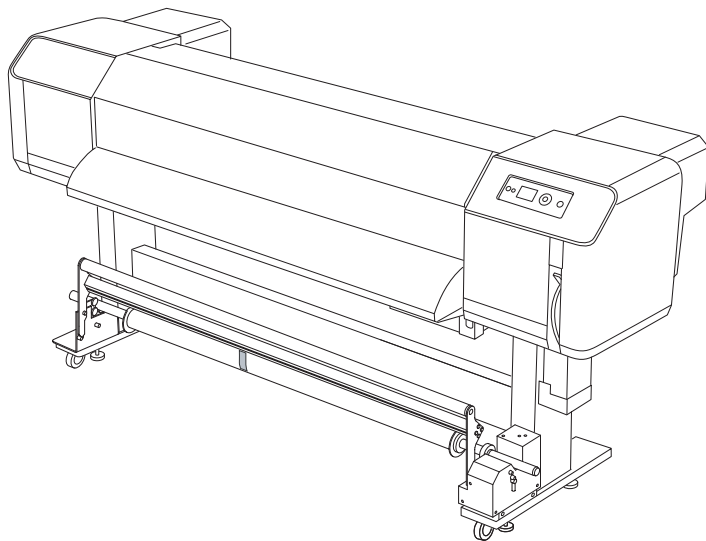


SERVICE MANUAL



Large Format Color Inkjet Printer

Epson Stylus Pro GS6000

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PRECAUTIONS

Precautionary notations throughout the text are categorized relative to 1) Personal injury and 2) Damage to equipment.

DANGER Signals a precaution which, if ignored, could result in serious or fatal personal injury. Great caution should be exercised in performing procedures preceded by DANGER Headings.

WARNING Signals a precaution which, if ignored, could result in damage to equipment.

The precautionary measures itemized below should always be observed when performing repair/maintenance procedures.

DANGER

1. ALWAYS DISCONNECT THE PRODUCT FROM THE POWER SOURCE AND PERIPHERAL DEVICES PERFORMING ANY MAINTENANCE OR REPAIR PROCEDURES.
2. NO WORK SHOULD BE PERFORMED ON THE UNIT BY PERSONS UNFAMILIAR WITH BASIC SAFETY MEASURES AS DICTATED FOR ALL ELECTRONICS TECHNICIANS IN THEIR LINE OF WORK.
3. WHEN PERFORMING TESTING AS DICTATED WITHIN THIS MANUAL, DO NOT CONNECT THE UNIT TO A POWER SOURCE UNTIL INSTRUCTED TO DO SO. WHEN THE POWER SUPPLY CABLE MUST BE CONNECTED, USE EXTREME CAUTION IN WORKING ON POWER SUPPLY AND OTHER ELECTRONIC COMPONENTS.
4. WHEN DISASSEMBLING OR ASSEMBLING A PRODUCT, MAKE SURE TO WEAR GLOVES TO AVOID INJURY FROM METAL PARTS WITH SHARP EDGES.

WARNING

1. REPAIRS ON EPSON PRODUCT SHOULD BE PERFORMED ONLY BY AN EPSON CERTIFIED REPAIR TECHNICIAN.
2. MAKE CERTAIN THAT THE SOURCE VOLTAGES IS THE SAME AS THE RATED VOLTAGE, LISTED ON THE SERIAL NUMBER/RATING PLATE. IF THE EPSON PRODUCT HAS A PRIMARY AC RATING DIFFERENT FROM AVAILABLE POWER SOURCE, DO NOT CONNECT IT TO THE POWER SOURCE.
3. ALWAYS VERIFY THAT THE EPSON PRODUCT HAS BEEN DISCONNECTED FROM THE POWER SOURCE BEFORE REMOVING OR REPLACING PRINTED CIRCUIT BOARDS AND/OR INDIVIDUAL CHIPS.
4. IN ORDER TO PROTECT SENSITIVE MICROPROCESSORS AND CIRCUITRY, USE STATIC DISCHARGE EQUIPMENT, SUCH AS ANTI-STATIC WRIST STRAPS, WHEN ACCESSING INTERNAL COMPONENTS.
5. REPLACE MALFUNCTIONING COMPONENTS ONLY WITH THOSE COMPONENTS BY THE MANUFACTURE; INTRODUCTION OF SECOND-SOURCE ICs OR OTHER NON-APPROVED COMPONENTS MAY DAMAGE THE PRODUCT AND VOID ANY APPLICABLE EPSON WARRANTY.
6. WHEN AIR DUSTER IS USED ON THE REPAIR AND THE MAINTENANCE WORK, THE USE OF THE AIR DUSTER PRODUCTS CONTAINING THE INFLAMMABLE GAS IS PROHIBITED.

About This Manual

This manual describes basic functions, theory of electrical and mechanical operations, maintenance and repair procedures of the printer. The instructions and procedures included herein are intended for the experienced repair technicians, and attention should be given to the precautions on the preceding page.

Manual Configuration

This manual consists of six chapters and Appendix.

CHAPTER 1.PRODUCT DESCRIPTIONS

Provides a general overview and specifications of the product.

CHAPTER 2.OPERATING PRINCIPLES

Describes the theory of electrical and mechanical operations of the product.

CHAPTER 3.TROUBLESHOOTING

Describes the step-by-step procedures for the troubleshooting.

CHAPTER 4.DISASSEMBLY / ASSEMBLY

Describes the step-by-step procedures for disassembling and assembling the product.

CHAPTER 5.ADJUSTMENT

Provides Epson-approved methods for adjustment.

CHAPTER 6.MAINTENANCE

Provides preventive maintenance procedures and the lists of Epson-approved lubricants and adhesives required for servicing the product.

CHAPTER 7.APPENDIX

Provides the following additional information for reference:

- Connectors
- ASP List
- Exploded Diagrams

Symbols Used in this Manual

Various symbols are used throughout this manual either to provide additional information on a specific topic or to warn of possible danger present during a procedure or an action. Be aware of all symbols when they are used, and always read NOTE, CAUTION, or WARNING messages.



Indicates an operating or maintenance procedure, practice or condition that is necessary to keep the product's quality.



Indicates an operating or maintenance procedure, practice, or condition that, if not strictly observed, could result in damage to, or destruction of, equipment.



May indicate an operating or maintenance procedure, practice or condition that is necessary to accomplish a task efficiently. It may also provide additional information that is related to a specific subject, or comment on the results achieved through a previous action.



Indicates an operating or maintenance procedure, practice or condition that, if not strictly observed, could result in injury or loss of life.



Indicates that a particular task must be carried out according to a certain standard after disassembly and before re-assembly, otherwise the quality of the components in question may be adversely affected.

Revision Status

Revision	Date of Issue	Description
A	July 18, 2008	First release

Revision	Date of Issue	Description
B	December 12, 2008	<p>Ch1:</p> <ul style="list-style-type: none"> ■ 1.2.2 Durability (p. 14) Revised contents. ■ 1.4.2 Panel Settings (p. 22) Added the ROLL PAPER COUNTER menu. ■ 1.4.3 Maintenance Mode (p. 30) Added the REMAINING PPR SETUP menu. ■ 1.4.4 Serviceman Mode (p. 31) Added the menu list. <p>Ch4:</p> <ul style="list-style-type: none"> ■ 4.1.3 Recommended Tools (p. 64) Added Thread-locker. <p>Ch5:</p> <ul style="list-style-type: none"> ■ 5.1.4 Tools for Adjustments (p. 186) Added Thread-locker. ■ 5.1.5 Service Program Basic Operations (p. 187) Changed the explanation partially. ■ 5.3.3 CR Height Adjustment (p. 197) Corrected the values indicating the jig's thickness. ■ 5.4.6 Head Slant and Alignment Adjustment (p. 205) Changed the explanation. ■ 5.6.1 RTC and USB ID (p. 217) Changed the explanation. ■ 5.8.3 Electric Components Test (p. 224) Changed the actions of the F COVER and the M COVER when checking partially. <p>Ch6:</p> <ul style="list-style-type: none"> ■ 6.4 Cleaning (p. 234) Added the Carriage Rail Cleaner and the Carriage Rail Oil to the Maintenance Kit. ■ 6.5 Lubrication (p. 241) Added the Part No. of grease. <p>Ch7:</p> <ul style="list-style-type: none"> ■ 7.3 Parts List (p. 250) Update the information to the latest. ■ 7.4 Exploded Diagram (p. 255) Update the information to the latest.

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CHAPTER

1

PRODUCT DESCRIPTION



1.1 Features

Epson Stylus Pro GS6000 is a wide-format color Eco-Solvent ink jet printer that supports 64-inch roll paper. The features of this printer are;

☐ High-speed output

The new type print head achieves high-speed output. It is compatible with paper up to 1,625 mm in width.

☐ Wide variety of compatible paper

The head is adjustable to two levels of height and compatible with paper up to 1.3 mm in thickness.

☐ Vibrant color reproduction

Eight colors of ink are used for printing in order to reproduce sharp and vivid colors. This printer uses 950 ml large-capacity ink cartridges. Use of variable dots can improve color reproduction.

☐ Multi-heater

Heaters are installed at three locations (pre, platen, after) allowing solvent ink to fix better on paper and dry quickly.

☐ Auto Take-Up Reel Unit

This automatically takes up printed paper, keeping it clean and free of creases. It is also convenient for storage and transportation.

☐ Large-capacity (950 ml) ink cartridge

Epson provides the large-capacity (950 ml) ink cartridges for this printer that realize the high productivity required for professional work.

☐ High speed USB 2.0 / Gigabit Ethernet

You can connect to a high-speed network (such as USB 2.0 or Ethernet 100/1000) and that improves the file transfer speed.

☐ Active indicator

The Active indicator flashes when an error has occurred during operation. Since the indicator is big, customers can easily check the operational status of the printer at a distance.

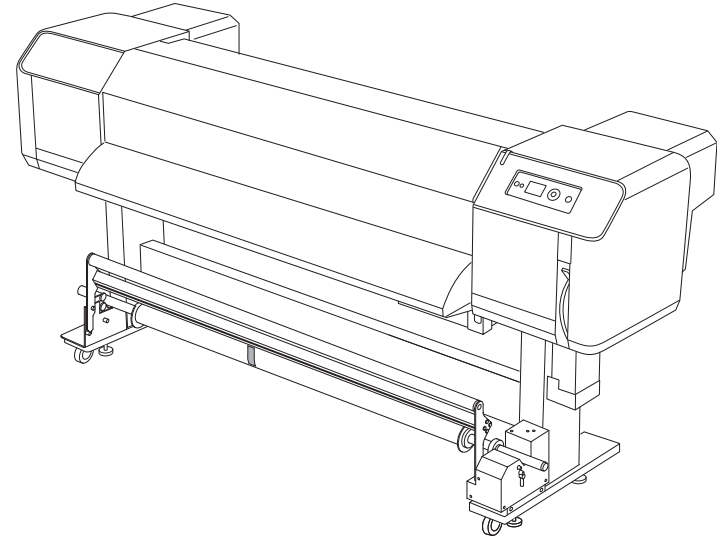


Figure 1-1. External View



1.2 Basic Specifications

1.2.1 Printer Specifications

Item		Specification		
Printing method		On-demand ink jet		
Nozzle configuration		Black: 180 nozzles per color x 2* ¹		
		Color: 180 nozzles per color x 2* ¹ (Cyan, Magenta, Light Cyan, Light Magenta, Yellow, Green, Orange)		
Character mode	Character Pitch	10 cpi		
	Printing Column	635		
Raster graphic mode	Horizontal resolution	540 dpi	720 dpi	1440 dpi
	Printable width	1615.0 mm (63.58")		
	Available dots	34,334	45,779	91,559
Resolution		Maximum 1440 x 1440 dpi		
Print direction		Bidirectional		
Control code		ESC/P Raster, ESC/P2		
RAM		256 MB (MAIN) + 64 MB (Network)		
Character tables		PC 437 (US, Standard Europe)		
Character sets		EPSON Courier 10 cpi		
Paper feed method		Friction		
Paper path		Roll paper		

Note *1: Each color has two lines.

ELECTRIC SPECIFICATIONS

Item		Specification	
		100-120V Model	220-240V Model
Rated voltage		AC 100 to 240 V	
Input voltage range		AC 90 to 264 V	
Rated frequency range		50 to 60 Hz	
Input frequency range		49 to 61 Hz	
Rated current	MAIN	11 A	6 A
	HEATER	11 A	6 A
	TAKE-UP REEL	0.4A	0.4 A
Power consumption (MAIN + HEATER)	Printing		Approx. 680 W
	Ready mode	Idle heat ON	Approx. 680 W
		Idle heat OFF	Approx 48 W Approx 40 W
	Sleep mode		Approx. 24 W
	Power off:		Approx. 3 W



INK CARTRIDGES

Item		Specification
Colors		Cyan
		Magenta
		Yellow
		Black
		Light Cyan
		Light Magenta
		Green
		Orange
Cartridge life		See expiry date on package or cartridge.
		Within 6 months after opening package.
Temperature	Storage (uninstalled)	-20 to 40°C (-4 to 104°F)
		1 month at 40°C (104°F)
	Storage (installed)	-10 to 40°C (14 to 104°F)
		4 days at 32°C (90°F)
Capacity		950 ml
Dimensions		53.1 mm (W) x 316.1 mm (D) x 146.2 mm (H)

ENVIRONMENTAL CONDITIONS

Item		Specification
Temperature	Operation	20 to 32°C (68 to 89.6°F)
	Print Quality Guarantee	22 to 32°C (72 to 89.6°F)
	Storage	-10 to 40°C (14 to 104°F)
		4 days at 32°C (90°F)
Humidity	Operation	40 to 60% RH*
	Print Quality Guarantee	40 to 60% RH*
	Storage	20 to 80% RH*

Note *: Without condensation

ROLL PAPER

Item		Specification
Paper size (width)		300 mm (12") to 1625 mm (64")
Internal diameter		3 inches
Outer diameter		Max. 170 mm (6.7")
Thickness	When Head height adjustment lever is Low	Max 0.3 mm
	When Head height adjustment lever is High	Max 1.3 mm
Weight		Max. 30 kg



STANDARDS AND APPROVALS

Item	Specification	
Safety	UL 60950-1	
	CSA No. 60950-1	
	Low Voltage Directive 2006/95/EC	EN 60950-1
EMC	FCC part 15 subpart B class A	
	CAN/CSA-CEI/IEC CISPR 22 Class A	
	AS/NZS CISPR 22 Class A	
	EMC Directive 2004/108/EC	EN 55022 Class A
		EN 55024
		EN 61000-3-2
		EN 61000-3-3

MECHANISM

Item		Specification
CR and PF drive method		Servo motor and DC motor are operated by the firmware
Paper feed method		Loads paper at the rear and ejects paper to the front
Print Head		180 nozzles x 8 rows Two Print Heads are mounted.
Ink	Ink supply method	Ink is supplied from the independent ink cartridges through a tubes via the sub tanks.
	Ink type	Eco-Solvent ink
	Ink colors	Black, Cyan, Magenta, Yellow, Light Cyan, Light Magenta, Green, Orange
Waste ink tank	Attachment	Secured to the main unit
	Capacity	2,000 ml
	Full tank detection	Detected by the float sensor
Noise		50dB or lower
Take-Up Reel Unit	Drive method	Driven by DC geared motor



1.2.2 Durability

The following lists the parts that need periodical replacement as indicated.

Item	Durability	Panel message display
Head Caps	1 year	None
Wiper	1 year	None
Head & Dumpers	6,000,000,000 dots/nozzle	None
CR Motor	6,220,000 passes	Indicated
PF Motor	30,000 m.	None

1.2.3 Paper size/Printable area

SUPPORTED PAPER SIZE/THICKNESS

The supported paper size and thickness are described below.

Item		Value
Width		300 to 1625 mm
Thickness	When Head height adjustment lever is Low	Max 0.3 mm
	When Head height adjustment lever is High	Max 1.3 mm

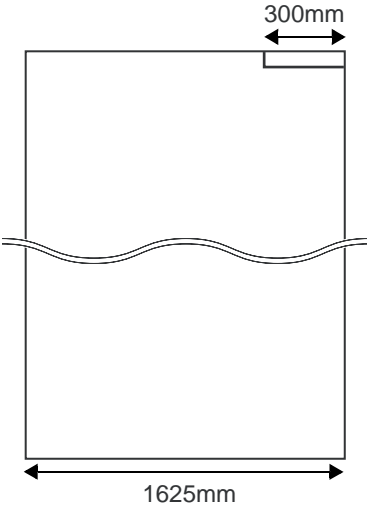


Figure 1-2. Supported Paper Size



PRINTABLE AREA

The printable area of this printer is described below.

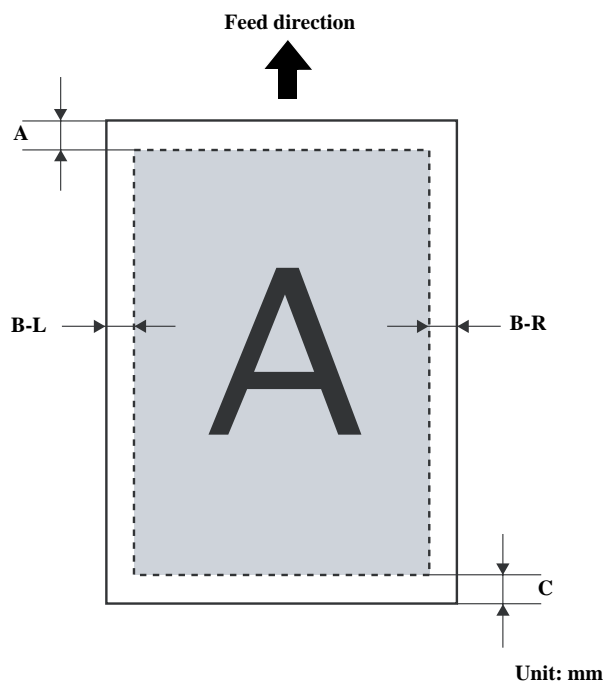


Figure 1-3. Printable Area

Item	Value
A	Min. 5 mm
B-L	5 to 25 mm
B-R	5 to 25 mm
C	Min. 5 mm When end of the roll paper, the margin will be 77.4 mm.

1.2.4 Print Mode / Print Resolution

The table below lists the print mode and the resolution.

Media Type	Print quality	Print density (HxV)	Dot size	Pass (CRxPF)	Uni/Bi	Throughput (m ² /h)
Marking Film	Max Quality	1440x1440dpi	VSD3d-S(320cps)	4x4 pass	Uni-D	1.6
					Bi-D	2.9
	Quality 1	1440x720dpi	VSD3d-V(320cps)	4x2 pass	Uni-D	3.3
					Bi-D	5.8
	Quality 2	720x720dpi	VSD3d-V(400cps)	4x2 pass	Uni-D	3.6
					Bi-D	7.0
	Quality 3	540x720dpi	VSD3d-V(400cps)	3x2 pass	Uni-D	5.5
Banner					Bi-D	9.3
	Speed 1	540x720dpi	VSD1d-V(400cps)	3x2 pass	Uni-D	5.5
					Bi-D	9.3
	Speed 2	720x720dpi	VSD1d-V(400cps)	2x2 pass	Uni-D	8.3
					Bi-D	13.6
	Speed 3	720x360dpi	VSD1d-L(400cps)	2x1 pass	Uni-D	16.6
					Bi-D	25.3



1.3 Dimensions and Main Components

This section describes the printer dimensions and the main components.

1.3.1 Dimensions and Weight

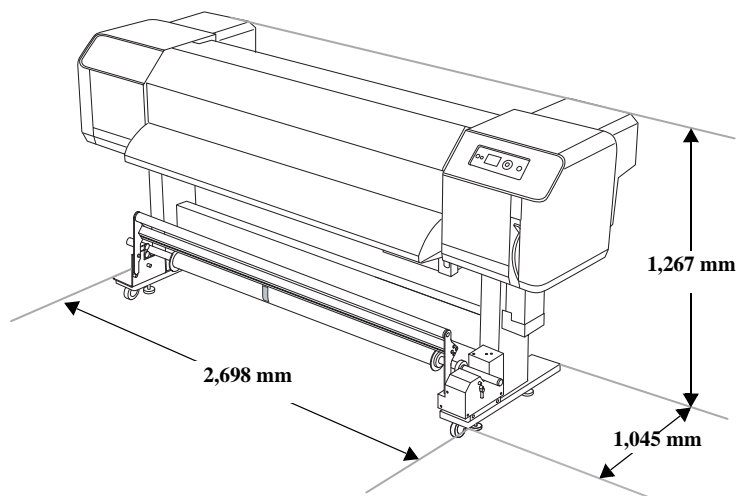


Figure 1-4. Printer Dimensions (standard)

□ Dimensions

- Standard (with the Auto Take-up Reel Unit):
2,698 (W) x 1,045 (D) x 1,267 (H) mm
- Without the Auto Take-up Reel Unit:
2,698 (W) x 943 (D) x 1,267 (H) mm

□ Weight

- Printer main body and the Stand (excludes the ink cartridges and paper):
Approx. 183 kg
- Printer main body only (excludes the ink cartridges and paper):
Approx. 150 kg
- Auto Take-up Reel unit: Approx. 19 kg



1.3.2 Part Names

FRONT

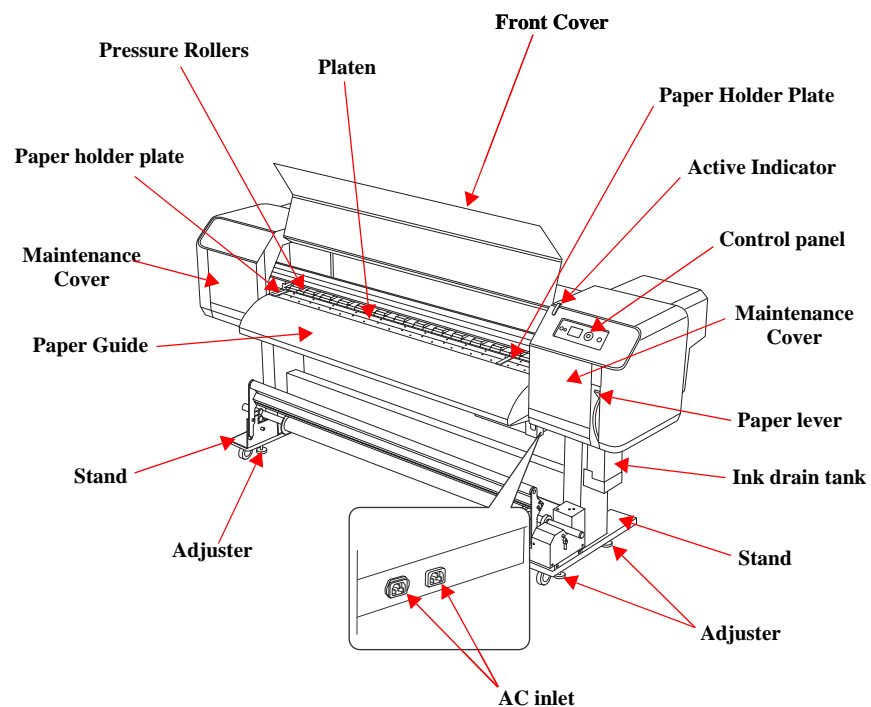


Figure 1-5. Part Name (Front)

REAR

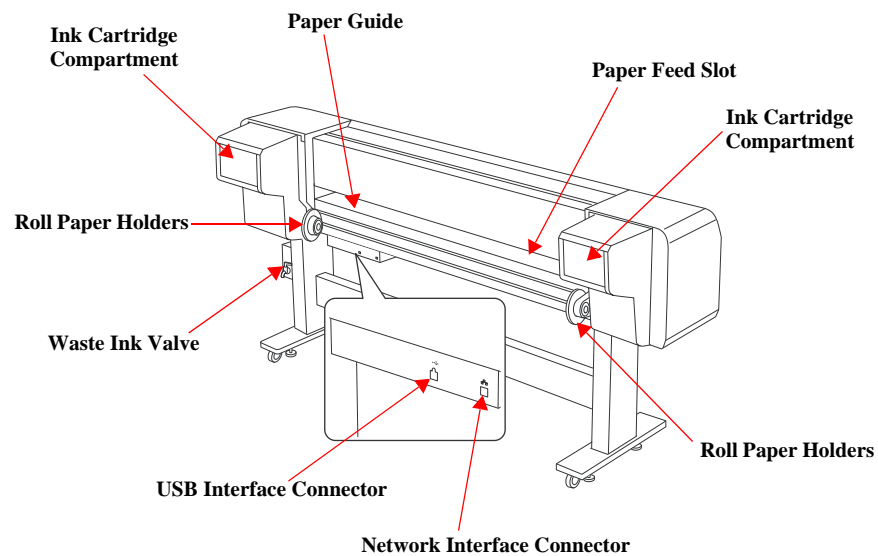


Figure 1-6. Part Name (Rear)

1.4 Control Panel

1.4.1 Buttons and Indicators

BUTTONS

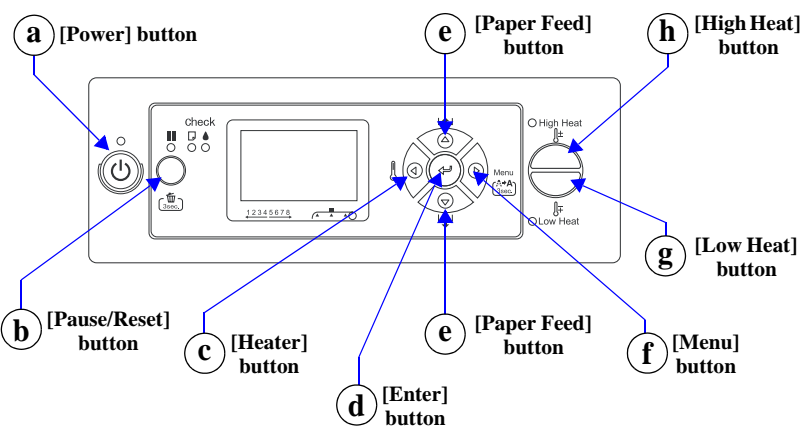


Figure 1-7. Buttons

Button Name		Function
a	[Power]	Turns the printer on or off.
b	[Pause/Reset]	Stops printing temporarily, or restarts printing if pressed when the printer is in the pause mode.
		Clears print data in the printer memory if pressed and held for 3 seconds.
		The printer returns to the READY state when this button is pressed in the Menu mode.
c	[Heater]	Selects a heater type. From the right, Pre Heater, Platen Heater, and After Heater are displayed on the LCD panel. Select a heater type, and then press the [High Heat] button or [Low Heat] button to change the preset temperature.
		Returns to the previous level when pressed in the Menu mode.
d	[Enter]	Sets the selected parameter in the selected item in the Menu mode. Executes the item if the selected item is for execution only.
e	[Paper Feed]	Feeds the roll paper in the forward or reverse direction. *1
		Changes the parameter in the forward or reverse order when selecting a desired parameter in the Menu mode.
		The numeric value is decreased or increased during numerical input.
f	[Menu]	Enters the Menu mode when pressed in the READY state.
		Enters the Printer Status menu if pressed during printing.
		Stops printing temporarily, or restarts When pressed in the Menu mode, a desired menu can be selected.
		Performs Cleaning (Light) to clean the print heads if pressed and held for 3 seconds.
g	[Low Heat]	Decreases the preset temperature of the heater. You can also change the preset temperature while printing.
h	[High Heat]	Increases the preset temperature of the heater. You can also change the preset temperature while printing.

Note *1: When AUTO TAKE-UP REEL is ON in the Menu mode, the roll paper cannot be fed in the reverse direction.



LIGHTS (LED)

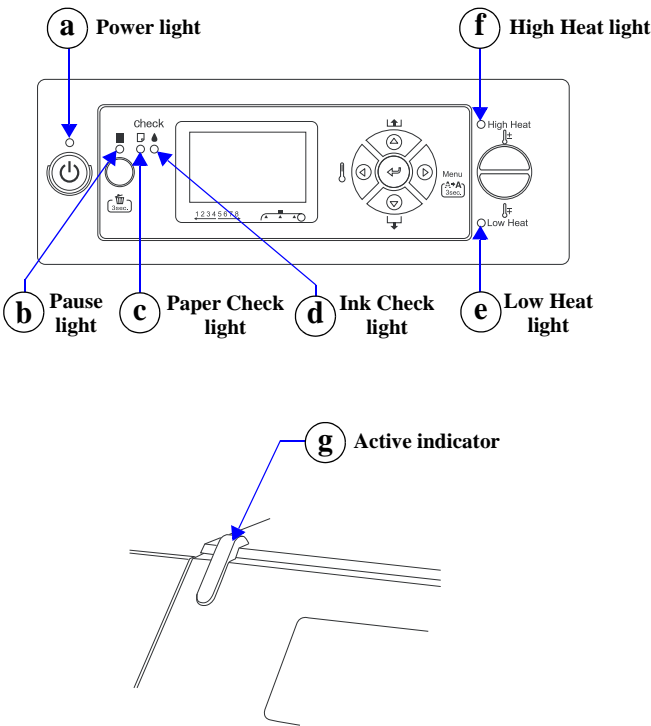


Figure 1-8. Lights (LED)

Name		Status	Description
a	Power light	On	The printer is on.
		Flashing	The printer is: <ul style="list-style-type: none">• analyzing the data• printing• cleaning• in process of turning off
		Off	The printer is off.
b	Pause light	On	The printer is in the Menu mode. The printer is in the pause mode.
		Off	The printer is ready to print data.
c	Paper Check light	On	No paper is loaded in the printer.
		Flashing	Paper is jammed. Paper is not loaded straight. Paper is nearly ended. The maintenance call has occurred.
		Off	The printer is ready to print data.
d	Ink Check light	On	The installed ink cartridge is expended. The ink cartridge is not installed. The wrong ink cartridge is installed.
		Flashing	The installed ink cartridge is nearly expended.
		Off	The printer is ready to print data.
e	Low Heat light	The status or the meaning is shown by combination of the light. See “<Combination of Low and High Heat Lights>” (p20).	
f	High Heat light		
g	Active indicator	Flashing	An error has occurred.
		Off	The printer has no error.



<Combination of Low and High Heat Lights>

□ When the printer is READY

High Heat	Low Heat	Status
On	On	The three heaters have reached preset temperature.
Flashing	Off	One or more of the heaters is/are trying to reach the preset temperature.
Flashing	Flashing	A heater error has occurred.
Off	Off	Heaters are off.

□ When selecting a Heater to set the temperature.

High Heat	Low Heat	Status
On	On	You can change the temperature to higher or lower than the current setting.
On	Off	You can change the temperature to higher than the current setting.
Off	On	You can change the temperature to lower than the current setting.

DISPLAY

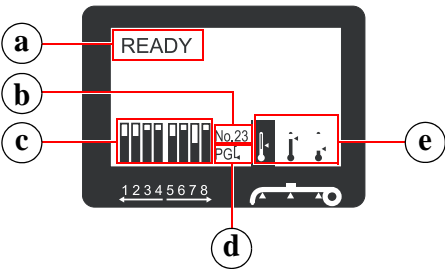


Figure 1-9. Display

Name		Description
a	Messages	Displays the printer status, operation, and error messages.
b	Paper Type	When you select paper type (1 to 30) in the Paper Setup menu, the number you selected appears.
c	Ink cartridge status icon	Displays the remaining amount of ink in each cartridge.
d	Platen Gap icon	Displays the Platen Gap setting that is read by the sensor.
e	Heater icon	Displays the preset temperature and the current temperature of the Pre Heater, Platen Heater, and After Heater.











☐ Ink cartridge status icon



☒ Ink cartridges

No.	Ink color
1	Orange (OR)
2	Green (GR)
3	Light Magenta (LM)
4	Light Cyan (LC)
5	Black (BK)
6	Yellow (Y)
7	Magenta (M)
8	Cyan (C)


☒ Ink remaining

Icon			Description
			There is enough ink remaining.
			We recommend you prepare a new ink cartridge.
			The icon flashes. The yellow ink cartridge is nearly empty. Prepare a new ink cartridge.
			The ink is expended so you cannot print. Replace the ink cartridge with a new one. This icon indicates the yellow tank.
			Cartridge error or no cartridge.

☐ Platen Gap icon

Icon	Explanation
	High
	Low

☐ Heater icon

Icon	Explanation
	The preset temperature is indicated by the graduation and the numerical value. The current temperature is indicated by the thermometer icon.

1.4.2 Panel Settings



This section describes the panel settings that customers can change.


For the map of menu, see “7.2 Panel Menu Map” (p247).

MENU LIST

Menu	Item	Parameter (*: Default setting)	Explanation
PRINTER SETUP	SIDE MARGIN	5mm* - 25mm (0.2inch* - 1.00inch)	You can set the margin for left and right side.
	PAPER SIZE CHECK	ON*	You can select whether to check the paper width. <input type="checkbox"/> ON: Check the paper width and top edge of the paper. <input type="checkbox"/> NO: Do not check the paper width and top edge of the paper. The printer continues to print even if the paper width does not match the data width, and the printer may print beyond the paper. Because this soils the inside of the printer, we recommend you select ON. This may result in a wider blank margin at the top of each page.
		OFF	
	PAPER SKEW CHECK	ON*	If the paper is not straight, “PAPER SKEW” appears on the LCD panel and the printer stops printing.
		OFF	A paper align error does not occur even if the printed data is out of range of the paper, and the printer continues to print.
	PRINT NOZZLE PATTERN	OFF*	When you select ON, the printer prints the nozzle check pattern before printing each print job or the 10th sheet, depending on the setting you have set.
		ON: EVERY PAGE	
		ON: EVERY 10 PAGES	
	HEATING TIME	OFF	You can set the length of time to preheat the heaters. When more than the set time has passed after turning on the printer or after printing is finished, each heater turns off.
		10min* - 240min	
	FLUSH ONTO PAPER	YES*	You can set up the flushing operation while printing. <input type="checkbox"/> YES: The printer performs the flushing operation on the page margins. The printing speed improves since the number of times to return to the flushing box is decreased. <input type="checkbox"/> NO: Performs the flushing operation to return to the flushing box every time the print head goes and returns.
		NO	
	FLUSING FREQUENCY	5PASS*	You can set the frequency that the print head returns to the flushing box when setting YES in the FLUSH ONTO PAPER setting. (When you select 5PASS, the print head returns to the flushing box every time the print head goes and returns five times.)
		1PASS - 999PASS	
	PAPER ORIGIN SETUP	0mm* - 800mm	You can set the beginning of printing (origin) of the horizontal direction.



Menu	Item	Parameter (*: Default setting)	Explanation
PRINTER SETUP	AUTO TAKE-UP REEL	ON*	Use this setting when using the Auto Take-Up Reel Unit. When ON is selected, you cannot feed the roll paper in the reverse direction.  When the Auto Take-Up Reel Unit is not installed, do not set to ON. By doing so, the product will be unable to function properly.
		OFF	
	HEAD FAN (COOLING FAN)	ON*	You can set up the head fan operation. If print blurring or dot losses occur, select ON.
		OFF	
	REGULAR CLEANING	OFF	You can set the auto cleaning interval of this printer. When more than the set time has passed since the previous print job, the print head is cleaned automatically to prevent it from clogging.  The timer will be reset at the following timing: <ul style="list-style-type: none"> ■ when turning on the printer ■ when changing the interval of the auto cleaning ■ when performing the cleaning manually
		1h, 2h, 3h, 4h, 5h, 6h*, 9h, 12h, 18h, 24h	
PAPER SETUP	ROLL PAPER COUNTER	OFF*	In this setting, the alert can be set off when the remaining paper falls below 2m. Enter the remaining amount (length) of paper currently set on the printer. This menu is displayed only when the REMAINING PPR SETUP in Maintenance Mode is set to ON.
		5 - 99.5m (15 - 300ft)	
	INITIALIZE SETTINGS	EXECUTE	You can return all setting values you have made in the Printer Setup menu to their factory set value.
	PAPER TYPE	STANDARD*	You can select the paper type to print.
PAPER SETUP	PAPER SETUP	PAPER No.1 - 30	
		STANDARD*	When you select STANDARD, the default settings are used. When you select a number (between 1 to 30), you can register the settings (such as Print Mode, Paper Feed Adjust, Head Alignment, Pre Heater, Platen Heater, After Heater, M/W Adjustment, Paper Suction, Drying Time, Carriage Movement, Print Multiple Layer) or to recall these settings you have made. The number you select here is displayed on the LCD panel. See "Details of PAPER SETUP" (p27).

Menu	Item	Parameter (*: Default setting)	Explanation
MAINTENANCE	CLEANING (VERY LIGHT)	EXECUTE	You can perform very light cleaning. It discharges a smaller amount of ink compared to CLEANING (LIGHT).
	CLEANING (LIGHT)	EXECUTE	You can perform normal cleaning. Select this mode normally.
	CLEANING (MEDIUM)	EXECUTE	You can perform strong cleaning. It discharges a larger amount of ink compared to CLEANING (LIGHT). Use this mode when the print head clog situation does not improve by CLEANING (LIGHT).
	CLEANING (HEAVY)	EXECUTE	You can perform stronger cleaning. It discharges a larger amount of ink compared to CLEANING (MEDIUM). Use this mode when the print head clog situation does not improve by CLEANING (MEDIUM).
	HEAD WASHING	EXECUTE	<p>You can perform the head washing.</p>  <p>Cleaning cartridge (option) is needed to perform head washing.</p>
MAINTENANCE	CARRIAGE MAINTENANCE	EXECUTE	The carriage will move into a position allowing you to clean the cleaning wiper and around the print head.
	CLOCK SETTING	MM/DD/YY HH:MM	You can set year, month, date, hour, and minute.
	CONTRAST ADJUSTMENT	-20 - 0 - +20	You can adjust the contrast of the LCD panel.
TEST PRINT	NOZZLE CHECK	PRINT	You can print a print head nozzle check pattern for each ink cartridge. It also prints the firmware version and the ink usage.
	STATUS SHEET	PRINT	You can print the current printer status.
	NETWORK STATUS SHEET	PRINT	You can print the current network status.
	JOB INFORMATION	PRINT	You can print the job information saved in the printer (up to 10 jobs).
	CUSTOM PAPER	PRINT	You can print custom paper information registered in the Paper Setup menu.



Menu	Item	Parameter (*: Default setting)	Explanation
PRINTER STATUS	VERSION	T0xxxx-xx xx IBCC	You can see the firmware version.
	PRINTABLE PAGES	(ink color) nnnnnn PAGES	You can see the number of pages printable for each ink cartridge.
	INK LEVEL	(ink color) nn%	You can see the status of each ink cartridge.
	USAGE COUNT	INK xxxxx.xml	You can see the ink consumption in milliliters and paper consumption amount in centimeters. Values shown in USAGE COUNT are rough indications.
		PAPER xxxxx.xcm	
	CLEAR USAGE COUNT	INK EXECUTE	You can clear the values set in USAGE COUNT.
		PAPER EXECUTE	
	JOB HISTORY	No. 0-No. 9 INK xxxxx.xml PAPER xxx.x cm2	You can see ink consumption (INK) in milliliters and paper size (PAPER) for each print job saved in the printer. The latest job is saved as No. 0.
	TOTAL PRINTS	nnnnnn PAGES	You can see the total amount of pages you have printed.
	EDM STATUS	NOT STARTED, ENABLED, DISABLED	You can see if the EDM is enabled or disabled. If the EDM is enabled, the time that the EDM status was last uploaded is displayed.
		LAST UPLOADED MM/DD/YY HH:MM GMT, (NOT UPLOADED)	



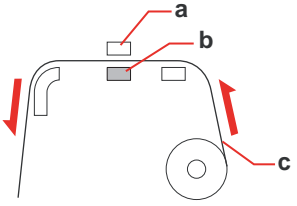
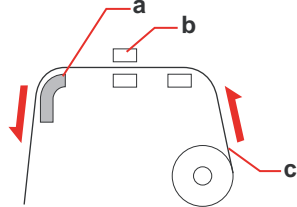
Menu	Item	Parameter (*: Default setting)	Explanation
NETWORK SETUP	NETWORK SETUP	DISABLE	You can configure the network setting of the printer. The following items appear only when ENABLE is selected. After setting the items, press the button in the Network Setup menu, so the network is reset and the network connection is available after 15 seconds. The Network Setup menu does not appear while resetting the network.
		ENABLE	
	IP ADDRESS SETTING	AUTO	You can select the method to set the IP address to the printer. When you select PANEL, IP, SM, DG SETTING appears.
		PANEL	
	IP, SM, DG SETTING	IP ADDRESS 000.000.000.000 - 192.168.192.168* - 255.255.255.255	You can change settings of IP address, subnet mask, and default gateway.
		SUBNET MASK 000.000.000.000 - 255.255.255.000* - 255.255.255.255	
		DEFAULT GATEWAY 000.000.000.000 - 255.255.255.255*	
	BONJOUR	ON	You can enable or disable the Bonjour setting.
		OFF	
	INIT NETWORK SETTING	EXECUTE	You can return the network settings of the printer to the factory default value.




☐ Details of PAPER SETUP

After you have selected the paper number, make the following settings.

Item	Parameter	Explanation
PRINT MODE	MAX QUALITY	<p>You can select the print quality (print mode) according to the usage of print data or print speed.</p> <p><input type="checkbox"/> MAX QUALITY, QUALITY1, QUALITY2: Performs high-quality printing. Use this mode when printing high quality graphic data that includes photo data. MAX QUALITY provides priority to print quality. QUALITY1 is balanced between quality and efficiency. QUALITY2 provides priority to print efficiency.</p> <p><input type="checkbox"/> QUALITY3: Performs standard printing. Use this mode when printing graphic data.</p> <p><input type="checkbox"/> SPEED1, SPEED2, SPEED3: Performs high-speed printing. Use this mode when printing text or graphics. SPEED1 provides priority to print quality. SPEED2 is balanced between quality and efficiency. SPEED3 provides priority to print efficiency.</p>
	QUALITY1	
	QUALITY2	
	QUALITY3	
	SPEED1	
	SPEED2	
	SPEED3	
PAPER FEED ADJUST	LINE FEED ADJUST	<p>You can set the paper feed amount of the printable area. If the paper feed value is too large, white horizontal micro-banding may appear. If the paper feed value is too small, dark horizontal micro-banding may appear.</p>
	PRINT SAMPLE PATTERN	
HEAD ALIGNMENT	BI-D ALL	<p>You can perform print head alignment. Check the pattern and enter the value that has the smallest gaps.</p>
PRE HEATER	OFF	<p>You can set the Pre Heater temperature. The Pre Heater is located under the rear paper guide. Set up to preheat the paper before printing and insulate the temperature change in the printer section.</p> <div data-bbox="1003 849 1291 1051" data-label="Image"> <p>The diagram shows a side view of the printer's internal mechanism. A red arrow labeled 'a' points to the print head. A red arrow labeled 'b' points to the pre heater. A red arrow labeled 'c' points to the roll paper. The paper is shown entering from the left, passing under the pre heater, and then being rolled up by the roll paper.</p> </div> <p>a. Print head, b. Pre Heater, c. Roll paper</p> <div data-bbox="926 1121 1003 1198" data-label="Image"> <p>A blue square icon with the text 'CHECK POINT' and a white checkmark.</p> </div> <p>For appropriate temperatures to set to this function, see the instructions included with the paper, or contact your supplier.</p>
	30°C to 50°C (86°F to 122°F)	

Item	Parameter	Explanation
PLATEN HEATER	OFF	<p>You can set the Platen Heater temperature. The Platen Heater is located under the print heads. Set this menu to warm up ink and improve print quality.</p>  <p>a. Print head, b. Platen Heater, c. Roll paper</p> <p>CHECK POINT For appropriate temperatures to set to this function, see the instructions included with the paper, or contact your supplier.</p>
	30°C to 50°C (86°F to 122°F)	
AFTER HEATER	OFF	<p>You can set the After Heater temperature. The After Heater is located under the front paper guide. Set this menu to dry printed paper.</p>  <p>a. After Heater, b. Print head, c. Roll paper</p> <p>CHECK POINT For appropriate temperatures to set to this function, see the instructions included with the paper, or contact your supplier.</p>
	30°C to 50°C (86°F to 122°F)	

Item	Parameter	Explanation
M/W ADJUSTMENT (Micro Weave Adjustment)	LOW A to B	<p>You can improve the print quality by adjusting the print mode you have set.</p> <p><input type="checkbox"/> LOW A, B: The effect of M/W Adjustment function will be minimized. If obvious white lines or uneven print density appear on printed paper in LOW A, set to LOW B.</p> <p><input type="checkbox"/> MEDIUM A, B, C, D: The printing joint between two head passes will have a wave form. If obvious white lines or uneven print density appear on printed paper in MEDIUM A, print samples using the other settings and select the best print result from MEDIUM B to MEDIUM D.</p> <p><input type="checkbox"/> HIGH A, B, C, D: Perform printing at a slow speed compared with "MEDIUM". Set up this menu when improving the print quality compared with "MEDIUM". If obvious white lines or uneven print density appear on printed paper in HIGH A, change the setting to the one with the best print result in HIGH B to HIGH D.</p> <p><input type="checkbox"/> EXTRA HIGH A: Performs "MEDIUM" printing using half of the nozzles of the print head. Since only a half of the nozzles is used, printing speed becomes half of MEDIUM A to MEDIUM D. Set up this menu when improving the print quality compared with HIGH A to HIGH D.</p> <p><input type="checkbox"/> EXTRA HIGH B: Performs "MEDIUM" printing using the other half of the nozzles of the print head that is used for EXTRA HIGH A. Since only a half of the nozzles is used, printing speed becomes half of MEDIUM A to MEDIUM D. Set up this menu when improving the print quality compared with HIGH A to HIGH D.</p>
	MEDIUM A to D	
	HIGH A to D	
	EXTRA HIGH A to B	
PAPER SUCTION	HIGH	You can set the suction pressure used to feed the printed paper.
	LOW	
DRYING TIME	0.0sec to 10.0sec	<p>You can set the ink drying time for each print head pass. The range is 0 to 10 seconds. Depending on the ink density, paper type or printing speed, the ink does not dry soon. In this case, set the drying time longer.</p> <p> When you set the drying time longer, missing dots might occur in the printing.</p>
CARRIAGE MOVEMENT	DATA WIDTH	<p>You can set the range that the print head moves while printing.</p> <p><input type="checkbox"/> DATA WIDTH: The print head moves between the print data width. This improves the print speed since decreasing the transferring range of the print head.</p> <p><input type="checkbox"/> PRINTER FULL WIDTH: The print head moves from origin to the maximum paper width. This keeps printing quality the same even though the printing size (width) differs.</p>
	PRINTER FULL WIDTH	
PRINT MULTIPLE LAYER	OFF	You can set the overwrite count per line.
	2 to 8	

1.4.3 Maintenance Mode

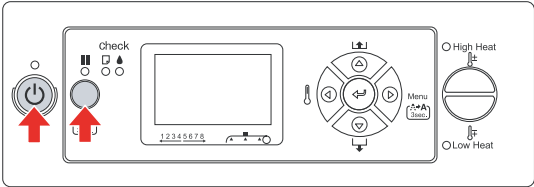
You can change the language or unit used on the display or return all the setting values to their factory default.

HOW TO ENTER & EXIT

1.

Turn off the printer by pressing the [Power] button.
2.

Turn the printer on while pressing the [Pause/Reset] button.



3.

To exit the Maintenance mode, press the [Power] button to turn off the printer.

MAINTENANCE MODE LIST

Item	Parameter	Explanation
LANGUAGE	ENGLISH	You can select the language to be displayed on the LCD panel.
	FRENCH	
	ITALIAN	
	GERMAN	
	SPANISH	
	PORTUGUE	
	DUTCH	
LENGTH UNIT	JAPANESE	You can select a unit of measurement to use to display length.
	METRIC	
THERMOMETER UNIT	FEET/INCH	You can select a thermometer unit.
	°C	
	F	

Item	Parameter	Explanation
DEFAULT PANEL	EXECUTE	You can set all setting values you made in the Menu mode to their factory set value.
CUSTOM	0 - 255	Not available currently.
REMAINING PPR SETUP	OFF	ROLL PAPER COUNTER menu is added to the PRINTER SETUP menu when set to ON.
	ON	



1.4.4 Serviceman Mode

This printer has the Serviceman Mode which is provided for serviceman to troubleshoot problems and so on. This section explains how to enter into the Serviceman mode.

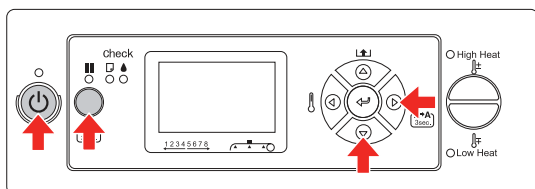
See “7.2 Panel Menu Map” (p247) for explanation about menus provided in the mode.

CAUTION

Do not disclose the Serviceman Mode to the users.

HOW TO ENTER THE SERVICEMAN MODE

1. Turn off the printer by pressing the [Power] button.
2. Turn the printer on while pressing the [Pause/Reset], [Paper Feed ▽], and [Menu] buttons.



3. To exit the Serviceman mode, press the [Power] button to turn off the printer.

MENU LIST

Table 1-1. Menu List

Menu			Explanation
Test	Version	F/W	Displays the F/W version and other parameters.
		BOOT	
		Pram1	
		Pram2	
		Serial No.	
		USB Serial No.	
	Panel	Key	Checks the operation of the control panel and active indicator.
		LCD	
		LED	
		Printer Check LED	
	Sensor	Paper Lever	Checks the sensors operation.
		Mtank	
		Cartridge Not	
		Rear AD	
		Head Temp	
		Drv Temp	
		PG	
		CR Origin	
		EdgeAD	
	Encoder	CR/PF	Checks the encoders operation.
	Fan	Paper (All)	Checks the fans operation.
		Paper (Duty)	
		Paper1	
		Paper2	
		Paper3	
		Paper4	
		HT Fan	
		Head Fan 1	
		Head Fan2	

Table 1-1. Menu List

Menu				Explanation		
Test	Actuator	CrLock Sol.			Checks the CR Lock Solenoid.	
	Ctrl.Test	Ctrl.Ver	CtrlVer.AP		Displays the heater control board version.	
			CtrlVer.PCB			
		Ctrl.Sns	CtrlSns.Tank	1	Display the status of the sub tank sensors.	
				2		
				3		
				4		
				5		
				6		
				7		
				8		
		CtrlSns.Etc	Mainte Cover	Displays the open/close status of the maintenance cover.		
			Ink Cover	Displays the open/close status of the ink cover.		
			Front Cover	Displays the open/close status of the ink cover.		
			Pre. Heater	Displays the temperature sensed for each heater position.		
			Platen. Heater			
			After. Heater			
		Ctrl.Fan	Mist Fan	Mist Fan All	Checks the mist (cooling) fans operation.	
				Mist Fan 1		
				Mist Fan 2		
				Mist Fan 3		
			Box Fan		Checks the box fan (cooling fan PE) operation.	
		Ctrl.Heater	Pre.Heater	Pre. Heater 1		Check if the heaters are warming correctly.
				Pre. Heater 2		
			Platen.Heater	Pre. Heater 1		
				Pre. Heater 2		
			After.Heater	Pre. Heater 1		
				Pre. Heater 2		

Table 1-1. Menu List

Menu					Explanation	
Test	Ctrl.Test	Ctrl.Actuator	Tank Valve	Valve1 On	Operates the solenoids of the sub tank valves.	
				Valve2 On		
				Valve3 On		
				Valve4 On		
				Valve5 On		
				Valve6 On		
				Valve7 On		
				Valve8 On		
			Ink Valve	Valve1 On	Operates the solenoids of the ink valves.	
				Valve2 On		
				Valve3 On		
				Valve4 On		
			Ink Pump		Rotates the pump motors.	
			Wiper		Operates the wiper (head cleaner).	
	Error History	Error0			Displays the error history in reverse chronological order.	
		Error1				
		Error2				
Error3						
Error4						
Error5						
Edge Sns Lvl				Adjusts the media side detection sensor.		
Adjustment	CR Origin Adjust			Adjusts the CR HP sensor position.		
	Platen Adjust			Used in the factory to warm the platen in a way to do a precise horizontal adjustment.		
	Heater Temp	Pre Heater Temp			Sets the temperature of the heaters. (The settings are cancelled when exiting the Serviceman Mode)	
		Platen Heater Temp				
		After Heater Temp				
	Rear AD			Adjusts AD value of the paper rear sensor.		
	Init.Fill			Executes the initial ink charge.		
Nozzle Check	Output Pattern			Prints the nozzle check pattern.		

Table 1-1. Menu List

Menu				Explanation	
Adjustment	Nozzle Alignment	Output Pattern		Checks the nozzle alignment.	
	Head Slant	CR Head Slant	Adjust	Prints the CR head slant adjustment pattern.	
			Confirm		
			PF Head Slant		Prints the PF head slant adjustment pattern.
	Skew Check			Runs the skew check.	
	Feed Adj. +Side			Runs the paper feed & side adjustment.	
	Gap Adj.	Uni-D Low	VSD1 400	Runs the gap adjustment.	
			VSD3 320		
			VSD3 400		
			ALL		
		Bi-D Low	VSD1 400		
			VSD3 320		
			VSD3 400		
			ALL		
		Uni-D High	VSD1 400		
			VSD3 320		
			VSD3 400		
			ALL		
		Bi-D High	VSD1 400		
			VSD3 320		
VSD3 400					
ALL					
Print Adj.Variable			Prints the adjustment variables.		
All Pattern			Prints the all adjustment patterns.		
Life	CR Motor	Speed CW	Configures the durability test settings of the mechanism.		
		Speed CCW			
		PageSize			
		Paper Fan			
		Head Fan			
		LifeCount			




Table 1-1. Menu List

Menu			Explanation
Life	PF Motor	FeedAmount	Configures the durability test settings of the mechanism.
		LifeCount	
	Pump	Pump Speed	
		LifeCount	
	Head Fan	Head Fan1 ON Time	
		Head Fan1 OFF Time	
		Head Fan2 ON Time	
		Head Fan2 OFF Time	
		LifeCount	
	CR Lock	WaitTime(Sec.)	
		LifeCount	
	Ink Valve	Valve1 On	
		Valve2 On	
		Valve3 On	
		Valve4 On	
		Valve All On	
		Sol. ON Time	
		Sol. OFF Time	
		LifeCount	
	Tank Valve	Valve1 On	
		Valve2 On	
		Valve3 On	
		Valve4 On	
		Valve5 On	
		Valve6 On	
		Valve7 On	
		Valve8 On	
		Valve All On	

Table 1-1. Menu List

Menu		Explanation
Feed	Key: Backward	Feeds the paper to backward or forward.
	Key: Forward	
Status		Displays the following statuses. <input type="checkbox"/> Ink remaining <input type="checkbox"/> Set status of ink cartridge <input type="checkbox"/> PG status <input type="checkbox"/> Cover status

CHAPTER

2

OPERATING PRINCIPLES



2.1 Glossary

This chapter provides description of operation principles. To begin with, the abbreviations used in this chapter are explained below.

Abbreviation	Full Spelling
CR	Carriage
F	Front
HP	Home Position
IC	Ink Cartridge
M	Maintenance
P Edge	Paper Edge
P/S	Power Supply
PE	Paper End
PF	Paper Feed
PG	Platen Gap



2.2 Ink System

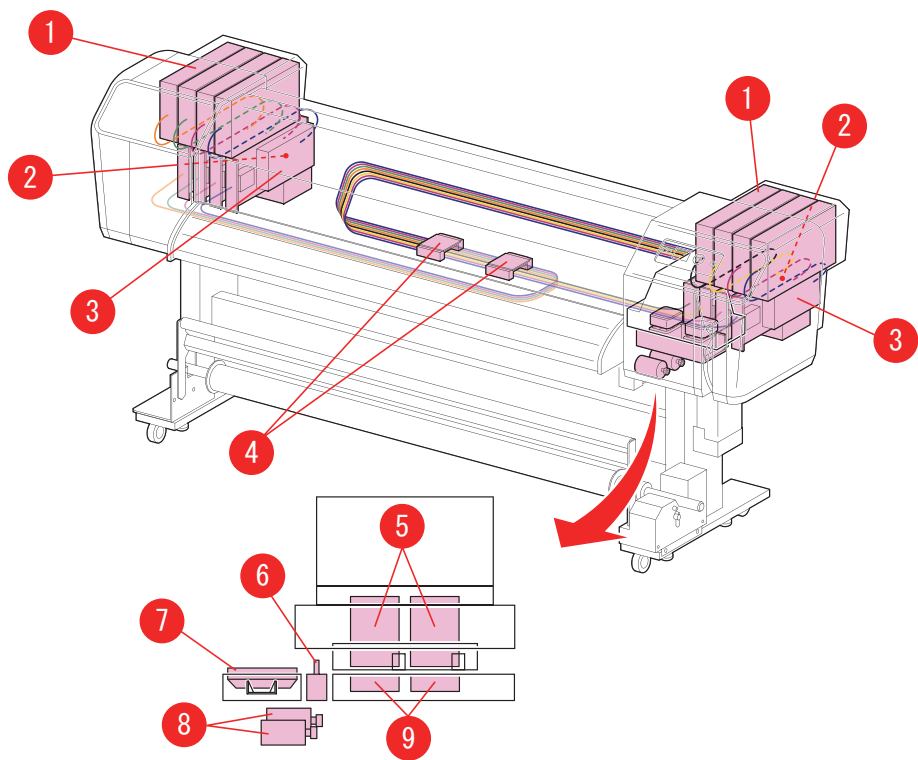


Figure 2-1. Ink System

Diagram	Name	Description
1	Ink Cartridges	The cartridges storing ink. They mount CSIC.
2	Two-way valves	The valves are located in the ink flow between the Ink Cartridges and the Sub Tanks.
3	Sub Tanks	Relays ink, are located between the Ink Cartridges and the Print Head. They prevent stopping printing due to an ink end during printing operation.
4	Valve Assembly	The valves are driven by solenoids. They operate when carrying out the initial ink charge.
5	Print Heads	The Carriage Unit has two print head mounted. Each head has eight 180 nozzle-rows.
6	Head Cleaner	Cleans the nozzle surface of the Print Head.
7	Flushing Box	The box where the ink is flushed.
8	Pump Assys	The pumps to suck ink.
9	Caps	Cap the Print Heads to protect their nozzle surfaces.



2.3 Carriage Mechanism

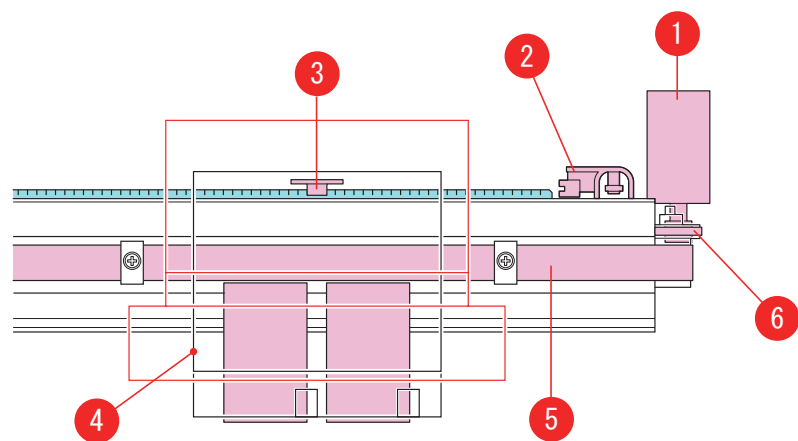


Figure 2-2. Carriage Mechanism

Diagram	Name	Description
1	CR Motor	The motor to drive the Carriage Unit.
2	CR Lock	Locks the Carriage Unit to the home position. It is driven by a solenoid.
3	CR Encoder	Detects the scale patterns to control the position of the Carriage Unit.
4	CR Cursor Assy	The unit mounting the Print Heads.
5	CR Belt	Conveys the drive force of the CR Motor to the Carriage Unit.
6	CR Reduction Belt	Conveys the drive force of the CR motor to the CR Belt.



2.4 Paper Feed Mechanism

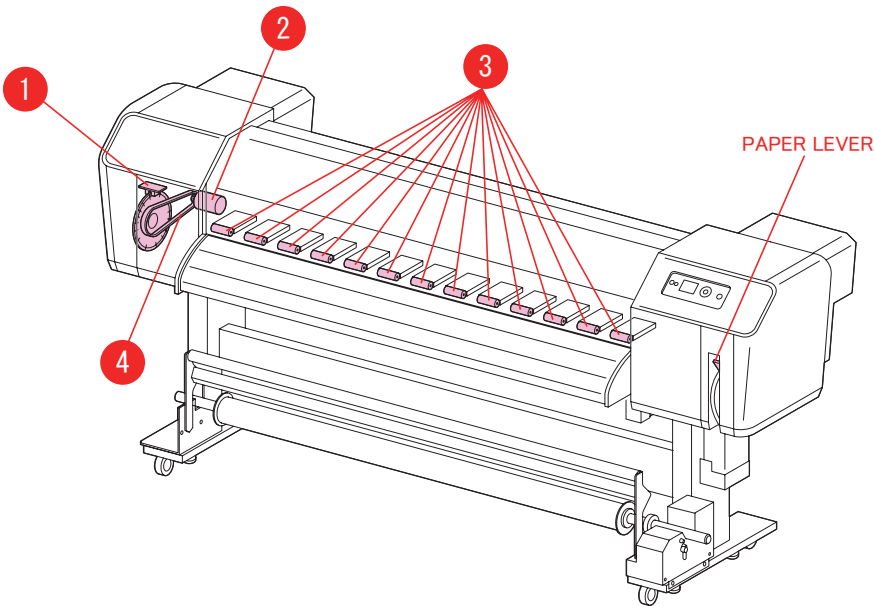


Diagram	Name	Description
1	PF Encoder	Detects the scale patterns to control the paper feeding.
2	PF Motor	The motor to drive the Feed Roller.
3	Pressure Rollers	Hold and feed paper. By switching the Paper Lever up and down, they separate from the Feed Roller or move back in position.
4	PF Reduction Belt	Conveys the drive force of the PF motor to the Feed Roller.

Figure 2-3. Paper Feed Mechanism



2.5 Heater Mechanism

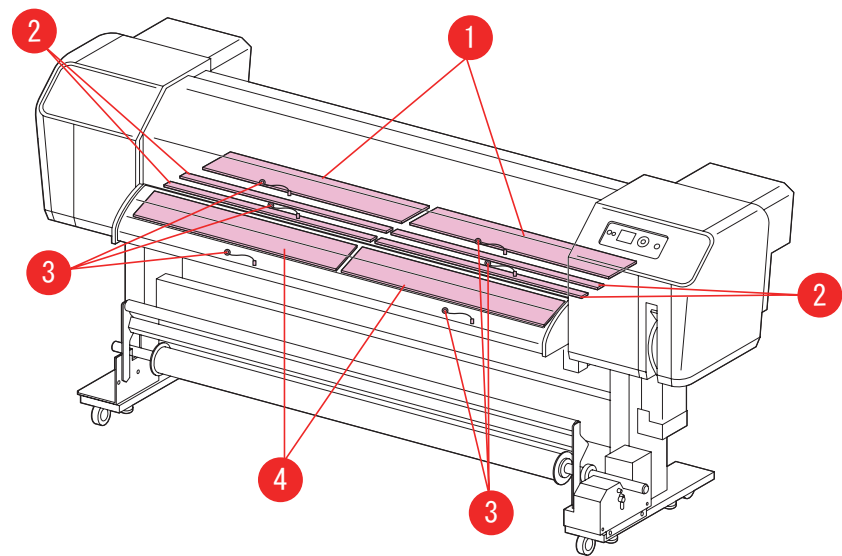


Figure 2-4. Heater Mechanism

Diagram	Name	Description
1	Pre Heaters	Heat paper before printing. This pre-heating combined with the heating on the Platen Heaters and the After Heaters allows raising the paper temperature successfully after the paper feeding starts. The pre-heating also prevents the paper from deforming when heating during printing operation.
2	Platen Heaters	Heat paper to control the sizes of dots landed on the paper (so as to prevent the ink to spread).
3	Thermistors	Detect the temperature of each heater.
4	After Heaters	Heat paper to dry ink after printing.



2.6 Boards

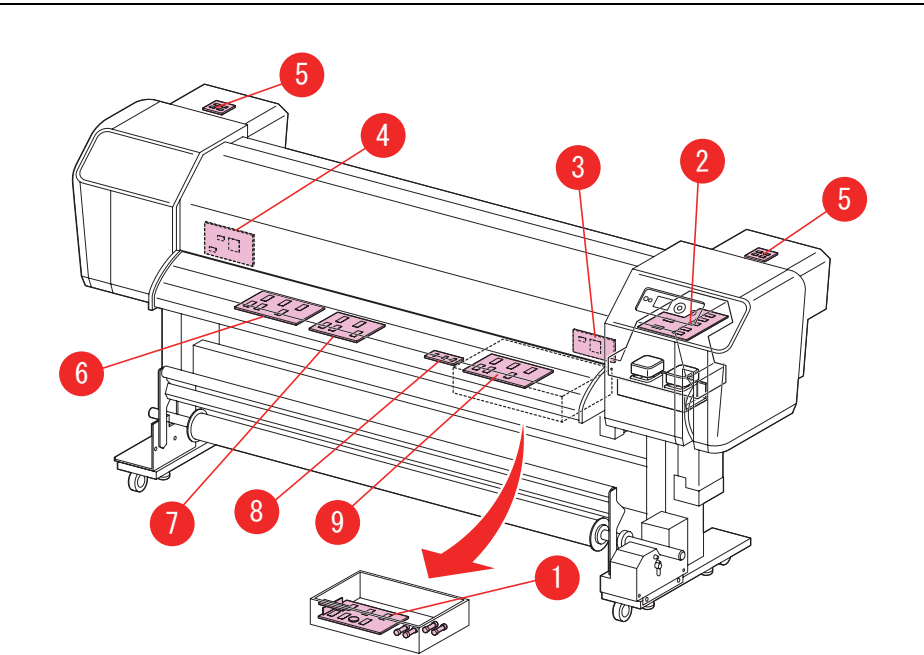


Figure 2-5. Boards

Diagram	Name	Description
1	Main Board Assembly	<div><input type="checkbox"/> Communicates with the computer.</div> <div><input type="checkbox"/> Processes received data.</div> <div><input type="checkbox"/> Controls the printer mechanism.</div> <div><input type="checkbox"/> Stores the correction values and various counters.</div> <div><input type="checkbox"/> Generates the voltages for the logic system from the voltage of 42V supplied from the P/S Board Assembly.</div>
2	Sub-A Board Assembly	<div>Relays the connection between the Main Board Assembly and the following parts.</div> <div><input type="checkbox"/> CR Encoder</div> <div><input type="checkbox"/> P Edge Sensor</div> <div><input type="checkbox"/> PG HP Sensor</div> <div><input type="checkbox"/> Print Heads</div> <div><input type="checkbox"/> Cooling Fans</div>

Diagram	Name	Description
3	Sub-B Board Assembly	<div>Relays the connection between the Main Board Assembly, P/S Term Board Assembly, Heater Cont Board Assembly, Sub-C Board Assembly, and the following parts.</div> <div><input type="checkbox"/> IC Cover Sensor (right)</div> <div><input type="checkbox"/> F Cover Sensor (right)</div> <div><input type="checkbox"/> M Cover Sensor (right)</div> <div><input type="checkbox"/> Sub Tank Sensors (right)</div> <div><input type="checkbox"/> Pump Motors</div> <div><input type="checkbox"/> Lever Sensor</div> <div><input type="checkbox"/> Paper Rear Sensor</div> <div><input type="checkbox"/> CR HP Sensor</div>
4	Sub-C Board Assembly	<div>Relays the connection between the Main Board Assembly, P/S Term Board Assembly, Sub-B Board Assembly and the following parts.</div> <div><input type="checkbox"/> IC Cover Sensor (left)</div> <div><input type="checkbox"/> F Cover Sensor (left)</div> <div><input type="checkbox"/> M Cover Sensor (left)</div> <div><input type="checkbox"/> Sub Tank Sensors (left)</div> <div><input type="checkbox"/> PF Encoder</div>
5	Sub-D Board Assemblies	<div>Relay the connection between the Main Board Assembly and the following parts.</div> <div><input type="checkbox"/> Ink Cartridges (CSIC)</div>
6	Heater Relay Board Assembly	The assembly mounting the relays to control the heaters.
7	Heater Cont Board Assembly	Controls the heaters.
8	P/S Term Board Assembly	Interface between the Main Board and the printer.
9	P/S Board Assembly	Generates the voltage for this printer from the AC power supply.



2.7 Sensors

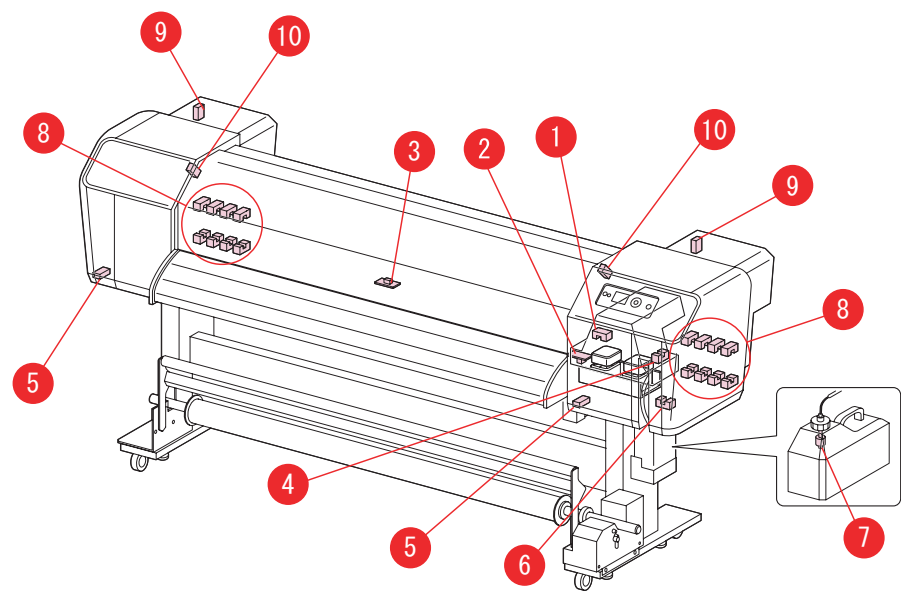


Figure 2-6. Sensors

Diagram	Name	Description
1	PG HP Sensor	Detects the home position of the platen gap.
2	Paper Edge Sensor	Detects the right and left ends of paper.
3	Paper Rear Sensor	Detects the presence of paper.
4	CR HP Sensor	Detects the home position of the Carriage Unit (CR Cursor Assy.).
5	M Cover Sensors	Detect the opening/closing status of the Maintenance Covers.
6	Lever Sensor	Detects the position of the paper lever.
7	Waste Fluid Level Switch Assy	Detects the amount of waste ink. If the waste ink exceeds specified level, the sensor reacts.
8	Sub Tank Sensors	Detect the remaining ink in the Sub Tanks. Each tank has two sensors, and the remaining ink is detected in stages.
9	IC Cover Sensors	Detect the opening/closing status of the Ink Covers.
10	F Cover Sensors	Detect the opening/closing status of the Front Cover.



2.8 Fans

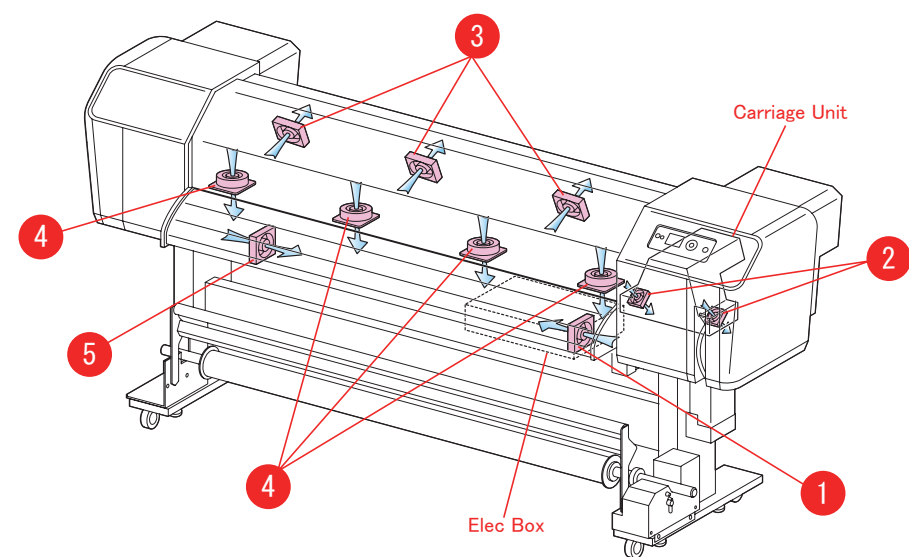


Figure 2-7. Fans

Diagram	Name	Description
1	Cooling Fan PE	Cools the Main Board Assembly.
2	Cooling Fans	Prevent dew condensation on the platen.
3	Cooling Fans (24V)	Sucks the mist of ink when printing so as to prevent contamination of the inside.
4	Vacuum Fans	Suck paper to the platen so as to stabilize the position of paper when printing.
5	Heater Board Cooling Fan	Cools the Heater Cont Board Assembly.



CHAPTER

3

TROUBLESHOOTING



3.1 Overview

This section explains the basic procedure for troubleshooting problems on the printer quickly and efficiently.

3.1.1 Preliminary Check

Make sure to verify or perform the following basic items whenever servicing the printer.

1. There is no foreign material which interferes with the proper operation of the printer.
2. Print the status sheet, and check the information printed on the sheet to find out possible causes of the error; if the main units have reached their end of life, or if there is something wrong with the user-defined panel settings.
3. Both outside and inside of the printer are free of significant dirt. Clean it if significant dirt is observed.
4. None of the parts or components of the printer are missing, chipped or damaged.
5. All of the harnesses are free from damages and connected properly (vertically and correctly) to their connectors.
6. The cams and gears in the printer mechanism are engaged correctly showing no signs of wear.
7. When smudges appear on printed pages, clean the rubber rollers in the printer mechanism if it solves the problem.
8. The rubber rollers in the printer mechanism are engaged correctly showing no signs of wear.



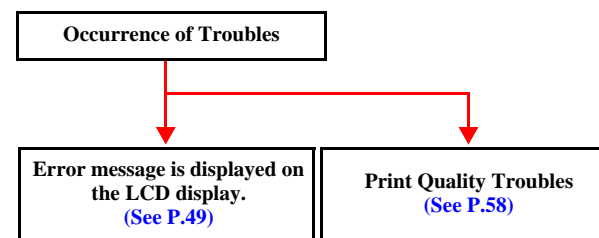
When handling the lithium battery used for backup of the RTC on the main board, strictly follow the safety instructions given in "4.1.1 Precautions" (See P 62).



- Before disassembling/reassembling the printer, be sure to turn the power OFF, confirm the panel display disappears, and unplug the three power cords (Printer, heaters and Take-up Reel).
- Be sure to use the specified tools for maintenance/repair.
- To maintain the product's quality, be sure to use the specified lubricant and adhesive.
- Be sure to perform the adjustments as required.

3.1.2 Troubleshooting Procedure

Follow the flowchart given below to troubleshoot problems efficiently.



3.2 Remedies for Error Messages

The Error messages and their corresponding remedies are explained below.

Message on LCD	Description	Remedy/Point to be checked
INK LOW	The ink cartridge is nearly expended.	The ink cartridge is nearly empty. Although you can continue printing in the INK LOW status, it may decrease the print quality.
DRAIN TANK FULL DRAIN WASTE INK FROM THE DRAIN TANK	The ink drain tank is full.	Drain waste ink from the ink drain tank immediately.
	Malfunction of the WASTE FLUID LEVEL SW ASSY.	Check whether the WASTE FLUID LEVEL SW ASSY operates normally or not (p.222). If any abnormality is found, check the cable connection status, and replace the WASTE FLUID LEVEL SW ASSY if necessary.
INK CARTRIDGE INSTALL INK CARTRIDGE	This message appears when replacing the ink cartridge.	Install an ink cartridge.
LEVER RELEASED LOWER THE PAPER SET LEVER	The paper lever (PRESSURE LEVER) is in the released position.	Move the paper lever (PRESSURE LEVER) to its lowest position to secure paper.
LEVER RELEASED LOAD PAPER	If this message appears although the lever is lowered, there is something wrong with the LEVER SENSOR.	Check whether the LEVER SENSOR operates normally or not (p.222). If any abnormality is found, check the cable connection status, and replace the LEVER SENSOR (p.131) if necessary.
FRONT COVER OPEN CLOSE FRONT COVER	The FRONT CLEAR COVER is open.	Close the FRONT CLEAR COVER.
	The F COVER SENSOR is not installed correctly, or there is something wrong with the sensor.	Check whether the FRONT CLEAR COVER properly pushes the sensor. If not, adjust the sensor position. When the sensor does not operate, check the cable connection status and replace the F COVER SENSOR (p.131) if necessary.
MAINT COVER OPEN CLOSE RIGHT MAINT COVER	The MAINTENANCE COVER ASSY(s) is open.	Close the MAINTENANCE COVER ASSY(s).
MAINT COVER OPEN CLOSE LEFT MAINT COVER	If this message appears although the cover is closed, there is something wrong with the M COVER SENSOR.	Check whether the M COVER SENSOR operates normally or not (p.222). If any abnormality is found, check the cable connection status, and replace the M COVER SENSOR (p.131) if necessary.
INK COVER OPEN CLOSE RIGHT AND LEFT INK COVERS	The Ink Cover(s) is open.	Close the Ink Cover(s).
INK COVER OPEN CLOSE RIGHT INK COVER	If this message appears although the cover is closed, there is something wrong with the IC COVER SENSOR.	Check whether the IC COVER SENSOR operates normally or not (p.222). If any abnormality is found, check the cable connection status, and replace the IC COVER SENSOR (p.131) if necessary.
INK COVER OPEN CLOSE LEFT INK COVER		
NOT ENOUGH INK REPLACE INK CARTRIDGE WITH A NEW ONE	The ink cartridge is nearly expended.	Replace the ink cartridge with a new one.



Message on LCD	Description	Remedy/Point to be checked
NO CARTRIDGE INSTALL INK CARTRIDGE	No ink cartridge is installed.	Install an ink cartridge correctly.
	The ink cartridge cannot be detected correctly.	Replace the ink cartridge. When the error still occurs after the replacement, check the connection status from the cartridge holder to the main board.
INK CARTRIDGE ERROR REPLACE CARTRIDGE	The ink cartridge was found faulty. There may be some bad contact or dew condensation in the cartridge.	Remove the ink cartridge and reinstall it. When the error still occurs after the reinstallation, replace the cartridge with a new one (do not reinstall the defective ink cartridge at this time). To prevent condensation from forming in the new ink cartridge, leave the cartridge at room temperature for more than four hours before installing it.
INK CARTRIDGE PLEASE USE GENUINE EPSON INK CARTRIDGES	Non-genuine ink cartridge is installed.	Replace the ink cartridge with a genuine Epson ink cartridge. Using a non-genuine ink cartridge may void Epson's warranty.
INK CARTRIDGE NON-GENUINE CARTRIDGE MAY NOT PERFORM AT OPTIMUM CONTINUE? <YES NO>		
INK CARTRIDGE THIS MAY VOID EPSON'S WARRANTY. DO YOU ACCEPT THIS? <ACCEPT DECLINE>		
INK CARTRIDGE REPLACE INK CARTRIDGE	The ink cartridge is expended.	Replace the ink cartridge with a new one.
COMMAND ERROR CHECK DRIVER SETTINGS	The printer received damaged or collapsed print data.	Cancel the print job, and try another one.
	The printer received print data with a wrong command.	
	The installed printer driver is not correct for the printer.	Install the correct printer driver.
PAPER SKEW LOAD PAPER PROPERLY	The paper loaded on the printer is skewed.	Correct the paper skew. If the print job is proceeded with the paper skewed, some portion of the image will extend out of the printable area.
		If an error has occurred when using Auto Take-Up Reel Unit, the roll paper may not be rolled up straight. This phenomenon can be avoided by trimming both of the front edges when setting the roll paper to the scroller.
PAPER ERROR LOAD PAPER PROPERLY REFER TO THE MANUAL	The paper is not loaded correctly.	Release the paper lever (PRESSURE LEVER), and set the paper correctly.



Message on LCD	Description	Remedy/Point to be checked
PAPER OUT LOAD PAPER	No paper is loaded in the printer.	Load paper correctly.
	The paper is not ejected properly.	Set the paper lever (PRESSURE LEVER) to the released position, and remove the paper.
	The roll paper runs out while printing is in progress.	Load a new roll paper.
	There is something wrong with the PAPER REAR SENSOR.	Check whether any foreign matter is obstructing the paper sensing operation. If any obstruction is found, remove it. Check whether the PAPER REAR SENSOR operates normally or not (p.222). If any abnormality is found, check the cable connection status and replace the PAPER REAR SENSOR (p.123) if necessary.
F/W INSTALL ERROR UPDATE FAILED RESTART THE PRINTER	The printer fails to update the firmware.	Restart the printer, and then update the firmware again.
PAPER JAM REMOVE PAPER	The paper is jammed.	Remove the jammed paper.
CARRIAGE LOCKED RELEASE THE CARRIAGE LOCK	The power has been turned on even the protective materials for transportation is attached.	Remove the protective materials from the print head to release the print head.
	There is something wrong with the CR LOCK SOLENOID ASSY.	Check whether the CR LOCK SOLENOID ASSY operates normally or not (p.222). If any abnormality is found, replace the CR LOCK SOLENOID ASSY (p.146).
PRINTER ERROR RESTART THE PRINTER	It is caused by a bug of the firmware or the element on the MAIN BOARD ASSY has been broken.	Turn the printer off, and after a while turn it on again.
		Install the latest firmware (p.218).
		Replace the MAIN BOARD ASSY with a new one (p.108).
MAINTENANCE REQUEST 0001	The CR scan pass counter has reached the specified value. (CR MOTOR has reached its end of life.)	Replace the CR MOTOR with a new one (p.149), perform the necessary adjustments and clear the counter using the Service Program (p.221).
MAINTENANCE REQUEST 0011	The RTC backup battery becomes exhausted.	Replace the battery and make the date and time setting using the service program (p.217).
MAINTENANCE REQUEST 0111	The date has not been set.	Make the date and time setting using the Service Program (p.217).
MAINTENANCE REQUEST 0100	The following two errors are occurring simultaneously. □ MAINTENANCE REQUEST 0001 □ MAINTENANCE REQUEST 0011	Refer to the corresponding remedies.
MAINTENANCE REQUEST 1000	The following two errors are occurring simultaneously. □ MAINTENANCE REQUEST 0001 □ MAINTENANCE REQUEST 0111	Refer to the corresponding remedies.



Message on LCD	Description	Remedy/Point to be checked
MAINTENANCE REQUEST 1010	The following two errors are occurring simultaneously. <input type="checkbox"/> MAINTENANCE REQUEST 0011 <input type="checkbox"/> MAINTENANCE REQUEST 0111	Refer to the corresponding remedies.
MAINTENANCE REQUEST 1011	The following three errors are occurring simultaneously. <input type="checkbox"/> MAINTENANCE REQUEST 0001 <input type="checkbox"/> MAINTENANCE REQUEST 0011 <input type="checkbox"/> MAINTENANCE REQUEST 0111	Refer to the corresponding remedies.
SERVICE CALL ERROR NNNN PLEASE CONTACT TO THE REPAIR CENTER	See “3.3 Remedies for Service Call Error” (Page 53).	



3.3 Remedies for Service Call Error

The following tables explain the Service Call error messages and remedies.

CHECK
POINT



Make sure to check the related connectors and cables for poor connection or any abnormality before replacing any electrical part as instructed in the Remedy column. If the replacement does not solve the problem, replace the main board.

Error Code	Error Name	Description	Remedy/Point to be checked
1101	Life end of the CR MOTOR	The number of carriage movement cycles reached the specified upper limit.	Replace the CR MOTOR (p.149), perform the necessary adjustments and clear the counter using the Service Program (p.221).
1125	Carriage home position detection error	The printer cannot detect the carriage home position.	Check whether the CR HP SENSOR is properly connected.
			Check whether the CR HP SENSOR is correctly installed.
			Replace the CR HP SENSOR (p.124).
			Check whether the carriage lock properly functions (p.222).
1133	CR MOTOR in position time-out error	The CR MOTOR cannot be driven normally.	Clean the CR ENC SCALE.
			Replace the CR MOTOR (p.149).
			Replace the CR HP SENSOR (p.124).
1135	CR ENC ASSY check error	The CR ENC ASSY signals have a defect.	Check whether the CR ENC ASSY is properly connected.
			Check whether the CR MOTOR is properly connected.
			Replace the CR ENC ASSY (p.126).
			Replace the CR MOTOR (p.149).
1136	CR MOTOR step-out error	The CR MOTOR is out of step.	Clean the CR ENC SCALE.
			Check whether the CR HP SENSOR is properly connected.
			Check whether the CR HP SENSOR is correctly installed.
			Replace the CR HP SENSOR (p.124).
1137	CR servo parameter error	The carriage unit is overloaded abnormally.	Check whether any foreign matter is obstructing the carriage movement. If any obstruction is found, remove it.
			Replace the CR MOTOR (p.149).
1223	PF ENCODER ASSY check error	The PF ENCODER ASSY signals have a defect.	Check whether the PF ENCODER ASSY is properly connected.
			Check whether the PF MOTOR is properly connected.
			Replace the PF MOTOR (p.151).

Error Code	Error Name	Description	Remedy/Point to be checked
1225	PF MOTOR in position time-out error	The PF MOTOR cannot be driven normally.	Replace the PF MOTOR (p.151).
1227	PF MOTOR step-out error	The PF MOTOR is out of step.	Replace the PF MOTOR (p.151).
1228	PF servo parameter error	The PF MOTOR is overloaded abnormally.	Check whether any foreign matter is obstructing the PF motor operation. If any obstruction is found, remove it. Replace the PF MOTOR (p.151).
131B	Head driver (transmission gate) overheat error	The temperature of the head driver rises, and reaches the specified level.	If the PRINT HEAD is operating without ink charged in it, carry out the ink charge sequence. Check whether the Head FFC is properly connected. If not (slant connection or the like), correct it. Replace the PRINT HEAD(s) (p.153).
1700	Print position error	The correct print position cannot be detected.	Clean the CR ENC SCALE and CR ENCODER ASSY. Replace the CR ENC SCALE (p.143). Replace the CR ENC ASSY (p.126). Install the latest firmware.
1900	HEATER CONT BOARD ASSY serial connection failure	The serial communication between the MAIN BOARD ASSY and the HEATER CONT BOARD ASSY cannot be made.	Check the communication of the serial cable*. Replace the serial cable*.
1902	An abnormally high temperature of the PRE HEATERS(64) on the HEATER RELAY BOARD ASSY	An abnormally high temperature of the PRE HEATERS(64) is detected.	Check whether the THERMISTOR, PRE(s) is correctly installed. Replace the HEATER RELAY BOARD ASSY (p.112).
1903	An abnormally high temperature of the PLATEN HEATER(64) on the HEATER RELAY BOARD ASSY	An abnormally high temperature of the PLATEN HEATER(64) is detected.	Check whether the THERMISTOR, PLATEN(s) is correctly installed. Replace the HEATER RELAY BOARD ASSY (p.112).
1904	An abnormally high temperature of the AFTER HEATER(64) on the HEATER RELAY BOARD ASSY	An abnormally high temperature of the AFTER HEATER(64) is detected.	Check whether the THERMISTOR, AFTER(s) is correctly installed. Replace the HEATER RELAY BOARD ASSY (p.112).
1905	An abnormally low temperature of the PRE HEATERS(64) on the HEATER RELAY BOARD ASSY	An abnormally low temperature of the PRE HEATERS(64) is detected.	Check whether the PRE HEATERS(64) are properly connected. Check whether the THERMISTOR, PRE(s) is correctly installed. Check whether the THERMISTOR, PRE(s) is properly connected. Check whether the FUSE has blown. If so, replace the FUSE. Replace the HEATER RELAY BOARD ASSY (p.112).

Error Code	Error Name	Description	Remedy/Point to be checked
1906	An abnormally low temperature of the PLATEN HEATER(64) on the HEATER RELAY BOARD ASSY	An abnormally low temperature of the PLATEN HEATER(64) is detected.	Check whether the PLATEN HEATER(s)(64) is properly connected.
			Check whether the THERMISTOR, PLATEN(s) is correctly installed.
			Check whether the THERMISTOR, PLATEN(s) is properly connected.
			Check whether the FUSE has blown. If so, replace the FUSE.
			Replace the HEATER RELAY BOARD ASSY (p.112).
1907	An abnormally low temperature of the AFTER HEATER(64) on the HEATER RELAY BOARD ASSY	An abnormally low temperature of the AFTER HEATER(64) is detected.	Check whether the AFTER HEATER(s)(64) is properly connected.
			Check whether the THERMISTOR, AFTER(s) is correctly installed.
			Check whether the THERMISTOR, AFTER(s) is properly connected.
			Check whether the FUSE has blown. If so, replace the FUSE.
			Replace the HEATER RELAY BOARD ASSY (p.112).
1908	An abnormal voltage of the heater on the HEATER CONT BOARD ASSY	The voltage of the HEATER CONT BOARD ASSY is abnormally changed.	Replace the HEATER CONT BOARD ASSY (p.111).
			Replace the P/S BOARD ASSY (p.115).
1909	Serial communication failure between the HEATER CONT BOARD ASSY and SUB-B/C BOARD	The serial communication between the HEATER CONT BOARD ASSY and the SUB_B BOARD ASSY/SUB_C BOARD ASSY cannot be made.	Check whether the serial cable is properly connected. If not, connect it properly.
1910	Insufficient temperature of the PRE HEATERS(64) on the HEATER RELAY BOARD ASSY	The required temperature of the PRE HEATERS(64) cannot be reached.	Check whether the AC cable for the heater is properly connected. If not, connect the cable properly.
			Check whether the THERMISTOR, PRE(s) is correctly installed.
			Check whether the THERMISTOR, PRE(s) is properly connected.
			Check whether the FUSE has blown. If so, replace the FUSE.
			Replace the HEATER RELAY BOARD ASSY (p.112).
1911	Insufficient temperature of the PLATEN HEATER(64) on the HEATER RELAY BOARD ASSY	The required temperature of the PLATEN HEATER(64) cannot be reached.	Check whether the AC cable for the heater is properly connected. If not, connect the cable properly.
			Check whether the THERMISTOR, PLATEN(s) is correctly installed.
			Check whether the THERMISTOR, PLATEN(s) is properly connected.
			Check whether the FUSE has blown. If so, replace the FUSE.
			Replace the HEATER RELAY BOARD ASSY (p.112).



Error Code	Error Name	Description	Remedy/Point to be checked
1912	Insufficient temperature of the AFTER HEATER(64) on the HEATER RELAY BOARD ASSY	The required temperature of the AFTER HEATER(64) cannot be reached.	Check whether the AC cable for the heater is properly connected. If not, connect the cable properly.
			Check whether the THERMISTOR, AFTER(s) is correctly installed.
			Check whether the THERMISTOR, AFTER(s) is properly connected.
			Check whether the FUSE has blown. If so, replace the FUSE.
			Replace the HEATER RELAY BOARD ASSY (p.112).
1920	HEATER CONT BOARD ASSY-SUB TANK SENSOR 1 failure	The High sensor for the sub tank 1 is ON (ink exists), but the Low sensor is OFF.	Check whether the SUB TANK SENSOR is properly connected.
			Replace the SUB TANK SENSOR (p.129).
1921	HEATER CONT BOARD ASSY-SUB TANK SENSOR 2 failure	The High sensor for the sub tank 2 is ON (ink exists), but the Low sensor is OFF.	Check whether the SUB TANK SENSOR is properly connected.
			Replace the SUB TANK SENSOR (p.129).
1922	HEATER CONT BOARD ASSY-SUB TANK SENSOR 3 failure	The High sensor for the sub tank 3 is ON (ink exists), but the Low sensor is OFF.	Check whether the SUB TANK SENSOR is properly connected.
			Replace the SUB TANK SENSOR (p.129).
1923	HEATER CONT BOARD ASSY-SUB TANK SENSOR 4 failure	The High sensor for the sub tank 4 is ON (ink exists), but the Low sensor is OFF.	Check whether the SUB TANK SENSOR is properly connected.
			Replace the SUB TANK SENSOR (p.129).
1924	HEATER CONT BOARD ASSY-SUB TANK SENSOR 5 failure	The High sensor for the sub tank 5 is ON (ink exists), but the Low sensor is OFF.	Check whether the SUB TANK SENSOR is properly connected.
			Replace the SUB TANK SENSOR (p.129).
1925	HEATER CONT BOARD ASSY-SUB TANK SENSOR 6 failure	The High sensor for the sub tank 6 is ON (ink exists), but the Low sensor is OFF.	Check whether the SUB TANK SENSOR is properly connected.
			Replace the SUB TANK SENSOR (p.129).
1926	HEATER CONT BOARD ASSY-SUB TANK SENSOR 7 failure	The High sensor for the sub tank 7 is ON (ink exists), but the Low sensor is OFF.	Check whether the SUB TANK SENSOR is properly connected.
			Replace the SUB TANK SENSOR (p.129).
1927	HEATER CONT BOARD ASSY-SUB TANK SENSOR 8 failure	The High sensor for the sub tank 8 is ON (ink exists), but the Low sensor is OFF.	Check whether the SUB TANK SENSOR is properly connected.
			Replace the SUB TANK SENSOR (p.129).
1A23	RTC analysis error	The value information on various absolute time stored on NVRAM is abnormal.	Check if the lithium battery is installed properly.
			Replace the MAIN BOARD ASSY (p.108).
1A26	RTC communication error	The communication with the RTC circuit cannot be made.	Replace the MAIN BOARD ASSY (p.108).
1A37	Head thermistor error	There is something wrong with the Head FFC connection.	Check whether the Head FFC is properly connected. If not (slant connection or the like), correct it.
		The Head Thermistor detects a temperature out of the specification.	Replace the PRINT HEAD(s) (p.153).
		The Head Thermistor has a defect.	
1A38	Transistor thermistor error	The transistor is faulty.	Replace the PRINT HEAD(s) (p.153).
		The thermistor detects a temperature out of the specification.	



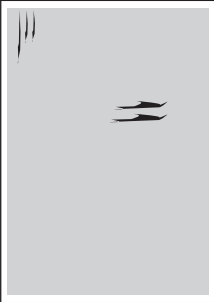
Error Code	Error Name	Description	Remedy/Point to be checked
1A39	Head error	The active signal of head error has been detected.	Replace the PRINT HEAD(s) (p.153).
1A40	MAIN BOARD ASSY IC2 error		
1A41	Head rank ID input error	The information of the Head rank ID is wrong.	Configure the head rank ID again.
2000	NVRAM error	NVRAM erase or write error has occurred.	Replace the MAIN BOARD ASSY (p.108).
2002	SDRAM error	SDRAM read/write error has occurred.	Replace the MAIN BOARD ASSY (p.108).
2003	Boot program sum error	Installation of the firmware has been failed.	Install the main firmware again.
			Replace the MAIN BOARD ASSY (p.108).
		The Flash ROM is faulty.	Replace the MAIN BOARD ASSY (p.108).
200A	Program loading error	The SDRAM is faulty. The program cannot be loaded on the SDRAM.	Replace the MAIN BOARD ASSY (p.108).
200B	Internal insufficient memory error	The main firmware has a defect.	Install the correct main firmware.
200C	Servo interrupt watchdog time-out error	The servo cannot be controlled.	Install the correct main firmware.
			Replace the MAIN BOARD ASSY (p.108).
200D	System interrupt watchdog time-out error	A system failure such as CPU failure, defective cash or the like has occurred.	Replace the MAIN BOARD ASSY (p.108).
200E	Unknown NMI	The CPU has detected an unknown NMI.	Replace the MAIN BOARD ASSY (p.108).
3000	AC power shut-off	The AC power has been shut off due to a power failure, unplugged, P/S BOARD ASSY failure, or MAIN BOARD ASSY failure or the like.	Check whether the AC cable is properly connected. If not, correct it.
			Replace the P/S BOARD ASSY (p.115).
			Replace the MAIN BOARD ASSY (p.108).
FXXX	CPU-related error	The firmware has a defect.	Install the correct main firmware.
		The MAIN BOARD ASSY is broken.	Replace the MAIN BOARD ASSY (p.108).

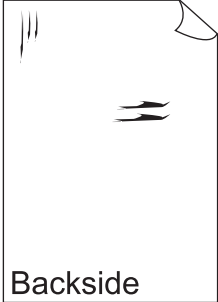



Note *: serial cable: communication cable between the MAIN BOARD ASSY and the HEATER CONT BOARD ASSY.



3.4 Remedies for Print Quality Troubles

This section provides troubleshooting of print quality troubles classifying them by observed symptom.

Symptom	Description	Remedy/Points to be checked
Dot missing	The nozzles has been clogged with ink, and the dot missing has occurred.	Run cleanings (Cleaning 1, 2, 3, 4, Washing). Replace the PRINT HEAD(s) (p.153).
	Due to a failure of some of the parts listed on the right column, cleaning or firing ink cannot be made normally.	Inspect the following parts, and correct/replace them as necessary. <input type="checkbox"/> PUMP ASSY (p.162) <ul style="list-style-type: none"> ■ The pump tube is disconnected. ■ Some portion of the pump tube has become flat. ■ The pump tube is broken. <input type="checkbox"/> CLEANER HEAD (p.161) The cleaner blade is contaminated with foreign material or the blade is broken. <input type="checkbox"/> WIPER ASSY (p.161) The WIPER ASSY does not operate due to a trouble of the solenoid. <input type="checkbox"/> There is something wrong with the connection of the ink cartridge, ink holder, tube, VALVE ASSEMBLY, HEAD, or PRINT HEAD(s). <input type="checkbox"/> The head FFC is not connected correctly. <input type="checkbox"/> PRINT HEAD(s) (p.153) <input type="checkbox"/> MAIN BOARD ASSY (p.108)
Ink smear (printed area) 	The paper is contaminated by ink smear in the paper feed path.	Check the PRESSURE ROLLER(s) for ink smudges, and clean it if any dirt is observed.
	Paper is rubbed against the printhead.	Widen the platen gap.
	Because the vacuum fan is not operating properly, the paper is not held flat during printing.	Turn on the printer in the serviceman mode, and check whether the VACUUM FAN(s) operates normally (p.222). If any abnormality is found, check the connection status and replace the defective VACUUM FAN if necessary.
	Drying ink is insufficient.	Raise the heater temperature and make the print again. Turn on the printer in the serviceman mode, and check whether the heaters operate normally (p.222). If any abnormality is found, check the connection status and replace the defective heater if necessary.
	There is a foreign material or dirt absorbing ink around the PRINT HEAD(s).	Check around the PRINT HEAD(s) for a dirt or foreign material, and remove it if any.
	The paper is buckling.	Re-load the paper once the set heater temperature is reached. Make sure the heater temperature is not set too high.
	The color dots are smearing and mixing into each-other.	The ink dots dry too slowly: try increasing the heater temperature.

