Service Document

MIMAKI

SIJ-320UV

SERVICE MANUAL

MIMAKI ENGINEERING CO., LTD
URL:http://eng.mimaki.co.jp/

D501082-20

Maintenance Manual Change Tracking

Date	2015.11.10	Manual Ver.	2.00	Remark	
Status	**Index**	**Rev.**	**Changes**		
Released	全編	2.0			
Revised	2.1.2	—	New page is added.		
Revised	2.3.1	—	CN List is changed.		
Revised	2.3.2	—	Outline, lists are changed.		
Revised	2.3.3	—	CN list is changed.		
Revised	2.3.5	—	CN list is changed.		
Revised	2.3.6	—	CN list is changed.		
Revised	2.3.7	—	Outline is changed.		
Revised	2.3.8	—	CN list is changed.		
Revised	2.3.9	—	CN list is changed.		
Revised	2.3.11	—	Outline is changed.		
Revised	2.3.12	—	Outline is changed.		
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Revised	4.2.8	—	List is changed.		
Revised	4.2.12	—	Working procedures are changed.		
Revised	4.2.14	—	Illustration is changed.		
Revised	4.2.26	—	Working procedures are changed.		
Revised	4.2.28	—	Illustration is changed.		
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Revised	5.1.2	—	List is changed.		
Revised	5.1.14	—	Working procedures are changed.		
Revised	5.1.21	—	List is changed.		
Revised	7.1.2	—	List is changed.		
Revised	7.1.3	—	List is changed.		
Revised	7.1.4	—	List is changed.		
Revised	7.1.5	—	New page is added.		

Date	2015.05.25	Manual Ver.	1.10	Remark	
Status	**Index**	**Rev.**	**Changes**		
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Revised	2.3.3	1.1	P.1, P.2 List of connector is changed.		
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Revised	6.2.10	1.1	Work procedure is added.		
Revised	6.2.11	1.1	Work procedure is changed.		
Revised	6.3.3	1.1	Illustration and work procedure are changed.		

Maintenance Manual Change Tracking

Date	2015.05.25	Manual Ver.	1.10	Remark	
Status	**Index**	**Rev.**	**Changes**		
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Revised	6.5.3	1.1	Illustration is changed.		
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Date	2015.04.16	Manual Ver.	1.00	Remark	
Status	**Index**	**Rev.**	**Changes**		
Released	—	—	New issued		

Maintenance Manual Contents

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Maintenance Manual Contents

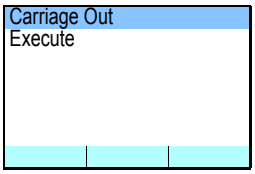
Operating Principle

Operating Principle

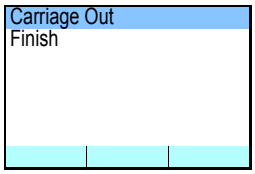
1.2.1 Carriage Out

■ Indication on LCD

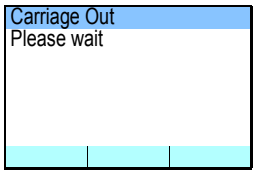
(1) Start maintenance



(2) Wait for maintenance



(3) Initial operation



■ Procedure

Step	Process	Description	LCD display
1	Start	1. Take the cap off 2. After moving the print head carriage to the maintenance location, the wiper moves to the wiping location and the servo motor is turned OFF. (The maintenance location can be selected.)	(1)
2	Maintenance	1. The unit does not operate during maintenance. 2. Wait for the end of maintenance is displayed. It is terminated by [ENTER] key.	(2)
3	End	1. After the wiper moves to its origin, move the print head carriage, then perform the initial machine operation.	(3)

Out of “Service mode”, a warning beep sounds at an interval of 30 seconds during the carriage out operation to prevent the nozzle surface and the inside of the cap from getting dry.

Operating Principle

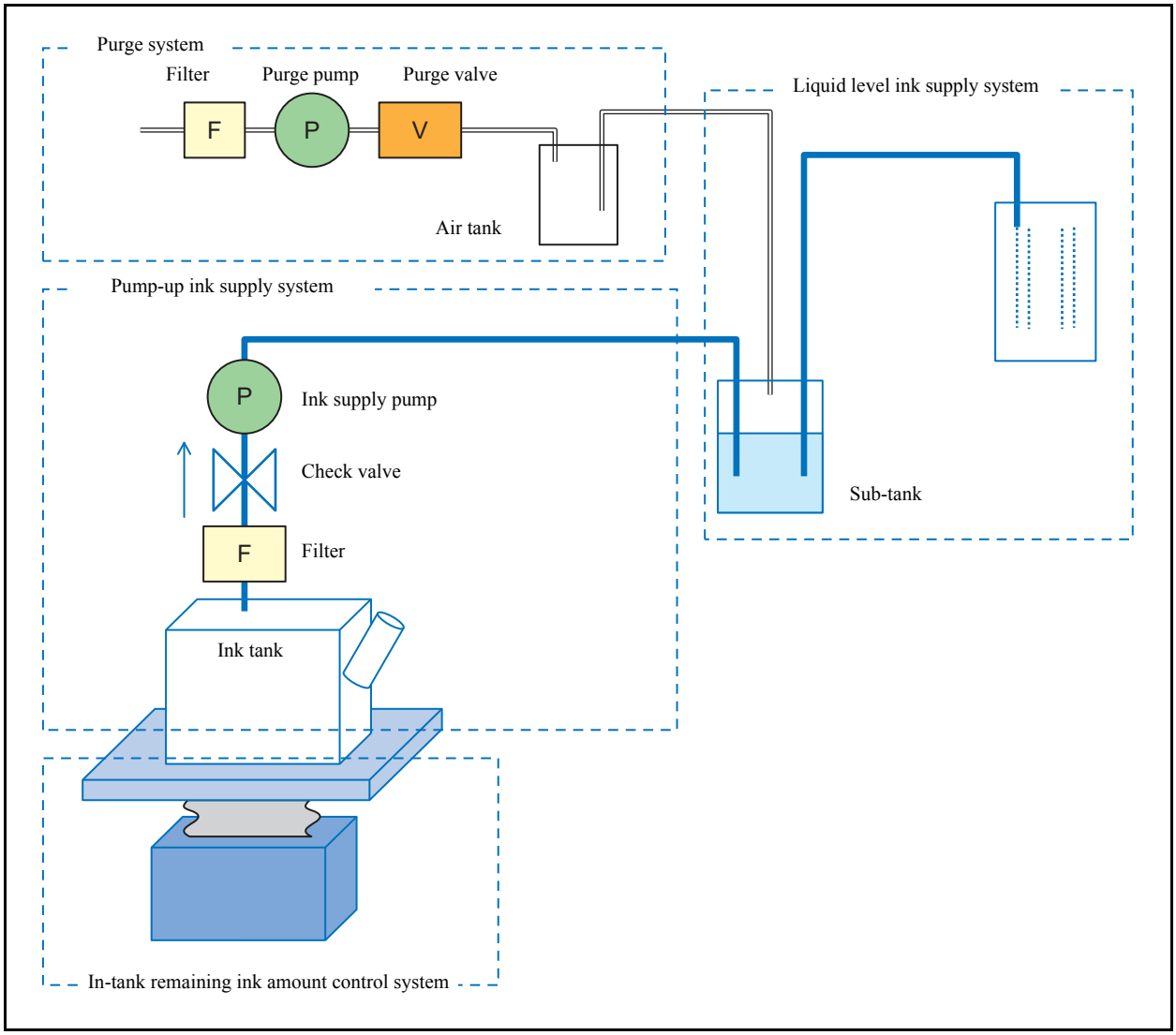
1.3.1 Ink Supply System

■ Outline

The ink supply system of SIJ-320UV consists of the following four systems.

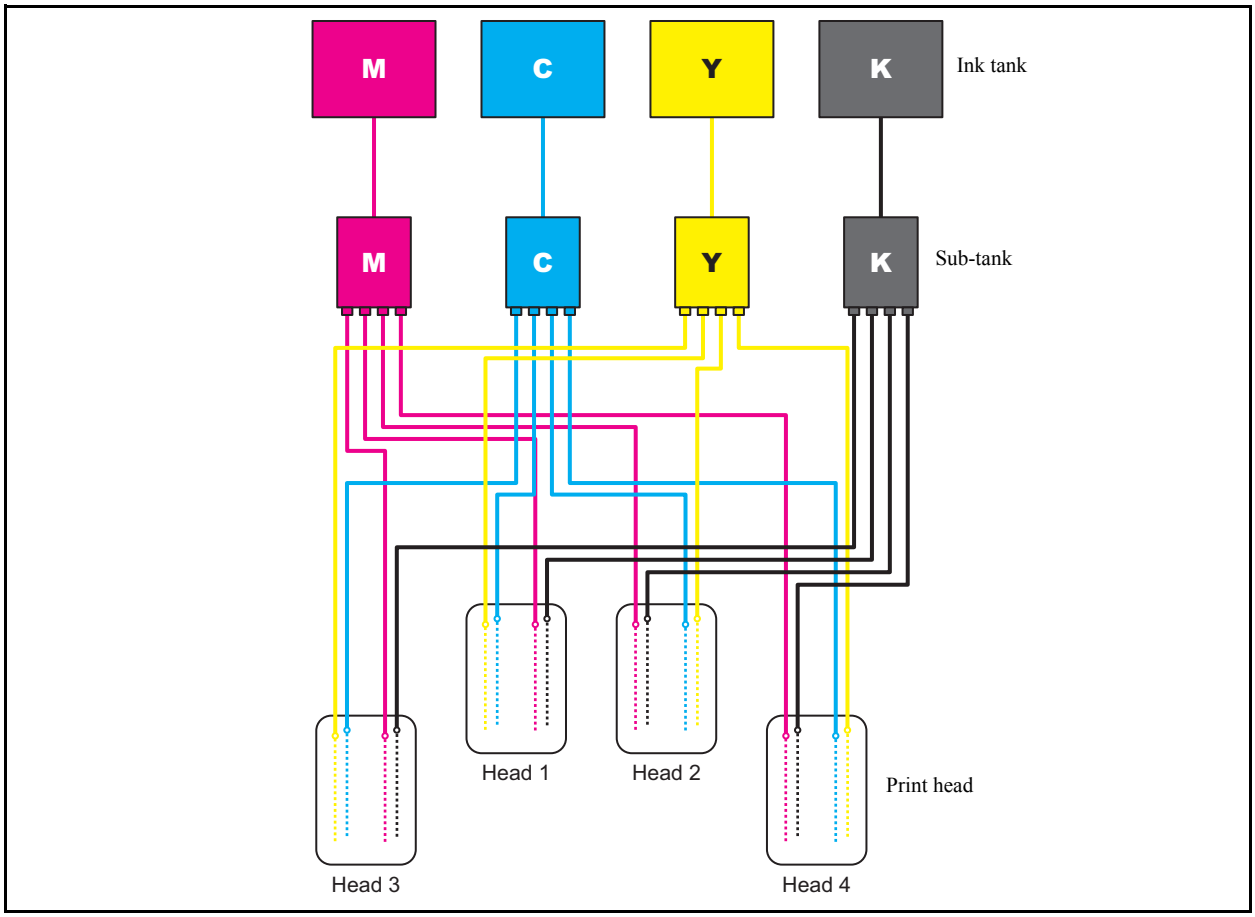
1. “In-tank remaining ink amount control system” to control the amount of ink remained in the tank.
2. “Pump-up ink supply system” to supply the ink from the ink tank to the sub-tank.
3. “Liquid level ink supply system” to supply the ink from the sub-tank to the head.
4. “Purge system” to put the ink of the sub-tank out from the nozzle.

■ Ink supply system diagram



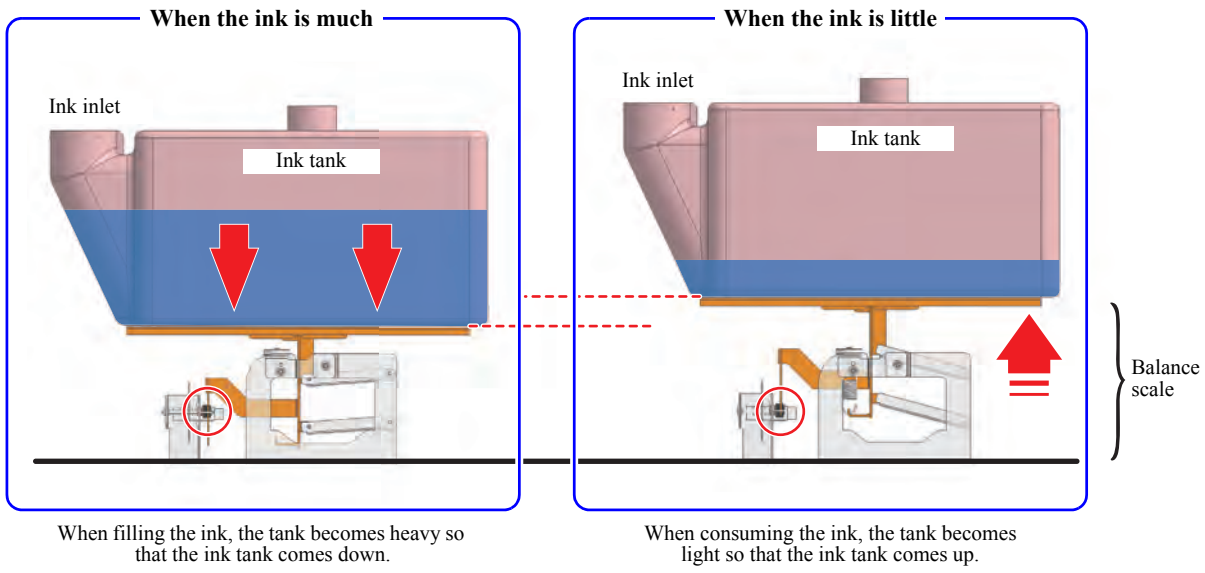
1.3.1 Ink Supply System

■ Ink supply path diagram



■ In-tank remaining ink amount control system

This is a method to detect the weight of ink tank by a balance scale and calculate the remaining ink amount.
A balance scale moves up and down according to the ink amount in the tank. Detecting its height, the ink amount in the tank is calculated. When judging the amount is little, it stops the pump-up ink supply and informs an error.



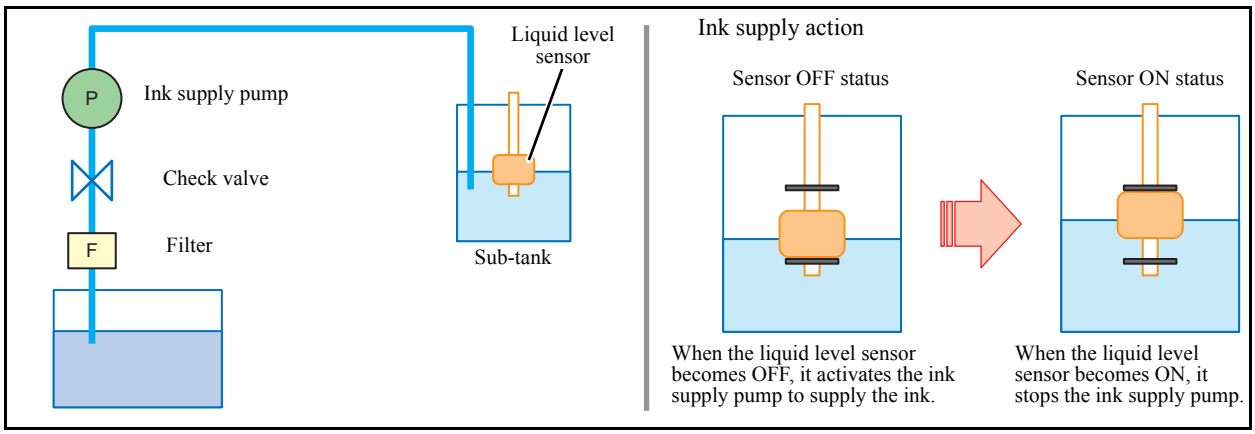
When filling the ink, the tank becomes heavy so that the ink tank comes down.

When consuming the ink, the tank becomes light so that the ink tank comes up.

1.3.1 Ink Supply System

■ Pump-up ink supply system

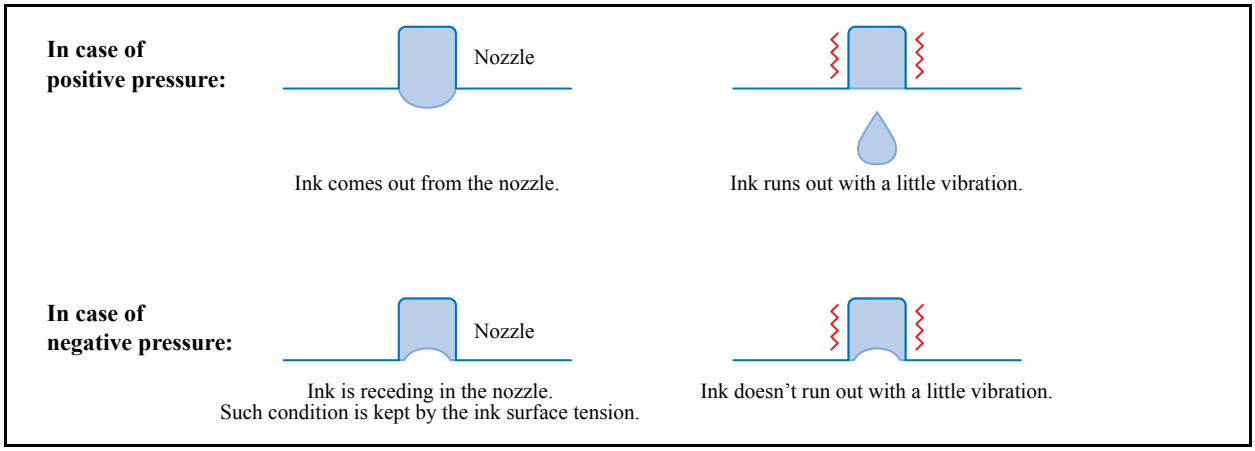
Pressure discharge ink supply method: Discharge the ink using the tube pump.
A liquid level sensor is installed in the sub-tank.
Liquid level sensor: Flout type. The sensor status is only ON/OFF.
It supplies the ink until the liquid level sensor becomes ON.



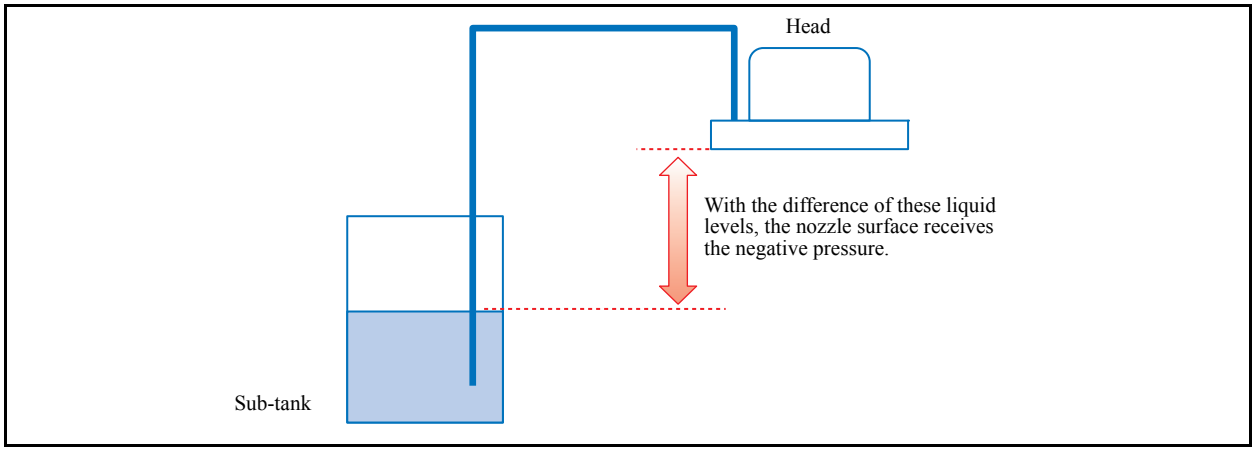
■ Liquid level ink supply system

It's necessary to keep the pressure of the nozzle surface in negative pressure so that the ink doesn't go out from the nozzle by the unintended timing. This is the system to produce such the pressure of the nozzle surface by the height of the liquid level of sub-tank.

☐ The pressure of nozzle surface



☐ To produce the pressure of the nozzle surface.



1.3.1 Ink Supply System

■ Purge system

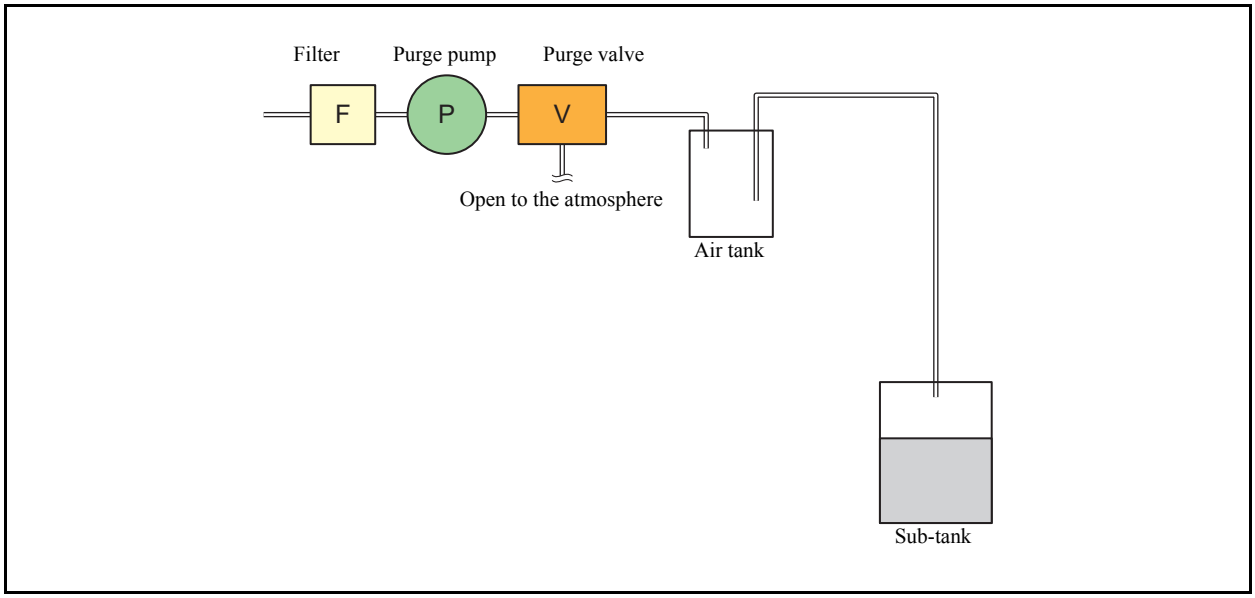
This is the system to push the ink toward the nozzle by sending air to the sub-tank by the pump and increasing the sub-tank inner pressure.

As there is only one set of the valve and the air tank, the purge must be done for all sub-tanks at once.

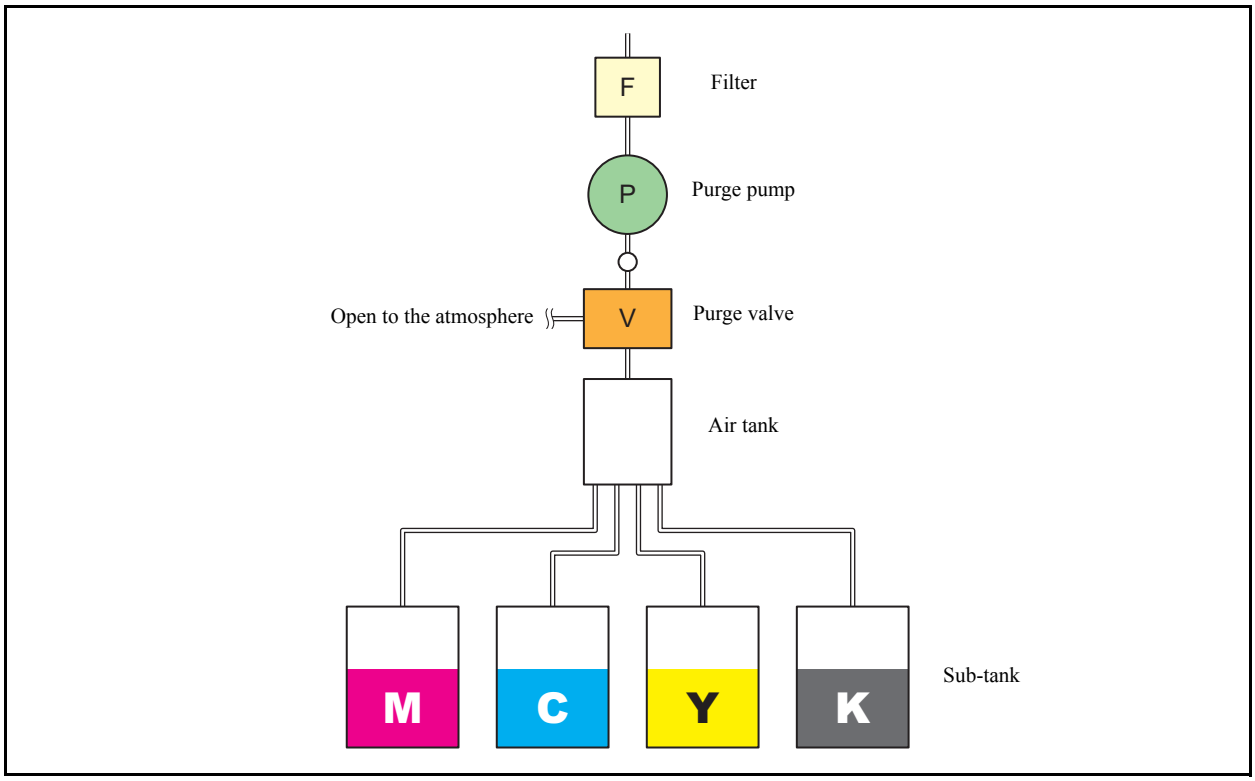
There is the air tank in between the sub-tank and the purge valve.

The liquid level sensor is applied for the air tank. If it detects the reverse flow of ink from the sub-tank, it stops the ink supply pump and inform an error.

☐ Purge system whole diagram

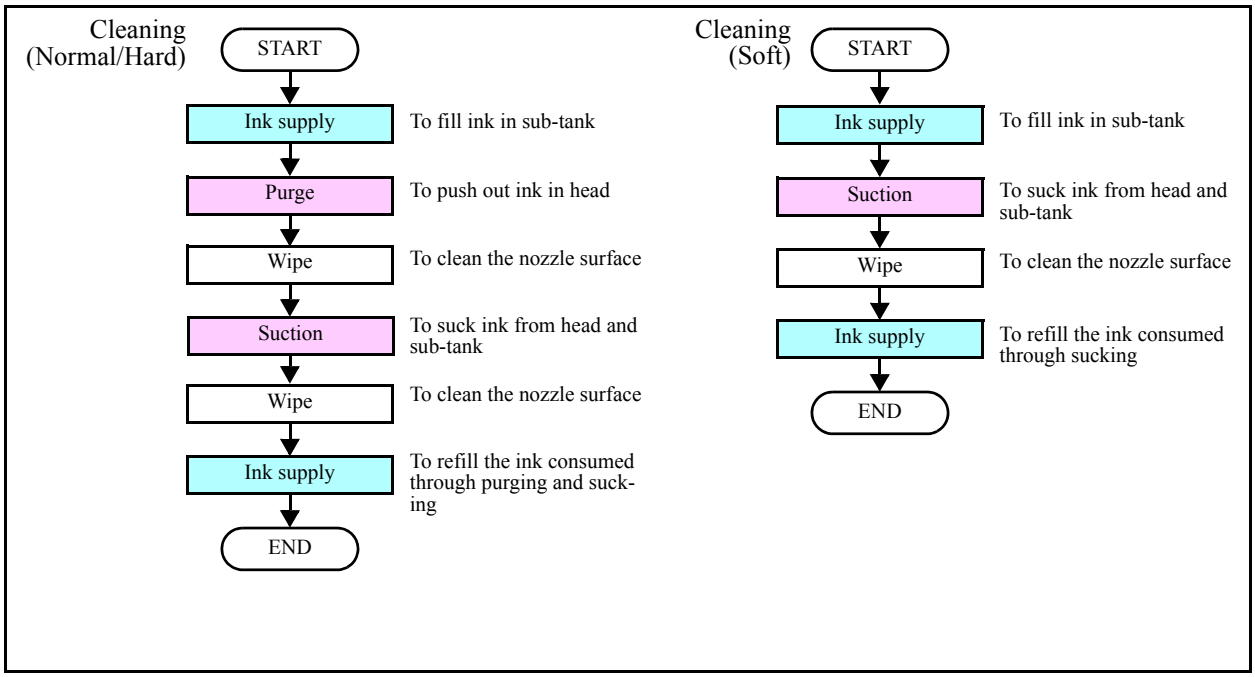


☐ Purge path diagram



1.3.1 Ink Supply System

■ Ink supply control



■ Ink system controls except ink supply system

☐ Wipe

- Wiper (station) with up/down feature
- Wiper back-and-forth motion

☐ Ink tank

☐ Periodical flushing

- As usual

1.3.2 Configuration

■ Flow of the ink supply control

No.	Item	Description
1	Monitoring of tank error	To monitor a ink error when ink is supplied. For details, see "1.3.3 Tank Ink System Error Monitoring".
2	Control of supply ink	To check the status of the ink tank. For details, see "1.3.4 Status of Ink Tank".

■ Ink system configuration

No.	Item	Description
1	Ink supply system	◆During drawing etc., ink is supplied via the ink supply pump.
2	Ink supply pump	◆Ink is supplied from the tank to the sub-tank. ◆There is one ink supply pump for one sub-tank.

1.3.3 Tank Ink System Error Monitoring

■ Monitoring of tank error

No.	Item	Description
1	Tank error check	◆A tank error is periodically checked.

■ Monitoring of ink system error

The ink system is checked for any error periodically, and the machine operation is limited according to the error, if detected. The table below shows the possible errors and the limitations on machine operation.

Priority	Ink system error	Execution status when an error occurs*2			Description of the error
		CL/ filling	Printing	Head wash	
1	Initial filling is not executed	×	×	×	Initial filling has not been executed.
2	Sub-tank error	×	×	×	Errors occurred in the sub-tank sensor and in supplying.
3	INK END error (supplying system)	×	×	○	As an error occurs on the tank, printing and ink supply action can't be executed.
4	INK NEAR END error (supplying system)	△	○	○	◆As an error occurs on the tank, ink supply action can't be executed. ◆Machine returns to LOCAL mode every completion of printing one file.
5	Ink IC *1	○	○	○	◆An error related to the ink IC has occurred. ◆To be occurred when the IC chip is inserted ◆Ink charge is impossible.
6	Expiration:2MONTH	○	○	○	◆Two month has passed since the expiration date of the ink. ◆Ink supply is impossible. ◆Ink charge is impossible.
7	Tank ink end	○	○	○	◆To be detected by the weight of tank ◆Ink in the tank has been used to the end level, with a predetermined small amount of ink remaining. ◆Ink supply is impossible. (CL can be used)
8	Tank near end	○	○	○	◆To be detected by the weight of tank ◆The ink is close to be empty. ◆The tank can be used for printing or cleaning.
9	Expiration:1MONTH	○	○	○	One month has passed since the expiration date of the ink.
10	REPLACE WIPER	○	○	○	The wiper operation count has exceeded the number which requires the replacement of the wiper.
11	INK IC Expiration	○	○	○	Ink expiration has been reached.

*1 Ink IC: WRONG INK IC, INK TYPE, INK COLOR, INK IC ALREADY USED and IC Expiration:2MONTH

*2 ○:Executable ×:Inexecutable △:Executable (restricted)

1.3.3 Tank Ink System Error Monitoring

■ Errors related to the amount of remaining ink

- The amount of remaining ink in the tank is calculated from the weight of ink tank.
  According to the amount of remaining ink in the tank, an error is issued.
- The amount of charged ink is subtracted by the amount of consumed ink. The amount of consumed ink is calculated from the number of ink shots by printing and flushing or the amount of ink sucked by cleaning and filling.
  An error is issued according to the amount of remaining ink.

No.	Item	Description	
		Error detect timing	Limitations after error detection
1	Near end	To be occurred when the weight of ink tank becomes below the specified amount.	
2	Ink end	To be occurred when the weight of ink tank becomes below the specified amount.	
3	Charge near end	The charged ink amount becomes scanty. (A marginal amount is left.)	
4	Charge ink end	Amount of charging ink is zero. (A marginal ink is empty.)	
5	TANKlevel High	Even if a specific amount of ink has been consumed in the sub-tank, the Hi sensor remains “ON”.	

1.3.4 Status of Ink Tank

■ **Availability of ink supply**

Normal tank	Tank near end	Tank ink end	Expiration:2MONTH Charge ink end
○	△	×	×

○: Both discharge and supply are allowed. ×: Neither discharge nor supply is allowed (Ink end error).
△: Drawing is allowed, and supply is restricted. (Ink near end error).

1.3.5 Supply Pump Control

■ Outline

1 Use the roller pump.

2 Normally, it is in the released status (tube is not squashed).

3 After ink was supplied, be sure to perform the operation to make it be in the released status.

■ Operation status

Operation	Description
Ink supply	When rotating the pump, ink can be sent.
Make it be in the released status.	By reversing the pump, release the lock of the roller.
Released status	Status that the lock in the pump has been released
Locked status	Status when stopping the pump rotating for ink supply As the tube is squashed, ink does not flow.

1.3.6 Monitoring of the Amount of Remaining Ink

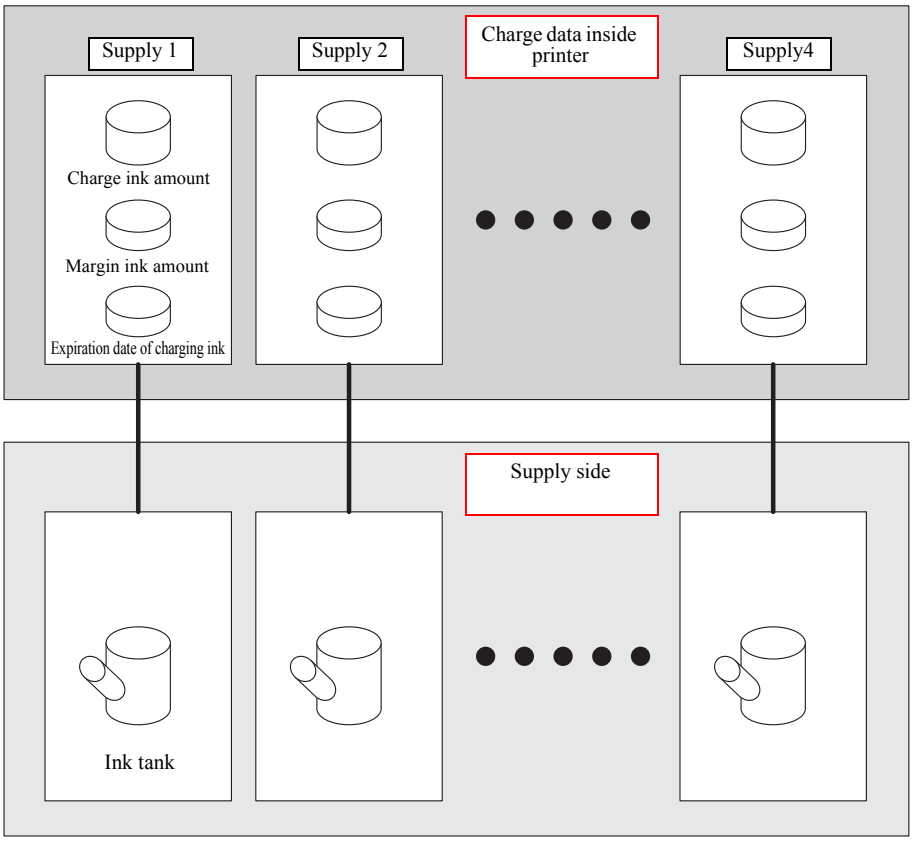
■ Outline

- The amount of remaining ink in the tank is calculated from the weight of ink tank.
- A tank error is issued according to the amount of remaining ink.

■ Configuration of Ink charge method

1. In the ink charge method, two kinds of data; the ink amount and the expiration date are saved in the printer.
2. Amount of ink consists of the charge ink amount and the margin ink amount.
   Margin ink amount is operated for the amount of supporting ink which makes up for an error between the charge ink amount and the real amount of remaining ink.
3. Ink expiration date means the expiration date of charge ink, and it is used for managing the expiration date of ink in ink tank.
4. These are for charge data, and keep four data of the path by supply units in below figure.
5. When perform charging, the charge data is changed.

Relations of the charge preservation data and the supply system

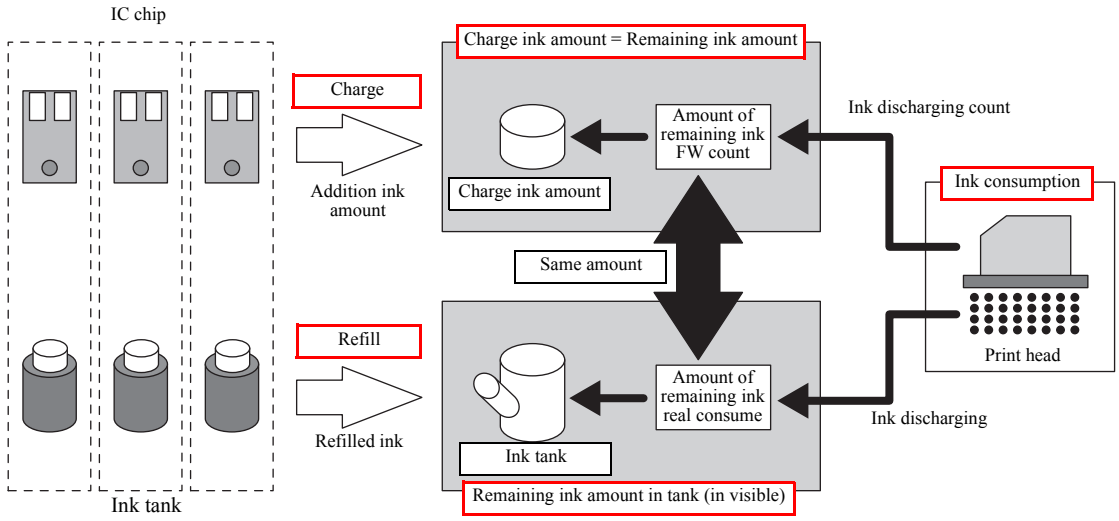


1.3.6 Monitoring of the Amount of Remaining Ink

■ Ink consumption of ink charge method

1. Ink tank is not replaced, ink is refilled in the ink tank.
2. Informations of ink amount and expiration date in ink IC chip is charged in printer.
3. Ink consumption deduce the value by access amount of charge ink not ink IC.
4. Expiration date of ink is made a judgment by access expiration date of charge ink not ink IC.
5. Amount of remaining ink in ink tank can be check in visible.

Ink charge method and Ink refile method



■ Calculation of the amount of consumed ink

● Ink discharging during printing and flushing

- The amount of ink consumed by ink discharging is calculated by counting the number of ink shots.
- This machine counts the ink shots per a dot size (small, middle, large) for each row of nozzles.

■ Updating of the amount of charge ink

The amount of charge ink is updated by the following timing.

No.	Timing for updating	Execution conditions
1	When more than the specified amount of ink was discharged	◆ When ink was consumed by drawing and flushing, writing is performed with the specified amount.
2	At completion of cleaning	◆ Cleaning was executed.
3	When the discharge/ filling operation other than 2 has been completed (maintenance operation) (Sub-tank maintenance, Sub-tank discharge/filling etc.)	◆ Sub-tank maintenance was executed. ◆ Discharging and filling of sub-tank was done.

1.3.6 Monitoring of the Amount of Remaining Ink

■ Configuration

1.Ink tank: Case of the tank to be inserted in the printer
2.IC chip: Ink information has been written in. Insert to the dedicated slot.

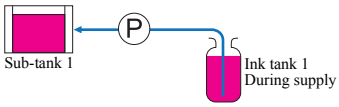
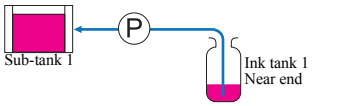
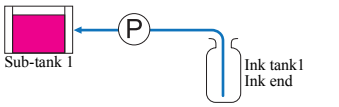
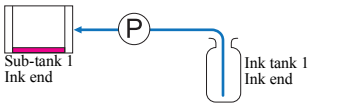
■ Usage

Pour the ink into the ink tank to execute the ink charge (*1).

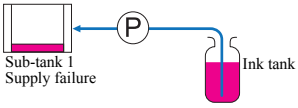
*1: only for the ink with the built-in ink IC

■ Ink consumption flow

The flow from the beginning to use a new ink to replacing the ink at ink end, including consuming ink.

Order up to consumption	State	Image	Error indication	Explanation
1	Beginning to use			Normal status Ink is supplied from the ink tank to the sub-tank.
2	Ink near end (Supply system near end) ◆ Tank near end		<LOCAL> INK NEAR END	Ink in the ink tank becomes less. Refill the ink as soon as possible. Printing/ cleaning can be performed.
3	Ink end (Supply system near end) ◆ Tank ink end		<LOCAL> INK END	As ink in the sub-tank, printing can be performed for a while. Refill the ink as soon as possible.
4	Ink end (Supply system ink end) ◆ Tank ink end		<LOCAL> INK END	Ink has been run out both in the ink tank and the sub-tank. Refill the ink.

■ Errors that occur in ink supply

	State	Image	Error indication	Error contents	Coping
1	Ink supply error		ERROR 61b SUPPLY INK :1234 The sub-tank number is displayed.	Ink was not sent to the sub-tank to the specified amount. An error may occur in the sub-tank.	Perform sub-tank maintenance. After sub-tank maintenance, this error is canceled. If it is not canceled, check in the supply path.

■ Process when filling has failed

SIJ-320UV detects the tank end by the weight sensor in the ink supply unit.

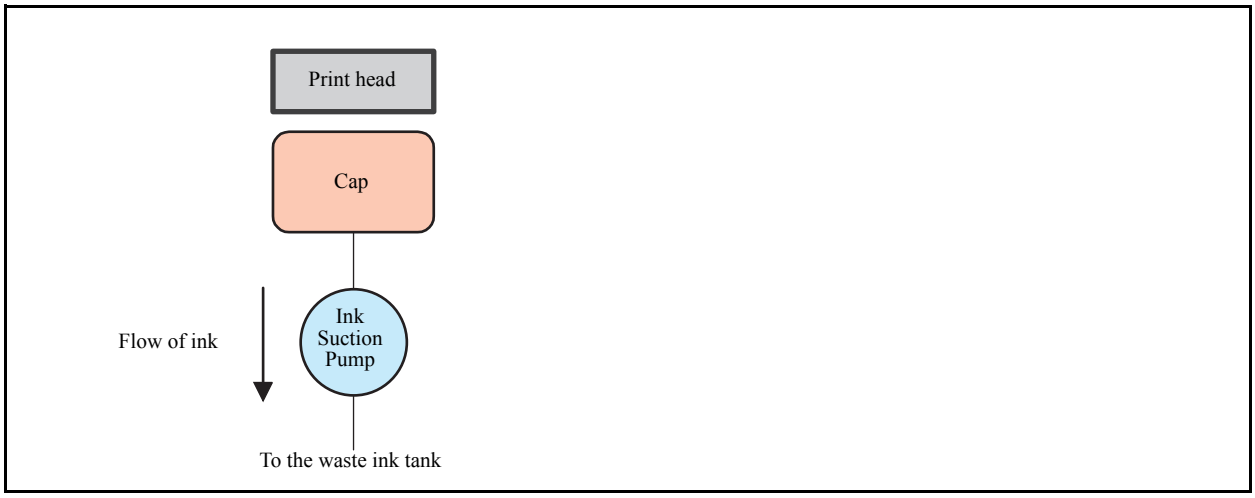
1.3.7 Ink Suction and Discharge Control

■ Outline of control

The ink suction and discharge mechanism is driven by roller pumps (ink suction pumps).

■ System configuration

The system configuration of the ink suction and discharge mechanism is as shown below.



1.3.8 Initial Filling

■ Operation sequence for initial filling

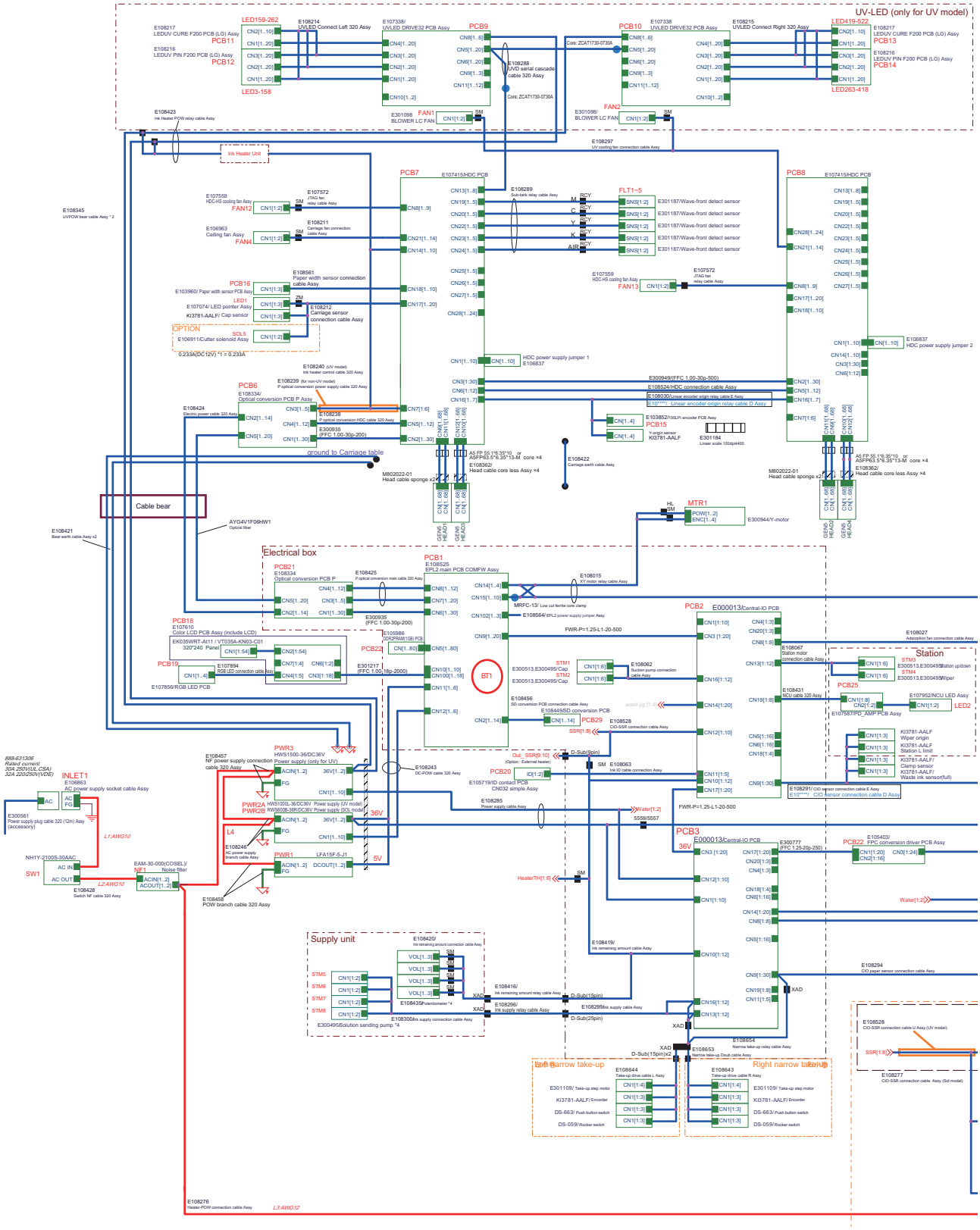
The sequence of initial ink filling is shown below:

No.	Item	Description
1	Selection of ink type (ink type)	Select a set value shown below. Setting value: LUS-120
2	Tank calibration	Adjust the balance scale in the ink unit.
3	Washing before filling	Execute the filling and discharge of the washing liquid. 1. Perform filling to the “High” position of the sub-tank. 2. Execute the suction and ink supply for a specific time. 3. Remove the washing liquid and execute the suction and supply for a specific time.
4	Ink filling	Set the ink tank and pour the ink to fill. 1. Set the ink IC, read the data from ink IC to the machine. (for charging system.) 2. Fill into the path. a) Perform filling to the “High” position of the sub-tank. b) Shake the head. c) Discharge all ink inside the sub-tank. d) Perform filling to the “High” position of the sub-tank again. 3. Fill into the head. a) Suck for a specific time. b) Perform filling to the air purge port at the near side of the head and remove air inside the head. c) Perform cleaning. • Filling will not be executed if a warning about the ink tank is displayed. • When a warning/ an error occurred in the tank during filling, terminate filling.

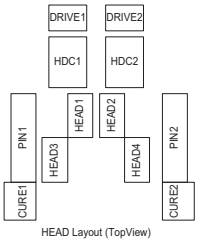
Be careful that ink does not spatter to the PCB head when discharging and filling ink from the air purge port.If needed, cover the PCB using waste cloth.

Electrical Parts

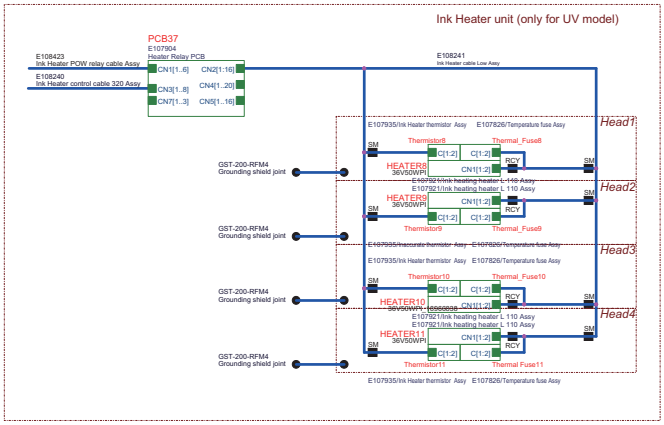
2.1.1 Connection Diagram Inside the Main Unit

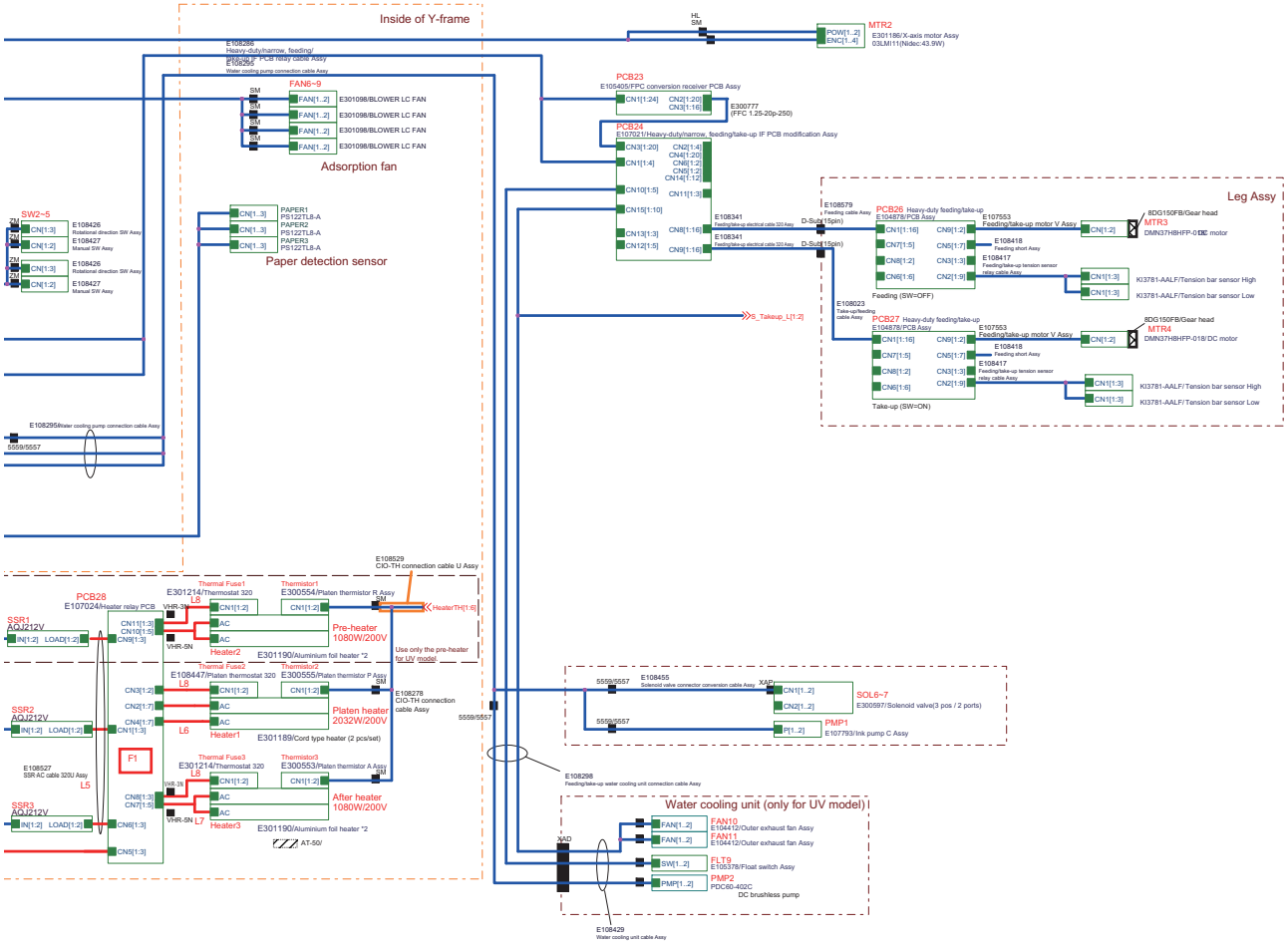


2.1.1 Connection Diagram Inside the Main Unit



HEAD Layout (TopView)





2.1.2 Fuse Check

■ **Procedure when the fuse is blown**

1) Refer the following fuse connection diagram. Check if there is any adhesion of ink or cleaning solution to the PCB or cable that is connected to the blown fuse, and check whether there is incorrect cable connection. → If there is abnormal, replace the parts.

2) Replace the PCB of the blown fuse.

3) By the tester measure the resistance between the fuse and GND after the replacement.

☐ 1. If the resistance is 0 to several Ω, it will be determined to be short forward the fuse.

1.Remove a sensor, motor, head, and cable, etc that are connected to PCB.

2.Check it for a short again, if it is not short circuited, connect the removed parts one by one.

3.Repeat above 2. and replace the parts where the short was confirmed.

4.if a short circuit persists even after removing the sensor and motor related, replace the PCB.

5.Make sure that the short is gone, and turn on the power.

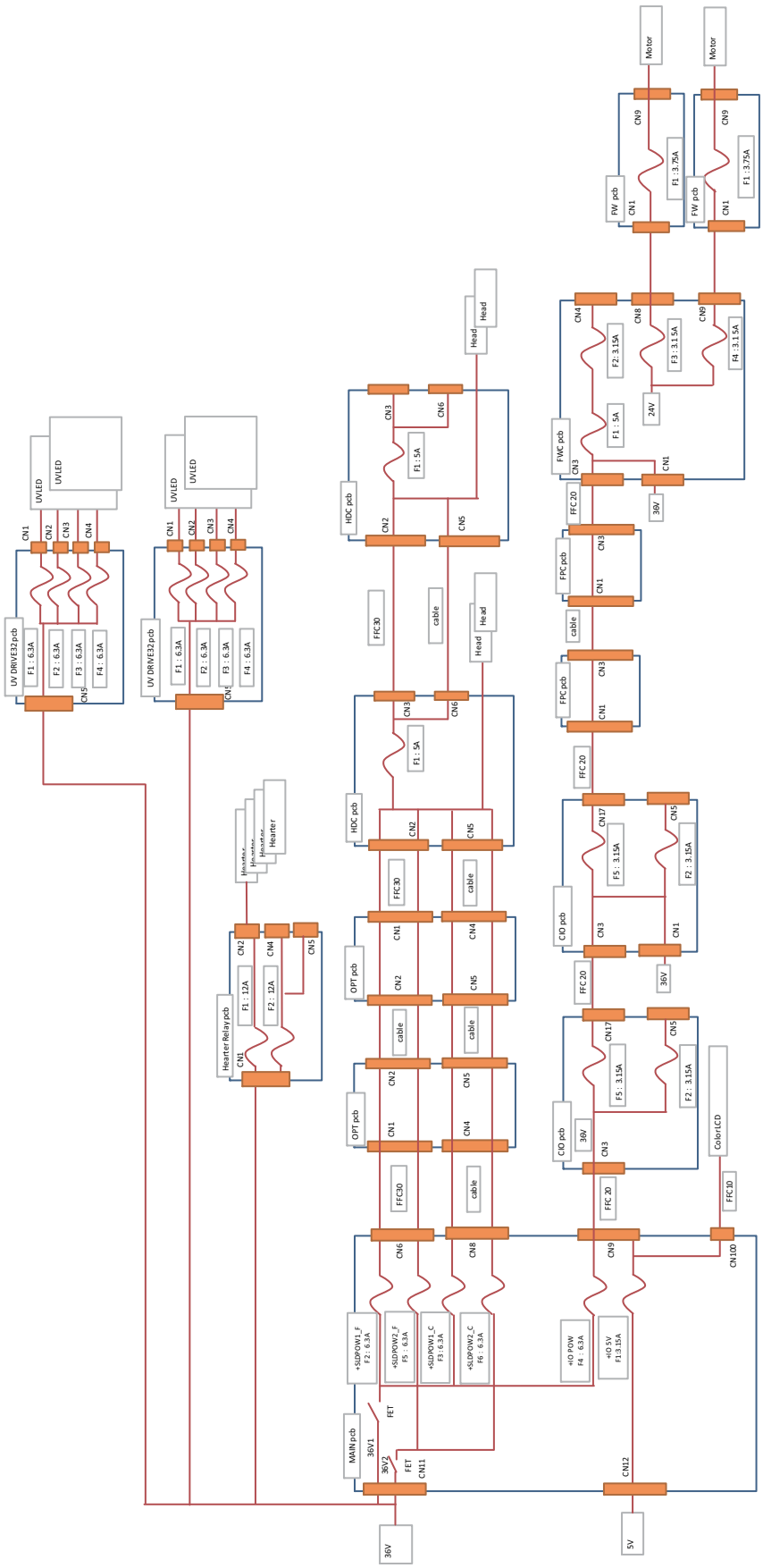
☐ 2. It has not been short, or if you can not confirm the short, leave removing the parts associated with the error that had occurred just before. (Example; Occurred HD THERMIS [12] → remove the head?

1.If fuse is blown after the power is turned on, exchange the removed parts.

2.If the fuse is blown again, it is judged that there is a short circuit in another part. Repeat from 1).

2.1.2 Fuse Check

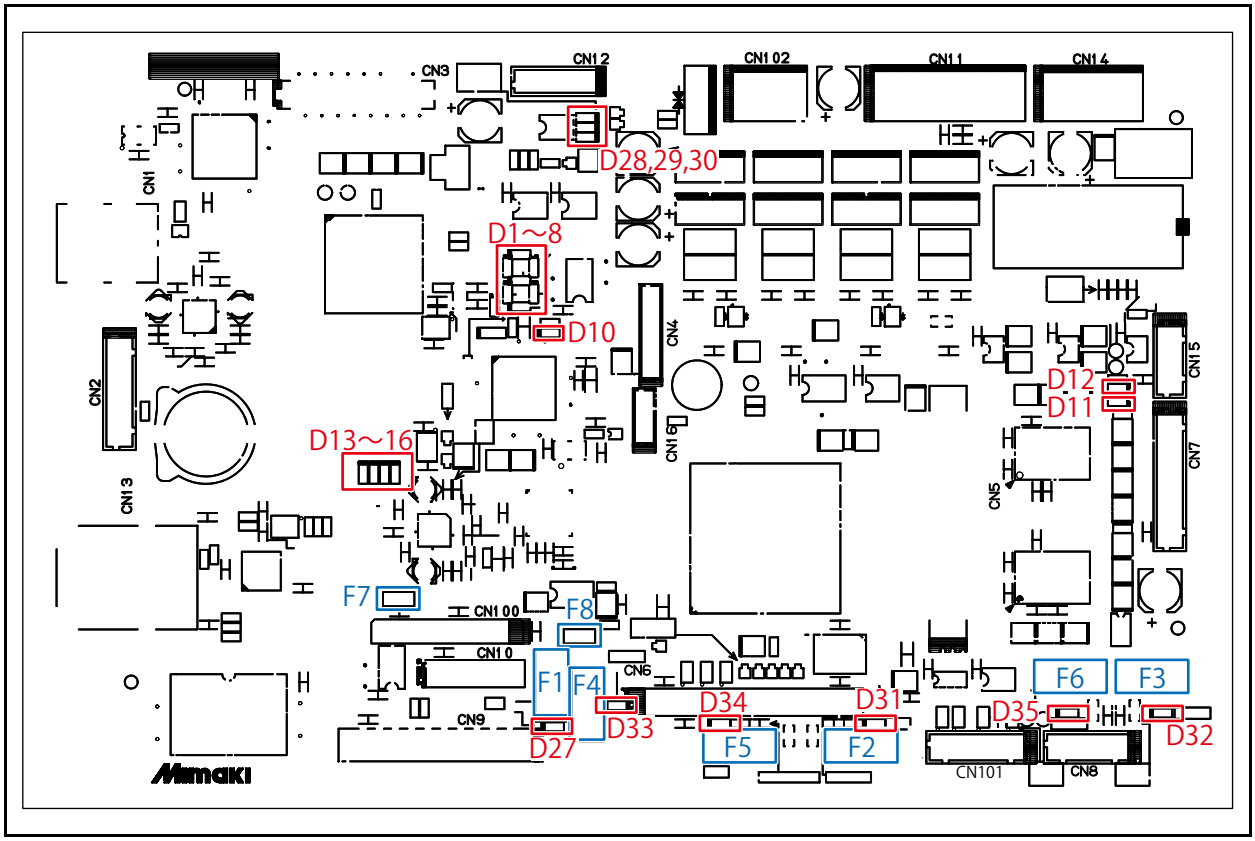
■ **Fuse Connection Diagram**



Electrical Parts

Electrical Parts

2.3.1 EPL2 Main PCB Assy.



■ Outline

Board name: EPL2 main PCB assy. (E000019)

Mounted position: in the electrical box

☐ Main specifications

The main PCB assy. consists of a CPU to receive data from a PC via USB and support mail function through Ethernet. It also conducts X/Y motor control, image data processing, and IO PCB control.

■ List of connectors

Part No.	Pin	Purpose of use	AC/DC	Remark
CN1	4	USB	DC	
CN2	16	SD memory control	DC	
CN3	80	For debugging	DC	
CN4	9	For debugging	DC	not used
CN5	80	For the extended memory PCB	DC	
CN6	30	Connection for slider type IF	DC	
CN7	20	Cover switch and etc…	DC	
CN8	12	Connection for slider type IF	DC	
CN9	20	IO PCB IF	DC	
CN10	10	LCD keyboard IF for characters	DC	not used
CN11	6	Power input	DC	
CN12	6	Power control	DC	
CN13	12	Ethernet	DC	
CN14	4	Motor engine	DC	
CN15	10	Motor encoder	DC	
CN16	5	For debugging	DC	

2.3.1 EPL2 Main PCB Assy.

Part No.	Pin	Purpose of use	AC/DC	Remark
CN100	18	Color LCD IF	DC	
CN101	14	Connection for slider type IF	DC	not used
CN102	3	Regenerative voltage for connecting the cancel PCB	DC	

*For the details of connecting destinations, refer to the block diagram.

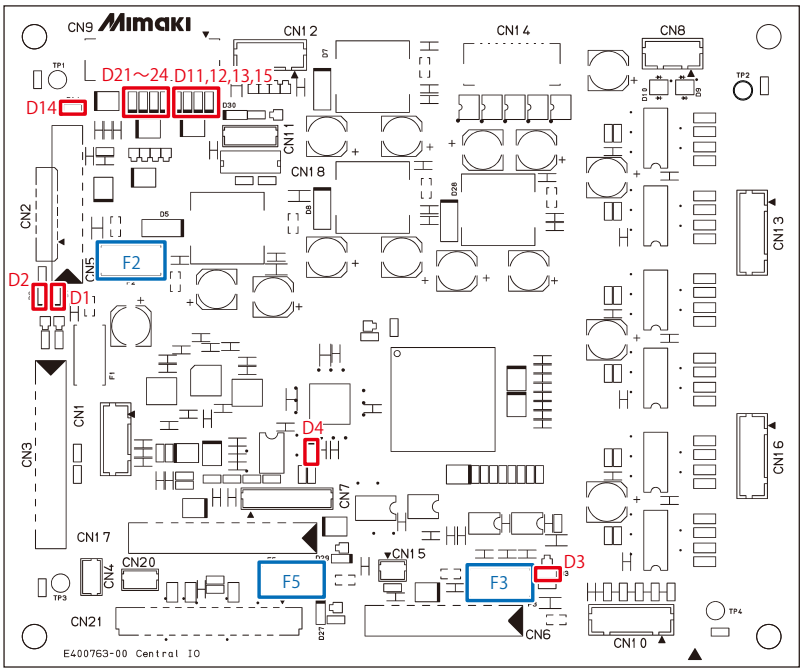
■ Fuse Specifications

Parts No.	Type	Purpose of use	Rate	Check LED	Remark
F1	01543.15	For IO5V	3.15A	D27	
F2	015406.3	Slider type 1	6.3A	D31	
F3	015406.3	Slider type 1	6.3A	D32	
F4	015406.3	Slider type 1	6.3A	D33	
F5	015406.3	Slider type 1	6.3A	D34	
F6	015406.3	Slider type 1	6.3A	D35	
F7		For Color LCD	0.45A		PTC fuse
F8		For characters	0.45A		PTC fuse

■ LED Specifications

Parts No.	Purpose of use	Remark
D1~D8	CPU status display LED	
D10	CPU write display LED	
D11	Y-origin sensor display LED	
D12	Back-up sensor display LED	
D13~D16	LED for FPGA debugging	
D27	LED for checking the power source (5V) for IO PCB	+IO5V
D28	LED for checking the +5V power input	+5VB
D29	LED for checking the +42V power input 2	+V2
D30	LED for checking the +42V power input 1	+V1
D31	LED for checking the slider type power source 1	+SLDPOW1_F
D32	LED for checking the slider type power source 2	+SLDPOW1_C
D33	LED for checking the power source (42V) for IO PCB	+IO POW
D34	LED for checking the slider type power source 1	+SLDPOW2_F
D35	LED for checking the slider type power source 2	+SLDPOW2_C

2.3.2 Central-IO PCB Assy.



■ Outline

Board name: Central-IO PCB assy. (E000013)

Mounted position: in the electrical box

☐ Main specifications

Pump motor, Wiper motor, Station up/down motor, Sensor and etc. are connected.

This memorizes main parameters.

This machine uses two of this.

2.3.2 Central-IO PCB Assy.

■ List of connectors

☐ First board

Part No.	Pin	Purpose of use	AC/DC	Remark
CN1	10	not used	DC	
CN2	10	not used	DC	Connector is not mounted
CN3	20	EPL2 main PCB assy.	DC	
CN4	3	not used (cover sensor)	DC	
CN5	16	not used	DC	
CN6	16	not used	DC	Connector is not mounted
CN7	9	not used	DC	For debugging
CN8	8	Vacuum fan	DC	
CN9	30	Clamp, Wiper, Station L, 3 position switch, Single port switch	DC	Sensor input
CN10	12	Heater thermistor, Ink amount	DC	
CN11	5	ID contact PCB	DC	
CN12	10	Heater SSR	DC	
CN13	12	Station up/down motor, Wiper motor	DC	
CN14	20	for JIG	DC	
CN15		not used	DC	Connector is not mounted
CN16	12	Cap motor	DC	
CN17	20	CIO-2 PCB	DC	
CN18	4	not used	DC	
CN19	8	PD-AMD PCB	DC	NCU
CN20	3		DC	

*For the details of connecting destinations, refer to the block diagram.

☐ Second board

Part No.	Pin	Purpose of use	AC/DC	Remark
CN1	10	36V-1000W power supply	DC	
CN2	10	not used	DC	Connector is not mounted
CN3	20	CIO-1 PCB	DC	
CN4	3	not used (cover sensor)	DC	
CN5	16	Paper sensor, small take-up switch	DC	
CN6	16	not used	DC	Connector is not mounted
CN7	9	not used	DC	For debugging
CN8	8	Cooling water pump	DC	
CN9	30	Paper sensor	DC	
CN10	12	Ink amount	DC	
CN11	5	not used	DC	
CN12	10	36V-1500W power supply control	DC	
CN13	12	Ink supply pump, narrow take-up motor	DC	
CN14	20	Cooling water pump, pressure pump, valve	DC	
CN15		not used	DC	Connector is not mounted
CN16	12	Ink supply pump, narrow take-up motor	DC	
CN17	20	FPC converting driver PCB	DC	
CN18	4	not used	DC	
CN19	8	not used	DC	
CN20	3		DC	

*For the details of connecting destinations, refer to the block diagram.

2.3.2 Central-IO PCB Assy.

■ Fuse Specifications

Parts No.	Type	Purpose of use	Rate	Check LED	Remark
F2			3.15A	D2	not used
F3			3.15A	D2	Connector is not mounted
F5			3.15A	D29	

■ LED Specifications

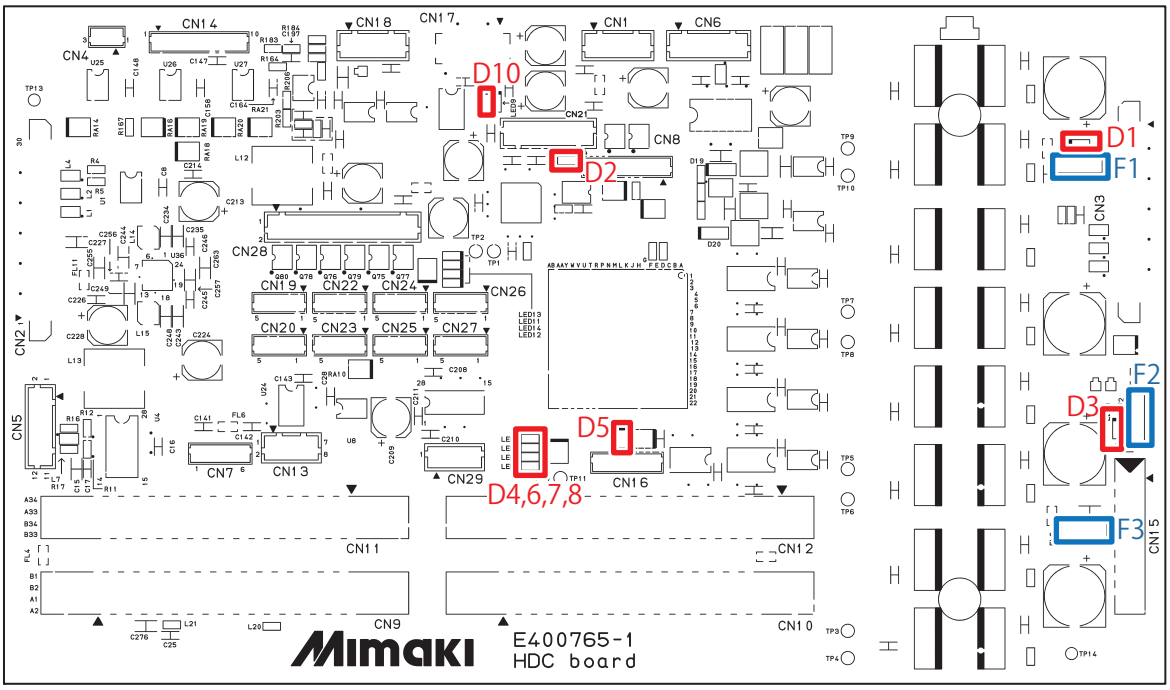
☐ First board

Parts No.	State	Remark
D1	Connector is not mounted	
D2	F2 fuse check (ON by energizing and OFF by shut down)	
D3	Connector is not mounted	
D4	For identifying FPGA, spare	
D11	Station L sensor (sensor light shielding = extinction)	
D12	Wiper sensor (sensor light shielding = extinction)	
D13	Clamp sensor (sensor light shielding = extinction)	
D14	Connector is not mounted	
D15	Waste ink sensor H (sensor light shielding = extinction)	
D21	Waste ink sensor L (sensor light shielding = extinction)	
D22	Single port switch	
D23	3 position switch	
D24	3 position switch	
D25	F5 fuse check (ON by energizing and OFF by shut down)	

☐ Second board

Parts No.	Purpose of use	Remark
D1	Connector is not mounted	
D2	F2 fuse check (ON by energizing and OFF by shut down)	
D3	Connector is not mounted	
D4	For identifying FPGA, spare	
D11	Paper sensor 1 (sensor light shielding = extinction)	
D12	Paper sensor 2 (sensor light shielding = extinction)	
D13	Paper sensor 3 (sensor light shielding = extinction)	
D14	Connector is not mounted	
D15	not used (always on)	
D21	Narrow take-up1(manual = ON)	
D22	Narrow take-up2(manual = ON)	
D23	Narrow take-up1(direction)	
D24	Narrow take-up2(direction)	
D25	F5 fuse check (ON by energizing and OFF by shut down)	

2.3.3 HDC PCB Assy.



■ Outline

Board name: HDC PCB assy. (E107415)

Mounted position: in the carriage

☐ Main specifications

The COM wave shape for the head drive is created and transferred to the head. The Z-axis drive, UV LED drive, PCB connection, cap pin control, pressure control and ink sub-tank are watched.

This machine uses two of this.

■ List of connectors

☐ First board

Part No.	Pin	Purpose of use	AC/DC	Remark
CN1	10	HDC power supply jumper 1	DC	
CN2	30	Optical converting PCB P Assy	DC	
CN3	30	HDC PCB assy. (Second board)	DC	
CN4	3	not used	DC	
CN5	12	Optical converting PCB P assy.	DC	
CN6	12	HDC PCB assy. (Second board)	DC	
CN7	6	Optical converting PCB P assy., Heater relay PCB	DC	
CN8	9	HDC cooling fan	DC	
CN9	68	Print head 3	DC	
CN10	68	Print head 1	DC	
CN11	68	Print head 3	DC	
CN12	68	Print head 1	DC	
CN13	8	UV LED DRIVE32 PCB 1	DC	
CN14	10	Optical converting PCB P assy., Heater relay PCB	DC	
CN15	16	not used	DC	
CN16	7	150LPI encoder PCB, Y-origin sensor	DC	

2.3.3 HDC PCB Assy.

Part No.	Pin	Purpose of use	AC/DC	Remark
CN17	20	LED pointer, Cutter, Cap sensor	DC	
CN18	10	Paper width sensor PCB assy.	DC	
CN19	5	Liquid detection sensor (M)	DC	
CN20	5	Liquid detection sensor (C)	DC	
CN21	14	Ceiling fan assy.	DC	
CN22	5	Liquid detection sensor (Y)	DC	
CN23	5	Liquid detection sensor (K)	DC	
CN24	5	Liquid detection sensor (AIR)	DC	
CN25	5		DC	
CN26	5		DC	
CN27	5		DC	
CN28	24		DC	

*For the details of connecting destinations, refer to the block diagram.

☐ Second board

Part No.	Pin	Purpose of use	AC/DC	Remark
CN1	10	HDC power supply jumper 2	DC	
CN2	30	HDC PCB assy. (First board)	DC	
CN3	30	not used	DC	
CN4	3	not used	DC	
CN5	12	HDC PCB assy. (First board)	DC	
CN6	12	not used	DC	
CN7	6	not used	DC	
CN8	9	HDC cooling fan	DC	
CN9	68	Print head 4	DC	
CN10	68	Print head 2	DC	
CN11	68	Print head 4	DC	
CN12	68	Print head 2	DC	
CN13	8	not used	DC	
CN14	10	not used	DC	
CN15	16	not used	DC	
CN16	7	150LPI encoder PCB	DC	
CN17	20	JAM sensor	DC	
CN18	10	not used	DC	
CN19	5	not used	DC	
CN20	5	not used	DC	
CN21	14	UV cooling fan	DC	
CN22	5	not used	DC	
CN23	5	not used	DC	
CN24	5	not used	DC	
CN25	5	not used	DC	
CN26	5	not used	DC	
CN27	5	not used	DC	
CN28	24	not used	DC	

*For the details of connecting destinations, refer to the block diagram.

■ Fuse Specifications

Parts No.	Type	Purpose of use	Rate	Check LED	Remark
F1			5A	LED1	

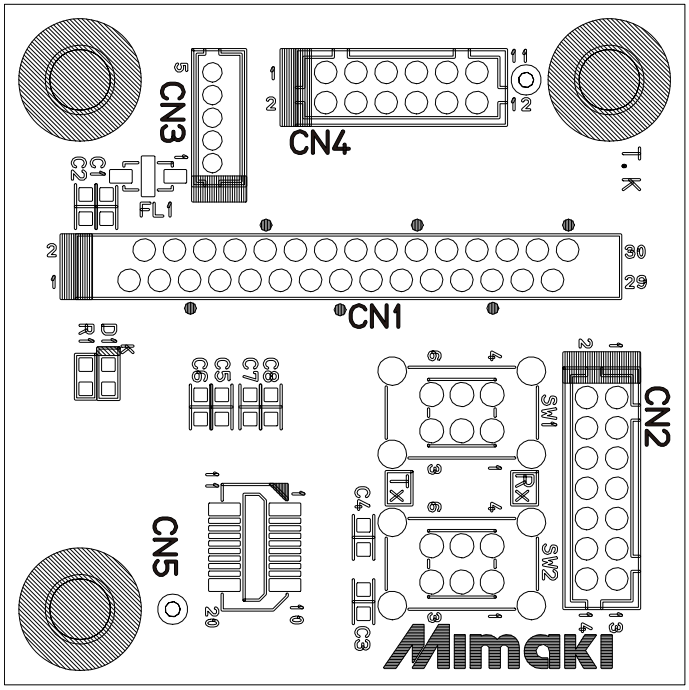
2.3.3 HDC PCB Assy.

Parts No.	Type	Purpose of use	Rate	Check LED	Remark
F2					Connector is not mounted
F3					Connector is not mounted

■ **LED Specifications**

Part No.	State	Remark
LED1	F1 fuse check (ON by energizing and OFF by shut down)	
LED2	3.3V check (ON by energizing)	
LED3		Connector is not mounted
LED4	D4,D6,D7,D8=Indicate the inside condition (any LED is off = ERROR, all LEDs on = normal)	
LED5		
LED6	D4,D6,D7,D8=Indicate the inside condition (any LED is off = ERROR, all LEDs on = normal)	
LED7	D4,D6,D7,D8=Indicate the inside condition (any LED is off = ERROR, all LEDs on = normal)	
LED8	D4,D6,D7,D8=Indicate the inside condition (any LED is off = ERROR, all LEDs on = normal)	
LED9-10		Connector is not mounted

2.3.4 Optical Converting PCB P Assy.



■ Outline

Board name: Optical converting PCB P assy. (E108334)

Mounted position: in the electrical box and carriage

☐ Main specifications

The HDC PCB on the slider is connected using the optical fiber cable.

■ List of connectors

☐ First board

Part No.	Pin	Purpose of use	AC/DC	Remark
CN1	30	EPL2 main PCB assy.	DC	Serializer IF
CN2	12	Optical converting PCB P assy.	DC	36V power supply
CN3	5	EPL2 main PCB assy.	DC	3.3V power supply
CN4	12	EPL2 main PCB assy.	DC	Serializer IF
CN5	20	Optical converting PCB P assy. (second board)	DC	

☐ Second board

Part No.	Pin	Purpose of use	AC/DC	Remark
CN1	30	HDC PCB assy.	DC	Serializer IF
CN2	12	Optical converting PCB P assy.	DC	36V power supply
CN3	5	HDC PCB assy.	DC	3.3V power supply
CN4	12	HDC PCB assy.	DC	Serializer IF
CN5	20	Optical converting PCB P assy. (second board)	DC	

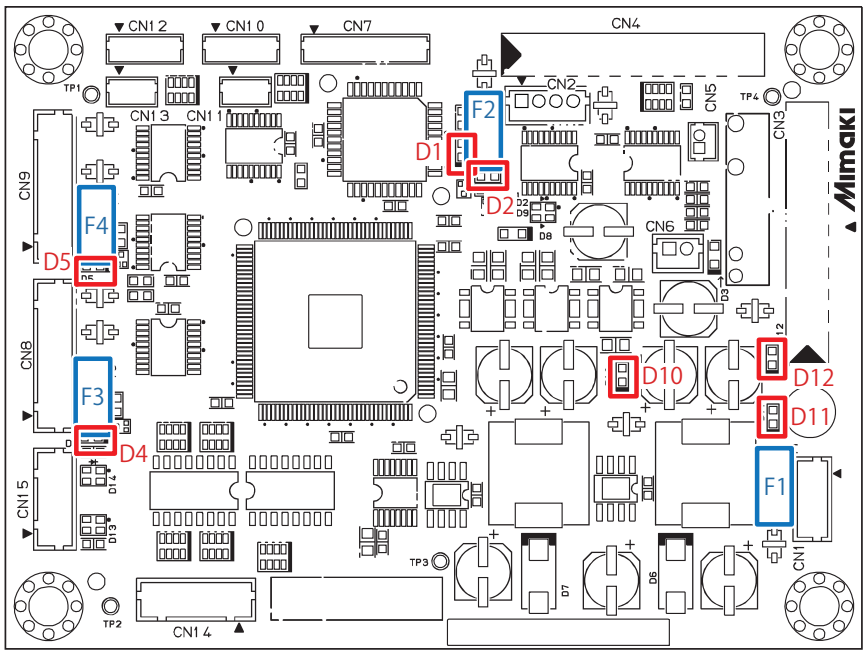
*For the details of connecting destinations, refer to the block diagram.

2.3.4 Optical Converting PCB P Assy.

■ **LED Specification**

Part No.	State	Remark
D1	3.3V check	

2.3.5 Heavy-duty/narrow, Feeding/take-up IF PCB Modification Assy. 2.0



■ Outline

Board name: Heavy-duty/narrow, feeding/take-up IF PCB modification assy. (E107021)

Mounted position: in the feeding/take-up unit

☐ Main specifications

FPC converting driver PCB assy. and Heavy-duty feeding/take-up PCB are connected.

■ List of connectors

Part No.	Pin	Purpose of use	AC/DC	Remark
CN1		36V-1000W power supply	DC	
CN2		not used	DC	
CN3		FPC converting receiver PCB	DC	
CN4		not used	DC	
CN5		(cover sensor)	DC	
CN6		not used (cover sensor)	DC	
CN7		not used	DC	
CN8		Heavy-duty feeding/take-up PCB assy. 1	DC	For feeding
CN9		Heavy-duty feeding/take-up PCB assy. 2	DC	For take-up
CN10		Float switch	DC	
CN11			DC	
CN12		not used	DC	
CN13		not used	DC	
CN14		not used	DC	
CN15		Radiator cooling fan	DC	

*For the details of connecting destinations, refer to the block diagram.

2.3.5 Heavy-duty/narrow, Feeding/take-up IF PCB Modification Assy.

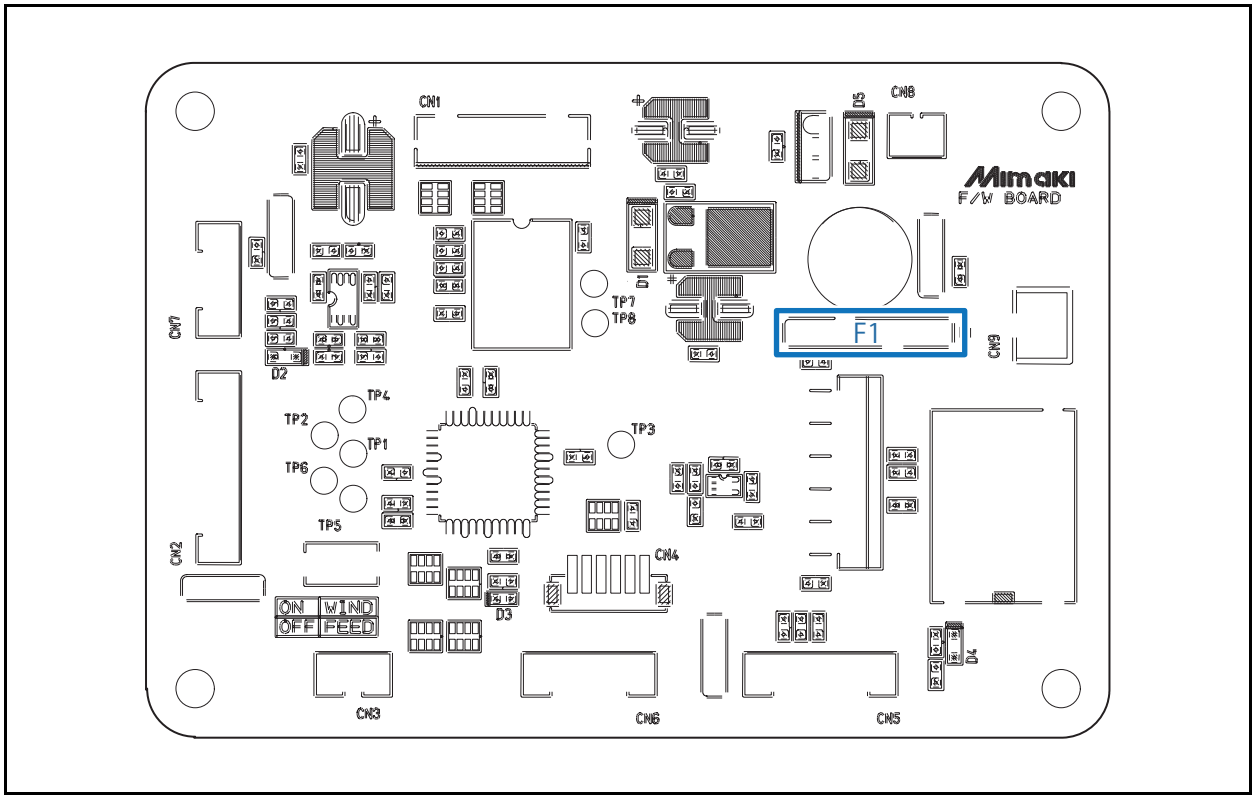
■ Fuse Specifications

Parts No.	Type	Purpose of use	Rate	Check LED	Remark
F1			5A		
F2			3.15A	D2	
F3			3.15A	D4	
F4			3.15A	D5	

■ LED Specifications

Part No.	State	Remark
LED1	Check the fuse on the main PCB	
LED2	F2 fuse check (ON by energizing and OFF by shut down)	
LED4	F3 fuse check (ON by energizing and OFF by shut down)	
LED5	F4 fuse check (ON by energizing and OFF by shut down)	
LED10	3.3V check (ON by energizing)	
LED11	5V check (ON by energizing)	
LED12	3.5V check (ON by energizing)	

2.3.6 Heavy-duty Feeding/take-up PCB assy.



■ Outline

Board name: Heavy-duty feeding/take-up PCB assy.

Mounted position: in the feeding/take-up device on the stand.

☐ Main specifications

Take-up motor and Feeding motor are connected.

This machine uses two of this.

■ List of connectors

☐ First board

Part No.	Pin	Purpose of use	AC/DC	Remark
CN1	16	Heavy-duty/narrow, feeding/take-up IF PCB modification assy.	DC	
CN2	9	Tension sensor	DC	
CN3	3	not used	DC	
CN4			DC	Connector is not mounted
CN5	7	short (cover sensor)	DC	
CN6	6	not used	DC	
CN7	2	not used	DC	
CN8	2	not used	DC	
CN9	2	DC motor	DC	

*For the details of connecting destinations, refer to the block diagram.

2.3.6 Heavy-duty Feeding/take-up PCB assy.

☐ Second board

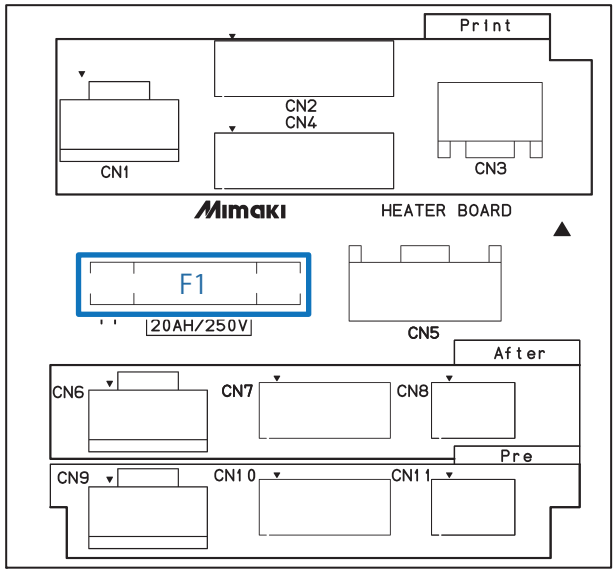
Part No.	Pin	Purpose of use	AC/DC	Remark
CN1	16	Heavy-duty/narrow, feeding/take-up IF PCB modification assy.	DC	
CN2	9	Tension sensor	DC	
CN3	3	not used	DC	
CN4			DC	Connector is not mounted
CN5	7	short	DC	
CN6	6	not used	DC	
CN7	2	not used	DC	
CN8	2	not used	DC	
CN9	2	DC motor	DC	

*For the details of connecting destinations, refer to the block diagram.

■ **Fuse Specification**

Parts No.	Type	Purpose of use	Rate	Check LED	Remark
F1			3.7A		

2.3.7 Heater Relay PCB



■ Outline

Board name: Heater relay PCB assy. (E107024)

Mounted position: in the left under cover (in the frame).

☐ Main specifications

The PCB which relays electricity to Pre/ Print/ Post heater.

■ List of connectors

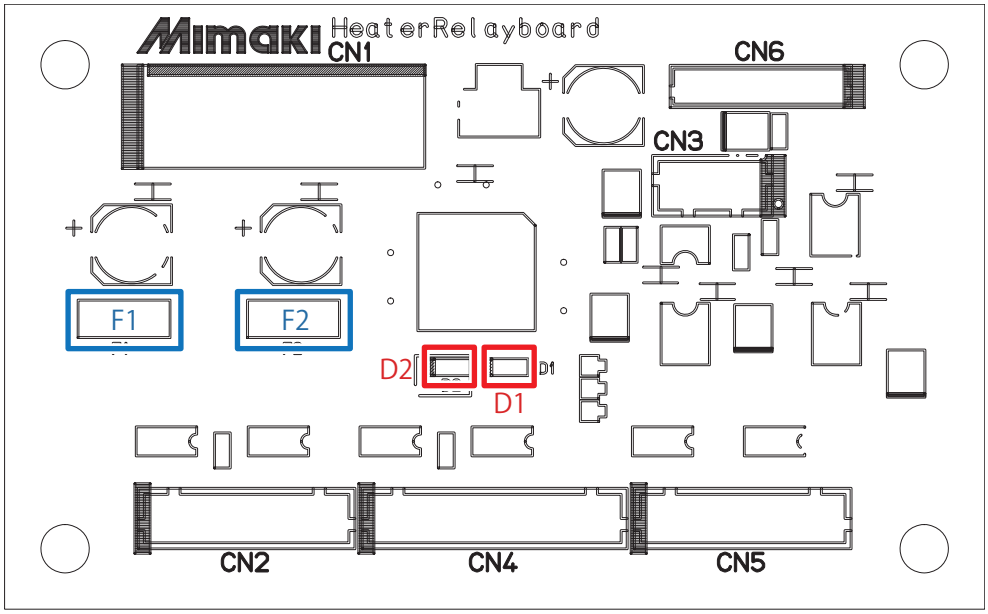
Part No.	Pin	Purpose of use	AC/DC	Remark
CN1	3		AC	
CN2	7		AC	
CN3	2		AC	
CN4	7		AC	
CN5	3	Noise filter	AC	
CN6	3		AC	
CN7	5		AC	
CN8	3		AC	
CN9	3	SSR	AC	
CN10	5	Pre heater	AC	
CN11	3	Pre heater thermostat	AC	

*For the details of connecting destinations, refer to the block diagram.

■ Fuse Specification

Parts No.	Type	Purpose of use	Rate	Check LED	Remark
F1			20A		Heater circuit

2.3.8 Heater Relay PCB Assy.



■ Outline

Board name: Heater relay PCB assy. (E107904)

Mounted position: in the carriage

☐ Main specifications

For controlling the heater that heats the ink. Also, it relays those signals to the HDC.

■ List of connectors

Part No.	Pin	Purpose of use	AC/DC	Remark
CN1	6	36V-1500W power supply (relay in the carriage)	DC	
CN2	16	Ink heater thermistor, Temperature fuse	DC	
CN3	8	HDC PCB assy. (First board), Optical converting PCB	DC	
CN4	20	not used	DC	
CN5	16	not used	DC	
CN6	9	not used	DC	
CN7	3	not used	DC	

*For the details of connecting destinations, refer to the block diagram.

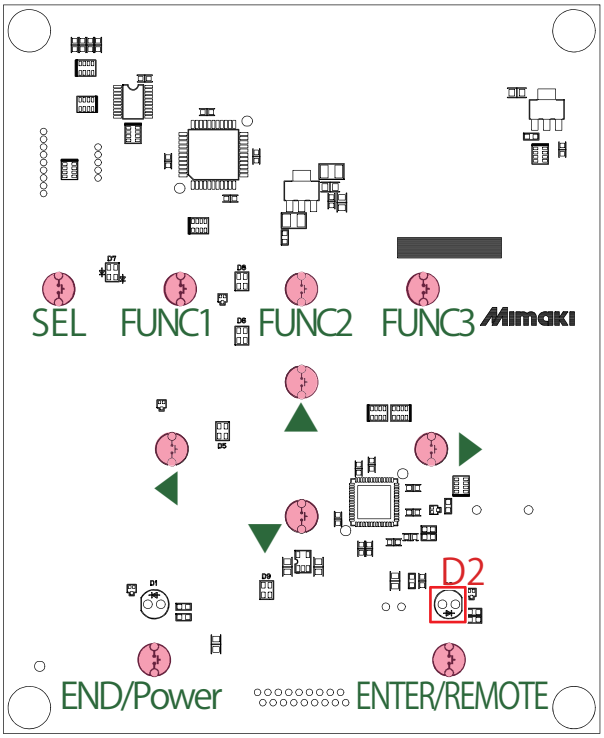
■ Fuse Specifications

Parts No.	Type	Purpose of use	Rate	Check LED	Remark
F1			12A		
F2			12A		

■ LED Specifications

Part No.	State	Remark
LED1	Advance written CPLD	
LED2	Lights on in normal and lights off in abnormal condition.	

2.3.9 Color LCD PCB Assy.



■ Outline

Board name: Color LCD PCB assy. (E107610)

Mounted position: in the operation panel

☐ Main specifications

Having the 320x240 dot color LCD and each key SW, this is used for controlling the printer.

■ List of connectors

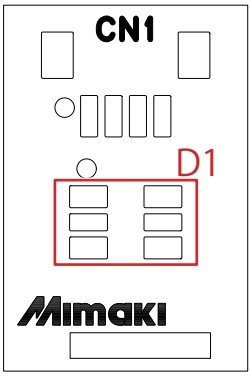
Part No.	Pin	Purpose of use	AC/DC	Remark
CN1	9	For debugging	DC	
CN2	54	Color LCD	DC	
CN3	18	Color LCD IF (connect with main PCB)	DC	
CN4	5	For debugging	DC	
CN5		Connector is not mounted		
CN6	2	(cover sensor)	DC	
CN7	4	Connect with RGB LED PCB	DC	

*For the details of connecting destinations, refer to the block diagram.

■ LED Specification

Parts No.	State	Remark
D2	LED for the ENTER key	Blue

2.3.10 RGB LED PCB Assy.



■ Outline

Board name: RGB LED PCB assy. (E107855)

Mounted position: in the operation panel

☐ Main specifications

Status indication LED under the key board is implemented.

■ List of connector

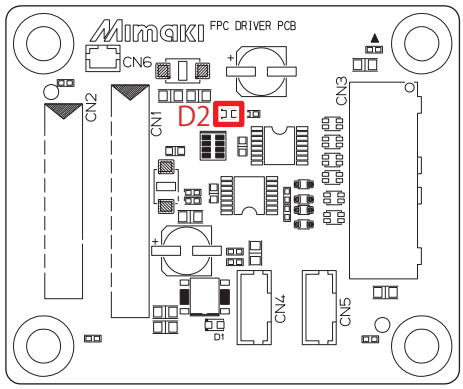
Part No.	Pin	Purpose of use	AC/DC	Remark
CN1	4	Connect with Color LCD PCB	DC	

*For the details of connecting destinations, refer to the block diagram.

■ LED specification

Parts No.	State	Remark
D2	LED for indicating the printer status.	

2.3.11 FPC Converting Driver PCB Assy.



■ Outline

Board name: FPC converting driver PCB assy. (E105403)

Mounted position: in the electrical box

☐ Main specifications

The Heavy-duty/narrow, feeding/take-up IF PCB modification assy. is connected using the differential serial cable.

■ List of connectors

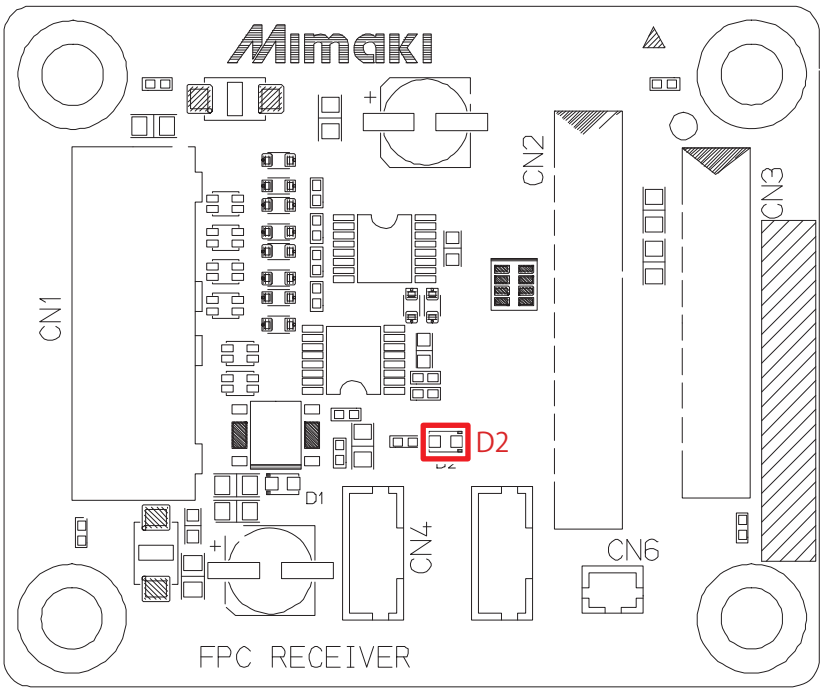
Part No.	Pin	Purpose of use	AC/DC	Remark
CN1	20	Central-IO PCB	DC	
CN2	16	not used	DC	
CN3	24	FPC converting receiver PCB	DC	

*For the details of connecting destinations, refer to the block diagram.

■ LED Specification

Part No.	State	Remark
D2	3.3V check (ON by energizing)	

2.3.12 FPC Converting Receiver PCB Assy.



■ Outline

Board name: FPC converting receiver PCB assy. (E105405)

Mounted position: in the cooling box

☐ Main specifications

The Heavy-duty/narrow, feeding/take-up IF PCB modification assy. is connected using the differential serial cable.

■ List of connectors

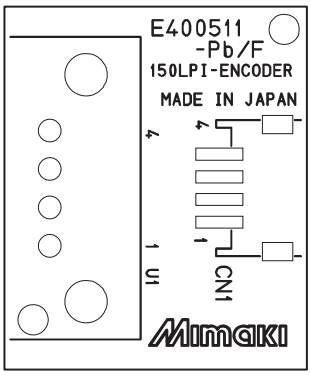
Part No.	Pin	Purpose of use	AC/DC	Remark
CN1	24	Heavy-duty/narrow, feeding/take-up IF PCB modification assy., FPC converting driver PCB, 36V-1000W power supply	DC	
CN2	20	Heavy-duty/narrow, feeding/take-up IF PCB modification assy.	DC	
CN3	16	not used	DC	

*For the details of connecting destinations, refer to the block diagram.

■ LED Specification

Parts No.	State	Remark
D2	3.3V check (ON by energizing)	

2.3.13 150LPI Encoder PCB Assy.



■ **Outline**

Board name: 150LPI encoder PCB assy. (E103852)

Mounted position: in the carriage

☐ Main specifications

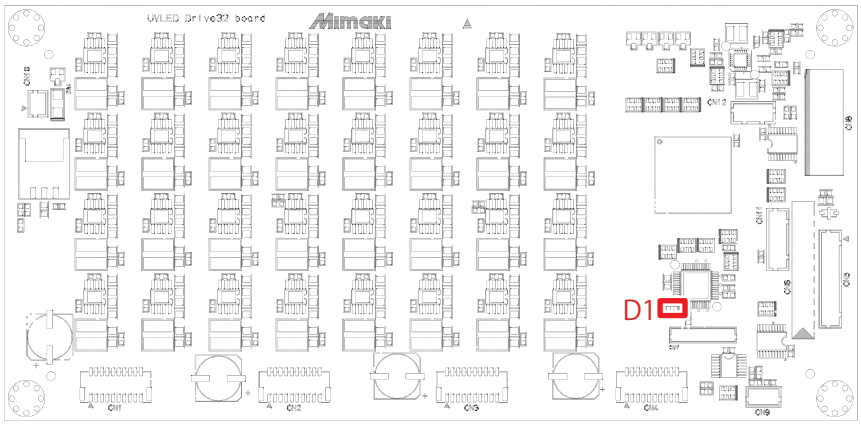
Encoder sensor PCB for the linear scale

■ **List of connector**

Part No.	Pin	Purpose of use	AC/DC	Remark
CN1	4	HDC PCB assy. (First board and Second board)	DC	

*For the details of connecting destinations, refer to the block diagram.

2.3.14 UVLED Drive32 PCB Assy.



■ Outline

Board name: UVLED Drive32 PCB assy. (E107338)

Mounted position: in the carriage

☐ Main specifications

On SIJ-320UV, 2 PCBs of this PCB are used.

Controlling the lighting of the LEDUV CURE F200 PCB assy. and LEDUV PIN F200 PCB assy..

■ List of connectors

☐ First board

Part No.	Pin	Purpose of use	AC/DC	Remark
CN1	20	CURING PCB, PINNING PCB	DC	
CN2	20	CURING PCB, PINNING PCB	DC	
CN3	20	CURING PCB	DC	
CN4	20	CURING PCB	DC	
CN5	20	HDC PCB	DC	
CN6	20	not used	DC	
CN7	9	not used	DC	
CN8	6	36V-1500W power supply	DC	
CN9	3	not used	DC	
CN10	2	not used	DC	
CN11	12	not used	DC	

☐ Second board

Part No.	Pin	Purpose of use	AC/DC	Remark
CN1	20	CURING PCB, PINNING PCB	DC	
CN2	20	CURING PCB, PINNING PCB	DC	
CN3	20	CURING PCB	DC	
CN4	20	CURING PCB	DC	
CN5	20	HDC PCB	DC	
CN6	20	not used	DC	
CN7	9	not used	DC	

2.3.14 UVLED Drive32 PCB Assy.

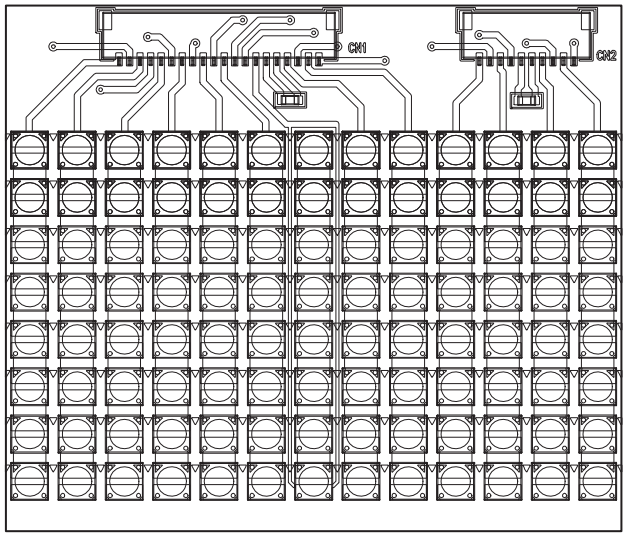
Part No.	Pin	Purpose of use	AC/DC	Remark
CN8	6	36V-1500W power supply	DC	
CN9	3	not used	DC	
CN10	2	not used	DC	
CN11	12	not used	DC	

*For the details of connecting destinations, refer to the block diagram.

■ **LED specification**

Part No.	Signal	Remark
D1	Lights on with writing completed.	

2.3.15 LEDUV CURE F200 PCB Assy.



■ Outline

Board name: LEDUV CURE F200 PCB assy. (E107017)

Mounted position: UVLED-R(1), UVLED-L(1)

☐ Main specifications

On SIJ-320UV, 2 PCBs of this PCB are used.

Equipping 104 LED-UV chips for the curing.

■ List of connectors

☐ First board

Part No.	Pin	Purpose of use	AC/DC	Remark
CN1	20	UV LED DRIVE32 PCB (First board)	DC	
CN2	10	UV LED DRIVE32 PCB (First board)	DC	

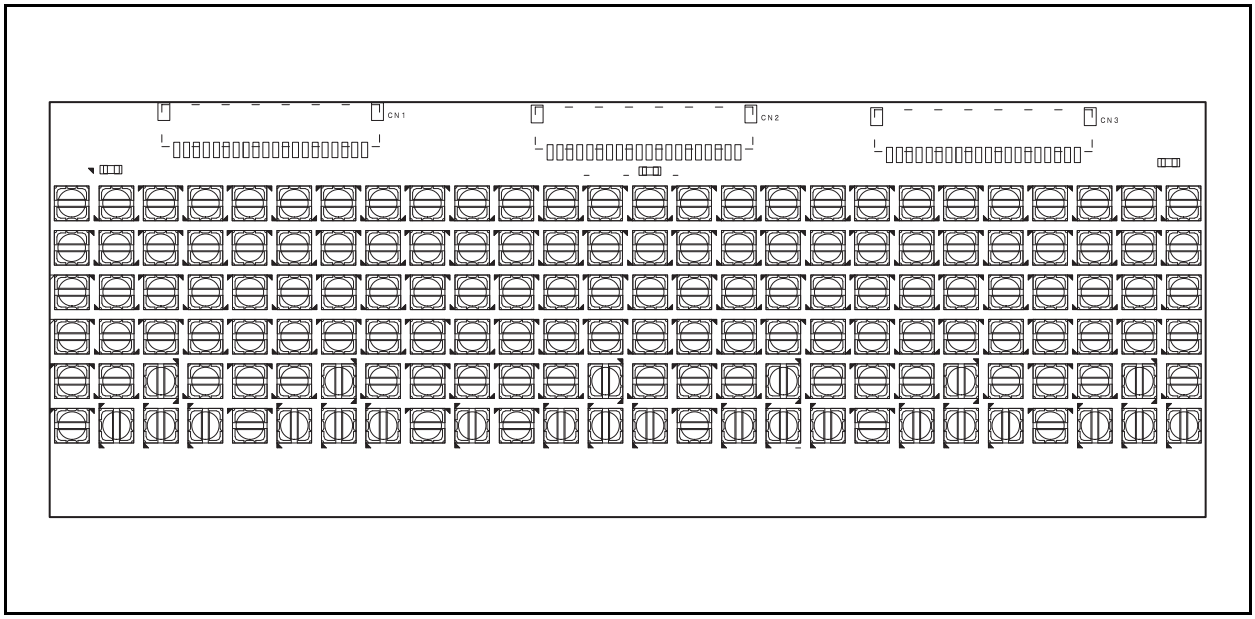
*For the details of connecting destinations, refer to the block diagram.

☐ Second board

Part No.	Pin	Purpose of use	AC/DC	Remark
CN1	20	UV LED DRIVE32 PCB (Second board)	DC	
CN2	10	UV LED DRIVE32 PCB (Second board)	DC	

*For the details of connecting destinations, refer to the block diagram.

2.3.16 LEDUV PIN F200 PCB Assy.



■ Outline

Board name: LEDUV PIN F200 PCB assy.

Mounted position: UVLED-R(1), UVLED-L(1)

☐ Main specifications

On SIJ-320UV, 2 PCBs of this PCB are used.

Equipping 156 LED-UV chips for the pinning.

■ List of connectors

☐ First board

Part No.	Pin	Purpose of use	AC/DC	Remark
CN1	20	UV LED DRIVE32 PCB (First board)	DC	
CN2	20	UV LED DRIVE32 PCB (First board)	DC	
CN3	20	UV LED DRIVE32 PCB (First board)	DC	

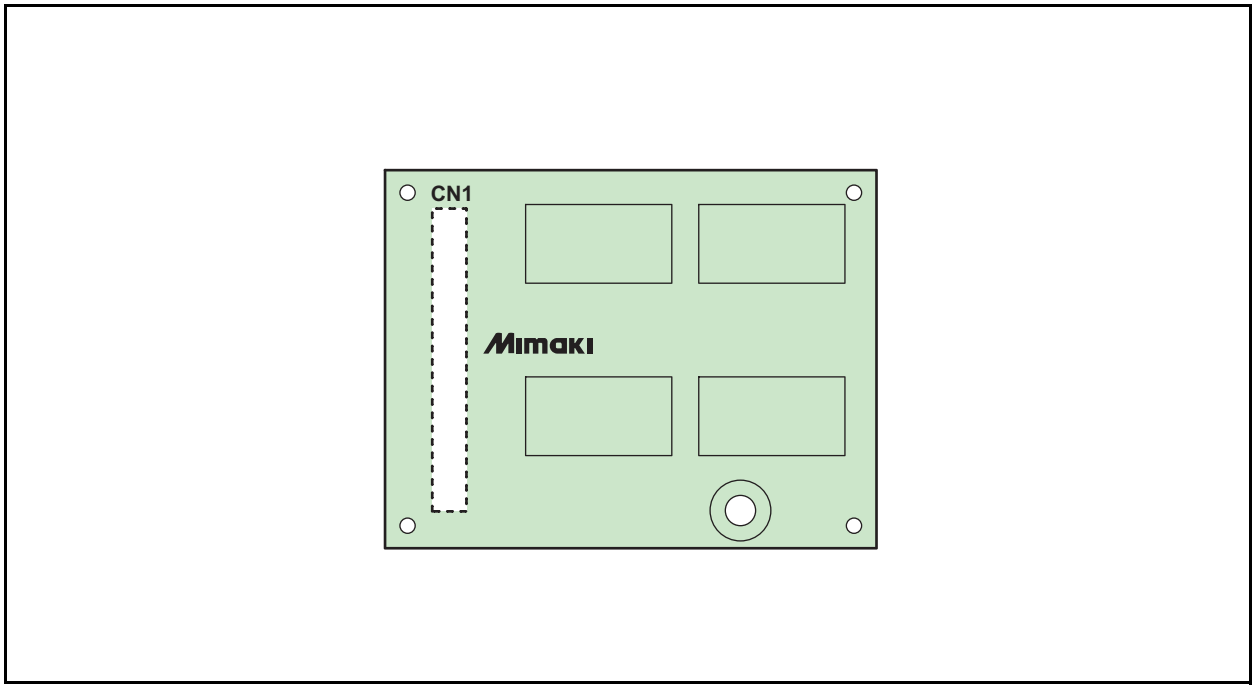
*For the details of connecting destinations, refer to the block diagram.

☐ Second board

Part No.	Pin	Purpose of use	AC/DC	Remark
CN1	20	UV LED DRIVE32 PCB (Second board)	DC	
CN2	20	UV LED DRIVE32 PCB (Second board)	DC	
CN3	20	UV LED DRIVE32 PCB (Second board)	DC	

*For the details of connecting destinations, refer to the block diagram.

2.3.17 DDRII PRAM (1GB) PCB Assy.



■ Outline

Board name: DDRII PRAM (1GB) PCB assy. (E105986)

Mounted position: in the electrical box

☐ Main specifications

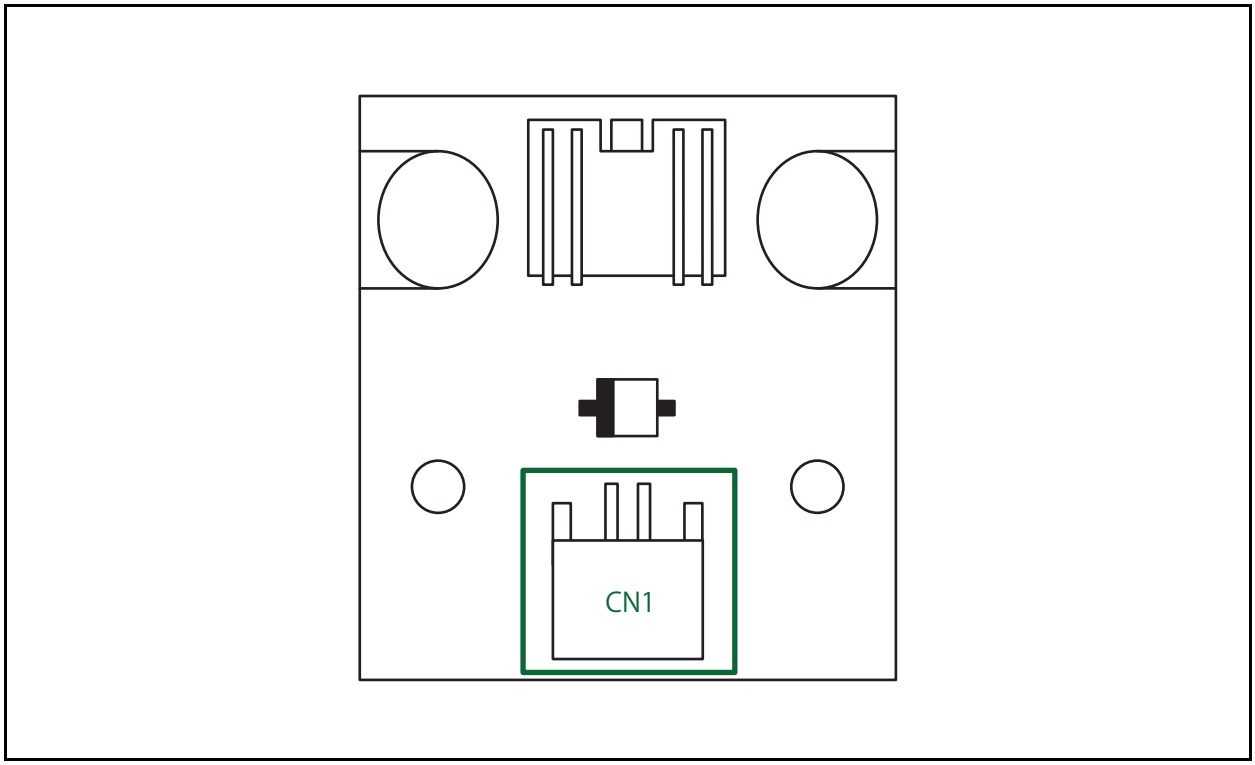
For saving Image data

■ List of connector

Part No.	Pin	Purpose of use	AC/DC	Remark
CN1	80	Main PCB I/F	DC	

*For the details of connecting destinations, refer to the block diagram.

2.3.18 ID Contact PCB CN032 Single Assy.



■ Outline

Board name: ID contact PCB CN032 single assy. (E105719)

Mounted position: in the operation panel part

☐ Main specifications

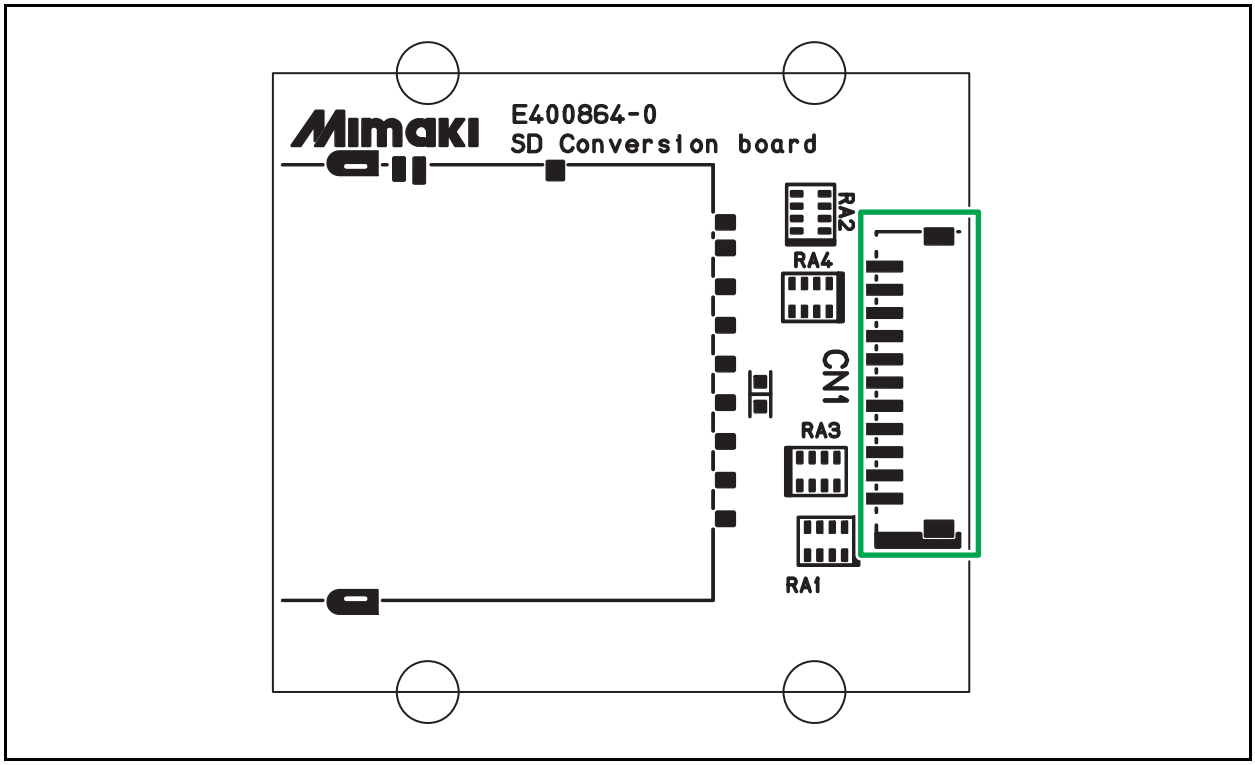
Read the ink ID.

■ List of connector

Part No.	Pin	Purpose of use	AC/DC	Remark
CN1	2	Central-IO PCB Assy.	DC	

*For the details of connecting destinations, refer to the block diagram.

2.3.19 SD Converting PCB Assy.



■ Outline

Board name: SD converting PCB assy. (E108449)

Mounted position: in the electrical box

☐ Main specifications

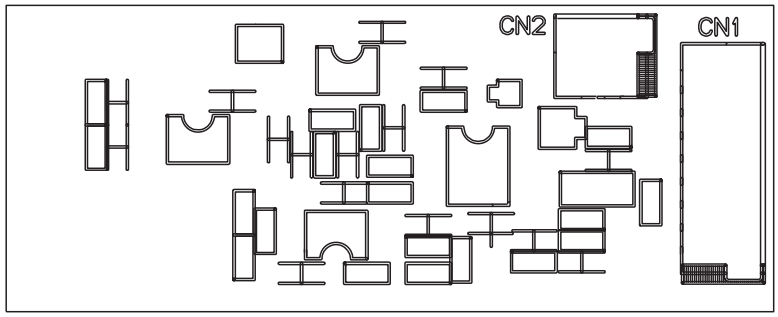
■ List of connector

Part No.	Pin	Purpose of use	AC/DC	Remark
CN1	14	EPL2 Main PCB Assy.	DC	

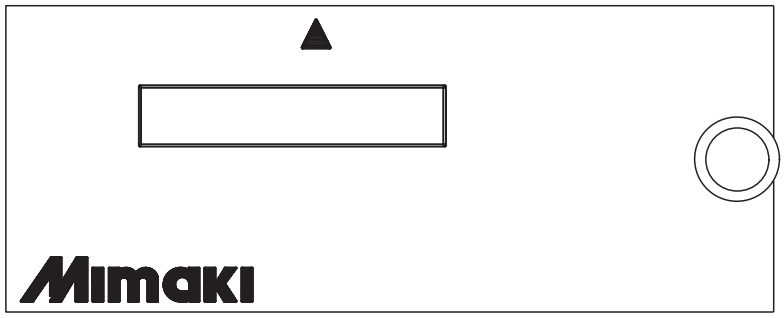
*For the details of connecting destinations, refer to the block diagram.

