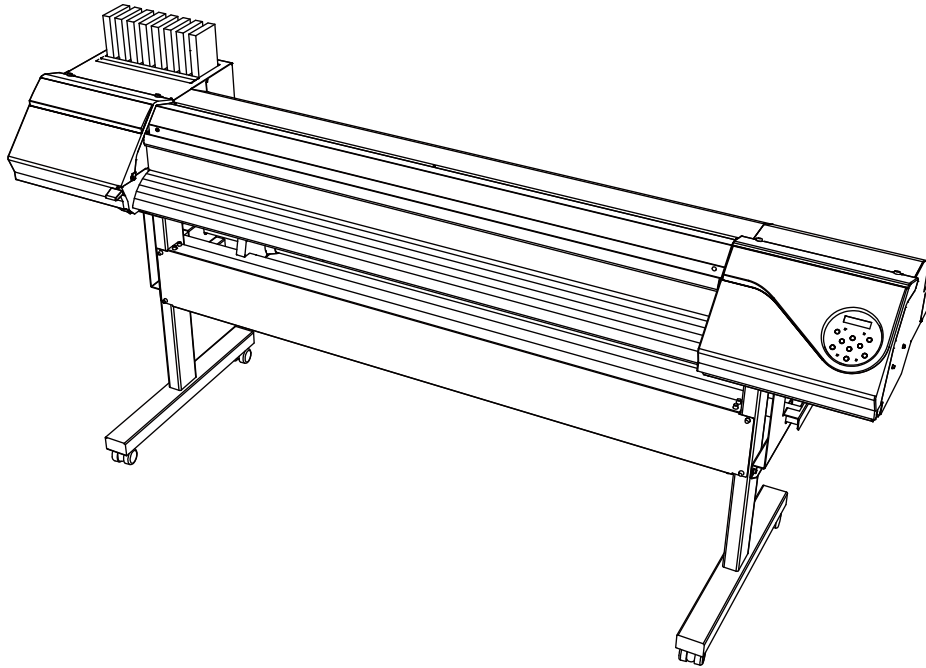


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Contents

1 Structure & Spare Parts



The Spare Parts has been migrated to the Parts Finder. For more information, refer to the Parts Finder.

2 Electrical Section

2-1 WIRING MAP	2-1
2-2 MAIN BOARD	2-3
2-3 SERVO BOARD	2-14
2-4 CARRAGE BOARD	2-20
2-5 SUB BOARD	2-23
2-6 MAINTENANCE PARTS LIST	2-28

3 Replacement of Main Parts

3-1 HEAD REPLACEMENT	3-4
3-2 DAMPER REPLACEMENT	3-11
3-3 WIPER REPLACEMENT	3-18
3-4 FELT WIPER REPLACEMENT	3-21
3-5 CAP TOP REPLACEMENT	3-24
3-6 TOOL CARRIAGE REPLACEMENT	3-29
3-7 CARRIAGE MOTOR REPLACEMENT	3-34
3-8 FEED MOTOR REPLACEMENT	3-40
3-9 PUMP REPLACEMENT	3-51
3-10 BOARD REPLACEMENT (MAIN BOARD SW POWER SUPPLY)	3-56
3-11 BATTERY REPLACEMENT	3-66
3-12 CARRIAGE BELT REPLACEMENT	3-69
3-13 ENCODER SCALE REPLACEMENT	3-74
3-14 GRIT ENCODER REPLACEMENT	3-76
3-15 PINCH ROLLER REPLACEMENT	3-80
3-16 CUTTER PROTECTION REPLACEMENT	3-81
3-17 CUT RIBBON CABLE REPLACEMENT	3-82
3-18 LINEAR ENCODER BOARD REPLACEMENT	3-88
3-19 HOW TO FOLD RIBBON CABLE TO THE HEAD	3-93
3-20 INK TUBE REPLACEMENT	3-96
3-21 RIBBON CABLE (MAIN BOARD TO CARRIAGE BOARD) REPLACEMENT	3-115

4 Adjustment

4-1 SERVICE MODE	4-2
4-2 HOW TO UPGRADE FIRMWARE/INSTALL FIRMWARE	4-16
4-3 HEAD ALIGNMENT	4-23
4-4 LIMIT POSITION & CUT DOWN POSITION INITIALIZE	4-27
4-5 LINEAR ENCODER SETUP	4-29
4-6 FLUSHING POSITION ADJUSTMENT	4-31
4-7 CROP MARK SENSOR ADJUSTMENT	4-33
4-8 CROP-CUT ADJUSTMENT	4-36
4-9 PRINT/CUT POSITION ADJUSTMENT	4-39
4-10 CALIBRATION(FEEDING DIRECTION)	4-42
4-11 TOOL HEIGHT ADJUSTMENT	4-44
4-12 TOOL PRESSURE ADJUSTMENT	4-46
4-13 BELT TENSION ADJUSTMENT	4-50
4-14 BELT POSITION ADJUSTMENT	4-53
4-15 TAKE-UP UNIT OPERATION CHECK	4-60

5 Supplemental Information

5-1 SPECIAL TOOLS	5-1
5-2 SENSOR MAP	5-2

6 Troubleshooting

6-1 WHITE FINE LINE / BANDING / MISSING DOT / SCRATCHY PRINTING / BLURRED PRINTING	6-1
---	-----

6-2 POOR PRINTING QUALITY WHEN USING THE METALLIC SILVER INK	6-2
6-3 MIXED COLOR IS PRINTED AT THE METALLIC SILVER SPECIFIED AREA	6-2
6-4 PARTICULAR COLOR IS NOT PRINTED AT ALL	6-3
6-5 SHIFTING IN PRINTING/COLOR SHIFTING	6-3
6-6 INK DROPS ON THE MEDIA	6-3
6-7 VERTICAL BANDING	6-4
6-8 MISSING DOT OR DEFLECTED DOT APPEARS WHEN PRINTING AFTER A LONG	6-4
6-9 UNWANTED LINES ARE PRINTED	6-4
6-10 PRINT & CUT MISALIGNMENT	6-5
6-11 POOR CUTTING QUALITY (STITCH CUT, DISTORTED CUT, MISMATCHED START AND END POINTS)	6-8
6-12 MEDIA SKEW	6-8
6-13 MOTOR ERROR	6-9
6-14 HEATER / DRYER TEMPERATURE DOES NOT RISE	6-10
6-15 THE TAKE-UP UNIT* DOES NOT OPERATE (*OPTION)	6-10
6-16 PROBLEM IN NETWORK (RIP DOES NOT RECOGNIZE THE PRINTER)	6-11
6-17 ERROR MESSAGE	6-11
6-18 SERVICE CALL	6-12

7 Service Activities

7-1 INSTALLATION CHECK LIST	7-1
7-2 MAINTENANCE CHECK LIST	7-16
7-3 SPECIFICATION	7-17

Revision No.	Date	Description of Changes	Approval	Issued
0	2010.5.28	First Edition	Kato	Misako
1	2010.8.10	Following section has been revised for supporting VS-540/420/300. Section 3, Section 4 and Section 7	Kato	Misako
2	2010.9.6	Following section has been revised for supporting VS-540/420/300. Section 1 and Section 2 7-3 SPECIFICATION has been revised.	Kato	Misako
3	2011.7.15	Sect1 has been revised. (1-1 COVERS / 1-3 DRIVE UNIT / 1-5 BASE FRAME ~VS-640/540 ~ / 1-9 TOOL CARRIAGE / 1-10 WIPER and CAP SYSTEMs / 1-11 INK SYSTEM / 1-12 ACCESSORY) 3-5 CAP TOP REPLACEMENT has been revised. 3-20 INK TUBE REPLACEMENT has been revised. 3-21 RIBBON CABLE (MAIN BOARD TO CARRIAGE BOARD) REPLACEMENT has been revised. 7-1 INSTALLATION CHECK LIST has been revised. 7-2 MAINTENANCE CHECK LIST has been revised.	Sawamura	Kaori
4	2011.7.28	7-2 MAINTENANCE CHECK LIST has been revised.	Sawamura	Kaori
5	2011.12.14	1-3 DRIVE UNIT (VS-640, VS-540, VS-420, VS-300), 1-9 TOOL CARRIAGE Parts has been revised.	Sawamura	Misako
6	2012.3.23	Sect1 has been revised. (1-2 FRAME / 1-3 DRIVE UNIT / 1-4 HEAD CARRIAGE / 1-6 CHASSIS / 1-10 WIPER and CAP SYSTEMs / 1-11 INK SYSTEM / 1-12 ACCESSORY) 3-20 INK TUBE REPLACEMENT has been revised. 4-3 HEAD ALIGNMENT has been revised.	Sawamura	Yamane
7	2012.3.28	4-1 SERVICE MODE has been revised. 6-18 SERVICE CALL has been revised.	Sawamura	Yamane
8	2012.5.10	1-4 HEAD CARRIAGE / 1-6 CHASSIS has been revised.	Sawamura	Umemoto
9	2012.5.31	1-1 COVER Parts have been revised.	Sawamura	Yuko
10	2012.10.12	1-5 BASE FRAME ~VS-640/540~ Parts have been revised. 1-5 BASE FRMAE~VS-420/300~ Parts have been revised. 1-10 WIPE and CAP SYSTEMs Parts have been revised.	Sawamura	Yuko
11	2012.12.5	4-7 CROP MARK SENSOR ADJUSTMENT ---Note has been added.	Onoda	Umemoto
12	2012.12.25	1-4 HEAD CARRIAGE /1-11 INK SYSTEM 3-20 INK TUBE REPLACEMENT has been revised.	Onoda	Umemoto
13	2013.3.5	Sect1 has been revised. (1-3 DRIVE UNIT / 1-4 HEAD CARRIAGE / 1-5 BASE FRAME)	Onoda	Yuko
14	2013.6.28	Sect1 has been revised. (1-4 HEAD CARRIAGE / 1-12 ACCESSORY) 4-1 SERVICE MODE has been revised.	Onoda	Umemoto
15	2013.11.29	Sect1 has been revised. (1-1 COVER / 1-3 DRIVE UNIT / 1-6 CHASSIS / 1-8 INK SYSTEM) 2-1 WIRING MAP has been revised.	Onoda	Eiko
16	2014.7.22	1-6 CHASSIS Parts have been revised.	Onoda	Ito
17	2014.10.24	4-1 SERVICE MODE has been revised.	Kawai	Kohara
18	2014.11.12	1-4 HEAD CARRIAGE has been added.	Onoda	Ito
19	2015.1.13	1-6 CHASSIS has been added.	Onoda	Ito
20	2015.1.27	1-4 HEAD CARRIAGE has been added.	Onoda	Ito

Revision No.	Date	Description of Changes	Approval	Issued
21	2015.8.25	1-9 TOOL CARRIAGE Parts has been revised.	Onoda	Ito
22	2015.11.17	1-2 FRAME figure number have been revised.	Onoda	Ito
23	2015.12.10	1-10 WIPE and CAP SYSTEMs Parts have been revised.	Onoda	Ito
24	2016.3.3	1-1 COVER Parts have been revised.	Tokumasu	Kohara
25	2016.6.3	1-5 BASE FRAME ~VS-640/540~ Parts have been revised. 1-5 BASE FRMAE~VS-420/300~ Parts have been revised.	Tokumasu	Shimizu
26	2016.6.17	1-3 DRIVE UNIT ~VS-300~ and 1-6 CHASSIS Parts have been added.	Tokumasu	Mana
27	2016.9.14	1 Structure & Spare Parts has been migrated to the Parts Finder.	Kawai	Shin

To Ensure Safe Work

About ⚠ **WARNING** and ⚠ **CAUTION** Notices.

 WARNING	Used for instructions intended to alert the operator to the risk of death or severe injury should the unit be used improperly.
 CAUTION	Used for instructions intended to alert the operator to the risk of injury or material damage should the unit be used improperly. * material damage refers to damage or other adverse effects caused with respect to the home and all its furnishings, as well to domestic animals or pets.

	The ⚡ symbol alerts the user to important instructions or warnings. The specific meaning of the symbol is determined by the design contained within the triangle. The symbol at left means “danger of electrocution”.
	The ⚡ symbol alerts the user to items that must never be carried out (are forbidden). The specific thing that must not be done is indicated by the design contained within the circle. The symbol at left means not to touch.
	The ⚡ symbol alerts the user to things that must be carried out. The specific thing that must be done is indicated by the design contained within the circle. The symbol at left means the power-cord plug must be unplugged from the outlet.

In addition to the ⚠ **WARNING** and ⚠ **CAUTION** symbols, the symbols shown below are also used.

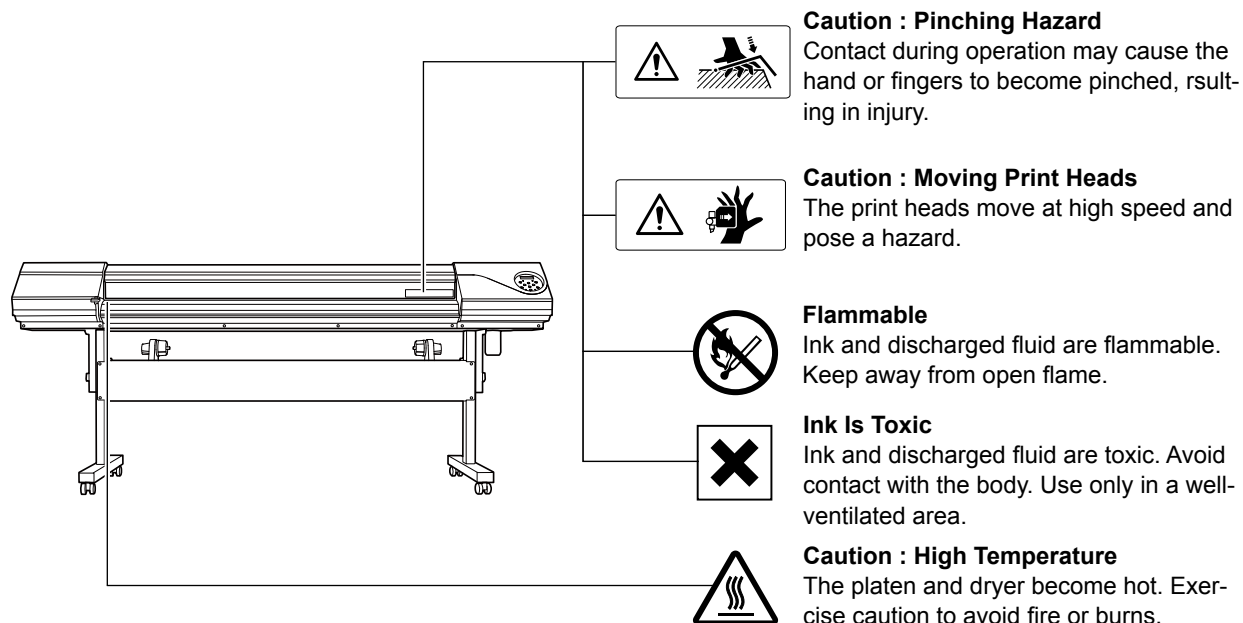


: Tips and advise before the adjustment.

About the Labels Affixed to the Unit

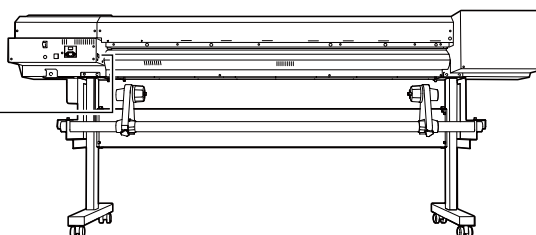
These labels are affixed to the body of this product.

The following figure describes the location.



Caution: High Voltage

Cover removal may pose hazard of shock or electrocution due to high voltage.



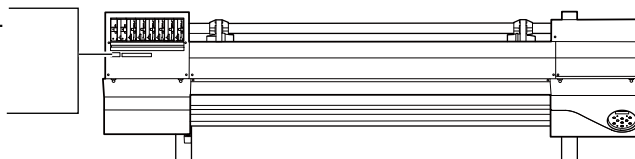
Flammable

Ink and discharged fluid are flammable. Keep away from open flame.



Ink Is Toxic

Ink and discharged fluid are toxic. Avoid contact with the body. Use only in a well-ventilated area.



WARNING - FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH FUSE OF THE SPECIFIED TYPE AND CURRENT RATING.

ATTENTION - AFIN D'ÉVITER TOUT RISQUE D'INCENDIE, N'UTILISER QUE DES FUSIBLES DE LA TAILLE ET DU TYPE SPÉCIFIÉS.  F80L HS 45



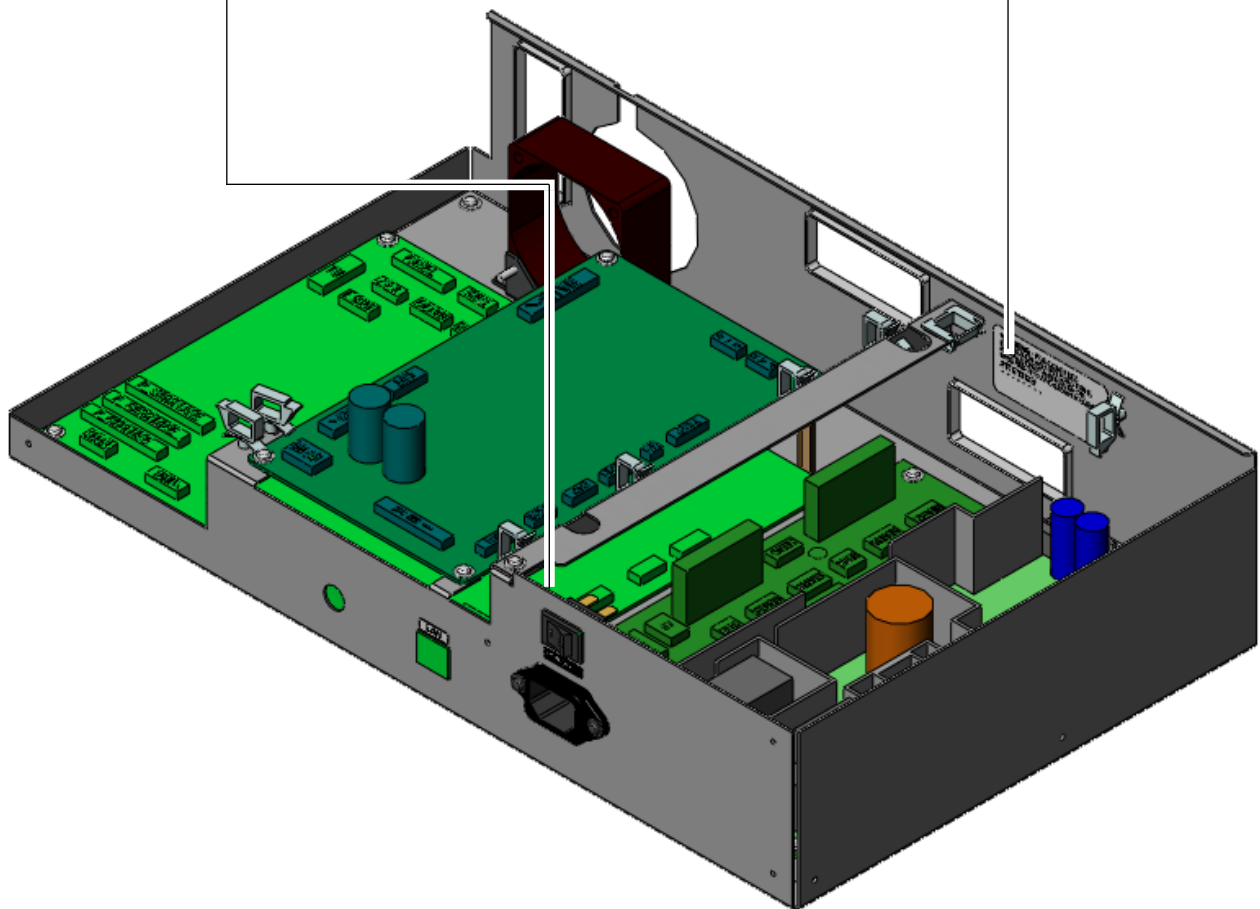
Electric charge.

Do not touch when power is on.



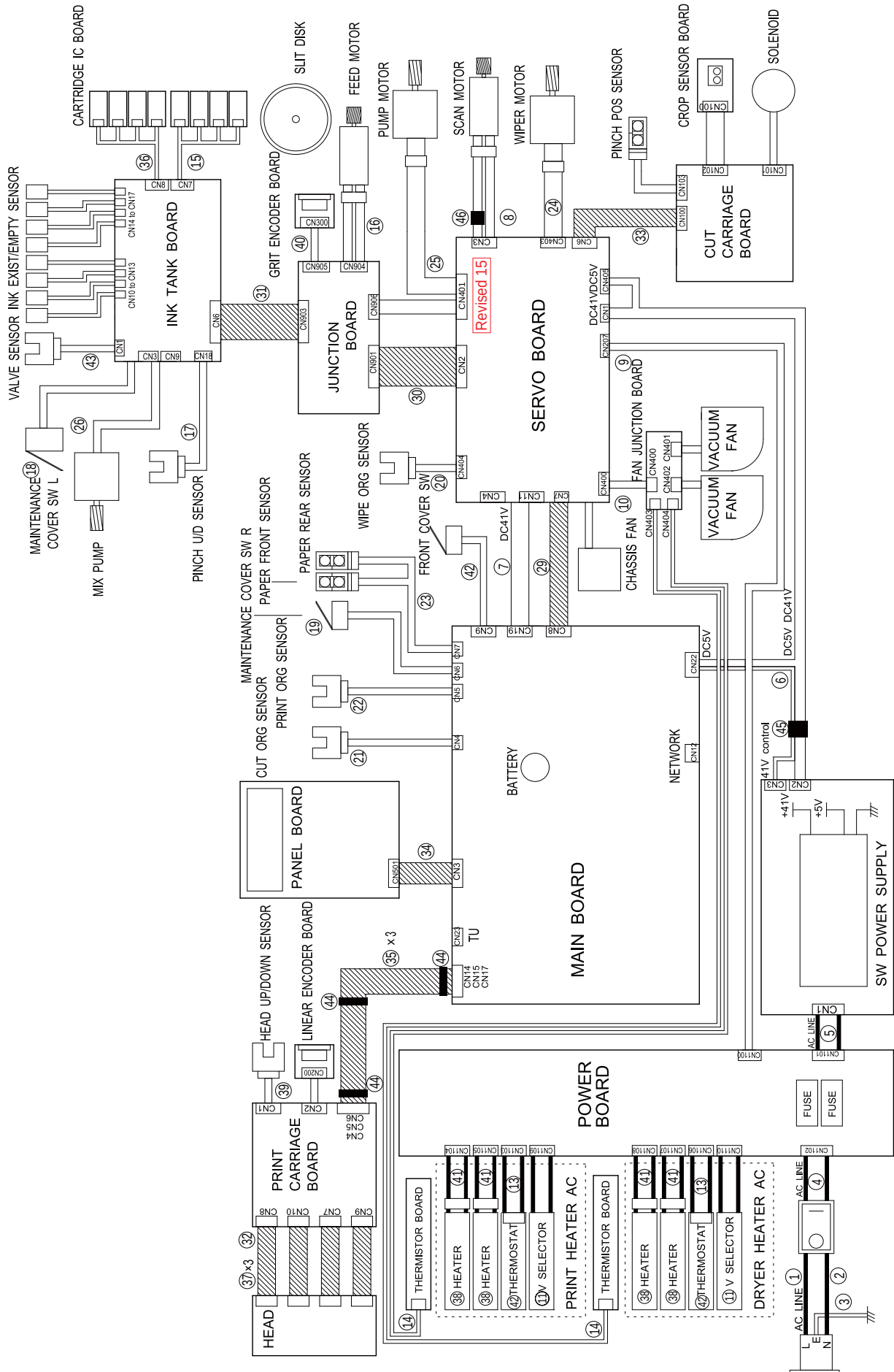
The wiring terminal untended for connection of the protective earthing conductor associated with the supply wiring.

Do not disconnect the cable of this terminal except the time of replacement.



2 Electrical Section

2-1 WIRING MAP



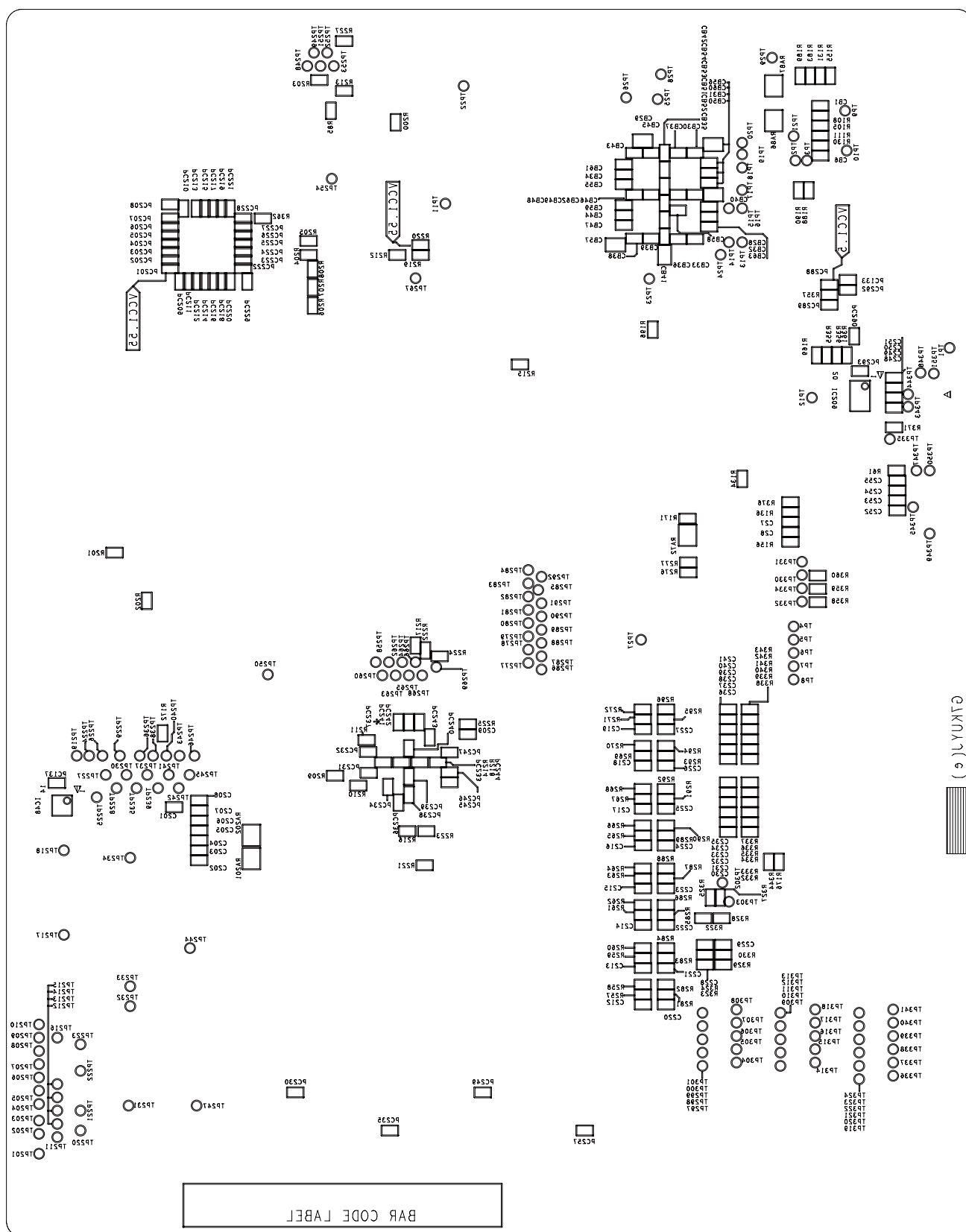
CABLE LIST

	Parts No.	Parts Name		Parts No.	Parts Name
1	1000002189	CABLE-ASSY,JUNBI A VP-540		1000004962	CABLE-CARD,36P1 2930L BB HIGH-V (VS-640)
2	1000002190	CABLE-ASSY,JUNBI B VP-540		23475240	CABLE CARD,36P1 2670L BB HIGH-V(VS-540)
3	23415268	CABLE-ASSY AC GROUND GREEN SP-540	35	1000007177	CABLE-CARD,36P1 2370L BB HIGH-V (VS-420)
4	23415116	CABLE ASSY,JUNBI D SP-300		23475213	CABLE CARD,36P1 2000L BB SP-300 (VS-300)
5	1000002173	CABLE-ASSY,JUNBI E VP-540	36	1000006699	CABLE-ASSY,INK IC 5-8 VS-640
6	1000004961	CABLE-ASSY,POWER SERVO RS-540	37	1000006702	CABLE-CARD,29P1 256L BB HIGH-V
7	23415117	CABLE ASSY,POWER MAIN SP-300		1000004792	ASSY,CORD HEATER RS-640 (VS-640)
8	1000002188	CABLE-ASSY,SCAN MOTOR VP-540	38	1000002165	ASSY,CORD HEATER VP-540 (VS-540)
9	1000002180	CABLE-ASSY,RELAY JUNCTION VP-540		1000007276	ASSY,CORD HEATER VS-420 (VS-420)
10	1000002168	CABLE-ASSY,FAN VP-540		1000002166	ASSY,CORD HEATER VP-300 (VS-300)
11	1000002044	CABLE-ASSY,117V SELECTOR XC-540 (100V)	39	1000006692	CABLE-ASSY,HEAD UD SENS VS-640
	1000002043	CABLE-ASSY,230V SELECTOR XC-540 (200V)	40	1000006694	CABLE-ASSY,GRIT ENC VS-640
13	1000002184	CABLE-ASSY,THERMOSTAT VP-540		1000004791	CABLE-ASSY,HEATER RS-640 (VS-640)
14	1000002181	CABLE-ASSY,THERMISTOR VP-540	41	1000002183	CABLE-ASSY,HEATER VP-540 (VS-540/420)
15	1000006698	CABLE-ASSY,INK IC 1-4 VS-640		1000002755	CABLE-ASSY,HEATER VP-300 (VS-300)
16	23415124	CABLE ASSY,GRIT MOTOR SP-300	42	1000006696	CABLE-ASSY,F-COVER R VS-640
17	1000006701	CABLE-ASSY,PINCH UD SENS VS-640	43	1000006907	CABLE-ASSY,VALVE SENS VS-640
18	1000006695	ABLE-ASSY,M-COVER L VS-640	44	1000004149	FILTER(E),FRC-40-12-1.7-013
19	23505834	CABLE-ASSY MAINT-COVER SW FJ-540			
20	1000006693	CABLE-ASSY,WIPER SENS VS-640			
21	1000006691	CABLE-ASSY,CUT-CAR ORG VS-640			
22	1000006690	CABLE-ASSY,PRI-CAR ORG VS-640			
23	1000002175	CABLE-ASSY,PAPER SENSOR VP-540			
24	1000002182	CABLE-ASSY,WIPER MOTOR VP-540			
25	1000006697	CABLE-ASSY,PUMP MOTOR VS-640			
26	1000006700	ABLE-ASSY,MIX PUMP VS-640			
29	23475197	CABLE CARD 25P1 105L BB FJ-540			
30	1000006704	CABLE-CARD,40P1 400L BB HIGH-V			
31	1000006821	CABLE-CARD,26P1 2330L BB HIGH-V (VS-640)			
	1000007173	CABLE-CARD,26P1 2070L BB HIGH-V (VS-540)			
	1000007176	CABLE-CARD,26P1 1770L BB HIGH-V (VS-420)			
	1000007174	CABLE-CARD,26P1 1470L BB HIGH-V (VS-300)			
32	1000006703	CABLE-CARD,29P1 276L BBR HIGH-V			
33	1000006822	CABLE-CARD,15P1 2850L BB HIGH-V (VS-640)			
	23475238	CABLE-CARD, 15P1 2570L BB(VS-540)			
	1000007175	CABLE-CARD,15P1 2240L BB HIGH-V (VS-420)			
	23475207	CABLE CARD,15P1 1900L BB SP-300 (VS-300)			
34	23475212	CABLE-CARD,24P1 600L BB			

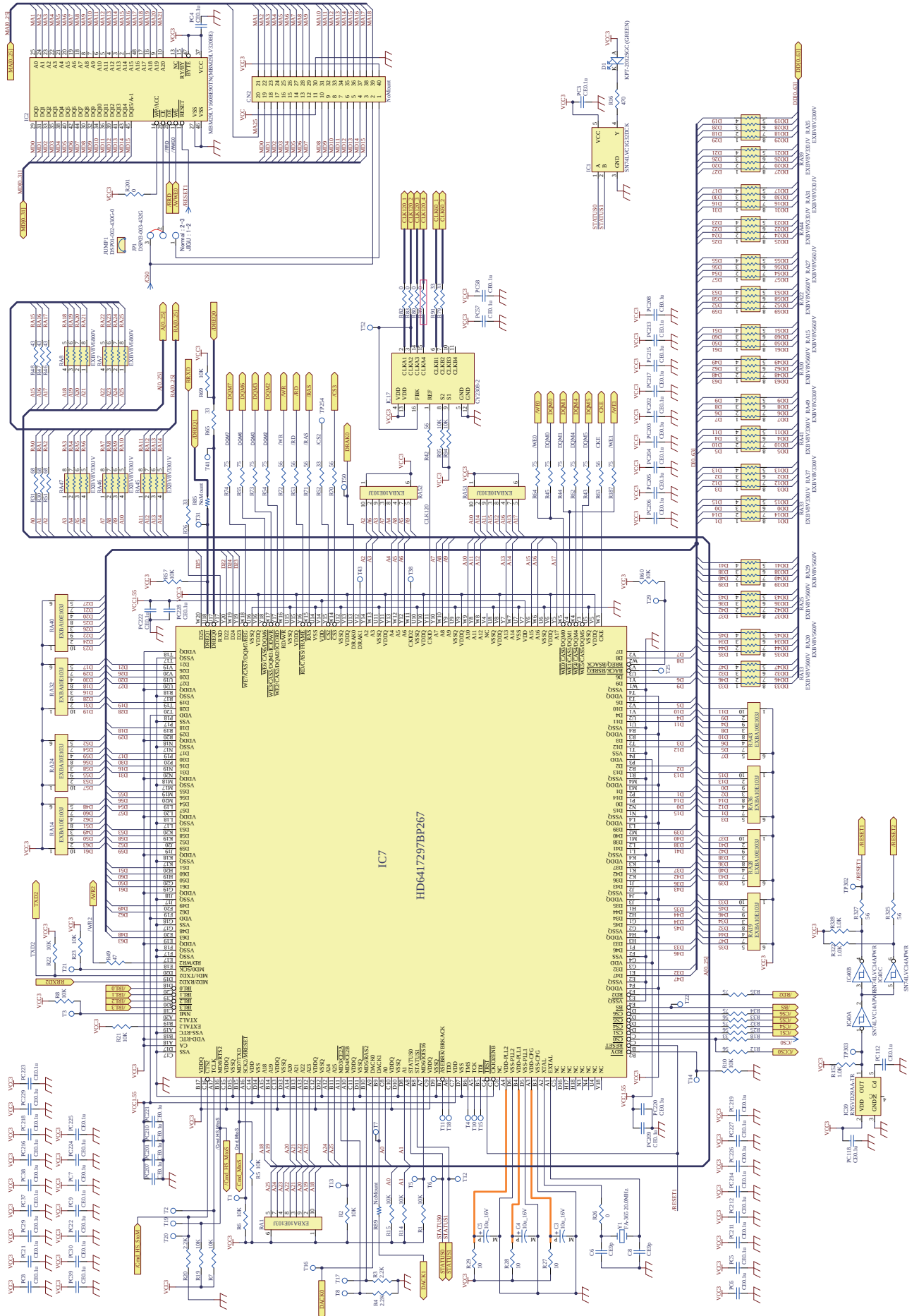
MAIN BOARD_Arrangement Diagram(Component Side)

DIP SW	Bit 1	Bit 2	Bit 3	Bit 4	Bit 5	Bit 6	Bit 7	Bit 8
	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

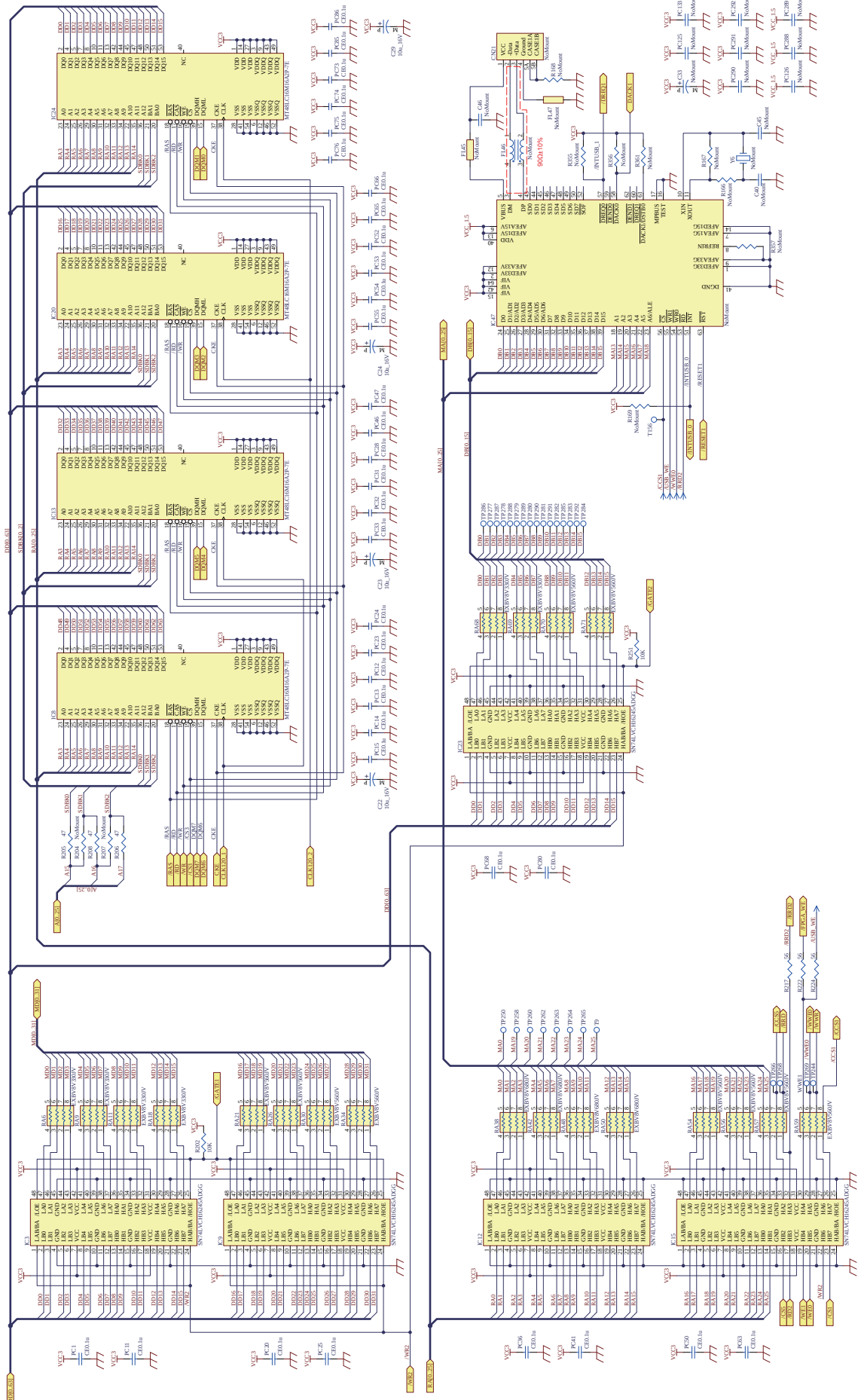
MAIN BOARD_Arrangement Diagram (Soldering Side)



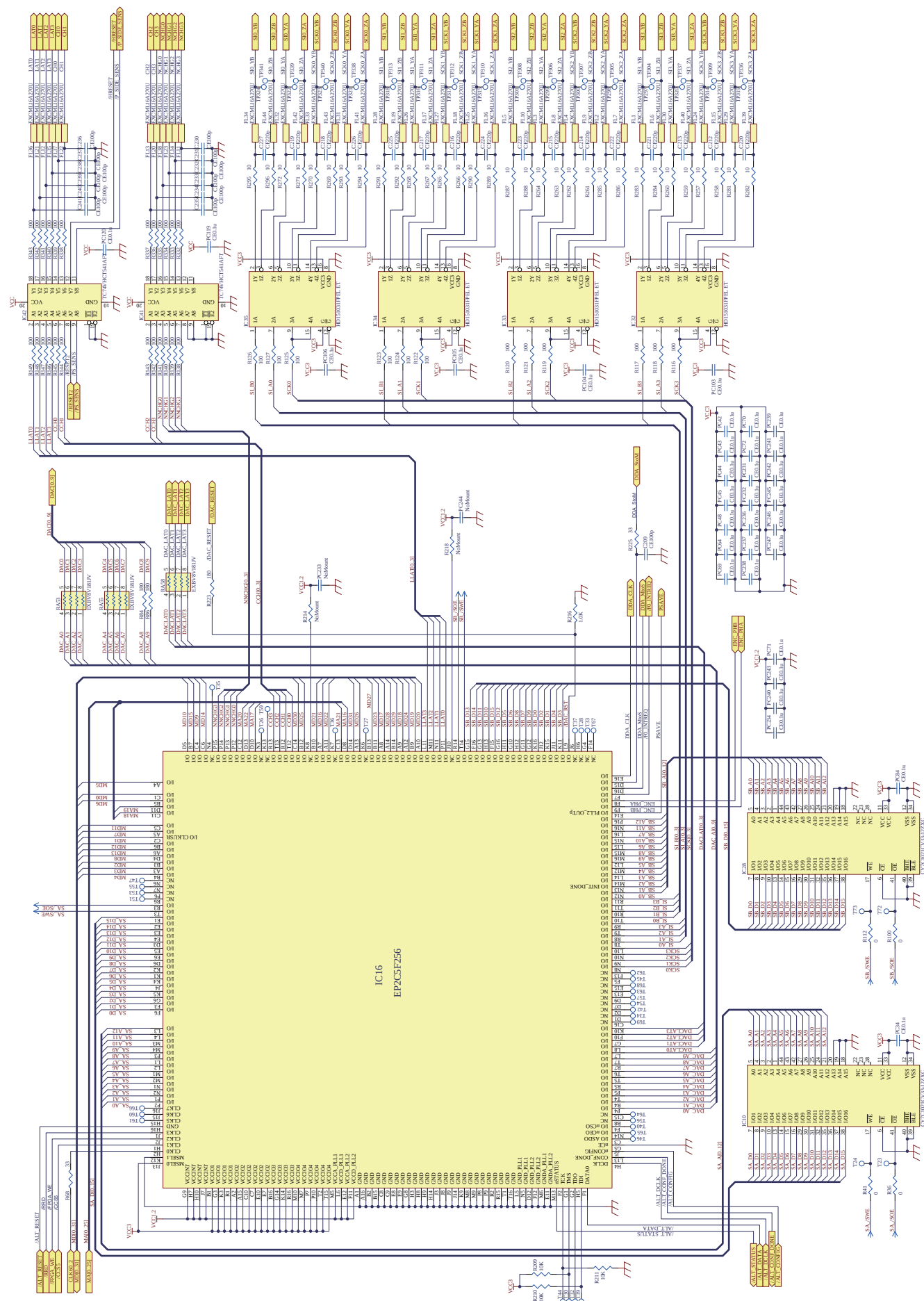
MAIN BOARD_Circuit Diagram 1/9



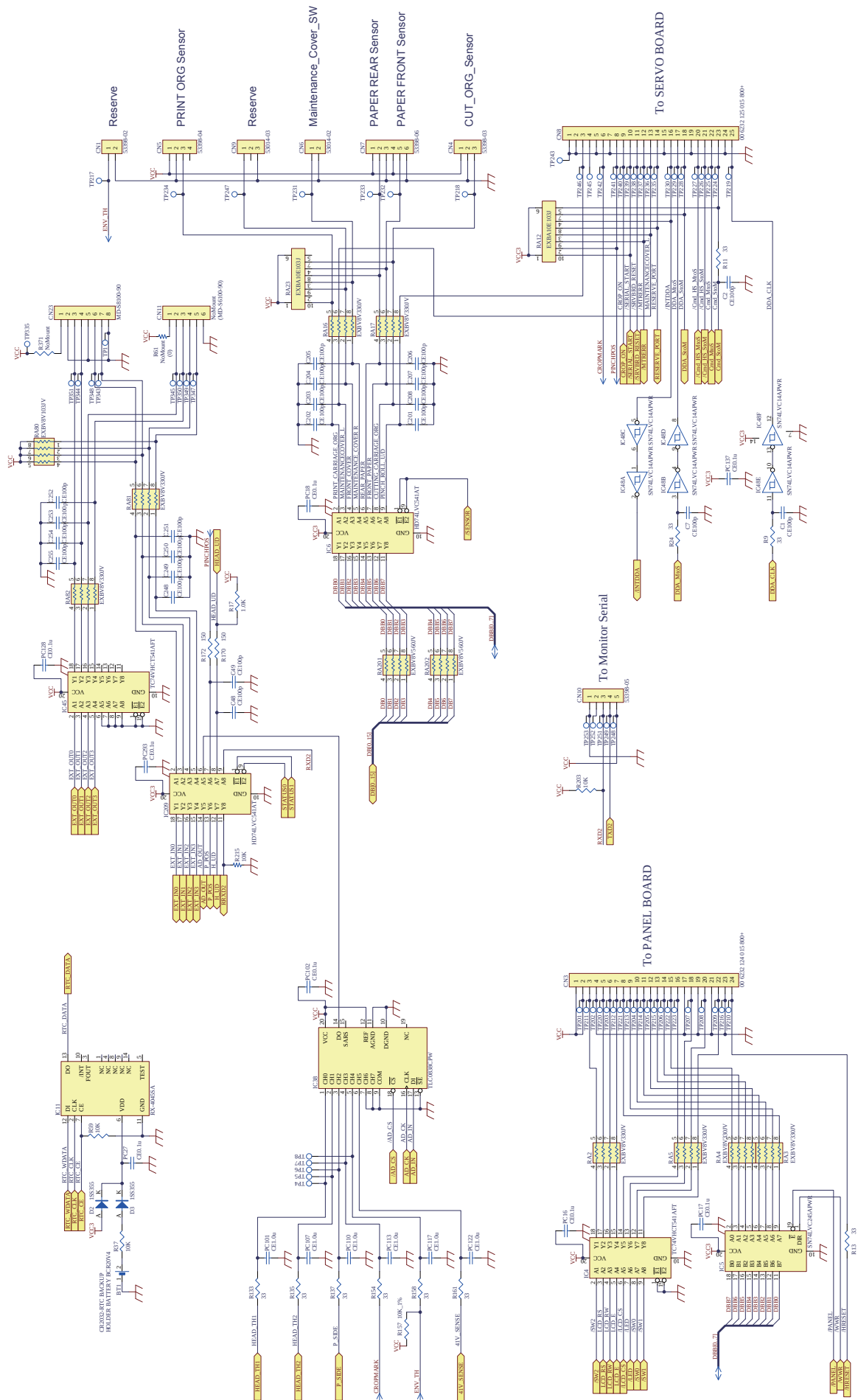
MAIN BOARD_Circuit Diagram 2/9



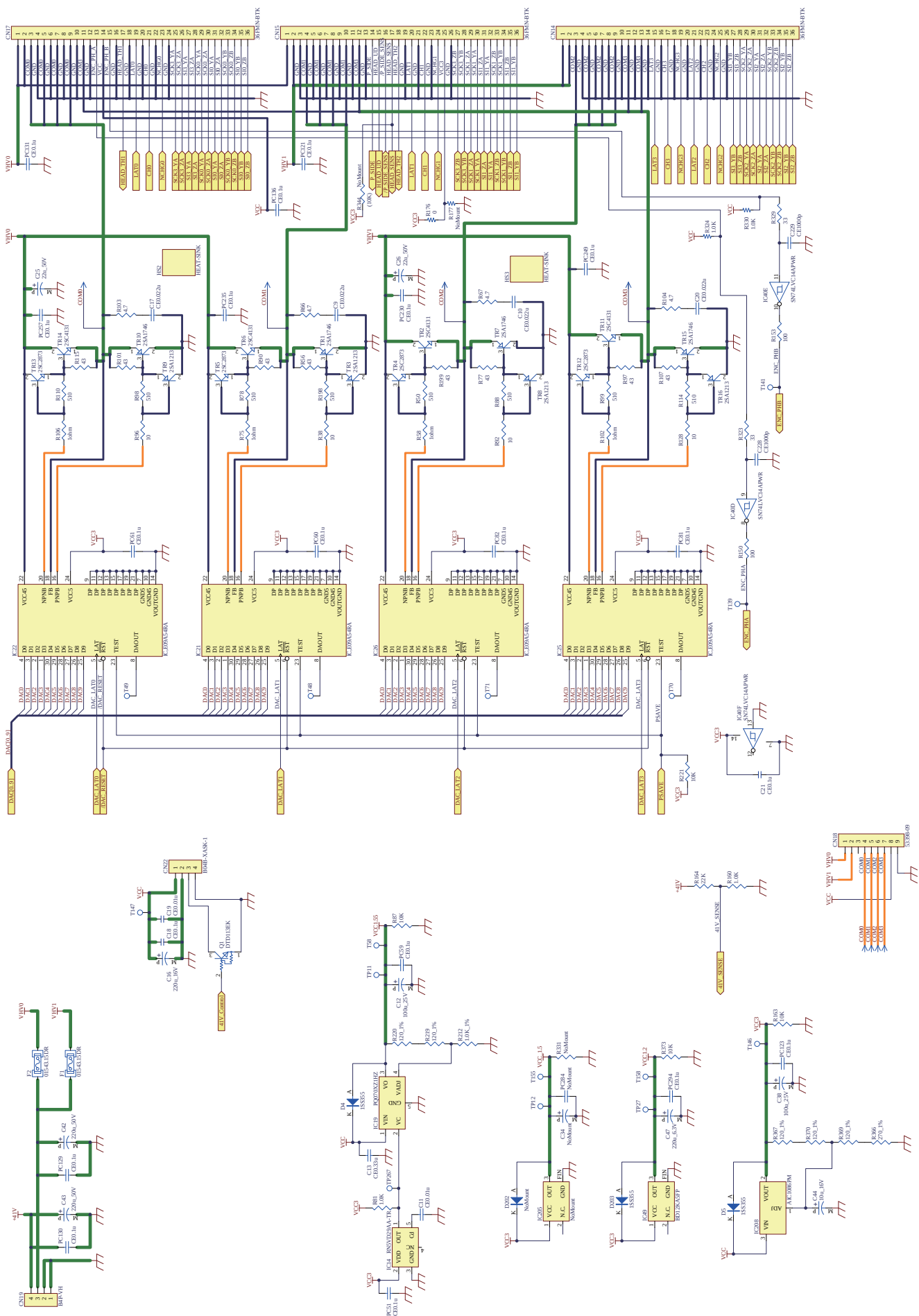
MAIN BOARD_Circuit Diagram 4/9



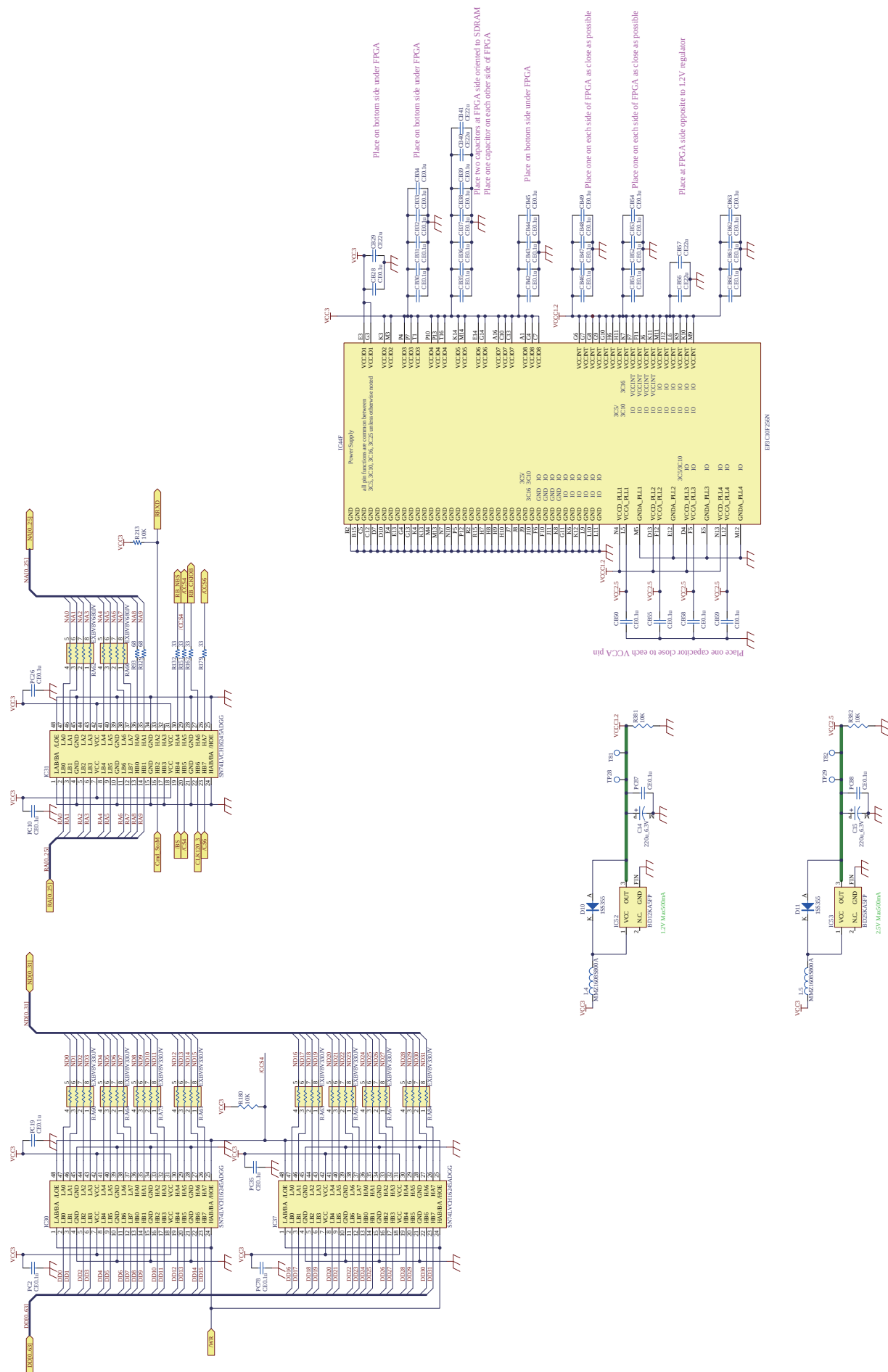
MAIN BOARD_Circuit Diagram 5/9



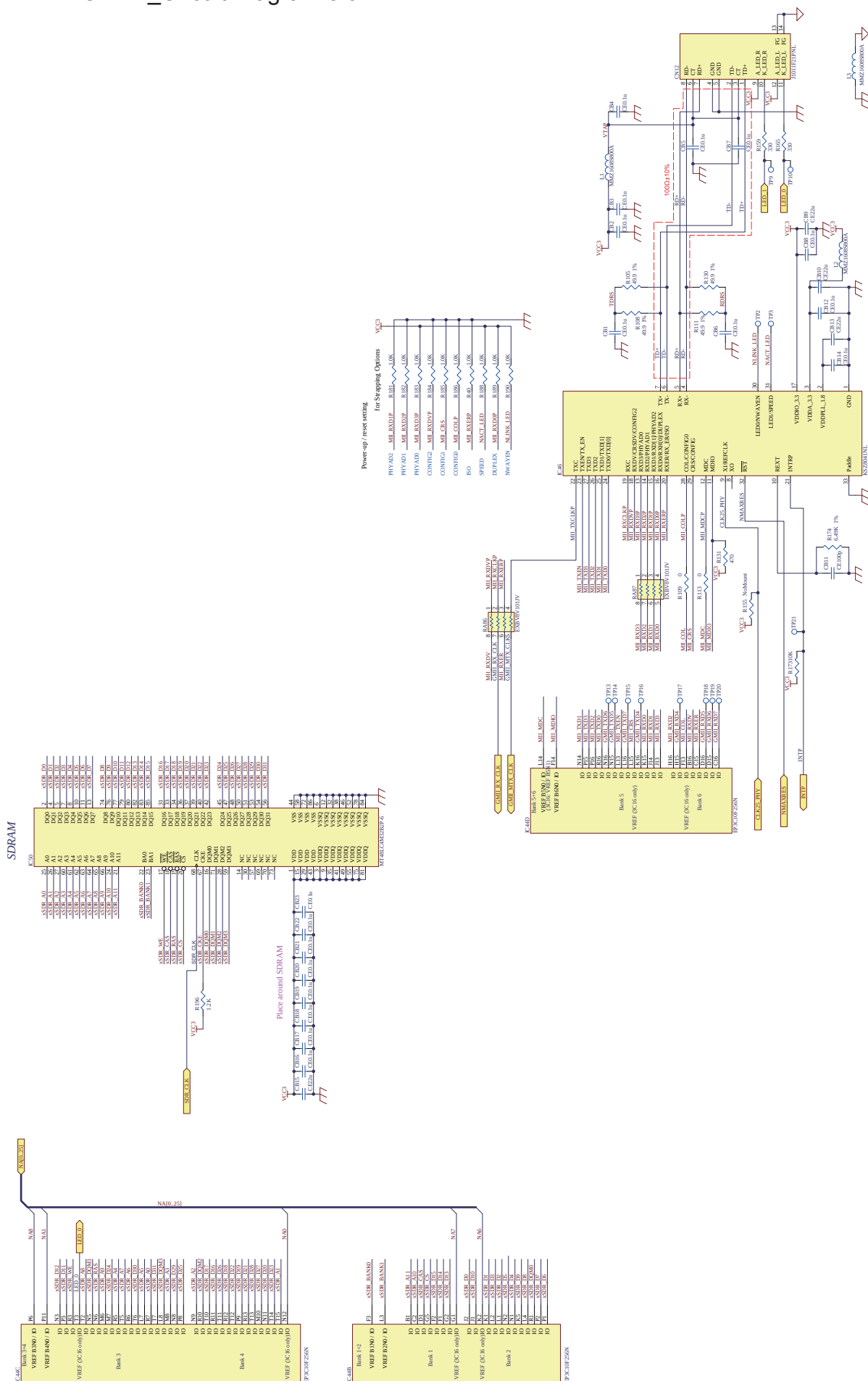
MAIN BOARD_Circuit Diagram 6/9



MAIN BOARD_Circuit Diagram 7/9

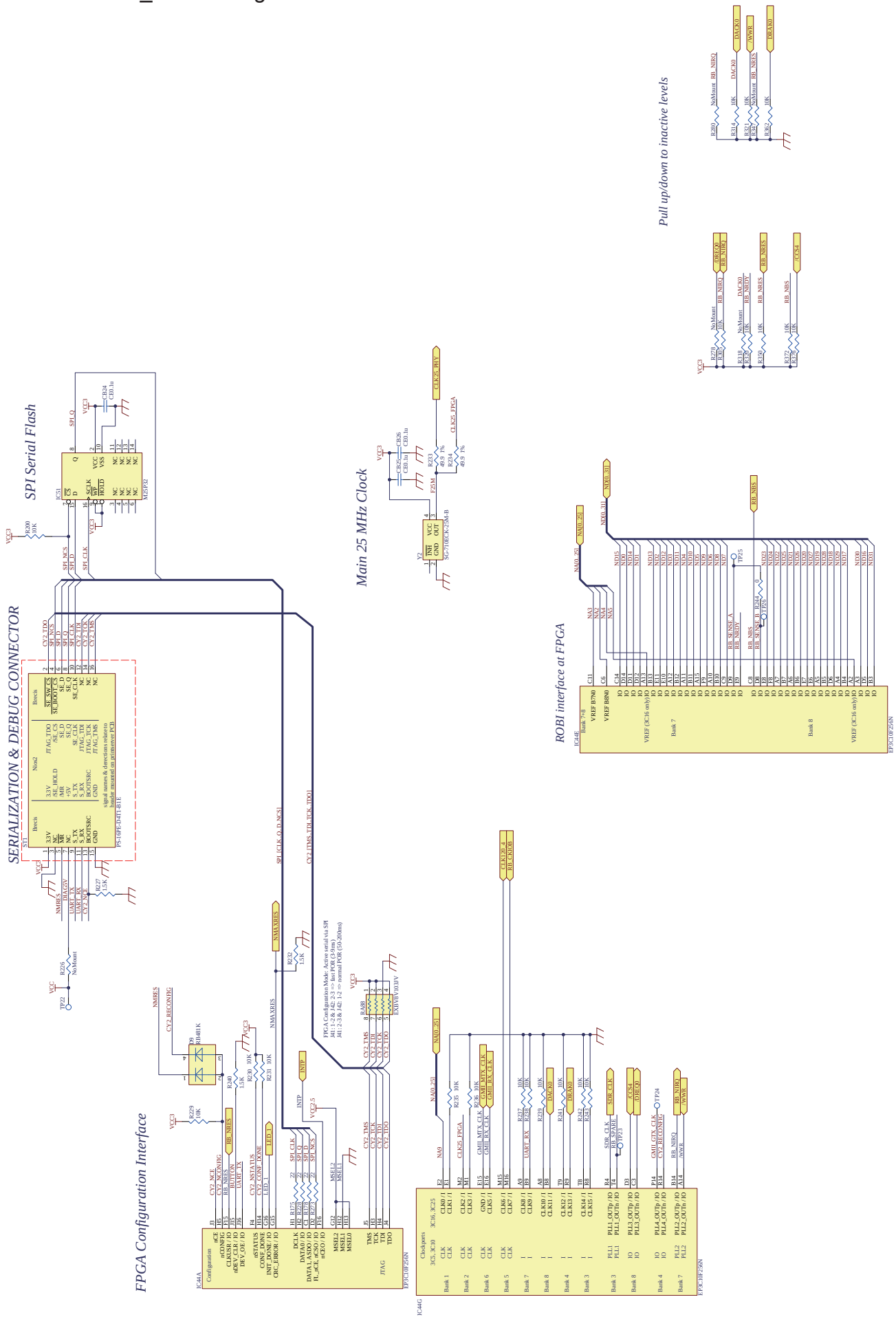


MAIN BOARD_Circuit Diagram 8/9



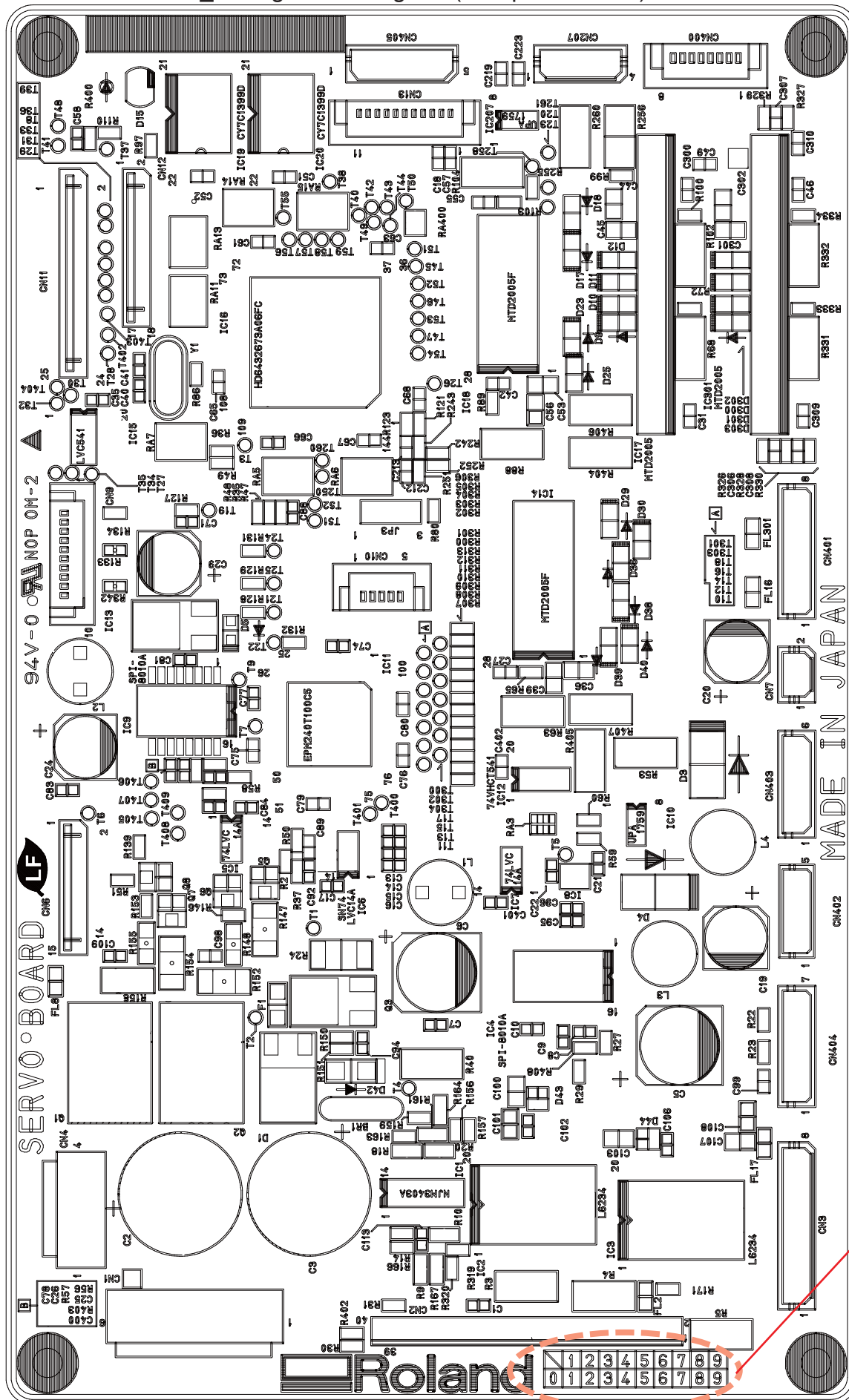
MII-Transceiver

MAIN BOARD_Circuit Diagram 9/9

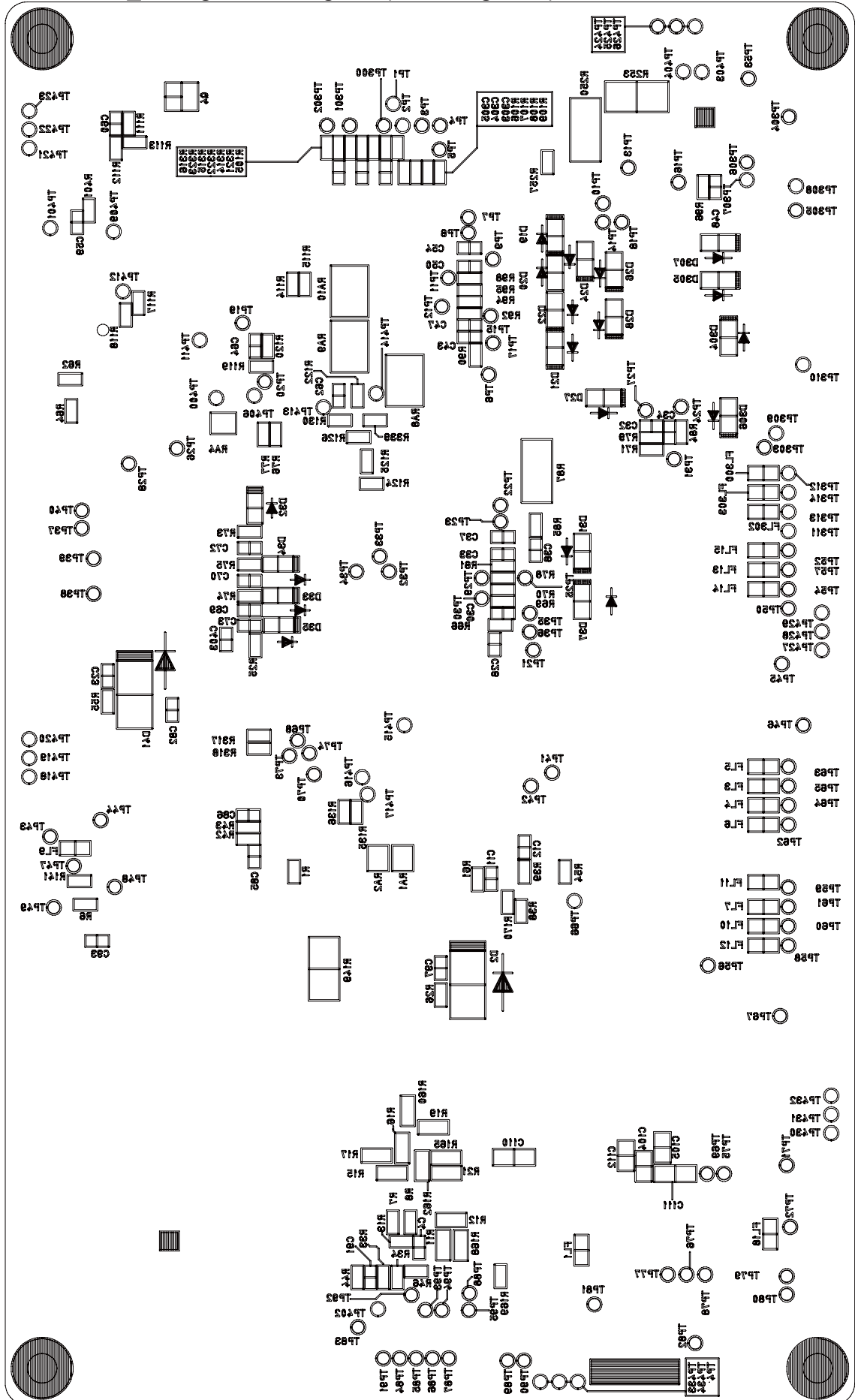


2-3 SERVO BOARD

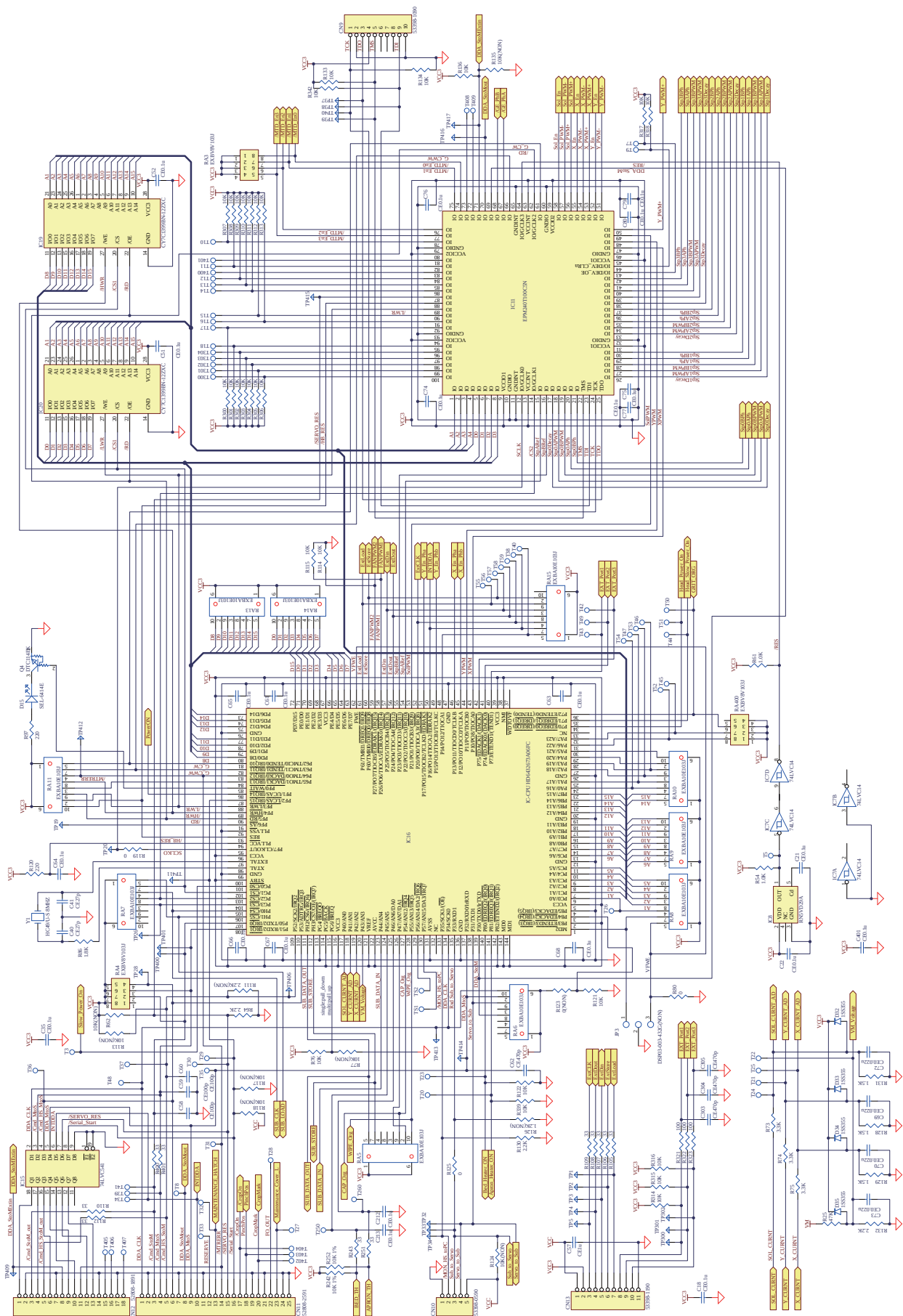
SERVO BOARD_Arrangement Diagram (Component Side)



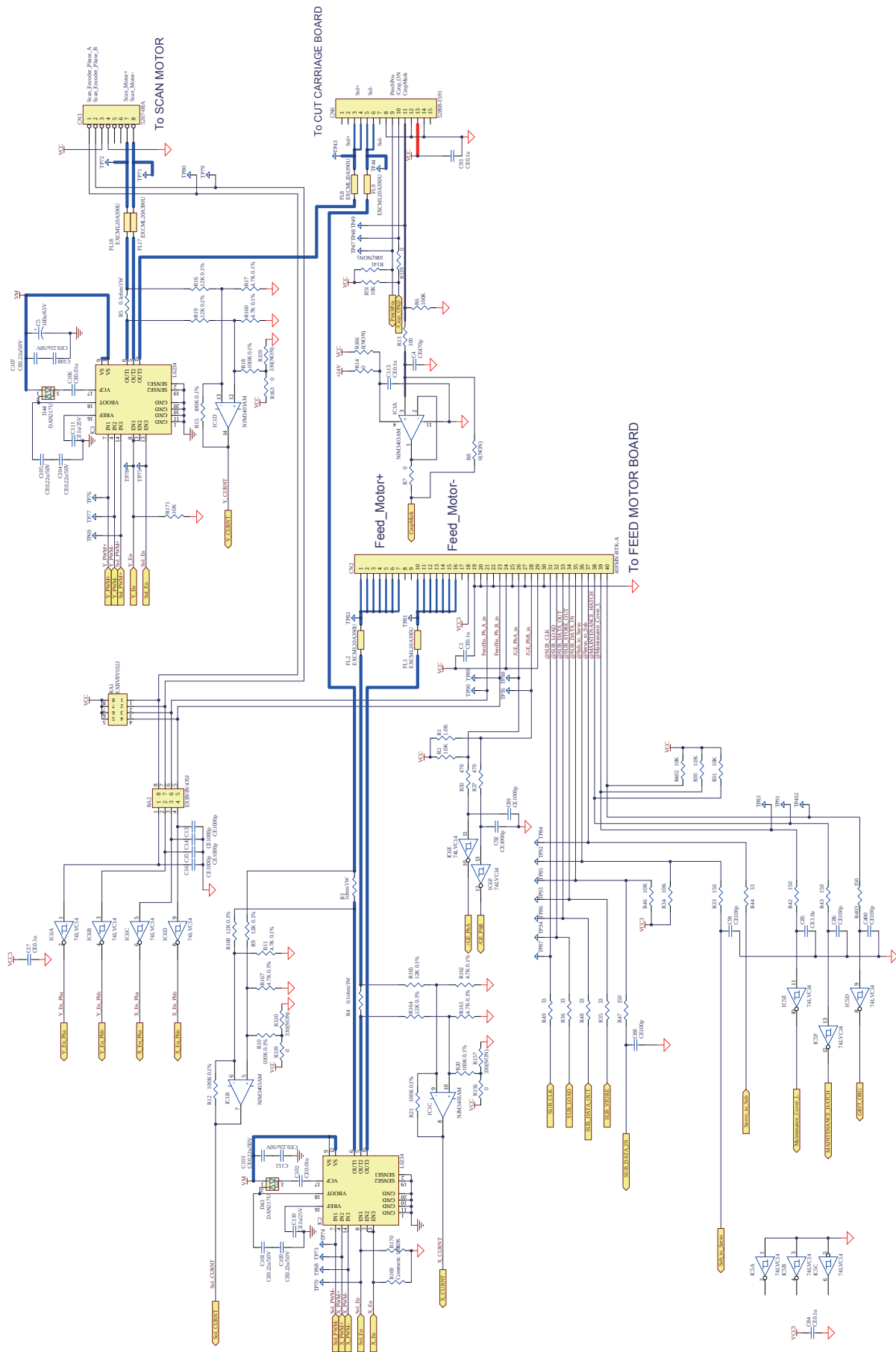
SERVO BOARD_Arrangement Diagram (Soldering Side)



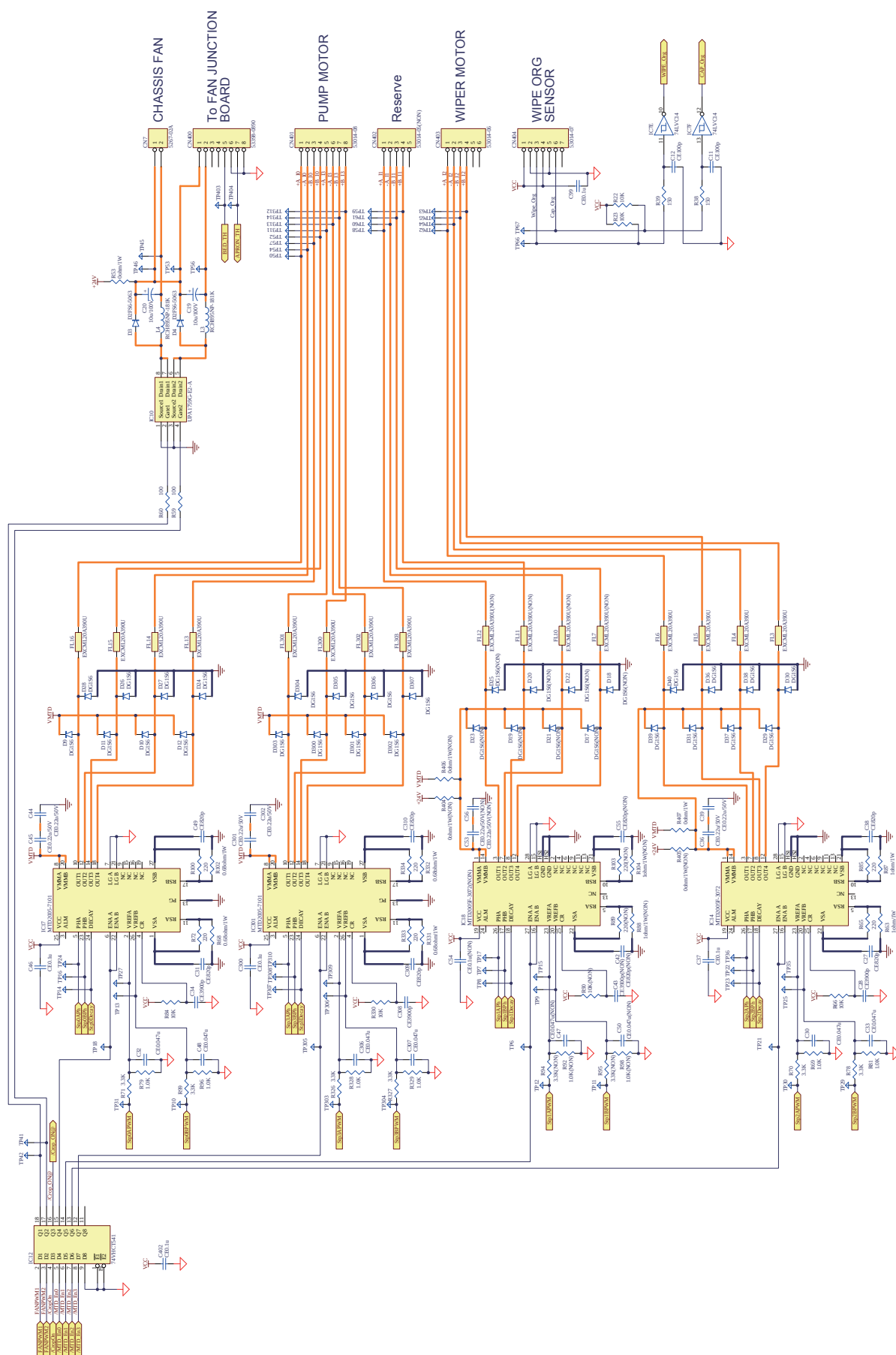
SERVO BOARD_Circuit Diagram 1/4



SERVO BOARD_Circuit Diagram 2/4



SERVO BOARD_Circuit Diagram 3/4

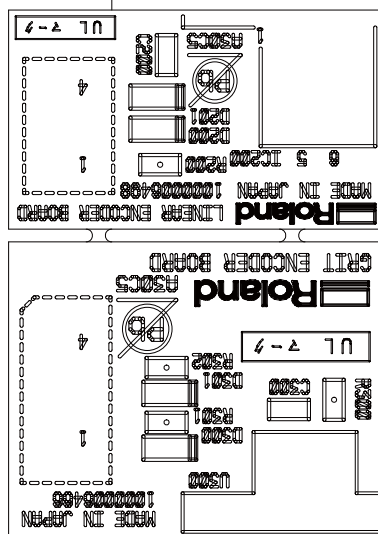
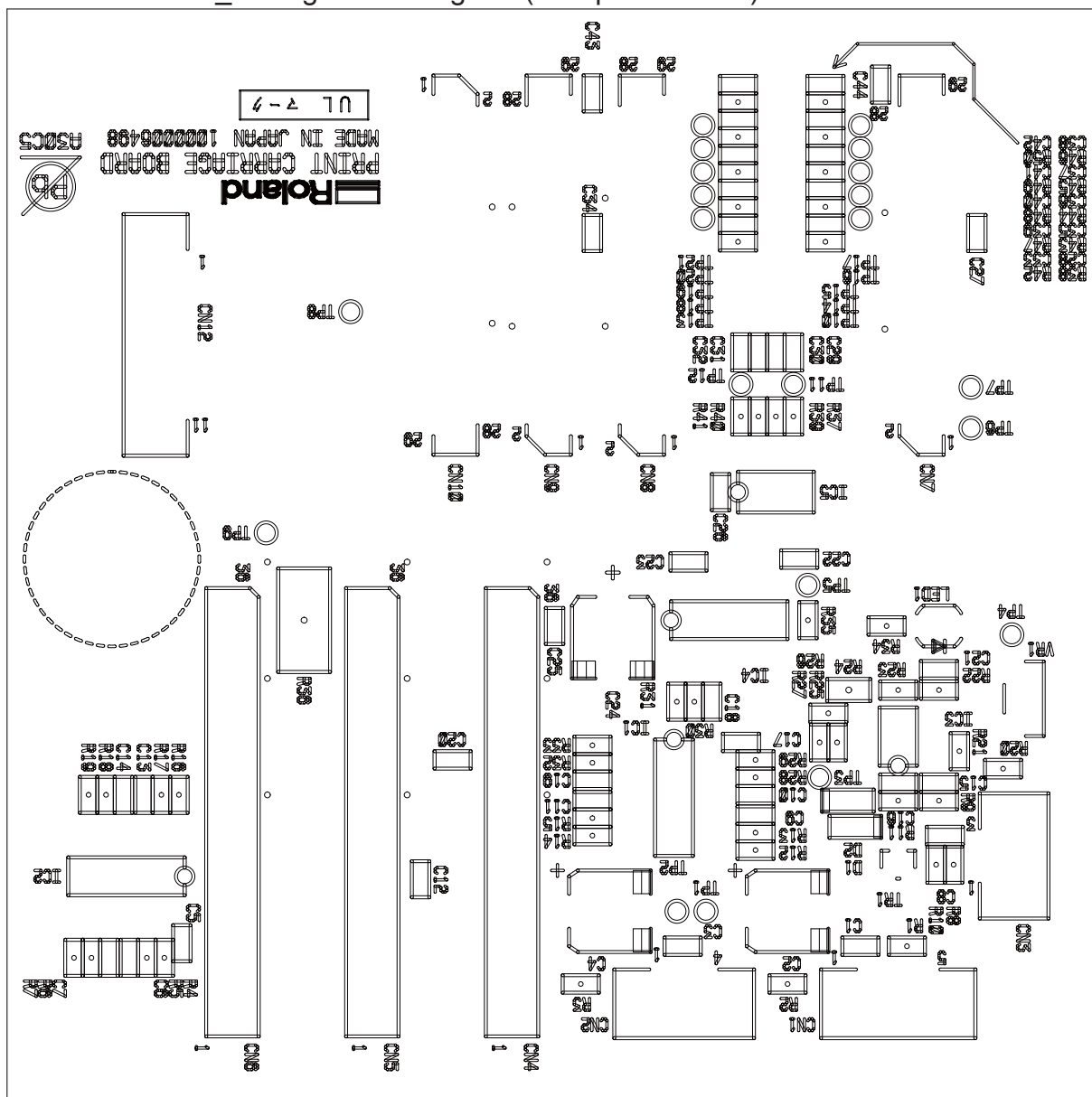


2-19



2-4 CARRIAGE BOARD

CARRIAGE BOARD_Arrangement Diagram (Component Side)



Roland
CUT CARRIAGE BOARD

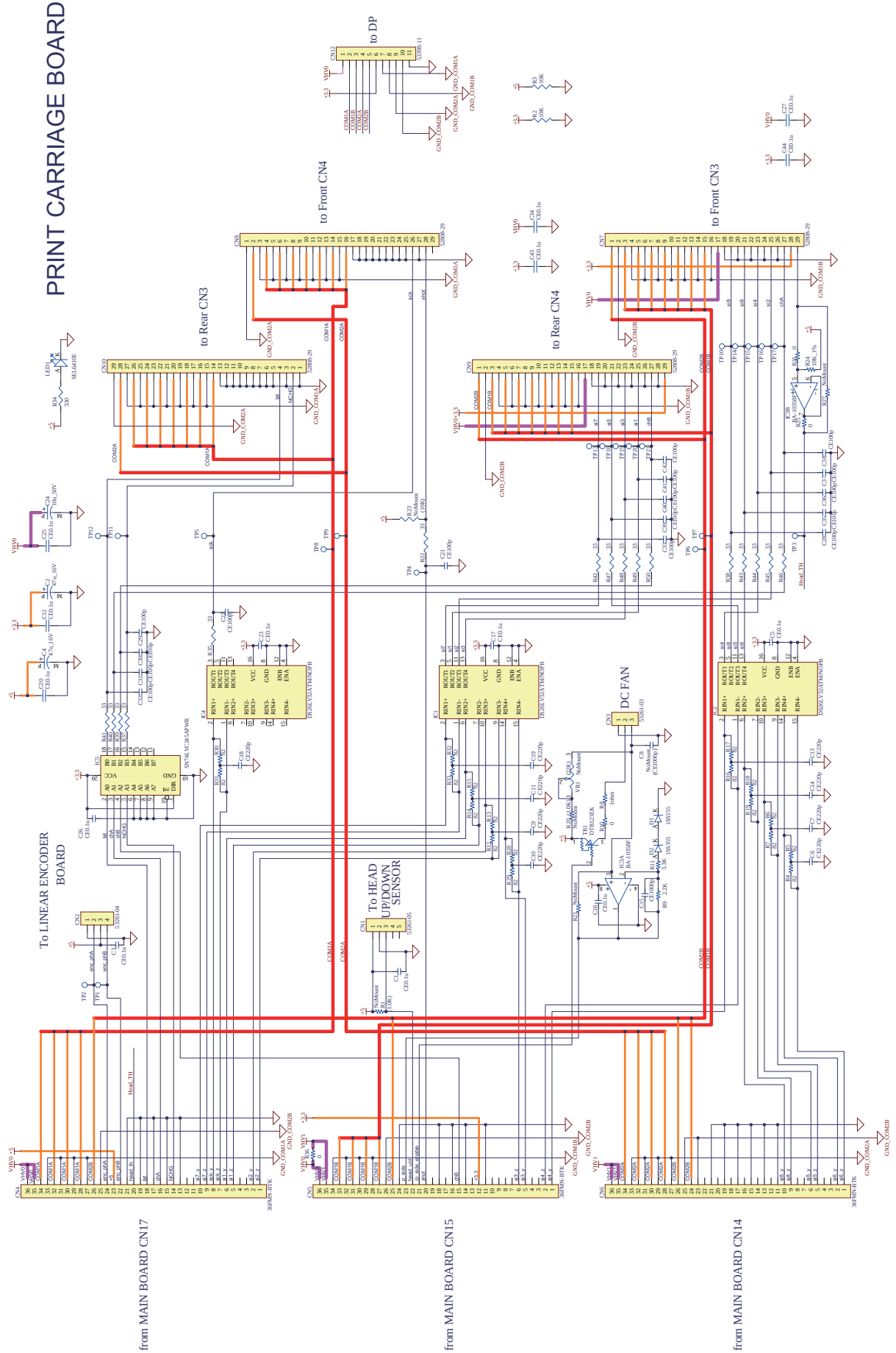
10000006498

UL マーク



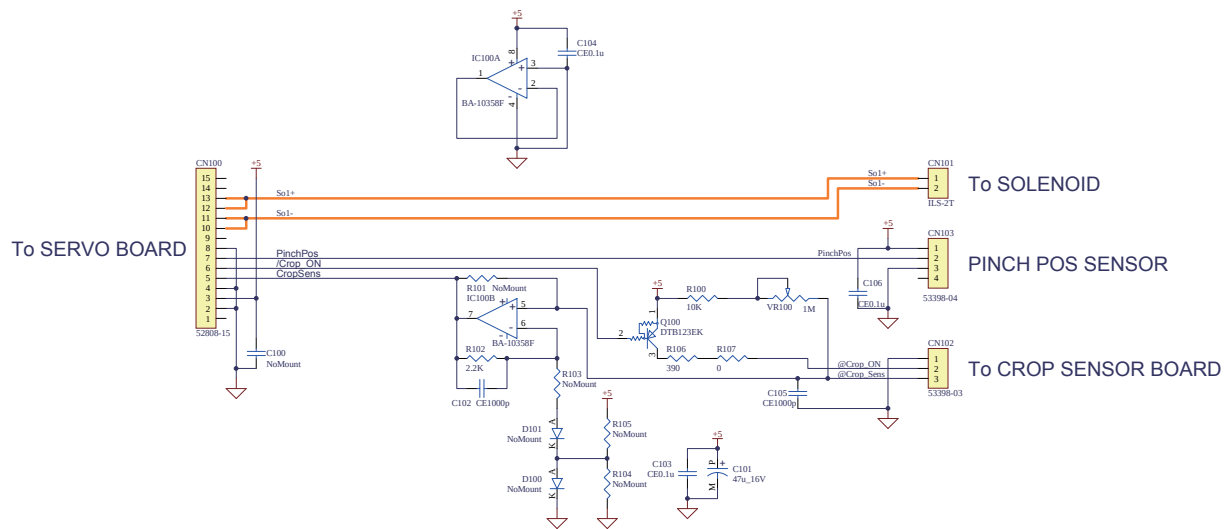
MADE IN JAPAN

CARRIAGE BOARD_Circuit Diagram 1/2

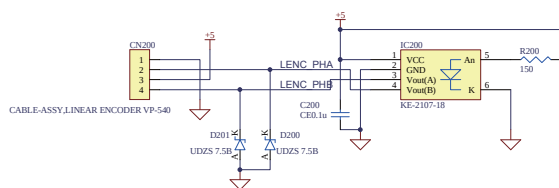


CARRIAGE BOARD_Circuit Diagram 2/2

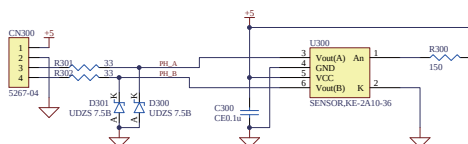
CUT CARRIAGE BOARD



LINEAR ENCODER BOARD



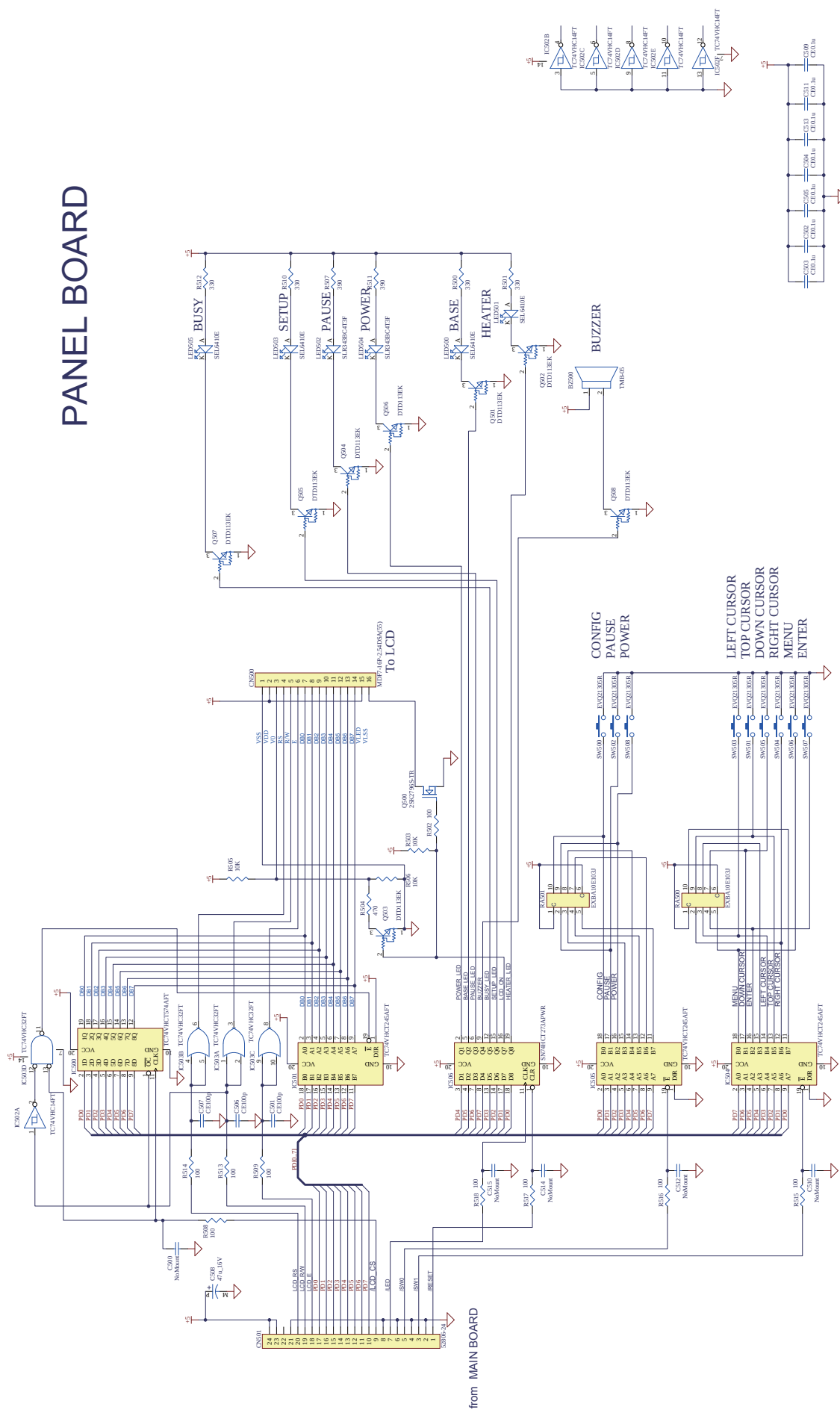
GRIT ENCODER BOARD



SUB BOARD_Arrangement Diagram (Component Side)



PANEL BOARD

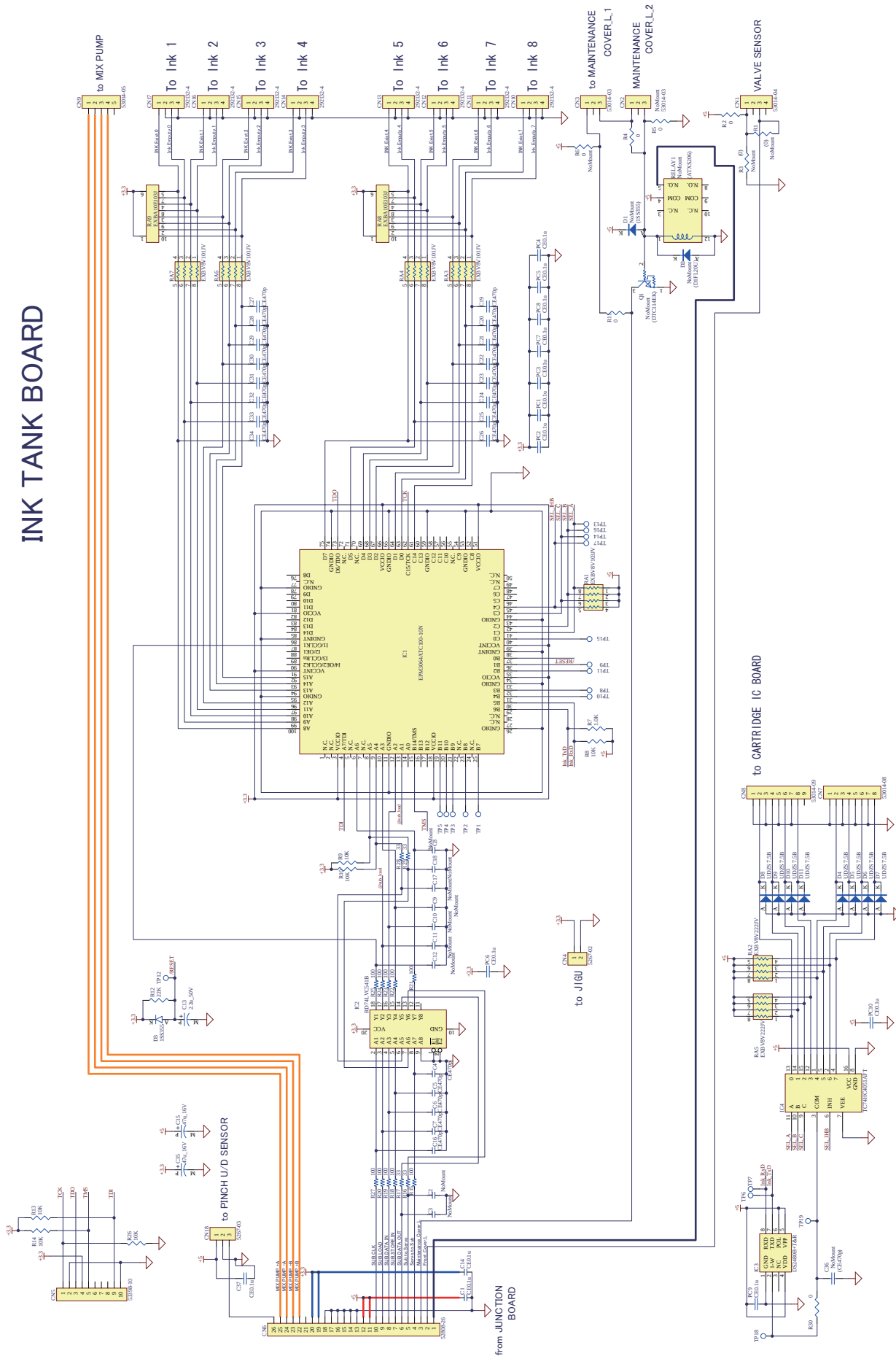


POWER BOARD

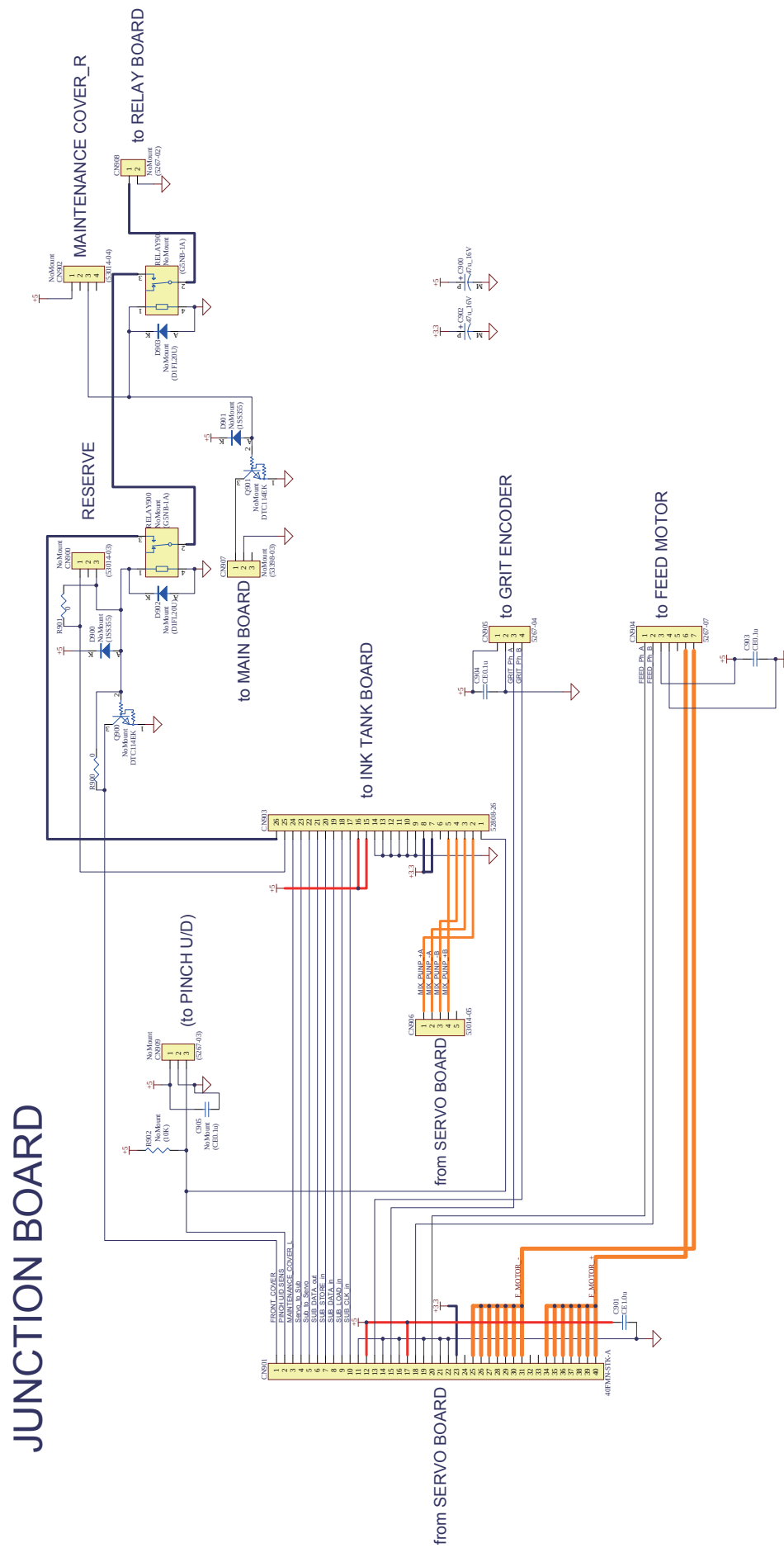


SUB BOARD_Circuit Diagram 3/4

INK TANK BOARD



SUB BOARD_Circuit Diagram 4/4



2-6 MAINTENANCE PARTS LIST_Electrical Parts

MAIN BOARD

Parts No	Parts Name	Description	Function
1000001098	IC,E09A54RA	IC22	D/A Converter
		IC21	
		IC26	
		IC25	
15129122	TR 2SC4131 GB	TR14	Transistor for Driving HEAD
		TR6	
		TR2	
		TR11	
15129121	TR 2SA1746 OY	TR1	Transistor for Driving HEAD
		TR10	
		TR7	
		TR15	
1000000659	FUSE,01543.15DR	F1	DC Fuse for Head
		F2	DC Fuse for Head

SERVO BOARD

Parts No	Parts Name	Description	Function
15189105	IC-LINEAR,MTD2005-7101	IC17	Pump Motor Driver
		IC301	Circulation Pump Motor Driver
15189111	IC-LINEAR,MTD2005F-3072	IC14	Wipe Motor Driver
15119119	TR,MOS UPA1759G-E2-A	IC10	Fan Driver
15119119	TR,MOS UPA1759G-E2-A	IC207	Relay Driver
12559102	FUSE 11CT 3.15A	F1	DC Fuse for Step Motor Driver
15189116	IC-LINEAR L6234PD013TR ET	IC2	Solenoid Drive Control
15189116	IC-LINEAR L6234PD013TR ET	IC3	Solenoid Drive Control

POWER BOARD

Parts No	Parts Name	Description	Function
12559105	FUSE,5X20 021706.3MXP 6.3A/250V	FS1100	AC Fuse for Print Heater
		FS1101	AC Fuse for Dryer
1000004355	RELAY,SSR AQ1208	SSR1100	Relay for Printer Heater
		SSR1101	Relay for Dryer

To Ensure safe Work

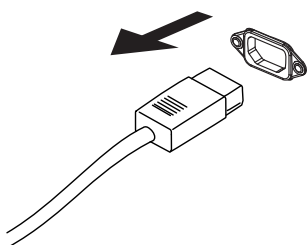
WARNING



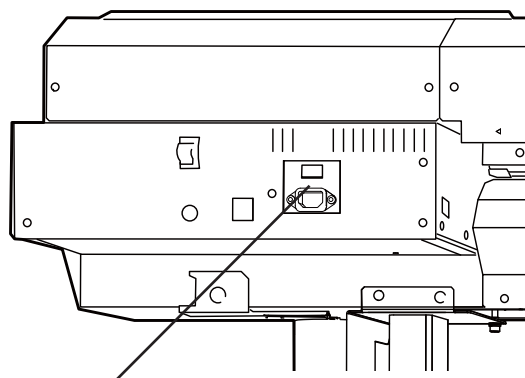
Turn off the Sub Power SW, Main Power SW, and unplug the power cable of the Printer and deodorization equipment before performing parts replacement.

Performing the parts replacement while the power is on may result in injury by unintended operation of the machine.

Unplug



< Rear View >



AC INLET for the Printer Unit



Static electricity can harm some electronic devices. To prevent static damage, discharge static electricity from your body before you touch any of electronic devices. You can do so by touching an unpainted metal surface on the chassis.

