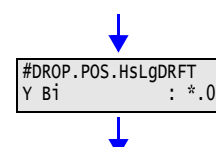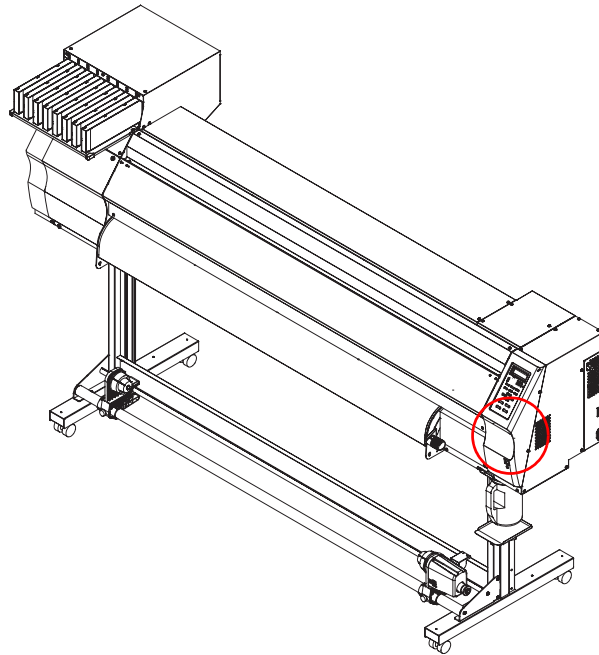
3-3-2. Pump Motor

1 Remove the station cover (x5 screws). (See)

2 Remove the head cover (x2 screws). (See)

3 Remove the pump tube that is connected to the cap head.

4 Remove the screws (x2) and remove the pump motor assembly.

Remove the connector as well.
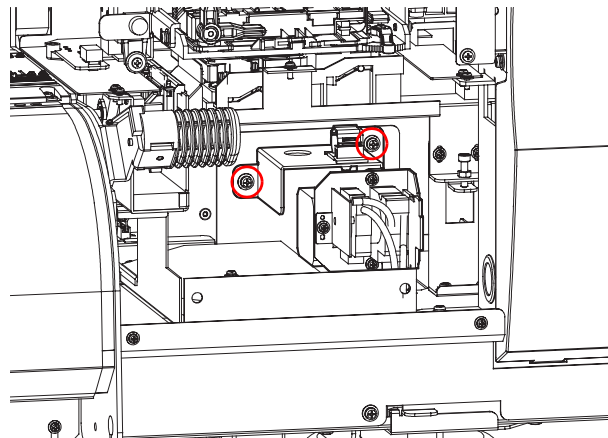
5 Install by reversing the removal procedure.

The pump tube protrudes by approximately 5 mm.

3-3-3.   Capping Assembly
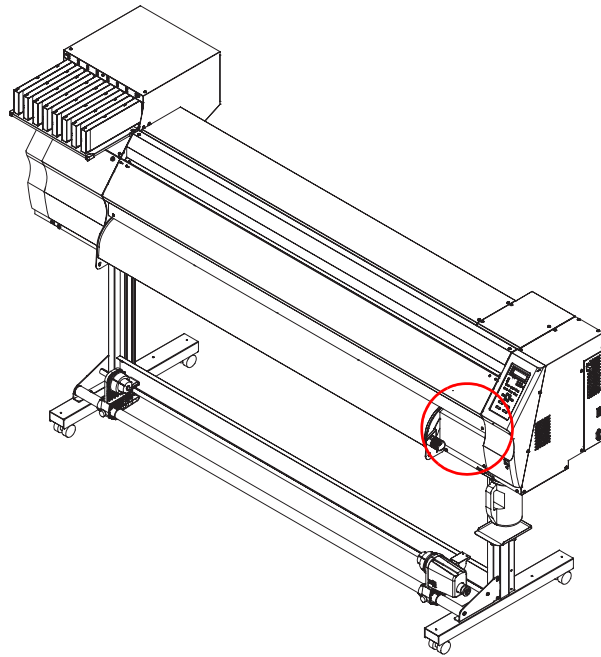
1 **Turn the main power supply of the printer off.**

⚠ **Caution**   **Be sure to shut the main circuit breaker to prevent unexpected movements.**

2 **Manually move the head unit over the platen.**

3 **Remove the wiring cover (x6 screws).**
 (See *P.3-5*)

4 **Remove the station cover (x5 screws).**
 (See *P.3-4*)

5 **Remove the head cover (x2 screws).**
 (See *P.3-4*)

6 **Remove the screw (x1) and component.**
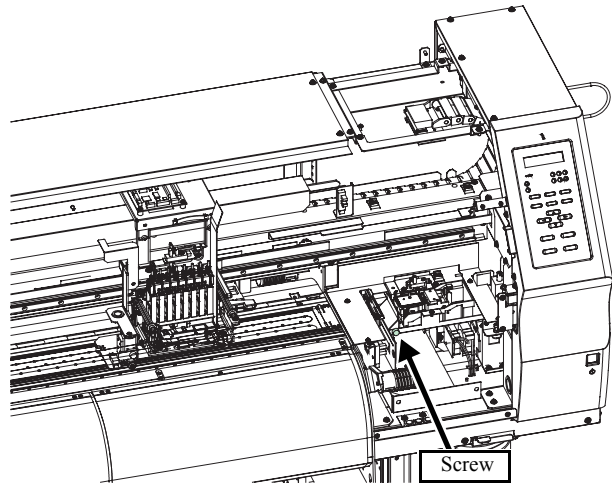
Screw

7 **Remove the coupler between the cap-ping assembly and tube.**

8 **Remove the screws (x2).**

9 **Remove the capping assembly while turning back the pump washing parts.**

Coupler
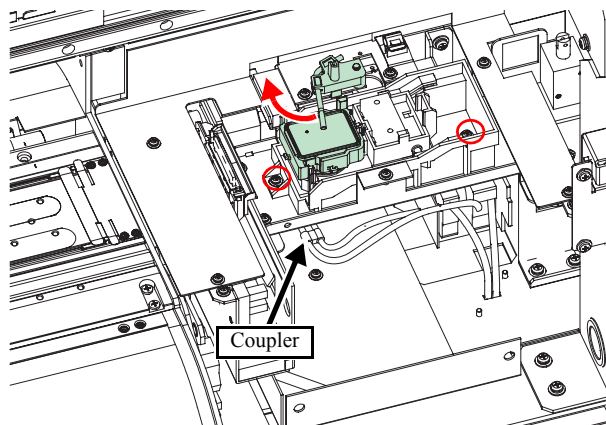
10 **When reattaching, insert the capping assembly into the prescribed position while turning back the pump washing parts at capping upper part.**

3-3-4. Major Parts for Washing Cartridge Assembly

1 Execute [MACHINE SETUP] -[#ADJUST] -[HEAD ADJUST]- [HEAD WASH] to discharge the
ink. (See *P.2-21*)

2 Remove the ICU cover R (x6 screws). (See *P.3-5*)
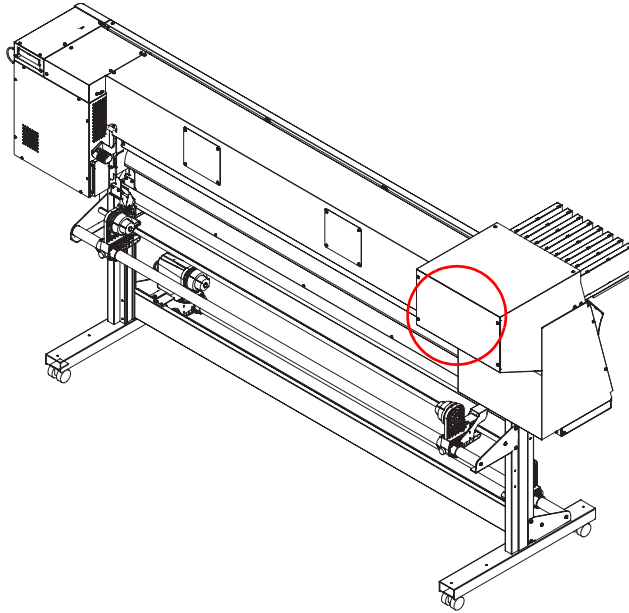
3 **Change the coupler when switching between 4/6 (+white) colors.**

The factory default setting is 4-color.
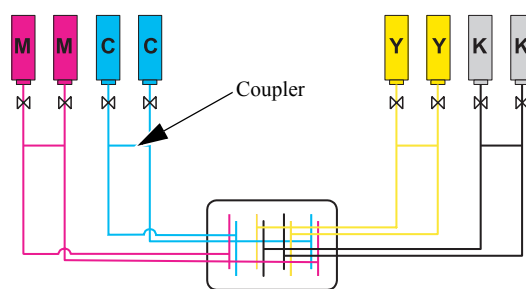
Coupler

Ink supply path (4-color fill)

Use the procedure of next page to change to 6-color.
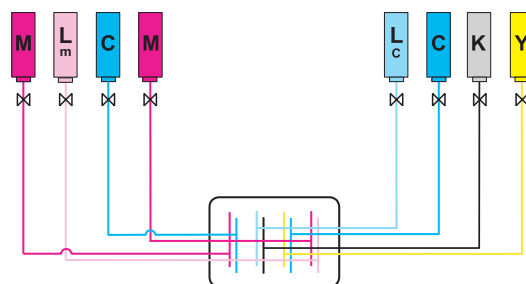
Ink supply path (6-color fill)
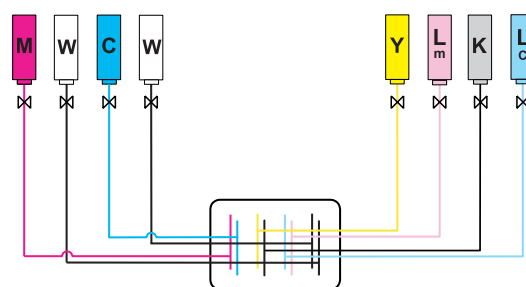
SS 21 Ink supply path (6-color+white fill)

1. Loosen the coupler screws and remove
the tube and O-rings.

Coupler screws

Tube
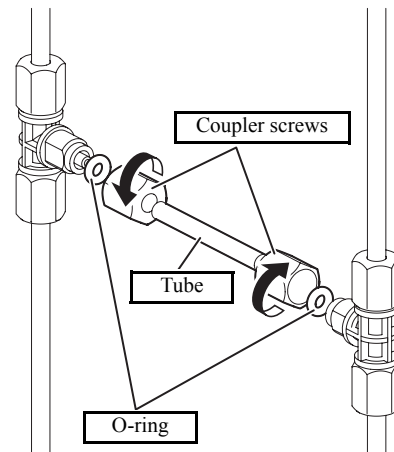
O-ring

2. Put on the rubber plugs on the coupler.
    * **Make sure that O-ring is not remaining in the
      coupler screws.**

Rubber plugs
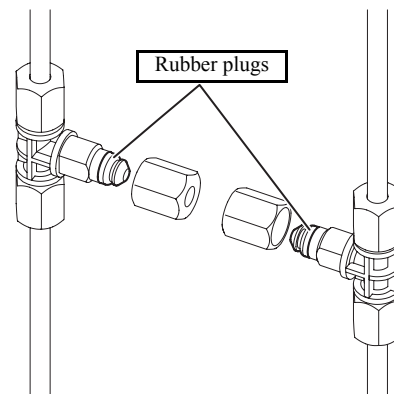
3. Tighten the coupler screws.
Leave the space of around 0.5 mm
between the coupler and screw.

0.5mm

3-17
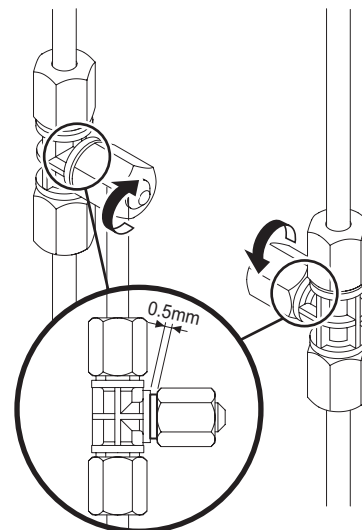
3-4. Overhaul of PCBs

PCBs to be used for JV33-130/160 are shown below.

Part	Reference page	Part	Reference page
3-4-1. Main PCB	*p. 3 - 19*	3-4-2. Station PCB	*p. 3 - 25*

~ Left ~

Main PCB

Station PCB
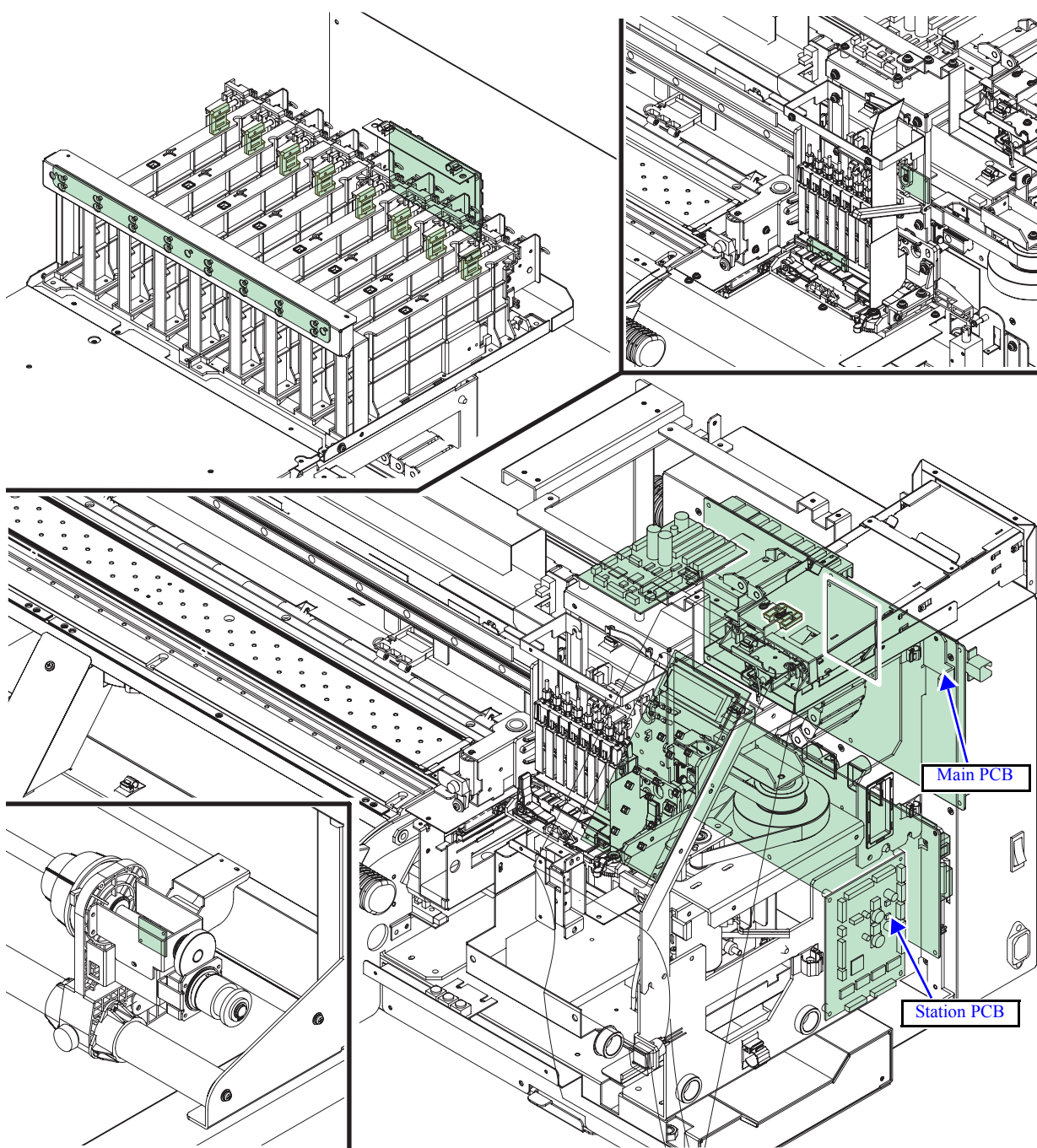
3-4-1.　Main PCB
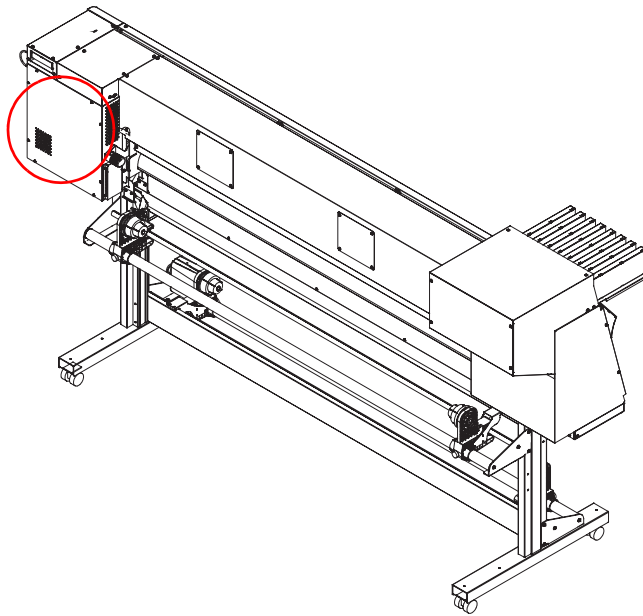
❑Content

In changing Main PCB, parameters must be registered to Main PCB ROM after the change. Because of the time it takes to readjust and reconfigure these settings, and for ease of use and better printing quality, copy the setting value to a PC (upload) before replacement, then write the copied settings back to the main PCB from the PC (download) after replacement.

❑Tools & jigs

•PC
•F/W UpdateTool
•USB Cable

❑Work Flow

Item	Description	Reference page
1. Upload Parameters	Copy the setting values to a PC (upload) before replacing the main PCB.	*p.3-20*
2. Remove/Install the main PCB	Replace Main PCB	*p.3-21*
4. Download Parameters	Write the parameter values that were uploaded in step 1 to the new main PCB.	*p.3-22*
5. Adjust Main PCB Motor Current	Adjust the power supply current value to reduce the hunting sound when the X-axis motor and Y-axis motor are driven.	*p.3-23*

⚠ **Caution**

If upload of parameters is unavailable, conduct Parameter Draw to note the values. Then manually register them after replacing the Main PCB.

Upload Parameters

1 **Start JV33 with parameter Up/Down load Mode.**

Turn the power ON with pressing [▲]+[▼].

```
Up/Down load mode
Power ON
```

```
Up & Down load Ready!
```
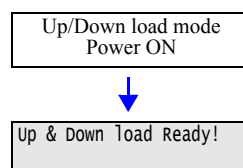
2 **Start FWUpdateTool3.**

Connect the PC and JV33 by USB cable, and run the FWUpdateTool3.

FWUpdateTool3
Mimaki FW Update Tool Ⅲ
Mimaki Engineering

3 **Select the interface in the [Upload] tab of the FW Update Tool III screen.**

In [Device] section, check the interface connecting printer.