2.3.20 PD AMP PCB Assy.

Component side



Solder side



■ Outline

Board name: PD AMP PCB assy. (E107587)

Mounted position: in the NCU

☐ Main specifications

The sensor PCB of NCU.

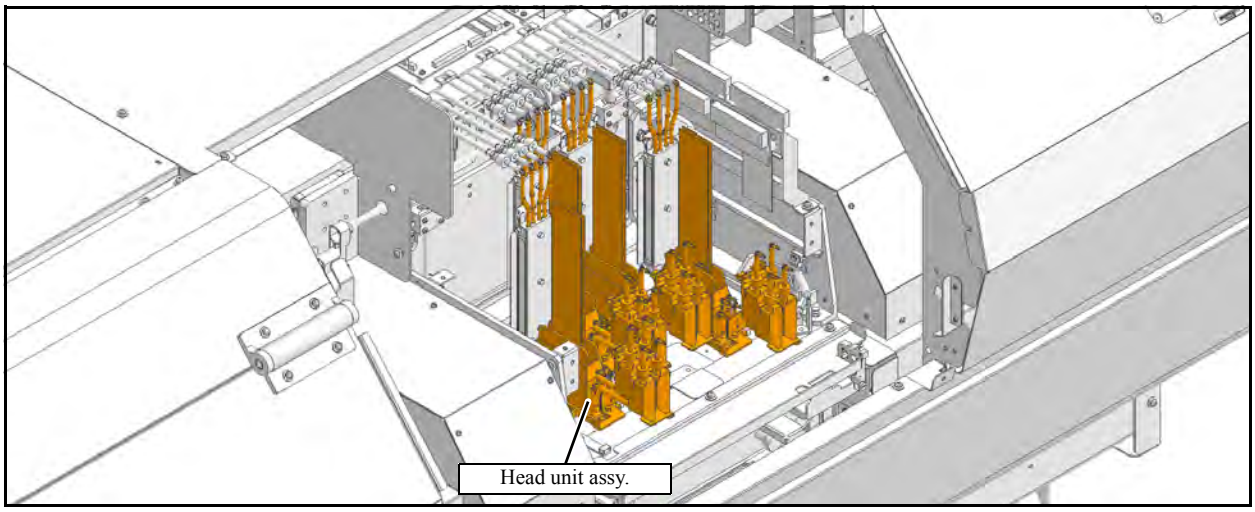
■ List of connectors

Part No.	Pin	Purpose of use	AC/DC	Remark
CN1	8	IF for the IO PCB. (connect with COM 16/32 IO PCB)	DC	
CN2	2	Connect with LED assy.	DC	

*For the details of connecting destinations, refer to the block diagram.

Workflow

3.1.1 Replacement of the Head Unit



■ **List of replacement procedures**

Item	Work operation		Description	Ref.
Covers	1. ☐	Removing covers, etc.	Remove the following covers. ◆Right maintenance cover, Right front cover U, Right top cover B, Carriage cover upper, Carriage cover front	6.1.1
Ink	2. ☐	Ink discharge	Discharge ink between the sub-tank and the head.	4.2.26
Power supply	3. ☐	Turning OFF the main power supply	Turn OFF the main power supply.	
Sub-tank	4. ☐	Disconnecting the tube from the sub-tank	Disconnect the tube between the sub-tank and the head.	
Head	5. ☐	Disconnecting the Head connector	Disconnect the connector of the Head from relay cable.	
	6. ☐	Removing the head	Remove the target head.	6.2.2
	7. ☐	Washing the head.	Wash the head using the exclusive washing liquid.	6.2.1
	8. ☐	Exchange of damper	Exchange the damper from the subjected head to a new head.	6.2.2
	9. ☐	Mounting the head.	Mount a new head.	6.2.2
	10. ☐	Connecting the tube from the sub-tank	Connect the tube between the sub-tank and the head.	
	11. ☐	Connecting the head connector	Connect the connector of head to the relay cable.	
Power supply	12. ☐	Turning ON the power supply	Turn ON the power supply and the main power supply.	
Ink	13. ☐	Ink filling in the head	Perform ink filling between the sub-tank and the head.	4.2.27
	14. ☐	Air purge	Execute the air purge after filling.	
Adjust	15. ☐	Checking the head ID	Manual entry is not necessary. (As it has been stored in the head memory, it can be registered automatically.)	
	16. ☐	Head voltage adjust	Head voltage adjustment is performed.	4.2.14
	17. ☐	Head adjust	Perform slant adjustment, position adjustment and stagger adjustment.	4.2.4 4.2.5 4.2.6
	18. ☐	Correction of dot position	Perform dot position correction.	4.2.2
Covers	19. ☐	Mounting the covers	Mount the covers that have been removed.	6.1.1

Caution

- Be sure to wear protective glasses and working gloves during the operation.
  Ink may get into your eyes depending on the working condition, or hand skin may get rough if you touch the ink.
- Be careful of UV light as UV ink is used. Protect the machine from UV light with sheet or curtain.

3.1.1 Replacement of the Head Unit

■ Head replacement procedure

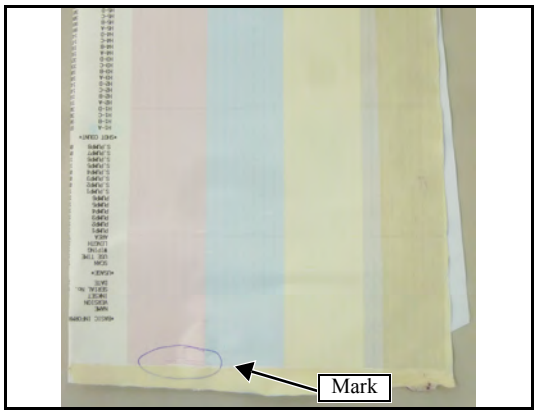
Use the following procedure to replace the head when inspecting for failure, etc.

IMPORTANT

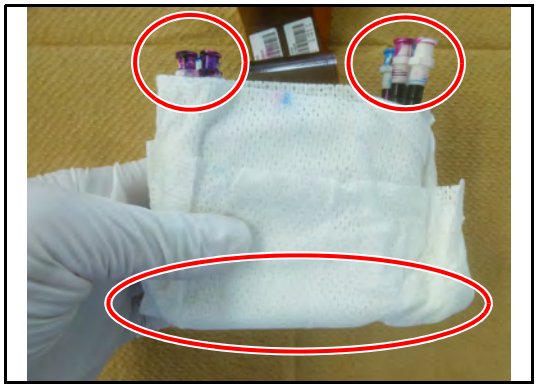
● Pay careful attention to the following when replacing the head.

1. Only discharge the ink, and do not perform cleaning.
2. Be careful to avoid subjecting the head to external light, as much as possible.
3. Be sure to attach a test pattern and the nozzle selection ALL pattern. The head and the test pattern should match exactly.
   If the head of the same No. is replaced continuously due to recurring failure, write the serial number of the head on the test pattern to clearly identify the relationship between the failed head and the test pattern.
4. Indicate the areas of concern (causes for replacement) on the test pattern with check or marks by circling them.

☐ Packaging procedure



1. Print a test pattern and the nozzle selection ALL pattern.
   Use a photo paper so that missing dots can be identified.
2. Mark locations where failures occurred.
   Write down the serial number of the head, to show clearly that the test pattern and head match exactly.

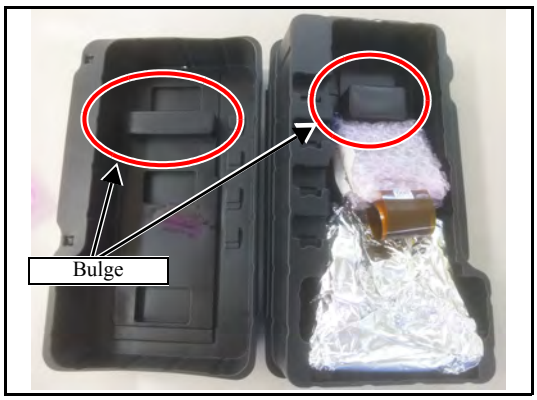


3. Discharge all ink from the head.
4. Cover the nozzle surface and the ink port with a paper towel.

IMPORTANT Never put the nozzle surface cap on.

5. Wrap them with an aluminum foil to shut out all light.

3.1.1 Replacement of the Head Unit



6. Place the head in the package.

   Use the packaging material that the new head arrived inside.

> **IMPORTANT**
> Make sure that the FFC does not sit upon the protrusions of the package.
> Otherwise, the FFC could bend, making it impossible to check discharge conditions.

7. Close the package, and wrap it with a bubble wrap.

8. Place the package in a box together with the test pattern printed in step 1.

9. Write the following information on the outside of the box.
   1). Model
   2). Unit
   3). Type of ink used
   4). Color that failed
   5). Head No

3.1.1 Replacement of the Head Unit

☐ Information required to report

Fill the following form as much as possible.

Defective Head Information

Damaged date		
Reported date		Reported by :
Dealer		
Head info.	Head name	
	Head serial No.	
	Position No. of a defective head	
Machine info.	Model	JV400-LX JV400-SUV JFX500 UJV500 TS500 TX500 YG500 SWJ-320 SIJ-320UV
	Machine No. / FW version	/ FW Ver.
	Changed ink kind and ink color set	No / Yes (->)
	RIP.	RLP. Ver. / Other RIP
	Resolution	
Ink info	Kind of ink	LX100, LX101, SU100, LUS120, LUS150, LUS200, Ac300, LH100, Rc300, Sb300, CS100, PR100, ( )
	Defective ink color	K ,Ma ,Cy ,Ye ,Or ,G ,W , Bl ,Lb ,Lm ,Lc,Re ,Lk , Cl, Pr
	Ink Lot No.	
Media Info.	Kind of media	
	Emboss	Yes / No
	The print exceeding the media edge	Yes / No
Environment	Head gap	
	Temperature and humidity	℃ %
	Dust (Yes : its kind)	No / Yes (
	Ambient light to machine (Yes : its situation)	No / Yes (
	Fixing Jig (Yes : Color・Shine)	No / Yes (Color : Shine : Yes / No)
	Used specific chemicals around the machine (Yes : Kind)	No / Yes (Kind :)
	Remarks (Another information)	
The states of problem detections	Did a media jam occur?	Yes / No
	Did the problem occur after changing a media?	Yes / No
	The date of the previous head replacement (Head of the same position)	
	An unused period was more than a week.	No / Yes (days)
	Did the machine is used without covers?	Yes / No
	User adjusted the head individually. (Head voltage / Change of waveform)	No / Yes (Contents of adjustment :)
	The states of nozzle drop out	Random / Specified / Plenty
Restorative work info.	Did you perform the following works before head replacement?	(Please check to the below.)
	Leak check	☐
	Cleaning	☐
	Wiping nozzles directly	☐
	Ink filling	☐
	Pressure feeding of cleaning solution	☐
	Air pressure adjustment	☐
Request and suggestion (Operation or procedure)	Warranty ☐ (Please fill in a check mark if you require a warranty.)	
Check for accessories	☐ Defective head ☐ Test print ☐ Sample of defective print ☐ The data of problem detections (Backup data)	

3.1.1 Replacement of the Head Unit

☐ Items to be included

1. Used heads (failed heads)

   All ink should be discharged from the head, and the head should be wrapped in an aluminum foil to block light.

2. Test pattern

   A sample possible to check the nozzle condition.

3. Nozzle selection ALL pattern

   When replaced due to the unstable printing speed, attach the nozzle select pattern.

4. Sample to check for missing nozzle (deliverable)

   If it can be provided by the user

5. Data where trouble occurred (backup file, etc.)

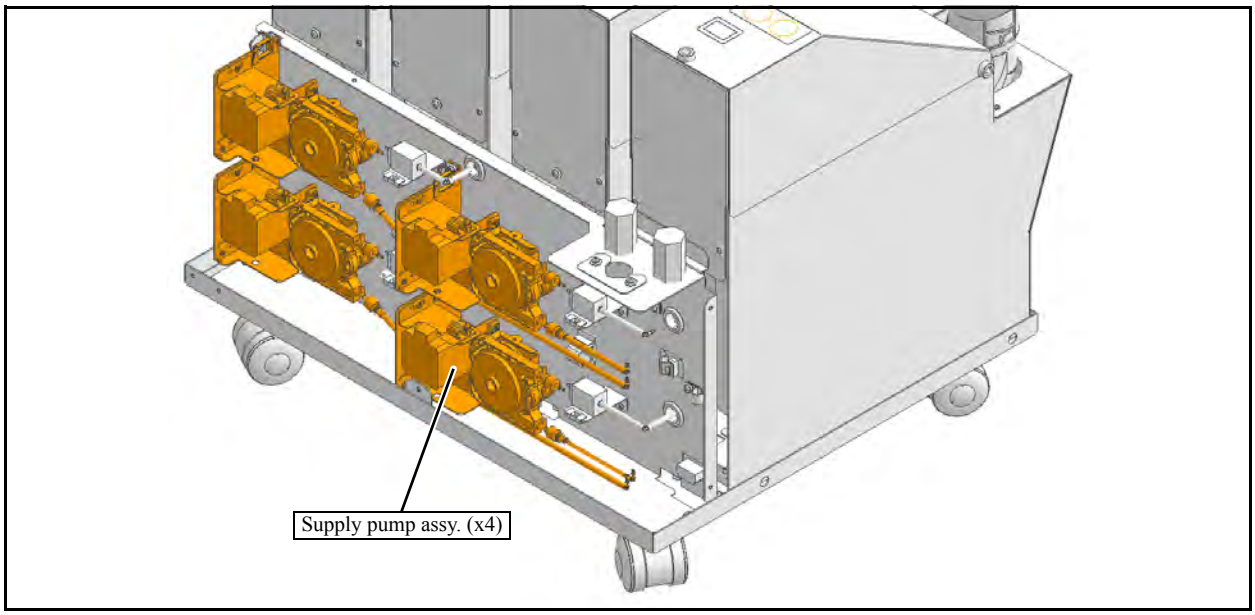
   1). Suggestions for work improvements, treatment methods, etc.

   2). Required in particular for color changes when printing starts, and when delay in discharge occurs (because it could be caused by data) If it can be provided by the user

6. Defective head information sheet

   Attach with writing necessary topics. If a problem occurs during the installation, writing on the installation check list is acceptable.

3.1.2 Replacement of the Supply Pump



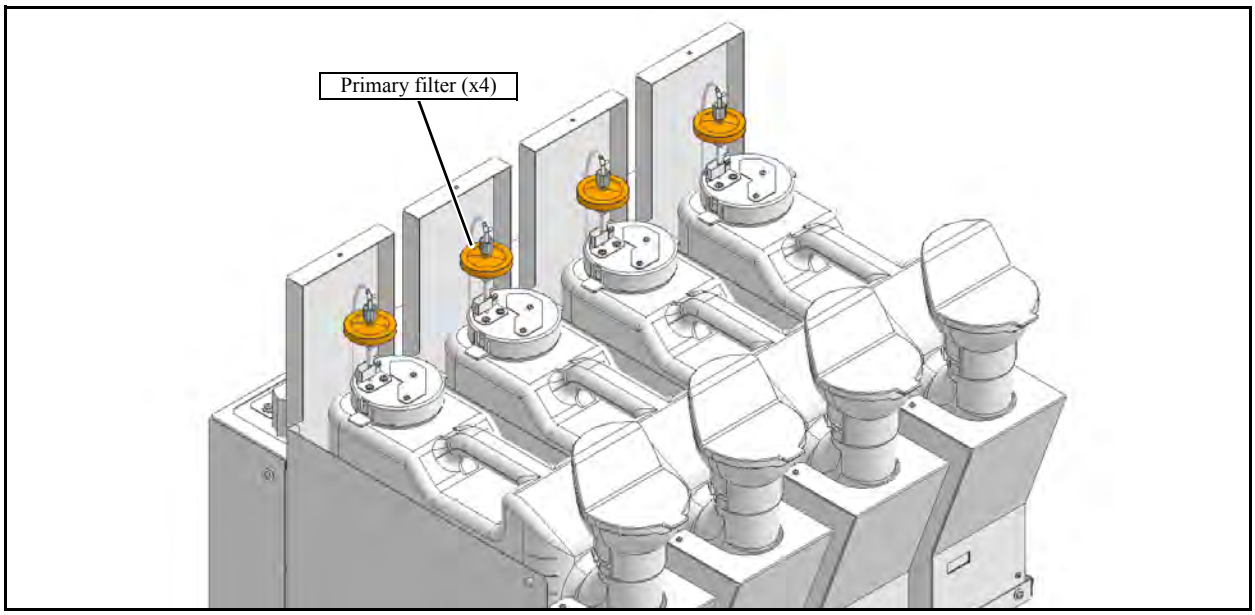
■ **List of replacement procedures**

Item	Work operation		Description	Ref.
Power supply	1. ☐	Turning OFF the main power supply	Turn OFF the main power supply.	
Covers	2. ☐	Removing covers, etc.	Remove the following cover. ◆ Pump box cover	6.1.1
Supply pump assy.	3. ☐	Removing the supply pump assy.	Remove the supply pump assy..	6.2.6
	4. ☐	Mounting the supply pump assy.	Mount the supply pump assy..	
Covers	5. ☐	Mounting the covers	Mount the cover that have been removed.	6.1.1

Caution

- Be sure to wear protective glasses and working gloves during the operation.
  Ink may get into your eyes depending on the working condition, or hand skin may get rough if you touch the ink.
- Be careful of UV light as UV ink is used. Protect the machine from UV light with sheet or curtain.

3.1.3 Replacement of the Primary Filter



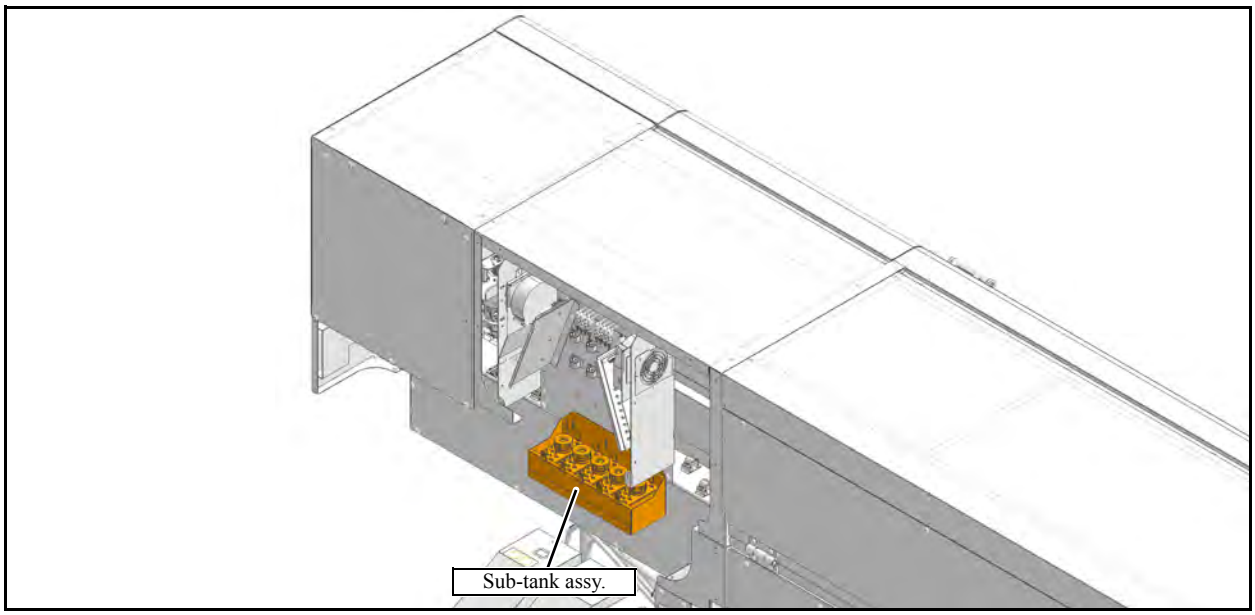
■ **List of replacement procedures**

Item	Work operation		Description	Ref.
Power supply	1. ☐	Turning OFF the main power supply	Turn OFF the main power supply.	6.1.1
Covers	2. ☐	Removing covers, etc.	Remove the following cover. ◆IK maintenance cover S	
Primary filter	3. ☐	Removing the primary filter	Remove the primary filter.	6.2.7
	4. ☐	Mounting the primary filter	Mount the primary filter. (The surface with “INLET” mark faces downward.)	
Covers	5. ☐	Mounting the covers	Mount the cover that have been removed.	6.1.1

Caution

- Be sure to wear protective glasses and working gloves during the operation.
  Ink may get into your eyes depending on the working condition, or hand skin may get rough if you touch the ink.
- Be careful of UV light as UV ink is used. Protect the machine from UV light with sheet or curtain.

3.1.4 Replacement of the Sub-tank



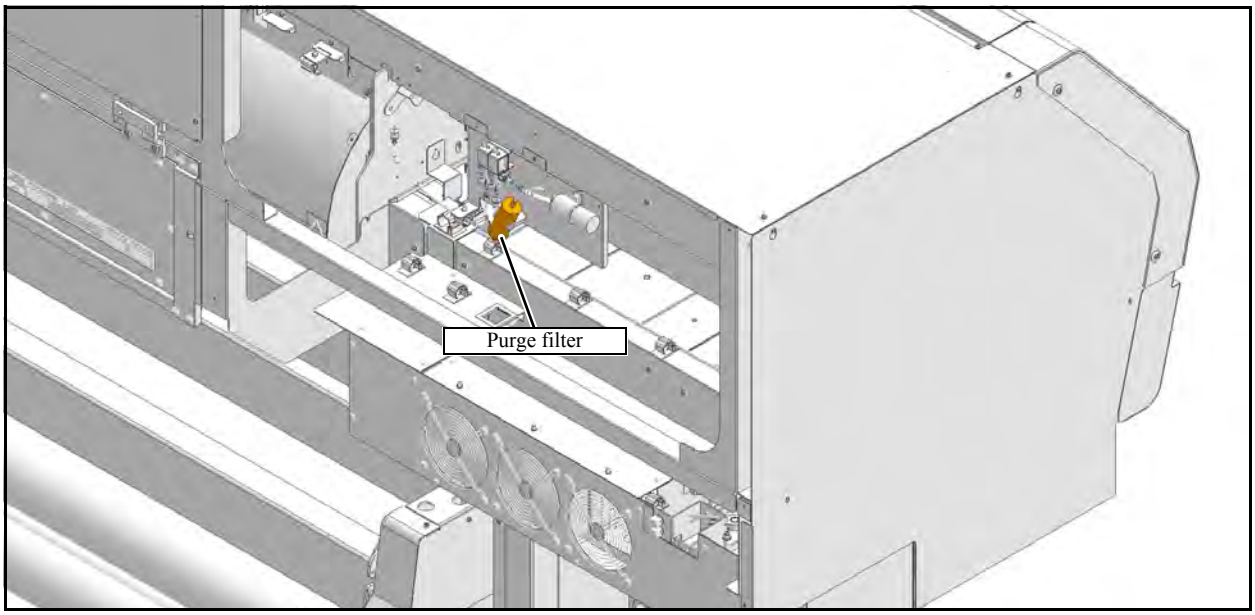
■ **List of replacement procedures**

Item	Work operation		Description	Ref.
Covers	1. ☐	Removing covers, etc.	Remove the following covers. ◆Right top cover B, Right rear cover U1, Carriage cover RR, Sub-tank guard	6.1.1
Ink	2. ☐	Ink discharge	Discharge ink between the sub-tank and the head.	4.2.26
Power supply	3. ☐	Turning OFF the main power supply	Turn OFF the main power supply.	
Sub-tank	4. ☐	Disconnecting the tube from the sub-tank	Disconnect each joint of the tube from the tank, tube from the head, and tube for air pressure.	6.2.8
Sub-tank case 2 assy.	5. ☐	Removing the sub-tank case 2 assy.	Remove the sub-tank case 2 assy..	
Sub-tank	6. ☐	Removing the sub-tank	Remove the target sub-tank.	
Liquid level sensor	7. ☐	Removing the sensor	Disconnect the connector of the liquid level sensor.	
	8. ☐	Mounting the sensor	Connect the connector of the liquid level sensor .	
Sub-tank	9. ☐	Mounting the sub-tank	Mount the new sub-tank.	
	10. ☐		Mount each joint. (Be careful for the mounting order.)	
Sub-tank case 2 assy.	11. ☐	Mounting the sub-tank case 2 assy.	Mount the sub-tank case 2 assy..	
Power supply	12. ☐	Turning ON the power supply	Turn ON the power supply and the main power supply.	
Ink	13. ☐	Ink filling in the head	Perform ink filling into the head and the sub-tank.	4.2.27
Covers	14. ☐	Mounting the covers	Mount the covers that have been removed.	6.1.1

Caution

- Be sure to wear protective glasses and working gloves during the operation.
  Ink may get into your eyes depending on the working condition, or hand skin may get rough if you touch the ink.
- Be careful of UV light as UV ink is used. Protect the machine from UV light with sheet or curtain.

3.1.5 Replacement of the Purge Filter



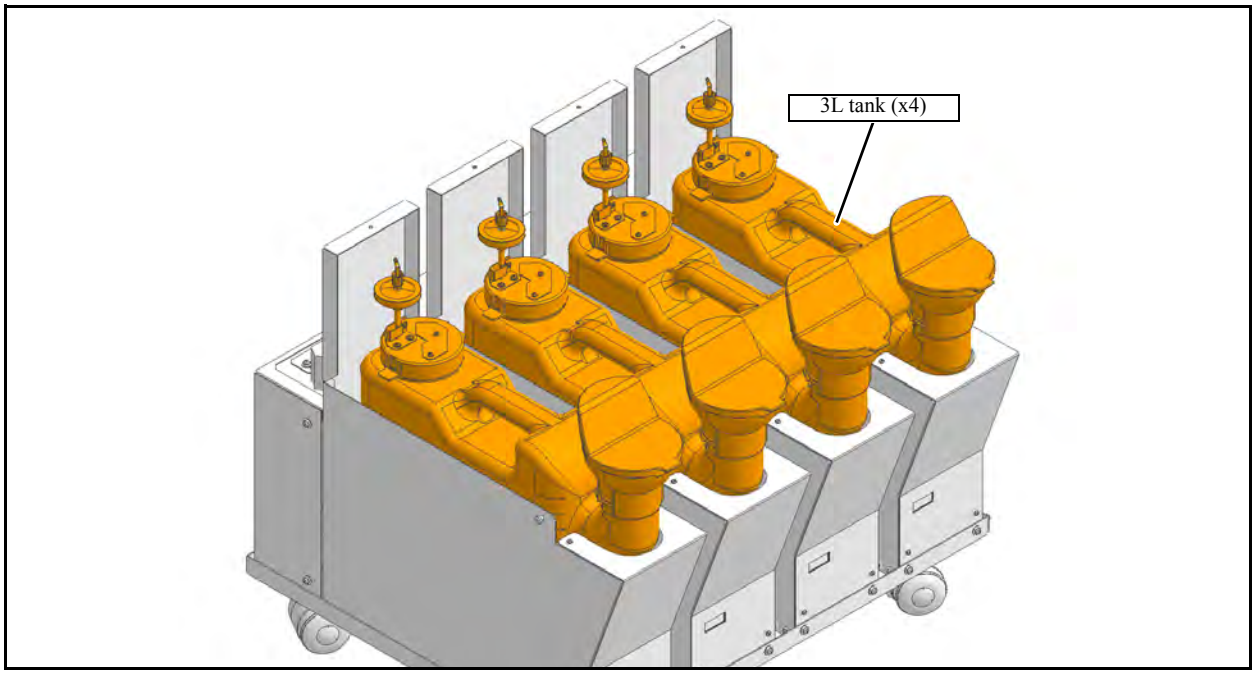
■ **List of replacement procedures**

Item	Work operation		Description	Ref.
Power supply	1. ☐	Turning OFF the main power supply	Turn OFF the main power supply.	
Covers	2. ☐	Removing covers, etc.	Remove the following cover. ◆Cover rear left	6.1.1
Purge filter	3. ☐	Removing the purge filter	Remove the purge filter.	6.2.9
	4. ☐	Mounting the purge filter	Mount the purge filter.	
Covers	5. ☐	Mounting the covers	Mount the cover that have been removed.	6.1.1

Caution

- Be sure to wear protective glasses and working gloves during the operation.
  Ink may get into your eyes depending on the working condition, or hand skin may get rough if you touch the ink.
- Be careful of UV light as UV ink is used. Protect the machine from UV light with sheet or curtain.

3.1.6 Method of Ink disposal in Ink tank



■ **List of replacement procedures**

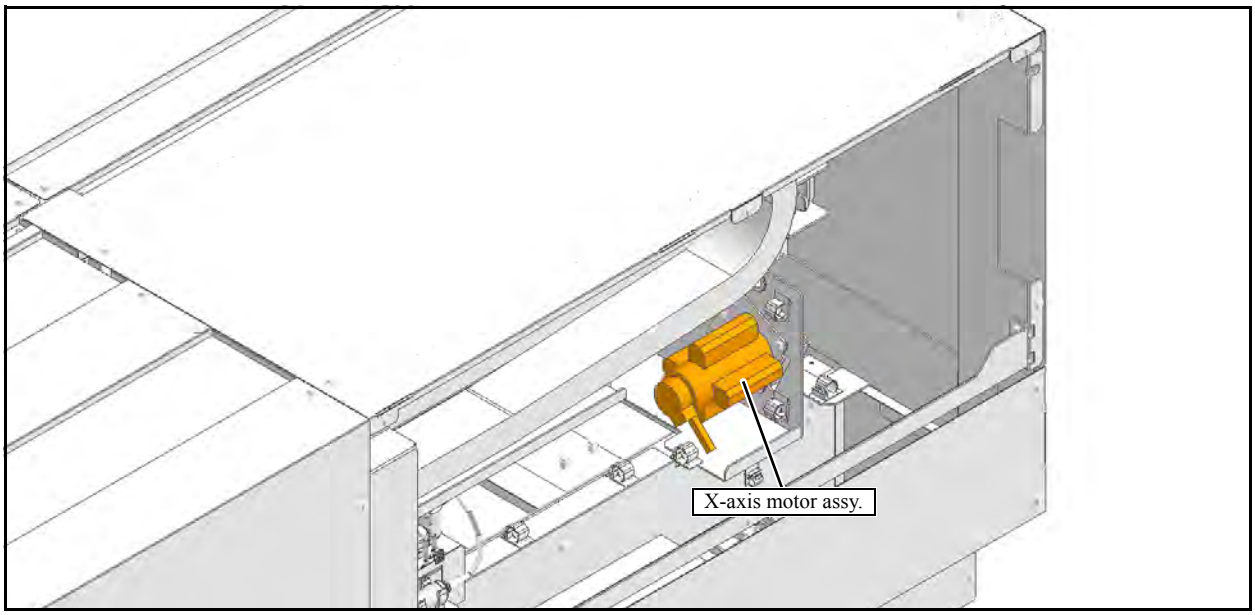
Item	Work operation		Description	Ref.
	1. ☐	Reset of ink information	Reset the ink information of disposal.	6.2.12
Power supply	2. ☐	Turning OFF the main power supply	Turn OFF the main power supply.	
Covers	3. ☐	Removing covers, etc.	Remove the following covers. ◆IK maintenance cover S ◆IK front cover S	6.1.1
Ink	4. ☐	Discard of ink	Remove the bottle, and discard ink in it.	6.2.12
Covers	5. ☐	Mounting the covers	Mount the covers that have been removed.	6.1.1

Caution

- Be sure to wear protective glasses and working gloves during the operation.
  Ink may get into your eyes depending on the working condition, or hand skin may get rough if you touch the ink.
- Be careful of UV light as UV ink is used. Protect the machine from UV light with sheet or curtain.

Workflow

3.2.1 Replacement of the X-axis Motor



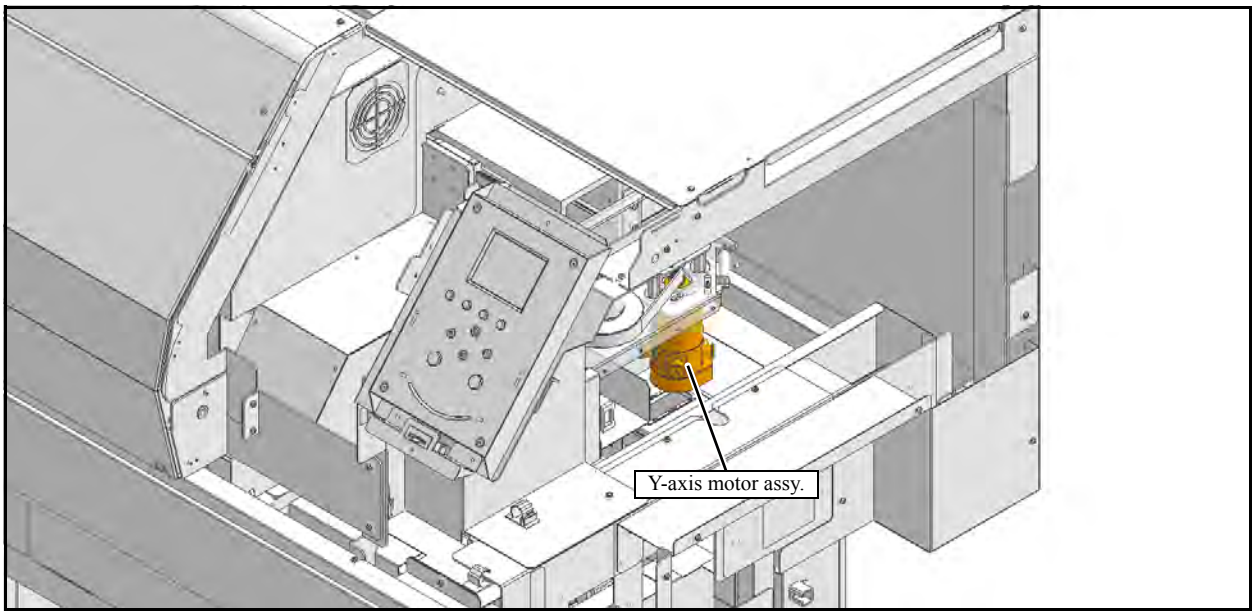
■ **List of replacement procedures**

Item	Work operation		Description	Ref.
Power supply	1. ☐	Turning OFF the main power supply	Turn OFF the main power supply.	
Covers	2. ☐	Removal of covers, etc.	Remove the following covers. ◆Cover side left ◆Cover rear left	6.1.1
X-axis motor assy.	3. ☐	Loosen the tension of the X-drive belt.	Loosen the fixing screw of the X-motor BKT 2 to loosen the tension of the X-drive belt.	6.3.1
	4. ☐	Removal of the X-axis motor	Disconnect the harness and remove the X-axis motor.	
	5. ☐	Mounting of the X-axis motor	Connect the harness and mount the X-axis motor.	
Adjust	6. ☐	Adjustment of the belt tension	Adjust the tension of the belt.	4.3.8
	7. ☐	Adjustment of the alignment	Adjust the alignment.	
Check	8. ☐	Check of hunting	Check if any hunting sound occurs when the motor is driving.	
Covers	9. ☐	Mounting of the covers	Mount the covers that have been removed.	6.1.1

Caution

Turn the main power OFF when turning the power OFF.
It is very dangerous if the sleep mode functions mistakenly during the operation.

3.2.2 Replacement of the Y-axis Motor



■ **List of replacement procedures**

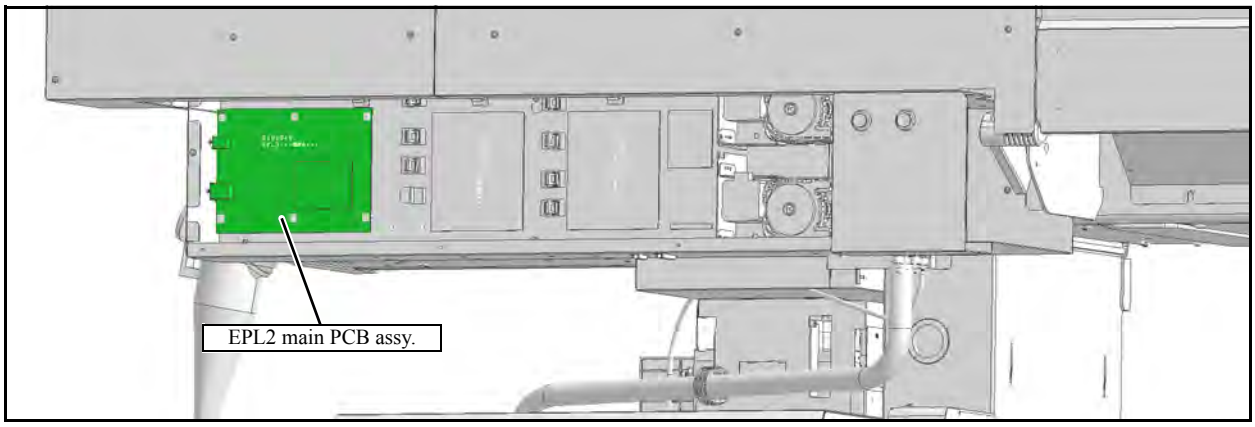
Item	Work operation		Description	Ref.
Power supply	1. ☐	Turning OFF the main power supply	Turn OFF the main power supply.	
Covers	2. ☐	Removal of covers, etc.	Remove the following cover. ◆Right side cover U	6.1.1
Y-axis motor assy.	3. ☐	Loosen the belt tension.	Loosen the YM base 24_TM fixing screw to loosen the belt tension.	6.3.3
	4. ☐	Removal of the Y-axis motor	Disconnect the harness and remove the Y-axis motor.	
	5. ☐	Mounting of the Y-axis motor	Connect the harness and mount the Y-axis motor so that the vacuuming window turns to the front side.	
Adjust	6. ☐	Adjustment of the belt tension	Adjust the tension of the belt.	4.3.9
	7. ☐	Adjustment of the alignment	Adjust the alignment.	
Check	8. ☐	Check of hunting	Check if any hunting sound occurs when the motor is driving.	
Covers	9. ☐	Mounting of the covers	Mount the cover that have been removed.	6.1.1

Caution

Turn the main power OFF when turning the power OFF.
It is very dangerous if the sleep mode functions mistakenly during the operation.

Workflow

3.3.1 Replacement of the EPL2 Main PCB Assy.



Warning

- After turning OFF the sub and main power switches, unplug the power cord. Make sure to take 5 minutes before restarting the operation.
  It is very dangerous if the sleep mode functions mistakenly during the operation.
  Moreover, the PCB may be damaged in case electric charge still remains inside.
  Also, there is a possibility of electric shock because of high power voltage applied to the high-pressure part of the power supply PCB assy. Take care to avoid contact with it.
- When the battery on the main PCB is replaced with a new one, pay attention to the polarity at replacing. Additionally, it may cause explosion if an incorrect battery is used. Use a battery recommended (CR1220) by the manufacturer.

■ List of replacement procedures

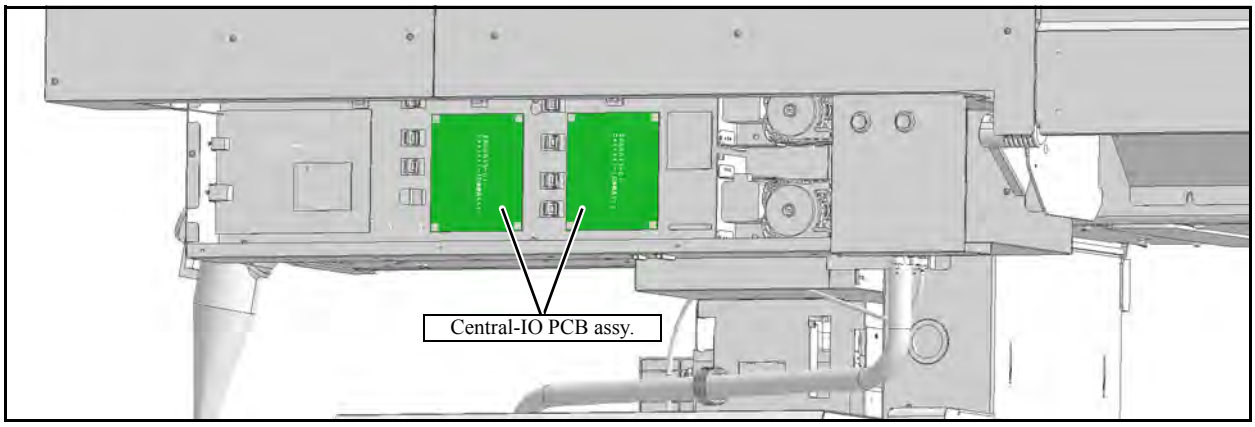
Item	Work operation		Description	Ref.
Advance preparation	1. ☐	Parameter upload	Before replacing the PCB, upload its parameter to the PC.	
Power supply	2. ☐	Turning OFF the main power supply	Turn OFF the main power supply.	
Covers	3. ☐	Removing covers, etc.	Remove the electrical box cover.	6.1.1
EPL2 main PCB assy.	4. ☐	Removing the EPL2 main PCB assy.	Remove the EPL2 main PCB assy..	6.4.1
	5. ☐	Replacement of the DDRII PRAM (1GB) PCB	Replace the DDRII PRAM (1GB) replacement PCB assy. to the new PCB.	
	6. ☐	Mounting the EPL2 main PCB assy.	Mount the EPL2 main PCB assy..	
Power supply	7. ☐	Turning ON the power supply	Turn ON the power supply and the main power supply while pressing the [ENTER] key.	
F/W version up	8. ☐	Upgrade of F/W	Refer to Service Document “4.1.2 F/W Update”.	
Parameter download	9. ☐	Change the system parameter		
Check	10. ☐	Checking the mechanical type	Check the mechanical type through the system parameters.	
	11. ☐	Checking the hunting	Check if any hunting sound occurs when the motor is driving.	
Covers	12. ☐	Mounting the covers	Mount the covers that have been removed.	6.1.1

If it is impossible to upload the parameters, conduct Parameter Draw to note the setting values.
Then manually register the values after replacing the EPL2 main PCB assy..

IMPORTANT

When the main PCB is replaced, remove and discard the equipped battery.
Discard the used battery according to manufacturer’s instructions.

3.3.2 Replacement of the Central-IO PCB Assy.



■ **List of replacement procedures**

Item	Work operation		Description	Ref.
Advance preparation	1. ☐	Parameter upload	Before the PCB is replaced, upload its parameter to the PC.	
Power supply	2. ☐	Turning OFF the main power supply	Turn OFF the main power supply.	
Covers	3. ☐	Removing covers, etc.	Remove the electrical box cover.	6.1.1
Central-IO PCB assy.	4. ☐	Removing the Central-IO PCB assy.	Remove the Central-IO PCB assy..	
	5. ☐	Replacement of the short connector	If a short connector is available, put it to the new PCB.	
	6. ☐	Mounting the Central-IO PCB assy.	Mount the Central-IO PCB assy..	
Power supply	7. ☐	Turning ON the power supply	Turn on the power supply and the main power supply while pressing the [▲]/[▼] key.	
Parameter download	8. ☐	Startup the printer in Parameter Up/ Down Mode	Service Document Refer to “4.1.3 Parameter Up/ Download”	
	9. ☐	Change the system parameter		
Covers	10. ☐	Mounting the covers	Mount the covers that have been removed.	6.1.1

Adjustment Items

Adjustment Items

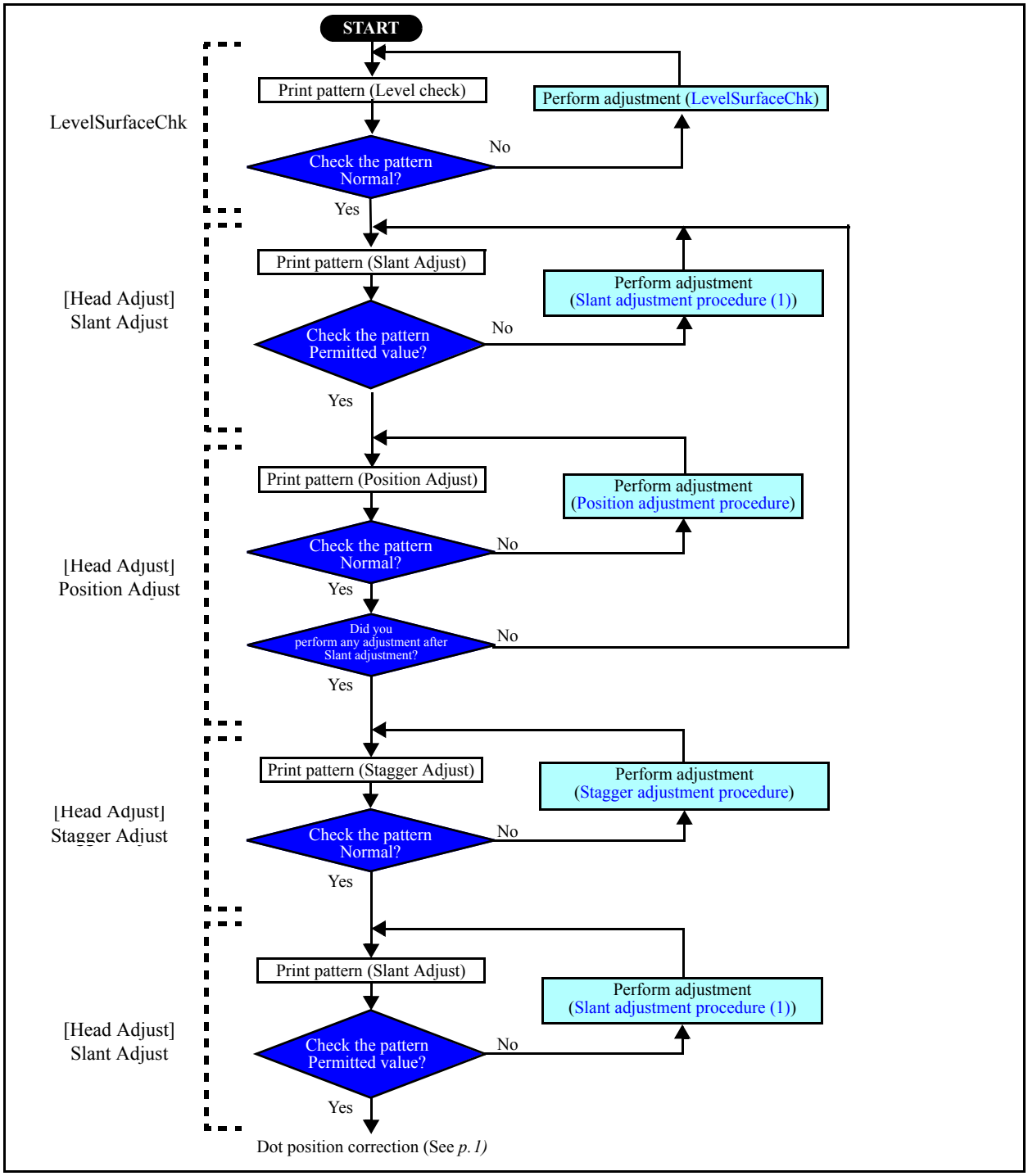
4.2.1 Head Adjust work flow

■ Outline

Check the carriage and each print head for inclination and misalignment by printing and examining the preset check patterns, and perform mechanical adjustment according to the check result.

IMPORTANT

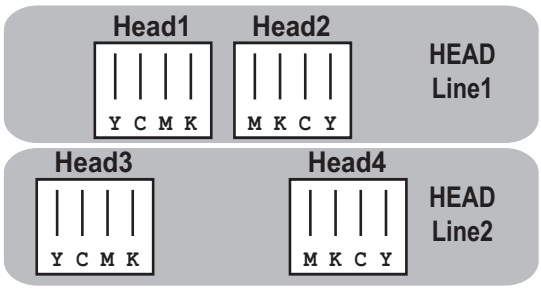
- Head Adjust offers three adjustment items; Slant Adjust, Position Adjust, and Stagger Adjust. If you have performed any one of the three adjustments, you need to check for the other two items and perform adjustment if necessary. Make sure to check and adjust until no problems is found for all of the three items.
- Incorrect head adjustment adversely affects the other parameter adjustments. Make sure to correctly adjust the print head.



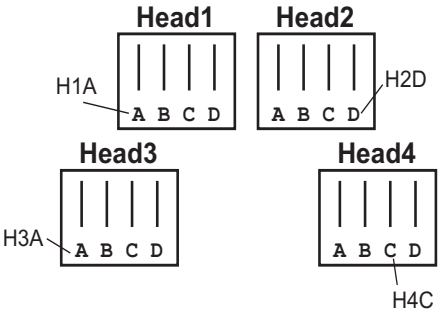
4.2.2 Print Adjust

■ Outline

Each head name

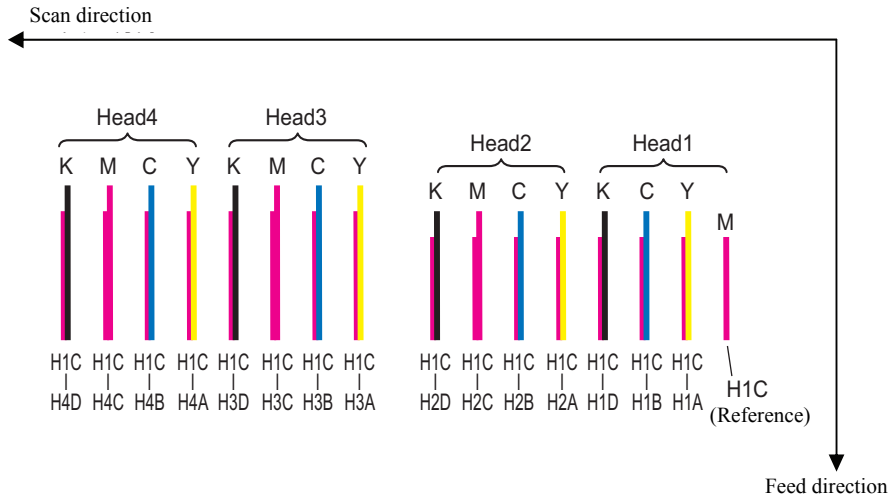


Each nozzle name



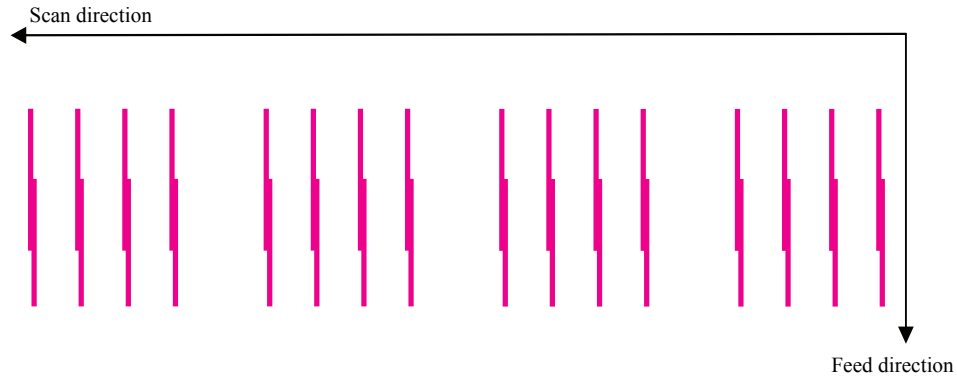
Pattern image (SiDir / ReDir)

* Reference line: M (H1C)
Adjustment line: Each nozzle color



Pattern image (BiDir)

* Reference line: Magenta
Adjustment line: Magenta



4.2.2 Print Adjust

Draw the preset check patterns, and compensate the parameter so that the drop positions of other heads are on the same line as the drop position of reference nozzle (Head 1A) in the Y-direction. To each of the discharged waveforms, execute [SiDir], [ReDir] and [BiDir] in each resolution.

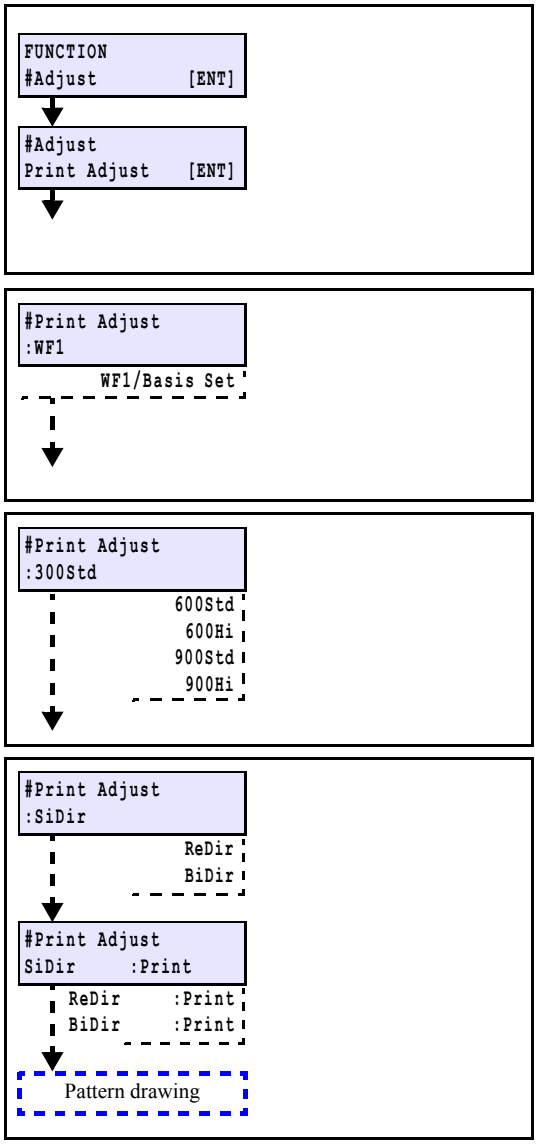
IMPORTANT

■ **For adjusting procedures**

This adjustment consists of each combination, and it needs a lot of time to execute all of the combinations. On this machine, the function [Basis Set] automatically calculating and reflecting from the adjustment value of the specified combination to each parameter is available. For more effective works, the following procedure is strongly recommended.

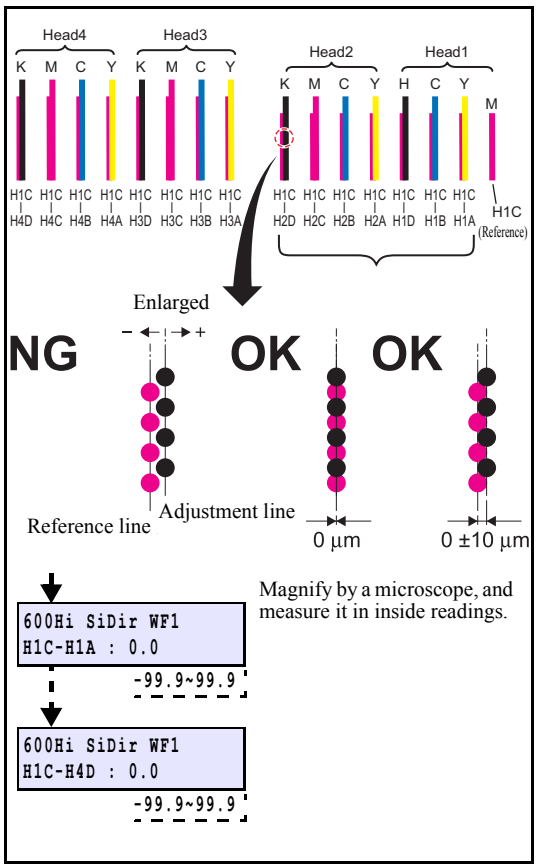
1. Check [Head Volt Adjust] before [Print Adjust].
2. Execute [SiDir], [ReDir] and [BiDir] in [600Hi] of WF1.
3. Execute [Basis Set]*, and reflect the adjustment value, which is automatically calculated from the above, resolution and scanning direction unexercised.
4. After [Basis Set] is executed, check and adjust each mode unexercised.

■ Work procedures of “SiDir” and “ReDir”



1. Set the media.
2. Select [#Adjust] -> [Print Adjust].
3. Select the waveform.
   [▲]/[▼]: Switches
   [ENTER]: Fix (Next)
4. Select the Y-resolution and scanning speed.
   (Only “BiDir” can be selected in 300std.)
   [▲]/[▼]: Y-resolution & Scanning speed change
   [ENTER]: Fix (Next)
5. Select “SiDir” or “ReDir”on the [Select] display.
   [▲]/[▼]: Switches
   [ENTER]: Fix (Next)
6. Press the [ENTER] key to draw the pattern.
   [ENTER]: to start Pattern drawing
   [▶]: move to the screen to input compensation value (Without drawing)

4.2.2 Print Adjust



7. Check and compensate the patterns.

   Input the adjustment value (the measured value: µm) so that the impact dots of other nozzle lines (7 lines) are at the same position in the Y-direction, referring to the reference nozzle H1C line.

   Check and execute the compensation for H1C-H1A ~ H4D.

   [▲]/[▼]: Compensating value input
   (Input unit: about 4 µm/0.1)

   [ENTER]: Fix (Next)

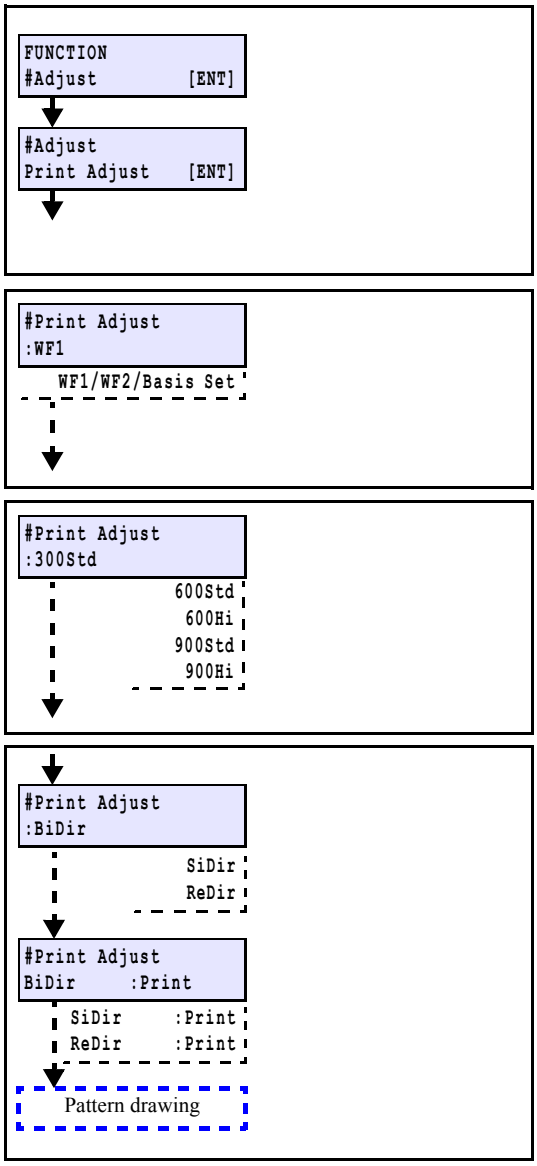
> **IMPORTANT** Input the compensating value, referring to the left figure, if the displacement on the drop position of head applied for the compensation occurs either right or left against the reference head.

8. When compensated, draw and check the patterns again.

> **IMPORTANT** Repeat “Drawing -> Checking (Compensating)” until any compensation is not required.

4.2.2 Print Adjust

■ **Adjustment procedure for the drop position of BiDir.**



1. Set the media.

2. Select [#Adjust] -> [Print Adjust].

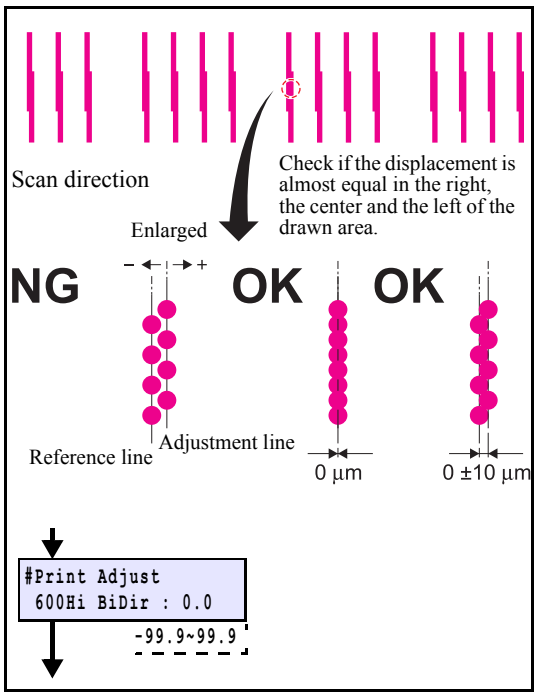
3. Select the waveform.
   [▲]/[▼]: Switches
   [ENTER]: Fix (Next)

4. Select the Y-resolution and scanning speed.
   "300Std" of WF1 is "BiDir" adjust only.
   [▲]/[▼]: Y-resolution & Scanning speed change
   [ENTER]: Fix (Next)

5. Select "BiDir" on the [SELECT] display.
   [▲]/[▼]: Switches
   [ENTER]: Fix (Next)

6. Press the [ENTER] key to draw the pattern.
   [ENTER]: to start Pattern drawing
   [▶]: move to the screen to input compensation value (Without drawing)

4.2.2 Print Adjust



7. Check and compensate the patterns.

   The reference lines are drawn in going, and then the adjustment lines are drawn at the same Y-coordinate positions in returning. The position where the lines above are overlapped on one vertical line is specified as the correct dot position (H1C: M color fixed)
   Confirm that the dots are on the same line.

   * The adjusting procedure is the same although the drawing pattern is different depending on mode.

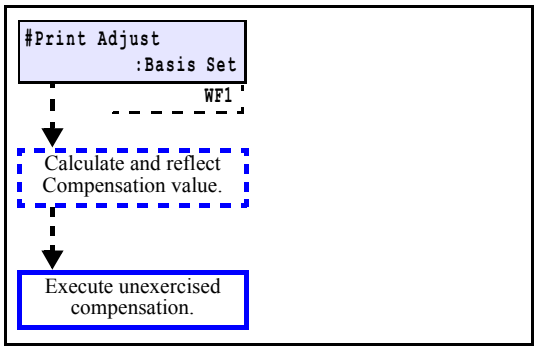
   [▲]/[▼]: Compensating value input (adjustment value)
   [ENTER]: Fix

> If the displacement is significantly different in the right and left, other reasons are considered.

8. When compensated, draw and check the patterns again.

> IMPORTANT
> Repeat “Drawing -> Checking (Compensating)” until any compensation is not required.

■ **Work procedure (Basis Set)**



1. Adjust SiDir/ReDir of 600Hi of WF1.

> IMPORTANT
> Apply the value calculated from the 600Hi adjustment into the mode other than 600Hi of WF1.

2. On the display to select the waveform, select and execute “Basis Set”

   [▲]/[▼]: Switches
   [ENTER]: Fix (Next)

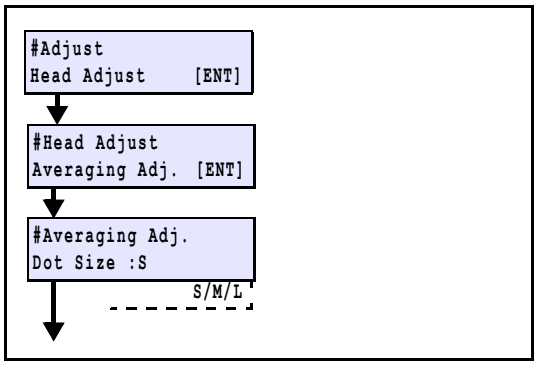
3. After performing [Basis Set], check and adjust resolution and scanning direction unexercised.

4.2.3 Averaging Adj.

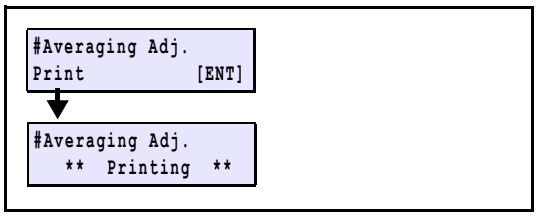
■ Outline

Carry out the adjustments of the head slant, the front/back position of adjacent heads, stagger position all together.

■ Work procedure



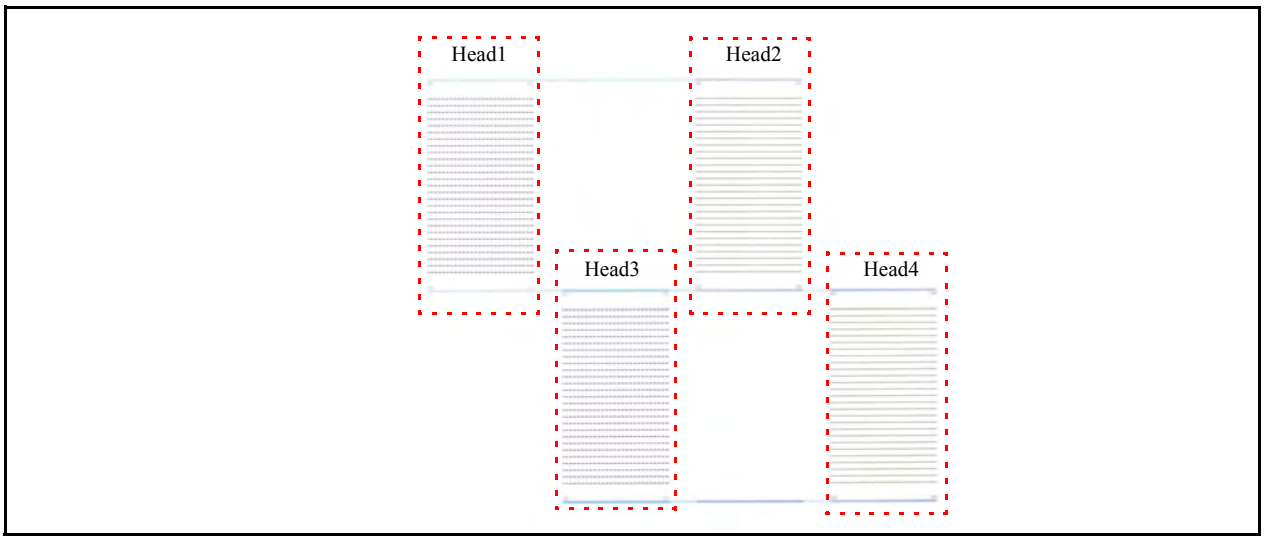
1. Select [#Adjust] -> [Head Adjust] -> [Averaging Adj.].
   [ENTER]: Start



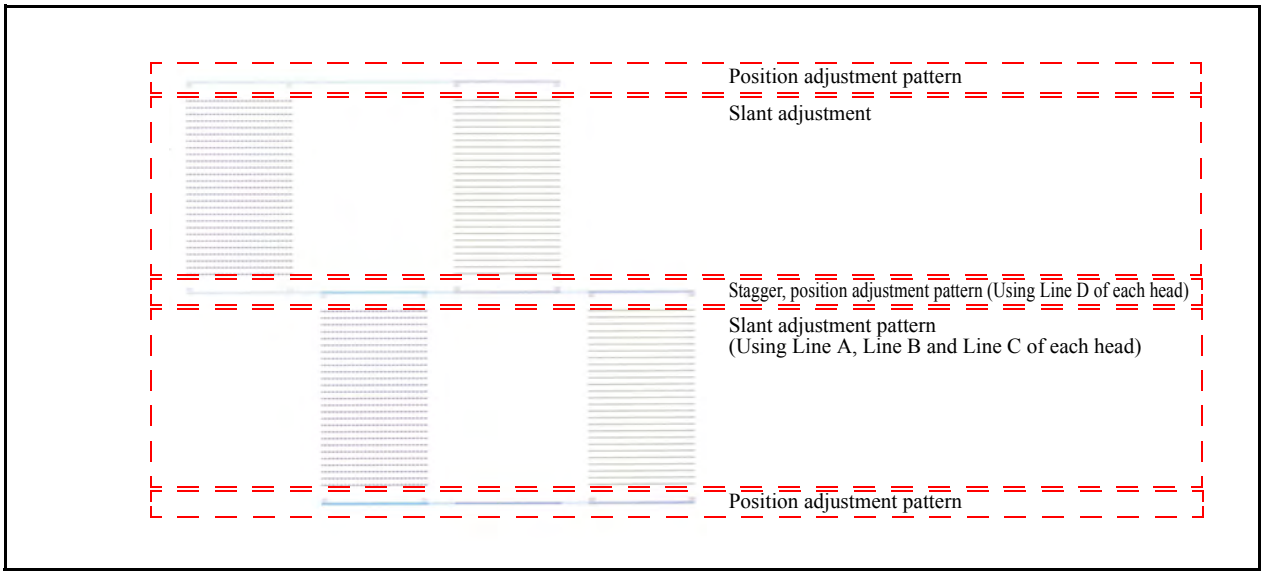
2. Print the adjustment pattern and verify the attachment position of the heads.
   If adjustment is necessary, perform adjustment.

4.2.3 Averaging Adj.

☐ Patterns



☐ Pattern viewing and adjustment method



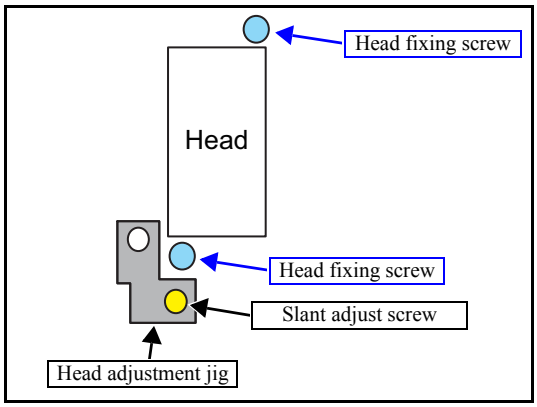
4.2.3 Averaging Adj.

■ Slant adjustment

Adjust so that the straight line is at the center of the dashed lines.

> **IMPORTANT** Be sure to verify multiple straight line positions at the top, center, and bottom of the pattern. If the ink discharge trajectory is skewed, the slant cannot be adjusted properly.

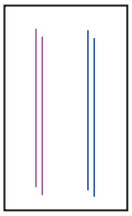
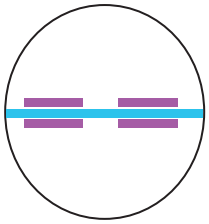
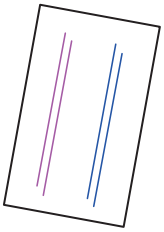
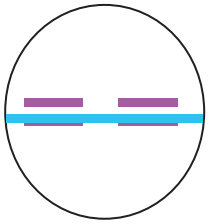
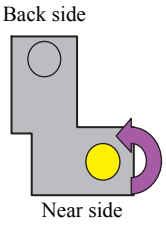
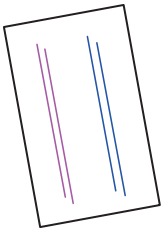
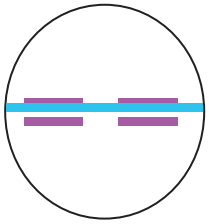
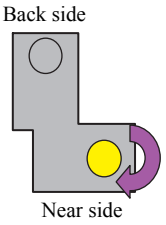
☐ Head slant adjustment procedure



1. Attach the head adjustment jig.
2. Press [SEL] to take OFF the cap.
3. Loosen the head fixing screw.
4. Turn the slant adjust screw and adjust the slant of the head.
5. Tighten the head fixing screw.
6. Put ON the cap.
7. Print and verify the adjustment pattern.

> **IMPORTANT**
> - Do not touch the head connector.
> If the head connector becomes disconnected, turn the power OFF before reconnecting the connector.
> - If the ink supply port at the near side of the head is shaken, the meniscus will be damaged. When touching the port, do not let it shake.
> - If the cap is kept off for a long time, it may result in a skewed ink discharge trajectory or nozzle misalignment. If skewed ink discharge trajectory or nozzle misalignment occurs, the head cannot be adjusted properly, so do not keep the cap OFF for a long time.
> In addition, if nozzle misalignment or skewed ink discharge trajectory occurs, perform cleaning.
> - After adjusting the slant, be sure to verify the stagger / position.
> - Never loosen the screws other than the head fixing screw.
> The AD plate (ADG5) and the head unit have been accurately assembled in one piece. Never loosen the screws on this assembly. Otherwise, the accuracy will be affected and become impossible to adjust again.

4.2.3 Averaging Adj.

	Head condition	Figure viewing with a loupe	Adjustment method (slant adjust screw rotation direction)
Not slanted			
Slanted to the right			
Slanted to the left			

4.2.3 Averaging Adj.

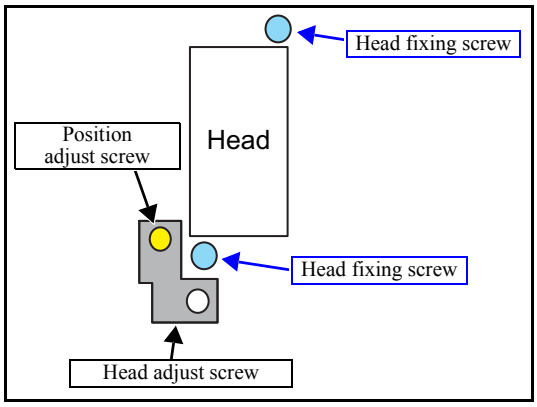
■ Stagger / position adjustment

Adjust the lines printed by Head 2 ~ 4 with the four lines (reference lines) printed by Head 1 so as to fit them precisely with the four lines.

IMPORTANT

- Make sure that there are 4 straight lines.
- Adjust the slant of head 3/4 before performing stagger/ position adjustment.

☐ Stagger / position adjustment procedure

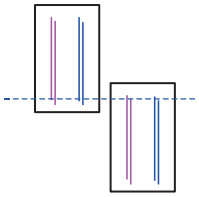
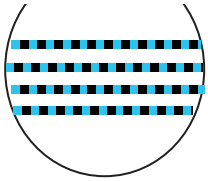
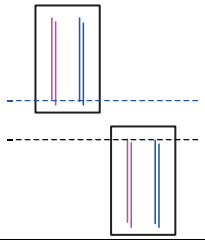
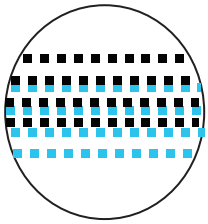
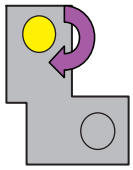
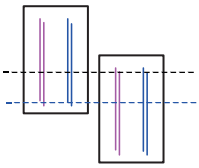
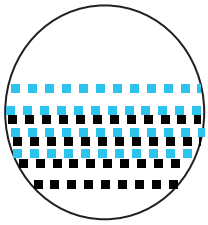
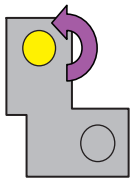


1. Attach the head adjustment jig.
2. Press [SEL] to take OFF the cap.
3. Loosen the head fixing screw.
4. Turn the position adjust screw and adjust the front/back position of the head.
5. Tighten the head fixing screw.
6. Put on the cap.
7. Print and verify the adjustment pattern.

IMPORTANT

- Do not touch the head connector.
  If the head connector becomes disconnected, turn the power OFF before reconnecting the connector.
- If the ink supply port at the near side of the head is shaken, the meniscus will be damaged. When touching the port, do not let it shake.
- If the cap is kept off for a long time, it may result in a skewed ink discharge trajectory or nozzle misalignment. If skewed ink discharge trajectory or nozzle misalignment occurs, the head cannot be adjusted properly, so do not keep the cap OFF for a long time.
  In addition, if nozzle misalignment or skewed ink discharge trajectory occurs, perform cleaning.
- After adjusting the stagger/ position, be sure to verify the slant.
- Never loosen the screws other than the head fixing screw.
  The AD plate (ADG5) and the head unit have been accurately assembled in one piece. Never loosen the screws on this assembly. Otherwise, the accuracy will be affected and become impossible to adjust again.

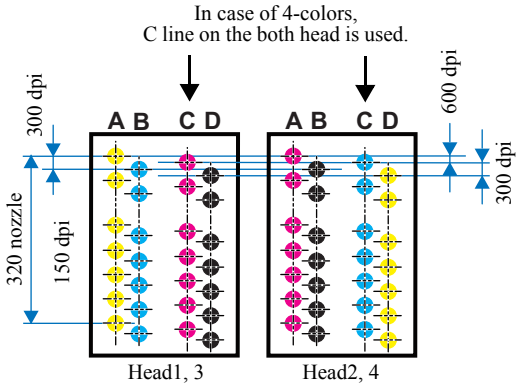
4.2.3 Averaging Adj.

	Head condition	Figure viewing with a loupe	Adjustment method (Position adjust screw rotation direction)
Proper condition		Blue line: reference head Black line: adjustment head 	
When the stagger interval is wide			Back side  Near side
When the stagger interval is narrow			Back side  Near side

4.2.4 Slant Adjust

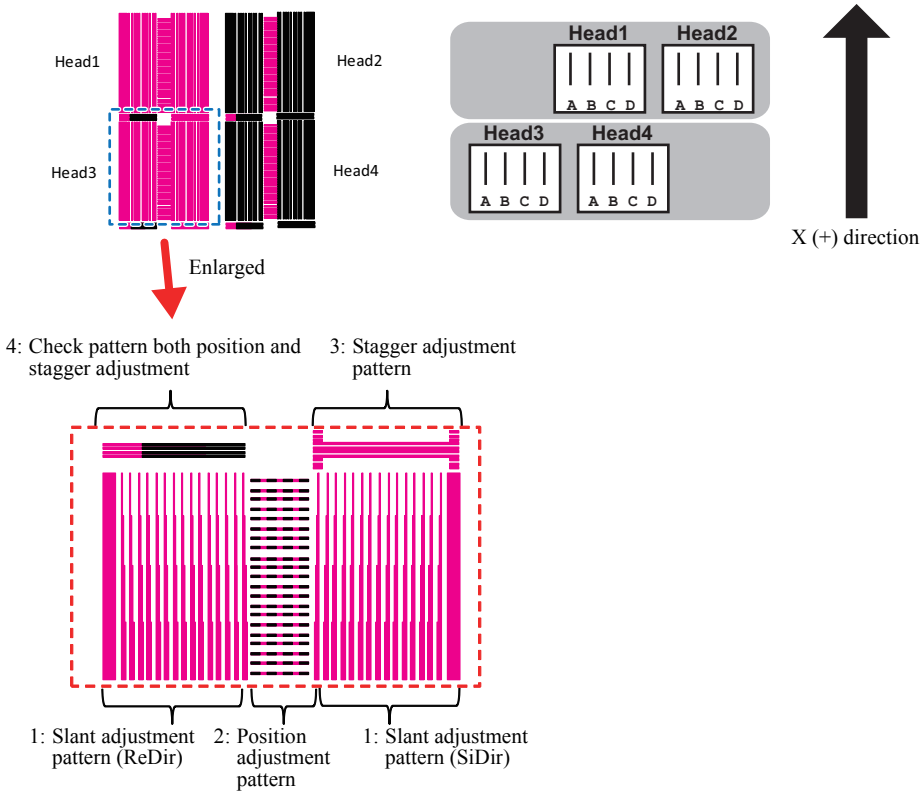
■ Outline of the slant adjustment

☐ Nozzles used for the check



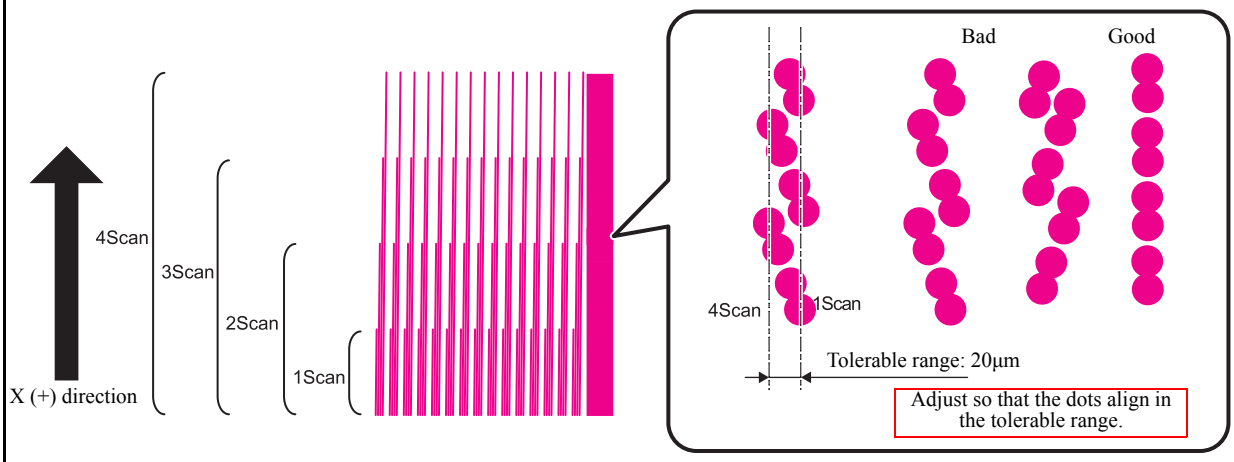
☐ Slant adjustment pattern

* You can check the “slant”, “stagger position”, and “position” of the print head at the same time in the compound slant adjustment patterns.



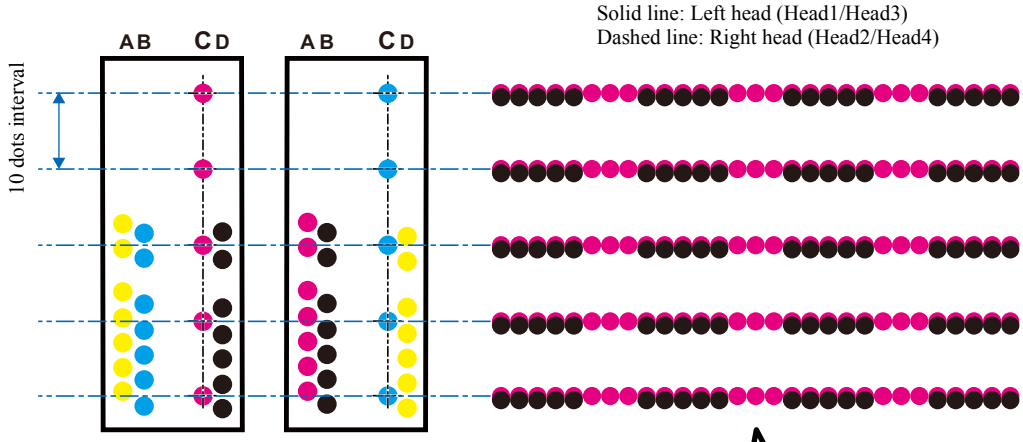
4.2.4 Slant Adjust

1: Slant adjustment pattern *Make sure you check the patterns for both directions.



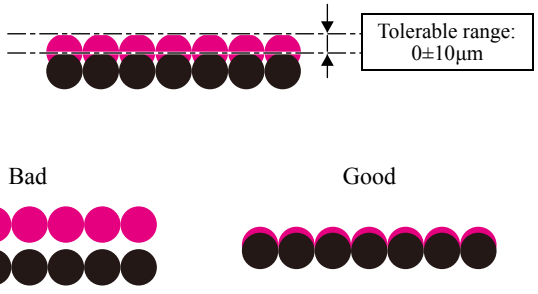
2: Head position adjustment pattern

4 color printer



Enlarged view with a loupe

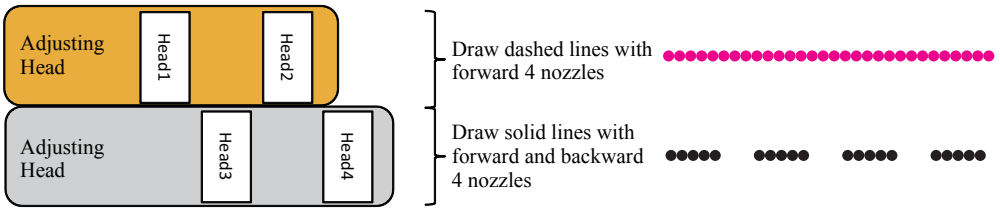
● The patterns shown here are for 4 color printer.

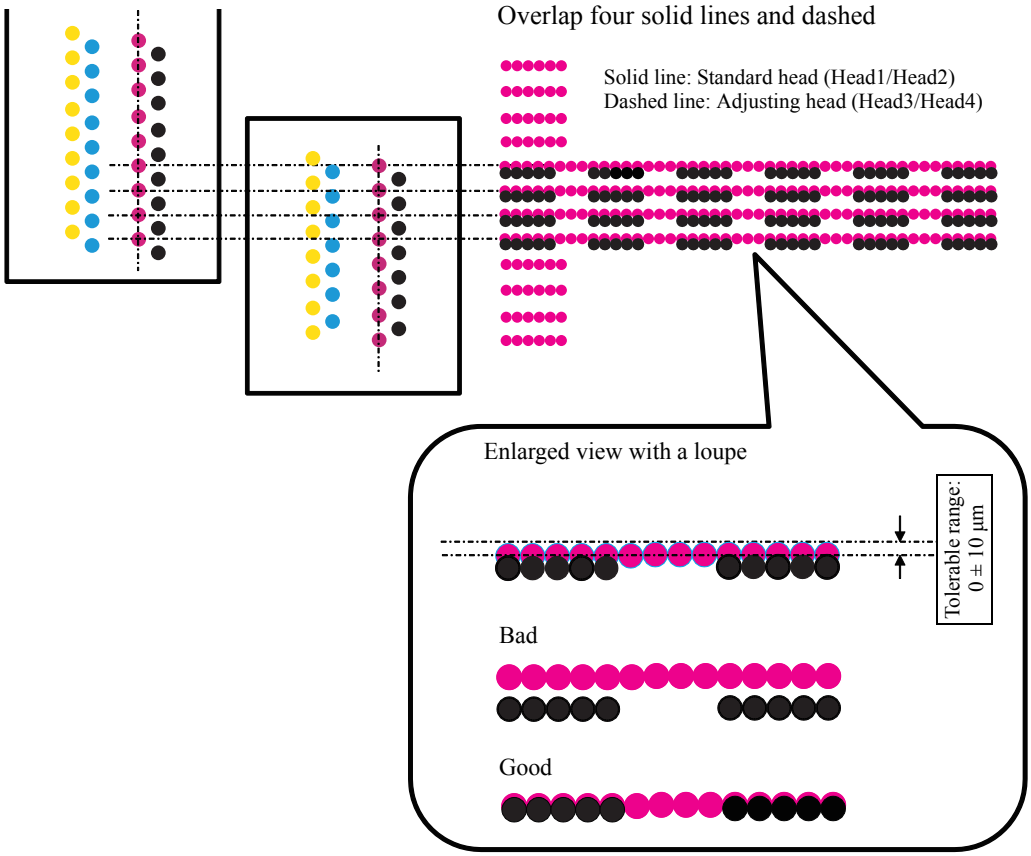


The above figure is the loupe image. When Black can be seen in “front”, adjust the Head 2 to “front”.

4.2.4 Slant Adjust

3: Stagger adjustment pattern
Make sure you check the patterns for both directions.





At the time of Stagger adjustment, do not move the Head of Head1, 2.
Adjust by moving the head of Head3, 4.

[Head1, 2 adjustment for Head3, 4]

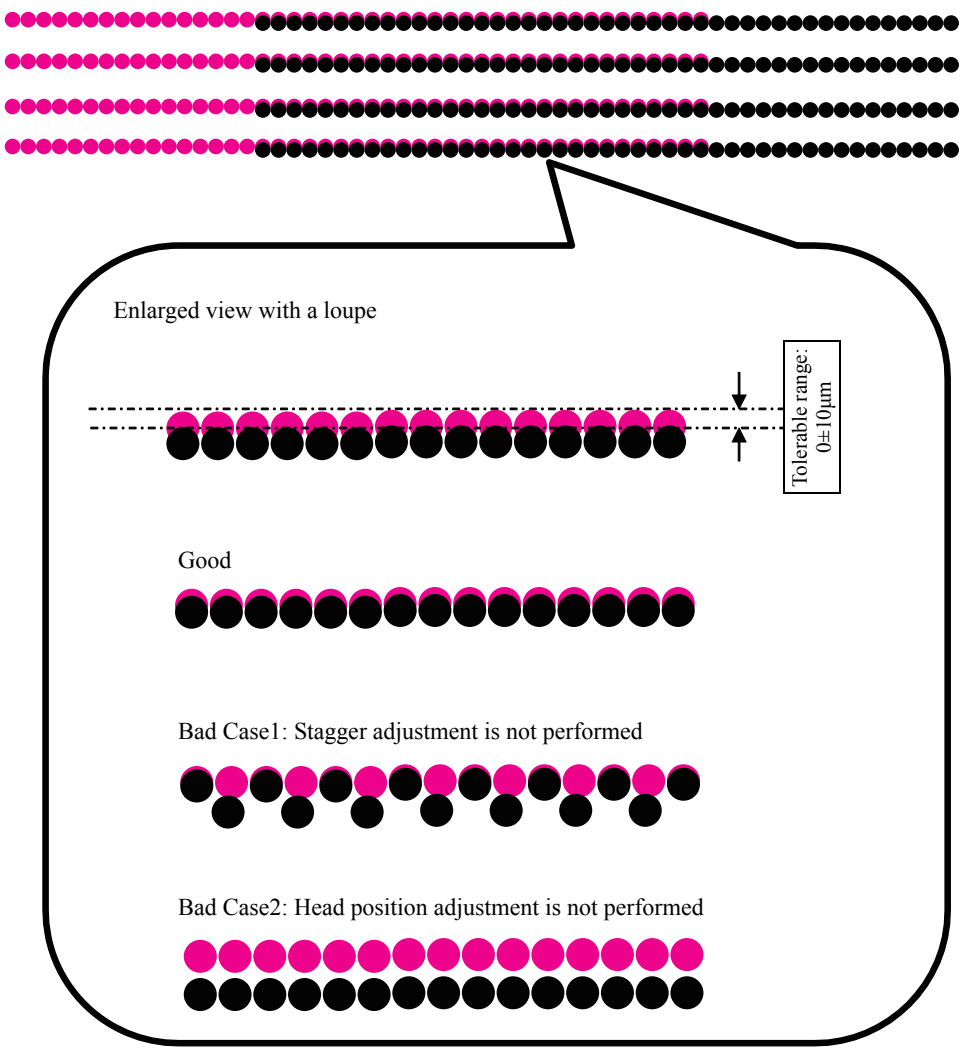
(1) If the dashed lines are on the front when you look through a loupe:
Adjust the head of Head3, 4 “forward”.

(2) If the dashed lines are in the back when you look through a loupe:
Adjust the head of Head3, 4 “backward”.

4.2.4 Slant Adjust

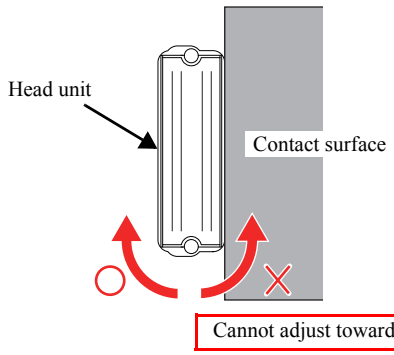
4: Head position and Stagger adjustment pattern

This is checking pattern to confirm whether Head position and Stagger adjustment were carried out appropriately. Check final with this pattern after performing Head position and Stagger adjustment.

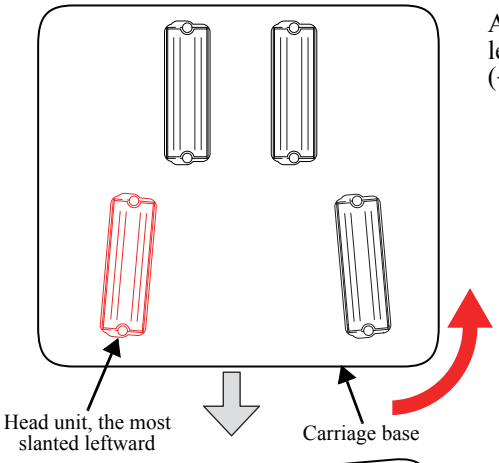


4.2.4 Slant Adjust

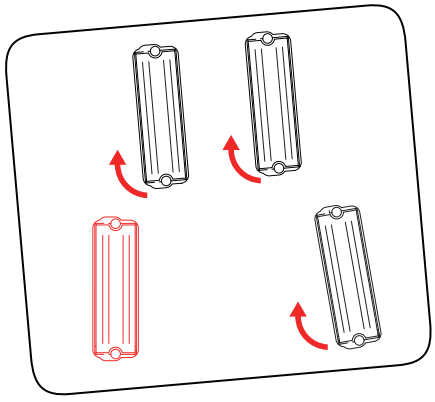
☐ Adjustment workflow



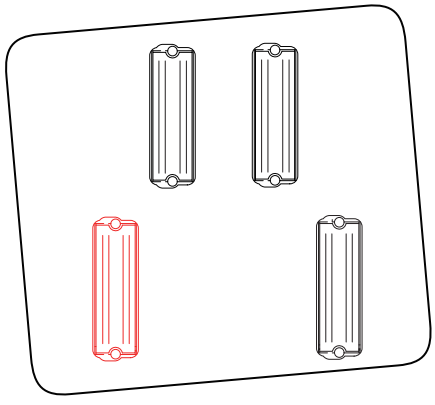
IMPORTANT: The stagger adjust jig allows you to correct the head slant only in one direction.



Adjust the carriage base so that the head unit the most leftward slanted among the all head units is aligned. (→Slant adjustment procedure (1))



After performing Slant adjustment procedure (1), adjust the head units individually using the stagger adjust jig. (→Slant adjustment procedure (2))



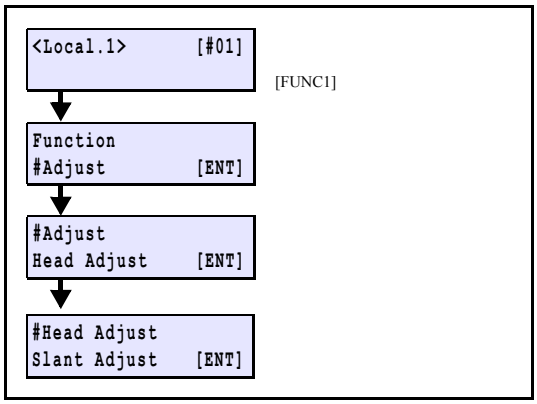
The adjustment is completed.

4.2.4 Slant Adjust

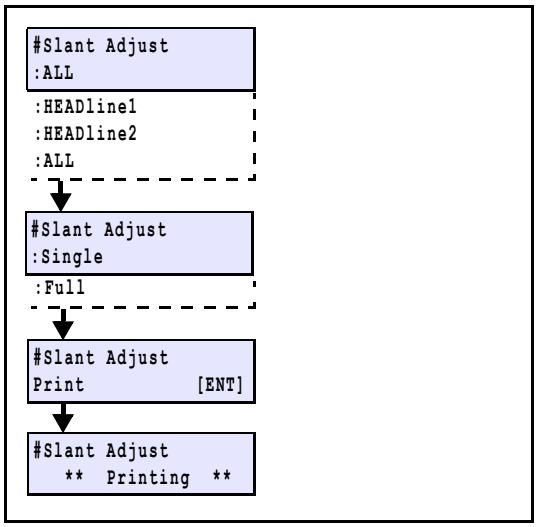
IMPORTANT

- Before adjusting, make sure that the carriage is not vertically slanted in [LevelSurfaceChk].
- After checking the patterns for both directions, adjust the head to the position that is most aligned.
- You can also check the “stagger position” and “head position” at the same time: check them along with the “slant” when adjusting the print head.
- Print the adjustment pattern at the full width. Make sure to check the patterns at multiple positions.

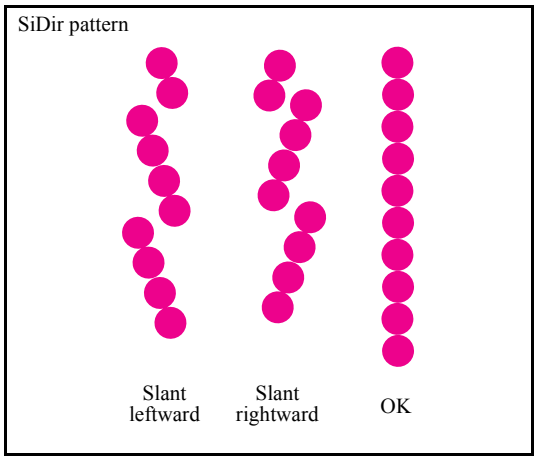
■ Slant adjust check procedure



1. Select [#Adjust] -> [Head Adjust] -> [Slant Adjust] from the operation menu.



2. Select HEADline for adjustment.
3. Select width of the pattern.
4. Press the [ENTER] key to draw the pattern.
   - [ENTER]: To start Pattern drawing
   - [FUNC1]: Cap OFF
   - [◀]/[▶]/[▲]/[▼]: enters into the jog mode (moves the origin of the pattern)



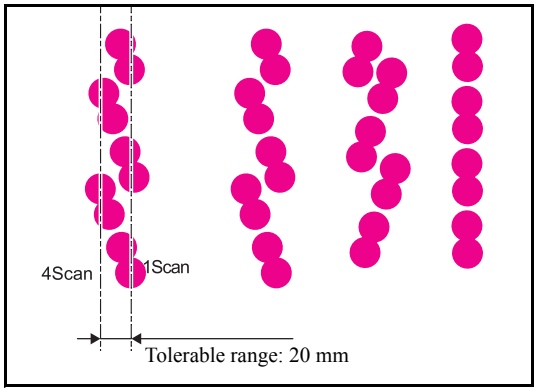
5. Examine the Head1 to Head4 patterns, and find which head is the most slanted leftward.

4.2.4 Slant Adjust

■ Slant adjustment procedure (1)

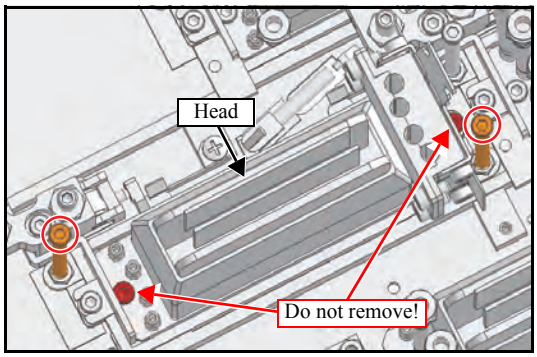
1. Perform the carriage base inclination adjustment.
   - See 4.3.5 Carriage Base Horizontal Inclination Adjustment.
2. Print the pattern again, and check that the patterns of the most slanted head are aligned in a line.

■ Slant adjustment procedure (2)



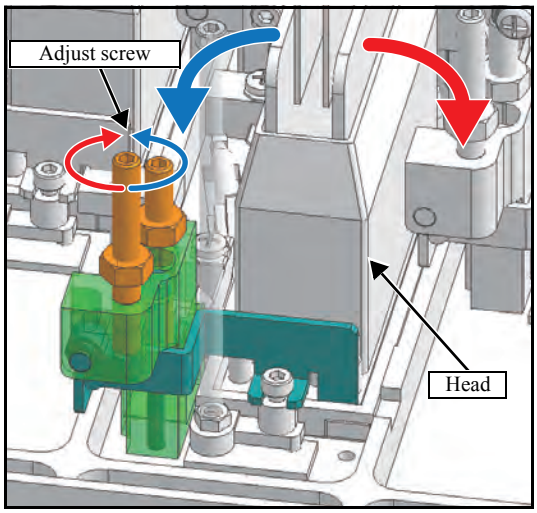
1. Confirm whether quantity of biggest gap by each scan is settled 20 µm. If there is a head whose gap is out of the standard, carry out the following adjustment.

> IMPORTANT
> - After checking the patterns for both directions, adjust the head to the position that is most aligned.
> - Make sure to adjust the head so that the alignment meets criteria for both directions. If the alignment does not meet criteria, check the slant angle of the carriage by [LevelSurfaceChk].
> - Check the patterns at several points such as right, left and center



2. Loosen the two screws fixing the head to be adjusted.

> IMPORTANT
> Do not remove the red screws in the figure since they secure the AD plate and head.



3. Turn the adjust screw of the stagger adjust jig. The head slant to left or right side.

   In which direction to turn the screw:

   When the head has slanted to left: turn it clockwise.

   When the head has slanted to right: turn it counterclockwise.

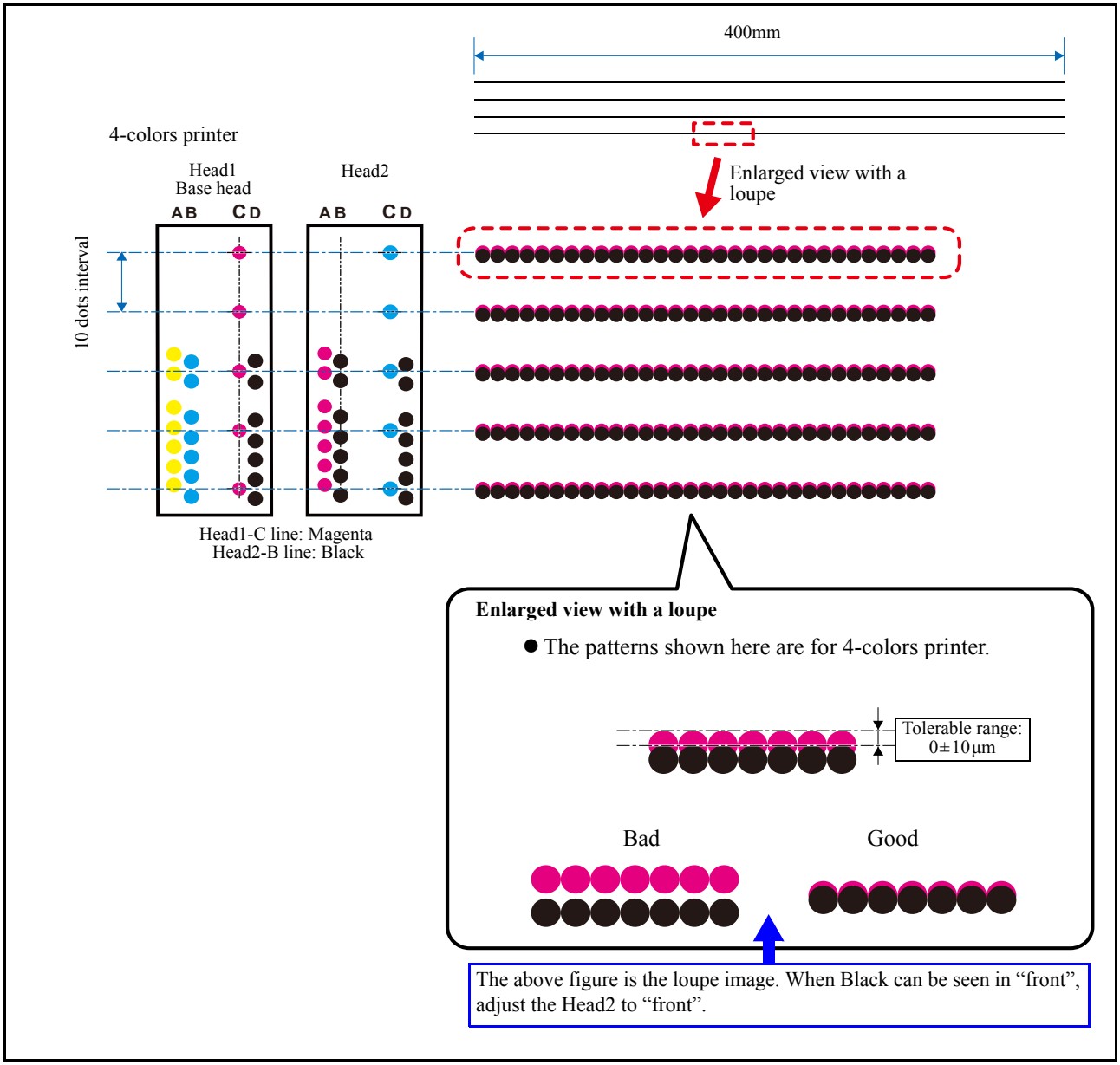
4. Print the pattern again and examine it.

> IMPORTANT
> Repeat the adjustment and check with the pattern until the dots align in the tolerable range.

5. When finished, tighten the two screws to secure the head.

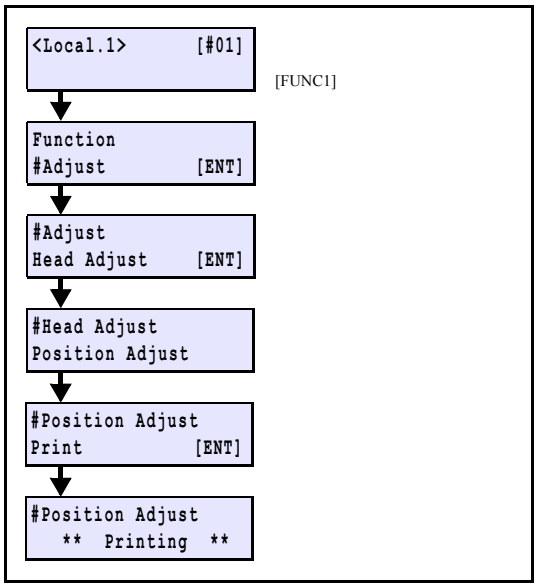
4.2.5 Position Adjust

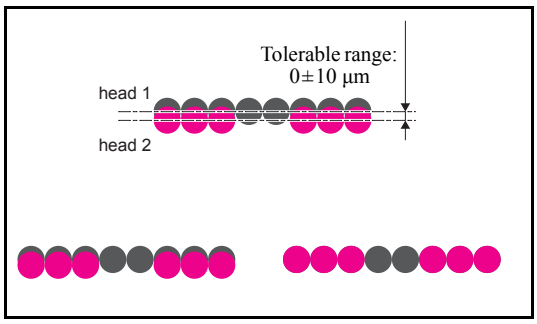
■ **Position adjustment pattern**



4.2.5 Position Adjust

■ **Position adjust check procedure**





1. Select [#Adjust] -> [Head Adjust] -> [Position Adjust] from the operation menu.

2. Press the [ENTER] key to draw the pattern.
   [ENTER]: To start Pattern drawing
   [FUNC1]: Cap OFF
   [◀]/[▶]/[▲]/[▼]: enters into the jog mode (moves the origin of the pattern)

3. Make the carriage Cap OFF.

> IMPORTANT
> Do not perform this adjustment with the carriage located on the Station Assy (cap). Adjustment must be done while making the carriage Cap OFF.

4. Check if the gap of pattern is in compliance with the specification.

> Be careful that head positions of dots seen with a loupe is opposite from the actual position.

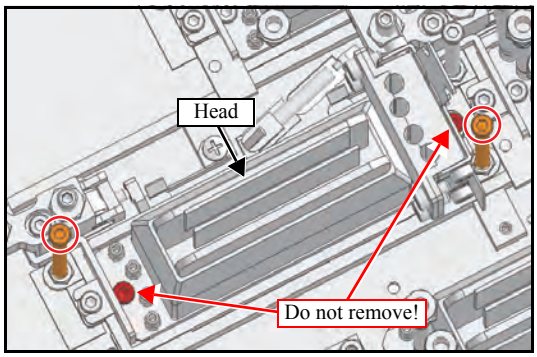
Tolerable range: 0 ± 10 µm

When the dots are misaligned exceeding the tolerable range, proceed to Position adjustment procedure.

4.2.5 Position Adjust

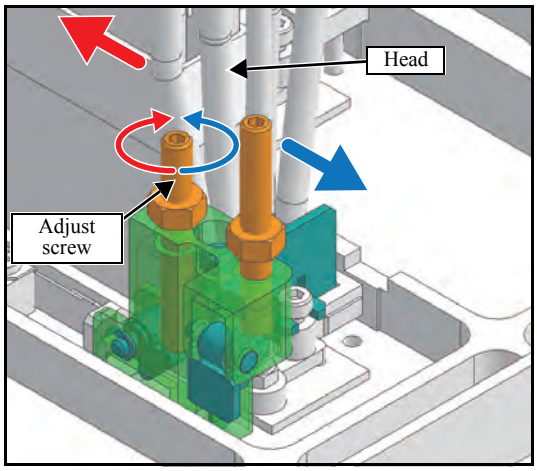
■ Position adjustment procedure

Based on the position of the Head1, move the Head2 to adjust the position.



1. Loosen the two screws (red circle in left figure) fixing the head to be adjusted.

> **IMPORTANT** Do not remove the red screws in the figure since they secure the AD plate and head.



2. Turn the adjust screw of the stagger adjust jig. The head is moved back and forth.

> ● One turn of the adjust screw moves the head approximately 500 µm. (rough indication)
> ● In which direction to turn the screw:
> Clockwise: moves the head backward.
> Counterclockwise: moves the head forward.

3. Print the pattern again and examine it.

> **IMPORTANT**
> ● Repeat the adjustment and check with the pattern until the dots align in the tolerable range (Tolerable range: 0 ± 10 µm).
> ● After the position adjustment, perform the slant adjustment and position adjustment again and repeat them alternately until the both needs no more adjustment.

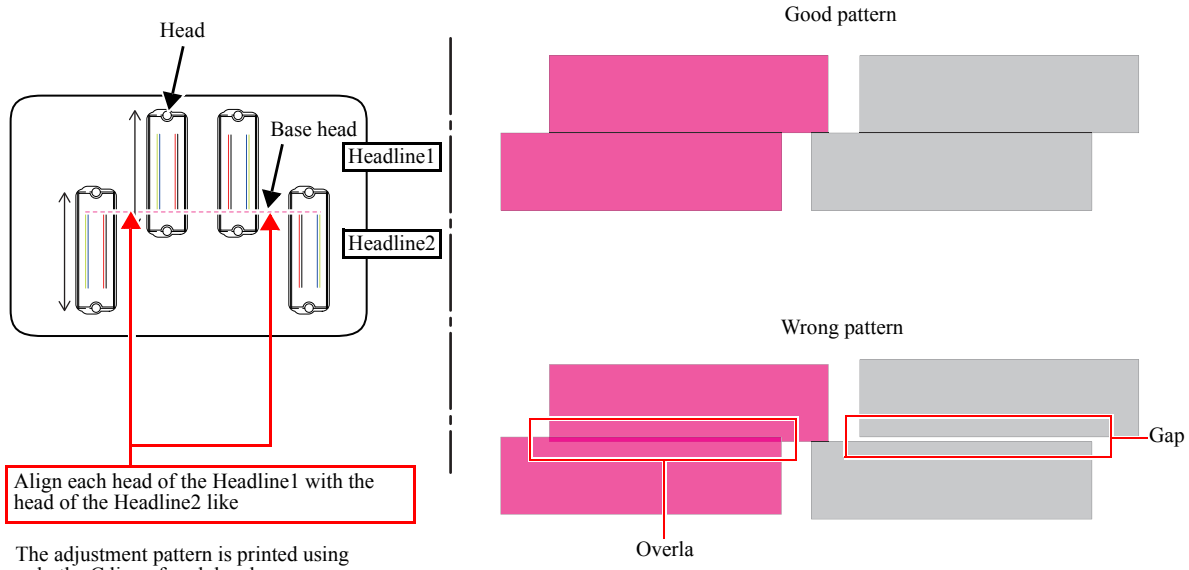
4. When finished, tighten the two screws to secure the head.

> **Caution** The head unit sometimes does not completely return to the front side. Make sure to push the unit against the end of the front side and then secure it.

4.2.6 Stagger Adjust

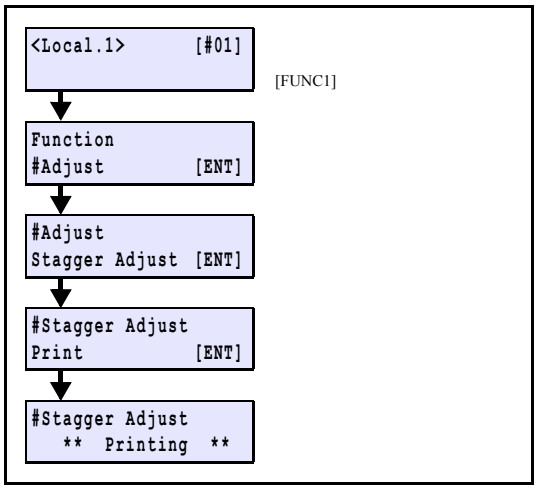
■ Outline of the head stagger adjustment

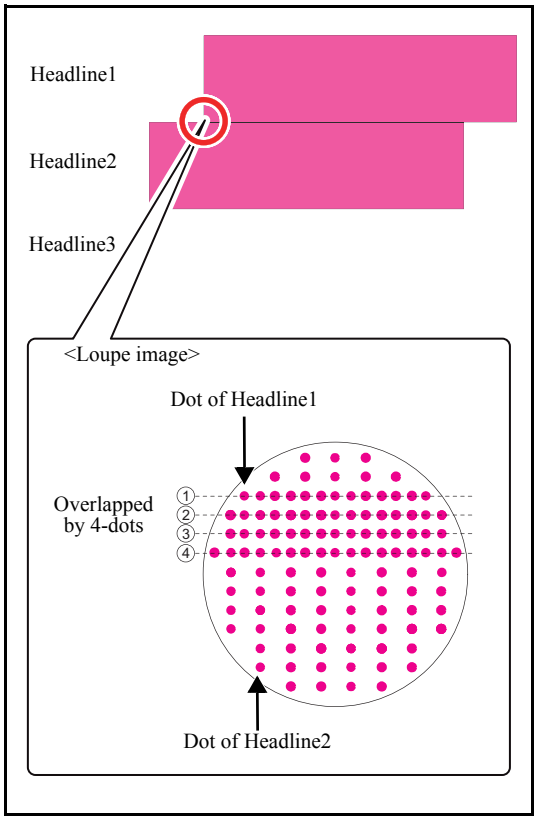
4-colors printer



4.2.6 Stagger Adjust

■ Stagger adjust check procedure





1. Select [#Adjust] -> [Head Adjust] -> [Stagger Adjust] from the operation menu.

2. Press the [ENTER] key to draw the pattern.
   [ENTER]: To start Pattern drawing
   [FUNC1]: Cap OFF
   [◀]/[▶]/[▲]/[▼]: enters into the jog mode (moves the origin of the pattern)

3. Make the carriage Cap OFF.

> IMPORTANT
> Do not perform this adjustment with the carriage located on the station assy. (cap). Adjustment must be done while making the carriage Cap OFF.

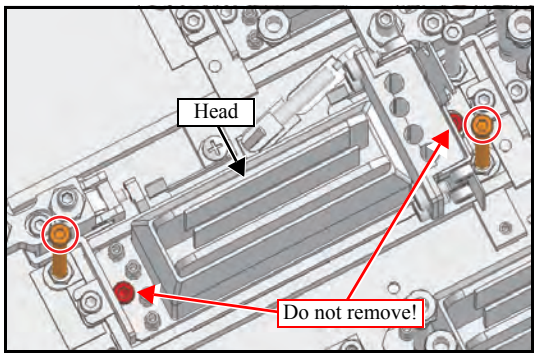
4. Check if the head is staggering.
   Using a loupe, check that the Headline1 and Headline2 patterns overlap by 4-dots width. If the overlapped width is improper, go to stagger adjustment procedure.

   Tolerable range: 0 ± 10 μm

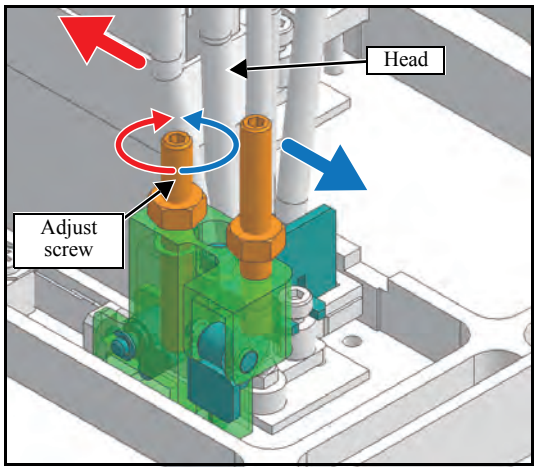
4.2.6 Stagger Adjust

■ **Stagger adjustment procedure**

Based on the Headline1 head position, move the heads of the Headline2 to correct the staggering.



1. Loosen the two screws (red circle in left figure) of the head to be adjusted.



2. Turn the adjust screw of the adjust assy.. The head is moved back and forth.

- One turn of the adjust screw moves the head approximately 500 µm. (rough indication)
- In which direction to turn the screw:

  Clockwise: moves the head backward.
  Counterclockwise: moves the head forward.

3. Print the pattern again and examine it.

IMPORTANT

- Repeat the adjustment and check with the pattern until the interval becomes the standard value (Tolerable range: 0 ± 10 µm).
- When finished, perform the slant adjustment again and repeat them alternately until no more adjustment is required.

4. When finished, tighten the two screws to secure the head.

Caution

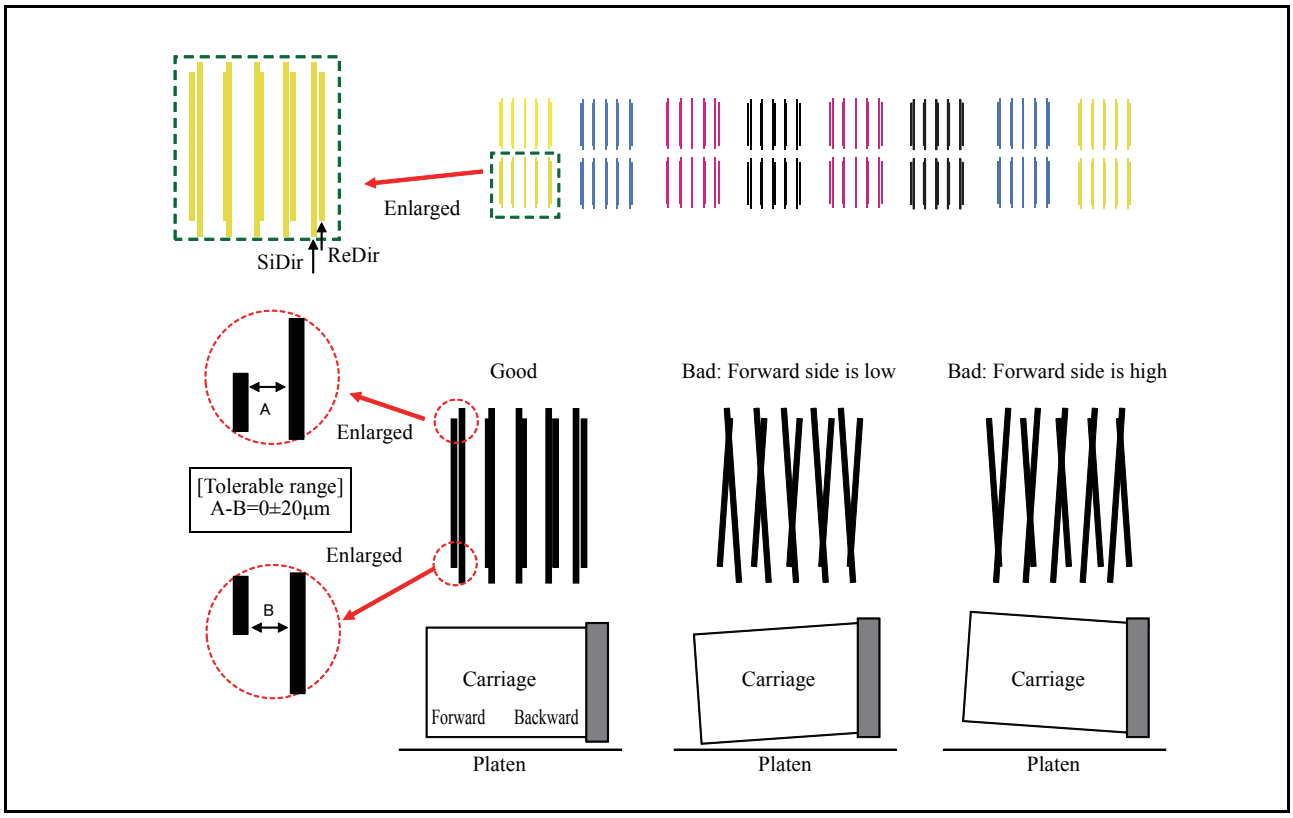
The head unit sometimes does not completely return to the front side. Make sure to push the unit against the end of the front side and then secure it.

4.2.7 LevelSurfaceChk

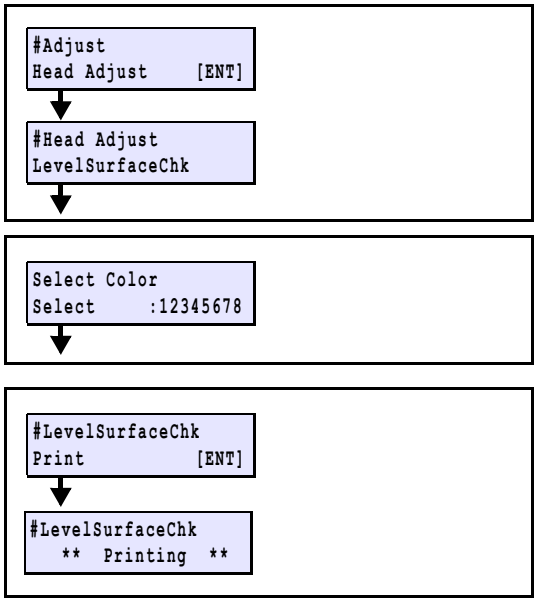
■ Outline

Confirm anteroposterior inclination (vertical inclination) of the carriage.