You can also take the following steps to prevent damage from electrostatic discharge (ESD):

- When unpacking a static-sensitive device from its shipping carton, do not remove the device from the antistatic packing material until you are ready to install the device to the machine. Just before unwrapping the antistatic packaging, be sure to discharge static electricity from your body.
- When transporting a sensitive device, first place it in an antistatic container or packaging.
- Handle all sensitive devices in a static-safe area. If possible, use antistatic floor pads and workbench pads.

The necessary adjustments after the replacement of each part, and the referential time for each work are described as follows.

HEAD REPLACEMENT : 20min.

1. THERMISTER CHECK

It can be checked in the SERVICE MENU>[THERMISTOR CHK].

2. HEAD ALIGNMENT

3. HEAD INFORMATION CLEAR

4. CROP-CUT ADJUSTMENT

5. PRINT / CUT POSITION ADJUSTMENT

Adj. Time : 35min

Total Time : 50min.

TOOL CARRIAGE REPLACEMENT : 20 min

1. LIMIT & CUT DOWN POSITION ADJUSTMENT

2. FLUSHING POSITION ADJUSTMENT

3. TOOL HEIGHT ADJUSTMENT

4. TOOL PRESSURE ADJUSTMENT

5. CROP MARK SENSOR ADJUSTMENT

6. CROP-CUT ADJUSTMENT

7. PRINT/CUT POSITION ADJUSTMENT

Adj. Time : 40min

Total Time : 60min.

CAP TOP REPLACEMENT : 20 min.

Total Time : 10min.

WIPER/FELT WIPER REPLACEMENT : 20 min.

Total Time : 10min.

CARRIAGE MOTOR REPLACEMENT : 20 min

1. SERVO LOCK CHECK

It can be checked in the [MOTOR MENU]>[SERVO LOCK]>[S].

2. AGING

It can be performed in the [MOTOR MENU]>[AGING]>[SCAN].

3. MOTOR HOURS CLEAR

Adj. Time : 5min

Total Time : 25min.

FEED MOTOR REPLACEMENT : 40 min

1. SERVO LOCK CHECK

2. AGING

It can be performed in the [MOTOR MENU]>[AGING]>[FEED].

3. GRIT ENCODER CHECK

4. MOTOR HOURS CLEAR

Adj. Time : 6min

Total Time : 46min.

GRIT ENCODER REPLACEMENT : 10 min.

1. GRIT ENCODER CHECK

Adj. Time : 2min.

Total Time : 12min.

CARRIAGE BELT REPLACEMENT : 35min.

1. BELT TENSION ADJUSTMENT

2. BELT POSITION ADJUSTMENT

3. LIMIT & CUT DOWN POSITION INITIALIZE

4. CUTTING QUALITY CHECK

Adj. Time : 20min

Total Time : 55min.

MAIN BOARD REPLACEMENT (In case that the parameters cannot be transferred by Peck.) : 35 min.

1. BATTERY INSTALLATION

2. FIRMWARE INSTALLATION

3. SYSTEM PARAMETER INITIALIZE

4. TIME AND DATE SETTING

Set the date and time in the [SERVICE MENU]>[SUB MENU]>[CLOCK]. *Set the [DATE] in order of the [Year/Month/Day].

5. IP ADDRESS SETTING

Start the machine with the Service Mode and set in the User Menu.

6. HEAD RANK SETTING

It can be set in the [PRINT MENU]>[HEAD RANK].

7. SERIAL NUMBER INPUT

It can be set in the [SUB MENU]>[SERIAL NO.].

8. INK TYPE SETTING

It can be set in the [SUB MENU]>[CHANGE INKTYPE].

9. SENSOR CHECK

It can be performed in the SENSOR CHECK.

10. LIMIT POSITION & CUT DOWN POSITION INITIALIZE

11. FLUSHING POSITION ADJUSTMENT

12. LINEAR ENCODER SETUP

13. TOOL PRESSURE ADJUSTMENT

14. HEAD ALIGNMENT

Only Bidirectional Adjustments are required.

15. CALIBRATION

16. CROP MARK SENSOR ADJUSTMENT

17. CROP-CUT ADJUSTMENT

18. PRINT / CUT POSITION ADJUSTMENT

Adj. Time : 115min

Total Time : 150min.

MAIN BOARD REPLACEMENT (In case that the parameters can be transferred by Peck.) : 35 min.

1. BATTERY INSTALLATION
2. FIRMWARE INSTALLATION
3. SYSTEM PARAMETER INITIALIZE
4. IP ADDRESS SETTING

Start the machine with the Service Mode and set in the User Menu.

5. PUT PARAMETER
6. TIME AND DATE SETTING

Set the date and time in the [SERVICE MENU]>[SUB MENU]>[CLOCK]. *Set the [DATE] in order of the [Year/Month/Day].

7. SENSOR CHECK

It can be performed in the SENSOR CHECK.

8. CROP MARK SENSOR ADJUSTMENT
9. CROP-CUT ADJUSTMENT

Necessary when the voltage is adjusted in the CROP MARK SENSOR ADJUSTMENT.

Adj. Time : 35min

Total Time : 70min.

CUTTING CARRIAGE BOARD REPLACEMENT : 7min.

1. TOOL UP/DOWN CHECK
2. PINCH ROLLER SENSOR CHECK
3. CROP MARK SENSOR ADJUSTMENT
4. CROP-CUT ADJUSTMENT

Adj. Time : 23min

Total Time : 30min.

CARRIAGE BOARD REPLACEMENT : 10min.

1. HEAD UP/DOWN SENSOR CHECK
2. THERMISTER CHECK
3. LINEAR ENCODER SETUP

Adj. Time : 10min

Total Time : 20min.

PANEL BOARD REPLACEMENT : 7min.

1. LCD/LED/BUZ CHECK
2. KEY CHECK

It can be performed in the [SUB MENU]>[LCD/LED/BUZ CHK].

It can be performed in the [SUB MENU]>[KEY CHECK].

Adj. Time : 3min

Total Time : 10min.

SERVO BOARD REPLACEMENT : 18min.

1. I/S CHECK
2. IC CHECK
3. FAN CHECK
4. PUMP CHECK
5. SENSOR CHECK
6. HEATER CHECK
7. GRIT ENCODER CHECK
8. AGING
9. TOOL UP/DOWN CHECK
10. TOOL PRESSURE ADJUSTMENT
11. CROP MARK SENSOR ADJUSTMENT
11. CROP-CUT ADJUSTMENT

Adj. Time : 40min

Total Time : 58min.

PUMP REPLACEMENT : 10 min.

1. PUMP CHECK
2. PUMP TIMES CLEAR

Adj. Time : 2min

Total Time : 12min.

ENCODER SCALE REPLACEMENT : 25min.

1. LINEAR ENCODER SETUP

Adj. Time : 5min.

Total Time : 30min.

ENCODER BOARD REPLACEMENT : 15min.

1. LINEAR ENCODER SETUP

Adj. Time : 5min.

Total Time : 20min.

BATTERY REPLACEMENT : 7min.

1. TIME AND DATE SETTING

Adj. Time : 2min.

Total Time : 9min.

CUT RIBBON CABLE REPLACEMENT : 20min.

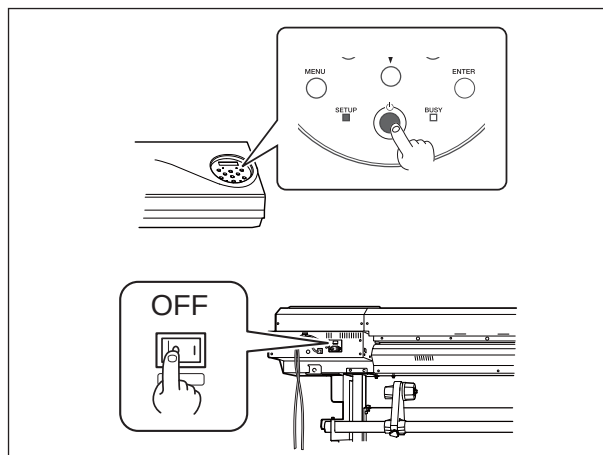
Total Time : 20min.

3-1 HEAD REPLACEMENT

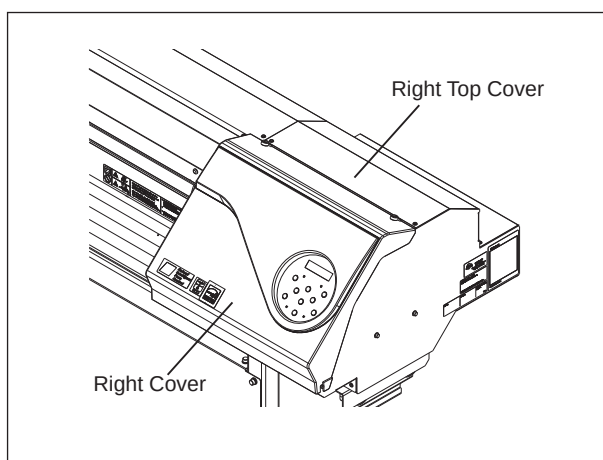
- 1 Turn off the Sub Power SW, and then turn off the Main Power SW.



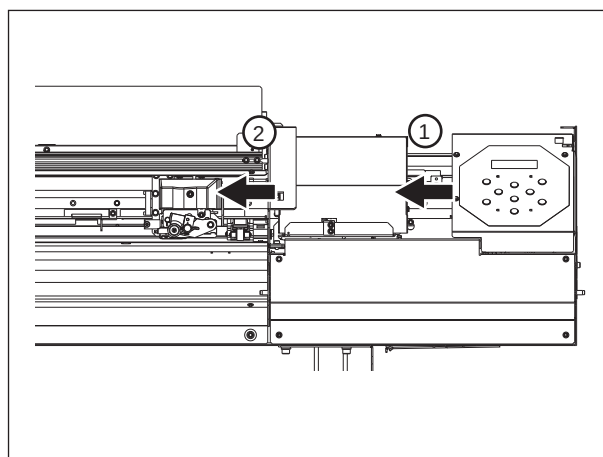
Be sure to turn off the main power when replacing the head. The Head or Main Board could break, otherwise. It is recommended to disconnect the power cord.



- 2 Remove the Right Cover and the Right Top Cover.



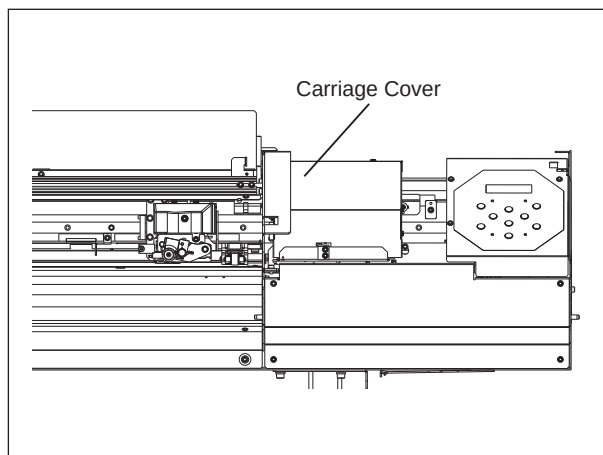
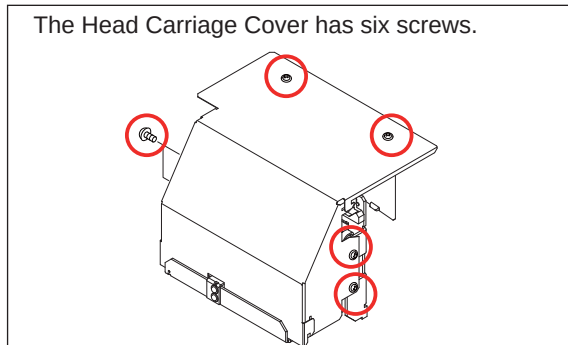
- 3 Open the Front Cover and move the Tool Carriage with the Head Carriage leftwards to the position where it is not above the Capping Unit.
Then, disconnect the Tool Carriage from the Head Carriage.



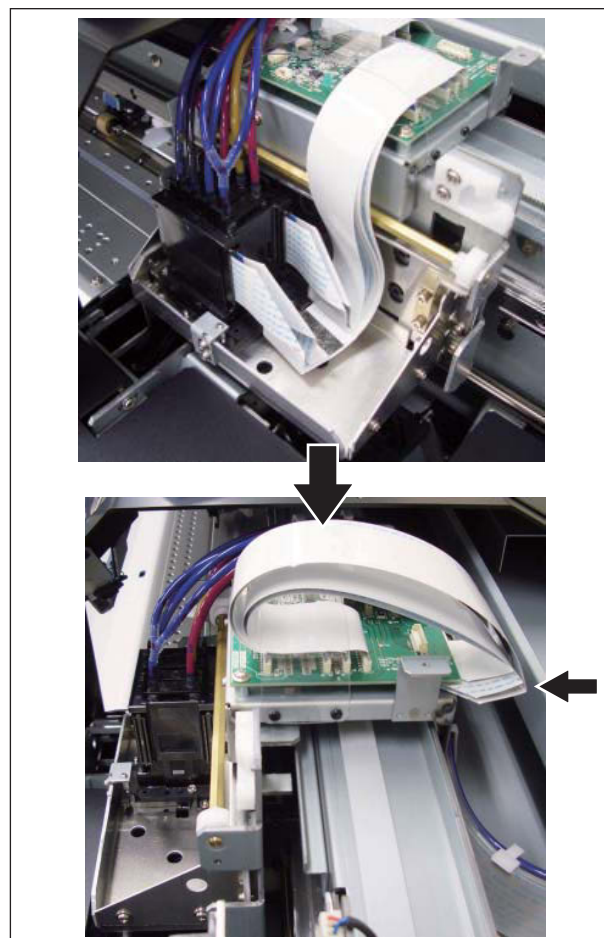
- 4 Remove the Carriage Cover.
The positions of fixing screws for the Carriage Cover are at the left, right and top of the cover.



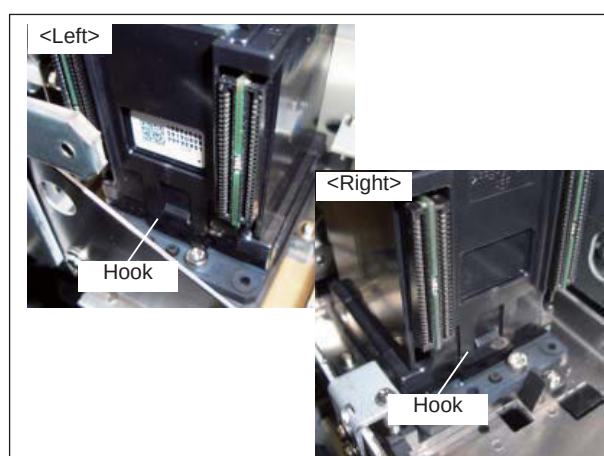
The Head Carriage Cover has six screws.



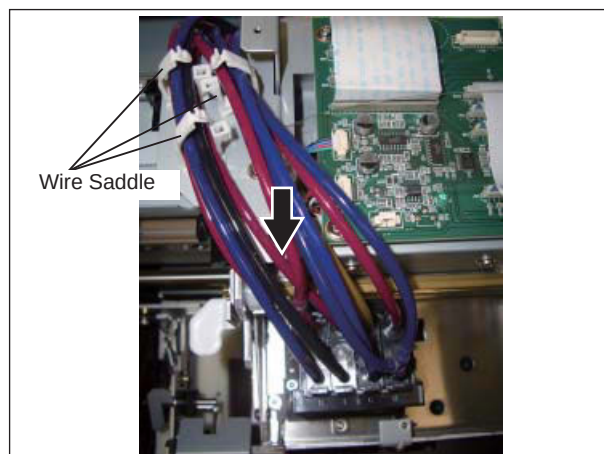
- 5** Disconnect all Head Ribbon Cables from the Head.
Put the disconnected Head Ribbon Cables underneath the Carriage Board.



- 6** Unhook the Head Cover from the Head.



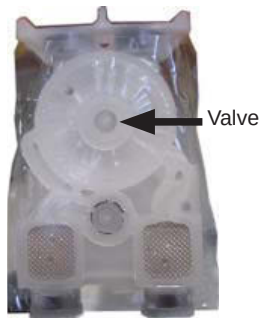
- 7** Open the Wire Saddles for bundling the ink tubes and pull the ink tubes toward you.



- 8** Pull up the Damper, the ink tubes and the Head Covers slowly with opening the Hook of the Head Cover.



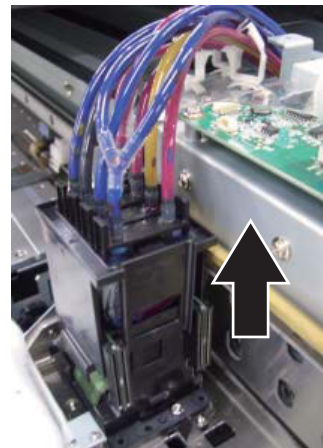
Do not touch the valve of the Damper. When you touch the valve, the ink leaks from the Damper.



When the ink drops on the Head Board, the Head will be broken.

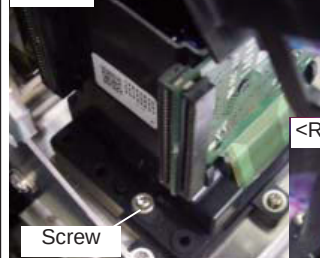


To prevent the ink from leaking or spattering, put the cloth on the Right Under Cover.

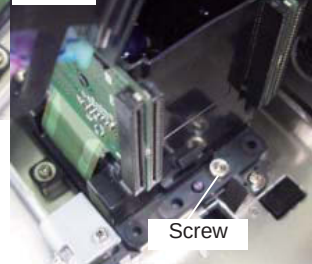


- 9** Remove the screws as shown in the figure and remove the Head.

<Left>



<Right>



- 10** Fix the Damper, the ink tubes and the Head Cover set to the new Head.



Turn the head rank label to the left and fix the Head.

Head rank Label



Do not touch the valve of the Damper. When you touch the valve, the ink leaks from the Damper.



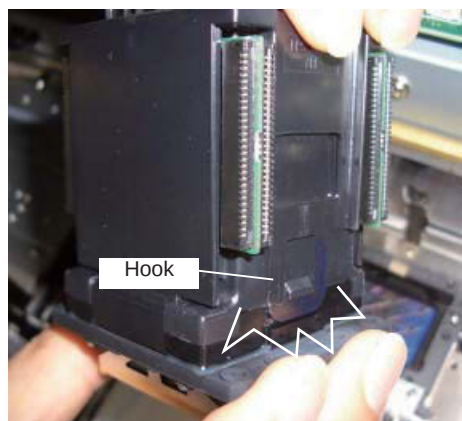
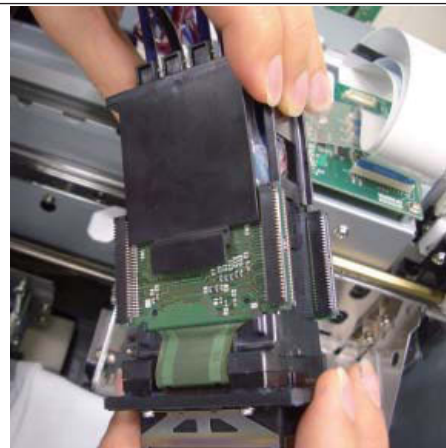
Valve



Press the Head Cover to the Head until the hook of the Head Cover clicks into place.



Be careful not to make the head surface touch with the Head Carriage Base.

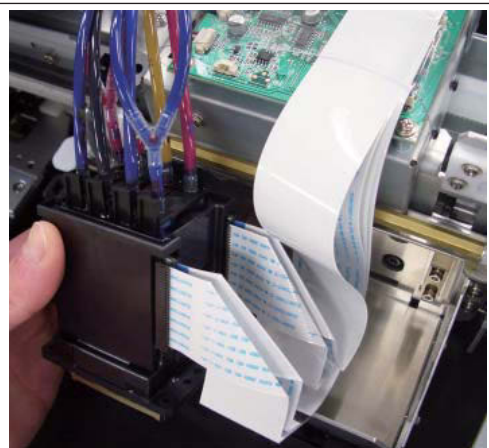


Hook

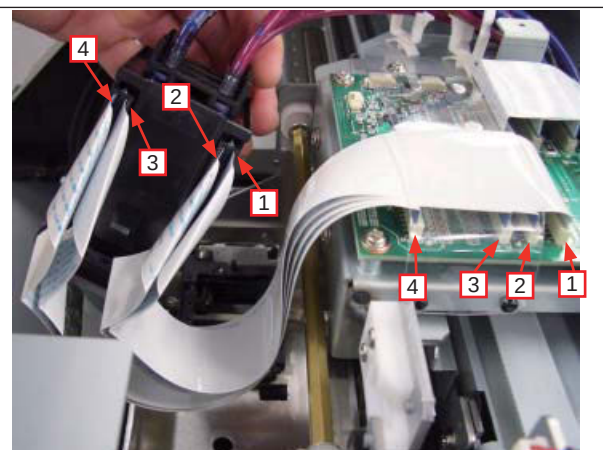
- 11** Connect the Head Ribbon Cables to the Head.



Do not connect the cables to the wrong connector or connect the cables halfway. The Head will be broken.



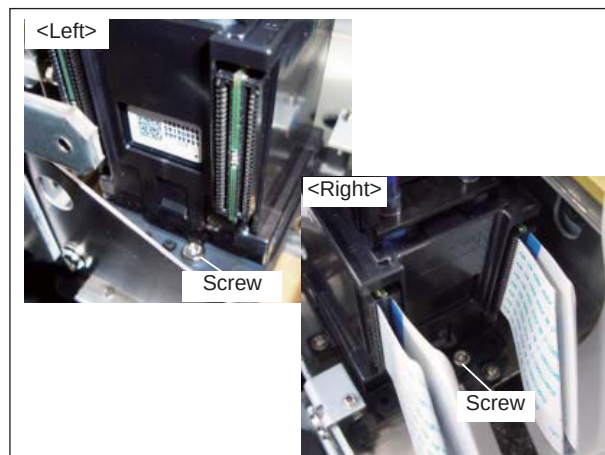
- 12** Check whether the Head Ribbon Cables are connected to the correct connectors.



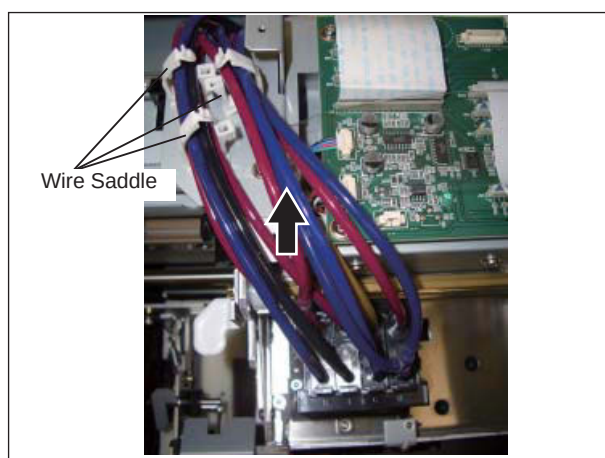
- 13** Fix the Head with the screws as shown in the figure.
You do not have to care about the order for fixing the screws.



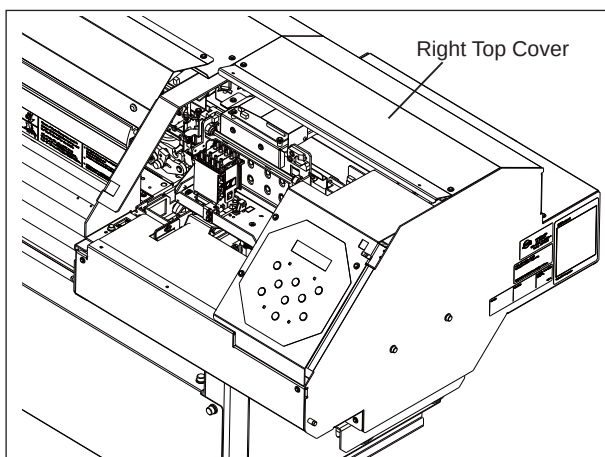
Use the 6kgf·cm torque driver (ST-056) and the hexagonal bit (1000006902 TOOL,BIT HEXAGONAL ST-118) to tighten up the screws.



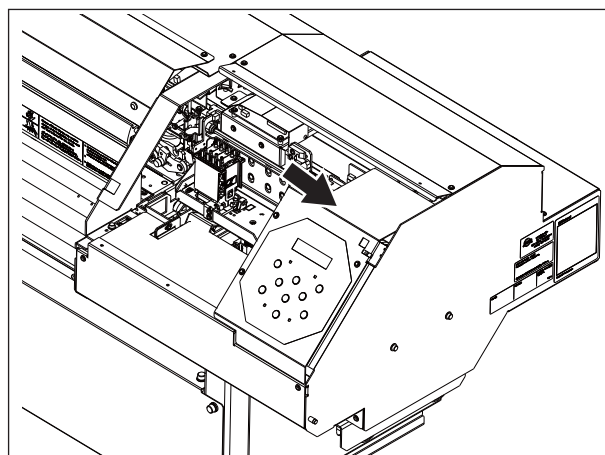
- 14** Bundle the ink tubes with the wire saddles with pushing ink tubes toward the back of the Head Carriage.



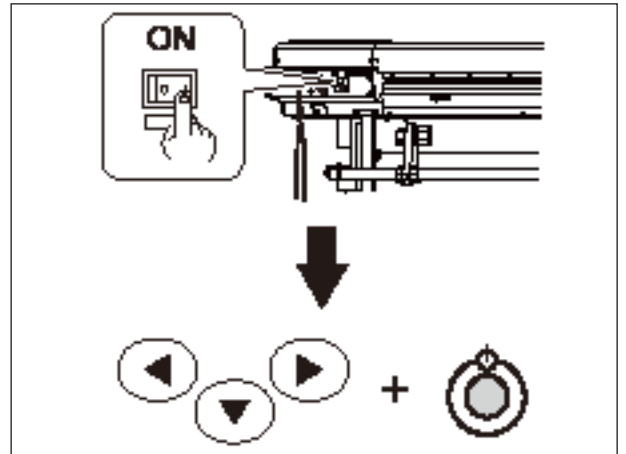
- 15** Fix the Right Top Cover.



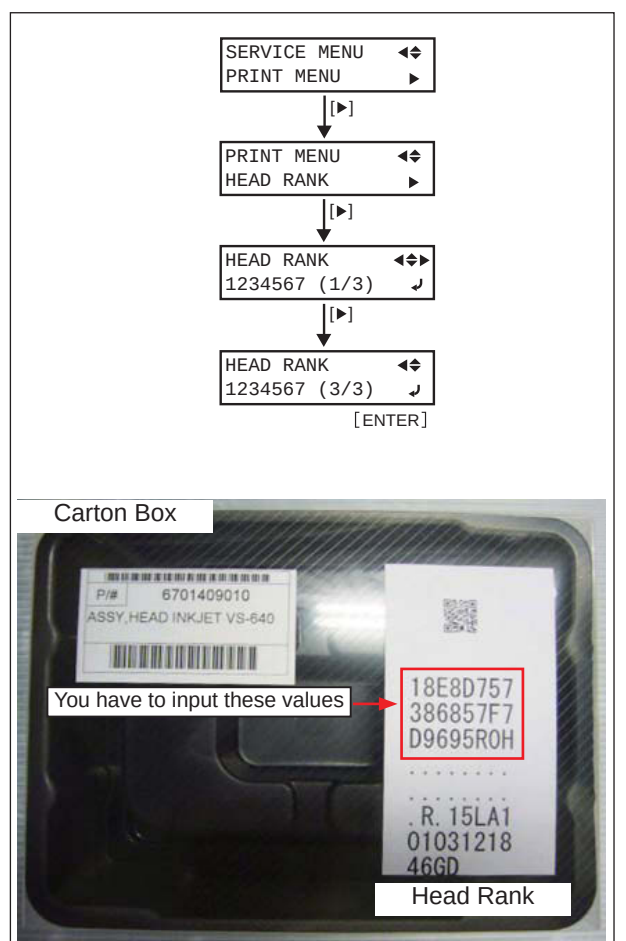
- 16** Connect the Tool Carriage to the Head Carriage.
Then, move the Head Carriage by hand to the lock position.



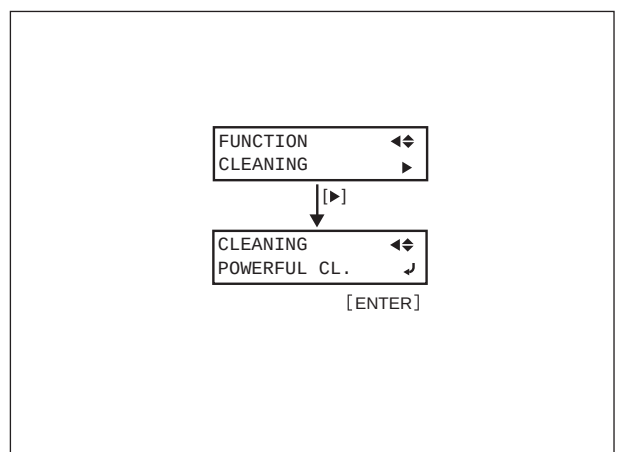
- 17** Turn on the Main Power SW, and then turn on the Sub Power SW while pressing the left, right and down keys to enter the Service Mode.



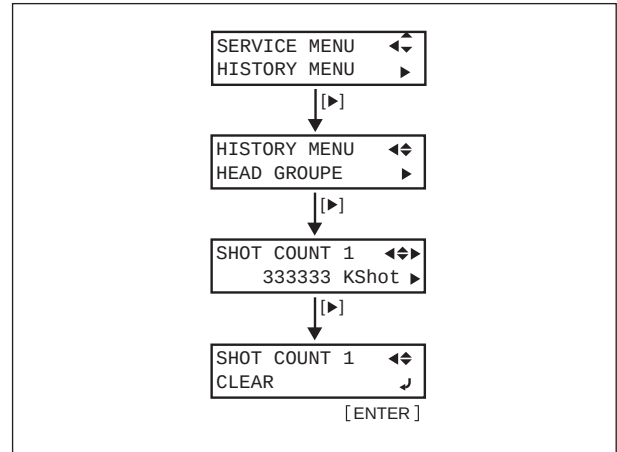
- 18** In [PRINT MENU]>[HEAD RANK] menu, input the Head Rank shown in the figure printed on the label on the carton box of the Head.
- Input the Head Rank by selecting the digit with the left and right keys and changing the parameters with the up and down keys.
- Press the [ENTER] key to save the settings.



- 19** Perform [FUNCTION]>[CLEANING]>[POWERFUL CL.] once.



- 20** Clear the Head information. Perform [SERVICE MODE]>[HISTORY MENU]>[HEAD GROUP]>[SHOT COUNT 1] to [SHOT COUNT 8]>[CLEAR].



- 21** Perform the following adjustments.

1. THERMISTER CHECK

[SERVICE MENU]>[THERMISTOR CHK]

2. Test Print

When the printing result has a banding, a missing dot, a scratchy printing, or a blurred printing, perform the cleaning again.

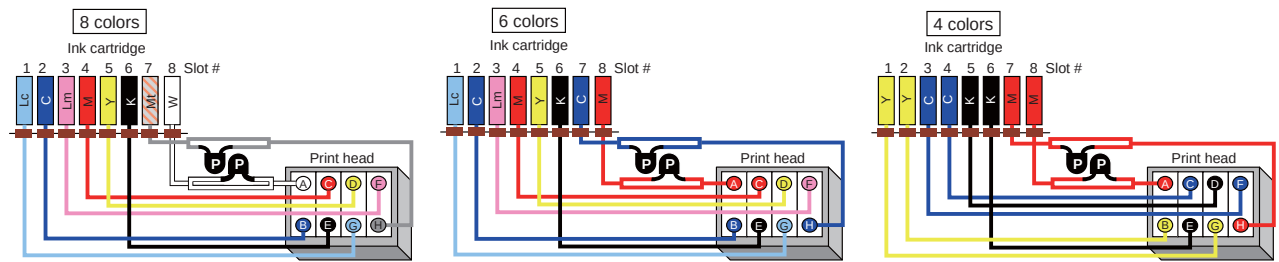
3. [4-3 HEAD ALIGNMENT]

4. [4-8 CROP-CUT ADJUSTMENT]

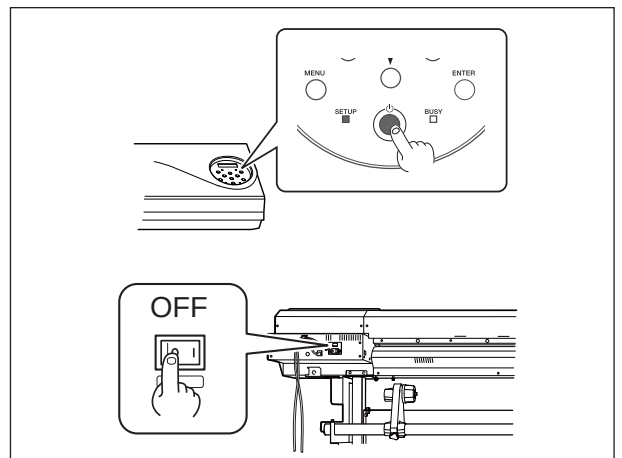
5. [4-9 PRINT / CUT POSITION ADJUSTMENT]

3-2 DAMPER REPLACEMENT

Before replacing the damper, check which ink is filled in the damper that you will replace by referring the following image.



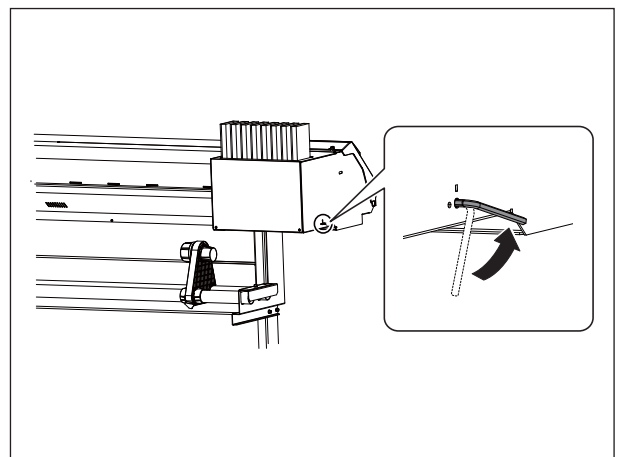
- 1 Turn off the Sub Power SW, and then turn off the Main Power SW.



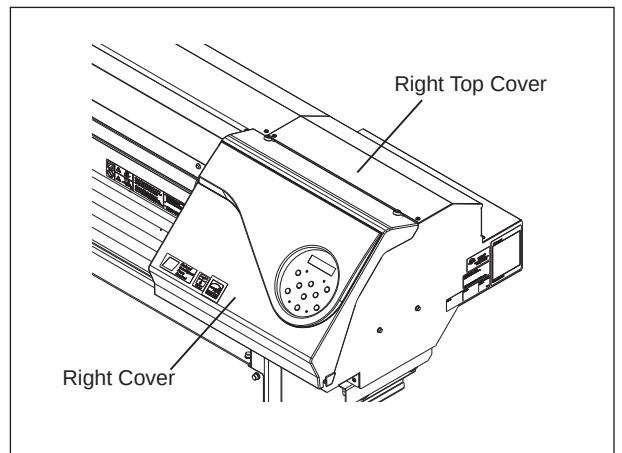
- 2 Close the Chock Valve with the hexagonal wrench which is bundled with the machine.



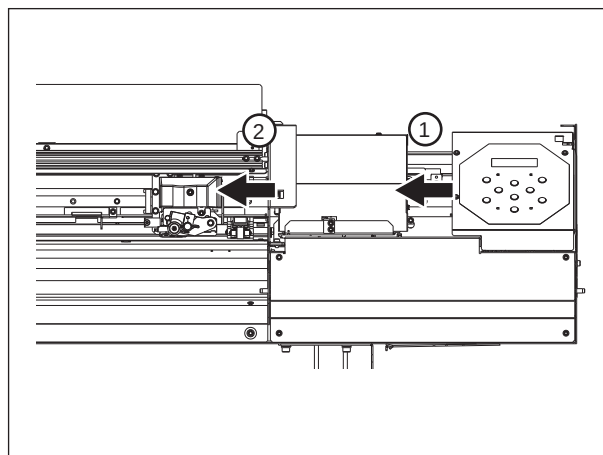
When you keep the Chock valve closed for a long time under the high temperature environment, the shape of the tube in the Chock Valve changes and this affects the ink firing.



- 3 Remove the Right Cover and the Right Top Cover.



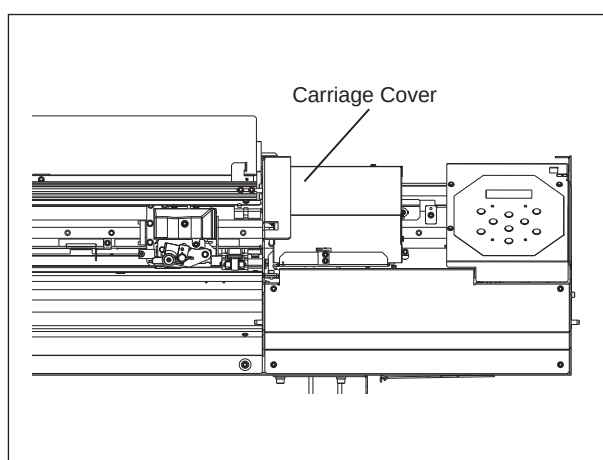
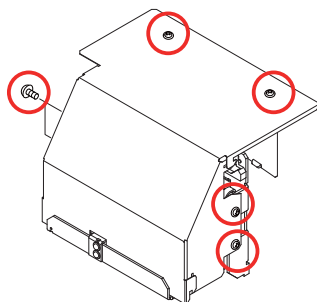
- 4** Open the Front Cover and move the Tool Carriage with the Head Carriage leftwards to the position where it is not above the Capping Unit.
Then, disconnect the Tool Carriage from the Head Carriage.



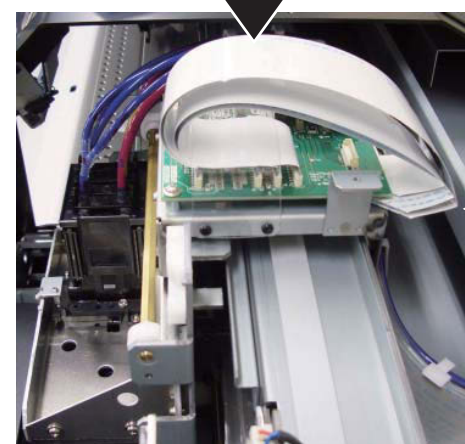
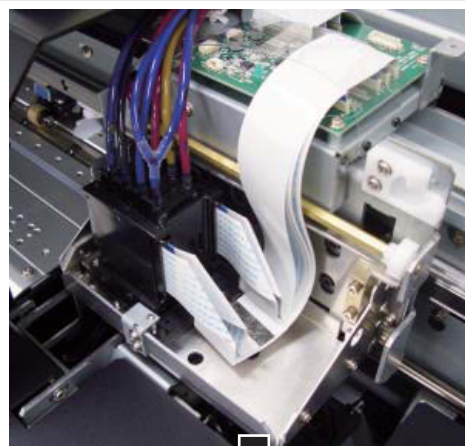
- 5** Remove the Carriage Cover.
The positions of fixing screws for the Carriage Cover are at the left, right and top of the cover.



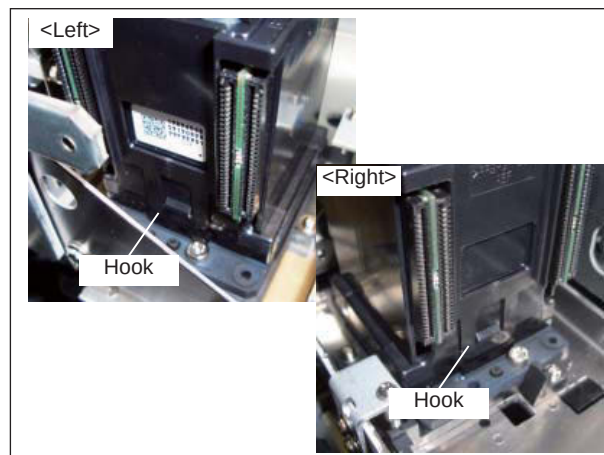
The Head Carriage Cover has six screws.



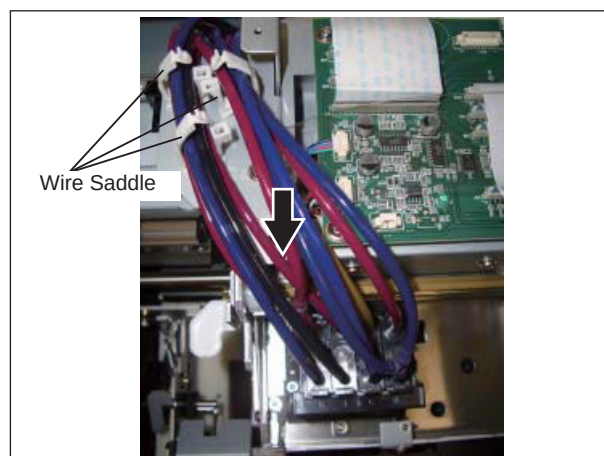
- 6** Disconnect all Head Ribbon Cables from the Head.
Put the disconnected Head Ribbon Cables underneath the Carriage Board.



- 7** Unhook the Head Cover from the Head.



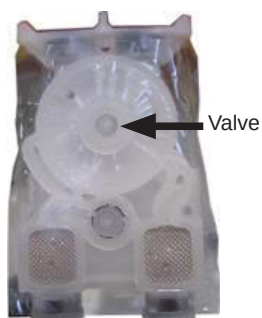
- 8** Open the Wire Saddles for bundling the ink tubes and pull the ink tubes toward you.



- 9** Pull up the Damper, the ink tubes and the Head Covers slowly with opening the Hook of the Head Cover.



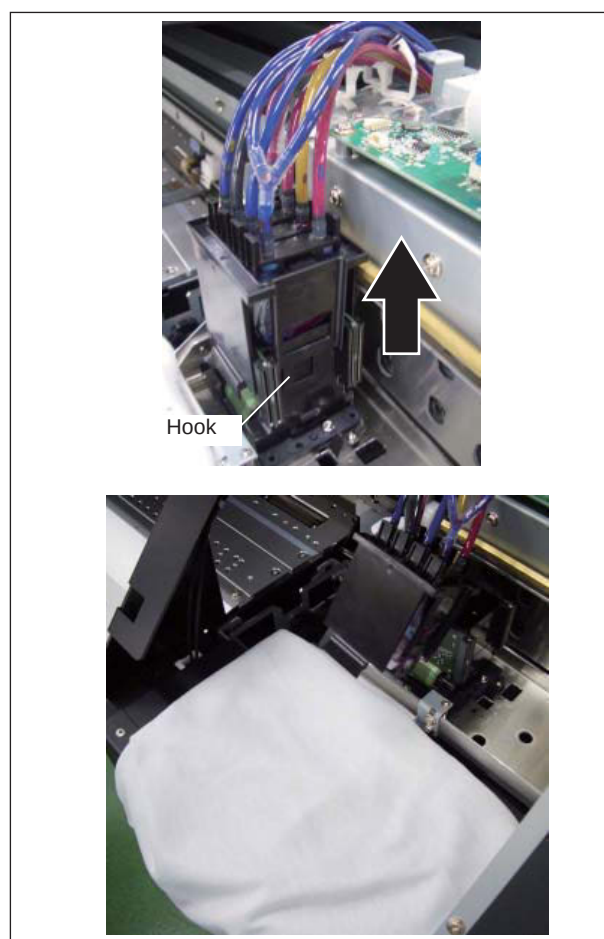
Do not touch the valve of the Damper. When you touch the valve, the ink leaks from the Damper.



When the ink drops on the Head Board, the Head will be broken.



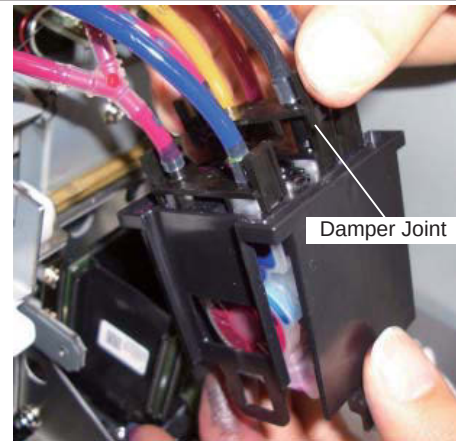
To prevent the ink from leaking or spattering, put the cloth on the Right Under Cover.



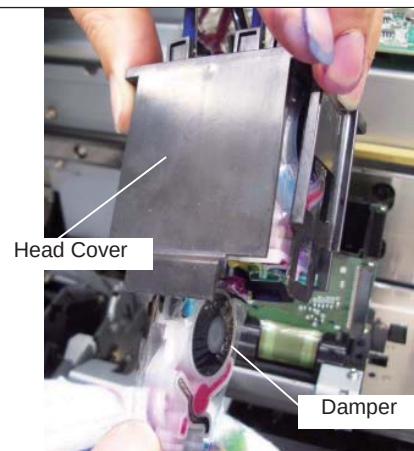
- 10** Pick the both ends of the Damper Joint and remove it from the Damper.



Ink leaks from the Damper right after removing the Damper Joint.



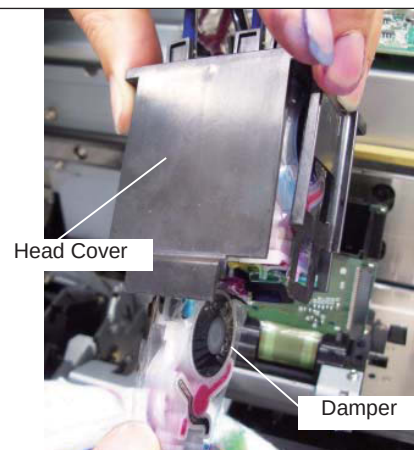
- 11** Pull out the Damper from the Head Cover.



- 12** Insert the new Damper into the Head Cover.



The Damper has no particular right or left orientation.



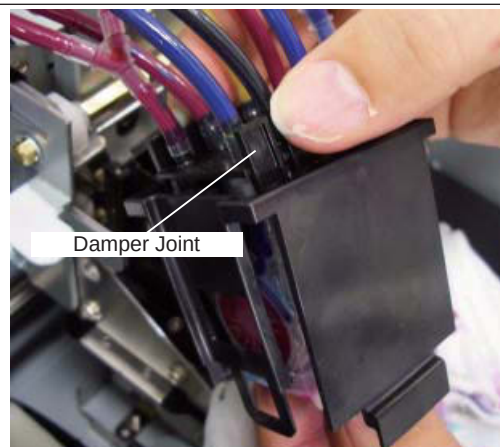
- 13** Connect the Damper Joint to the Damper with supporting the bottom of the Damper.



Opening the both ends of the Damper Joint makes you fix it easily.



Check whether the Damper Joint cannot be removed by pulling up it.



- 14** Fix the Damper, the ink tubes and the Head Cover set to the Head with opening the hook of the Head Cover.



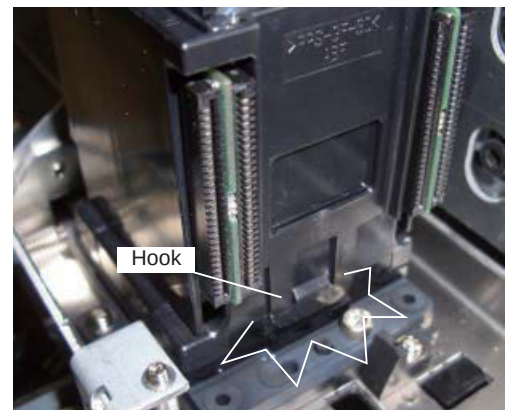
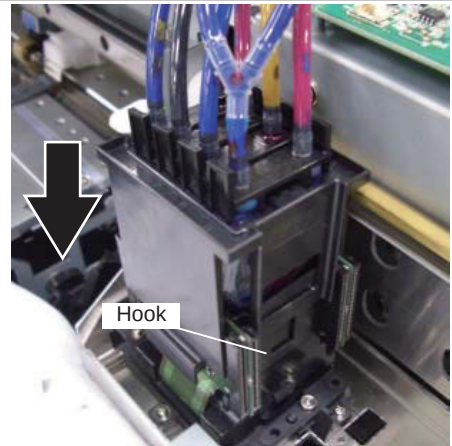
When you straighten the Damper, the ink tubes and the Head Cover set, you can fix them easily.



Do not touch the valve of the Damper. When you touch the valve, the ink leaks from the Damper.

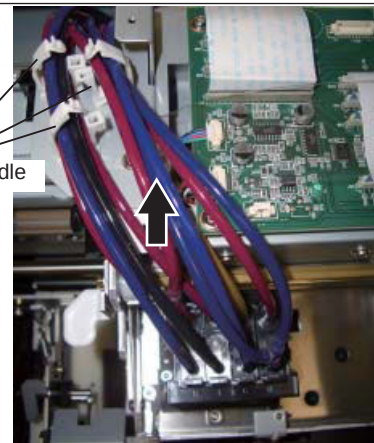


Press the Head Cover to the Head until the hook of the Head Cover clicks into place.



- 15** Bundle the ink tubes with the wire saddles with pushing ink tubes toward the back of the Head Carriage.

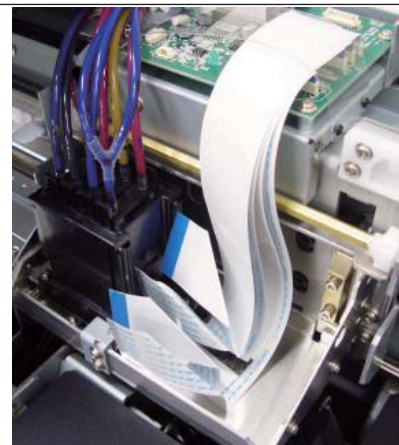
Wire Saddle



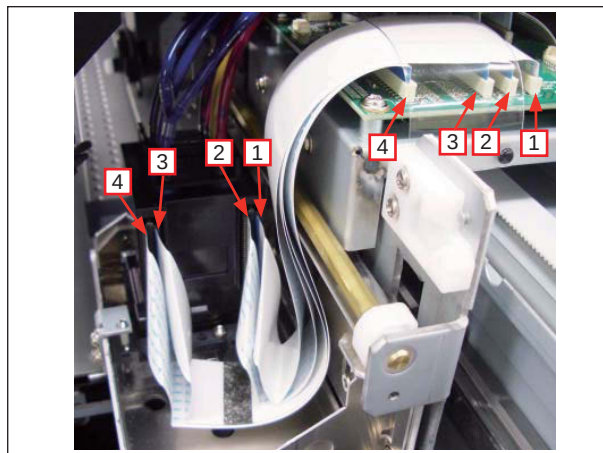
- 16** Connect the Head Ribbon Cables.



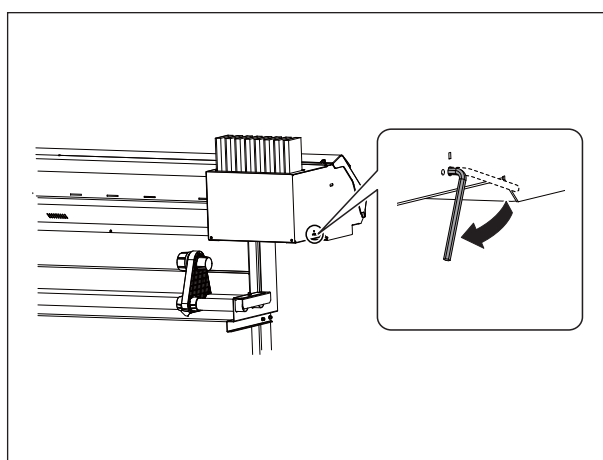
Do not connect the cables to the wrong connector or connect the cables halfway. The Head will be broken.



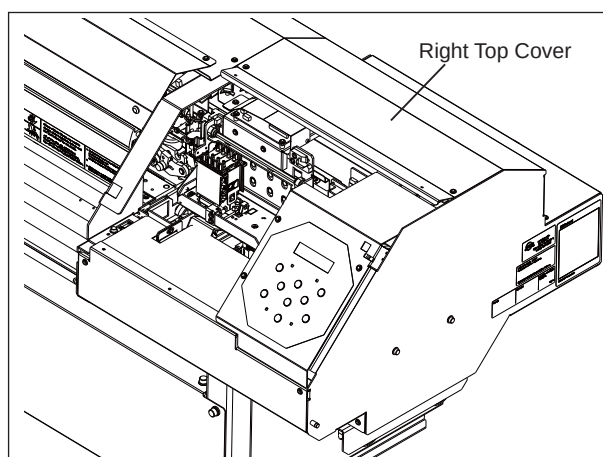
- 17** Check whether the Head Ribbon Cables are connected to the correct connectors.



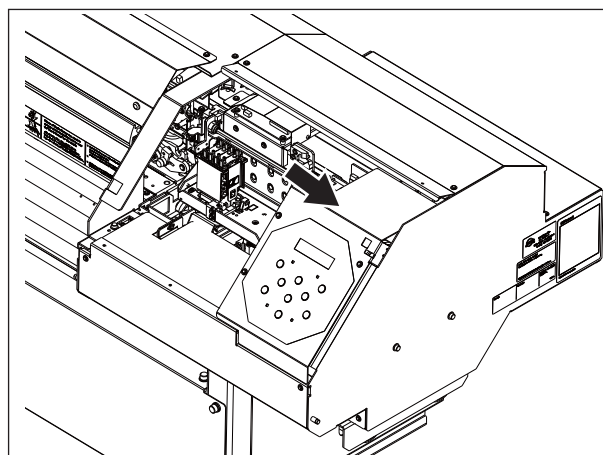
- 18** Open the Chock Valve.



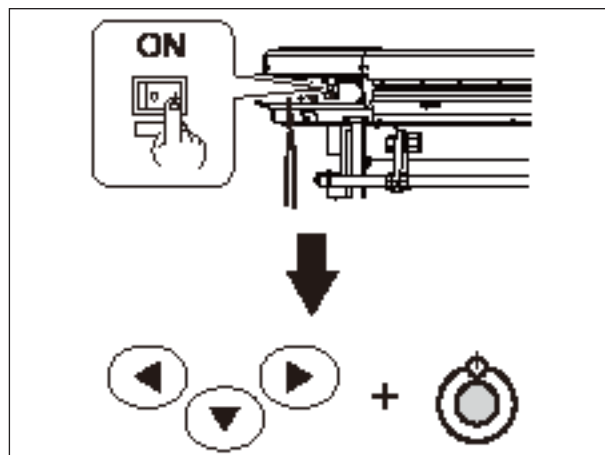
- 19** Fix the Right Top Cover.



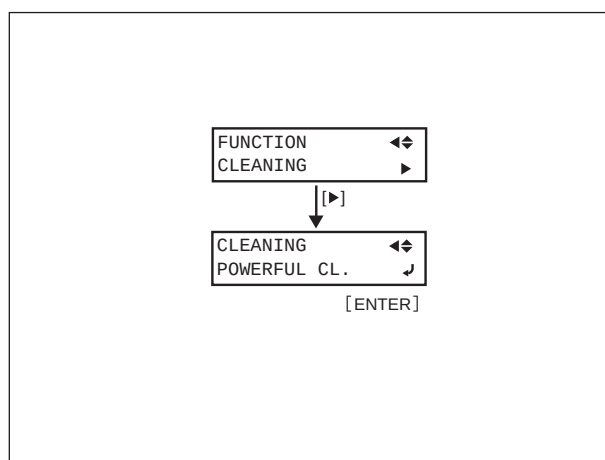
- 20** Connect the Tool Carriage to the Head Carriage.
Then, move the Head Carriage by hand to the lock position.



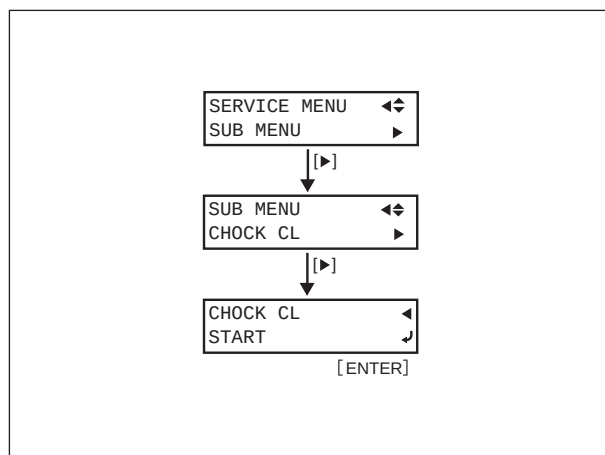
- 21** Turn on the Main Power SW, and then turn on the Sub Power SW while pressing the left, right and down keys to enter the Service Mode.



- 22** Perform [FUNCTION]>[CLEANING]>[POWERFUL CL.] once.

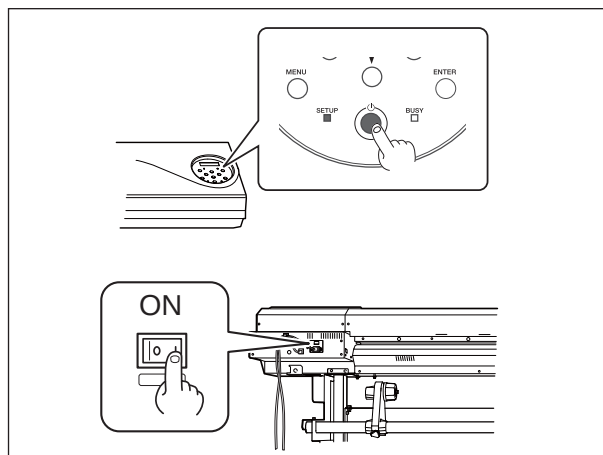


- 23** Perform [SERVICE MODE]>[SUB MENU]>[CHOCK CL]>[START]. Open and close the Chock Valve by following the message.

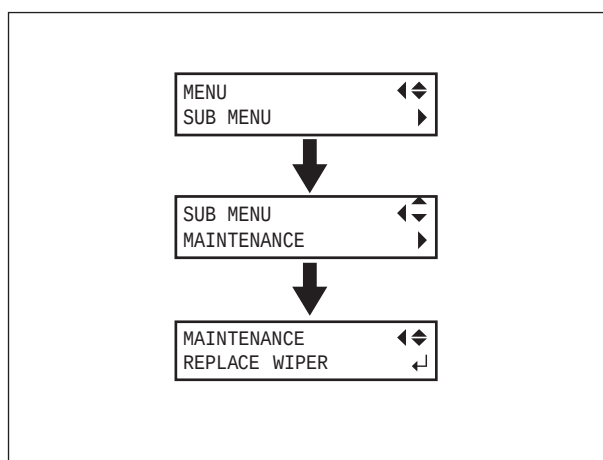


3-3 WIPER REPLACEMENT

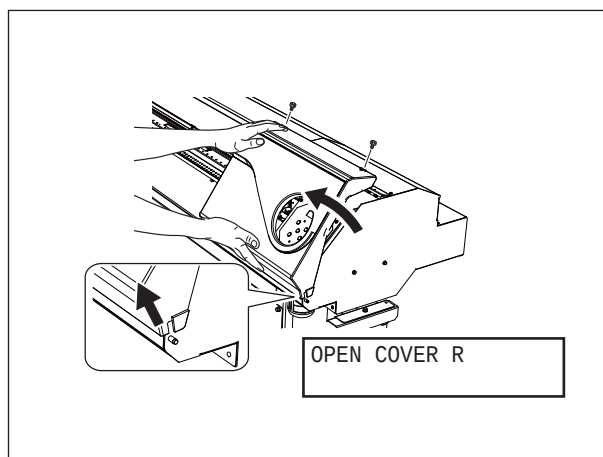
- 1 Turn off the Sub Power SW, and then turn off the Main Power SW.



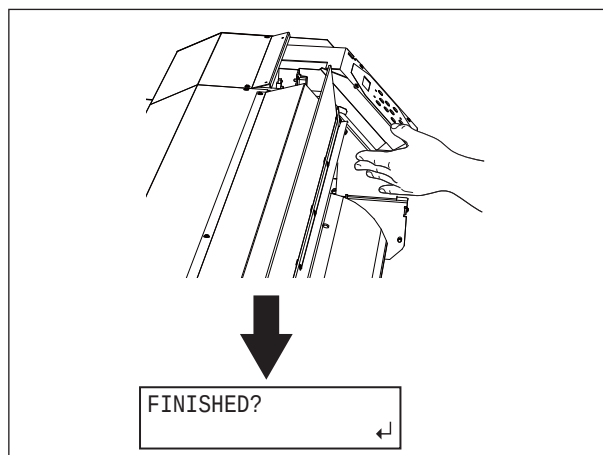
- 2 Select [SUB MENU]>[MAINTENANCE]>[REPLACE WIPER] in the Users Menu and press the [ENTER] key.



- 3 When the message shown in the figure appears, remove the Right Cover.



- 4 Touch the location shown in the figure to discharge any static electricity.
And, the preparation completes when the message shown in the figure appears.



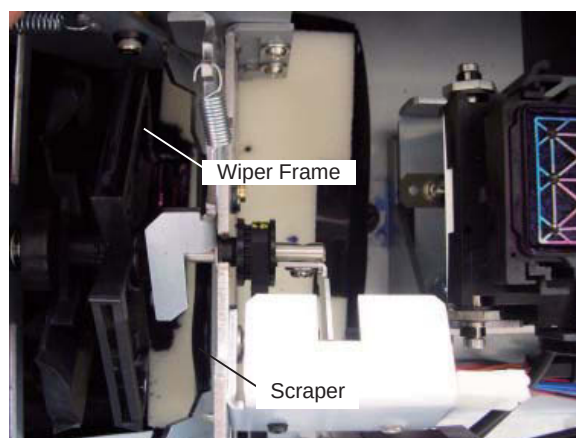
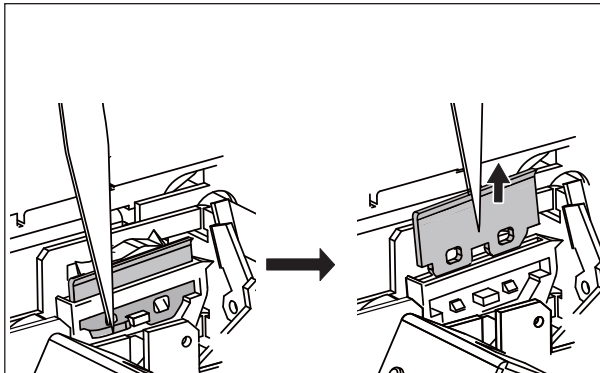
- 5** Detach the Hook to the hole on the Felt Wiper with the tweezers.



When you press the Wiper Frame, it will rotate and you can return it to the original position. Even if you rotate the Wiper Frame and change its position, there is no problem because the machine always detects the wiper origin position after replacing the Wiper.



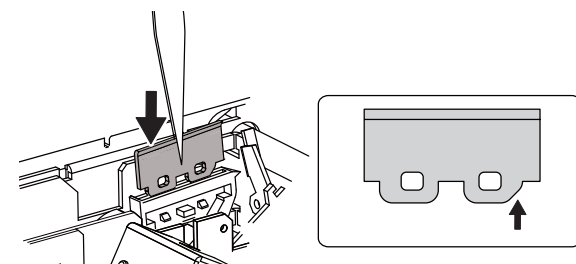
When there is any buildup of ink on the Wiper Frame and the Wiper Scraper, clean them with the Cleaning Stick.



- 6** Detach the old Wiper and insert the new Wiper.



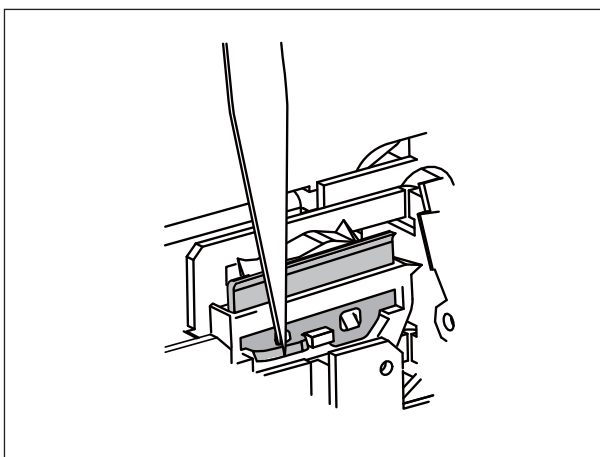
The Wiper has the particular direction. Place the inclined end on the back side and the surface for wiping the Head on the right side.



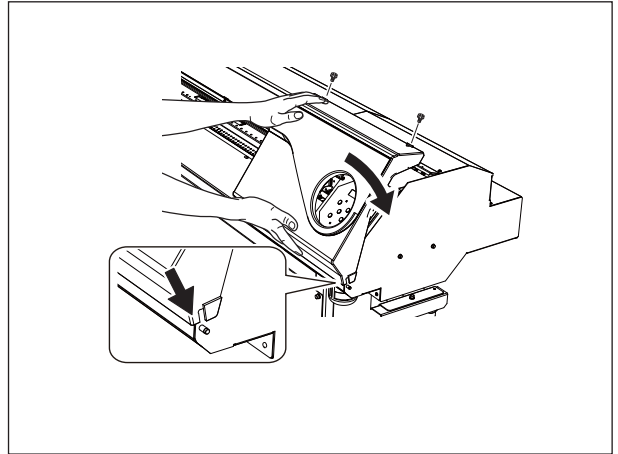
- 7** Attach the Hook and press the part shown in the figure with the tweezers.



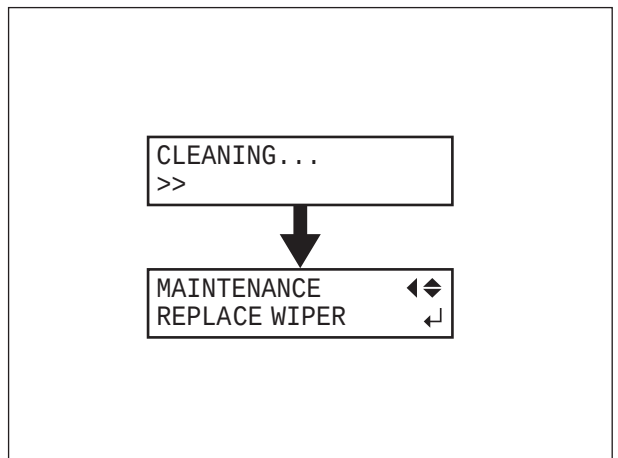
You have to attach the Hook. When you do not attach the Hook, the Wiper may be removed during the operation.



- 8** Fix the Right Cover and press the [ENTER] key.

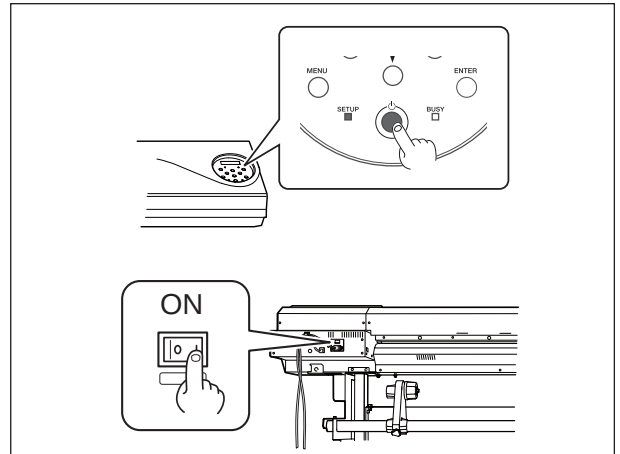


- 9** The Head Carriage moves to the lock position and perform the cleaning automatically. Then, the message shown in the figure appears after finishing the cleaning.

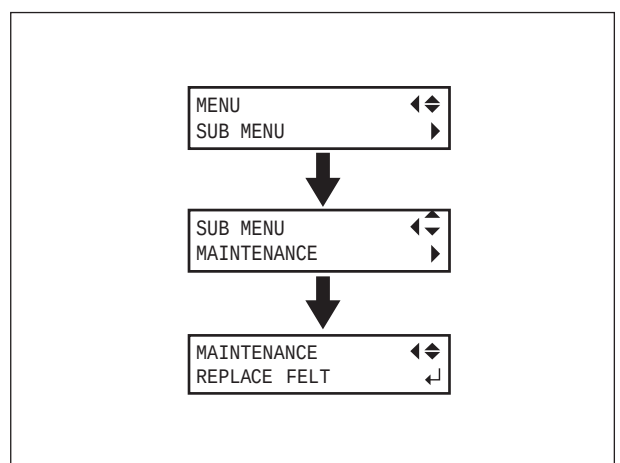


3-4 FELT WIPER REPLACEMENT

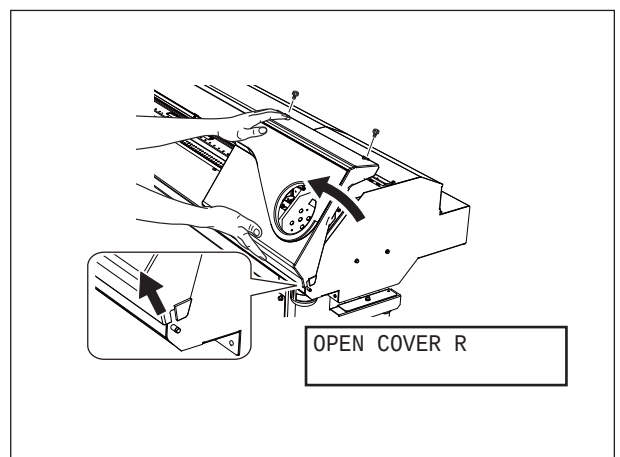
- 1 Turn off the Sub Power SW, and then turn off the Main Power SW.



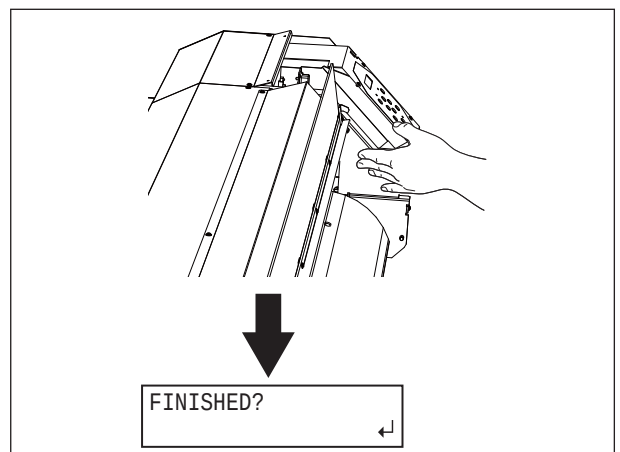
- 2 Select [SUB MENU]>[MAINTENANCE]>[REPLACE FELT] in the Users Menu and press the [ENTER] key.



- 3 When the message shown in the figure appears, remove the Right Cover.



- 4 Touch the location shown in the figure to discharge any static electricity.
And, the preparation are complete when the message shown in the figure appears.



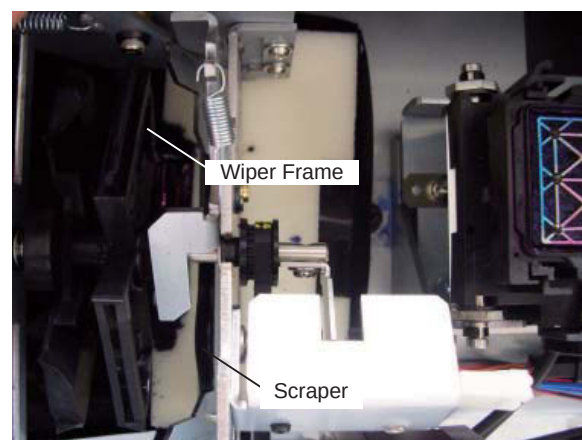
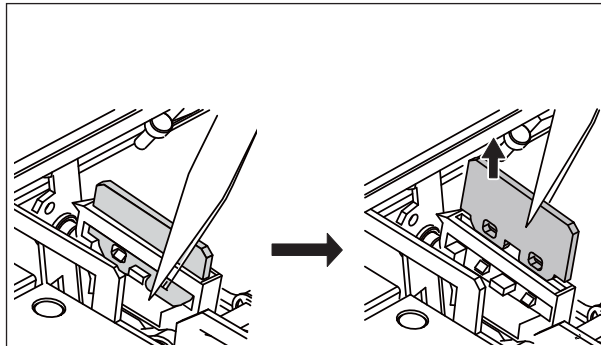
- 5** Detach the Hook to the hole on the Felt Wiper with the tweezers.



When you press the Wiper Frame, it will rotate and you can return it to the original position. Even if you rotate the Wiper Frame and change its position, there is no problem because the machine always detects the wiper origin position after replacing the Wiper.



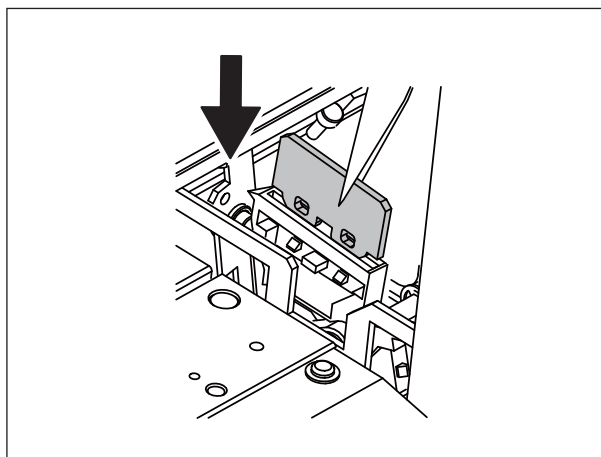
When there is any buildup of ink on the Wiper Frame and the Wiper Scraper, clean them with the Cleaning Stick.



- 6** Detach the old Felt Wiper and insert the new Felt Wiper.



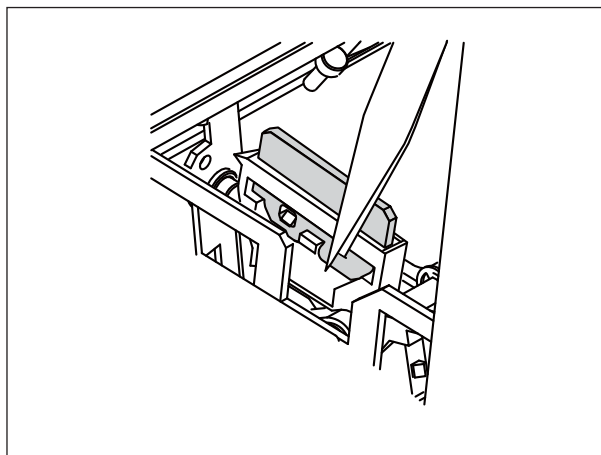
The Felt Wiper has no particular direction.



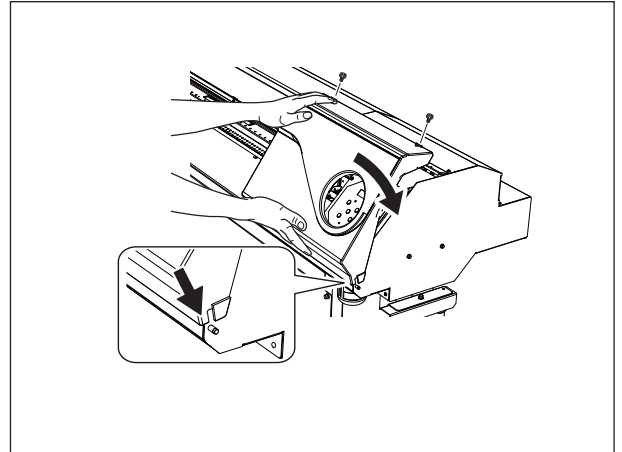
- 7** Attach the Hook and press the part shown in the figure with the tweezers.



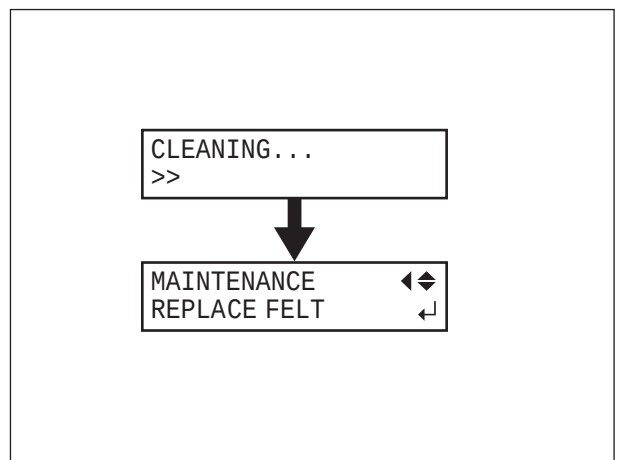
You have to attach the Hook. When you do not attach the Hook, the Felt Wiper may be removed during the operation.



- 8** Fix the Right Cover and press the [ENTER] key.

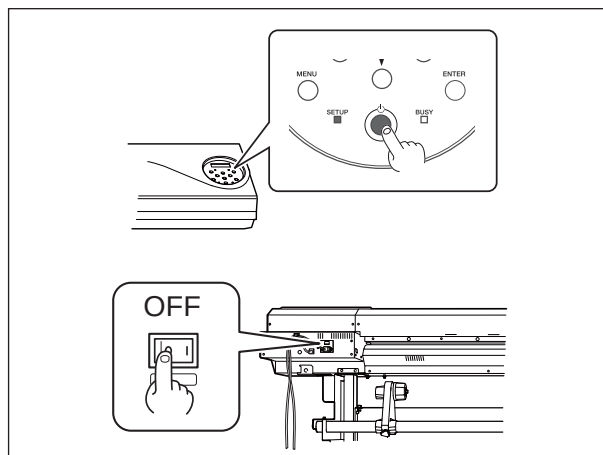


- 9** The Head Carriage moves to the lock position and perform the cleaning automatically. Then, the message shown in the figure appears after finishing the cleaning.

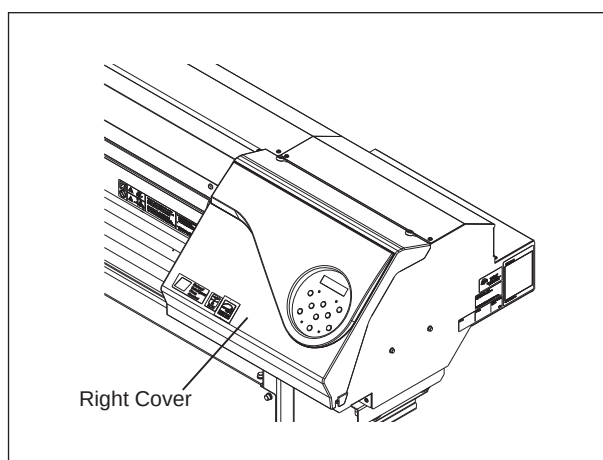


3-5 CAP TOP REPLACEMENT

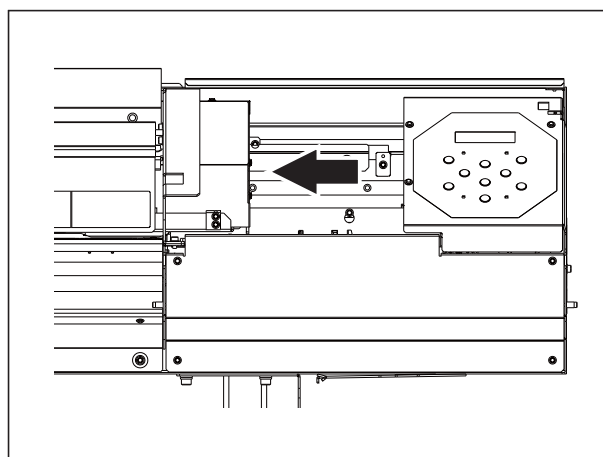
- 1 Turn off the Sub Power SW, and then turn off the Main Power SW.



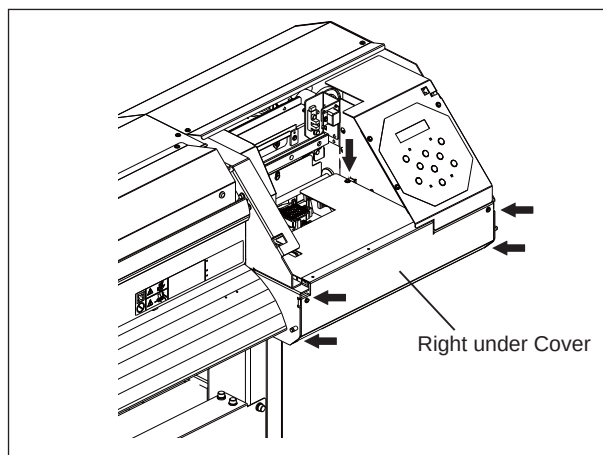
- 2 Remove the Right Cover.



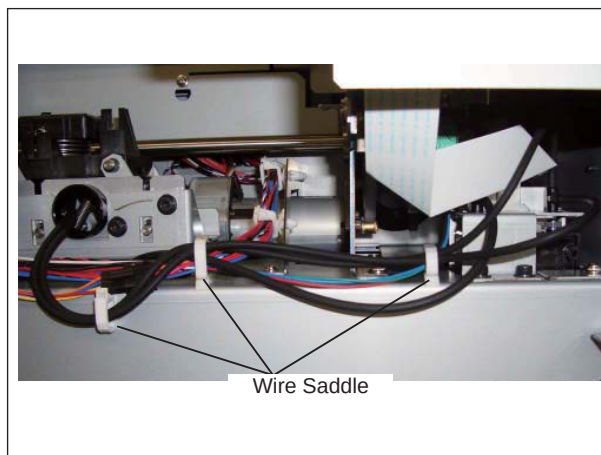
- 3 Move the Head Carriage leftwards to the position where it is not above the Capping Unit.



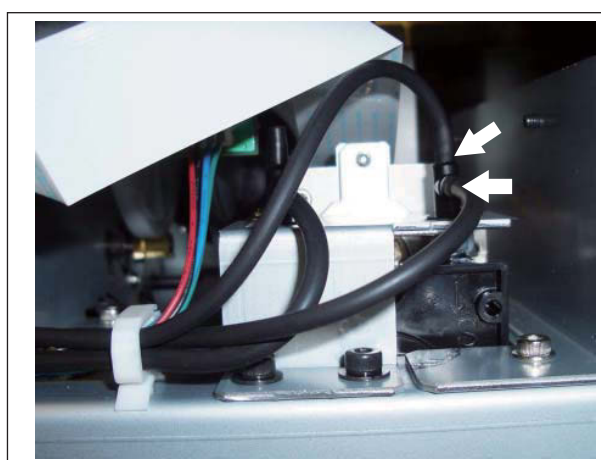
- 4 Remove the Right Under Cover.



- 5** Open the Wire Saddles for bundling the tubes of the Cap Top.



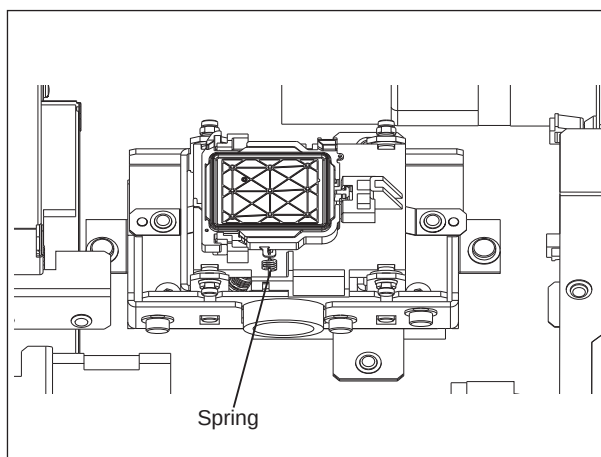
- 6** Remove the tubes of the Cap Top from the Pump.



- 7** Remove the Spring.



Do not lose the Spring because it is small.



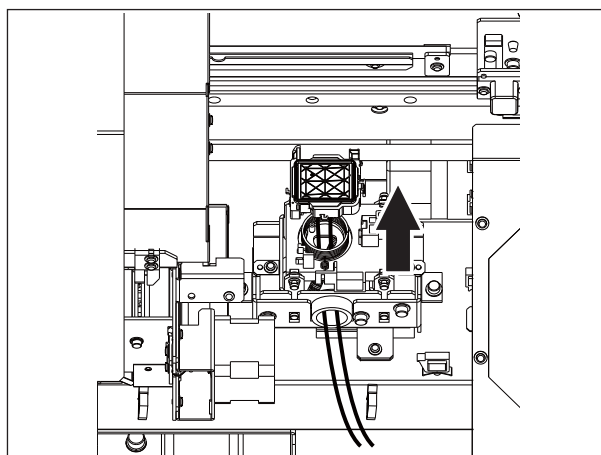
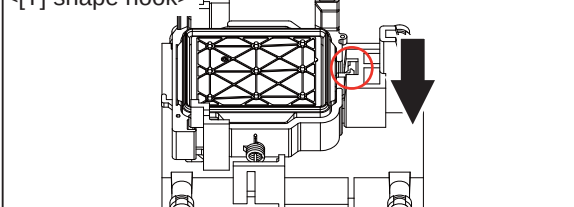
- 8** Remove the Cap Top with pressing the [T] shape hook downward and pull up the Cap Top.



Be careful with the ink leakage from the tubes when you pull up the Cap Top.



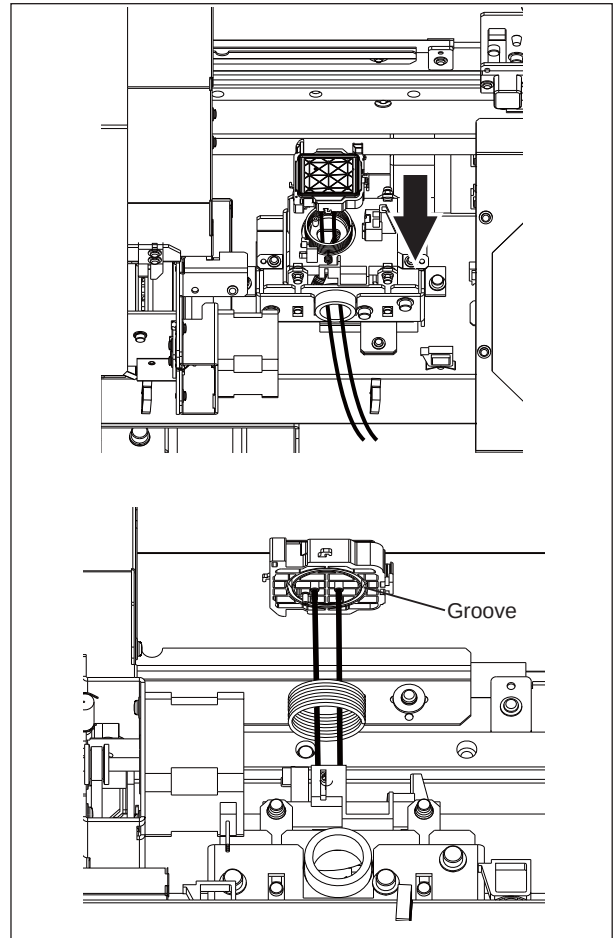
<[T] shape hook>



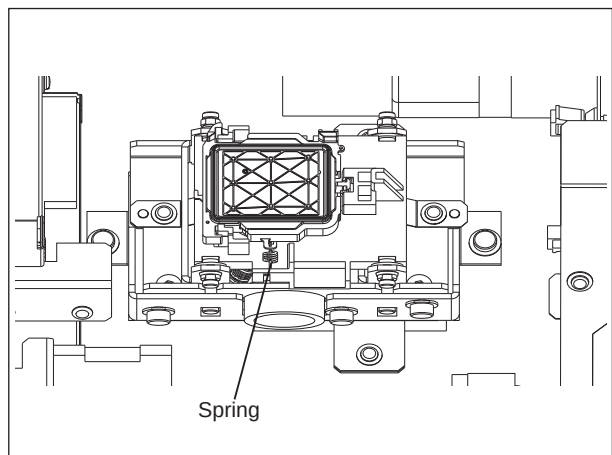
- 9** Fix the new Cap Top by fitting the [T] shape hook with the Cap Top Base.



When you fix the Cap Top, fit the Spring in the Groove on the bottom of the Cap Top.



- 10** Fix the Spring.

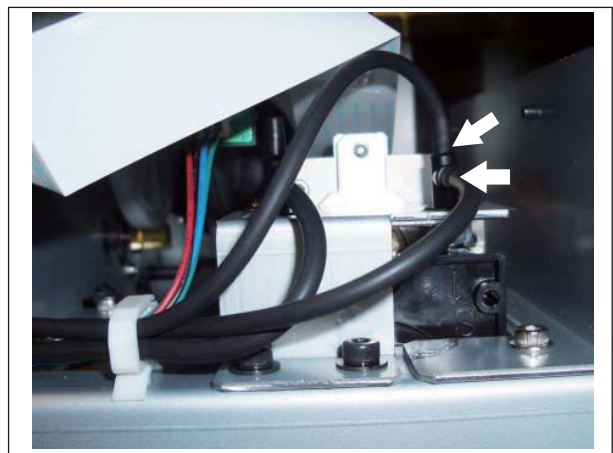
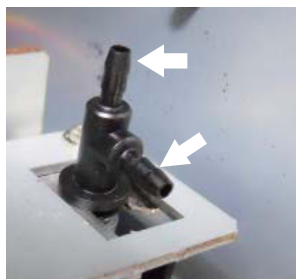


- 11** Connect the tubes of the Cap Top to the Pump. Both tubes can be connected to the both connectors shown in the figure.

Revised 3



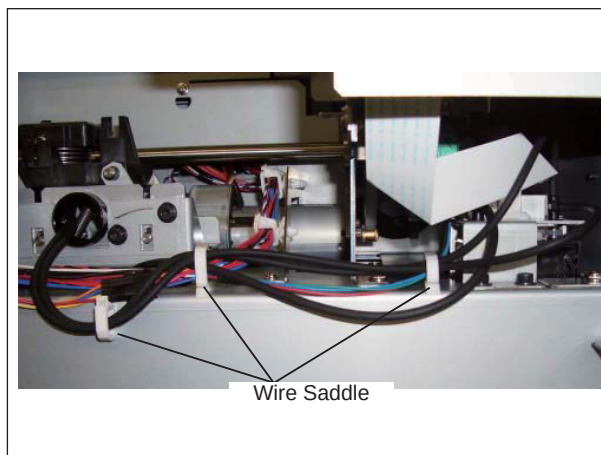
Be sure to wipe off the ink if ink is adhered to the joints.



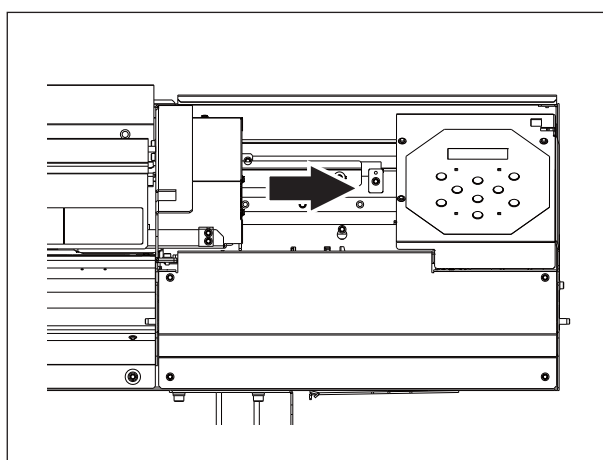
- 12** Bundle the tubes of the Cap Top with the Wire Saddles.



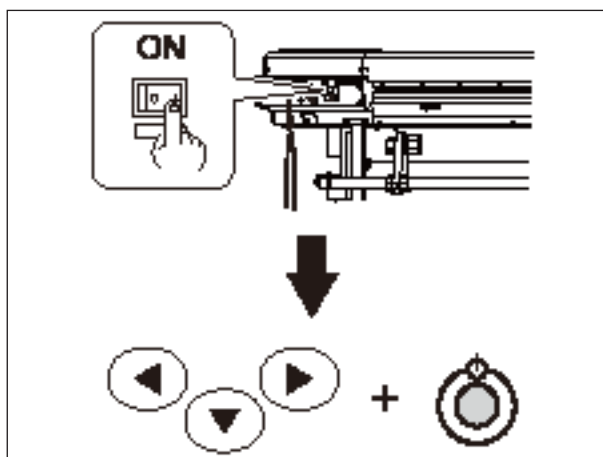
Bundle the tubes as shown in the figure. If you do not bundle the tubes, the ink is not drained correctly.



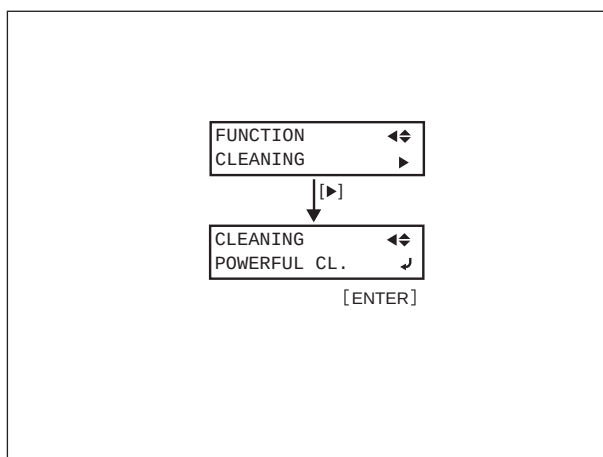
- 13** Move the Head Carriage by hand to the lock position.



- 14** Turn on the Main Power SW, and then turn on the Sub Power SW while pressing the left, right and down keys to enter the Service Mode.



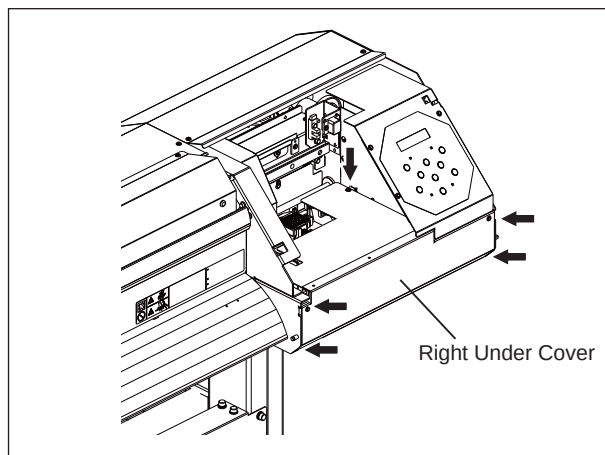
- 15** Perform [FUNCTION]>[CLEANING]>[POWERFUL CL.] once.



16 Fix the Right Under Cover.



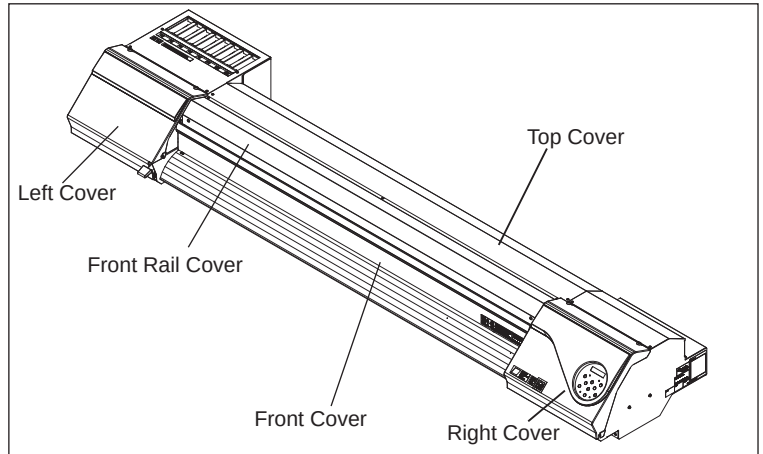
Be careful not to pinch the tubes of the Cap Top with the Right Under Cover.



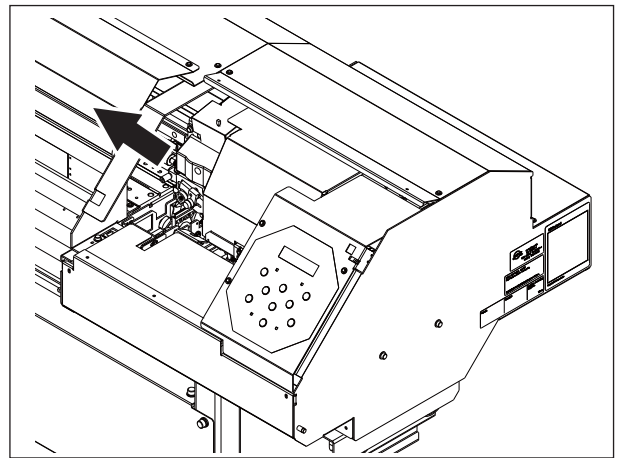
3-6 TOOL CARRIAGE REPLACEMENT

1 Remove the following covers in order.

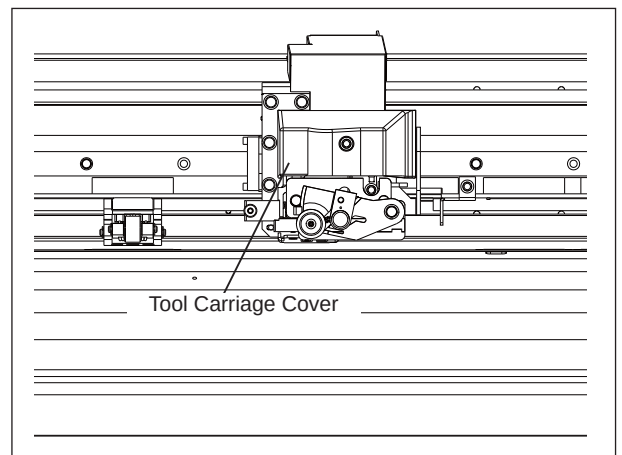
1. Right Cover
2. Front Cover
3. Front Rail Cover
4. Left Cover
5. Top Cover



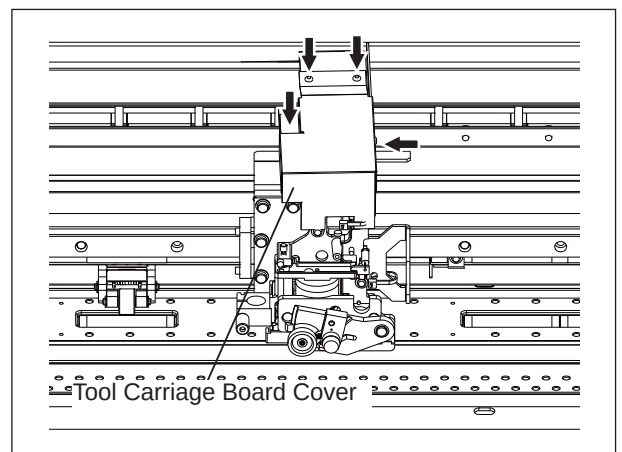
2 Separate the Tool Carriage from the Head Carriage.



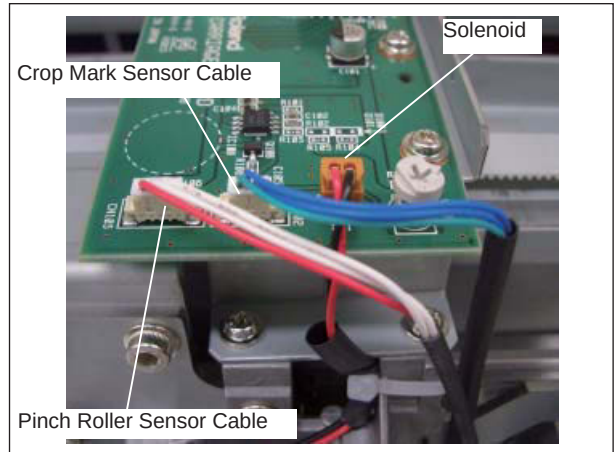
3 Remove the Tool Carriage Cover.



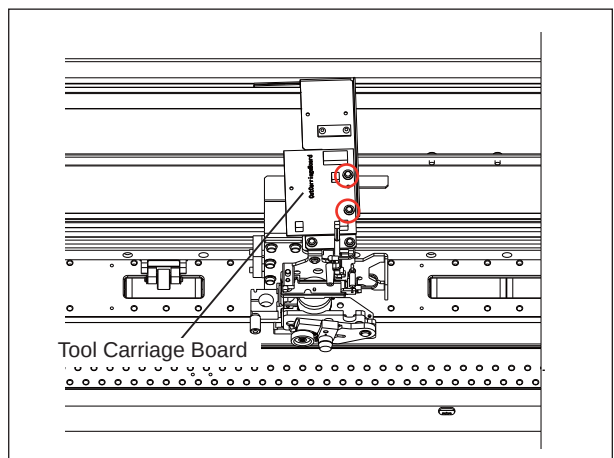
4 Remove the four rivets shown in the figure to remove the Tool Carriage Board Cover.



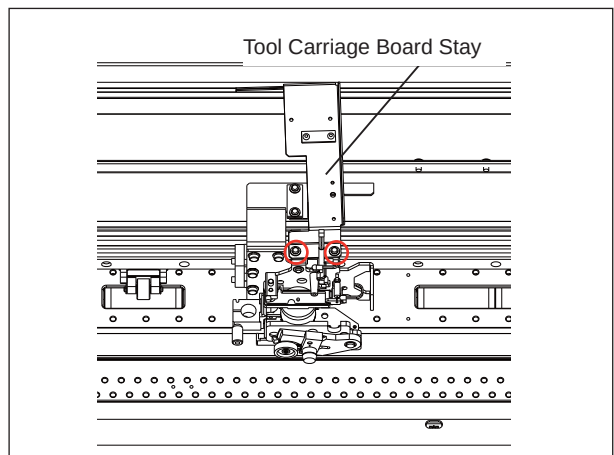
- 5** Disconnect the Crop Mark Sensor, Pinch Roller Sensor and Solenoid wirings.



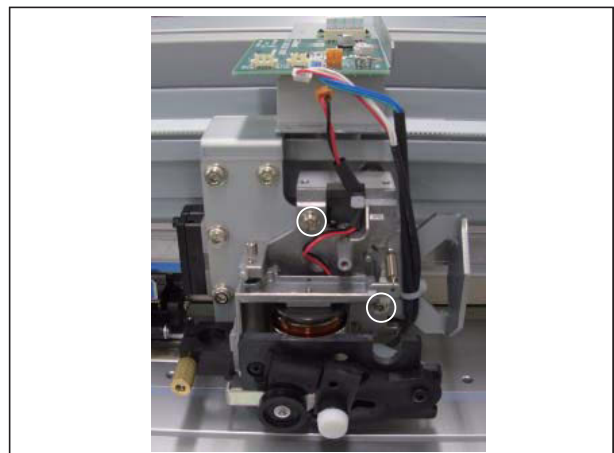
- 6** Remove the two screws fixing the Tool Carriage Board.



- 7** Remove the two screws to remove the Tool Carriage Board Stay from the Tool Carriage Assy.



- 8** Remove the two screws as shown in the figure to remove the Tool Carriage Assy.

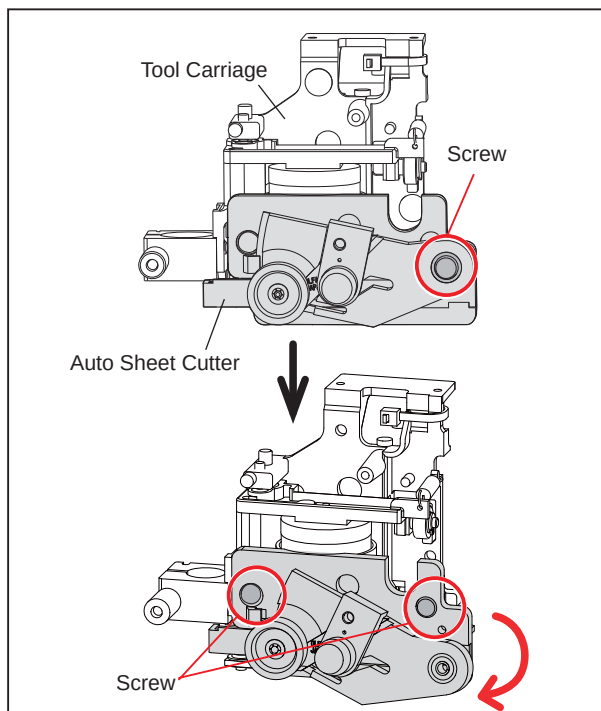
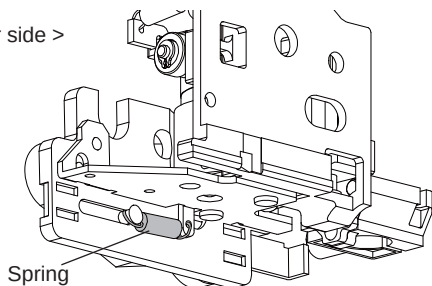


- 9** Remove the screws shown in the figure and remove the Auto Sheet Cutter from the Tool Carriage.



Be careful not to lose the spring.

< Rear side >

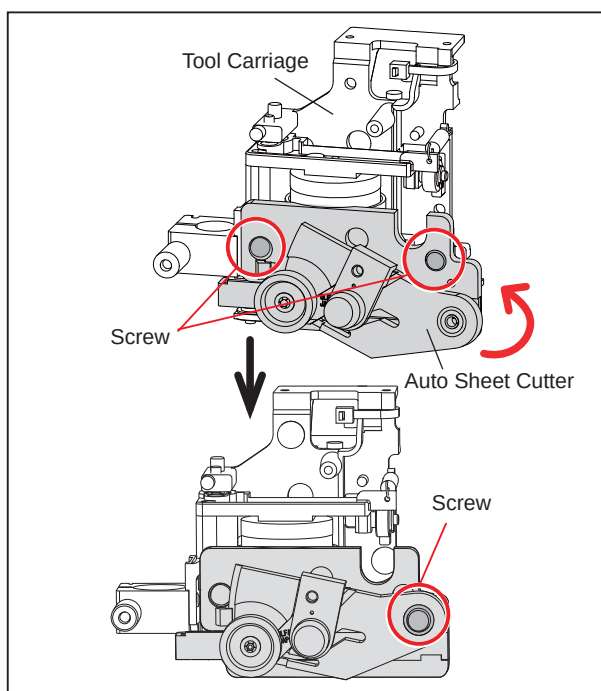
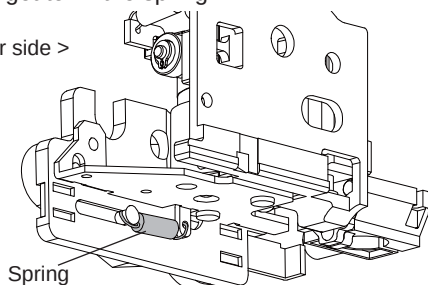


- 10** Fix the Auto Sheet Cutter to the new Tool Carriage.



Do not forget to fix the spring.

