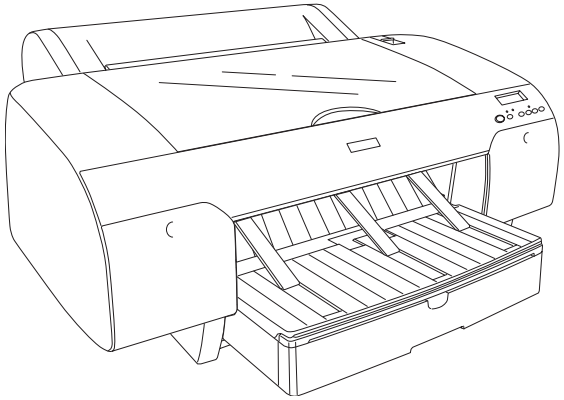
SERVICE MANUAL



Color Large Format Inkjet Printer

EPSON Stylus Pro 4400/4450/4800 4880/4880C

EPSON

SEIJ04008

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Imaging Product CS,PL & Environmental Management

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.

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 DUSTRE 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.

APPENDIX Provides the following additional information for reference:
- Connector pin assignments
- Electrical circuit boards schematics
- Exploded diagram & Parts List

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	Jun. 2, 2005	First release
B	May. 25, 2007	Revised contents: [Chapter 3] Recovery *(p.163)* was changed. [Chapter 5] • Procedures were partially changed in 5.1.4 Adjustment Items classified by Part/Unit *(p.368)*. • 5.8 Installing Firmware for SP 4400 (4-color model) after replacing Main Board with New one *(p.445)* was added.
C	September. 12, 2007	Revised Contents: [All chapters] • Information on Stylus 4450/4880/4880C has been added.

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CHAPTER

1

PRODUCT DESCRIPTION

1.1 Product Description

The Stylus Pro 4400/4450/4800/4880/4880C is a large-format printer based on the Stylus Pro 4000.
The Stylus Pro 4800/4880/4880C is the exclusive model for 8-color inks and the Stylus Pro 4400/4450 is the exclusive model for 4-color inks.
The following table shows the major changes from the Stylus Pro 4000.

1.1.1 Comparison with Stylus Pro 4000

Table 1-1. Comparative Table

No.	Comparative Point		Stylus Pro 4400/4450/4800 /4880/4880C	Stylus Pro 4000	Remark
1	Difference between 8-color model and 4-color model	Hardware	The 4-color model is not equipped with an ink holder on the right side.	Common	---
2		Printer driver	Differs between the 8-color model and the 4-color model.	Common	---
3	Ink set configuration	8-color model	☐ Stylus Pro 4800 K (PK/MK),C,M,Y,LK,LC,LM,LLK* ☐ Stylus Pro 4880/4880C K (PK/MK),C,VM,Y,LK,LC,VLM,LLK*	MK,C,M,Y,PK,LC,LM,LK*	---
		4-color model	MK,C,M,Y*	MK,C,M,Y*	
4	Calibration function		Colorimetric Calibration: Corrects the amount of dot generation based on the individual difference between the following parts: ■ Printhead ■ MAIN Board ■ Power Supply Board	Head ID: Corrects the amount of dot generation based on the individual difference between the following part: ■ Printhead	Calibration accuracy is improved by taking electrical variable factor into consideration.
5	PG setting		5 levels: 0.7mm/1.2mm/**1.5mm**/2.2mm/2.6mm	4 levels: 0.7mm/1.2mm/2.2mm/2.6mm	Added 1.5 mm of PG setting to prevent thin paper from being damaged. (Lock bush design is changed according to the added PG setting.)
6	Harness connection for CR Motor		Connected by connectors	Connected by soldering	Harnesses are made easier to connect/disconnect.
7	Connection between Printhead and Main Board		Added a relay board between “Printhead, Harness”and the MAIN Board.	The Printhead is connected to the MAIN Board by “Head, Harness” only.	An additional relay board prevents head drive waveform being deteriorated when transmitting data form the MAIN Board to the Printhead.
8	Material for roll paper guide roller		Rubber (elastomer)	Plastic (POM)	Reduce roller marks traced when roll paper passes through the roller.
9	Cooling fan		Added a cooling fan	---	Cools the MAIN Board and the Power Supply Board, and ventilates the board container.

Note *: PK=Photo Black, MK=Matte Black, LK=Light Black, LLK=Light Light Black, C=Cyan, M=Magenta, LC=Light Cyan, LM=Light Magenta, Y=Yellow, VM=Vivid Magenta, VLM=Vivid Light Magenta

1.1.2 Features

- ☐ Large Format
  - ■ Max. paper width: 431.8 mm (17"), A2+ size supported
- ☐ High-Speed Throughput
  - ■ Stylus Pro 4400/4800

Table 1-2. Throughput (Stylus Pro 4400/4800)

Ink type	EPSON media	Quality	Dot size	Resolution (dpi)	Throughput (A2 printing time *print only)
8-color	Plain Paper	Economy	VSD1	360 x 360	1.3 min.
		Speed	VSD1	360 x 360	2.3 min.
		Quality	VSD2	720 x 360	2.7 min.
		High Quality	VSD3	720 x 720	5.5 min.
	Matte Paper	Speed	VSD1	360 x 720	2.3 min.
		Quality	VSD2	720 x 720	5.5 min.
		High Quality	VSD3	1440 x 720	7.9 min.
		High Quality Super On	VSD3	1440 x 720	14.2 min.
	Glossy Photo Paper	Quality	VSD2	720 x 720	5.5 min.
		High Quality 1440	VSD3	1440 x 720	7.9 min.
		High Quality 2880	VSD3_HR	2880 x 1440	14.9 min.
4-color	Plain Paper	Economy	VSD1	360 x 360	0.9 min.
		Speed	VSD1	360 x 360	1.3 min.
		Quality	VSD2	720 x 360	2.3 min.
		High Quality	VSD3	720 x 720	3.8 min.
	Matte Paper	Speed	VSD1	360 x 720	3.1 min.
		Quality	VSD2	720 x 720	3.8 min.
		High Quality	VSD3	1440 x 720	5.4 min.
		High Quality Super On	VSD3	1440 x 720	7.3 min.
	Glossy Photo Paper	Quality	VSD2	720 x 720	5.0 min.
		High Quality	VSD3	720 x 720	7.5 min.
		High Quality Super On	VSD3	1440 x 720	10.5 min.

- ■ Stylus Pro 4450/4880/4880C

Table 1-3. Throughput (Stylus Pro 4450/4880/4880C)

Ink type	EPSON media	Quality	Dot size	Resolution (dpi)	Throughput (A2 printing time *print only)
8-color	Plain Paper	Economy	VSD1	360 x 360	1.5 min.
		Speed	VSD1	360 x 360	2.4 min.
		Quality	VSD2	720 x 360	2.8 min.
		High Quality	VSD3	720 x 720	5.2 min.
	Matte Paper	Speed	VSD1	720 x 360	2.4 min.
		Quality	VSD2	720 x 720	5.2 min.
		High Quality 1440	VSD3	1440 x 720	7.5 min.
		High Quality 2880	VSD3_HR	2880 x 1440	14.2 min.
	Glossy Photo Paper	Quality	VSD2	720 x 720	5.5 min.
		High Quality 1440	VSD3	1440 x 720	7.9 min.
		High Quality 2880	VSD3_HR	2880 x 1440	14.9 min.
4-color	Plain Paper	Economy	VSD1	360 x 360	1.2 min.
		Speed	VSD1	360 x 360	1.5 min.
		Quality	VSD2	720 x 360	2.4 min.
		High Quality	VSD2	720 x 720	3.7 min.
	Matte Paper	Speed	VSD1	360 x 720	2.5 min.
		POP Print	VSD2	720 x 720	2.8 min.
		Quality	VSD2	720 x 720	3.7 min.
		High Quality	VSD3	1440 x 720	4.3 min.
		High Quality Super On	VSD3	1440 x 720	5.1 min.
	Glossy Photo Paper	POP Print	VSD2	720 x 720	3.9 min.
		Quality	VSD2	720 x 720	5.3 min.
		High Quality	VSD3	1440 x 720	6.4 min.
		High Quality Super On	VSD3	1440 x 720	7.7 min.

- Max Quality
  High image quality made by various layers of 8-color ink, 2880 x 1440 dpi*, and minimum of 3.5 pl.

Note *: Stylus Pro 4800/4880/4880C only. 1440 x 720 dpi for Stylus Pro 4400/4450.

- Low Running Cost
  - Independent for each color and 110ml ink cartridge
  - Optional ink cartridge with larger capacity of 220ml can be used
- Paper Handling
  - Support various media
  - Automatic roll paper cutter, manual cutter
  - Automatic cut sheet loading (ASF)
    Rear manual feed/ Front manual feed (thick paper only)
  - Borderless print for 4 sides
  - ASF support
- Compatibility with Other LFPs
  Commands are upper compatible with following models.
  - Stylus Pro 4400/4800

    Stylus Pro 4000/7000/7500/7600/9000/9500/9600/10000/10000CF/10000 Dye/10600CF/10600UC
  - Stylus Pro 4450/4880/4880C

    Stylus Pro 4000/4400/4800/7000/7400/7500/7600/7800/9000/9400/9500/9600/9800/10000/10000CF/10000 Dye/10600/10600CF/10600UC
- The latest RIP technology
  - Stylus Rip Professional 3
  - Others: Various 3rd Party RIP

1.2 Basic Specifications

1.2.1 Print Specifications

- Printing
  On-demand ink-jet
- Nozzle configuration

Table 1-4. Nozzle configuration

Model Name	Ink	Nozzles
Stylus Pro 4800	Black(MK or PK)	180
	Light Black	180
	Light Light Black	180
	Cyan	180
	Magenta	180
	Light Cyan	180
	Light Magenta	180
	Yellow	180
Stylus Pro 4880 Stylus Pro 4880C	Black(MK or PK)	180
	Light Black	180
	Light Light Black	180
	Cyan	180
	Vivid Magenta	180
	Light Cyan	180
	Vivid Light Magenta	180
	Yellow	180
Stylus Pro 4400 Stylus Pro 4450	Matte Black	360
	Cyan	360
	Magenta	360
	Yellow	360

  - Nozzle pitch
    0.141 mm (1/180 inch) for each color
- Ink Set Configuration

Table 1-5. Ink Set Configuration*1

Mode Name	1-row	2-row	3-row	4-row	5-row	6-row	7-row	8-row
Stylus Pro 4800	K*2	C	M	Y	LK	LC	LM	LLK
Stylus Pro 4880 Stylus Pro 4880C	K*2	C	VM	Y	LK	LC	VLM	LLK
Stylus Pro 4400 Stylus Pro 4450	MK	C	M	Y	-	-	-	-

Note *1: Rows below are counted from the front left side of the printer.
*2: Ink change (MK<=>PK) is available to users.

- Printing direction
  Bi-direction with logic seeking (high-speed return, high-speed skip only)
- Printing speed and printable area
  - Alphanumeric characters
    - Character quality : High quality
    - Character pitch : 10 cpi
    - Printable area : 167 characters
    - Printing speed : 320 cps max.
  - Graphic Mode

Table 1-6. Graphics Modes

Horizontal resolution (dpi)	Maximum printable area	Maximum number of printable dots	Printing speed
360	439.8 mm (17.31")	6,233	320 cps
720	439.8 mm (17.31")	12,466	240 cps
1440	439.8 mm (17.31")	24,933	240 cps
2880	439.8 mm (17.31")	49,867	240 cps

Note 1: Includes left margin of 5 mm (Maximum), right margin of 3 mm.
2: Standard maximum printable area in normal mode is 425.8 mm (16.7 inch)

1.2.2 Character Specification

- Character tables
  - PC 437 (Alphanumeric characters extension graphics)
- Font
  - EPSON original font – Alphanumeric character Courier

1.2.3 Control Code

- Control code
  ESC/P Raster

1.2.4 Paper Feed Specification

- Paper feeding
  Friction feed
- Line spacing
  1/6 inch or programmable at 1440 inch
  Note: Paper feed resolution is 0.002936758 mm.
- Paper path
  - Roll paper
  - Manual (front/back)
  - Automatic sheet feeder
- Feed speed
  6.35 mm paper feed: 215 ± 10 msec
  (except front rush, back rush, and hold time)

1.2.5 Paper Feeder Specification

- ASF
  Feeds paper automatically by Automatic Sheet Feeder.
- Rear Manual Feed
  Loads automatically from rear manual feed opening.
- Front Manual Feed
  Loads automatically from front manual feed opening.
- Roll Paper Feed
  Sets spindle to rear roll-paper holder.

1.2.6 Paper Specification

1.2.6.1 Roll Paper

CONTAINABLE PAPER

The printer accepts following plain paper and EPSON special paper. It is not assured feeding and print quality with any other paper except them.

- Paper Size
  - 2" core : 203 ~ 432 mm (W) x ~ 45 m (H) (within roll size)
  - 3" core : 203 ~ 432 mm (W) x ~ 202 m (H) (within roll size)
- Roll Size
  - 2" core : Under 103 mm ext. diameter for 1 roll setting
  - 3" core : Under 150 mm ext. diameter for 1 roll setting
- Thickness : 0.08 mm ~ 0.50 mm

PLAIN PAPER

It is assured feeding only with following specifications.

- Paper Size
  - 2" core : 203 ~ 432 mm (W) x ~ 45m (H) (within roll size)
  - 3" core : 203 ~ 432 mm (W) x ~ 202m (H) (within roll size)
- Roll Size
  - 2" core : Under 103 mm ext. diameter for 1 roll setting
  - 3" core : Under 150 mm ext. diameter for 1 roll setting
- Thickness : 0.08 ~ 0.15 mm
- Weight : 64 ~ 130 gf/m^2
- Type : Plain paper, Recycle paper

BORDERLESS PRINT WIDTH

Borderless print for right and left is assured with following paper width roll paper.

- Borderless Print Width

Table 1-7. Borderless Print Width

8"	8.25"	8.5"	10"	12"	13"	14"	16"	16.5"	17"
203.2 mm	210mm (A4)	(LTR) 216mm	257mm	(A3) 297mm 300mm	(A3+) 329mm	355.6 mm	400mm	(A2) 420mm	431.8 mm

But following types are not recommended for borderless printing.

- Single Weight Matte Paper
- Enhanced Matte Paper
- Textured Fine Art Paper
- Ultra Smooth Fine Art Paper

NOTE 1: *Paper should have no wrinkles or tears, and the surface should be smooth.*

2: *The force to remove the end of the roll paper from the core at the beginning of rolling paper should be between 300gf and 2000gf.*

3: *If 3" core is used, a product-exclusive option (roll paper spindle 3") is necessary.*

4: *It is used under normal condition (temperature 15°C ~ 25°C, humidity 40% ~ 60%RH).*

5: *Roll paper can be printed before paper comes out of the core. (Reference: Remaining paper length is 300mm approx. when roll paper come out of the core.)*

6: *Mechanism clips print data out of over-printable area for borderless print.*

7: *For A2 size, spacer is specially needed.*

1.2.6.2 Cut Sheet

CONTAINABLE PAPER

The printer accepts following plain paper and special paper. It is not assured feeding and print quality with any other paper except plain paper and special paper.

☐ Paper Size

Table 1-8. Cut Sheet Size (Containable Paper)

Paper Size	Size (H x W)	Paper Size	Size (H x W)
B3	364 mm x 515 mm	US-C Size	17 x 22 inch
B4	257 mm x 364 mm	16 x 20 inch	16 x 20 inch
A2	420 mm x 594 mm	300 mm x 450 mm	300 mm x 450 mm
Super A3/B (A3 +)	329 mm x 483 mm	US-B Size (Ledger)	11 x 17 inch
A3	297 mm x 420 mm	11 x 14 inch	11 x 14 inch
A4	210 mm x 297 mm	Quarter	10 x 12 inch
		Letter	8.5 x 11 inch
		8 x 10 inch	8 x 10 inch

☐ Thickness

■ 0.08 ~ 1.50 mm (paper length; 279 mm ~ 610 mm)

NOTE 1: *Paper should have no wrinkles, tears, or stains and the surface should be smooth.*

2: *Paper should be placed with its fibrous direction same as the feed direction. (Basically portrait orientation)*

3: *0.08 ~ 1.50mm paper thicknesses are supported for long-edge insertion.*

4: *A4, letter, or 8 x 10 inch papers should not be placed in landscape orientation on rear manual feed path.*

5: *Auto nozzle check is not available for 8 x 10 inch or smaller paper.*

6: *Front manual feed is not available for soft paper or 0.2mm or less thickness paper.*

PLAIN PAPER

It is assured feeding only with following specifications.

☐ Paper Size : Identical to *Table 1-8 "Cut Sheet Size (Containable Paper)"(p16)*.

☐ Thickness : 0.08 ~ 0.11 mm

☐ Weight : 64 ~ 130 gf/m^2

☐ Type : Plain paper, Recycle paper

NOTE 1: *Paper should be placed in portrait orientation.*

2: *Paper should have no wrinkles, tears, or stains and the surface should be smooth.*

3: *It is used under normal condition (temperature 15ºC ~ 25ºC, humidity 40% ~ 60%RH).*

BORDERLESS PRINT WIDTH

Borderless print for right and left is assured with following paper width. But following types are not recommended for borderless printing.

NOTE: *300 mm, 400 mm are supported for Europe.*

☐ Borderless Print Width

Table 1-9. Borderless Print Width

8.25"" 210mm	8.5" 216mm	10" 257mm	12" 297mm	13" 329mm	14" 355.6mm	16" 400mm	17" 431.8mm
A4	LTR	B4	A3	A3+	–	16" x20"	US-C

NOTE 1: *Mechanism clips print data out of over-printable area for borderless print.*

2: *Borderless printing is not available for A2 cut sheet.*

1.2.6.3 Special Paper

☐ Cut Sheet

Table 1-10. Availability with Cut Sheet

Cut Sheet		Media Size												
	PG (mm)	8"x10"	A4	US-A LTR	Arch.A 9x12"	B4	11"x14"	A3	US-B	Arch.B 12x18"	Super A3/B	400x600	A2	US-C
Name		203x279	210x297	216x279	229x305	254x364	279x356	297x420	279x432	305x457	329x483	400x600	420x594	432x559
Premium Ink Jet Plain Paper (Xerox 4024)	1.5	–	@	@	@	@	–	@	@	@	–	–	@	@
Premium Ink Jet Plain Paper (Genuine)	1.5	–	@	–	–	–	–	–	–	–	–	–	–	–
Bright White Inkjet Paper	1.5	–	@	–	–	–	–	–	–	–	–	–	–	–
EPSON Photo Quality Inkjet Paper	1.5	–	§	§	–	–	–	§	–	–	§	–	–	–
EPSON Enhanced (Archival) Matte Paper	1.2	–	§	§	–	–	–	§	–	–	§	–	–	§
Watercolor Paper-Radiant White	1.2	–	–	–	–	–	–	–	–	–	§	–	–	–
EPSON Premium Glossy Photo Paper	0.7	–	§	§	–	–	–	§	–	–	§	–	–	–
EPSON Premium Semigloss Photo Paper	0.7	–	§	§	–	–	–	§	–	–	§	–	–	–
Premium Semimatte/Luster Photo Paper<250>	1.2	–	–	–	–	–	–	–	–	–	–	–	–	§
Premium Luster Photo Paper	0.7	–	–	§	–	–	–	–	–	–	§	–	–	–
P;atinum Photo Paper	0.7	–	§	–	–	–	–	§	–	–	§	–	–	–
EPSON Velvet Fine Art	1.2	–	–	§	–	–	–	–	–	–	§	–	–	–
Single Weight Matte Paper	1.5	–	–	–	–	–	–	–	–	–	§	–	§	§
Ultra Smooth Fine Art Paper	1.5	–	–	–	–	–	–	–	–	–	§	–	–	§
Proofing Paper Semimatte	0.7	–	–	–	–	–	–	–	–	–	§	–	–	–
Velvet Fine Art Paper		–	–	§	–	–	–	–	–	–	§	–	–	–

Note 1: Symbol ⊙: Assured, @: Assured for plain paper only

2: Assured range for image quality 15°C 40%RH ~ 25°C 60%RH

3: PG setting value of Velvet Fine Art Paper is accordance with the panel setting.

☐ Roll Paper

Table 1-11. Availability with Roll Sheet

Roll Paper				Media Size									
	Core" Spindle	PG (mm)	Cutter Auto or Manual	A4	10"	30cm	12"	A3+	14"	40cm	16"	A2	17"
Name				210	254	300	305	329	356	400	406	420	431.6
Bright White Inkjet Paper	2	1.5	A	§	–	–	–	–	–	–	–	§	–
Single Weight Matte Paper Roll	2	1.2	A	–	–	–	–	–	–	–	–	§	§
Enhanced Matte Paper Roll	3	1.2	A	–	–	–	–	–	–	–	–	–	§
Photo Glossy Paper Roll	2	0.7	A	–	–	–	–	–	–	–	–	§	–
Photo Semigloss Paper Roll	2	0.7	A	–	–	–	–	–	–	–	–	§	–
Premium Glossy Photo Paper<250>Roll	3	0.7	A	–	–	–	–	–	–	–	§	–	–
Premium Semigloss Photo Paper<250>Roll	3	0.7	A	–	–	–	–	–	–	–	§	–	–
Premium Semimatte Photo Paper <250 >Roll	3	0.7	A	–	–	–	–	–	–	–	§	–	–
Premium Luster Photo Paper <250 >Roll	3	0.7	A	–	§	§	–	–	–	–	§	–	–
Ultra Smooth Fine Art Paper	3	1.5	A	–	–	–	–	–	–	–	–	–	§
Textured Fine Art Paper	3	1.2	A	–	–	–	–	–	–	–	–	–	§
Proofing Paper Semimatte Roll	2	0.7	A	–	–	–	–	§	–	–	–	–	§
Photo Paper Gloss 250	3	0.7	A	–	–	–	–	–	–	–	–	–	§
Tracing Paper	2/3	1.2	A	–	–	–	–	§	–	–	–	@	–

Note 1: Symbol ⊙: Assured, @: Assured for plain paper only

2: Assured range for image quality 15°C 40%RH ~ 25°C 60%RH

1.2.7 Mechanism Specifications

1.2.7.1 Printable Area

Table 1-12. Printable Area

Item	Roll paper / Cut Sheet	Dimension
PW (Paper width)	Roll paper	203mm~431.8mm (17") *
	Cut Sheet	
PL (Paper length)	Roll paper	Max. 202m
	Cut Sheet	279mm~594mm
TM (Top margin)	Roll paper	0mm/3mm/15mm/35mm
	Cut Sheet	0mm/3mm
BM (Bottom margin)	Roll paper	0mm/3mm/15mm(/35mm)
	Cut Sheet	0mm/3mm/14mm
LM (Left margin)	Roll paper	0mm/3mm/15mm
	Cut Sheet	0mm/3mm
RM (Right margin)	Roll paper	0mm/3mm/15mm
	Cut Sheet	0mm/3mm

Note *: Max. value is roll paper 439.8mm(17.31"), and cut sheet 437.8mm (17.24") for no margin print.

- ☐ The printer detects paper width when paper is set (print data is accepted for ASF). (If set paper width detection is OFF, it doesn't detect paper width.)
- ☐ It doesn't print the image beyond printable area specified with paper size setting or detected paper width. (It may print on the platen if set paper width detection is OFF.)
- ☐ Margins of roll paper can be changed with the panel as following;
  - ■ Top/bottom 15mm, left/right 3mm
  - ■ Top/bottom 25mm, left/right 3mm
  - ■ Top/bottom/left/right 3mm
  - ■ Top/bottom/left/right 15mm

  NOTE 1: *Under special condition, it is possible to set right and left margin (LM, RM) to 0.*

  2: *When special internal pattern is printed on roll paper, right and left side margin are fixed to 3mm.* *"1.4.4.8 Roll Paper Margin (p.52)"* *for details.*

- ☐ For borderless print, right and left surplus printable area is maximum 3mm on the home position side and maximum 5mm on the other side distance from paper edge to platen (sponge width) is less than 3mm, the maximum surplus print quantity not on platen (0mm~3mm) is printable area.
- ☐ Conditions for separating into multiple pages for printing cut sheet.
  1. For thick paper, print until the bottom edge reaches to 14mm. Remaining data is invalid and not to be printed.
  2. When error occurred such as releasing paper lever when printing, then print is separated to next page after down margin is printed.
- ☐ When printing on cut sheet at resolution of 2800 x 1440dpi and setting the bottom margin to 3mm, the actual bottom margin will be 3.8mm.

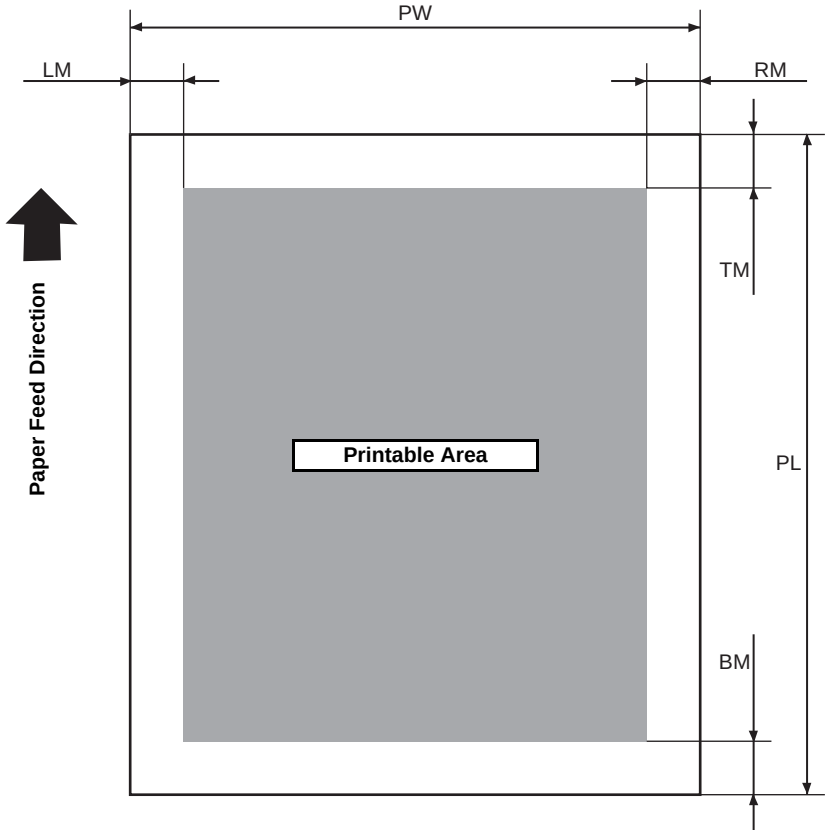


Figure 1-1. Printable Area

1.2.7.2 Borderless Print Specification

By driver's command transmission, supports the following borderless print mode. Supports the following 3 modes.