■ Checking pattern for Level



■ Work procedure



1. Select [#Adjust] -> [Head Adjust] -> [LevelSurfaceChk] from the operation menu.

   Press the [ENTER] key.

2. Select the nozzle line to print the pattern.

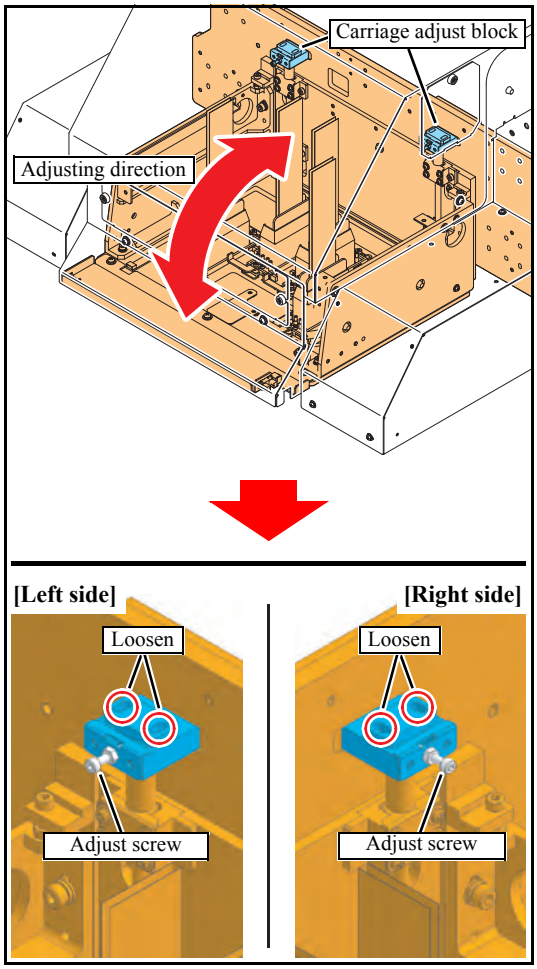
   [ENTER]: Starts printing the pattern.
   [◀]/[▶]: Select the nozzle line.
   [▲]/[▼]: ON/OFF

3. Print the check pattern, and confirm vertical inclination of the carriage.

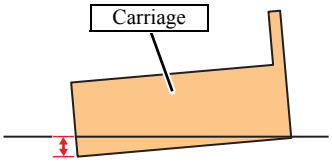
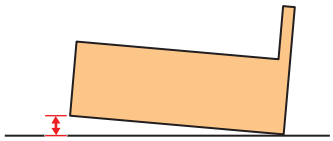
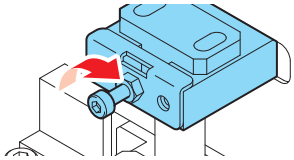
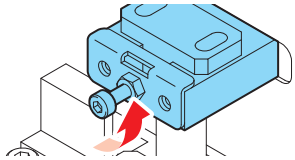
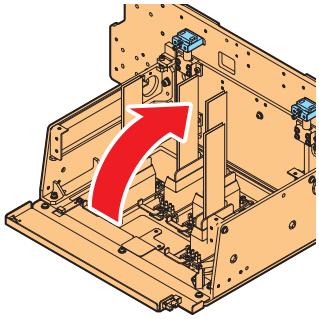
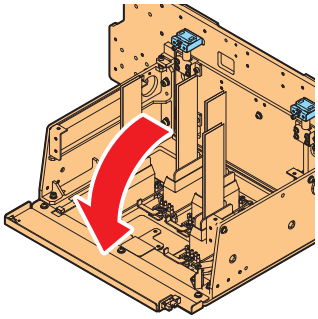
   When the carriage has vertical inclination, adjust it.

4.2.7 LevelSurfaceChk

■ Procedure of Adjustment for vertical inclination



1. Loosen the screws (each x2) fixing the carriage adjust block (x2).
2. Loosen the nuts (x2) of the adjust screws (x2).
3. Rotate right and left adjust screws (x2) equally.

The direction of adjust screw to rotate and the movement of carriage.	
	
When slanting frontward	When slanting backward
	
Turn it clockwise	Turn it counterclockwise
	
Slant backward	Slant forward

4. Tighten the nuts (x2) of the adjust screws (x2).
5. Tighten the screws (each x2) of the carriage adjust block (x2).
6. Print the checking pattern for level and examine the pattern.

IMPORTANT

Repeat the adjustment until the patterns are printed at uniform intervals.
Or, check the gap by a thickness gauge.

4.2.8 Log

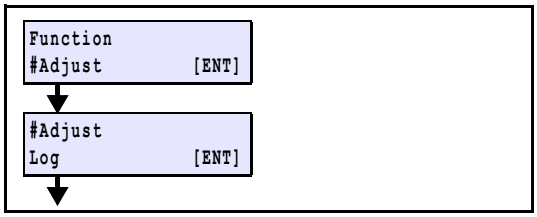
■ Outline

Indicating the following items of machine on the LCD.

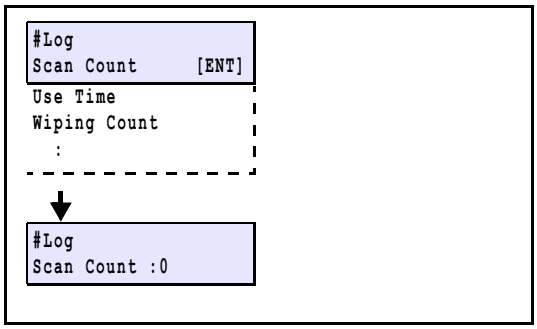
☐ List of Log items

No	Item	Remarks
1	Scan Count	Number of scans
2	Use Time	Time of Power ON Unit: [H]
3	Wiping Count	Number of wiping
4	Shot Count	Number of discharging of Head 1~4 Unit: [1,000 times]
5	Draw Length	Drawing length [m]
6	Draw Area	Drawing area [m^2]
7	Pump Motor	Rotation time of each ink suction pump motor Unit: [H] Ink suction pump
8	Sending Pump	Rotation time of each pump motor Unit: [H] Ink supply pump

■ Work procedure



1. Select [#Adjust] - [Log].



2. Select the item to be indicated, and then fix it by [ENTER] to indicate it.
   [▲]/[▼]: Switches
   [ENTER]: Fix (to Information indicating display)
   [END]: Return

4.2.9 Default Set

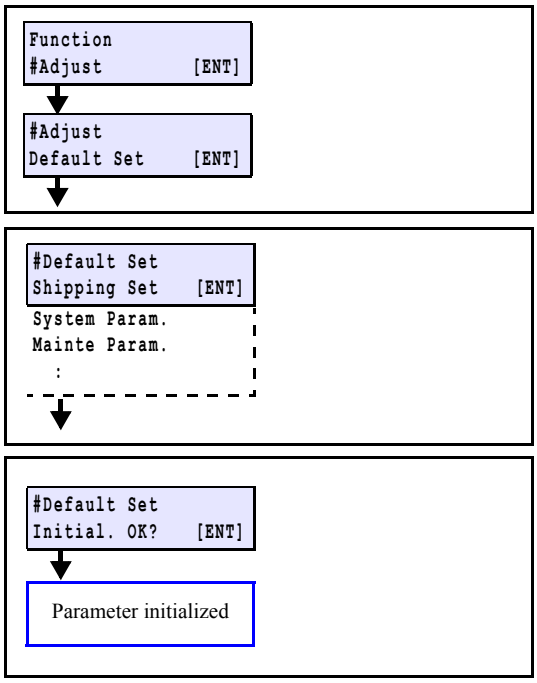
■ Outline

Returning each parameter to the initial value.

☐ List of default set items

No	Item	Operation	Remark
1	Shipping Set	Initializing parameters of others than the adjustments.	
2	System Param.	Initialize the parameter in question.	
3	Mainte Param.	Initialize the parameter in question.	
4	Servo Param.	Initialize the parameter in question.	
5	Feed Param.	Initialize the parameter in question.	
6	Head Param.	Initialize the parameter in question.	
7	Ope Param.	Initialize the parameter in question.	
8	Ink Param. 1	Initialize the parameter in question.	
9	Ink Param. 2	Initialize the parameter in question.	
10	Debug Param.	Initialize the parameter in question.	
11	Scan Param.	Initialize the parameter in question.	
12	Nozzle Rec Para	Initialize the parameter in question.	

■ Work procedure



1. Select [#Adjust] - [Default Set].

2. Select the parameter to be initialized, and then fix it by [ENTER] key.
   [▲]/[▼]: Switches
   [ENTER]: Fix (to Confirmation display)
   [END]: Return

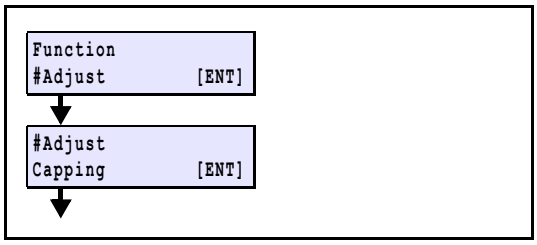
3. Initialize by [ENTER] key.
   [ENTER]: Execute
   [END]: Return

4.2.10 Capping

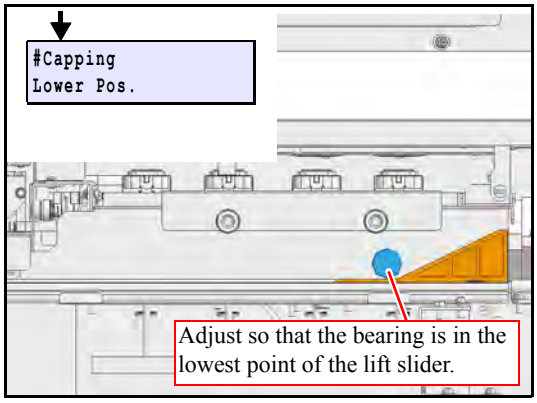
■ Outline

Adjust the height of the station at several points. (Adjusted value is saved in the system parameter.)
For the adjustment, assume two reference heights, and make the setting of the flushing height and the air pull height easier.

■ Adjustment procedure

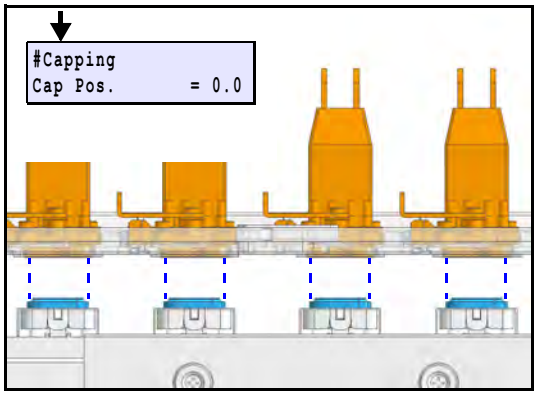


1. Select [#Adjust] -> [Capping].



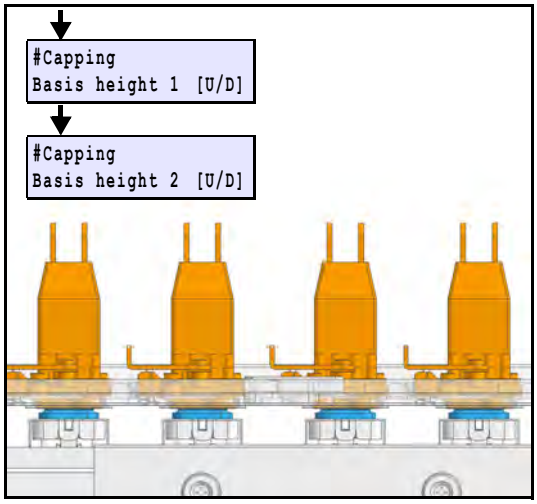
2. Adjust the lowest point of the station.
   [▲]/[▼]: Shifts the station.
   [ENTER]: Fix (to the next screen.)

   Specified position: the bearing is at the lowest point of the lift slider.



3. Adjust the cap position (The carriage Y position with flushing.).
   [◀]/[▶]: Horizontally shifts the cap.
   [ENTER]: Fix (to the next screen)

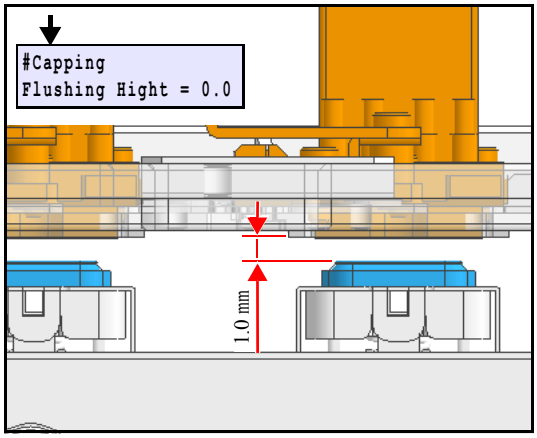
   Specified position: Right and left positions of the cap and the head.



4. Press the [ENTER] key at the height where any part of either cap reaches a head first. (Basis height 1)
   [▲]/[▼]: Move caps up and down.
   [ENTER]: Fix (to the next screen.)

5. Press the [ENTER] key at the height where any part of all caps reach the heads. (Basis height 2)
   [▲]/[▼]: Move caps up and down.
   [ENTER]: Fix (to the next screen.)

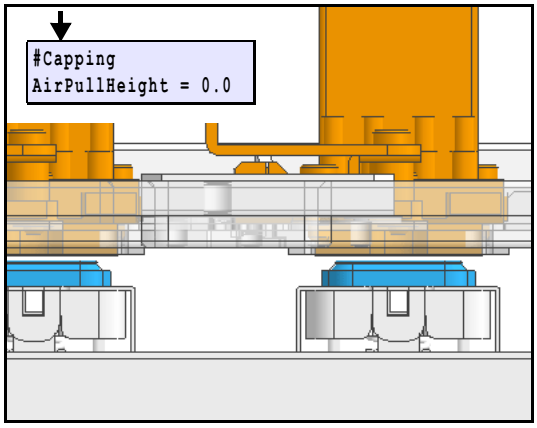
4.2.10 Capping



6. Check and fine adjust the flushing height.
   [▲]/[▼]: Move caps (fine adjustment)
   [ENTER]: Fix (to the next screen.)

Specified position: the gap between the cap and the head is 1.0 mm.
(the cap reached to the head first.)

The flushing height is automatically adjusted by the former process “Basis height 1”.



7. Check and fine adjust the air pull height.
   [▲]/[▼]: Move caps (fine adjustment)
   [ENTER]: Fix (to the next screen.)

Specified position: there is a gap between all heads and all caps.

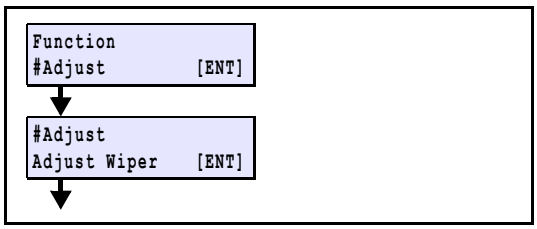
The “AirPullHeight” is automatically adjusted by the former process “Basis height 2”.

4.2.11 Adjust Wiper

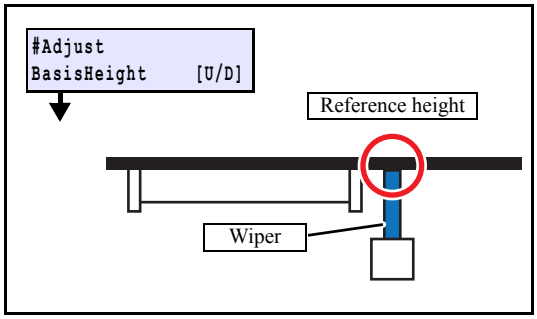
■ Outline

Adjust the wiper position and height. (Adjusted value is saved in the system parameter.)
When adjusting, set the reference height to make the setting of the height of wiper easier.

■ Work procedure

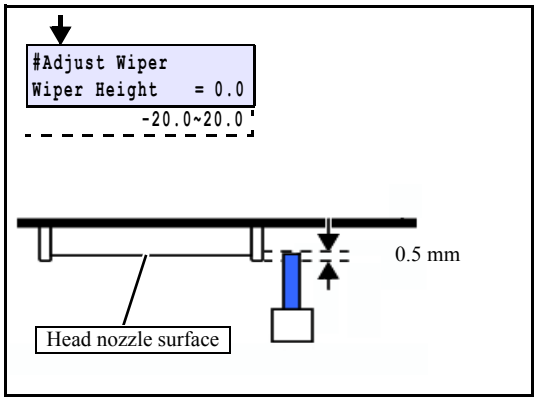


1. Select [#Adjust] -> [Adjust Wiper].



2. Check and set reference height of wiper.
   [▲]/[▼]: Vertically shifts the wiper.
   [ENTER]: Fix (to the next screen.)

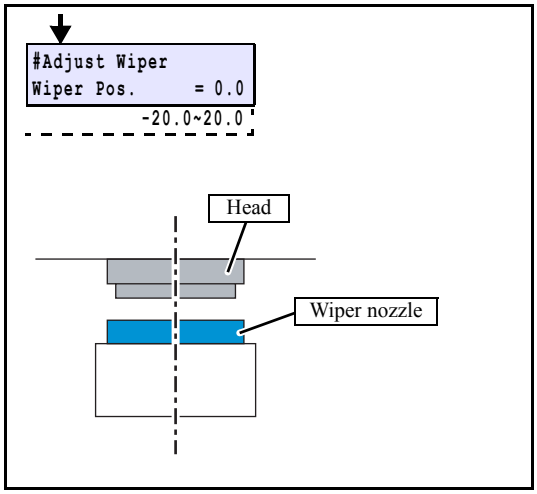
   Specified position: the position to contact with the edge of carriage.



3. Adjust the wiper height.
   [▲]/[▼]: Vertically shifts the wiper.
   [FUNC1]: Wiping operation
   [ENTER]: Fix (to the next screen.)

   Specified position: the position higher than the head nozzle surface by about 0.5 mm.

> By the previously described "BasisHeight" procedure, the height of wiper is automatically set.



4. Check and adjust the right and left positions of wiper.
   [◀]/[▶]: Horizontally shifts the head.
   [FUNC1]: Wiping operation
   [ENTER]: Finalizes and end

   Specified position: Adjust the center position of the head and the wiper nozzle right and left.

5. After adjustment, register with the [END] key and then terminate the operation.

4.2.12 Head Wash

■ Function

Cleans the ink channels inside the head, sub-tank and tube.
When modifying ink type, empty the ink out of the channel and clean the inside using the washing liquid.

- During the washing sequence, the attaching and detaching of each tank is monitored by the tank sensor of printer, and it switches to the stand-by screen of each operation when the tank specified on the screen is detected (non-detection). The operation starts by the key operation thereafter.
- Washing liquid tank does not include IC chip, so please ignore the IC chip. (Charging is not required.)
- As non-filling state remains after the completion of washing, the Initial Filling or filling of corresponding head is required.

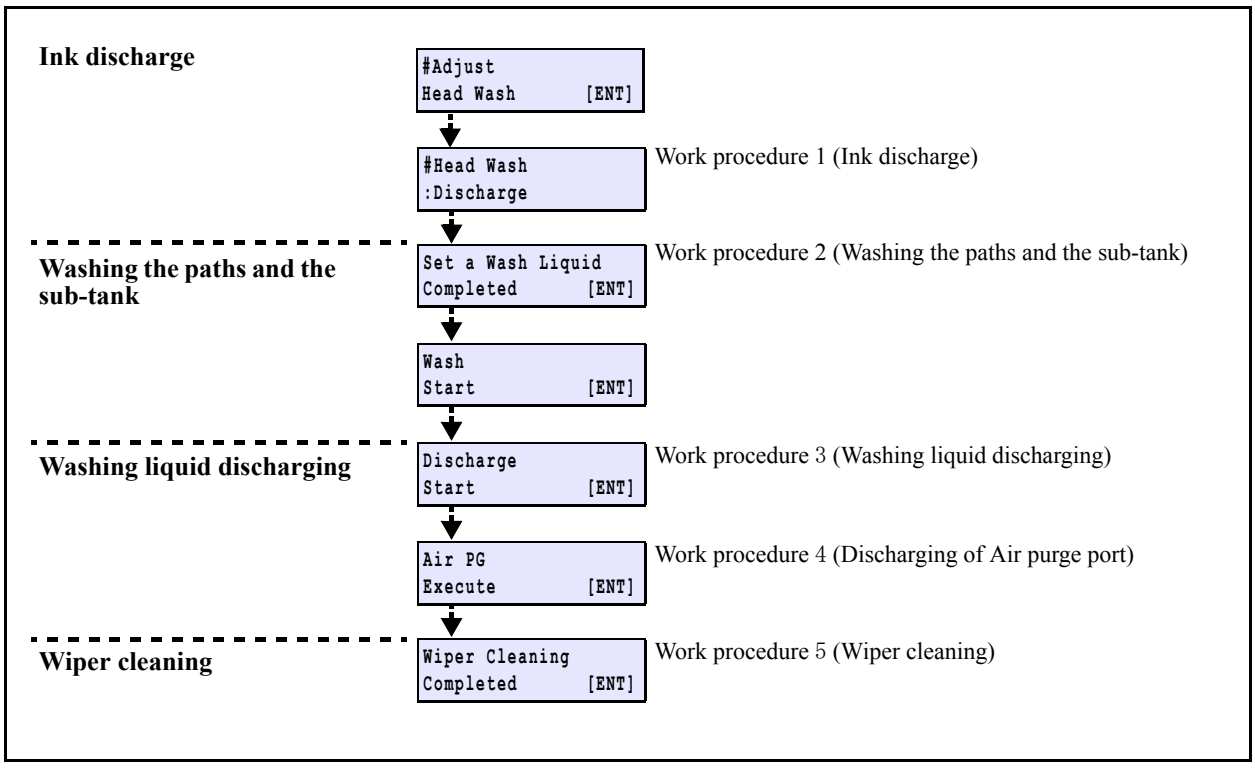
■ Necessary jig

• Syringe

Caution

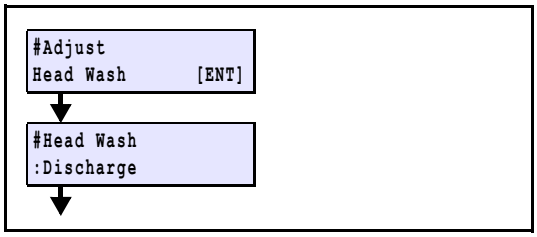
- Be sure to wear protective glasses and working gloves during the operation.
  Ink may get into your eyes depending on the working condition, or hand skin may get rough if you touch the ink.
- At discharging or filling of the air purge port of head, be sure to keep clean the PCBs and the surroundings since the ink or the washing liquid may gush out.
- After the work is completed, attach the removed covers and others immediately. The ink may cause the degradation due to the ultraviolet ray if left for a long time.
- If the tank is left in the state of removal, ink which attached to the supply pipe and so on stiffens. Shade the light or wipe off the ink beforehand.

■ Work procedure outline



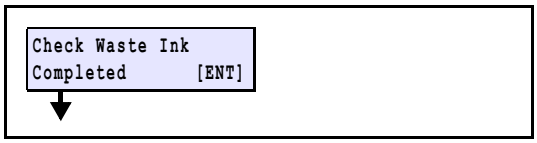
4.2.12 Head Wash

■ **Work procedure 1 (Ink discharge)**

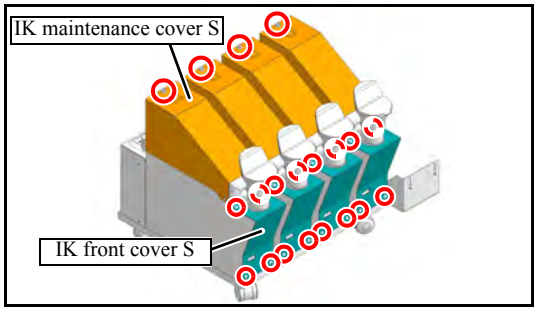


1. Select [#Adjust] - [Head wash].

> Select a cleaning method according to the filling status.
> · [Discharge]: when ink is filled
> · [Wash]: when ink is discharged

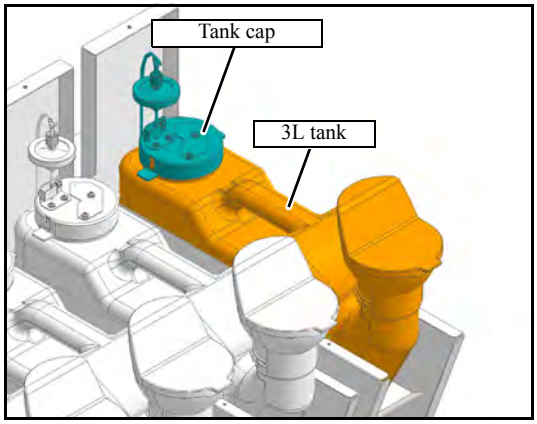


2. After discarding the waste liquid in the waste ink tank and reset the tank, press the [ENTER] key.

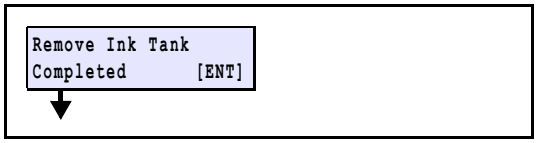


3. Remove the **IK maintenance cover S** (x4). (each screw x1)

4. Remove the **IK front cover S** (x16). (each screw x4)



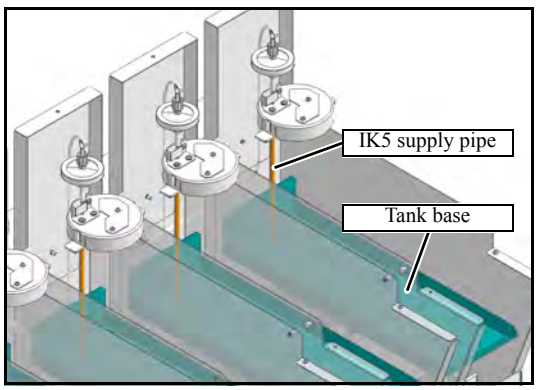
5. Remove the tank cap.



6. Remove the ink tank. (x4)

> IMPORTANT For the work, be careful about scattering of the ink.

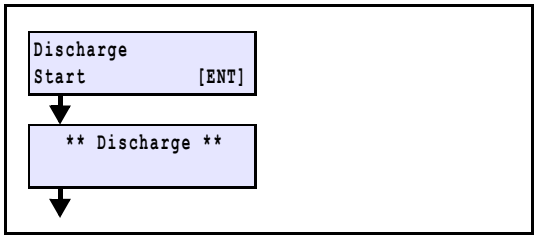
[ENTER]: Next
[END]: Return



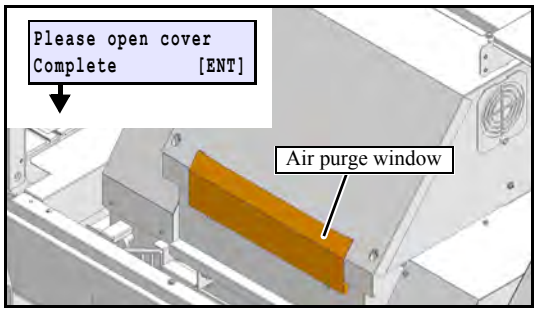
7. Clean IK5 supply pipe of external ink supply unit.

> IMPORTANT
> ● For the work, put down a paper towel or the like, not to contaminate the tank base.
> ● Because ink which inside the supply pipe may stiffen, shade the light with paper towel, etc.

4.2.12 Head Wash

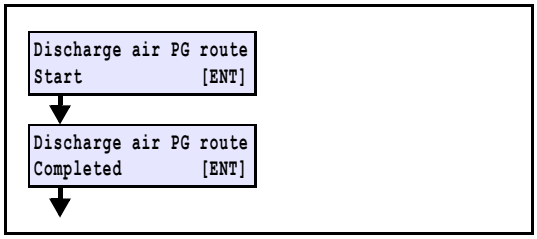


8. Press the [ENTER] key to start discharging.
   [ENTER]: Discharge starts (Next)
   [END]: to cancel the discharging
   (Stop discharging and go to the next step)

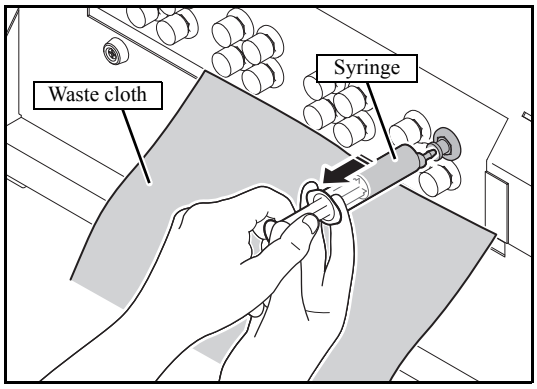


9. Remove the air purge window.
   Press the [ENTER] key.

> IMPORTANT
> After the work has been completed, attach the removed covers as soon as possible. If you leave it for a long time, UV light may affect ink.



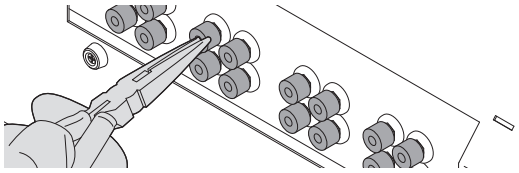
10. Press the [ENTER] key to start discharging the air purge port.
    [ENTER]: to start Air pull

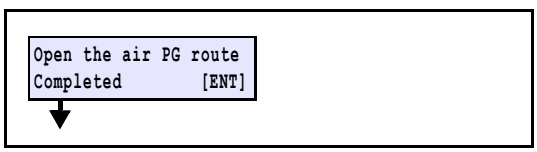


11. Remove the fitting and insert the syringe one by one. Pull the syringe slowly to discharge the ink at all.
    After the discharge is finished, leave the fitting removed. (to be closed later)
    After completing the discharge for all ports, press the [ENTER] key.

> IMPORTANT
> - Put a waste cloth around the air purge port not to contaminate the surroundings.
> - Pull the syringe slowly by about 10 mm for 1 second.
> - Don't leave the syringe out as the air pull action would stop after a specific time.

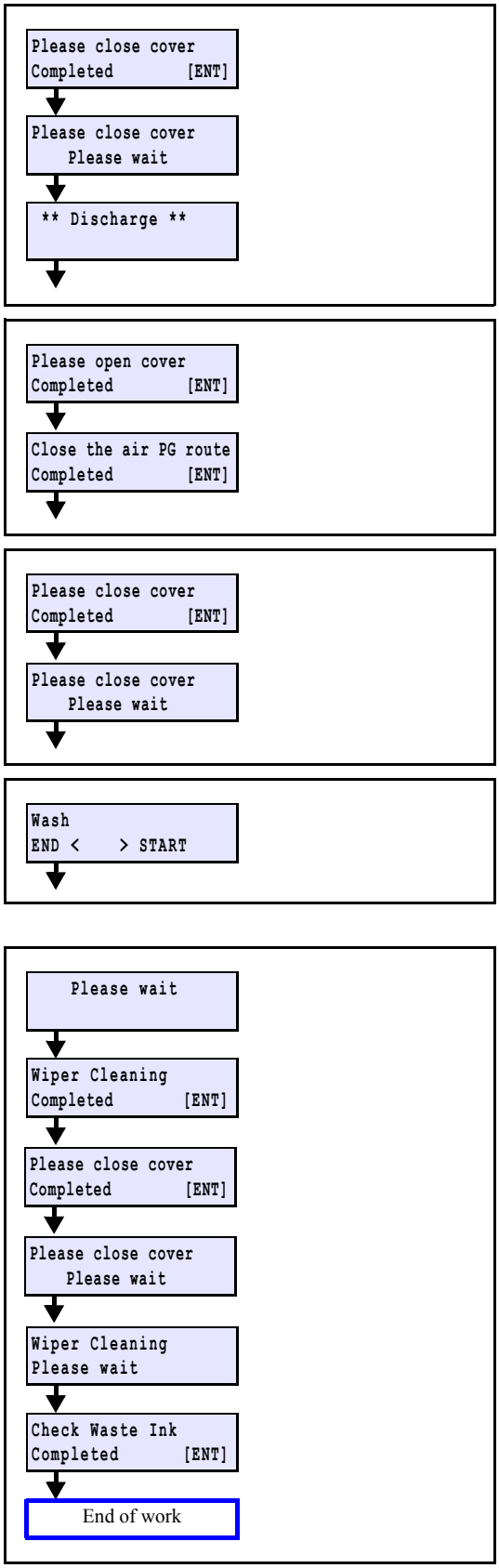
> If the fitting is hard to open, it is recommended to use the radio pliers.





12. Removing all fittings for the air purge ports, press the [ENTER] key.

4.2.12 Head Wash



13. Close the air purge window.

14. Press the [ENTER] key to start suction and discharge the ink in the damper.

    [ENTER]: Suction starts (Next)

    [END]: Suction cancels
    (Stop suction and go to the next step)

    After finishing the suction, wipe each head.

15. Open the air purge window.

    Press the [ENTER] key.

16. Install all fittings.

17. Close the air purge window.

    Press the [ENTER] key.

18. If intending to start cleaning with this condition, press [▸] and move to the cleaning sequence.

    [▸]: Move the Work procedure 2 (Washing the paths and the sub-tank)

    [◂]: go to the next step

19. After the wiping and the carriage out were done, clean around the wiper and the cap.

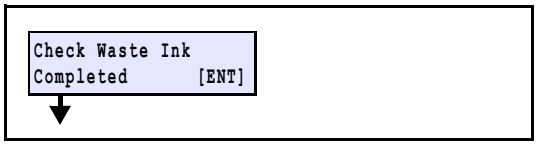
20. After completing the cleaning, close the air purge window and press the [ENTER] key.

    [ENTER]: Cap IN

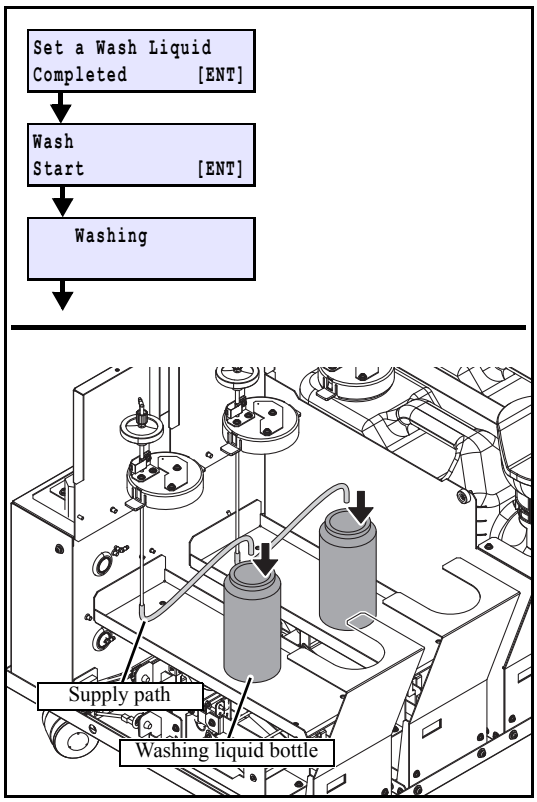
21. Discard the waste liquid in the waste ink tank and close the work.

4.2.12 Head Wash

■ **Work procedure 2 (Washing the paths and the sub-tank)**

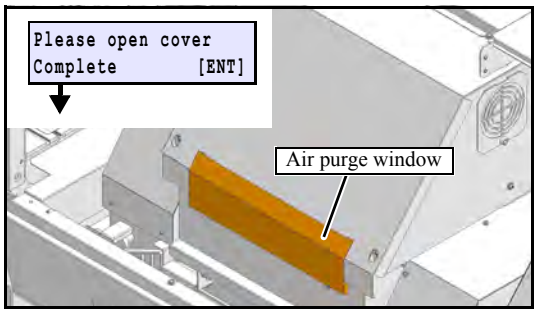


22. After discarding the waste liquid in the waste ink tank and reset the tank, press the [ENTER] key.



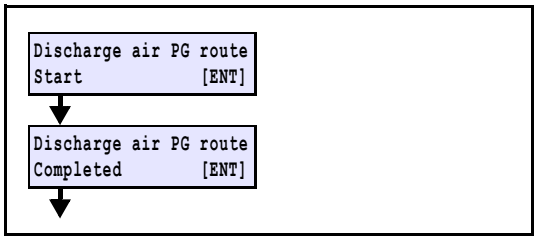
23. As shown in the figure, insert the tube to the supply pipe and set the washing liquid. After setting the washing liquid, press the [ENTER] key to start washing.

24. Execute filling and washing paths to the sub-tank.
[END]: cancel the filling and washing operation



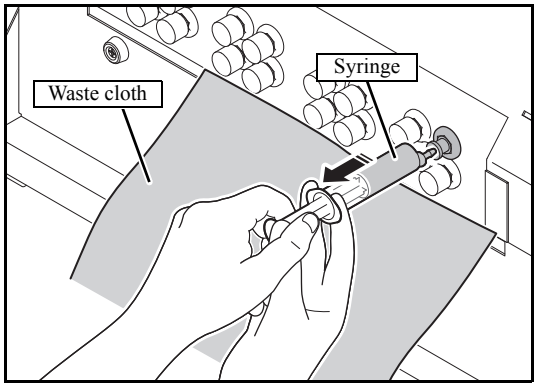
25. Remove the air purge window.
Press the [ENTER] key.

> IMPORTANT: After the work has been completed, attach the removed covers as soon as possible. If you leave it for a long time, UV light may affect ink.



26. Press the [ENTER] key to start washing the air purge port.
[ENTER]: to start Air pull

4.2.12 Head Wash

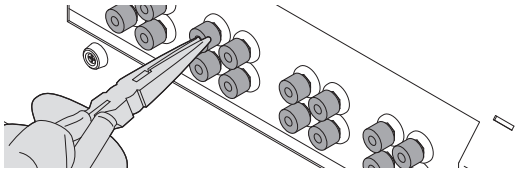


27. Remove the fitting and insert the syringe one by one. Pull the syringe slowly and discharge the washing liquid about 40 cc for each path. (Close the fitting and go to the next path.)

    After completing the washing for all ports, press the [ENTER] key.

> IMPORTANT
> - Put a waste cloth around the air purge port not to contaminate the surroundings.
> - Pull the syringe slowly by about 10 mm for 1 second.
> - Don't leave the syringe out as the air pull action would stop after a specific time.

> If the fitting is hard to open, it is recommended to use the radio pliers.



```
Please close cover
Completed        [ENT]
```

```
Please close cover
    Please wait
```

28. Close the air purge window.

    Press the [ENTER] key.

```
    Please wait
```

29. Execute the wiping for all the heads.

```
    Washing
```

For the washing operation, execute the following processes automatically.

1. Perform washing to the "High" position of the sub-tank.
2. Head shake
3. Discharge all sub-tanks.
4. Wiping
5. Repeat the above 1 to 4 3 times.

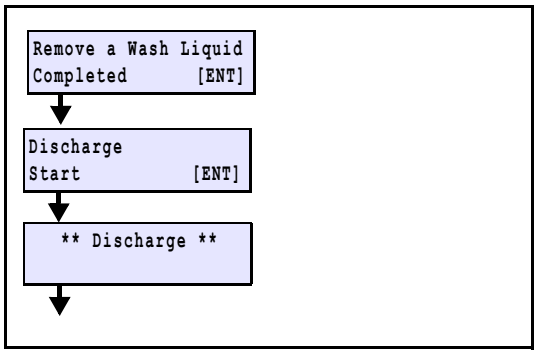
```
Check Waste Ink
Completed        [ENT]
```

30. Start washing of the sub-tank.

    [END]: to cancel the washing
    Stopping the current operation as the suction, supply or so.

31. After the washing operation is completed, discard the waste liquid of the waste ink tank, and press the [ENTER] key after resetting the tank.

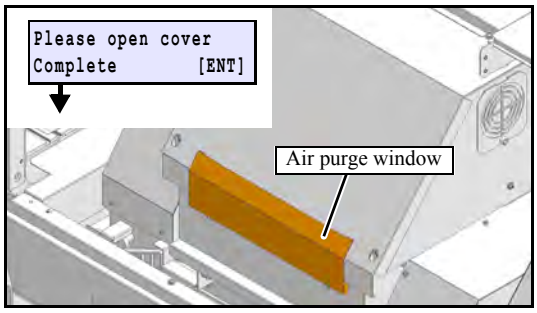
■ **Work procedure 3 (Washing liquid discharging)**



32. Remove the washing liquid.
    After completing, press the [ENTER] key.

33. Press the [ENTER] key to start discharge.

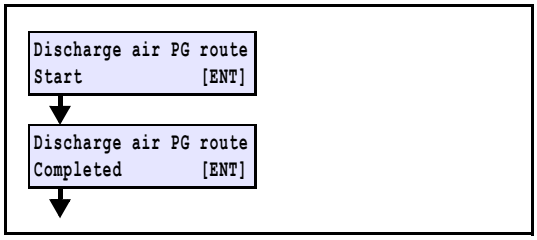
34. Execute the discharge of washing liquid in the paths.
    [END]: to cancel the discharge



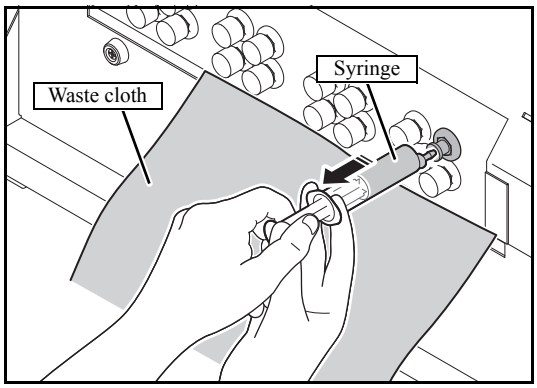
35. Remove the air purge window.
    Press the [ENTER] key.

> IMPORTANT
> After the work has been completed, attach the removed covers as soon as possible. If you leave it for a long time, UV light may affect ink.

■ **Work procedure 4 (Discharging of Air purge port)**



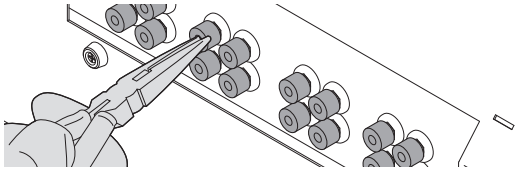
36. Press the [ENTER] key to start discharging the air purge port.
    [ENTER]: to start Air pull



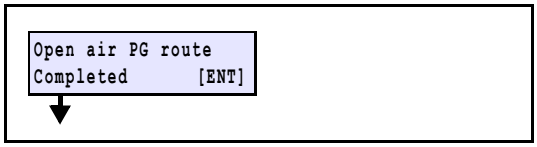
37. Remove the fitting and insert the syringe one by one. Pull the syringe slowly to discharge the ink at all.
    When finish the discharge, the fitting remains opened. (Close later)
    After completing the discharge for all ports, press the [ENTER] key.

> IMPORTANT
> - Put a waste cloth around the air purge port not to contaminate the surroundings.
> - Pull the syringe slowly by about 10 mm for 1 second.
> - Don't leave the syringe out as the air pull action would stop after a specific time.

> If the fitting is hard to open, it is recommended to use the radio pliers.



4.2.12 Head Wash



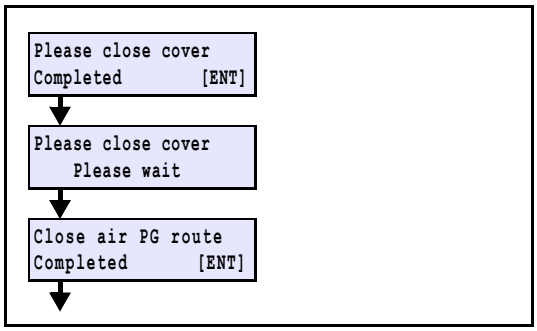
38. Open the cap of air purge port which was not removed by the Step 37.

39. After opening all caps, press the [ENTER] key.

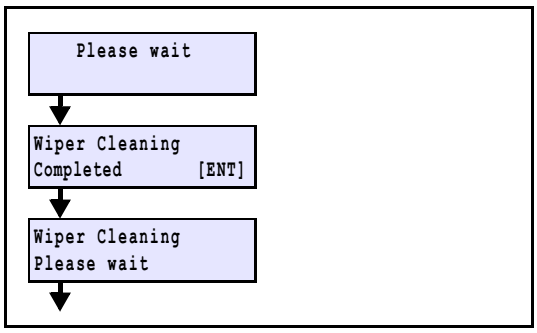
40. Close the air purge window.

    Press the [ENTER] to completely discharge the cleaning liquid remained on the nozzle surface.

    After finishing the suction, wipe each head.



■ **Work procedure 5 (Wiper cleaning)**

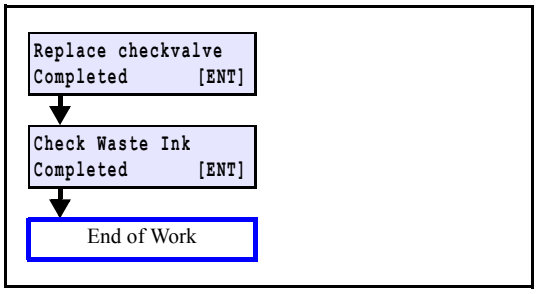


41. Execute suction and wiping all heads.

    After completing the wiping and the carriage out, clean around the wiper and the cap.

42. After completing the cleaning, close the cover and press the [ENTER] key.

    [ENTER]: Cap IN



43. Replace the check valve in the middle of path.

    After completing, execute wiping by [ENTER] key.

    Discard the waste liquid in the waste ink tank and close the work.

4.2.13 Head ID

■ Outline

HEAD ID represents each head characteristic written at ex-factory. The variation between heads is unified by inputting the value to printer.

As this machine reads the head ID from the equipped memory (ROM) on the print head at each startup, it is not necessary to set the head ID.

4.2.14 Head Volt Adjust

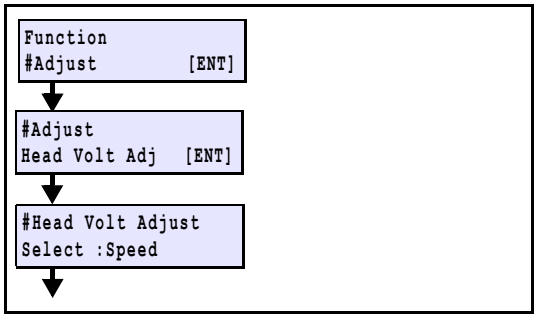
■ Outline

There is a case in which the difference of the shape of landed droplets or ink volume of each head may cause a banding. The head volt adjustment is performed to reduce the difference of concentration or the shape of landed droplets between heads.

IMPORTANT

- Make sure to revise the head volt adjustment every time on the setting of ink and the changing the ink type. Since the dot position will be moved after the adjustment, perform the dot position correction, too. (For details, refer to "4.2.2 Print Adjust")
- Before executing the head volt adjustment, make sure to check if the carriage does not slant in front/back or right/left. If executing the adjustment while the carriage slant in front/back or right/left, the adjustment becomes inaccurate. (For details, refer to "4.3.6 Carriage Vertical Slant Adjustment" and "4.3.7 Carriage Left-to-Right Gap Adjustment")
- Measure the gap between the head and the media in advance.
- Adjustment must be done in the condition that the gap between the head and the media is within 1.5 mm ± 0.2 mm.

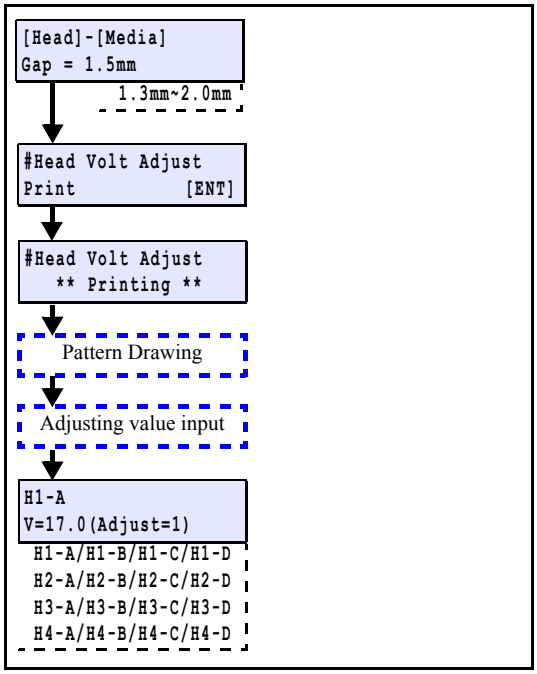
■ Method to adjust; Speed adjustment



1. Select [#Adjust] -> [Head Volt Adj].

2. Select [Speed].
   • Proceed the work checking the following conditions.

Is the gap between the head and the media within 1.5±0.2 mm?	If it's more than 1.5 mm ±0.2 mm ◆Adjust the height of head by the head height adjust lever.
Did you check the slant of carriage in front/back and right/left?	If not verified yet ◆Check and adjust. ([4.3.6], [4.3.7])



3. Input the value of the gap between the head and the media which has been measured in advance.

IMPORTANT

The numeric value must be input accurately. If there is a difference between the input value and the actual gap, any accurate adjustment is not available.

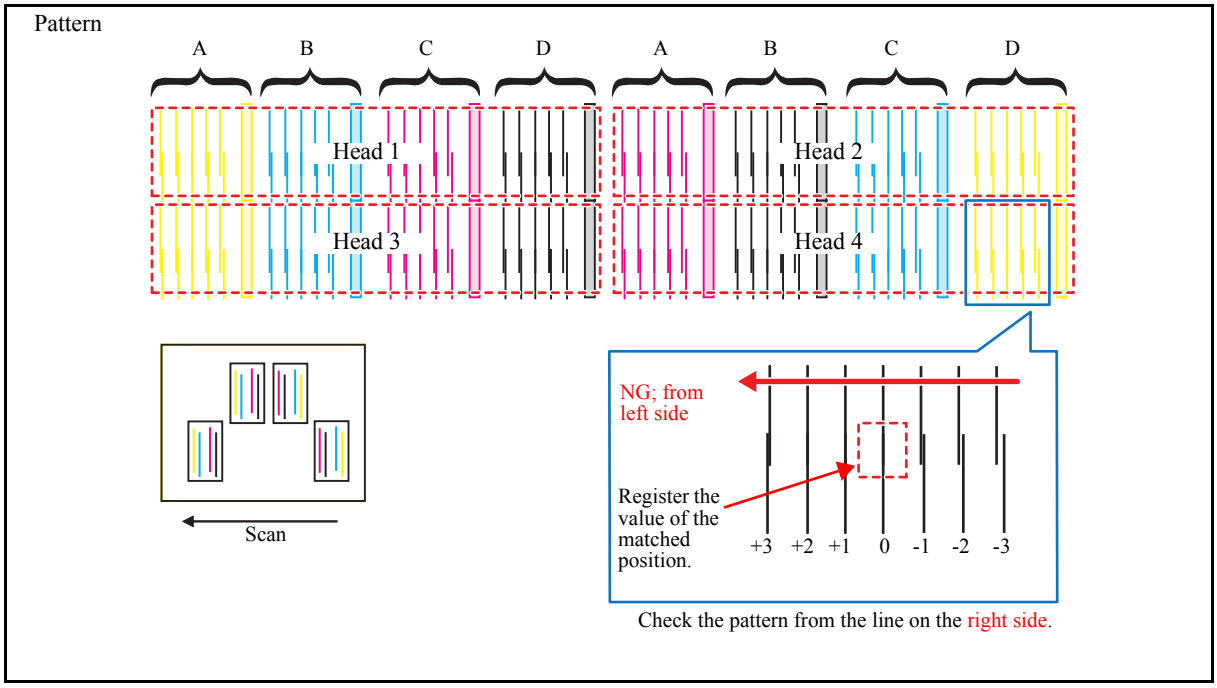
4. Press the [ENTER] key and print a pattern.

5. Check the pattern and input the adjusting value.
   (1) Check in order from the line on the right side of the pattern.
   (2) Register the value of the position that the line first visually matches.

IMPORTANT

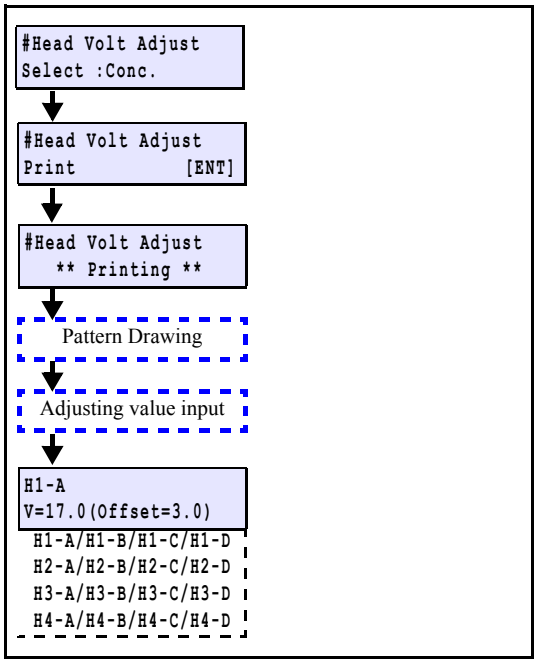
- After the first matched position, the lines no longer have such a large difference.
- If the voltage is high, the satellites increase and ripples occur.

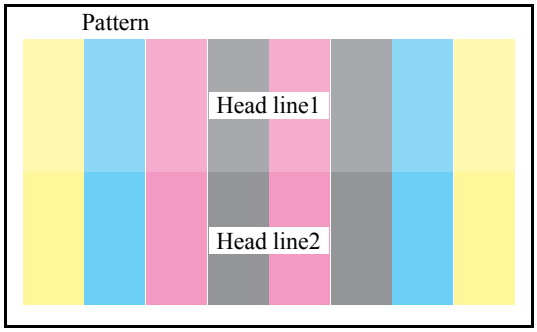
4.2.14 Head Volt Adjust

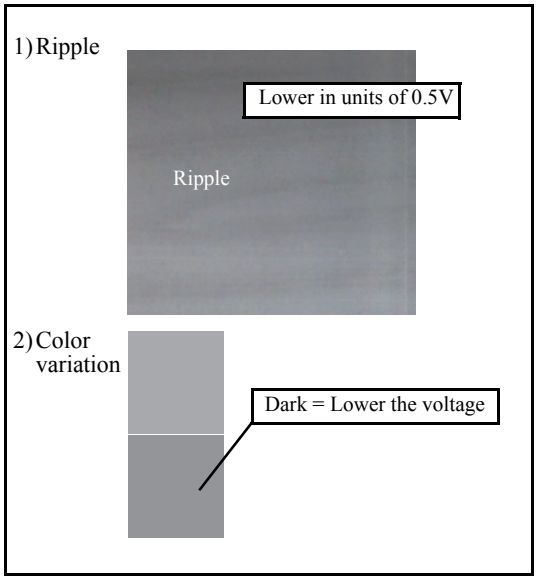


4.2.14 Head Volt Adjust

■ **Method to adjust; Density adjustment**







6. Select [Conc.].

7. Press the [ENTER] key and print a pattern.

   Press the [ENTER] key to begin printing with a head gap of 1.5 mm.

8. Check the pattern and input the adjusting value.

Check the pattern, paying attention to the following points.

1) Ripple

- Until the ripples visually disappear. Lower it in units of 0.5 V.

> **IMPORTANT**
> - If the ripples visually disappear, it is OK if some satellites occur.
> - Stop by "Value adjusted in [Speed] - 1.0 V". (E.g.) If the value adjusted in [Speed] is 3.0 V, you can decrease to 2.0 V.

2) Color variation between heads

- If the color is obviously dark (dot diameter is large), lower it in units of 0.5 V.

> **IMPORTANT**
> You do not need to lower heads that look darker because of the satellite.

- Adjust for dots that have larger diameters than others.

> **IMPORTANT**
> - The color does not have to be matched completely. Roughly the same shade is OK.
> - Stop by "Value adjusted in [Speed] - 1.0 V". (E.g.) If the value adjusted in [Speed] is 3.0 V, you can decrease to 2.0 V.

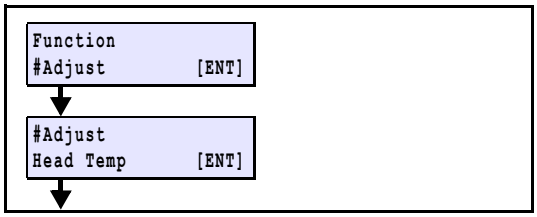
4.2.15 Head Temp

■ Outline

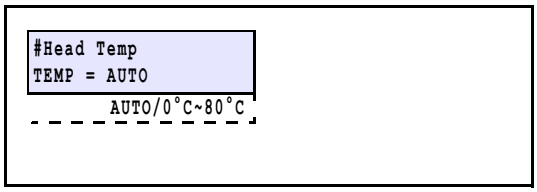
Confirms/sets the head temperature.

Under normal conditions, do not change this.

■ Procedure



1. Select [#Adjust] - [Head Temp].



2. Enter (confirm) the head temperature.
   [▲]/[▼]: to change Value
   [ENTER]: Fix
   [END]: to cancel inputting

4.2.16 Serial No.

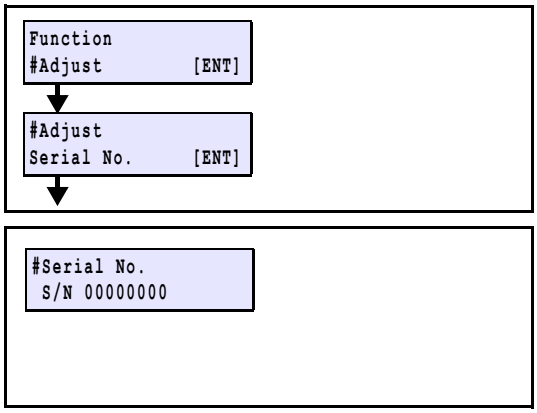
■ Outline

Fixing and changing of the serial No. of this machine.

IMPORTANT

Normally, don't change the serial No., which has been registered.

■ Work procedure



1. Select [#Adjust] - [Serial No.].

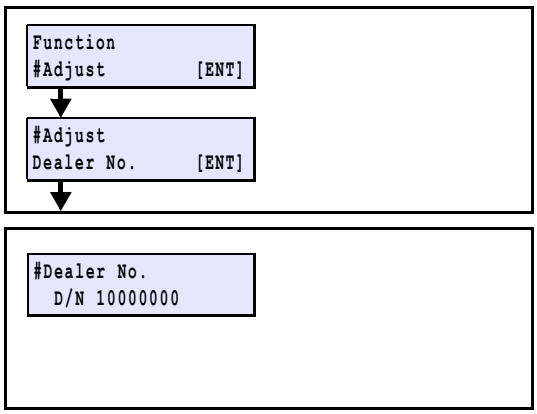
2. Confirm the serial No., or change it.
   - [◀]/[▶]: to move Cursor
   - [▲]/[▼]: to change Value
   - [ENTER]: Fix
   - [END]: Return

4.2.17 Dealer No.

■ Outline

Check and set the dealer No.
For dealer No., 8-digit alphameric characters (0 to 9, A to Z) can be input.

■ Procedure



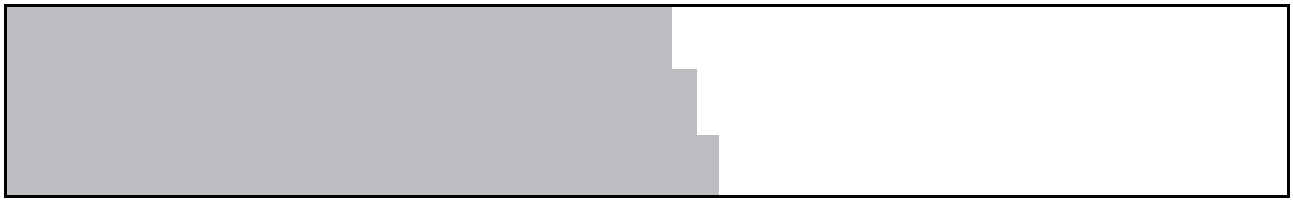
1. Select [#Adjust] - [Dealer No.].

2. Input (check) the dealer No.
   - [▲]/[▼]: to change Value
   - [◀]/[▶]: to move Cursor
     (When the cursor is at the right end or the left end, even if the key is pressed, it does not move.)
   - [ENTER]: Fix
   - [END]: to cancel inputting

4.2.18 Feed Comp 2

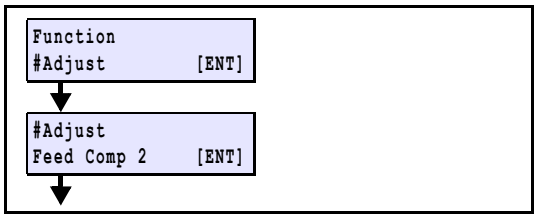
■ Function

Compensates basic feeding amount of media. (Provides a baseline value for user compensation value.)
Adjust this when the parameter is initialized or the head is replaced.

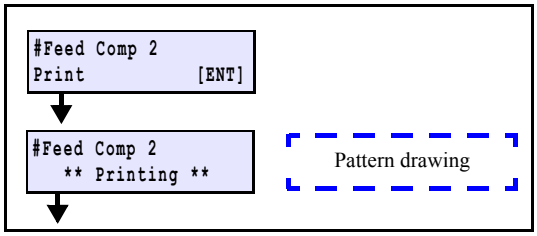


By this adjustment, the user compensation value is cleared.

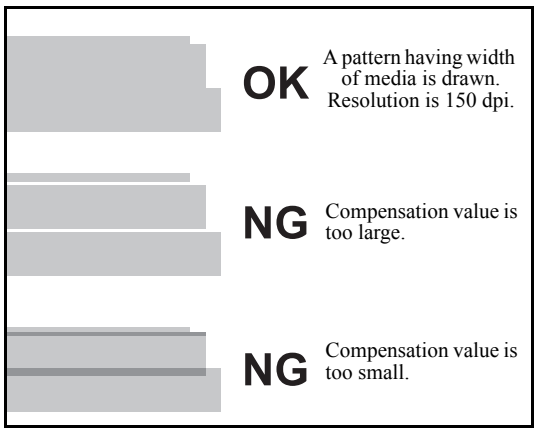
■ Procedure



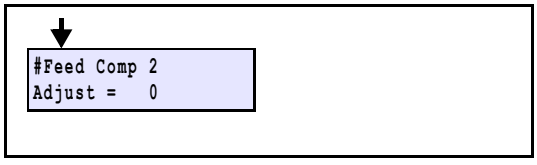
1. Select [#Adjust] - [Feed Comp 2].



2. Draw an adjustment pattern.
   - [ENTER]: to execute drawing.
   - [▸]: to move to the adjustment screen (Without drawing)
   - [END]: to complete drawing and input compensation value.



3. Check the adjustment pattern.



4. Enter the compensation value.

   Compensation value: -9999 ~ 9999
   - [▲]/[▼]: to change the adjustment values.
   - [END]: to cancel inputting

In actual feeding amount compensation, compensation value for each feed set in the Setup function is added to this compensation value.

4.2.19 Angle Adjust

■ **Outline**

For manufacture adjustment.

Do not used on the field.

4.2.20 LAN CONFIG

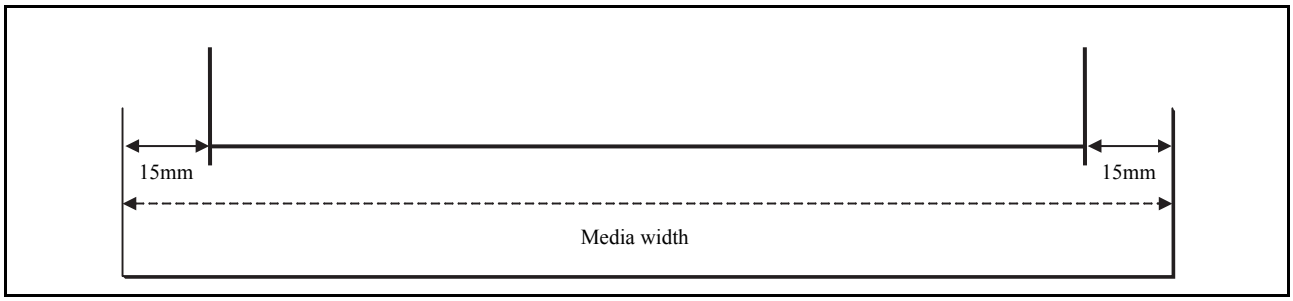
■ **Outline**

Do not used on the field.

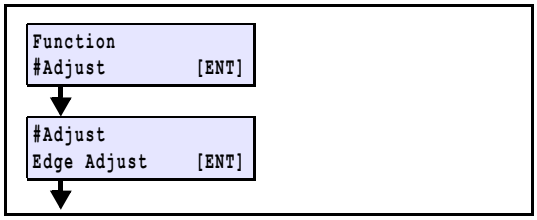
4.2.21 Edge Adjust

■ Function

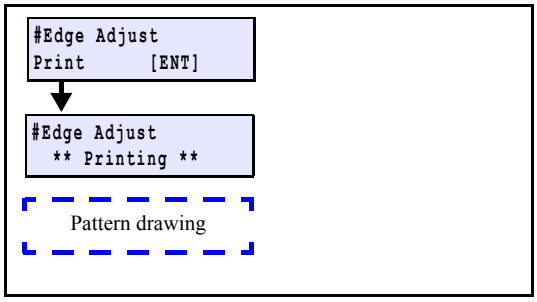
Adjust the width of the each dead space of the right and left ends of the media.
Enter the actual measurement from the media edge to the pattern to the adjustment value. If the unit was changed to inch, adjust by converting it to mm.
This is used when the system parameter has been initialized or the plot areas at both ends are not in the right place.



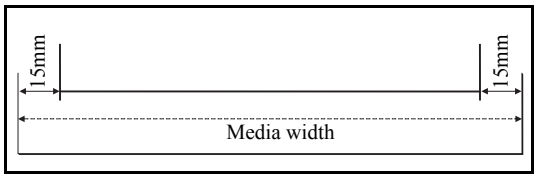
■ Procedure



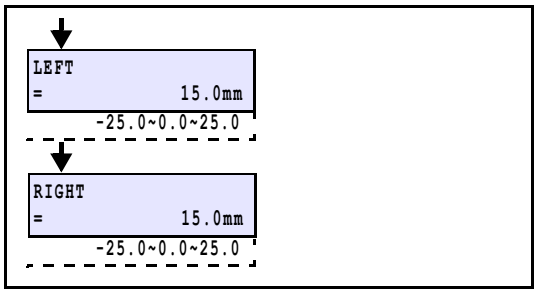
1. Select [Edge Adjust] from the operation menu.



2. Draw an adjustment pattern.
   [▸]: to move to the adjustment screen (Without drawing)
   [ENTER]: to print the adjustment pattern.



3. Check the adjustment pattern.



4. Enter the adjustment value.

   For adjustment, input actual values obtained by measuring from the edge of the media to the pattern.

   Adjusting value: 0.0 ~ 30.0 mm (unit: 0.1 mm)

   (Use the inside of pinch roller as a positive (+). The backlash of the pinch roller may produce an error of approx. ± 0.5 mm.)

   [▲]/[▼]: to change the adjustment values.
   [END]: to cancel inputting

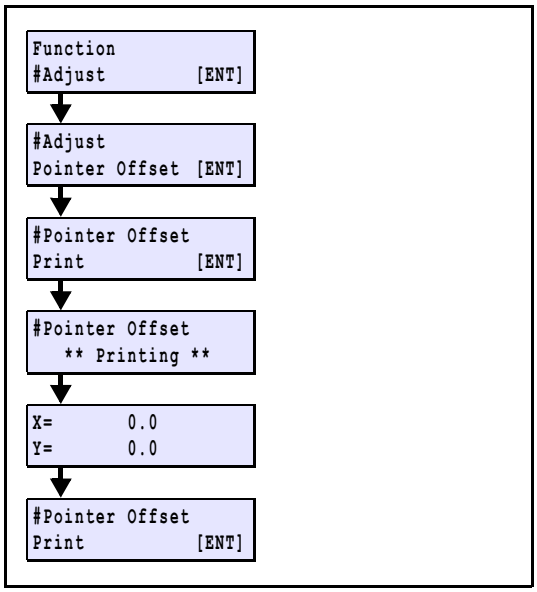
The set value is saved in the system parameter No.0 R GRIP and No.1 L GRIP as “current parameter value + (15 mm - input value)”.

4.2.22 Pointer Offset

■ Outline

To adjust the location for light pointer.

■ Adjustment procedure



1. Select [#Adjust] -> [Pointer Offset].

2. Press the [ENTER] key to draw the pattern.

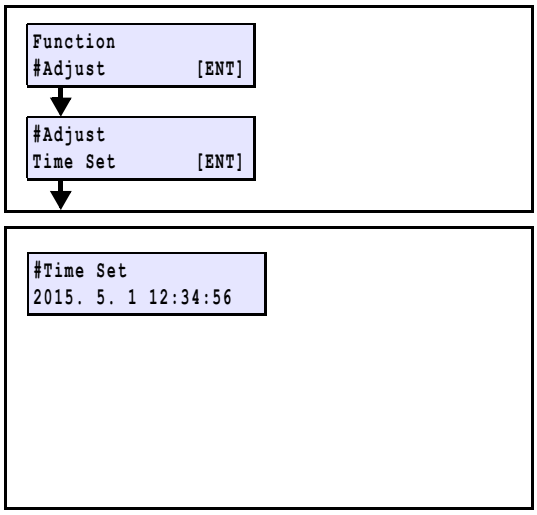
3. Adjust by [▲]/[▼] while watching the pointer position.
   - [◀]/[▶]: to move Pointer
   - [▲]/[▼]: X/Y change
   - [ENTER]: to register the adjust value.
   - [END]: Return

4.2.23 Time Set

■ **Outline**

Set the time.

■ **Procedure**



1. Select [#Adjust] -> [Time Set].

2. Set the time.
   [◀]/[▶]: to change the select item.
   [▲]/[▼]: Select
   [ENTER]: Fix

4.2.24 Nozzle Recovery

■ Outline

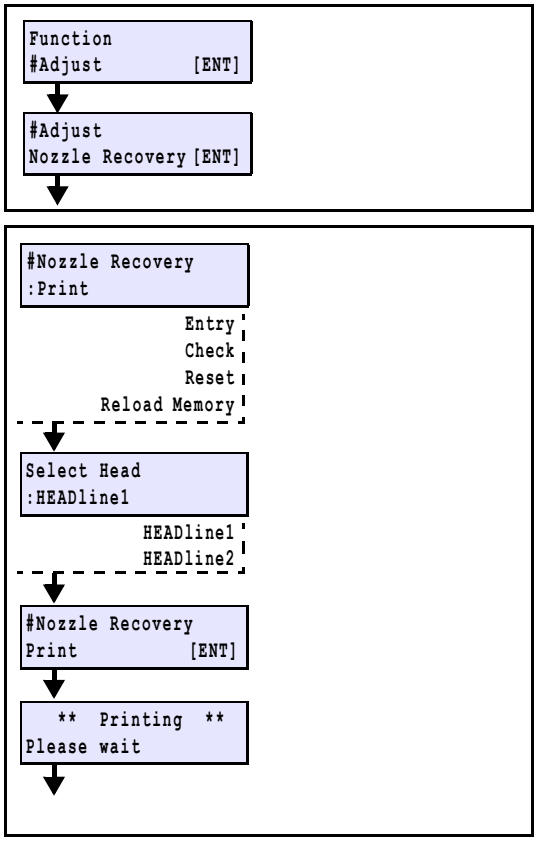
Use this to specify the defective (bad) nozzle on which the nozzle missing or deflection that cannot be solved easily in the field occurs. With this, you can draw with other normal nozzles alternatively, not with such a defective nozzle.

This function is

1) You can register up to 16 bad nozzles per one nozzle line.
2) Even if you use this function, the time required for drawing does not change.
3) The operation cannot be performed in the lowest pass of each drawing mode.

> **Caution** The NG nozzle registered by this function will be cleared when the nozzle check function is activated during the starting of main unit and the printing.

■ Work procedure



1. Select [#Adjust] ->[Nozzle Recovery].

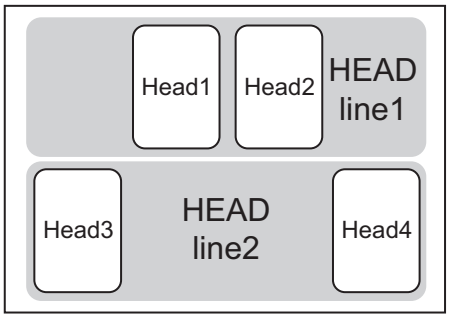
2. Select the “Print” and press the [ENTER] key.

   Select the “Clear” then all the set points are cleared.

   Select “Entry” then “Move to select of the Nozzle line (Step 5) without drawing a pattern”

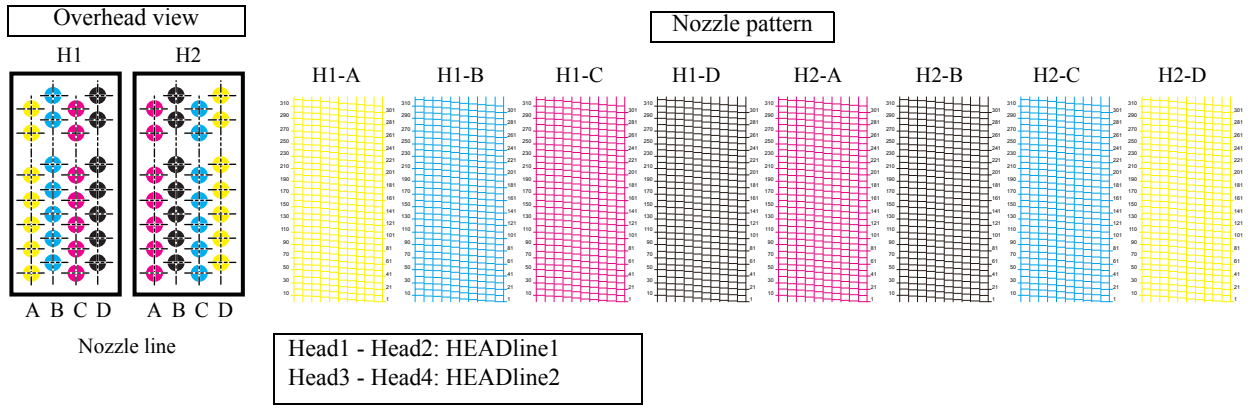
3. Select the head to print the pattern and press the [ENTER] key.

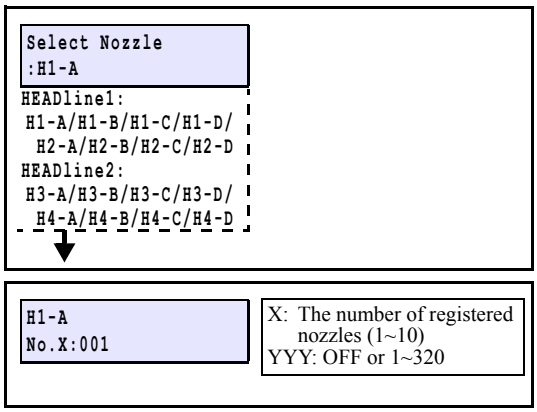
   The relationship between the heads is as follows.



4. Press the [ENTER] key.

4.2.24 Nozzle Recovery

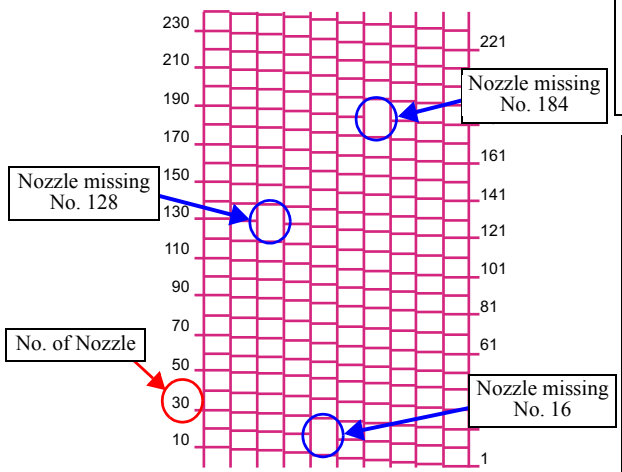




5. Select the Nozzle line to do “Nozzle Recovery” and press the [ENTER] key.
   [▲]/[▼]: Select the Nozzle line

6. Register the No. of the nozzle to be recovered (bad nozzle).
   [◀]/[▶]: to select the No. of registration.
   (X in the left figure)
   (First to tenth: can be registered up to 16)
   [▲]/[▼]: to enter OFF or bad nozzle No. (1 to 320).
   (OFF: Xth means that there is no registration of bad nozzles.)

   In addition, when 16 nozzles are registered for the one nozzle line, the screen returns to the nozzle line selection in the Step 5.



Example of nozzle to be recovered

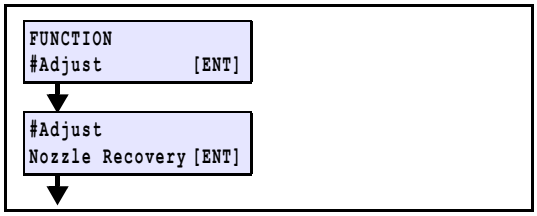
Check the defective nozzle from the nozzle pattern and register it by the procedure in the Step 6 above. The relationship between the figure and the status to be entered is as below:

No. of the registration nozzles X	Recovery Nozzle No. YYY	State
1	16	Print Prohibition Target for nozzle recovery
2	128	Print Prohibition Target for nozzle recovery
3	184	Print Prohibition Target for nozzle recovery
4	OFF	No registration
5	OFF	No registration

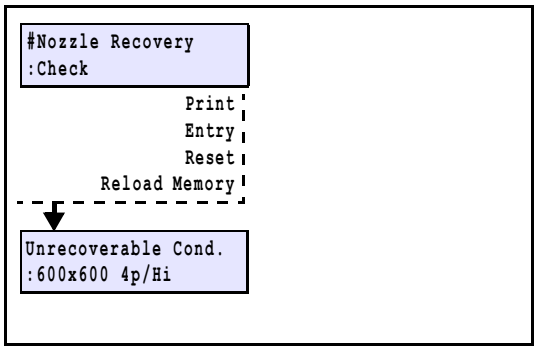
4.2.24 Nozzle Recovery

■ **Check the print condition for which the nozzle recovery cannot be performed**

Depending on the registered nozzle, there is a mode on which the recovery is not reflected. Check the print condition for which recovery cannot be performed.



1. Select [#Adjust] -> [Nozzle Recovery].



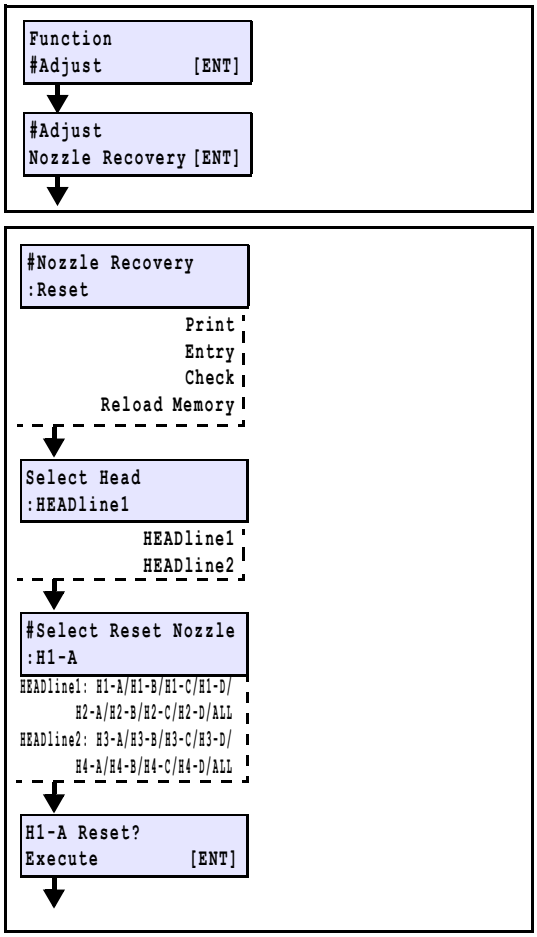
2. Select the “Check” and press the [ENTER] key.

3. Check the mode for which the nozzle recovery is invalid.

   If there is no mode for which the nozzle recovery is invalid, “NONE” is displayed.

4.2.24 Nozzle Recovery

■ **Reset procedure**



1. Select [#Adjust] -> [Nozzle Recovery].
2. Select the “Reset” and press the [ENTER] key.
3. Select the head to reset the set value and press the [ENTER] key.
4. Select the nozzle line to reset the set value and press the [ENTER] key.
5. Press the [ENTER] key.

4.2.25 Ink Set

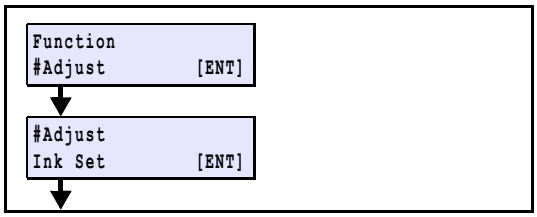
■ Outline

Change the ink set information set in the machine.

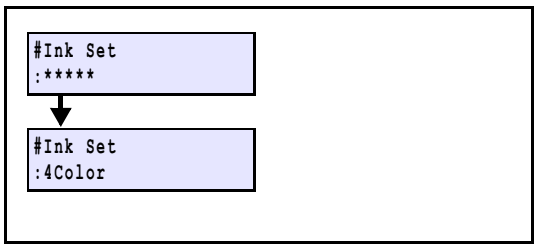
Use this when ink filling has been completed and when you reset the ink set because you performed parameter initialization etc.

You can select all ink sets usable in the machine.

■ Procedure



1. Select [#Adjust] -> [Ink Set].



2. Select the ink type.
   [▲]/[▼]: Select
   [ENTER]: Fix
   [END]: to cancel inputting

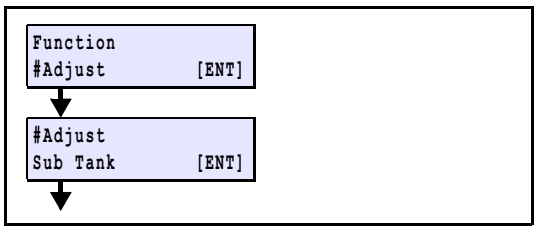
3. Select the ink set.
   [▲]/[▼]: Select
   [ENTER]: Fix
   [END]: to cancel inputting

4.2.26 Sub Tank Discharge

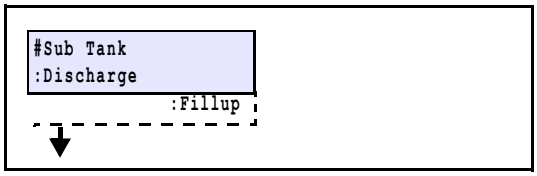
■ Outline

Perform this at head replacement and sub-tank replacement. Includes ink discharging of air purge port. It becomes in ink not filling.

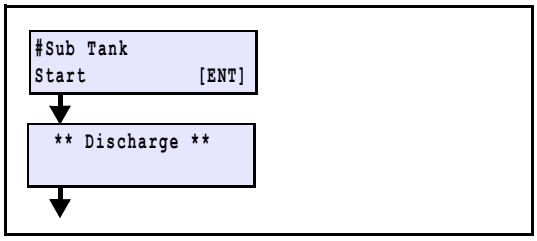
■ Procedure



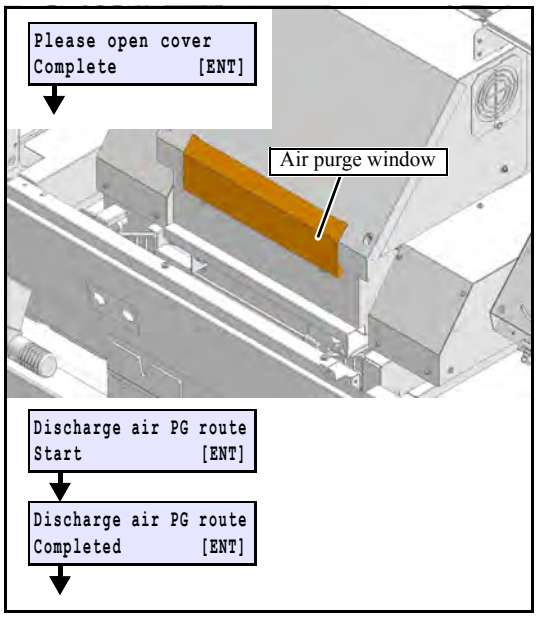
1. Select [#Adjust] - [Sub Tank]



2. Select [Discharge].
   [▲]/[▼]: Select
   [ENTER]: Fix



3. Press the [ENTER] key to start discharging.
   After discharge, wipe each head.

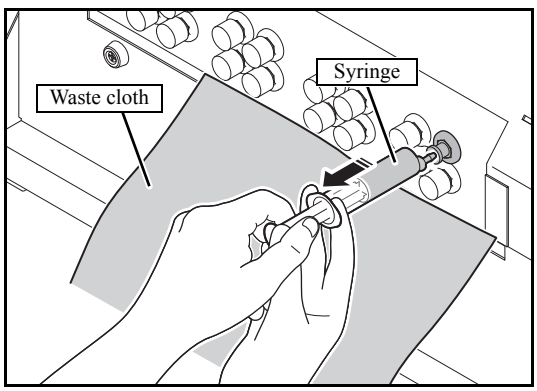


4. Station moves to the empty absorption position.

5. Remove the air purge window.

> IMPORTANT
> After the work has been completed, attach the removed covers as soon as possible. If you leave it for a long time, UV light may affect ink.

6. Press the [ENTER] key to start Air pull.
   [ENTER]: to start Air pull

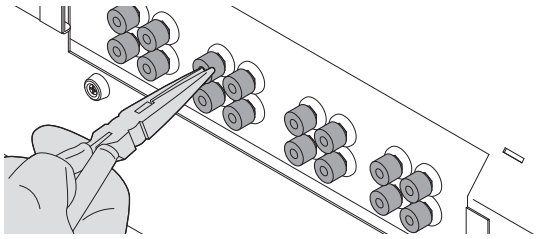


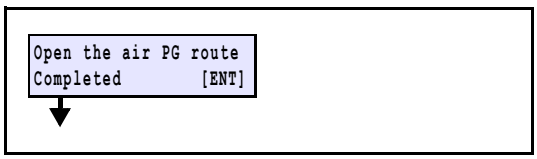
7. Remove the fitting and insert the syringe. Pull the syringe slowly to discharge the ink.
   After completing discharging on the intended path, press the [ENTER] key.

4.2.26 Sub Tank Discharge

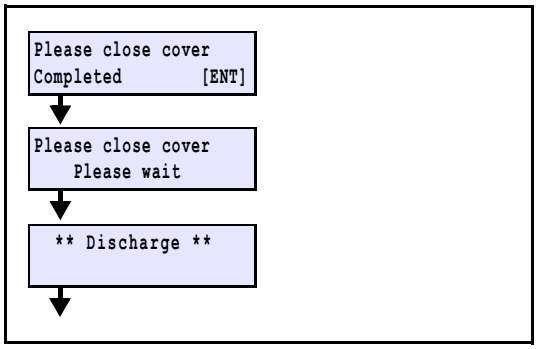
- Put a waste cloth around the air purge port not to contaminate the surroundings.
- Pull the syringe slowly by about 10 mm for 1 second.
- Don't leave the syringe out as the air pull action would stop after a specific time.

If the fitting is hard to open, it is recommended to use the radio pliers.





8. The suction pump will stop.



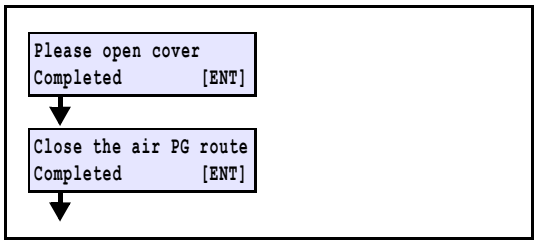
9. Open the cap on the air purge port.

   After opening the cap of the entire route, press the [ENTER].

10. Close the air purge window.

    Press the [ENTER]. Perform an initialization operation, and again bet excitation.

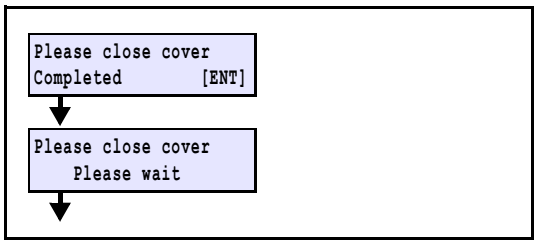
11. Suction pump runs, and completely discharge the cleaning solution remaining on the nozzle surface. After suction, wipe the each head.



12. Open the air purge window.

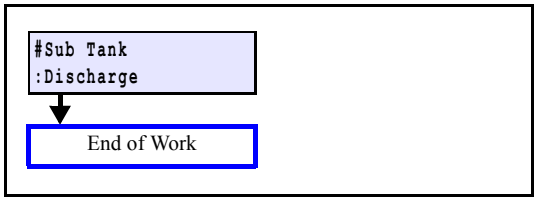
    Press the [ENTER] key.

13. Install all fittings.



14. Close the air purge window.

    Press the [ENTER] key.



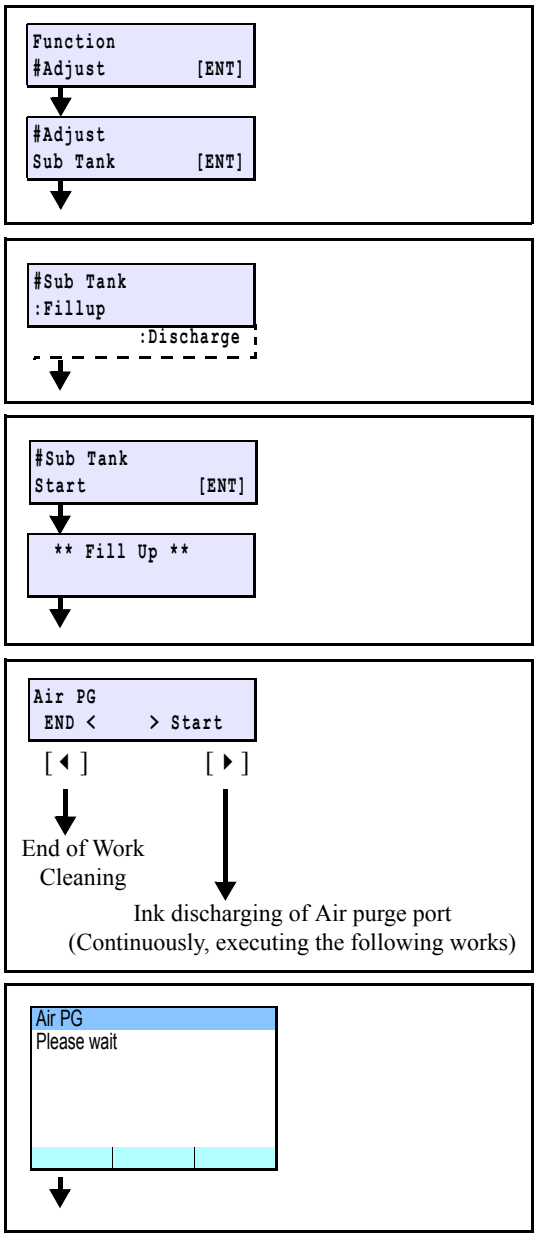
15. After completing the wiping, returning to the [#Sub Tank] menu, the work will end.

4.2.27 Sub Tank Fillup

■ Outline

Perform ink filling from the sub-tank to the head.

■ Procedure



1. Select [#Adjust] -> [Sub Tank]

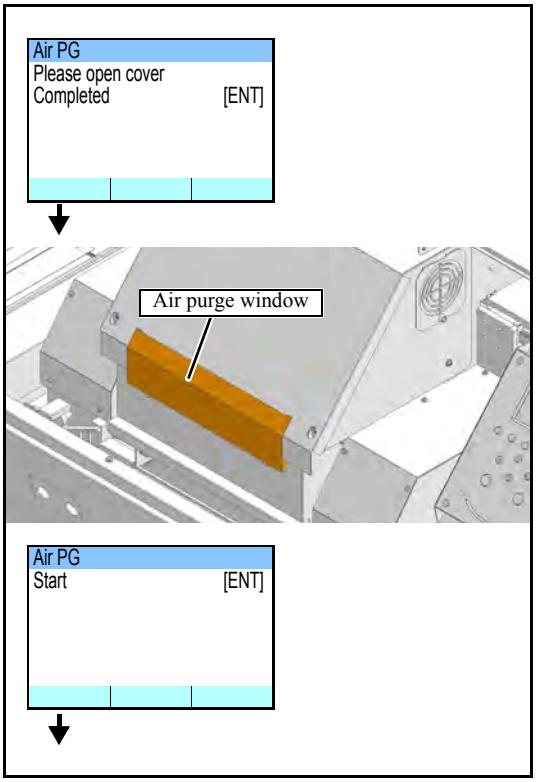
2. Select [Fillup].
   [▲]/[▼]: Select
   [ENTER]: Fix

3. Press the [ENTER] key to start the filling.

4. Remove air.
   [▶]: to Air purge sequence
   [◀]: End of filling (to Cleaning)

5. Station moves to the empty absorption position.

4.2.27 Sub Tank Fillup



6. Remove the air purge window.

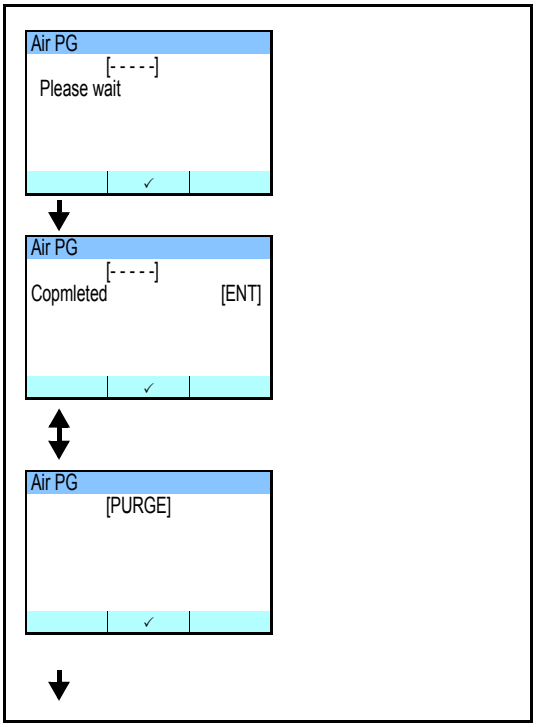
> **IMPORTANT** After the work has been completed, attach the removed covers as soon as possible. If you leave it for a long time, UV light may affect ink.

After completion, press [ENT] key.

7. Press the [ENTER] key to start air purge.

[ENTER]: to start air purge

*Do not connect the jig here yet.



8. Remove a fitting on the selected path.
   - Insert the attached jig for air purge.
   - Press [FUNC2]to a positive pressure and discharge the air.
   - After completing a certain amount of emission, press [FUNC2] and return to a fine positive pressure state.
   - Wait until “Please wait” display disappears.

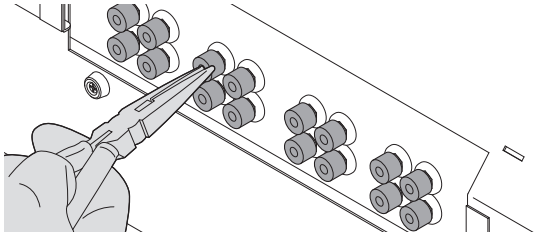
> **IMPORTANT**
> - During “Please wait” in the display, it is open to the air. Keep in mind that it will suck the air if remove the jig and cap.

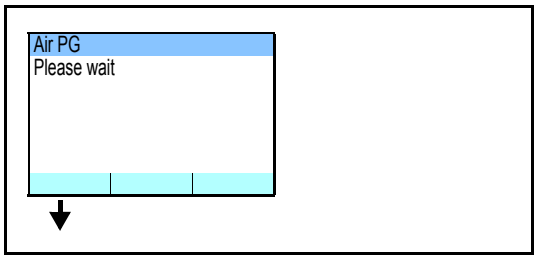
   - Tighten the fitting by removing the jig.
   - Repeat the above procedure for selected paths (total 4 places) and press the [ENTER] key.

> **IMPORTANT**
> - Put a waste cloth around the air purge port not to contaminate the surroundings.
> - If the tube of air purge jig included is clogged or heavily dirt, replace it with a new one.
> - It is possible to suppress the mixing of the path with exhausting for each color.

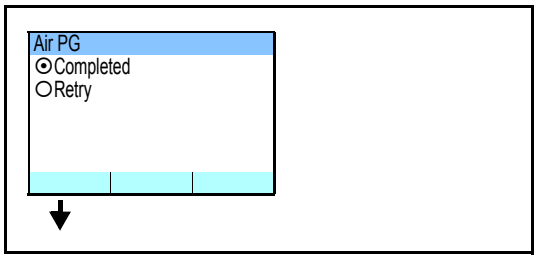
4.2.27 Sub Tank Fillup

If the fitting is hard to open, it is recommended to use the radio pliers.



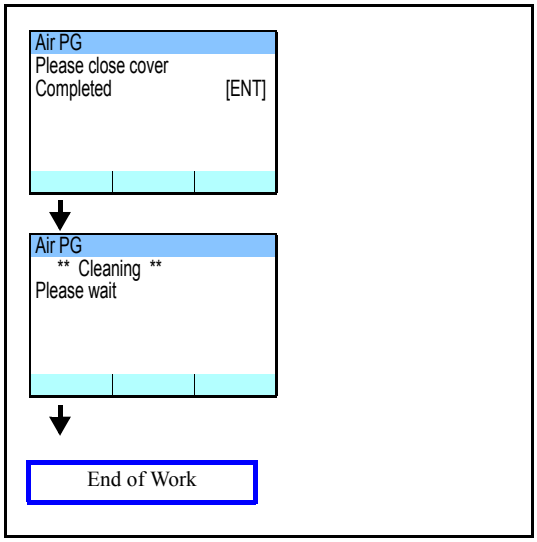


9. Supply ink until Sub-tank High.



10. Depending on the air purge situation, select “Retry” if continuous air purge is required. Return to Step 7.

11. When completing the discharge, select “Completed” to close the discharge.
    End of Work (to Cleaning)



12. Return the air purge window.

13. Press [ENTER] key to run the hard cleaning.

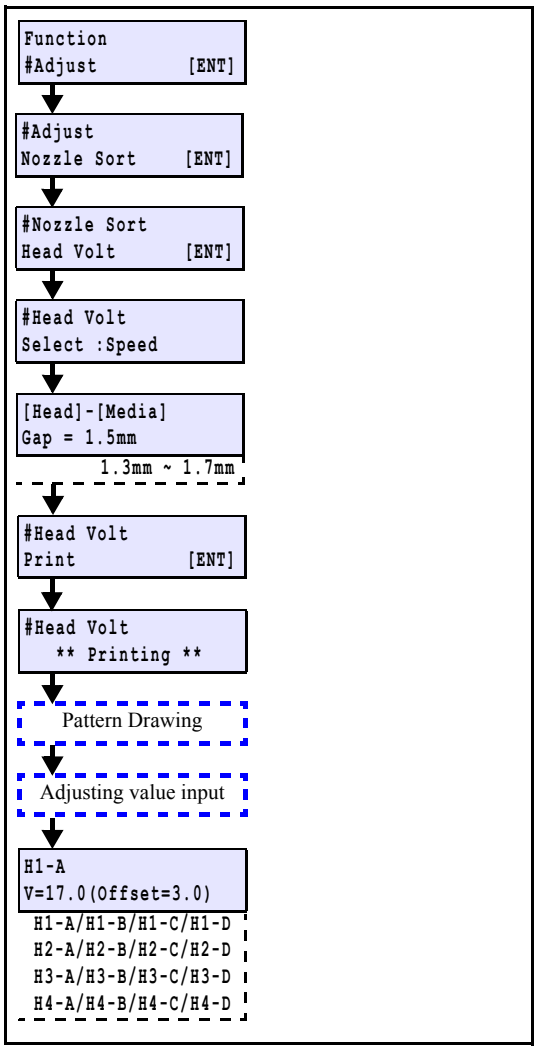
4.2.28 Nozzle Sort

■ Outline

Check the blowout status of head.

> **Caution**
> Make sure to measure the distance between the head and the media in advance.
> Adjust it within the range between 1.3 mm and 1.7 mm.

■ Method to adjust



1. Select [#Adjust] - [Nozzle Sort].

2. Select [Head Volt].

3. Select [Speed].

4. Input the value of the distance between the head and the media measured in advance.

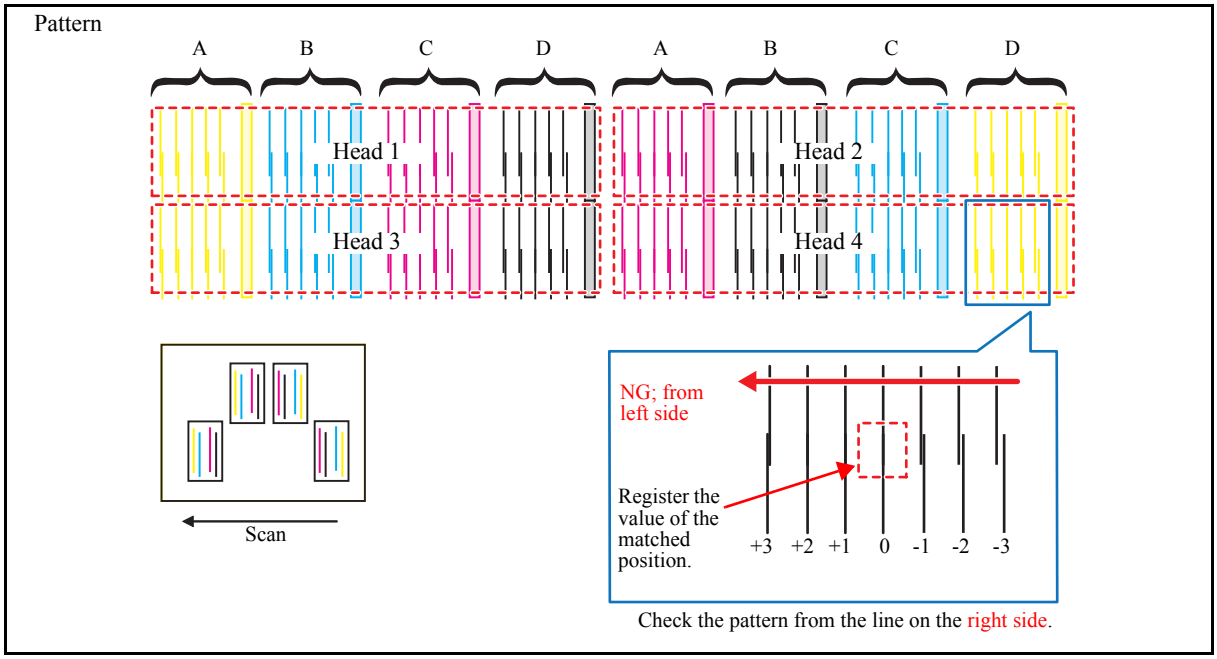
5. Press the [ENTER] key and print a pattern.

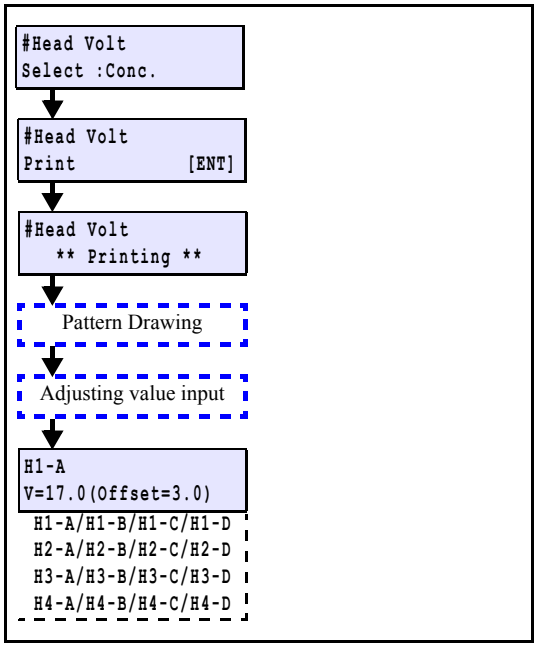
   Press the [ENTER] key to measure the media thickness at the origin and begin the print with a head gap of 1.5 mm.

6. Check the pattern and input the adjusting value.
   (1) Check in order from the line on the right side of the pattern.
   (2) Register the value of the position that the line first visually matches.

> **IMPORTANT**
> - After the first matched position, the lines no longer have such a large difference.
> - If the voltage is high, the satellites increase and ripples occur.

4.2.28 Nozzle Sort



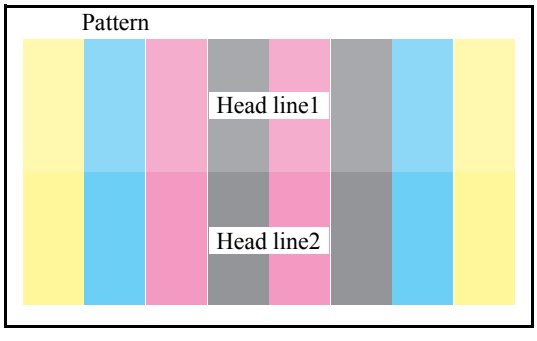


7. Select [Conc.].

8. Press the [ENTER] key and print a pattern.

   Press the [ENTER] key to begin printing with a head gap of 1.5 mm.

9. Check the pattern and input the adjusting value.



Check the pattern, paying attention to the following points.

1) Ripple

- Until the ripples visually disappear. Lower it in units of 0.5 V.

IMPORTANT

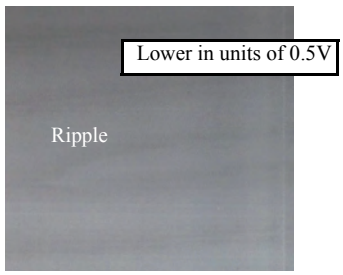
- If the ripples visually disappear, it is OK if some satellites occur.
- Stop by "Value adjusted in [Speed] - 1.0 V". (E.g.) If the value adjusted in [Speed] is 3.0 V, you can decrease to 2.0 V.

2) Color variation between heads

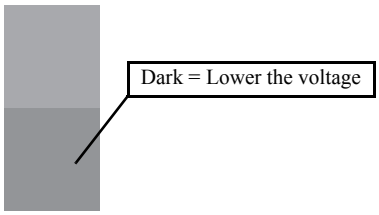
- If the color is obviously dark (dot diameter is large), lower it in units of 0.5 V.

4.2.28 Nozzle Sort

1) Ripple



2) Color variation



IMPORTANT

You do not need to lower heads that look darker because of the satellite.

• Adjust for dots that have larger diameters than others.

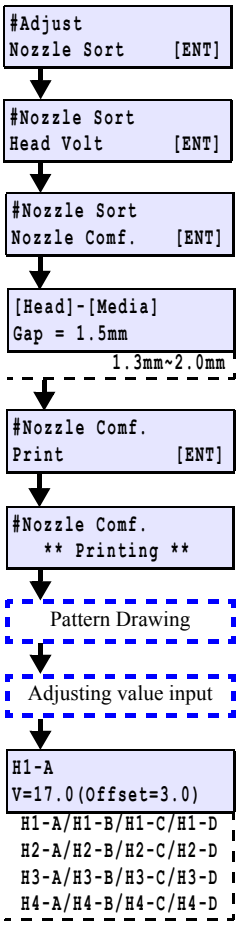
IMPORTANT

- The color does not have to be matched completely. Roughly the same shade is OK.
- Stop by "Value adjusted in [Speed] - 1.0 V". (E.g.) If the value adjusted in [Speed] is 3.0 V, you can decrease to 2.0 V.

Caution

Make sure to measure the distance between the head and the media in advance.
Adjust it within the range between 1.3 mm and 2.0 mm.

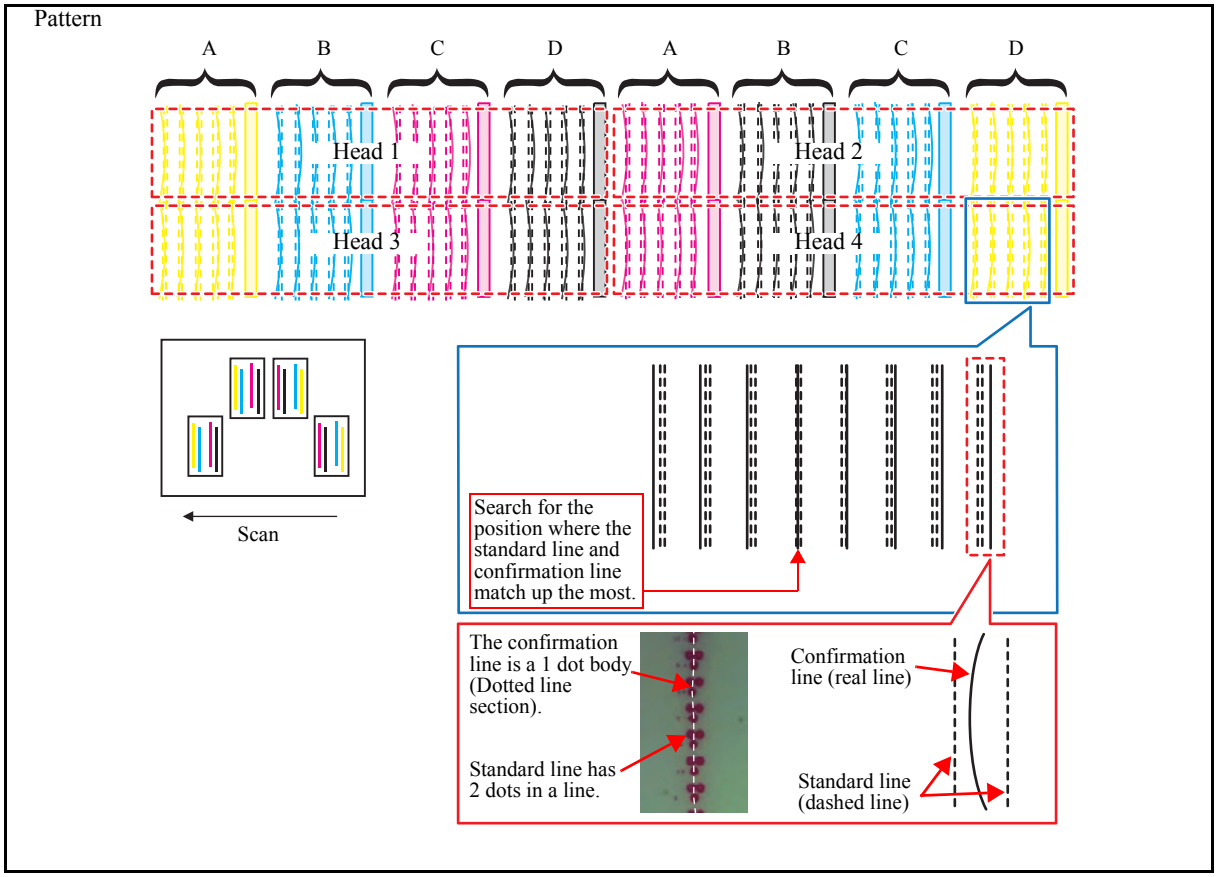
■ **How to read the pattern of nozzle selection, and standard of selection**



1. Select [#Adjust] - [Nozzle Sort].
2. Select [Head Volt].
3. Select [Nozzle Comf.].
4. Input the value of the distance between the head and the media measured in advance.
5. Press the [ENTER] key and print a pattern.

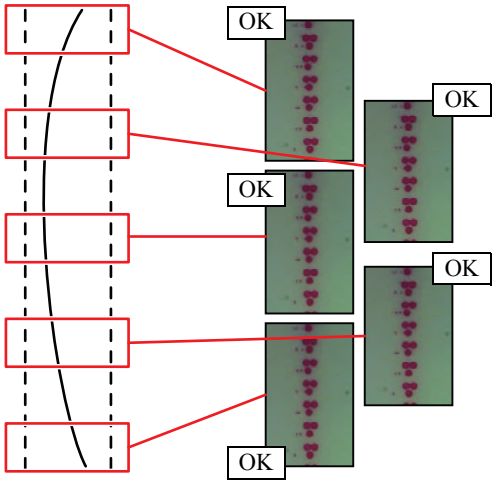
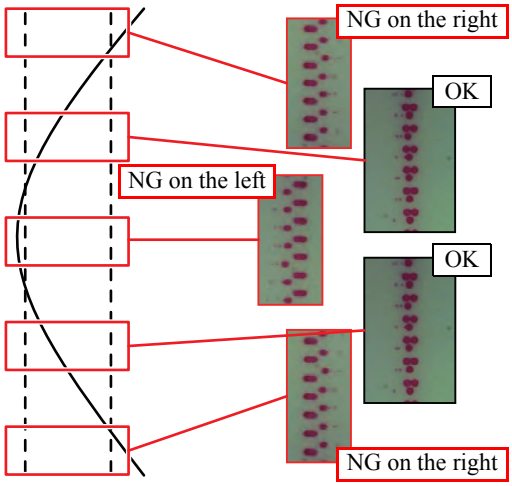
   Press the [ENTER] key to measure the media thickness at the origin and begin the print with a head gap of 1.5 mm.
6. Check the pattern.

4.2.28 Nozzle Sort



4.2.28 Nozzle Sort

Pattern criteria

OK		● If the confirmation line (straight line) is entirely within the standard line from top to bottom, it is OK. * It is not as if it is not allowed to protrude at all. You do not have to check in units of 1µm. Visually look from top to bottom roughly. If it does not protrude, it is OK. * When a judgment is difficult, use a loupe.
NG		● Nozzles that protrude on both right and left sides are faulty. Replace that head. * For nozzles that protrude only on one side, check the neighboring pattern. * If the confirmation line is to the left or right of the adjustment line for all patterns, check the following. ◆Voltage adjustment value → Is it too high or too low? ◆Head gap → Is it 1.5 mm or not?

■ When the head is replaced

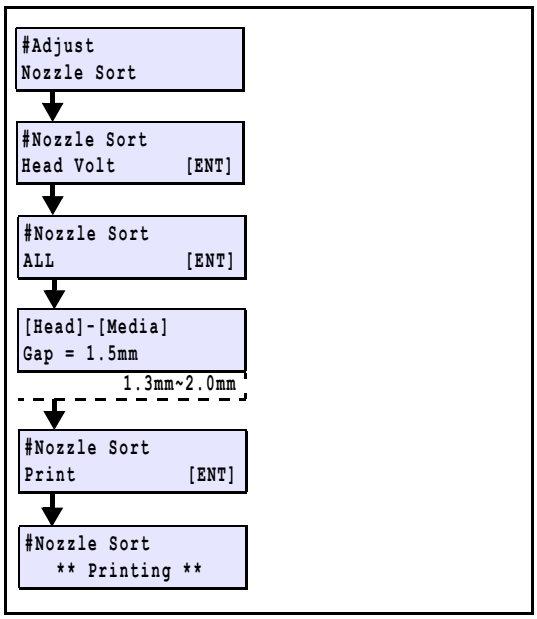
IMPORTANT

- Be sure to print the pattern below before replacing the head.
- Send the pattern below that you printed with the head as a set.
- Adjust the voltage for the replaced head, and check the head selection pattern.

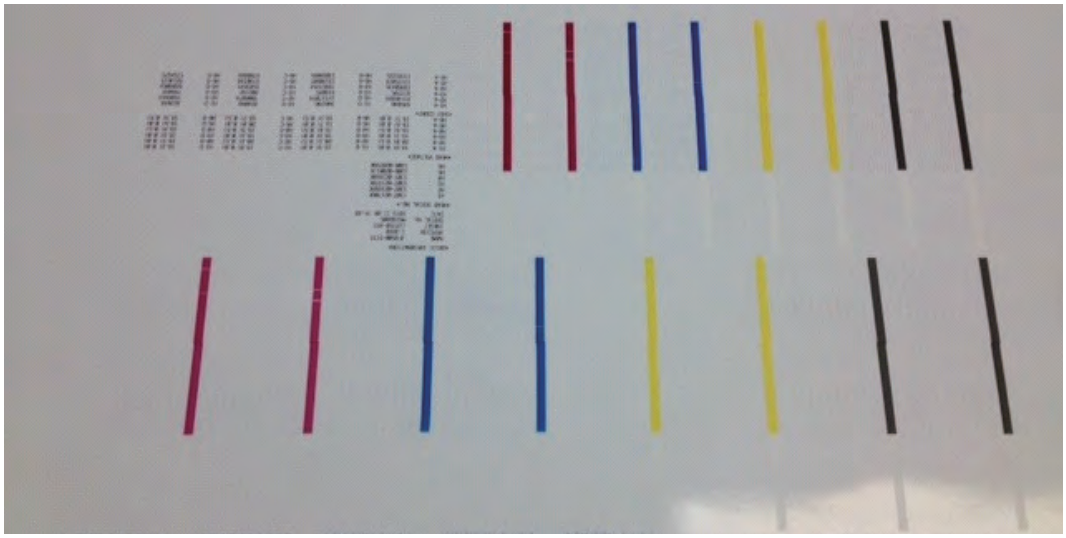
Caution

Make sure to measure the distance between the head and the media in advance.
Adjust it within the range between 1.3 mm and 2.0 mm.

4.2.28 Nozzle Sort



1. Select [#Adjust] -> [Nozzle Sort].
2. Select [Head Volt].
3. Select [ALL].
4. Input the value of the distance between the head and the media measured in advance.
5. Press the [ENTER] key and print a pattern.



4.2.29 Tank Calibration

■ Outline

Create the parameter to calculate the amount of ink [cc] from the weight [kg] of the ink tank and ink in the tank.
This adjustment will effect to the accuracy of remaining ink amount and detection of the ink end and the near end.

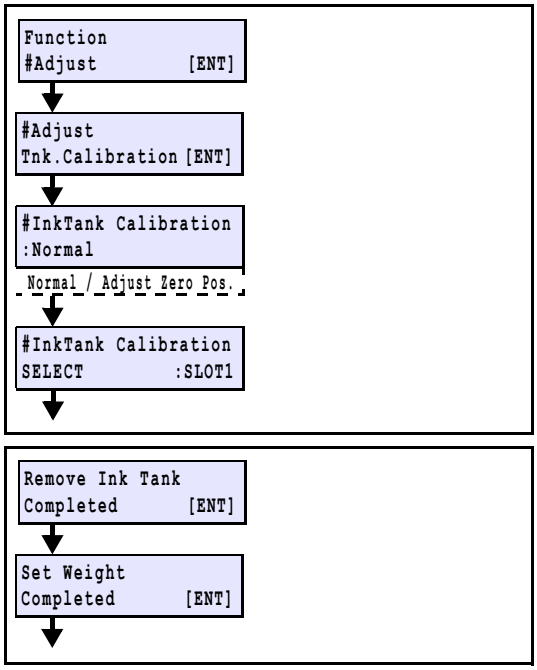
There are the following two methods for the calibration of weighting scale.

Normal	◆Calibration of the weighting scale using the weight of 3 Kg. ◆Take this method in case that the difference of remaining amount is large or the potentiometer was replaced.
Adjust Zero Pos.	◆Calibration of the weighting scale without using any weight. ◆Temporal calibration

■ Items to prepare

Weight of 3 Kg (use only for the normal calibration)

■ Calibration Procedure (Normal)



1. Select [#Adjust] -> [Tnk.Calibration].

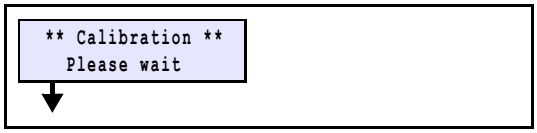
2. Select [Normal].
   [▲]/[▼]: Switches (Normal/Adjust Zero Pos.)
   [ENTER]: Fix (Next)

3. Select the slot subject of execution.
   [▲]/[▼]: Switches (Slot 1~4)
   [ENTER]: Fix (Next)

4. Remove the ink tank at the selected slot in the ink unit.

5. Place the weight of 3 Kg on the plate of weighting scale of the selected slot.

> IMPORTANT
> ● Place the weight at the center of the plate of weighting scale.
> If placing the weight at the edge of plate, it may cause that the detection error for the remaining amount would be larger.
> ● After placing the weight, put it a little bit inner by figure.

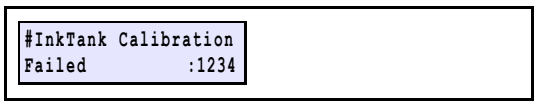


6. The calibration is done with the weight is on the weighting scale.

   Processing time is maximum approx. 1 minute.

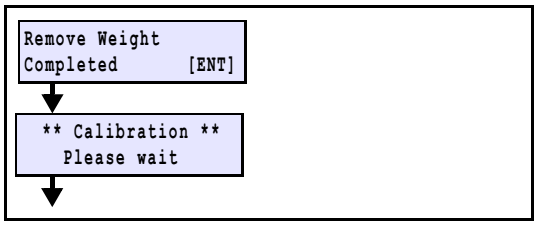
> IMPORTANT
> Don't give vibration to the supply unit.
> Otherwise, the calibration may fail.

