



# JV3 Series

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**JV3-160S**

## MAINTENANCE MANUAL

**Ver. 1.00**

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## FOREWORD

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This maintenance manual covers items required to be remembered to conduct maintenance works for the JV3 series of color ink jet plotter in the field.

Maintenance works have to be carried out by servicemen who have learned disassembly, assembly and adjustment techniques with required tools and measuring apparatus.

This manual covers existing maintenance parts. For any failure other than those described in this manual, factory-repairs will be necessary.

Before reading this maintenance manual, read the following manual to learn basic operations of this device.

- **Operation Manual for JV3 Series (D200728).**
- **Setup Guide for JV3 Series (D200737).**

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# **CHAPTER 1**

## **OVERVIEW OF MAINTENANCE**

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## 1-1. Cautions in maintenance



### CAUTION



- 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 assembly or if the ink is anticipated to scatter. If the ink sticks to your hand, the skin may be damaged.
- 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.
- Do not get ink drops on the FPC or connectors when connecting or disconnecting the damper. Doing so may cause short-circuit or inferior contact resulting in abnormal ink discharge.  
Be careful when handling ink.
- Properly and carefully connect the FPC cable of the slider PCB from the main PCB according to the connector number. Failure to do so may cause short-circuit of the power supply.
- Do not turn the power off during firmware upgrading. Doing so may disable restarting.

Following cautions have to be taken when conducting maintenance works.

- Be sure to fully understand precautions given in “For safe operation” in the Instruction Manual for the JV3 series.
- Be sure to accurately grasp problems since misoperation can be the cause of the problem.
- Be sure to secure a sufficient space for maintenance.
- Be sure to turn off the power switch and disconnect the power plug from the receptacle.
- In the case where it is necessary to conduct test with the electrical box cover opened, caution should be taken to avoid electric shock hazards in the electrical box.
- 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 paper (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 plotter with the ink cartridges filled with ink. Doing so can give rise to leakage of ink. (In particular, do not position the plotter in such a way, when ascending/descending the stairs, that the maintenance station is lower than the ink station.)

In principle, the following procedure should be taken in prior to the transportation.

- 1) Discharge ink from the tube in accordance with the description given under “Discharge cleaning” in the maintenance.
  - 2) Detach the waste ink tank.
  - 3) Fix the head with the head stopper.
- If the main unit is removed from the legs and placed directly on the floor, be careful of the following points.
    - Unplug the takeup unit power cord.
    - Remove the waste ink tank. (Plug the tube up with a cloth to prevent ink from spilling over.)
  - Set up the roll holder and take-up device to the upper position.
  - Double Pole / Neutral Fusing.

## **1-2. How to use this maintenance manual**

Use the maintenance manual in the following manner.

- Check first a phenomenon that is arising to grasp the trouble.
- Secondly, grasp the outline of the trouble while referring to error messages given in Chapter 3.

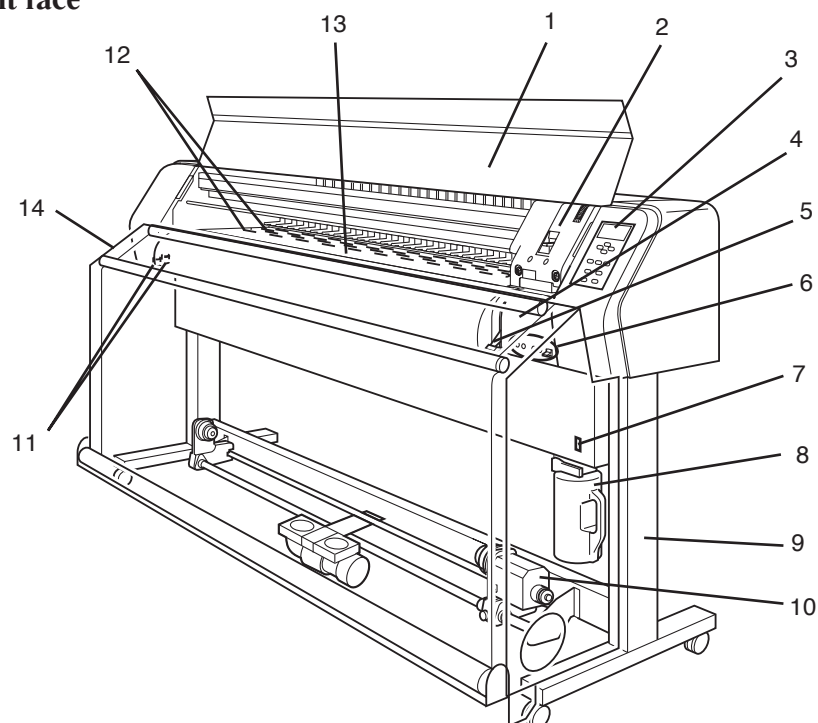
## **1-3. Tools required for maintenance works**

Tools and measuring apparatus required for maintenance works are given below.

<b>Name</b>	<b>Q'ty</b>	<b>Remarks</b>
Phillips screwdriver, type 1	1	For M2
Phillips screwdriver, type 2	1	For M3 to M5 (L=260 or more)
Phillips screwdriver, type 2	1	For M3 to M5
Slotted screwdriver	1	Log side 2.5 mm for drawing out E-rings
Hexagon wrench key	1	1.5 mm for M3 SSWP
	1	2.0 mm for M4 SSWP
	1	2.5 mm for M3 cap bolts (L=170)
	1	5.5 mm for hexagon stud
	1	6.0 mm for M8 cap bolts
Wrench	1	Opposite side 5 mm
	1	Opposite side 5.5 mm for M3 nuts
	1	Opposite side 7 mm for M4 nuts
Tweezers	1	To prevent the cable from being pulled when disconnecting the connector
Long-nose pliers	1	
Nippers	1	
Soldering iron	1	
Scale	1	500 mm, 150 mm
Bar-type tension gauge	1	For 500 gf
Tester	1	If necessary
Magnifier	1	Magnification of approx. 50 to 60
Adhesive agent	1	LOKTITE242 (for locking screws)
Gloves	1	In prevention of stains and safeguarding
Insulation lock	As required	L=150 or less (UL-approved product)
Nitroflon tape or acetate fabric tape	As required	UL-approved product
Solder	As required	
Protection glasses	1	

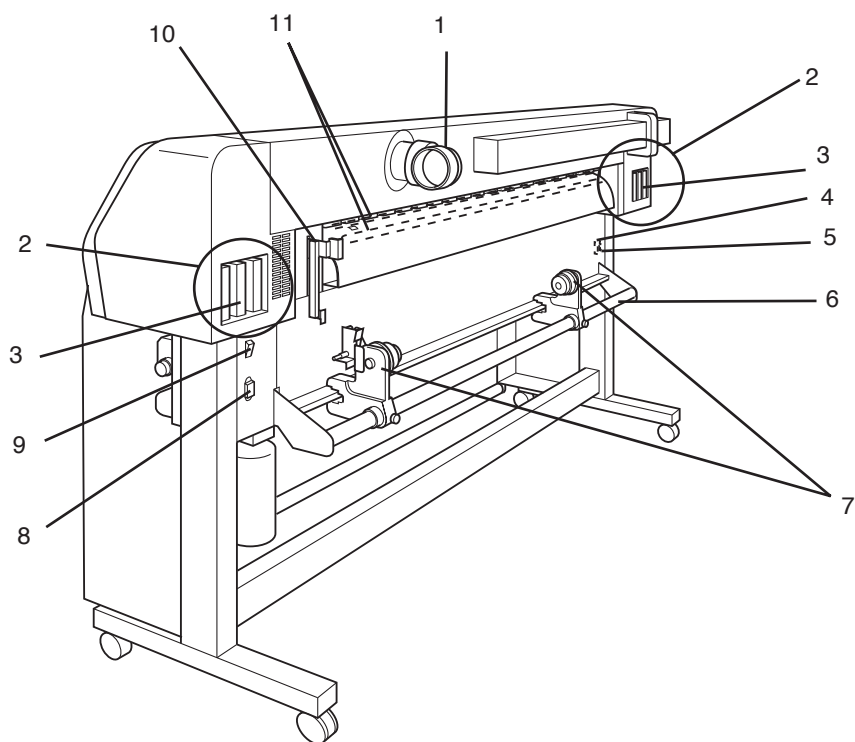
## 1-4. Names of parts

### 1-4-1. Front face



	Name	Function
1	Front cover	It is opened when setting medium or taking a corrective measure against a medium jam.
2	Carriage	Moves the print head from side to side.
3	Operation panel	This panel has the operation keys required for operating the device and the LCD for displaying set items, etc.
4	Capping station	Incorporates the ink cap to be capped on the head and the wiper, etc.
5	Clamp lever	It is made to go up-down the pinch roller for holding medium.
6	Heater operation panel	Provides the heater power switch and the heater status LED indicator.
7	Power switch	It turns on/off the power to the device.
		When the power switch is turned on, the POWER indicator lights in green. While the main power switch is on, the ink clogging preventive operation is performed periodically even if the power switch is off.
8	Waste ink tank	Waste ink gathers in this tank. One waste ink tank is provided on each side of the device.
9	Stand	It supports the main unit. It is provided with casters that are used to move the device.
10	Take-up device	It supports to wind up the roll medium printed.
11	Voltage selector switch	Switches between 100-120 V and 220-240 V according to the power voltage used.
12	Printer heater	Fixes and dries printing ink. ( Attached inside the platen )
13	Platen	It puts out the medium as it is plotted on.
14	Front exhauster	Discharges plotting smell from the medium to out of the room.

## 1-4-2. Rear face



	Name	Function
1	Rear exhauster	Discharges plotting smell from the medium to out of the room.
2	Ink station	This station houses up to six ink cartridges.
3	Ink cartridge	Each cartridge contains ink of a specific color.
4	IEEE-1394 connector	A 400M bps interface connector compatible with IEEE-1394.
5	Parallel connector	Bi-directional parallel interface connector (complies with IEEE1284)
6	Paper roll setting bar	This bar facilitates a paper roll to be set in position.
7	Roll holder	Roll holder is inserted in the right and left core of roll medium to hold the roll medium. The roll holder is applicable to diameter of medium cores with 2 and 3 inches. The attachment position (height) of the roll holder can be set in three steps. To increase the heater contact time, attach it at the bottom position.
8	AC inlet	The power cable is connected to the AC inlet.
9	Main power switch	Turns on/off the main power of the device. Leave the power turned on to prevent ink clogging.
10	Clamp lever	Works together with the clamp lever on the front face of the device.
11	Preheater	Preheat the medium before plotting. ( Attached inside the platen )

## 1-5. Specifications

Item		JV3-130S	JV3-160S
Printing head	Method	Piezo-electric drop-on demand	
	Specification	3-heads Inlines	
	Nozzle	180 nozzles for each color	
	Resolution	360, 540, 720 dpi	
Drawing mode		360 x 360 dpi : 2 / 4 / 8 passes, Unidirection / bidirection 360 x 540 dpi : 3 / 6 / 12 passes, Unidirection / bidirection 720 x 720 dpi : 4 / 8 / 16 passes, Unidirection / bidirection	
Delivery system of ink		Supplies ink through a tube from ink cartridge Remaining ink display function (IC mounted) Ink end detecting function Ink cartridge replacement system	
Capacity of ink cartridge		220 cc $\pm$ 5 cc per cartridge About 200 cc for each cartridge variable	
Medium type		Tarpaulin, FF, PVC	
Max. printing width	Normal-scan	1361 mm	1610 mm
	High speed-scan	1321 mm	1570 mm
Roll Medium size	Maximum	1371 mm	1620 mm
	Minimum	210 mm	
	Thickness	1.0 mm or less	
	Roll outside diameter	$\varnothing$ 180 mm or less	
	Roll weight	25 Kg or less	
	Roll inside diameter	2 Inch, 3 Inch	
	Plotting surface	Faces OUT	
	Roll end treatment	Light-adhesive tape is used to allow the paper to be removed from the core with ease.	
Leaf medium size	Maximum	1371 mm	1620 mm
	Minimum	210 mm	
Margin	Leaf medium	Left end and right end : 15 mm (initial value) / Changing by parameter	
		Front : 65 mm	
		Rear : 110 mm	
Margin	Roll medium	Left end and right end : 15 mm (initial value) / Changing by parameter	
		Front : 25 mm	
		Rear : 0 mm	
Distance accuracy	Absolute accuracy	Whichever the larger one of $\pm$ 0.3 mm or $\pm$ 0.3 % of the designated	
	Reoroducibility	Whichever the larger one of $\pm$ 0.2 mm or $\pm$ 0.1 % of the designated	
Perpendicularity		$\pm$ 0.5 mm / 1000 mm	
Medium skew		5 mm or less / 10 m variable	
Head height adjustment		2.0 mm / 3.0 mm (2 steps) variable from the platen surface	
Cutting of medium		Cutting of Y direction by the head cutter, Cutting accuracy(steps) : 0.5mm or less.	
Medium delivery		Take-up device as standard (inside winding / outside winding selectable)	
Waste ink tank		Bottle type ( 2,000 cc [1pcs.]) Replacement timing is judged visually.	

Item		JV3-130S	JV3-160S
Interface		IEEE1394 compliant, IEEE1284 compliant	
Command		MRL-II (ESC/PV.2 base, MIMAKI original command)	
Noise		during standby : Less than 58 dB during continuous printing : Less than 65 dB during discontinuous printing : Less than 71 dB	
Safety Standard		UL, VCCI-classA, FCC classA, CE marking, CB report, CCC	
Power		AC 100 — 120 V $\pm$ 10%, AC 220 — 240 V $\pm$ 10%, 50/60 Hz $\pm$ 1 Hz	
Power consumption		1 KVA or less (main unit+ heater)	
Recommended Environment	Temperature	20 °C to 35 °C	
	Humidity	35 to 65 % Rh (No condensation)	
	Guarantee temp	20 °C to 25 °C	
	Temperature change	$\pm$ 10 °C / h or less	
	Dust	Equivalent to normal office level	
Weight	Main unit	130 Kg	140 Kg
	Packing box	Less than 145 Kg	Less than 155 Kg
Outside dimensions	Width	2210 mm	2470 mm
	Depth	850 mm or less (Without front exhaust unit : 640 mm or less)	
	Height	1210 mm or less	

### Plotting speed (Measurement after nozzle disabling)

Bi-directional printing  
(Measurement on 1m<sup>2</sup>: 1341 x 746 mm printing)

Resolution	Drawing mode		Plotting time	
Y x X dpi	Setting	pass	Bi-directional	
360 x 360	Speed	2	3 minutes 16 seconds	4 minutes 30 seconds
	Standard	4	3 minutes 46 seconds	6 minutes 28 seconds
	Fine	8	12 minutes 13 seconds	17 minutes 40 seconds
360 x 540	Speed	3	4 minutes 55 seconds	6 minutes 51 seconds
	Standard	6	5 minutes 48 seconds	10 minutes 10 seconds
	Fine	12	19 minutes 06 seconds	27 minutes 48 seconds
720 x 720	Speed	4	9 minutes 55 seconds	12 minutes 52 seconds
	Standard	8	11 minutes 01 seconds	17 minutes 22 seconds
	Fine	16	35 minutes 45 seconds	47 minutes 16 seconds

### JV3 series specified ink

No.	Ink Type	The number of color
1	Solvent ink (SPC-0334*)	8

(\* is indicates color code.)

### JV3 series image quality standard media

Glossy PVC recommended by MIMAKI is used as a image quality standard media to maintenance, and adjustment.



### Print Resolution of JV3 series and Notes on specified media.

Resolution	Notes / Limitations	Media
360 x 360	<ul style="list-style-type: none"><li>Basically, 360 x 360 dpi is not recommended.</li><li>In the 360 dpi mode, the dot diameter is small and therefore the density is low and banding is remarkable.</li></ul>	
360 x 540	<ul style="list-style-type: none"><li>Use for high-speed output applications is recommended.</li><li>6-pass specification or higher is recommended.</li></ul> <p>In the 6-pass specification or higher mode, the amount of feed is small and the accuracy improved, allowing banding to be reduced by software processing.</p> <p>In addition, good fixing and drying characteristics can reduce banding caused by beading.</p>	<ul style="list-style-type: none"><li>Tarpaulin (For draft purpose)</li></ul>
720 x 720	<ul style="list-style-type: none"><li>Basically, 720 dpi is recommended.</li><li>8-pass specification or higher is recommended.</li></ul> <p>In the 8-pass specification or higher mode, the amount of feed is small and the accuracy improved, allowing banding to be reduced by software processing.</p> <p>In addition, good fixing and drying characteristics can reduce banding caused by beading.</p> <ul style="list-style-type: none"><li>If the desired density cannot be obtained, double painting is recommended.</li></ul>	<ul style="list-style-type: none"><li>PVC glossy : 16 pass</li><li>PVC mat : 8 pass</li><li>PVC mat : 16 pass</li><li>FF : 8 pass</li><li>Tarpaulin : 8 pass</li></ul>



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## **CHAPTER 2**

### **EXPLANATION OF OPERATION**

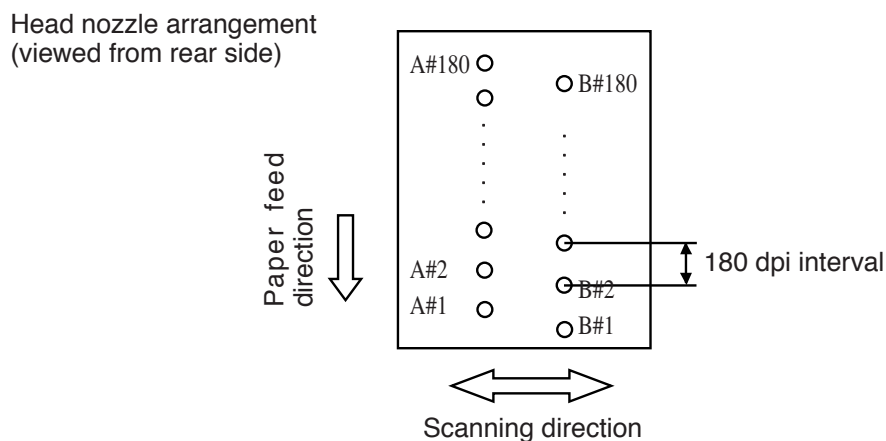
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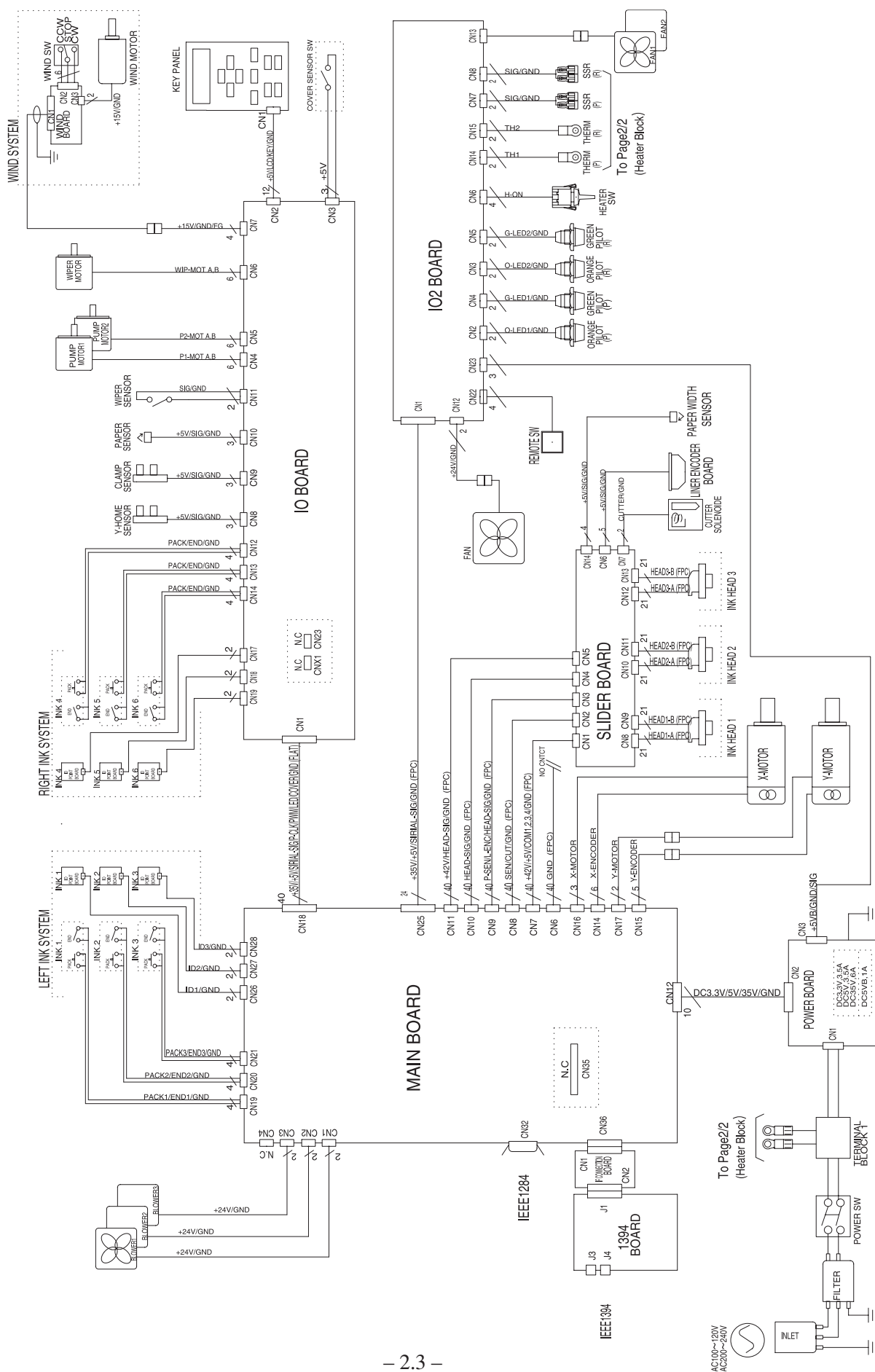
## 2-1. Explanation of electrical components

### 2-1-1. Operations

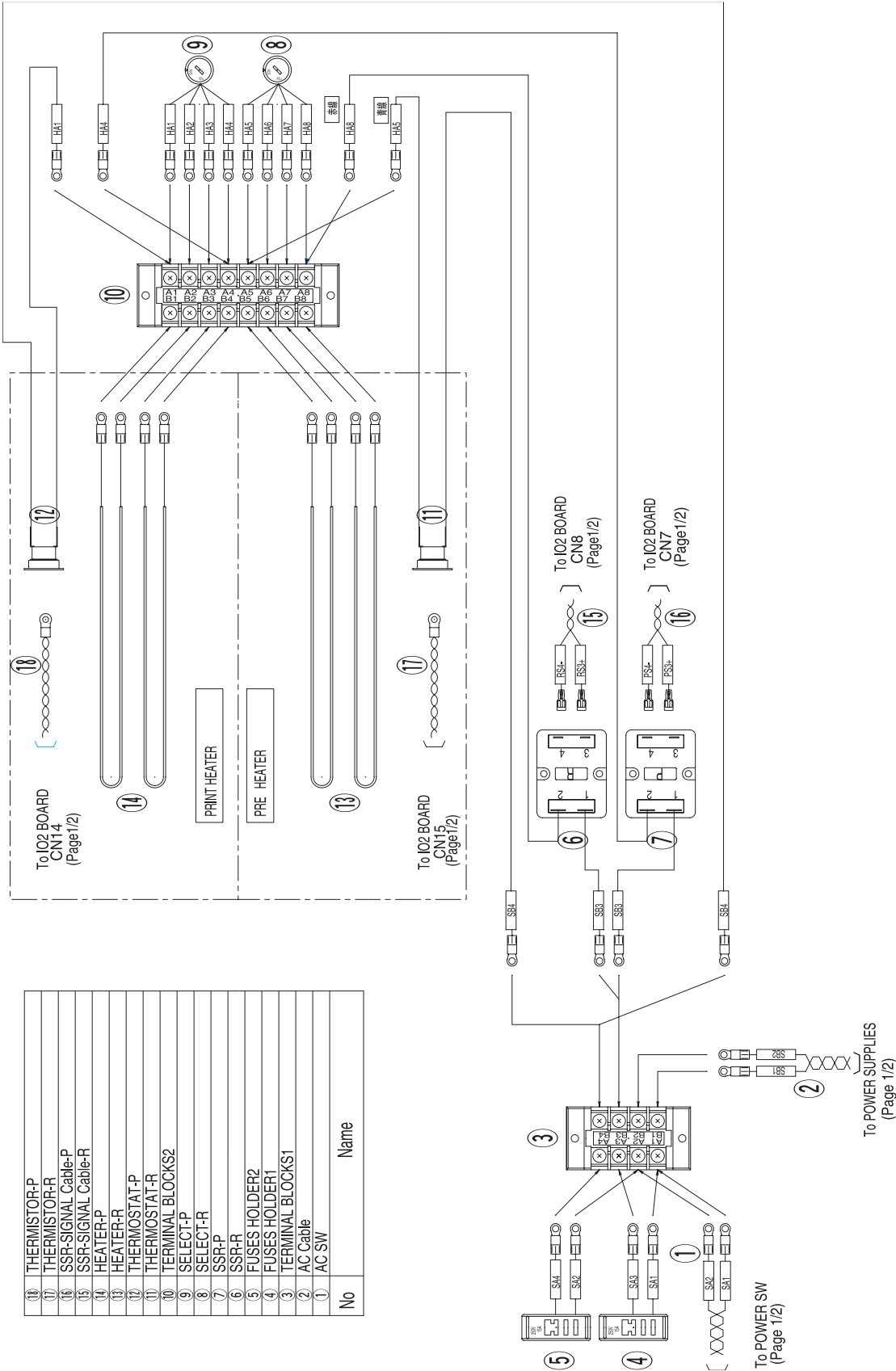
- \* The slider of the JV3 is provided with three heads with inline arrangement, with 180 nozzles (at 180dpi intervals) x 2 rows (2 colors) for each head.
- \* The ink in the ink chamber is discharged by vibrating the piezo-electric element of the head. The JV4 uses four different vibration waveform modes: the V1 (Variable1) mode which enables four gradations (without L, M, and S) with 360 dpi resolution, the V2 (Variable2) mode which enables four gradations with smaller dots with 720 dpi resolution, the N1 (Normal1) mode which enables high-speed two gradations (1.0) with 360 dpi resolution, and the N2 (Normal2) mode which enables high-speed two gradations with 720 dpi resolution.  
However, note that the Normal waveform modes are not used when normal data is received from the host PC. (Some Variable waveforms are represented in two gradations.)  
Since the driving frequency (or the scanning speed of the head) depends on each waveform, Y-directional position adjustment is required for each waveform.
- \* The main PCB is provided with two FPGAs (HDCs) which generate the driving signal (COM waveform) to be applied to the piezo-electric element of one nozzle row for two heads. The COM waveform is applied in synchronization with the scale interval of each linear scale and, at the same time, the nozzle data is transferred to the head. Y-directional position adjustment can be made in units of one dot or less by adjusting the timing of the COM waveform for each nozzle row.  
Since the ink discharge performance depends on each head, the COM waveform is corrected automatically based on the head ID registered and the ambient temperature detected. (If the head ID is not registered correctly, no ink may be discharged.)
- \* The main PCB is provided with the FPGA (PDC) in charge of image processing to which the 128MB DSRAM picture memory (PRAM) is connected. As for the data output from the host PC, the command is analyzed by the CPU and the image is transferred to the memory through high-speed DMA. Since the PRAM has the ring memory configuration, head scanning is started when data for each scanning has been stored. Since only an image with 180 dpi resolution can be formed into the X direction in each scanning, the image with the target resolution is completed while making required amount of paper feed.
- \* Stepping motors, sensors, and many other IO devices are connected to the JV3. Therefore, if all of them are connected directly to the main PCB, it becomes difficult to handle wires and replace the PCB. To avoid this, the number of signals has been reduced through serial signal transmission with the main PCB using IO PCBs. This signal processing is performed by the FPGA (PDC) mounted on the main PCB.



## Electrical component block diagram (1/2)



Heater block diagram (2/2)



### 2-1-2. Power supply

Input/output of the power supply are as follows:

Input: 100 VAC to 240 VAC, 50/60 Hz

Output: +3.3 V, 3.5 A

+5 V, 3.5 A

+35 V, 6 A

+5 VSB, 0.7A

### Connector pins layout table and variable resistor numbers

Connector	Pin No.	Name of signal	Variable resistor
CN1	1	NC	
	2	NC	
	3	AC IN (L)	
	4	NC	
	5	AC IN (N)	
CN2	1	+35V	RV1 (CN2 proximity)
	2	+35V	
	3	GND	
	4	GND	
	5	+5V	RV2 (CN2 proximity)
	6	+5V	
	7	GND	
	8	GND	
	9	+3.3V	RV3 (CN2 proximity)
	10	+3.3V	
CN3	1	+5VSB	
	2	GND	
	3	P/S ON	

### 2-1-3. Main PCB

The SH-3 (RISC, 133MHz) from Hitachi is used as the CPU.

The program of the CPU is stored in the flash memory. This program can easily be upgraded on site through the interface.

During upgrading, the program is downloaded to the PRAM by the CPU and then stored in the flash memory of the CPU.

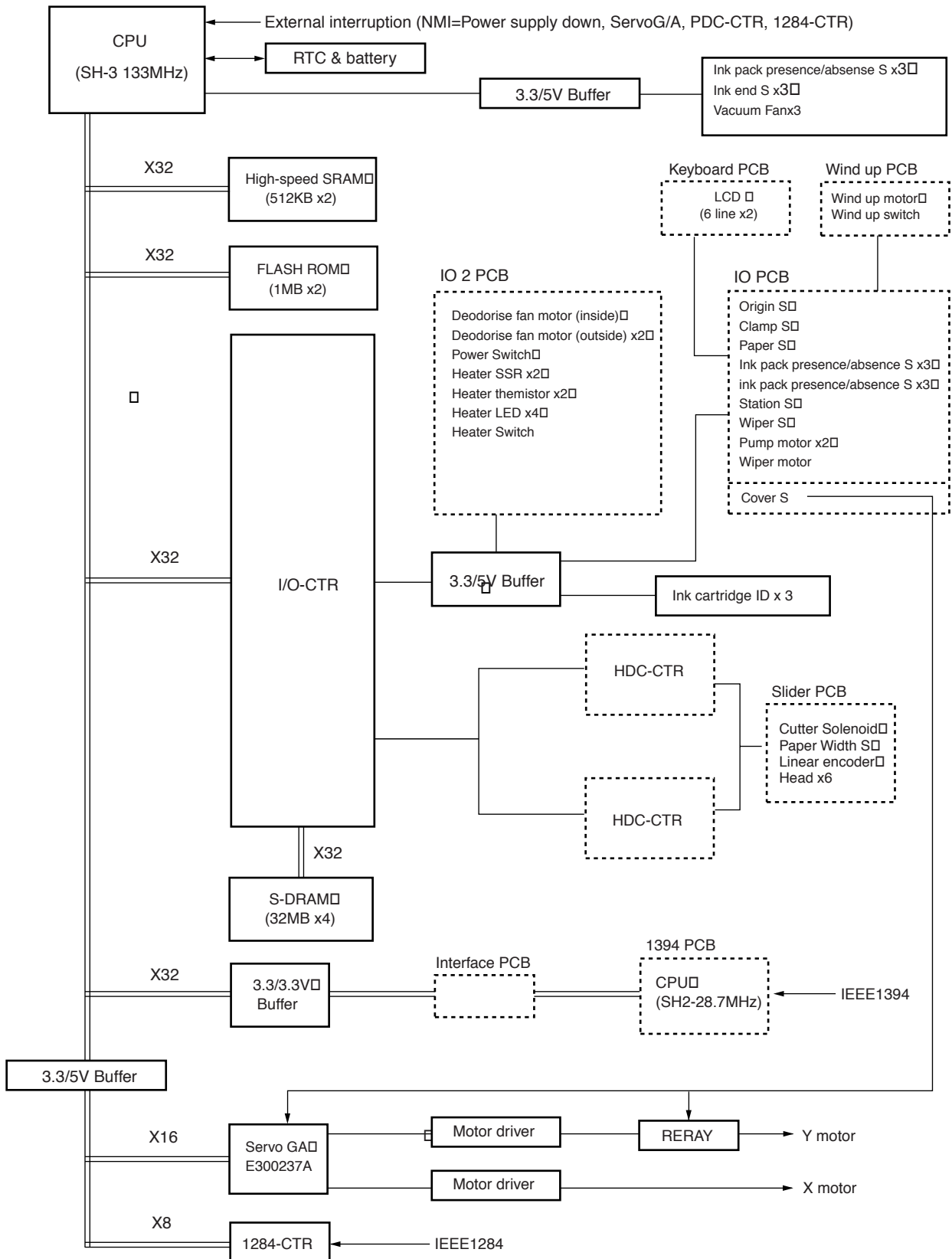
When the receive data is read from the interface, the CPU loads the data in the picture memory through the PDC-CTR. The picture memory consists of a 128 MB DSRAM.