Table 1-13. Borderless Print Specification mode

Mode	Operation
Right and left borderless (default)	You can set only the right and left margins to zero. At this time, up and down margins are set by roll paper margin setting.
4 sides borderless/1 cut	You can set 4 sides margins to zero. Use the following method for cutting. ☐ Starting of JOB, take minimum cut length for margin and cut while printing. ☐ While JOB, new page has no margin, cut at image border position in continuing print. ☐ End of JOB, cut at the bottom of the image.
4 sides borderless/2 cut	You can set 4 sides margins to zero. Use the following method for cutting. ☐ At the front edge page, take refresh margin length for margin, cut while printing. ☐ At the end of the page, cut at the bottom of the image. ☐ To discard the remaining part of printing after cut, cut the paper after advancing the paper to minimum cut length. *

Note 1: For 4 sides borderless, after cutting, up and down size of the printing will be smaller by approximately 2mm than the actual printing size.

2: When the roll paper cutter is OFF and page line printing is ON, print the page line at each cutting position including front edge page.

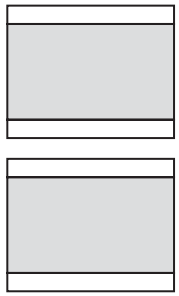
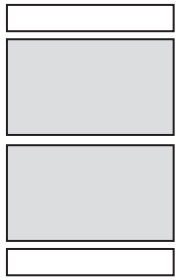
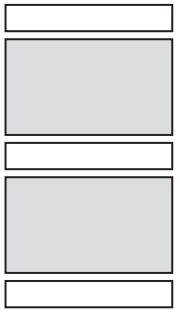
3: In following media, if 1 cut is selected at borderless printing, it is cut as 2 cut to prevent scraping top of paper.

- Premium Glossy Photo Paper
- Premium Semigloss Photo Paper

Note *: Recommended a borderless length for glossy paper is 60mm, for other paper is 100mm.

☐ Borderless setting method

Table 1-14. Borderless setting

Borderless mode	Right and left borderless	4 sides borderless (1 cut)	4 sides borderless (2 cut)
Printer operation			
Driver setting	Borderless print	Borderless print Single cut	Borderless print Double cut
Note	Default setting	☐ The upper edge cut is performed by interrupting print operation; there is chance of color shading according to data. ☐ By adjusting cutter position, there is chance of data from continuous page remaining in top or bottom edge of the page.	☐ The upper edge cut is performed by interrupting print operation; there is chance of color shading according to data. ☐ To avoid remaining of margin, cut off the top and bottom part of the paper by going inside of image. Therefore the actual size will be about 2mm smaller than the specified print area.

☐ Borderless Print Assurance Conditions

Borderless print is assured under the following conditions.

Temperature condition: 15 to 25 degrees C, 40 to 60%

Media Type: Photo media

POP/Poster media*1,*2

Note 1: Refer to "1.2.6 Paper Specification (p.15)" for details on assured media for borderless print.

2: Borderless printing is not assured if the surface of few rolls is extended due to moisture absorbent.

3: Medea types and sizes other than above assure borderless margins equal to or more than PX-10000 / PX-9000. However, margins may appear on the right and left edges, if paper wrinkled due to conditions such as temperature is used.

☐ Right and Left Surplus Printable Area

For right and left surplus printable area*1, the following settings are available:

Left (opposite side of home position) = 1.5mm/ right (home position side) = 1.5mm

Left (opposite side of home position) = 3.0mm/ right (home position side) = 3.0mm

Left (opposite side of home position) = 5.0mm/ right (home position side) = 3.0mm*2

Note *1: Right and left surplus printable area can be selected on the driver.

*2: When the media is wrinkled, a selection of "Left (opposite side of home position) = 5.0mm/ right (home position side) = 3.0mm" is recommended to prevent margins from appearing on the right and left edges.

1.2.7.3 Paper Set Lever

Table 1-15. Paper Set Lever

Lever Position	Description
Backward	Position for paper setting (Paper holding is released, and paper can be set.)
Forward	Ready-to-print position (Paper is fixed, and it becomes ready to be printed.)

1.2.7.4 Cut Specification

There are two types, auto cut and manual cut for roll paper cutting.

CAUTION

Making cutting action to paper which automatic cutting is prohibited will cause damage to the printhead.

AUTOMATIC CUT FOR ROLL PAPER

For paper that automatic cut is admitted, cut the paper using the following method by setting panel setting to "roll paper automatic cut".

☐ Mechanic condition

- Distance between the cutting position and paper setting position
  L0=205.43mm
- Distance between the cutting position and cutter mark
  L1=27.6 mm
- Minimum cut length
  L2=130 mm (default value)

Table 1-16. Cutting Conditions and Cutting Methods

Cut condition	Cutting method
Initial cut (Pressing the lever down when there is paper and pushing the [Paper Source/ Paper Cut (<)] key for 3 sec.)	Deliver size of L1 paper and cut by 2-step with roll paper holding Star Wheel. (100cps)*
Cut when driver ends print.	Cutting method (include Star Wheel holding), cutting pressure, minimum cut length follows to the media table.
Initial cut when printing	Cut while printing is prohibited in this model. (Product specification)
Initial cut in an original standby situation	Deliver size of L1 paper and cut by 2-step with roll paper holding Star Wheel. (100cps)
After printing in automatic cut OFF mode, start initial cut in automatic cut ON mode.	Cut by 2-step with roll paper holding Star Wheel reserving size of L2. (100cps)
Cut when paper width detection is OFF.	Same as paper width detection is ON. (Paper jam is not occurred for 2-step cut.)

Note *: User need to remove the strip of paper that remains between eject roller and nip roller when executing this operation without L2 reservation.

MANUAL CUT FOR ROLL PAPER

When using paper for which automatic cutting is prohibited, use manual cut with the steps below.

1. Use [Paper Source / Paper Cut] button to select Roll Paper Auto Cut OFF (" ").
2. Press and hold the [Paper Source / Paper Cut] button for 3 seconds.
3. The paper will be automatically fed to the manual cut position and the printer will go offline, indicating “Pause”on the panel.
4. Cut off paper using own scissors.
5. Then press the [Pause] button and the paper will be fed back, and the printer will be online.

NOTE 1: *Auto cutter supports all genuine roll paper.*

2: *Paper of 3rd party media and generally auto cutter is prohibited.*
- *Fiber-form paper such as cloth.*
- *Rigidity is extremely high paper such as Vinyl (Outdoor type) or Fine Art type.*

1.2.8 Electrical Specification

- ☐ Rated voltage: AC 100 ~ 240V
- ☐ Input voltage range: AC 90 ~ 264V
- ☐ Rated frequency range: 50 ~ 60Hz
- ☐ Input frequency range: 49 ~ 61Hz
- ☐ Rated current: 100-240V ac, 50-60Hz, and 1.0-0.5A
- ☐ Power consumption
  - ■ operation status
    - Stylus Pro 4400/4800: Less than 59 W
    - Stylus Pro 4450/4880/4880C: Less than 55 W
  - ■ Less than 5 W for low power status (Shifting time: 15 minutes)
  - ■ Less than 1 W for Power OFF
- ☐ Insulation resistance: More than 10M ohms (Between AC line and chassis is DC 500V)
- ☐ Dielectric strength: AC 1.0kV rms 1min. or AC1.2kV rms 1 sec. (Between AC line and chassis)
- ☐ Leakage: Less than 0.25mA [Adapts Japan National Electronics Development Incorporated Association "Personal Computer Industry Standard" (PC-11-1988)]
- ☐ Adapted standard regulation
  Adapts International Star Program (Adapts category: measure for harmonic component suppression guideline)
  Adapts VCCI class B

1.2.9 Reliability

PRINTER LIFE

☐ Approx. 20,000 pages (A2, plain paper, quality, 720 x 360 FOL, Bi-D)

AVERAGE CUTTER LIFE

- Coated paper: Approx. 2,000 cut
- Film: Approx. 1,000 cut

REPLACEMENT PARTS LIFE

☐ Maintenance Unit: Approx. 20,000 sheets
(A2, plain paper, speed mode, continuous printing)
The maintenance unit reaches its end of life when the number of the pump rotation exceeds 160,000 times.

1.2.10 Environmental Conditions

1.2.10.1 Temperature/Humidity

Table 1-17. Temperature/Humidity

Condition	Temperature*1	Humidity*2
During operation	10 ~ 35°C	20 ~ 80%
During storage	-20 ~ 40°C	20 ~ 85%
During transport	-20 ~ 60°C	5 ~ 85%

Note *1: Within one month for 40ºC, within 120 hours for 60ºC

*2: No condensation. These values are applicable only within the range as shown below. Print quality is assured only within a temperature of 15 to 25 degrees C and a humidity of 40 to 60%.

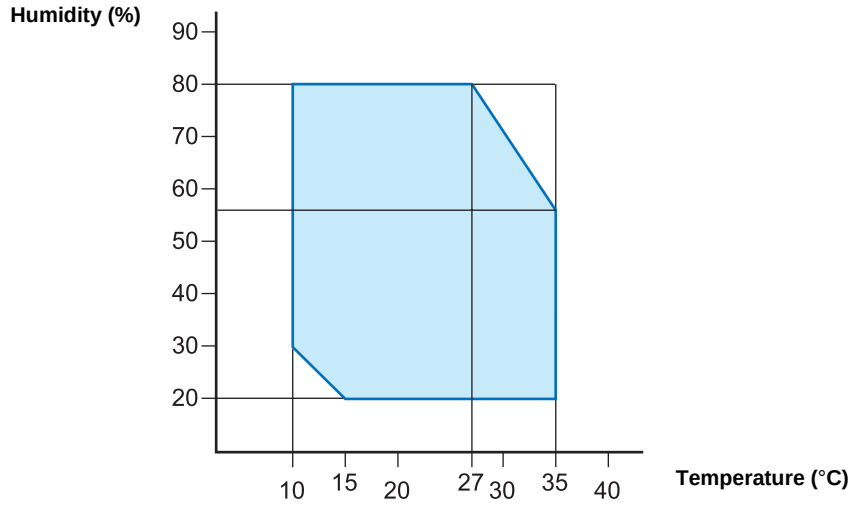


Figure 1-2. Environmental Conditions: Temperature/Humidity

1.2.10.2 Vibration

- ☐ During operation: 0.15G, 10-55Hz X, Y, Z directions
- ☐ During storage: 0.50G, 10-55Hz X, Y, Z directions

1.2.10.3 Shock

- ☐ During operation: 1G, 1ms max. X, Y, Z directions
- ☐ During storage: 2G, 2ms max. X, Y, Z directions

NOTE 1: *Check that the printhead is capped during storage.*

2: *Check that the printhead is capped, then remove ink cartridges from the body, and make sure ink cartridge cover is closed during transport.*

3: *If the printer head uncapped, and the ink cartridge is attached, switch the power ON. Switch the power OFF when capping is completed.*

4: *Left out in condition of temperature under -15°C; the ink in the printhead and ink cartridge freezes. It takes about 3 hours for the frozen ink to be usable under the condition of 25°C.*

1.2.10.4 Surrounding Space

Provide the printer with an enough surrounding space to ensure proper installation of accessories and replacement of consumables and easy work for daily maintenance.

- ☐ From the front of the printer: 35cm or more (When the paper tray is extended.)
- ☐ From the rear of the printer: 40cm or more (When cut sheets are set by hand insertion from the front.)
- ☐ From the both sides of the printer: 15cm or more

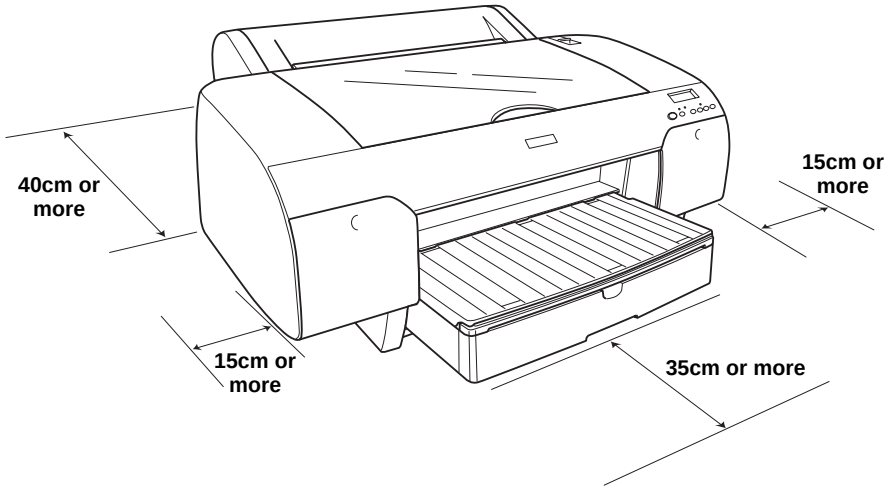


Figure 1-3. Surrounding Space

1.2.11 Quality Standards for Completed Products

NOISE

☐ Sound pressure level: Less than 50 dB
(4 direction average, compliant with ISO9296)
*Should be no impact, abnormal or harsh noise.

INITIALIZING TIME AT POWER ON

☐ Within 1 minute (* excluding waiting time such as Timer CL)

TIME FOR INITIAL INK CHARGE

☐ Less than 8 minutes
(* until initial ink charge is finished after the ink lever is lowered)

MTBF (MEAN TIME BETWEEN FAILURES)

☐ 20,000 hours with power on (except when electronic parts and fans have any malfunction)

1.2.12 Overall Dimensions

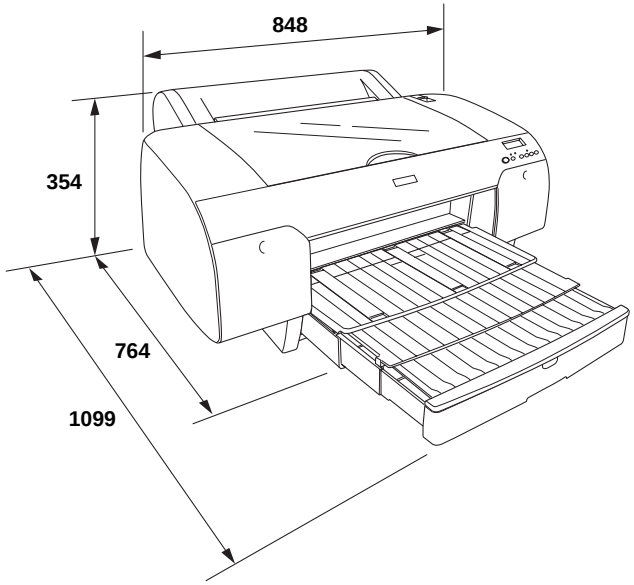


Figure 1-4. Overall Dimensions of Stylus Pro 4400/4450/4800/4880/4880C

☐ Dimensions of Unit

Condition	Width (W) x Depth (D) x Height (H) (mm)
When tray is stored	848 x 764 x 354
When tray is extended	848 x 1099 x 354

☐ Weight
8-color model: Approx. 40.2kg (ink cartridge and paper is not included)
4-color model: Approx. 39.0kg (ink cartridge and paper is not included)

1.2.13 Accessories

Stylus Stylus Pro 4400/4450/4800/4880/4880C accessories and options are shown below.

- ☐ Standard Accessories
  - ■ Manual set
  - ■ Software CD-ROM
    - • Printer Driver
    - • EPSON LFP Remote Panel
  - ■ AC Cable
  - ■ Spacer for borderless printing 8”/A2 roll paper
  - ■ 17 (2"/3") inch normal tension spindle (With 2 adapters for exclusive paper core use)
  - ■ Ink cartridges 110ml 1 each

    8-color model

    - • Stylus Pro 4800: PK,C,M,Y,LC,LM,LK,LLK
    - • Stylus Pro 4880/4880C: PK,C,VM,Y,LC,VLM,LK,LLK

    4-color model

    - • Stylus Pro 4400/4450: MK,C,M,Y
  - ■ Maintenance Tank
  - ■ Guarantee Card
  - ■ Card holder
  - ■ Individual Packaging
- ☐ Special Options
  - ■ Maintenance Tank (C12C890191)
- ☐ Special Consumables
  - ■ Ink cartridge (8-color)
    - • Stylus Pro 4800

Table 1-18. Ink Cartridge (Stylus Pro 4800)

Ink cartridge	Model Number	
	110 ml	220 ml
Photo Black	C13T564100	C13T565100
Matte Black	C13T543800	C13T544800
Cyan	C13T564200	C13T565200
Magenta	C13T564300	C13T565300
Yellow	C13T564400	C13T565400
Light Cyan	C13T564500	C13T565500
Light Magenta	C13T564600	C13T565600
Light Black	C13T564700	C13T565700
Light Light Black	C13T564900	C13T565900

- • Stylus Pro 4880/4880C

Table 1-19. Ink Cartridge (Stylus Pro 4880/4880C)

Ink cartridge	Model Number	
	110 ml	220 ml
Photo Black	C13T605100	C13T606100
Matte Black	C13T613800	C13T614800
Cyan	C13T605200	C13T606200
Vivid Magenta	C13T605300	C13T606300
Yellow	C13T605400	C13T606400
Light Cyan	C13T605500	C13T606500
Vivid Light Magenta	C13T605600	C13T606600
Light Black	C13T605700	C13T606700
Light Light Black	C13T605900	C13T606900

- Ink cartridge (4-color model)
  - Stylus Pro 4400

Table 1-20. Ink Cartridge (Stylus Pro 4400)

Ink cartridge	Model Number	
	110 ml	220 ml
Matte Black	C13T543800	C13T544800
Cyan	C13T543200	C13T544200
Magenta	C13T543300	C13T544300
Yellow	C13T543400	C13T544400

  - Stylus Pro 4450

Table 1-21. Ink Cartridge (Stylus Pro 4450)

Ink cartridge	Model Number	
	110 ml	220 ml
Matte Black	C13T613800	C13T614800
Cyan	C13T613200	C13T614200
Magenta	C13T613300	C13T614300
Yellow	C13T613400	C13T614400

- Special paper (Refer to *"1.2.6 Paper Specification (p.15)"* for paper type and size)
- Black ink conversion kit (ICCVK36)

- Options Common to Other Printers
  - 2/3 inch Dual Roll Feed Spindle (C12C811171)
  - 2/3 inch Dual Roll Feed Spindle (High Tension) (C12C811191)
  - Roll Paper Belt (C12C890121)
  - EpsonNet 10/100 BASE RX High Speed Int. Print Server (C12C824052*) (Stylus Pro 4400/4800 only)
  - Borderless Print Spacer for 420 mm and 8 inch Roll Paper (C12C811201)
  - Auto Cutter Spare Blade (C12C815291)

Note *: The asterisk (*) is a substitute for the last digit of the product code, which varies by location.

1.3 External View and Parts Names

EXTERNAL VIEW

☐ Stylus Pro 4400/4800

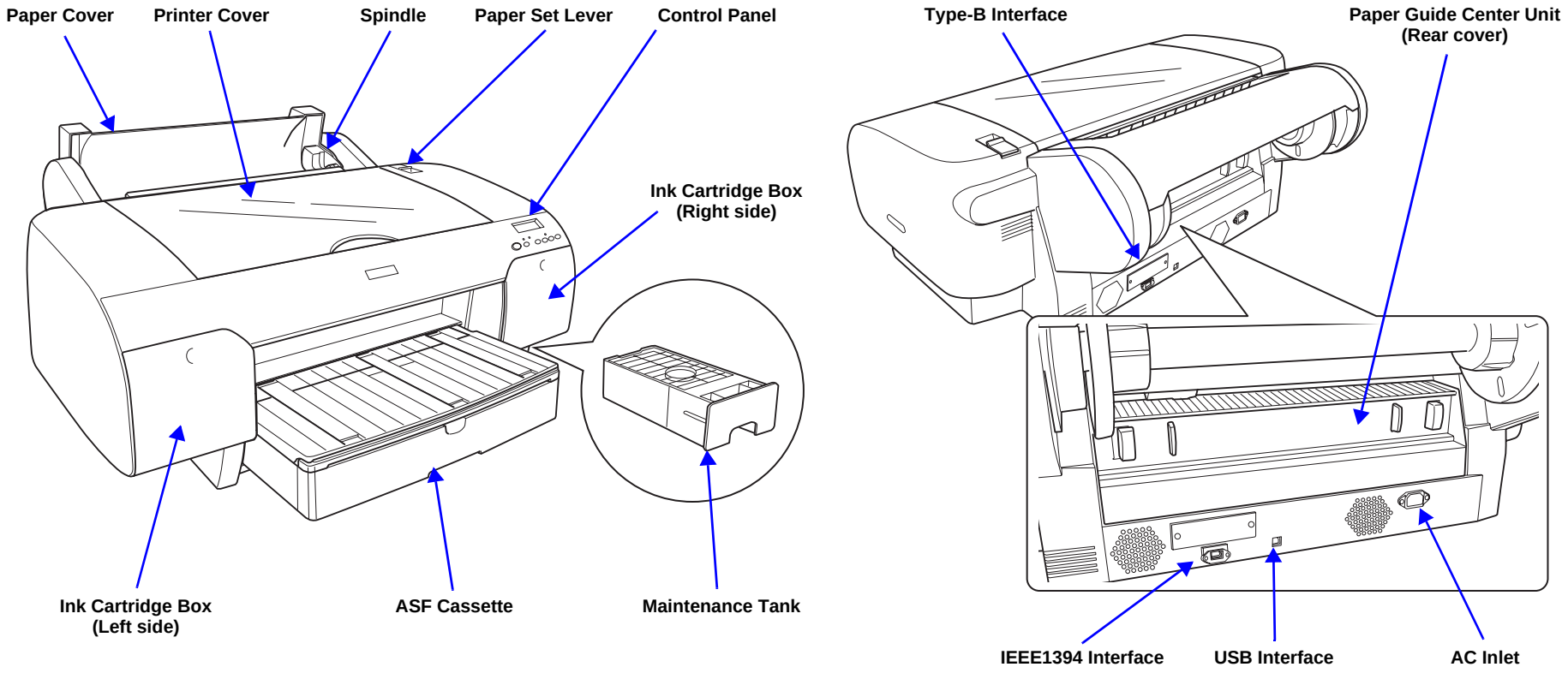


Figure 1-5. External View and Parts Names (Stylus Pro 4400/4800)

NOTE: *4-color model is equipped with a cover instead of the ink cartridge box (right).*

☐ Stylus Pro 4450/4880/4880C

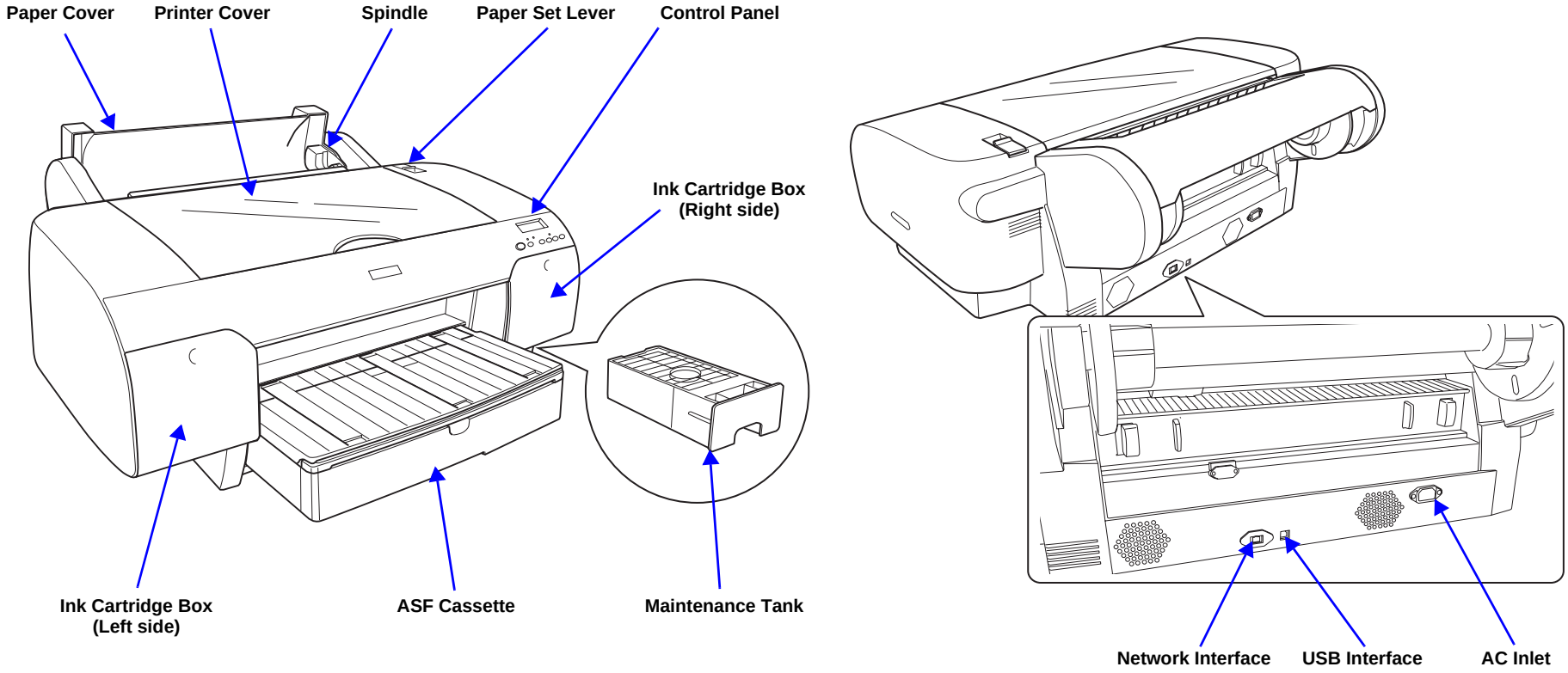


Figure 1-6. External View and Parts Names (Stylus Pro 4450/4880/4880C)

☐ 4-color model is equipped with a cover instead of the ink cartridge box (right).