4.2.29 Tank Calibration



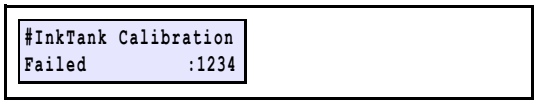
7. When the calibration failed, the screen will switch as shown in the left.
   [ENTER]or[END] :Return to the screen of setting the weight.

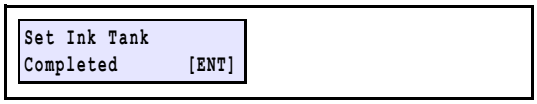
8. When the calibration was completed properly, the next process is indicated in the screen.
9. Remove the weight from the plate of weighting scale so that the plate becomes empty.



10. The calibration is done without any weight on the weighting scale.
    Processing time is maximum approx. 1 minute.

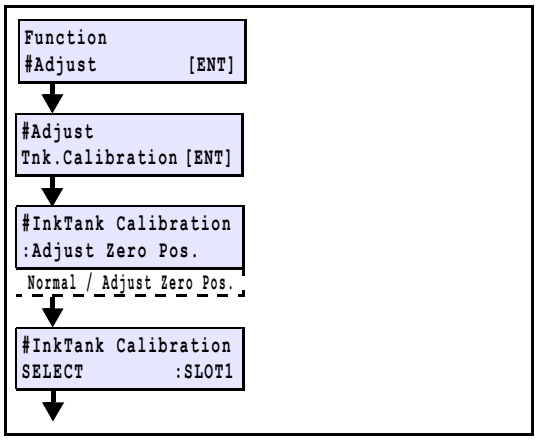
> IMPORTANT
> Don't give vibration to the supply unit.
> Otherwise, the calibration may fail.





11. When the calibration failed, the screen will switch as shown in the left.
    [ENTER]or[END]:Return to the screen of removing the weight.
12. After completing the calibration, return to the original status.
    Reset the ink tank which was removed first.
    [ENTER]: End (move to the screen to select the slot)

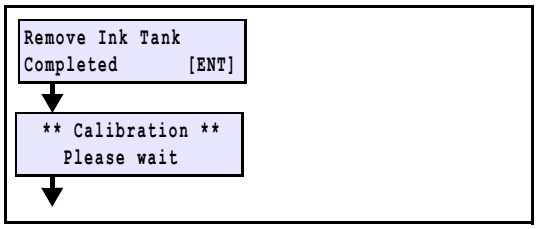
■ **Calibration Procedure (Adjust Zero Pos.)**



1. Select [#Adjust] -> [Tnk.Calibration].

2. Select [Adjust Zero Pos.].
   [▲]/[▼]: Switches (Normal/Adjust Zero Pos.)
   [ENTER]: Fix (Next)

3. Select the slot subject of execution.
   [▲]/[▼]: Switches (Slot 1~4)
   [ENTER]: Fix (Next)



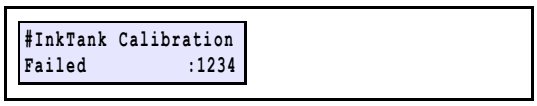
4. Remove the ink tank at the selected slot in the ink unit.

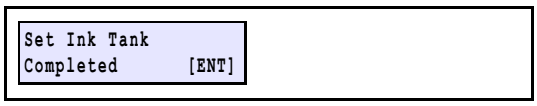
5. Make the plate of weighting scale empty.

6. The calibration is done without any weight on the weighting scale.
   Processing time is maximum approx. 1 minute.

> IMPORTANT
> Don't give vibration to the supply unit.
> Otherwise, the calibration may fail.

4.2.29 Tank Calibration

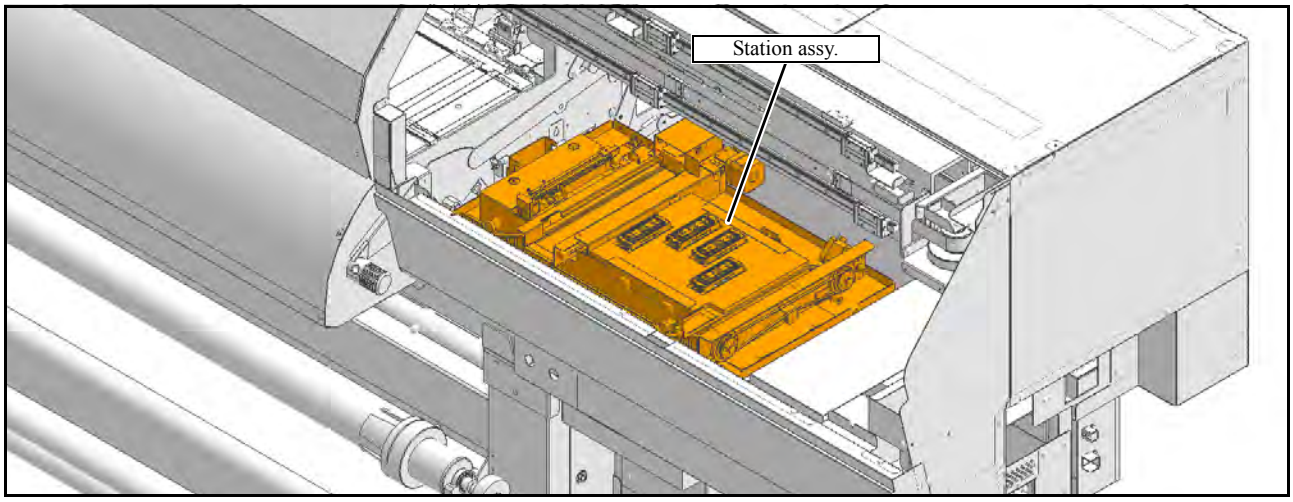




7. When the calibration failed, the screen will switch as shown in the left.
   [ENTER]or[END] :Return to the screen of removing the ink tank.
8. After completing the calibration, return to the original status.
   Reset the ink tank which was removed first.
   [ENTER]: End (move to the screen to select the slot)

Adjustment Items

4.3.1 Station Height Adjustment



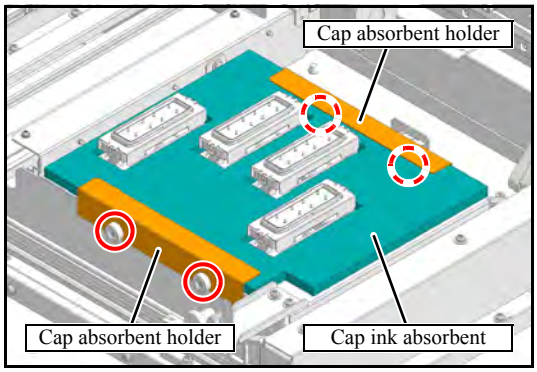
■ Function

Adjust the height of the station.

> **Caution** Turn the main power OFF when turning the power OFF. It is very dangerous if the sleep mode functions mistakenly during the operation.

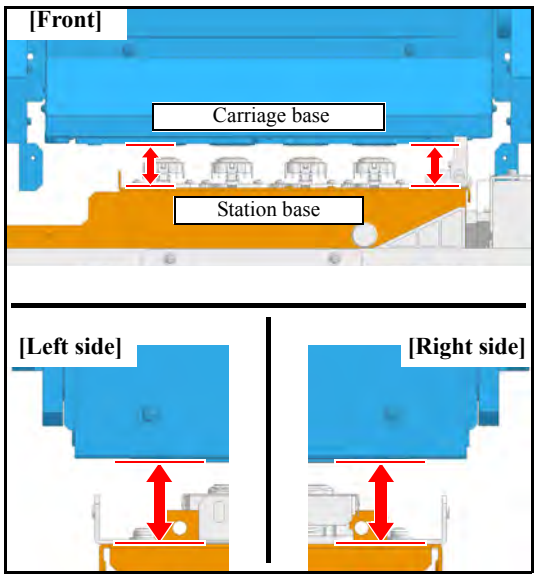
■ Checking procedure

1. Remove the following covers.
   - **Right maintenance cover**
   - **Front lower right cover**
2. Select [Maintenance] -> [Station] -> [Carriage Out] from the operation menu.
3. Turn OFF the main power supply.



4. Remove the **cap absorbent holder** (x2). (each screw x2)
5. Remove the **cap ink absorbent**.

4.3.1 Station Height Adjustment

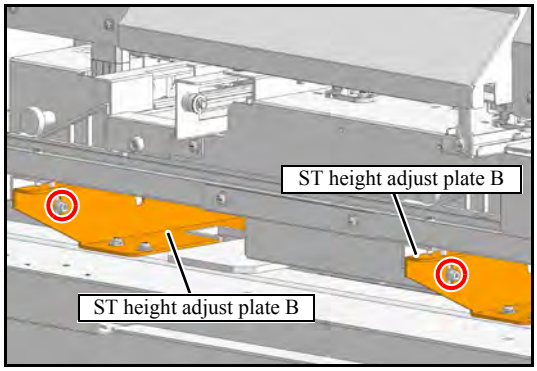


6. Move the carriage on the station.

7. Visually check if the distances between the station base and the carriage base are identical at 4 of front/back and right/left positions

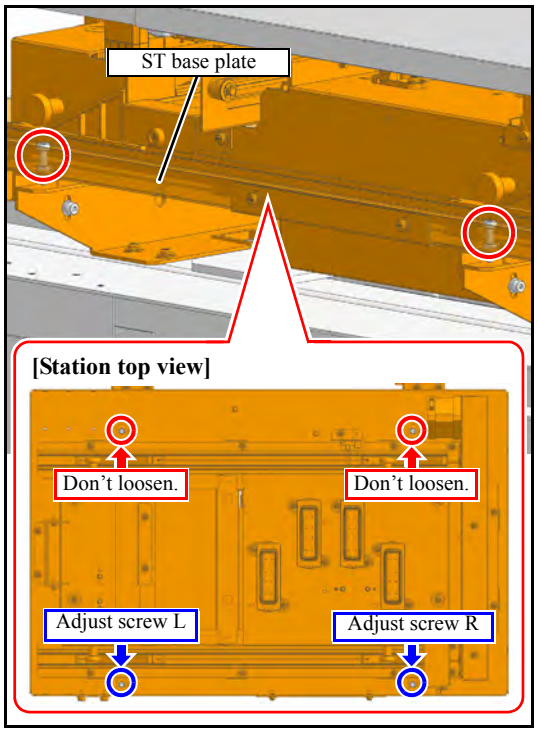
   If not, perform the following adjustment.

■ **Adjustment procedure**



1. Loosen the screws (1 each) at the front side of the right /left ST height adjust plate B.

> IMPORTANT
> As the adjustment is done based on the back side of the station, don't loosen the screws at the back side of the right /left ST height adjust plate B.



2. Loosen the nuts (x2) for the adjust screws (x2) on the ST base plate.

3. Turn the adjust screws. (x2)

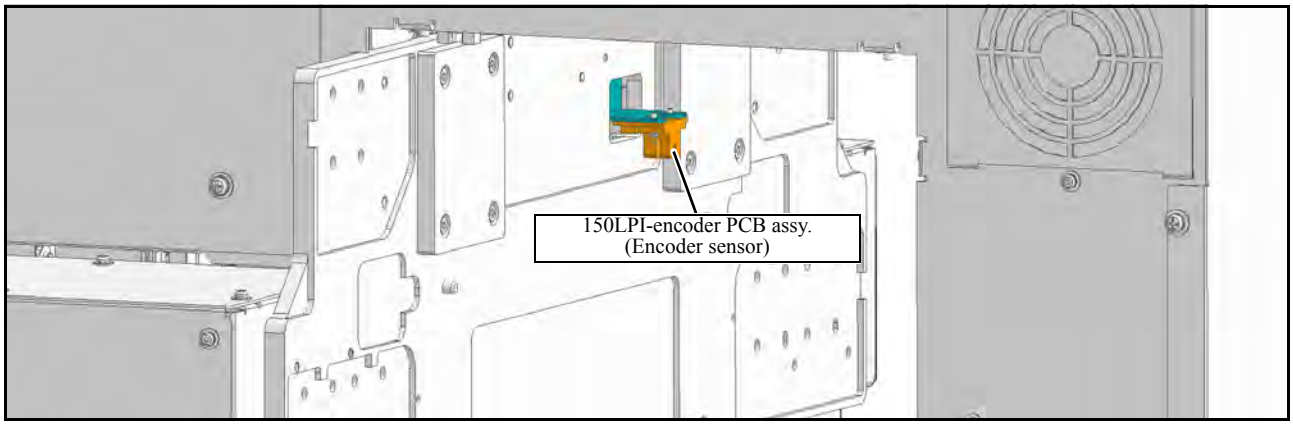
Direction to rotate the adjust screw and slant of the station.			
Adjust screw L		Adjust screw R	
Clockwise	Counterclockwise	Clockwise	Counterclockwise
Adjust screw L side moves up.	Adjust screw L side moves down.	Adjust screw R side moves up.	Adjust screw R side moves down.

4. After adjustment, tighten the nuts (x2) for the adjust screws (x2).

5. Tighten the screws (1 each) at the front side of the right /left ST height adjust plate B.

6. Reverse the disassembly procedure for reassembly.

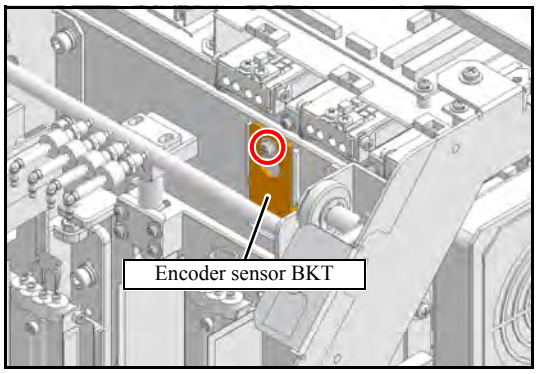
4.3.2 Encoder Sensor Position Adjustment

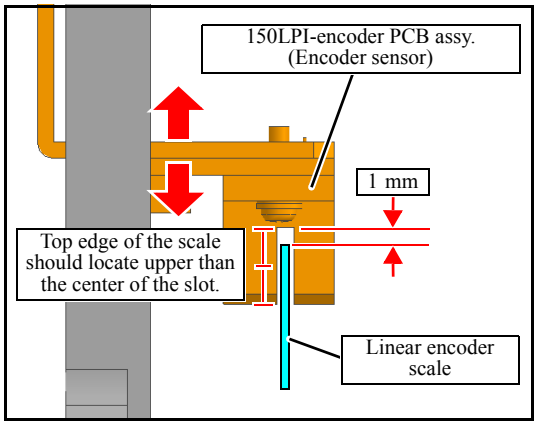


■ Function

Adjust the position of the 150LPI-encoder PCB assy. (Encoder sensor).

■ Procedure



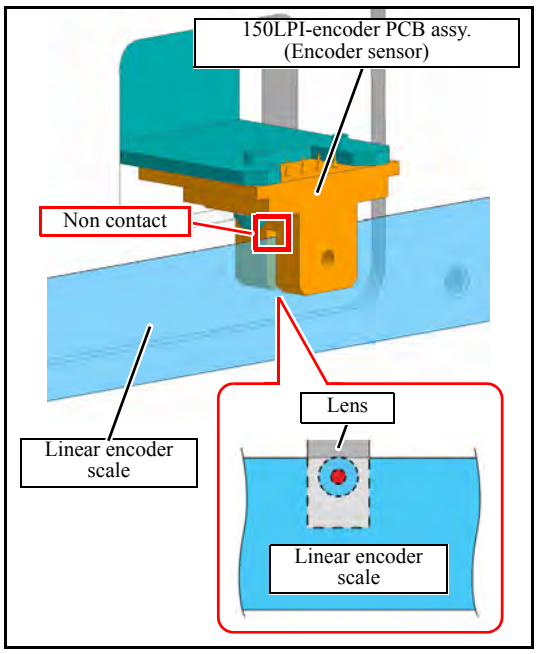


IMPORTANT Turn OFF the power when working.

1. Loosen the screw (x1) of the encoder sensor PCB BKT.

2. Adjust the vertical position of the 150LPI-encoder PCB assy., and fix with screw.

4.3.2 Encoder Sensor Position Adjustment



3. Move the carriage by hand from the left end to the right end to check the following two points.
   - The upper edge of the linear encoder scale does not come in contact with the 150LPI-encoder PCB assy..
   - The lens of the 150LPI-encoder PCB assy. does not come to a position upper than the linear encoder scale.

IMPORTANT

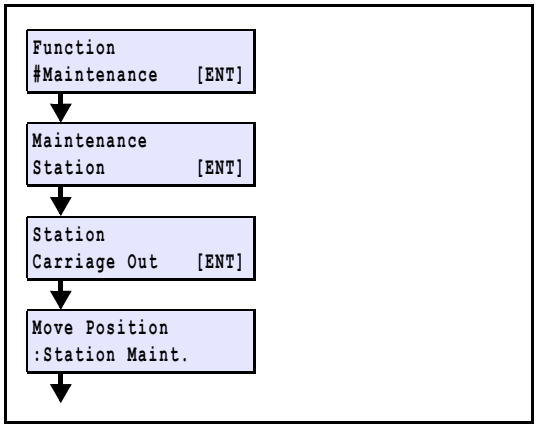
After fixing with the screw, run the following check to examine the sensor for abnormalities.
- Check Encoder
  (refer to "5.1.10 Check Encoder")

4.3.3 Parallelizing Head-Platen

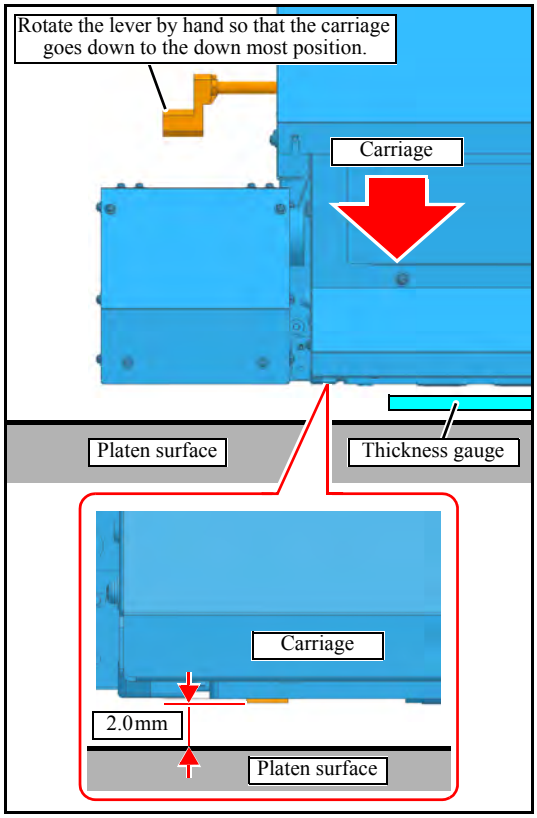
■ Outline

Parallelize head-platen by measuring the head gap.

- Be sure to lay a floorboard when installing or adjusting this equipment.
- This is the procedure to remove distortion from the main unit. The vertical inclination and the difference in the carriage's right/left gaps should be adjusted at the carriage side.



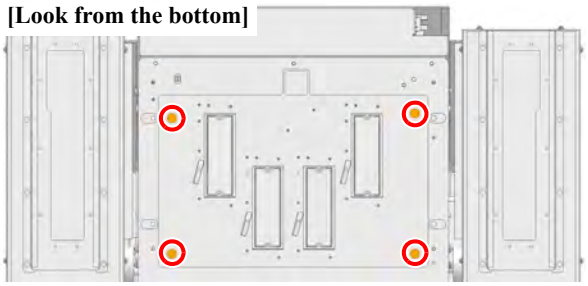
1. Turn the power ON and carry out the head carriage out.



2. Rotate the head height adjust lever by hand so that the carriage goes to the down most position.
3. Lower the clamp lever.
4. Placing the thickness gauge in between the platen and the salient part of head, adjust the height of the basis surface (the bottom surface of carriage base) becomes 2.0 mm.

4 basis surfaces (round salient shape) locate at the bottom surface of carriage base as shown in the below figure.

[Look from the bottom]



Assuming the height of platen from the basis surface (the bottom surface of carriage base) is 2.0 mm, the gap between the nozzle and the platen becomes 1.7 mm.

4.3.4 Checking Path Length (for right and left) of Feeding Surface

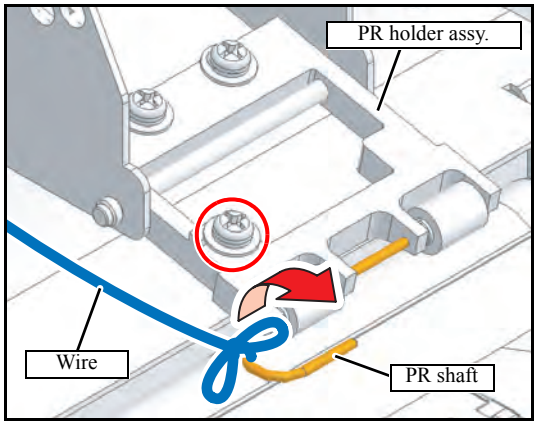
■ Outline

If media skew is thought to be caused by the difference of the path lengths, check them.

■ Required parts

A103240/OPT-J0274 path length measuring wire set

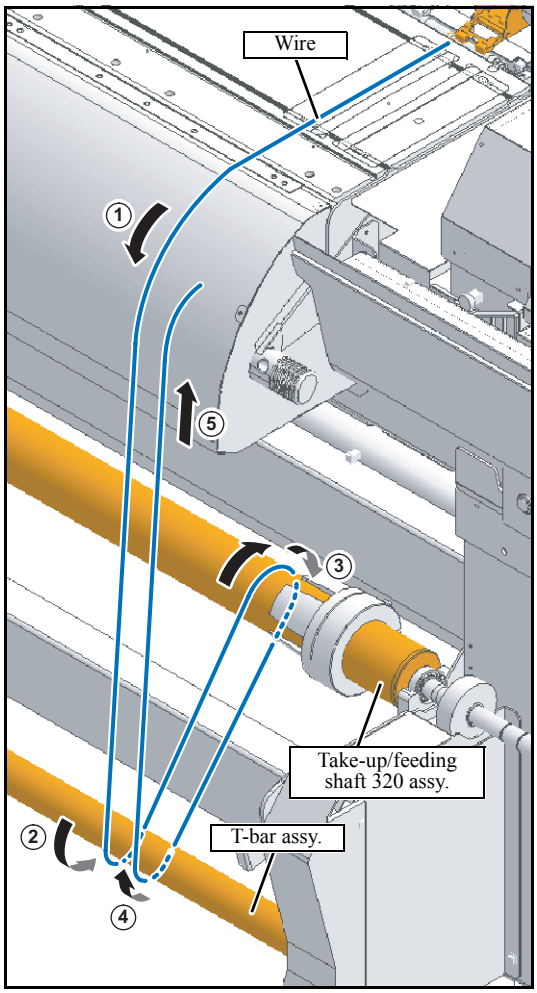
■ Checking procedure (front of machine)



1. Lower the clamp lever.
2. At the right side of the printer, loosen the screw of the PR holder assy, and pull up the PR shaft in the direction of the arrow.
3. Route the wire tied in a loop in advance though the PR shaft.

> IMPORTANT Tie the wire at the base of the PR shaft.

4. Loosen the screw of the PR holder assy..

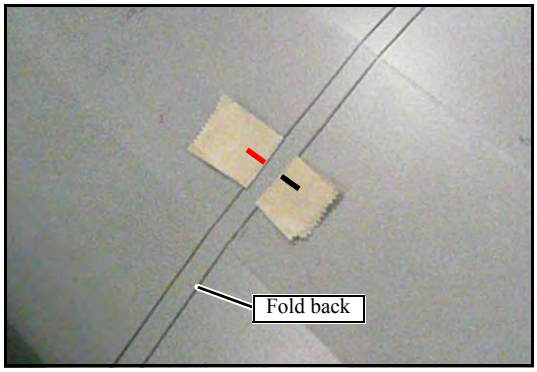


5. Pass wire as indicated.

   Fold back the path and pull wire up over the platen.

> IMPORTANT Apply tension appropriately to the wire.

4.3.4 Checking Path Length (for right and left) of Feeding Surface

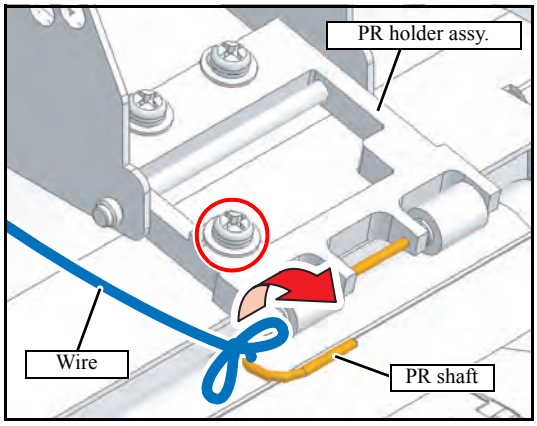


6. Mark wire with the tape over the platen.

7. Remove wire and check the path length for the left side in the same way.

> IMPORTANT
> Fold back the same path as the media and check the path length (difference between black wire and red wire) for the left side with the right front-basis (difference between black wire and red wire = 0).
> **[If the left path length is different.]**
> Displace the gear of the tension bar by tooth up and down and adjust the path length.
> (Refer to INSTALLATION GUIDE "4.2 Assembling the Stands and the Device".)

■ **Checking procedure (rear of machine)**

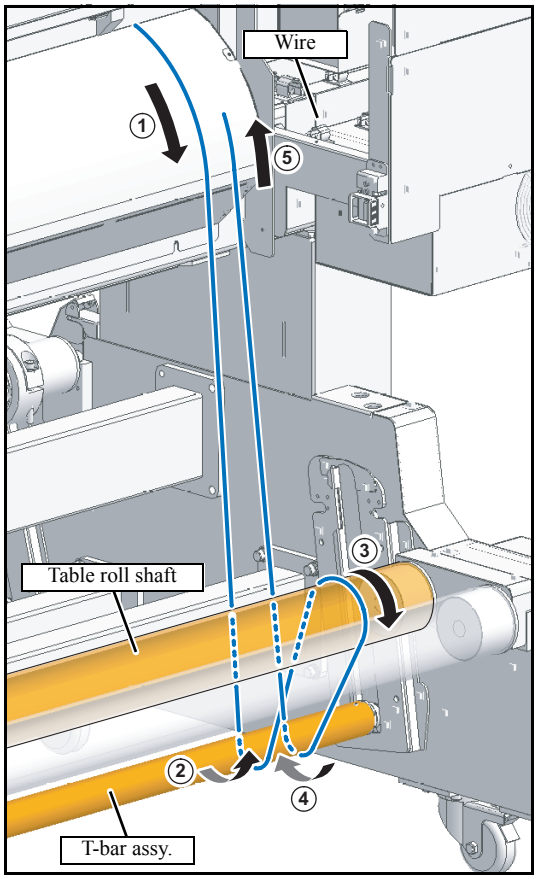


1. At the right side of the printer, loosen the screw of the PR holder assy, and pull up the PR shaft in the direction of the arrow.

2. Route the wire tied in a loop in advance though the PR shaft.

> IMPORTANT
> Tie the wire at the base of the PR shaft.

3. Loosen the screw of the PR holder assy..

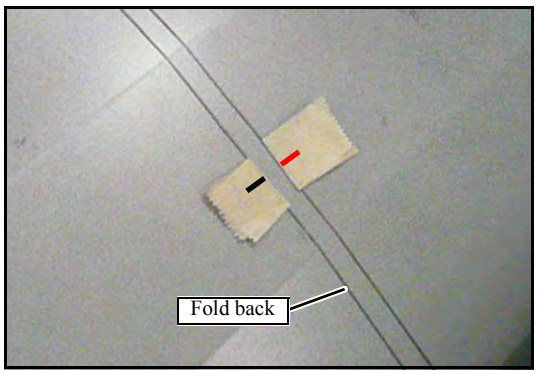


4. Pass wire as indicated.

   Fold back the path and pull wire up over the platen.

> IMPORTANT
> Apply tension appropriately to the wire.

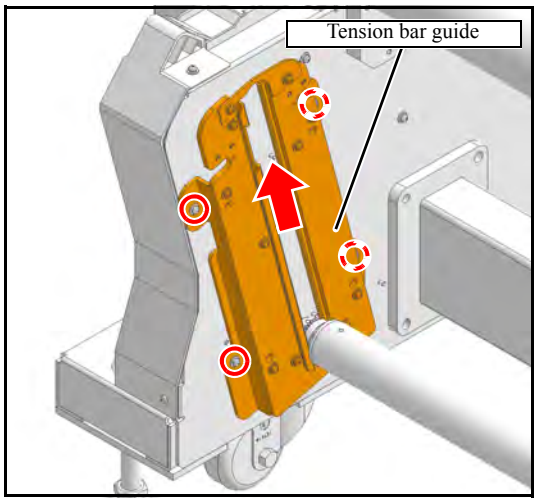
4.3.4 Checking Path Length (for right and left) of Feeding Surface



5. Mark wire with the tape over the platen.
6. Remove wire and check the path length for the right side in the same way.

> **IMPORTANT**
> Fold back the same path as the media and check the path length (difference between black wire and red wire) for the left side with the right front-basis (difference between black wire and red wire = 0).
> **[If the left path length is different.]**
> Displace the gear of the tension bar by tooth up and down and adjust the path length.
> (Refer to INSTALLATION GUIDE "4.2 Assembling the Stands and the Device".)

■ **In case of the length of path is different**



1. After measuring right/left, adjust by rising up the tension bar guide of longer path length so that shortening the path length.

> **IMPORTANT**
> Loosen the screws (x4) in the left figure to shift the tension bar guide.

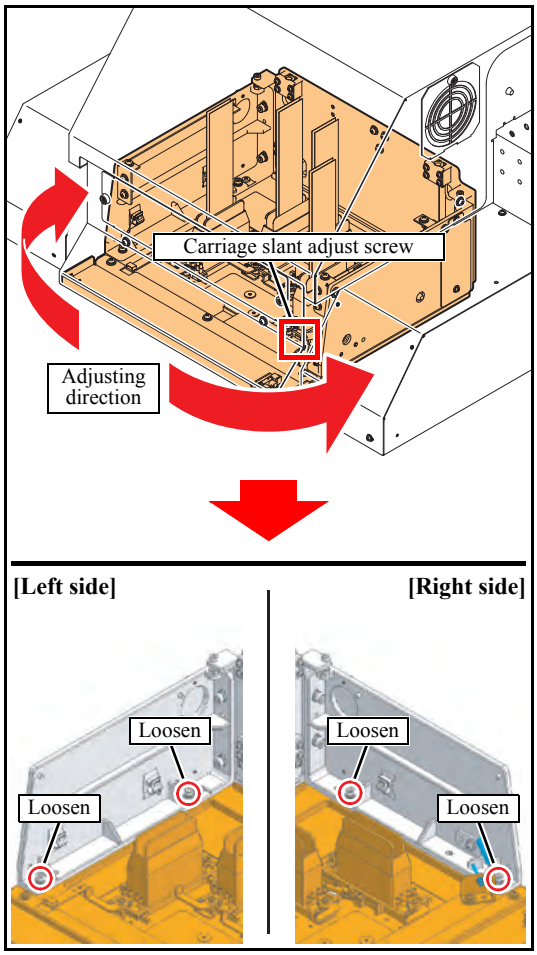
4.3.5 Carriage Base Horizontal Inclination Adjustment

■ Function

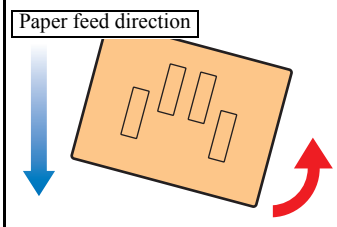
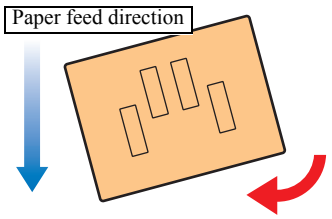
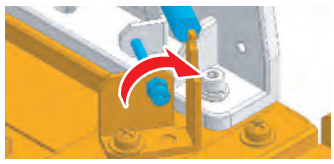
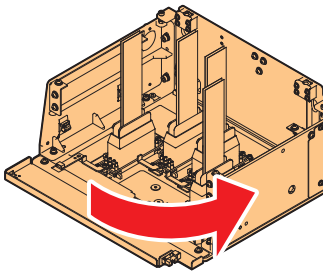
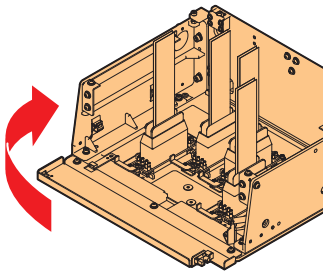
When all carriages are judged as slanting in one direction after the head slant adjustment, perform this adjustment to correct the slanting condition.

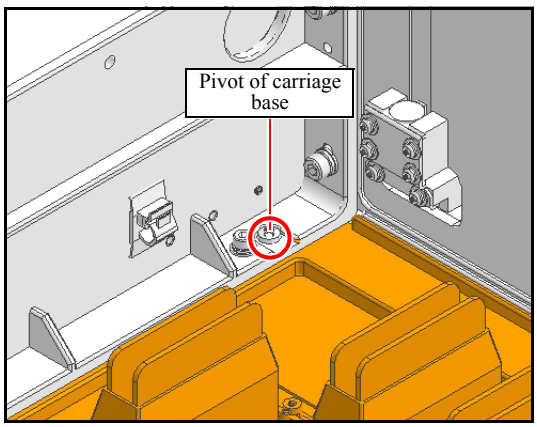
* Use “Mp-M014442-00_Carry Base ROT Screw” for adjustment.

■ Procedure



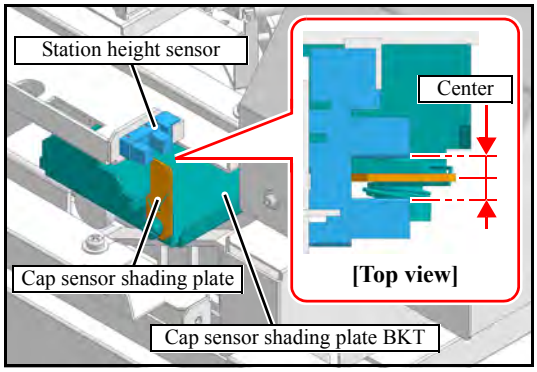
1. Loosen the four screws (x4) fixing the carriage base SIJ.
2. Turn the carriage slant adjust screw to correct the slanting condition.

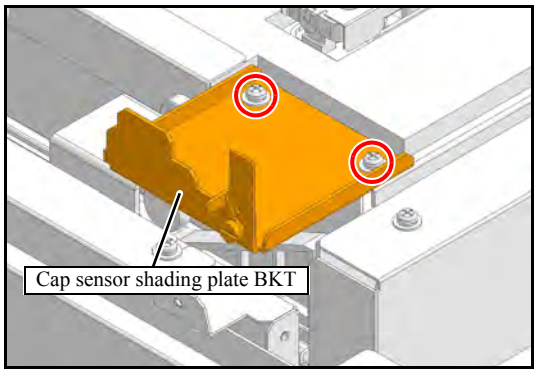
Direction to rotate the adjust screw and moving of the carriage.	
	
Carriage slants toward right	Carriage slants toward left
	
Turn the screw clockwise.	Turn the screw counterclockwise.
	
Slant left	Slant right



3. Tighten the screws (x4) of the carriage base SIJ.

4.3.5 Carriage Base Horizontal Inclination Adjustment





4. Check if the front/back positions of the cap sensor shading plate and the cap sensor shading plate BKT locate at the center of station height sensor.

5. If the front/back position of the cap sensor shading plate is out of alignment, adjust with the screws (x2) of the cap sensor shading plate BKT.

6. Print the head slant adjustment pattern and examine the pattern.

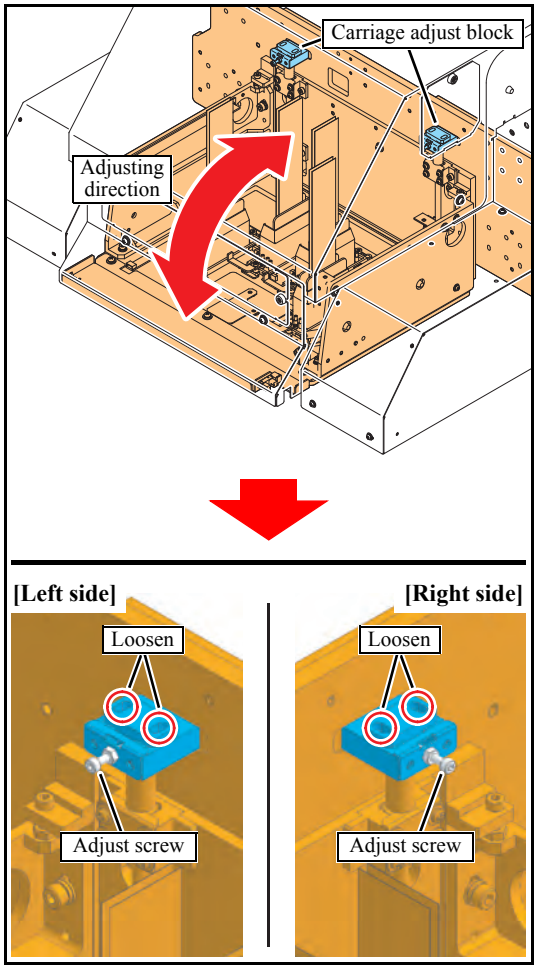
> IMPORTANT
> Check if the pattern became straight by checking the printed patterns “SiDir” and “ReDir”.

4.3.6 Carriage Vertical Slant Adjustment

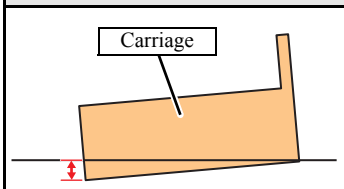
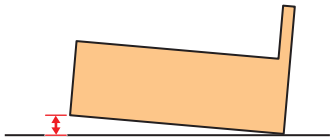
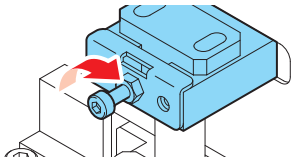
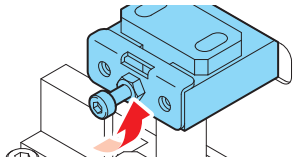
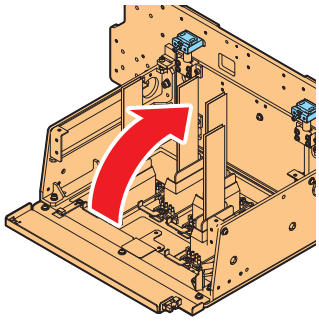
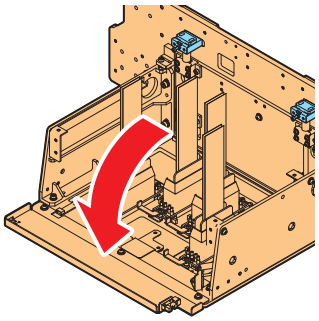
■ Function

Examine the carriage position adjustment pattern, and if the intervals between patterns at the bottom side (the portion printed just before the paper is ejected) are bigger than those at the top side (the portion printed just after the paper is fed), perform this adjustment.

■ Procedure



1. Loosen the screws (each x2) fixing the carriage adjust block (x2).
2. Loosen the nuts (x2) of the adjust screws (x2).
3. Rotate right and left adjust screws (x2) equally.

The direction of adjust screw to rotate and the movement of carriage.	
	
When slanting frontward	When slanting backward
	
Turn the screw clockwise.	Turn the screw counterclockwise.
	
Slant backward	Slant frontward

4. Tighten the nuts (x2) of the adjust screws (x2).
5. Tighten the screws (2 each) of the carriage adjust block (x2).
6. Print the checking pattern for level and examine the pattern. (Refer to "4.2.7 LevelSurfaceChk")

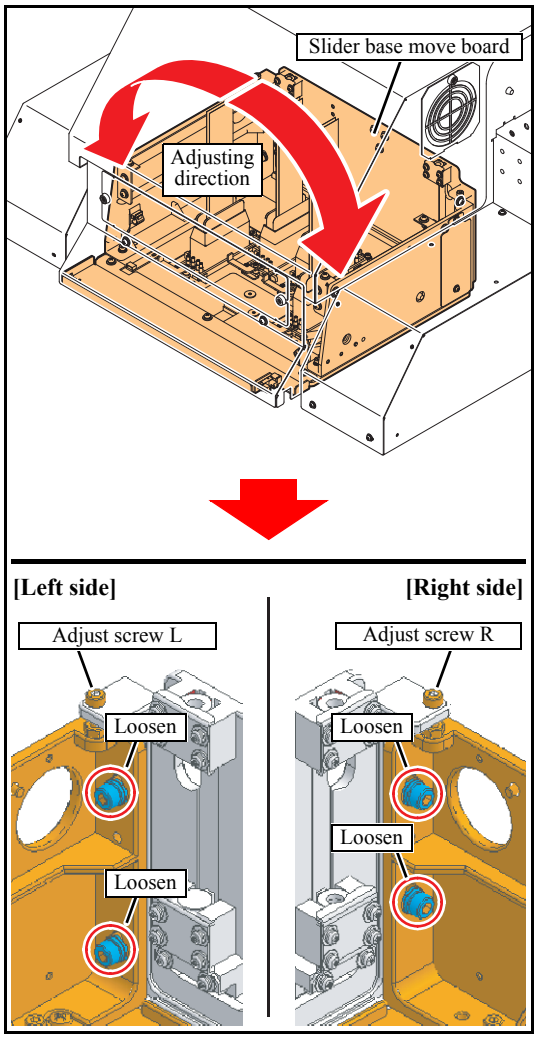
> IMPORTANT
> Repeat the adjustment until the patterns are printed at uniform intervals.
> Or, check the gap by a thickness gauge.

4.3.7 Carriage Left-to-Right Gap Adjustment

■ Function

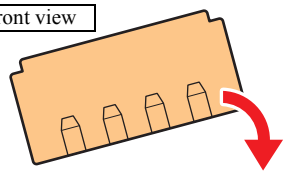
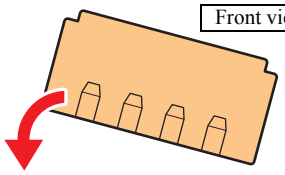
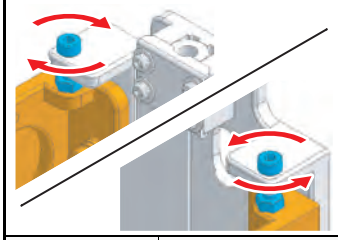
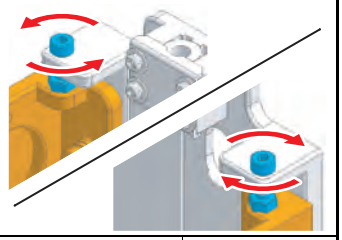
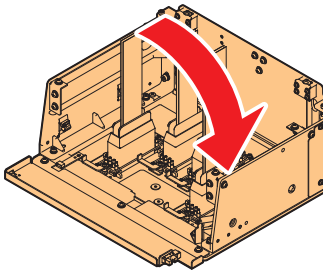
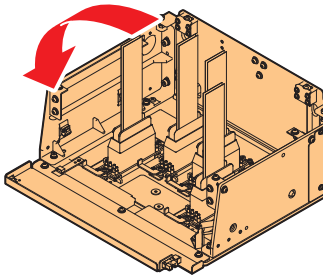
Perform carriage slant adjustment for right and left directions.

■ Procedure



1. Loosen the screws (x4) fixing the slider base move board.
2. Loosen the nuts (x2) of the adjust screws (x2).
3. Turn the adjust screws (x2).

The direction of adjust screw to rotate and the movement of carriage

Front view		Front view	
			
When slanting left		When slanting right	
			
Adjust screw L	Adjust screw R	Adjust screw L	Adjust screw R
Turn the screw clockwise.	Turn the screw counterclockwise.	Turn the screw counterclockwise.	Turn the screw clockwise.
			
Slant right		Slant left	

4. Tighten the nuts (x2) of the adjust screws (x2).
5. Tighten the screws (x4) of the slider base move board.
6. Print the head slant adjustment pattern and examine the pattern.

IMPORTANT

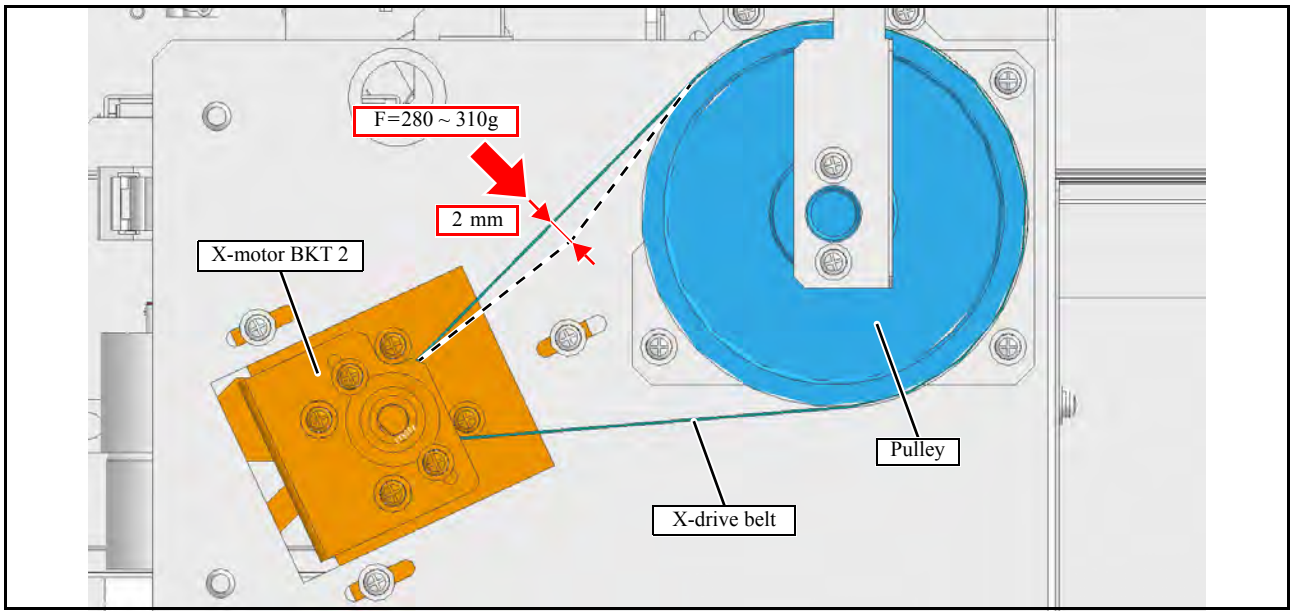
Repeat the adjustment and check with the pattern until the dots align in the tolerable range.
Or, check the gap by a thickness gauge.

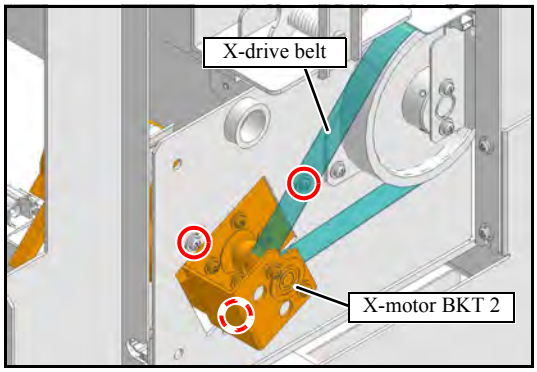
4.3.8 X-belt Tension Adjustment

■ **Adjusting standard**

When inserting it by 2mm with a tension gauge, it shall be 280 to 310gf.

■ **Work procedure**





1. Using a tension gauge, push the belt between the motor and the pulley by 2mm.

   Standard value: 280 ~ 310gf

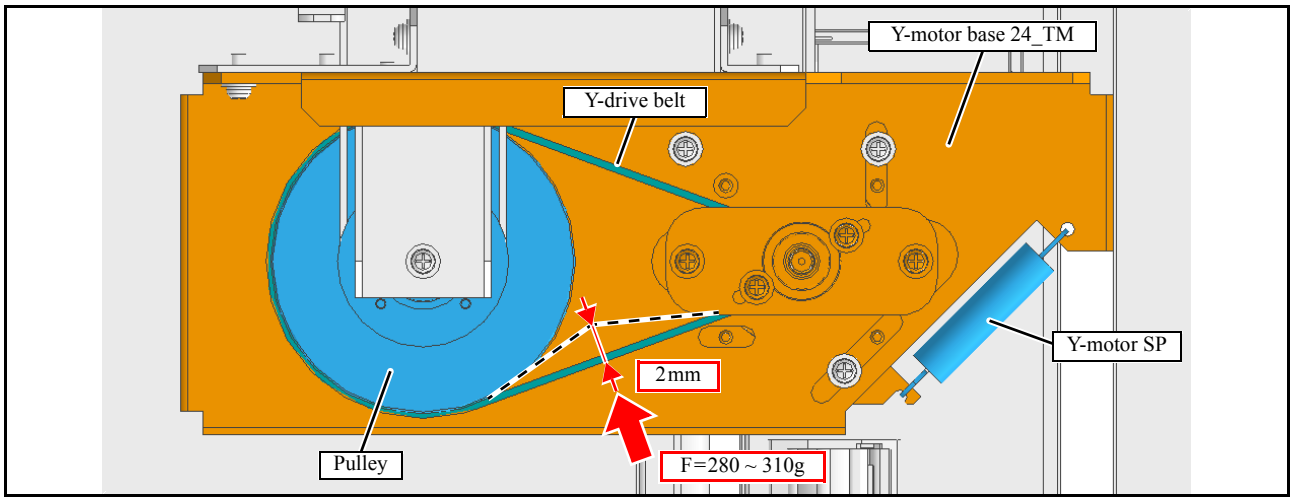
2. When adjustment is required, loosen the screws (x3) for adjusting tension, move the X-motor BKT2 and adjust it to the standard value.

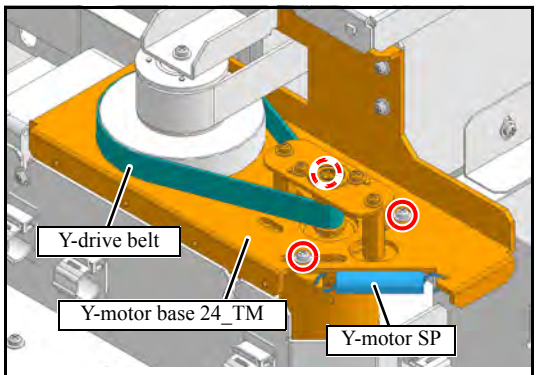
4.3.9 Y-belt Tension Adjustment

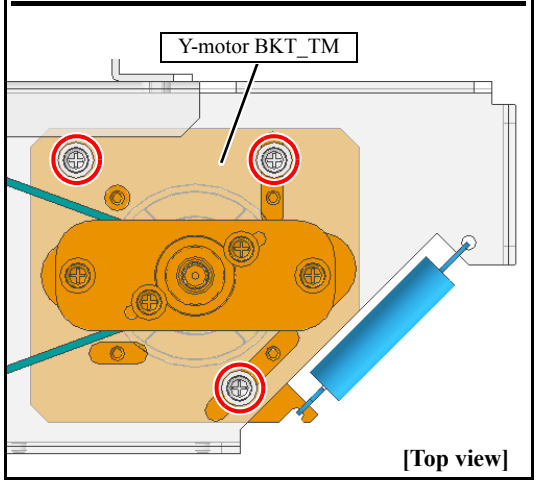
■ Adjusting standard

When inserting it by 1.5 mm with a tension gauge, it shall be 280 to 310gf.

■ Work procedure







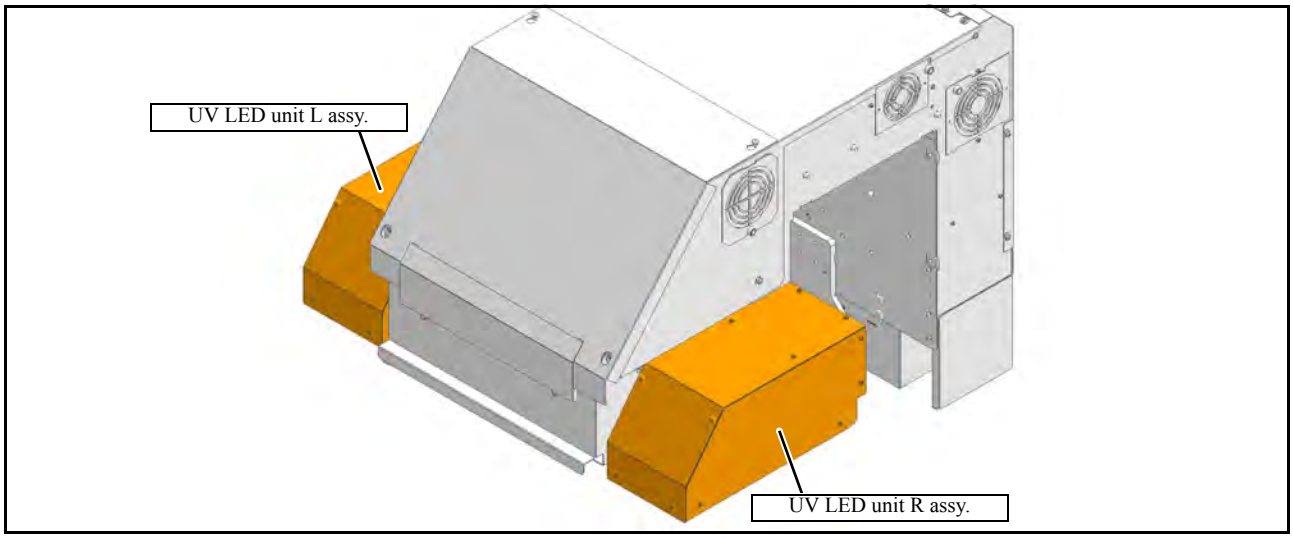
1. Using a tension gauge, push the belt between the motor and the pulley by 1.5 mm.

   Standard value: 280 ~ 310gf

2. When adjustment is required, loosen the screws (x3) for adjusting tension, move the Y-motor BKT_TM and adjust it to the standard value.

> IMPORTANT
> Be careful not to drop the Y-motor SP.

4.3.10 Adjustment of UV LED Unit Height

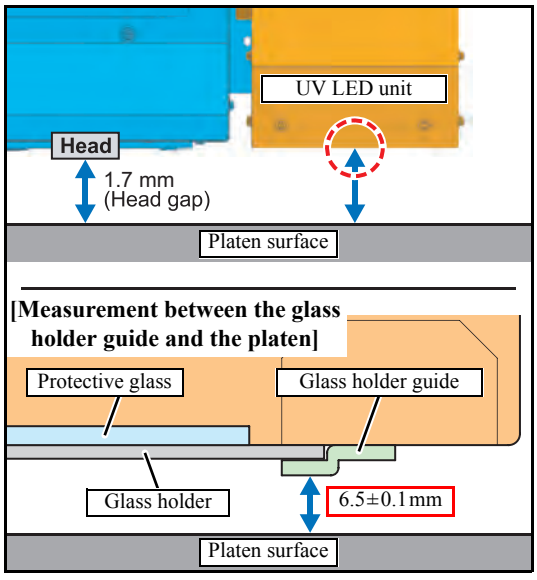


■ Outline

Adjust the up and down position of UV LED unit.

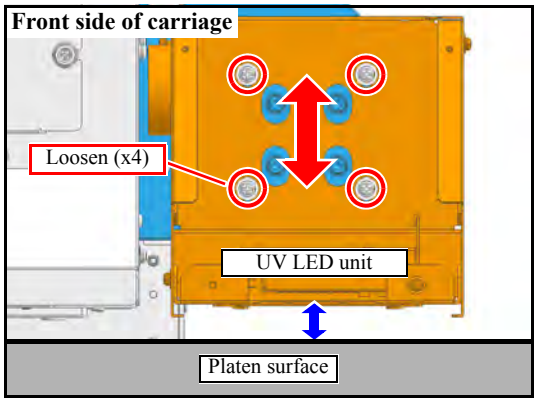
> IMPORTANT
> This adjustment can not be done accurately unless the head height is correct. Make sure to adjust the head height correctly.

■ Work procedure



1. Move the carriage to the near of the origin of the drawing area.
   Press [MAIN], and select [Carriage Out] - [Station Maint.] then execute it.

2. Measure the gap between the glass holder guide on the bottom of UV-LED unit and the platen.
   Specified value: 6.5 ± 0.1 mm



3. If not in the specified, loosen the screws, and adjust the height of UV-LED illuminator so that the height is within the specified.

> IMPORTANT
> Measure both of the right and left UV LED unit.

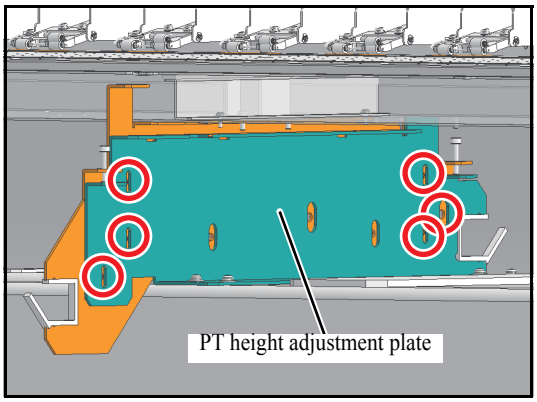
4.3.11 Adjustment of Platen Height

■ Outline

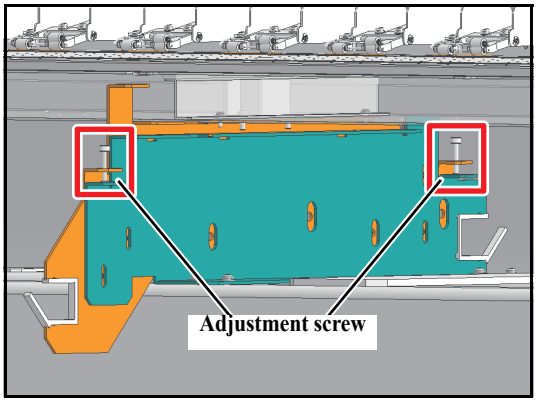
Adjust the height of platen mechanically.

> IMPORTANT Make sure to operate by two or more persons.

■ Work procedure



1. Remove the After heater Assy.
2. Loosen the screws on the PT height adjustment plate. (front and back eachx3)



3. Turn the adjustment screw (x2) to change the platen height.

Specified value: Between the carriage reference surface and the platen

2.0 ± 0.1 mm

Test Items

5.1.1 Check Pattern

■ Outline

Following 4 “CHECK PATTERN” types are printable.

100%	50%	25%	6.25%

■ List of check pattern

No	Item	Selectable Values / Description
1	Select a pattern	Select a desired one among the check patterns listed above.
2	X resolution	300, 600, 900, 1200 dpi
3	Y resolution	300, 600, 900dpi
4	ALL	HEADline1, HEADline2, All
5	Select scan direction and the number of divisions.	Scan direction: BiD, Uni-D Number of divisions: 1 ~ 64 pass
8	Select drawing size	X: 10 ~ 300000 mm Y: 10 ~ Media detection width (3200)
9	Select drawing color	_____ ~ MMCCYYKK
10	Start drawing.	[ENTER]: to start drawing
11	During drawing.	[END]: to stop the drawing.

5.1.2 Sensor

■ Outline

Each sensor is tested.

■ List of sensor test

Name of Test	Function	LCD display
Cover	Displaying the status of the cover sensor.	CLOSE/OPEN
Y Origin	Displaying the status of the Y-origin sensor.	ON/OFF
Wiper	Displaying the status of the wiper origin sensor.	ON/OFF
Station	Displaying the status of the station origin sensor.	ON/OFF
CAP HEIGHT	Displaying the status of the cap height sensor.	ON/OFF
MEDIA JAM	Displaying the status of the media jam sensor.	ON/OFF
SUBTANK 1~4	Displaying the status of the sub-tank.	ON: “H”, OFF: “L”
Air Tank	Displaying the status of the air tank.	ON: “High”, OFF: “Low”
Lever	Displaying the status of the clamp lever sensor.	ON/OFF
Rear Paper R, CR, CL	Displaying the status of the rear paper sensor.	ON/OFF
Float Sensor	Displaying the status of the float sensors in the cooling tank.	ON/OFF
	Displaying the status of the detection sensor for take-up diameter of the narrow take-up unit.	ON/OFF

5.1.3 Check Memory

■ Outline

Checks each memory of the machine.

■ Content

Item	Content
SDRAM check	Executes read/write check of SDRAM. ◆When a DATA error occurs, “SDRAM D:xxxxxxxx” is displayed. ◆When a Address error occurs, “SDRAM A:xxxxxxxx” is displayed.
F-ROM check	Executes hash check of F-ROM. ◆When a check sum error occurs, “F-ROM SUM ERROR” is displayed.
S-RAM check	Executes read/write check of S-RAM. ◆When a DATA error occurs, “S-RAM D:xxxxxxxx” is displayed. ◆When a Address error occurs, “S-RAM A:xxxxxxxx” is displayed.

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

5.1.4 Keyboard Test

■ **Outline**

To test the panel switch.

■ **Content**

When the panel switch is pressed, the name of the switch is displayed on the LCD.

If none is pressed, “NONE” is displayed on the LCD.

When you press the [END] key, “Test end” is displayed and the keyboard test is completed.

Using [▲] / [▼] keys, confirm the keyboard buzzer rumbling.

5.1.5 LCD

■ Outline

Check the LCD indication.

■ Content

Switch the color to indicate by the [ENTER] key.
When you press the [END] key, the LCD is completed.

5.1.6 Check Temp.

■ Outline

Temperature check of each part that monitors temperature is available.

■ Content

The temperature in the table below is displayed.

Display	Content
Room Air	Room temperature
Head	Temperature from head 1 to head 4
HDC	Heat sink temperature of HDC PCB 1 - 2
Ink Heater	Ink heater temperature (1 - 4) of the ink path between sub-tank and head
Ink Heater PCB THR	Thermistor temperature of the ink heater PCB 1, 2

5.1.7 Check Ink IC

■ **Outline**

Check the ink IC.

■ **Content**

Check is performed by reading the IC chip data, and then displays the number of errors.

When an error occurs, “CNT=1 ERR=1” is displayed.

5.1.8 Ink Unit

■ Function

Checks the operation condition of the external ink supply unit.

■ List of test items

Item	Description
Supply Pump Connect	Description: the condition of connection of the supply pump Set value: ON, OFF (release by ON) It releases from 1 to 4 in order by [FUNC1] key. ("____" ~ "1234")
Vacuum Pump Connect	Description : the condition of connection of the suction pump Set value: ON, OFF (release by ON) It releases from 1 to 2 in order by [FUNC1] key. ("__" ~ "12")
Weight sensor	[▲] / [▼]: Select the weight sensor 1 ~ 4. The first round: AD value (0~1023) The second round: weight value (0~) [g], [FUNC1] key: Switch display: weight / amount of remaining ink [cc] Indicates a warning for the weight value. Status: "TANK NONE", "INK END", "NEAR END"

5.1.9 Aging

■ Outline

For the durability testing, continuous reciprocating operation is executed.

■ List of aging items

Name of Test	Function
XY Servo	Continuous reciprocating operation in X-axis and Y-axis.
X Servo	Continuous reciprocating operation in X-axis.
Y Servo	Continuous reciprocating operation in Y-axis.
Pump Motor	Continuous operation of ink supply pump motor. (Max.720 Hours)
Wiper Motor	Continuous reciprocating operation in wiper motor. (Max.9999 Times)
Wipe Head	Continuous reciprocating operation of wiping. (Max.9999 Times)
Capping	Continuous reciprocating operation of capping.
Cleaning	Execution of cleaning operation by the designated times. (Max.9999 Times)
Flushing	Continuous reciprocating operation of flushing.
X measure	Continuous operation of X measure.
Radiator Pump	Operation of radiator pump.
COM	For developmental debugging
Ink Supply	Operation of ink supply pump.
Air Pump	Operation of air pump.

IMPORTANT

- For the work, put down unused media or the like in advance since it may cause ink leakage when [Y Servo] or [XY Servo] is executed.
- Pay attention to jamming of the X-media.

5.1.10 Check Encoder

■ Linear encoder (Y Scan check)

Moving the carriage, execute the encoder reading test.

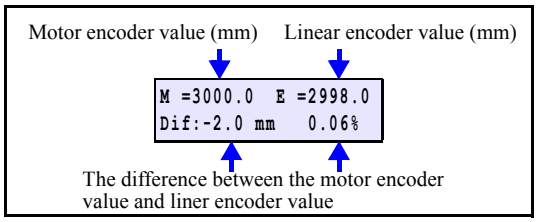
For the linear encoder testing, repeating 3 times the processes of the table below.
If setting [ERROR:ON]: After error, the testing is terminated following capping, and the error is displayed.
If setting [ERROR:OFF]: A buzzer is rang at the position where the error occurs, and the operation is continued. After the testing is terminated, the error content is displayed.

	Test operation	Test items	Purposes	LCD display during operation
1	[Single-way moving operation] The carriage moves from the right position to the left position with a high speed.	Checking for the encoder counting cycle from the print origin up to the set range.	Within the scanning range, checking for the difference of encoder tension depending on the position, and checking for the presence of damage or marks.	[M/E Dif] ◆ Displaying 0. [Pos Dif] ◆ Displaying the difference between the linear encoder value before the first time move start, and the value of linear encoder being back to the same position after the single-way move operation is performed.
		Checking for the difference between the motor encoder value and linear encoder value.	Checking for insufficient or excessive tension of the linear encoder scale.	
2	[Return-way moving operation] The carriage moves from the left position to the right position with a high speed.	Checking for the encoder counting cycle from the print origin up to the set range.	Within the scanning range, checking of the difference of encoder tension depending on the position, and checking of the presence of damage or marks.	[M/E Dif] ◆ Displaying the difference between the motor encoder value and the linear encoder value, in 0.01% unit, after the completion of the single-way movement. [Pos Dif] ◆ During the first return-way moving operation, displaying the linear encoder count value being at the completion of the single-way movement. ◆ During the second return-way moving operation, displaying the difference between the value of the linear encoder that is before the start of the first movement, and the value of linear encoder that is at the same position after the completion of reciprocating movement.
		Checking that there is no difference on the value of linear encoder between before and after the movement when being back to the same position after high speed moving.	◆ Checking for the presence of skipping of scale due to high speed moving. ◆ Checking for the reproducibility of encoder counting.	

IMPORTANT

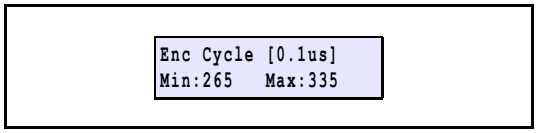
The encoder counting cycle cannot be checked in the adjustable-speed range.
The operation width of carriage is specified as the following since the linear encoder having the set width is checked.
(Operation width of carriage) = (Set operation width) + (Adjustable-speed distance)
Therefore, the operation width of carriage is larger than the set operation width.

■ LCD display to show the result after completing the test.



Display (1)

The motor encoder value and linear encoder value, which are after the return-way movement completion.

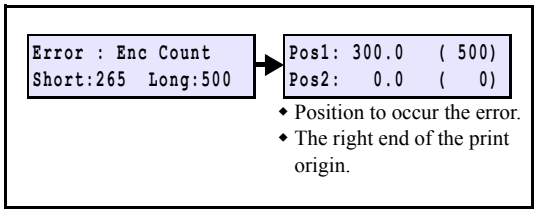


Display (2)

The minimum and maximum value of encoder counting cycle.

5.1.10 Check Encoder

■ Error display

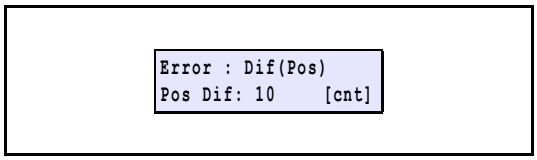


Display (1)

Error in the encoder counting cycle.

Check the followings if an error occurs.

- Check the twisting of the linear encoder scale.
- Check the space between the encoder sensor and the linear encoder scale.
- Contact of the encoder sensor with linear encoder scale.
- Presence of damage on the linear encoder scale.

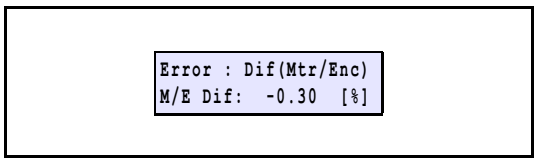


Display (2)

Error in linear encoder coordinates after completion of reciprocating movement.

Check the followings if an error occurs.

- Check the twisting of the linear encoder scale.
- Check the space between the encoder sensor and the linear encoder scale.
- Contact of the encoder sensor with linear encoder scale.
- Presence of damage on the linear encoder scale.



Display (3)

The difference between the motor encoder value and linear encoder value is large.

Check the followings if an error occurs.

- If the motor encoder value is larger than the linear encoder value, loosen the tension of linear encoder scale since it may be too strong.
- If the motor encoder value is less than the linear encoder value, strengthen the tension of linear encoder scale since it may be too loose.

■ Linear encoder (Y Jog check)

☐ Outline

To move the carriage by the JOG key operation and check the operations of the linear encoder and motor encoder.

☐ Content

"M: xxx E: xxx" is displayed on the lower row of the LCD. The coordinate value of the motor encoder is displayed in M, and that of the linear encoder is displayed in E in units of mm.

With [◀] / [▶] key, you can move the slider to right and left.

5.1.11 Event Log

■ **Outline**

To display the event log.

■ **Content**

As this is a function for development, the details are not disclosed.

5.1.12 Check Message

■ **Outline**

Error messages and warning messages are displayed.

■ **Content**

You can display error messages and warning messages with [▲]/[▼] key in order.

5.1.13 Test Hardware

■ **Outline**

Port test of the hardware

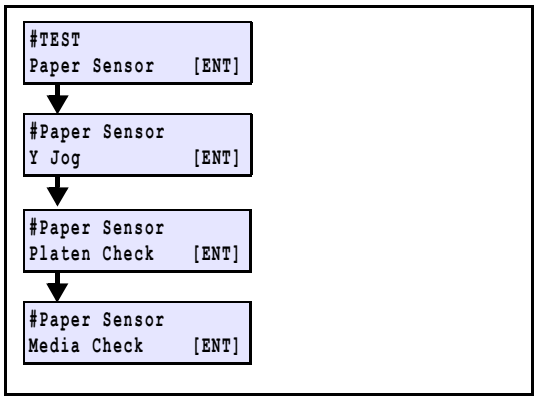
■ **Content**

As this is a function for development, the details are not disclosed.

5.1.14 Paper Sensor

■ Outline

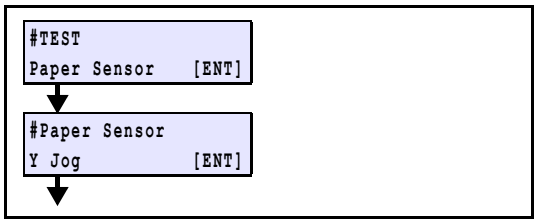
Test the paper sensor.

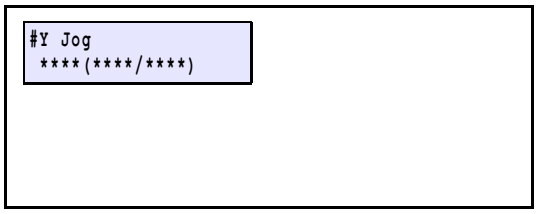


■ Work procedure

☐ Y jog

The carriage can be moved to the preferred position by the jog.





1. Select [#TEST]-[Paper Sensor]-[Y Jog].

   [▲]/[▼] : Select
   [ENTER] : Confirm

2. Press [ENTER]key.

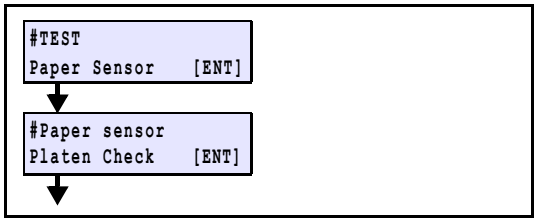
3. Display content

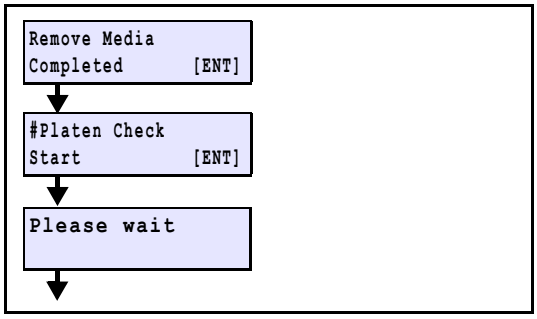
   Sensor acquisition average value (the value of the sensor ON / the value of sensor OFF)

   [◀]/ [▶]: Carriage movement
   [END] : End

☐ Platen check

Check the sensor values on the platen from the right to the left to ensure that it is within a certain range.





1. Select [#TEST]-[Paper sensor]-[Platen Check].

   [▲]/[▼] : Selection
   [ENTER] : Confirm

2. Press [ENTER]key.

3. Press [ENTER]key.

   In the state without media, scan from the platen right edge to the left edge.

5.1.14 Paper Sensor

4. Display content

   Average of sensor value (Ave), maximum value (Max), minimum value (Min)

   In the case of following an error occurs, buzzers and displays [ERR].

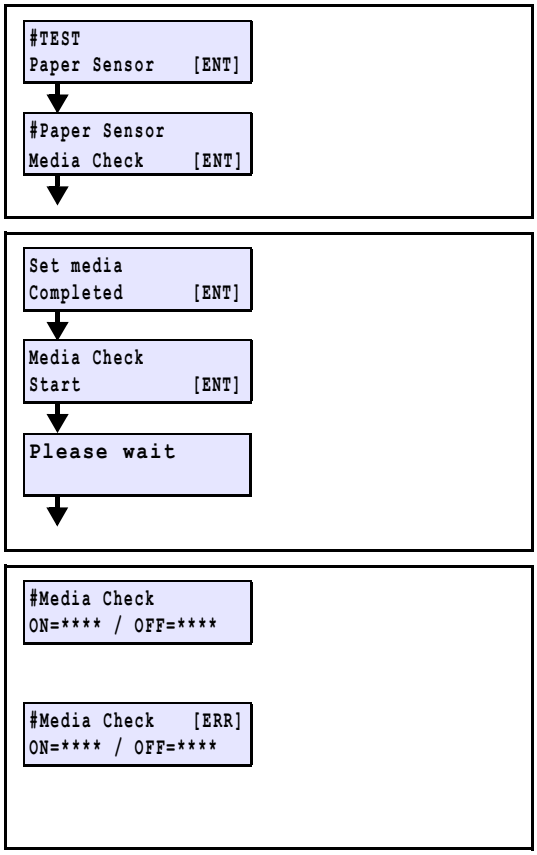
   When the average value is equal to or larger than -400.

   When the variation of the maximum value and minimum value is equal to or higher than 15%.

   [END] : End

☐ Media check

Compare the sensor values between the position without a media and the position with a media and confirm there is a certain difference.



1. Select [#TEST]-[Paper Sensor]-[Media Check].

   [▲]/[▼] : Selection
   [ENTER] : Confirm

2. Press [ENTER]key.

3. Set the media in place.

4. Get the sensor value of the position without media(OFF) and the position with media(ON).

   IMPORTANT: Position with media = rightmost position in rear paper sensor ON

5. Cap and display the value.

6. Display content

   In the case of following an error occurs, buzzers and displays [ERR].

   When the sensor value of the position without media is equal to or larger than -400.

   When the variation of the positions between without media and with media is equal to or higher than 15%.

   [END] : End

5.1.15 Heater

■ Function

Temperature tests of the media heater, ON/OFF test of heater are executed.

- Temperature is displayed with a unit selected in the [Unit Setup] of the [Machine Setup] function.
- A/D conversion value is also displayed.

■ Operation procedures of "TEMP."

Step	Item	Description	Remarks
1	Temperature setting	To set temperature of the pri-heater, and control them. Set value (Celsius): OFF, 20 ~ 60 °C (Unit: 1°C) Set value (Fahrenheit): OFF, 68 ~ 140 °F (Because conversion is used, the unit is not 1°F)	
2	Temperature display	[ENTER]: to return to the temperature setting.	

■ Operation procedures of "SSR"

Step	Item	Description	Remarks
1	ON/OFF setting	To designate ON/OFF of the pri-heater.	Temperature is not controlled.
2	ON/OFF display	[FUNC1]: to return to the setting screen.	

5.1.16 Action Test

■ Function

To check the operation of movable parts alone of the equipment.

■ List of test Items

Item	Description
Vacuum	Description: Operation test of motor. Set value: ON, OFF
Take-up Motor	Description: Operation test of narrow take-up motor. Set value: ON, OFF
HDC Fan	Description: Operation test of HDC fan. Set value: ON, OFF
LED Pointer	Description: Operation test of LED pointer. Set value: ON, OFF
AIR VALVE	Description: Operation test of air valve. Set value: ON, OFF
Radiator Cooling Fan	Description: Operation test of radiator cooling fan. Set value: ON, OFF
UV Unit Fan	Description: Operation test of the cooling fan for the UV DRV PCB. Set value: ON, OFF

5.1.17 LED

■ Outline

ON/OFF test of the keyboard LEDs is executed.

■ List of LED

LED	Type
OFF	Light OFF
Power LED	Power button light ON
LED Red	Red light ON
LED Green	Green light ON
LED Blue	Blue light ON
LED R & G	Yellow light ON
LED R & B	Purple light ON
LED G & B	Light blue light ON
LED R & G & B	White light ON

5.1.18 Skew Check

■ **Function**

Skewing of media is checked.

Feed distance is designated to execute feeding.
Feed distance: 1 ~ 10m (unit: 1m)

[END]: to terminate feeding, [ENTER]: to restart feeding.

5.1.19 Voltage Check

■ Outline

Check the internal DC power supply voltage with LCD display.
The displayed value is the read value of AD conversion circuit.

■ Content

For each DC power supply voltage setting value (design value), actual voltage value is displayed.

DC power supply name	Setting value (design value) [V]	Main use
V CORE	1.3310	CPU core voltage
12V	12.0	Internal circuit
V1	36.0	Motor drive Head drive etc.
V2	36.0	
3.3VB	3.3	Circuit for sleep functions
3.3V	3.3	Internal circuit
2.5V	2.5	Internal circuit
1.8Vme	1.8	Internal circuit
1.5VB	1.5	Low voltage circuit
1.2V	1.2	Low voltage circuit

5.1.20 Vacuum Fan

■ **Outline**

As this is a function for development, the details are not disclosed.

5.1.21 Feeding/TakeUp

■ Function

The heavy feeding and take-up devices are tested.

■ List of Feeding/TakeUp

Item	Description
Action Test	Operation test for the heavy feeding and take-up motors ### (@@@) ###: Motor operation state ON and OFF @@@: Switches the rotation direction between CW, CCW and STOP
Sensor	Various device sensors are tested. Sensor LCD display Take-up Cover: CLOSE/OPEN Feeding SW: CCW/CW/STOP, AUTO/MANUAL Take-up SW: CCW/CW/STOP, AUTO/MANUAL Feed.Tension Sensor: Low: ○, High: ○ Take-up Tension Sns: Low: ○, High: ○ [▲]/[▼]: Switches the sensor display

5.1.22 UV LED

■ Outline

Execute the IO test between the printer main unit and the UV LED system and the checking of condition.
(Refer to INSTALLATION GUIDE, “7.6 Check for UV-LED Lighting” for detail.)

■ List of UV LED indications

No	Item	Description
1	U1~U2	Irradiation device 1: Left, 2: Right
2	D1~D2	DRV PCB 1: Left, 2: Right
3	DRV	Temperature of the DRV PCB
4	LED	Temperature of the LED PCB, on/off LED Light ON/OFF

■ List of UV LED test Items

No	Item	Description
1	Temperature	Check the temperature of the DRV PCB and LED PCB.
2	Lamp	Check if LEDs light ON per block (LED-BLOCK) and all together (LED-ALL) with the temperature when lighting ON.

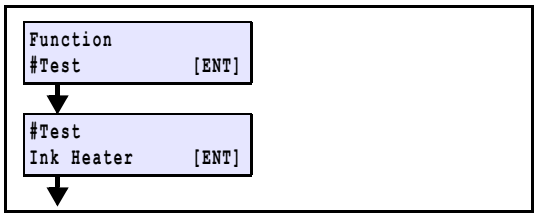
If you leave the UV light ON for a long period of time, it may give negative effects such as hardening the head nozzles. After checking the light, turn it OFF immediately.
After turning on the UV light, make sure you wipe the nozzles.

5.1.23 Ink Heater

■ Outline

Check the Ink heater.

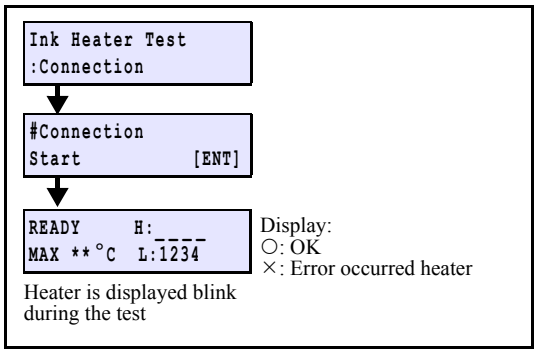
■ Content



1. Select [#Test] -> [Ink Heater].

   If the following errors occur, turn the power OFF before investigating.

No.	LCD	Cause	List of countermeasures
1	ERROR 714 INK HEATER COM ERR	Connection failure of the heater relay PCB Heater relay is breakdown. HDC PCB is breakdown.	1. Check the connection of cable. (specially between HDC PCB and heater relay PCB) 2. Replace the heater relay PCB. *(See 6.4.10)* 3. Replace the HDC PCB. *(See 6.4.9)*
2	ERROR 718 InkHeaterPCB Thr:1234	Temperature of the heater relay PCB is abnormal Heater relay is breakdown. HDC PCB is breakdown.	1. Check the temperature of the heater relay PCB 2. Replace the heater relay PCB. *(See 6.4.10)* 3. Replace the HDC PCB. *(See 6.4.9)*
3	ERROR 719 InkHeaterPCB Fuse:1234	Fuse blow of the heater relay PCB Short circuit fault of the heater Heater relay is breakdown. UV power supply voltage is abnormal. HDC PCB is breakdown.	1. Check the connection of cable. (specially between heater and heater relay PCB) 2. Replace the heater relay PCB. *(See 6.4.10)* 3. Voltage check → replace the power supply *(See 6.4.5)* 4. Replace the HDC PCB. *(See 6.4.9)*



2. Start the test by pressing [ENTER] keys.

3. Indicate the below results after performing the check.

   Confirm it in case of wrong.

■ Result indication

No.	LCD	Meaning	List of countermeasures
1	Check OK	Result of checking is all right.	
2	Check NG H:____ L:_2__	It is wrong by the following causes • Detect the disconnection error • Temperature is increased though the heater is not turned on.	1. Check the connection of cable. (specially connection of heater and thermistor) 2. Replace the heater relay PCB. *(See 6.4.10)* 3. Replace the heating block assy..
3	45°C over H:____ L:_2__	Wrong Test can not be started, because heater temperature is more than 45 °C at test starting	1. Turn the power OFF, then wait for a bit. When it cools off, turn the power back ON. 2. Replace the heater relay PCB. *(See 6.4.10)* 3. Replace the heating block assy..

5.1.23 Ink Heater

No.	LCD	Meaning	List of countermeasures
4	75°C over H:____ L:_2__	Wrong Thermistor temperature is more than 75 °C during the checking	1. Check the connection of cable. (specially connection of heater and thermistor) 2. Replace the heater relay PCB. *(See 6.4.10)* 3. Replace the heating block assy..
5	75°C over H:____ L:_2__	Wrong • Heater temperature is more than 45 °C at test starting, and did not fall after waiting at uniformity time. • Temperature is increased more than 45 °C though the heater is not turned on during the test, and do not fall.	1. Check the connection of cable. (specially connection of heater and thermistor) 2. Replace the heater relay PCB. *(See 6.4.10)* 3. Replace the heating block assy..

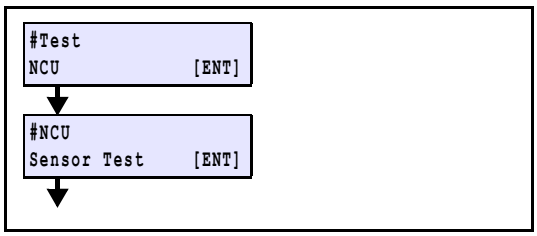
5.1.24 NCU

■ Outline

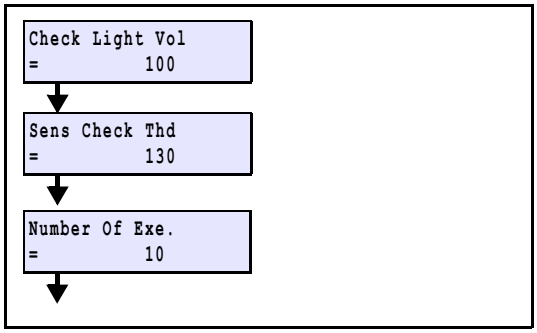
Possible to check and adjust the condition of the sensitivity and slant of sensor and the discharge position for the NCU (nozzle missing dot detect unit).

■ Work procedure

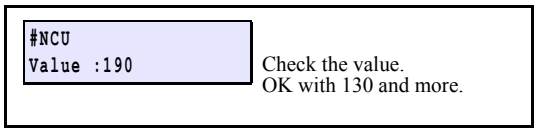
☐ Sensor check



1. Select [#Test] -> [NCU] -> [Sensor Test].
   [▲]/[▼]: Select
   [ENTER]: Execute
2. Press the [ENTER] key.



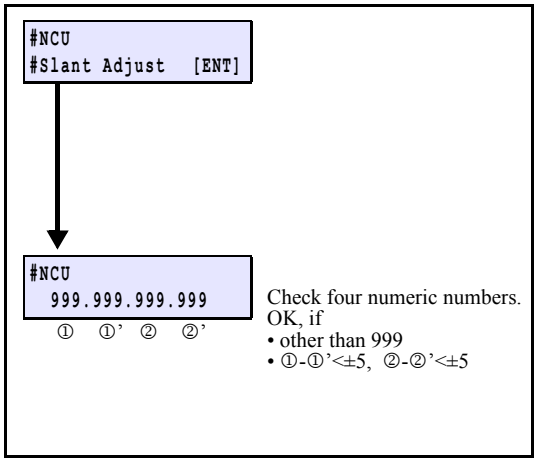
3. Change the display by pressing the [ENTER] key.
   Value can be kept as is.



4. It is acceptable if the numeric value in the left figure is not less than 130.
   It is necessary to replace the NCU unit if the value is less than 130.

The numeric value means the sensitivity of the sensor of NCU unit.

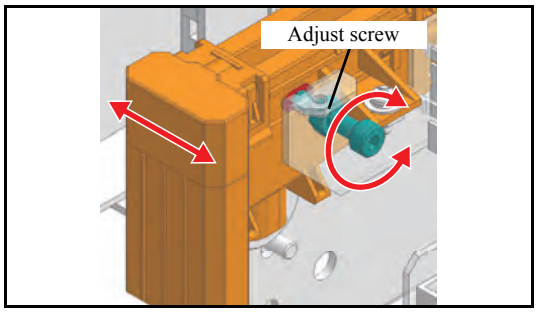
☐ Slant adjustment



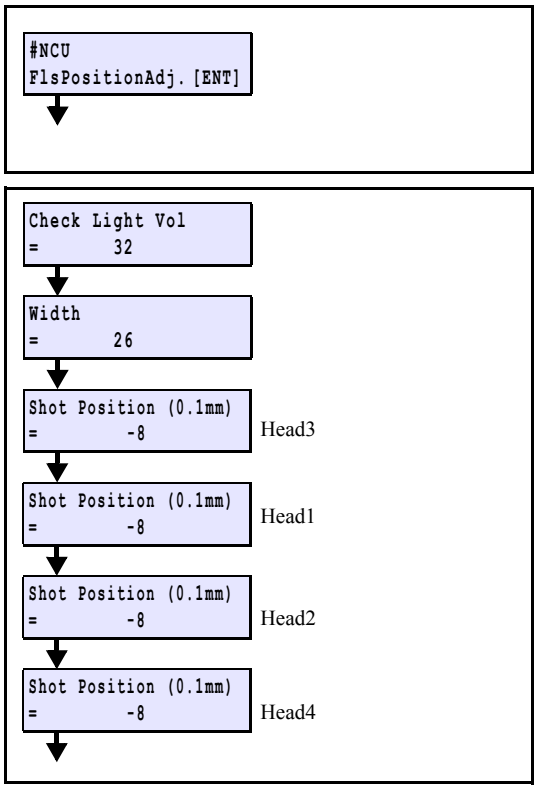
5. select [Slant Adjust].
   [▲]/[▼]: Select
   [ENTER]: Execute
6. Press the [ENTER] key.
7. Check four numeric numbers in the left figure.
   - It must be other numbers than "999". (Ex. -7.-7.-2.-2)
   - Assuming the numbers from the left in order, ①, ①', ②, ②'.
     The differences between ① and ①' and between ② and ②' must be within 5.

   If the above two points are satisfied, the NCU unit does not slant. (not need to adjust.)

5.1.24 NCU



☐ Discharge position



IMPORTANT

- The numeric numbers, from the left in order, give the number for the Head1 upper nozzle, the Head1 lower nozzle, the Head3 upper nozzle, and the Head3 lower nozzle.
- The unit is [0.1 mm]. (-7=-0.7mm) Deviation in the negative direction is the displacement to the right.

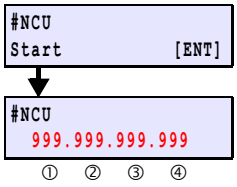
IMPORTANT

Nozzle to use;
Head1 row A, 0-24, 156-180 nozzle
Head2 row A, 0-24, 156-180 nozzle

If it is NG, loosen the nut for adjust screw and adjust it to be the specific value (within 5) by turning the adjust screw.

8. Select [FlsPositionAdj.].
   [▲]/[▼]: Select
   [ENTER]: Execute
9. Press the [ENTER] key.
10. Change the display by pressing the [ENTER] key.
    Value can be kept as is.

5.1.24 NCU



Check four numeric numbers.
OK, if
• other than 999

11. Press the [ENTER] key.

12. Check four numeric numbers (①②③④) in the left figure.
OK if they are other than 999. (Ex. -6.-6.-6.-6)

- The numeric numbers, from the left in order, give the number for the Head3, Head1, Head2, and Head4.
- The unit is [0.1mm]. (-6=-0.6mm)
- Nozzle to use;
  All nozzles of Head3, row A.

5.1.25 SD Card

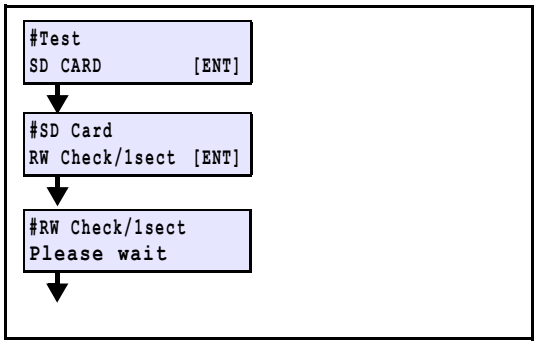
■ Outline

Check if it is possible to access to a SD card.

■ Work procedure

See “Error description” below for more information about the error code.

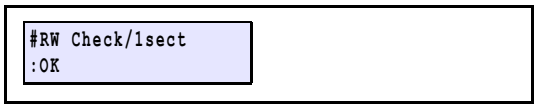
☐ Read / Write Operation check



1. Select [#Test]-[SD Card]-[RW Check/1sect].
   [▲]/[▼]: Select
   [ENTER]: Execute
2. Press the [ENTER] key.
3. Wait for about 2 minutes during operation checking.

IMPORTANT
- Runs RW check from sector number from 100000 to 100127. Checks 512byte at a time per one sector in the order for 128times. Runs for 64KB in total.
- Data written previously is temporarily saved and written back after the RW check.

Caution
If an error occurs during run, data written back is not performed in some cases.

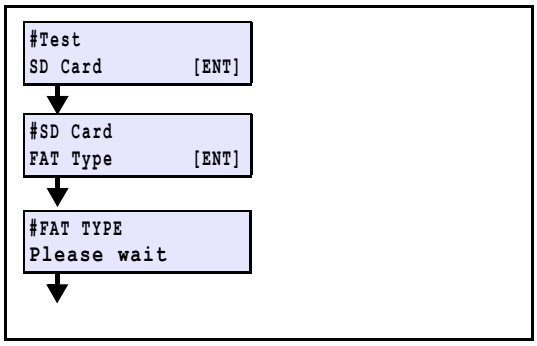


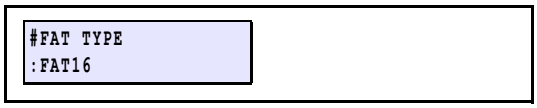
4. Check the result.
   OK, if it is [OK].

Result	Result and handling
ON	Read / Write successfully to the SD card
Error 1	SD card not recognized • Re-insert the SD card • Check the connection of the SD card PCB and cable.
Error 2-	An error occurred while communicating with the SD card • Re-insert the SD card • Check the connection of the SD card PCB In case it is not reintegrated, even so, • Replace the SD card. • Replace the SD card PCB.

5.1.25 SD Card

☐ Check the FAT type (Format check1)





1. Select [#Test]-[SD Card]-[FAT Type].
   [▲]/[▼]: Select
   [ENTER]: Execute
2. Press the [ENTER] key.
3. Wait for about1second during the operation check.

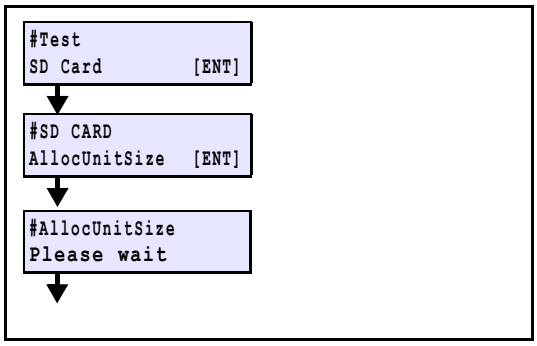
Read the FAT information from the SD card to determine the FAT type.

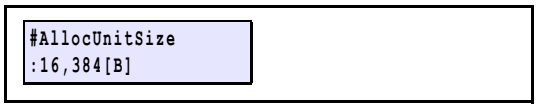
4. Check the result.
   OK, if it is [FAT16] or [FAT32] or [FAT12].
   Default FAT type of SD card (Panasonic,128MB) for this product is[FAT16].

Result	Result and handling
FAT32 FAT16 FAT12	If the value is in the left, it can be used. It is formatted in FAT type that can be used in the product.
UnKnown	It is formatted in FAT type that can not be used in the product. • Format the SD card with PC • Replace the SD card
Error 1	SD card not recognized • Re-insert the SD card • Check the connection of the SD card PCB and cable.
Error 2～	An error occurred while communicating with the SD card • Re-insert the SD card • Check the connection of the SD card PCB In case it is not reintegrated, even so, • Replace the SD card. • Replace the SD card PCB.

5.1.25 SD Card

☐ Check the Allocation unit size (Format check2)





1. Select [#Test]-[SD Card]-[AllocUnitSize].
   [▲]/[▼]: Select
   [ENTER]: Execute
2. Press the [ENTER] key.
3. Wait for about1second during the operation check.

> IMPORTANT
> Read out the FAT information from the SD card to calculate the allocation unit size.

4. Check the result.

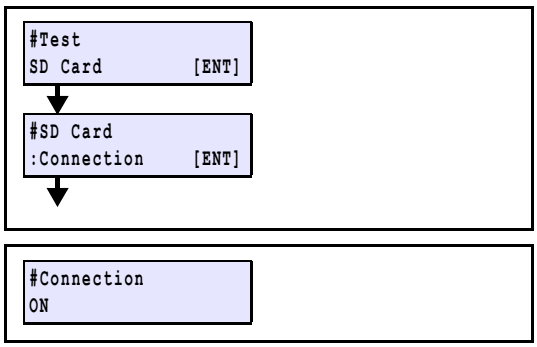
   Pass if the value is one of seven values between 512[B] and 32,768[B] below.

   The default allocation unit size of SD card (Panasonic, 128MB)for the product is 16,384[B].

Result	Result and handling
512[B] 1,024[B] 2,048[B] 4,096[B] 8,192[B] 16,384[B] 32,768[B]	If the value is in the left, it can be used. It has been formatted with the available allocation unit size in the product.
UnKnown	Allocation unit size can not be identified. • Format the SD card with PC • Replace the SD card
Error 1	SD card not recognized • Re-insert the SD card • Check the connection of the SD card PCB and cable.
Error 2～	An error occurred while communicating with the SD card • Re-insert the SD card • Check the connection of the SD card PCB In case it is not reintegrated, even so, • Replace the SD card. • Replace the SD card PCB.

5.1.25 SD Card

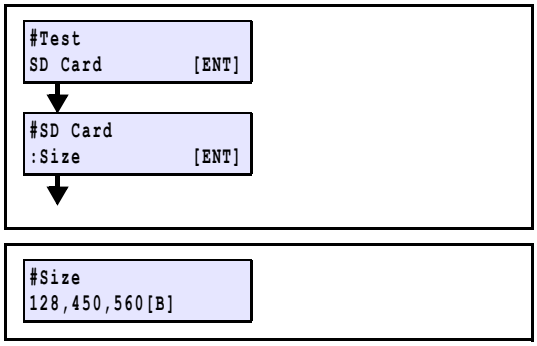
☐ Connect condition



1. Select [#Test]->[SD Card]->[Connection].
   [▲]/[▼]: Select
   [ENTER]: Execute
2. Press the [ENTER] key.
3. Check the result.
   OK, if it is [ON]

Result	Result and handling
ON	Properly connected
Error 1	SD card not recognized • Re-insert the SD card • Check the connection of SD card PCB

☐ Check the size

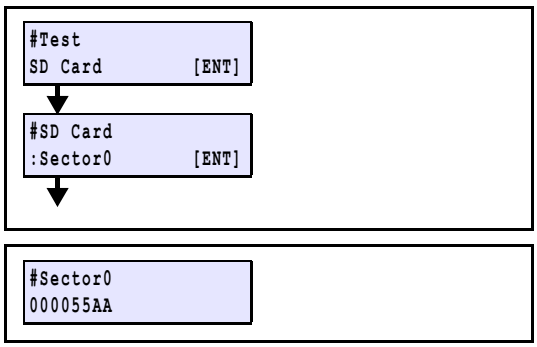


1. Select [#Test]->[SD Card]->[Size].
   [▲]/[▼]: Select
   [ENTER]: Execute
2. Press the [ENTER] key.
3. Check the result.
   OK, if it is [128,450,560[B]]

Result	Result and handling
128,450,560[B]	Properly checked the size
Value other than above	Size is wrong • Check if a SD card is for exclusive use. • Re-insert the SD card
Error 1	SD card not recognized • Re-insert the SD card • Check the connection of the SD card PCB and cable.
Error 2~	An error occurred while communicating with the SD card • Re-insert the SD card • Check the connection of the SD card PCB In case it is not reintegrated, even so, • Replace the SD card. • Replace the SD card PCB.

5.1.25 SD Card

☐ **Check the access of sector 0**

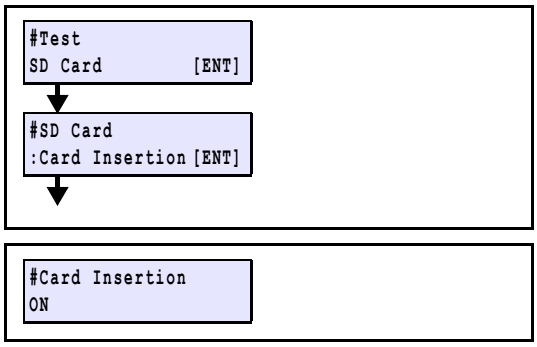


1. Select [#Test]->[SD Card]->[Sector0].
   [▲]/[▼]: Select
   [ENTER]: Execute
2. Press the [ENTER] key.
3. Check the result.
   OK, if it is [000055AA]

Result	Result and handling
000055AA	Properly checked the size
Value other than above	Format of the SD card is wrong. • Format the SD card again by PC
Error 1	SD card not recognized • Re-insert the SD card • Check the connection of the SD card PCB and cable.
Error 2~	An error occurred while communicating with the SD card • Re-insert the SD card • Check the connection of the SD card PCB In case it is not reintegrated, even so, • Replace the SD card. • Replace the SD card PCB.

5.1.25 SD Card

■ **Work procedure (Check the condition of card insertion.)**



1. Select [#Test]->[SD Card]->[Card Insertion].
   [▲]/[▼]: Select
   [ENTER]: Execute
2. Press the [ENTER] key.
3. Check if the actual status of the SD card insertion is equal to the indication on the LCD for the insertion status by putting the SD card on and off.
   OK, if equal.

Result	Result and handling
ON	A SD card is inserted.
OFF	A SD card is not inserted.
Error 1	SD card not recognized • Re-insert the SD card • Check the connection of the SD card PCB and cable.
Error 2~	An error occurred while communicating with the SD card • Re-insert the SD card • Check the connection of the SD card PCB In case it is not reintegrated, even so, • Replace the SD card. • Replace the SD card PCB.
If not equal,	The SD card status is not recognized properly. • Check the connection of the SD card PCB • Replace the SD card.

5.1.25 SD Card

■ **Error commentar**

Error1 is when SD card is not recognized when it is not inserted or bad connection.

Error2 or later errors (which are connected to) are the communication error with the SD card.

Error code (Error #)	Result and handling
1	SD card not recognized • Re-insert the SD card • Check the connection of the SD card PCB and cable.
2	An error occurred while communicating with the SD card • Re-insert the SD card • Check the connection of the SD card PCB In case it is not reintegrated, even so, • Replace the SD card. • Replace the SD card PCB.

☐ Detail of Error code

Error code (Error #)	Error Category	Error content
1	Connection	SD card not recognized
2-10	(not used)	
11	Internal processing	Abnormality occurs in IO control processing
12	Internal processing	Can not be written due to write-protected <supplement> In fact it does not occur because this product does not distinguish write-protect
13	Internal processing	Data inaccessible for the connection process is not completed
14	Internal processing	It was set outside the range of parameter values
15-20	(not used)	
21	Communication Error (DMA Read)	Start bit abnormal (SD controller error)
22	Communication Error (DMA Read)	Receive FIFO over run (SD controller error)
23	Communication Error (DMA Read)	Data time out (SD controller error)
24	Communication Error (DMA Read)	Data CRC abnormal (SD controller error)
25	Communication Error (DMA Read)	Other error (SD controller error)
26	Communication Error (DMA Read)	It did not become a data communication state (at the start of communication)
27	Communication Error (DMA Read)	It did not become data communication possible state (communication at the end)
28	Communication Error (DMA Read)	Read Start command is not accepted
29	Communication Error (DMA Read)	The waiting time of reception completion is time out.

5.1.25 SD Card

Error code (Error #)	Error Category	Error content
30	Communication Error (DMA Read)	The waiting time of DMA completion interrupt is timeout
31	Communication Error (DMA Read)	The waiting time of DMA CH0 stop is timeout
32-40	(not used)	
41	Communication Error (DMA Write)	Start bit abnormal (SD controller error)
42	Communication Error (DMA Write)	Transmission FIFO under run (SD controller error)
43	Communication Error (DMA Write)	Data time out (SD controller error)
44	Communication Error (DMA Write)	Data CRC abnormal (SD controller error)
45	Communication Error (DMA Write)	Other error (SD controller error)
46	Communication Error (DMA Write)	It did not become a data communication state (at the start of communication)
47	Communication Error (DMA Write)	It did not become data communication possible state (communication at the end)
48	Communication Error (DMA Write)	Write start command is not accepted
49	Communication Error (DMA Write)	The waiting time of Transmission completion is timeout
50	Communication Error (DMA Write)	The waiting time of SD controller complete interrupt is timeout
51	Communication Error (DMA Write)	The waiting time of DMA completion interrupt is timeout
52	Communication Error (DMA Write)	The waiting time of DMA CH0 stop is timeout
53-60	(not used)	
61	Communication Error (CPU Read)	Start bit abnormal (SD controller error)
62	Communication Error (CPU Read)	Send FIFO under run (SD controller error)
63	Communication Error (CPU Read)	Data time out (SD controller error)
64	Communication Error (CPU Read)	Data CRC abnormal (SD controller error)
65	Communication Error (CPU Read)	Other error (SD controller error)
66	Communication Error (CPU Read)	It did not become a data communication state (at the start of communication)
67	Communication Error (CPU Read)	It did not become data communication possible state (communication at the end)
68-80	(not used)	

5.1.25 SD Card

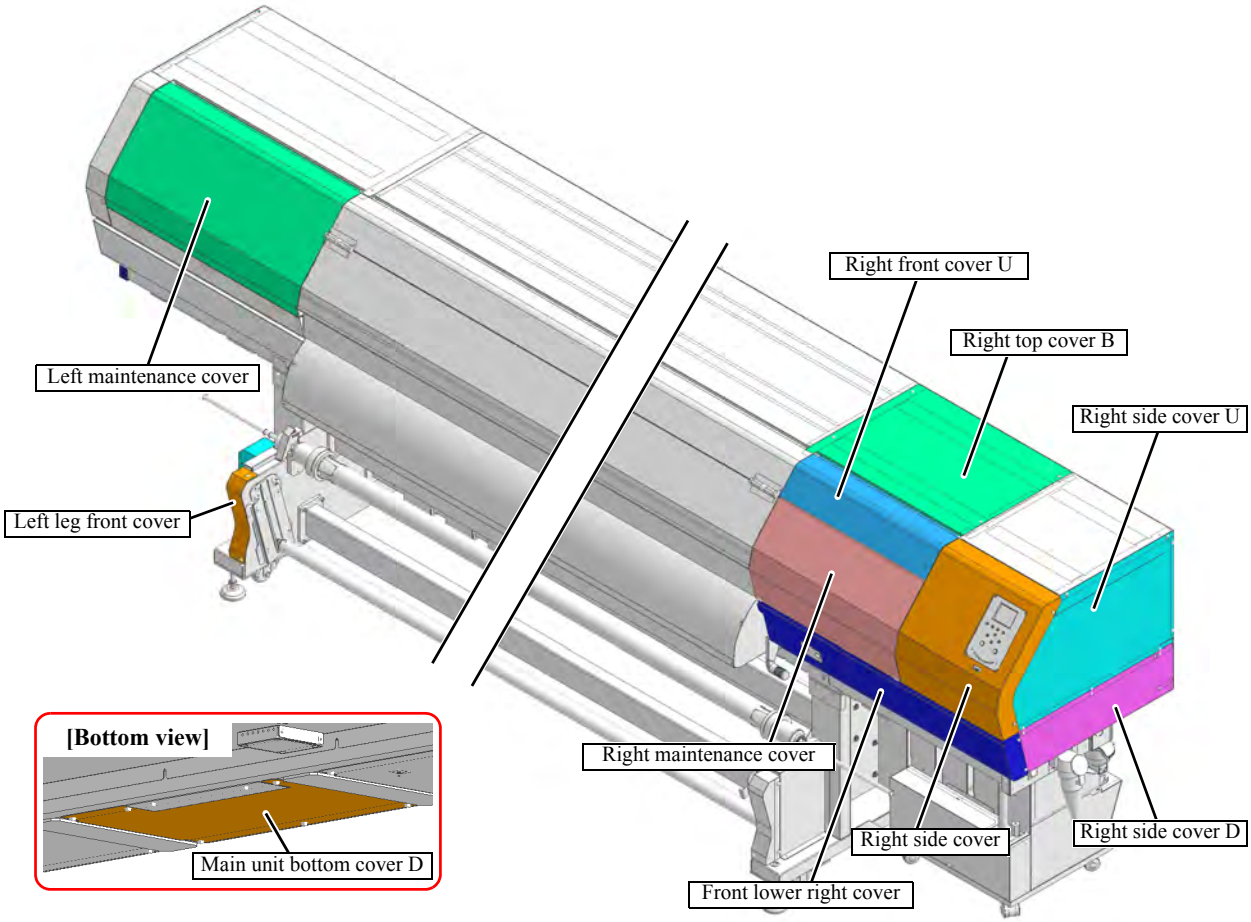
Error code (Error #)	Error Category	Error content
81	Communication Error (CPU Write)	Start bit abnormal (SD controller error)
82	Communication Error (CPU Write)	Send FIFO under run (SD controller error)
83	Communication Error (CPU Write)	Data time out (SD controller error)
84	Communication Error (CPU Write)	Data CRC abnormal (SD controller error)
85	Communication Error (CPU Write)	Other error (SD controller error)
86	Communication Error (CPU Write)	It did not become a data communication state (at the start of communication)
87	Communication Error (CPU Write)	It did not become data communication possible state (communication at the end)
88	Communication Error (CPU Write)	Write start command is not accepted
89-100	(not used)	
101	Data conveyors	Write value and Read value is mismatched

Test Items

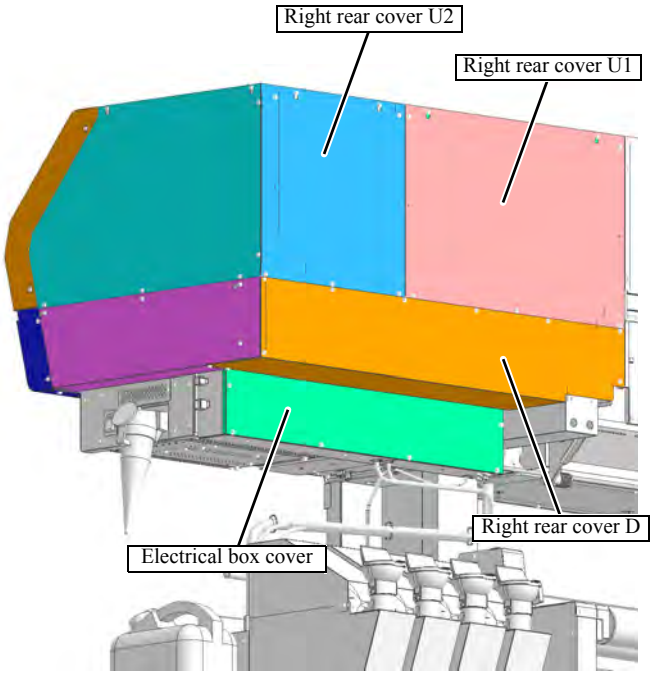
Disassembly and Reassembly

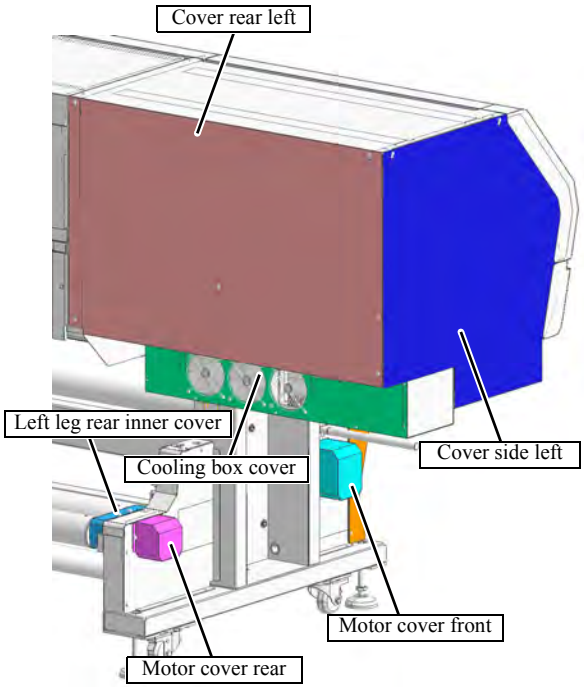
6.1.1 Cover Layout

■ Printer front



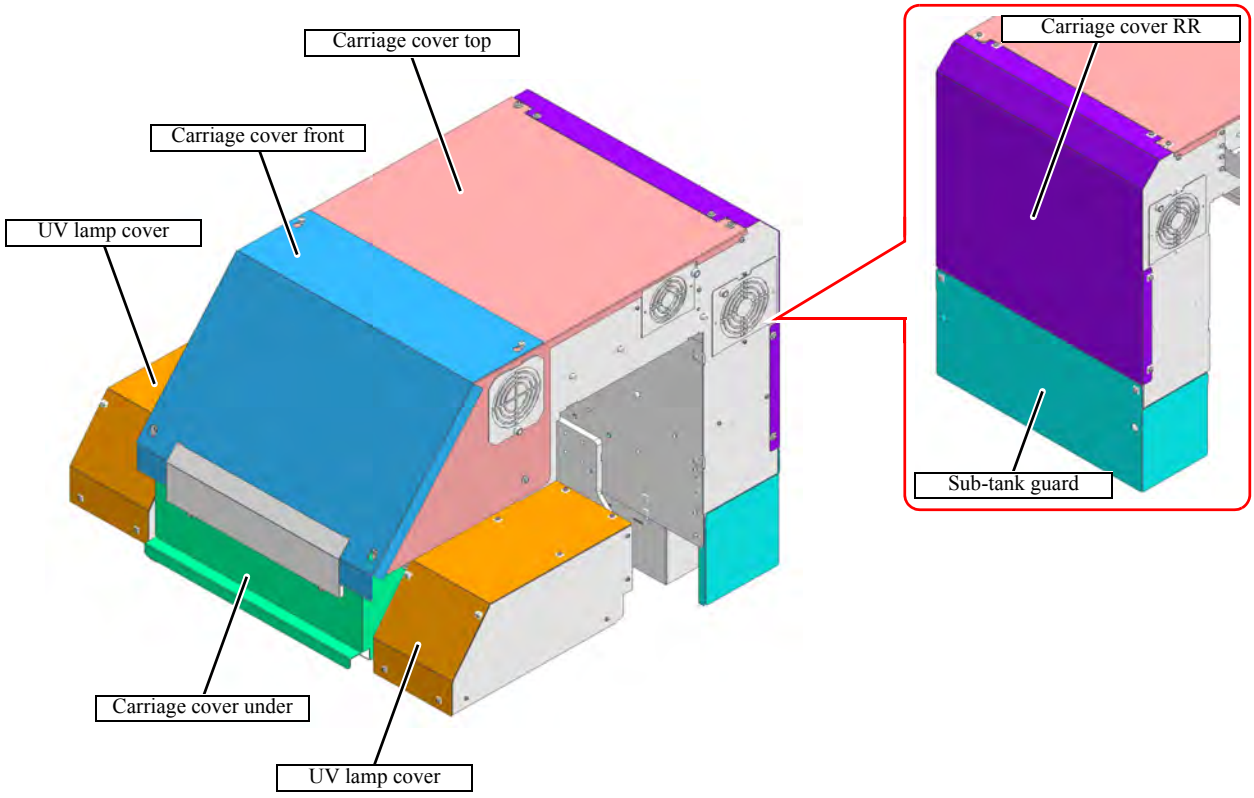
■ Printer rear



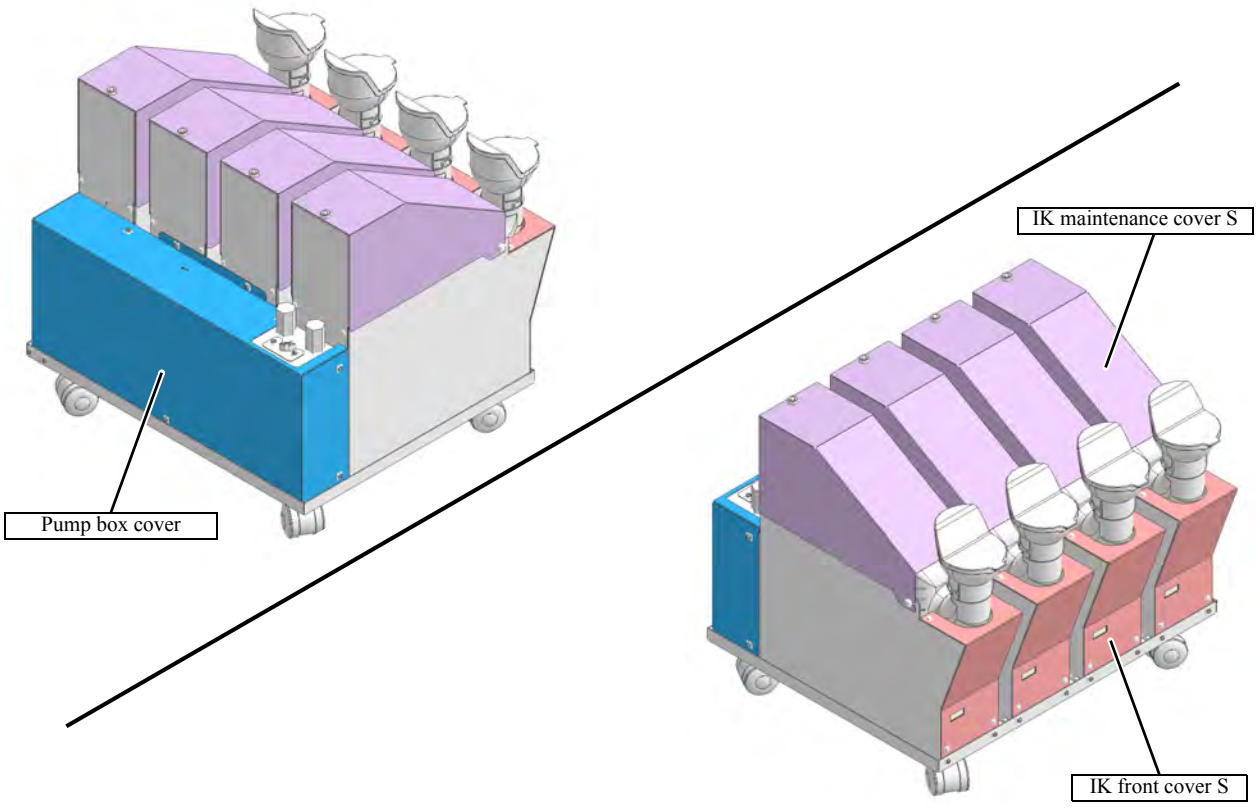


6.1.1 Cover Layout

■ Carriage



■ External supply unit



Disassembly and Reassembly

6.2.1 Cleaning the Inside of Head Unit

■ Outline

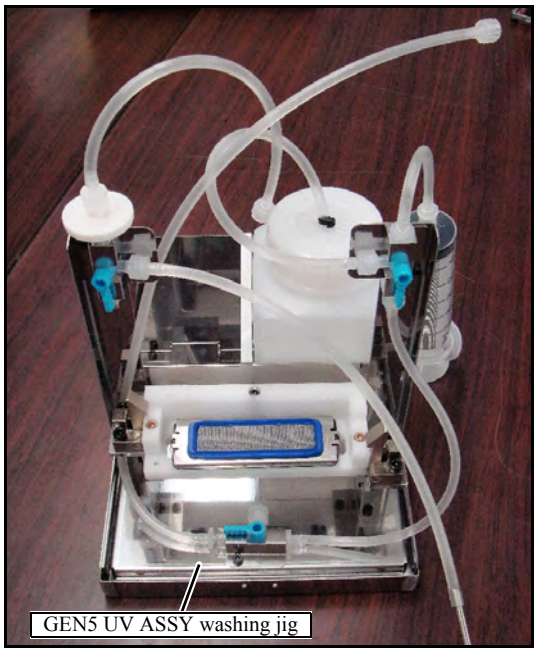
If a new head is filled with the ink without the washing process, it may cause the nozzle clogging or the deflection in flight.

> **Caution**
> Be sure to wear protective glasses and working gloves during the operation.
> Ink may get into your eyes depending on the working condition, or hand skin may get rough if you touch the ink.