The PDC-CTR performs necessary mask processing, performs X-Y conversion, then transfers it to the HDC-CTR PCB with 8-bit width.

Upon reception of data transmission, the HDC-CRT generates the COM signal for driving Head to Head 3, creates nozzle data, then transfers data to the Slider PCB through the HDCFP cable.

It is provided with an absorption fan and cutter drive circuit, Paper width sensor, temperature sensor, Ink cartridge 1-3 presence/absence sensor, Ink cartridge 1-3 end sensor, Ink cartridge 1-3 read circuit.

## Main PCB block diagram





## Main PCB Connector signals

Connector	Pin No.	Signal name	Remarks
CN1 to 4	1	+FAN	Vacuum Fan
	2	+FAN	
CN6	1 to 40	GND	Attach FPC with the terminal side up (reinforcing plate down) .
CN7	1	GND	
	2	+42V	
	3	+42V	
	4	+42V	
	5	+42V	
	6	H1-COMB	
	7	H1-COMB	
	8	H1-COMB	
	9	GND	
	10	H1-COMA	
	11	H1-COMA	
	12	H1-COMA	
	13	GND	
	14	H2-COMB	
	15	H2-COMB	
	16	H2-COMB	
	17	GND	
	18	H2-COMA	
	19	H2-COMA	
	20	H2-COMA	
	21	GND	
	22	H3-COMB	
	23	H3-COMB	
	24	H3-COMB	
	25	GND	
	26	H3-COMA	
	27	H3-COMA	
	28	H3-COMA	
	29	GND	
	30	H4-COMB	
	31	H4-COMB	
	32	H4-COMB	
	33	GND	
	34	H4-COMA	
	35	H4-COMA	
	36	H4-COMA	
	37	+5V	
	38	+5V	
	39	+5V	
	40	GND	
CN8	1	GND	
	2	ASCK+	
	3	/ACS+	
	4 to 37	GND	
	38	SOLCOM	
	39	PAPER-CUT	
CN9	40	GND	
	1	GND	
	2	LEB+	
	3	LEA+	
	4	GND	
	5	SLOP+	
	6	ADI+	
	7	GND	
	8	A4INH3+	
	9	A4INH2+	
	10	A4INH1+	
	11	GND	
	12	A4C+	
	13	A4B+	
	14	A4A+	
	15	GND	

Connector	Pin No.	Signal name	Remarks
CN9	16	H1-NCHGB+	Attach FPC with the terminal side up (reinforcing plate down) .
	17	GND	
	18	H1-SCKB-	
	19	H1-SCKB+	
	20	GND	
	21	GND	
	22	H1-SIB-	
	23	H1-SIB+	
	24	GND	
	25	GND	
	26	H1-SCKA+	
	27	H1-SCKA-	
	28	GND	
	29	GND	
	30	H1-S1A+	
	31	H1-S1A-	
	32	GND	
	33	GND	
	34	H3-SCKA+	
	35	H3-SCKA-	
	36	GND	
CN10	37	GND	
	38	H3-S1A+	
	39	H3-S1A-	
	40	GND	
	1	GND	
	2	H1-LATB+	
	3	H1-CHB+	
	4	GND	
	5	H1-NCHGB+	
	6	H1-LATA+	
	7	GND	
	8	H1-CHA+	
	9	H2-NCHGB+	
	10	GND	
	11	H2-LATB+	
	12	H2-CHB+	
	13	GND	
	14	H2-NCHGB+	
	15	H2-LATA+	
	16	GND	
	17	H2-CHA+	
	18	GND	
	19	GND	
	20	H2-SCKB-	
	21	H2-SCKB+	
	22	GND	
	23	GND	
	24	H2-SIB-	
	25	H2-SIB+	
	26	GND	
	27	GND	
	28	H2-SCKA+	
	29	H2-SCKA-	
	30	GND	
	31	GND	
	32	H2-S1A+	
	33	H2-S1A-	
	34	GND	
	35	GND	
	36	H2-SIB-	
	37	H2-SIB+	
	38	GND	
	39	GND	
	40	GND	

Connector	Pin No.	Signal name	Remarks
CN11	1	GND	Attach FPC with the terminal side up (reinforcing plate down) .
	2	H3-NCHGB+	
	3	GND	
	4	H3-LATB+	
	5	H3-CHB+	
	6	GND	
	7	H3-NCHGA+	
	8	H3-LATA+	
	9	GND	
	10	H3-CHA+	
	11	GND	
	12	H4-NCHGB+	
	13	H4-LATB+	
	14	GND	
	15	H4-CHB+	
	16	H4-NCHGA+	
	17	GND	
	18	H4-LATA+	
	19	H4-CHA+	
	20	GND	
	21	GND	
	22	H4-SCKB-	
	23	H4-SCKB+	
	24	GND	
	25	GND	
	26	H4-SIB-	
	27	H4-SIB+	
	28	GND	
	29	GND	
	30	H4-SCKA+	
	31	H4-SCKA-	
	32	GND	
	33	GND	
	34	H4-SIA+	
	35	H4-SIA-	
	36	GND	
	37	GND	
	38	H3-SCKB-	
	39	H3-SCKB+	
	40	GND	
CN14	1	+5V	
	2	X-ENCA	
	3	X-ENCB	
	4	N.C	
	5	GND	
	6	GND	
CN15	1	+5V	
	2	Y-ENCA	
	3	Y-ENCB	
	4	GND	
	5	GND	
CN16	1	+X-MV	
	2	N.C	
	3	-X-MV	
CN17	1	+Y-MV	
	2	-Y-MV	
CN18	1	+35V	
	2	+35V	
	3	+35V	
	4	ID-R2	
	5	+35V	
	6	ID-W2	
	7	+5V	
	8	+5V	
	9	PWM	
	10	PCK1	

Connector	Pin No.	Signal name	Remarks
CN18	11	PCK2	
	12	PCK3	
	13	GND	
	14	SPCK-01	
	15	GND	
	16	SPDA-01	
	17	GND	
	18	SPLD-01	
	19	GATE	
	20	RESET	
	21	BZ	
	22	GND	
	23	SPCK-I1	
	24	GND	
	25	SPDA-I1	
	26	GND	
	27	SPLD-I1	
	28	GND	
	29	LCD-E	
	30	RS1	
	31	LCD-RW	
	32	LCD-D0	
	33	LCD-D1	
	34	LCD-D2	
	35	LCD-D3	
	36	/KEY-E	
	37	RS2	
	38	GND	
	39	GND	
	40	COVER	
CN19	1	PACK1	Ink sensor 1
	2	GND	
	3	END1	
	4	GND	
CN20	1	PACK2	Ink sensor 2
	2	GND	
	3	END2	
	4	GND	
CN21	1	PACK3	Ink sensor 3
	2	GND	
	3	END3	
	4	GND	
CN25	1	+35V	Attach FPC with the terminal side down (reinforcing plate up) .
	2	SPCK-02	
	3	+35V	
	4	SPLD-02	
	5	+35V	
	6	Q2	
	7	GATE	
	8	+35V	
	9	SPLD-02	
	10	+35V	
	11	SPCK-I2	
	12	+35V	
	13	SPDA-I2	
	14	GND	
	15	/ACS2	
	16	GND	
	17	ASCK2	
	18	GND	
	19	ADI2+	
	20	+5V	
	21	A4A2	
	22	A4B2	
	23	A4C2	
	24	+5V	

Connector	Pin No.	Signal name	Remarks
CN26	1	ID1	ID1
	2	GND	
CN27	1	ID2	ID2
	2	GND	
CN28	1	ID3	ID3
	2	GND	
CN36	A1	+35V	
	A2	+35V	
	A3	+35V	
	A4	N.C	
	A5	N.C	
	A6	IFRESET	
	A7	IF-RDnWR	
	A8	PWDWN	
	A9	WUPRQ	
	A10	IF-nRREQ	
	A11	IF-DRQ0	
	A12	IF-DRQ1	
	A13	INNDRREQ3	
	A14	INNDRREQ4	
	A15	IFA0	
	A16	IFA1	
	A17	IF-RWCLK	
	A18	IF-CKIO	
	A19	IF-IDOUT	
	A20	IFD0	
	A21	IFD2	
	A22	IFD3	
	A23	IFD5	
	A24	IFD6	
	A25	IFD8	
	A26	IFD9	
	A27	IFD11	
	A28	IFD12	
	A29	IFD14	
	A30	IFD15	
	A31	IFD17	
	A32	IFD18	
	A33	IFD20	
	A34	IFD21	
	A35	IFD23	
	A36	IFD24	
	A37	IFD26	
	A38	IFD27	
	A39	IFD29	
	A40	IFD30	

#### 2-1-4. 1394 PCB

The 1394 (IEEE1394) PCB uses the SH2 (RISC, 28.7MHz) from Hitachi as the CPU and the program stored in the flash memory in the CPU. Therefore, the 1394 CPU is upgraded by downloading the program from the host computer. This PCB supports bi-directional printing.

#### 2-1-5. I/F Connection PCB

This board connects the signals of the main PCB and 1394 PCB.

## 2-1-6. IO PCB

This board is located on the back of the right frame. It receives the signal of each sensor, transfers each data to the main PCB, and controls various stepping motors and take-up motors.

### IO PCB Connector signals

Connector	Pin No.	Signal name	Remarks
CN1	1	+35V	
	2	+35V	
	3	+35V	
	4	ID-R2	
	5	+35V	
	6	ID-W2	
	7	+5V	
	8	+5V	
	9	PWM	
	10	PCK1	
	11	PCK2	
	12	PCK3	
	13	GND	
	14	SPCK-01	
	15	GND	
	16	SPDA-01	
	17	GND	
	18	SPLD-01	
	19	GATE	
	20	RESET	
	21	BZ	
	22	GND	
	23	SPCK-I1	
	24	GND	
	25	SPDA-I1	
	26	GND	
	27	SPLD-I1	
	28	GND	
	29	LCD-E	
	30	RS1	
	31	LCD-RW	
	32	LCD-D0	
	33	LCD-D1	
	34	LCD-D2	
	35	LCD-D3	
	36	/KEY-E	
	37	RS2	
	38	GND	
	39	GND	
	40	COVER	
CN2	1	+5V	Keyboard PCB
	2	GND	
	3	LCD-E	
	4	RS1	
	5	LCD-RW	
	6	LCD-D0	
	7	LCD-D1	
	8	LCD-D2	
	9	LCD-D3	
	10	/KEY-E	
	11	RS2	
	12	N.C.	
CN3	1	+COVER	Cover sensor
	2	N.C.	
	3	-COVER	
CN4	1	MA-P1	Pump motor 1
	2	N.C.	
	3	/MA-P1	
	4	MB-P1	
	5	N.C.	
	6	/MB-P1	

Connector	Pin No.	Signal name	Remarks
CN5	1	MA-P2	Pump motor 2
	2	N.C.	
	3	/MA-P2	
	4	MB-P2	
	5	N.C.	
	6	/MB-P2	
CN6	1	MA-P3	Wiper motor
	2	N.C.	
	3	/MA-P3	
	4	MB-P3	
	5	N.C.	
	6	/MB-P3	
CN7	1	+WM	Take-up motor
	2		
	3	+WM	
	4		
CN8	1	+5V	Origin sensor
	2	O-SIG	
	3	GND	
CN9	1	+5V	Clamp sensor
	2	C-SIG	
	3	GND	
CN10	1	+5V	Paper sensor
	2	P-SIG	
	3	GND	
CN11	1	+5V	Wiper sensor
	2	W-SIG	
	3	GND	
CN12	1	PACK4	Ink sensor 4
	2	GND	
	3	END4	
	4	GND	
CN13	1	PACK5	Ink sensor 5
	2	GND	
	3	END5	
	4	GND	
CN14	1	PACK6	Ink sensor 6
	2	GND	
	3	END6	
	4	GND	
CN17	1	ID4	ID4
	2	GND	
CN18	1	ID5	ID5
	2	GND	
CN19	1	ID6	ID6
	2	GND	
CNX1	1	+FAN	Not used
	2	-FAN	

## 2-1-7. IO2 PCB

This board is located in the instrumentation box. It receives various sensor signals and transfers data to the main board. It mounts the exhaust fan, heater control circuit, and sleep refresh control circuit.

### IO2 PCB Connector signals

Connector	Pin No.	Signal name	Remarks
CN1	1	+35V	Attach FPC with the terminal side up (reinforcing plate down) .
	2	SPCK-02	
	3	+35V	
	4	SPLD-02	
	5	+35V	
	6	Q2	
	7	GATE	
	8	+35V	
	9	SPLD-02	
	10	+35V	
	11	SPCK-I2	
	12	+35V	
	13	SPDA-I2	
	14	GND	
	15	/ACS2	
	16	GND	
	17	ASCK2	
	18	GND	
	19	ADI2+	
	20	+5V	
	21	A4A2	
	22	A4B2	
	23	A4C2	
	24	+5V	
CN2	1	+LED1	Orange LED (Print)
	2	-LED1	
CN3	1	+LED2	Orange LED (Pri)
	2	-LED2	
CN4	1	+LED3	Green LED (Print)
	2	-LED3	
CN5	1	+LED4	Green LED (Pri)
	2	-LED4	
CN6	1	+5V	Heater switch
	2	SW1	
	3	+5V	
	4	SW2	
CN7	1	SW1	SSR (Print)
	2	SSR1	
CN8	1	SW2	SSR (Pri)
	2	SSR2	
CN12	1	+FAN	Fan 1
	2	-FAN	
CN13	1	+FAN	Fan 2 The ventilation fan is CN13A for the initial lot but CN13B later.
	2	-FAN	
CN14	1	TH1	Thermistor (Print)
	2	GND	
CN15	1	TH1	Thermistor (Pri)
	2	GND	
CN22	1	+5VSB	Remote switch
	2	SB	
	3	LED	
	4	GND	
CN23	1	+5VSB	
	2	GND	
	3	P/S ON	

## 2-1-8. Slider PCB

The slider PCB is located on the inner side of the head cover. It relays the head control signal and head driving signal from the main PCB to the print heads. It contains the sensor circuit which detects the signal from the thermistor on each head and the signal from the paper-width sensor.

The slider PCB is connected to the HDC PCB with 5 main FPC cables and connected to the heads with 6 head FPC cables. In addition, the slider PCB is connected respectively to the linear encoder that detects the ink discharging position with the linear scale, to the paper width sensor PCB and to the cutter solenoid.

### Slider PCB Connector signals

Connector	Pin No.	Signal name	Remarks
CN1	Refer to Main PCB- CN7		Attach FPC with the terminal side up (reinforcing plate down) .
CN2	Refer to Main PCB- CN8		
CN3	Refer to Main PCB- CN9		
CN4	Refer to Main PCB- CN10		
CN5	Refer to Main PCB- CN11		
CN6	1	GND	Rinearencoder
	2		
	3	LENCA1	
	4	+5V	
	5	LENCB1	
CN7	1	+24V	Cutter actueter
	2	PAPER-CUT	
CN8 CN10 CN12	1	SIO02A	Attach FPC with the terminal side down (reinforcing plate up) .
	2	SIO01A	
	3	SCK02A	
	4	SCK01A	
	5	H1anodeA	
	6	H1CHA	
	7	GND	
	8	H1LATA	
	9	GND	
	10	H1NCHGA	
	11	GND	
	12	+5V	
	13	H1-TH	
	14	GND	
	15	GND	
	16	H1COMA	
	17	GND	
	18	H1COMA	
	19	GND	
	20	H1COMA	
	21	GND	

Connector	Pin No.	Signal name	Remarks
CN9 CN11 CN13	1	SIO01B	Attach FPC with the terminal side down (reinforcing plate up) .
	2	SIO02B	
	3	SCK01B	
	4	SCK02B	
	5	H1anodeA	
	6	GND	
	7	H1CHB	
	8	GND	
	9	H1LATB	
	10	GND	
	11	H1NCHGB	
	12	+5V	
	13	GND	
	14	GND	
	15	H1COMB	
	16	GND	
	17	H1COMB	
	18	GND	
	19	H1COMB	
	20	GND	
	21	+42V	
CN14	1	+5V	Paper-width sensor
	2	LED	
	3	+5V	
	4	PAPER	

#### **2-1-9. Linear encoder PCB**

This board, located on the back of the slider, reads the linear scale.

#### **2-1-10. The KeyBoard PCB**

A 16 character x 2 line LCD, an LED that indicates +5V supply and 11 tact switches are mounted on the K/B PCB. It is connected to the IO PCB via the K/B cable.

#### **2-1-11. Take-up motor PCB**

This board, located in the take-up device, drivers the motor by receiving the power from the IO PCB. The forward or reverse rotation of the take-up motor can be selected using a switch.

#### **2-1-12. ID contact board**

This board is a contact board of the ink cartridge ID. It is located in each cartridge slot.

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## **2-2. Ink system**

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### **2-2-1. Definitions**

#### **Ink system**

Ink system is the general term of a mechanism specific to ink-jet printing system for protecting a nozzle against troubles such as clogging and recovering it if it should be in trouble.

#### **Head capping**

Head capping is a mechanism for automatically capping the nozzle so as to prevent it from drying. As long as the head is on the station in the right-hand side cover, it is capped.

#### **Clogged nozzle**

In such an event that a specific nozzle fails to discharge any ink because the ink in the head has thickened or the nozzle itself has dried up, the nozzle called the “clogged nozzle.”

#### **Deflection**

A finished state of a drawing on which lines are not plotted straight since a specific nozzle has failed to discharge ink straight on the paper because of the dust-accumulated or damaged nozzle surface.

#### **Satellite**

Discharged ink is shot as main drops or satellite drops.

If satellite drops are contained in main drops, the ink shot may shift.

#### **Head cleaning**

Recovers normal ink discharge by removing bubbles in the head and foreign objects on the head surface.

#### **Wiping**

Wipes the nozzle surface with wiper rubber surface to fix the condition of nozzle holes in order to remove foreign objects or ink leakage on the nozzle surface.

#### **Flashing**

Make idling discharges of ink which may thicken at the point of the nozzle, for refreshment.

#### **Ink suction**

Absorbs ink from nozzle by means of the ink suction pump.

#### **Sleep refresh**

If the front power switch is turned off when the main power switch is on, the sequence of power-on R nozzle refresh R power-off is automatically repeated at fixed intervals to prevent nozzle plugging.

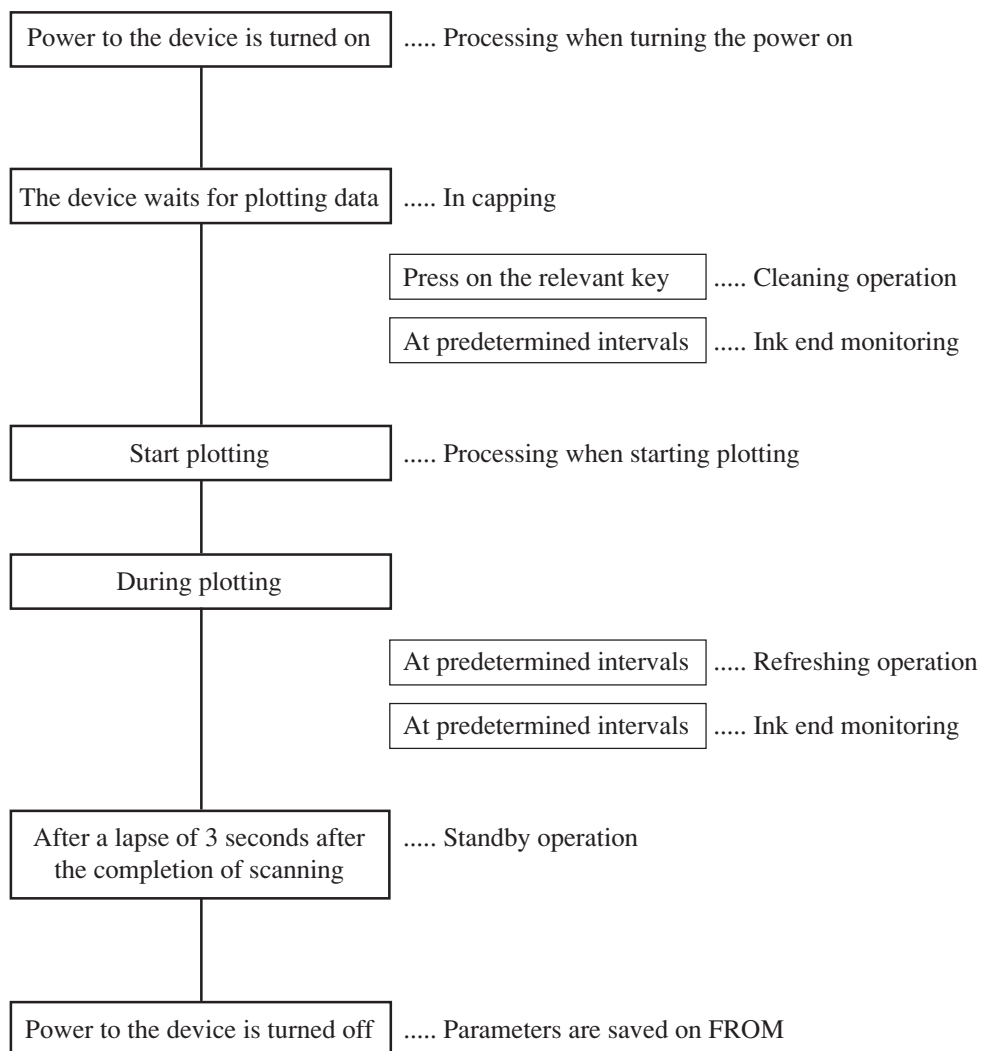


## 2-2-2. Brief explanation of the ink system

The ink system control mainly contains the following functions.

- Processing when turning the power on
- Processing when starting plotting
- Refreshing operation
- Standby operation
- Ink end monitoring
- Head cleaning operation
- Replacement of ink cartridge
- IC chip function

### Brief flow chart of the ink system control processing



### **Processing when power is turned ON**

If it is anticipated that the ink will have thickened while the power was OFF, and if there is expected to be danger that the uncapped nozzle will be dry when the power is turned ON, then cleaning action is executed to restore the ink ejection condition to what it was originally.

While the power is OFF, the timer incorporated into the main unit is backed up by a battery. After about 7 years this battery discharges to a voltage at which the timer can no longer operate. Accordingly, the maximum measurable time during which the power is OFF is 7 years.

### **Processing when plotting starts**

Even if the nozzle has been capped, since the ink gradually thickens it is necessary to measure the time during which the unit is on standby with the nozzle capped. When plotting starts, either ink is ejected from all nozzles or all of the nozzles are cleaned, by an amount corresponding to the measured standby time, to avoid defective ink ejection on account of increased ink viscosity.

### **Refreshing operation**

During plotting, only some of the nozzles discharge ink. To prevent nozzles that are at rest from drying and ink from thickening, the head is moved onto the cap inside of the station, at fixed intervals, and ink is ejected from all nozzles to maintain stable ink ejection. The “refresh interval” and the number of times that ink is ejected can be varied by varying the “refresh level” on a menu that is open to the user.

### **Standby state**

To prevent the nozzle from drying, the head is automatically carried back to the station unless the next scanning starts after three seconds have passed after the completion of the last scanning.

### **Ink end monitoring**

At fixed intervals a sensor monitors the ink level, and detects the following.

- Ink remains: Plotting is possible.
- Ink near end: Plotting is possible (ink cartridge replacement is recommended).
- Ink end: Plotting is not possible (plotting is suspended, and the system waits for ink cartridge replacement).
- No ink cartridge: Plotting is not possible.

## Head cleaning operation

A function that works to remove thickened ink or dust accumulated on the nozzle faces to recover normal ink-discharge.

There are the following 3 methods.

Cleaning method	Cleaning time	Ink consumption	Cleaning effect	Remarks
Soft	Short	Small	Small	Can deal with minor problems such as failure of ink jet.
Normal	Normal	Normal	Normal	Action is taken to clear a clogged nozzle.
Strong	Long	Large	Large	Action is taken to deal with major trouble that cannot be taken care of by normal cleaning.

## Ink cartridge replacement

When an error occurs because ink has run out or an ink cartridge has not been installed, the user should replace the ink cartridge, or if there is none, install one. In particular, when ink has not yet passed through the head at all (when the plotter is shipped from the factory), initial filling of ink is carried out so that ink will pass from the ink cartridge through the tube to the head.

## Miscellaneous

- The cap inside the station must be kept at the proper humidity to prevent the nozzle from drying out. For this reason, whenever the head is put into or taken out of the station, ink is ejected to keep the nozzle moist. Conversely, if so much ink has been ejected that the nozzle is too moist, ink is ejected from inside the cap to the waste ink tank with the pump mechanism to keep the humidity at its optimum level.
- This unit has a paper width sensor mechanism and a cutter mechanism in the head; the paper width detection action and the paper cutting action make it necessary for the head to move in and out of the station. The actions described in a) are necessary in this case also.

### 2-2-3. Parameters related to the ink system

To control the ink system, the following two items of parameter groups are stored on the Flash memory.

- Ink parameters 1 → Any change of ink parameters 1 is prohibited since they are used to control the ink system.
- Ink parameters 2 → Any change of ink parameters 2 is prohibited since they are used for experiments and evaluations in MIMAKI Development Division.
- Ink parameters 3 → Any change of ink parameters 2 is prohibited since they are used for experiments and evaluations in MIMAKI Development Division.

#### **Ink parameters 1**

Parameters to be used to control the ink system such as the parameters for the humidity control inside the cap, etc. are saved on . Parameter values are updated and managed by the firmware. They are saved when turning the power off.

If any of these parameter values should be changed, the ink system would be out of control. They must not be changed from the factory-designated initial settings.

#### **Ink parameters 2, Ink parameters 3**

Control constants used for the ink system processing are saved on. They must not be changed since they are used by MIMAKI Development Division for experiments and evaluations.



- When the main PCB has been replaced (meaning that the Flash memory has been initialized), the following procedure must be followed to match ink parameters 1, which control the ink system, to the actual situation.

1. All heads are cleaned once (soft cleaning is sufficient) → the indication of ink amount inside the cap must be matched to the actual situation.
2. The number of times that wiping has taken place is set to the value before the replacement. → ink parameters 1 No. 8
3. The running meter parameter is set to its value before the replacement.  
→ #Adjust -REPLACE COUNTER (page 5.15).



- The ink system is controlled so that MIMAKI-brand ink be discharged in stable condition. Operation with non-MIMAKI brand ink is not guaranteed.

## 2-2-4. IC Chip Function

### IC chip detecting timing

The read timing of the IC chip is shown below.

- When the power is turned ON
- When the carriage is inserted
- When plotting is completed
- During ink system operation (Cleaning, Initial Filling, and Filling)

If the following result appears after reading the IC chip, replace the ink cartridge or attach it correctly to avoid errors.

Until errors are avoided, all ink system operations (Initial Filling, Filling, Cleaning, Flashing, Wiping etc.) and ink discharge operation are disabled.

For error solution, refer to [3-2-2. Ink-related components and other components].

### ERROR DISPLAY

Result	Message	Description
Cannot read the chip at all	NON-ORIGINAL INK KMCYmc	IC chip missing. Inferior contact.
Cannot read the chip normally	WRONG INK IC KMCYmc	Ink cartridge for other model is attached.
Could read the chip normally but data does not conform to perating environment.	Kind of INK KMCYmc	The type of the loaded ink is different from the previous one.
	Color of INK KMCYmc	Wrong attaching position of the ink cartridge.
	WRONG CARTRIDGE KMCYmc	The IC chip could be read normally but ink near-end cannot be detected.
Others	NO CARTRIDGE KMCYmc	The ink cartridge is not attached to the ink station. (IC)

### WARNING DISPLAY

Result	Message	Description
Ink has expired.	<LOCAL> timeLIMIT KMCYmc	The IC chip could be read normally but ink has expired. Warning display is made but operation is possible.

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## 2-3. Brief explanation of media size detection control

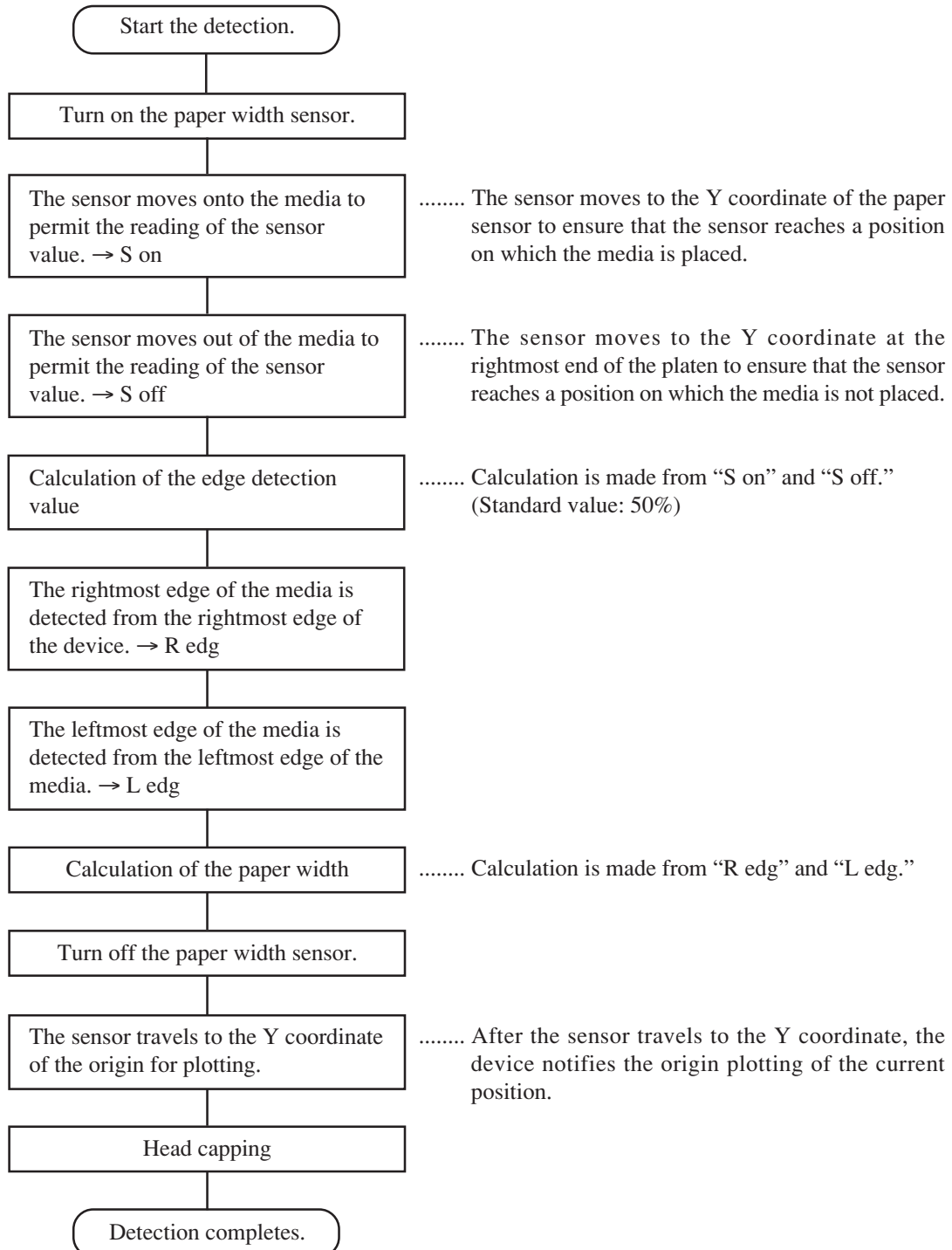
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Detection of the front ends of a media → Detection by the paper width sensor

Detection of the right- and left-side edges of a media → Detection by paper width sensor

### Brief flow chart of the media width detection processing

Edges of the media are detected through the use of the difference in lightness between the media and the platen (cutter slit), based on which the paper width is calculated.