1.4 Operating Panel

1.4.1 Buttons and Functions

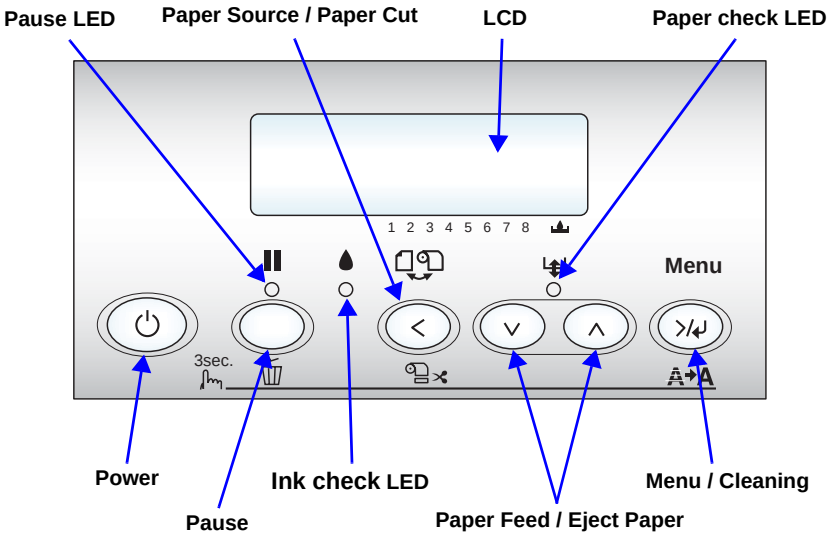


Figure 1-7. Panel Design

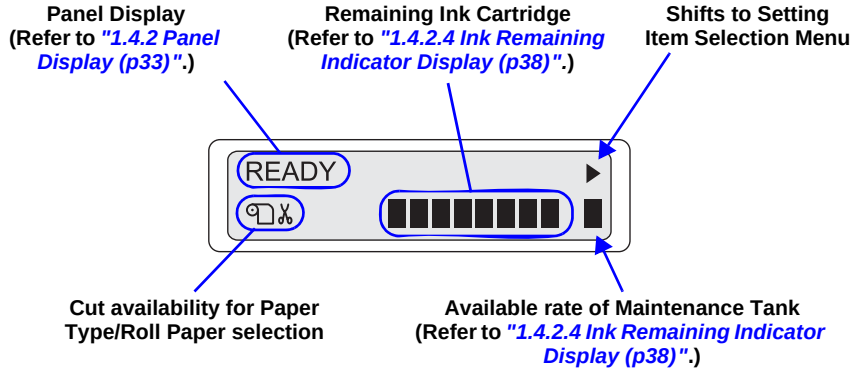


Figure 1-8. LCD Panel (8-color model)

1.4.1.1 LED

Panel LED types are the following 3 types. The LEDs indicate printer status as follows.

Table 1-22. LED

LED	Color	Display	Printer Status
Paper check	Red	On	Indicates that the paper is not printable.
		Blink	Indicates error that occurred when feeding / ejecting paper.
Pause	Green	On	Indicates printer pauses operation.
		Blink	Indicates printer is in operation.
Ink check	Red	On	Indicates error regarding ink occurred.
		Blink	Indicates warning status regarding ink.

1.4.1.2 Switch

Table 1-23. Panel Functions and Switch Operation

Switch	Function		Function (In panel setting)	Function (+ Power ON)
	Single	3 sec. push		
Power	Power ON/OFF *1	—	—	—
Pause	☐ Pause / Switch Print ☐ Paper feed operation by backside manual insertion within 3 sec.	Reset	Appear from panel setting	Maintenance mode1
Menu / Cleaning [>/↵]	☐ Printing Printer status menu shift ☐ Except above *3 Panel setting mode shift/decision	☐ Paper thickness detection less than 0.8mm All heads cleaning *2 ☐ Paper thickness detection over 0.8mm All heads cleaning after removing paper ☐ Paper thickness detection over 0.8mm when printing Not in operation.	☐ Item shift (down) ☐ Operation execution ☐ Setting fixed ☐ Memory	
Select paper type / Paper Cut [<]	☐ Paper type select *4 ■ Not in operation when printing ■ Not in operation when the paper is picked up by ASF. 1. Roll paper cut ON 2. Roll paper cut OFF 3. Cut sheet Indicate 1, 2, 3, 1, … by turns.	☐ Paper cut or paper feed *5 Not in operation when printing ■ Roll paper cut ON Move to cut operation after 3 sec. ■ Roll paper cut OFF Not operated. ■ Cut sheet is not operated.	Item shift (up)	
Paper Feed / Eject Paper [∧]	☐ Paper feed for roll paper (reverse) *6 ☐ If cut sheet is not set, paper is fed by ASF.	☐ High speed paper feed (reverse) Roll paper only. (Not in operation for cut sheet.)	Increase setup value, switch over setting	
Paper Feed / Eject Paper [∨]	☐ Paper feed for roll paper (forward) *7 ☐ If cut sheet is set, eject sheet ☐ If cut sheet is not set, paper is fed by ASF.	☐ High speed paper feed (forward) Roll paper only. (Not in operation for cut sheet.)	Decrease setup value, switch over setting	

Continued on next page

Table 1-23. Panel Functions and Switch Operation

Switch	Function		Function (In panel setting)	Function (+ Power ON)
	Single	3 sec. push		
Pause + Select paper type / Paper Cut [<]	☐ Switches Stop ↔ Operation of remaining paper detection during standby*8			
Select paper type / Paper Cut [<] + Paper Feed / Eject Paper [∧] + Paper Feed / Eject Paper [∨]				Maintenance mode 2
Select paper type / Paper Cut [<] + Paper Feed / Eject Paper [∧] + Paper Feed / Eject Paper [∨] + Menu / Cleaning [>/↵]				F/W download

Note *1: Power OFF must be executed regardless of printer status.

*2: Following are the conditions for cleaning.

- Idling (In on-line: Inside the panel menu is not in on-line.)
- Printing

*3: LCD panel display only changes when key is not pressed during the shift from idling status to printer setting menu. Other than this, switch over of display is executed when the key is pushed.

*4: When key is not pressed, LCD icon for paper type is switched over.

*5: During ink drying, ink drying is interrupted and runs the specified operation.

*6: 5cps paper feeding for 2 seconds after the button is pressed. 52cps paper feed if pressed for a further 2 seconds. Maximum reverse feeding is 37cm with one press of the button.

*7: 5cps paper feeding for 2 seconds after the button is pressed. 52cps paper feed if pressed for a further 2 seconds.

*8: Can be switched when roll paper remaining detection is on or cut sheet remaining detection is on in Maintenance Mode 2. While the detection is stopped, the printer stops the counter operation and blinks the counter value.

1.4.2 Panel Display

1.4.2.1 Panel Display in Operation (LCD and LED Display)

Note : Explanation for signs in LCD display
YES : Function can be executed.
NO : Function cannot be executed.
Release : Release error and pause status
Start : Paper initialization start.
– : Follow LED display of printer status in operations

Table 1-24. Panel Display

Priority	Printer Status	LCD Display	LED Display			Panel key Function					
			Paper Check	Pause	Ink Check	Paper Select	Cut/Eject Paper	Menu Shift	M Cleaning	Pause	Reset
Low	Printable	READY	OFF	OFF	OFF	YES	YES*4	YES	YES*1	YES	YES
	Printable*23	READY xx.xm	OFF	OFF	OFF	YES	YES*4	YES	YES*1	YES	YES
	Data processing/ Printing	PRINTING	OFF	Blink	—	NO	NO	YES*6	YES*1	YES	YES
	Data processing/ Printing*23	PRINTING xx.xm	OFF	Blink	—	NO	NO	YES*6	YES*1	YES	YES
	Unable to print *14	UNABLE TO PRINT	—	ON	—	—	—	—	—*2	—	—
	Unable to execute	UNABLE TO EXECUTE	—	ON	—	—	—	—	—*2	—	—
	Maintenance tank near *7	MNT TK NEAR FULL	—	—	Blink	—	—	—	—*2	—	—
	Ink low *8	INK LOW	—	—	Blink	—	—	—	—*2	—	—
	Maintenance request	MNT REQ nnnn	*5	—	—	—	—	—	—	—	—
	Paper near end	PAPER LOW	Blink	—	—	—	—	—	—*2	—	—
	Ink drying	PLEASE WAIT nnnnSEC	OFF	Blink	—	NO	YES	YES*6	NO	YES*19	YES
	Panel setting menu (Refer to panel setting)	*"1.4.4 Panel Setting (p.40)"*	OFF	ON	—	NO	NO	NO*3	NO	NO*3	NO*3
	Paper initialization	PLEASE WAIT	OFF	OFF	—	NO	NO	NO	NO	NO	YES
	Pause	PAUSE	—	ON	—	—	NO	NO	YES	Release	YES
	In hexadecimal dump mode	PRINTING	OFF	Blink	—	NO	NO	NO	YES	YES	NO
	Inner printing	PRINTING	OFF	Blink	—	NO	NO	NO	YES	YES	YES
	Cutter replacing	*"1.4.4.34 Cutter Blade Replacement (p.79)"*	OFF	ON	—	NO	NO	NO	NO	NO	NO

Continued on next page

Table 1-24. Panel Display

Priority	Printer Status	LCD Display	LED Display			Panel key Function					
			Paper Check	Pause	Ink Check	Paper Select	Cut/Eject Paper	Menu Shift	M Cleaning	Pause	Reset
	Initial cutting	CUTTING	OFF	Blink	—	NO	NO	NO	NO	NO	NO
	Waiting for paper initializing trigger	PRESS PAUSE BUTTON	OFF	ON	—	YES	YES	NO	NO	START	YES
	Cleaning unavailable	REMOVE PAPER	ON	OFF	—	NO	NO	NO	NO	NO	YES
	Initializing operation	PLEASE WAIT	OFF	Blink	—	NO	NO	NO	NO	NO	YES
	Cleaning failure	NOZZLES STILL CLOGGED	Blink	ON	Blink	NO	NO*18	NO	NO	Release	YES
	Multi sensor gain error Multi sensor paper recognition error	CHANGE PAPER TYPE	Blink	OFF	—	—	NO*18	NO	NO	NO	YES
	Cut sheet size error	WRONG PAPER SIZE	Blink	ON	—	—	YES*17	NO	NO	Release	YES*10
	Paper eject error/ Front manual feed unavailable error	REMOVE PAPER	Blink	ON	—	—	NO	NO	NO	NO	YES
	Paper out/roll paper out	PAPER OUT	ON	OFF	—	—	NO	NO	YES	NO	YES
	ASF paper out	PAPER OUT	ON	OFF	—	—	YES*17	NO	YES	NO	YES*11
	Disable to borderless printing error	RELOAD PAPER NO BORDERLESS WITH THIS SIZE	Blink	OFF	—	NO	YES*17	NO	NO	NO	YES*15
	Paper recognition error	RELOAD PAPER	Blink	OFF	—	—	NO	NO	NO	NO	YES
	Cut sheet set by manual insertion error	RELOAD PAPER INSERT DEEPLY	Blink	ON	—	—	NO	NO	NO	NO	YES
	Cut sheet loading error*10	NOT STRAIGHT RELOAD	Blink	ON	—	—	NO	NO	NO	YES	YES
	Paper skew error	PAPER NOT STRAIGHT	Blink	OFF	—	—	NO	NO	NO	NO	YES
	Paper cut failure	PAPER NOT CUT	Blink	OFF	—	—	NO	NO	NO	NO	YES
	Command error	COMMAND ERROR	Blink	Blink	Blink	NO	NO	NO	NO	NO	YES*10
	Wrong ink error*21,*22	MISMATCH ERROR	Blink	Blink	Blink	NO	NO	NO	NO	YES	YES*10
	Wrong ink error*21,*22	DRIVER INK SET SETTING IS WRONG	Blink	Blink	Blink	NO	NO	NO	NO	YES	YES*10

Continued on next page

Table 1-24. Panel Display

Priority	Printer Status	LCD Display	LED Display			Panel key Function					
			Paper Check	Pause	Ink Check	Paper Select	Cut/Eject Paper	Menu Shift	M Cleaning	Pause	Reset
↑	Wrong roll paper path	LOAD ROLL PAPER	ON	ON	—	NO	NO	NO	NO	YES	YES*10
	Wrong ASF paper path	LOAD SHEET PAPER IN P. TRAY	ON	ON	—	NO	NO	NO	NO	NO	YES*10
	Wrong manual paper path	FEED SHEET PAPER	ON	ON	—	YES	NO	NO	NO	NO	YES*10
	ASF prohibitions*13	FORBIDDEN MEDIA FROM P. TRAY	ON	OFF	—	YES	NO	NO	NO	NO	YES*10
		FEED SHEET PAPER MANUARY	ON	OFF	—	YES	NO	NO	NO	NO	YES*10
	Cleaning	CLEANING	—	Blink	—	NO	NO	NO	NO	NO	YES
	Executing ink sequence	PLEASE WAIT	OFF	Blink	—	NO	NO	NO	NO	NO	YES
	Executing power cleaning	PLEASE WAIT mm%	OFF	Blink	—	NO	NO	NO	NO	NO	YES
	Initial charging	CHARGING INK mm%	OFF	Blink	—	NO	NO	NO	NO	NO	YES
	Cutting by cut key	CUTTING	OFF	Blink	—	NO	NO	NO	NO	NO	YES
	Pause while cut *16	PLEASE WAIT nnnnSEC	OFF	Blink	—	NO	YES	YES*6	NO	YES*19	YES
	Conversion cartridge life near end*8	TIMES REMAINING	OFF	ON	ON	—	NO	NO	NO	Release	YES
	Conversion cartridge life error*8	REPLACE CNVRSION CRTG	OFF	OFF	ON	—	NO	NO	NO	NO	YES
	Wrong PK/ MK*8	INVALID INK CRTG	OFF	ON	ON	—	NO	NO	NO	Release	YES
	K ink replacement conformation*25	BK INK CHANGE ←N EXEC Y→	OFF	OFF	ON	NO*3	NO	NO*3	NO	NO	YES
	Ink out*8	INK OUT	OFF	OFF	ON	—	NO	YES*12	NO	NO	YES
	Wrong Ink cartridge*8	INVALID INK CRTG	OFF	ON	ON	—	NO	NO	NO	Release	YES
	Wrong destination*8	WRONG INK CRTG	OFF	ON	ON	—	NO	NO	NO	Release	YES
	Unavailable Ink cartridge*8	WRONG INK CRTG	OFF	OFF	ON	—	NO	NO	NO	NO	YES
	Wrong logo error*8	INVALID INK CRTG	OFF	ON	ON	—	NO	NO	NO	Release	YES
	Wrong jig cartridge*8,*24	WRONG INK CRTG#	OFF	OFF	ON	—	NO	NO	NO	NO	YES
↓	Ink cartridge failure/CSIC contact error*8	SET INK CRTG	OFF	OFF	ON	—	NO	YES	NO	NO	YES

Continued on next page

Table 1-24. Panel Display

Priority	Printer Status	LCD Display	LED Display			Panel key Function					
			Paper Check	Pause	Ink Check	Paper Select	Cut/Eject Paper	Menu Shift	M Cleaning	Pause	Reset
	No ink cartridge*8	NO INK CRTG	OFF	OFF	ON	—	NO	YES	NO	NO	YES
	Maintenance tank full	MNT TNK FULL	OFF	OFF	ON	—	NO	NO	NO	NO	YES
	Releasing left and right ink lever*26	LOWER INK LEVERS	OFF	OFF	—	—	NO	NO	NO	NO	YES
	Releasing left ink lever	LOWER L INK LVR	OFF	OFF	—	—	NO	NO	NO	NO	YES
	Releasing right ink lever	LOWER R INK LVR	OFF	OFF	—	—	NO	NO	NO	NO	YES
	Printer cover open	TOP COVER OPEN	OFF	OFF	—	—	NO	NO	NO	NO	YES
	Releasing paper lever	LOAD PAPER SUCTION	ON	OFF	—	—	NO	NO	NO	NO	YES
	Releasing paper lever in operation	SET PAPER LEVER	ON	OFF	—	—	NO	NO	NO	NO	YES
	Replacing ink cartridge*8	SET INK CRTG	OFF	OFF	ON	—	NO	NO	NO	NO	YES
	Paper jam(ASF)	RELEASE LEVER REMOVE PAPER JAM	Blink	OFF	—	NO	NO	NO	NO	NO	YES
	Paper jam(CR)*9	RELEASE LEVER REMOVE PAPER JAM	Blink	OFF	—	NO	NO	NO	NO	NO	YES
	Reboot request*9	TURN PRINTER PWR OFF AND THEN ON	—	—	—	NO	NO	NO	NO	NO	NO
	No maintenance tank	NO MNT TNK	OFF	OFF	ON	—	NO	NO	NO	NO	YES
	Rear cover open	REAR COVER OPEN	OFF	OFF	—	—	NO	NO	NO	NO	YES
	Reset	RESET	ON	ON	ON	NO	NO	NO	NO	NO	NO
	F/W updating	F/W UPDATING	OFF	OFF	OFF	NO	NO	NO	NO	NO	NO
	F/W update completed	UPDATE COMPLETE	OFF	OFF	OFF	NO	NO	NO	NO	NO	NO
	F/W update failure	UPDATE FAILED	Blink	Blink	Blink	NO	NO	NO	NO	NO	NO
	Executing power off sequence	POWER OFF	OFF	OFF	—	NO	NO	NO	NO	NO	NO
	Type-B option I/F error	OPTION I/F ERROR	Blink	Blink	Blink	NO	NO	NO	NO	NO	NO
	CR lock unlocked error	UNLOCK PRINTHEAD	Blink	Blink	Blink	NO	NO	NO	NO	NO	NO
High	Service call	SERVICE REQ. nnnnnnnnn	Blink	Blink	Blink	NO	NO	NO	NO	NO	NO

Note *1: Thick paper is not available.

*2: The status becomes no ink or maintenance tank full according to the remaining amount of ink when cleaning is executed.

*3: It is assigned to key function in panel setting.

*4: Only available when the roll paper is loaded.

*5: It is lit for 100ms at 5 sec. intervals.

*6: Only shifting to printer status menu is available. (Pause LED blinks when displaying menu)

*7: Blink indicator of maintenance tank.

*8: Blinks corresponding indicator.

*9: The message of reboot request is displayed when the rear sensor detects the absence of paper after the user removes the paper.

*10: Initialization of mechanism (includes compulsory quit of cleaning) will not be executed after panel reset execution but initialization of received data will be executed.

*11: Initialization of mechanism (includes compulsory quit of cleaning) will not be executed after panel reset execution but initialization of received data will be executed only in no paper for ASF situation.

*12: Panel setting menu can be shifted in order to execute ink replace sequence during ink out.

*13: Display by switching at 3-second intervals.

*14: It is displayed when printer cannot print the adjustment pattern, etc. It returns to the display before performing after 3 seconds.

*15: Only using ASF, paper eject operation is performed by reset.

*16: A displayed unit is the [second]. It is displayed while counting down each 1 second from maximum time.

*17: After cut sheet error occurred, paper eject operation would be performed by pressing down the Paper Feed Switch [/], and then it will occur ASF paper out error after ejecting paper. When paper eject operation is completed, paper is loaded from ASF by pressing down the Paper Feed Switch [Ÿ] / [/].

*18: Cut sheet is ejected automatically.

*19: In this case, printer status shifts pause status (LCD display too) and count down is continued by releasing pause.

*20: To reduce nonsense calls when the carriage lock is unreleased, this message is displayed for CR servo system service calls when initial ink charge FLG is set.

*21: displayed if remote ink commands differ from the ink type of this printer (8 color/ 4 color)

*22: Wrong ink error message is switched at 3 second-intervals.

*23: The remaining paper counter value is displayed when the remaining paper detection is on. While the counter is suspended, it blinks.

*24: This is not occurred on the usual market, but added as another status for maintenance work.

*25: The message indicating K ink replacement conformation is displayed after Wrong PK/ MK is forcibly released.

*26: For 4-color model, [LOWER INK LEVER] is displayed because it is not iequipped with the right and left levers.

1.4.2.2 Paper Type Icon Display

The paper type which is recognized automatically when setting the paper and is set by paper select switch are displayed on LCD.

Paper type	LCD
Roll paper auto cut ON	
Roll paper auto cut OFF	
Cut sheet	

1.4.2.3 PG Setting Display

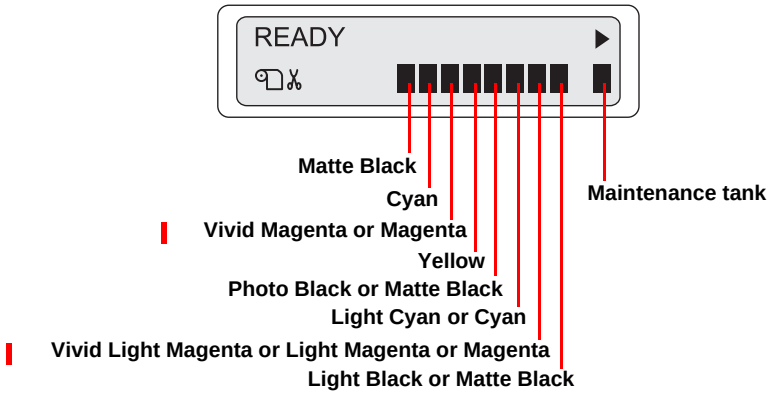
Display panel PG setting status on 5th character counting from left of lower line.

- ☐ When PG setting = WIDE or WIDER or WIDEST, "H" is displayed.
- ☐ When PG setting = NARROW, "S" is displayed.

1.4.2.4 Ink Remaining Indicator Display

Ink remaining indicator is displayed at the lower line of LCD panel.

- ☐ LCD display item and LCD panel display position



Note *: A 4-color model displays 4 types of cartridges only, blanking form 7 to 10 rows.

- ☐ Ink remaining display

Remaining Ink*1	LCD
100 ~ 81% remained	
80 ~ 61% remained	
60 ~ 41% remained	
40 ~ 21% remained	
20% remained ~ just before near end*2	
Near end*2	
Ink out	
Cartridge error and no cartridge*2	

Note *1: Available quantity is displayed for the maintenance tank.

*2: Blinks only for corresponding cartridge(s).

1.4.2.5 Suction Adjustment and Indicator Display

Users can adjust paper suction to set paper easily, only when paper set lever is released, and paper is detected with paper sensor (rear) or PE sensor. At that time, followings are displayed on the LCD panel.

- ☐ LCD Display
  - ■ Suction indicator (3 levels): 14th character counting from left of lower line.
  - ■ Up/down mark ( ): 15th character counting from left of lower line.

Suction		LCD
High	100%	
Middle	60%	
Low	0%	

CHECK POINT

Rewinding paper until it reaches to horizontal guideline of roll paper pull up when setting roll paper, making vacuum intensity to maximum value will make paper set properly.

1.4.3 Job information

☐ Definition of Job

The minimum unit of printer operation is defined as "Job" (*) in this printer.
The job print information with character/image can be saved as a record.
Basic print job functions are followings;

Note *: Cleaning can be executed during printing; it is not defined as a Job.

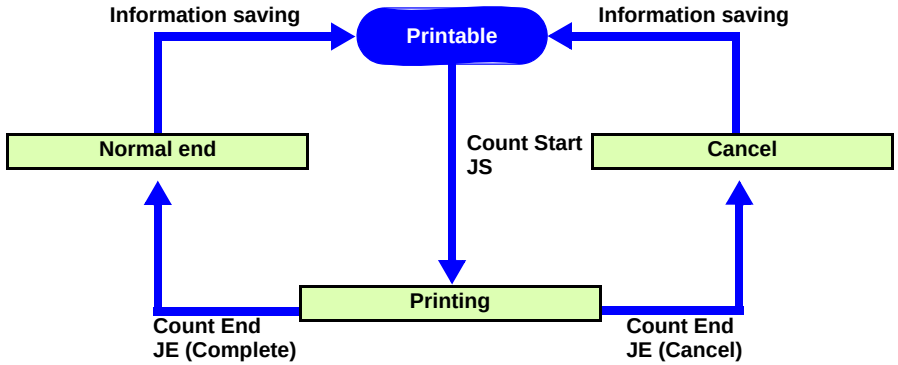


Figure 1-9. Printing Job Transition

☐ Job information

This printer saves following job information (68byte x 10job) in NVRAM.
Following are the details.

Table 1-25. Job information

Parameter	Information	notes
xx1	The quantity of saved job information	0 ~ 10
xx2	Saving No.	0 ~ 9
xx3-xx4	ID No.	0 ~ 65535 (0 is not available.)
xx5	Using I/F	01: Parallel *1 02: USB 03: Option I/F1 04: Option I/F 2 05: IEEE1394 FF: When I/F is not used

Table 1-25. Job information

Parameter	Information	notes
xx6	Job status	01: Pending 02: Printing 03: Complete 04: Cancel 05: Abort
xx7-xx8	Character strings code	*2
xx9-xx24	User name (16byte)	If each user name does not reach the maximum length, the rest of the length is filled with <SP>(20).
xx25-xx26	Document name (32byte)	*2
xx57-xx72	Host name	Stores the first 16 of 32 bytes that are transmitted from the driver.
xx73	Media ID	Specified by the driver.
xx74	Number of impression	01-02 (02 is specified when DP=on during executing a job.)
xx75-xx90	Ink used	*3
xx91-xx94	Paper used	H:xxxx mm W:xxxx mm
xx95-xx100	Print start time	YY MMDDhhmmss Time at JS
xx101-xx106	Print end time	YYMMDDhhmmss Time at JE
xx107	Ink set information	Same as ink
xx108	Paper path	
xx109-xx110	Number of pages	

Note *1: Parallel I/F is not equipped to this printer; therefore 01h is treated as Reserve.

*2: Currently the code is fixed as 00h 00h, treated as Reserve.

*3: Returned for each ink cartridge in the sorting order. For Stylus Pro 4400/4450, Null is returned to slot 5 to 8.