■ Required parts

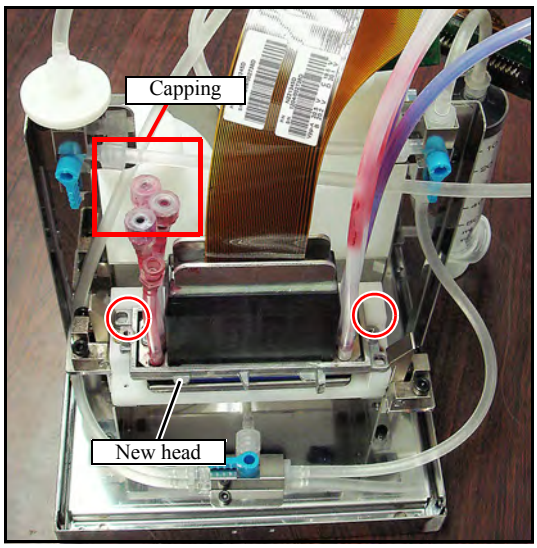
- GEN5 UV ASSY washing jig (M013915)
- M016007 washing jig connection tube
- Washing liquid (one bottle/one head)
  Maintenance washing liquid 07 kit
- Head

■ Work procedure



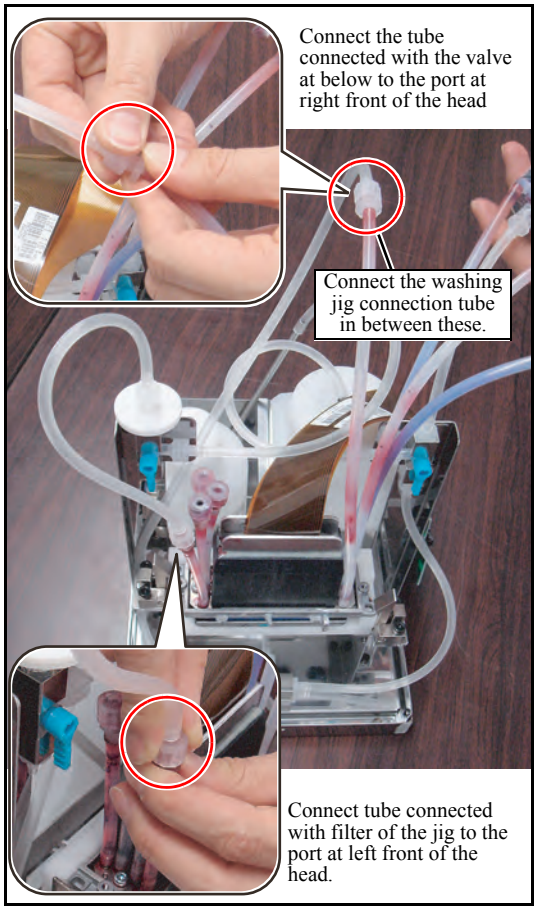
1. Prepare the GEN5 UV ASSY washing jig (M013915).

> **IMPORTANT**
> - Do not use the head washing jig for other purposes except the flowing the washing liquid to the head.
> - Head washing should be done before cutting the tube for SIF.



2. Set a new head on the jig.
   Cap the part of the left figure.

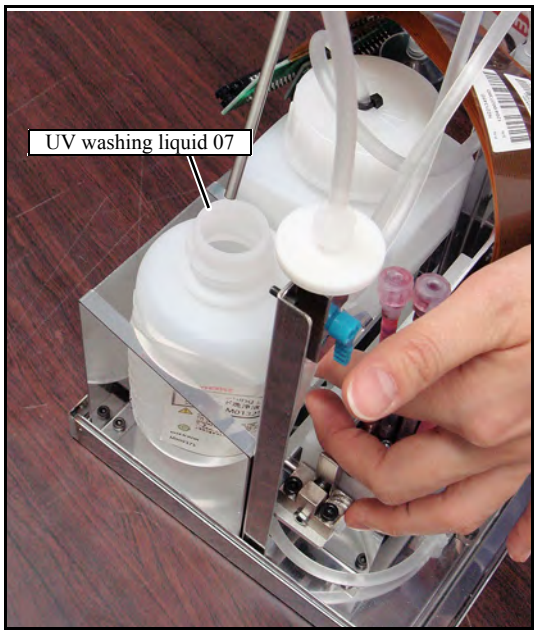
6.2.1 Cleaning the Inside of Head Unit



3. Connect the tube of the jig to the head port.

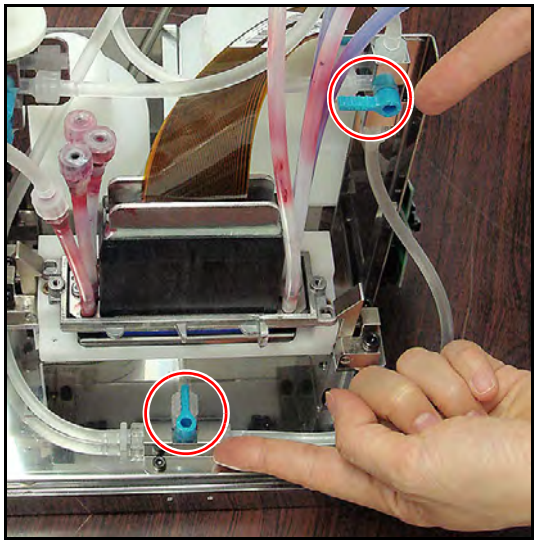
   Connect the tube connected with the valve at below to the port at right front of the head.

   Connect the tube connected with the filter of the jig to the port at left front of the head.

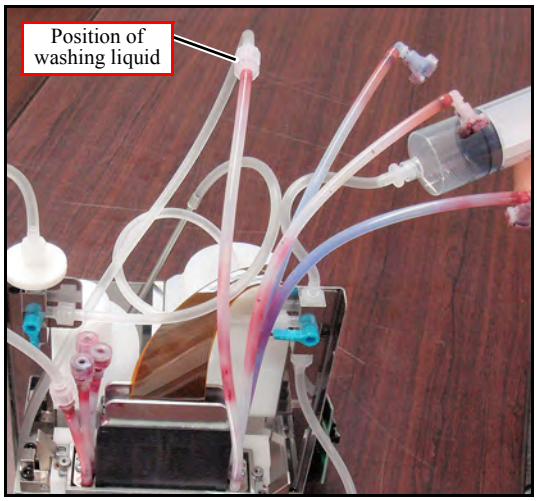


4. Set the washing liquid on the GEN5 UV ASSY washing jig.

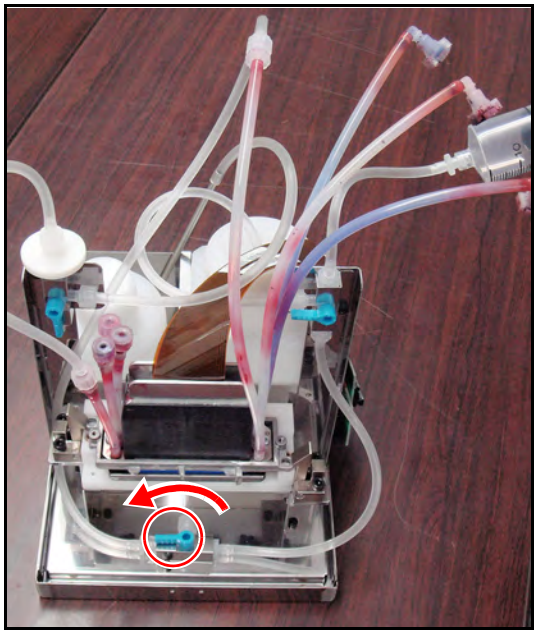
6.2.1 Cleaning the Inside of Head Unit



5. Set the valve to the direction in the photo.



6. Pull the syringe until washing liquid flows to the position a little above the port joint.

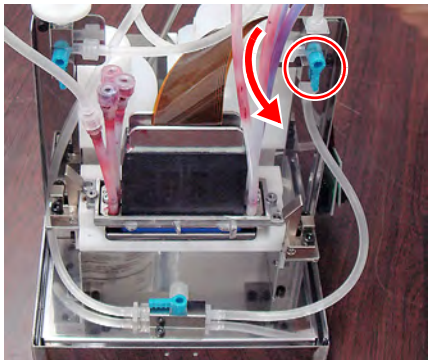


7. Set the lower valve to the direction in the photo and suck the washing liquid of about 50cc together with washing liquid sucked in the Step 6.

   *Conduct the aboves for every nozzle line (x4).

IMPORTANT

- When the syringe is filled up, set the valve to the direction in the photo and discard waste liquid into the waste liquid tank.



- Discard the washing liquid according to the local regulations of the area this unit is used.
- Carry out the ink filling within 24 hours after the head washing

6.2.2 Head Unit

Caution

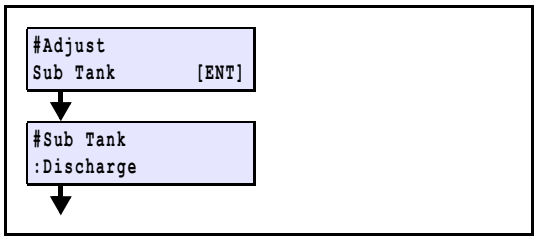
- Turn the main power OFF when turning the power OFF. It is very dangerous if the sleep mode functions mistakenly during the operation.
- Be sure to wear protective glasses and working gloves during the operation.

IMPORTANT

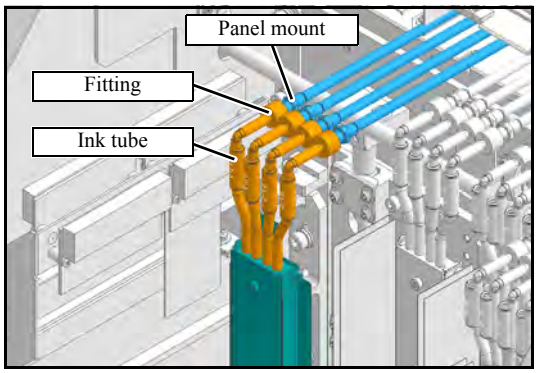
- Be sure to start the work after confirming the work procedure.
  (Refer to "3.1.1 Replacement of the Head Unit")
- Take care not to pollute the surroundings with waste ink or washing liquid.

■ Work procedure

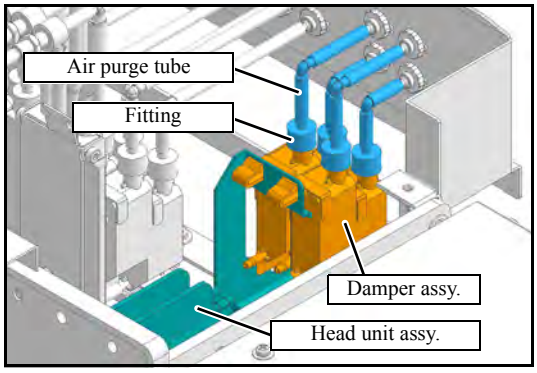
1. Remove the following covers.
   - **Right maintenance cover**
   - **Right front cover U**
   - **Right top cover B**
   - **Carriage cover upper**
   - **Carriage cover front**



2. Press [FUNC1] at <LOCAL> to execute [#Adjust].
3. Select [#Adjust] -> [#Sub Tank].
4. Execute the [:Discharge].

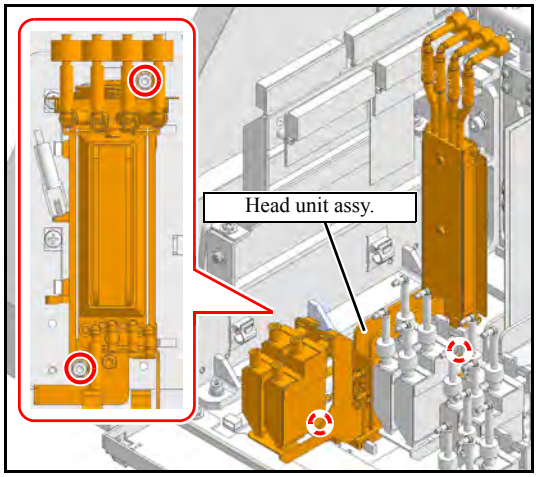


5. Disconnect the **ink tube**. (x4)

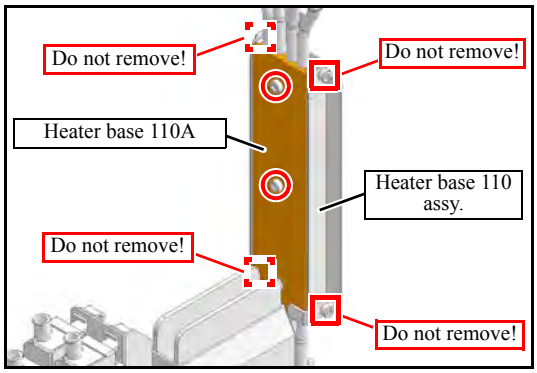


6. Disconnect the **air purge tube**. (x4)

6.2.2 Head Unit

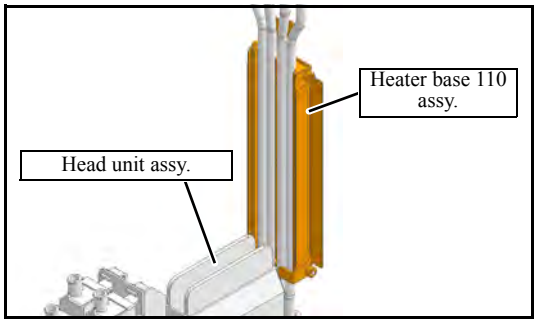


7. Remove the **head unit assy.** (screw x2)

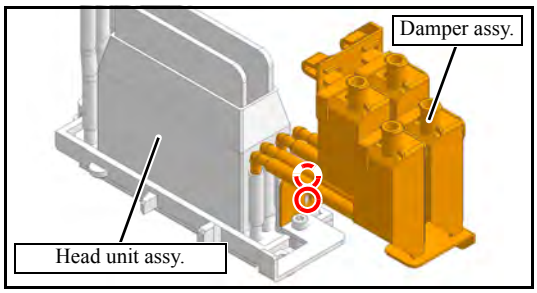


8. Remove the **heater base 110 A** from the heater base 110 assy. (screw x2)

> IMPORTANT
> Never remove the screws (x4) on both sides.



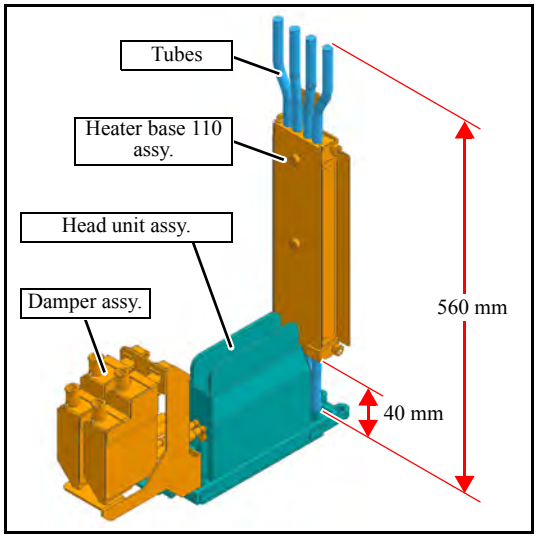
9. Remove the **heater base 110 assy.** from the head unit assy.



10. Remove the **damper assy.** from the head unit assy.. (screw x2)

> IMPORTANT
> Before removing, disconnect the head side tube at the L angle joint.

6.2.2 Head Unit

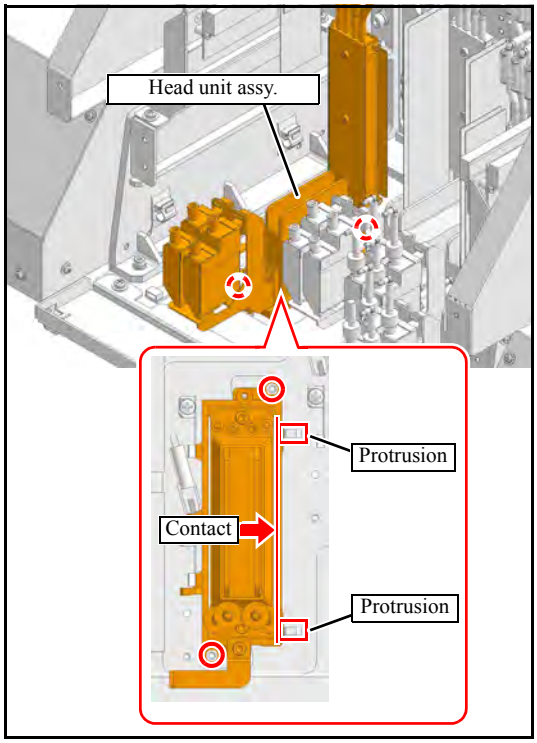


11. Wash the new head unit assy. with the maintenance washing liquid 07. (Refer to "6.2.1 Cleaning the Inside of Head Unit")

12. Cut the tube of the new head unit in the specified length. (Refer to the attached instruction)

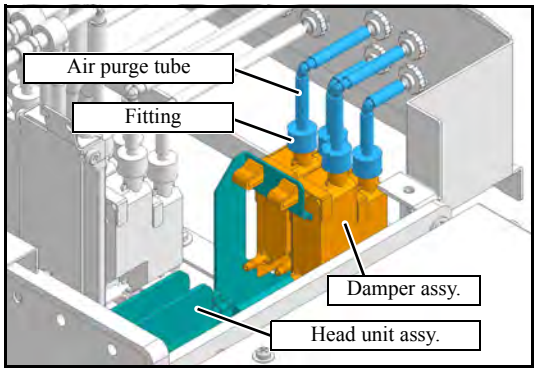
13. Attach the **heater base 110 assy.** and the **damper assy.** which are removed to the new **head unit** by reversing the disassembly procedure.

> IMPORTANT
> Cut and install the tube so that the gap between the head unit and the head base 110 assy. becomes 40 mm.



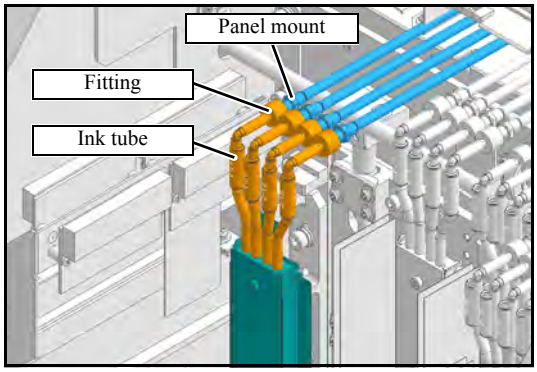
14. Attach the new **head unit assy.** (screw x2)

> IMPORTANT
> - If the carriage base is contaminated with ink or the like, clean the carriage base using a waste or a similar wiper before installing the head unit assy.
> - Fix the head unit assy. while contacting the protrusion (x2) of carriage base.



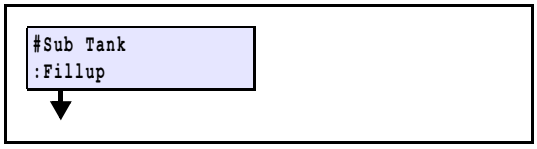
15. Connect the **air purge tube** (x4).

6.2.2 Head Unit



16. Connect the **ink tube**. (x4)

17. In the rest of the procedure, reassemble the part by reversing the disassembly procedure.



18. Execute [Sub Tank] - [Fillup] and fill up the sub-tank with ink.

IMPORTANT

After installing the head unit assy., execute each adjustment to adjust the head position.
(See "3.1.1 Replacement of the Head Unit")

6.2.3 Wiper Assy.

Caution

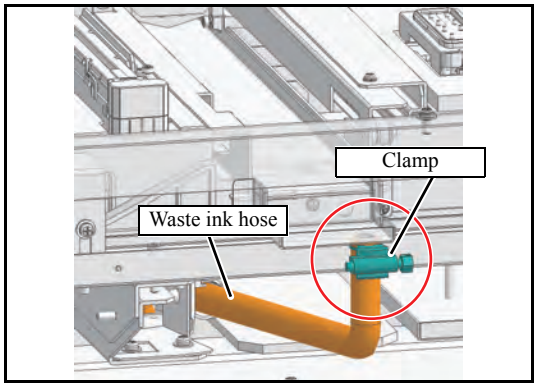
- Turn the main power OFF when turning the power OFF. It is very dangerous if the sleep mode functions mistakenly during the operation.
- Be sure to wear protective glasses and working gloves during the operation.

IMPORTANT

Take care not to pollute the surroundings with waste ink or washing liquid.

■ Work procedure

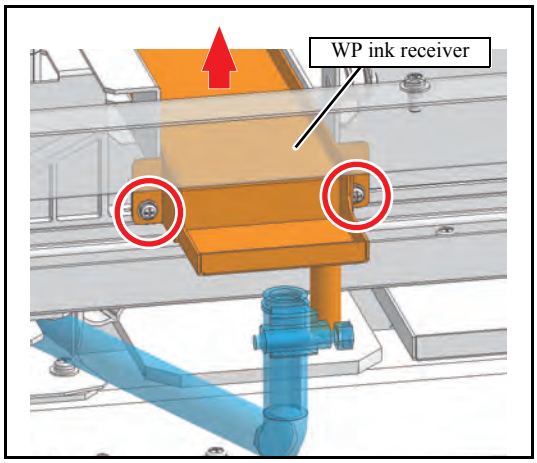
1. Remove the following covers.
   - **Right maintenance cover**
   - **Front lower right cover**
2. Disconnect the **Waste ink hose**. (clamp x1)



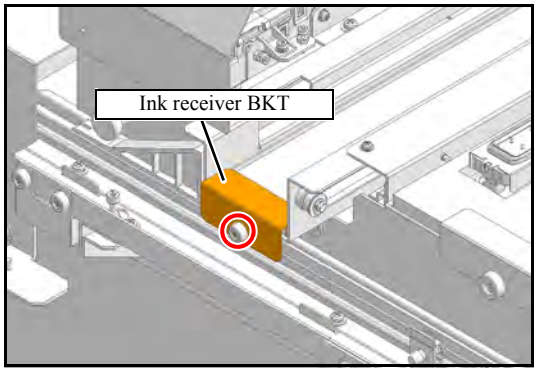
IMPORTANT

Do not remove the Waste ink hose.

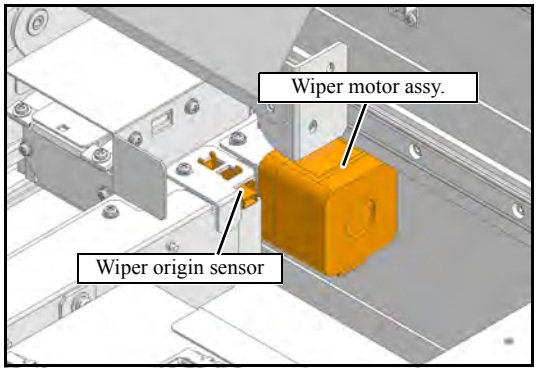
3. Remove the **WP ink receiver**. (screw x2)



4. Remove the **Ink receiver BKT**. (screw x1)

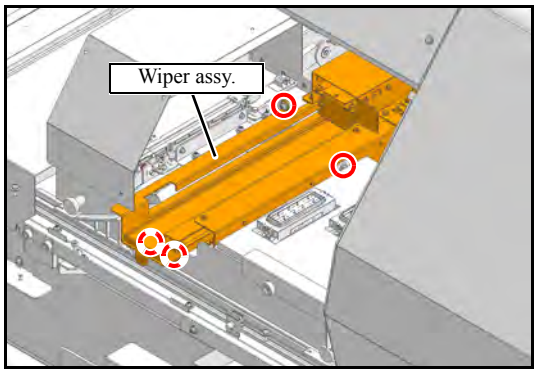


6.2.3 Wiper Assy.



5. Disconnect the connector for the wiper motor assy..

6. Disconnect the connector for the wiper origin sensor.



7. Remove the **wiper assy.**. (screw x4)

   Do not disconnect the waste ink tube. (Figure is abbreviated)

8. Reverse the disassembly procedure for reassembly.

6.2.4 Cap Assy.

Caution

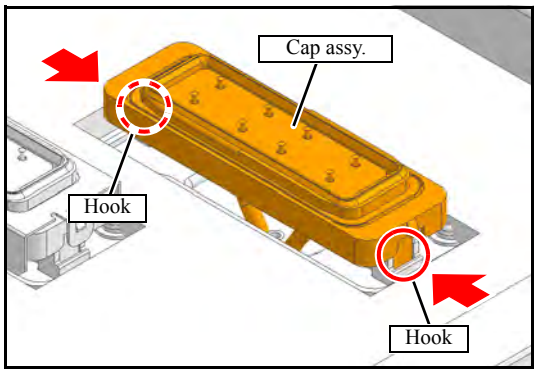
- Turn the main power OFF when turning the power OFF. It is very dangerous if the sleep mode functions mistakenly during the operation.
- Be sure to wear protective glasses and working gloves during the operation.

IMPORTANT

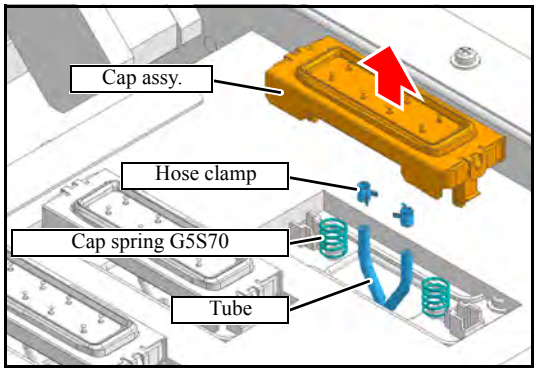
Take care not to pollute the surroundings with waste ink or washing liquid.

■ Work procedure

1. Remove the following cover.
   - **Right maintenance cover**



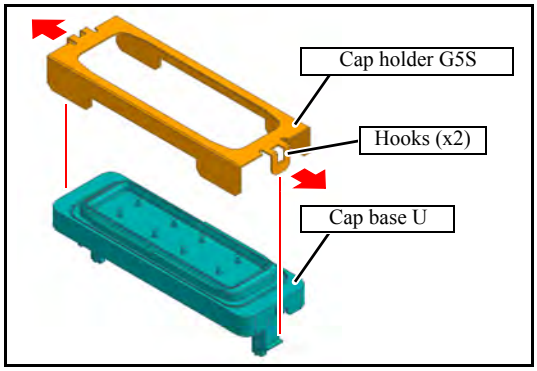
2. Release the front and back hooks which fix the cap assy.



3. Lifting the cap assy. gently, pull the tube out.

IMPORTANT

- Take care not to lose the cap spring G5S70.
- Be careful not to spill waste ink.



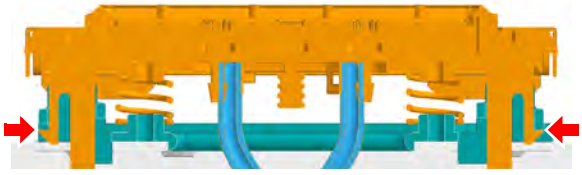
4. Release the two hooks that secure the cap holder G5S, and remove the **cap holder G5S**.

5. Reverse the disassembly procedure for reassembly.

IMPORTANT

Make sure that the front and back hooks are set firmly all the way inside when installing the cap assy.

[Cross-section drawing of the cap assy.]



6.2.5 Cap Suction Pump

Caution

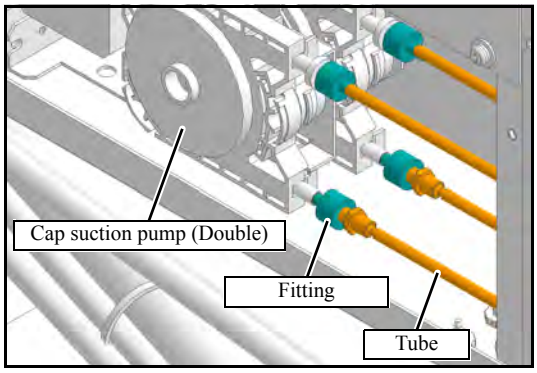
- Turn the main power OFF when turning the power OFF. It is very dangerous if the sleep mode functions mistakenly during the operation.
- Be sure to wear protective glasses and working gloves during the operation.

IMPORTANT

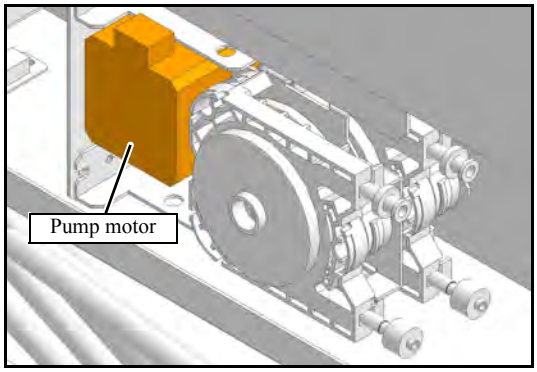
Take care not to pollute the surroundings with waste ink or washing liquid.

■ Work procedure

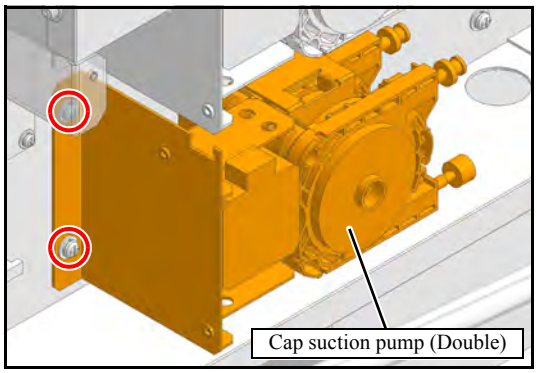
1. Remove the following covers.
   - **Right rear cover D**
   - **Electrical box cover**



2. Remove the fittings (x4) and disconnect the tubes. (x4)



3. Disconnect the connector for the pump motor.



4. Remove the **cap suction pump (Double)**. (screw x2)

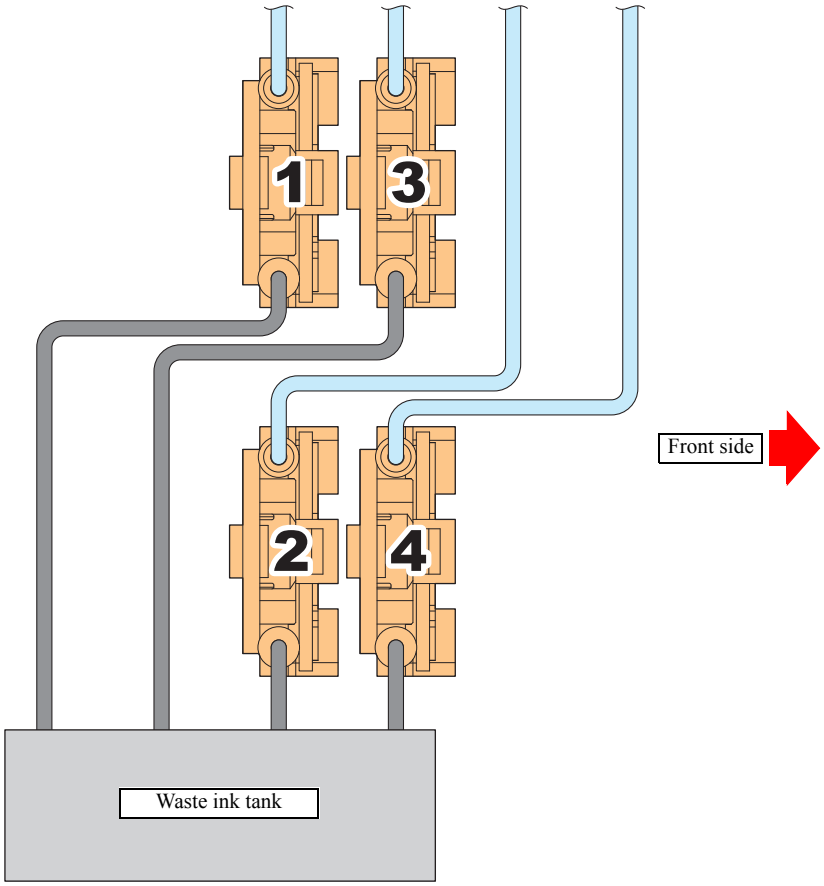
5. Reverse the disassembly procedure for reassembly.

IMPORTANT

Referring to the connection diagram, connect the tube correctly.

6.2.5 Cap Suction Pump

■ **Connection diagram**



6.2.6 Supply Pump

Caution

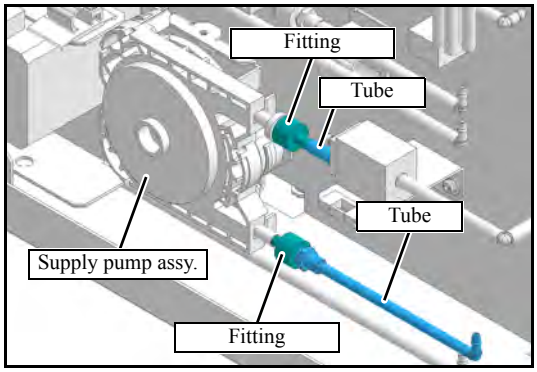
- Turn the main power OFF when turning the power OFF. It is very dangerous if the sleep mode functions mistakenly during the operation.
- Be sure to wear protective glasses and working gloves during the operation.

IMPORTANT

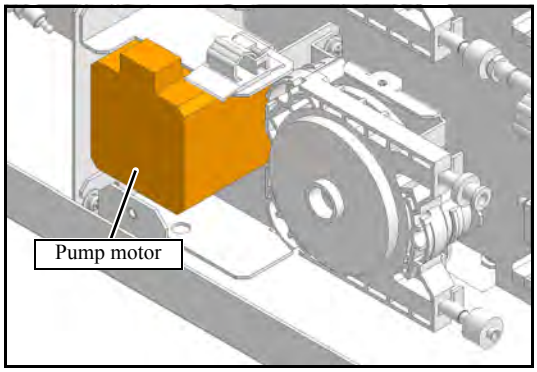
- Be sure to start the work after confirming the work procedure.
  (Refer to "3.1.2 Replacement of the Supply Pump")
- Take care not to pollute the surroundings with waste ink or washing liquid.

■ Work procedure

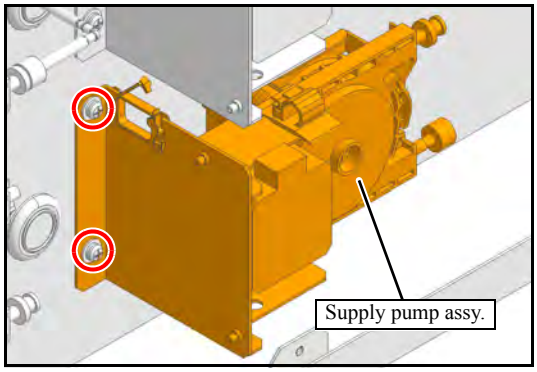
1. Remove the following cover.
   - **Pump box cover**



2. Remove the fittings (x2) and disconnect the tubes. (x2)



3. Disconnect the connector for the pump motor.



4. Remove the **supply pump assy.**. (screw x2)

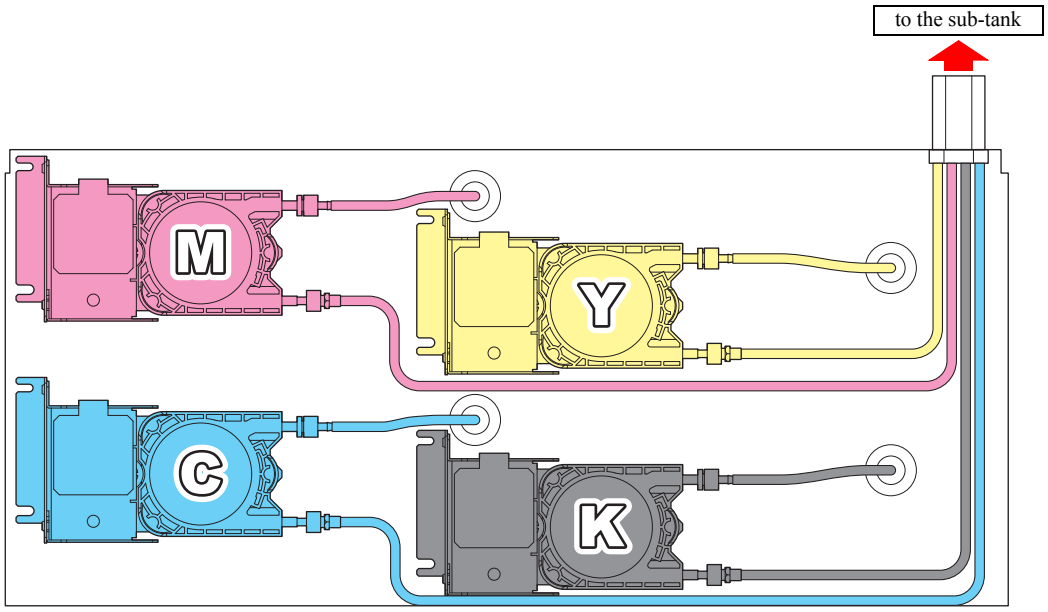
5. Reverse the disassembly procedure for reassembly.

IMPORTANT

Referring to the connection diagram, connect the tube correctly.

6.2.6 Supply Pump

■ **Connection diagram**



6.2.7 Primary Filter

Caution

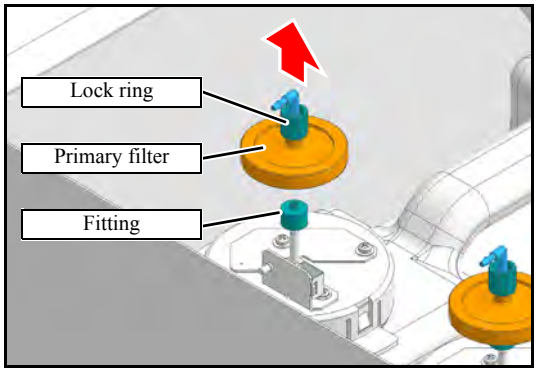
- Turn the main power OFF when turning the power OFF. It is very dangerous if the sleep mode functions mistakenly during the operation.
- Be sure to wear protective glasses and working gloves during the operation.

IMPORTANT

- Be sure to start the work after confirming the work procedure.
  (Refer to "3.1.3 Replacement of the Primary Filter")
- Take care not to pollute the surroundings with waste ink or washing liquid.

■ Work procedure

1. Remove the following cover.
   - **IK maintenance cover S**



2. Remove the lock ring and fitting, and then filter.

IMPORTANT

As the ink comes out from the path if removing the fitting, take care of it with a kim towel.

3. Reverse the disassembly procedure for reassembly.

IMPORTANT

Be careful about the direction to attach the filter.
The surface with "INLET" mark faces downward.

6.2.8 Sub-tank

Caution

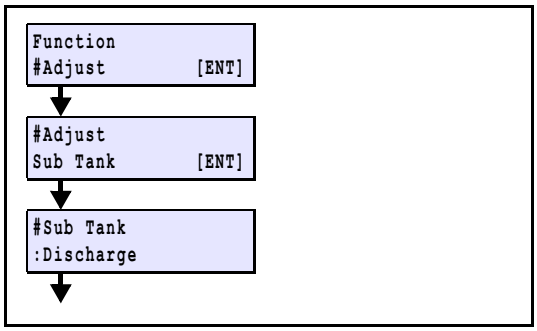
- Turn the main power OFF when turning the power OFF. It is very dangerous if the sleep mode functions mistakenly during the operation.
- Be sure to wear protective glasses and working gloves during the operation.

IMPORTANT

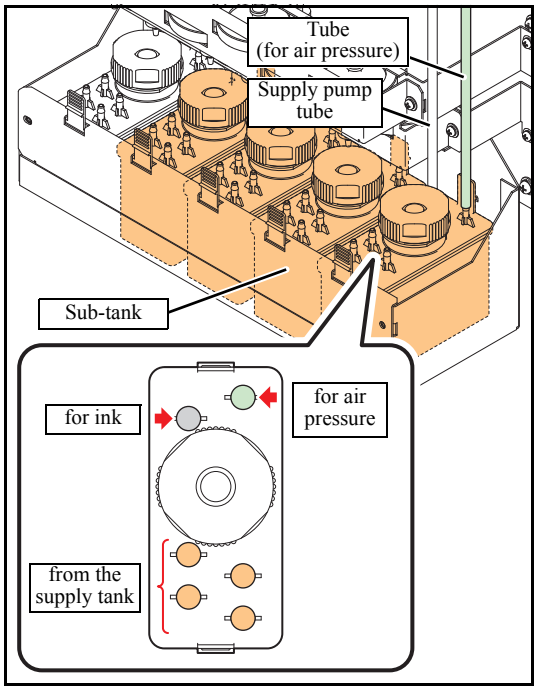
- Be sure to start the work after confirming the work procedure.
  (Refer to "3.1.4 Replacement of the Sub-tank")
- Take care not to pollute the surroundings with waste ink or washing liquid.

■ Work procedure

1. Remove the following covers.
   - **Right top cover B**
   - **Right rear cover U1**
   - **Right rear cover D**
   - **Carriage cover RR**
   - **Sub-tank guard**

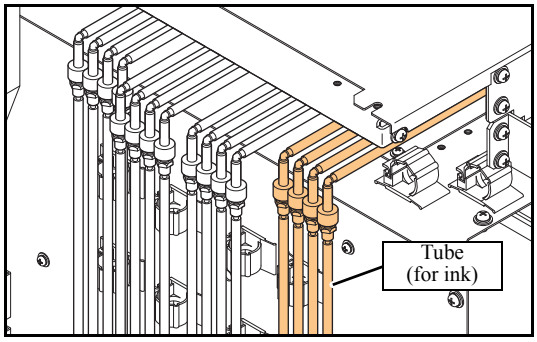


2. Press [FUNC1] at <LOCAL> to execute [#Adjust].
3. Select [#Adjust] -> [#Sub Tank].
4. Execute the [:Discharge].
5. Turn OFF the power supply.

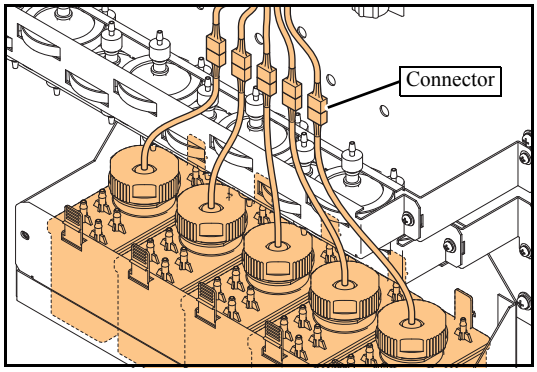


6. Disconnect the tube for air pressure (green in left figure) from the sub-tank.
7. Disconnect the tube of the supply tank from the sub-tank.

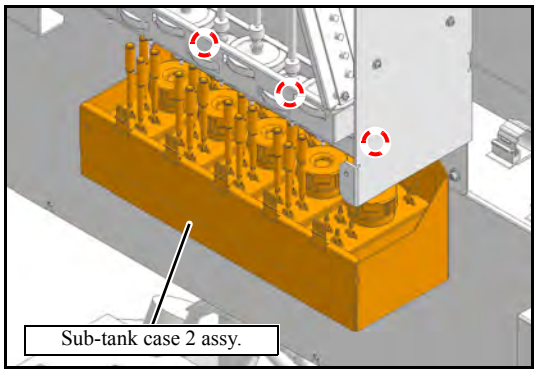
6.2.8 Sub-tank



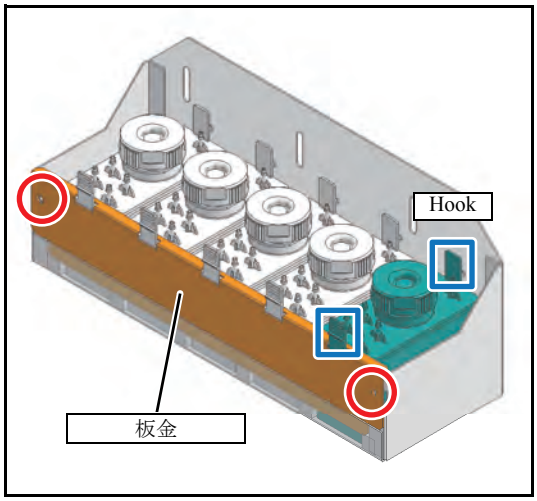
8. Disconnect the tube (x4) for ink (orange in left figure) from the sub-tank.



9. Disconnect all connectors on the sub-tank case 2 assy..



10. Remove the **sub-tank case 2 assy.**. (screw x3)



11. Remove the **sub-tank assy.**.

    Remove the sheet metal, and remove the sub-tank.

> IMPORTANT
> Since the hook is easy to break, do not remove by releasing the hook.

12. Reverse the disassembly procedure for reassembly.

6.2.9 Purge Filter

Caution

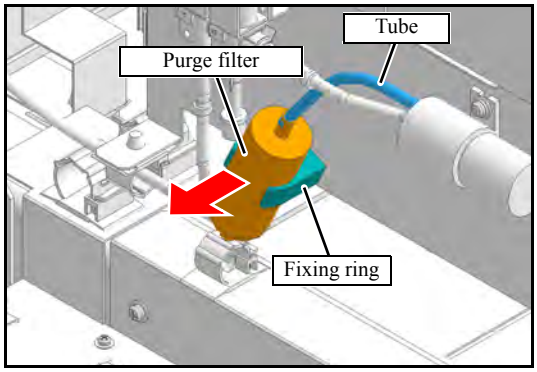
- Turn the main power OFF when turning the power OFF. It is very dangerous if the sleep mode functions mistakenly during the operation.
- Be sure to wear protective glasses and working gloves during the operation.

IMPORTANT

- Be sure to start the work after confirming the work procedure.
  (Refer to "3.1.5 Replacement of the Purge Filter")
- Take care not to pollute the surroundings with waste ink or washing liquid.

■ Work procedure

1. Remove the following cover.
   - **Cover rear left**



2. Disconnect the tubes (x1) from the purge filter.

3. Remove the purge filter from the fixing ring.

4. Reverse the disassembly procedure for reassembly.

6.2.10 Diaphragm

Caution

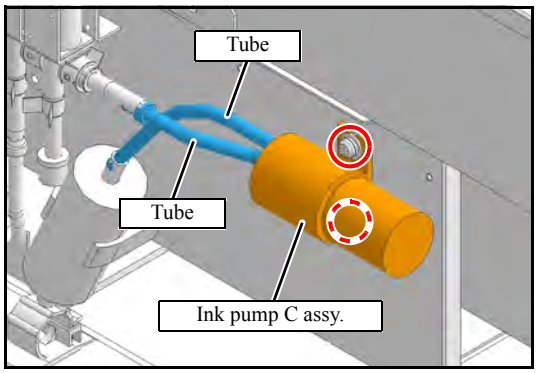
- Turn the main power OFF when turning the power OFF. It is very dangerous if the sleep mode functions mistakenly during the operation.
- Be sure to wear protective glasses and working gloves during the operation.

IMPORTANT

Take care not to pollute the surroundings with waste ink or washing liquid.

■ Work procedure

1. Remove the following cover.
   - **Cover rear left**



2. Disconnect the **tubes** (x2) from the Ink pump C assy..
   Disconnect the **connector** (x1) of the Ink pump C assy.
3. Remove the **Ink pump C assy.**. (screw x2)
4. Reverse the disassembly procedure for reassembly.

6.2.11 Purge Unit Assy.

Caution

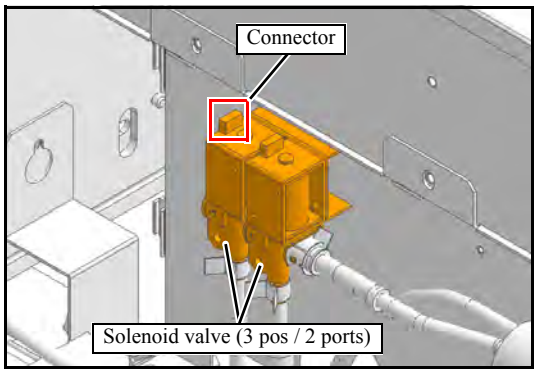
- Turn the main power OFF when turning the power OFF. It is very dangerous if the sleep mode functions mistakenly during the operation.
- Be sure to wear protective glasses and working gloves during the operation.

IMPORTANT

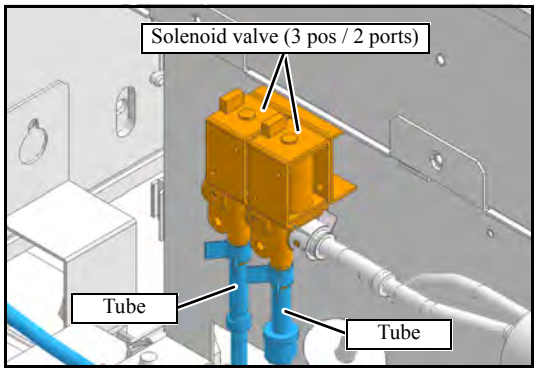
Take care not to pollute the surroundings with waste ink or washing liquid.

■ Work procedure

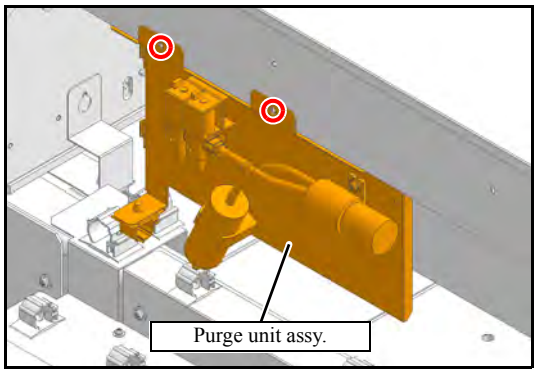
1. Remove the following cover.
   - **Cover rear left**



2. Disconnect the connectors (x1) of the solenoid valve (3 pos / 2 ports).



3. Disconnect the tubes (x2) of the solenoid valve (3 pos / 2 ports).



4. Remove the **purge unit assy.**. (screw x2)

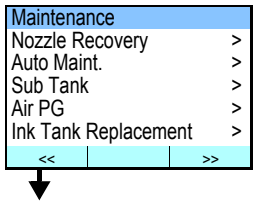
5. Reverse the disassembly procedure for reassembly.

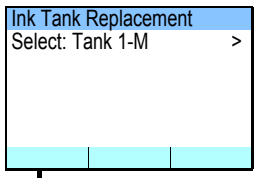
6.2.12 Discard of Ink in Ink Tank

> **Caution**
> - Be careful about natural light during this operation.
> Protect from natural light with shading sheet or cloth.
> - Be sure to wear protective glasses and working gloves during the operation.

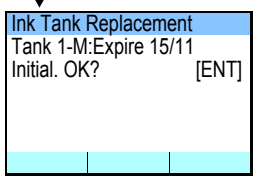
> **IMPORTANT**
> - Be sure to start the work after confirming the work procedure.
> (Refer to "3.1.6 Method of Ink disposal in Ink tank")
> - Take care not to pollute the surroundings with waste ink or washing liquid.

■ Work procedure





Select:Tank 1-M to Tank 4-K



1. Select [Maintenance].
   Press the [ENTER] key.
2. Select [Ink Tank Replacement].
   [▲]/[▼]: Switches
   [ENTER]: Fix (Next)
3. Select the ink tank to discard ink in it.
   [▲]/[▼]: Switches
   [ENTER]: Fix (Next)

> **IMPORTANT**
> The time limit (year, month) of the ink to discard is indicated in the display as well as the confirmation of discarding ink.

4. If there is no problem with the check screen, press the [ENTER] key.

> **IMPORTANT**
> Reset information of ink charge which is stored in this machine.

5. Turn OFF the main power supply.
6. Remove the covers, and ink bottle selected by step 3.
   Discard ink in the tank.
7. Attach the covers, and then turn on the power supply.
8. Charge a new IC tip, and add the ink.

> **IMPORTANT**
> - **To use the machine urgently after "Expiration:2MONTH" is displayed:**
> Carry out steps 1. to 4., to charge the IC chips for the new ink.
> You can now use the equipment for a short time.
> * Do not supply new ink. Only charge the IC chips.
> Carry out supply of the ink during a visit, after the expired ink in the tank has been discarded.

6.2.13 Replacement of the Ink tank

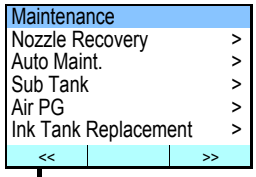
■ Outline

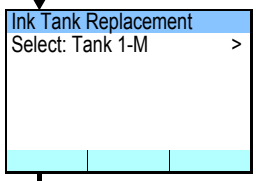
Replace the old ink tank with a new ink tank.
Discard the ink in the tank. (Reset the charge information, too.)

Caution
- Be careful about natural light during this operation.
  Protect from natural light with shading sheet or cloth.
- Be sure to wear protective glasses and working gloves during the operation.

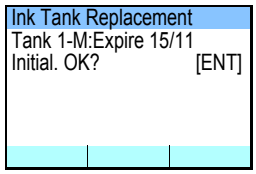
IMPORTANT
Take care not to pollute the surroundings with waste ink or washing liquid.

■ Work procedure





Select:Tank 1-M to Tank 4-K



1. Select [Maintenance].
   Press the [ENTER] key.

2. Select [Ink Tank Replacement].
   [▲]/[▼]: Switches
   [ENTER]: Fix (Next)

   The color of which the IC information was initialized becomes no-indication of selection.

3. Select the ink tank to replace.
   [▲]/[▼]: Switches
   [ENTER]: Fix (Next)

   IMPORTANT
   The time limit (year, month) of the ink to discard is indicated in the display as well as the confirmation of discarding ink.

4. If there is no problem with the check screen, press the [ENTER] key.

   IMPORTANT
   Reset information of ink charge which is stored in this machine.

5. Turn OFF the main power supply.

6. Remove the covers, and ink bottle selected by step 3.
   Attach a new ink tank.

7. Attach the covers, and then turn on the power supply.

8. Charge new IC tip, and add the ink.

Disassembly and Reassembly

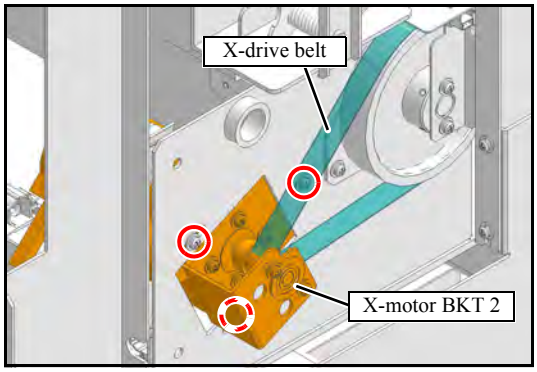
6.3.1 X-axis Motor Assy.

> **Caution** Turn the main power OFF when turning the power OFF. It is very dangerous if the sleep mode functions mistakenly during the operation.

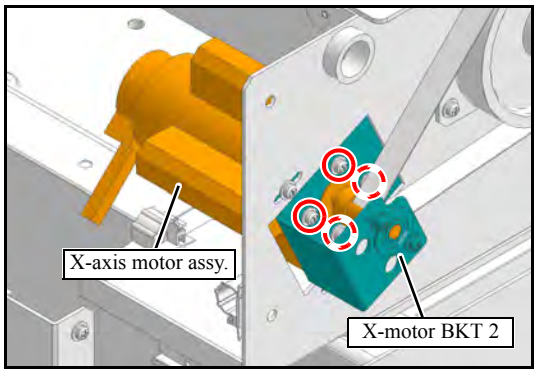
> **IMPORTANT** Be sure to start the work after confirming the work procedure.
> (Refer to "3.2.1 Replacement of the X-axis Motor")

■ Work procedure

1. Remove the following covers.
   - **Cover side left**
   - **Cover rear left**

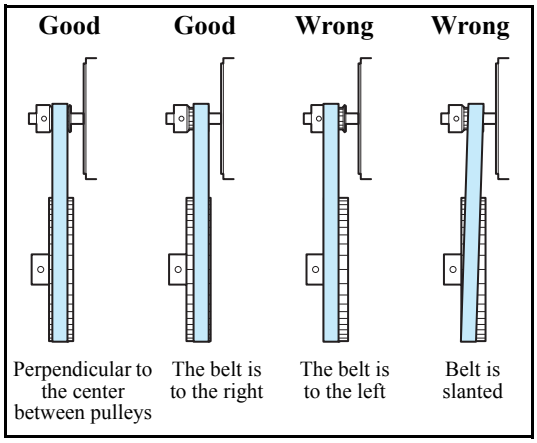


2. Loosen the screws (x3) of the X-motor BKT 2.
   The X-drive belt tension becomes loose.



3. Disconnect the connector for the X-axis motor assy..

4. Remove the **X-axis motor assy.**. (screw x4)



5. Reverse the disassembly procedure for reassembly.

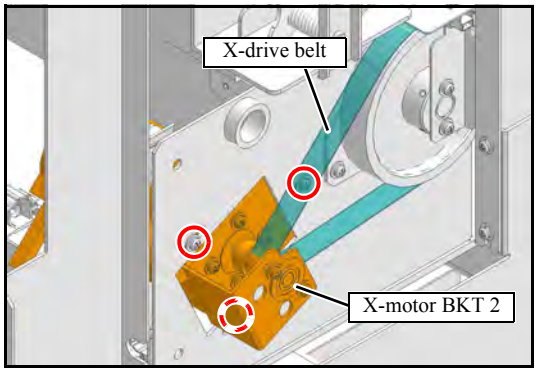
> **IMPORTANT**
> - After the tightening, check the belt tension and engagement by touching.
> - The timing belt must be placed at the center of both pulleys so as to be in perpendicular.
>   (to the right is acceptable)
> - After assembled, adjust the belt tension.
>   (Refer to "4.3.8 X-belt Tension Adjustment")

6.3.2 X-drive Belt

> **Caution** Turn the main power OFF when turning the power OFF. It is very dangerous if the sleep mode functions mistakenly during the operation.

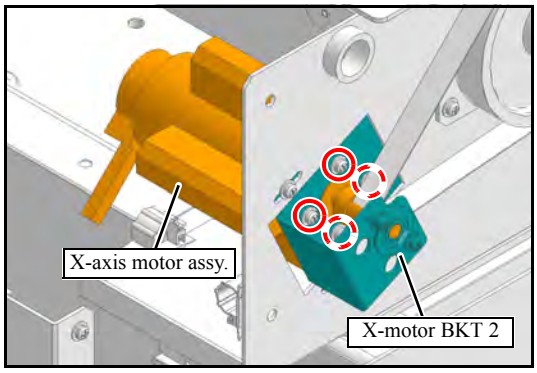
■ **Work procedure**

1. Remove the following covers.
   - **Cover side left**
   - **Cover rear left**

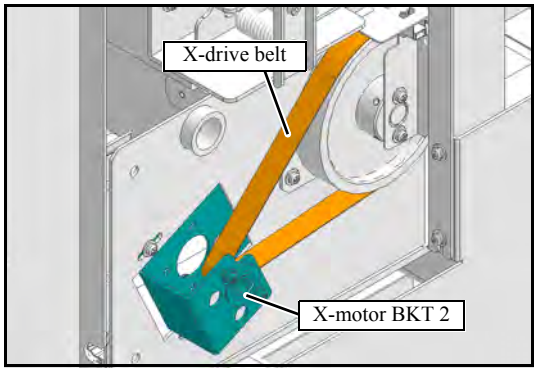


2. Loosen the screws (x3) of the X-motor BKT 2.

   The X-drive belt tension becomes loose.

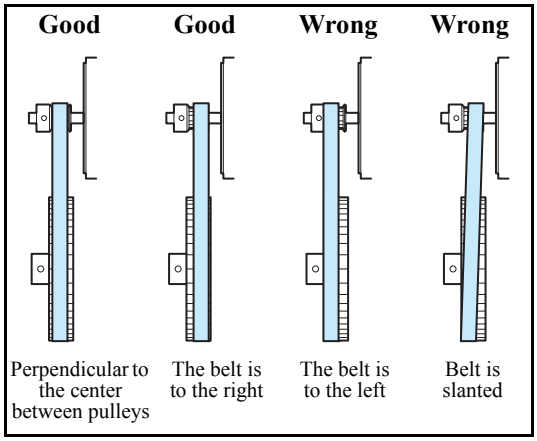


3. Remove the **X-axis motor assy.**. (screw x4)



4. Remove the **X-drive belt**.

6.3.2 X-drive Belt



5. Reverse the disassembly procedure for reassembly.

IMPORTANT

- After the tightening, check the belt tension and engagement by touching.
- The timing belt must be placed at the center of both pulleys so as to be in perpendicular.
  (to the right is acceptable)
- After assembled, adjust the belt tension.
  (Refer to "4.3.8 X-belt Tension Adjustment")

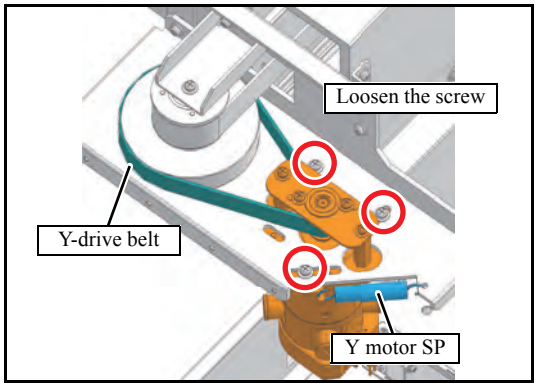
6.3.3 Y-axis Motor Assy.

> **Caution** Turn the main power OFF when turning the power OFF. It is very dangerous if the sleep mode functions mistakenly during the operation.

> **IMPORTANT** Be sure to start the work after confirming the work procedure.
> (Refer to "3.2.2 Replacement of the Y-axis Motor")

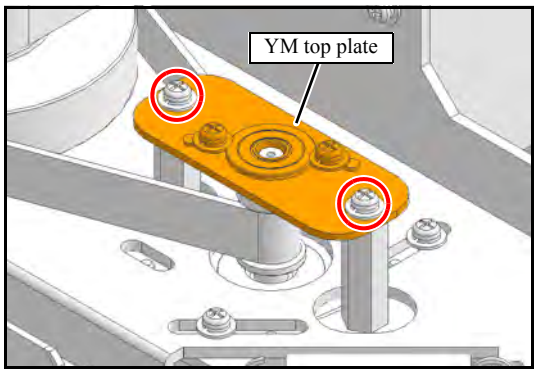
■ Work procedure

1. Remove the following cover.
   - **Right side cover U**

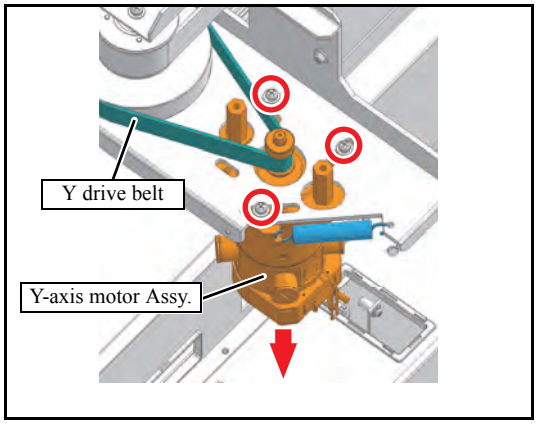


2. Loosen the screws (x3) for adjusting the belt tension.
   The Y-drive belt tension becomes loose.

> **IMPORTANT** Be careful not to drop the Y-motor SP.



3. Remove the **YM top plate**. (screw x2)

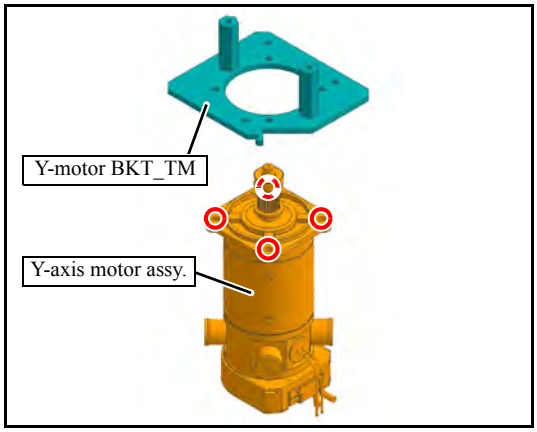


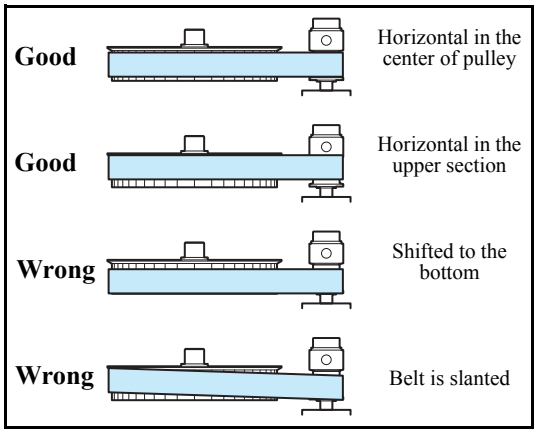
4. Disconnect the connector for the Y-axis motor assy..

5. Remove the **Y-axis motor assy.**. (screw x3)

> **IMPORTANT** Be careful not to drop the Y-motor SP.

6.3.3 Y-axis Motor Assy.



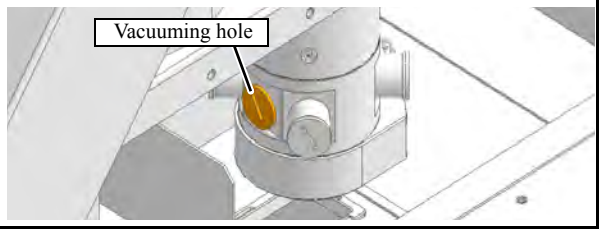


6. Remove the **Y-axis motor** from the Y-motor BKT_TM. (screw x4)

7. Reverse the disassembly procedure for reassembly.

IMPORTANT

- For the belt, check the belt tension and engagement by touching.
- For the timing belt, place the belt at the center of both pulleys so as to be in level. (The upper is also acceptable.)
- After assembled, adjust the belt tension. (Refer to "4.3.9 Y-belt Tension Adjustment")
- Mount the Y-axis motor so that the vacuuming hole turns to the front side.

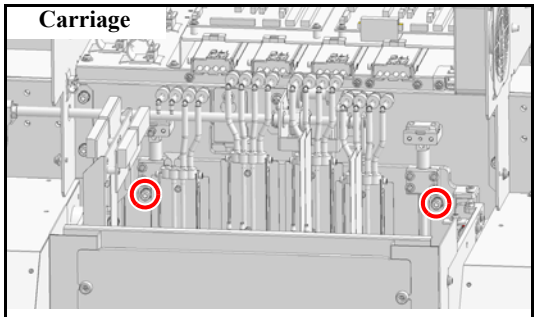


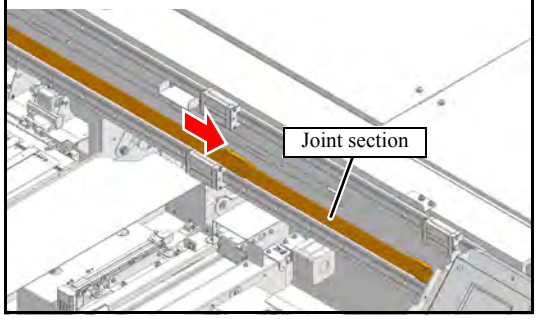
6.3.4 Y-drive Belt

> **Caution** Turn the main power OFF when turning the power OFF. It is very dangerous if the sleep mode functions mistakenly during the operation.

■ Work procedure

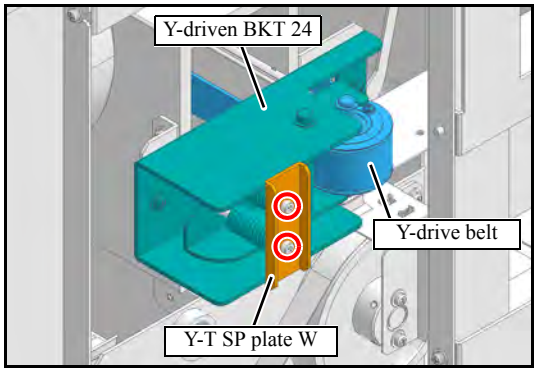
1. Remove the following covers.
   - **Cover side left**
   - **Right maintenance cover**
   - **Right front cover U**
   - **Carriage cover upper**
   - **Carriage cover front**
2. Open the cover front.
3. Lower the station assy. so that the cap does not come in contact with the head unit, and move the carriage on the platen.
4. Remove the screws (x2) of the belt joint plate and pull out the belt joint part to the Y-direction (right side to the carriage).



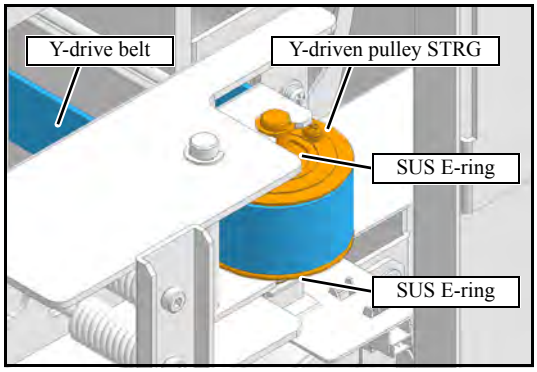


5. Loosen the belt tension adjust screws (x2) of the Y-T SP plate W.

   The Y-drive belt tension becomes loose.

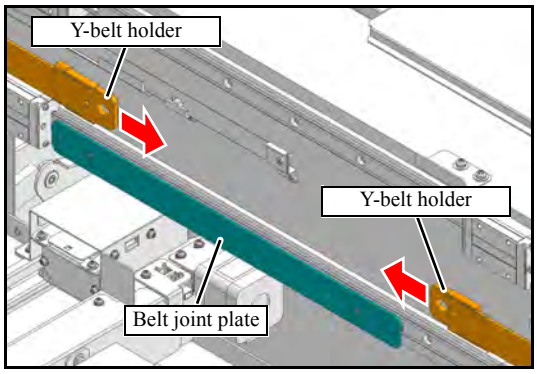


6.3.4 Y-drive Belt

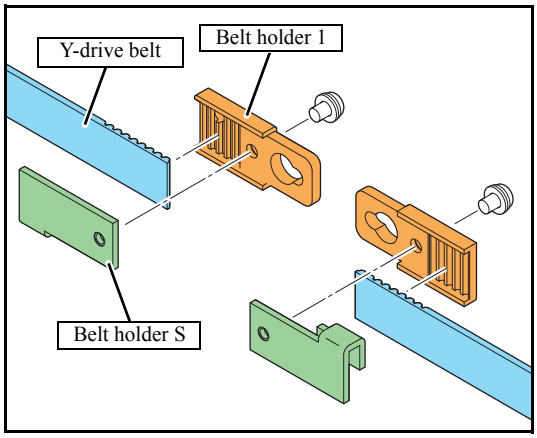


6. Remove the **Y-driven pulley STRG**.

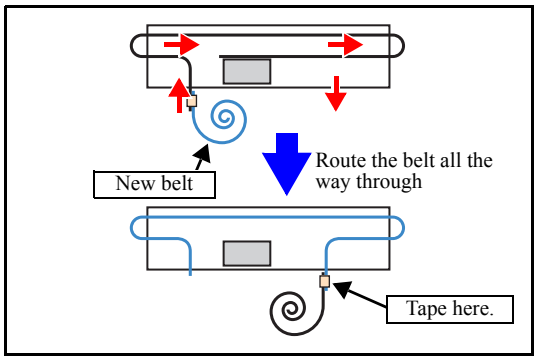
> IMPORTANT Be careful not to drop the SUS E-ring.



7. Slide the Y-belt holders in the direction of the arrows and remove the Y-belt holder from the belt joint plate.

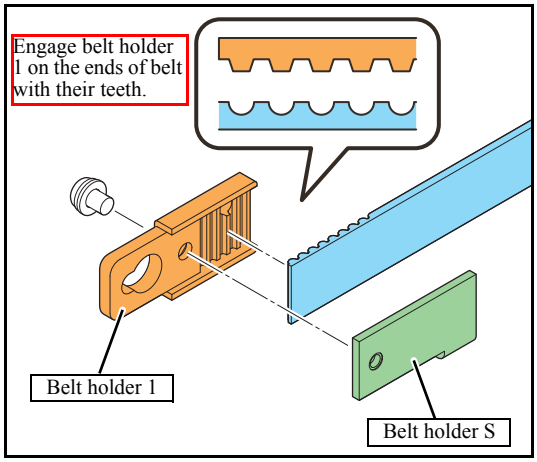


8. Remove the **Y-drive belt** from the belt holder 1 and the belt holder S. (each screw x1)



9. Bundle the old belt and the new belt using packing tape or the like, then route the belt all the way through.
10. After the belt is routed all through, peel the tape off.

6.3.4 Y-drive Belt



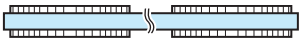
11. Attach the belt holder S to the belt holder 1 while aligning its gears to the rack of the belt on both ends. (each screw x1)

12. In the rest of the procedure, reassemble the part by reversing the disassembly procedure.

IMPORTANT

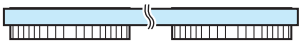
The belt must be attached in horizontally flat.

Good



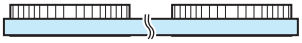
Horizontal in the center of pulley

Good



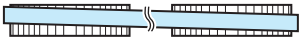
Horizontal in the upper section

Wrong



Shifted to the bottom

Wrong



Belt is slanted

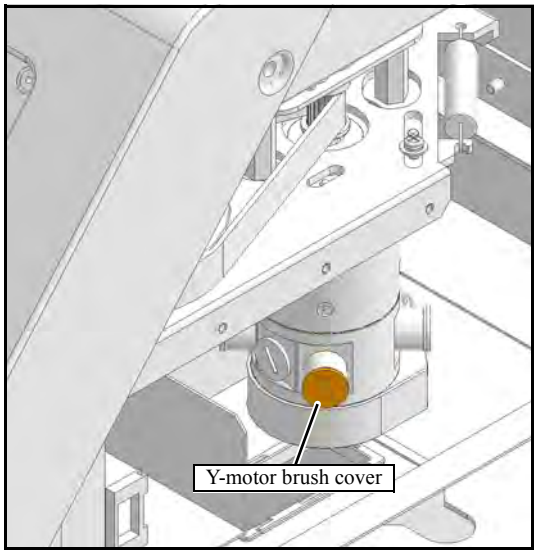
6.3.5 Y-motor Brush

Caution

Turn the main power OFF when turning the power OFF. It is very dangerous if the sleep mode functions mistakenly during the operation.

■ Work procedure

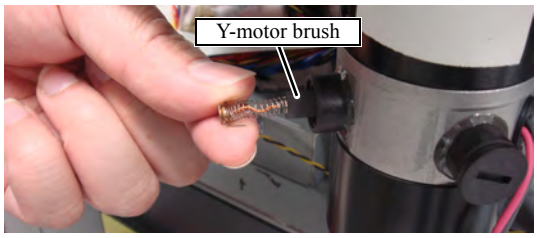
1. Remove the following cover.
   - **Right side cover U**

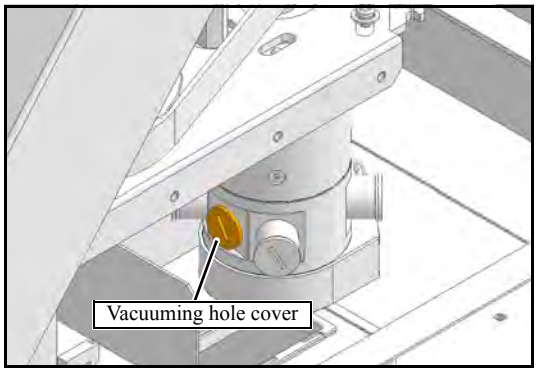


2. Remove the four Y-motor brush cover (x4) with a flat-blade screwdriver to remove the Y-motor brush (x4).

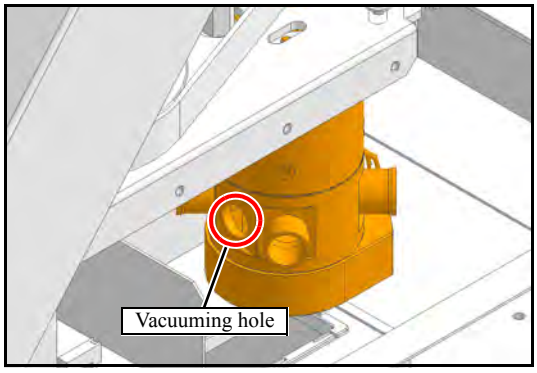
IMPORTANT

- When returning the original brush, be careful about the direction.
- The Y-motor brush has a spring and the spring may come out when the Y-motor brush is mounted or removed.Be careful not to drop the Y-motor brush.



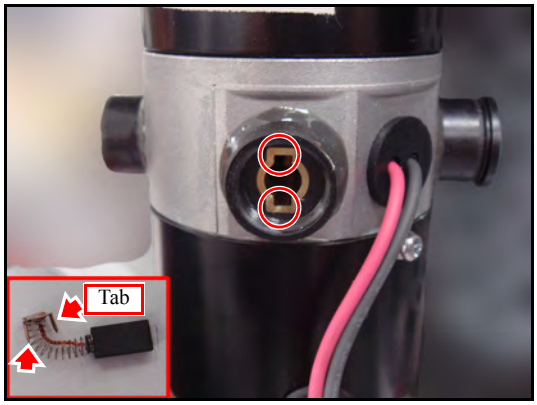


3. Remove the cover of the vacuuming hole.



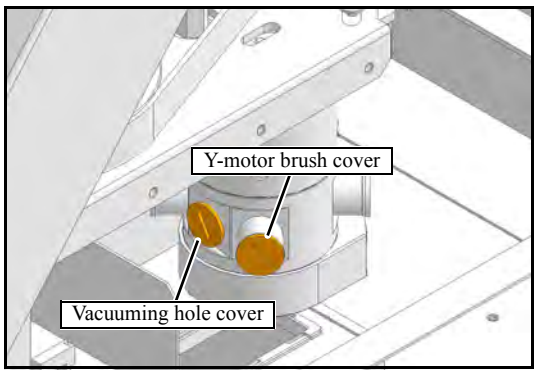
4. Vacuum debris of the motor brush from the vacuuming hole with a vacuum cleaner.

6.3.5 Y-motor Brush



5. Attach a new Y-motor brush.

> **IMPORTANT**
> - Attach the tab of the Y-motor brush to the salient of the Y-motor brush attachment hole.
> - The Y-motor brush has a spring and the spring may come out when the Y-motor brush is mounted or removed. Be careful not to drop the Y-motor brush.



6. Attach the Y-motor brush cover (x4) while pressing the Y-motor brush.

7. Attach the vacuuming hole cover.

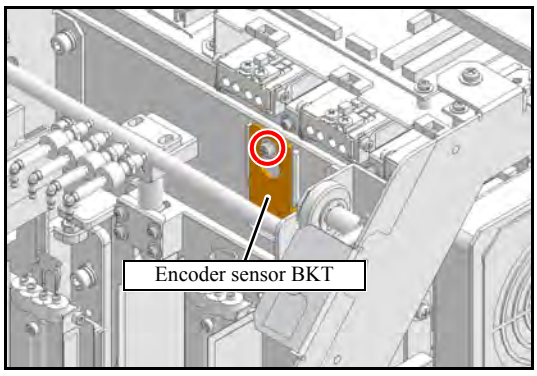
6.3.6 Linear Encoder Scale

Caution Turn the main power OFF when turning the power OFF. It is very dangerous if the sleep mode functions mistakenly during the operation.

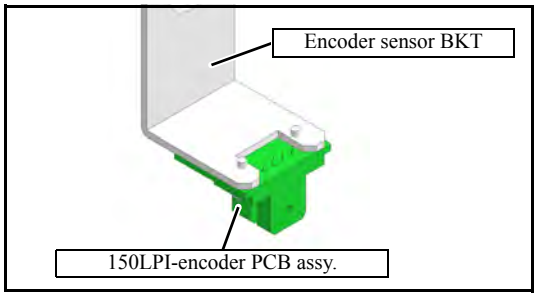
IMPORTANT Take care not to put finger prints or oil on the linear encoder scale, or not to scratch or fold the scale when handling it. (If the scale is contaminated, clean it using neutral detergent.)

■ Work procedure

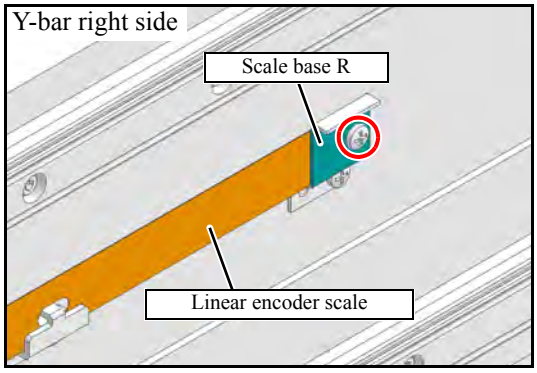
1. Remove the following covers.
   - **Right maintenance cover**
   - **Left maintenance cover**
   - **Right front cover U**
   - **Carriage cover upper**
   - **Carriage cover front**
2. Open the cover front.
3. Lower the station assy. so that the cap does not come in contact with the head unit, and move the carriage on the platen.



4. Remove the **encoder sensor BKT** together with the 150LPI-encoder PCB assy.. (screw x1)

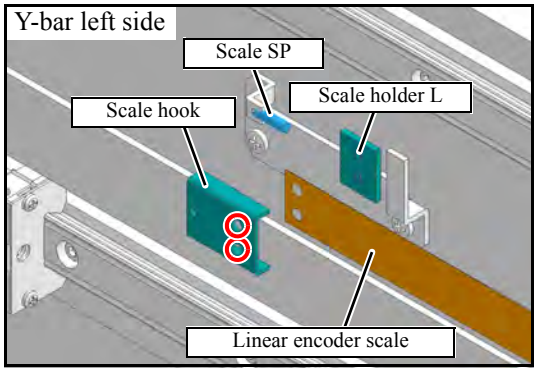


5. Disconnect the connector for the 150LPI-encoder PCB assy..

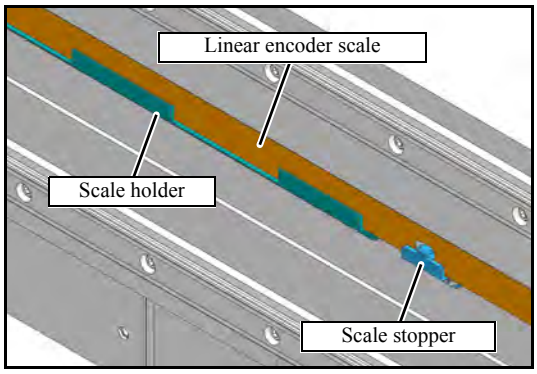


6. Remove the **scale base R** and the **linear encoder scale** from the right end of the linear encoder scale. (screw x1)

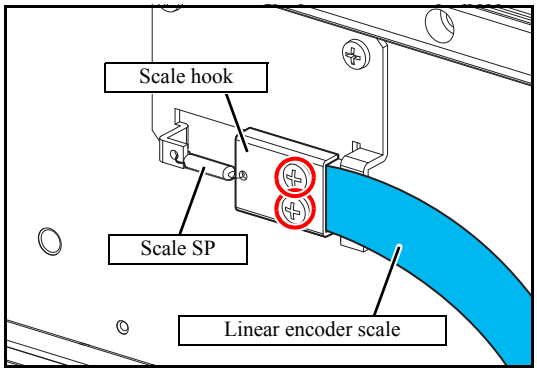
6.3.6 Linear Encoder Scale



7. Remove the **scale hook**, **scale SP**, **scale holder L** and **linear encoder scale** from the left end of the linear encoder scale. (screw x2)



8. Remove the **linear encoder scale** from the scale holder (x11) and the scale stopper.



9. Attach the **scale hook** and the **scale holder L** to the **linear encoder scale**. (screw x2)

10. Engage the scale hook on the scale base L with the **scale SP**, attach the **linear encoder scale**.

11. In the rest of the procedure, reassemble the part by reversing the disassembly procedure.

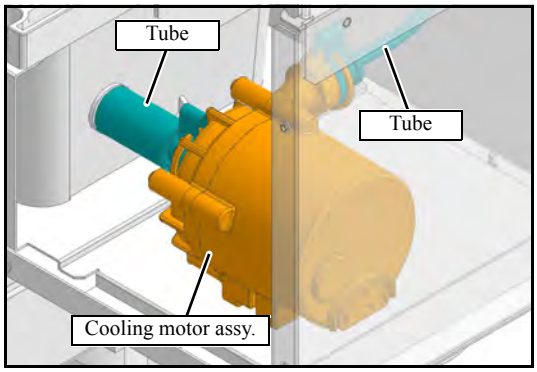
> IMPORTANT
> Adjust the encoder sensor position after assembled. (Refer to "4.3.2 Encoder Sensor Position Adjustment")

6.3.7 Cooling Motor Assy.

> **Caution** Turn the main power OFF when turning the power OFF. It is very dangerous if the sleep mode functions mistakenly during the operation.

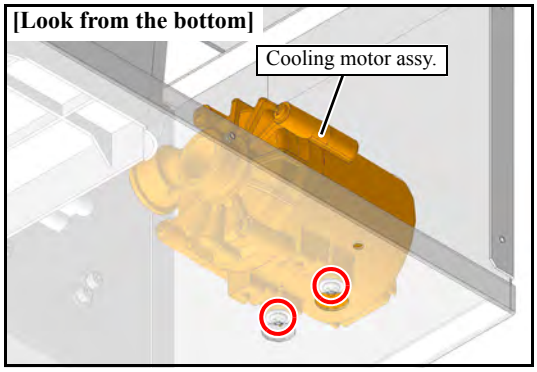
■ Work procedure

1. Remove the following cover.
   - **Cooling box cover**



2. Disconnect the connector for the cooling motor.

3. Disconnect the **tubes** (x2) from the cooling assy.



4. Remove the **cooling motor assy.**. (screw x2)

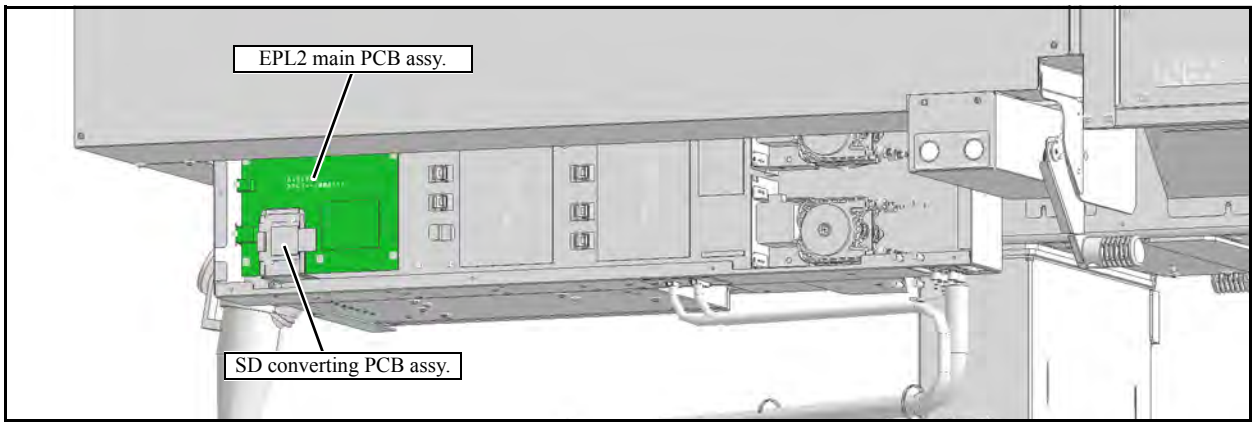
5. Reverse the disassembly procedure for reassembly.

Disassembly and Reassembly

6.1 Covers	6.2 Ink-related Parts	6.3 Drive System
6.4 Electrical Parts	6.5 Take-up Feeding Device	6.6 Sensors

Refer to the relating description in Workflow > 3.3 Electrical Parts and 6. Disassembly and Reassembly.

6.4.1 EPL2 Main PCB Assy.



■ Outline

If the EPL2 main PCB assy. has replaced, various parameters must be registered to the EPL2 main PCB assy. ROM after the replacement. Considerable time is required to readjust and reconfigure these settings. Therefore, for ease of use and better drawing quality, copy (upload) the setting value to a PC before replacement, and write (download) the copied settings onto the EPL2 main PCB assy. from the PC after replacement.

If it is impossible to upload the parameters, conduct Parameter Draw to note the setting values.
Then manually register the values after replacing the EPL2 main PCB assy..

■ Work procedure

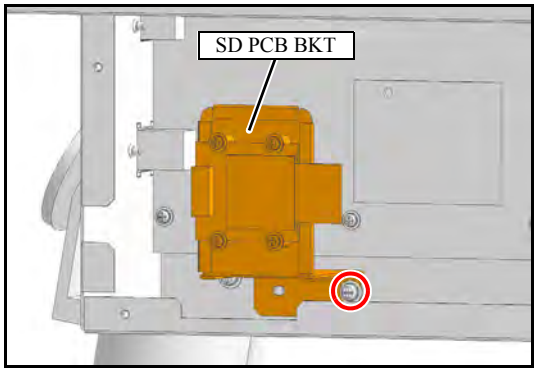
Warning

After turning OFF the sub and main power switches, unplug the power cord. Make sure to take 5 minutes before restarting the operation. It is very dangerous if the sleep mode functions mistakenly during the operation.
Moreover, the PCB may be damaged in case electric charge still remains inside.

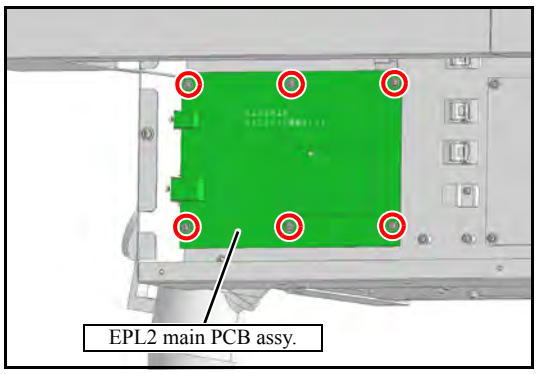
IMPORTANT

Be sure to start the work after confirming the work procedure.
(Refer to "3.3.1 Replacement of the EPL2 Main PCB Assy.")

1. Remove the following cover.
   - **Electrical box cover**
2. Lower the station assy. so that the cap does not come in contact with the head unit, and move the carriage on the platen.
3. Turn OFF the main power and then disconnect the power plug.
4. Disconnect all connectors on PCB.
5. Remove the **SD PCB BKT**. (screw x1)

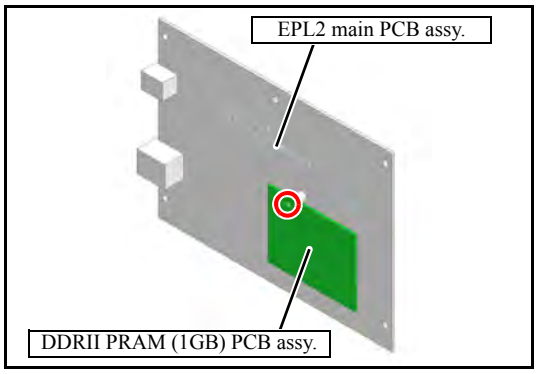


6.4.1 EPL2 Main PCB Assy.



6. Disconnect all connectors on PCB.

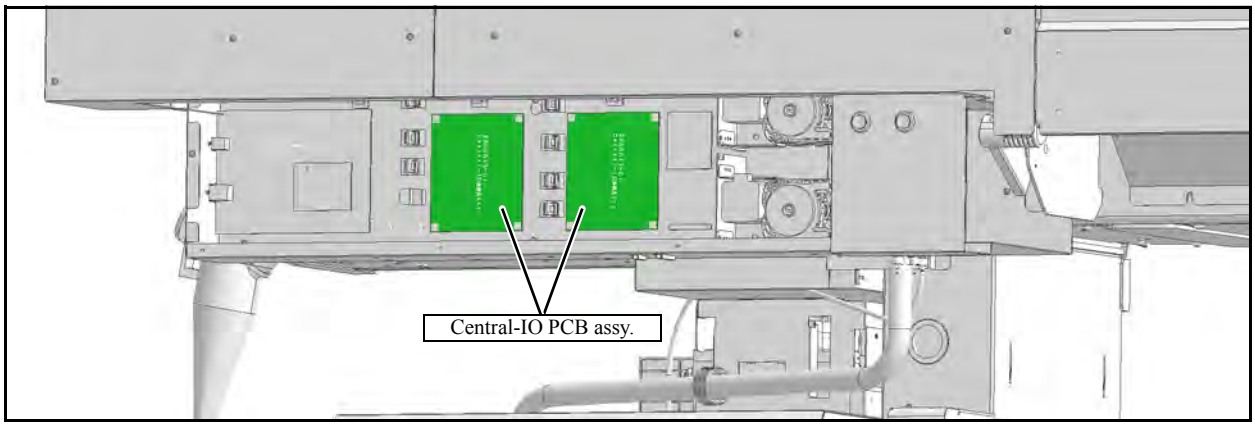
7. Remove the **EPL2 main PCB assy.**. (screw x6)



8. Remove the **DDRII PRAM (1GB) PCB assy.**. (screw x1)

9. Reverse the disassembly procedure for reassembly.

6.4.2 Central-IO PCB Assy.



■ **Work procedure**

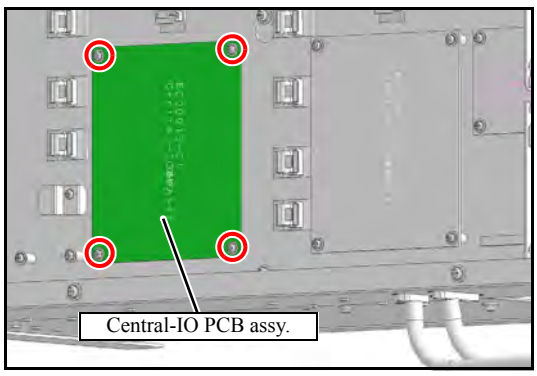
Warning

After turning OFF the sub and main power switches, unplug the power cord. Make sure to take 5 minutes before restarting the operation. It is very dangerous if the sleep mode functions mistakenly during the operation.
Moreover, the PCB may be damaged in case electric charge still remains inside.

IMPORTANT

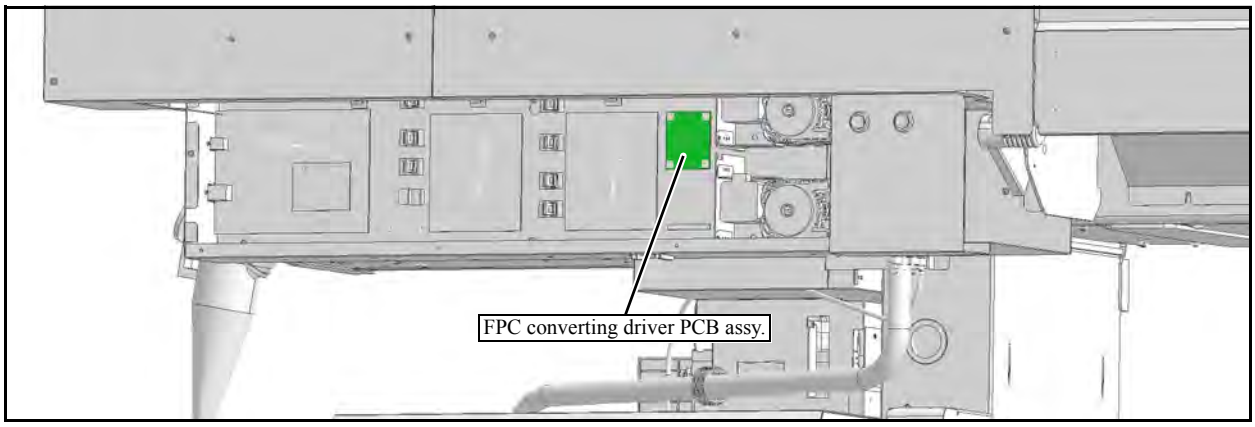
Be sure to start the work after confirming the work procedure.
(Refer to "3.3.2 Replacement of the Central-IO PCB Assy.")

1. Remove the following cover.
   - **Electrical box cover**
2. Turn OFF the main power and then disconnect the power plug.
3. Disconnect all connectors on PCB.
4. Remove the **Central-IO PCB assy.**. (screw x4)



5. Reverse the disassembly procedure for reassembly.

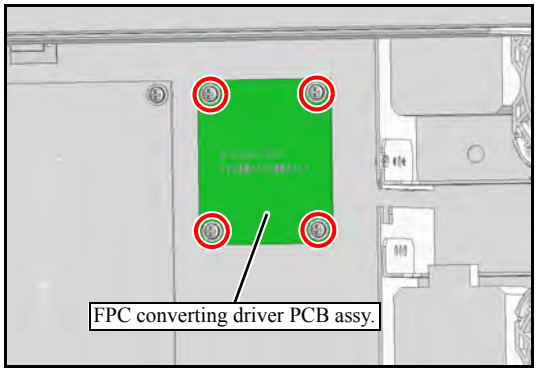
6.4.3 FPC Converting Driver PCB Assy.



■ **Work procedure**

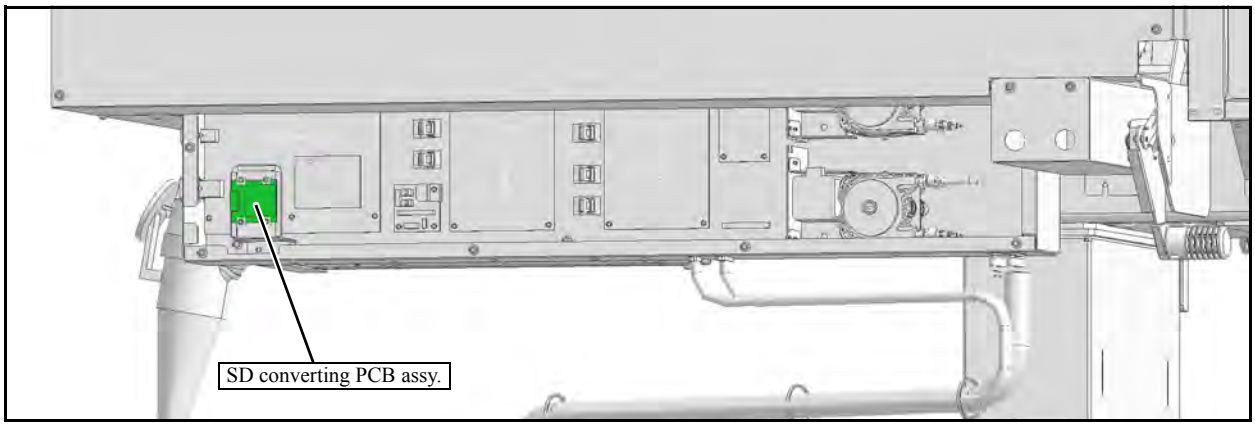
After turning OFF the sub and main power switches, unplug the power cord. Make sure to take 5 minutes before restarting the operation. It is very dangerous if the sleep mode functions mistakenly during the operation.
Moreover, the PCB may be damaged in case electric charge still remains inside.

1. Remove the following cover.
   - **Electrical box cover**
2. Turn OFF the main power and then disconnect the power plug.
3. Disconnect all connectors on PCB.
4. Remove the **FPC converting driver PCB assy.**. (screw x4)



5. Reverse the disassembly procedure for reassembly.

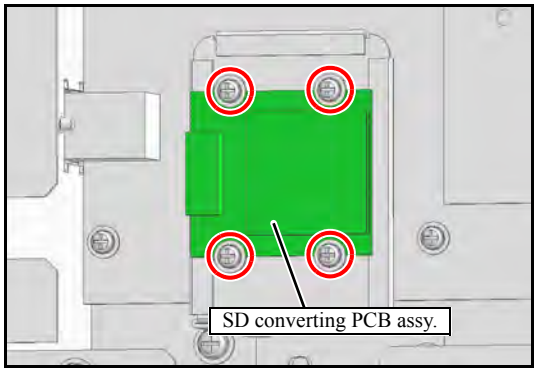
6.4.4 SD Converting PCB Assy.



■ **Work procedure**

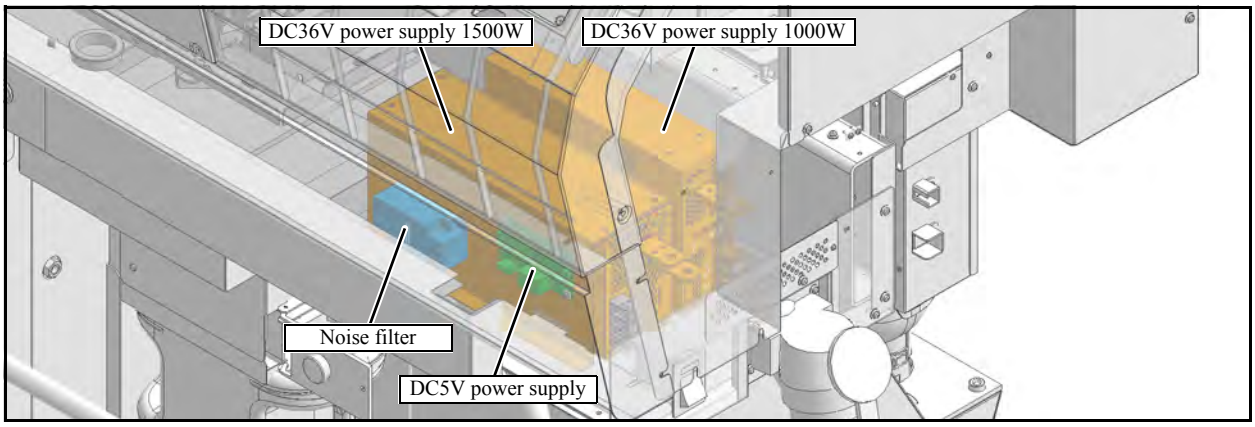
After turning OFF the sub and main power switches, unplug the power cord. Make sure to take 5 minutes before restarting the operation. It is very dangerous if the sleep mode functions mistakenly during the operation.
Moreover, the PCB may be damaged in case electric charge still remains inside.

1. Remove the following cover.
   - **Electrical box cover**
2. Turn OFF the main power and then disconnect the power plug.
3. Disconnect all connectors on PCB.
4. Remove the **SD converting PCB assy.**. (screw x4)



5. Reverse the disassembly procedure for reassembly.

6.4.5 Power Supply Assy.

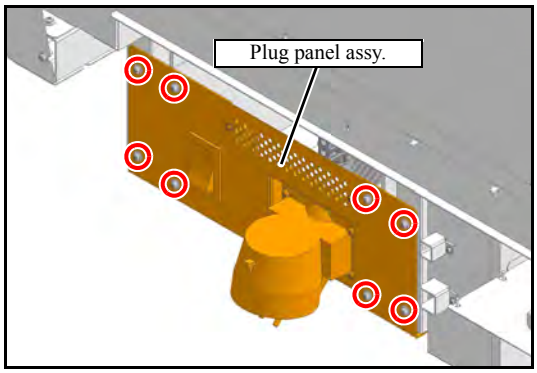


■ **Work procedure**

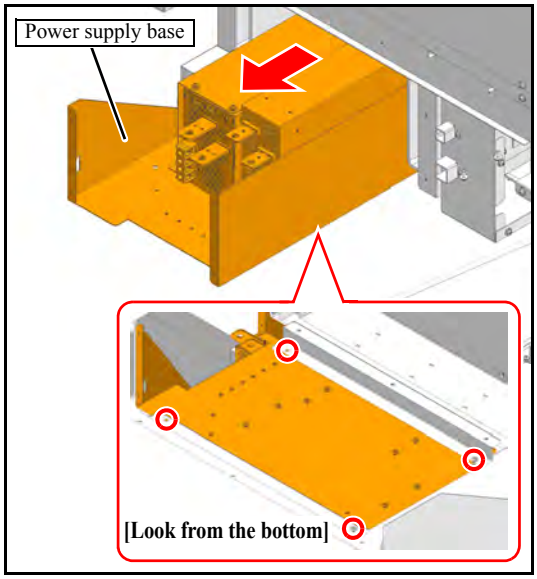
Warning

After turning OFF the sub and main power switches, unplug the power cord. Make sure to take 5 minutes before restarting the operation. It is very dangerous if the sleep mode functions mistakenly during the operation.
Moreover, the PCB may be damaged in case electric charge still remains inside.
Also, there is a possibility of electric shock because of high power voltage applied to the high pressure part of the power supply PCB assy. Take care to avoid contact with it.

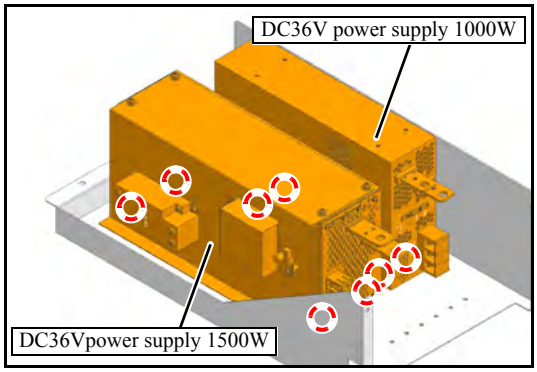
1. Remove the following cover.
   - **Right side cover D**
2. Turn OFF the main power and then disconnect the power plug.
3. Remove the screws (x4) of the plug panel assy..



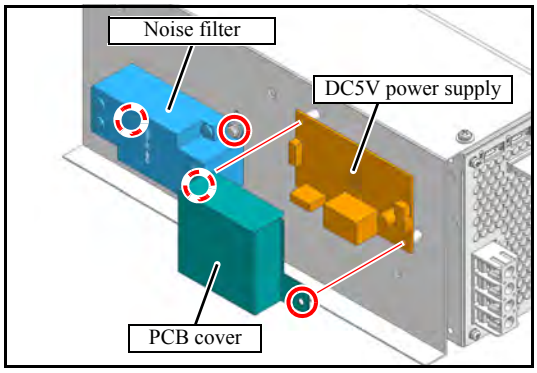
6.4.5 Power Supply Assy.



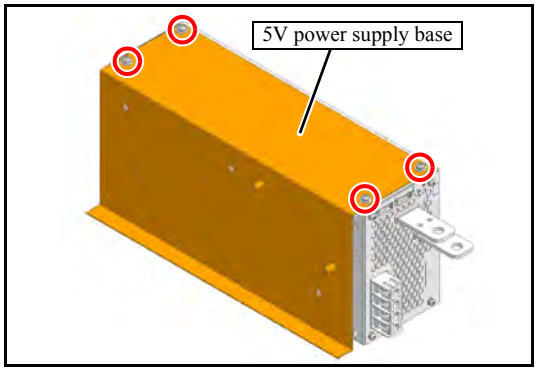
4. Remove the screws (x4) of the power supply base and pull frontward.
5. Disconnect all connectors on the power supply assy..
6. Remove the **power supply base**.



7. Remove the **DC36V power supply 1000W**. (screw x4)
8. Remove the **DC36V power supply 1500W**. (screw x4)

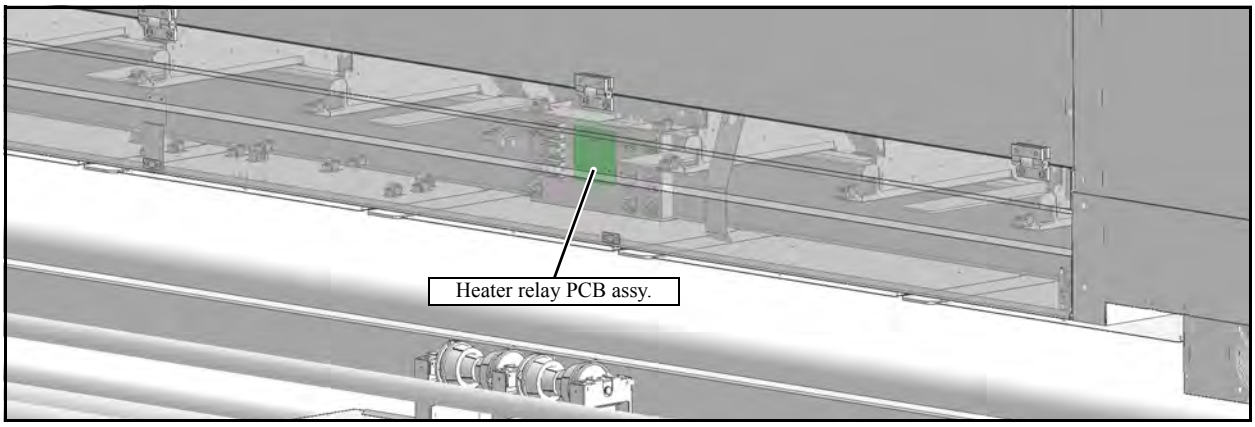


9. Remove the **PCB cover**. (screw x2)
10. Disconnect all connectors on PCB.
11. Remove the **DC5V power supply**.
12. Remove the **noise filter**. (screw x2)



13. Remove the **5V power supply base**. (screw x4)
14. Reverse the disassembly procedure for reassembly.

6.4.6 Heater Relay PCB Assy. (Rear side)

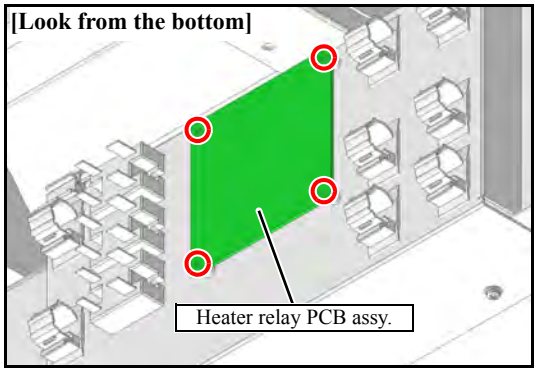


■ **Work procedure**

Warning

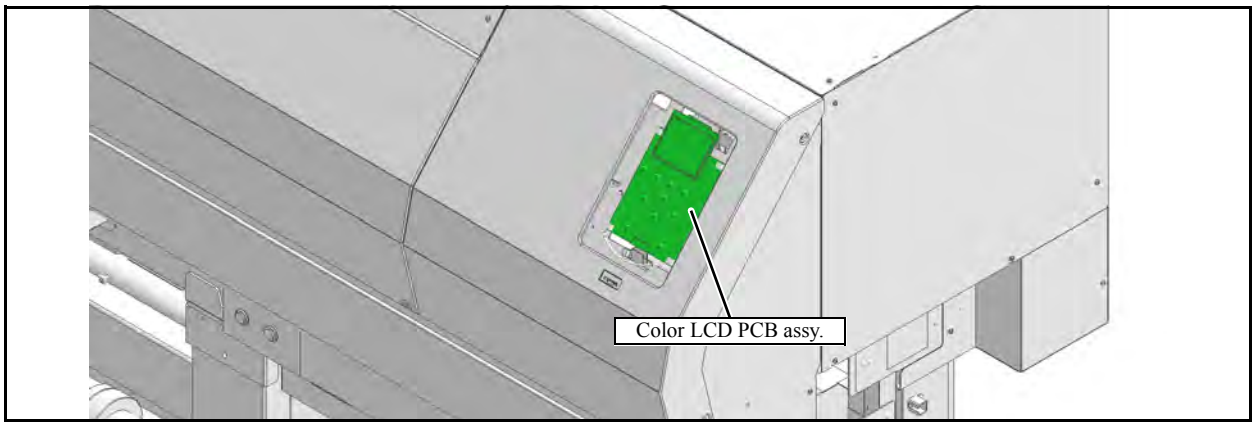
After turning OFF the sub and main power switches, unplug the power cord. Make sure to take 5 minutes before restarting the operation. It is very dangerous if the sleep mode functions mistakenly during the operation.
Moreover, the PCB may be damaged in case electric charge still remains inside.

1. Remove the following cover.
   - **Main unit under cover D**
2. Turn OFF the main power and then disconnect the power plug.
3. Disconnect all connectors on PCB.
4. Remove the **heater relay PCB assy.**. (screw x4)



5. Reverse the disassembly procedure for reassembly.

6.4.7 Color LCD PCB Assy.

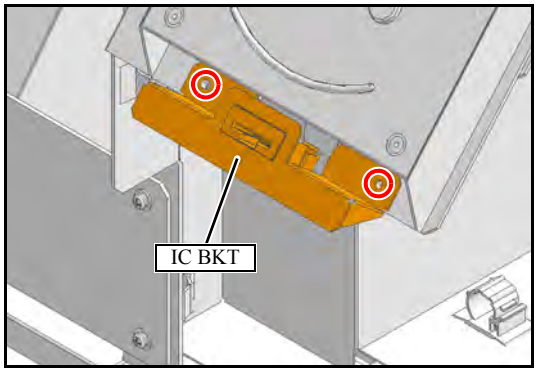


■ **Work procedure**

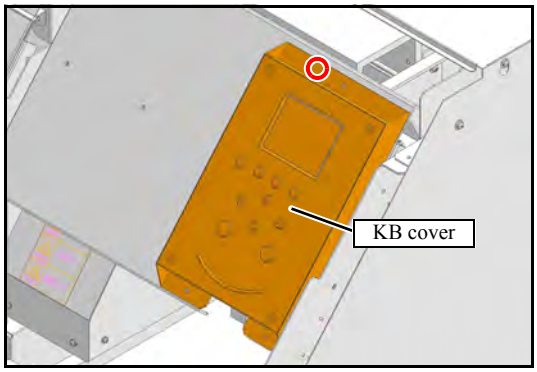
Warning

After turning OFF the sub and main power switches, unplug the power cord. Make sure to take 5 minutes before restarting the operation. It is very dangerous if the sleep mode functions mistakenly during the operation.
Moreover, the PCB may be damaged in case electric charge still remains inside.

1. Remove the following cover.
   - **Right side cover**
2. Turn OFF the main power and then disconnect the power plug.

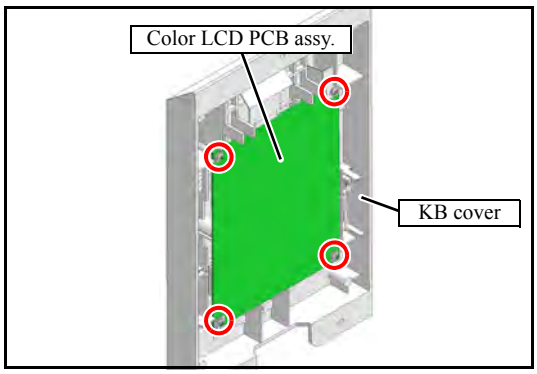


3. Remove the **IC BKT**. (screw x2)



4. Remove the **KB cover**. (screw x1)

6.4.7 Color LCD PCB Assy.

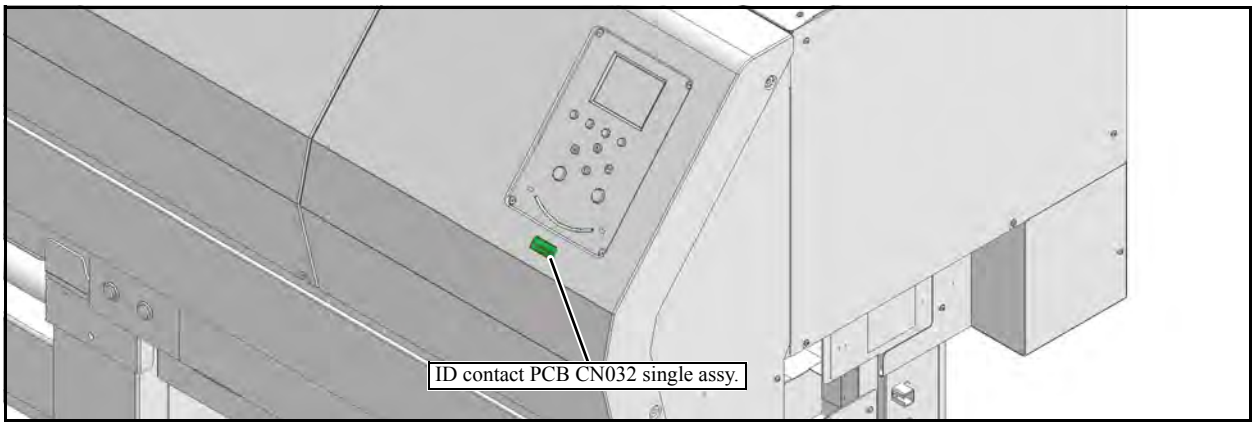


5. Disconnect all connectors on PCB.

6. Remove the **color LCD PCB assy.**. (screw x4)

7. Reverse the disassembly procedure for reassembly.

6.4.8 ID Contact PCB CN032 Single Assy.

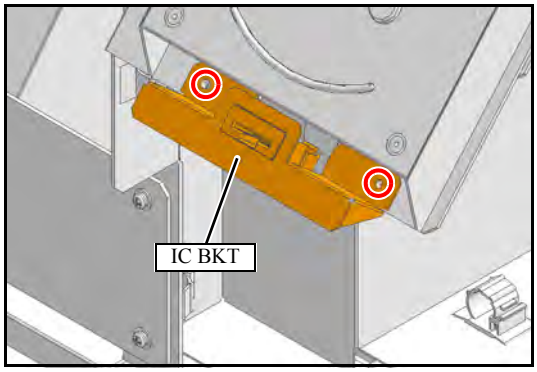


■ **Work procedure**

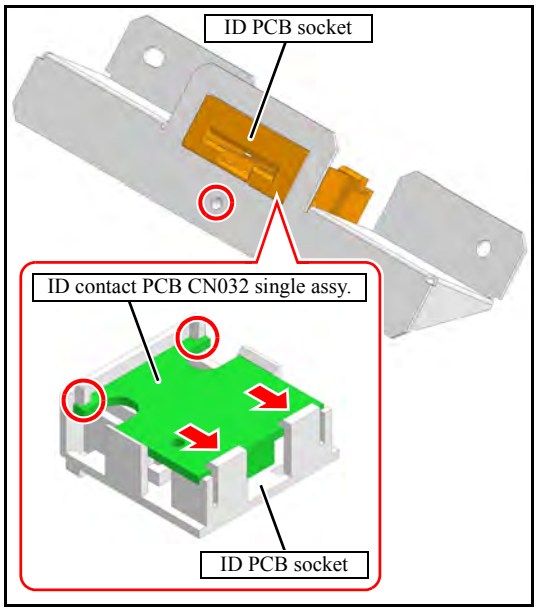
Warning

After turning OFF the sub and main power switches, unplug the power cord. Make sure to take 5 minutes before restarting the operation. It is very dangerous if the sleep mode functions mistakenly during the operation.
Moreover, the PCB may be damaged in case electric charge still remains inside.

1. Remove the following cover.
   - **Right side cover**
2. Turn OFF the main power and then disconnect the power plug.

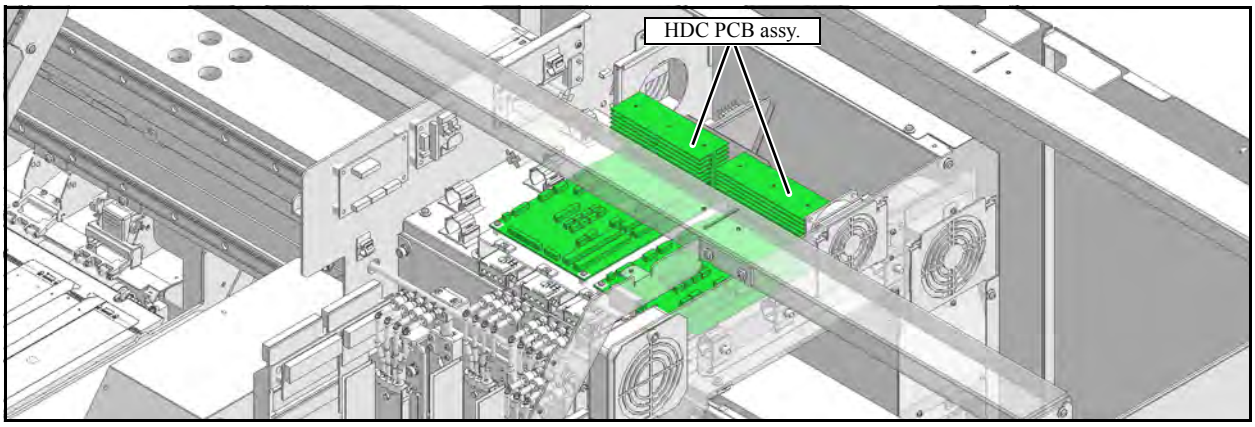


3. Remove the **IC BKT**. (screw x2)



4. Disconnect all connectors on PCB.
5. Remove the **ID PCB socket**. (screw x1)
6. Remove the **ID contact PCB CN032 single assy.**. (tab x4)
7. Reverse the disassembly procedure for reassembly.

6.4.9 HDC PCB Assy.

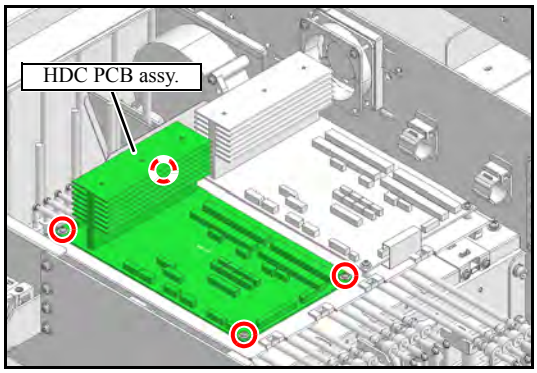


■ **Work procedure**

Warning

After turning OFF the sub and main power switches, unplug the power cord. Make sure to take 5 minutes before restarting the operation. It is very dangerous if the sleep mode functions mistakenly during the operation.
Moreover, the PCB may be damaged in case electric charge still remains inside.

1. Remove the following covers.
   - **Right maintenance cover**
   - **Right front cover U**
   - **Right top cover B**
   - **Carriage cover upper**
2. Turn OFF the main power and then disconnect the power plug.