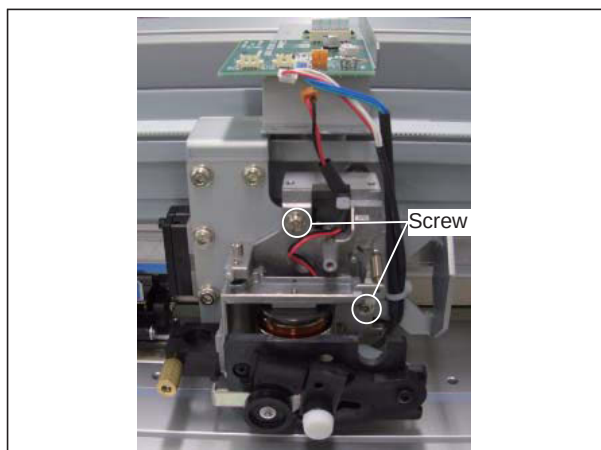
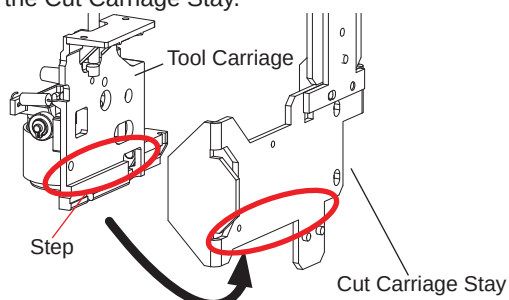
< Rear side >



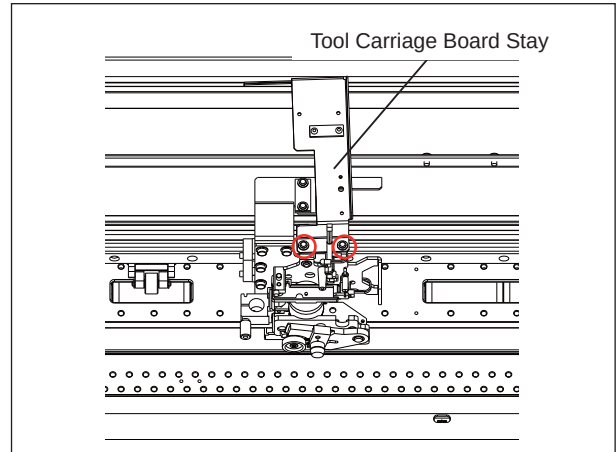
- 11** Fix the new Tool Carriage Assy with two screws while pushing it upwards.



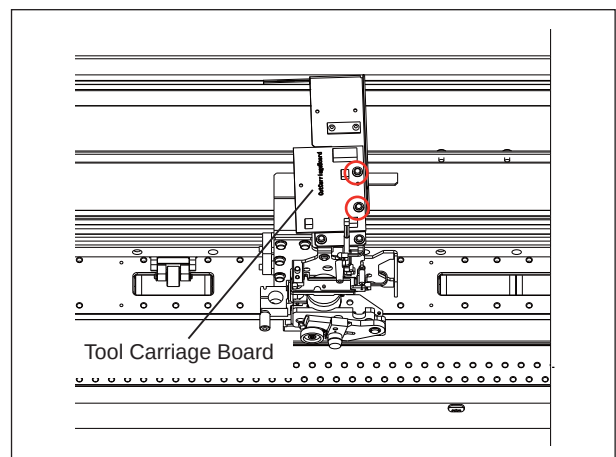
Fix the Tool Carriage by pushing it toward the step of the Cut Carriage Stay.



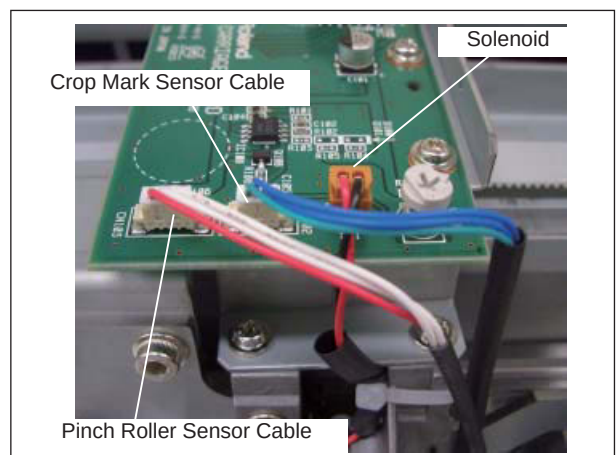
- 12** Fix the Tool Carriage Assy to the Tool Carriage Board Stay with the two screws as shown in the figure.



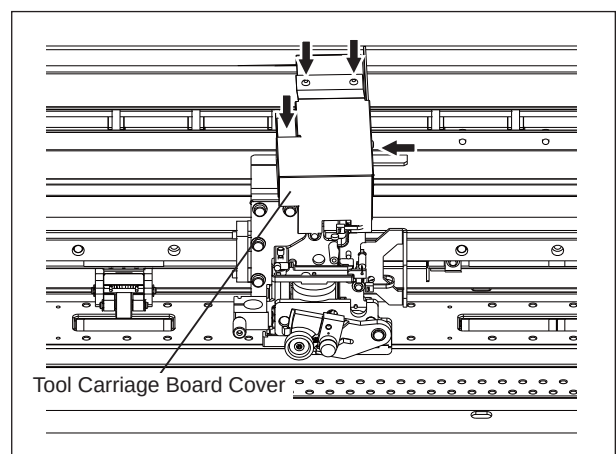
- 13** Fix the Tool Carriage Board with the two screws as shown in the figure.



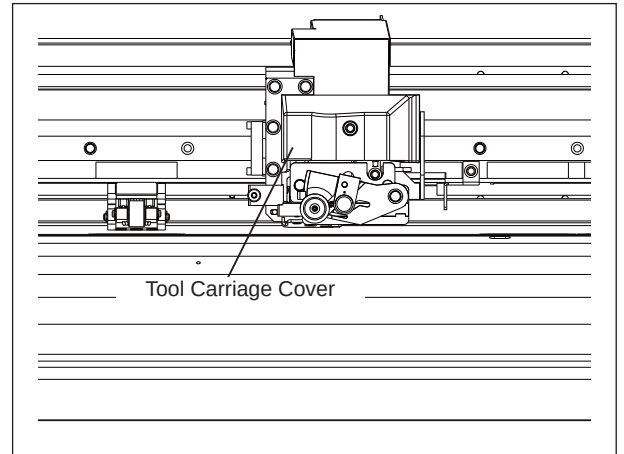
- 14** Connect the Crop Mark Sensor, Pinch Roller Sensor and Solenoid wirings.



- 15** Fix the Tool Carriage Board Cover with the four rivets shown in the figure.



- 16** Remove the Tool Carriage Cover.

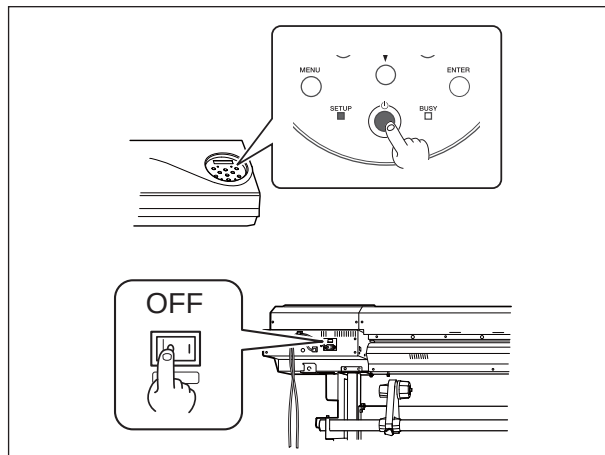


- 17** Perform the following adjustments and settings.

1. [4-4 LIMIT POSITION & CUT DOWN POSITION INITIALIZE]
2. [4-11 TOOL HEIGHT ADJUSTMENT]
3. [4-12 TOOL PRESSURE ADJUSTMENT]
4. [4-7 CROP MARK SENSOR ADJUSTMENT]
5. [4-8 CROP-CUT ADJUSTMENT]
6. [4-9 PRINT / CUT POSITION ADJUSTMENT]

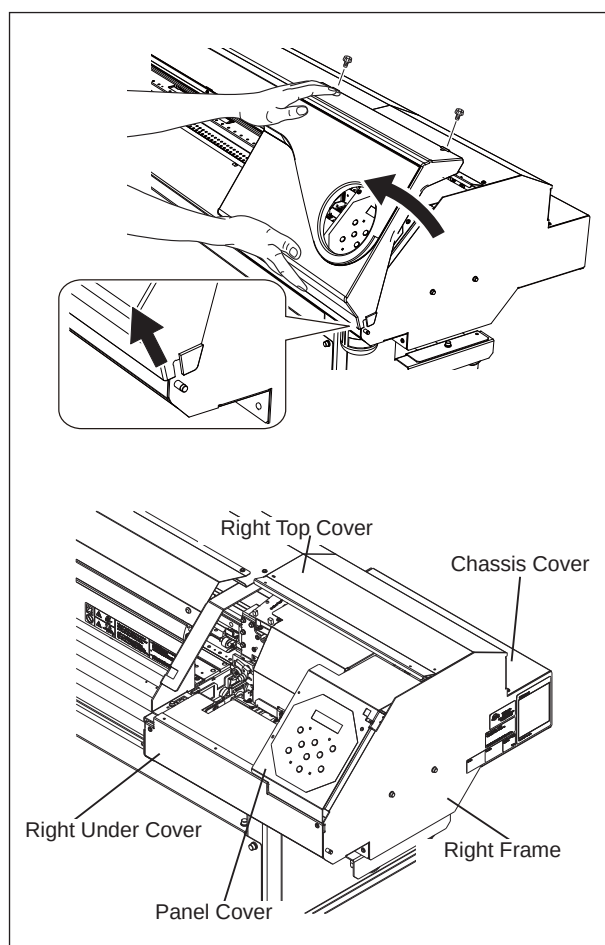
3-7 CARRIAGE MOTOR REPLACEMENT

- 1** Turn off the Sub Power SW, and then turn off the Main Power SW.

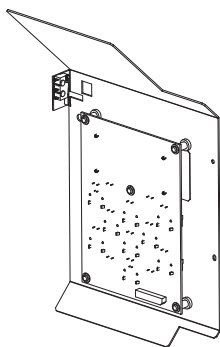


- 2** Remove the following covers in order.

1. Right Cover
2. Right Top Cover
3. Chassis Cover
4. Panel Cover
5. Right Under Cover
6. Right Frame



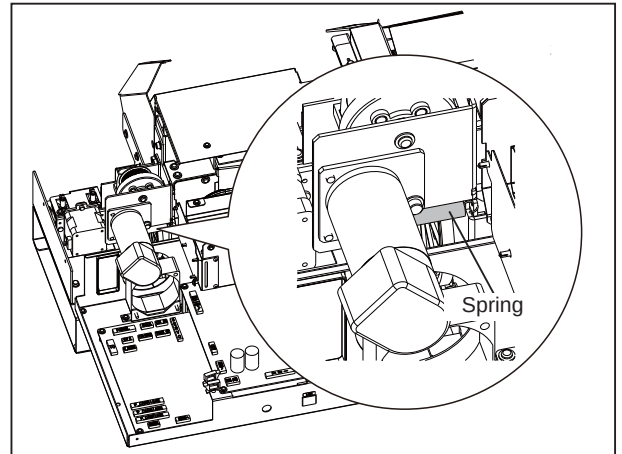
When removing the Panel Cover, remove the sensor with the cable and the ribbon cable from the Panel Board.



- 3** Disconnect the connector of the Motor Cable.



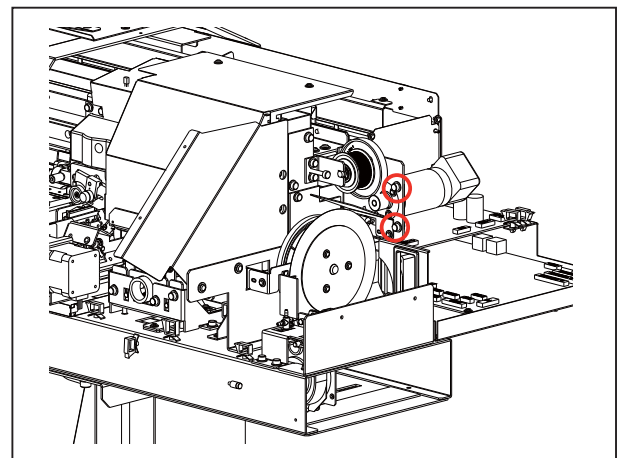
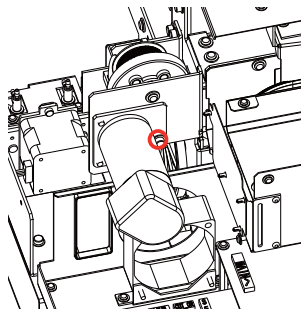
- 4** Remove the spring on the Flange.



- 5** Remove the three screws fixing the Flange, and remove the motor together with the Flange.



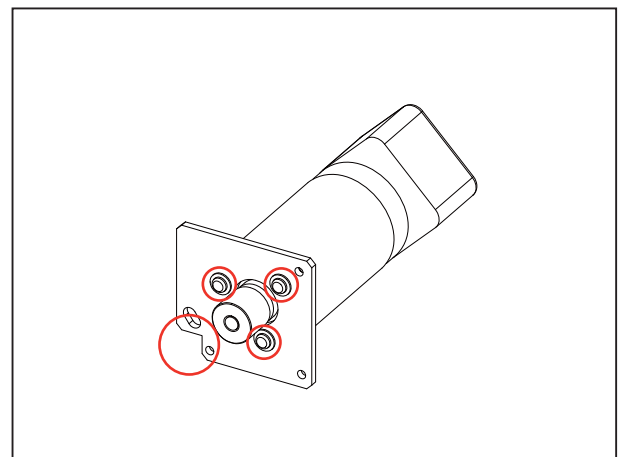
The fixing direction of one screw near the spring is different from the others.



- 6** Remove the three screws shown in the figure to remove the motor from the Flange.
And fix a new motor to the Flange.



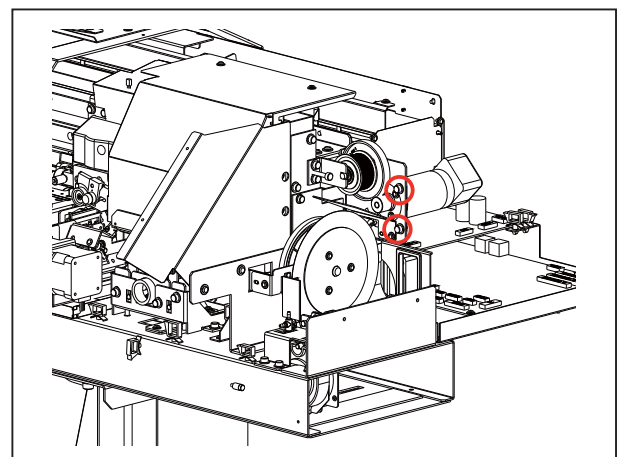
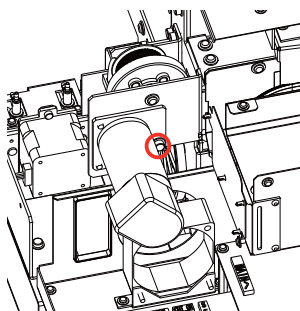
Be careful with the fixing direction of the Flange in relation to the motor cables.



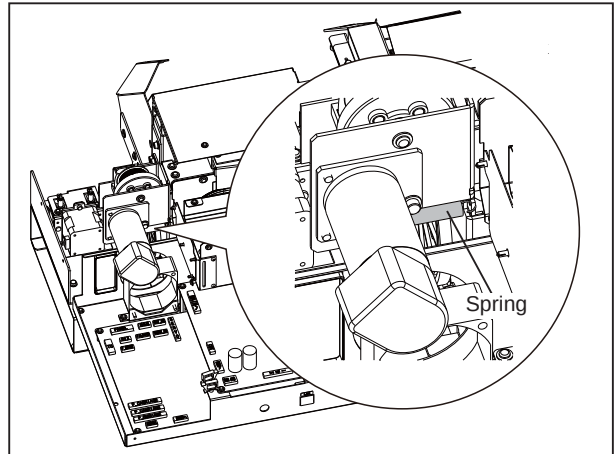
- 7** Fix the Flange with the three screws temporarily.



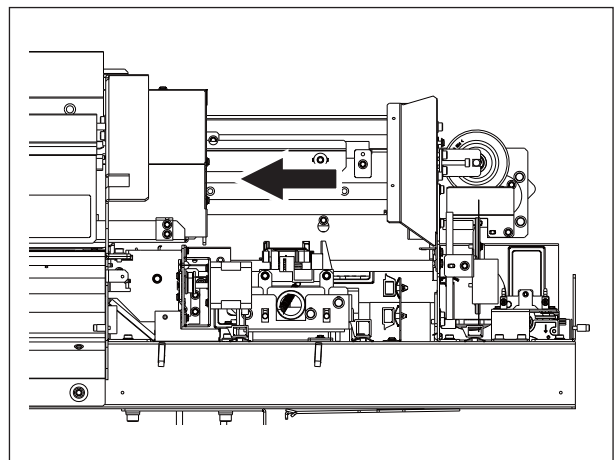
The fixing direction of one screw near the spring is different from the others.



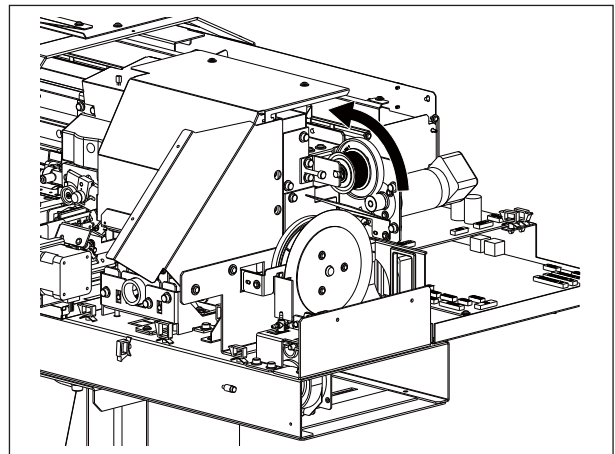
8 Fix the spring.



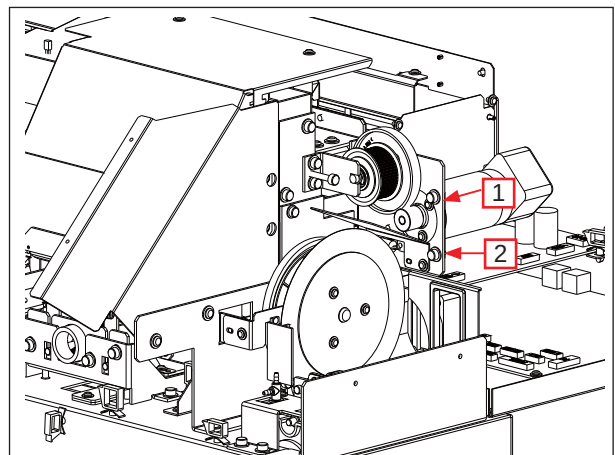
9 Unlock the Head Carriage.

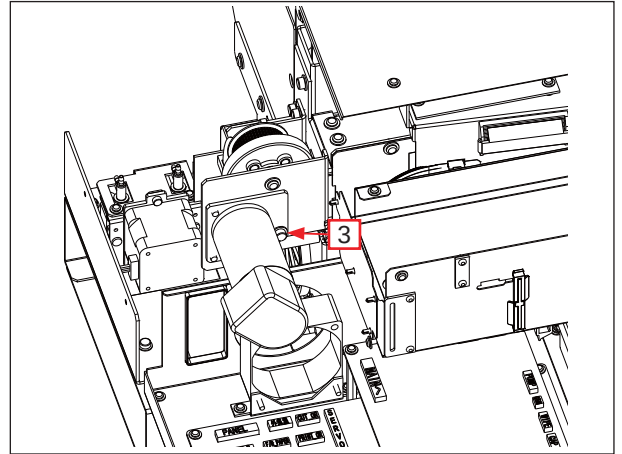


10 Turn the Drive Gear by hand to check if the gears mesh together.



11 Tighten up the three screws to fix the Flange in the order shown in the figure.

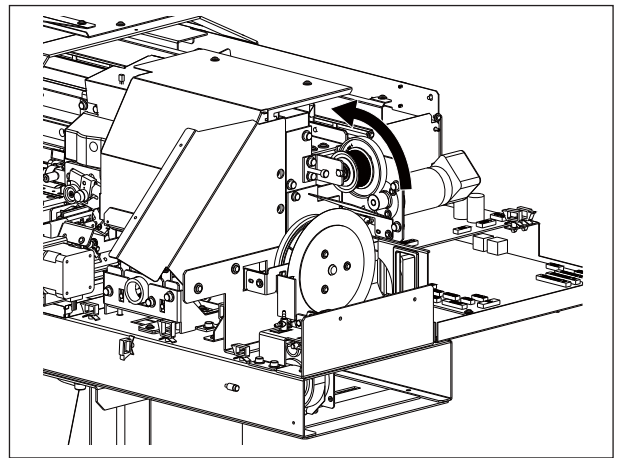




- 12** Turn the Drive Gear by hand for short steps back and forth to check if there is no backlash all the way around.



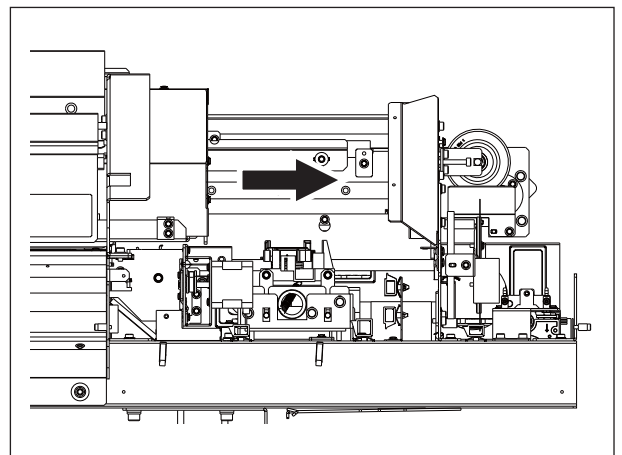
Apply a proper quantity of grease (FLOIL G902) to gears of the motor and Drive Gear.



- 13** Connect the connector of the Motor Cable.



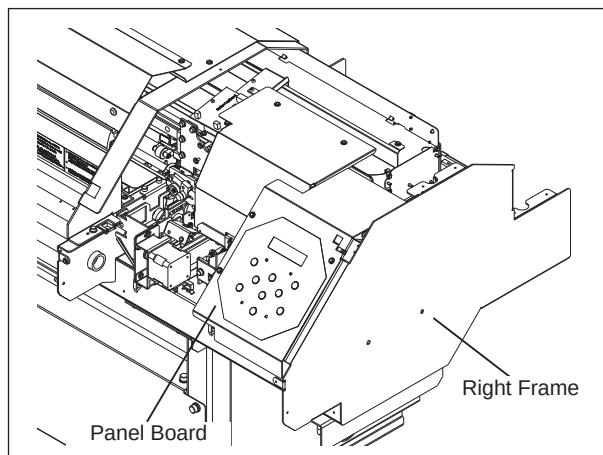
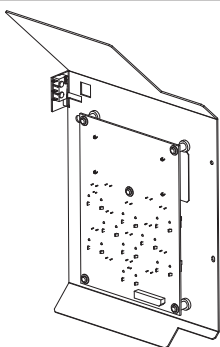
- 14** Move the Head Carriage by hand to the lock position.



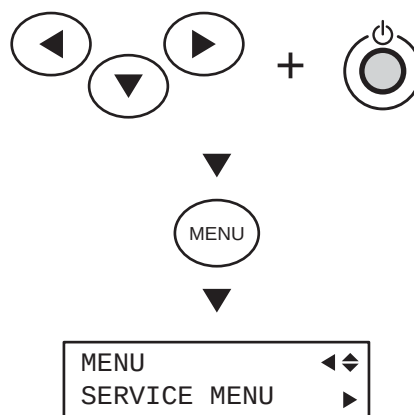
15 Fix the Right Frame and Panel Cover.



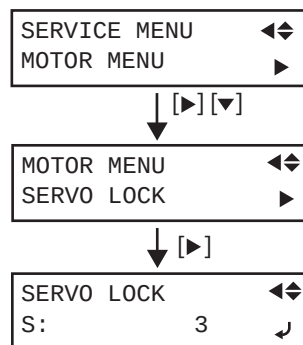
When fixing the Panel Cover, fix the sensor with the sensor cable and the ribbon cable to the Panel Board.



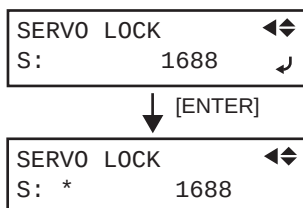
16 Perform the SERVO LOCK CHECK. After turning on the Main Power SW, turn on the Sub Power SW while pressing the left, right and down keys to enter the Service Mode.



17 In [MOTOR MENU]>[SERVO LOCK] menu, select [S]. Move the Head Carriage left and right by hand and make sure the value on the LCD changes depending on the head position.



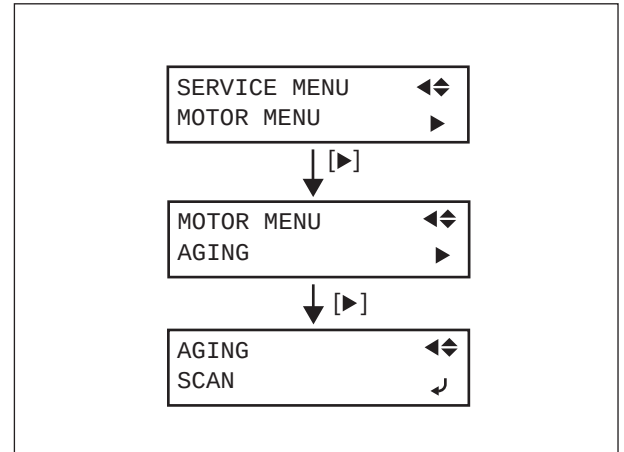
18 Press the [ENTER] key to excite the motor. Check the Head Carriage can not be moved easily by hand and the value on the LCD doesn't change.



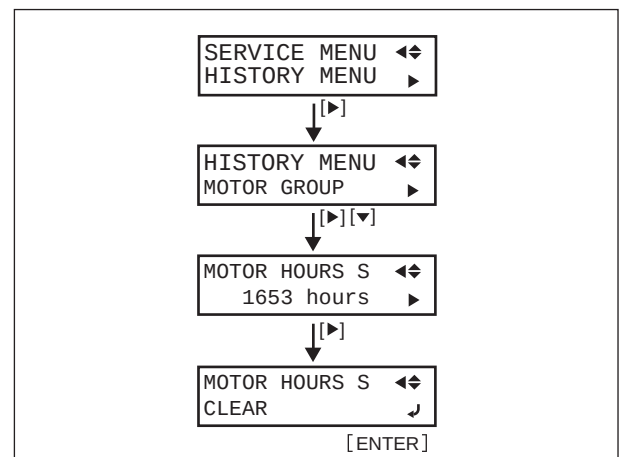
- 19** Perform the AGING.
Go back to the [MOTOR MENU], and select [AGING]>[SCAN] and press the [ENTER] key. Make sure the machine performs AGING and then, finish it by pressing [ENTER] key.



Do not load any media when performing [AGING].

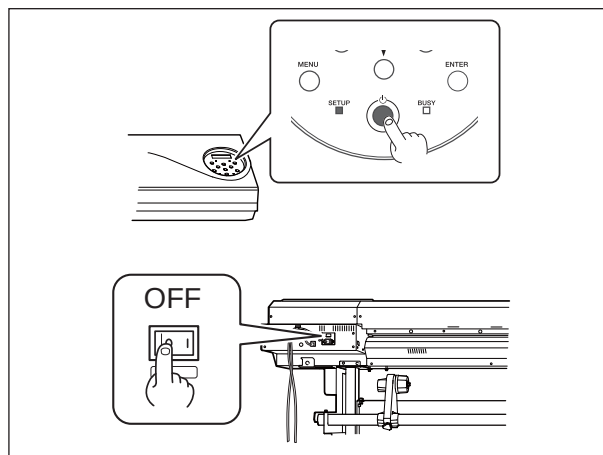


- 20** Clear the motor working hours.
Go back to the Service Menu, and select [HISTORY MENU] >[MOTOR GROUP]>[MOTOR HOURS S]>[CLEAR] and press the [ENTER] key. The motor working hours will be reset to 0.



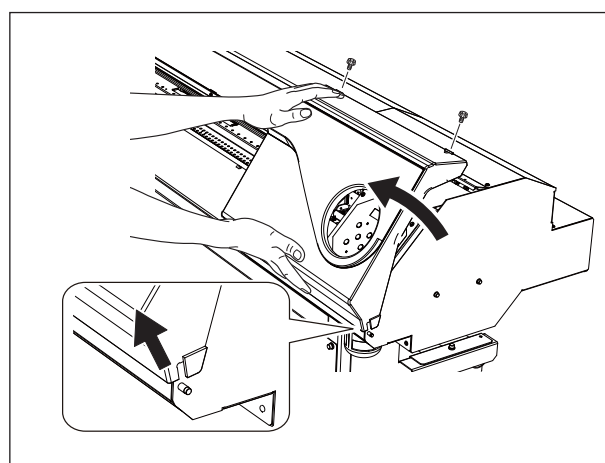
3-8 FEED MOTOR REPLACEMENT

- 1** Turn off the Sub Power SW, and then turn off the Main Power SW.

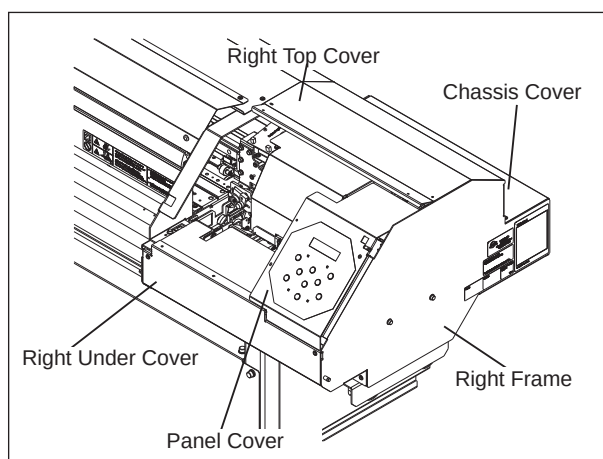
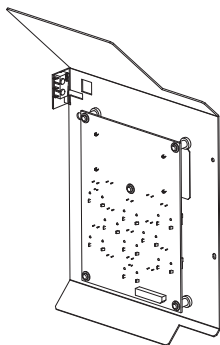


- 2** Remove the following covers in order.

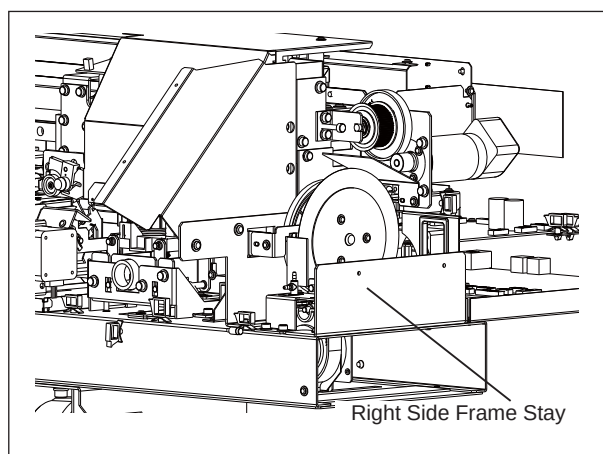
1. Right Cover
2. Right Top Cover
3. Chassis Cover
4. Panel Cover
5. Right Under Cover
6. Right Frame



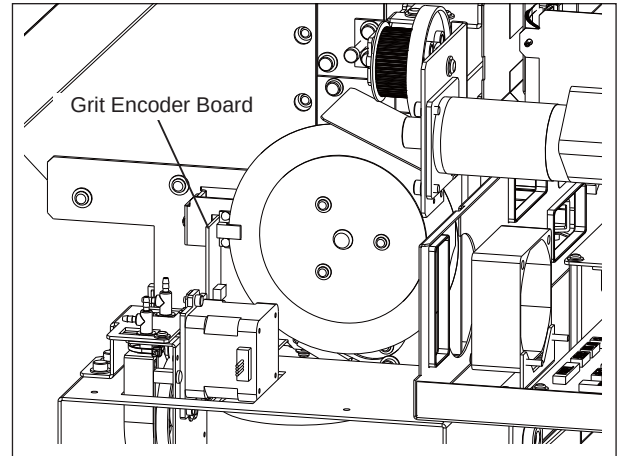
When removing the Panel Cover, remove the sensor with the cable and the ribbon cable from the Panel Board.



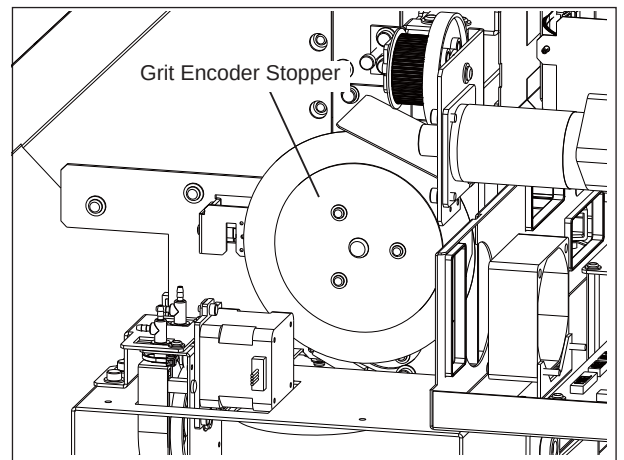
- 3** Remove the Right Side Frame Stay.



- 4** Remove the Grit Encoder Board.



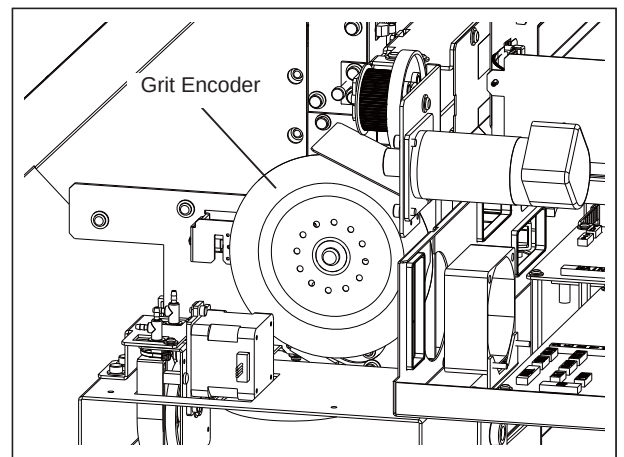
- 5** Remove the Grit Encoder Stopper.



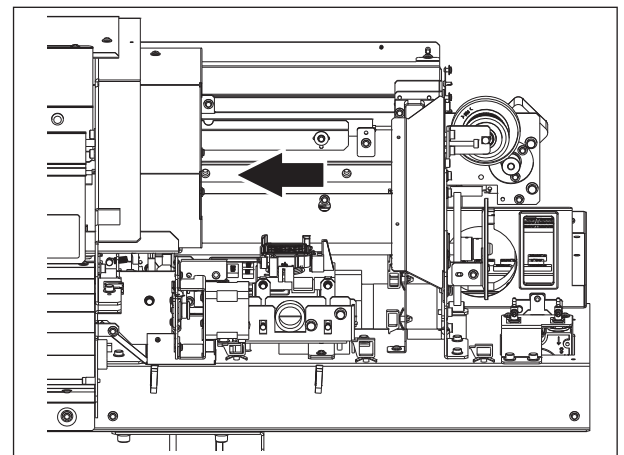
- 6** Remove the Grit Encoder.



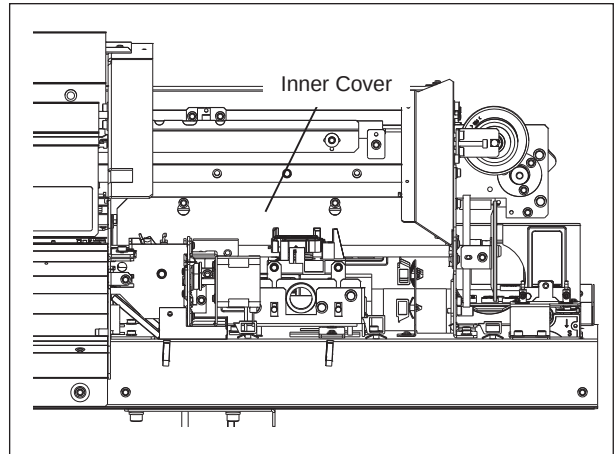
Make sure not to scratch or leave any fingerprints on the Grit Encoder.



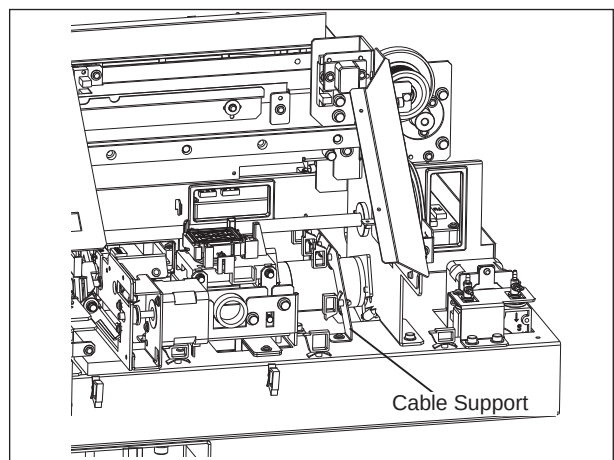
- 7** Move the Head Carriage leftwards by hand.



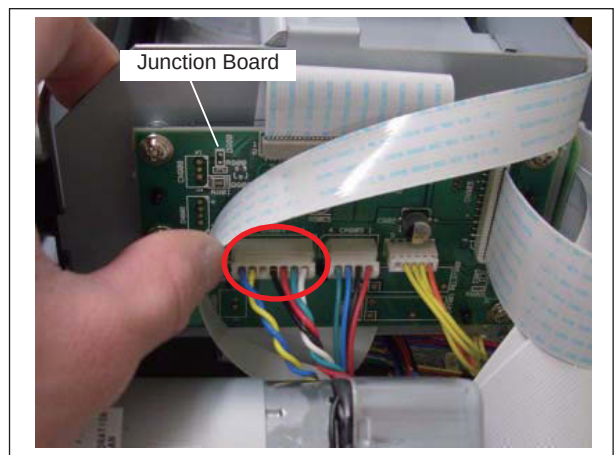
- 8** Remove the Inner Cover



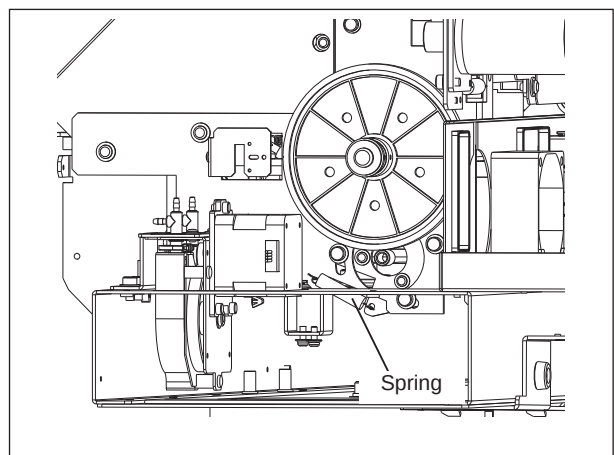
- 9** Remove the screw fixing the Cable Support and make it floated.



- 10** Remove the Feed Motor Cable with the junction cable from the Junction Board.

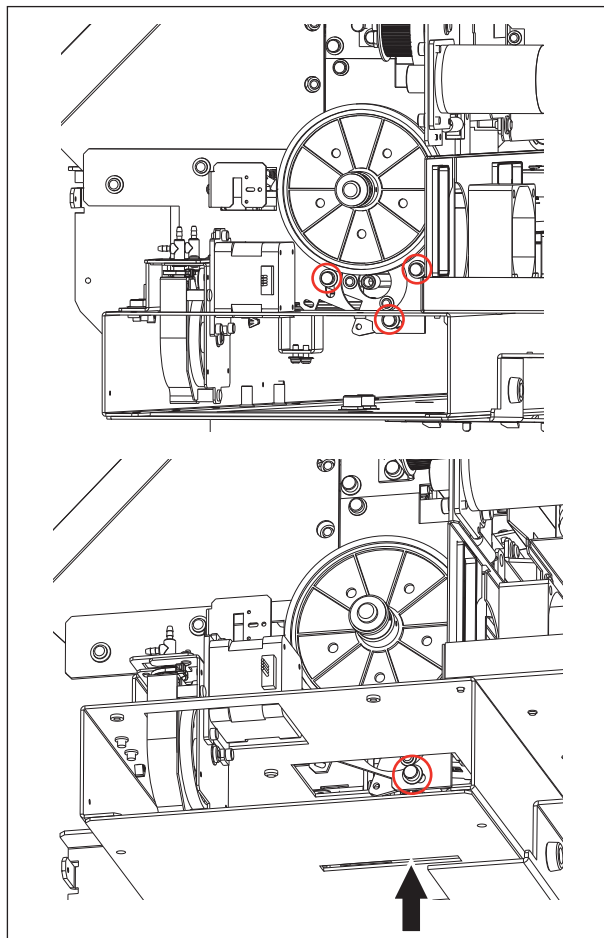


- 11** Remove the spring.

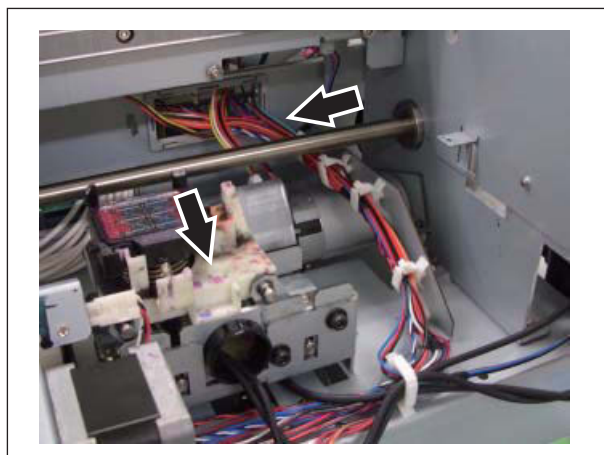


- 12** Remove the three screws shown in the figure and remove the Feed Motor.

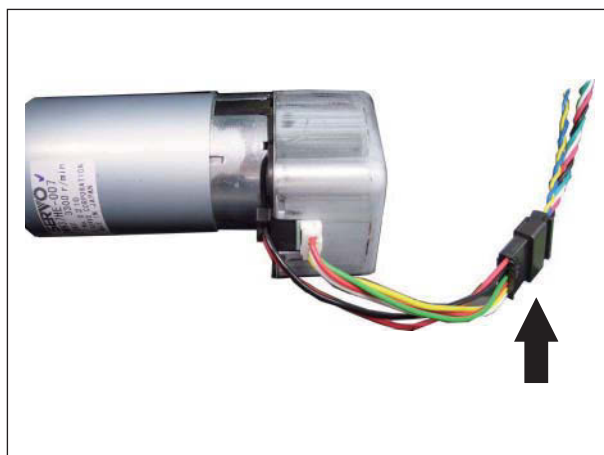
The bottom screw shown in the figure is removed through the slit on the bottom of the Bed



- 13** Pull out the Feed Motor leftward and taking out it from the rear side of the Cap Top unit.



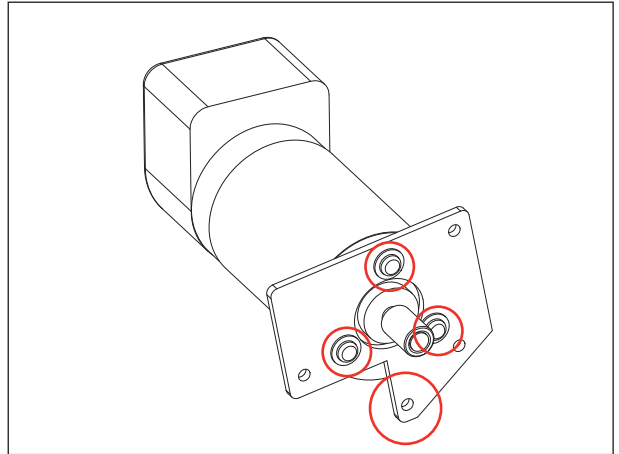
- 14** Remove the Feed Motor Cable from the connector of the junction cable. .



- 15** Remove the three screws as shown in the figure to remove the motor from the Flange.
And fix a new motor to the Flange.



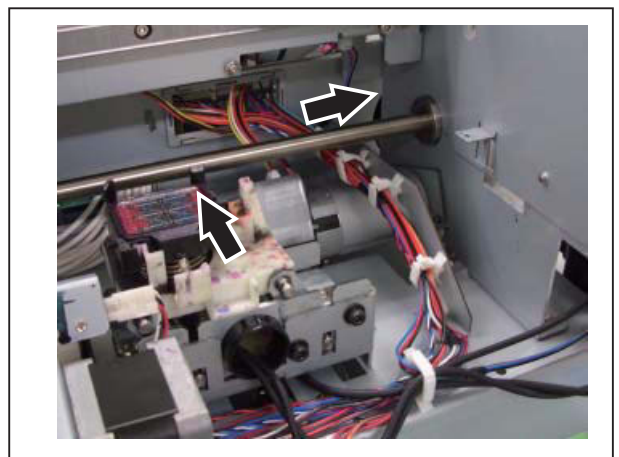
Be careful with the fixing direction of the Flange in relation to the motor cables.



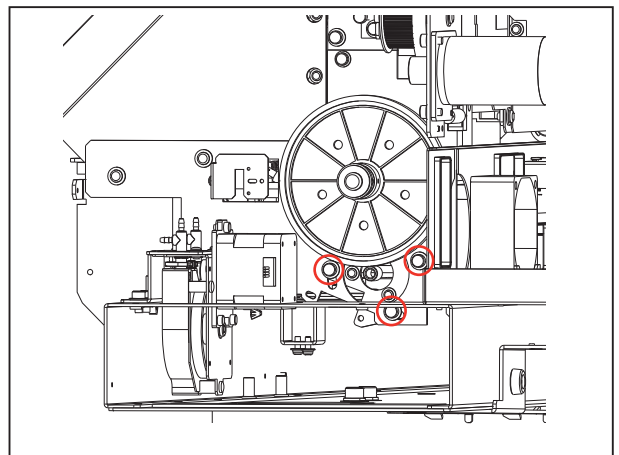
- 16** Connect the Feed Motor Cable to the junction cable.



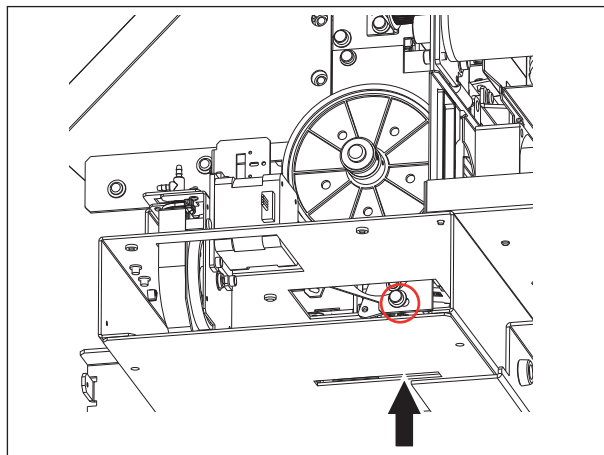
- 17** Take in the new Feed Motor from the rear of the Cap Top unit and fit it with the Frame.



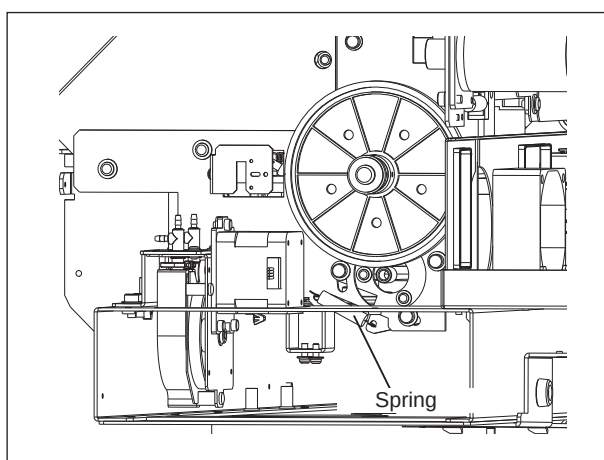
- 18** Fix the Flange with the three screws temporarily.



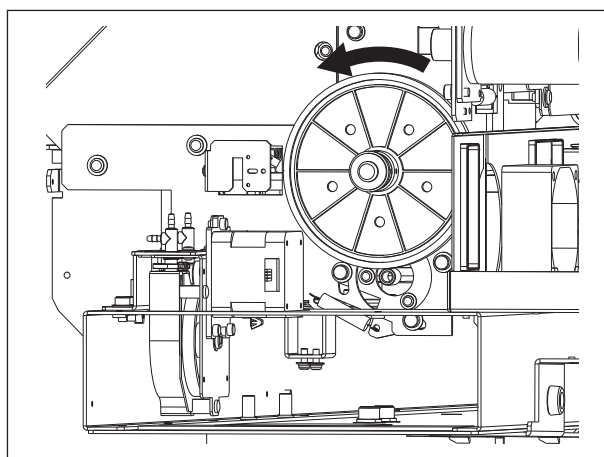
Fix the bottom screw temporarily through the slit on the bottom of the Bed



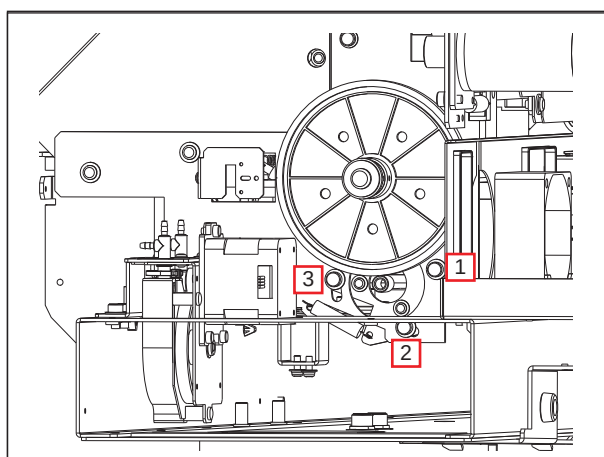
19 Fix the spring.



20 Turn the Drive Gear by hand to check if the gears mesh together.



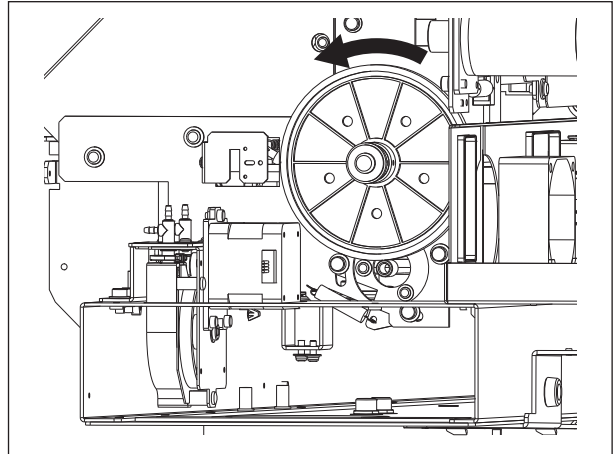
21 Tighten up the three screws to fix the Flange in the order shown in the figure.



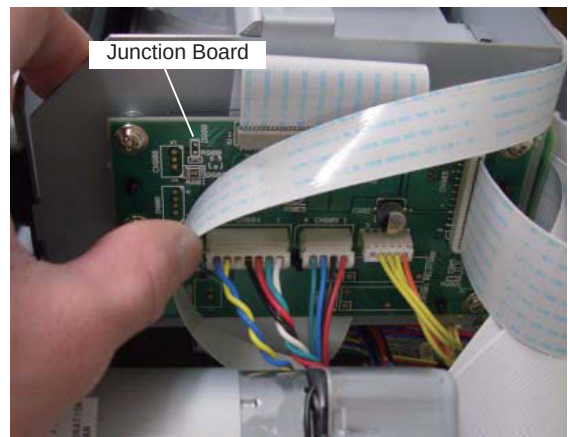
- 22** Turn the Drive Gear by hand for short steps back and forth to check if there is no backlash all the way around.



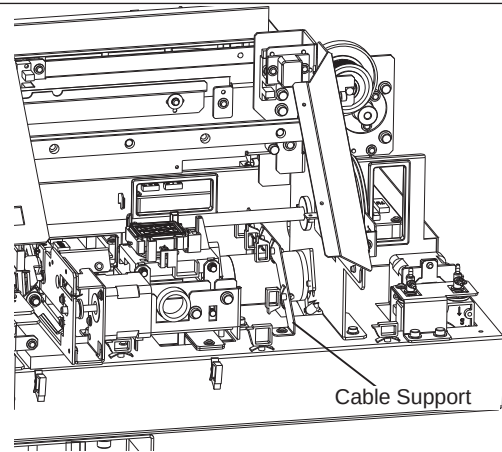
Apply a proper quantity of grease (FLOIL G902) to gears of the motor and Drive Gear.



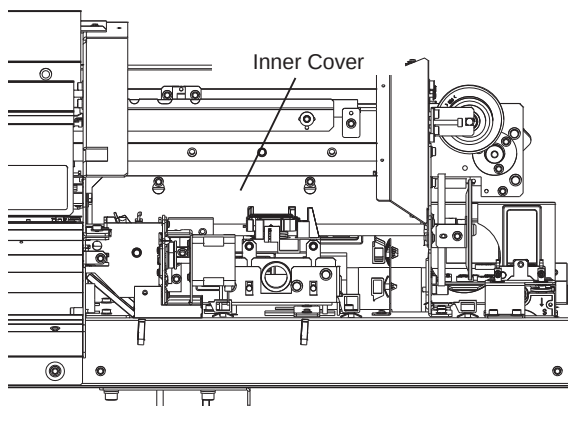
- 23** Connect the Feed Motor Cable to the Junction Board.



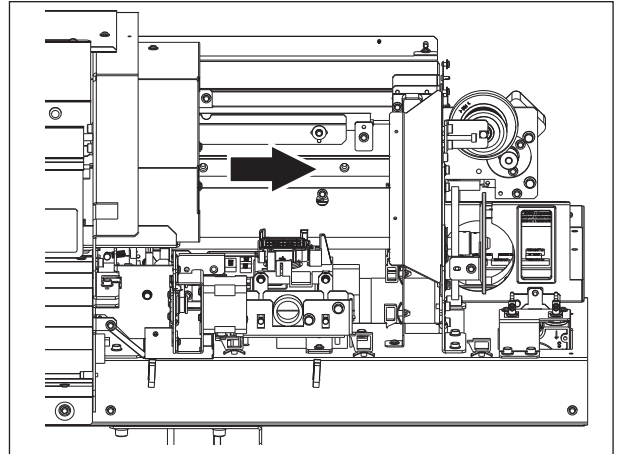
- 24** Fix the Cable Support.



- 25** Fix the Inner Cover.



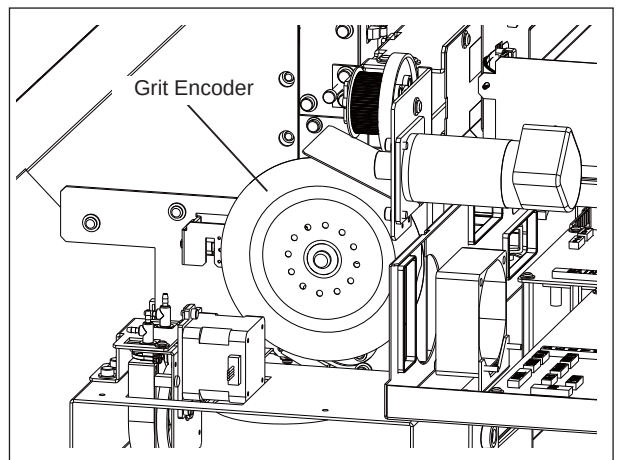
- 26** Move the Head Carriage by hand to the lock position.



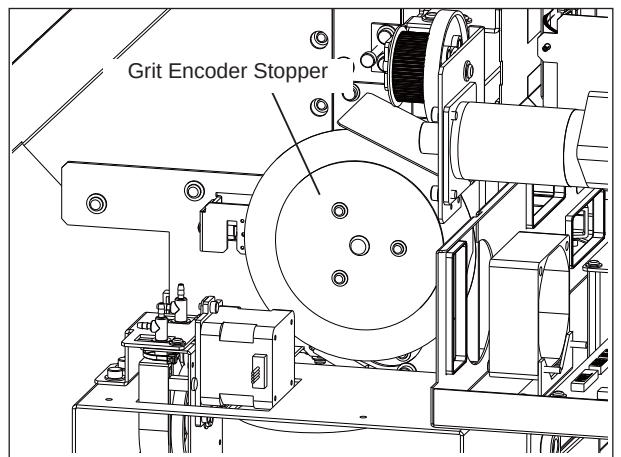
- 27** Fix the Grit Encoder.



The both sides of the Grit Encoder is the same.
When fixing the Grit Encoder, make sure not to scratch or leave any fingerprints on it.



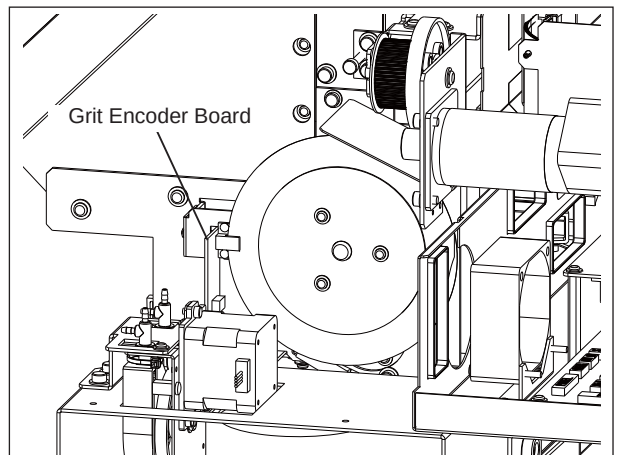
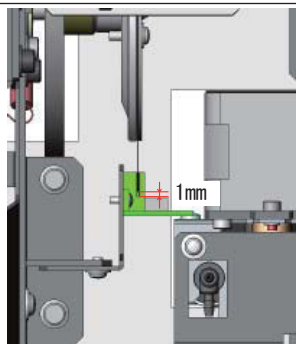
- 28** Fix the Grit Encoder Stopper with the three screws while holding the Shaft



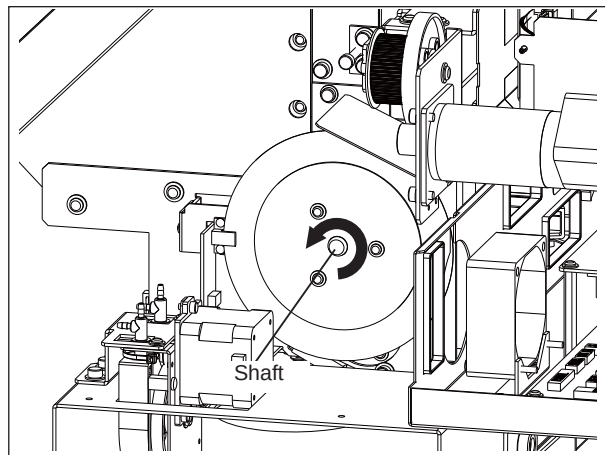
- 29** Fix the Grit Encoder Board together with the stay so that the Grit Encoder is in between the gap of sensor.



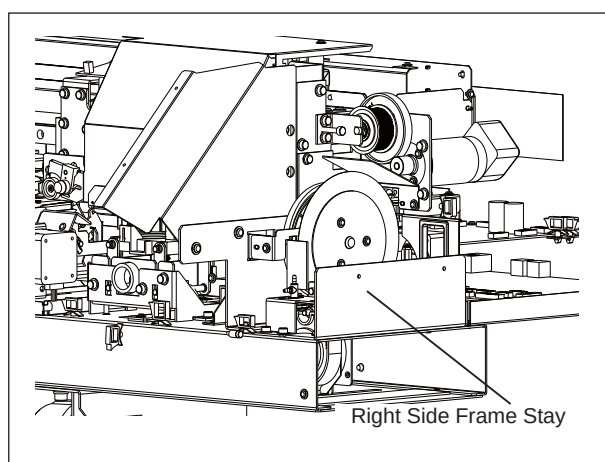
Adjust the position of the sensor so that the clearance with the Grit Encoder is around 1mm.



- 30** Rotate the Shaft to check that the Grit Encoder does not touch the sensor



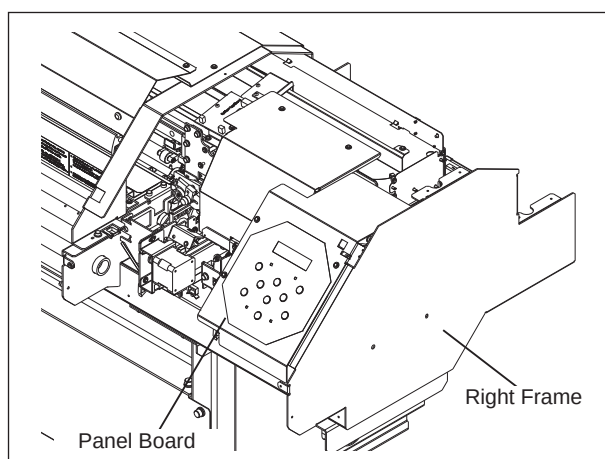
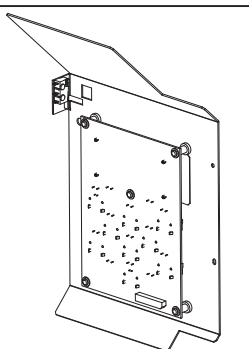
- 31** Fix the Right Side Frame Stay.



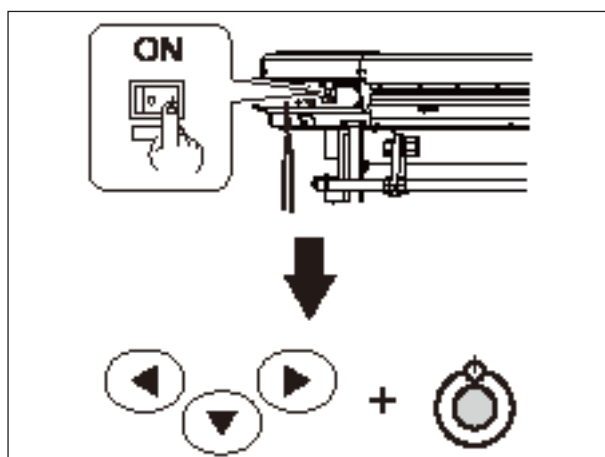
- 32** Fix the Right Frame and the Panel Cover.



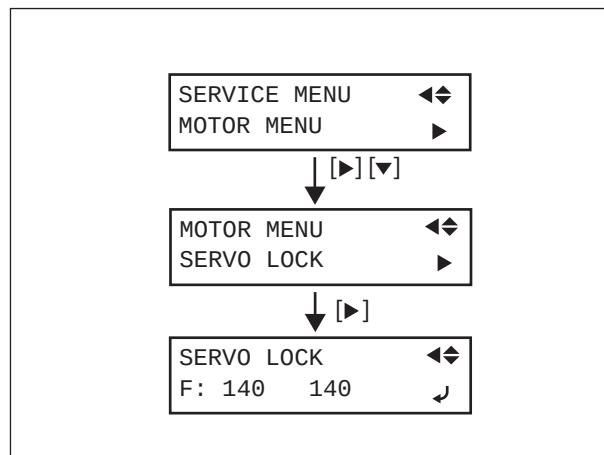
When fixing the Panel Cover, fix the sensor with the sensor cable and the ribbon cable to the Panel Board.



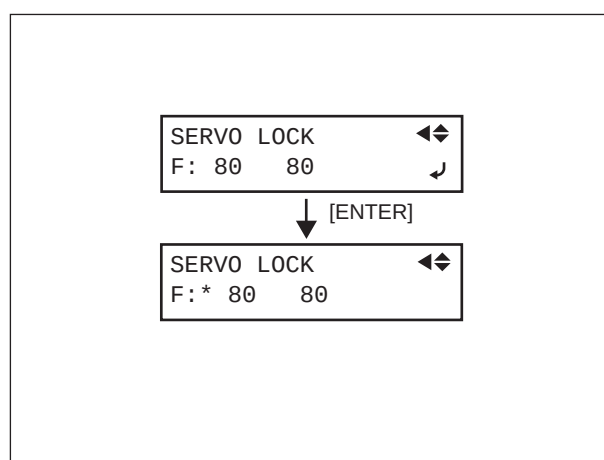
- 33** Perform the SERVO LOCK CHECK.
After turning on the Main Power SW, turn on the Sub Power SW while pressing the left, right and down keys to enter the Service Mode.



- 34** In [MOTOR MENU]>[SERVO LOCK] menu, select [F].
Move the Head Carriage left and right by hand and make sure the value on the LCD changes depending on the head position.



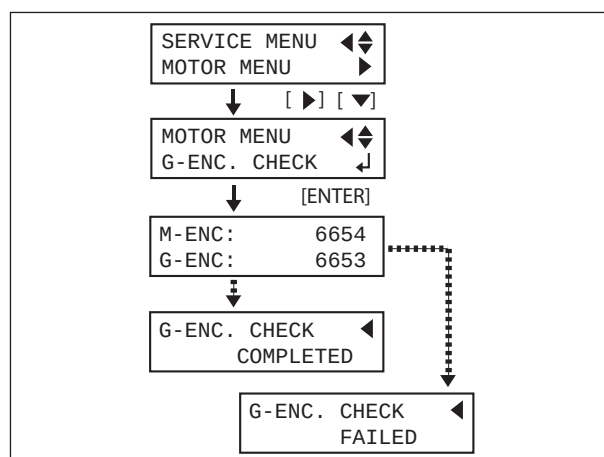
- 35** Press the [ENTER] key to excite the motor.
Check the Grit Roller can not be rotated easily by hand and the value on the LCD doesn't change.



- 36** Check the Grit Encoder.
Go back to the [MOTOR MENU], and select [G-ENC. CHECK] and press the [ENTER] key. Make sure the Grit Encoder functions correctly by confirming the display to show [G-ENC. CHECK COMPLETED].

In case that [G-ENC. CHECK FAILED] appears, check the followings.

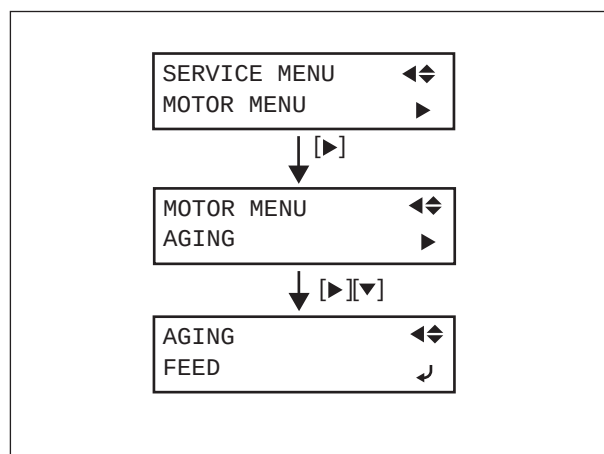
1. Grit Encoder is fixed correctly.
2. Feed Motor is fixed correctly.
3. There are no scratches or fingerprints.



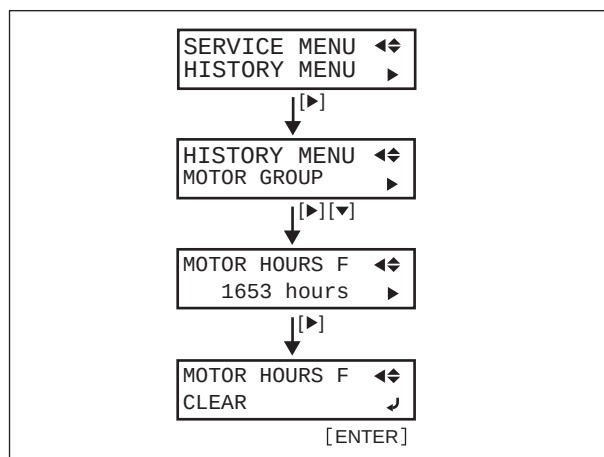
- 37** Perform AGING.
Go back to the [MOTOR MENU], and select [AGING]>[FEED] and press the [ENTER] key. Make sure the machine performs AGING and then, finish it by pressing [ENTER] key.



Do not load any media when performing [AGING].

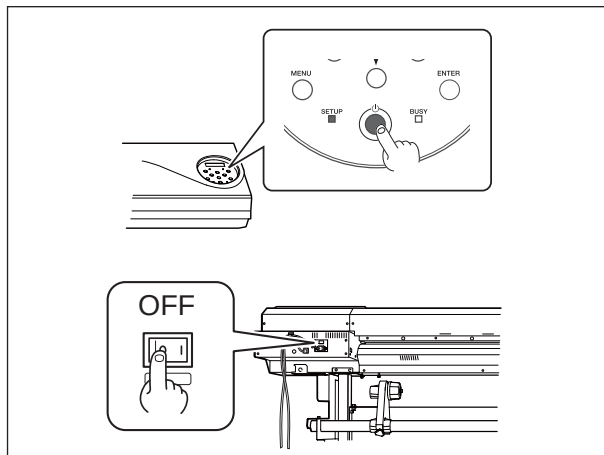


- 38** Clear the motor working hours.
Go back to the Service Menu, and select [HISTORY MENU]>[MOTOR GROUP]>[MOTOR HOURS F]>[CLEAR] and press the [ENTER] key. The motor working hours will be reset to 0.

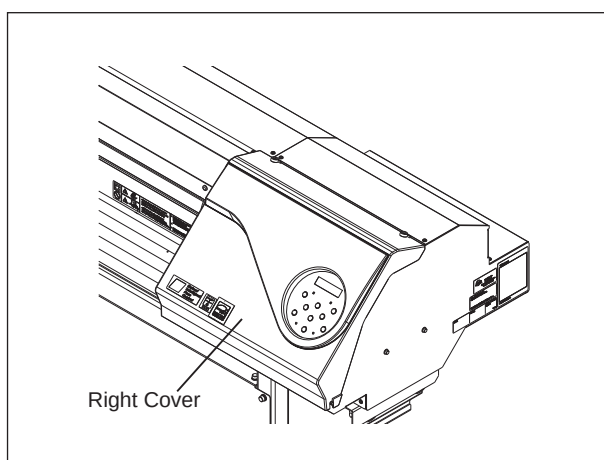


3-9 PUMP REPLACEMENT

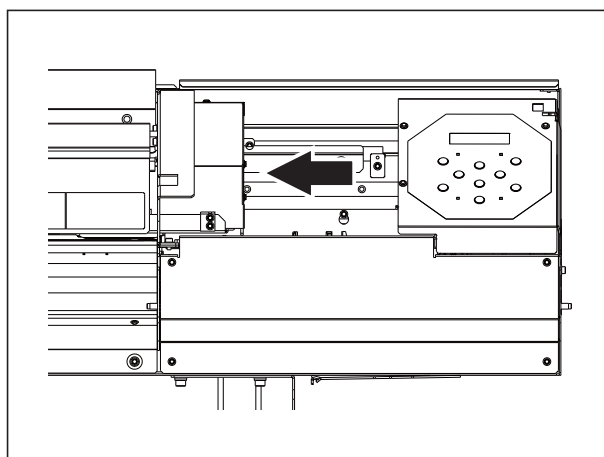
- 1 Turn off the Sub Power SW, and then turn off the Main Power SW.



- 2 Remove the Right Cover.



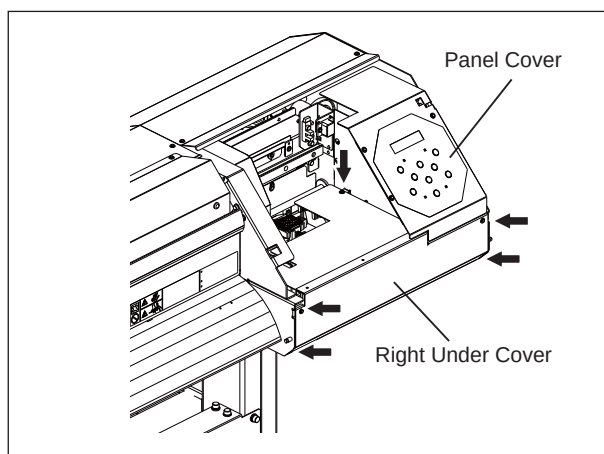
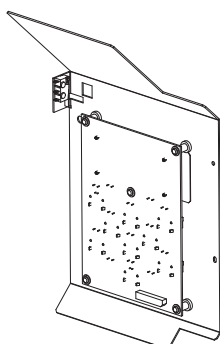
- 3 Move the Head Carriage leftwards to the position where it is not above the Capping Unit.



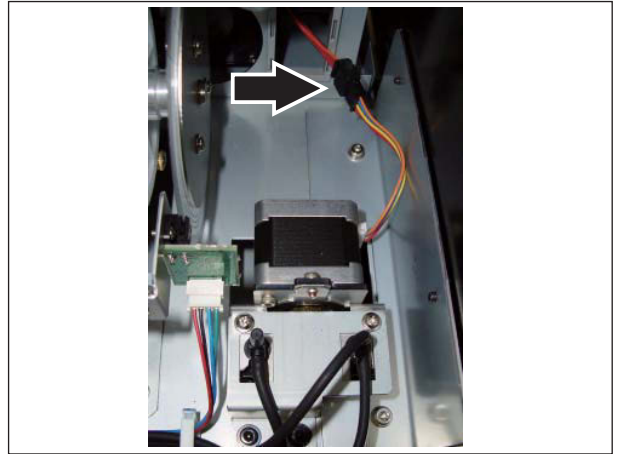
- 4 Remove the Panel Cover and the Right Under Cover.



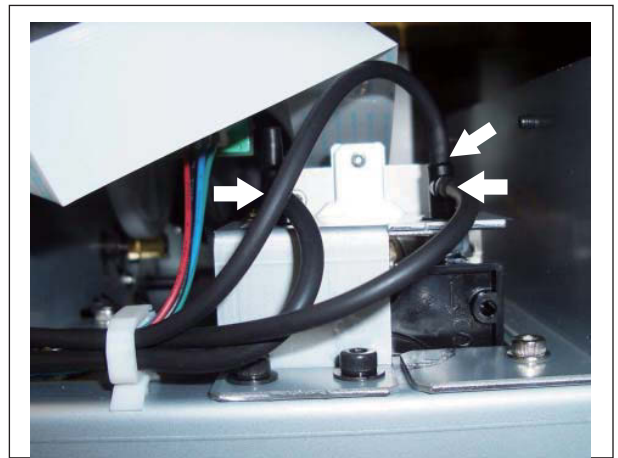
When removing the Panel Cover, remove the ribbon cable from the Panel Board.



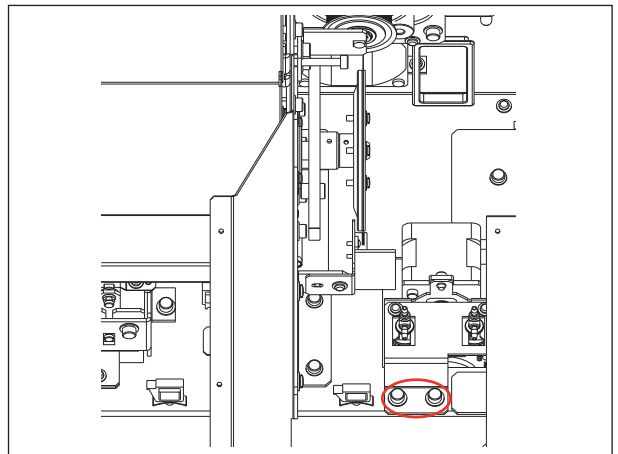
- 5** Remove the motor cable from the connector.



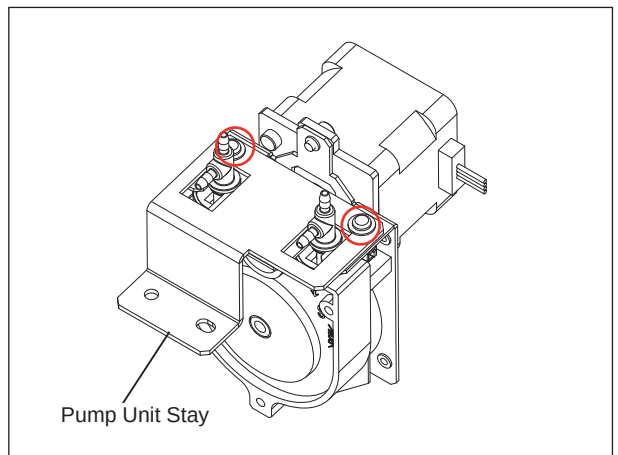
- 6** Remove the tubes of the Cap Top and the drain tube.



- 7** Remove the two screws fixing the Pump Unit Stay and take out the Pump Unit.

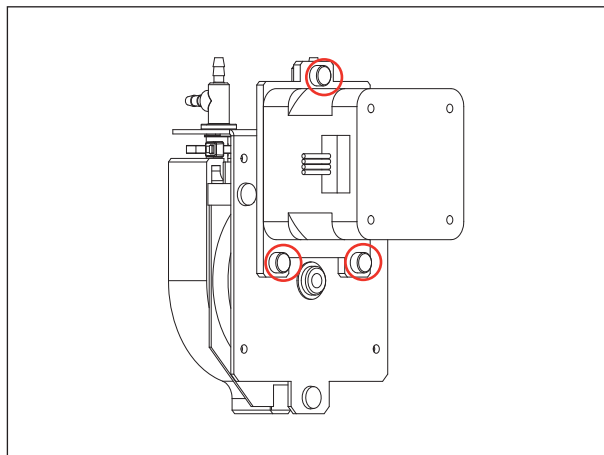


- 8** Remove the two screws shown in the figure and remove the Pump Unit Stay.

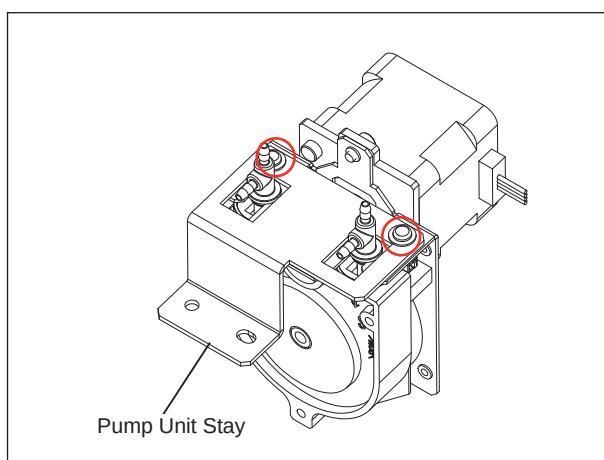


- 9** Remove the three screws shown in the figure and remove the motor from the Pump.

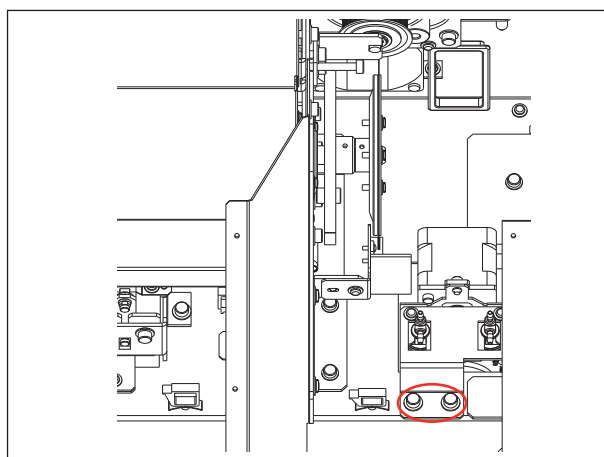
Then, fix the new Pump to the motor.



- 10** Fix the Pump Unit Stay to the Pump with the two screws shown in the figure.



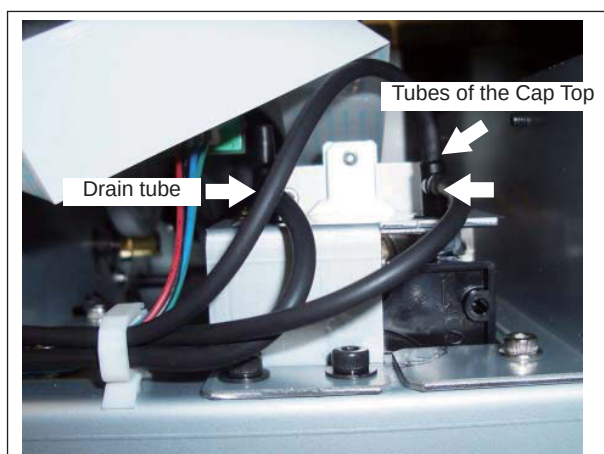
- 11** Fix the Pump Unit with the two screws shown in the figure.



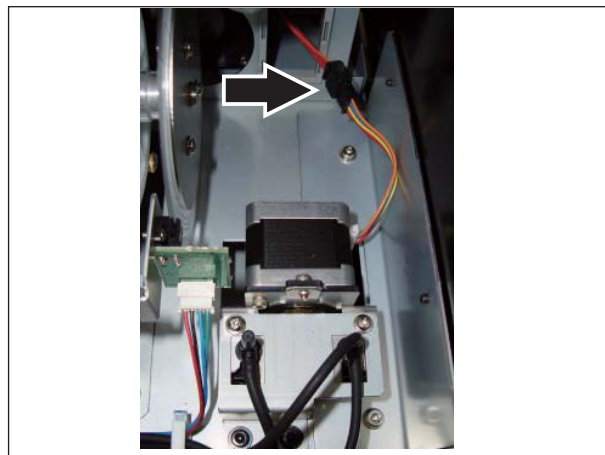
- 12** Connect the tubes of the Cap Top and the drain tube to the Pump Unit.



Be careful with the position to connect each tube.



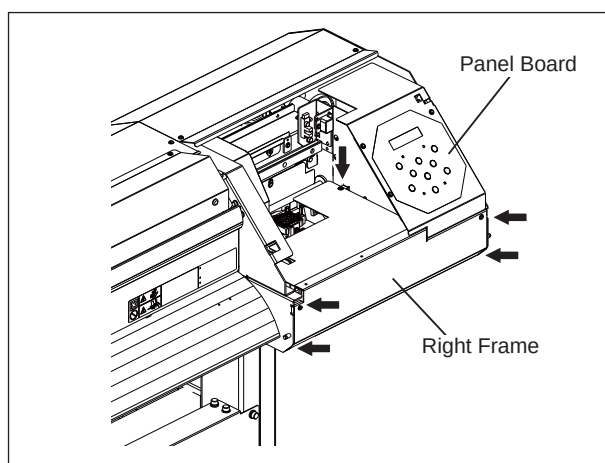
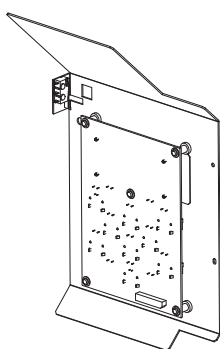
- 13** Connect the motor cable to the connector.



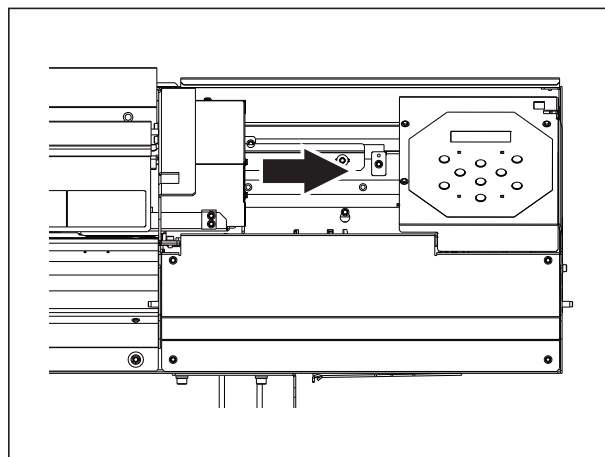
- 14** Fix the Right Frame and the Panel Cover.



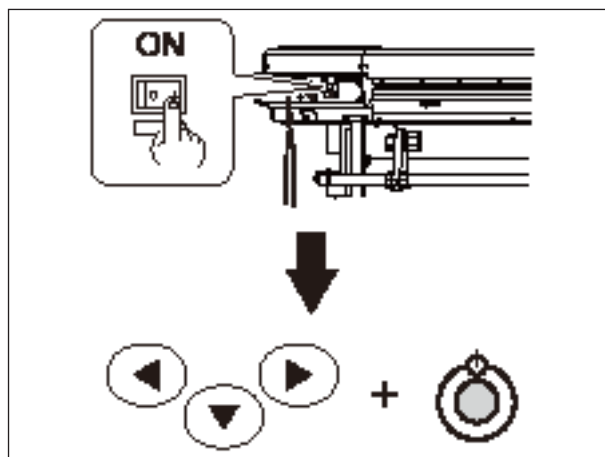
When fixing the Panel Cover, fix the ribbon cable to the Panel Board.



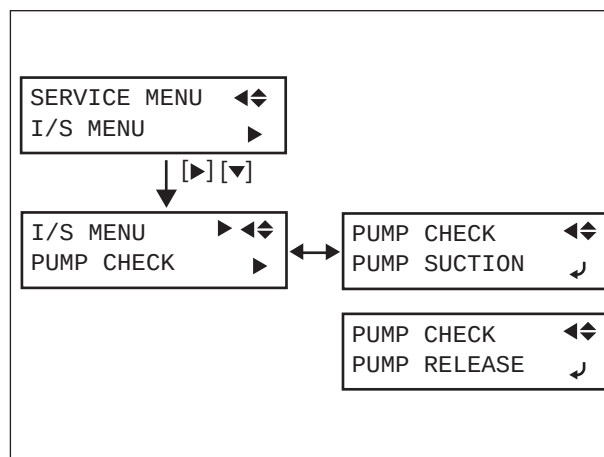
- 15** Move the Head Carriage by hand to the lock position.



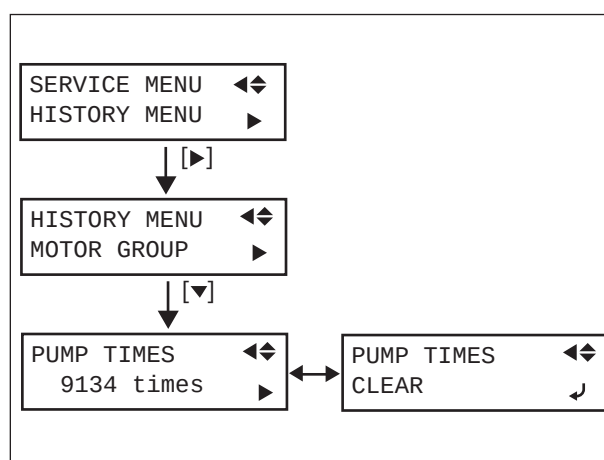
- 16** Turn on the Main Power SW, and then turn on the Sub Power SW while pressing the left, right and down keys to enter the Service Mode.



- 17** Select [SERVICE MENU]>[I/S MENU]>[PUMP CHECK], and perform [PUMP SUCTION] and [PUMP RELEASE] to check the pumps work correctly.

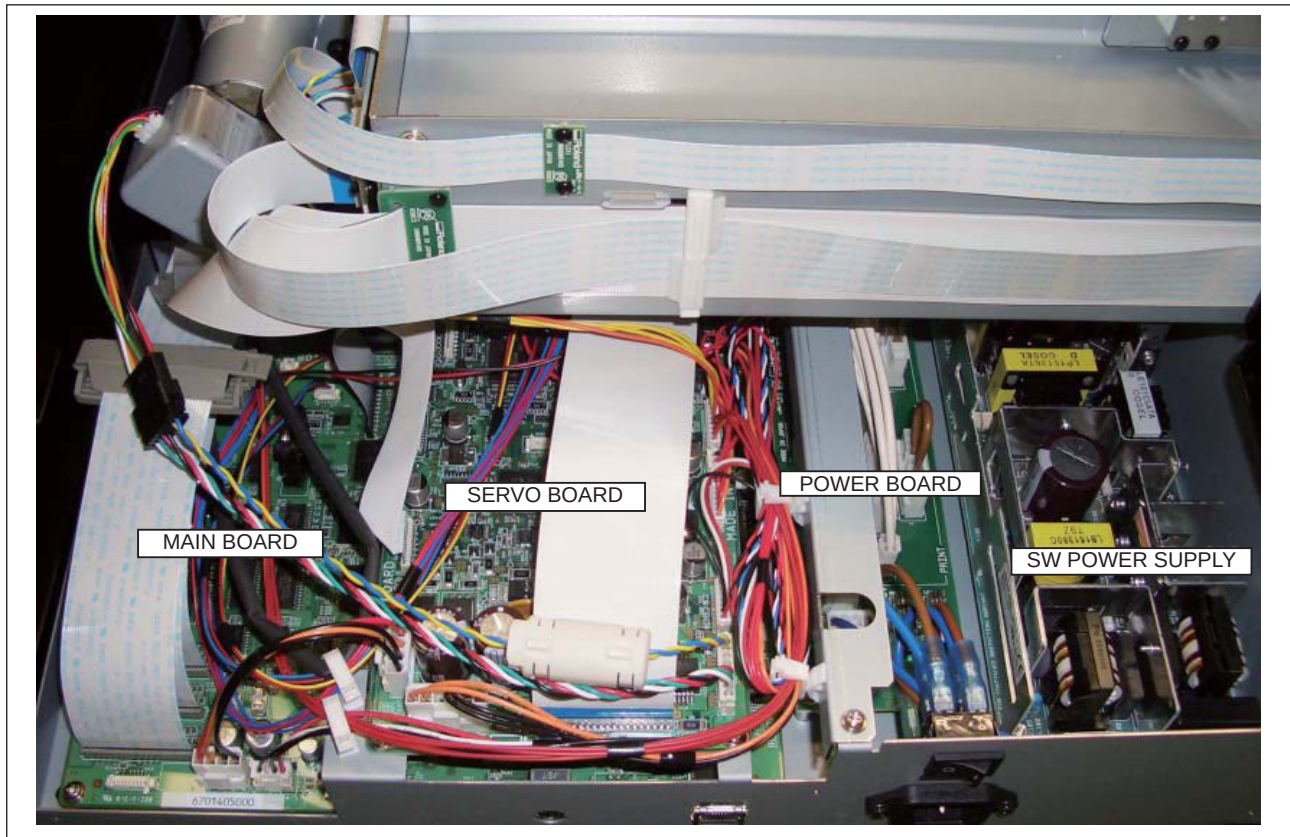


- 18** Clear the pump times.
Select [SERVICE MENU]>[HISTORY MENU]>[MOTOR GROUP]>[PUMP TIMES]>[CLEAR], and press the [ENTER] key.



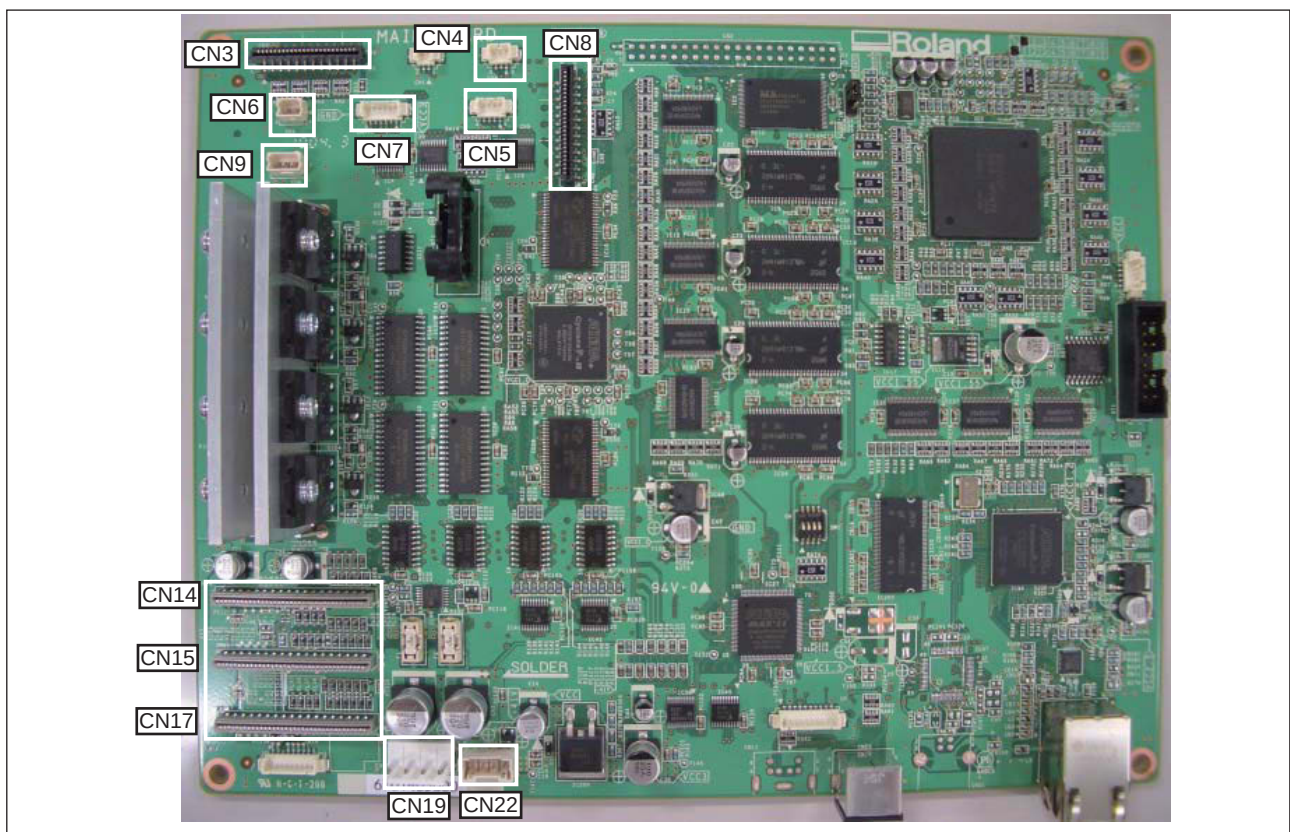
3-10 BOARDS REPLACEMENT (MAIN BOARD / SW POWER SUPPLY)

BOARD LAYOUT (IN CHASSIS)

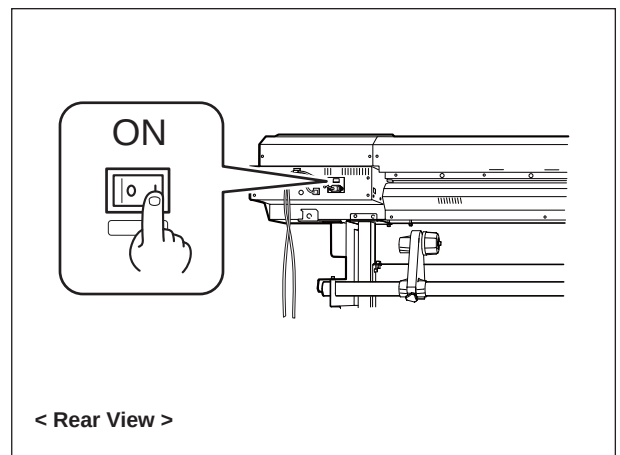


MAIN BOARD REPLACEMENT

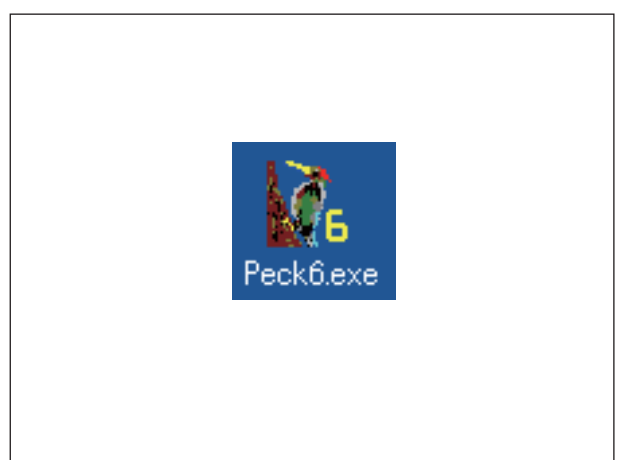
MAIN BOARD CONNECTOR LAYOUT



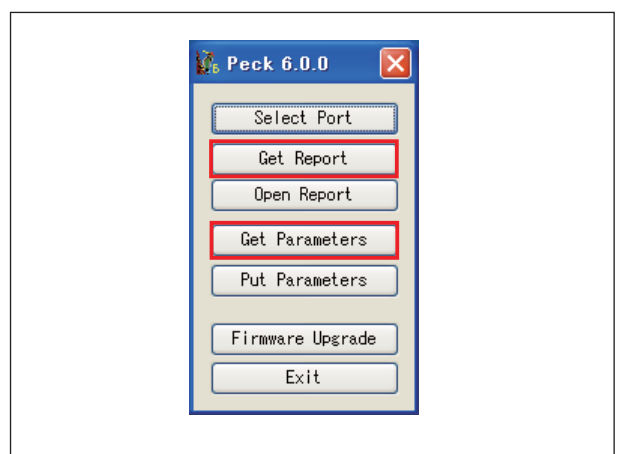
- 1** Turn on the Main Power SW.



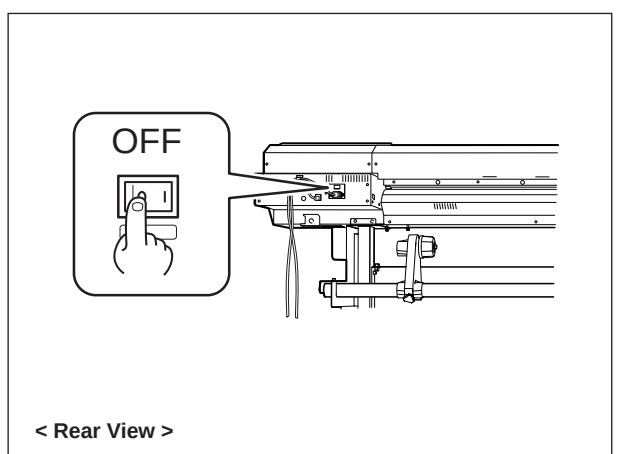
- 2** Start the Peck.



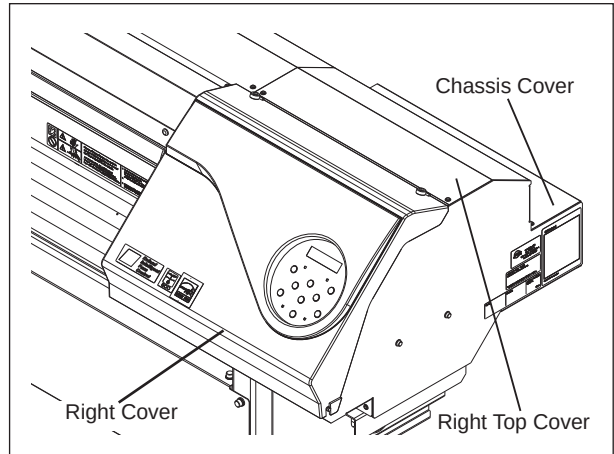
- 3** Perform [Get Report] and [Get Parameters], and save the Service Report and the parameters.



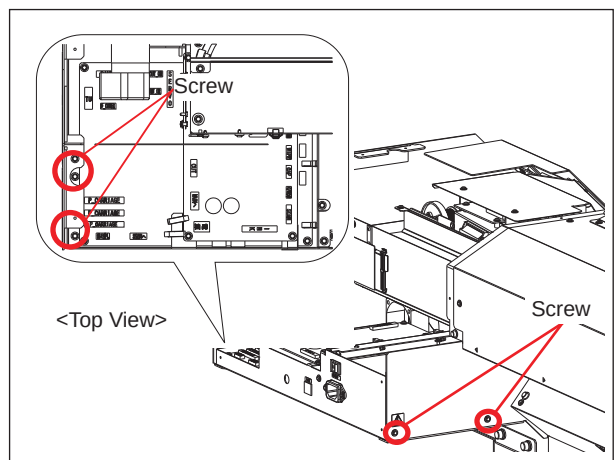
- 4** Turn off the Main Power SW and pull out the Power Cord.



- 5** Remove the Right Cover, the Right Top Cover and the Chassis Cover.



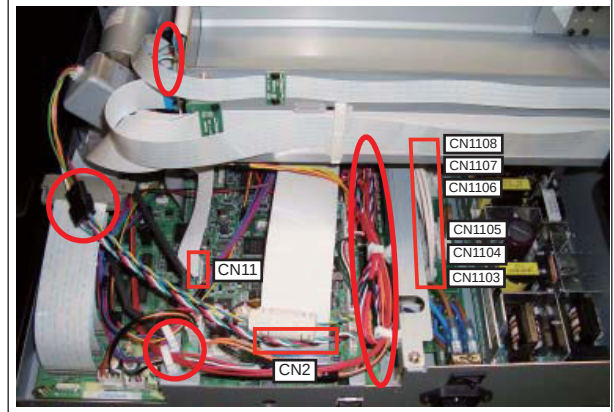
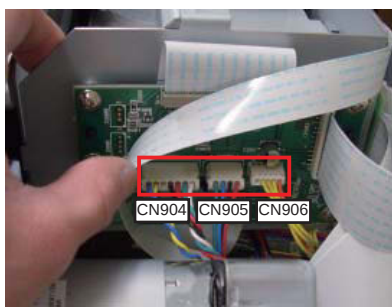
- 6** Remove the four screws shown in the figure.



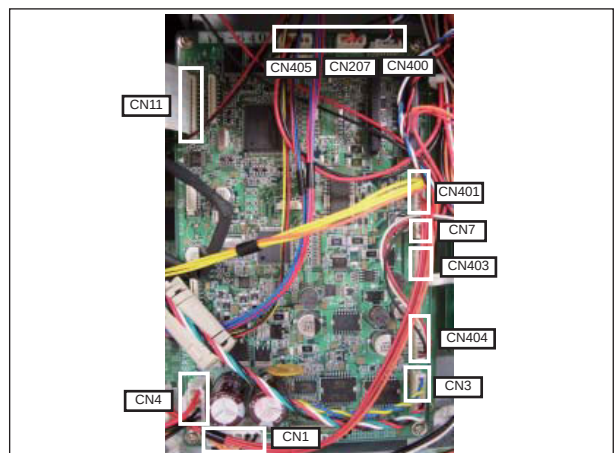
- 7** Disconnect the cables and release the cables from the clamps.



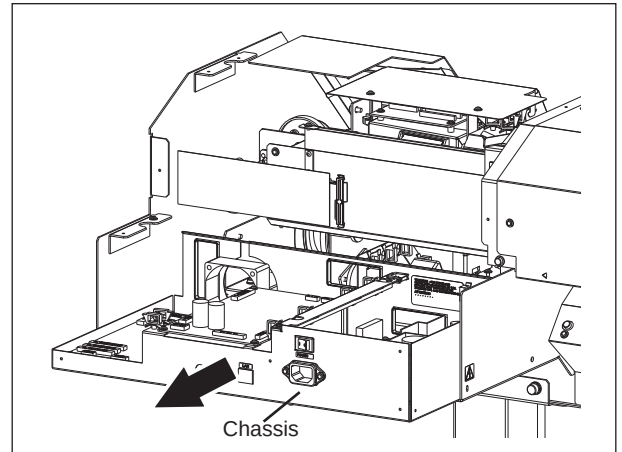
Do not forget to disconnect the cables shown in the figure.



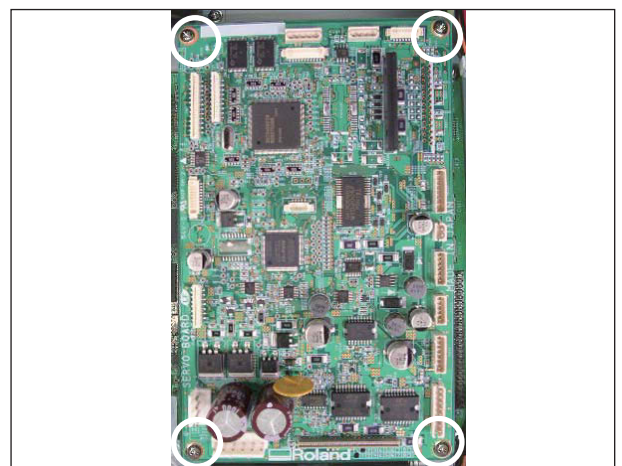
- 8** Disconnect all the cables from the Servo Board.



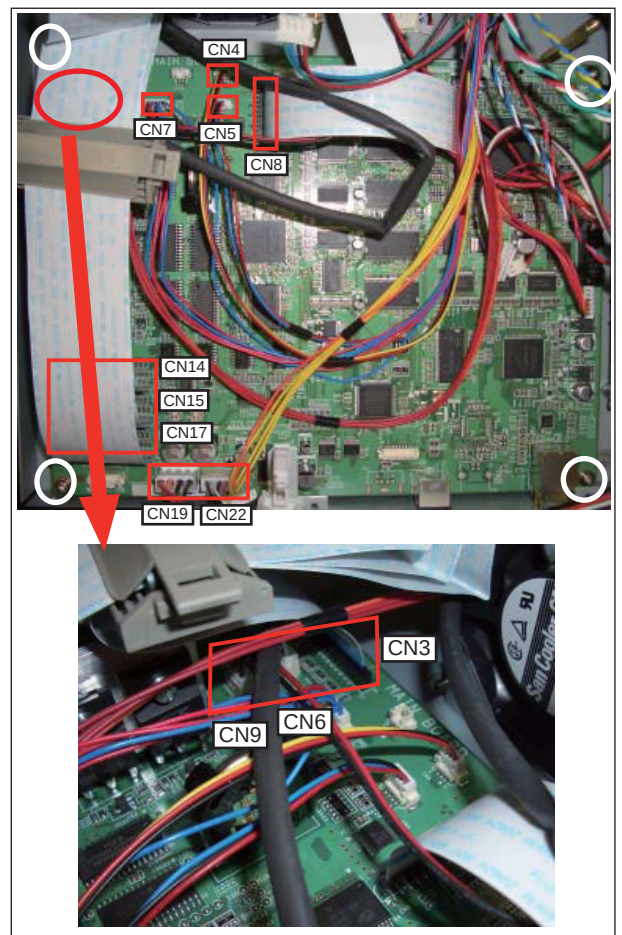
- 9** Pull out the Chassis to the front side.



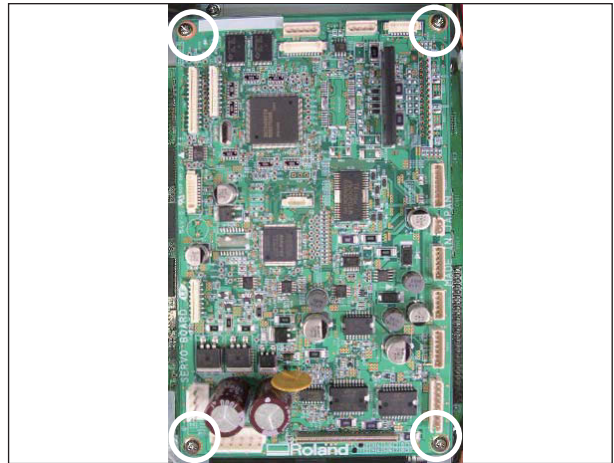
- 10** Remove the four screws shown in the figure to remove the Servo Board.