1.4.4 Panel Setting

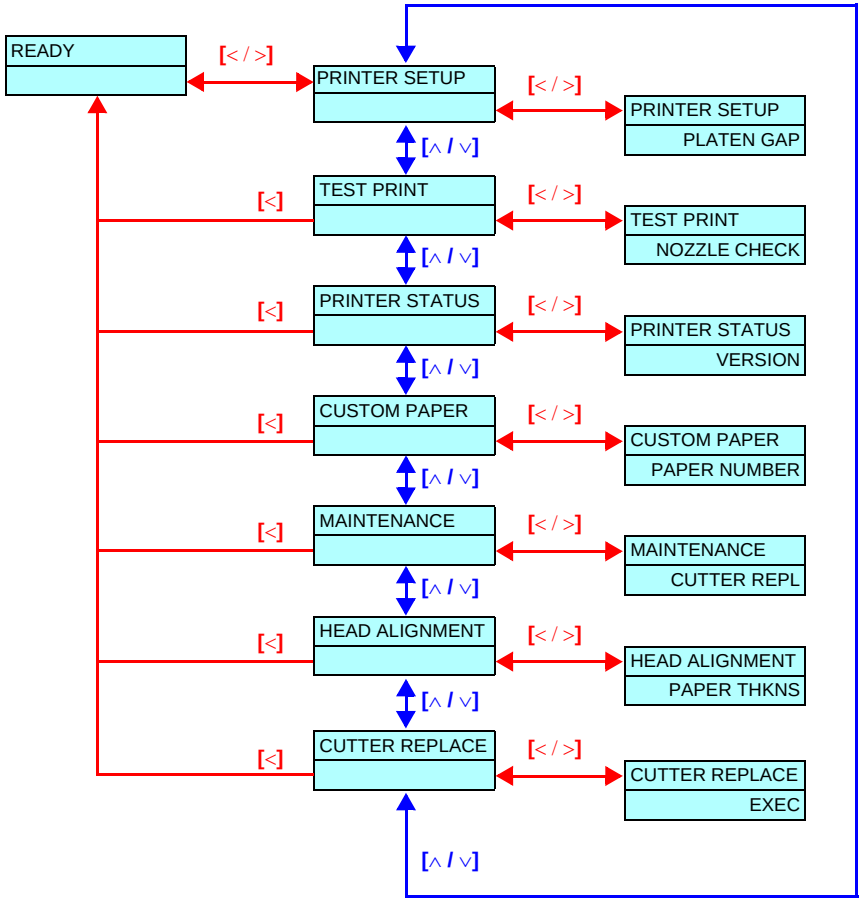
1.4.4.1 Outline

- Startup
  The printer mode is selected by pressing the [Menu / Cleaning] button during print ready, warning, or maintenance call status. The printer is then automatically incapable of printing.
- Operation
  1. The Printer setting menu can be entered by pushing the [Menu / Cleaning] button once during menu shift available state (Print ready, no paper). It is shifted to setting menu select mode, and the setting menu is displayed on the left side of the LCD upper line.
  2. Each setting menu is displayed one after another by pushing [Paper Feed] buttons in the setting menu select mode. It is shifted to setting item select menu by pushing [Menu / Cleaning] button. "Setting menu" is displayed on the upper line, and "Setting item" is displayed on the lower line.
  3. The setting menu is displayed one after another by pushing [Paper Feed] buttons in the setting item select mode. It is shifted to setting value select mode of the setting item by pushing [Menu / Cleaning] button. "Setting item" is displayed on the upper line, and "Setting value" is displayed on the lower line. The "*" displayed at left side of the setting value represents the current setup value.
  4. Setting value is displayed on the lower line one after another by pushing [Paper Feed] buttons in the setting value select mode if the setting value can be changed. The "*" at left side of the setting value represents the current setup value.
  5. When the [Menu / Cleaning] button is pushed at the setting value select mode, the displayed setting value is entered and registered as the current setting value. If it has a corresponded operation, execution starts. No operation occurs if "*" is already displayed.
  6. It returns to the setting item select menu by pushing [Select paper type] button in the setting value select mode. It returns to the setting menu select mode by pushing [Select paper type] button in the setting item select menu.
- Termination
  - The printer enters the menu shift available status when the [Pause] button is pushed once in the Panel setting mode.
  - The printer enters the menu shift available status when the [Select paper type] button is pushed once in setting menu select mode.
  - The printer enters the menu shift available status when executing initialization.
  - The printer enters the print ready status after the nozzle check pattern or the status sheet is printed.
  - The printer enters the menu shift available status after black ink is replaced.
  - The printer enters the menu shift available status after the cutter is replaced.
  - The printer returns to the menu shift available status when [Pause] button is pressed in any modes.

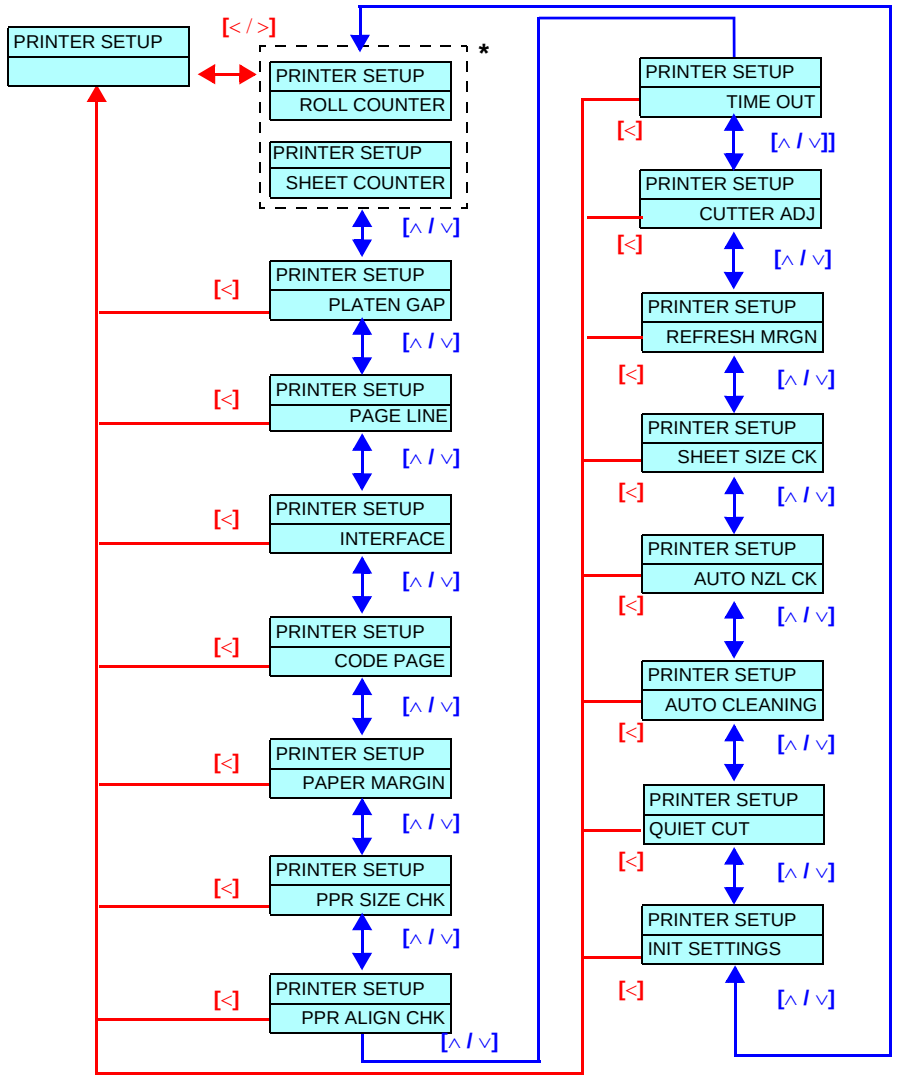
NOTE: *Under special condition, there are times when returning to the above status is impossible.*

☐ Panel display

■ Level structure of Setting menu

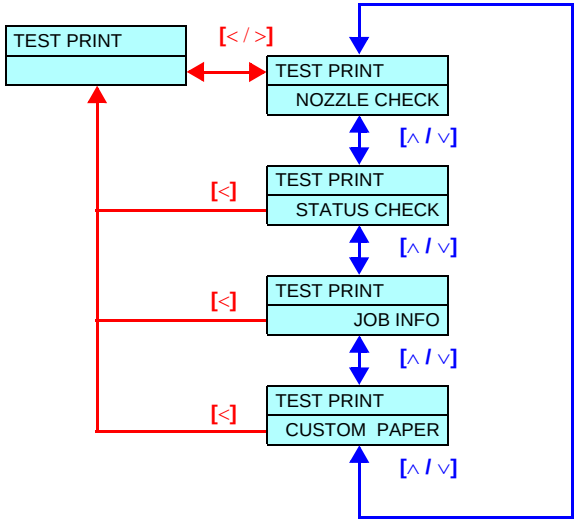


■ Level structure of Printer setting menu

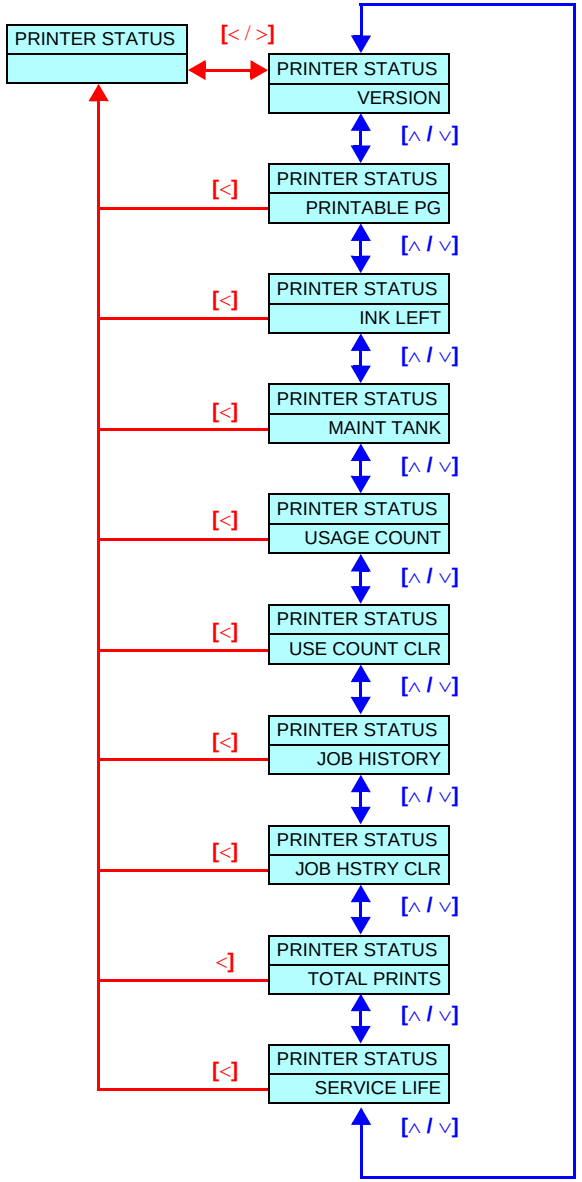


Note *: For the menus inside the doted lines, remaining roll paper menu is displayed when remaining paper display setting is set to roll paper in Maintenance Mode, and remaining cut sheet menu is displayed when it is set to cut sheet. When remaining paper display setting is off, these menus do not appear.

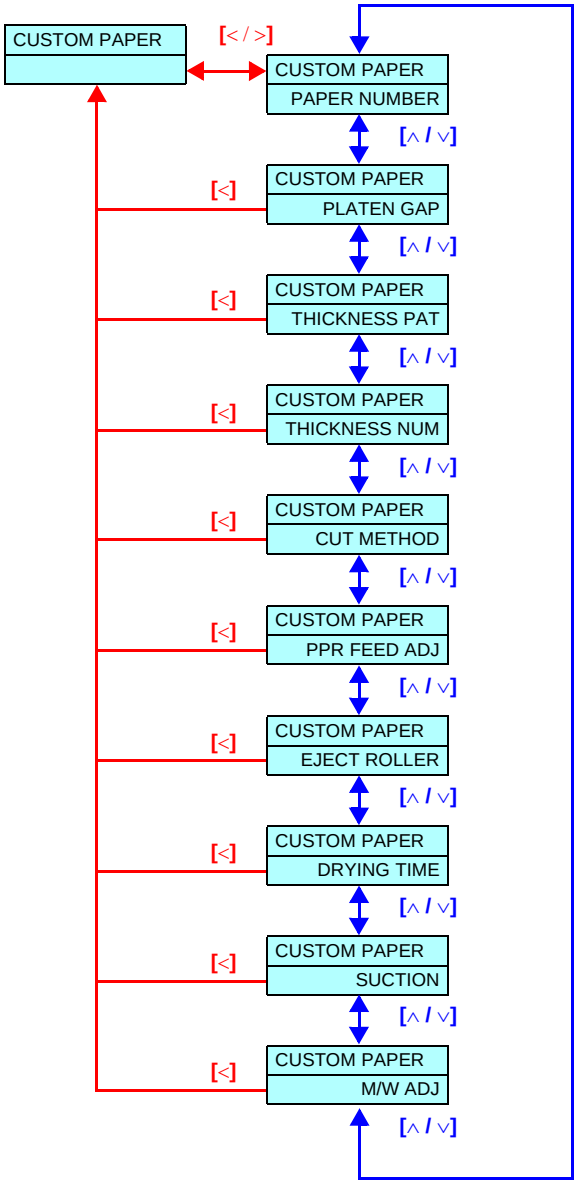
■ Level structure of Test print menu



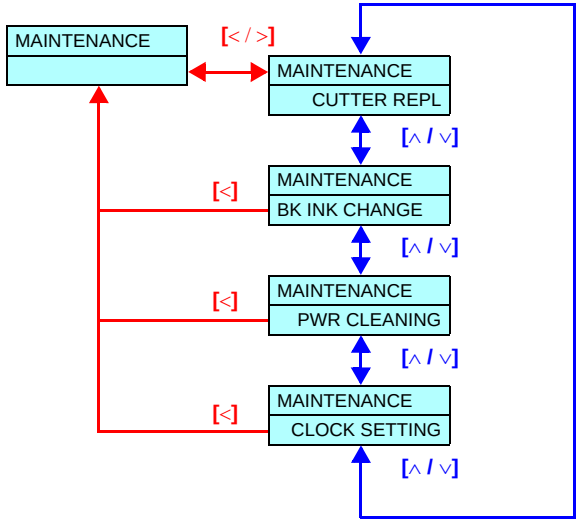
■ Level structure of Printer status menu



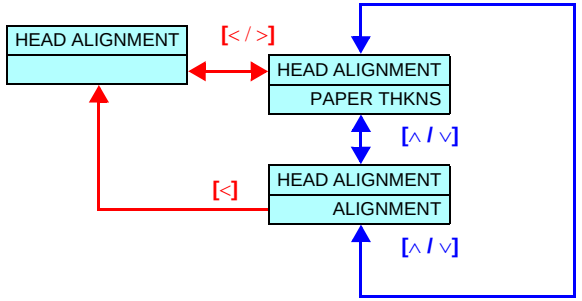
■ Level structure of User Paper Setup Menu



■ Level structure of Maintenance menu



■ Level structure of Gap adjustment menu



1.4.4.2 Panel Setting Menu Item

Table 1-26. Panel Setting Menu Item

Top menu (Panel display)	Item menu		Panel display	Setup value (Underline: Default)		Ref.
Printer setting menu (PRINTER SETUP)	Remaining paper detection	Roll Paper	ROLL COUNTER	SET ROLL LENGTH	--,15~60~300ft	p.48
				SET ROLL ALERT	3~7~50ft	
		Cut Sheet	SHEET COUNTER	SET SHEET PAGES	--,10~100~250PG	
				SET SHEET ALERT	5~10~50PG	
	PG Setting		PLATEN GAP	NARROW, **STANDARD**, WIDE, WIDER, WIDEST		p.49
	Page lines		PAGE LINE	**ON**, OFF		p.50
	Interface Select		INTERFACE	☐ Stylus Pro 4400/4800 **AUTO**, USB, IEEE1394, OPTION ☐ Stylus Pro 4450/4880/4880C **AUTO**, USB, OPTION		p.51
	Code Page Switching		CODE PAGE	**PC437**, PC850		p.51
	Roll Paper Margin		PAPER MARGN	**DEFAULT**, T/B 15mm, T/B 25mm, 15mm, 3mm		p.52
	Detect Paper Width		PPR SIZE CHK	**ON**, OFF		p.53
	Detect Skew Error		PPR ALIGN CHK	**ON**, OFF		p.54
	Job Time-out Setting		TIME OUT	**OFF**, 30sec, 60sec, 180sec, 300sec		p.54
	Cutter Position Adjustment		CUTTER ADJ	EXEC		p.55
	Auto Margin Refresh		REFRESH MRGN	**ON,** OFF		p.55
	Cut Sheet Size Error		SHEET SIZE CK	**ON,** OFF		p.56
	Auto Nozzle Check for Each Job		AUTO NZL CK	**OFF,** ON		p.56
	Cleaning Setting for Nozzle Check		AUTO CLEANING	**ON,** OFF		p.57
	Super Low Speed Cut Mode setting		QUIET CUT	**OFF,** ON		
	Printer Setup Value Initialization		INIT SETTINGS	EXEC		p.58
Test print menu (TEST PRINT)	Nozzle Check Pattern Printing		NOZZLE CHECK	PRINT		p.59
	Status Printing		STATUS CHECK	PRINT		p.60
	Job Information Print		JOB INFO	PRINT		p.63
	User Paper Setting Print		CUSTOM PAPER	PRINT		p.65
Printer status menu (PRINTER STATUS)	Firmware Version		VERSION	☐ Stylus Pro 4400/4800 A0xxxx ☐ Stylus Pro 4450/4880/4880C B0xxxx.XXXX		p.66

Continued on next page

Table 1-26. Panel Setting Menu Item

Top menu (Panel display)	Item menu		Panel display	Setup value (Underline: Default)	Ref.
Printer status menu (PRINTER STATUS)	Printable Pages per Ink Cartridge	1st row	PRINTABLE PG	MK xxxxxxxPG * PK xxxxxxPG *	p.67
		2nd row		C xxxxxxxPG *	
		3rd row		M xxxxxxxPG *	
		4th row		Y xxxxxxxPG *	
		5th row		LK xxxxxxxPG *	
		6th row		LC xxxxxxxPG *	
		7th row		LM xxxxxxxPG *	
		8th row		LLK xxxxxxxPG *	
	Ink Remaining	1st row	INK LEFT	MK XXXXXXX PK XXXXXXX (0%, nn%, E* F, E** F, E*** F, E**** F, E*****F)	p.68
		2nd row		C XXXXXXX (0%, nn%, E* F, E** F, E*** F, E**** F, E*****F)	
		3rd row		M XXXXXXX (0%, nn%, E* F, E** F, E*** F, E**** F, E*****F)	
		4th row		Y XXXXXXX (0%, nn%, E* F, E** F, E*** F, E**** F, E*****F)	
		5th row		LK XXXXXXX (0%, nn%, E* F, E** F, E*** F, E**** F, E*****F)	
		6th row		LC XXXXXXX (0%, nn%, E* F, E** F, E*** F, E**** F, E*****F)	
		7th row		LM XXXXXXX (0%, nn%, E* F, E** F, E*** F, E**** F, E*****F)	
		8th row		LLK XXXXXXX (0%, nn%, E* F, E** F, E*** F, E**** F, E*****F)	
	Maintenance Tank Count		MAINT TANK	0%, nn% E* F, E* * F, E*** F, E****F, E***** F	p.69
	Consumption Counter	Ink counter	USAGE COUNT	INK xxxxx.x ml	p.69
		Paper counter		PPR xxxxx.x cm	
	Clear consumption counter	Ink counter clear	USE COUNT CLR	INK EXEC	p.69
		Paper counter clear		PAPER EXEC	
	Job History Display (10 jobs)		JOB HISTORY	No.0 ~ No.9	p.69
	Job History Clear		JOB HSTRY CLR	EXEC	p.69
	Total Print Pages		TOTAL PRINTS	nnnnnn (Max. 6 figures)	p.69

Continued on next page

Table 1-26. Panel Setting Menu Item

Top menu (Panel display)	Item menu		Panel display	Setup value (Underline: Default)		Ref.
Printer status menu (PRINTER STATUS)	Consumable Life	Cutter life	SERVICE LIFE	CUTTER XXXXXXX (E* F, E** F, E*** F, E****F, E*****F)		p.70
		CR motor life		CR MOTOR XXXXXXX (0%, nn%, E* F, E** F, E*** F, E****F, E*****F))		p.70
		PF motor life		PF MOTOR XXXXXXX (E* F, E** F, E*** F, E**** F, E*****F)		p.71
		Head unit life		HEAD UNIT XXXXXXX (E* F, E** F, E*** F, E****F, E*****F)		p.71
		Cleaning unit life		CLEANING UNIT XXXXXXX (E* F, E** F, E*** F, E**** F, E*****F)		p.72
User Paper Setup Menu (CUSTOM PAPER)	Paper Type Selection		PAPER NUMBER	**STANDARD**, 1 ~ 10		p.72
	PG setting		PLATEN GAP	NARROW, **STANDARD**, WIDE, WIDER, WIDEST		p.74
	Paper Thickness Detection Pattern		THICKNESS PAT	PRINT		
	Select paper thickness number		THICKNESS NUM	1 ~ 16		
	Cutting method		CUT METHOD	STANDARD THIN PAPER THICK, FAST THICK, SLOW		p.74
	Paper feed adjustment		PPR FEED ADJ	-0.70% ~ **0%** ~ 0.70%		p.74
	Eject paper roller setting		EJECT ROLLER	**AUTO**, SHEET, ROLL CURLED, ROLL NORMAL		p.74
	Ink drying time (Pass delay)		DRYING TIME	**0.0sec** ~ 10.0sec		p.74
	Paper suction		SUCTION	**STANDARD,** -1, -2, -3, -4		p.74
	MW print adjustment		M/W ADJ	**STANDARD**, 1, 2		p.74
Maintenance menu (MAINTENANCE)	Cutter Blade Replacement	Execute sequence	CUTTER REPL	EXEC		p.79
		Cover open	OPEN TOP COVER	–		
		Cutter replacement	REPLACE CUTTER	–		
		Cover close	CLOSE TOP COVER	–		
	K INK CHANGE	Execute sequence	BK INK CHANGE	EXEC		p.79
	Power Cleaning		POWER CLEANING	EXEC		p.79
	Date Setting		CLOCK SETTING	MM/DD/YY HH:MM		p.79
Gap Adjustment menu (HEAD ALIGNMENT)	Paper thickness (in 0.1mm units) *1		PAPER THKNS	**STD**, 0.1mm ~ 1.5mm		p.79
	Select and print adjustment pattern		ALIGNMENT	AUTO	UNI-D	p.79
					BI-D 2-COLOR	
					BI-D ALL	
					BI-D #1 *1	
					BI-D #2 *1	
					BI-D #3 *1	

Continued on next page

Table 1-26. Panel Setting Menu Item

<table>
<tr><th>Top menu
(Panel display)</th><th>Item menu</th><th>Panel display</th><th colspan="4">Setup value (Underline: Default)</th><th>Ref.</th></tr>
<tr><td rowspan="25">Gap adjustment menu
(HEAD ALIGNMENT)</td><td rowspan="25">Select and print adjustment pattern

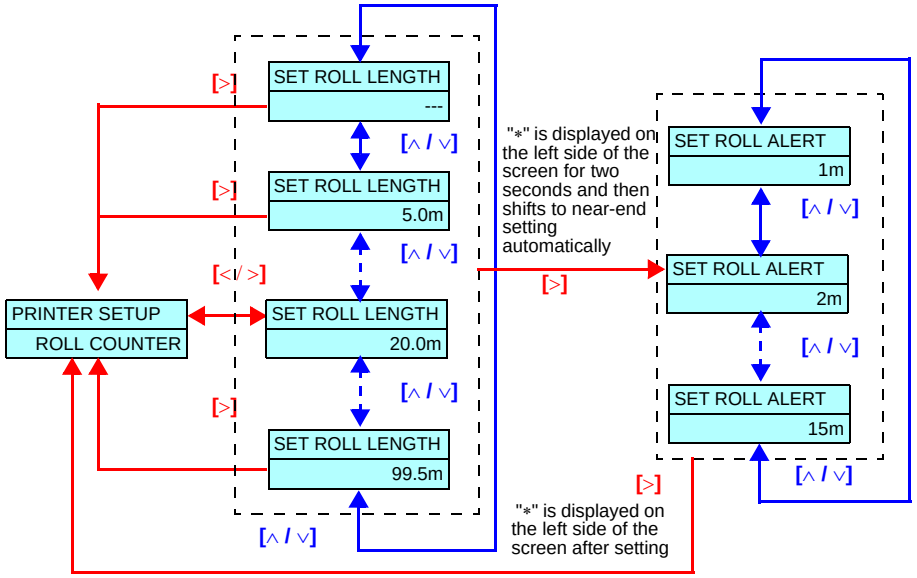
Note *1: Supports record mode
#1 = VSD1 (320CPS)
#2 = VSD2 (240CPS)
#3 = VSD3 (240CPS)
*2: Color orders and names for 8-color and 4-color mode are following.
<table><tr><th rowspan="2">Basic row</th><th colspan="2">8-color</th><th>4-color</th></tr><tr><th>Stylus Pro 4800</th><th>Stylus Pro 4880/4880C</th><th>Stylus Pro 4400/4450C</th></tr><tr><td>1st row</td><td>MK or PK</td><td>MK or PK</td><td>C</td></tr><tr><td>2nd row</td><td>C</td><td>C</td><td>C-2</td></tr><tr><td>3rd row</td><td>M</td><td>VM</td><td>Y</td></tr><tr><td>4th row</td><td>Y</td><td>Y</td><td>Y-2</td></tr><tr><td>5th row</td><td>LK</td><td>LK</td><td>M</td></tr><tr><td>6th row</td><td>LC</td><td>LC</td><td>M-2</td></tr><tr><td>7th row</td><td>LM</td><td>VLM</td><td>MK</td></tr><tr><td>8th row</td><td>LLK</td><td>LLK</td><td>MK-2</td></tr></table></td><td rowspan="25">ALIGNMENT</td><td rowspan="25">MANUAL</td><td rowspan="10">UNI-D *2
4 color model prints C-2 through MK-2</td><td>#1 C</td><td>1 ~ <u>5</u> ~ 9</td><td>p.79</td></tr>
<tr><td>:</td><td>:</td><td></td></tr>
<tr><td>#1 LLK</td><td>1 ~ <u>5</u> ~ 9</td><td></td></tr>
<tr><td>#2 C</td><td>1 ~ <u>5</u> ~ 9</td><td></td></tr>
<tr><td>:</td><td>:</td><td></td></tr>
<tr><td>#2 LLK</td><td>1 ~ <u>5</u> ~ 9</td><td></td></tr>
<tr><td>#3 C</td><td>1 ~ <u>5</u> ~ 9</td><td></td></tr>
<tr><td>:</td><td>:</td><td></td></tr>
<tr><td>#3 LLK</td><td>1 ~ <u>5</u> ~ 9</td><td></td></tr>
<tr><td rowspan="3">BI-D BLACK
BI-D Cyan is used for 4 color model</td><td>#1 MK</td><td>1 ~ <u>5</u> ~ 9</td><td></td></tr>
<tr><td>#2 MK</td><td>1 ~ <u>5</u> ~ 9</td><td></td></tr>
<tr><td>#3 MK</td><td>1 ~ <u>5</u> ~ 9</td><td></td></tr>
<tr><td rowspan="12">BI-D ALL</td><td>#1 MK</td><td>1 ~ <u>5</u> ~ 9</td><td></td></tr>
<tr><td>:</td><td>:</td><td></td></tr>
<tr><td>#1 LK</td><td>1 ~ <u>5</u> ~ 9</td><td></td></tr>
<tr><td>#2 MK</td><td>1 ~ <u>5</u> ~ 9</td><td></td></tr>
<tr><td>:</td><td>:</td><td></td></tr>
<tr><td>#2 LK</td><td>1 ~ <u>5</u> ~ 9</td><td></td></tr>
<tr><td>#3 MK</td><td>1 ~ <u>5</u> ~ 9</td><td></td></tr>
<tr><td>:</td><td>:</td><td></td></tr>
<tr><td>#3 LK</td><td>1 ~ <u>5</u> ~ 9</td><td></td></tr>
</table>

1.4.4.3 Remaining paper detection

This mode displays remaining counter of roll paper length / number of cut sheet which is set by a user, and can display a warning message when it reaches the near end setting value which is also set by the user.
However, remaining roll paper menu is displayed when remaining paper display setting is set to roll paper in Maintenance Mode, and remaining cut sheet menu is displayed when it is set to cut sheet. When remaining paper display setting is off, these menus do not appear.