4 **Select [JV33.PRM] in the [PRM File] list, then execute [Upload!!].**
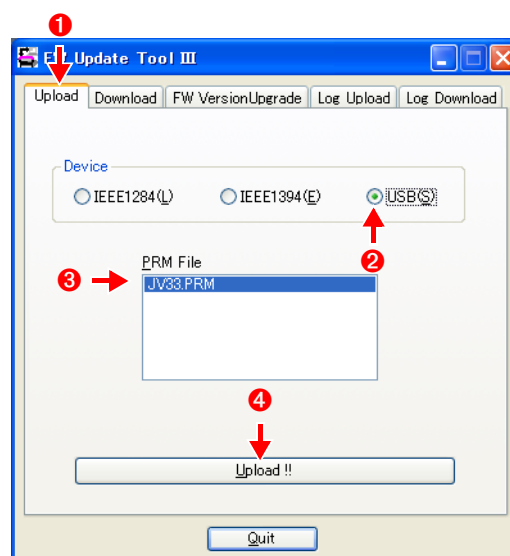
5 **The screen in the diagram on the right is shown during uploading.**

Click [Abort] button to cancel.

PC

```
JOB
Com1                              16%
[          ]
        Abort
```

JV33

```
***UPLOADING***
```
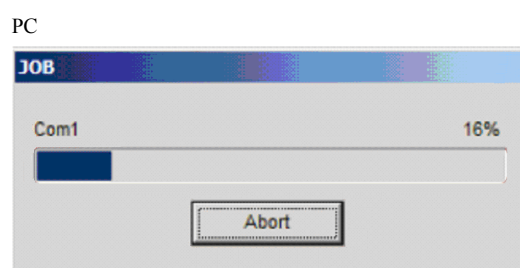
6 **Save Parameter File.**

Parameter Save Window automatically appears when Upload is successfully completed.

Enter file name to save parameters.
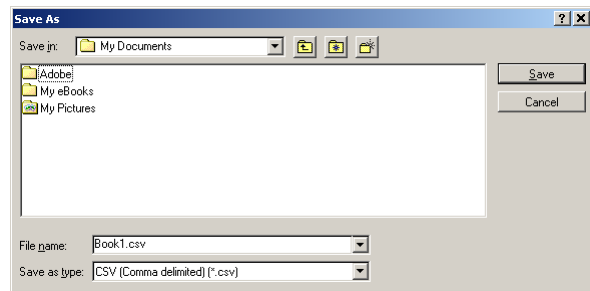
7 **Turn off the power of JV33.**

Confirm the indication shown on the right on Operation Panel of JV33 before shutting down.

```
Up & Download END
Power Off
```

⚠ **Caution**

If upload is failed or impracticable, conduct Parameter Draw to note the parameter values and manually register them after the work is completed.

Removing/Installing the main PCB

1 **Shut off the main power.**

⚠ **Caution**

Be sure to shut the main circuit breaker to prevent unexpected move.

2 **Remove the screws (x6) of the power BOX cover.**

3 **Remove the screws (x6), and remove the main PCB from the front.**

4 **Release the connectors.**
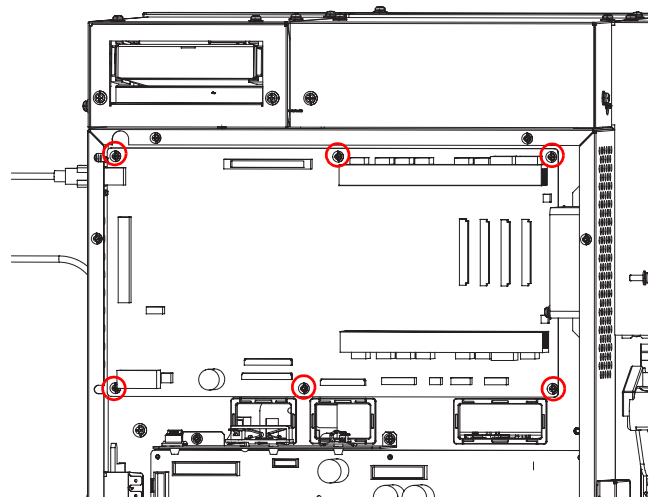
5 **Install by reversing the removal procedure.**

Download Parameters

1 **Start JV33 with parameter Up/Down load Mode.**

Turn the power ON with pressing [▲]+[▼].

> Up & Download mode
> Power ON
>
> Up & Down load Ready!
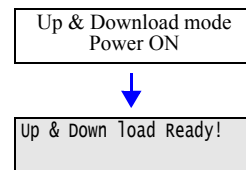
2 **Start the FWUpdateTool3.**

Connect the JV33 and PC by USB cable, and run the FWUpdateTool3.

> FWUpdateTool3
> Mimaki FW Update Tool III
> Mimaki Engineering

3 **Select the interface in the [Download] tab of the FW Update Tool III screen.**

In [Device] section, check the interface connecting printer.

4 **Select [JV33.PRM] from the [PRM File] list.**

5 **Select the file to upload.**

Click the [Browse] button, and select the file that was uploaded before replacing the main PCB.

6 **Execute [Download!!]**

> ❶
> FW Update Tool III
> Upload | Download | FW VersionUpgrade |
> Device ─── FW UpdateTool III
> ○ IEEE1284   ○ IEEE1394   ⊙ USB
> ❷
> PRM File
> JV3_fromV600.PRM
> JV4.PRM
> JV33.PRM ❸
> TX2.PRM
> TX3.PRM
> ❹
> Parameter List File (CSV) ❺
> C:\Documents and Setting-\n_abe\My Do[Browse]
> Download !!
> Quit
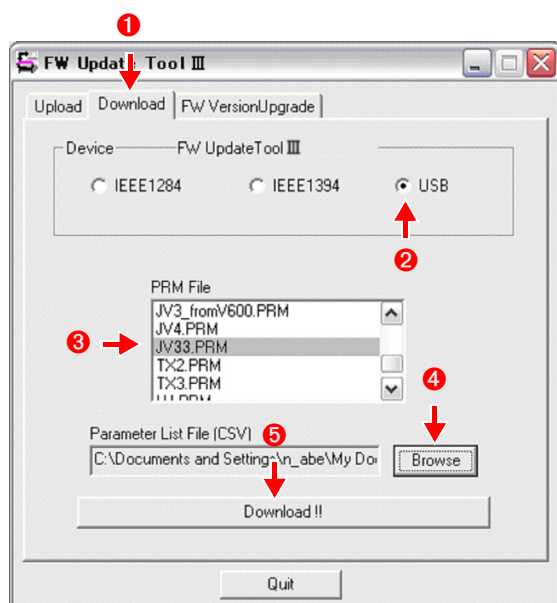
7 **The screen in the diagram on the right is shown during downloading.**

Click [Abort] button to cancel.

PC

> Processing
> Downloading...   22%
> [Abort]

JV33

> ***DOWNLOADING***
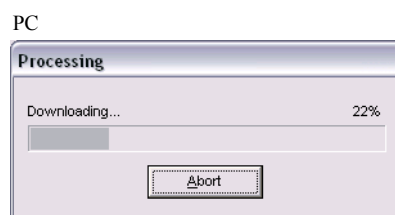
8 **Check that the operation completed normally.**

A completed dialog box is displayed if the operation completed successfully.

Click [OK] button.

> FW Update Tool III
> ⓘ Data transmission has been completed.
> [OK]
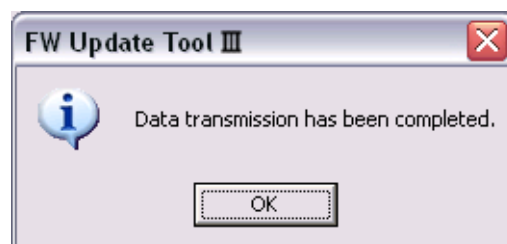
9 **Turn the JV33 power supply off.**

Check that the screen as shown on the right is displayed on the JV33 control panel, then turn the power off.

```
Up & Download END
Power Off
```

Adjust Main PCB Motor Current

If there is a hunting noise when the X-axis motor and Y-axis motor are driven after replacing the main PCB, adjust the supply current to minimize the hunting noise.

Perform the supply current adjustment while the head is above the station without moving the carriage out.

1 **Select "STOP ADJUST" from the operation menu in maintenance mode.**

| Maintenance mode Power ON. |

```
<LOCAL.1>       [#01]
```
        [FUNC]
```
FUNCTION
#ADJUST         <ent>
```

```
#MOTOR CURRENT
STOP ADJUST     <ent>
```
```
#ADJUST
MOTOR CURRENT   <ent>
```
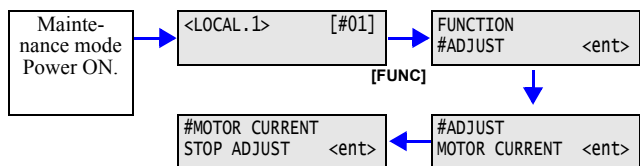
2 **Execute "STOP ADJUST".**

Adjust electric current value of X-axis motor and Y-axis motor so that Hunting noise of both motor is minimized on the station in not carriage out.

```
X=0       Y=0
  (****)    (****)
```
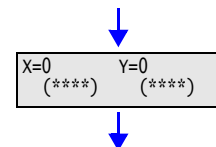
3 **Enter the test conditions and execute "X MOVING ADJUST".**

Input the following conditions.

Speed (S)   : 5 ~ 10 mm/s

Acceleration (A) : 0.2 G

Length (X)   : approx. 50 ~ 100 mm

```
#MOTOR CURRENT
X MOVING ADJUST<ent>
```
[▲]/[▼] : CV
[◀]/[▶] : MOVE
[ENTER] : Exec
[END] : Return

```
#X MOVING ADJ.
S=*** A=*** X=****
```
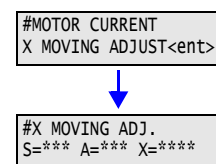
| X axis consecutive driving (X axis motor driving) | *** Not cap OFF**

4 **Adjust the value to minimize the hunting sound when the X-axis motor is driven.**

Check the noise of X-axis motor at the left back side of JV33.

* Input values with targeting 130~160.
  (Input range 0~255)
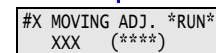
```
#X MOVING ADJ. *RUN*
  XXX   (****)
```
[▲]/[▼] : Change adjust value
[END] : Store adjust value and end

5 **Enter the test conditions and execute "Y MOVING ADJUST".**

Input the following conditions.

Speed (S)   : 5 ~ 10 mm/s

Acceleration (A) : 1.0 G

Length (X)   : approx. 50 ~ 100 mm

6 **Adjust the value to minimize the hunting sound when the Y-axis motor is driven.**

Check the noise of Y-axis motor at the right back side of JV33.

* Input values with targeting 130~160. (Input range 0~255)

7 **Press [END] several times to finish the Y-axis motor current adjustment.**
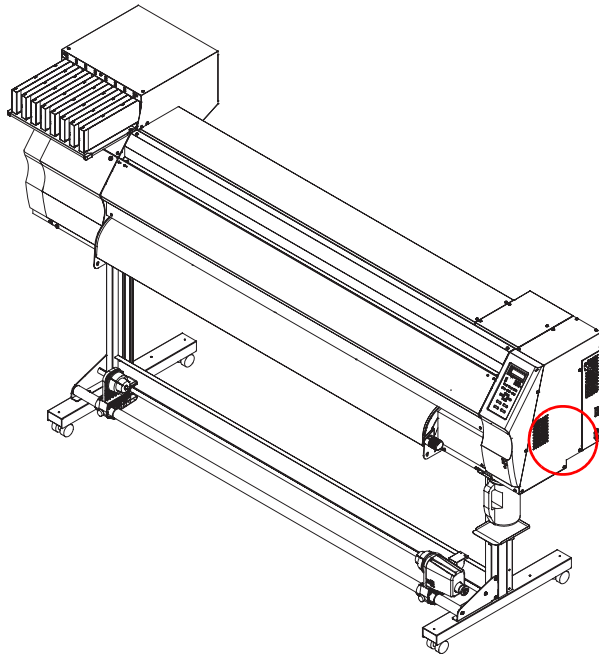
```
#MOTOR CURRENT
Y MOVING ADJUST<ent>
```

[▲]/[▼] : CV
[◀]/[▶] : MOVE
[ENTER] : Exec
[END] : Return
(Carriage out)

```
#Y MOVING ADJ.
S=*** A=*** X=****
```

Y axis consecutive driving
(Y axis motor driving)

```
#Y MOVING ADJ. *RUN*
   XXX  (****)
```

[▲]/[▼] : Change adjust value
[END] : Store adjust value and end

3-4-2. Station PCB

1 Turn the main power supply of the printer off.

> ⚠️ **Caution** **Be sure to shut the main circuit breaker to prevent unexpected move.**

2 Remove the right cover. (See *P.3-4*)

3 Remove the screws (x4), and remove the station PCB to the front.

4 Release the connectors.

5 Reverse the disassembly procedure for reassembly.

Station PCB
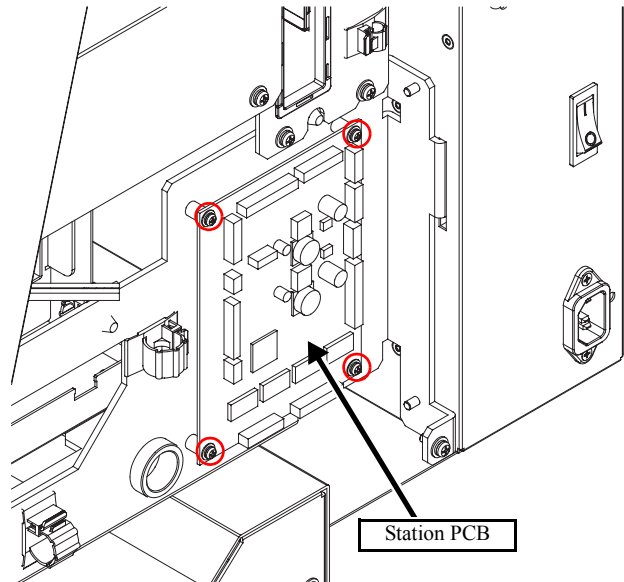
3-5. Overhaul of Sensors

Sensors for JV33-130/160 are shown below.

Sensor assembly(x8)

Cartridge near-end sensor(x8)

Maintenance cover sensor

Front cover sensor L

Media end sensor

Cartridge near-end sensor

Cartridge loaded sensor

Linear sensor

Y-original point sensor

Head height sensor

Front cover sensor

LED pointer

Paper width sensor

Clamp sensor

Wiper original point sensor
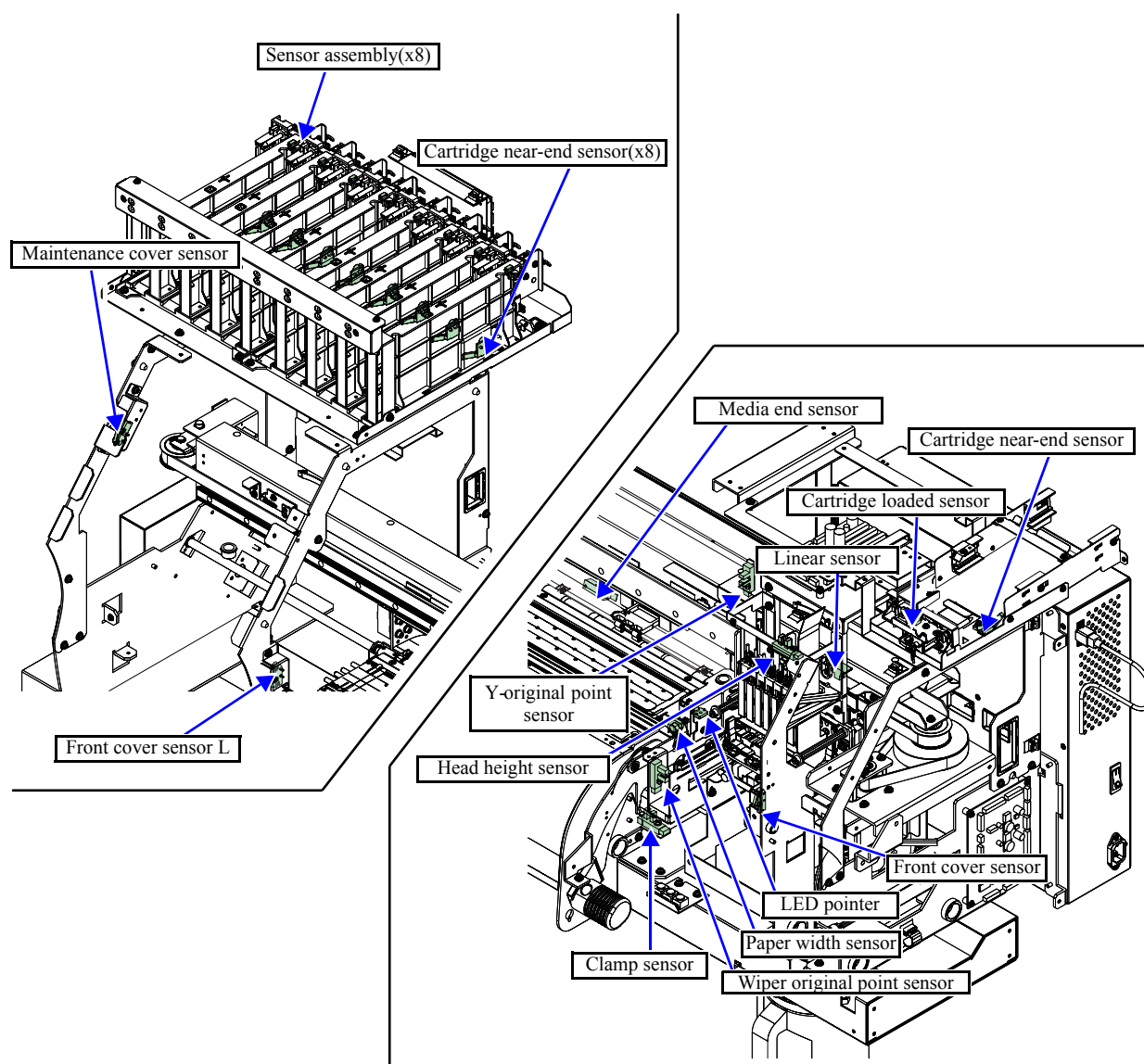
3-6. Overhaul of Driving Parts

Driving parts for JV33-130/160 are shown below.