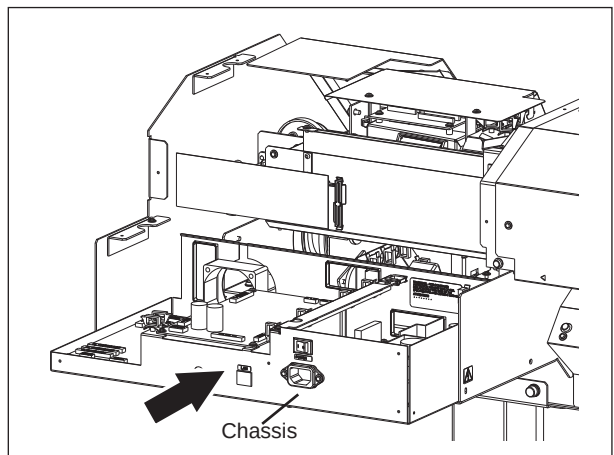
- 11** Disconnect the connector and flexible cable shown in the figure and fix them to the new Main Board.
Remove the four screws shown in the figure and replace with the new Main Board.



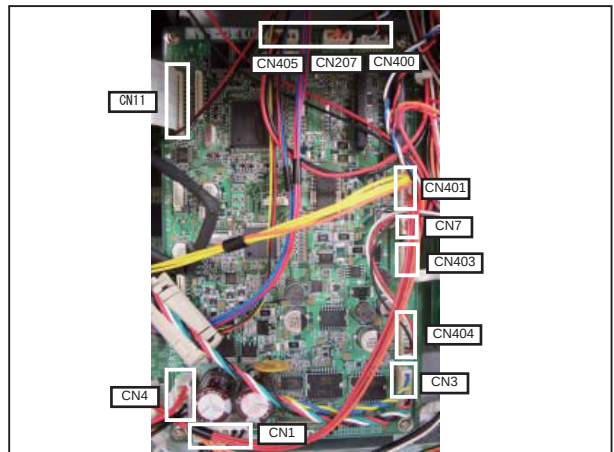
- 12** Fix the Servo Board with the four screws shown in the figure.



- 13** Put back the Chassis.



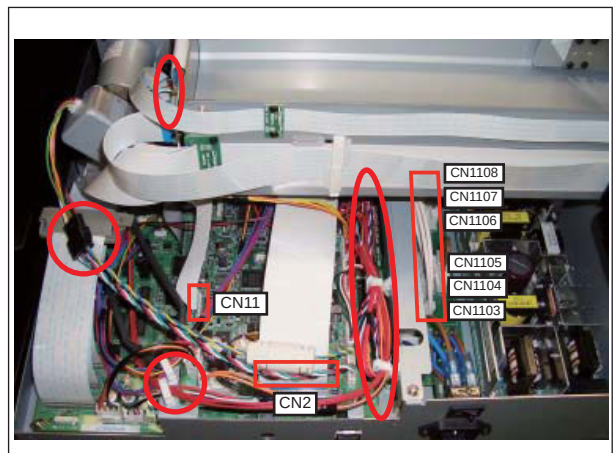
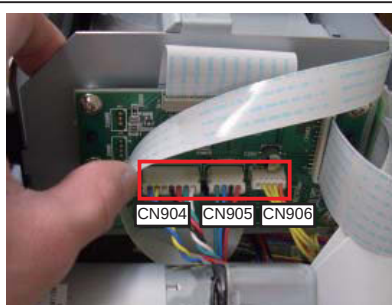
- 14** Connect all the cables to the Servo Board.



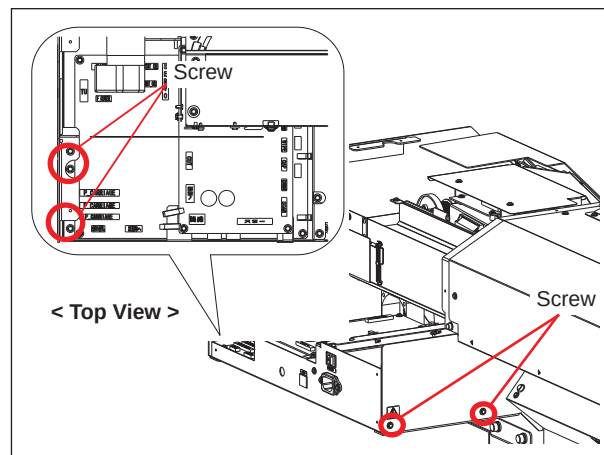
- 15** Connect the cables and bundle the cables with the clamps.



Do not forget to connect the cables shown in the figure.



- 16** Fix the Chassis with the four screws shown in the figure.



- 17** Perform the following operations after replacement.

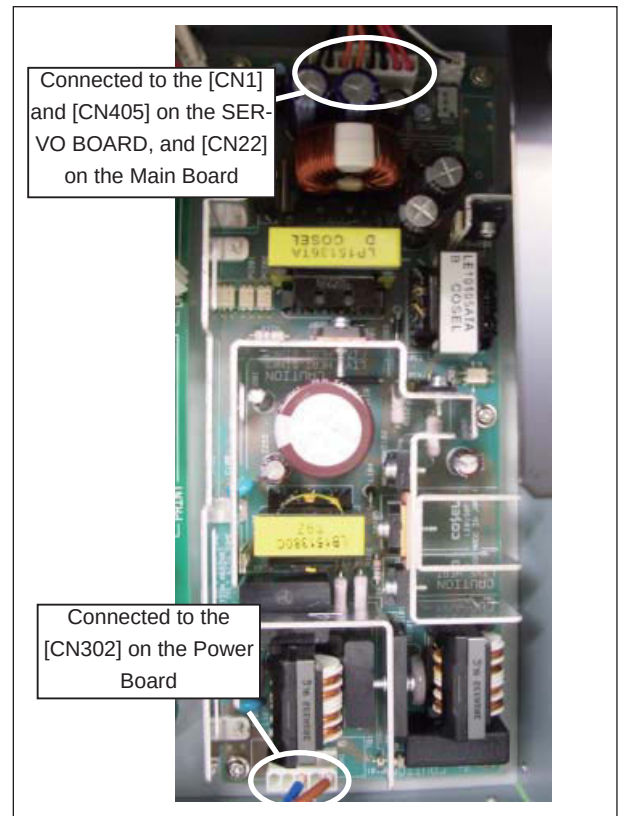
1. BATTERY INSTALLATION
Refer to [3-11 BATTERY REPLACEMENT].
2. FIRMWARE INSTALLATION
Refer to [4-2 HOW TO UPGRADE/INSTALL FIRMWARE].
3. SYSTEM PARAMETER INITIALIZE
Refer to [4-2 HOW TO UPGRADE/INSTALL FIRMWARE].
4. IP ADDRESS SETTING
Start the machine with the Service Mode and set in the User Menu.
5. PUT PARAMETER
Refer to [4-2 HOW TO UPGRADE/INSTALL FIRMWARE].
6. TIME AND DATE SETTING
Set the date and time in the [SERVICE MENU]>[SUB MENU]>[CLOCK].
*Set the [DATE] in order of the [Year/Month/Day].
7. SENSOR CHECK
It can be performed in the Sensor Check.
8. CROP MARK SENSOR ADJUSTMENT
Refer to [4-7 CROP MARK SENSOR ADJUSTMENT].
9. CROP-CUT ADJUSTMENT
Refer to [4-8 CROP-CUT ADJUSTMENT].
Necessary when the voltage is adjusted in the CROP MARK SENSOR ADJUSTMENT.

Perform the following operations if it is not possible to transfer the parameters by Peck4.exe.

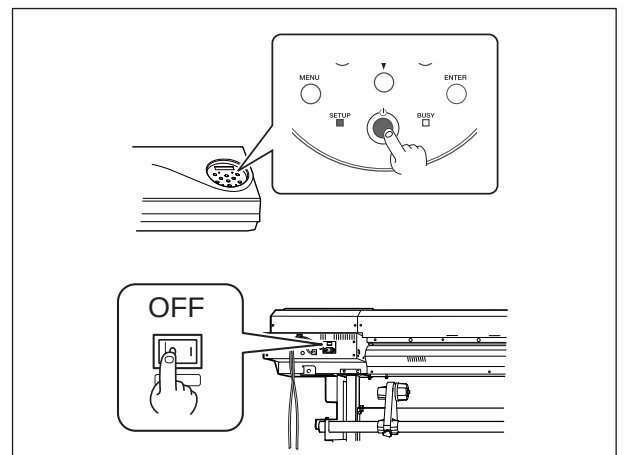
1. BATTERY INSTALLATION
Refer to [3-11 BATTERY REPLACEMENT].
2. FIRMWARE INSTALLATION
Refer to [4-2 HOW TO UPGRADE/INSTALL FIRMWARE].
3. SYSTEM PARAMETER INITIALIZE
Refer to [4-2 HOW TO UPGRADE/INSTALL FIRMWARE].
4. TIME AND DATE SETTING
Set the date and time in the [SERVICE MENU]>[SUB MENU]>[CLOCK].
*Set the [DATE] in order of the [Year/Month/Day].
5. IP ADDRESS SETTING
Start the machine with the Service Mode and set in the User Menu.
6. HEAD RANK SETTING
It can be set in the [PRINT MENU]>[HEAD RANK].
7. SERIAL NUMBER INPUT
It can be set in the [SUB MENU]>[SERIAL NO.].
8. INK TYPE SETTING
9. SENSOR CHECK
It can be performed in the Sensor Check.
10. LIMIT & CUT DOWN POSITION INITIALIZE
Refer to [4-4 LIMIT POSITION & CUT DOWN POSITION INITIALIZE]
11. FLUSHING POSITION ADJUSTMENT
Refer to [4-6 FLUSHING POSITION ADJUSTMENT].
* Perform the required adjustment depending on the serial number.
12. LINEAR ENCODER SETUP
Refer to [4-5 LINEAR ENCODER SETUP].
13. TOOL PRESSURE ADJUSTMENT
Refer to [4-12 TOOL PRESSURE ADJUSTMENT]
14. HEAD ALIGNMENT
Refer to [4-3 HEAD ADJUSTMENT].
Only Bidirectional Adjustment is required.
15. CALIBRATION
Refer to [4-10 CALIBRATION].
16. CROP MARK SENSOR ADJUSTMENT
Refer to [4-7 CROP MARK SENSOR ADJUSTMENT].
17. CROP-CUT ADJUSTMENT
Refer to [4-8 CROP-CUT ADJUSTMENT].
18. PRINT / CUT POSITION ADJUSTMENT
Refer to [4-9 PRINT/CUT POSITION ADJUSTMENT].

SW POWER SUPPLY REPLACEMENT (41V)

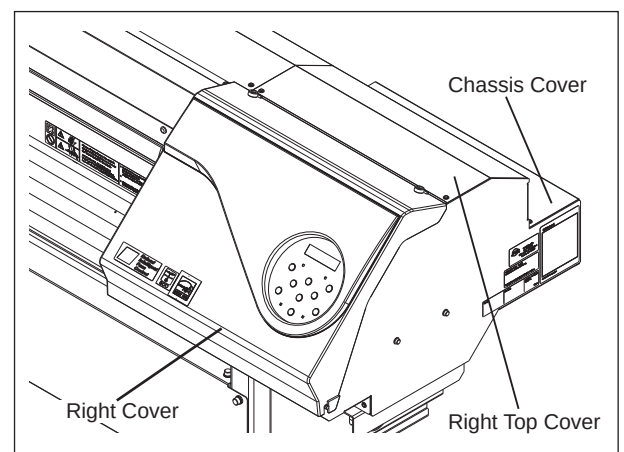
SW POWER SUPPLY CONNECTOR LAYOUT



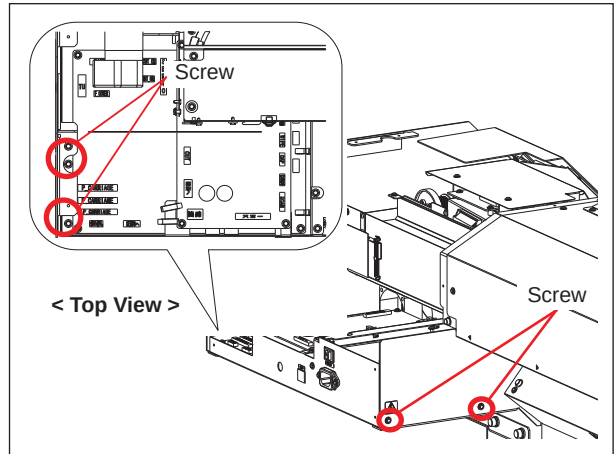
- 1 Turn off the Sub Power SW, and then turn off the Main Power SW and pull out the Power Cord.



- 2 Remove the Right Cover, the Right Top Cover and the Chassis Cover.



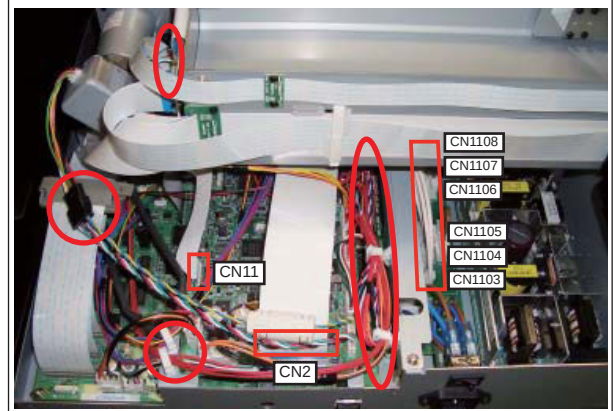
- 3** Remove the four screws shown in the figure.



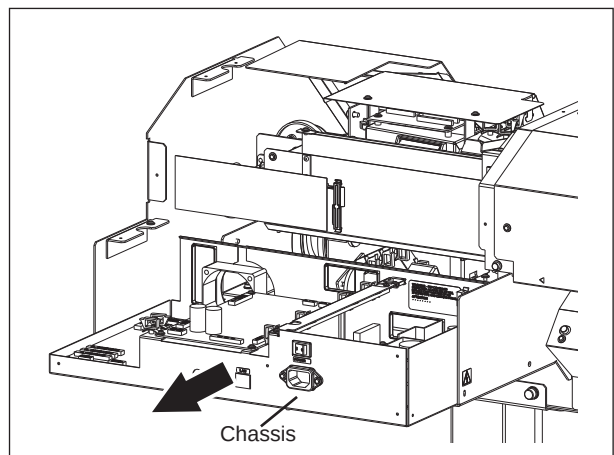
- 4** Disconnect the cables and release the cables from the clamps.



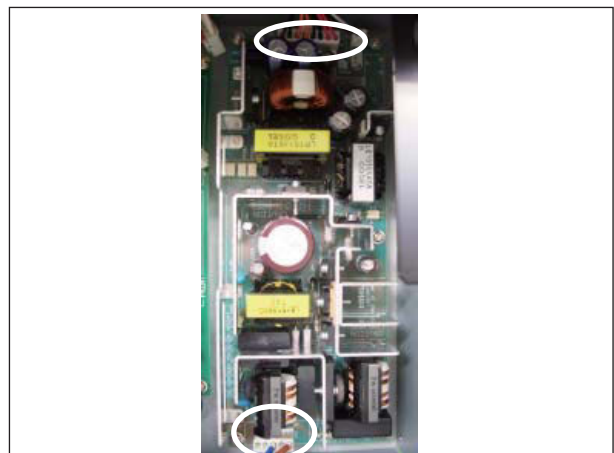
Do not forget to disconnect the cables shown in the figure.



- 5** Pull out the Chassis to the front side.



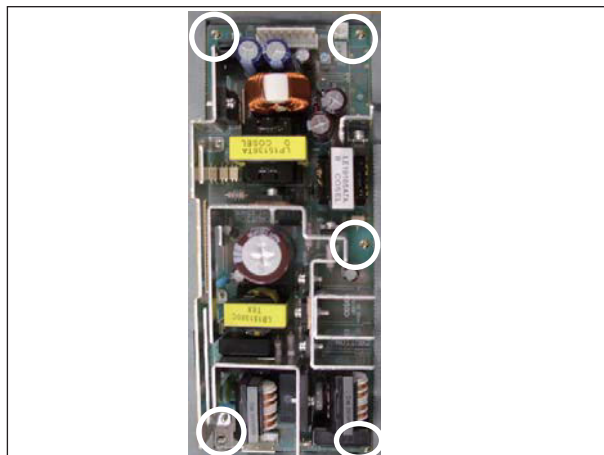
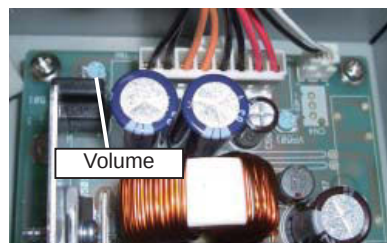
- 6** Disconnect all the cable from the SW Power Supply.



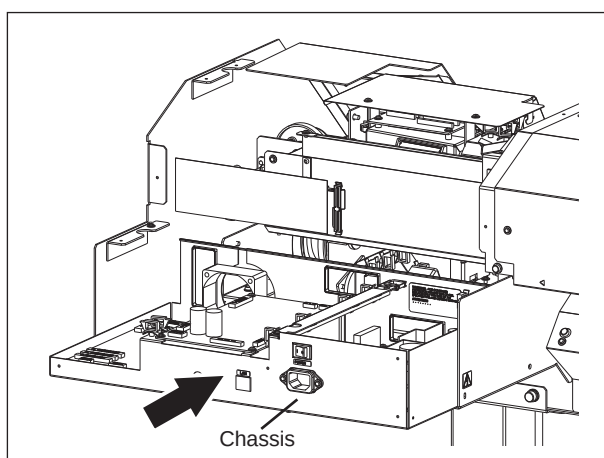
- 7** Remove the five screws shown in the figure and replace with the new SW Power Supply.
Connect all the cables to the SW Power Supply.



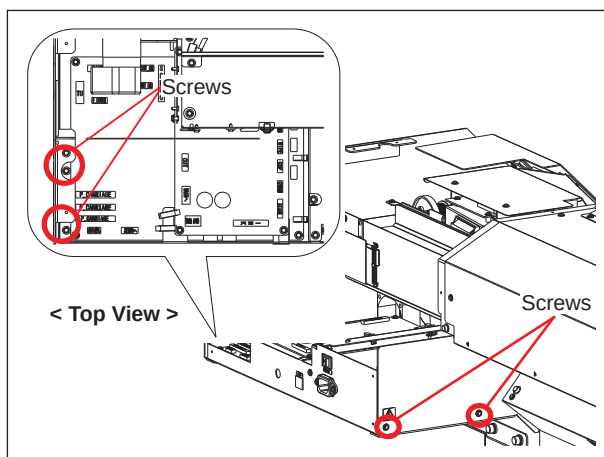
In case that the volume is accidentally turned around, adjust the output voltage value to $+41 \pm 0.1$.



- 8** Put back the Chassis.



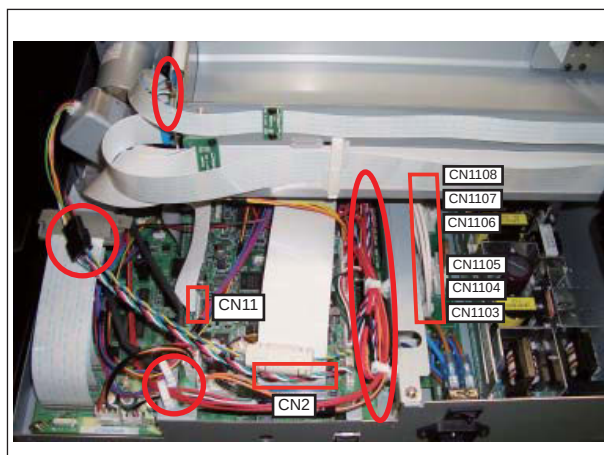
- 9** Fix the Chassis with the four screws shown in the figure.



- 10** Connect the cables and bundle the cables with the clamps.



Do not forget to connect the cables shown in the figure.



3-11 BATTERY REPLACEMENT

CAUTION

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer.

Dispose of used batteries according to the manufacturer's instructions.

⚠ ATTENTION

Il y a danger d'explosion s'il y a remplacement incorrect de la batterie.

Remplacer uniquement avec une batterie du même type ou d'un type équivalent recommandé par le constructeur.

Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

⚠ ADVARSEL!

Lithiumbatteri - Eksplosionsfare ved fejlagtig handling.

Udskiftning må kun ske med batteri af samme fabrikat og type.

Levér det brugte batteri tilbage til leveranøren.

⚠ WARNING



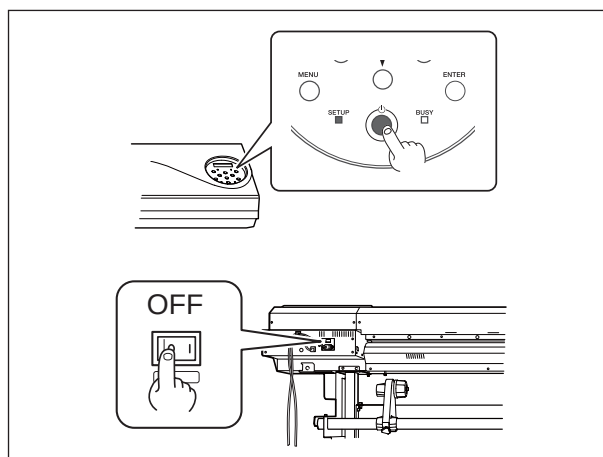
Do not recharge, short-circuit, disassembly the lithium battery, nor put it into fire.
It may cause heat, explosion and fire.



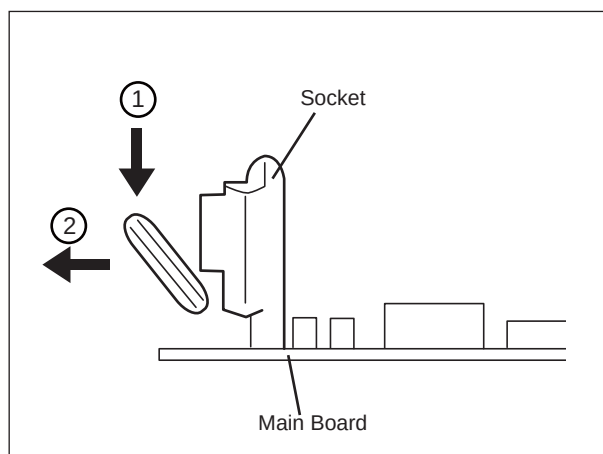
Put tape around the lithium battery for insulation for disposal or preservation.
It may cause heat, explosion and fire.

- 1 Turn off the Sub Power SW, and then turn off the Main Power SW.

Remove the Chassis Cover.



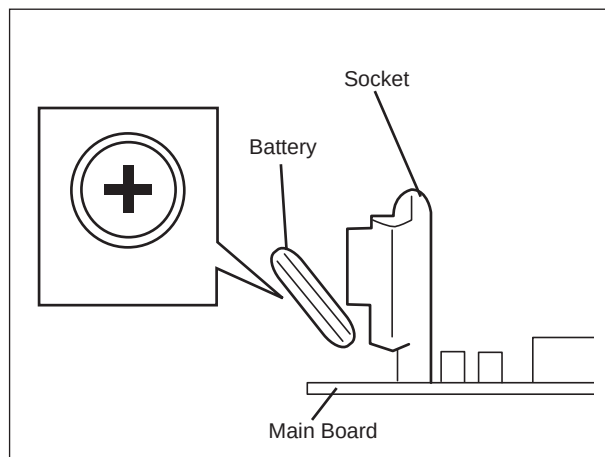
- 2 Remove the battery on the Main Board by pushing it down and tilting towards right.



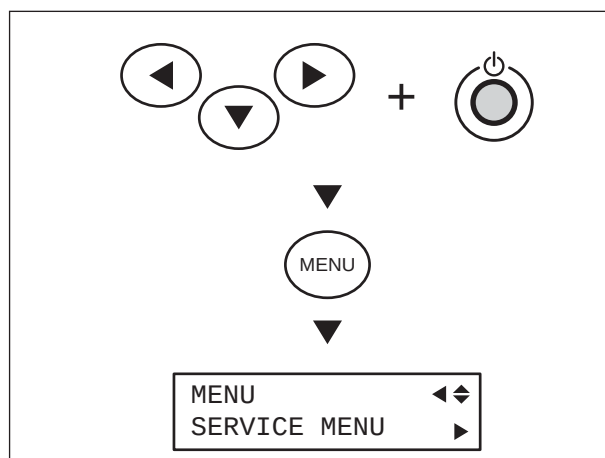
- 3** Replace the battery with new one.



Be careful with the direction of the battery.



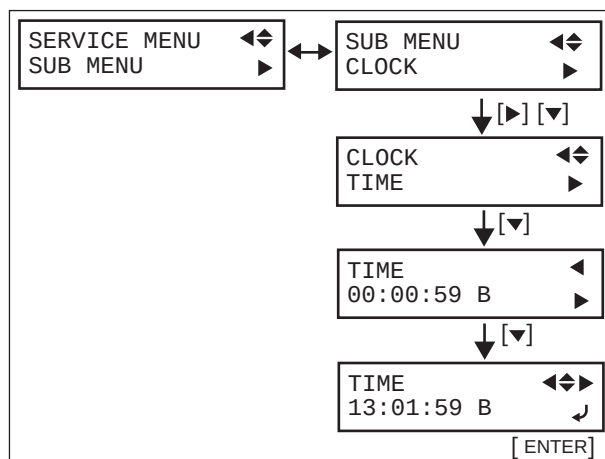
- 4** Turn on the Main Power SW, then turn on the Sub Power SW while pressing the left, right and down keys to enter the Service Mode.



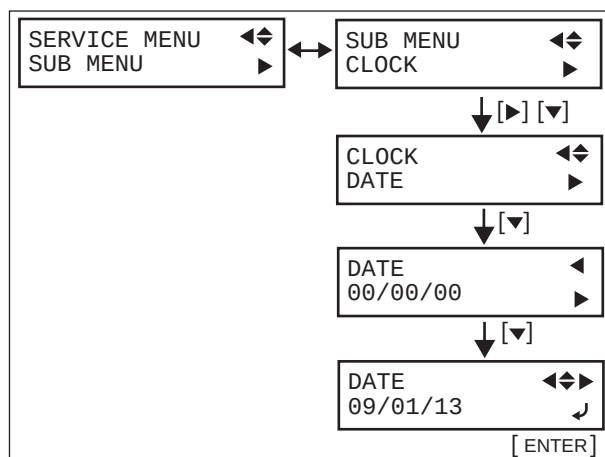
- 5** Select [SUB MENU]>[CLOCK]>[TIME], and set the time and press [ENTER] key.



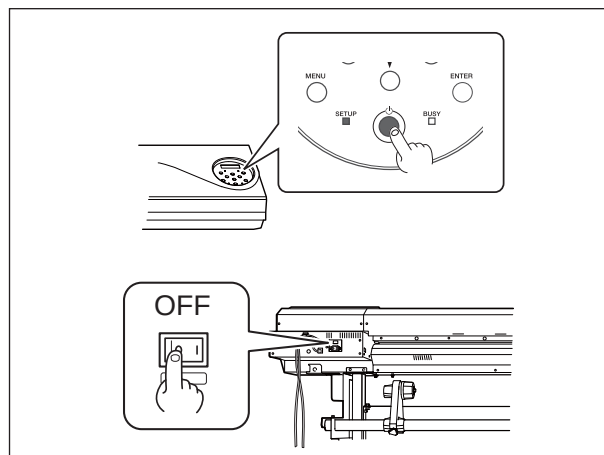
The display of [B] which shows a battery exhaustion disappears by this step.



- 6** Select [SUB MENU]>[CLOCK]>[DATE], and set the date and press [ENTER] key.



- 7** Turn off the Sub Power SW, and then turn off the Main Power SW.
Fix the Chassis Cover.



- 8** Dispose of the battery.

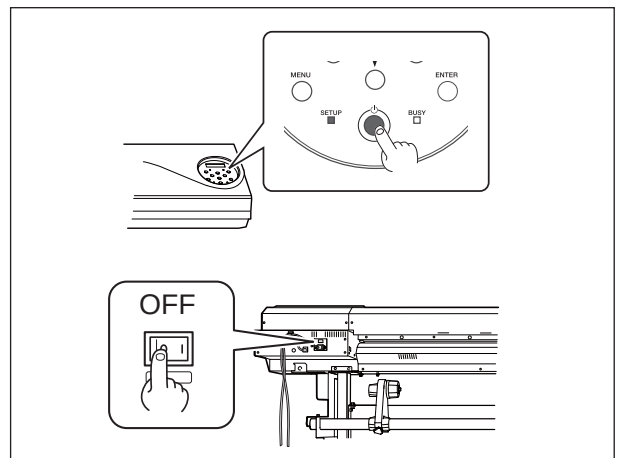
3-12 CARRIAGE BELT REPLACEMENT

!! IMPORTANT !!

When replacing the Carriage Belt, make sure to connect the new belt to the current belt, and pass the new belt at the same time as removing the current belt.

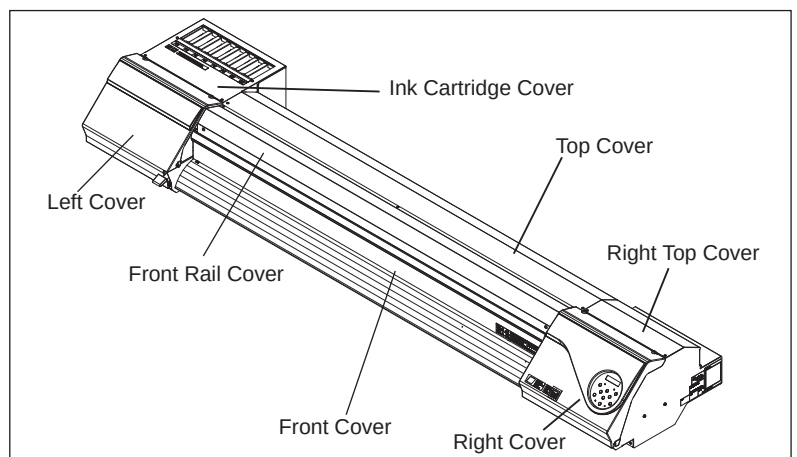
There is a possibility that the new belt cannot be fixed without connecting the new belt to the current belt.

- 1** Turn off the Sub Power SW, and then turn off the Main Power SW.

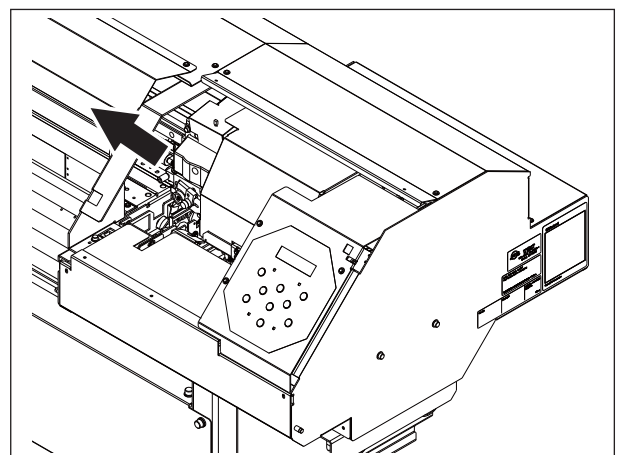


- 2** Remove the Covers in order.

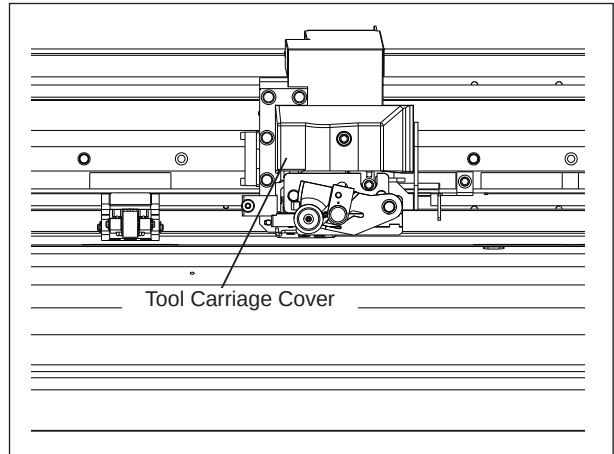
1. Front Cover
2. Right Cover
3. Right Top Cover
4. Left Cover
5. Front Rail Cover
6. Top Cover
7. Ink Cartridge Cover



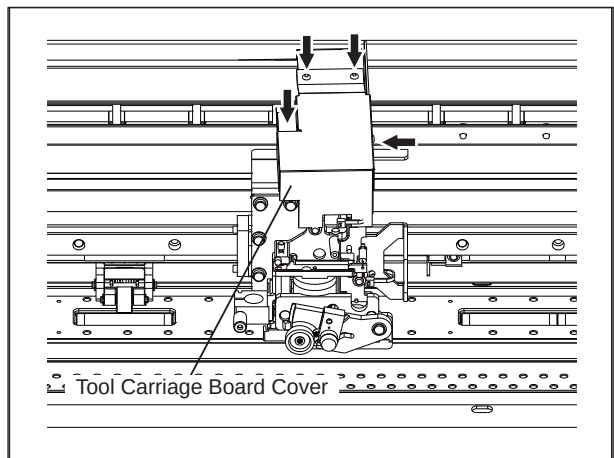
- 3** Separate the Tool Carriage from the Head Carriage.



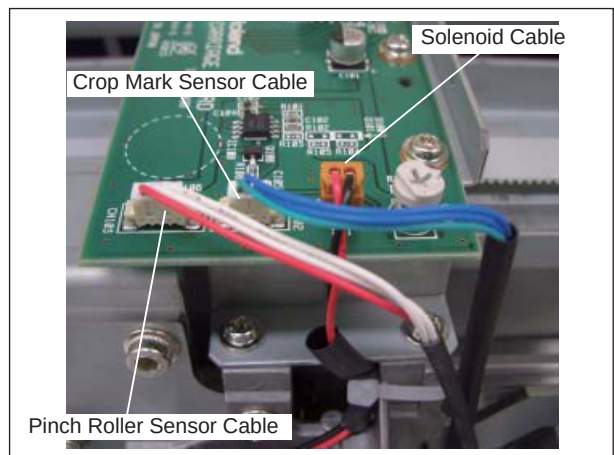
- 4** Remove the Tool Carriage Cover.



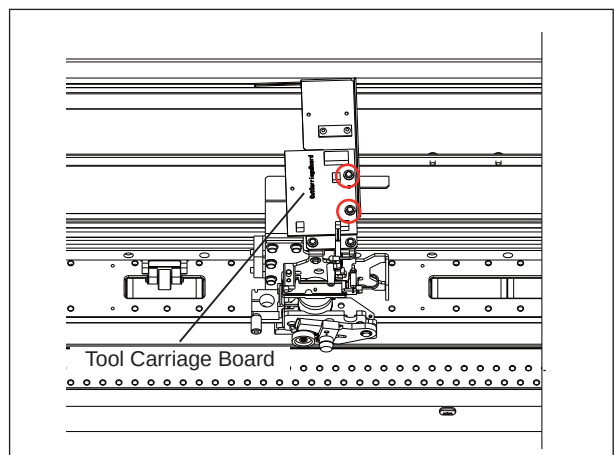
- 5** Remove the four rivets as shown in the figure to remove the Tool Carriage Board Cover.



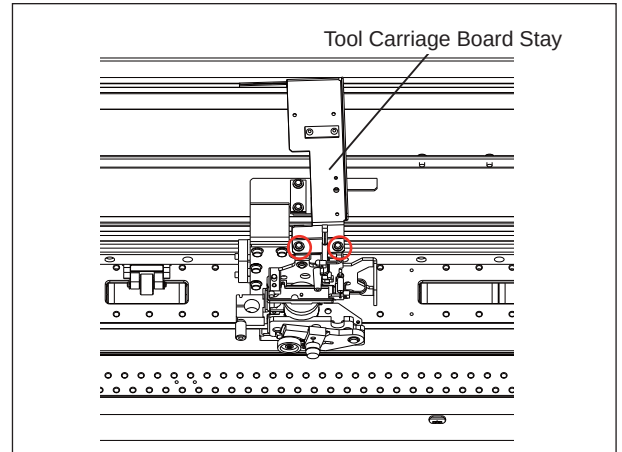
- 6** Disconnect the Crop Mark Sensor, Pinch Roller Sensor and Solenoid wirings.



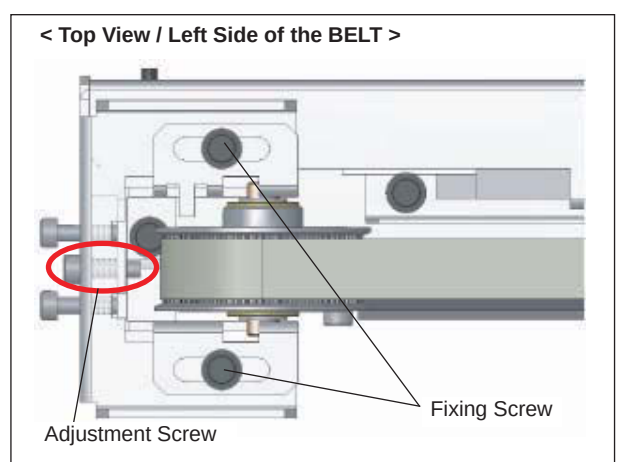
- 7** Remove the Tool Carriage Board from the Tool Carriage Stay.



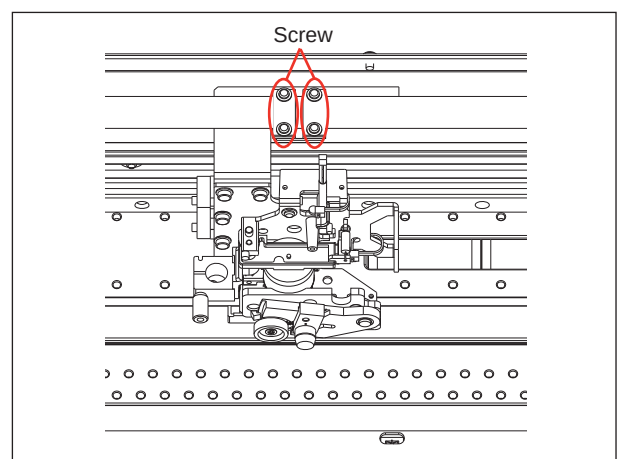
- 8** Remove the two screws to remove the Tool Carriage Board Stay from the Tool Carriage Assy.



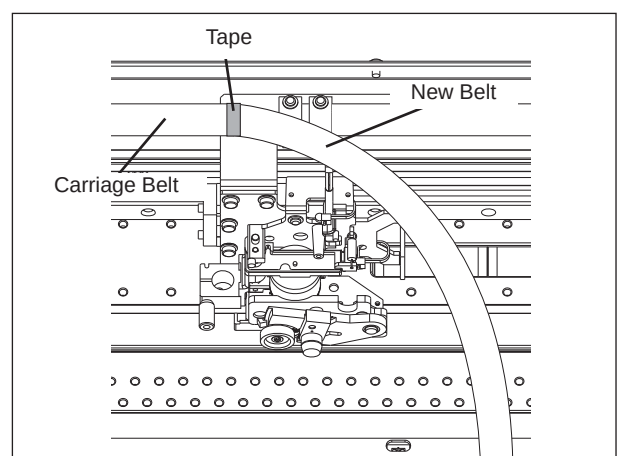
- 9** Loosen the two fixing screws as shown in the figure.
And loosen the Adjustment Screw.



- 10** Loosen the four screws as shown in the figure.



- 11** Remove the Carriage Belt from the plate, and connect the new belt with the scotch tape.



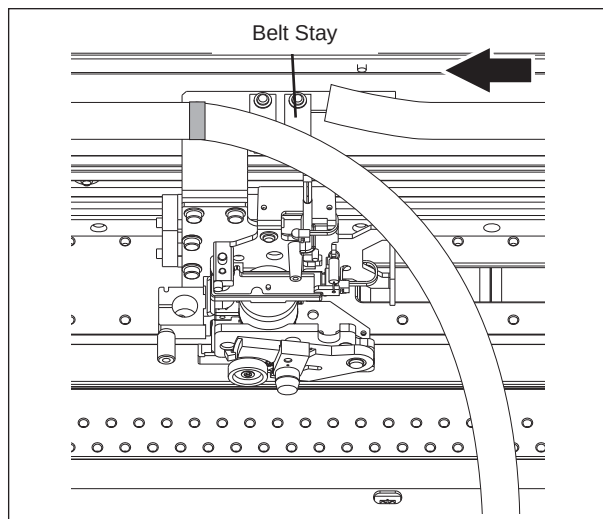
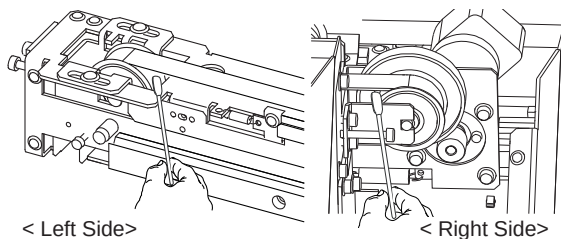
- 12** Slowly pull the belt end which is not connected the new belt until the new one reaches to the Belt Stay.



Check that the belt is not twisted.



Apply adequate quantity of grease (P/# : 39008297 FLOIL G 902 14KG) to pulleys.



- 13** Tighten the screws as shown in the figure to fix both ends of the Carriage Belt to the Belt Holder with the plastic plate and metal plate.

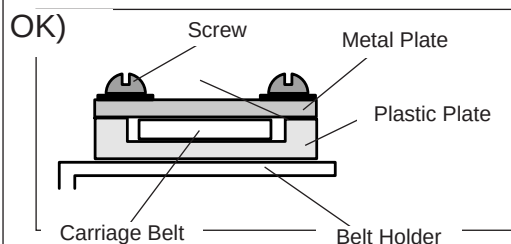


When fixing the Carriage Belt, make sure the ends of the Carriage Belt are not overlapped.



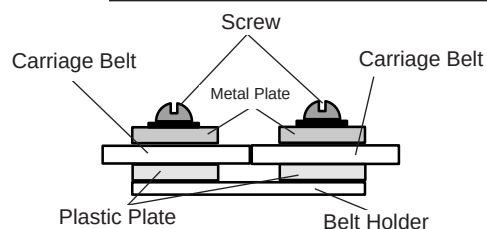
Be careful with the fixing direction of the plastic plate and the fixing order of the plates.

< Cross-section diagram >

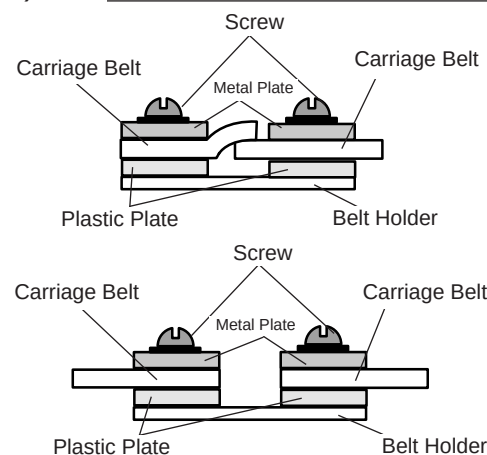


< Cross-section diagram >

OK)



NG)

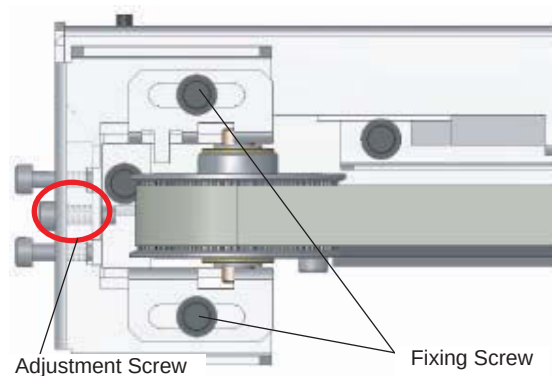


- 14** Tighten the Adjustment Screw to have tension on the belt. And tighten the two Fixing screws as shown in the figure.

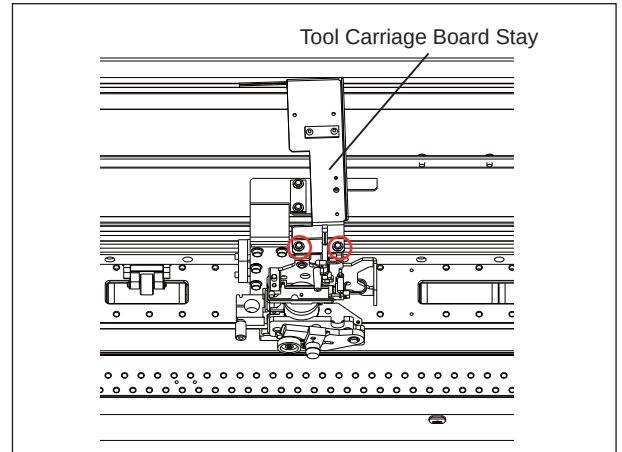


Do not tighten the Adjustment Screw tight.

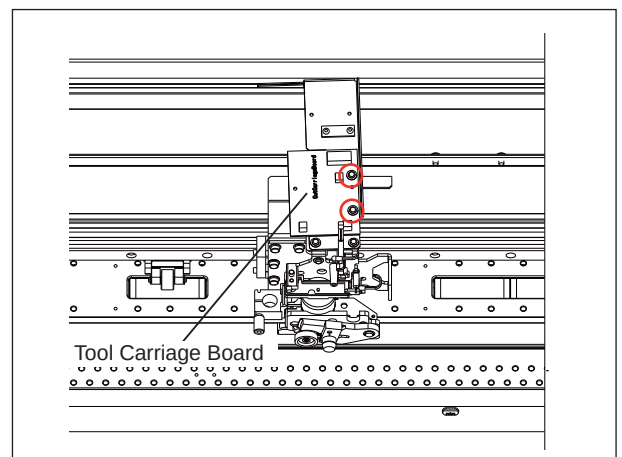
< Top view - Left side of the Belt >



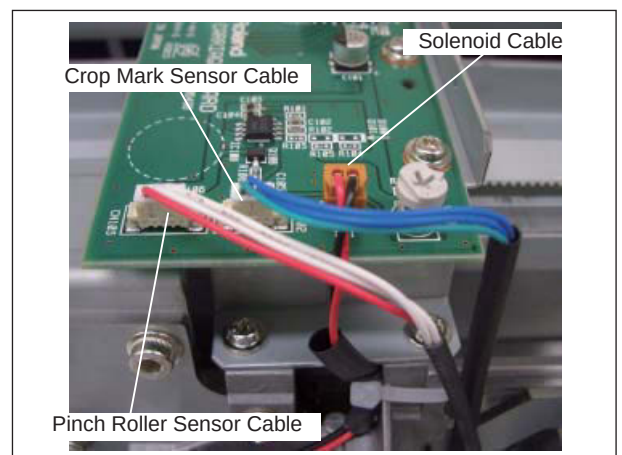
- 15** Fix the Tool Carriage Assy to the Tool Carriage Board Stay.



- 16** Fix the Tool Carriage Board with the two screws as shown in the figure.



- 17** Connect the Crop Mark Sensor, Pinch Roller Sensor and Solenoid wirings.



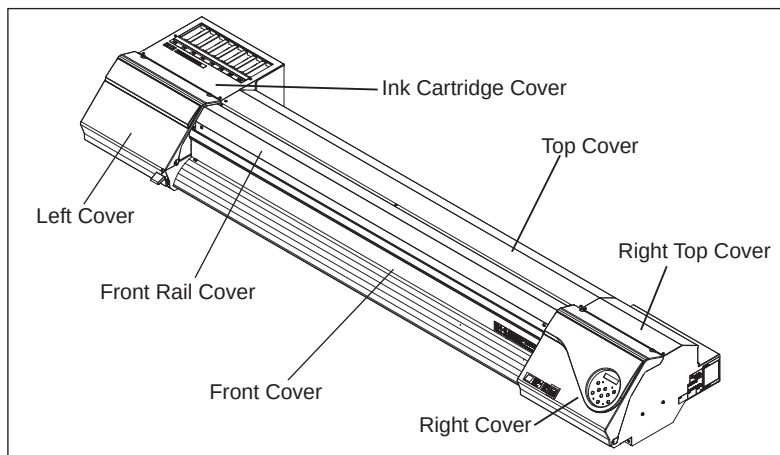
- 18** Move the Head Carriage in a whole width of the Guide Rail several times to remove the slack in the Carriage Belt. Then, carry out the following adjustments.

1. [4-13 BELT TENSION ADJUSTMENT]
2. [4-14 BELT POSITION ADJUSTMENT]
3. [4-4 LIMIT POSITION & CUT DOWN POSITION INITIALIZE]
4. CUTTING QUALITY CHECK

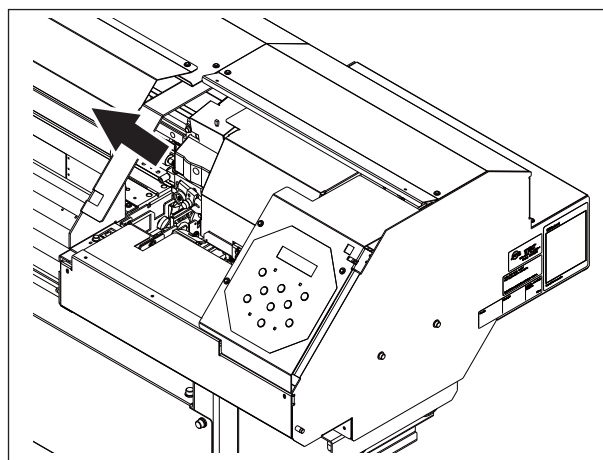
3-13 ENCODER SCALE REPLACEMENT

1 Remove the Covers in order.

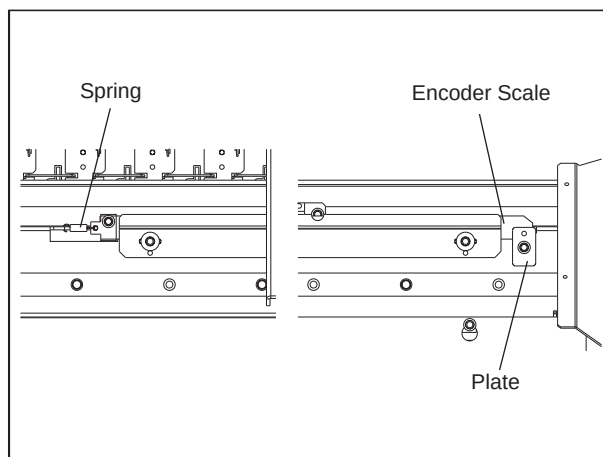
1. Right Cover
2. Left Cover
3. Front Cover
4. Right Top cover
5. Front Rail Cover
6. Top Cover
7. Ink Cartridge Cover



2 Move the Head Carriage leftwards.



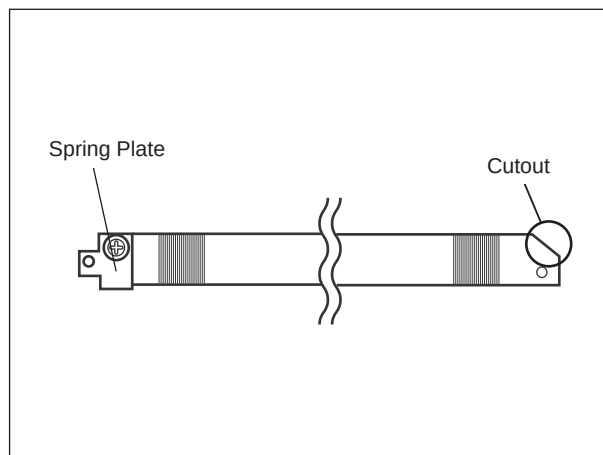
3 Remove the Encoder Scale by removing the plate fixing the Encoder Scale at its right end and the spring on its left end.



4 Remove the Spring Plate from the Encoder Scale and fix it to the new Encoder Scale where there is no cutout on it.



Make sure not to scratch or put grease on the Encoder Scale when fixing it.
Do not touch the surface of the Encoder Scale.



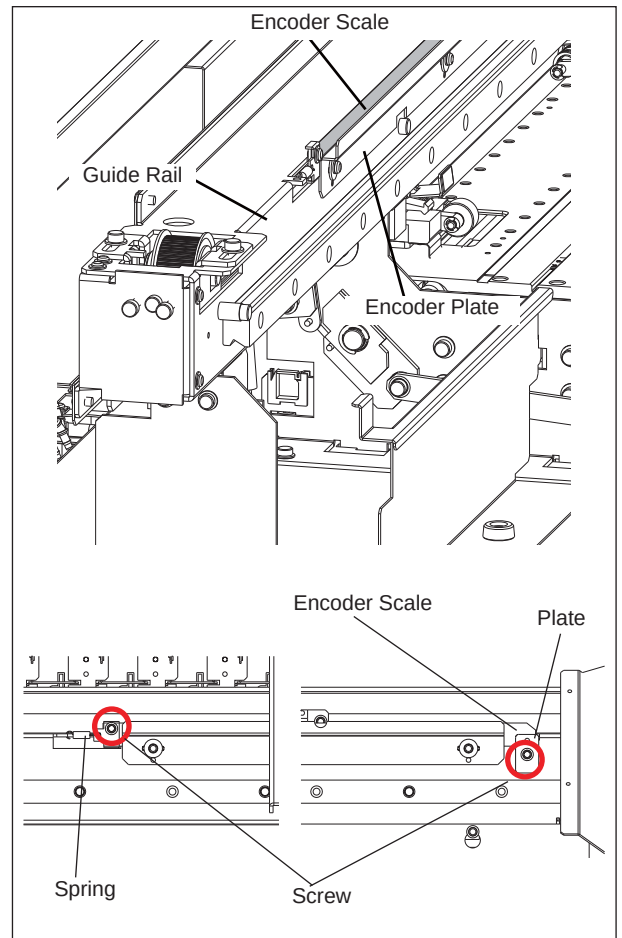
- 5** Put the Encoder Scale in between the Encoder Plate and the Guide Rail.

Then, fix the right end with the plate and hook up the spring on the left end.

Make sure that the Encoder Scale is in place.



Do not loosen or tighten the screws fixing the Encoder Plate.

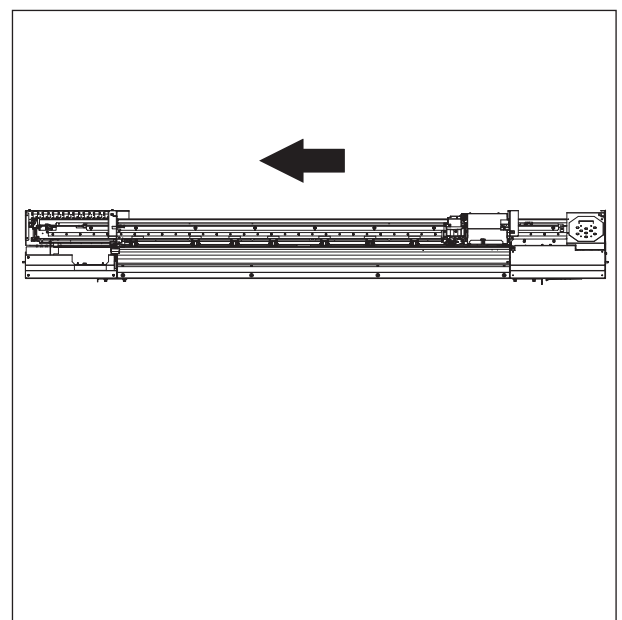
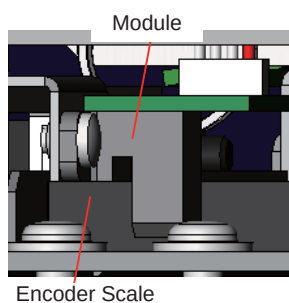


- 6** Move the Head Carriage in a whole width of the machine.
Make sure that the Encoder Scale doesn't make contact with the Encoder Module and also Encoder Scale is between the slit of the Encoder Module.

Carry out the [4-6 LINEAR ENCODER SETUP].

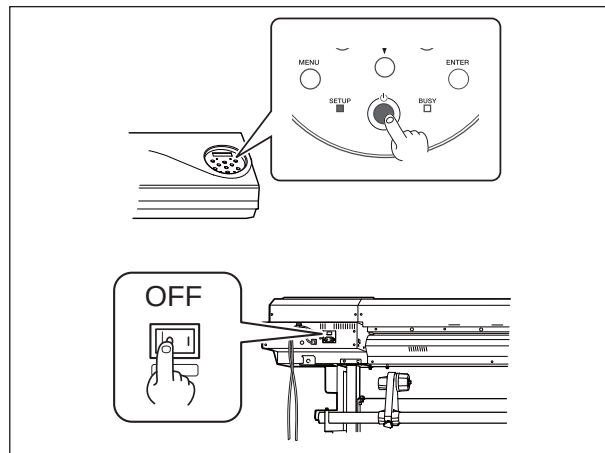


<Closeup image of Encoder Scale and Module>



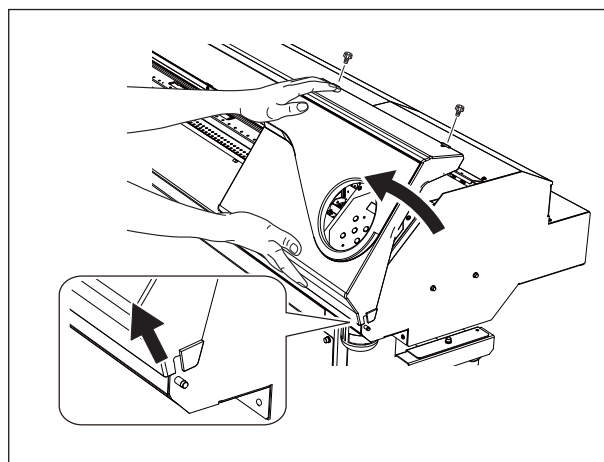
3-14 GRIT ENCODER REPLACEMENT

- 1** Turn off the Sub Power SW, and then turn off the Main Power SW.



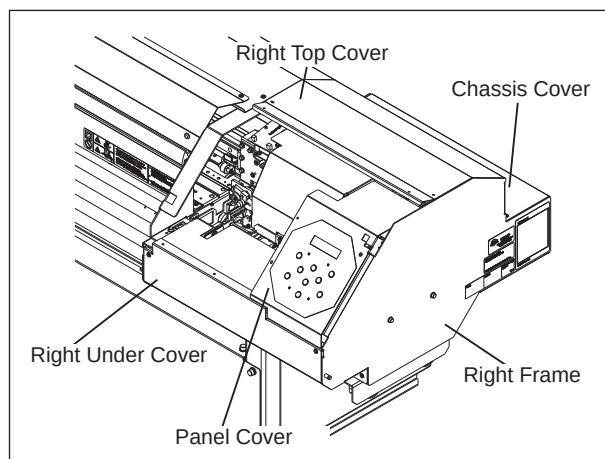
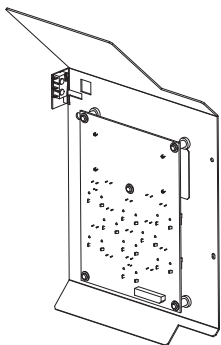
- 2** Remove the following covers in order.

1. Right Cover
2. Right Top Cover
3. Chassis Cover
4. Panel Cover
5. Right Under Cover
6. Right Frame

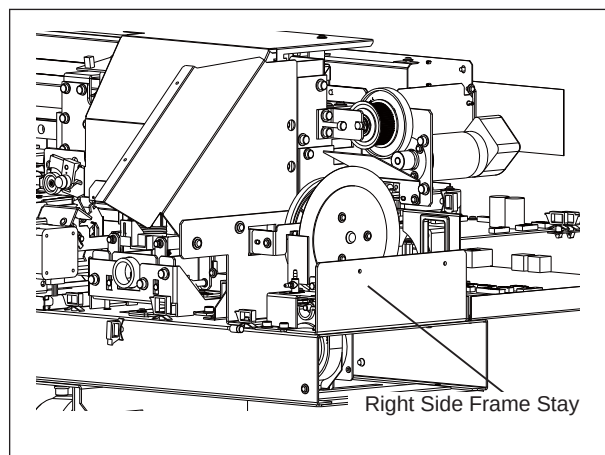


- 3**

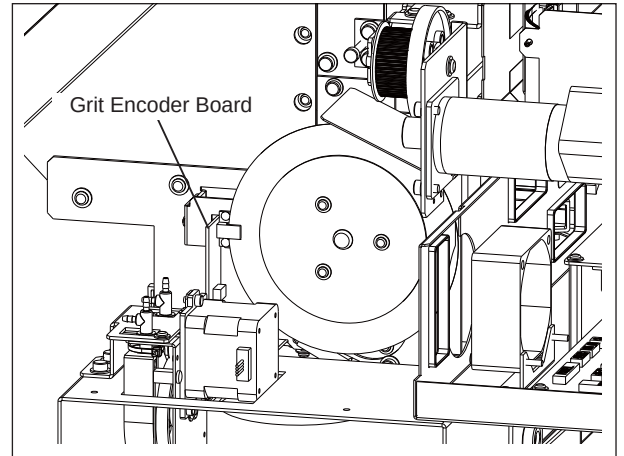
When removing the Panel Cover, remove the sensor with the cable and the ribbon cable from the Panel Board.



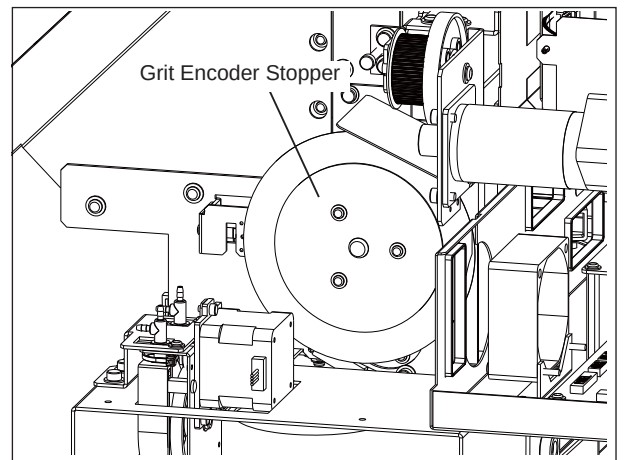
- 4** Remove the Right Side Frame Stay.



- 5** Remove the Grit Encoder Board.



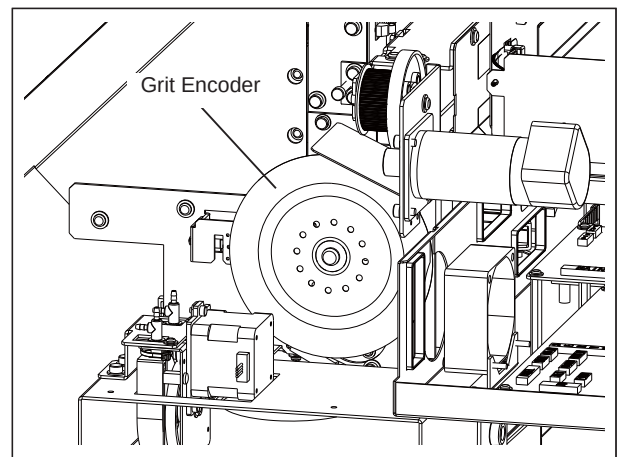
- 6** Remove the Grit Encoder Stopper.



- 7** Remove the Grit Encoder.



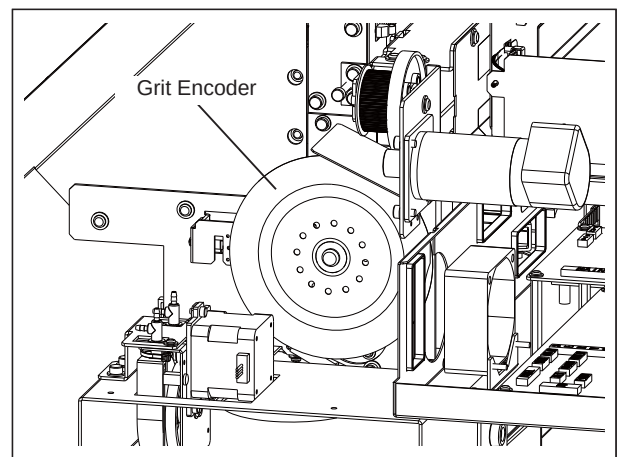
Make sure not to scratch or leave any fingerprints on the Grit Encoder.



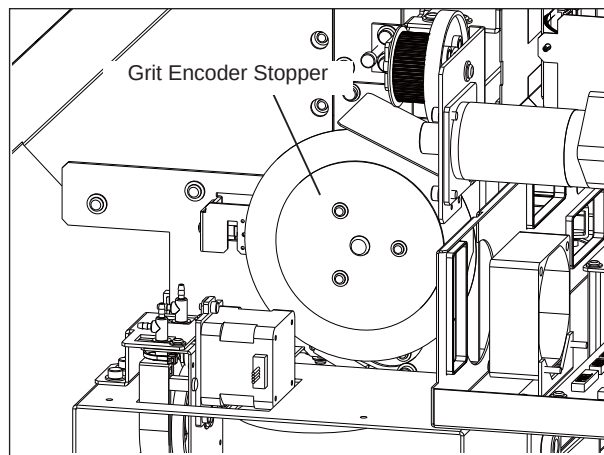
- 8** Fix the Grit Encoder.



The both sides of the Grit Encoder is the same. When fixing the Grit Encoder, make sure not to scratch or leave any fingerprints on it.



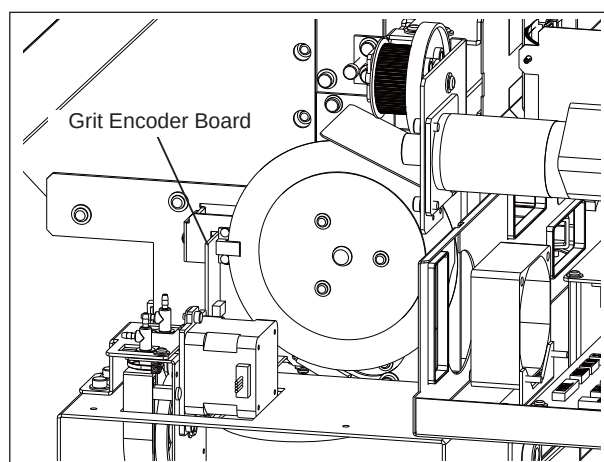
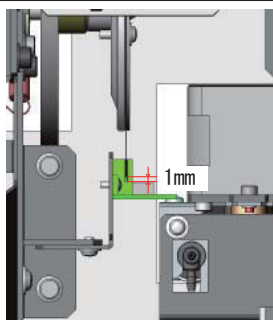
- 9** Fix the Grit Encoder Stopper with the three screws while holding the Shaft



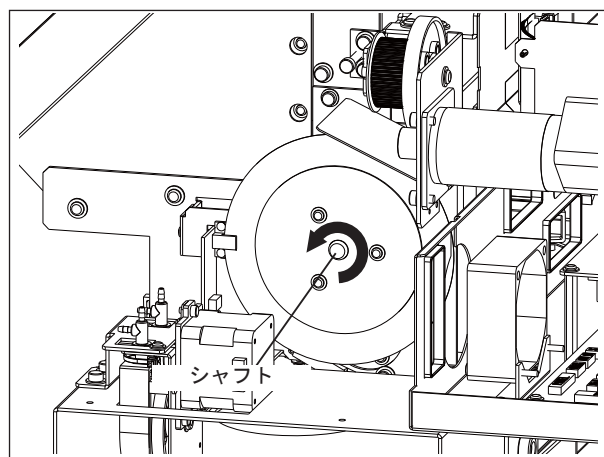
- 10** Fix the Grit Encoder Board together with the stay so that the Grit Encoder is in between the gap of sensor.



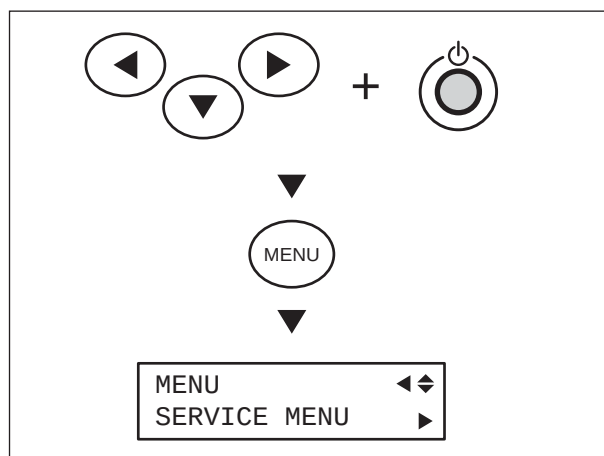
Adjust the position of the sensor so that the clearance with the Grit Encoder is around 1mm.



- 11** Rotate the Shaft to check that the Grit Encoder does not touch the sensor



- 12** Turn on the Main Power SW, and then turn on the Sub Power SW while pressing the left, right and down keys to enter the Service Mode.



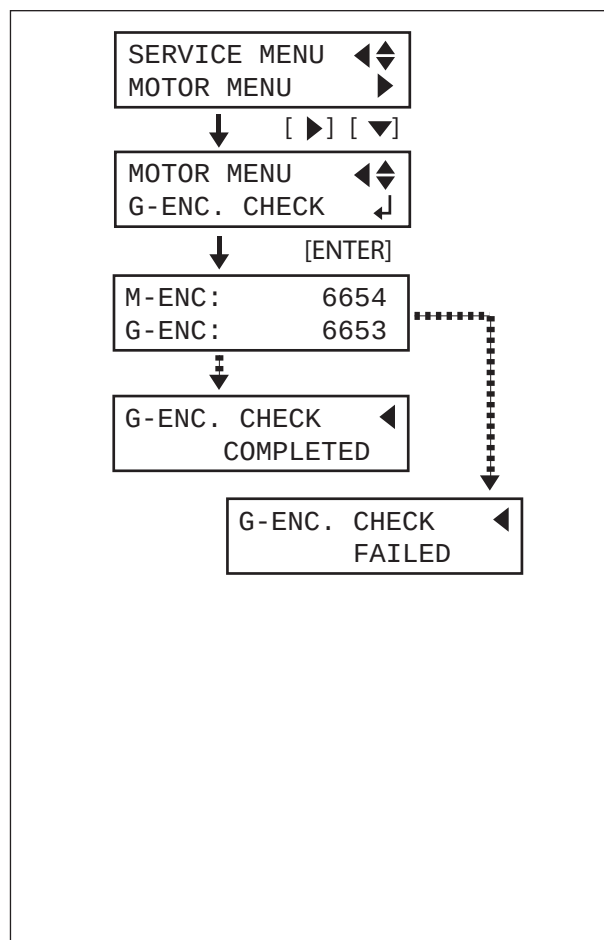
- 13** Check the GRIT ENCODER.
Go back to the [MOTOR MENU], and select [G-ENC. CHECK] and press the [ENTER] key. Make sure the Grit Encoder functions correctly by confirming the display shows [G-ENC. CHECK COMPLETED].

In case that [G-ENC. CHECK FAILED] appears, check the followings.

1. Grit Encoder is fixed correctly.
2. Feed Motor is fixed correctly.
3. There is no scratches or finger prints.

Fix the following covers.

1. Right Cover
2. Right Top Cover
3. Chassis Cover
4. Panel Cover
5. Right Under Cover
6. Right Frame

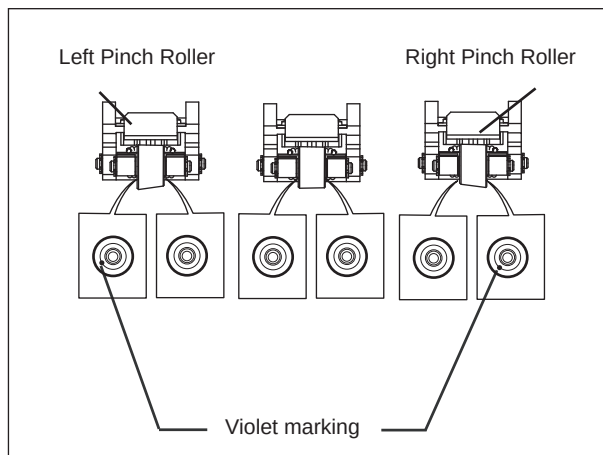


3-15 PINCH ROLLER REPLACEMENT

- 1 Conical type is used on both left & right Pinch Rollers and flat type is used for the Middle Pinch Rollers.



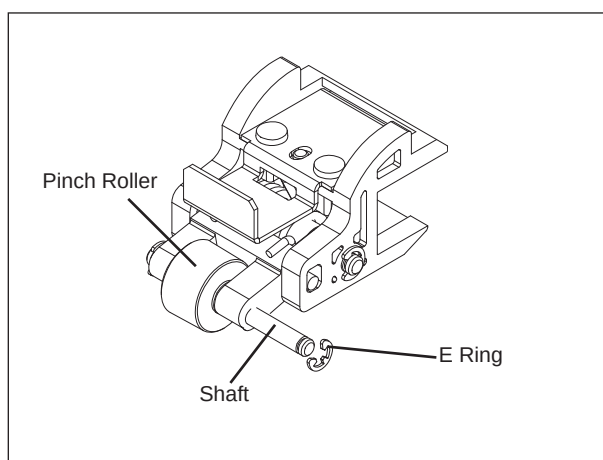
The violet marking is done on the outer side of left and right Pinch Rollers.
There is no marking on the middle Pinch Rollers.



- 2 Remove the E Ring on one side of the Pinch Roller and pull out the Shaft.

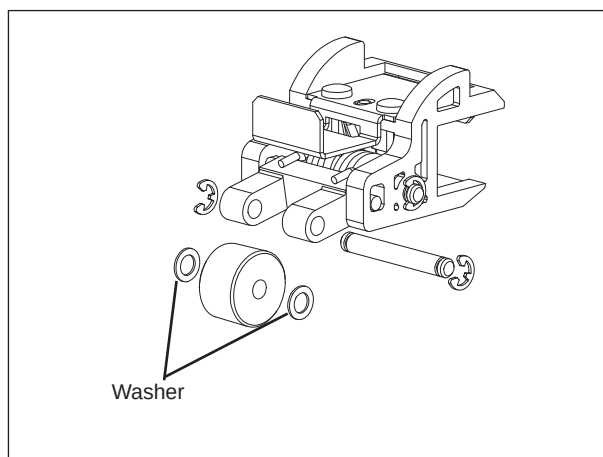


Make sure not to lose the washers which are fixed at both sides of the Pinch Roller.

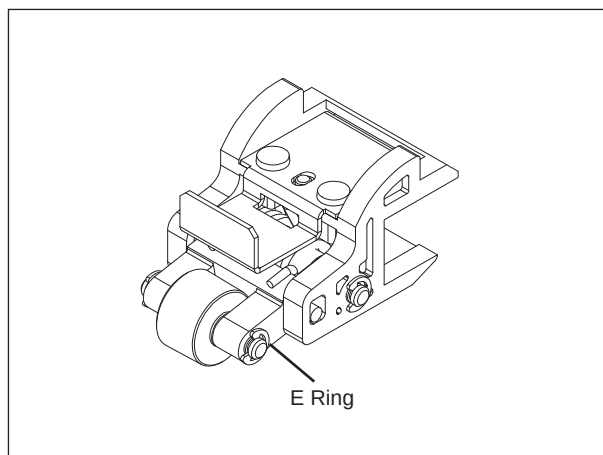


- 3 Put the new Pinch Roller with washers and insert the Shaft into the Pinch Roller.

Fixing operation becomes easy when you put the washers to the Pinch Roller with grease.

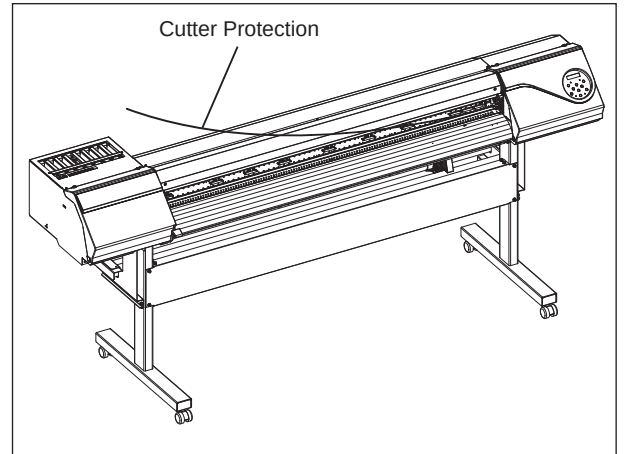


- 4 Fix the E Ring and check that the Pinch Roller rotates smoothly.



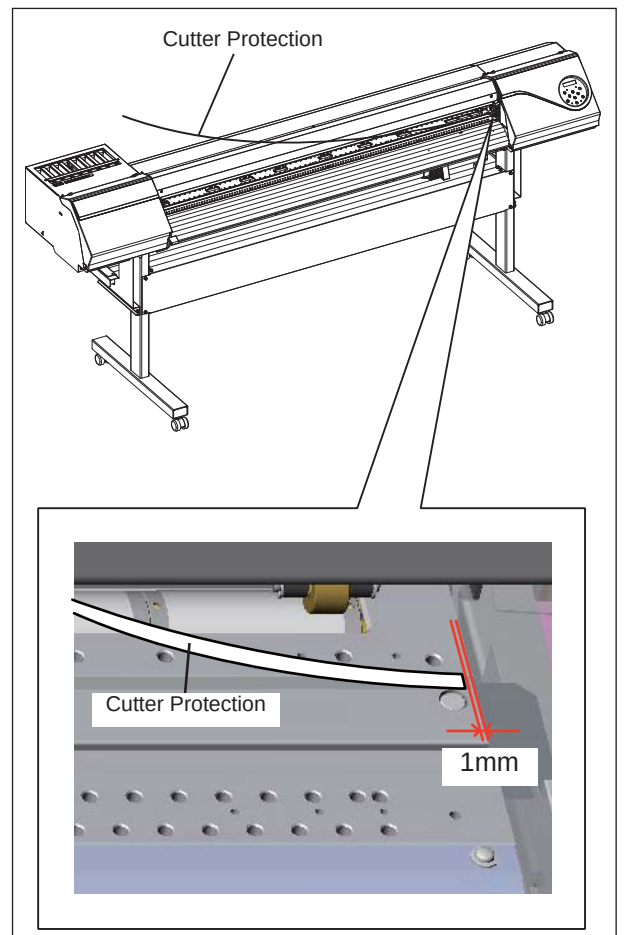
3-16 CUTTER PROTECTION REPLACEMENT

- 1 Open the Front Cover and remove the Cutter Protection.



- 2 Wipe and remove the adhesion on the Bed with alcohol.

- 3 Install the Cutter Protection from 1mm from right edge of the Bed.

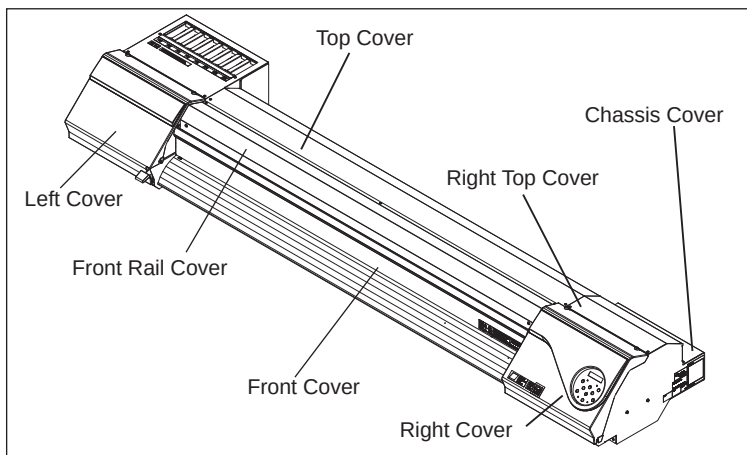


- 4 Make sure that the Cutter Protection is not bumpy.

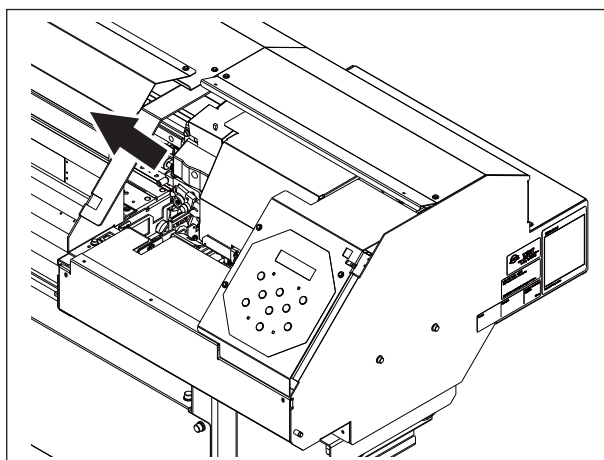
3-17 CUT RIBBON CABLE REPLACEMENT

1 Remove the following covers in order.

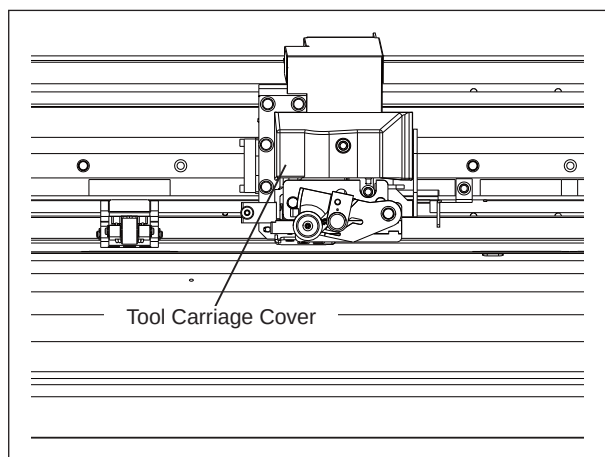
1. Right Cover
2. Right Top Cover
3. Chassis Cover
4. Front Cover
5. Front Rail Cover
6. Left Cover
7. Top Cover



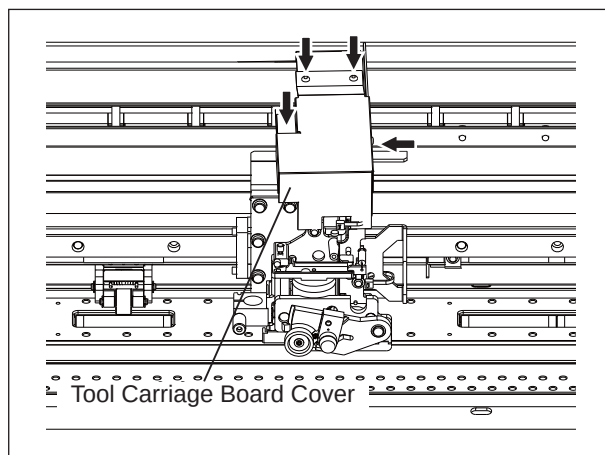
2 Separate the Tool Carriage from the Head Carriage.



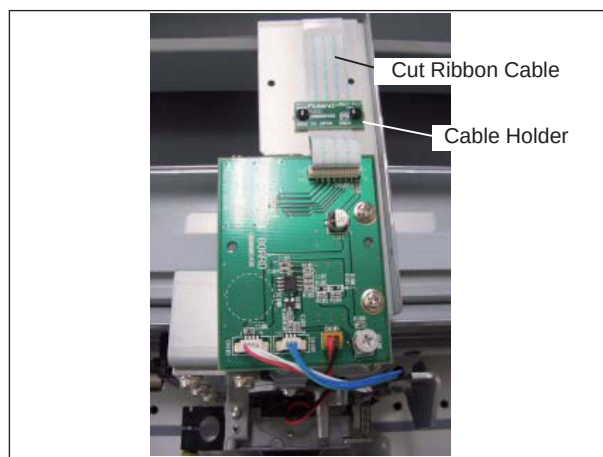
3 Remove the Tool Carriage Cover.



4 Remove the four rivets shown in the figure to remove the Tool Carriage Board Cover.



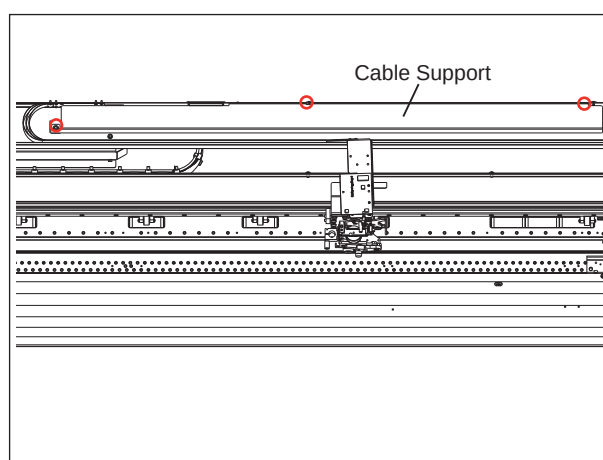
- 5** Remove the Cable Holder and disconnect the Cut Ribbon Cable from the Carriage Board.



- 6** Remove the three screws shown in the figure and remove the Cable Support. (For VS-640/540)



Pull the Cut Ribbon Cable to access the screws.



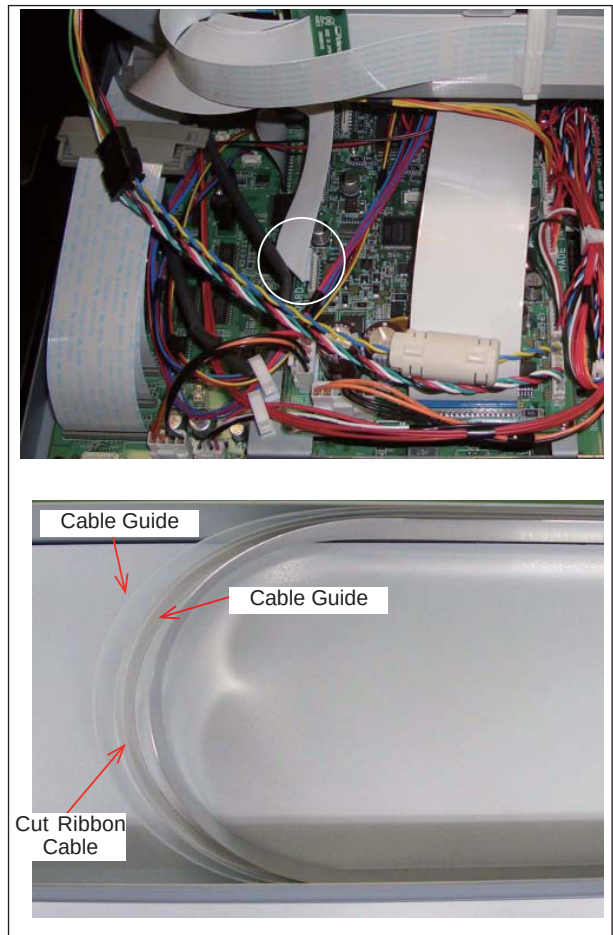
- 7** Remove the two Cable Holders at the rear side of the machine



- 8** Remove the 12 rivets fixing the Cut Ribbon Cable and Cable Holder shown in the figure.

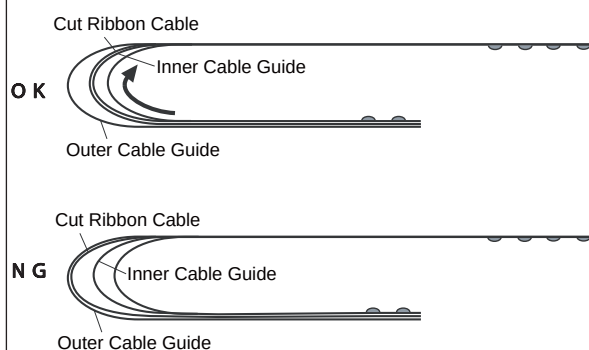
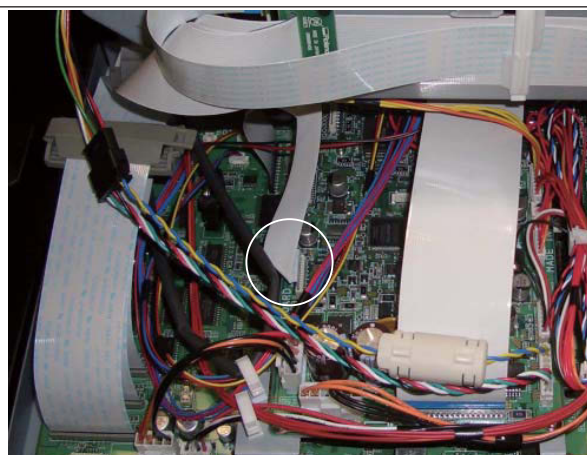


- 9** Disconnect the Cut Ribbon Cable from the Servo Board and take out it from the Cable Guides.



- 10** Connect the Cut Ribbon Cable to the Servo Board and put it between the Cable Guides.

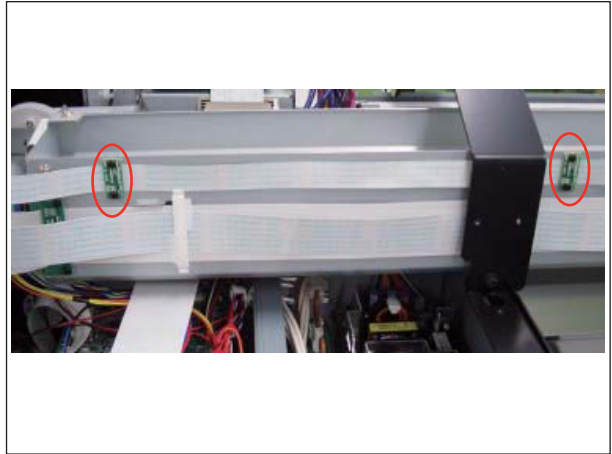
Put the Cut Ribbon Cable rightward with holding the Inner Cable Guide so that the Cut Ribbon Cable fits to the Inner Cable Guide.



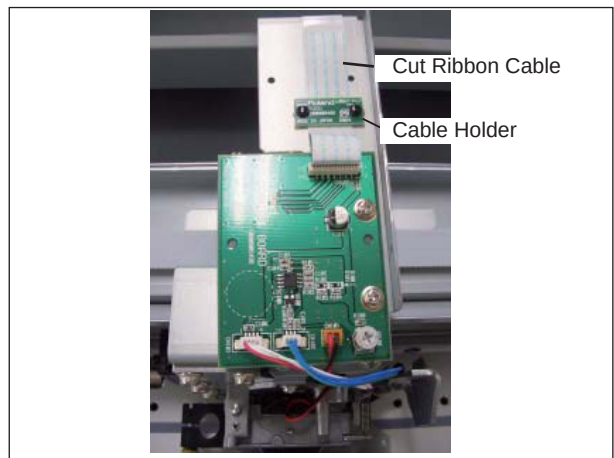
- 11** Fix the 12 rivets fixing the Cut Ribbon Cable and Cable Holder shown in the figure.



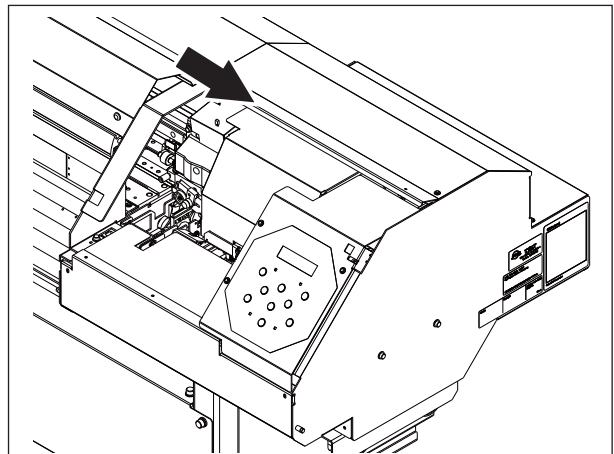
- 12** Fix the two Cable Holders at the rear side of the machine



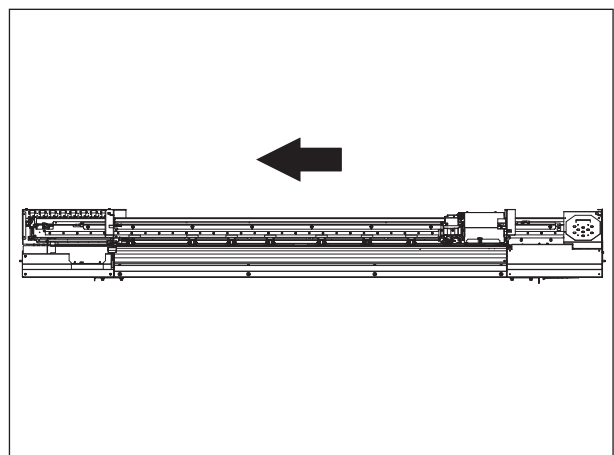
- 13** Fix the Cable Holder and connect the Cut Ribbon Cable to the Carriage Board.



- 14** Connect the Tool Carriage to the Head Carriage by hand.



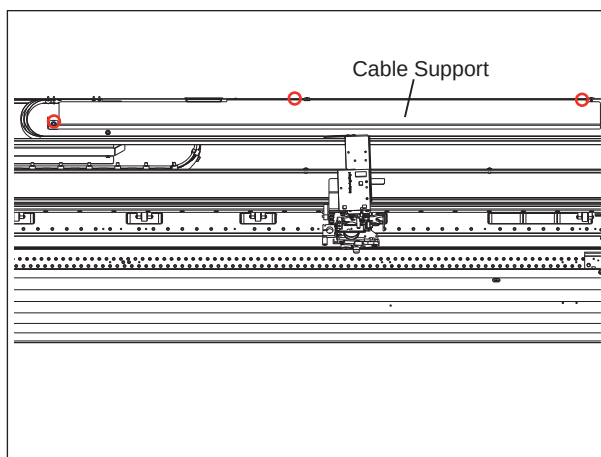
- 15** Move the Head Carriage in a whole width of the machine and check whether the Cut Ribbon Cable does not jam. Then, move the Head Carriage by hand to the lock position.



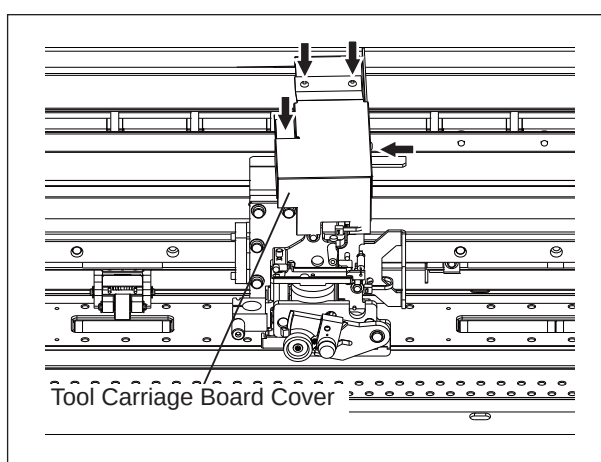
- 16** Fix the Cable Support with the three screws shown in the figure. (For VS-640/540)



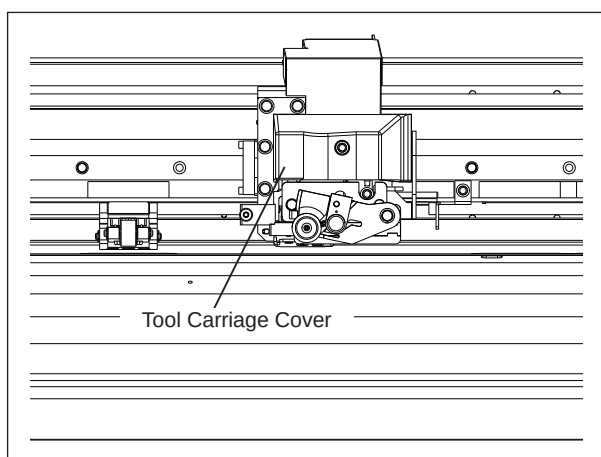
Pull the Cut Ribbon Cable to access the screws.



- 17** Fix the Tool Carriage Board Cover with the four rivets shown in the figure.

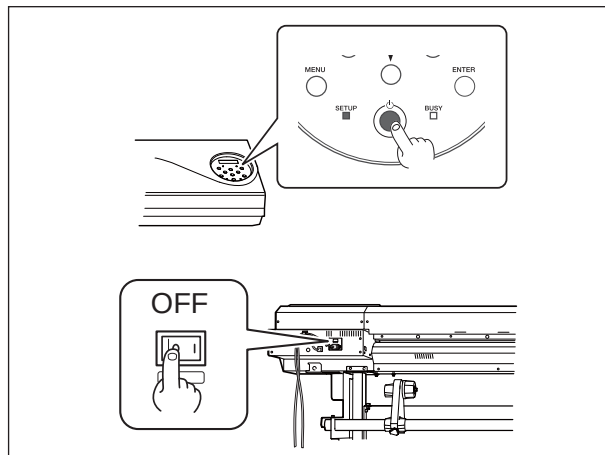


- 18** Fix the Tool Carriage Cover.

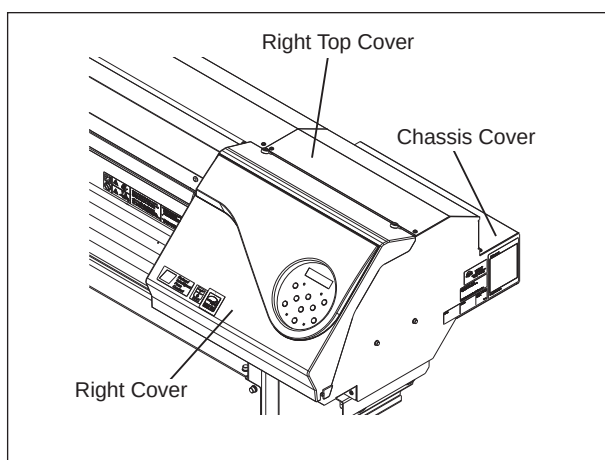


3-18 LINEAR ENCODER BOARD REPLACEMENT

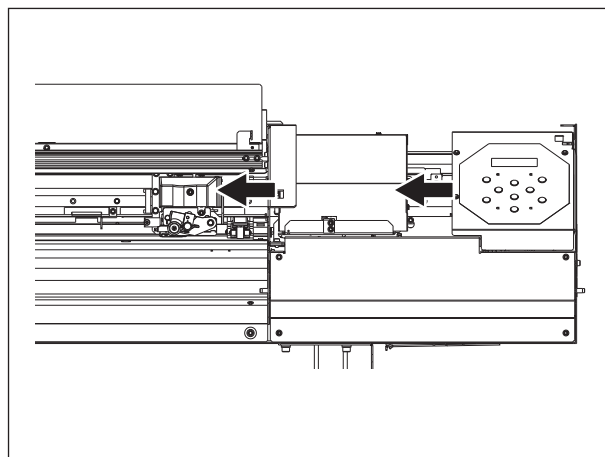
- 1 Turn off the Sub Power SW, and then turn off the Main Power SW.



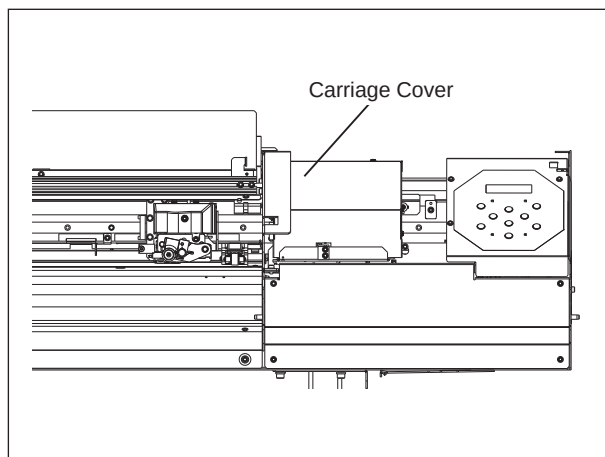
- 2 Remove the Right Cover, the Right Top Cover and the Chassis Cover.



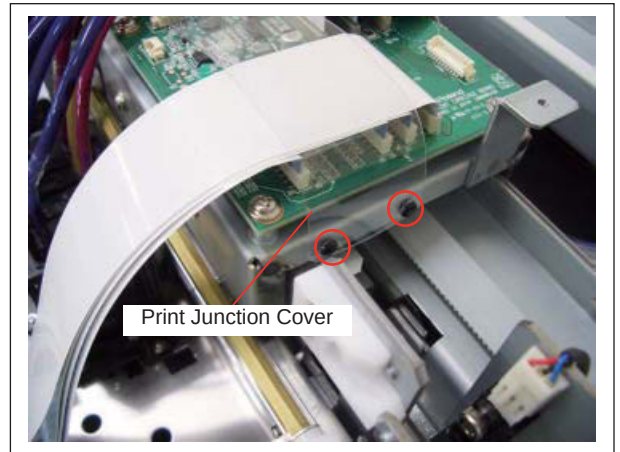
- 3 Open the Front Cover and move the Tool Carriage and the Head Carriage leftwards to the position where it is not above the Capping Unit.
Then, disconnect the Tool Carriage from the Head Carriage.



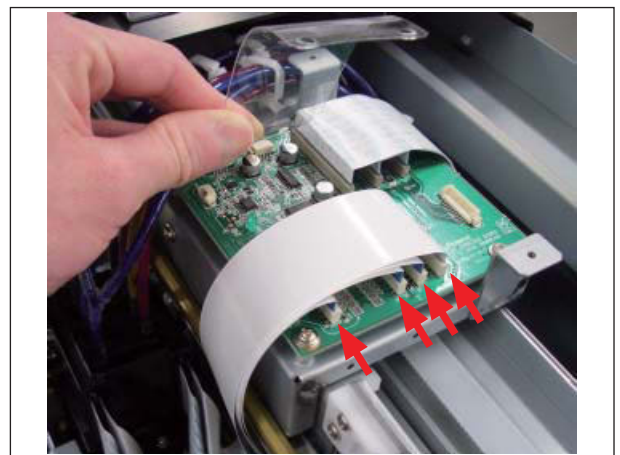
- 4 Remove the Carriage Cover.
The fixing screws for the Carriage Cover is at the left, right and top of the cover.



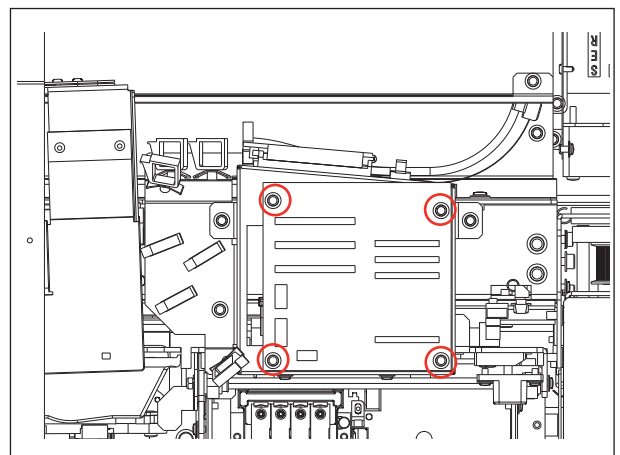
- 5** Remove the two rivets fixing the Print Junction Cover.



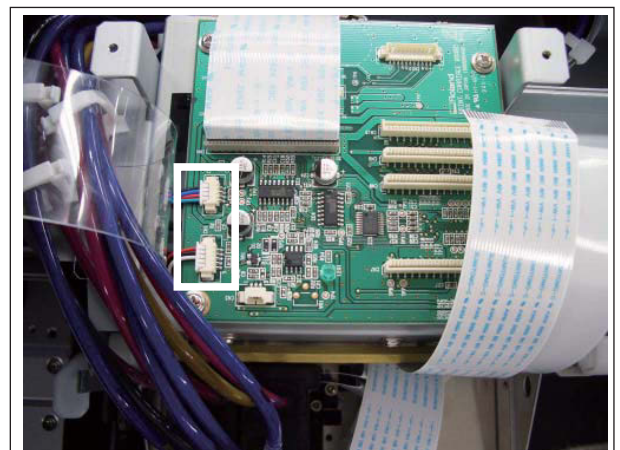
- 6** Disconnect all Head Ribbon Cables which are fix to the Print Carriage Board.



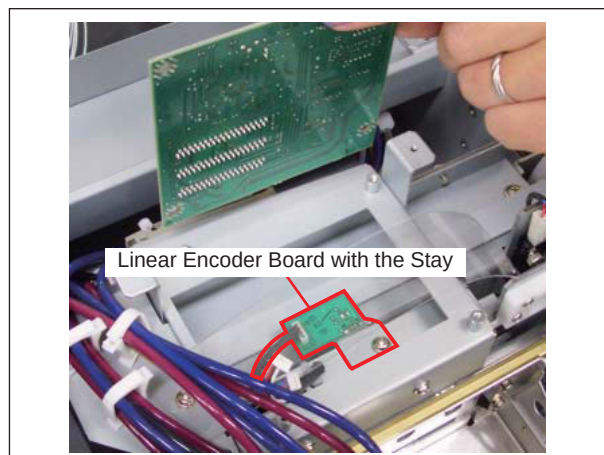
- 7** Remove four screws fixing the Print Carriage Board.



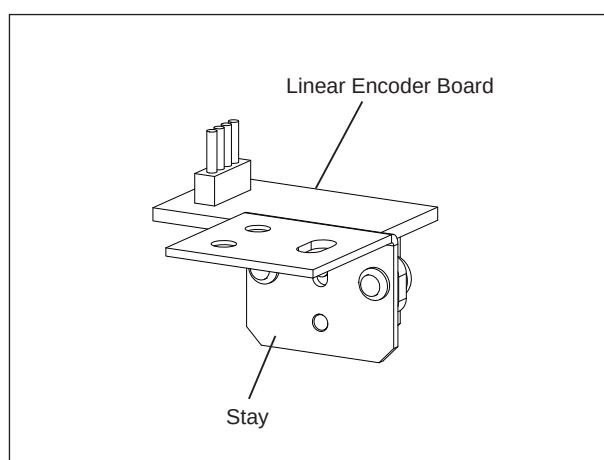
- 8** Disconnect the Linear Encoder Board Cable and the Head Up Down Sensor Cable from the Print Carriage Board.



- 9** Remove the Linear Encoder Board with the Stay by erecting the Print Carriage Board as shown in the figure.



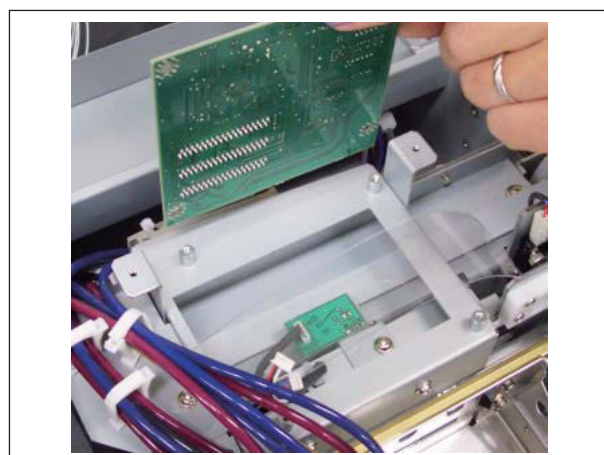
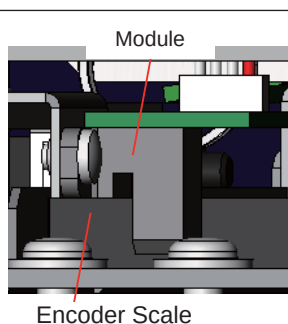
- 10** Remove the Linear Encoder Board from the Stay. Then, fix the new the Linear Encoder Board to the Stay



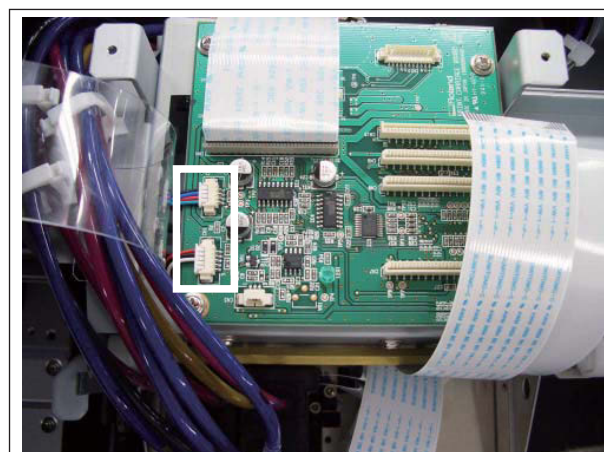
- 11** Fix the Linear Encoder Board with the Stay by erecting the Print Carriage Board as shown in the figure.