NOTE: Remaining roll paper detection and remaining cut sheet detection cannot be set to ON simultaneously.

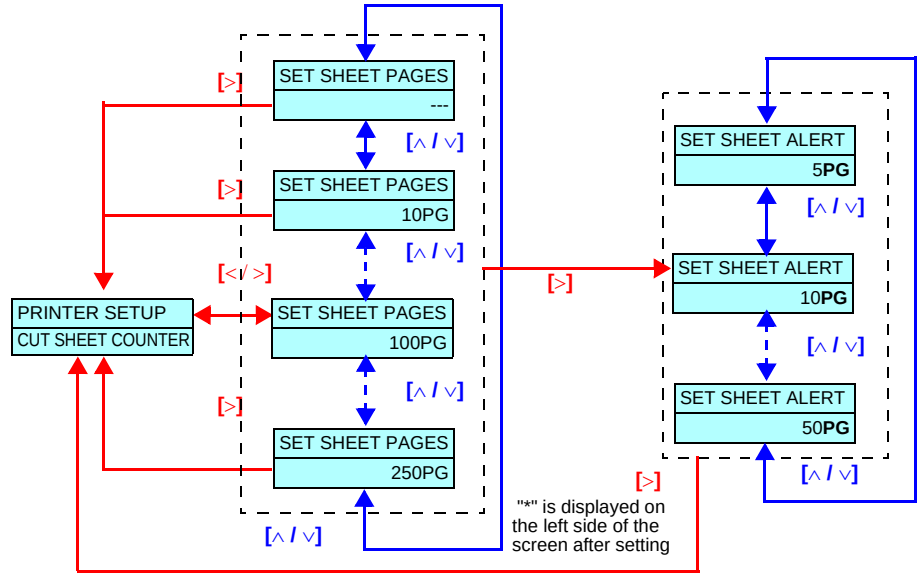
☐ Level structure of remaining roll paper menu



Note 1: Roll paper length can be set on 0.5m basis within 5.0 to 99.5m.In addition, the unit length can be changed on 10m basis by holding down the up/down key.The near end value can be set on 1m basis within 1 to15m.

2: If the unit length is changed in Maintenance Mode, all the value of roll paper length, near end, and remaining paper display are returned to the initial settings.

☐ Level structure of remaining cut sheet menu



Note : The number of cut sheet can be set on 10 sheets basis within 10 to 250 sheets. The near end value can be set on 1 sheet basis within 5 to 50 sheets.

1.4.4.4 PG Setting

Executing this mode allows the user to set the width of platen gap.

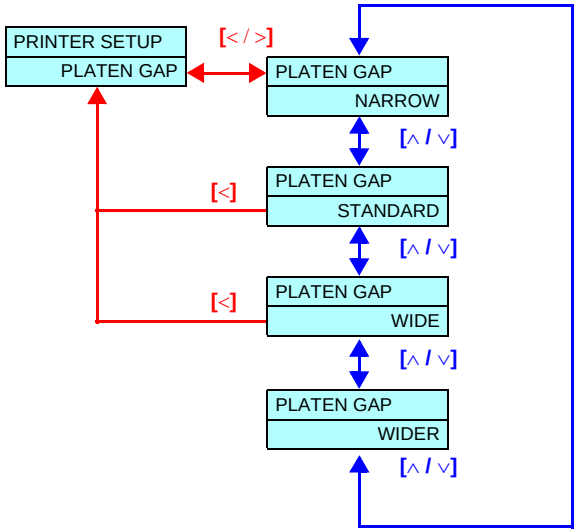
If paper type other than standard is selected in user paper setting menu, PG specified in user paper setting has the priority. However if the paper thickness sensor detects the paper as over 0.81mm, PG position will be Muximum.

The following 5 positions are available in the actual platen gap setting.

Table 1-27. The actual platen gap

Position	Gap width	Use
Muximum	2.6mm	For thick paper
Big	2.1mm	Reduce the smearing on the printed image of thin paper.
Middle	1.5mm	For certain easy-rubbed thin paper
Small	1.2mm	For thin paper (Default)
Minimum	0.7mm	For thin film (Film, glossy media)

☐ Level structure of PG setting menu



The relationship between panel setting, command setting (SN command), and actual platen gap position

Table 1-28. Relationships of PG Setting Values

Paper thickness sensor	PH command	Panel	SN command	Actual PG position
Less than 0.3mm	01H-08H*	Narrow	Minimum	Minimum
			Small	Minimum
			Middle	Small
			Big	Middle
			Muximum	Big
		Standard	Minimum	Minimum
			Small	Small
			Middle	Middle
			Big	Big
			Muximum	Muximum
		Wide	Minimum	Small
			Small	Middle
			Middle	Big
			Big	Muximum
			Muximum	Muximum
		Wider	Minimum	Middle
			Small	Big
			Middle	Muximum
			Big	Muximum
			Muximum	Muximum
		Widest	Minimum	Big
			Small	Muximum
			Middle	Muximum
			Big	Muximum
			Muximum	Muximum
	09H-10H	-	-	Muximum

Table 1-28. Relationships of PG Setting Values

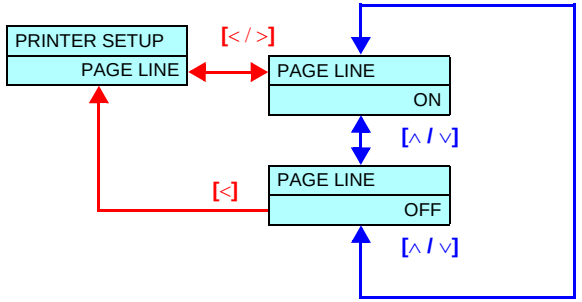
Paper thickness sensor	PH command	Panel	SN command	Actual PG position
More than 0.3mm Less than 0.8mm	00H-08H	Narrow	Minimum	Small
			Small	Small
			Middle	Small
			Big	Middle
			Muximum	Big
		Standard	Muximum	Small
			Small	Small
			Middle	Middle
			Big	Big
			Muximum	Muximum
		Wider	Minimum	Small
			Small	Middle
			Middle	Big
			Big	Muximum
			Muximum	Muximum
		Widest	Minimum	Middle
			Small	Big
			Middle	Muximum
			Big	Muximum
			Muximum	Muximum
	09H-12H	-	-	Muximum
More than 0.81mm	-	-	-	Muximum

Note *: Only in this case, SN command is ignored. When paper thickness is 0.15mm, it is operated with minimum Bi-D value and minimum SN (PG).

1.4.4.5 Page Lines

Selecting this mode allows the user to set the page line print mode. Setup is the same as horizontal lines ON command (AC 02H 00H 00H 02H) in automatic cutting setup. The page line is a black solid line with 1 dot width.

☐ Level structure of page line menu

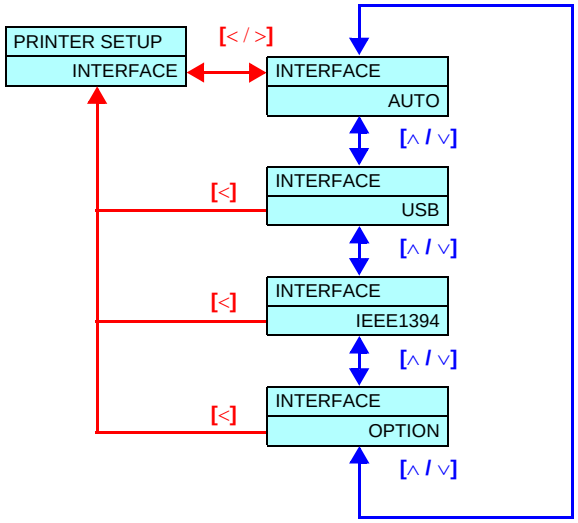


1.4.4.6 Interface Select

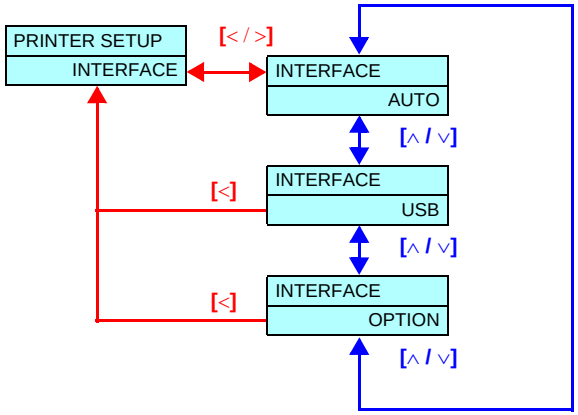
Selecting this mode allows selection of the automatic interface selection, USB, 1394, or optional interface.

☐ Level structure of I/F switching

■ Stylus Pro 4400/4800



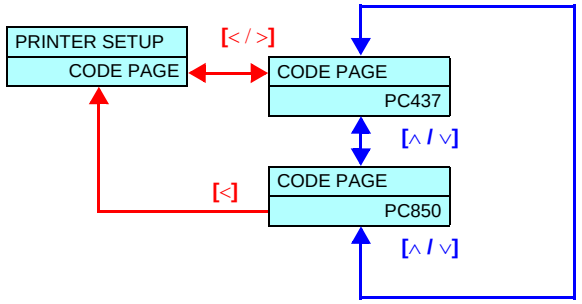
■ Stylus Pro 4450/4880/4880C



1.4.4.7 Code Page Switching

Selecting this mode allows the code page switch between PC437 and PC850.

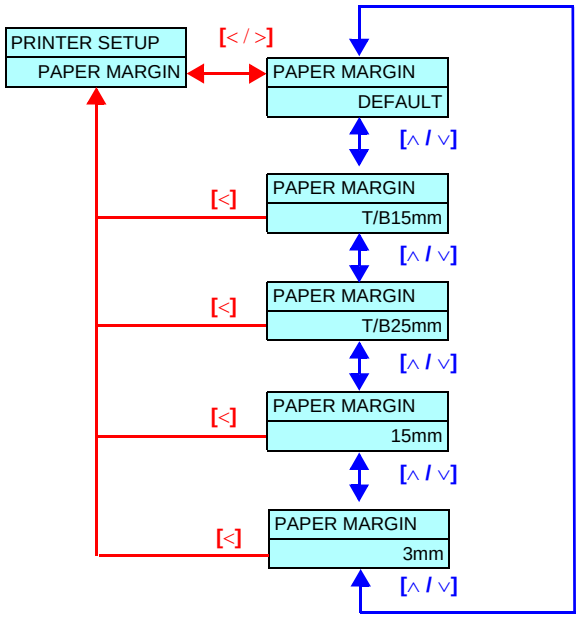
☐ Level structure of Code Page switching



1.4.4.8 Roll Paper Margin

Setting this panel allows switching roll paper margin, all sides 3mm / all sides 15mm / top and bottom 15mm, right and left 3mm / top and bottom 25mm, right and left 3mm. This setting is only valid for roll paper. It's not valid for cut sheet. This setting changes only margin, and doesn't change image size.

☐ Level structure for roll paper margin setting



☐ If margin=3mm is set
Printing positions of vertical line and horizontal line are same as paper size.

☐ If margin=15mm, or Top/Bottom15mm is set
Printing positions of vertical line and horizontal line are positions widened 12mm from all sides or top and bottom.

☐ If margin=25mm is set
Printing positions of vertical line and horizontal line are positions widened 22mm from top and bottom. *(Refer to Figure 1-10)*

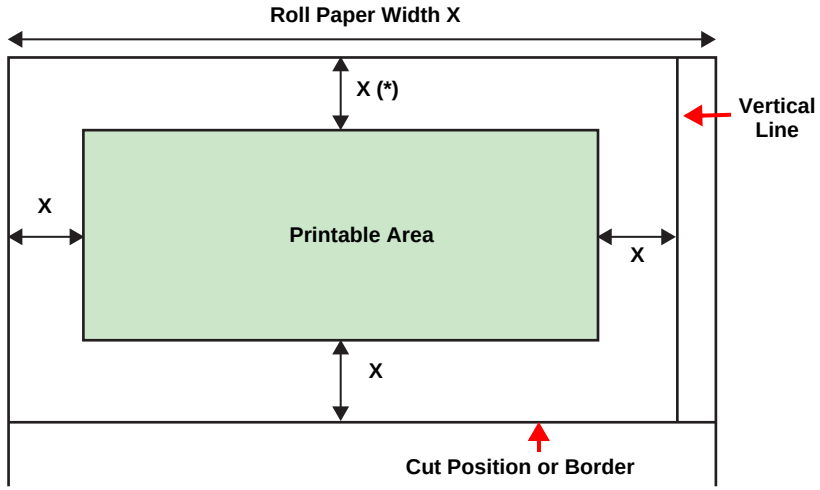


Figure 1-10. Roll Paper Margin (1)

If printable area is more than X=15mm from right edge of paper, the portion is clipped.
Vertical line is not printed. *(Refer to Figure 1-11)*

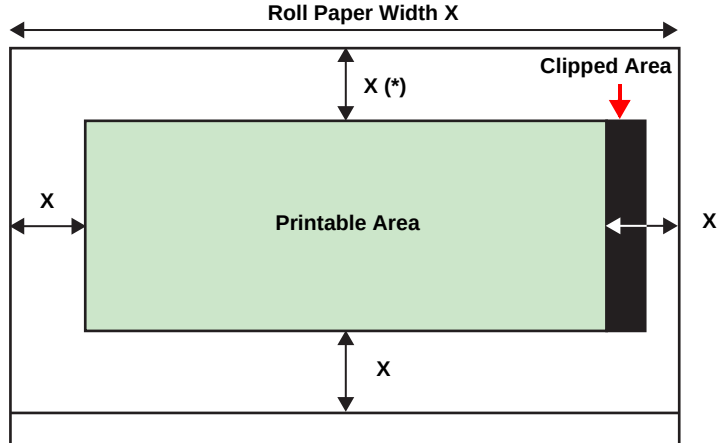


Figure 1-11. Roll Paper Margin (2)

NOTE 1: *The top margin is also set with "Set the paper top margin" (SN command). Actual top margin is decided as following;*

- *Panel setup value (top margin) > Paper top margin (Panel setup value is used as the top margin)*
- *Panel setup value (top margin) < Paper top margin (Paper top margin is used as the top margin)*

2: *Under special condition (Right/left no margin print), right / left margin can be set to 0.*

3: *When following pattern is printed, right and left side margin are fixed to 3mm.*

Print Pattern	Menu	Command
Nozzle Check Pattern	Test Printing Menu	NC Command
Auto Nozzle Check Pattern		
Status Print		SS Command
Job Information Print		
User Paper Print		
Paper Thickness Detection Pattern	User Paper Setting Menu	
Cutter Position Adjustment	PRINTER SETUP	---
Auto Nozzle Check for each job		---
Manual Uni-D	GAP Adjustment Menu	DT/DC Command
Manual Bi-D K		
Manual Bi-D		
F/W ROM Version Print		VI Command

1.4.4.9 Paper Width Detection

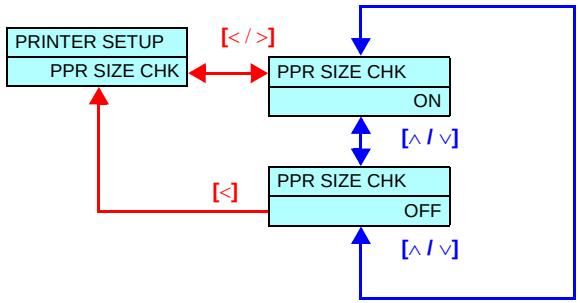
When paper width detection is set to OFF or prints bigger image than set paper (more than borderless print area), the image will be printed on the platen. Users have to change the setting at their own responsibility.
When paper initializing or print starting, for distance between grid roller and #1 nozzle, paper is fed unconditionally. The print starts from the position. (No back-feed with other sequences) Although the paper that is under grid roller will be wasteful, place emphasis on printing even for low reflection paper.

Cut sheets and auto loading have same specification.

The above paper width detection OFF sequence is just for the first page in case of roll paper.

Paper auto cutting is not checked whether it cuts off or not.

☐ Level structure for detect paper width menu



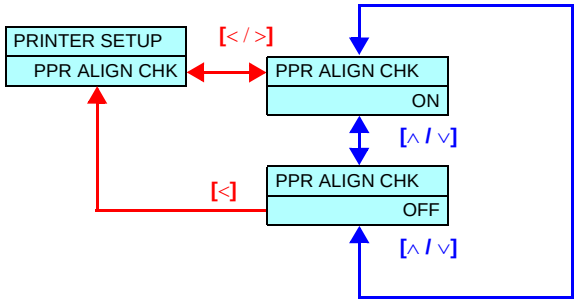
1.4.4.10 Skew Error Detection

When this setting is set to “OFF”, a paper skew error is not occurred and printing operation is continued. Even if this setting is set to “ON”, cut paper skew is not detected after printing.

Even if the printing image is outside the paper because of the paper not straight by the setting, the printer doesn't inform the error, so users have to set up at their own responsibility.

Skew error detection is only enabled when roll paper is selected in the printer setting menu. Paper width detection is carried out when paper width detection is ON even if Skew error is set to OFF.

☐ Level structure of detect skew error menu

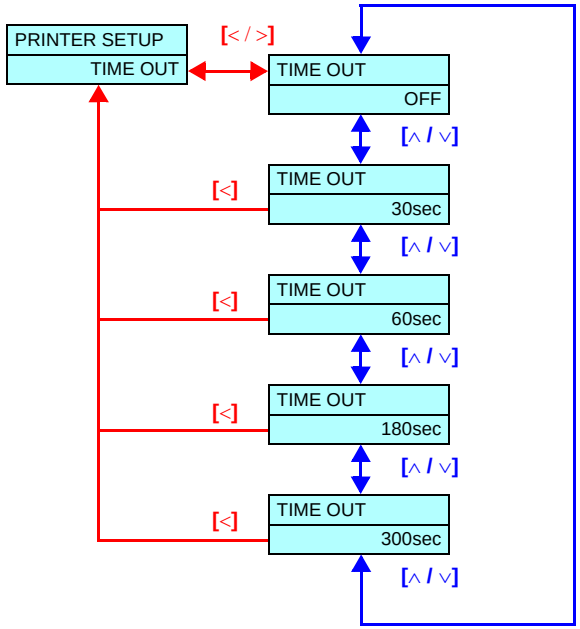


1.4.4.11 Job Time-out Setting

When print data is interrupted more than setting time although data receiving is available, the print job is regarded as an end, and the printer runs paper feeding operation.

If an I/F is fixed by remote command “DP” in duplex print setting in the driver, job time-out setting is unable to function.

☐ Level structure of job timeout setting menu



1.4.4.12 Cutter Position Adjustment

Cutter position can be adjusted by this mode. Cutter position adjustment pattern is printed, and users entering the cutter position number to adjust the cutter position.

NOTE: *This adjustment is effective for top/bottom no margin print.*

This mode only operates when paper type is roll paper and setting is roll paper cut ON. Other than this, the printer displays "UNABLE TO PRINT" and stops printing. 3 seconds later, this mode is canceled automatically and the printer returns to standby condition.

☐ Setting procedure

1. Set paper.
2. Enter Cutter position adjustment menu in the panel.
3. Print cutter position adjustment pattern.
4. Select the best adjustment pattern number and enter the number.

NOTE: *When "1 cut" is selected in panel, it will not operate.*

☐ Cutter position adjustment pattern

- ■ Output paper size: A4
- ■ Font: Built-in font (Print all in alphanumeric characters)
- ■ Print sample: See following picture.

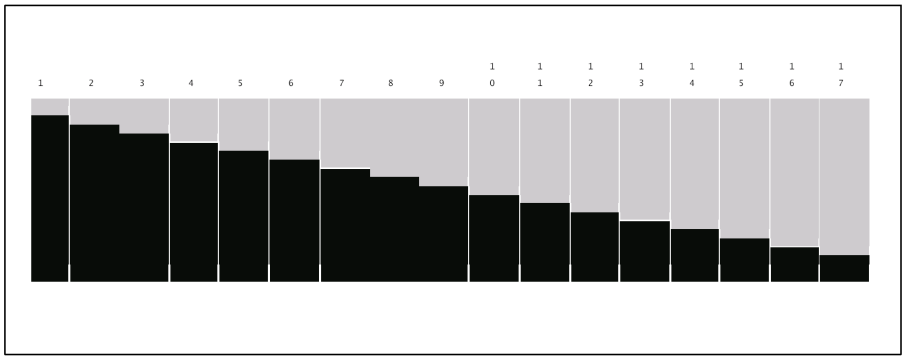
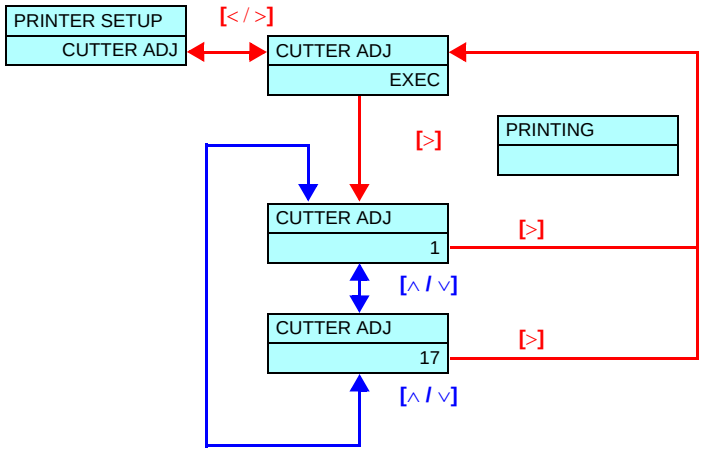


Figure 1-12. Cutter position adjustment pattern

NOTE: *The shift amount among the pattern numbers is 1/360dpi ≒ approx. 0.7mm.*

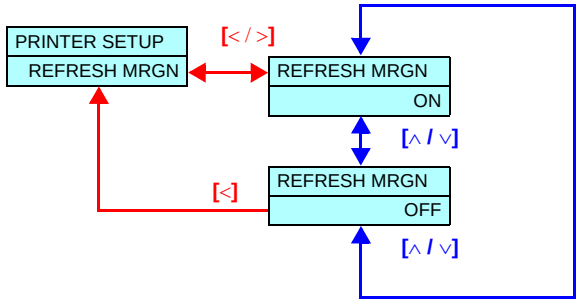
☐ Level structure of cutter position adjustment menu



1.4.4.13 Auto Margin Refresh

When this setting is ON, paper edge is automatically cut and refreshed to prevent print dirt in the situation after 4 sides no margin print in first JOB and with margin print in next JOB. The cutting length depends on the minimum cut length at this time.

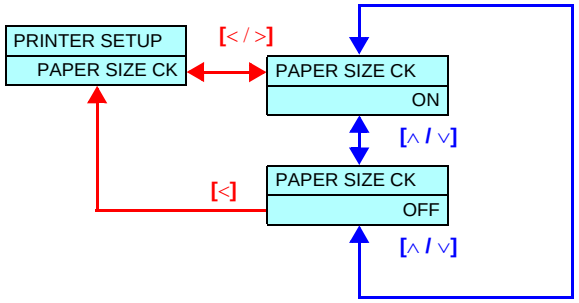
☐ Level structure of auto margin refresh



1.4.4.14 Cut Sheet Size Error

When this setting is OFF, it will prevent the occurrence of size error and keeps printing. It will not work for roll paper.
If the print image is bigger than the paper set by this setting, printer prints by clipping the data that is out of paper. If this setting is ON, paper size in horizontal direction and value read from detect paper width sensor set by paper size setting command (ESC "(S") during receiving data are over +/-3mm, cut sheet size error occurs. If paper size setting command does not exist during receiving data, cut sheet size error never occurs.

☐ Level structure of cut sheet size error menu

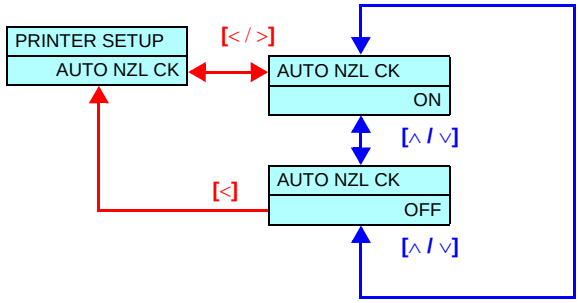


1.4.4.15 Auto Nozzle Check for Each Job

This setting is valid only when "Cleaning setting at nozzle check" is ON. By turning this setting on, auto nozzle check can be performed before printing upon receiving data from PC. Trigger for receiving data from PC is when receiving remote command "JS". If JS command is not send, auto nozzle check is not performed. Also when paper is out during continuous print, display "Paper out" and wait for paper set.

When user cannot check the nozzle clogging visually at day and night automatic operation, the setting will be ON.