Symptom	Description	Remedy/Points to be checked
Ink smear (backside) 	The backside of the paper is contaminated by ink smear in the paper feed path.	Check the platen and PRESSURE ROLLER(s) for ink smudges, and clean them if any dirt is observed.  If the PAPER SIZE CHECK in the PRINTER SETUP menu has been set to OFF, the printer will print on the platen which results in the ink smear, so be careful.
	The ink does not have enough time to dry before it is rolled on the Take-up Reel.	Try increasing the drying time between the passes, increasing the heater temperature or put a fan in front of the printer to dry the media before it gets rolled-up.
Horizontal banding 	Paper setting made in the custom paper menu is wrong.	Correct the paper setting of the custom paper menu.
	There is something wrong with paper feeding.	Carry out the Paper feed adjustment (p.216).
		Check the PF ENC SCALE for scratch, contamination, and correct it if any.
		Check the PF ENCODER ASSY for contamination, and clean it if needed.
		Replace the PF ENCODER ASSY (p.121).
	The PRINT HEAD(s) has not been adjusted properly.	Carry out the Head slant adjustment (p.205).
	The PF belt's tension is not proper.	Carry out the PF reduction belt tension adjustment (p.215).
	The parameter settings of the NVRAM may be incorrect if the banding occurs right after replacing the MAIN BOARD ASSY.	Import the NVRAM parameters from the old MAIN BOARD ASSY.
Vertical banding 	The print head has a defect.	Replace the PRINT HEAD(s) (p.153).
	Adjustments have not been carried out properly.	The ink dots may be drying too fast: try lowering the heaters temperature settings.
		Carry out the head Uni-D/Bi-D Low/High gap adjustment (p.212).
	The carriage unit cannot move smoothly.	Check the CR BELT and the drive pulley for a defect.
		Check whether the CR MOTOR is correctly installed. If not, install it correctly.
	There are too much blanks between the color dots.	The ink dots may be drying too fast: try lowering the heaters temperature settings.

CAUTION

According to the specifications, in Speed 2 Mode (720x720dpi), the banding should be judged from at least a 50 cm distance from the print.

In Speed 3 Mode (720x360), the banding should be judged from at least a 150 cm distance from the print.



CHAPTER

4

DISASSEMBLY & ASSEMBLY



4.1 Overview

This chapter describes procedures for disassembling the main components of Epson Stylus Pro GS6000. Unless otherwise specified, disassembled units or components can be reassembled by reversing the disassembly procedure.

- ❑ **WARNING**
Procedures which, if not strictly observed, could result in personal injury are described under the heading “WARNING”.
- ❑ **CAUTION**
“CAUTION” signals a precaution which, if ignored, could result in damage to equipment.
- ❑ **CHECK POINT**
Important tips for procedures are described under the heading “CHECK POINT”.
- ❑ **REASSEMBLY**
If the assembly procedure is different from the reversed disassembly procedure, the correct procedure is described under the heading “REASSEMBLY”.
- ❑ **ADJUSTMENT**
Any adjustments required after reassembly of components or parts are described under the heading “ADJUSTMENT REQUIRED”. Be sure to perform the specified adjustments with reference to Chapter 5 “ADJUSTMENT”.

When you have to remove any parts or components that are not described in this chapter, refer to “7.3 Parts List” (p250) in the Appendix.

The illustrations of this Service Manual have been made with a sample unit so the color of some parts (lever handles, carriage cover, etc.) is different from the mass production units.

4.1.1 Precautions

Before starting the disassembly or reassembly of the product, read the following precautions given under the headings “WARNING” and “CAUTION”.



- **When the Front Cover is opened, a safety-interlock mechanism causes the CR MOTOR and the PF motor to stop. Never disable the interlock function for operator protection.**
- **This printer is equipped with a lithium battery. When handling the lithium battery, the following precautions should be followed.**
 - **When replacing the battery, replace only with a specified type of battery. Using a different type of battery may cause excess heat or explosion.**
 - **Dispose of used batteries according to manufacture’s instructions and local regulations. Contact your local government agency for information about battery disposal and recycling.**
 - **When disposing of the battery, be sure to securely cover its (+) end with tape to prevent combustion or explosion.**
 - **Do not recharge the battery.**
 - **Do not use the battery if it is discolored or damaged, or if any leakage of electrolyte is observed.**
 - **Do not dismantle, solder or heat the battery. Doing so could result in leakage of electrolyte, heat generation, or explosion.**
 - **Do not heat the battery or dispose of it in fire.**
 - **If the electrolyte leaked from the battery gets in contact with your skin or gets into your eyes, rinse it off with clean water and see a doctor immediately.**
- **This device has two power systems. The power switch is installed on the secondary side of the power circuit, so power is always supplied unless the power cords are unplugged. Unless otherwise stated, be sure to unplug the two power cords before disassembling or assembling the printer to prevent electric shock and damage to the circuit.**



WARNING

- Always wear gloves for disassembly and reassembly to avoid injury from sharp metal edges.
- If ink gets in your eye, flush the eye with fresh water and see a doctor immediately.
- Never touch the ink or wasted ink with bare hands. If ink comes into contact with your skin, wash it off with soap and water immediately. If irritation occurs, contact a physician.

CAUTION

- Make sufficient work space for servicing.
- Locate the printer on a stable and flat surface.
- The ink-path-related components or parts should be firmly and securely reinstalled on the printer to prevent ink leaking.
- Use only recommended tools for disassembly, assembly or adjustment of the printer.
- When using compressed air products; such as air duster, for cleaning during repair and maintenance, the use of such products containing flammable gas is prohibited.
- Apply lubricants and adhesives as specified.
- Be careful not to soil the printer or the floor with leaked ink when removing the ink-path-related components or parts. Spread a sheet of paper or cloth on the floor in advance.
- Do not touch electrical circuit boards with bare hands as the elements on the board are so sensitive that they can be easily damaged by static electricity. If you have to handle the boards with bare hands, use static electricity discharge equipment such as anti-static wrist straps.
- When reassembling the printer, make sure to connect the connectors of the electric components or parts correctly and securely. Use extreme care when connecting FFCs (flexible flat cables). Improper connection of the FFCs, such as inserting them diagonally into the connectors, could cause short-circuiting and lead to breakdown of the electric elements on the boards.

CAUTION

- When reassembling the printer, make sure to route the FFCs and other cables as specified in this chapter. Failure to do so may cause an unexpected contact of the cables with sharp metal edges, or lead to lower the noise immunity.
- When the printer has to be operated with the covers removed, take extra care not to get your fingers or clothes caught in moving parts.
- When you have to remove any parts or components that are provided as after-service-parts but are not described in this chapter, carefully observe how they are installed and make sure to remember it before removing them.
- When you removed any parts (especially cables) that are secured with acetate tape or two-sided tape, be sure to reinstall and secure them with the tape as exactly the same as they were.
- Disassembling the frame and some components of the printer is prohibited because they are assembled with precise measurements in 1/100 mm unit at the factory. (See example [p. 94](#) and [p. 101](#).)



4.1.2 Orientation Definition

The terms used for indicating the orientation/direction throughout this chapter are as follows.

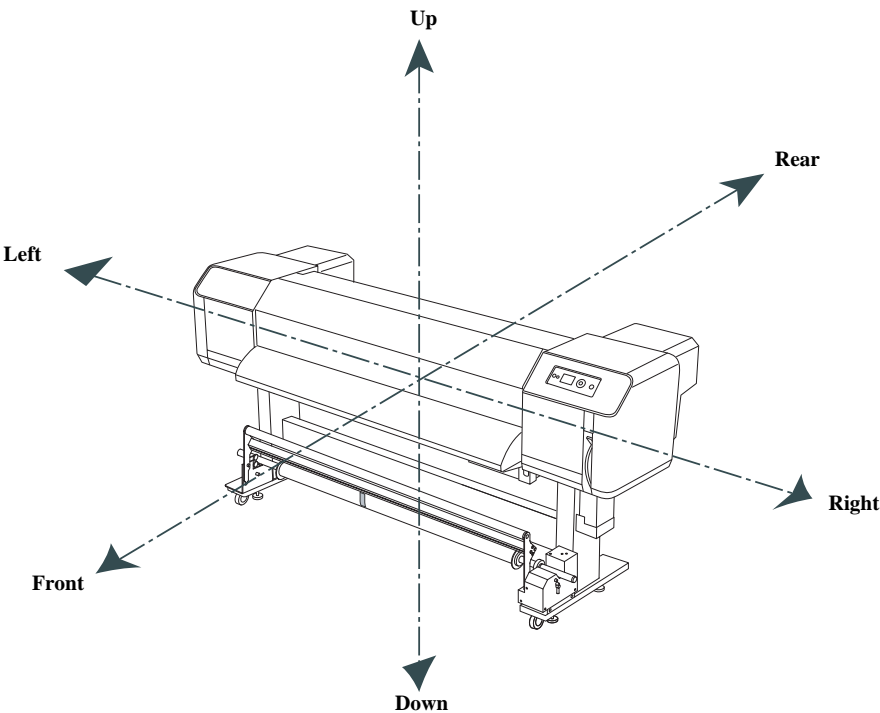



Figure 4-1. Orientation Definition

4.1.3 Recommended Tools

To protect this product from damage, use the tools indicated in the following table.

Table 4-1. Tools

Name	Epson Part Number	Note
Phillips screwdriver, No. 1	Commercially available	---
Phillips screwdriver, No. 2	Commercially available	---
Hexagonal Box driver	Commercially available	5 mm
Hexagonal wrench	Commercially available	3 mm
Hexagonal wrench (Long shaft)	Commercially available	2 mm
Long-nose pliers	Commercially available	---
Tweezers	Commercially available	---
Nippers	Commercially available	---
GS6K/TUBE HOLDER	1501560	---
GS6K/SPRING SET TOOL	1501561	
GS6K/HEAD HOLDER	1501562	
GS6K/PG ADJUSTMENT JIG	1501563	---
GS6K/BELT TENSION ATTACHMENT	1501564	---
Thread locker	Commercially available	<div>You must use the following product. <input type="checkbox"/> Supplier: ThreeBond <input type="checkbox"/> Product name: 1401</div> <div></div>

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4.2 Parts Diagram

See the pages written under brackets for the disassembly/assembly procedure.

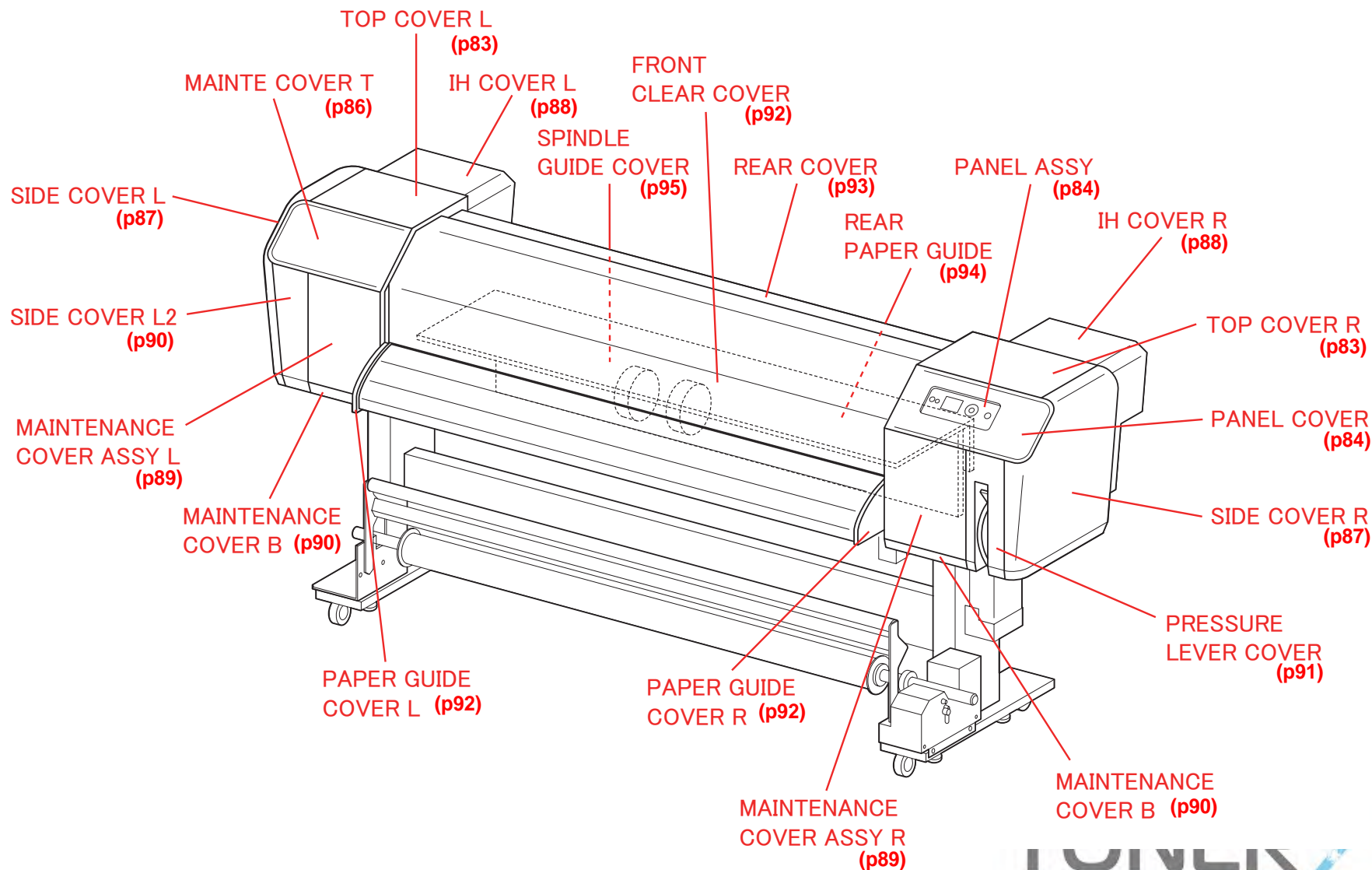


Figure 4-2. Housing



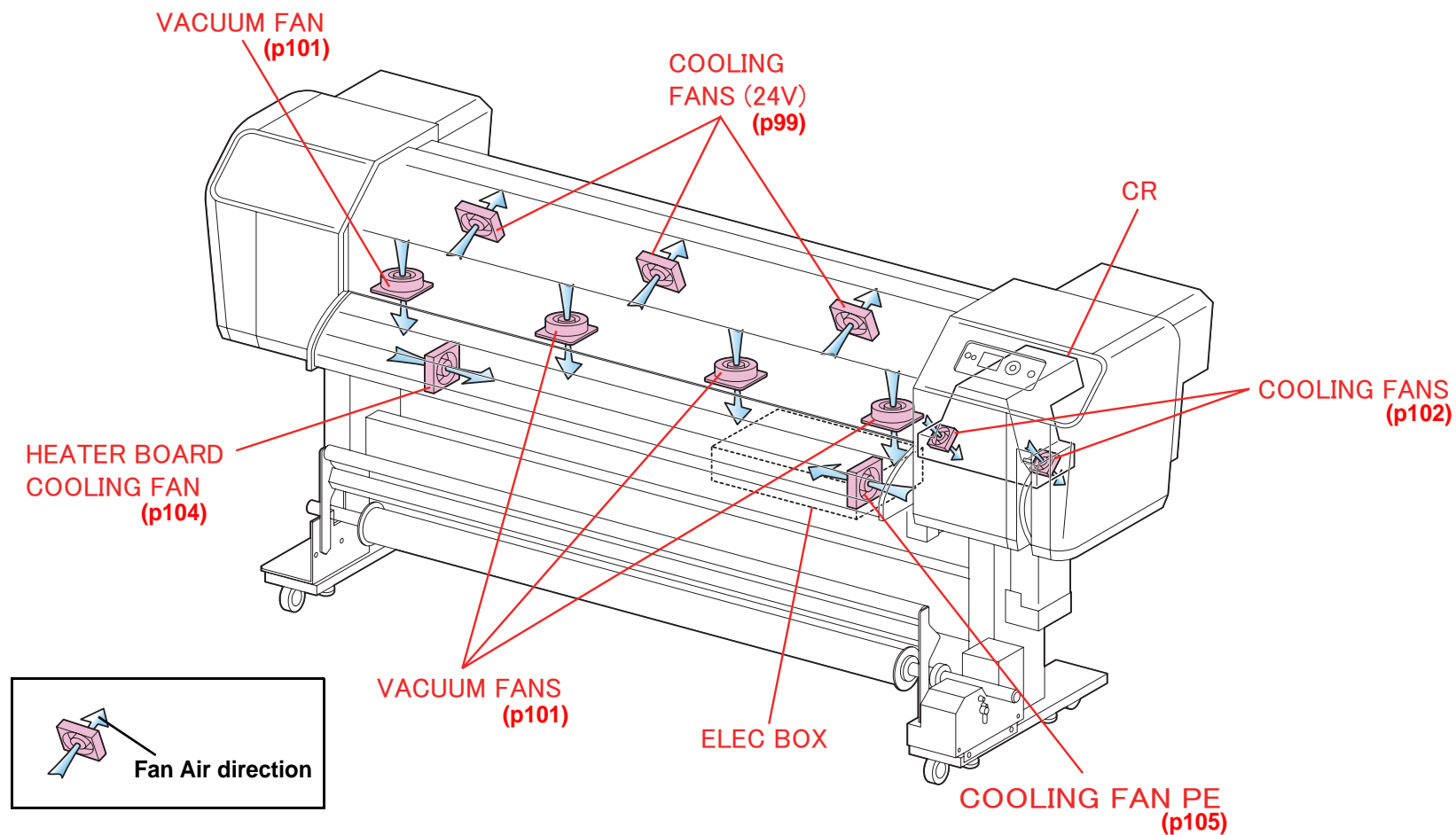


Figure 4-3. Fans

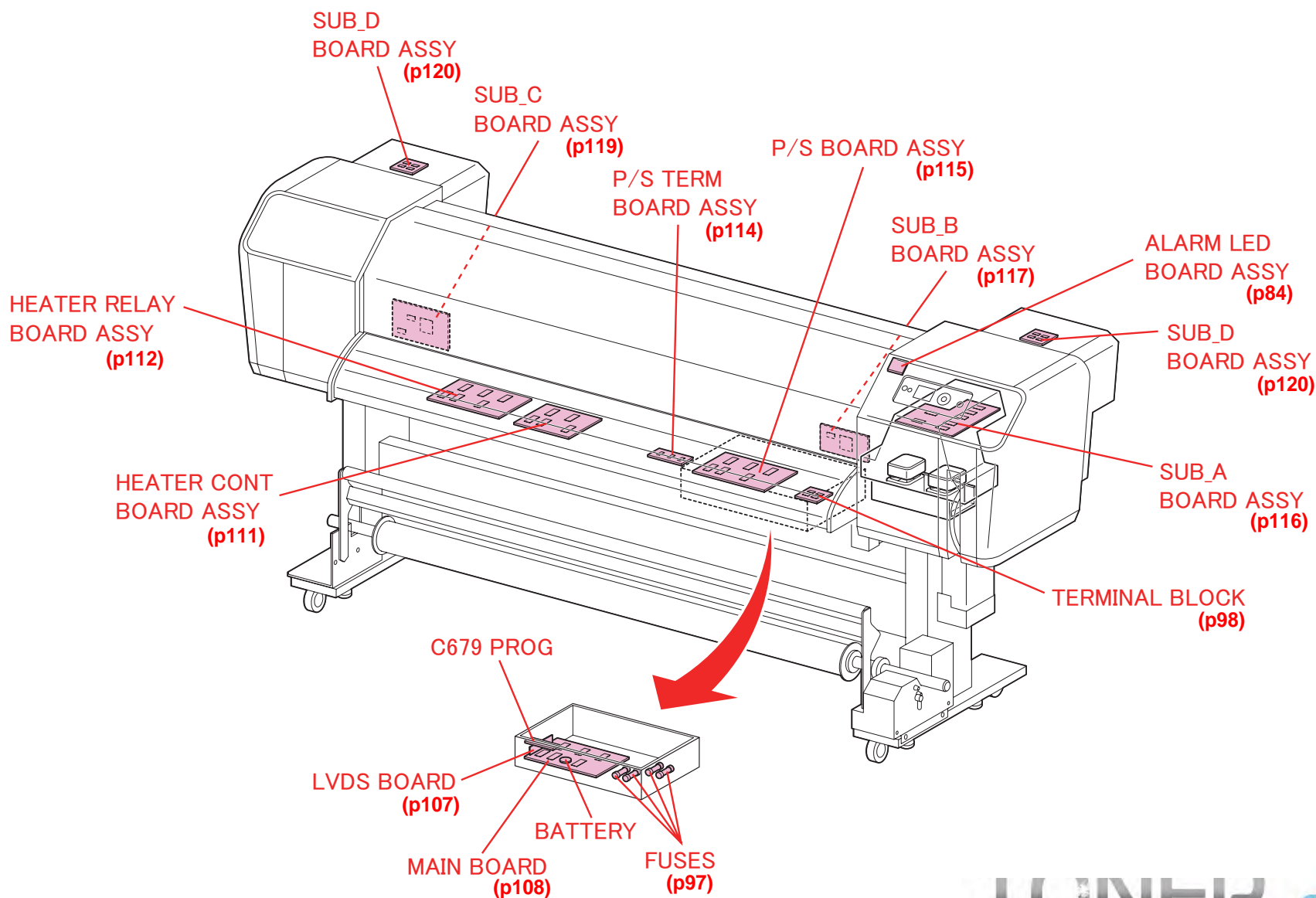


Figure 4-4. Electric Components, Boards

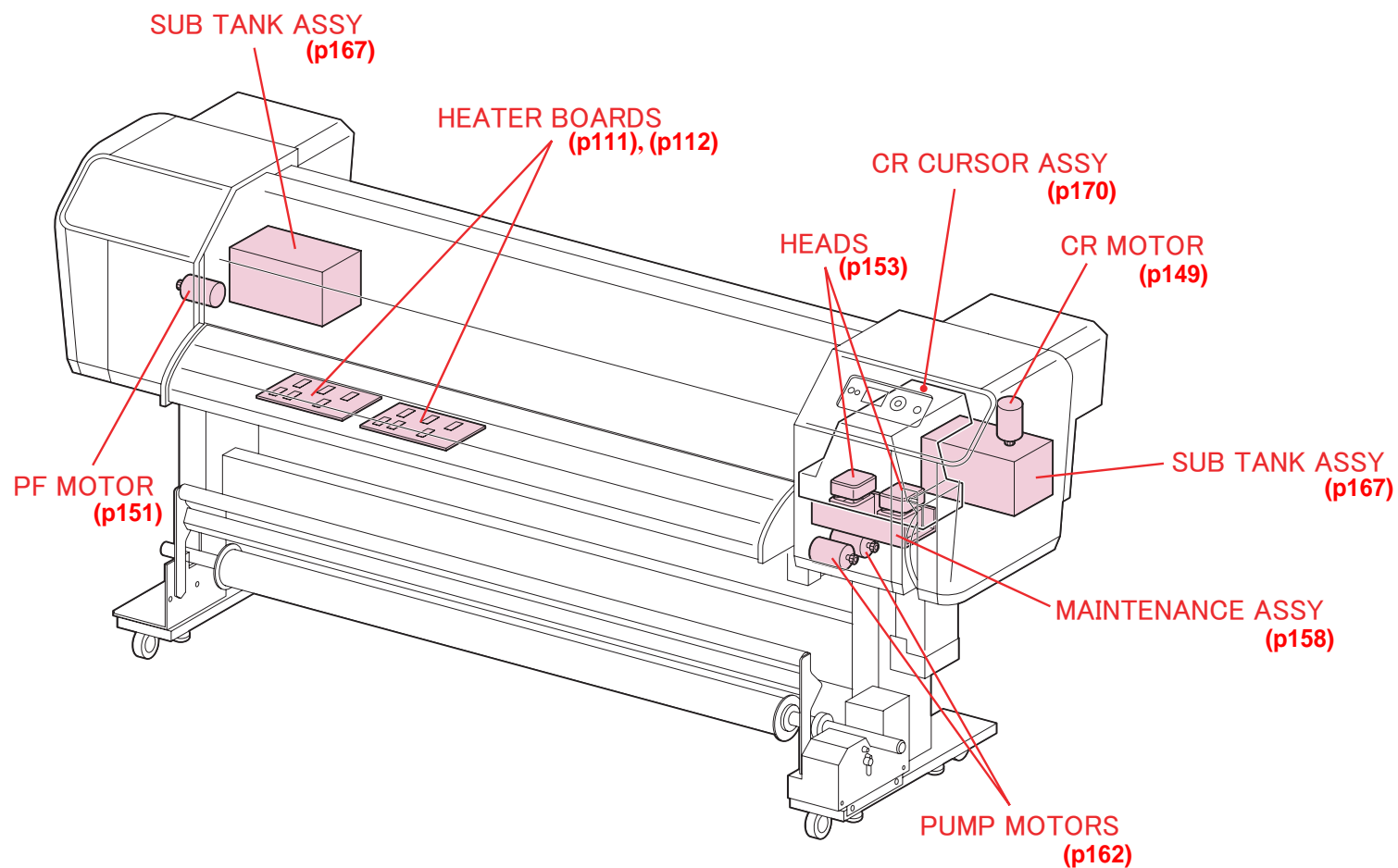


Figure 4-5. Main Components (Motors, etc.)

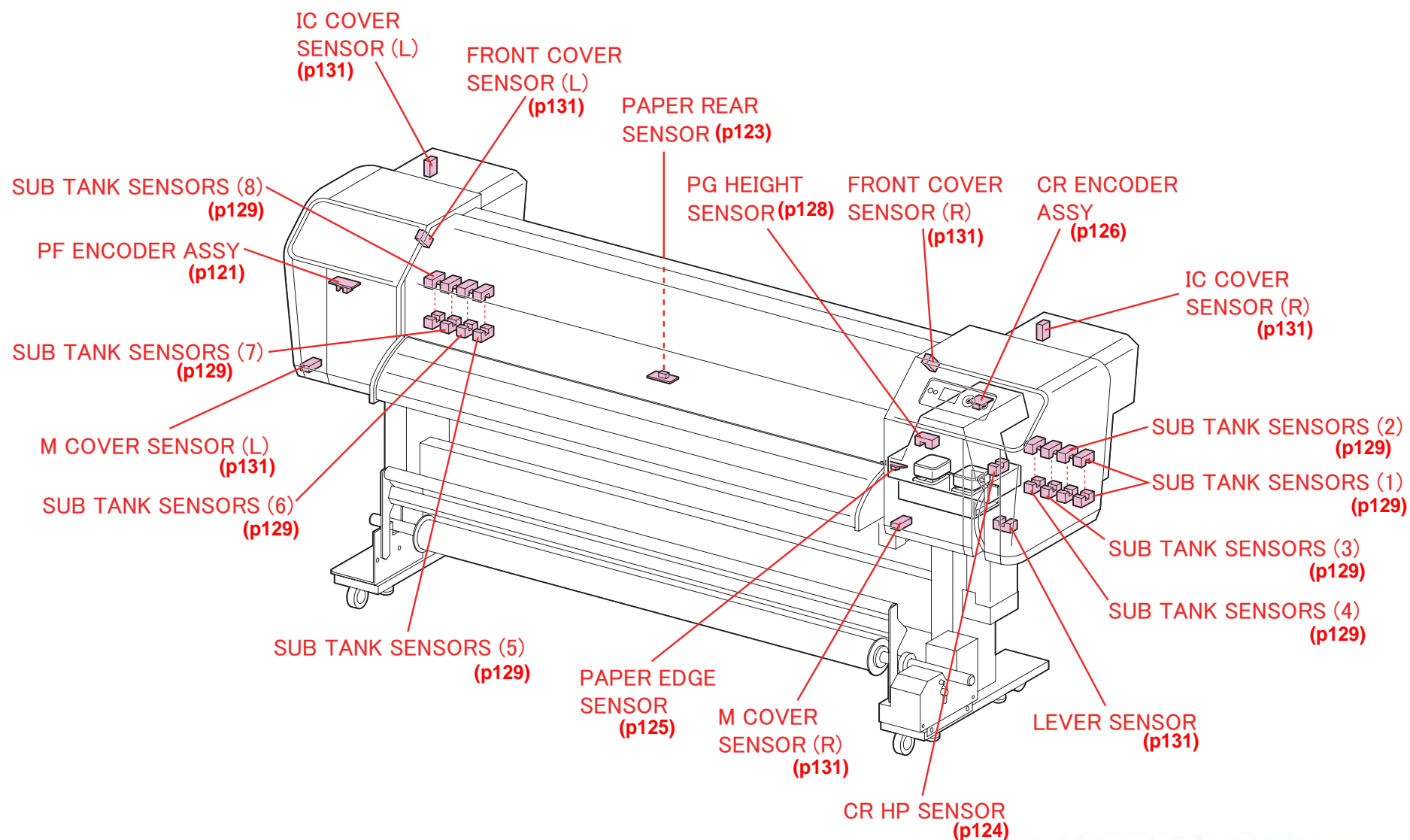


Figure 4-6. SENSORS

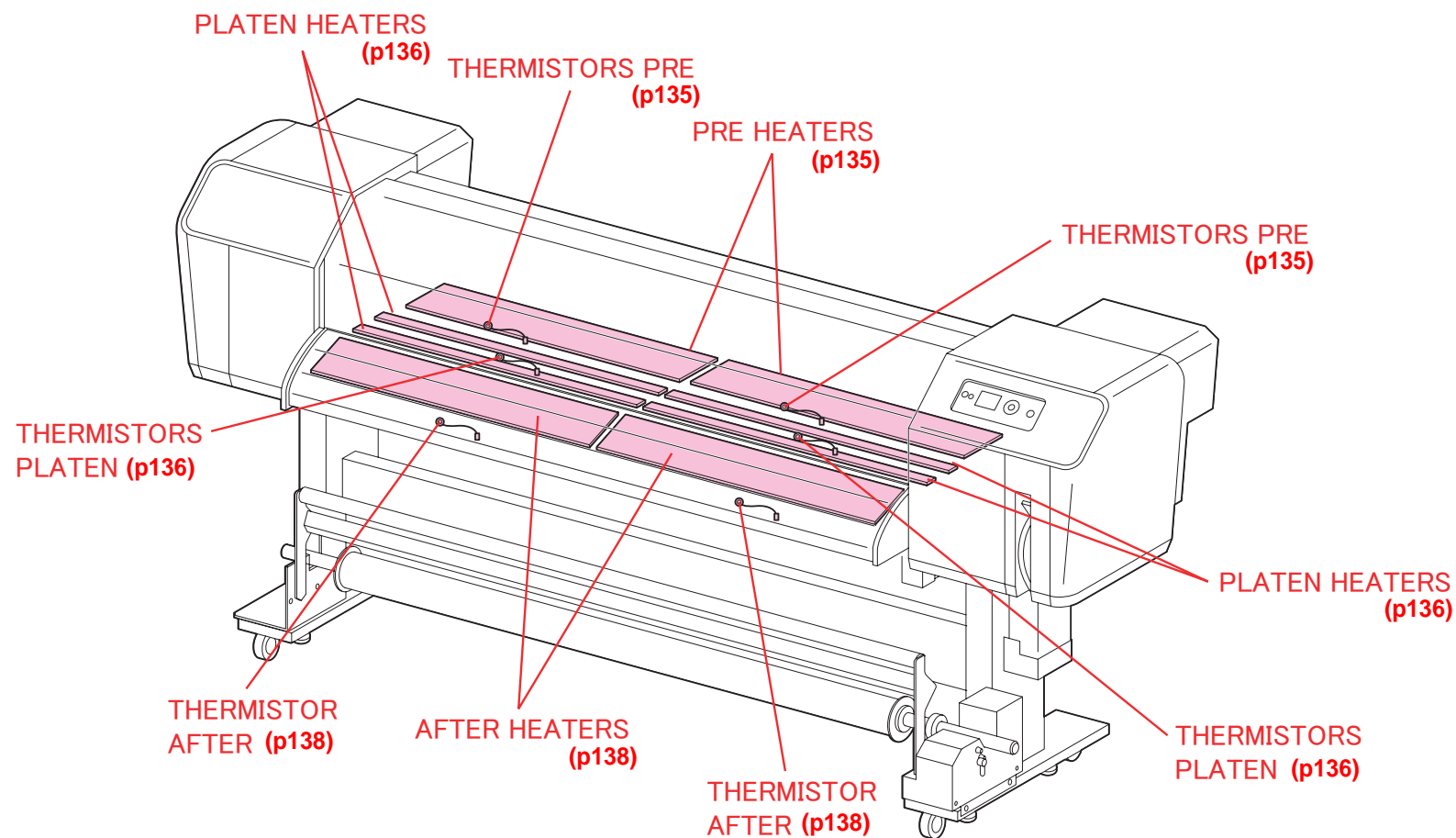


Figure 4-7. HEATERS

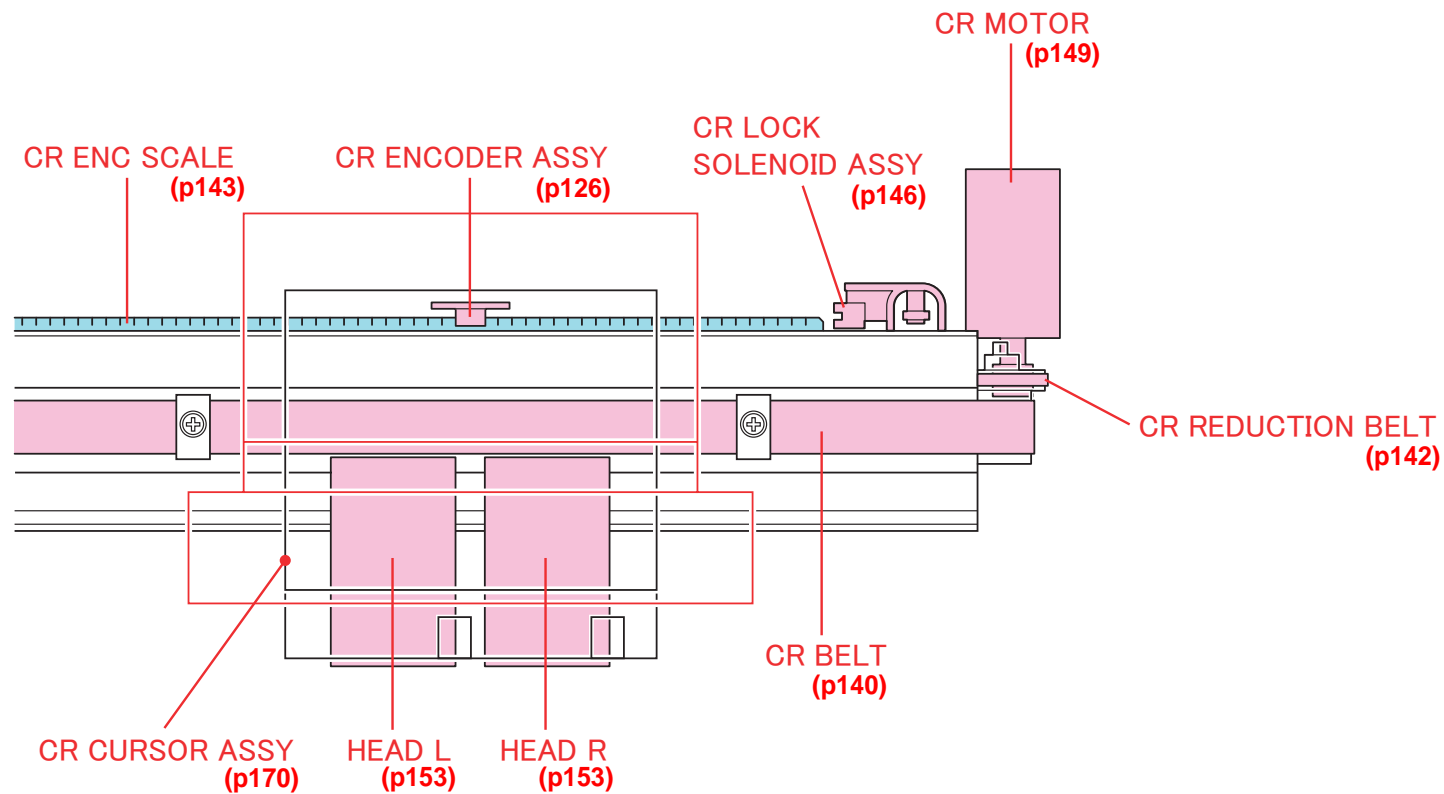


Figure 4-8. CARRIAGE MECHANISM

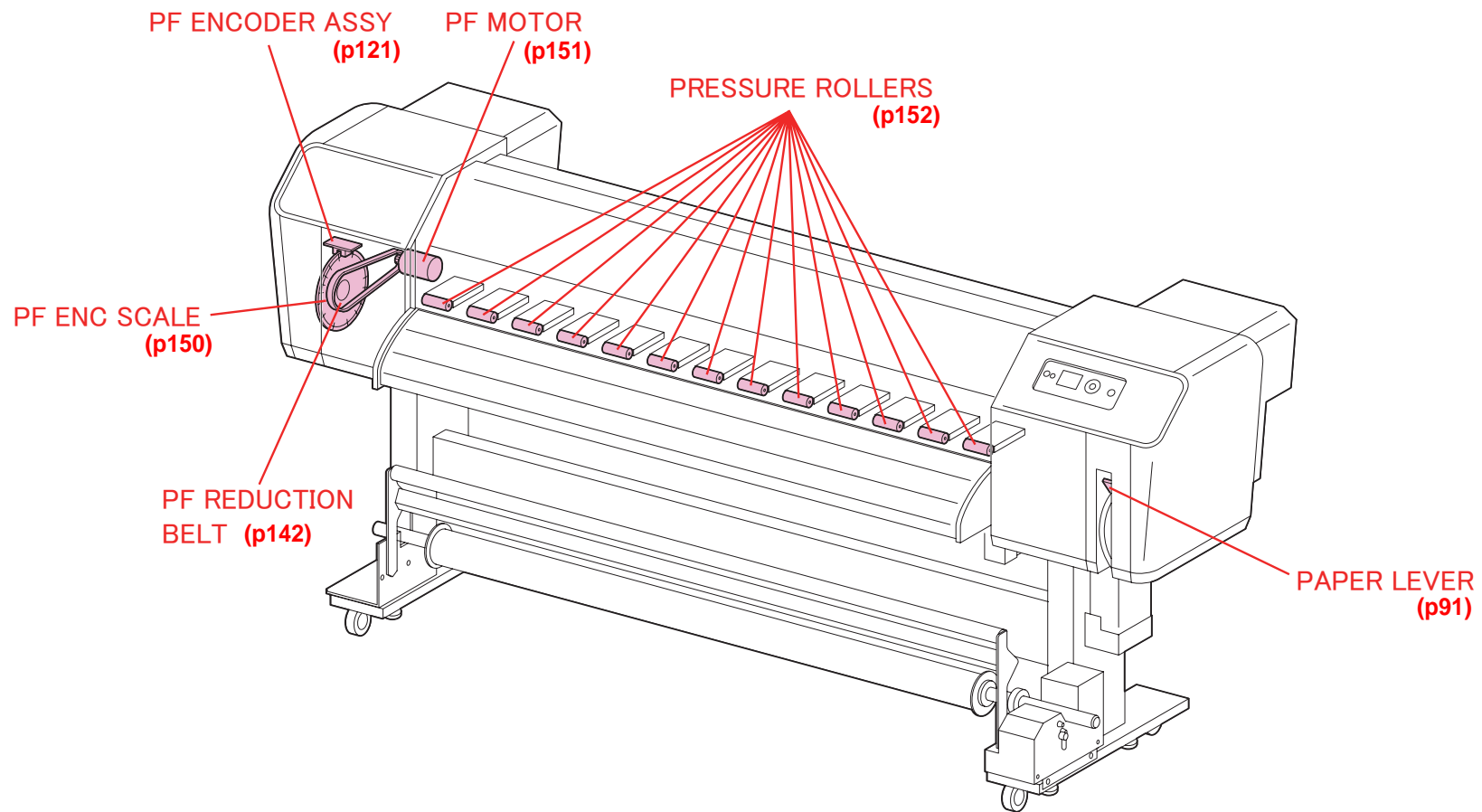


Figure 4-9. Paper Feed Mechanism

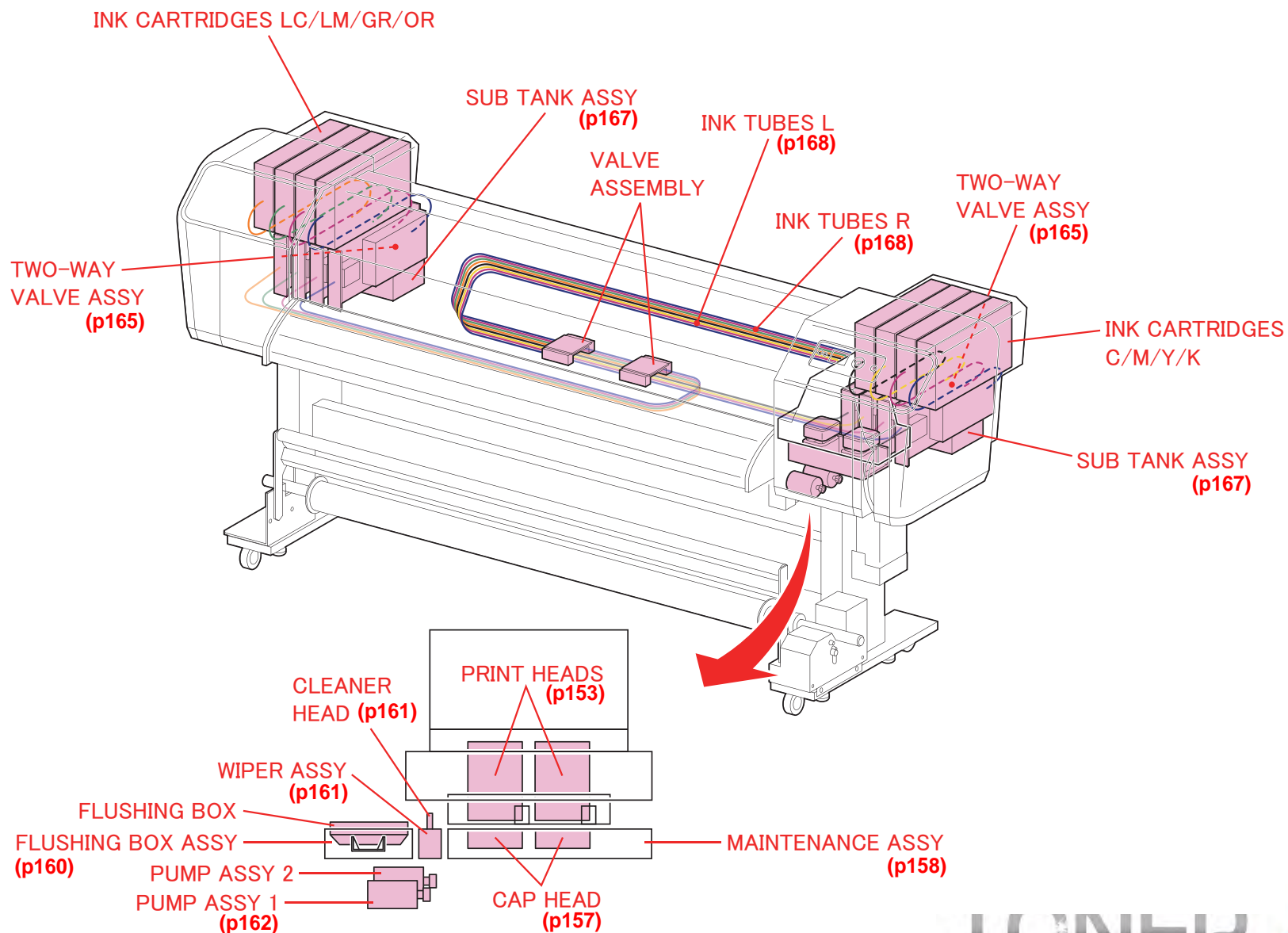
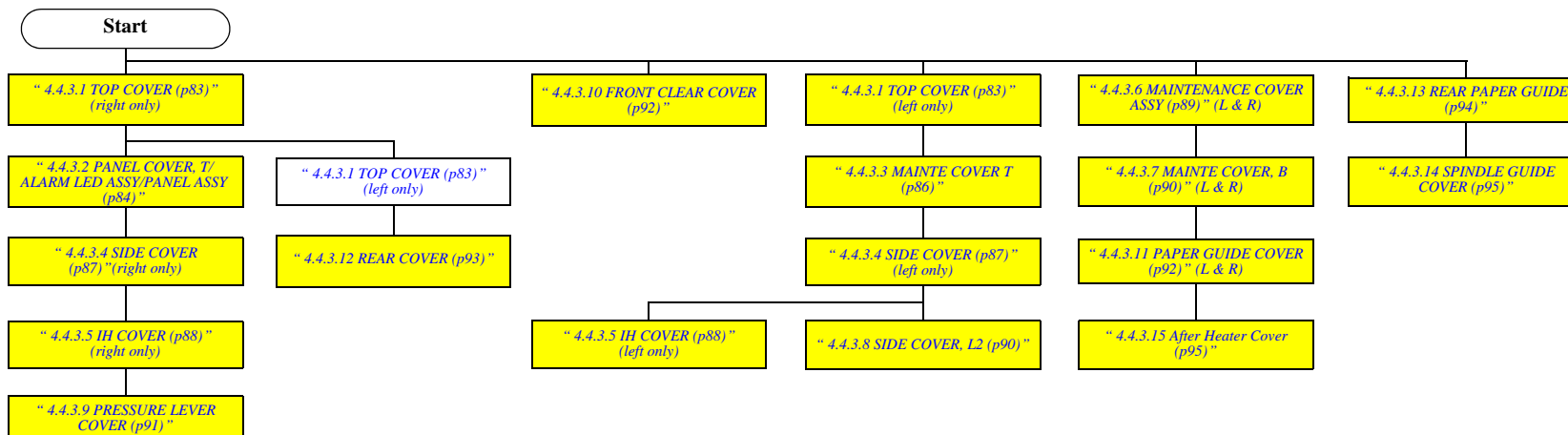


Figure 4-10. Ink System Mechanism

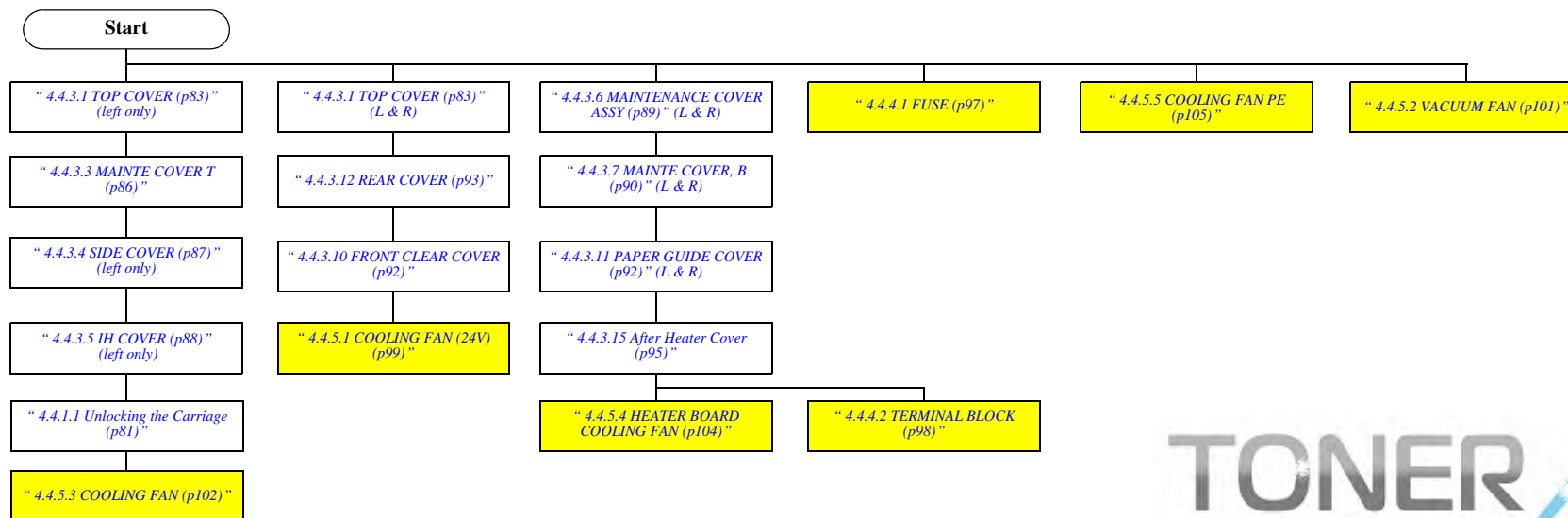


4.3 Disassembly Flowchart

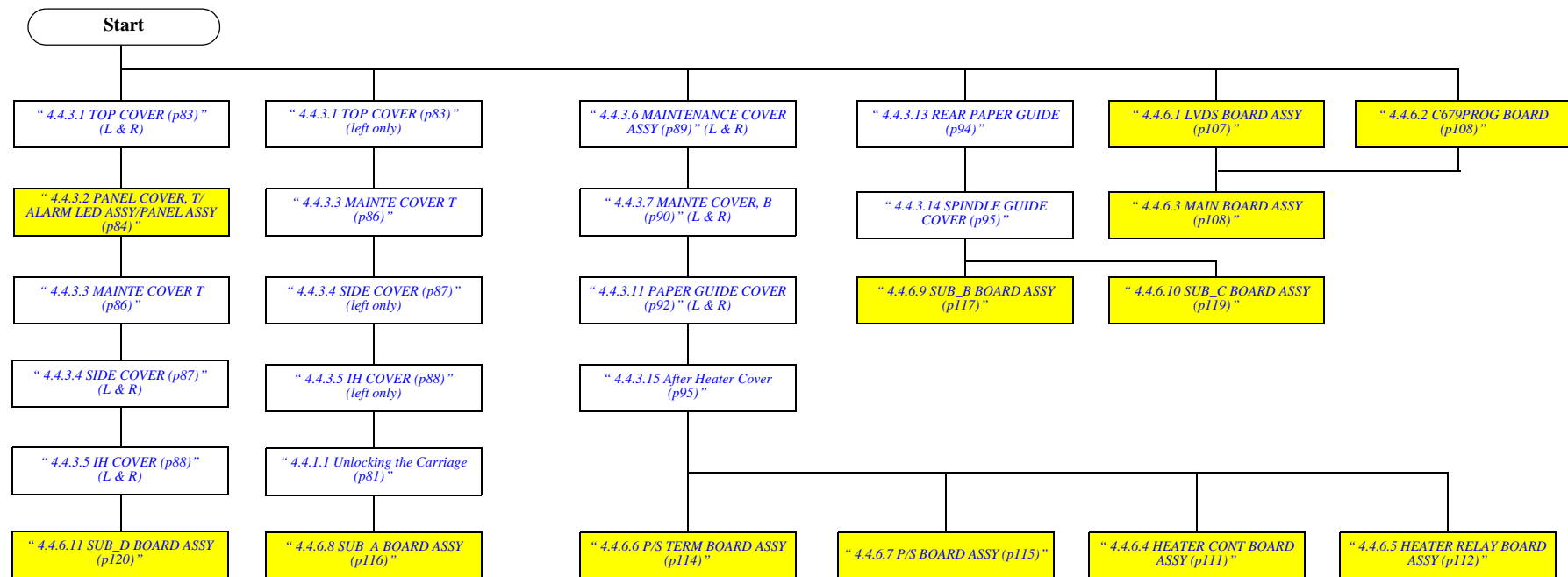
HOUSING



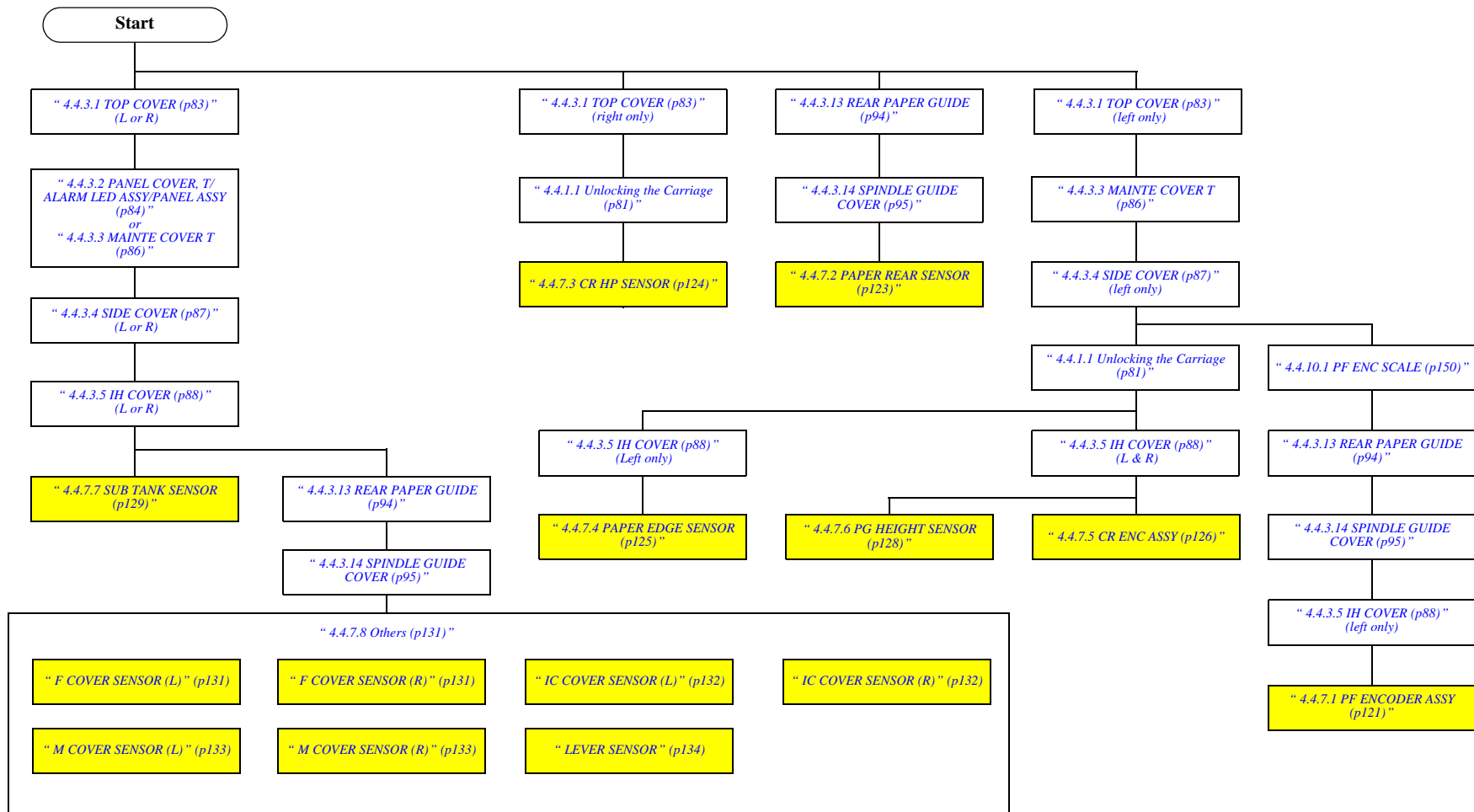
FANS/ELECTRIC COMPONENTS



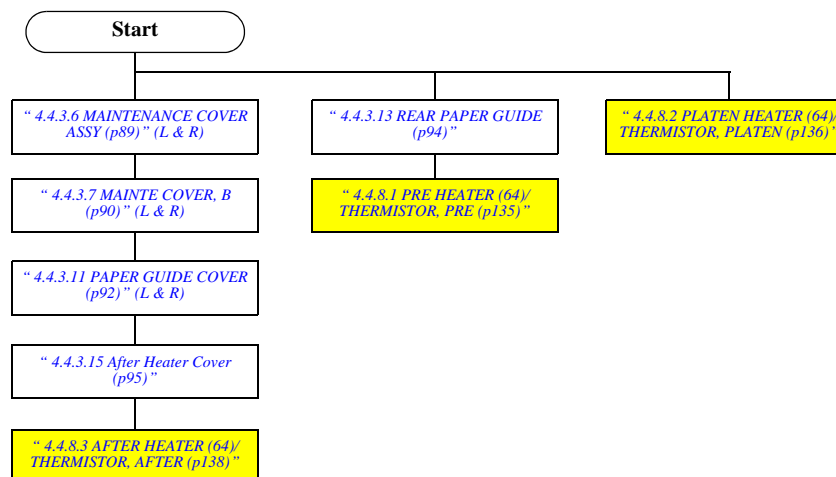
BOARDS



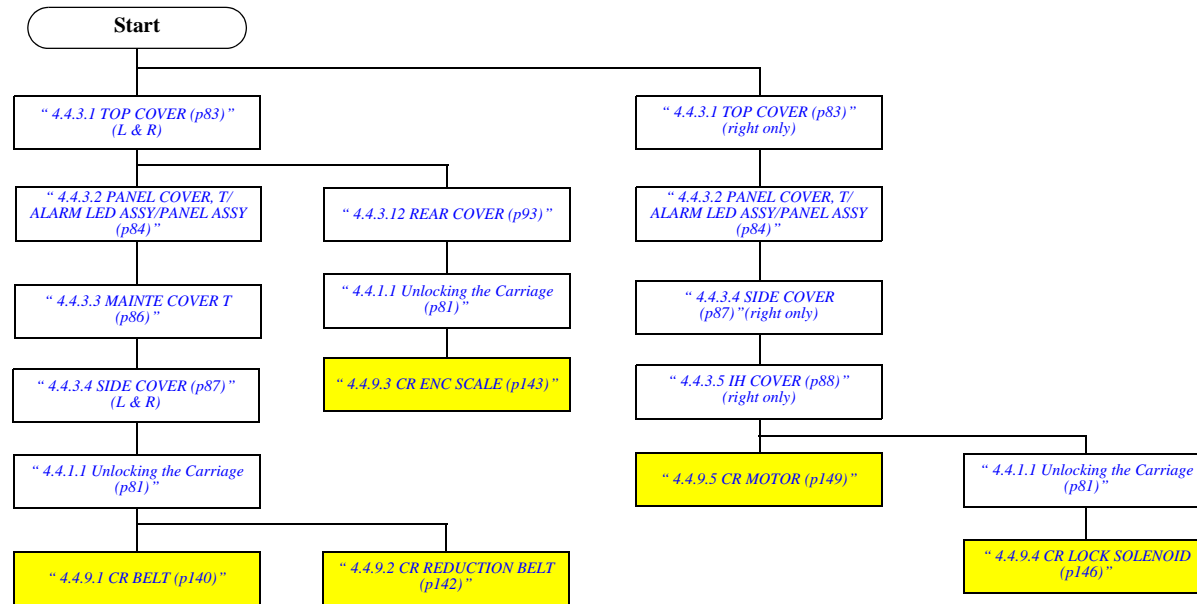
SENSORS



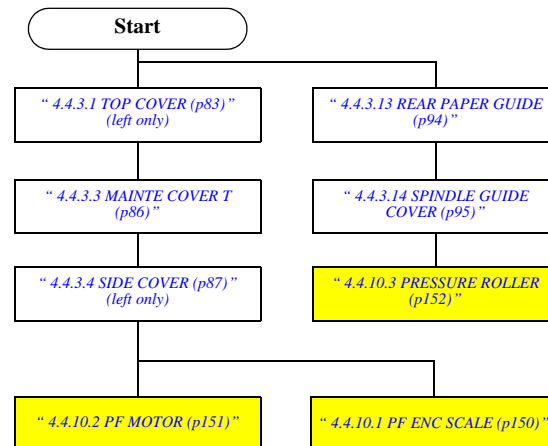
HEATERS/THERMISTORS



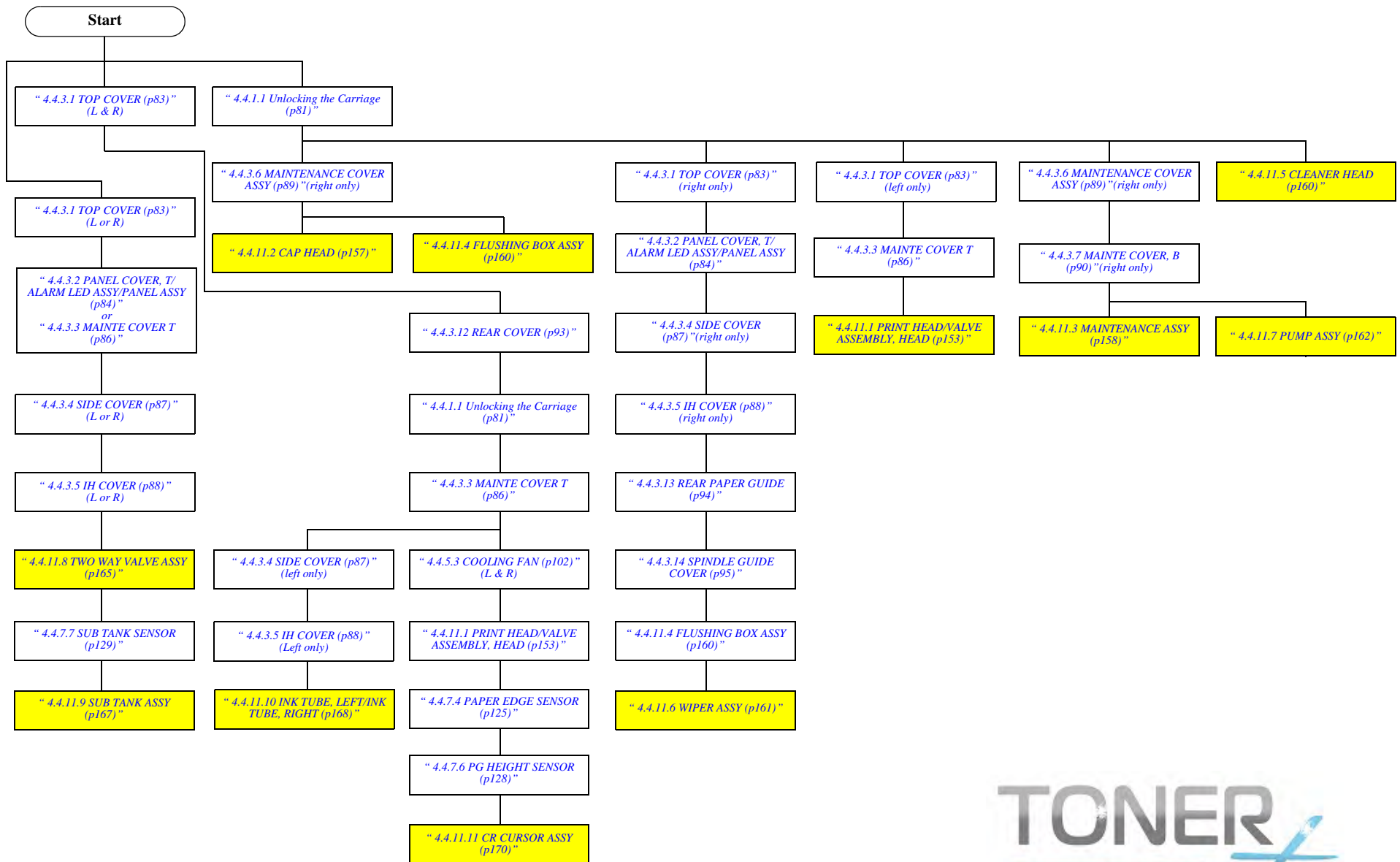
CARRIAGE MECHANISM



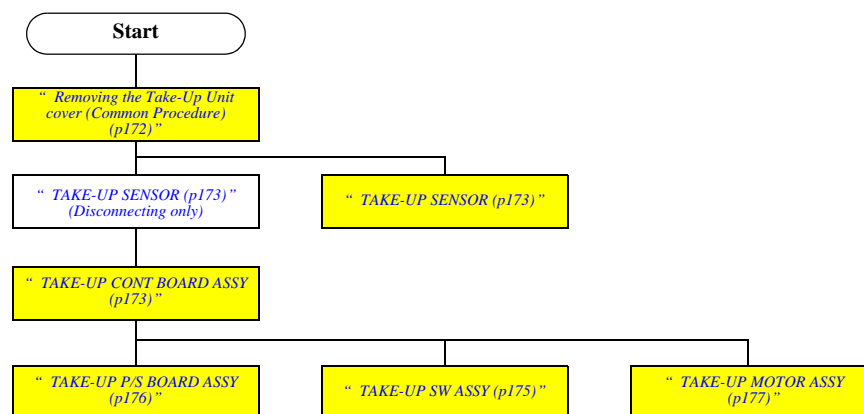
PAPER FEED MECHANISM



INK SYSTEM MECHANISM



TAKE-UP REEL UNIT



4.4 Disassembly and Assembly Procedure

This section describes procedures for disassembling the components allowed to be disassembled. Unless otherwise specified, disassembled units or components can be reassembled by reversing the disassembly procedure.

4.4.1 Basic Operations

4.4.1.1 Unlocking the Carriage

1. Push and open the MAINTENANCE COVER ASSY (right only). *See Figure 4-26.*
2. Insert your hand between the Carriage and the frame as shown in the figure below.
3. Push the lock pin to the rear to unlock the Carriage.
4. Push the Carriage to the center.

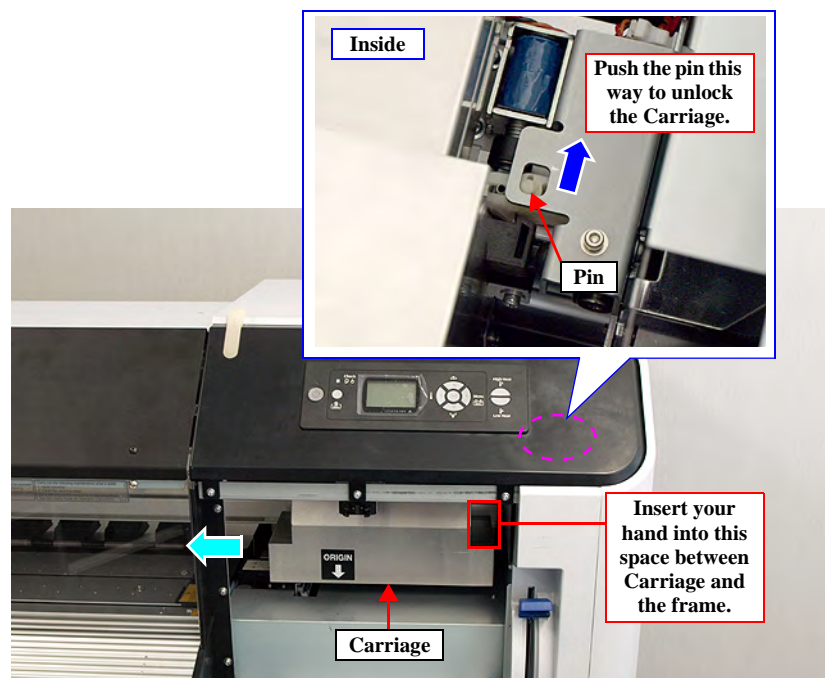


Figure 4-11. Unlocking the Carriage

4.4.1.2 Disposal of Waste Ink

Dispose of waste ink when the ink drain tank is more than half full or when DRAIN TANK FULL is displayed on the LCD panel.



The waste ink from the printer is industrial waste. It is required to carry out proper waste ink disposal in compliance with the industrial waste disposal laws and ordinances of your local government. Consign disposal of waste inks to an industrial waste disposer. (At this point, provide the Waste Ink Data Sheet to the industrial waste disposer, if necessary. You can download it at your local Epson Web site.)

1. Prepare an empty container to collect the waste ink.
2. Lay a protective material on the floor under the ink drain tank.
3. Open the waste ink valve, and transfer the waste ink to the container.



When transferring the waste ink to the empty container, the waste ink may splash so put the container close to the waste ink valve.

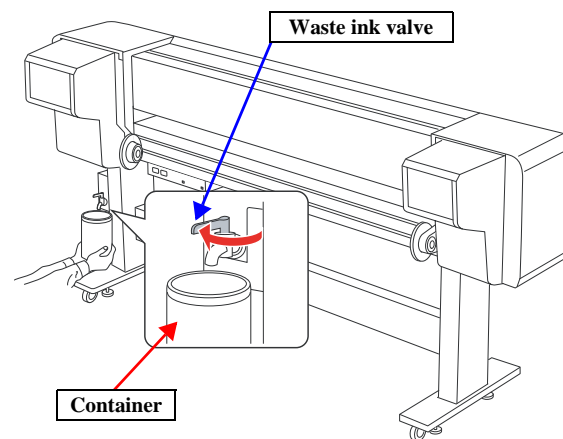


Figure 4-12. Disposal of Waste Ink (1)

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4. After transferring the waste ink to the container, close the waste ink valve securely.
5. Wipe the opening of the waste ink valve with a cloth, etc.
6. Dispose of the waste ink as an industrial waste product.

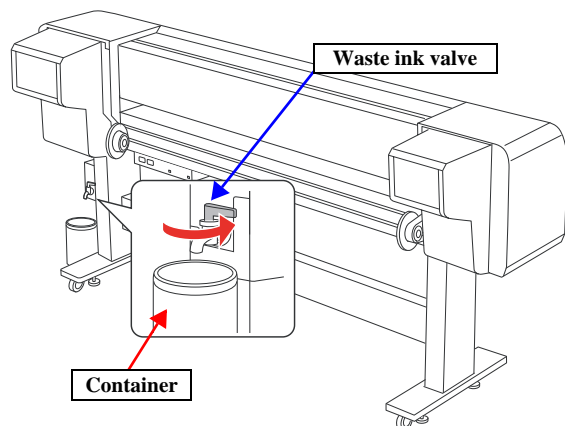


Figure 4-13. Disposal of Waste Ink (2)

4.4.2 Consumables/Accessories

4.4.2.1 Flushing Box Unit (Flushing Pad)

1. Unlock the Carriage. (p81)



Make sure you don't drop ink from the Flushing Pad or the Flushing Box when removing a used part.

2. Lift the tab and disengage the hook, then remove the Flushing Box Unit.

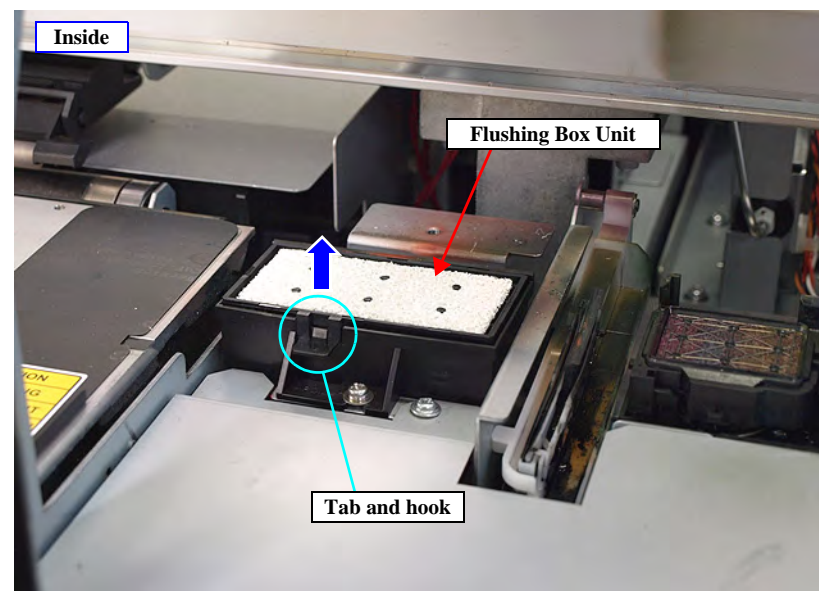


Figure 4-14. Removing the Flushing Box Unit

4.4.3 Housing

4.4.3.1 TOP COVER

CHECK POINT



Basically you can remove this part on the left and the one on the right in the same way. Therefore this section describes the way to remove the one on the right only.

1. Remove the two screws on the rear.
A) Silver, Phillips, Pan with S.W & P.W M4x8: two pieces
2. Slide the TOP COVER to the rear and remove it.

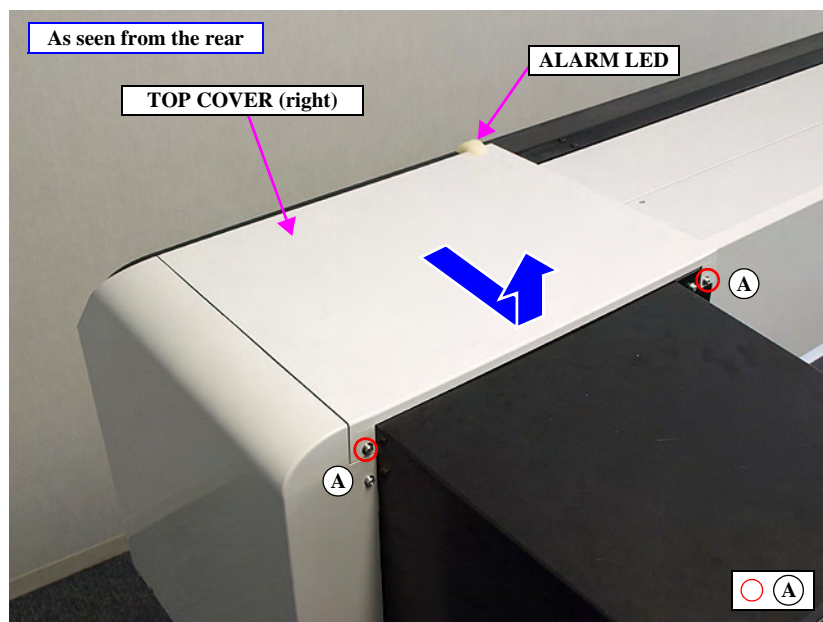


Figure 4-15. Removing the TOP COVER

CHECK POINT

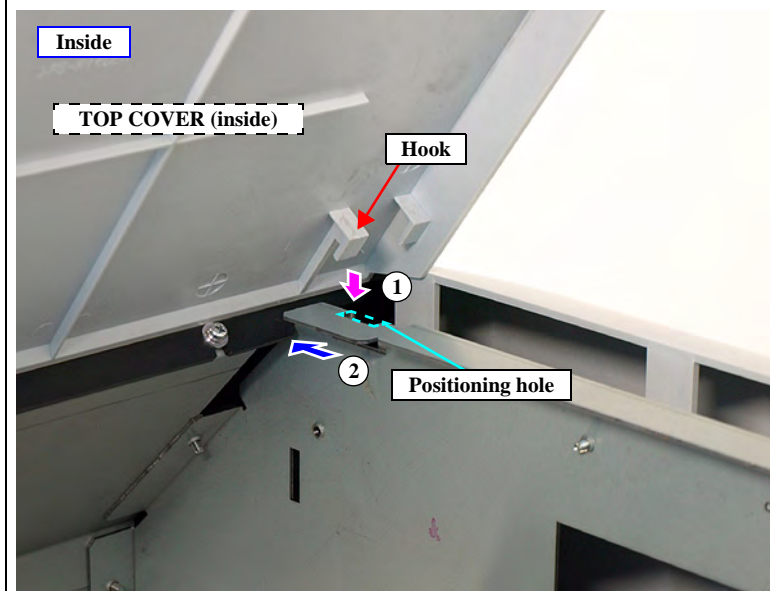


When attaching the TOP COVER (right), make sure to set the front left of it under the ALARM LED COVER. *See Figure 4-15.*

REASSEMBLY



When installing the TOP COVER, make sure to engage the hooks on both sides to their positioning holes.



4.4.3.2 PANEL COVER, T/ALARM LED ASSY/PANEL ASSY

1. Remove the TOP COVER (right only). (p83)
2. Push and open the MAINTENANCE COVER ASSY (right only). See Figure 4-26.
3. Remove the five screws.
 - A) Silver, Phillips, Pan with S.W & P.W M4x8: five pieces

CAUTION



In the next step, do not pull away the PANEL COVER, T too far, because cables are connected to it.

4. Pull the left side of the PANEL COVER, T slightly and slide the cover up to the rear.

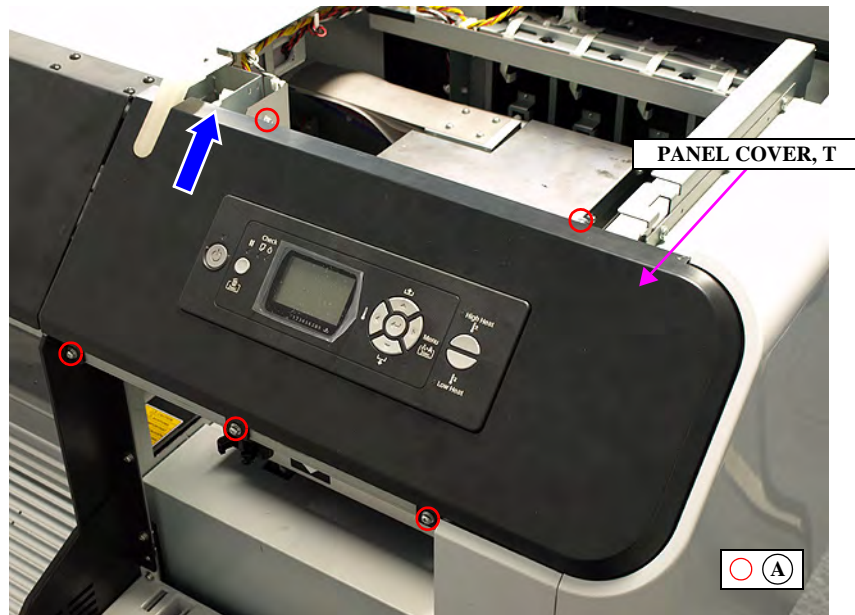


Figure 4-16. Detaching the PANEL COVER

5. Disconnect the FFC and the cable from their connectors and remove the PANEL COVER, T.

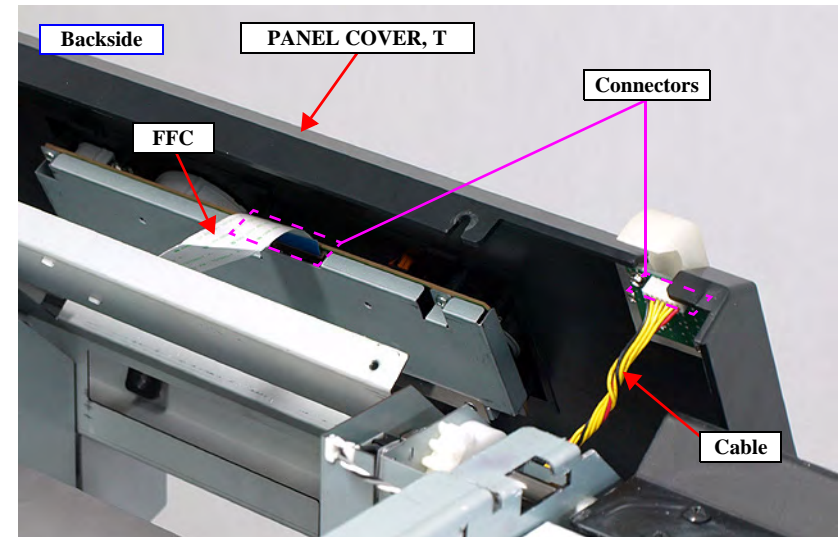
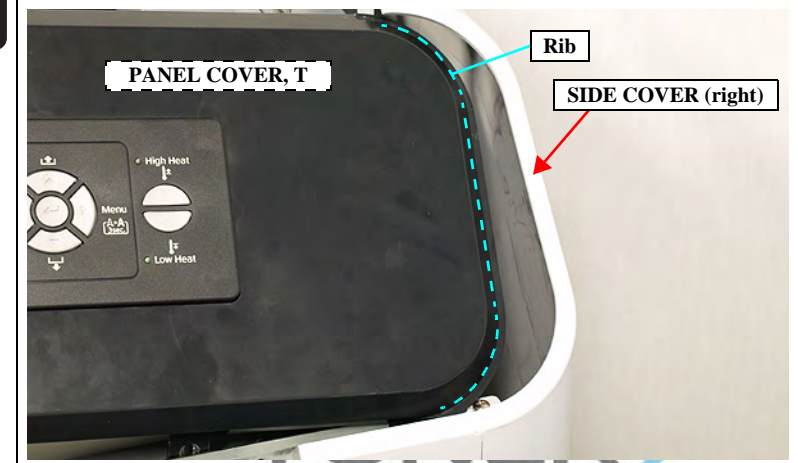


Figure 4-17. Disconnecting the FFC and the cable

REASSEMBLY



When attaching the PANEL COVER, T, make sure to insert the rib on the right under the Side Cover (right).



□ ALARM LED

1. Remove the two screws and remove the ALARM LED.
A) Silver, Phillips, Cup M3x6: two pieces

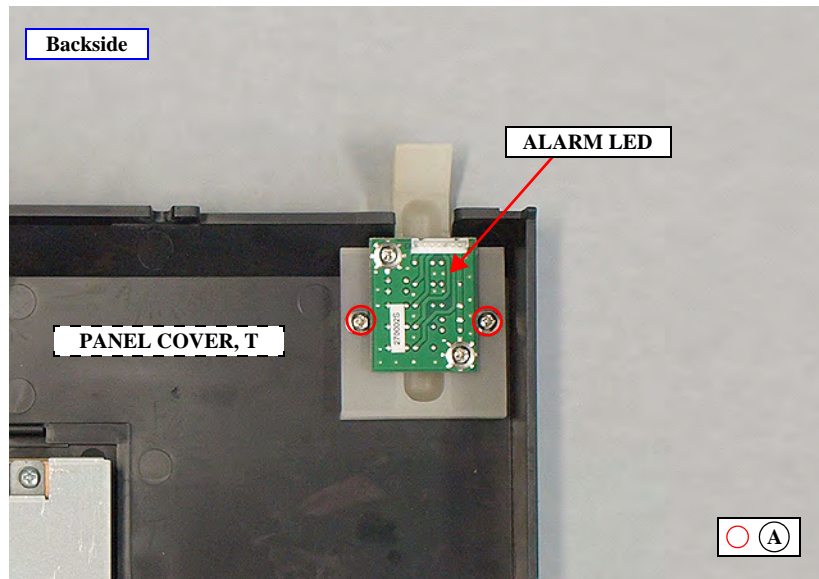


Figure 4-18. Removing the ALARM LED

ADJUSTMENT
REQUIRED



Be sure to refer to Chapter 5 “Adjustment” ([see p179](#)) and perform specified adjustments after replacing or removing this part.

<Adjustment item>

1. Alarm LED Test

□ PANEL ASSY/PANEL COVER, T

1. Disengage the three springs from the PANEL COVER, T, and remove the PANEL ASSY.

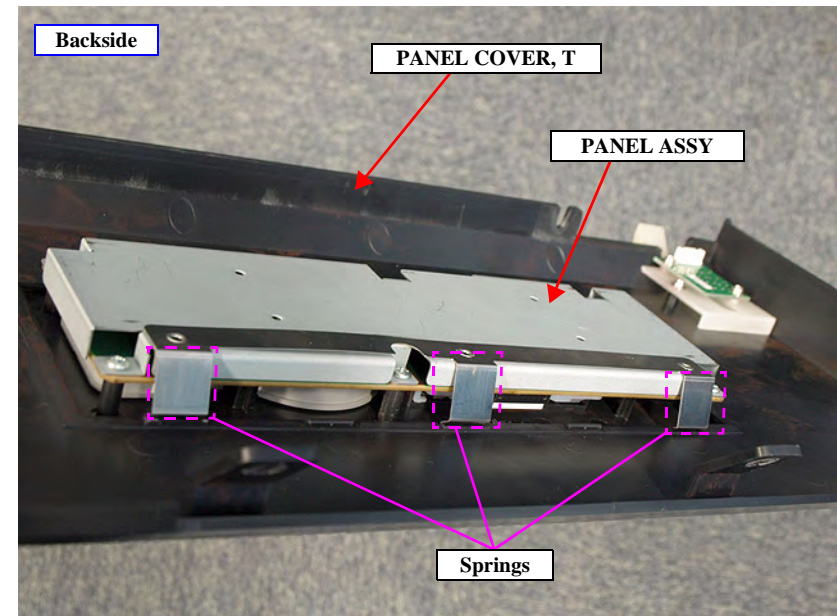


Figure 4-19. Removing the PANEL ASSY/PANEL COVER, T

ADJUSTMENT
REQUIRED



Be sure to refer to Chapter 5 “Adjustment” ([see p179](#)) and perform specified adjustments after replacing or removing this part.

<Adjustment item>

1. Panel Test

4.4.3.3 MAINTENANCE COVER T

1. Remove the TOP COVER (left only). (p83)
2. Push and open the MAINTENANCE COVER ASSY (left only). See Figure 4-26.
3. Remove the five screws.
 - A) Silver, Phillips, Pan with S.W & P.W M4x8: five pieces
4. Pull the right side of the MAINTENANCE COVER T and slide it up to the rear to remove it.

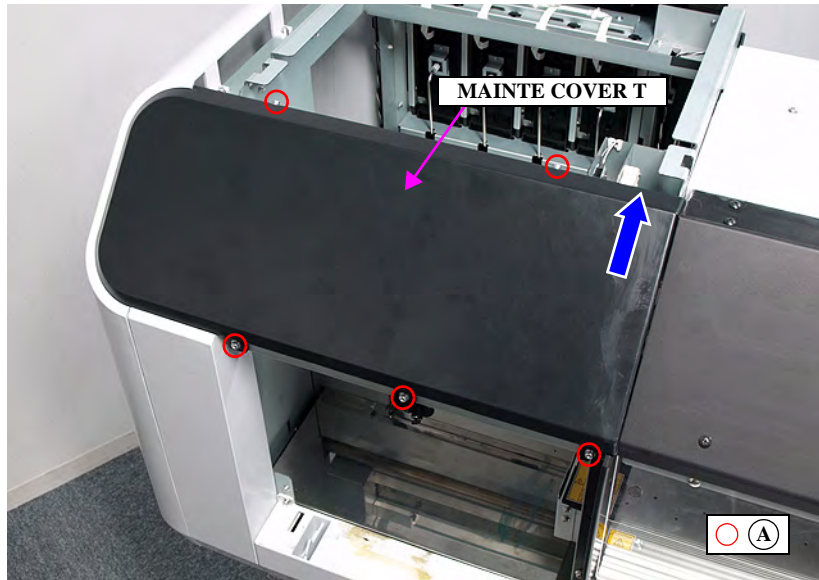
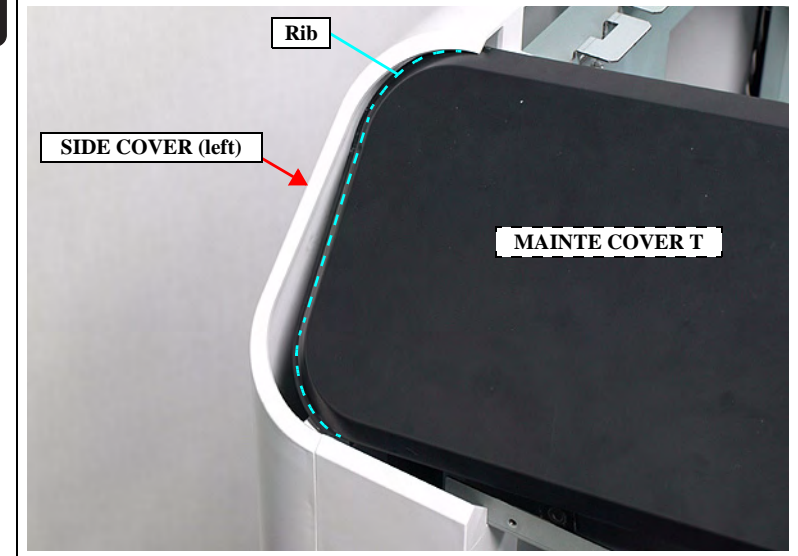


Figure 4-20. Removing the MAINTENANCE COVER T



When attaching the MAINTENANCE COVER T, make sure to insert the rib on the left under the SIDE COVER (left).



4.4.3.4 SIDE COVER

CHECK
POINT

- Basically you can remove this part on the left and the one on the right in the same way. Therefore this section describes the way to remove the one on the right only.
- When removing the covers on the left, remove the MAINTENANCE COVER T (p86) in Step 2.

1. Remove the TOP COVER. (p83)
2. Remove the PANEL COVER, T. (p84)
3. Remove the eight screws and remove the SIDE COVER.
 - A) Silver, Phillips, Pan with S.W & P.W M4x8: seven pieces
 - B) Silver, Phillips, Bind P-tite M4x10: one piece

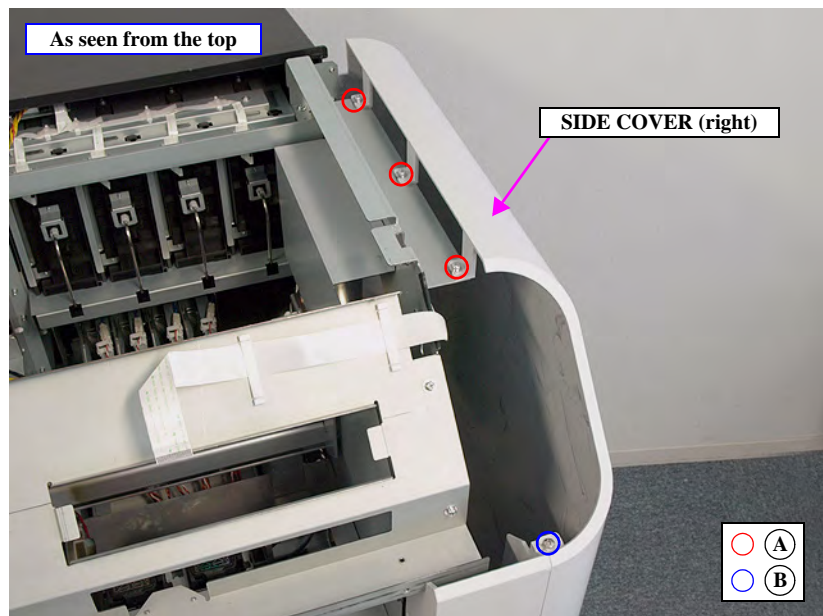


Figure 4-21. Removing the SIDE COVER (top)

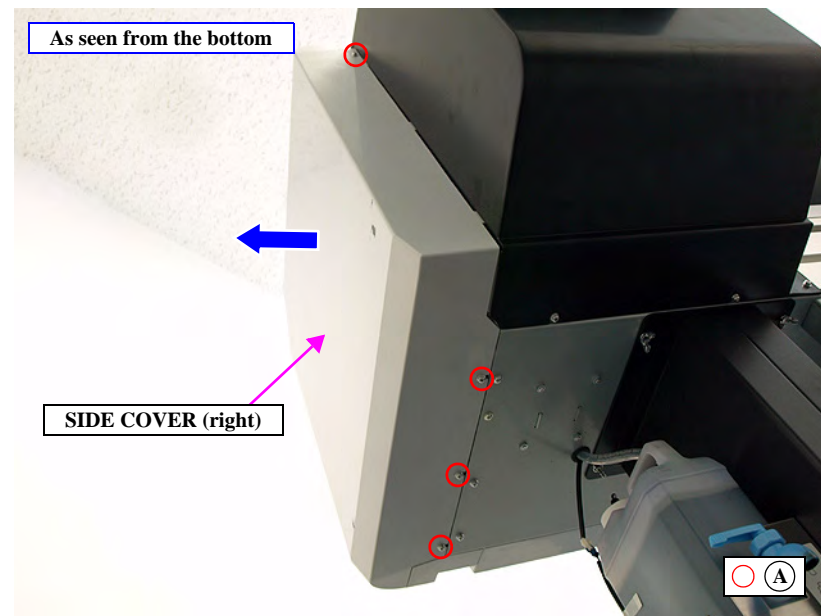


Figure 4-22. Removing the SIDE COVER (bottom)

REASSEMBLY



Be careful not to fasten the B screw too strong as the cover material is quite soft and it would enlarge the screw hole, hence decreasing the fastening efficiency. See Figure 4-21.

4.4.3.5 IH COVER

CHECK
POINT



- Basically you can remove this part on the left and the one on the right in the same way. Therefore this section describes the way to remove the one on the right only.
- When removing the covers on the left, remove the MAINTENANCE COVER T (p86) in Step 2.

1. Remove the TOP COVER. (p83)
2. Remove the PANEL COVER, T. (p84)
3. Remove the SIDE COVER. (p87)
4. Open the Ink Cover (not an ASP).

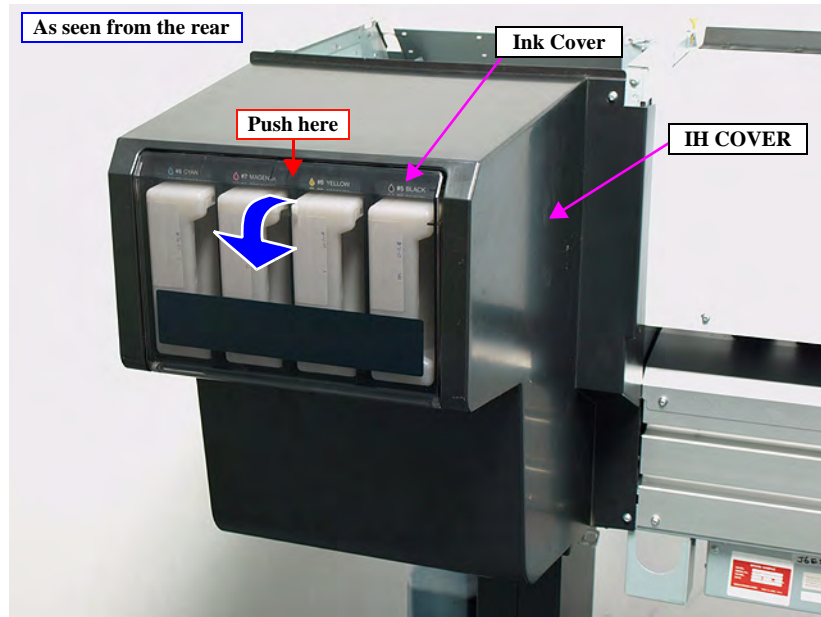


Figure 4-23. Opening the Ink Cover

5. Remove the three screws from outside.

A) Silver, Phillips, Pan with S.W & P.W M4x8: three pieces

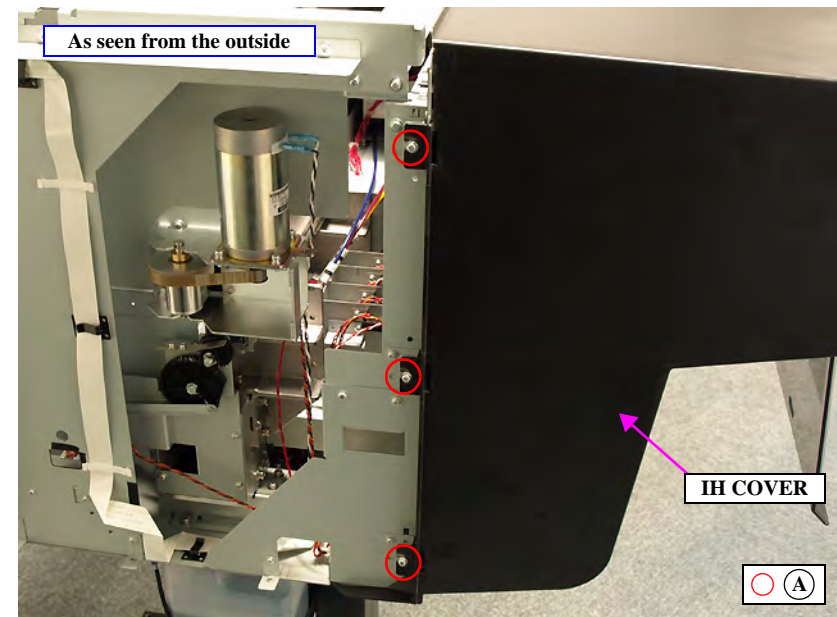


Figure 4-24. Removing the IH COVER (outside)

**CHECK
POINT**

When removing the IH COVER on the left in the next step, remove three screws only. *See Figure 4-25.*

6. Remove the four screws and remove it.

A) Silver, Phillips, Pan with S.W & P.W M4x8: four pieces

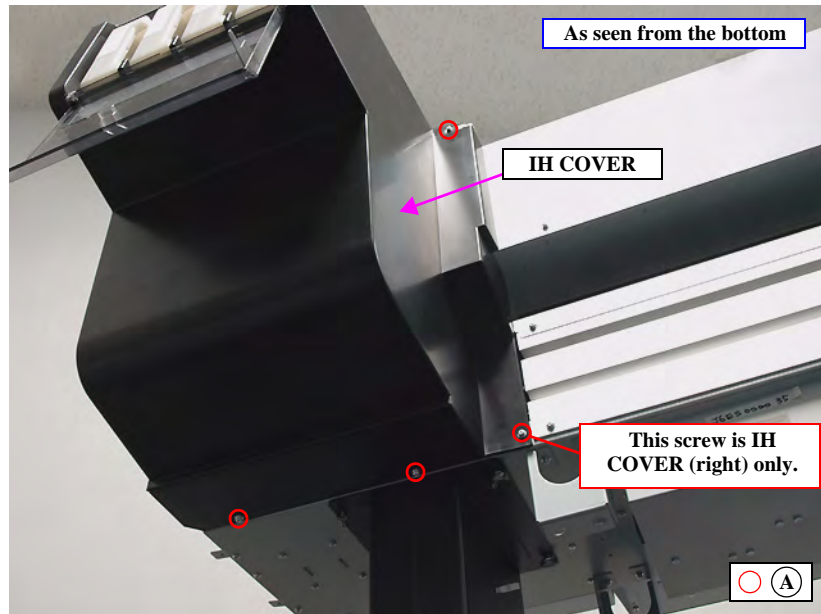


Figure 4-25. Removing the IH COVER (bottom and inside)

4.4.3.6 MAINTENANCE COVER ASSY

**CHECK
POINT**

Basically you can remove this part on the left and the one on the right in the same way. Therefore this section describes the way to remove the one on the right only.

CAUTION

- Do not place anything on an opened maintenance cover as it is not able to handle much weight and it may fall.
- To prevent breaks or injury, do not leave an open maintenance cover on the machine but remove it each time.