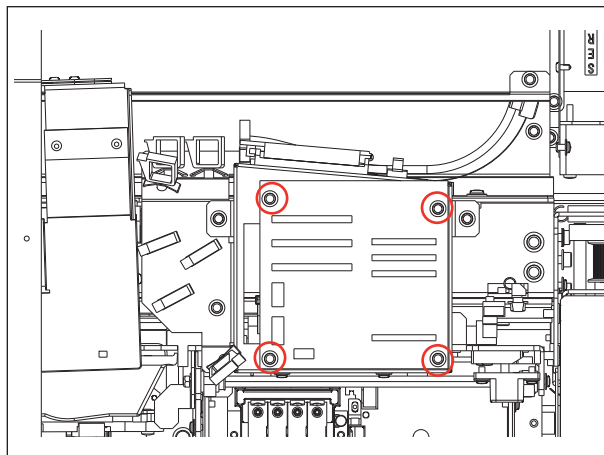
Make sure that the Encoder Scale doesn't make contact with the Encoder Module and also Encoder Scale is between the slit of the Encoder Module.



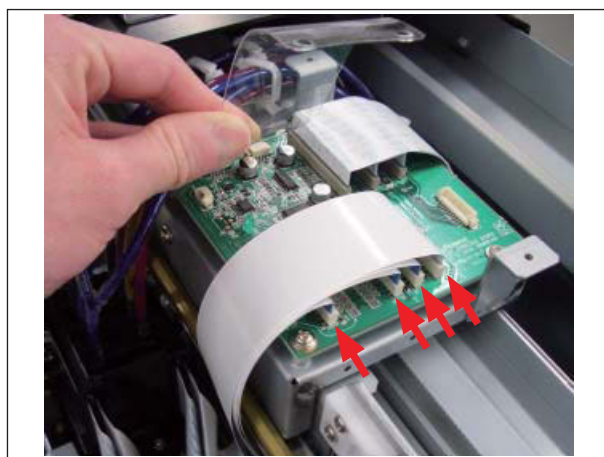
- 12** Connect the Linear Encoder Board Cable and the Head Up Down Sensor Cable to the Print Carriage Board.



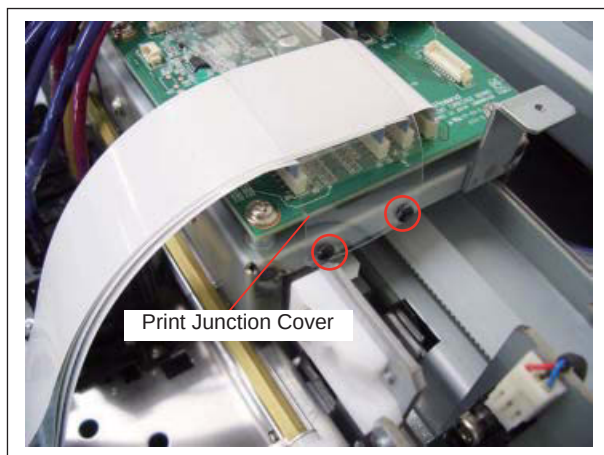
- 13** Fix the Print Carriage Board with the four screws shown in the figure.



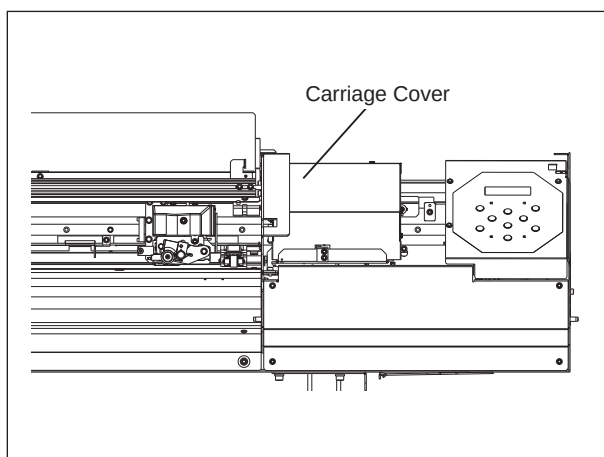
- 14** Connect all Head Ribbon Cables to the Print Carriage Board.



- 15** Fix the Print Junction Cover with the two rivets shown in the figure.

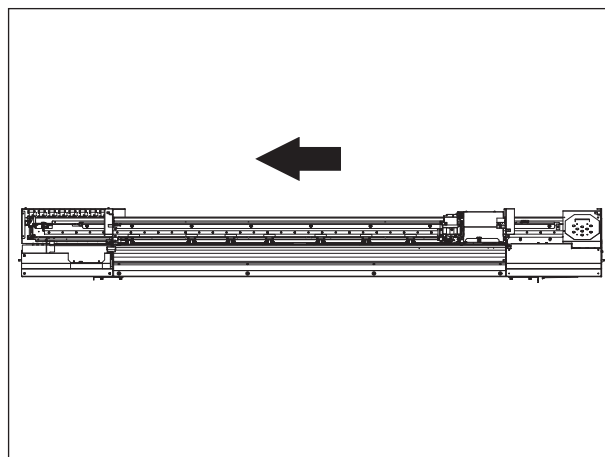


- 16** Remove the Carriage Cover.
The fixing screws for the Carriage Cover is at the left, right and top of the cover.



- 17** Move the Head Carriage in a whole width of the machine.
Make sure that the Encoder Scale doesn't make contact with the Encoder Module and also Encoder Scale is between the slit of the Encoder Module again.

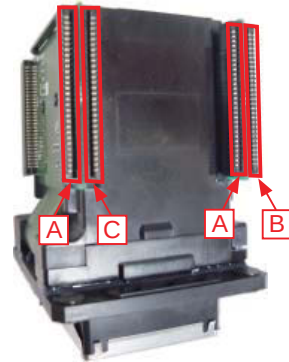
Carry out the [4-5 LINEAR ENCODER SETUP].



3-19 HOW TO FOLD RIBBON CABLE TO THE HEAD

These procedures are for the ribbon cables to the Head. The ribbon cable and the procedure are different from each connector. Refer to the following list and procedures and fold the ribbon cables.

Connector A : 1000006702 CABLE-CARD,29P1 256L BB HIGH-V
Connector B : 1000006702 CABLE-CARD,29P1 256L BB HIGH-V
Connector C : 1000006703 CABLE-CARD,29P1 276L BBR HIGH-V



<Connector A : 1000006702 CABLE-CARD,29P1 256L BB HIGH-V>

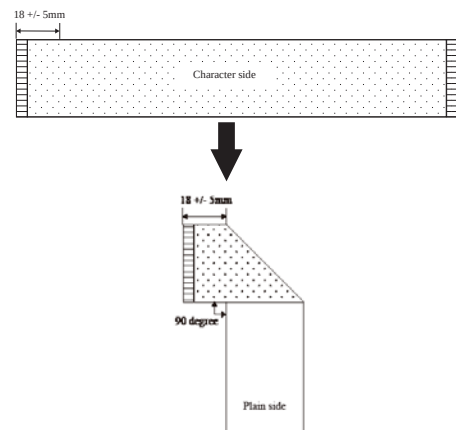
- 1 Place the ribbon cable whose character side faces up.



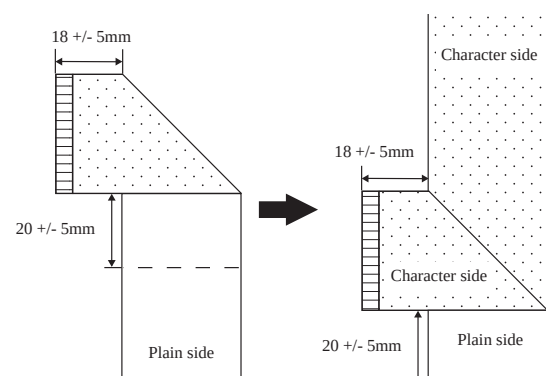
There is no difference between left and right direction.



- 2 Fold the ribbon cable with 90 degree at the 18 +/-5 mm point from the left end.



- 3 Fold back the ribbon cable at the 20 +/- 5mm point.



<Connector B : 1000006702 CABLE-CARD,29P1 256L BB HIGH-V>

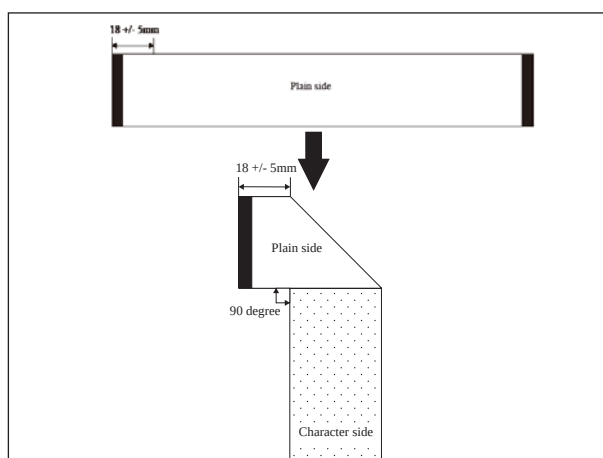
- 1 Place the ribbon cable whose plain side faces up.



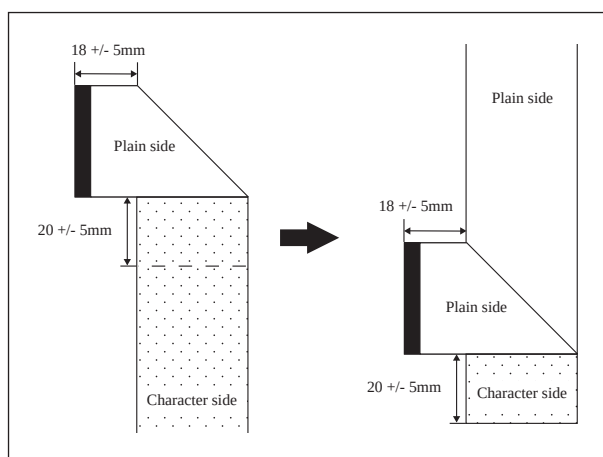
There is no difference between left and right direction.



- 2 Fold the ribbon cable with 90 degree at the 18 +/- 5 mm point from the left end.



- 3 Fold back the ribbon cable at the 20 +/- 5mm point.

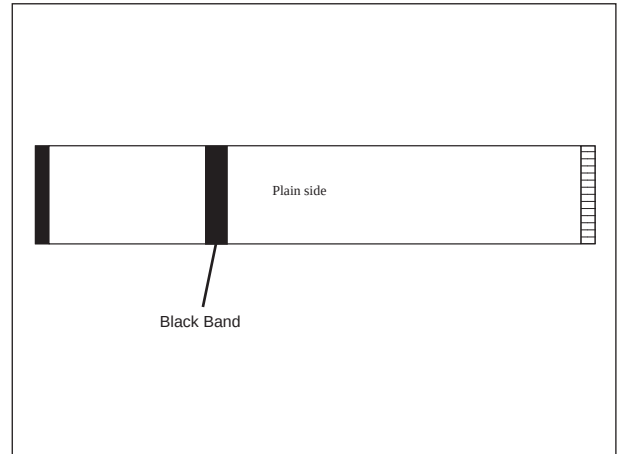


<Connector C : 1000006703 CABLE-CARD,29P1 276L BBR HIGH-V>

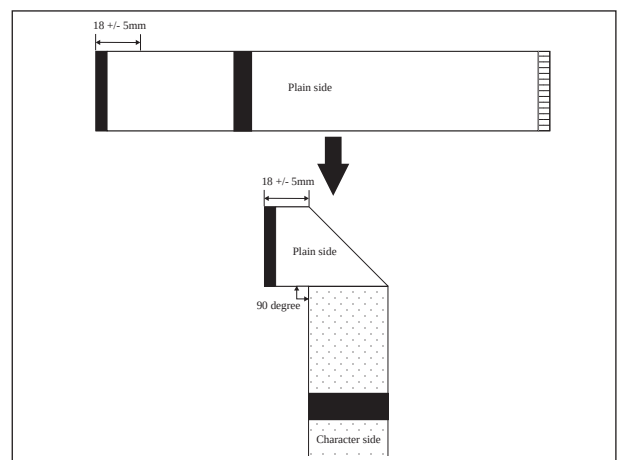
- 1** Place the ribbon cable whose plain side faces up.



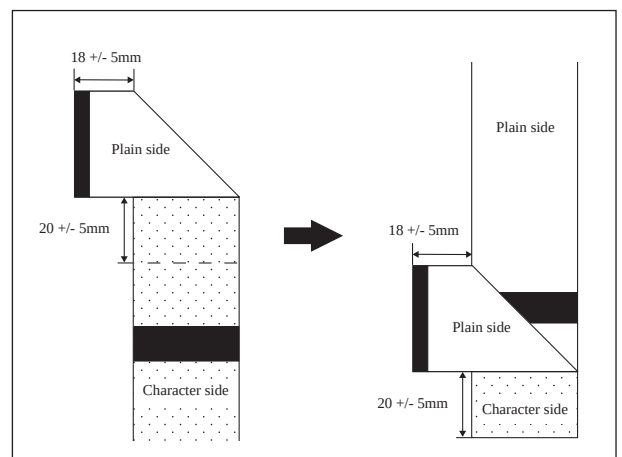
The black band should be placed at the left side.



- 2** Fold the ribbon cable with 90 degree at the 18 +/- 5 mm point from the left end.

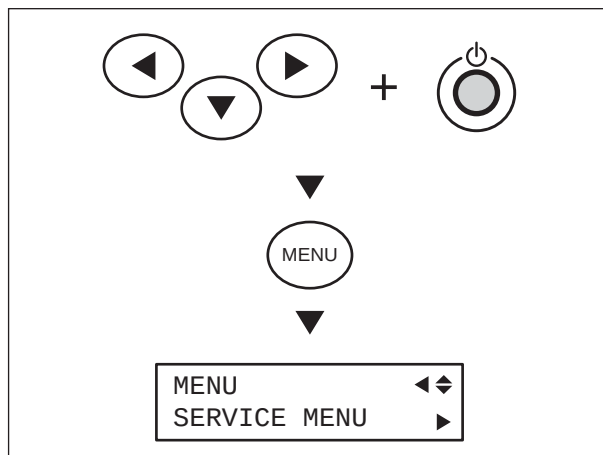


- 3** Fold back the ribbon cable at the 20 +/- 5mm point.



3-20 INK TUBE REPLACEMENT

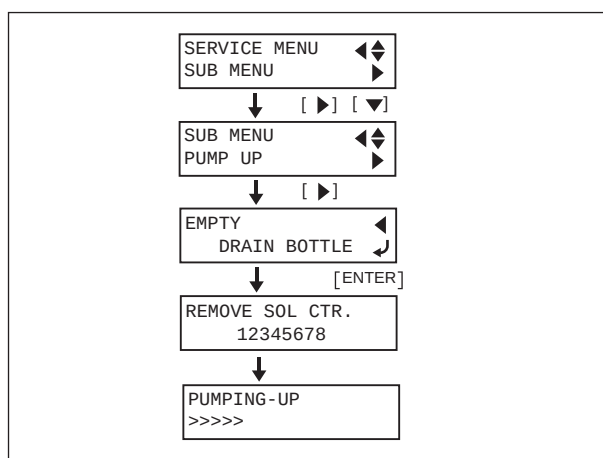
- 1 Turn on the Main Power SW, and then turn on the Sub Power SW while pressing the left, right and down keys to enter the Service Mode.



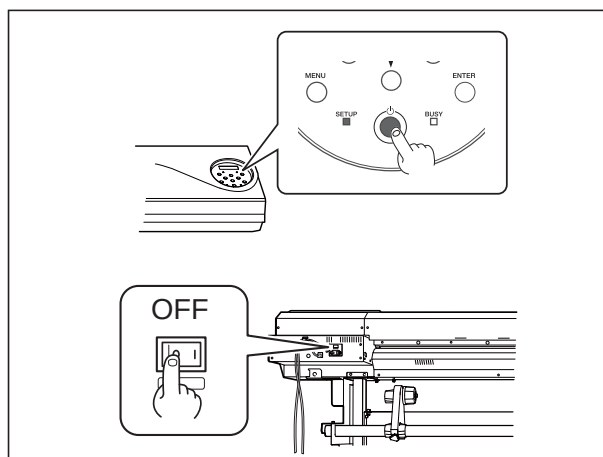
- 2 Select [SERVICE MENU]>[SUB MENU]>[PUMP UP], and take out the ink in the Ink Tube by following the messages on the LCD panel. It takes about 35 minutes to finish [PUMP UP].



When you perform [PUMP UP], you must use six Dummy Cartridges. Do not use the Dummy Cartridge which has been used for more than 10 times. If you use such Dummy Cartridge, the ink line may not be sealed completely.

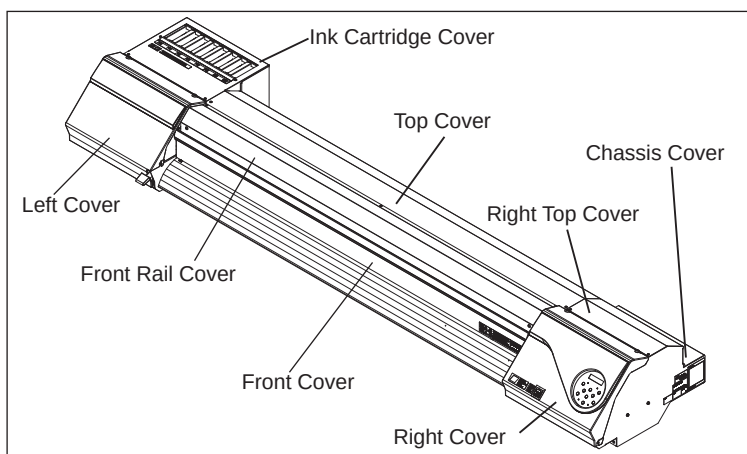


- 3 Turn off the Sub Power SW, and then turn off the Main Power SW.

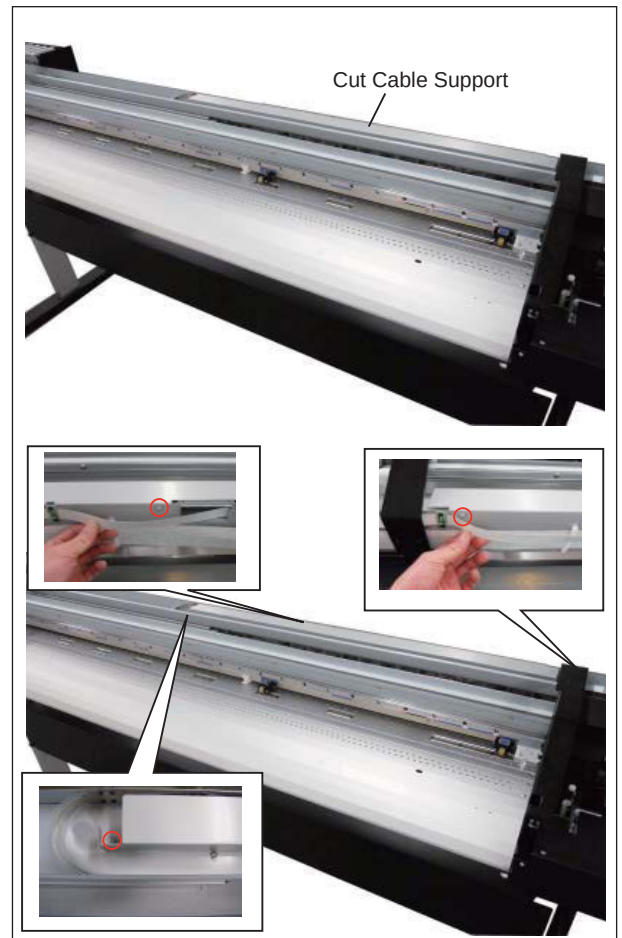


- 4 Remove the following covers in order.

1. Right Cover
2. Right Top Cover
3. Chassis Cover
4. Front Cover
5. Front Rail Cover
6. Left Cover
7. Ink Cartridge Cover
8. Top Cover



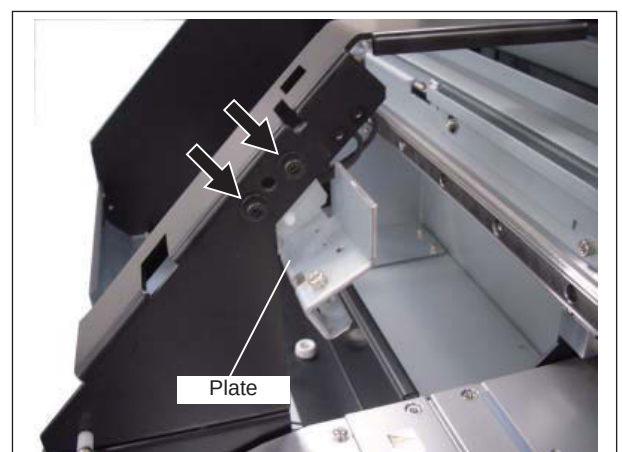
- 5** Remove the Cut Cable Support by removing the three screws shown in the figure. (For VS-640/540)



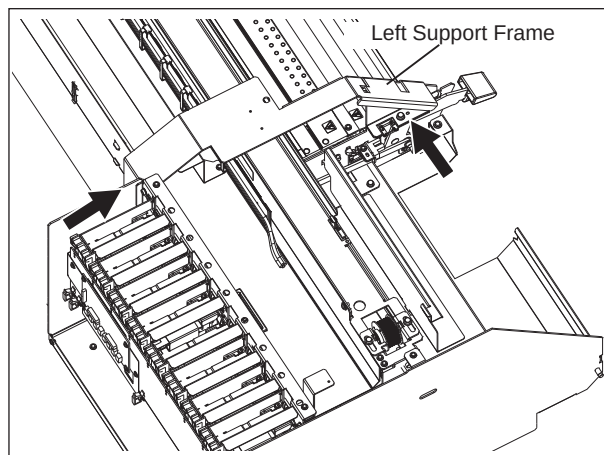
- 6** Remove the Left Cover Sensor from the Plate by removing the two screws shown in the figure.



- 7** Remove the Plate fixed to the Left Cover Sensor Cable by removing the two screws shown in the figure.



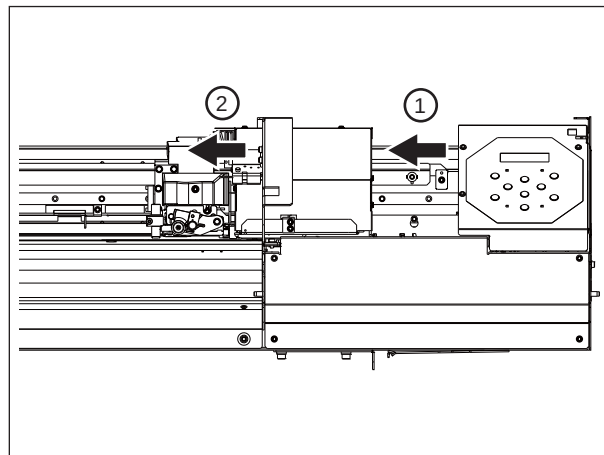
- 8** Remove the Left Support Frame by removing the two screws shown in the figure.



- 9** Remove the Cut Cable Guide by removing the three screws shown in the figure.



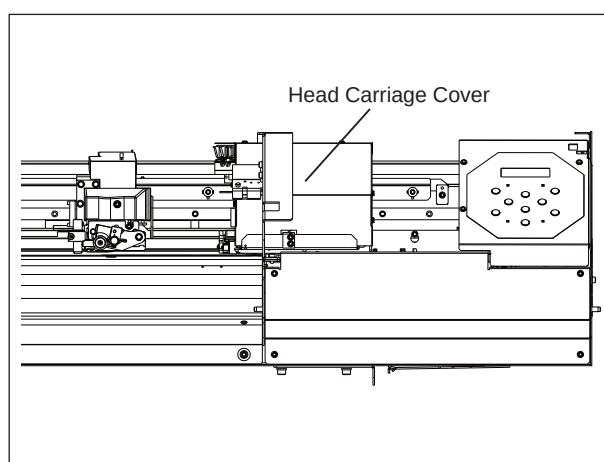
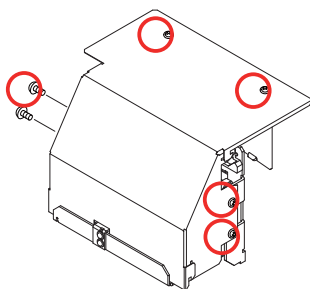
- 10** Move the Tool Carriage and the Head Carriage leftwards to the position where it is not above the Capping Unit.
Then, disconnect the Tool Carriage from the Head Carriage.



- 11** Remove the Carriage Cover.
The positions of screws fixing the Carriage Cover are at the left, right and top of the Carriage Cover.



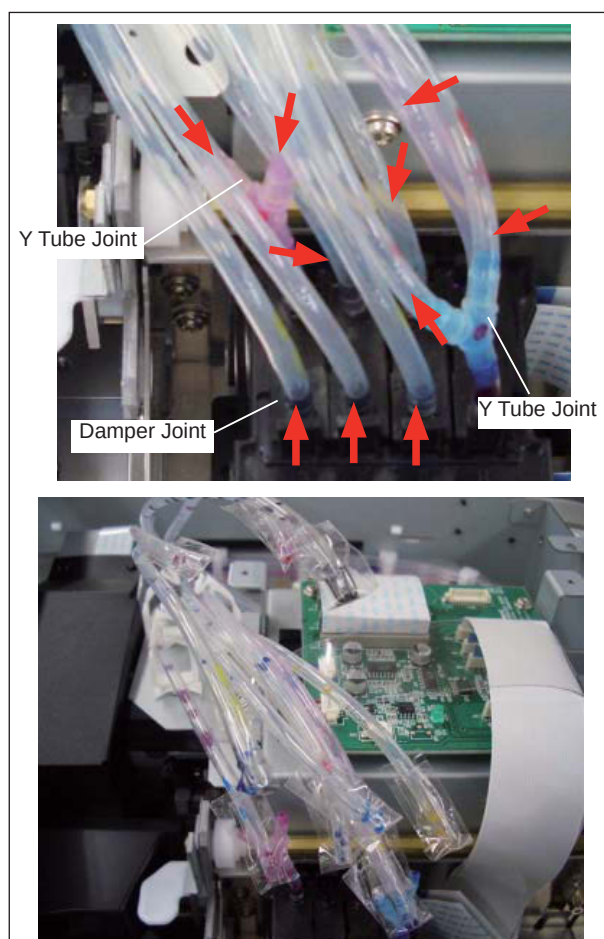
The Head Carriage Cover has six screws.



- 12** Remove the Ink Tubes from the Damper Joints and Y Tube Joints.



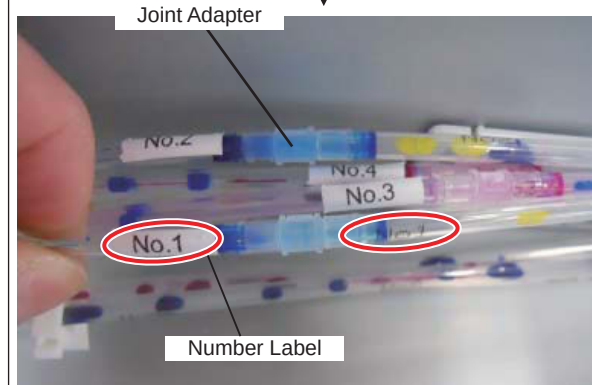
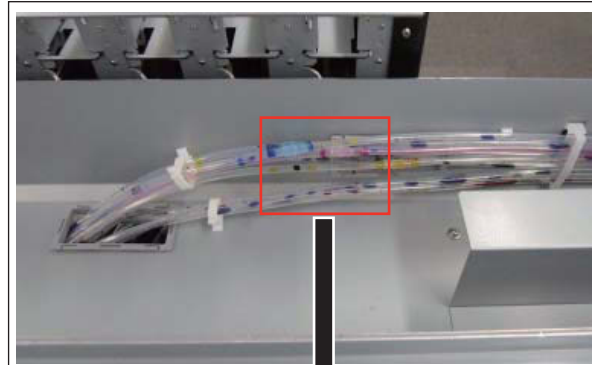
The other side of the Y tube joint goes to the head.
Do not replace this tube.



Open the Wire Saddles fixing the Ink Tubes and put the clear tape at the tip of the Ink Tube to prevent the ink from coming out.

Revised 6

- 13** <Only for VS-640 : Serial No. ZZ92064 and below>
Mark or put the label to the Cartridge side of the Ink Tube to identify which is connected to the Head Carriage side of the Ink Tube.
In this procedure, the number labels are put on the Cartridge side of the Ink Tube. The number has been written on the Head Carriage Side of Ink Tubes.



Revised 3

No. 1 to No.10 are lined from the top to the bottom of the Ink Tubes (Head Carriage Side).

<Old Tubes>

No.1 to 6 :

1000007188 TUBE,SJ-RDG3*4 LINK6 VS-640_01

1000007210 TUBE,SJ-RDG3*4 LINK6 VS-540

1000007239 TUBE,SJ-RDG3*4 LINK6 VS-420

1000007255 TUBE,SJ-RDG3*4 LINK6 VS-300

No.7 to 10 :

1000006797 TUBE,SJ-RDG3*4 LINK4 VS-640

1000007211 TUBE,SJ-RDG3*4 LINK4 VS-540

1000007240 TUBE,SJ-RDG3*4 LINK4 VS-420

1000007256 TUBE,SJ-RDG3*4 LINK4 VS-300

<New Tubes> Revised 12

No.1 to 6 :

1000009882 TUBE,SJ-RDG3*4 LINK6 VS-640_02

1000009883 TUBE,SJ-RDG3*4 LINK6 VS-540_01

1000009884 TUBE,SJ-RDG3*4 LINK6 VS-420_01

1000009885 TUBE,SJ-RDG3*4 LINK6 VS-300_01

No.7 to 10 :

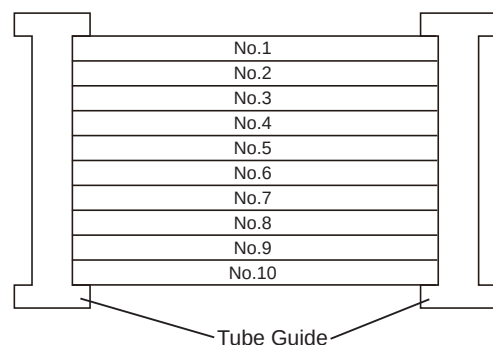
1000009886 TUBE,SJ-RDG3*4 LINK4 VS-640_02

1000009887 TUBE,SJ-RDG3*4 LINK4 VS-540_01

1000009888 TUBE,SJ-RDG3*4 LINK4 VS-420_01

1000009889 TUBE,SJ-RDG3*4 LINK4 VS-300_01

<Number on the Ink Tube (Head Carriage Side)>



<Old Tubes>

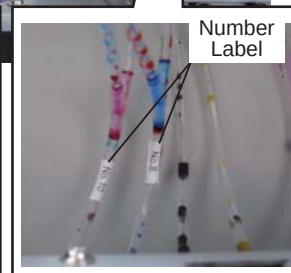
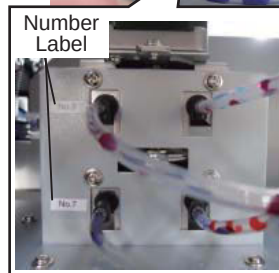
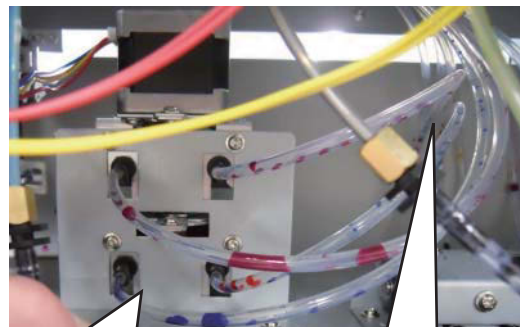
The Ink Tube (Head Carriage Side) from No. 7 to No.10 are connected to the Circulating Pump and the Y Tube Joints to circulate the ink. Put the number labels on the Plate of the Circulating Pump and the Ink Tubes from the Choke Unit to the Y Tube Joints.

<New Tubes> Revised 12

The Ink Tube (Head Carriage Side) No. 2, 3, 9, and 10 are connected to the Circulating Pump and the Y Tube Joints to circulate the ink. Put the number labels on the Plate of the Circulating Pump and the Ink Tubes from the Choke Unit to the Y Tube Joints.



The number is not printed on the Ink Tube connected to the Circulating Pump and the Y Tube Joints. The number of the label is printed on the Ink Tubes connected to the Head Carriage.



Revised 6

- 14** <Only for VS-640 : Serial No. ZZ92064 and below>
Disconnect the Ink Tubes (Head Carriage Side) from the Joint Adapters, the Y Tube Joints and the Circulating Pump. And, put the clear tape at the tip of the Ink Tube to prevent the ink from coming out.



It is not necessary to replace the Ink Tubes (Cartridge Side).

<Only for VS-640 : Serial No. ZZ92065 and above and VS-540/420/300>

Disconnect the Ink Tubes from the Chock Unit, the Y Tube Joints and the Circulating Pump. And, put the clear tape at the tip of the Ink Tube to prevent the ink from coming out.

Revised 3

<Old Tubes>

No.1 to 6 :

1000007188 TUBE,SJ-RDG3*4 LINK6 VS-640_01

1000007210 TUBE,SJ-RDG3*4 LINK6 VS-540

1000007239 TUBE,SJ-RDG3*4 LINK6 VS-420

1000007255 TUBE,SJ-RDG3*4 LINK6 VS-300

No.7 to 10 :

1000006797 TUBE,SJ-RDG3*4 LINK4 VS-640

1000007211 TUBE,SJ-RDG3*4 LINK4 VS-540

1000007240 TUBE,SJ-RDG3*4 LINK4 VS-420

1000007256 TUBE,SJ-RDG3*4 LINK4 VS-300

<New Tubes> **Revised 12**

No.1 to 6 :

1000009882 TUBE,SJ-RDG3*4 LINK6 VS-640_02

1000009883 TUBE,SJ-RDG3*4 LINK6 VS-540_01

1000009884 TUBE,SJ-RDG3*4 LINK6 VS-420_01

1000009885 TUBE,SJ-RDG3*4 LINK6 VS-300_01

No.7 to 10 :

1000009886 TUBE,SJ-RDG3*4 LINK4 VS-640_02

1000009887 TUBE,SJ-RDG3*4 LINK4 VS-540_01

1000009888 TUBE,SJ-RDG3*4 LINK4 VS-420_01

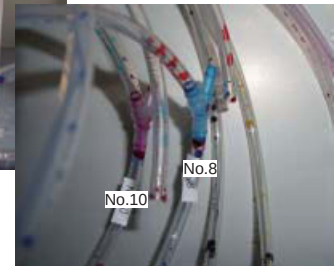
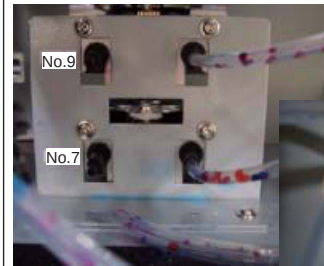
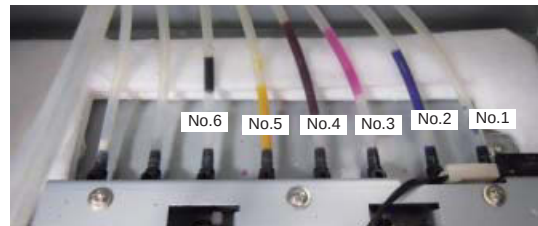
1000009889 TUBE,SJ-RDG3*4 LINK4 VS-300_01

<No.1 to 6>(Only for VS-640 : Serial No. ZZ92064 and below)



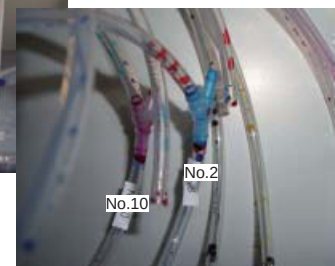
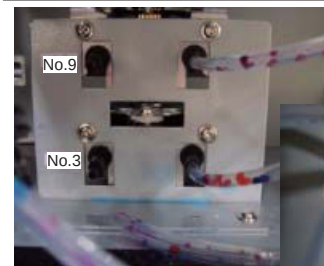
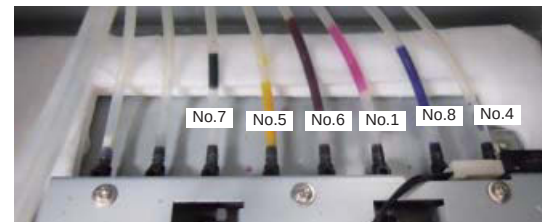
<No.1 to 6> (Only for VS-640 : Serial No. ZZ92065 and above and VS-540/420/300)

<Old Tubes>



Revised 12

<New Tubes>



Revised 6

- 15** <Only for VS-640 : Serial No. ZZ92064 and below>
Open the Wire Saddle fixing the Ink Tubes and pull up the Ink Tube from No.7 to No.10 on the Support Frame.

<Only for VS-640 : Serial No. ZZ92065 and above and VS-540/420/300>

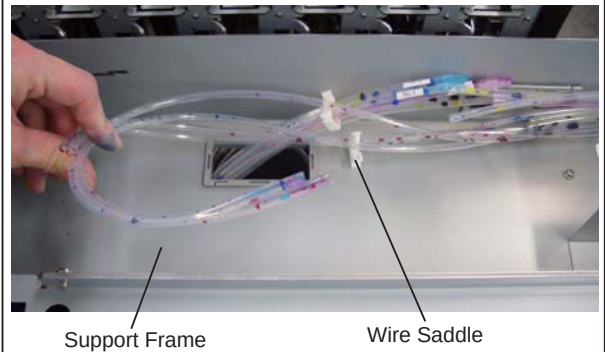
Open the Wire Saddle and place all tubes on the Support Frame.

- 16** Open the Wire Saddle fixing the Ink Tubes at the rear of the Head Carriage. And pull out the Ink Tubes from the Cable Tie and the Tube Guide.

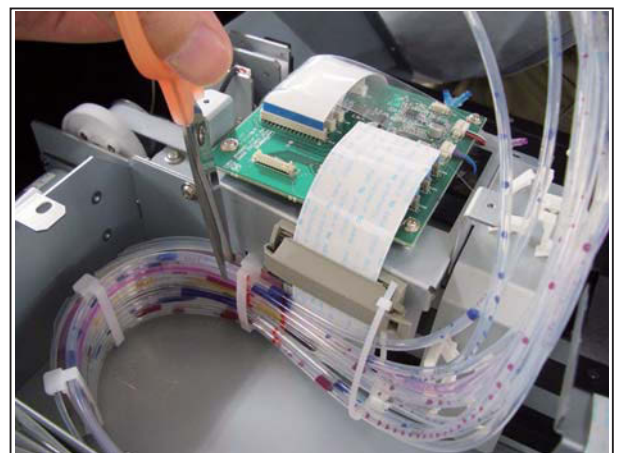
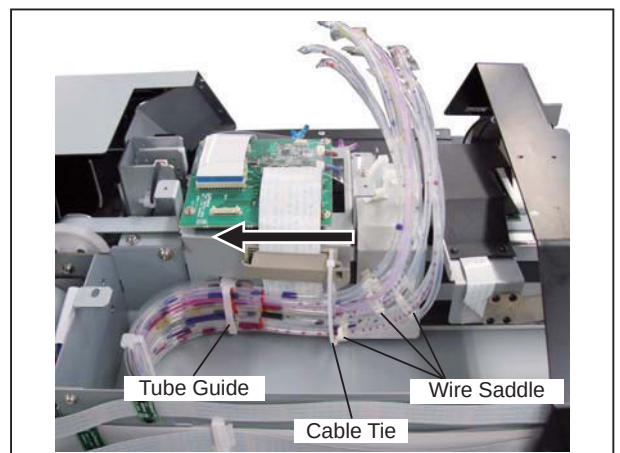
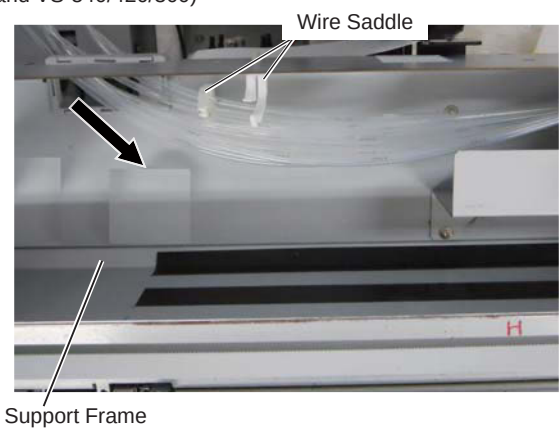


When you cut the Ink Tube at the rear of the Head Carriage, it is easy to remove the Ink Tube. Be careful with the ink in the Ink Tubes when you cut the Ink Tube.

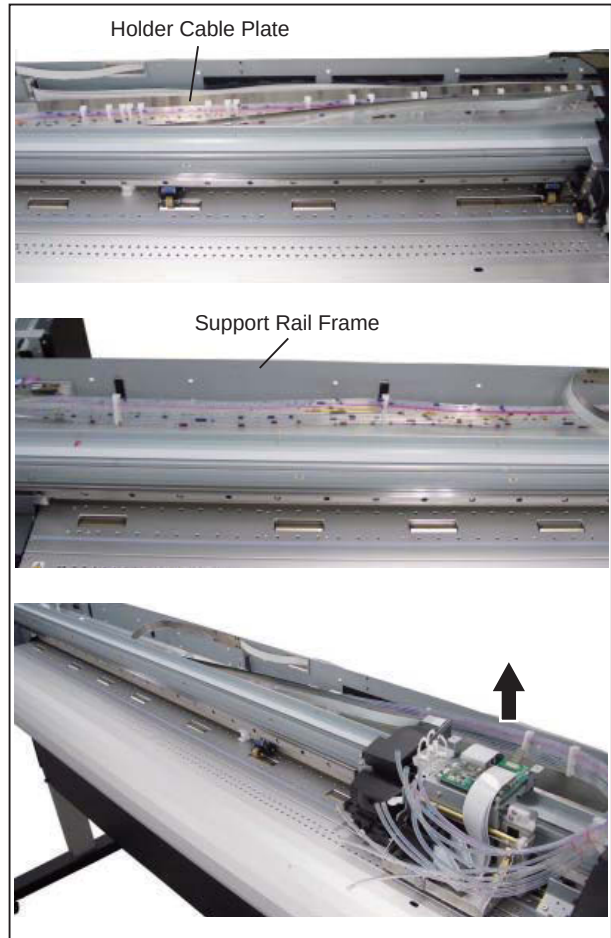
<No.1 to 6>(Only for VS-640 : Serial No. ZZ92064 and below)



<No.1 to 6> (Only for VS-640 : Serial No. ZZ92065 and above and VS-540/420/300)

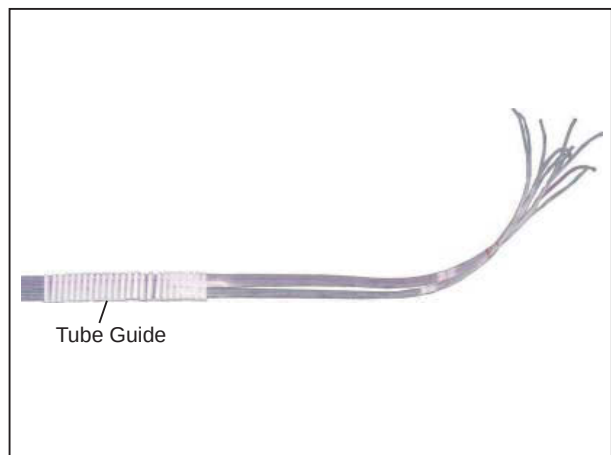


- 17** Remove the Ink Tubes with the Tube Guides from the Holder Cable Plate and the Support Frame.



When you move the Head Carriage to the center of the machine, you can take out the Ink Tubes easily.

- 18** Remove the Tube Guides from the Ink Tubes and fix them to the new Ink Tubes



Revised 3



Confirm that No. 1 to No.10 are lined from the top to the bottom of the Ink Tubes (Head Carriage Side).

<Old Tubes>

No.1 to 6 :

1000007188 TUBE,SJ-RDG3*4 LINK6 VS-640_01

1000007210 TUBE,SJ-RDG3*4 LINK6 VS-540

1000007239 TUBE,SJ-RDG3*4 LINK6 VS-420

1000007255 TUBE,SJ-RDG3*4 LINK6 VS-300

No.7 to 10 :

1000006797 TUBE,SJ-RDG3*4 LINK4 VS-640

1000007211 TUBE,SJ-RDG3*4 LINK4 VS-540

1000007240 TUBE,SJ-RDG3*4 LINK4 VS-420

1000007256 TUBE,SJ-RDG3*4 LINK4 VS-300

<New Tubes>

Revised 12

No.1 to 6 :

1000009882 TUBE,SJ-RDG3*4 LINK6 VS-640_02

1000009883 TUBE,SJ-RDG3*4 LINK6 VS-540_01

1000009884 TUBE,SJ-RDG3*4 LINK6 VS-420_01

1000009885 TUBE,SJ-RDG3*4 LINK6 VS-300_01

No.7 to 10 :

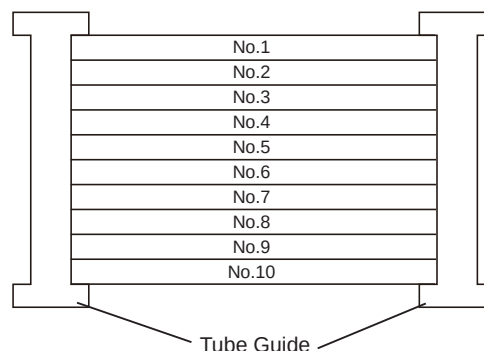
1000009886 TUBE,SJ-RDG3*4 LINK4 VS-640_02

1000009887 TUBE,SJ-RDG3*4 LINK4 VS-540_01

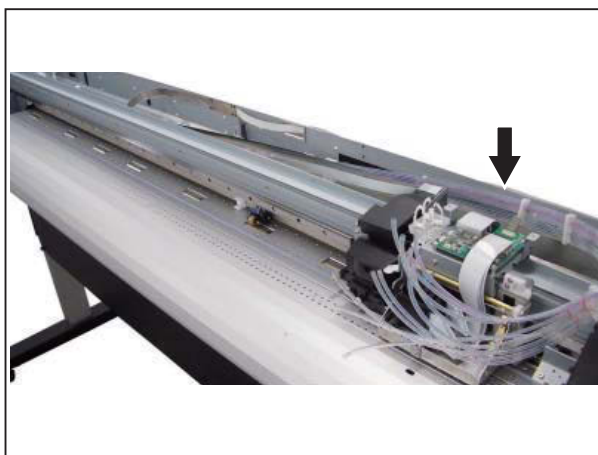
1000009888 TUBE,SJ-RDG3*4 LINK4 VS-420_01

1000009889 TUBE,SJ-RDG3*4 LINK4 VS-300_01

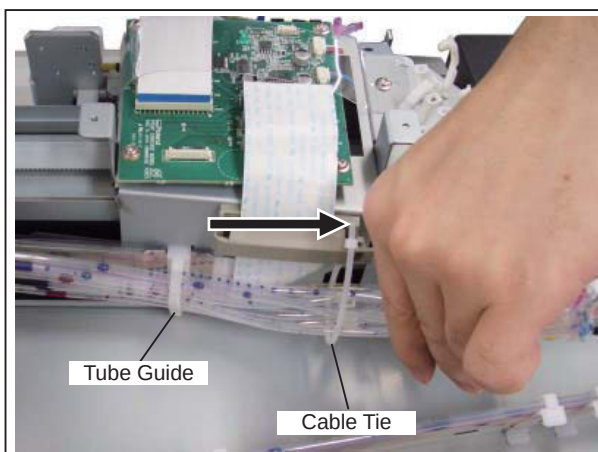
<Number on the Ink Tube (Head Carriage Side)>



- 19 Put the Ink Tubes with the Tube Guide on the Support Rail Frame.



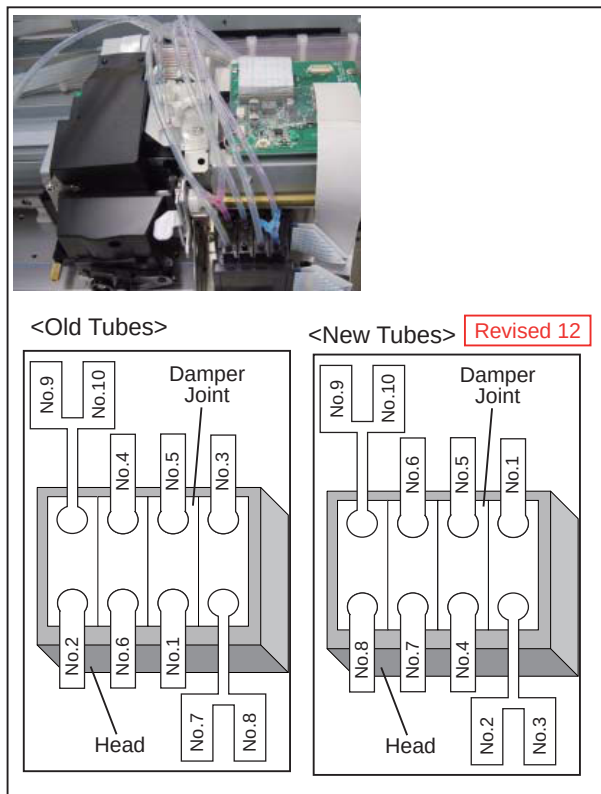
- 20 Pass the Ink Tubes through the Cable Tie at the rear of the Head Carriage.



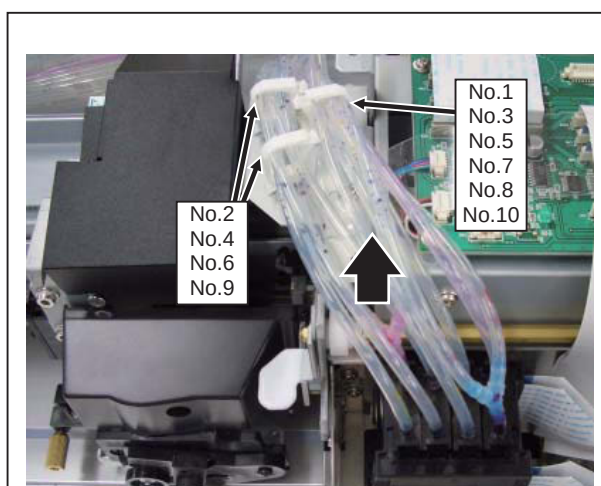
- 21** Connect the Ink Tubes to the Damper Joints and the Y Tube Joints. Check which number of the Ink Tube is connected to which Damper Joint and Y Tube Joint by referring the figure.



When you connect the Ink Tubes, the Ink Tubes may bend. Do not use the bent Ink Tube.



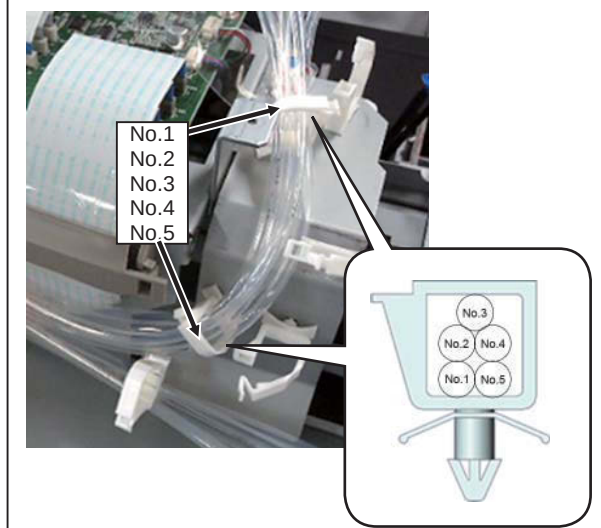
- 22** <Old Tubes>
Fix the Ink Tubes with the three Wire Saddles shown in the figure. Check which number of the Ink Tube is fixed to which Wire Saddles by referring the figure.
Fix the Ink Tubes with the Wire Saddles while pushing them backward so as not to locate the front of the Head Carriage.



Revised 12

<New Tubes>

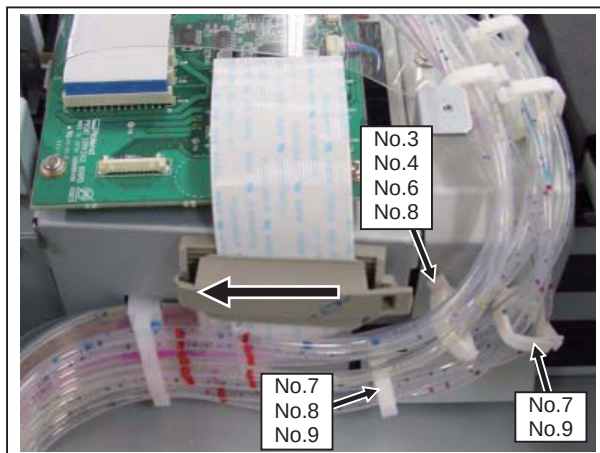
Fix the Ink Tubes with the two Wire Saddles shown in the figure. Check which the Ink Tubes are fixed to those Wire Saddles by referring the numbers shown the figure.
Fix the Ink Tubes with the Wire Saddles while pushing them backward so as not to protrude the front of the Head Carriage.



- 23** Fix the Ink Tubes with the three Wire Saddles at the rear of the Head Carriage. Push the Ink Tubes toward the Tube Guide and fix them with the Wire Saddle.



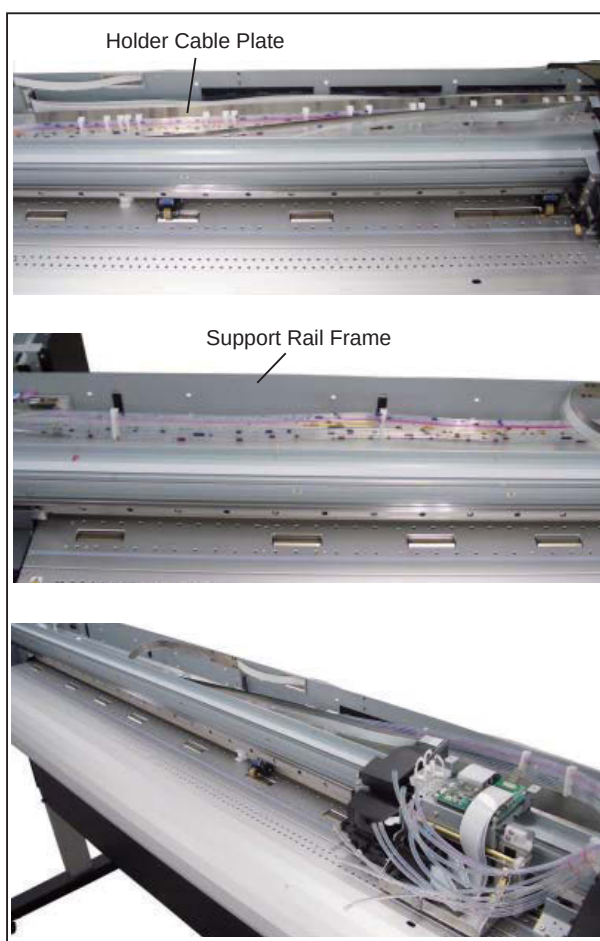
When you connect the Ink Tubes, the Ink Tubes may bend. Do not use the bent Ink Tube.



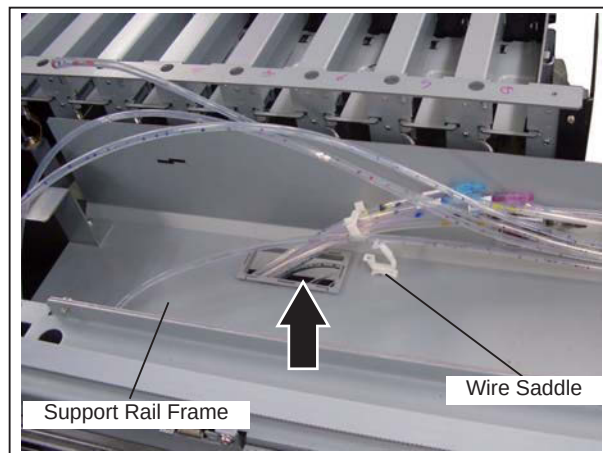
- 24** Fix the Ink Tubes with the Tube Guides to the Holder Cable Plate and the Support Rail Frame.



When you move the Head Carriage to the center of the machine, you can fix the Ink Tubes easily.

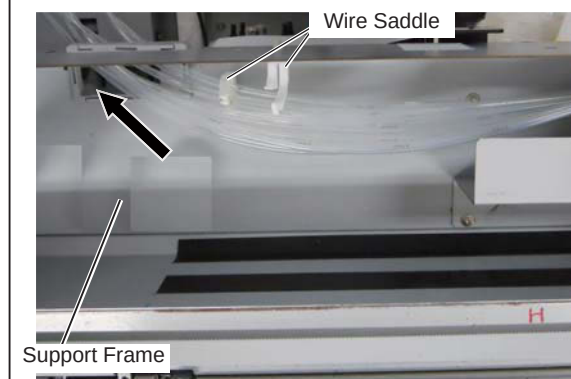


- 25** <Only for VS-640 : Serial No. ZZ92064 and below>
Pass the Ink Tube from No.7 to No.10 through the Support Rail Frame. And, fix them with the Wire Saddle shown in the figure.



- Revised 6** <Only for VS-640 : Serial No. ZZ92065 and above and VS-540/420/300>
Pass all ink tubes under the Support Frame and fix all ink tubes with the Wire Saddles.

<No.1 to 6> (Only for VS-640 : Serial No. ZZ92065 and above and VS-540/420/300)



Revised 6

26

<Only for VS-640 : Serial No. ZZ92064 and below>
Connect the Ink Tube (Head Carriage Side) to the Joint Adapters, Y Tube Joints and the Circulating Pump.

<Only for VS-640 : Serial No. ZZ92065 and above and VS-540/420/300>

Connect ink tubes to the Chock unit.



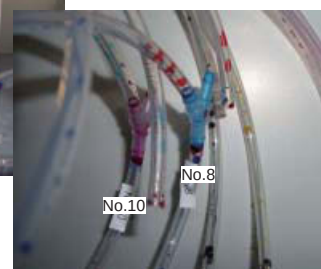
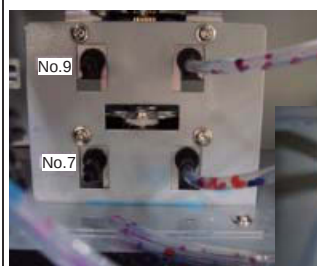
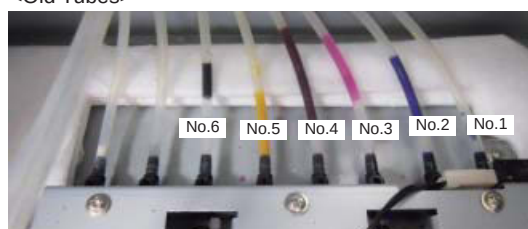
When you connect the Ink Tubes, the Ink Tubes may bend. Do not use the bent Ink Tube.

<No.1 to 6>(Only for VS-640 : Serial No. ZZ92064 and below)



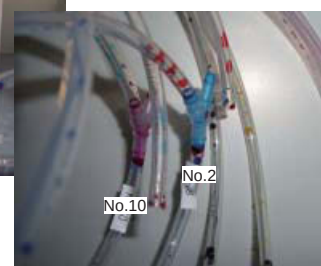
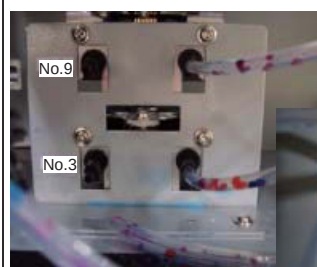
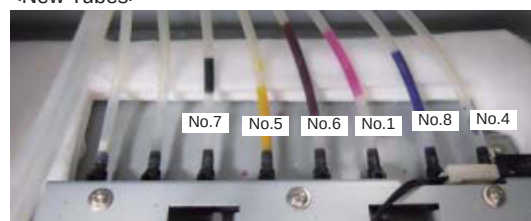
<No.1 to 6> (Only for VS-640 : Serial No. ZZ92065 and above and VS-540/420/300)

<Old Tubes>



Revised 12

<New Tubes>



Revised 3



Confirm that No. 1 to No.10 are lined from the top to the bottom of the Ink Tubes (Head Carriage Side).

<Old Tubes>

No.1 to 6 :

1000007188 TUBE,SJ-RDG3*4 LINK6 VS-640_01

1000007210 TUBE,SJ-RDG3*4 LINK6 VS-540

1000007239 TUBE,SJ-RDG3*4 LINK6 VS-420

1000007255 TUBE,SJ-RDG3*4 LINK6 VS-300

No.7 to 10 :

1000006797 TUBE,SJ-RDG3*4 LINK4 VS-640

1000007211 TUBE,SJ-RDG3*4 LINK4 VS-540

1000007240 TUBE,SJ-RDG3*4 LINK4 VS-420

1000007256 TUBE,SJ-RDG3*4 LINK4 VS-300

<New Tubes>

Revised 12

No.1 to 6 :

1000009882 TUBE,SJ-RDG3*4 LINK6 VS-640_02

1000009883 TUBE,SJ-RDG3*4 LINK6 VS-540_01

1000009884 TUBE,SJ-RDG3*4 LINK6 VS-420_01

1000009885 TUBE,SJ-RDG3*4 LINK6 VS-300_01

No.7 to 10 :

1000009886 TUBE,SJ-RDG3*4 LINK4 VS-640_02

1000009887 TUBE,SJ-RDG3*4 LINK4 VS-540_01

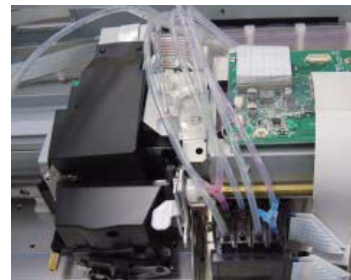
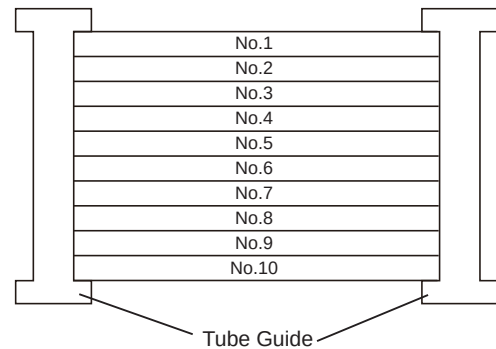
1000009888 TUBE,SJ-RDG3*4 LINK4 VS-420_01

1000009889 TUBE,SJ-RDG3*4 LINK4 VS-300_01

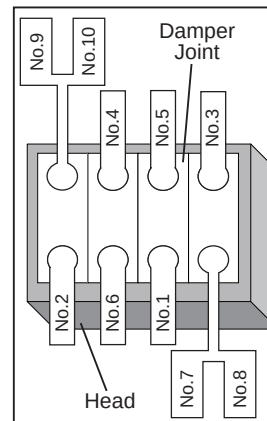


Check which number of the Ink Tube is connected to which Damper Joint and Y Tube Joint by referring the figure.

<Number on the Ink Tube (Head Carriage Side)>

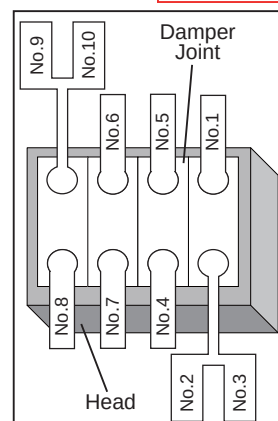


<Old Tubes>



<New Tubes>

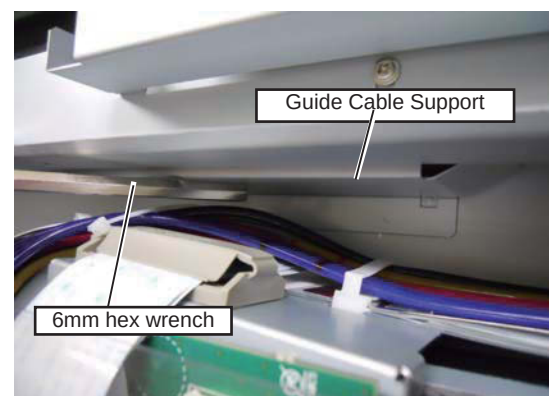
Revised 12



27

Move the Head Carriage to the position of the right figure. Then, check the clearance between the Ink Tube and the Guide Cable Support is more than 6mm. Using a 6mm hex wrench is easy to check. Adjustment is not necessary if the clearance is more than 6mm. Go to [31](#) step.

Revised 3



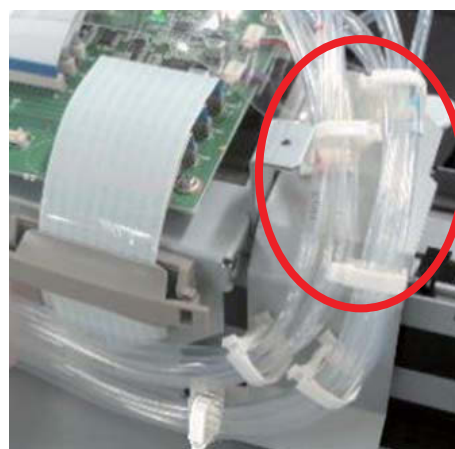
- 28** Move the Head Carriage to the capping position.
Then, open the clamps that bundle the Ink Tube.

Revised 3

<Old Tubes>



<New Tubes> Revised 12



- 29** Pull and move the Ink Tubes to the Print Head side.

Revised 3



If the cable tie is extremely loosen, tighten it. (Only for the old tubes.)



Be careful not to make it too tight.



- 30** Fix the Ink Tubes with the clamps.
Perform **27** step [Checking the clearance] again.

Revised 3

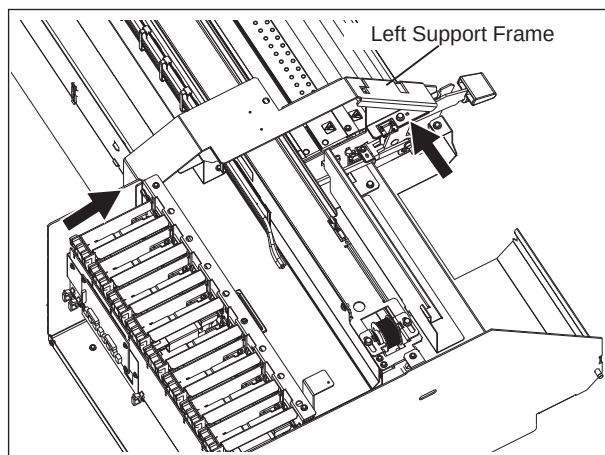


- 31** Fix the Cut Cable Guide with the three screws shown in the figure.

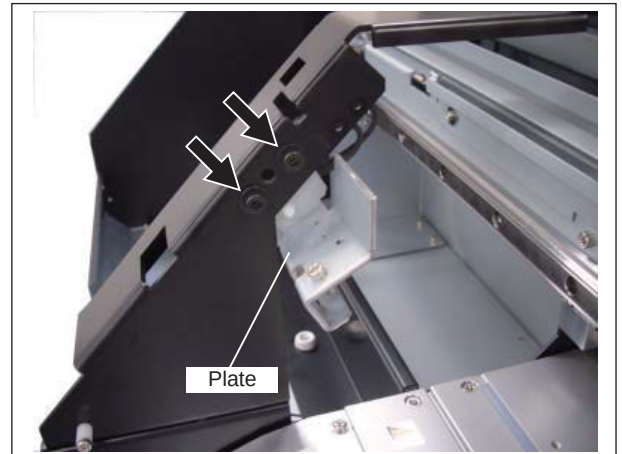


If the Head Carriage is not locked, lock it.

- 32** Fix the Left Support Frame with the two screws shown in the figure.



- 33** Fix the Plate fix to the Left Cover Sensor Cable with the two screws shown in the figure.



- 34** Fix the Left Cover Sensor Cable with the two screws shown in the figure.



- 35** Fix the Cut Cable Support with the three screws shown in the figure. (For VS-640/540)



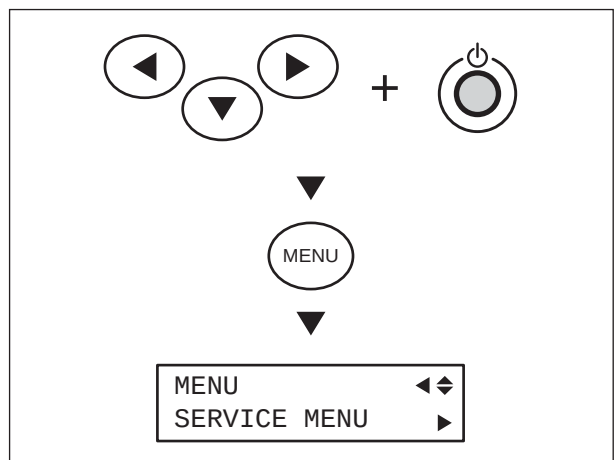
- 36** Move the Head Carriage in a whole width of the machine manually to check that the Tube Guides make physical contact with the Rail.



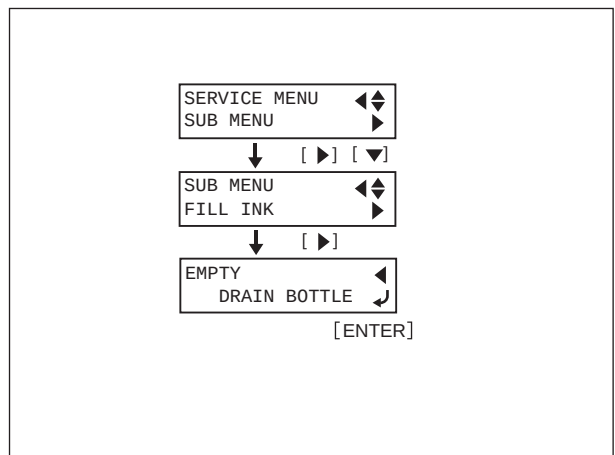
When the Tube Guides make physical contact with the Rail, remove the Ink Tubes with the Tube Guides from the Cable Holder Plate and the Support Frame. Then, fix the Ink Tubes with the Tube Guides again.



- 37** Turn on the Main Power SW, and then turn on the Sub Power SW while pressing the left, right and down keys to enter the Service Mode.



- 38** Select [SERVICE MENU]>[SUB MENU]>[FILL INK], and perform Ink Filling by following the sequences. It takes about 10 minutes to finish [PUMP UP].



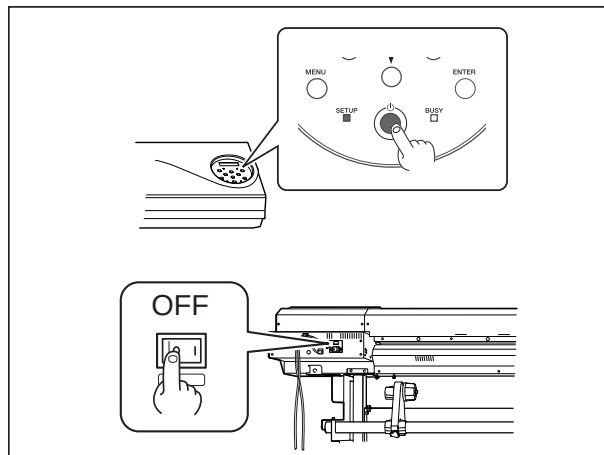
Revised 12: Refer to the Service Information VS640-040

3-21 RIBBON CABLE (MAIN BOARD TO CARRIAGE BOARD) REPLACEMENT

- 1** Turn off the Sub power SW and the Main Power SW.

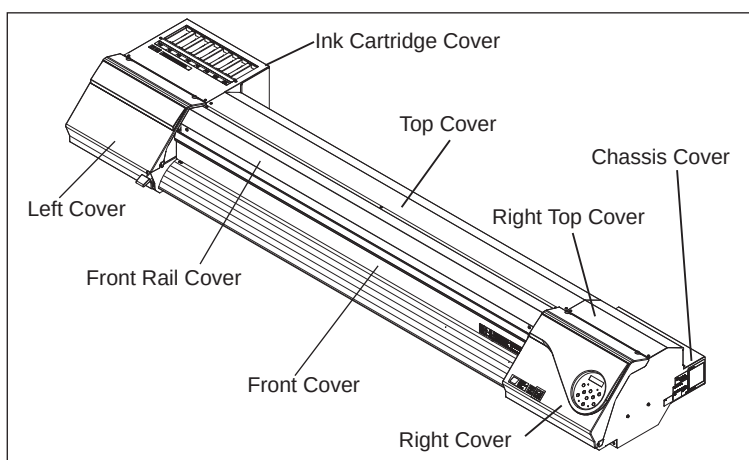


You do not need to perform [PUMP UP].



- 2** Remove the following covers in order.

1. Right Cover
2. Right Top Cover
3. Chassis Cover
4. Front Cover
5. Front Rail Cover
6. Left Cover
7. Ink Cartridge Cover
8. Top Cover



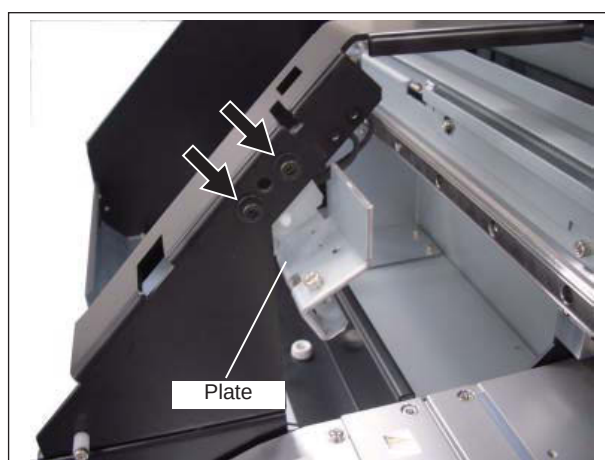
- 3** Remove the Cut Cable Support by removing the three screws shown in the figure. (For VS-640/540)



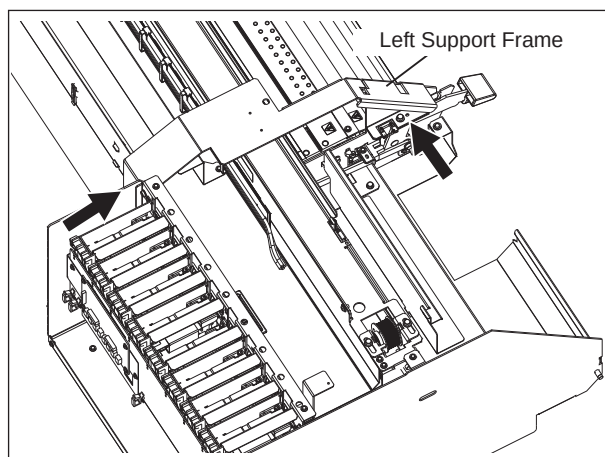
- 4** Remove the Left Cover Sensor from the Plate by removing the two screws shown in the figure.



- 5** Remove the Plate fixed to the Left Cover Sensor Cable by removing the two screws shown in the figure.



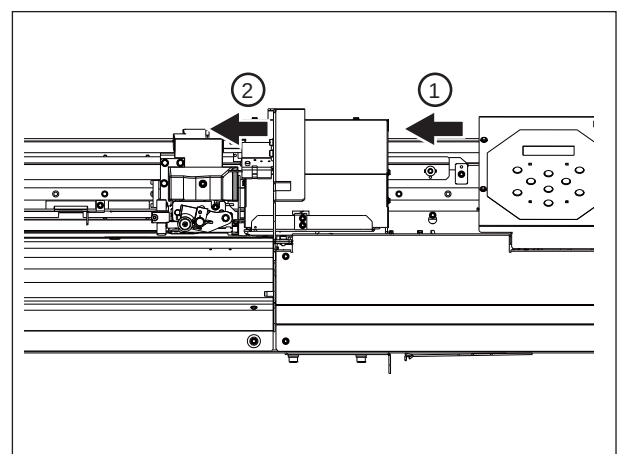
- 6** Remove the Left Support Frame by removing the two screws shown in the figure.



- 7** Remove the Cut Cable Guide by removing the three screws shown in the figure.



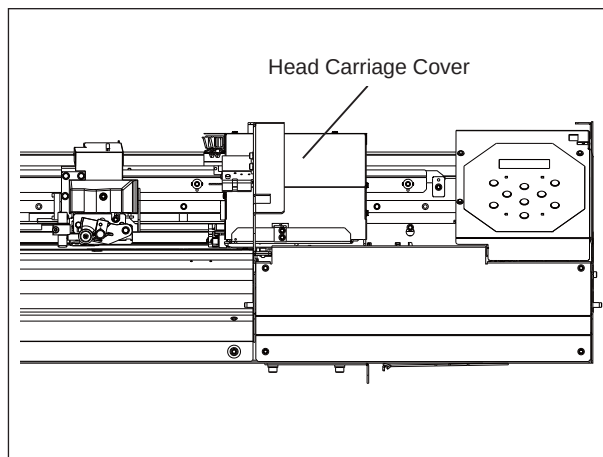
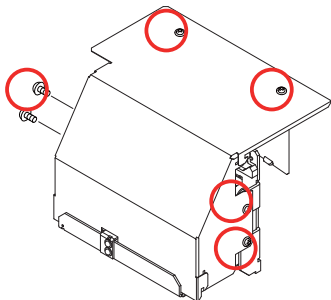
- 8** Open the Front Cover and move the Tool Carriage and the Head Carriage leftwards to the position where it is not above the Capping Unit.
Then, disconnect the Tool Carriage from the Head Carriage.



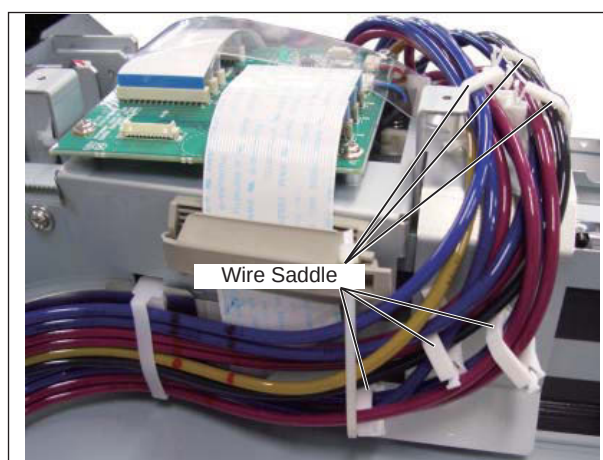
- 9** Remove the Carriage Cover.
The positions of screws for fixing the Carriage Cover are at the left, right and top of the Carriage Cover.



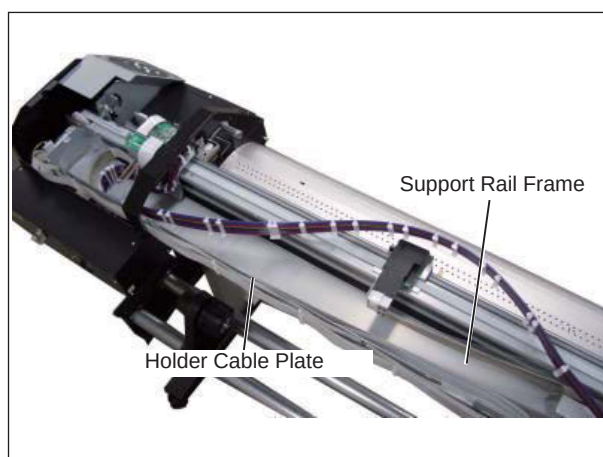
The Head Carriage Cover has six screws.



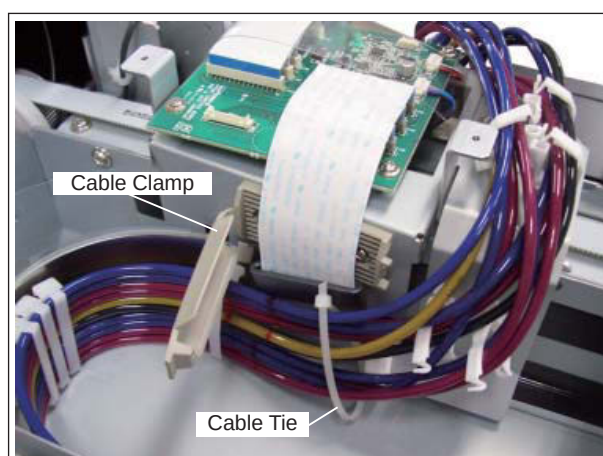
- 10** Open all Wire Saddles fixing the Ink Tubes shown in the figure.



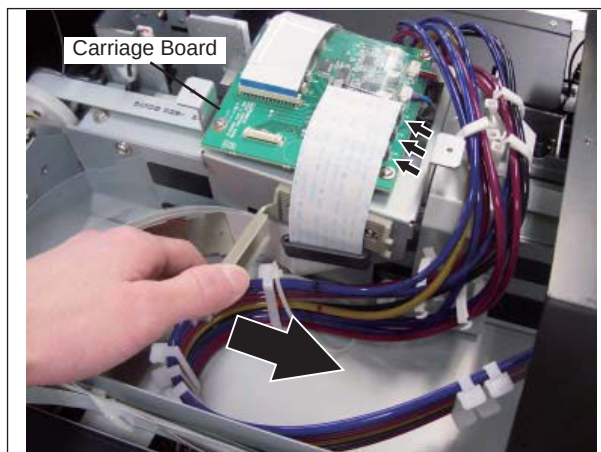
- 11** Remove the Ink Tubes with the Tube Guides from the Holder Cable Plate and the Support Rail Frame.



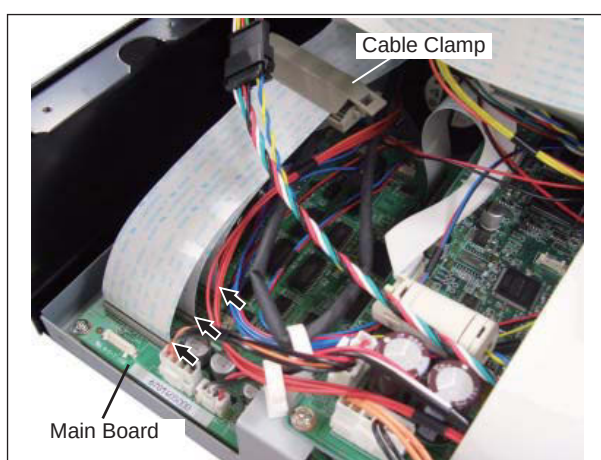
- 12** Open the Cable Clamp and remove the Cable Tie from the Cable Clamp.



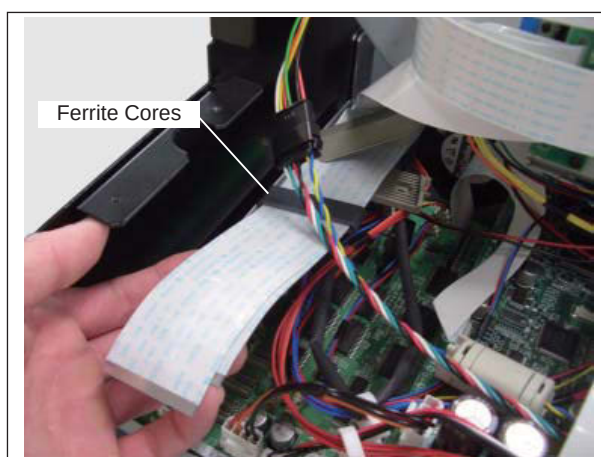
- 13** Move the Ink Tubes with the Tube Guides rightward and remove the Ribbon Cables from the Carriage Board.



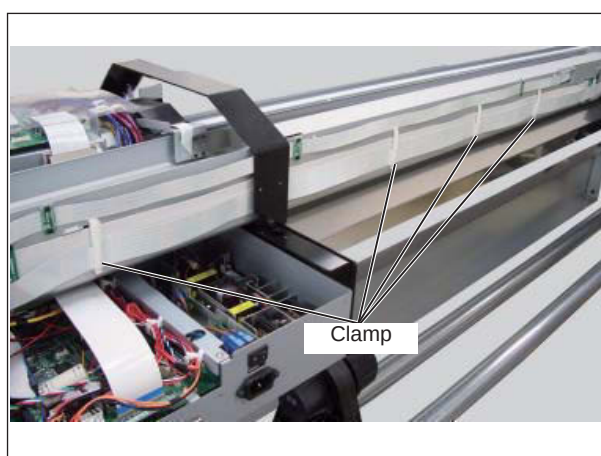
- 14** Remove the Ribbon Cables from the Main Board and remove the Cable Clamp from the Ribbon Cables.



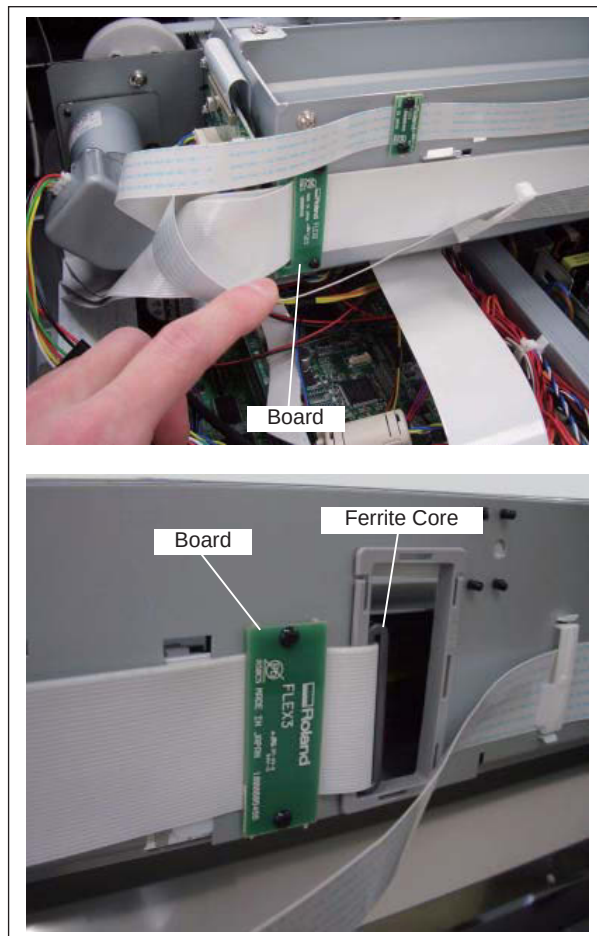
- 15** Remove the Ferrite Core from the Ribbon Cables.



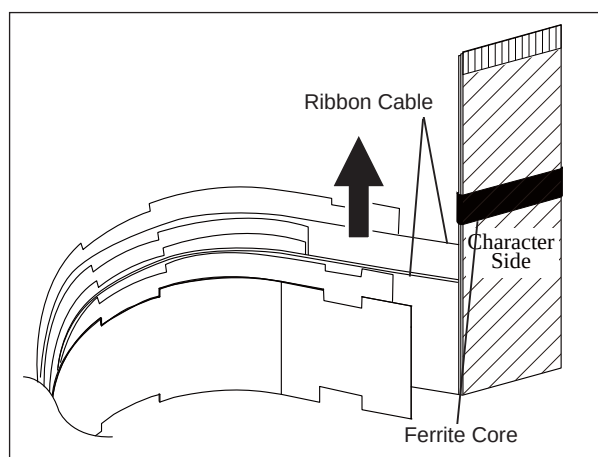
- 16** Open the four Clamps shown in the figure.



- 17** Remove the Boards fixed to the Ribbon Cables and remove the Ferrite Core from the Ribbon Cables.



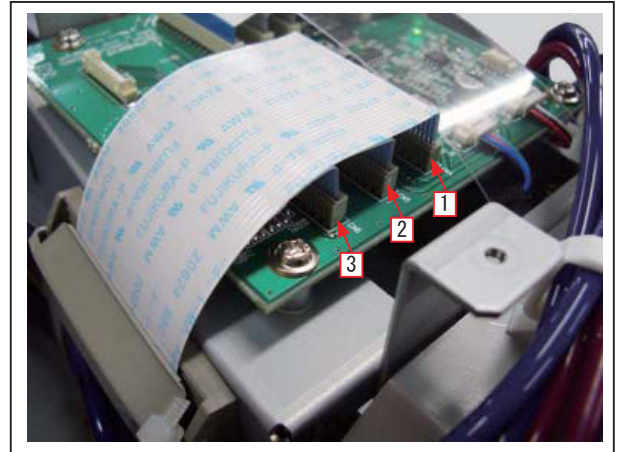
- 18** Remove the Ferrite Core from the Ribbon Cables and take out the Ribbon Cables from the machine.



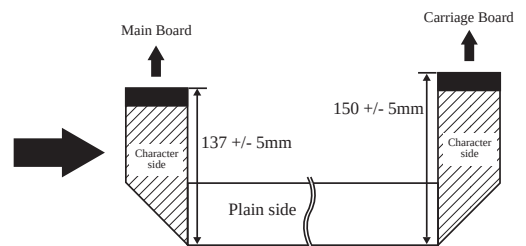
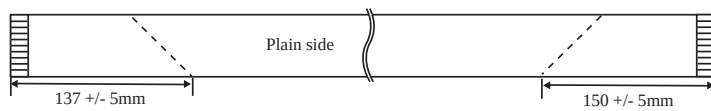
- 19** Fold the new Ribbon Cable by referring the figure below.
The position to fold the Ribbon Cable is different depending on the position to fix the Ribbon Cable to the Carriage Board.



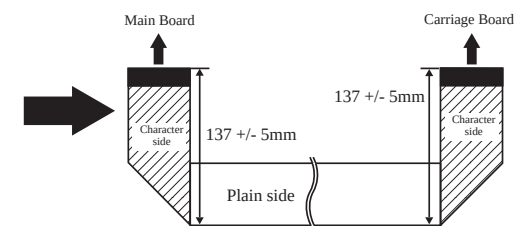
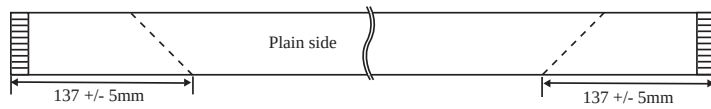
There is no difference between left and right direction.



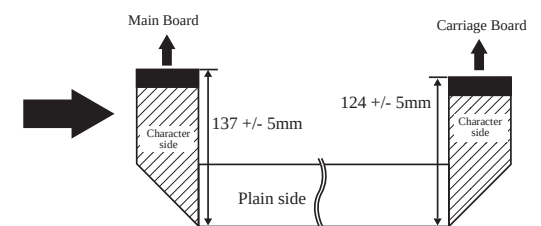
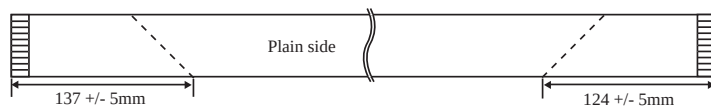
<No.1 Ribbon Cable>



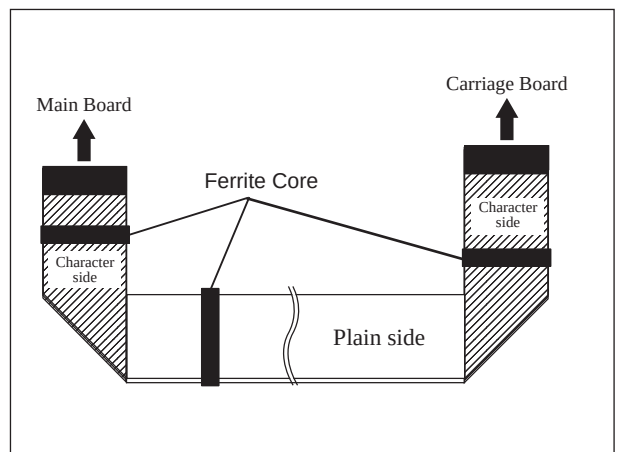
<No.2 Ribbon Cable>



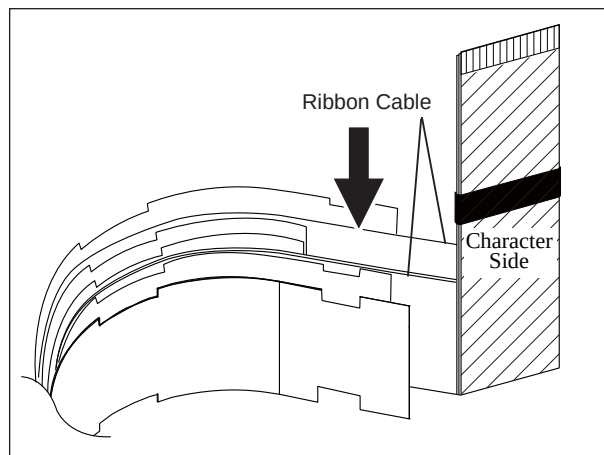
<No.3 Ribbon Cable>



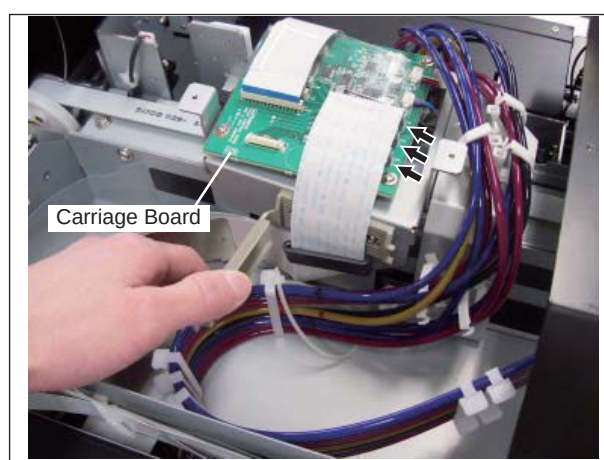
- 20** Pass the three Ferrite Cores through the Ribbon Cables and locate the Ferrite Cores shown in the figure.



- 21** Locate the Ribbon Cables among the Cable Holders, the Holder Cable Sheets and the Holder Cable Plate.



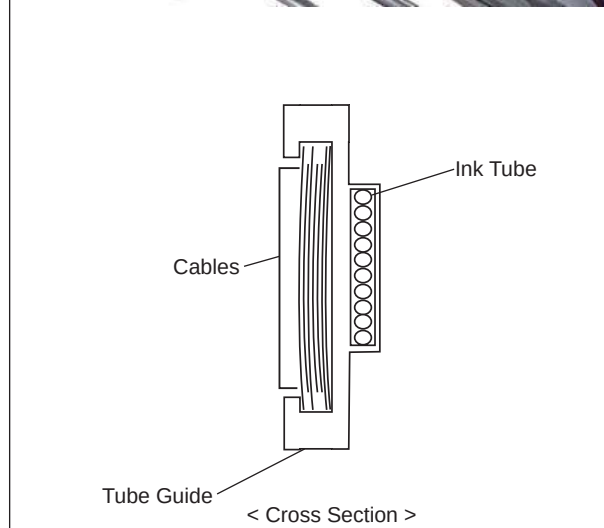
- 22** Connect the Ribbon Cables to the Carriage Board.



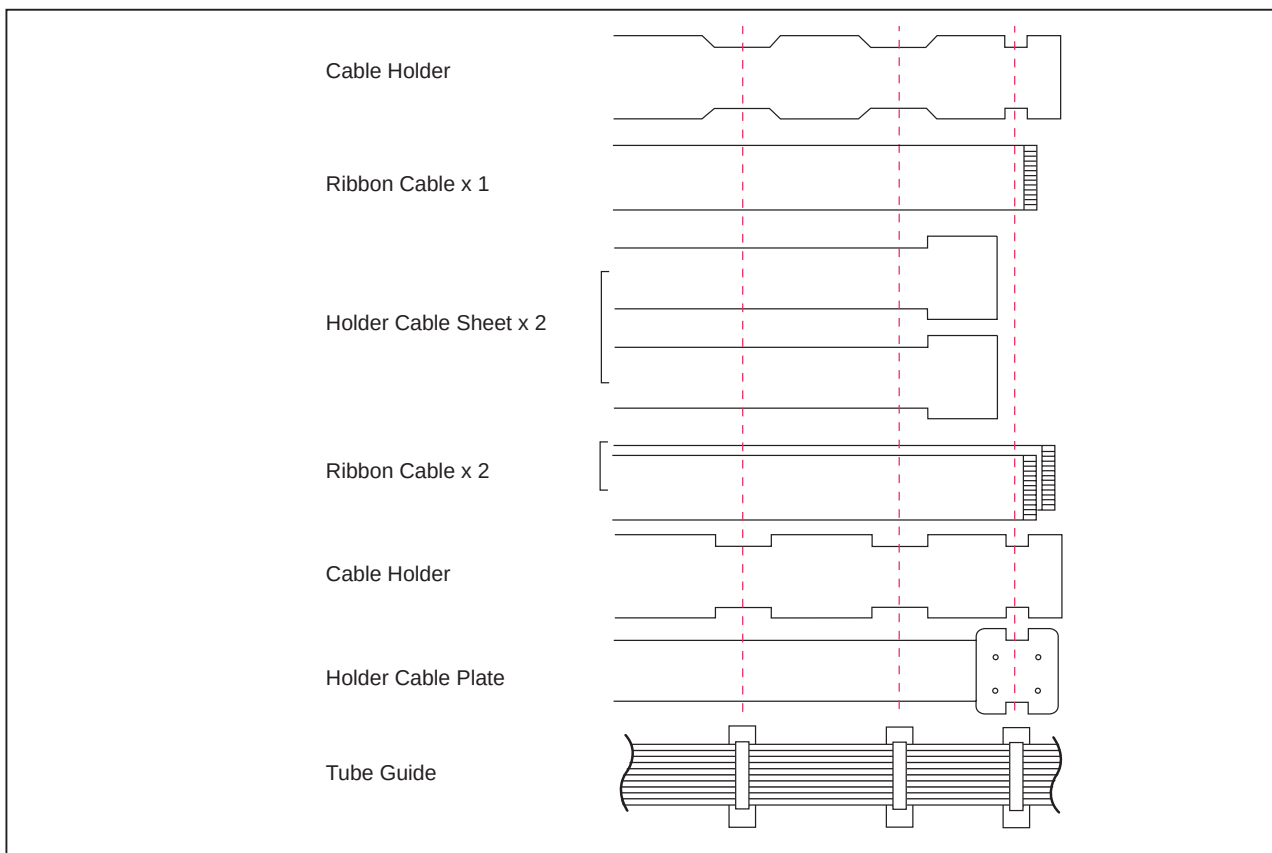
- 23** Fix the Ink Tubes with the Tube Guides to the Holder and the Plate.



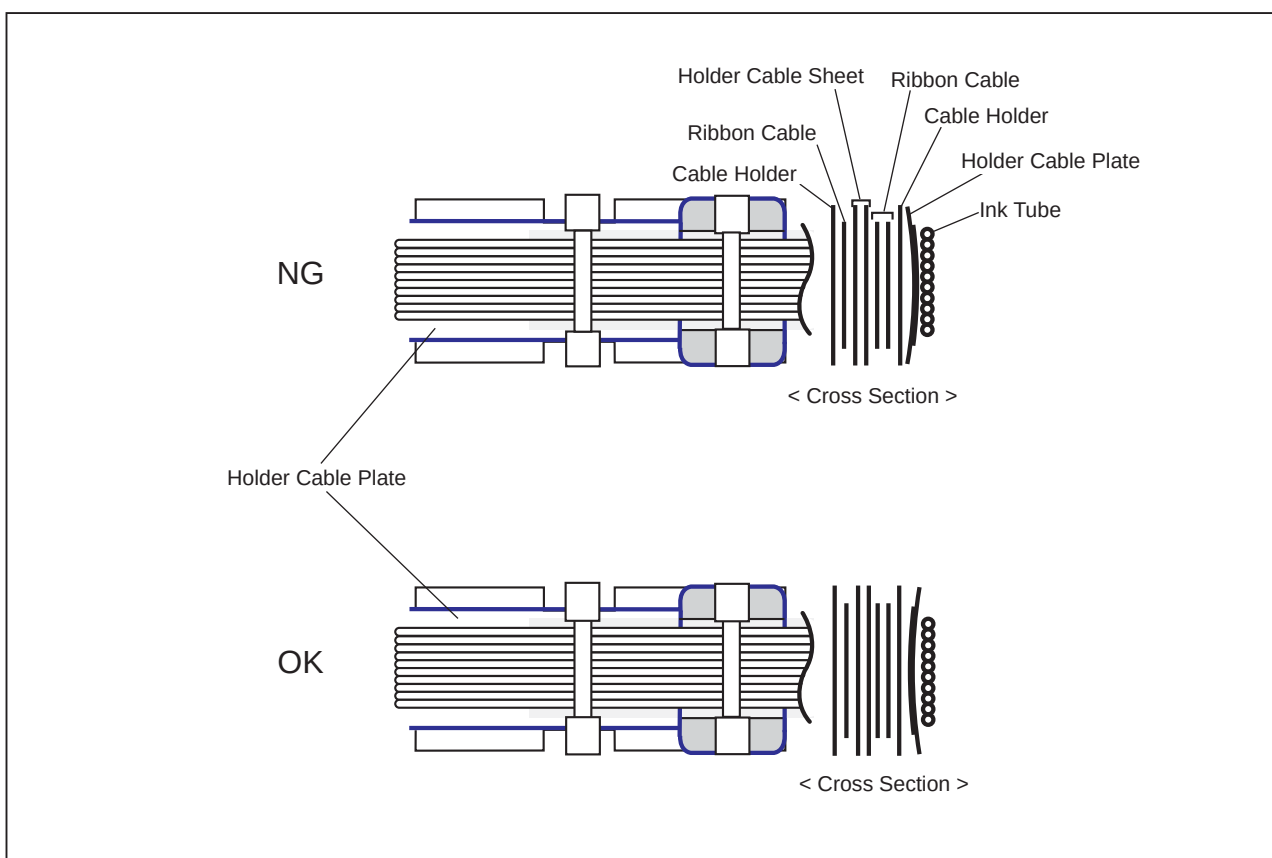
Confirm that the Cables fit in the grooves of the Tube Guides.



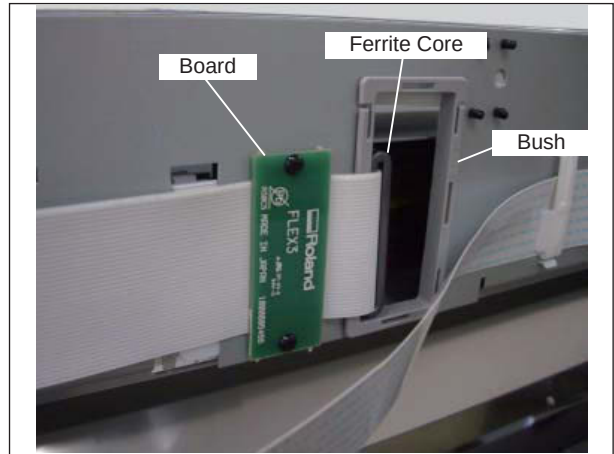
- 24** Confirm the Ribbon Cables, the Cable Holders, the Holder Cable Plate and the Holder Cable Sheets to the Tube Guides by referring the following figures.



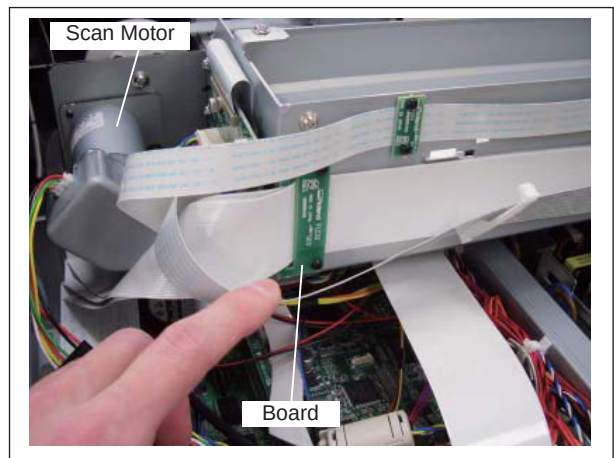
- 25** Confirm that the fixing direction of the Holder Cable Plate is correct.



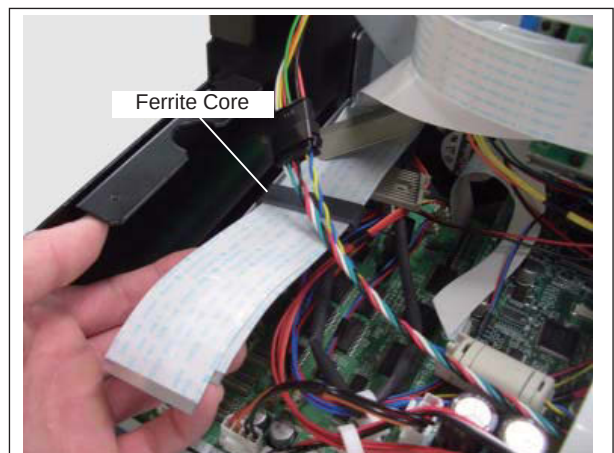
- 26** Pull out the Ribbon Cables from the Bush shown in the figure and fix them with the Board.
And, move the Ferrite Core to the position shown in the figure.



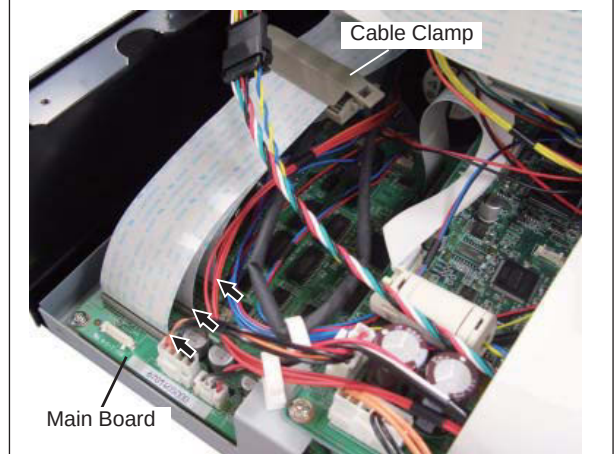
- 27** Pull out the Ribbon Cables to the position near the Scan Motor and fix them with the Board.



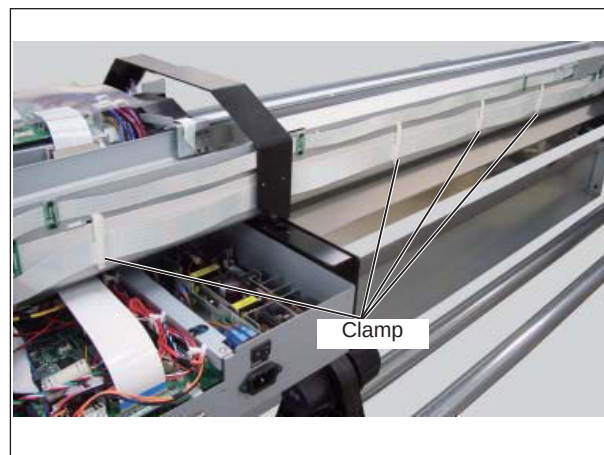
- 28** Connect the Ribbon Cables to the Main Board.