~ LEFT ~
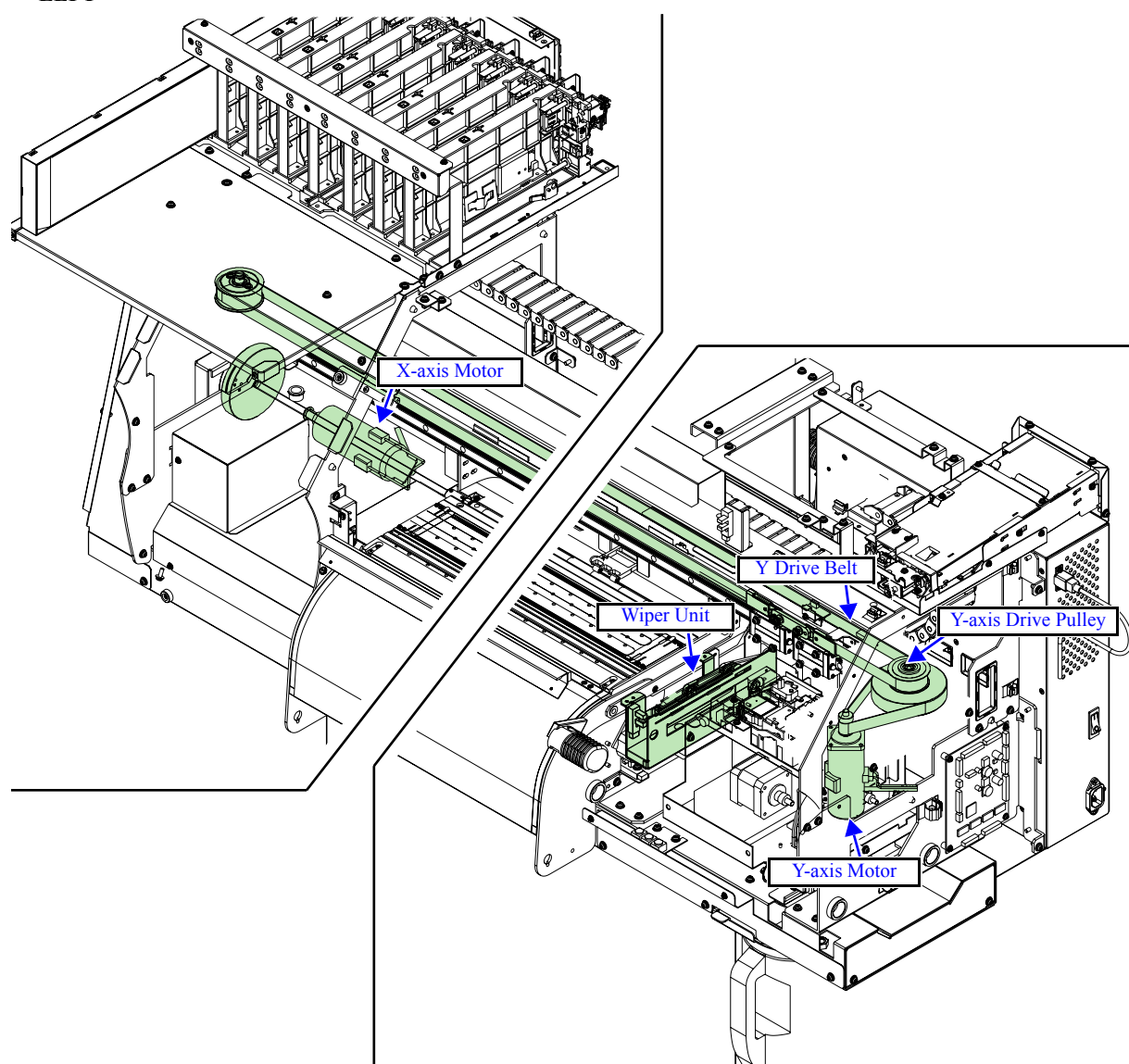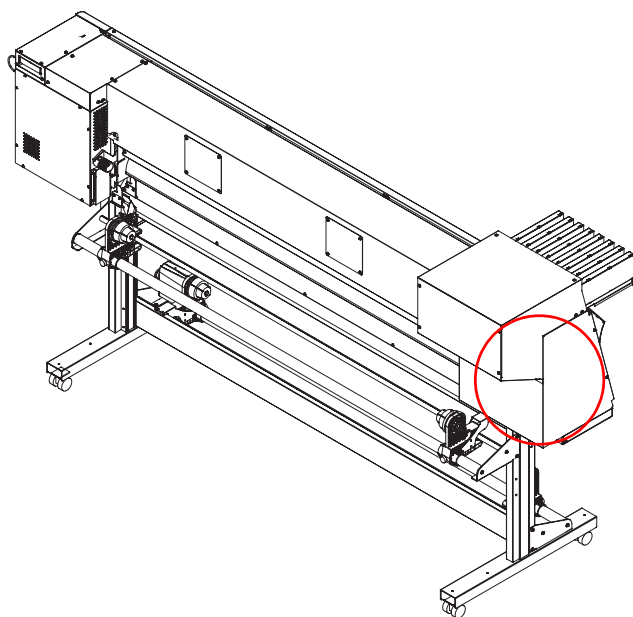
3-6-1.   X-axis Motor

□Content

A summary of the series of operations to perform when replacing the X-axis motor, is described along with the procedure.

Item	Description	Reference page
1. Removing/Installing the X-axis motor assembly	Replace the X-axis motor assembly.	*p.3-29*
2. Adjust the X-axis motor current	Adjust if there is a hunting noise when the motor is driven.	*p.3-30*

Removing/Installing the X-axis motor assembly

1 **Turn the main power supply of the printer off.**

⚠️ **Caution** **Be sure to shut the main circuit breaker to prevent unexpected movements.**

2 **Remove Left Cover. (See *P.3-5*)**

3 **Remove the screws (x2) attached to the XM bracket.**

4 **Remove the X-axis motor connector.**

5 **Remove the spring, and remove the XM bracket and X-axis motor from the main unit.**

X-axis motor
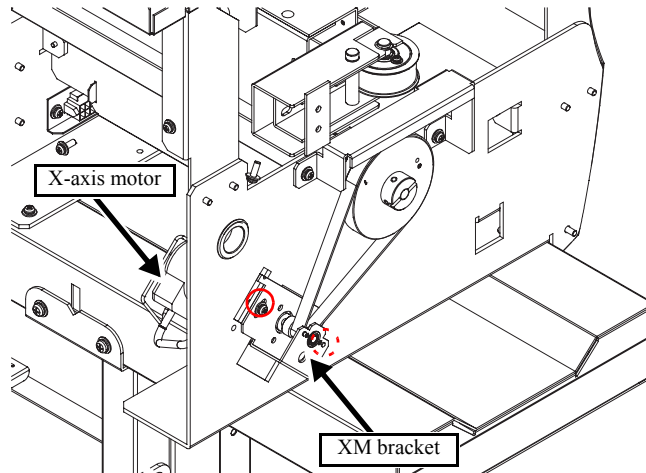
XM bracket

6 **Remove the screws (x3) attached to the XM bracket, and remove the X-axis motor assembly.**
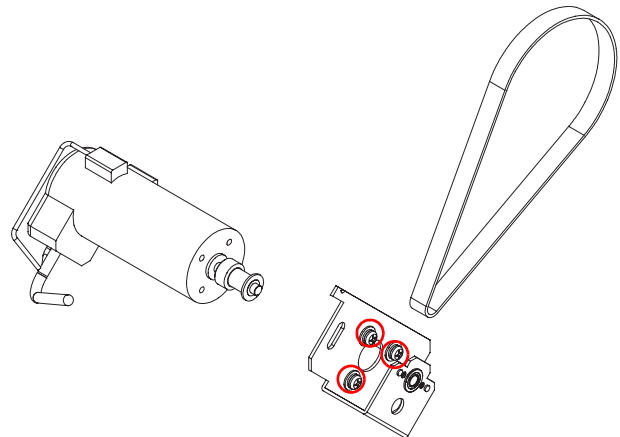
7 **Reattach by reversing the removal procedure.**

💡 The belt tension does not need to be adjusted.

Adjust X-Axis Motor Current

If there is a hunting noise when the motor is driven, adjust the power supply current to minimize the hunting noise. Perform the supply current adjustment while the head is over the station, without moving the carriage out.

1 **Select "X MOVING ADJUST" from the operation menu in maintenance mode.**

```
Mainte-       <LOCAL.1>      [#01]      FUNCTION
nance mode                              #ADJUST        <ent>
Power ON.                    [FUNC]

#MOTOR CURRENT              #ADJUST
X MOVING ADJUST<ent>       MOTOR CURRENT  <ent>
```
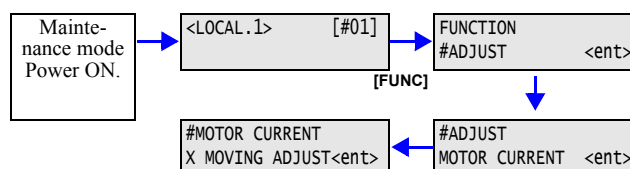
2 **Input the following conditions and execute.**

Input the following conditions.

Speed (S)   : 5 ~ 10 mm/s

Acceleration (A) : 0.2 G

Length (X)   : approx. 50 ~ 100 mm

```
#X MOVING ADJ.             [▲]/[▼] : CV
S=*** A=*** X=****         [◄]/[►] : MOVE
                          [ENTER] : Exec
                          [END] : Return

X axis consecutive        * Not cap OFF
     driving
(X axis motor driving)

#X MOVING ADJ. *RUN*       [▲]/[▼] : Change adjust
   XXX   (****)            value
                          [END] : Store adjust value
                          and end
```
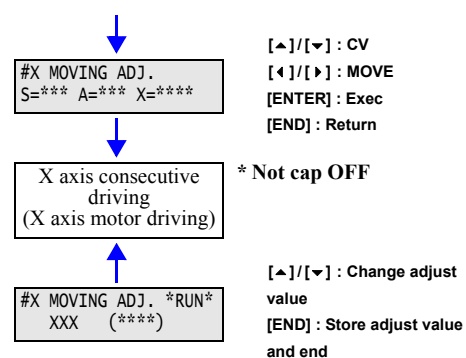
3 **Adjust the value to minimize the hunting noise when the X-axis motor is driven.**

Check the noise of X-axis motor at the left back side of JV33.

* Input values with targeting 130~160.
(Input range 0~255)

4 **Press [END] several times to finish the X-axis motor current adjustment.**

3-6-2.   Y-axis Motor
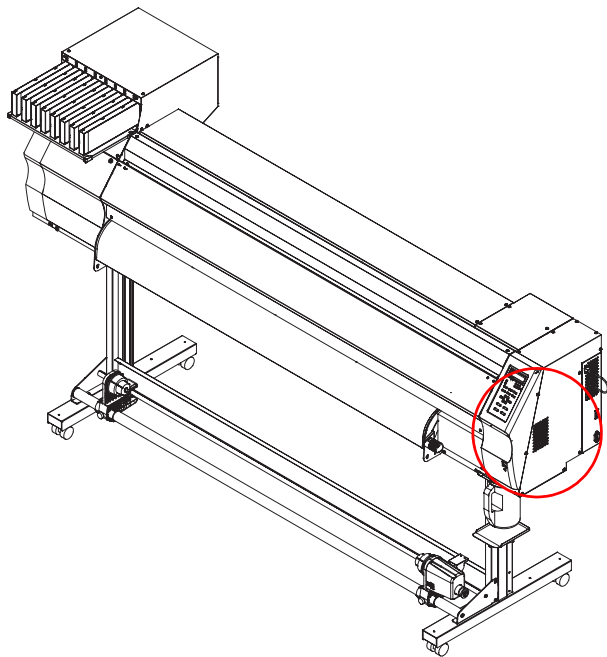
☐Content

A summary of the series of operations to perform when replacing the Y-axis motor, is described along with the procedure.

Item	Description	Reference page
1. Removing/Installing the Y-axis motor assembly	Replacing the Y-axis motor assembly.	*p.3-29*
2. Adjusting the Y-axis motor supply current	Adjust if there is a hunting noise when the motor is driven.	*p.3-34*

Removing/Installing Y-axis Motor Assembly

1 **Turn the main power of the printer off.**

⚠ **Caution**   **Be sure to shut the main circuit breaker to prevent unexpected move.**

2 **Remove the right cover (x9 screws), and the KB cover (x4 screws). (See *P.3-4*)**

3 Remove the KB bracket screws (x4), then disconnect the connector and remove the keyboard.
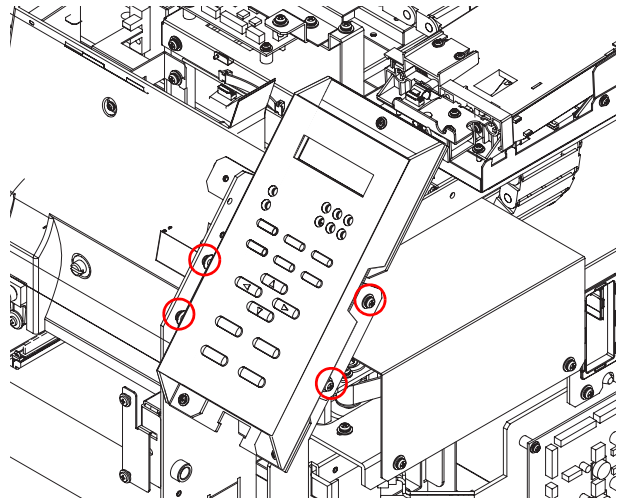
4 Remove the Y-axis motor cover (right side: 2 screws, left side: 2 screws).

Remove the left side screws (x2) after manually move the head above the platen.

D-BKT cover
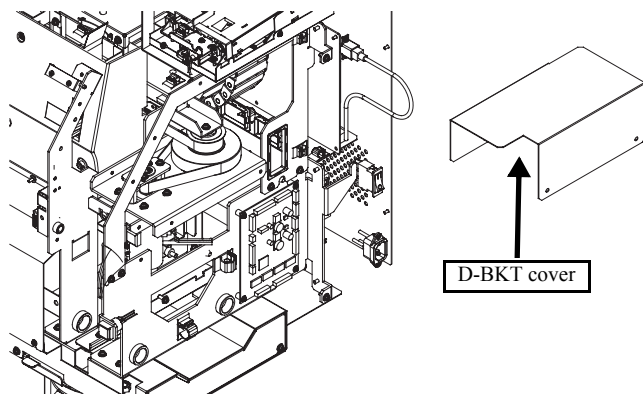
5 Loosen the screws (x4) that affix the Y-axis motor belt, and reduce the belt tension.

6 Remove the screws (x2) from the top of the Y-axis motor then remove the YM top plate.

7 Use pliers or a spanner to remove the YM stat 33 (x2).

Belt tension lock screw

YM top plate

YM stat 33

Belt tension lock screw
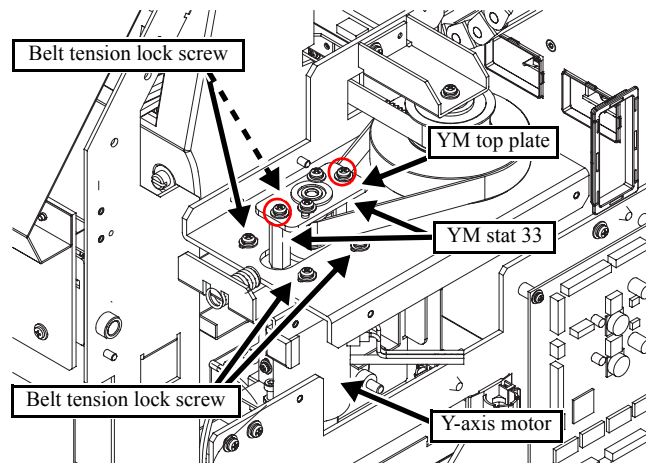
Y-axis motor

8 Remove the Y-axis motor assembly while taking care not to drop it.

9 Release the 2 clamps and the cable (directly connected to main PCB).

10 **Reattach by reversing the removal procedure.**

    * Attach so that the belt is horizontal and centered on the Y-axis drive pulley (upper side is also acceptable).

OK
  Horizontal in the middle

OK
  Horizontal but upper

NG
  Shifted lower

NG
  Slanting
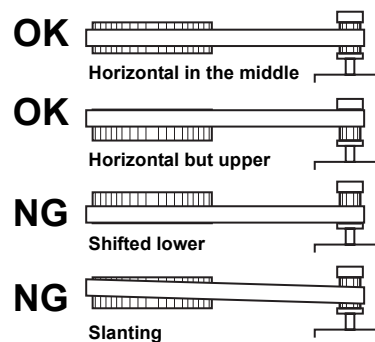
Adjust Y-Axis Motor Current

If there is a hunting noise when the motor is driven, adjust the supply current to minimize the hunting noise.

Perform the supply current adjustment while the head is over the station, without moving carriage out.

1 **Select "Y MOVING ADJUST" from the operation menu in maintenance mode.**

```
Mainte-          <LOCAL.1>      [#01]        FUNCTION
nance mode                                   #ADJUST        <ent>
Power ON.
                              [FUNC]

          #MOTOR CURRENT       #ADJUST
          Y MOVING ADJUST<ent> MOTOR CURRENT  <ent>
```
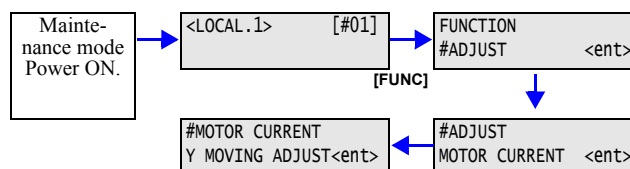
2 **Input test conditions to execute.**

Input the following conditions.

Speed (S)   : 5 ~ 10 mm/s

Acceleration (A) : 1.0 G

Length (X)   : approx. 50 ~ 100 mm

```
                         [▲]/[▼] : CV
                         [◀]/[▶] : MOVE
#Y MOVING ADJ.           [ENTER] : Exec
S=*** A=*** X=****        [END] : Return

                    (Carriage out)

Y axis consecutive
driving
(Y axis motor driving)

                         [▲]/[▼] : Change adjust
#Y MOVING ADJ. *RUN*     value
   XXX   (****)          [END] : Store adjust value
                         and end
```
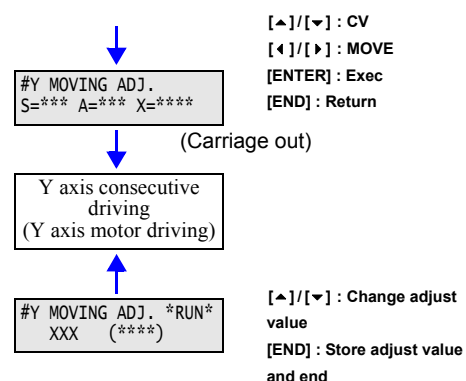
3 **Adjust the value to minimize the hunting noise while the Y-axis motor is driven.**

Check the noise of Y-axis motor at the right back side of JV33.