☐ Level structure of auto nozzle check for each job menu



1.4.4.16 Cleaning Setting for Nozzle Check

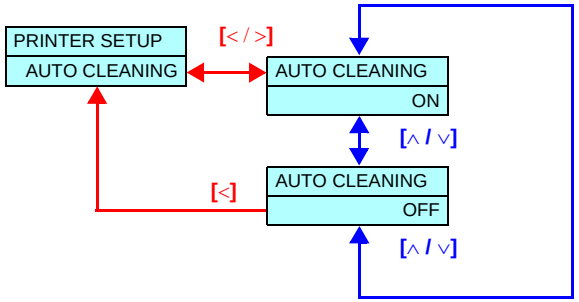
Nozzle check method is switched to either auto or manual.
When “Cleaning setting at nozzle check“ (=printer setting menu/auto cleaning) is set to ON, auto nozzle check pattern printing is performed. When the cleaning setting is set to OFF, manual nozzle check pattern printing is executed.
The following shows the operations performed by each setting in "Cleaning setting for nozzle check" and "Auto cleaning for each job".

Table 1-29. Operation setting

Cleaning setting for nozzle check	Auto cleaning for each job	Nozzle check operation by panel	Auto nozzle check operation before Job	Nozzle check operation when sending "NC" m1 = 80h*
OFF	OFF	Manual	None	Manual
ON	OFF	Auto	None	Auto
OFF	ON	Manual	None	Manual
ON	ON	Auto	Execute	Auto

Note *: The command that is sent from the printer driver to the printer in order to control the nozzle check.

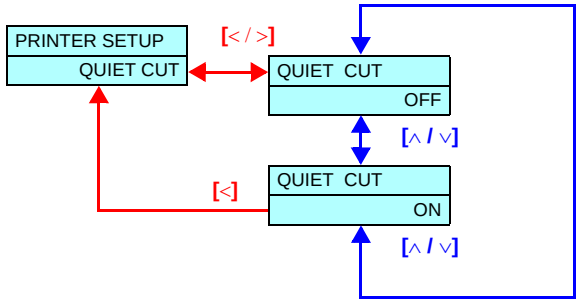
☐ Level structure of cleaning setting for nozzle check menu



1.4.4.17 Super Low Speed Cut Mode

When this setting is set to “ON”, normal cut operation is performed at 20CPS to reduce a noise and paper dust. The default is set to OFF.
However when top edge is cut at Top/Bottom borderless printing setting,(including top margin at 1 cut setting.)this setting is not reflected to prevent irregular color by reducing cut speed.

☐ Level structure of super low speed cut mode menu



1.4.4.18 Printer Setup Value Initialization

Selecting this mode allows the user to return all printer-setting values to the default values.

Initializing items are following;

Table 1-30. Printer Setup Value Initialization

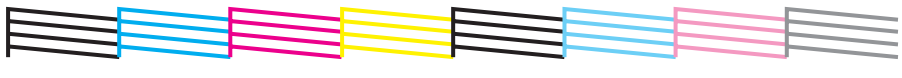
Setting item		After initialization
Remaining Paper detection	Remaining roll paper	20m
	Remaining roll paper warning	2Çç
	Remaining cut sheet	100PG
	Remaining cut sheet warning	10PG
PG setting		STANDARD
Page line		ON
I/F switching		AUTO
Code page switching		PC437
Roll paper margin setting		T/B 15mm
Paper width detection		ON
Paper skew detection		ON
Job timeout setting		OFF
Cutter position adjustment		Manufacture setting
Auto margin refresh		ON
Cut sheet size error		ON
Auto nozzle check for each Job		OFF
Super low speed cut mode		OFF
Cleaning at nozzle check		ON

1.4.4.19 Nozzle Check Pattern Printing

Selecting this mode allows the user to print the nozzle check pattern, firmware version, used paper/ink, and maintenance tank counter.

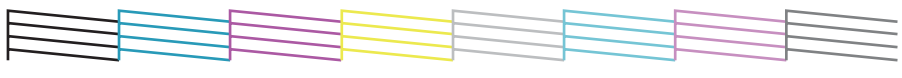
Nozzle checks method in nozzle check pattern print is switched to either auto or manual by cleaning setting ON/OFF at nozzle check.

- ☐ When setting is ON: Perform auto nozzle check pattern printing.
- ☐ When setting is OFF: Perform nozzle check pattern printing as usual.



```
Version          : A<Z><xxxx>
Maintenance Tank : <zzz>%
Cur. Ink Count   : <aaaaa.a>ml Prev.Ink Count  :<bbbbb.b>ml C - P:<ccccc.c>ml
Cur. Paper Count : <ddddd.d>cm Prev.Paper Count:<eeeee.e>cm C - P:<fffff.f>cm
```

Figure 1-13. Nozzle Check Pattern Printing (Stylus Pro 4800)



```
Version          : A<Z><XXXX>-<y.yy>.IBC
Maintenance Tank : <zzz>%
Cur. Ink Count   : <aaaaa.a>ml Prev.Ink Count  :<bbbbb.b>ml C - P:<ccccc.c>ml
Cur. Paper Count : <ddddd.d>cm Prev.Paper Count:<eeeee.e>cm C - P:<fffff.f>cm
```

Figure 1-14. Nozzle Check Pattern Printing (Stylus Pro 4880/4880C)

- ☐ Order of colors from left
  - 8-color (Stylus Pro 4800):
    Photo Black / Matte Black → Cyan → Magenta → Yellow → Light Black → Light Cyan → Light Magenta → Light Light Black
  - 8-color (Stylus Pro 4880/4880C):
    Photo Black / Matte Black → Cyan → Vivid Magenta → Yellow → Light Black → Light Cyan → Vivid Light Magenta → Light Light Black
  - 4-color (Stylus Pro 4400/4450):
    Matte Black 1 → Matte Black 2 → Cyan 1 → Cyan 2 → Magenta 1 → Magenta 2 → Yellow 1 → Yellow 2
- ☐ Each parameter indicates the following;
  - <Z>: 0
  - <xxxx>: Firmware version
  - <y.yy>: Network Firmware version (Stylus Pro 4450/4880/4880C only)
  - **I**: Number of colors (four or eight) used for printing
  - **B**: Business system setting
  - **C**: Custom version setting
  - <zzz>: Maintenance tank available quantity
  - <aaaaa.a>: Total ink counter just before print the last nozzle check pattern (5.1 figures)
  - <bbbbb.b>: Total ink counter just before print the nozzle check pattern (5.1 figures)
  - <ccccc.c>: Value of <aaaaa.a>-<bbbbb.b> (5.1 figures)
  - <ddddd.d>: Total paper counter just before print the last nozzle check pattern (5.1 figures)
  - <eeeee.e>: Total paper counter just before print the nozzle check pattern (5.1 figures)
  - <fffff.f>: Value of <ddddd.d>-<eeeee.e> (5.1 figures)

NOTE: *When printing a nozzle check pattern, the printer ignores the top margin specified from the panel setting it to 20mm to prevent top margin being rubbed in PGPP AND PSPP.*

1.4.4.20 Status Printing

Selecting this mode allows the user to print the current panel settings content.

Print status sheet with the following specifications.

- Print paper size: A4
- Font: Built-in font (Print all in alphanumeric characters)
- Print sample: Refer to *Figure 1-15. "Status Sheet Print Pattern (8-color Stylus Pro 4800)"* and *Figure 1-17. "Status Sheet Print Pattern (4-color Stylus Pro 4400)"*

☐ Output procedure:

1. Press the [Menu / Cleaning] button on the control panel to enter the panel setting menu.
2. Press the [Paper Feed (∧/∨)] button to display "TEST PRINT".
3. Press the [Menu / Cleaning] button to enter the item menu select status and then press the [Paper Feed (∧/∨)] again to display [STATUS CHECK].
4. Select the item by pressing the [Menu / Cleaning] button again.
5. Press the [Menu / Cleaning] button to execute status sheet printing.

```
Type B  :  Installed
-Current Setting-+-----------------+-Printer Status--+-----------------
Platen Gap       :Standard          |Version          :A0xxxx P
Page Line        :On                |Total Prints     :xxxxxx PG
Interface        :Auto              |Use Ink          :xxxxxx.xml
Code Page        :PC437             |Use Paper        :xxxxxx.xcm
Margin           :T/B15mm           |Mainte Tank      :E*****F
Paper Size Chk   :On                |Cutter Life      :E*****F
Paper Align Chk  :On                |CR Motor         :E*****F
Time Out         :30sec             |PF Motor         :E*****F
Refresh Margin   :On                |Head             :E*****F
Sheet Size Chk   :On                |Cleaner          :E*****F
Auto Nozzle Chk  :Off               |                 :
Auto Cleaning    :On                |                 :
Quiet Cut        :Off               |                 :
-Ink Cartridge---+-----------------+-----------------+-----------------
Manufacture      :EPSON GENUINE INK EPSON GENUINE INK EPSON GENUINE INK
Ink Type         :     Pigment           Pigment           Pigment
Ink Color        :    Matte Black         Cyan             Magenta
Ink Capacity     :      110ml             110ml             110ml
Ink Left         :     E*****F           E*****F           E*****F
Production Date  :     `02/03            `02/03            `02/03
Expire Date      :     `03/10            `03/10            `03/10
Ink Life         :    06 months         06 months         06 months
Passed           :    02 months         02 months         02 months
Printable Sheet  :    120 pages         120 pages         120 pages
-----------------+-----------------+-----------------+-----------------
Manufacture      :EPSON GENUINE INK EPSON GENUINE INK EPSON GENUINE INK
Ink Type         :     Pigment           Pigment           Pigment
Ink Color        :      Yellow         Light Black        Light Cyan
Ink Capacity     :      110ml             110ml             110ml
Ink Left         :     E*****F           E*****F           E*****F
Production Date  :     `02/03            `02/03            `02/03
Expire Date      :     `03/10            `03/10            `03/10
Ink Life         :    06 months         06 months         06 months
Passed           :    02 months         02 months         02 months
Printable Sheet  :    120 pages         120 pages         120 pages
-----------------+-----------------+-----------------+-----------------
Manufacture      :EPSON GENUINE INK EPSON GENUINE INK
Ink Type         :     Pigment           Pigment
Ink Color        :   Light Magenta  Light Light Black
Ink Capacity     :      110ml             110ml
Ink Left         :     E*****F           E*****F
Production Date  :     `02/03            `02/03
Expire Date      :     `03/10            `03/10
Ink Life         :    06 months         06 months
Passed           :    02 months         02 months
Printable Sheet  :    120 pages         120 pages
-----------------+-----------------+-----------------+-----------------
```

Figure 1-15. Status Sheet Print Pattern (8-color Stylus Pro 4800)

```
Type B  :  Installed
-Current Setting-+-----------------+-Printer Status--+-----------------
Platen Gap       :Standard         |Version          :A0xxxx-y.yy.IBC
Page Line        :On               |Total Prints     :xxxxxx PG
Interface        :Auto             |Use Ink          :xxxxxx.xml
Code Page        :PC437            |Use Paper        :xxxxxx.xcm
Margin           :T/B15mm          |Mainte Tank      :E*****F
Paper Size Chk   :On               |Cutter Life      :E*****F
Paper Align Chk  :On               |CR Motor         :E*****F
Time Out         :30sec            |PF Motor         :E*****F
Refresh Margin   :On               |Head             :E*****F
Sheet Size Chk   :On               |Cleaner          :E*****F
Auto Nozzle Chk  :Off              |                 :
Auto Cleaning    :On               |                 :
Quiet Cut        :Off              |                 :
-Ink Cartridge---+-----------------+-----------------+-----------------
Manufacture      :EPSON GENUINE INK EPSON GENUINE INK EPSON GENUINE INK
Ink Type         :     Pigment           Pigment           Pigment
Ink Color        :    Matte Black         Cyan          Vivid Magenta
Ink Capacity     :      110ml             110ml             110ml
Ink Left         :     E*****F           E*****F           E*****F
Production Date  :     `02/03            `02/03            `02/03
Expire Date      :     `03/10            `03/10            `03/10
Ink Life         :    06 months         06 months         06 months
Passed           :    02 months         02 months         02 months
Printable Sheet  :    120 pages         120 pages         120 pages
-----------------+-----------------+-----------------+-----------------
Manufacture      :EPSON GENUINE INK EPSON GENUINE INK EPSON GENUINE INK
Ink Type         :     Pigment           Pigment           Pigment
Ink Color        :      Yellow         Light Black        Light Cyan
Ink Capacity     :      110ml             110ml             110ml
Ink Left         :     E*****F           E*****F           E*****F
Production Date  :     `02/03            `02/03            `02/03
Expire Date      :     `03/10            `03/10            `03/10
Ink Life         :    06 months         06 months         06 months
Passed           :    02 months         02 months         02 months
Printable Sheet  :    120 pages         120 pages         120 pages
-----------------+-----------------+-----------------+-----------------
Manufacture      :EPSON GENUINE INK EPSON GENUINE INK
Ink Type         :     Pigment           Pigment
Ink Color        :Vivid Light Magenta  Light Light Black
Ink Capacity     :      110ml             110ml
Ink Left         :     E*****F           E*****F
Production Date  :     `02/03            `02/03
Expire Date      :     `03/10            `03/10
Ink Life         :    06 months         06 months
Passed           :    02 months         02 months
Printable Sheet  :    120 pages         120 pages
-----------------+-----------------+-----------------+-----------------
```

Figure 1-16. Status Sheet Print Pattern (8-color Stylus Pro 4880/4880C)

```
Type B  :  Installed
-Current Setting-+-----------------+-Printer Status--+-----------------
Platen Gap       :Standard         |Version          :A0xxxx
Page Line        :On               |Total Prints     :xxxxxx PG
Interface        :Auto             |Use Ink          :xxxxxx.xml
Code Page        :PC437            |Use Paper        :xxxxxx.xcm
Margin           :T/B15mm          |Mainte Tank      :E*****F
Paper Size Chk   :On               |Cutter Life      :E*****F
Paper Align Chk  :On               |CR Motor         :E*****F
Time Out         :30sec            |PF Motor         :E*****F
Refresh Margin   :On               |Head             :E*****F
Sheet Size Chk   :On               |Cleaner          :E*****F
Auto Nozzle Chk  :Off              |                 :
Auto Cleaning    :On               |                 :
Quiet Cut        :Off              |                 :
-Ink Cartridge---+-----------------+-----------------+-----------------
Manufacture      :EPSON GENUINE INK EPSON GENUINE INK EPSON GENUINE INK
Ink Type         :     Pigment           Pigment           Pigment
Ink Color        :   Matte Black          Cyan             Magenta
Ink Capacity     :      110ml             110ml             110ml
Ink Left         :     E*****F           E*****F           E*****F
Production Date  :     `02/03            `02/03            `02/03
Expire Date      :     `03/10            `03/10            `03/10
Ink Life         :    06 months         06 months         06 months
Passed           :    02 months         02 months         02 months
Printable Sheet  :    120 pages         120 pages         120 pages
-----------------+-----------------+-----------------+-----------------
Manufacture      :EPSON GENUINE INK
Ink Type         :     Pigment
Ink Color        :      Yellow
Ink Capacity     :      110ml
Ink Left         :     E*****F
Production Date  :     `02/03
Expire Date      :     `03/10
Ink Life         :    06 months
Passed           :    02 months
Printable Sheet  :    120 pages
-----------------+-----------------+-----------------+-----------------
```

Figure 1-17. Status Sheet Print Pattern (4-color Stylus Pro 4400)

```
Type B  :  Installed
-Current Setting-+-----------------+-Printer Status--+-----------------
Platen Gap      :Standard        |Version         :A0xxxx-y.yy.IBC
Page Line       :On              |Total Prints     :xxxxxx PG
Interface       :Auto            |Use Ink          :xxxxxx.xml
Code Page       :PC437           |Use Paper        :xxxxxx.xcm
Margin          :T/B15mm         |Mainte Tank      :E*****F
Paper Size Chk  :On              |Cutter Life      :E*****F
Paper Align Chk :On              |CR Motor         :E*****F
Time Out        :30sec           |PF Motor         :E*****F
Refresh Margin  :On              |Head             :E*****F
Sheet Size Chk  :On              |Cleaner          :E*****F
Auto Nozzle Chk :Off             |                 :
Auto Cleaning   :On              |                 :
Quiet Cut       :Off             |                 :
-Ink Cartridge---+-----------------+-----------------+-----------------
Manufacture     :EPSON GENUINE INK EPSON GENUINE INK EPSON GENUINE INK
Ink Type        :     Pigment           Pigment           Pigment
Ink Color       :   Matte Black          Cyan             Magenta
Ink Capacity    :      110ml             110ml             110ml
Ink Left        :     E*****F           E*****F           E*****F
Production Date :     `02/03            `02/03            `02/03
Expire Date     :     `03/10            `03/10            `03/10
Ink Life        :    06 months         06 months         06 months
Passed          :    02 months         02 months         02 months
Printable Sheet :    120 pages         120 pages         120 pages
----------------+-----------------+-----------------+-----------------
Manufacture     :EPSON GENUINE INK
Ink Type        :     Pigment
Ink Color       :      Yellow
Ink Capacity    :      110ml
Ink Left        :     E*****F
Production Date :     `02/03
Expire Date     :     `03/10
Ink Life        :    06 months
Passed          :    02 months
Printable Sheet :    120 pages
----------------+-----------------+-----------------+-----------------
```

Figure 1-18. Status Sheet Print Pattern (4-color Stylus Pro 4450)

☐ Explanation of contents:

Type-B	Whether optional Type-B I/F is mounted or not	
Current Setting	Setting content of "PRINTER SETUP" menu in Panel Setting mode.	
Printer Status	Version	☐ Stylus Pro 4400/4800 Installed firmware version ☐ Stylus Pro 4450/4880/4880C Installed firmware version and network firmware version
	Total Print	Total number of printed sheets
	Use Ink	Ink consumption counter value (total cumulative consumption by printing, flushing and cleaning)
	Use Paper	Paper consumption counter value (total cumulative paper feed amount by printing)
	Mainte Tank	Remaining ink volume in Maintenance Tank *1
	Cutter Life	Remainder of cutter life *2
	CR Motor	Remainder of CR motor life *2
	PF Motor	Remainder of PF motor life *2
	Head	Remainder of Printhead life *2
	Cleaner	Remainder of Cleaning Unit life *2
Ink Cartridge *3	Manufacture	Display of manufacturer
	Ink Type	Display of ink kind
	Ink Color	Display of ink color
	Ink Capacity	Display of capacity to contain ink
	Ink Left	Display of volume of remaining ink *1
	Production Date	Year and month of manufacture
	Expire Date	Expiration of guaranteed period for use
	Ink Life	Guaranteed period for use after unpacking
	Passed	Time having elapsed after unpacking
	Printable Sheet	Number of sheets which can be printed with the remaining ink (calculated value)

Note *1: Display details for Maintenance Tank remaining ink.

100 ~ 81%	E*****F
80 ~ 61%	E**** F
60 ~ 41%	E*** F
40 ~ 21%	E** F
20% ~ 10%	E* F
Less than 10%	nn%
0% (End)	0%

*2: Details of display of remainder of cutter life, CR motor life, PF motor life, Printhead life or Cleaning Unit life

100 ~ 81%	E*****F
80 ~ 61%	E**** F
60 ~ 41%	E*** F
40 ~ 21%	E** F
20% ~ 1%	E* F
Less than 1%	E F

*3: The ink cartridge information is displayed based on the information inside the CSIC on the ink cartridge.

*4: This Color Adjust ID information (ID1) is the same as can be checked through the printer driver.

1.4.4.21 Job Information Print

With this mode, users can print job information saved in the printer. (Max. 10 Job)

Definition of job is followings;

- ☐ Adjustment patterns and test patterns (Gap adjustment, Nozzle check pattern, Status print, Cutter position, Paper thickness detection)
- ☐ Print data from host
- ☐ Job information print

It prints job information print pattern with following specifications;

- ☐ Print paper size: A4
- ☐ Font: Built-in font (Print all in alphanumeric characters)

NOTE: *2-byte characters in user name and document name is "?".*

- ☐ Print sample: Refer to *Figure 1-19. "Job information print pattern (8-color)"* and *Figure 1-20. "Job information print pattern (4-color)"*

NOTE: *For details of Job Information, refer to "1.4.3 Job information (p39)".*

```
- Job No.0 -    User Name: XXXXXXXXXXXXXXXX  Host Name: XXXXXXXXXXXXXXXX
Doc Name  : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  I/F Type: Unknown
Job State : Processing   Start: 00/00/00 00:00:00  End: 00/00/00 00:00:00
Paper Used: W xxxxxmm * H xxxxxmm           Page Count: xxxxx
Ink Used  : PK  xxx.xxml    C   xxx.xxml    M   xxx.xxml    Y   xxx.xxml
            LK xxx.xxml     LC  xxx.xxml    LM  xxx.xxml    LLK xxx.xxml
- Job No.1 -    User Name: XXXXXXXXXXXXXXXX  Host Name: XXXXXXXXXXXXXXXX
Doc Name  : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  I/F Type: Unknown
Job State : Processing   Start: 00/00/00 00:00:00  End: 00/00/00 00:00:00
Paper Used: W xxxxxmm * H xxxxxmm           Page Count: xxxxx
Ink Used  : PK  xxx.xxml    C   xxx.xxml    M   xxx.xxml    Y   xxx.xxml
            LK xxx.xxml     LC  xxx.xxml    LM  xxx.xxml    LLK xxx.xxml
- Job No.2 -    User Name: XXXXXXXXXXXXXXXX  Host Name: XXXXXXXXXXXXXXXX
Doc Name  : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  I/F Type: Unknown
Job State : Processing   Start: 00/00/00 00:00:00  End: 00/00/00 00:00:00
Paper Used: W xxxxxmm * H xxxxxmm           Page Count: xxxxx
Ink Used  : PK  xxx.xxml    C   xxx.xxml    M   xxx.xxml    Y   xxx.xxml
            LK xxx.xxml     LC  xxx.xxml    LM  xxx.xxml    LLK xxx.xxml
- Job No.3 -    User Name: XXXXXXXXXXXXXXXX  Host Name: XXXXXXXXXXXXXXXX
Doc Name  : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  I/F Type: Unknown
Job State : Processing   Start: 00/00/00 00:00:00  End: 00/00/00 00:00:00
Paper Used: W xxxxxmm * H xxxxxmm           Page Count: xxxxx
Ink Used  : PK  xxx.xxml    C   xxx.xxml    M   xxx.xxml    Y   xxx.xxml
            LK xxx.xxml     LC  xxx.xxml    LM  xxx.xxml    LLK xxx.xxml
- Job No.4 -    User Name: XXXXXXXXXXXXXXXX  Host Name: XXXXXXXXXXXXXXXX
Doc Name  : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  I/F Type: Unknown
Job State : Processing   Start: 00/00/00 00:00:00  End: 00/00/00 00:00:00
Paper Used: W xxxxxmm * H xxxxxmm           Page Count: xxxxx
Ink Used  : PK  xxx.xxml    C   xxx.xxml    M   xxx.xxml    Y   xxx.xxml
            LK xxx.xxml     LC  xxx.xxml    LM  xxx.xxml    LLK xxx.xxml
- Job No.5 -    User Name: XXXXXXXXXXXXXXXX  Host Name: XXXXXXXXXXXXXXXX
Doc Name  : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  I/F Type: Unknown
Job State : Processing   Start: 00/00/00 00:00:00  End: 00/00/00 00:00:00
Paper Used: W xxxxxmm * H xxxxxmm           Page Count: xxxxx
Ink Used  : PK  xxx.xxml    C   xxx.xxml    M   xxx.xxml    Y   xxx.xxml
            LK xxx.xxml     LC  xxx.xxml    LM  xxx.xxml    LLK xxx.xxml
- Job No.6 -    User Name: XXXXXXXXXXXXXXXX  Host Name: XXXXXXXXXXXXXXXX
Doc Name  : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  I/F Type: Unknown
Job State : Processing   Start: 00/00/00 00:00:00  End: 00/00/00 00:00:00
Paper Used: W xxxxxmm * H xxxxxmm           Page Count: xxxxx
Ink Used  : PK  xxx.xxml    C   xxx.xxml    M   xxx.xxml    Y   xxx.xxml
            LK xxx.xxml     LC  xxx.xxml    LM  xxx.xxml    LLK xxx.xxml
- Job No.7 -    User Name: XXXXXXXXXXXXXXXX  Host Name: XXXXXXXXXXXXXXXX
Doc Name  : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  I/F Type: Unknown
Job State : Processing   Start: 00/00/00 00:00:00  End: 00/00/00 00:00:00
Paper Used: W xxxxxmm * H xxxxxmm           Page Count: xxxxx
Ink Used  : PK  xxx.xxml    C   xxx.xxml    M   xxx.xxml    Y   xxx.xxml
            LK xxx.xxml     LC  xxx.xxml    LM  xxx.xxml    LLK xxx.xxml
- Job No.8 -    User Name: XXXXXXXXXXXXXXXX  Host Name: XXXXXXXXXXXXXXXX
Doc Name  : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  I/F Type: Unknown
Job State : Processing   Start: 00/00/00 00:00:00  End: 00/00/00 00:00:00
Paper Used: W xxxxxmm * H xxxxxmm           Page Count: xxxxx
Ink Used  : PK  xxx.xxml    C   xxx.xxml    M   xxx.xxml    Y   xxx.xxml
            LK xxx.xxml     LC  xxx.xxml    LM  xxx.xxml    LLK xxx.xxml
- Job No.9 -    User Name: XXXXXXXXXXXXXXXX  Host Name: XXXXXXXXXXXXXXXX
Doc Name  : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  I/F Type: Unknown
Job State : Processing   Start: 00/00/00 00:00:00  End: 00/00/00 00:00:00
Paper Used: W xxxxxmm * H xxxxxmm           Page Count: xxxxx
Ink Used  : PK  xxx.xxml    C   xxx.xxml    M   xxx.xxml    Y   xxx.xxml
            LK xxx.xxml     LC  xxx.xxml    LM  xxx.xxml    LLK xxx.xxml
```