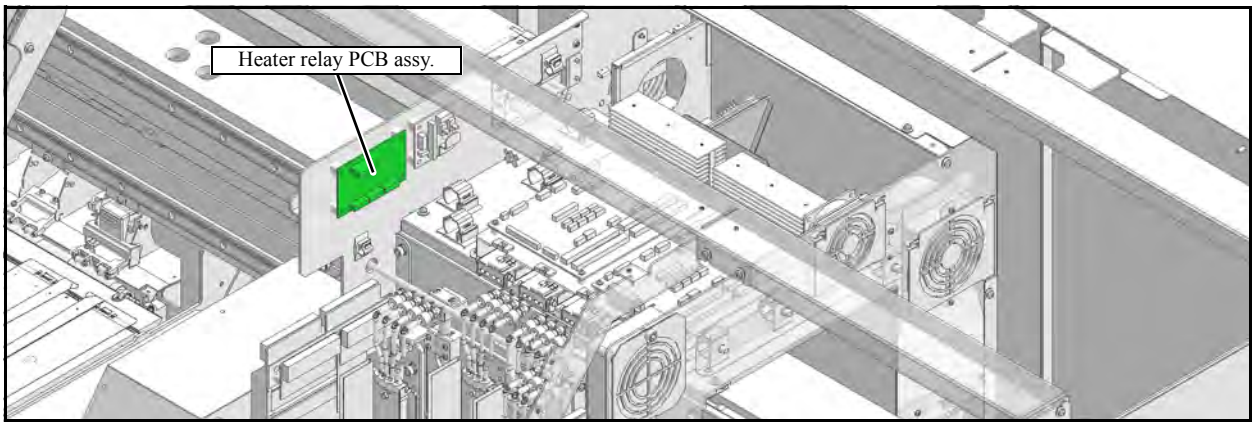


3. Disconnect all connectors on PCB.
4. Remove the **HDC PCB assy.**. (screw x4)
5. Reverse the disassembly procedure for reassembly.

IMPORTANT

Don't forget to attach the earth cable which was tightened with the board.

6.4.10 Heater Relay PCB Assy.

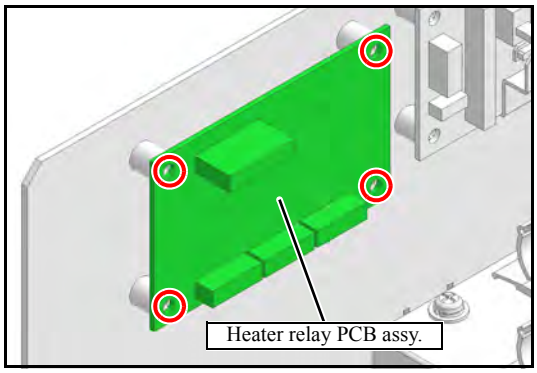


■ **Work procedure**

Warning

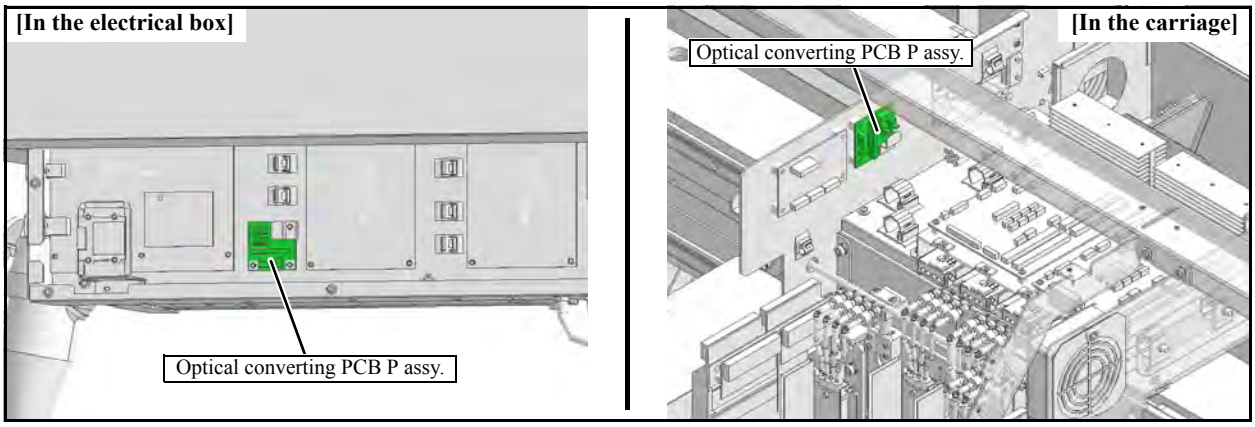
After turning OFF the sub and main power switches, unplug the power cord. Make sure to take 5 minutes before restarting the operation. It is very dangerous if the sleep mode functions mistakenly during the operation.
Moreover, the PCB may be damaged in case electric charge still remains inside.

1. Remove the following covers.
   - **Right maintenance cover**
   - **Right front cover U**
   - **Right top cover B**
   - **Carriage cover upper**
   - **Carriage cover front**
2. Turn OFF the main power and then disconnect the power plug.
3. Disconnect all connectors on PCB.



4. Remove the **heater relay PCB assy.**. (screw x4)
5. Reverse the disassembly procedure for reassembly.

6.4.11 Optical Converting PCB P Assy.



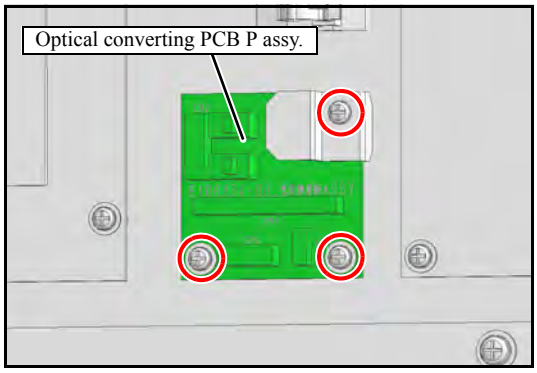
■ Work procedure

Warning

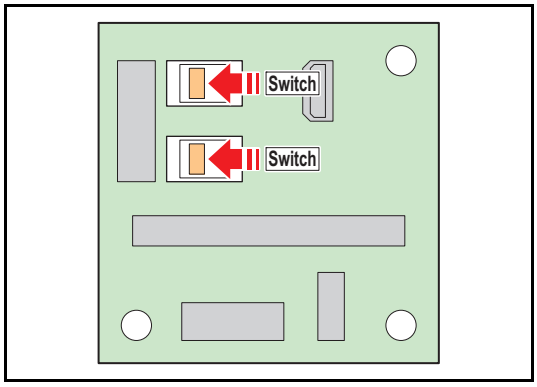
After turning OFF the sub and main power switches, unplug the power cord. Make sure to take 5 minutes before restarting the operation. It is very dangerous if the sleep mode functions mistakenly during the operation.
Moreover, the PCB may be damaged in case electric charge still remains inside.

■ Work procedure (in the electrical box)

1. Remove the following cover.
   - **Electrical box cover**
2. Turn OFF the main power and then disconnect the power plug.



3. Disconnect all connectors on PCB.
4. Remove the **optical converting PCB P assy.**. (screw x3)



5. Reverse the disassembly procedure for reassembly.

IMPORTANT

Set the switches as shown in the left figure.

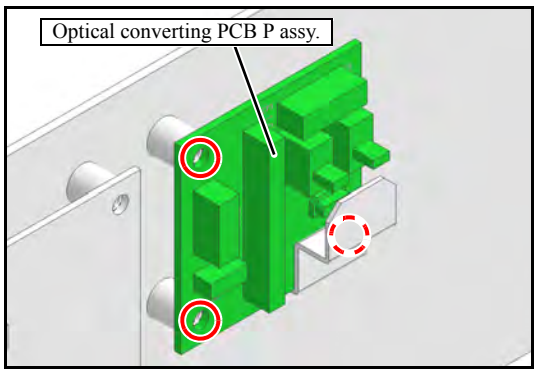
IMPORTANT

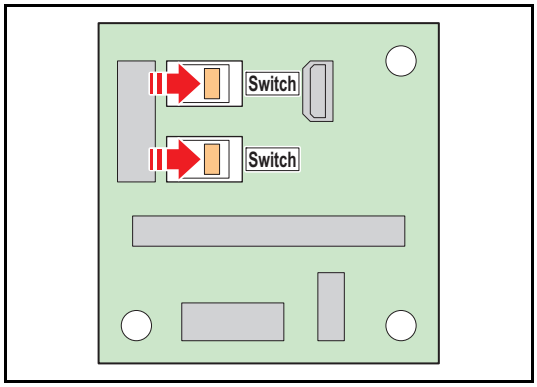
Since the fiber optic cable is easy to break, it is required a sufficient attention to handling.

6.4.11 Optical Converting PCB P Assy.

■ **Work procedure (in the carriage)**

1. Remove the following covers.
   - **Right maintenance cover**
   - **Right front cover U**
   - **Right top cover B**
   - **Carriage cover upper**
2. Turn OFF the main power and then disconnect the power plug.
3. Disconnect all connectors on PCB.
4. Remove the **optical converting PCB P assy.**. (screw x3)



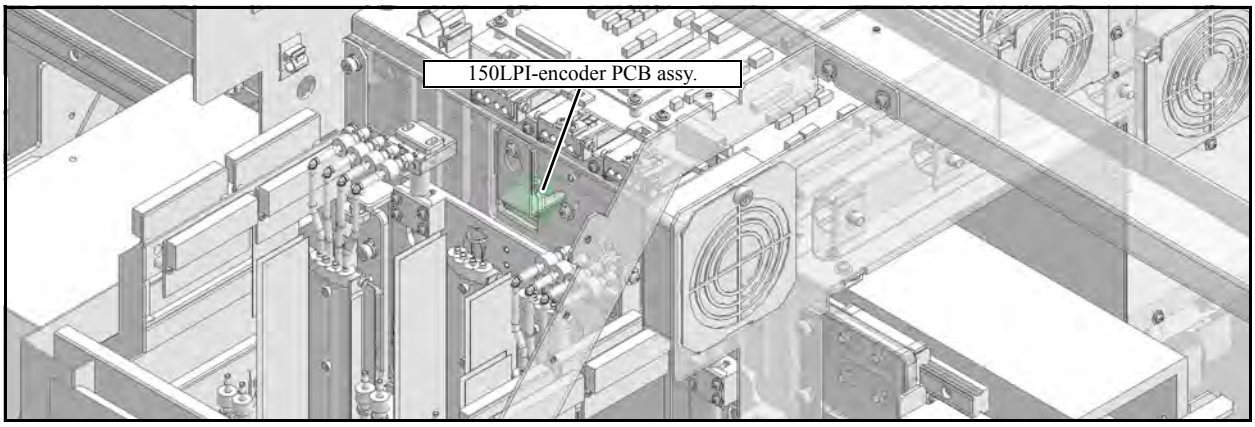


5. Reverse the disassembly procedure for reassembly.

IMPORTANT Set the switches as shown in the left figure.

IMPORTANT Since the fiber optic cable is easy to break, it is required a sufficient attention to handling.

6.4.12 150LPI-encoder PCB Assy.

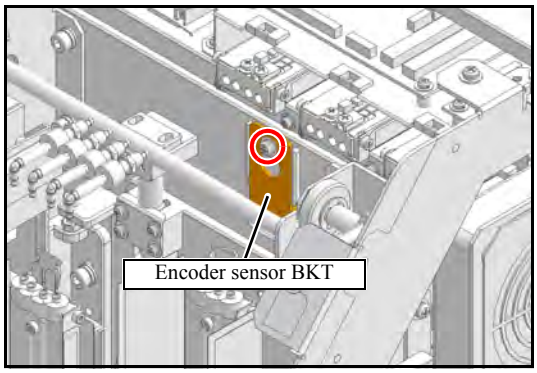


■ Work procedure

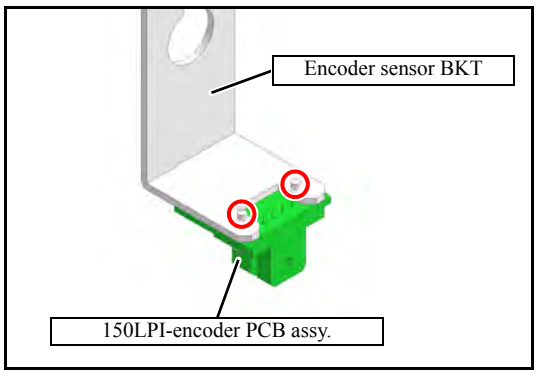
Warning

After turning OFF the sub and main power switches, unplug the power cord. Make sure to take 5 minutes before restarting the operation. It is very dangerous if the sleep mode functions mistakenly during the operation.
Moreover, the PCB may be damaged in case electric charge still remains inside.

1. Remove the following covers.
   - **Right maintenance cover**
   - **Right front cover U**
   - **Right top cover B**
   - **Carriage cover upper**
   - **Carriage cover front**
2. Turn OFF the main power and then disconnect the power plug.



3. Remove the **encoder sensor BKT** together with the 150LPI-encoder PCB assy.. (screw x1)
4. Disconnect the connector for the 150LPI-encoder PCB assy..

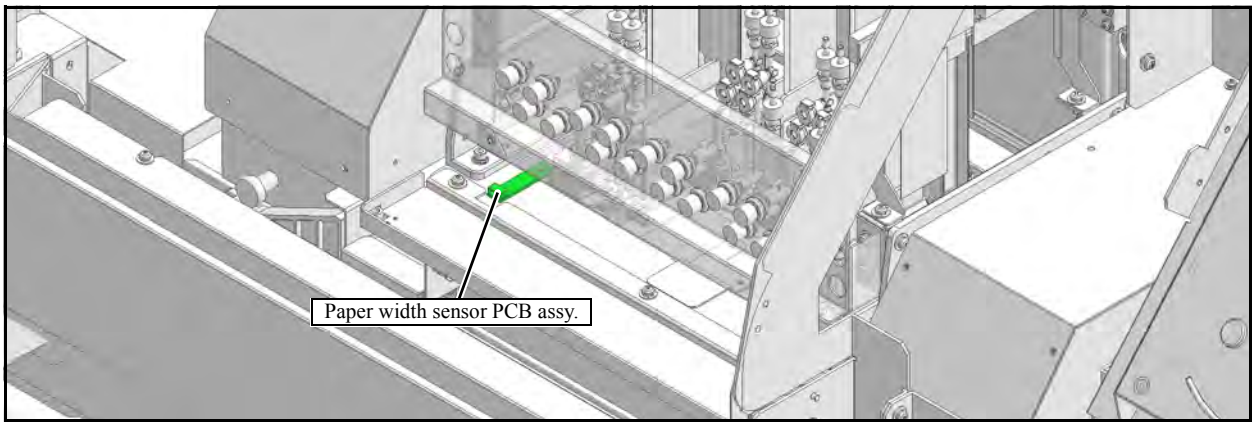


5. Remove the **150LPI-encoder PCB assy.**. (screw x2)
6. Reverse the disassembly procedure for reassembly.

IMPORTANT

Adjust the encoder sensor position after assembled. (Refer to "4.3.2 Encoder Sensor Position Adjustment")

6.4.13 Paper Width Sensor PCB Assy.

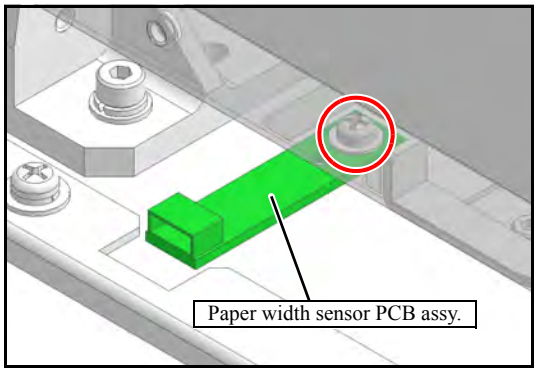


■ **Work procedure**

Warning

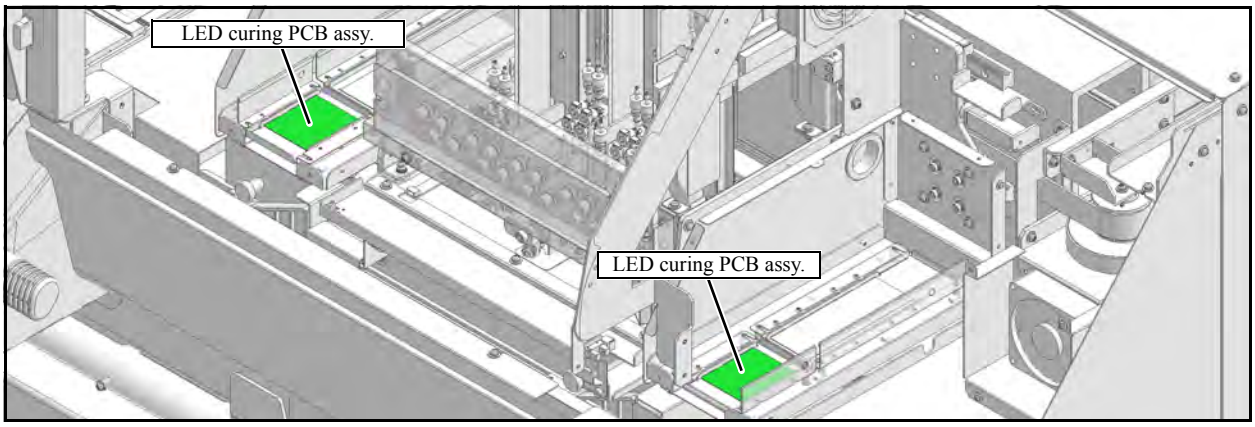
After turning OFF the sub and main power switches, unplug the power cord. Make sure to take 5 minutes before restarting the operation. It is very dangerous if the sleep mode functions mistakenly during the operation.
Moreover, the PCB may be damaged in case electric charge still remains inside.

1. Remove the following covers.
   - **Right maintenance cover**
   - **Right front cover U**
   - **Right top cover B**
   - **Carriage cover upper**
   - **Carriage cover front**
   - **Carriage cover under**
2. Turn OFF the main power and then disconnect the power plug.
3. Disconnect all connectors on PCB.
4. Remove the **paper width sensor PCB assy.**. (screw x1)



5. Reverse the disassembly procedure for reassembly.

6.4.14 LED Curing PCB Assy.

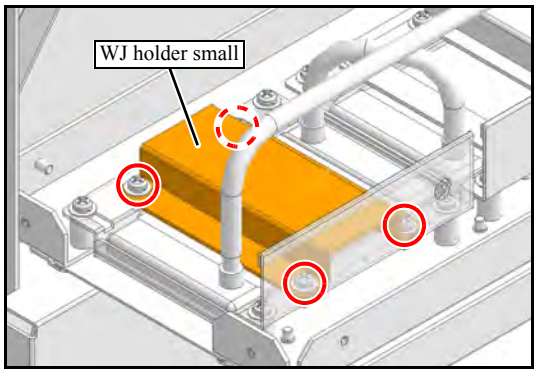


■ **Work procedure**

Warning

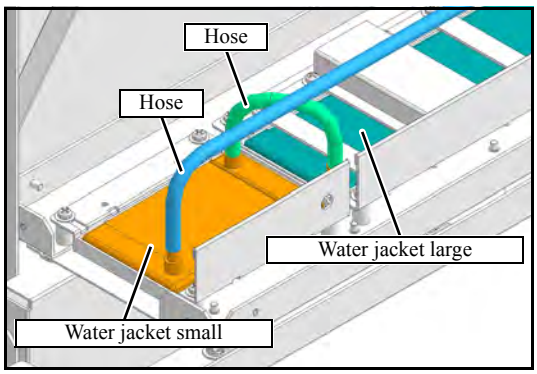
After turning OFF the sub and main power switches, unplug the power cord. Make sure to take 5 minutes before restarting the operation. It is very dangerous if the sleep mode functions mistakenly during the operation.
Moreover, the PCB may be damaged in case electric charge still remains inside.

1. Remove the following covers.
   - **Right maintenance cover**
   - **Right front cover U**
   - **Right top cover B**
   - **UV lamp cover** (x2)
2. Turn OFF the main power and then disconnect the power plug.



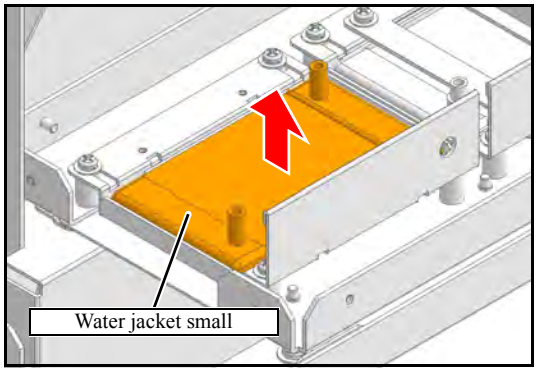
A process is described taking the UV lamp R assy. for instance here because the process of operation to remove the board is same at the left and the right.

3. Remove the **WJ holder small**. (screw x4)

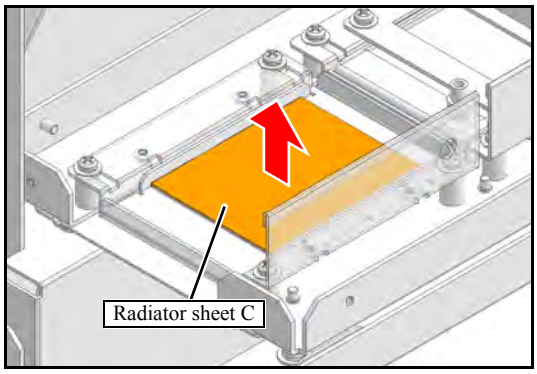


4. Remove the **hose** (x2) of water jacket.

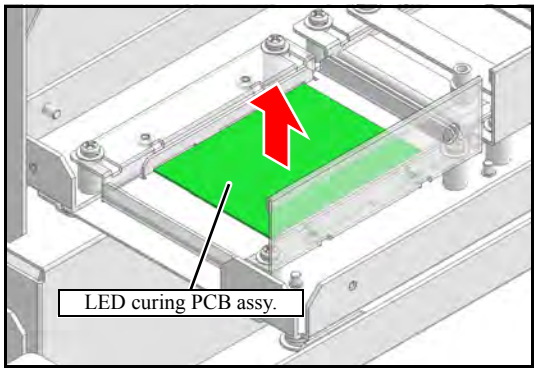
6.4.14 LED Curing PCB Assy.



5. Remove the **water jacket small**.



6. Remove the **radiator sheet C**.

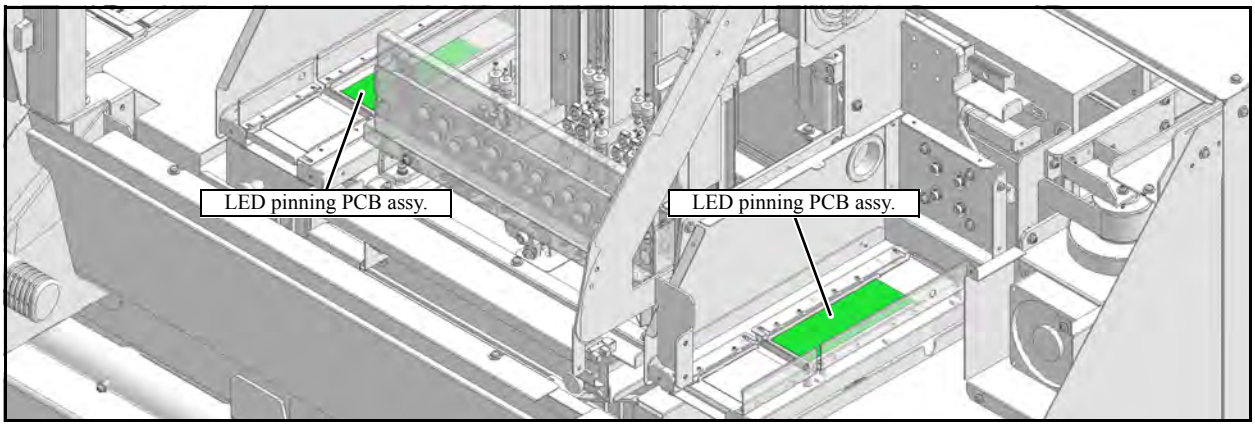


7. Disconnect all connectors on PCB.

8. Remove the **LED curing PCB assy.**.

9. Reverse the disassembly procedure for reassembly.

6.4.15 LED Pinning PCB Assy.

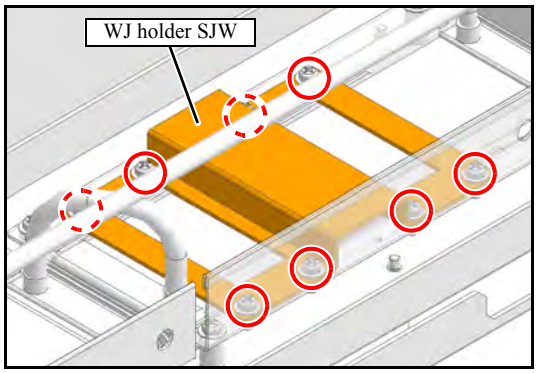


■ Work procedure

Warning

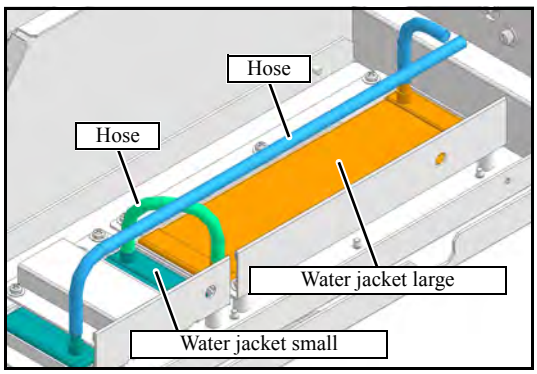
After turning OFF the sub and main power switches, unplug the power cord. Make sure to take 5 minutes before restarting the operation. It is very dangerous if the sleep mode functions mistakenly during the operation.
Moreover, the PCB may be damaged in case electric charge still remains inside.

1. Remove the following covers.
   - **Right maintenance cover**
   - **Right front cover U**
   - **Right top cover B**
   - **UV lamp cover** (x2)
2. Turn OFF the main power and then disconnect the power plug.



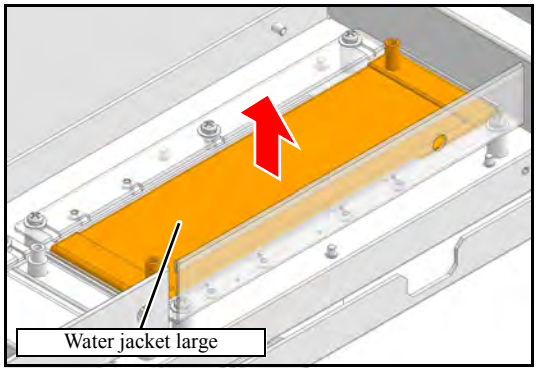
A process is described taking the UV lamp R assy. for instance here because the process of operation to remove the board is same at the left and the right.

3. Remove the **WJ holder SJW**. (screw x8)

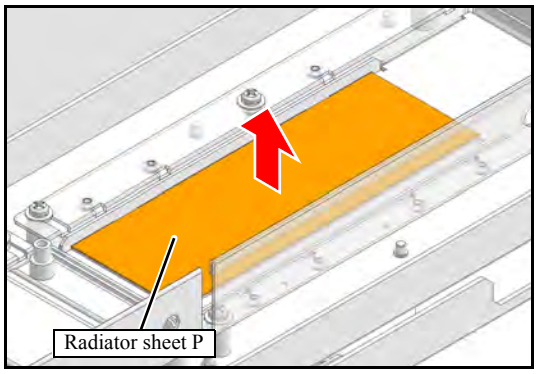


4. Remove the **hose** (x2) of water jacket.

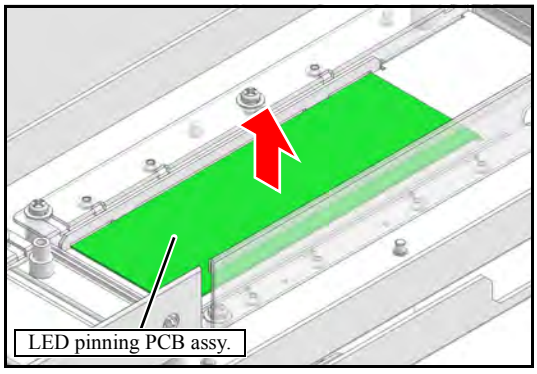
6.4.15 LED Pinning PCB Assy.



5. Remove the **Water jacket large**.



6. Remove the **radiator sheet P**.

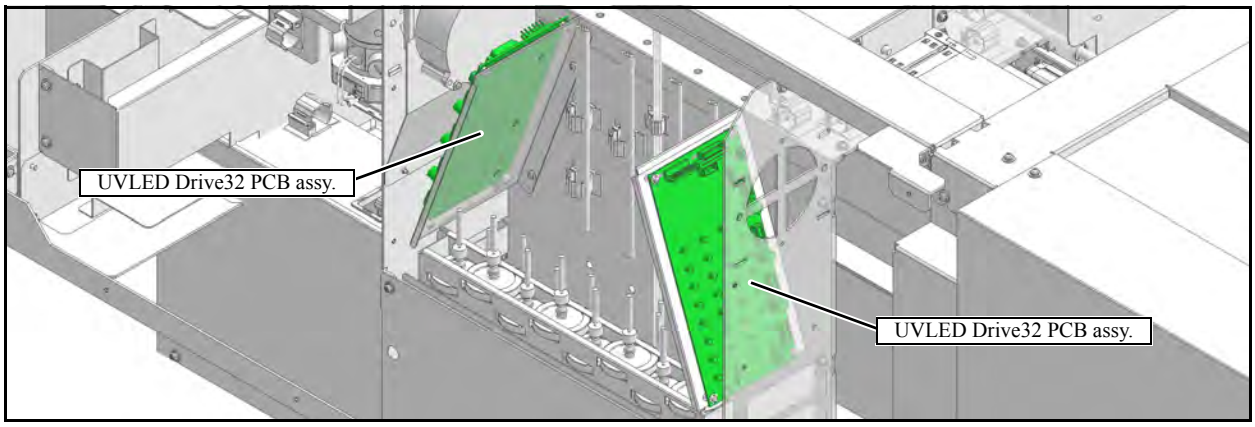


7. Disconnect all connectors on PCB.

8. Remove the **LED pinning PCB assy.**.

9. Reverse the disassembly procedure for reassembly.

6.4.16 UVLED Drive32 PCB Assy.

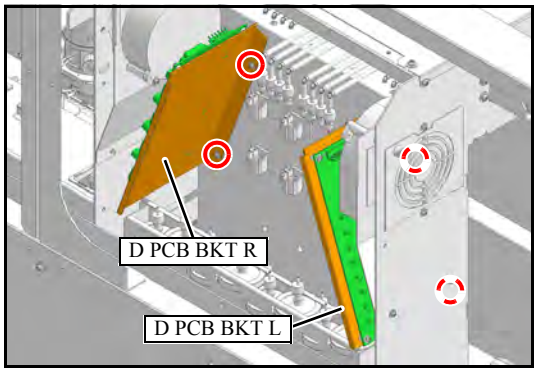


■ Work procedure

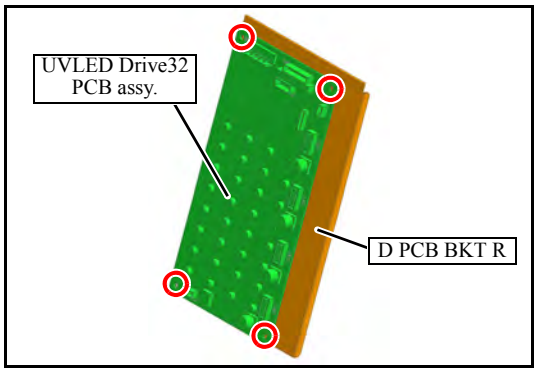
Warning

After turning OFF the sub and main power switches, unplug the power cord. Make sure to take 5 minutes before restarting the operation. It is very dangerous if the sleep mode functions mistakenly during the operation.
Moreover, the PCB may be damaged in case electric charge still remains inside.

1. Remove the following covers.
   - **Right rear cover U1**
   - **Right top cover B**
   - **Carriage cover RR**
2. Turn OFF the main power and then disconnect the power plug.

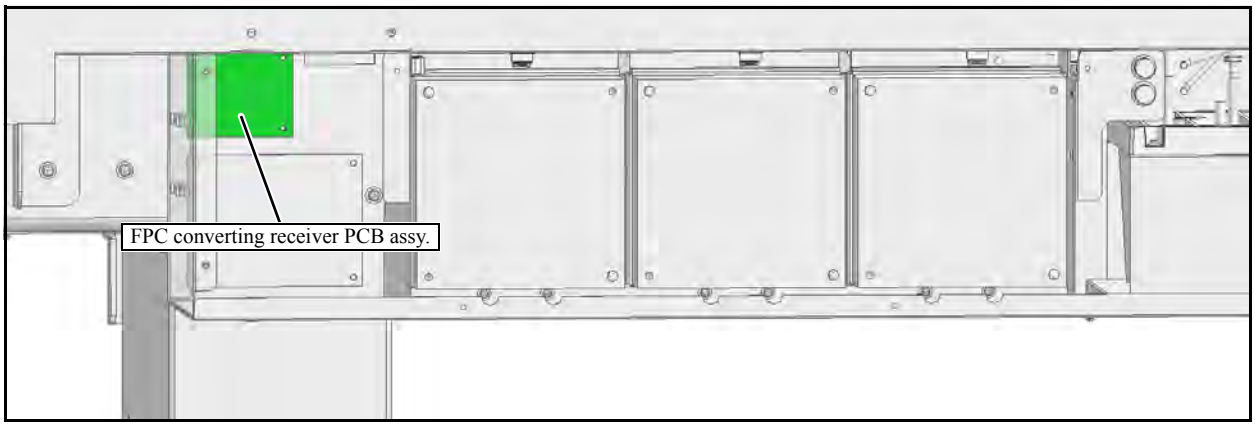


3. Remove the **D PCB BKT R(L)**. (screw x2)



4. Disconnect all connectors on PCB.
5. Remove the **UVLED Drive32 PCB assy.**. (screw x4)
6. Reverse the disassembly procedure for reassembly.

6.4.17 FPC Converting Receiver PCB Assy.

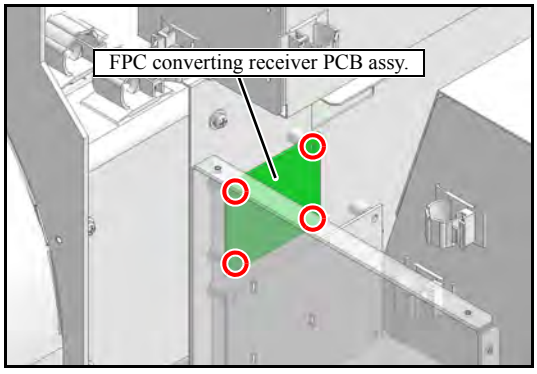


■ **Work procedure**

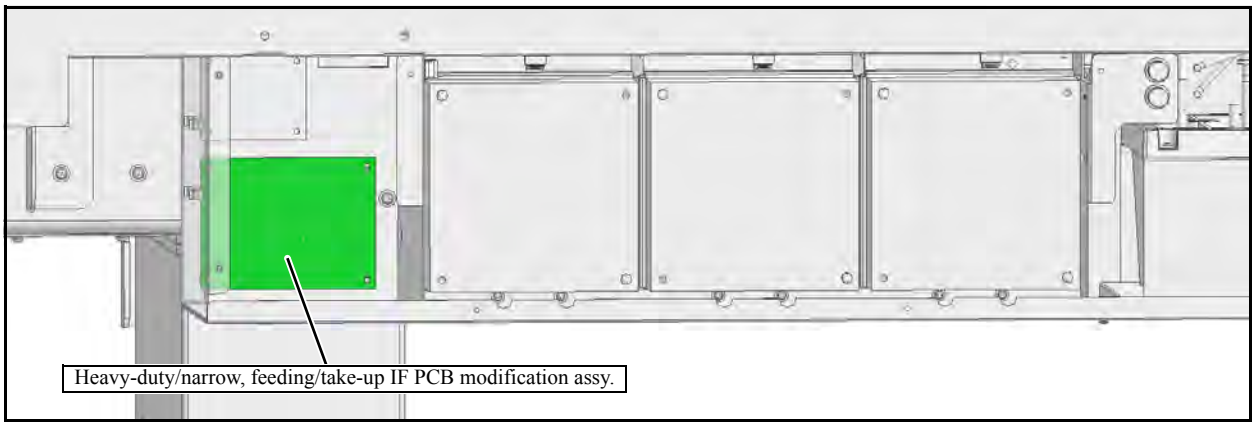
Warning

After turning OFF the sub and main power switches, unplug the power cord. Make sure to take 5 minutes before restarting the operation. It is very dangerous if the sleep mode functions mistakenly during the operation.
Moreover, the PCB may be damaged in case electric charge still remains inside.

1. Remove the following cover.
   - **Cooling box cover**
2. Turn OFF the main power and then disconnect the power plug.
3. Disconnect all connectors on PCB.
4. Remove the **FPC converting receiver PCB assy.**. (screw x4)
5. Reverse the disassembly procedure for reassembly.



6.4.18 Heavy-duty/narrow, Feeding/take-up IF PCB Modification Assy.

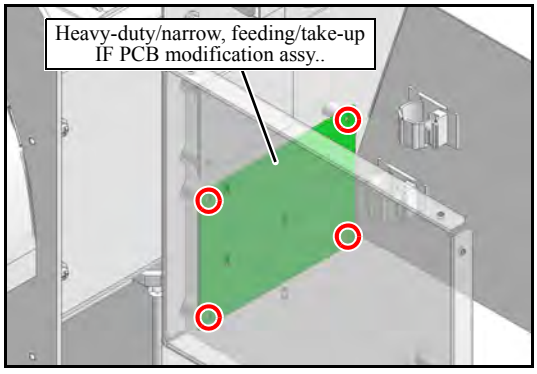


■ Work procedure

Warning

After turning OFF the sub and main power switches, unplug the power cord. Make sure to take 5 minutes before restarting the operation. It is very dangerous if the sleep mode functions mistakenly during the operation.
Moreover, the PCB may be damaged in case electric charge still remains inside.

1. Remove the following cover.
   - **Cooling box cover**
2. Turn OFF the main power and then disconnect the power plug.



3. Disconnect all connectors on PCB.
4. Remove the **heavy-duty/narrow, feeding/take-up IF PCB modification assy.**. (screw x4)
5. Reverse the disassembly procedure for reassembly.

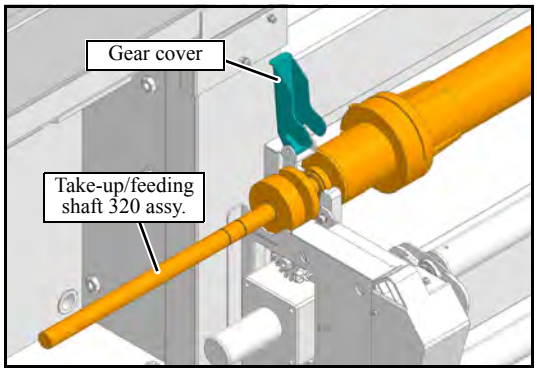
Disassembly and Reassembly

6.5.1 Take-up Motor Assy.

> **Caution** Turn the main power OFF when turning the power OFF.

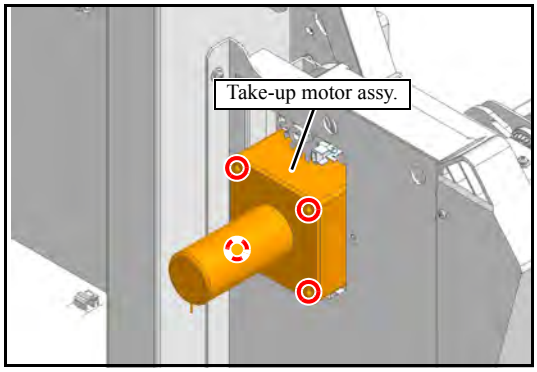
■ **Work procedure**

1. Remove the following cover.
   - **Motor cover front**



2. Open the gear cover and remove the **take-up/feeding shaft 320 assy.**.

> **IMPORTANT** As the rake-up/feeding shaft is heavy, make sure to work with more than 2 persons.



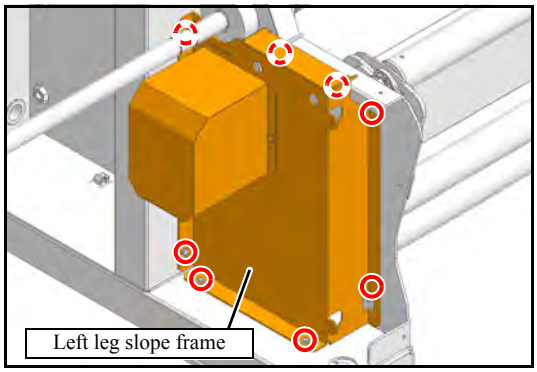
3. Disconnect the connector for the take-up/feeding motor assy..
4. Remove the **take-up motor assy.**. (screw x4)
5. Reverse the disassembly procedure for reassembly.

6.5.2 Take-up Photo Sensor

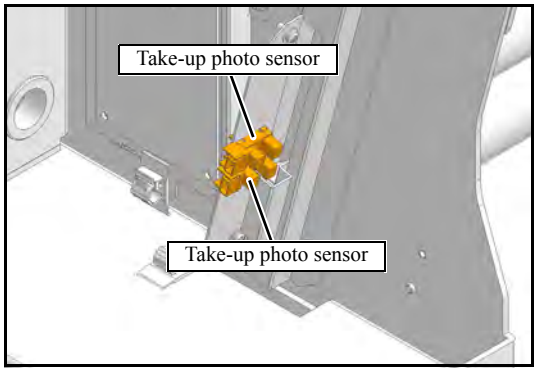
> **Caution** Turn the main power OFF when turning the power OFF.

■ Work procedure

1. Remove the following cover.
   - **Left leg front cover**



2. Remove the **left leg slope frame**. (screw x8)

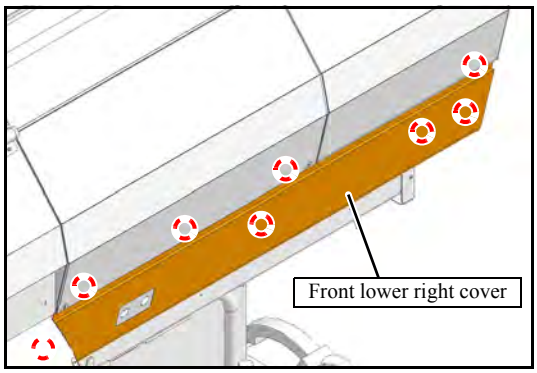


3. Disconnect the connectors for the take-up photo sensor. (x2)
4. Remove the **take-up photo sensor**. (x2)
5. Reverse the disassembly procedure for reassembly.

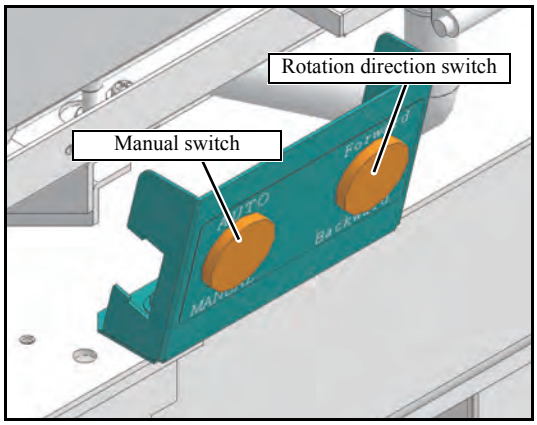
6.5.3 Take-up Operation Switch

> **Caution** Turn the main power OFF when turning the power OFF.

■ **Work procedure**



1. Remove the front lower right. (screw x8)



2. Disconnect the connectors for the manual switch and the rotation direction switch.

3. Remove the **take-up operation switch**. (x2)

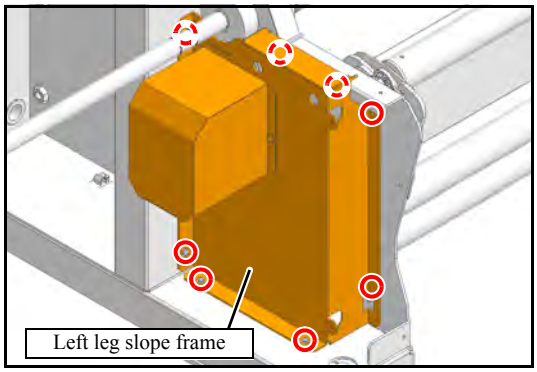
4. Reverse the disassembly procedure for reassembly.

6.5.4 Heavy-duty Feeding/take-up PCB Assy.

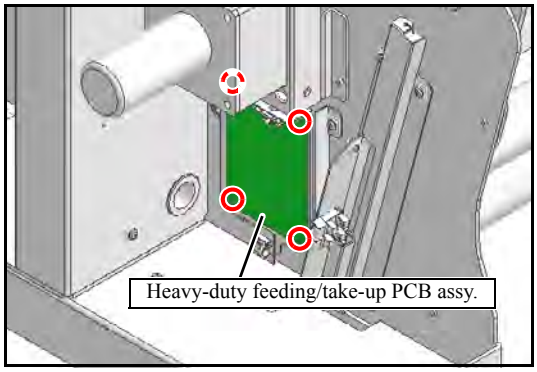
> **Caution** Turn the main power OFF when turning the power OFF.

■ **Work procedure (on Take-up device)**

1. Remove the following cover.
   - **Left leg front cover**

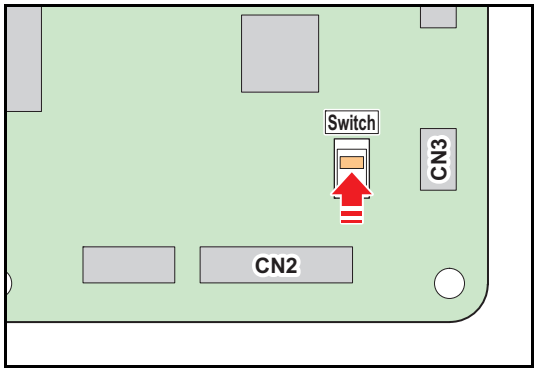


2. Remove the **left leg slope frame**. (screw x8)



3. Disconnect the connector for the heavy-duty feeding/take-up PCB assy..

4. Remove the **heavy-duty feeding/take-up PCB assy.**. (screw x4)

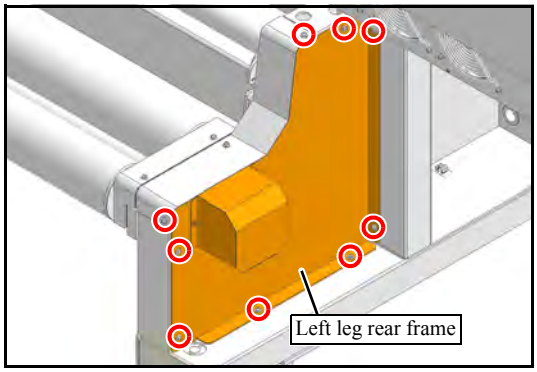


5. Reverse the disassembly procedure for reassembly.

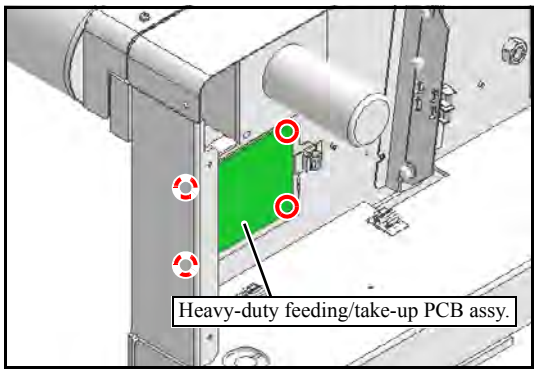
> **IMPORTANT** Set the switch on the Heavy-duty feeding/take-up PCB to the ON side. (Refer to the left figure.)

6.5.4 Heavy-duty Feeding/take-up PCB Assy.

■ **Work procedure (on Feeding device)**

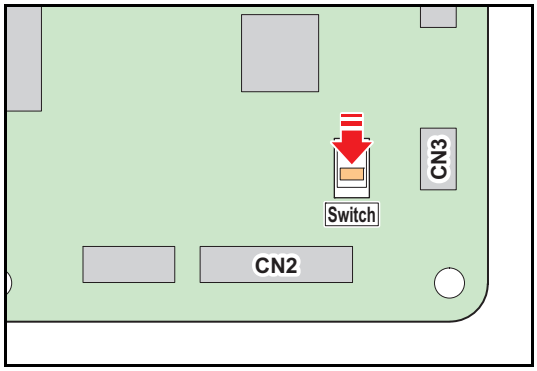


1. Remove the **left leg rear frame**. (screw x9)



2. Disconnect the connector for the heavy-duty feeding/take-up PCB assy..

3. Remove the **heavy-duty feeding/take-up PCB assy.**. (screw x4)



4. Reverse the disassembly procedure for reassembly.

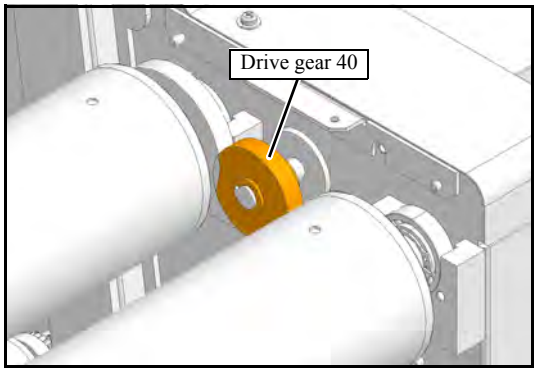
> IMPORTANT
> Set the switch on the Heavy-duty feeding/take-up PCB to the OFF side. (Refer to the left figure.)

6.5.5 Feeding Motor Assy.

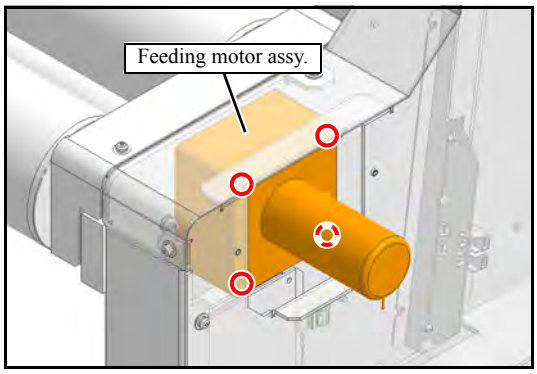
> **Caution** Turn the main power OFF when turning the power OFF.

■ **Work procedure**

1. Remove the following cover.
   - **Motor cover rear**
   - **Left leg rear inner cover**



2. Remove the **drive gear 40**. (screw x1, key x1)



3. Disconnect the connector for the feeding motor assy..

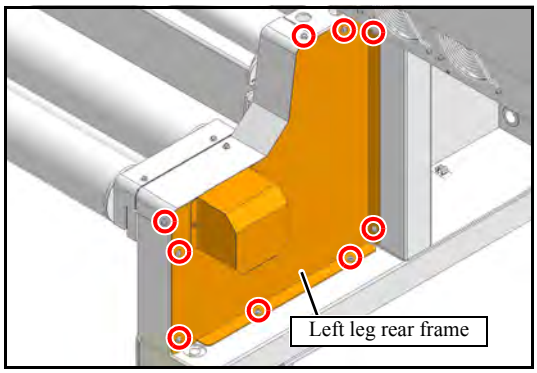
4. Remove the **feeding motor assy.**. (screw x4)

5. Reverse the disassembly procedure for reassembly.

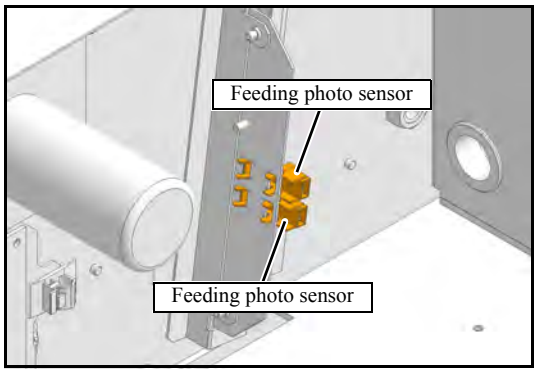
6.5.6 Feeding Photo Sensor

> **Caution** Turn the main power OFF when turning the power OFF.

■ Work procedure



1. Remove the **left leg rear frame**. (screw x9)



2. Disconnect the connectors for the feeding photo sensor. (x2)

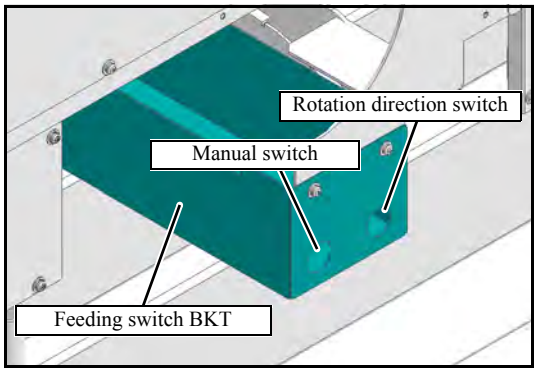
3. Remove the **feeding photo sensor**. (x2)

4. Reverse the disassembly procedure for reassembly.

6.5.7 Feeding Operation Switch

Caution Turn the main power OFF when turning the power OFF.

■ Work procedure

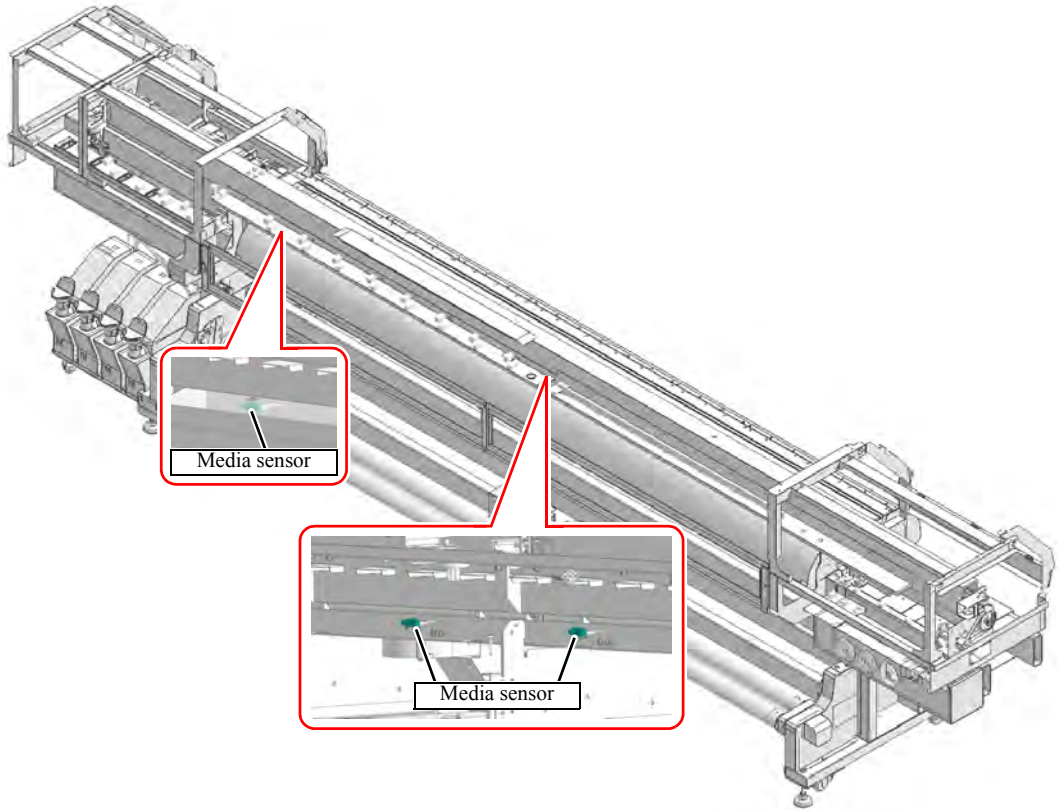


1. Remove the following cover.
   - **Right rear cover D**
2. Disconnect the connectors for the manual switch and the rotation direction switch.
3. Remove the manual switch and the rotation direction switch.
4. Reverse the disassembly procedure for reassembly.

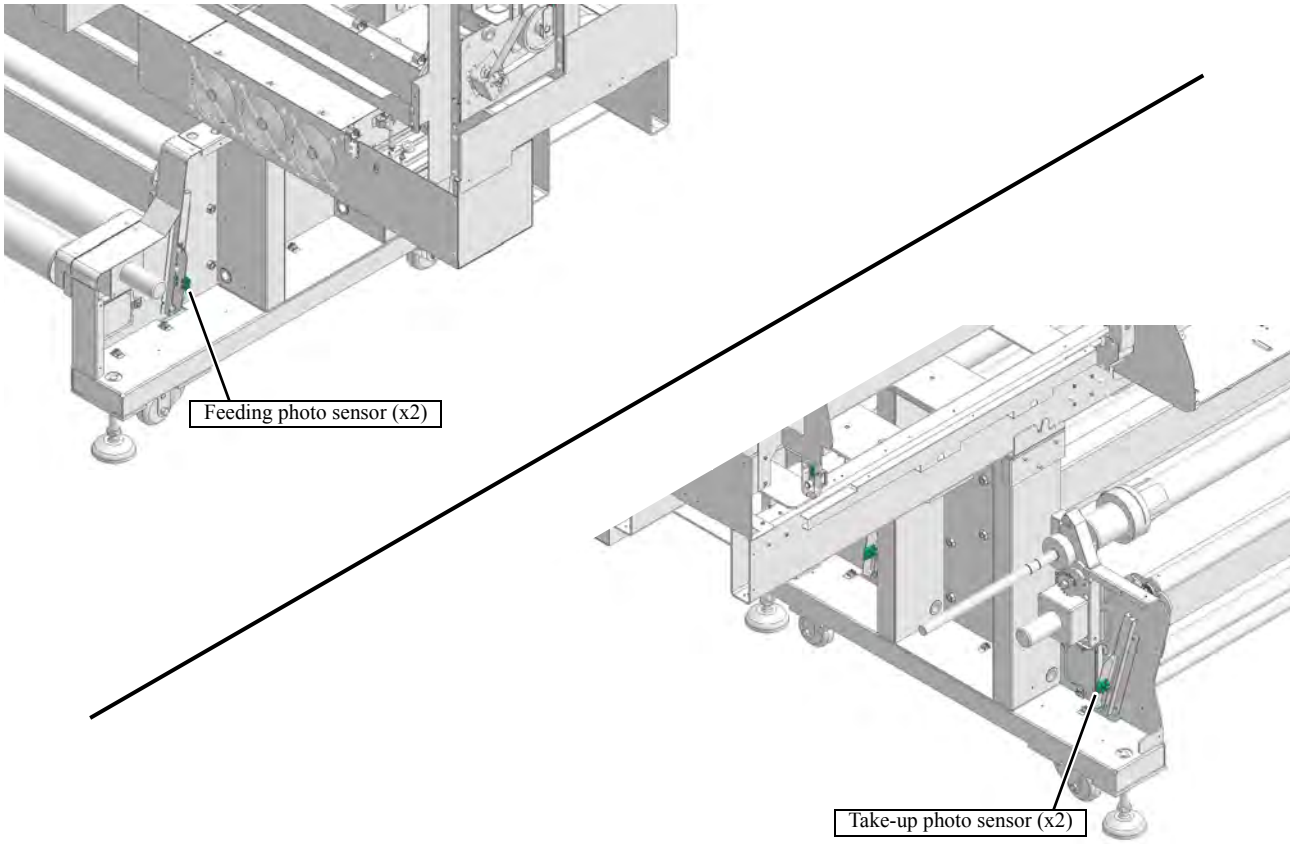
Disassembly and Reassembly

6.6.1 Sensor Layout

■ **Printer rear**

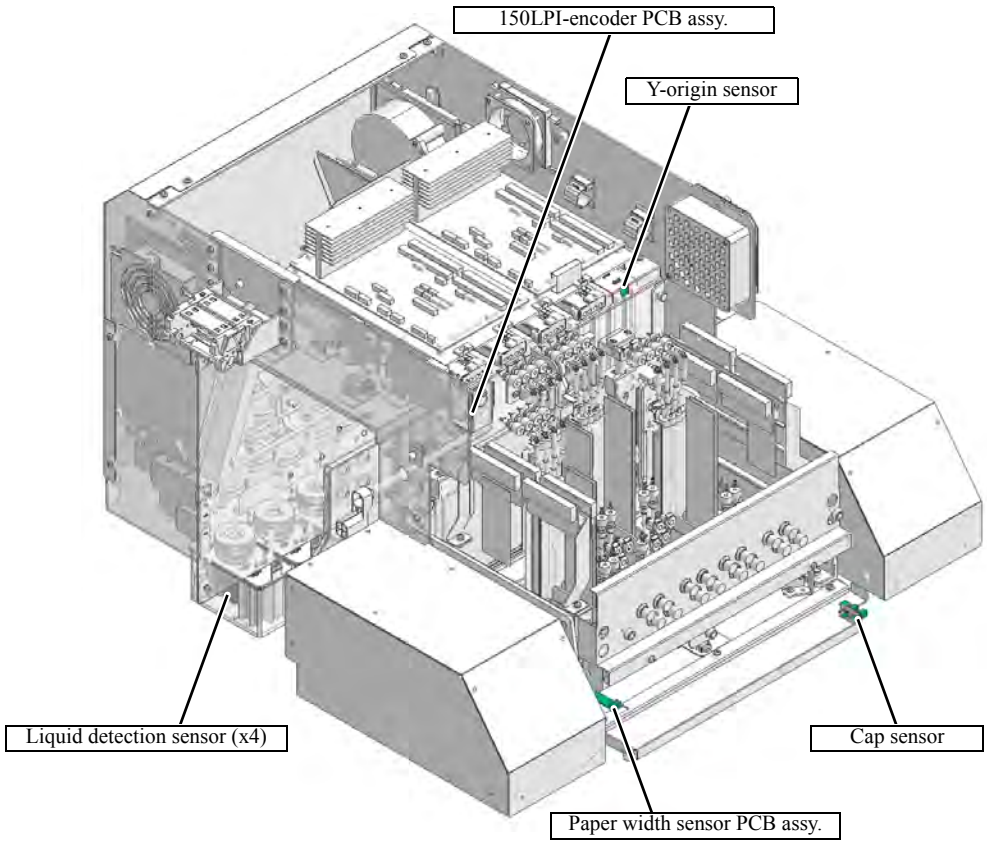


■ **Leg left side**

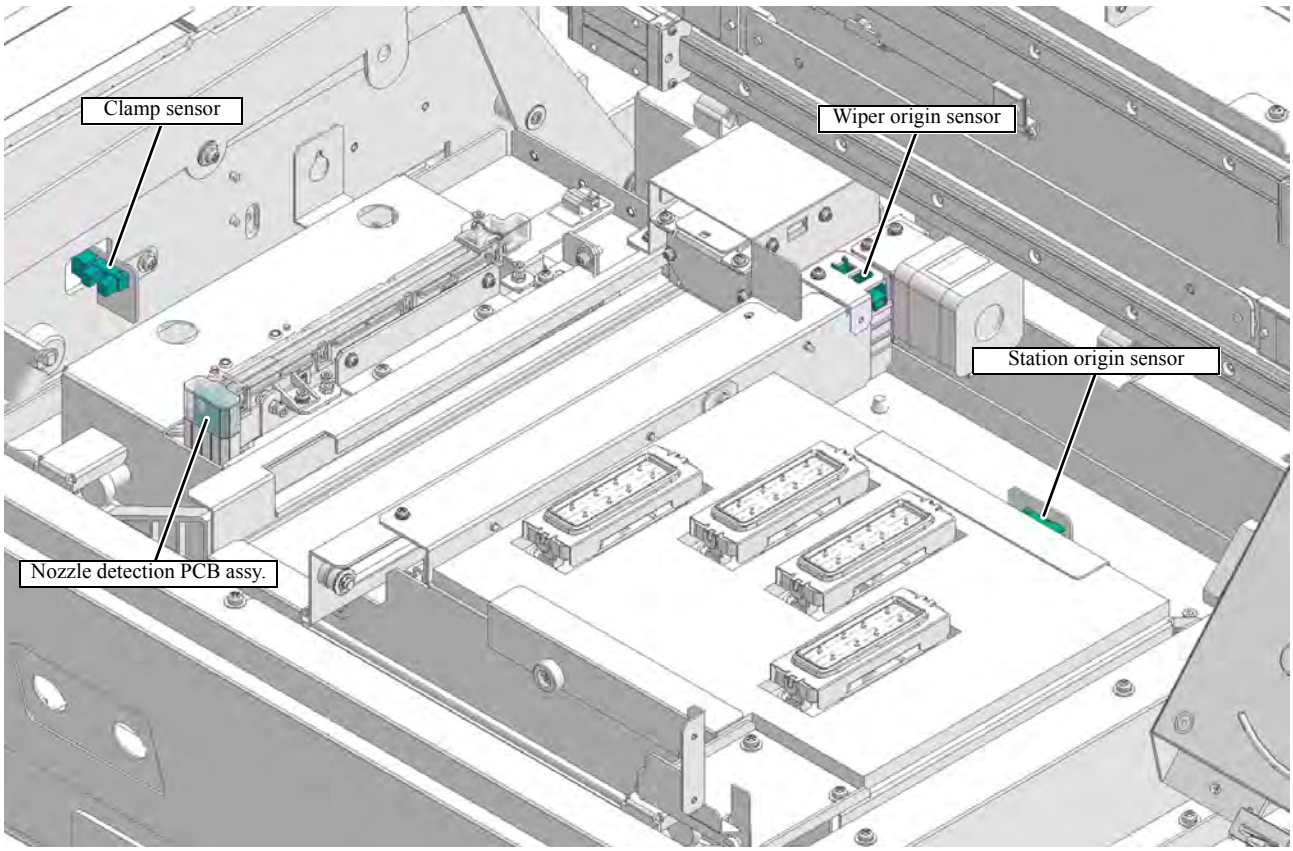


6.6.1 Sensor Layout

■ **Carriage**

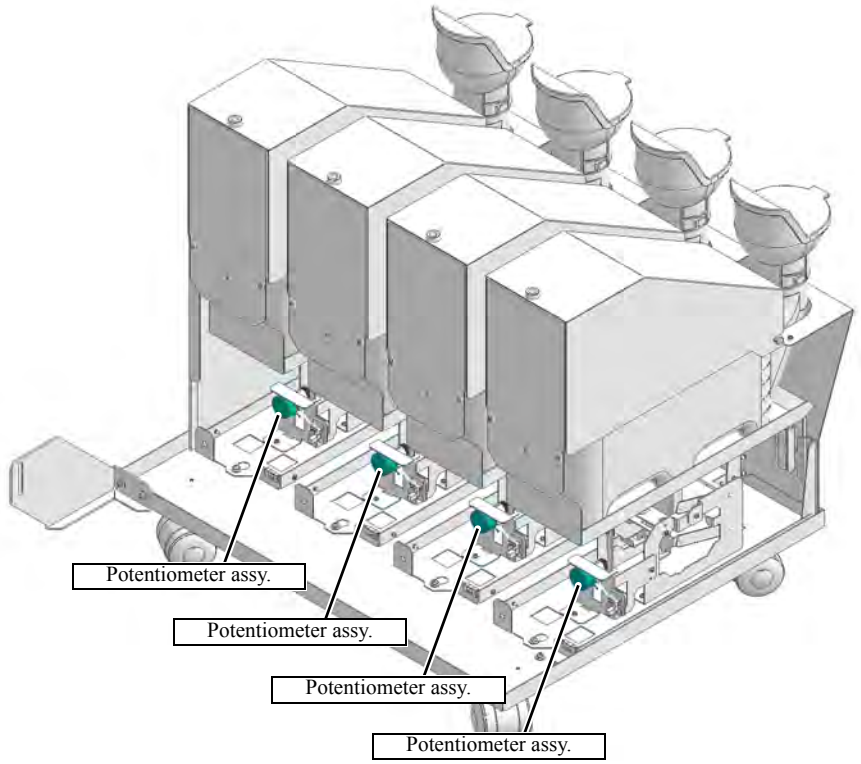


■ **Carriage-related**



6.6.1 Sensor Layout

■ **External supply unit**

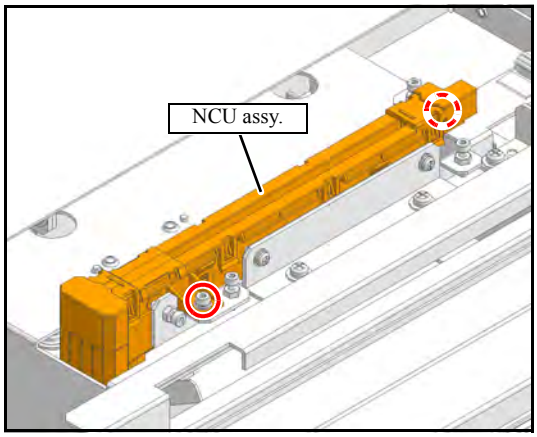


6.6.2 NCU

Caution Turn the main power OFF when turning the power OFF.

■ Work procedure

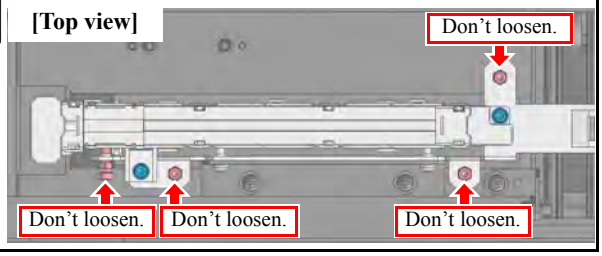
1. Remove the following cover.
   - **Right maintenance cover**
2. Lower the station assy. so that the cap does not come in contact with the head unit, and move the carriage on the platen.

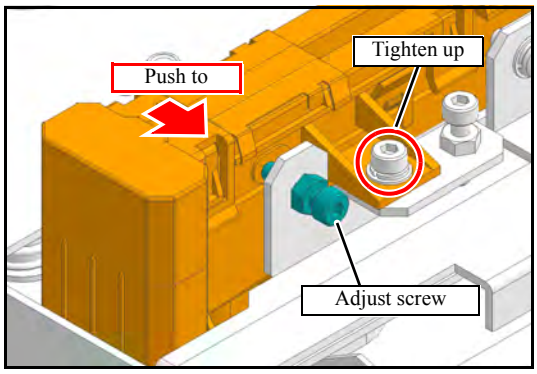


3. Disconnect the connector for the NCU assy..
4. Remove the **NCU assy.**. (screw x2)

IMPORTANT Don't loose the adjust screw (x4).

[Top view]





5. Reverse the disassembly procedure for reassembly.

IMPORTANT Tighten the screw in the left figure while pushing the NCU assy. against the adjust screw.

Troubleshooting

7.1.1 Concerning Errors and Malfunctions

■ Outline

This chapter describes the troubleshooting for this machine.

■ Rough identification of the source of the trouble

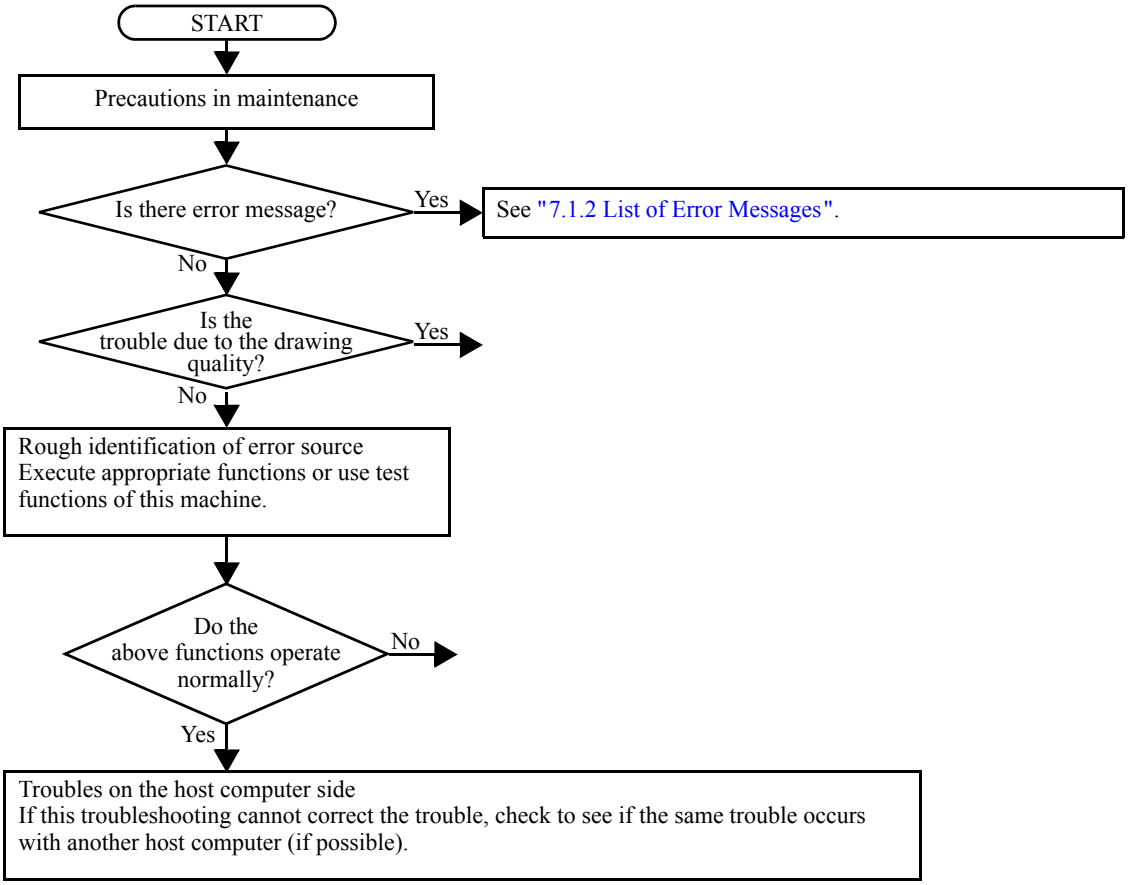
At the beginning of troubleshooting, it is necessary to identify roughly which functions the trouble relates to.

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

☐ Problems related to the machine
The cause of the trouble can be identified by executing appropriate functions or using test functions.

☐ Problems related to the connection with the host computer
Hardware: Broken wire or faulty contact of cables
Software: Transmission by improper application setting

> The standard priority of this machine is the “Host”.
> Check the settings on the host computer to see if there is any improper parameter setting.



7.1.1 Concerning Errors and Malfunctions

■ Checking procedure

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

1. Identifying the error category

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

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

2. Initial action

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

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

3. Failure on the printer side

   Take the following steps to repair the printer.

   - ☐ Up load the parameter and check.
   - ☐ Reinstall the firmware.
   - ☐ Check the connection of FFC or cable.
   - ☐ Replace the defective part (sensor, etc.) or make the necessary adjustment.
   - ☐ Replace the main PCB assy.

4. Repair at the factory

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

7.1.2 List of Error Messages

■ **List of Error Messages (1/11)**

No.	LCD	Cause	List of Countermeasures
1	ERROR 04 PARAM ROM	1. The state that cannot access “FROM” on the main PCB. 2. The state that cannot access “EEPROM” on the Central-IO PCB.	1. Disconnect and connect the FFC and cable located between the main PCB and the Central-IO PCB. 2. Replace the FFC and cable located between the main PCB and the Central-IO PCB. 3. Replace the Central-IO PCB with a new one. *(See 3.3.2)* 4. Replace the main PCB with a new one. *(See 3.3.1)*
2	ERROR 108 HD CONNECT[1234]	Head connection error Head connection can not be confirmed.	1. Check the breakage of print head / HDC PCB assy. *(See 7.1.5)* 2. Replace the print head with a new one. *(See 3.1.1)* 3. Replace the HDC PCB with a new one. *(See 6.4.9)* 4. Replace the cable located between the print head and the HDC PCB.
3	ERROR 108 HD THERMIS[1234]	Head thermistor Head temperature can not be measured.	
4	ERROR 108 HD MEM EMP[1234]	The head memory data is abnormal.	
5	ERROR 108 HD TYPE [1234]	The head specification is different from the type of filled ink. (Ex. Solvent ink is filled for the head for water.)	1. Replace the print head with a new one. *(See 3.1.1)* 2. Fill the ink of the type to match the specification.
6	ERROR 128 HDC FIFO OVER	HDC FIFO OVER error (Communication error between the main PCB and the HDC or error on Control PCB)	1. Confirm scan parameters are the default value. 2. Update F/W. 3. Replace the HDC PCB with a new one.*(See 6.4.9)* 4. Replace the light converter PCB P assy. 5. Replace the MAIN PCB with a new one. *(See 3.3.1)* 6. Replace the optical cable between the light converter PCB P assy (electrical BOX side) and the light converter PCB P assy (carriage side). 7. Replace the cable between the light converter PCB P assy (electrical BOX side) and the light converter PCB P assy (carriage side). 8. Replace the FFC between the light converter PCB P assy (electrical BOX side) and the HDC PCB assy. 9. Replace the cable between the light converter PCB P assy (electrical BOX side) and the HDC PCB assy. 10. Replace the FFC between the main PCB assy and the light converter PCB P assy (carriage side). 11. Replace the cable between the main PCB assy and the light converter PCB P assy (carriage side).
7	ERROR 128 HDC FIFO UNDER	HDC FIFO UNDER error (Communication error between the main PCB and the HDC or error on Control PCB)	1. Check the parameter. (Confirm whether the scan parameter is the default value.) 2. Update F/W. 3. Check if there is no data error from RIP. 4. To make sure, repeat RIP. 5. Disconnect and connect the FFC located between the main PCB and the HDC PCB. 6. Replace the FFC and cable located between the main PCB and the HDC PCB. 7. Replace the HDC PCB with a new one. *(See 6.4.9)* 8. Replace the main PCB with a new one. *(See 3.3.1)*
8	ERROR 128 BATTERY EXCHANGE	Battery dead (RTC battery dead is detected.)	1. Replace a battery equipped on the main PCB with a new one. (CR2032) • The new battery should be the same product or the equivalent. • Discard the old battery according to the instruction from the maker.

7.1.2 List of Error Messages

■ **List of Error Messages (2/11)**

No.	LCD	Cause	List of Countermeasures
9	ERROR 12a HDC SPEED [12]	Ink discharging trigger error As intervals of ink discharging trigger are too short, next discharging trigger occurs before one wave shape is completed.	1. Perform the linear encoder test.*(See 5.1.10)* 2. Replace the linear scale with a new one. *(See 6.3.6)* 3. Replace the linear encoder sensor with a new one. *(See 6.4.12)* 4. Replace the HDC PCB with a new one. *(See 6.4.9)* 5. Replace the main PCB with a new one. *(See 3.3.1)*
10	ERROR 12a HEAD ROM WR	Error for writing to the head memory	1. Check connection between the HDC PCB from the print head. 2. Disconnect and connect the FFC located between the main PCB and the HDC PCB. 3. Replace the HDC PCB with a new one. *(See 6.4.9)* 4. Replace the print head with a new one. *(See 3.3.1)* 5. Replace the cable located between the main PCB and the HDC PCB.
11	ERROR 12e HeadFaild /HDC[**]	Abnormality of the head control signal Abnormality of the head power COM over current over	1. Update the F/W. 2. Initialize the parameters. 3. Check the breakage of print head /HDC. *(See 7.1.5)* 4. Replace the print head. *(See 3.1.1)* 5. Replace the cable between the print head and HDC PCB assy. 6. Replace the HDC PCB assy.*(See 6.4.9)*.
12	ERROR 130 HD DATA SEQ	Head data transferring sequence error (Communication error between the main PCB and the HDC or error on Control PCB)	1. Confirm scan parameters are the default value. 2. Update F/W. 3. Replace the HDC PCB with a new one.*(See 6.4.9)* 4. Replace the light converter PCB P assy. 5. Replace the MAIN PCB with a new one. *(See 3.3.1)* 6. Replace the optical cable between the light converter PCB P assy (electrical BOX side) and the light converter PCB P assy (carriage side). 7. Replace the cable between the light converter PCB P assy (electrical BOX side) and the light converter PCB P assy (carriage side). 8. Replace the FFC between the light converter PCB P assy (electrical BOX side) and the HDC PCB assy. 9. Replace the cable between the light converter PCB P assy (electrical BOX side) and the HDC PCB assy. 10.Replace the FFC between the main PCB assy and the light converter PCB P assy (carriage side). 11.Replace the cable between the main PCB assy and the light converter PCB P assy (carriage side).
13	ERROR 148 E-LOG SEQ	Sequential number abnormality of the event log	1. Initialize a event log. 2. Replace the main PCB with a new one. *(See 3.3.1)*
14	ERROR 151 Main PCB V1R2	Main PCB 1.2V power supply is abnormal.	1. Check the output voltage of the LFA15F-5-J1 / GJ1 (+4.9v - 5.3V) DC power supply. 2. Replace the power supply above.*(See 6.4.5)* 3. Replace the main PCB with a new one. *(See 3.3.1)*
15	ERROR 152 Main PCB V2R5	Main PCB 2.5V power supply is abnormal.	
16	ERROR 153 Main PCB V3R3	Main PCB 3.3V power supply is abnormal.	
17	ERROR 154 Main PCB V05	Main PCB 5V power supply is abnormal.	

7.1.2 List of Error Messages

■ **List of Error Messages (3/11)**

No.	LCD	Cause	List of Countermeasures
18	ERROR 155 Main PCB V36-1	Main PCB 36-1V power supply is abnormal.	1. Check the output voltage of the HWS1000L-36 (+35 - 37V) and the LFA15F-5-J1 / GJ1 (+4.9v - 5.3V) DC power supply. 2. Replace the power supply above.*(See 6.4.5)* 3. Replace the main PCB with a new one. *(See 3.3.1)*
19	ERROR 157 Main PCB VTT	Main PCB VTT power supply is abnormal.	1. Check the output voltage of the LFA15F-5-J1 / GJ1 (+4.9v - 5.3V) DC power supply. 2. Replace the power supply above.*(See 6.4.5)* 3. Replace the main PCB with a new one. *(See 3.3.1)*
20	ERROR 158 Main PCB V36-2	Main PCB 36-2V power supply is abnormal.	1. Check the output voltage of the HWS1000L-36 (+35 - 37V) and the LFA15F-5-J1 / GJ1 (+4.9v - 5.3V) DC power supply. 2. Replace the power supply above.*(See 6.4.5)* 3. Replace the main PCB with a new one. *(See 3.3.1)*
21	ERROR 158 HEAD DRIVE HOT	COM driver becomes the high temperature. (Thermistor on the HDC PCB detected 60 degrees or more.)	1. Verify the operation of the HDC PCB assy cooling fan. 2. Check the breakage of print head / HDC PCB assy. *(See 7.1.5)* 3. Replace the print head with a new one. *(See 3.1.1)* 4. Replace the HDC PCB with a new one. *(See 6.4.9)* 5. Replace the light converter PCB P assy. 6. Replace the MAIN PCB with a new one. *(See 3.3.1)* 7. Replace the cable located between the print head and the HDC PCB. 8. Replace the optical cable between the light converter PCB P assy (electrical BOX side) and the light converter PCB P assy (carriage side). 9. Replace the cable between the light converter PCB P assy (electrical BOX side) and the light converter PCB P assy (carriage side). 10. Replace the FFC between the light converter PCB P assy (electrical BOX side) and the HDC PCB assy. 11. Replace the cable between the light converter PCB P assy (electrical BOX side) and the HDC PCB assy. 12. Replace the FFC between the main PCB assy and the light converter PCB P assy (carriage side). 13. Replace the cable between the main PCB assy and the light converter PCB P assy (carriage side).
22	ERROR 16e Main PCB V3R3B	Main PCB 3.3VB power supply is abnormal.	1. Check the output voltage of the LFA15F-5-J1 / GJ1 (+4.9v - 5.3V) DC power supply. 2. Replace the power supply above.*(See 6.4.5)* 3. Replace the main PCB with a new one. *(See 3.3.1)*
23	ERROR 158 NEW HEAD CONNECT	Connection of a new head is recognized. S/N is not identical for the one written in the head memory and the other saved in the product.	It is normal that an error occurs only at the time of the first start after having connected a new head. It is abnormal that an error occurs at the time of start every time. 1. Check the breakage of print head / HDC PCB assy. *(See 7.1.5)* 2. Replace the print head with a new one. *(See 3.1.1)* 3. Replace the HDC PCB with a new one. *(See 6.4.9)* 4. Replace the cable located between the print head and the HDC PCB.

7.1.2 List of Error Messages

■ **List of Error Messages (4/11)**

No.	LCD	Cause	List of Countermeasures
24	ERROR 186 HDC OVERFLOW [12]	Wave shape data is abnormal. (Wave shape overflow) An error occurs on the HDC PCB of which the number indicated in the LCD.	1. Replace the HDC PCB with a new one. *(See 6.4.9)* 2. Replace the MAIN PCB with a new one. *(See 3.3.1)* 3. Replace the light converter PCB P assy. 4. Replace the optical cable between the light converter PCB P assy (electrical BOX side) and the light converter PCB P assy (carriage side). 5. Replace the cable between the light converter PCB P assy (electrical BOX side) and the light converter PCB P assy (carriage side). 6. Replace the FFC between the light converter PCB P assy (electrical BOX side) and the HDC PCB assy. 7. Replace the cable between the light converter PCB P assy (electrical BOX side) and the HDC PCB assy. 8. Replace the FFC between the main PCB assy and the light converter PCB P assy (carriage side). 9. Replace the cable between the main PCB assy and the light converter PCB P assy (carriage side).
25	ERROR 186 HDC UNDERFLOW [12]	Wave shape data is abnormal. (Wave shape underflow) An error occurs on the HDC PCB of which the number indicated in the LCD.	
26	ERROR 187 HDC SLEW RATE [12]	Wave shape data is abnormal. (Wave shape slew rate error) An error occurs on the HDC PCB of which the number indicated in the LCD.	
27	ERROR 188 HDC MEMORY [12]	Wave shape memory error An error occurs on the HDC PCB of which the number indicated in the LCD.	
28	ERROR 18a Main PCB V_CORE	Main PCB VCORE power supply is abnormal.	1. Check the output voltage of the LFA15F-5-J1 / GJ1 (+4.9v - 5.3V) DC power supply. 2. Replace the power supply above.*(See 6.4.5)* 3. Replace the main PCB with a new one. *(See 3.3.1)*
29	ERROR 18b Main PCB V1R5B	Main PCB 1.5V power supply is abnormal.	1. Check the output voltage of the HWS1000L-36 (+35 - 37V) and the LFA15F-5-J1 / GJ1 (+4.9v - 5.3V) DC power supply. 2. Replace the power supply above.*(See 6.4.5)* 3. Replace the main PCB with a new one. *(See 3.3.1)*
30	ERROR 18c Main PCB V12	Main PCB 12V power supply is abnormal.	
31	ERROR 18e FLS NOT COMP [12]	Flushing control error Flushing for the head which is connected the HDC PCB that displayed number on the LCD can not be completed.	1. Check the breakage of print head / HDC PCB assy. *(See 7.1.5)* 2. Replace the print head with a new one. *(See 3.1.1)* 3. Replace the HDC PCB with a new one. *(See 6.4.9)* 4. Replace the light converter PCB P assy. 5. Replace the MAIN PCB with a new one. *(See 3.3.1)* 6. Replace the cable located between the print head and the HDC PCB. 7. Replace the optical cable between the light converter PCB P assy (electrical BOX side) and the light converter PCB P assy (carriage side). 8. Replace the cable between the light converter PCB P assy (electrical BOX side) and the light converter PCB P assy (carriage side). 9. Replace the FFC between the light converter PCB P assy (electrical BOX side) and the HDC PCB assy. 10. Replace the cable between the light converter PCB P assy (electrical BOX side) and the HDC PCB assy. 11. Replace the FFC between the main PCB assy and the light converter PCB P assy (carriage side). 12. Replace the cable between the main PCB assy and the light converter PCB P assy (carriage side).
32	ERROR 18f OFFSET START [12]	Control error to Head voltage Offset of the HDC PCB that displayed number on the LCD can not be started.	
33	ERROR 18f OFFSET END [12]	Control error to Head voltage Offset of the HDC PCB that displayed number on the LCD can not be ended.	
34	ERROR 19d HDC V36 [12]	Control error to HDC PCB voltage Voltage of the HDC PCB that displayed number on the LCD is lower than prescribed voltage.	1. Check the output voltage of the HWS1000L-36 (+35 - 37V) and the LFA15F-5-J1 / GJ1 (+4.9v - 5.3V) DC power supply. 2. Replace the power supply above.*(See 6.4.5)* 3. Replace the main PCB with a new one. *(See 3.3.1)*

7.1.2 List of Error Messages

■ **List of Error Messages (5/11)**

No.	LCD	Cause	List of Countermeasures
35	ERROR 19f LED CONNCT ERR0**0**	LED UV PCB is disconnect. **: sub code 1*; Curing unit1 (left) is disconnect to the LED PCB. 2*; Curing unit2 (right) is disconnect to the LED PCB. *=1-8: LED PCB CH1~4	1. Check connection of the PCB. 2. Replace the LED PCB with a new one.*(See 6.4.7)* 3. Replace the UVLED Drive PCB with a new one.*(See 6.4.16)*
36	ERROR 201 COMMAND	Command error Other data than commands is received.	1. Check if the output set of the PC matches the set of the machine side? 2. Change the profile. 3. Check if there is no parameter error? 4. Check if there is no trouble on the USB cable? 5. Replace the USB cable with a new one. 6. Replace the main PCB with a new one.*(See 3.3.1)*
37	ERROR 202 PARAMETER	The value for command parameter of the received data is abnormal. Parameter out of the numeral value range is received.	1. Check if the output set of the PC matches the set of the machine side? 2. Change the profile. 3. Check if there is no parameter error? 4. Check if there is no trouble on the USB cable? 5. Replace the USB cable with a new one. 6. Replace the main PCB with a new one.*(See 3.3.1)*
38	ERROR 203 Ment Command	Operation of a maintenance command fails.	1. Check the PRM file. 2. Check the number of each parameter. (if PRM matches up to the machine.)
39	ERROR 206 PRINTING MODE	Unable printing condition is received.	1. Check if the output set of the PC matches the set of the machine side? 2. Check if there is no parameter error? 3. Check if there is no trouble on the USB Cable? 4. Replace the USB cable with a new one. 5. Replace the main PCB with a new one.*(See 3.3.1)*
40	ERROR 304 USB INIT ERR	USB initialization error	1. Check if there is no parameter error? 2. Check if there is no trouble on the USB Cable? 3. Replace the USB cable with a new one. 4. Replace the main PCB with a new one.*(See 3.3.1)*
41	ERROR 305 USB TIME OUT	USB time-out error	
42	ERROR 306 USB GET DESC	USB descriptor request error	1. Check if there is no parameter error? 2. Replace the USB cable with a new one. 3. Upgrade the firmware to the latest version. 4. Replace the main PCB with a new one.*(See 3.3.1)*
43	ERROR 401 MOTOR X	X servo error (Excessive load to the X-motor.)	1. Update F/W 2. Make sure there are no problems with the belt of the motor. 3. Check the load with rotating the X-pulley by hand. 4. Check if there is any abnormalities (missing, disconnection, etc.)in CN14,15 of main PCB assy and motor cable. 5. Replace the X-axis motor with a new one. *(See 3.2.1)*
44	ERROR 402 MOTOR Y	Y servo error (Excessive load to the Y-motor.)	1. Update F/W 2. Check if the carriage works smoothly in the Y direction in the power OFF state. 3. Apply grease to the LM guide. 4. Check if there is any abnormalities (missing, disconnection, etc.)in CN14,15 of main PCB assy and motor cable. 5. Replace the Y-axis motor with a new one. *(See 3.2.2)*

7.1.2 List of Error Messages

■ **List of Error Messages (6/11)**

No.	LCD	Cause	List of Countermeasures
45	ERROR 403 X CURRENT	X-motor current (Over current error of X-motor is detected.)	1. Update F/W 2. Make sure there are no problems with the belt of the motor. 3. Check the load with rotating the X-pulley by hand. 4. Check if there is any abnormalities (missing, disconnection, etc.)in CN14,15 of main PCB assy and motor cable. 5. Replace the X-axis motor with a new one. *(See 3.2.1)*
46	ERROR 404 Y CURRENT	Y-motor current (Over current error of Y-motor is detected.)	1. Update F/W 2. Check if the carriage works smoothly in the Y direction in the power OFF state. 3. Apply grease to the LM guide. 4. Check if there is any abnormalities (missing, disconnection, etc.)in CN14,15 of main PCB assy and motor cable. 5. Replace the Y-axis motor with a new one. *(See 3.2.2)*
47	ERROR 41B ** NO MEDIA **	Clump-down was done without setting any media.	1. Set media covering on the media available sensor. 2. Check if [Rear Paper R], [Rear paper CR], and [Rear paper CL] change ON/OFF by [#Test Sensor]. 3. Replace the sensor with a new one.
48	ERROR 423 TAKE-UP TENSION-BAR	An error was detected in the take-up tension bar at media set check when starting printing.	1. Check the setting status of the media. 2. If the error is generated again even if the media is set properly, perform the checking and replacement of sensors.
49	ERROR 424 FEEDING TENSION-BAR	An error was detected in the feeding tension bar at media set check when starting printing.	1. Check the setting status of the media. 2. If the error is generated again even if the media is set properly, perform the checking and replacement of sensors.
50	ERROR 425 Take-UP WRONG	The take-up is not performed properly. A specific time has passed with locating at a lower position than the controllable range of the tension bar of the media take-up unit.	1. Check if there is any problem in the take-up status. (If the media is loosened, etc.) 2. Execute and confirm [#Test]-[Feeding/TakeUp] - [Sensor]. 3. Check if the wiring for the take-up sensor is correct. 4. Check the relay cable (connection between the main unit and the leg). 5. Replace the sensor or the take-up PCB if the error occurs even after checking the wiring. *(See 6.5.4)*
51	ERROR 426 Feeding WRONG	The feeding is not performed properly. A specific time has passed with locating at a lower position than the controllable range of the tension bar of the media feeding unit.	1. Check if “Roll” is not selected with the setting of “feeding is not used”. 2. Execute and confirm [#Test]-[Feeding/TakeUp] - [Sensor]. 3. Check if the wiring for the feeding sensor is correct. 4. Check the relay cable (connection between the main unit and the leg). 5. Replace the sensor or the feeding PCB if the error occurs even after checking the wiring. *(See 6.5.4)*

7.1.2 List of Error Messages

■ **List of Error Messages (7/11)**

No.	LCD	Cause	List of Countermeasures
52	ERROR 429 Take-UP LimitDETECT	A specific time has passed with locating at a upper position than the controllable range of the tension bar of the media take-up unit.	1. Check if there is any problem in the take-up status. (If the media is loosened, etc.) 2. Execute and confirm [#Test]-[Feeding/TakeUp] - [Sensor]. 3. Check if the wiring for the take-up sensor is correct. 4. Check the relay cable (connection between the main unit and the leg). 5. Replace the sensor or the take-up PCB if the error occurs even after checking the wiring. *(See 6.5.4)*
53	ERROR 42A Feeding LimitDETECT	A specific time has passed with locating at a upper position than the controllable range of the tension bar of the media feeding unit.	1. Check if there is any problem in the take-up status. (If the media is loosened, etc.) 2. Execute and confirm [#Test]-[Feeding/TakeUp] - [Sensor]. 3. Check if the wiring for the take-up sensor is correct. 4. Check the relay cable (connection between the main unit and the leg). 5. Replace the sensor or the take-up PCB if the error occurs even after checking the wiring. *(See 6.5.4)*
54	ERROR 432 Take-UP Connect	The take-up unit is connected to a wrong place.	1. Check the place with which the take-up unit is connected while turning the power OFF.
55	ERROR 433 Feeding Connect	The feeding unit is connected to a wrong place.	1. Check the place with which the feeding unit is connected while turning the power OFF.
56	ERROR 436 Take-UP Fuse Err	The take-up fuse is disconnected.	1. Replace the sensor or the take-up PCB if the error occurs even after checking the wiring. *(See 6.5.4)*
57	ERROR 437 Feeding Fuse Err	The feeding fuse is disconnected.	1. Replace the sensor or the feeding PCB if the error occurs even after checking the wiring. *(See 6.5.4)*
58	ERROR 442 Take-UP Unit None	The take-up unit is not connected.	1. Check the connection of the take-up unit while turning the main power OFF.
59	ERROR 443 Feeding Unit None	The feeding unit is not connected.	1. Check the connection of the feeding unit while turning the main power OFF.
60	ERROR 44d STATION POS ERROR	Printing started while the cap sensor is ON.	1. Restart the machine. 2. Check if the shading plate of the cap sensor is properly shielded. 3. Execute the capping adjustment. 4. If the error occurs again, upload the parameter or contact the developer.
61	ERROR 50a Y ORIGIN	The Y-origin detection failed.	1. Execute and confirm [#Test]-[Sensor Test]-[Y Origin]. (Confirm that the ON/OFF display is switched by moving the carriage left and right.) 2. Execute and confirm [#Test]-[Check Encoder]. 3. Check in manual if the carriage moves left and right smoothly. 4. Put on and off the connectors or cables for the Y-origin sensor and the linear encoder. 5. Replace the Y-origin sensor or Linear encoder with a new one. 6. Check if there is no trouble on the motor cable. (disconnecting, burnout, or the like) 7. Replace the Y-axis motor with a new one. *(See 3.2.2)* 8. Replace the HDC PCB with a new one.*(See 6.4.9)* 9. Replace the main PCB with a new one.*(See 3.3.1)*
62	ERROR 50c MEDIA WIDTH SENSOR	The media width could not be read correctly.	1. Check the media setting position. 2. Perform cleaning of the media width sensor. 3. Execute [#Test]-[Paper Sensor]. 4. Replace the media width sensor.

7.1.2 List of Error Messages

■ **List of Error Messages (8/11)**

No.	LCD	Cause	List of Countermeasures
63	ERROR 50f L-SCALE BLACK	The variety of the linear encoder sensor is not detected.	1. Check the assembly position of Linear scale and Encoder PCB assy.. 2. Check the Linear scale (scratches or dirtiness or so.) 3. Replace the Linear scale with a new one. *(See 6.3.6)* 4. Replace the Encoder PCB assy. with a new one. *(See 6.4.12)*
64	ERROR 516 MEDIA SET POSITION R	The media is set outside the range.	1. Check the media setting position. 2. Perform cleaning of the media width sensor. 3. Execute [#Test]-[Paper Sensor].
65	ERROR 516 MEDIA SET POSITION L	The media is set outside the range.	1. Check the media setting position. 2. Perform cleaning of the media width sensor. 3. Execute [#Test]-[Paper Sensor].
66	ERROR 538 CHECK MEDIA SET POS.	The media is not set correct position.	1. Check the setting position of the media.
67	ERROR 607 CAP CLEANING	Cap cleaning timing	1. Execute [Station Maint.].
68	ERROR 618 TANKlevelH :1234	Sub-tank is abnormal. (Even though a specific amount of ink has been consumed, there is no change in the liquid level detection sensor “High”.)	1. Check the nozzle status. (If nozzle clogging is terrible, consumption difference may be generated.) 2. From [#Test]-[Sensor]-[SUBTANK], check the detection status of the liquid level sensor. If there is an error, replace the sub-tank. 3. Execute [Maintenance] - [SUBTANK]. 4. Replace the Sub-tank. *(See 3.1.4)*
69	ERROR 61a InkOverflow:1234	An ink leaked in the air tank.	1. Remove the ink leaked in the air tank by using a syringe like material. 2. Execute [Maintenance] - [SUBTANK]. 3. With [#Test]-[Sensor], check the detection status of the target sensor. 4. Replace the air tank.
70	ERROR 61b SUPPLY INK :1234	Ink filling into the sub-tank has failed.	1. With [#Test]-[Sensor], check the detection status of the target sensor. 2. Check if an ink does not leak in the air tank. 3. Discharge the ink from the sub-tank by [#Test]-[Aging]-[Air Pump]. 4. From [#Test]-[Aging]-[Ink Supply], check that sending ink is performed. • If sending ink cannot be performed: The ink supply pump shall be replaced. • Replace the pump if it takes more than 1.5 minutes until completing the liquid supply.
71	ERROR 64b Nozzle Missing	Since it was judged as the missing dot by the nozzle check, the printing was stopped.	In case that the error occurs in the test plotting without any missing dot, 1. Replace the NCU. *(See 6.6.2)* 2. Execute the followings after replacing the NCU. *(See 5.1.24)* 2-1. It must not be less than [130] by [#Test] - [NCU] - [Sensor Test]. 2-2. Each measured value must be within [5] by [#Test] - [NCU] - [Slant Adjust]. 2-3. The adjust result must be indicated by [#Test] - [NCU] - [FlsPositionAdj.].

7.1.2 List of Error Messages

■ **List of Error Messages (9/11)**

No.	LCD	Cause	List of Countermeasures
72	ERROR 64c NCU ERROR	The nozzle check was terminated by some problem.	1. This is indicated in case that the nozzle check action was terminated by some unexpected problem (such as a mishandling of program). Check the status of problem. 2. Replace the NCU if it can not be reintegrated. *(See 6.6.2)* 3. Execute the followings after replacing the NCU. *(See 5.1.24)* 3-1. It must not be less than [130] by [#Test] - [NCU] - [Sensor Test]. 3-2. Each measured value must be within [5] by [#Test] - [NCU] - [Slant Adjust]. 3-3. The adjust result must be indicated by [#Test] - [NCU] - [FlsPositionAdj.].
73	ERROR 650 NCU CONNECT	The NCU unit is not connected.	1. Check the cable connection between the PD_AMP PCB Assy. and Central IO PCB. 2. Replace the NCU unit with new one.*(See 6.6.2)* 3. Replace the Central IO PCB with a new one.*(See 3.3.2)*
74	ERROR 651 REPLACE NCU	Due to the deterioration, contamination, or blemish of the light source LED, the light intensity was declined and became an inoperable level. It occurs if the result of executing [#Test] - [NCU] - [Sensor Test] is under [100].	At test drawing, if occurs even in the absence of missing nozzles 1. Clean the NCU inner wall. 2. Check the cable connection between the PD_AMP PCB Assy. and Central IO PCB. 3. Replace the NCU unit with new one.*(See 6.6.2)* 4. Replace the Central IO PCB with a new one.*(See 3.3.2)*
75	ERROR 652 NCU NZK CHK (HW)	H/W could not complete the sampling of NCU discharge pattern. A mass of missing dot and curving print occurs.	At test drawing, if occurs even in the absence of missing nozzles 1. Check the cable connection between the PD_AMP PCB Assy. and Central IO PCB. 2. Replace the NCU unit with new one.*(See 6.6.2)* 3. Replace the Central IO PCB with a new one.*(See 3.3.2)*
76	ERROR 653 NCU NZK CHK (MARK)	Analyzing the NCU discharge patterns, an abnormal discharge is recognized, which does not satisfy the criteria for the pattern. Normal judgment is not available due to a mass of missing dot and curving print.	
77	ERROR 654 NCU CENTER POS	Detection of the NCU center position was failed. Normal judgment is not available due to a mass of missing dot and curving print.	
78	ERROR 655 NCU FLUSH POS	Detection of the optimum position for the NCU sensor sensitivity was failed. Normal judgment is not available due to a mass of missing dot and curving print.	
79	ERROR 656 NCU SN ADJST	The adjustment of light intensity to get the optimum sensitivity was failed. 1. Normal judgment is not available due to a mass of missing dot and curving print. 2. Due to the deterioration, contamination, or blemish of the light source LED, the light intensity was declined.	
80	ERROR 657 REPLACE NCU INK PAD	The discarded ink receiver of NCU was filled up.	1. Replace the discarded ink receiver of NCU.

7.1.2 List of Error Messages

■ **List of Error Messages (10/11)**

No.	LCD	Cause	List of Countermeasures
81	ERROR 658 NCU SENSOR LV LOW	Due to the deterioration, contamination, or blemish of the light source LED, the light intensity was declined. Not the non-usable level. It occurs if the result of executing [#Test] - [NCU] - [Sensor Test] is under [110].	At test drawing, if occurs even in the absence of missing nozzles 1. Clean the NCU inner wall. 2. Check the cable connection between the PD_AMP PCB Assy. and Central IO PCB. 3. Replace the NCU unit with new one.*(See 6.6.2)* 4. Replace the Central IO PCB with a new one.*(See 3.3.2)*
82	ERROR 702 THERMISTOR	Defective of the thermistor (disconnection or short)	1. Check each thermistor. 2. Replace the Central-IO PCB with a new one. *(See 3.3.2)*
83	ERROR 703 !PRE HEATER BRK	The head does not reach to the target temperature even heating up for more than a specific time.	1. Check the operation by [#Test] - [Heater]. 2. Check the connection of thermistor. 3. Replace the Central-IO PCB with a new one. *(See 3.3.2)*
84	ERROR 705 WATER LACK	The float sensor in the cooling water tank detected the shortage of water.	1. Refill the cooling water. 2. Check the float sensor by the sensor test. 3. Check the connection of float sensor.
85	ERROR 706 UV LAMP TEMP. HIGH	The UV-DRV PCB or the UV-LED PCB became high temperature.	1. Check the operation of the UVLED fan. 2. Check the operation of the cooling water pump. 3. Check the cooling water radiator fan, 4. Check the water amount of the cooling device. 5. Lower the peripheral temperature of PCB. 6. Replace the PCB with a new one. *(See 6.4.16)*
86	ERROR 707 !HD HEATER BREAK	The head does not reach to the target temperature even heating up for more than a specific time.	1. Check the room temperature is not too low. 2. Check the breakage of print head / HDC PCB assy. *(See 7.1.5)* 3. Replace the print head with a new one. *(See 3.1.1)* 4. Replace the HDC PCB with a new one. *(See 6.4.9)* 5. Replace the cable located between the print head and the HDC PCB.
87	ERROR 710 HEATER TEMP ERROR	The heater does not turn OFF. Pre-heater: indicates an error at 80°C and more. External heater: indicates an error at 100°C and more.	1. Check the temperature of heater. 2. Check the wiring of heater (PRE). 3. Replace the Central-IO PCB with a new one. *(See 3.3.2)*
88	ERROR 714 INK HEATER COM ERR	A communication error occurs in between the ink heater PCB and the HDC PCB.	1. Check the connection of added cable. (specially between HDC PCB and heater relay PCB) 2. Replace the heater relay PCB. *(See 6.4.10)* 3. Replace the HDC PCB with a new one. *(See 6.4.9)*
89	ERROR 715 InkHeater Thr:1234	Ink heater thermistor is breakdown.	1. Check the connection of added cable. (specially connection of heater and thermistor) 2. Replace the heater relay PCB with a new one. *(See 6.4.10)* 3. Replace the heater block assy. with a new one.
90	ERROR 716 InkHeater Tmp:1234	Ink heater thermistor is overheat. •If temperature rise continues, the printing is terminated and fail in no-operation.	1. Turn the power OFF, then wait for a bit. When it cools off, turn the power back ON. 2. Check the connection of added cable. (specially connection of heater and thermistor) 3. Replace the heater relay PCB with a new one. *(See 6.4.10)* 4. Replace the heater block assy. with a new one.
91	ERROR 717 InkHeater Brk:1234	Ink heater is burnout.	1. Check the connection of added cable. (specially connection of heater and thermistor) 2. Replace the heater relay PCB with a new one. *(See 6.4.10)* 3. Replace the heater block assy. with a new one.

7.1.2 List of Error Messages

■ **List of Error Messages (11/11)**

No.	LCD	Cause	List of Countermeasures
92	ERROR 718 InkHeaterPCB Thr:1234	Thermistor of the ink heater relay PCB is breakdown.	1. Check the temperature of the heater relay PCB. 2. Replace the heater relay PCB with a new one. *(See 6.4.10)* 3. Replace the HDC PCB with a new one. *(See 6.4.9)*
93	ERROR 719 InkHeaterPCB Fuse:1234	Fuse of the ink heater relay PCB is fuse blow.	1. Check the connection of added cable. (specially between heater and heater relay PCB) 2. Replace the heater relay PCB with a new one. *(See 6.4.10)* 3. Voltage check → replace the power supply *(See 6.4.5)* 4. Replace the HDC PCB with a new one. *(See 6.4.9)*
94	ERROR 71A UV-DRV Fuse :0**0**	Blowout of the fuse of UV-DRV PCB was detected.	1. Check if the fuse on the UV-DRIVE PCB is conductive. 2. If blowout, replace the UV-DRIVE PCB. *(See 6.4.16)* 3. If not blowout, check the connection between the HDC and the UV-DRIVE PCB.

7.1.3 List of Warning Messages

■ **List of Warning Messages (1/5)**

No.	Message	Cause	Corrective Measures
Operation error			
1	ERROR 901 INVALID OPERATION	Operation error. (You performed an invalid operation.)	1. Returning the local screen, check the error status and deal.
2	ERROR 902 DATA REMAIN	Drawing data is remaining.	(Carry out the followings if the error still occurs when data is cleared.) 1. Check errors in the parameter. 2. Remove USB cable from the printer and execute data clear. -> If solved, it is a problem on USB cable or PC. 3. Replace the USB Cable with a new one. 4. Replace the main PCB with a new one. *(See 3.3.1)*
3	ERROR 90f PRINT AREA SHORT	The print area is short for the internal pattern printing.	1. Move the Y-origin. 2. Replace the media with a new one.
Ink charge error			
4	INK IC Expiration CHARGE ANYWAY? NO < > YES	The expiration date of the inserted ink IC chip has passed.	It is usable by charging the ink. However, INK Expiration will occur. If an error occurs before the expiration date, check the clock time of the equipment.
5	IC Expiration:1MONTH CHARGE ANYWAY? NO < > YES	The expiration date of the inserted ink IC chip has passed. (One month has passed after the expiration date.)	It is usable by charging the ink. However, INK Expiration (1MONTH) will occur. • Select [YES] for using as is. If an error occurs before the expiration date, check the clock time of the equipment.
6	IC Expiration:2MONTH Cannot Charge	The expiration date of the inserted ink IC chip has passed. (Two months have passed after the expiration date.)	1. Replace with the ink to which the expiration date remains.
7	WRONG INK IC Cannot Charge	The ink IC can't be correctly read.	1. Put the ink IC chip out and insert again. 2. If the same error occurs even with inserting another new ink IC, replace the ink slot and the main PCB.
8	INK IC ALREADY USED Cannot Charge	The ink IC chip which had been charged and become used was inserted.	Insert a new IC chip. If the same error occurs even with a new IC chip, 1. Check the condition of implementing the IC chip. 2. Execute and confirm [#Test] -> [Check Ink IC]. 3. Replace the ID contact PCB with a new one. *(See 6.4.8)*
9	INK TYPE Cannot Charge	The type of the inserted ink IC is different.	1. Check whether the filled ink type and the set ink type are identical.
10	INK COLOR Cannot Charge	The IC chip of different color from the preset color was installed.	1. Check whether the color of preset ink set corresponds to that of the ink tank.
11	Expiration CHARGE ANYWAY? NO < > YES	It became the expiration date of ink.	1. Be careful that the expiration date is coming soon. Possible to use until the month after next month. 2. Check the clock time of equipment.
12	Expiration:1MONTH CHARGE ANYWAY? NO < > YES	It became the expiration date of ink. (One month has passed after the expiration date.)	1. Be careful that the expiration date is coming soon. You can use up to the next month. 2. Check the clock time of equipment.
13	Expiration:2MONTH Cannot Charge	It became the expiration date of ink. (Two months have passed after the expiration date.)	1. Discard the old ink in the ink bottle. Charge the IC chip of a new ink and fill the ink to the ink bottle. 2. Check the clock time of equipment.
14	INK LEVEL REMAINS Cannot Charge	Ink charge is impossible as almost full amount of charged ink remains.	•Check whether the IC chip is the one attached on the ink tank.
15	INK LEVEL REMAINS CHARGE ANYWAY? NO < > YES	Ink charge was tried while a certain amount of charged ink still remained.	•Check whether the IC chip is the one attached on the ink tank. •Select [YES] to execute the ink charge.
Ink error			

7.1.3 List of Warning Messages

■ **List of Warning Messages (2/5)**

No.	Message	Cause	Corrective Measures
16	INK ERROR	An ink error occurred.	1. Check the ink tank and the ink expiration date of the supply unit corresponding to the indicated color.
17	InkOverflow:MCYK	An ink leaked in the air tank.	1. Remove the ink leaked in the air tank by using a syringe like material. 2. Perform [Maintenance] - [SUBTANK] 3. From [#Test]-[Sensor], check the detection status of the target sensor. 4. Replace the air tank.
18	TANKlevelH :MCYK	Even though a certain amount of ink has been consumed, there is no change in the liquid level detection sensor "High".	1. Check the nozzle status. (If nozzle clogging is terrible, consumption difference may be generated.) 2. From [#Test]-[Sensor]-[SUBTANK], check the detection status of the liquid level sensor. If there is an error, replace the sub-tank 3. Perform [Maintenance] - [SUBTANK] 4. Replace the sub-tank. *(See 3.1.4)*
19	SUPPLY INK :MCYK	Ink filling into the sub-tank has failed.	1. From [#Test]-[Sensor], check the detection status of the target sensor. 2. Check if an ink does not leak in the air tank. 3. Discharge the ink from the sub-tank by [#Test]-[Aging]-[Air Pump]. 4. From [#Test]-[Aging]-[Ink Supply], check that sending ink is performed. • If sending ink cannot be performed: The ink supply pump shall be replaced. • Replace the pump if it takes more than 1.5 minutes until completing the liquid supply.
20	REPLACE INKTANK MCYK	A specific time has passed from the time of starting to use the ink tank.	1. Executing the ink tank replacement in the maintenance procedure, replace the ink tank. (The date Y.M.D. to have started using the ink tank and charged information are reset.) 2. After replacing the ink tank, execute to charge the new IC chip and refill the ink.
UV			
21	UV LAMP TEMP. HIGH	The UV-DRV PCB or the UV-LED PCB became high temperature.	1. Check the operation of the UVLED fan. 2. Check the operation of the cooling water pump. 3. Check the cooling water radiator fan, 4. Check the water amount of the cooling device. 5. Lower the peripheral temperature of PCB. 6. Replace the PCB with a new one. *(See 6.4.16)*
Take-up/Feeding			
22	Take-UP Cover OPEN	Detected a cover OPEN of the media take-up.	1. Close the Take-up cover. 2. Execute and confirm [#TEST]-[SENSOR]-[COVER SENSOR]. 3. Confirm whether the toggle certainly press the lever of the cover sensor 4. Check the cable connection. 5. Replace the cover sensor with a new one.
23	Take-UP WRONG	The take-up is not performed properly. A specific time has passed with locating at a lower position than the controllable range of the tension bar of the media take-up unit.	1. Check if there is any problem in the take-up status. (If the media is loosened, etc.) 2. Execute and confirm [#Test]-[Feeding/TakeUp] - [Sensor]. 3. Check if the wiring for the take-up sensor is correct. 4. Check the relay cable (connection between the main unit and the leg). 5. Replace the sensor or the take-up PCB if the error occurs even after checking the wiring. *(See 6.5.4)*

7.1.3 List of Warning Messages

■ **List of Warning Messages (3/5)**

No.	Message	Cause	Corrective Measures
24	Take-UP LimitDETECT	A specific time has passed with locating at a upper position than the controllable range of the tension bar of the media take-up unit.	1. Check if there is any problem in the take-up status. (If the media is loosened, etc.) 2. Execute and confirm [#Test]-[Feeding/TakeUp] - [Sensor]. 3. Check if the wiring for the take-up sensor is correct. 4. Check the relay cable (connection between the main unit and the leg). 5. Replace the sensor or the take-up PCB if the error occurs even after checking the wiring. *(See 6.5.4)*
25	Feeding WRONG	The feeding is not performed properly. A specific time has passed with locating at a lower position than the controllable range of the tension bar of the media feeding unit.	1. Check if "Roll" is not selected with the setting of "feeding is not used". 2. Execute and confirm [#Test]-[Feeding/TakeUp] - [Sensor]. 3. Check if the wiring for the feeding sensor is correct. 4. Check the relay cable (connection between the main unit and the leg). 5. Replace the sensor or the feeding PCB if the error occurs even after checking the wiring. *(See 6.5.4)*
26	Feeding LimitDETECT	A specific time has passed with locating at a upper position than the controllable range of the tension bar of the media feeding unit.	1. Check if there is any problem in the take-up status. (If the media is loosened, etc.) 2. Execute and confirm [#Test]-[Feeding/TakeUp] - [Sensor]. 3. Check if the wiring for the take-up sensor is correct. 4. Check the relay cable (connection between the main unit and the leg). 5. Replace the sensor or the take-up PCB if the error occurs even after checking the wiring. *(See 6.5.4)*
NCU			
27	NCU SENSOR LEVEL LOW	Due to the deterioration, contamination, or blemish of the light source LED, the light intensity was declined and became an inoperable level. It occurs if the result of executing [#Test] - [NCU] - [Sensor Test] is under [110].	At test drawing, if occurs even in the absence of missing nozzles 1. Clean the NCU inner wall. 2. Check the cable connection between the PD_AMP PCB Assy. and Central IO PCB. 3. Replace the NCU unit with new one.*(See 6.6.2)* 4. Replace the Central IO PCB with a new one.*(See 3.3.2)*
28	Nozzle Missing Print Stopped	Since it was judged as the missing dot by the nozzle check, the printing was stopped.	In case that the error occurs in the test plotting without any missing dot, 1. Replace the NCU. *(See 6.6.2)* 2. Execute the followings after replacing the NCU. *(See 5.1.24)* 2-1. It must not be less than [130] by [#Test] - [NCU] - [Sensor Test]. 2-2. Each measured value must be within [5] by [#Test] - [NCU] - [Slant Adjust]. 2-3. The adjust result must be indicated by [#Test] - [NCU] - [FlsPositionAdj.].