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## CHAPTER 3

# TROUBLESHOOTING

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It is necessary to isolate, to some extent, the function that is in trouble in prior to troubleshooting.

Troubles can be roughly classified into the following two groups.

- 1) Troubles only relating to the device
  - The function in trouble can be determined through various tests.
- 2) Trouble relating to the connection with the host computer
  - Disconnection of failed contact of the cables in terms of hardware
  - In terms of software, the case where the user has changed computer parameters or has sent wrong data by mistake.

Recovering procedures for troubles in general that are likely to arise independently on the device will appear from the next page.

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### **3-1. Troubles for which error messages are given on the LCD**

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General recovering procedures for troubles for which error messages are given on LCD are as follows:

**1) Segregation of causes of errors**

Causes of errors are roughly classified into the following groups.

- 1) Handling errors on the system side
- 2) Defective conditions on the system side
- 3) Defective conditions on the interface cable
- 4) Plotter handling errors
- 5) Mechanical malfunctions in the plotter
- 6) Malfunctions in hardware of the plotter
- 7) Malfunctions in firmware of the plotter

**2) Initial remedies**

Track down the cause of a trouble to the system side or the plotter side referring to the error message shown on the LCD.

- 1) Check whether you have changed connection conditions (time-out setting on the host PC, etc.).
- 2) Check whether or not the trouble arises under specific circumstances.
- 3) Check whether or not the trouble is reproducible.

**3) Failures on the plotter side**

Take the following recovering procedure.

- 1) Replace the faulty component (sensor, etc.) with a new one or properly adjust it.
- 2) Update the firmware.
- 3) Replace PCBs.

**4) If the error recurs even after correcting it in accordance with the specified recovering procedures, return the device to the factory for repairs.**



## **3-2. Error messages and corrective measures**

### **3-2-1. Error messages for troubles for which error numbers are given on the LCD**

Message	Description	Corrective measures and recovering procedures
ERROR01 MAIN ROM	<ul style="list-style-type: none"> <li>The control ROM is in abnormal conditions.</li> </ul>	1) Replace the main PCB with a new one.
ERROR02 MAIN RAM	<ul style="list-style-type: none"> <li>The control RAM is in abnormal conditions.</li> </ul>	
ERROR03 POWER +5V POWER +35V	<ul style="list-style-type: none"> <li>The +5V (+35V) voltage is in abnormal conditions.</li> </ul>	1) Replace the power supply or the main PCB with a new one.
ERROR04 FLASH ROM	<ul style="list-style-type: none"> <li>The Flash memory is in abnormal conditions.</li> </ul>	1) Replace the main PCB with a new one.
ERROR06 D-RAM	<ul style="list-style-type: none"> <li>An error has occurred in the D-RAM.</li> </ul>	
ERROR07 TEMP n	<ul style="list-style-type: none"> <li>Abnormal temperature is detected.</li> </ul>	1) Has ink in the camper run out? 2) Replace the main PCB with a new one. 3) Replace the head with a new one. 4) Replace the Slider PCB with a new one.
ERROR08 ENCODER	<ul style="list-style-type: none"> <li>The Linear encoder is in abnormal conditions.</li> </ul>	1) Replace the Linear encoder with a new one. 2) Replace the main PCB with a new one.
ERROR09 HDC	<ul style="list-style-type: none"> <li>Configuration of PDC/IOC has not been successfully carried out.</li> <li>Configuration of HDC has not been successfully carried out.</li> </ul>	1) Replace the main PCB with a new one.
ERROR10 COMMAND	<ul style="list-style-type: none"> <li>Command code other than MRL has been received.</li> </ul>	1) Check the data received through HEX dump. 2) If error occurs at 1394 <ol style="list-style-type: none"> <li>Check Time out of the transfer tool (RIP).</li> <li>Replace the I/F connection board with [E102154A] or later.</li> <li>Replace the 1394 board with a new one.</li> <li>Replace the main PCB with a new one.</li> <li>Supply power to the 1394 PCI board in the PC through the power cable.</li> </ol>
ERROR11 PARAMETER	<ul style="list-style-type: none"> <li>Parameter that has not defined in MRL has been received.</li> </ul>	
ERROR12 Ment Command	<ul style="list-style-type: none"> <li>A command error for manufacture of has occurred.</li> </ul>	1) It is not used in the field.

Message	Description	Corrective measures and recovering procedures
ERROR20 I/F BOARD	<ul style="list-style-type: none"> <li>A error occurred in communication between the main PCB and the interface board.</li> </ul>	<ol style="list-style-type: none"> <li>1) Replace the I/F PCB with a new one.</li> <li>2) Replace the main PCB with a new one.</li> <li>3) Replace the I/F connection board with a new one.</li> <li>4) Supply power to the 1394 PCI board in the PC through the power cable.</li> </ol>
ERROR21 I/F NONE	<ul style="list-style-type: none"> <li>The I/F board could not be recognized.</li> </ul>	<ol style="list-style-type: none"> <li>1) Is the I/F board mounted correctly ?</li> </ol>
ERROR23 HOST I/F	<ul style="list-style-type: none"> <li>A time limit exceeded error occurred in communication between the host computer and the interface board.</li> </ul>	<ol style="list-style-type: none"> <li>1) Is the cable loose?</li> <li>2) Has an error occurred on the host computer?</li> <li>3) Is the application being used running normally?</li> </ol>
ERROR24 I/F INITIAL	<ul style="list-style-type: none"> <li>The I/F board is in abnormal conditions.</li> </ul>	<ol style="list-style-type: none"> <li>1) Replace the I/F PCB with a new one.</li> <li>2) Replace the main PCB with a new one.</li> <li>3) Replace the main PCB with a new one.</li> </ol>
ERROR30 OPERATION	<ul style="list-style-type: none"> <li>Improper operation has been performed.</li> </ul>	<ol style="list-style-type: none"> <li>1) Indicate the improper operation.</li> <li>2) Replace a key board.</li> <li>3) Replace a main PCB.</li> </ol>
ERROR34 DATA REMAIN	<ul style="list-style-type: none"> <li>Operating condition is tried to be changed when data that has not yet been plotted remains.</li> </ul>	<ol style="list-style-type: none"> <li>1) This tells that any of the operating conditions cannot be changed if data that have not been plotted remains.</li> </ol>
ERROR40 MOTOR X	<ul style="list-style-type: none"> <li>The X-axis motor has been overloaded.</li> </ul>	<ol style="list-style-type: none"> <li>1) Replace X axis motor.</li> <li>2) Replace a main PCB.</li> </ol>
ERROR41 MOTOR Y	<ul style="list-style-type: none"> <li>The Y-axis motor has been overloaded.</li> <li>The brush of motor is in abnormal conditions.</li> </ul>	<ol style="list-style-type: none"> <li>1) Clean the main guide axis.</li> <li>2) Replace Y axis motor.</li> <li>3) Replace a main PCB.</li> </ol>
ERROR42 X CURRENT	<ul style="list-style-type: none"> <li>Overcurrent error has arisen on the X-axis motor</li> </ul>	<ol style="list-style-type: none"> <li>1) Replace X axis motor.</li> <li>2) Replace a main PCB.</li> </ol>
ERROR43 Y CURRENT	<ul style="list-style-type: none"> <li>Overcurrent error has arisen on the Y-axis motor</li> </ul>	<ol style="list-style-type: none"> <li>1) Replace Y axis motor.</li> <li>2) Replace a main PCB.</li> </ol>
ERROR46 WIPER	<ul style="list-style-type: none"> <li>The wiper-control is in abnormal conditions.</li> </ul>	<ol style="list-style-type: none"> <li>1) Turn on the power.</li> <li>2) Replace a wiper assy.</li> <li>3) Replace IO PCB.</li> <li>4) Replace a wiper sensor.</li> <li>5) Replace a wiper motor.</li> </ol>

Error message	Cause	Corrective measure
ERROR50 MEDIA SENSE	<ul style="list-style-type: none"> <li>Media detection has not been successfully carried out.</li> </ul>	<ol style="list-style-type: none"> <li>1) Make sure that there is no gap between platen F (aluminum) and the edge of the P cover F rubber. If there is a gap, stick the rubber appressed against the platen. The gap may be detected in mistake.</li> <li>2) Make sure that platen cover F is fixed securely using the platen cover F mounting screws (attached on auxiliary side plates R and L to prevent the cover from protruding).</li> <li>3) Check if the media right edge is set at a position 15mm or more from the rightmost edge of the rightmost feed roller:R1 toward the station side or not.</li> <li>4) Cleaning or replace a paper width sensor.</li> <li>5) Replace a HDC FPC cable.</li> <li>6) Replace a slider PCB.</li> <li>7) Replace a main PCB.</li> </ol>
ERROR51 Y ORIGIN	<ul style="list-style-type: none"> <li>Y-axis origin detection has not been successfully carried out.</li> </ul>	<ol style="list-style-type: none"> <li>1) Replace a Y axis motor.</li> <li>2) Replace a Y origin sensor.</li> <li>3) Replace a IO PCB.</li> <li>4) Replace a main PCB.</li> </ol>

### 3-2-2. Ink-related components and other components

Message	Description	Corrective measures and recovering procedures
<div>&lt; LOCAL &gt; CARTRIDGE      K - - - -</div>	<ul style="list-style-type: none"> <li>The number of absent ink cartridge is shown.</li> <li>Cartridge with defective IC chip is displayed.</li> </ul>	<ol style="list-style-type: none"> <li>1) Check details with guide display.</li> <li>2) Install the ink cartridge.</li> <li>3) If the error recurs after the ink cartridge has been installed. Conduct sensor tests to find out the cause of trouble. Possible causes of the troubles are as follows. <ol style="list-style-type: none"> <li>a) The cartridge presence/absence sensor has failed.</li> <li>b) Defective contact or disconnection of relay cables.</li> <li>c) Main PCB or IO PCB has failed.</li> </ol> </li> </ol>
<div>&lt; LOCAL &gt; NEAR END      K - - - -</div>	<ul style="list-style-type: none"> <li>The number of the ink cartridge in which the ink has run short.</li> </ul>	<ol style="list-style-type: none"> <li>1) Replace the ink cartridge with a new one.</li> <li>2) If the error recurs after the ink cartridge has been replaced, conduct sensor tests to find out a possible cause of the trouble. Possible causes of the troubles are as follows: <ol style="list-style-type: none"> <li>a) The ink end sensor has failed.</li> <li>b) Defective contact or disconnection of relay cables.</li> <li>c) Ink sensor PCB has failed.</li> <li>d) Main PCB or IO PCB has failed.</li> </ol> </li> </ol>
<div>&lt; LOCAL &gt; INK END      K - - - -</div>	<ul style="list-style-type: none"> <li>Ink has run out</li> </ul>	<ol style="list-style-type: none"> <li>1) Replace the ink cartridge with a new one.</li> </ol>
<div>&lt; LOCAL &gt; timeLIMIT      KMCYmc</div>	<ul style="list-style-type: none"> <li>The ink cartridge will expire soon or has expired.</li> </ul>	<ol style="list-style-type: none"> <li>1) Replace the new ink cartridge.</li> </ol>
<div>NON-ORIGINAL INK KMCYmc</div>	<ul style="list-style-type: none"> <li>The IC chip missing, Inferior contact.</li> </ul>	<ol style="list-style-type: none"> <li>1) Replace the new ink cartridge.</li> </ol>
<div>WRONG INK IC KMCYmc</div>	<ul style="list-style-type: none"> <li>The IC chip of the ink cartridge cannot be read normally.</li> </ul>	<ol style="list-style-type: none"> <li>1) Replace the new ink cartridge.</li> </ol>
<div>Kind of INK KMCYmc</div>	<ul style="list-style-type: none"> <li>The type of the loaded ink cartridge is different from the previous one.</li> </ul>	<ol style="list-style-type: none"> <li>1) Check the type of the loaded ink cartridge.</li> </ol>
<div>Color of INK KMCYmc</div>	<ul style="list-style-type: none"> <li>Wrong attaching position of the ink cartridge.</li> </ul>	<ol style="list-style-type: none"> <li>1) Attach the ink cartridge(s) correctly.</li> </ol>

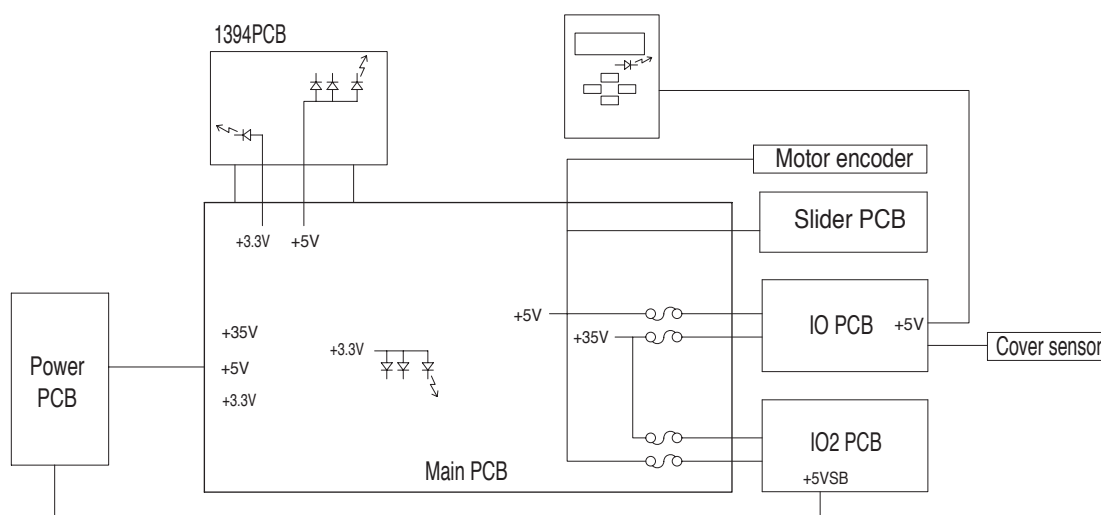
Message	Description	Corrective measures and recovering procedures
<div>WRONG CARTRIDGE</div> <div>KMCYmc</div>	<ul style="list-style-type: none"> <li>The loaded ink cartridge is defective.</li> </ul>	1) Check the loaded ink cartridge.
<div>NO CARTRIDGE</div> <div>KMCYmc</div>	<ul style="list-style-type: none"> <li>The ink cartridge is not attached to the ink station.</li> </ul>	1) Attach the ink cartridge(s) corresponding with the color shown on the display.
<div>&lt;LOCAL&gt;  HEATER</div> <div>width: xxxxx mm</div> <div>* REMOTE *  HEATER</div> <div>TYPE. 1 0.0 0 m</div>	<ul style="list-style-type: none"> <li>The preheater or print heater has failed.</li> </ul>	1) Press the [HEATER] key to display the details of the error. Check the error.
<div>Heater Power OFF</div>	<ul style="list-style-type: none"> <li>The power of heater is off.</li> </ul>	1) Turn on the power of the heater.
<div>Pre BREAKAGE</div> <div>Print 43° C ( 4 7)</div>	<ul style="list-style-type: none"> <li>The printhead is disconnected.</li> <li>The operating voltage is 100 to 200 VAC but the voltage selector of the heater is set to 220 V.</li> </ul>	1) Set the voltage selector to the correct voltage. 2) Replace the printhead. 3) Replace the fuse if blown.
<div>Pre 40° ► 45° C</div> <div>Print BREAKAGE</div>	<ul style="list-style-type: none"> <li>The preheater is disconnected.</li> <li>The operating voltage is 100 to 200 VAC but the voltage selector of the heater is set to 220 V.</li> </ul>	1) Set the voltage selector to the correct voltage. 2) Replace the preheater. 3) Replace the fuse if blown.
<div>Pre THERMISTOR</div> <div>Print 50 ► 40 °C</div>	<ul style="list-style-type: none"> <li>The thermistor of the preheater is defective.</li> </ul>	1) Replace the thermistor. 2) Replace the IO2 PCB. 3) Replace the main PCB.
<div>Pre 55 °C (40)</div> <div>Print THERMISTOR</div>	<ul style="list-style-type: none"> <li>The thermistor of the printhead is defective.</li> </ul>	

Message	Description	Corrective measures and recovering procedures
< LOCAL > DO TEST DRAW	<ul style="list-style-type: none"> <li>The nozzle recovery cannot be expected because the device is left for a prolonged period of time.</li> </ul>	1) Make test plotting. If nozzle missing is serious, execute [STATION] - [WASH] for maintenance.
< LOCAL > REPLACE WIPER	<ul style="list-style-type: none"> <li>The number of times of use of the wiper has been exceeded.</li> </ul>	1) Replace the wiper.
< LOCAL > HEAD ID Un - input	<ul style="list-style-type: none"> <li>The ID numbers of heads have not been inputted.</li> </ul>	1) Input the ID numbers of heads.
< LOCAL > ** NO MEDIA **	<ul style="list-style-type: none"> <li>The clamp lever has been lowered without media placed.</li> <li>If roll paper is being used, it indicates that the media has run out.</li> </ul>	1) Place media first, then lower the clamp lever. 2) If the error occurs with media loaded on the machine, conduct sensor tests to find out a possible cause of the trouble. Possible causes of the trouble are as follows: a) The sheet sensor has failed. b) The IO PCB has failed. c) The main PCB has failed.
* REMOTE *	<ul style="list-style-type: none"> <li>If the entire LCD display flashes in REMOTE mode, it indicates that data have not been received for 30 seconds or more.</li> </ul>	1) Confirm that the computer is sending data. 2) Replace the I/F cable with a new one. 3) Replace the 1394 PCB. 4) Replace the main PCB.
BATTERY EXCHANGE	<ul style="list-style-type: none"> <li>If indicates that the battery has run out.</li> </ul>	1) Replace the battery with a same type. (CR2032)

### 3-3. Troubles for which error messages are not given on the LCD

#### 3-3-1. The device will not be energized.

<b>Problems</b>	The POWER indicator lamp on the operation panel will not light up even if turning the power switch on.
<b>Causes</b>	<ol style="list-style-type: none"> <li>1) The power cord has come off the receptacle. An outlet is not available for the power supply.</li> <li>2) The power unit has broken.</li> <li>3) The main PCB has short-circuited to GND in +35V or +5V.</li> <li>4) The key panel has broken, or the K/B cable has disconnected.</li> <li>5) The IO2 PCB has broken.</li> </ol>
<b>Checking procedure</b>	<ol style="list-style-type: none"> <li>1) Check the voltage at the receptacle using a tester.</li> <li>2) Remove the DC cable and check the output voltage of the power supply using a tester.</li> <li>3) Check a resistance at +35V and +5V on the main PCB using a tester. Remove all the cables to be connected to the main PCB and then turn on the power. (See below.)</li> <li>4) Check whether or not the LED on the main PCB is in the ON state.</li> <li>5) Disconnect the sub DC cable and check that the power goes on.</li> </ol>
<b>Remedies</b>	<ol style="list-style-type: none"> <li>1) Securely insert the power cord into the receptacle.</li> <li>2) Replace the power unit with a new one.</li> <li>3) Replace the main PCB with a new one. Replace the slider PCB with a new one. Replace the IO PCB with a new one.</li> <li>4) Replace the key panel or the K/B cable with a new one.</li> <li>5) Replace the IO2 PCB.</li> </ol>



### 3-3-2. The device fails to perform plotting

<b>Problems</b>	The head operates, but the device fails to perform printing.
<b>Causes</b>	<ol style="list-style-type: none"><li>1) Nozzles on the head are clogged.</li><li>2) Ink has run out in damper.</li><li>3) The HDC FPC cable is in poor contact or has disconnected. The head FPC cable is in poor contact or has disconnected.</li><li>4) The slider PCB has broken.</li><li>5) The main PCB has broken, or the head ID has not been properly specified.</li><li>6) Ink have not been filled up.</li><li>7) The cap is in abnormal condition.</li><li>8) The pump assembly has broken.</li><li>9) The linear encoder sensor has broken.</li><li>10) The head has broken.</li></ol>
<b>Checking procedure</b>	<ol style="list-style-type: none"><li>1) Conduct cleaning to check whether or not ink is fed from the vinyl tube.</li><li>2) Check the damper.</li><li>3) Check the connector or replace the cable with a new one.</li><li>4) Perform the precautions in next page.</li><li>5) Perform the precautions in next page.</li><li>6) Refer to [3-3-8. Ink-filling cannot be performed]</li><li>7) Check the cap assembly.</li><li>8) Check the pump assembly.</li><li>9) Perform the encoder check test.</li></ol>
<b>Remedies</b>	<ol style="list-style-type: none"><li>1) Conduct cleaning of the head, and fill up the ink.</li><li>2) Fill up the ink.</li><li>3) If the FPC cable has disconnected, replace it with a new one. If the FPC cable is in poor contact, securely insert the cable into the connector.</li><li>4) Replace the slider PCB with a new one.</li><li>5) Replace the main PCB with a new one, or properly specify the head ID.</li><li>6) Refer to [3-3-8. Ink-filling cannot be performed]</li><li>7) Replace the cap assembly with a new one.</li><li>8) Replace the pump assembly with a new one.</li><li>9) Replace the linear encoder sensor with a new one. or adjust the sensor position.</li></ol>

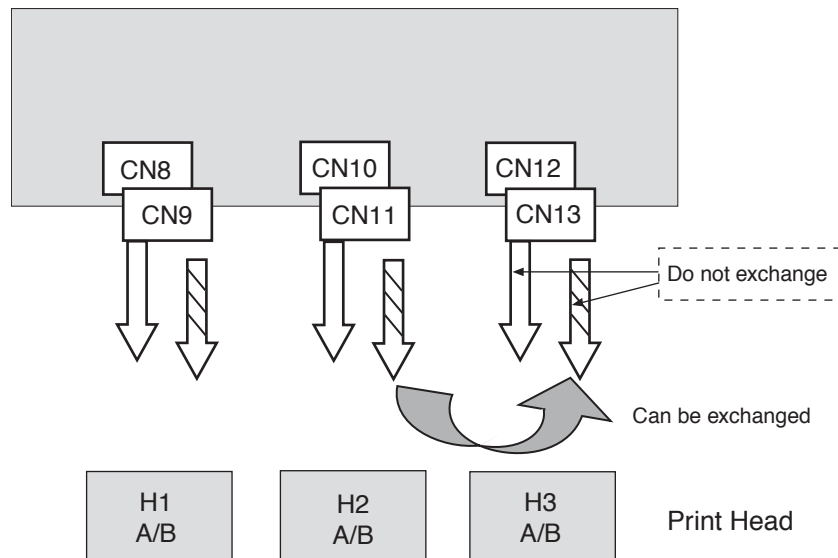


**If none of the heads or nozzle rows discharges ink, check the following:**

1. Check that the head ID is entered correctly.
2. If either nozzle row of the same head does not shot ink, check the defective section by exchanging the 21-wire FPC (connected to the head) within the same nozzle row.



- Do not exchange the FPC between rows A and B because of power short-circuit.



### 3-3-3. Cutting failure

<b>Problems</b>	The cutter goes up during paper cutting.
<b>Causes</b>	1) Main FPC has disconnected.
<b>Checking procedure</b>	1) Check whether or not the phenomenon occurs at a specific position in terms of the Y-direction.
<b>Remedies</b>	1) Replace the main FPC cable with a new one.

### 3-3-4. Faulty cutter

<b>Problems</b>	The cutter remains in the lower position. The cutter will not come down.
<b>Causes</b>	1) The cutter fails to go up/come down smoothly. (The cutter moves jerkily.) 2) The cutter height is not correct. 3) There is a short in the cutter drive circuit.
<b>Checking procedure</b>	1) Remove the head cover and check whether or not the cutter can be smoothly lifted/lowered by hand. 2) Remove the head cover and fully lower the cutter by hand to check whether or not the cutter comes in contact with any other component. 3) Check whether or not the cutter goes up when turning the power off or detaching the connector from the slider PCB in the solenoid with the cutter held lowered (abnormal state).
<b>Remedies</b>	1) Replace the cutter unit with a new one. 2) Adjust the height of the cutter assy. 3) Replace the main FPC, the main PCB, the slider PCB with a new one.

### 3-3-5. Fan motor

<b>Problems</b>	The fan motor fails to turn. The fan motor cannot be stopped running.
<b>Causes</b>	1) A part of motor cable has disconnected. 2) Clip the fan motor assy cable in the platen cover to short-circuit the fan motor.
<b>Checking procedures</b>	1-2) Visually confirm the fan motor status. ([ACTION TEST - FAN MOTOR])
<b>Remedies</b>	1) Replace the fan motor assy. with a new one.

### 3-3-6. Abnormal nozzle discharge

<b>Problems</b>	When checking the nozzle, the nozzle at the enter of the head does not print. The edge of the nozzle does not print.
<b>Causes</b>	1) The amount of wiper contact is larger or smaller. 2) The capping position with respect to the head is not normal.
<b>Checking procedure</b>	1) Make visual check of the amount of wiper contact. 2) Perform the check test / the capping position. (Refer to [6-6-2. Adjustment of the station position.] )
<b>Remedies</b>	1) Adjust the amount of wiper contact. 2) Perform the adjustment of the station position.

### 3-3-7. Abnormal ink shot

<b>Problems</b>	Vertical lines during plotting, square spots, or plotting out of range.
<b>Causes</b>	<ol style="list-style-type: none"><li>1) The head FPC cable is in poor contact.</li><li>2) The connector of head has broken. (Metal corrosion)</li><li>3) The linear scale is not dirty or damaged.</li><li>4) The linear scale position is appropriate.</li></ol>
<b>Checking procedure</b>	<ol style="list-style-type: none"><li>1-2) Disconnect the FPC cable and then check the contact surface visually.</li><li>3-4) Visually confirm the Linear scale.</li></ol>
<b>Remedies</b>	<ol style="list-style-type: none"><li>1) Replace the head FPC cable with a new one.</li><li>2) Replace the head with a new one.</li><li>3) Replace the linear scale if very damaged.</li><li>4) Adjust the position of the Linear scale.</li></ol>

### 3-3-8. Ink-filling cannot be performed

<b>Problems</b>	Ink-filling cannot be performed. Abnormal ink cleaning.
<b>Causes</b>	<ol style="list-style-type: none"><li>1) There are some gaps for capping.</li><li>2) The pump motor has broken.</li><li>3) The IO PCB has broken.</li><li>4) The main PCB has broken.</li><li>5) The cap slider defect.</li><li>6) The pump defect.</li></ol>
<b>Checking procedure</b>	<ol style="list-style-type: none"><li>1) Visually confirm the ink-filling status.</li><li>2-4) Check whether or not the pump motor is running.</li><li>5-6) Visually confirm the cap and pump.</li></ol>
<b>Remedies</b>	<ol style="list-style-type: none"><li>1) Height adjustment for the station and position adjustment for capping.</li><li>2) Replace the pump motor with a new one.</li><li>3) Replace the IO PCB with a new one.</li><li>4) Replace the main PCB with a new one.</li><li>5) Replace the cap with a new one.</li><li>6) Replace the pump with a new one.</li></ol>

### 3-3-9. Abnormal wiper operation

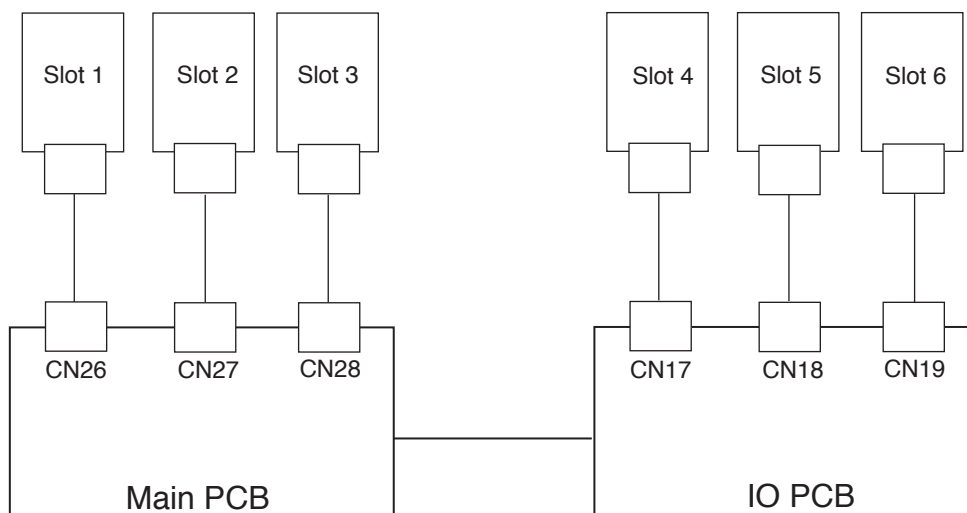
<b>Problems</b>	The wiper does not work.
<b>Causes</b>	1) Loose screw. (tighten a gear.) 2) The shaft is stained. 3) Motor and other parts defect.
<b>Checking procedure</b>	1-3) Visually confirm the wiper status.
<b>Remedies</b>	1) Fasten the screw. 2) Clean the wiper assy and shaft. 3) Replace the defective parts.

### 3-3-10. Abnormal heater temperature

<b>Problems</b>	It takes too long for the heater to reach the set temperature.
<b>Causes</b>	1) The operating voltage is 100 to 120 VAC but the voltage selector of the heater is set to 220 V. 2) The operating environmental temperature is low and the set temperature is too high.
<b>Checking procedure</b>	1-3) Visually confirm the heater.
<b>Remedies</b>	1) Set the switch correctly. 2) Use the device within the limit of " Heater set temperature < Operating environment temperature +30°C ". (Recommended : 20°C or more)

### 3-3-11. Cannot read the IC.

<b>Problems</b>	Cannot read the IC.
<b>Causes</b>	<ol style="list-style-type: none"> <li>1) The ID board contact of the ink cartridge is stained.</li> <li>2) The board on the ink cartridge side is damaged.</li> <li>3) Failures regarding the main unit board.</li> </ol>
<b>Checking procedure</b>	<ol style="list-style-type: none"> <li>1) Visual check of the ink cartridge board contact.</li> <li>2) Replace the new ink cartridge.</li> <li>3) Change to the connector of the slot from which the IC can be read normally. &lt; Make sure that the changed slot number is selected.&gt;</li> </ol>
<b>Remedies</b>	<ol style="list-style-type: none"> <li>1) Wipe off dirt.</li> <li>2) Replace the ink cartridge with a new one. If the IC can be read normally, the board on the ink cartridge side is defective.</li> <li>3) If the IC can be read after changing the connector, replace a IO PCB or main PCB. If the IC cannot be read after changing the connector, replace a ID board or ID cable.</li> </ol>



## **3-4. Plotting failure**

### **3-4-1. Print is not sharp**

<b>Problems</b>	A line has been omitted from the print. (specified color) A stripe in the scanning direction is partially printed with widened. Characters printed by a specific nozzle are displaced.
<b>Causes</b>	1) Nozzles on the head have clogged. Failure of ink jet is generated. 2) The pump fails to turn. 3) The head ID is not set correctly. 4) The wiper is not cleaned. The amount of wiper contact is large/small. 5) The cap position is not set correctly. 6) Paper fragment or other dust is present on the head path above the media holder.
<b>Checking procedure</b>	1) Print the nozzle check to check the printed result. 2) Perform cleaning to confirm that the pump is rotating and that ink is being ejected. 3) Check the head ID. 4-6) Visually confirm the wiper and cap.
<b>Remedies</b>	1) Clean the head. If cleaning is executed several times and the system still is not restored to correct operating condition, fill with ink for up to a maximum of 3 times. If the system is still not restored to correct operating condition, replace the head. 2) Replace the pump motor and pump unit, or adjust capping 3) Set the head ID. 4) Adjust the wiper. Refer to [4-2-7. Adjustment of the station position]. 5) Adjust the capping position. 6) Remove the dust.