* Input values with targeting 130~160.
  (Input range 0~255)

4 **Press [END] several times to finish the Y-axis motor current adjustment.**

3-6-3.   Y-axis Drive Pulley
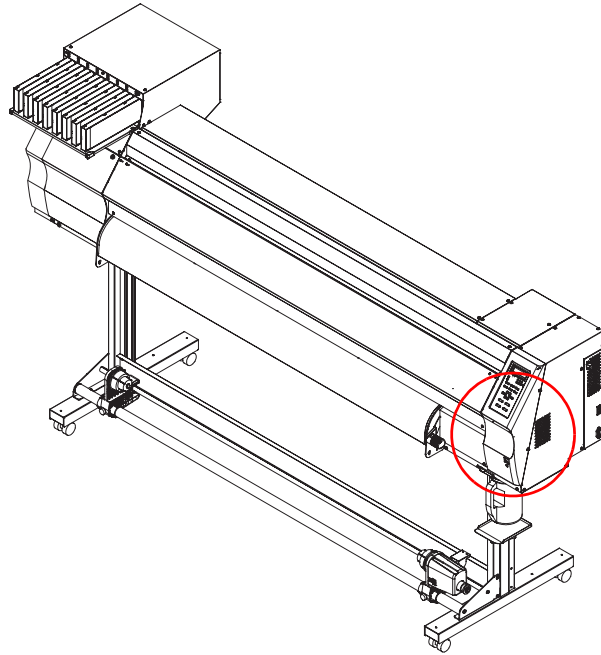
1 **Turn the main power supply of the printer off.**

> ⚠ **Caution**
>
> **Always ensure that the main power supply is off when the power is off. This procedure is extremely dangerous if the sleep function is mistakenly activated instead.**

2 **Remove the front cover (x4 screws), the Y cover C (x4 screws), the right cover (x9 screws) and the KB cover (x4 screws). (See *P.3-4*)**

3 **Remove the KB bracket screws (x4), then disconnect the connector and remove the keyboard.**
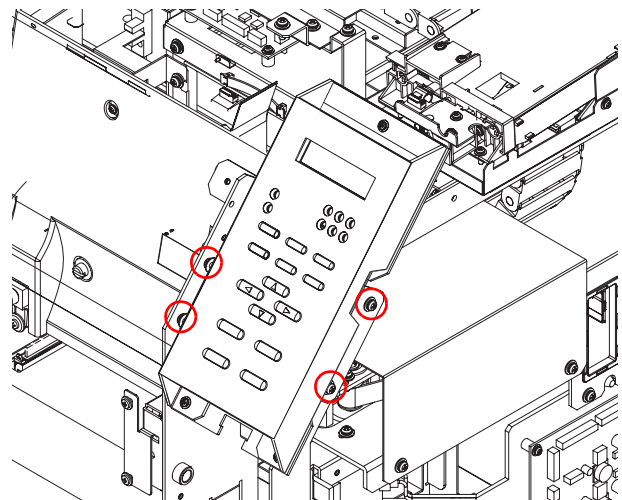
4 **Remove the Y-axis motor cover (right side: 2 screws, left side: 2 screws).**

Manually move the head over the platen before removing the left-side screws (x2).

D-BKT cover
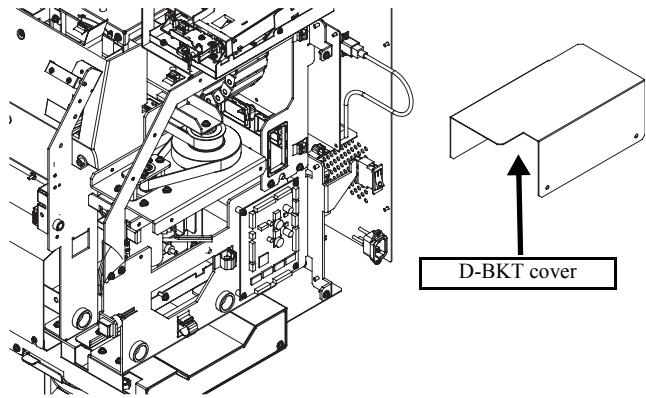
5 **Remove the screws (x2) that hold the washing cartridge assembly in place, and slide the washing cartridge assembly towards the back.**
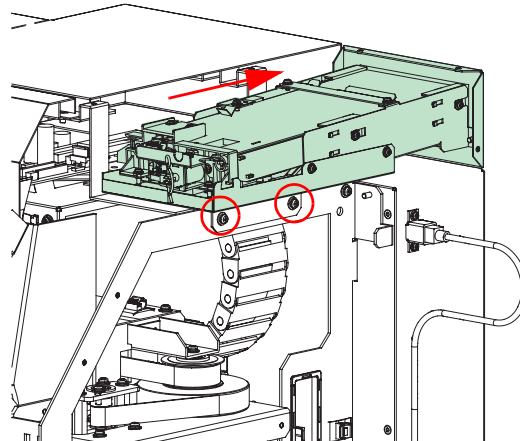
6 **Remove the screw (x1) from the top of the Y-axis drive pulley.**
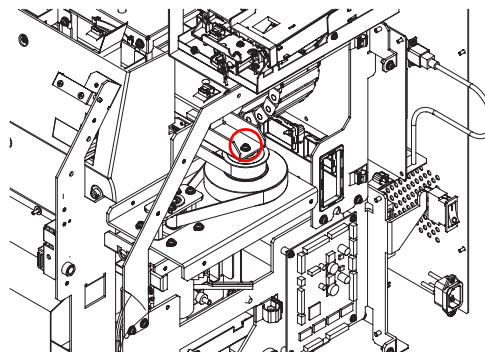
7 **Loosen the screws (x2) from the Y-SP plate on the left side of the main unit, and release the tension on the Y-axis drive belt.**

Y drive belt
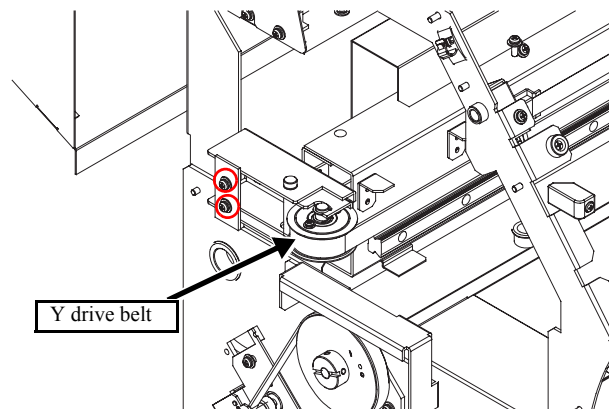
8 **Move the head unit over the platen, and remove the head cover (2 screws) and station cover (2 screws) (See *P.3-4*)**

9 **Remove the slider rear panel screw (x1), and remove the height lever base assembly.**

Height level base assembly

Insert a screwdriver into the gap in the damper and remove the damper
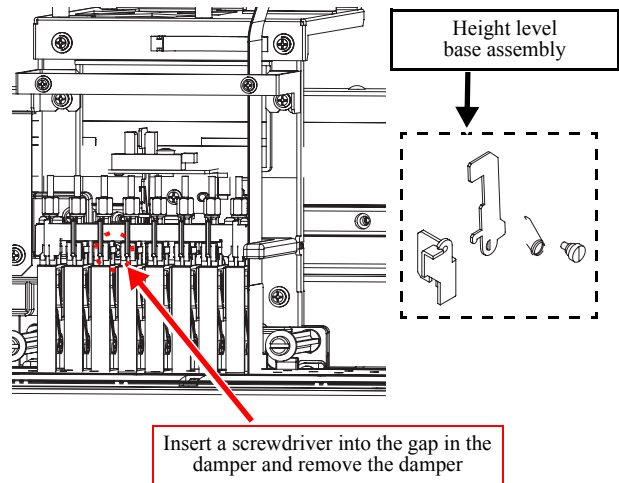
10 **Remove the slider rear panel screws (x2), and detach the head unit from the Y-axis drive belt.**

Insert a screwdriver into the gap in the damper and remove the damper
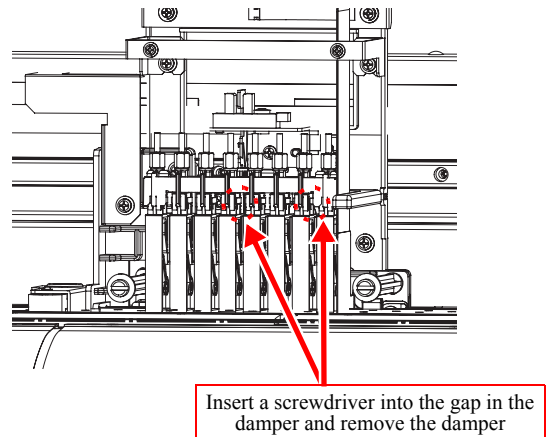
11 **Slide out the connection point of the Y-axis drive belt, and remove either the left or right belt holder 1 from the belt holder.**

* Do not remove the Y-axis drive belt from the slider.

Do not remove the screw

Belt holder 1

Belt holder(M400161)
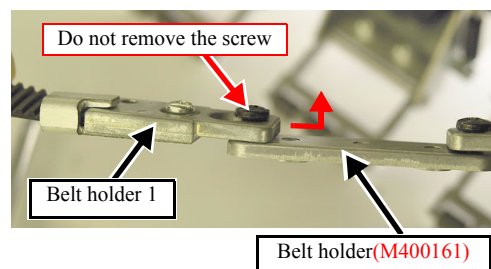
12 **Remove the screw (x1), and detach the DBKT U from the Y-axis drive pulley.**

D-BKT U
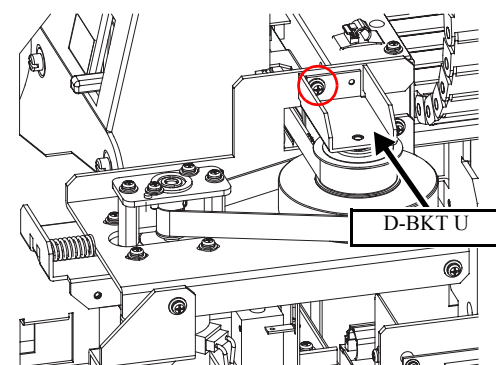
13 **Loosen the screws (x4) for fixing the Y-axis motor belt tension, and reduce the tension on the belt.**
Remove the O-ring from the top of the Y-axis drive pulley, remove the 2 belts, then remove the Y-axis drive pulley.

* Take care not to lose the O-ring.

O-ring

Belt tension lock screw

Belt tension lock screw
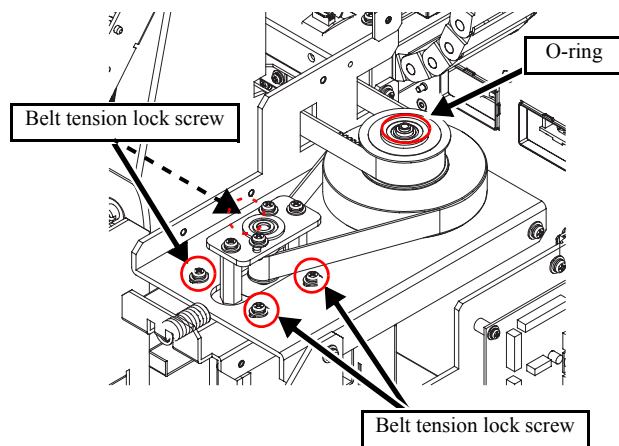
14 **After replacing the Y-axis drive pulley, rotate the Y-axis motor belt approximately two times to check the position of the belt.**

* Attach so that the belt is horizontal and centered on the Y-axis drive pulley (upper side is also acceptable).

OK Horizontal in the middle

OK Horizontal but upper

NG Shifted lower

NG Slanting
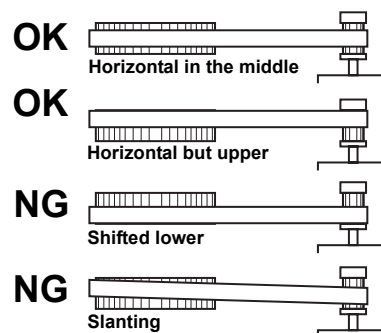
15 **Reverse the disassembly procedure for reassembly.**

3-6-4. Y Drive Belt
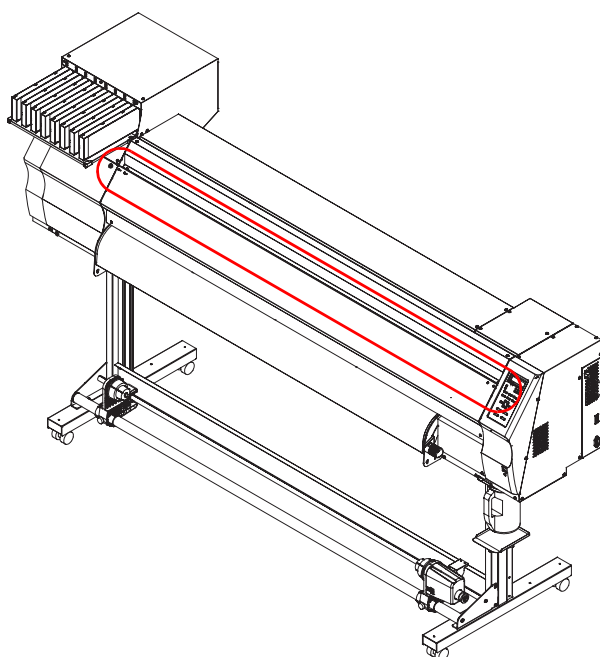
1 **Turn the main power supply of the printer off.**

> ⚠️ **Caution**   **Be sure to shut the main circuit breaker to prevent unexpected move.**

2 **Remove the front cover (x4 screws), the Y cover C (x4 screws), and the head cover (x2 screws). (See *P.3-4*)**

3 **Remove the slider rear panel screws (x2), and detach from the belt.**

P-slider
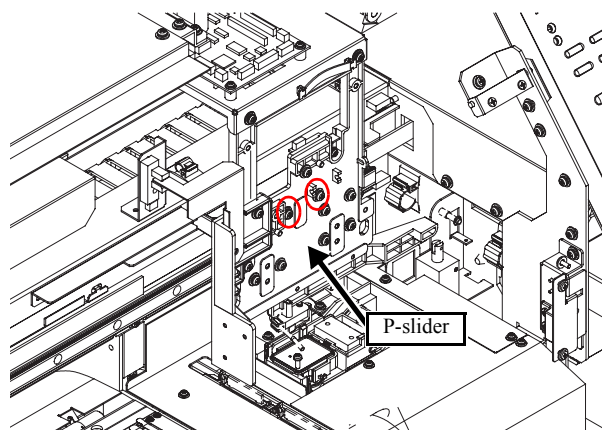
4 Loosen the screws (x2) of the Y-SP plate on the left side panel, and release the tension from the Y drive belt.

Y drive belt
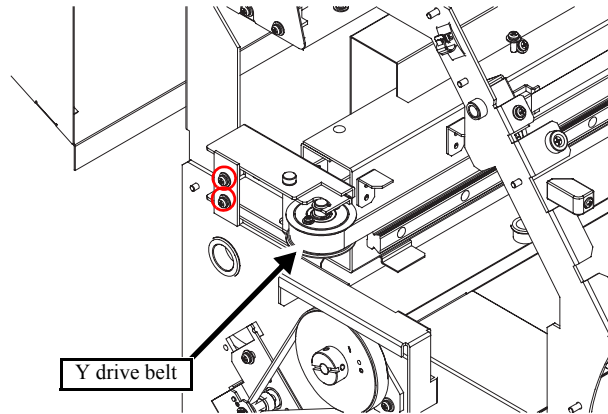
5 At the belt connection points, remove the left and right side belt holder 1 from the belt holders.

Do not remove the screw

Belt holder 1

Belt holder (M400161)
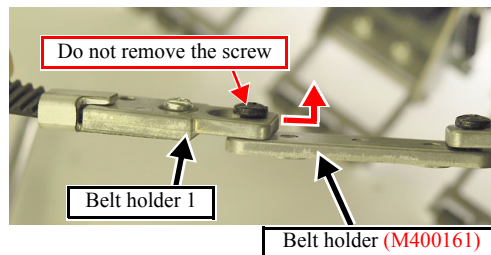
6 Remove the belt holder 1 screws.

7 Pry open the belt holder 1 with a slotted screwdriver or similar, then slide to detach from the belt.
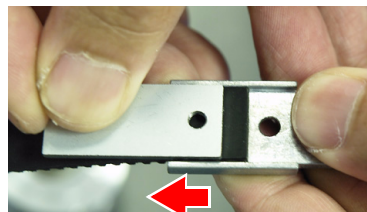
8 Use rubber tape or similar to stick together the ends of the old belt and the new belt, and perform one revolution of the belt.

Make a circle with belt

New belt
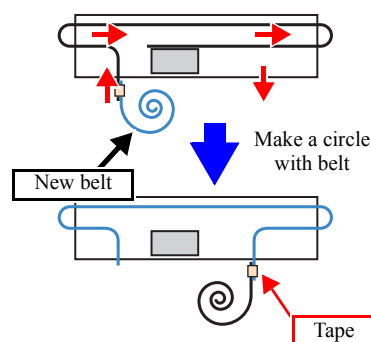
Tape

9 Once the belt has made one revolution, remove the joining tape and pass the belt through the rear side of the slider.

10 **Align the belt holder 1 and the teeth on the left and right belt ends, and attach the belt holder 1 engaging the teeth and tighten the screw.**

Engage the toothed surface of belt with belt holder 1.
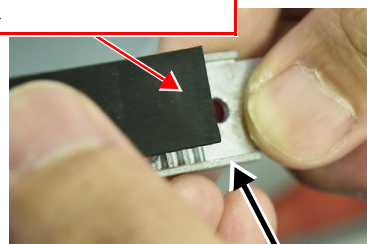
Belt holder 1 (M400160)

11 **Join the left and right belt holder 1 to the belt holder.**

12 **Attach the belt holder and slider using a screw.**

13 **Loosen the screws (x2) on the Y-SP plate on the left side panel of the main unit, and increase the Y drive belt tension.**

3-6-5.   Wiper Unit

1 Turn the main power supply on the right side panel of the printer ON, then select [MAINTENANCE] - [ST.MAINTE-NANCE] - [CARRIAGE OUT] to move the head unit over the platen.

```
Power ON.  →  <LOCAL.1>      [#01]  →  FUNCTION
                                         MAINTENANCE    <ent>
                            [FUNC]

Execute Car-  ←  ST.MAINTENANCE    ←  MAINTENANCE
riage out        CARRIAGE OUT   <ent>     ST.MAINTENANCE <ent>
```

2 Turn the main power supply OFF.

⚠ **Caution**   Be sure to shut the main circuit breaker to prevent unexpected move.

3 Remove the front cover (x4 screws) and the station cover (x5 screws). (See *P.3-4*)

4 Remove station cover 2 (x4 screws).

Station cover 2
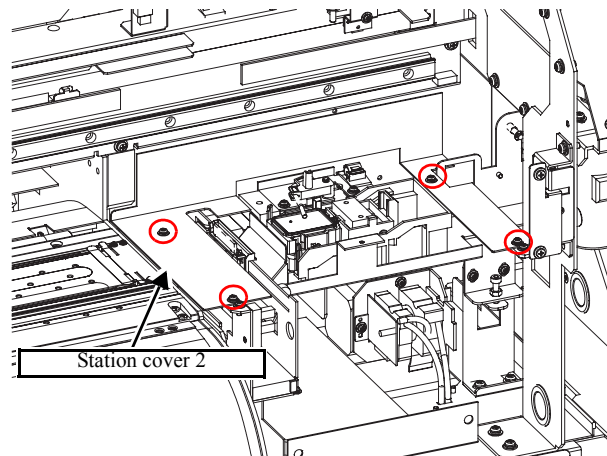
5 Remove the screws (x2), and remove the wiper assembly from the base.