7.1.3 List of Warning Messages

■ **List of Warning Messages (4/5)**

No.	Message	Cause	Corrective Measures
29	NCU FLUSH POS Nozzle check OFF	Detection of the optimum position for the NCU sensor sensitivity was failed. Normal judgment is not available due to a mass of missing dot and curving print.	At test drawing, if occurs even in the absence of missing nozzles 1. Check the cable connection between the PD_AMP PCB Assy. and Central IO PCB. 2. Replace the NCU unit with new one.*(See 6.6.2)* 3. Replace the Central IO PCB with a new one.*(See 3.3.2)*
30	NCU CENTER POS Nozzle check OFF	Detection of the NCU center position was failed. Normal judgment is not available due to a mass of missing dot and curving print.	
31	NCU SN ADJST Nozzle check OFF	The adjustment of light intensity to get the optimum sensitivity was failed. 1. Normal judgment is not available due to a mass of missing dot and curving print. 2. Due to the deterioration, contamination, or blemish of the light source LED, the light intensity was declined.	
32	NCU NZK CHK (HW) Nozzle check OFF	H/W could not complete the sampling of NCU discharge pattern. A mass of missing dot and curving print occurs.	
33	NCU NZK CHK (MARK) Nozzle check OFF	Analyzing the NCU discharge patterns, an abnormal discharge is recognized, which does not satisfy the criteria for the pattern. Normal judgment is not available due to a mass of missing dot and curving print.	
34	NCU CONNECT	The NCU cable assy. (E107983) is not connected to the NCU.	1. Check the cable connection between the PD_AMP PCB Assy. and Central IO PCB. 2. Replace the NCU unit with new one.*(See 6.6.2)* 3. Replace the Central IO PCB with a new one.*(See 3.3.2)*
35	REPLACE NCU	Due to the deterioration, contamination, or blemish of the light source LED, the light intensity was declined and became an inoperable level. It occurs if the result of executing [#Test] - [NCU] - [Sensor Test] is under [100].	At test drawing, if occurs even in the absence of missing nozzles 1. Clean the NCU inner wall. 2. Check the cable connection between the PD_AMP PCB Assy. and Central IO PCB. 3. Replace the NCU unit with new one.*(See 6.6.2)* 4. Replace the Central IO PCB with a new one.*(See 3.3.2)*
36	REPLACE NCU INK PAD	The discarded ink pad of NCU was filled up.	1. Replace the discarded ink receiver of NCU.
37	NCU ERROR Nozzle check OFF	The nozzle check was terminated by some problem.	1. This is indicated in case that the nozzle check action was terminated by some unexpected problem (such as a mishandling of program). Check the status of problem.
Other			
38	REPLACE WIPER	The number of times of wiping was beyond the specific value.	1. Execute [Station Maint.] - [Replace Wiper].
39	DATA REMAIN	Data has already been received.	1. Press the [REMOTE] key and perform printing. Or, perform data clear.
40	MACHINE TEMP./H ***°C	The temperature of equipment is high.	1. Adjust the room temperature within the specific range (20~30°C) 2. Check the thermistor value by the temperature test. 3. Replace the LCD. *(See 6.4.7)*

7.1.3 List of Warning Messages

■ **List of Warning Messages (5/5)**

No.	Message	Cause	Corrective Measures
41	MACHINE TEMP./L ***°C	The temperature of equipment is low.	1. Adjust the room temperature within the specific range (20~30°C) 2. Check the thermistor value by the temperature test. 3. Replace the LCD. *(See 6.4.7)*

7.1.4 List of SYSTEM HALT

■ **List of SYSTEM HALT (1/8)**

No.	LCD	Cause	Corrective Measures
1	SYSTEM HALT (*) 000 :UNKNOWN ERR	FW control error	1. Update F/W. 2. Check and clear the parameter. 3. Replace the main PCB with a new one. *(See 3.3.1)*
2	SYSTEM HALT (*) 104 :+35V RECVR	Power recovery error	1. Replace the 36V power supply with a new one. *(See 6.4.5)* 2. Replace the main PCB with a new one. *(See 3.3.1)*
3	SYSTEM HALT (*) 10e :FROM CLEAR	F-ROM is not clearable on Parameter writing, FW down loading and Log clearing.	1. Execute the memory check (F-ROM) of [#Test]. 2. Upload the parameter and initialize all parameters with System parameter INIT='1'. 3. Replace the main PCB with a new one. *(See 3.3.1)*
4	SYSTEM HALT (*) 10f :FROM WRITE	Writing into the FROM is impossible on Parameter writing, FW down loading and Log clearing.	1. Execute the memory check (F-ROM) of [#Test]. 2. Upload the parameter and initialize all parameters with System parameter INIT='1'. 3. Replace the main PCB with a new one. *(See 3.3.1)*
5	SYSTEM HALT (*) 110 :PCB KEY	The initializing process of keyboard PCB is not properly completed. (communication error, damage of the PCB)	1. Check the connections between the Color LCD PCB and the main PCB and then disconnect and connect the FFCs. 2. Replace the FFCs of the above paths. 3. Replace the Color LCD PCB with a new one. *(See 6.4.7)* 4. Replace the main PCB with a new one. *(See 3.3.1)*
6	SYSTEM HALT (*) 115 :PCB MAIN-F1	The F1 fuse on the main PCB went out. (+IO5V)	Carry out the fuse check.*(See 2.1.2)* 1. Turn on the power, and then confirm D27 on the main PCB is lit.*(See 2.3.1)*(Confirm it before an error occurs, because when an error occurs, the LED is not lit) 2. When LED is not lit, confirm connection and damage of the FFC between main PCB and Central IO PCB. Replace the F1 fuse. *(See 2.3.1)(See 2.3.2)* 3. When an error occurs with LED is lit, replace the EPL3 main PCB.*(See 3.3.1)*
7	SYSTEM HALT (*) 116 :PCB MAIN-F2	The F2 fuse on the main PCB went out.	Carry out the fuse check.*(See 2.1.2)* 1. Turn on the power, and then confirm D31 on the main PCB is lit.*(See 2.3.1)*(Confirm it before an error occurs, because when an error occurs, the LED is not lit) 2. When LED is not lit, confirm connection and damage of the FFC between main PCB and Central IO PCB. Replace the F2 fuse. *(See 2.3.1)(See 2.3.2)* 3. When an error occurs with LED is lit, replace the EPL3 main PCB.*(See 3.3.1)*
8	SYSTEM HALT (*) 11f :PCB SLIDER	The initializing process of slider PCB is not properly completed. (communication error, damage of the PCB)	1. Check the connections between the optical converting PCB P and the main PCB and then disconnect and connect the FFCs. 2. Replace the FFCs of the above paths. 3. Replace the optical converting PCB P with a new one. *(See 6.4.11)* 4. Replace the main PCB with a new one. *(See 3.3.1)*

7.1.4 List of SYSTEM HALT

■ **List of SYSTEM HALT (2/8)**

No.	LCD	Cause	Corrective Measures
9	SYSTEM HALT (*) 120 :LCD THERM.	LCD thermistor IC RW error Fail in read/write	1. Disconnect and connect the FFC located between the main PCB and the keyboard PCB. 2. Replace the FFCs of the above paths. 3. Replace the keyboard PCB with a new one. *(See 6.4.7)* 4. Replace the main PCB with a new one. *(See 3.3.1)* 5. Replace the 5V power supply with a new one. *(See 6.4.5)*
10	SYSTEM HALT (*) 122 :PRAM NONE	The PRAM PCB is not found.	1. Update F/W. 2. Replace the PRAM PCB with a new one. *(See 3.3.1)* 3. Replace the power supply with a new one. *(See 6.4.5)* 4. Replace the main PCB with a new one. *(See 3.3.1)*
11	SYSTEM HALT (*) 123 :PRAM DATA	PRAM data error	1. Update F/W. 2. Replace the PRAM PCB with a new one. *(See 3.3.1)* 3. Replace the main PCB with a new one. *(See 3.3.1)*
12	SYSTEM HALT (*) 124 :PRAM ADDR	PRAM address error	1. Update F/W. 2. Replace the PRAM PCB with a new one. *(See 3.3.1)* 3. Replace the main PCB with a new one. *(See 3.3.1)*
13	SYSTEM HALT (*) 125 :EEPROM READ	EEPROM read trouble	1. Update F/W. 2. Upload the parameter and initialize parameter with [#PARAMETER]. 3. Check the connection state between main PCB - Central-IO PCB. 4. Replace the Central-IO PCB with a new one. *(See 3.3.2)* 5. Replace the main PCB with a new one. *(See 3.3.1)*
14	SYSTEM HALT (*) 126 :EEPROM WR	EEPROM write trouble	1. Update F/W. 2. Upload the parameter and initialize parameter with [#PARAMETER]. 3. Check the connection state between main PCB - Central-IO PCB. 4. Replace the Central-IO PCB with a new one. *(See 3.3.2)* 5. Replace the main PCB with a new one. *(See 3.3.1)*
15	SYSTEM HALT (*) 127 :POWER OFF	Power OFF detection error Power OFF process is conducted in the Power ON/OFF control without pushing down the sub-power SW.	1. Check the connection state between main PCB and Color LCD PCB. 2. Check the connector connection of DC power supply (36V). 3. Check if there is no error on the power path from the AC Inlet. 4. Replace the DC power supply (36V) with a new one. *(See 6.4.5)* 5. Replace the Color LCD PCB with a new one. *(See 6.4.7)* 6. Replace the main PCB with a new one. *(See 3.3.1)*

7.1.4 List of SYSTEM HALT

■ **List of SYSTEM HALT (3/8)**

No.	LCD	Cause	Corrective Measures
16	SYSTEM HALT (*) 12d :PCB MAIN-F4	The F4 fuse on the main PCB went out. (+IOPOW)	Carry out the fuse check.*(See 2.1.2)* 1. Turn on the power, and then confirm D33 on the main PCB is lit.*(See 2.3.1)*(Confirm it before an error occurs, because when an error occurs, the LED is not lit) 2. When LED is not lit, confirm connection and damage of the FFC between main PCB and Central IO PCB. Replace the F4 fuse. *(See 2.3.1)(See 2.3.2)* 3. When an error occurs with LED is lit, replace the EPL3 main PCB.*(See 3.3.1)*
17	ERROR 147 DS-IC BUSY	The status of the ink IC read/write sequence BUSY of FPGA still turns on for 500 msec. and more.	1. Check connection of the ID contact PCB connection cable and damage of the cable. 2. Try to use a different cartridge. 3. Replace the ID contact PCB with a new one. *(See 6.4.8)* 4. Replace the Central-IO PCB with a new one. *(See 3.3.2)*
18	SYSTEM HALT (*) 160 :PCB MAIN-F5	The F5 fuse on the main PCB went out.	Carry out the fuse check.*(See 2.1.2)* 1. Turn on the power, and then confirm D34 on the main PCB is lit.*(See 2.3.1)*(Confirm it before an error occurs, because when an error occurs, the LED is not lit) 2. When LED is not lit, confirm connection and damage of the FFC between main PCB and Central IO PCB. Replace the F5 fuse. *(See 2.3.1)(See 2.3.2)* 3. When an error occurs with LED is lit, replace the EPL3 main PCB.*(See 3.3.1)*
19	SYSTEM HALT (*) 161 :PCB MAIN-F6	The F6 fuse on the main PCB went out.	Carry out the fuse check.*(See 2.1.2)* 1. Turn on the power, and then confirm D35 on the main PCB is lit.*(See 2.3.1)*(Confirm it before an error occurs, because when an error occurs, the LED is not lit) 2. When LED is not lit, confirm connection and damage of the FFC between main PCB and Central IO PCB. Replace the F6 fuse. *(See 2.3.1)(See 2.3.2)* 3. When an error occurs with LED is lit, replace the EPL3 main PCB.*(See 3.3.1)*
20	SYSTEM HALT (*) 17b :PCB CIO	The initializing process of Central-IO PCB is not properly completed. (communication error, damage of the PCB)	1. Disconnect and connect the FFC located between the Central-IO PCB and the main PCB. 2. Replace the FFCs of the above paths 3. Replace the Central-IO PCB with a new one. *(See 3.3.2)* 4. Replace the main PCB with a new one. *(See 3.3.1)*
21	SYSTEM HALT (*) 17c :PCB FWC1	No Heavy-duty/narrow, feeding/take-up IF PCB	1. Disconnect and connect the FFC located between the Central-IO PCB and the Heavy-duty/narrow, feeding/take-up IF PCB modification assy.. 2. Replace the FFCs of the above paths 3. Replace the Heavy-duty/narrow, feeding/take-up IF PCB modification assy. with a new one. *(See 6.4.18)* 4. Replace the Central-IO PCB 1 and 2 with a new one. *(See 3.3.2)* 5. Replace the main PCB with a new one. *(See 3.3.1)*

7.1.4 List of SYSTEM HALT

■ **List of SYSTEM HALT (4/8)**

No.	LCD	Cause	Corrective Measures
22	SYSTEM HALT (*) 181 :PCB H21	The initializing process of HD21 PCB is not properly completed. (communication error, damage of the PCB)	1. Check the switch of light conversion PCB P assy to be in the correct orientation. 2. Check the breakage of print head / HDC PCB assy. *(See 7.1.5)* 3. Replace the HDC PCB with a new one.*(See 6.4.9)* 4. Replace the print head with a new one. *(See 3.1.1)* 5. Replace the light converter PCB P assy. 6. Replace the MAIN PCB with a new one. *(See 3.3.1)* 7. Replace the cable located between the print head and the HDC PCB. 8. Replace the optical cable between the light converter PCB P assy (electrical BOX side) and the light converter PCB P assy (carriage side). 9. Replace the cable between the light converter PCB P assy (electrical BOX side) and the light converter PCB P assy (carriage side). 10.Replace the FFC between the light converter PCB P assy (electrical BOX side) and the HDC PCB assy. 11.Replace the cable between the light converter PCB P assy (electrical BOX side) and the HDC PCB assy. 12.Replace the FFC between the main PCB assy and the light converter PCB P assy (carriage side). 13.Replace the cable between the main PCB assy and the light converter PCB P assy (carriage side).
23	SYSTEM HALT (*) 182 :PCB H22	No HD22 PCB	1. Disconnect and connect the cable located between the HDC PCB 1 and the HDC PCB 2. 2. Replace the FFCs of the above paths 3. Replace the HDC PCB 2 with a new one. *(See 6.4.9)* 4. Replace the main PCB with a new one. *(See 3.3.1)*
24	SYSTEM HALT (*) 189 :COM VOLT	COM power voltage abnormality (At starting printing, COM power is OFF.)	1. Check the breakage of print head / HDC PCB assy. *(See 7.1.5)* 2. Replace the print head with a new one. *(See 3.1.1)* 3. Replace the HDC PCB with a new one. *(See 6.4.9)* 4. Replace the cable located between the print head and the HDC PCB.
25	SYSTEM HALT (*) 196 :PCB DRV*-F1	The F1 fuse on the DRV PCB went out An error occurs on the DRV PCB of the number indicated in the LCD.	Carry out the fuse check.*(See 2.1.2)* 1. Check if any fuse is blowout on the UV-DRIVE PCB by checking its conductivity with a tester. 2. If blowout, replace the UV-DRIVE PCB. *(See 6.4.16)* 3. If not blowout, check the connection and damage of harness between the HDC and the UV-DRIVE PCB.
26	SYSTEM HALT (*) 197 :PCB DRV*-F2	The F2 fuse on the DRV PCB went out An error occurs on the DRV PCB of the number indicated in the LCD.	
27	SYSTEM HALT (*) 198 :PCB DRV*-F3	The F3 fuse on the DRV PCB went out An error occurs on the DRV PCB of the number indicated in the LCD.	
28	SYSTEM HALT (*) 199 :PCB DRV*-F4	The F4 fuse on the DRV PCB went out An error occurs on the DRV PCB of the number indicated in the LCD.	
29	SYSTEM HALT (*) 19e :HDC*-F1	The fuse on the HDC PCB went out Fuse blown of the HDC PCB that displayed number on the LCD is detected	1. Check the conductivity of the fuse on the HDC PCB indicated in the LCD by checking with a tester. 2. If blowout, replace the PCB. *(See 6.4.9)* 3. If not blowout, check the connection of between the main and the HDC.
30	SYSTEM HALT (*) 1a2 :PCB DRV1	No DRV PCB 1	1. Replace the cable of the above paths 2. Replace the DIO1 with a new one.

7.1.4 List of SYSTEM HALT

■ **List of SYSTEM HALT (5/8)**

No.	LCD	Cause	Corrective Measures
31	SYSTEM HALT (*) 1a3 :PCB DRV2	No DRV PCB 2	1. Replace the cable of the above paths 2. Replace the DIO2 with a new one. 3. Replace the DIO1 with a new one.
32	SYSTEM HALT (*) 1ae :PCB CIO2	No Central-IO PCB 2	1. Disconnect and connect the FFC located between the Central-IO PCB 1 and the Central PCB 2. 2. Replace the FFCs of the above paths 3. Replace the Central-IO PCB 2 with a new one. *(See 3.3.2)* 4. Replace the Central-IO PCB 1 with a new one. *(See 3.3.2)* 5. Replace the main PCB with a new one. *(See 3.3.1)*
33	SYSTEM HALT (*) 1c4 :PCB CIO*-F*	The fuse on the Central-IO PCB indicated in the LCD is blowout.	Carry out the fuse check.*(See 2.1.2)* 1. Check the conductivity of the fuse on the Central-IO PCB indicated in the LCD by checking with a tester. 2. If blowout, replace the PCB. *(See 3.3.2)* 3. If not blowout, check the connection of between the main and the Central-IO.
34	SYSTEM HALT (*) 1d0 :PCB FWC-F*	A fuse on the Heavy-duty/narrow, feeding/take-up IF PCB modification assy. is blowout.	Carry out the fuse check.*(See 2.1.2)* [F1/F2] 1. Replace the Heavy-duty/narrow, feeding/take-up IF PCB modification assy. with a new one. *(See 6.4.18)* [F3] 1. Replace the Heavy-duty/narrow, feeding/take-up IF PCB modification assy. with a new one. *(See 6.4.18)* 2. Replace the heavy-duty feeding/take-up PCB (feeding side) with a new one. *(See 6.5.4)* 3. Replace the feeding side motor. *(See 6.5.5)* [F4] 1. Replace the Heavy-duty/narrow, feeding/take-up IF PCB modification assy. with a new one. *(See 6.4.18)* 2. Replace the heavy-duty feeding/take-up PCB (take-up side) with a new one. *(See 6.5.4)* 3. Replace the take-up side motor. *(See 6.5.1)*
35	SYSTEM HALT (*) 303 :PCB MAIN ET	Main PCB ethernet IC trouble Fail in initializing the chip.	Replace the main PCB with a new one. *(See 3.3.1)*
36	SYSTEM HALT (*) 405 :STATION ERR	Station error (sensor or drive).	1. Execute the capping adjustment. 2. Check the following sensors by [#Test] - [Sensor]. • Cap Height • Station 3. Replace the sensor with a new one. 4. Update the FW version.
37	SYSTEM HALT (*) 406 :WIPER ORG	Wiper operation error. Wiper origin undetectable	1. Check if the ON/OFF indication changes by executing [#Test] - [Sensor] - [Wiper]. 2. Check that the wiper moves back and forth smoothly in manual. 3. Check the assembly and connector connection of Wiper origin sensor. 4. Check the connector connection of Wiper motor. 5. Disconnect and connect the FFC located between the main PCB and the Central-IO PCB. 6. Replace the wiper origin sensor with a new one. 7. Replace the wiper motor with a new one. 8. Replace the FFCs of the above paths. 9. Replace the Central-IO PCB with a new one. *(See 3.3.2)*

7.1.4 List of SYSTEM HALT

■ **List of SYSTEM HALT (6/8)**

No.	LCD	Cause	Corrective Measures
38	SYSTEM HALT (*) 449 :SCAN COORD(MIN)	A value exceeding the MIN coordinate value was specified for the Y movement instruction.	1. Restart the machine. 2. If the error occurs again, upload the parameter or contact the developer.
39	SYSTEM HALT (*) 44A :SCAN COORD(MAX)	A value exceeding the MAX coordinate value was specified for the Y movement instruction.	1. Restart the machine. 2. If the error occurs again, upload the parameter or contact the developer.
40	SYSTEM HALT (*) 44B :SCAN ERR	The carriage was about to move with the cap ON.	1. Restart the machine. 2. Check if the shading plate of the cap sensor is properly shielded. 3. Execute the capping adjustment. 4. If the error occurs again, upload the parameter or contact the developer.
41	SYSTEM HALT (*) 502 :Y ORGIN	Y-origin read out error	1. Execute and confirm [#Test]-[Sensor]-[Y Origin]. (Confirm that the ON/OFF display is switched by moving the carriage left and right.) 2. Check in manual if the carriage moves left and right smoothly. 3. Put on and off the connectors or cables for the Y-origin sensor. 4. Replace the Y-origin sensor with a new one. 5. Check connection of the Y-motor connection cable and damage of the cable. 6. Replace the Y-axis motor with a new one. *(See 3.2.2)* 7. Replace the HDC PCB with a new one. *(See 6.4.9)* 8. Replace the main PCB with a new one. *(See 3.3.1)*
42	SYSTEM HALT (*) 506 :STATION SNS	The station sensor cannot be detected.	1. Restart the machine. 2. Replace the station sensor with a new one. 3. Replace the Central-IO PCB with a new one. *(See 3.3.2)*
43	SYSTEM HALT (*) 509 :HDC POSCNT	HDC position counter error occurs.	1. Check if the ON/OFF indication changes by executing [#Test] - [Sensor] - [Y origin]. 2. Execute and confirm [#Test]-[Check Encoder]. 3. Check the assembly of Y-scale, and confirm that there is neither dirt nor scratch. 4. Check if the stud of Y-motor is not loose. 5. Check in manual if the carriage moves left and right smoothly. 6. Put on and off the connectors or cables for the Y-origin sensor and the linear encoder. 7. Replace the Y-origin sensor or Linear encoder with a new one. 8. Check if there is no trouble on the motor cable. (disconnecting, burnout, or the like) 9. Replace the Y-axis motor with a new one. *(See 3.2.2)* 10. Replace the HDC PCB with a new one. *(See 6.4.9)* 11. Replace the main PCB with a new one. *(See 3.3.1)*
44	SYSTEM HALT (*) 51F :CAP SENS	The cap sensor cannot be detected.	1. Restart the machine. 2. Check the sensor status by [#Test] - [Sensor] - [CAP HEIGHT]. 3. Replace the cap sensor with a new one. 4. Replace the HDC 1 PCB with a new one.

7.1.4 List of SYSTEM HALT

■ **List of SYSTEM HALT (7/8)**

No.	LCD	Cause	Corrective Measures
45	SYSTEM HALT (*) 70B :DRV OVHT 0**0**	UV-DRV PCB over heat **: sub code *1: Drive PCB of the UVLED 1 (left) is over heat. *2: Drive PCB of the UVLED 2 (right) is over heat. *=1 ~ 2: Drive PCB 1 ~ 2	1. Check the operation of the UVLED fan. 2. Check the operation of the cooling water pump. 3. Check the cooling water radiator fan, 4. Check the water amount of the cooling device. 5. Lower the peripheral temperature of PCB. 6. Replace the PCB with a new one. *(See 6.4.16)*
46	SYSTEM HALT (*) 711 :LED OVHT 0**0**	LED PCB over heat **: sub code *1: LED PCB of the UVLED 1 (left) is over heat. *2: LED PCB of the UVLED 2 (right) is over heat. *=1 ~ 8: LED PCB A ~ H	1. Check the operation of the UVLED fan. 2. Check the operation of the cooling water pump. 3. Check the cooling water radiator fan, 4. Check the water amount of the cooling device. 5. Lower the peripheral temperature of PCB. 6. Replace the PCB with a new one. *(See 6.4.16)*
47	SYSTEM HALT (*) 801 :(C)OPCODE	CPU control error	1. Replace the main PCB with a new one. *(See 3.3.1)*
48	SYSTEM HALT (*) 802 :(C)SWI	CPU control error	
49	SYSTEM HALT (*) 803 :(C)PFTCH ABRT	CPU control error	
50	SYSTEM HALT (*) 804 :(C)DATA ABRT	CPU control error	
51	SYSTEM HALT (*) 806 :FW/SIO bit	Serial control error	1. Update F/W. 2. Check and clear the parameter. 3. Check the switch of light conversion PCB P assy to be in the correct orientation. 4. Disconnect and connect the FFC located between the main PCB and the Central IO PCB. 5. Disconnect and connect the FFC located between the main PCB and the light convert PCB P. 6. Replace the main PCB with a new one. *(See 3.3.1)* 7. Replace the other PCB with a new one.
52	SYSTEM HALT (*) 807 :FW/SIO wbsy	Serial control error	
53	SYSTEM HALT (*) 808 :FW/STP-MTR	Step motor control error	1. Update F/W. 2. Check and clear the parameter. 3. Replace the main PCB with a new one. *(See 3.3.1)*
54	SYSTEM HALT (*) 809 :FW/XY param	FW control error	
55	SYSTEM HALT (*) 80c :FW/PUMP W	Suction pump motor control error	
56	SYSTEM HALT (*) 80c :FW/FROM prm	FROM control error	
57	SYSTEM HALT (*) 80f :FW/SIO vch	FW control error	1. Update F/W. 2. Check and clear the parameter. 3. Check the switch of light conversion PCB P assy to be in the correct orientation. 4. Disconnect and connect the FFC located between the main PCB and the Central IO PCB. 5. Disconnect and connect the FFC located between the main PCB and the light convert PCB P. 6. Replace the main PCB with a new one. *(See 3.3.1)* 7. Replace the other PCB with a new one.
58	SYSTEM HALT (*) 811 :FW/SIO read	Serial control error	
59	SYSTEM HALT (*) 812 :FW/CRTRG NO	FW control error	1. Update F/W. 2. Check and clear the parameter. 3. Replace the main PCB with a new one. *(See 3.3.1)*
60	SYSTEM HALT (*) 813 :FW/WIPER RN	Error in the wiper working area	
61	SYSTEM HALT (*) 814 :FW/drivinfm	FW control error	

7.1.4 List of SYSTEM HALT

■ **List of SYSTEM HALT (8/8)**

No.	LCD	Cause	Corrective Measures
62	SYSTEM HALT (*) 815 :FW/SIO rsrc	FW control error	1. Update F/W. 2. Check and clear the parameter. 3. Check the switch of light conversion PCB P assy to be in the correct orientation. 4. Disconnect and connect the FFC located between the main PCB and the Central IO PCB. 5. Disconnect and connect the FFC located between the main PCB and the light convert PCB P. 6. Replace the main PCB with a new one. *(See 3.3.1)* 7. Replace the other PCB with a new one.
63	SYSTEM HALT (*) 816 :FW/FROM WRC	FROM control error	
64	SYSTEM HALT (*) 817 :FW/SaveArea	FROM control error	1. Update F/W. 2. Check and clear the parameter. 3. Replace the main PCB with a new one. *(See 3.3.1)*
65	SYSTEM HALT (*) 818 :FW/EEP SIZE	EEPROM control error	
66	SYSTEM HALT (*) 81b :FW/STACK OV	STACK OVER	
67	SYSTEM HALT (*) 826 :FW/PrmSaveBuf	FW control error	
68	SYSTEM HALT (*) 828 :PRG ERR L****	FW control error	
69	SYSTEM HALT (*) 829 :FW/ERASE TIMEOV	FROM control error	
70	SYSTEM HALT (*) 82b :FW/MENU:***	FW control error	

7.1.5 Print Head / HDC PCB Assy Damage Check

■ Outline

This is the test to check whether there is abnormality in the print head and head drive unit of the HDC PCB assy. (mainly COM line), also to verify whether the head power (VH, +3.3V) has not been short circuited with GND.

If the errors (below) that are possible failure of the head / HDC PCB assy. occur, perform this check in order to isolate the problem.

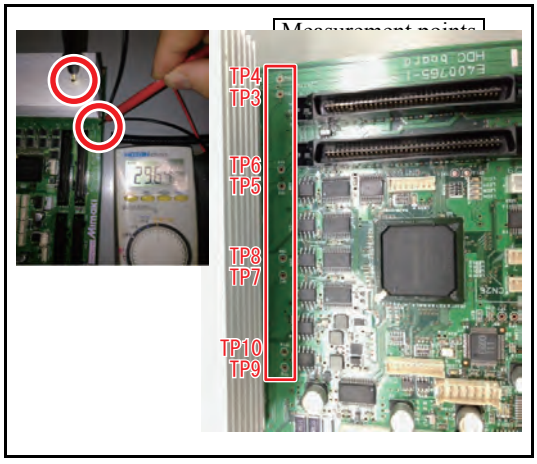
Error12e Head Failed
Error15f HEAD DRIVE HOT
Error181 PCB H21
Error189 COM VOLT
Error18e FLS NOT COMP
Error18f OFFSET START
Error18f OFFSET END
Error108 HD CONNECT[123456]
Error108 HD THERMIS[123456]
Error707 !HD Heater disconnection

If there is no abnormality in this check but the error still remains, a bug in the communication system is considered. In that case, connect and disconnect the cable, exchange the cable, or exchange the PCB's.

Warning

The power is turned OFF in the order of the SUB power switch → MAIN power switch, and unplug the power cord.
It is very dangerous if accidentally the sleep function is activated during work process.
Also, it may damage the PCB assy when the charge is remaining.
In addition, do not touch by mistake the high voltage portion of the PCB assy. There is a risk of electric shock.

■ Work Procedures



1. Referring to left, measure the resistance between the COM+GND in the tester in a state of removing the head and HDC PCB assy.

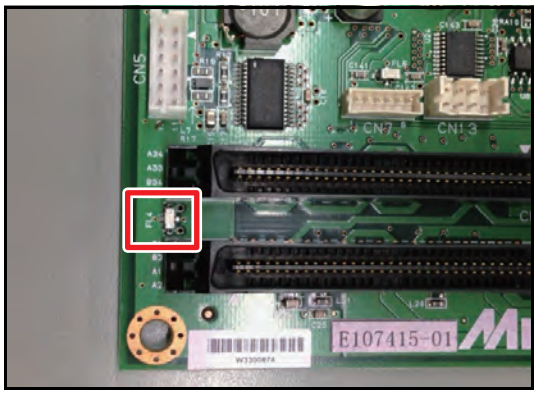
   Apply the positive lead of the tester to COM signal and the negative lead to GND. Normally it is considered in the order of approximately 25?35kΩ.

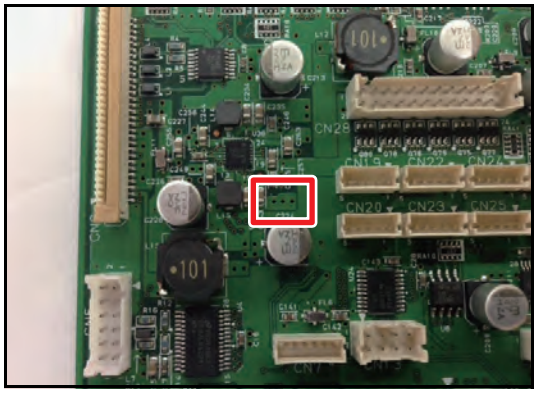
   If the resistance value is as low as 0 to several Ω, the HDC PCB assy is considered to be damaged. Replace the HDC PCB assy.

   COM:TP3,4,5,6 (Head 1), TP7,8,9,10 (Head 2),

   GND: Heat sink portion and screw portion

7.1.5 Print Head / HDC PCB Assy Damage Check





2. Refer to left, measure the resistance value between the head power (VH) and GND. It is considered normal if it is approximately 40kΩ or more.

   If the resistance value is as low as 0 to several Ω, the HDC PCB assy. is considered to be damaged. Replace the HDC PCB assy.

   Head power: the through-hole near FL4,

   GND: Heat sink portion and screw portion

3. Refer to left, measure the resistance value between the head power (+3.3V) and GND. It is considered normal if it is approximately 300Ω or more.

   If the resistance value is as low as 0 to several Ω, the HDC PCB assy. is considered to be damaged. Replace the HDC PCB assy.

   Head power: the through-hole near FL4,

   GND: Heat sink portion and screw portion

4. Connect the head and the HDC PCB assy and measure the resistance value by a tester in the same manner as steps 1 - 3.

   It is normal if the resistance value between COM+GND is about 25 - 35kΩ.

   It is normal if the resistance value between the head power (VH) + GND is 40kΩ or more.

   It is normal if the resistance value between the head power(+3.3V) + GND is 300Ω or more.

   If the resistance value is as low as 0 to several Ω, the head is considered to be damaged. Replace the head.

   If there is the adhesion of ink or the cleaning solution to the head cable, also exchange that head cable.

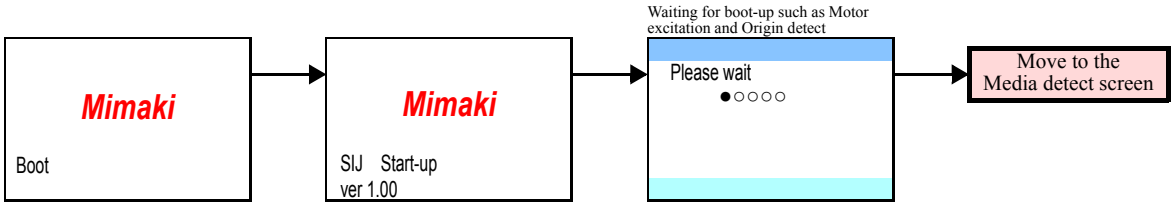
IMPORTANT

- If there is an abnormality in the resistance value even one location, there is a possibility that the head or the HDC PCB assy. might corrupt. Exchange the head or the HDC PCB assy.
- When the power is ON in a state where the head or HDC board is damaged, it would repeat failure again.

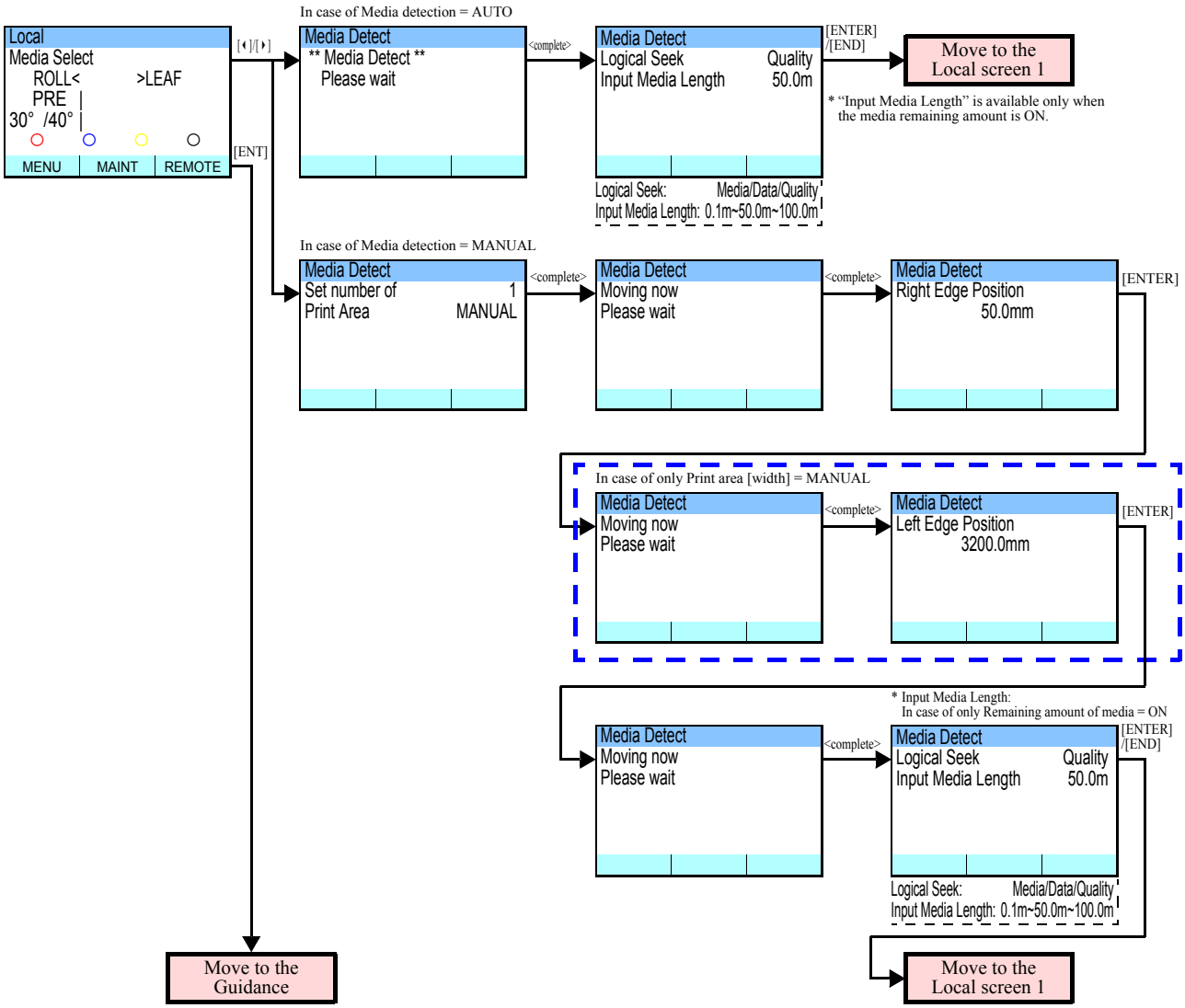
Troubleshooting

Operation Flow

8.1.1 Start Up

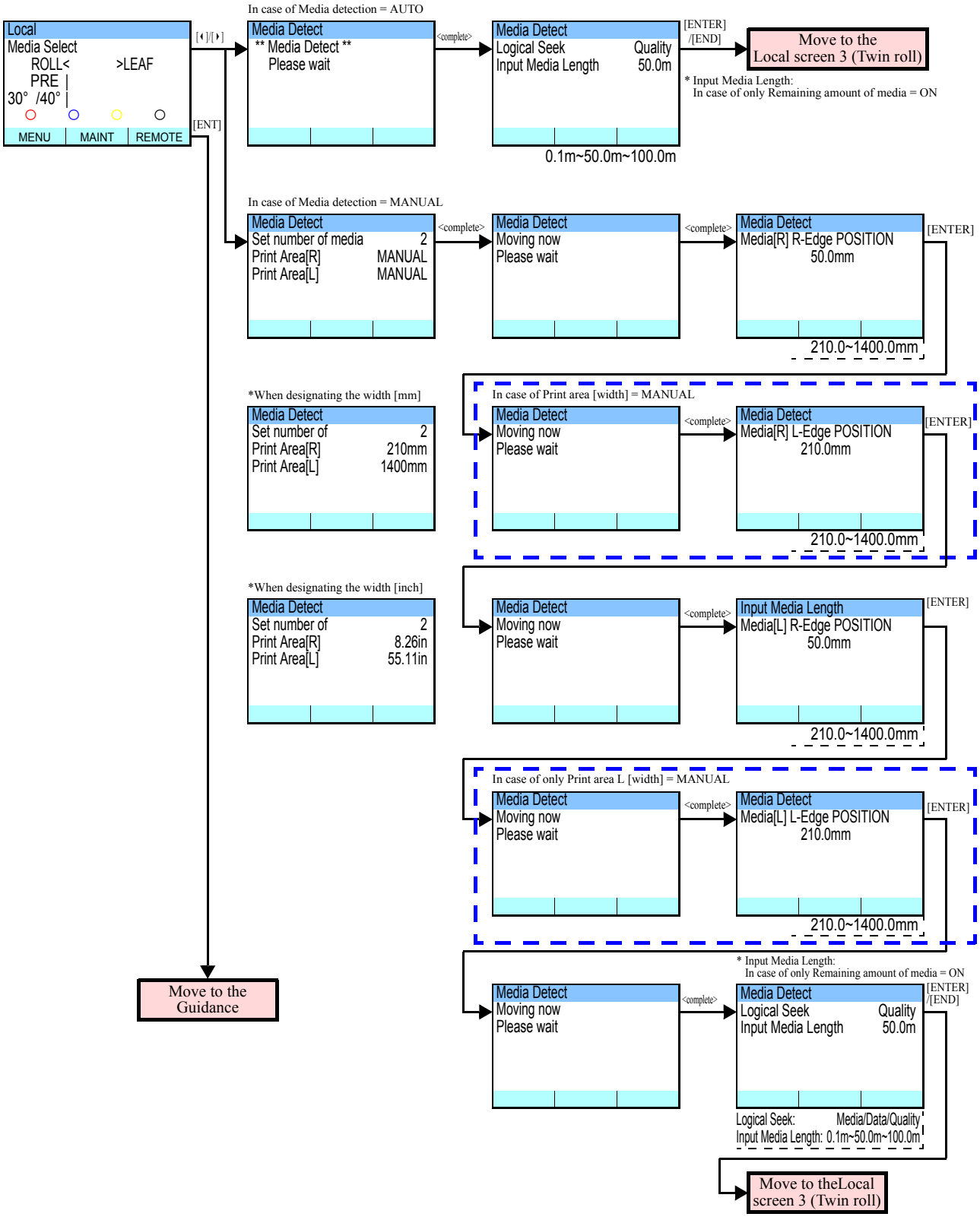


■ Media detect screen



8.1.1 Start Up

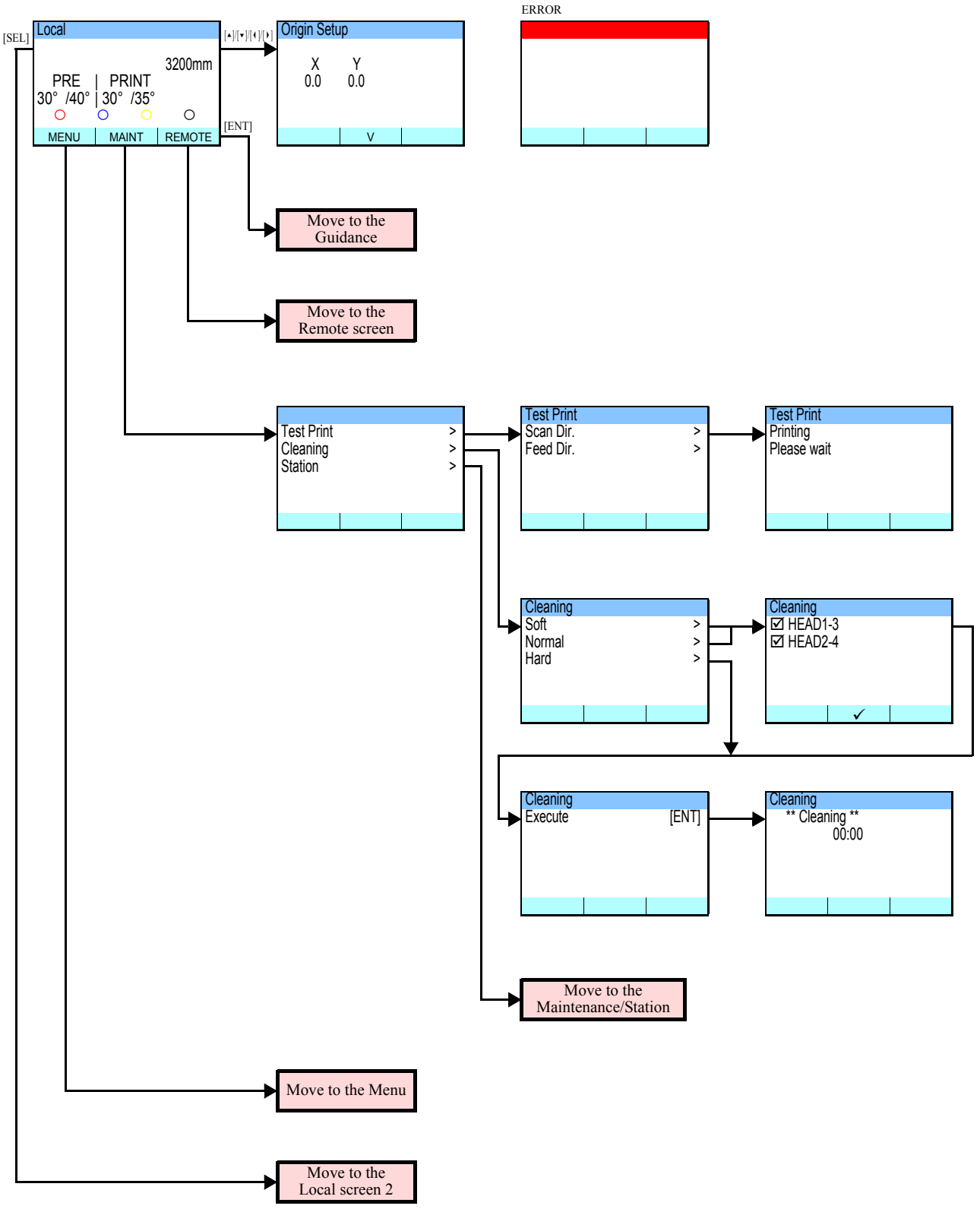
■ Media detect screen (Twin roll)



Operation Flow

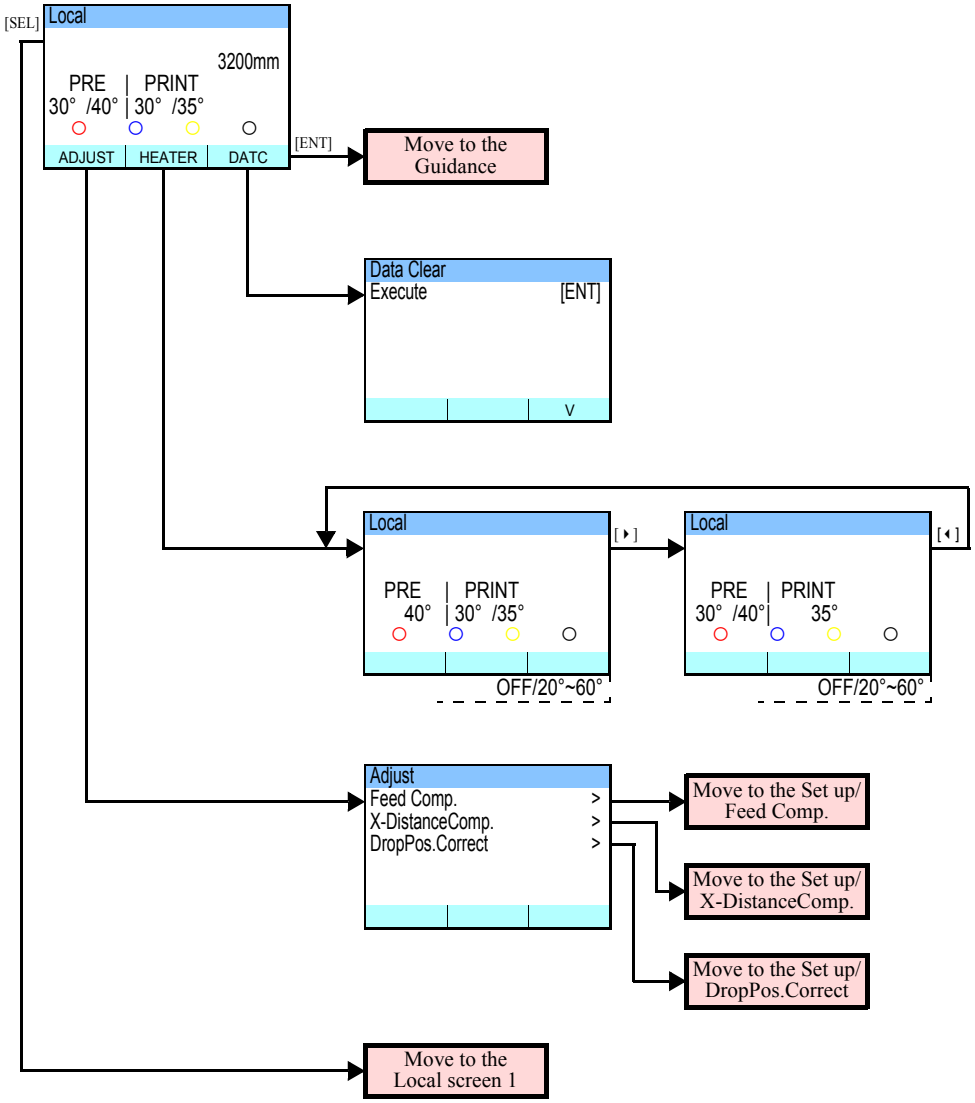
8.2.1 Local

■ Local screen 1



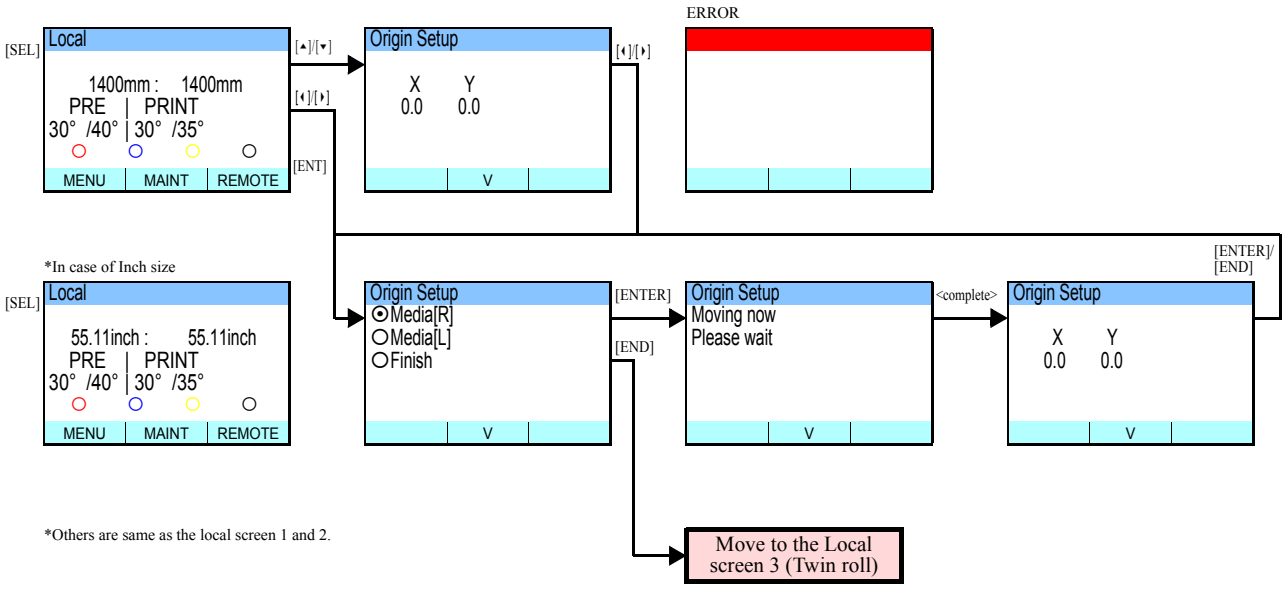
8.2.1 Local

■ **Local screen 2**

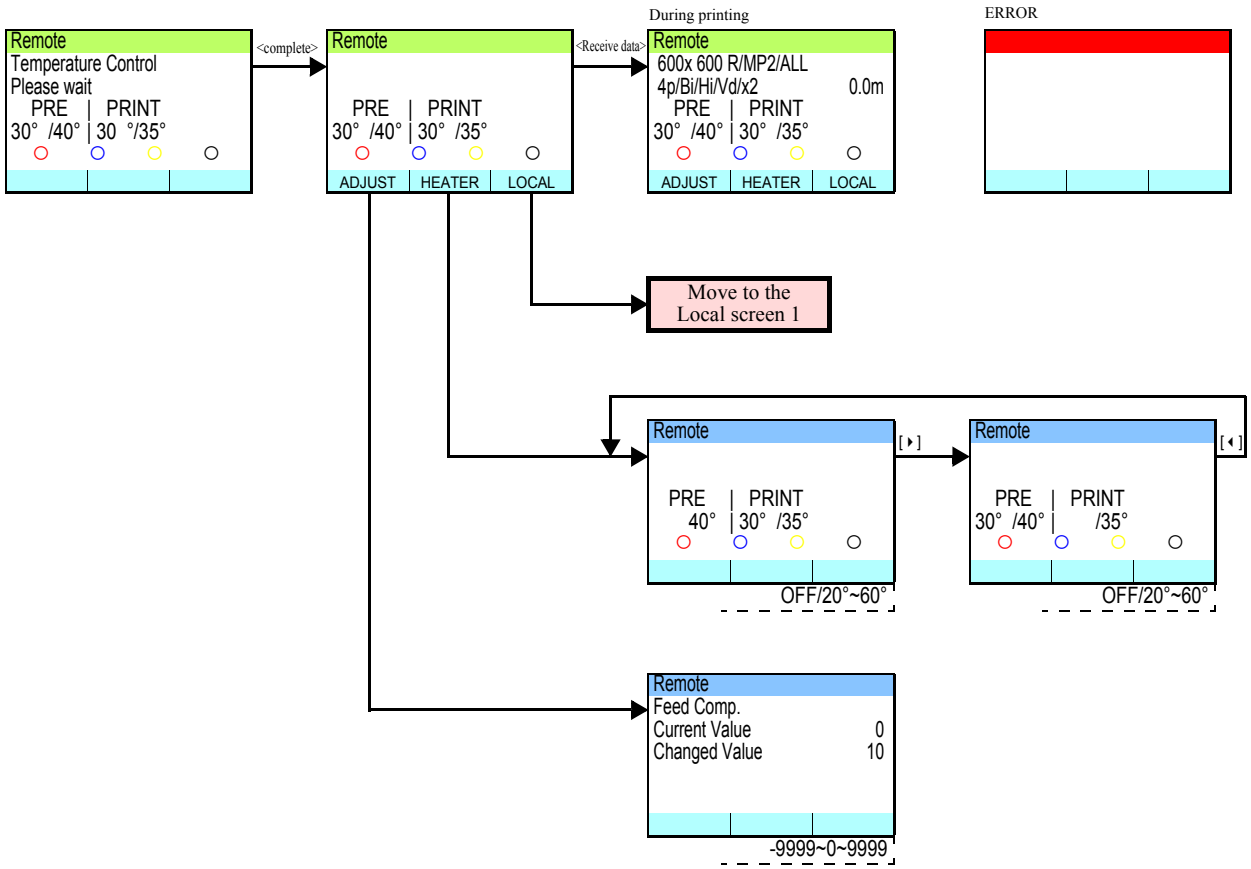


8.2.1 Local

■ Local screen 3 (Twin roll)

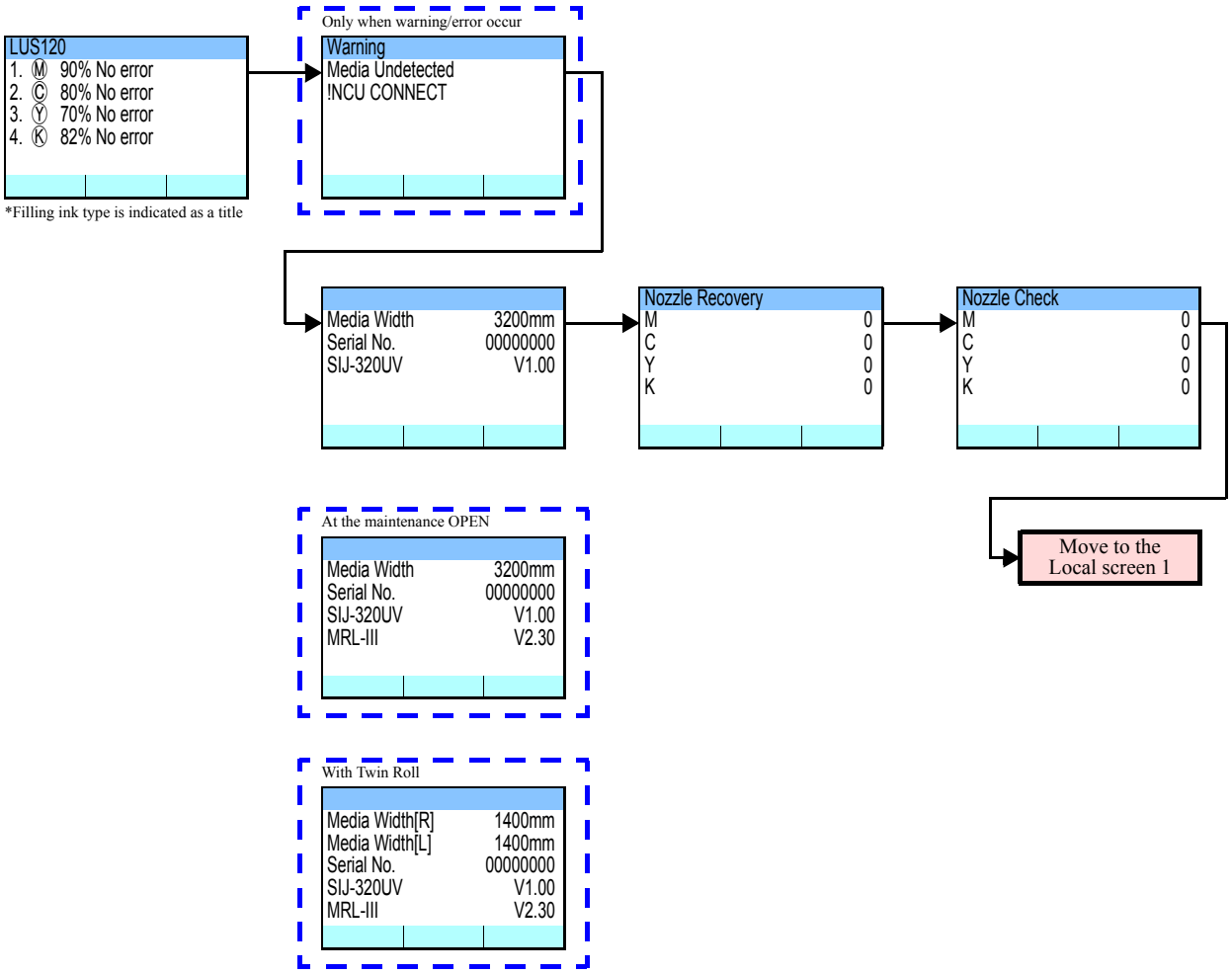


■ Remote screen



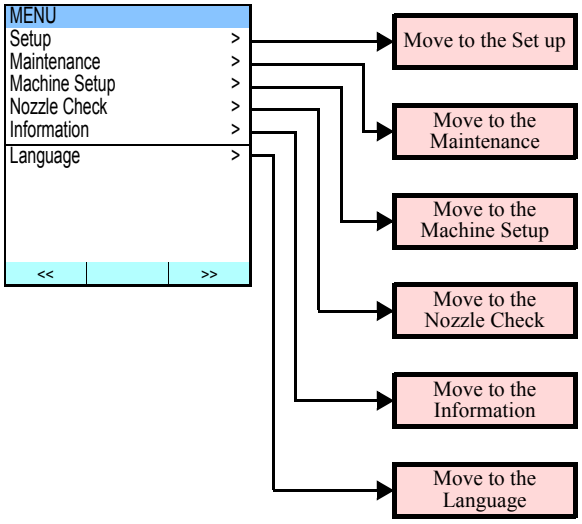
8.2.1 Local

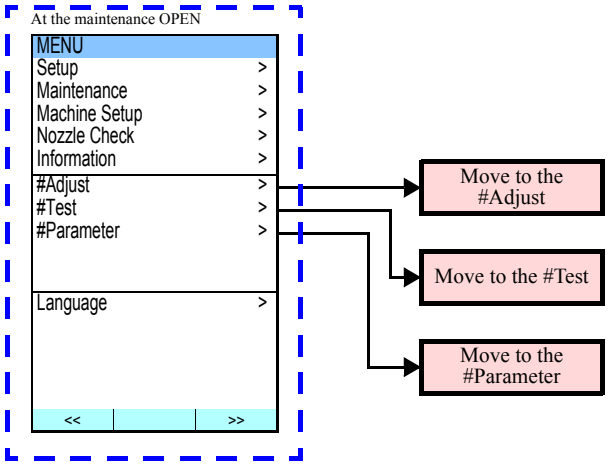
■ **Guidance**



8.2.1 Local

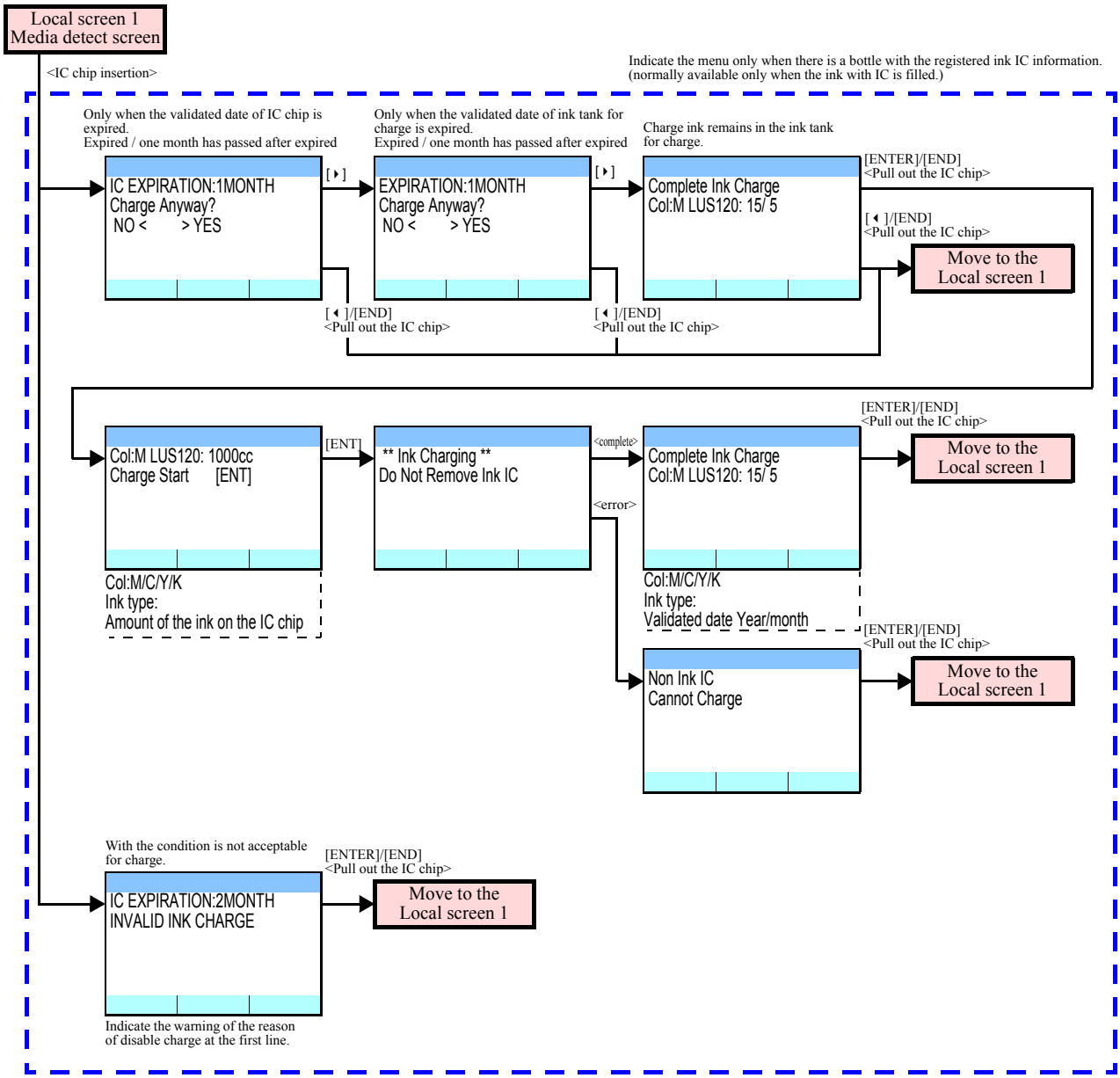
■ **Menu**





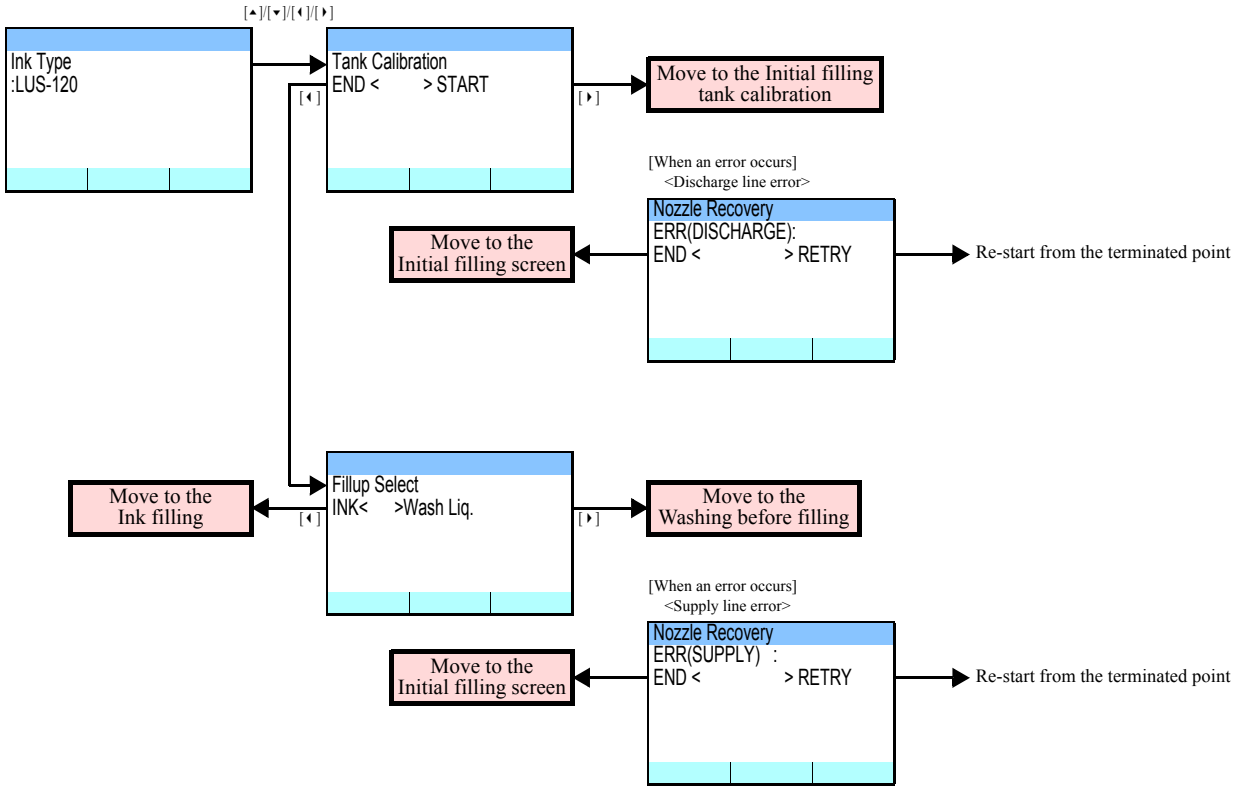
8.2.1 Local

■ Charge

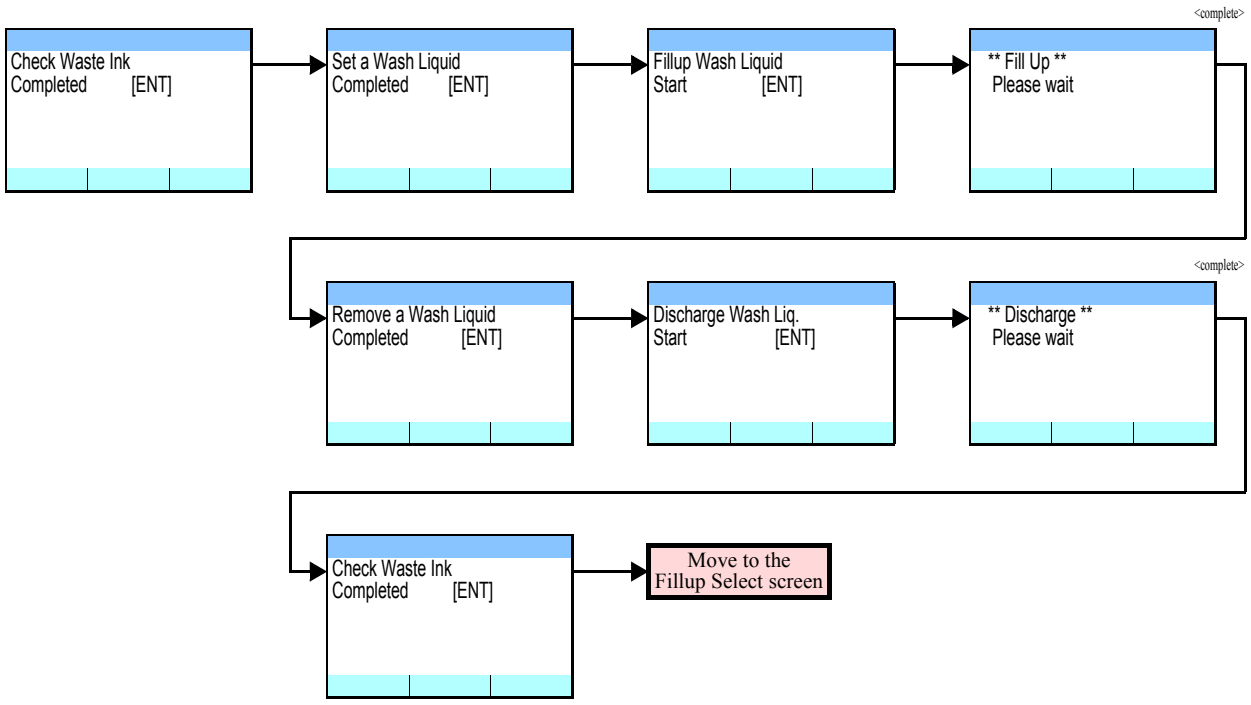


8.2.1 Local

■ Initial filling

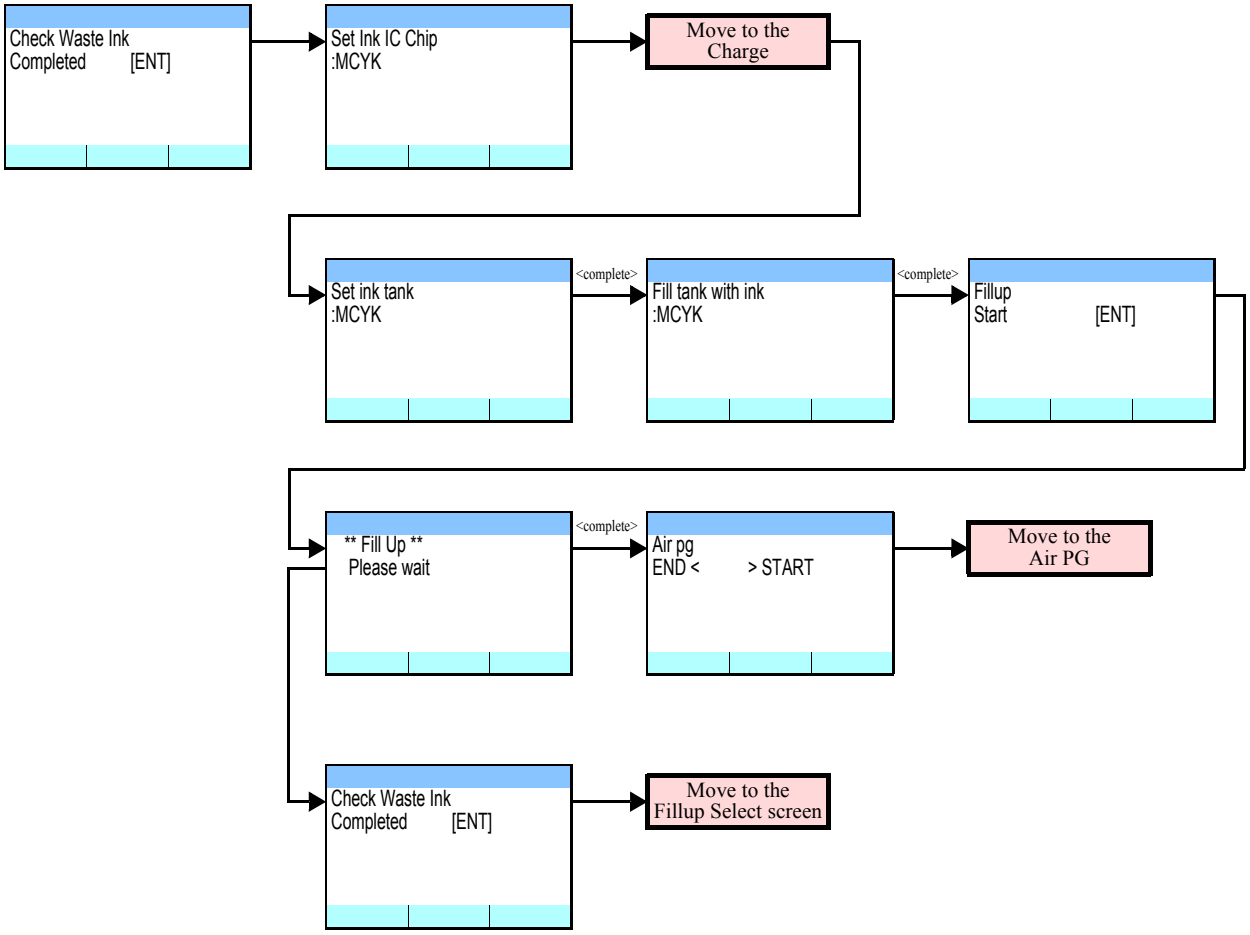


■ Washing before filling

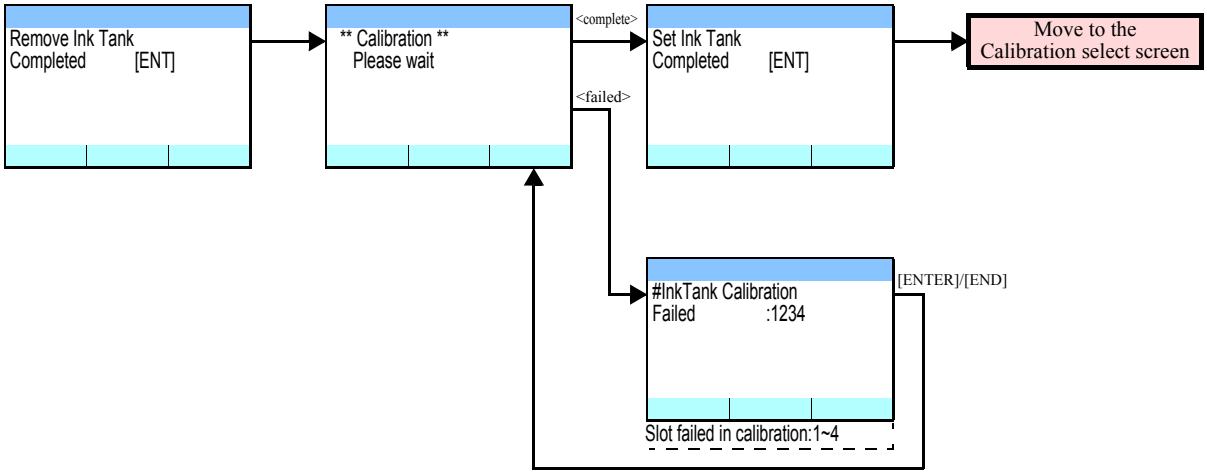


8.2.1 Local

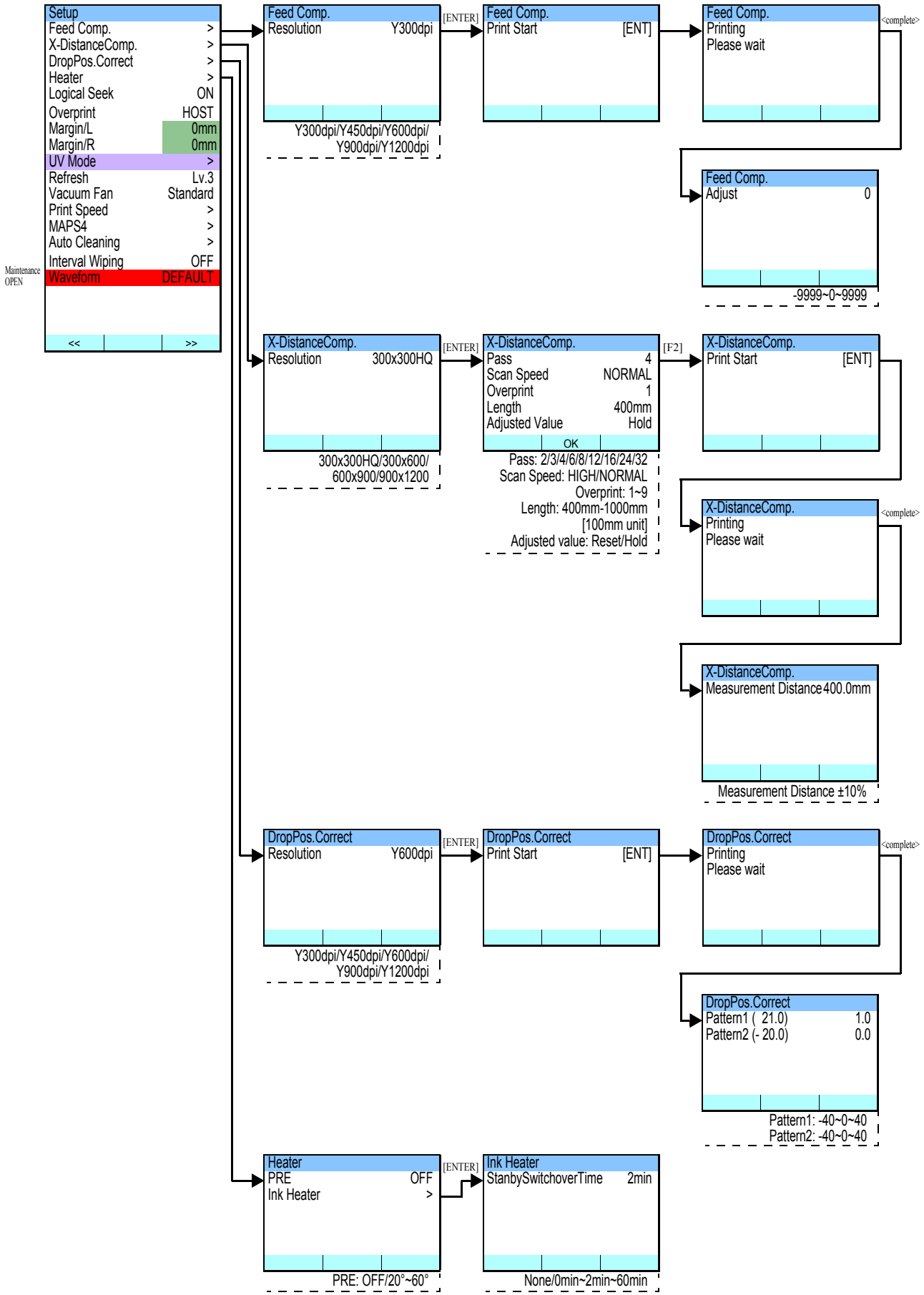
■ Ink filling



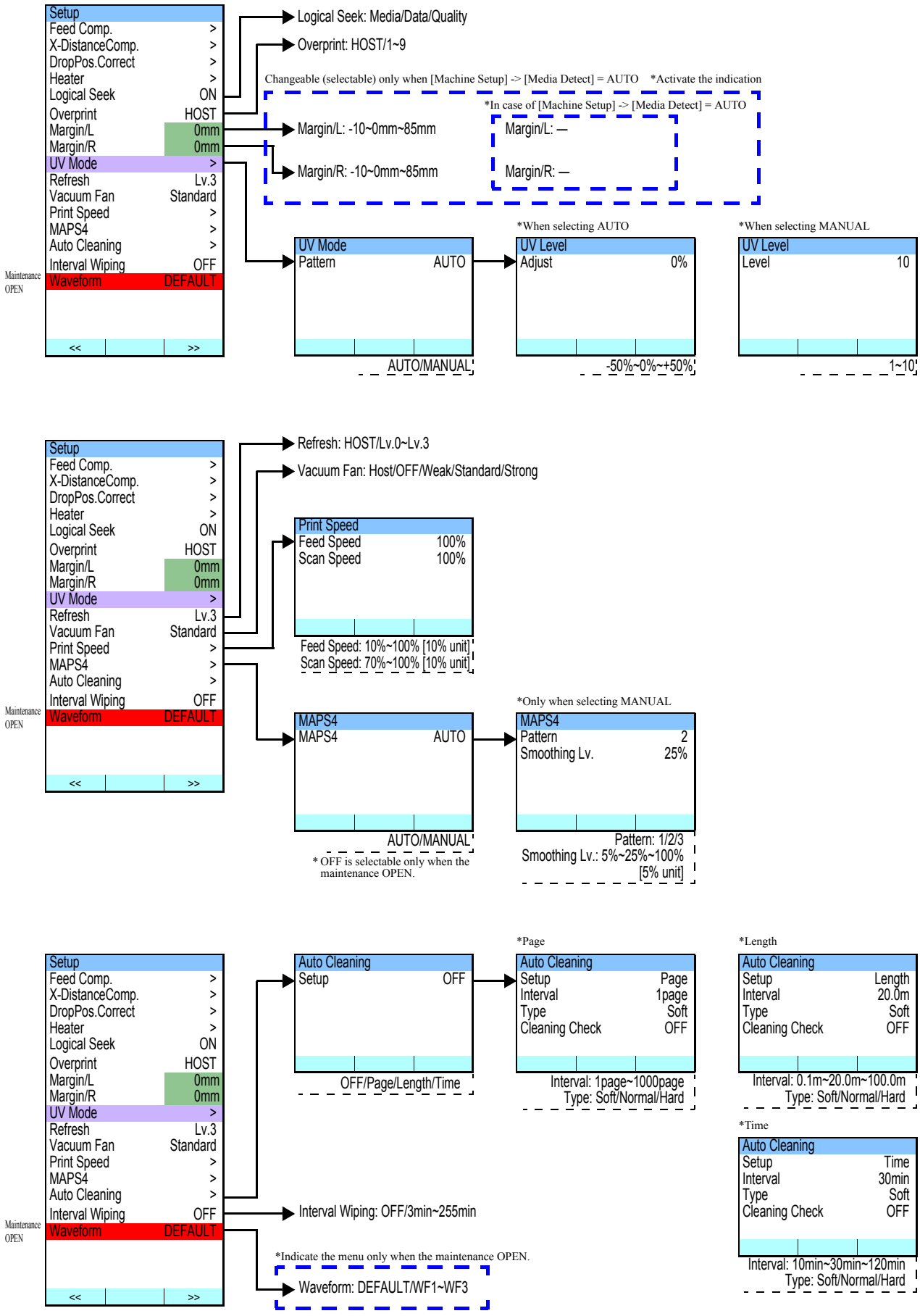
■ Initial filling calibration



8.2.2 Set up

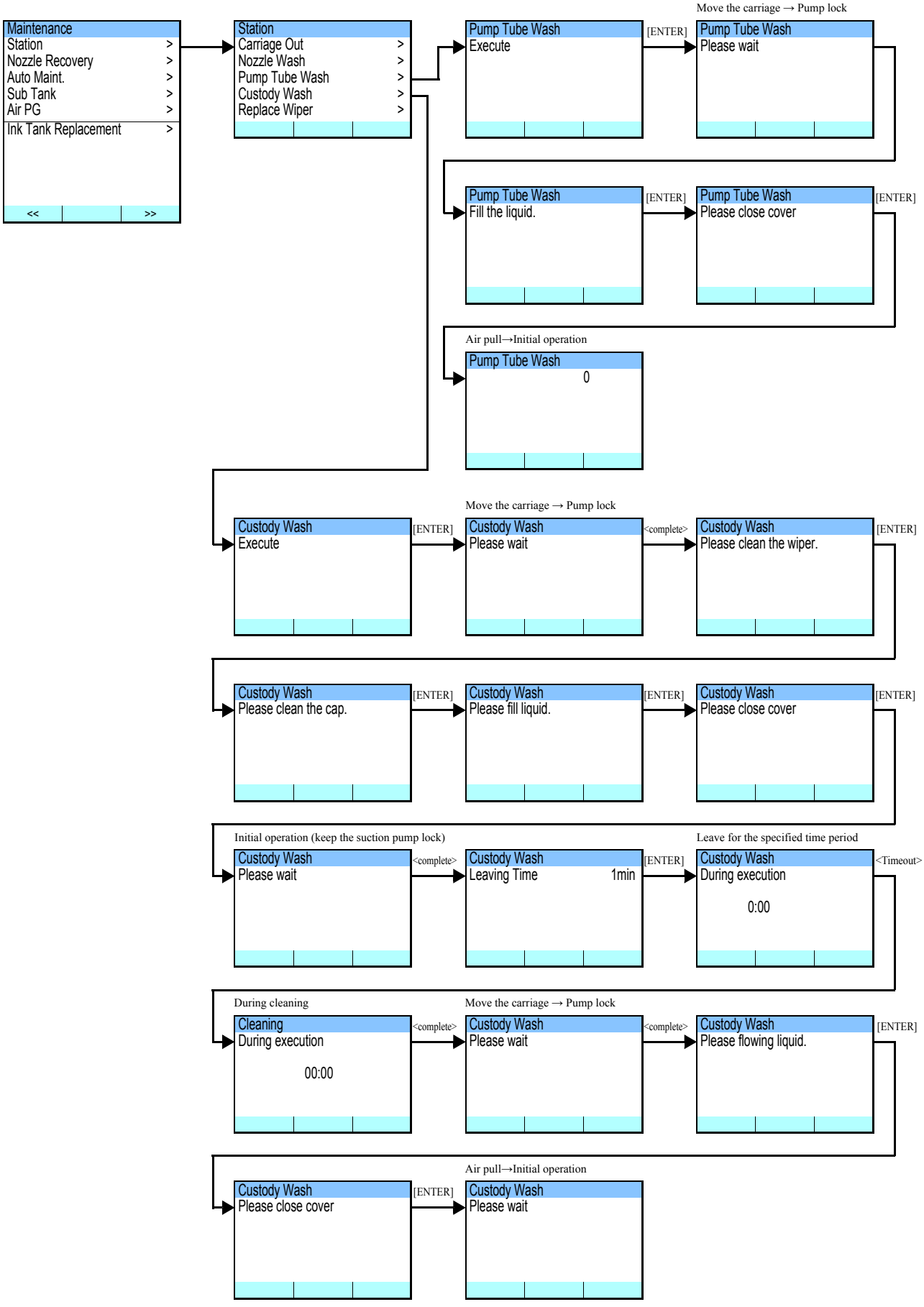


8.2.2 Set up

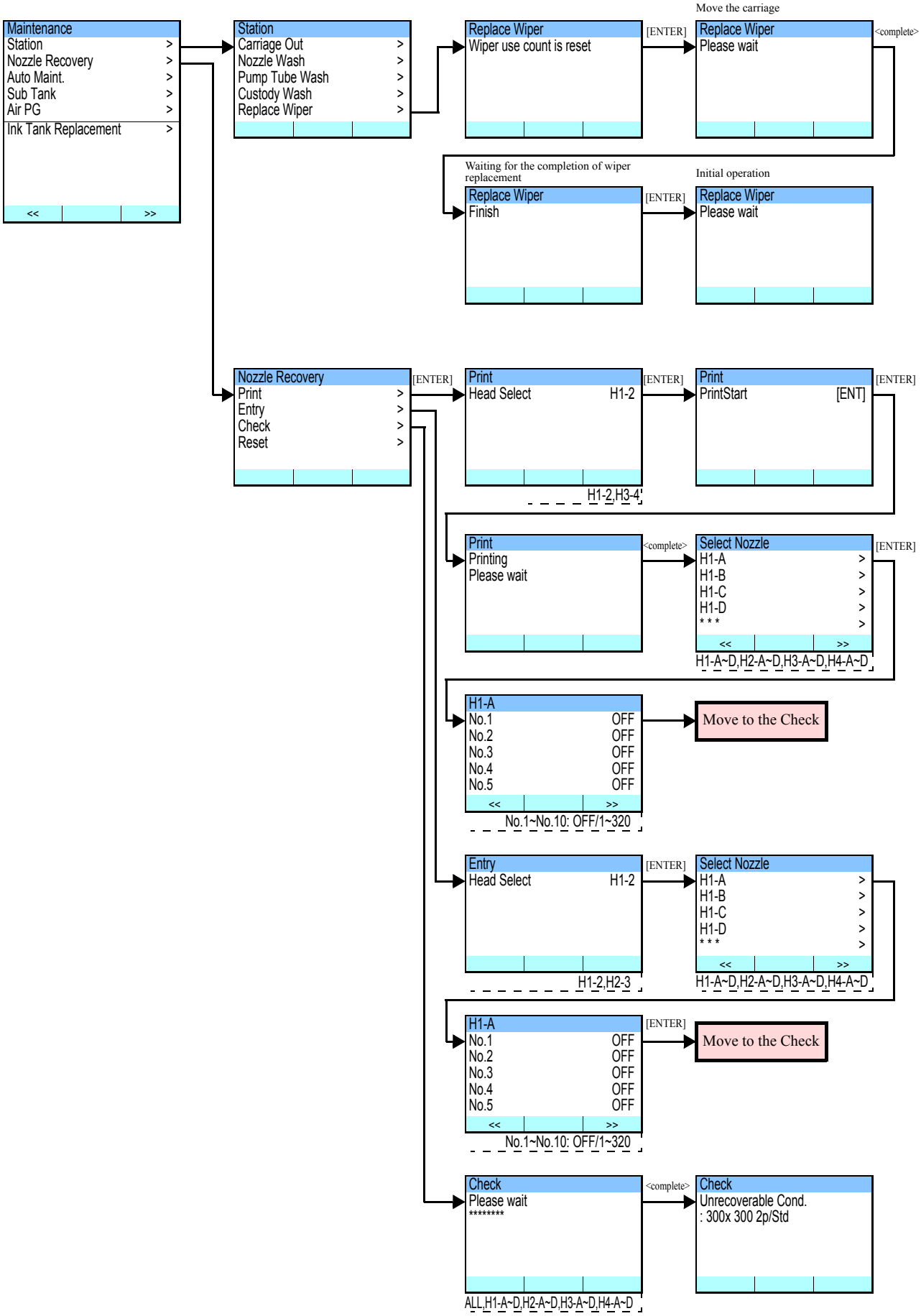


8.2.3 Maintenance

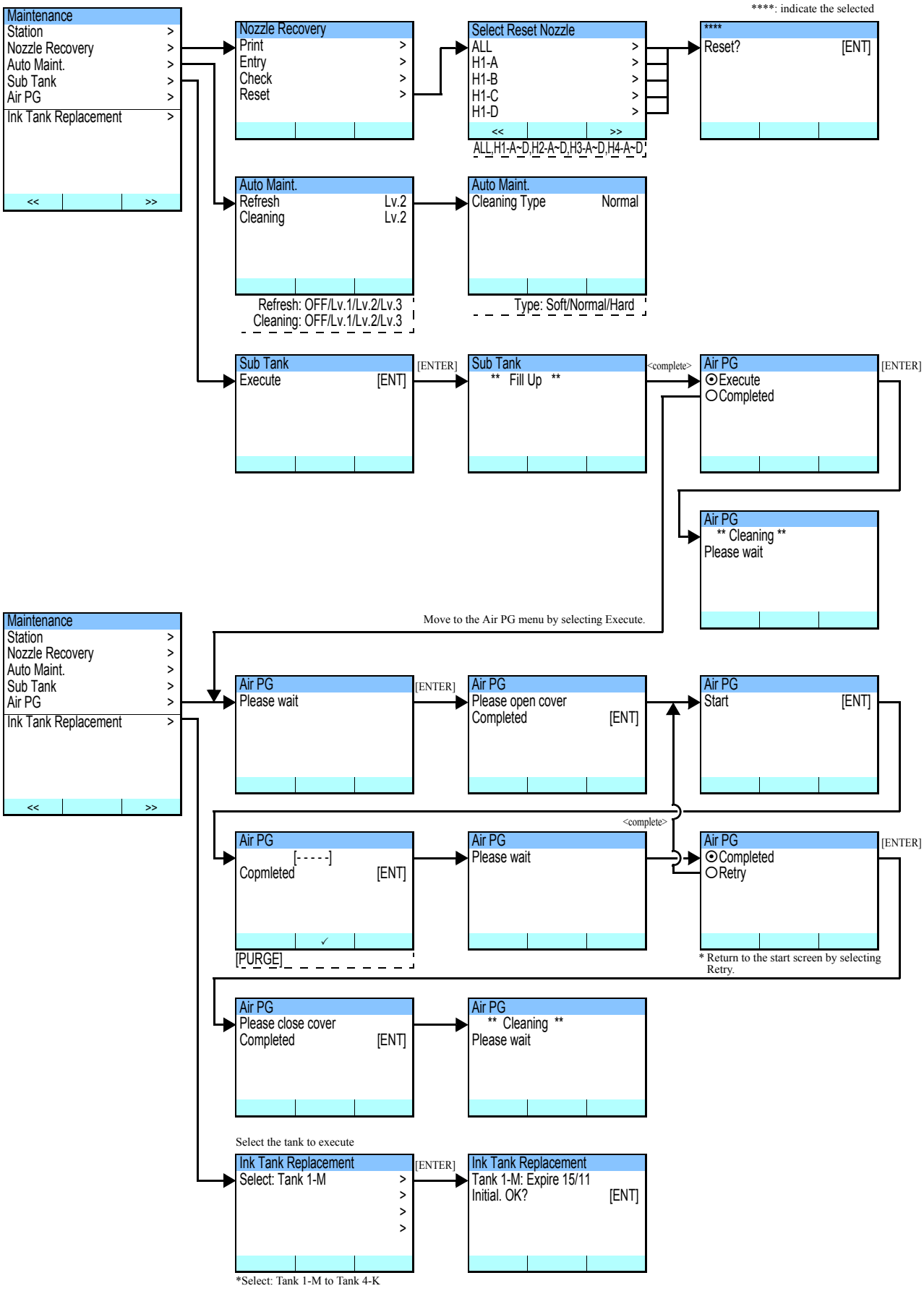
8.2.3 Maintenance



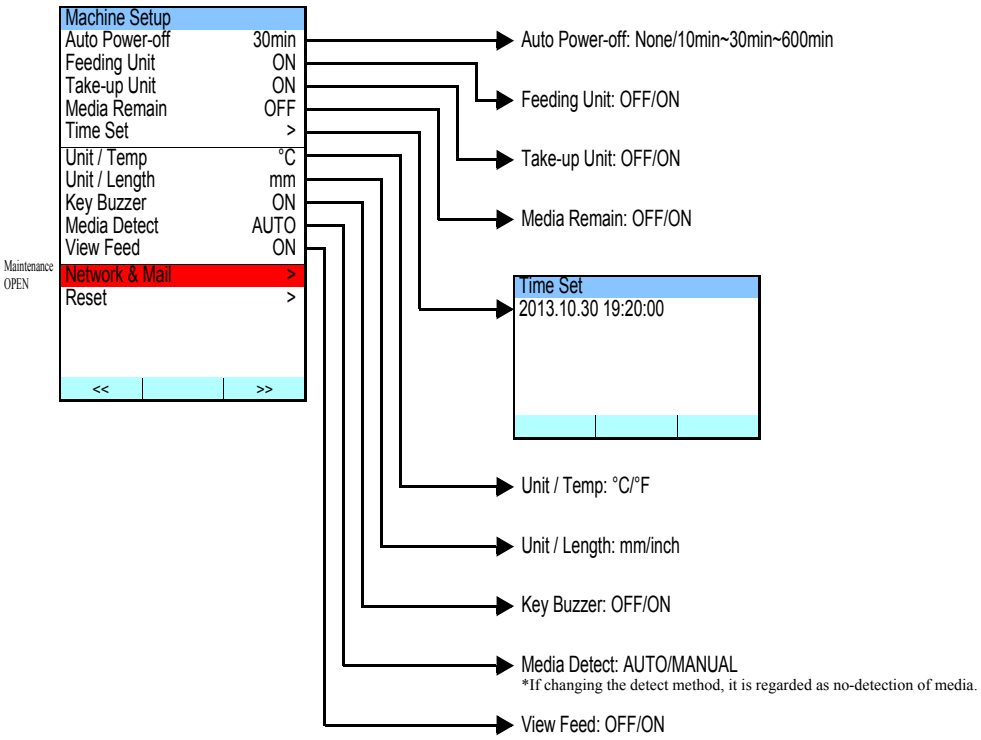
8.2.3 Maintenance



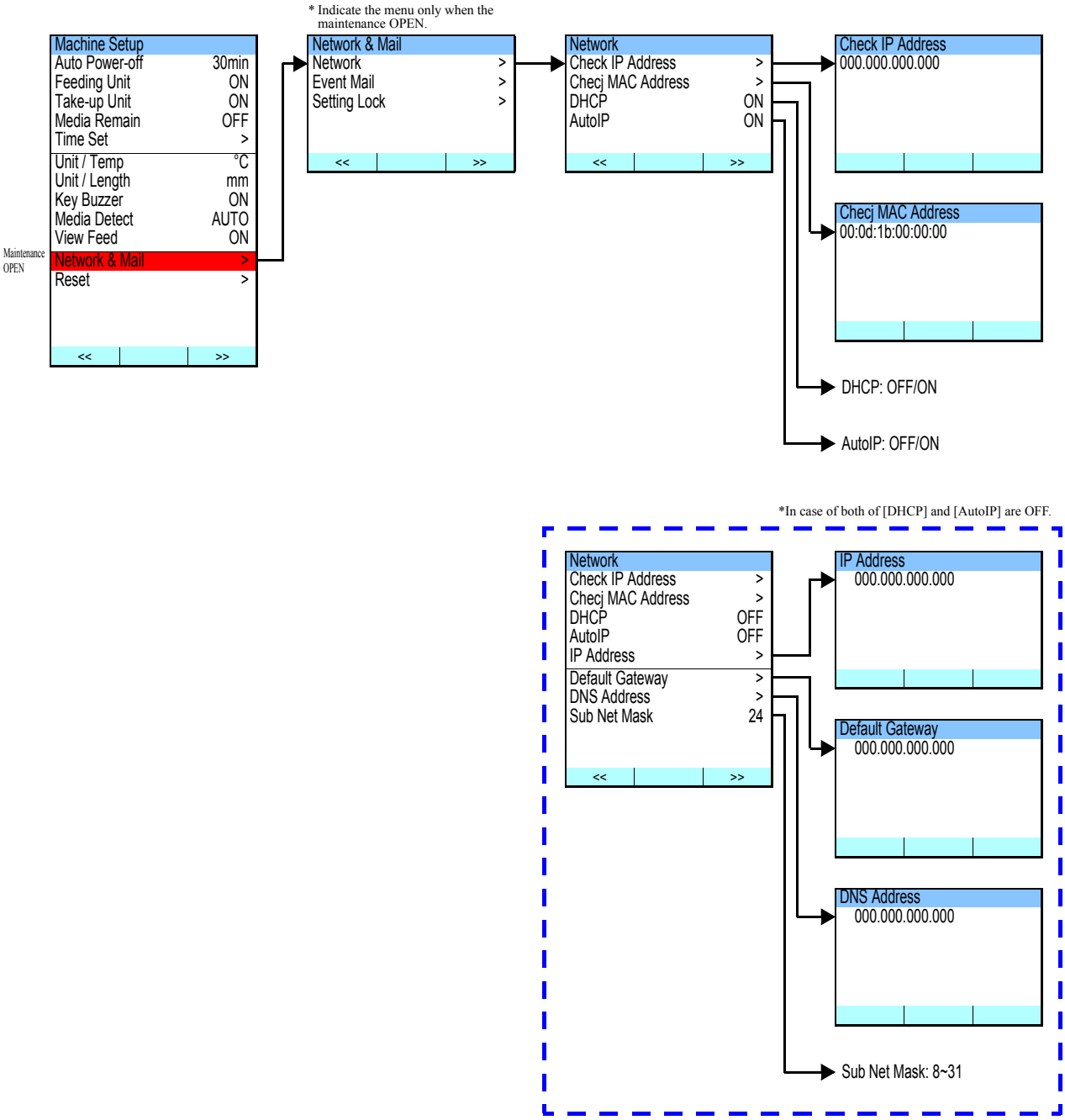
8.2.3 Maintenance



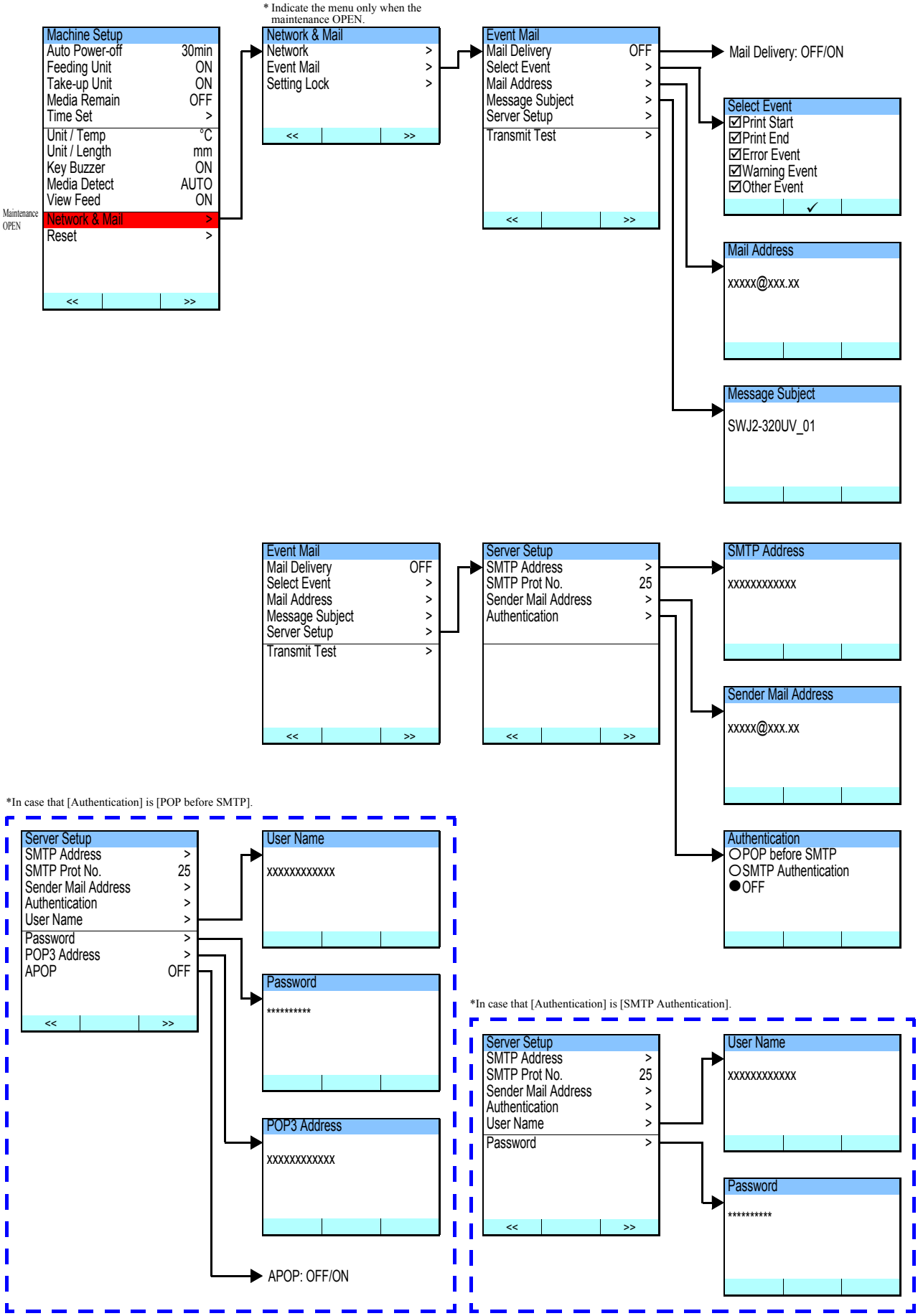
8.2.4 Machine Setup



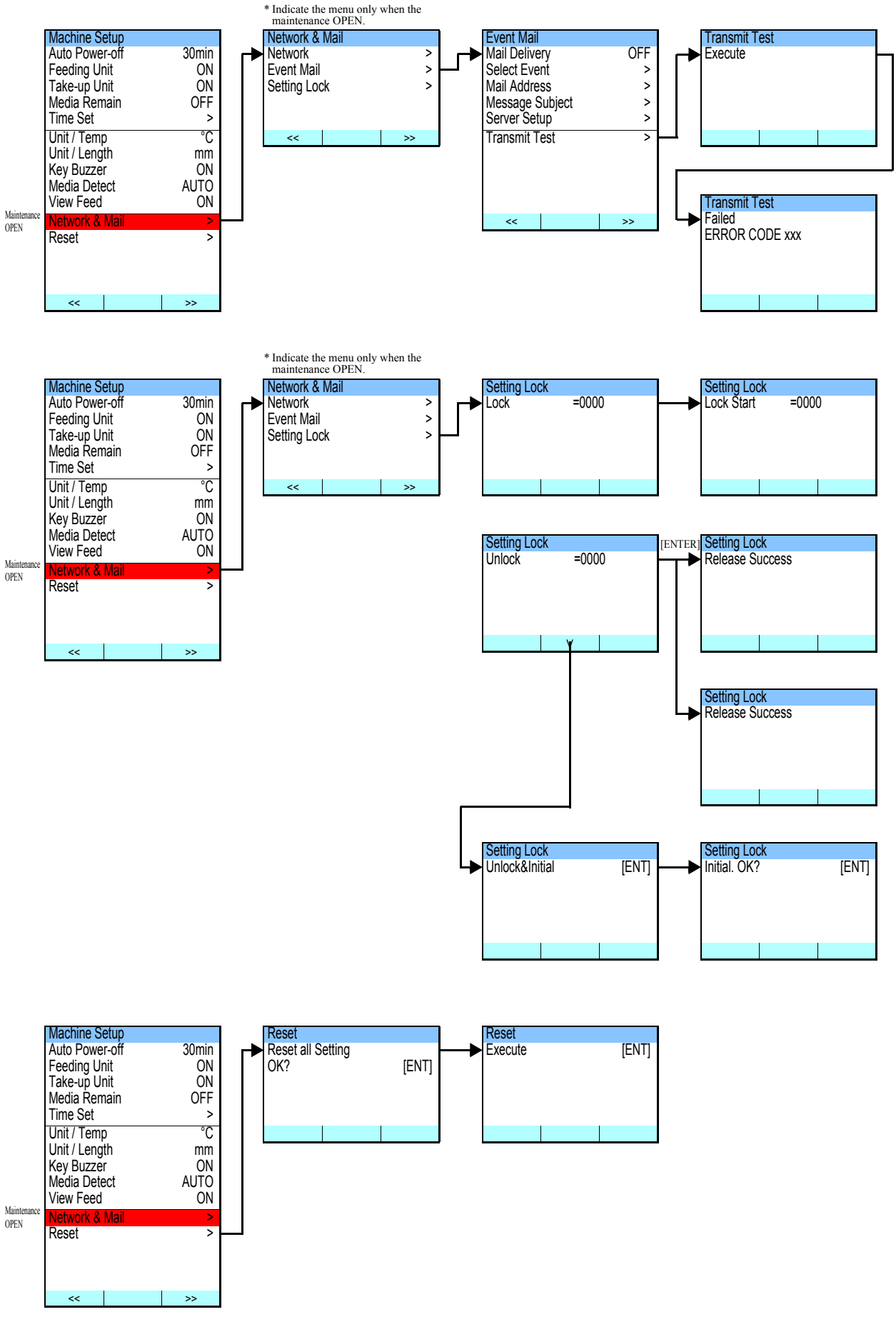
8.2.4 Machine Setup



8.2.4 Machine Setup

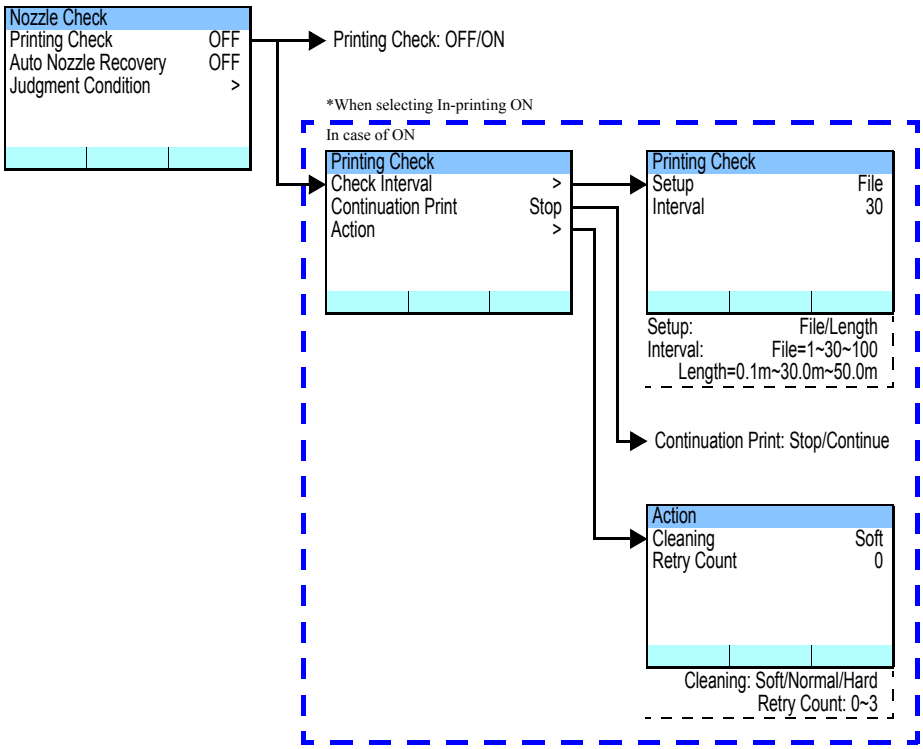


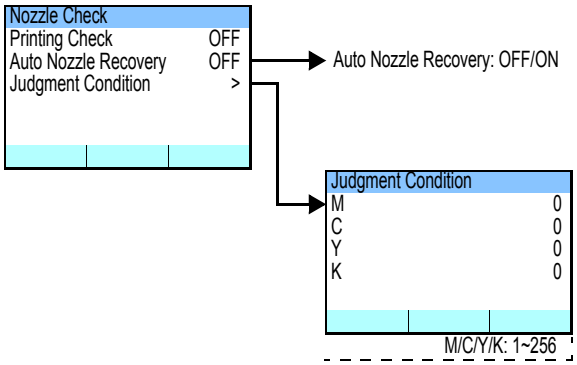
8.2.4 Machine Setup



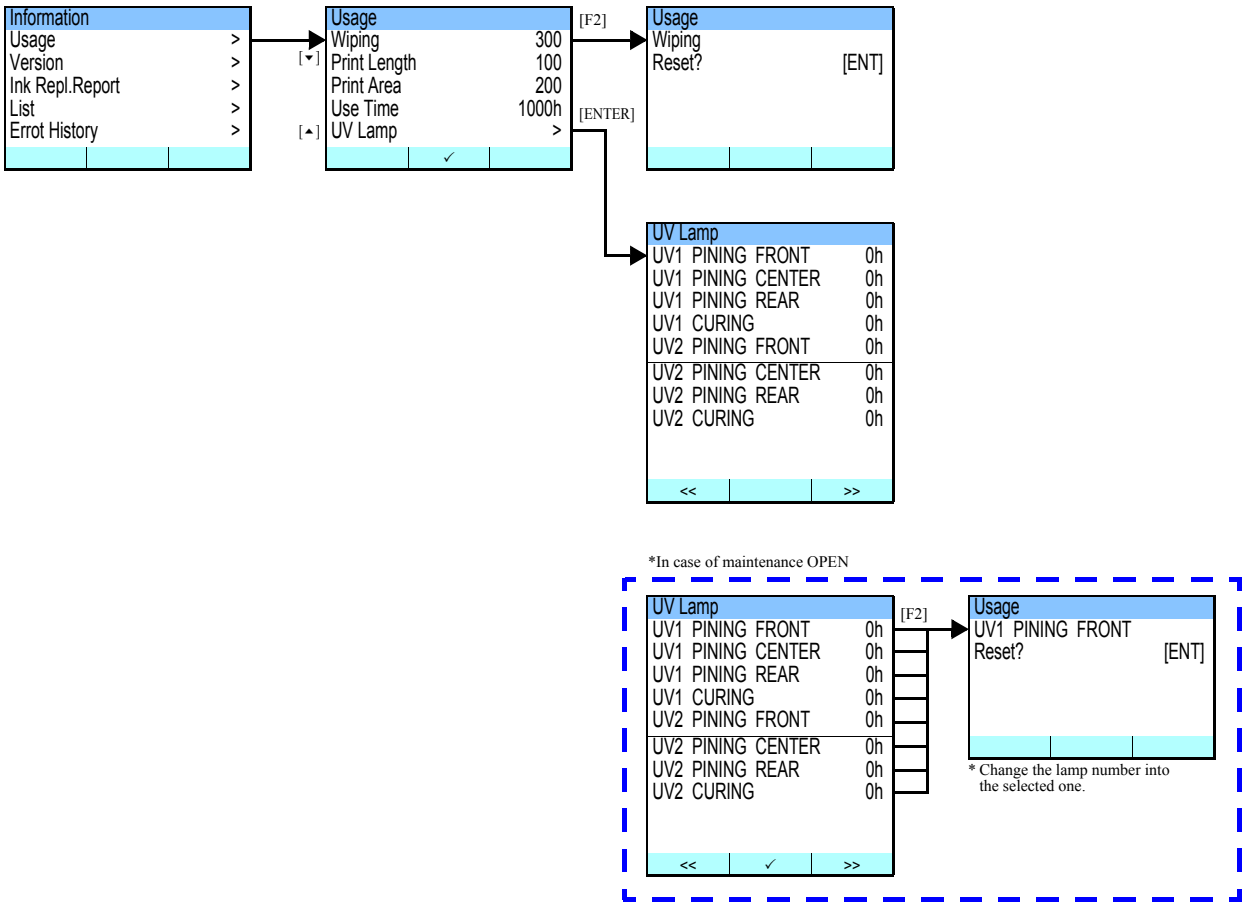
Operation Flow

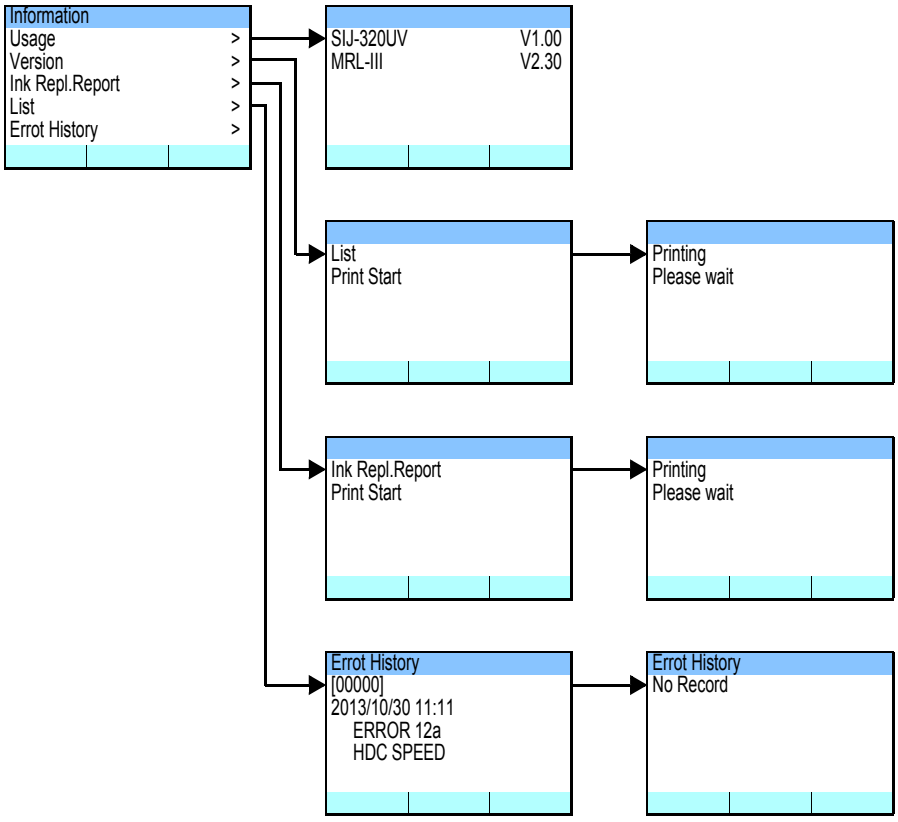
8.3.1 Nozzle Check



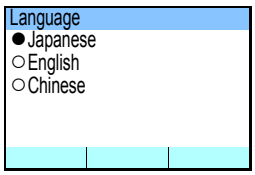


8.3.2 Information



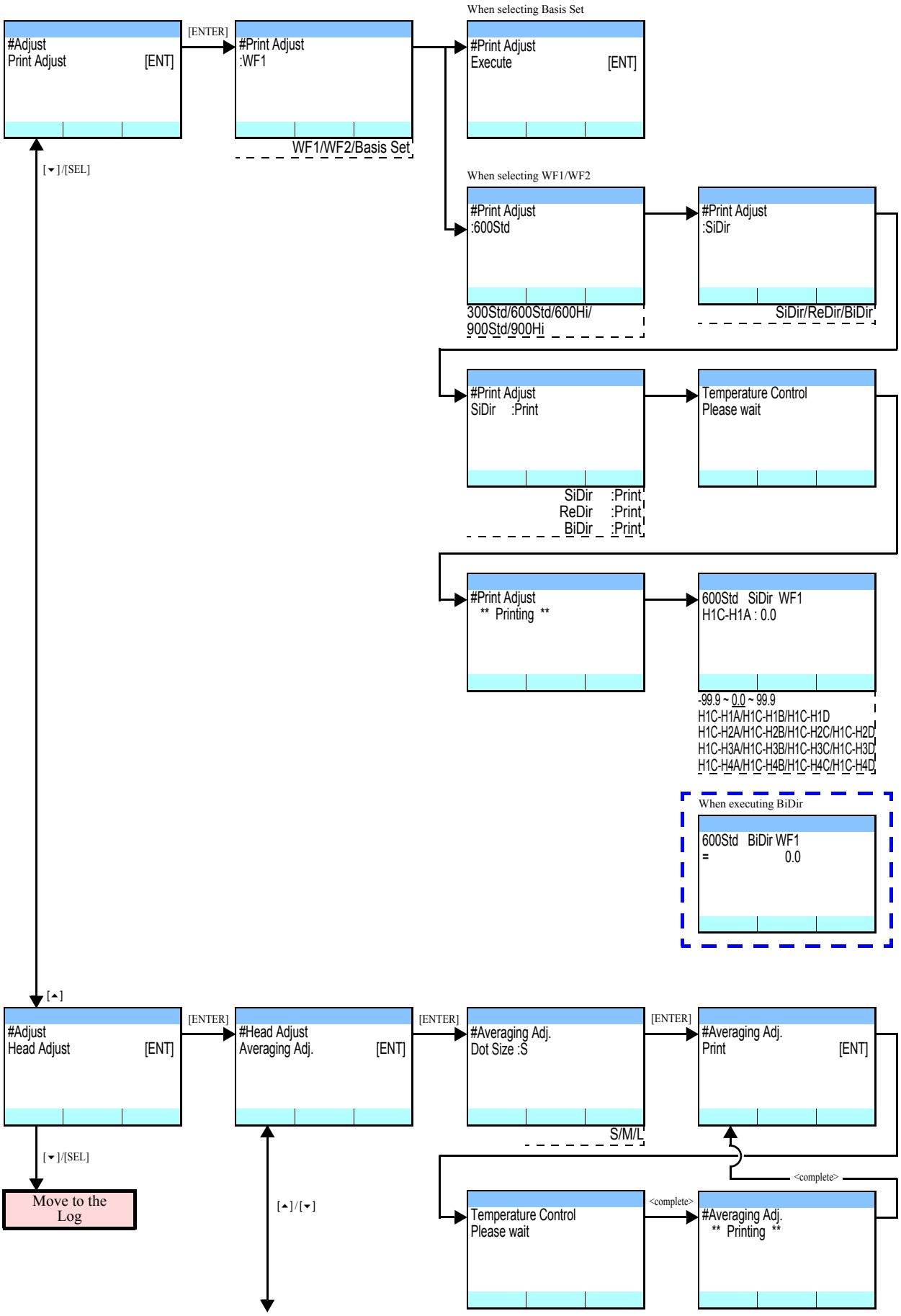


8.3.3 Language

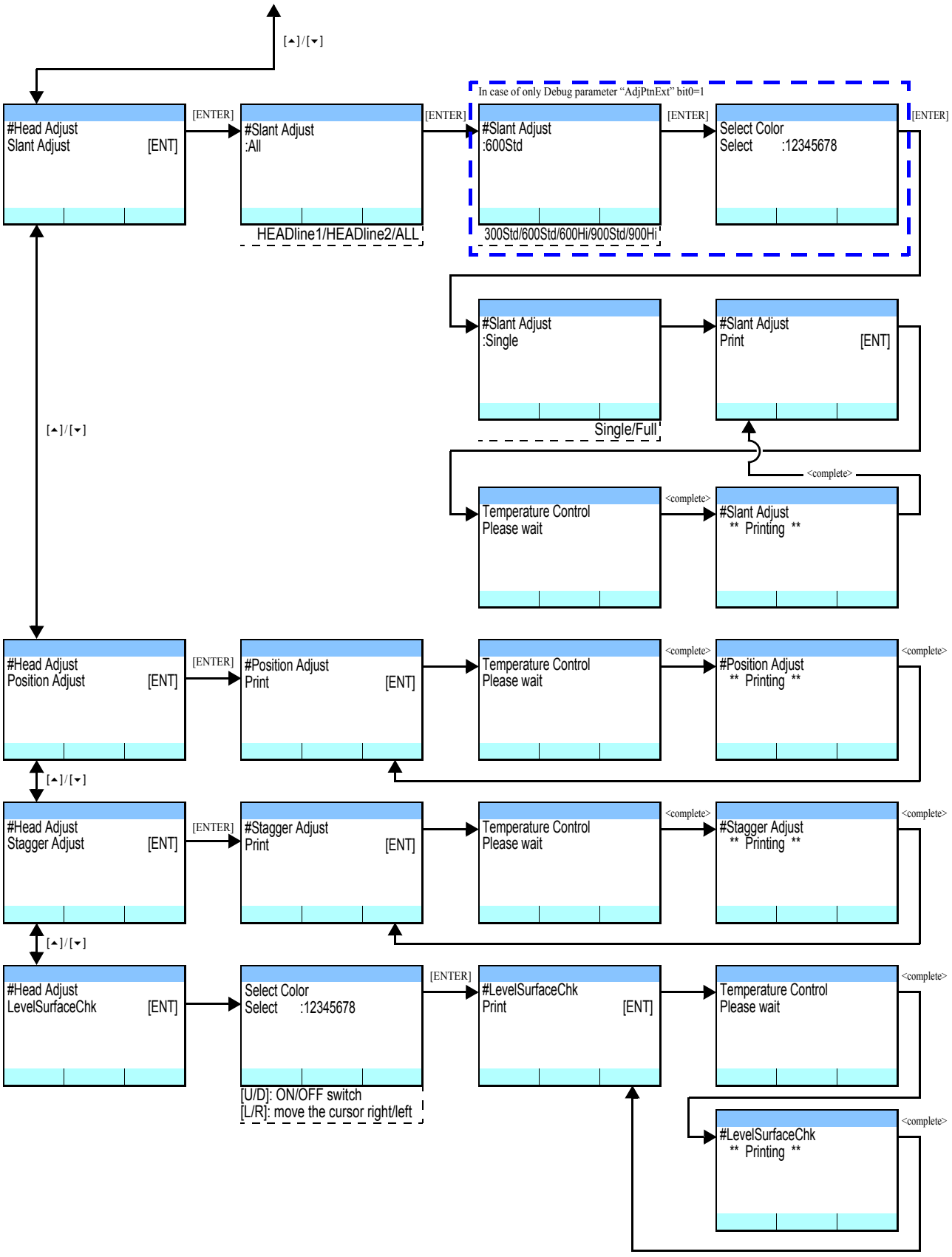


Operation Flow

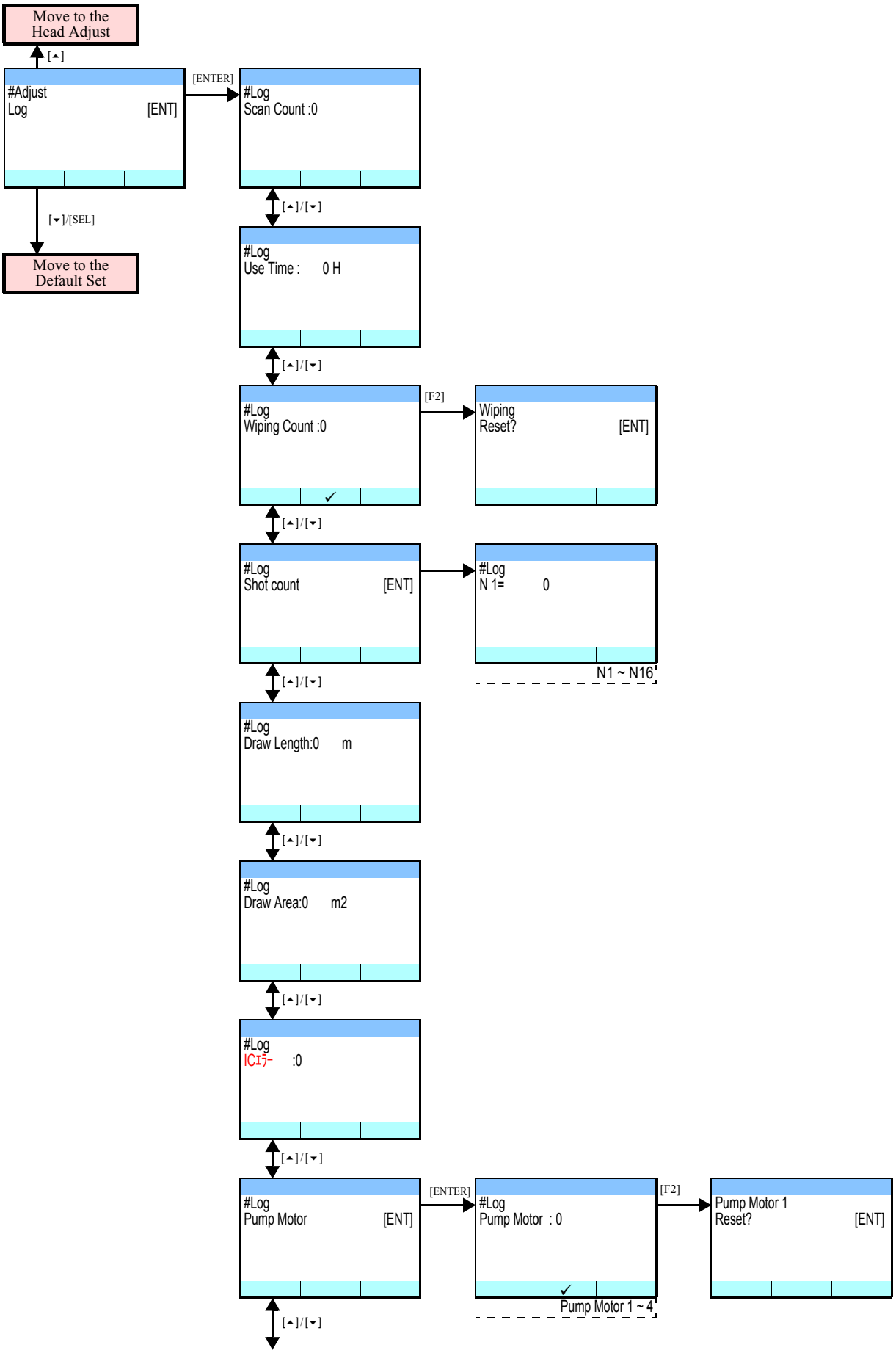
8.4.1 #Adjust


#Adjust
Print Adjust [ENT]
[ENTER]
#Print Adjust
:WF1
WF1/WF2/Basis Set
When selecting Basis Set
#Print Adjust
Execute [ENT]
When selecting WF1/WF2
#Print Adjust
:600Std
300Std/600Std/600Hi/
900Std/900Hi
#Print Adjust
:SiDir
SiDir/ReDir/BiDir
[▼]/[SEL]
#Print Adjust
SiDir :Print
SiDir :Print
ReDir :Print
BiDir :Print
Temperature Control
Please wait
#Print Adjust
** Printing **
600Std SiDir WF1
H1C-H1A : 0.0
-99.9 ~ 0.0 ~ 99.9
H1C-H1A/H1C-H1B/H1C-H1D
H1C-H2A/H1C-H2B/H1C-H2C/H1C-H2D
H1C-H3A/H1C-H3B/H1C-H3C/H1C-H3D
H1C-H4A/H1C-H4B/H1C-H4C/H1C-H4D
When executing BiDir
600Std BiDir WF1
= 0.0
[▲]
#Adjust
Head Adjust [ENT]
[ENTER]
#Head Adjust
Averaging Adj. [ENT]
[ENTER]
#Averaging Adj.
Dot Size :S
S/M/L
[ENTER]
#Averaging Adj.
Print [ENT]
[▼]/[SEL]
Move to the Log
[▲]/[▼]
<complete>
Temperature Control
Please wait
<complete>
#Averaging Adj.
** Printing **