### 3-4-2. Abnormal print

<b>Problems</b>	Abnormal print is produced outside the paper.
<b>Causes</b>	<ol style="list-style-type: none"> <li>1) The main FPC cable is in poor contact or has disconnected. The head FPC cable is in poor contact or has disconnected.</li> <li>2) The linear encoder has not read correctly.</li> <li>3) Paper width sensor PCB assembly has broken.</li> <li>4) The slider PCB has broken, or the HDC PCB has broken.</li> <li>5) The main PCB has broken.</li> <li>6) The head has broken.</li> </ol>
<b>Checking procedure</b>	<ol style="list-style-type: none"> <li>1) Check the connector or replace the cable with a new one.</li> <li>2) Perform the encoder check.</li> <li>3) Check, through the paper sensor test, whether or not any abnormal value has been specified. Refer to [5-4-10. PAPER SENSOR].</li> <li>4) Try to replace the slider PCB with a new one. Try to replace the HDC PCB with a new one.</li> <li>5) Try to replace the main PCB with a new one.</li> <li>6) If the phenomenon recurs even after taking procedures (2) through (5), replace the head with a new one.</li> </ol>
<b>Remedies</b>	<ol style="list-style-type: none"> <li>1) If the FPC cable has disconnected, replace it with a new one. If the FPC cable is in poor contact, securely insert the cable into the connector.</li> <li>2) Replace the linear encoder sensor with a new one, or adjust the position.</li> <li>3) Replace the paper width sensor PCB assembly with a new one.</li> <li>4) Replace the slider PCB with a new one. Replace the HDC PCB with a new one.</li> <li>5) Replace the main PCB with a new one.</li> <li>6) Replace the head with a new one.</li> </ol>



### 3-4-3. Color of print is pale

<b>Problems</b>	Color of print is pale.
<b>Causes</b>	1) The head ID has not been properly specified. 2) The temperature sensor is not read correctly.
<b>Checking procedure Remedies</b>	1) Check the head ID stuck on the head and the ID within #ADJUSTMENT. 2) In temperature check for #TEST, check that the Ta display (**) can be read out with stabilized room temperature.
<b>Remedies</b>	1) If the head ID is not correct, enter a correct value. If the head ID has been changed, check the Y deviation again. 2) Replace the slider PCB or the main PCB with a new one.

### 3-4-4. Plotted drawing is out of position

<b>Problems</b>	The plotted drawing is out of position.
<b>Causes</b>	1) Dust has gathered or scratches are made on the linear scale, causing the linear encoder to make a detecting error.
<b>Checking procedures</b>	1) Check the linear scale for dust, stains and scratches. Is the linear encoder mounted on the correct position ? Perform encoder check for #TEST.
<b>Remedies</b>	1) Lightly wipe the surface of the linear scale (excepting the rear face) with a cloth dampened with alcohol. Wipe the linear encoder with a cotton dampened with alcohol. Replace the linear scale with a new one. Adjust the linear encoder PCB assy position, or replace the linear encoder PCB assy with a new one.

### 3-4-5. Plotted dots or lines are dirty

<b>Problems</b>	Plotted dots or lines are dirty.
<b>Causes</b>	<ol style="list-style-type: none"><li>1) The head height is not adjusted correctly.</li><li>2) The head ID is not set correctly.</li><li>3) Head/cap positional relations get shifted.</li><li>4) Wiper is not cleaned.</li><li>5) Head (nozzle) failure.</li></ol>
<b>Checking procedures</b>	<ol style="list-style-type: none"><li>1) <ol style="list-style-type: none"><li>a. Isn't a satellite being generated?</li><li>b. Isn't a deflection being generated?</li></ol></li><li>2) Check the head ID stuck on the head and the ID within #ADJUSTMENT.</li><li>3) Is the ink securely being drained out when executing the CLEANING?</li><li>4) Visually confirm the ink-filling condition.</li><li>5) Check that there are no blots or whiskers attributable to paper fibers.</li></ol>
<b>Remedies</b>	<ol style="list-style-type: none"><li>1) Adjust the height of the head.</li><li>2) Enter the correct head ID.</li><li>3) Adjust the capping.</li><li>4) Clean the interior of capping station and the end face of wiper.</li><li>5) Use the dedicated media and ink.</li><li>6) Conduct the cleaning actuation.<ul style="list-style-type: none"><li>• Perform the intensive cleaning.</li><li>• Perform the ink-filling with the "Select cleaning" inside the user maintenance.</li><li>• Perform the nozzle washing with the "Maintenance Station" inside the user maintenance.</li></ul></li></ol> <p>Replace the head if the failure can not be restored with the said remedies.</p>

### 3-4-6. Stripes are always drawn at the time of scanning

<b>Problems</b>	Black or white stripes are always drawn at the time of scanning.
<b>Causes</b>	<ol style="list-style-type: none"> <li>1) The value of [MEDIA COMP.] is not correct. When the media is changed, perform SETUP and [MEDIA COMP.] to set values which suit the media.</li> <li>2) A medium that is heavier than the specification is placed. (For the case where black stripes appear)</li> <li>3) Thicker media is used. However, the setting values for light-weight medium remain.</li> <li>4) The heater temperature setting is not appropriate.</li> </ol>
<b>Checking procedures</b>	<ol style="list-style-type: none"> <li>1) Execute SETUP - [MEDIA COMP.] to check that the value of [MEDIA COMP.] is correct.</li> <li>2) Medium weight measurement (medium of which weight is 25 kg or less is recommended)</li> <li>3) Check whether or not the distance compensation matches the medium used.</li> <li>4) Check that the set heater temperature is appropriate for the media.</li> </ol>
<b>Remedies</b>	<ol style="list-style-type: none"> <li>1) Same as Checking procedure 1). Note that it may be necessary to specify a media correction value for same host system. (See the table below)</li> <li>2) Use a medium of which weight is 25 kg or less.</li> <li>3) Set the correction value.</li> <li>4) Set the heaters (pre-heater and print-heater) to appropriate values.</li> </ol>

Priority setting	Media correction value used
Panel	Media correction value set by the user at the time of media correction.
Host	Correction value specified by command.

### 3-4-7. Black and White Stripes appear from side to side

<b>Problems</b>	Black and white stripes appear from side to side. Different amount of paper feed between sides. Distinctive gradation or Banding along the scan direction.
<b>Causes</b>	1) Unbalance media setting. 2) Media set with slacks. 3) The print setting (Resolution , Pass ) is not correct. 4) [MEDIA COMP.] has not executed.
<b>Checking procedures</b>	1) Visually confirm the medium setting 2) Check whether the difference between the left and right sides feed amounts when using the roll paper. 3) Check the media type and print mode. 4) Check the [MEDIA COMP.].
<b>Remedies</b>	1) Reset the medium. 2) Set the media using the roll stopper to avoid the slacking. 3) Change the print mode which suits the media. 4) Check [MEDIA COMP.] to set a correct values.

### 3-4-8. Banding (wind repples)

<b>Problems</b>	Banding (wind repples) occur at each scan.
<b>Causes</b>	1) The platen temperature setting is not appropriate. (too low.)
<b>Checking procedures</b>	1) Raise the print-heater temperature to see that no blotting or beading occurs. 2) Raise the print setting (pass) to see that no blotting or beading occurs. (For some media, the problem of blotting or beading cannot be solved completely.)
<b>Remedies</b>	1) Raise the print-heater temperature. After change the temperature of heater, be sure to adjust [MEDIA COMP.]. 2) Change the print setting (pass) to high class.

### 3-4-9. Dark and Light Images Occur at Each Scan

<b>Problems</b>	Dark and light images occur at each scan.
<b>Causes</b>	<ol style="list-style-type: none"><li>1) Head Slant is not adjusted perfectly.</li><li>2) Check whether the ink dot gain on the paper is obtained according to the resolution.</li><li>3) Is the printhead temperature setting appropriate?</li></ol>
<b>Checking procedures</b>	<ol style="list-style-type: none"><li>1) Adjust the dot slant with [SLANT ADJUST] to 10μm or less for each color.</li><li>2) In case of plotting with 720 dpi, perform test using MIMAKI-recommended media, Glossy PVC.</li><li>3) Raise the print-heater temperature but not too high where the media feed is affected.</li></ol>
<b>Remedies</b>	<ol style="list-style-type: none"><li>1) Adjust the head slant, R/F head adjust.</li><li>2) If Banding is solved, the accuracy of the device is assumed to be normal. Change the plot mode to [STANDARD] or [FINE]. With 720 x 720dpi, change the 8pass mode to the 16pass mode; with 360 x 540dpi, change the 6pass mode to the 12pass mode.</li><li>3) After change the temperature of printhead, be sure to adjust [MEDIA COMP.].</li></ol>

### 3-4-10. Banding occur

<b>Problems</b>	Banding (wind repples) occur at each scan.
<b>Causes</b>	1) The head is too high. ( The gap is too large.)
<b>Checking procedures</b>	1) Lower the head and then make plotting.
<b>Remedies</b>	1) If Banding is solved, the accuracy of the device is assumed to be normal. Change the plot mode to [STANDARD] or [FINE]. With 360 x 360dpi, change the 2pass mode to the 4pass mode; with 360 x 540dpi, change the 3pass mode to the 6pass mode.

### 3-4-11. Vertical stripes

<b>Problems</b>	Vertical stripes, light or dark, appear in an entire plotted area. (Especially, in monochrome or halftone prints)
<b>Causes</b>	1) Heat from the heater has extended the media and caused blisters.
<b>Checking procedures</b>	1) Check the media on the platen visually for no blisters.
<b>Remedies</b>	1) Set the takeup strength to Medium or High. 2. Set the heater temperature high within the allowable range. 3. Select [QUALITY : FINE] other plotting mode for the standard speed (no double speed).

### 3-4-12. Unstable heater temperature

<b>Problems</b>	The image quality is especially bad at the right end of a print.
<b>Causes</b>	1) The media temperature is low. 2) The platen temperature is lower at the right end than at the center.
<b>Checking procedures</b>	1) Place a thermal tape on the platen to check the temperature.
<b>Remedies</b>	1) Raise the heater temperature high within the allowable range. 2) Set the media at the center wherever possible. (Some heater cannot exhibit its performance at the right or left end of the platen.)

### 3-4-13. Ink drop or mist

<b>Problems</b>	The ink drops in or outside a plot.
<b>Causes</b>	1) Threads from the edges of FF and other media scrub the nozzle face and cause a discharge fault. 2) Dust is sticking to the nozzle face. 3) Threads are sticking to the media holder.
<b>Checking procedures</b>	1) Observe the head path carefully. 2) Check the nozzle face visually. 3) Check normal printing visually.
<b>Remedies</b>	1) Remove threads. 2) Do not use media having many threads at the edges. Treat media in advance by cutting off threads with scissors. 3) Remove threads and other.



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# **CHAPTER 4**

## **ADJUSTMENT**

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## CAUTION



- To prevent the ink from getting into your eyes, be sure to wear safety goggles and gloves when replacing or adjusting a part which may cause ink leakage. If the ink sticks to your hand, the skin may be damaged.



## CAUTION

- The following parts are dedicated for JV3 (Solvent) ink supply.  
Do not use parts of other models. Using water-based parts may result in dissolution or distortion.

1. S Print head assy (M004905)
  - The AD Plate (head mount plate) is a plating product.
  - The HEAD ID is provided with " • • • • • " display.
2. S Dumper assy (M004902)
  - The O ring inside the Dumper is blue.
3. S Cap assy (M004908)
  - The Connection tube to the pump is transparent.
4. S Pump assy (M004868)
  - The Pump tube is transparent.
5. EW50 Wiper (SPA-0116)
  - The Wiper is white.
6. S Cartridge flame assy
  - The O ring of the wire is blue.  
( Judgement from appearance is not possible.)
7. O ring at the ink supply joint
  - RS O ring for Ø2 tube Ø2.16 x 1.4 (M700326) -Blue
  - RS O ring Ø3 tube Ø2.9 x 1.4 (M700325) -Blue

## 4-1. Maintenance Flow by Replacement Parts

When an important part is replaced, perform adjustment according to the Maintenance flow.

### Important maintenance item for JV3

	Print head replacement	Cap replacement replacement	S dumper assy replacement	S pump assy replacement	Main PCB replacement	X motor replacement
<b>Periodical replacement</b>	<b>O</b>	<b>O</b>	<b>O</b>	<b>O</b>		
S pump assy				Replace		
S dumper			Replace			
X motor						Replace
Coupling						Adjust
Parameter :U-LODE					Execute	
Main PCB					Replace	
F/ W					Ver.up	
Parameter :D-LODE					Execute	
Cap slider		Replace				
Head BKT height						
Washing fluid	Discharge					
Head unit						
Head	Replace					
Head unit base						
Station assy						
Capping position		Check				
Head ID	Enter					
Fill up solvent ink	Execute		Execute	Execute		
Nozzle check	Perform		Perform	Perform		
Head slant adjustment	Perform		Check			
PRINT ADJUST2	Execute		Check			
Check method	Check with image	Perform Cleaning or Filling for confirmation	Check discharge condition	Check discharge condition	Check operation of failed locations	Check with image

## **4-2. Maintenance item**

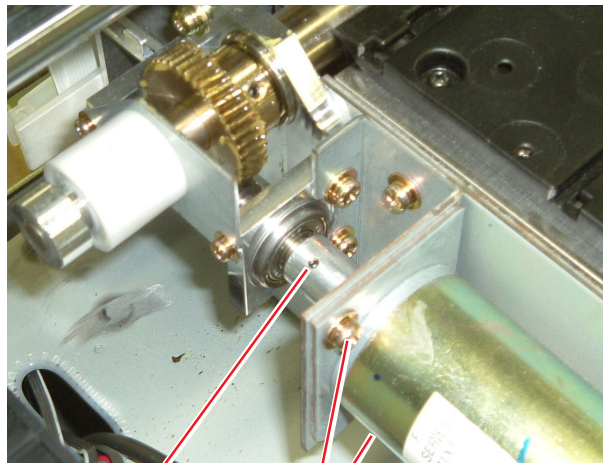
### **4-2-1. Adjustment of the X-motor coupling**

#### **[The case that needs adjustment]**

- In the case where the X-motor is replaced.
- If abnormal sound is perceived from the X driving system.

#### **[Adjusting procedure]**

- 1) Loosen four mounting screws on the X-motor coupling.
- 2) Loosen two motor assy mounting screws so that the motor assy moves slightly.
- 3) Adjust the motor assy to the position where the coupling moves smoothly in the thrust direction and then fasten screws.



X motor coupling

Motor assy mounting screw

#### 4-2-2. Washing a single S-Print head assy

 <b>CAUTION</b>	
 	<ul style="list-style-type: none"><li>• Be sure to wear protection glasses since you may get ink in your eyes. If the ink sticks to your hand, the skin may be damaged.</li></ul>



- Be sure to wash the assy before head replacement. Water-based transportation liquid (S-46), which is supplied in the head at the time of shipment, reacts to solvent ink to generate deposit. Therefore, it is necessary to wash the assy using cleaning liquid for S head replacement (MS cleaning liquid) before head replacement.
- Periodically replace the injection material in the head. The syringe rubber is not resistant to solvent.

#### [Parts to be used]

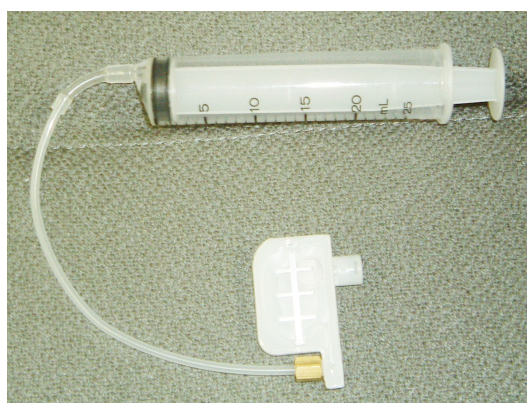
- Solvent print head assy (M004905)
- Injection material (M005027)
- Pre-Fill up solution (M005026)
- Cotton waste

#### [Washing procedure]

- 1) Remove the S-dumper assy.
- 2) Fill the syringe with 6 to 8 cc cleaning liquid for S head replacement.
- 3) Connect the S-dumper assy to the syringe.
- 4) Insert the dumper into each of two dumper insertion projections of the head for replacement.
- 5) Inpour cleaning liquid for replacement in step of about 3 to 4 cc, taking about 30 seconds. (Inpouring liquid rapidly may damage the head. Inpour it slowly.)  
Use cotton waste to receive liquid flowing from the nozzle surface.



- Do not bring cotton waste, etc. into contact with the nozzle surface. Never rub the nozzle surface because doing so may cause nozzle discharge failure.



Injection Material

### 4-2-3. Replacement S-Print head assy.



**CAUTION**

- At the time of disassembling and assembling, do not loosen four head unit base mounting screws unless the X position correction value exceeds  $\pm 8$ .
- Be sure to perform [4-2-2. Washing a single S-print head assy] on page 4.5 for the head for replacement.

#### [Disassembling procedure]

- 1) Turn ON the power of the device and then enter the ID of the head in advance.
- 2) Turn OFF the power supply switch, move the slider to the center of the platen.
- 3) Remove the front cover, the head cover and the head cover BKT.
- 4) Remove the head lever assy and the damper holder.
- 5) Remove the S-damper assy. of the S-print head to replace.
- 6) Remove the angle spring. Watch out for protrusion of springs.
- 7) Remove the screw (CS4 x 8SMW) from the S-print head assy. to replace.
- 8) Pull out the S-print head assy together with the damper holder to remove the FPC.
- 9) Replace the S-print head.
- 10) Fill up the ink.
- 11) Perform [FILL UP INK] in maintenance mode.
- 12) Check the normal discharge.
- 13) Perform [4-2-4. Adjustment of the head angle] (page 4.7) and [PRINT ADJUST2].

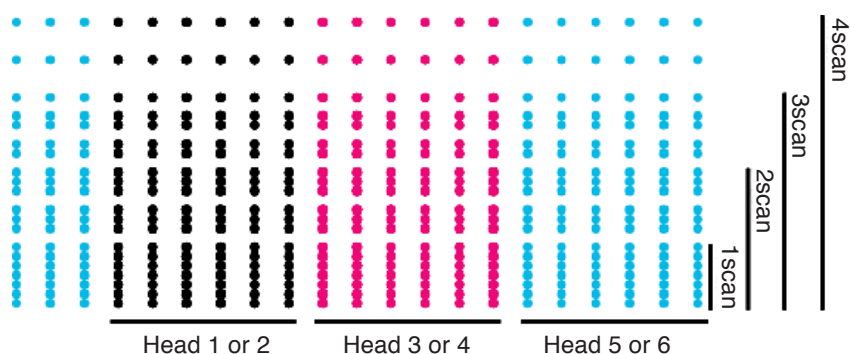
## 4-2-4. Adjustment of the head angle

### [Adjusting procedure]



- Make adjustment with the head lowered to the bottom position.
- Adjustment with glossy media is recommended.
- Be sure to perform adjustment with the Head cover BKT attached.

- 1) Select [#ADJUSTMENT - HEAD ADJUST - 720 4PASS] and then print the adjustment pattern.

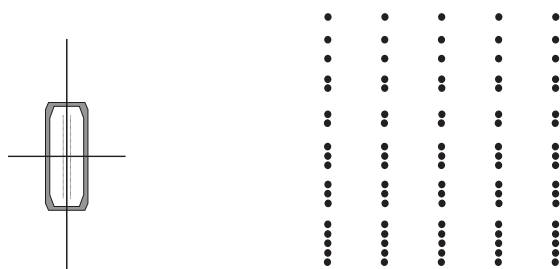


- 2) Check the head tilt with a magnifying glass
- 3) Loosen two tilt mounting screws, and then turn the tilt adjustment screw according to the tilt direction. As a rough standard, the head tilts 50 $\mu$ m for each screw rotation.

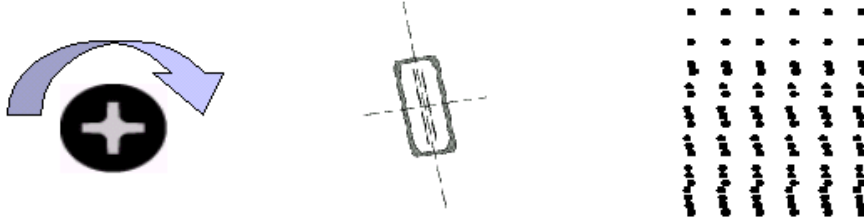
### The direction of turn the adjustment screw

Care is required when using a magnifying glass because of horizontal and vertical inversion.

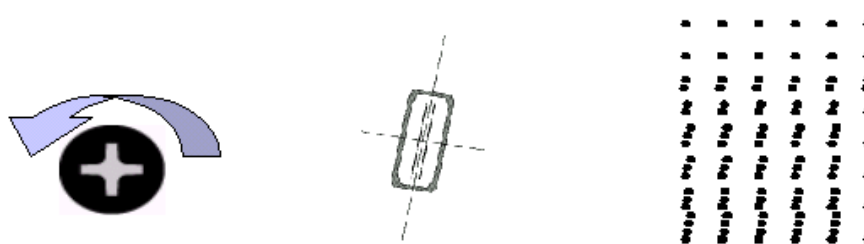
- 1) Good result



2) Bad result (Turn the screw clockwise.)



3) Bad result (Turn the screw counterclockwise.)





## 4-2-5. Adjustment of the head unit

### [The case that needs adjustment]

- Perform this adjustment after replacement of each head and inclination adjustment, if the X dot position correction value exceeds  $\pm 8$  dot (rough standard). The purpose of this adjustment is to improve the 3/4 pass plotting quality.



- Make adjustment with the head lowered to the bottom position.
- Be sure to perform adjustment with the Head cover BKT attached.

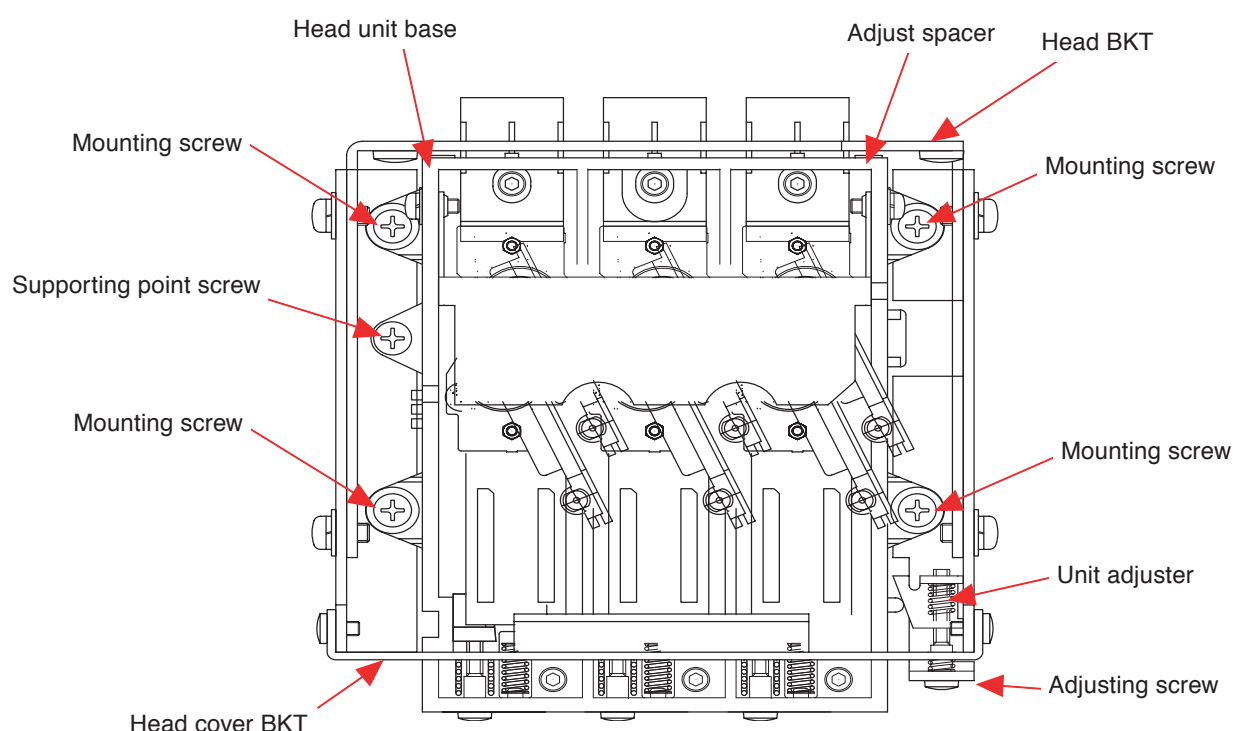
### [Adjusting procedure]

- 1) Replace each head lock screws with M4 screws.
- 2) Loosen four head unit base mounting screws. Do not loosen the supporting point screws.
- 3) Insert a 1mm spacer between the unit base and the Head BKT and then, while lightly pressing it, fasten the mounting screws.
- 4) Select [#ADJUSTMENT - #HEAD ADJUST - #UNIT] and then print the adjustment pattern.
- 5) Check the dot position of light magenta for black dots and then determine the rotational direction of the unit.  
(If LM positions at the front, make the spacer thinner; if LM positions at the back, make it thicker.)
- 6) Repeat steps 3) to 5) above so that the X dot position correction value is set to  $\pm 8$  dot (0.28mm from Cyan to Light Magenta in reference to Black) or less.

### < If there is no spacer >

Use a unit adjuster instead of clamping the spacer. Since the unit adjuster is not used at the time of shipment, when using it, lightly apply the unit base adjuster before step 2).

(If LM positions at the front, turn the adjustment screw counterclockwise; if LM positions at the back, turn it clockwise.)



#### 4-2-6. Replacement S-pump assy. (Periodical replacement)



#### CAUTION



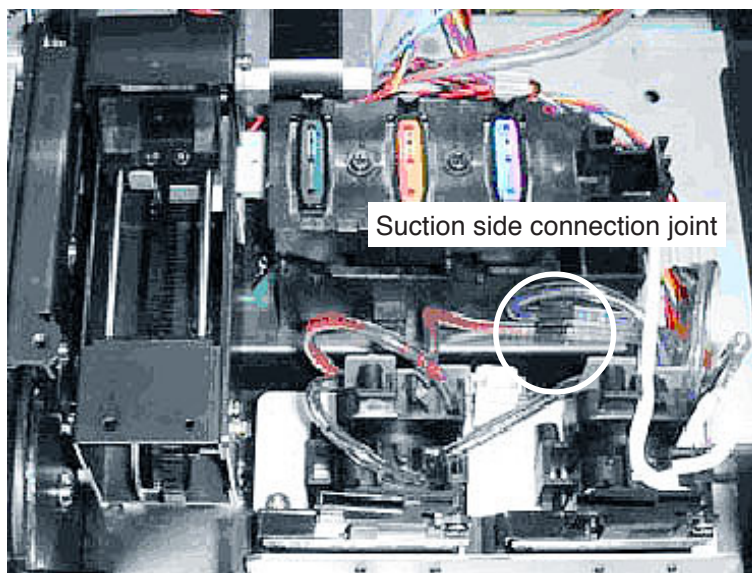
- Be sure to wear protection glasses since you may get ink in your eyes.  
If the ink sticks to your hand, the skin may be damaged.

#### [Parts to be used]

- S-pump assy. (M004868)
- Insulock (L60-100 mm)

#### [Adjusting procedure]

- 1) Remove instrumentation cover C at the back of the main unit.
- 2) Remove two tube clamps in the instrumentation case and then cut two insulocks for securing the tube.
- 3) Remove the station cover.
- 4) Remove the suction side connection joint for the S-pump assy and S cap assy tube.
- 5) Take out the waste liquid side tube of the S-pump assy from the instrumentation case.
- 6) Remove the screw mounting S-pump assy and then replace new S-pump assy.



At the time of shipment,

The S-pump assy for Head 1,2 is based on double tube specification.

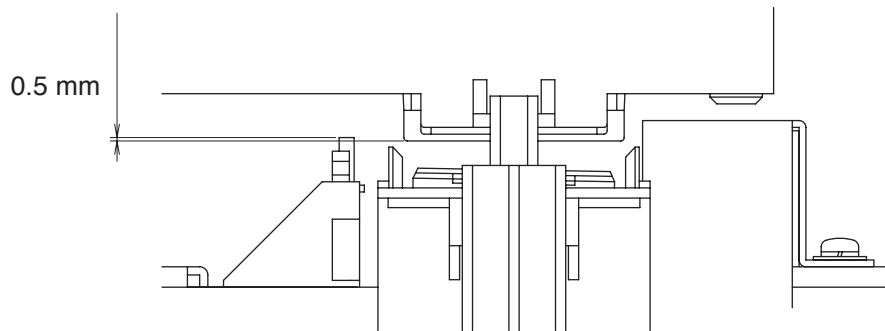
The S-pump assy for Head 3 is based on single tube specification.

The S-pump assy for Field replacement is based on double tube specification.

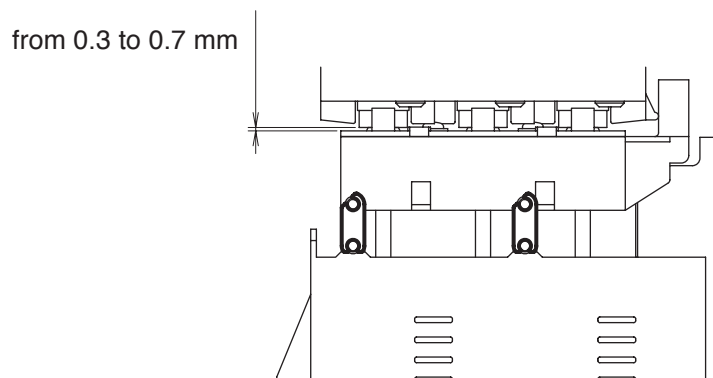
#### 4-2-7. Adjustment of the station position

##### [The case that needs adjustment]

- If the amount of application of Wiper and Cap is not appropriate.  
Usually, position adjustment of Station BKT (entire Station) is not performed.



Pertinent Wiper height  
(measured and adjusted with the upper Head height)



Pertinent Cap height  
(measured and adjusted with the upper Head height)

##### [Parts to be used]

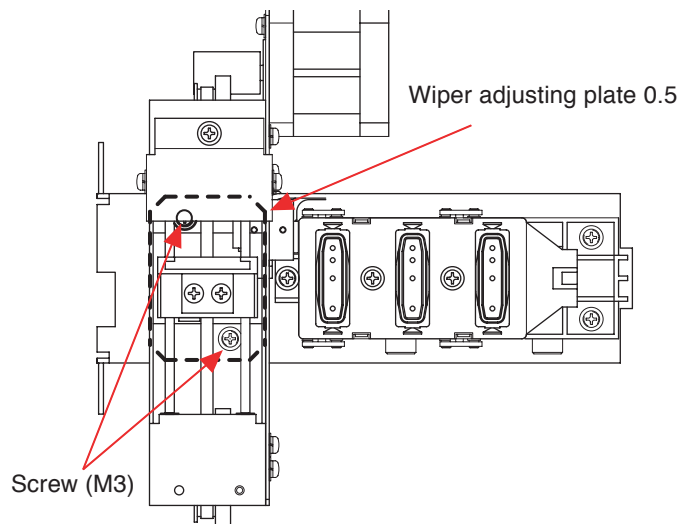
- Cap adjusting plate 0.5 (M503950)
- Wiper adjusting plate 0.5 (M504051)

## [Adjusting procedure]

### Wiper height

- 1) Select the Upper Head height.
- 2) Remove two M3 screws to remove the wiper assy.
- 3) Adjust the number of wiper adjusting plate 0.5 ( $t=0.5$ ) under the wiper assy.
- 4) Attach the wiper assy and then make sure that the gap between the head and the wiper is about 0.5 mm.

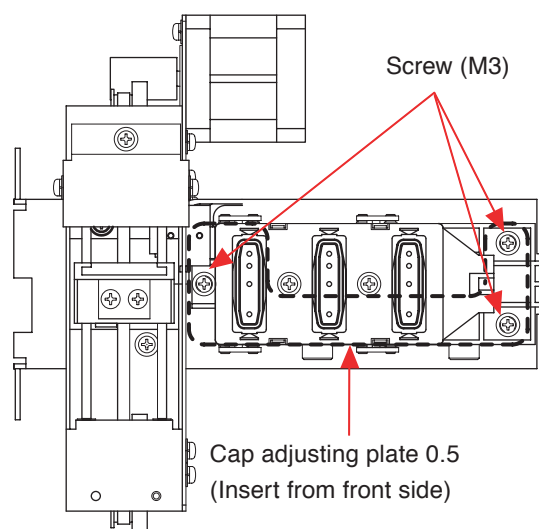
\* At the time of shipment, one Wiper adjusting plate 0.5 is attached.