Wiper assembly
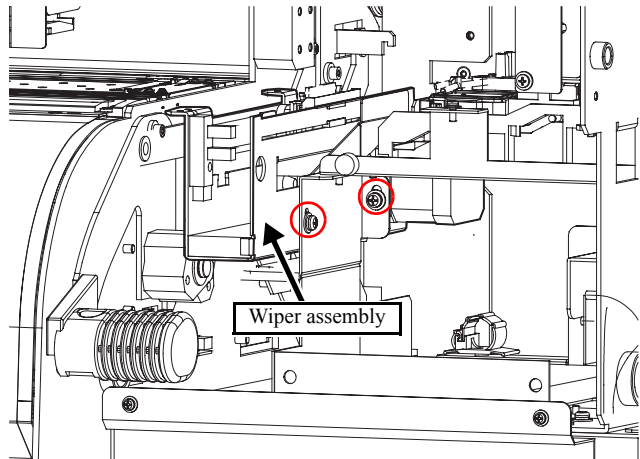
6 Release the clamp from the lower part of the station, and remove the connector that is directly connected to the wiper motor.
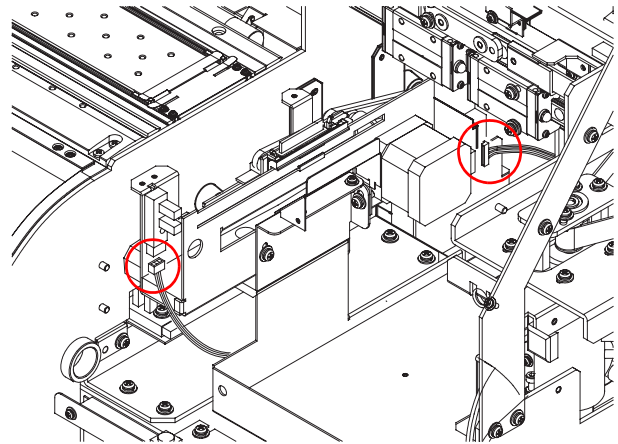
7 Remove the wiper home position sensor connector.

8 If you are replacing only the motor, remove the wiper drive link and remove the screws (x2) to remove the motor.

    * When replacing the motor, create a gap of 0.5 mm between the motor and the base.
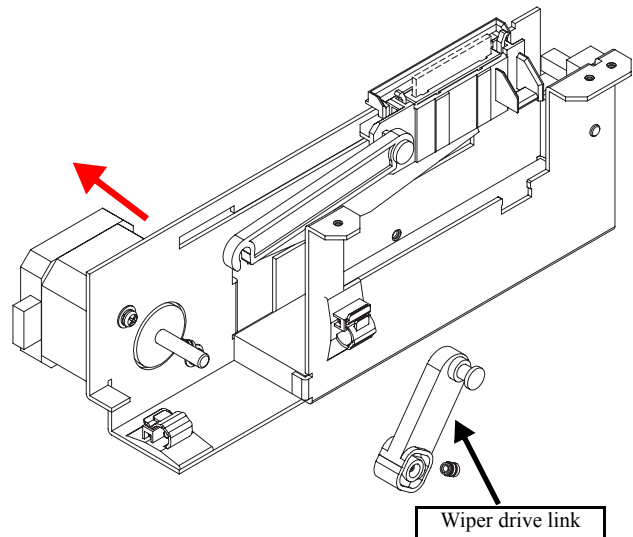
9 Reattach by reversing the removal procedure.

Wiper drive link

3-7. Overhaul of Other Parts

The JV33-130/160 drive system parts are as follows.

~ Head Assembly ~

Cutter Unit Assembly

Linear scale

Adjustment of the station height
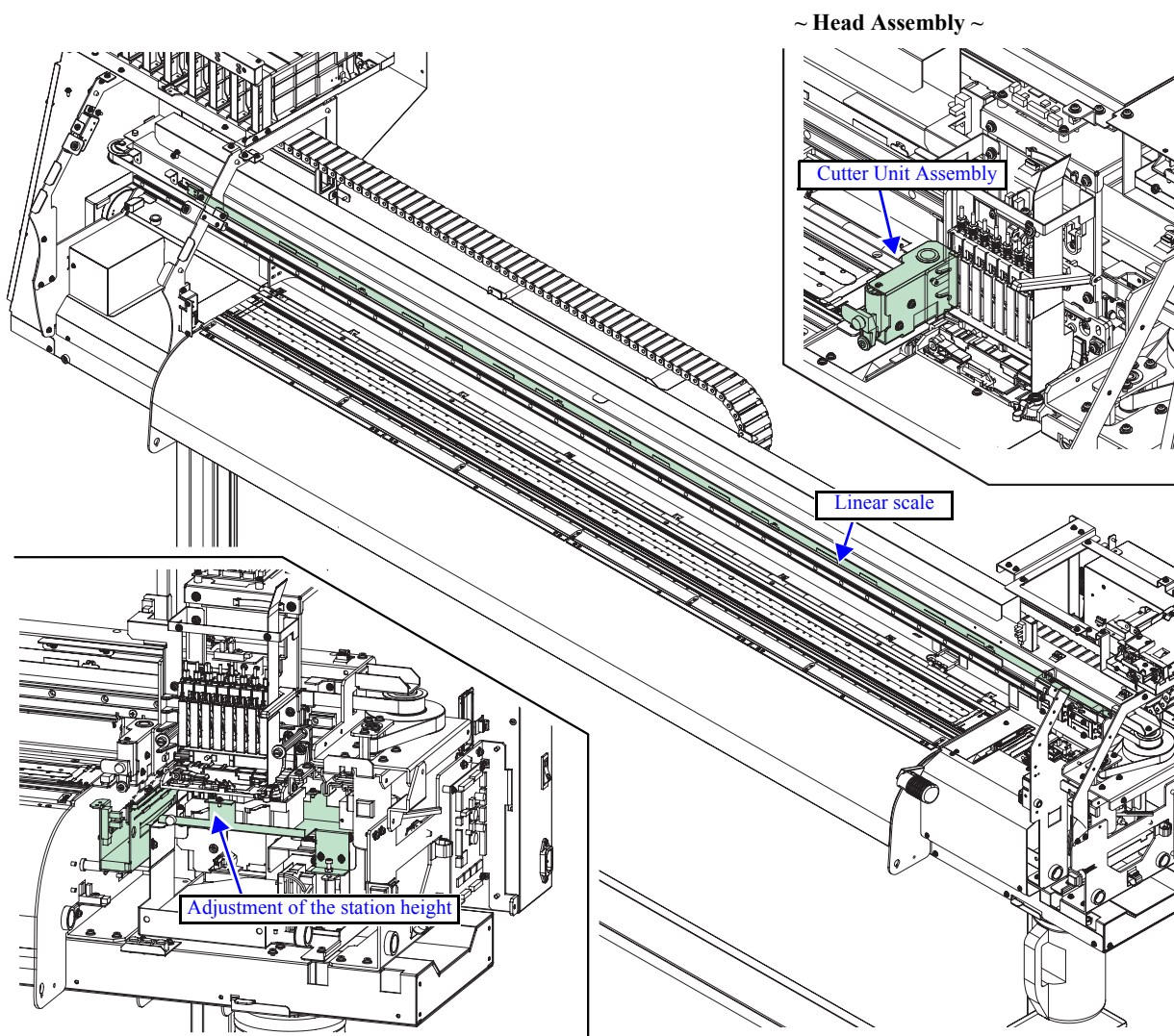
3-7-1. Cutter Unit Assembly
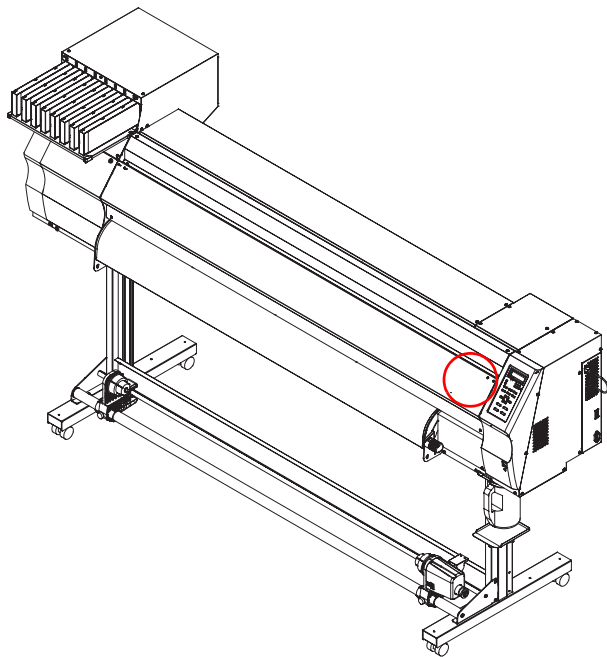
☐Content

A summary of the series of operations to perform when replacing the cutter assembly is described along with the procedure.

Item	Description	Reference page
1. Remove/Install Cutter Unit Assembly	Replace the cutter assembly.	*p.3-45*
2. Adjust the cutter attachment position	Use the height adjustment jig to adjust the up/down/left/right attachment positions.	*p.3-46*

Remove/Install Cutter Unit Assembly

1 **Turn the main power supply on the right side panel of the printer ON, then select [MAINTENANCE] - [ST.MAINTE-NANCE] - [CARRIAGE OUT] to move the head unit over the platen.**
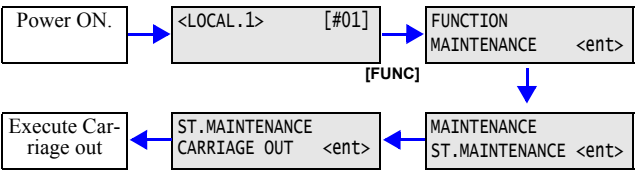
2 **Turn the main power supply off.**

   Be sure to shut the main circuit breaker to prevent unexpected movements.

3 **Remove the front cover (x4 screws), Y cover C (x4 screws), and the head cover (x2 screws). (See** *P.3-4* **)**

4 **Remove the screws (x3), then remove the cutter unit.**

5 **Reattach by reversing the removal procedure.**
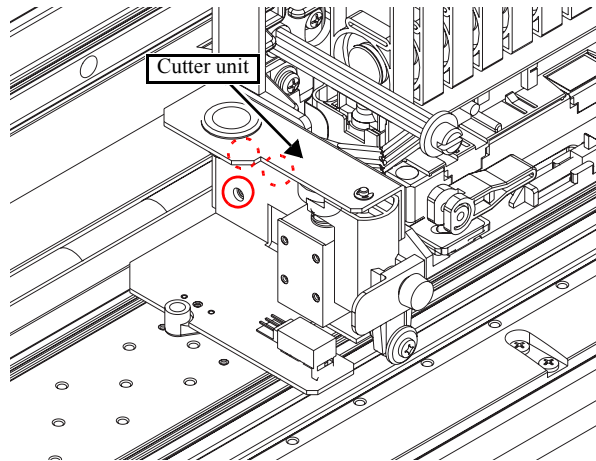
Cutter unit

Cutter Unit Positioning

If the jig cannot be arranged, using an intervenient having height of 7.0 mm of the cutter unit side is allowed.

1 **Set screws (x3) of the cutter unit at temporary joint state.**

Temporary joint state is that the unit is held lightly.

2 **Down the Clamp Lever.**

Keep clamp lever down while adjusting. PG setting should be 1.5 mm or less.

3 **Set the Jig to the Platen.**

Place the jig base pin (x3) in the slots in the back and front for platen media plate.

4 **Push the jig to the end of the head.**

After setting, slide the jig to the head end (to stop).

To the end

Jig No. (G002842)
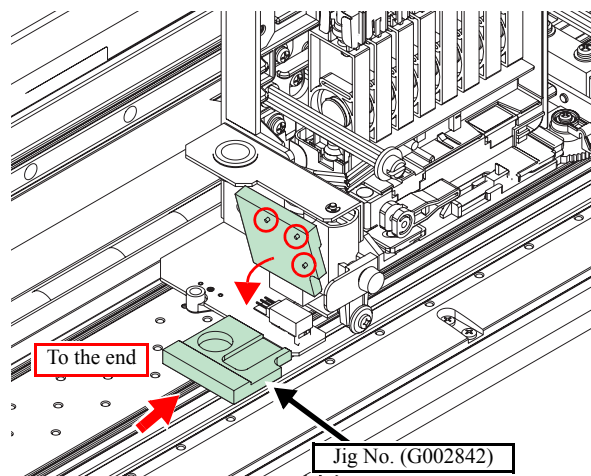
5 **Adjust the cutter unit position back-front.**

Decide the unit's lengthwise position so that the cutter tool meets the slot (with push down the cutter tool), and fix it with a screw.

* **Cutter tool positioning slot has width wider than that of the tool. Adjust the position within the range.**

* **When there is no jig, push down the cutter tool assembly to the platen face and adjust using the cutter slot of platen.**
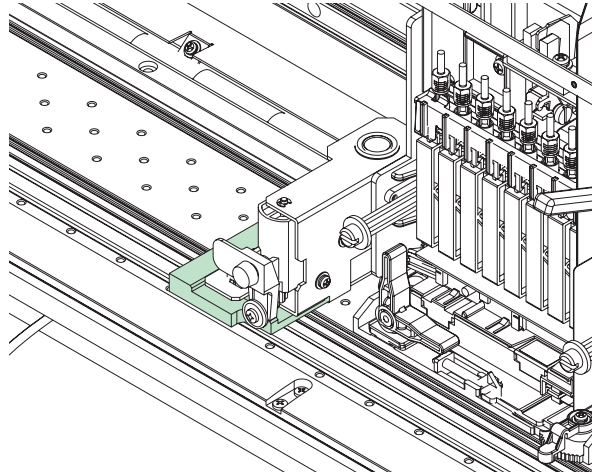
6 **Move the head unit to each right, center and left end on the platen, and push down the cutter tool assembly to check back-front positioning.**

* **On rare occasions, the tool comes out of the slot because of assembling accident errors or differences of part accuracies. In such a case, adjust again to the back-front optimum position where the tool is always in whole slot on the platen.**

7 **Attach the covers.**

Reverse the disassembly procedure for reassembly.

3-7-2.   Linear scale

3-48
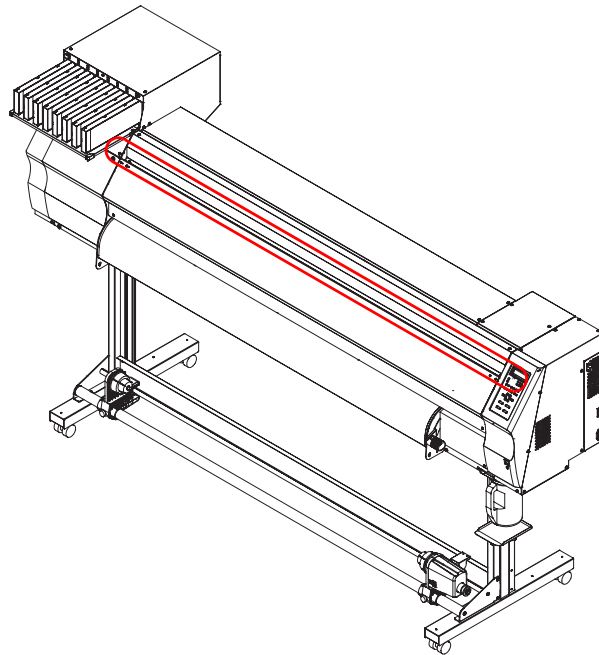
> ⚠️ **Caution**
> While performing work, take care to avoid attaching fingerprints or oil to the linear scale.
> (If the linear scale becomes dirty, clean with a neutral detergent.)
> Take care also to avoid bends, scratches, etc.

1 Remove the front cover (x4 screws), Y cover C (x4 screws), and the maintenance cover (x4 screws). (See *P.3-4*)

2 Remove the screw from the left end of the linear scale, and remove the linear scale from each of the springs.
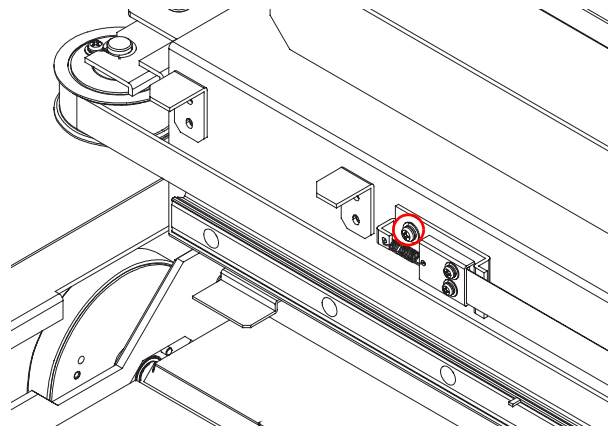
3 Remove the head cover (x2 screws). (See *P.3-4*)

4 Remove the screws from the right end of the linear scale, and remove the linear scale.
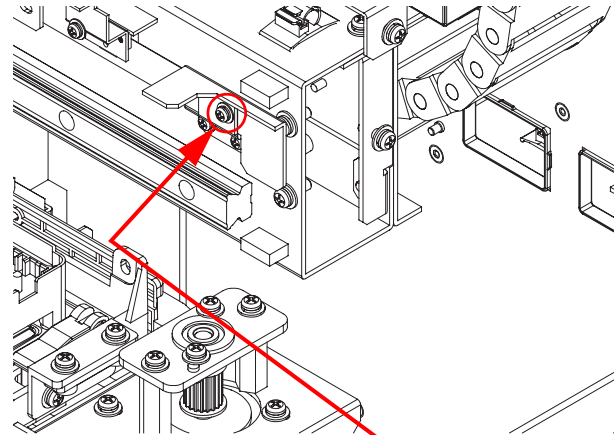
5 Remove the screw from the components at the end (linear encoder), and replace the linear scale.
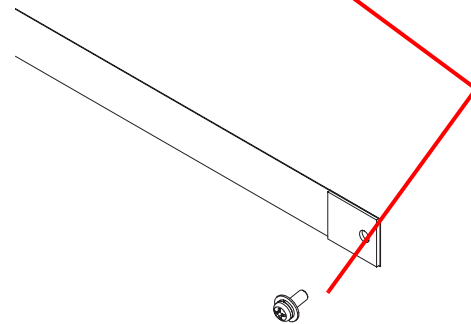
6 Reattach by reversing the removal procedure.

7 Move both the media position and the position without media down and carry out a linear encoder test.

    * If the media is too thin to read, use a media within the specifications.