1. Push and open the MAINTENANCE COVER ASSY.
2. Remove the MAINTENANCE COVER ASSY.

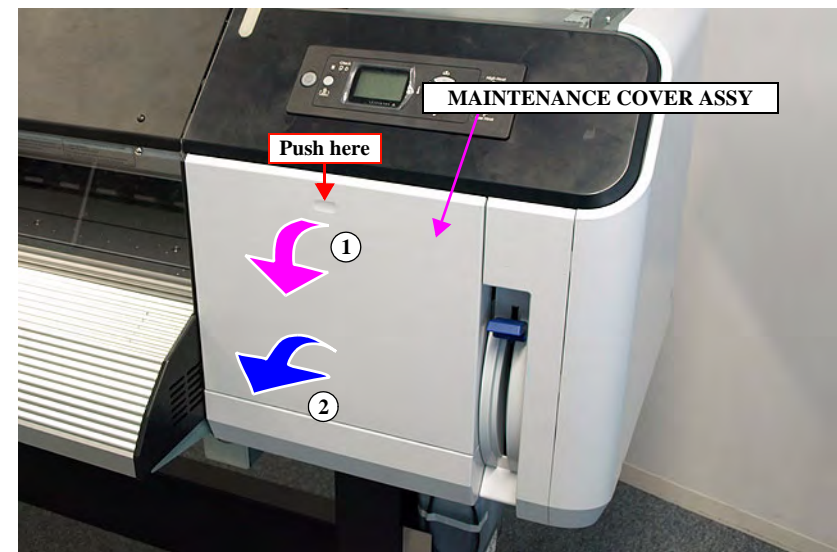


Figure 4-26. Removing the MAINTENANCE COVER ASSY



4.4.3.7 MAINTENANCE COVER, B

CHECK
POINT



Basically you can remove this part on the left and the one on the right in the same way. Therefore this section describes the way to remove the one on the right only.

1. Remove the MAINTENANCE COVER ASSY. (p89)
2. Remove the two screws.
 - A) Silver, Phillips, Pan with S.W & P.W M4x8: two pieces
3. Lift the MAINTENANCE COVER, B and remove it.

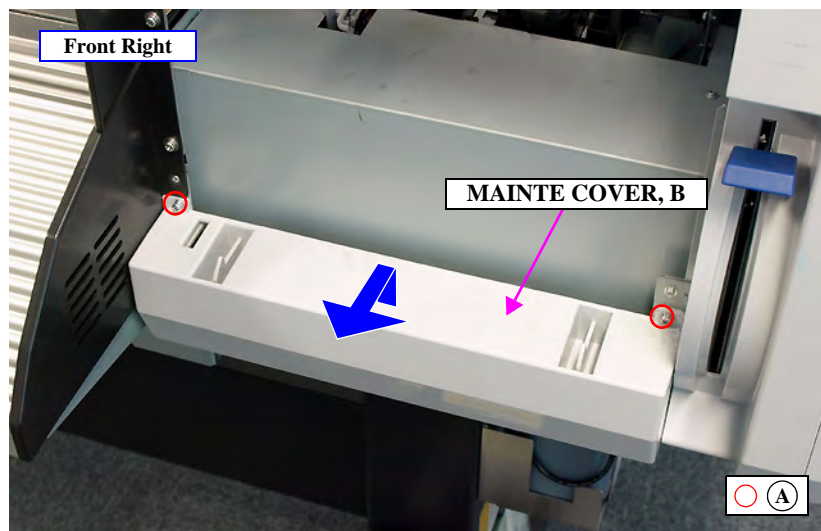


Figure 4-27. Removing the MAINTENANCE COVER, B

4.4.3.8 SIDE COVER, L2

1. Remove the TOP COVER (left only). (p83)
2. Remove the MAINTENANCE COVER T. (p84)
3. Remove the SIDE COVER (left only). (p87)
4. Remove the three screws and remove the SIDE COVER, L2.
 - A) Silver, Phillips, Pan with S.W & P.W M4x8: three pieces

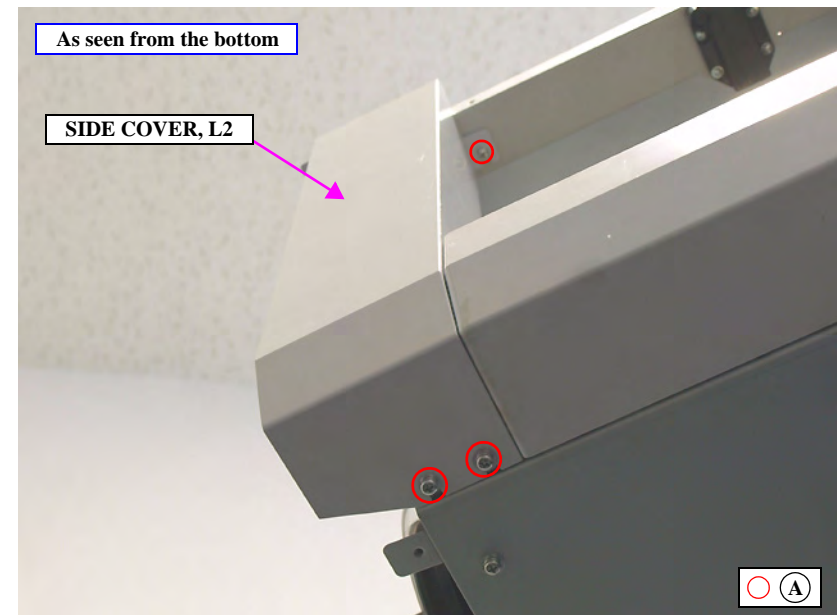


Figure 4-28. Removing the SIDE COVER, L2

4.4.3.9 PRESSURE LEVER COVER

1. Remove the TOP COVER (right only). (p83)
2. Remove the PANEL COVER, T. (p84)
3. Remove the SIDE COVER (right only). (p87)
4. Remove the IH COVER (right only). (p88)
5. While pushing the knob up, remove the screw and remove the knob.
 - A) Silver, Phillips, Pan with S.W & P.W M3x6: one piece

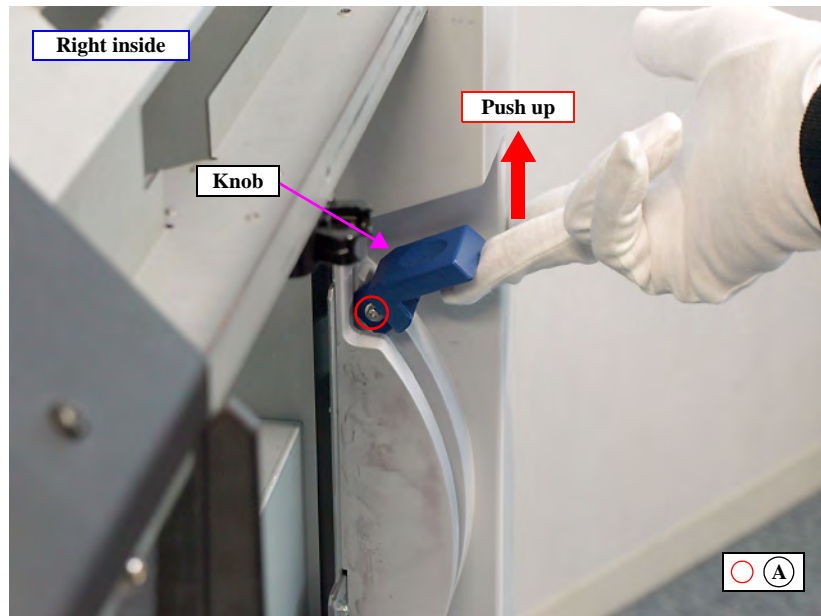


Figure 4-29. Removing the Knob



To make it easier to remove the screw of the PRESSURE LEVER COVER from the rear, it is recommended to use a screwdriver with more than 25 cm long shaft.

6. Remove the two screws and remove the PRESSURE LEVER COVER.
 - A) Silver, Phillips, Pan with S.W & P.W M4x8: one piece
 - B) Silver, Phillips, Bind P-tite M3x8: one piece

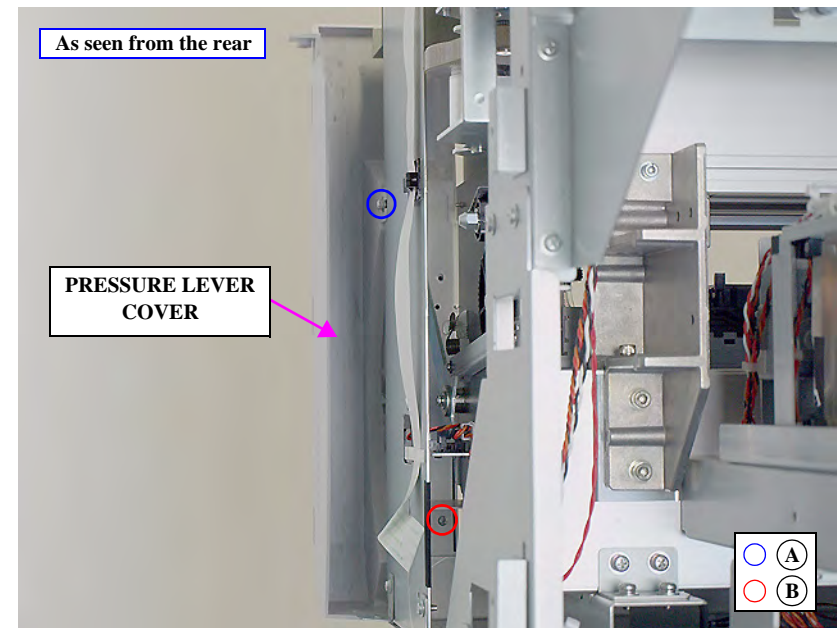


Figure 4-30. Removing the PRESSURE LEVER COVER

4.4.3.10 FRONT CLEAR COVER

1. Remove the eight screws.
 - A) Silver, Phillips, Truss machine screw M4x6: eight pieces
2. Slide the FRONT CLEAR COVER to the rear and remove it.

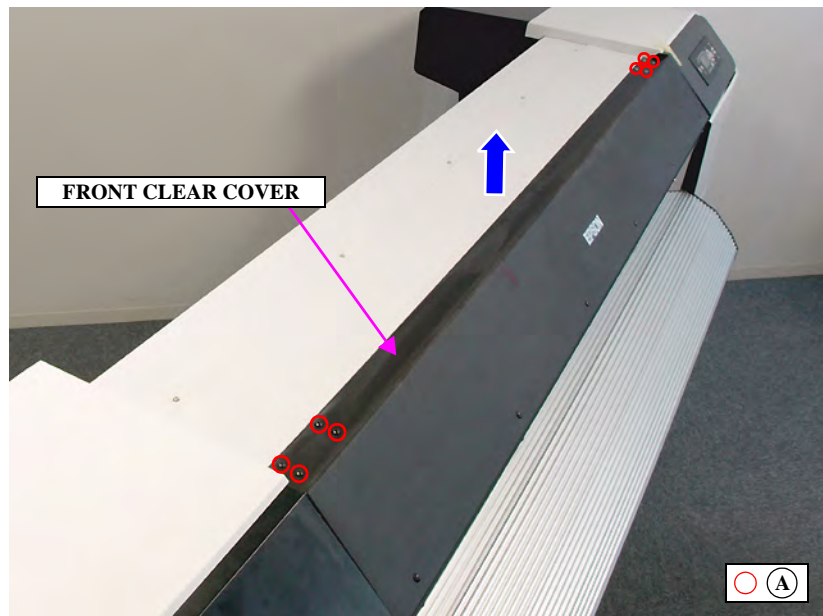


Figure 4-31. Removing the FRONT CLEAR COVER



Be sure to refer to Chapter 5 “Adjustment” (*see p179*) and perform specified adjustments after replacing or removing this part.

<Adjustment item>

1. Sensor Test

4.4.3.11 PAPER GUIDE COVER



Basically you can remove this part on the left and the one on the right in the same way. Therefore this section describes the way to remove the one on the right only.

1. Remove the MAINTENANCE COVER ASSY. (*p89*)
2. Remove the MAINT COVER, B. (*p90*)
3. Remove the five screws and remove the PAPER GUIDE COVER.
 - A) Silver, Phillips, Pan with S.W & P.W M4x8: three pieces
 - B) Silver, Phillips, Bind P-tite M4x10: two pieces

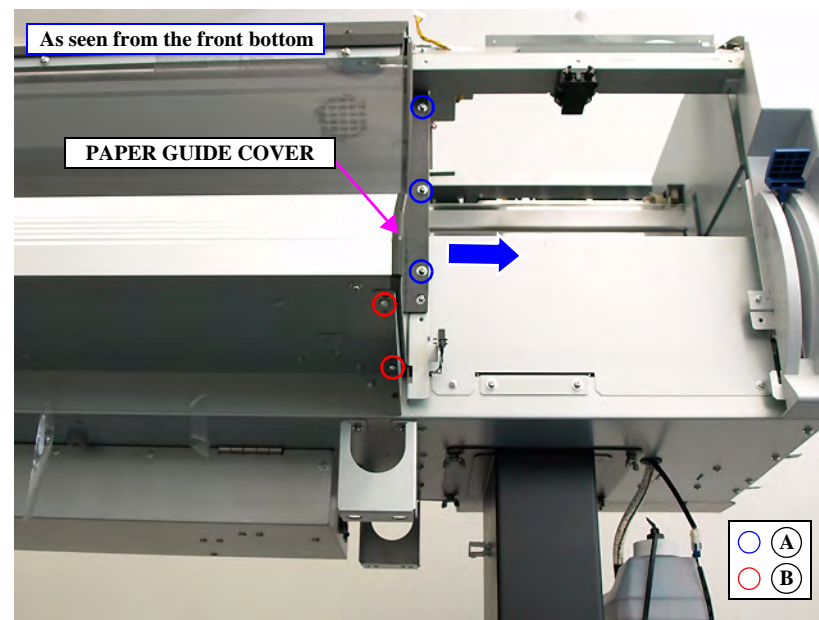


Figure 4-32. Removing the PAPER GUIDE COVER



4.4.3.12 REAR COVER

This part is not specified as an ASP.

1. Remove the TOP COVER (both). ([p83](#))
2. Remove the ten screws.
 - A) Silver, Phillips, Cup M3x6: five pieces
 - B) Silver, Phillips, Pan with S.W & P.W M4x8: five pieces
3. Lift the REAR COVER up and remove it.

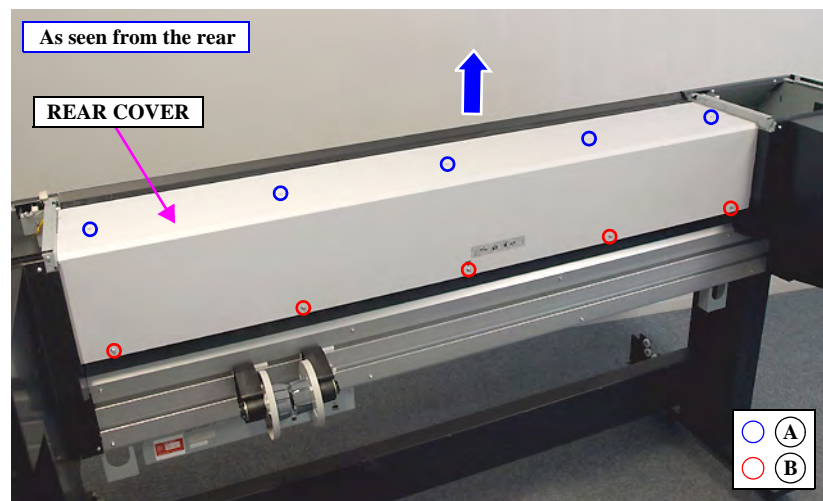


Figure 4-33. Removing the REAR COVER

4.4.3.13 REAR PAPER GUIDE

This part is not specified as an ASP.

1. Remove the four screws.
 - A) Silver, Phillips, Pan with S.W & P.W M4x8: four pieces
2. Slide the REAR PAPER GUIDE toward you a little.

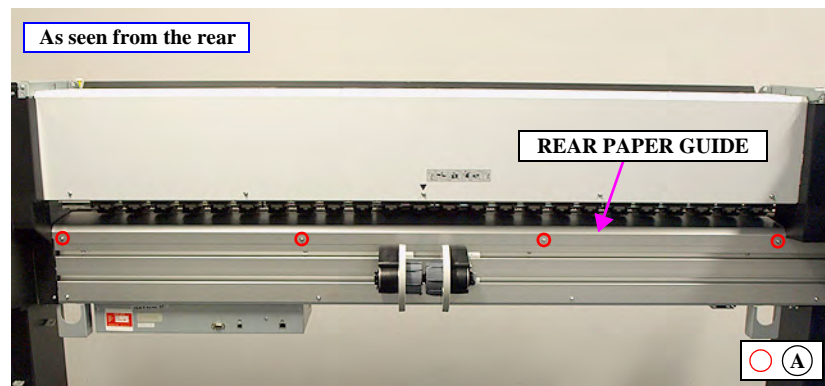
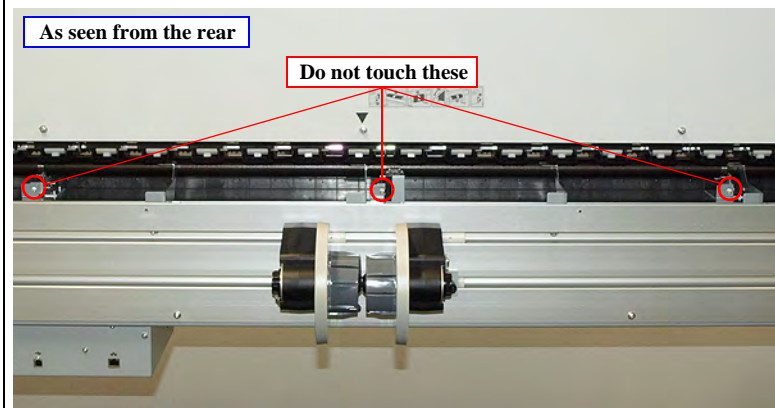


Figure 4-34. Removing the screws of REAR PAPER GUIDE

CAUTION



In the next step, do not touch or loosen the screws securing the rollers inside of the printer fixed with thread locker (marked with a red circle). Otherwise, the printer may not print normally. The screws keep the factory-adjusted Parallelism.



3. Open it and disconnect the four connectors, then remove the guide.

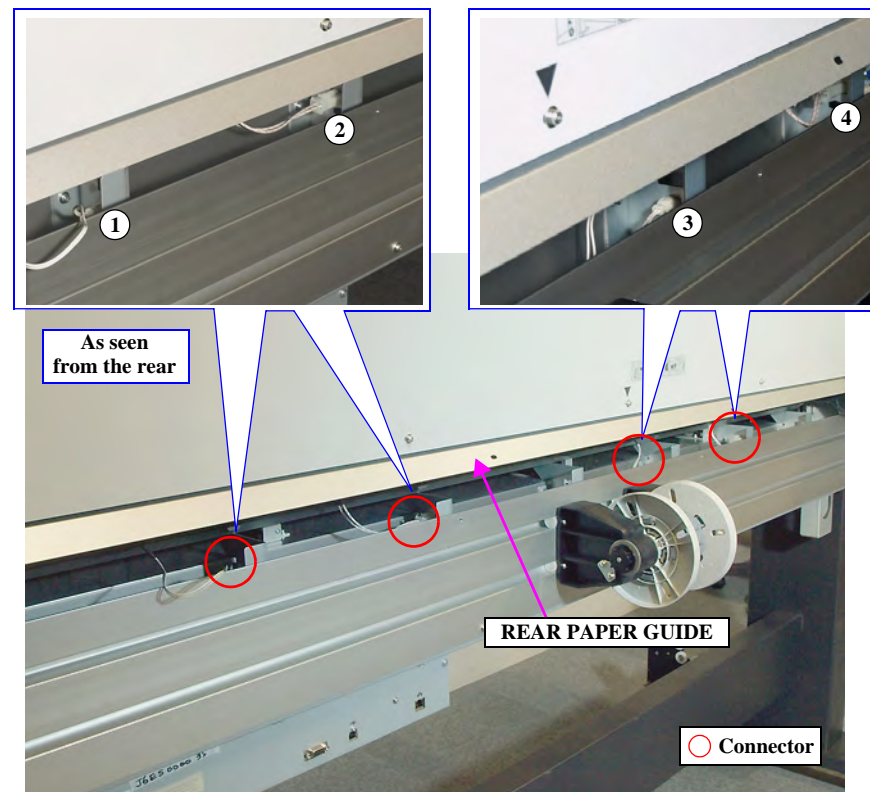


Figure 4-35. Removing the REAR PAPER GUIDE

4.4.3.14 SPINDLE GUIDE COVER

This part is not specified as an ASP.

1. Remove the REAR PAPER GUIDE. (p94)



In the next step, the cover will drop immediately after removing the last screw. Therefore, make sure to hold the cover when removing the last few screws.

2. Remove the eight screws and remove the SPINDLE GUIDE COVER.

A) Silver, Phillips, Pan with S.W & P.W M4x8: eight pieces

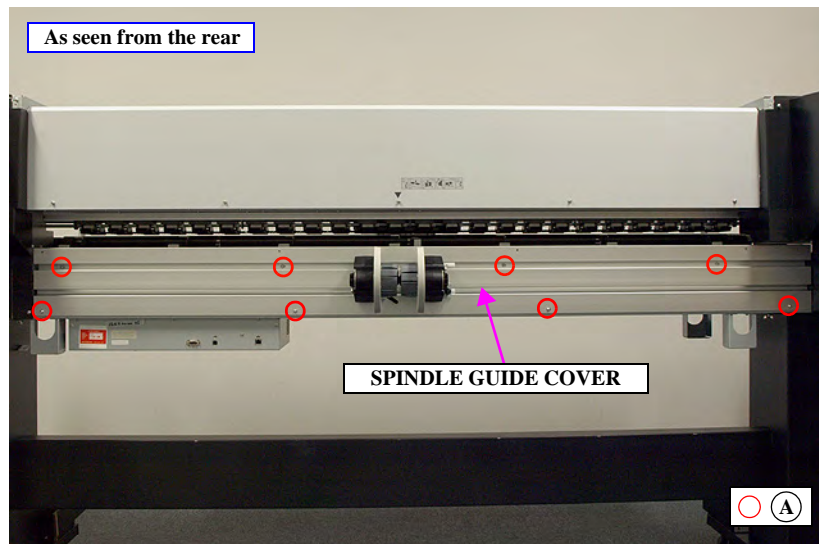


Figure 4-36. Removing the SPINDLE GUIDE COVER

4.4.3.15 After Heater Cover

This part is not specified as an ASP.

1. Remove the MAINTENANCE COVER ASSY (both). (p89)
2. Remove the MAINTENANCE COVER, B (both). (p90)
3. Remove the PAPER GUIDE COVER (both). (p92)
4. Open the FRONT CLEAR COVER.
5. Remove the five screws at the bottom.

A) Silver, Phillips, Pan with S.W & P.W M4x8: five pieces

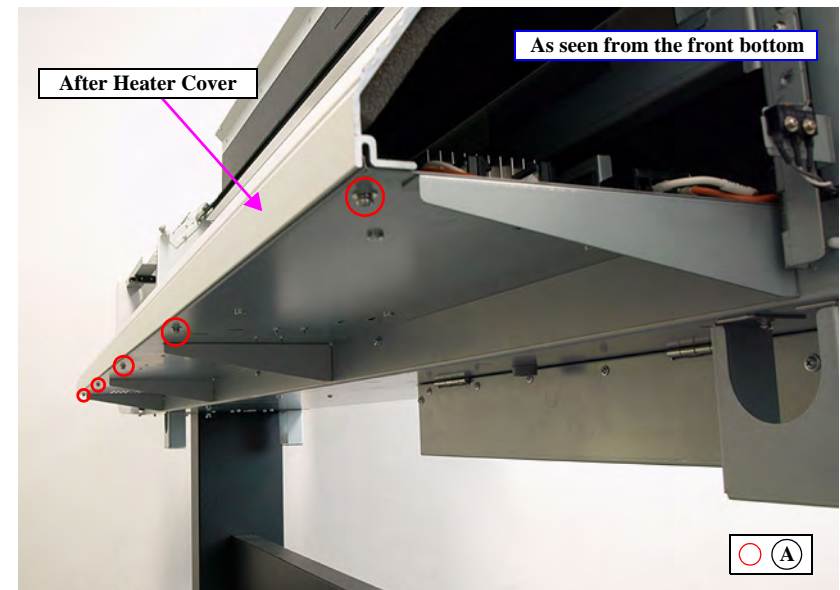


Figure 4-37. Removing the Screws of After Heater Cover (bottom)

6. Remove the five screws on top.
 - A) Silver, Phillips, Bind machine screw M3x6: five pieces
7. Pull and open the After Heater Cover slightly.

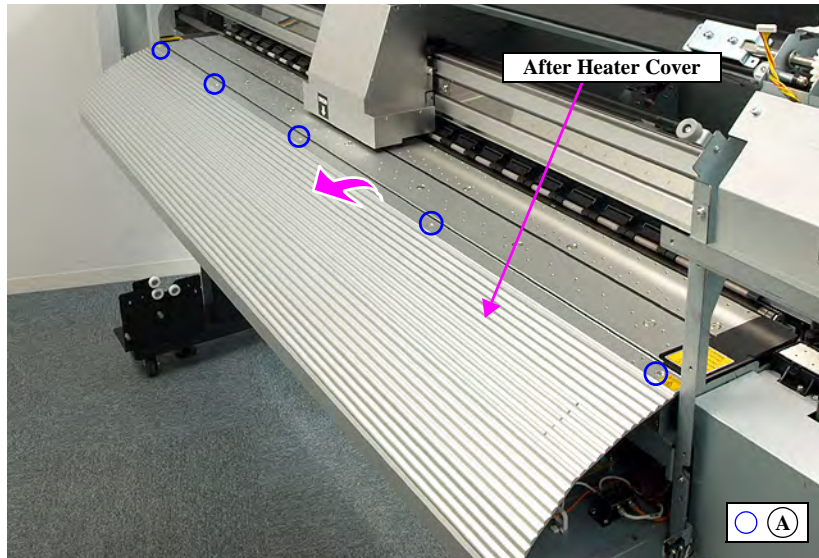


Figure 4-38. Removing the Screws of After Heater Cover (top)

8. Disconnect the four relay connectors. *See Figure 4-39.*



In the next step to remove the cover, do not pull open the cover toward you. Otherwise you will damage the rib shown in the figure.

9. Lift the cover up to disengage the rib and remove it.

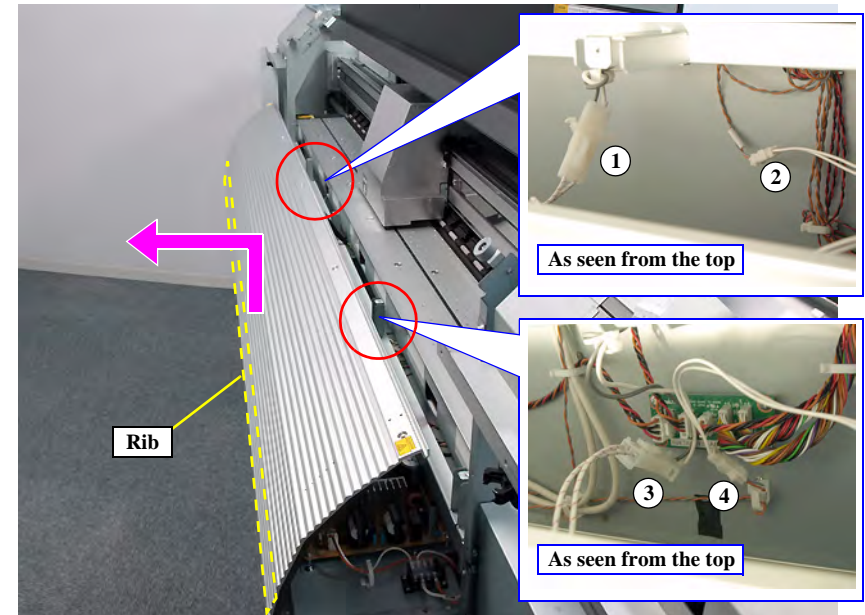


Figure 4-39. Removing the After Heater Cover

4.4.4 Electric Components

4.4.4.1 FUSE

CAUTION


In the next step, the cover will drop open suddenly immediately after removing the last screw. Therefore, make sure to hold the cover when removing the last few screws.

1. Remove the five screws and open the Elec Box.
 - A) Silver, Phillips, Pan with S.W & P.W M4x8: five pieces

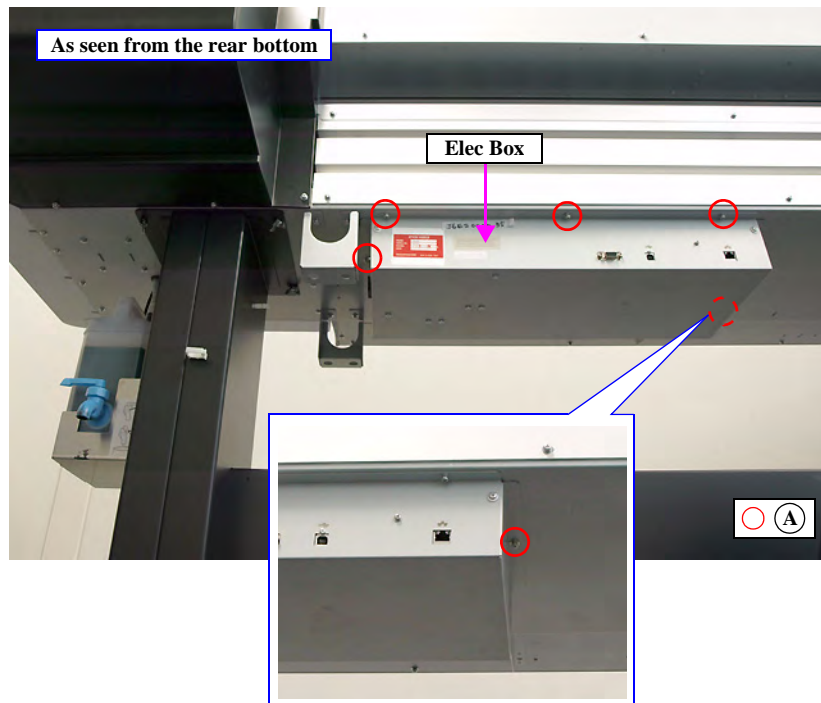


Figure 4-40. Opening the Elec Box

2. Pry the FUSE out.

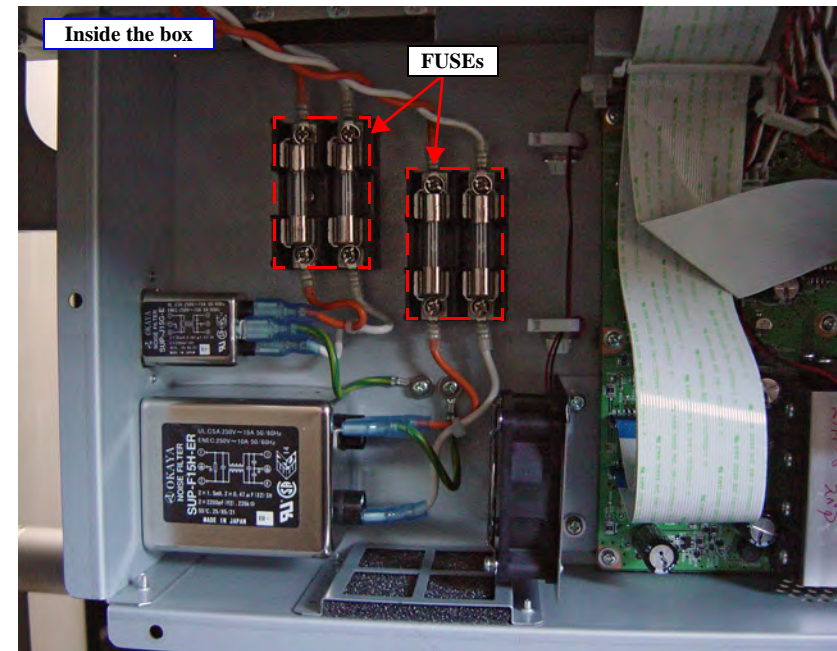


Figure 4-41. Removing the FUSE

CAUTION


When replacing the FUSES, make sure to use the following fuses approved and designated by SEIKO EPSON CORPORATION.

Size: $\phi 10.3 \times 38\text{mm (L)}$
 Rating: 250V-15A
 Manufacturer: SATO PARTS CO.,LTD
 Model: F-7165

4.4.4.2 TERMINAL BLOCK

CHECK
POINT



The unit of ASP includes the Clear Cover, Short Pins, and the TERMINAL BLOCK.

1. Remove the MAINTENANCE COVER ASSY (both). (p89)
2. Remove the MAINT COVER, B (both). (p90)
3. Remove the PAPER GUIDE COVER (both). (p92)
4. Remove the After Heater Cover. (p95)
5. Remove the Clear Cover.

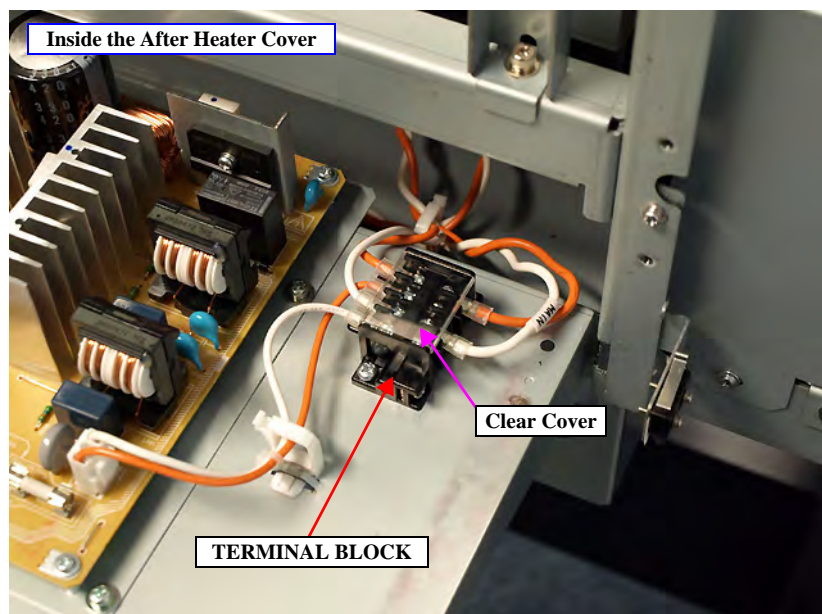


Figure 4-42. Removing the Clear Cover

6. Remove the four screws that secure four cables on the left.
 - A) Silver, Phillips, Pan with S.W& Square washer M2x8: four screws
7. Disconnect the cables and remove the two short pins.
8. Remove the two screws on the right and disconnect the two cables.
 - B) Silver, Phillips, Pan with S.W& Square washer M2x8: two screws
9. Remove the two screws and remove the TERMINAL BLOCK.
 - C) Silver, Phillips, Pan machine screw M4x6: two pieces

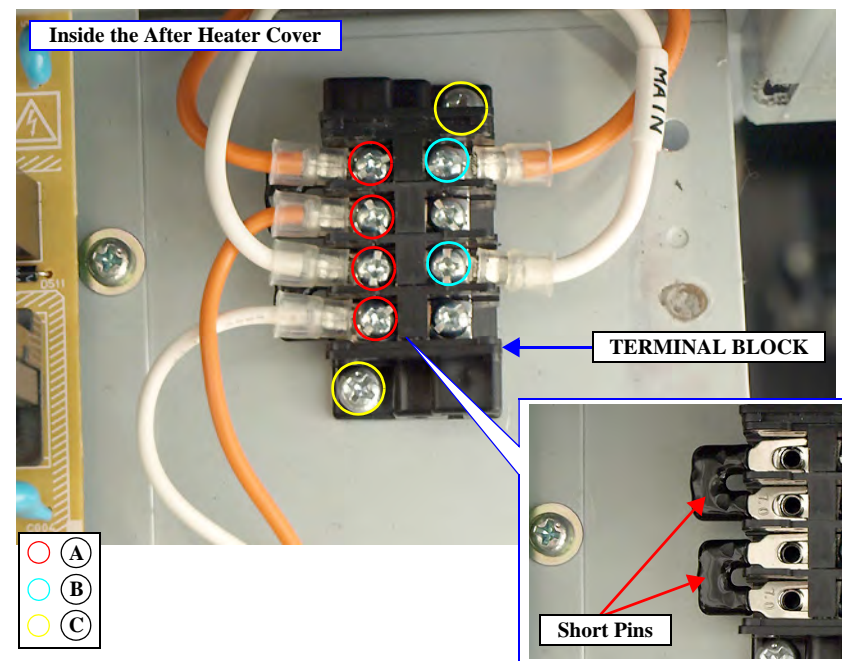


Figure 4-43. Removing the TERMINAL BLOCK



When reassembling the TERMINAL BLOCK on the left, first set the Short Pins, then attach the cables as shown in the figure above.

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4.4.5 Fans

4.4.5.1 COOLING FAN (24V)

1. Remove the TOP COVER (both). (p83)
2. Remove the REAR COVER. (p93)
3. Remove the FRONT CLEAR COVER. (p92)
4. Remove the ten screws from the Mid Top Cover (not an ASP).

A) Silver, Phillips, Pan with S.W & P.W M3x8: ten pieces



In the next step, take care not apply excessive force to the hinges on both sides of the Front Clear Cover. It may cause misalignment of the hinges' phase.

5. Avoiding the hinges, remove the cover.

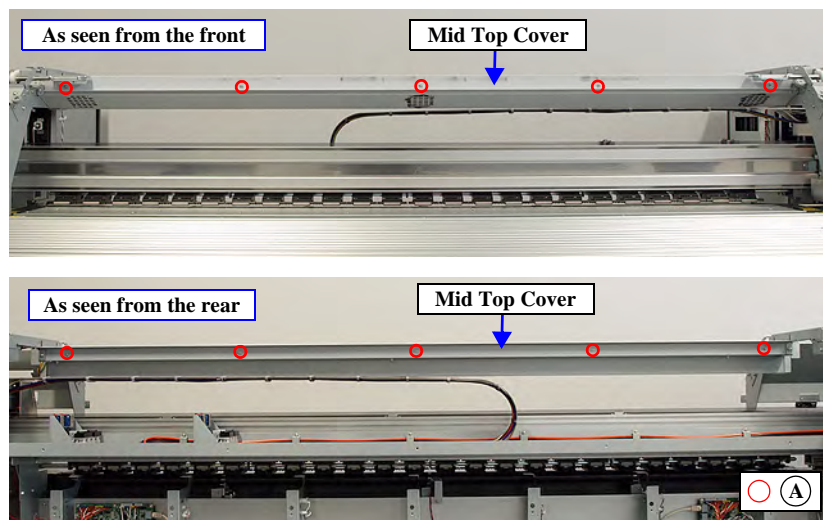


Figure 4-44. Removing the Mid Top Cover

6. Disconnect the relay connector and release the cable.



When routing the cable, make sure to give it one turn around the cable clamp as shown in figure below.

7. Remove the two screws and remove the COOLING FAN (24V).

A) Silver, Phillips, Pan with S.W & P.W M3x30: two pieces

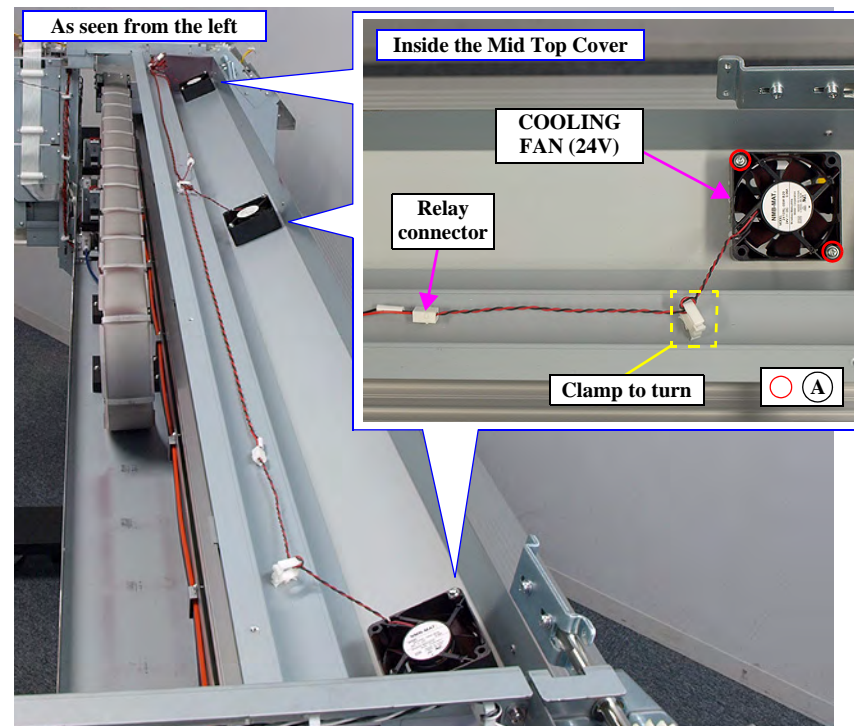


Figure 4-45. Removing the COOLING FAN (24V)

REASSEMBLY

When installing the COOLING FAN (24V), make sure to set the fan with the label upward as shown in the figure above.

**ADJUSTMENT
REQUIRED**

Be sure to refer to Chapter 5 “Adjustment” ([see p179](#)) and perform specified adjustments after replacing or removing this part.

<Adjustment item>

1. Fan Test

4.4.5.2 VACUUM FAN

CAUTION

When removing the Platen, take care not to lose the washers.

1. Remove the 16 screws and 16 washers.
 - A) Screws; special flat head screw: 16 pieces
Washers; wave washer: 16 pieces
2. Open the Platen from the front.
3. Disconnect the six connectors and remove the Platen.

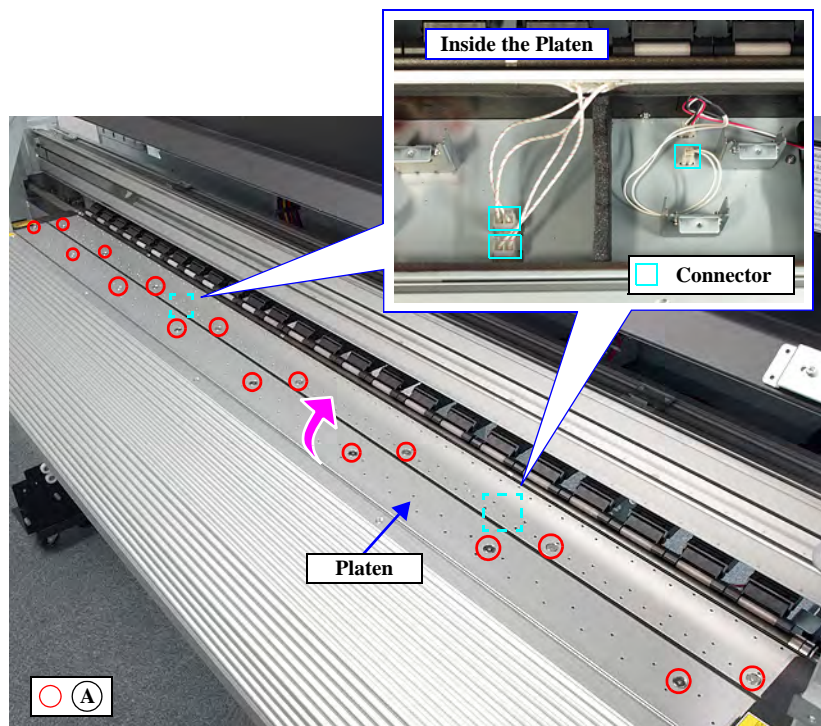


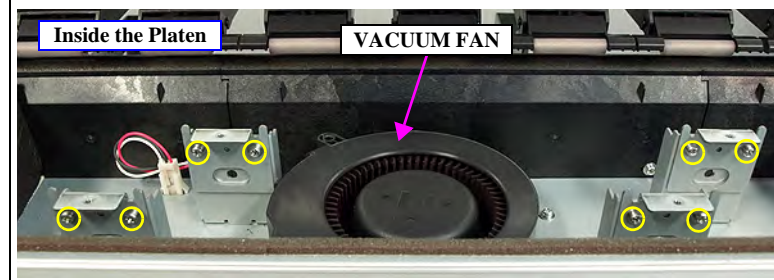
Figure 4-46. Removing the Platen

REASSEMBLY

When reassembling the Platen, take care not to catch the cables between the Platen and the fixing plates. *See Figure 4-47.*

CAUTION

In the next step, do not touch any screws adjusting the platen (marked with yellow circles in the figure below), or the printer may not print normally. The screws keep the factory-adjusted Parallelism.



4. Remove the two screws and disconnect the connector, then remove the VACUUM FAN.

A) Silver, Phillips, Pan with S.W & P.W M4x10: two pieces

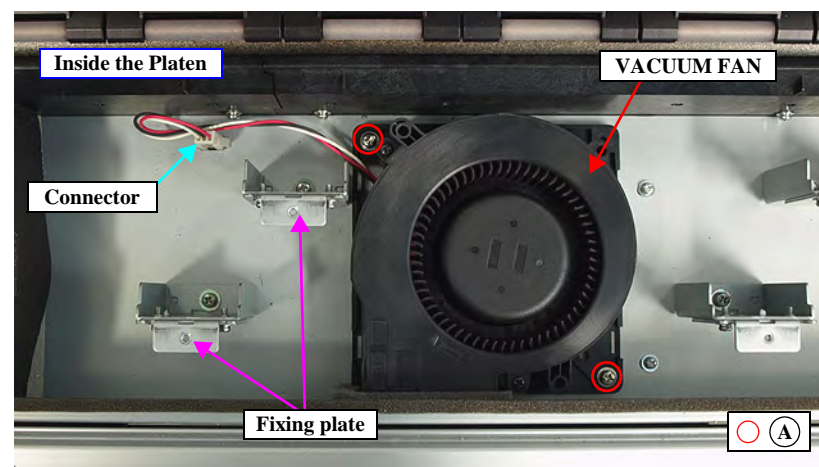


Figure 4-47. Removing the VACUUM FAN

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ADJUSTMENT
REQUIRED

Be sure to refer to Chapter 5 “Adjustment” ([see p179](#)) and perform specified adjustments after replacing or removing this part.

<Adjustment item>

1. Fan Test

4.4.5.3 COOLING FAN

CHECK
POINT

Basically you can remove this part on the left and the one on the right in the same way. Therefore this section (from Step 9 and later) describes the way to remove the one on the right only.

1. Remove the TOP COVER (left only). ([p83](#))
2. Remove the MAINTENANCE COVER T. ([p84](#))
3. Remove the SIDE COVER (left only). ([p87](#))
4. Remove the IH COVER (left only). ([p88](#))
5. Unlock the Carriage. ([p81](#))
6. Move the Carriage to the left end and remove the four screws.
 - A) Silver, Phillips, Cup M3x6: four pieces
7. Move the Carriage to the Platen and remove the Carriage Cover (not an ASP).

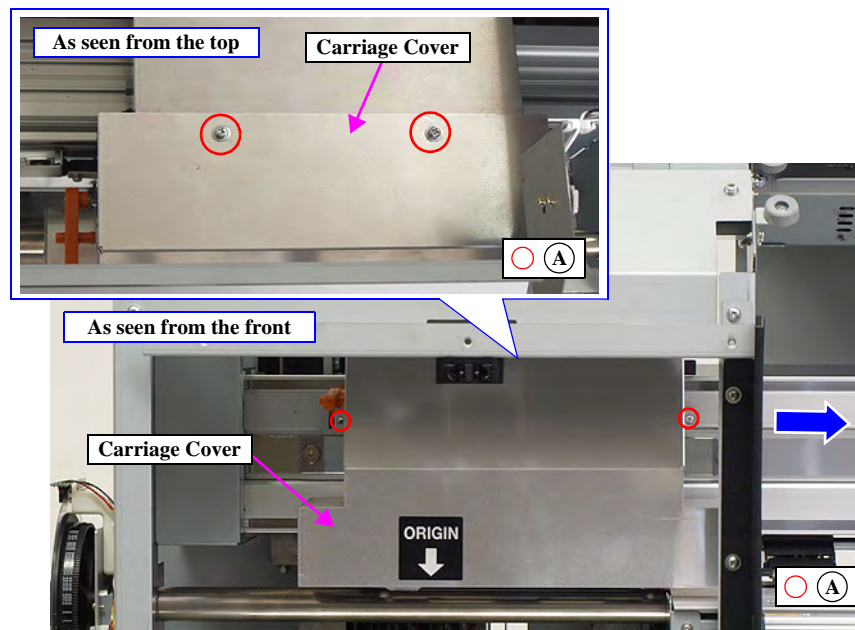


Figure 4-48. Removing the screws of Carriage Cover

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8. Move the Carriage back to the left end and remove the four screws on the sides.

A) Silver, Phillips, Cup M3x6: four pieces

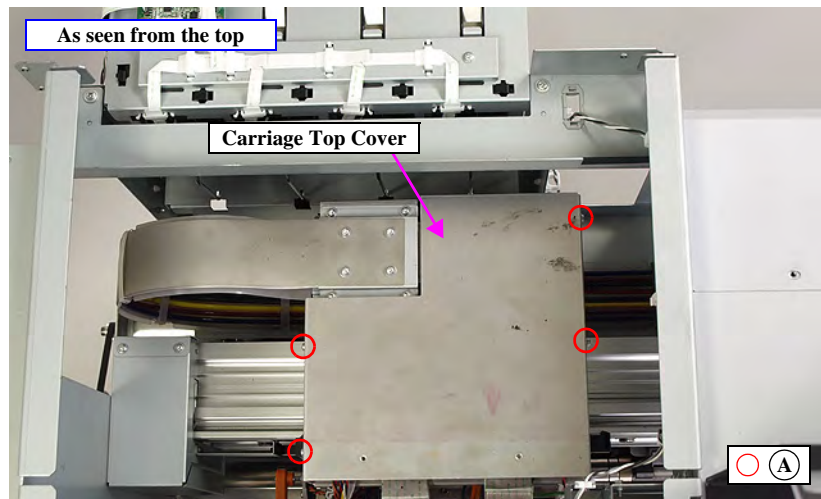


Figure 4-49. Removing the screws (sides)

9. Remove the two screws from the rear and remove the CR Top Cover (not an ASP).

A) Silver, Phillips, Cup M3x6: two pieces

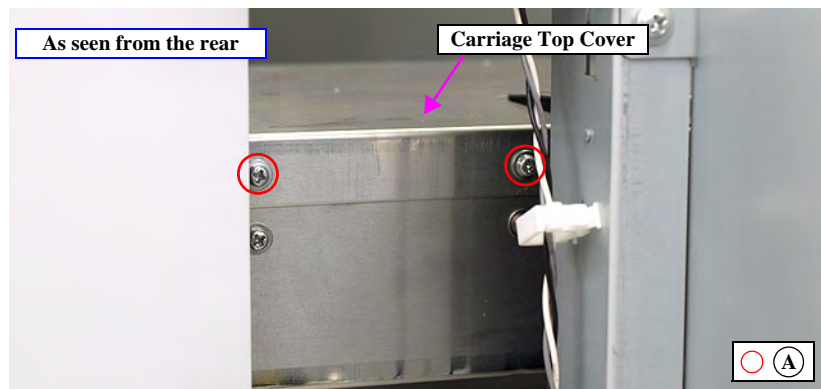


Figure 4-50. Removing the screws (rear)

10. Disconnect the FFCs in front from the SUB-A BOARD ASSY as shown in the figure below.

11. Disconnect the relay connector (on top) and release the cable from the clamp (on top).

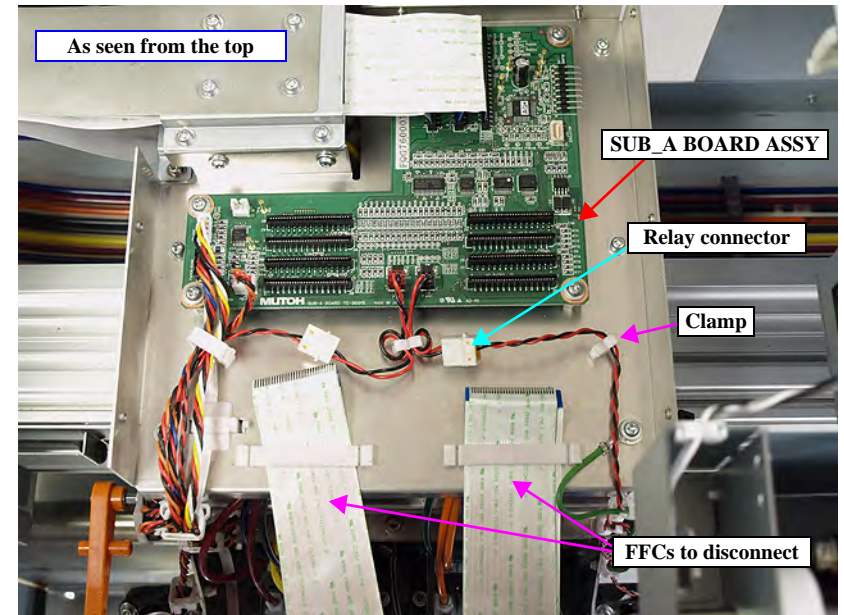


Figure 4-51. Disconnecting the cables

12. Move the Carriage to the platen and release the cable from the three clamps.

13. Remove the four screws and remove the fan and the fan guard.

A) Silver, Phillips, Pan with S.W & P.W M3x20: four pieces

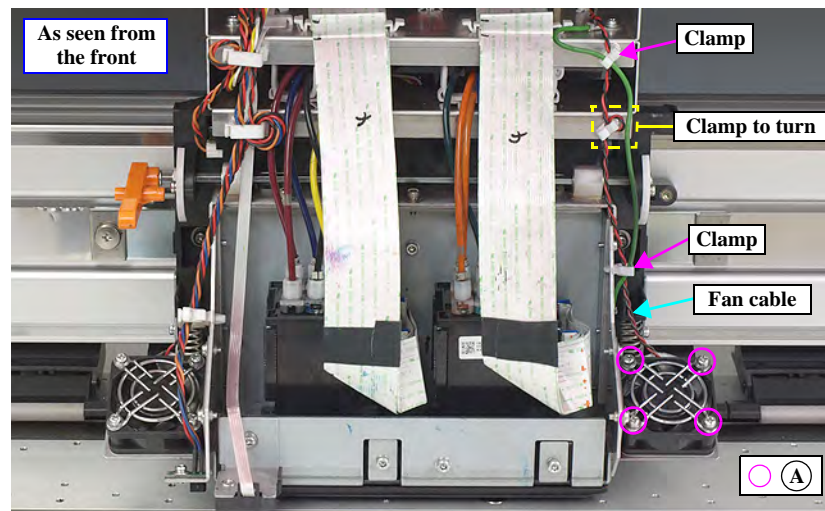


Figure 4-52. Removing the COOLING FAN

REASSEMBLY



- When routing the cable, make sure to give it one turn around the marked clamp. *See Figure 4-52.*
- When installing the fan, make sure to set the side with a label to the platen (downward).

ADJUSTMENT REQUIRED



Be sure to refer to Chapter 5 “Adjustment” (*see p179*) and perform specified adjustments after replacing or removing this part.

<Adjustment item>

1. Fan Test

4.4.5.4 HEATER BOARD COOLING FAN

The ASP part name is “COOLING FAN”.

1. Remove the MAINTENANCE COVER ASSY (both). (*p89*)
2. Remove the MAINTENANCE COVER, B (both). (*p90*)
3. Remove the PAPER GUIDE COVER (both). (*p92*)
4. Remove the After Heater Cover. (*p95*)
5. Disconnect the cable from connector J10 on the HEATER RELAY BOARD ASSY, and release it from the clamp.
6. Remove the two screws and remove the fan with its fixing plate.

A) Silver, Phillips, Pan with S.W & P.W M4x6: two pieces

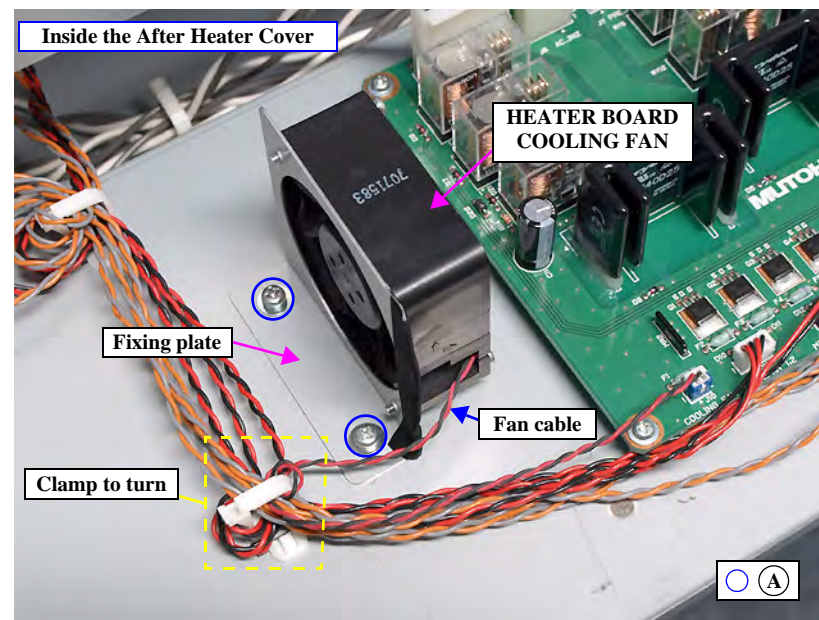


Figure 4-53. Detaching the HEATER BOARD COOLING FAN

REASSEMBLY

When routing the cable, make sure to give it one turn around the marked clamp. *See Figure 4-53.*

7. Remove the two screws and remove the fixing plate.
 - B) Silver, Phillips, Pan with S.W & P.W M3x30: two pieces

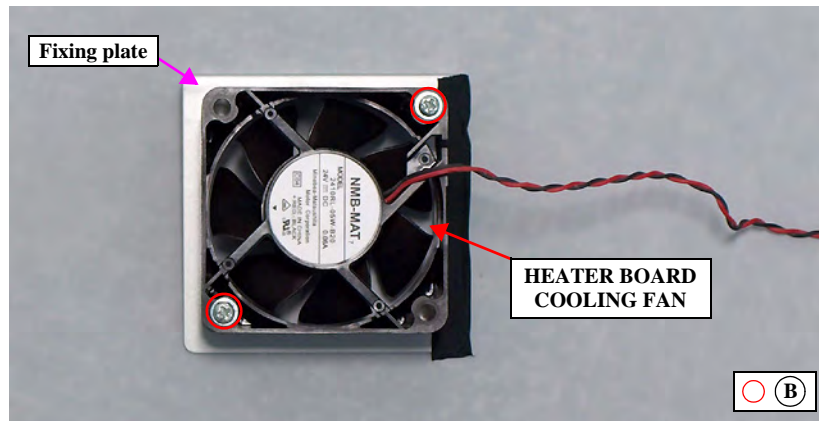


Figure 4-54. Removing the fixing plate

**ADJUSTMENT
REQUIRED**

Be sure to refer to Chapter 5 “Adjustment” (*see p179*) and perform specified adjustments after replacing or removing this part.

<Adjustment item>

1. Fan Test

4.4.5.5 COOLING FAN PE

1. Remove the five screws and open the Elec Box. *See Figure 4-40.*
 - A) Silver, Phillips, Pan with S.W & P.W M4x8: five pieces
2. Disconnect the relay connector, and release the harness from the two clamps.
3. Remove the two screws that secure the fixing plate to the main unit.
 - A) Silver, Phillips, Pan with S.W & P.W M4x6: two pieces

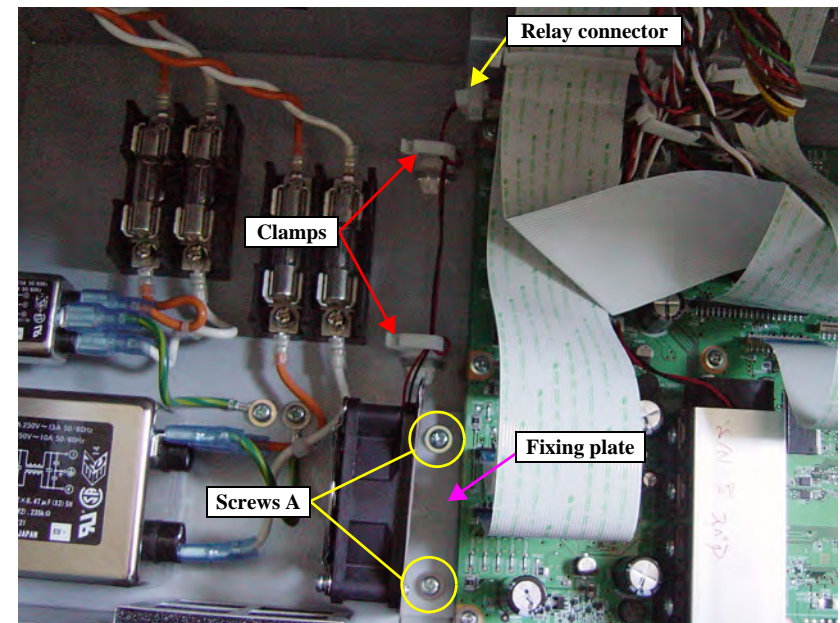


Figure 4-55. Removing the COOLING FAN PE from the main unit

4. Remove the two screws, and remove the metal guard and the fixing plate from the COOLING FAN PE.

B) Silver, Phillips, Pan with S.W & P.W M3x6: two pieces

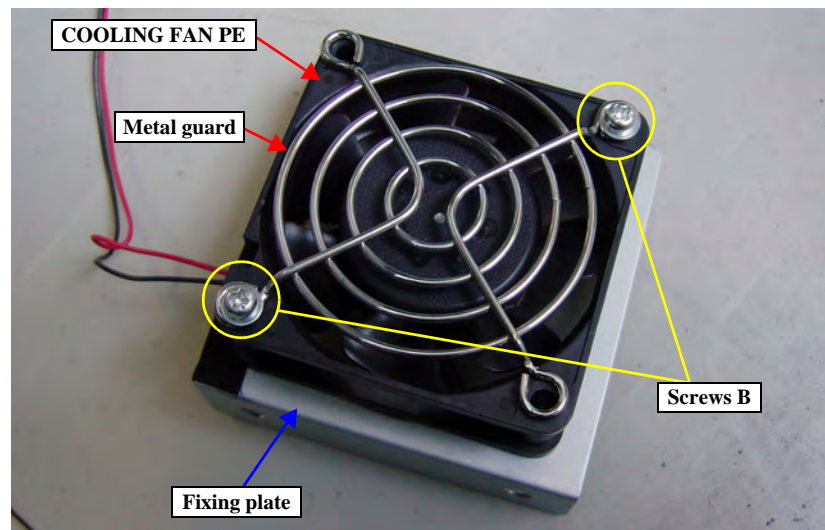


Figure 4-56. Removing the COOLING FAN PE

ADJUSTMENT
REQUIRED



Be sure to refer to Chapter 5 “Adjustment” ([see p179](#)) and perform specified adjustments after replacing or removing this part.

<Adjustment item>

1. Fan Test

4.4.6 Boards

4.4.6.1 LVDS BOARD ASSY

1. Remove the five screws and open the Elec Box.
- A) Silver, Phillips, Pan with S.W & P.W M4x8: five pieces

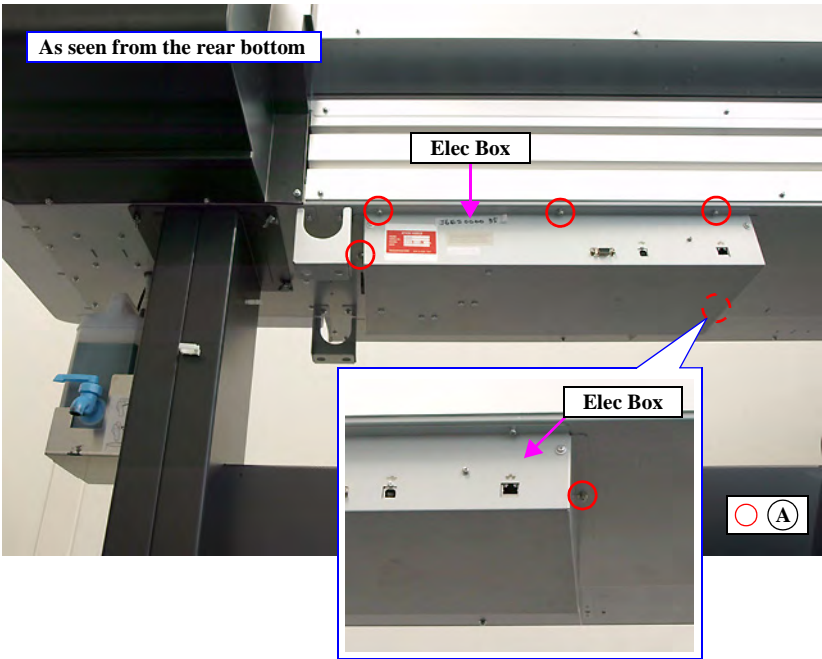


Figure 4-57. Opening the Elec Box

2. Disconnect the serial cable and the FFC.
3. Remove the two screws and remove the board.
- A) Silver, Phillips, Cup M3x6: two pieces

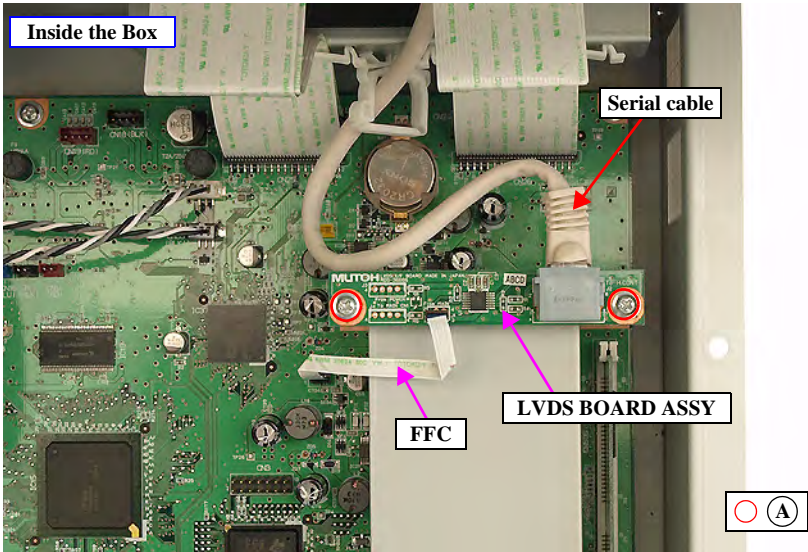


Figure 4-58. Removing the LVDS BOARD ASSY

Connector assignment:

Connector No.	Color	Destination
J1	(FFC)	MAIN BOARD ASSY (CN507)
J2	Gray	HEATER CONT BOARD ASSY (J10)



4.4.6.2 C679PROG BOARD

1. Remove the five screws and open the Elec Box. *See Figure 4-57.*
2. Push the pin to release the C679PROG BOARD, and remove it.

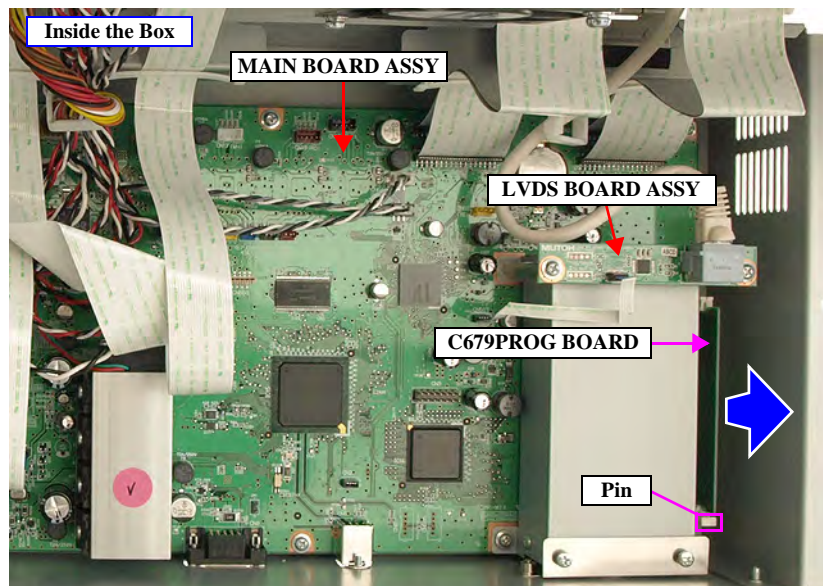


Figure 4-59. Removing the C679PROG BOARD

4.4.6.3 MAIN BOARD ASSY



- Be extremely careful not to insert FFCs at an angle in connectors. Doing so may cause serious damage to the terminals inside the connectors, and it can lead to big trouble of the circuit components.
- A Main Board Assy provided as a service part comes with a lithium battery installed on the board. Because of this, keep the board from contact with any electrically conductive materials. Especially, putting the solder side directly on an electrically conductive surface must be avoided.
- Before a Main Board Assy Exchange Operation, please try to back-up the NV-RAM data with the service program (*see p193*) before the exchange so that the data can be registered on the new board, hence preventing having to re-make all the setups and adjustments.

1. Remove the LVDS BOARD ASSY. (*p107*)
2. Remove the C679PROG BOARD. (*p108*)
3. Disconnect all the cables and FFCs from the MAIN BOARD ASSY.

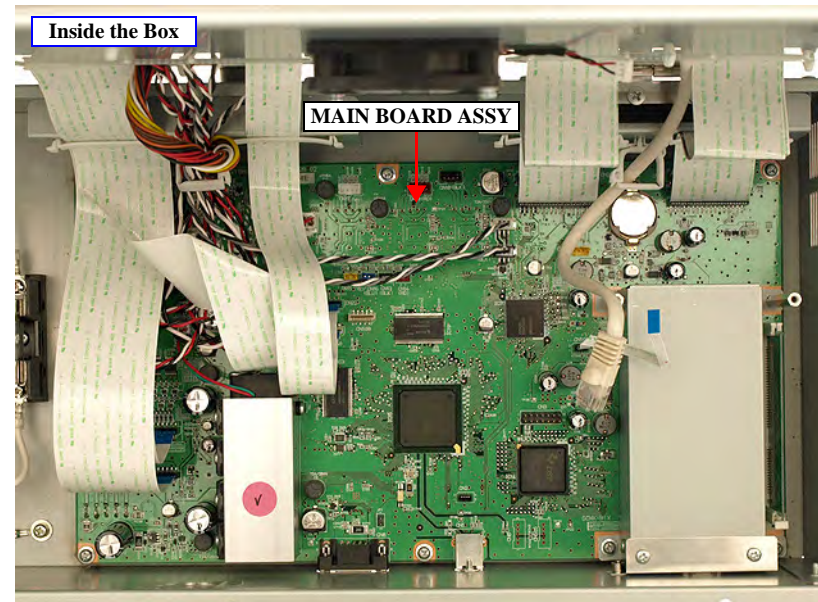


Figure 4-60. Disconnecting the Cables/FFCs

4. Remove the four screws that secure the MAIN BOARD ASSY from outside.

- A) 1/4-40x1/4,H.H.,F/N,I,O SCREW: two pieces
- B) Silver, Phillips, Bind machine screw M3x6: one piece
- C) Silver, Phillips, Pan with S.W & P.W M3x6: one piece

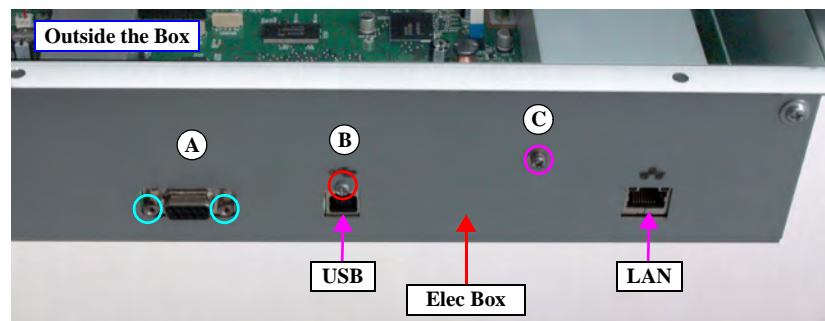


Figure 4-61. Removing the screws of MAIN BOARD ASSY (outside)

5. Remove the 11 screws that secure the MAIN BOARD ASSY, and remove the MAIN BOARD ASSY.

- A) Silver, Phillips, Cup M3x6: nine pieces
- B) Stud bolt: two pieces

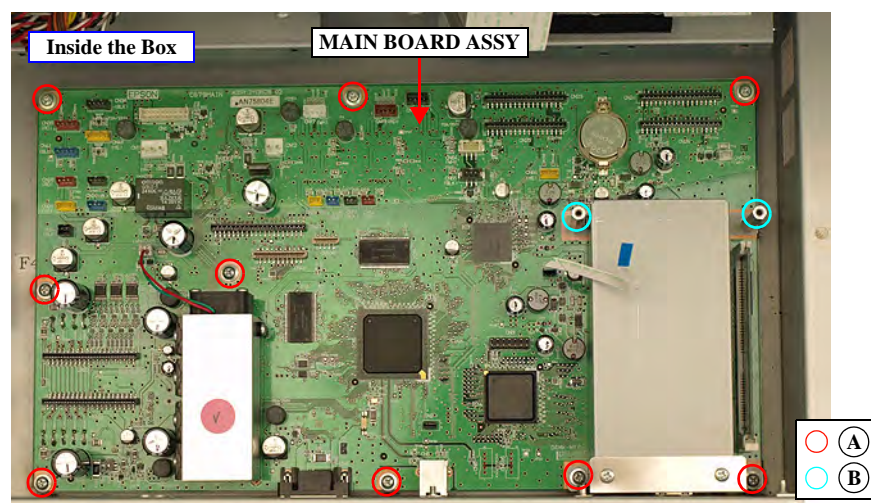


Figure 4-62. Removing the screws of MAIN BOARD ASSY (inside)

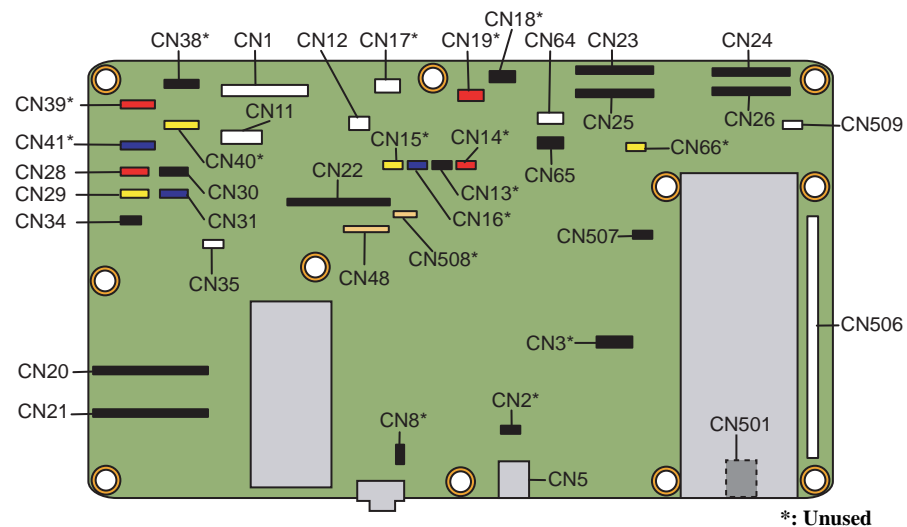


Figure 4-63. Connector Layout of the MAIN BOARD ASSY

Connector assignment:

Connector No.	Color	Destination
CN1	White	P/S TERM BOARD ASSY (J2)
CN2*	Black	Unused
CN3*	Black	Unused
CN5	---	USB
CN8*	Black	Unused
CN11	White	CR MOTOR
CN12	White	PF MOTOR
CN13*	Black	Unused
CN14*	Red	Unused
CN15*	Yellow	Unused
CN16*	Blue	Unused
CN17*	White	Unused
CN18*	Black	Unused
CN19*	Red	Unused

Connector No.	Color	Destination
CN20	(FFC)	SUB_A BOARD ASSY (J1)
CN21	(FFC)	SUB_A BOARD ASSY (J2)
CN22	(FFC)	SUB_A BOARD ASSY (J3)
CN23	(FFC)	SUB_B BOARD ASSY (J1)
CN24	(FFC)	SUB_C BOARD ASSY (J1)
CN25	(FFC)	SUB_D BOARD ASSY (J1)
CN26	(FFC)	SUB_D BOARD ASSY (J1)
CN28	Red	VACUUM FAN
CN29	Yellow	VACUUM FAN
CN30	Black	VACUUM FAN
CN31	Blue	VACUUM FAN
CN34	Black	CR LOCK SOLENOID
CN35	White	HEATER BOARD COOLING FAN
CN38*	Black	Unused
CN39*	Red	Unused
CN40*	Yellow	Unused
CN41*	Blue	Unused
CN48	(FFC)	ALARM LED (CN1)
CN64	White	SUB_C BOARD ASSY (J4)
CN65	Black	SUB_B BOARD ASSY (J8)
CN66*	Yellow	Unused
CN501	---	LAN
CN506	White	C679PROG
CN507	(FFC)	LVDS BOARD (J1)
CN508*	Beige	Unused
CN509	White	COOLING FAN PE

REASSEMBLY

Some connectors are not used for this printer. Make sure not to confuse them with the correct ones when reassembling.

**ADJUSTMENT
REQUIRED**

Be sure to refer to Chapter 5 “Adjustment” ([see p179](#)) and perform specified adjustments after replacing the MAIN BOARD ASSY.

<Adjustment items>

- NVRAM Backup OK
 1. NVRAM Restore
 2. F/W Update
- NVRAM Backup NG
 1. F/W Update
 2. Washing Sequence ON/OFF Flag
 3. RTC and USB ID
 4. Head Rank Input
 5. Nozzle Check Pattern
 6. Cleaning and Washing
 7. Head Uni-D/Bi-D Low Gap Adjustment
 8. Media Side Margin Adjustment
 9. Paper Feed Adjustment
 10. Sensor Test
 11. Network Test

4.4.6.4 HEATER CONT BOARD ASSY

- 1. Remove the MAINTENANCE COVER ASSY (both). (p89)
- 2. Remove the MAINT COVER, B (both). (p90)
- 3. Remove the PAPER GUIDE COVER (both). (p92)
- 4. Remove the After Heater Cover. (p95)
- 5. Disconnect all the connectors.
- 6. Remove the four screws and remove the HEATER CONT BOARD ASSY.
 - A) Silver, Phillips, Cup M3x6: four pieces

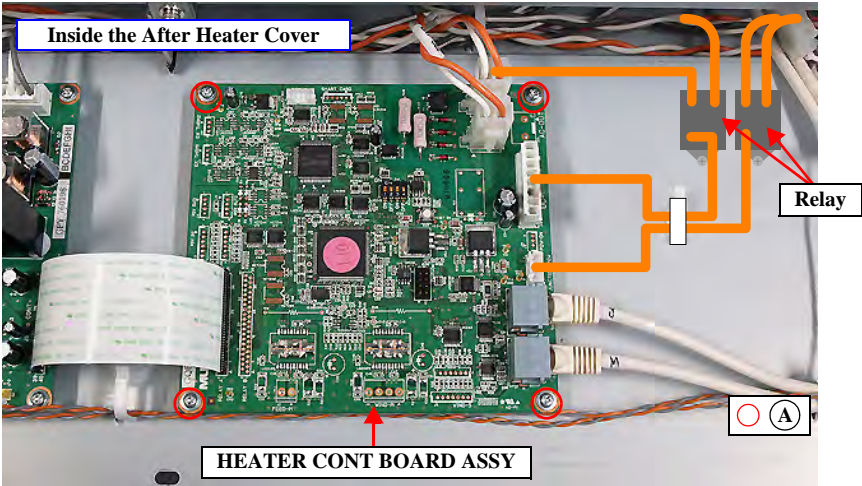


Figure 4-64. Removing the HEATER CONT BOARD ASSY

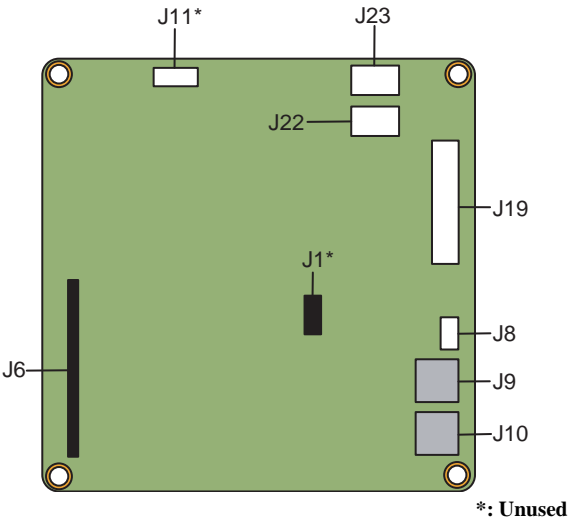


Figure 4-65. Connector Layout of the HEATER CONT BOARD ASSY

Connector assignment:

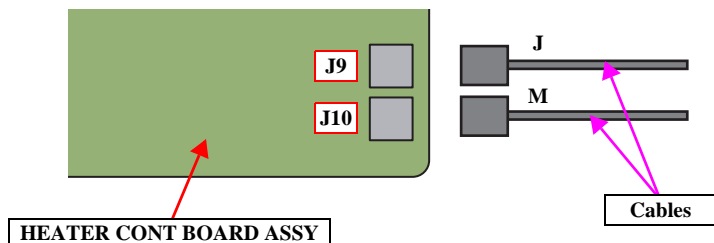
Connector No.	Color	Destination
J1*	Black	Unused
J6	(FFC)	HEATER RELAY BOARD ASSY (J3)
J8	White	Relay
J9	Gray	SUB_B BOARD ASSY (J17)
J10	Gray	LVDS BOARD (J2)
J11*	White	Unused
J19	White	Relay
J22	White	TERMINAL BLOCK
J23	White	HEATER RELAY BOARD ASSY (J1)



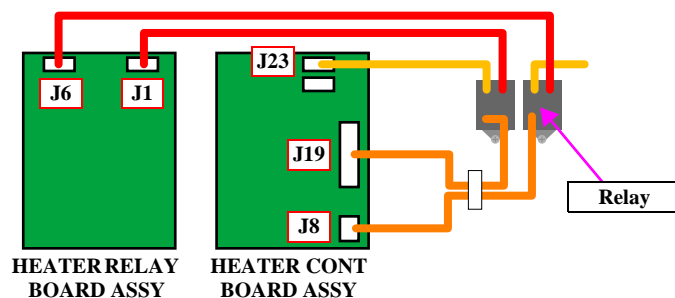
REASSEMBLY



- Some connectors are not used for this printer. Make sure not to confuse them with the correct ones when reassembling.
- When connecting the cables, use the markings on them to distinguish them apart such as the ones shown below.



- When connecting the cables, route them correctly referring to the figure below.

ADJUSTMENT
REQUIRED

Be sure to refer to Chapter 5 “Adjustment” (see p179) and perform specified adjustments after replacing or removing this part.

<Adjustment item>

1. F/W Update

4.4.6.5 HEATER RELAY BOARD ASSY

1. Remove the MAINTENANCE COVER ASSY (both). (p89)
2. Remove the MAINT COVER, B (both). (p90)
3. Remove the PAPER GUIDE COVER (both). (p92)
4. Remove the After Heater Cover. (p95)
5. Disconnect all the connectors.
6. Remove the six screws and remove the HEATER RELAY BOARD ASSY.
 - A) Silver, Phillips, Cup M3x6: six pieces

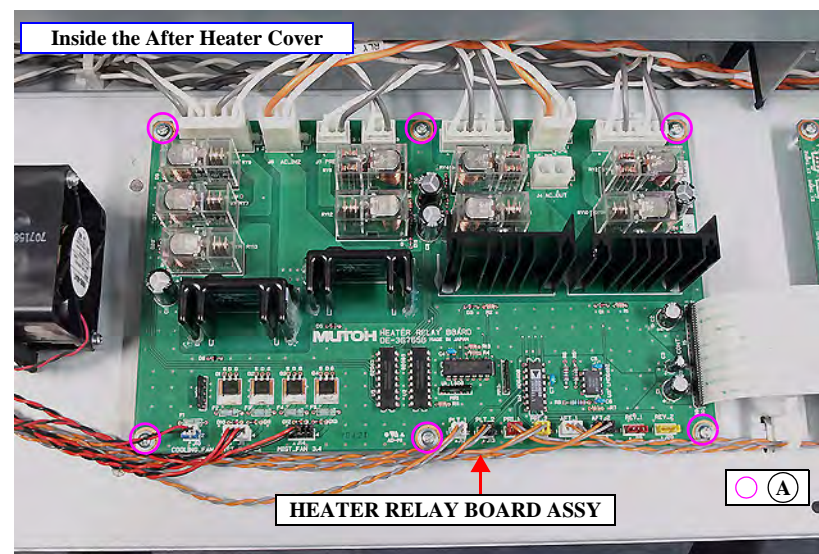


Figure 4-66. Removing the HEATER RELAY BOARD ASSY

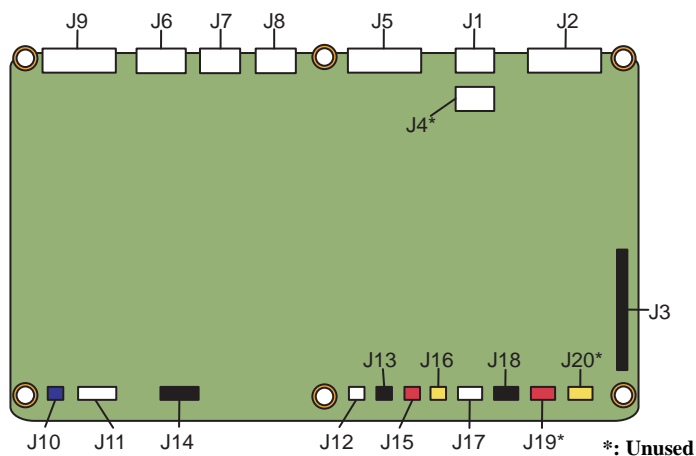


Figure 4-67. Connector Layout of the HEATER RELAY BOARD ASSY

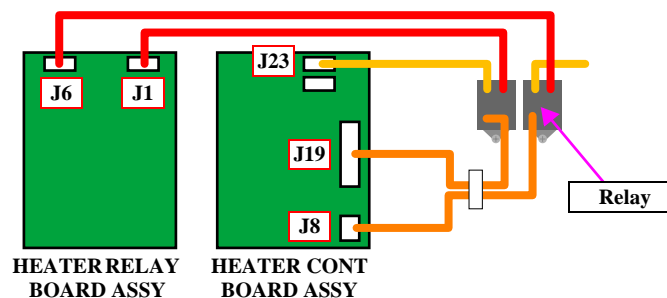
Connector assignment:

Connector No.	Color	Destination
J1	White	Relay
J2	White	PLATEN HEATER
J3	Black	HEATER CONT BOARD ASSY (J6)
J4*	White	Unused
J5	White	PLATEN HEATER
J6	White	Relay
J7	White	PRE HEATER
J8	White	PRE HEATER
J9	White	AFTER HEATER
J10	Blue	Heater Board Cooling Fan
J11	White	COOLING FAN (24V)
J12	White	THERMISTOR, PLATEN
J13	Black	THERMISTOR, PLATEN
J14	Black	COOLING FAN (24V)
J15	Red	THERMISTOR, PRE

Connector No.	Color	Destination
J16	Yellow	THERMISTOR, PRE
J17	White	THERMISTOR, AFTER
J18	Black	THERMISTOR, AFTER
J19*	Red	Unused
J20*	Yellow	Unused



- Some connectors are not used for this printer. Make sure not to confuse them with the correct ones when reassembling.
- When connecting the cables, use the markings on them to distinguish them apart.
- When connecting the cables, route them correctly referring to the figure below.



4.4.6.6 P/S TERM BOARD ASSY

- 1. Remove the MAINTENANCE COVER ASSY (both). (p89)
- 2. Remove the MAINT COVER, B (both). (p90)
- 3. Remove the PAPER GUIDE COVER (both). (p92)
- 4. Remove the After Heater Cover. (p95)

CAUTION

!

So as not to confuse J1 and J2 connectors with each other, it is recommended to mark them in some way before disconnecting them. See Figure 4-68.

- 5. Disconnect all the connectors.

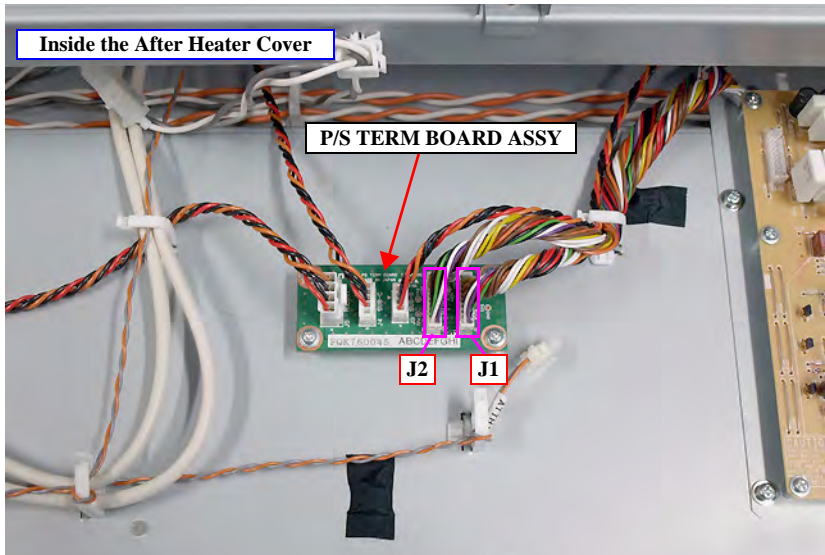


Figure 4-68. Disconnecting the cables

- 6. Remove the four screws and remove the P/S TERM BOARD ASSY.
 - A) Silver, Phillips, Cup M3x6: four pieces

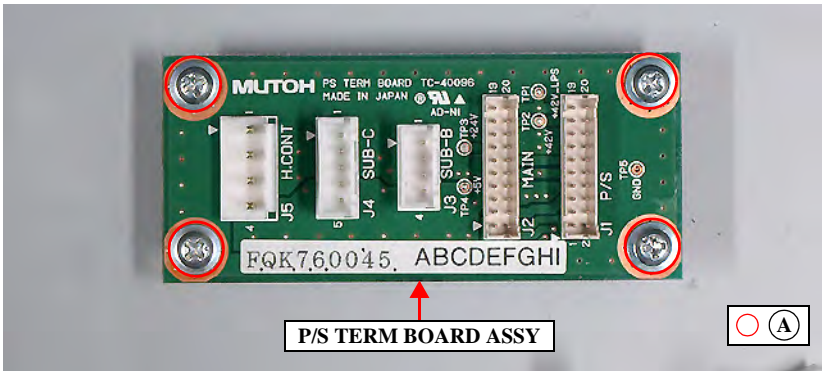


Figure 4-69. Removing the P/S TERM BOARD ASSY

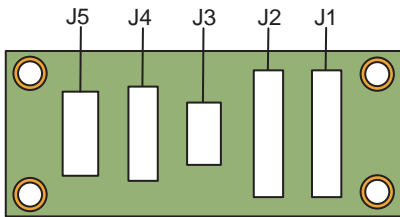


Figure 4-70. Connector Layout of the P/S TERM BOARD ASSY

Connector assignment:

Connector No.	Color	Destination
J1	White	P/S BOARD ASSY (CN301)
J2	White	MAIN BOARD ASSY (CN1)
J3	White	SUB_B BOARD ASSY (J16)
J4	White	SUB_C BOARD ASSY (J12)
J5	White	HEATER CONT BOARD ASSY (J19)



4.4.6.7 P/S BOARD ASSY

- 1. Remove the MAINTENANCE COVER ASSY (both). (p89)
- 2. Remove the MAINT COVER, B (both). (p90)
- 3. Remove the PAPER GUIDE COVER (both). (p92)
- 4. Remove the After Heater Cover. (p95)
- 5. Disconnect the two connectors.
- 6. Remove the four screws and remove the P/S BOARD ASSY with its fixing plate.
 - A) Silver, Phillips, Cup M3x6: four pieces

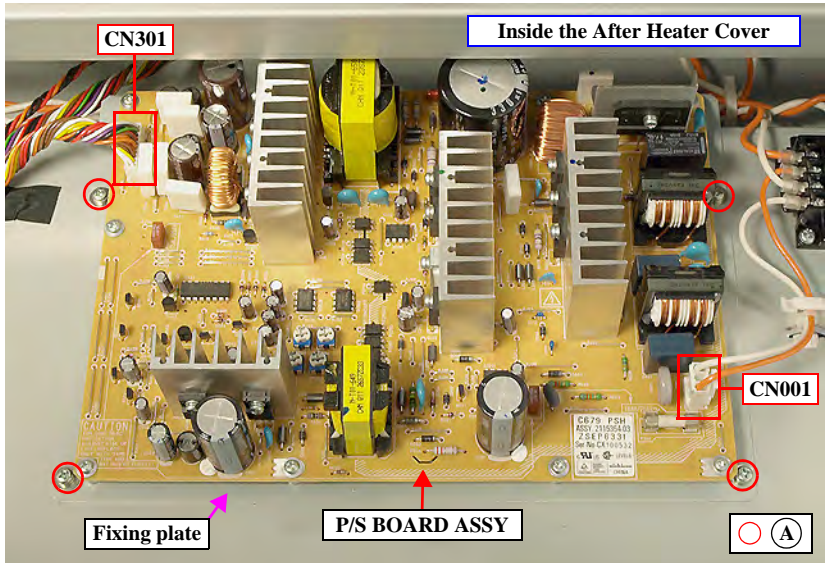


Figure 4-71. Detaching the P/S BOARD ASSY

- 7. Remove the nine screws and remove the fixing plate.
 - A) Silver, Phillips, Cup M3x6: nine pieces

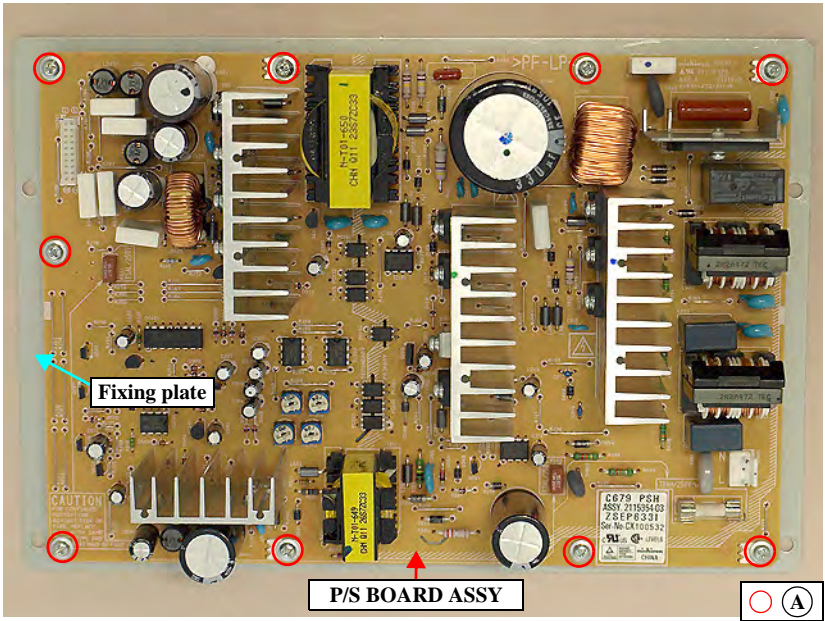


Figure 4-72. Removing the Fixing plate

Connector assignment:

Connector No.	Color	Destination
CN001	White	TERMINAL BLOCK
CN301	White	P/S TERM BOARD ASSY (J1)



4.4.6.8 SUB_A BOARD ASSY

- 1. Remove the TOP COVER (left only). (p83)
- 2. Remove the MAINTENANCE COVER T. (p84)
- 3. Remove the SIDE COVER (left only). (p87)
- 4. Remove the IH COVER (left only). (p88)
- 5. Unlock the Carriage. (p81)
- 6. Remove the CR Top Cover (Step 6 to 9 in 4.4.5.3 COOLING FAN). (p102)
- 7. Disconnect all the cables and FFCs from the SUB_A BOARD ASSY.

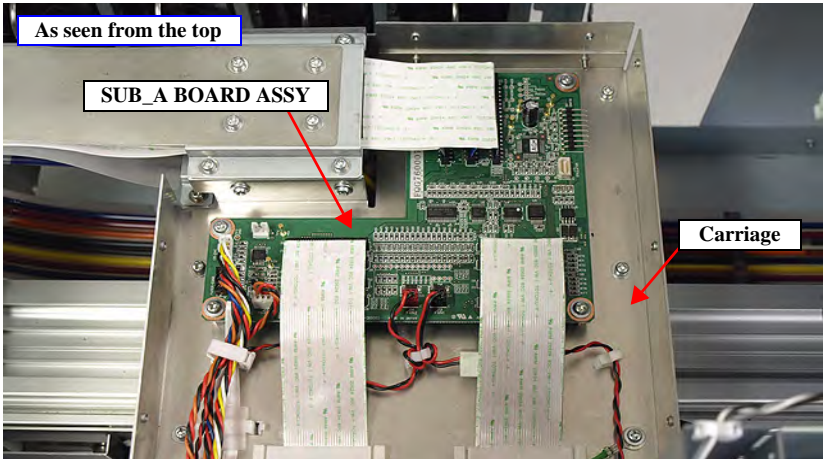


Figure 4-73. Disconnecting the cables on the SUB_A BOARD ASSY

- 8. Remove the five screws, and remove the SUB_A BOARD ASSY.
 - A) Silver, Phillips, Cup M3x6: five pieces

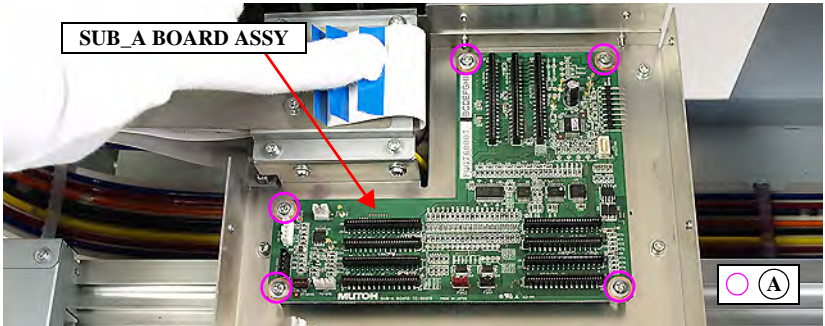


Figure 4-74. Removing the SUB_A BOARD ASSY

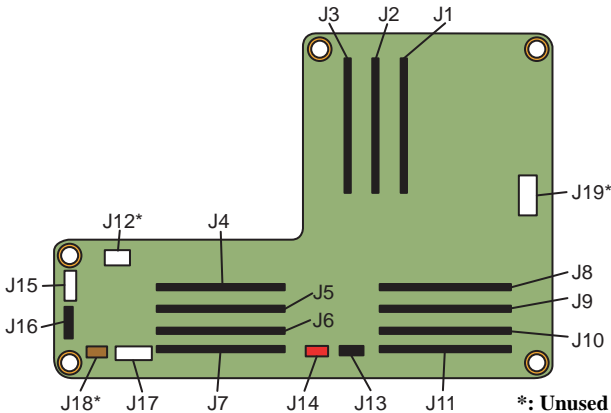


Figure 4-75. Connector Layout of the SUB_A BOARD ASSY

Connector assignment:

Connector No.	Color	Destination
J1	(FFC)	MAIN BOARD ASSY (CN20)
J2	(FFC)	MAIN BOARD ASSY (CN21)
J3	(FFC)	MAIN BOARD ASSY (CN22)
J4	(FFC)	PRINT HEAD

Connector No.	Color	Destination
J5	(FFC)	PRINT HEAD
J6	(FFC)	PRINT HEAD
J7	(FFC)	PRINT HEAD
J8	(FFC)	PRINT HEAD
J9	(FFC)	PRINT HEAD
J10	(FFC)	PRINT HEAD
J11	(FFC)	PRINT HEAD
J12*	White	Unused
J13	Black	COOLING FAN
J14	Red	COOLING FAN
J15	White	CR ENCODER ASSY
J16	Black	PAPER EDGE SENSOR
J17	White	PG HEIGHT SENSOR
J18*	Brown	Unused
J19*	White	Unused

REASSEMBLY

Some connectors are not used for this printer. Make sure not to confuse them with the correct ones when reassembling.