### Cap height

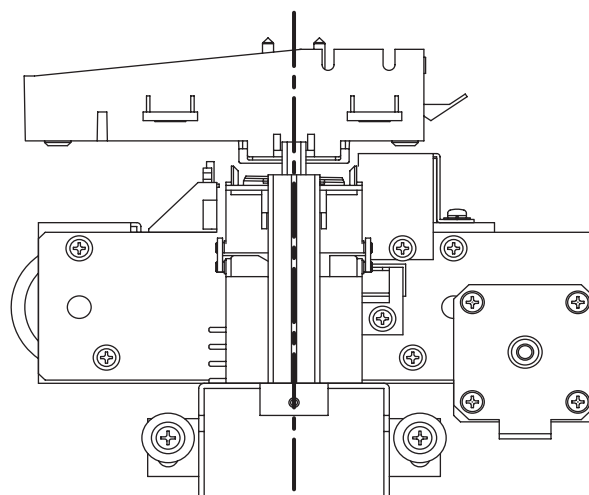
- 1) Select the Lower Head height.
- 2) Remove three M3 screws to remove the cap base assy.
- 3) Adjust the number of cap adjusting plate 0.5 ( $t=0.5$ ) under the cap base assy.
- 4) Attach the cap base assy and then make sure that the gap between the head and the cap housing is about 0.5 mm.

\* At the time of shipment, one to three Cap adjusting plates 0.5 are attached.



### Cap side position

- 1) Remove the right cover (molded products only).
- 2) Loosen three M3 screws which secure the cap base.
- 3) While visually checking from the right side, secure the cap base at the position where the head is stored between cap guide notches.



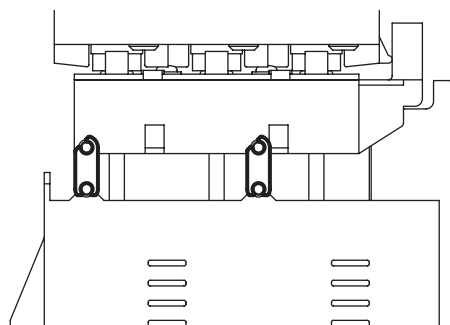
### [Disassembling procedure]

Refer to [5-3-6. CAPPING].

1) Select the Lower Head height.

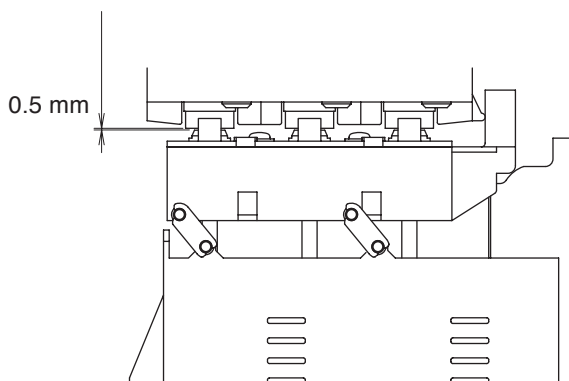
2) Adjust the cap position.

Press the ◀ or ▶ key to move the position so that the Cap lever becomes vertical.



3) Adjust the absorb position.

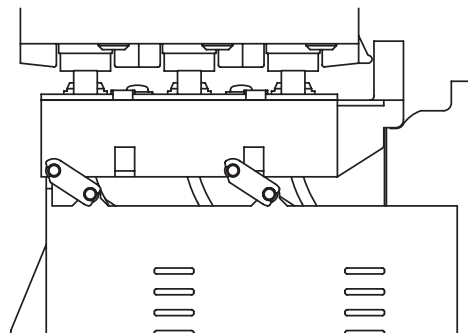
Press the ◀ or ▶ key to move the position so that the gap between the head and the cap becomes 0.5 mm.



- Adjust the position so that the gap on the front side of the cap becomes 0.5 mm.
- The cap is designed so that it is inclined. (The back side is about 0.5 mm lower than the front side.)

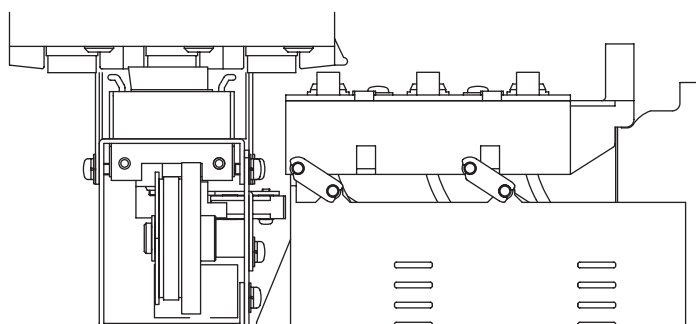
4) Adjust the Flashing position.

Move the flashing so that the center of the cap agrees with the center of the head, using the ◀ or ▶ key.



5) Adjust the Wiper position.

Move the wiper so that the center of the wiper agrees with the center of the head, using the ◀ or ▶ key.



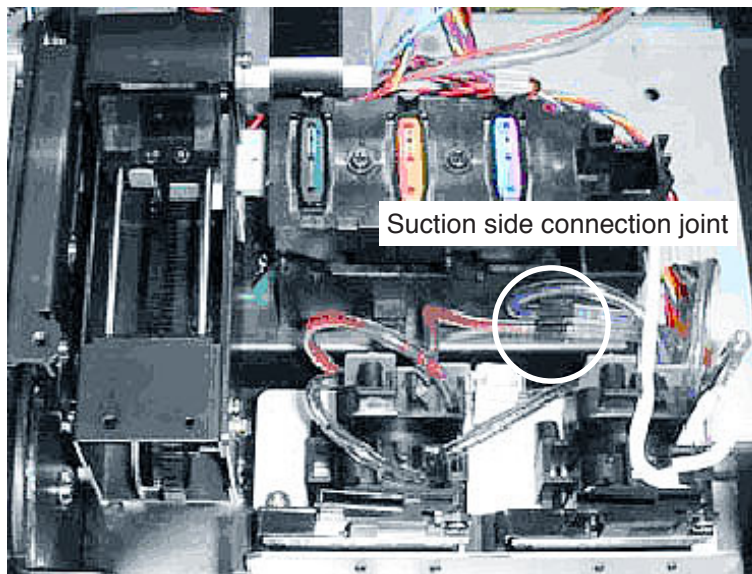
## 4-2-8. Replacement of the cap

### [Parts to be used]

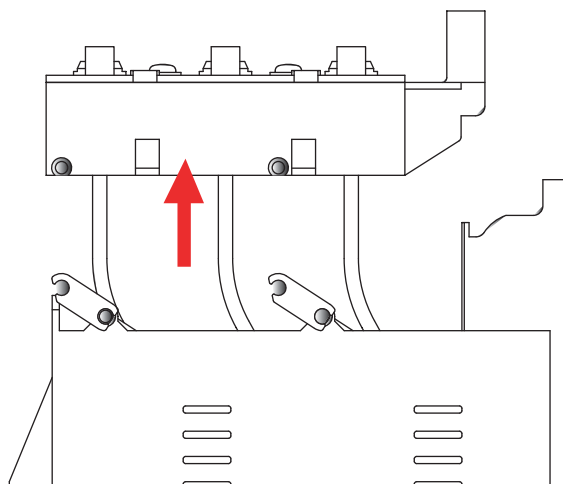
- Cap assy. (M004858)

### [Adjusting procedure]

- 1) Turn off the power of the device.
- 2) Move the head on the platen, remove the station cover F.
- 3) Remove the joint parts of S cap assy. and S pump assy.



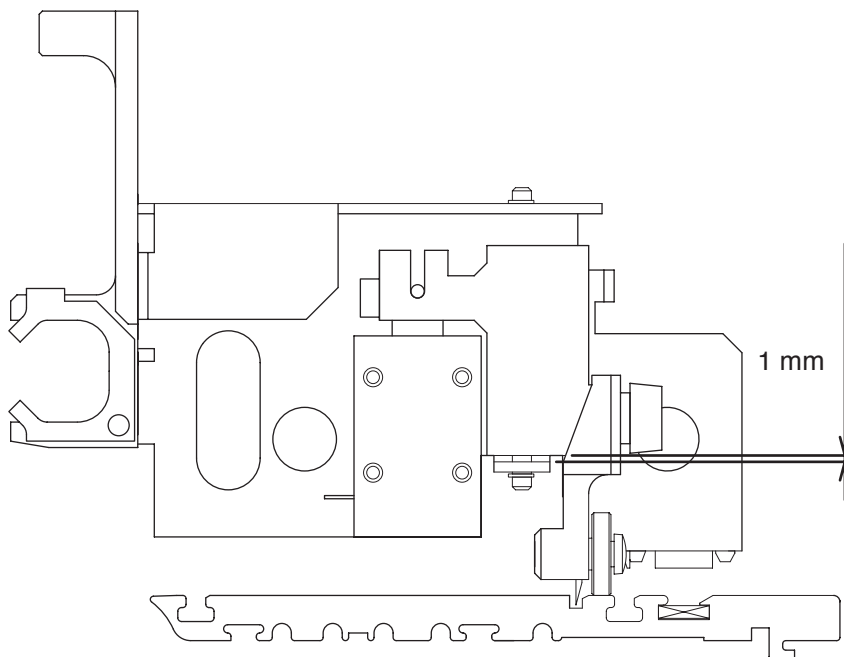
- 4) Remove the cap assy. and replace it.



#### 4-2-9. Adjustment of the cutter height

##### [Adjusting procedure]

- 1) Turn off the power of the device.
- 2) Move the head on the platen, remove the head cover.
- 3) Loosen two cutter BKT mounting screws until they are temporarily fastened.
- 4) When the cutter tip roller is applied to the platen surface, secure the cutter holder to the position where the gap between the cutter BKT and the cutter holder becomes 1 mm.



## 4-2-10. Adjustment of the Linear sensor PCB assy height

### [The case that needs adjustment]

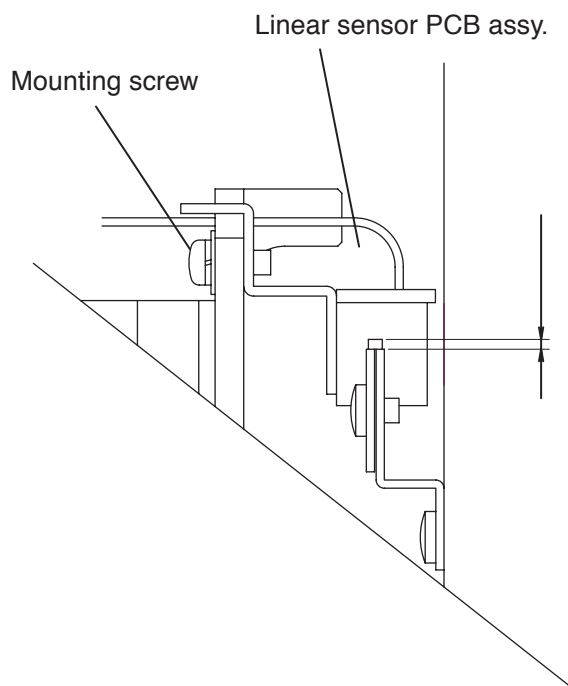
- In the case where the Linear sensor PCB assy has been replaced.
- In the case where the Linear encoder scale has been replaced.

### [Tools to be used]

- Phillips screwdriver  
(No.2 for M3 to M5)

### [Adjusting procedure]

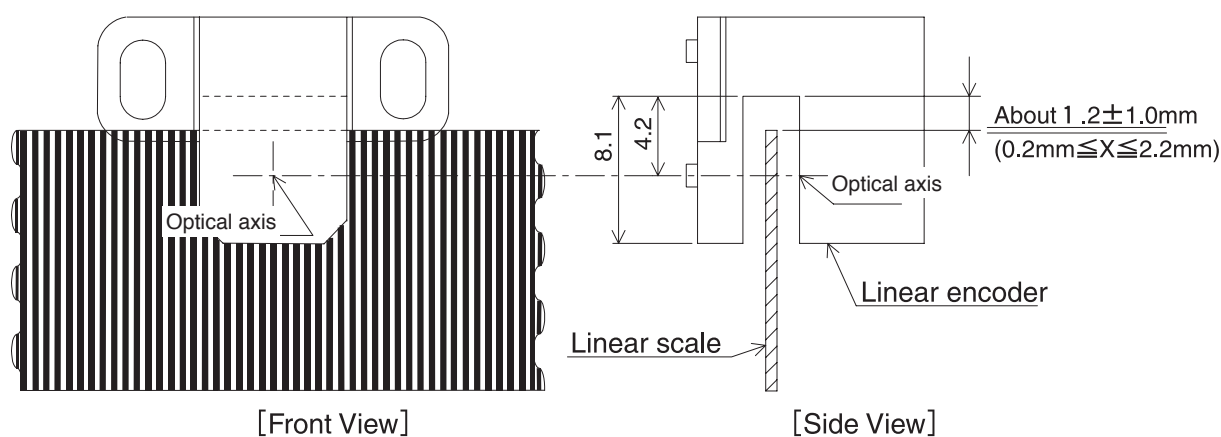
- 1) Loosen the screws in the Linear sensor PCB assy on the slider.
- 2) Within the movable range of the slider, move the assy up and down so that the gap between the linear encoder scale and linear sensor PCB is about  $1.2 \text{ mm} \pm 1.0 \text{ mm}$ .



### < Mounting position of the linear encoder PCB >

Attach the linear encoder PCB assy so that the mounting position (overlapping condition to the linear scale) satisfies the following rough standard over the entire scale. Also check 1) and 2) below.

- 1) The following overlapping condition is met at the right, center, and left of the device.
- 2) The linear scale is positioned approximately at the center of the sensor's recessed section but does not contact the wall.





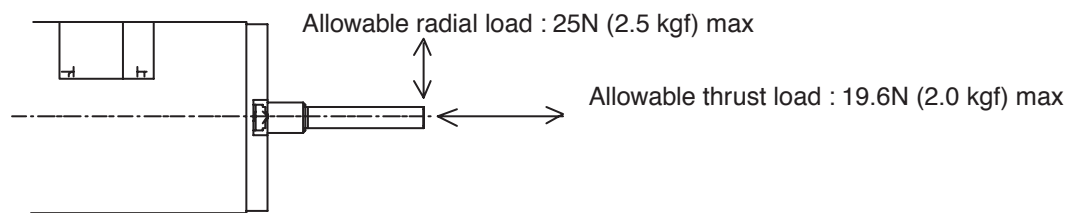
#### 4-2-11. Adjustment of the Y-motor belt tension



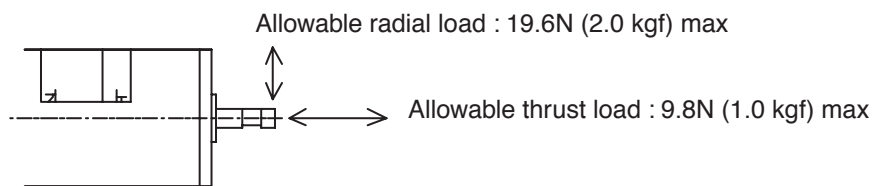
- Notes on Handling the Motor

1. When handling the motor, set the load on the motor shaft as shown below.

Do not give a shock to the motor by hitting.



Y axis motor (UGFMED—C9M \* \* \*)



X axis motor (UGFMED—B5L \* \* \*)

2. When replacing the motor, the bearing may happen to stick to the motor shaft. If this occurs, extract the bearing with the pulley as a fulcrum.

If the motor itself is used as a fulcrum for extracting the bearing, an excess thrust load may damage the motor.

**[The case that needs adjustment]**

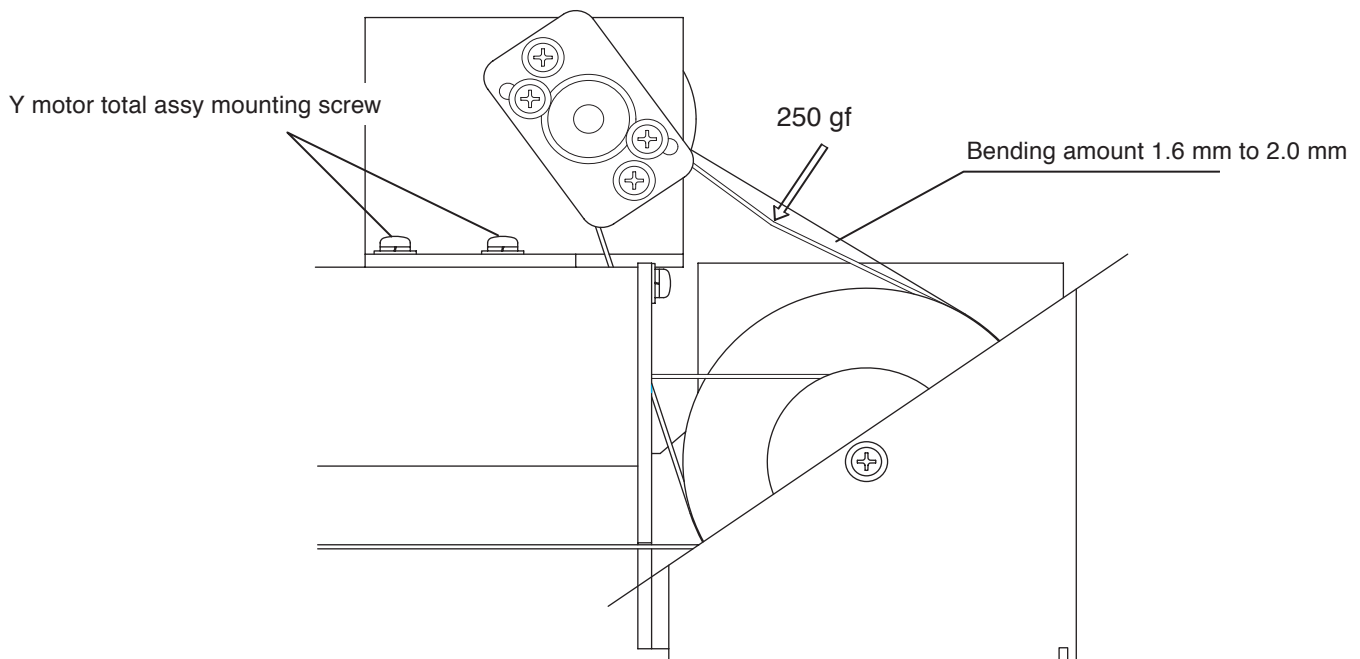
- In the case where the Y-motor total assy is removed.

**[Tools to be used]**

- Phillips screwdriver (No.2 for M3 to M5)
- Tension gauge (Max. 300 gf or more)
- Scale (L=150)

**[Adjusting procedure]**

- 1) Loosen the screw in the Y-motor total assy.
- 2) Adjust the Y motor total assy position so that when the middle of the timing belt is pressed down with 250 gf, it bends between 1.6 mm and 2.0 mm, then fix in the place.



## 4-2-12. Heater Replacement

Heater replacement means to replace the print-heater or the preheater.

### [Parts to be used]

- Printheater  
JV3-130S : Wire heater P130 (E300349)  
JV3-160S : Wire heater P160 (E300351)
- Peheater  
JV3-130S : Wire heater P130 (E300350)  
JV3-160S : Wire heater P160 (E300352)

### [Tools to be used]

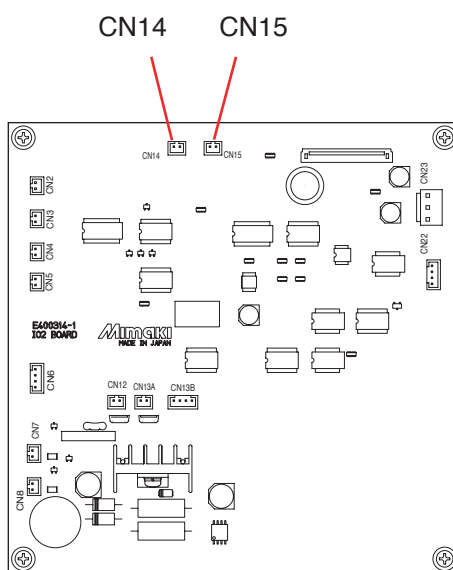
- Phillips screwdriver (No.2 for M3 to M5)
- Hexagon wrench (opposite side distance: 2.5 mm)
- Tester

### [Procedure]

#### Common replacement procedure : Printheater, Preheater

( Replace each heater after the following work::)

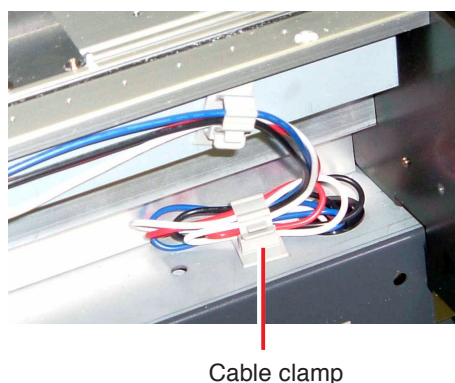
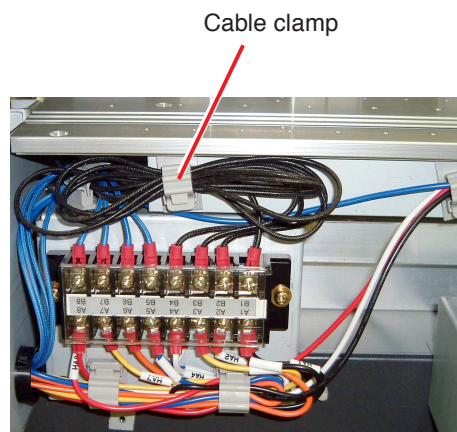
- 1) Turn off the power of the device, and disconnect the power code from the receptacle.
- 2) Remove the front cover assy.
- 3) Remove the platen cover F.
- 4) Remove instrumentation cover C at the back of the main unit.
- 5) Disconnect CN14 (Printheater thermistor) and CN15 (Preheater thermistor) of the IO2 PCV assy in the electric equipment casing.
- 6) Remove each code of the heater from clamp.



IO2PCB

### Printheater replacement procedure

- 1) Remove the black cable from the cable clamp on the terminal board at the bottom left of the H-platen assy.
- 2) Remove terminals B1 to B4 of the terminal board.
- 3) Remove the cable from the cable clamp at the bottom right of the H-platen assy.
- 4) Slightly pull the Thermistor cable of the H-platen assy from the instrumentation case, and then turn over the H-platen assy.
- 5) Remove the heater hold plate and the heater joint hold plate.
- 6) Remove the wire heater P130/160 from the slot.
- 7) After replacement, check the precaution (page 4.21).

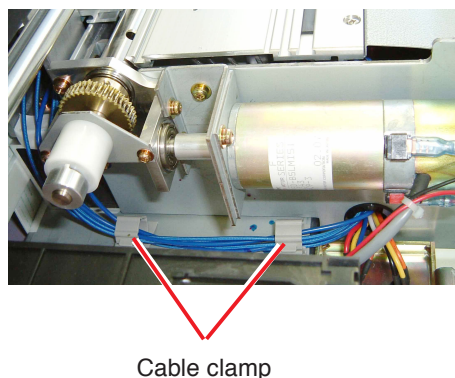


### Preheater replacement procedure



- Do not remove the cap bolt.  
Removing it prevents reassembling.

- 1) Remove the Y cover and the left cover.
- 2) Remove the blue cable from the cable clamp.
- 3) Remove terminals B5 to B8 of the terminal board.
- 4) Loosen the cap bolt on the front side of the H-platen cover assy by about 2 mm.
- 5) Loosen the screw of the platen cover R BKT at the back of the main unit.
- 6) While pulling out the H-platen cover assy, remove the cable from the thermist terminal at the back.
- 7) Being careful about the thermistor cord and paper sensor assy at the center, remove the H-platen cover assy.
- 8) Remove the R-heater hold plate and the R-heater joint holdplate.
- 9) Remove the wire heater P130/160 from the slot.
- 10) After replacement, check the precaution (page 4.21).



## [Precautions]

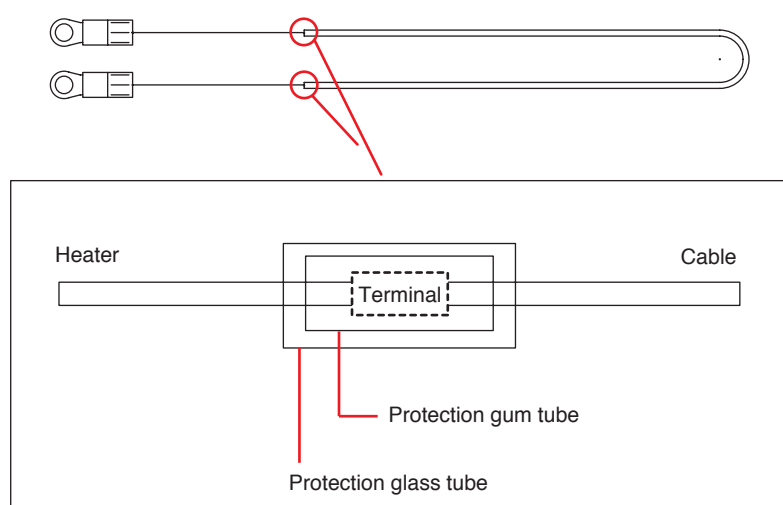


- Confirm the following precautions before replace a heater.

### 1. Confirm that the heater and the cable protection tube are joined firmly.

Remove the protection tube and makes sure the terminal comes in the center of the protection tube.

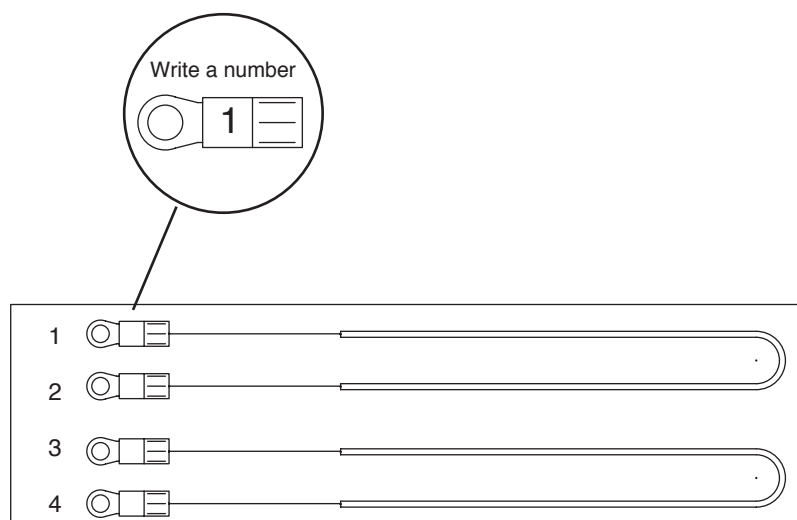
In case silicon adhesive is being used for the cable and the protection tube joint, it is not necessary to remove the protection tube.



### 2. Write a number for each terminal of a heater.

For a printhead, use the number from 1 to 4, as for a Preheater, use 5 to 8.

Be sure giving a consecutive number for each terminal of one heater.



Example of Printhead

### [Assembling procedure]



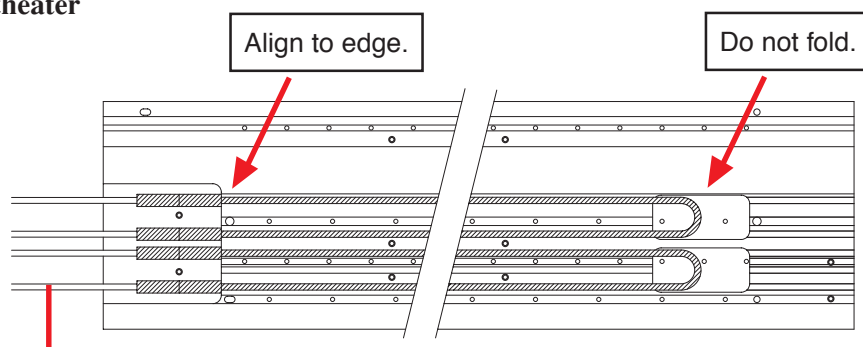
- Confirm the precautions (page 4.21) before replace a heater.

- 1) Put the wire heater into the slot while aligning it to the edge of the protection tube.
- 2) Put the folding section into the slot while creating a semicircle.



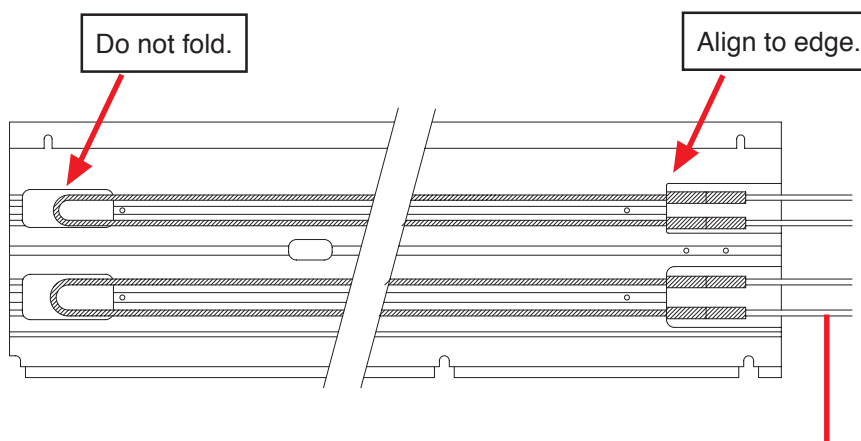
- Do not fold the wireheater rapidly, or it may cause disconnection.

### Printheater



Wire heater R130/160 (Black)

### Preheater



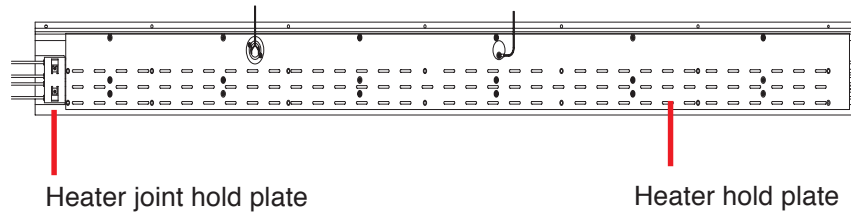
Wire heater R130/160 (Blue)

- 3) Attach the heater hold plate.
- 4) Attach the heater joint hold plate.

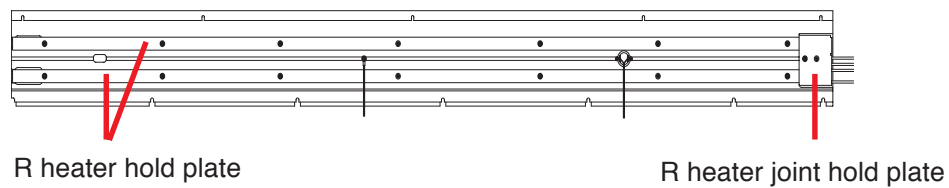


- Make sure that the heater is neither separated from the slot nor caught together with the cover.

### Printheater



### Preheater

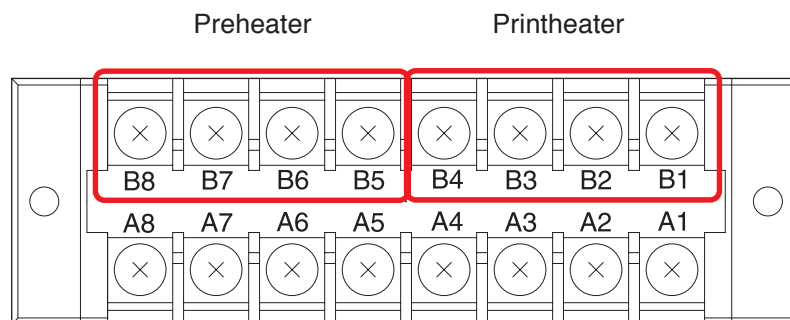


- 5) Attach each terminal of the heater to B1 to B8 of the terminal board according to number.



- After the heater has been attached, be sure to check wiring (page 4.24).

### Terminal Board



**[Wiring check]**



- After the heater has been attached, be sure to check.

- 1) Set both selectors to 110V.

Make sure that the resistance between A1 to A4 is the following value.