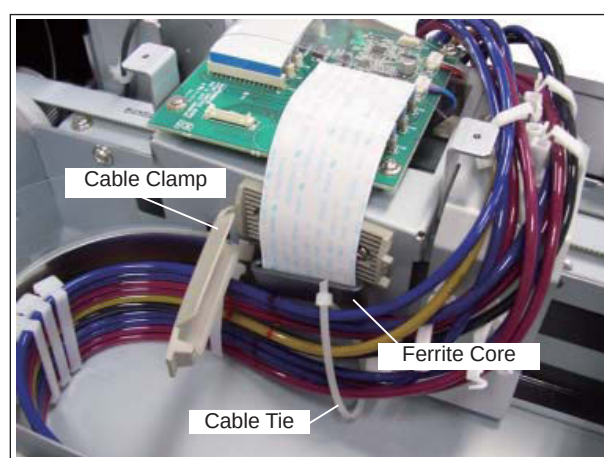
Put the Ferrite Core on the Cable Clamp and close the Cable Clamp.



- 29** Close the four Clamps shown in the figure.

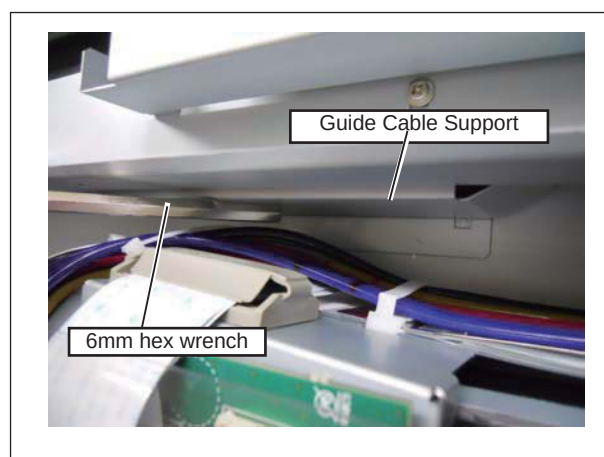


- 30** Hook the Cable Tie to the Cable Clamp and close the Cable Clamp to cover the Ferrite Core.



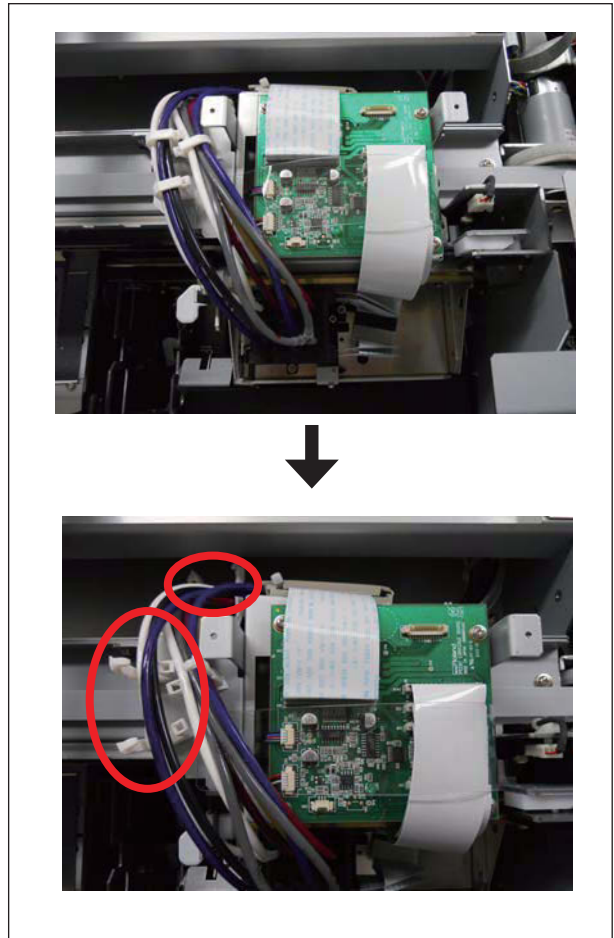
- 31** Move the Head Carriage to the position of the right figure. Then, check the clearance between the Ink Tube and the Guide Cable Support is more than 6mm. Using a 6mm hex wrench is easy to check. Adjustment is not necessary if the clearance is more than 6mm. Go to **35** step.

Revised 3



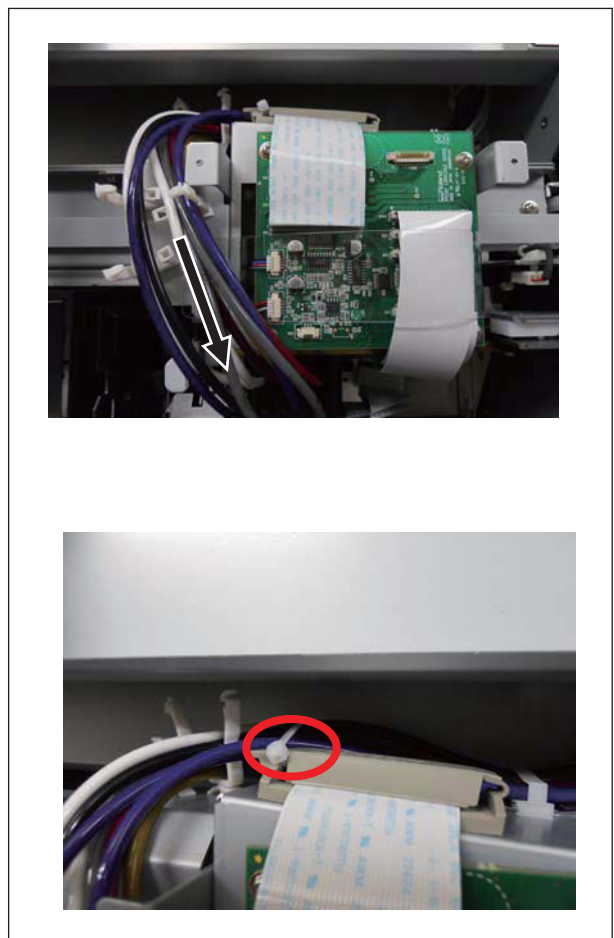
- 32** Move the Head Carriage to the capping position.
Then, open the clamps that bundle the Ink Tube.

Revised 3



- 33** Pull and move the Ink Tubes to the Print Head side.

Revised 3



If the cable tie is extremely loosen, tighten it.



Be careful not to make it too tight.

- 34** Fix the Ink Tubes with the clamps.
Perform **31** step [Checking the clearance] again.

Revised 3



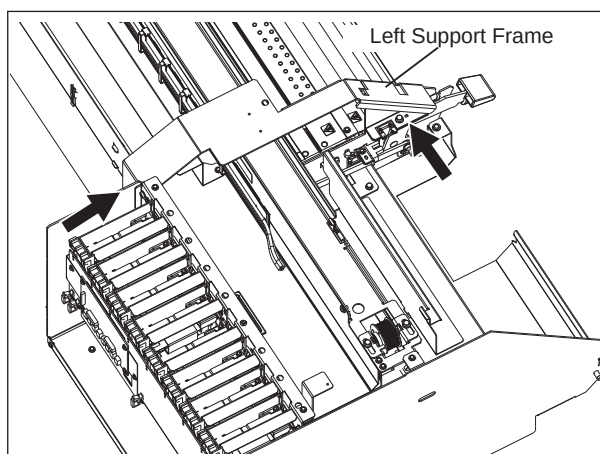
- 35** Fix the Cut Cable Guide with the three screws shown in the figure.



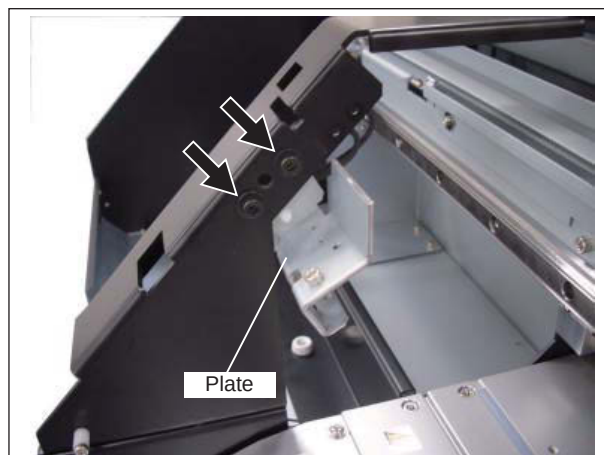
If the Head Carriage is not locked, lock it.



- 36** Fix the Left Support Frame with the two screws shown in the figure.



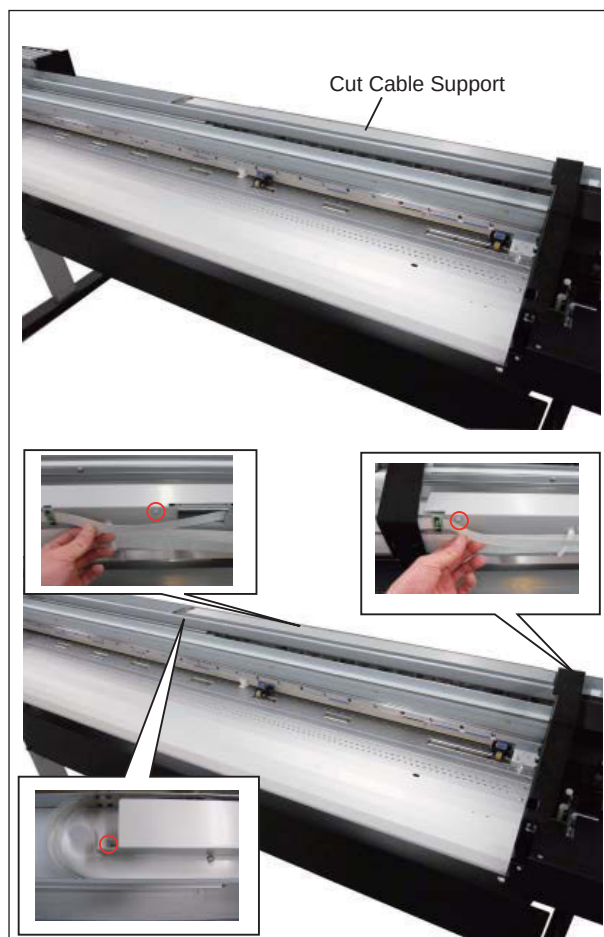
- 37** Fix the Plate to the Left Cover Sensor Cable with the two screws shown in the figure.



- 38** Fix the Left Cover Sensor Cable with the two screws shown in the figure.



- 39** Fix the Cut Cable Support with the three screws shown in the figure. (For VS-640/540)



- 40** Move the Head Carriage to the width of the machine manually to check that the Tube Guides make physical contact with the Rail.



When the Tube Guides make physical contact with the Rail, remove the Ink Tubes with the Tube Guides from the Cable Holder Plate and the Support Frame. Then, fix the Ink Tubes with the Tube Guides again.



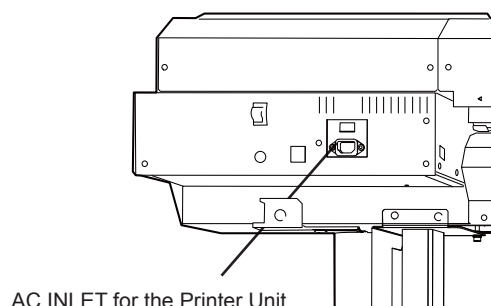
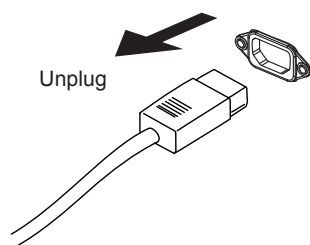
To Ensure safe Work

WARNING



Turn off the Sub Power SW, Main Power SW, and unplug the power cable of the Printer and deodorization equipment before performing parts replacement.

Performing the parts replacement while the power is on may result in injury by unintended operation of the machine.



< Rear View >

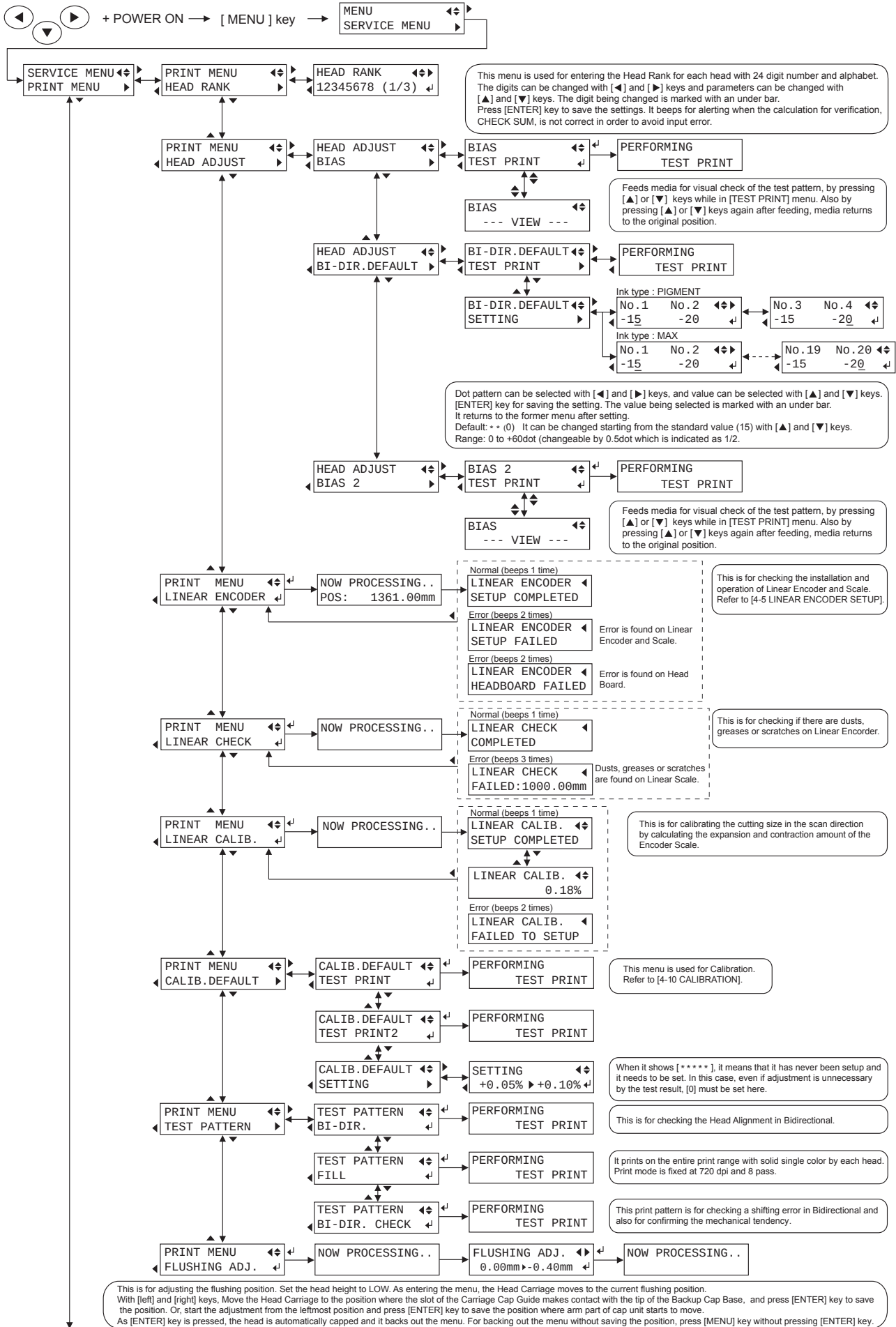


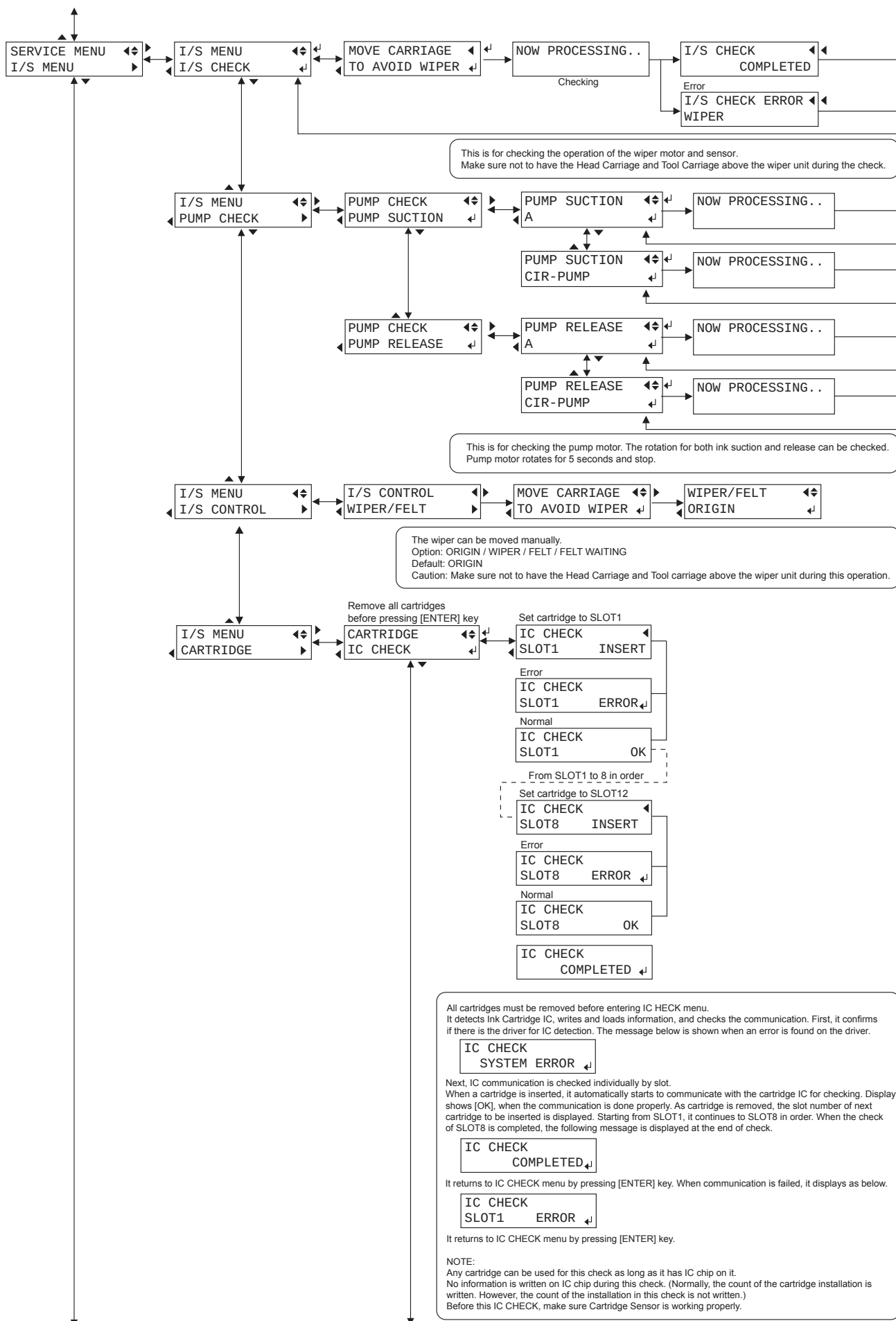
Static electricity can harm some electronic devices. To prevent static damage, discharge static electricity from your body before you touch any of electronic devices. You can do so by touching an unpainted metal surface on the chassis.

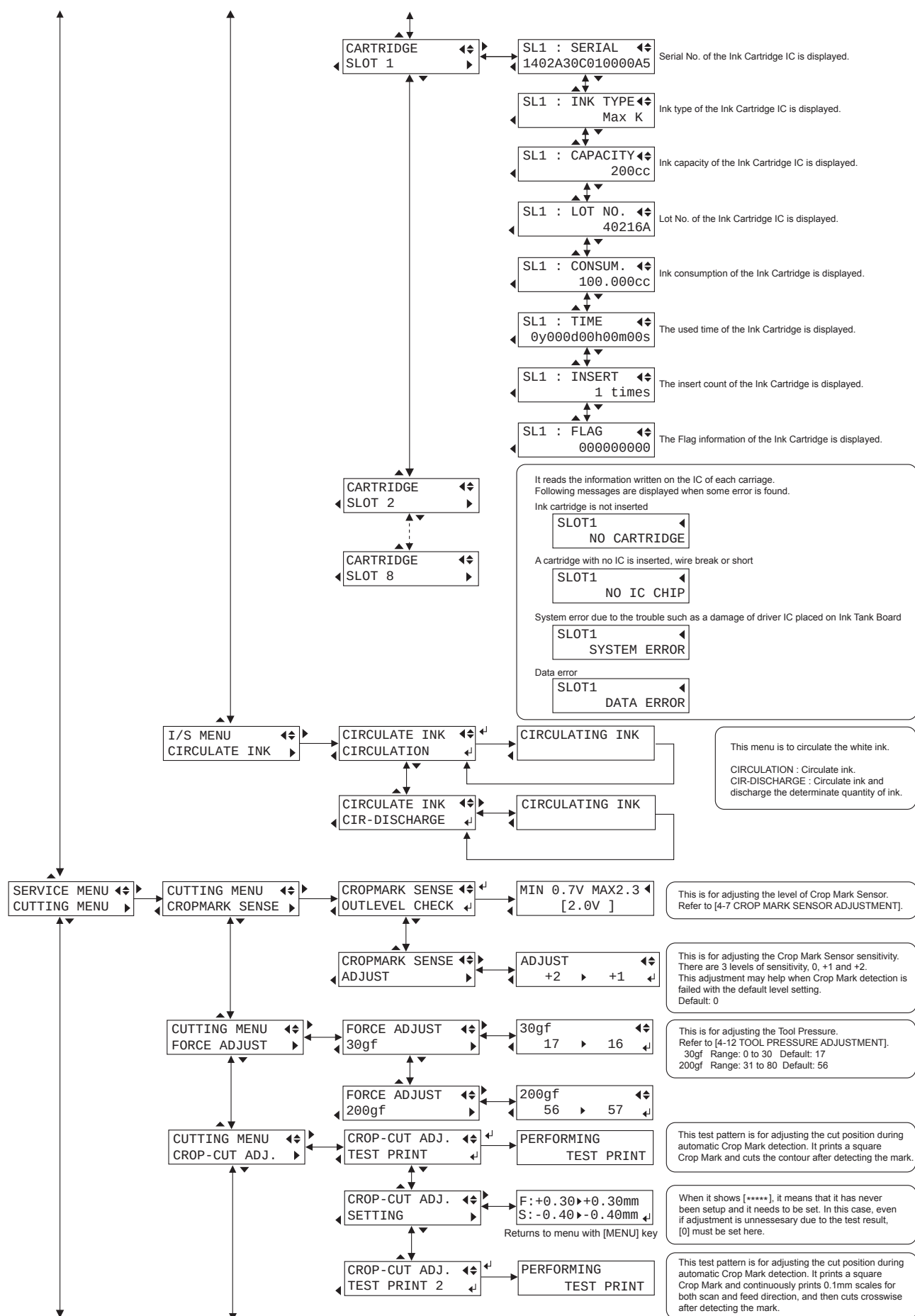
You can also take the following steps to prevent damage from electrostatic discharge (ESD):

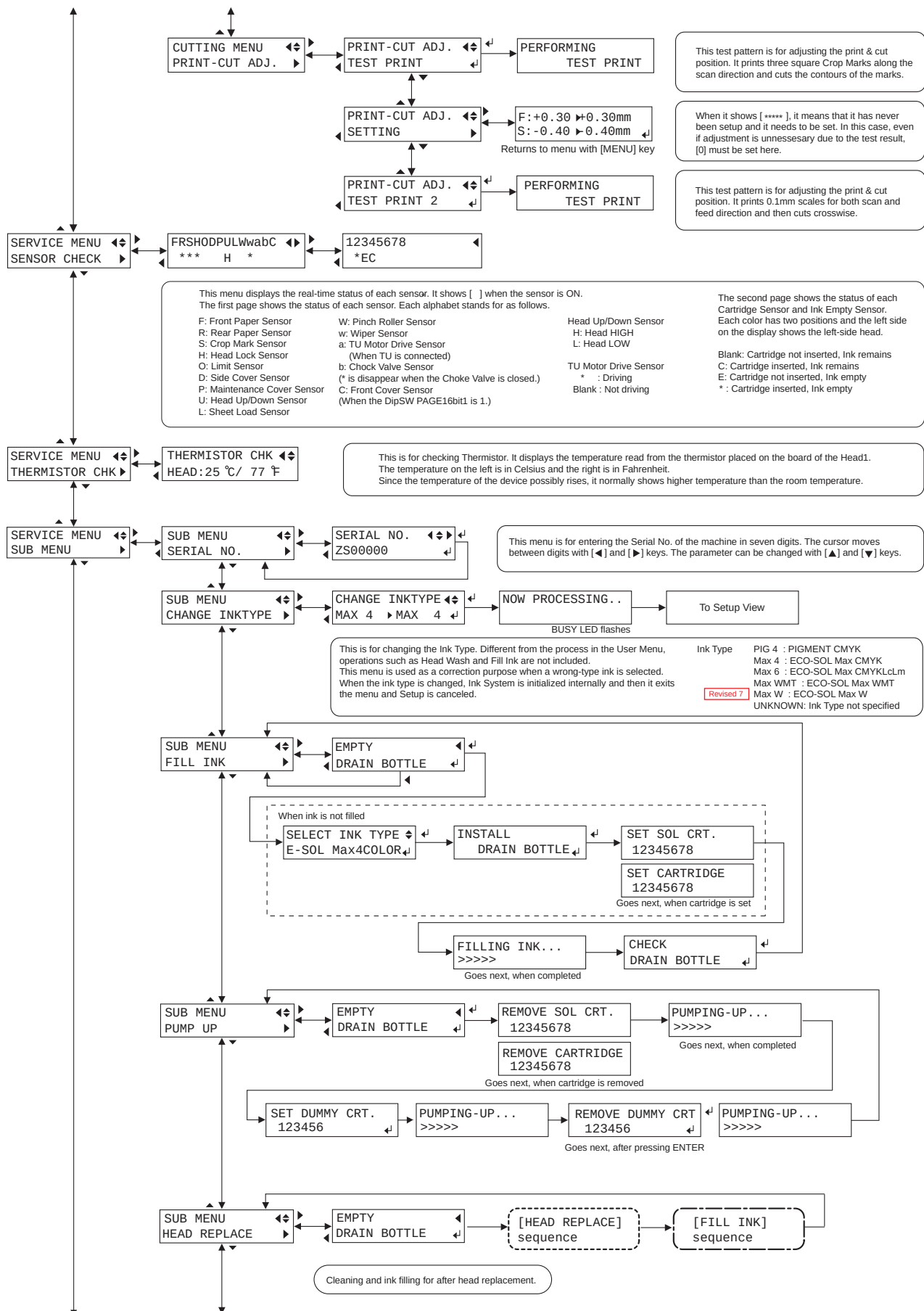
- When unpacking a static-sensitive device from its shipping carton, do not remove the device from the antistatic packing material until you are ready to install the device to the machine. Just before unwrapping the antistatic packaging, be sure to discharge static electricity from your body.
- When transporting a sensitive device, first place it in an antistatic container or packaging.
- Handle all sensitive devices in a static-safe area. If possible, use antistatic floor pads and workbench pads.

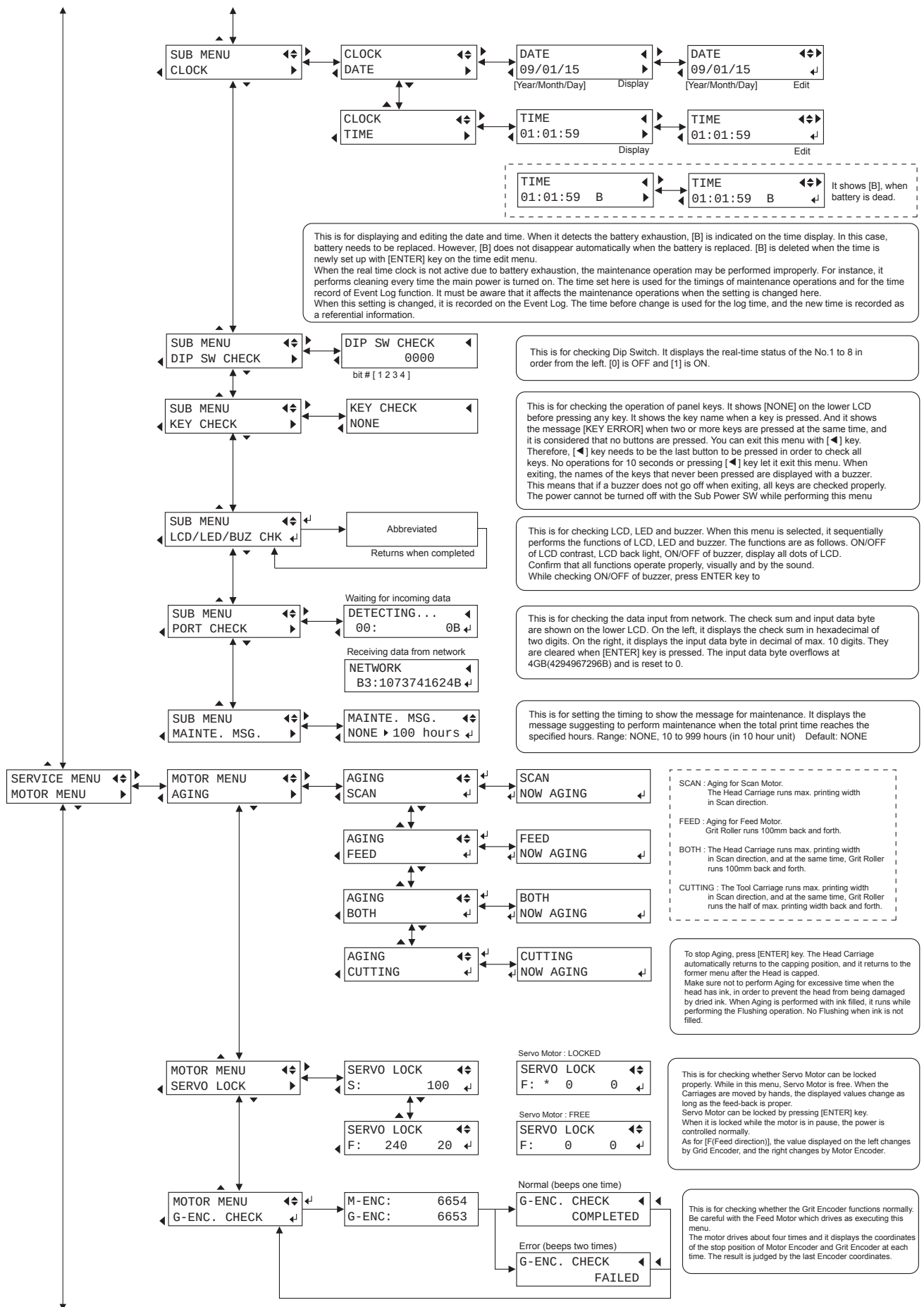
4-1 SERVICE MODE

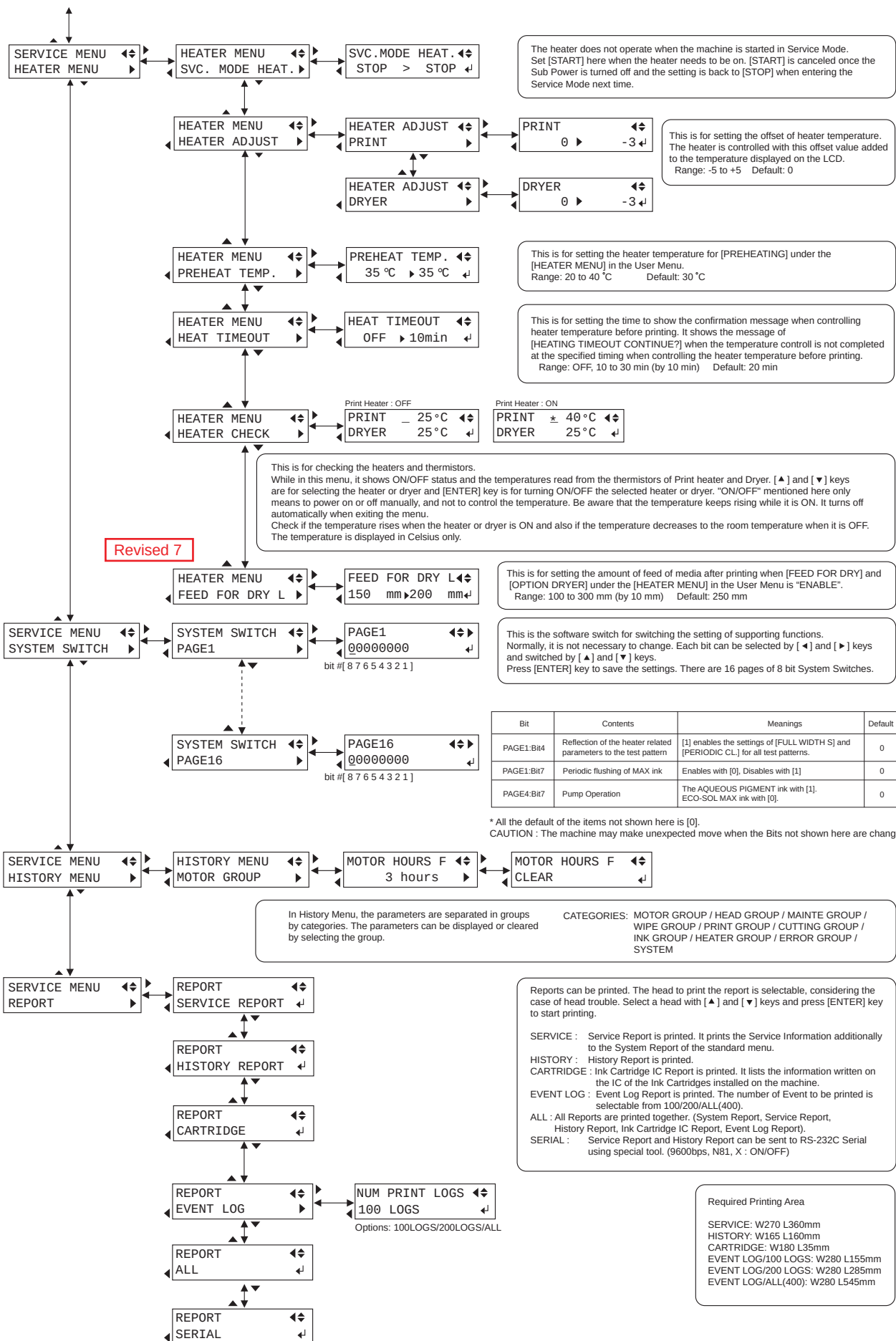












HISTORY MENU

MOTOR GROUP

Item	Contents	Unit	Reference
MOTOR HOURS F	Total time that the Feed Motor has been rotated.	hour	
MOTOR HOURS S	Total time that the Scan Motor has been rotated.	hour	Life: 3000 hours
PUMP TIMES	Total time that the Pump Motor has been rotated.	times	Life: 200,000 times
PUMP TIMES CIR	Total time that the Circuit Pump Motor has been rotated.	times	Life:
CLEAR ALL	Clear all the value in the Motor Group.		

HEAD GROUP Revised 17

Item	Contents	Unit	Reference
SHOT COUNT 1	Number of times piezo has driven per nozzle(H1 A)	Shots/1000	Life: 6 billion Shots/nozzle Ink from SLOT8
SHOT COUNT 2	Number of times piezo has driven per nozzle(H1 B)	Shots/1000	Life: 6 billion Shots/nozzle Ink from SLOT2
SHOT COUNT 3	Number of times piezo has driven per nozzle(H1 C)	Shots/1000	Life: 6 billion Shots/nozzle Ink from SLOT4
SHOT COUNT 4	Number of times piezo has driven per nozzle(H1 D)	Shots/1000	Life: 6 billion Shots/nozzle Ink from SLOT5
SHOT COUNT 5	Number of times piezo has driven per nozzle(H1 E)	Shots/1000	Life: 6 billion Shots/nozzle Ink from SLOT6
SHOT COUNT 6	Number of times piezo has driven per nozzle(H1 F)	Shots/1000	Life: 6 billion Shots/nozzle Ink from SLOT3
SHOT COUNT 7	Number of times piezo has driven per nozzle(H1 G)	Shots/1000	Life: 6 billion Shots/nozzle Ink from SLOT1
SHOT COUNT 8	Number of times piezo has driven per nozzle(H1 H)	Shots/1000	Life: 6 billion Shots/nozzle Ink from SLOT7
WIPE H1	Number of times the Wiping has been performed.(H1)	times	
RUB H1	Number of times the Rubbing has been performed.(H1)	times	
RUB H2	Number of times the Rubbing has been performed.(H2)	times	
NORMAL CL. H1	Number of times the Normal Cleaning has been performed.(H1)	times	
MEDIUM CL. H1	Number of times the Medium Cleaning has been performed.(H1)	times	
POWERFUL CL.H1	Number of times the Powerful Cleaning has been performed.(H1)	times	
AUTO CL.H1	Number of times the Automatic Cleaning has been performed.(H1)	times	
CLEAR H1	Clear all the value of the H1.		
CLEAR ALL	Clear all the value of all the Head.		

MAINTENANCE GROUP

Item	Contents	Unit	Reference
MAINTEN. COUNT	Number of times the Head Maintenance([SUB MENU]>[MAINTENANCE]>[CLEANING]) has been performed.	times	
TOTAL TIME	Elapsed time from the last Head Maintenance	hour	This value is cleared automatically after carrying out the Head Maintenance.
PRINTING TIME	Printing time from the last Head Maintenance	hour	This value is cleared automatically after carrying out the Head Maintenance.
CLEAR ALL	Clear all the value in the MAINTENANCE GROUP.		

WIPE GROUP

Item	Contents	Unit	Reference
WIPING COUNT	Number of times the Wiping has been performed.	times	This value is cleared automatically after replacing it.
WIPE REPLACE	Number of times the Wipe has been replaced.	times	
FELT WIP COUNT	Number of times the Felt Wiping has been performed.	times	This value is cleared automatically after replacing it.
FELT WIPE REPLACE	Number of times the Felt Wipe has been replaced.	times	
CLEAR ALL	Clear all the value in the WIPE GROUP.		

PRINT GROUP

Item	Contents	Unit	Reference
PRINTING TIME	Total time of printing performed.	hour	Test print time is excluded.
PRINT PAGES	Number of pages printed	pages	
CLEAR ALL	Clear all the value in the PRINT GROUP.		

CUTTING GROUP

Item	Contents	Unit	Reference
CUTTING TIME	Total time of cutting performed.	hour	Test print time is excluded.
DISCONNECT	Number of times the carriage has been disconnected.	times	Disconnection of Tool Carriage and Head Carriage.
CLEAR ALL	Clear all the value in the CUTTING GROUP.		

INK GROUP

Item	Contents	Unit	Reference
CARTRIDGE 1	Number of times the Ink Cartridge 1 has been changed.	times	
CARTRIDGE 2	Number of times the Ink Cartridge 2 has been changed.	times	
CARTRIDGE 3	Number of times the Ink Cartridge 3 has been changed.	times	
CARTRIDGE 4	Number of times the Ink Cartridge 4 has been changed.	times	
CARTRIDGE 5	Number of times the Ink Cartridge 5 has been changed.	times	
CARTRIDGE 6	Number of times the Ink Cartridge 6 has been changed.	times	
CARTRIDGE 7	Number of times the Ink Cartridge 7 has been changed.	times	
CARTRIDGE 8	Number of times the Ink Cartridge 4 has been changed.	times	
CHANGE INK	Number of times the Ink type has been changed.	times	
INK CIRCULATE	Number of times the Ink Circuration has been performed	times	
INK DISCHARGE 1	Number of times the Ink Circuration and discharge have been performed (discharge amount : low)	times	
INK DISCHARGE 2	Number of times the Ink Circuration and discharge have been performed (discharge amount : middle)	times	
INK DISCHARGE 3	Number of times the Ink Circuration and discharge have been performed (discharge amount : high)	times	
CLEAR ALL	Clear all the value in the INK GROUP.		

ERROR GROUP

Item	Contents	Unit	Reference
SERVICE CALL	Number of times the Service Call has occurred.	times	
S-CALL HISTORY	Service Call Number of the last 5 Calls.	No.	
MOTOR ERROR F	Number of times the Feed Motor Error has occurred.	times	
MOTOR ERROR S	Number of times the Scan Motor Error has occurred.	times	
LOW TEMP.ERR.	Number of times the Low Temperature Error has occurred.	times	
HIGH TEMP.ERR.	Number of times the High Temperature Error has occurred.	times	
EMERG. CAPPING	Number of times the Emergency Capping Error has occurred.	times	Number of times of forced capping for Head dry prevention that works when cap is left open for 3 minutes or more due to cover open or other reasons.
START UNCAPPED	Number of times the machine has started uncapped.	times	When cap is left open, it is detected when machine is started.
CLEAR ALL	Clear all the value in the ERROR GROUP.		

HEATER GROUP

Item	Contents	Unit	Reference
PRINT USE TIME	Total time of Print Heater used.	hour	
DRY USE TIME	Total time of Dryer used.	hour	
CLEAR ALL	Clear all the value in the HEATER GROUP.		

SYSTEM GROUP

Item	Contents	Unit	Reference
POWER ON COUNT	Number of times Sub Power has been turned on.	times	
POWER ON TIME	Total time of Sub Power ON.	hour	Sleep time is excluded.
SLEEP TIME	Total time of the machine in Sleep Mode.	hour	
SHEETCUT COUNT	Number of times the Sheet Cut has been performed.	times	It counts Auto Sheet Cut performed by both printer and RIP.
CLEAR ALL	Clear all the value in the SYSTEM GROUP.		

SERVICE REPORT

Service Report

Head rank : 198968685919089899F9ER0Y
Head bi
Pigment :
No.1 : +15.5 No.2 : +5.5
No.3 : +24.5 No.4 : +10.5
Max :
No.1 : +19 No.2 : +15.5 No.3 : +13.5 No.4 : +17 No.5 : +14
No.6 : +7.5 No.7 : +10.5 No.8 : +4.5 No.9 : +6.5 No.10 : +5
No.11 : +28 No.12 : +22.5 No.13 : +22.5 No.14 : +26.5 No.15 : +22.5
No.16 : +13 No.17 : +16.5 No.18 : +9.5 No.19 : +11.5 No.20 : +9.5
Dip SW : 0000
System SW page (1- 4) : 00000000 00000000 00000000 00000000
System SW page (5- 8) : 00000000 00000000 00000000 00000000
System SW page (9-12) : 00000000 00000000 00000000 00000000
System SW page (13-16) : 00000000 00000000 00000000 00000000
Ink Mode : E-SOL Max6COLOR
Maintenance request : NONE
Booster version : 1.00 Heater adjust(PRINT) : 0 C
Battery : Charged Heater adjust(DRYER) : 0 C
Periodic CL. degree : NORMAL Preheat temperature : 30 C
Limit position : 25.0 mm Heating timeout : 20 min
Cutter down position : 2016.7 mm
Calibration default : -0.28 % Drain liquid volume : 302.1 cc
Encoder position(L) : 1803.7 mm Standard head : 1
Encoder position(R) : 178.1 mm Flushing pos adjust : -0.48 mm
Encoder calibration : +0.087 % Crop-tool adjust (F/S) : -0.10/ 0.25 mm
Force adjust 30gf : 13 Print-cut adjust (F/S) : -0.30/ +0.35 mm
Force adjust 200gf : 51 Crop sensor adjust : 0

Roland Versa CAMM series

Model : VS-640 IP Address : 192.168.000.100 Ink type : E-SOL Max 6Color
Version : 2.10 Subnet Mask : 255.255.255.000 Ink remain (1-4) : 63/ 63/ 63/ 63
Serial No. : XXXXXXX Gateway Address : 000.000.000.000 Ink remain (5-8) : 63/ 63/ 42/ 42
Date : 2010/03/10 14:19 MAC Address : 00:40:AB:00:7C:E5
Head Temperature : 27 °C / 80.6°F Heater temp.(PRINT) : 23 °C / 72 °F
Heater temp.(DRYER) : 23 °C / 72 °F
Menu language : Japanese Calibration : +1.00 % Vacuum power : Auto
Length unit : mm Full width scanning : FULL Set remain at loading : Disable
Temperature unit : C Scan interval : 0.0 sec Heater setting(PRINT) : 35 °C / 94 °F
Head height : Low Sleep : Enable Heater setting(DRYER) : 40 °C / 104 °F
Edge detection : Enable Sleep interval : 30 min Feed for dry : Disable
Empty mode : Stop Sheet remain : 0.0m Preheating : PREHEAT
Media Release : Disable Periodic cleaning : NONE Drying Time : 0 min
Bi-dir. simple : 0 Alternation : Enable
Bi-dir. adjust No.1 : 0 No.2 : 0 No.3 : 0 No.4 : 0 No.5 : 0
No.6 : 0 No.7 : 0 No.8 : 0 No.9 : 0 No.10 : 0
Tool parameter :
Force : 90 gf Cutting calib. (F/S) : 0.00/ 0.00 % Cutting priority : Command
Velocity : 30 cm/s Print-cut adjust (F/S) : 0.00/ -0.05 mm Prefeed : Disable
Offset : 0.250 mm Crop-cut adjust (F/S) : +0.10/ +0.05 mm Auto Env Match : Enable
Up velocity : 30 cm/s
Preset name : NAME1
Calibration : 0.00 % Scan interval : 0.0 sec Force : 50 gf Cutting calib. (F/S) : 0.00/ 0.00 %
Heater setting(PRINT) : 35 °C / 94 °F Edge detection : Enable Velocity : 30 cm/s Print-cut adjust (F/S) : 0.00/ 0.00 mm
Heater setting(DRYER) : 40 °C / 104 °F Full width S : FULL Offset : 0.250 mm Crop-cut adjust (F/S) : 0.00/ 0.00 mm
Feed for dry : Disable Preheating : Preheat Up velocity : 30 cm/s Media Release : Disable
Bi-dir. simple : 0 Vacuum power : AUTO Drying Time : 0 min Alternation : Enable
Bi-dir. adjust No.1 : 0 No.2 : 0 No.3 : 0 No.4 : 0 No.5 : 0
No.6 : 0 No.7 : 0 No.8 : 0 No.9 : 0 No.10 : 0
Preset name : NAME2
Calibration : 0.00 % Scan interval : 0.0 sec Force : 50 gf Cutting calib. (F/S) : 0.00/ 0.00 %
Heater setting(PRINT) : 35 °C / 94 °F Edge detection : Enable Velocity : 30 cm/s Print-cut adjust (F/S) : 0.00/ 0.00 mm
Heater setting(DRYER) : 40 °C / 104 °F Full width S : FULL Offset : 0.250 mm Crop-cut adjust (F/S) : 0.00/ 0.00 mm
Feed for dry : Disable Preheating : Preheat Up velocity : 30 cm/s Media Release : Disable
Bi-dir. simple : 0 Vacuum power : AUTO Drying Time : 0 min Alternation : Enable
Bi-dir. adjust No.1 : 0 No.2 : 0 No.3 : 0 No.4 : 0 No.5 : 0
No.6 : 0 No.7 : 0 No.8 : 0 No.9 : 0 No.10 : 0
Preset name : NAME8
Calibration : 0.00 % Scan interval : 0.0 sec Force : 50 gf Cutting calib. (F/S) : 0.00/ 0.00 %
Heater setting(PRINT) : 35 °C / 94 °F Edge detection : Enable Velocity : 30 cm/s Print-cut adjust (F/S) : 0.00/ 0.00 mm
Heater setting(DRYER) : 40 °C / 104 °F Full width S : FULL Offset : 0.250 mm Crop-cut adjust (F/S) : 0.00/ 0.00 mm
Feed for dry : Disable Preheating : Preheat Up velocity : 30 cm/s Media Release : Disable
Bi-dir. simple : 0 Vacuum power : AUTO Drying Time : 0 min Alternation : Enable
Bi-dir. adjust No.1 : 0 No.2 : 0 No.3 : 0 No.4 : 0 No.5 : 0
No.6 : 0 No.7 : 0 No.8 : 0 No.9 : 0 No.10 : 0

HISTORY REPORT

History Report

Model	: VS-640	Serial No.	: XXXXXXX
Version	: 2.10	Date	: 2010/03/10 14:24

==== Motor group ====

Motor feed (trip / total [clear]):	0/	0	hours	[0]
Motor scan (trip / total [clear]):	9/	9	hours	[0]
Pump Times (trip / total [clear]):	1,703/	1,703	times	[0]
Pump TimesCIR(trip / total [clear]):	232/	232	times	

==== Maintenance group ====

Maintenance Count	: 0 times
Total time	: 45 hours
Printing time	: 8 hours

==== Wiper group ====

Wiping count	: 8 times
Wiper replace count	: 0 times
Felt Wiping count	: 8 times
Felt Wiper replace count:	0 times

==== Head group ====

Shot Cnt. 1 (trip/total [clear]):	2,697/	2,697
Shot Cnt. 2 (trip/total [clear]):	2,701/	2,701
Shot Cnt. 3 (trip/total [clear]):	10,361/	10,361
Shot Cnt. 4 (trip/total [clear]):	10,357/	10,357
Shot Cnt. 5 (trip/total [clear]):	2,697/	2,697
Shot Cnt. 6 (trip/total [clear]):	2,701/	2,701
Shot Cnt. 7 (trip/total [clear]):	10,361/	10,361
Shot Cnt. 8 (trip/total [clear]):	10,357/	10,357

: H1

Wiping count for head	: 43 times
Headrank set count	: 0 times
Auto cleaning count	: 17 times
Normal cleaning count	: 4 times
Medium cleaning count	: 0 times
Powerful cleaning count	: 1 times

==== Print group ====

Printing time	: 6 hours
Print pages	: 34 pages

==== Ink group ====

Cartridge change(1-4)	: 0	1	2	0	times
Cartridge change(5-8)	: 0	1	2	0	times
Change ink type	: 0 times				
Ink Circulation	: 0 times				
Ink Discharge (1-3)	: 0 times	0 times	0 times		

==== Error group ====

Service call count	: 0 times
Service call history	: **** * 0 times
Motor error (feed)	: 0 times
Motor error (scan)	: 2 times
Low temperature error	: 0 times
High temperature error	: 0 times
Emergency capping	: 0 times
Start uncapped	: 2 times

==== Heater group ====

Heater used time	: PRINT 6 DRYER 6 hours
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==== System group ====

Power on count	: 97 times
Power on time	: 37 hours
Sleep time	: 2 hours
Sheet cut count	: 33 times
Peck used count	: 0 times

==== Cutting group ====

Cutting time	: 0 hours
Disconnect carr. count	: 67 times

INK CARTRIDGE REPORT

— Ink Cartridge Report —

Model	: VS-640	Serial No.	: XXXXXXXX
Version	: 2.10		

No:	SERIAL/	INK TYPE/	CAP./LOT No/	CONSUM./	TIME/INS./	FLAG
1:	14d178b002000071/	Max Lc/	200cc/ 60907A/	47.879cc/0y015d04h14m08s/	1/00000000	
2:	14d178b002000071/	Max C/	200cc/ 61004A/	75.914cc/0y015d04h14m03s/	1/00000000	
3:	14d178b002000071/	Max Lm/	200cc/ 61021A/	81.901cc/0y015d04h13m58s/	1/00000000	
4:	14d178b002000071/	Max M/	200cc/ 61026A/	53.789cc/0y015d04h13m52s/	1/00000000	
5:	14d178b002000071/	Max Y/	200cc/ 60907A/	47.879cc/0y015d04h14m08s/	1/00000000	
6:	14d178b002000071/	Max K/	200cc/ 61004A/	75.914cc/0y015d04h14m03s/	1/00000000	
7:	14d178b002000071/	Max C/	200cc/ 61021A/	81.901cc/0y015d04h13m58s/	1/00000000	
8:	14d178b002000071/	Max M/	200cc/ 61026A/	53.789cc/0y015d04h13m52s/	1/00000000	

EVENT LOG REPORT

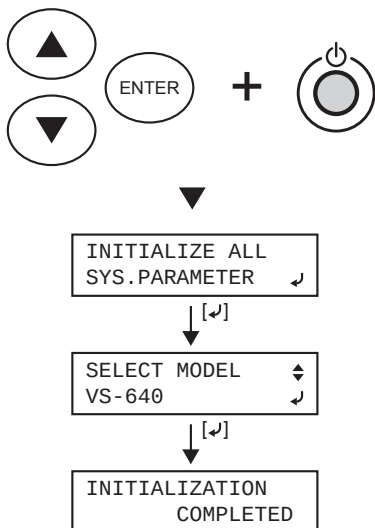
—Event log Report—

Model	: VS-640	Serial No.	: XXXXXXXX
Version	: 2.10	Date	: 2010/03/10 17:20
Last event	: 500		

Date	Time	Event	Information	Date	Time	Event	Information
10/03/10	17:20	Print start	27 ℃ Testpattern	10/03/10	12:57	Print start	27 ℃ Testpattern
10/03/10	17:19	Print done	27 ℃ Testpattern	10/03/10	12:56	Print done	27 ℃ Testpattern
10/03/10	17:18	Print start	27 ℃ Testpattern	10/03/10	12:55	Print start	27 ℃ Testpattern
10/03/10	17:17	Print done	27 ℃ Testpattern	10/03/10	12:55	Setup done	Width : 926mm Env.:0.038
10/03/10	17:14	Print start	27 ℃ Testpattern	10/03/10	12:53	Cancel done	
10/03/10	17:14	Print done	27 ℃ Testpattern	10/03/10	12:53	Cancel start	Pinch lever up
10/03/10	17:13	Print start	27 ℃ Testpattern	10/03/10	12:53	Setup done	Width : 1222mm Env.:0.010
10/03/10	17:11	Print done	27 ℃ Testpattern	10/03/10	12:52	Cancel done	
10/03/10	17:09	Print start	27 ℃ Testpattern	10/03/10	12:52	Cancel start	Pinch lever up
10/03/10	17:09	Print done	27 ℃ Testpattern	10/03/10	12:50	Print done	27 ℃ Testpattern
10/03/10	17:06	Print start	27 ℃ Testpattern	10/03/10	12:49	Print start	27 ℃ Testpattern
10/03/10	17:06	etup done	Width : 932mm Env.:0.028	10/03/10	12:48	Setup done	Width : 1222mm Env.:0.011
10/03/10	17:05	Sub power on	Service mode	10/03/10	12:46	Sub power on	Service mode
10/03/10	15:59	Sub power off		10/03/10	12:46	Main power on	Normal
10/03/10	15:56	Print done	27 ℃ Testpattern	10/03/10	12:46	Sub power off	
10/03/10	15:54	Print start	27 ℃ Testpattern	10/03/10	12:08	Setup done	Width : 1222mm Env.:0.012
10/03/10	15:53	Setup done	Width : 932mm Env.:0.028	10/03/10	12:07	Cancel done	
10/03/10	15:52	Sub power on	Service mode	10/03/10	12:07	Cancel start	Pinch lever up
10/03/10	15:13	Sub power off		10/03/10	12:07	Setup done	Width : 1315mm Env.:0.012
10/03/10	15:00	Print done	27 ℃ Testpattern	10/03/10	12:05	Cancel done	
10/03/10	14:59	Print start	27 ℃ Testpattern	10/03/10	12:05	Cancel start	Pinch lever up
10/03/10	14:57	Print done	27 ℃ Testpattern	10/03/10	12:03	Print done	27 ℃ Testpattern
10/03/10	14:55	Print start	27 ℃ Testpattern	10/03/10	12:03	Print start	27 ℃ Testpattern
10/03/10	14:55	Setup done	Width : 932mm Env.:0.034	10/03/10	12:02	Print done	27 ℃ Testpattern
10/03/10	14:54	Sub power on	Service mode	10/03/10	12:01	Print start	27 ℃ Testpattern
10/03/10	14:39	Sub power off		10/03/10	12:01	Print done	27 ℃ Testpattern
10/03/10	14:38	Print done	27 ℃ Testpattern	10/03/10	12:00	Print start	27 ℃ Testpattern
10/03/10	14:36	Print start	27 ℃ Testpattern	10/03/10	11:59	Print done	27 ℃ Testpattern
10/03/10	14:36	Print done	27 ℃ Testpattern	10/03/10	11:59	Print start	27 ℃ Testpattern
10/03/10	14:36	Print start	27 ℃ Testpattern	10/03/10	11:50	Setup done	Width : 1217mm Env.:0.014
10/03/10	14:35	Print done	27 ℃ Testpattern	10/03/10	11:49	Sub power on	Service mode
10/03/10	14:33	Print start	27 ℃ Testpattern	10/03/10	11:48	Sub power off	
10/03/10	14:32	Setup done	Width : 932mm Env.:0.031	10/03/10	11:47	Print done	27 ℃ Testpattern
10/03/10	14:28	Sub power on	Service mode	10/03/10	11:47	Print start	27 ℃ Testpattern
10/03/10	23:57	Sub power off		10/03/10	11:45	Print done	27 ℃ Testpattern
10/03/10	13:10	Print done	27 ℃ Testpattern	10/03/10	11:44	Print start	27 ℃ Testpattern
10/03/10	13:10	Print start	27 ℃ Testpattern	10/03/10	11:42	Print done	27 ℃ Testpattern
10/03/10	13:06	Print done	27 ℃ Testpattern	10/03/10	11:40	Print start	27 ℃ Testpattern
10/03/10	13:04	Print start	27 ℃ Testpattern	10/03/10	11:39	Print done	27 ℃ Testpattern
10/03/10	13:04	Print done	27 ℃ Testpattern	10/03/10	11:39	Print start	27 ℃ Testpattern
10/03/10	13:03	Print start	27 ℃ Testpattern	10/03/10	11:38	Print done	27 ℃ Testpattern
10/03/10	13:02	Print done	27 ℃ Testpattern	10/03/10	11:37	Print start	27 ℃ Testpattern
10/03/10	13:01	Print start	27 ℃ Testpattern	10/03/10	11:36	Setup done	Width : 1315mm Env.:0.017
10/03/10	13:01	Print done	27 ℃ Testpattern	10/03/10	11:33	Sub power on	Service mode
10/03/10	13:00	Print start	27 ℃ Testpattern	10/03/10	11:29	Sub power off	
10/03/10	12:59	Print done	27 ℃ Testpattern	10/03/10	11:28	Sub power on	Service mode
10/03/10	12:59	Print start	27 ℃ Testpattern	10/03/10	11:27	Main power on	Normal
10/03/10	12:58	Print done	27 ℃ Testpattern	10/03/10	11:27	Sub power off	
10/03/10	12:58	rint start	27 ℃ Testpattern	10/03/10	11:27	Error	Scan motor 00500
10/03/10	12:57	Print done	27 ℃ Testpattern	10/03/10	11:36	Print start	27 ℃ Testpattern

Other Factory Mode

SYSTEM PARAMETER INITIALIZE



All parameters will be initialized. Turn on the Sub Power SW while pressing [▲], [▼] and [ENTER] keys to start the machine in system parameter initialize mode.

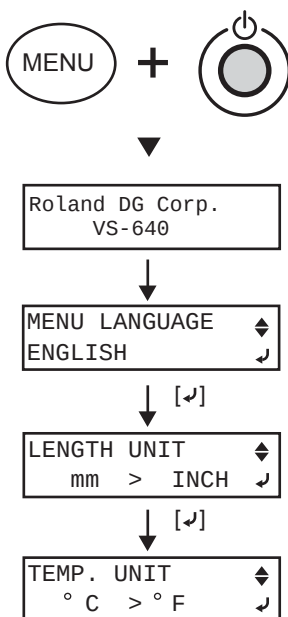
Select the model by pressing [▲] and [▼] keys.

Press [ENTER] key to initialize the system parameter or press the Sub Power SW more than 1 second to cancel it.

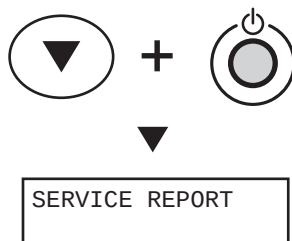
The machine turns off automatically when the initialization is completed. All the parameters are reset to the default.

It is necessary to initialize the limit position after this initialization. [SERVICE CALL 0101] occurs without initializing the limit position.

LANGUAGE / UNIT SELECTION



SERVICE REPORT PRINTING



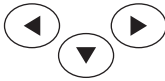
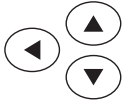
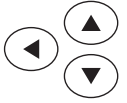
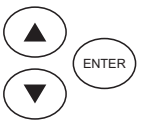
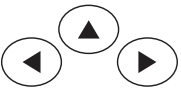
Turn on the Sub Power SW while pressing [▼] key to start the machine in the service report printing mode.

The service report will be printed automatically when the media is set up. It prints with Black ink.

(Printing Area : W270 L360mm)

The machine turns to be the normal mode after printing.

Key Combinations

Function for Service	Combination Key Selection	Comments
Service Mode	 + 	Press [MENU] and [▶] to enter Service Menu.
F/W Upgrade Mode	 + 	"[UPDATE FIRMWARE?] will be displayed. Press [ENTER] to upgrade F/W."
F/W Installation Mode for a brand-new Main Board	 + 	Use this when the Main Board is replaced.
	 ▶ 	"[SUM-ERROR] will be displayed. Press [ENTER] to upgrade F/W."
System Parameter Initialize	 + 	"All parameters will be initialized. Press [ENTER] to start initialize."
Limit Position/Cut Down Position Initialize	 + 	"Press [ENTER] to initialize Limit Position. Then set up Cut Down Position."
Service Report	 + 	"Service Report will be printed. It is the same as the Service Report in the Service Menu."

Function for Users	Combination Key Selection	Comments
Language/Unit Selection	 + 	Press [▲] and [▼] to select Language / Unit.

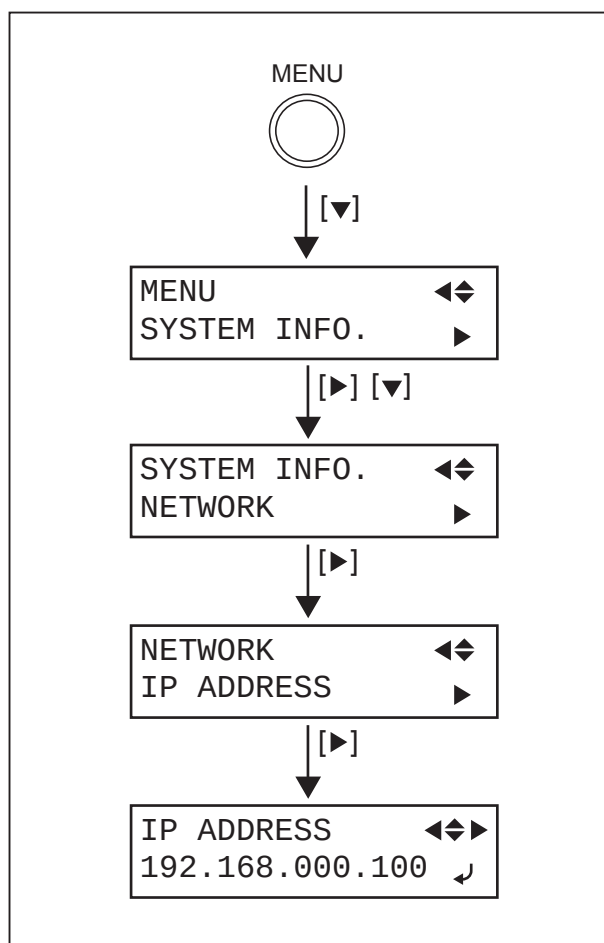
4-2 HOW TO UPGRADE/INSTALL FIRMWARE

It is necessary to prepare the followings to upgrade/install the firmware.

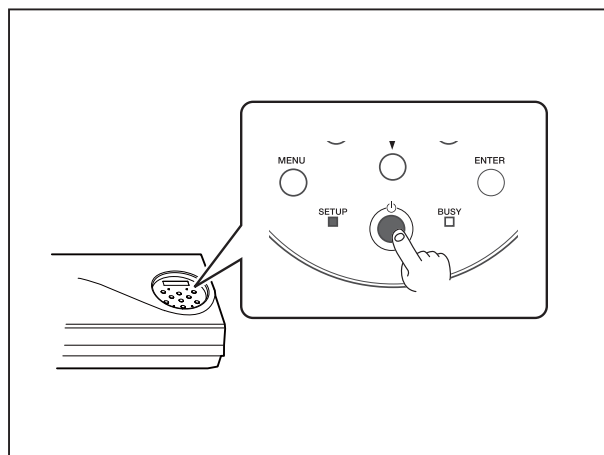
- 1.Firmware file
- 2.WindowsPC (Network port is required.)
- 3.Peck.exe
- 4.Network cable (A cross cable is required when you connect the printer to PC directly.)

HOW TO UPGRADE FIRMWARE (Referential Time : 5 min)

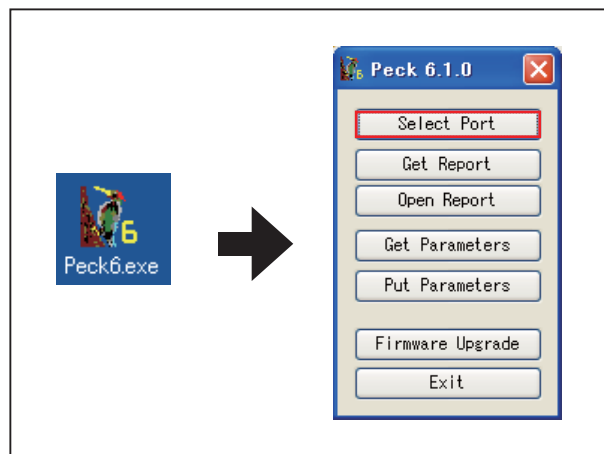
- 1** Check the IP address of the printer.
Turn on the Main Power SW and Sub Power SW, then press [MENU] key.
Select [SYSTEM INFO.]>[NETWORK]>[IP ADDRESS].



- 2** Turn off the Sub Power SW.

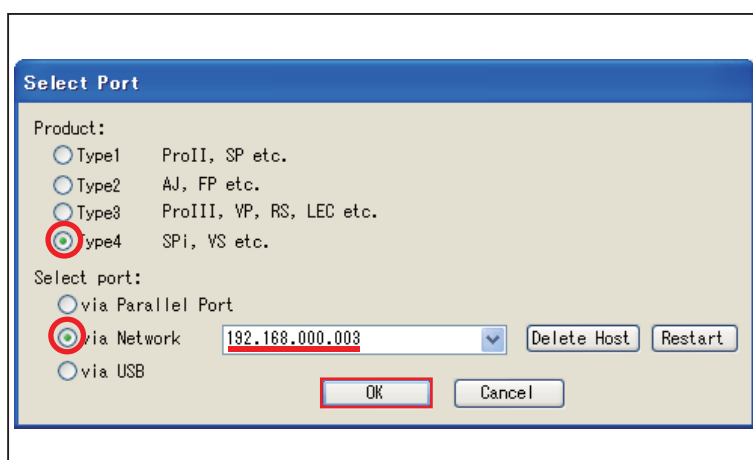


- 3** Start the Peck.
[Peck] screen is displayed, and click [Select Port] button.

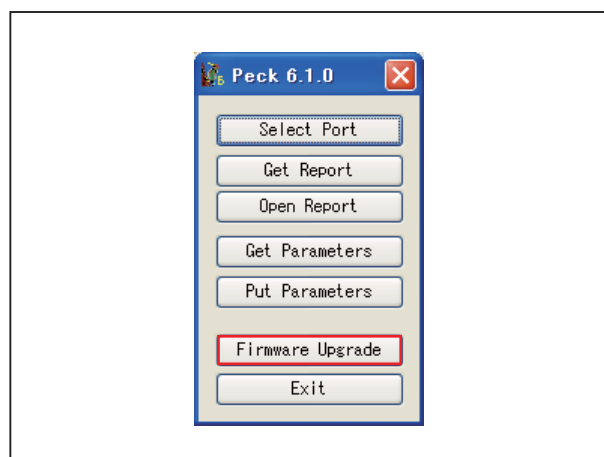


- 4** Select [Type4 SPi,VS etc.] from [Product].
Also, select [Via Network] and input IP address of the printer.

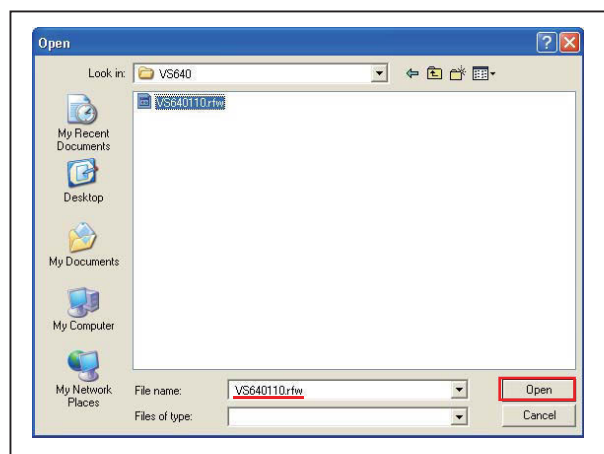
Click [OK] button.



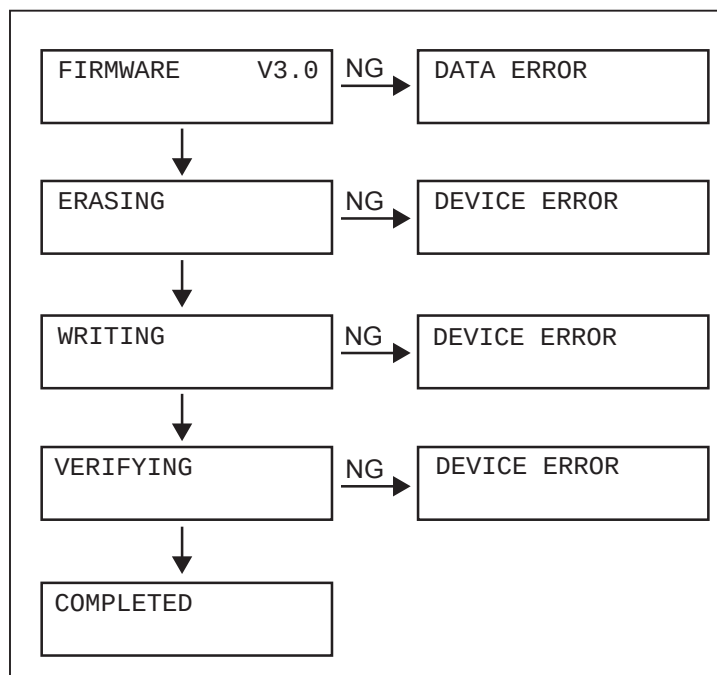
- 5** [Peck] screen is displayed again.
Click [Firmware Upgrade] button.



- 6** [OPEN] screen is displayed.
Select the firmware file and click [Open].
The firmware will be sent to the printer.



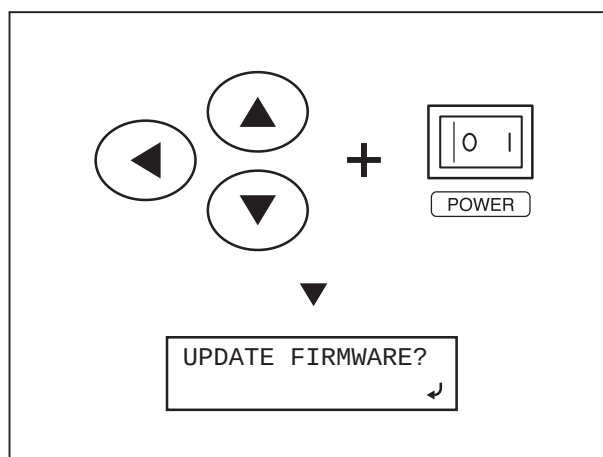
- 7** The machine goes into the Firmware Upgrade mode automatically.
When upgrade is completed, the Sub Power SW turns off automatically.



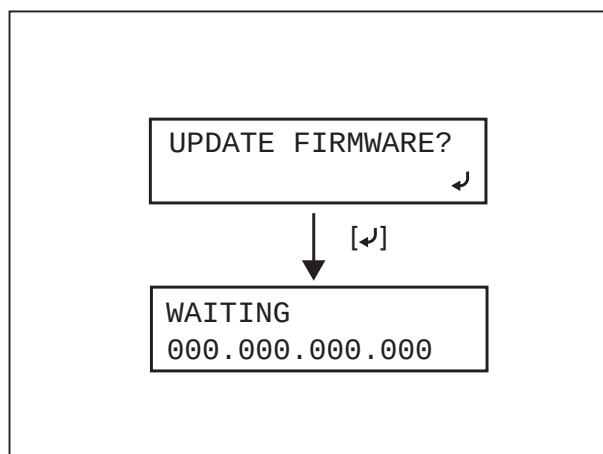
HOW TO INSTALL FIRMWARE (Referential Time : 10 min)

This is required when a new Main Board without the firmware is installed.

- 1** Turn on the Main Power SW while pressing [◀], [▲], and [▼] keys.



- 2** Press [ENTER] key to set the machine ready to receive the firmware.

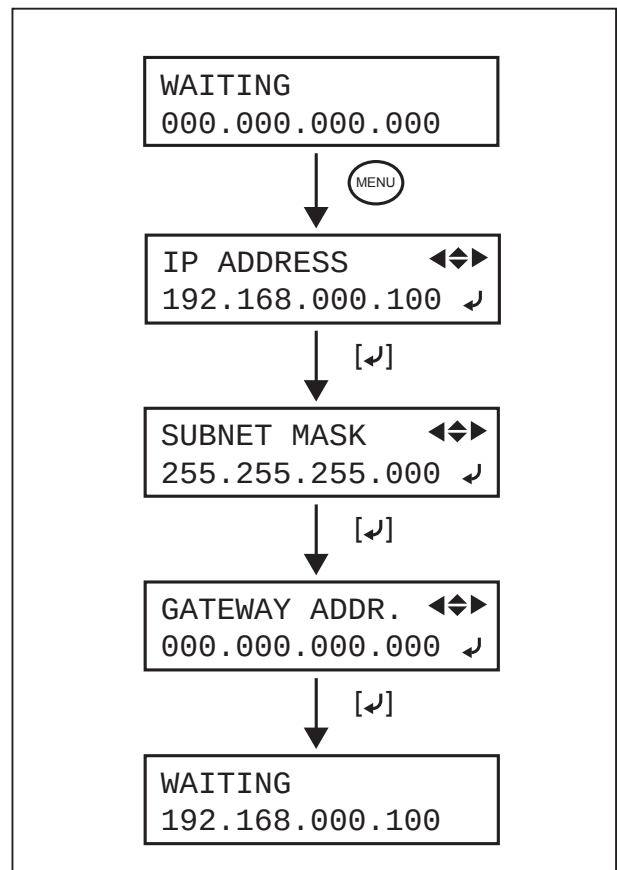


- 3** Press [MENU] key, and set [IP ADDRESS], [SUBNET MASK] and [GATEWAY ADDR.].

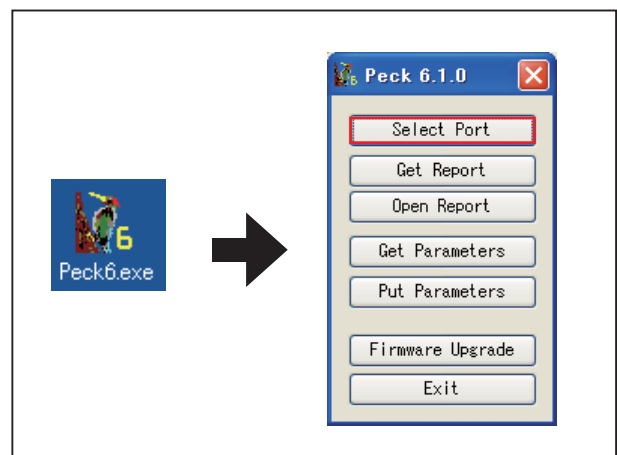
Press [◀] and [▶] keys for moving between digits, and [▲] and [▼] keys for selecting value. After setting an address, press [ENTER] key to go next address setting. When [GATEWAY ADDR.] is set, it returns to the waiting mode for receiving the firmware by pressing [ENTER] key.



The setting made here is only temporary for the firmware installation and it is not saved.

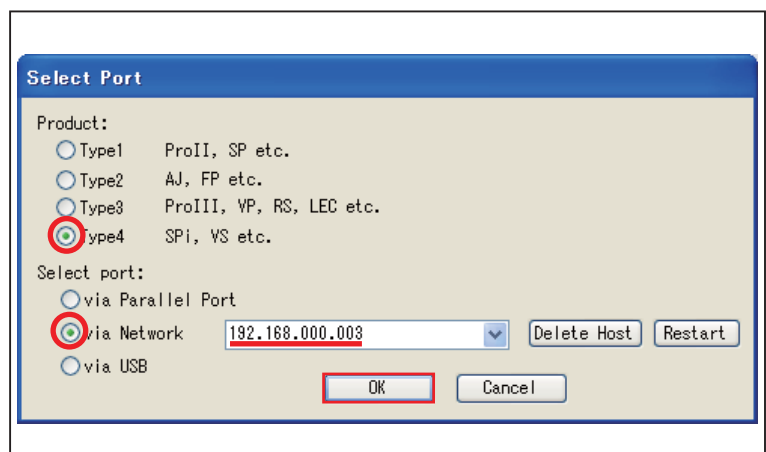


- 4** Start the Peck on PC.
[Peck] screen is displayed, and click [Select Port] button.

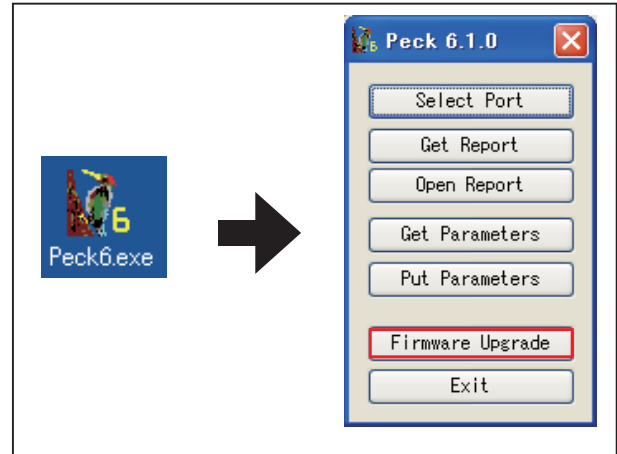


- 5** Select [Type4 Spi, VS etc.] from [Product].
Also, select [Via Network] and input IP address of the printer.

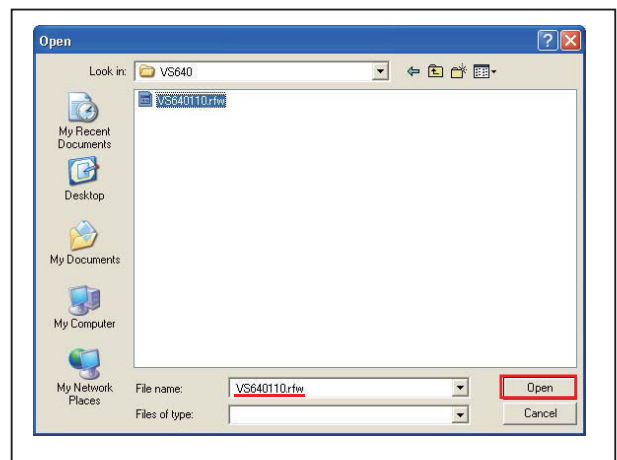
Click [OK] button.



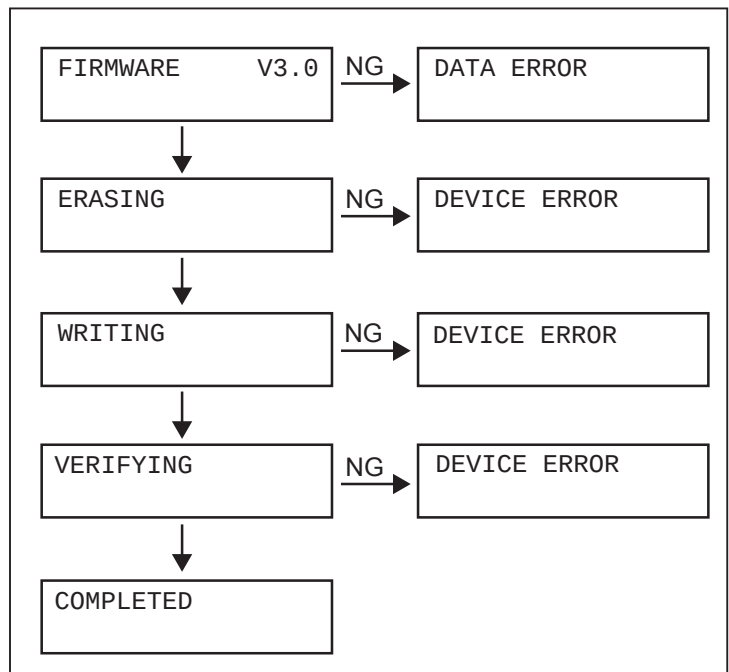
- 6** [Peck] screen is displayed again.
Click [Firmware Upgrade] button.



- 7** [OPEN] screen is displayed.
Select the firmware file and click [Open].
The firmware will be sent to the printer.

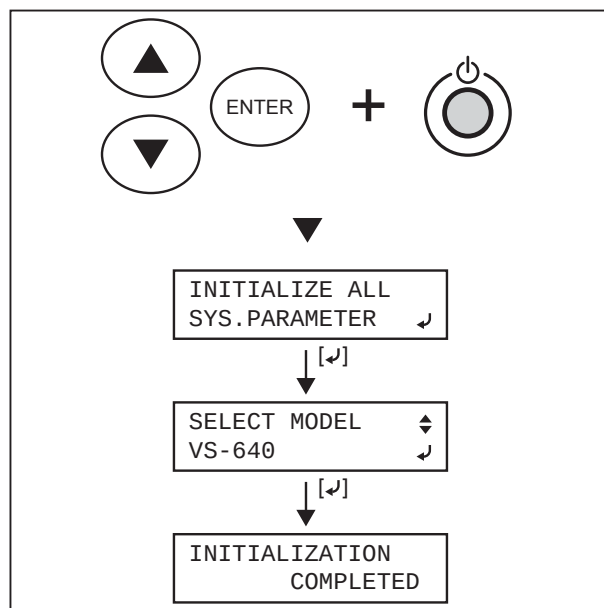


- 8** It starts loading the firmware.
The firmware installation is completed when [COMPLETED] message is displayed.
Turn off the Sub Power SW.

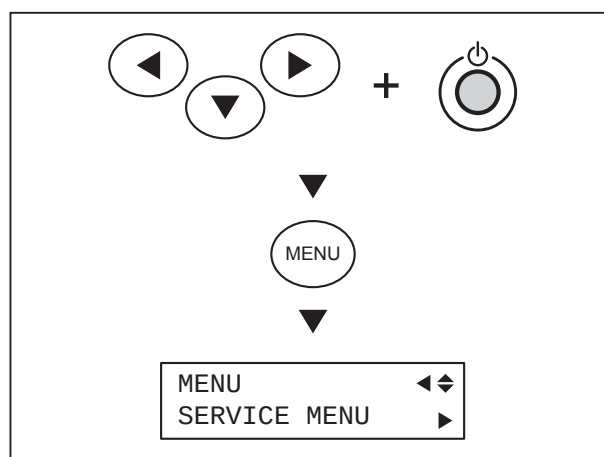


- 9** Turn on the Sub Power SW while pressing [▲], [▼], and [ENTER] keys to enter [INITIALIZE ALL SYS. PARAMETER] menu.

Select the model by pressing [▲] and [▼] keys, and press [ENTER] key to start initialization. The Sub Power turns off automatically when it is completed.

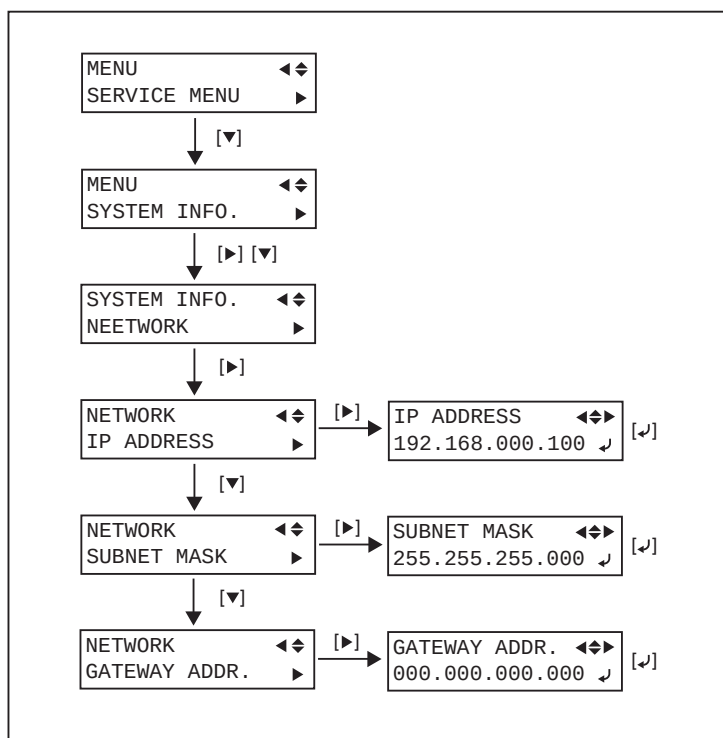


- 10** Turn on the Sub Power SW while pressing [◀], [▼] and [▶] keys to enter the Service Mode.

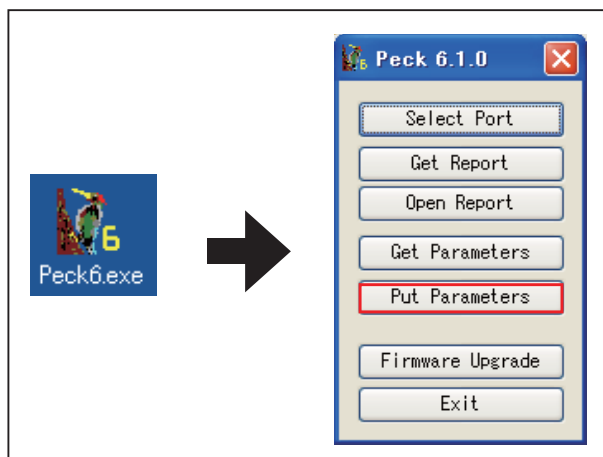


- 11** Enter the [NETWORK] menu and input [IP ADDRESS], [SUBNET MASK] and [GATEWAY ADDR.].

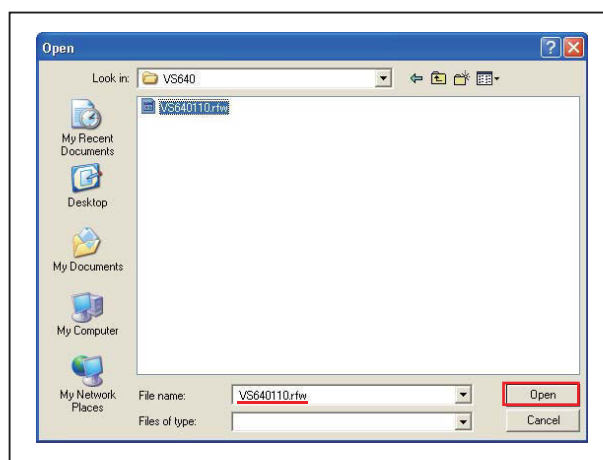
Turn off the Sub Power when the network setting is completed.



- 12 Start the Peck on PC.
[Peck] screen is displayed, and click [Put Parameters] button.



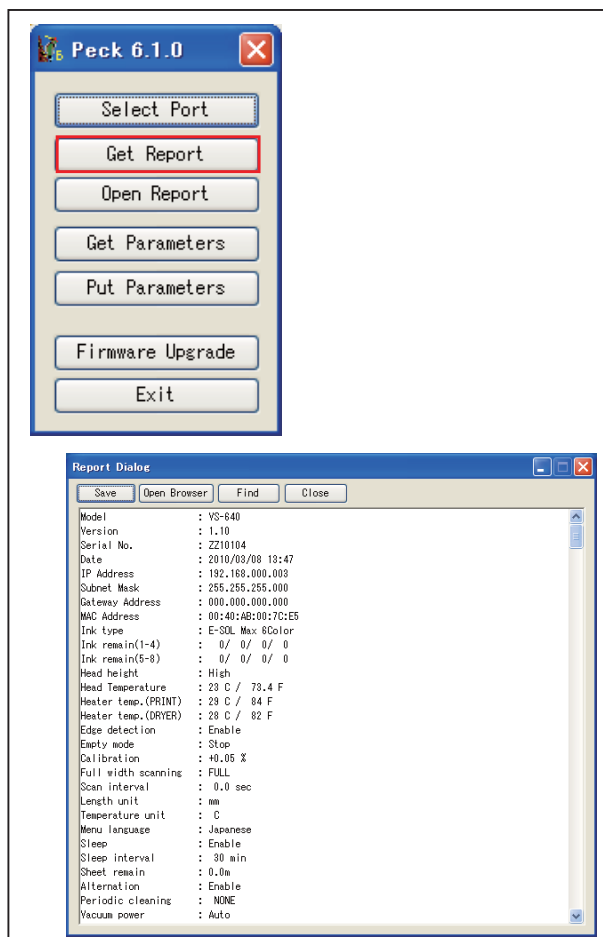
- 13 [OPEN] screen is displayed.
Select the System Parameter file that is saved before the Main Board replacement.
Click [Open]. Peck starts to send the System Parameter to the printer.



- 14 Click [Get Report] button to import the System Report file.
Confirm that the System Parameter is reloaded properly.



The network settings set at the step 11 are replaced with the ones saved in the System Parameter as [Put Parameters] is executed.
Please do the network settings again if necessary.

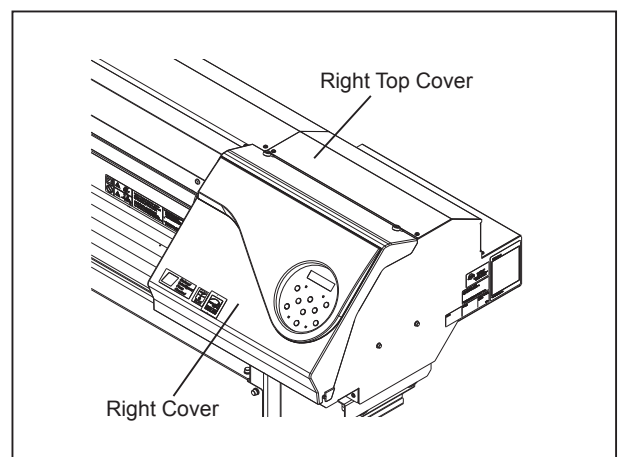


4-3 HEAD ALIGNMENT (Referential Time : 15 min.)

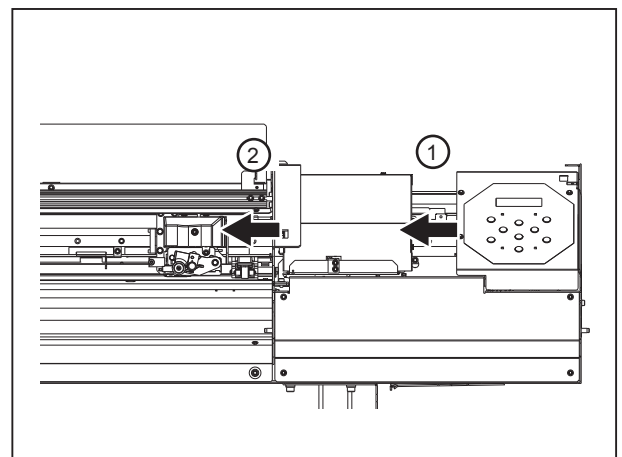
This is necessary to obtain the good printing quality. Be sure to operate this alignment when the head is replaced. If the heads are not aligned, printing problems such as banding, fine lines and gap between bands could occur. The PET-G is required for this alignment.

Please **DO NOT** use Take-Up Unit for this alignment.

- 1 Remove the Right Cover and Right Top Cover.



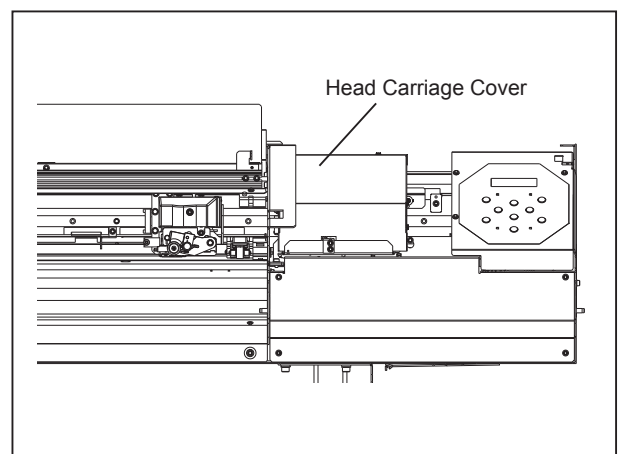
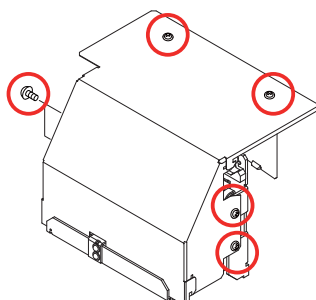
- 2 Open the Front Cover.
Release the cap of the Head Carriage and disconnect the Tool Carriage from the Head Carriage.



- 3 Remove the Head Carriage Cover.
Lock the Head Carriage.

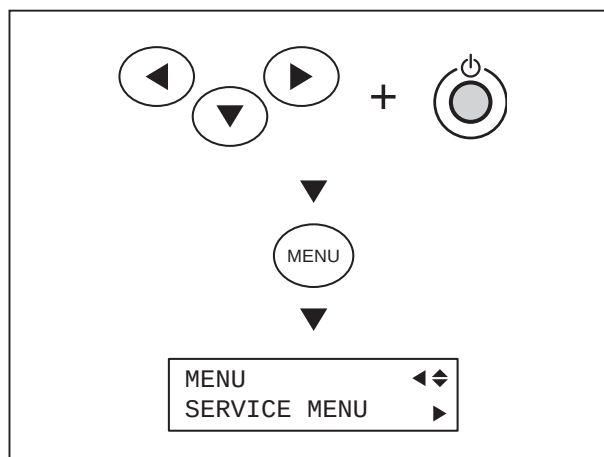


The Head Carriage Cover has six screws.

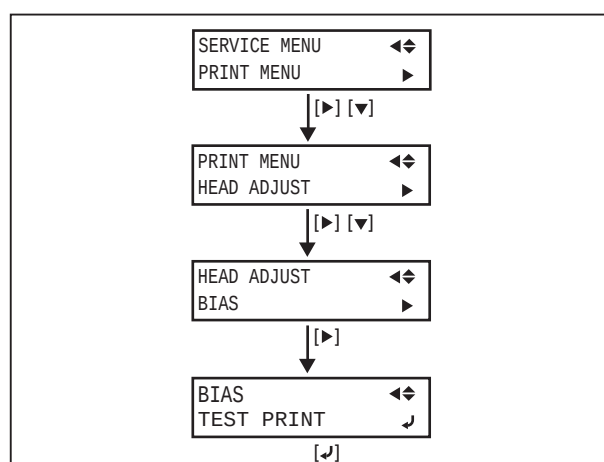


- 4** Turn on the Sub Power SW while pressing [◀], [▼] and [▶] keys to enter the Service Mode.

Set up the PET-G on the machine.



- 5** Select [PRINT MENU]>[HEAD ADJUST]>[BIAS]>[TEST PRINT] and press [ENTER] key.



- 6** Test pattern is printed. The test pattern is different depending on the ink type.

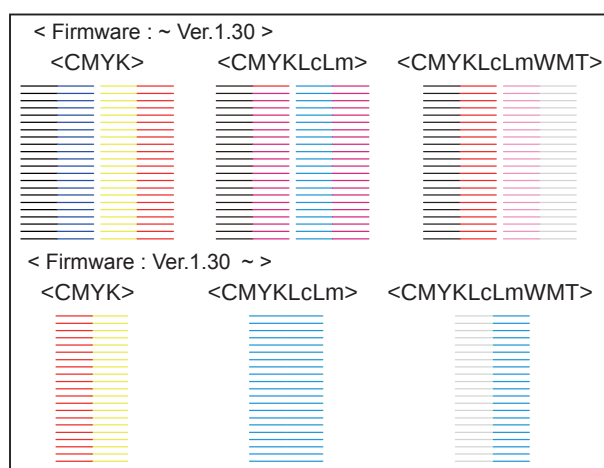


The printed test pattern can be fed forward and backward by [▼] and [▲] keys to be seen easily.

Revised 6



Head can be adjusted with the existing test pattern by selecting [PRINT MENU]>[HEAD ADJUST]>[BIAS 2]. Adjustment can be performed by whichever of test pattern. Because the machine does not feed the media for [BIAS] test pattern, it is not affected by media feeding.

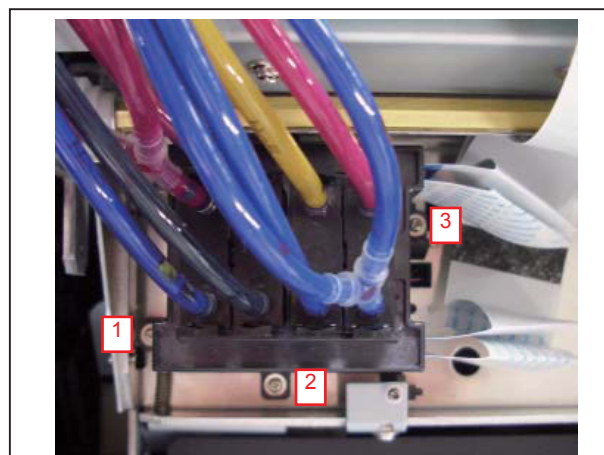


- 7** [BIAS ADJUSTMENT]

Loosen the three screws fixing the Head in the order of the figure.



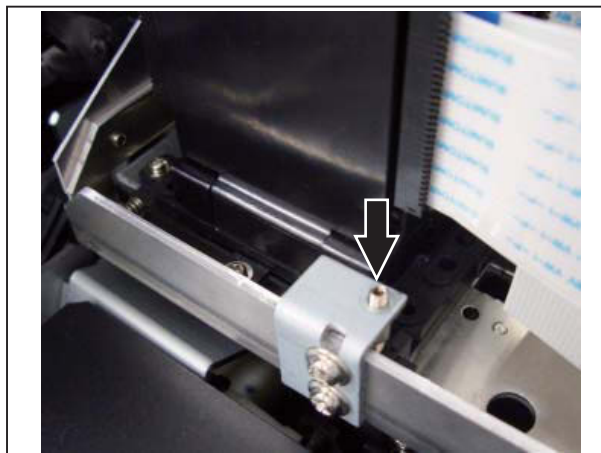
Loosen the screws fixing the head for 1/2 turn. If the screws are loosened too much, the adjustment cannot be done correctly.



- 8** Insert the 1.5 mm Hexagonal Wrench through the hole of the Head Carriage, then turn the Adjustment Screw to make the lines of each color in the test pattern straight.



Position of the printing moves one line by turning the screw 1/4 turn.



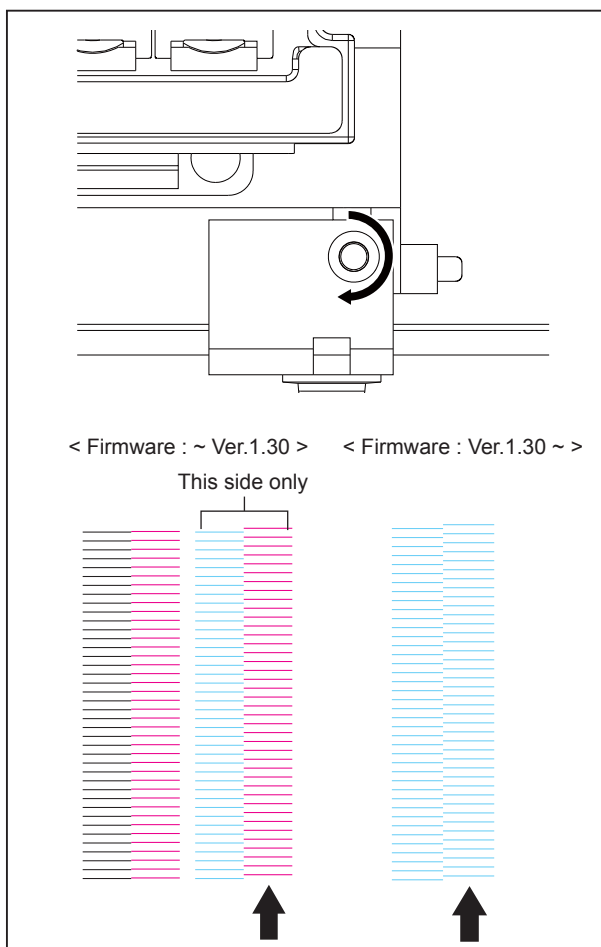
Revised 6

When the right half of the lines are shifting downwards, turn the screw CW.

When the right half of the lines are shifting upwards, turn the screw CCW two or three round once to get back to the position where the right-side lines are lower than the left ones. Print the test pattern again, and perform the head adjustment



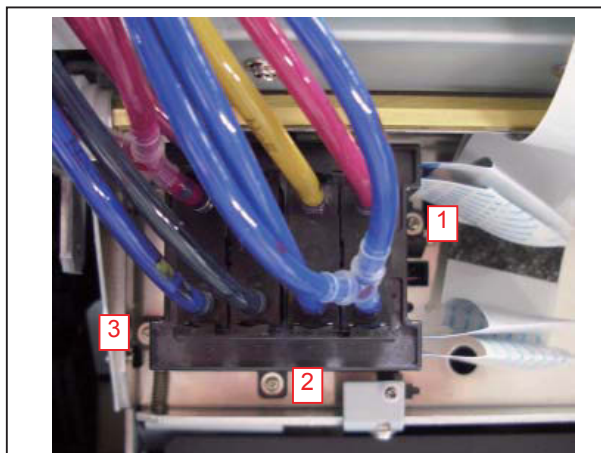
When adjusting the head position, turn the screw CW.
Turning the screw CWW is only when fitting back the misalignment.



- 9** Tighten the screws fixing the head in order as shown in the figure, using the Torque Driver (ST-056).



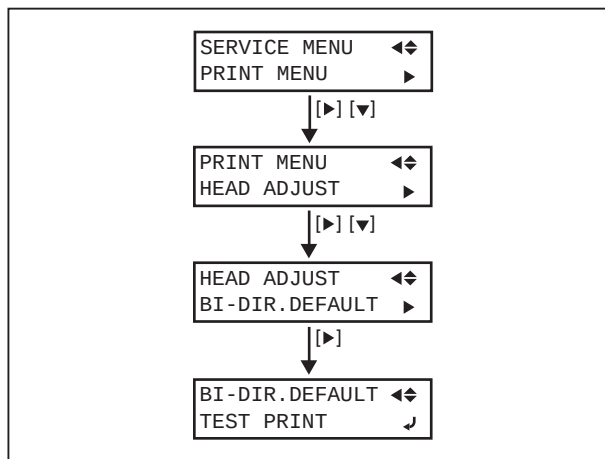
Torque for tightening is **2kgf • cm (20cNm)**.
Make sure not to tighten the screws too strong.



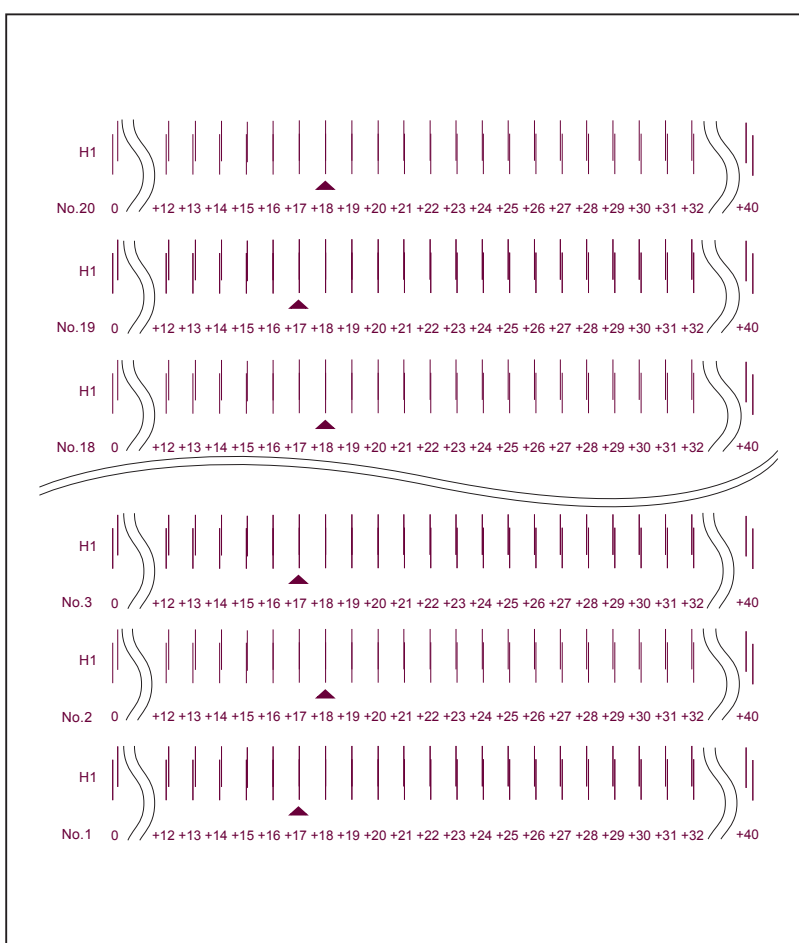
- 10** **[BIDIRECTION ADJUSTMENT]**
Select [PRINT MENU]>[HEAD ADJUST]>[BI-DIR. DEFAULT]
>[TEST PRINT] and press [ENTER] key.



Loosen the screws fixing the head for 1/2 turn.
If the screws are loosened too much, the adjustment
cannot be done correctly.



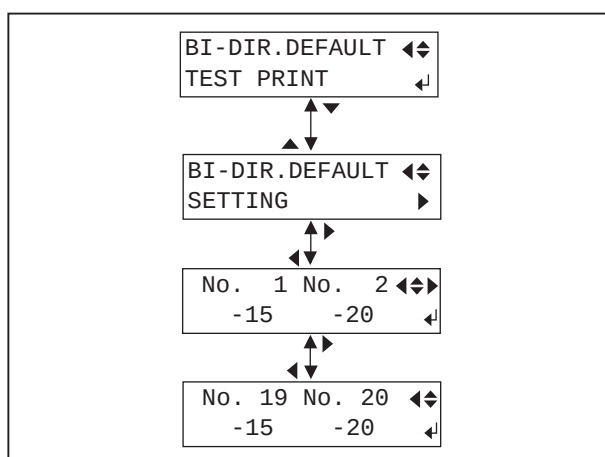
- 11** Test pattern is printed.
Find the position where the two lines are
overlapping and check the number of
each color.
In case of having problem selecting one
between two numbers, half
value is also available for inputting.
The number with ▲ is the current setting.