Figure 1-19. Job information print pattern (8-color)

```
- Job No.0 -    User Name: XXXXXXXXXXXXXXXX  Host Name: XXXXXXXXXXXXXXXX
Doc Name  : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  I/F Type: Unknown
Job State : Processing   Start: 00/00/00 00:00:00  End: 00/00/00 00:00:00
Paper Used: W xxxxxmm * H xxxxxmm           Page Count: xxxxx
Ink Used  : MK  xxx.xxml    C   xxx.xxml    M   xxx.xxml    Y   xxx.xxml
- Job No.1 -    User Name: XXXXXXXXXXXXXXXX  Host Name: XXXXXXXXXXXXXXXX
Doc Name  : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  I/F Type: Unknown
Job State : Processing   Start: 00/00/00 00:00:00  End: 00/00/00 00:00:00
Paper Used: W xxxxxmm * H xxxxxmm           Page Count: xxxxx
Ink Used  : MK  xxx.xxml    C   xxx.xxml    M   xxx.xxml    Y   xxx.xxml
- Job No.2 -    User Name: XXXXXXXXXXXXXXXX  Host Name: XXXXXXXXXXXXXXXX
Doc Name  : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  I/F Type: Unknown
Job State : Processing   Start: 00/00/00 00:00:00  End: 00/00/00 00:00:00
Paper Used: W xxxxxmm * H xxxxxmm           Page Count: xxxxx
Ink Used  : MK  xxx.xxml    C   xxx.xxml    M   xxx.xxml    Y   xxx.xxml
- Job No.3 -    User Name: XXXXXXXXXXXXXXXX  Host Name: XXXXXXXXXXXXXXXX
Doc Name  : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  I/F Type: Unknown
Job State : Processing   Start: 00/00/00 00:00:00  End: 00/00/00 00:00:00
Paper Used: W xxxxxmm * H xxxxxmm           Page Count: xxxxx
Ink Used  : MK  xxx.xxml    C   xxx.xxml    M   xxx.xxml    Y   xxx.xxml
- Job No.4 -    User Name: XXXXXXXXXXXXXXXX  Host Name: XXXXXXXXXXXXXXXX
Doc Name  : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  I/F Type: Unknown
Job State : Processing   Start: 00/00/00 00:00:00  End: 00/00/00 00:00:00
Paper Used: W xxxxxmm * H xxxxxmm           Page Count: xxxxx
Ink Used  : MK  xxx.xxml    C   xxx.xxml    M   xxx.xxml    Y   xxx.xxml
- Job No.5 -    User Name: XXXXXXXXXXXXXXXX  Host Name: XXXXXXXXXXXXXXXX
Doc Name  : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  I/F Type: Unknown
Job State : Processing   Start: 00/00/00 00:00:00  End: 00/00/00 00:00:00
Paper Used: W xxxxxmm * H xxxxxmm           Page Count: xxxxx
Ink Used  : MK  xxx.xxml    C   xxx.xxml    M   xxx.xxml    Y   xxx.xxml
- Job No.6 -    User Name: XXXXXXXXXXXXXXXX  Host Name: XXXXXXXXXXXXXXXX
Doc Name  : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  I/F Type: Unknown
Job State : Processing   Start: 00/00/00 00:00:00  End: 00/00/00 00:00:00
Paper Used: W xxxxxmm * H xxxxxmm           Page Count: xxxxx
Ink Used  : MK  xxx.xxml    C   xxx.xxml    M   xxx.xxml    Y   xxx.xxml
- Job No.7 -    User Name: XXXXXXXXXXXXXXXX  Host Name: XXXXXXXXXXXXXXXX
Doc Name  : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  I/F Type: Unknown
Job State : Processing   Start: 00/00/00 00:00:00  End: 00/00/00 00:00:00
Paper Used: W xxxxxmm * H xxxxxmm           Page Count: xxxxx
Ink Used  : MK  xxx.xxml    C   xxx.xxml    M   xxx.xxml    Y   xxx.xxml
- Job No.8 -    User Name: XXXXXXXXXXXXXXXX  Host Name: XXXXXXXXXXXXXXXX
Doc Name  : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  I/F Type: Unknown
Job State : Processing   Start: 00/00/00 00:00:00  End: 00/00/00 00:00:00
Paper Used: W xxxxxmm * H xxxxxmm           Page Count: xxxxx
Ink Used  : MK  xxx.xxml    C   xxx.xxml    M   xxx.xxml    Y   xxx.xxml
- Job No.9 -    User Name: XXXXXXXXXXXXXXXX  Host Name: XXXXXXXXXXXXXXXX
Doc Name  : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX  I/F Type: Unknown
Job State : Processing   Start: 00/00/00 00:00:00  End: 00/00/00 00:00:00
Paper Used: W xxxxxmm * H xxxxxmm           Page Count: xxxxx
Ink Used  : MK  xxx.xxml    C   xxx.xxml    M   xxx.xxml    Y   xxx.xxml
```

Figure 1-20. Job information print pattern (4-color)

1.4.4.22 User Paper Setting Printing

With this mode, users print information registered in user paper setting menu.

It prints User Paper Setting Printing with following specifications;

- ☐ Print paper size: A4
- ☐ Font: Built-in font (Print all in alphanumeric characters)
- ☐ Print sample: Refer to right column figure.

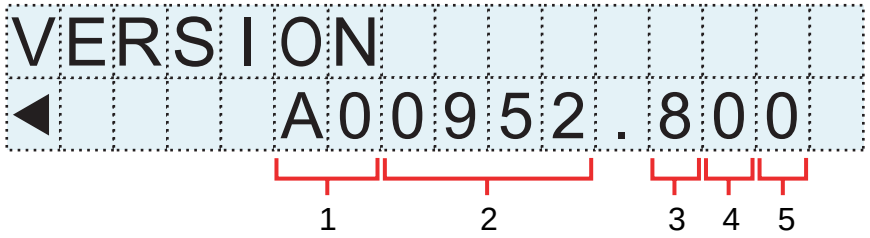
```
Paper No.1
Custom Name : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Platen Gap  : Standard      Drying Time   : 10.0 sec   Suction  : Standard
Cut Method  : ThickPaperFast Eject Roller  : RollCurled M/W Adj. :
Standard
Ppr Thick.  : 0.2mm         Ppr Feed Adj. : -0.70 %
Paper No.2
Custom Name : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Platen Gap  : Standard      Drying Time   : 10.0 sec   Suction  : Standard
Cut Method  : ThickPaperFast Eject Roller  : RollCurled M/W Adj. :
Standard
Ppr Thick.  : 0.2mm         Ppr Feed Adj. : -0.70 %
Paper No.3
Custom Name : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Platen Gap  : Standard      Drying Time   : 10.0 sec   Suction  : Standard
Cut Method  : ThickPaperFast Eject Roller  : RollCurled M/W Adj. :
Standard
Ppr Thick.  : 0.2mm         Ppr Feed Adj. : -0.70 %
Paper No.4
Custom Name : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Platen Gap  : Standard      Drying Time   : 10.0 sec   Suction  : Standard
Cut Method  : ThickPaperFast Eject Roller  : RollCurled M/W Adj. :
Standard
Ppr Thick.  : 0.2mm         Ppr Feed Adj. : -0.70 %
Paper No.5
Custom Name : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Platen Gap  : Standard      Drying Time   : 10.0 sec   Suction  : Standard
Cut Method  : ThickPaperFast Eject Roller  : RollCurled M/W Adj. :
Standard
Ppr Thick.  : 0.2mm         Ppr Feed Adj. : -0.70 %
Paper No.6
Custom Name : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Platen Gap  : Standard      Drying Time   : 10.0 sec   Suction  : Standard
Cut Method  : ThickPaperFast Eject Roller  : RollCurled M/W Adj. :
Standard
Ppr Thick.  : 0.2mm         Ppr Feed Adj. : -0.70 %
Paper No.7
Custom Name : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Platen Gap  : Standard      Drying Time   : 10.0 sec   Suction  : Standard
Cut Method  : ThickPaperFast Eject Roller  : RollCurled M/W Adj. :
Standard
Ppr Thick.  : 0.2mm         Ppr Feed Adj. : -0.70 %
Paper No.8
Custom Name : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Platen Gap  : Standard      Drying Time   : 10.0 sec   Suction  : Standard
Cut Method  : ThickPaperFast Eject Roller  : RollCurled M/W Adj. :
Standard
Ppr Thick.  : 0.2mm         Ppr Feed Adj. : -0.70 %
Paper No.9
Custom Name : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Platen Gap  : Standard      Drying Time   : 10.0 sec   Suction  : Standard
Cut Method  : ThickPaperFast Eject Roller  : RollCurled M/W Adj. :
Standard
Ppr Thick.  : 0.2mm         Ppr Feed Adj. : -0.70 %
Paper No.10
Custom Name : XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
Platen Gap  : Standard      Drying Time   : 10.0 sec   Suction  : Standard
Cut Method  : ThickPaperFast Eject Roller  : RollCurled M/W Adj. :
Standard
Ppr Thick.  : 0.2mm         Ppr Feed Adj. : -0.70 %
```

Figure 1-21. User Paper Setting Printing

1.4.4.23 Firmware Version

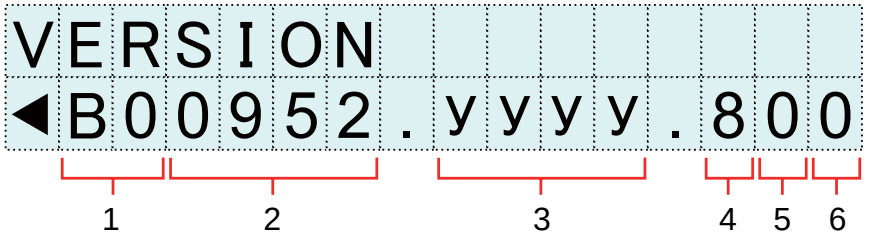
Firmware version is displayed as following;

☐ Stylus Pro 4400/4800



No.	Description
1	Assigns special specification version. "A0" is normally displayed.
2	Firmware version (4 letters)
3	Displays the following; When the printer is Stylus Pro 4800: 8 When the printer is Stylus Pro 4400: 4
4	When the function is effective for business systems, "1" to "F" are displayed according to the calculation result obtained form the following printer conditions. ■ bit0: Graphic printing control function status 0: When Graphic printing control function is invalid 1: When Graphic printing control function is effective ■ bit1: Credit function status 0: When Credit function is invalid 1: When Credit function is effective ■ bit2: Credit counter status 0: When the number of Credit is 0 or Credit function is OFF 1: When the number of Credit is 1 or more with Credit function ON ■ bit3: Reserved
5	Displays a custom number when custom action is specified in special setting, and displays "0" when custom action is not specified.

☐ Stylus Pro 4450/4880/4880C



No.	Description
1	Assigns special specification version. "A0" is normally displayed.
2	Firmware version (4 letters)
3	Network firmware version
4	Displays the following; When the printer is Stylus Pro 4880/4880C: 8 When the printer is Stylus Pro 4450: 4
5	When the function is effective for business systems, "1" to "F" are displayed according to the calculation result obtained form the following printer conditions. ■ bit0: Graphic printing control function status 0: When Graphic printing control function is invalid 1: When Graphic printing control function is effective ■ bit1: Credit function status 0: When Credit function is invalid 1: When Credit function is effective ■ bit2: Credit counter status 0: When the number of Credit is 0 or Credit function is OFF 1: When the number of Credit is 1 or more with Credit function ON ■ bit3: Reserved
6	Displays a custom number when custom action is specified in special setting, and displays "0" when custom action is not specified.

1.4.4.24 Printable Pages per Ink Cartridge

Printable sheets (estimation) of current installed ink cartridges are displayed per ink cartridge.

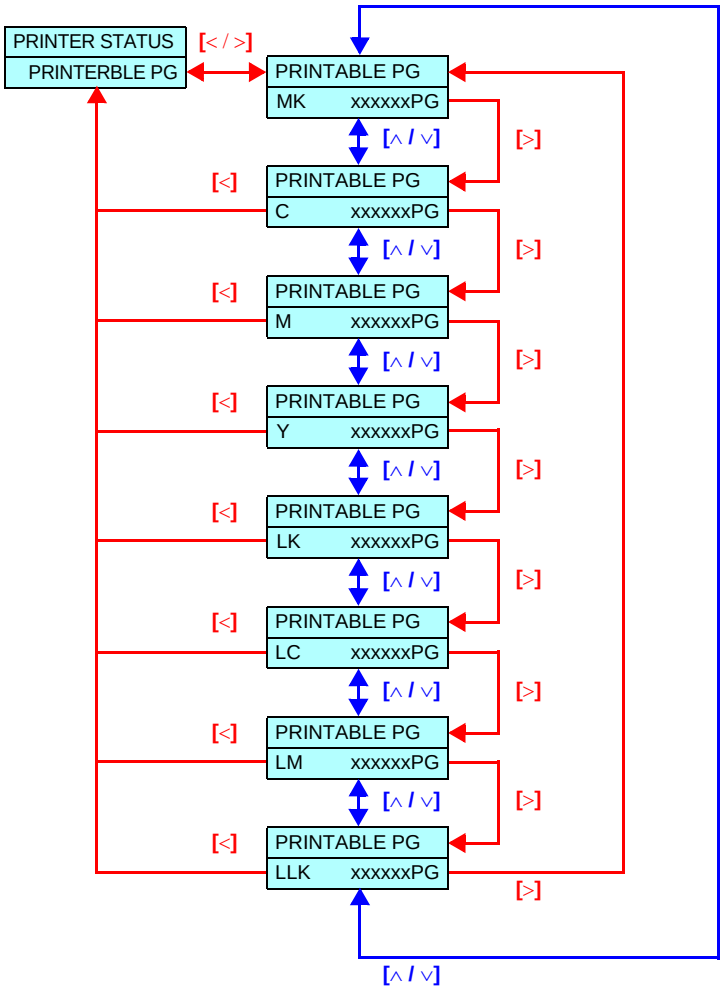
The formula is following;

Printable sheets = ink remain after print / ink used

Note 1: Printable pages within IR command range are calculated and displayed.

2: When there is no value to be displayed, the panel displays "---".

☐ Level structure of printable pages per ink cartridge menu



Note : Displays only for 4 cartridges (MK/CM/Y) for 4-color model.

1.4.4.25 Ink Remaining

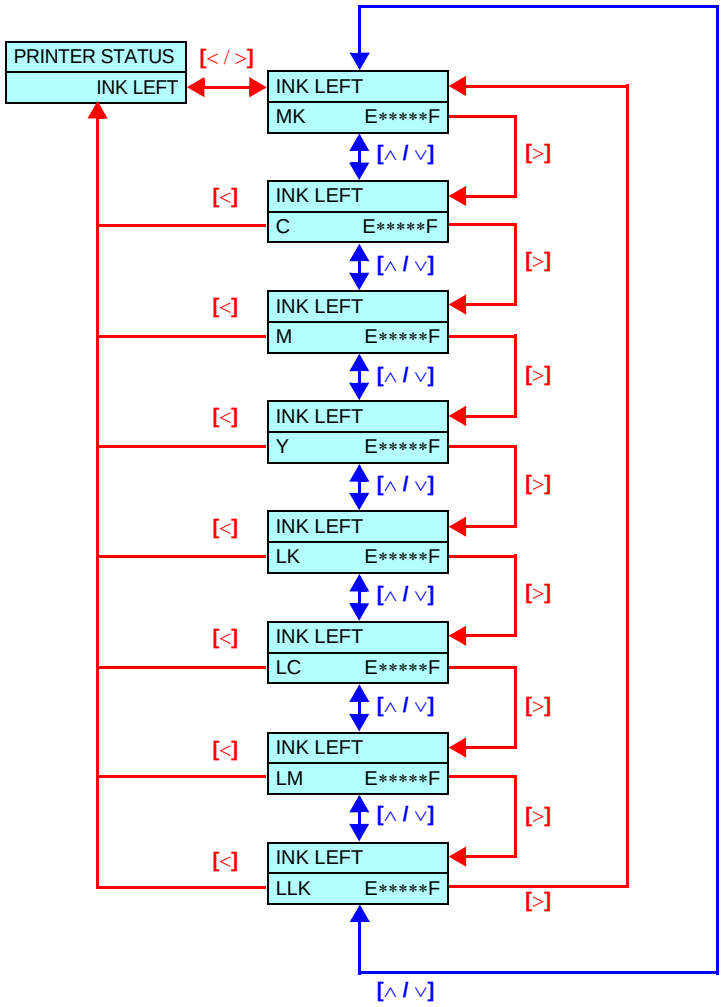
Table 1-31. Ink Remaining

Ink remaining	Panel display	Ink check LED
100 ~ 81% remaining	E*****F	OFF
80 ~ 61% remaining	E**** F	OFF
60 ~ 41% remaining	E*** F	OFF
40 ~ 21% remaining	E** F	OFF
20% ~ just before near end	E* F	OFF
After near end ~ just before ink out	nn%	Blink
Ink out	0%	ON

Note 1: After ink remaining is near end, the ink remaining is displayed with % on the panel. 0% is displayed on the panel for ink out.

2: When initial filling is done by user after the package opened, ink consumption for initial filling is subtracted, and ink remaining of each ink cartridge is displayed as 100%. Ink use count is started at that time.

☐ Level structure of remaining ink display



Note : 4Displays only for 4 cartridges (MK/CM/Y) for 4-color model.

1.4.4.26 Maintenance Tank Count

☐ Calculate method
Current available rate of maintenance tank is displayed.
(Total capacity 1300g)

☐ Display

Table 1-32.

Available rate	Panel display	Ink check LED
100~81%	E*****F	OFF
80~61%	E**** F	OFF
60~41%	E*** F	OFF
40~21%	E** F	OFF
20~10%	E* F	OFF
10%or less	nn%	Blink
0%	0%	OFF

☐ Counter clear
It is cleared by replacing maintenance tank.

1.4.4.27 Consumption Counter

☐ Ink usage counter
Ink used with following operations is accumulated and displayed in ml.

- Print operation (whether print completed/interrupted or not)
- All flushing operation
- All cleaning operation

NOTE 1: *Ink used within IR command range is accumulated.*
2: *When there is no value to be displayed, the panel displays "---".*

☐ Paper usage counter
Paper used (paper fed) with print operation is accumulated and displayed in centimeter.
Manual paper feeding is not counted.

NOTE 1: *Paper used within JS ~ JE command range is accumulated and displayed.*
2: *When there is no value to be displayed, the panel displays "---".*

1.4.4.28 Clear consumption counter

☐ Clear ink usage counter
Reset "Ink usage counter" to 0.

☐ Clear paper usage counter
Reset "Paper usage counter" to 0.

1.4.4.29 Job History Display

☐ Job No.
It is a Job number saved in the printer. The latest job is No.0.

☐ Paper usage
Paper usage (vertical x horizontal = m^2) of each job is displayed.

NOTE: *Paper usage is counted and displayed within JS command to JE command.*

☐ Ink usage
Ink usage of each job is displayed.

NOTE 1: *Ink usage is counted and displayed within IR command range or it is counted and displayed within JS command to JE command.*
2: *When IR command or JS/JE command is not set, ink usage is not counted, and displayed value is not changed.*
3: *When there is no value to display, "---" is displayed.*

1.4.4.30 Clear Job History

With this menu, job history saved in the printer is cleared.
Ink usage and paper usage of job history are displayed "---".

1.4.4.31 Total Print Pages

Total prints are displayed in decimal. (Max. 6 figures)

1.4.4.32 Consumable Life

☐ Cutter life

■ Calculate method
Counter that is calculated by accumulating total of cutter used is initialized by cutter replacement operation.

■ Display (Life)

100 ~ 81%	E*****	F
80 ~ 61%	E****	F
60 ~ 41%	E***	F
40 ~ 21%	E**	F
20% ~ 1%	E*	F
Less than 1% remaining	E	F

■ Maintenance call
Does not occur to following reasons.
- Progression of wear-out is figured out by cut result.
- Serious failure does not occur.
- User can easily replace.

■ Fatal error
Does not occur.

■ Counter clear
Cleared by cutter replacement.

CHECK POINT

According to the status of user usage, this value will not be the correct value. Specify this value should be used as target.

☐ CR motor life

■ Calculate method
CR motor life is almost same as supply tube life (for A2 width) and is severely impacted by abrasion and failure of supply tube. Therefore it is indicated by supply tube life. Supply tube life is defined by amount of to and fro, so it is calculated by accumulation of CR to and fro times.

■ Display (Life)

100 ~ 81%	E*****	F
80 ~ 61%	E****	F
60 ~ 41%	E***	F
40 ~ 21%	E**	F
20% ~ 1%	E*	F
Less than 1% remaining	E	F

■ Maintenance call
Life is less than 4%.

■ Fatal error
Considering tube damage, when life reaches to 0, service call occurs.

■ Counter clear
It is cleared by executing ""CR Motor life accumulation counter ""CR Motor initialization" in special setting "Counter initialization menu".

CHECK POINT

These values are intended to assist service personnel only. Do not explain the meaning of the display to users.

☐ PF motor life

- Calculate method
  There are no parts that need to be replaced within product life period of PF motor and paper feed mechanical drive system. Therefore it is used as failure diagnosis when used over product life. Display life by accumulating distance of PF operation when printing.
- Display (Life)

100 ~ 81%	E*****F	
80 ~ 61%	E****	F
60 ~ 41%	E***	F
40 ~ 21%	E**	F
20% ~ 1%	E*	F
Less than 1% remaining	E	F

- Maintenance call
  It does not occur for it is not the target of service in product life.
- Fatal error
  It does not occur for failure mode is not fatal.
- Counter clear
  It is cleared by executing "PF Motor life accumulation counter""PF Motor initialization" in special setting "Counter initialization menu".
- Continuity of counter
  If the life reaches to 0%, counter continues to count amount of full figure as register of 32 bits and stop count up at maximum positive number.

CHECK POINT

These values are intended to assist service personnel only. Do not explain the meaning of the display to users.

☐ Head unit life

- Calculate method
  It is calculated by accumulating amount of injection shots of each color, amount of assured injection shots per nozzle x 180 nozzles, and finally calculated as amount of maximum accumulative shots within each color. Accumulate value of 2^{20} shots per page print.
- Display (Life)

100 ~ 81%	E*****F	
80 ~ 61%	E****	F
60 ~ 41%	E***	F
40 ~ 21%	E**	F
20% ~ 1%	E*	F
Less than 1% remaining	E	F

- Maintenance call
  Does not occur.
- Fatal error
  Does not occur as head unit.
- Counter clear
  It is cleared by executing "Head unit life accumulation counter ""Head unit initialization" in special setting "Counter initialization menu".
- Continuity of counter
  If the life reaches to 0%, counter continues to count amount of full figure as register of 32 bits and stop count up at maximum positive number.

CHECK POINT

These values are intended to assist service personnel only. Do not explain the meaning of the display to users.

☐ Cleaning unit life

- Calculate method
  Cleaning unit life is judged by pomp motor life. When in service, replace cap assembly, pomp assembly, flashing box, and wiper at the same time.
- Display (Life)

100 ~ 81%	E*****F
80 ~ 61%	E**** F
60 ~ 41%	E*** F
40 ~ 21%	E** F
20% ~ 1%	E* F
Less than 1% remaining	E F

- Maintenance call
  Life is less than 4%.
- Fatal error
  When life reaches to 0, service call occurs.
- Counter clear
  It is cleared by executing "Cleaning unit accumulation counter ""Cleaning unit initialization" in special setting "Counter initialization menu".
- Count continuance
  If the life reaches to 0%, counter continues to count amount of full figure as register of 32 bits and stop count up at maximum positive number.

These values are intended to assist service personnel only. Do not explain the meaning of the display to users.

1.4.4.33 User Paper Setting

Selecting this mode allows detection or input of the thickness of the available paper, and registration of the following setting item as up to ten user-defined paper.
Also this function is able to refer to, register, delete, and set at "EPSON LFP Remote Panel".

☐ Setting

1. Select user paper setting menu from the panel.
2. Select the paper number ("STD", "1" ~ "10")
3. Enter PG position.
4. Print the paper thickness detection pattern
   (Does not print when STD is selected.)
5. Check the printed patterns and select the number of the pattern with the least displacement.
6. Select cutting method.
7. Enter paper feed adjustment value.
8. Select eject paper roller.
9. Enter the ink drying time for each pass.
10. Select paper suction.
11. Select MW print quality adjustment.

NOTE ***1:*** *In despite of paper number, it is possible to set paper related setting independently.*

2: *For details of patterns, refer to "Paper Thickness Detection Pattern (p. 78)".*

3: *When "STD" is selected for paper number, above 3.-11. are not displayed on the panel.*

4: *When "STD" is selected for paper type, it cannot input to each setting items.*

5: *"PRINTING" is displayed during printing adjustment pattern.*

6: *The PG setting ("S" or "H") depends on the result of detection set paper by paper thickness sensor.*

☐ Paper setting and corresponding operation

Paper setup	Operation
Standard	When each setting item values are set by commands, it follows the command settings.
1 ~ 10	User defined paper is used and even if settings are set by commands, user setting value is used.

NOTE: When the paper setup is set to 1 to 10 , the setting (PG position) is prioritized and PG settings made using commands or printer setting menu are ignored. At this time, the PG settings are not displayed on the panel.

☐ Details of each setting items

Table 1-33. Details of each setting items

Setting	Operation	Setting value	
PG setting	Enter any PG position.	• SN m1 = 01h • Wider m2 = 01h (PG Big: 2.1mm) • Standardm2 = 03h (PG Little: 1.2mm)	• Widestm2 = 05h (PG Maximum: 2.6mm) • Wide m2 = 02h (PG Middle: 1.5mm) • Narrowm2 = 04h (PG Minimum: 0.7mm)
Cutting method	Cutting method is selected when cutting paper.	• SN m1 = 80h • Standardm2 = 03h*1m2 = 65h • Thick paper, Fastm2 = 01hm2 = 7Eh	• SN m1 = 81h • Thin paperm2 = 02hm2 = 49h • Thick paper, Slowm2 = 06hm2 = 65h
Paper feed adjustment	Paper feeding is adjusted. The setting value is operated as an absolute value.	• -0.7% <= ±0% <= 0.7%SN m1 = 04h • If -0.7%SN m2 = 1Fh	• If 0% SN m2 = 65h • If 0.7%SN m2 = ABh
Eject paper roller set	Select eject paper roller. If auto is selected, it is operated as cut sheet: sheet Star Wheel, roll paper: none	• SN m1 = 85h • SHEETm2 = 01h • ROLL NOMALm2 = 03h (None)	• AUTO m2 = 00h • ROLL CURLEDm2 = 02h
Ink drying time	Ink drying time for each pass is set. The carriage stops at the right/left sides of paper for setting time. (DR m1 = 40h)	0 sec. ~ 10000 mm/sec (unit 100mm/sec)*2 0000h ~ 01F4h	
Paper suction	Paper suction is set to make paper stable on the platen. Select "-1" for thin paper (film etc.), which is difficult to feed and lower the suction according to thickness rate.	• SN m1 = 05h • -1 m2 = 1Ah (50%) • -3 m2 = 06h (10%)	• Standardm2 = 33h (100%) • -2 m2 = 10h (30%) • -4 m2 = 04h (6%)
MW print adjustment	Micro weave mode is adjusted. When print speed has priority, lower the setting value. When quality has priority, raise the setting value.	Refer to *Table 1-34 "MW print adjustmen List"(p75)* for MW modes that can be selected by MW print adjustment.	