JV3-130S      37- 43Ω

JV3-160S      30- 36Ω

Make sure that the resistance between A5 to A8 is the following value.

JV3-130S/160S      46- 55Ω

- 2) Set both selectors to 220V.

Make sure that the resistance between A1 to A4 is the following value.

JV3-130S      145- 175Ω

JV3-160S      120- 145Ω

Make sure that the resistance between A5 to A8 is the following value.

JV3-130S/160S      185- 220Ω

- 3) After confirmation, restore the voltage of the both selectors to the voltage used previously.



#### 4-2-13. Replacement Fuse

There are two fuses in the instrumentation box.

Both AC lines (phase L/N) to the heater contain one fuse.

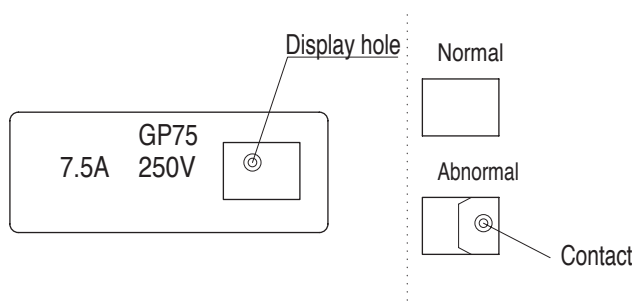
These fuses are used commonly to the Printheater and Preheater.

##### [Replacing procedure]

- 1) Check whether a fuse has blew.

If a contact can be seen at the display hole of the fuse, it has blew.

##### Check Fuse



- 2) Remove the fuse from the holder and replace it with a new one.



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# **CHAPTER 5**

## **MAINTENANCE MODE**

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## 5-1. Maintenance items

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The maintenance mode has been prepared for the operations to be conducted for adjustment at the time of delivery of product and for adjustment in maintenance works. This mode is not released to general users.

Under the maintenance mode, “#Adjustment” items, “#Test” items and “#Parameter” items are included in functions.

### #ADJUST

PRINTadjust2 .....	Corrects the dot shot timing of each head.
HEAD ADJUST .....	Adjusts the position displacement mechanically for each head.
WASH .....	Head is cleaned.
REPLACE COUNTER .....	The number of times of replacing ink cartridges is confirmed.
DEFAULT SET .....	Various parameters are reset to the value at the time of delivery from the factory.
CAPPING .....	Capping position is adjusted.
HEAD ID .....	The ID for each head is entered.
SERIAL No .....	Enter a serial number.
Deler No .....	Enter a dealer number.
WORM WHEEL .....	Perform eccentric correction of worm gears.
ADJUST EDGE .....	Right and left dead space sizes are adjusted.
500mm SQUARE .....	Distance accuracy is adjusted.
SET QUALITY .....	Sets the operation mode for plot quality.
MEDIA COMP2 .....	Corrects the amount of media feed.

### #TEST

CHECK PATTERN .....	Nozzle check/density pattern is plotted.
PARAMETER DRAW .....	Plots the contents of the flash memory.
ALL PATTERN .....	Collectively plots the adjustment condition check pattern for head or dot position.
X SERVO .....	X-motor aging is carried out.
Y SERVO .....	Y-motor aging is carried out.
XY SERVO .....	XY-motor aging is carried out.
HEATER TEST .....	Performance of Print heater and Pre heater is checked.
ACTION TEST .....	Performance of the wiper, cutter and winding motor is checked.
SENSOR TEST .....	Performance of various sensors is checked.
PAPER SENSOR .....	Read-out value of the paper width sensor is checked.
KEYBOARD .....	The state of the keyboard is checked.
LCD TEST .....	Check the LCD display condition.
PUMP MOTOR .....	Performance of the pump motor is checked.
TIMER CHECK .....	Performance of the timer under the power-off state is checked.
MEMORY CHECK .....	Memory check is carried out.
SKEW CHECK .....	Check the amount of paper shift.
TEMP CHECK .....	Check the temperature around the head.
ENCODER CHECK .....	Check the Linear Scale and Linear Sensor if they perform correctly.
INK IC CHECK .....	Check the ink cartridge IC if they perform correctly.

## #PARAMETER

SYSTEM PRM .....	Specifies a system parameter.
INK PARAMETER1 .....	This is not used in the field.
INK PARAMETER2 .....	This is not used in the field.
INK PARAMETER3 .....	This is not used in the field.
MENT PARAMETER .....	This is not used in the field.
SERVO PARAMETER .....	This is not used in the field.
ADJUST PARAMETER .....	This is not used in the field.

## 5-2. Entering into the maintenance mode

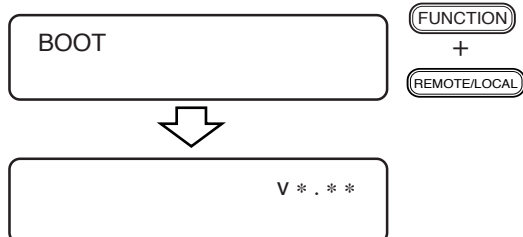
The maintenance mode is entitled in two different methods.

### 5-2-1. Entering into the maintenance mode when actuating the plotter

This section explains how to enter into the maintenance mode when turning on the power to the plotter. The maintenance mode is closed by re-turning the power on.

#### < Method 1 >

1)



**Turn the power on. When the firmware version number is shown on the LCD, press the (REMOTE/LOCAL) key while pressing the (FUNCTION) key.**



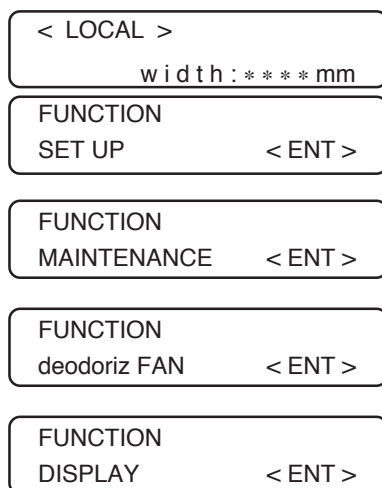
- If simultaneously pressing the (FUNCTION) key and (REMOTE/LOCAL) key, the plotter may enter into the firmware updating mode, then returning the power in this case.

2)



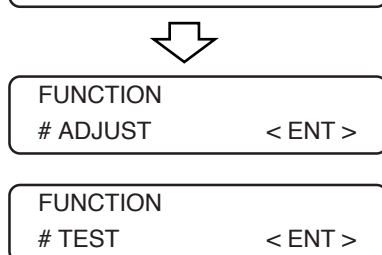
**Select the detection of media using the < key, > key or (END) key.**

3)



**After the detection of media, the plotter will enter the LOCAL mode.**

4)



**Press the (FUNCTION) key in repetition, and the maintenance items will appear on the LCD.**

The item name attached with a number sign (#) are the maintenance items.

## 5-2-2. Entering into the maintenance mode by system parameters

It is possible to keep the maintenance mode held released at all times by changing the value for the system parameter No. 62 (SUPPORT).



- Upon completion of maintenance works, set the value for the system parameter No. 62 (SUPPORT) to “0(zero)” or “1” to close the maintenance mode.

### < Method 1 >

1)

BOOT



V \* . \* \*



#SYSTEM PARAMETER  
0 = 0 COMP. X

2)

#SYSTEM PARAMETER  
62 = 0 SUPPORT

3)

#SYSTEM PARAMETER  
62 = 0 0



4)



#SYSTEM PARAMETER  
62 = 0 2



5)

#SYSTEM PARAMETER  
62 = 2 SUPPORT

END  
+  
ENTER  
OR  
◀ + ▶

**Turn the power on. When the firmware version number is shown on the LCD, simultaneously press the  key and the  key.**

Or, simultaneously press the  key and  key.

**Press the  key or  key to call up “No. 62 SUPPORT” on the screen.**

**Press the  key to enter the input mode.**

**Press the  key or  key to input “2” or “3”.**

0, 1: Maintenance mode is disabled.

2: Maintenance mode is enabled.

3: Maintenance mode is enabled and the indications on the LCD are all given in English.

**Press the  key to store the entered value.**

After completion of the initial operation, this releases the maintenance mode.

## 5-3. Menu of #ADJUST

### 5-3-1. PRINTadjust2

This function is used to adjust the relative dot positions between heads after the nozzle BKT has been replaced.

#### [Function]

Corrects the dot shot timing between heads into the X and Y directions based on black of the Head 1.

Correction items and units entered are shown below.

	X PRINT	Y SINGLE	Y REPEAT	Y BI-D
between heads colors 1 - 2	1 dot units	0.1 dot units	0.1 dot units	none
colors 1 - 3	1 dot units	0.1 dot units	0.1 dot units	none
colors 1 - 1	none	none	none	0.1 dot units



- When this operation is executed, the adjustment values of the “PRINTadjust” which is open to the user become the initial values. This is so that the adjustment values obtained with this function can be used as a base to which the user correction values can be added to obtain the actual dot position correction values. The correction values are stored under the adjut parameters.

#### [Operation]

1) FUNCTION  
# ADJUST < ENT >

Select the “ADJUSTMENT.”

Press the **ENTER** key.

2) #ADJUST  
PRN. adjust 2 < e n t >

Select the “PRN.adjust2” pressing the **FUNCTION** key.

Press the **ENTER** key.

3) #PRN. adjust2  
SEL. : X DIRECTION

Select the item to be corrected using the **△** or **▽** key.

Press the **ENTER** key.

#PRN. adjust2  
SEL. : Variable-1

#PRN. adjust2  
SEL. : Variable-2

#PRN. adjust2  
SEL. : Normal-1

#PRN. adjust2  
SEL. : Noramal-2

#PRN. adjust2  
SEL. : BASIS SET



- “ADJUST: TEST DRAW” only plots the test pattern that is used to check the adjustments. There is no place to enter correction values.
- If “ADJUST: FINE” is selected, refer to the section “If FINE has been selected” below.



4)

#PRN. adjust2	V2
Adjust :	Y Si.

#PRN. adjust2	V2
Adjust :	Y Re.


#PRN. adjust2	V2
Adjust :	Y Bi.







#PRN. adjust2	V2
Adjust :	TSTprint.

#PRN. adjust2	V2
Adjust :	FINE.

Select the item to be corrected using the  or  key.

Start plotting with the  key.

To enter the correction value without performing plotting, press the  key.

When the  key is pressed, jogging can be performed using the , ,  and  keys. Store the origin with the  key and start plotting.

The waveform selected in Step 3 is displayed at the right end of the first line.

V1:Variable-1 V2:Variable-2

N1:Normal-1 N2Normal-2






CAUTION

- “ADJUST: TEST DRAW” only plots the test pattern that is used to check the adjustments. There is no place to enter correction values.
- If “ADJUST: FINE” is selected, refer to the section “If FINE has been selected” below.
- Enter such a value the right and left protrusions of the plotted pattern agree with each other.

5)

#PRN. adjust2	V2
Y Si. 1 - 2 :	0 . 0

**When plotting has been completed, correction value input mode is entered.**

Input the values using the  and  keys. Then press  key to enter the values.

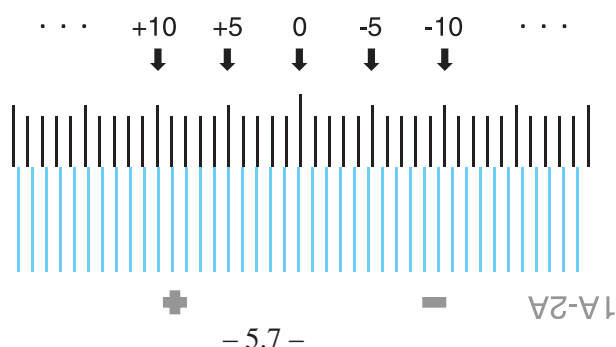
In the follow way, enter the correction values for between heads 1 and 2, and between heads 1 and 3.

6)

#PRN. adjust2	V2
Y Si. 1 - 2 :	0 . 0

**Then, enter the following correction items in the same manner.**

- Y SINGLE
- Y REPEAT
- Y BI-D



**If “X DIRECTION” has been selected )**



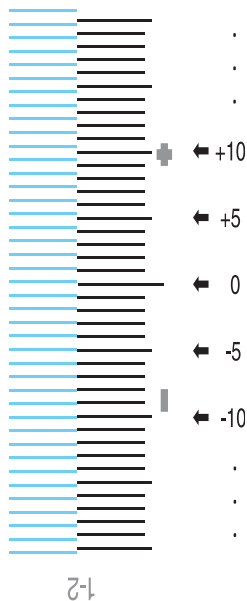
- Be sure to perform this item upon completion of media correction.

1)

#PRN. adjust2  
SEL. : X DIRECTION

2)

#PRN. adjust2  
X DIR1-2 : 0-0



Press the **ENTER** key to start plotting.

To enter the correction value without performing plotting, press the **>** key.

**When plotting has been completed, correction value input mode is entered.**

**Input the correction value using the **△** or **▽** key.**

**Enter the correction value with the **ENTER** key.**

In the same way, enter the correction values for between heads 1 and 2 and between heads 1 and 3.



- Enter such a value the right and left protrusions of the plotted pattern agree with each other, 4 or less.

**If “BASIS SET” has been selected )**

BASIS SET is a function which sets correction values for Variable-1, Normal-1, and Normal-2 based on the correction value for Variable-2.



- Prior to BASIS SET, it is necessary to match correction values Y Si, Y Re, and Y Bi for Variable-2.
- After BASIS SET, the correction values for Variable-1, Normal-1, and Normal-2 can be fine-adjusted using FINE.

1)

#PRN. adjust2  
SEL. : BASIS SET

2)

#PRN. adjust2  
BASIS SET : ent

**Select the “BASIS SET”.**

**Press the **ENTER** key to make automatic internal setup of correction values for other waveforms.**

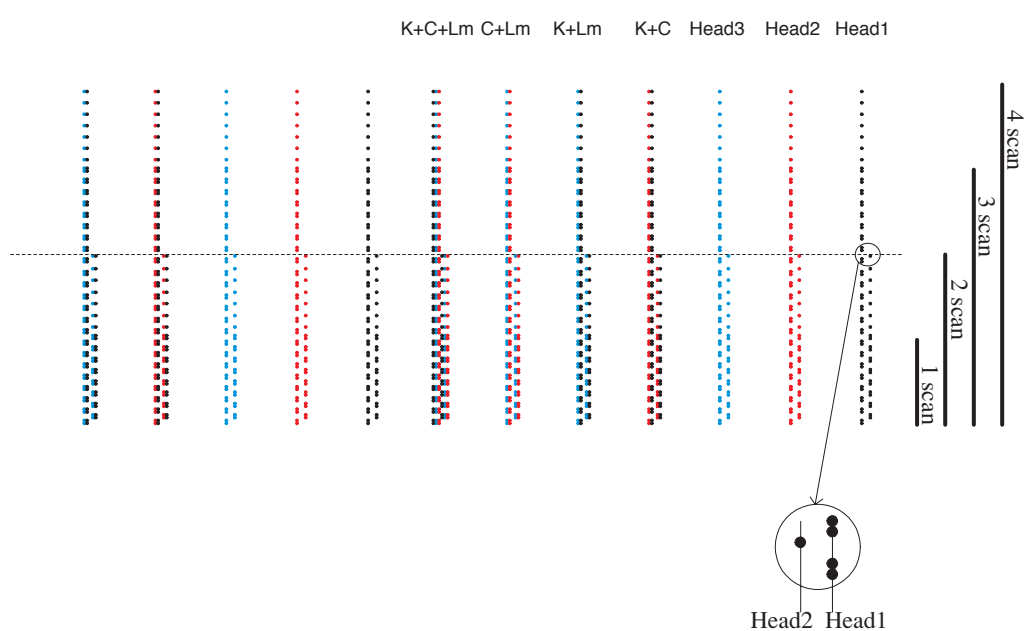
**If “FINE” has been selected )**

”FINE” is used to check, or perform fine adjustment of, the X PRINT, Y SINGLE, Y REPEAT, and Y BI-D correction values. Accordingly, perform the “FINE” after the X PRINT, Y SINGLE, Y REPEAT, and Y BI-D corrections have been performed.



- Adjust the shot so that the pattern (Y SINGLE, Y REPEAT) for dot position correction [FINE] totally be as uniform as possible.

**[ Example of Y SINGLE, Y REPEAT, and Y BI-D drawing ]**



When the dot position viewed from the scope is as shown above, enter a positive value as the correction value for HEAD1 and HEAD2.

Y BI-DIRECTIONAL / FINE, the above pattern is plotted only in black.

1) 

#PRN. adjust2	V2
Adjust	: FINE

Select the “Adjust : FINE”.

Press the  key.

2) 

#PRN. adjust2	V2
FINE	: Y Si.

Select the adjustment item using the  or  key.

Press the  key.

#PRN. adjust2	V2
FINE	: Y Re.

#PRN. adjust2	V2
FINE	: Y Bi.

3) 

#PRN. adjust2	V2
COLOR	: KCm

Select the color to plot.

Move the cursor using the  or  key and then select the plot color.

Select whether the selected color is plotted or not using the  or  key.

4) 

#PRN. adjust2	V2
FINE	: Y Si.

Start plotting with the  key.

(Plot length: about 25 mm; plot width; paper width)

If “Y Single” has been selected )

#PRN. adjust2	V2
Y Si. 1-2 :	0.0

Input the correction value for the Y forward using the  or  key.

Enter the correction values between heads 1 and 2, and between heads 1 and 3.

If “Y Repeat” has been selected )



#PRN. adjust2	V2
Y Re. 1-2 :	0.0

Input the correction value for the Y repeat travel using the  or  key.

Enter the correction values between heads 1 and 2, and between heads 1 and 3.

If “Y Bi-D” has been selected )

#PRN. adjust2	V2
Y Bi. 1-1 :	0.0

Input the correction value for the Y forward / repeat using the  or  key.

Enter the correction value between heads 1 and 1.

If “FINAL” has been selected )

#PRN. adjust2	V2
FINAL. 1-2 :	0.0

Enter the correction value with the  key.

X PRINT : Heads 1-2, 1-3

Y SINGLE : Heads 1-2, 1-3

Y REPEAT : Heads 1-2, 1-3

Y BI-D : Heads 1-1

Usually, processing is completed by plotting a pattern for checking adjustment result for each item.

When you press the  key, enter the correction value of above items.

Press the  key to exit from the function.

## 5-3-2. HEAD ADJUST

### [Function]

Plots a pattern for mechanical adjustment of position shift of each head.

### [Operation]

1)

FUNCTION  
# ADJUST < ENT >

Select the ADJUSTMENT.

Press the  key.

2)

# ADJUST  
HEAD ADJUST < ent >

Press the  key to select the “HEAD ADJUST”

Press the  key.

3)

#ADJUST  
SLANT adjust < ent >

Select the adjustment item using the  or  key.

#HEAD ADJUST  
UNIT ADJUST < ent >

If “SLANT adjust” has been selected )

1)

#ADJUST  
TYPE : 720 4pass

Select the print-type (720, 4pass / 360, 2pass) using the  or  key.

Press the  or  key to change the position (only X position) to plot.

2)

#ADJUST  
PRINT START : ent

Press the  key to start drawing.

If “UNIT ADJUST” has been selected )

#ADJUST  
PRINT START : ent

Press the  key to start drawing.

### 5-3-3. HEAD WASH

#### [Function]

The ink that has been filled is ejected, and the tube, damper and head are cleaned with a washing fluid. This process is normally carried out prior to shipment from the factory

#### [Operation]

1)

FUNCTION	
# ADJUST	< ENT >

**Select the ADJUSTMENT.**

Press the  key.

2)

# ADJUST	
WASH	< ent >

**Press the  key to select the “WASH.”**

**Press the  key.**

3)

WASH	
REMOVE CARTRIDGE	

**Detach the ink cartridge.**

The ink that has been filled is ejected to the waste ink tank.

4)

WASH	
SET CLEAN TOOL	

**When the display shown at left appears, set the cleaning tool.**

Cleaning fluid is suctioned up.

5)

WASH	
REMOVE TOOL	

**When the display shown at left appears, remove the cleaning tool.**

Suck in air.

6)

WASH	
SET CLEAN TOOL	

**When the display shown at left appears, set the cleaning tool.**

Cleaning fluid is suctioned up.

7)


WASH	
REMOVE CARTRIDGE	

**When the display shown at left appears, remove the cleaning tool.**

The waste ink tank discharges the cleaning fluid sucked.

8)


WIPER CLEANING	
COMPLETED	: ent

**When the display shown at left appears, cleaning the wiper and click the  key.**

9)

WASH	
END <	> CONTINUE

**Select whether cleaning is to be continued.**

To end cleaning, press the  key.

10)

WASH  
SET TRANS TOOL

**When the display shown at left appears, set the cleaning tool.**

Suck in the transportation fluid.

11)

WASH  
REMOVE TOOL

**When the display shown at left appears, remove the cleaning tool.**

The waste ink tank discharges the transportation fluid sucked.

12)

# ADJUST  
WASH                      < ent >

**When all steps have been completed, the display shown at left returns.**



### 5-3-4. REPLACE COUNTER

#### [Function]

Number of ink cartridge replacements, number of scanning, draw area and using time are confirmed.

The number of times the ink cartridge has been replaced is incremented whenever the ink cartridge is removed.

#### [Operation]

1)

FUNCTION  
# ADJUST < ENT >

Select the **ADJUSTMENT**.

Press the **ENTER** key.

2)

# ADJUST  
REPLACE CNT < ent >

Select the **“REPLACE COUNTER”** pressing the **FUNCTION** key.

Press the **ENTER** key.

3)

# REPLACE CNT  
CARTRIDGE < ent >

# REPLACE CNT  
SCAN COUNT < ent >

# REPLACE CNT  
USE TIME < ent >

# REPLACE CNT  
WIPING CNT < ent >

# REPLACE CNT  
SHOT COUNT < ent >

# REPLACE CNT  
DRAW LENGTH < ent >

# REPLACE CNT  
DRAW AREA < ent >

# REPLACE CNT  
SLEEP REF. < ent >

# REPLACE CNT  
INK PIC < ent >



- The display value is the value accumulated since the power is turned on for the first time. Select [INK PARAMETER1] in [5-3-5. Default set] to perform initialization.

## Replace count

Selecting item	DISPLAY	Description
[CARTRIDGE]	# REPLACE CNT color 1 : 5	Display the number of replacement for each ink cartridge. Color n means the number of the slot number.
[SCAN COUNT]	# REPLACE CNT SCAN : 150	Display the number of scans. (Per 1000 times)
[USE TIME]	# REPLACE CNT TIME : 0 h	Display the power ON time. (Per 1 hour)
[WIPING CNT]	# REPLACE CNT W = * * * *	Display the number of wiping.
[SHOT COUNT]	# REPLACE CNT H1A = * * *, * * *, * * *,	Display the number of shots for each nozzle. (Per 1000 times)
[DRAW LENGTH]	# REPLACE CNT LENGTH : 0 m	Display the plotting length.
[DRAW AREA]	# REPLACE CNT AREA : 0 m <sup>2</sup>	Display the plotting area.
[SLEEP REF.]	TIME : 0H 00M CNT : 0	Display the elapse time since power off until sleep refresh is performed last and the number of times.
[INK PIC]	# REPLACE CNT color1 : * * *	Display the number of error detections of the IC chip. Color n means the number of the slot number.

### 5-3-5. DEFAULT SET

#### [Function]

Parameter settings are reset to initial values.

When the “Set parameter” is under execution, the following situation takes place.

- The setting items (the drawing method, the number of ink layers etc.) are reset to the initial values.
- “PRINTadjust2” that is released to the users is reset to the initial value.
- System parameter No.62 Adjusting function extension =0 (Adjusting function: CLOSE)
- DISPLAY

#### [Operation]

1) 

FUNCTION
# ADJUST            < ENT >

Select the **ADJUSTMENT**.

Press the 

ENTER
-------

 key.

2) 

# ADJUST
DEFAULT SET        < ent >

Select the “**DEFAULT SET**” pressing the

FUNCTION
----------

 key.

Press the 

ENTER
-------

 key.

3) 

# DEFAULT SET
SETUP PRM            < ent >

Select the parameter using the 

△
---

 or 

▽
---

 key.

# DEFAULT SET
INK PRM. 1            < ent >

# DEFAULT SET
INK PRM. 2            < ent >

# DEFAULT SET
INK PRM. 3            < ent >

# DEFAULT SET
MAINT PRM            < ent >

# DEFAULT SET
SERVO PRM            < ent >

# DEFAULT SET
ADJUST PRM            < ent >

4) 

SETUP PARAMETER
INITIAL.            OK? : ent

Press the 

ENTER
-------

 key, display the check message.

5) 

# DEFAULT SET
SETUP PRM            < ent >

Press the 

ENTER
-------

 key, and the parameter settings are reset to the initial values.

### 5-3-6. CAPPING

#### [Function]

Capping position is adjusted. (Refer to [4-2-7. Adjustment of the station position] P.4.11)

The adjustment value is stored under the system parameter No. 4 to No.7.

#### [Operation]

- 1) 

FUNCTION
# ADJUST            < ENT >

**Select the ADJUSTMENT.**  
Press the ENTER key.
- 2) 

# ADJUST
CAPPING            < ent >

**Select the “CAPPING” pressing the**  
FUNCTION **key.**  
Press the ENTER key.
- 3) 

# CAPPING
CAP POS.            = * . *

**Adjust the Cap position using the ▲ or ▼ key.**  
Press the ENTER key.
- 4) 

# CAPPING
ABSORB POS.        = * . *

**Adjust the Absorb position using the ◀ or ▶ key.**  
Press the ENTER key.
- 5) 

# CAPPING
FLASH POS.         = * . *

**Adjust the Flashing position using the ◀ or ▶ key.**  
Press the ENTER key.
- 6) 

# CAPPING
WIPER POS.         = * . *

**Adjust the Wiper position using the ◀ or ▶ key.**  
When you press the ENTER key, the setting is registered and Capping executed.
- 7) 

**Press the END key to exit from the function.**

## 5-3-7. HEAD ID

### [Function]

The setting value is issued in the maintenance list at the time of maintenance release.

Enter the ID numbers of heads 1 to 3. The input values are stored under system parameters No. 1 to 3.

The ID numbers are sealed and stuck on each print head.

### [Operation]

- 1) 

FUNCTION  
# ADJUST            < ENT >
- 2) 

# ADJUST  
HEAD ID            < ent >
- 3) 

# INPUT HEAD \* .1  
\* \* \* \* \*

# INPUT HEAD \* .2  
\* . . . . .

# INPUT HEAD \* .3  
\* \* . . \*

Select the **ADJUSTMENT**, and then press the **ENTER** key.

Select the **“HEAD ID”**, and then press the **ENTER** key.

Press the **ENTER** key again, and then the ID number can be entered.

Use the  and  keys to move left or right.

Use the  and  keys to enter the number.

Press the **ENTER** key to finalize the number.

When the **END** key is pressed, the value returns to what it was before the change.

4)

After the ID numbers of heads 1 to 3 have been entered, press the **END** key.

The values that were input are stored under system parameters, and this operation ends.



- Incorrect entry in step 3) results in an error when the **ENTER** key is pressed. Since the entry remains intact, modify the number and then normally terminate the entry.

### 5-3-8. SERIAL NO.

#### [Function]

Enter a serial number for plotter using.

#### [Operation]

- 1) 

FUNCTION

# ADJUST            < ENT >
- 2) 

# ADJUST

SERIAL NO            < ent >
- 3) 

# SERIAL NO

\*\*\*\*\*

Select the ADJUSTMENT, and then press the  key.

Select the “SERIAL NO”, and then press the  key.

Press the  key again, and then the ID number can be entered.

Use the  and  keys to enter the value.

Use the  and  keys to move the cursor left and right.

Press the  key to finalize the number.

### 5-3-9. DEALER NO.

#### [Function]

Enter a number which is unique to each dealer.

Each dealer uses the Series No. by entering a desired number.

No error or warning message is displayed by a desired number.

#### [Operation]

1)

FUNCTION	
# ADJUST	< ENT >

Select the ADJUSTMENT, and then press the

key.

2)

# ADJUST	
DEALER NO	< ent >

Select the “DEALER NO”, and then press the

key.

3)

#DEALER NO	
*****	

Press the  key again, and then the ID number can be entered.

Use the  and  keys to enter the value.

Use the  and  keys to move the cursor left and right.

Press the  key to finalize the number.

### 5-3-10. WORM WHEEL

#### [Function]

Perform eccentric correction of worm gears.

< This is not used in the field. >

#### [Operation]

1)

FUNCTION  
# ADJUST      < ENT >

Select the ADJUSTMENT, and then press the

 key.

2)

# ADJUST  
WORM WHEEL      < ent >

Select the “WORM WHEEL”, and then press  
the  key.

3)

#WORM WHEEL  
X : S= \*. \* \*    A= \*. \* \*

Press the  key.



## 5-3-11. ADJUST EDGE

### [Function]

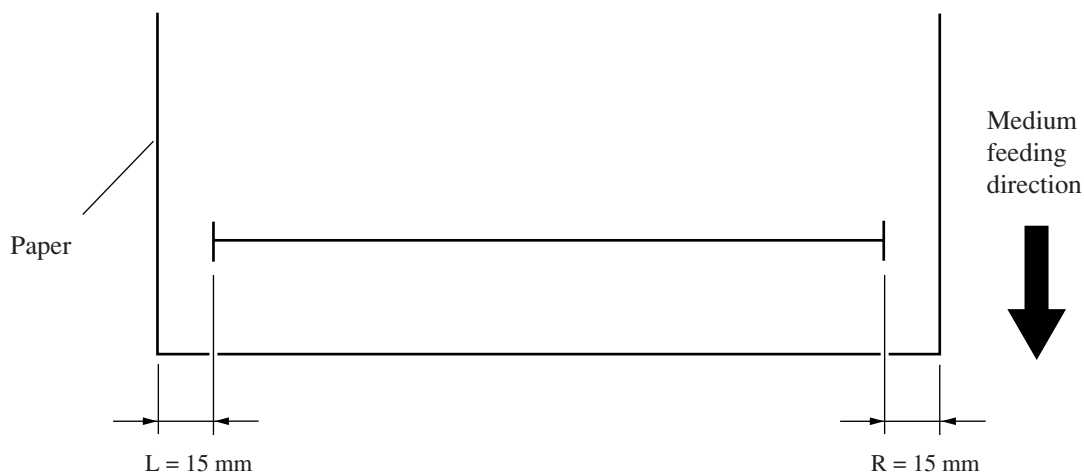
Size of the dead spaces on the left and right of the medium is adjusted.

Adjustment should be done to be printed on each right and left position from the both edge of the Media.

The adjustment value will be stored under system parameter No. 3 and 2. (Left edge of the paper = No.3, right edge of the paper = No.2)



- Because the adjustment pattern plots the drawing while detecting the medium width, the medium of no plotting should be used during the adjustment. If the medium which has been plotted should be used, the correct adjustment becomes unavailable any longer.



- In this adjustment, the actual measured value is entered, but the value found from the following formula is stored under the system parameter.  
Adjustment value of the left end =  $15\text{mm} - \text{Actual measured value (mm)}$   
(stored in increments of 0.1mm)  
Adjustment value of the right end =  $15\text{mm} - \text{Actual measured value (mm)}$   
(stored in increments of 0.1mm)

### [Operation]

1)

FUNCTION	
# ADJUST	< ENT >

2)

# ADJUST	
ADJUST EDGE	< ent >

Select the ADJUSTMENT.

Press the **ENTER** key.


Select the "ADJUST EDGE " pressing the **FUNCTION** key.



Press the **ENTER** key.

3) 

# ADJUST EDGE
CLEAR <                      > DRAW

**Plot the adjusting pattern using the  key.**



Clear the adjustment value using the  key.

Press the  or  key to enter a correction value without performing plotting.

After the completion of plotting, enter a correction value.

4) 

# ADJUST EDGE
L = 15.0                      R = 15.0

**Enter the measured value of the dead space in units of 0.1 mm, using the  or  key.**

Press the 

ENTER
-------

 key to store the entered value.

5) 

# ADJUST
CLEAR <                      > DRAW

**The indication given in the step of procedure 3) will be restored on the LCD.**

Press the 

END
-----

 key to exit from the “EDGE ADJUST.”

To clear the adjustment value, press the  key.

To draw an adjusting pattern, press the  key.