4.4.6.9 SUB_B BOARD ASSY

1. Remove the REAR PAPER GUIDE. (p94)
2. Remove the SPINDLE GUIDE COVER. (p95)

CAUTION

So as not to confuse J17 and J18 connectors of serial cables, it is recommended to mark them in some way before disconnecting them. See Figure 4-76.

3. Disconnect all the cables and FFCs from the SUB_B BOARD ASSY.
4. Remove the six screws, and remove the SUB_B BOARD ASSY.
 - A) Silver, Phillips, Cup M3x6: six pieces

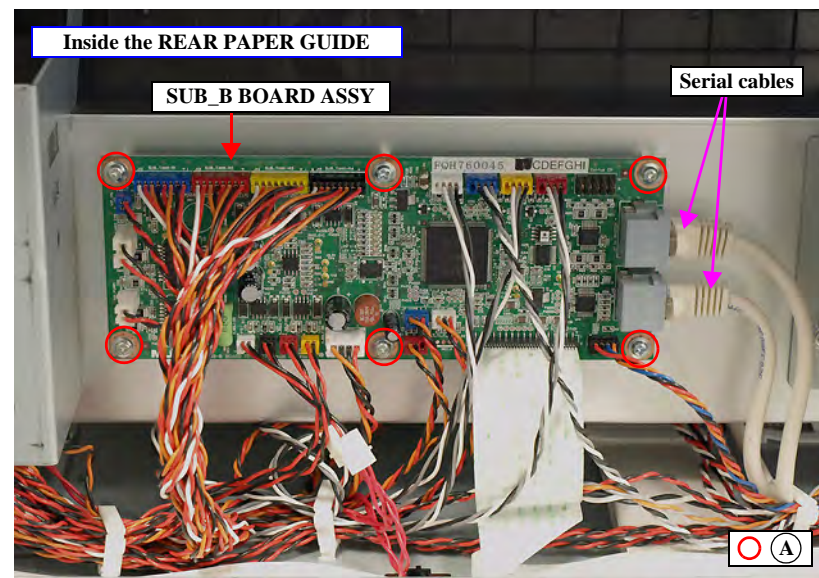


Figure 4-76. Removing the SUB_B BOARD ASSY

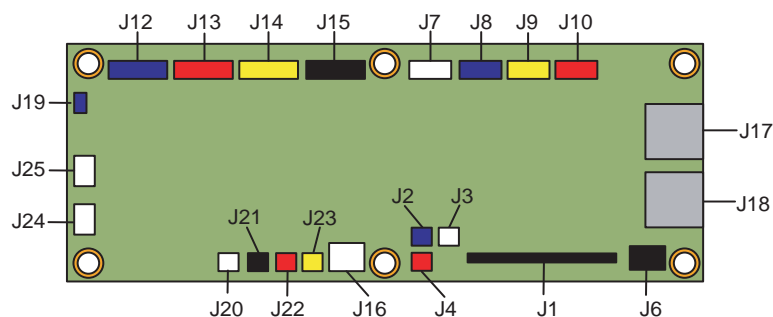


Figure 4-77. Connector Layout of the SUB_B BOARD ASSY

Connector assignment:

Connector No.	Color	Destination
J1	Black	MAIN BOARD ASSY (CN23)
J2	Blue	LEVER SENSOR
J3	White	CR HP SENSOR
J4	Red	Wasted Ink Sensor
J6	Black	PAPER REAR SENSOR
J7	White	F COVER SENSOR (right)
J8	Blue	MAIN BOARD ASSY (CN65)
J9	Yellow	M COVER SENSOR (right)
J10	Red	IC COVER SENSOR (right)
J12	Blue	SUB TANK SENSOR
J13	Red	SUB TANK SENSOR
J14	Yellow	SUB TANK SENSOR
J15	Black	SUB TANK SENSOR
J16	White	P/S TERM BOARD ASSY (J3)
J17	Gray	HEATER CONT BOARD ASSY (J9)
J18	Gray	SUB_C BOARD ASSY (J13)
J19	Blue	Wiper Solenoid
J20	White	Valve Solenoid
J21	Black	Valve Solenoid

Connector No.	Color	Destination
J22	Red	Valve Solenoid
J23	Yellow	Valve Solenoid
J24	White	PUMP MOTOR
J25	White	PUMP MOTOR

4.4.6.10 SUB_C BOARD ASSY

- 1. Remove the REAR PAPER GUIDE. (p94)
- 2. Remove the SPINDLE GUIDE COVER. (p95)
- 3. Disconnect all the cables and FFCs from the SUB_C BOARD ASSY.
- 4. Remove the four screws, and remove the SUB_C BOARD ASSY.
 - A) Silver, Phillips, Cup M3x6: four pieces

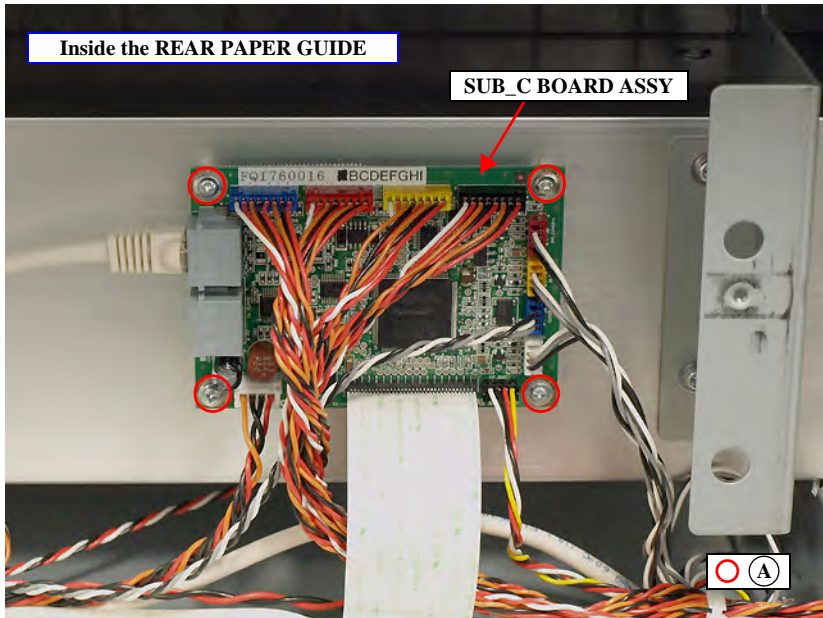


Figure 4-78. Removing the SUB_C BOARD ASSY

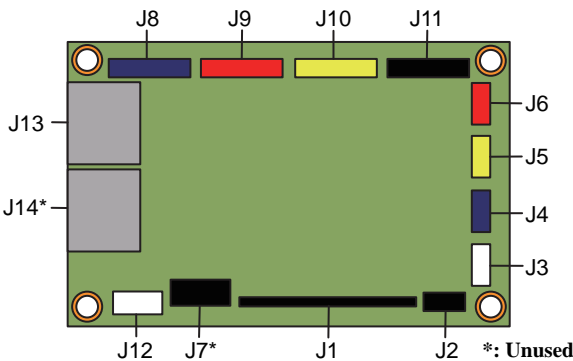


Figure 4-79. Connector Layout of the SUB_C BOARD ASSY

Connector assignment:

Connector No.	Color	Destination
J1	Black	MAIN BOARD ASSY (CN24)
J2	Black	PF ENCODER ASSY
J3	White	F COVER SENSOR (left)
J4	Blue	MAIN BOARD ASSY (CN64)
J5	Yellow	M COVER SENSOR (left)
J6	Red	IC COVER SENSOR (left)
J7*	Black	Unused
J8	Blue	SUB TANK SENSOR
J9	Red	SUB TANK SENSOR
J10	Yellow	SUB TANK SENSOR
J11	Black	SUB TANK SENSOR
J12	White	P/S TERM BOARD ASSY (J4)
J13	Gray	SUB_B BOARD ASSY (J18)
J14*	Gray	Unused



Some connectors are not used for this printer. Make sure not to confuse them with the correct ones when reassembling.

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4.4.6.11 SUB_D BOARD ASSY

CHECK
POINT

- Basically you can remove this part on the left and the one on the right in the same way. Therefore this section describes the way to remove the one on the right only.
- When removing the covers on the left, remove the MAINTENANCE COVER T (p86) in Step 2.
- When removing the IH COVER on the left, remove six screws only. See Figure 4-25.

1. Remove the TOP COVER. (p83)
2. Remove the PANEL COVER, T. (p84)
3. Remove the SIDE COVER. (p87)
4. Remove the IH COVER. (p88)
5. Disconnect all the cables and FFCs from the SUB_D BOARD ASSY.
6. Remove the four screws, and remove the SUB_D BOARD ASSY.
 - A) Silver, Phillips, Cup M3x6: four pieces

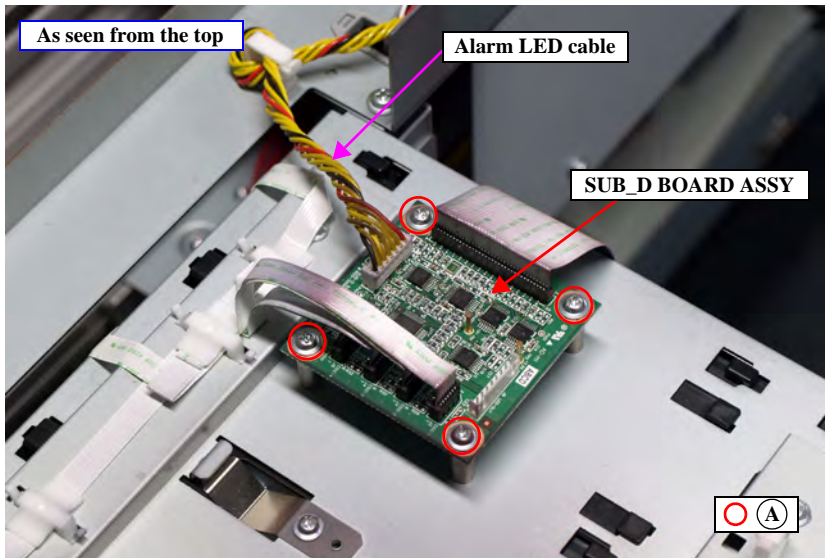


Figure 4-80. Removing the SUB_D BOARD ASSY (right)

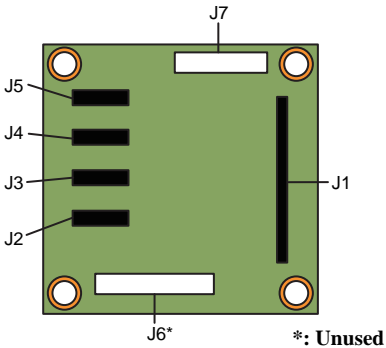


Figure 4-81. Connector Layout of the SUB_D BOARD ASSY

Connector assignment:

Connector No.	Color	Destination
J1	Black	MAIN BOARD ASSY (CN25 or CN26)
J2	Black	Ink Cartridge (CSIC)
J3	Black	Ink Cartridge (CSIC)
J4	Black	Ink Cartridge (CSIC)
J5	Black	Ink Cartridge (CSIC)
J6*	White	Unused
J7	White	ALARM LED (right only)



Some connectors are not used for this printer. Make sure not to confuse them with the correct ones when reassembling.



4.4.7 Sensors

4.4.7.1 PF ENCODER ASSY

CHECK
POINT



When removing the IH COVER on the left, remove six screws only.
See Figure 4-25.

1. Remove the TOP COVER (left only). (p83)
2. Remove the MAINT COVER T. (p86)
3. Remove the SIDE COVER (left only). (p87)
4. Remove the REAR PAPER GUIDE. (p94)
5. Remove the SPINDLE GUIDE COVER. (p95)
6. Remove the IH COVER (left only). (p88)
7. Remove the PF ENC SCALE. (p150)
8. Disconnect connector J2 from the SUB_C BOARD ASSY.
9. Release the cable from the two clamps at the rear.

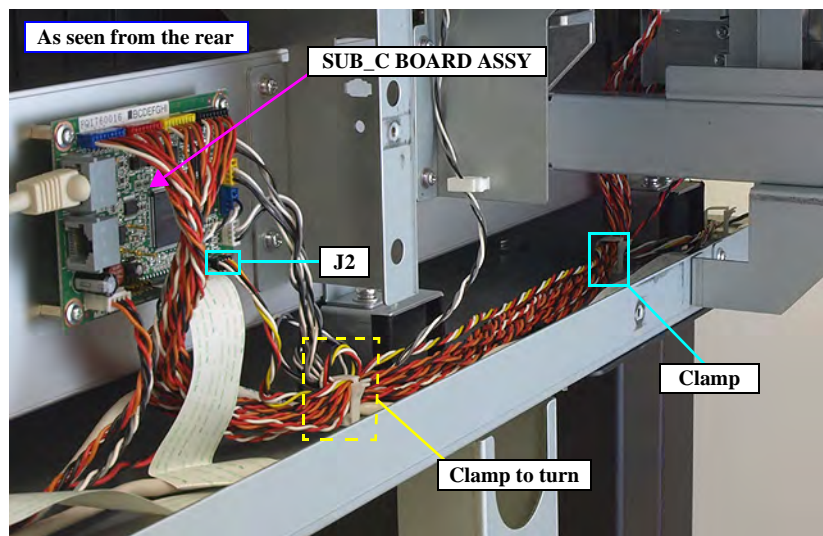


Figure 4-82. Releasing the cable



When routing the cable at the rear, make sure to give it one turn around the marked clamp. See Figure 4-82.

10. Release the cable from the three clamps and the one retainer on the left side.
11. Remove the two screws.
 - A) Silver, Phillips, Bind machine screw M2x10: two pieces
12. Press the part beside the pin to disengage the hook behind the sensor, and remove the PF ENCODER ASSY.

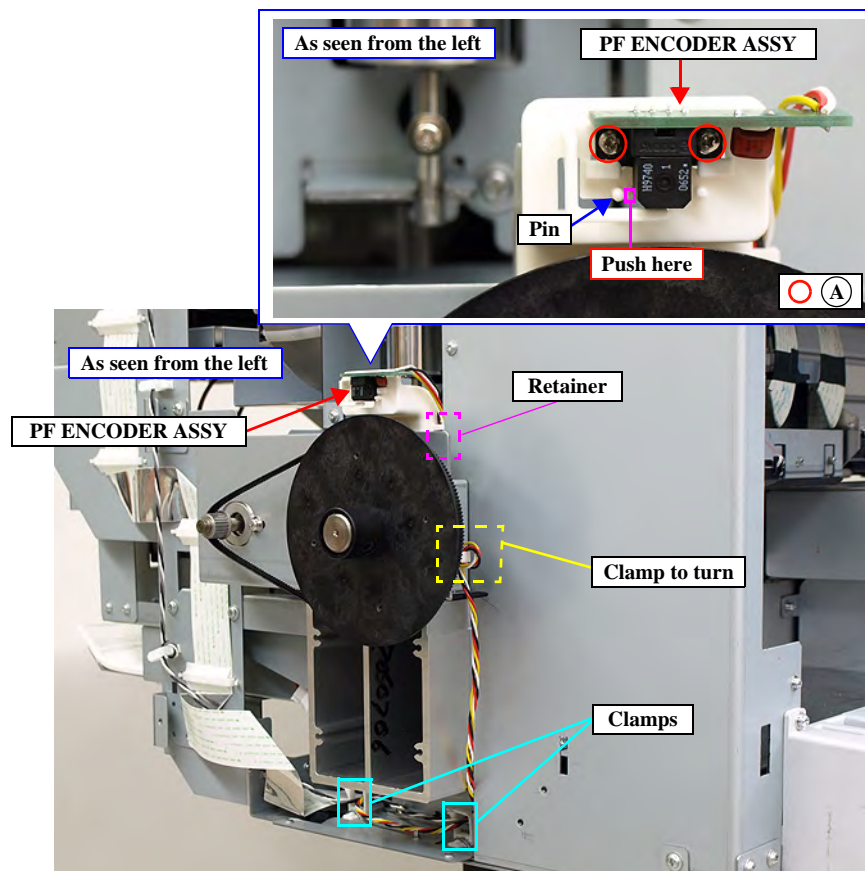
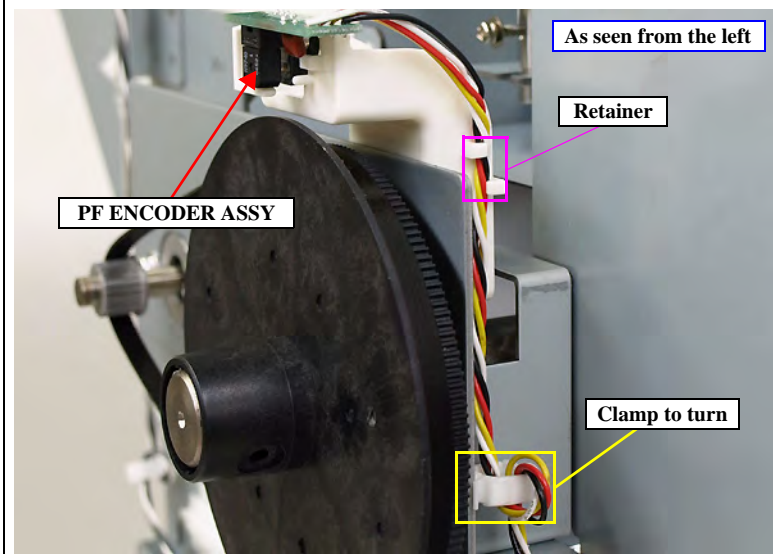


Figure 4-83. Removing the PF ENCODER ASSY

REASSEMBLY

When routing the cable on the left side, make sure to secure the cable with the cable retainer and give it one turn around the marked clamp as shown in the figure below.

**ADJUSTMENT
REQUIRED**

Be sure to refer to Chapter 5 “Adjustment” ([see p179](#)) and perform specified adjustments after replacing or removing this part.

<Adjustment item>

1. Encoder Test

4.4.7.2 PAPER REAR SENSOR

1. Remove the REAR PAPER GUIDE. (p94)
2. Remove the SPINDLE GUIDE COVER. (p95)
3. Disconnect the cable from connector J6 on the SUB_B BOARD ASSY.
4. Release the cable from three clamps.

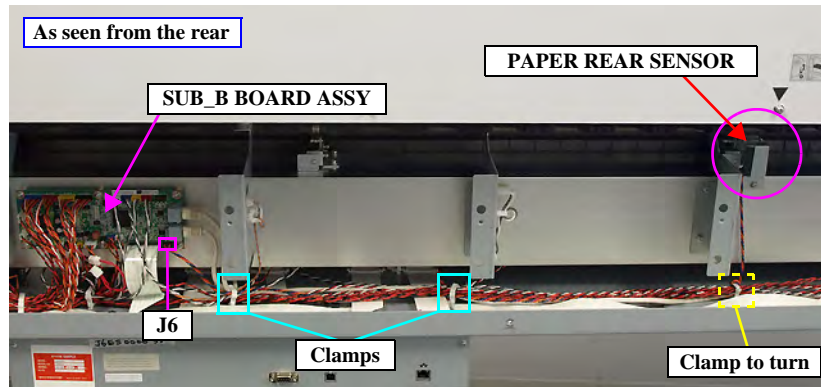


Figure 4-84. Releasing the cable

REASSEMBLY



When routing the cable, make sure to give it one turn around the marked clamp. *See Figure 4-84.*

5. Remove the screw, and remove the PAPER REAR SENSOR with its fixing plate.
 - A) Silver, Phillips, Pan with S.W & P.W M3x8: one piece
6. Remove the two screws, and remove the PAPER REAR SENSOR from the fixing plate.
 - B) Silver, Phillips, Cup M2x5: two pieces

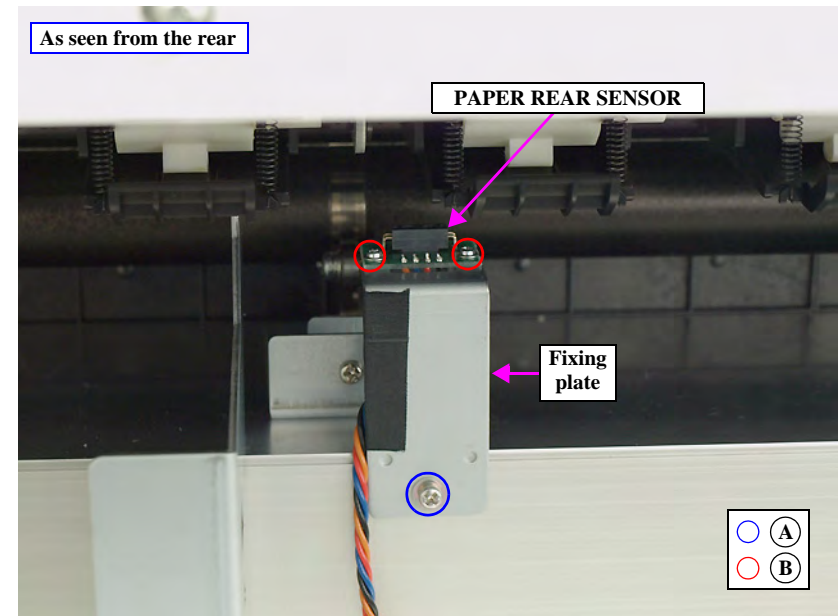


Figure 4-85. Removing the PAPER REAR SENSOR

4.4.7.3 CR HP SENSOR

1. Remove the TOP COVER (right only). (p83)
2. Unlock the Carriage. (p81)
3. Disconnect the connector.

CAUTION


The CR HP SENSOR is secured with thread-locker. Therefore, remove the thread-locker when removing the sensor.

4. Disengage the hooks, and remove the CR HP SENSOR.

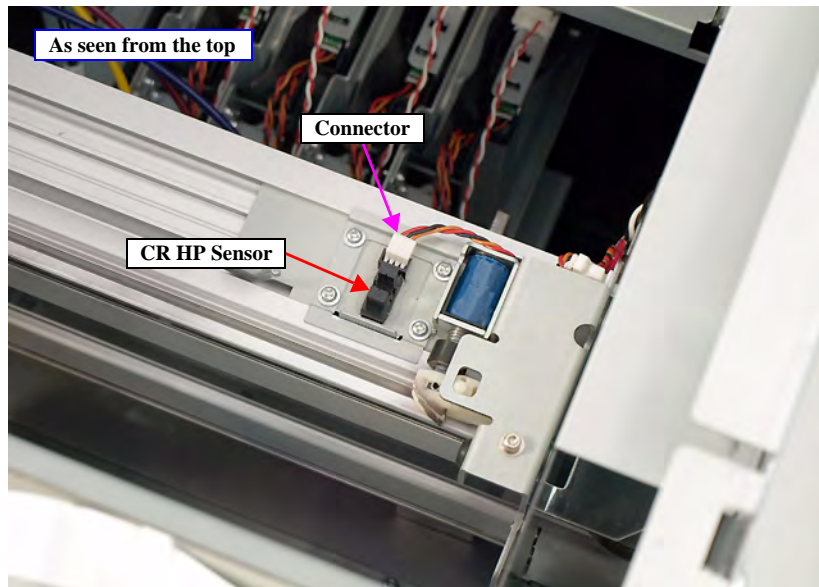
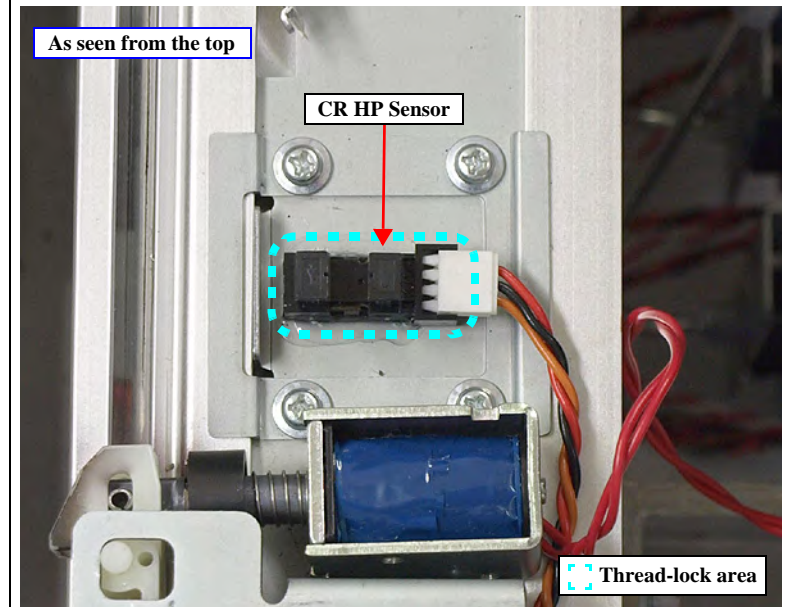


Figure 4-86. Removing the CR HP SENSOR

REASSEMBLY


- After installation, make sure to apply thread locker around the CR HP SENSOR to secure it.



- Make sure you set the sensor in the correct direction, connector on the rear.

**ADJUSTMENT
REQUIRED**


Be sure to refer to Chapter 5 “Adjustment” (see p179) and perform specified adjustments after replacing or removing this part.

<Adjustment item>

1. Sensor Test

4.4.7.4 PAPER EDGE SENSOR

1. Remove the TOP COVER (left only). (p83)
2. Remove the MAINTENANCE COVER T. (p84)
3. Remove the SIDE COVER (left only). (p87)
4. Remove the IH COVER (left only). (p88)
5. Unlock the Carriage. (p81)
6. Remove the CR Top Cover (Step 6 to 9 in 4.4.5.3 COOLING FAN). (p102)
7. Disconnect the connector J16 from the SUB_A BOARD ASSY.
8. Release the cable from 4 clamps.

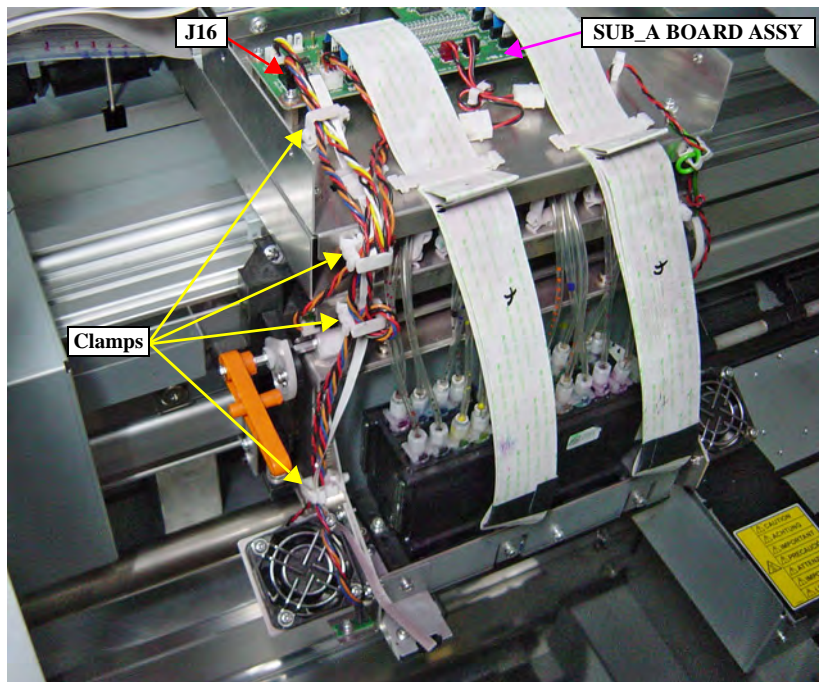


Figure 4-87. Releasing the cable

9. Remove 2 screws that secure the COOLING FAN (left side) bracket.
 - A) Silver, Phillips, Pan with S.W & P.W M3x6: two pieces
10. Remove a screw to remove the PAPER EDGE SENSOR.
 - B) Silver, Phillips, Pan with S.W & P.W M3x6: one piece

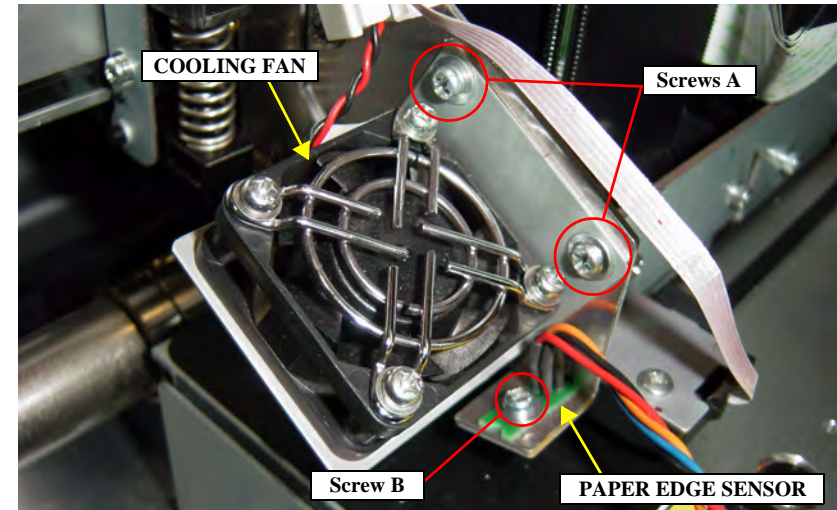
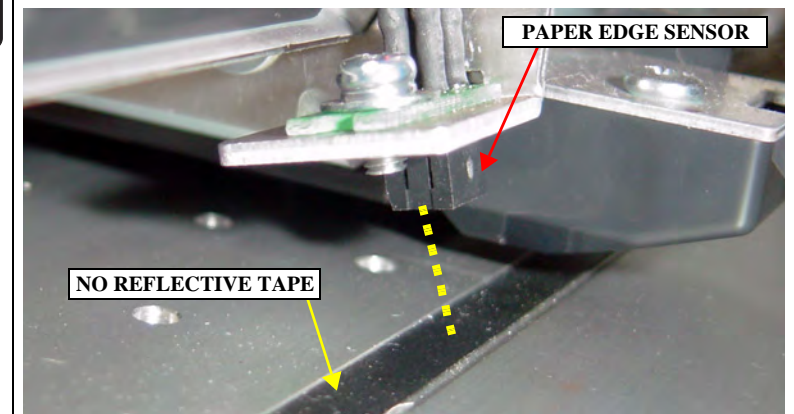


Figure 4-88. Removing the PAPER EDGE SENSOR



Install the PAPER EDGE SENSOR exactly over the NO REFLECTIVE TAPE.



4.4.7.5 CR ENC ASSY

1. Remove the TOP COVER (left only). (p83)
2. Remove the MAINTENANCE COVER T. (p84)
3. Remove the SIDE COVER (left only). (p87)
4. Remove the IH COVER (left only). (p88)
5. Unlock the Carriage. (p81)
6. Remove the CR Top Cover (Step 6 to 9 in 4.4.5.3 COOLING FAN). (p102)
7. Disconnect all the connectors except J13 and J14 and release the cables from the clamps on top.

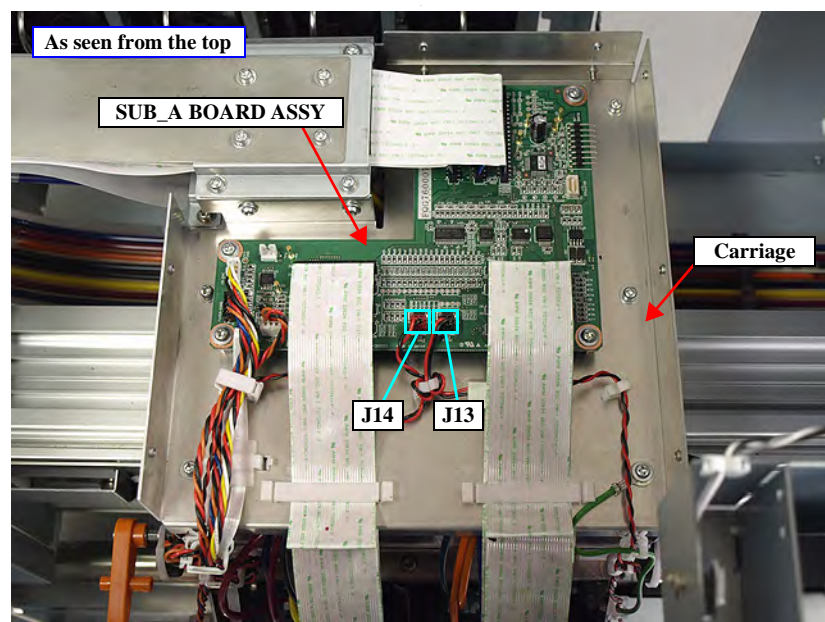


Figure 4-89. Disconnecting the cables

8. Move the Carriage to the platen, and remove the four screws from the hole on the rear left.
 - A) Silver, Phillips, Cup M3x6: two pieces
 - B) Silver, Phillips, Pan with S.W & P.W M3x8: two pieces



Figure 4-90. Removing the screws from the hole on the rear

9. Move the Carriage to the left end and remove the five screws (one securing the GND terminal together).
 - A) Silver, Phillips, Pan with S.W & P.W M3x8: four pieces
 - B) Silver, Phillips, Cup M3x6: one piece
10. Release all the cables from the clamps on the side.

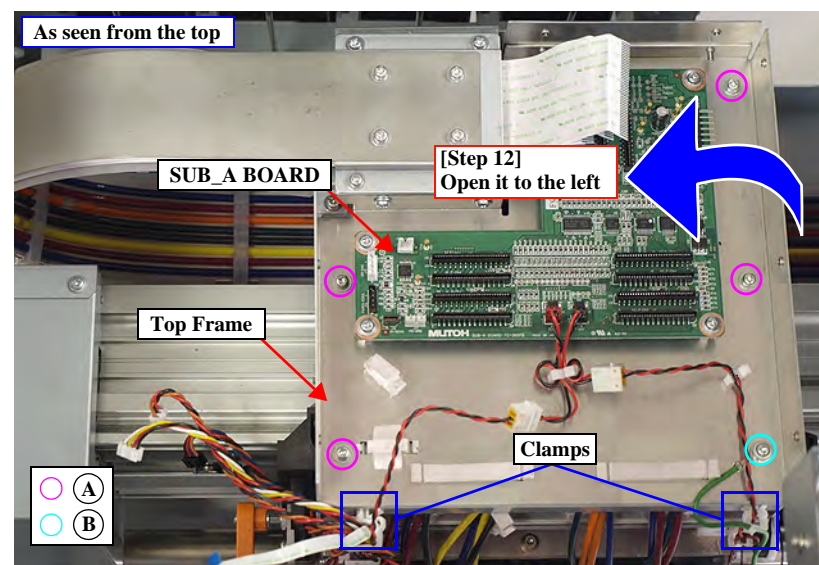


Figure 4-91. Removing the screws on the Top Frame

REASSEMBLY

Make sure you set back the green cable with the B screw when reassembling.

11. Move the Carriage to the platen and remove the two screws securing the CR ENC ASSY from the hole on the rear left.

A) Silver, Phillips, Cup M2x4: two pieces

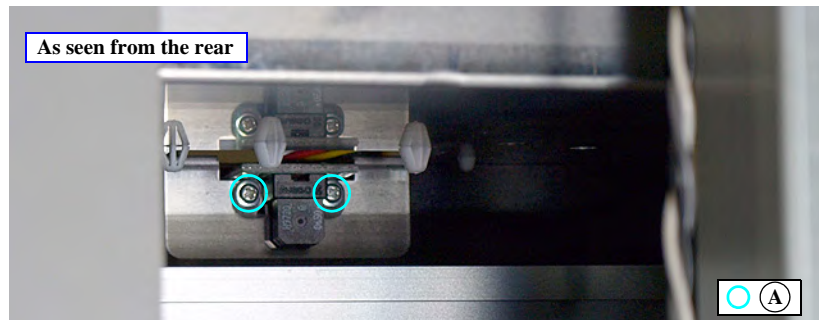


Figure 4-92. Removing the CR ENC ASSY (1)

12. Move the Carriage to the left end and open the Top Frame with SUB_A BOARD to the left. [See Figure 4-91.](#)

13. Release the cable from the two clamps and remove the CR ENC ASSY from the Middle Frame.

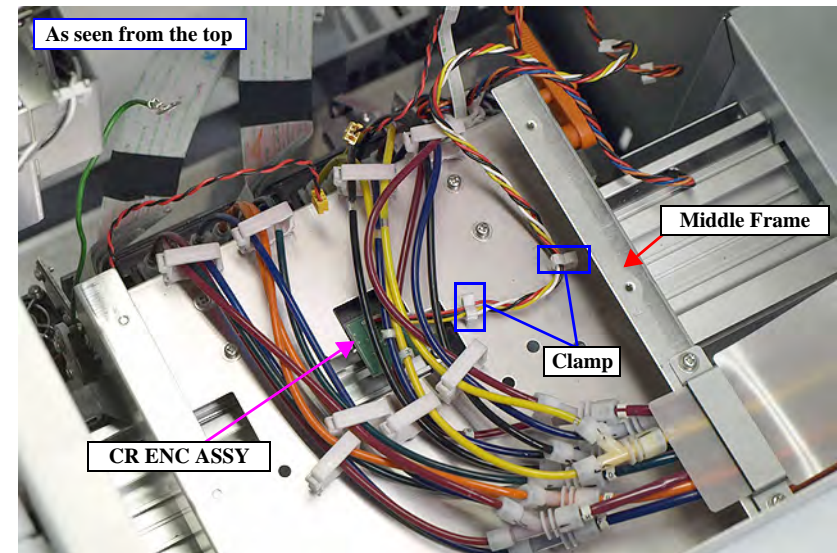


Figure 4-93. Removing the CR ENC ASSY (2)



ADJUSTMENT
REQUIRED

Be sure to refer to Chapter 5 “Adjustment” ([see p179](#)) and perform specified adjustments after replacing or removing this part.

<Adjustment item>

1. Encoder Test

4.4.7.6 PG HEIGHT SENSOR

1. Remove the TOP COVER (left only). (p83)
2. Remove the MAINTENANCE COVER T. (p84)
3. Remove the SIDE COVER (left only). (p87)
4. Unlock the Carriage. (p81)
5. Remove the CR Top Cover (Step 6 to 9 in 4.4.5.3 COOLING FAN). (p102)
6. Open the Top Frame (Step 6 to 9, and 11 in 4.4.7.5 CR ENC ASSY). (p126)
7. Remove the four screws from the Middle Frame.
 - A) Silver, Phillips, Pan with S.W & P.W M3x8: four pieces
8. Slide open the frame in the direction of the arrow.

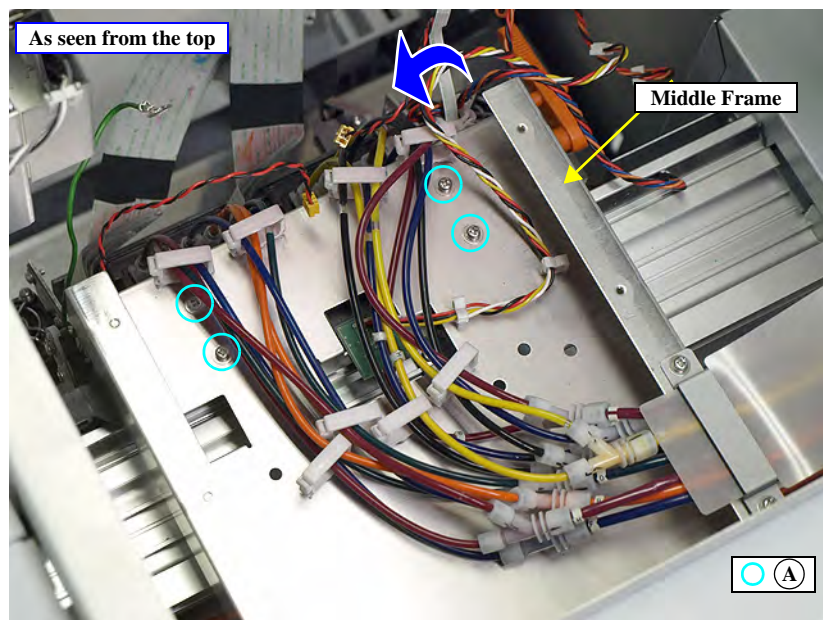


Figure 4-94. Opening the Middle Frame

9. Disconnect the connector and disengage the hooks, then remove the PG HEIGHT SENSOR.

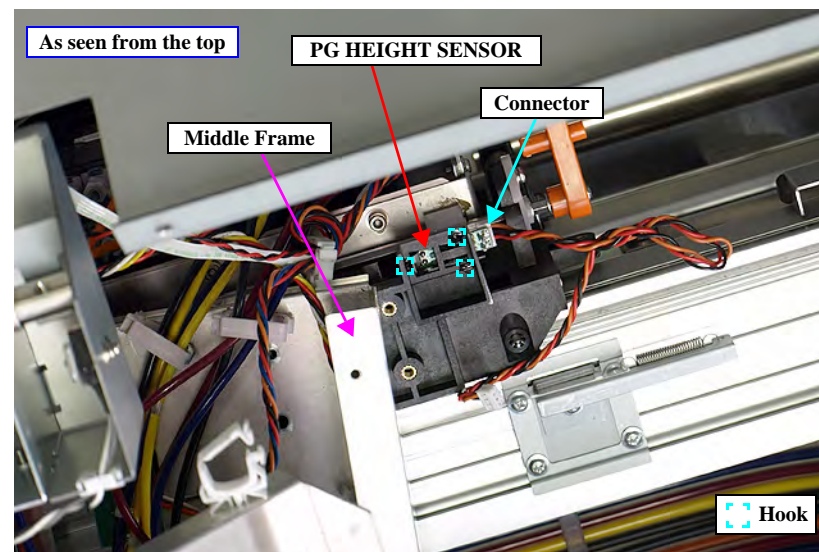


Figure 4-95. Removing the PG HEIGHT SENSOR



After installation, make sure to apply thread locker around the hooks to secure the sensors. *See Figure 4-95.*



Be sure to refer to Chapter 5 “Adjustment” (*see p179*) and perform specified adjustments after replacing or removing this part.

<Adjustment item>

1. Sensor Test

4.4.7.7 SUB TANK SENSOR

CHECK
POINT

- This sensor is used as a pair (top and bottom) on more than one location, but basically you can remove other sensors in the same way. Therefore this section describes the way to remove the left most pair of sensors only. If you remove other than those, remove the SUB TANK ASSYs from the left one by one to the assy with your target sensors.
- When removing the covers on the left, remove the MAINTENANCE COVER T (p86) in Step 2.
- When removing the IH COVER on the left, remove six screws only. See Figure 4-25.

1. Remove the TOP COVER. (p83)
2. Remove the PANEL COVER, T. (p84)
3. Remove the SIDE COVER. (p87)
4. Remove the IH COVER. (p88)
5. Remove the eight screws and remove the fixing plate.
 - A) Silver, Phillips, Pan with S.W & P.W M3x6: four pieces
 - B) Silver, Phillips, Cup M3x6: four pieces

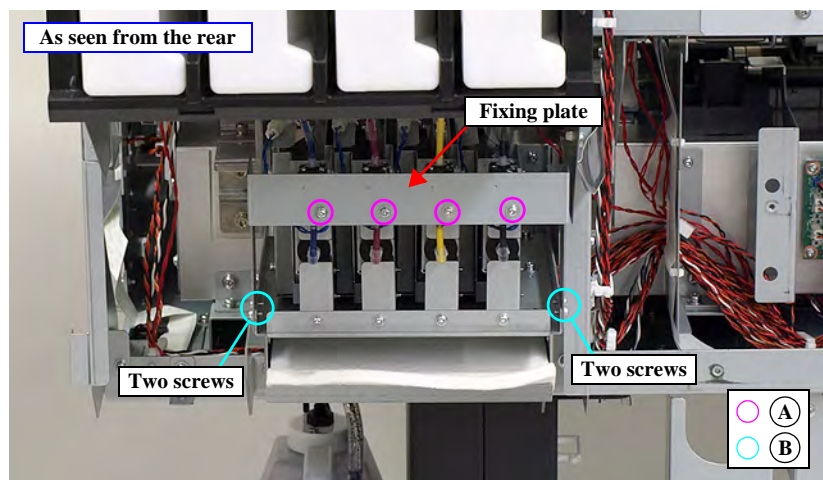


Figure 4-96. Removing the fixing plate

6. Remove the screw and push the SUB TANK ASSY inside to release it.
 - A) Silver, Phillips, Cup M3x6: one piece
7. Disengage the hooks and release the SUB TANK SENSOR (two each; top and bottom).
8. Disconnect the connector and remove the sensor.

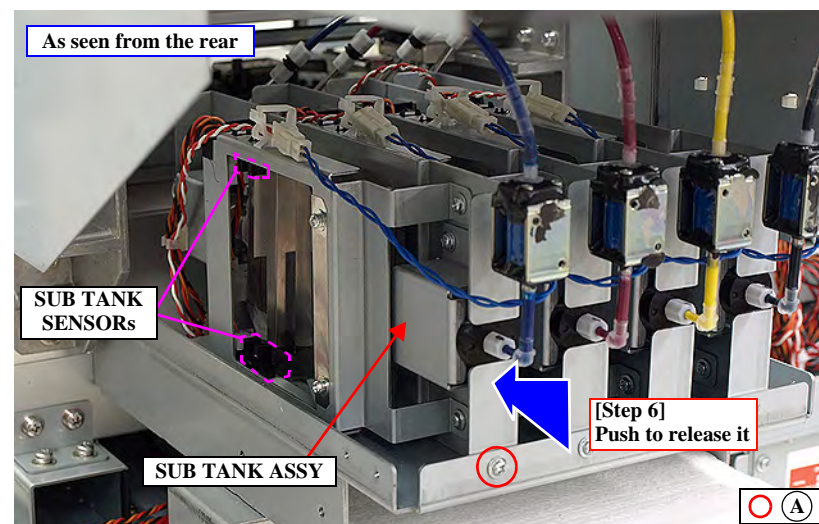
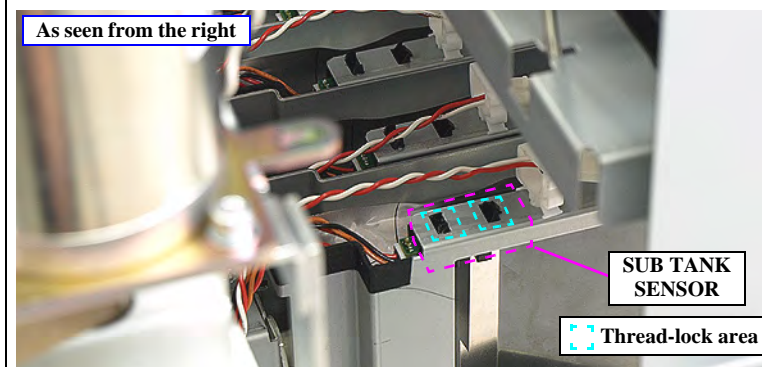


Figure 4-97. Removing the SUB TANK SENSOR



After installation, make sure to apply thread locker around the hooks to secure the sensors.



ADJUSTMENT
REQUIRED

Be sure to refer to Chapter 5 “Adjustment” ([see p179](#)) and perform specified adjustments after replacing or removing this part.

<Adjustment item>

1. Sensor Test



4.4.7.8 Others

CHECK
POINT

- Basically you can remove any of the sensors in this section in the same way. Therefore, the detailed procedure is given only for the F COVER SENSOR (L).
- So as to restore the original routing of each sensor cable, it is recommended to record the routing in some way before disconnecting the cables.

□ F COVER SENSOR (L)

1. Remove the TOP COVER. (p83)
2. Remove the PANEL COVER, T. (p84)
3. Remove the SIDE COVER. (p87)
4. Remove the IH COVER (left only). (p88)
5. Remove the REAR PAPER GUIDE. (p94)
6. Remove the SPINDLE GUIDE COVER. (p95)
7. Disconnect the connector of the F COVER SENSOR (L) from the SUB_C BOARD ASSY. (p119)
8. Release the cable from the clamps.
9. Remove the two screws, and remove the F COVER SENSOR (L).
 - A) Silver, Phillips, Pan with S.W & P.W M2x12: two pieces

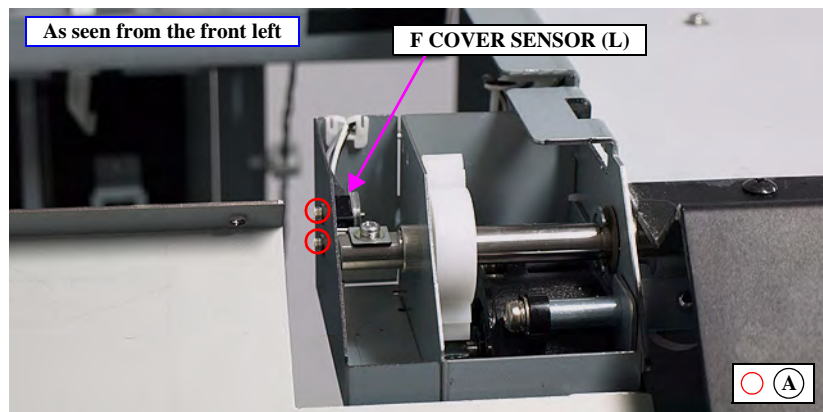


Figure 4-98. Removing the F COVER SENSOR (L)

□ F COVER SENSOR (R)

- A) Silver, Phillips, Pan with S.W & P.W M2x12: two pieces

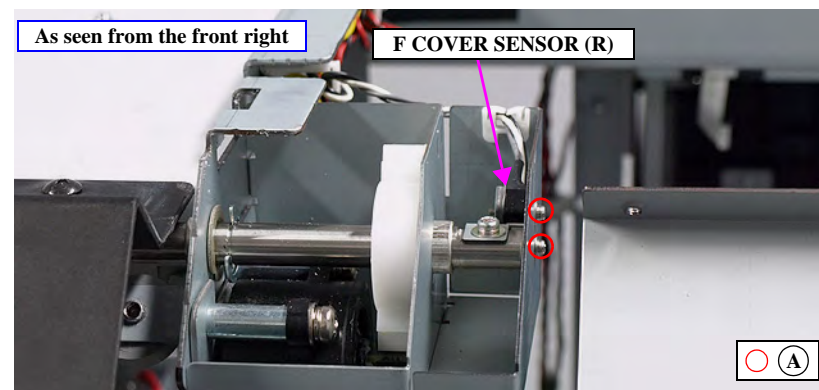


Figure 4-99. Removing the F COVER SENSOR (R)

REASSEMBLY



Do not invert L and R parts as the front cover would be very heavy to lift and would drop without restraints, causing eventual injury due to the weight of the cover.

ADJUSTMENT
REQUIRED

Be sure to refer to Chapter 5 “Adjustment” (see p179) and perform specified adjustments after replacing or removing this part.

<Adjustment item>

1. Sensor Test

□ IC COVER SENSOR (L)

A) Silver, Phillips, Pan with S.W & P.W M2x12: two pieces

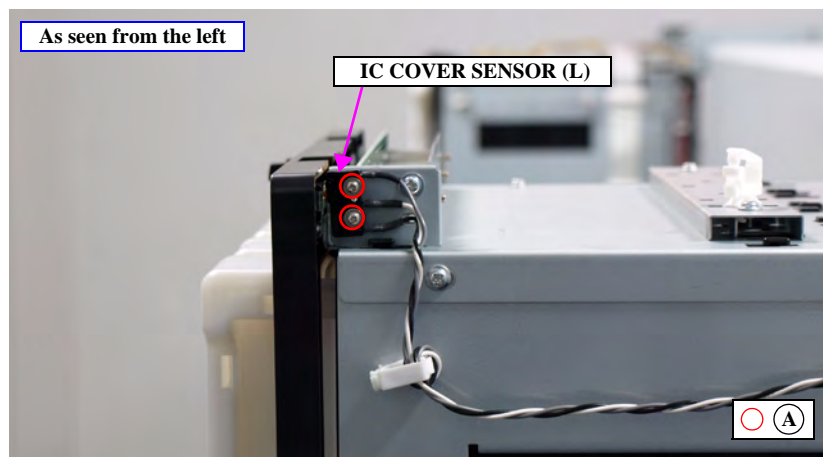


Figure 4-100. Removing the IC COVER SENSOR (L)



Be sure to refer to Chapter 5 “Adjustment” ([see p179](#)) and perform specified adjustments after replacing or removing this part.

<Adjustment item>

1. Sensor Test

□ IC COVER SENSOR (R)

A) Silver, Phillips, Pan with S.W & P.W M2x12: two pieces

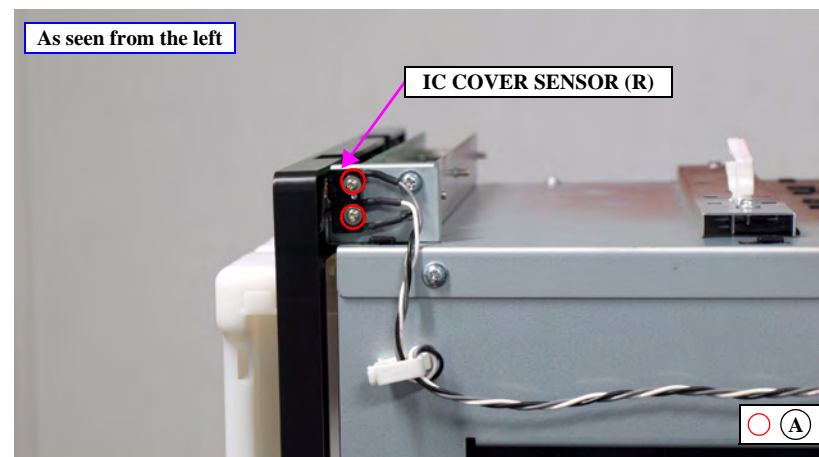


Figure 4-101. Removing the IC COVER SENSOR (R)



Be sure to refer to Chapter 5 “Adjustment” ([see p179](#)) and perform specified adjustments after replacing or removing this part.

<Adjustment item>

1. Sensor Test

□ M COVER SENSOR (L)

A) Silver, Phillips, Pan with S.W & P.W M2x12: two pieces

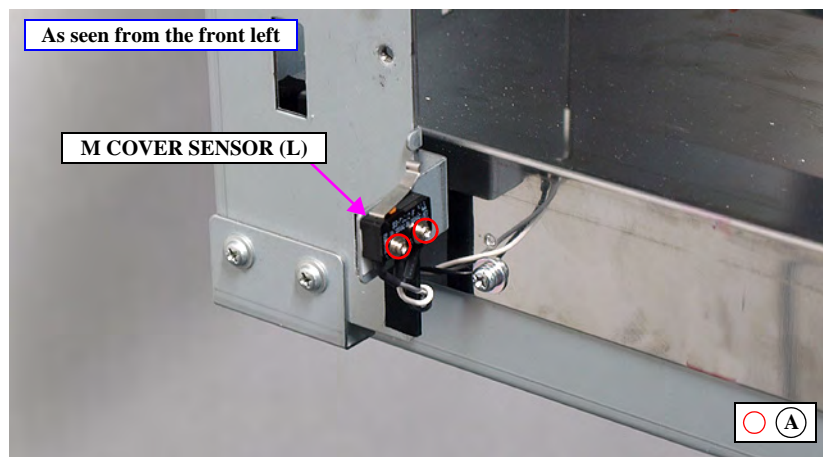


Figure 4-102. Removing the M COVER SENSOR (L)



Be sure to refer to Chapter 5 “Adjustment” ([see p179](#)) and perform specified adjustments after replacing or removing this part.

<Adjustment item>

1. Sensor Test

□ M COVER SENSOR (R)

A) Silver, Phillips, Pan with S.W & P.W M2x12: two pieces

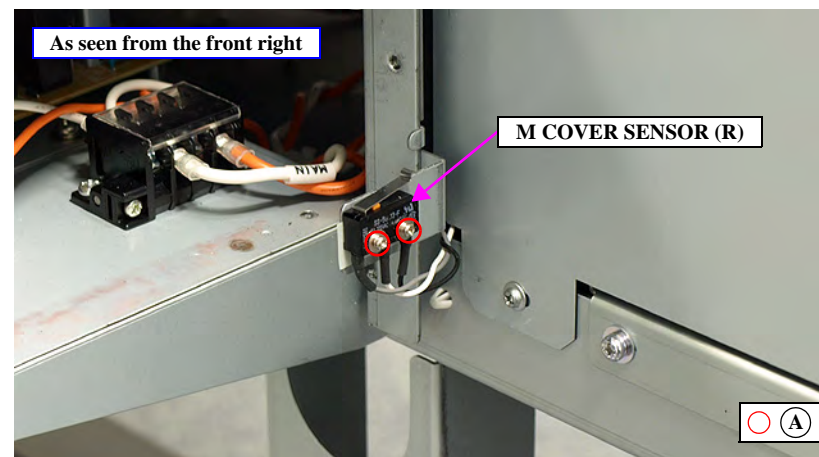


Figure 4-103. Removing the M COVER SENSOR (R)



Be sure to refer to Chapter 5 “Adjustment” ([see p179](#)) and perform specified adjustments after replacing or removing this part.

<Adjustment item>

1. Sensor Test

□ LEVER SENSOR

**CHECK
POINT**

The LEVER SENSOR is secured with hooks. To remove this sensor, disengage the hooks and disconnect the cable.

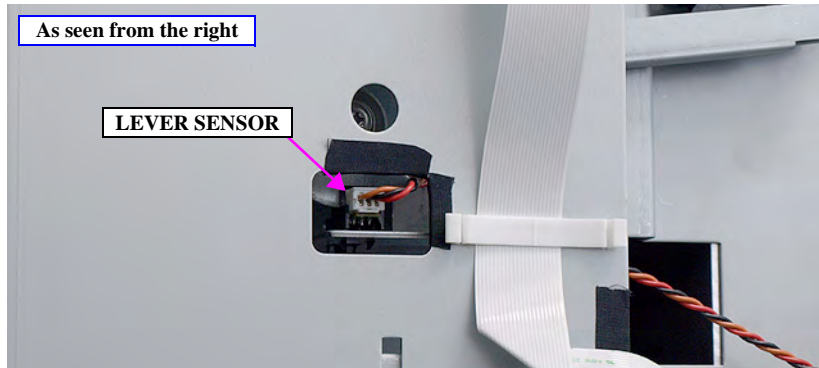


Figure 4-104. Removing the LEVER SENSOR

REASSEMBLY

- When routing the cable of each sensor, make sure to give it one turn around the clamps the same as the original routing.
- After installation, make sure to apply thread locker around the hooks to secure the LEVER SENSOR.

**ADJUSTMENT
REQUIRED**

Be sure to refer to Chapter 5 “Adjustment” (*see p179*) and perform specified adjustments after replacing or removing this part.

<Adjustment item>

1. Sensor Test

4.4.8 Heaters/Thermistors

4.4.8.1 PRE HEATER (64)/THERMISTOR, PRE

1. Remove the REAR PAPER GUIDE.(p94)
2. Peel off the heat insulator.
3. Peel off the PRE HEATER(64)s and remove them.
4. Peel off the tape and remove the THERMISTOR, PREs.

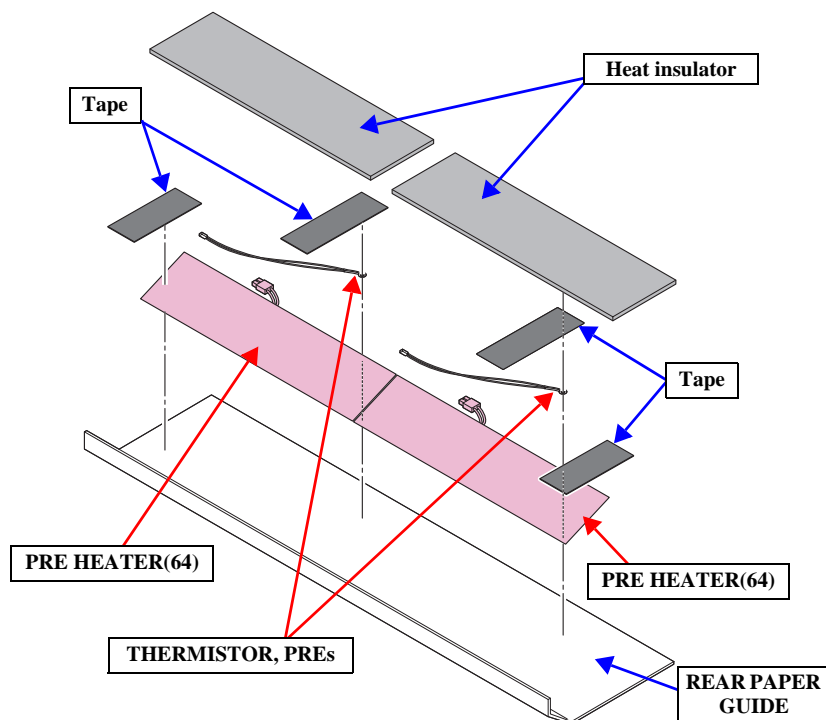
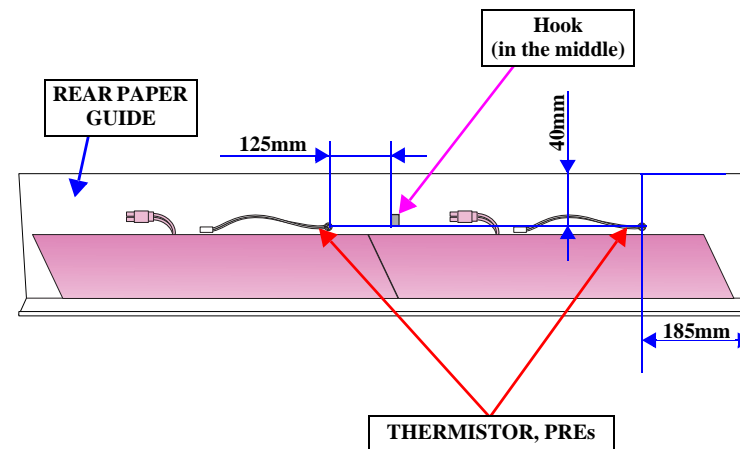


Figure 4-105. Removing the PRE HEATER (64) and THERMISTOR, PRE

REASSEMBLY



- When installing the THERMISTOR, PRE, make sure to follow the standard given in the figure below.



- Before pasting the tape, make sure the heaters are correctly oriented, with the connectors cables coming out on the Thermistors' side.

ADJUSTMENT REQUIRED



Be sure to refer to Chapter 5 "Adjustment" ([see p179](#)) and perform specified adjustments after replacing or removing this part.

<Adjustment item>

1. Heater Test

4.4.8.2 PLATEN HEATER (64)/THERMISTOR, PLATEN

1. Remove the Platen (Step 1 to 3 in 4.4.5.2 VACUUM FAN). (p101)

REASSEMBLY

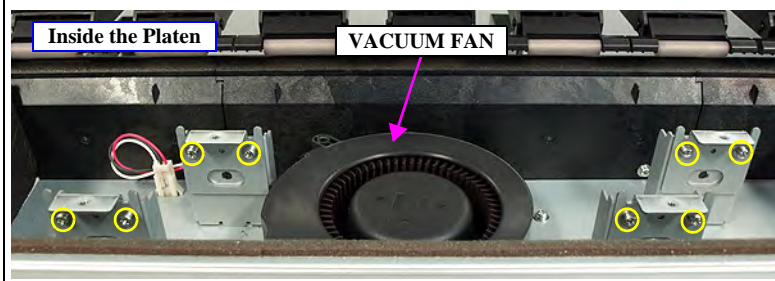


When reassembling the Platen, take care not to catch the cables between the Platen and the fixing plates. See Figure 4-47.

CAUTION



In the next step, do not touch any screws adjusting the platen (marked with yellow circles in the figure below), or the printer may not print normally. The screws keep the factory-adjusted Parallelism.



2. Peel off the heat insulator.
3. Peel off the tape and the PLATEN HEATER(64)s and remove them.
4. Remove the screw and remove the THERMISTOR, PLATENs.
 - A) Silver, Phillips, Pan with S.W & P.W M3x5: two pieces

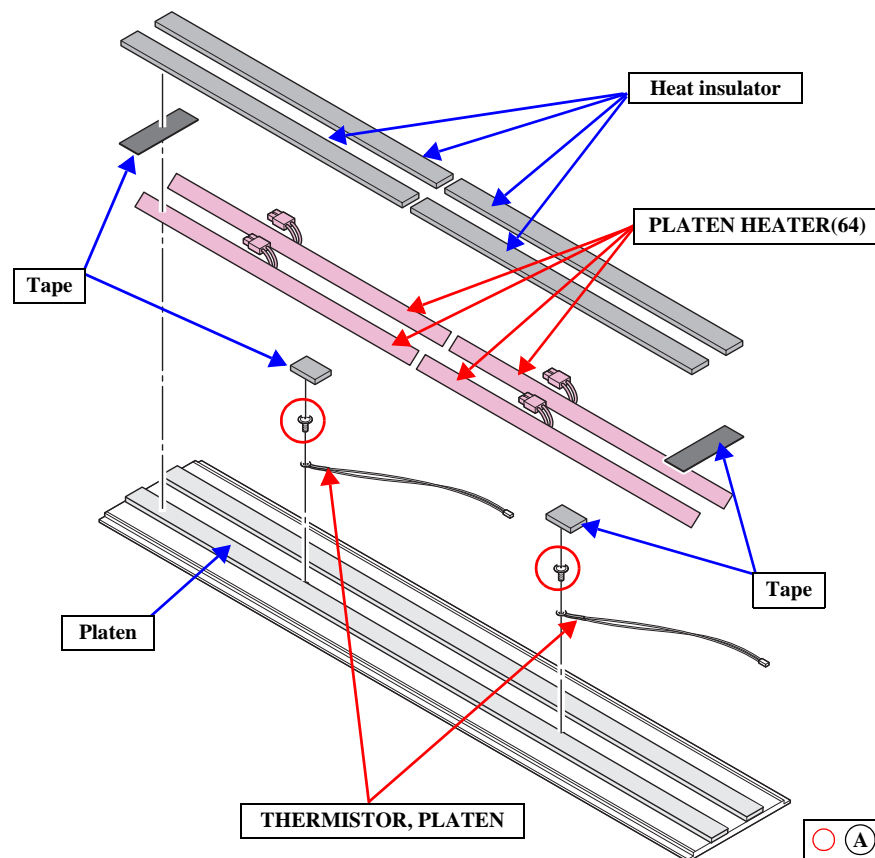
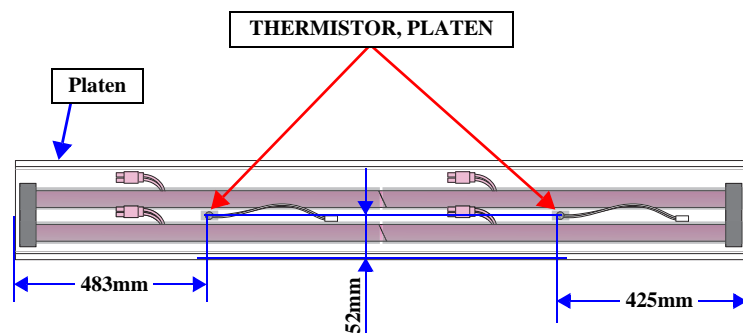


Figure 4-106. Removing the PLATEN HEATER (64) and THERMISTOR, PLATEN

REASSEMBLY

- When installing the THERMISTOR, PLATEN, make sure to follow the standard given in the figure below.



- When attaching the heaters, make sure to align them right on the ribs so as not to let them sticking out of the ribs.
- Before pasting the tape, make sure the heaters are correctly oriented, with the plugs on the rear side.

**ADJUSTMENT
REQUIRED**

Be sure to refer to Chapter 5 “Adjustment” (*see p179*) and perform specified adjustments after replacing or removing this part.

<Adjustment item>

1. Heater Test

4.4.8.3 AFTER HEATER (64)/THERMISTOR, AFTER

1. Remove the MAINTENANCE COVER ASSY (both). (p89)
2. Remove the MAINTENANCE COVER, B (both). (p90)
3. Remove the PAPER GUIDE COVER (both). (p92)
4. Open the FRONT CLEAR COVER.
5. Remove the After Heater Cover. (p95)
 - A) Silver, Phillips, Pan with S.W & P.W M4x8: five pieces
 - B) Silver, Phillips, Bind machine screw M3x6: five pieces

6. Peel off the heat insulator.
7. Peel off the AFTER HEATER (64)s and remove it.
8. Remove the two screws and remove the THERMISTOR, AFTERs.
 - A) Silver, Phillips, Pan with S.W & P.W M3x5: two pieces

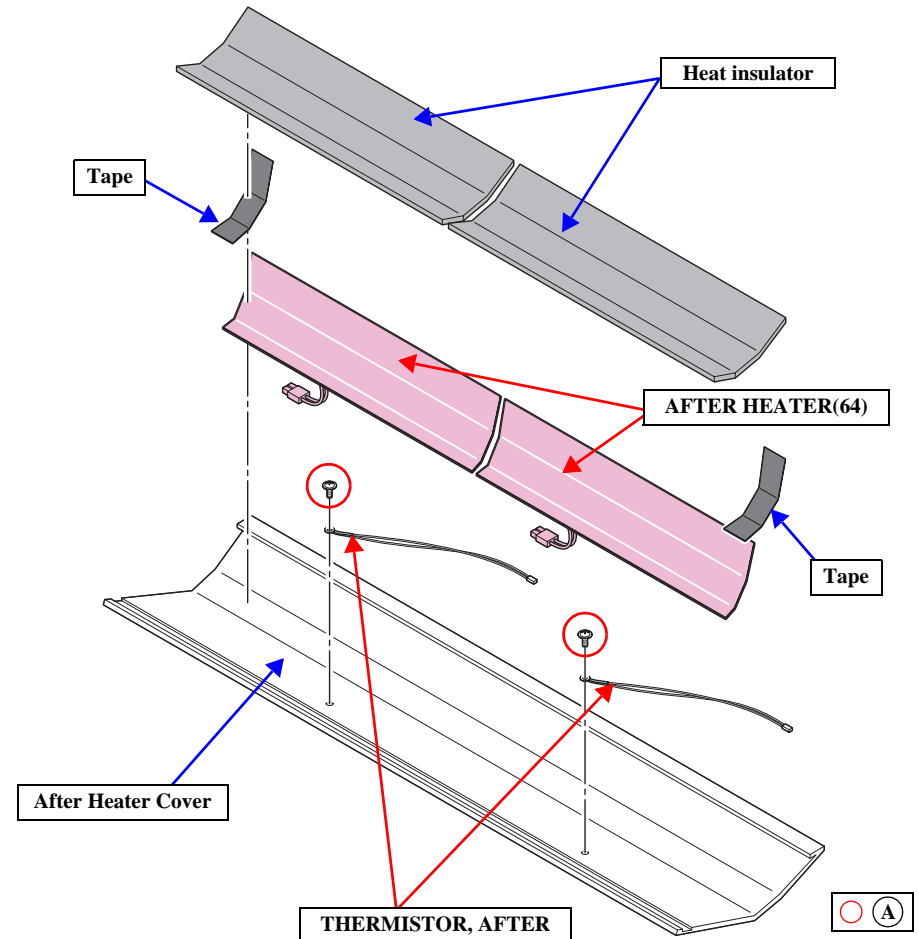
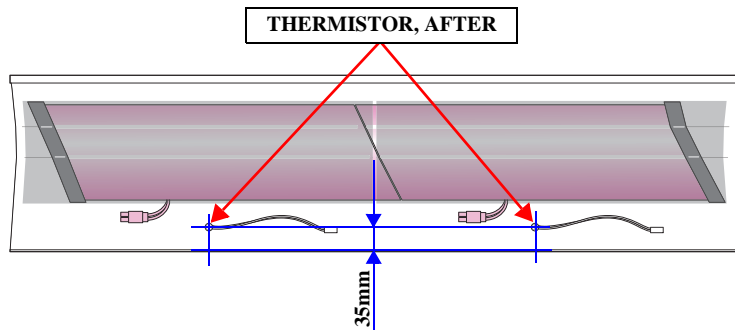


Figure 4-107. Removing the AFTER HEATER (64) and THERMISTOR, AFTER

REASSEMBLY

- When installing the THERMISTOR, AFTER, make sure to follow the standard given in the figure below.



- Before pasting the tape, make sure the heaters are correctly oriented, with the connectors cables coming out on the Thermistors' side.

**ADJUSTMENT
REQUIRED**

Be sure to refer to Chapter 5 “Adjustment” ([see p179](#)) and perform specified adjustments after replacing or removing this part.

<Adjustment item>

1. Heater Test

4.4.9 Carriage Mechanism

4.4.9.1 CR BELT

1. Remove the TOP COVER (L & R). (p83)
2. Remove the PANEL COVER, T (p84) and MAINTENANCE COVER T. (p86)
3. Remove the SIDE COVER (L & R). (p87)
4. Unlock the Carriage and move it to the center. (p81)
5. Loosen the two adjustment screws of the Driven Pulley to relieve the tension of the CR BELT.

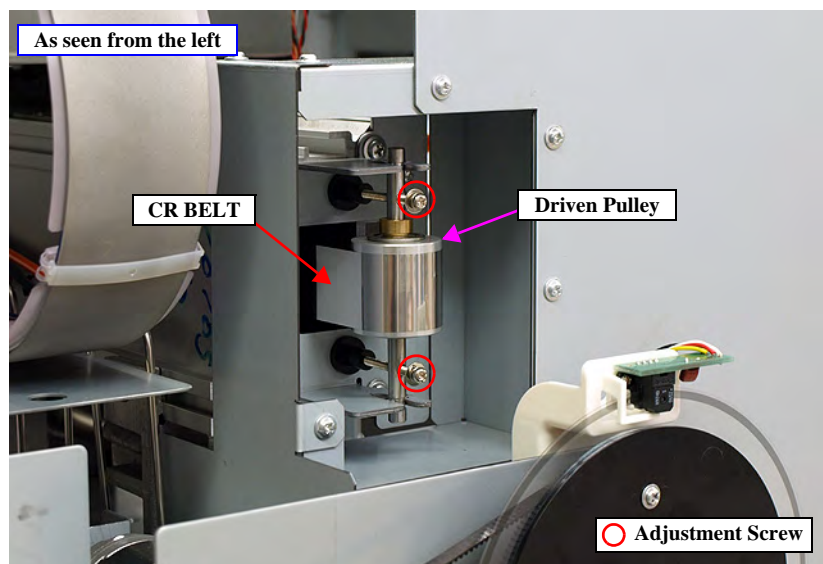


Figure 4-108. Relieving the tension of the CR BELT

6. Remove the two screws beside the Carriage.
 - A) Silver, Phillips, Pan with S.W & P.W M3x40: two pieces
7. Draw out the CR BELT through the hole behind to remove it.

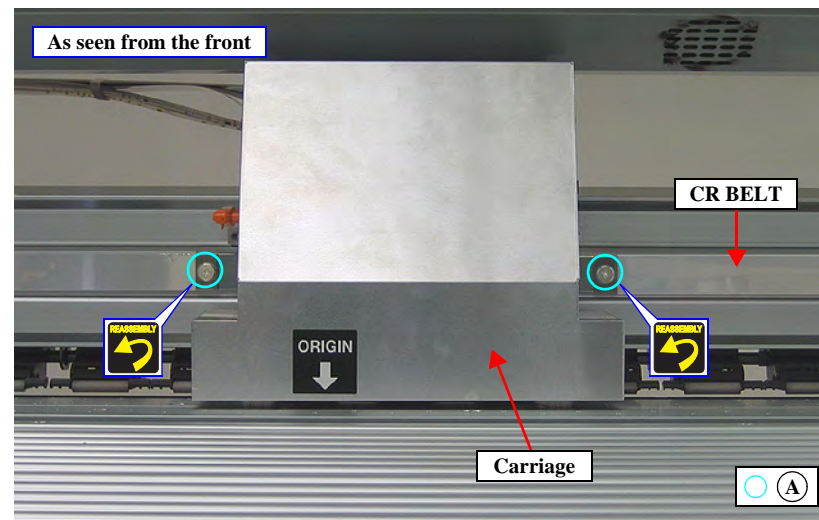
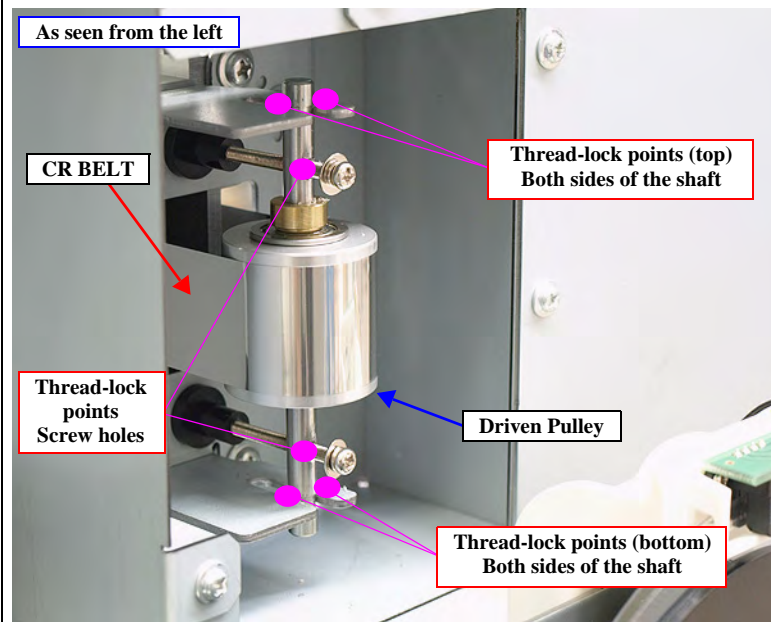


Figure 4-109. Removing the CR BELT

REASSEMBLY



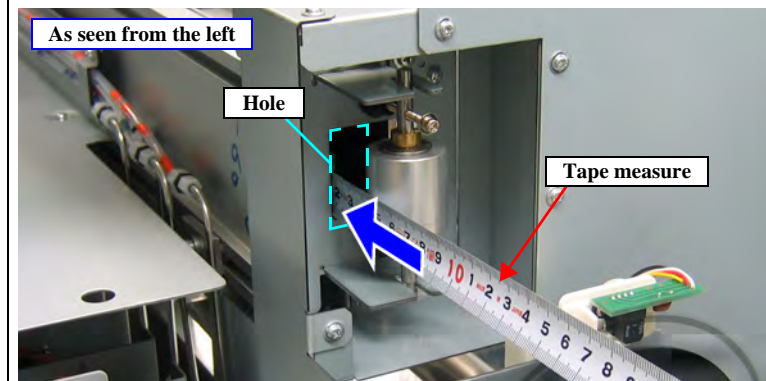
- When reassembling the CR BELT, make sure to replace the screws with new ones. These screws can be used only once. *See Figure 4-109.*
- After installing the belt and carrying out the specified adjustment, make sure to secure the adjustment screws and shaft of the Driven Pulley with thread-locker (x6) as shown below.
- Make sure you do not drop thread-locker on the CR Belt or on the pulley as it would prevent it from running smoothly.



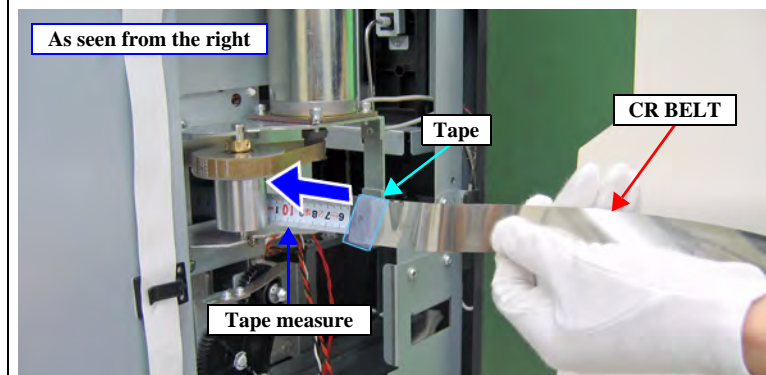
REASSEMBLY



- When putting the CR BELT through the hole, follow the steps below.
1. Put some tape around the hole edges (both sides) to prevent damaging the CR BELT.
 2. Pass a tape measure through the hole.



3. Attach the CR BELT to the tip of the tape measure with tape.
4. Draw the scale from the hole carefully to pass the belt through the hole.

ADJUSTMENT
REQUIRED

Be sure to refer to Chapter 5 “Adjustment” (*see p179*) and perform specified adjustments after replacing or removing the CR Belt.

- <Adjustment items>
1. CR Belt Tension Adjustment
 2. Media Side Margin Adjustment

4.4.9.2 CR REDUCTION BELT

1. Remove the TOP COVER (L & R). (p83)
2. Remove the PANEL COVER, T (p84) and MAINTENANCE COVER T. (p86)
3. Remove the SIDE COVER (L & R). (p87)
4. Unlock the Carriage and move it to the center. (p81)
5. Loosen the two adjustment screws of the Driven Pulley on the left side to relieve the tension of the CR BELT. *See Figure 4-108.*
6. Loosen the four screws that secure the CR MOTOR on the right side to relieve the tension of the CR REDUCTION BELT. *See Figure 4-120.*
7. Pull the Drive Pulley on the right slightly toward you and draw out the CR REDUCTION BELT from the space between the frame and the shaft of Driven Pulley to remove it.



Be sure to refer to Chapter 5 “Adjustment” (*see p179*) and perform specified adjustments after replacing or removing the CR BELT and the CR REDUCTION BELT.

<Adjustment items>

1. CR Belt Tension Adjustment
2. CR Reduction Belt Tension Adjustment

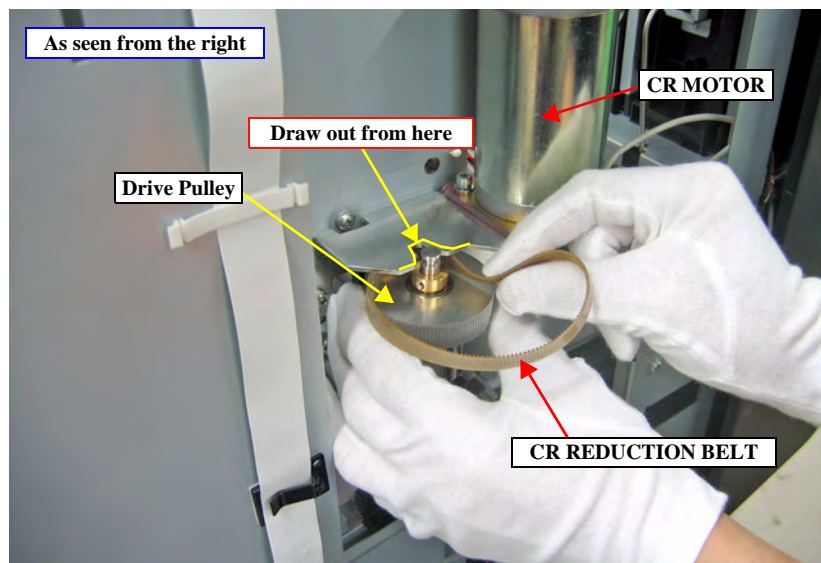


Figure 4-110. Removing the CR REDUCTION BELT

4.4.9.3 CR ENC SCALE

CAUTION


Pay attention to the following instructions:

- Do not touch the CR ENC SCALE with bare hands or with gloves stained with ink.
- Do not damage the CR ENC SCALE.
- Handle the Extension Spring in a way that does not extend it.

1. Remove the TOP COVER (L & R). (p83)
2. Remove the PANEL COVER, T (p84) and MAINTENANCE COVER T. (p86)
3. Remove the SIDE COVER (L & R). (p87)
4. Remove the REAR COVER. (p93)
5. Unlock the Carriage and move it to the center. (p81)
6. Remove the right end of the spring from the CR ENC SCALE on the left side.

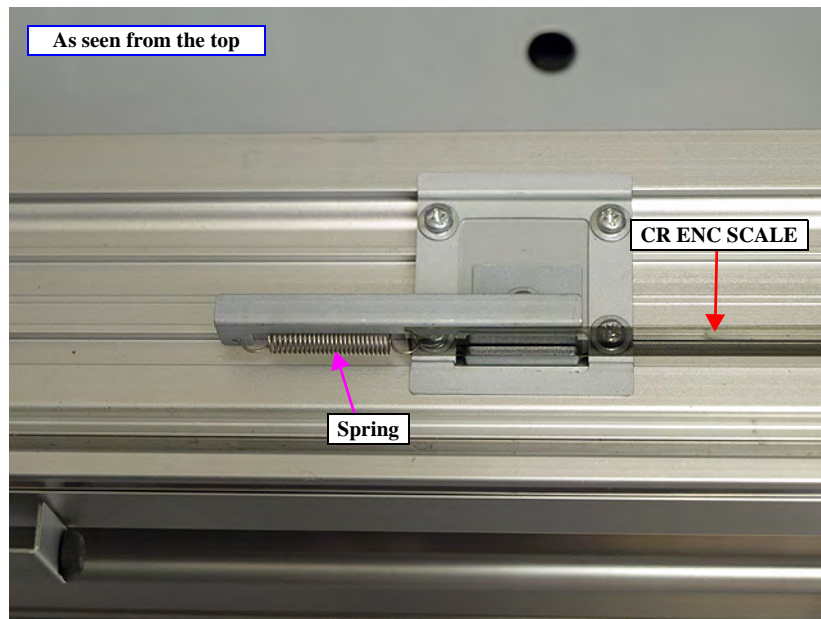


Figure 4-111. Removing the spring

7. Remove each screw in the middle and remove the fixing plates one by one from the left to the right (three plates in total).

A) Silver, Phillips, Cup M3x6: three pieces

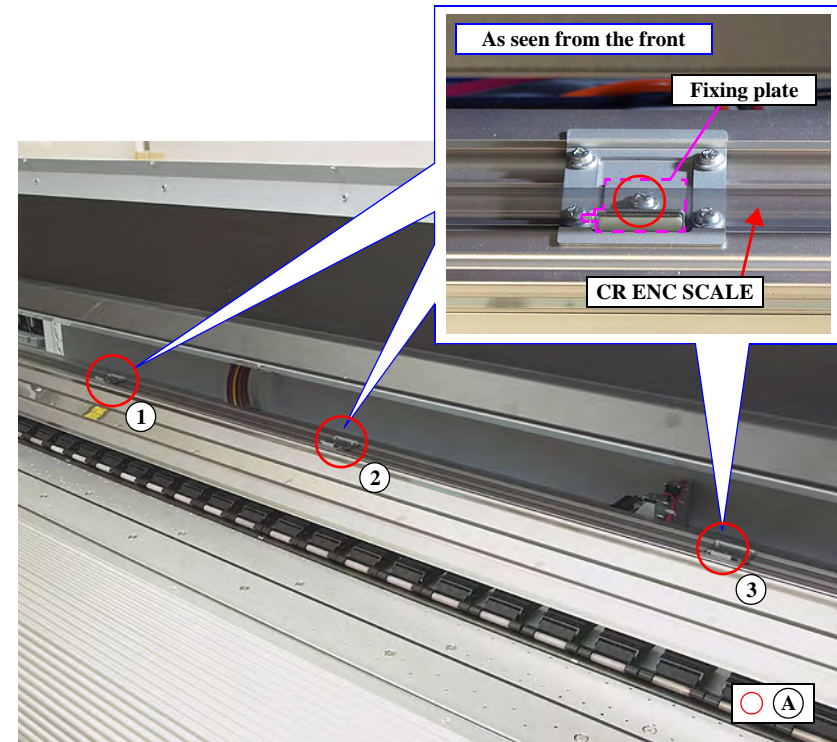


Figure 4-112. Removing the fixing plates

8. Detach the scale from the hook and remove it.

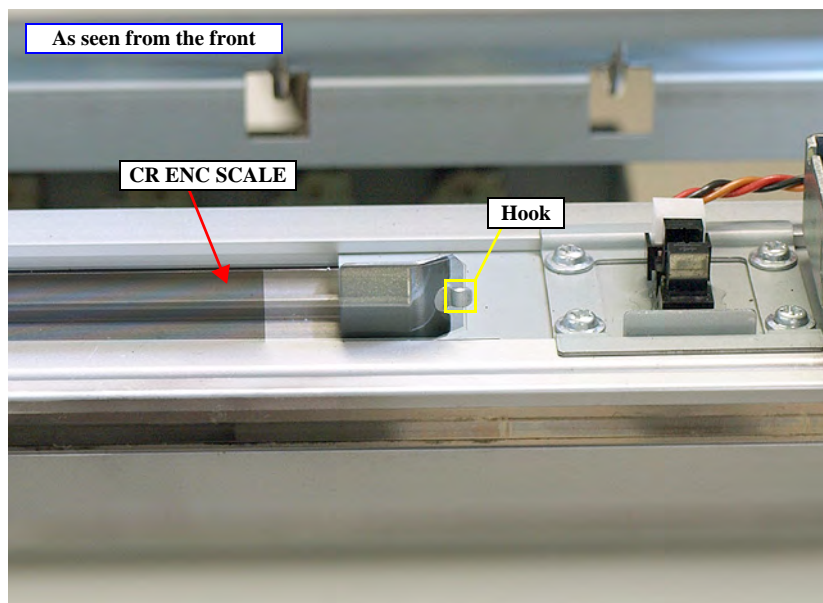


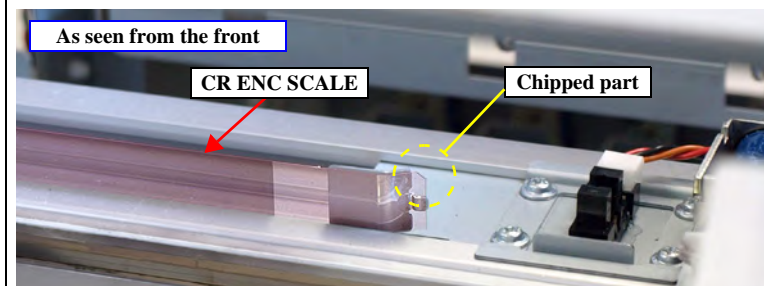
Figure 4-113. Removing the CR ENC SCALE

REASSEMBLY

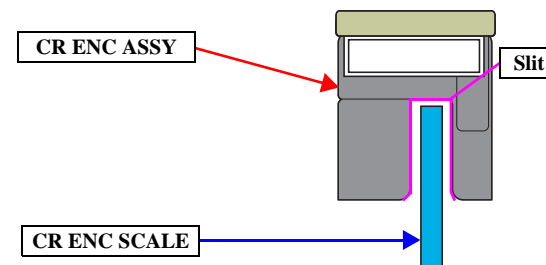


When installing the CR ENC SCALE, pay attention to the following instructions.

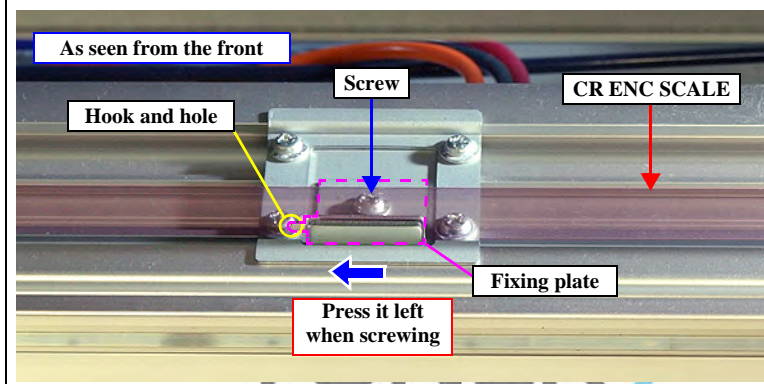
- Set the chipped part of the Scale facing upward.



- Pass the scale through the slit of the CR ENC ASSY.



- When attaching each fixing plate from the right to left (as seen from the front), first insert the hook in the hole of the scale, and screw it while pressing the plate to the left.



ADJUSTMENT
REQUIRED

Be sure to refer to Chapter 5 “Adjustment” ([see p179](#)) and perform specified adjustments after replacing or removing this part.

<Adjustment item>

1. Encoder Test



4.4.9.4 CR LOCK SOLENOID

1. Remove the TOP COVER (right only). (p83)
2. Remove the SIDE COVER (right only). (p87)
3. Remove the IH COVER (right only). (p88)
4. Unlock the Carriage and move it to the center. (p81)
5. Disconnect the relay connector at the rear.

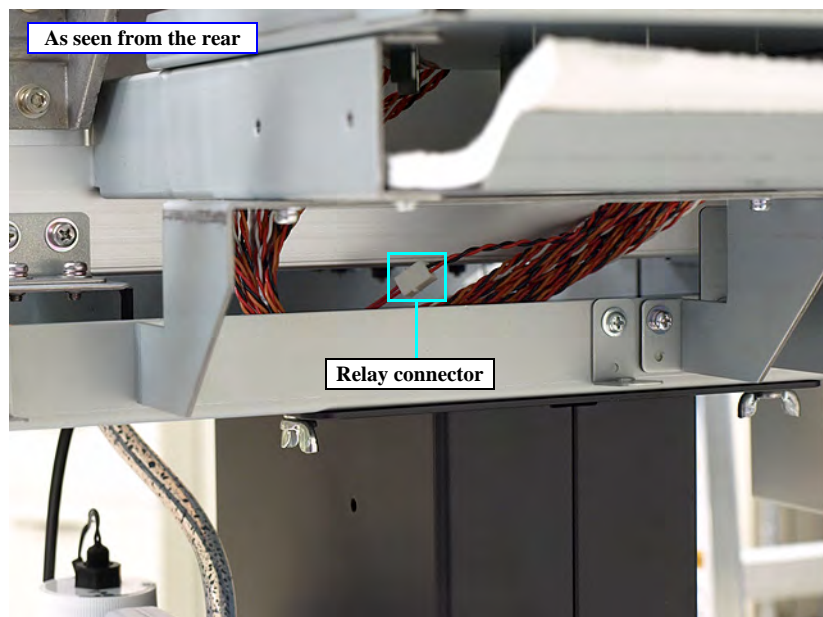


Figure 4-114. Disconnecting the relay connector at the rear

6. Release the cable from the three clamps.

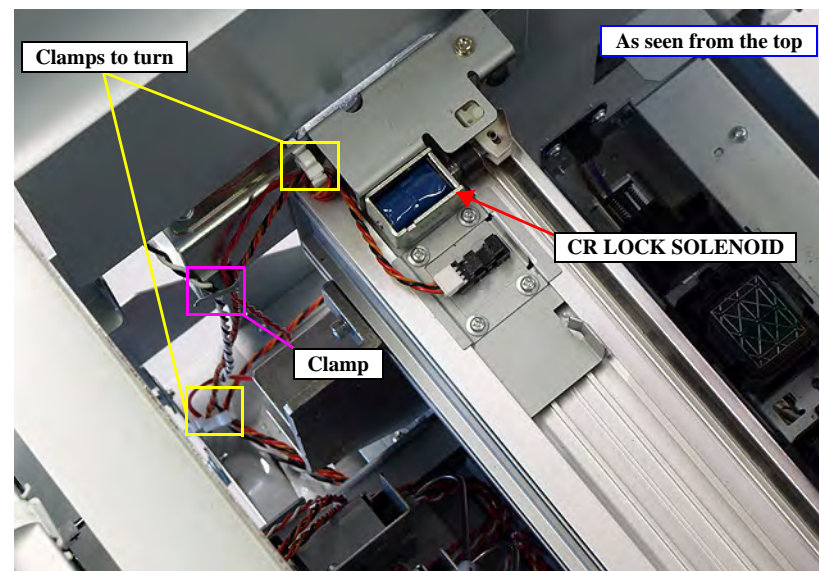


Figure 4-115. Releasing the cable

7. Remove the screw from the right that secures the Inner Side Plate.
 - A) Silver, Phillips, Cup M3x6: one piece

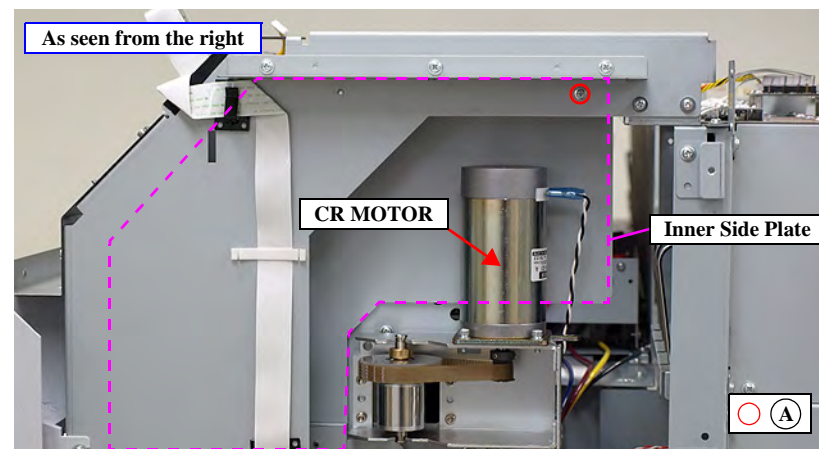


Figure 4-116. Removing the Inner Side Plate (right side)

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8. Remove the screw and remove the Inner Side Plate.