8.4.1 #Adjust



8.4.1 #Adjust



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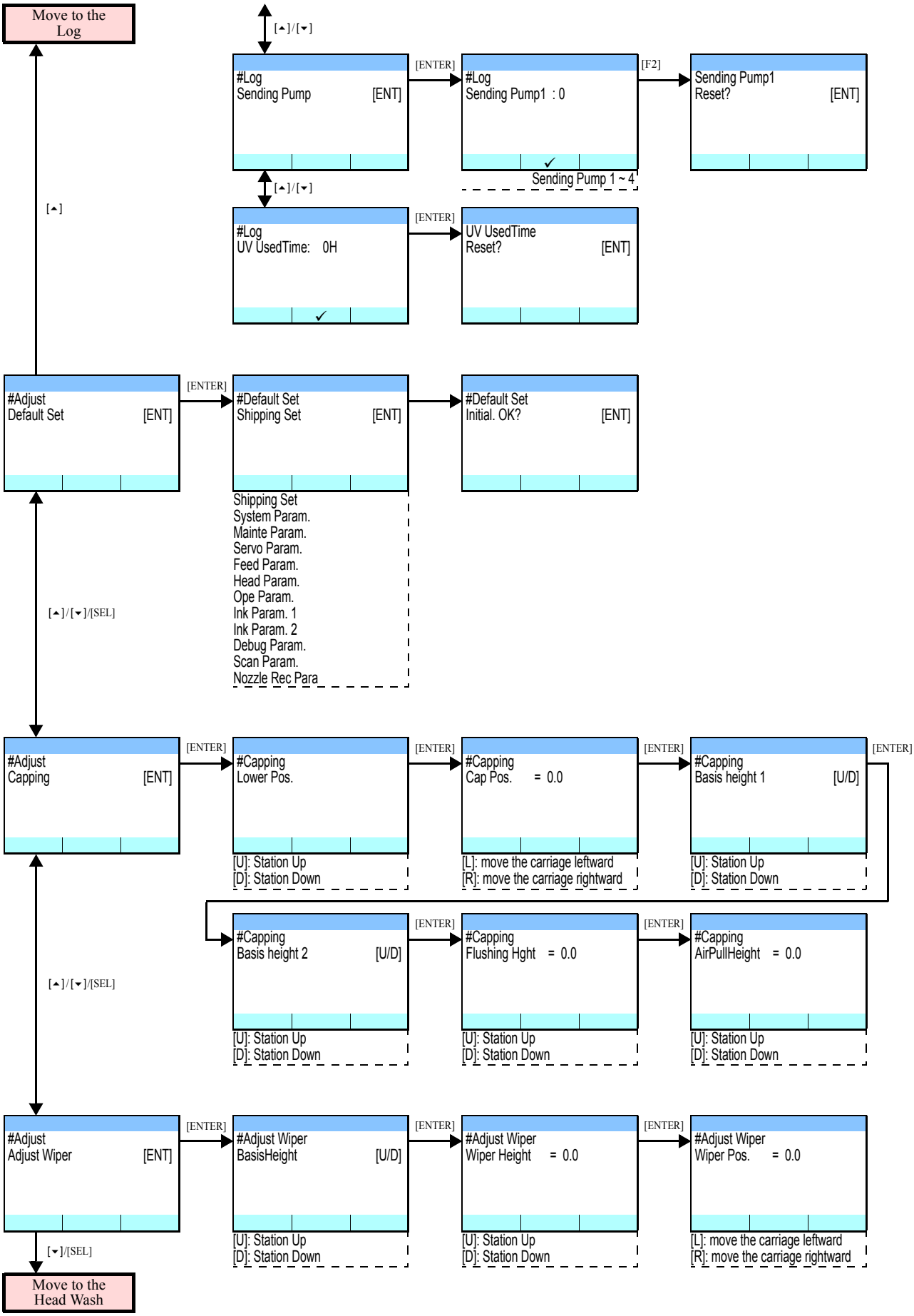

8.4.1 #Adjust

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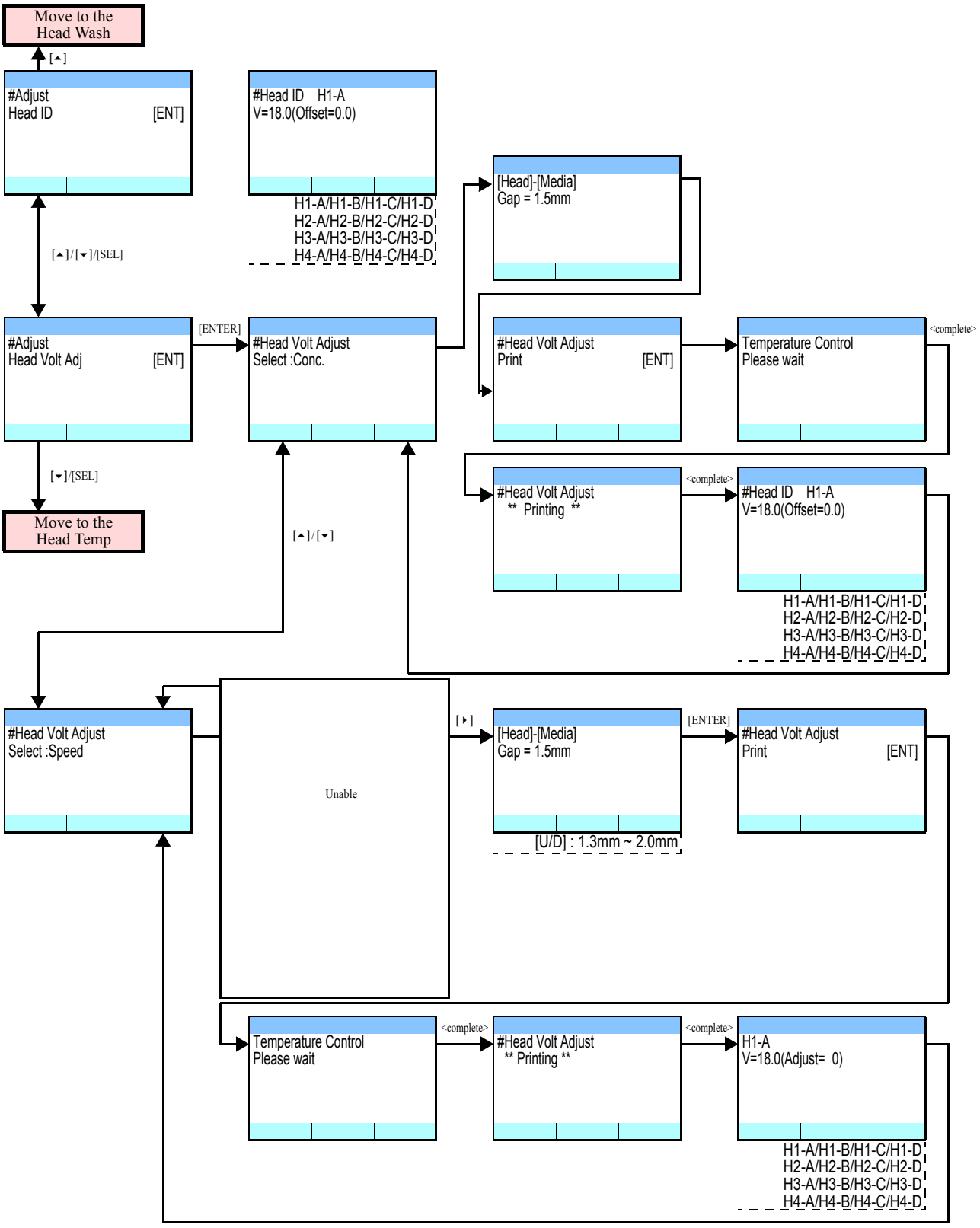

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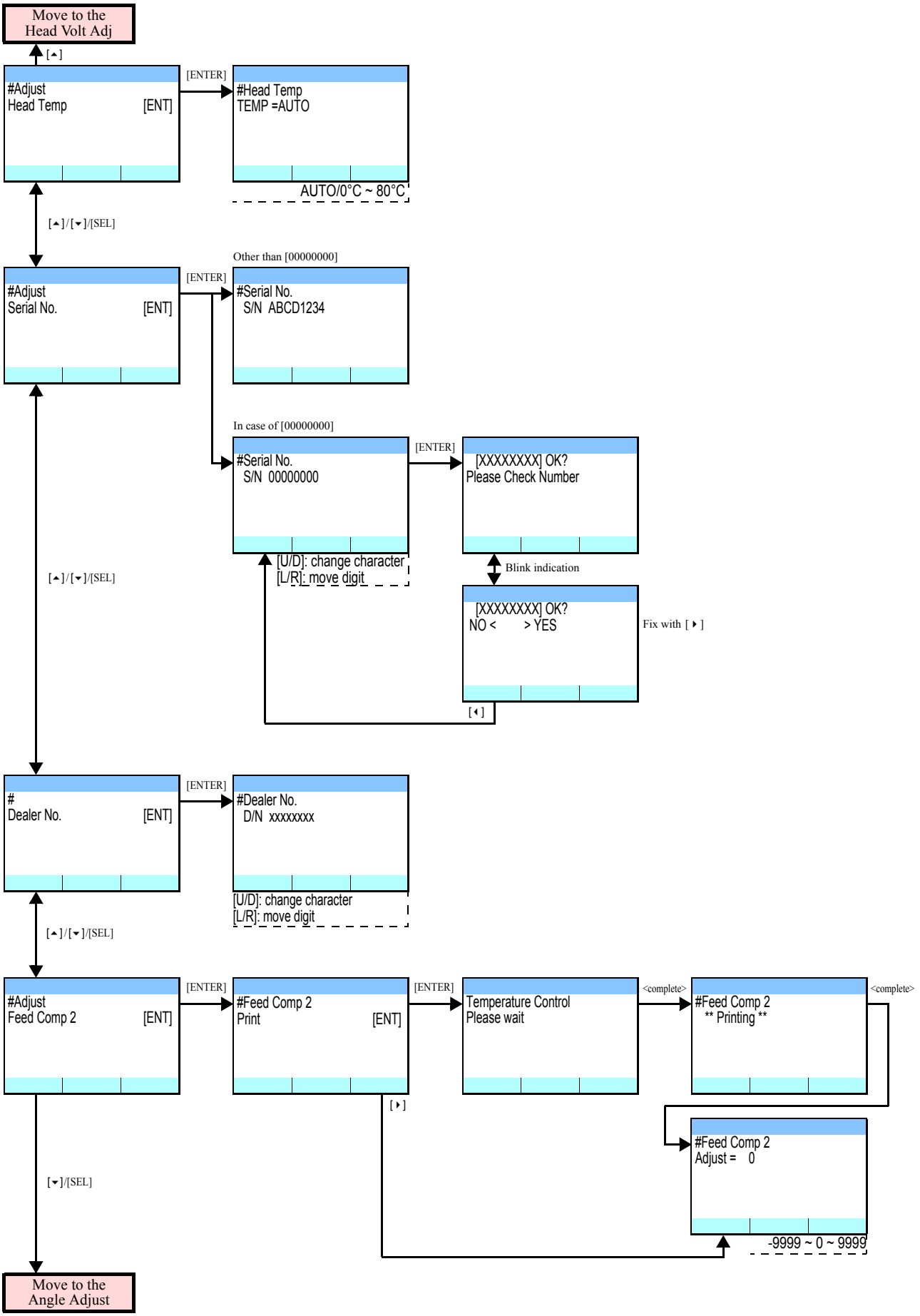

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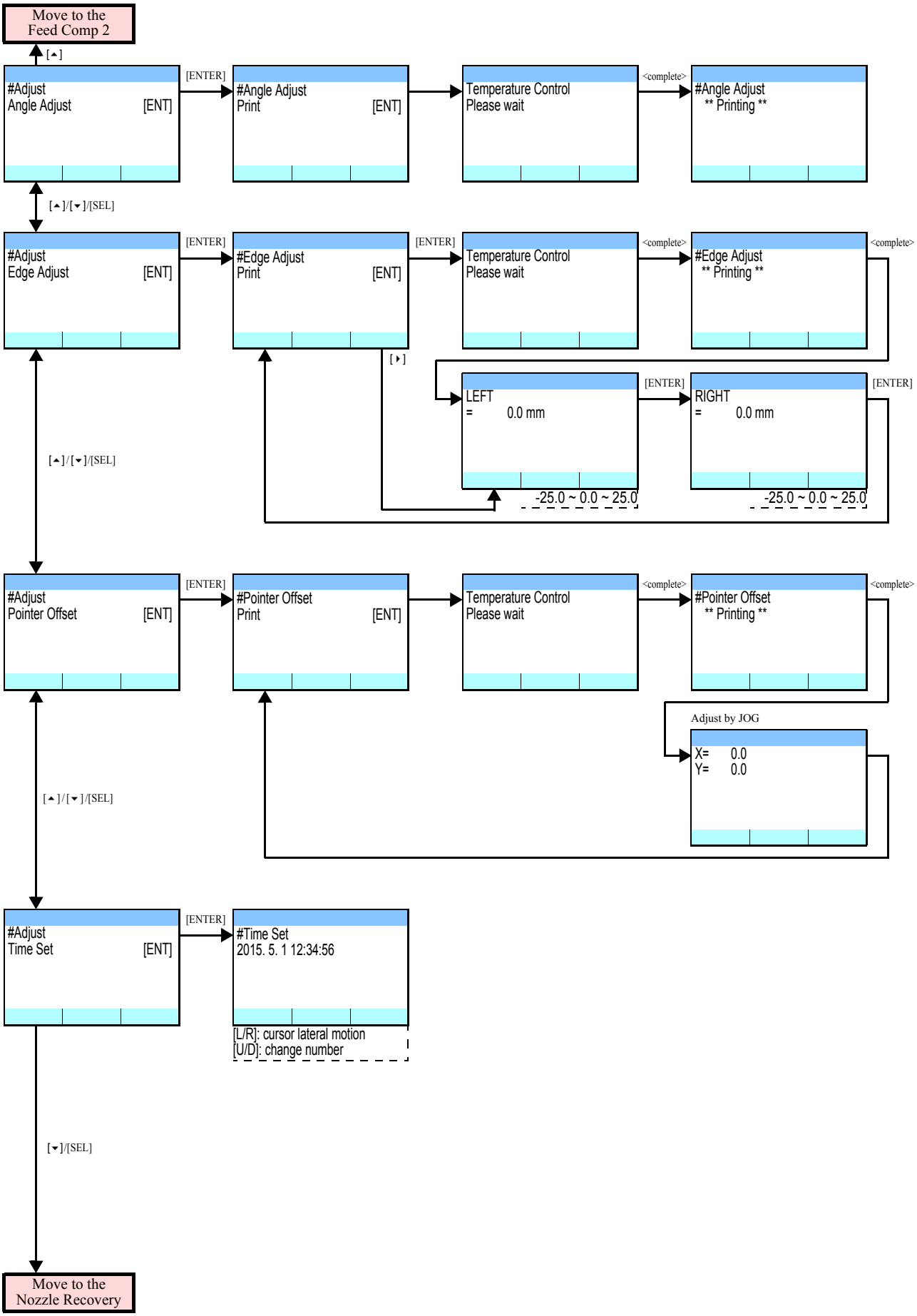

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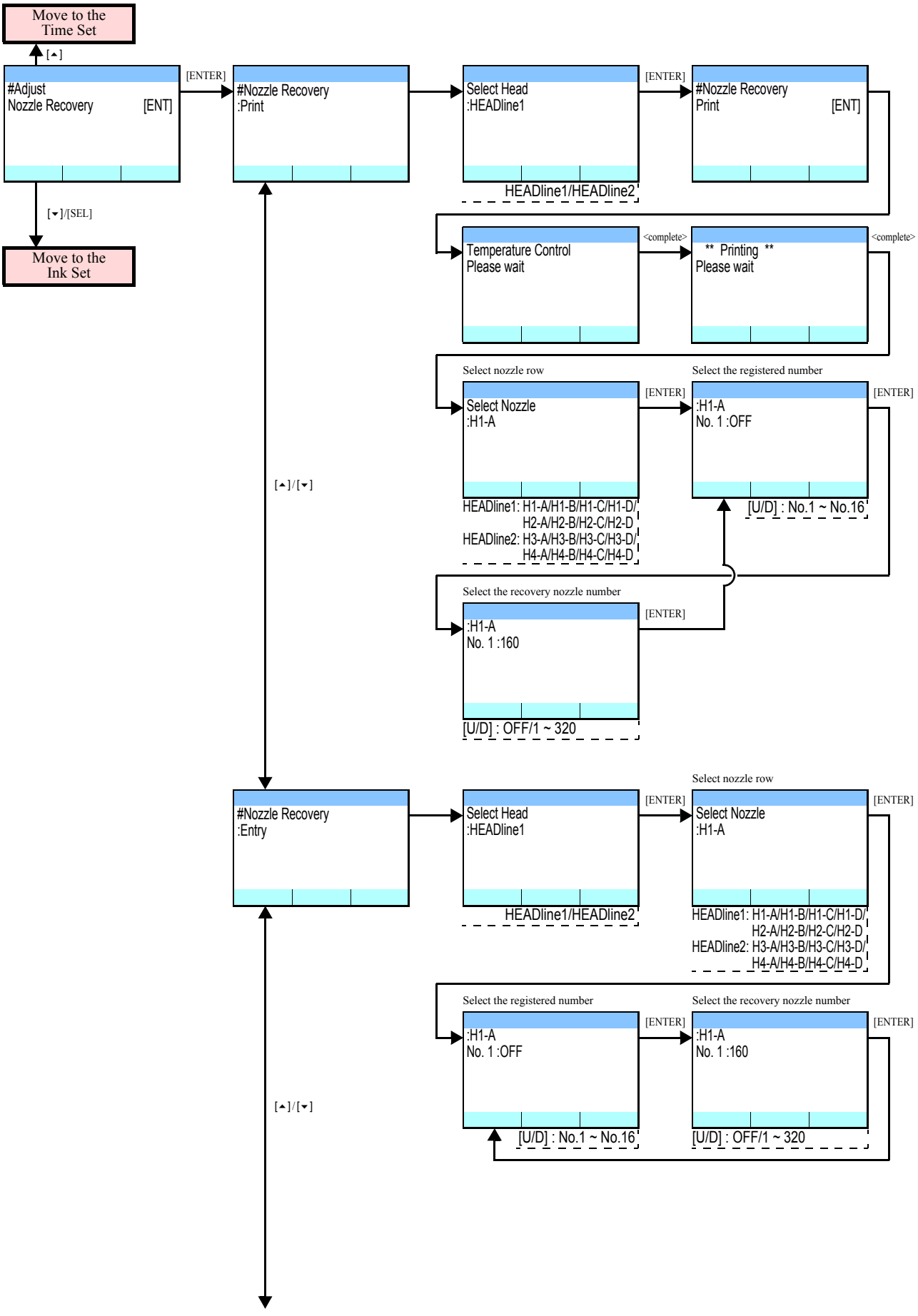

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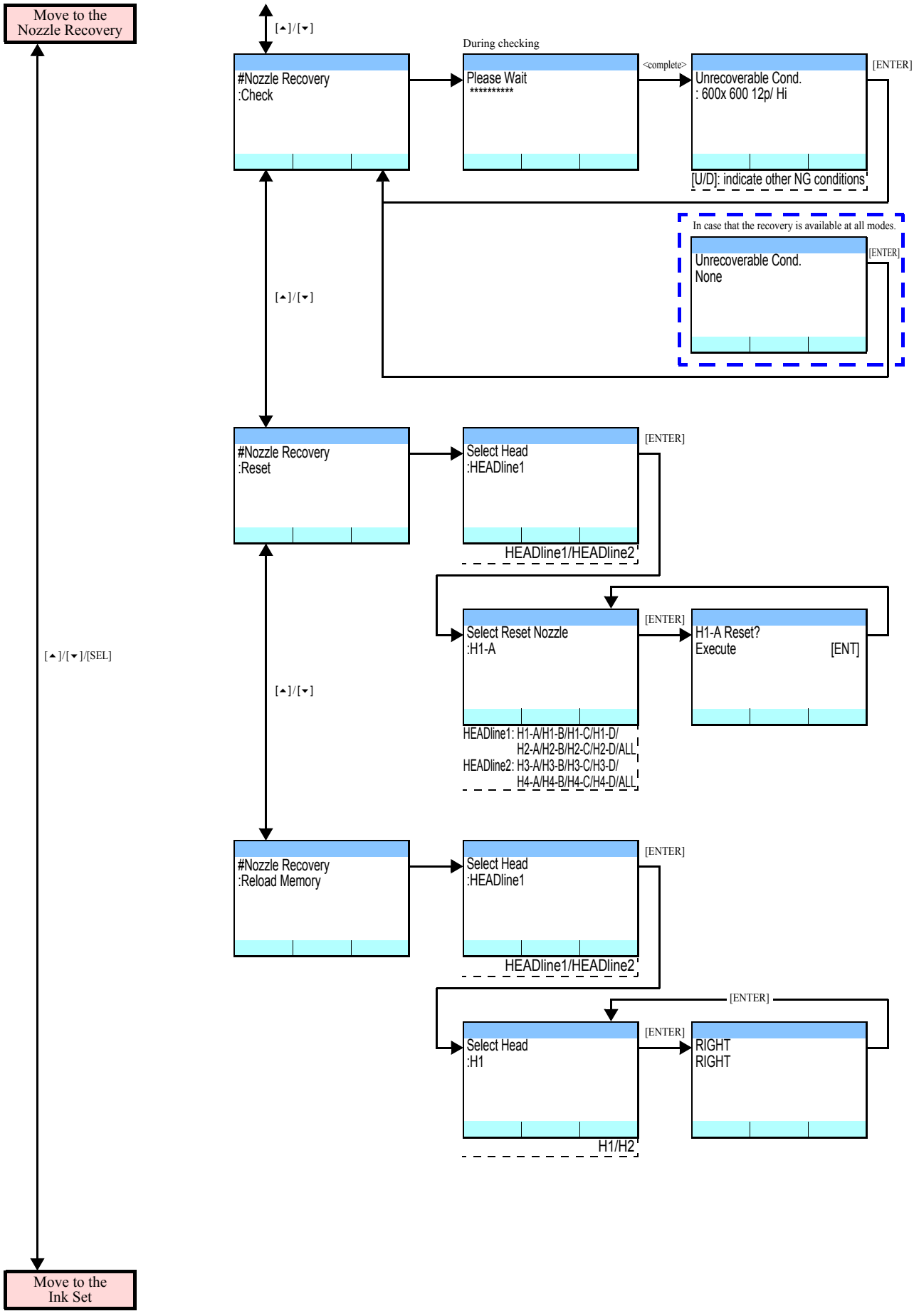

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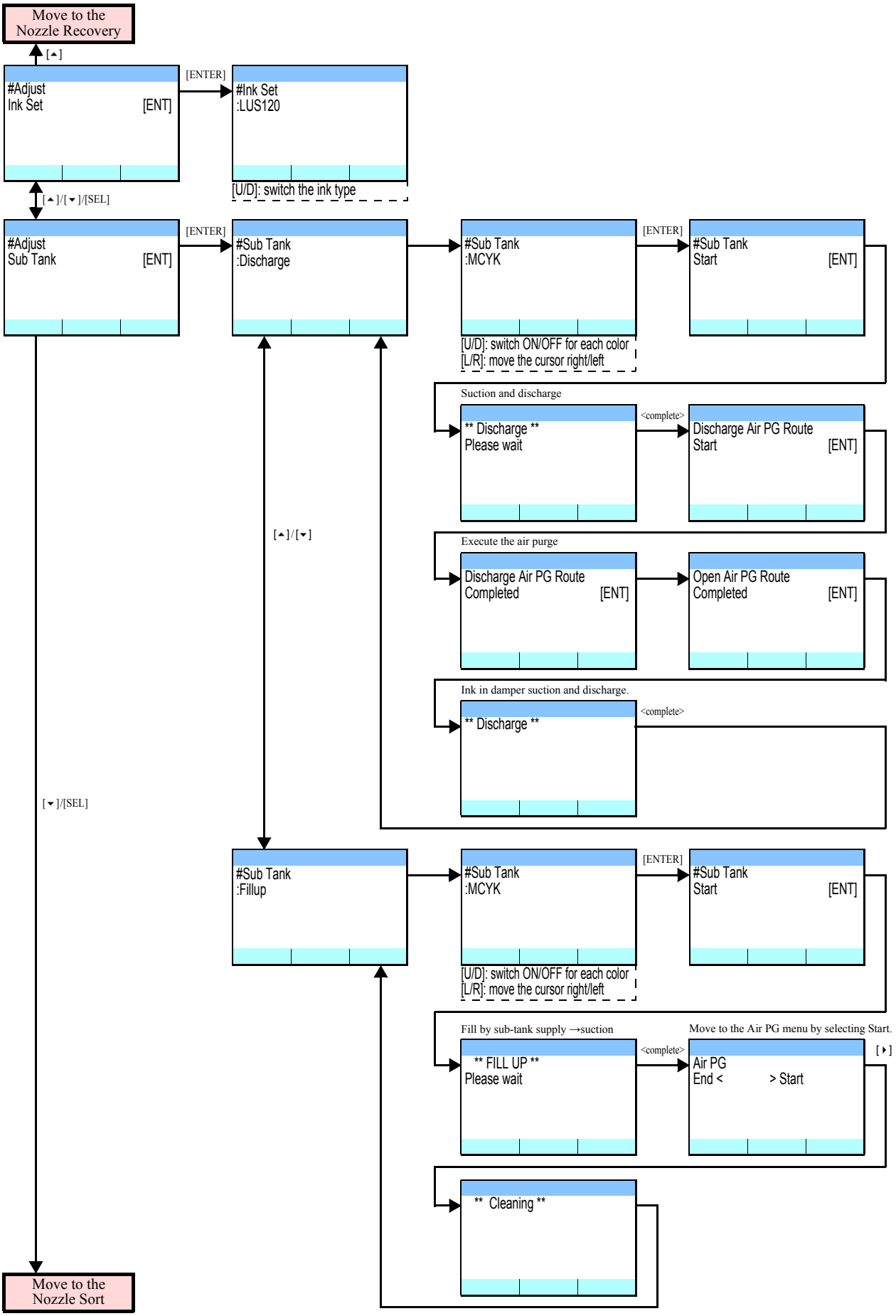

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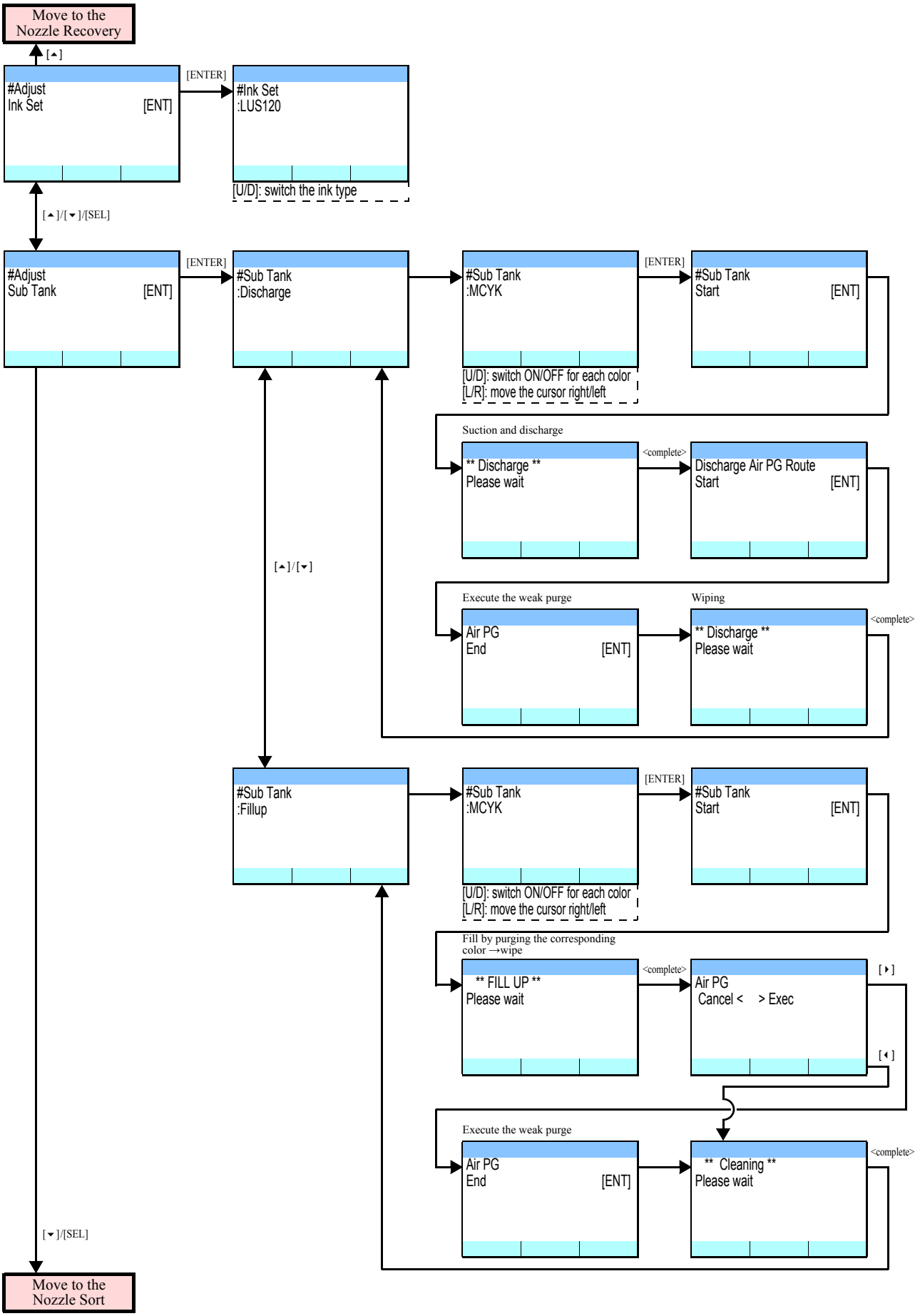
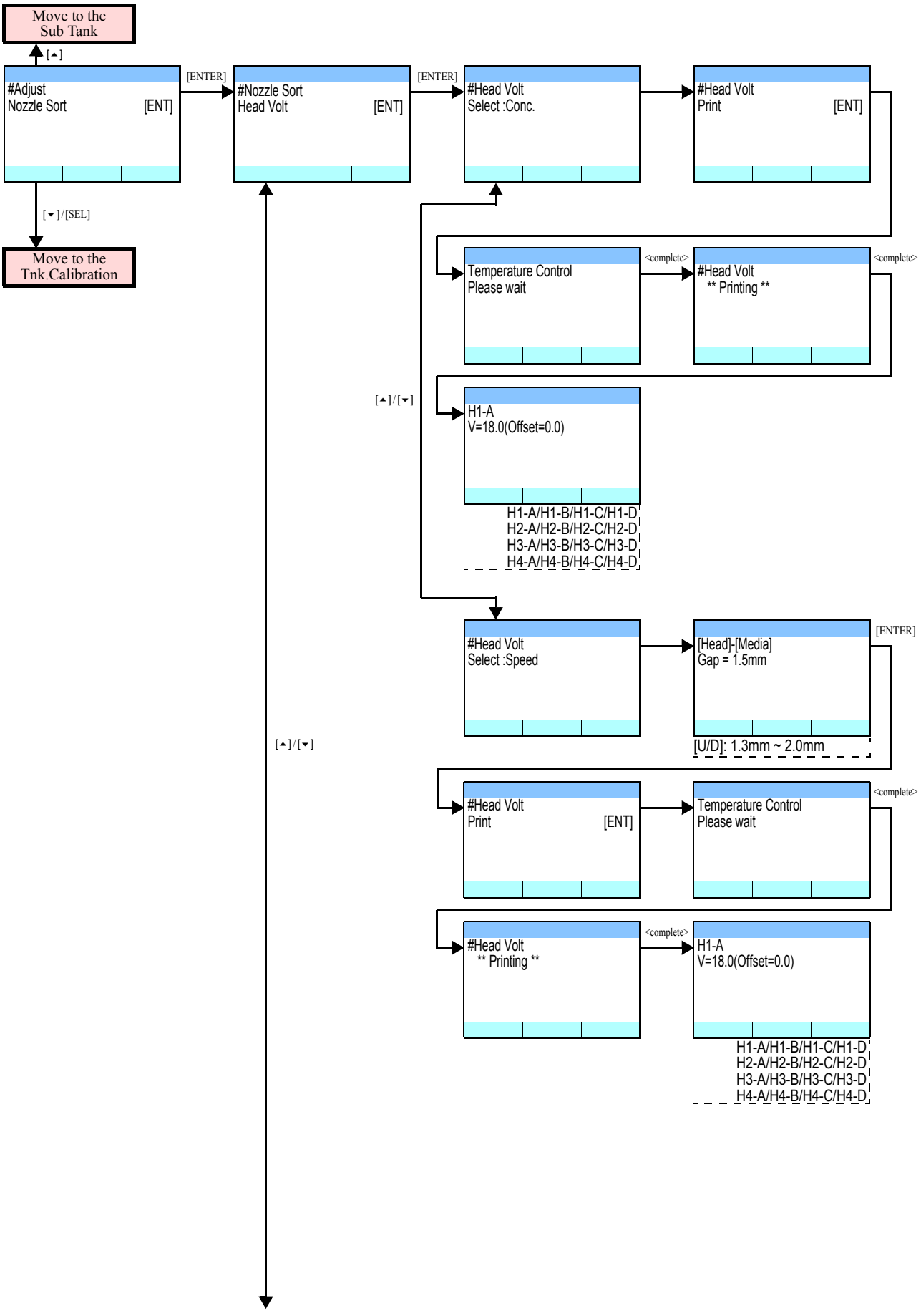
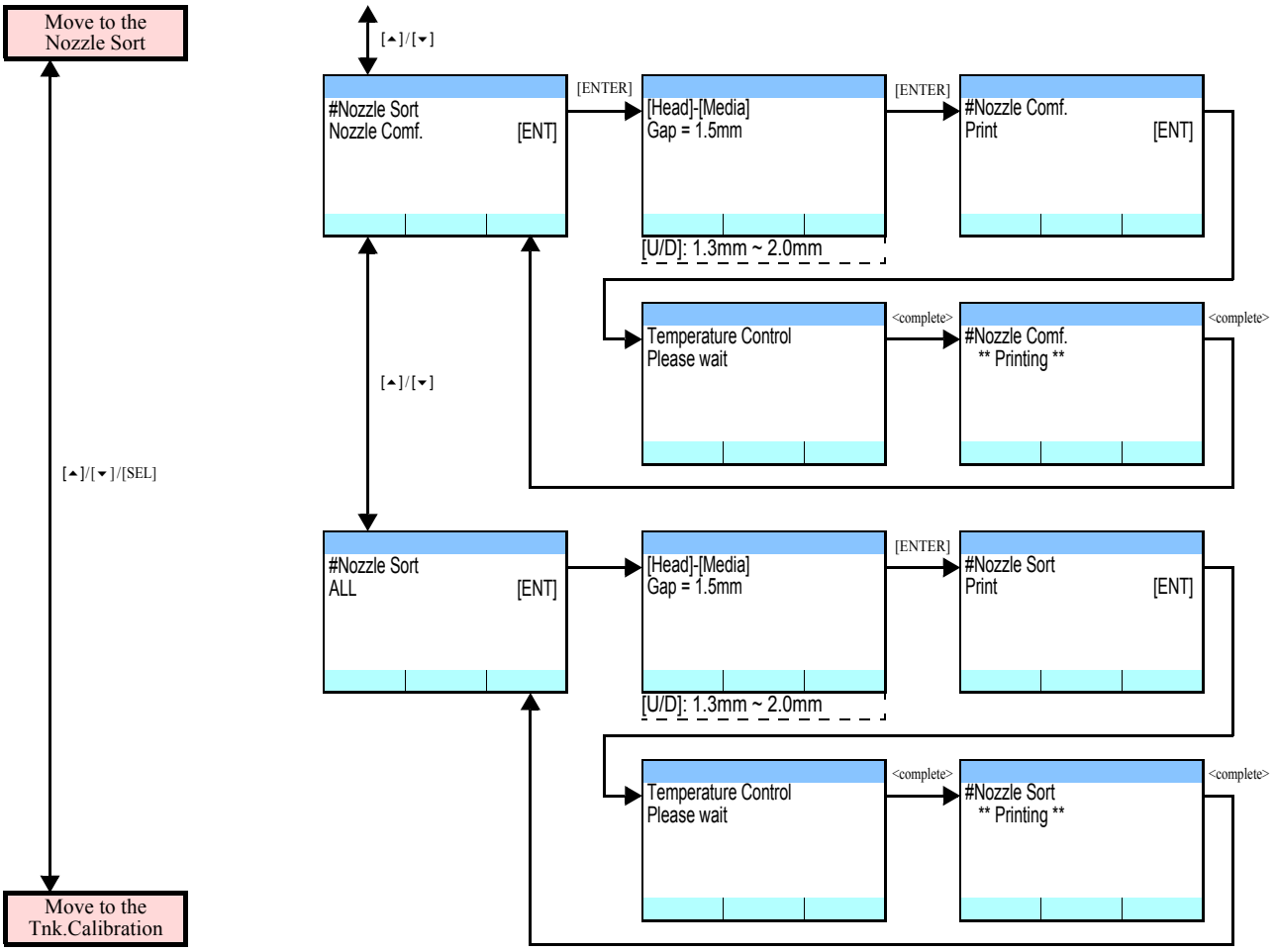


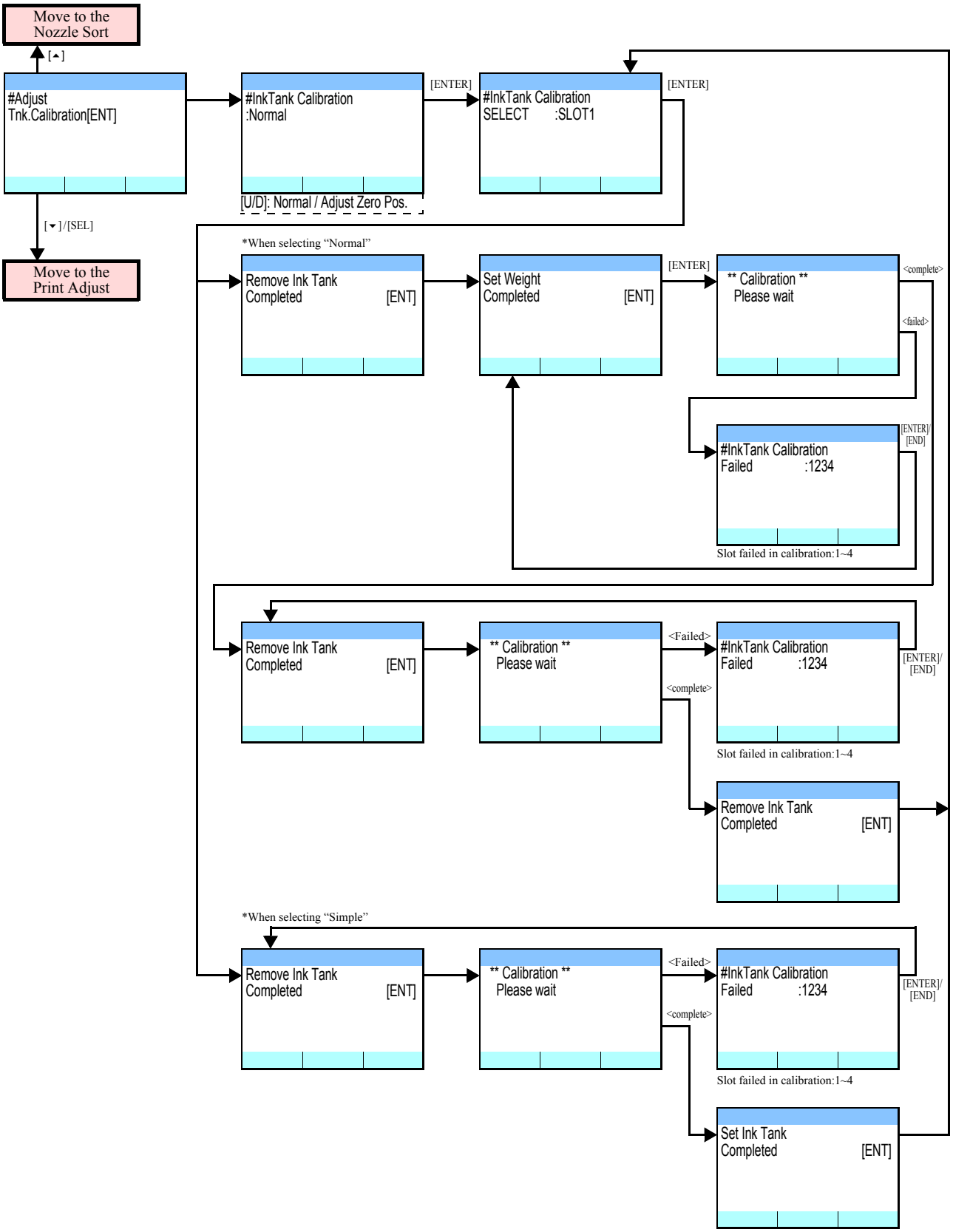
8.4.1 #Adjust



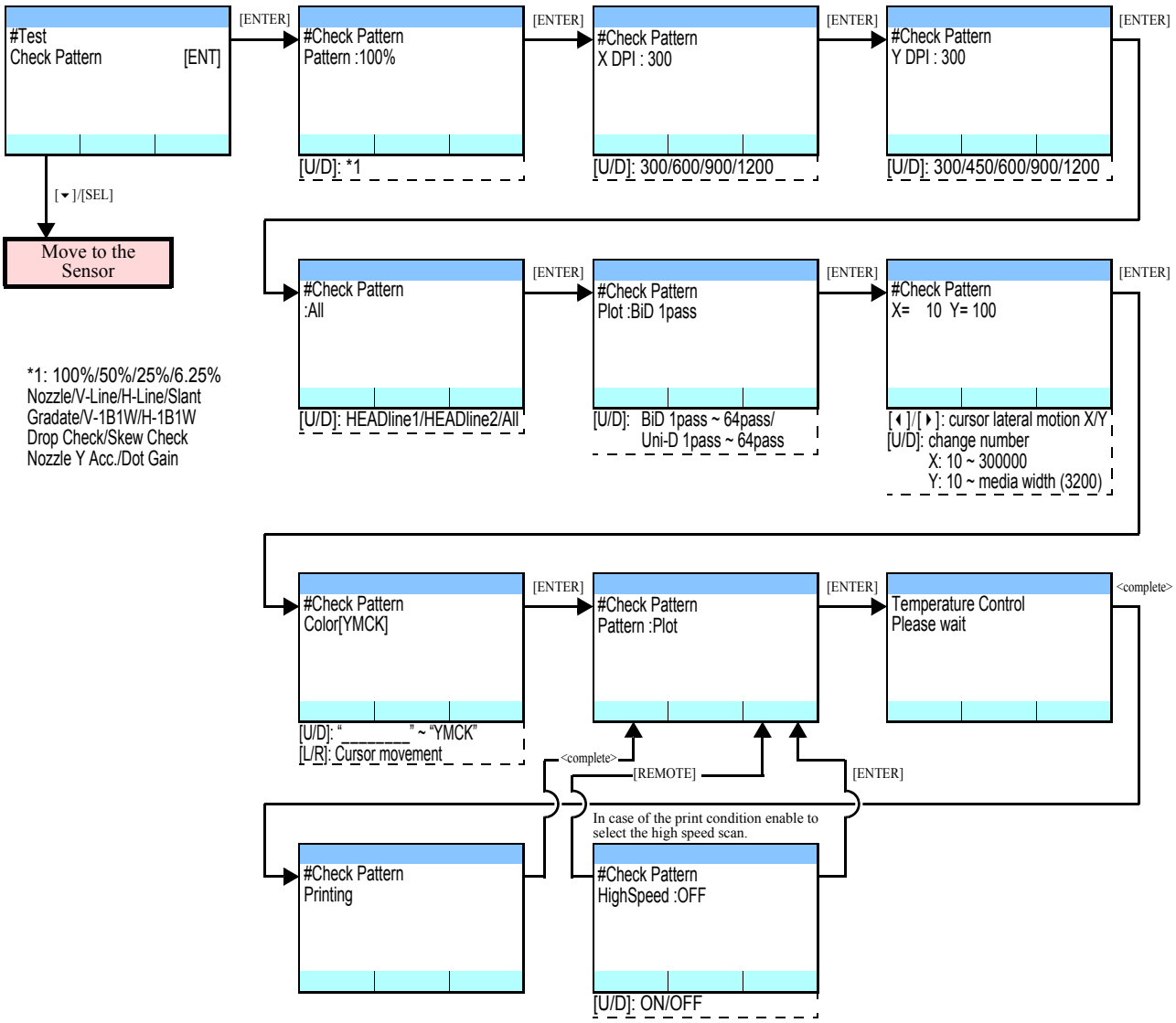
8.4.1 #Adjust



8.4.1 #Adjust



8.4.2 #Test



8.4.2 #Test

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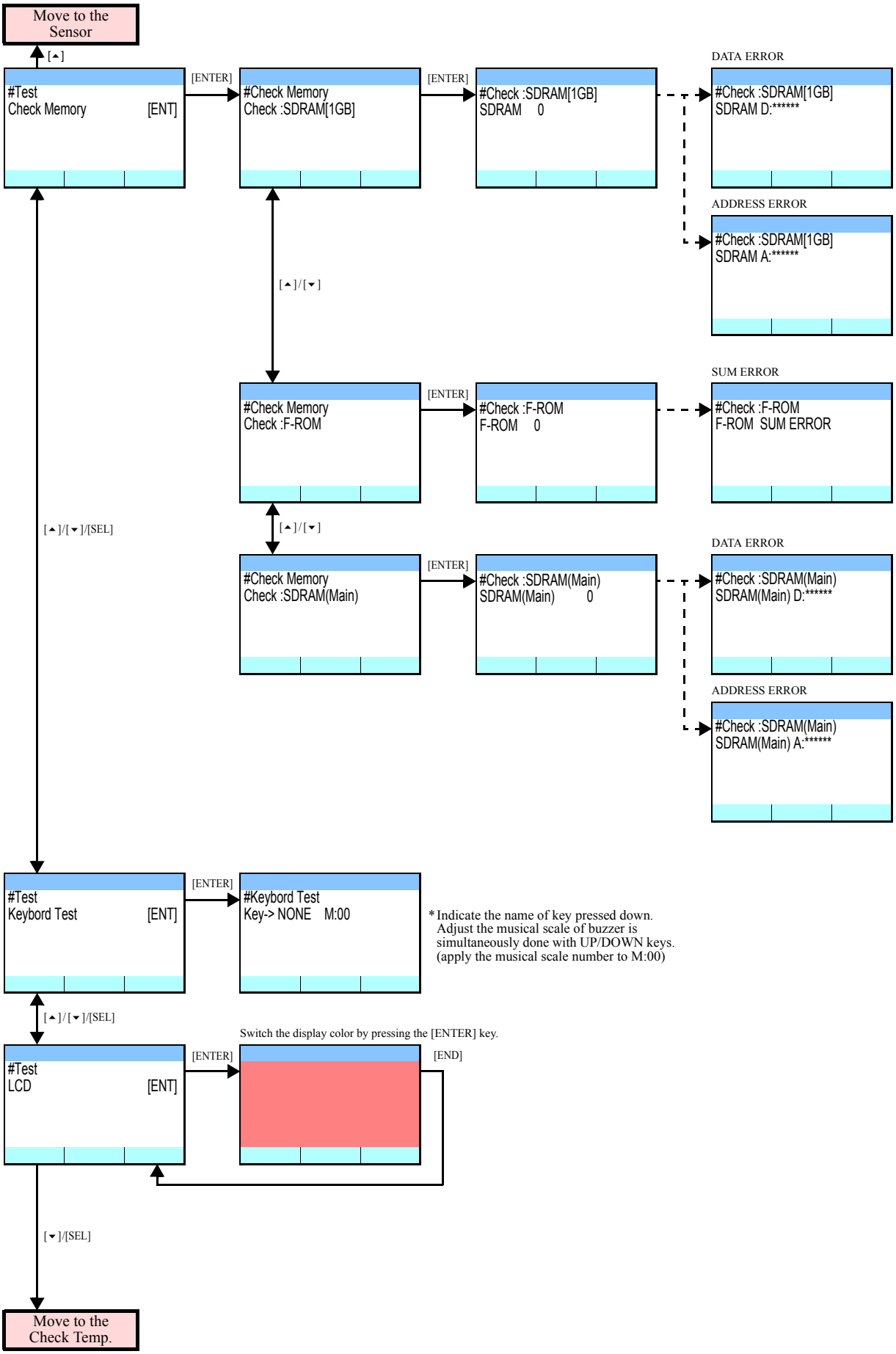
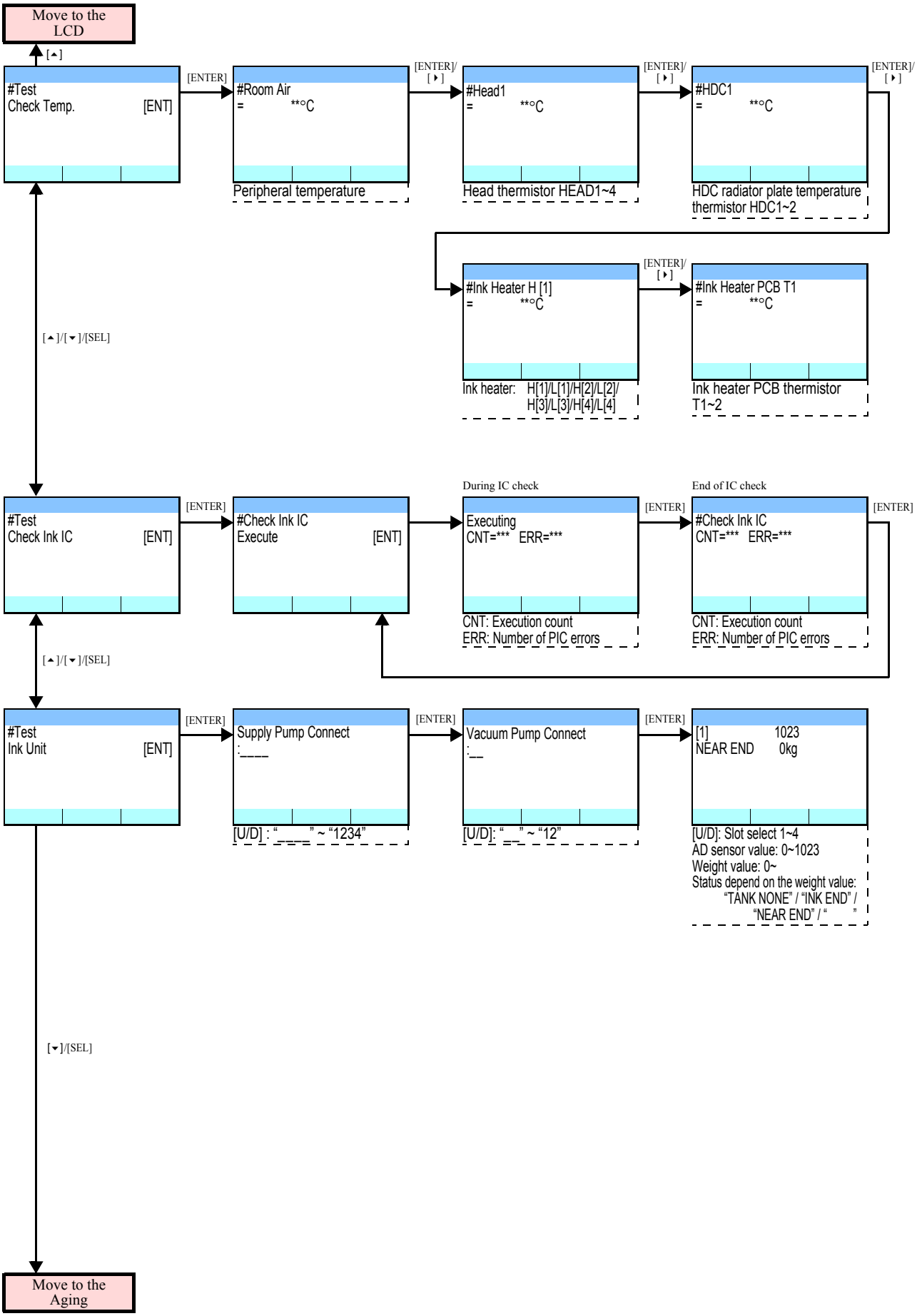
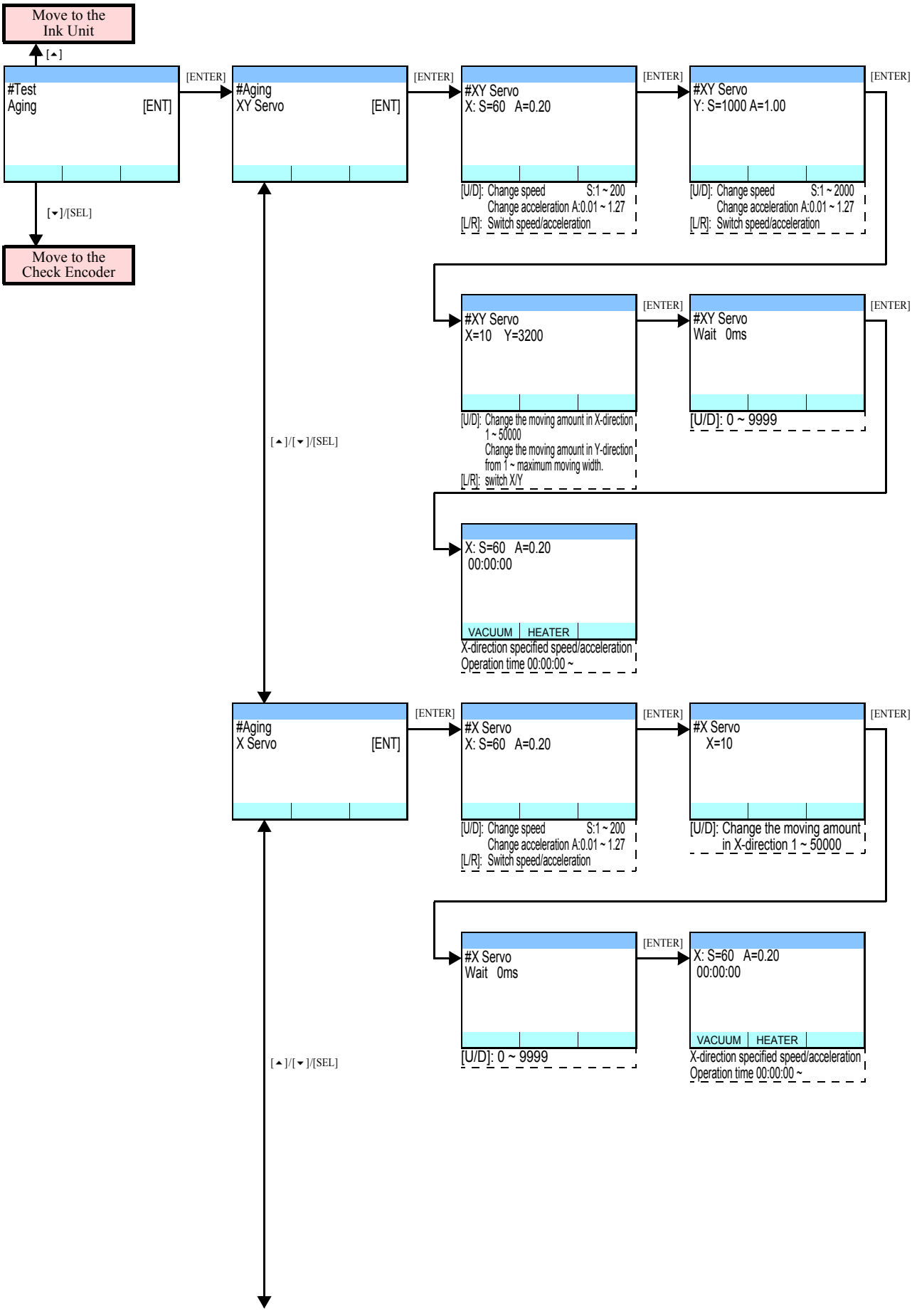


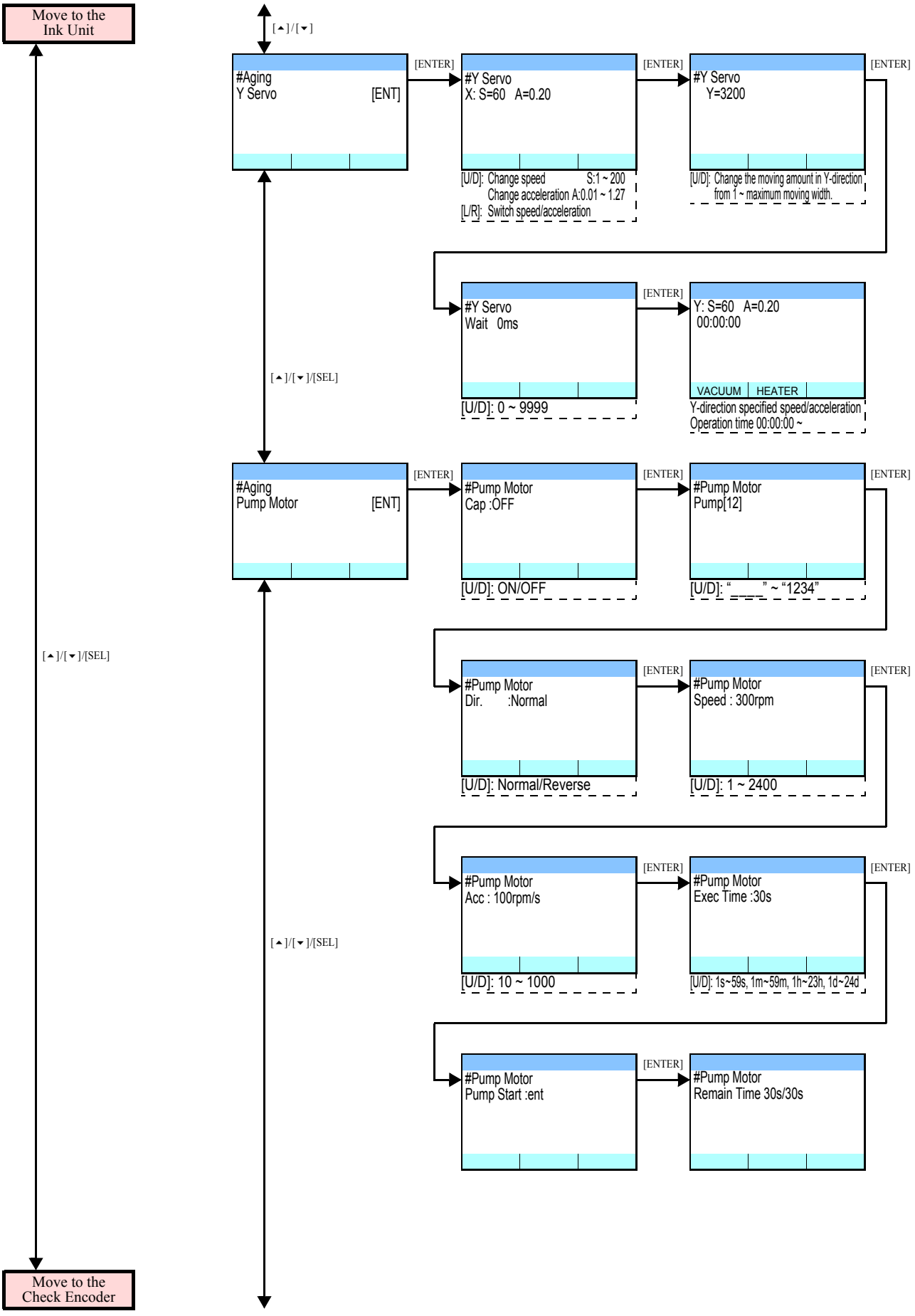
8.4.2 #Test



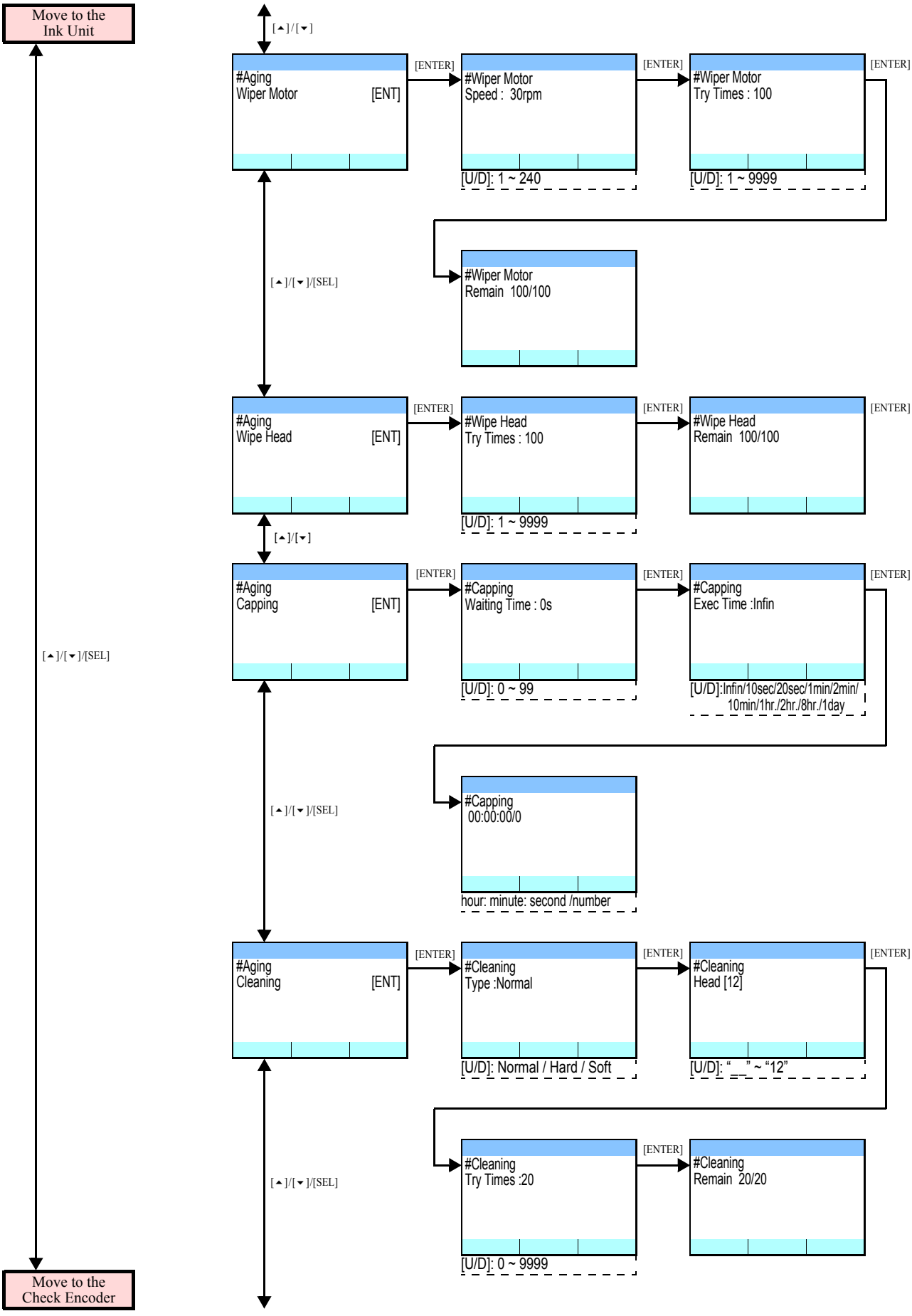
8.4.2 #Test



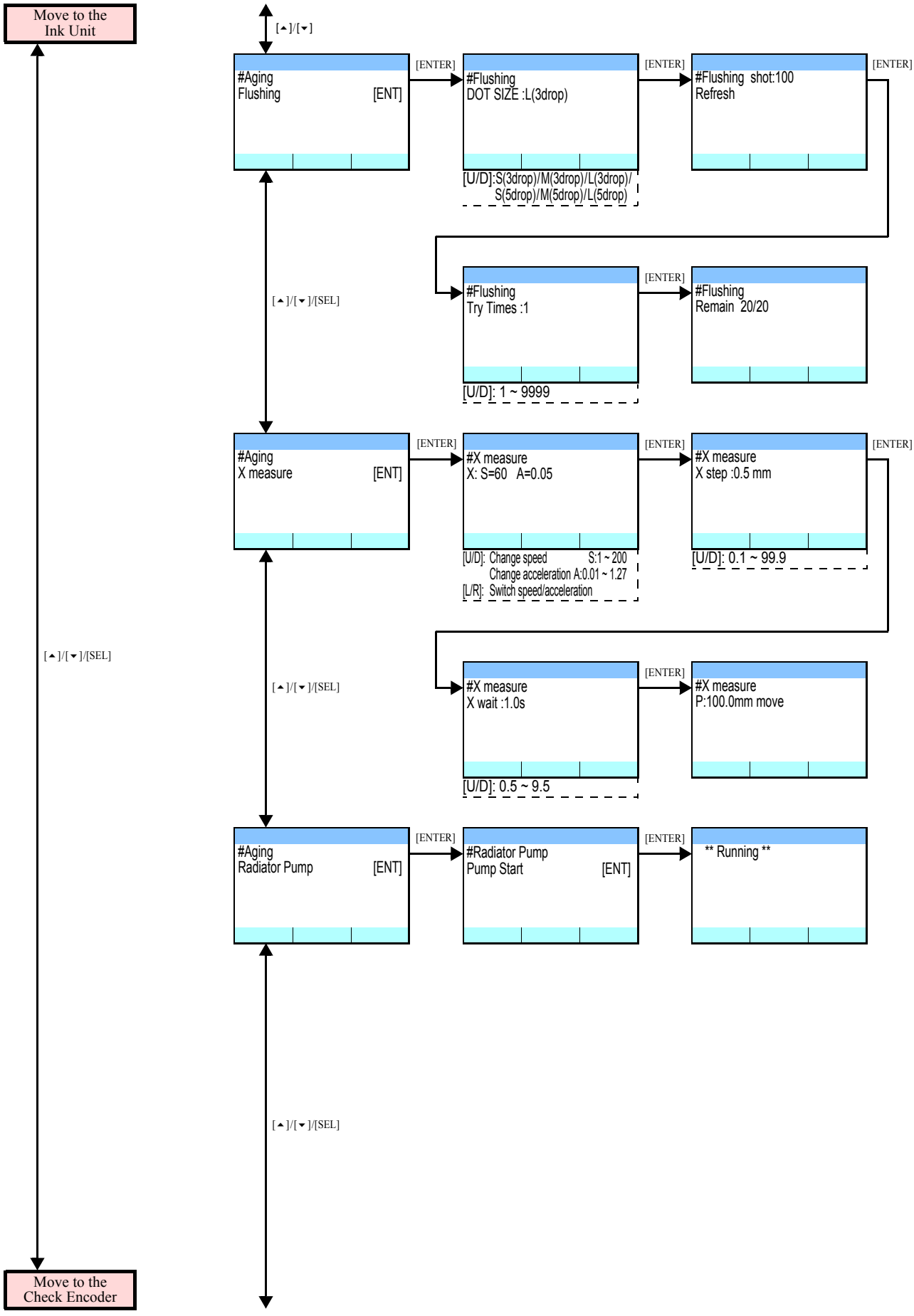
8.4.2 #Test



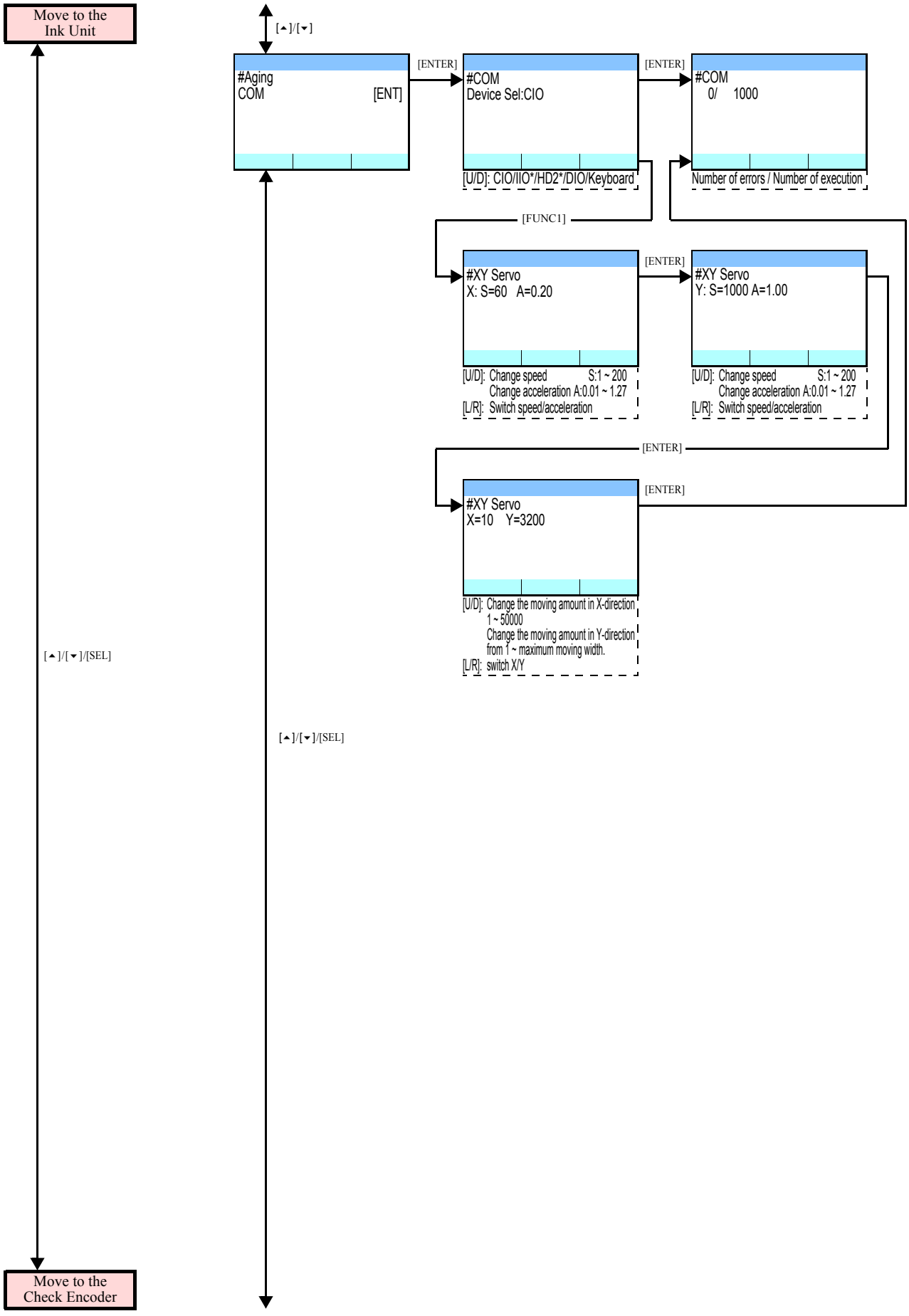
8.4.2 #Test



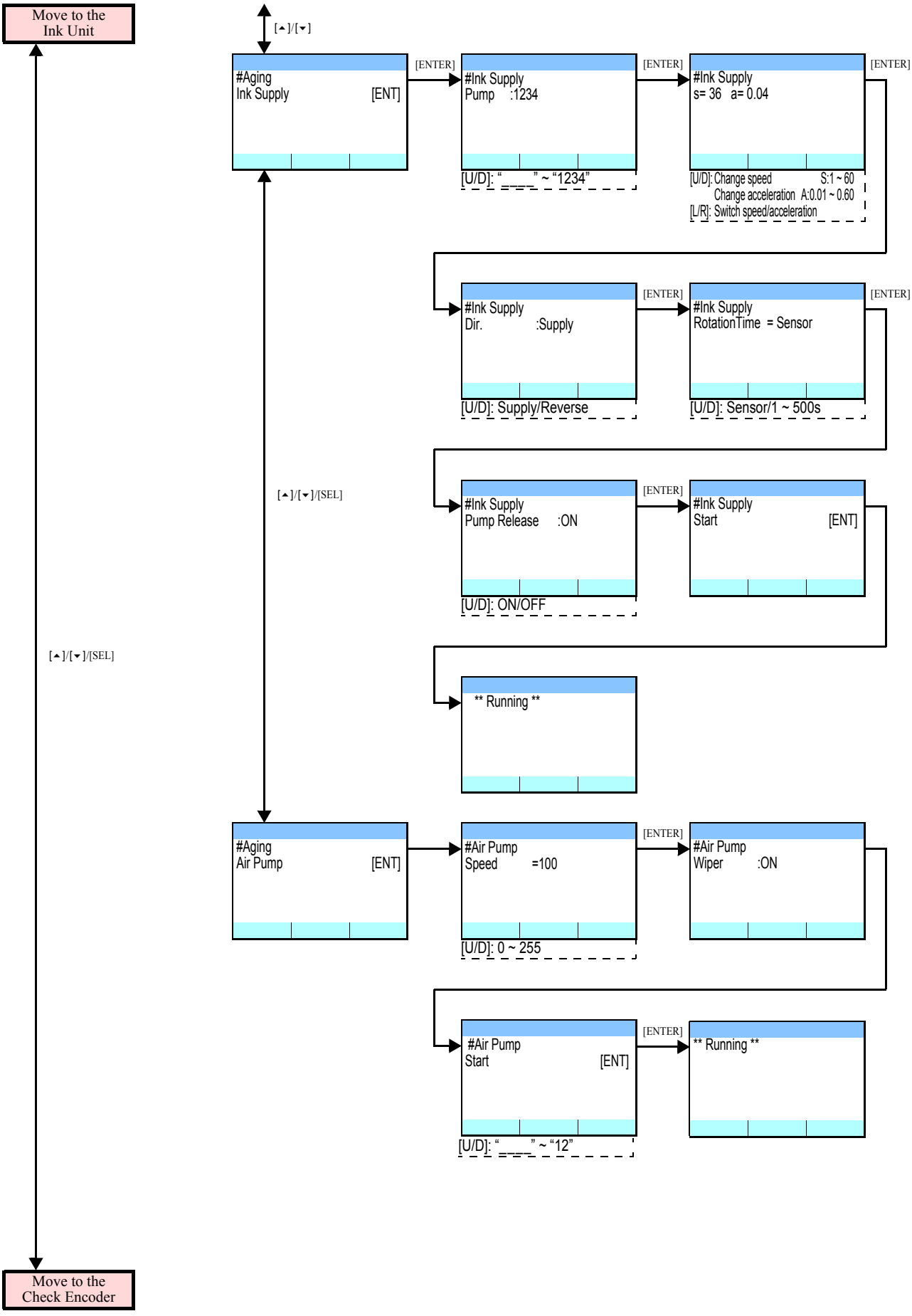
8.4.2 #Test



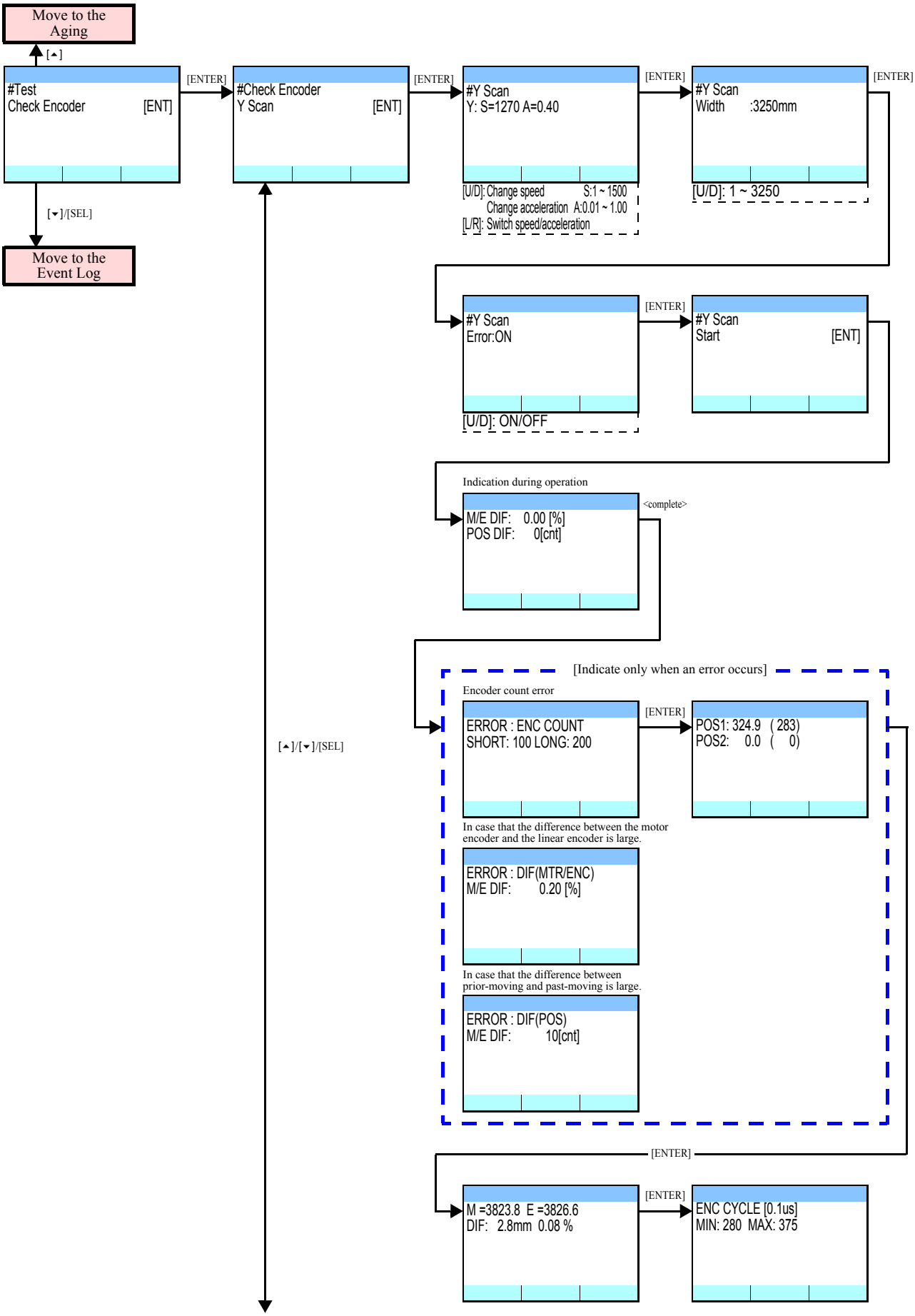
8.4.2 #Test



8.4.2 #Test



8.4.2 #Test



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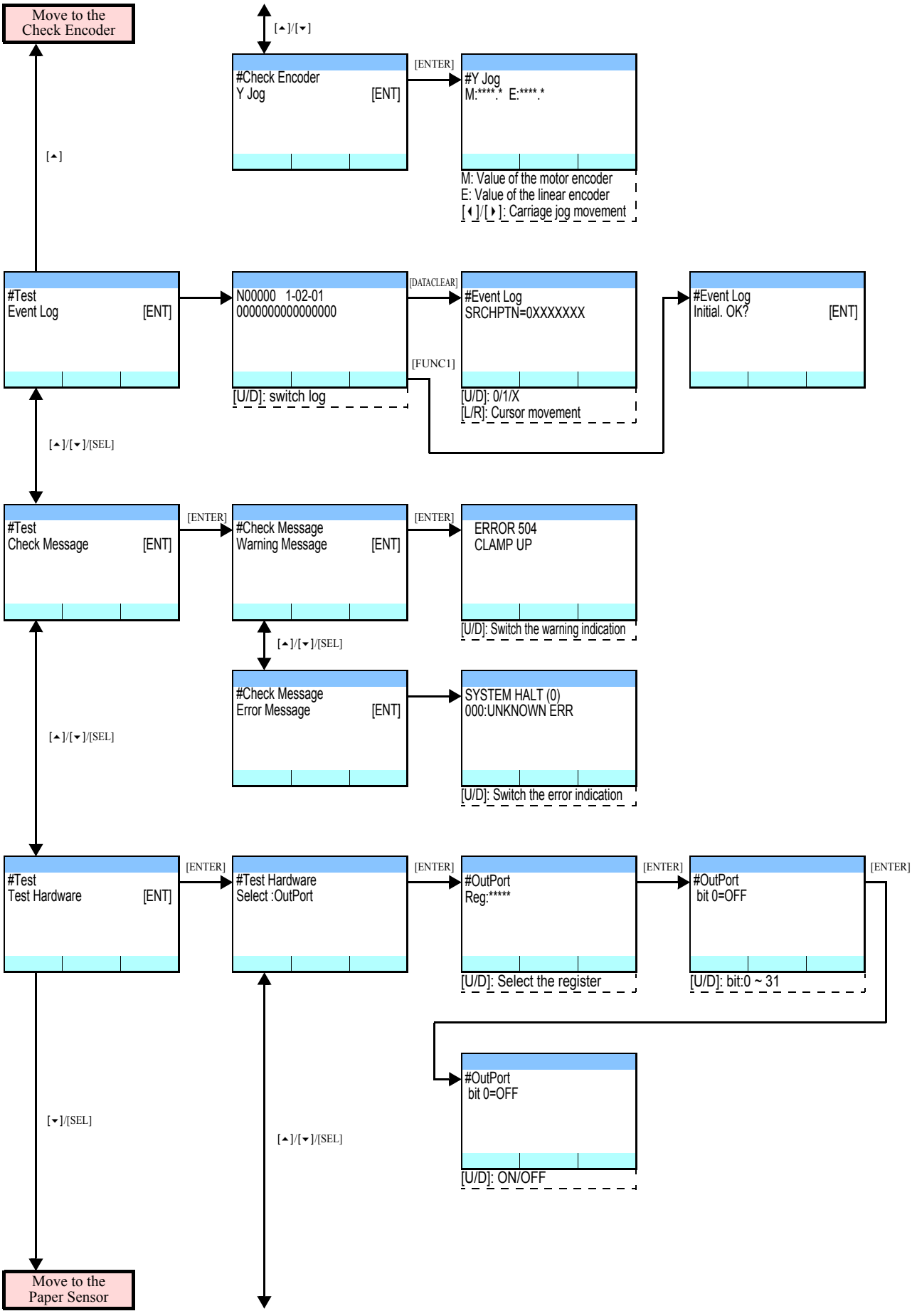

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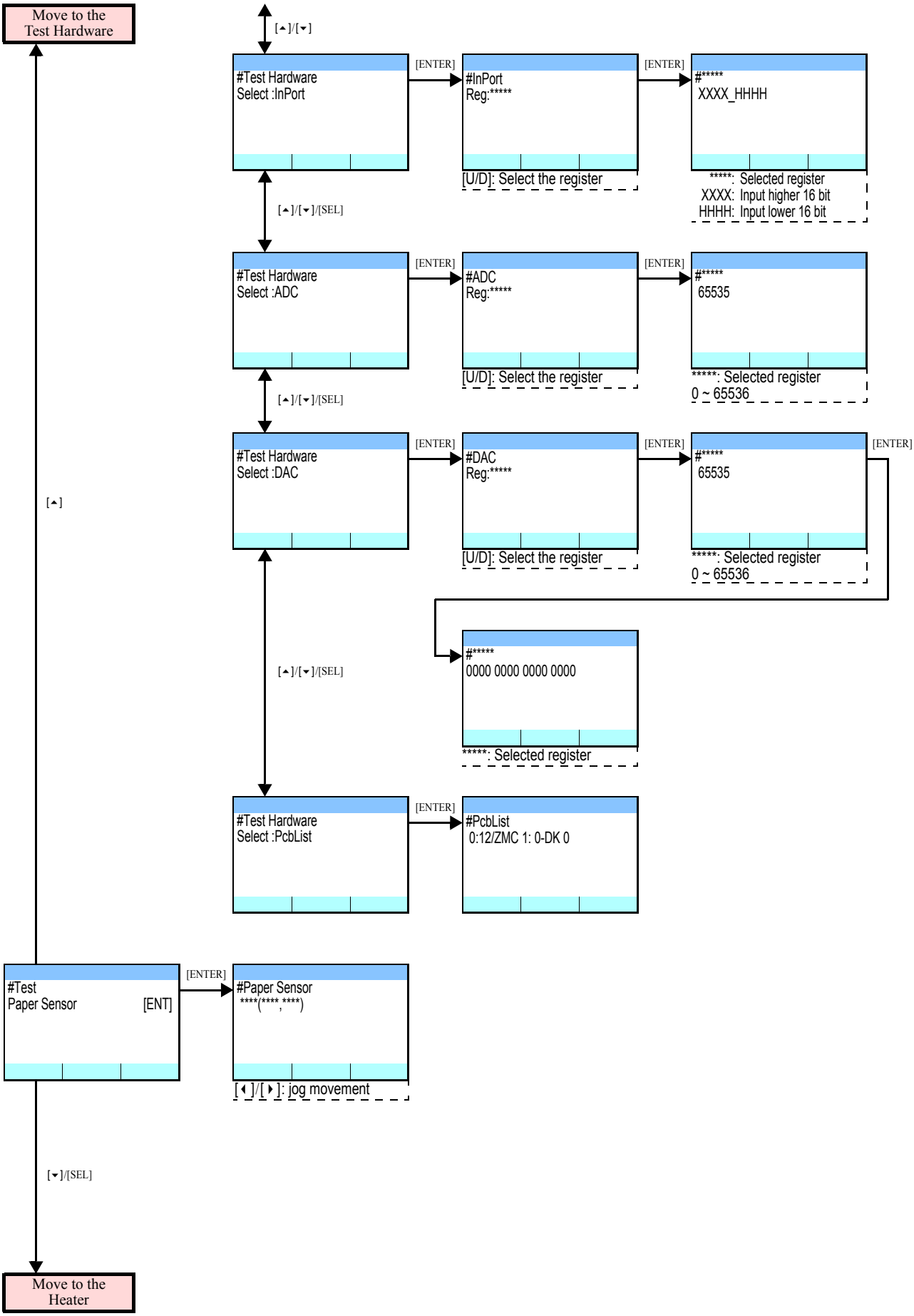

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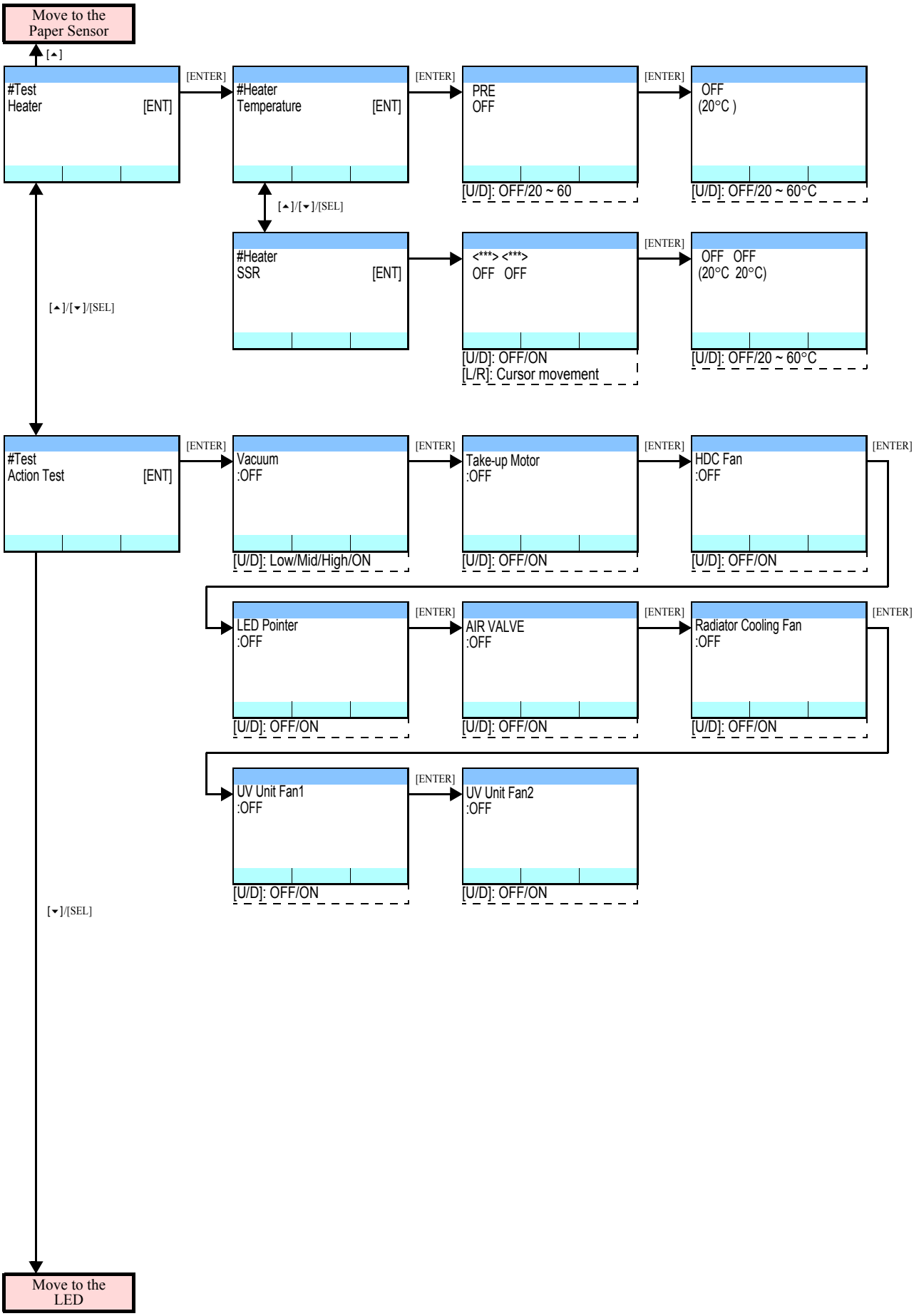
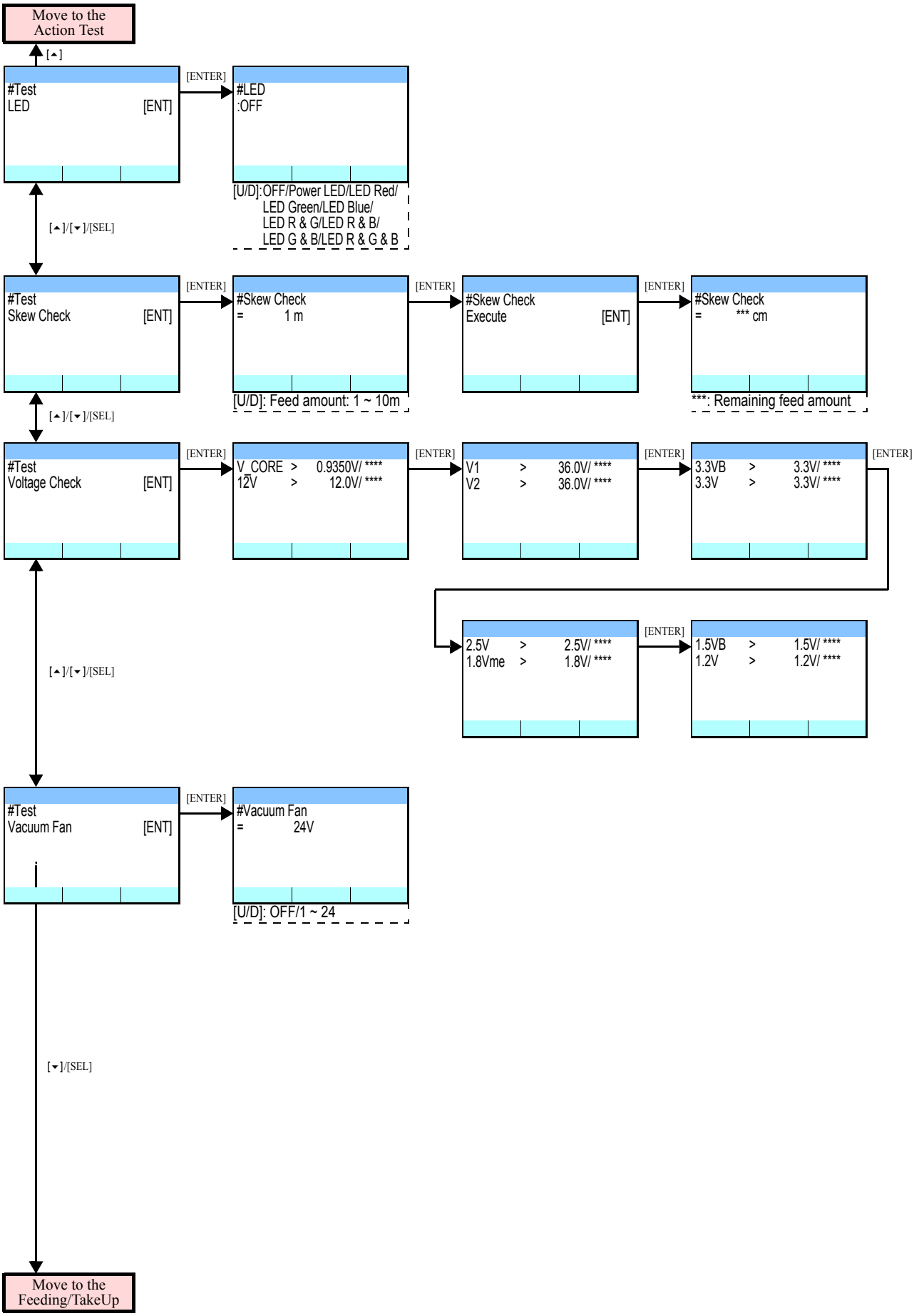
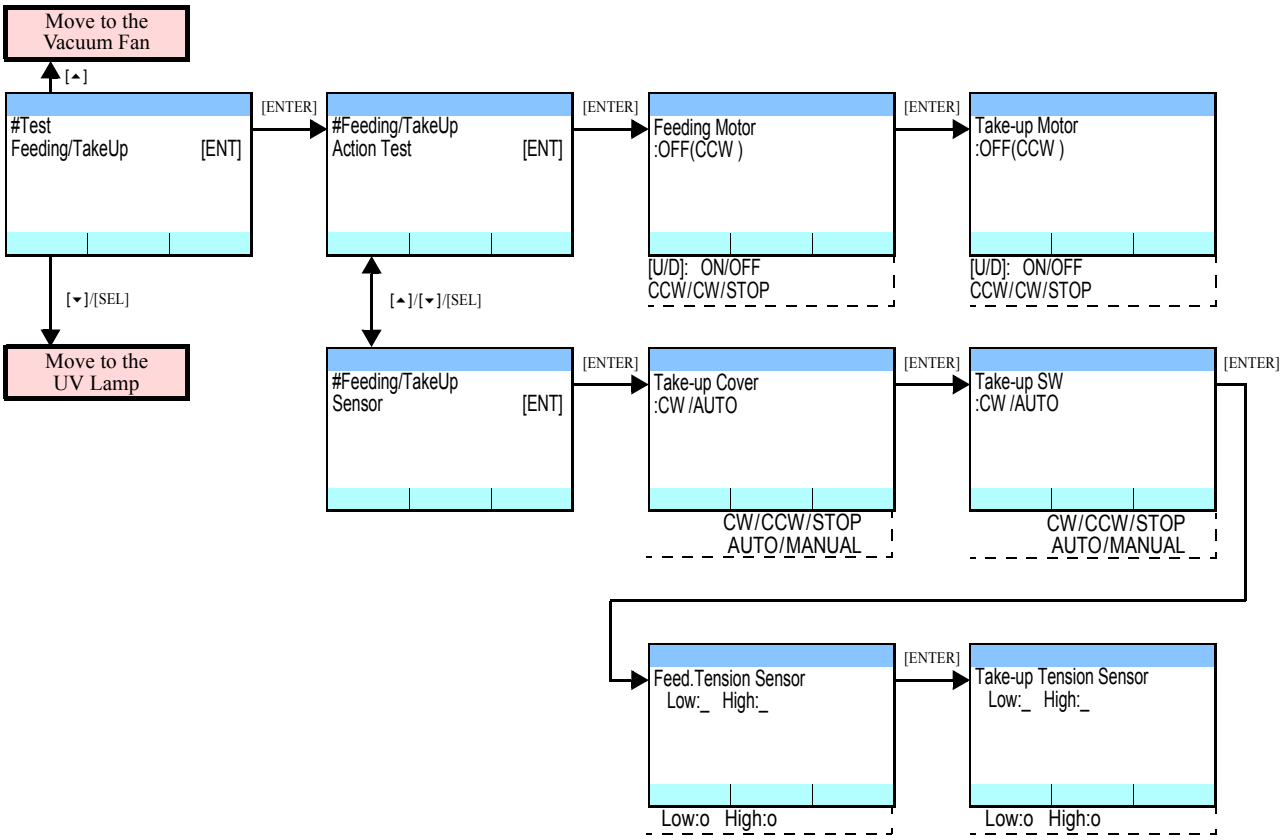


8.4.2 #Test



8.4.2 #Test



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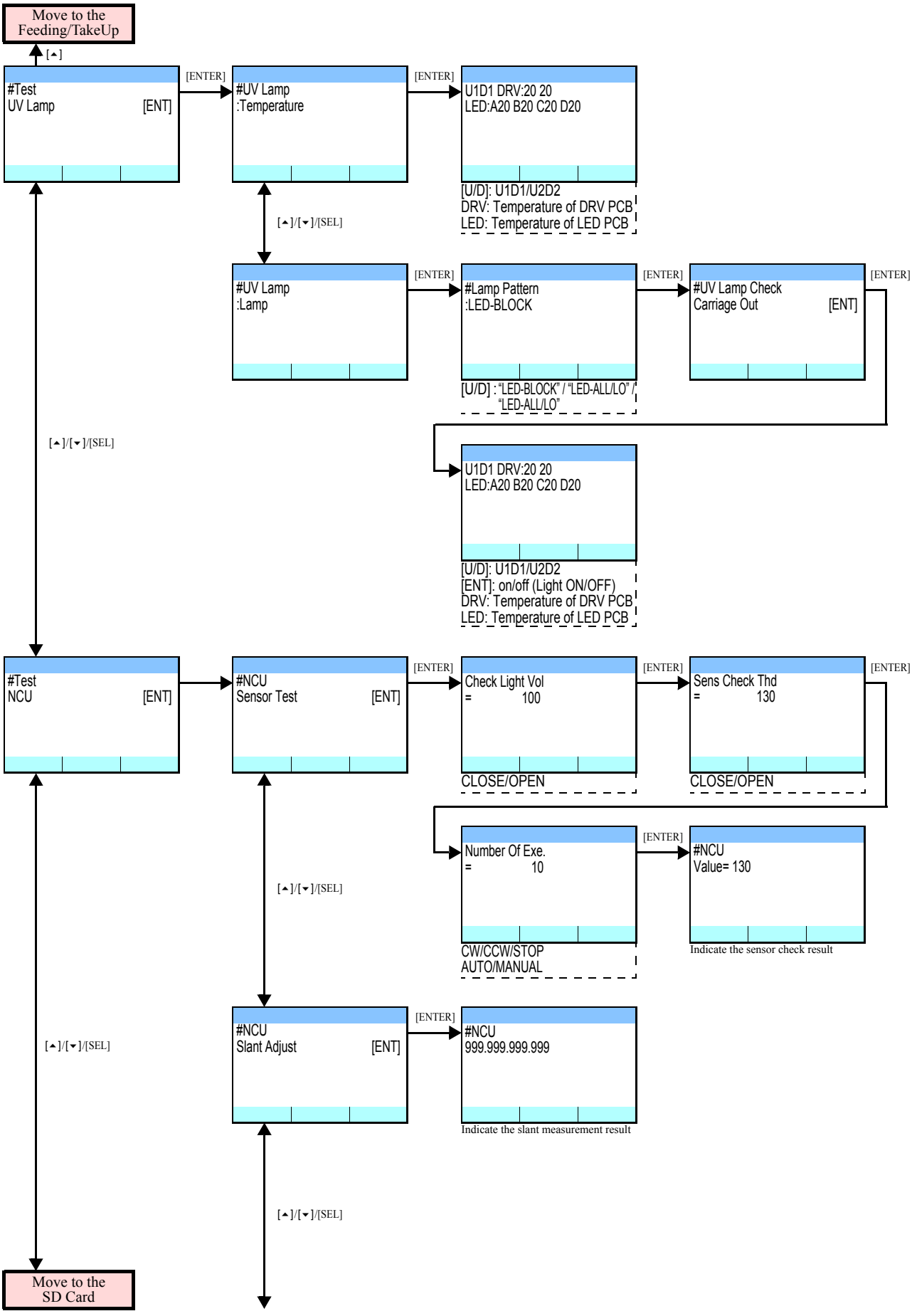

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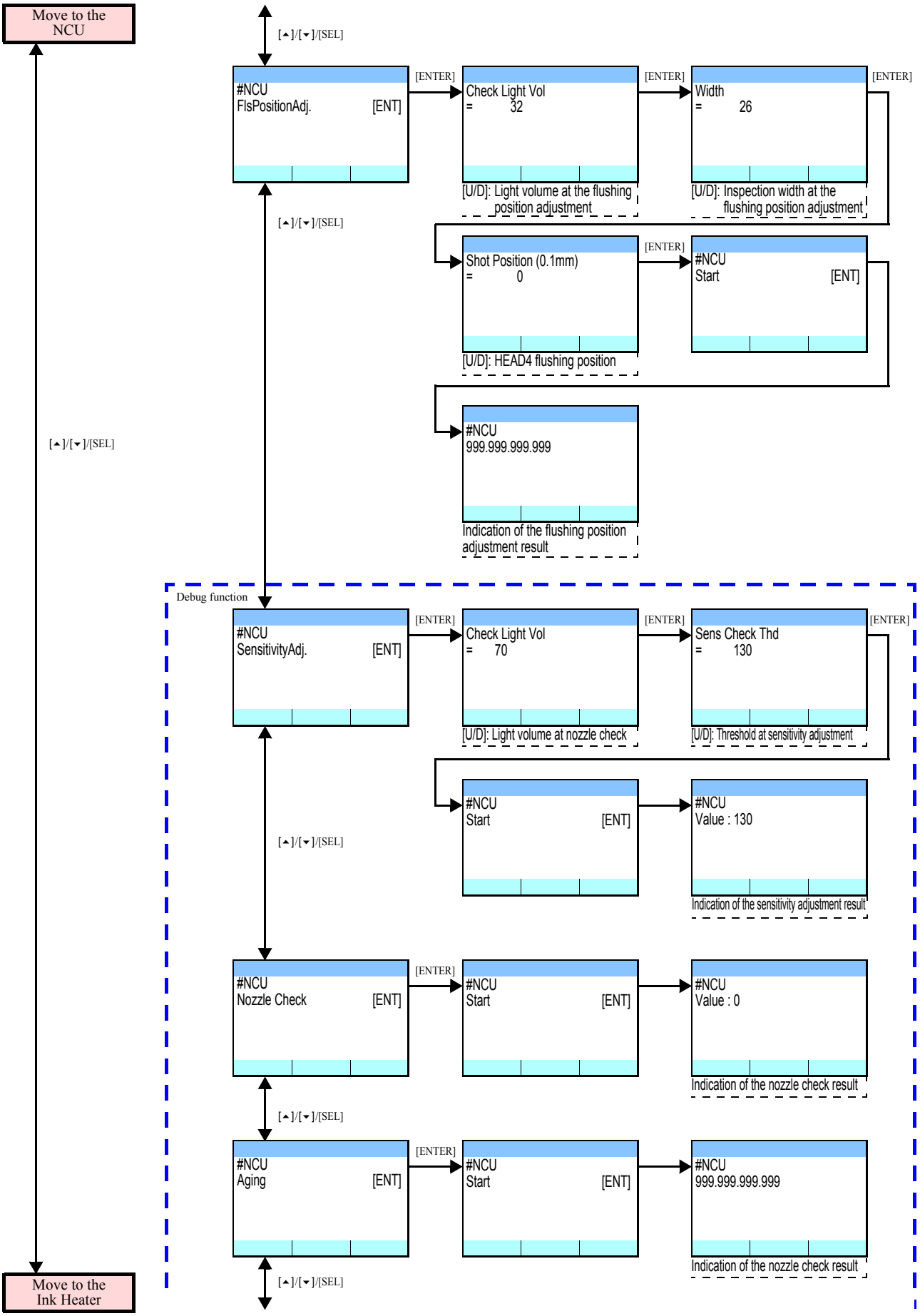
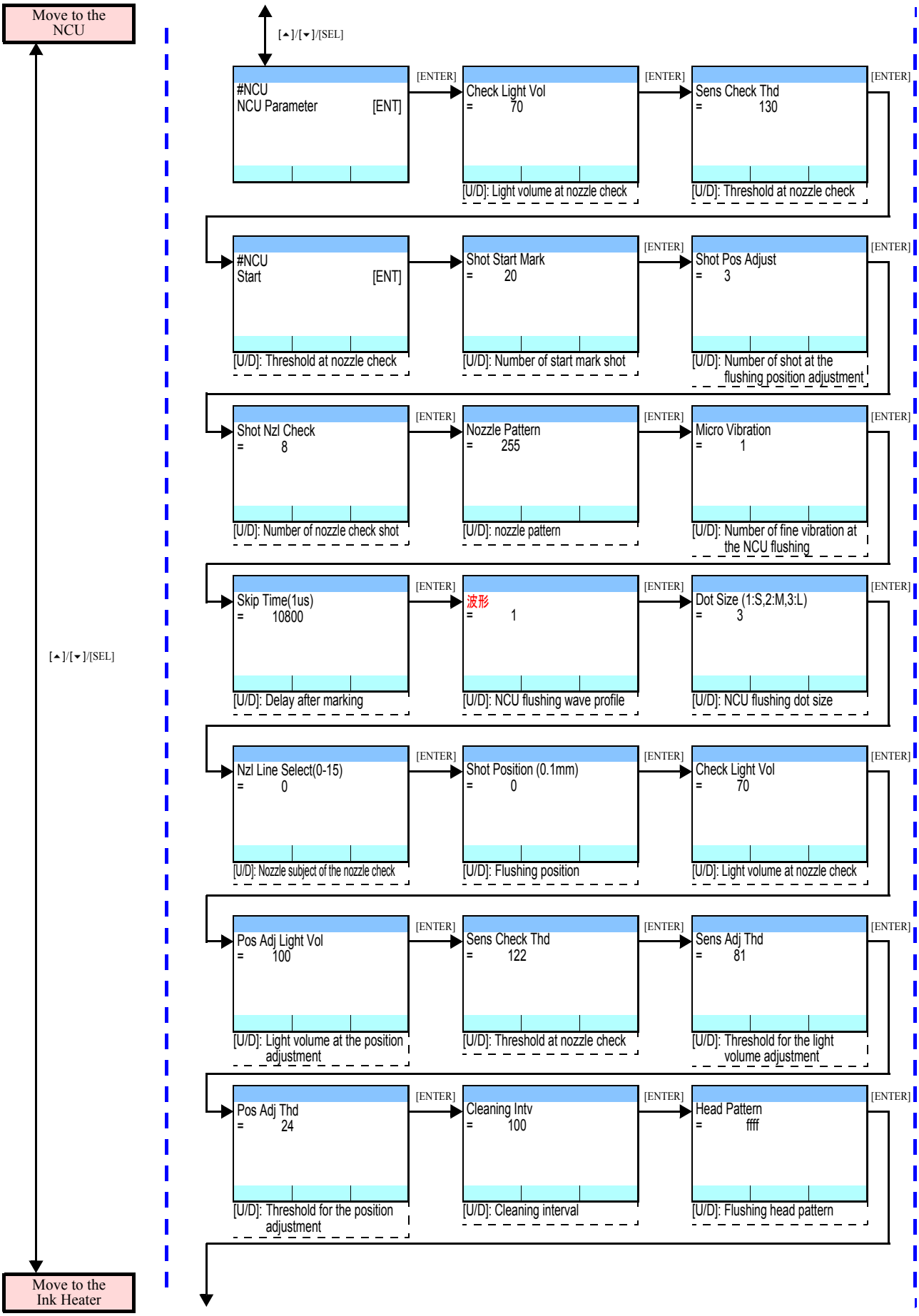
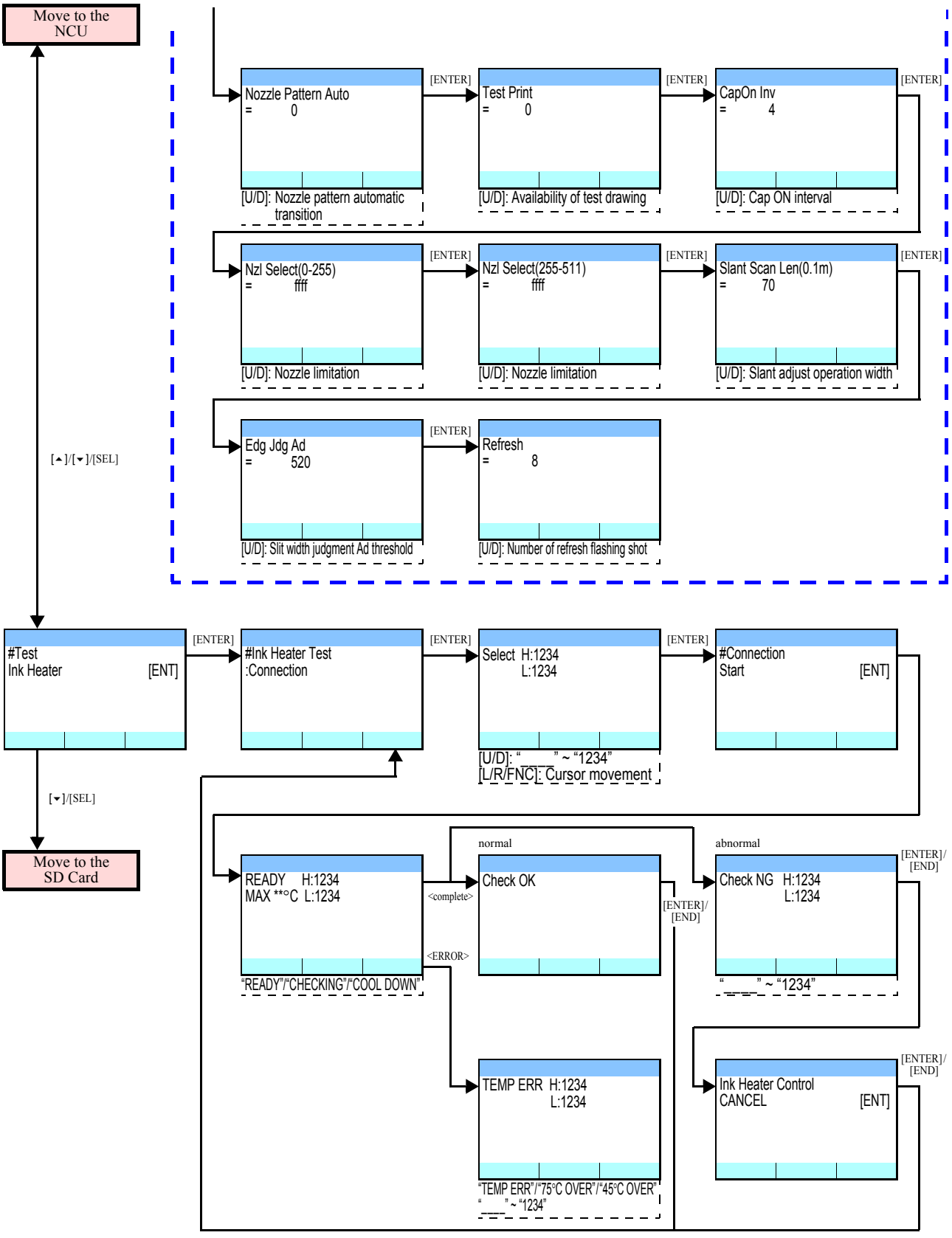


8.4.2 #Test

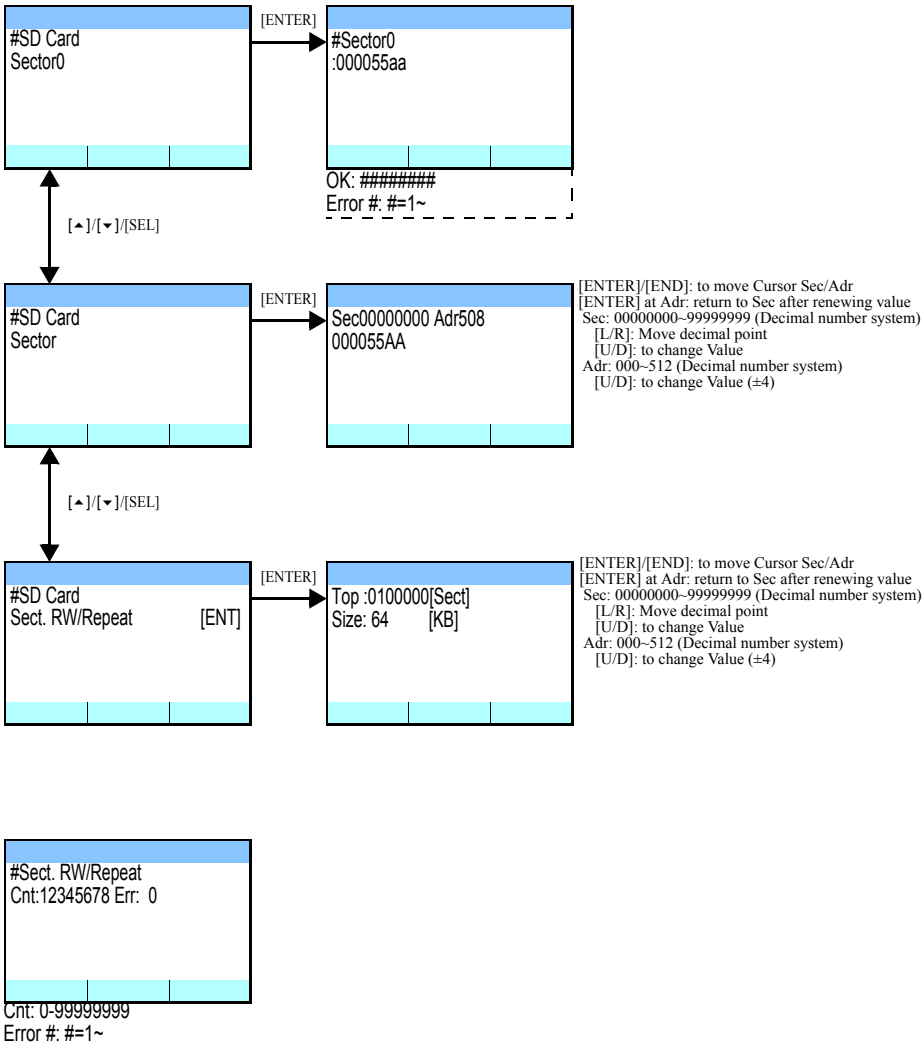


8.4.2 #Test


Move to the NCU
[▲]/[▼]/[SEL]
Nozzle Pattern Auto
= 0
[U/D]: Nozzle pattern automatic transition
[ENTER]
Test Print
= 0
[U/D]: Availability of test drawing
CapOn Inv
= 4
[U/D]: Cap ON interval
Nzl Select(0-255)
= ffff
[U/D]: Nozzle limitation
Nzl Select(255-511)
= ffff
[U/D]: Nozzle limitation
Slant Scan Len(0.1m)
= 70
[U/D]: Slant adjust operation width
Edg Jdg Ad
= 520
[U/D]: Slit width judgment Ad threshold
Refresh
= 8
[U/D]: Number of refresh flashing shot
#Test
Ink Heater [ENT]
#Ink Heater Test
:Connection
Select H:1234
L:1234
[U/D]: "____" ~ "1234"
[L/R/FNC]: Cursor movement
#Connection
Start [ENT]
[▼]/[SEL]
Move to the SD Card
READY H:1234
MAX **°C L:1234
"READY"/"CHECKING"/"COOL DOWN"
normal
<complete>
Check OK
<ERROR>
abnormal
Check NG H:1234
L:1234
"____" ~ "1234"
[ENTER]/[END]
TEMP ERR H:1234
L:1234
"TEMP ERR"/"75°C OVER"/"45°C OVER"
"____" ~ "1234"
Ink Heater Control
CANCEL [ENT]

8.4.2 #Test

8.4.2 #Test



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