### 5-3-12. 500mmSQUARE

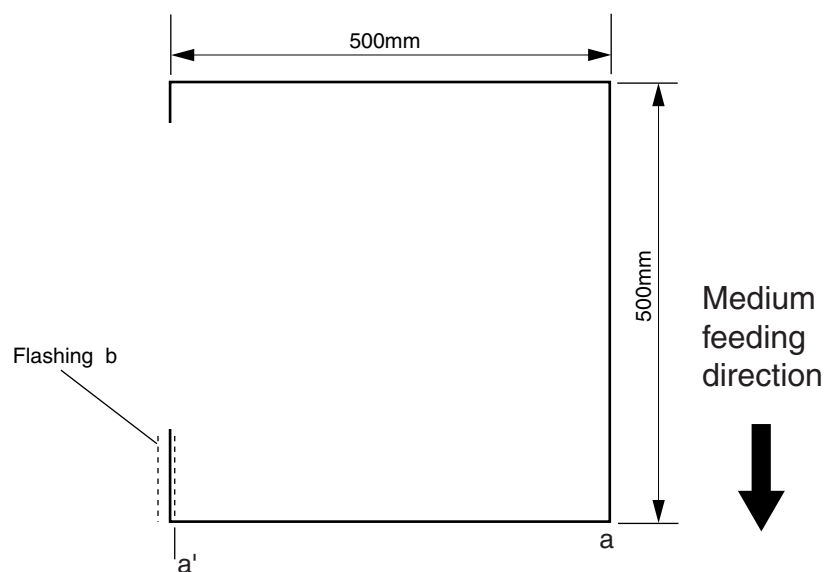
#### [Function]

Distance accuracy is adjusted.

The adjustment value in the Y-direction shall be applied to the detected medium width.

The dimension of the Y-direction for the drawing itself will not be changed.

The adjustment values are stored under the system parameters No. 0 and 1. (X-direction = No. 0, Y-direction = No. 1)



- The measured value in the Y direction becomes the b position when the distance  $a - a'$  in the above diagram is taken to be 500 mm.
- In this adjustment, the actual measurement is entered, but the value found from the following formula is stored under the system parameter.  
Adjustment value = 500 mm – Actual measurement (mm) (stored in units of 0.1 mm)

#### [Operation]

1)

FUNCTION	
# ADJUST	< ENT >

Select the **ADJUSTMENT**.

Press the **ENTER** key.

2)

# ADJUST	
500mmSQUARE	< ent >

Select the **“500mmSQUARE”** pressing the


**FUNCTION** key.



Press the **ENTER** key.

3)

# 500mm SQUARE  
CLEAR < > DRAW

**Plot the adjusting pattern using the  key.**



Clear the adjustment value using the  key.

Press the  or  key to enter a correction value without performing plotting.

After the completion of plotting, enter a correction value.

4)

# 500mm SQUARE  
X= 500.0 Y= 500.0

**Enter the measured value for the X and Y directions using the  or  key.**

Press the  key to store the entered value.

5)

# 500mm SQUARE  
CLEAR < > DRAW

**The indication given in the step of procedure 3) will be restored on the LCD.**

Press the  key to exit from the "500mm SQUARE."

To clear the adjustment value, press the  key.

To draw an adjusting pattern, press the  key.

### 5-3-13. SET QUALITY

#### [Function]

Sets the operation mode of the user-defined PRINT MODE-QUALITY. The setting values are stored under the system parameters No. 46 and 51.

The setting value is issued in the maintenance list at the time of maintenance release.

#### [Operation]

- 1) 

FUNCTION  
# ADJUST                      < ENT >

Select the **ADJUSTMENT..**  
Press the ENTER key.
- 2) 

# ADJUST  
SET QUALITY                      < ent >

Select the **“SET QUALITY”** pressing the FUNCTION key.  
Press the ENTER key.
- 3) 

# SET QUALITY  
DPI                                  : 360 X 360


Select the resolution using the ▲ or ▼ key, and then press the ENTER key.  
DPI: 360 x 360, 360 x 540, 360 x 720, 720 x 720, 1440 x 720
- 4) 

# SET QUALITY  
QUALITY                              : STD

Select the quality using the ▲ or ▼ key, and then press the ENTER key.  
QUALITY: Standard, Fine, Highspeed
- 5) 

# SET QUALITY  
PASS                                  : 2pass


Select the number of divisions using the ▲ or ▼ key, and then press the ENTER key.  
PASS: 2pass, 3pass, 4pass, 6pass, 8pass, 12pass, 16pass

  
**CAUTION**

- Some items cannot be selected depending on the resolution.
- 6) 

# SET QUALITY  
High SPEED                          : ON

Select the high-speed scan (on/off) using the ▲ or ▼ key, and then press the ENTER key.

  
**CAUTION**

- Some items cannot be selected depending on the resolution and the number of divisions.
- 7) 

Press the ENTER key to exit from the function.

## 5-3-14. MEDIA COMP2

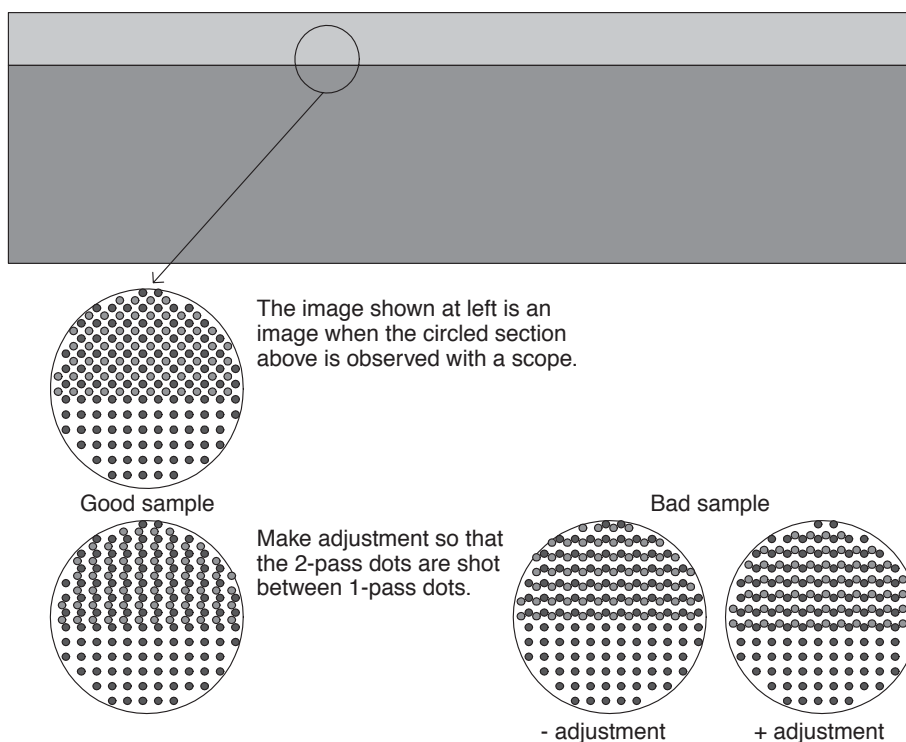
### [Function]

Corrects the amount of media feed at the time of plotting.

The correcting values are stored under the system parameters No. 20.



- Do not change this value in the field.
- Make this adjustment only if a problem occurs when the media is normally set and the following pattern is plotted using a combination of MIMAKI-brand Glossy White PET(SPC-0111) and MIMAKI-brand colorant ink.  
Reason : This adjustment changes the reference value for media correction. With this change, the four types of [SET UP - MEDIA COMP.] for the user are all changed and therefore the user needs re-adjustment.



\* Since only the feed direction (X direction) is adjusted, the hatched dot pattern may not result.

## [Operation]

1)

FUNCTION  
# ADJUST                      < ENT >

**Select the ADJUSTMENT.**


Press the  key.

2)

# ADJUST  
MEDIA COMP2                      < ent >

**Select the “MEDIA COMP2” pressing the  key.**




Press the  key.

Press the  key to enter correction value without performing plotting.

3)

# MEDIA COMP2  
PRINT START                      : ent

**Press the  key to start plotting.**

Press the  key to interrupt the operation. Select the DPI using the  or  key.

4)

# MEDIA COMP2  
Adj. = \* \* \*

**Input the correction value the  or  key.**

**Press the  key to store the entered value.**

## 5-4. #TEST items

### 5-4-1. CHECK PATTERN

#### [Function]

Plots the following patterns with the selected plotting mode to check the machine status.

- a. Density pattern..... Patterns are drawn for the density of 100%, 50%, 25%, and 6.25%. (Colors can be selected.)
- b. Nozzle check ..... A nozzle checking pattern is drawn (Colors can be selected.)
- c. Color chart ..... K, C, M, Y, Lm and Lc color patterns are drawn (fixed color).
- d. Feed ..... Checks the amount of feed with 1-head 1-nozzle configuration. (Colors can be selected.)

#### [Operation]

1)

FUNCTION  
# TEST                      < ENT >

#### Select the TEST.

Press the **ENTER** key.

2)

# TEST  
CHK PATTERN              < ent >

#### Select the “CHECK PATTERN” pressing the **FUNCTION** key.

Press the **ENTER** key.

3)

# CHK PATTERN  
PATTERN                      : 100%

#### Select a pattern using the **△** and **▽** keys.

Pattern :    100%  
              50%  
              25%  
              6.25%  
              NOZZLE  
              COLOR  
              FEED




- If two or more colors are selected, a density pattern is drawn while mixing the selected colors. Note that, however, nozzle checking patterns are respectively plotted for the selected colors.
- When necessary items have been specified for each pattern and the device is ready for plotting, you can set the plot position, the head to be used, and the number of scans before pressing the **ENTER** key.



### a. Plotting a density pattern

1)


# CHK PATTERN  
PATTERN : 100%

Select the density pattern using the  or  key and press the  key.

Pattern : 100%, 50%, 25%, 6.25%

2)




# CHK PATTERN  
DPI : 360X360-N1

Select the resolution using the  or  key and press the  key.

Resolution : 360 x 360- N1, 360 x 360- V1  
360 x 540- N1, 360 x 540- V1  
720 x 720- N2, 720 x 720- V2  
1440 x 1440 -V2, 180 x 180- N1  
180 x 180- V1

3)

# CHK PATTERN  
PLOT : UNI-D 2 pass

Select the drawing way using the  or  key and press the  key.

Drawing way : BI-D 1,2,3,4,6,8,12,16 pass  
UNI-D 1,2,3,4,6,8,12,16 pass






CAUTION

- Some items cannot be selected depending on the resolution.

4)

# CHK PATTERN  
X = 10 Y = \* \* \* \* \*



Select the plotting length in the X and Y-direction using the  or  key and press the  key.



Length setting: 10 mm to the sheet length (in increments of 10 mm)

5)

# CHK PATTERN  
COLOR : KMCY□m□c

Select the color used for plotting.

Shift the cursor using the  or  key to select the color to be used.

Press the  or  key to select whether the color is drawn or not.

Press the  key to finalize the number.

6)

# CHK PATTERN  
PATTERN : PLOT

At this time it is now ready for the drawing.

Press the **ENTER** key to start drawing.

When the device is ready for plotting, the followings can be setted.



: shift the origin.



: select the high-speed scan.

Plotting can be aborted by pressing the



key.

7)

After the completion of the plotting, press the



key in repetition to return the layers of screens one by one to permit the conditions to be changed.

### b. Plotting a nozzle checking pattern

1)

# CHK PATTERN  
PATTERN : NOZZLE

Select “NOZZLE” using the or key and press the **ENTER** key.

2)

# CHK PATTERN  
DPI : 360X360-N1

Select the resolution using the or key and press the **ENTER** key.

Resolution : 360 x 360- N1, 360 x 360- V1  
360 x 520- N1, 360 x 520- V1  
720 x 720- N2, 720 x 720- V2  
1440 x 1440 -V2, 180 x 180- N1  
180 x 180- V1

3)

# CHK PATTERN  
PLOT : UNI-D 2 pass

Select the print mode using the or key and press the **ENTER** key.




Drawing way : BI-D 1,2,3,4,6,8,12,16 pass  
UNI-D 1,2,3,4,6,8,12,16 pas



- Some items cannot be selected depending on the resolution.

4)

```
# CHK PATTERN
X = 10   Y = * * * * *
```

Select the plotting length in the X and Y-direction using the  or  key and press the  key.

Length setting in X-direction

: 10 mm to the sheet length (in increments of 10 mm)



Length setting in Y-direction



: 40 mm to the sheet length (in increments of 40 mm)

5)

```
# CHK PATTERN
COLOR      : KMCYm c
```

Select the color used for plotting.

Shift the cursor using the  or  key to select the color to be used.

Press the  or  key to select whether the color is drawn or not.

Press the  key to finalize the number.


6)

```
# CHK PATTERN
PATTERN    : PLOT
```


At this time it is now ready for the drawing.

Press the  key to start drawing.


When the device is ready for plotting, the followings can be set.

 : shift the origin.

 : select the high-speed scan.

Plotting can be aborted by pressing the  key.




7)

After the completion of the plotting, press the  key in repetition to return the layers of screens one by one to permit the conditions to be changed.

### c. Plotting a color chart pattern

1)

# CHK PATTERN  
PATTERN : COLOR

Select color chart using the  or  key and press the  key.

2)




# CHK PATTERN  
DPI : 360X360-N1

Select the resolution using the  or  key and press the  key.

Resolution : 360 x 360- N1, 360 x 360- V1  
360 x 540- N1, 360 x 540- V1  
720 x 720- N2, 720 x 720- V2  
1440 x 1440 -V2, 180 x 180- N1  
180 x 180- V1

3)

# CHK PATTERN  
PLOT : BI-D 1 pass

Select the print mode using the  or  key and press the  key.

Drawing way : BI-D 1,2,3,4,6,8,12,16 pass  
UNI-D 1,2,3,4,6,8,12,16 pass






CAUTION

- Some items cannot be selected depending on the resolution.

4)

# CHK PATTERN  
DENSITY : 100%


Select the density using the  or  key and press the  key.

Density : ALL, 100%, 50%, 25%

At this time it is now ready for the drawing.

5)

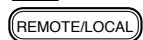
# CHK PATTERN  
PATTERN : PLOT

At this time it is now ready for the drawing. Press the  key to start drawing.

When the device is ready for plotting, the followings can be set.

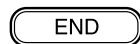


: shift the origin.



: select the high-speed scan.

Plotting can be aborted by pressing the



key.



6)

After the completion of the plotting, press the **END** key in repetition to return the layers of screens one by one to permit the conditions to be changed.

#### d. Plotting a feed pattern

1)

# CHK PATTERN  
PATTERN : FEED

Select “FEED” using the  or  key and press the **ENTER** key.

2)

# CHK PATTERN  
DPI : 360X360-N1

Select the resolution using the  or  key and press the **ENTER** key.

Resolution : 360 x 360- N1, 360 x 360- V1  
360 x 540-N1, 360 x 540-V1  
720 x 720- N2, 720 x 720- V2  
1440 x 1440 -V2, 180 x 180- N1  
180 x 180- V1

3)

# CHK PATTERN  
PLOT : UNI-D 1 pass

Select the print mode using the  or  key and press the **ENTER** key.

Drawing way : BI-D 1,2,3,4,6,8,12,16 pass  
UNI-D 1,2,3,4,6,8,12,16 pass



- Some items cannot be selected depending on the resolution.

4)

# CHK PATTERN  
BETWEEN : \* \* \* dot




Select the interval in the Y-direction using the  or  key and press the **ENTER** key.

Length setting: 16 dot to 512 dot

5)

Select the plotting length in the X and Y-

# CHK PATTERN  
X = 10                      Y = \* \* \* \*



direction using the  or  key and press the  key.



Length setting: 10 mm to the sheet width  
(in increments of 10 mm steps)

6)

# CHK PATTERN  
COLOR                      : KMCYmc


**Select the color to plot.**

Shift the cursor using the  or  key to select the color to be used.


Press the  or  key to select whether the color is drawn or not.

7)

# CHK PATTERN  
PATTERN                    : PLOT

**At this time it is now ready for the drawing. Press the  key to start drawing.**


When the device is ready for plotting, the followings can be set.

 :                      shift the origin.

 :                      select the high-speed scan.

Plotting can be aborted by pressing the  key.

8)

**After the completion of the plotting, press the  key in repetition to return the layers of screens one by one to permit the conditions to be changed.**

## 5-4-2. PARAMETER DRAW

### [Function]

Setting state of parameters is plotted.

### [Operation]

1)

FUNCTION  
# TEST < ENT >

**Select the TEST.**

Press the  key.

2)

# TEST  
PARAM. DRAW< ent >

**Select the “PARAMETER DRAW” pressing the  key.**

Press the  key.

3)

# PARAM. DRAW  
DRAW : SYSTEM PRM

**Select the plot parameter using the  or  key.**

System parameter

Ink parameter 1

Ink parameter 2

Ink parameter 3

Maintenance parameter

Servo parameter

Adjustment parameter

Information parameter

4)

**Press the  key to start plotting.**



HEAD ID is issued in the maintenance list in case maintenance mode is released.

### 5-4-3. ALL PATTERN

#### [Function]

Collectively plots the following adjustment result.

- HEAD ADJUST , SLANT adjust , UNIT adjust
- PARAMETERadjust2 (FINE / Y-Single / Y-Repeat / Y-Bi Direction)

#### [Operation]

1)

FUNCTION
# TEST < ENT >

**Select the TEST.**

Press the **ENTER** key.

2)

# TEST
ALL PATTERN < ent >

**Select the “ALL PATTERN” pressing the**

**FUNCTION** key.

Press the **ENTER** key.

3)

# ALL PATTERN
PRINT START : ent

**Press the **ENTER** key to start plotting.**



#### 5-4-4. X SERVO

##### [Function]

Continuous forward/reverse travel is executed in terms of the X-direction for the purpose of durability test.

This test can be executed without placing a media on the plotter.



- Execute the test with speed, acceleration and traveling amount set to the initial values. If they are excessively increased, the plotter can break.
- Note that executing this function with ink filled may cause ink leakage from the head.

##### [Operation]

1)

```
FUNCTION
# TEST      < ENT >
```

**Select the TEST.**

Press the **ENTER** key.

2)

```
# TEST
X SERVO     < ent >
```

**Select the “X SERVO” pressing the**

**FUNCTION** key.

Press the **ENTER** key.

3)

```
# X SERVO
X :  S = * * *      A = * . * *
```

**Press the **ENTER** key twice without changing the set value.**

Now, the screen changes over to permit the setting of a traveling amount in the X-direction.

4)

```
# X SERVO
      X = * * *
```

**Press the **ENTER** key without changing the set value.**

The aging in the X-direction starts.

```
# TEST
X SERVO     < ent >
```



- Temperature adjustment can be performed by pressing the **HEATER** key during aging.

5)

**Press the **END** key to interrupt the operation.**

### 5-4-5. Y SERVO

#### [Function]

Continuous forward/reverse travel is executed in terms of the Y-direction for the purpose of durability test.

This test can be executed without placing a media on the plotter.



- Execute the test with speed, acceleration and traveling amount set to the initial values. If they are excessively increased, the plotter can break..

#### [Operation]

1)

```
FUNCTION
# TEST          < ENT >
```

**Select the TEST.**

Press the **ENTER** key.

2)

```
# TEST
Y SERVO        < ent >
```

**Select the “Y SERVO” pressing the **FUNCTION** key.**

Press the **ENTER** key.

3)

```
# Y SERVO
Y:  S = * * *      A = * . * *
```

**Press the **ENTER** key twice without changing the set value.**

Now, the screen changes over to permit the setting of a traveling amount in the Y-direction.

4)

```
# Y SERVO
      Y = * * * *
```

**Press the **ENTER** key without changing the set value.**

The aging in the Y-direction starts.

```
# TEST
Y SERVO        < ent >
```



- Temperature adjustment can be performed by pressing the **HEATER** key during aging.

5)

**Press the **END** key to interrupt the operation.**

## 5-4-6. XY SERVO

### [Function]

Continuous forward/reverse travel is executed in terms of the X- and Y-direction for the purpose of durability test.

This test can be executed without placing a media on the plotter.



- Execute the test with speed, acceleration and traveling amount set to the initial values. If they are excessively increased, the plotter can break.
- In this test, X-axis and Y-axis will not operate simultaneously. And, as for the X-axis, movement will be only in the paper feed direction rather than reciprocating..

### [Operation]

1) 

FUNCTION  
# TEST < ENT >

**Select the TEST.**

Press the 

ENTER

 key.

2) 

# TEST  
XY SERVO < ent >

**Select the “XY SERVO” pressing the**

FUNCTION

**key.**

Press the 

ENTER

 key.

3) 

# XY SERVO  
X : S = : \* \* \* A = \* . \* \*

**The screen changes over to permit the setting of speed and acceleration in the X-direction.**

Press the 

ENTER

 key twice without changing the set value.

4) 

# XY SERVO  
Y : S = \* \* \* A = \* . \* \*

**The screen changes over to permit the setting of speed and acceleration in the Y-direction.**

Press the 

ENTER

 key twice without changing the set value.

5) 

# XY SERVO  

X

 = \* \* \* Y = \* \* \* \*

**The screen changes over to permit the setting of a traveling amount in the X-direction.**

Press the 

ENTER

 key without changing the set value.

The aging in the X- and Y-direction starts.



- Temperature adjustment can be performed by pressing the 

HEATER

 key during aging.

6)

**Press the 

END

 key to exit from the function.**

## 5-4-7. HEATER TEST

### [Function]

Perform stand -alone test of the Preheater, and Printheater and check the LEDs on the external heater panel.

### [Operation]

1) 

FUNCTION
# TEST < ENT >

**Select the TEST.**

Press the 

ENTER
-------

 key.

2) 

# TEST
HEATER TEST < ent >

**Select the “HEATER TEST” pressing the**

FUNCTION
----------

**key.**

Press the 

ENTER
-------

 key.

3) 

# HEATER TEST
TEMP < ent >

**Select the plot parameter using the 

△
---

 or 

▽
---

 key.**

[TEMP] : Temperature

[HEAT LED] : HeatLED-ON/OFF

[constantLED] : ConstantLED-ON/OFF

[SSR] : Heater-ON/OFF

# HEATER TEST
HEAT LED < ent >




# HEATER TEST
constant LED < ent >

# HEATER TEST
SSR < ent >

**a. [TEMP] : Check of the current temperature of the Preheater and Printheater and the temperature setting.**

1) 

# HEATER TEST
TEMP                      < ent >

Select the “TEMP” using the  or  key.  
Press the  key.


2) 

Pre	43°C	(47)
Print	55°C	(40)

|  
Current temperature

|  
Setting temperature

**Display the current temperature of the Preheater and Printheater and the temperature setting.**  
Press the  key to return the procedure 1).






3) 

Pre	47	45°C
Print	40	50°C

|  
Current temperature


|  
Setting value

**Press the  key.**  
Select the heater (Pre/Print) using the  or  key.  
Change the temperature using the  or  key.

4) 

Pre	43°C	(45)
Print	55°C	(50)




**Execute the action using the  or  key.**

5) **Press the  key to exit from the function.**






**b. [HEAT LED] : Check of the HeatLED-ON/OFF**

- 1) 

# HEATER TEST	
HEAT LED	< ent >

 Select the “HEAT LED” using the  or  key.  
Press the  key.
- 2) 




Print	Pre
OFF	OFF

 Select the heater (Pre/Print) using the  or  key.  
Press the  or  key to change ON/OFF.
- 3) Press the  key to exit from the function.






**c. [CONSTANT LED] : Check of the ConstantLED-ON/OFF**

- 1) 

# HEATER TEST	
CONSTANT LED	< ent >

 Select the “CONSTANT LED” using the  or  key.  
Press the  key.
- 2) 




Print	Pre
OFF	OFF

 Select the heater (Pre/Print) using the  or  key.  
Press the  or  key to change ON/OFF.
- 3) Press the  key to exit from the function.

**d. [SSR] : Heater-ON/OFF**





1)

# HEATER TEST
SSR                      < ent >

Select the “SSR” using the  or  key.  
Press the  key.


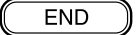
2)

Print	Pre
OFF	OFF

Select the heater (Pre/Print) using the  or  key.  
Press the  or  key to change ON/OFF.

3)

Pre	43°C	: 16A
Print	55°C	: 113

Press the  key to display the temperature and AD input value.  
Press the  key to return the procedure 1).

4)

Press the  key to exit from the function.

## 5-4-8. ACTION TEST

### [Function]

Performance of the following units is checked.

- Rotation of fan motor (LOW/MID/HIGH/L.L./Poff)
- Up/down operation of Y-cutter (UP/DOWN)
- Turning ON/OFF roll motor.
- Rotation of roll motor (HIGH/LOW./OFF)

### [Operation]

1) 

FUNCTION
# TEST < ENT >

Select the TEST.

Press the 

ENTER
-------

 key.

2) 

# TEST
ACTION TEST < ent >

Select the “ACTION TEST” pressing the 

FUNCTION
----------

 key.

Press the 

ENTER
-------

 key.

3) 

# ACTION TEST
FAN MOTOR : LOW

Select the action item using the 

ENTER
-------

 key.

# ACTION TEST
Y CUTTER : DOWN

# ACTION TEST
ROLL MOTOR : OFF

# ACTION TEST
deodorizFAN : OFF

4)

Execute the action using the 

^
---

 or 

v
---

 key.

5)

Press the 

END
-----

 key to exit from the function.



## 5-4-9. SENSOR TEST

### [Function]

The state of the following sensors are checked.

- Medium setting lever sensor
- Y-origin sensor
- Front cover sensor rear
- Ink end sensor
- Rear paper presence/absence sensor
- Wiper sensor
- Ink pack sensor
- Heater power switch

### [Operation]

1) 

FUNCTION # TEST < ENT >
----------------------------

**Select the TEST.**

Press the 

ENTER
-------

 key.

2) 

# TEST SENSOR TEST < ent >
-------------------------------

**Select the “SENSOR TEST” pressing the 

FUNCTION
----------

 key.**

Press the 

ENTER
-------

 key.

3) 

# SENSOR TEST SET LEVER : OFF
----------------------------------

**The state of the media setting lever is shown on the LCD.**

ON: Lever is in its lower position.

OFF: Lever is in its upper position.

4) 

# SENSOR TEST REAR PAPER : OFF
-----------------------------------

Press the 

▽
---

 key.

**The state of the rear paper sensor is shown on the LCD.**

ON: Medium is present.

OFF: Medium is absent.

5) 

# SENSOR TEST Y ORIGIN : OFF
---------------------------------

Press the 

▽
---

 key.

**The state of the station cover sensor is shown on the LCD.**

ON: The station cover has been opened.

OFF: The station cover has not been closed.

6) 

# SENSOR TEST WIPER : OFF
------------------------------

Press the 

△
---


 key.

**The state of the wiping sensor is shown on the LCD.**

ON: Wiper FAR

OFF: Wiper NEAR

7) # SENSOR TEST  
FRONT COVER : OFF

Press the  key.

**The state of the front cover sensor is shown on the LCD.**

ON: The front cover has been opened.

OFF: The front cover has not been closed.

8) # TEST  
INK PACK - - - - -

Press the  key.

**Current status of ink pack sensor is displayed.**

The color codes of the cartridges that have run out of ink are appear.


9) # TEST  
INK END - - - - -

Press the  key.

**Current status of ink end sensor is displayed.**

The color codes of the cartridges that have run out of ink are appear.


10) # TEST  
HEATER POW : OFF

Press the  key.

**Current status of power of heater is displayed.**


ON: Power on.

OFF: Power off.

Press the  key in repetition to return the layers of screens one by one.

11) # TEST  
SENSOR TEST < ent >

Press the  key to exit from the function.

Press the  key to start the initial operation.

## 5-4-10. PAPER SENSOR

### [Function]

Reading by the paper width sensor is given on the LCD.

This test can be executed without placing a media on the plotter.

### [Operation]

1) 

FUNCTION # TEST	< ENT >
--------------------	---------

**Select the TEST.**

Press the 

ENTER
-------

 key.

2) 

#TEST PAPER sensor	< ent >
-----------------------	---------

**Select the “PAPER SENSOR” pressing the**  

FUNCTION
----------

 **key.**

Press the 

ENTER
-------

 key.

3) 

# PAPER sensor *** (   ***, *** )
--------------------------------------

**Reading by the paper sensor is given on the LCD.**



- Regarding the use of the paper width sensor, refer to “2-3. Brief explanation of media size detection control.”

The head can be moved to a desired position using the 

<
---

 or 

>
---

 key.

The number at the left end indicates the readout value of the sensor.

- No media :       About 600
- Clear film :     About 400
- White media :   0 to 100

4)

**Press the**

END
-----

**key to exit from the function.**

## 5-4-11. KEYBOARD TEST

### [Function]

The key pressed is shown on the LCD.

### [Operation ]

1)

FUNCTION  
# TEST < ENT >

Select the TEST.

Press the **ENTER** key.

2)

# TEST  
KEYBOARD < ent >

Select the “KEYBOARD” pressing the

**FUNCTION** key.

Press the **ENTER** key.

3)

# KEYBOARD TEST  
Key -> NONE

# KEYBOARD TEST  
Key -> [ REMOTE ]

# KEYBOARD TEST  
Key -> [ FUNCTION ]

# KEYBOARD TEST  
Key -> [ HEATER ]

# KEYBOARD TEST  
Key -> [ TEST&CLN ]

# KEYBOARD TEST  
Key -> [ ENTER ]

# KEYBOARD TEST  
Key -> [ CLEAR ]

# KEYBOARD TEST  
Key -> [ LEFT ]

# KEYBOARD TEST  
Key -> [ RIGHT ]

# KEYBOARD TEST  
Key -> [ UP ]

# KEYBOARD TEST  
Key -> [ DOWN ]

Press the keys on the operation panel to check that the name of the key shown on the LCD matches the name of the key pressed.

4)

# TEST  
[ END ] -> TEST END

Press the **END** key to exit from the function.

### 5-4-12. LCD TEST


**[Function]**

Indication shown on the LCD is changed over at predetermined intervals.

**[Operation]**


- 1)** FUNCTION  
# TEST < ENT >
- 2)** # TEST  
LCD TEST < ent >
- 3)** !!!!!!!!!!!!!!!!!!!!!!!  
!!!!!!!!!!!!!!!!!!!!!!!!  
  
"  
" "

**Select the TEST.**

Press the  key.

Select the “LCD TEST” pressing the

**FUNCTION** key.

Press the  key.

This causes the device to start to indicate test patterns on the LCD.

Displays items at specific intervals.

- 4) Press the  key to exit from the function.

## 5-4-13. PUMP MOTOR

### [Function]

Performance of the pump motor is checked.

### [Operation]

1) 

FUNCTION
# TEST < ENT >

**Select the TEST.**

Press the 

ENTER
-------

 key.

2) 

# TEST
PUMP MOTOR < ent >

**Select the “PUMP MOTOR” pressing the 

FUNCTION
----------

 key.**

Press the 

ENTER
-------

 key.

3) 

# PUMP MOTOR
PUMP : 1 2

**Move the cursor using the 

<
---

 or 

>
---

 key, select the target pump**

Press the 

^
---

 or 

v
---

 key to set the selected pump to ON or OFF.

Press the 

ENTER
-------

 key.

4) 

# PUMP MOTOR
Dir : FORWARD

**Select the direction of drive steps using the 

^
---

 or 

v
---

 key.**

Press the 

ENTER
-------

 key.

# PUMP MOTOR
Dir : REVERSE

5) 

# PUMP MOTOR
STEP cnt : CONTINUE

**Select the number of drive steps (500-16300, CONTINUE) using the 

^
---

 or 

v
---

 key.**

Press the 

ENTER
-------

 key.

# PUMP MOTOR
STEP cnt : 16300

6) 

# PUMP MOTOR
STEP. pps : 1017

**Select the driving speed using the 

^
---

 or 

v
---

 key.**

Press the 

ENTER
-------

 key.

7) 

# PUMP MOTOR
RUNNING

**The pump motor starts running.**

After the pump motor performance is checked, the head selection can be made.

If you select the “CONTINUE”, press the 

ENTER
-------

 key to exit from the function.

## 5-4-14. TIMER CHECK

### [Function]

Checks the present date and time.

This test is used for the evaluation of the build-in battery.

The built-in timer is backed up by a lithium battery. This battery's life is about 7 years.