A) Silver, Phillips, Cup M3x6: one piece

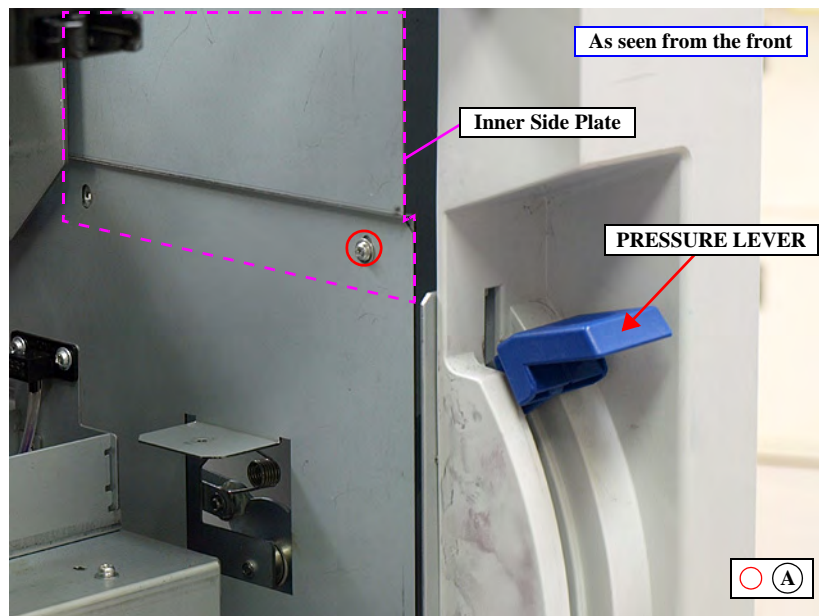


Figure 4-117. Removing the Inner Side Plate (front)

9. Remove the two screws from the holes on the right side.

A) Silver, Phillips, Cup M3x6: two pieces

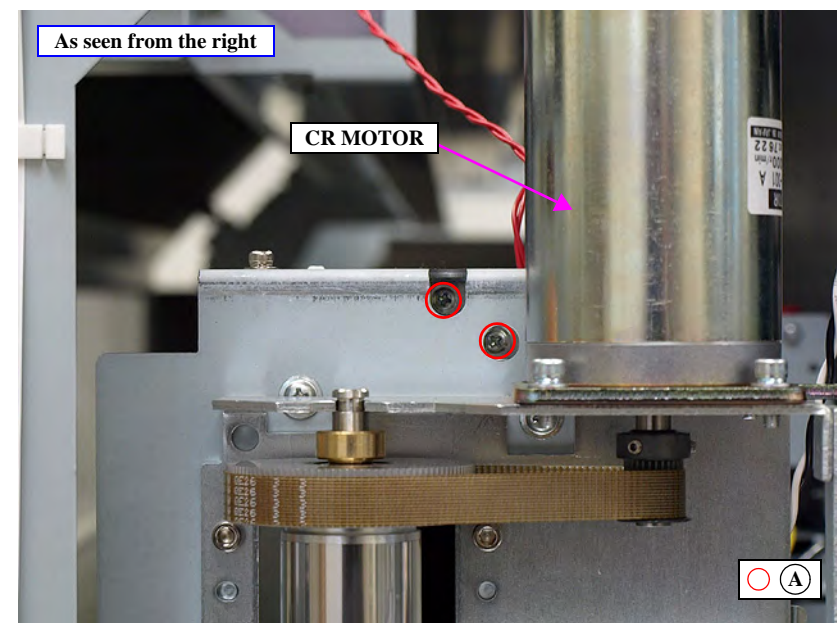


Figure 4-118. Removing the screws (right side)

CAUTION

In the next step, the shaft will drop unless holding it from under the shaft when removing the screw.

**ADJUSTMENT
REQUIRED**

Be sure to refer to Chapter 5 “Adjustment” ([see p179](#)) and perform specified adjustments after replacing or removing this part.

<Adjustment item>

1. Solenoid Test

10. Holding the shaft from under, remove the screw and the shaft.

A) Silver, Hexagon socket M3x8: four pieces

11. Pressing the bearing down and remove the CR LOCK SOLENOID.

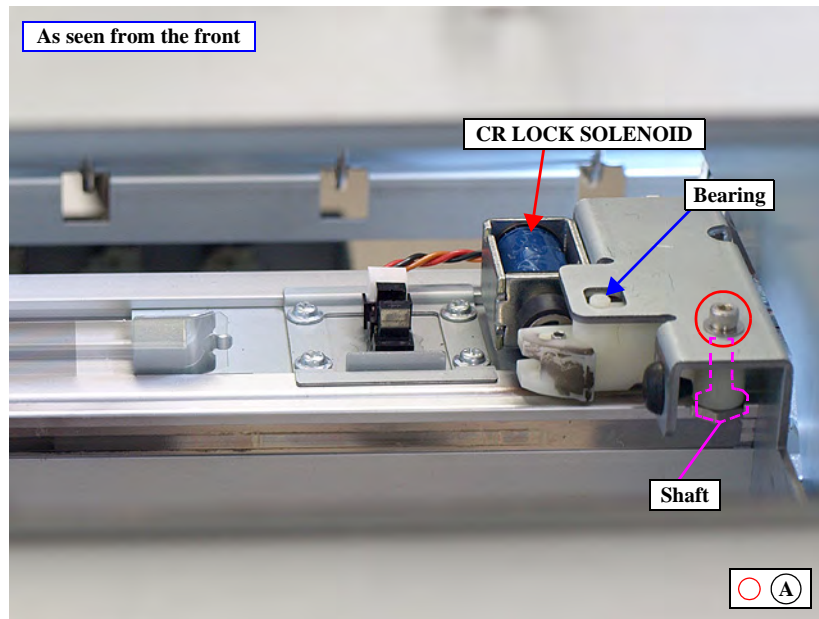


Figure 4-119. Removing the CR LOCK SOLENOID

REASSEMBLY

- When routing the cable, make sure to give it one turn around the marked clamp. [See Figure 4-115.](#)
- Make sure the bearing is correctly lubricated and moves smoothly before reassembling. [See p241](#) for Lubrication details.

4.4.9.5 CR MOTOR

1. Remove the TOP COVER (right only). (p83)
2. Remove the SIDE COVER (right only). (p87)
3. Remove the IH COVER (right only). (p88)

CAUTION


So as not to confuse the terminals of the CR Motor cable with each other, make sure to mark them in some way before disconnecting them so that you can plug them back correctly.

4. Disconnect the two terminals.
5. Remove the four screws using a hex wrench.
 - A) Silver, Hexagon socket M4x8: four pieces
6. Detach the CR REDUCTION BELT from the pinion, and remove the CR MOTOR while drawing the pinion gear from the hole.

**ADJUSTMENT
REQUIRED**


Be sure to refer to Chapter 5 “Adjustment” (see p179) and perform specified adjustments after replacing or removing the CR MOTOR.

<Adjustment items>

1. CR Belt Tension Adjustment
2. CR Reduction Belt Tension Adjustment
3. Media Side Margin Adjustment

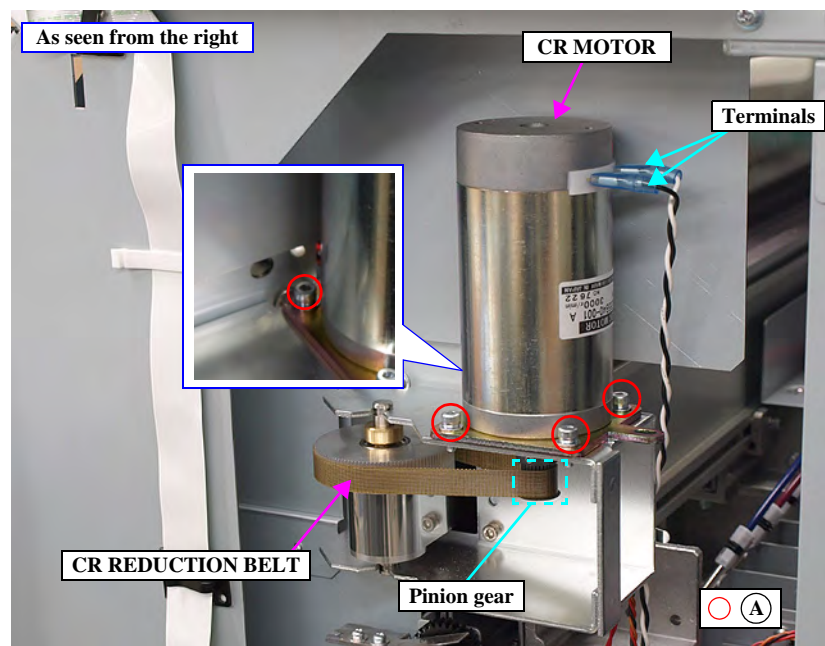


Figure 4-120. Removing the CR MOTOR

4.4.10 Paper Feed Mechanism

4.4.10.1 PF ENC SCALE

1. Remove the TOP COVER (left only). (p83)
2. Remove the MAINT COVER T. (p86)
3. Remove the SIDE COVER (left only). (p87)
4. Remove the two screws on the shaft.
 - A) Silver, Phillips, Pan with S.W & P.W M3x8: two pieces
5. Remove the four screws on the fixing plate and remove the plate.
 - B) Silver, Phillips, Cup P-tite M3x8: four pieces

CAUTION


- In the next step, take care not to damage or contaminate the PF ENC SCALE.
- Do not touch the PF ENC SCALE with bare fingers and make sure your gloves are not stained with ink before touching it.

6. Remove the PF ENC SCALE drawing it out from the slit of the PF ENCODER ASSY.

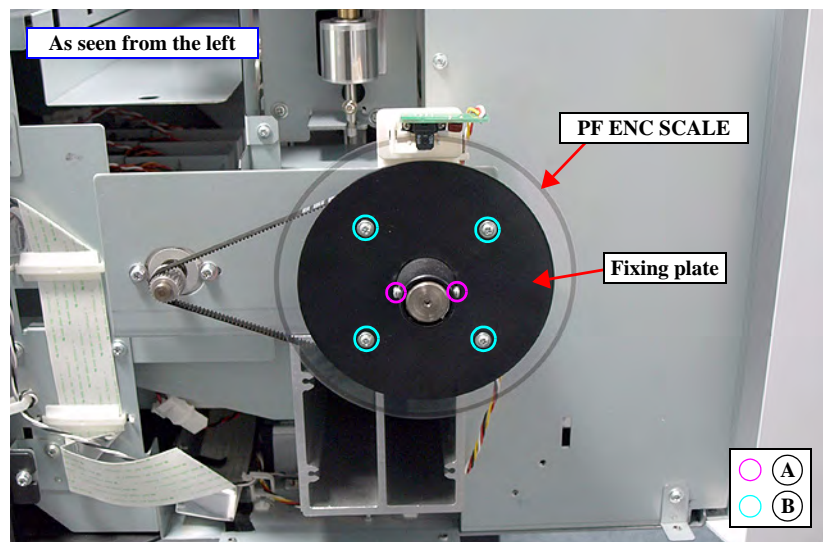
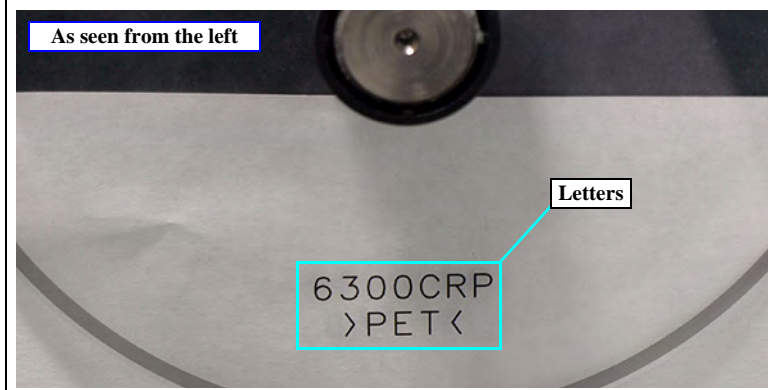


Figure 4-121. Removing the PF ENC SCALE

REASSEMBLY


When installing the PF ENC SCALE, make sure to attach it so that you can read the letters on it correctly.


**ADJUSTMENT
REQUIRED**


Be sure to refer to Chapter 5 “Adjustment” (see p179) and perform specified adjustments after replacing or removing the PF ENC SCALE.

<Adjustment item>

1. Encoder Test

4.4.10.2 PF MOTOR

1. Remove the TOP COVER (left only). (p83)
2. Remove the MAINTENANCE COVER T. (p86)
3. Remove the SIDE COVER (left only). (p87)
4. Disconnect the relay connector.

CAUTION


In the next step, take care not to damage the pinion gear.

5. Remove the two screws, and remove the PF MOTOR by drawing out the pinion gear inward from the PF Timing Belt and the hole.

A) Silver, Phillips, Pan with S.W & P.W M4x8: two pieces

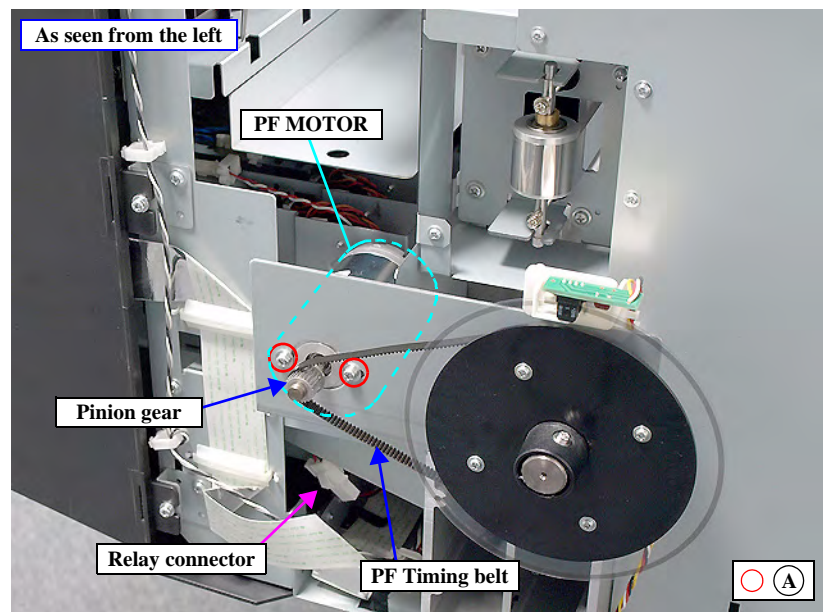
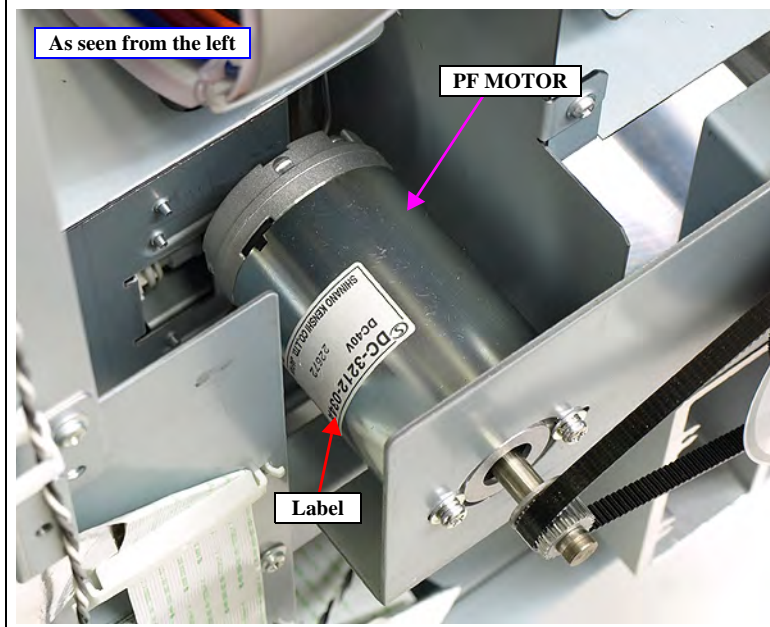


Figure 4-122. Removing the PF MOTOR

REASSEMBLY


When installing the PF MOTOR, make sure to attach it with the label facing upward as shown in the figure below.


**ADJUSTMENT
REQUIRED**


Be sure to refer to Chapter 5 “Adjustment” (see p179) and perform specified adjustments after replacing or removing the PF Motor.

<Adjustment items>

1. PF Reduction Belt Tension Adjustment
2. PF Counter Reset
3. Paper Feed Adjustment

4.4.10.3 PRESSURE ROLLER

CHECK POINT

- This part is used more than one location, but basically you can remove any part in the same way. Therefore this section describes the way to remove one part only.
- In Step 3, be careful not to detach the upper end of the springs. It is difficult to install the upper end in a dim environment.

1. Remove the REAR PAPER GUIDE. (p94)
2. Remove the SPINDLE GUIDE COVER. (p95)

CAUTION

- When removing the Roller Holder, take care not to damage the Feed Roller.
- When replacing a Roller Holder, Make sure it is correctly lubricated. (See p241 for Lubrication details)

3. Detach the two lower ends of springs from the grooves of the Roller Holder.
4. Disengage the shafts on both ends from the grooves, and remove the Roller Holder.

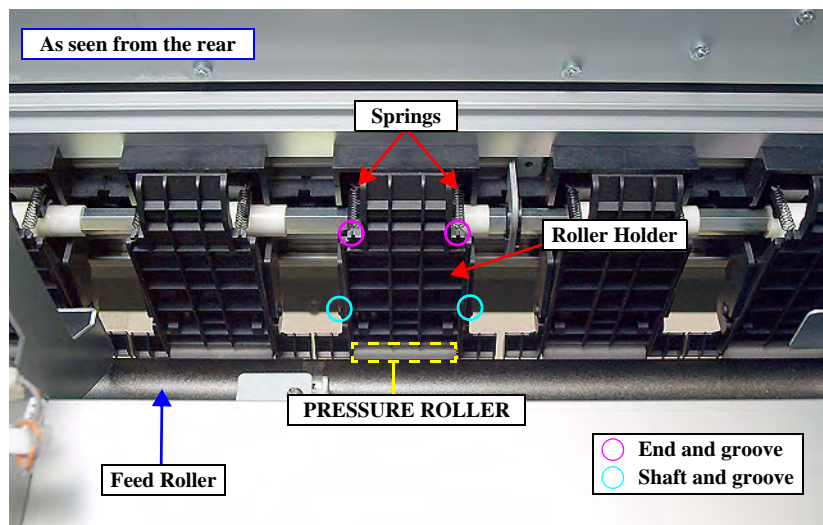


Figure 4-123. Removing the PRESSURE ROLLER with the Roller Holder

5. Disengage the shafts on both ends from the grooves, and remove the PRESSURE ROLLER.

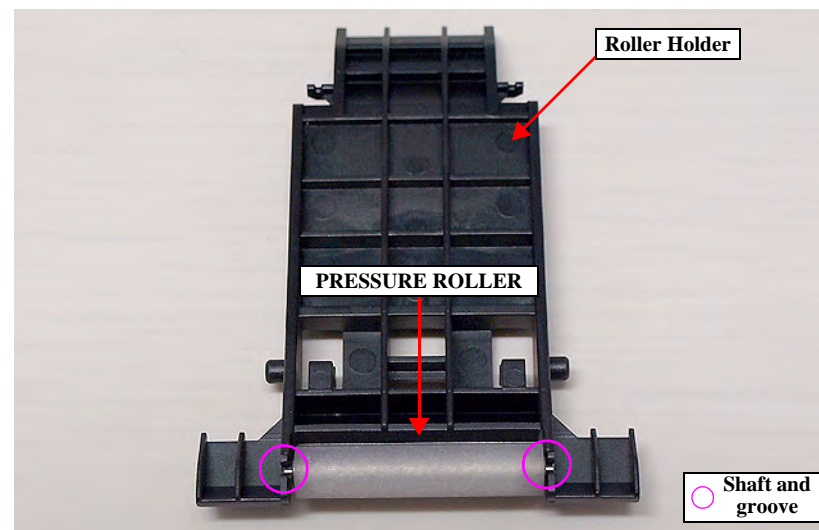


Figure 4-124. Removing the PRESSURE ROLLER

4.4.11 Ink System Mechanism

4.4.11.1 PRINT HEAD/VALVE ASSEMBLY, HEAD

CHECK POINT



There are two heads, but basically you can remove both heads in the same way. Therefore this section describes the way to remove one of the heads only.

CAUTION



- When replacing the PRINT HEAD, make sure to replace the VALVE ASSEMBLY, HEAD together.
- It is also recommended to replace the HEAD WIPER and the HEAD CAPS if they are not in good condition (Dried ink).

1. Unlock the Carriage. (p81)
2. Remove the TOP COVER (left only). (p83)
3. Remove the MAINTENANCE COVER T. (p86)
4. Remove the CR Cover (Step 4 to 6 in 4.4.5.3 COOLING FAN). (p102)
5. Remove the four screws and remove the Left Front Plate (not an ASP).
 - A) Silver, Phillips, Pan with S.W & P.W M4x8: four screws

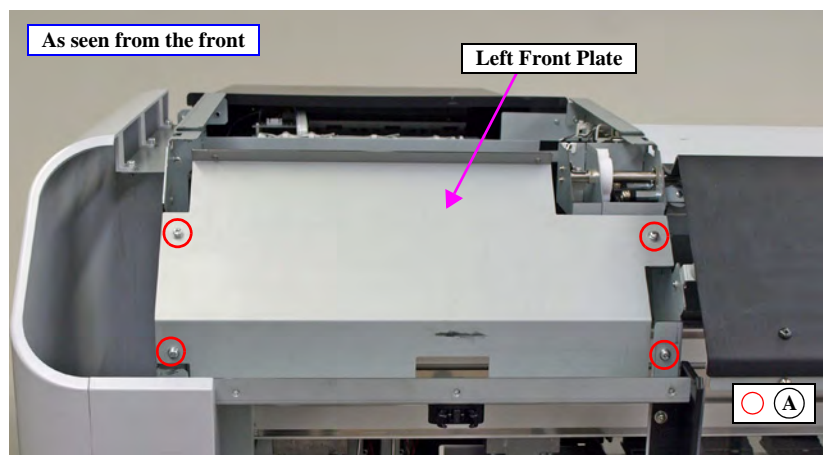


Figure 4-125. Removing the Left Front Plate

6. Move the Carriage back to the left end.
7. Remove the two screws and remove the two grounding wires.

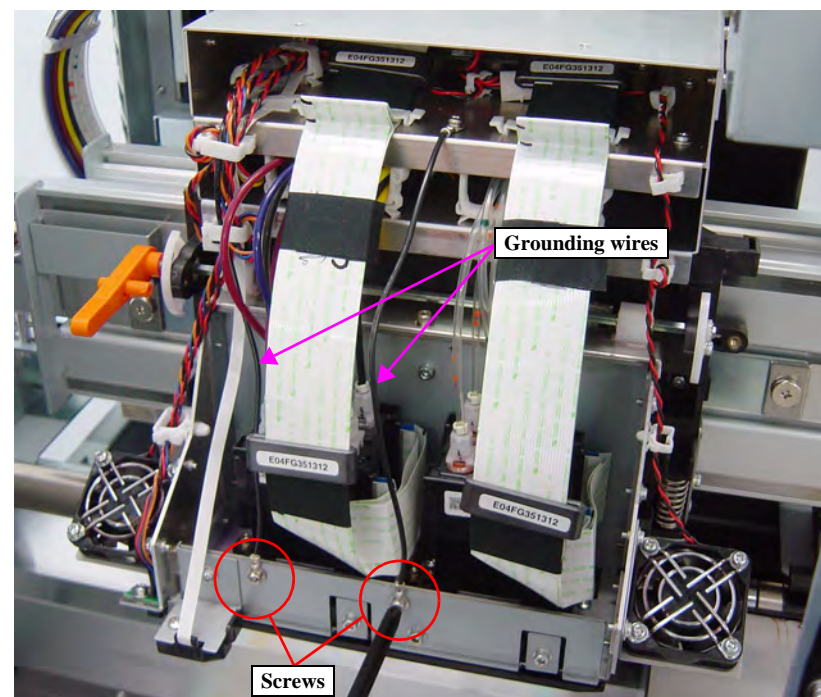


Figure 4-126. Removing the grounding wires

CAUTION

- In the next step, make sure to secure the FFC & Tube Holder Jig with a clip or tape to the Top Cover. Otherwise, the jig may drop while working.
- An improved jig with anti-slip tapes pasted on the lower branches of the jig is now available. For this improved version, securing the jig is not necessary.

8. Disconnect the FFC from the PRINT HEAD.
9. While securing the FFC in the middle, attach the FFC & Tube Holder Jig to the Top Cover.

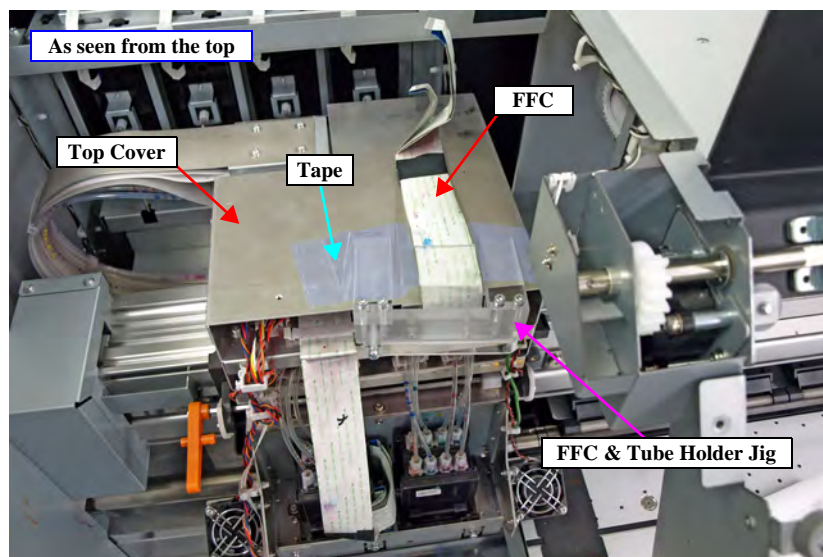


Figure 4-127. Removing the FFC and attaching the FFC & Tube Holder Jig

10. Remove one plug of the tubes with a precision driver or a similar tool from the Print Head, and wait for about 15 seconds until the ink flows back by the point shown below and plug the tube back in place once.

CAUTION

- Before proceeding to the next step, make sure to confirm the first tube is plugged back in place firmly. Otherwise, ink will spill when the other tube is unplugged.
- You may also remove the tubes by twisting the connector 90degrees to any direction and pulling it upwards.

11. Do the same procedure to the other tube of the same color and unplug the first tube again, then put both tubes to the hook of the jig as shown in the figure.
12. Remove all the other tubes by doing the same procedure to the tubes of the same color.

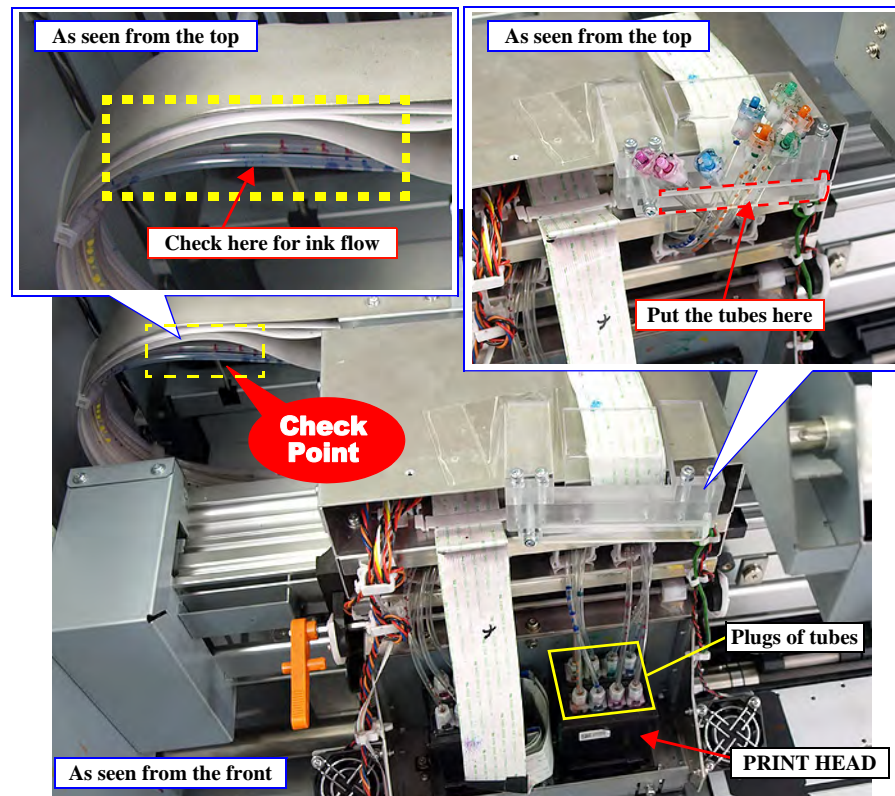


Figure 4-128. Removing the tubes

REASSEMBLY

To make the reassembling operation easier, it is recommended to connect the ink tubes and FFC before attaching the PRINT HEAD to the carriage.

CAUTION

In the next step, take care not to remove the wrong screws. Those screwed outside differ from those screwed inside in size and length.

13. Remove the three screws at the bottom of the Head Base.
 - A) Silver, Hexagon socket M3x8: three pieces
14. Remove the screw from the front side and remove the spring from inside. (right head only)
 - B) Silver, Hexagon socket M3x12: one piece
15. Lift the PRINT HEAD gently while pushing the square part at the front bottom, and remove the PRINT HEAD with the Head Base.

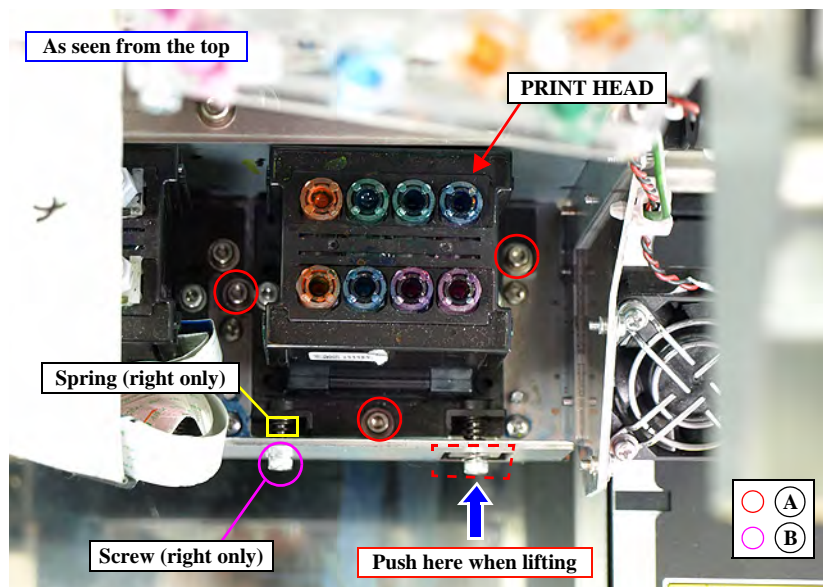


Figure 4-129. Removing the PRINT HEAD with the Head Base

16. Place the PRINT HEAD on the jig aligning the head with the hole of the jig (Head Holder) as shown below.
17. Disengage the hooks on both sides, and remove the HEAD COVER.
18. Remove the two screws on both sides, and remove the PRINT HEAD (with the VALVE ASSEMBLY, HEADs contained inside) from the Head Base.
 - A) Silver, Hexagon socket M3x8: two pieces

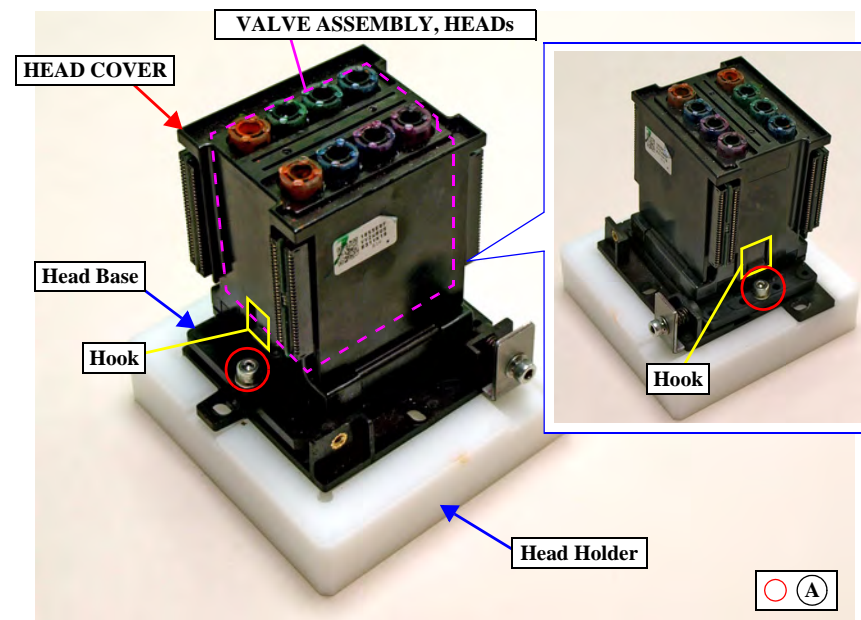


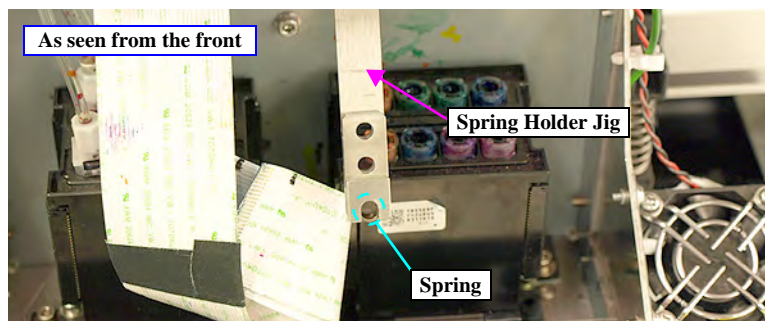
Figure 4-130. Removing the PRINT HEAD (with the VALVE ASSEMBLY, HEADs)

REASSEMBLY

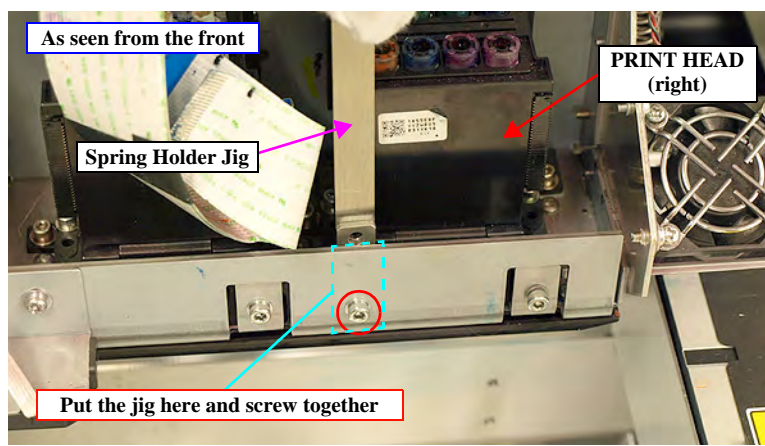


When installing the spring between the PRINT HEAD and the frame (See Figure 4-129), follow the procedure below using the Spring Holder Jig. (the right one only)

1. Attach the spring to the tip of the Spring Holder Jig.



2. Put the jig in place. (See Figure 4-129 and the figure below.)
3. Screw the PRINT HEAD together with the jig (and the spring).
4. Pull up the jig to remove it.



REASSEMBLY



Fit the new head on the Head Base, in the Head holder jig in order to fit the new VALVE ASSYS and the HEAD COVER in the new head. (Previous Head Base and HEAD COVER can be re-used but not the valve assys.)

At this point it is useful to write down the head ID as it has to be registered during the adjustment. (See p205 for the Head Alignment Adjustments).

ADJUSTMENT
REQUIRED

Be sure to refer to Chapter 5 “Adjustment” (see p179) and perform specified adjustments after replacing or removing this part.

<Adjustment items>

1. Head Rank ID Input
2. Initial Ink Flag
3. Head Counter Reset
4. Nozzle Check Pattern
5. Cleaning and Washing
6. Head Slant and Alignment Adjustment
7. Head Nozzle Alignment Adjustment
8. Head Uni-D/Bi-D Low Gap Adjustment

4.4.11.2 CAP HEAD

CHECK
POINT

There are two CAP HEADs, but basically you can remove both of them in the same way. Therefore this section describes the way to remove one of them only.

1. Unlock the Carriage and move it to the center. (p81)
2. Remove the MAINTENANCE COVER ASSY (right only). (p89)
3. Press down the right side to disengage the hook beneath.
4. Pull up the left side to detach the CAP HEAD.

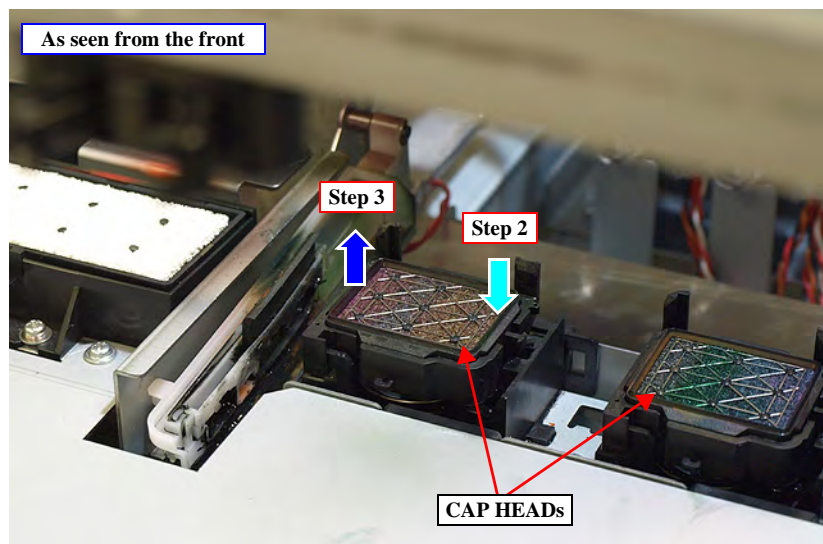


Figure 4-131. Releasing the CAP HEAD

CAUTION



If a tip of the tube is contaminated with ink, make sure to replace it with a new one. For the procedure, see 4.4.11.3 MAINTENANCE ASSY Step 4 and 5. (p158)

5. Pull off the three tubes from the CAP HEAD and remove the head.

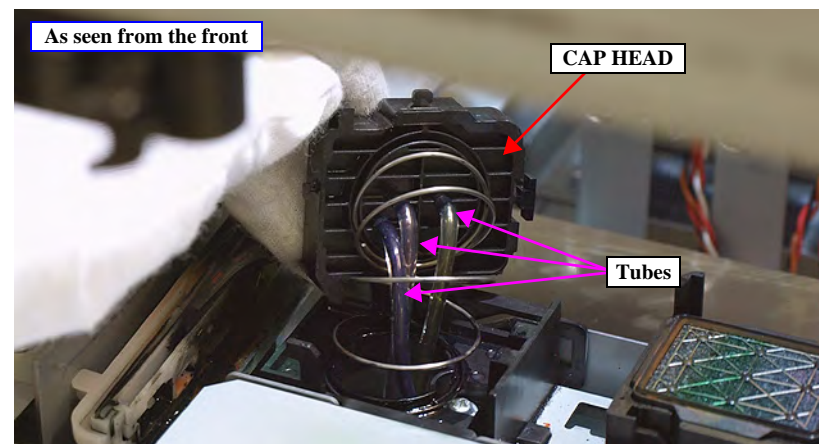
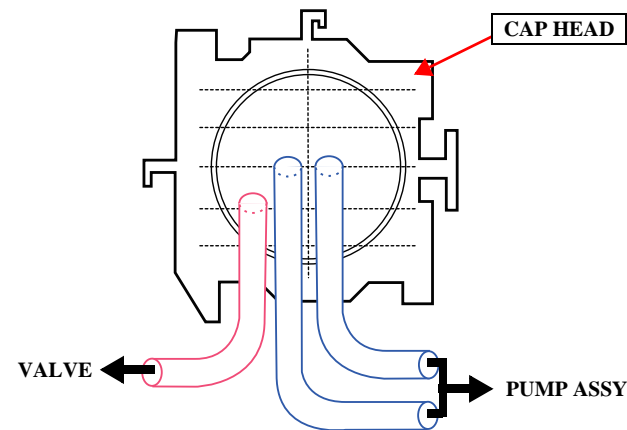


Figure 4-132. Removing the CAP HEAD

REASSEMBLY



- Connect the tubes as shown in the figure below.



- As this part is moving up and down frequently, make sure to confirm that the tubes are securely fitted until the end of the connector to prevent them from dropping with the vibrations.

4.4.11.3 MAINTENANCE ASSY

1. Unlock the Carriage and move it to the center. (p81)
2. Remove the MAINTENANCE COVER ASSY (right only). (p89)
3. Remove the MAINT COVER, B (right only). (p90)
4. Remove the four screws and remove the fixing plate.
 - A) Silver, Phillips, Cup M3x6: four pieces

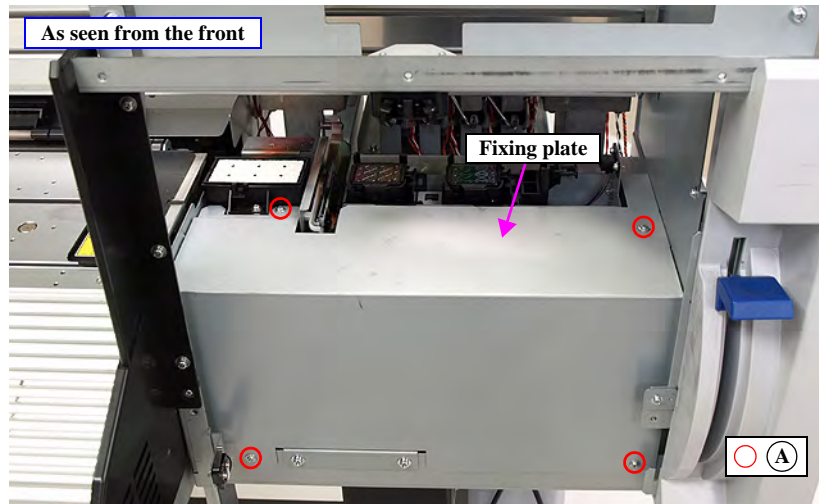


Figure 4-133. Removing the fixing plate

5. Pull off the two tubes with a joint at their ends from the PUMP ASSYs to the right.

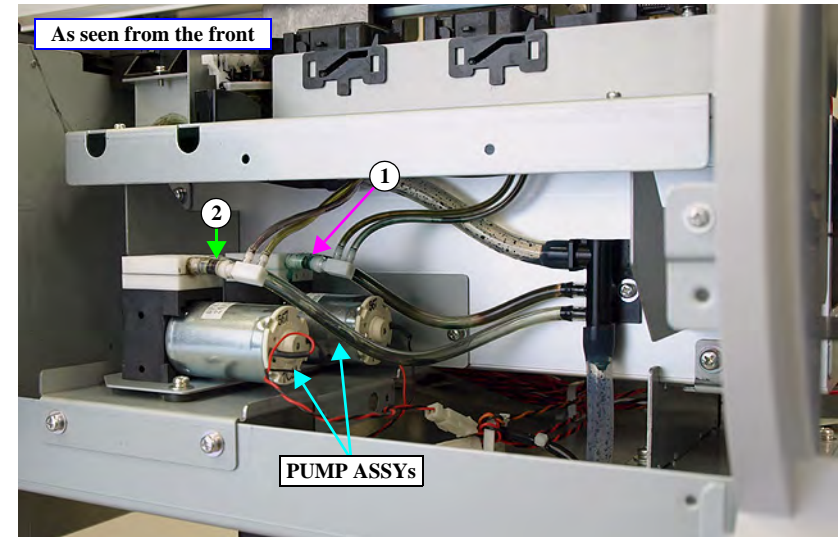


Figure 4-134. Disconnecting the tubes

6. Remove the screw on the right, and remove the screw on the left while pushing the frame to the right as shown below.

A) Silver, Phillips, Cup M3x6: two pieces

CAUTION

If the tip of a tube is contaminated with ink, make sure to replace it with a new one.

7. Remove the MAINTENANCE ASSY drawing out the tubes from the hole beneath.

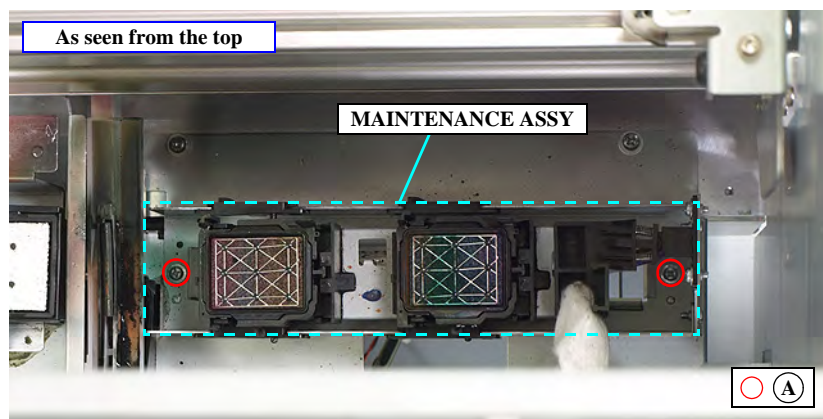
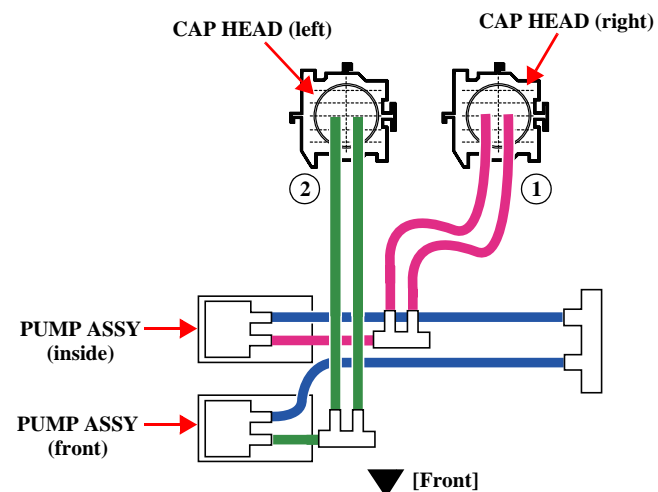


Figure 4-135. Removing the MAINTENANCE ASSY

REASSEMBLY

- Make sure to attach the tube (1) for the CAP HEAD (right) to the one in the rear, and the tube (2) for the CAP HEAD (left) to the one in the front.



- After connecting the tubes, make sure to confirm that the tubes are securely fitted until the end of the connector to prevent them from dropping with vibrations.

4.4.11.4 FLUSHING BOX ASSY

1. Unlock the Carriage and move it to the center. (p81)
2. Remove the MAINTENANCE COVER ASSY (right only). (p89)
3. Remove the screw and remove the FLUSHING BOX ASSY.
A) Silver, Phillips, Pan with S.W & P.W M3x8: one piece

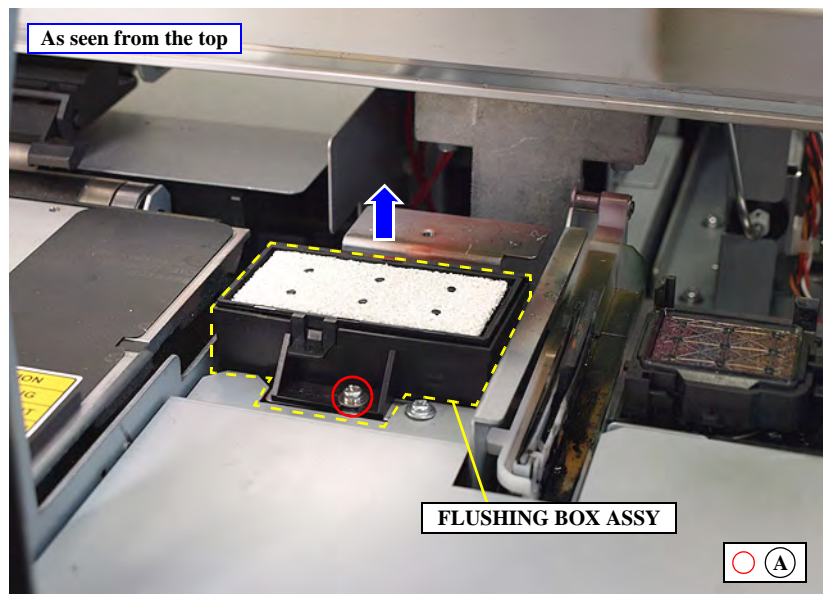


Figure 4-136. Removing the FLUSHING BOX ASSY

4.4.11.5 CLEANER HEAD

1. Unlock the Carriage and move it to the center. (p81)
2. Remove the MAINTENANCE COVER ASSY (right only). (p89)
3. Pry the two tips to disengage the hooks, and pull up the CLEANER HEAD to remove it from the WIPER ASSY.

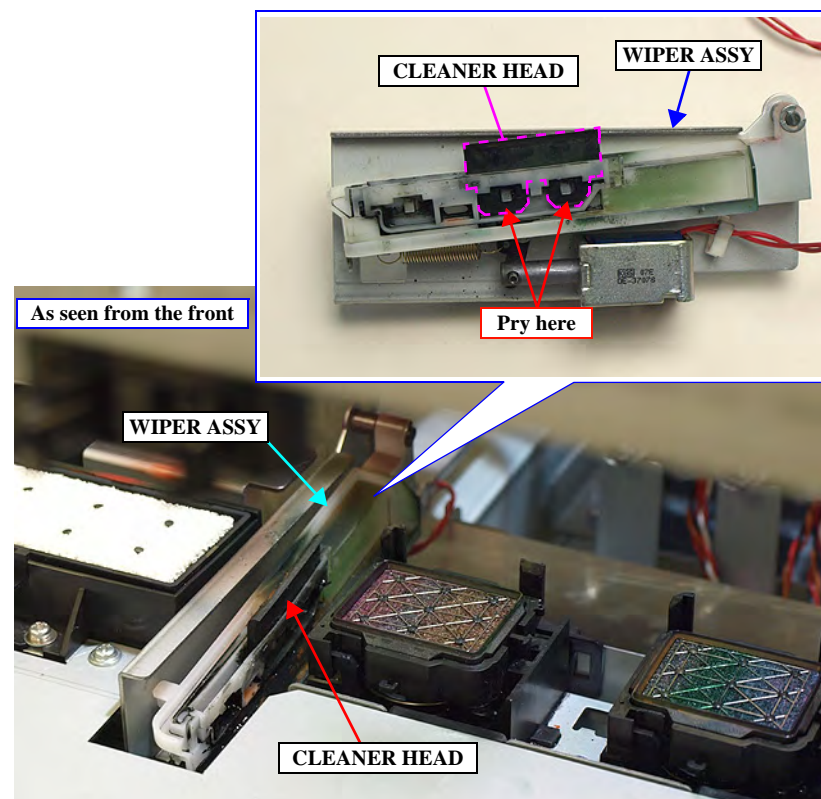


Figure 4-137. Removing the CLEANER HEAD



- Never touch the tip of the CLEANER HEAD with bare fingers as oil on your fingers may damage the print head.
- If too much ink is piling around the CLEANER HEAD, it is recommended to replace the WIPER ASSY also.

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4.4.11.6 WIPER ASSY

1. Unlock the Carriage and move it to the center. (p81)
2. Remove the TOP COVER (right only). (p83)
3. Remove the PANEL COVER (right only). (p84)
4. Remove the SIDE COVER (right only). (p87)
5. Remove the IH COVER (right only). (p88)
6. Remove the REAR PAPER GUIDE. (p94)
7. Remove the SPINDLE GUIDE COVER. (p95)
8. Remove the FLUSHING BOX ASSY. (p160)
9. Disconnect the relay connector.

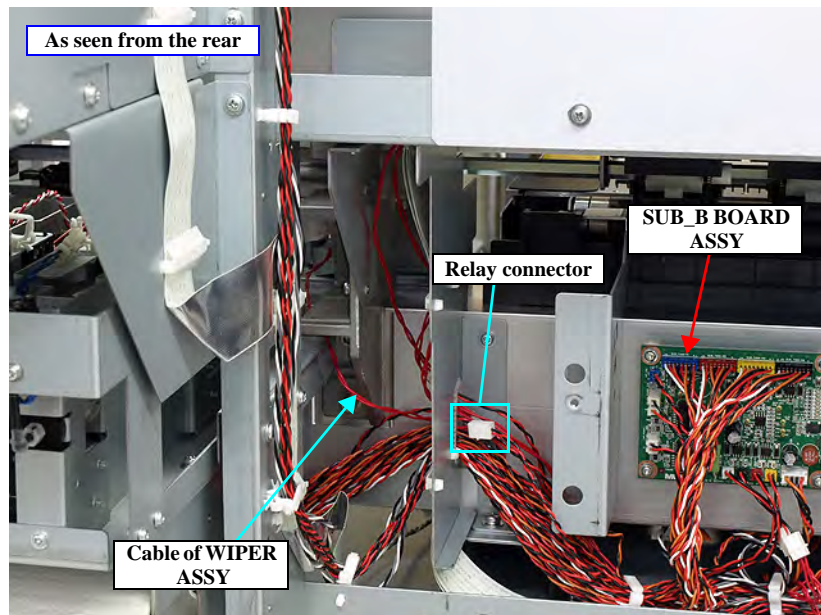


Figure 4-138. Disconnecting the relay connector

10. Remove the screw and remove the WIPER ASSY drawing out the cable from the hole beneath.

A) Silver, Phillips, Cup M3x6: one piece

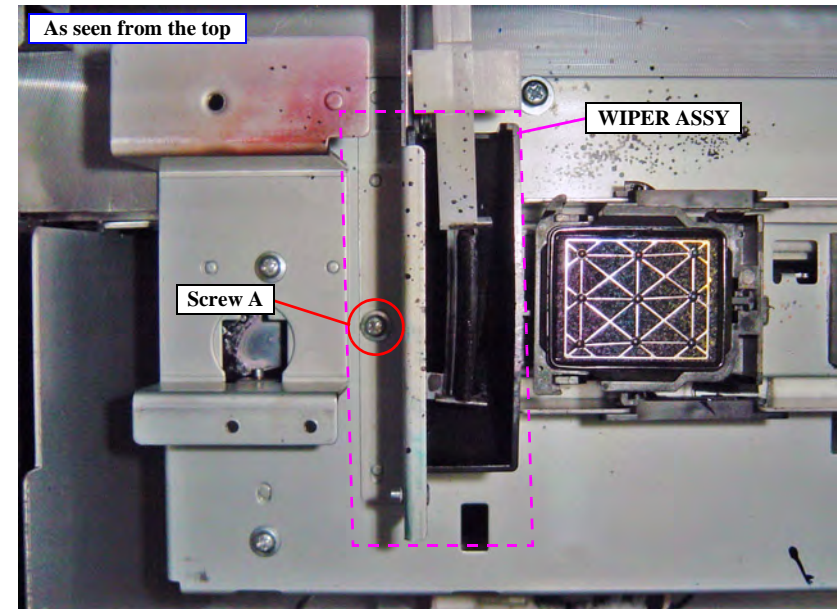


Figure 4-139. Removing the WIPER ASSY

4.4.11.7 PUMP ASSY

1. Unlock the Carriage and move it to the center. (p81)
2. Remove the MAINTENANCE COVER ASSY (right only). (p89)
3. Remove the MAINTENANCE COVER, B (right only). (p90)
4. Remove the four screws and remove the fixing plate. (Step 4 in 4.4.11.3 MAINTENANCE ASSY). (p158)

CAUTION


In the next step, the waste ink in the tubes will come out. Therefore make sure to place something like tissue paper to absorb the ink.

CHECK POINT


Before disconnecting the relay connectors, mark them in some way to distinguish them when reassembling.

5. Disconnect two each tubes ((1) to (4)) from each PUMP ASSY.
6. Disconnect the two relay connectors.

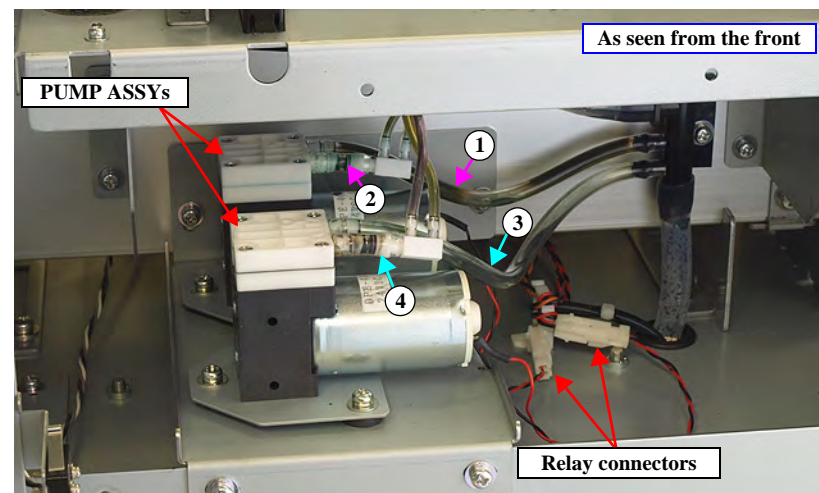
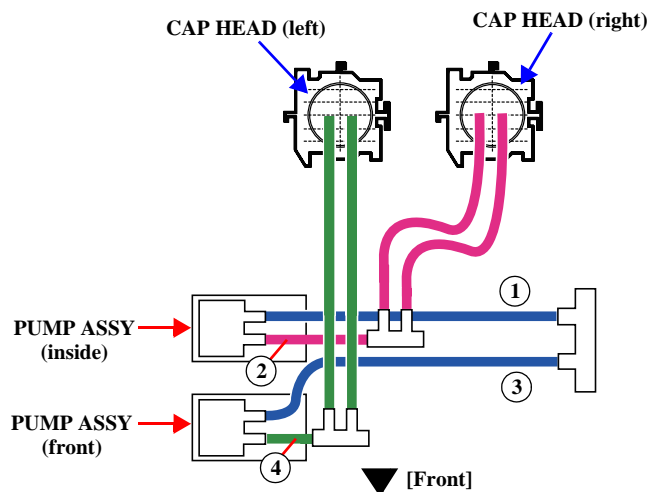


Figure 4-140. Disconnecting the tubes and relay connectors

REASSEMBLY

- Connect the tubes (1) to (4) as shown in the figure below.



- After connecting the tubes, make sure to confirm that the tubes are securely fitted until the end of the connector to prevent them from dropping with vibrations.

7. Remove the four screws and remove the PUMP ASSYs with the fixing plate.

A) Silver, Phillips, Pan with S.W & P.W M4x6: four pieces

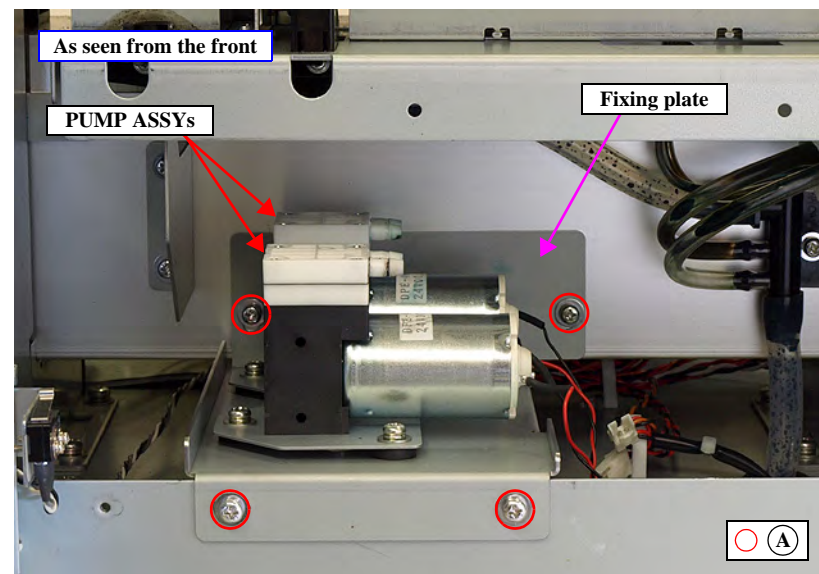


Figure 4-141. Removing the PUMP ASSYs with the fixing plate

8. Remove the three screws (each) from the bottom, and remove the PUMP ASSY.

A) Silver, Phillips, Pan with S.W & P.W M4x6: four pieces

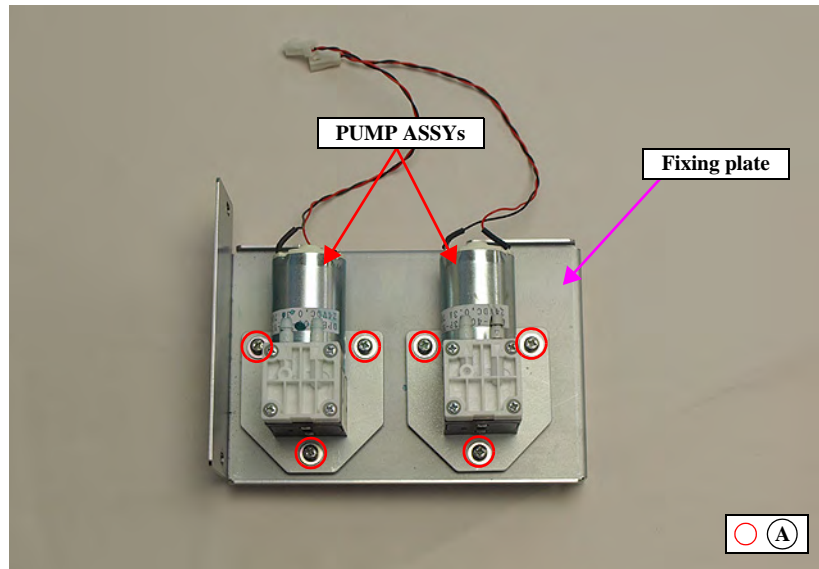


Figure 4-142. Removing the PUMP ASSY



Be sure to refer to Chapter 5 “Adjustment” ([see p179](#)) and perform specified adjustments after replacing or removing this part.

<Adjustment item>

1. Pump Counter Reset

4.4.11.8 TWO WAY VALVE ASSY

CHECK
POINT

- Basically you can remove this part on the left and the one on the right in the same way. Therefore this section describes the way to remove the one on the right only.
- When removing the covers on the left, remove the MAINTENANCE COVER T (p86) in Step 2.
- When removing the IH COVER on the left, remove six screws only. See Figure 4-25.

1. Remove the TOP COVER (L or R). (p83)
2. Remove the PANEL COVER, T (p84) or the MAINTENANCE COVER T (p86).
3. Remove the SIDE COVER (L or R). (p87)
4. Remove the IH COVER (L or R). (p88)

CAUTION



Before proceeding to the next step, make sure to carry out “Ink Discharge”.

5. Disconnect the four relay connectors (on top).

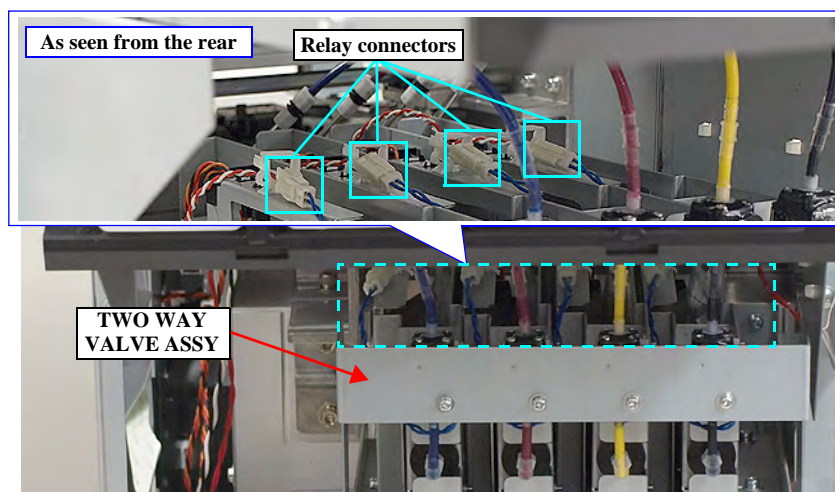


Figure 4-143. Disconnecting the relay connectors

6. Disconnect four tubes from the base.
 7. Disconnect four tubes from the SUB TANK ASSYs.
 8. Remove the four screws (on the sides) and remove the TWO WAY VALVE ASSY.
- A) Silver, Phillips, Cup M3x6: four pieces

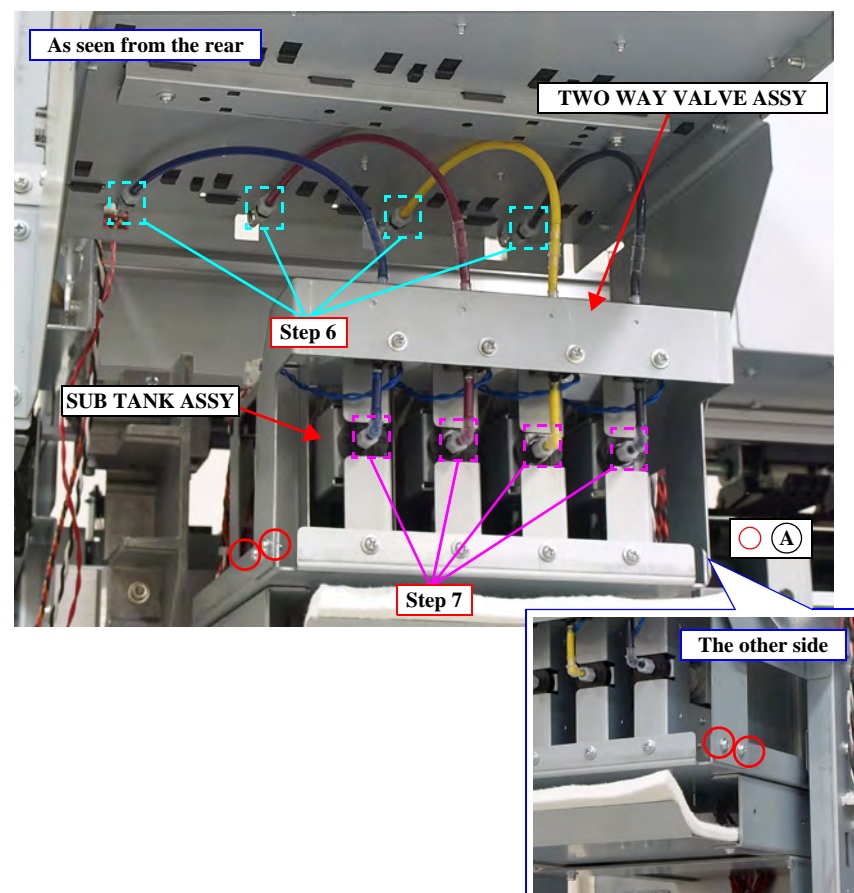
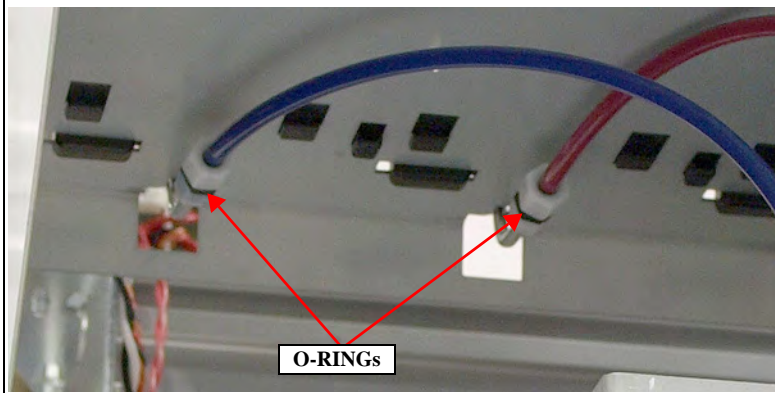


Figure 4-144. Removing the TWO WAY VALVE ASSY

REASSEMBLY

The tube connectors include “O-RINGS” (black rubber rings). To prevent any leak, those O-RINGS have to be replaced with new ones if the connectors are once opened.

**ADJUSTMENT
REQUIRED**

Be sure to refer to Chapter 5 “Adjustment” ([see p179](#)) and perform specified adjustments after replacing or removing this part.

<Adjustment item>

1. Solenoid Test

4.4.11.9 SUB TANK ASSY

1. Discharge ink using the service program. (p203)
2. Remove the TOP COVER (L or R). (p83)
3. Remove the PANEL COVER, T (p84) or the MAINTENANCE COVER T (p86).
4. Remove the SIDE COVER (L or R). (p87)
5. Remove the IH COVER (L or R). (p88)
6. Remove the TWO WAY VALVE ASSY. (p165)
7. Remove the SUB TANK SENSOR. (p129)
8. Disconnect the connector for the solenoid.
9. Release the cables from the 3 clamps.

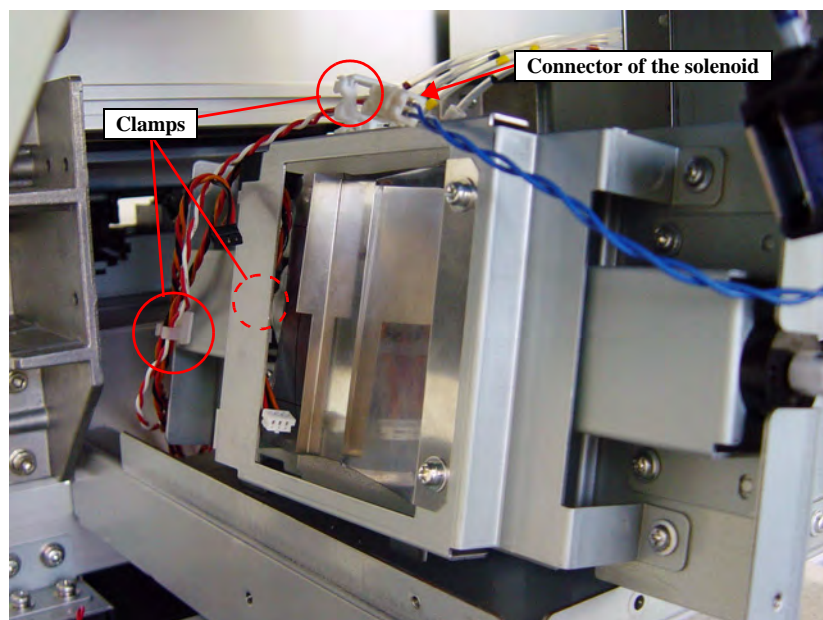


Figure 4-145. Releasing the cable

10. Disconnect the front and rear tubes from the SUB TANK ASSY.

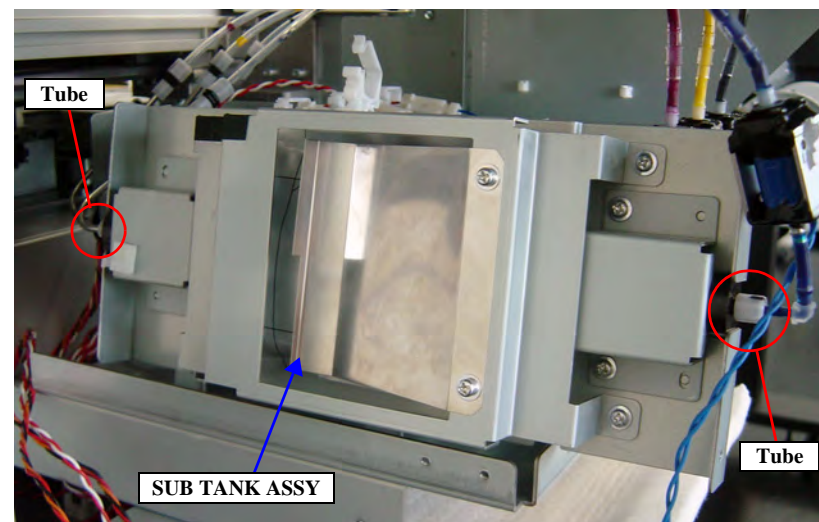


Figure 4-146. Removing the SUB TANK ASSY



The tube connectors include “O-RINGS” (black rubber rings). To prevent any leak, those O-RINGS have to be replaced with new ones if the connectors are once opened.



Detach the assy one by one to the target assy from the outside to the inside.



Be sure to refer to Chapter 5 “Adjustment” (see p179) and perform specified adjustments after replacing or removing this part.

<Adjustment item>

1. Sensor Test



4.4.11.10 INK TUBE, LEFT/INK TUBE, RIGHT

1. Discharge ink using the service program. (p203)
2. Remove the TOP COVER (both). (p83)
3. Remove the REAR COVER. (p93)
4. Unlock the Carriage. (p81)
5. Remove the MAINTENANCE COVER T. (p84)
6. Remove the SIDE COVER (left only). (p87)
7. Remove the IH COVER (left only). (p88)
8. Open the Top Frame with SUB_A BOARD (Step 6 to 12 in 4.4.7.5 CR ENC ASSY). (p126)
9. Remove the two screws to remove the tube holding plate.
 - A) Silver, Phillips, Pan with S.W & P.W M3x8: two pieces
10. Disconnect the ink tubes from tube connectors.

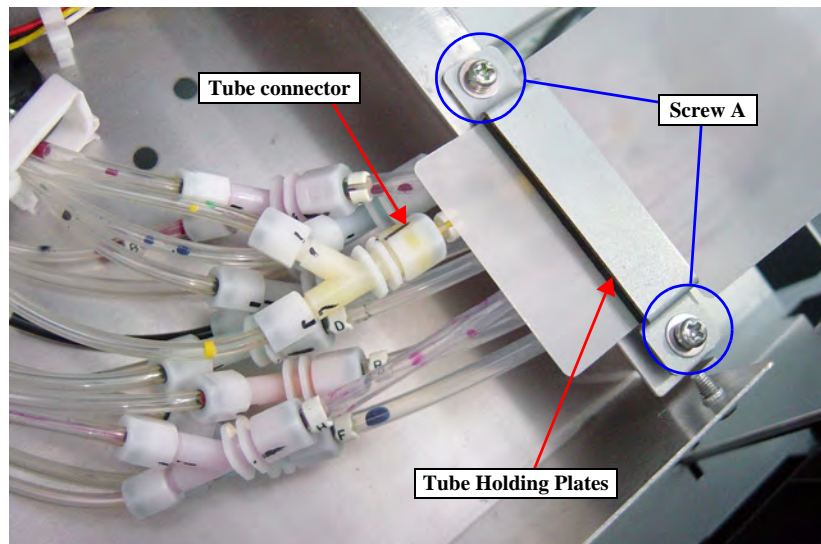


Figure 4-147. Disconnecting ink tubes

11. Release the ink tubes from the tube holders.

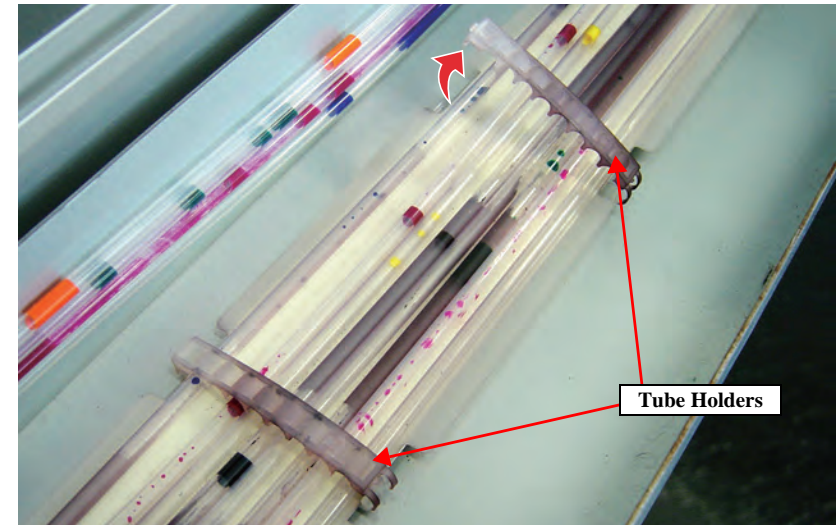


Figure 4-148. Releasing the ink tubes

12. Remove the screws (four each), and remove the two tube holding plates to release the ink tubes.
 - A) Silver, Phillips, Bind P-tite M3x8: each four piece

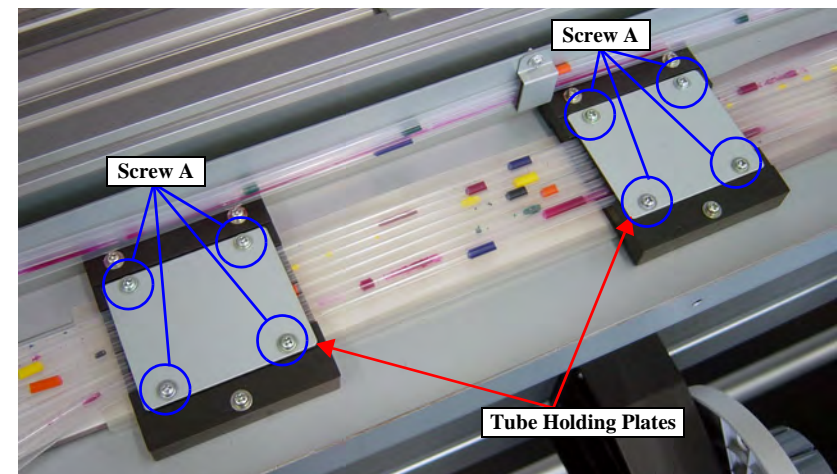


Figure 4-149. Removing the tube holding plates

13. Disconnect the ink tubes from the tube connectors below.

■ When removing INK TUBE, LEFT

Disconnect the tubes connected to the valves on the right side (as seen from the rear).

■ When removing INK TUBE, RIGHT

Disconnect the tubes connected to the valves on the left side (as seen from the rear).

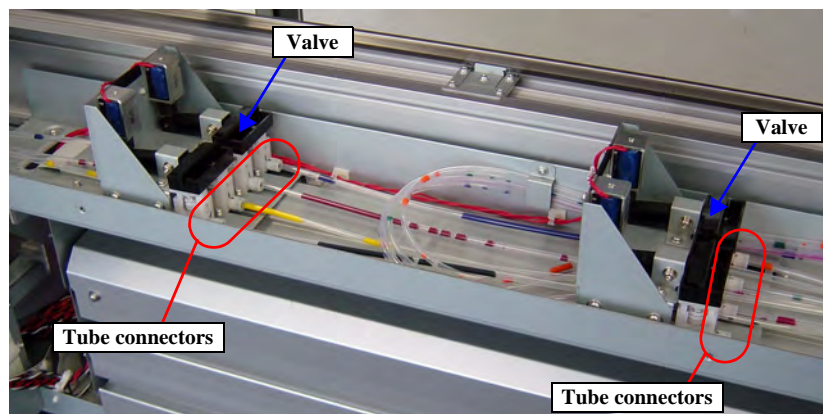
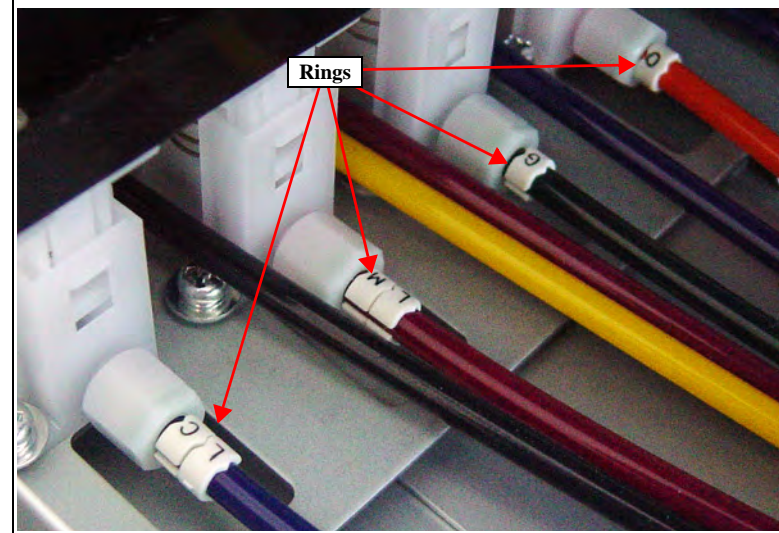


Figure 4-150. Removing the ink tubes



- The tube connectors include “O-RINGS” (black rubber rings). To prevent any leak, those O-RINGS have to be replaced with new ones if the connectors are once opened.
- When replacing the ink tubes with new ones, transfer the rings indicating their ink colors to the corresponding new tubes.



4.4.11.11 CR CURSOR ASSY

1. Remove the TOP COVER (both). (p83)
2. Remove the REAR COVER. (p93)
3. Unlock the Carriage. (p81)
4. Remove the MAINTENANCE COVER T. (p84)
5. Remove the COOLING FAN (both). (p102)
6. Remove the PRINT HEAD/VALVE ASSEMBLY, HEAD (Step 5 to Step 12 in 4.4.11.1 PRINT HEAD/VALVE ASSEMBLY, HEAD). (p153)
7. Remove the PAPER EDGE SENSOR. (p125)
8. Remove the PG HEIGHT SENSOR. (p128)
9. Remove the two screws that secure the CR CURSOR ASSY.
 - A) Silver, Phillips, Pan with S.W & P.W M4x10: two pieces

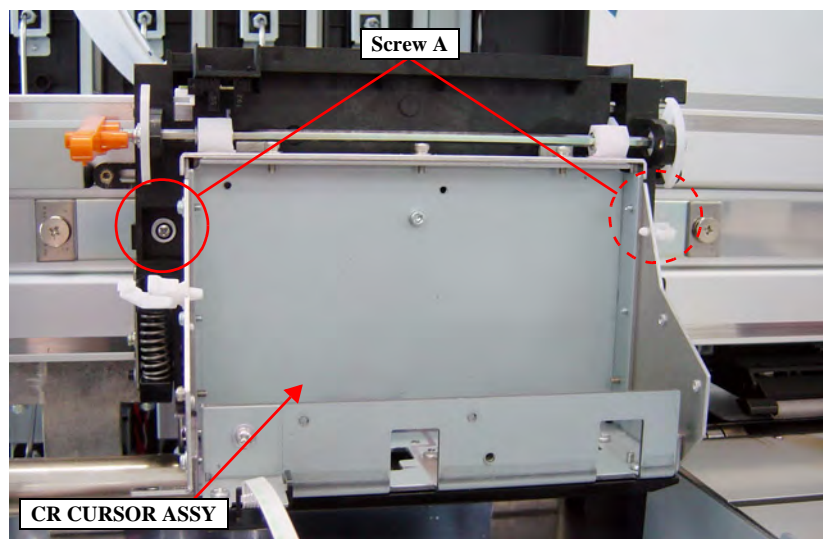


Figure 4-151. Removing the screws

10. Detach the lower part of the CR CURSOR ASSY from the guide rail while pinching the levers for removal on the left/right sides of the CR CURSOR ASSY.
11. Following the arrows, remove the CR CURSOR ASSY upward.

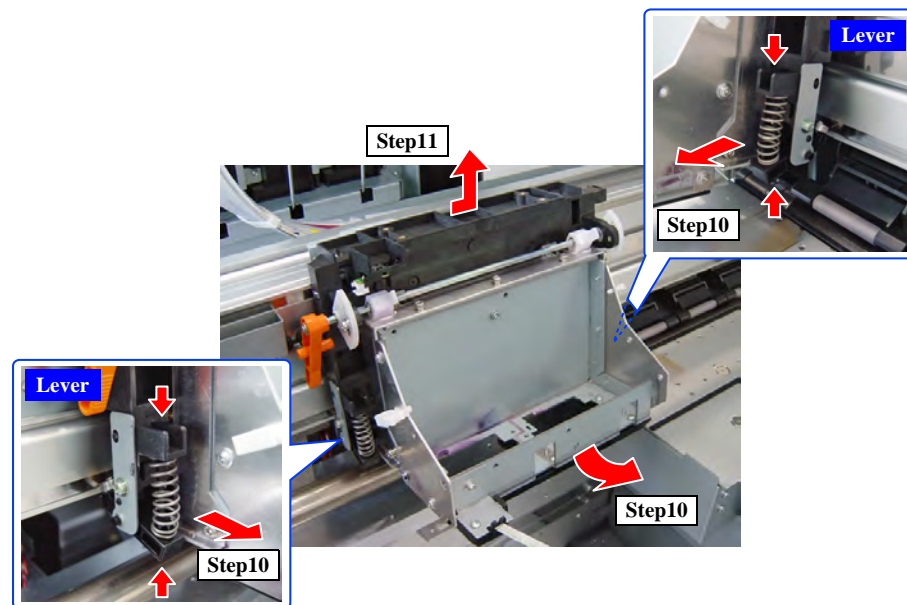


Figure 4-152. Removing the CR CURSOR ASSY

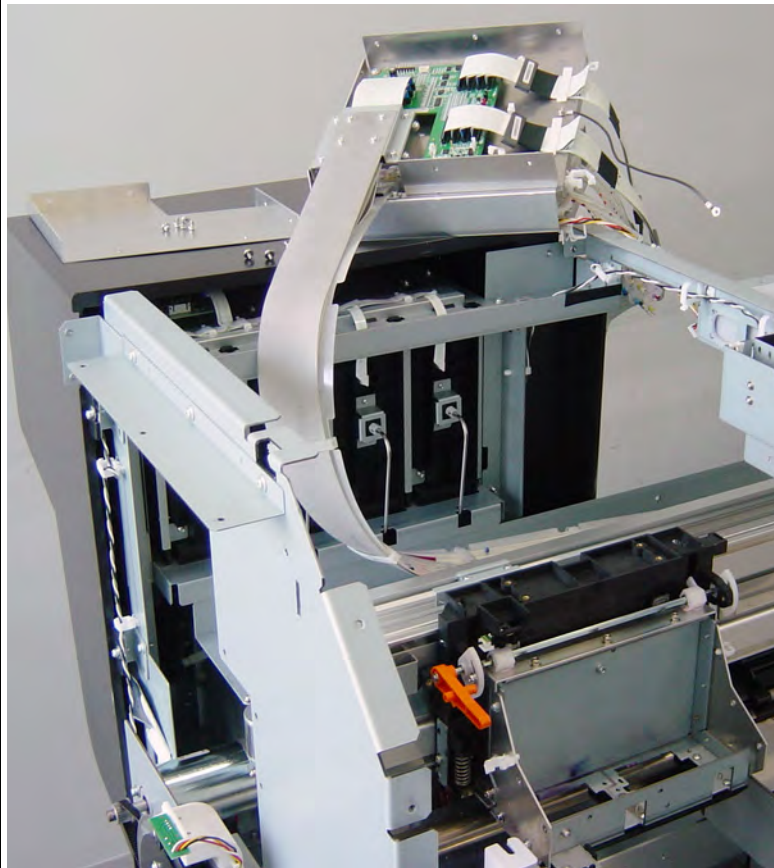


Do not lift the lower part of the CR CURSOR ASSY too much to avoid the bearings from getting stuck on the rail.



**CHECK
POINT**

To make the operation easier when removing/installing the CR CURSOR ASSY, it is recommended to put the upper part of the CR CURSOR ASSY on the IH COVER as shown below.

**ADJUSTMENT
REQUIRED**

Be sure to refer to Chapter 5 “Adjustment” ([see p179](#)) and perform specified adjustments after replacing or removing this part.

<Adjustment items>

1. CR Height Adjustment
2. Nozzle Check Pattern
3. Cleaning and Washing
4. Media Side Margin Adjustment
5. Head Slant and Alignment Adjustment
6. Head Nozzle Alignment Adjustment
7. Head Uni-D/Bi-D Low Gap Adjustment

REASSEMBLY

Check if the CR CURSOR ASSY moves smoothly after reassembling the assy.

4.4.12 Take-Up Reel Unit

REMOVING THE TAKE-UP UNIT COVER (COMMON PROCEDURE)

1. Remove the Spindle.
2. Remove the screw on the left end and the two screws on the right end and remove the Roller Shaft.
 - A) Silver, Hexagon socket M4x10: three pieces

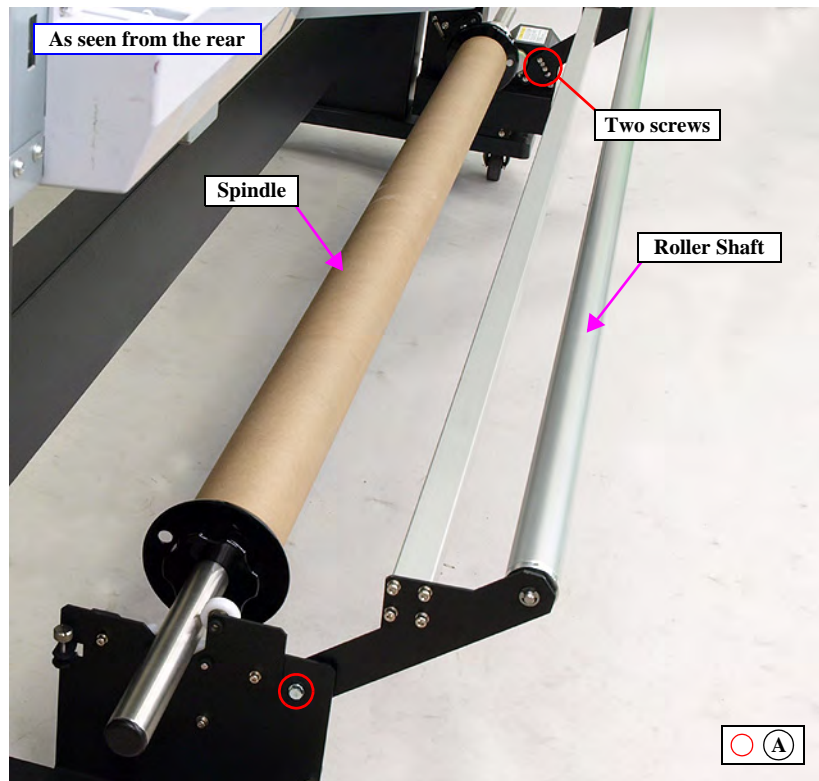


Figure 4-153. Removing the Spindle and the Roller Shaft

3. Remove the seven screws from the box on the right.
 - A) Black, Phillips, Bind machine screw M3x4: seven pieces
4. Remove the lever by unscrewing it with a flat nose pinch.
5. Loosen the screw and remove the dial on the right.
 - B) Black, Hexagon socket M1.5x4: one piece
6. Remove the Take-Up Unit Cover.

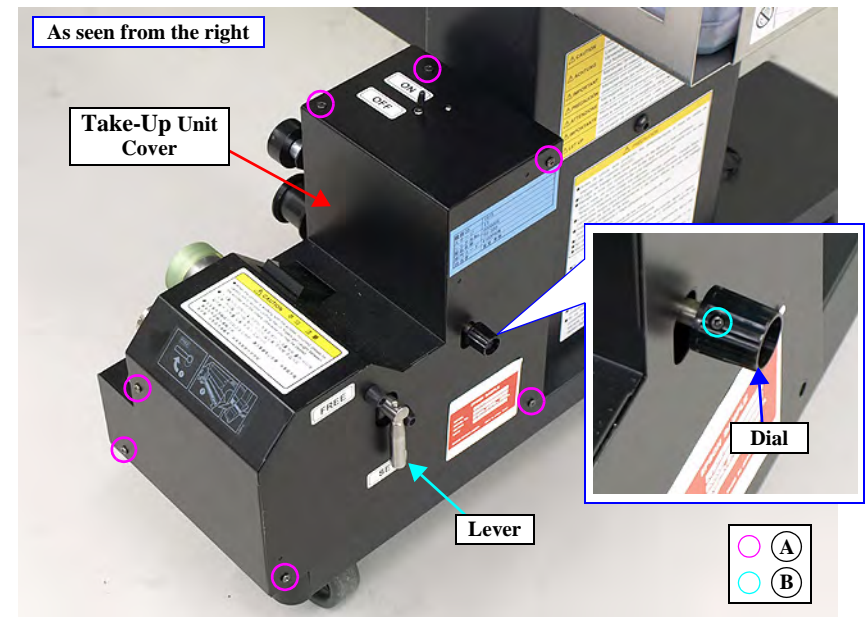


Figure 4-154. Removing the Take-Up Unit Cover

TAKE-UP SENSOR

1. Remove the Take-Up Unit Cover (p172)
2. Disconnect the connectors of the TAKE-UP SENSORS.
3. Disengage the hooks behind, and remove the TAKE-UP SENSORS.

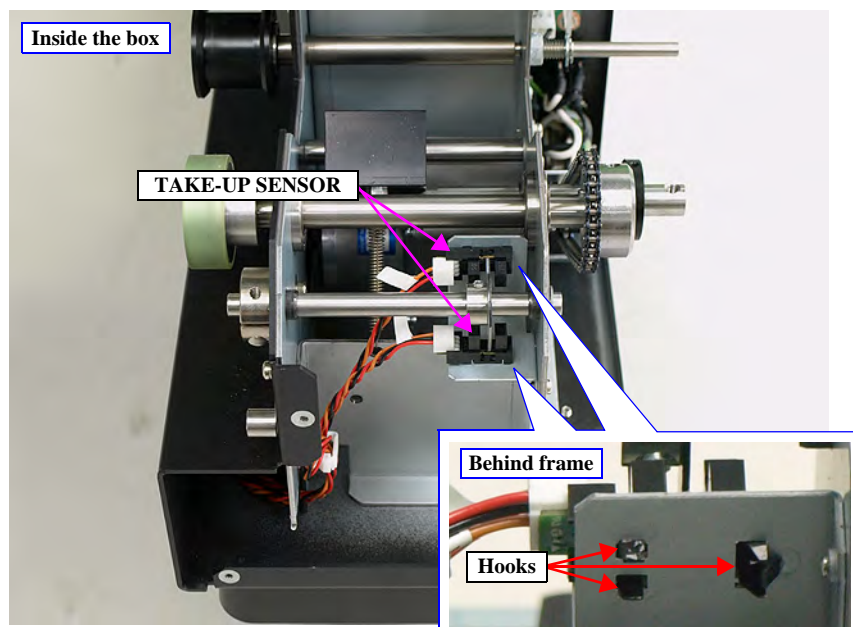
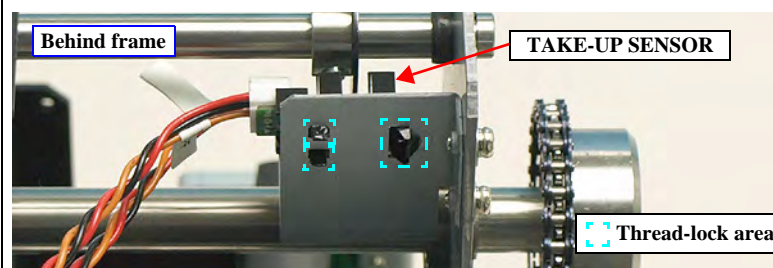


Figure 4-155. Removing the TAKE-UP SENSORS



After installing the sensors, make sure to apply thread-locker to the hooks behind.



TAKE-UP CONT BOARD ASSY

1. Remove the Take-Up Unit Cover (p172)
2. Remove the TAKE-UP SENSOR.(p173)
3. Remove the four screws on both sides at the bottom, and remove the Take-Up Reel Unit (not an ASP).
 - A) Silver, Hexagon socket M4x10: four pieces

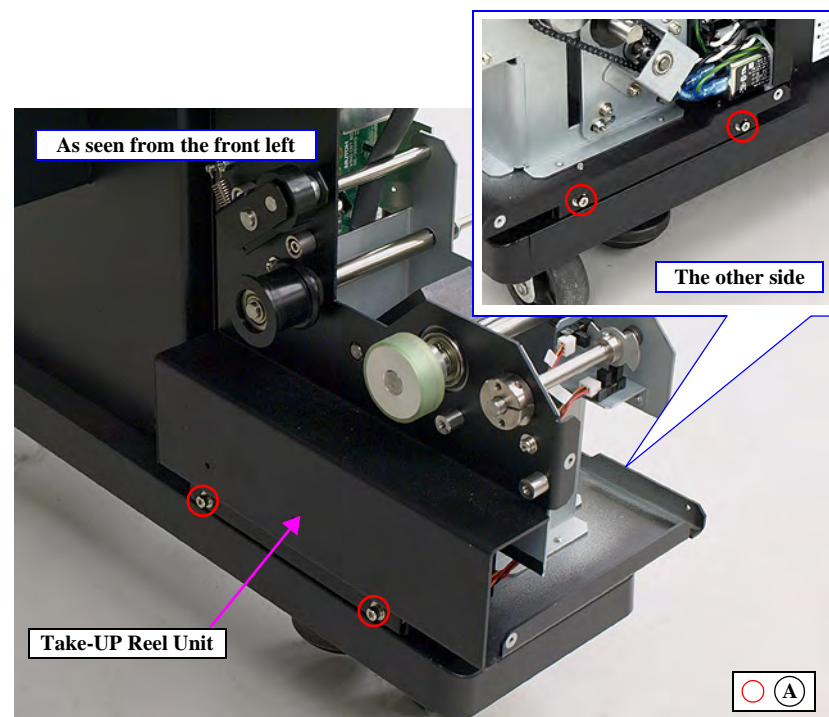


Figure 4-156. Removing the Take-Up Reel Unit

4. Remove the four screws at the back and open the Rear Cover (not an ASP).
- A) Silver, Phillips, Pan with S.W & P.W M3x6: four pieces

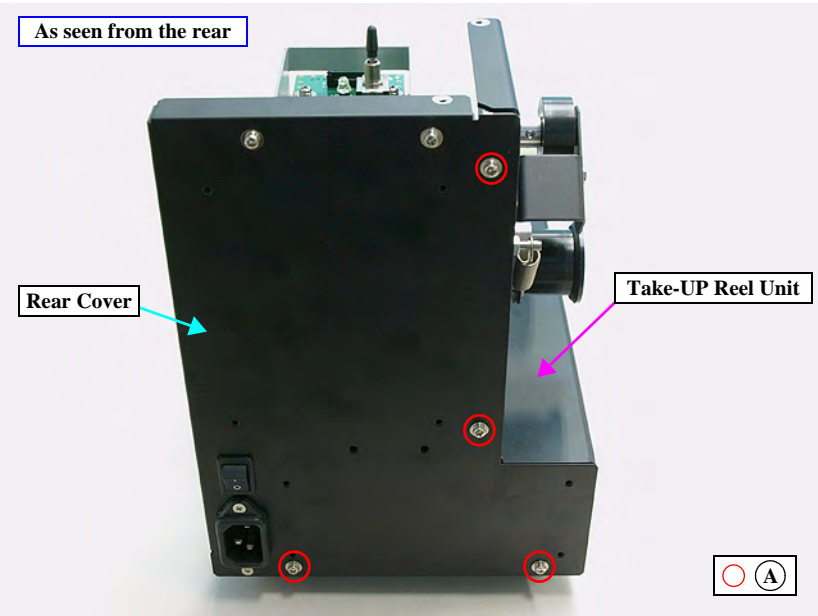


Figure 4-157. Removing the Rear Cover

5. Disconnect all the cables from the board.
6. Remove the four screws and remove the TAKE-UP CONT BOARD ASSY.
- A) Silver, Phillips, Pan with S.W & P.W M3x6: four pieces

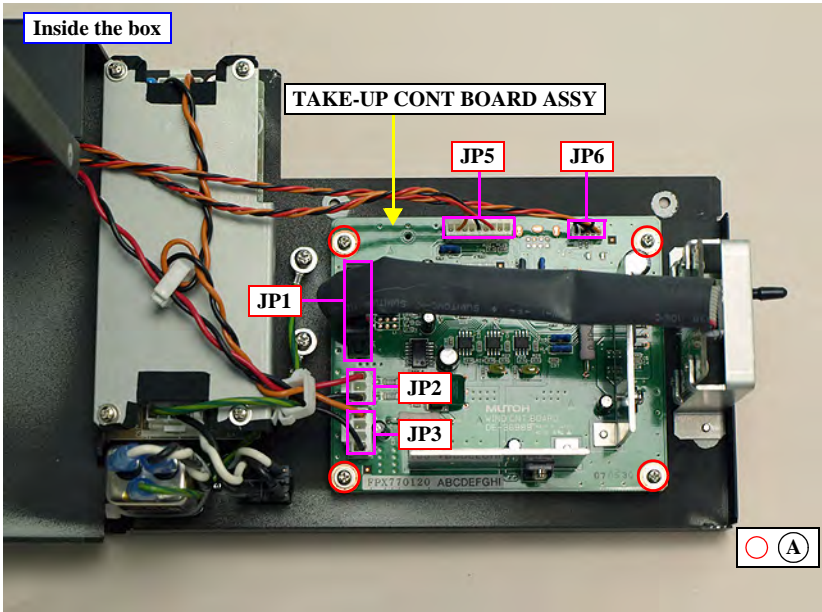


Figure 4-158. Removing the TAKE-UP CONT BOARD ASSY

Connector assignment:

Connector No.	Color	Destination
JP1	Black	TAKE-UP SW ASSY
JP2	White	TAKE-UP MOTOR
JP3	White	TAKE-UP P/S BOARD ASSY (CN2)
JP5	White	TAKE-UP SENSOR
JP6	White	TAKE-UP SENSOR



TAKE-UP SW ASSY

1. Remove the Take-Up Unit Cover (p172)
2. Disconnect the TAKE-UP SENSOR.(p173)
3. Remove the TAKE-UP CONT BOARD ASSY.(p173)
4. Disconnect connector JP1 from the TAKE-UP CONT BOARD ASSY.