Mainte- nance mode Power ON.	`<LOCAL.1>      [#01]`	`FUNCTION` `#TEST            <ent>`

Check Move	`#LINEAR ENCODER` `ActiveWIDTH:****mm`	`#TEST` `LINEAR ENCODER <ent>`
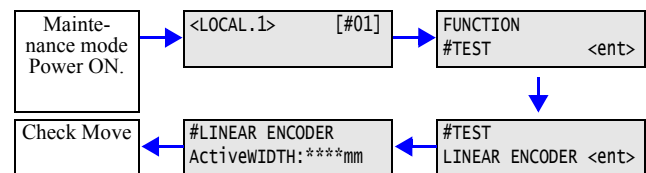
3-7-3. Adjustment of the station height
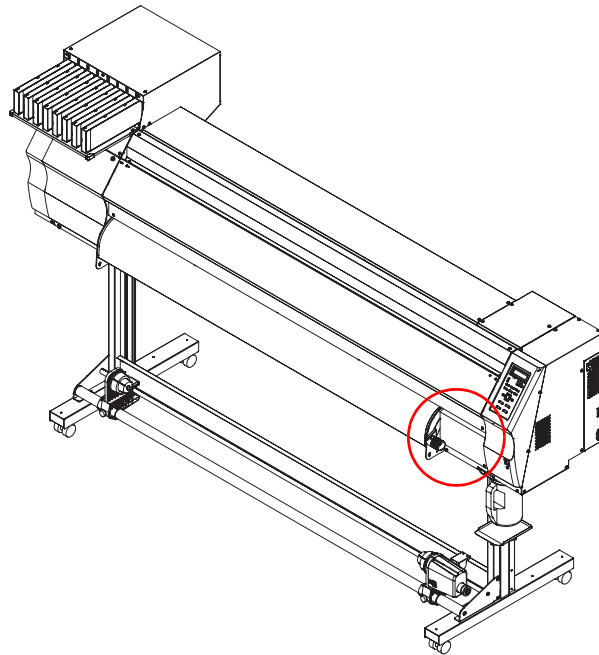
Adjustment of the wiper height

1 Remove the front cover (x4 screws) and the station cover (x5 screws). (See *P.3-4*)

2 Loosen the wiper height adjusting screws (x2), and temporarily adjust the screws until the thickness gauge is 8mm.

3 Loosen the screws (x2) on the front of the head cover, and then tighten the screws while holding the height adjustment lever in the lowest position to fix the head in place.

Height adjustment lever

8mm

Screw for adjusting the wiper
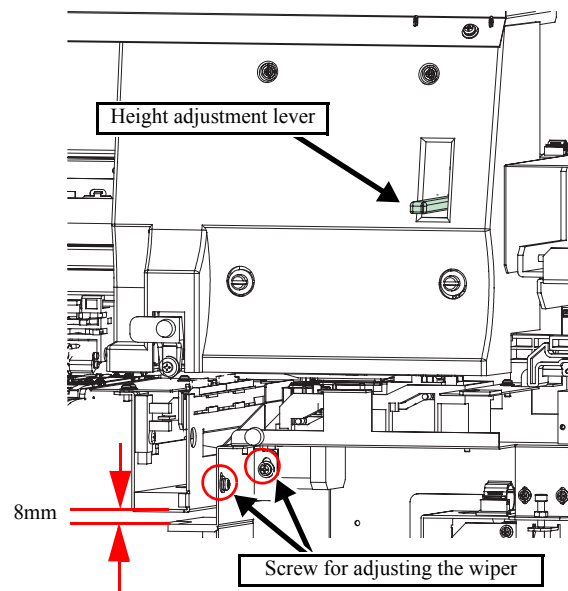
4 Move the head, and adjust the wiper so that there is approximately 1 mm from the nozzle surface.

1mm

Nozzle surface

wiper
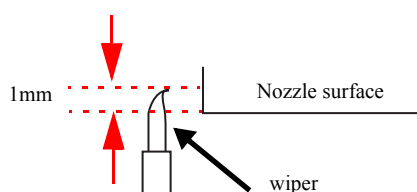
Adjustment of the station base height

1 Remove the front cover (x4 screws) and the station cover (x5 screws). (See *P.3-4*)

2 Loosen the station base adjusting screws (x2).
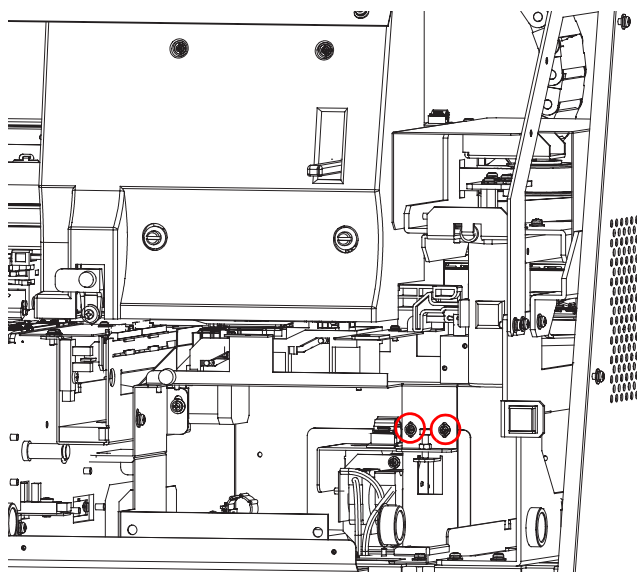
3 Loosen the hexagonal-hole set screw using a spanner or monkey wrench, then adjust until the thickness gauge is 5 mm and tighten the nut.

5mm
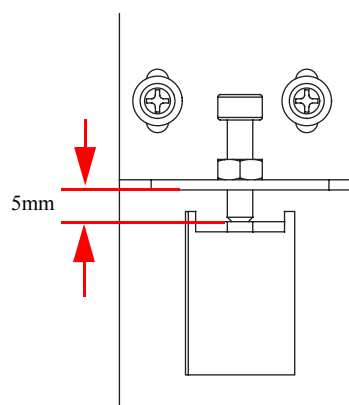
4 Tighten the adjustment screws (x2) to lock in place.

CHAPTER 4 Troubleshooting

Contents

4-1. Outline

This chapter describes the troubleshooting for JV33-130/160. Before starting work, read and understand thoroughly the instructions given below and "1-1. Precautions in Maintenance" (*p. 1-2*).

4-1-1. Rough identification of the source of the trouble

At the beginning of troubleshooting, it is necessary to identify the trouble roughly which functions the trouble relates to.

Problems can be roughly classified into those that relate to the printer itself and those that involve the connection between the printer and the host computer.

1. Problems with the printer itself
The cause of the trouble can be identified by executing appropriate functions or using test functions.

2. Problems concerning the connection to the host computer
Hardware: Broken wire or faulty contact of cables
Software: Transmission by improper application setting

In the standard setting of JV33-130/160, priority is given to the host computer.
Check the settings on the host computer to see if there is any improper parameter setting.

4-1-2. Checking procedure

START

Refer to Precautions in Maintenance (*P. 1-2*)

Is there error message? —Yes→ 4-2. Troubles for which error messages are displayed (*P. 4-4*)

No

Is the trouble related to print quality? —Yes→

No

Rough identification of error source

Execute appropriate functions or use test functions of JV33-130/160 *(See p.2-52)*

Do the above functions operate normally? —No→

Yes

Troubles on the host computer side

If this troubleshooting cannot correct the trouble, check to see if the same trouble occurs with another host computer (if possible).

This section describes troubleshooting procedures for the problems for which error messages are displayed.

1. Identifying the error category

The causes of errors can be classified into the following categories:

- ☐ Handling error on the host computer side
- ☐ Trouble on the host computer side
- ☐ Trouble with the interface cable
- ☐ Printer handling error
- ☐ Printer mechanical trouble
- ☐ Printer hardware trouble
- ☐ Printer firmware trouble

2. Initial action

Refer to the error message, and judge whether the trouble lies on the host computer side or on the printer side.

- ☐ Has any of the interface conditions (Printer model setting, command, communication conditions, etc.) been changed?
- ☐ Does the trouble occur under specific conditions?
- ☐ Does the same trouble occur repeatedly?

3. Failure on the printer side

Take the following steps to repair the printer.

- ☐ Replace the defective part (sensor, etc.) or make the necessary adjustment.
- ☐ Replace the main PCB.

4. Repair at the factory

If the error recurs even after the corrective measures specified here are taken, return the printer to the factory of MIMAKI for repair.

4-2. Troubles for which error messages are displayed

4-2-1. Error messages and corrective measures

<Error messages and corrective measures >

Display		Cause	Remedy (instruction & maintenance manual)	
ERROR No.	ERROR		Descriptions in the manual (for reference)	Remedy
ERROR 01	MAIN ROM	An error occurred on the control circuit board. (ROM)	Turn the main power OFF and turn the main power ON after elapse of 2~3 minutes. In a case of recurrence, contact your local distributor to call for service.	1. Replace the main PCB with a new one.
ERROR 02	MAIN RAM	An error occurred on the control circuit board. (RAM)	Turn the main power OFF and turn the main power ON after elapse of 2~3 minutes. In a case of recurrence, contact your local distributor to call for service.	
ERROR 03	POWER +5V	An error occurred on the control circuit board. (Power supply voltage +5V)	Turn the main power OFF and turn the main power ON after elapse of 2~3 minutes. In a case of recurrence, contact your local distributor to call for service.	1. Replace the power supply PCB with a new one. 2. Replace the main PCB with a new one.
	POWER +24V	An error occurred on the control circuit board. (Power supply voltage +24V)		
	POWER +42V	An error occurred on the control circuit board. (Power supply voltage +42V)		
ERROR 04	FLASH ROM	An error occurred on the control circuit board. (Parameter ROM)	Turn the main power OFF and turn the main power ON after elapse of 2~3 minutes. In a case of recurrence, contact your local distributor to call for service.	1. After uploading parameters, initialize all parameters. * If the state is not restored, replace the main PCB with a new one.
ERROR 06	SD-RAM	An error occurred on the control circuit board. (SDRAM)	Turn the main power OFF and turn the main power ON after elapse of 2~3 minutes. In a case of recurrence, contact your local distributor to call for service.	1. Replace the main PCB with a new one. 2. Replace the PRAM PCB with a new one.
ERROR 07	HEAD (----)	An error was detected in the head connection. (Abnormal temperature was detected)	Turn the main power OFF and turn the main power ON after elapse of 2~3 minutes. In a case of recurrence, contact your local distributor to call for service.	1. Reconfirm the head temperature with [#TEST] - [TEMPERATURE.CHK] - [NOZZLE TEMP]. In case of recurrence, execute the followings. 2. Make sure that corresponding FPC, main FPC are connected in the right way. 3. Replace the corresponding head with a new one. 4. Replace the ink slider PCB with a new one. 5. Replace the main PCB with a new one.
	VOLTAGE (----)	An error was detected in the head connection. (Abnormal voltage was detected)		

<Error messages and corrective measures *(continued)* **>**

Display		Cause	Remedy (instruction & maintenance manual)	
ERROR No.	ERROR		Descriptions in the manual (for reference)	Remedy
ERROR 08	LinearEN-CODER: SENSOR	An error occurred in detection by the linear encoder. (Counting impossible)	Turn the main power OFF and turn the main power ON after elapse of 2~3 minutes. In a case of recurrence, contact your local distributor to call for service.	*1.* Make sure that linear encoder scale and encoder PCB are placed in the right positions. *2.* Replace the encoder PCB with a new one.
	LinearEN-CODER: DIR.	An error occurred in detection by the linear encoder. (Wrong orientation)		
	LinearEN-CODER: COUNT	An error occurred in detection by the linear encoder. (Read-out count error)		
ERROR 09	FPGA ERROR	An error occurred on the control circuit board. (FPGA PDC)	Turn the main power OFF and turn the main power ON after elapse of 2~3 minutes. In a case of recurrence, contact your local distributor to call for service.	*1.* Replace the main PCB with a new one.
	HDC ERROR (----)	An error occurred on the control circuit board. (FPGA HDC)		*1.* Replace the main PCB with a new one.
ERROR 10	COMMAND ERROR	The printer received some data other than command data.	Securely connect the interface cable in position. Use an interface cable conforming to the specifications.	*1.* When the state is not recovered even if untreated data is cleared, execute the followings. *2.* Check the USB cable. (specifications, cable length, etc.) *3.* Replace the main PCB with a new one.
ERROR 11	PARAMETER ERROR	Any parameter outside the range of acceptable numeric values was received.	Turn the main power OFF and turn the main power ON after elapse of 2~3 minutes. In a case of recurrence, contact your local distributor to call for service.	*1.* When the state is not recovered even if untreated data is cleared, execute the followings. *2.* Check the USB cable. (specifications, cable length, etc.) *3.* Replace the main PCB with a new one.
ERROR 12	MAINTENANCE COMMAND	–	(This error does not occur on site.)	*1.* When the state is not recovered even if untreated data is cleared, execute the followings. *2.* Check the USB cable. (specifications, cable length, etc.) *3.* Replace the main PCB with a new one.
ERROR 16	MRL COMMAND	Received data does not follow the command system set in the device.	Transmit data with the command system corresponding to the system.	*1.* Make sure that the transmission data is in MRL-III command system (data ripped for JV-33). *2.* Check the command system set with [MACHINE SETUP] - [MRL COMMAND].

\<Error messages and corrective measures *(continued)* \>

	Display	Cause	Remedy (instruction & maintenance manual)	
ERROR No.	ERROR		Descriptions in the manual (for reference)	Remedy
ERROR 25	FULL-SPEED	An error occurred in communication between the host computer and the interface board for USB2.0 connection. (Full-Speed mode connection)	Check that the host PC supports the USB2.0 interface. (Communication can be resumed without changing any setting. However, it is recommended to use the connection in High-Speed mode.)	Make sure that the host PC and the USB cable follow the USB2.0 interface standard.
	PACKET SIZE OVER	An error occurred in communication between the host computer and the interface board for USB2.0 connection.	Make sure that the cables are connected correctly and there is no occurrence of an error in the host PC.	*1.* Make sure that the connection to the host PC is correct. *2.* Make sure that there is no occurrence of an error in the host PC, or the application runs normally.
	USB PROTOCOL	An error occurred in communication between the host computer and the interface board for USB2.0 connection.		
	USB ENVIRON-MENT	An error occurred in communication between the host computer and the interface board for USB2.0 connection.		
	USB DATA	An error occurred in communication between the host computer and the interface board for USB2.0 connection.		
ERROR 30	OPERATION ERROR	Improper operation was conducted on the operation panel.	Perform correct operations.	*1.* It is notified that wrong operation is conducted.
ERROR 34	DATA REMAIN	As received data which is not drawn remains, setting of Function Feature can not be changed.	Change setting function after executing all received data or clearing the data.	*1.* Explain that any of the operating conditions cannot be changed if data that have not been drawn remains.
ERROR 40	MOTOR ALARM X	The X-axis motor was overloaded.	Turn the main power OFF and turn the main power ON after elapse of 2~3 minutes. In a case of recurrence, contact your local distributor to call for service.	*1.* Check friction of X -axis motor. *2.* Replace the X-axis motor with a new one. *3.* Replace the regenerative resistance PCB with a new one. *4.* Replace the main PCB with a new one.
ERROR 41	MOTOR ALARM Y	The Y-axis motor is overloaded.	Turn the main power OFF and turn the main power ON after elapse of 2~3 minutes. In a case of recurrence, contact your local distributor to call for service.	*1.* Check friction of Y-axis motor. *2.* Replace the Y-axis motor with a new one. *3.* Replace the regenerative resistance PCB with a new one. *4.* Replace the main PCB with a new one.
ERROR 42	X OVER CUR-RENT	Overcurrent in the X-axis motor was detected.	Turn the main power OFF and turn the main power ON after elapse of 2~3 minutes. In a case of recurrence, contact your local distributor to call for service.	*1.* Check friction of X-axis motor. *2.* Replace the X -axis motor with a new one. *3.* Replace the regenerative resistance PCB with a new one. *4.* Replace the main PCB with a new one.
ERROR 43	Y OVER CUR-RENT	Overcurrent in the Y-axis motor was detected.	Turn the main power OFF and turn the main power ON after elapse of 2~3 minutes. In a case of recurrence, contact your local distributor to call for service.	*1.* Check friction of Y-axis motor. *2.* Replace the Y-axis motor with a new one. *3.* Replace the regenerative resistance PCB with a new one. *4.* Replace the main PCB with a new one.

<Error messages and corrective measures *(continued)* >

Display		Cause	Remedy (instruction & maintenance manual)	
ERROR No.	**ERROR**		**Descriptions in the manual (for reference)**	**Remedy**
ERROR 45	CAPPING : PARAMETER	An error occurred in capping control. (Improper parameter adjusted value)	Turn the main power OFF and turn the main power ON after elapse of 2~3 minutes. In a case of recurrence, contact your local distributor to call for service.	*1.* Make sure that the adjusting value of [#ADJUST] - [CAPPING] is set correctly.
ERROR 46	WIPER	An error occurred in wiper control.	Turn the main power OFF and turn the main power ON after elapse of 2~3 minutes. In a case of recurrence, contact your local distributor to call for service.	*1.* Check that the wiper sensor functions properly with [#TEST] - [SENSOR TEST]. *2.* Check that the wiper motor functions properly with [#TEST] - [MOTOR TEST]. *3.* Make sure that there is no friction on the guide rail caused by sticking of ink. *4.* Replace the wiper sensor with a new one. *5.* Replace the stepping motor with a new one. *6.* Replace the station PCB with a new one.
ERROR 50	MEDIA DETECT	Paper could not be detected. The media set position or media itself is not proper.	If the same error message appears again even after setting the media properly, contact your local distributor to call for service.	*1.* Make sure that there is no gap between the end faces of platen and platen rubber. *2.* Execute [#TEST] - [PAPER SENSOR] to obtain sensor values at the media exist position and media non-exist position. When the difference of values is more than ±50, detection is allowed. If the difference is smaller, execute the followings. *3.* Clean the paper width sensor or replace with a new one. *4.* Replace the ink slider PCB with a new one.
ERROR 51	Y-ORIGIN	Y-origin could not be detected.	Turn the main power OFF and turn the main power ON after elapse of 2~3 minutes. In a case of recurrence, contact your local distributor to call for service.	*1.* Check that the Y origin sensor works properly with [#TEST] - [SENSOR TEST]. *2.* Replace the Y origin sensor with a new one. *3.* Replace the station PCB with a new one.
E70	FPGA	FPGA Configuration fails.	*(As the support functions will be supported after the releasing, this error does not arise on site in the present.)*	*1.* Replace the main PCB with a new one.
E71	SD-RAM	Abnormal operation in SD-RAM	*(As the support functions will be supported after the releasing, this error does not arise on site in the present.)*	*1.* Make sure that PRAM PCB is connected properly. *2.* Replace the PRAM PCB or main PCB with a new one.
E74	TRANS DATA	Received data is not Version Up file	*(As the support functions will be supported after the releasing, this error does not arise on site in the present.)*	*1.* Make sure that the ROM file is transmitted.
E80	ROM0 ERASE	ROM0 Erase error	*(As the support functions will be supported after the releasing, this error does not arise on site in the present.)*	*1.* Replace the main PCB with a new one.
E81	ROM1 ERASE	ROM1 Erase error	*(As the support functions will be supported after the releasing, this error does not arise on site in the present.)*	*1.* Replace the main PCB with a new one.
E82	h'********	ROM0 Write error	*(As the support functions will be supported after the releasing, this error does not arise on site in the present.)*	*1.* Replace the main PCB with a new one.
E83	h'********	ROM1 Write error	*(As the support functions will be supported after the releasing, this error does not arise on site in the present.)*	*1.* Replace the main PCB with a new one.