- 12** Select [No.1] to [No.20] from [HEAD ADJUST]>[BIDIR.
DEFAULT]>[SETTING] menu and enter the parameters
checked at step **11** with [▲] and [▼] keys.
Press [ENTER] key to save the settings.



Parameters can be entered with an increment of 0.5.

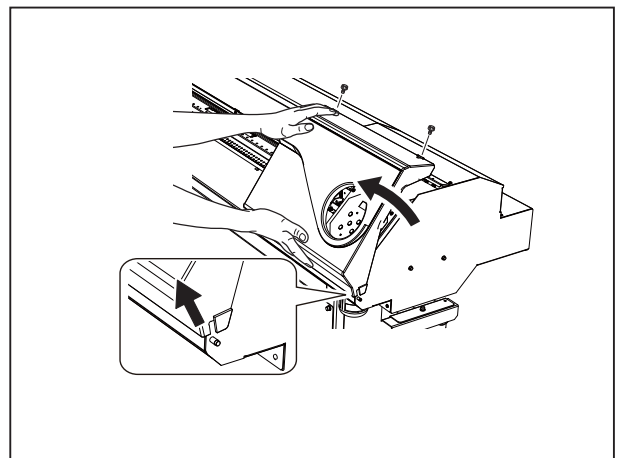


4-4 LIMIT POSITION & CUT DOWN POSITION INITIALIZE (Referential Time : 3min.)

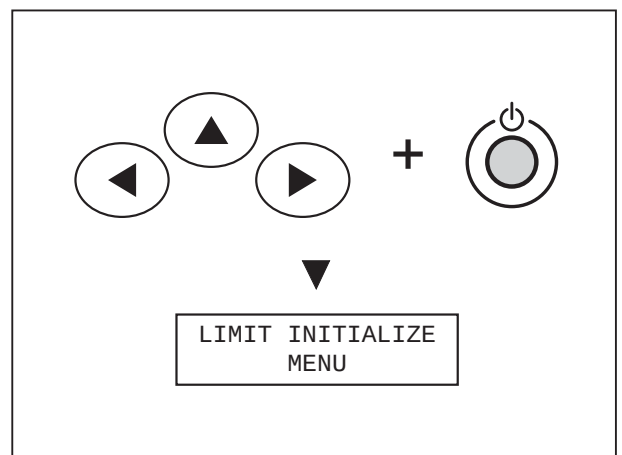
This is for adjusting the relative distance between the Limit Sensor and the Capping Position, and also detecting the distance from the Cut Down Position to the Limit Sensor after completing the adjustment.

When the Limit Position is not correctly set, it may cause some problems such as a head capping error and a head carriage lock error. Also, when the cutter-down position is not correct, there will be some problems such as a cutter-down error when separating the sheet.

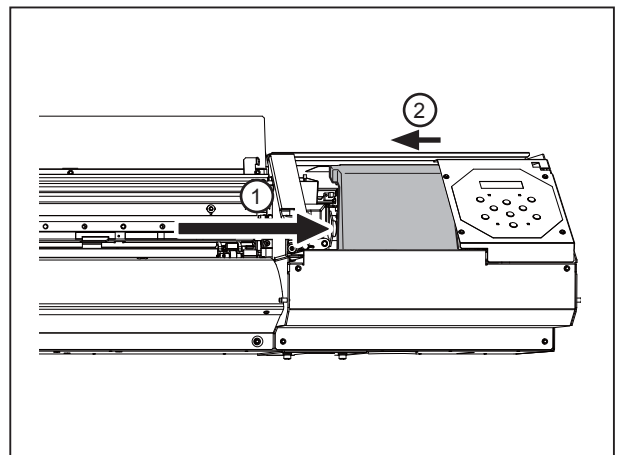
- 1 Remove the Right Cover.



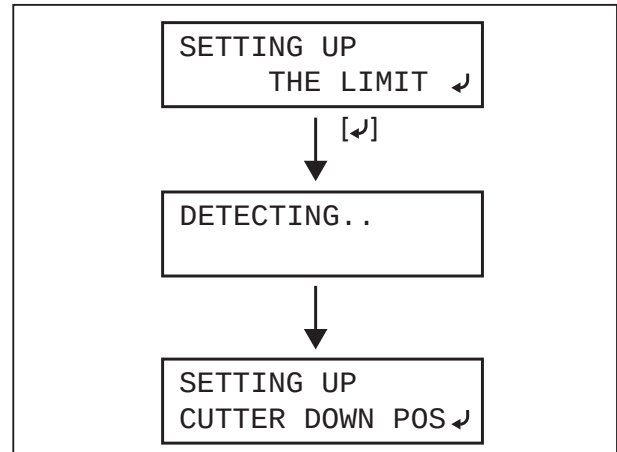
- 2 Turn on the Sub Power SW while pressing [◀], [▲] and [▶] keys to enter the Limit Initialize mode.



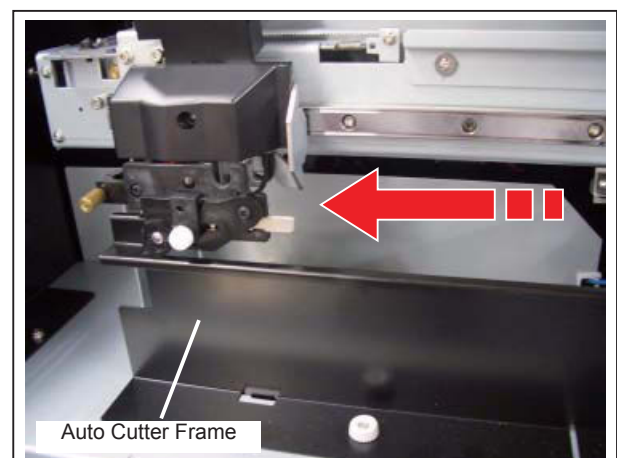
- 3 Connect the Tool Carriage to the Head Carriage.
And lock the Head Carriage.
Confirm that the Head Carriage is locked by pushing it lightly to left and eliminate the looseness.



- 4** Confirm that the head is capped properly, and press [ENTER] key. The Tool Carriage will be separated from the Head Carriage and the limit position initialize will start.
After initialize is completed, the message is displayed.

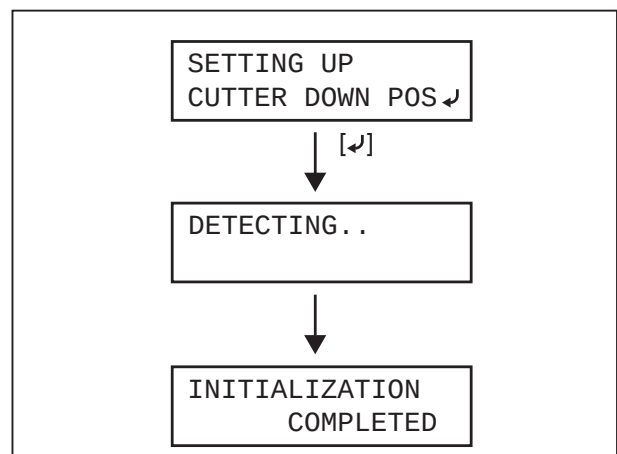


- 5** To be in the Cut Down condition, move the Tool Carriage with your hand until it makes full contact with the Auto Cutter Frame.



- 6** Press [ENTER] key to perform the Cut Down Position Initialize.
After initialize is completed, the message is displayed.

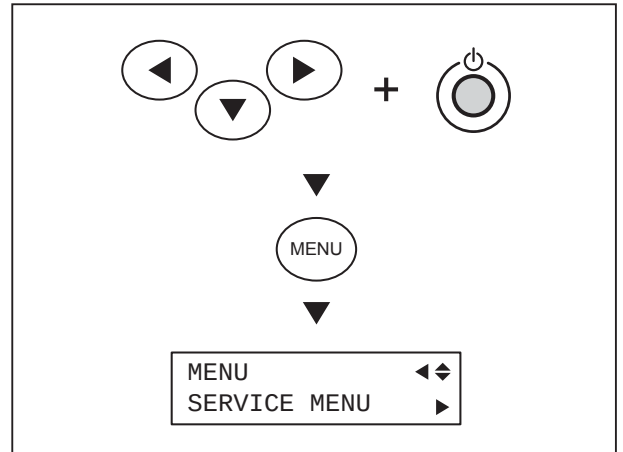
Perform the following adjustment.
[4-6 FLUSHING POSITION ADJUSTMENT]



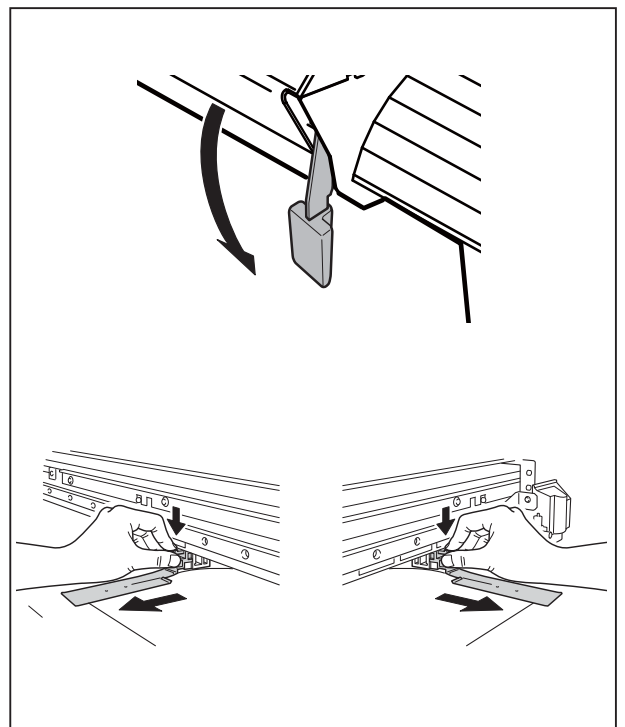
4-5 LINEAR ENCODER SETUP (Referential Time : 5min.)

This is for checking the reading of the linear encoder and for calibrating its expansion/contraction caused by the operation environment. This operation is required when Limit Sensor, Encoder Scale or Encoder Module is replaced or the position is adjusted.

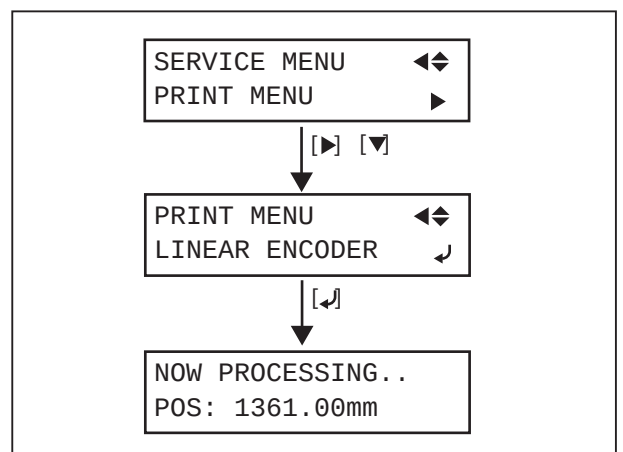
- 1 Turn on the Sub Power SW while pressing [◀], [▼] and [▶] keys to enter the Service Mode.



- 2 Make sure to unload the media.
Lower the Pinch Rollers.
Also, be sure to remove the Media Clamps.



- 3 Select [PRINT MENU]>[LINEAR ENCODER], and press [ENTER] key.



- 4** One of the messages appears at the completion of the set up. In case of Setup error, check the followings.

Dirt/Scratch on the Encoder Scale.
Dirt/Scratch on the Encoder Module.
Encoder Scale is not between the Encoder Module.
Backlash of the Carriage Motor Gear and the Drive Gear.
Fixation between the Carriage and the Carriage Belt.
Bad Contact in the cables.

LINEAR ENCODER ◀
SETUP COMPLETED

LINEAR ENCODER ◀
SETUP FAILED

- 5** When LINEAR ENCODER SETUP is completed, perform the [LINEAR CALIB.] in the Service Menu.

PRINT MENU ◀↕
LINEAR CALIB. ↵

↓ [↵]

NOW PROCESSING . .



LINEAR CALIB. ◀↕
SETUP COMPLETED

↓ [▼]

LINEAR CALIB. ◀↕
0.18%

- 6** In case of an error, check the followings.

Dirt/Scratch on the Encoder Scale.
Dirt/Scratch on the Encoder Module.
Encoder Scale is not between the Encoder Module.
Backlash of the Carriage Motor Gear and the Drive Gear.
Fixation between the Carriage and the Carriage Belt.
Bad Contact in the cables.

PRINT MENU ◀↕
LINEAR CALIB. ↵

↓ [↵]

NOW PROCESSING . .

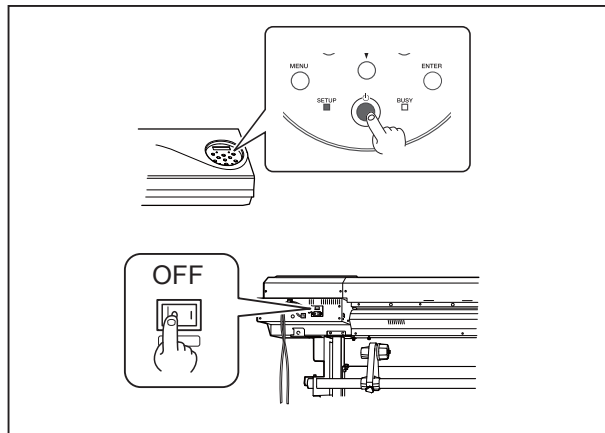


LINEAR CALIB. ◀
FAILED TO SETUP

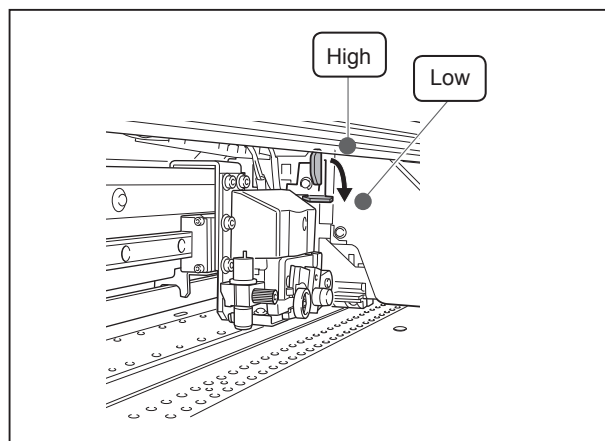
4-6 FLUSHING POSITION ADJUSTMENT (Referential Time : 5min.)

This is to adjust the flushing position. Without this adjustment, the Flushing may not be performed properly.

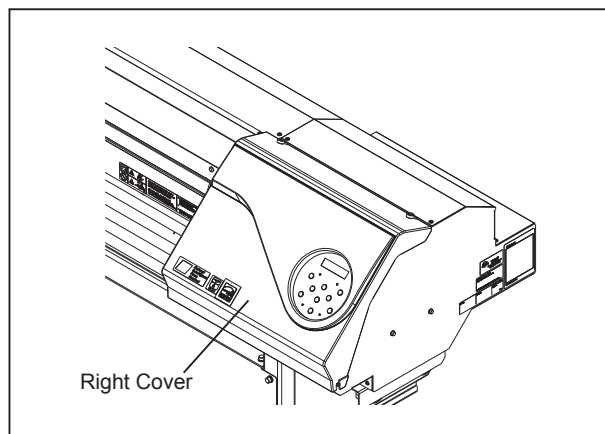
- 1 Turn off the Sub Power SW, and then turn off the Main Power SW.



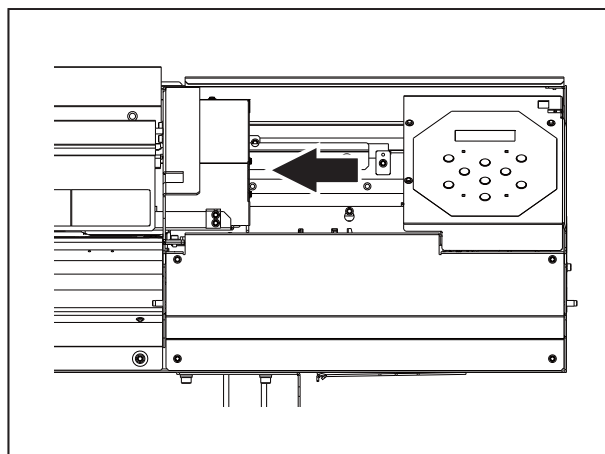
- 2 The Head height should be set LOW.



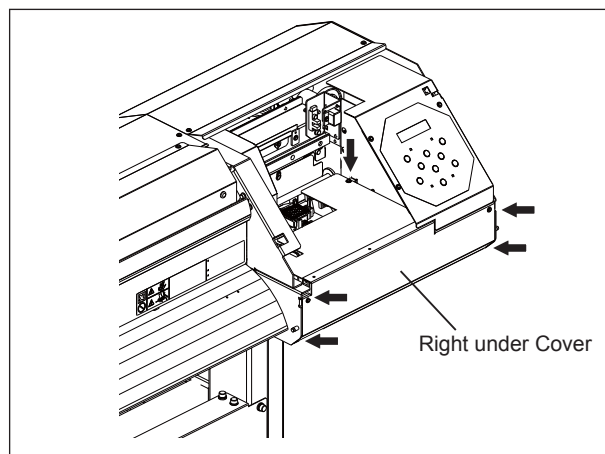
- 3 Remove the Right Cover.



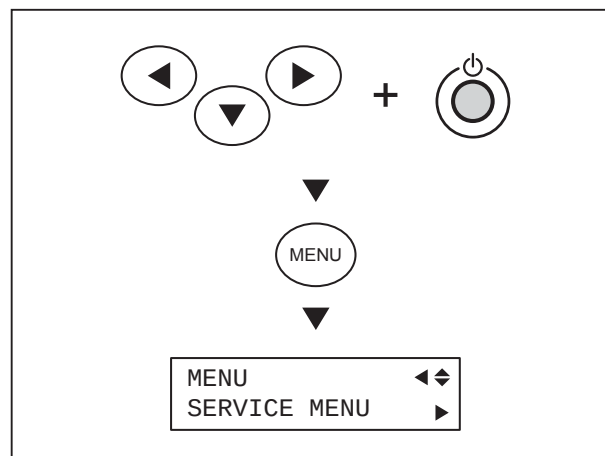
- 4 Move the Head Carriage leftwards to the position where it is not above the Capping Unit.



5 Remove the Right Under Cover and lock the Head Carriage.

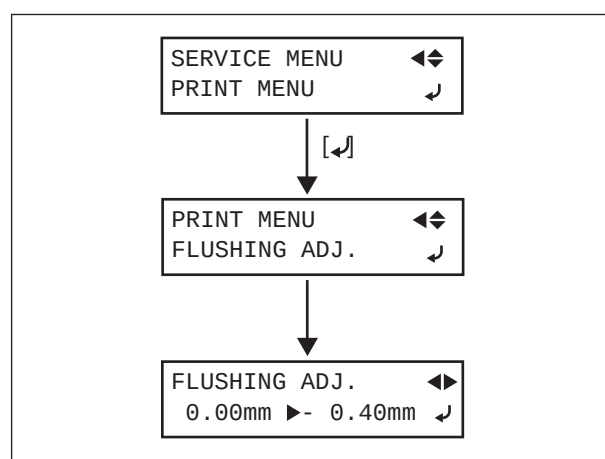


6 Turn on the Sub Power SW while pressing [◀], [▼] and [▶] keys to enter the Service Mode.



7 Select [PRINT MENU]>[FLUSHING ADJ.], and press [ENTER] key.

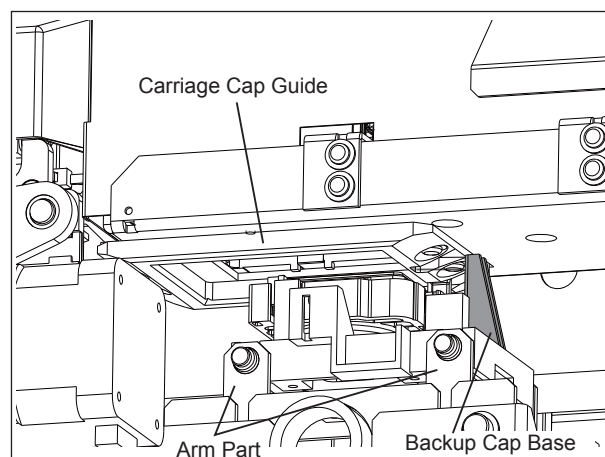
The Head Carriage automatically moves to the current flushing position.



8 Move the Head Carriage to the position where the slot of the Carriage Cap Guide makes contact with the tip of the Backup Cap Base by pressing [◀] and [▶] keys. Then, press [ENTER] key to set the flushing position.

Or, start adjustment from the leftmost position and press [ENTER] key to save the position where arm part of cap unit starts to move.

When you press [MENU] key before pressing [ENTER] to set the position, the flushing position is not updated and exits to the menu.



4-7 CROP MARK SENSOR ADJUSTMENT (Referential Time : 10min.)

This adjustment is for adjusting the sensitivity of the Crop Mark Sensor. If not adjusted, the crop marks cannot be read correctly and it results in the misaligned cut with the print. This adjustment is required under following cases.

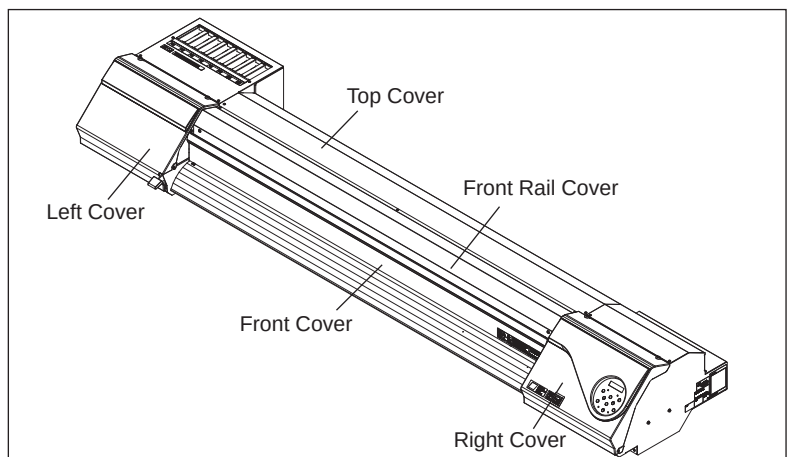
- Crop Mark Sensor or Tool Carriage Board is replaced or adjusted.
- The VR for adjusting the voltage is unexpectedly moved.
- The distance between Crop Mark Sensor and the bed surface is changed.

When it needs to be adjusted for a particular media, use the media instead of SV-GG. However, in this case, the adjustment is to be optimized for the media and it may affect the crop mark detection on other media. The result of the crop mark recognition on Roland media is not assured, when any media other than SV-GG is used for this adjustment.

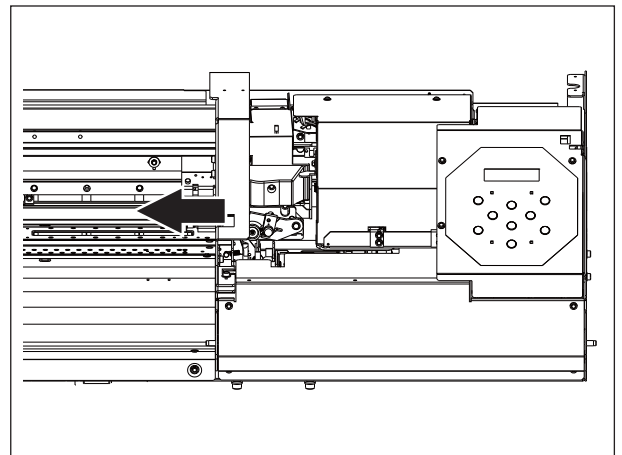
The Print Heater and Dryer must be off during this adjustment..

1 Remove the Covers in order.

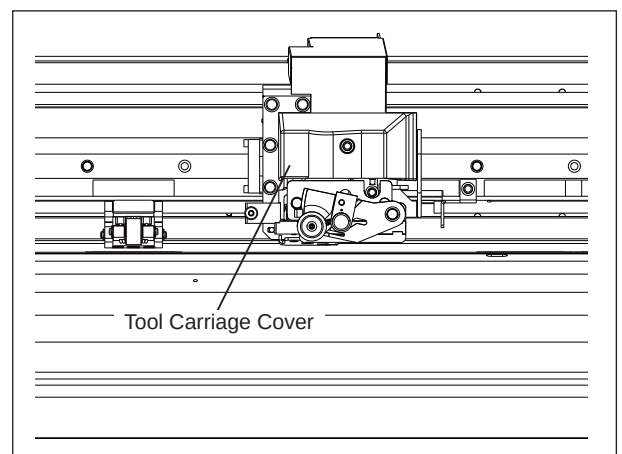
1. Right Cover
2. Left Cover
3. Front Cover
4. Front Rail Cover
6. Top Cover



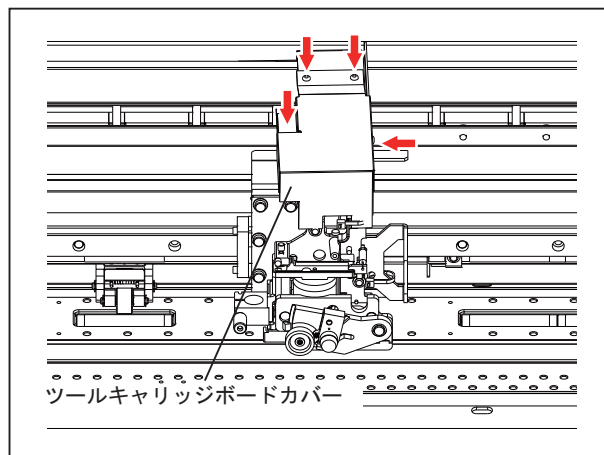
2 Remove the Tool Carriage from the Head Carriage.



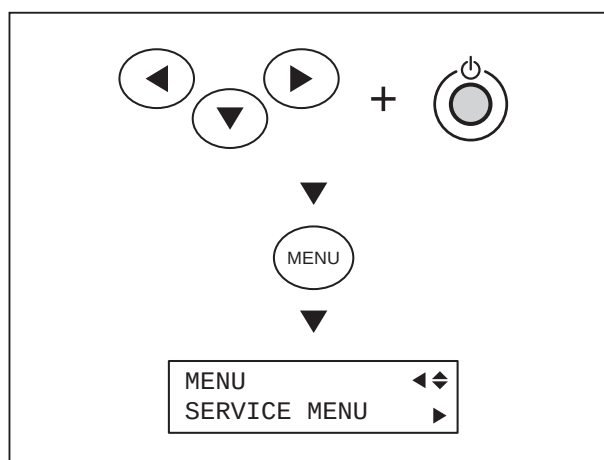
3 Remove the Tool Carriage Cover.



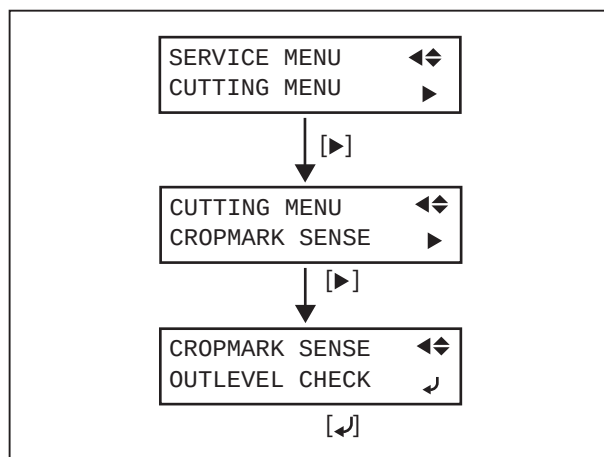
- 4** Remove the four rivets as shown in the figure for removing the Tool Carriage Board Cover.



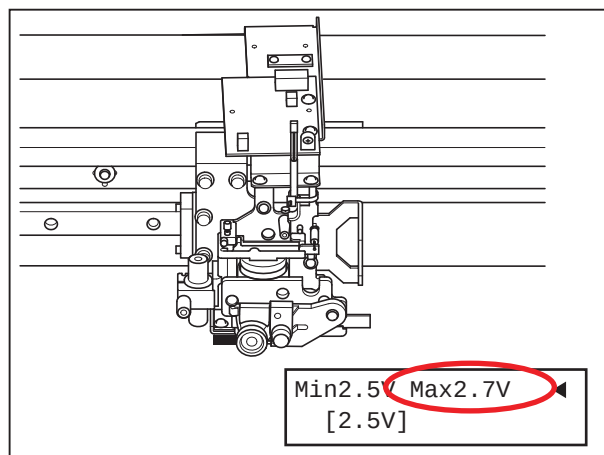
- 5** Turn on the Sub Power SW while pressing [◀], [▼] and [▶] keys to enter the Service Mode.
Setup the SV-GG on the machine.



- 6** Select [CUTTING MENU]>[CROPMARK SENS]>[OUTLEVEL CHECK], and press [ENTER] key.
A Crop Mark will be printed.



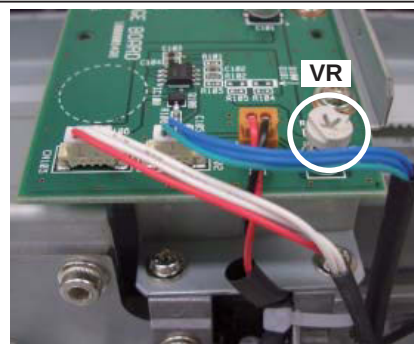
- 7** After printing a Crop Mark, the Tool Carriage moves to above the Crop Mark automatically.
It is not necessary to adjust when the MAX voltage is 2.7 +/-0.2V.



- 8** If the MAX voltage is not proper, refer to the voltage displayed in [] on the lower screen. Adjust the VR on the Tool Carriage Board so that the voltage in [] to be 2.7 +/-0.2V.



Because of the ink dry, the voltage displayed in [] decreases in time. Perform this operation quickly for the adjustment is done smoothly



Min2.5V Max2.7V
[2.5V]

- 9** Perform [OUTLEVEL CHECK] again and confirm that the MAX voltage is proper.
If the voltage is not proper, adjust the voltage again.

Min2.5V Max2.7V
[2.5V]



Revised 11

With some fast drying media, printer may not detect the Crop Marks after a while the CROP MARK SENSOR ADJUSTMENT has been performed.
The difference of voltages between where the Crop Marks are printed and not printed is required 0.7V or more for the crop mark detection.
If the Crop Marks are not detected, check the voltage 30 minutes after the Crop Marks are printed on that media.
For the media which the difference of voltages can not be maintained 0.7V or more with, the result of the crop mark detection is not assured.

4-8 CROP-CUT ADJUSTMENT (Referential Time : 10min.)

This adjustment is for calibrating the relative positions of Tool and Crop Mark Sensor. If it is not adjusted, the cutting position based on the detected Crop Marks becomes wrong, and that results in the mis-alignment of the Print and Cut performed under the auto crop mark detection.

This adjustment is required when Crop Mark Sensor or Tool Carriage is replaced.

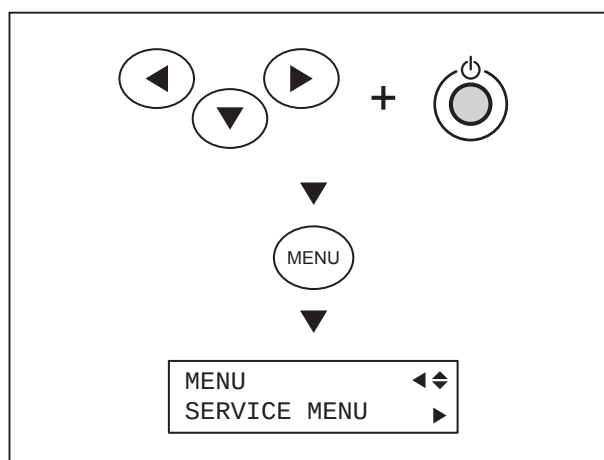
Before this adjustment, it is necessary to confirm that [ENABLE] is selected for [AUTO ENV. MATCH]. Also, Take-up Unit must not be used during this adjustment.

- 1 Turn on the Sub Power SW while pressing [◀], [▼] and [▶] keys to enter the Service Mode.

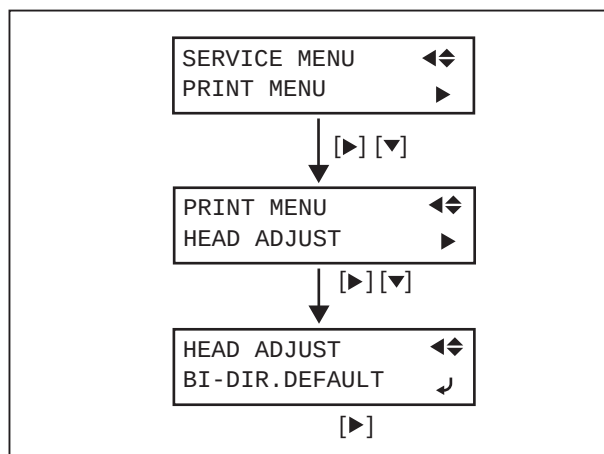
Set up media on the machine.



Any media can be used for this adjustment.



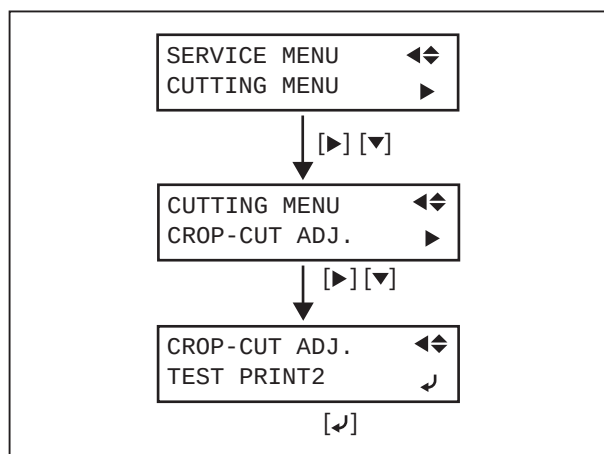
- 2 Perform Bidirectional Adjustment referring to [4-3 HEAD ADJUSTMENT].



- 3 [TEST PRINT 2]
Select [CUTTING MENU]>[CROP-CUT ADJ.]>[TEST PRINT 2], and press [ENTER] key.
The test print and cut will be performed.



For this step, use the same media that bidirectional adjustment is done.

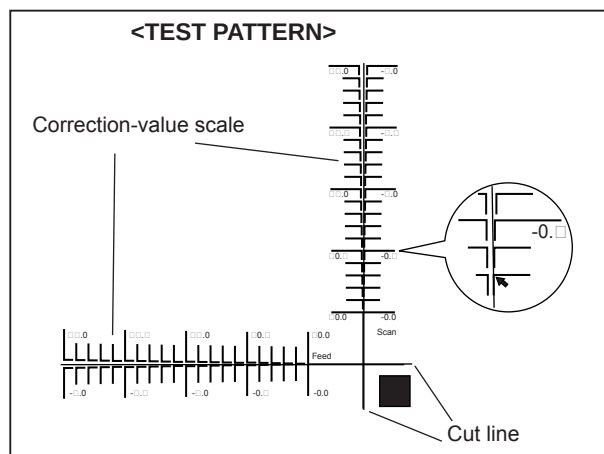


- 4** From the test pattern, find the value where the print line matches the cut line.

In this case, the correction value for the scan direction is "- 0.3".



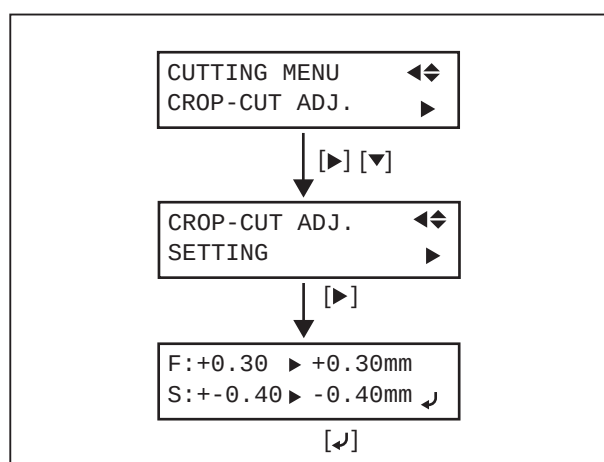
If it is difficult to see the cut line visually, use a magnifier.



- 5** Select [CUTTING MENU]>[CROP-CUT ADJ.]>[SETTING], and enter the correction-values found in the test pattern for both Feed and Scan.

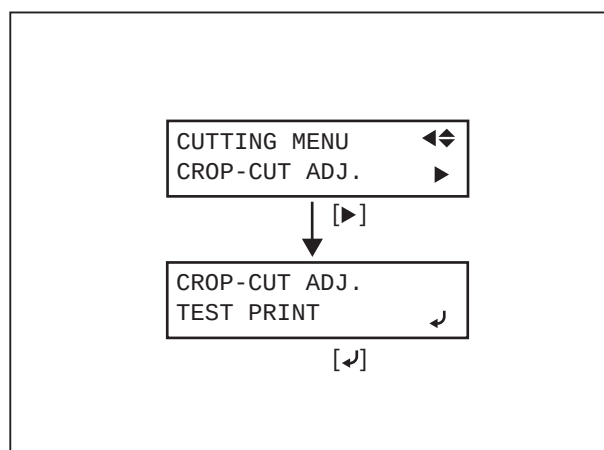


F: Feed direction S: Scan direction
 Left: Current value Right: New value
 (Setting range: +/-2.00mm In 0.01mm unit)
 ▼ key : Value of F, towards +
 ▲ key : Value of F, towards -
 ► key : Value of S, towards +
 ◀ key : Value of S, towards -
 ENTER key : Saves new setting
 MENU key : Moves out SETTING menu



- 6** [TEST PRINT]
 Select [CUTTING MENU]>[CROP-CUT ADJ.]>[TEST PRINT], and press [ENTER] key.

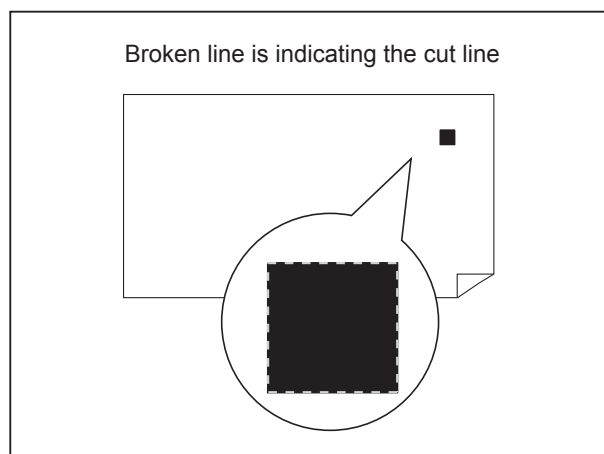
The test print and cut will be performed.



- 7** A Crop Mark is printed, and it is detected by the Crop Mark Sensor, and its contour is cut. Confirm the cut line position on the print visually.



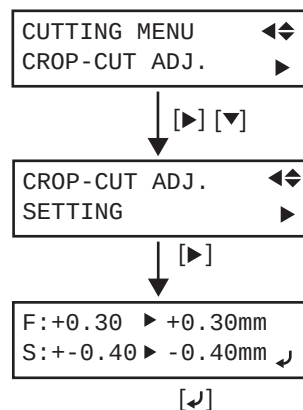
If it is difficult to see the cut line visually, use a magnifier.



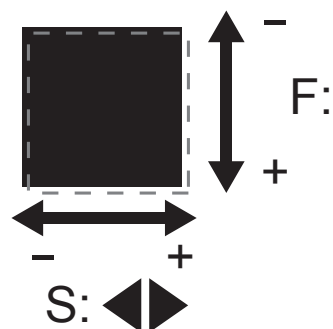
- 8** Adjustment is completed if the position error of cut line is within $\pm 0.1\text{mm}$. If not, select [SETTING] menu again for further adjustment.



▼ key : Moves cut position towards front
 ▲ key : Moves cut position towards rear
 ► key : Moves cut position towards right
 ◄ key : Moves cut position towards left
 ENTER key : Saves new setting
 MENU key : Moves out SETTING menu

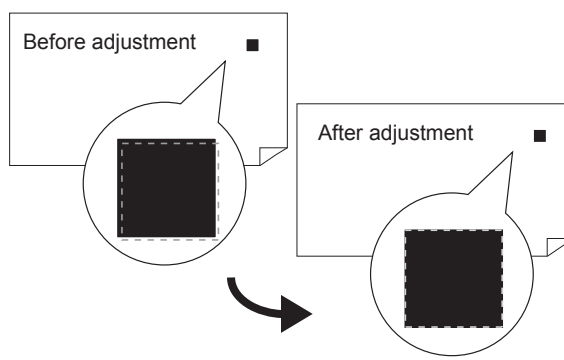


Fine Adjustment



- 9** Perform the test print again for confirmation. Adjustment is completed if the position of cut line is satisfactory. If not, repeat the adjustment again.

Broken line is indicating the cut line



4-9 PRINT / CUT POSITION ADJUSTMENT (Referential Time : 10min.)

This adjustment is for calibrating the relative positions of printing and cutting. If it is not adjusted, it may result in the misalignment of the printing and cutting.

This adjustment is required when Tool Carriage is replaced, or a head is replaced or adjusted, and also when the relative distance between the Carriage and head is changed.

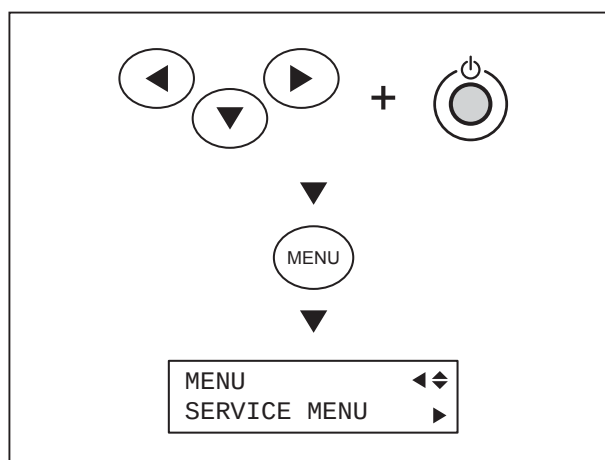
**Before this adjustment, it is necessary to confirm that [ENABLE] is selected for [AUTO ENV. MATCH].
Also, Take-up Unit must not be used during this adjustment**

- 1 Turn on the Sub Power SW while pressing [◀], [▼] and [▶] keys to enter the Service Mode.

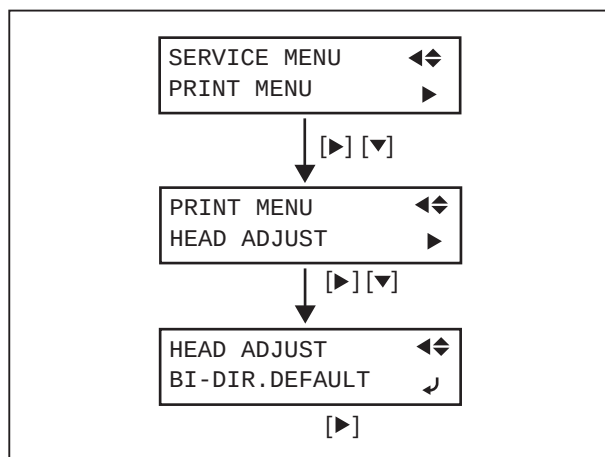
Set up media on the machine.



Any media can be used for this adjustment.



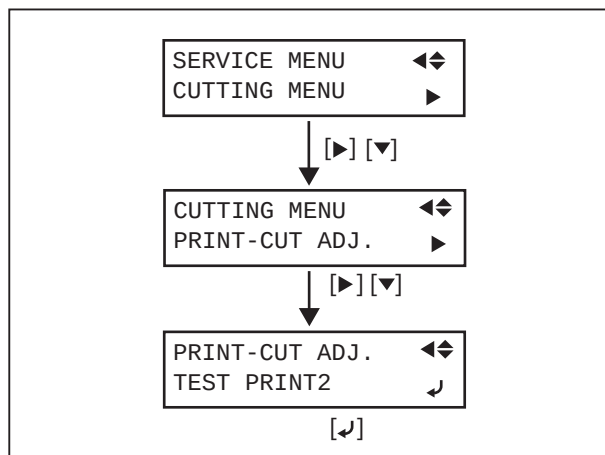
- 2 Perform Bidirectional Adjustment referring to [4-3 HEAD ADJUSTMENT].



- 3 [TEST PRINT 2]
Select [CUTTING MENU]>[PRINT-CUT ADJ.]>[TEST PRINT 2], and press [ENTER] key.
The test print and cut will be performed.



For this step, use the same media that bidirectional adjustment is done.

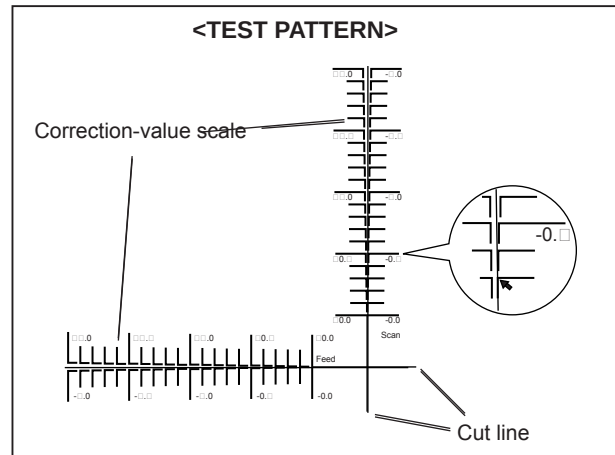


- 4 From the test pattern, find the value where the print line matches the cut line.

In this case, the correction value for the scan direction is "- 0.3".



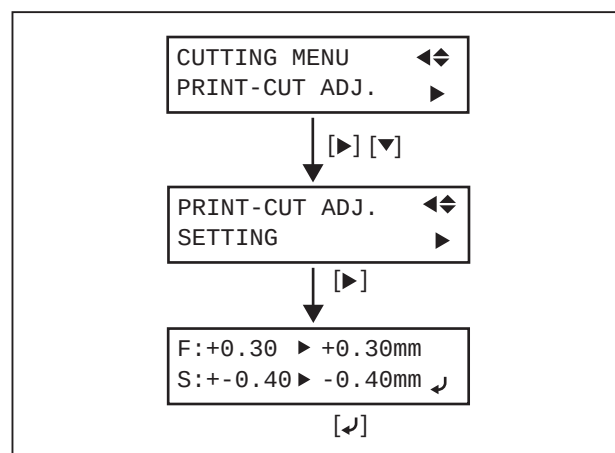
If it is difficult to see the cut line visually, use a magnifier.



- 5 Select [CUTTING MENU]>[PRINT-CUT ADJ.]>[SETTING], and enter the correction-values found in the test pattern for both Feed and Scan.

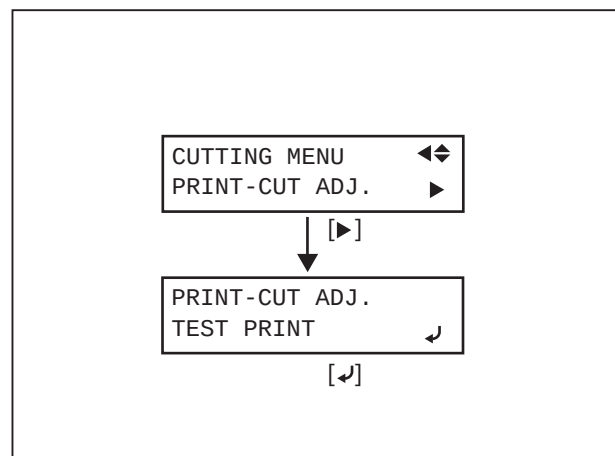


F: Feed direction S: Scan direction
 Left: Current value Right: New value
 (Setting range: +/-5.00mm In 0.01mm unit)
 ▼ key : Value of F, towards +
 ▲ key : Value of F, towards -
 ► key : Value of S, towards +
 ◀ key : Value of S, towards -
 ENTER key : Saves new setting
 MENU key : Moves out SETTING menu



- 6 Select [PRINT-CUT ADJ.]>[TEST PRINT], and press [ENTER] key.

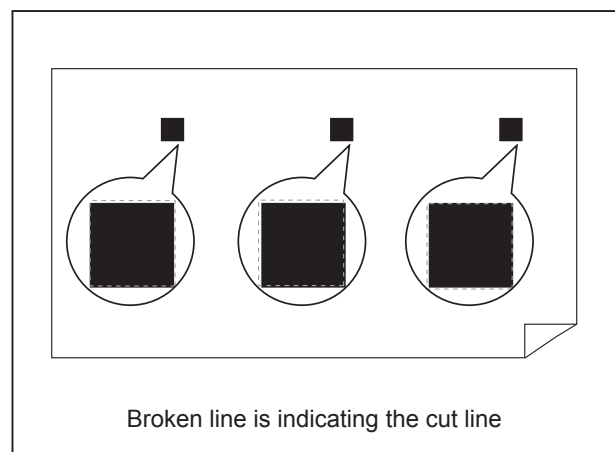
The test print and cut will be performed.



- 7 Three marks are printed at the left-end, right-end and the center of the media, and each mark is cut. Confirm the cut line positions on the marks visually.



If it is difficult to see the cut line visually, use a magnifier.



- 8** Adjustment is completed if the position error of cut line is within the range below. If not, select [SETTING] menu again for further adjustment.

Mark on the right: Within $\pm 0.1\text{mm}$

Mark on the left: Within $\pm 0.3\text{mm}$

(Make an adjustment based on the mark on the right)



▼ key : Moves cut position towards front
 ▲ key : Moves cut position towards rear
 ► key : Moves cut position towards right
 ◀ key : Moves cut position towards left
 ENTER key : Saves new setting
 MENU key : Moves out SETTING menu

CUTTING MENU
 PRINT-CUT ADJ. ►◀

[▶] [▼]

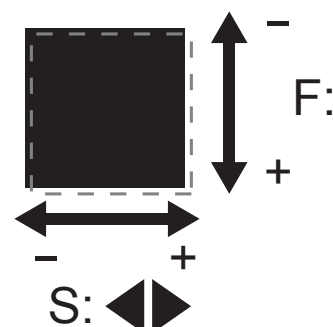
PRINT-CUT ADJ. ◀▶
 SETTING ►

[▶]

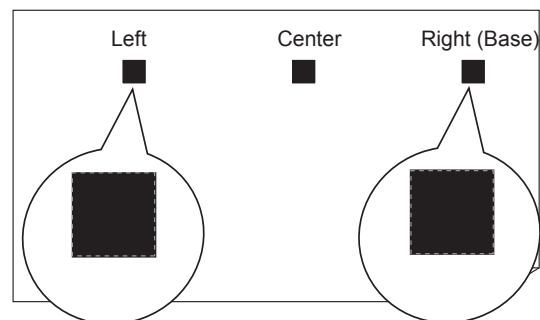
F: +0.30 +0.30mm
 S: + -0.40 -0.40mm ↻

[↻]

Fine Adjustment



- 9** Perform the test print again for confirmation. Adjustment is completed if the position of cut line is satisfactory. If not, repeat the adjustment again.



Broken line is indicating the cut line

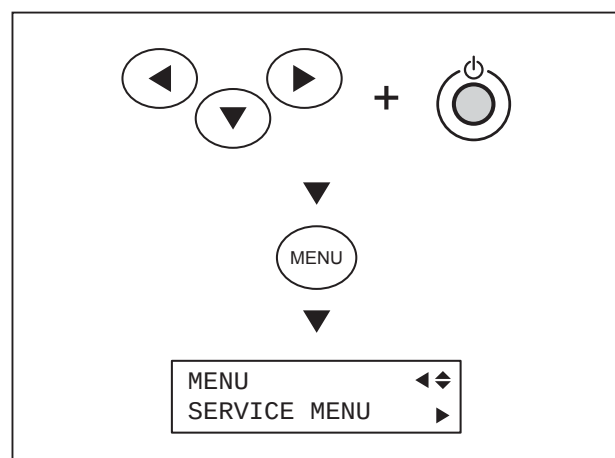
4-10 CALIBRATION (FEEDING DIRECTION) (Referential Time : 20 min.)

This adjustment is for calibrating the feed amount of media. It allows the media to be fed proper amount by calibrating the variation in Grit Roller diameter. Calibration is made based on the value in feeding media [PET-G]. Without proper calibration, it may cause misalignment in the feed amount of media, and it results in the problems such as white banding, banding of overlap or the dimension error of print result compared to the original data.

Take-up Unit must not be used during this adjustment.

- 1 Turn on the Sub Power SW while pressing [◀], [▼] and [▶] keys to enter the Service Mode.

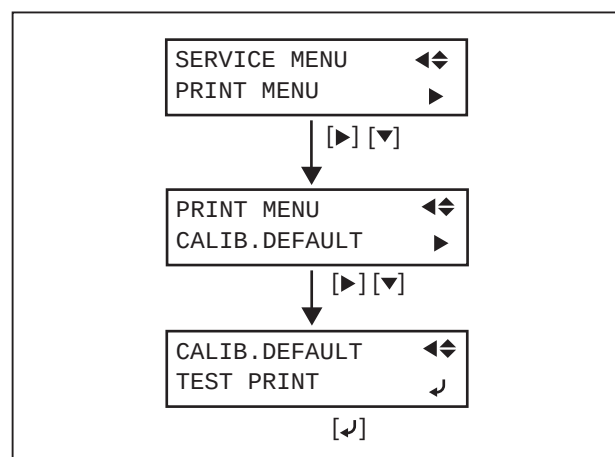
Setup the PET-G on the machine.



- 2 Select [PRINT MENU]>[CALIB.DEFAULT]>[TEST PRINT], and press [ENTER] key.
Test Pattern will be printed.



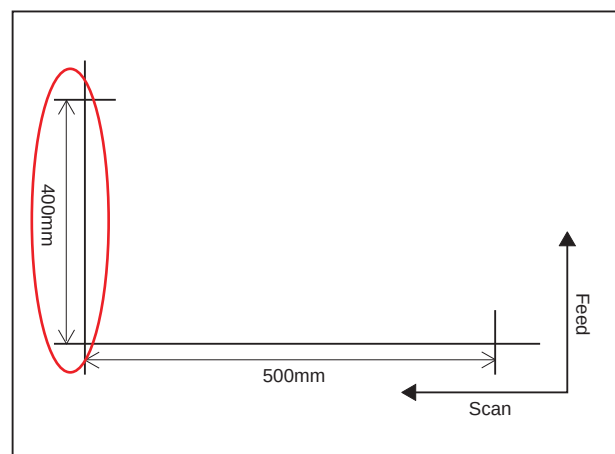
Test print requires 510mm or more of the media setup width.



- 3 Measure the length of the feed direction and use the value to calculate the calibration amount with the formula shown at 4.



Test pattern is always printed with offset 0.00%. Even if a correction is made in the [SETTING] menu, the test pattern is not changed.



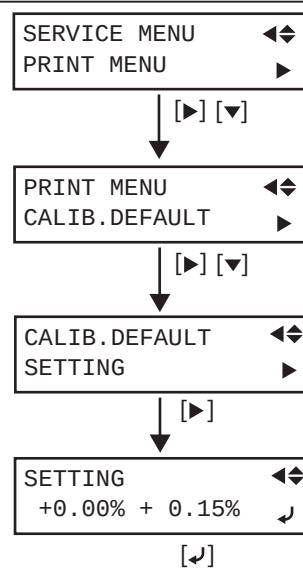
- 4** Calculate the amount to be calibrated with the formula as shown in the figure.

$$\text{Calibration Value} = \frac{400 - \frac{\text{Measured Length}}{\text{Measured Length}}}{\text{Measured Length}} \times 100$$

- 5** Select [PRINT MENU]>[CALIB.DEFAULT]>[SETTING], and enter the calibration value with [▲] and [▼] keys. Press [ENTER] key to save the setting.

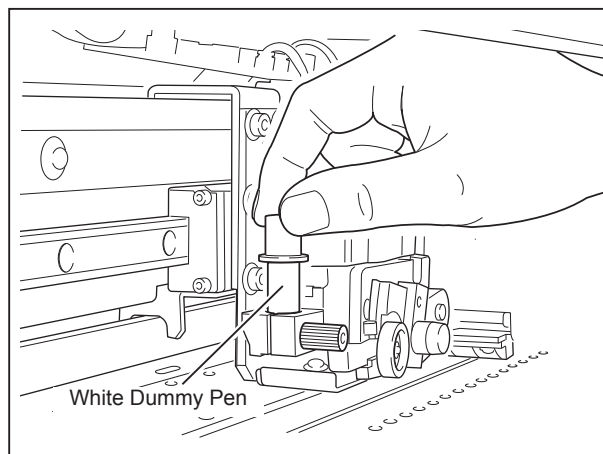


Parameters can be entered with an increment of 0.01%.
(MAX. +2.00% to MIN. -2.00%)

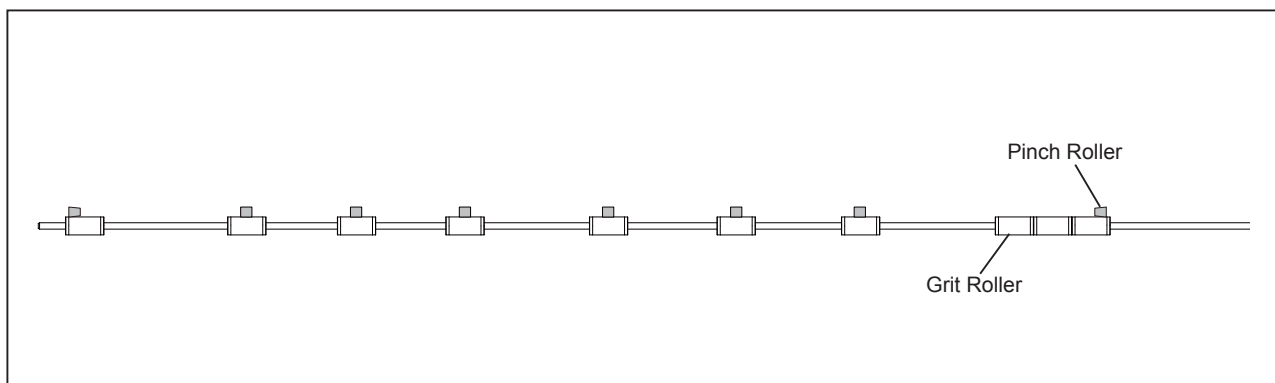


4-11 TOOL HEIGHT ADJUSTMENT (Referential Time : 5min.)

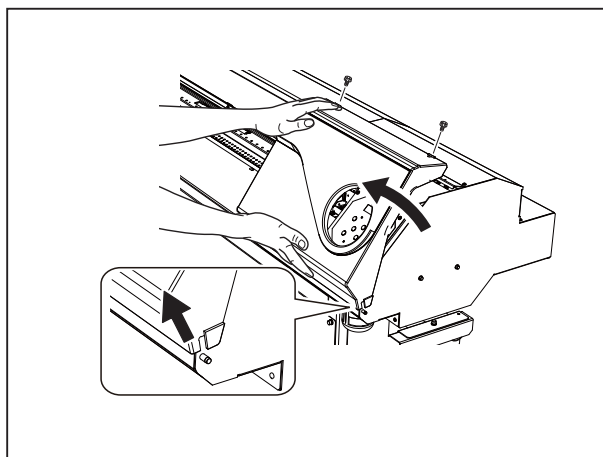
- 1** Install the White Dummy Pen (ST-006) to the Tool Carriage.



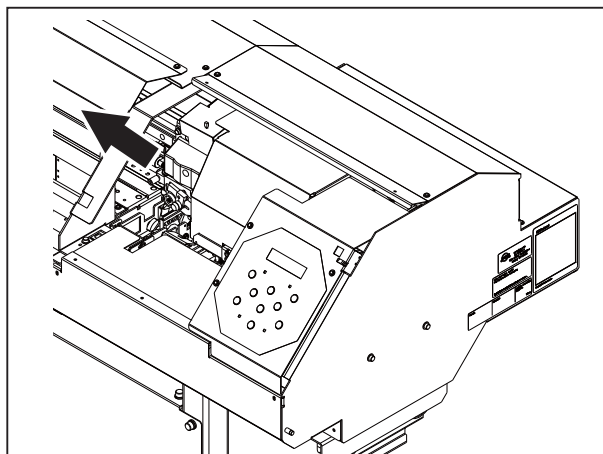
- 2** Position the Pinch Rollers as shown in the figure, and lower the loading lever.



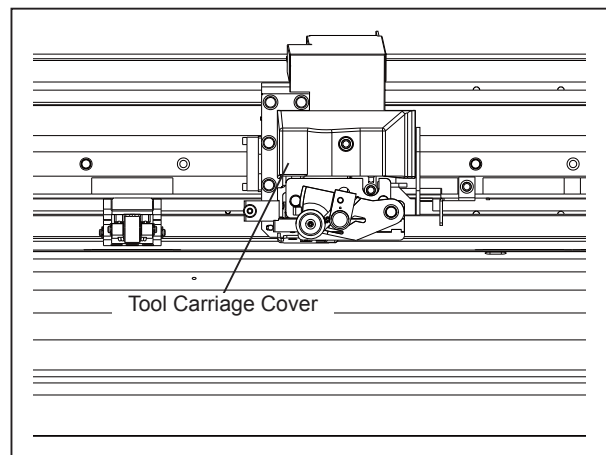
- 3** Remove the Right Cover.



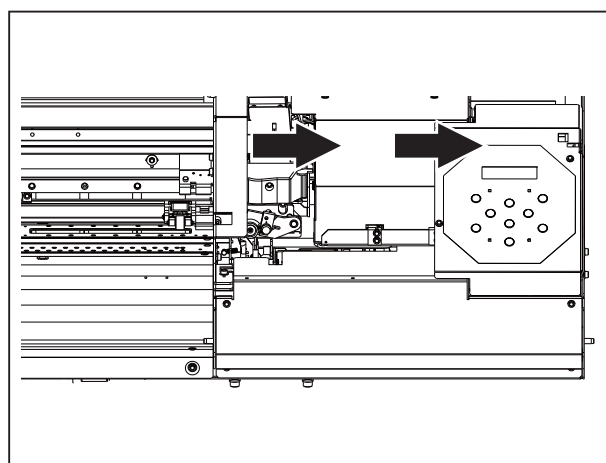
- 4** Disconnect the Tool Carriage from the Head Carriage.



- 5** Remove the Tool Carriage Cover.

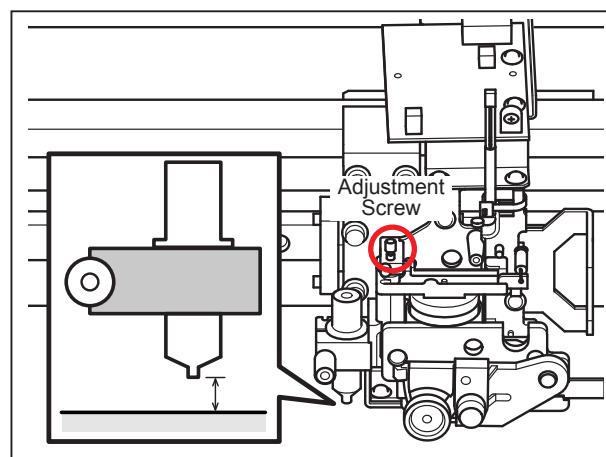


- 6** Connect the Tool Carriage to the Head Carriage.
Lock the Head Carriage.
And move the Tool Carriage to the right side of the bed.



- 7** Turn the Adjustment Screw to adjust the space between the pen end and bed to be 2.5 mm to 2.6 mm.

Perform [4-12 TOOL PRESSURE ADJUSTMENT].

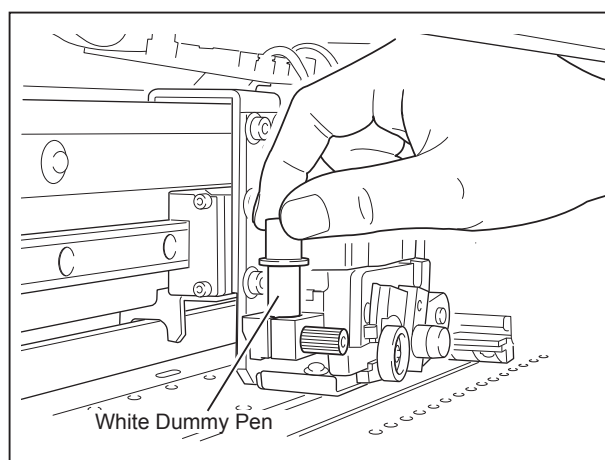


4-12 TOOL PRESSURE ADJUSTMENT (Referential Time : 15min)

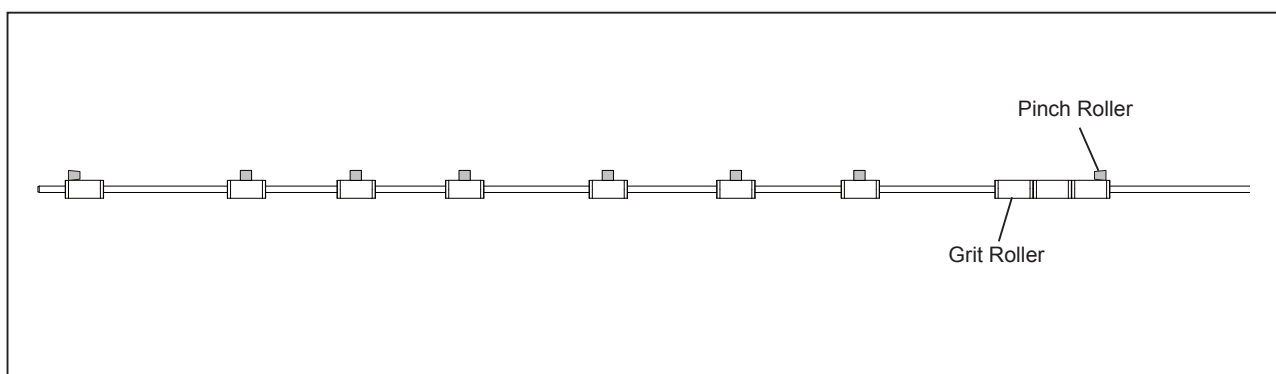
This adjustment is to correct the tool pressure during cutting.

Before this adjustment, it is necessary to perform [4-11 TOOL HEIGHT ADJUSTMENT].

- 1** Install the White Dummy Pen (ST-006) to the Tool Carriage.

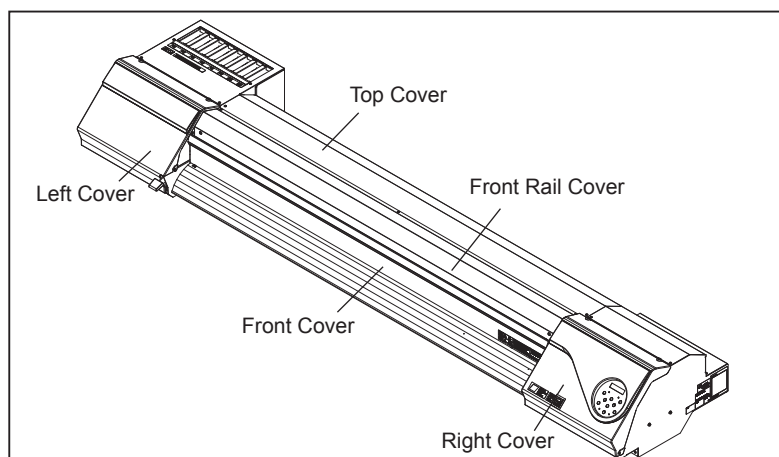


- 2** Move the Pinch Rollers at the positions as shown in the figure, and lower them.

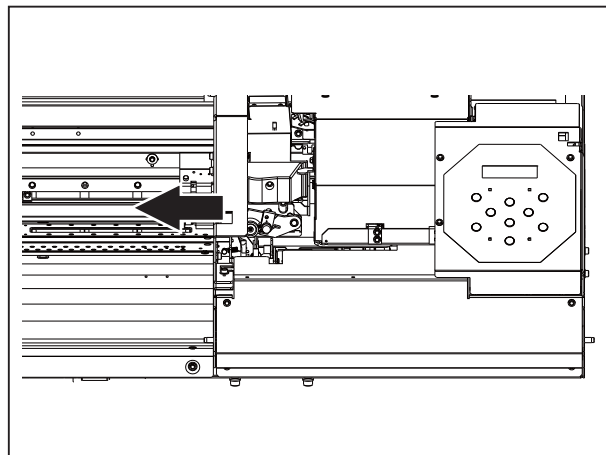


- 3** Remove the Covers in order.

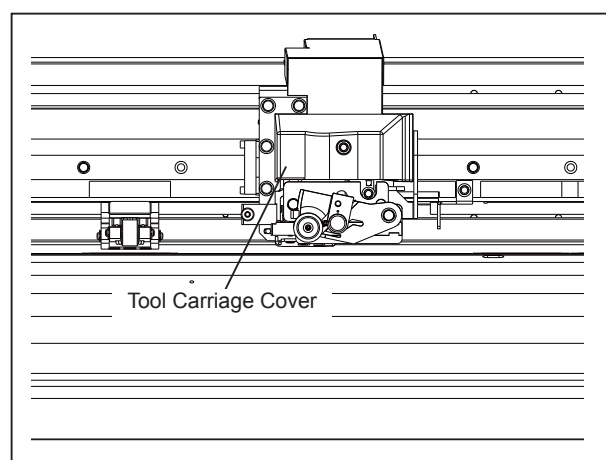
1. Right Cover
2. Left Cover
3. Front Cover
4. Front Rail Cover
5. Top Cover



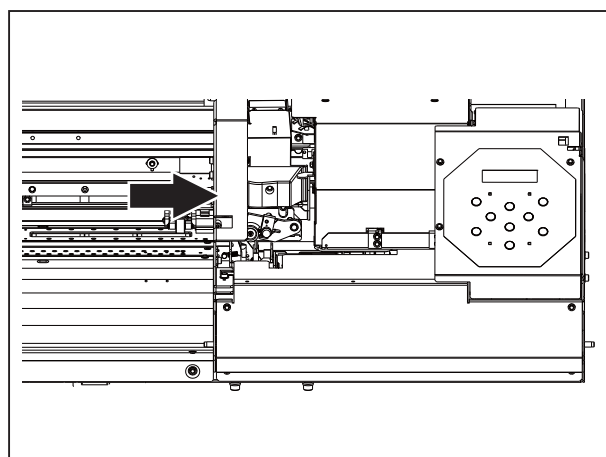
- 4** Disconnect the Tool Carriage from the Head Carriage.



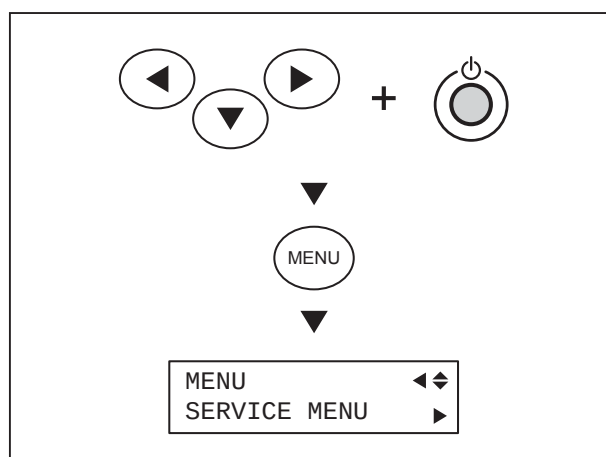
- 5** Remove the Tool Carriage Cover.



- 6** Connect the Tool Carriage to the Head Carriage.
Lock the Head Carriage.
And move the Tool Carriage to the right side of the bed.



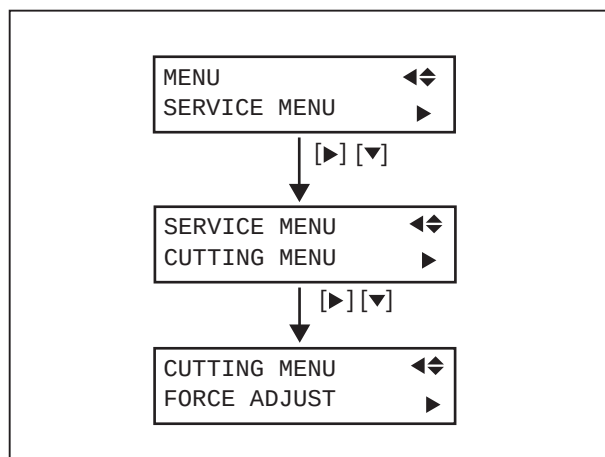
- 7** Turn on the Sub Power SW while pressing [◀], [▼] and [▶] keys to enter the Service Mode.



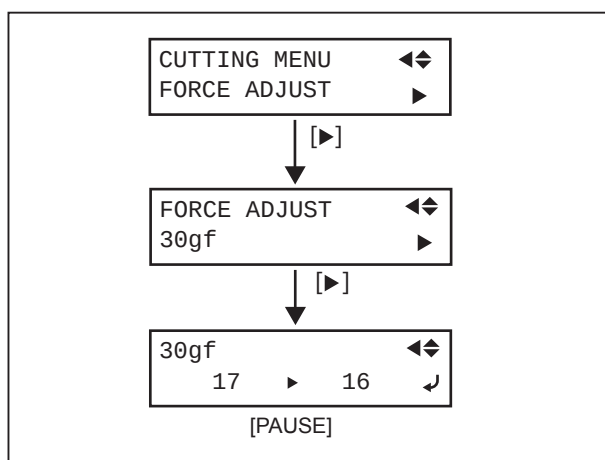
8 Select [CUTTING MENU]>[FORCE ADJUST].



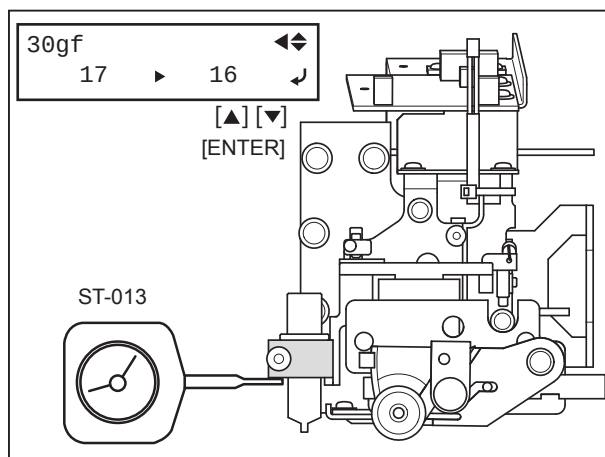
Only the Tool Carriage can be moved in [FORCE ADJUST] menu.



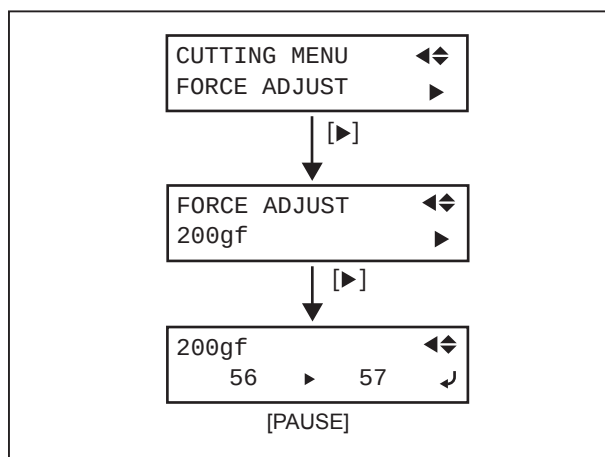
9 Select [FORCE ADJUST]>[30gf], and press [PAUSE] key to move the Tool Carriage down.



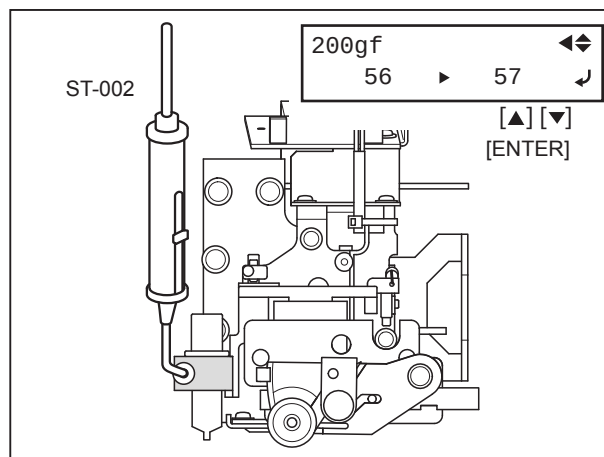
10 Lift up the Tool Holder with the Dial Gauge (ST-013) and measure the pressure when the pen tip leaves the bed. Adjust the parameter in [30gf] menu with [▲] and [▼] keys for the pressure to be 25 to 35gf (0.25N to 0.35N). Press [ENTER] key to save the settings.



11 Select [FORCE ADJUST]>[200gf], and press [PAUSE] key to move the Tool Carriage down.

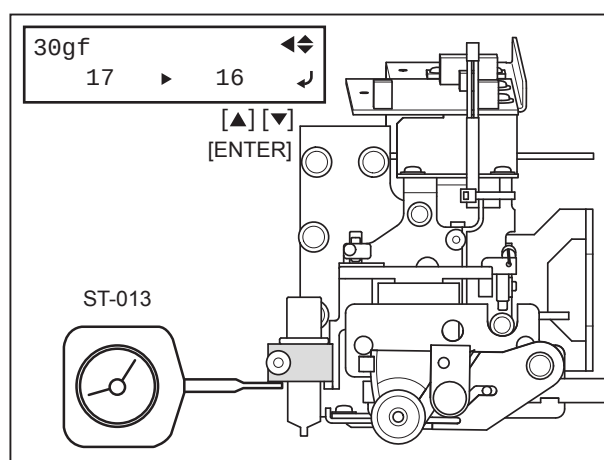


- 12** Lift up the Tool Holder with the Tension Gauge (ST-002) and measure the pressure when the pen tip leaves the bed.
Adjust the parameter in [200gf] menu with [▲] and [▼] keys for the pressure to be 195 to 205gf (1.9N to 2.0N).
Press [ENTER] key to save the settings.



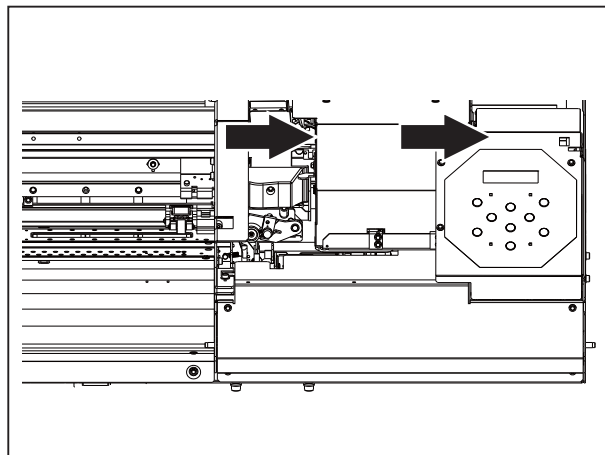
- 13** Select [30gf] menu under [FORCE ADJUST] menu.
Confirm that the force is 25 to 35gf (0.25N to 0.35N) when the tip of the pen leaves the bed by lifting the Tool Holder with the Dial Tension Meter (ST-013).

If the value of the force is not proper, repeat the adjustment again.



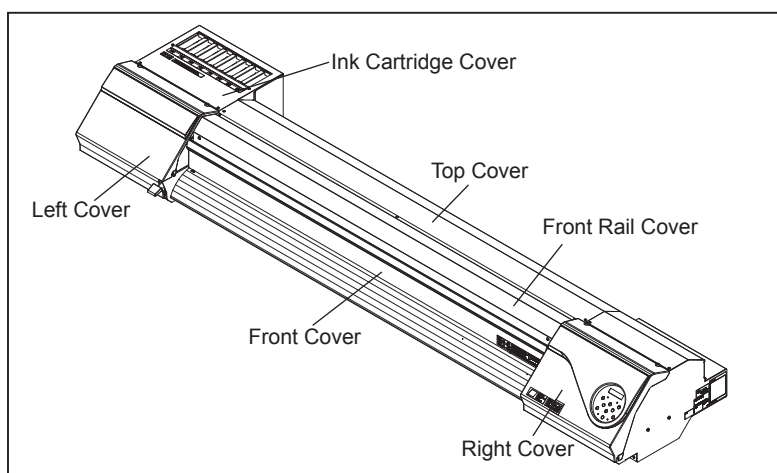
4-13 BELT TENSION ADJUSTMENT (Referential Time : 20min.)

- 1** Connect the Tool Carriage to the Head Carriage and move them to the right in the lock position.



- 2** Remove the Covers in order.

1. Right Cover
2. Left Cover
3. Front Cover
4. Front Rail Cover
5. Top Cover
6. Ink Cartridge Cover



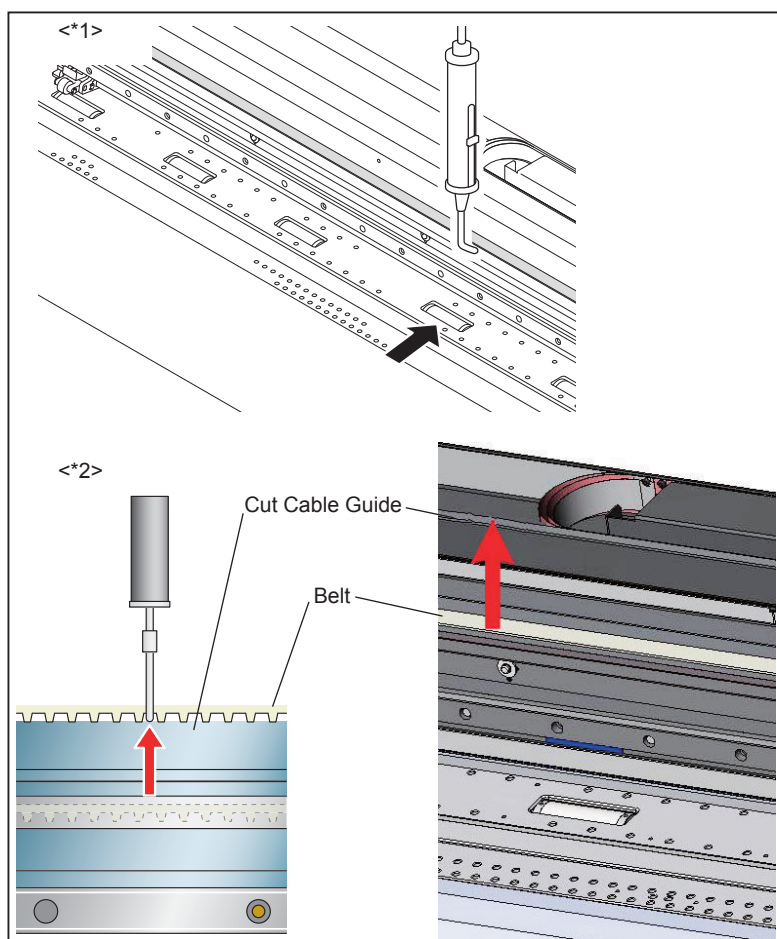
- 3** Measure the tension of the belt at the position above the center of the fourth Grit Roller from the left using Tension Gauge (ST-001)(*1).

Pull up the belt until its inside comes to the top surface of the Cut Cable Guide when you see it from the machine front(*2). The tension is proper if the measured value is 0.62kgf - 0.71kgf.

If the tension is improper, move on to the next step and adjust the belt tension.

<The Belt Tension Measurement Position and Measured Value>

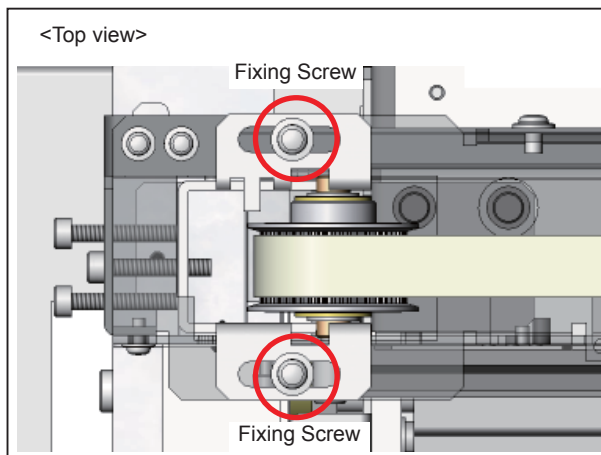
Model	Position of the Grit Roller	Measured Value
VS-640	The fifth from the left	0.62kgf to 0.71kgf
VS-540	The fourth from the left	0.82kgf to 0.90kgf
VS-420	The third from the left	0.74kgf to 0.85kgf
VS-300	Between the second and the third Grit Roller from the left	1.25kgf to 1.40kgf



- 4** Loosen the two Fixing Screws which is located on the left end of the belt halfway round.



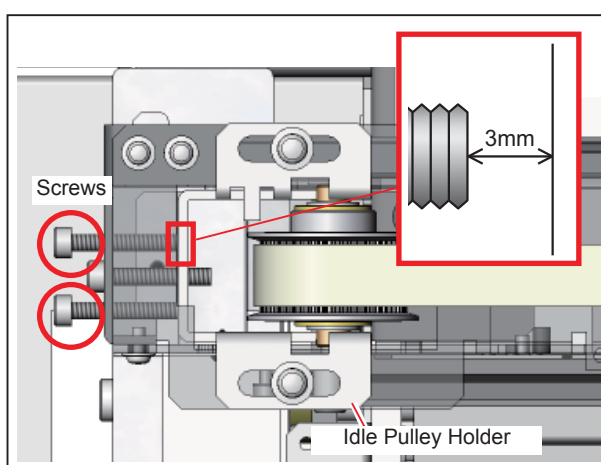
Be careful with the sharp edges around the belt when loosening the screws. It may cause injury.



- 5** Insert a wrench through the holes on the Side Frame and loosen the two screws to make a gap of three millimeters between the tip of the screw and Idle Pulley Holder. (The belt tension cannot be adjusted higher when the screw contacts with Idle Pulley Holder.)



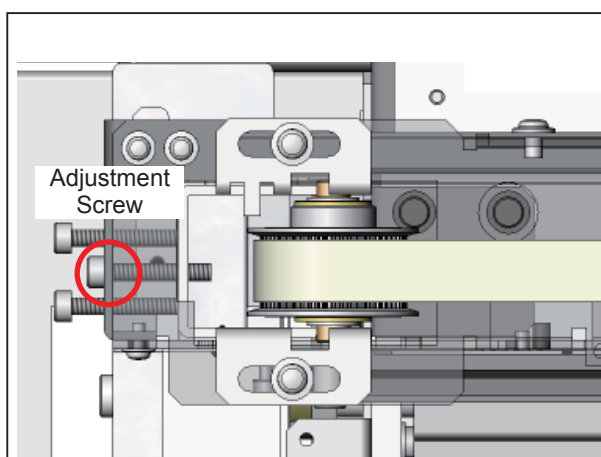
The gap between the screws and Idle Pulley can be seen from both front side and rear side of the machine.



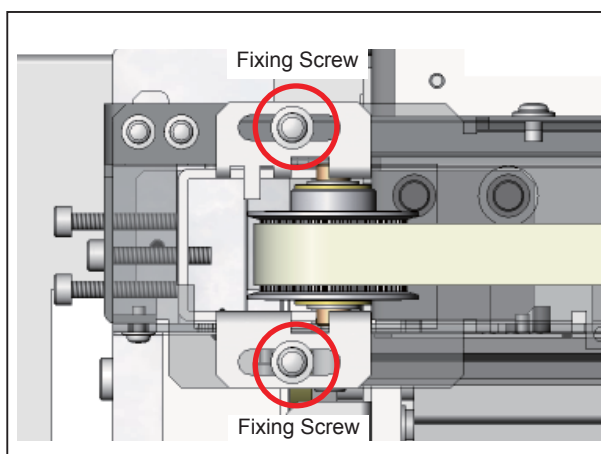
- 6** Turn the Adjustment Screw as shown in the figure to adjust the value of the tension gauge within acceptable range referring to [3].



Turn the screw CW: Tension is increased
Turn the screw CCW: Tension is decreased



- 7** Tighten the two Fixing Screws shown in the figure, and again confirm that the tension is within the proper value.

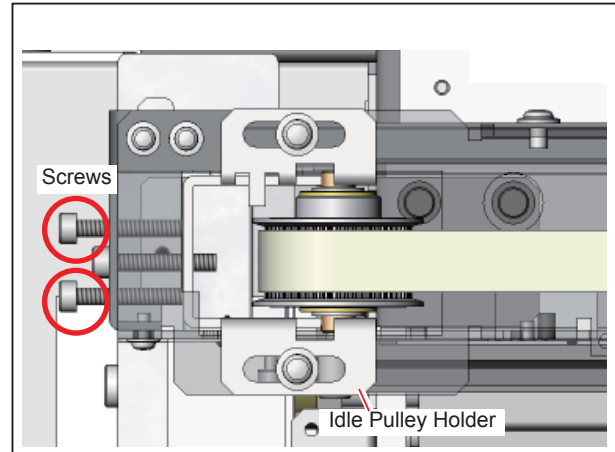


- 8** Tighten the two screws shown in the figure to slightly contact with Idle Pulley Holder.

Move on to [4-14 BELT POSITION ADJUSTMENT].



Make sure not to tighten the screws too tight.
It may move the fixed Idle Pulley Holder accidentally.

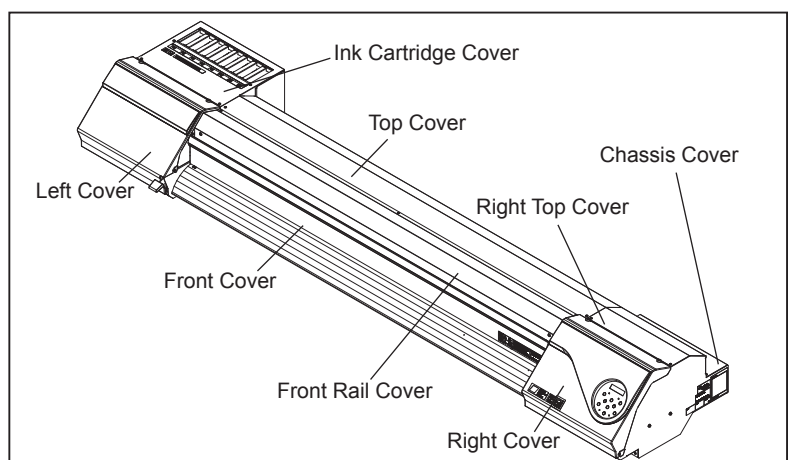


4-14 BELT POSITION ADJUSTMENT (Referential Time : 30min.)

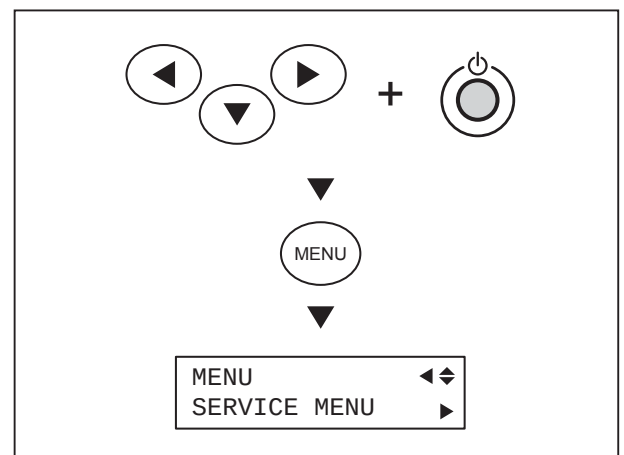
This adjustment is to prevent the belt wear which is caused by the belt contacting with the pulley Flanges excessively. The belt position needs to be confirmed after the Belt Tension Adjustment and adjusted if it is necessary.

1 Remove the Covers in order.

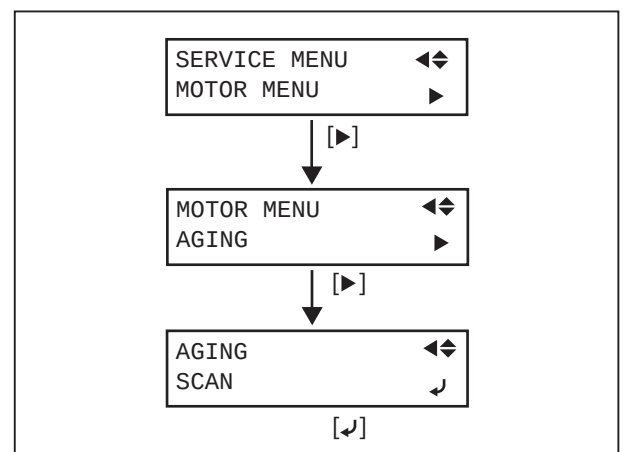
1. Right Cover
2. Left Cover
3. Front Cover
4. Front Rail Cover
5. Top Cover
6. Right Top Cover
7. Chassis Cover
8. Ink Cartridge Cover



2 Turn on the Sub Power SW while pressing [◀], [▼] and [▶] keys to enter the Service Mode.



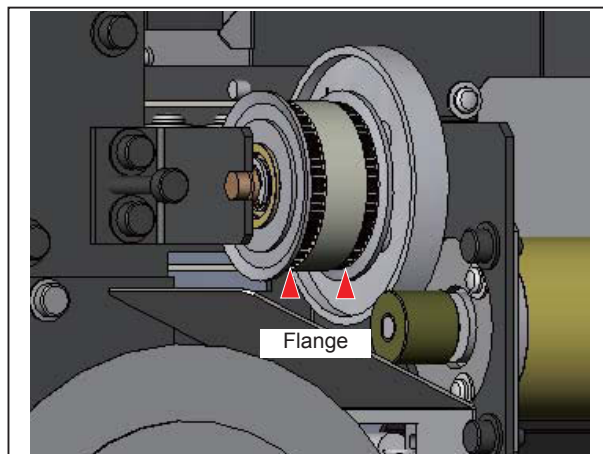
3 [ADJUSTMENT ON THE DRIVE PULLEY SIDE] Perform the Aging test for the belt. Select [MOTOR MENU]>[AGING]>[SCAN], and press [ENTER] key.



- 4** Confirm the belt position.
The position is proper when the belt is not touching the Flanges of the Drive Pulley excessively. When the position is proper, skip this adjustment and go to [ADJUSTMENT ON THE IDLE PULLEY SIDE] described in the later step of this adjustment leaving the belt aging on. When the position is improper, make adjustment as follows.



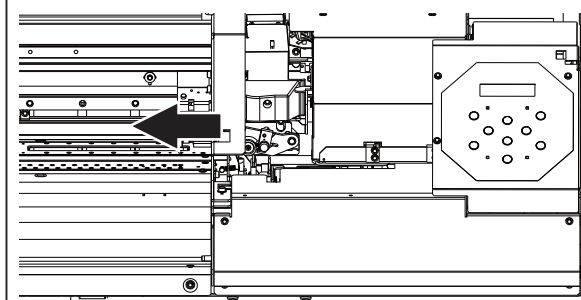
Belt partly touching the Flange is acceptable.



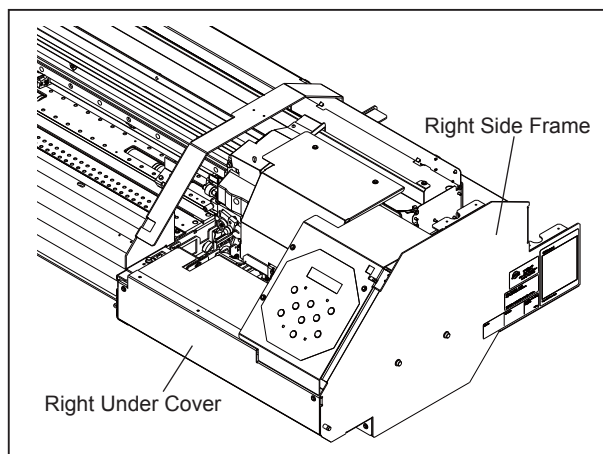
- 5** Press [ENTER] key to cancel Aging.

SCAN 
NOW AGING 
[↵]

- 6** Release the Head Carriage and move it to the left by hands.



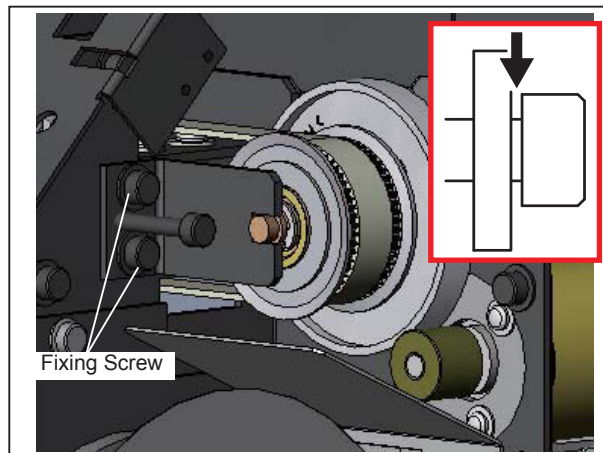
- 7** Remove the Right Under Cover and Right Side Frame.



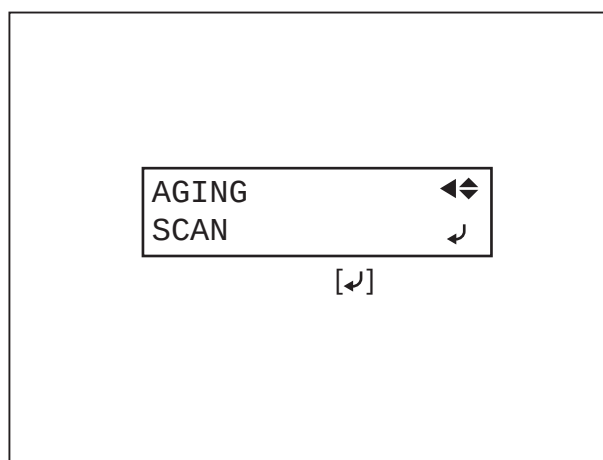
- 8** Loosen the two Fixing Screws located on the right end of the belt.



Loosen the screws about a few rounds for the bottom of the screw head not to contact with the Stay.



- 9** Press [ENTER] key to restart Aging.

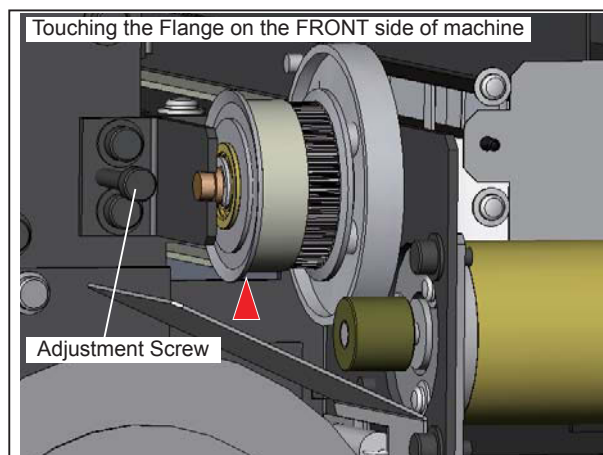


- 10** Adjust the belt position turning the Adjustment Screw as follows.

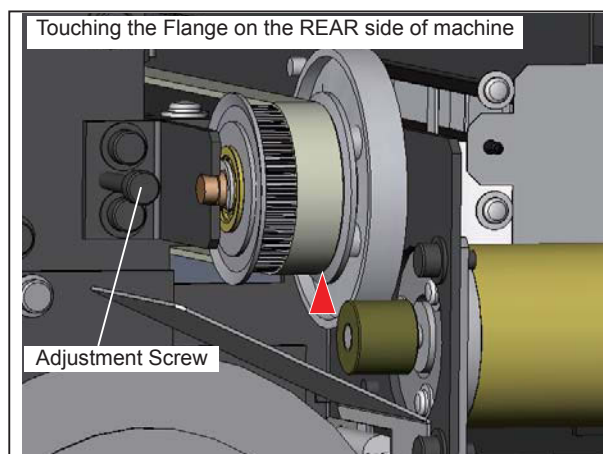
Belt leans to the front side of the machine
-Turn the screw carefully in CW (loosening).



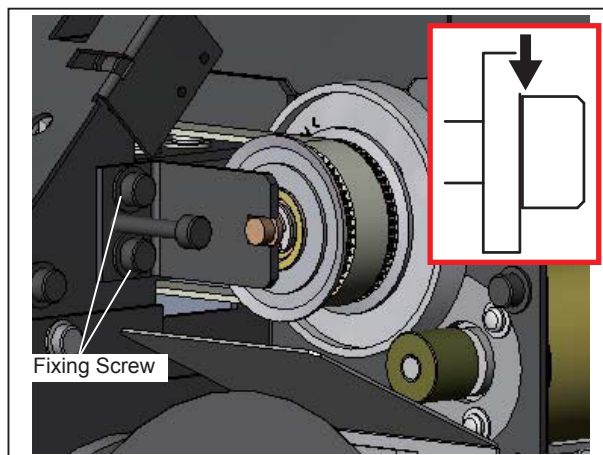
The work space is narrow. Be careful and try not to touch the driving pulley and belt.



Belt leans to the rear side of the machine
-Turn the screw carefully in CCW (tightening).



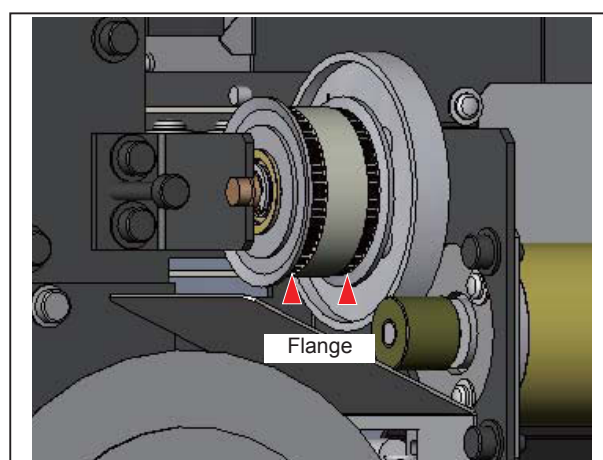
- 11** Tighten the two Fixing Screws for the bottom of the screw head to slightly contact with the Stay.



- 12** Confirm that the belt is not touching the pulley angles excessively.

When the belt is in improper position, adjust it again.

When it is proper, leave the belt aging on, and go to the following [ADJUSTMENT ON THE IDLE PULLEY SIDE].



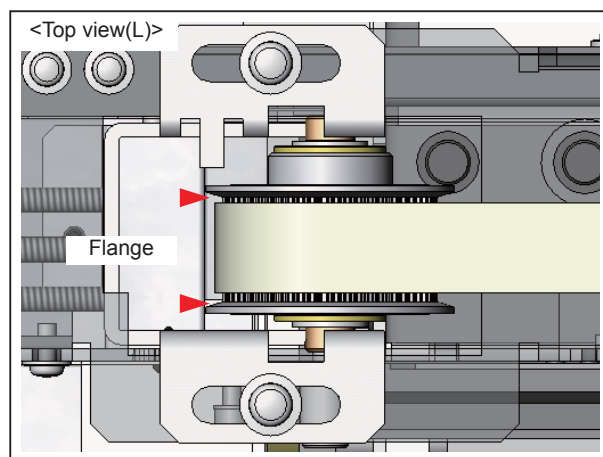
13 [ADJUSTMENT ON THE IDLE PULLEY SIDE]

Confirm the position of the belt.

The position is proper when the belt is not touching the Flanges excessively. When the position is proper, close this BELT POSITION ADJUSTMENT. When it is improper, make adjustment as follows.



Belt partly touching the Flange is acceptable.



- 14** Press [ENTER] key to cancel Aging.

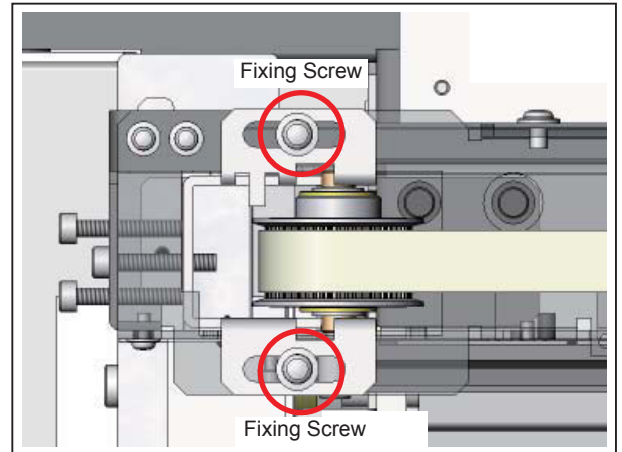
SCAN ◀▶
NOW AGING ↩

[↵]

- 15** Loosen the two Fixing Screws located at the left end of the belt eighth to quarter round.



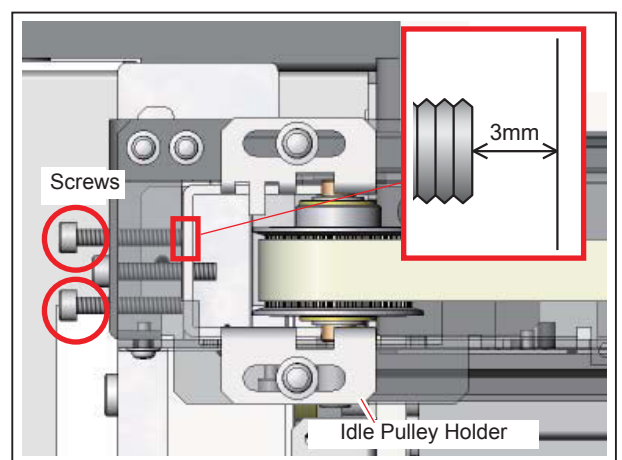
When the screw is loosen more than necessary, it gives difficulty in adjusting the belt. Also, you need to be careful with the sharp edges around it when turning the screws. It may cause injury.



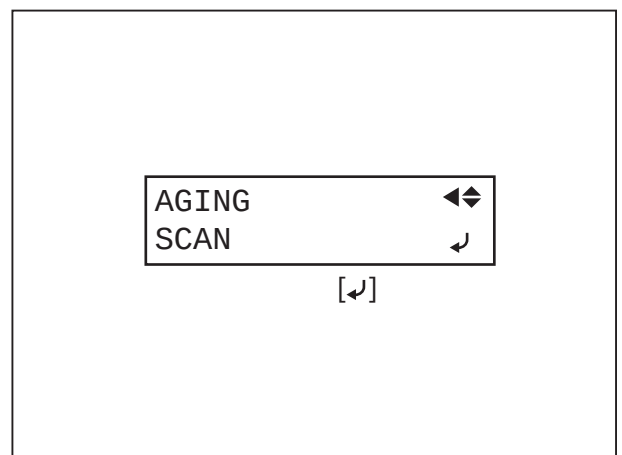
- 16** Insert a wrench through the holes on the Side Frame and loosen the two screws to make a gap of three millimeters between the tip of the screw and Idle Pulley Holder.



The gap between the screws and Idle Pulley can be seen from both front side and rear side of the machine



- 17** Press [ENTER] key to restart Aging.