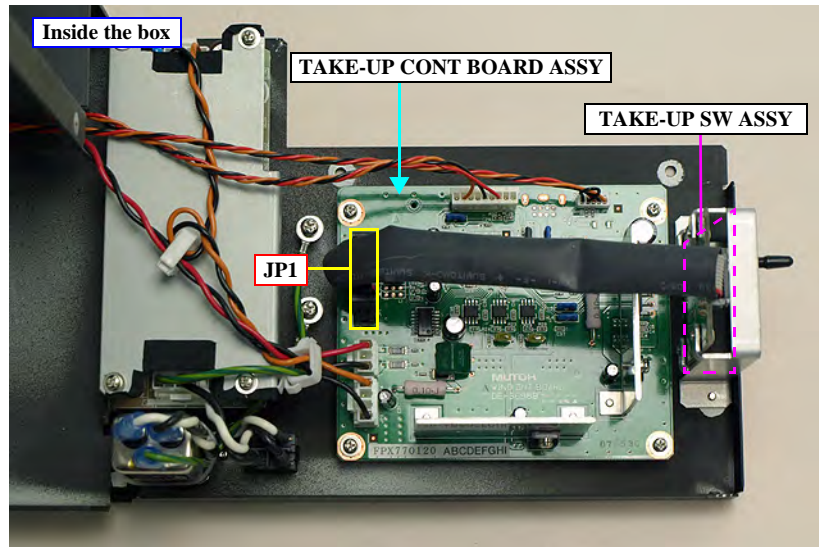


Figure 4-159. Disconnecting the connector

5. Remove the four screws and remove the TAKE-UP SW ASSY by drawing it out from the top avoiding the frame.

A) Silver, Phillips, Pan with S.W & P.W M3x6: four pieces

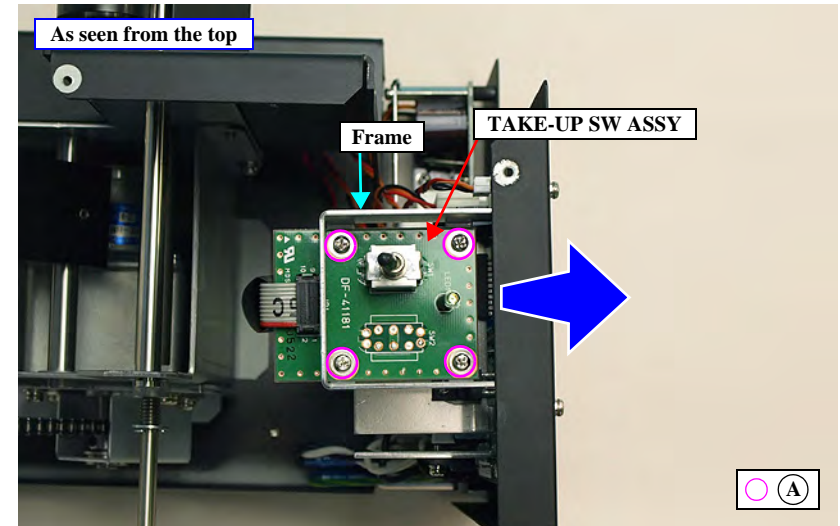



Figure 4-160. Removing the TAKE-UP SW ASSY

TAKE-UP P/S BOARD ASSY

1. Remove the Take-Up Unit Cover (p172)
2. Disconnect the TAKE-UP SENSOR.(p173)
3. Remove the TAKE-UP CONT BOARD ASSY.(p173)
4. Release the cables from the two clamps.



When routing the cables, make sure to give it one turn around the clamp the same as the original routing as shown below.

5. Remove the four screws and remove the shield plate.
 - A) Silver, Phillips, Pan with S.W & P.W M3x6: four pieces

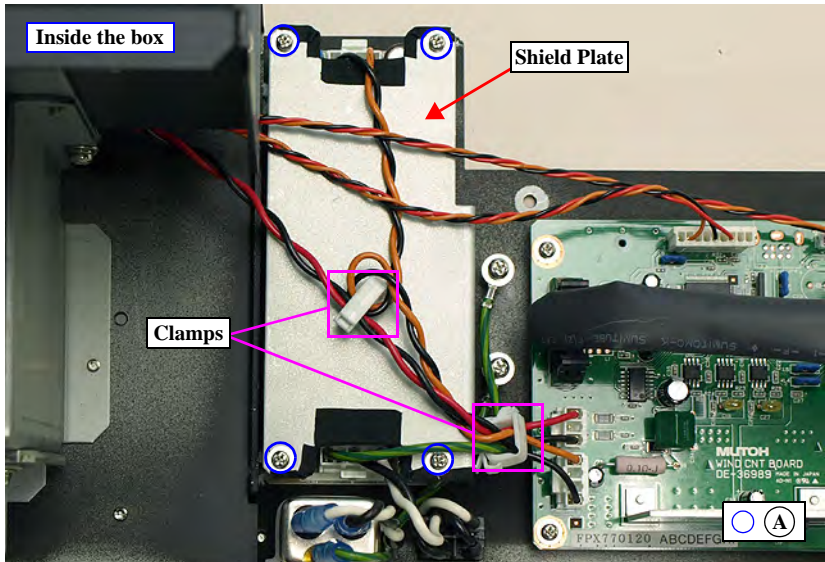


Figure 4-161. Removing the Shield Plate

6. Disconnect the two connectors.
7. Remove the four screws and remove the TAKE-UP P/S BOARD ASSY.
 - A) Stud bolt: four pieces

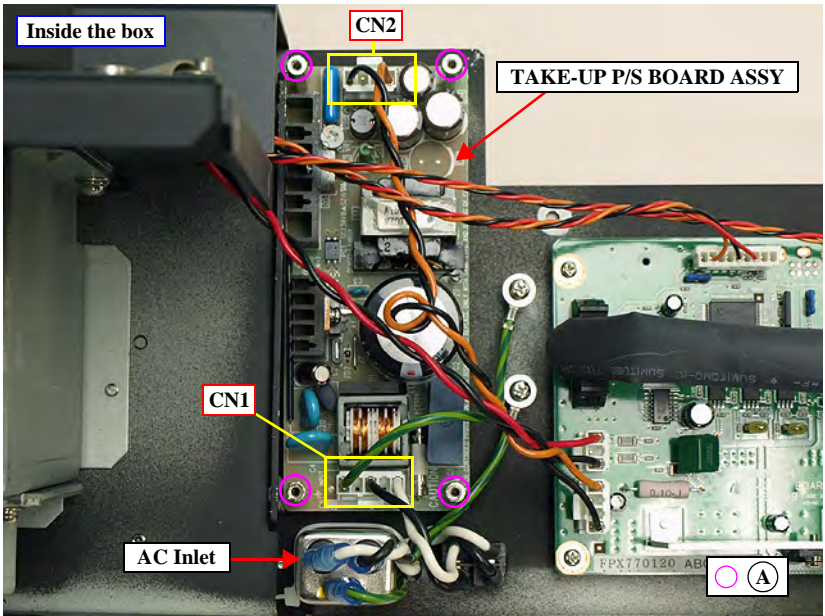


Figure 4-162. Removing the TAKE-UP P/S BOARD ASSY

Connector assignment:

Connector No.	Color	Destination
CN1	White	AC Inlet
CN2	White	TAKE-UP CONT BOARD ASSY (JP3)



TAKE-UP MOTOR ASSY

1. Remove the Take-Up Unit Cover (p172)
2. Remove the TAKE-UP SENSOR.(p173)
3. Remove the TAKE-UP CONT BOARD ASSY.(p173)
4. Remove the two screws and remove the fixing plate.
 - A) Silver, Phillips, Pan with S.W & P.W M4x8: two pieces

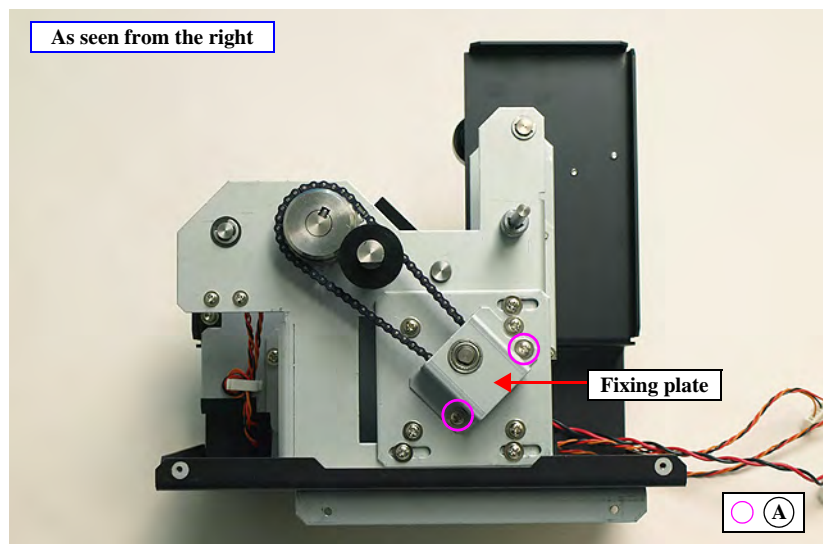


Figure 4-163. Removing the Fixing plate

5. Remove the three screws and remove the Chain.
 - A) Silver, Phillips, Pan with S.W & P.W M4x8: three pieces

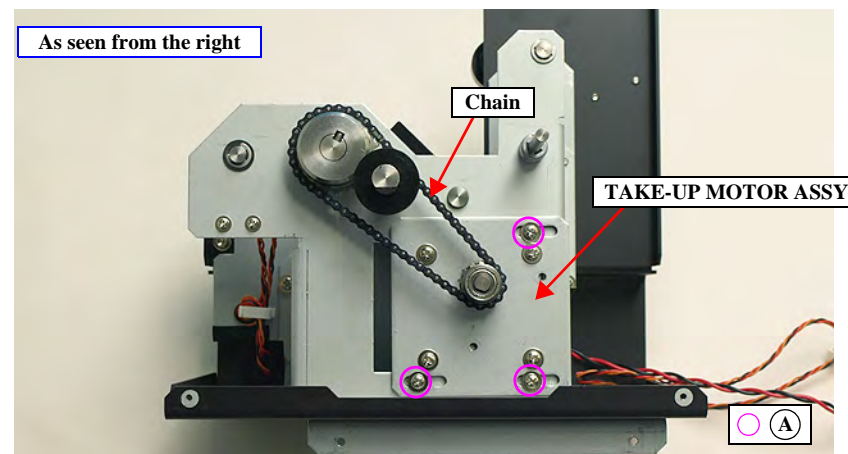


Figure 4-164. Removing the Chain

6. Draw the TAKE-UP MOTOR ASSY from the hole and remove it.

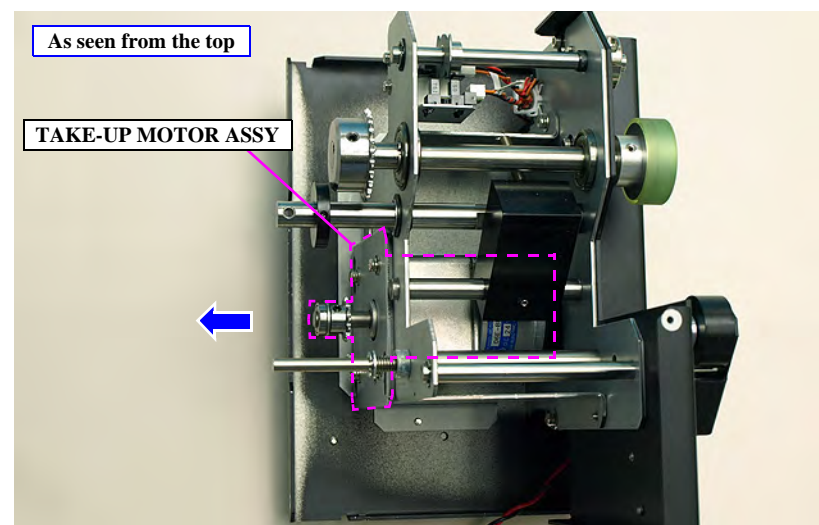
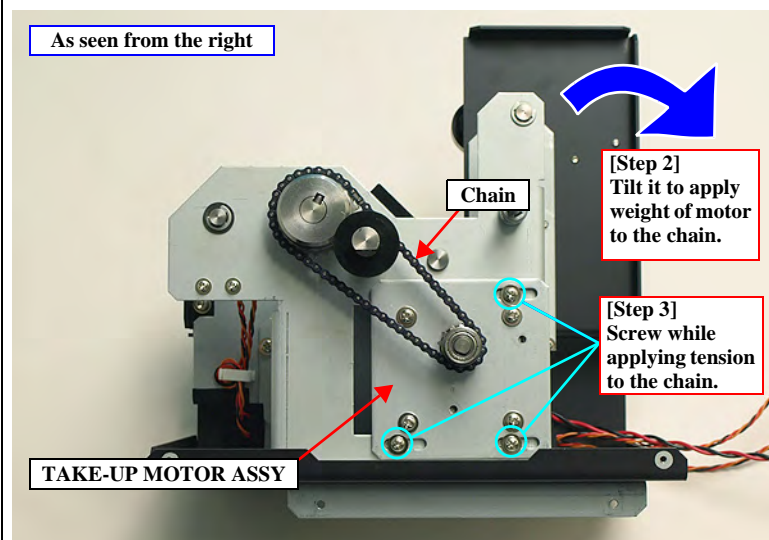


Figure 4-165. Removing the TAKE-UP MOTOR ASSY

REASSEMBLY

When installing the TAKE-UP MOTOR ASSY, screw the assy while tilting it to apply tension to the chain using the motor's weight as follows:

1. Attach the three screws marked below once without tightening them to the full.
2. Tilt the Take-Up Reel Unit clockwise to apply tension to the chain by the weight of the motor naturally as shown in the figure below.



3. Tighten the three screws to the full with tension applied to the chain.
4. Attach the Fixing plate. *See Figure 4-163.*

CHAPTER

5

ADJUSTMENT



5.1 Overview

This chapter describes the Service Program software utility and the adjustment procedures required after repairing or replacing certain parts.

5.1.1 Precautions

Always observe the following cautions whenever making an adjustment on the printer.



- Always refer to “5.1.2 Adjustment Items and the Order by Repaired Part” (p.181) and make sure to perform all adjustments listed in the table in the given order.
- Always read and follow the precautions given in each section that explains each adjustment. Ignoring the precautions can result in malfunction of the printer.
- Do not use the Auto Take-Up Reel Unit when printing patterns with the printer in the serviceman mode in order to prevent back-feed troubles.



5.1.2 Adjustment Items and the Order by Repaired Part

The following table shows the required adjustments by repaired or replaced part and the order in which the adjustments must be performed. Find the part(s) you repaired or replaced in the table, and carry out the adjustments in the indicated order.

- NOTE** 1: Blue cell: indicates that the adjustment is required when the part is once removed or replaced.
Red cell: indicates that the adjustment is required when the part is replaced.
- 2: The adjustments required for the Main Board differs depending on whether the NVRAM on the old board can be backed up or not.
- 3: When you repaired or replaced multiple parts, check the order of required adjustments using the sequential mode of the Adjustment Program.
- 4: When the FW update is required, first check the version of firmware currently installed on the printer, then update the firmware if necessary.
- 5: If a part is not listed on the table, there is no corresponding test or no need for any adjustment.
- 6: The tests can be performed before a part exchange to confirm a failure. They can be performed after an exchange to confirm the repair. The tests are not mandatory if the parts operations can be confirmed in another way.
- 7: The numbers in the table indicate the order in which the adjustments must be done.

Class	Parts	Tests (P. 224)										Adjustments																				
		Sensor Test	Panel Test	Fan Test	Alarm LED Test	Encoder Test	Heater Test	Solenoid Test	Network Test (P. 222)	NVRAM Backup (P. 193)	NVRAM Restore (P. 193)	CR Related Adjustments				Head Related Adjustments						PF Related Adjustments		Other Adjustments								
												CR Belt Tension Adj. (P. 194)	CR Reduction Belt Tension Adj. (P. 196)	CR Height Adj. (P. 197)	Media Side Margin Adj. (P. 199)	CR Motor Counter Reset (P. 221)	Head Rank Input (P. 200)	Nozzle Check Pattern (P. 201)	Cleaning and Washing (P. 202)	Initial Ink Flag (P. 204)	Head Slant and Alignment Adj. (P. 205)	Head Nozzles Alignment Adj. (P. 211)	Head Uni-D/Bi-D Low Gap Adj. (P. 212)	Head Counter Reset (P. 221)	PF Reduction Belt Tension Adj. (P. 215)	Paper Feed Adj. (P. 216)	PF Counter Reset (P. 221)	RTC and USB ID (P. 217)	F/W Update (P. 218)	Pump Counter Reset (P. 221)	Washing Sequence Flag (P. 220)	
Housing	PANEL ASSY		1																													
	FRONT CLEAR COVER	1																														
Fans	COOLING FAN PE			1																												
	COOLING FAN (24V)			1																												
	VACUUM FAN			1																												
	COOLING FAN			1																												
	HEATER BOARD COOLING FAN			1																												



Class	Parts	Tests (P. 224)										Adjustments																					
		Sensor Test	Panel Test	Fan Test	Alarm LED Test	Encoder Test	Heater Test	Solenoid Test	Network Test (P. 222)	NVRAM Backup (P. 193)	NVRAM Restore (P. 193)	CR Related Adjustments				Head Related Adjustments						PF Related Adjustments		Other Adjustments									
												CR Belt Tension Adj. (P. 194)	CR Reduction Belt Tension Adj. (P. 196)	CR Height Adj. (P. 197)	Media Side Margin Adj. (P. 199)	CR Motor Counter Reset (P. 221)	Head Rank Input (P. 200)	Nozzle Check Pattern (P. 201)	Cleaning and Washing (P. 202)	Initial Ink Flag (P. 204)	Head Slant and Alignment Adj. (P. 205)	Head Nozzles Alignment Adj. (P. 211)	Head Uni-D/Bi-D Low Gap Adj. (P. 212)	Head Counter Reset (P. 221)	PF Reduction Belt Tension Adj. (P. 215)	Paper Feed Adj. (P. 216)	PF Counter Reset (P. 221)	RTC and USB ID (P. 217)	F/W Update (P. 218)	Pump Counter Reset (P. 221)	Washing Sequence Flag (P. 220)		
Electric Components & Boards	BATTERY																																
	HEATER CONT BOARD ASSY																																
	MAIN BOARD ASSY (Backup OK)								1	2																							
	MAIN BOARD ASSY (Backup NG)	10							11						8		4	5	6				7			9				3	1		2
	ALARM LED				1																												
Sensors & Encoders	PF ENCODER ASSY					1																											
	CR HP SENSOR	1																															
	CR ENC ASSY					1																											
	PG HIGHT SENSOR	1																															
	SUB TANK SENSOR	1																															
	F COVER SENSOR R	1																															
	F COVER SENSOR L	1																															
	M COVER SENSOR R	1																															
	M COVER SENSOR L	1																															
	IC COVER SENSOR R	1																															
	IC COVER SENSOR L	1																															
	LEVER SENSOR	1																															
Heaters	PRE HEATERS (64)						1																										
	PLATEN HEATER (64)						1																										
	AFTER HEATER (64)						1																										
	THERMISTOR, PRE						1																										
	THERMISTOR, PLATEN						1																										
	THERMISTOR, AFTER						1																										

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Class	Parts	Tests (P. 224)										Adjustments																				
		Sensor Test	Panel Test	Fan Test	Alarm LED Test	Encoder Test	Heater Test	Solenoid Test	Network Test (P. 222)	NVRAM Backup (P. 193)	NVRAM Restore (P. 193)	CR Related Adjustments				Head Related Adjustments						PF Related Adjustments		Other Adjustments								
												CR Belt Tension Adj. (P. 194)	CR Reduction Belt Tension Adj. (P. 196)	CR Height Adj. (P. 197)	Media Side Margin Adj. (P. 199)	CR Motor Counter Reset (P. 221)	Head Rank Input (P. 200)	Nozzle Check Pattern (P. 201)	Cleaning and Washing (P. 202)	Initial Ink Flag (P. 204)	Head Slant and Alignment Adj. (P. 205)	Head Nozzles Alignment Adj. (P. 211)	Head Uni-D/Bi-D Low Gap Adj. (P. 212)	Head Counter Reset (P. 221)	PF Reduction Belt Tension Adj. (P. 215)	Paper Feed Adj. (P. 216)	PF Counter Reset (P. 221)	RTC and USB ID (P. 217)	F/W Update (P. 218)	Pump Counter Reset (P. 221)	Washing Sequence Flag (P. 220)	
Carriage Mechanism	CR BELT											1			2																	
	CR ENC SCALE					1																										
	CR CURSOR ASSY													1	4			2	3		5	6	7									
	CR LOCK SOLENOID ASSY							1																								
	CR REDUCTION BELT											1	2																			
	CR MOTOR											1	2		3																	
Paper Feed Mechanism	PF ENC SCALE					1																										
	PF MOTOR																							1	3	2						
	PF REDUCTION BELT					2																		1	3							
Ink System Mechanism	PRINT HEAD																1	4	5	2	6	7	8	3								
	PUMP ASSY																														1	
	SUB TANK ASSY	1																														
	TWO-WAY VALVE ASSY							1																								

5.1.3 Description of Adjustments

The following tables describes the general outline of the adjustments.

NOTE 1: The meanings of abbreviations in the “What to Use” column are as follows.

SP = Service Program

SM = Serviceman Mode

MECH = Mechanical Adjustment can be performed. (In some cases, a dedicated tool for the adjustment or a commercially available tool such as a tension gauge is necessary.)

2: When both SP and SM are checked, both can be used but we recommend using the service program as it is more user-friendly.

Class	Items	Overview	What to Use			Page
			SP	SM	Mech	
Tests	Network Test	Checks if the printer is available over a network.	√			p.222
	Skew Test	Feeds paper to check skew level of the paper.		√		p.223
	Sensor Test	Move parts or media while making sure the status of the sensor (Open/Close, etc.) shown on the LCD changes accordingly.		√	√	p.224
	Panel Test	Check the panel buttons and the LCD display.		√		
	Fan Test	Turn the fans on and off, confirm they are blowing in the right direction.		√		
	Alarm LED Test	Turn the alarm LED on and off, confirm the LEDs are lighting.		√		
	Encoder Test	Make sure the encoders give appropriate measurements while moving the parts.		√		
	Heater Test	Make sure the heater can reach the preset temperature.		√		
	Solenoid Test	The solenoid will open and close every second to allow confirming the assembly moves smoothly.		√	√	
NVRAM Backup and Restore		Backs up parameters stored on the NVRAM on the previous board, and writes them into the NVRAM on a new board.	√			p.193
CR Related Adjustments	CR Belt Tension Adjustment	Mechanical adjustment allowing to adjust the CR steel belt tension to a specified level.			√	p.194
	CR Reduction Belt Tension Adjustment	Mechanical adjustment allowing to adjust the CR motor Reduction belt tension to a specified level.			√	p.196
	CR Height Adjustment	Mechanical Adjustment allowing to adjust the gap between the Carriage and the Platen to a specified level.			√	p.197
	Media Side Margin Adjustment	Confirm the distance between the side of the media and the print pattern + input the actual value.		√		p.199
	CR Motor Counter Reset	Modify the NVRAM so that the counter is reset to Zero.	√			p.221




Class	Items	Overview	What to Use			Page
			SP	SM	Mech	
Head Related Adjustments	Head Rank Input	Allows inputting the head L (1) and head R (2) Rank ID code.	√	√		p.200
	Nozzle Check Pattern	Print a pattern allowing confirming all head nozzles are correctly firing ink.	√	√		p.201
	Cleaning and Washing	Allow Cleaning the head or removing the ink form the ink system.	√			p.202
	Initial Ink Charge Flag	Allow forcing the printer to flow the ink through the ink system.	√	√		p.204
	Head Slant and Alignment Adjustment	Print a pattern allowing to confirm the head slant position + adjust the head angle if needed.	√	√	√	p.205
	Head Nozzles Alignment Adjustment	Print a pattern allowing to confirm the heads alignment + adjust the head alignment & angle if needed.	√	√		p.211
	Head Uni-D/Bi-D Low Gap Adjustment	Allow to check and adjust the firing timing of each nozzle line.		√		p.212
	Head Counter Reset	Modify the NVRAM so that the head counter is reset to Zero.	√			p.221
PF Related Adjustments	PF Reduction Belt Tension Adjustment	Mechanical adjustment allowing to adjust the PF motor Reduction belt tension to a specified level.			√	p.215
	Paper Feed Adjustment	Confirm the distance between two horizontal lines + input the actual value.		√		p.216
	PF Counter Reset	Modify the NVRAM so that the Paper Feed counter is reset to Zero.	√			p.221
Other Adjustments	RTC and USB ID	Overwrite the Clock Date, Serial Number and/or USB ID registered on the printer.	√	√		p.217
	Firmware Update (Main, Heater, Network, EDM)	Allow checking the firmwares versions currently installed and upgrade them if necessary.	√			p.218
	Pump Counter Reset	Modify the NVRAM so that the Pump Motor counter is reset to Zero.	√			p.221
	Washing Sequence Flag	Allow modifying the flags to define what the printer's behavior should be at the next power-on.	√			p.220

5.1.4 Tools for Adjustments

The table below shows the tools required for adjusting this printer.

Table 5-1. Tools for Adjustments

Type	Name	Part Number	Note
Hard Tool	Push-pull Gauge	---	Can measure 110g
		---	Can measure 3.85kg
	PG ADJUSTMENT JIG	1501563	---
	BELT TENSION ATTACHMENT	1501564	---
	Marking Film	1502538	---
	Thread locker	Commercially available	<p>You must use the following product.</p> <p><input type="checkbox"/> Supplier: ThreeBond</p> <p><input type="checkbox"/> Product name: 1401</p> 
Software	Service Program	---	Supplies

5.1.5 Service Program Basic Operations

This section describes the basic operations of the Service Program.

CAUTION



The Service Program includes some adjustment items which should not be performed at on-site service. Be sure not to perform any adjustments that are not described in this manual at on-site service.

□ System Requirements

- OS: Windows XP, VISTA
- Interface: USB, Network

□ Startup

CAUTION



Make sure to connect one GS6000 to your computer at a time. (Otherwise, an error message will appear on the Service Program at the printer communication timing when the program detects more than one printer; as is the case regardless of the model.)

1. When double-clicking the “adjwiz2.exe”, the screen asking if you want to carry out the NV-RAM BACKUP appears.
2. If Yes is selected, the NV-RAM BACKUP UTILITY will start up; If No is selected, the Service Program Menu screen will appear.

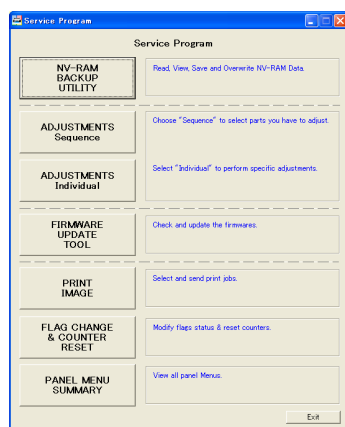


Figure 5-1. Service Program Menu

NV-RAM BACKUP UTILITY

The utility for backing up or restoring NV-RAM parameters is started up.

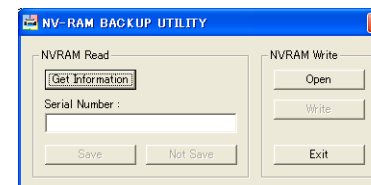


Figure 5-2. NV-RAM BACKUP UTILITY

ADJUSTMENTS SEQUENCE

By selecting a part you replaced or repaired, this mode guides you to perform all the required adjustments in a predetermined sequence.

1. Highlight the part you replaced or repaired in the left box and click the [Add] button.
2. Click the [OK] button.

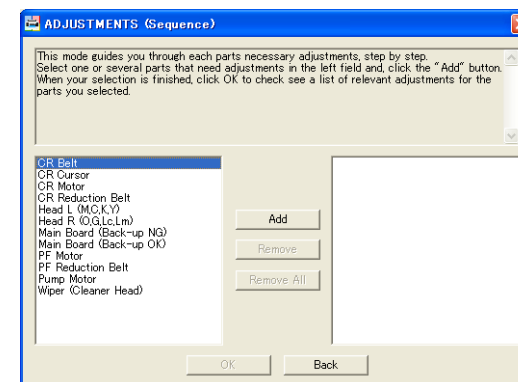


Figure 5-3. ADJUSTMENTS Sequence



ADJUSTMENTS INDIVIDUAL

This mode allows you to select and perform an adjustment individually.

1. Highlight the target adjustment item and click the [OK] button.

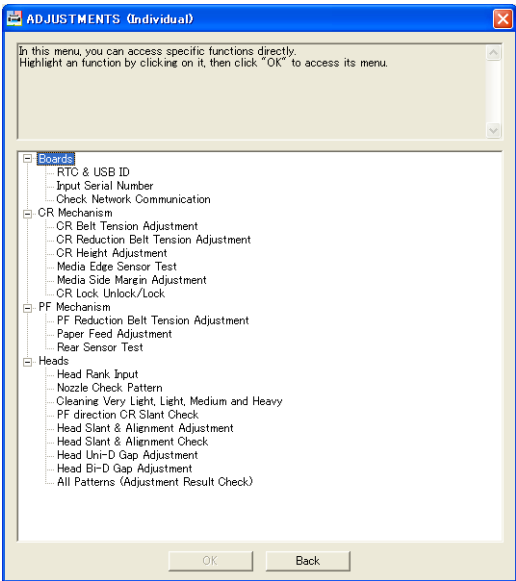


Figure 5-4. ADJUSTMENTS Individual

FIRMWARE UPDATE TOOL

The utility for updating firmware is started up.

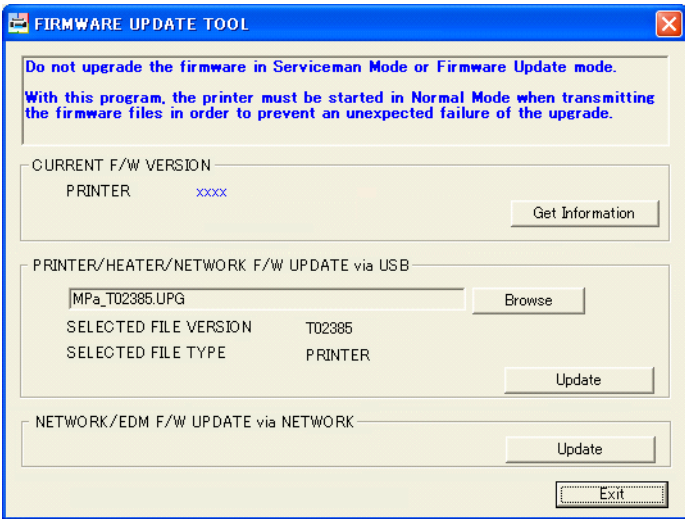


Figure 5-5. Firmware Update Tool



PRINT IMAGE

This allows you to send an image file to the printer to make a test print.

1. Click [Open] and select any one of the image files.

NOTE: You may change the MicroWeave.

2. Click [Print] to print the selected image.
3. After checking the printed image, click the [Finish] button

NOTE: It may take some time to transmit the data to the printer and print. During this time, the printer may not respond to another command.

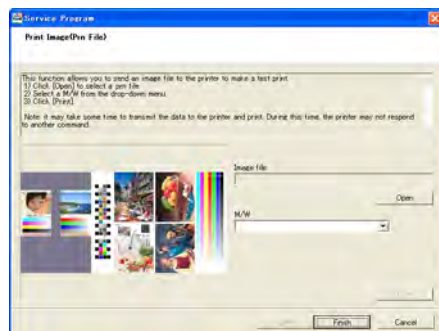


Figure 5-6. Print Image

FLAG CHANGE & COUNTER RESET

You can set various kinds of internal flags and reset various kinds of counters.

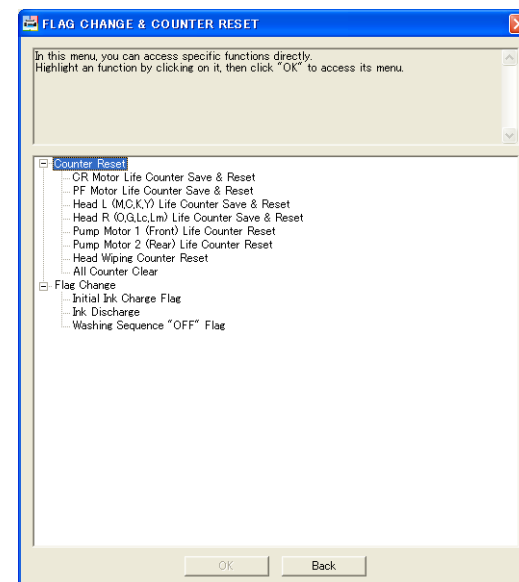


Figure 5-7. Flag Change & Counter Reset

PANEL MENU SUMMARY

This allows you to see a list of panel menu settings.

Select “User Mode” or “Serviceman Mode” to open the corresponding pdf file (you must have a pdf document reader program installed to view it).

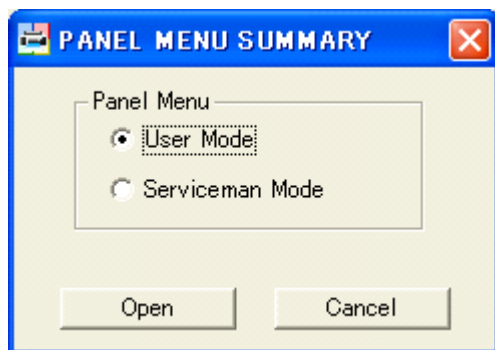


Figure 5-8. Panel Menu Summary

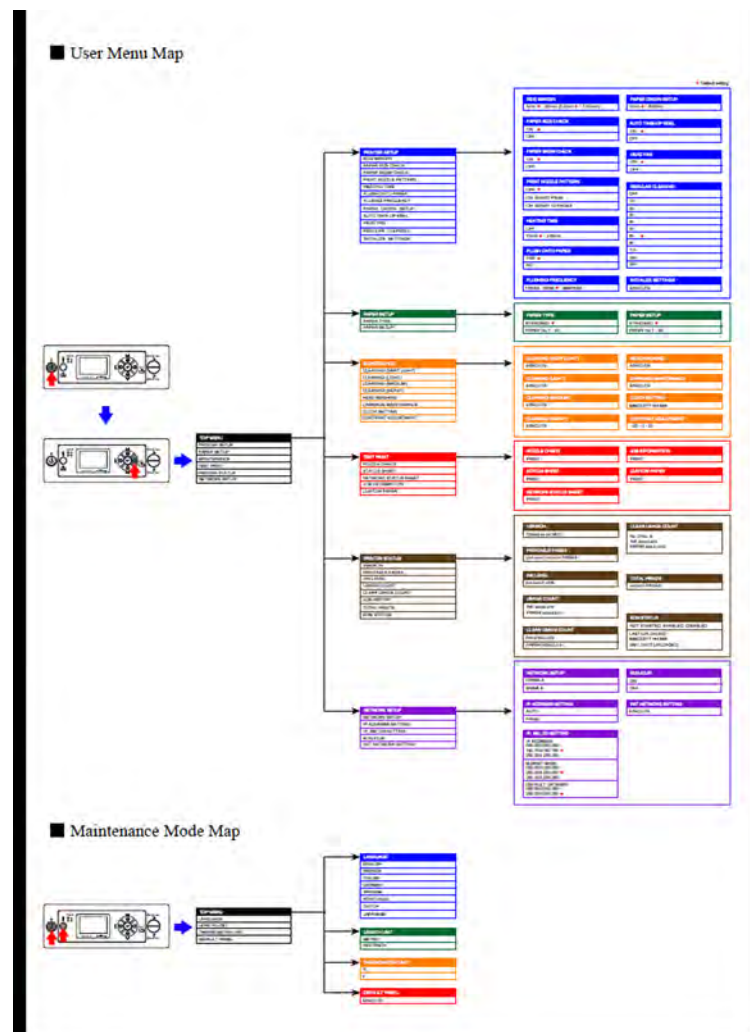


Figure 5-9. Panel Menu Summary for User Mode

5.1.6 Cautions and Preparation for Pattern Printing

Some adjustments require pattern printing. In those cases, follow the procedure below to print correct patterns.

1. If a Media is set, remove it.
2. Turn OFF the printer.
3. Enter the Serviceman Mode.
Turn the printer ON while pressing [Pause/Reset] + [Paper Feed ▼] + [Menu] simultaneously.
4. Select **Adjustment** => **Heater Temp**, and adjust each heater temperature to the following values.
 - Pre Heater: 47 °C
 - Platen Heater: 42 °C
 - After Heater: 40 °C

NOTE: Your printer temperature setup will be cancelled if you exit the Serviceman Mode.

5. Wait until the heaters reach the good temperature.
 - Warming: “High Heat” LED Flashing
 - Ready: “High Heat” LED and “Low Heat” LED both bright.
6. Set the Adjustment Media. (After Service Tool)

CAUTION



Never touch the media's shiny face with bare hands: the oil of your fingers on the paper will influence the print quality (fingerprints will be visible)! You must use gloves to manipulate the media.

CHECK POINT



If you set the media when the heaters are cold, the temperature change will cause the media to cockle, so always wait until the temperature is reached before setting the media.

7. When lowering the pressure lever, the printer will check the media edges. Wait until the recognition is finished before launching a print.
8. Print a pattern following the instructions for each procedure.

CAUTION



Pattern printing does not start until the temperature of each heater rises up to their set values. If the printing does not start immediately after executing the start command, wait a moment for the heater temperature to rise.

CHECK POINT



- It is advisable to confirm no nozzles are missing with a Nozzle Check Pattern and do a cleaning if required before printing another pattern.
- The printer will not print in the below conditions:
 - The preset heater temperature is not reached yet.
 - The front cover is open.
 - The media edges are not recognized yet.

CAUTION



For a pattern printed with the serviceman mode, when the print is finished, the media is fed in a way that the pattern can be completely visible and not hidden under the front clear cover. When the next print is launched, the paper is back-fed so that the next pattern is printed just above the previous pattern, hence preventing paper waste. For this reason, the below points should be heeded:

- Never use the Take-up Reel when printing with the Serviceman Mode, for the Take-up reel cannot go backwards!!!
- Never cut a media above the top edge of a pattern if you wish to continue printing again a pattern from the serviceman mode: the paper will back-feed to print just above the previous print position and if the paper is cut too high, the printer might print on the platen!!!



5.2 NV-RAM BACKUP UTILITY

Whenever the Main Board is replaced, parameters stored in the NVRAM on the previous board should be backed up and written onto the new board using this menu.

□ Backup Procedure

1. Turn the printer ON.

CAUTION



- When the printer does not become ready status due to some error, turn the printer on in the serviceman mode and carry out the backup.
- The program detects the printer automatically. Do not connect more than one printer at the same time or an error message will appear at the printer communication timing.

2. Start the Service Program and select **NV-RAM BACKUP UTILITY**.
3. Click the [Get Information] button to start reading the parameters.
4. When the reading is completed, input the Printer Serial Number in the appropriate field and click the [Save] button to save the readout parameters under the name you have just input in the Serial Number field.
5. In some areas, tables showing NVRAM information will be displayed after clicking [Save]. (NVRAM Viewer) Click [Close] to exit the viewer.
6. Turn the printer OFF.

□ Restore Procedure

1. Turn the printer ON.

CAUTION



- When the printer does not become ready status due to some error, turn the printer on in the serviceman mode and carry out the restoring.

2. Start the Service Program and select **NV-RAM BACKUP UTILITY**.
3. Click the [Open] button to select and open the file which was saved in "Backup Procedure".
4. Click the [Write] button to start writing the parameters.

5. When the writing is completed, exit out of the NVRAM Backup Utility.

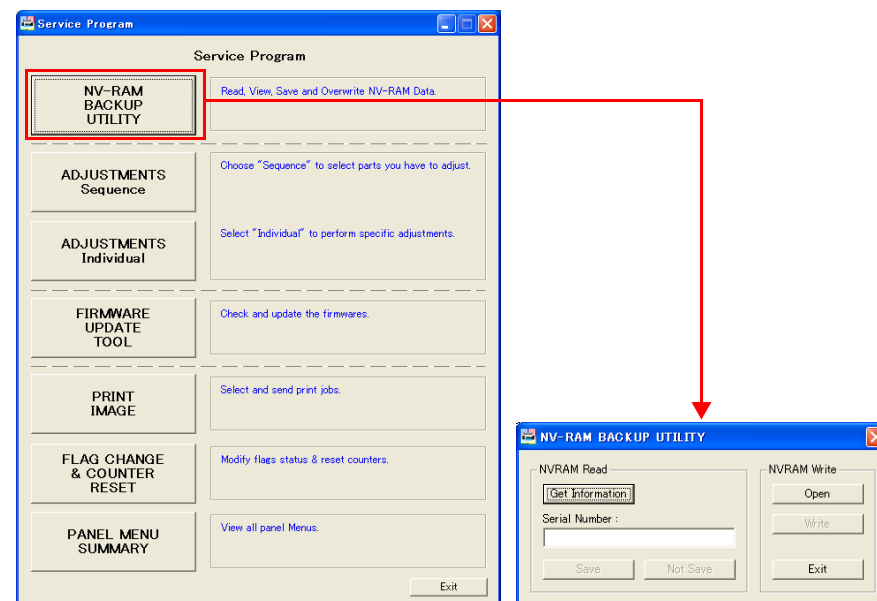


Figure 5-11. NV-RAM BACKUP UTILITY Screen

5.3 CR Related Adjustments

5.3.1 CR Belt Tension Adjustment

When the CR MOTOR or the CR BELT is reattached/replaced, or tension of the belt is loosened, this adjustment must be performed to apply proper tension to the belt.

❑ Required Tool

- Push-pull gauge (the one which can measure 110 g)
- BELT TENSION ATTACHMENT

❑ Standard value

100 g to 110 g

❑ Parts need to be removed in advance

- TOP COVER L
- MAINTENANCE COVER T
- SIDE COVER, L

❑ Procedure

1. Unlock the Carriage, and move the Carriage to the left end.
[“4.4.1.1 Unlocking the Carriage” \(p.81\)](#)
2. While sliding the Carriage, adjust the CR BELT so that the belt can run in the middle of the driven pulley by turning the upper and lower adjustment screws.

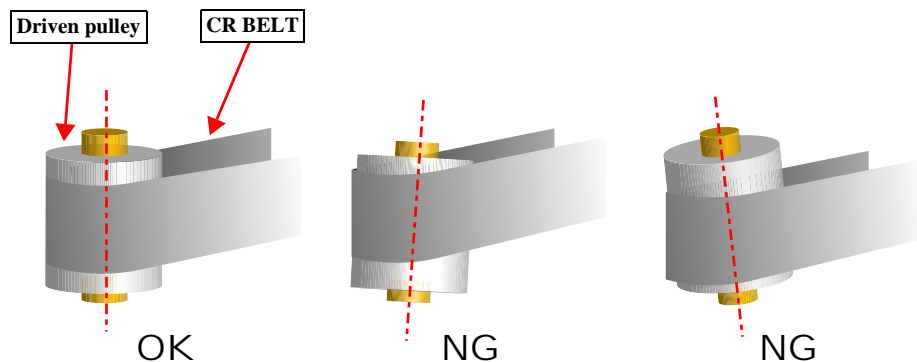


Figure 5-12. Slant Adjustment of Driven Pulley

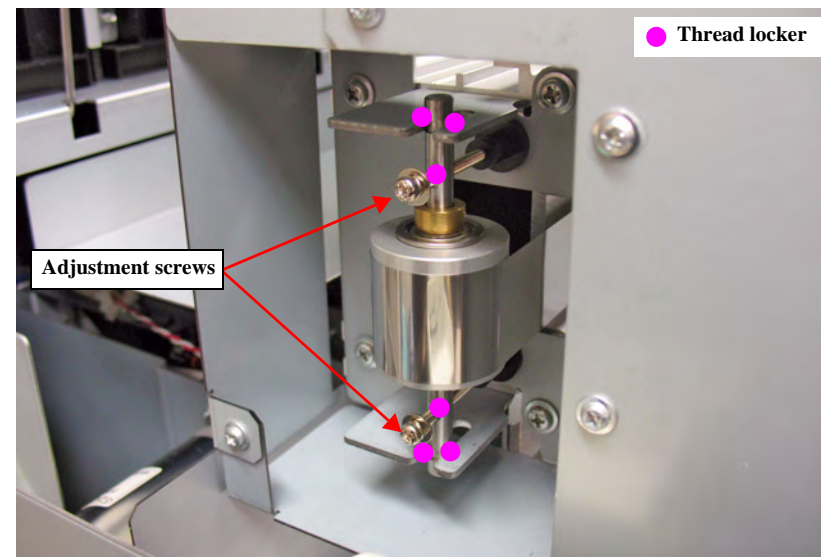


Figure 5-13. Adjustment Screws and Thread locker Positions

3. Attach the BELT TENSION ATTACHMENT jig to the end of the Push-pull gauge, and secure it with a screw.
4. Push the CR BELT at the center with the push-pull gauge until the belt comes in contact with the printer frame so as to measure the tension. Loosen/tighten the tension adjustment screws until the measured value falls within the standard range.
5. Apply thread locker to the shaft of the driven pulley and adjustment screws.

CAUTION

Pay attention not to drop Tread Locker on the belt or it would prevent the belt from moving smoothly.

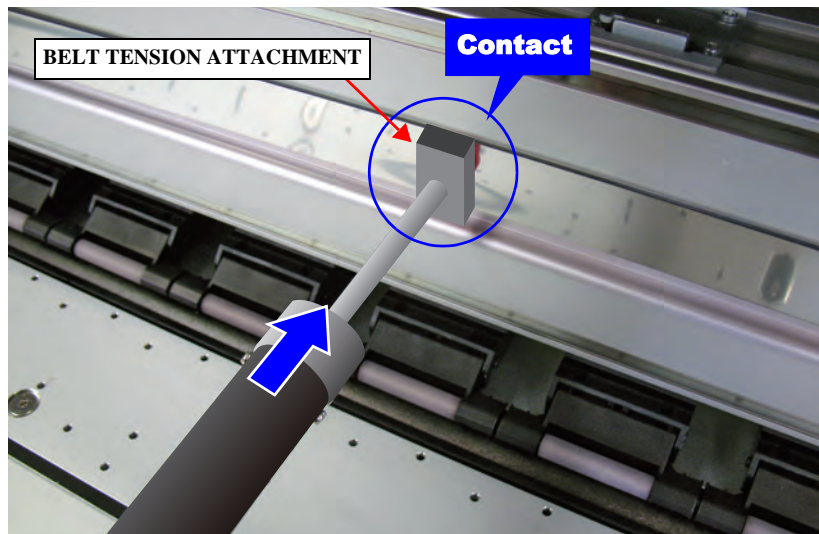


Figure 5-14. Measuring Tension

5.3.2 CR Reduction Belt Tension Adjustment

When the CR MOTOR or the CR BELT is reattached or replaced, or the CR BELT tension is loosened, this adjustment must be carried out to apply proper tension to the belt.

☐ Required Tool

Push-pull gauge (the one which can measure 3.85 kg)

☐ Standard value

3.5kg \pm 10%

☐ Parts need to be removed in advance

- TOP COVER R
- PANEL COVER
- SIDE COVER, R
- IH COVER, R

☐ Procedure

1. Loosen the four screws that secure the CR MOTOR.
2. Remove the screws and release the adjustment wire.
3. Attach the gauge to the wire and pull the gauge toward the rear of the printer.
4. With the specified value is indicated on the scale of the gauge, tighten the four screws to secure the CR MOTOR.
5. Return the wire to the original position.

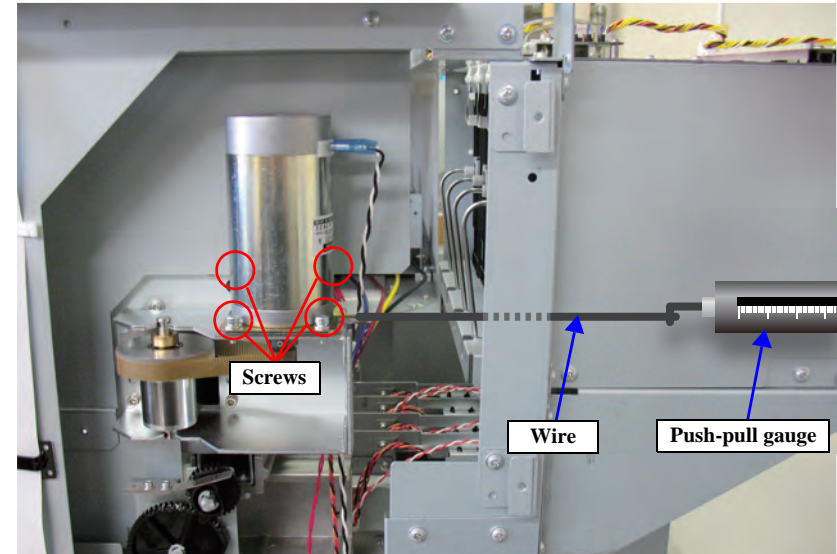


Figure 5-15. CR Reduction Belt Tension Adjustment

5.3.3 CR Height Adjustment

This allows you to adjust the height of the Carriage (CR CURSOR ASSY).

☐ Required Tool

PG ADJUSTMENT JIG

☐ Standard value

Determined by the jig.

☐ Parts need to be removed in advance

CARRIAGE COVER

☐ Procedure

1. Open the front cover.
2. Unlock the carriage unit. [“4.4.1.1 Unlocking the Carriage” \(p.81\)](#)
3. Put the PG ADJUSTMENT JIG on the platen, on the left of the CR.
Place the PG ADJUSTMENT JIG so that the PRINT HEAD goes just above it when the carriage unit is moved.
4. Set the head height adjustment lever to the low position.
5. Move the carriage unit from the home position side toward the jig.
6. Check that the carriage unit passes through over the lower section (1.3mm) and contact the higher section (1.4mm).
7. Move the jig on the other side of the CR (right), and move the carriage unit from the side opposite to the home toward the jig.
8. Check that the carriage unit passes through over the lower section (1.3mm) and contact the higher section (1.4mm).

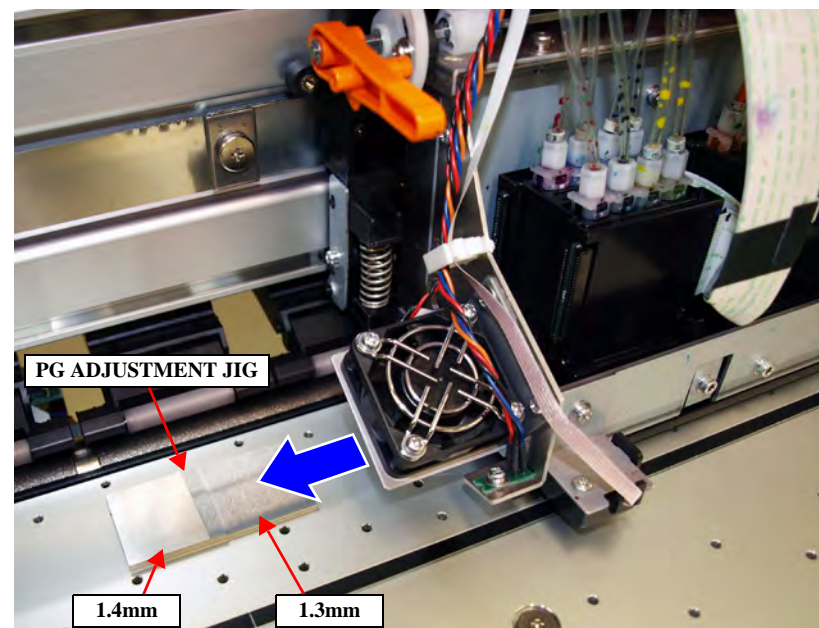


Figure 5-16. Checking the Height of carriage unit

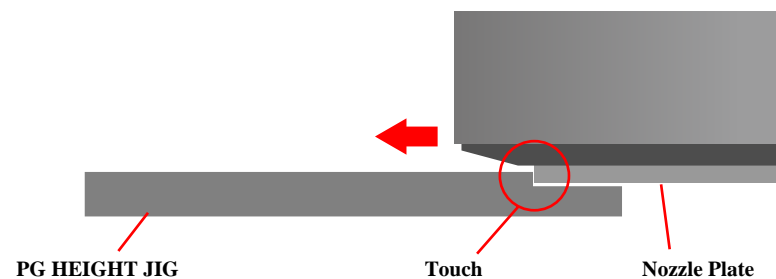


Figure 5-17. Detail view



9. When the carriage unit contacts with the lower section or goes over the higher section without contact, the carriage unit height must be adjusted. Follow the procedure below to make the adjustment.
10. Loosen the adjustment screw that secures the Head UD Collar on the left and right sides of the carriage unit.
11. Move the Head UD Collars up or down to adjust the height of the carriage unit.
12. Tighten the two screws to secure the Head UD Collars.
13. Restart from Step 5 to check the adjustment result.

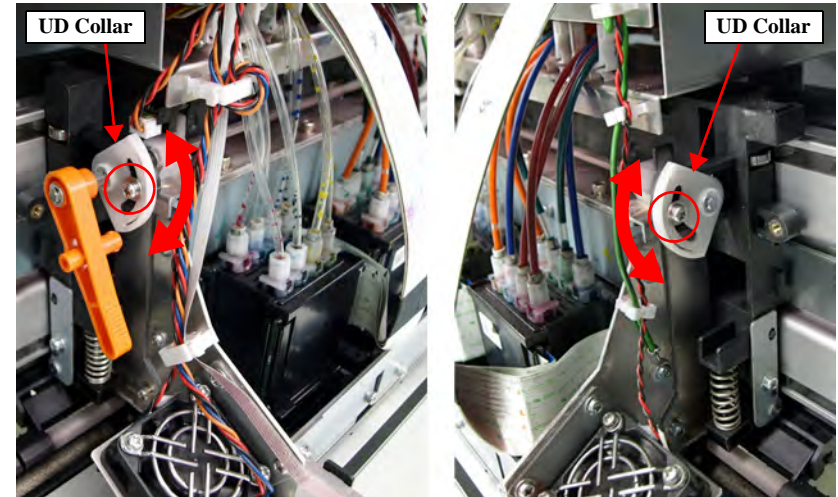


Figure 5-18. Adjusting the Height of Carriage Unit

5.3.4 Media Side Margin Adjustment

This allows you to adjust the margin provided before starting printing.

☐ Required Tool

Ruler

☐ Paper Used

■ Size: 1250 mm

■ Type: Marking Film

☐ Standard Value

5 mm

☐ Procedure

1. Refer to “5.1.6 Cautions and Preparation for Pattern Printing” (p.192), and prepare for printing the pattern.
2. Select **Adjustment** => **Feed Adj. +Side** => **[Enter] Print**, and press the [Enter] button to print an adjustment pattern.
3. Measure the margin at A and B points shown in the figure.

CAUTION



Be sure to place the adjustment pattern print on a flat surface when performing the measurement.

4. Enter the average value of the two measured values, and press the [Enter] button.

CHECK POINT



If there is a big difference between the two values, the paper is skewed. Re-set the paper correctly.

5. Print the adjustment pattern again, and check that the margin length is 5 mm (specified value).

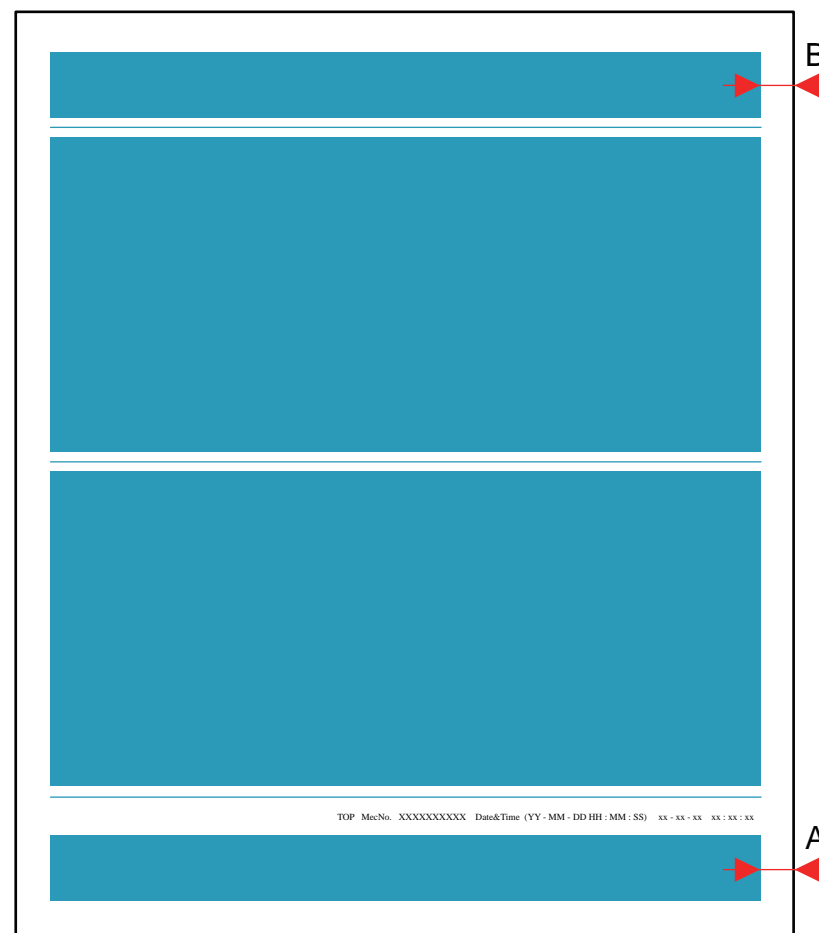


Figure 5-19. Adjustment Pattern



5.4 Head Related Adjustments

5.4.1 Head Rank Input

Whenever the PRINT HEAD is replaced, the characteristic information of the new PRINT HEAD (Head Rank ID) must be written to the printer. The drive voltage applied to the PRINT HEAD is controlled based on the information.

□ Procedure

When getting the Head Rank ID (QR code) from the ID label attached on the PRINT HEAD

CAUTION



- Note down the Head Rank ID indicated on the ID label of the new PRINT HEAD before installing the PRINT HEAD to the Carriage because you can hardly see the ID after the installation.
- When two heads are replaced, it is necessary to note both codes as they have to be input individually for each head. (Make sure you know which code is for the head L and which one for the head R.)

1. Write down the 21-digit Head Rank ID (QR code) indicated on the ID label attached on the new PRINT HEAD.

CAUTION



As with conventional models, “O” and “I” in the alphabet are not used for the alphanumeric characters used for Head Rank IDs.

2. Reassemble the printer.
3. Turn the printer ON.
4. Start the Service Program and select **Head Rank Input**.
5. Enter the 21-digit ID into the edit boxes in the same way as indicated on the label.
6. Click the [Write] button.
7. Click the [Finish] button.

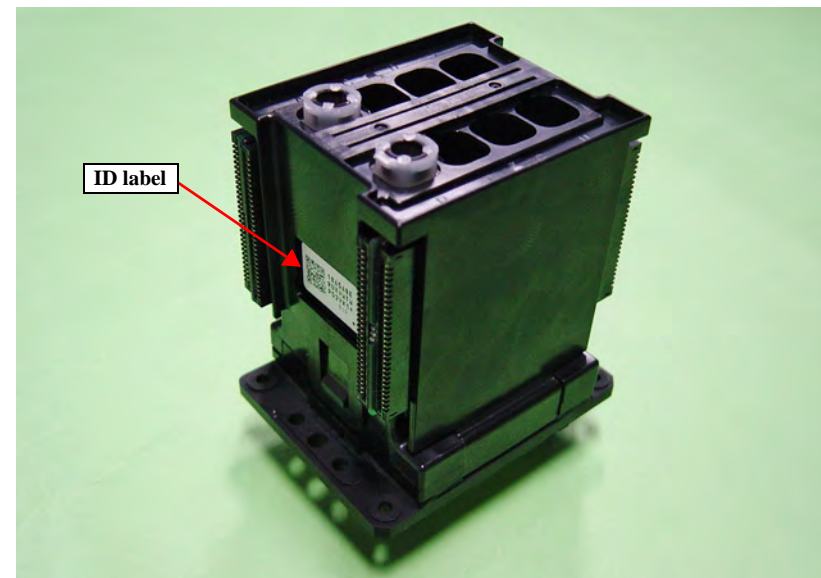


Figure 5-20. Head Rank ID label

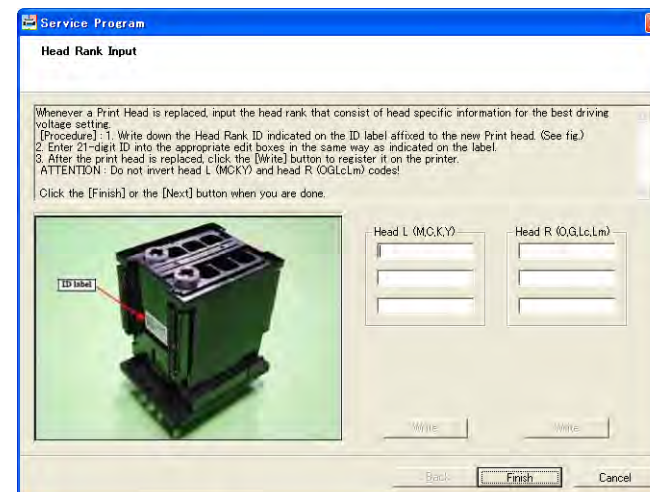


Figure 5-21. [Head Rank Input] Screen

NOTE: Do not invert the codes! (Do not input the Head R Code in the Head L field and vice-versa.)

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5.4.2 Nozzle Check Pattern

This menu allows you to check the ink nozzles for clogging. If they are found to be clogging, perform a cleaning and then check them again.

☐ Paper Used

- Size: 1250 mm
- Type: None specified

☐ Procedure

1. Turn the printer ON.
2. Start the Serviceman Program and select **Nozzle Check Pattern**.
3. Select **Nozzle Check**, and click [Run] to print a nozzle check pattern.
4. Check the printed pattern for dot missing.
5. When no dot missing is observed, click [Finish] to finish checking.
If there is dot missing, perform a cleaning (refer to “5.4.3 Cleaning and Washing” (Page 202)). Then print the pattern again to check



When either A or B nozzle is found as clogged, the user can specify not to use the clogged one by setting the MicroWeave setting of the printer driver to Extra High A or Extra High B.

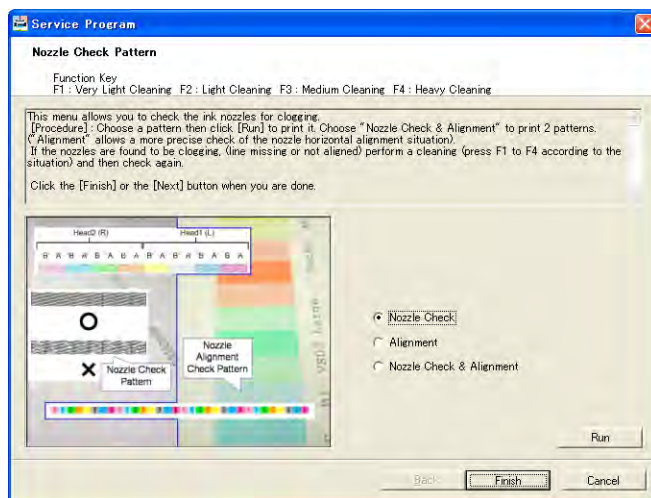


Figure 5-22. [Nozzle Check Pattern] Screen

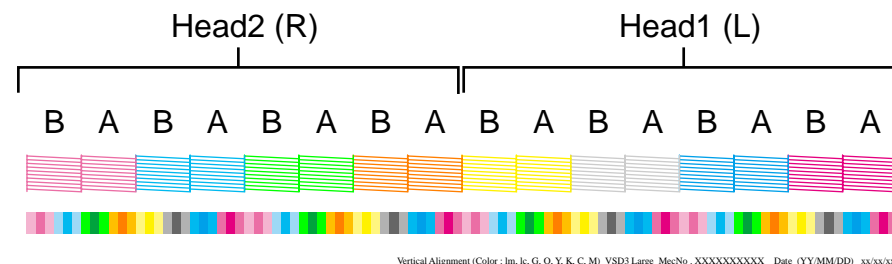


Figure 5-23. Nozzle Check Pattern

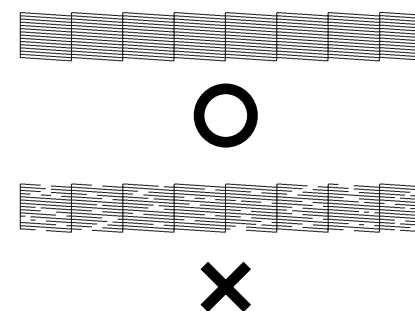


Figure 5-24. Judging the Printout Result

5.4.3 Cleaning and Washing

5.4.3.1 Cleaning

□ Procedure

1. Turn the printer ON.
2. Start the Service Program and select **Cleaning Very Light, Light, Medium and Heavy**.
3. Select the cleaning type and press the corresponding key (F1 to F4) to perform the selected cleaning.

Key	Cleaning	Running time (reference)
F1	Very Light	Approx. 1min., 17sec.
F2	Light	Approx. 1min., 17sec.
F3	Medium	Approx. 1min., 29sec.
F4	Heavy	Approx. 2min., 37sec.

4. When the cleaning is completed, click the [Finish] button.

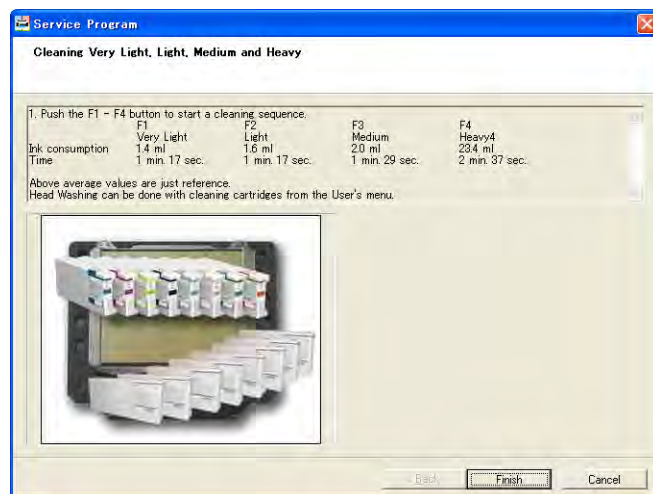


Figure 5-25. [Cleaning] Screen

5.4.3.2 Washing

If the nozzles are still clogged after cleaning the PRINT HEAD a few times, perform head washing.

□ Required Tool

Cleaning cartridges

□ Procedure

1. Turn the printer ON.
2. Select **MAINTENANCE => HEAD WASHING**, and press the [Enter] button.
3. Execute Washing following the instruction on the panel. (Empty the Waste ink tank when requested on the panel.)

5.4.4 Ink Discharge

This allows you to drain ink out of the printer inside mechanism without using cleaning cartridges.

CAUTION

Before performing this, make sure to drain waste ink out of the drain tank.

□ Procedure

1. Turn the printer ON.
2. Start the Service Program and select **Ink Discharge** in the “FLAG CHANGE & COUNTER RESET” menu.
3. Click [Run], and click the [Finish] button.
4. Turn the printer OFF.
5. Turn the printer back ON to start draining ink. (Remove the cartridges when requested on the panel.)
6. When you need to replace some parts, carry out the replacement after turning the printer OFF.
7. Turn the printer back ON. The initial ink charge will be performed. (Place back the cartridges when requested on the panel)

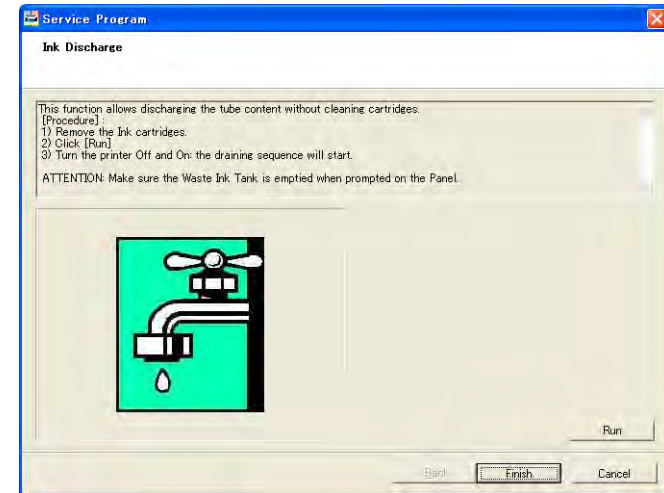


Figure 5-26. [Ink Discharge] Screen

5.4.5 Initial Ink Charge Flag

Use this menu to carry out the initial ink charge.

□ Procedure

1. Turn the printer ON.
2. Start the Service Program and select **Initial Ink Charge Flag**.
3. Select "ON", and click the [Run].
4. Turn the printer OFF.
5. Turn the printer back ON. The initial ink charge will be performed.

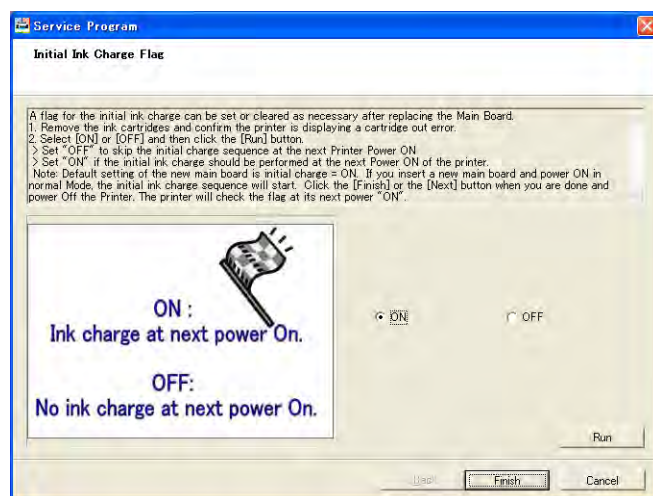


Figure 5-27. [Initial Ink Charge Flag] Screen

5.4.6 Head Slant and Alignment Adjustment

This allows you to check the head angle in both the main and sub scanning directions. The procedure for adjusting the angle in the main scanning direction differs depending on which head is replaced. Make sure to follow the corresponding procedure.

MAIN SCANNING DIRECTION

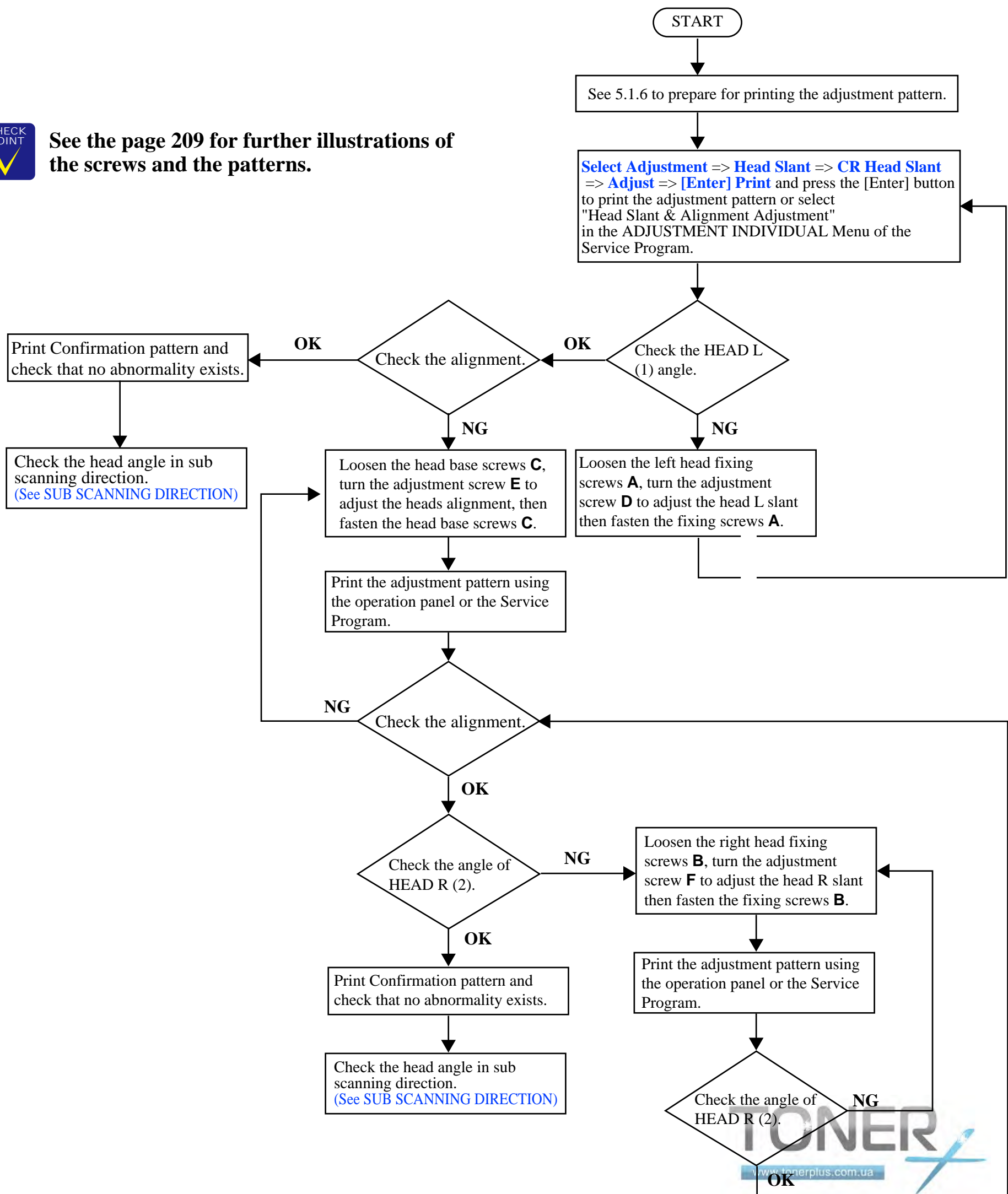
☐ Paper Used

- Size: 1250 mm
- Type: Marking Film



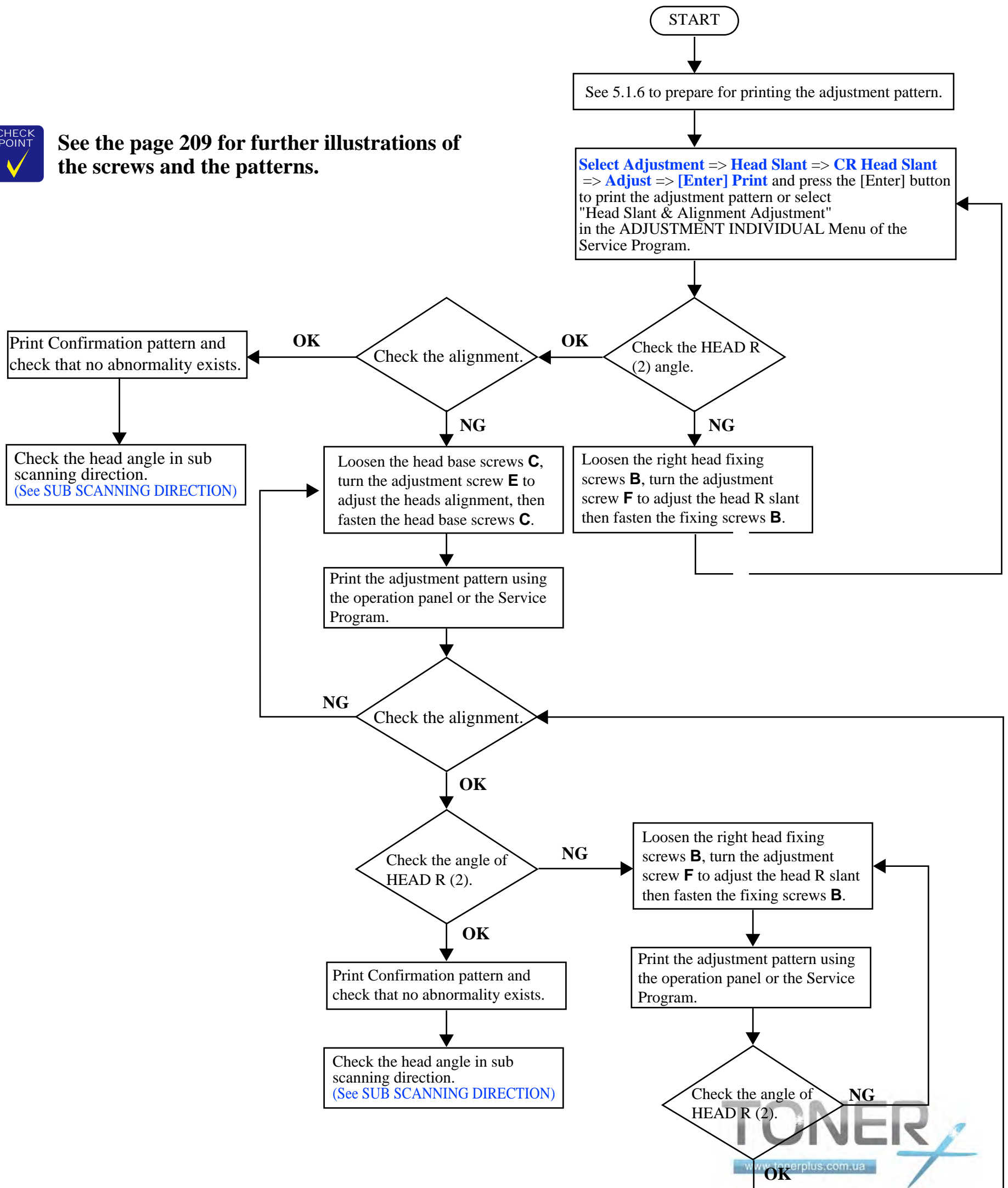


See the page 209 for further illustrations of the screws and the patterns.



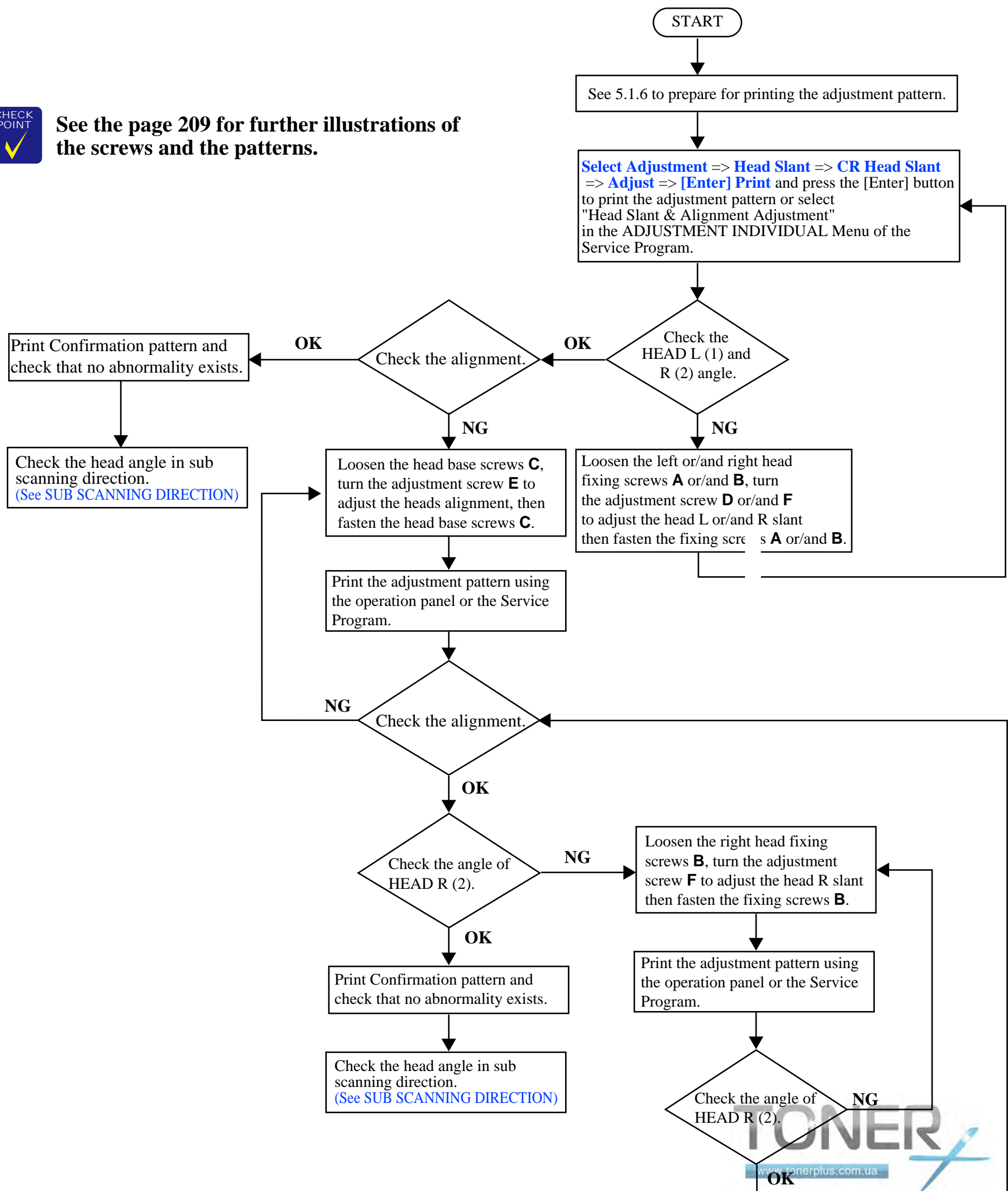


See the page 209 for further illustrations of the screws and the patterns.

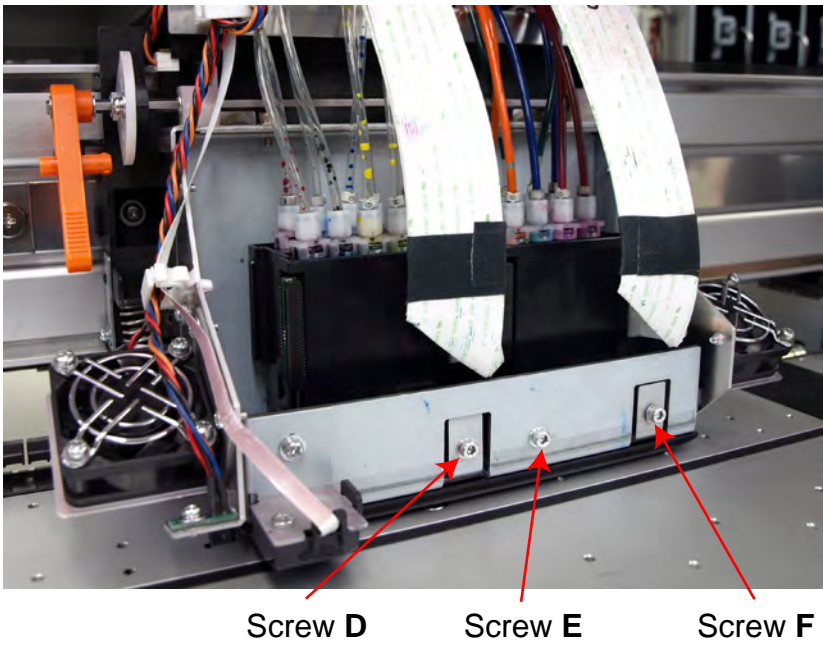
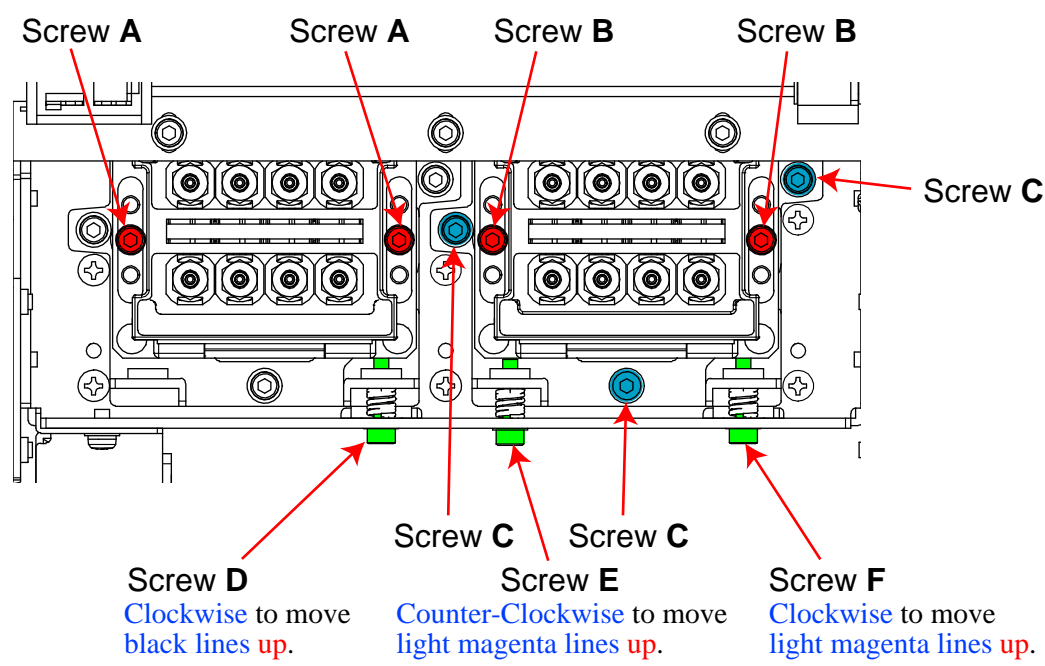




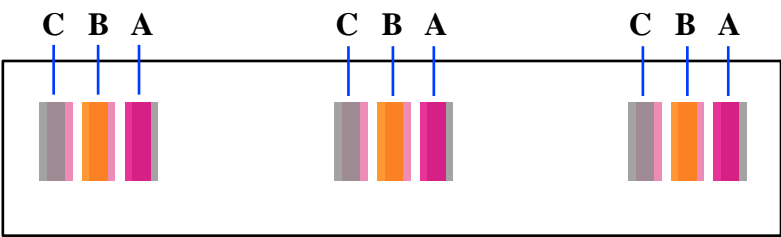
See the page 209 for further illustrations of the screws and the patterns.



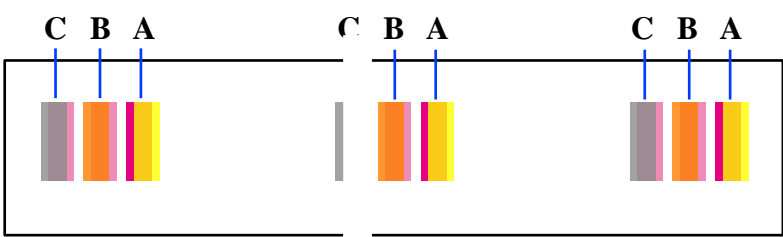
Adjustment Screws



Adjustment Pattern

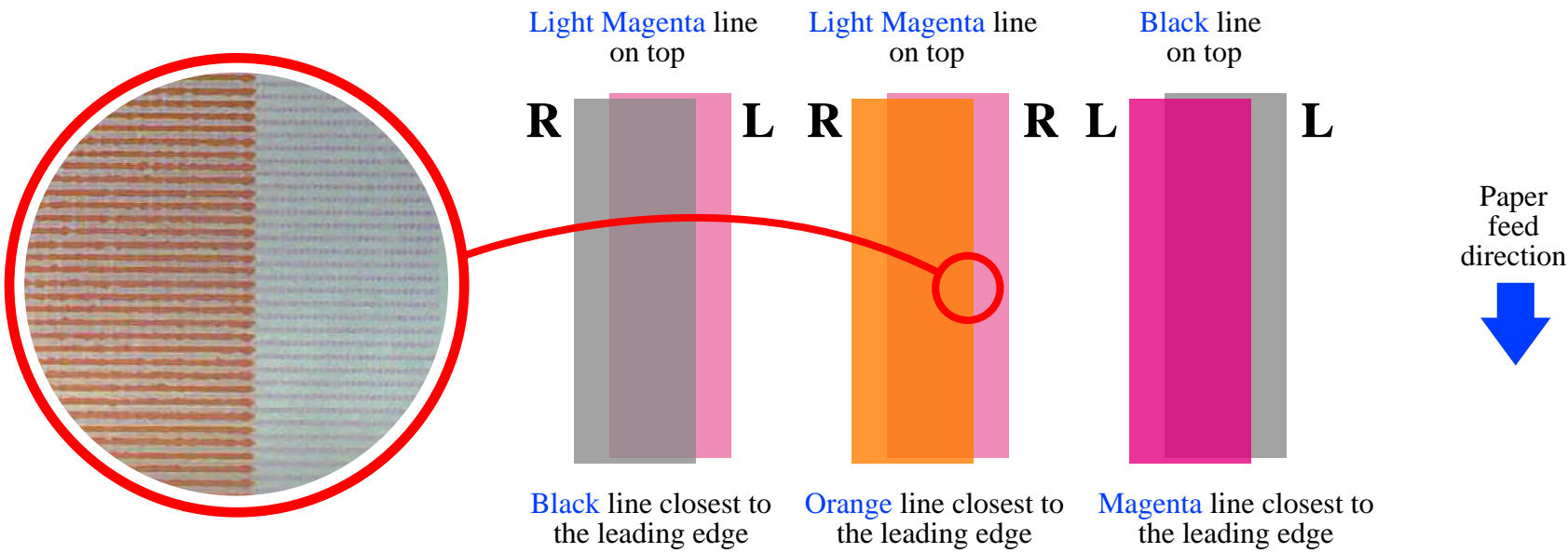


Adjustment Pattern



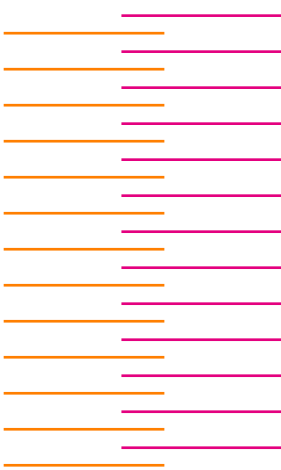
Confirmation Pattern

- A: Head L (1)
- B: Head R (2)
- C: Alignment (L+R)

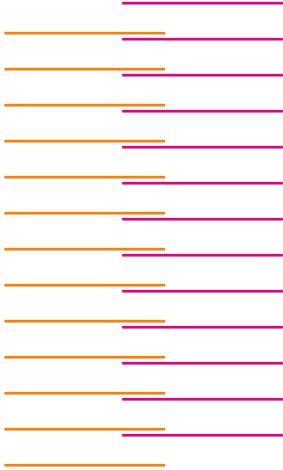


Judging the Printout Result

Correct alignment pattern should be interleaved.



OK



NG



NG

SUB SCANNING DIRECTION

☐ Paper Used

- Size: 1250 mm
- Type: Marking Film

☐ Procedure
CAUTION

The heads slant and alignment must be correctly adjusted before checking this pattern. (See “5.4.6 Head Slant and Alignment Adjustment” (p205))

1. Refer to “5.1.6 Cautions and Preparation for Pattern Printing” (p.192), and prepare for printing the pattern.
2. Select **Adjustment** => **Head Slant** => **PF Head Slant** => **[Enter] Print**, and press the [Enter] button to print an adjustment pattern.
3. Click [Print] to print an adjustment pattern.
4. When the printout result is OK, turn the printer off to end the adjustment. When the result is NG, replace the CR CURSOR ASSY.

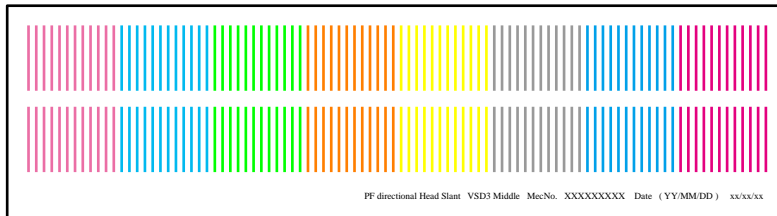


Figure 5-28. Adjustment Pattern

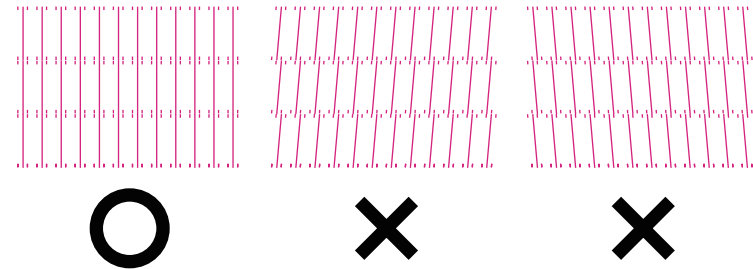


Figure 5-29. Judging the Printout Result

5.4.7 Head Nozzles Alignment Adjustment

This allows you to check whether the head nozzles are horizontally aligned. If some abnormality is found, run a cleaning.

☐ Paper Used

- Size: 1250 mm
- Type: the paper type used by the user

☐ Procedure

1. Refer to “5.1.6 Cautions and Preparation for Pattern Printing” (p.192), and prepare for printing the pattern.
2. Select **Adjustment** => **Nozzle Alignment** => **Output Pattern** => **[Enter]** **Print**, and press the [Enter] button to print an alignment check pattern.
3. Check the printout pattern for any misalignment symptoms.
4. If misalignment is found, execute cleaning in **Nozzle Alignment**.

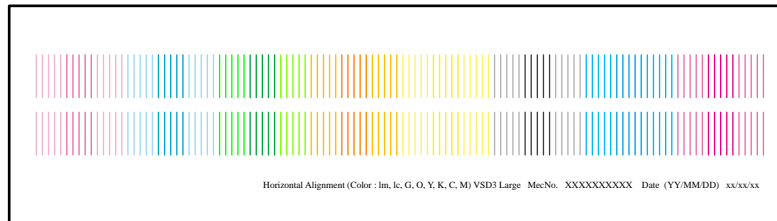


Figure 5-30. Alignment Check Pattern

5.4.8 Head Uni-D/Bi-D Low Gap Adjustment

The allows you to perform uni-directional and bi-directional printing adjustment.

☐ Paper Used

- Size: 1250 mm
- Type: Marking Film

☐ Procedure

1. Refer to “5.1.6 Cautions and Preparation for Pattern Printing” (p.192), and prepare for printing the pattern.
2. This adjustment must be carried out in each of the six print modes listed below. Repeat the following procedure in each mode. Select a print mode to use in **Gap Adj.** of the **Adjustment**, and print the Rough adjustment pattern. You need to first carry out the Rough adjustment and then carry out the Fine adjustment.
 - Uni-D Low/VSD1 400cps
 - Uni-D Low/VSD3 320cps
 - Uni-D Low/VSD3 400cps
 - Bi-D Low/VSD1 400cps
 - Bi-D Low/VSD3 320cps
 - Bi-D Low/VSD3 400cps

CAUTION

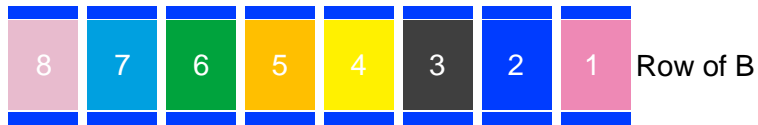


You can choose to print the patterns for all the speeds and dot sizes and enter all the values together, or to print each pattern separately and enter the corresponding values individually for each pattern.