### [Operation]

1)

FUNCTION  
# TEST < ENT >

**Select the TEST.**

Press the **ENTER** key.

2)

# TEST  
TIMMERcheck < ent >

**Select the "TIMER CHECK" pressing the**

**FUNCTION** key.

3)

#TIMMERcheck  
DATE = \* \* \* \* . \* \* . \* \*

**Press the ENTER key.**

Displays the present date and time.

Press the **ENTER** key to shift to the date setup mode.

4)

#TIMMERcheck  
TIME = \* \* \* \* . \* \* . \* \*

**The present date and time is shown on the LCD**

**using the  or  key.**

5)

**Press the **END** key to exit from the function.**

## 5-4-15. MEMORY CHECK

### [Function]

Checking of the following memories is executed.

- |                           |                                     |
|---------------------------|-------------------------------------|
| a. SDRAM read/write check | b. F-ROM hash check                 |
| c. S-RAM read/write check | d. I/F board S-RAM read/write check |



- If an error occurs during any of the memory checks, it becomes impossible for the memory check action to continue. Turn the power OFF and then back ON.

### [Operation]

1)

FUNCTION  
# TEST < ENT >

Select the TEST.

Press the **ENTER** key.

2)

# TEST  
MEMORY check < ent >

Select the “MEMORY CHECK” pressing the

**FUNCTION** key.

Press the **ENTER** key.

3)

# MEMORY check  
CHECK : SDRAM

# MEMORY check  
CHECK : F-ROM

# MEMORY check  
CHECK : S-RAM

# MEMORY check  
CHECK : I/F S-RAM

Select the item to be checked using the **▲** or **▼** key.

Press the **ENTER** key, and the check menu for memories will be invoked.



### a. SDRAM check

1)

```
# MEMORY check
CHECK : SDRAM
```

2)

```
# MEMORY check
WAIT TIME      : OFF
```

3)

```
# MEMORY check
CNT : 1          SDRAM
```

```
# MEMORY check
E   h' ac 400000 (M)
```



```
# MEMORY check
E   R : ** h    W : ** h
```



4)

```
# MEMORY check
COUNT      =      * * *
```

The indication “SDRAM” is shown on the LCD.

Press the **ENTER** key.

Use the **▲** and **▼** keys to set the waiting time after data have been written in until the read-in check is performed .

OFF : With WAIT time

ON : Without WAIT time

When the **ENTER** key is pressed, the check starts.

The number of checks are shown on the LCD.  
(Single check takes about 10 minutes.)

When an error arises, the error address will appear on the LCD. At this time, if the **▲** key or the **▼** key is pressed, read/write data and number of checks until error occurrence will be displayed.

Press the **END** key to terminate the SDRAM checking.

### b. F-ROM check

1) # MEMORY check  
CHECK : F-ROM

2) # MEMORY check  
CNT : 1 F-ROM

# MEMORY check  
E h' ac 400000 (M)

3)

The indication “F-ROM” is shown on the LCD.

Press the **ENTER** key. The plotter starts checking.

The number of checks is shown on the LCD.

When an error arises, the error message will appear on the LCD and the checking will be aborted.

Press the **END** key to terminate the F-ROM checking.

### c. S-RAM check

1) # MEMORY check  
CHECK : S-RAM

2) # MEMORY check  
CNT : 1 S-RAM

# MEMORY check  
E 0000000 \*\* : \*\*

3)

The indication “S-RAM” is shown on the LCD.

Press the **ENTER** key. The plotter starts checking.

The number of checks is shown on the LCD.

When an error arises, the error address and read/write data will appear on the LCD and the checking will be aborted.

To terminate the S-RAM checking, turn the power off.

#### d. I/F S-RAM check

1)

# MEMORY check  
CHECK : I/F S-RAM

2)

# MEMORY check  
CNT : 1 I FRAM

# MEMORY check  
E 0 0 0 0 0 0 0 0 \* \* : \* \*

3)

The indication “I/F S-RAM” is shown on the LCD.

Press the **ENTER** key. The plotter starts checking.

(Single check takes about 2 minutes.)

When an error arises, the error address and read/write data will appear on the LCD and the checking will be aborted.

Press the **END** key to terminate the I/F S-RAM checking.

## 5-4-16. SKEW CHECK

### [Function]

Checks the amount of paper shift caused by paper feed.

### [Operation]

1) 

FUNCTION # TEST                      < ENT >
---

**Select the TEST.**

Press the 

ENTER
-------

 key.

2) 

# TEST SKEW CHECK                < ent >
---

**Select the “SKEW CHECK” pressing the**

FUNCTION
----------

**key.**

Press the 

ENTER
-------

 key

3) 

# SKEW CHECK FEED                        : * . * * m
---

**Enter the value to feed the paper using the**

△
---

 or 

▽
---

**key.**

4) 

# SKEW CHECK * * FEED                * . * * m * *
---

**Press the**

ENTER
-------

**key.**

Press the 

END
-----

 key to exit from the function.

## 5-4-18. TEMP CHECK

### [Function]

Displays the temperature around the head.

### [Operation]

1) 

FUNCTION # TEST                      < ENT >
---

**Select the TEST.**

Press the 

ENTER
-------

 key.

2) 

# TEST TEMP CHECK              < ent >
---

**Select the “TEMP CHECK” pressing the**

FUNCTION
----------

**key.**

Press the 

ENTER
-------

 key

3) 

# TEMP CHECK Ta 1 = * * * ° * * * *
--

**Displays the temperature around the head.**

Select the head using the 

▲
---

 or 

▼
---

 key to display the temperature around each head.

- Temperature around the head and the entered value to change AD.

Ta

- Temperature of the nozzle and forward voltage drop of diodes.

Tj1A, Tj1B to Tj3B : H1A, H1B, .....,H3B

# TEMP CHECK Tj 1A = * * * ° * * * *
---

# TEMP CHECK Tj 1B = * * * ° * * * *
---

•  
•  
•

4)

**Press the**

END
-----

**key to exit from the function.**

## 5-4-19. ENCODER CHECK

### [Function]

Check linear sensor or linear encoder scale.

Based on capping position, indicate value of linear encoder and Y motor encoder when it's moved an optional position that was specified.

### [Operation]

1) 

FUNCTION # TEST < ENT >
----------------------------

**Select the TEST.**

Press the 

ENTER
-------

 key.

2) 

# TEST ENCODER < ent >
---------------------------

**Select the “ENCODER CHECK” pressing the**

FUNCTION
----------

 key.

Press the 

ENTER
-------

 key.

3) 

#ENCODER DIST . : * * * * . * mm
-------------------------------------

**Indicate the max movement distance that carriage is moved.**

4) 

#ENCODER DIST . : * * * * . * mm
-------------------------------------

**Input the movement distance of carriage using**  

△
---

 or 

▽
---

 key.

The value that is able to set up is decided 100 mm to max movement distance. (100 mm step)

5) 

#ENCODER M * * * * . * E * * * * . *
---

**Press the**

ENTER
-------

**key**

The carriage shuttles the set distance 3 times and the linear encoder value and Y motor encoder value are read.

Indicate the following values when carriage was returned to capping position.

[value that is moved a specified distance]

– [value of capping position before movement]

M : value of Y motor encoder (μm)

E : value of linear encoder (mm)

6)

# TEST	
Mc 0.0	Ec 0.0

#ENCODER	
M s * * * * . *	E s * * * * . *

#ENCODER	
M m * * * * . *	E m * * * * . *


#ENCODER	
M r * * * * . *	E r * * * * . *

**Return to Process No. 3 when press the  key.**

It is normal if value of Y motor encoder and value of linear encoder is indicated approximate.

There are appearance of dispersion of linear scale and 2 mm to 3 mm gaps by stretching, though it isn't unusual.

If [500mm SQUARE] is not adjusted, pattern shift becomes larger.

**Press the  key. Indicate the calculation as follows.**

[value of capping position after movement]

– [value of capping position before movement]

Mc : value of Y motor encoder ( $\mu\text{m}$ )

Ec : value of linear encoder (mm)


It is normal if a difference of capping position before and after that is moved is zero.


Press the  key to display the following values:

- Capping position value before movement (resolution)  
Ms : value of Y motor encoder ( $5\mu\text{m}$ )  
Es : value of linear encoder (720dpi)
- Capping position value after movement over the specified distance (resolution)  
Mn : value of Y motor encoder ( $5\mu\text{m}$ )  
En : value of linear encoder (720dpi)
- Capping position value after movement (resolution)  
Mr : value of Y motor encoder ( $5\mu\text{m}$ )  
Er : value of linear encoder (720dpi)

If the difference between the values before and after movement to the linear encoder exceeds  $\pm 3$ , an error results and check is completed.

**Return to process 5) when press the  key.**

**Return to process 3) when press the  key.**

**When press the  key after the above operation, this test has ended.**

## 5-4-20. INK IC CHECK

### [Function]

Perform read check of the IC chip.

### [Operation]

- 1) 

FUNCTION

# TEST < ENT >
- 2) 

# TEST

INK IC < ent >
- 3) 

#INK IC

1 2 3 4 5 6
- 4) 

CNT = \*

1 2 - - 5 -
- 5) 

#INK IC

KMCYmc

CNT = 100

IC = K ERR = 10

**Select the TEST.**

Press the ENTER key.

**Select the “INK IC CHECK” pressing the FUNCTION key.**

Press the ENTER key.

**Select the IC using the ^ or v key to check.**

**Select check or no check using the ^ or v key.**

**Press the ENTER key to start checking.**

Display the number of checks.

If an error occurs, the defective IC is displayed.

**Press the END key to exit from the function.**

Return to the IC selection display.

If an error occurs, the defective IC and the number of errors are displayed.

Press the ^ or v key to display the number of errors for each IC.



## 5-5. #PARAMATER items

### 5-5-1. SYSTEM PARAMETER

#### [Function]

System parameter values are changed.

#### [System parameters list]

No.	Indication	Set value	Description	Remarks
0	COMP.X	0	Mechanical correction X (in increments of 0.1 mm 500 mm – actual measured value)	Adjustment of range accuracy If the system parameter value is increased: Length of a pattern plotted will be increased.
1	COMP.Y	44	Mechanical correction Y (in increments of 0.1 mm 500 mm – actual measured value)	
2	R GRIP	0	Adjustment of dead space on the right-hand side of the paper (in increments of 0.1 mm 25 mm - actual measured value)	Adjustment value for edge adjustment If the system parameter value is increased: Dead space will be reduced.
3	L GRIP	0	Adjustment of dead space on the left-hand side of the paper (in increments of 0.1 mm 5 mm - actual measured value)	
4	CAPpodY	20	Adjustment of capping Y position (in increments of 0.1 mm)	
5	PULLpos	25	Idle suction position (in increments of 0.1 mm)	
6	FLSposY	0	Adjustment of flashing Y position (in increments of 0.1 mm)	
7	WIPposY	35	Adjustment of wiping Y position (in increments of 0.1 mm)	
8	RESERVE	0	RESERVE	
9	CUTposi	0	Adjustment X of the medium cutting position (in increments of 0.1 mm)	Adjustment value in the X-direction when cutting If the system parameter value is increased: Remaining portion of the paper after cutting will become larger.
10	EDGE LV	50	Medium edge detection level (Unit: %)	Edge detection level when the medium width is detected
11	H12dist	252	Distance between head 1/nozzle row A and head 2/nozzle row A	
12	H13dist	640	Distance between head 1/nozzle row A and head 2/nozzle row A	
13	RESERVE	0	RESERVE	
	⋮			
19	RESERVE	0	RESERVE	
20	FEEDadj	25	X feed pulse correction (in increments of 1 dot)	
21	V1BiADJ	0	Correction base value for V1 waveform Y direction shuttle movement (in increments of 1 dot)	
22	V2BiADJ	0	Correction base value for V2 waveform Y direction shuttle movement (in increments of 1 dot)	

No.	Indication	Set value	Description	Remarks
23	N1BiADJ	0	Correction base value for N1 waveform Y direction shuttle movement (in increments of 1 dot)	
24	N2BiADJ	0	Correction base value for N2 waveform Y direction shuttle movement (in increments of 1 dot)	
25	V1HBiAJ	6	Correction value for V1 waveform doubled shuttle movement (in increments of 1 dot)	
26	V2HBiAJ	4	Correction base value for V2 waveform doubled shuttle movement (in increments of 1 dot)	
27	RESERVE	0	RESERVE	0: normal (cm/s)
28	RESERVE	0	RESERVE	
29	RESERVE	0	RESERVE	
30	WormORG	0	Worm origin	
31	RESERVE	0	RESERVE	
	⋮			
41	RESERVE	0	RESERVE	
42	CUT.OVL	0	Medium cut over run (Left)	
43	CUT.OVR	0	Medium cut over run (Right)	
44	CUT.spd	0	Cutting speed	
45	RESERVE	0	RESERVE	
46	QC3636	41	Print Quality 360 x 360	
47	QC3654	41	Print Quality 360 x 540	
48	QC3672	41	Print Quality 360 x 720	
49	QC7272	41	Print Quality 720 x 720	
50	QC1472	41	Print Quality 1440 x 720	
51	QC1414	298	Print Quality 14400 x 1440	0: Disabled / 1: Enabled
52	FlashSW	1	Periodical Flashing Switch	
53	PMPsign	0		
54	RESERVE	0	RESERVE	
55	Ext.CND	0	Command extension	0: Disabled / 1: Enabled
56	FEEDlow	30	Long direction feed rate (1mm/s)	Medium feed speed when total feed is 9mm or more
57	PAGE	0	Page length clip 0: The page length command is activated, and clipping is done on the page. n: The page length command is inactivated, the plot is plotted and a margin is added at the rear end.	Indicates the action when the plot length exceeds the page length.
58	OEM		For OEM	0: JV3 / 1: SPZ
59	USE INK	0	INK type	0: RS ink -1: RS ink of MS ink 1:
60	MECAsiz	0	Mechanical size	0: 54 inch 1: 63 inch
61	HASH	0	Hash check pass	0: check pass (forced startup) 1: check pass & servo motor OFF
62	SUPPORT	0	Adjusting function extension	2: Released 3: Released + English
63	INITIAL	0	Initialization	1: All parameters are initialized. 2: Only system parameter 3: All parameters are secret.



- When [1. All parameters are initialized] is selected for NO.63 INITIAL, note that the values of the Adjustment parameter and Head parameter are also cleared.

(REMOTE/LOCAL) + (FUNCTION) → Adjusting function extension  
 (ENTER) + (END) or [◀] + [▶] → Enter the system parameter  
 (REMOTE/LOCAL) → Version up mode  
 [▲] + [▼] → Parameter UP&DOWN LOAD mode

## [Operation]

1) 

FUNCTION
# PARAMETER      < ENT >

Select the **PARAMETER**.

Press the 

ENTER
-------

 key.

2) 

# PARAMETER
SYSTEM PRM      < ent >

Select the “**SYSTEM PRM**” pressing the 

FUNCTION
----------

 key.

Press the 

ENTER
-------

 key.

3) 

# SYSTEM PARAMETER
0 = 0                      COMP. X

Select a parameter item using the 

△
---

 or 

▽
---

 key.

# SYSTEM PARAMETER
62 = 0                      SUPPORT

⋮

4) 

# SYSTEM PARAMETER
62 = 0                      0

Press the 

ENTER
-------

 key to permit the value to be changed.

5) 

# SYSTEM PARAMETER
62 = 0                      2

Change the value using the 

△
---

 or 

▽
---

 key.

6) 

# SYSTEM PARAMETER
62 = 2                      SUPPORT

Press the 

ENTER
-------

 key to store the value.

7)

Press the 

END
-----

 key to exit from the function.

### **5-5-2. INK PARAMETER 1**

This is not used in the field.  
Never change the value.

### **5-5-3. INK PARAMETER 2**

This is not used in the field.  
Never change the value.

### **5-5-4. INK PARAMETER 3**

This is not used in the field.  
Never change the value.

### **5-5-5. MAINTENANCE PARAMETER**

This is not used in the field.  
Never change the value.

### **5-5-6. SERVO PARAMETER**

This is not used in the field.  
Never change the value.

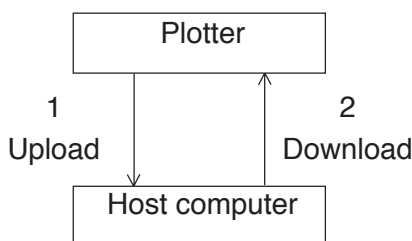
### **5-5-7. ADJUSTMENT PARAMETER**

Parameters are present for each waveform plot. The value of each parameter can be changed and stored automatically through adjustment.

## 5-6. Uploading and Downloading Parameters

This host computer and the plotter can be connected through the IEEE1284 or IEEE1394 interface to allow parameter loading the plotter to the host computer and parameter registration from the host computer to the plotter.

1. The function to load parameters from the plotter to the host computer (referred to as Upload hereafter).
2. The function to transfer parameters from the host computer to the plotter (referred to as Download hereafter).



### 5-6-1. UPLOAD (Plotter >>> Computer)





- To realize this function, the following item is required.  
OS : Windows2000 / WindowsNT4.0 / Windows98SE  
Cable: IEEE1394 interface cable / IEEE1284 interface cable  
Tool: F/W Update Tool software  
(The IEEE1394 interface cable can be used only for Windows2000.)

#### [Operation]

- 1) **Connect the plotter and the host computer through the interface cable.**
- 2) 


BOOT

**Turn ON the power while holding down the  and  key.**
- 3) 

UP&DOWNLOAD  
READY!

**Upload is ready.**
- 4) 

\*\*\* UPLOADING \*\*

**Perform Upload using the F/W Update Tool software.**  
Transfer parameters to the host computer.  
To cancel the operation, press the  key.
- 5) 

UP&DOWNLOAD END  
POWER OFF

**If the operation is successfully completed, the message shown at left appears.**
- 6) **Turn OFF the power of the plotter.**

## 5-6-2. DOWNLOAD (Computer >>> Plotter)



- To realize this function, the following item is required.  
OS : Windows2000 / WindowsNT4.0 / Windows98SE  
Cable: IEEE1394 interface cable / IEEE1284 interface cable  
Tool: F/W Update Tool software  
(The IEEE1394 interface cable can be used only for Windows2000.)

### [Operation]

1)

**Connect the plotter and the host computer through the interface cable.**

2)

BOOT

**Turn ON the power while holding down the  and  key.**

3)

UP&DOWNLOAD  
READY!


**Download is ready.**

4)

\*\* DOWNLOADING \*\*

**Perform Download using the F/W Update Tool software.**

Receive data from the host computer.

To cancel the operation, press the  key.

5)

UP&DOWNLOAD END  
POWER OFF

**If the operation is successfully completed, the message shown at left appears.**

6)

**Turn OFF the power of the plotter.**

### Error messages

If an error occurs, quit F/W Update Tool software and then turn OFF the power of the plotter.

Error message	Cause	Remedy
ERROR COMMAND POWER OFF	Command error	Check whether interface connection is normal. Turn OFF the power and then turn it back ON.
ERROR PARAMETER POWER OFF	Parameter error	Check whether the file selected on the host computer is for this device. Turn OFF the power and then turn it back ON.
ERROR DATA POWER OFF	Data error	Check whether the contents of the file selected on the host computer are normal and not defective. Turn OFF the power and then turn it back ON.

---

## 5-7. Updating the firmware

---

This device permits updating of the firmware through the IEEE1394 interface or the IEEE1284 interface from the computer. Use a specialized F/W downloader.



- You may download F/W downloader from our Web site on the Internet.  
(URL: <http://www.mimaki.co.jp/>)

### 5-7-1. The firmware in this unit

This unit consists of the following 2 firmware components; the versions of both can be updated through the interface.

Mechanical side firmware ..... This firmware controls the machine main unit. It is downloaded onto the main PCB.

Interface side firmware ..... This firmware controls the interface with the host computer. It is downloaded onto the IEEE1394.

### 5-7-2. Main unit side firmware version updating file

You may download F/W version-up file through our Web site on the Internet (URL: <http://www.mimaki.co.jp/>).

Download one of the following according to your use environment.

The “ \*\*\* ” in the file name indicates the version number of F/W.

1. JV3\_\*\*\*L.EXE ..... Japanese version for WINDOWS
2. JV3\_\*\*\*Z.EXE ..... English version for WINDOWS
3. JV3\_\*\*\*.sea .hqx ..... Japanese/English shared version for MAC

Every file is a self-unarchiving compressed file.

When unarchived, the file is extracted to the following five files.

1. JV3.ROM ..... This is the F/W version updating file.
2. README.TXT ..... This is the version-updating manual in English.
3. READMEJ.TXT ..... This is the version-updating manual in Japanese.



### 5-7-3. Interface side firmware version updating file

You may download F/W version-up file through our Web site on the Internet (URL: <http://www.mimaki.co.jp/>).

Download one of the following according to your use environment.

The “ \*\*\* ” in the file name indicates the version number of F/W.

1. FWIF\*\*\*L.EXE ..... Japanese version for WINDOWS
2. FWIF\*\*\*Z.EXE ..... English version for WINDOWS
3. FWIF\*\*\*.sea.hqx ..... Japanese/English shared version for MAC

Every file is a self-unarchiving compressed file.

When unarchived, the file is extracted to the following three files.

1. FWIF\*\*\*.ROM ..... This is the F/W version updating file.
2. README.TXT ..... This is the version-updating manual in English.
3. READMEJ.TXT ..... This is the version-updating manual in Japanese.

### 5-7-4. Checking the version updating file

When the version-updated file is copied, check the version-updated file for faults using the file checking function provided by the F/W downloader. Refer to the instruction manual for the F/W downloader for operating procedures.

### 5-7-5. Updating procedure

The procedure is the same on both the mechanical side and the interface side.

#### [Operation]

1) 

BOOT
------

2) 

F / W                      UPDATING * TRANSMIT START *
---

3) 

F / W                      UPDATING *** RECEIVE ***
--

4) 

F / W                      UPDATING * DOWNLOADING *
--

5) In the case of the mechanical side version updating

F / W                      UPDATING MECA LOAD              [ v 2.00 ]
--

6) In the case of the interface side version updating

F / W                      UPDATING I / F LOAD                [ v 2.00 ]
---

**Turn on the power to the plotter.**

**Press the REMOTE/LOCAL key while the firm-ware version is being shown on the LCD.**

This device will then be placed in the data waiting state.

**Send the version-updating file from the PC using the transmitting function of the F/W downloader.**

The indication given on the left will appear on the LCD when the device received the data.

(In the case of the mechanical side version updating file, the \*\*\* at both ends flashes.)

**When all the data are received, the data is written into the flash ROM.**

**Upon completion of the writing, the version of the firmware written into the ROM will be shown on the LCD.**

**Re-turn on the power to the plotter.**



- Do not turn the power OFF while the data is written into the flash ROM. There is a danger of damaging the PCB.

### Error messages when updating the version on the mechanical side

Error message	Cause	Remedy
E80 ROM0 ERASE	Data stored in the ROM could not be erased.	Replace the main PCB with a new one.
E81 ROM1 ERASE	Data stored in the ROM could not be erased.	
E82 h'*****	Data could not be written into the ROM.	
E83 h'*****	Data could not be written into the ROM.	
E84 h'*****	Data written into the ROM are wrong.	
E85 ROM HASH	Data written into the ROM has errors.	

### Error message when updating the version on the interface side

Error message	Cause	Remedy
E90 h'*****	Data stored in the ROM can not be erased.	Replace the interface PCB with a new one.
E91 < Skipped No. >		
E92 h'*****	Data cannot be written into the ROM.	Replace the interface PCB with a new one.
E93 < Skipped No. >		
E95 MODE	It is not possible to enter version updating mode.	Repeat the version updating from the beginning.
E97 < Skipped No. >		
E98 TRANSE **	The received data are not for the interface.	Check the version updating file.

### Error messages that apply to both the mechanical side and the interface side

Error message	Cause	Remedy
E70 FPGA	Data received are not the program file.	Replace the main PCB with a new one.
E71 SD-RAM	Abnormal conditions have arisen on the D-RAM.	
E73 < Skipped No. >		
E74 TRANS DATA	Data received are not the program file.	Check the version updating file.
E75 I/F NONE	The interface board has not been loaded on the device.	Load the interface board on the device.
E76 I/F INITIAL	Abnormal conditions have arisen on the interface board.	Replace the interface board with a new one.
E77 I/F BOARD	A error occured in communication between the main PCB and the interface board.	
E78 HOST I/F	A time limit exceeded error occured in communication between the host computer and the interface board.	Check the cable and the host computer.



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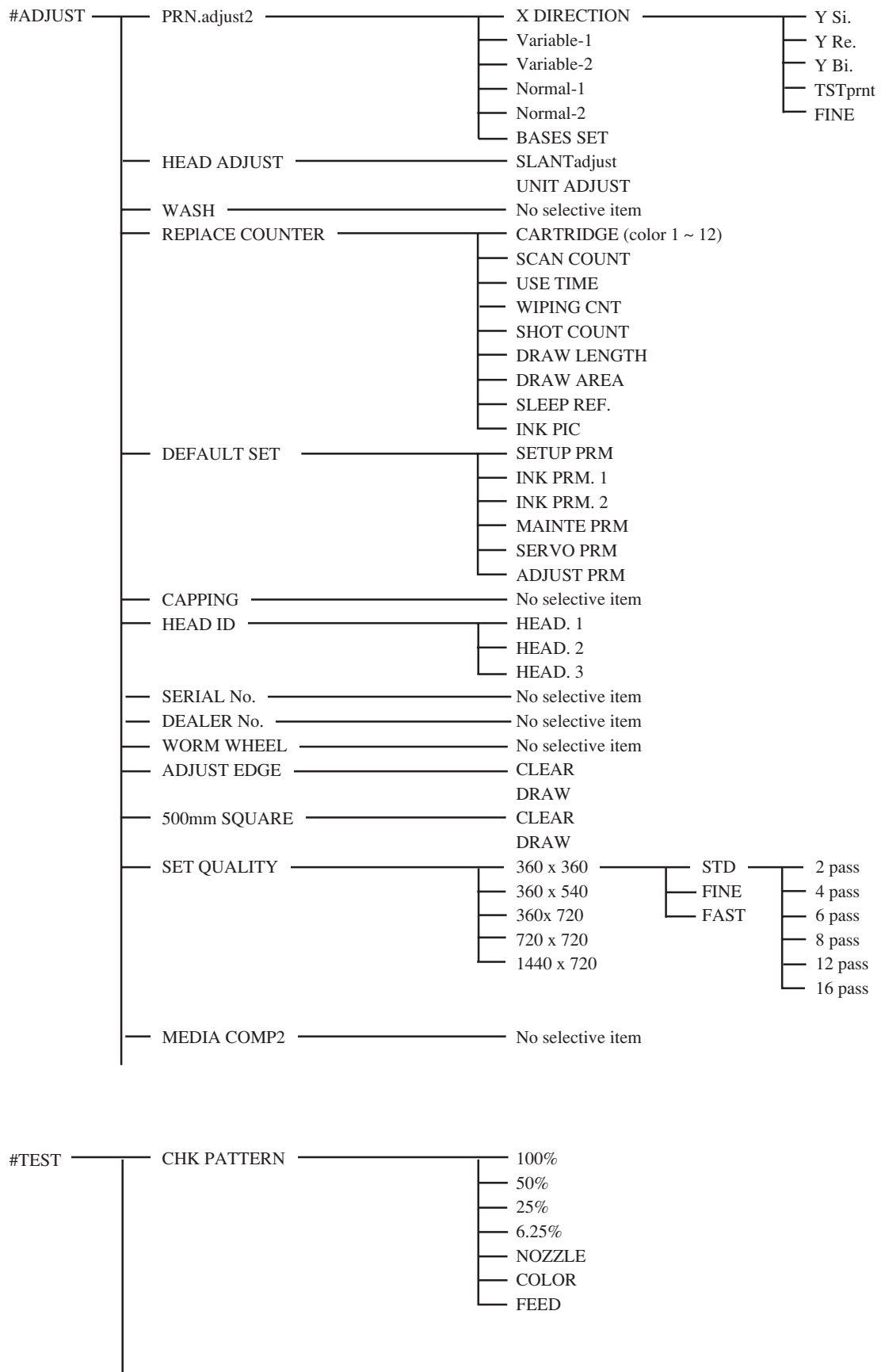
## **CHAPTER 6**

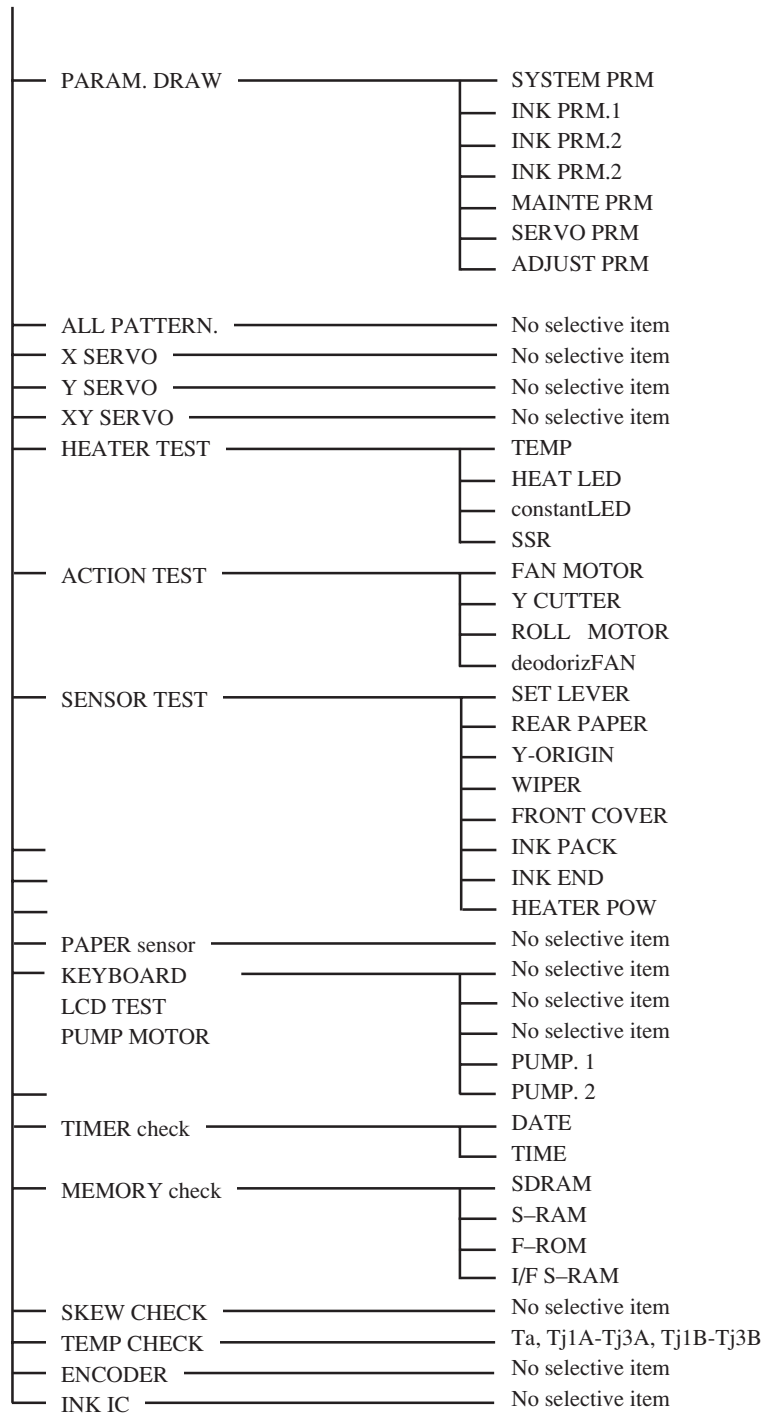
### **MAINTENANCE MENU TREE**

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## 6-1. Maintenance menu tree





#PARAMETER	SYSTEM PRM	Total 64 items .....	Refer to “4-5-1. SYSTEM PRM”
	INK PARAMETER1	Total 80 items .....	This is not used in the field.
	INK PARAMETER2	Total 100 items .....	This is not used in the field.
	MENT PARAMETER	Total 96 items .....	This is not used in the field.
	SERVO PARAMETER	Total 64 items .....	This is not used in the field.
	ADJ PARAMETER	Total 25 items .....	This is not used in the field.









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