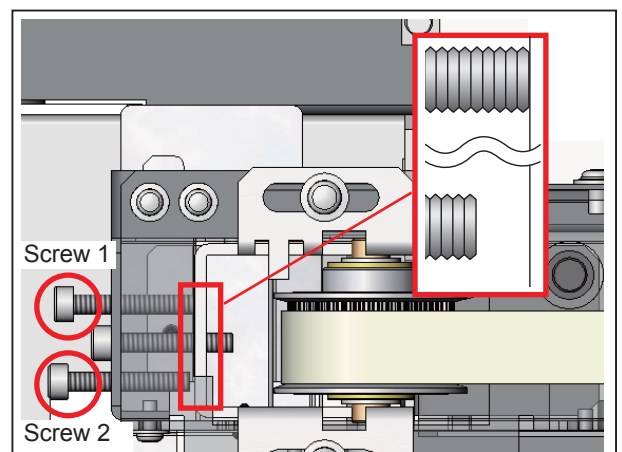


- 18** Insert a wrench through the holes on the Side Frame and adjust the belt position turning the screw 1 and 2 as follows.

Belt leans to the front side of the machine

-Turn the screw 1 carefully in CW to press it to the Idle Pulley Holder.

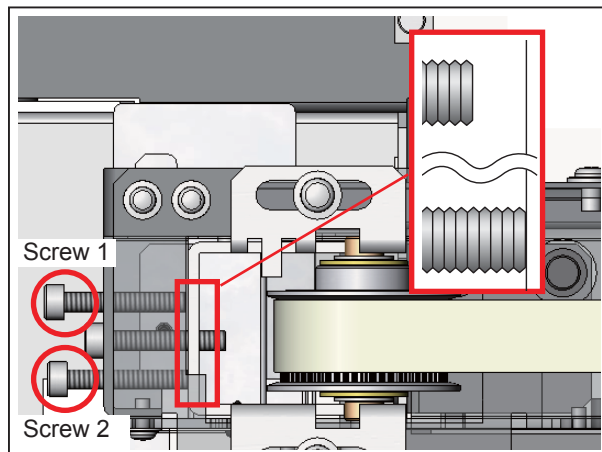
* Make sure to have a gap of three millimeters between the screw 2 and Idle Pulley Holder when turning the screw 1.



Belt leans to the rear side of the machine

-Turn the screw 2 carefully in CW to press it to the Idle Pulley Holder.

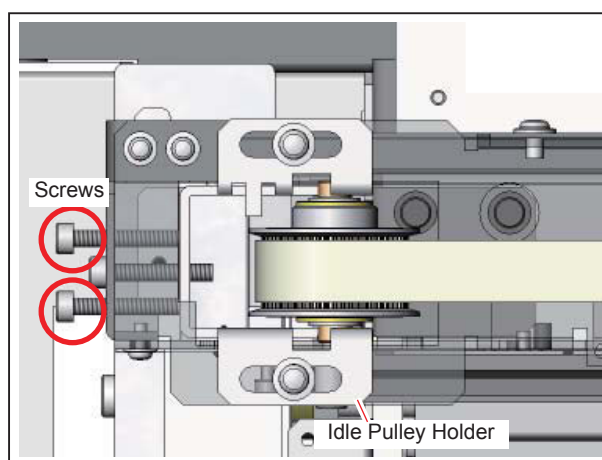
* Make sure to have a gap of three millimeters between the screw 1 and Idle Pulley Holder when turning the screw 2.



- 19** Tighten one of the screws that has no contact with the Idle Pulley Holder to slightly touch the Idle Pulley Holder.



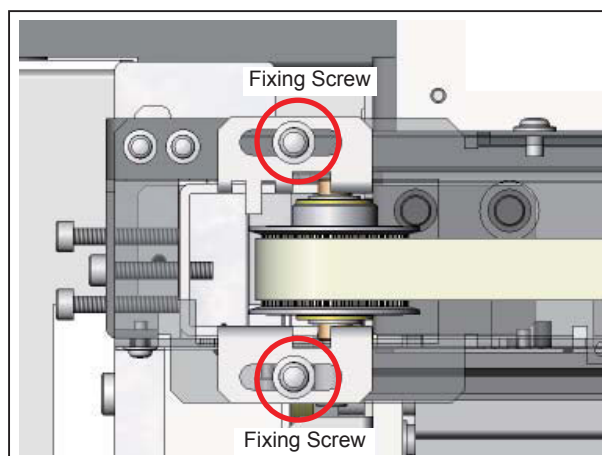
Make sure not to tighten the screws too tight. It may move the Idle Pulley Holder accidentally.



- 20** Tighten the two fixing screws as shown in the figure.



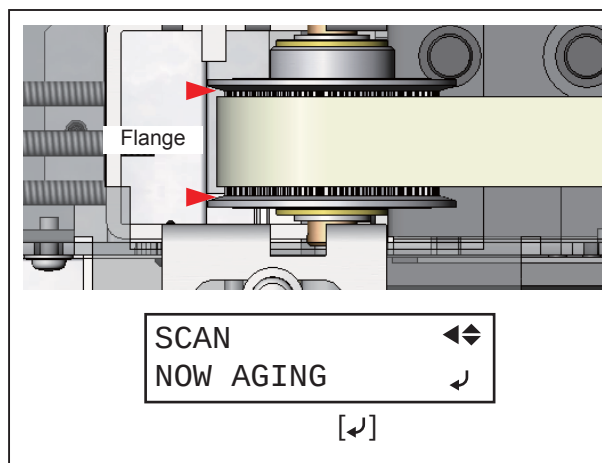
Be careful with the moving Carriages during the work, and also with the sharp edges of the mechanical parts around it.



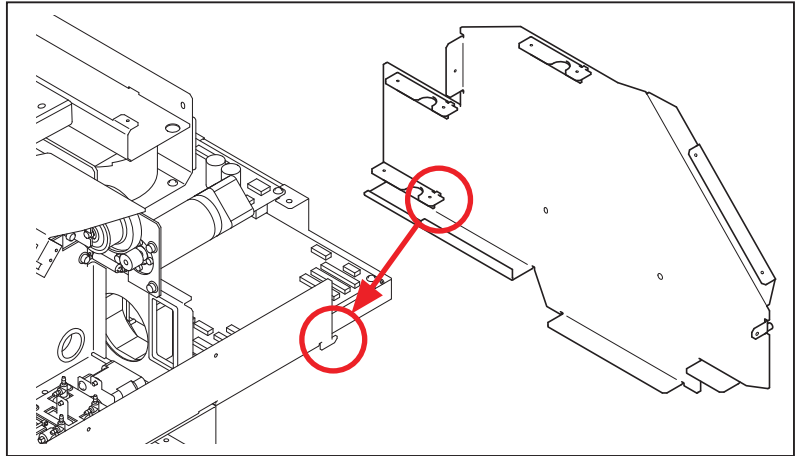
- 21** Confirm that the belt is not touching the Pulley Flanges excessively.

When the belt is in improper position, adjust it again.

When it is proper, press [ENTER] key to cancel Aging.



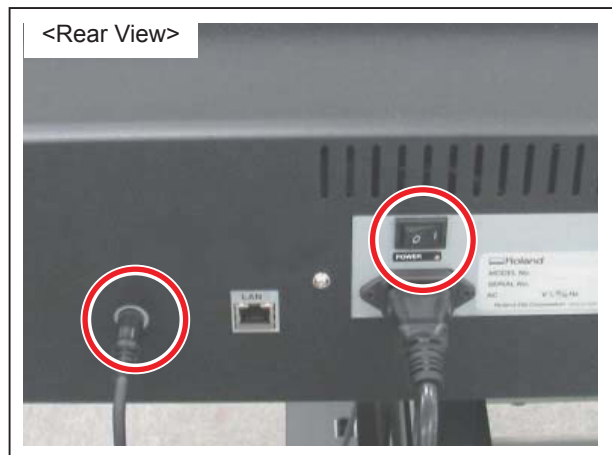
- 22** Fix the Right Side Frame by sliding it from behind to hook the tab as shown in the figure.



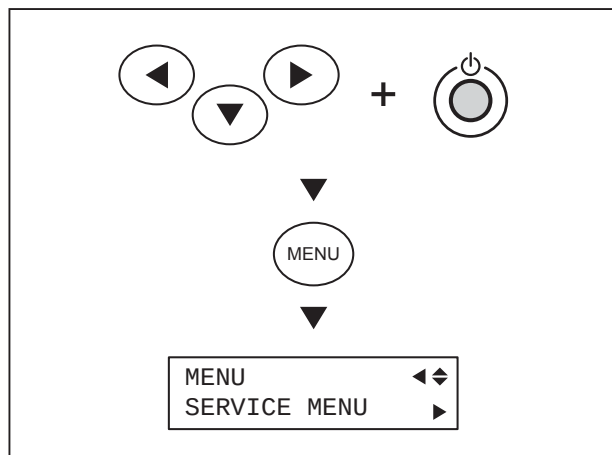
4-15 TAKE-UP UNIT OPERATION CHECK (Referential Time : 2min.)

This is to check whether Take-up Unit operates properly.

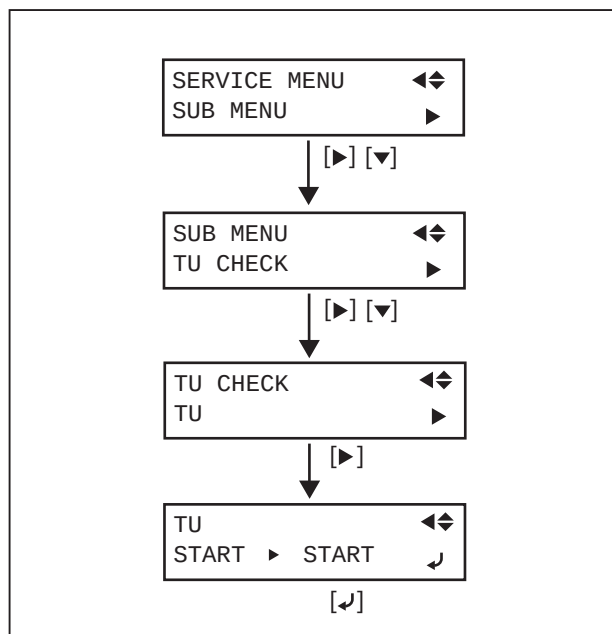
- 1 Confirm that the cable of Take-up Unit is connected to the connector and turn on the Main Power SW.



- 2 Turn on the Sub Power SW while pressing [◀], [▼] and [▶] keys to enter the Service Mode.



- 3 Select [SUB MENU]>[TU CHECK]>[TU].



- 4 Confirm that [START] is selected, and press [ENTER] key to turn on the Take-up Unit.

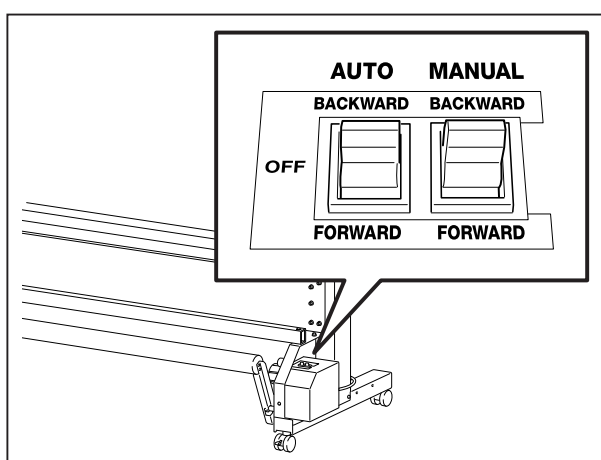


[START] or [STOP] can be selected with [▲] and [▼] keys.
The current setting is displayed on the left and the new setting is displayed on the right.



[↵]

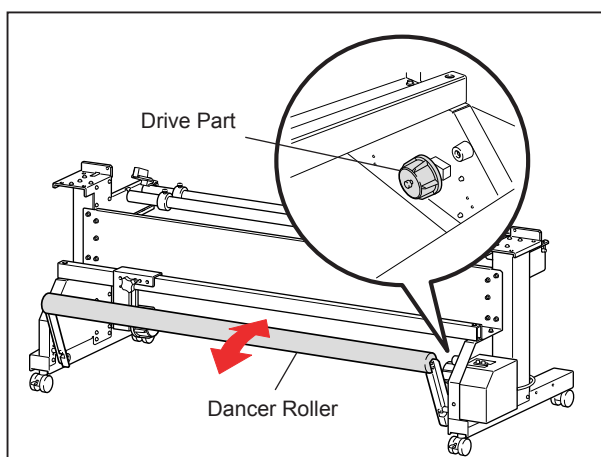
- 5 Set [AUTO] switch of the Take-up Unit to either [FORWARD] or [BACKWARD].



- 6 Move the Dancer Roller up and down by hand, and confirm that the drive part rotates.



The operation status of Take-up Unit can be confirmed also on the LCD. [*] is displayed on the right side of upper LCD while driving, and not displayed while not driving.



- 7 Select [STOP] with [▲] and [▼] keys, and press [ENTER] key.

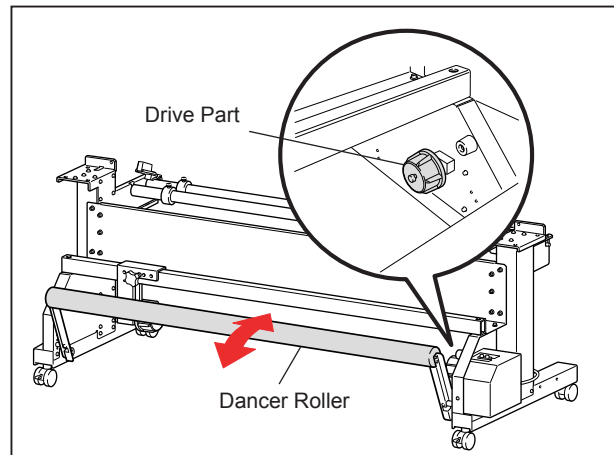


[↵]

- 8** Move the Dancer Roller up and down by hand, and confirm that the drive part does not rotate.



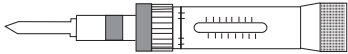
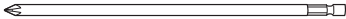
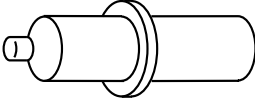
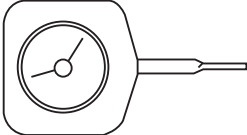
The setting of [STOP] is canceled when exiting the menu. The initial setting is [START] every time entering [TU] menu.



5 Supplemental Information

5-1 Special Tools

Table shows a list of special tools recommended by Roland DG Corp.

Parts No.	ST-056	
Parts Name	TORQUE DRIVER N6	
Purpose	HEAD ALIGNMENT	
Parts No.	1000005463	
Parts Name	TOOL,BIT PHILLIPS NO.1 L150MM ST-107	
Purpose	HEAD ALIGNMENT	
Parts No.	1000006902	
Parts Name	TOOL,BIT HEXAGONAL ST-118	
Purpose	HEAD REPLACEMENT	
Parts No.	ST-002	
Parts Name	TENSION GAUGE 300GF/300CN	
Purpose	TOOL PRESSURE ADJUSTMENT	
Parts No.	ST-006	
Parts Name	WHITE DUMMY PEN	
Purpose	TOOL HEIGHT ADJUSTMENT TOOL PRESSURE ADJUSTMENT	
Parts No.	ST-013	
Parts Name	DIAL TENSION METER DT-100	
Purpose	TOOL PRESSURE ADJUSTMENT	
Parts No.	ST-001	
Parts Name	TENSION GAUGE 2000GF/2000CN	
Purpose	BELT TENSION ADJUSTMENT	
Parts No.	ST-037	
Parts Name	CLEANING STICK TX712A	
Purpose	HEAD CLEANING	
Parts No.	21755107	
Parts Name	CLEANING LIQUID(SL) 500ML	
Purpose	HEAD CLEANING (SOL)	
Parts No.	21755102	
Parts Name	CLEANING LIQUID,500ML CJ-70	
Purpose	HEAD CLEANING (PIG/DYE)	

5-2 SENSOR MAP

FRONT COVER SENSOR

It detects whether the Front Cover is opened or closed.

REAR PAPER SENSOR

It detects the rear edge of the media and also whether the media is loaded or not.

LIMIT SENSOR

It detects the limit position of the head carriage in the scan direction.

HEAD LOCK SENSOR

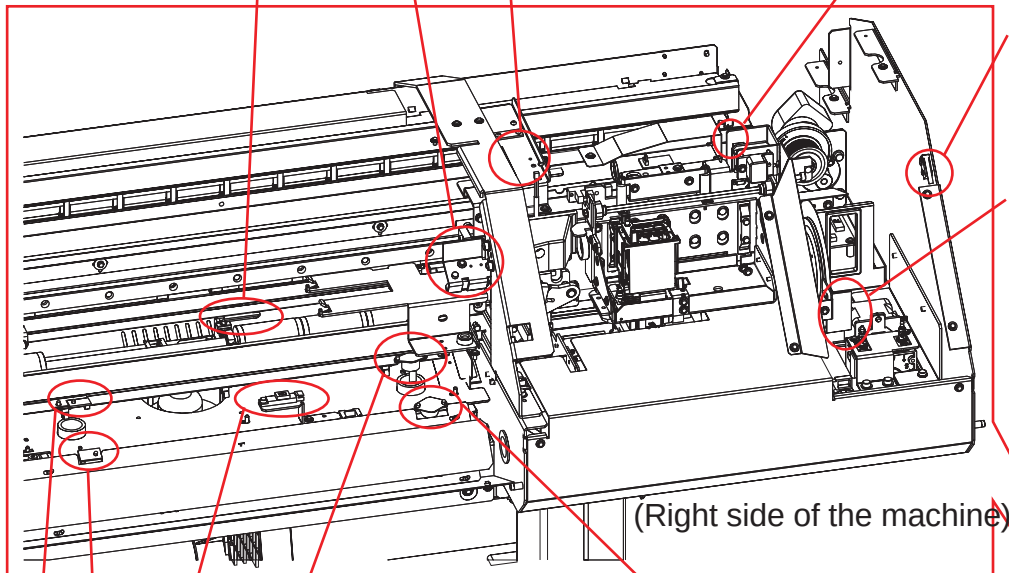
It detects whether the HEAD CARRIAGE is at the lock position or not.

RIGHT COVER SENSOR

It detects whether the Right Cover is opened or closed.

FEED ENCODER MODULE

It detects the rotation position of the Grit Roller.



THERMOSTAT (HEATER)

If the Heater exceeds the limit temperature, it stops the power supply.

THERMOSTAT (DRYER)

If the Dryer exceeds the limit temperature, it stops the power supply.

FRONT PAPER SENSOR

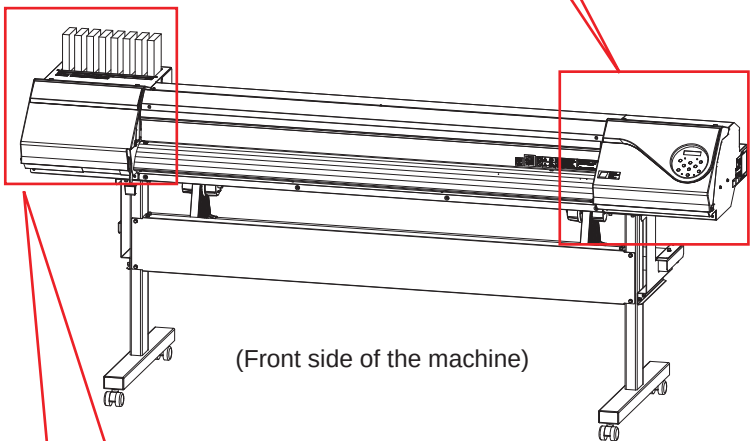
It detects the front edge of the media.

THERMISTOR(DRYER)

It takes the temperature of the Dryer.

THERMISTOR(HEATER)

It takes the temperature of the Heater.



LEFT COVER SENSOR

It detects whether the Left Cover is opened or closed.

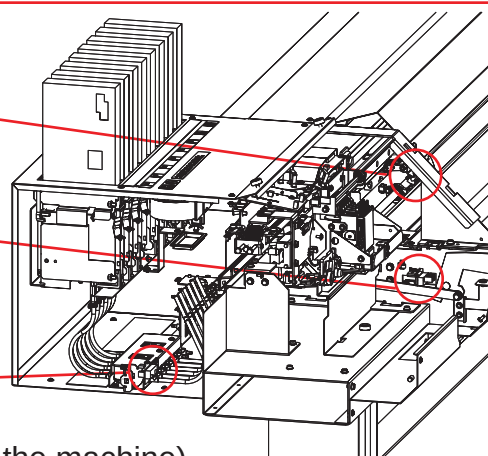
SHEET LOAD SENSOR

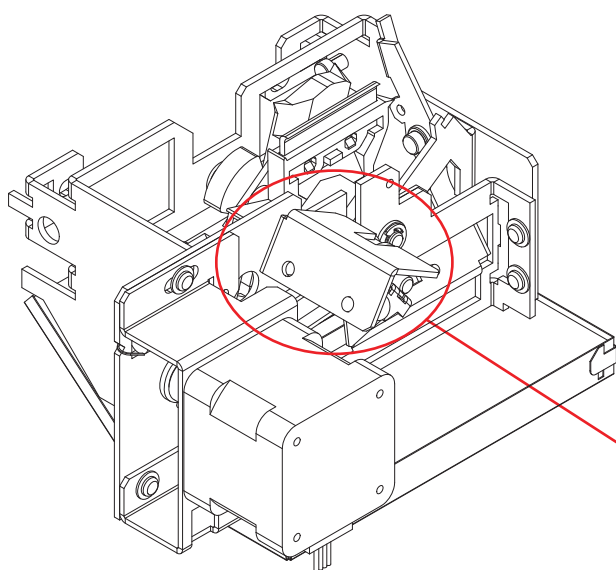
It detects whether the Sheet Loading Lever is UP or DOWN.

CHOKE VALVE SENSOR

It detects if the choke valve is closed or not.

(Left side of the machine)





WIPER SENSOR

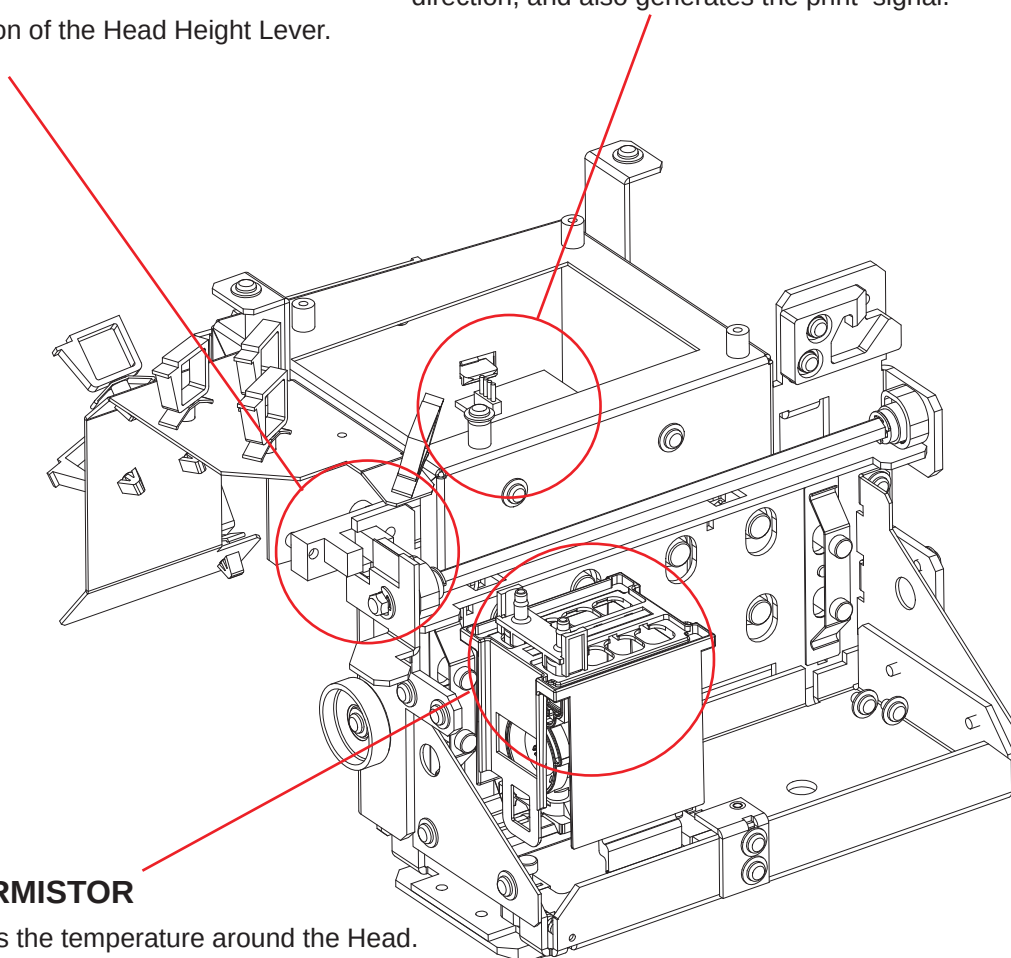
It detects the limit position of the Wiper movement.

HEAD UP/DOWN SENSOR

It detects the position of the Head Height Lever.

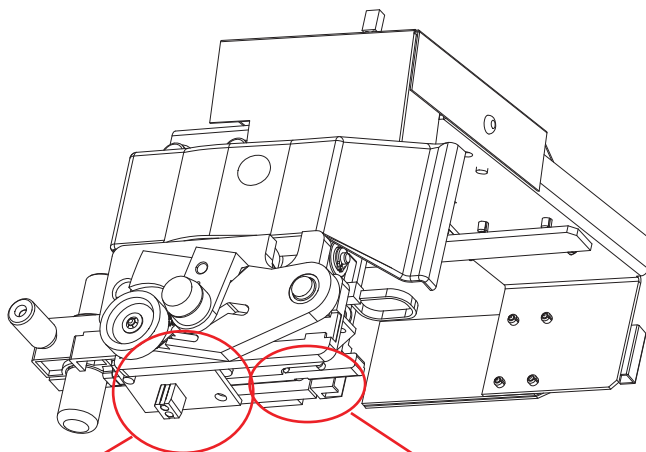
ENCODER MODULE

It detects the coordinates in the carriage moving direction, and also generates the print signal.



THERMISTOR

It takes the temperature around the Head.

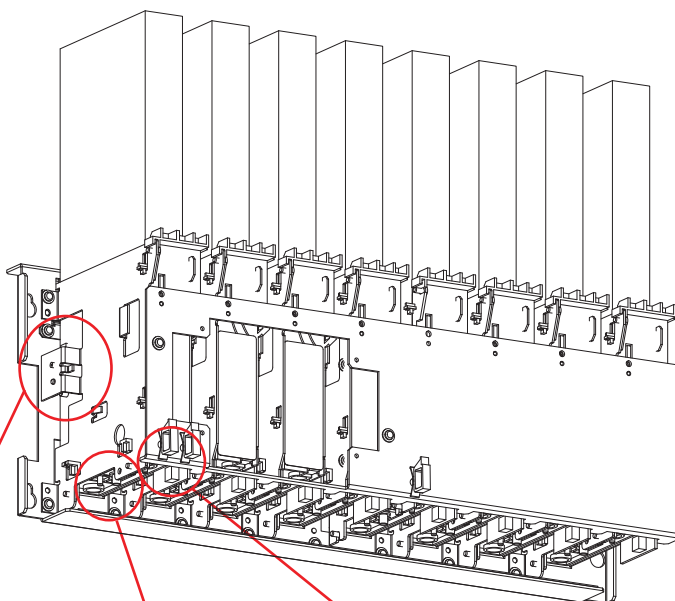


CROP MARK SENSOR

It detects the Crop Mark.

PINCH ROLLER SENSOR

It detects the positions of Pinch Roller.



INK EMPTY SENSOR

It detects whether the Ink Cartridge is empty or not.

INK CARTRIDGE IC SENSOR

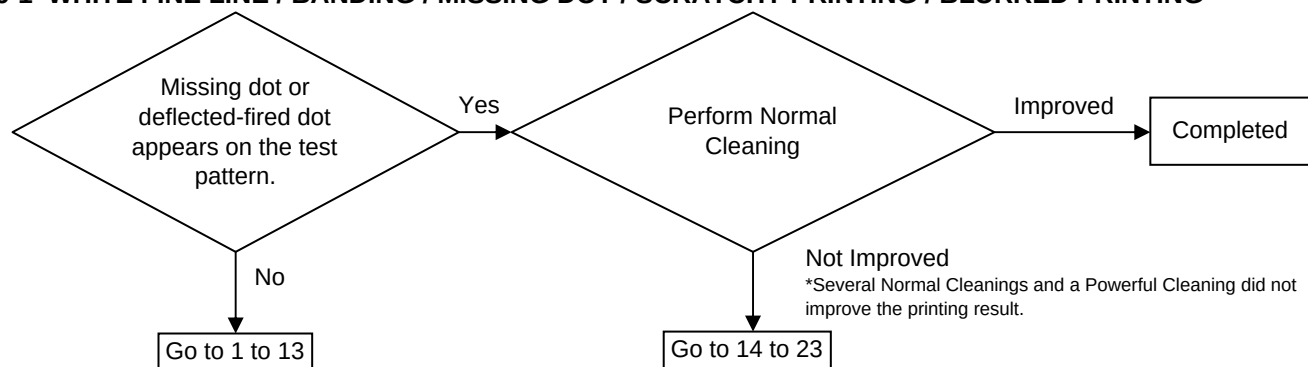
It communicates with the IC chip of the Ink Cartridge.

INK CARTRIDGE SENSOR

It detects whether the Ink Cartridge is installed or not.

6 Troubleshooting

6-1 WHITE FINE LINE / BANDING / MISSING DOT / SCRATCHY PRINTING / BLURRED PRINTING



NO	CHECK	ACTION	REFERENCE	OUTLINE
1	The machine is not installed in an appropriate location	Install in a location that is level and stable offering good operating conditions		Never install the machine in a location where it is tilted or where it may wobble or librate.
2	The media is not set up correctly	Load and set up the media at the correct position	User's Manual	Feed is not smooth when the media is tilted or tensioned unevenly on the left or right. Reload and set up the media correctly.
3	Temperature of the Print heater / Dryer is inappropriate	Set appropriate temperature	User's Manual	When the temperature of the print heater is too high and the ink dries too fast, it may result in banding because the dots stay small after landing on media. When the temperature of the print heater is too low and the ink dries too slow, it may result in black banding because the dots stay large and overlap each other after landing on media.
4	The media is not appropriate	Use other media		The substrate which stretches or shrinks considerably or the one which does not absorb the ink efficiently cannot be used.
5	Bi-directional adjustment is not correct	Correct the setting for Bidirectional Printing	User's Manual	
6	FEED CALIBRATION is not correct	Correct Calibration	User's Manual	If the calibration is not correct, white fine line caused by gaps or dark line caused by overlapping appears.
7	Scanning distance of the Head Carriage	Set the [FULL WIDTH S] to [FULL]	User's Manual	Set [FULL WIDTH S] to [FULL] to equalize the heating time on each pass. This may improve printing quality.
8	[PERIODIC CL.] setting	Set [PERIODIC CL.] to [NONE] or [Page]	User's Manual	When this is set to [1 min] to [990 min], self cleaning is performed while printing is paused. And it may cause uneven printing before and after cleaning.
9	Wrong profile for the media	Use the suitable profile		
10	Head Rank is not correct	Set Head Rank	[3-1 HEAD REPLACEMENT]	Head Rank setting affects the amount of the ink fired. If it is not set properly, the ink dots are not fired in appropriate sizes.
11	Head is not adjusted	Adjust Head	[4-3 HEAD ADJUSTMENT]	Check whether [BIAS] setting is correct.
12	Ink tubes are not bundled correctly	Correct the order of ink tubes in the saddles	[3-20 INK TUBE REPLACEMENT]	Ink tubes incorrectly bundled in the saddles pull the print head upward, that may tilt the print head.
13	Ink agitation in the ink cartridge	Shake the cartridges gently	User's Manual	The message to shake the cartridges is displayed periodically. If you do not follow the message, the ink generates high or low density inside to bring about inappropriate printing result.
14	Defect of Cap Top	Replace Cap Top	[3-5 CAP TOP REPLACEMENT]	Cleaning does not work effectively and the nozzle condition cannot be improved. Also, if the head is not capped correctly, the head dries and it may cause the nozzle clog.
15	Air inside the ink damper	Perform [CHOKE CL]	[3-2 DAMPER REPLACEMENT]	If the ink damper has the air inside, the ink is supplied intermittently. Therefore, it causes missing dots or deflected dots.
16	Foreign substances	Perform Manual Cleaning	User's Manual	Nozzle condition becomes poor due to the foreign substances stuck on the surface of the Head.

17	The wrong fitting direction of the wiper	Refit the wiper	User's Manual	The wiper has its fitting direction. If the wiper is fitted in the wrong direction, wiping cannot be done efficiently.
18	Wiper wears out	Replace Wiper	[3-2 WIPER REPLACEMENT]	Wiping does not work effectively and foreign substances left on the head surfaces cannot be removed completely.
19	Felt wiper wears out	Replace Felt Wiper	User's Manual	The felt wiper is to absorb the ink on the print head surface. When absorbing performance is low, cleaning cannot be done efficiently.
20	Cap top tube is wrongly mounted	Correct mounting of Cap top tube	[3-5 CAP TOP REPLACEMENT]	The cap top's tube is in correct length for proper pumping. If the tube is mounted wrongly or cut in shorter length, pumping cannot be done appropriately.
21	Head nozzle is clogged	Clean the head surface using the cleaning stick (Manual Cleaning)		Generally, we do not recommend to wipe the surface of Head with a cleaning stick. However, it is worth trying before replacing the Head. Soak the cleaning stick in cleaning liquid fully, and then tap and lightly rub the surface of Head with it.
22	Broken Head	Replace Head	[3-1 HEAD REPLACEMENT]	
23	Broken Pump	Replace Pump		Ink suction during cleaning does not work and the nozzle condition cannot be improved.

6-2 POOR PRINTING QUALITY WHEN USING THE METALLIC SILVER INK

NO	CHECK	ACTION	REFERENCE	OUTLINE
1	Heater temperature is not appropriate	Set appropriate temperature	User's Manual	If the temperature settings of Print heater and Dryer are not appropriate to dry the metallic silver ink, the ink may not dry. The ambient temperature should be appropriate to obtain the correct temperature of heaters as specified.
2	Media is not appropriate	Use appropriate media		If the media is not appropriate for the metallic silver ink, the ink may not settle on the media.
3	Density of the metallic silver ink is not appropriate	Adjust the density of metallic silver ink		If too much ink is fired, the ink may not dry and the printing surface may not look shiny. Adjust the density on the drawing software or VersaWorks.
4	Way of creating print data is not appropriate	Check created print image		The metallic silver ink can not cover up the color underneath it. If the color underneath the metallic silver ink is visible, do not overlap the area specified for metallic silver and CMYK when creating print image, or select the spot color from the Roland color library.

6-3 MIXED COLOR IS PRINTED AT THE METALLIC SILVER SPECIFIED AREA

NO	CHECK	ACTION	REFERENCE	OUTLINE
1	Way of creating print data or printing mode is not appropriate	Check created print image / printing mode		Mixed color will be printed if the CMYK area is overlapped with RDG_MetallicSilver. Do not overlap the metallic silver area and CMYK area when creating print job, or select the spot color from the Roland color library.

6-4 PARTICULAR COLOR IS NOT PRINTED AT ALL

NO	CHECK	ACTION	REFERENCE	OUTLINE
1	Defect of Cap Top	Replace Cap Top	[3-5 CAP TOP REPLACEMENT]	If the Head is not capped correctly, ink suction for one color may not be done. And, the Head dries and it may cause the nozzle clog.
2	Ink Cartridge is almost empty	Check remaining Ink / Replace the Ink Cartridge	User's Manual	When the machine keeps printing with ink cartridge almost empty, the negative pressure delivered in the ink tube causes the improper ink supplying and the head cannot fire the ink correctly.
3	Error of Ink Empty detection	Replace the ink cartridge / sensor		If the cartridge tab does not stick out when the cartridge is empty, Ink Empty cannot be detected and printing continues without ink firing. Also, if the sensor is not working, Ink Empty cannot be detected even if the cartridge tab sticks out.
4	Bad contact / Broken cable	Refix / Replace the cable		If there is a bad communication between the head and the Main Board, the signal for driving head is not sent properly and results in improper printing. If the Flexible cable is fixed slanted, it may cause the bad electrical contact or shortcircuit. And, the cable which has been connected and disconnected several times may have a damaged terminal.
5	Air bubbles in Ink line	Remove air bubbles with Service Menu [CHOKE CL]		When air bubbles are inside the Ink line, the head may not fire the Ink temporarily. Air bubbles tend to go into the Ink line if Ink Cartridge is installed and uninstalled many times. The air bubbles inside the lines can be removed by performing [CHOKE CL] in the service menu.
		Eliminate the looseness of the tube joint		If the tube has air due to the looseness of the tube joint, fix the joint and remove the air.
6	Broken Ink Tube	Replace Ink Tube	[3-20 INK TUBE REPLACEMENT]	
7	Broken Head	Replace Head	[3-1 HEAD REPLACEMENT]	
8	Broken Main Board	Replace Main Board	[3-10 BOARDS REPLACEMENT]	

6-5 SHIFTING IN PRINTING/COLOR SHIFTING

NO	CHECK	ACTION	REFERENCE	OUTLINE
1	The media is set tilted	Set the media correctly	User's Manual	If media is not set straight, it comes loose on the Platen and it wrinkles, and results in shifting. Set the media straight referring to the User's Manual.
2	Encoder Scale is dirty / broken	Clean or replace Encoder Scale	[3-13 ENCODER SCALE REPLACEMENT]	When Encoder Scale is not read correctly, printing position may shift.
3	Encoder Module is dirty / broken	Clean or replace Encoder Module		When Encoder Module does not read Encoder Scale correctly, printing position may shift.
4	Bad contact of Flexible Cable	Refix / Replace the Flexible Cable		If the Flexible Cable is not fixed correctly, the Head moves incorrectly and results in the shift in printing.

6-6 INK DROPS ON THE MEDIA

NO	CHECK	ACTION	REFERENCE	OUTLINE
1	Foreign substances	Perform Manual Cleaning	User's Manual	When foreign substances such as fiber dust are stuck on the surface of the Head, Ink sometimes leaks from it. Wipe the surface of Head with a cleaning stick.
2	Media strikes Head	Use the media clamps / Replace to the suitable media		If media tends to curl or become bumpy due to the Ink absorption, the Head sometimes strikes the media and it causes the Ink dropping problem.

3	Static electricity of the media	Perform [PERIODIC CL]	User's Manual	If media produces static electricity easily, the ink tends to remain on the head surface while printing and results in ink dropping. When [PERIODIC CL] is set to [1 min] to [990 min], automatic cleaning is performed while printing and it may prevent the ink dropping.
4	Wiper wears out	Replace Wiper	User's Manual	Cleaning does not work effectively with worn wiper. Therefore, foreign substances stuck on the head surface cannot be removed completely and the ink flows through it and results in ink dropping.
5	Broken ink tube	Replace Ink Tube	[3-20 INK TUBE REPLACEMENT]	When the ink tube is broken, it is not possible to keep the ink line air tight and results in ink dropping.

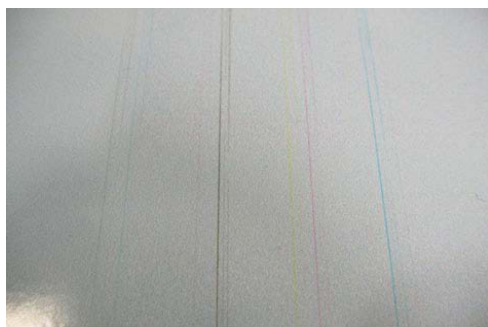
6-7 VERTICAL BANDING

NO	CHECK	ACTION	REFERENCE	OUTLINE
1	Encoder Scale is dirty	Clean / Replace Encoder Scale	[3-13 ENCODER SCALE REPLACEMENT]	When there is a scratch or dirt on the Encoder Scale, the printing image could be affected and the vertical bandings could appear at the position where there is a scratch or dirt.
2	LM Guide is dirty	Clean LM Guide		When the sliding resistance with the moving Head Carriage increases partly due to some dirt on the LM Guide, it may affect the printing at the position where there is dirt and the vertical banding may appear.
3	There is dirt in teeth of the gear	Clean the gear		When there are foreign substances on the teeth of the gear, the movement of the Head Carriage changes at the position where there is dirt. And it results in the periodical vertical banding.

6-8 MISSING DOT OR DEFLECTED DOT APPEARS WHEN PRINTING AFTER A LONG INTERVAL

NO	CHECK	ACTION	REFERENCE	OUTLINE
1	Check the main power switch	Do not switch off the main power	User's Manual	When the main power is off, the maintenance flushing is not performed and it may cause the nozzle clog. Make sure to turn the power on / off with only the sub power switch for daily use.
2	Ink agitation in the ink cartridge	Gently shake the cartridge	User's Manual	The message to shake the cartridges is displayed periodically. If you do not follow the message, the ink generates high or low density inside to bring about inappropriate printing result.
3	Periodic ink circulation is not working	Perform ink circulation / Check the cable connection of circulation pump / Check the ink lines including the circulation pump	[4-1 SERVICE MODE]	If the ink circulation is not performed, the ink settles and separates. The precipitated material may be solidified and cause clogging of the print heads or other malfunction.

6-9 UNWANTED LINES ARE PRINTED



NO	CHECK	ACTION	REFERENCE	OUTLINE
1	Encoder Scale is dirty / broken	Clean or replace Encoder Scale	[3-13 ENCODER SCALE REPLACEMENT]	If the Encoder Scale has any fine dust on it, some unwanted lines may be printed on that area.

6-10 Print & Cut Misalignment

Ideal Conditions



The above illustration shows the ideal print and cut conditions where the red stars signify the printed image and the black lines signify the cut path. Since the actions to be taken are different depending on the conditions of shifting, check how cutting is shifted first and take appropriate actions. Most of the actions can be done by users.

Symptom 1 : Cut is Shifted in the Same Direction for the Same Amount



Possible Causes

Print & Cut adjustment is not correctly done.

Actions

1. Perform [ADJUST BI-DIR] in the User menu.
2. Perform [PRINT-CUT ADJ.] in the User menu.

Symptom 2 : Cut is OK at Right Side but is Getting Shifted as It Goes to the Left Side



Possible Causes

1. Expansion / Contraction of the Encoder Scale
2. There is some setting value other than 0 set in [CUTTING MENU]>[CALIBRATION]>[SCAN SETTING].
3. Expansion / Contraction of the media
4. There is a problem in reading the Encoder Scale.

Actions

1. Enable [CUTTING MENU]>[AUTO ENV.MATCH] in the User menu.
2. Set 0 in [CUTTING MENU]>[CALIBRATION]>[SCAN SETTING] in the User menu.
3. Perform [ADJUST BI-DIR] in the User menu.
4. Perform [PRINT-CUT ADJ.] in the User menu.
5. Use the crop marks.
6. Clean or replace the Encoder Scale.

Symptom 3 : Cut is OK at Lead Edge but is Getting Shifted as It Goes to the End of Print

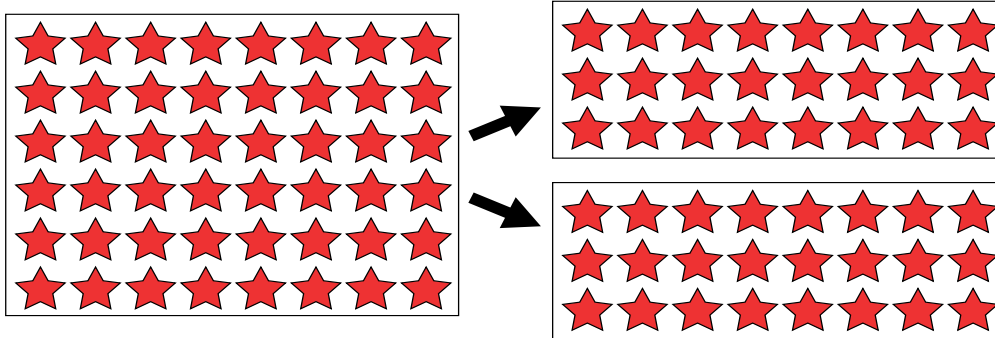


Possible Causes

1. There is some setting value other than 0 set in [CUTTING MENU]>[CALIBRATION]>[FEED SETTING].
2. Expansion/Contraction of the media
3. Strong back tension of the heavy roll media causes the media to be fed less than it should be when printing.

Actions

1. Set 0 in [CUTTING MENU]>[CALIBRATION]>[FEED SETTING] in the User menu.
2. Prefeed the media to make it unrolled before starting a printing to decrease the back tension.
3. Use the crop marks.
4. Divide the file into 2 or more and output them as separate jobs in order to make the feeding distance of each job shorter.



Symptom 4 : Symptom1, 2 and 3 are Mixed or Details are Not Clear



Actions

1. Enable [CUTTING MENU]>[AUTO ENV.MATCH] in the User menu.
2. Set 0 in [CUTTING MENU]>[CALIBRATION]>[SCAN SETTING] and [FEED SETTING] in the User menu.
3. Perform [ADJUST BI-DIR] in the User menu.
4. Perform [PRINT-CUT ADJ.] in the User menu.
5. Prefeed the media to make it unrolled before starting a printing to decrease the back tension.
6. Decrease [SPEED] and [UP-SPEED] in [CUT CONFIG].
7. Divide the file into 2 or more and output them as separate jobs in order to make the feeding distance of each job shorter.
8. Use the crop marks.
9. Adjust the belt tension.
10. Clean or replace the Encoder Scale.

Symptom 5 : Cut is Shifted When Using Crop Marks



Possible Causes

1. Crop-cut adjustment is not correctly done.
2. Crop mark sensor adjustment is not correctly done.

Actions

1. Perform [ADJUST BI-DIR] in the User menu.
2. Perform [CROP-CUT ADJ.] in the User menu.
3. Perform the crop mark sensor adjustment by executing [CROPMARK SENS]>[OUTLEVEL CHECK] in the Service menu.

6-11 POOR CUTTING QUALITY (STITCH CUT, DISTORTED CUT, MISMATCHED START AND END POINTS)

NO	CHECK	ACTION	REFERENCE	OUTLINE
1	Blade Holder is fixed loose	Fix the Blade Holder tightly		
2	Blade-offset setting is not correct	Set the blade-offset correctly		
3	Cutting force is not correct	Adjust Tool pressure	[4-12 TOOL PRESSURE ADJUSTMENT]	
4	Middle Pinch Rollers are not used	Use the Middle Pinch Rollers.		When using only left and right pinch rollers, middle part of the media will not follow both edges when the media is fed and this may affect the cutting quality.
5	Blade tip is worn out	Replace the Blade		
6	Blade Holder tip is caught by the media	Do not use the Blade Holder tip		Depending on the surface condition or the types of media, Blade Holder tip gets caught by the substrate and it results in stitch cut.
7	Bearing inside Blade Holder does not rotate smoothly	Replace the Blade Holder		
8	Scratches in Cutter Protection	Replace the Cutter Protection		
9	Tool height is not correct	Adjust the tool height	[4-11 TOOL HEIGHT ADJUSTMENT]	
10	Tool does not move up / down smoothly	Replace the Tool Carriage	[3-6 TOOL CARRIAGE REPLACEMENT]	
11	Tool Carriage is loose	Replace the Tool Carriage	[3-6 TOOL CARRIAGE REPLACEMENT]	
12	Holder part of Tool Carriage is loose	Replace the Tool Carriage	[3-6 TOOL CARRIAGE REPLACEMENT]	
13	Backlash of Motor Gear	Adjust Backlash		When there is a backlash at the Scan motor or Feed motor, Tool Carriage and Grit Roller will be driven unstable and results in symptoms such as mismatched start and end points.
14	Belt Tension is not correct	Adjust Belt Tension		
15	Solenoid IC on Servo Board is damaged	Replace IC2 and IC3 on the Servo Board		When the driver IC that drives solenoid is damaged, rarely abnormal tool pressure is given. In this case, the blade hits the bed and jumps when it goes down and it results in stitch cutting.

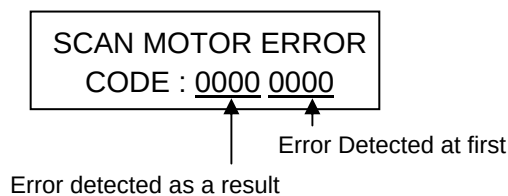
6-12 MEDIA SKEW

NO	CHECK	ACTION	REFERENCE	OUTLINE
1	Fixing of the Media Holders	Fix the Media Holders firmly	User's Manual	If the Media Holders are not fixed firmly, the media cannot be fed because the Media Holders are unstable.
2	Setting of the Media to the Media Holders	Set the Media to the Media Holders again	User's Manual	When the media is not set to the Media Holders correctly, the media is fed tilted and it may result in Media shifting.
3	The sticky media is used	Set the [MEDIA RELEASE] menu to [ENABLE.]	User's Manual	Some types of media may tend to stick to the platen. Starting printing with that type of media may have a feed problem. By setting [MEDIA RELEASE] menu to [ENABLE.], the machine feeds the media back and forth before starting printing and the sticking can be removed.
4	Media is not set straight to the machine	Setup Media again	User's Manual	The most effective measure against Media shifting is to set Media straight to the machine. Especially on lengthy printing, small tilt of Media setup results in big Media shifting while printing.
5	Grit Roller is dirty	Clean the Grit Roller		When dust such as pieces of vinyl is stuck to the Grit Roller, ability to hold Media decreases and it results in Media shifting. Use a brush to clean the Grit Roller.
6	Pinch Roller is worn out	Replace the Pinch Roller	[3-15 PINCH ROLLERS REPLACEMENT]	When pinch rollers wear out, ability to hold media decreases and it results in media shifting.
7	Grit Roller is loose	Fix the Grit Roller		

6-13 MOTOR ERROR

NO	CHECK	ACTION	REFERENCE	OUTLINE
1	Media Jamming	Remove cause of Media Jamming		
2	Back tension of media is too high	Use appropriate Media		When using hard-to-unroll or too heavy media, Motor Error occurs due to over load for feeding the media.
3	Limit position is not appropriate	Perform Limit Position & Cut Down Position Initialize	[4-4 LIMIT POSITION & CUT DOWN POSITION INITIALIZE]	When the limit position is not correctly set, it causes a Scan Motor Error.
4	There is a dirt in teeth of Drive Gear	Clean Drive Gear		When the Drive Gear has dirt on its teeth and cannot rotate, the Motor Error occurs.
5	Motor is broken or comes to its end of life	Replace Motor	[3-7 CARRIAGE MOTOR REPLACEMENT]	When the Motor is broken or reaches its end of life, the Motor cannot follow the order from the CPU and it results in a Motor Error.
6	Servo Board is broken	Replace Servo Board		When the Motor Driver is broken, the Power Supply voltage for the motor is not supplied and the motor cannot move. It results in the Motor Error.
7	Power Supply for Motor is broken	Replace Switching Power Supply	[3-10 BOARDS REPLACEMENT]	When the Power Supply voltage for the Motor is not supplied, the Motor cannot move and it results in the Motor Error.

ERROR DESCRIPTION



NO	MEANING	CAUSE
0001	Feed Motor Deviation Error (The order from the CPU does not match the feedback of the Feed Motor.)	< External factors > - Media Jamming - Pull or Move the Carriage by hands. - Carriage runs into a thing or hands. - Media is stuck because it is caught by the paper pipe. - Media is pulled forcedly. - Too heavy media is loaded. < Machine factors > - The grease lubrication of the motor gear is not enough. - Motor is broken or end of life - Servo Board is broken. - Tool Carriage fixation to the belt is loose. - The bearing inside the idle pulley is worn out. - The carriage belt loses steps. (The symptom may be improved when you grease the belt.)
0004	Feed Motor Overcurrent Error 1 (Big load is put on the motor movement instantaneously.)	
0008	Feed Motor Overcurrent Error 2 (A little load is put on the motor movement for a long time.)	
000C	0004 and 0008 occurred at the same time.	
0005	0001 and 0004 occurred at the same time.	
0009	0001 and 0008 occurred at the same time.	
0010	Scan Motor Deviation Error (The order from the CPU does not match the feedback of the Scan Motor.)	
0040	Scan Motor Overcurrent Error 1 (Big load is put on the motor movement instantaneously.)	
0080	Scan Motor Overcurrent Error 2 (A little load is put on the motor movement for a long time.)	
00C0	0040 and 0080 occurred at the same time.	
0050	0010 and 0040 occurred at the same time.	
0090	0010 and 0080 occurred at the same time.	

6-14 HEATER / DRYER TEMPERATURE DOES NOT RISE

NO	CHECK	ACTION	REFERENCE	OUTLINE
1	The media is not loaded	Set up the media	User's Manual	
2	Inappropriate temperature is set on the machine	Check the temperature setting	User's Manual	When the [PRINT HEATER / DRYER] is [OFF] on the machine, the Heater does not operate.
3	Media width is too small	Use a wider media		A narrow media may take a long time to heat because it is subject to be cooled by a suction fan.
4	Environmental temperature is low	Raise the environmental temperature	User's Manual	In cold environment, it may take a long time or the Heater may fail to reach the preset temperature. Suggest using the machine under the environment from 20 to 32 °C.
5	The voltage of power supply is unstable	Check the voltage		If the voltage is unstable, the heater cannot function fully.
6	Bad contact or cut line on the cable between the Heater Unit and Main Board	Re-fix / Replace the cable		If the cable between the Heater unit and Main Board is broken, the Heater temperature does not rise. Check the connection of the each cable or replace it if it is broken.
7	Fuse on the Power Board is broken	Replace the Fuse on the Power Board		The temperature of the Heater does not rise if the Fuse FS1100 or FS1101 is blown out on the Power Board. FS1100 for Print Heater, FS1101 for Dryer.
8	Power Board is broken	Replace the Power board		The Heater does not work correctly because the signal to the Heater is not transferred correctly.

6-15 THE TAKE-UP UNIT* DOES NOT OPERATE (*OPTION)

NO	CHECK	ACTION	REFERENCE	OUTLINE
1	The cable for Take-Up Unit is not connected	Connect the cable to the machine		
2	The media is set up in [TU2] mode	Select [TU]	User's manual	If the media is set in [TU2] mode, switching operation by MANUAL or AUTO is not active. When the take-up unit starts automatic taking up, the switches become active since then.
3	AUTO switch is not ON	Make the setting for the AUTO switch on		
4	Cable is in bad connection or bad contact	Check the cable connection / bad contact Replace the cable	[Section 3 TAKE-UP BOARD REPLACEMENT] (Ref. XJ or LEC series)	Check the connection / bad contact of the cable from AC Junction Board to SW Power Unit, DC Junction Board, Head Board, Main Board, TU Junction Board and Take-Up Board. Replace the cable if there is a problem in the cable itself.
5	Take-Up Board is broken	Replace the Take-Up Board	[Section 3 TAKE-UP BOARD REPLACEMENT] (Ref. XJ or LEC series)	

6-16 PROBLEM IN NETWORK (RIP DOES NOT RECOGNIZE THE PRINTER)

NO	CHECK	ACTION	REFERENCE	OUTLINE
1	Turn off the main power and restart the printer			It can be solved by restarting the printer with the main power. Try it several times.
2	Refix the cable			It can be solved by refixing the network cable. Try it several times.
3	Network problem	Connect them directly with a crossover cable		The problem may be in the network when they are connected through LAN. It can be identified whether the problem is on the printer or the network, by connecting the PC and the printer directly with a crossover cable.
4	Main board is damaged	Replace the Main board		Main board may be damaged if the problem is not solved by the measures above.

6-17 ERROR MESSAGE

NO	CHECK	ACTION	REFERENCE	OUTLINE
1	service call	Restart the machine		Restart the machine and see if the same error occurs again.
		Refer to SERVICE CALL as follows	[6-18 SERVICE CALL]	
2	Internal Error	Restart the machine		Restart the machine and see if the same error occurs again.
		Upgrade the firmware to the latest version		Check the revision record of the firmware version and upgrade it if the error has been solved in the firmware.

6-18 SERVICE CALL

CODE	EXPLANATION	CAUSE	ACTION
0002	Disorder of communication with Sub CPU This occurs when the Sub CPU is not detected after turning on the machine	Servo Board does not work correctly. Sub CPU does not work correctly. There is a bad connection between Main Board and Servo Board.	Check cable connection between Main Board and Servo Board. Check the other cable connections of Servo Board. Servo Board replacement Main Board replacement Flexible cable replacement
0004	Sub CPU SRAM error	SRAM is broken.	Servo Board replacement
0005	An error occurs during downloading a program for sub CPU.	Servo Board does not work correctly. Sub CPU does not work correctly. There is a bad connection between Main Board and Servo Board. A noise on a signal.	Check cable connection between Main Board and Servo Board. Check the other cable connections of Servo Board. Servo Board replacement Main Board replacement Flexible cable replacement
0006	An error occurs when trying to connect with sub CPU.	A noise on a signal while sending a command. Sub CPU was reset to default. Tried to communicate when Sub CPU was reset to default.	Check cable connection between Main Board and Servo Board. Check the other cable connections of Servo Board. Servo Board replacement Main Board replacement Flexible cable replacement
0007	An error occurs while sending a command.	Servo Board does not work correctly. Sub CPU does not work correctly. There is a bad connection between Main Board and Servo Board. A noise on a signal while sending a command. Sub CPU was reset while sending a command.	Check cable connection between Main Board and Servo Board. Check the other cable connections of Servo Board. Servo Board replacement Main Board replacement Flexible cable replacement
0008	There is a problem with synchronizing serial communication to Sub CPU.	Servo Board does not work correctly. Sub CPU does not work correctly. There is a bad connection between Main Board and Servo Board. A noise on a signal.	Check cable connection between Main Board and Servo Board. Check the other cable connections of Servo Board. Servo Board replacement Main Board replacement Flexible cable replacement
0010	Network I/F Initialize has not been completed.	Network I/F does not work correctly. Firmware for Network I/F is not installed.	Check the firmware is installed into Network I/F. Main Board replacement
0101	Limit Position Initialize in the Service Mode has not been done.	Limit Position Initialize has not been done. Limit Position Initialize is ended before it is completed.	Complete Limit Position Initialize correctly.
0102	Head Lock Sensor is ON when it should be OFF, or vice versa.	Head Lock Sensor does not work correctly or is broken. Head Carriage is not located at the correct position.	Head Lock Sensor replacement Check the mechanical backlash or loose with the scan axis related parts.
0103	Limit Sensor is ON when it should be OFF, or vice versa.	Limit Sensor does not work correctly or is broken. Tool Carriage is not located at the correct position.	Limit Sensor replacement Check the mechanical backlash or loose with the scan axis related parts.
0105	Tool Carriage Connection Error	Fault of Tool Carriage Connection Loose of Connection Part Fault of the Limit Position Initialize value Limit Sensor does not work correctly or is broken.	Check the mechanical Backlash or loose with the Tool Carriage part. Connection Part Replacement Limit Position Initialize
0106	Machine fails to disconnect the Tool Carriage from the Head Carriage.	Fault of Tool Carriage Connection Loose of Connection Part Fault of the Limit Position Initialize value Limit Sensor does not work correctly or is broken.	Check the mechanical Backlash or loose with the Tool Carriage part. Connection Part Replacement Limit Position Initialize
0107	Linear Encoder Setup has not been done.	Linear Encoder Setup has not been done. Linear Encoder Setup is ended before it is completed.	Carry out Linear Encoder Setup in service menu.

CODE	EXPLANATION	CAUSE	ACTION
0109	Wiper unit does not work correctly.	Wiper Unit hits the Tool Carriage Wiper Motor error Defect of Wiper Unit Defect of Wiper Sensor Cut-line or short-circuit of cable and Flexible cable	Move the Carriages on the bed not to hit the Wiper Unit. Wiper Motor Replacement Wiper Unit Replacement Wiper Sensor Replacement Cable and Flexible Cable Replacement
0110	Input value from Linear Encoder is not changed by the Linear Encoder origin setup. When Motor stops during printing, expected movement is not completed on some head.	Read error of Linear Encoder. Read error of Encoder on Scan Motor side. Belt is not fixed to Head Carriage firmly.	Confirm whether Encoder Scale is between the slit of Encoder Module in a whole width of the machine. Check cable connection between Linear Encoder Board and Main Board. Confirm connection between Belt and Carriage. Linear Encoder replacement Scan Motor replacement Servo Board replacement Main Board replacement
0111	This error occurs when the machine performs the Auto Crop Mark Detection	Crop-Cut Adjustment in the Service menu has not been performed.	Carry out Crop-Cut Adjustment in service menu.
0112	Communication error with Cartridge IC driver	Cartridge IC driver is broken. Cartridge IC driver cable has short circuited or cut-line.	Ink cartridge IC sensor replacement
0130	There is a problem with Thermistor for Print Heater	Thermistor cable has short circuited or cutline. Thermistor has a problem.	Check cable connection around Thermistor. Thermistor replacement
0135	Print Heater temperature has reached 60°C and above.	Print Heater Cable connection has a problem. Thermostat has a problem. Thermistor has a problem.	Check Print Heater Check Thermostat Check Thermistor
0140	There is a problem with Thermistor for dryer.	Thermistor cable has short circuited or cutline. Thermistor has a problem.	Check Cable connection around Thermistor Thermistor replacement
0145	Dryer temperature has reached 80°C and above.	Dryer cable connection has a problem. Thermostat has a problem. Thermistor has a problem.	Check Dryer Check Thermostat Check Thermistor
Revised 7 0250	There is a problem with Head device.	Head is broken.	Head replacement

7 Service Activities

7-1 INSTALLATION CHECK LIST

VS-640/540/420/300 INSTALLATION CHECK LIST

Date : _____

User Name : _____

Serial Number : _____

☐ Checking the place of installation

☐ There is a space necessary for installing the machine as below.

3600 mm(141.7 in) VS-640
3400 mm(133.9 in) VS-540
3100 mm(122 in) VS-420
2800 mm(110.2 in) VS-300

Work Space

2600mm(102.4 in) VS-640
2400mm(94.5 in) VS-540
2100mm(82.7 in) VS-420
1800mm(70.9 in) VS-300

Unit Space

800 mm(31.5 in)

2000 mm(78.7 in)

☐ Install the machine in a location that is level, stable, and able to bear the weight of the machine.
The total weight of the machine can reach 200 kg (441 lb.) or more (170kg (375 lb.) or more for the 50-inch model, 150kg (331 lb.) or more for the 42-inch model, 130kg (287 lb.) or more for the 30-inch model).
Installation in an unsuitable location may cause serious accidents, such as tipping over, falling, and collapsing of the machine.

☐ Never install the machine in an outdoor location or in a location where it can be exposed to water or moisture.
Such circumstances may cause electric leakage and lead to electric shock, electrocution, or fire.

☐ Never install the machine close to any flammable objects or in a gas-filled location.
Combustion or explosion may be a danger.

It may cause fire or explosion.

☐ Operating the machine in a dark and cluttered location may result in such accidents as your inadvertent stumbling and getting caught in the machine.

Ensure adequate ventilation for the work area.

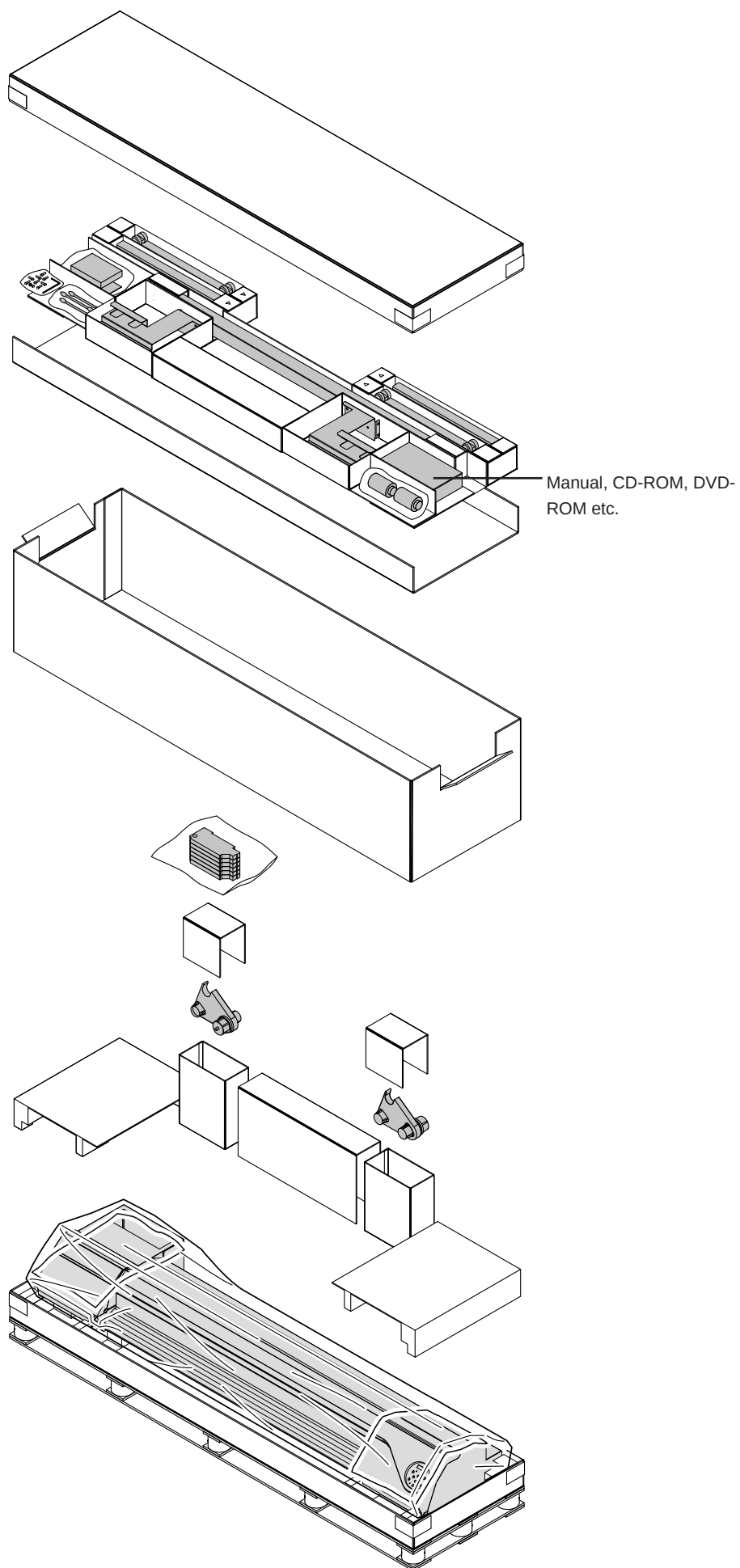
☐ Failing to perform ventilation may result in a health hazard or danger of combustion due to ink fumes.

Connect to an electrical outlet that complies with this machine's ratings (for voltage, frequency, and current).

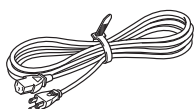
☐ Incorrect voltage or insufficient current may cause fire or electrical shock.

Position the machine where you can keep the power plug within immediate reach at all times.
This is to enable quick disconnection of the power plug in the event of an emergency. Install the machine next to an electrical outlet. Also, provide enough empty space to allow immediate access to the electrical outlet.

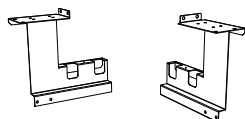
Unpacking



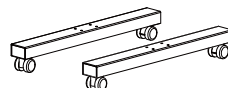
Checking the Accessories



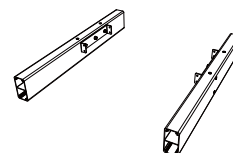
☐ Power cord : 1



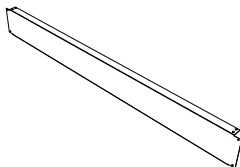
☐ Arms (one for right and left each)



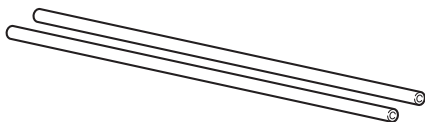
☐ Casters : 2



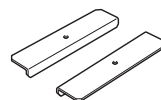
☐ Stand legs (one for right and left each)



☐ Stand stay : 1



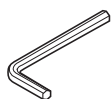
☐ Shafts : 2



☐ Shaft clamps : 2



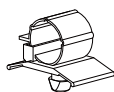
☐ Bolts : 38



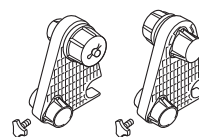
☐ Hexagonal wrench : 1



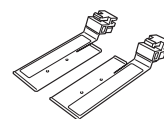
☐ Pipe : 1



☐ Cable clamp : 1



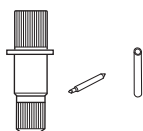
☐ Media holder and retaining screws (one for right and left each)



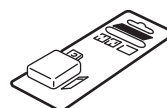
☐ Media clamps* (one for right and left each)
* Installed on the machine



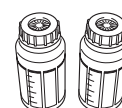
☐ Middle pinch rollers* : VS-640 : 6, VS-540 : 5, VS-420 : 3, VS-300 : 2
*Installed on the machine



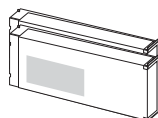
☐ Blade holder/Blade/Pin (one for each)



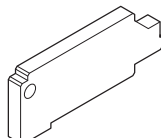
☐ Replacement blades for separating knife : 1



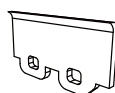
☐ Drain bottles : 2



☐ SOL INK cleaning cartridges : 2



☐ Dummy cartridges : 6



☐ Replacement wiper : 1



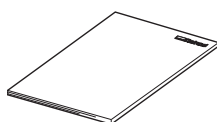
☐ Replacement felt wiper : 1



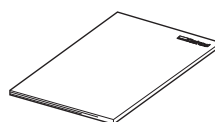
☐ Tweezers : 1



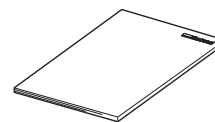
☐ Software RIP : 1



☐ User's Manual : 1



☐ Setup guide : 1



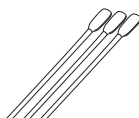
☐ Special Color Ink Guide : 1



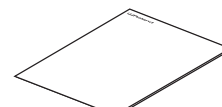
☐ Cartridge-slot label : 1



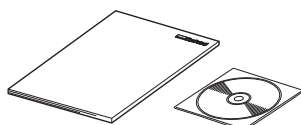
☐ Cleaning fluid : 1



☐ Cleaning sticks : 10



☐ Inkjet Printer Maintenance Guide : 1



☐ Roland OnSupport Installation & Setting Guide/Installation disc (one for each)

Assembling and Installing

Set up the followings in reference to the Setup Guide [3.Assembling and Installing] to [7. Network Settings].

☐ Assembling the Stand – Mounting the Machine

☐ Installing the Drain Bottle

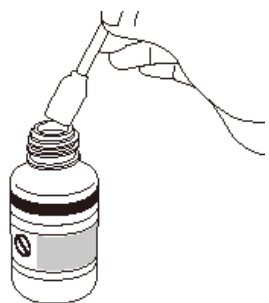
☐ Removing the Packing Materials

☐ Connecting the Cables

☐ Apply the cleaning liquid to the rubber gasket of the Cap Top with the cleaning stick.

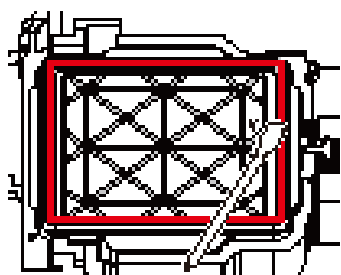
Revised 3

It is necessary to apply the cleaning liquid to the Cap Top before performing the initial FILL INK because the Cap Top can not keep the air tight in case of the Cap Top is dry.



Moisten the cleaning stick with the cleaning liquid.

Be sure to use the included cleaning stick.



Apply the cleaning liquid to the rubber gasket of the Cap Top.

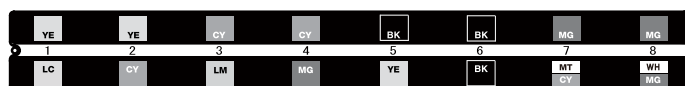
☐ Installing the Ink Cartridges

- Affixing the Cartridge-slot Labels

* Using the bundled cartridge-slot label (black label), mask the colors you are not using.



In the case of 4 colors of CMYK (CMYK mode)



In the case of 6 colors (CMYKLcLm mode)

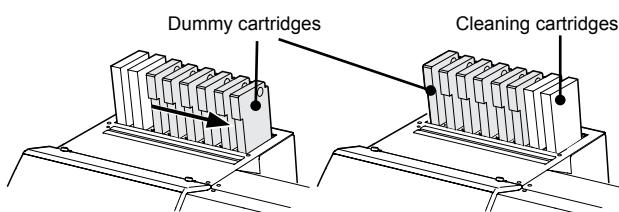


In the case of 8 colors (WMT mode)

☐ Installing the Ink Cartridges

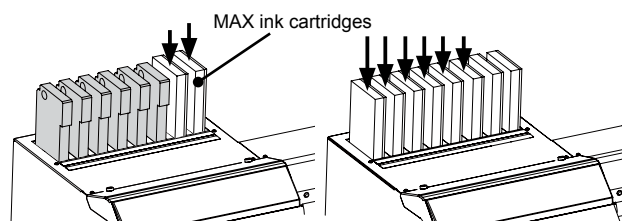


Gently shake the ink cartridges before inserting them to the slots.



(Cleaning the heads : approx. 60 minutes)

Using 2 pcs of cleaning cartridges and dummy cartridges, insert and remove them several times in the order of the slots from 1 and 2 to 7 and 8.



(Ink filling : approx. 10 minutes)

First, insert the MAX cartridges into slots 7 and 8. Insert dummy cartridges into the rest of slots. Then, insert the MAX cartridges into slots 1 to 6.

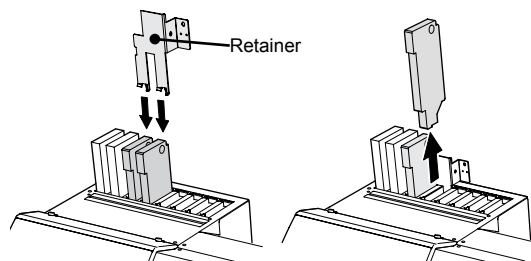
!! IMPORTANT !!

When the message "EMPTY DRAIN BOTTLE" appears, be sure to discard. If not discarded at this step, the discharged ink will overflow.



If it is hard to remove the dummy cartridges, use the retainer.

If you attempt to remove them strongly by hand, the dummy cartridge may be shaved and its scraps may enter the ink line.



☐ Installing the Blade

☐ Network Settings

IP address of PC _____

IP address of VS-640/540/420/300 _____

☐ Bidirectional Adjustment



Perform Bidirectional Adjustment from service menu using PET-G. The default bidirectional adjustment values for VS-640/540/420/300 may be off from the appropriate value.

☐ Upgrading the Firmware	Upgrade the firmware to the latest version.																
☐ Setting Date and Time	Go to SERVICE MENU > SUB MENU > CLOCK and set date and time to the local time.																
☐ Installing Roland VersaWorks	Install Roland VersaWorks in reference to the Quick Start Guide. System requirements for installing the software. <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <tr> <td style="width: 35%; text-align: center; vertical-align: top; padding: 5px;">Operating system (OS)</td> <td style="padding: 5px;"> Windows 7 Professional/Ultimate (32-bit edition) Windows Vista Business/Ultimate Service Pack 1 (32-bit edition) Windows Vista Business/Ultimate (32-bit edition) Windows XP Professional Service Pack 2 or later Windows 2000 Service Pack 4 </td> </tr> <tr> <td style="text-align: center; vertical-align: top; padding: 5px;">Processor</td> <td style="padding: 5px;"> 2.0-GHz or faster Pentium 4 (2.0-GHz or faster Core 2 Duo recommended) </td> </tr> <tr> <td style="text-align: center; vertical-align: top; padding: 5px;">Memory (RAM)</td> <td style="padding: 5px;"> 512 MB of RAM (1 GB or more recommended) (For Windows Vista/7, 1 GB (2 GB or more recommended)) </td> </tr> <tr> <td style="text-align: center; vertical-align: top; padding: 5px;">Video card and monitor</td> <td style="padding: 5px;"> A resolution of 1,280 x 1,024 or more recommended </td> </tr> <tr> <td style="text-align: center; vertical-align: top; padding: 5px;">Free hard-disk space required as a working space</td> <td style="padding: 5px;"> 40 GB or more recommended </td> </tr> <tr> <td style="text-align: center; vertical-align: top; padding: 5px;">Hard-disk file system</td> <td style="padding: 5px;"> NTFS format </td> </tr> <tr> <td style="text-align: center; vertical-align: top; padding: 5px;">Optical drive</td> <td style="padding: 5px;"> DVD-ROM drive </td> </tr> <tr> <td style="text-align: center; vertical-align: top; padding: 5px;">Other requirements</td> <td style="padding: 5px;"> ➤ Ethernet port ➤ For AppleTalk connection: Windows 2000 Service Pack 4 as the operating system, with AppleTalk protocol installed ➤ To use Roland@NET and VersaWorks Online: Internet connection and web browser </td> </tr> </table> For the latest information, see the Roland DG Corp. website (http://www.rolanddg.com/) ☐ Make the setting for Roland@NET Select the check box [Download Updates Automatically and Notify] if the customer accepts it. ☐ Power-saving setting on PC Turn off the PC's Power-saving functions which make the PC goes stanby or sleep. It may stop a job being output.	Operating system (OS)	Windows 7 Professional/Ultimate (32-bit edition) Windows Vista Business/Ultimate Service Pack 1 (32-bit edition) Windows Vista Business/Ultimate (32-bit edition) Windows XP Professional Service Pack 2 or later Windows 2000 Service Pack 4	Processor	2.0-GHz or faster Pentium 4 (2.0-GHz or faster Core 2 Duo recommended)	Memory (RAM)	512 MB of RAM (1 GB or more recommended) (For Windows Vista/7, 1 GB (2 GB or more recommended))	Video card and monitor	A resolution of 1,280 x 1,024 or more recommended	Free hard-disk space required as a working space	40 GB or more recommended	Hard-disk file system	NTFS format	Optical drive	DVD-ROM drive	Other requirements	➤ Ethernet port ➤ For AppleTalk connection: Windows 2000 Service Pack 4 as the operating system, with AppleTalk protocol installed ➤ To use Roland@NET and VersaWorks Online: Internet connection and web browser
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☐ Installing Roland OnSupport	Install Roland OnSupport in reference to the Startup Guide. System Requirements <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <tr> <td style="width: 30%; padding: 5px;">Operating system (OS)</td> <td style="padding: 5px;">Windows 7 Professional/Ultimate (32-bit edition) Windows Vista Business/Ultimate Service Pack 1 (32-bit edition) Windows Vista Business/Ultimate (32-bit edition) Windows XP Professional Service Pack 2 or later</td> </tr> <tr> <td style="padding: 5px;">Processor</td> <td style="padding: 5px;">2.0 GHz or faster Pentium 4 (2.0-GHz or faster Core 2 Duo recommended)</td> </tr> <tr> <td style="padding: 5px;">Memory (RAM)</td> <td style="padding: 5px;">512 MB of RAM (1 GB or more recommended) (For Windows Vista/7, 1 GB (2 GB or more recommended))</td> </tr> <tr> <td style="padding: 5px;">Video card and monitor</td> <td style="padding: 5px;">A resolution of 1,280 x 1,024 or more recommended</td> </tr> <tr> <td style="padding: 5px;">Free hard-disk space re-quired as a working space</td> <td style="padding: 5px;">40 GB or more recommended</td> </tr> <tr> <td style="padding: 5px;">Hard-disk file system</td> <td style="padding: 5px;">NTFS format</td> </tr> <tr> <td style="padding: 5px;">Optical drive</td> <td style="padding: 5px;">CD-ROM drive</td> </tr> <tr> <td style="padding: 5px;">Other requirements</td> <td style="padding: 5px;"> ➤ Ethernet port ➤ Internet connection and web browser ➤ Communication environment where you can send e-mails </td> </tr> </table> * For the latest information, see the Roland DG Corp. website (http://www.rolanddg.com). ☐ Basic Operations - How to display OnSupport Help ☐ Environmental Settings (Language/Network) - Checking the Network Connection To fully utilize OnSupport, you need to connect your computer to our OnSupport server via the Internet. If your computer is linked to the Internet, you will enable its connection to our OnSupport server only by installing OnSupport. - Setting the E-mail Server - What is "OnSupport Mail"? ☐ Registering/Logging in/Updating the Account - Registering the Roland DG Account if the customer accepts it When you register the Roland DG Account (Roland DG ID), you will become able to use OnSupport more effectively. You are to communicate with our OnSupport server in registering your account. E-mail address is required. - How to update OnSupport ☐ Connecting and Managing the Devices When you make the management settings, you will become able to use "OnSupport Mail function" and the "Device Firmware Update function." To update the firmware, you need to log in OnSupport with the computer with which you made the management settings.	Operating system (OS)	Windows 7 Professional/Ultimate (32-bit edition) Windows Vista Business/Ultimate Service Pack 1 (32-bit edition) Windows Vista Business/Ultimate (32-bit edition) Windows XP Professional Service Pack 2 or later	Processor	2.0 GHz or faster Pentium 4 (2.0-GHz or faster Core 2 Duo recommended)	Memory (RAM)	512 MB of RAM (1 GB or more recommended) (For Windows Vista/7, 1 GB (2 GB or more recommended))	Video card and monitor	A resolution of 1,280 x 1,024 or more recommended	Free hard-disk space re-quired as a working space	40 GB or more recommended	Hard-disk file system	NTFS format	Optical drive	CD-ROM drive	Other requirements	➤ Ethernet port ➤ Internet connection and web browser ➤ Communication environment where you can send e-mails
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Other requirements	➤ Ethernet port ➤ Internet connection and web browser ➤ Communication environment where you can send e-mails																

Basic Operation

Explain following items in reference to the User's Manual.

☐ Switch On!

!! IMPORTANT !!

Always leave the main power on. Maintenance operation is automatically carried out every 12 hours while the machine is not in use. Use the sub power switch for the daily powering on and off.

☐ Loading Media



For the stable media feeding, place the middle pinch rollers above all the grit rollers that lie between the left and right pinch rollers.

☐ Setup of Media

- About [Media Setting] menu

[Media Setting] menu guides the settings in the interactive mode. Using this menu, you can set all of the basic settings only by setting according to the instructions on the display. The setting details can be stored as the preset menu. The items set through the [Media Setting] menu can be also set individually.

☐ Setting the Output-start Location

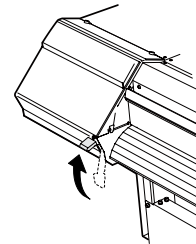
☐ Printing Tests and Cleaning

☐ Setting The Cutting Test And The Blade Force

☐ Pausing and Canceling Output

☐ Switch Off

Keep the loading lever raised when the machine is not in use.



Maintenance: For always using the printer in the best condition

☐ Checking for Remaining Ink and Replacing Cartridges

!! IMPORTANT !!

The remaining ink amount shown on the machine and VersaWorks is only an approximate guide, which may differ somewhat from the actual amount remaining.

☐ How to Replace Ink Cartridges

!! IMPORTANT !!

- Shake the cartridge gently before installing a ECO-SOL MAX ink cartridge.
- Be sure to replace with an item of identical type. Never mix items of different types.
- Never leave the machine with any ink cartridge removed. The print heads may become clogged.
- Never frequently insert and remove an ink cartridge. Air may leak into the ink tube and be a cause of missing dots.
- When printing is paused, the coloring at the seam may be altered when printing resumes. Before you perform lengthy printing, check the amount of ink remaining in the ink cartridges.
- Never store ink at any locations where high temperature may occur or exposed to open flame.

☐ Maintenance of Ink Cartridges

- Shake the ink cartridge periodically to maintain the good ink condition.
- "SHAKE CARTRIDGE" appears periodically.



- "SHAKE CARTRIDGE" does not appear when in the sleep mode or the sub power is off.
- The message shows up with beeps. After that, no beeps are made.
- During the message is displayed, the machine does not do anything unless the message is cleared.
- When plural printing jobs are printed continuously, the message does not show up. When the machine stays idling for several minutes, the message shows up. (Overnight printing is available.)

☐ Disposing of Discharged Ink

The message "CHECK DRAIN BOTTLE" appears when a certain amount of discharged fluid has collected in the bottle.

!! IMPORTANT !!

- When you dispose of discharged ink, make sure to reset the discharged-fluid count from [MENU] > [SUB MENU] > [MAINTENANCE] > [DRAIN BOTTLE] and press the [ENTER] key. Otherwise, "CHECK DRAIN BOTTLE" message appears at the inappropriate timing.
- Never place discarded fluid in the location close to fire.
- To store discharged fluid temporarily, use the included drain bottle or durable sealed container such as a metal can or polyethylene tank, and cap it tightly.
- Dispose of discharged fluid properly, in accordance with your local laws.

☐ Cleaning

- Pinch rollers
- Grit rollers
- Platen
- Paper side sensor
- Front cover
- Media clamps

!! IMPORTANT !!

- Never use gasoline, alcohol, thinner, or any other flammable material.
- Clean by wiping with a cloth moistened by neutral detergent diluted with water then wrung dry.

☐ About Care and Maintenance of Print Head

- Normal Cleaning
- Medium Cleaning
- Powerful Cleaning



The ink consumption of VS-640's Powerful Cleaning is equivalent to the medium cleaning of older printers, Medium Cleaning is equivalent to the normal cleaning of older printers, and Normal Cleaning consumes less ink than the normal cleaning of older printers.

☐ Manual Cleaning of Print Head

!! IMPORTANT !!

- To keep the stable output condition at all times, perform the manual cleaning more than once a month.
- The cut rail is not detected by the sensor. Be sure to put it back when completing the manual cleaning.

☐ When Problems Such As Dot Drop-out are Not Cleared Up

- About [INK RENEWAL]

Even after performing cleaning using the cleaning function (normal, medium, or powerful) or manual cleaning, perform this operation.

☐ Replacing the Wiper (Be careful about the fitting direction.)

☐ Replacing the Felt Wiper

☐ Replacing the Blade

☐ Replacing the Separating Knife

☐ When Not in Use for a Prolonged Period



- Switch on the sub power once a month.

[PRESS THE POWER KEY TO CLEAN] message appears once a month.

- Keep at a Constant Temperature and Relative Humidity

Even when the machine is not in use, keep it at a temperature of 5 to 40°C (41 to 104°F) and a relative humidity of 20 to 80% (with no condensation). Temperatures that are too high may degrade the ink and cause malfunction. Temperatures that are too low may cause the ink to freeze and damage the heads.

Explain following items in reference to the Setup Guide.

☐ When Transferring the Unit



VS-640/540/420/300 is transported with the ink filled. The ink pressure applied from the ink cartridges closes the inner valve of the ink damper. So that, you do not have to worry about ink dripping during transporting. When the machine has to be tilted, always keep the cartridge slot side upper than the print head side.

☐ Part of Practice

☐ Fully Utilizing Preset Function

- Saving Various Settings as a Name Assigned Preset
- Loading a Saved Preset

All menu items listed below can be saved in Presets.

- [PRINT] (Print heater), [DRYER]
- [PREHEATING]
- [DRYING TIME]
- [ADJUST BI-DIR SIMPLE SETTING]
- [ADJUST BI-DIR DETAIL SETTING]
- [CALIBRATION]
- [EDGE DETECTION]
- [SCAN INTERVAL]
- [VACUUM POWER]
- [FULL WIDTH S]
- [FEED FOR DRY]
- [FORCE], [SPEED], [OFFSET], [UP-SPEED]
- [CALIBRATION] (in the [CUTTING MENU])
- [PRINT-CUT ADJ.]
- [CROP-CUT ADJ.]

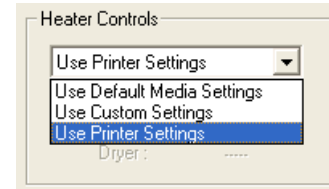
☐ Fully Utilize the Media Heating System

!! IMPORTANT !!

To obtain stable temperature, use the machine at an ambient temperature of 20 to 32°C (68 to 90°F).



The optimal temperature for the media varies according to the type of media and differences in the print mode. If the ink forms lumps or smudges, raise the temperature. If it still occurs even after raising the temperature, try using a print mode of higher image quality by VersaWorks. If problems persist, try reducing the amount of ink by VersaWorks.



☐ Fully Utilizing the Correction Function *

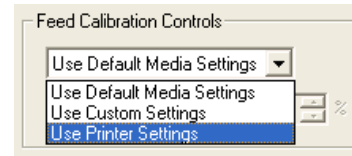
☐ Alleviating Horizontal Bands and the Like (feed correction function) *

☐ Adjusting Head Height to Match Media Thickness *

!! IMPORTANT !!

* These adjustments are required for each Media individually.

If you are setting Feed Calibration on your machine, check in advance that [Use Printer Settings] is set on VersaWorks.



☐ Accommodating to the Types and Condition of Media

Using Transparent Media [EDGE DETECTION DISABLE]

Printing Hard-to-dry Media [SCAN INTERVAL OFF]

Using the Media Easy to be Winkled/Hard to be Fed [VACUUM POWER]

Speeding Up Output for Narrow Media [FULL WIDTH S]

Preventing Soiling of the Media and Dot Drop-out [PERIODIC CL.NONE]

Using Sticky Media [MEDIA RELEASE ENABLE]

Clamping the Nozzle Array to be Used (CMYKLcLm mode only) [ALTERNATION DISABLE]

☐ Fully Utilizing Cutting Function

- Preventing Pulling of the Media with Undue Force When Performing Cutting Only [PREFEED]

- Fine-tuning the Cutting Conditions [CUT CONFIG FORCE/SPEED/OFFSET/UP-SPEED]

- Accurately Adjusting the Cutting-in Amount

- Performing Distance Correction During Cutting [CUTTING MENU CALIBRATION]



When you perform Print & Cut, be sure to set [CALIBRATION] in the [CUTTING MENU] to "0.00%." Otherwise the printing and cutting positions may become misaligned. This calibration is to be used only when performing cutting only.

☐ Correcting Misalignment of the Printing and Cutting Positions

- [PRINT - CUT ADJ.] (Print & Cut Position Adjustment)

☐ Prioritize The Settings Setting of This Machine to The Settings of a Computer Side

- [CUTTING PRIOR]

☐ Viewing the Automatic Environment Correction Function Settings



!! IMPORTANT !!

This function is for correcting the Print & Cut misalignment caused by the stretch/shrinkage of Encoder Scale. Make sure to set it to [ENABLE] at all times. [AUTO ENV. MATCH]: ENABLE (default)

☐ Printing with Crop Marks

- Aligning Automatically and Cutting
- Aligning Manually and Cutting

☐ Correcting Misalignment for Printing and Cutting When Using Crop Marks



- If misalignment occurs when performing Print & Cut with Crop Marks printed, perform this correction.
- Perform bidirectional adjustment before doing this correction.

☐ Using Media Take-up System*

* The take-up system is optional part.

Explain following items in reference to the User's Manual of Automatic Media Take-up Unit.

☐ How to Load Media

- Setting for the AUTO switch on the take-up unit (Take-up with outward curl, Take-up with inward curl)

☐ How to Remove Taken-up Media

!! IMPORTANT !!

Never use automatic cutoff of the media by the printer.

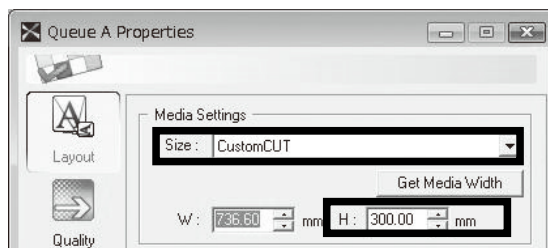
Avoid following operations that pull the media with undue force.

- Never operate the MANUAL switch when the loading lever is lowered.
- Never use [UP] cursor key of the printer to feed the media in reverse.

Explain following items in reference to the User's Manual of VS-640.

☐ Use The Media Take-up System When The Output Accompanied With The Pull-back Operation is Performed

- Use Conditions of Take-up System When "TU2" is Selected
(This is mainly for Print & Cut operation.)
- How to Output by Limiting Length (Roland VersaWorks)
(Select "CustomCUT" from [Size] under "Media Settings." and Set "H" at 300mm.)



- If the length of output at one time is too long, the media may get soiled by touching the work floor. To avoid the media from getting soiled by touching the floor, output the media by about 300 mm.
- When performing printing in [TU2] mode, the Take-up system never responds to any manual switch operation. When the automatic taking up starts, the switching operation responds.

☐ Output Operation Management	☐ Determining What Happens When Ink Runs Out - [EMPTY MODE] ☐ Returning All Settings to Their Initial Values
☐ When you use metallic silver ink and white ink * Only for the ink type 8 colors (WMT mode)	Explain following items in reference to the SPECIAL COLOR INK GUIDE. ☐ Characteristics of Inks and Important Notes - White ink and metallic silver ink precipitate. - Maintenance must be performed. - Drying inks - We strongly recommend lamination. ☐ Before Starting the Day's Work - The ingredients in white and metallic silver inks tend to settle. Each day, before starting the day's operations, remove just the white and metallic silver ink cartridges, shake them gently, then reinsert them. ☐ Creating Printing Data - Basic Approach for Creating Printing Data - Creating Data for Printing ☐ Printing With Metallic Silver/CMYKLcLm Color (Both or Individually) ☐ Printing With Metallic Silver/White/CMYK Color in a Single Pass ☐ Printing With White/CMYKLcLm Color (Both or Individually)  All 8 colors (CMYKLcLmWMT) cannot be printed simultaneously. The following printings are available. - CMYKLcLmMt printing - CMYKLcLm printing - White printing - CMYKLcLm and White in a Single Pass - Mt printing - CMYKMT and White in a Single Pass Consequently, when CMYKLcLmMt printing, White cannot be printed. And, when CMYKMT and White printing, LcLm cannot be printed. !! IMPORTANT !! In the print mode which uses Mt ink, it may not dry fully depending on the media. In that case, set [SCAN INTERVAL] or raise the temperature of the heaters.

!! IMPORTANT !!

The accuracy of Dual-pass Printing (Printing after pull-back the printing) is not specified.
The default media profiles in VersaWorks do not provide any Dual-pass print mode such as [-onWhite] or [-underWhite].

☐

Message for Ink Circulation

White ink and metallic silver ink are circulated periodically to prevent the ink precipitation automatically.

☐

Adding Media Profiles

Explain the procedure of adding Media Profiles of third-party media.

☐

Downloading Media Profiles from the web site.

☐

Adding Media Profiles to VersaWorks.

!! IMPORTANT !!

In the print mode for Mt ink, the ink may not dry fully depending on the type of the media. Confirm the proper printing result in a trial printing beforehand.

☐

Job outputting from
Roland VersaWorks

Explain each procedure as follows on a job outputting from Roland VersaWorks.

☐

Printing

☐

Cutting

!! IMPORTANT !!

Never use the Media clamps during cutting.

☐

Printing and cutting

Print then Cutting with Crop Marks (Refer to User's Manual [Printing with Crop Marks])

- Aligning Automatically and Cutting

- Aligning Manually and Cutting



When printing and cutting are performed using Crop Marks, misalignment of cutting caused by media stretch/shrinkage can be avoided.

☐ Others

- ☐ Explain to refer to the User's Manual when an error message is displayed. And also explain to switch off and on the machine and check what happens before calling for inquiry when [SERVICE CALL] is displayed, since it occasionally solves the problem just by restarting.
- ☐ Explain the procedure of capping the print heads referring to the User's Manual [If the Heads Still Do Not Move]. When the print carriage does not return to the standby position, capping needs to be done manually by user.

☐ Consumable Parts and Replacement Cycle

Parts Name	Replacement Cycle
Print Head	6 billion shots / nozzle (6,000,000 kshots)
Wiper	Wiping 3000 times
Felt Wiper	Wiping 800 times
Cap Top	6 months
Scan Motor	3000 hours
Ink Tube	3000 hours
Sponge for Wipers	Replace it appropriately diagnosing from the appearance of it
Lithium Battery	24 months
Cutter Protection	Replace it depending on the scratches
Pinch Roller	Replace it depending on the wear of the rubber part

7-2 Maintenance Check List

VS-640/540/420/300 Maintenance Check List

Date : _____

User Name : _____ Serial Number : _____

Check items		Operation points	Check
Interview the customer		Ask the customer if there is something that he/she is concerned about.	☐ Done
Output / Get Report before maintenance		[Get Report] by Peck, or print both Service Report and History Report.	☐ Done
Check drain bottle		If large amount of ink is discharged in the drain bottle, dispose of it and give an explanation to the customer. Make sure to reset the discharged-ink count.	☐ Good ☐ Dispose ☐ Reset
Upgrade the firmware to the latest version		Upgrade the firmware if the installed firmware is not the latest version.	☐ OK
Check Consumable Parts Revised 3	Head	Determine if it should be replaced based on the SHOT COUNT in the History Report, the test print result and the customer's interview. Replacement cycle : 6 billions shots	☐ Good ☐ Replacement Done ☐ Reset
		Perform manual cleaning by using cleaning sticks and cleaning liquid.	☐ Perform Cleaning
		Output the test patterns of BIAS to check the error, and perform adjustment if necessary.	☐ Good ☐ Adjustment Done
	Scan Motor	Determine if it should be replaced based on MOTOR ERROR and MOTOR HOURS S in the History Report, or on the motor sound when performing a print and the customer's interview. Put grease on the gear if you replace the motor. Replacement Cycle : 3,000 hours	☐ Good ☐ Replacement Done ☐ Reset
	Wiper	Determine if it should be replaced on the performance of the cleaning or the wiping times of the history report. Replacement Cycle : Wiping count 3,000 times	☐ Perform Cleaning ☐ Replacement Done
	Felt Wiper	Determine if it should be replaced on the performance of the cleaning or the wiping times of the history report. Replacement Cycle : Wiping count 800 times	☐ Perform Cleaning ☐ Replacement Done
	Linear Encoder Scale 1	Check if the Encoder Scale has any dirt or dust or any ink on. And, check the Encoder Module, too.	☐ Perform Cleaning ☐ Replacement Done
	Linear Encoder Scale 2	Check the Linear Encoder Sheet with [SERVICE MENU]>[PRINT MENU]>[LINEAR CHECK]. If result is not good, upgrade the firmware and the RVW and perform cleaning and replacement if necessary.	☐ Good ☐ RVW, Firmware Upgrading ☐ Perform Cleaning ☐ Replacement Done
	Cap Top	Determine if it should be replaced based on the performance of the cleaning or the period from the time when the Cap Top was replaced last time. Replacement Cycle : 6 months	☐ Good ☐ Perform Cleaning ☐ Replacement Done
	Sponge under the Wipers	Determine if it should be replaced diagnosing from the appearance of it.	☐ Good ☐ Perform Cleaning ☐ Replacement Done
Wiper Scraper	Perform manual cleaning using cleaning sticks and cleaning liquid. Replace it depending on the performance or appearance.	☐ Good ☐ Perform Cleaning ☐ Replacement Done	
Lithium Battery	Replacement Cycle : 24 months	☐ Good ☐ Replacement Done	
Check Mechanical Parts Revised 4	Carriage Belt	Check if the carriage belt does not touch the upper end or lower end of the drive pulley and idle pulley when the head carriage moves in the full width. Adjust the belt position, if necessary.	☐ Good ☐ Adjustment Done
	Cutter Protection	Replace it depending on the scratches.	☐ Good ☐ Replacement Done
	Pinch Roller	Check if it is not worn out or not dirty, or not deformed. Check if it rotates smoothly.	☐ Good ☐ Replacement Done
	Grid Roller	Remove foreign substances put on it by using a brush.	☐ Done
	Ink Tube	Check the clearance between the ink tube and the guide cable support is more than 6mm. Adjust the ink tube position, if necessary. Refer to the Sect3 (from 3-20-27 to 3-20-30).	☐ Good ☐ Adjustment Done
Check printing		Check that there is no problem with the printing operation and printing result.	☐ Done
Check cutting		Check that there is no problem with the cutting operation and cutting result.	☐ Done
Output / Get Report after maintenance		[GET REPORT] by Peck, or print both Service Report and History Report.	☐ Done

7-3 Specifications

Main unit specifications

		VS-640	VS-540	VS-420	VS-300
Printing technology		Piezoelectric inkjet			
Media	Width	210 to 1,625 mm (8.3 to 64 in.)	210 to 1,371 mm (8.3 to 54 in.)	182 to 1,071 mm (7.2 to 42.2 in.)	182 to 762 mm (7.2 to 30 in.)
	Thickness	Maximum 1.0 mm (39 mil) with liner, for printing Maximum 0.4 mm (16 mil) with liner and 0.22 mm (9 mil) without liner, for cutting			
	Roll outer diameter	Maximum 210 mm (8.3 in.)			
	Roll weight	Max. 40 kg (88 lb.)	Max. 30 kg (66 lb.)	Max. 25 kg (55 lb.)	Max. 25 kg (55 lb.)
	Core diameter(*1)	76.2 mm (3 in.) or 50.8 mm (2 in.)			
Printing/cutting width(*2)		Max. 1,600 mm (63 in.)	Max. 1,346 mm (53 in.)	Max. 1,046 mm (41.2 in.)	Max. 736 mm (29 in.)
Ink cartridges	Types	220-cc cartridge / 440-cc cartridge			
	Colors	Four colors (cyan, magenta, yellow, and black) or, Six colors (cyan, magenta, yellow, black, light cyan, light magenta) or, Eight colors (cyan, magenta, yellow, black, light cyan, light magenta, metallic silver, white)			
Printing resolution (dots per inch)		Maximum 1,440 dpi			
Cutting speed		10 to 300 mm/s			
Blade force		30 to 300 gf			
Cutting blade	Type	Roland CAMM-1 series compatible			
	Blade offset	0 to 1.5 mm(0 to 0.059 in)			
Software resolution (when cutting)		0.025 mm/step			
Distance accuracy (when printing) (*3)(*4)		Error of less than $\pm 0.3\%$ of distance traveled, or ± 0.3 mm, whichever is greater			
Distance accuracy (when cutting)(*3)		Error of less than $\pm 0.4\%$ of distance traveled, or ± 0.3 mm, whichever is greater When distance correction has been performed (when the setting for [CUTTING MENU] - [CALIBRATION] has been made): Error of less than $\pm 0.2\%$ of distance traveled, or ± 0.1 mm, whichever is greater			
Repeatability (when cutting) (*3)(*5)		± 0.1 mm or less			
Alignment accuracy for printing and cutting (*3)(*6)		± 0.5 mm or less			
Alignment accuracy for printing and cutting when reloading media (*3)(*7)		Error of less than $\pm 0.5\%$ of distance traveled, or ± 3 mm, whichever is greater			
Media heating system (*8)		Print heater, setting range for the preset temperature: 30 to 45°C (86 to 112°F) Dryer, setting range for the preset temperature: 30 to 50°C (86 to 122°F)			
Connectivity		Ethernet (10BASE-T/100BASE-TX, automatic switching)			
Power-saving function		Automatic sleep feature			
Power requirements		AC 100 to 120 V $\pm 10\%$, 8.2 A, 50/60 Hz or AC 220 to 240 V $\pm 10\%$, 4.2 A, 50/60 Hz	AC 100 to 120 V $\pm 10\%$, 7.9 A, 50/60 Hz or AC 220 to 240 V $\pm 10\%$, 4.0 A, 50/60 Hz	AC 100 to 120 V $\pm 10\%$, 7.2 A, 50/60 Hz or AC 220 to 240 V $\pm 10\%$, 3.7 A, 50/60 Hz	AC 100 to 120 V $\pm 10\%$, 5.6 A, 50/60 Hz or AC 220 to 240 V $\pm 10\%$, 2.9 A, 50/60 Hz
Power	During operation	Approx. 1,080 W	Approx. 1,050 W	Approx. 960 W	Approx. 740 W
	Sleep mode	Approx. 14.8 W	Approx. 14.4 W	Approx. 14.5 W	Approx. 14.4 W
Acoustic noise level	During operation	64 dB (A) or less			
	During standby	41 dB (A) or less			
Dimensions (with stand)		2,575 (W) x 705 (D) x 1,105 (H) mm (101.4 (W) x 27.8 (D) x 43.5 (H) in.)	2,315 (W) x 705 (D) x 1,105 (H) mm (91.2 (W) x 27.8 (D) x 43.5 (H) in.)	2,015 (W) x 705 (D) x 1,105 (H) mm (79.4 (W) x 27.8 (D) x 43.5 (H) in.)	1,705 (W) x 705 (D) x 1,105 (H) mm (67.2 (W) x 27.8 (D) x 43.5 (H) in.)
Weight (with stand)		130 kg (287 lb.)	120 kg (265 lb.)	105 kg (232 lb.)	90 kg (199 lb.)
Environmental	Power on (*9)	Temperature: 15 to 32°C (59 to 90°F) (20°C [68°F] or more recommended), humidity: 35 to 80%RH (non-condensing)			
	Power off	Temperature: 5 to 40°C (41 to 104°F), humidity: 20 to 80%RH (non-condensing)			
Accessories		Exclusive stands, power cord, blade, blade holder, media clamps, media holder, replacement blade for separating knife, software RIP, User's Manual, etc.			

*1

Note: The media holder of this machine is exclusive use for the media of paper tube (core) inner diameter 3 inches. To use 2 inches media, the optional media flanges are required.

*2

The length of printing or cutting is subject to the limitations of the program.

*3

- Media type: Media specified by Roland DG Corp. (Cutting only)
- Temperature: 25°C (77°F), humidity: 50%
- Roll media must be loaded correctly.
- Applicable when all pinch rollers available to the media width are used.
- Side margins: 25 mm or more for both the left and right margins
- Front margin: 35 mm or more
- Excluding expansion/contraction of the media
- Not assured when the print heater or dryer is used.
- All correction or adjustment function of this machine has been made properly.

*4

- With Roland PET film, print travel: 1 m

*5

- [PREFEED] menu item must be set to "ENABLE."

Range for assured repetition accuracy

64-inch model

- For media with a width exceeding 610 mm: Length 4,000 mm
- For media with a width of 610 mm or less: Length 8,000 mm

54-inch model

- For media with a width exceeding 610 mm: Length 4,000 mm
- For media with a width of 610 mm or less: Length 8,000 mm

42-inch model

- Length 3,000 mm

30-inch model

- Length 3,000 mm

*6

- Provided that media length is under 3,000 mm
- Excludes the effects of slanted movement and of expansion and contraction of the media.

*7

- Data size:

64-inch model: 1,000 mm in the media-feed direction, 1,600 mm in the carriage-movement direction

54-inch model: 1,000 mm in the media-feed direction, 1,346 mm in the carriage-movement direction

42-inch model: 1,000 mm in the media-feed direction, 1,046 mm in the carriage-movement direction

30-inch model: 1,000 mm in the media-feed direction, 736 mm in the carriage-movement direction

- No lamination
- Automatic detection of crop marks at 4 points when media is reloaded.
- During cutting, [PREFEED] menu item must be set to "ENABLE."
- Excluding possible shift caused by expansion/contraction of the media and/or by reloading the media.

*8

- Warm-up is required after power up. This may require 5 to 20 minutes, depending on the operating environment.
- Depending on the ambient temperature and media width, the preset temperature may fail to be reached.

*9

- Operating environment