3. When printing the pattern is finished, an adjustment value entry screen appears.
4. Examine the printout pattern for each of the following categories and find the vertical line of most closely aligned with the upper and lower vertical lines for each category.
 - Row (A and B)
 - Color Number (1 to 8)
5. Enter the value for the selected line.
Press **▲** or **▼** button as many times as the number of lines existing between the center line (current setting) and the selected line (including the selected one). Then press the **[Enter]** button to accept the displayed value.
6. When you finished entering the value for 8B, print the Fine adjustment pattern.
7. Examine the printout pattern and find the vertical line of most closely aligned with the upper and lower vertical lines.
8. Enter the value for the selected line.
Press **▲** or **▼** button as many times as the double number of lines existing between the center line (current setting) and the selected line (including the selected one). Then press the **[Enter]** button to accept the displayed value.
9. Select another print mode and repeat the same procedure.

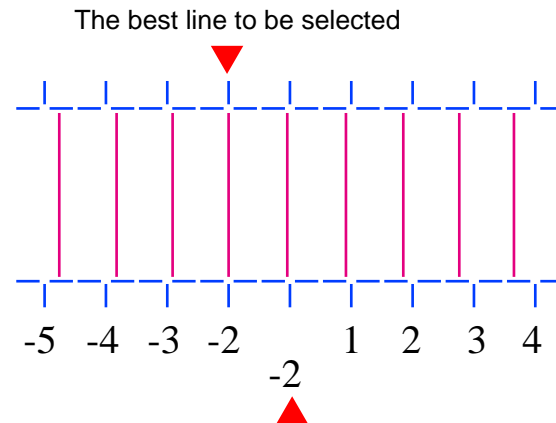


■ Adjustment Pattern



XXX-D : PG XX VSDX XXX Routh Head 1 & 2 MecNo. XXXXXXXXXX Data (YY/MM/DD) xx/xx/xx

■ Enlarged view



(the pattern is printed placing the current setting to the center)

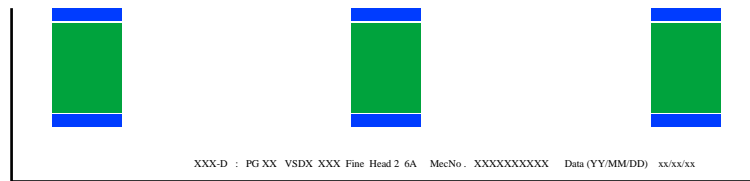
The upper and lower lines stand as a scale and each of them stands at one step. Each time the ▲ or ▼ button is pressed, one step is incremented or decremented.

In the above sample pattern, the best line exists at the second steps leftward (minus) from the center, so you need to press the ▼ button two times.

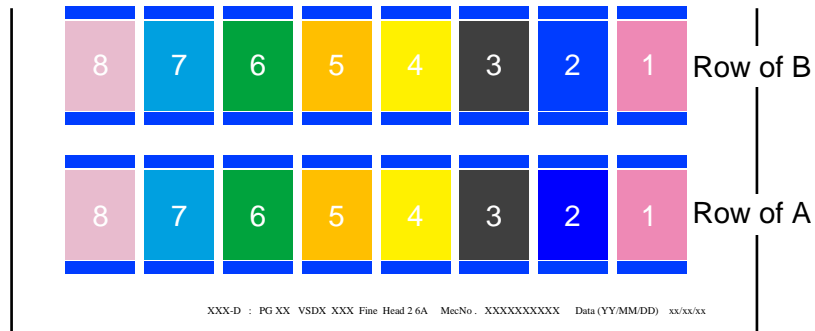
Figure 5-31. Explanation on the Rough Adjustment Pattern



■ Adjustment Pattern



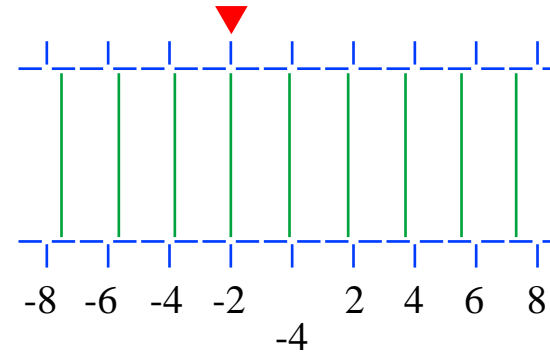
<Uni-D Pattern>



<Bi-D Pattern>

■ Enlarged view

The best line to be selected



The current setting

(the pattern is printed placing the current setting to the center)

The upper and lower lines stand as a scale and each of them stands at two steps. Each time the ▲ or ▼ button is pressed, two steps are incremented or decremented.

In the above sample pattern, the best line exists at the second steps leftward (minus) from the center, so you need to press the ▼ button two times.

Figure 5-32. Explanation on the Fine Adjustment Pattern

5.5 PF Related Adjustments

5.5.1 PF Reduction Belt Tension Adjustment

When the PF REDUCTION BELT tension is loosened, this adjustment must be carried out to apply proper tension to the PF REDUCTION BELT.

☐ Required Tool

Push-pull gauge (the one which can measure 3.85 kg)

☐ Standard value

$3.5\text{kg} \pm 10\%$

☐ Parts need to be removed in advance

- TOP COVER L
- MAINT COVER T
- SIDE COVER, L
- IH COVER L

☐ Procedure

1. Loosen the two screws that secure the PF MOTOR.
2. Attach the gauge to the shaft of the PF MOTOR, and pull the gauge toward the rear of the printer.
3. With the specified value is indicated on the scale of the gauge, tighten the two screws to secure the PF MOTOR.

The view as seen from the top

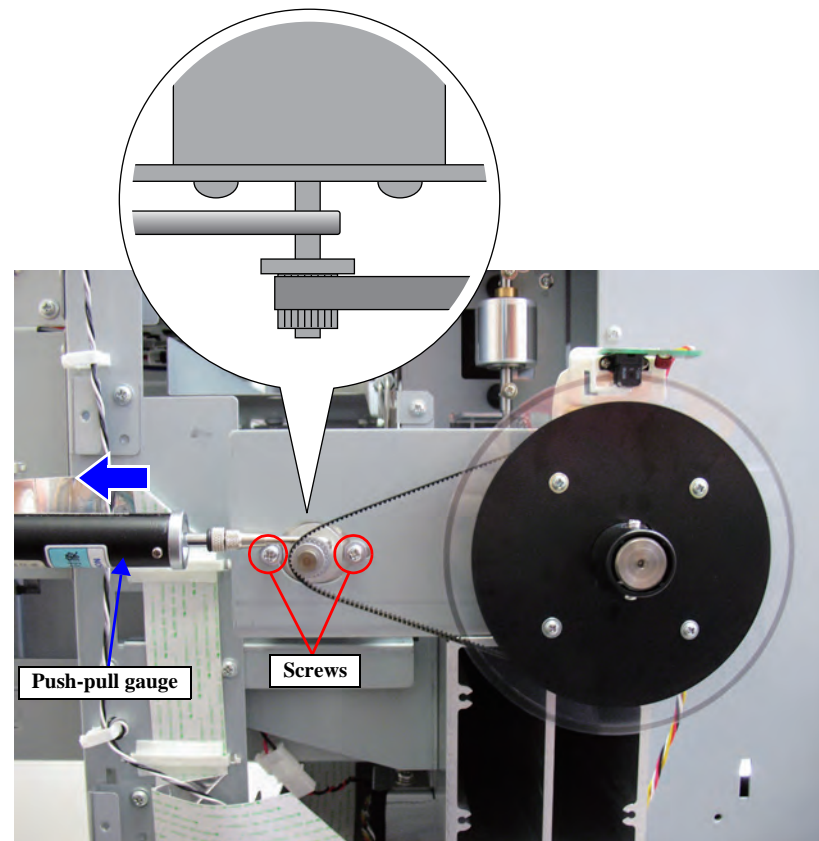


Figure 5-33. PF Reduction Belt Tension Adjustment

5.5.2 Paper Feed Adjustment

This is to adjust the paper feeding amount.

☐ Required Tool

Ruler (that can measure 1,000 mm)

☐ Paper Used

■ Size: 1250 mm

■ Type: Marking Film

☐ Standard Value

980 mm \pm 10 mm

☐ Procedure

1. Refer to “5.1.6 Cautions and Preparation for Pattern Printing” (p.192), and prepare for printing the pattern.
2. Select **Adjustment** => **Feed Adj. +Side** => **[Enter] Print**, and press the **[Enter]** button to print an adjustment pattern.
3. Measure the length indicated on the figure.

CAUTION



Be sure to place the adjustment pattern print on a flat surface when performing the measurement.

4. Enter the measured value and press the **[Enter]** button.
5. Print the adjustment pattern again and check that the length is the specified value.

CHECK POINT



Using the PAPER FEED ADJUST in the user mode, the paper feed adjustment can be carried out using the paper used by the user for each user defined paper setup.

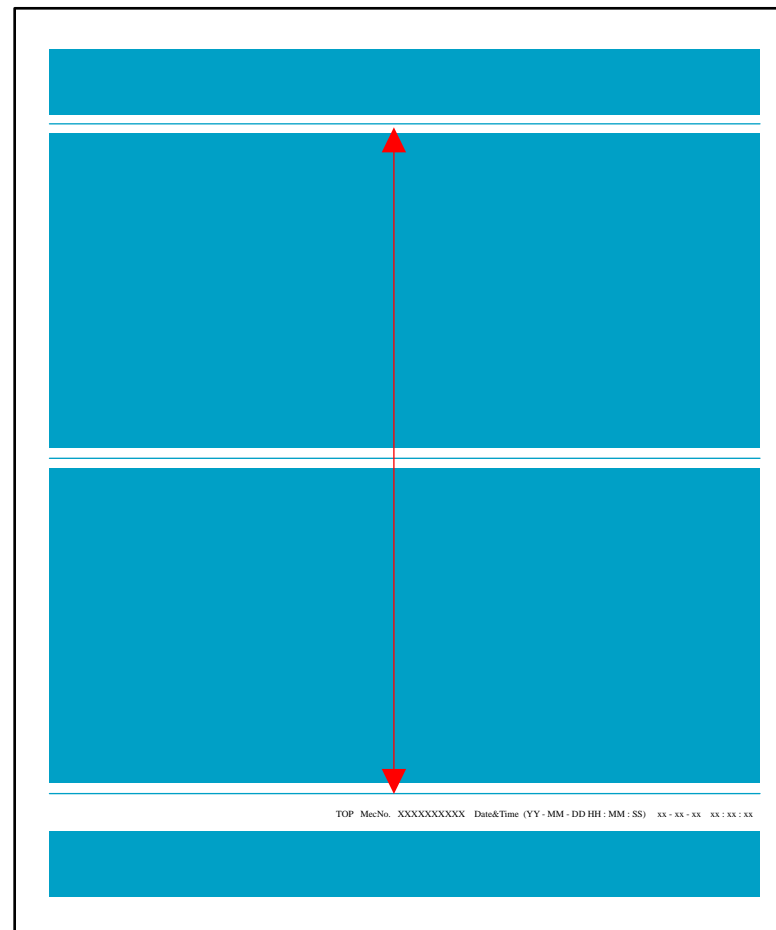


Figure 5-34. Adjustment Pattern



5.6 Other Adjustments

5.6.1 RTC and USB ID

This allows you to reset the date and time of the RTC backup battery and to set the USB ID.

CAUTION



If the printer is turned OFF and back ON after changing the USB ID, the computer (Windows) detects the USB port used to connect the printer as a new port and automatically copies the printer driver as xxxx (copy x). If you need to perform another adjustment using the Service Program, exit out of the program once and select the “copy x” driver next time.

CHECK POINT



Writing RTC data and Writing USB ID can be performed individually.

□ Procedure

1. Turn the printer ON.
2. Start the Service Program and select **RTC and USB ID**.
 - Writing RTC data
 - 3. Check if the date and time displayed on the screen is correct. Enter the correct date and time if necessary.
 - 4. Click the [Write RTC] if you wish to modify the registered date and time.
 - Writing USB ID
 - 5. Input the 10-digit serial number of the printer. USB ID is automatically created according to the serial number.
 - 6. Click the [Write USB ID] to write the USB ID on the NVRAM of the new Main Board.
 - Confirmation
 - 7. Click the [Next] button to display a confirmation screen. The information written on the NVRAM is displayed on the screen. Confirm the information and click [OK].
 - 8. Click the [Finish] button.

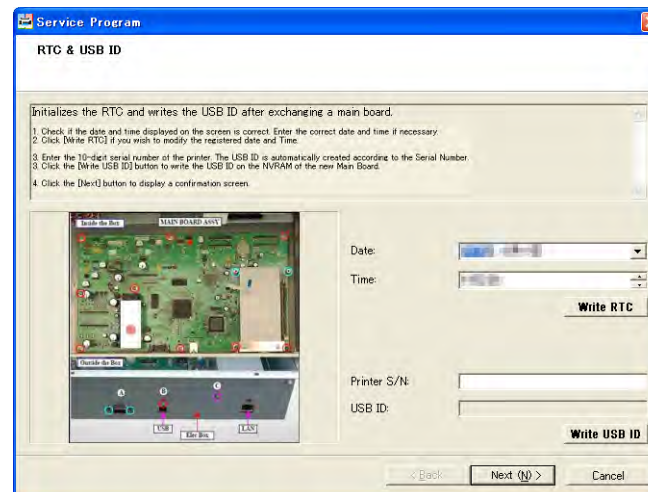


Figure 5-35. [RTC and USB ID] Screen

5.6.2 Firmware Update

This section explains how to update the firmware. The following four kinds of firmware are provided for the printer. Each of them must be updated individually as need arises. The update procedure is the same for the all kinds of firmware.

- Main firmware
- Heater firmware
- Network firmware
- EDM firmware

CAUTION



If the printer is turned ON for the first time after the main firmware is uploaded on the newly mounted Main Board which does not have any parameters at all, the printer automatically performs the initial ink charge. When the initial ink charge is not necessary, be sure to clear the flag. See “5.4.5 Initial Ink Charge Flag” (p.204).

□ Tool and System Requirements

Firmware Update Tool

- OS: Windows 2000, XP, VISTA
- Interface: USB, Network

□ Procedure

1. Connect the printer to the computer with a USB or network cable.

CHECK POINT



Select the interface to use for the update according to the kind of firmware as shown below.

- Main firmware: USB
- Heater firmware: USB
- Network firmware: USB or Network
- EDM firmware: Network

2. Turn the printer ON.

CAUTION



The firmwares should be always be updated when the printer is in “Ready” situation. In case the printer does not become “Ready”, update the main firmware in Firmware Update Mode (while pressing down [Heater] + [Paper Feed (up)] + [Paper Feed (down)] + [Menu], power on the printer), then update the remaining firmwares in normal mode.

3. Start the Service Program and select **Firmware Update Tool**.
4. To update Printer, Heater or Network firmware via USB, Select the firmware file. To update the Network or EDM Firmware via a Network connection, click the [Update].

NOTE: Another window will open when updating the EDM or Network firmware via a Network connection.

5. Click the [Update] button to transfer the firmware data.
6. When the transferring is completed, “Complete” pop-up window will be displayed. Click the [OK] button.
7. When writing the firmware is completed, the printer should be rebooted.

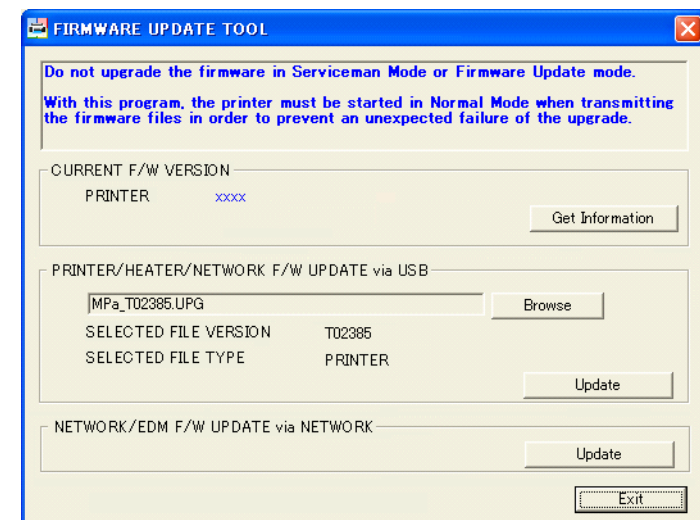


Figure 5-36. [Firmware Update Tool] Screen

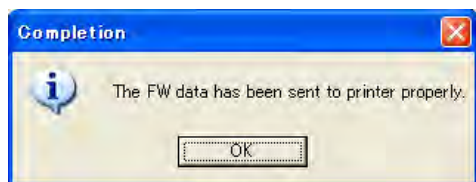


Figure 5-37. [Completion] Pop-up Window



Wait until a firmware is successfully updated (check printer panel) before you send another command.

5.6.3 Washing Sequence Flag

This product is set at the factory to execute a washing sequence when turning it ON for the first time. This washing sequence is essential to prevent quality troubles in the ink system the first time the printer is used.

With the service program, setting the cleaning flag to “on” allows having a washing sequence started next time the printer will be turned ON while setting the flag to “off” allows skipping the washing sequence next time the printer will be turned ON and go directly to the ink charge sequence.

Examples of use:

- In case the parameters in the NVRAM cannot be backed up during a main board exchange, the parameters of the new board are reset to the ex-factory situation so the washing sequence mentioned above will be executed the next time the printer is turned ON. In case a washing sequence was not required (ink already charged, no cleaning cartridge available, etc.), setting the flag to “Off” can skip the washing sequence and go directly to the ink charge sequence. If necessary, the ink charge sequence can be skipped by modifying the ink charge flag.
- In case a printer is washed and the sequence stopped before the ink charge (preparation for a transport, refurbishment, etc.), setting the flag to “On” allows having a washing sequence re-started again from the beginning the next time the printer will be turned ON. (Reset to the same situation as the factory shipment.)

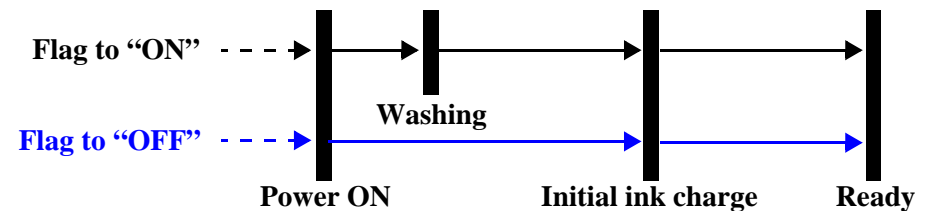


Figure 5-38. Sequence

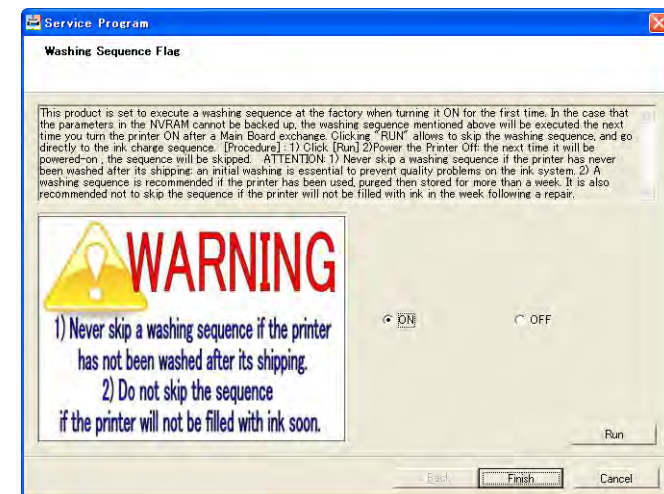


Figure 5-39. [Washing Sequence Flag] Screen

CAUTION



- Never skip a washing sequence if the printer has never been washed after its shipping: an initial washing is essential to prevent quality problems on the ink system.
- A washing sequence is recommended if the printer has been used, purged then stored for more than a week. It is also recommended not to skip the sequence if the printer will not be filled with ink in the week after a repair.

□ Procedure

1. Turn the printer ON.
2. Start the Service Program and select **Washing Sequence Flag**.
3. Select “ON” or “OFF”, and click the [Run].
4. Click the [Finish] button.
5. Turn the printer OFF.

5.7 Clear Counters

Whenever the parts/units which have life counter are replaced, the corresponding life counter must be reset. This is important to replace those parts/units at the correct timing.

CAUTION

!

The printer stores the counter reset history up to 10 resets. Be careful not to reset the counters more than necessary or the older reset histories will be deleted.

- Procedure
1. Turn the printer ON.

2. Start the Service Program and select a target **Counter Reset** menu.

3. Press [Run] to reset the counter.

4. Click the [Finish] button.

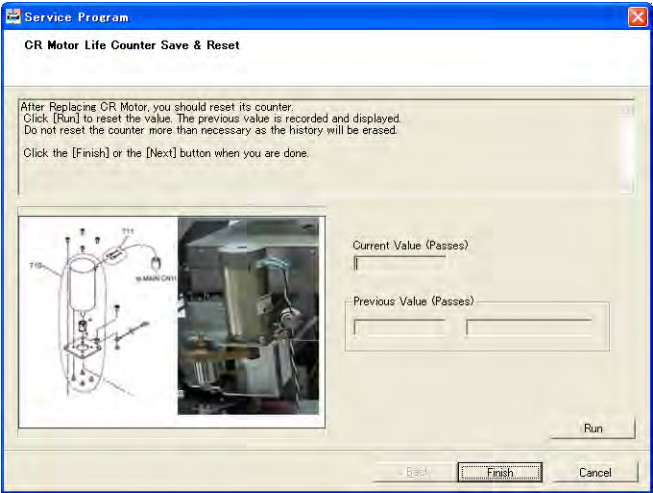


Figure 5-40. [Clear Counter] Screen

Table 5-2. Clear Counter Menu List

Replaced Part/Unit	Menu Name
CR MOTOR	CR Motor Life Counter Save & Reset
PF MOTOR	PF Motor Life Counter Save & Reset
PRINT HEAD L (1)	Head L (M,C,K,Y) Life Counter Save & Reset
PRINT HEAD R (2)	Head R (O,G,Lc,Lm) Life Counter Save & Reset
PUMP ASSY 1	Pump Motor 1 (Front) Life Counter Save & Reset
PUMP ASSY 2	Pump Motor 2 (Rear) Life Counter Save & Reset
WIPER ASSY	Head Wiping Counter Reset
CLEANER HEAD	

CAUTION

!

Take care when using **All Counter Clear** in Counter Reset. This function clears all the counters such as the total operating time or the like including the parts to be replaced mentioned above.



5.8 Tests

5.8.1 Network Test

Use this to check if the printer can communicate with the computer via a network.

□ Procedure

1. Turn the printer ON.
2. Start the Adjustment Program, and select “Network Communication Confirmation”.
1. Turn the printer ON.
2. Start the Service Program and select a target **Check Network Communication** menu.
3. Enter the IP address of the printer, and press [Run].
When the network communication is available, a status sheet is printed automatically.
4. Click the [Finish] button.

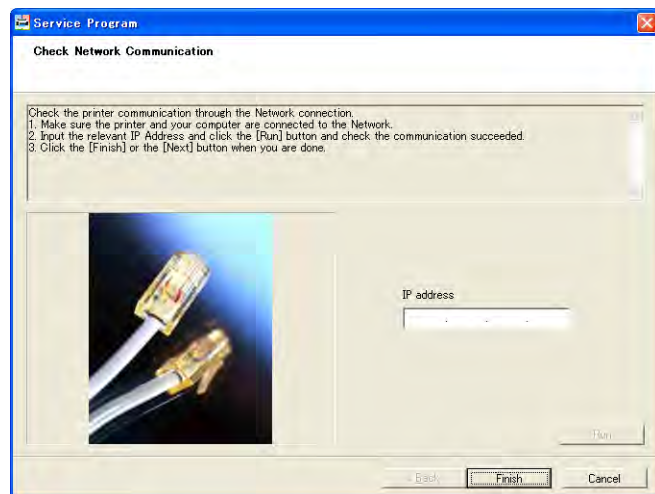


Figure 5-41. [Check Network Communication] Screen

5.8.2 Skew Test

This checks how much skew the fed paper is, and corrects if the skew amount falls outside the standard range.

☐ Paper Used

- Size: 1250 mm
- Type: Marking Film

☐ Standard value

Within $\pm 0.5\text{mm}$

☐ Procedure

1. Refer to “5.1.6 Cautions and Preparation for Pattern Printing” (p.192), and prepare for printing the pattern.
2. Select **Adjustment** => **Skew Check**.
3. Confirm that the value is set to 1.0m, and press **[Enter]**. Then the paper is ejected and the skew value is measured by the PAPER EDGE SENSOR and is displayed on the LCD panel.
4. If the value fits within the standard, turn the printer OFF and finish the adjustment. If not, verify the status of the loaded paper and repeat the check until the value falls within the standard range.



5.8.3 Electric Components Test

This test menu allows you to confirm whether or not the electric components such as sensors and fans operate normally.


☐ Basic Operation


1. Enter the Serviceman Mode.
Turn the printer ON while pressing **[Pause/Reset]** + **[Paper Feed ▼]** + **[Menu]** simultaneously.
2. When **SELF TESTING** is displayed, press the **[Enter]** button to enter the self-diagnostic menu.
3. Referring to the table below, perform the test corresponding to the part you wish to test.

☐ Check list by repaired part

Test Menu	Related Parts	Procedure	Check/Action
Sensor Test	FRONT CLEAR COVER	1. Select the menu as follows. Ctrl. Test => Ctrl. Sns => CtrlSns. Etc => Front Cover 2. Open and close the FRONT CLEAR COVER.	Check that the sensor status changes according to the opening/closing operations. Sensor Status: Open/Close, Main Board Status: OK/NG The left and right cover sensors are designed so that they do not react when the other one is in open status. Make sure to check the left and right cover sensors individually.
	F COVER SENSOR R		
	F COVER SENSOR L		
	CR HP SENSOR	1. Select the menu as follows. Sensor => CR Origin 2. Manually move the CR CURSOR ASSY to the home position or away from the home position.	Check that the sensor status correctly reflects the CR CURSOR ASSY position (Home position = "On"). Status: On/Off
	LEVER SENSOR	1. Select the menu as follows. Sensor => PG 2. Move the Head Height Adjustment Lever between its highest and lowest positions.	Check that the sensor status correctly reflects the lever position. Status: Low/High
	PG HEIGHT SENSOR		
	M COVER SENSOR R	1. Select the menu as follows. Ctrl. Test => Ctrl. Sns => CtrlSns. Etc => Mainte Cover 2. Open and close the right Maintenance cover.	Check that the sensor status changes according to the opening/closing operations. Sensor Status: Open/Close, Main Board Status: OK/NG
	M COVER SENSOR L	1. Select the menu as follows. Ctrl. Test => Ctrl. Sns => CtrlSns. Etc => Mainte Cover 2. Open and close the left Maintenance cover.	Check that the sensor status changes according to the opening/closing operations. Sensor Status: Open/Close, Main Board Status: OK/NG
	IC COVER SENSOR R	1. Select the menu as follows. Ctrl. Test => Ctrl. Sns => CtrlSns. Etc => Ink Cover 2. Open and close the right Ink cartridge cover.	Check that the sensor status changes according to the opening/closing operations. Status: Open/Close



Test Menu	Related Parts	Procedure	Check/Action
Sensor Test	IC COVER SENSOR L	1. Select the menu as follows. Ctrl. Test => Ctrl. Sns => CtrlSns. Etc => Ink Cover 2. Open and close the left Ink cartridge cover.	Check that the sensor status changes according to the opening/closing operations. Status: Open/Close
	SUB TANK SENSOR	1. Select the menu as follows. Ctrl. Test => Ctrl. Sns => CtrlSns. Tank => X* H/L/V “*” stands for the number of sub tank to be tested. 2. Manually move the actuator to shut off the light emitted from the photo sensor.	Check that the sensor status changes according to the actuator operation. Status: Off/On/Off
	SUB TANK ASSY		
	PAPER LEVER SENSOR	1. Select the menu as follows. Sensor => Paper Lever 2. Move the Paper Lever between its highest and lowest positions.	Check that the sensor status correctly reflects the lever position. Status: Up/Down
	WASTE FLUID LEVEL SW ASSY	1. Select the menu as follows. Sensor => Mtank 2. Remove the WASTE FLUID LEVEL SW ASSY from the Ink drain tank to check the sensor. 	Check that the status correctly reflects the sensor status. Status: Not Full/Full (Full = When the floating cork of the sensor is moved up.)
Panel Test	PANEL ASSY	1. Select the menu as follows. Panel => Key 2. Press the buttons on the panel one by one.	Check that the name of the pressed button is displayed on the panel. To end the test, press the [Pause] button twice.
		1. Select the menu as follows. Panel => LCD	The entire portion of the LCD gets black. Check that no missing points are observed on the LCD.
		1. Select the menu as follows. Panel => LED	The LEDs light up one by one. Check that the name of the lit LED is displayed on the panel.
Fan Test	COOLING FAN PE	1. Select the menu as follows. Ctrl. Test => Ctrl. Fan => Box Fan	Visually or acoustically check that the fan is operating.
	COOLING FAN (24V)	1. Select the menu as follows. Ctrl. Test => Ctrl. Fan => Mist Fan => Mist Fan X* *: Fan number (there are three cooling fans)	Visually or acoustically check that the fan is operating.

Test Menu	Related Parts	Procedure	Check/Action
Fan Test	VACUUM FAN	1. Select the menu as follows. Fan => Paper X* *: Fan number (there are four vacuum fans)	Visually or acoustically check that the fan is operating.
	COOLING FAN (Left)	1. Select the menu as follows. Fan => Head Fan 1	Visually or acoustically check that the fan is operating.
	COOLING FAN (Right)	1. Select the menu as follows. Fan => Head Fan 2	Visually or acoustically check that the fan is operating.
	HEATER BOARD COOLING FAN	1. Select the menu as follows. Fan => HT Fan	Acoustically or by the air exhausted from the exhaust outlet, check that the fan is operating.
Alarm LED Test	ALARM LED	1. Select the menu as follows. Panel => Printer Check LED	Check that the LED (Active Indicator) flashes.
Encoder Test	CR ENC ASSY CR ENC SCALE	1. Select the menu as follows. Encoder 2. Manually move the CR CURSOR ASSY.	1. Check that the CR value indicated on the panel changes according to the CR CURSOR ASSY position. 2. Determine a base point and move the CR CURSOR ASSY away and back to the base point to see whether the displayed CR value returns to the base point displayed value.
	PF ENCODER ASSY	1. Select the menu as follows. Encoder 2. Manually turn the paper feed roller. 	Check that the PF value indicated on the panel changes as the roller is rotated.
	PF ENC SCALE		
	PF MOTOR		
	PF REDUCTION BELT		
Heater Test	PRE HEATERS (64)	1. Select the menu as follows. This test causes the heater temperature to rise to 50 degrees C. Ctrl. Test => Ctrl. Sns => CtrlSns. Tank => Pre. Heater	Check that the temperature indicated on the panel goes up to 50 degrees C.
	PLATEN HEATER (64)	1. Select the menu as follows. This test causes the heater temperature to rise to 50 degrees C. Ctrl. Test => Ctrl. Sns => CtrlSns. Tank => Platen. Heater	Check that the temperature indicated on the panel goes up to 50 degrees C.
	AFTER HEATER (64)	1. Select the menu as follows. This test causes the heater temperature to rise to 50 degrees C. Ctrl. Test => Ctrl. Sns => CtrlSns. Tank => After. Heater	Check that the temperature indicated on the panel goes up to 50 degrees C.

Test Menu	Related Parts	Procedure	Check/Action
Heater Test	THERMISTOR, PRE	1. Select the menu as follows. Ctrl. Test => Ctrl. Sns => CtrlSns. Etc => Pre. Heater	Check that an abnormal temperature is not detected.
	THERMISTOR, PLATEN	1. Select the menu as follows. Ctrl. Test => Ctrl. Sns => CtrlSns. Etc => Platen. Heater	Check that an abnormal temperature is not detected.
	THERMISTOR, AFTER	1. Select the menu as follows. Ctrl. Test => Ctrl. Sns => CtrlSns. Etc => After. Heater	Check that an abnormal temperature is not detected.
Solenoid Test	CR LOCK SOLENOID ASSY	1. Manually unlock the CR CURSOR ASSY, and move the CR CURSOR ASSY away from the home position. 2. Select the menu as follows. Actuator => CrLock Sol.	Visually check that the CR LOCK SOLENOID ASSY is operating (Lubricate if necessary).
	TWO-WAY VALVE ASSY	1. Select the menu as follows. Ctrl. Test => Actuator => Tank Valve => Valve X* *: Valve Number (1-8)	Visually check that the valve mechanism is operating.
	WIPER ASSY	1. Manually unlock the CR CURSOR ASSY, and move the CR CURSOR ASSY away from the home position. 2. Select the menu as follows. Ctrl. Test => Actuator => Wiper	Visually check that the wiper is operating.
Media Edge Sensor Test	MAIN BOARD ASSY	Test 1: 1. Select the menu as follows. Sensor => EdgeAD 2. Manually move the CR CURSOR ASSY to the position above the platen and the paper. Test 2: 1. Select the menu as follows. When this menu is executed, the CR CURSOR ASSY will move automatically. Edge Sns Lvl	Test 1: Check that the value indicated on the panel switches between the platen and paper positions. Test 2: The printer automatically performs the sensing test. Check that "OK" is displayed on the panel when the test is finished.
	PAPER EDGE SENSOR		
	PLATEN REFLECTIVE TAPE		
	CR CURSOR ASSY		
Rear Sensor Test	MAIN BOARD ASSY	1. Select the menu as follows. Sensor => RearAD 2. Place some paper in the PAPER REAR SENSOR position (Middle of the Pre-Heater).	Check that the value displayed on the panel changes according to the paper existence.
	PAPER REAR SENSOR		

CHAPTER

6

MAINTENANCE



6.1 Overview

This chapter provides information on how to maintain the printer in its optimum operating condition.

Basically, servicing on the printer should be performed on-site. Be sure to strictly observe the following precautions to avoid an accident or injury causing the user trouble.



- The power switch is installed on the secondary side of the power circuit, so power is always supplied to the power supply circuit even when the switch is OFF unless the two power cords are unplugged from the wall power outlets. Unless otherwise stated (for printing or operation checks), be sure to unplug the two power cords from the wall outlets before disassembling or assembling the printer to prevent electric shock and damage to the circuit.
- A lithium battery is mounted on the Main Board (control circuit) for memory backup. Be sure to observe the following precautions when handling the lithium battery.
 - Be careful not to short the electrode of the battery.
 - When replacing the battery, make sure to insert it in correct orientation.
 - Never heat the battery or plunge it into the flames.
 - Do not put the Main Board directly on conductive materials.
- Be extremely careful not to get the ink into your eye or let it come into contact with your skin. If it happens, wash out your eye or skin with water immediately. If any abnormality is found, contact a physician.

CAUTION



- Ensure sufficient work space for servicing.
- The printer weighs approx. 183kg. When the printer needs to be moved, make sure to lift or carry it using the carrying bars by six people. (refer to “6.2.2 Transportation” (p231))
- When using compressed air products; such as air duster, for cleaning during repair and maintenance, the use of such products containing flammable gas is prohibited.
- Be sure to spread a sheet of paper or cloth on the work space before removing any ink-path-related parts or components to keep the space from being soiled with leaked ink.
- Do not touch electrical circuit boards with bare hands as the elements on the board are so sensitive that they can be easily damaged by static electricity. If you have to handle the boards with bare hands, use static electricity discharge equipment such as anti-static wrist straps.
- When the printer has to be operated with the covers removed, take extra care not to get your fingers or clothes caught in moving parts such as the drive gear unit or carriage unit.
- When the printer needs to be repacked for transportation after being used, make sure to follow the steps below after turning the power OFF.
 1. Check that the PRINT HEAD is capped properly.
 2. Dispose of waste ink from the ink drain tank.
 3. Remove all the cables including the power cords.
 4. Loosen the adjusters of the Stand.



6.2 Setting up and Transportation

6.2.1 Setting up

Make sure to open up the following installation room for the printer so as to maintain appropriate operation and usability.

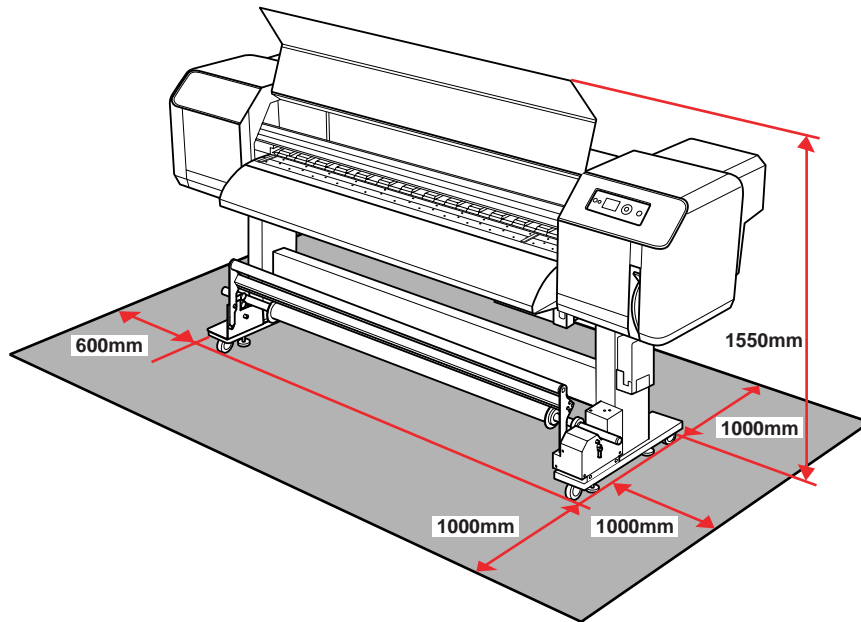


Figure 6-1. Installation Room Requirement

6.2.2 Transportation

When detaching the body section of the printer from the Stand, follow the steps below.

1. Insert the two carrying bars into their carrier holes (two each) at the bottom of the printer.
2. Verify that the bars are inserted until the heads of the screws touch the carrier holes, then turn the bars so that there is a screw head in both sides of the carrier hole's sides. (This prevents the bars from sliding during the transport.).

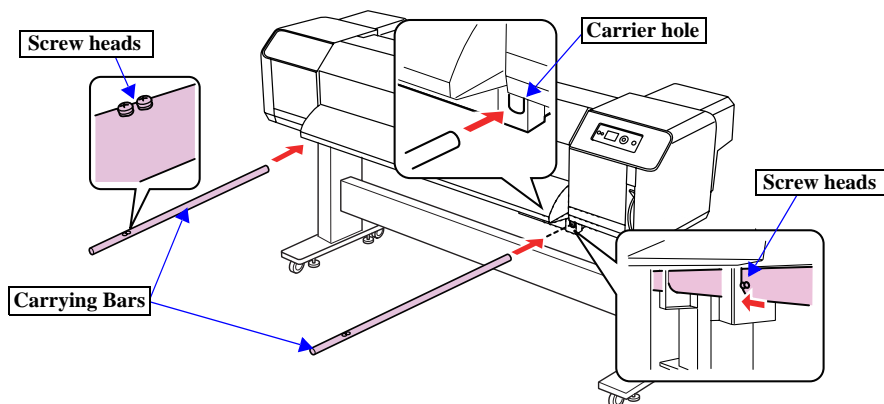


Figure 6-2. Preparation to Carry the Body Section

3. Lift the body section using the carrying bars by six people to remove it from Stand.

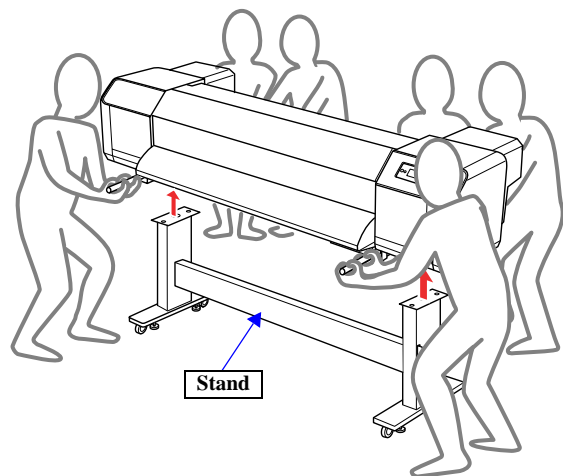
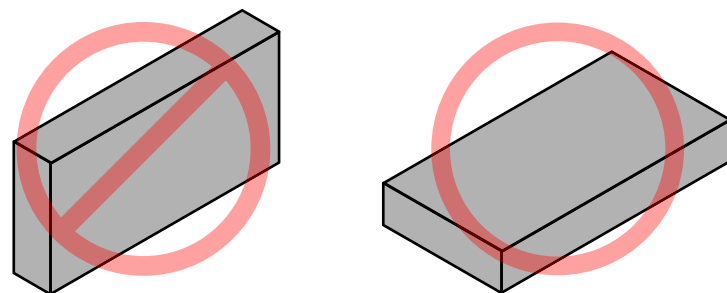


Figure 6-3. Detaching the Body Section

CAUTION



For the transport, if 950ml cartridges were used, they should be removed from the printer and transported “flat”, wider side down as vibrations could make the weight of the ink moving inside the pocket causing premature wear of the pocket lower side when the cartridge is transported on its narrow side (insertion position). If this cannot be guaranteed, the 950ml used cartridges should not be transported and discarded instead, as a precaution. (New cartridges, cleaning cartridges and initial charge ink cartridges can be transported in any direction.)



6.3 Maintenance

When servicing, check the status of the following parts, and carry out cleaning, or replacement as necessary.

CLEANER HEAD

Make sure there is no stuck dry ink on it. If stuck ink is observed, clean the Cleaner Head using the Cleaning Stick and the Ink Cleaner. If it does not improve the status much, replace it with a new one. Check also the status of the ink gully. If too much ink is piling in the gully and may cause ink to overflow at the next cleaning, replace the Assy with a new one.

- Cleaning → p 235
- Replacement → p 161

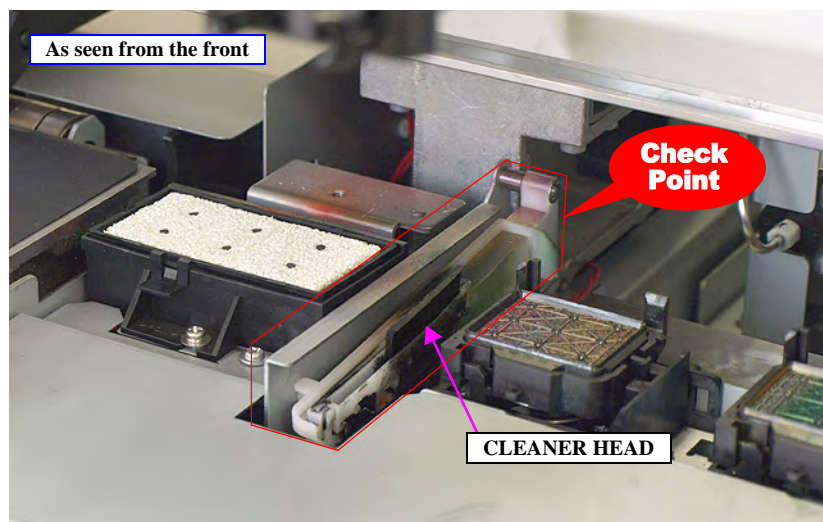


Figure 6-4. Around the CLEANER HEAD

PRINT HEAD

Make sure there is no dust, dirt, or stuck dry ink around the PRINT HEADS. If such abnormality is observed, carry out cleaning using the Cleaning Stick and the Ink Cleaner. (This cleaning is basically expected to be carried out by the users. If the cleaning turns out to be insufficient when checking, explain to the user the importance of performing proper regular cleaning.) If the cleaning does not improve the status much, replace the part with a new one.

- Cleaning → p 237
- Replacement → p 153

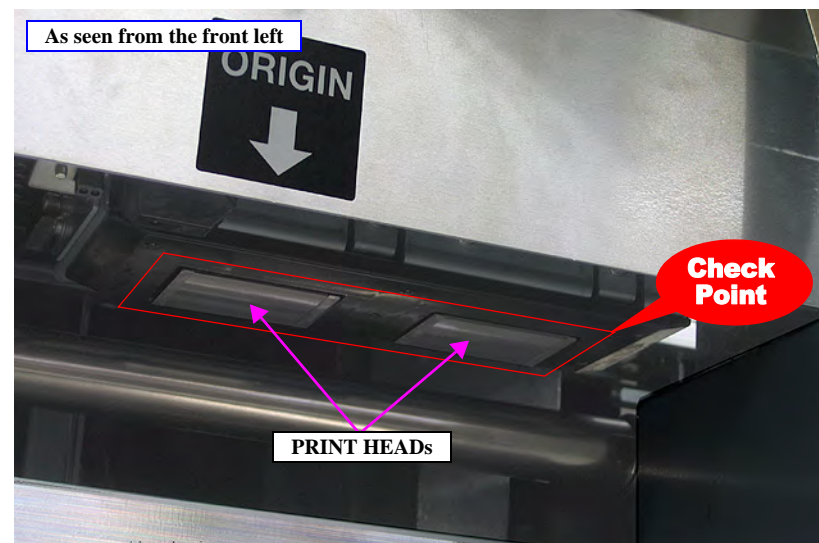


Figure 6-5. Around the PRINT HEAD

CHECK
POINT



You may use the metallic tray (provided with the printer) as a mirror for more convenience.

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VALVE ASSEMBLY

Check the inside and make sure no stuck dry ink blocks the ink flow paths (holes). If such abnormality is seen, replace the assembly.

- Replacement → p153

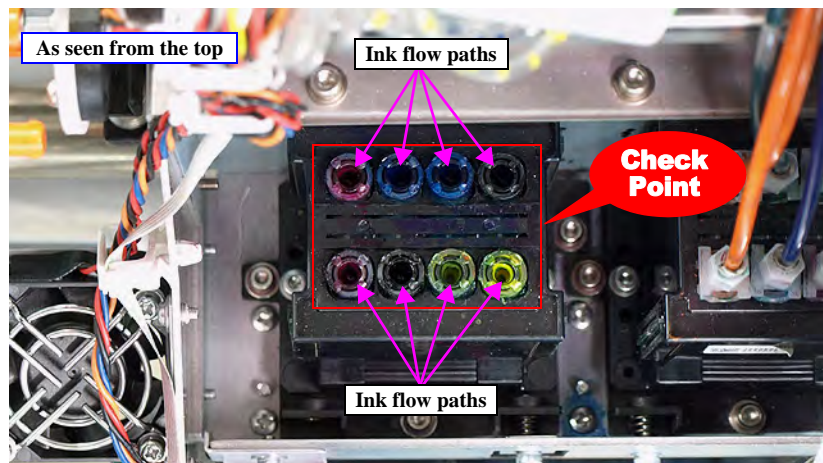


Figure 6-6. Around the VALVE ASSEMBLY

CAP HEAD

Check the surface of the CAP HEAD. If it is not wet with ink, replace it with a new one. (If the pad is dry, it may be due to air infiltration caused by a cap shape deformation or deterioration.)

- Replacement → p157

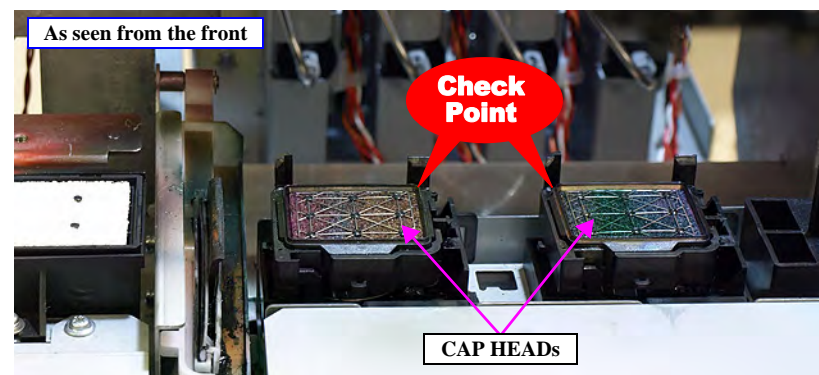


Figure 6-7. CAP HEADs

FLUSHING BOX ASSY

Remove the Flushing Box Unit and confirm the Ink path (hole) is OK. If stuck dry ink blocks the path, carry out cleaning or replacement.

- Replacement → p160

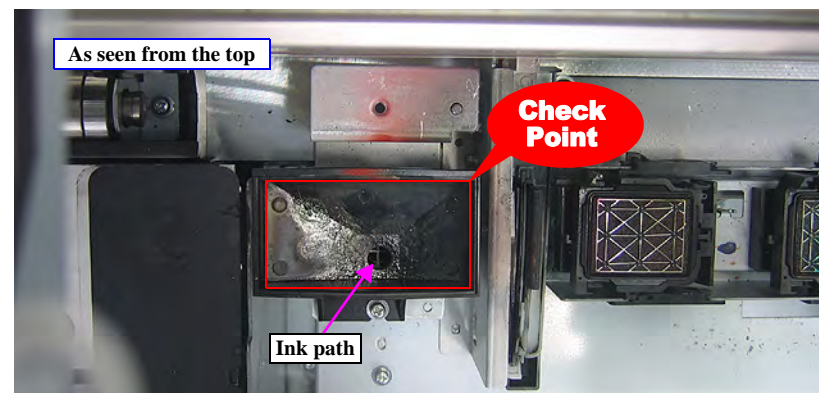


Figure 6-8. Under the Flushing Box Unit

6.4 Cleaning

This section explains cleaning operations. The cleaning described in this section is basically expected to be carried out by the user. Therefore, if those cleaning is turned out to be insufficient when checking, be sure to explain to the user the importance of performing proper regular cleaning.

When cleaning the parts, use the dedicated Maintenance Kit (Code: C12C890611) and Ink Cleaner (Code: C12C890621). Cleaning tools included in the kit are as follows.

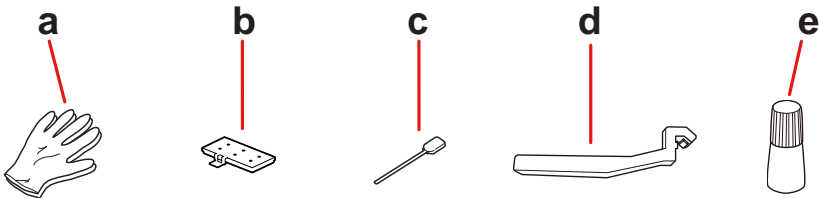


Table 6-1. Maintenance Kit Components (Code: C12C890611)

Symbol	Name	Purpose
a	Plastic Gloves	Plastic gloves for cleaning or maintaining the printer.
b	Flushing Pad	Spare flushing pad for replacement.
c	Cleaning Stick	Used to clean the Cleaning Wiper or the PRINT HEAD.
d	Carriage Rail Cleaner	Used to clean the carriage rail.
e	Carriage Rail Oil	

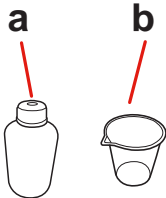


Table 6-2. Ink Cleaner Components (Code: C12C890621)

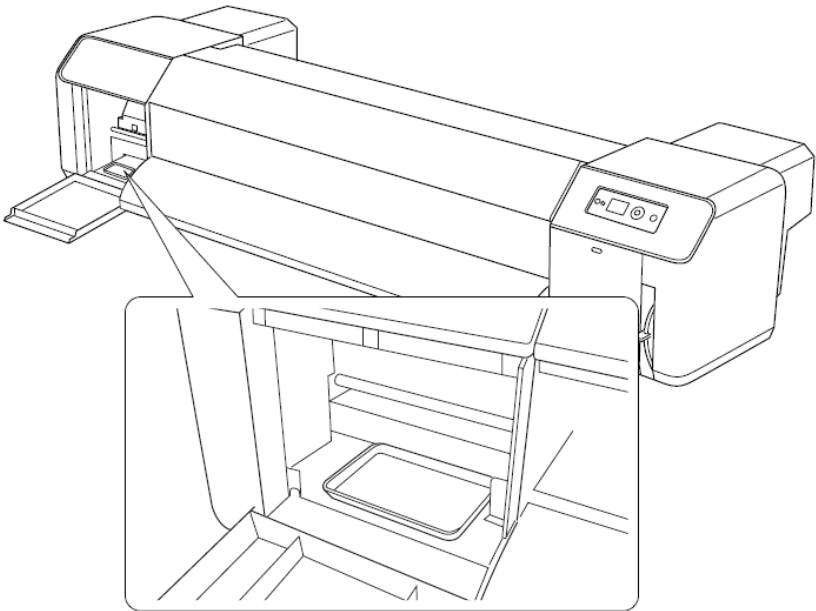
Symbol	Name	Purpose
a	Ink Cleaner	Exclusive liquid cleaner to remove ink stains.
b	Plastic Cup	Used to contain Ink Cleaner.

<About metallic tray>

While maintaining the printer, put the used flushing pad, cleaning stick, or wiper in the metallic tray in order to prevent them from causing any stains on the printer.



When not in use, store the tray in the empty space of the maintenance area, on the left side of the printer.



6.4.1 Cleaning Wiper

CAUTION



When cleaning the Cleaning Wiper, the PRINT HEAD cap must be removed and cleaning must be complete before the head dries. We recommend finishing the cleaning within 15 minutes to prevent the head from drying.

1. Turn on the printer.
2. Press the ► button to enter the Menu mode.
3. Press the ▲ / ▼ button to display “MAINTENANCE”, and then press the ► button.
4. Press the ▲ / ▼ button to display “CARRIAGE MAINTENANCE”, and then press the ► button.
5. Press the [Enter] button to start Carriage Maintenance.
The PRINT HEAD moves to the left, and the Cleaning Wiper moves forward.
“OPEN MAINTCOVERS” is displayed on the LCD panel.
6. Open the MAINTENANCE COVER ASSY (right).

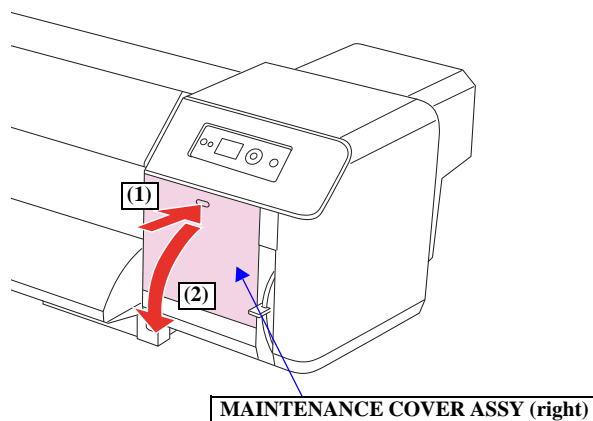


Figure 6-9. Opening the Maintenance cover (right)

CAUTION



- Do not touch the Cleaning Wiper and head cap unit with bare fingers. Head cleaning may not be performed correctly because of oil from your hands.
- Do not leave a used Cleaning Stick on the printer's cover to avoid stains.

7. Prepare the Cleaning Stick and the Ink Cleaner to remove the ink and dust on the Cleaning Wiper.
8. Put on the plastic gloves and pour about 10 ml of Ink Cleaner into the plastic cup. Then, dip the Cleaning Stick into the Ink Cleaner taking care not to drop it from the stick.

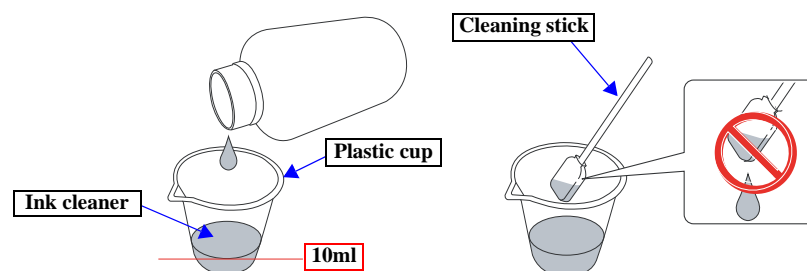


Figure 6-10. Preparation for Cleaning

9. On the front side of Cleaning Wiper, clean the surface horizontally.
10. On the back side of Cleaning Wiper, clean the surface vertically.

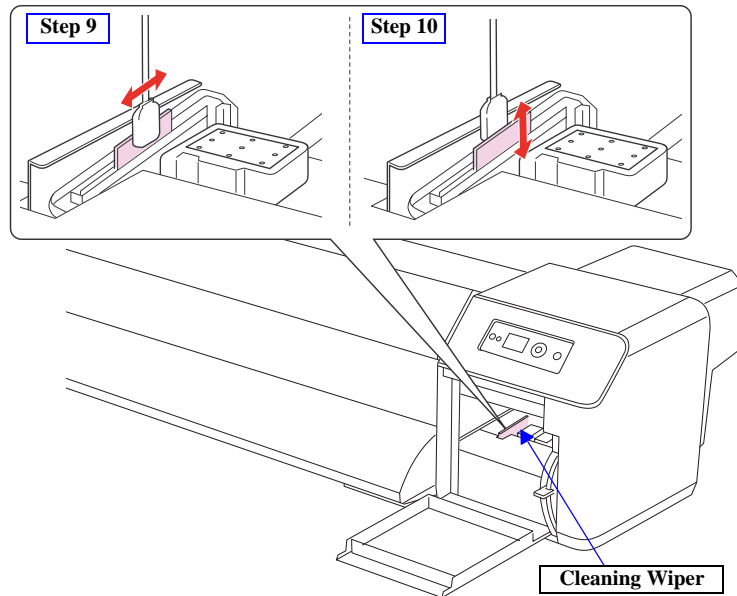


Figure 6-11. Cleaning the Cleaning Wiper (front side and back side)

CAUTION



Do not place anything on an opened maintenance cover as it is not able to handle much weight and it may fall.

**CHECK
POINT**



To reuse the Cleaning Stick, rinse it in the liquid and dry it for about one hour after cleaning before putting it away. As the ink cleaner is provided separately from the cleaning kit, users are advised not to re-use the cleaning sticks but provided that they are rinsed in the cleaning liquid, they may be re-used if they are in good condition.

CAUTION



Dispose of the used Ink Cleaner in the same way as the waste ink.

11. Close the MAINTENANCE COVER ASSY (right) firmly until it is locked.

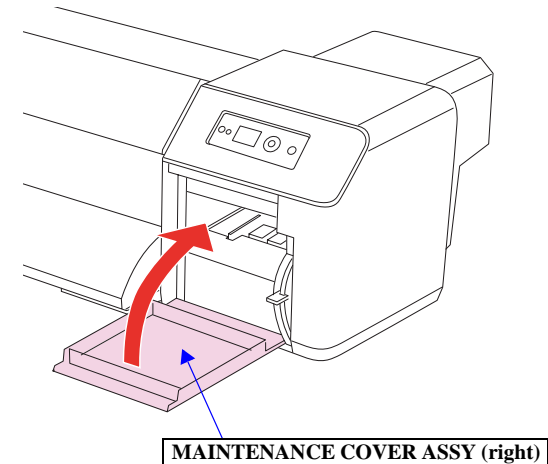


Figure 6-12. Closing the Maintenance Cover

12. Press the [Pause/Reset] button to return to the READY state.

6.4.2 Around the Print head

1. Perform Step 1 to Step 5 in "Cleaning Wiper (p235)".
2. Open the MAINTENANCE COVER ASSY (left).

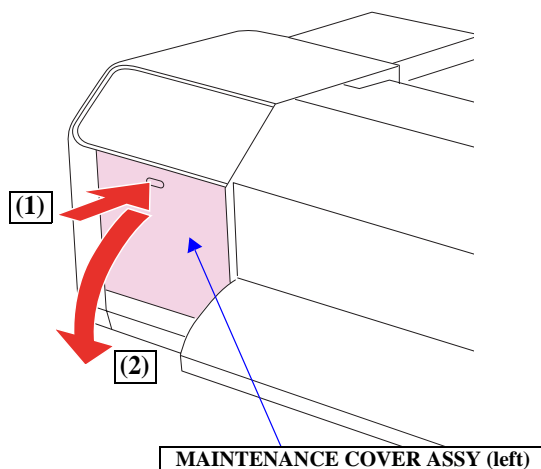


Figure 6-13. Opening the Maintenance cover (left)

3. Using a penlight or the like, confirm that there are no foreign objects, such as dust or ink attached on or around the PRINT HEADs as shown in the figure below.

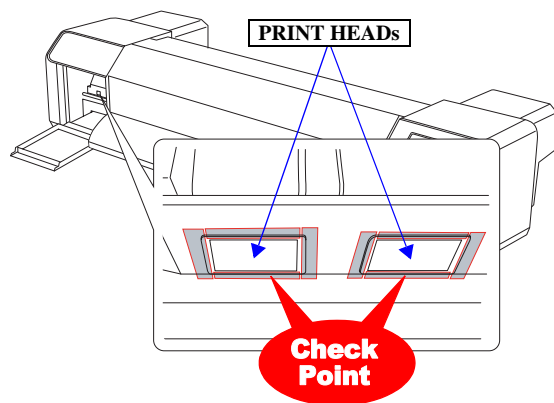


Figure 6-14. Checking around the PRINT HEAD

CAUTION



- Do not touch the nozzle of the PRINT HEAD, or the PRINT HEAD may be damaged.
- Do not touch the head of the Cleaning Stick with bare fingers, or oil on your hand may be attached to the Cleaning Stick. It may cause damage to the PRINT HEAD.
- Never dip the head of the Cleaning Stick in water. Otherwise, the water on it will react with the solvent and damage the PRINT HEAD.
- Do not reuse the Cleaning Sticks without rinsing. Dust attached to the stick may damage the PRINT HEAD.

4. If foreign objects, such as dust or ink are attached to the PRINT HEAD, remove them using the Cleaning Stick.
5. If the dirt does not come off, use the Ink Cleaner. See "6.4.1 Cleaning Wiper" Step 8. (p235).

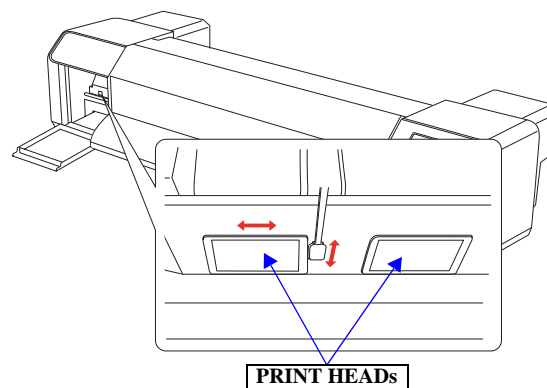


Figure 6-15. Cleaning around the PRINT HEADs

**CHECK
POINT**

To reuse the Cleaning Stick, rinse it in the liquid and dry it for about one hour after cleaning before putting it away.

CAUTION

Dispose of the used Ink Cleaner in the same way as the waste ink.

6. Close the MAINTENANCE COVER ASSY (left) firmly until it is locked.

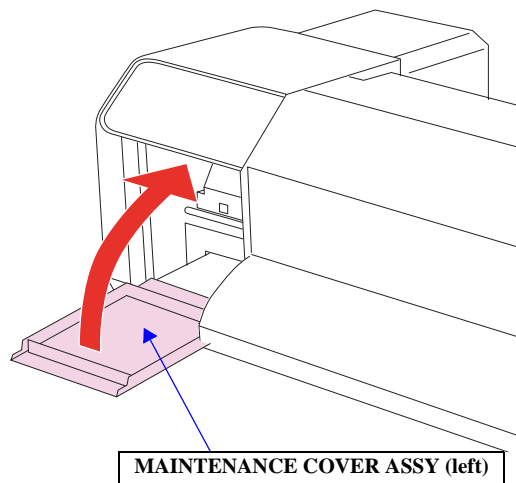


Figure 6-16. Closing the Maintenance Cover

7. Press the [Pause/Reset] button several times to return to the READY state.

6.4.3 Cleaning the Pressure Rollers and Platen

1. Make sure the printer is turned off and all the lights are off, and then unplug the power cords from the electrical outlets.
2. Leave the printer for a minute.
3. Open the Front Cover.

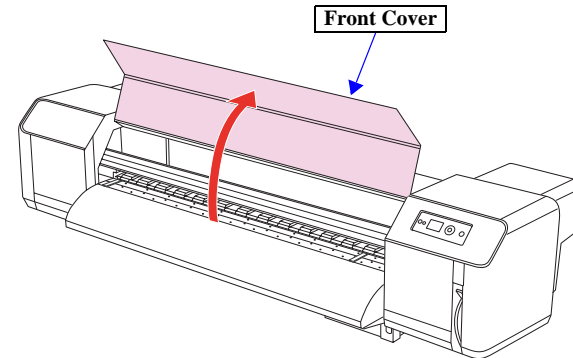


Figure 6-17. Opening the Front Cover

4. Remove paper powder and dust attached to the Pressure Rollers using a soft brush.

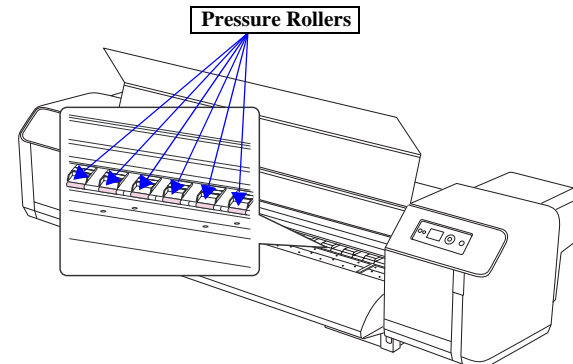


Figure 6-18. Removing the paper powder and dust



CAUTION

Do not blow paper powder inside the printer using tools such as an air duster. It may cause an abnormal noise from the inside of the printer.

5. Apply a damp and tightly squeezed soft cloth to wipe out paper powder and ink attached to the platen and paper guide.

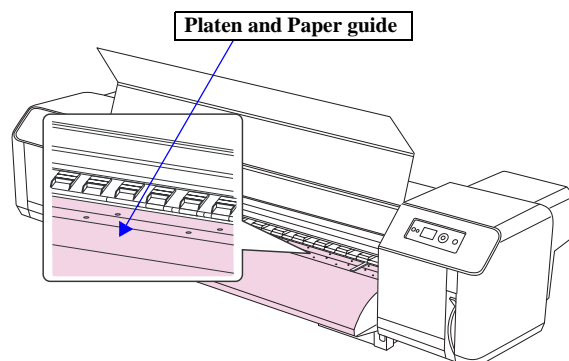


Figure 6-19. Wiping the Platen and Paper Guide

6. Apply a damp and tightly squeezed soft cloth to wipe off the dirt on the Rear Paper Guide between the Pressure Rollers.

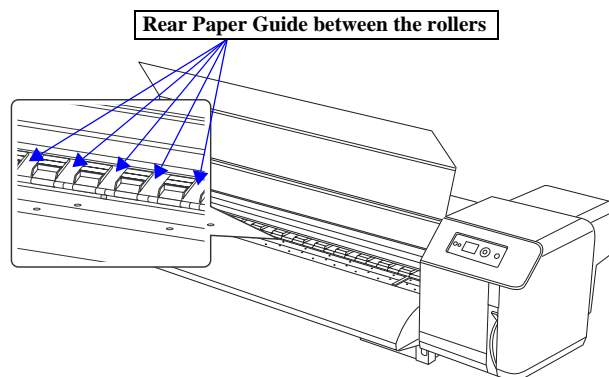


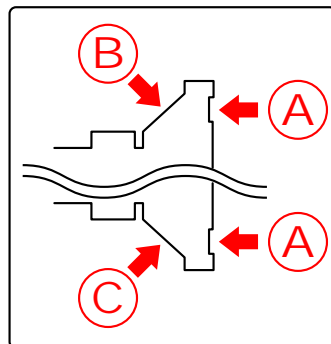
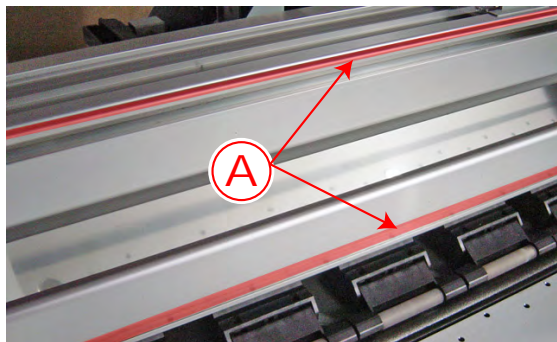
Figure 6-20. Wiping the Rear Paper Guide

6.4.4 Cleaning and Lubricating the CR rail

This operation prevents the CR from becoming noisy.

CLEANING

Using nonwoven cloth moistened with Supermulpus #32, clean the following three points that the bearings of the carriage unit touch.



Cross-section diagram

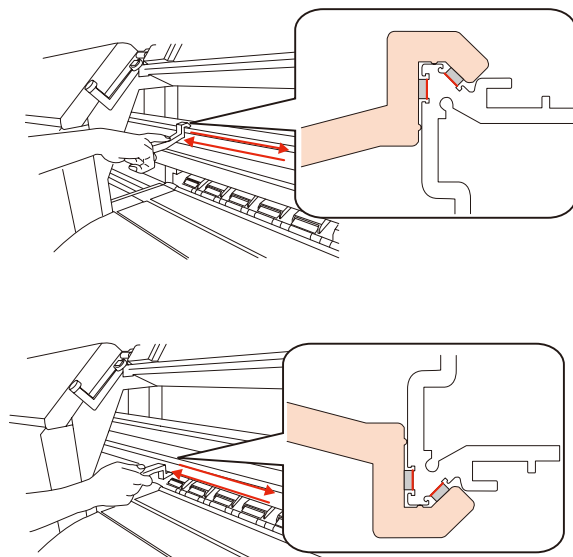


Figure 6-21. Cleaning the CR rail

LUBRICATING

Refer to [Lubrication 10] and [Lubrication 11] in “6.5 Lubrication” (p.241).

6.5 Lubrication

OUTLINE

To maintain the functions and performance of the printer, make sure to properly lubricate the parts/units specified in this section as necessary when replacing or maintaining them.



- Make sure not to lubricate each point more than necessary.
- Use the specified grease only.

Table 6-3. Grease Application

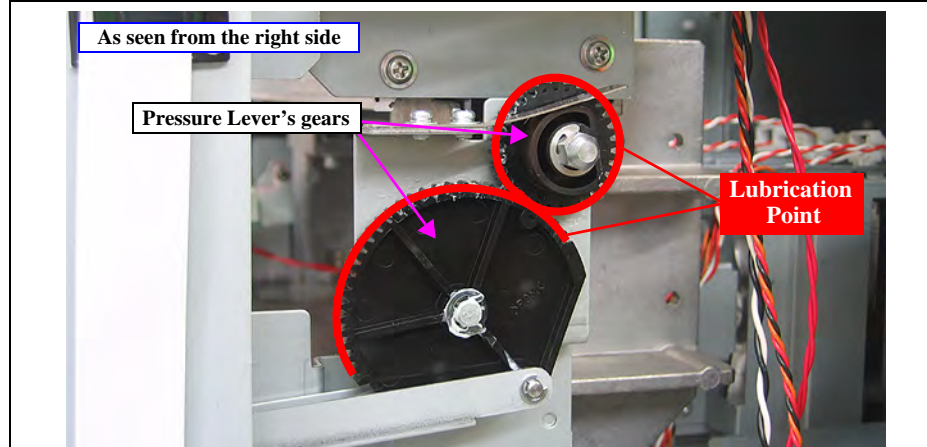
Name	Company	Part No.
FLOIL G-MK-1	Kanto Kasei Ltd.	1506789
Supermulpus #32	---	1432563

LUBRICATION POINTS LIST

No.	Lubrication Point	Remarks
1	Gears of Pressure Lever	p 241
2	Pressure cams	p 241
3	Head U/D cams (both)	p 242
4	PG sliding sections (both)	p 242
5	Gears of Front Cover (both sides)	p 242
6	Top frame of Carriage Lock Solenoid	p 242
7	Spring hook of Pressure Lever	p 243
8	Sides of Pressure Lever collar	p 243
9	Sliders of Cap Assy	p 243
10	Rails for Carriage bearings (backside)	p 244
11	Rails for Carriage bearings (front side)	p 244

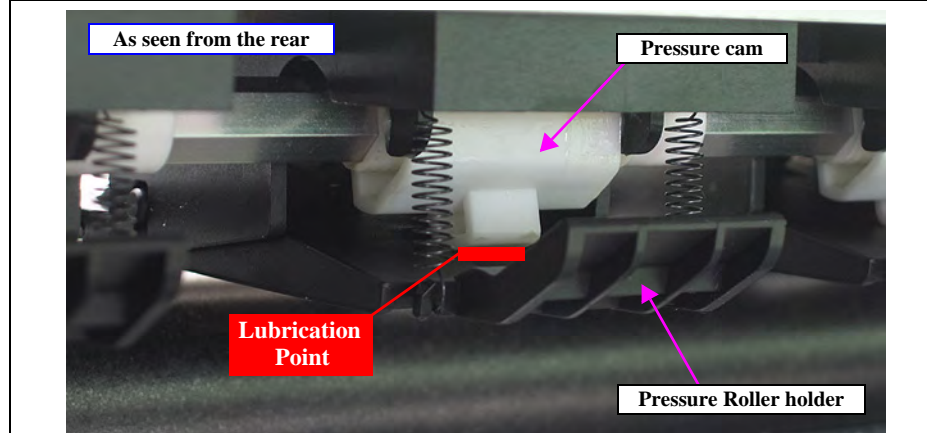
[Lubrication 1]

Lubrication Point	Gears of Pressure Lever
Lubricant	FLOIL G-MK-1
Remarks	Apply it on the contact point of the large black gear and the small black gear.



[Lubrication 2]

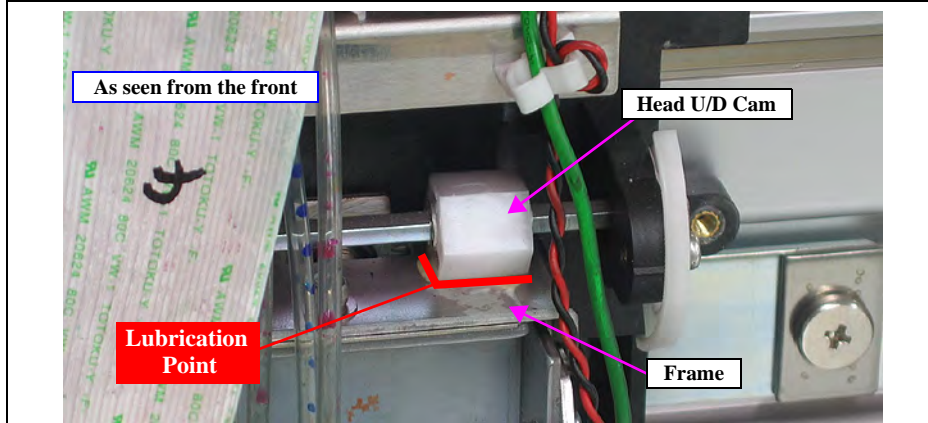
Lubrication Point	Pressure cams
Lubricant	FLOIL G-MK-1
Remarks	Apply it on the sliding section of each pressure cam.



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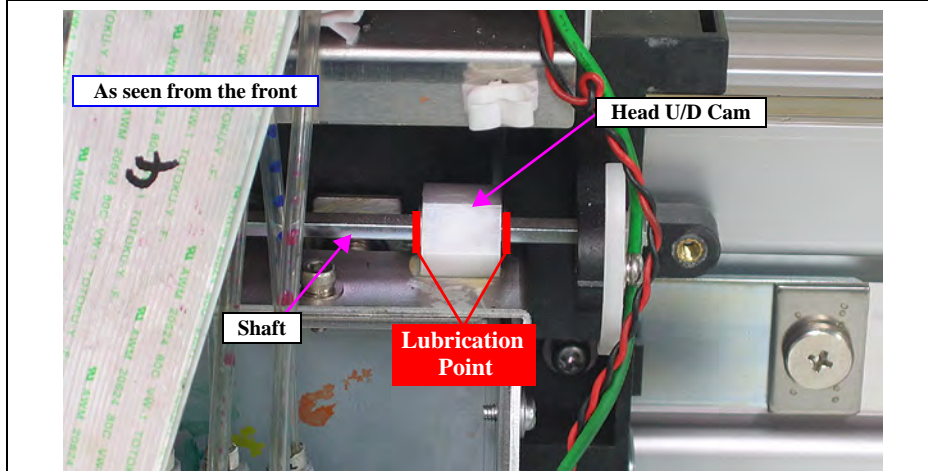
[Lubrication 3]

Lubrication Point	Head U/D Cams (both)
Lubricant	FLOIL G-MK-1
Remarks	Apply it on the contact point of the cam's hexagonal surfaces and the frame.



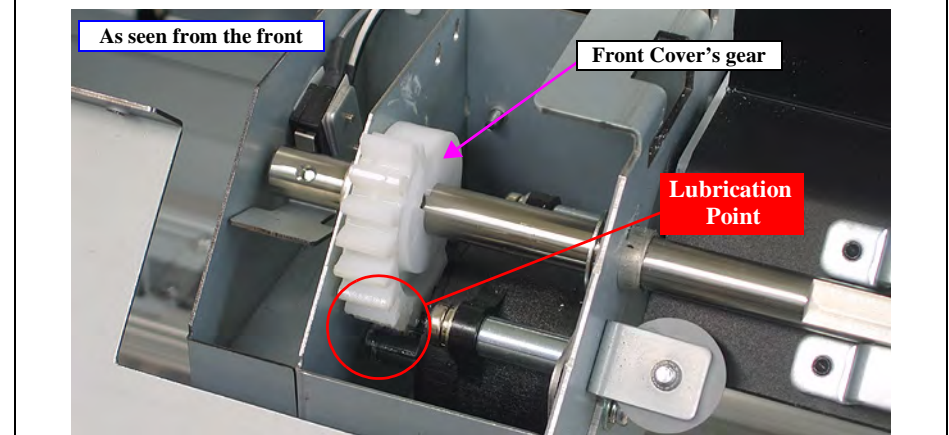
[Lubrication 4]

Lubrication Point	PG sliding sections (both)
Lubricant	FLOIL G-MK-1
Remarks	Apply it on the inside of the contact point of the cam and the shaft.



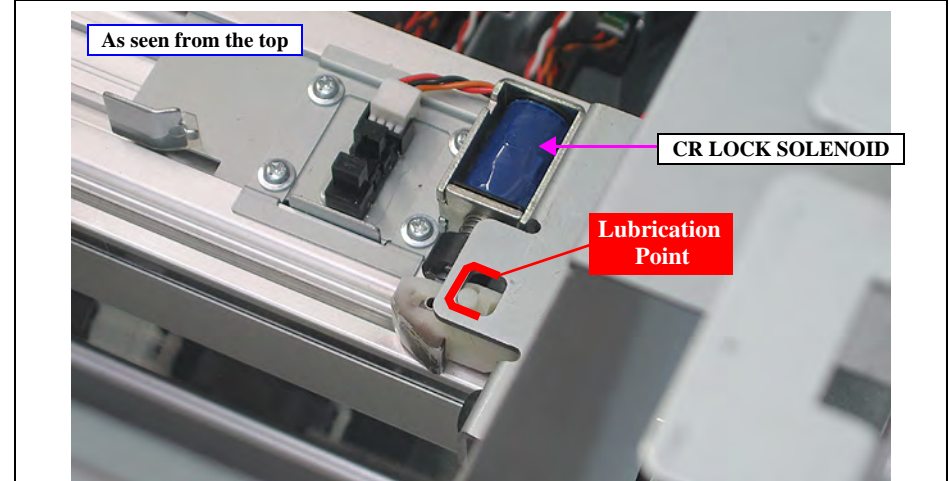
[Lubrication 5]

Lubrication Point	Gears of Front Cover (both sides)
Lubricant	FLOIL G-MK-1
Remarks	Apply it on the contact point of the white gear and the black gear.



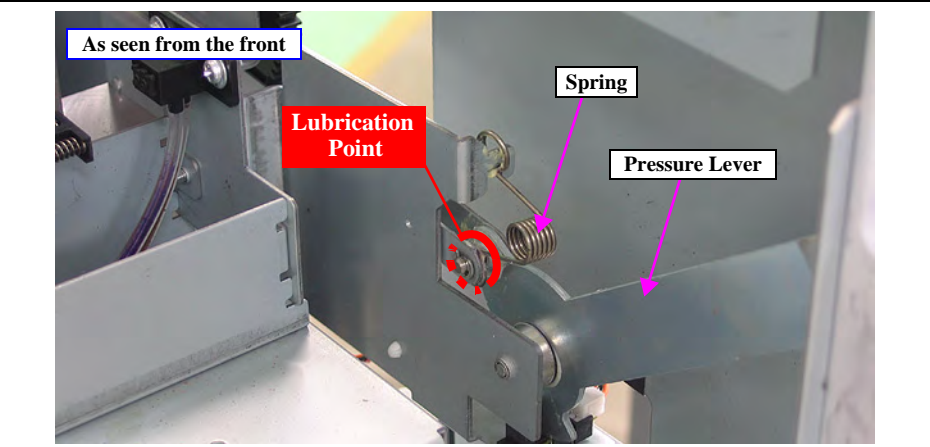
[Lubrication 6]

Lubrication Point	Top frame of Carriage Lock Solenoid
Lubricant	FLOIL G-MK-1
Remarks	Apply it around the inside of the top frame's hole.


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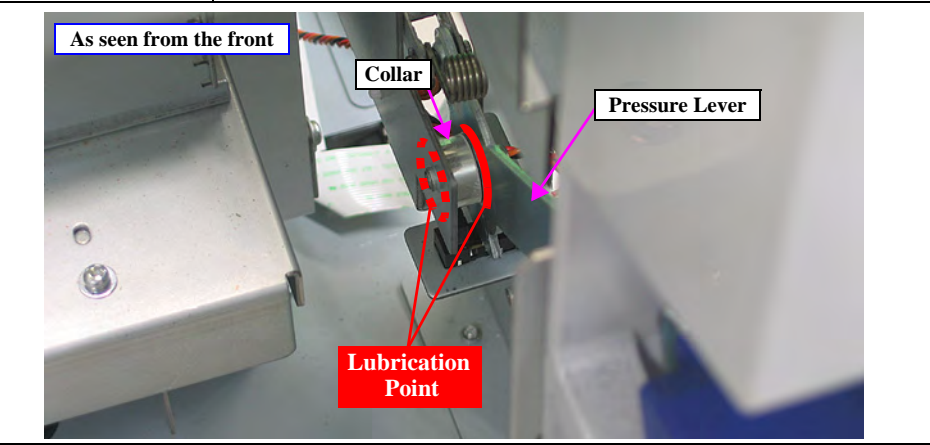
[Lubrication 7]

Lubrication Point	Spring hook of Pressure Lever
Lubricant	FLOIL G-MK-1
Remarks	Apply it on the spring hook or on the axis.



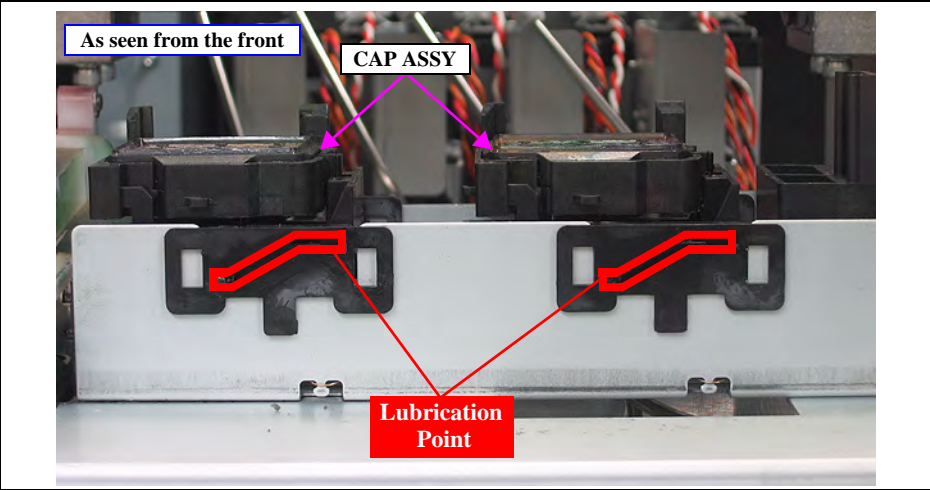
[Lubrication 8]

Lubrication Point	Sides of Pressure Lever collar
Lubricant	FLOIL G-MK-1
Remarks	Apply it on both sides of the collar (where the collar gets in contact with the frames)



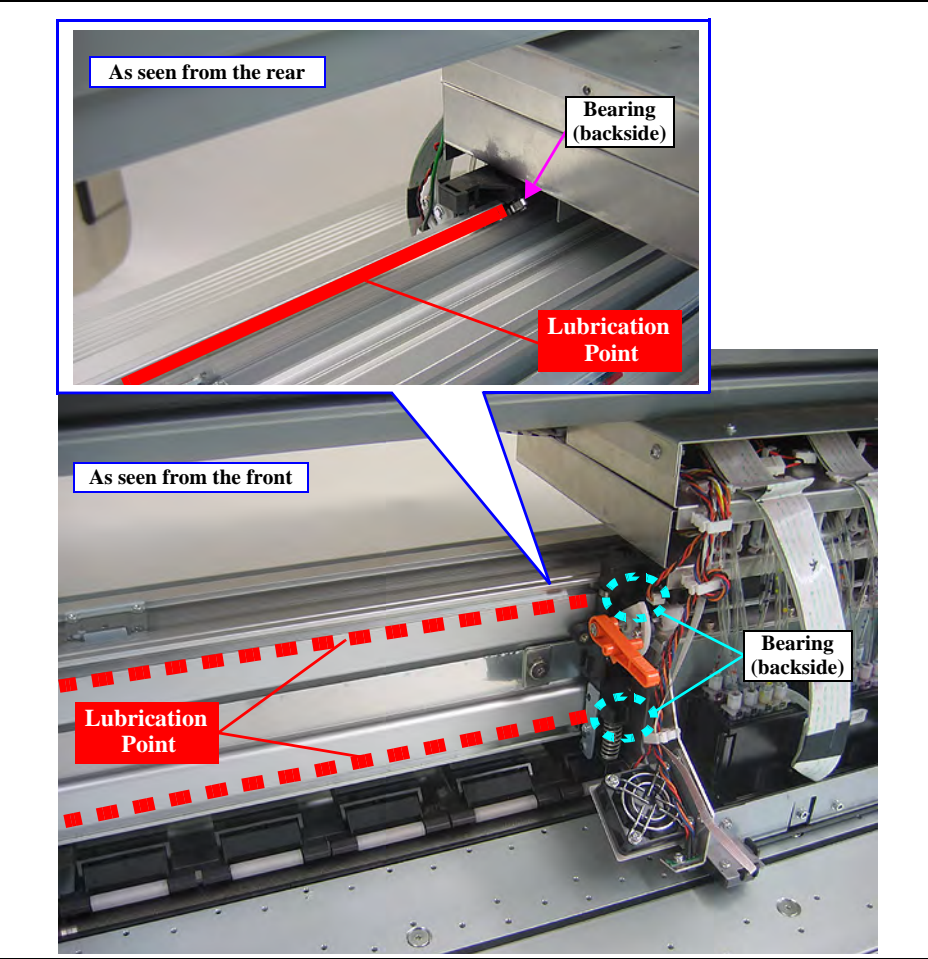
[Lubrication 9]

Lubrication Point	Sliders of Cap Assy
Lubricant	FLOIL G-MK-1
Remarks	Apply it around the inside of the slider sections.



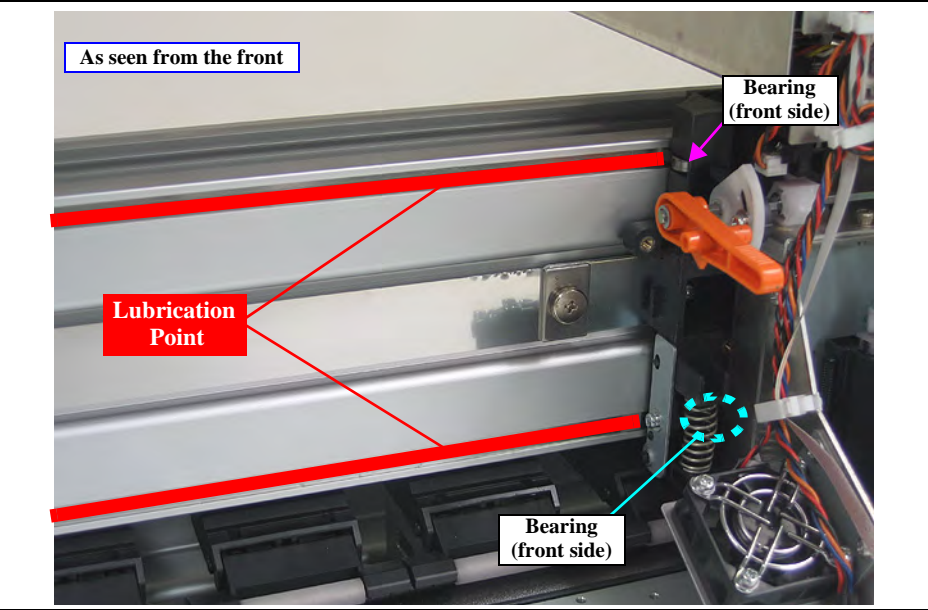
[Lubrication 10]

Lubrication Point	Rails for Carriage bearings (backside)
Lubricant	Super Multi Oil #32
Remarks	Apply it on the surfaces of the Y rails on the back (where the bearings get in contact with the rail).



[Lubrication 11]

Lubrication Point	Rails for Carriage bearings (front side)
Lubricant	Super Multi Oil #32
Remarks	Apply it on the surfaces of the rails in the front (where the bearings get in contact with the rail).



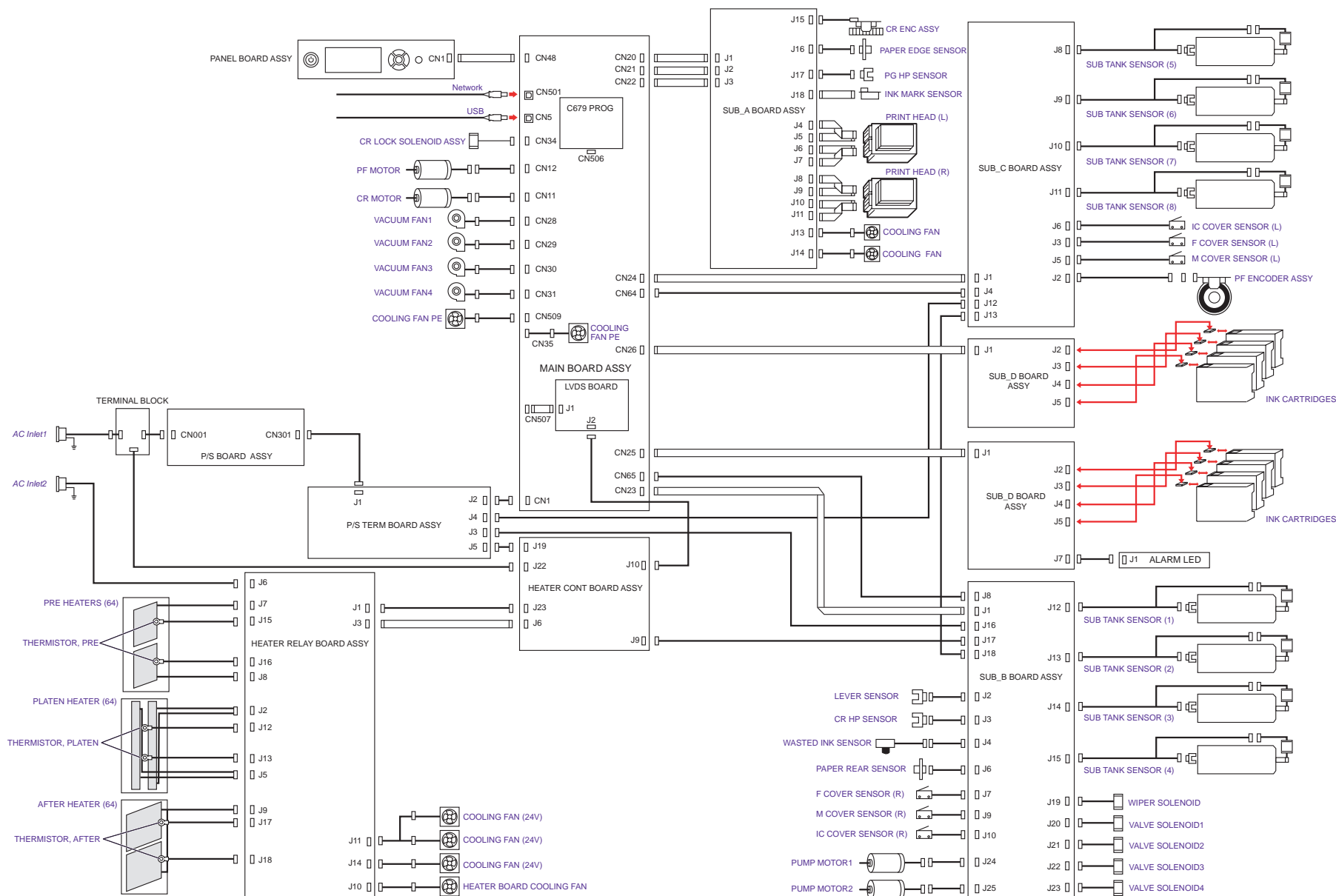
CHAPTER

7

APPENDIX



7.1 Block Wiring Diagram

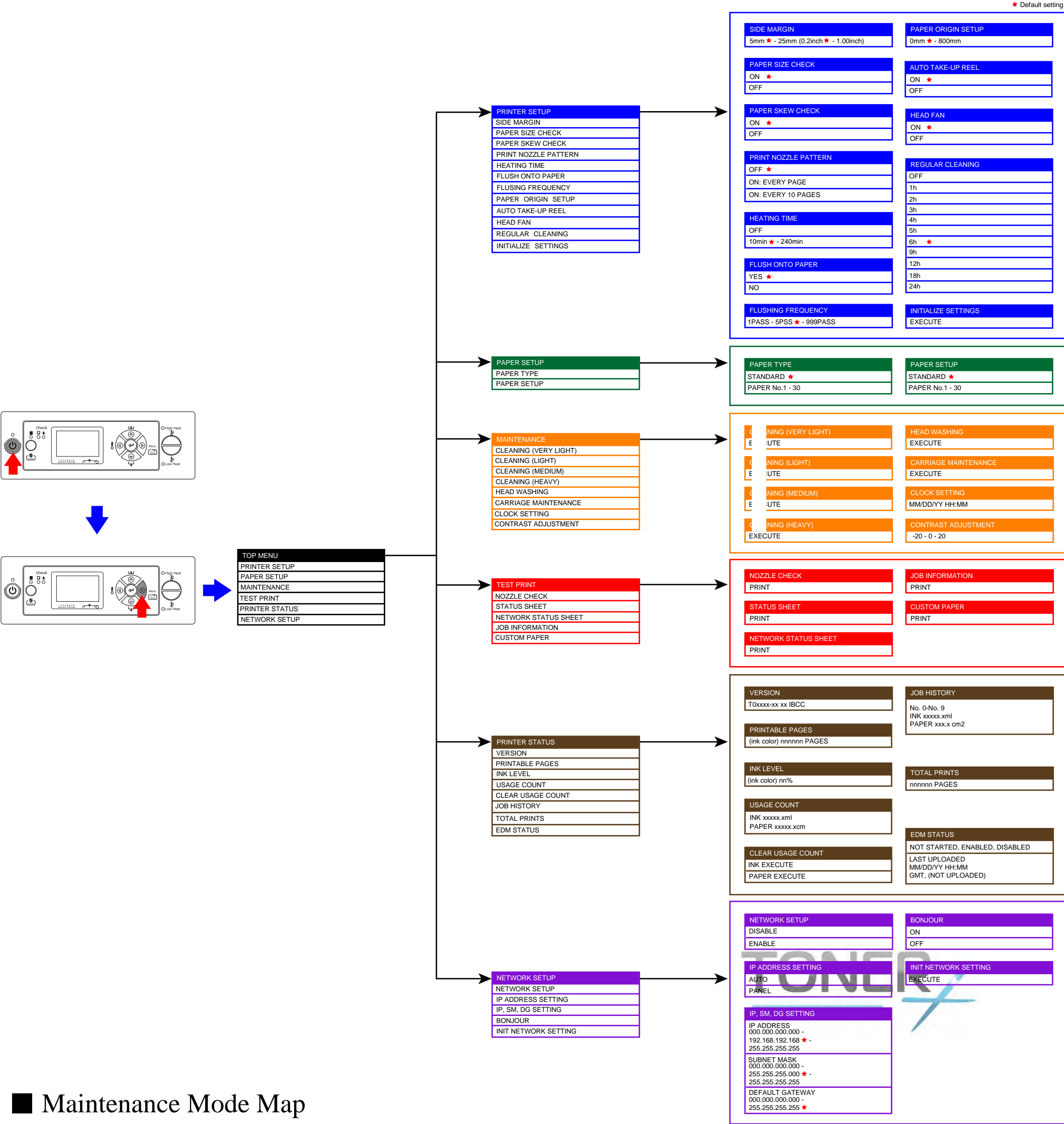


7.2 Panel Menu Map

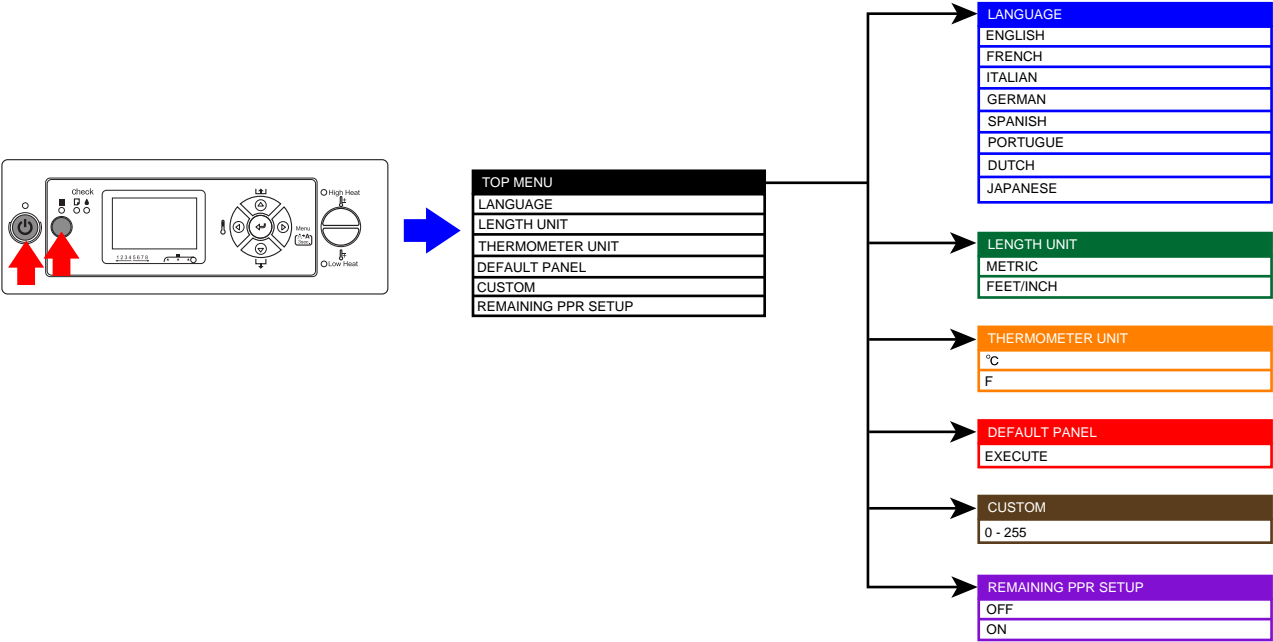
This section provides the map of executable menus on the Control Panel.