<Error messages and corrective measures *(continued)* >

ERROR No.	ERROR	Cause	Descriptions in the manual (for reference)	Remedy
	Display		**Remedy (instruction & maintenance manual)**	
E84	h'********	Verify error	*(As the support functions will be supported after the releasing, this error does not arise on site in the present.)*	*1*. Replace the main PCB with a new one.
E85	ROM HASH	Hash check error	*(As the support functions will be supported after the releasing, this error does not arise on site in the present.)*	*1*. Replace the main PCB with a new one.
E90	h'********	ROM Erase error	*(As the support functions will be supported after the releasing, this error does not arise on site in the present.)*	*1*. Replace the main PCB with a new one.
E92	h'********	ROM Write error	*(As the support functions will be supported after the releasing, this error does not arise on site in the present.)*	*1*. Replace the main PCB with a new one.
E95	MODE SHIFT	Transition to the version up mode is not allowed.	*(As the support functions will be supported after the releasing, this error does not arise on site in the present.)*	*1*. Replace the main PCB with a new one.
E99	VERSION DATA	Wrong version data.	*(As the support functions will be supported after the releasing, this error does not arise on site in the present.)*	——
ERROR 120	ENVIRONMENT TEMP(LO)	The ambient temperature is outside the permissible temperature range (too low).	Adjust the ambient temperature of the printer. To continue operation without changing the ambient conditions, press the [ENTER] key.	Operation under the temperature among the guaranteed operation temperature range is recommended.
ERROR 121	ENVIRONMENT TEMP(HI)	The ambient temperature is outside the permissible temperature range (too high).		
ERROR 144	CARTRIDGE SET !	An ink cartridge is not set.	Set an ink cartridge.	It is explained that leaving a state without setting a ink cartridge may cause inability of ink sucking because needles of the slot are dehydrated.
	ERROR COMMAND		*(This error does not occur on site.)*	Confirm the USB cable. (specifications, cable length and so on)
	ERROR PARAMETER		*(This error does not occur on site.)*	Make sure that PRM file, parameter data correspond to version of the device.
	ERROR DATA		*(This error does not occur on site.)*	Confirm the USB cable. (specifications, cable length and so on)
	ERR PRM. SHORTAGE		*(This error does not occur on site.)*	Make sure that PRM file, parameter data correspond to version of the device.
ERROR 200	HEAD MEMORY (----)	An error occurred in head unit memory.	Turn the main power OFF and turn the main power ON after elapse of 2~3 minutes. In a case of recurrence, contact your local distributor to call for service.	*1*. Check the head memory cable. *2*. Replace the head memory with a new one. *3*. Replace the ink slider PCB with a new one. *4*. Replace the main PCB with a new one.
ERROR 211	HeaterTEMP (--/--/--)	An abnormal temperature of the media heater is detected.	Turn the main power OFF and turn the main power ON after elapse of 2~3 minutes. In a case of recurrence, contact your local distributor to call for service.	*1*. Replace the main PCB with a new one. *2*. Replace the power supply PCB with a new one. *3*. Replace the corresponding platen cover with a new one.
	HeadWARM. TEMP. (----)	An abnormal temperature of the head heater was detected.		*1*. Make sure that the connection to the main FPC is correct. *2*. Replace the corresponding head heater with a new one. *3*. Replace the ink slider PCB with a new one.
	HeadWARM. BREAK(----)	The head heater is disconnected.		
	HeadWARM. THERM(----)	Trouble has occurred with the thermistor of the head heater.		

4-8

<**Error messages and corrective measures** *(continued)* >

Display		Cause	Remedy (instruction & maintenance manual)	
ERROR No.	**ERROR**		**Descriptions in the manual (for reference)**	**Remedy**
ERROR 250	Y COORDI-NATES	An error was detected during scanning operation.	Turn the main power OFF and turn the main power ON after elapse of 2~3 minutes. In a case of recurrence, contact your local distributor to call for service.	*1.* Make sure that the position of media is correct. *2.* make sure that there is no bend on the Paper width sensor. *3.* When the state is not recovered, check parameter upload and using state, and report the result to the development department.
ERROR 251	SYSTEM ERROR	A system error occurred.	Turn the main power OFF and turn the main power ON after elapse of 2~3 minutes. In a case of recurrence, contact your local distributor to call for service.	*1.* Confirm the error with memory check (Main.FROM). *2.* When the state is not recovered, check parameter upload and using state, and report the result to the development department.

4-2-2.   Warning messages and corrective measures

<Warning messages and corrective measures >

Display	Cause	Remedy (instruction & maintenance manual)	
		Descriptions in the manual (for reference)	Remedy
Close a cover.	An open cover was detected.	Check the front cover and maintenance covers. If the same error message appears again even after closing all the covers, contact your local distributor to call for service.	*1.* Make sure that the cover sensor works properly with [#TEST]- [SENSOR TEST]. *2.* Make sure that the toggle pushes the lever of the cover sensor firmly. *3.* Make sure that the cables are connected properly. *4.* Replace the cover sensor with a new one.
<LOCAL.1> [#01] **** NO MEDIA ****	No media was detected.	Set media.	*1.* Check that the paper sensor R works properly with [#TEST] - [SENSOR TEST]. *2.* Make sure that connection of the cables is correct. *3.* Replace the paper sensor R with a new one.
!EXCHANGE BATTERY	The battery of RTC has run down.	Contact your local distributor to call for service.	*1.* Replace the battery with a new one having the same model number.
<LOCAL.1> [#01] **!Replace a WIPER**	Time to replace the wiper in the capping station with a new one has come. (The wiping count has reached the specified value.)	Replace the wiper with a new one. * Execute [ST.MAINTENANCE] - [WIPER EXCHANGE].	*1.* Make sure that wiper replacement is conducted with [MAINTENANCE] - [ST.MAINTENANCE].
<LOCAL.1> [#01] **!Do TEST DRAW**	The nozzle recovery cannot be expected because the printer has been left standing for a prolonged period of time.	Perform TEST DRAW, and check for omitted nozzles. If nozzles are omitted, perform cleaning. If nozzle missing is serious, execute [ST.MAINTENANCE] - [NOZZLE WASH] for maintenance.	←
PRE PRT AFT **BREAK **° C **° C**	A heater is disconnected. (This example shows that pre-heater is disconnected.)	Contact your local distributor to call for service.	*1.* Check that the heaters work properly with [#TEST] - [HEATER TEST]. *2.* Make sure that connection of the cables is correct. *3.* Make sure that fuse of power supply PCB is not blown out. *4.* Replace the power supply PCB or main PCB with a new one.
PRE PRT AFT **THERM **° C **° C**	The thermistor of a heater is defective. (This example shows that the thermistor of pre-heater is defective.)	Contact your local distributor to call for service.	*1.* Check that the heaters work properly with [#TEST] - [HEATER TEST]. *2.* Make sure that connection of thermistor is correct. *3.* Replace the main PCB with a new one.
<LOCAL.1> [#01] **NEAR END MCYK** ***REMOTE.1* [#01]** **NEAR END MCYK**	Ink for one supply path has been nearly used up.	Replace the ink cartridge for the supply path corresponding to the indicated color. * Printing is permitted without replacing the ink cartridge (until INK END is displayed). However, the printer returns to local mode every completion of printing one file.	←

<Warning messages and corrective measures *(continued)* >

Display	Cause	Remedy (instruction & maintenance manual)	
		Descriptions in the manual (for reference)	Remedy
<LOCAL.1> [#01] **INK END MCYK** ***REMOTE.1* [#01]** **INK END MCYK**	Ink for one supply path has been completely used up.	Replace the ink cartridge for the supply path corresponding to the indicated color.	←
<LOCAL.1> !CART [#01] ***REMOTE.1* !CART [#01]**	There is a problem with installed ink cartridges. (If this occurs together with any other warning, the display shows [<LOCAL.1> !CAR/WASH] instead of [#**].)	Check the content of the warning by displaying it using the guidance function.	←
<LOCAL.1> !WASH [#01] ***REMOTE.1* !WASH [#01]**	There is a problem with the installed washing solution cartridge. (If this occurs together with any other warning, the display shows [<LOCAL.1> !CAR/WASH] instead of [#**].)	Check that the washing solution cartridge has been set properly.	←
INK NEAR END **MMCC - - - -**	The ink of the ink cartridge has been nearly used up.	Replace the ink cartridge generating the warning with a new one.	*1.* Check that the cartridge end sensor works properly with [#TEST] - [INK CARTRIDGE]. *2.* Check the end board of the cartridge. *3.* .Replace the sensor with a new one.
INK END **MMCC - - - -**	The ink of the ink cartridge has been completely used up.	Replace the ink cartridge generating the warning with a new one.	*1.* Check the end board of the cartridge. *2.* Replace the sensor with a new one.
NON-ORIGINAL INK **MMCC - - - -**	The ink cartridge is not MIMAKI genuine. Or, the ink IC chip can not be read.	Replace the warned ink cartridge with a MIMAKI genuine one, or insert the ink cartridge again.	*1.* Make sure that [#TEST] - [INK CARTRIDGE] - [INK-IC CHECK] is performed properly. *2.* Replace the ID point of contact PCB with a new one.
WRONG INK IC **MMCC - - - -**	The IC chip of the ink cartridge cannot be read normally.	Remove the ink cartridge generating the warning once and install it again. If the same warning message still appears, contact your local distributor to call for service.	*1.* Make sure that [#TEST] - [INK CARTRIDGE] - [INK-IC CHECK] is performed properly. *2.* Replace the ID point of contact PCB with a new one.
Kind of INK **MMCC - - - -**	The ink of the ink cartridge is different in type from the ink currently supplied.	Check the ink type of the ink cartridge generating the warning.	←
Color of INK **MMCC - - - -**	The ink of the ink cartridge is different in color from the ink currently supplied.	Check the ink color of the ink cartridge generating the warning.	←
WRONG CARTRIDGE **MMCC - - - -**	There is trouble with an installed ink cartridge.	Check the ink cartridge generating the warning.	←
NO CARTRIDGE **MMCC - - - -**	An ink cartridge has not been installed in the slot.	Install an appropriate ink cartridge in the slot generating the warning.	If the error occurs frequently after replacing ink cartridges, execute the followings. *1.* Check that the cartridge exist/non-exist sensor works properly with [#TEST] - [INK CARTRIDGE]. *2.* If it does not work properly, replace the sensor or X-axis motor relay PCB with a new one.
Expiration **MMCC - - - -**	The specified expiration date of an ink cartridge has passed.	Replace the ink cartridge generating the warning with a new one. * The ink cartridge may be used until one month passes after the specified expiration date.	←

<Warning messages and corrective measures *(continued)* >

Display	Cause	Remedy (instruction & maintenance manual)	
		Descriptions in the manual (for reference)	Remedy
Expiration:1MONTH MMCC - - - -	The expiration date of an ink cartridge has passed (one month has passed after the specified expiration date).	The red LED blinks. Replace the ink cartridge generating the warning with a new one. * The ink cartridge may be used until two months pass after the specified expiration date.	←
Expiration:2MONTH MMCC - - - -	The expiration date of an ink cartridge has passed (two months have passed after the specified expiration date).	Replace the ink cartridge generating the warning with a new one.	←
INK REMAIN ZERO MMCC - - - -	Remaining amount of ink in an ink cartridge is zero.	Replace the ink cartridge generating the warning with a new one.	←
!WASTE TANK	The waste ink tank is nearly full.	Replace the waste ink tank with a new one.	*1.* Make sure that [MAINTENANCE] - [WasteInkWarning] is performed.
!Wash Liquid END	The washing solution cartridge is empty.	Replace the washing solution cartridge with a new one.	*1.* Check that the cartridge end sensor works properly with [#TEST] - [WASH CARTRIDGE]. *2.* If it does not work properly, replace the sensor or IO PCB with a new one.
!WashLiquidCart.NONE	The washing solution cartridge has not been installed.	Install the washing solution cartridge.	*1.* Check that the cartridge exist/non-exist sensor works properly with [#TEST] - [WASH CARTRIDGE]. *2.* If it does not work properly, replace the sensor or IO PCB with a new one.
!WRONG WASH CART.	There is trouble with washing solution cartridge.	Check the washing solution cartridge.	←
** Washing liquid ** ** un-filling up. **	Washing solution has not been supplied.	Supply the washing solution. Execute [MAINTENANCE] - [HD.MAINTENANCE] - [FILL UP INK].	←

CHAPTER 5 Explanation of Electrical Parts

Contents

5-1. Outline

JV33-130/160 is provided with the circuit boards shown below.

~ **Left** ~

~ **Head Assy** ~

~**Right** ~

Fig.5-1

5-1-1. Operation Explanation

● The JV33-160/130 slider has 1 head with 180 nozzles (180 dpi intervals) x 8 rows.

● Ink is ejected from the ink chamber by vibrating the piezoelectric elements of the heads. For this vibration waveform, the printer uses variable waveform which can permit 4-step expressions (L, M, S and none).

● The head is connected to the main PCB in the electrical box, and it is driven by a drive signal (COM waveform) applied to the piezo of 1 nozzle row for each of the eight rows of nozzles.
FPGA (HDC) is mounted on Main PCB. The FPGA (HDC) applies the COM waveform in synchronization with the scale interval of the linear scale and simultaneously sends the nozzle data to the head.
In addition, the COM waveform is automatically corrected based on the registered head ID or the ID registered in the head memory, other information, and the ambient air temperature detected.

● The main PCB has FPGA (PDC), which takes charge of image processing and controls the SDRAM picture memory (PRAM). The PRAM is mounted on the PRAM PCB. The PRAM board has a capacity of 128 MB. Of the data output from the host PC, the command part is analyzed by the CPU and the image part is transferred to the memory. The PRAM is a ring memory and when data for one scanning session has been accumulated, the heads start scanning. One scanning session forms an image only in 180 dpi (6-colors) or in 360 dpi (4-colors) in the X direction. Therefore, the printer completes the image in the targeted resolution while feeding the media by a required distance.

● Since the JV33 is equipped with many IOs (step motors and sensors), if all were connected directly to the main PCB, routing the wiring and replacing the PCB would be difficult. To avoid this, a station PCB and X-axis motor relay PCB are used, reducing the number of signals exchanged with the main PCB using a serial connection. The signals are processed by the FPGA (IOC) mounted on the main PCB.

Nozzle Arrangement of Head (Rear View)

HEAD

Paper feeding direction

#180

A B C D E F G H

#1

180dpi

Scanning direction
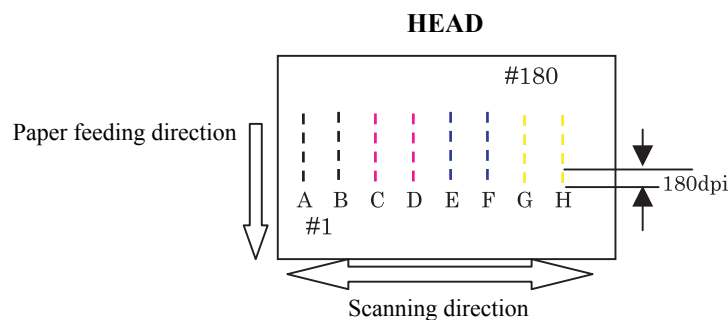
Fig.5-2

5-1-2.   Power Supply

☐ Board name: Power supply PCB assembly (E300474)

☐ The input value and output values of power supply are as follows:

Input	AC100 - 120V, AC220 - 240V, 50/60Hz
Output	+3.3SBV, 5.5 A
	+5SBV, 1.0 A
	+5V, 4.2 A
	+24V, 5.0 A
	+42V, 4.0 A

\<AC input connector\>   **(CN1)**

Model number (JST) : B2P3-VH (LF) (SN)

PIN	Terminal name	Type
1	AC-L	AC input supply
2	(NC)	(NC)
3	AC-N	AC input supply

\<AC HEAT input connector\>   **(CN2)**

Model number (JST) : B03P-VL   * Media heater power input

PIN	Terminal name	Type
1	AC-L	AC input supply
2	(NC)	(NC)
3	AC-N	AC input supply

\<Heater connector\>   **(CN3)**

Model number (MOLEX) : 5566-22A   * Connected to the media heaters (Pre, Print, and After)

The element connection of the media heater is switched automatically according to the input voltage:

        AC100-120V   Parallel connection

        AC220-240V   Serial connection

PIN	Terminal name	Type	PIN	Terminal name	Type
1	HEAT3-1A	HEATER	12	HEAT3-1B	HEATER
2	HEAT3-2A	HEATER	13	HEAT3-2B	HEATER
3	HEAT3-3A	HEATER	14	HEAT3-3B	HEATER
4	HEAT3-4A	HEATER	15	HEAT3-4B	HEATER
5	HEAT3-THA	THERMAL	16	HEAT3-THB	THERMAL
6	HEAT2-1A	HEATER	17	HEAT2-1B	HEATER
7	HEAT2-2A	HEATER	18	HEAT2-2B	HEATER
8	HEAT2-THA	THERMAL	19	HEAT2-THB	THERMAL
9	HEAT1-1A	HEATER	20	HEAT1-1B	HEATER
10	HEAT1-THB	HEATER	21	HEAT1-2B	HEATER
11	HEAT1-THA	THERMAL	22	HEAT1-THB	THERMAL

<HEAT ON/OFF>   **(CN4)**

Model number (MOLEX) : B6B-XH-A (LF) (SN)

PIN	Terminal name	Type
1	HEAT 1 ON	SIGNAL
2	0V	GND
3	HEAT 2 ON	SIGNAL
4	0V	GND
5	HEAT 3 ON	SIGNAL
6	0V	GND

<DC output connector>   **(CN5)**

Model number (MOLEX) : 5566-18A

PIN	Terminal name	Type	PIN	Terminal name	Type
1	+42V	DC power source	10	+42V	DC power source
2	+24V	DC power source	11	+24V	DC power source
3	0V	GND	12	0V	GND
4	0V	GND	13	0V	GND
5	+5V	DC power source	14	+5V	DC power source
6	+5SBV	DC power source	15	R/C (ON/OFF)	Signal input
7	+3.3SBV	DC power source	16	+3.3SBV	DC power source
8	0V	GND	17	0V	GND
9	0V	GND	18	0V	GND

GND and FG are directly processed in the power supply (pattern)

Volume No.	Voltage	Adjustment value
1	+3.3SBV - VR1	3.28 ~ 3.32
2	+5SBV - VR2	4.98 ~ 5.02
3	+5V - VR4	4.98 ~ 5.02
4	+24V - none	-
5	+42V - VR3	41.0 ~ 41.2

5-2. Circuit Board Specifications

5-2-1. Main PCB

☐ Board name: Main PCB assembly (E104853)

☐ The CPU is SH-3 (RISC, 133MHz) made by Hitachi.