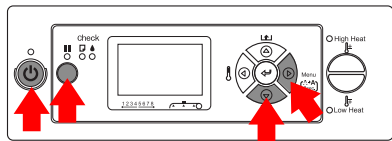
User Menu Map



Maintenance Mode Map

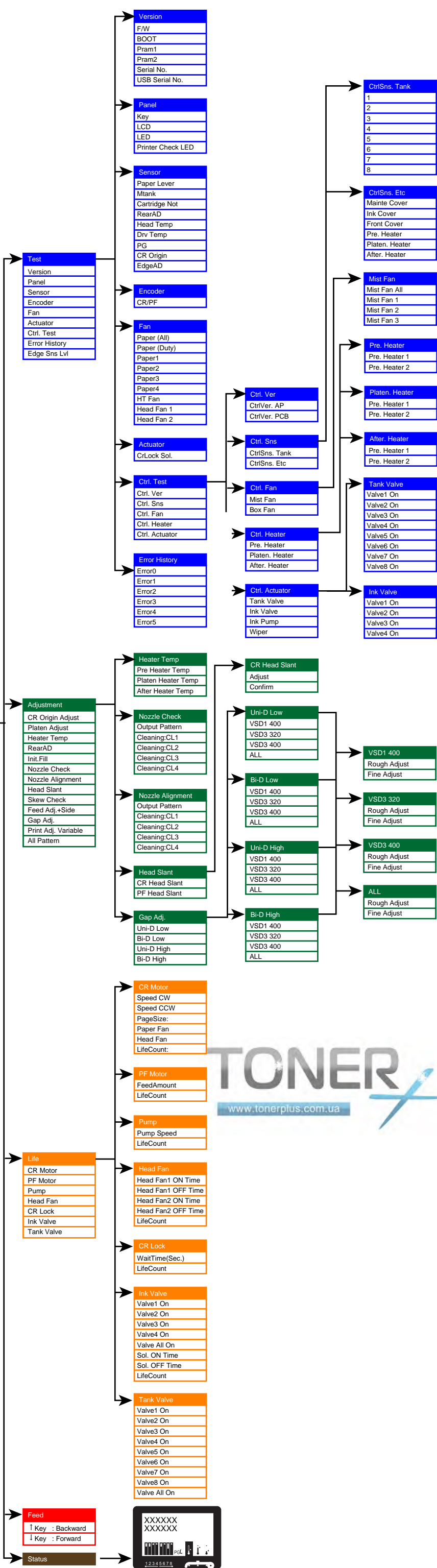


Serviceman Mode Map



SELF TESTING

SELF TESTING
Test
Adjustment
Life
Feed
Status



7.3 Parts List

Table 7-1. Parts List

Fig. No.	Part Name
100	FRONT CLEAR COVER
101	TOP COVER
102	SIDE COVER L
103	MAINTENANCE COVER T
104	SIDE COVER L2
105	PUSH LATCH
106	MAINTENANCE COVER ASSY.
107	MAINTENANCE COVER B
108	IH INNER COVER
109	IH PUSH LATCH
110	IH COVER L
111	CARTRIDGE COVER
112	"LABEL,INK COLOR,LEFT"
113	"LABEL,GENUINE INK USE HOPE"
114	"LABEL,MODEL NAME"
115	"LABEL,ULTRA CHROME INK,GS"
120	SIDE COVER R
121	PANEL COVER T
123	PRESSURE LEVER COVER
124	IH COVER R
125	"LABEL,INK COLOR,RIGHT"
130	"LOGO PLATE,86.5X21.6"
131	"LABEL,CAUTION,FRONT COVER,LEFT"
132	"LABEL,SETTING POSITION"
133	"LABEL,CAUTION,SUS BELT"
134	"LABEL,CAUTION,FRONT COVER,RIGHT"
135	"LABEL,ROLL PAPER SET;B"
136	"LABEL,ROLL PAPER SET"

Table 7-1. Parts List

Fig. No.	Part Name
137	"LABEL,CENTER POSITION"
140	"LABEL,REMOVAL"
141	"LABEL,CAUTION,ROLLED UP"
150	"LABEL,WASTE FLUID TANK"
151	"LABEL,WASTE FLUID TUBE"
152	"LABEL,CAUTION,WASTE FLUID HANDLING"
153	"LABEL,CAUTION,EMERGENCY MESSAGE;D"
155	"LABEL,CAUTION,HIGH TEMPERATURE"
160	"LABEL,CAUTION,HIGH TEMPERATURE;B"
200	"BOARD ASSY.,MAIN"
205	SUB-A BOARD ASSY.
210	HEATER RELAY BOARD ASSY.
215	HEATER CONT BOARD ASSY.
220	"BOARD ASSY.,MEMORY"
300	"P/S BOARD ASSY.,ASP"
501	AC INLET
502	AC INLET LARGE
503	INLET FG CABLE
504	INLET-FUSE AC CABLE
505	"FUSE(250V,15A)"
506	FUSE-TERM AC CABLE
507	FUSE-RELAY AC CABLE
508	COOLING FAN PE
509	"POST HEADER ASSY.,3"
510	MIST FAN2 CABLE
511	VENTILATION FILTER
512	LVDS I/F BOARD ASSY.
513	LVDS I/F FFC
514	INTERLOCK R CABLE
515	INTERLOCK L CABLE

Table 7-1. Parts List

Fig. No.	Part Name
520	TERMINAL BLOCK
521	TERM-P/S AC CABLE
522	TERM-CONT AC CABLE
523	CONT-RELAY AC CABLE
524	P/S TERM BOARD ASSY.
525	CONT-RELAY FFC
526	P/S DC CABLE
527	MAIN DC CABLE
528	H CONT DC CABLE
529	SUB-B DC CABLE
530	SUB-C DC CABLE
531	COOLING FAN(24V)
532	“SERIAL CABLE,1m”
550	PRESSURE GEAR
551	PRESSURE INTERLOCK GEAR
552	PRESSURE GEAR HOLDER PLATE
553	“PHOTO SENSOR,SG2481”
554	LEVER SENSOR CABLE
555	PRESSURE LEVER KNOB
600	PF ENC SCALE
601	PF REDUCTION PULLEY
602	PF REDUCTION BELT
603	PF ENCODER ASSY.
604	PF MOTOR
605	PF MOTOR CABLE
606	P REAR SENSOR ASSY.
610	PLATEN NO REFLECTIVE TAPE
611	MEDIA HOLDER
612	PLATEN HEATER(64)
613	“THERMISTOR,PLATEN”

Table 7-1. Parts List

Fig. No.	Part Name
614	VACUUM FAN ASSY.
615	VACUUM FAN CABLE 1
616	VACUUM FAN CABLE 2
617	VACUUM FAN CABLE 3
618	VACUUM FAN CABLE 4
619	PLATEN-HEATER CABLE 1
620	PLATEN-HEATER CABLE 2
621	PLATEN-THERMISTOR CABLE 1
622	PLATEN-THERMISTOR CABLE 2
630	AFTER HEATER(64)
631	“THERMISTOR,AFTER”
632	AFTER HEAT CABLE
633	AFTER THERMISTOR CABLE 1
634	AFTER THERMISTOR CABLE 2
635	PAPER GUIDE COVER L
636	PAPER GUIDE COVER R
637	POWER RELAY
638	RLY DC CABL ASSY.
650	SUB-B BOARD ASSY.
651	SUB-C BOARD ASSY.
652	SUB-B FFC
653	SUB-C FFC
654	“SERIAL CABLE,2m”
655	PRE-HEATER(64)
656	“THERMISTOR,PRE”
657	PRE HEATER CABLE 1
658	PRE HEATER CABLE 2
659	PRE THERMISTOR CABLE 1
660	PRE THERMISTOR CABLE 2
700	ROLL MEDIA HOLDER L2


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Table 7-1. Parts List

Fig. No.	Part Name
701	ROLL MEDIA HOLDER R2
702	ROLL MEDIA HOLDER BAR
703	“FLANGE,RIGHT”
704	ADAPTER
710	CR MOTOR ASSY.
711	CR MOTOR CABLE
712	CR REDUCTION BELT
713	CR REDUCTION PULLEY
714	CR DRIVEN PULLEY
715	CR BELT
716	CR ENC SCALE
717	T FENCE SPRING
718	CR LOCK SOLENOID ASSY.
719	SOLENOID SPRING
720	“POST HEADER ASSY.,2”
721	HEAD LOCK SOL CABLE
722	CR ORG CABLE
730	PRESSURE ROLLER
731	PRESSURE ARM
732	PRESSURE SPRING
740	INK TUBE L
741	INK TUBE R
742	TUBE CLAMP
743	CR FFC ASSY.
744	STEEL BEARER
745	INK VALVE SOLENOID ASSY.
746	VALVE SOL CABLE 1
747	VALVE SOL CABLE 2
748	VALVE SOL CABLE 3
749	VALVE SOL CABLE 4

Table 7-1. Parts List

Fig. No.	Part Name
750	“O-RING,M7”
752	“CONNECTING SCREW,M7”
760	BELT FIXING SCREW
761	CR CURSOR ASSY.
762	HEIGHT SWITCHING LEVER
763	HEAD U/D ECCENTRIC LEVER
764	CURSOR ROLLER ARM
765	CURSOR ARM SPRING
766	HEAD PROTECTION MATERIAL
767	HEAD BASE
768	NUT PLATE
769	“SPRING,DC578”
770	HEAD FFC ASSY.
771	INK SENSOR COVER
772	IM SENS FFC
773	P EDGE SENSOR ASSY.
774	PG ORG SENSOR CABLE
775	COOLING FAN
776	HEAD FAN CABLE 1
777	HEAD FAN CABLE 2
778	“O-RING,M6”
779	“JOINT SCREWS,M6”
780	“JOINT,VALVE,HEAD”
781	“COVER,VALVE”
782	“VALVE ASSY.,HEAD,CA01;ESL,ASP”
783	PRINT HEAD
784	“BOARD ASSY.,INK MARK”
800	TUBE BRANCH4-3
801	CR ENC ASSY.
802	HEAD FG CABLE



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Table 7-1. Parts List

Fig. No.	Part Name
809	FLUSHING FRAME
810	MAINTENANCE ASSY.
811	WIPER ASSY.
812	WIPER SOL CABLE
813	FLUSHING BOX ASSY.
814	PUMP ASSY.
815	PUMP MOTOR CABLE 1
816	PUMP MOTOR CABLE 2
817	WASTE INK TUBE ASSY.
818	WASTE FLUID BOTTLE
819	WASTE FLUID LEVEL SW ASSY.
820	WASTE FLUID LEVEL CABLE
821	CAP HEAD ASSY.
822	“CLEANER,HEAD,GF,ASP”
830	SUB-D BOARD ASSY.
831	SUB-D FFC
832	SUB-E FFC
833	CSIC FFC1
834	IC HOLDER SPRING
835	IC COVER SENSOR
836	ALARM LED CABLE
837	IC HOLDER ASSY.
838	FELT
839	“INSERTION GUIDE ASSY.,1”
840	“INSERTION GUIDE ASSY.,2”
841	“INSERTION GUIDE ASSY.,3”
842	“INSERTION GUIDE ASSY.,4”
843	“INSERTION GUIDE ASSY.,5”
844	“INSERTION GUIDE ASSY.,6”
845	“INSERTION GUIDE ASSY.,7”

Table 7-1. Parts List

Fig. No.	Part Name
846	“INSERTION GUIDE ASSY.,8”
849	“CONECTOR,TUBE,2-3”
850	SUB TANK ASSY.
851	TWO WAY VALVE ASSY.
852	SUB TANK LOWER ABSORBER
853	SUB TANK CABLE 1
854	SUB TANK CABLE 2
855	SUB TANK CABLE 3
856	SUB TANK CABLE 4
860	COVER DUMPER L
861	COVER DUMPER R
862	DUMPER GEAR
863	FRONT COVER GEAR
864	F COVER SENSOR
865	TOP MIST FILTER
866	MIST FAN1 CABLE
867	M COVER SENSOR
870	PANEL ASSY.
871	PANEL FFC
872	ALARM LED BOARD ASSY.
880	AC CABLE ASSY.
881	TAKE UP P/S BOARD ASSY.
882	DC CABLE
883	TAKE UP CONT BOARD ASSY.
884	TAKE UP SW BOARD ASSY.
885	W ON SENSOR CABLE
886	W OFF SENSOR CABLE
887	TAKE UP MOTOR ASSY.
888	DRIVE ROLLER
889	HOLDER ROLLER ASSY.



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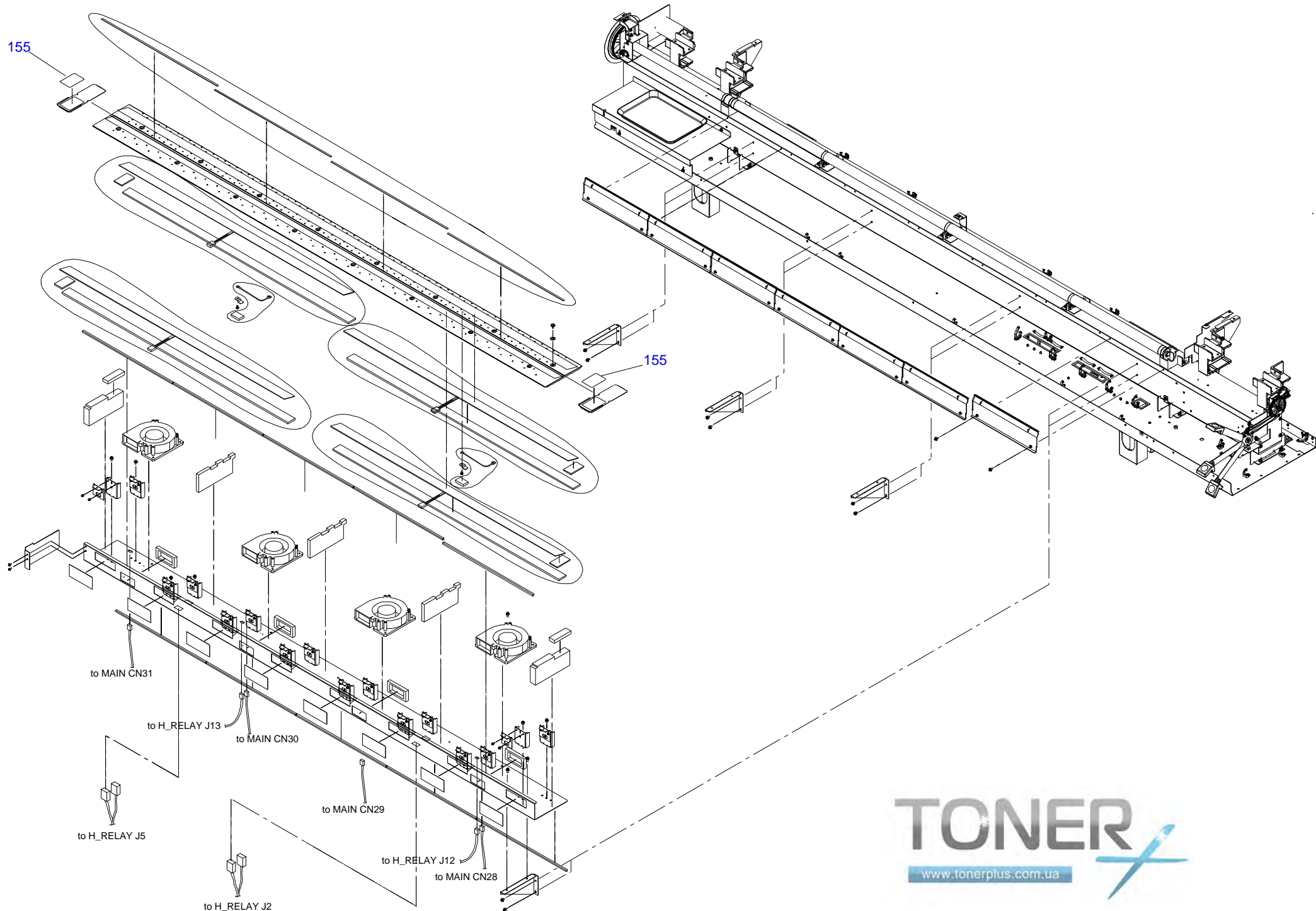
Table 7-1. Parts List

Fig. No.	Part Name
890	OPERATION LABEL
900	HOLDER ROLLER L
901	TAKE-UP SCROLLER(64)
902	TAKE-UP DRIVE COLLAR
903	FLANGE ASSY.
904	MEDIA TUBE(64)
910	THUMB SCREW
911	CASTER
912	ADJUSTER



7.4 Exploded Diagram





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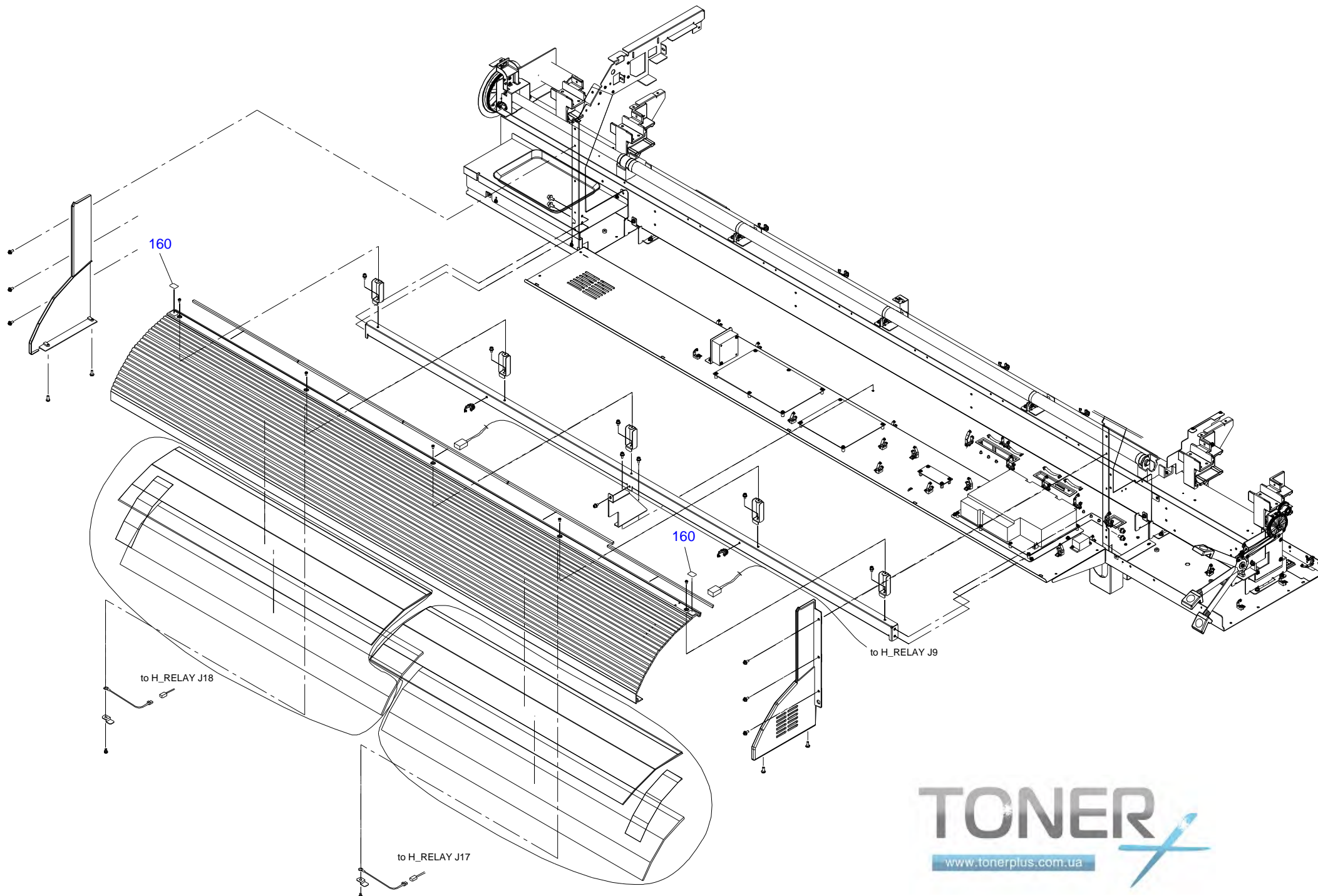
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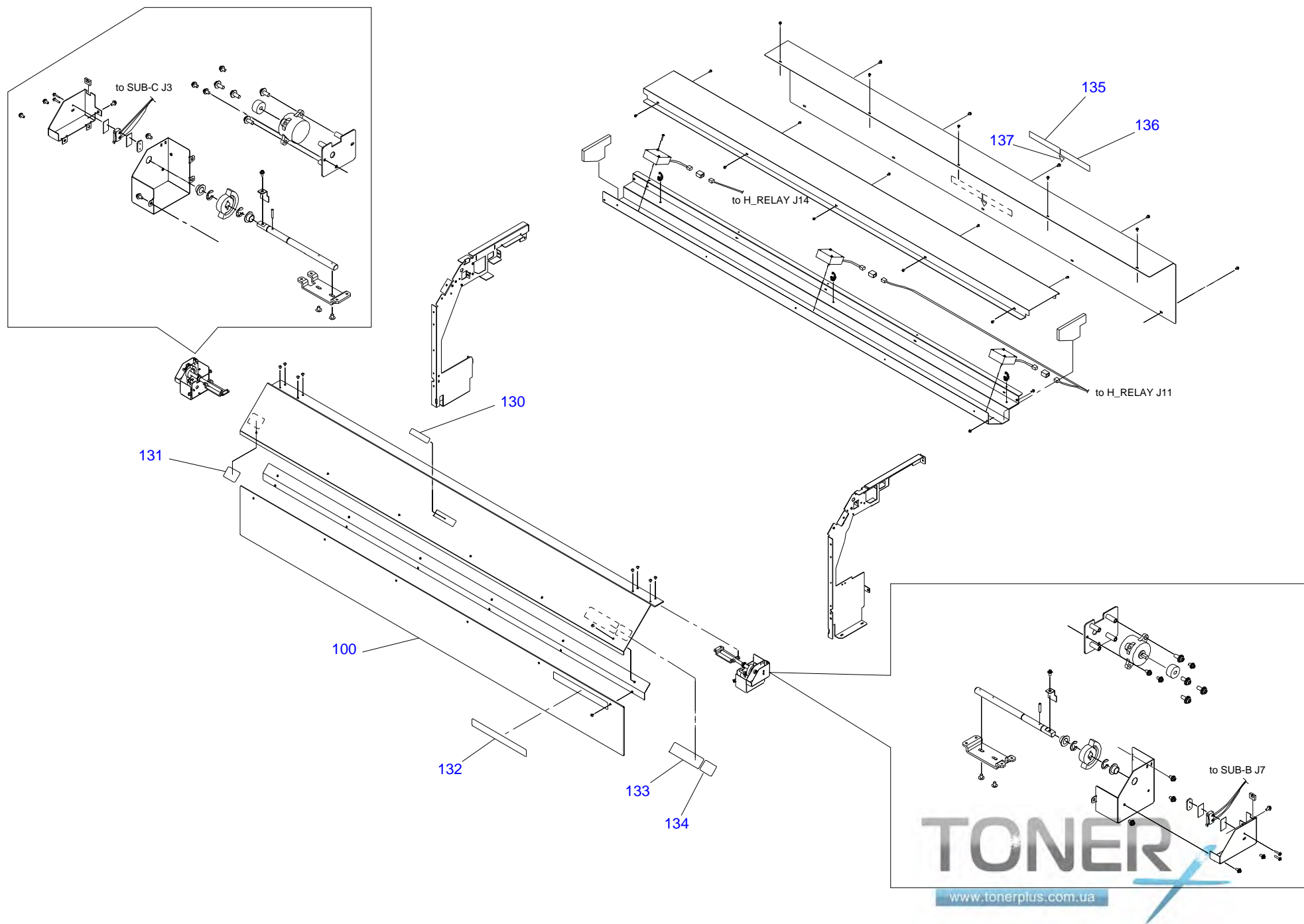
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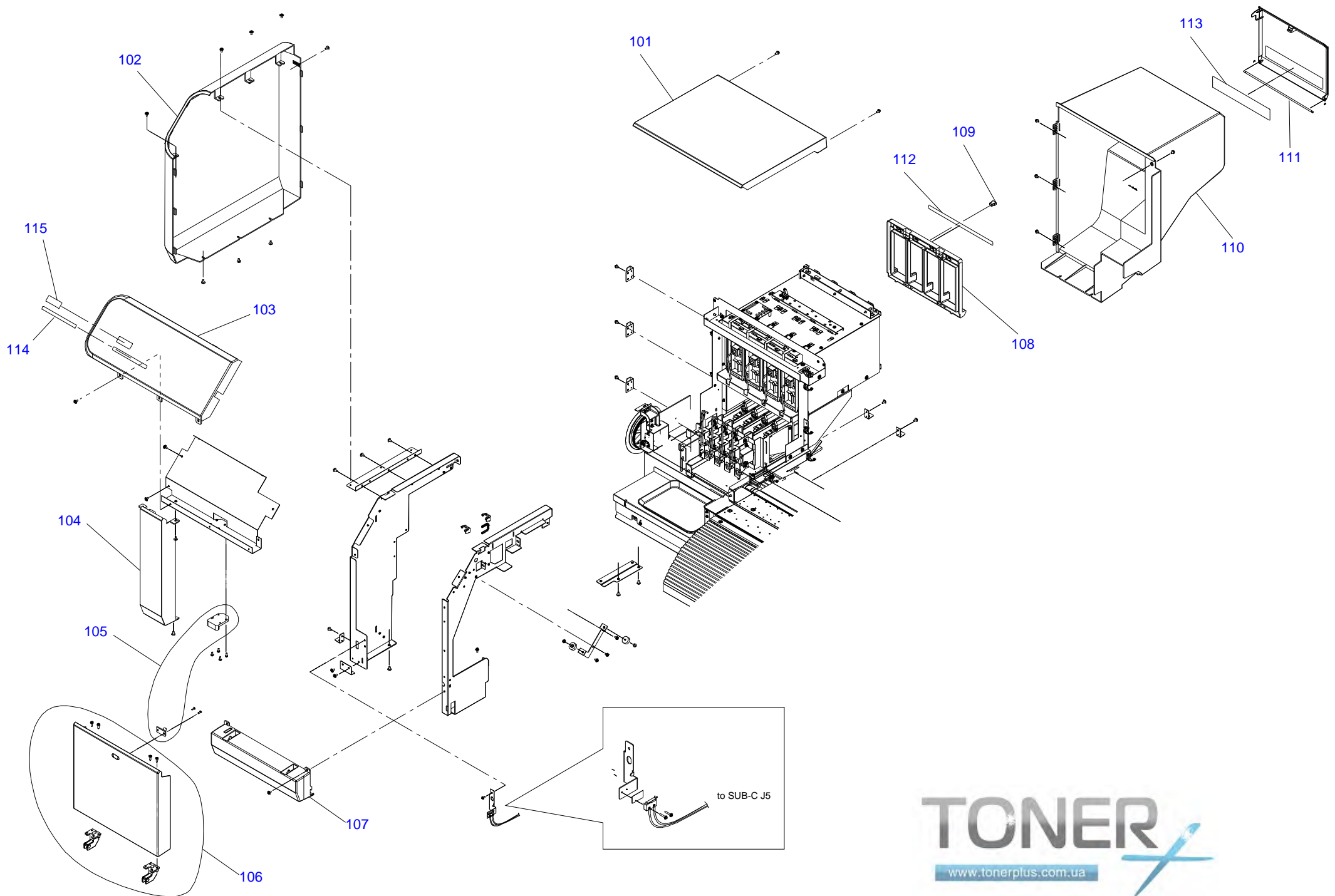
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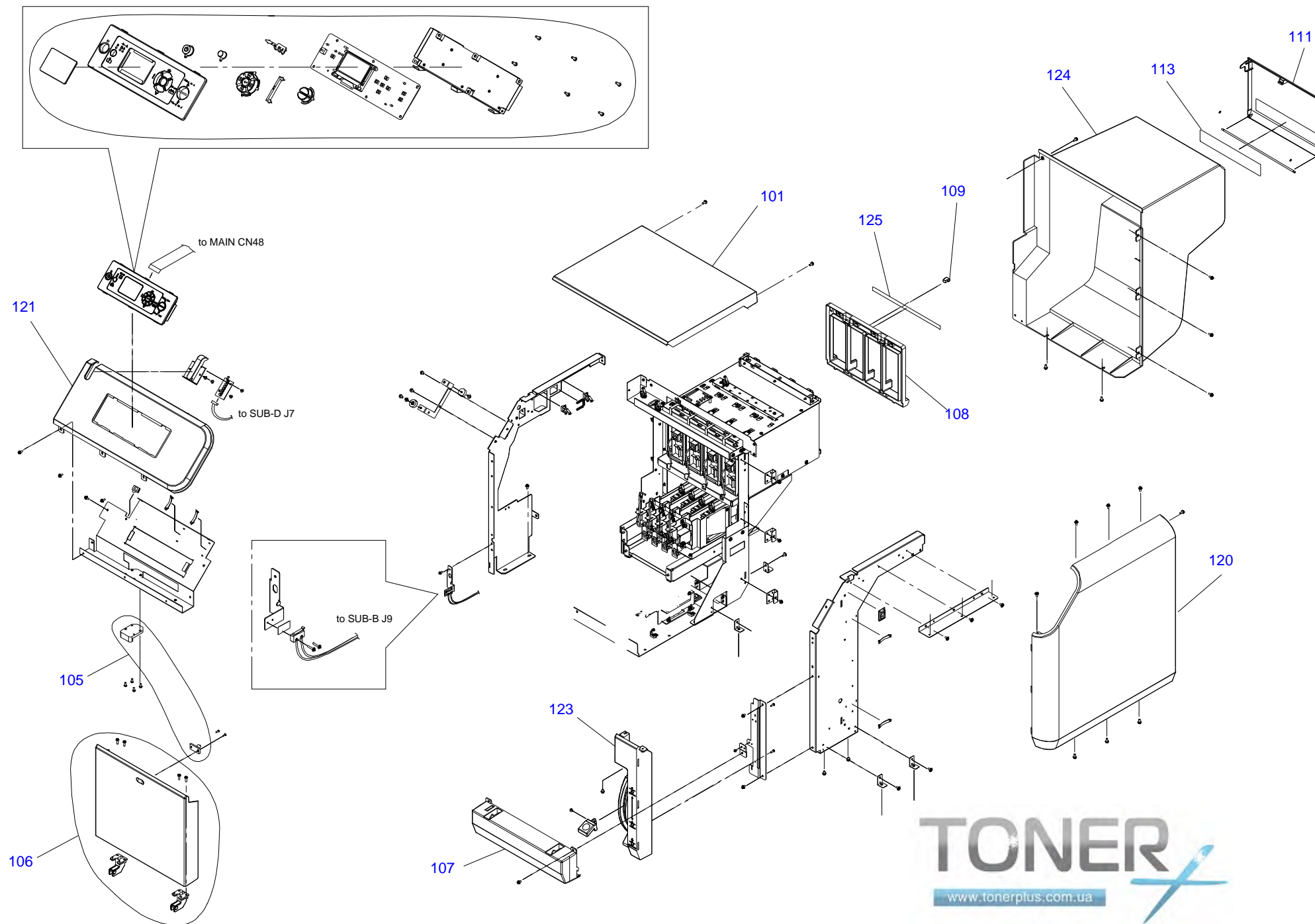
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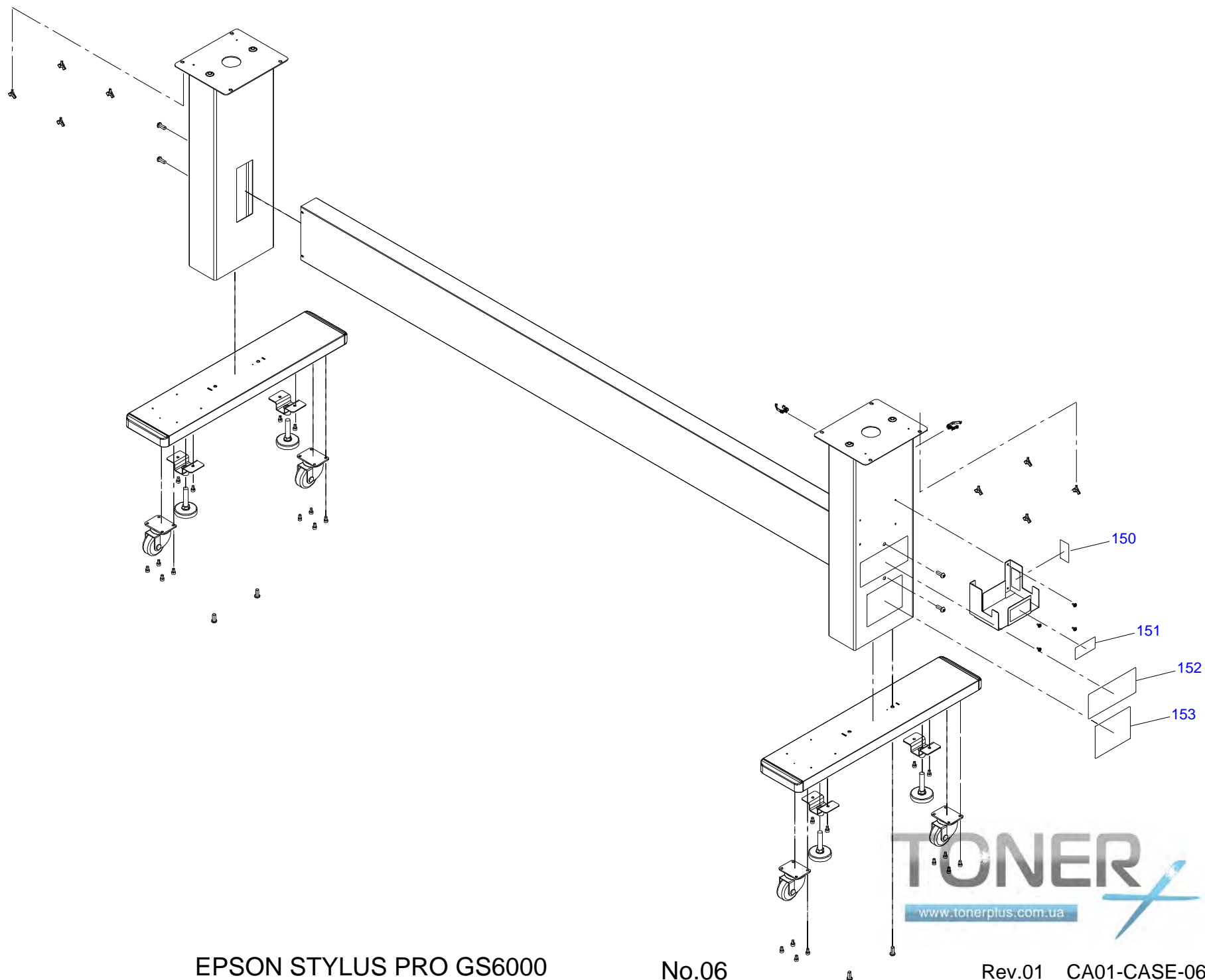
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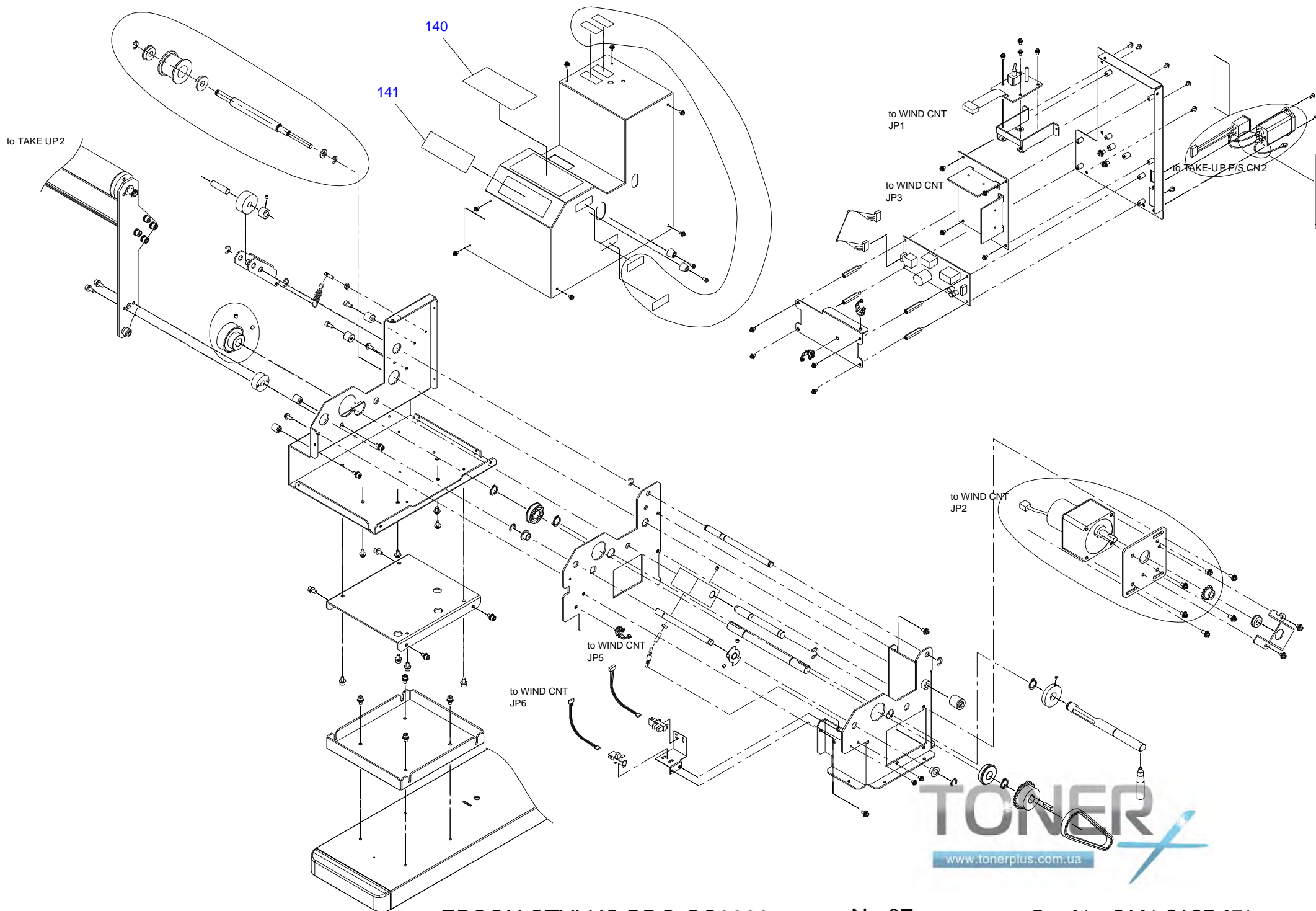
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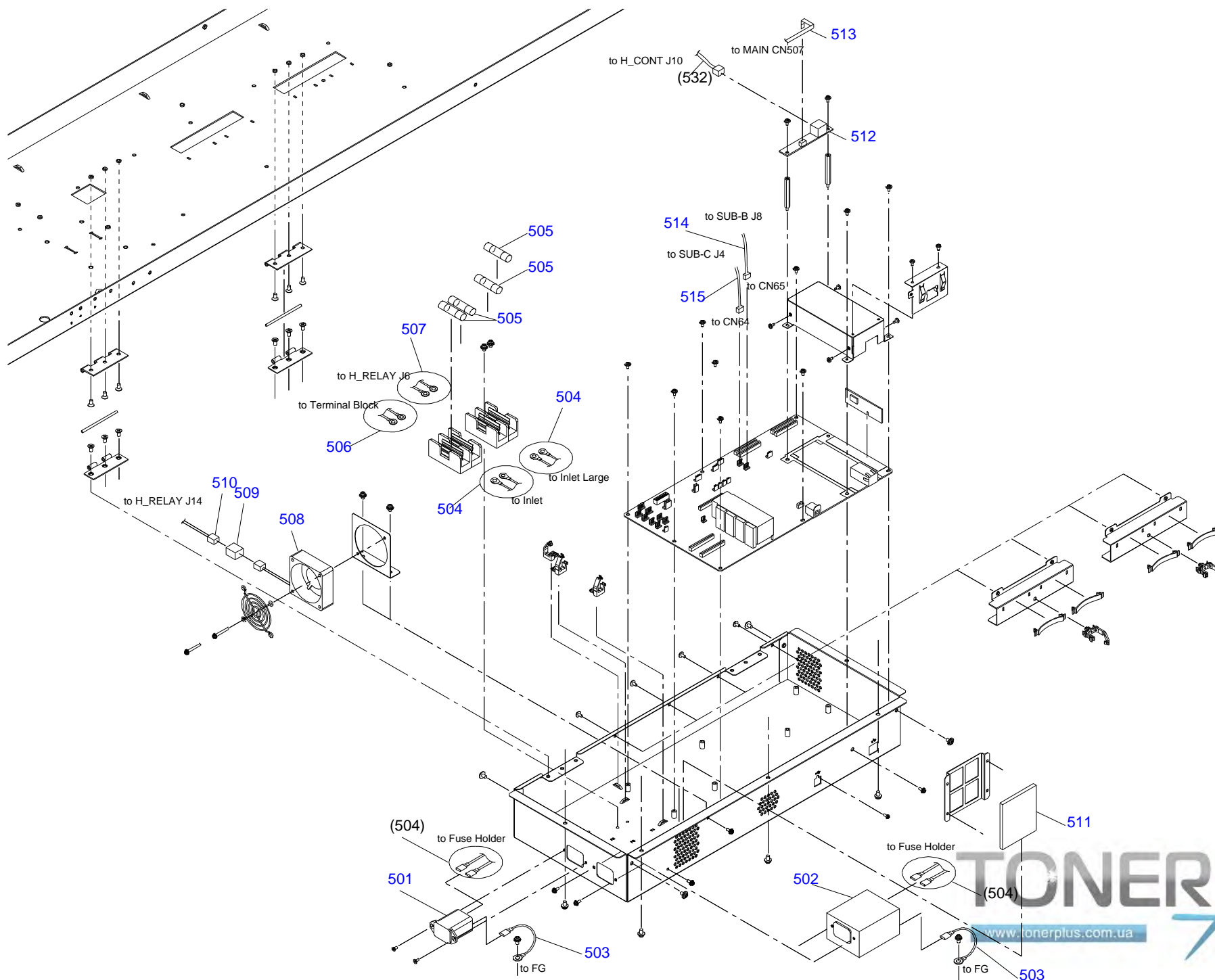


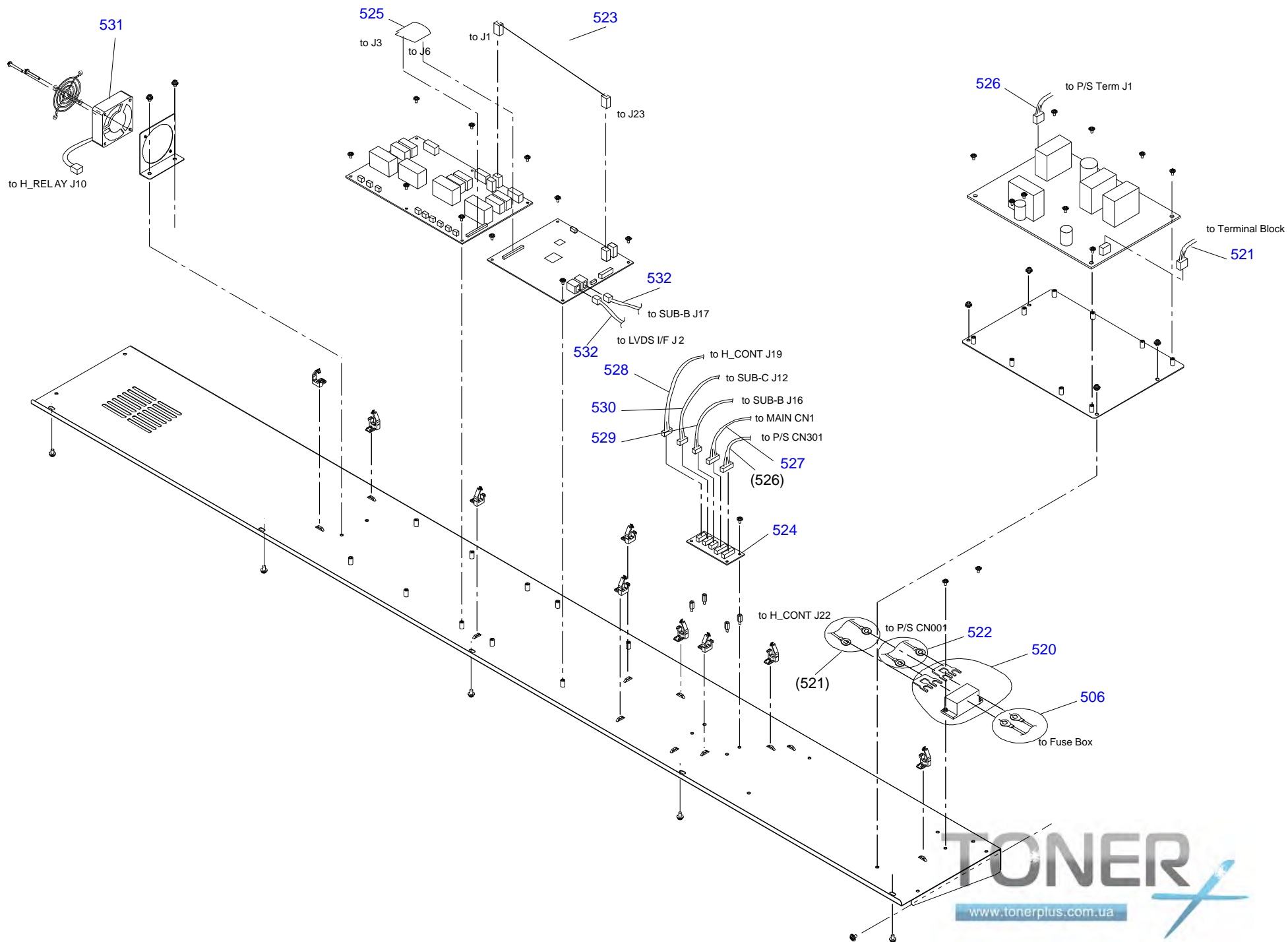


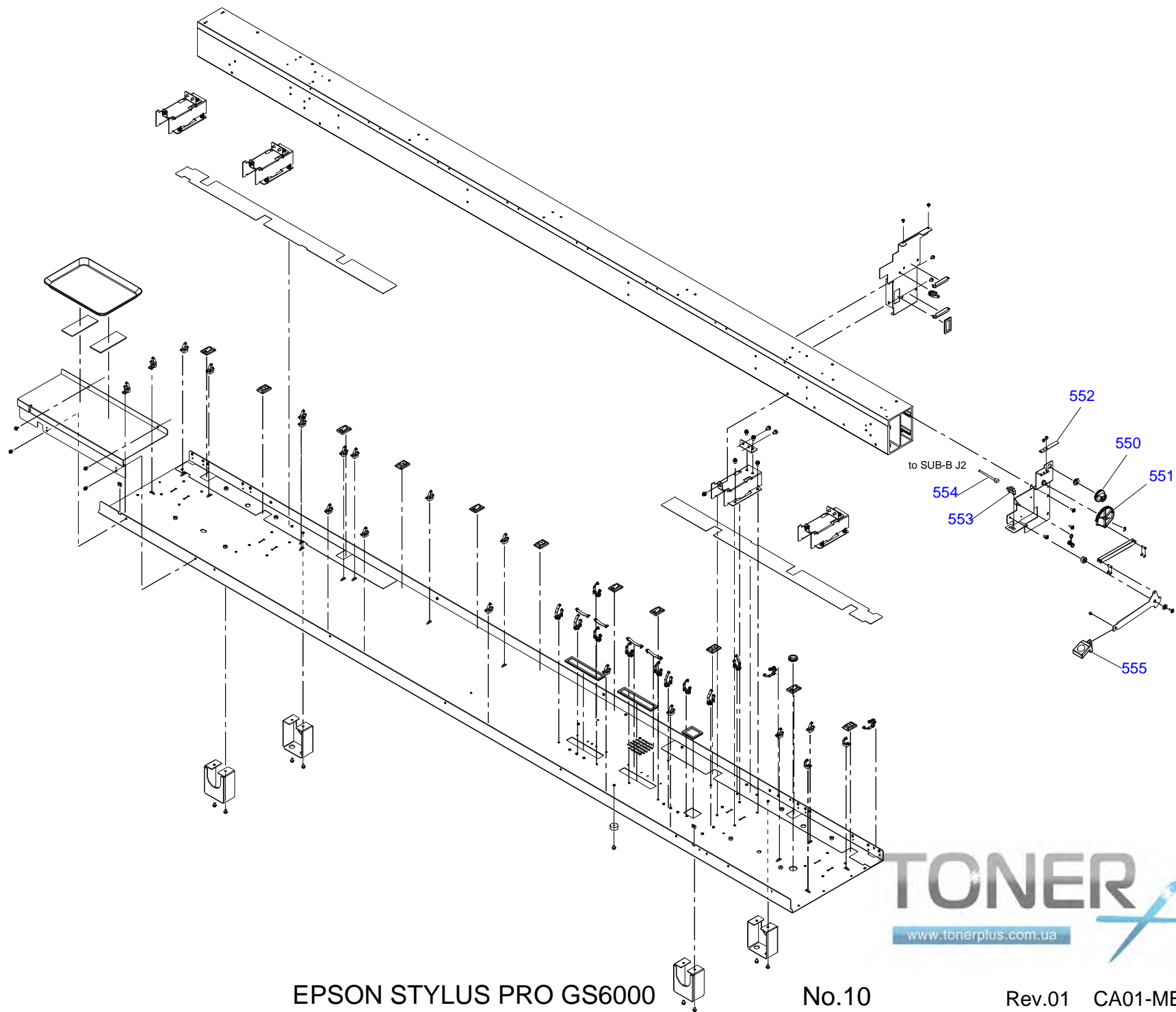




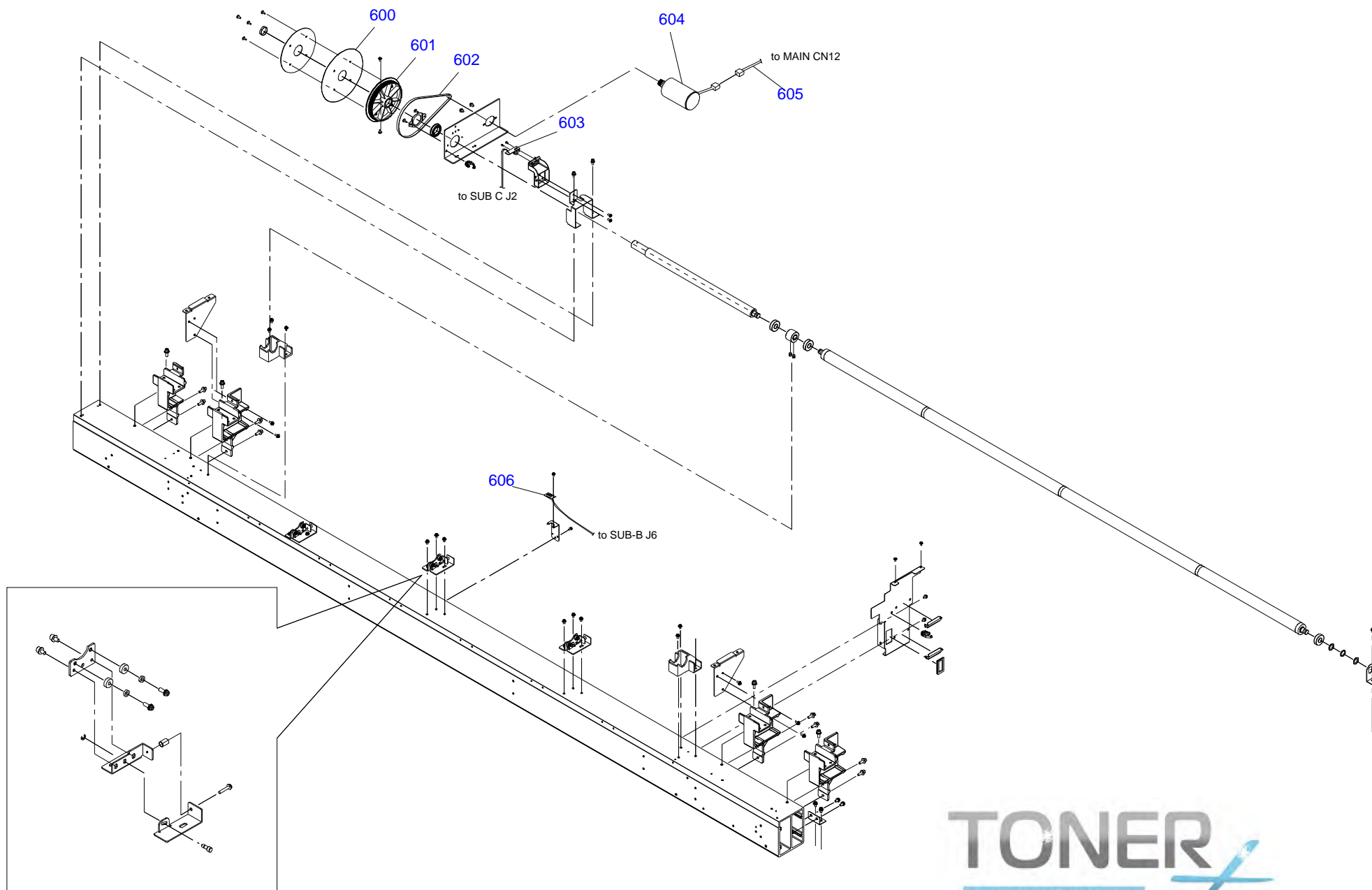


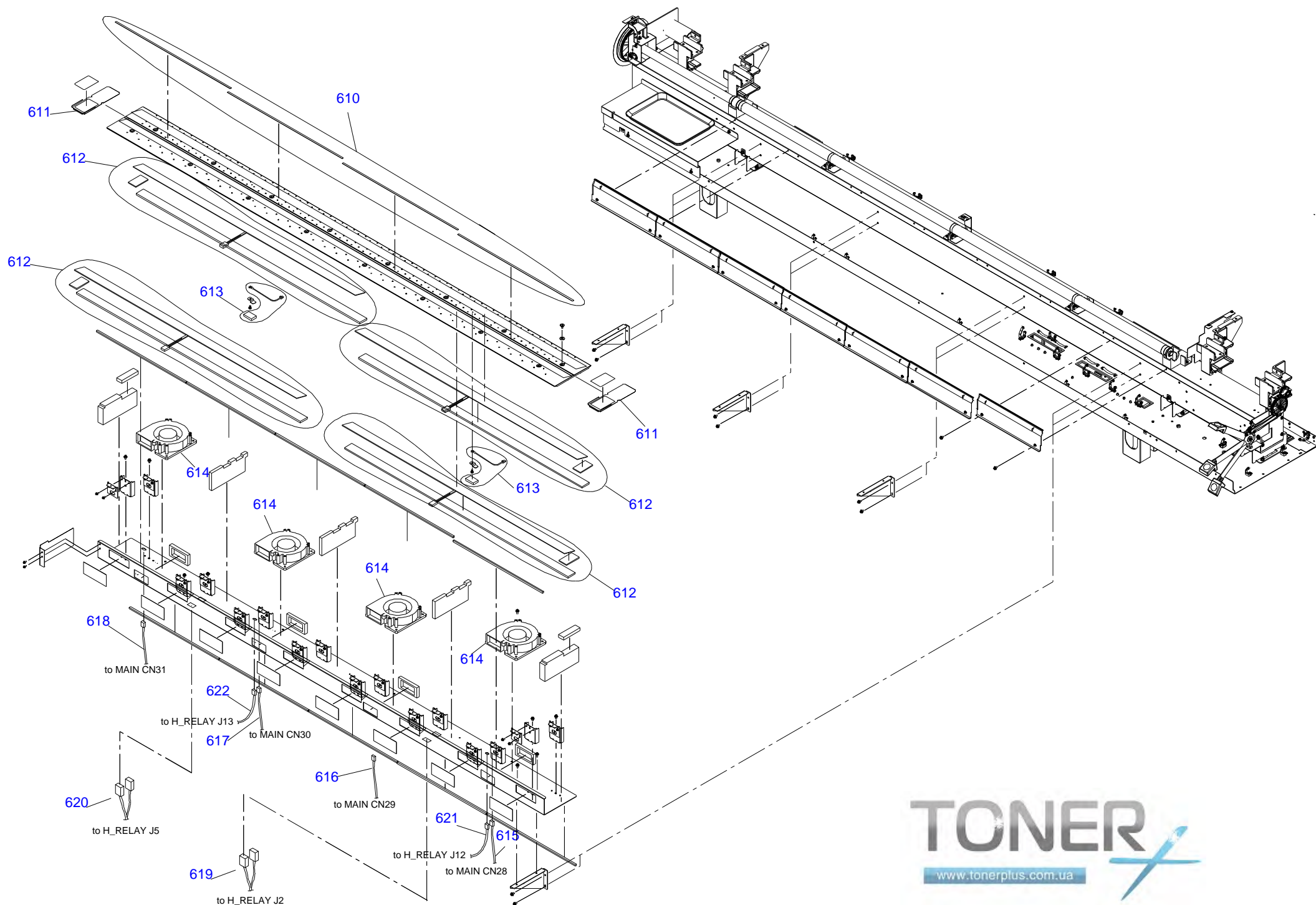


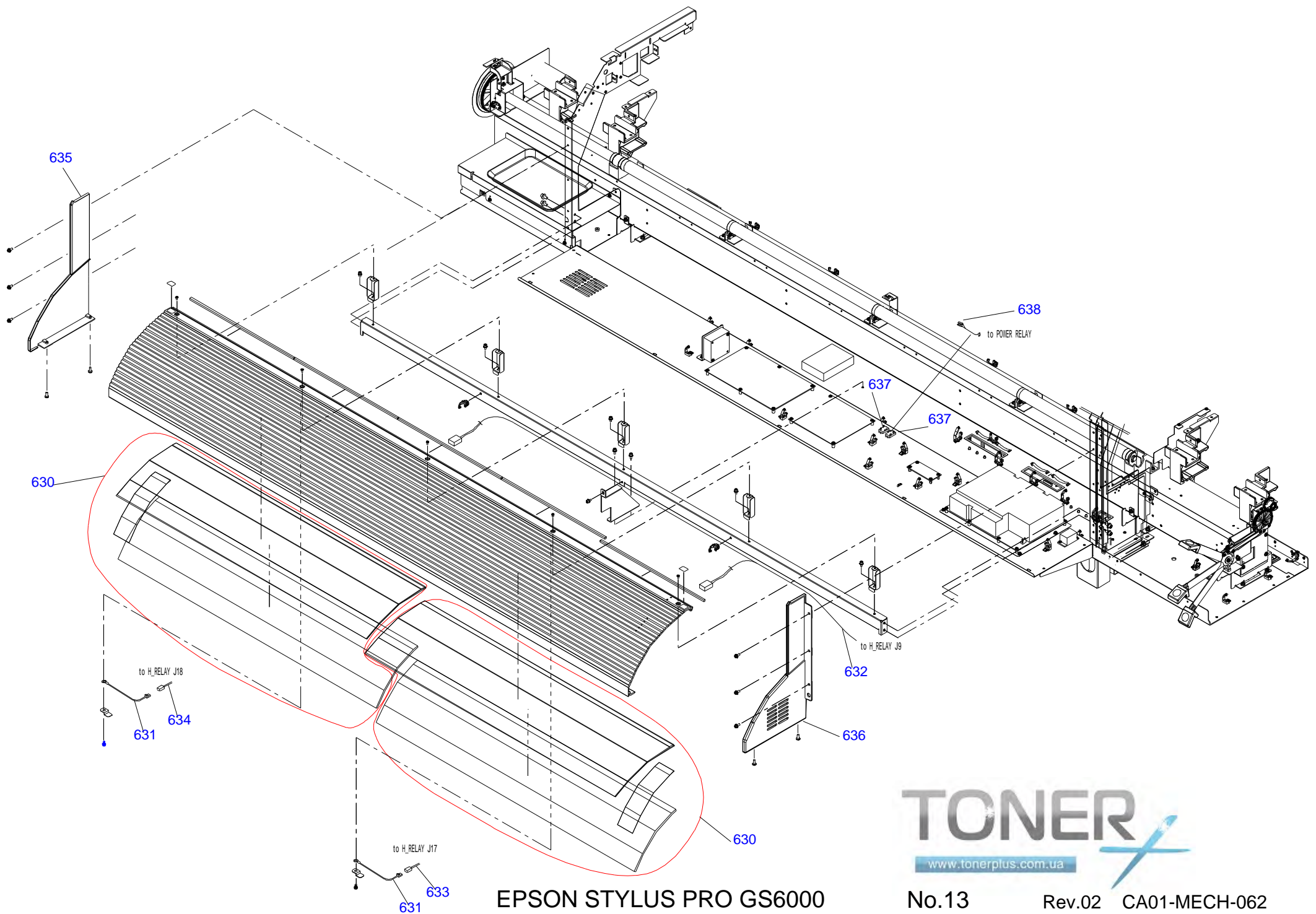




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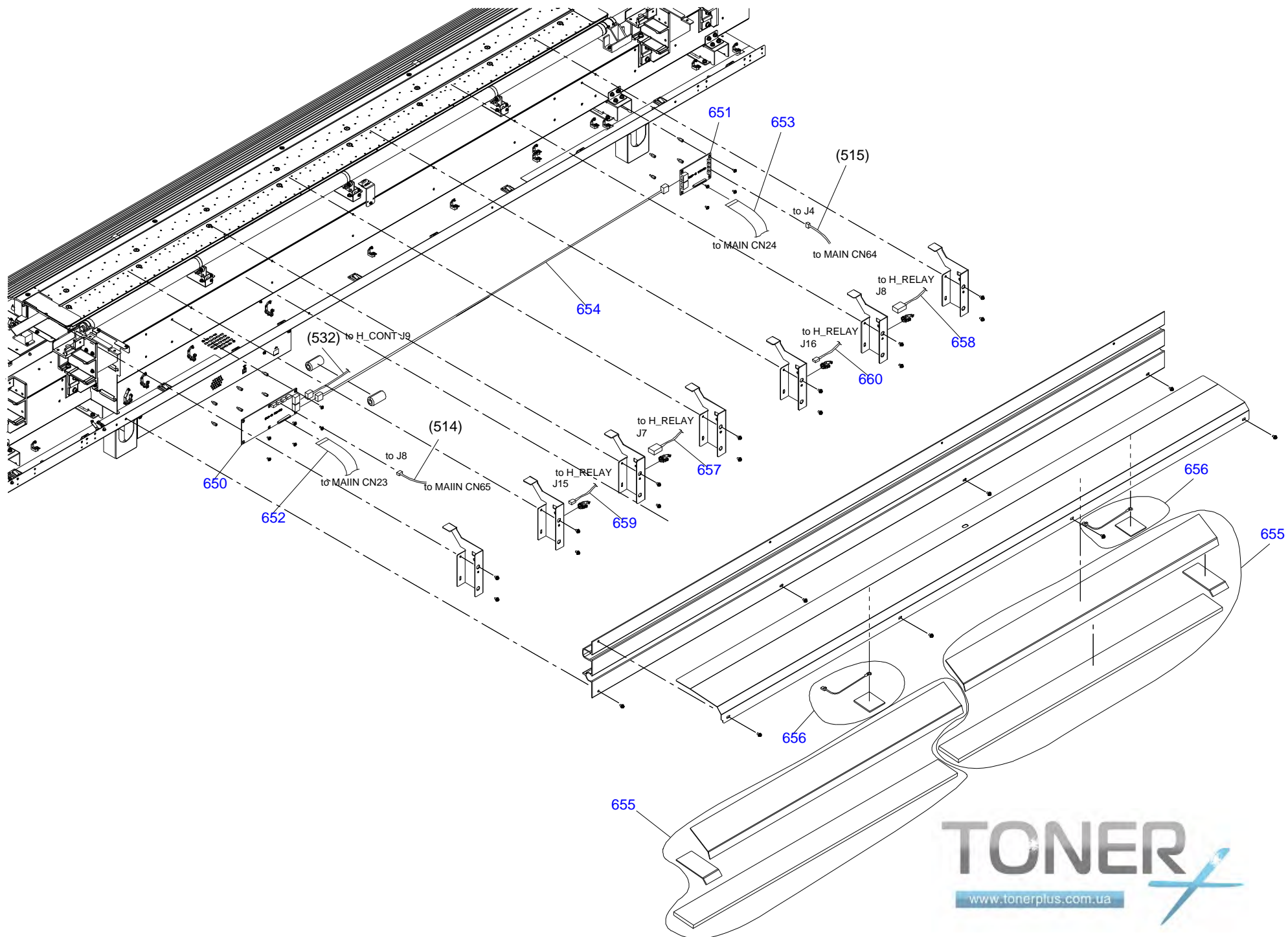
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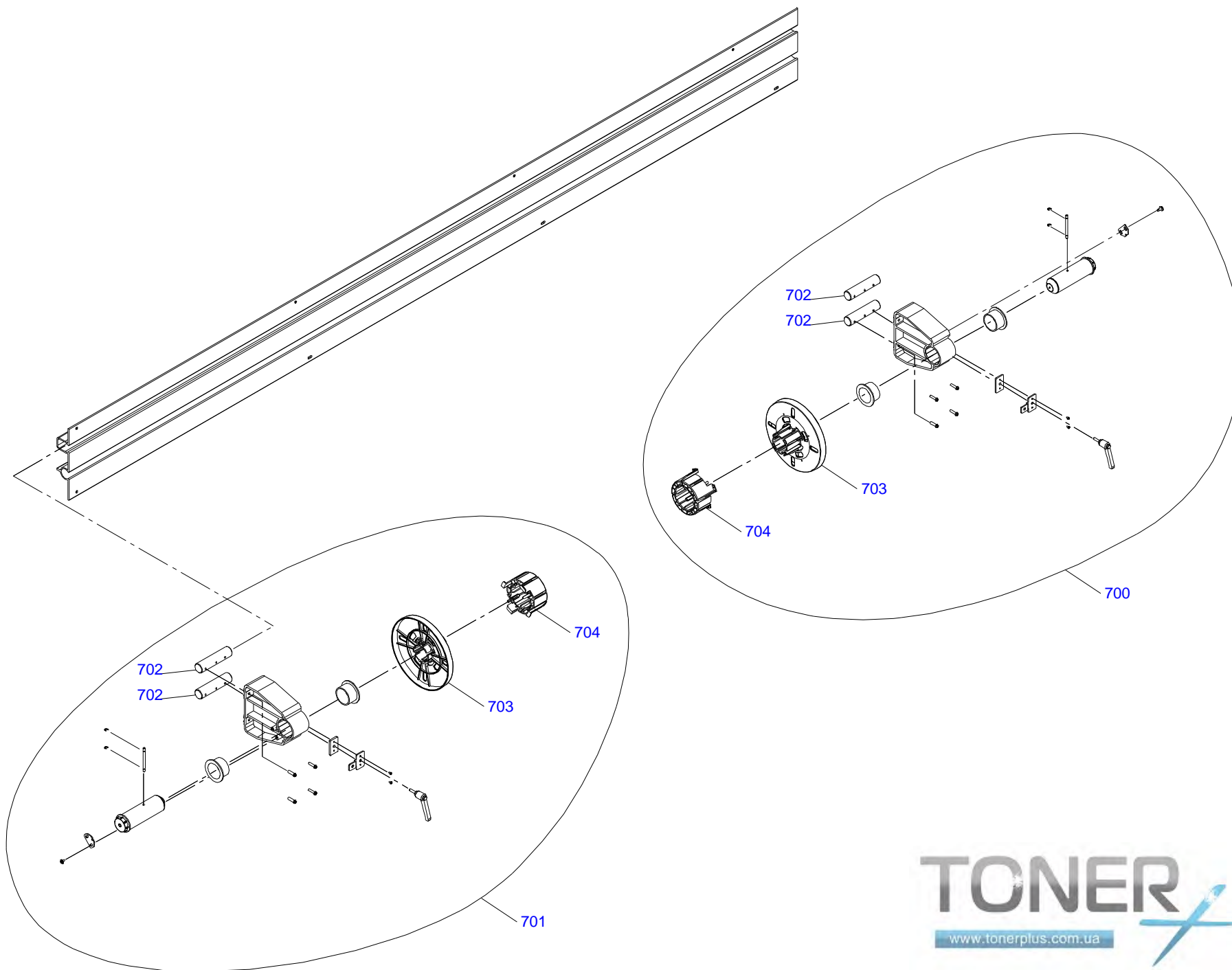
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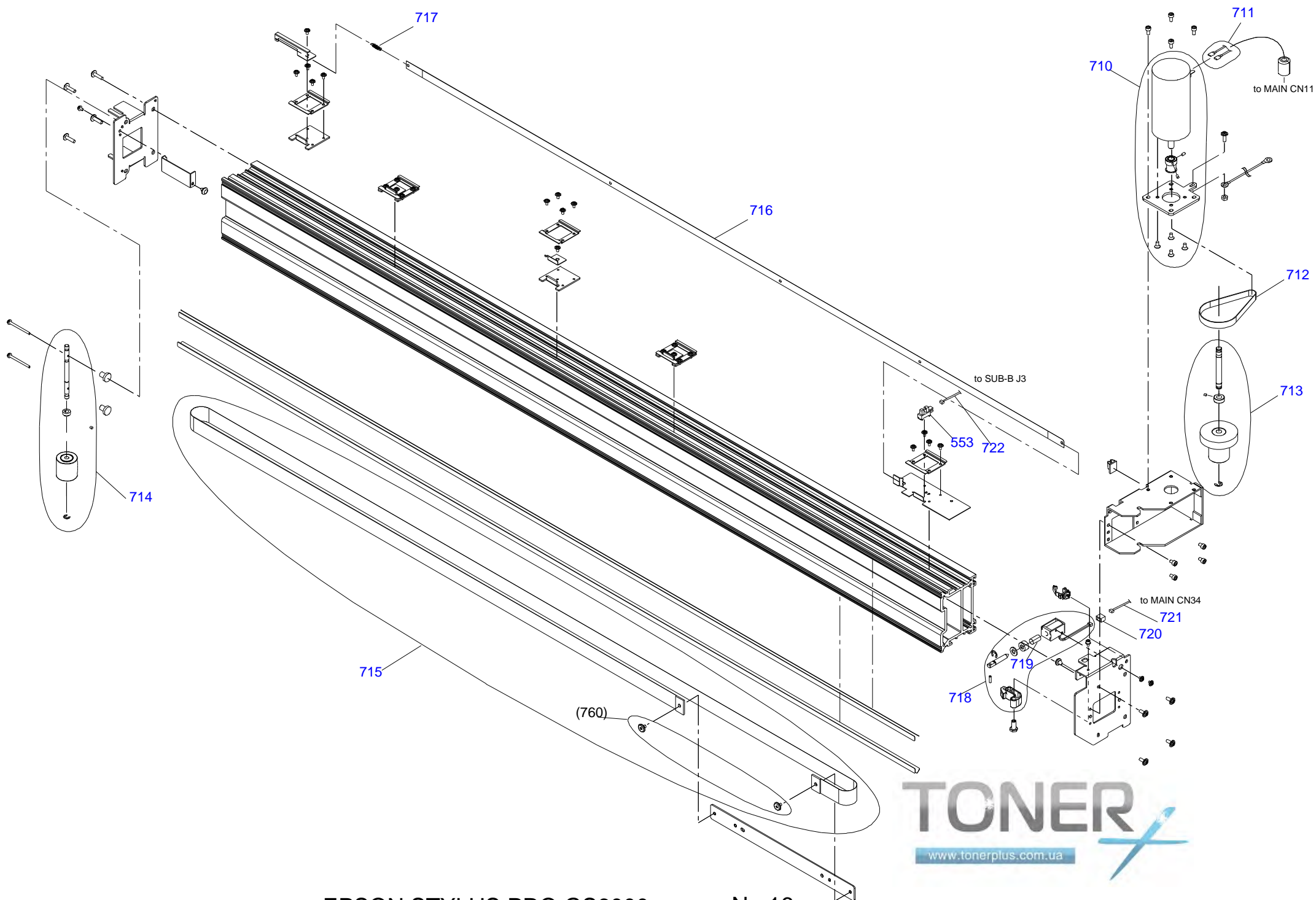
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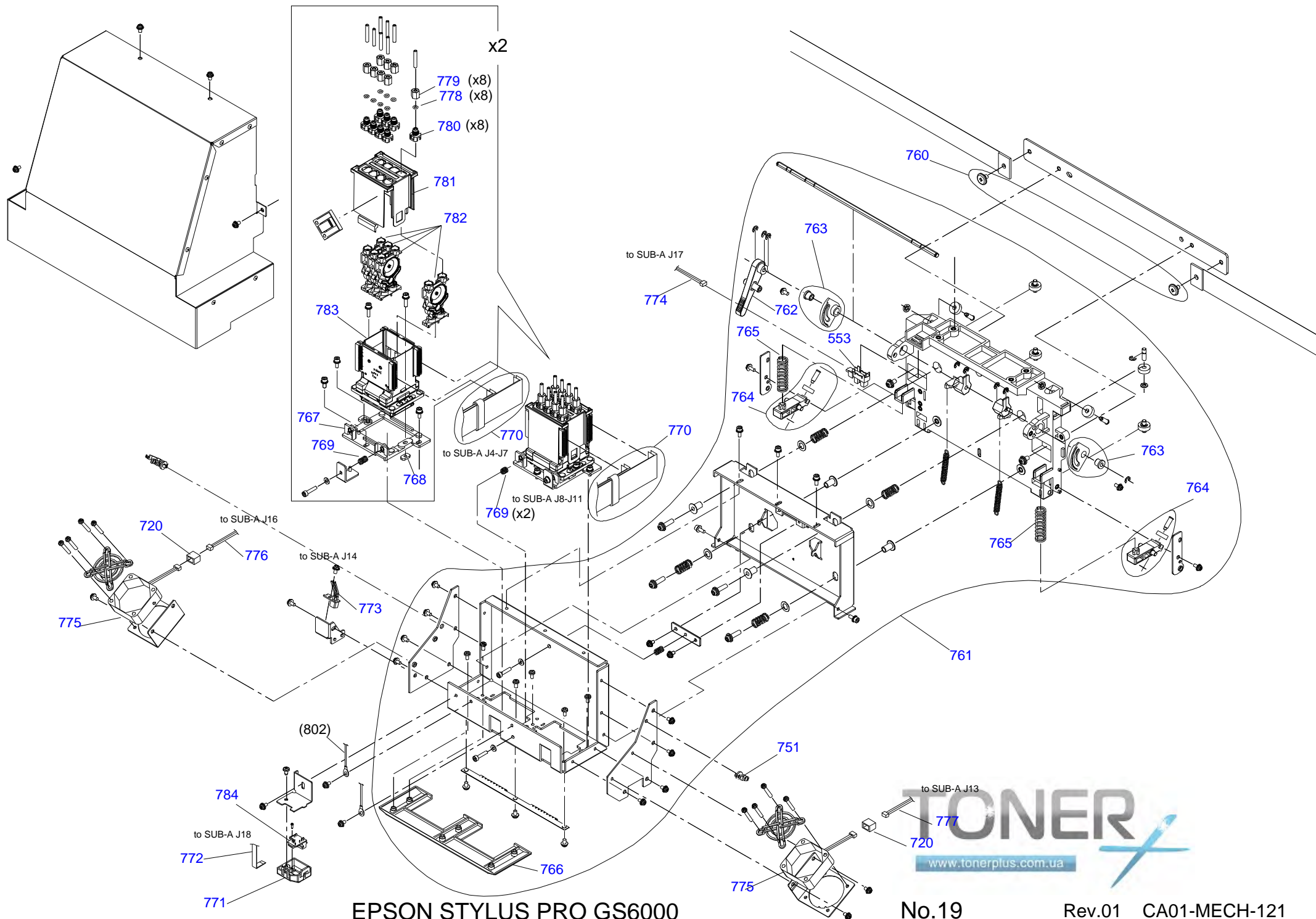
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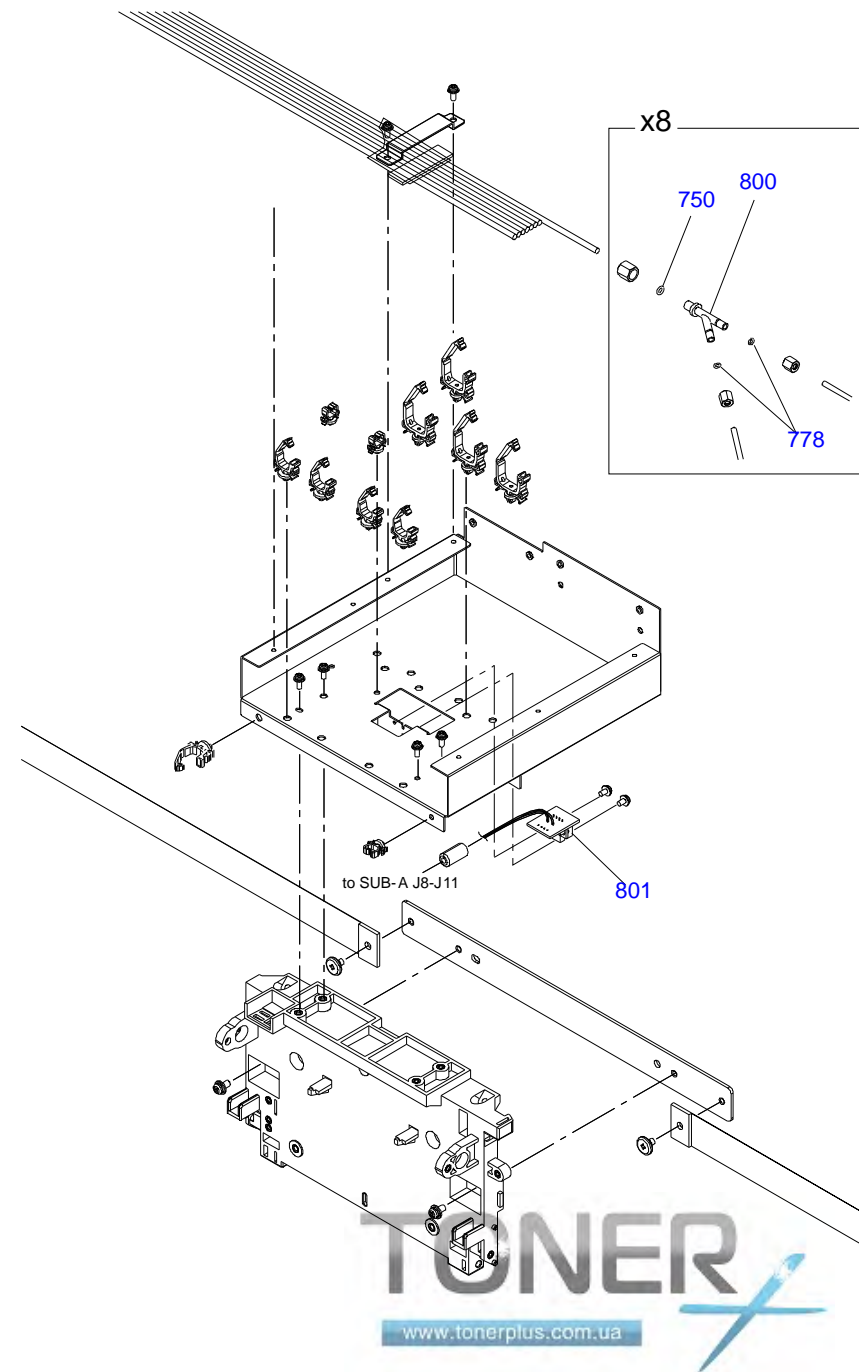
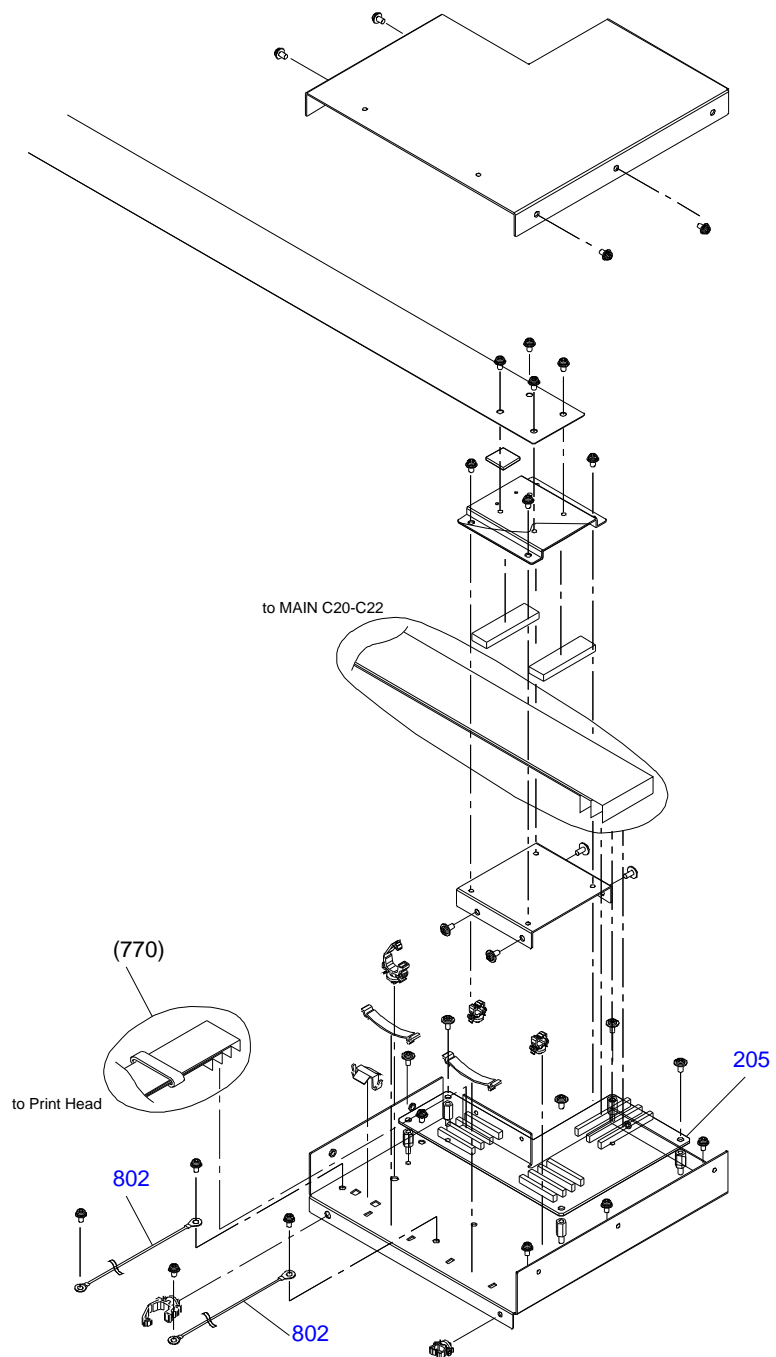
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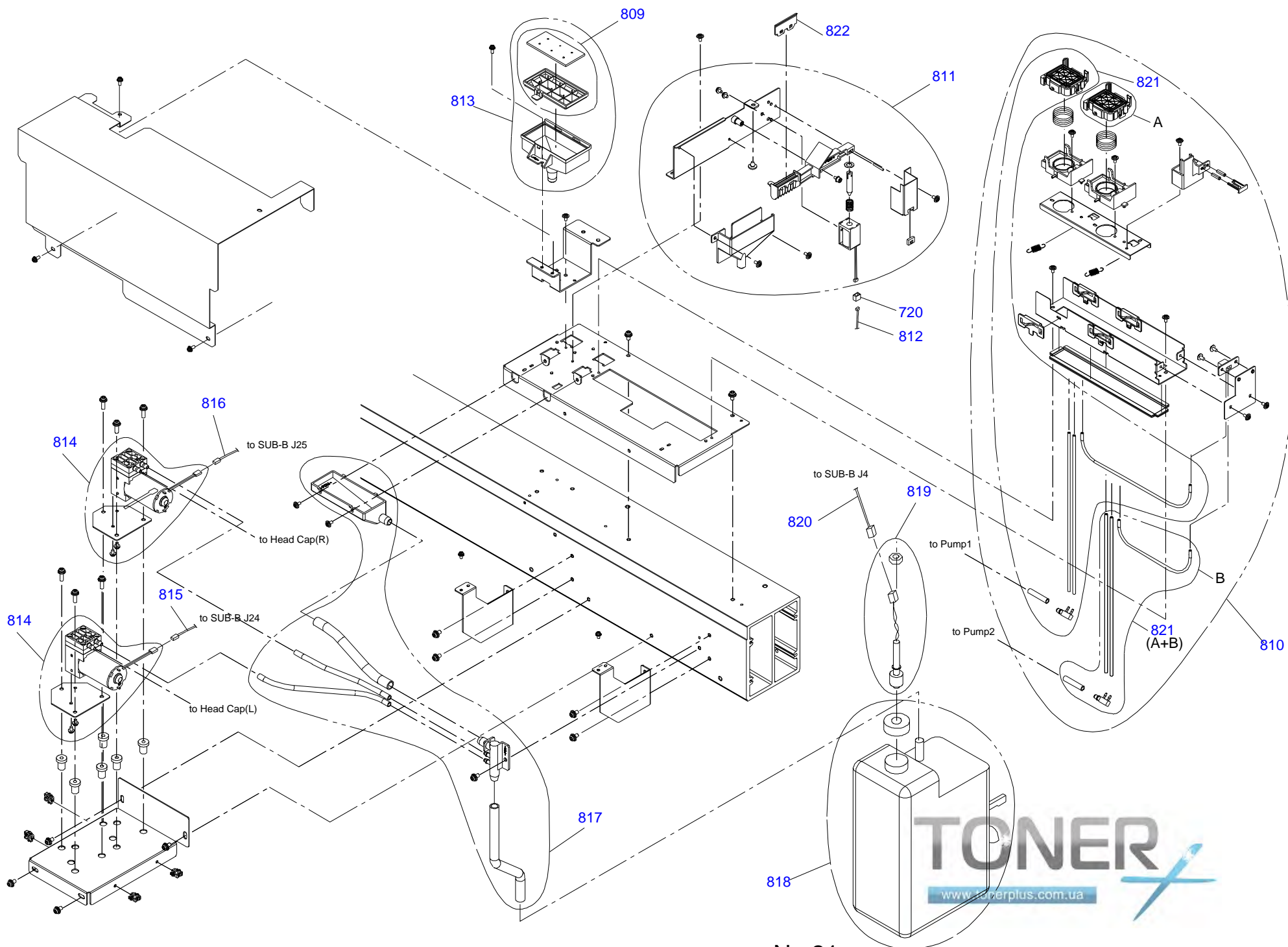
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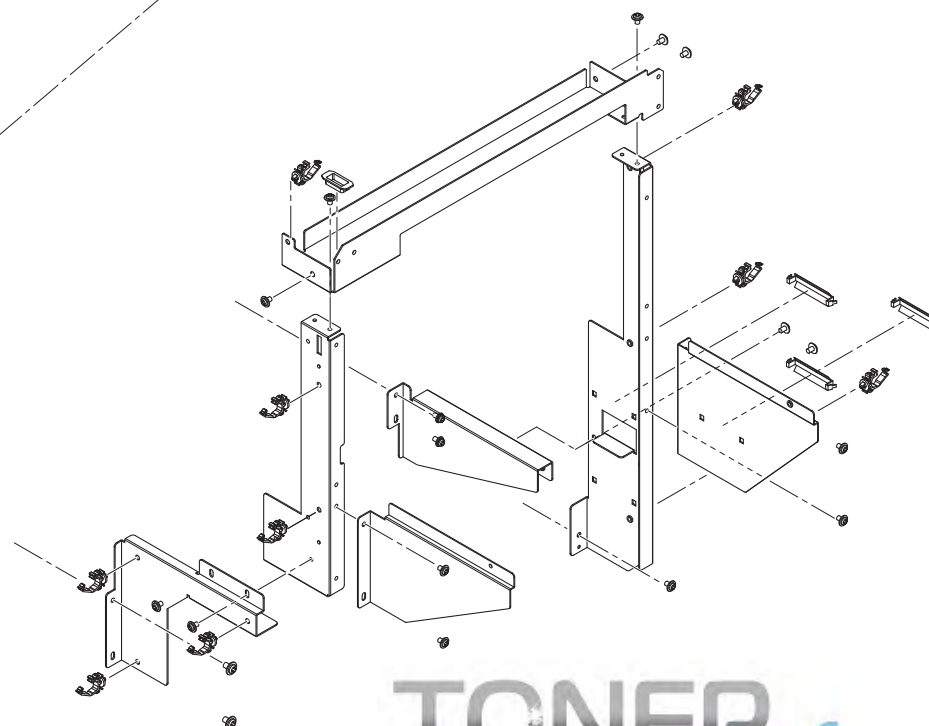
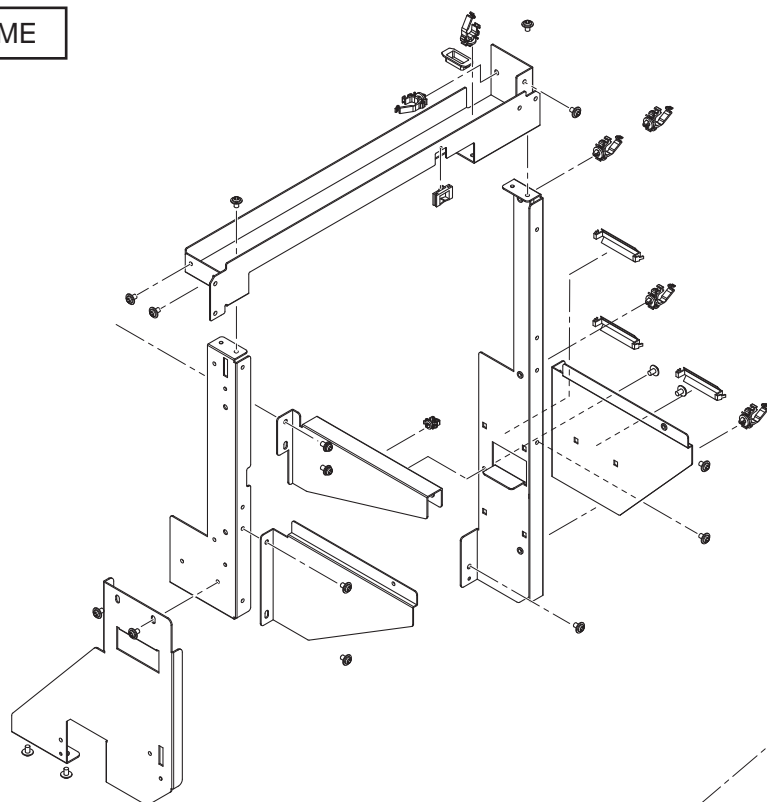
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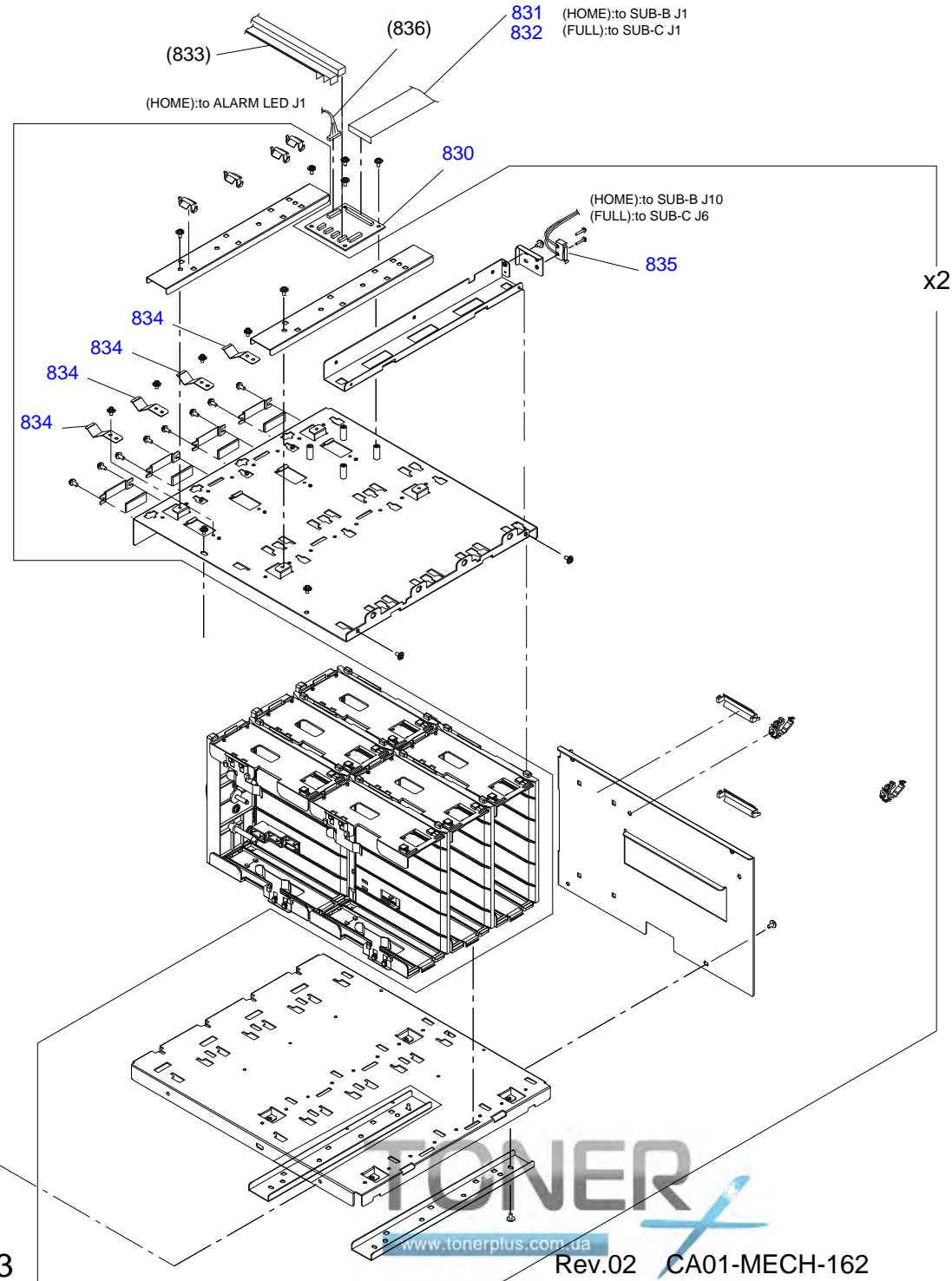
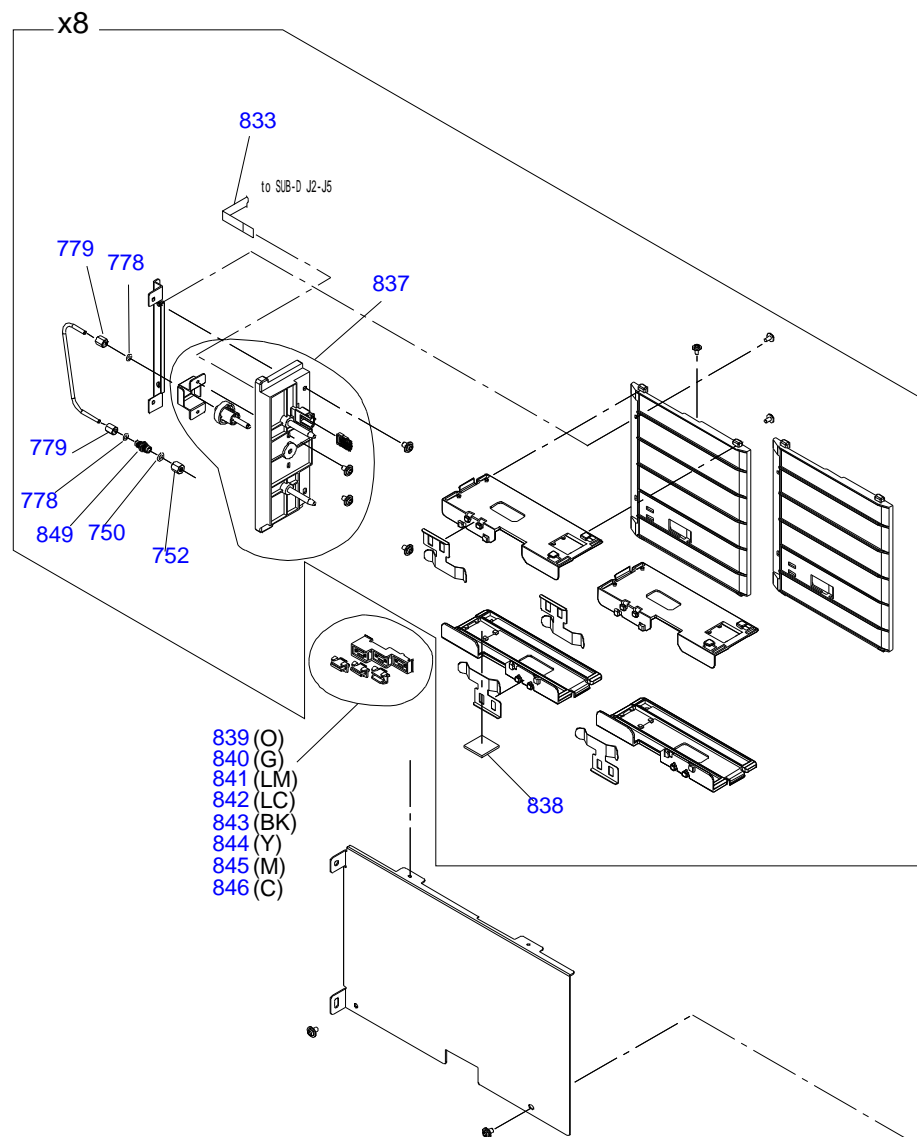


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