☐ A program for the CPU is written in flash memory. Version up of this program is easily executed on site through I/F.
The CPU downloads the version up to PRAM to execute writing in the flash memory.

☐ When receive data is read, The CPU writes the data in picture memory. After execution of required processes by PDC-CTR, the data is transmitted to the HDC with 8 bit width.
Receiving the data, the HDC creates driving COM signals for head and nozzle data, and transmits each data to the ink slider PCB via HDC FPC cable.

☐ X, Y-axis motor driving circuit and other IO circuits are also included.

<Block diagram around main PCB>
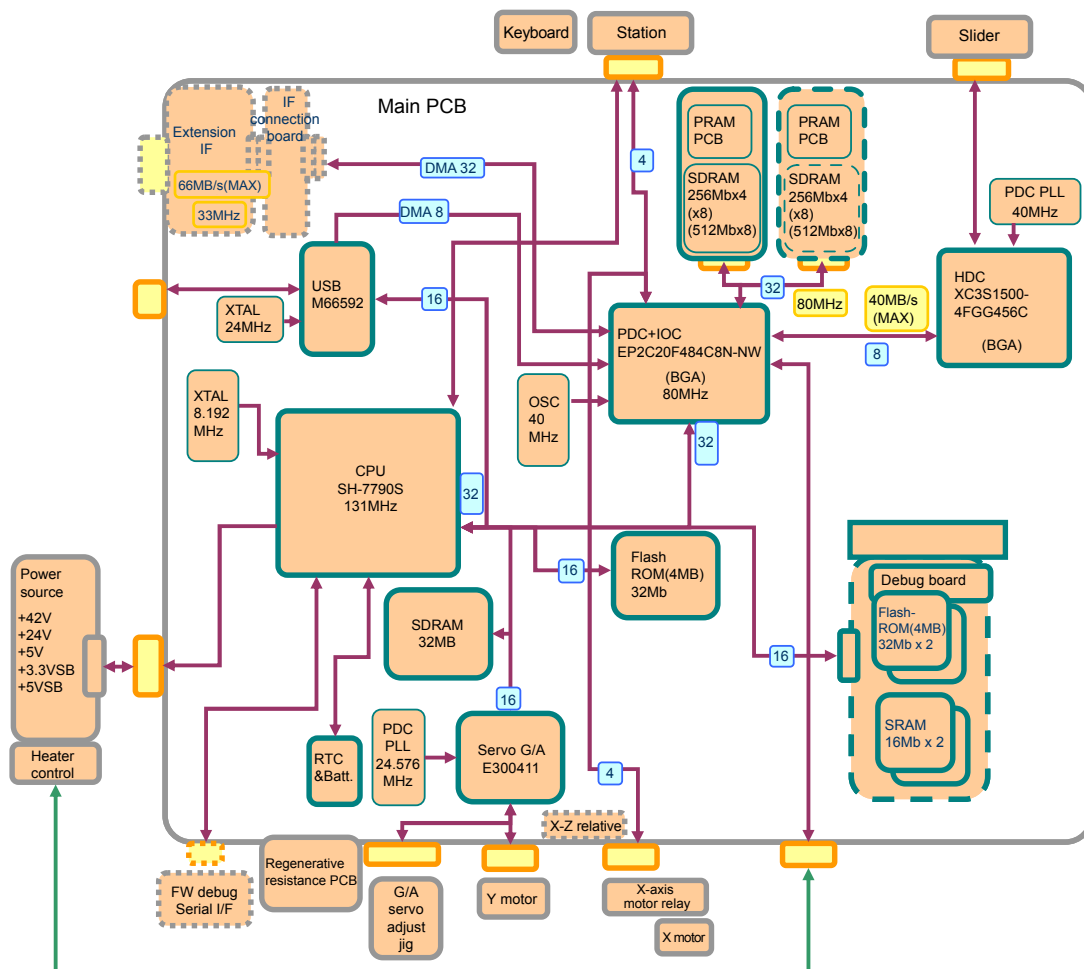
Fig.5-3

Main PCB Connector Signals

<Main PCB connector signals>

CN No	Pin	Connected to:	Silk display	Notice
CN1	30	Ink slider PCB		Head, IO signal
CN2	50	Ink slider PCB		Head signal
CN3	30	Ink slider PCB		Power source
CN4	30	Ink slider PCB		COM drive
CN5	6	Power Supply PCB		Heater control
CN6	6	Debug monitor		FPGA/CPLD writing
CN7	80	PRAM PCB		
CN8	50	AUX.		Extension HDC PCB signal
CN9	6	Debug monitor		FPGA
CN10	8	AUX.		Extension HDC PCB power
CN11	4	USB I/F		USB2.0
CN12	80	AUX.		Extension I/F board
CN13	5	AUX.		Extension I/F power
CN14	40	Station PCB		
CN15	30	X-axis motor relay PCB		
CN16	28	X-axis motor relay PCB		
CN17	10	Regenerative resistance PCB		
CN18	2	HDC fan		
CN19	2	AUX.		Auxiliary
CN20	3	AUX.		
CN21	7	Thermistor		Media heater temperature detection
CN22	4	Serial debug monitor		Auxiliary
CN23	100	Debug board		FW program writing
CN24	18	Power Supply PCB		
CN25	5	Y-axis motor encoder		
CN26	8	G/A debug monitor		Auxiliary
CN27	2	Y-axis motor		

5-2

5-2-2. PRAM PCB

□ Board name: 128MB PRAM PCB assembly (E103819)

□ Inside the electrical box on the main PCB.

□ Includes 128 MB picture memory.

5-2-3. Station PCB

□ Board name: Station PCB assembly (E104854)

□ Located inside the right cover on the side panel.

□ The pump motor, adsorption fan, paper sensor, Y-original position sensor and other main unit control IOs are connected to it.

<Station PCB connector signals>

CN No	Pin	Connected to:	Silk display	Notice
CN1	40	Main PCB	MAIN	
CN2	20	AUX.		Auxiliary
CN3	24	Keyboard	KEY	
CN4	4	Sleep switch	SLEEP-SW	
CN5	2	Right cover sensor	COVER	
CN6	4	Wash cartridge-ID point of contact PCB, Solenoid valve	WASH	
CN7	2	AUX.		
CN8	18	External unit output	OPTION	Take-up, Exhaust fan, Dryer fan
CN9	10	Adsorption fan	VACUUM	
CN10	4	Wash cartridge sensor	W-SENS	
CN11	-	Skipped		
CN12	7	Paper sensor (Rear)	PAPER-F-R	
CN13	9	Clamp sensor, Y-original point sensor	CL-Y-CAP	
CN14	4	AUX.		
CN15	3	AUX.		
CN16	3	AUX.		
CN17	8	Wiper unit	WIPER	Wiper motor, Wiper original point
CN18	9	Pump motor	PUMP	
CN19	6	AUX.		

5-2-4.   X-axis motor relay PCB

☐ Board name: X-axis motor relay PCB assembly (E104856)

☐ Located inside the left cover on the back of the ink cartridge unit.

☐ The solenoids of the 8 ink cartridges, ID, ink near end sensor, cartridge sensor, LED PCB, cover sensor, maintenance cover sensor etc. are connected to it.

X-axis motor relay PCB connector signals

<X-axis motor relay PCB connector signals>

CN No	Pin	Connect to:	Silk display	Notice
CN1	28	Main PCB		
CN2	20	LED PCB		
CN3	30	Main PCB		
CN4	4	Ink cartridge ①	①	
CN5	4	Ink cartridge ②	②	
CN6	4	Ink cartridge ③	③	
CN7	4	Ink cartridge ④	④	
CN8	4	Ink cartridge ⑤	⑤	
CN9	4	Ink cartridge ⑥	⑥	
CN10	4	Ink cartridge ⑦	⑦	
CN11	4	Ink cartridge ⑧	⑧	
CN12	16	Ink sorenoid ① - ⑧	VALVE	
CN13	18	Ink ID ① - ⑧	INK-ID	
CN14	6	X-axis motor encoder	X-ENC	
CN15	5	Not attached	P-ENC	Auxiliary
CN16	2	Station cover sensor	COV-ST	
CN17	2	Left cover sensor	COV-L	
CN18	3	AUX.	X-DRI	Auxiliary
CN19	6	Debug monitor		CPLD writing
CN20	2	AUX.		Auxiliary
CN21	2	X-axis motor	X-MOT	

5-2-5.   Ink slider PCB

☐ Board name: Ink slider PCB assembly (E104855)

☐ Located on the top of the print part slider.

☐ FFC from HDC is connected to relay signals to head. In addition, the paper width sensor, LED pointer, Y cut cutter, encoder PCB etc. are connected to it.

Ink slider PCB Connector Signals

< Ink slider PCB connector signals>

CN No	Pin	Connected to:	Silk display	Notice
CN1	30	Main PCB		IO control
CN2	50	Main PCB		Head control
CN3	30	Main PCB		Power source
CN4	30	Main PCB		COM waveform
CN5	35	Head		
CN6	31	Head		
CN7	4	Paper width sensor	PAPER	
CN8	6	AUX.		
CN9	3	Head height sensor	HEAD-HI	
CN10	5	Linear encoder PCB	L-ENC	
CN11	2	LED pointer	LED	
CN12	3	Y cut cutter	CUT	
CN13	11	Head memory PCB	MEM	Head heater, Head memory
CN14	6	Debug connector	JTAG	

5-2-6.   Keyboard PCB

☐ Board name: Keyboard PCB assembly (E104539)

☐ It has a LCD with 2 lines of 20 characters and key switches. It is connected to the main PCB with a keyboard cable.

5-2-7.   Encoder PCB

☐ Board name: Encoder PCB assembly (E103961)

☐ There are total 1 boards, namely a board for linear scale placed behind the slider.

5-2-8.   Take-up PCB

☐ Board name: Take-up PCB SK assembly (E300413)

☐ It is used as a relay for the take-up motor and it is connected to the station PCB via an external connector that the user can attach to the take-up unit.

Take-up PCB Connector Signals

<Take-up PCB connector signals>

CN No	Pin	Connected to:	Silk display	Notice
CN1	9	External connector cable		Power source
CN2	5	Start, direction changing switch		
CN3	6	Take-up motor		

5-2-9.   Head memory PCB

☐ Board name: Head memory PCB assembly (E104428)

☐ Head ID information is stored. Assembled to be integrated into the head.
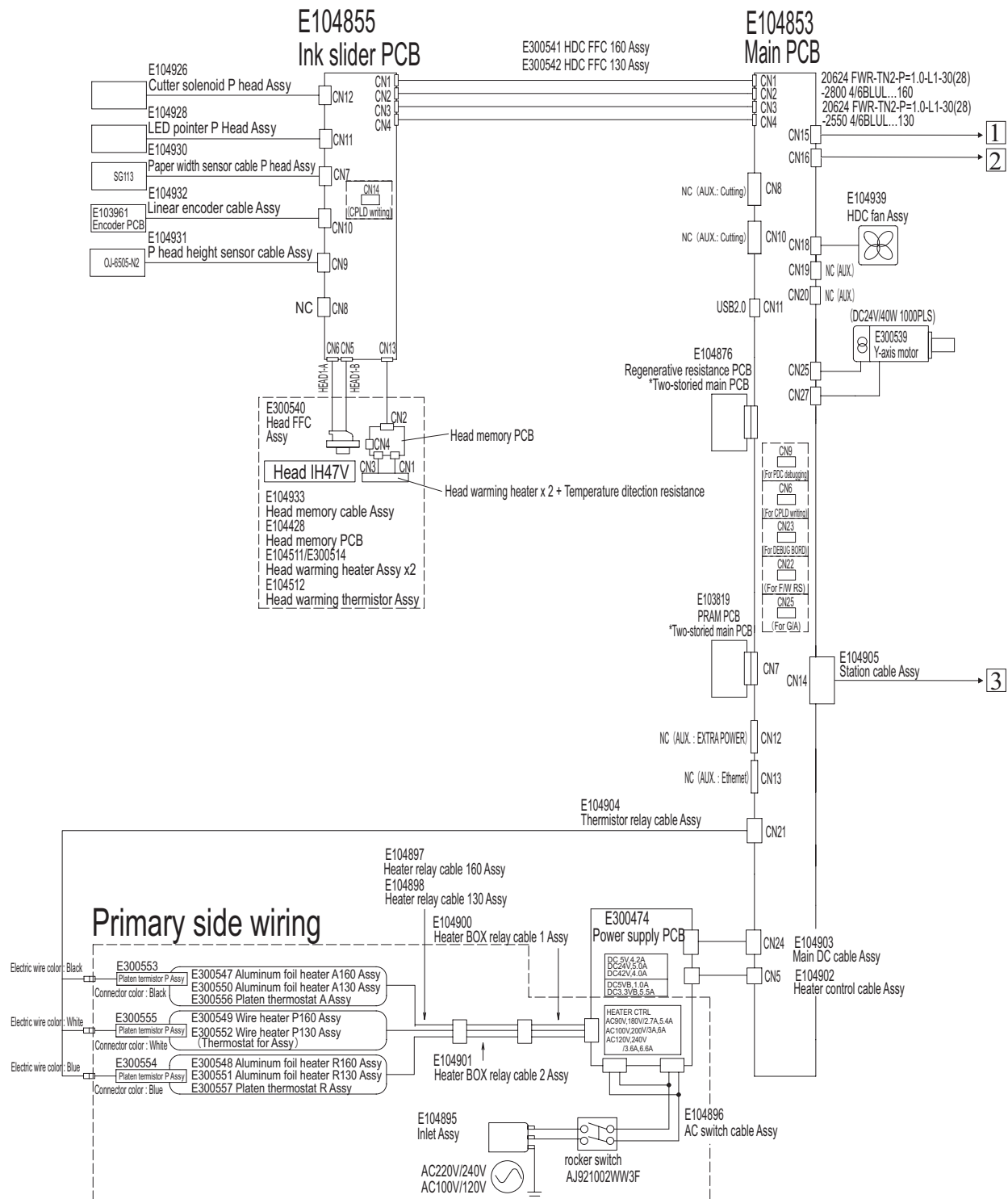
Head memory PCB connector signals

<Head memory PCB connector signals>

CN No	Pin	Connected to:	Silk display	Notice
CN1	3	Head warm thermistor		
CN2	11	Head relay PCB		
CN3	2	Head warm heater		
CN4	2	Head warm heater		

5-2-10.   LED PCB

☐ Board name: LED PCB assembly (E104988)

☐ Located inside the left cover on the top and front of the ink cartridge unit.

☐ The FFC from the X-axis relay PCB is connected to it. It performs display control of the LEDs (green, red) corresponding to each slot of the cartridge.

5-3. Electronic block diagram

5-3-1. Connection diagram inside main unit

E104856
X-axis motor relay PCB

Ink cartridge x8

CN 4:INK①
CN 5:INK②
CN 6:INK③
CN 7:INK④
CN 8:INK⑤
CN 9:INK⑥
CN10:INK⑦
CN11:INK⑧

Ink cartridge

exist/
non-exist Sensor x8
END

1033477

1 CN1

2 CN3

CN12

E104912
Cartridge solenoid
relay cable Assy

Valve solenoid x 8

E104911
Ink cartridge solenoid Assy x8

CN19
(For CPLD writing)

E104910
Ink ID cable Assy

CN13

E103704
ID point of contact PCB x8

CN2

20624 FWR-TN2-P=1.0-L1-20-500 4/6BLUL

E104988 LED PCB

CN1 CN2
For CPLD writing

CN20 NC

CN18 NC

(DC24V/27W 1000PLS)

E300532
X-axis motor

CN21

CN14

E104907
X-axis motor relay cable Assy

E104908

CN17

Cover sensor cable L Assy

Front cover sensor L D3M-01K1-3

E104998

CN16

Cover sensor cable MT Assy

MT cover sensor D3M-01K1-3

E104854 Station PCB

E104914
External unit relay cable Assy

CN8

E104909
Cover sensor cable R Assy

CN5

Front cover sensor R D3M-01K1-3

External unit connection(Page 2/2)

E104921
Remote switch Assy

CN4

E104539
Keyboard LED

3

CN1

CN12
(For CPLD writing)

CN3

E104913
Keyboard cable Assy

CN2

E104920
Pump motor cable Assy

E300495/
E300513
Step motor
(pump1)

CN18

CN7 NC (AUX.)

E104916
Vacuum fan relay cable 160 Assy

E104919
Wiper unit cable Assy

E300495/
E300513
Step motor
(Wiper)

CN17

E104917
Vacuum fan relay cable 130 Assy

CN9

E300482
Vacuum fan Assy×3

Wiper origin sensor
OJ-6505-N2

NC CN19

E104922
Paper sensor cable Assy

CN10

E104924
Washing unit cable Assy

Wash cartridge exist/
non-exist Sensor 1033477
END

PS-R11L-B Paper sensor(R)

CN12

CN6

Valve solenoid

E104923
Station sensor cable Assy

CN13

E103704
ID point of contact PCB

OJ-6505-N2
OJ-6505-N2

Clamp lever sensor
Y-origin sensor

CN15 NC

CN16 NC

NC(AUX.) CN2

CN14 NC

5-3-2. Connection diagram outside main unit

Rear exhaust fan unit

E104412
Rear exhaust fan Assy

E104983
Rear exhaust cable 2 160 Assy

E105003
Rear exhaust cable 2 130 Assy

E104536
Rear exhaust connector Assy

E104412
Rear exhaust fan Assy

Backside of body   Connector BKT

E104981
Rear exhaust fan relay cable Assy

EXH2 mark

E104982
Rear exhaust fan cable 160 Assy

E105002
Rear exhaust fan cable 130 Assy

E104914
External unit relay cable Assy

External unit connection(Page 1/2)

WIND mark   DRY mark   EXH1 mark

Frontside of body Connector BKT

E104915
Take-up motor cable Assy

External exhaust fan unit

E104412
External exhaust fan Assy

E104535
External exhaust cable 2 Assy

E104536
External exhaust connector Assy

E104412
External exhaust fan Assy

E103224
Take-up motor switch SK Assy

E300409
Brushless motor SK

E300413
Take-up motorPCB SK

E103232
Motor cable SK Assy

Take-up motor unit

E104936
External exhaust fan cable Assy

Dryer fan unit

E102451
Dryer fan 1 Assy ×4

E103784
Dryer fan 2 Assy
(160: ×3, 130: ×2)

E105004
Dryer fan fork cable Assy

E104937
Dryer fan cable Assy

E103646
Dryer fan fork PCB

E103646
Dryer fan fork PCB

Mimaki

EV

IT

FW:1.3