Note *1: Cutting Method setting items in the driver are slightly different from that of the panel default setting. The driver settings are as follows.

"Cut Method"	:SN m1=80h(Cut Method)	SN m1=81h(Cut Pressure)
Standard	:m2=00h(Printer Table)	m2=00h(Printer Table)
Thin Paper	:m2=02h(Half-speed star wheel)m2=49h (Duty:70%300gf)	
Thick Paper,Fast	:m2=01h(Standard 2 levels)m2=7Eh (Duty:125% 700gf)	
Thick Paper,Slow	:m2=06h(Low-speed star wheel)m2=65h (Duty:100% 500gf)	

*2: EX1B command is transmitted and registered in the media table in increments of 1msec. Inputting in increments of 100 msec is available when using the panel or utility. The setting value is displayed in increments of 100 msec rounding off fractions.

Note 1: Value set by EX 1B command is similar to the above parameters.

2: If value other than parameters above or value out of range is set by EX 1B command, set by replacing with values below.

- PG setting : Standard: m2=03h (PG Little – 1.2mm)
- Cutting method : Standard m2=03h m2=49h
- Paper feed adjustment : 0% SN m2=65h
- Eject paper roller set : AUTO m2=00h
- Ink drying time : 0 sec.
- Paper suction : Standard m2=33h (100%)
- MW print adjustment: n2:00h

☐ Print quality setup values set by MW print adjustment.

Table 1-34. MW print adjustmen List

Mode	ESC(i		Raster resolution	Dot size	bit/pixel	OL	Print resolution	DS range	remarks	Panel setting	UNIT No	Mode ID				Restriced functions
	n1	n2	ESC(D	ESC (e								Colors	Horizontal resolution	Vertical resolution	No	
8colors	00h	-	360x180	VSD1/VSD2/ VSD3_N	2	DMW	360x180	-		Standard/1/2	10	8	360	180	0	
	00h	-	720x180	VSD3_HR	1	DMW	720x180	-		Standard/1/2	20	8	720	180	0	
	01h	10h	360x360	VSD1(ECO)	1	M/F	360x360	-	This setting is recommended for 360 x 360 M/F setting.	Standard/1/2	30	8	360	360	1	
	00h	00h	360x360	VSD1(ECO)	1	M/F	360x360	-	Provided for supporting drivers of conventional models.	Standard/1/2	30	8	360	360	1	
	01h	00h	360x360	VSD1	2	FD+36POL	360x360	-		Standard/1/2	40	8	360	360	0	
	01h	00h	360x720	VSD1	2	FD+21POL	360x720	-		Standard/1/2	50	8	360	720	0	
	01h	00h	720x360	VSD1	2	FOL+36POL	720x360	-		Standard/1/2	60	8	720	360	0	
	01h	00h	720x360	VSD2	2	FOL+36POL	720x360	-		Standard/1/2	70	8	720	360	0	
	01h	10h	720x720	VSD2	2	FOL+21POL	720x720	-		1	80	8	720	720	0	
	01h	00h	720x720	VSD2	2	FOL+48POL	720x720	0±3		Standard	81	8	720	720	1	
	01h	20h	720x720	VSD2	2	FOL+46POL	720x720	0±5		2	82	8	720	720	2	
	01h	00h	1440x720	VSD3_N	2	FOL+11POL	1440x720	-		Standard	90	8	1440	720	0	
	01h	10h	1440x720	VSD3_N	2	FOL+28POL	1440x720	-		1	91	8	1440	720	1	
	01h	20h	1440x720	VSD3_N	2	FOL+11POL	1440x720	-		2	92	8	1440	720	2	
	01h	30h	1440x720	VSD3_N	2	FOL+90POL	1440x720	-	Equivalent to 8pass	-	93	8	1440	720	3	
	01h	00h	2880x1440	VSD3_HR	1	FOL+6POL	2880x1440	-		Standard/1/2	A0	8	2880	1440	0	
	01h	00h	1440x1440	VSD3_N	2	FOL+6POL	1440x1440	-	The standard driver does not support this setting.	Standard/1/2	B0	8	1440	1440	0	Borderless is not available
	01h	00h	2880x2880	VSD3_HR	1	FOL	2880x2880	-	The standard driver does not support this setting.	Standard/1/2	C0	8	2880	2880	0	Borderless is not available Top & bottom margins are extended
	01h	10h	2880x2880	VSD3_HR	1	FOL	2880x2880	-	The standard driver does not support this setting. For monochrome only	Standard/1/2	C1	8	2880	2880	1	Borderless is not available Top & bottom margins are extended

Table 1-34. MW print adjustmen List

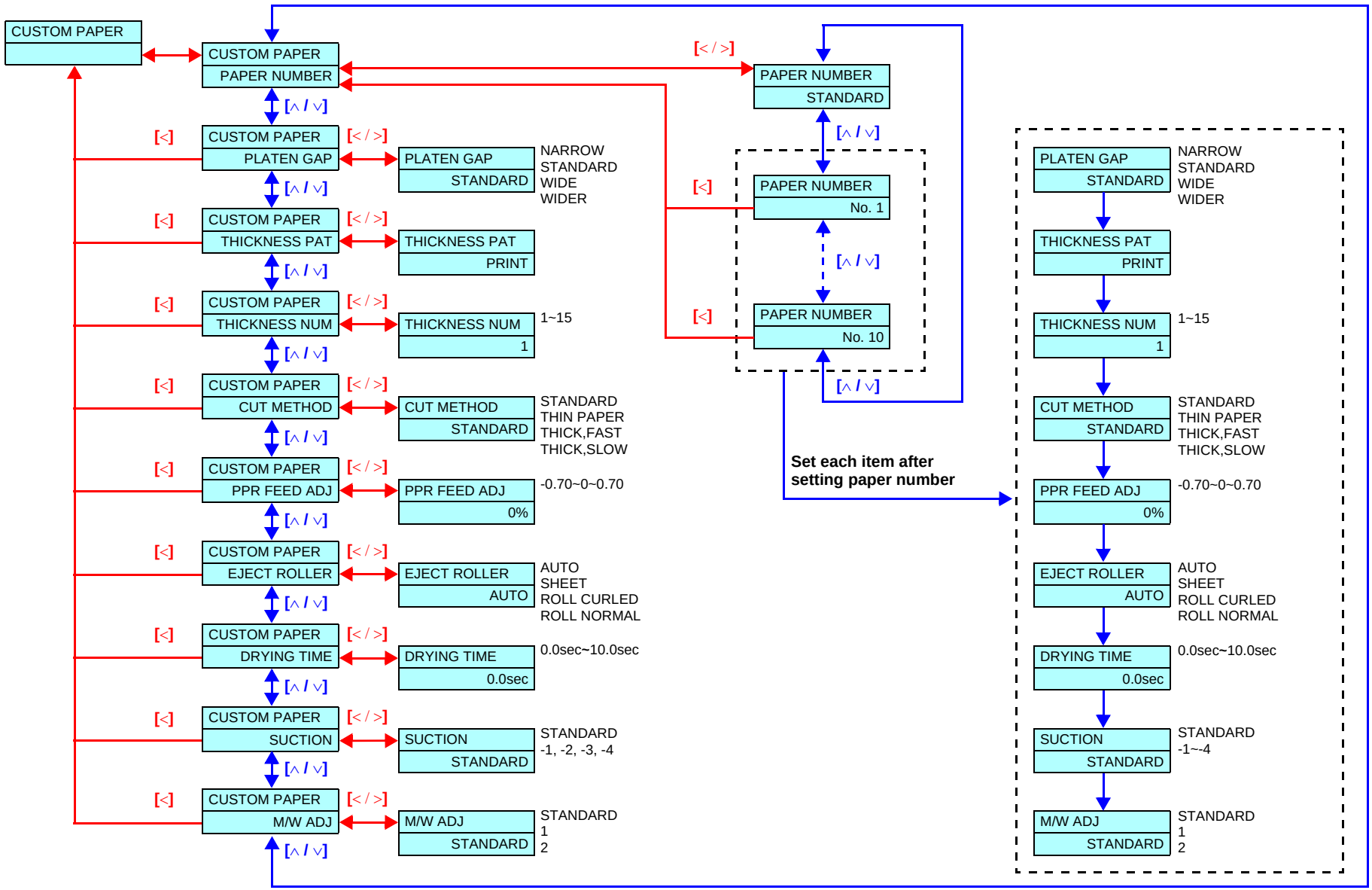
Mode	ESC(i		Raster resolution	Dot size	bit/pixel	OL	Print resolution	DS range	remarks	Panel setting	UNIT No	Mode ID				Restriced functions
	n1	n2	ESC(D	ESC (e								Colors	Horizontal resolution	Vertical resolution	No	
4colors	00h	-	360x180	VSD1/VSD2/ VSD3_N	2	DMW	360x180	-		Standard/1/2	10	4	360	180	0	
	00h	-	720x180	VSD3_HR	1	DMW	720x180	-		Standard/1/2	20	4	720	180	0	
	01h	10h	360x360	VSD1(ECO)	1	BAND	360x360	-	This setting is recommended for 360 x 360 M/F setting.	Standard/1/2	30	4	360	360	1	
	00h	00h	360x360	VSD1(ECO)	1	BAND	360x360	-	The standard driver does not support this setting.	Standard/1/2	30	4	360	360	1	
	01h	00h	360x360	VSD1	2	FD	360x360	-		Standard/1/2	40	4	360	360	0	
	01h	00h	360x720	VSD1	2	FD+72POL	360x720	-	H720 shift	Standard/1/2	50	4	360	720	0	
	01h	10h	360x720	VSD1	2	FD+72POL	360x720	-	For CAD lineal drawing	Standard/1/2	51	4	360	720	1	
	01h	10h	720x360	VSD2	2	FOL+117POL	720x360	-		1	70	4	720	360	0	
	01h	00h	720x360	VSD2	2	FD	720x360	-	Default setting for recovering from color banding	Standard	71	4	720	360	1	
	01h	20h	720x360	VSD2	2	FD+72POL	720x360	-	Setting for responding to claims.	2	72	4	720	360	2	
	01h	10h	720x720	VSD2	2	FOL+72POL	720x720	-		1	80	4	720	720	0	
	01h	20h	720x720	VSD2	2	FOL+146POL	720x720	0±4		2	81	4	720	720	1	
	01h	00h	720x720	VSD2	2	FOL+148POL	720x720	0±4		Standard	82	4	720	720	2	
	01h	10h	1440x720	VSD3_N	2	FOL+41POL	1440x720	-		1	90	4	1440	720	0	
	01h	00h	1440x720	VSD3_N	2	FOL+99POL	1440x720	-		Standard	91	4	1440	720	1	
	01h	20h	1440x720	VSD3_N	2	FOL+100POL	1440x720	-		2	92	4	1440	720	2	
	01h	30h	1440x720	VSD3_N	2	FOL+178POL	1440x720	-	Equivalent 8 pass	-	93	4	1440	720	3	

Note 1: If there is no appropriate setting listed in the table, use M/F or VSD1 of BAND setting.

2: About dot control specification: When specifying any one of the following dot settings, specify raster data in binary.

Dot Name	Displacement Dot
MicroDot	VSD2-M
NormalDot	VSD2-L
NormalDot2 VSD1(ECO)	VSD1-L

☐ Level structure of user paper menu



☐ Paper Thickness Detection Pattern

■ Print Specification

Head speed	240 cps
Pattern height	64 dots
Dot size	VSD2 Large
Color	Black
Print direction	Uni-D
Pattern interval	Upper patterns: Equal intervals Lower patterns: Centered on base position for gap adjustment value, and displaced by an equal distance left and right. Details are described in next clause.
Others	When printing starts from the edge of a media, media is forwarded 90 mm for roll paper and 50 mm for sheets before printing.

■ Relations between numbers in print pattern and paper thickness

Numbers in print pattern	1	2	3	...	...	15
Paper thickness (mm)	0.1	0.2	0.3	...	...	1.5

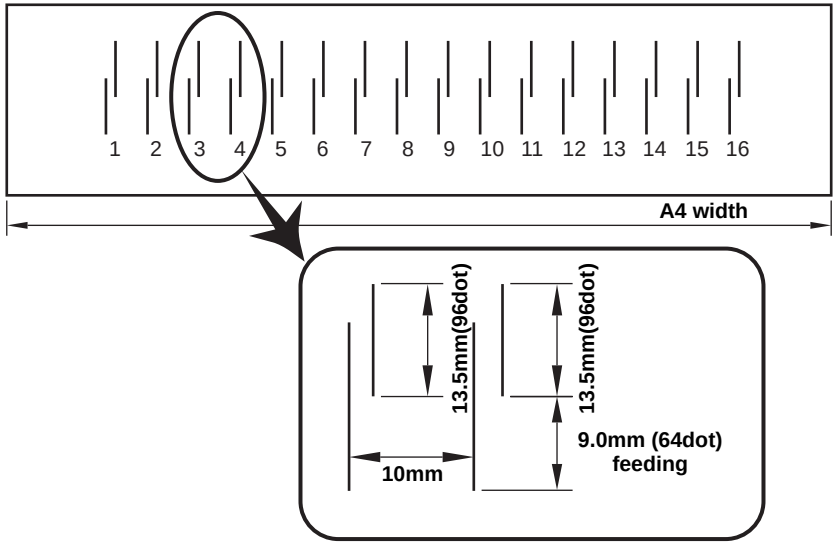


Figure 1-22. Paper Thickness Detection Pattern

■ Displacement of lower pattern

If the displacement in the gap adjustment value with a change of 0.1mm in paper thickness is assumed to be xx microns, the following applies.

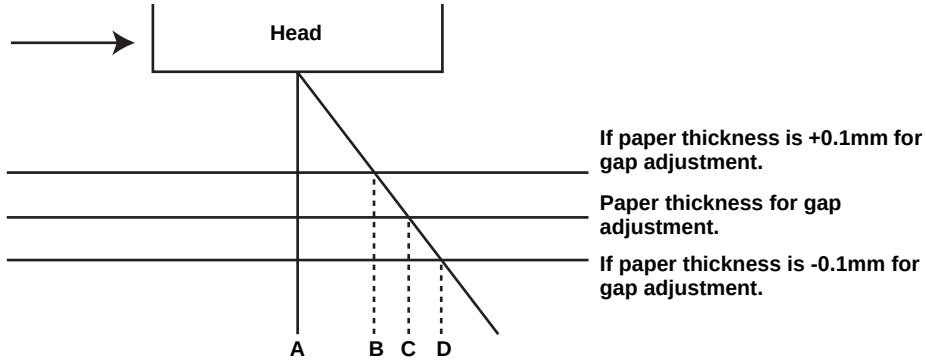


Figure 1-23. Displacement of Paper Thickness Detection Pattern

Note: AB : Gap adjustment value with paper thickness +0.1mm
AC: Current gap adjustment value
AD: Gap adjustment value with paper thickness -0.1mm

A fixed displacement is assumed with changes in paper thickness.
X = AC – AB = AD – AC

X reference value is 14.40 µm with 240CPS, VSD2.
This adjustment value is saved into NVRAM and can be changed.

Example: If paper thickness is 0.2mm for gap adjustment.

Pattern number	Displacement of bottom pattern relative to top pattern	Pattern number	Displacement of bottom pattern relative to top pattern
1	+2X	9	–6X
2	+1X	10	–7X
3	±0	11	–8X
4	–1X	12	–9X
5	–2X	13	–10X
6	–3X	14	–11X
7	–4X	15	–12X
8	–5X		

1.4.4.34 Cutter Blade Replacement

Selecting this mode allows the user to replace the cutter blade.
The procedure for cutter blade replacement is as follows:

1. Select the cutter replacement menu from the panel.
2. Open the cover by following cover open guide.
3. Replace the cutter blade by following cutter replacement guide.
4. Close the cover by following cover close guide.

NOTE: Replacing the cutter is not available when the printer condition falls under any one of the following conditions. An error message”UNABLE TO EXECUTE”will be displayed.

- Ink end
- The model number of the installed ink cartridge is different.
- CSIC contact error
- Ink cartridge failure
- No ink cartridge
- Thick paper is loaded.

1.4.4.35 K Ink Replacement

This menu is provided only for the 8-color model to replace PhotoBlack and MatteBlack cartridges interchangeably. The 4-color model does not display the menu, however, replacing the MatteBlack with PhotoBlack is available and a replacement confirmation message is displayed.

1.4.4.36 Power Cleaning

With this mode, the printer has more powerful cleaning than normal cleaning. When executing power cleaning, ink lever operation is accompanied in order to execute chalk cleaning.

1.4.4.37 Date Setting

Selecting this mode allows setting the current time. Absolute control time offered by RTC power source in inner printer controls time difference set here relatively. It is a function that covers time differences of each destination.
This time set by this setting will be shown by Job Information Print.

1.4.4.38 Gap Adjustment (Bi-D Adjustment, Uni-D Adjustment)

Selecting this mode allows the user to adjust Bi-D and Uni-D depending on paper thickness.
If it is performed auto by the menu, after pattern is printed and detected, adjustment setting is set automatically.

☐ Setting

1. Set the paper.
2. Select the gap adjustment menu from the panel.
3. Set to "STD" for paper thickness of EPSON paper is 0.2mm or 1.2mm. When setting other paper individually, set thickness in units of 0.1mm.
4. Select auto or manual.
5. Select the adjustment pattern to be printed (Bi-D Black*, Bi-D all or uni-between 6-row), and print. ("PRINTING" is displayed.)
6. Check the printed adjustment patterns and enters the number of the pattern with the least displacement for each adjustment item.
7. Repeat (5) ~ (6) until adjustment of all items is completed.

Note *: The 8-color model displays Bi-D Black but the 4-color model displays Bi-D Cyan. When executing the automatic adjustment, the pattern is printed in Bi-D 2 colors.

NOTE: *For details of patterns, refer to "Gap Adjustment Print Pattern (p. 82)".*

☐ Adjustment

The adjustment values set above are saved in NVRAM as 4 types of adjustment value depending on PG height (0.7mm/1.2mm/1.5mm/2.1mm/2.6mm). To calculate adjustment value, PG height and paper thickness are necessary. Saving place of adjustment value is selected as following list. Adjustment value saved in NVRAM is updated when the value is adjusted again.

Paper thickness sensor	Paper thickness setting	PG setting	Saving place	Notes
Less than 0.8mm	STD	--	For PG 1.2mm	*1
More than 0.8mm		--	For PG 2.6mm	
Less than 0.3mm	0.1~0.8mm	Narrow	For PG 0.7mm	
		Standard	For PG 1.2mm	
		Wide	For PG 1.5mm	
		Wider	For PG 2.1mm	
		Widest	For PG 2.6mm	
	0.9~1.5mm	--	For PG 2.6mm	*2
More than 0.3mm Less than 0.8mm	0.1~0.8mm	Narrow	For PG 1.2mm	
		Standard	For PG 1.2mm	
		Wide	For PG 1.5mm	
		Wider	For PG 2.1mm	
		Widest	For PG 2.6mm	
	0.9~1.5mm	--	For PG 2.6mm	*2
More than0.8mm	0.0~1.5mm	--	For PG 2.6mm	*3

Note *1: For the other PG settings (for 0.7/2.1/2.6), overwrite the values adding a offset value if the set value in the user area and the default values are the completely same with each other. If the PG setting differs in any one of eight colors, do not overwrite the current settings because the difference means that the user has changed the setting.

*2: Even when paper thickness sensor detects thin paper (less than 0.8mm), PG is set as 2.6mm if paper thickness setting is more than 0.7mm.

*3: When paper thickness sensor detects thick paper (more than 0.8mm), PG is set as 2.6mm regardless of PG setting and paper thickness setting.

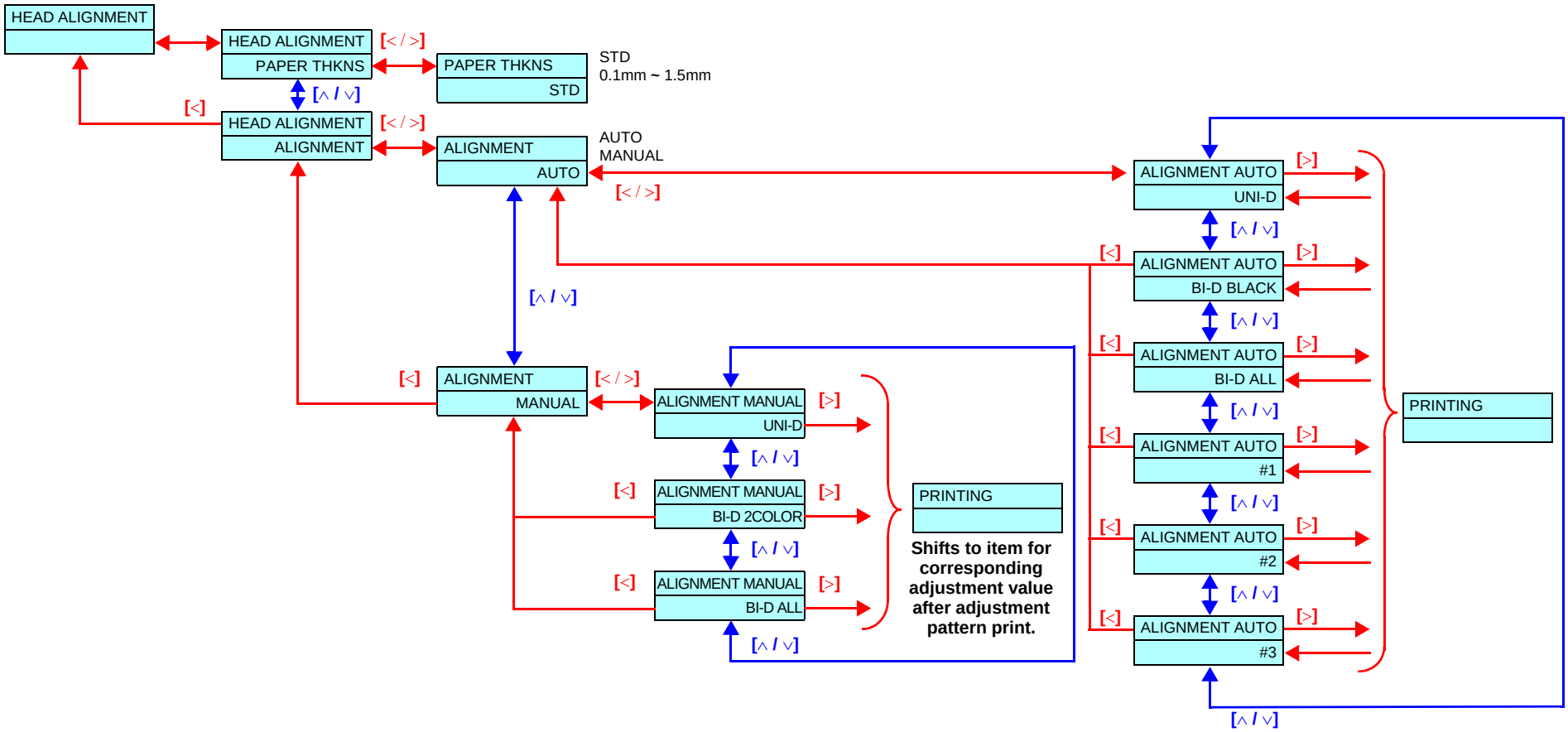
Note 1: It is saved into saving place for paper thickness 0.0mm.

2: It is saved into saving place for paper thickness 0.3mm.

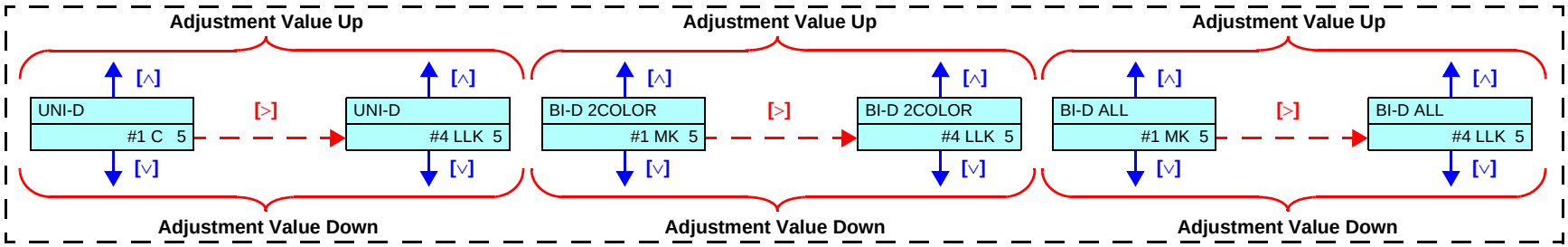
3: Paper thickness is saved to adjust paper thickness by 0.1mm unit for paper thickness setting command PH.

4: Paper thickness is firstly entered to print the closest pattern print of adjustment value saved in the printer from the first time and reduce operation.

■ Level structure of gap adjustment menu



Adjustment Value Items



☐ Gap Adjustment Print Pattern

■ Print specifications
Print specifications of gap adjustment print pattern

Adjustment pattern height	Bi-D Black (#1, #2, #3)
	Bi-D All (#1, #2, #3)
	Uni-D All (#1, #2, #3)
	AUTO Bi-D BLACK(#1, #2, #3)
	AUTO Bi-D ALL(#1, #2, #3)
	AUTO Uni-D ALL(#1, #2, #3)
Others	When it prints from paper edge, it feeds 100mm for roll paper, 50mm for sheet, and starts printing.

■ Each adjustment item

Table 1-35. Each adjustment item

Adjusting item	Adjusting type	Parameter	
		Head speed (CPS)	Dot size
Bi-D	#1	320	VSD1 (Bar Large/Block Small)
	#2	240	VSD2 (Bar Large/Block Large)
	#3	240	VSD3 (Bar Large/Block Large)
Uni-D	#1	320	VSD1 (Large)
	#2	240	VSD2 (Large)
	#3	240	VSD3 (Large)

■ Adjustment pattern printing of each adjustment item

Print pattern	9 patterns (per 1 set)
Print direction	Bar Going back and forth every 4dot Block Upper patterns: Leftward Lower patterns: Rightward
Pattern interval	Leftward : equal interval Rightward : Print No.5 to be always current setup value. Position is shifted in fixed quantities, with No. 5 as the standard.

■ The relationship between print pattern and adjustment gap is shown below.

Print pattern number	1	2	3	4	5	6	7	8	9
Adjustment gap N/1440 inch (VSD1, VSD2)	–4	–3	–2	–1	0	+1	+2	+3	+4

1.4.5 Maintenance Mode 1

OUTLINE

☐ Startup

The maintenance mode 1 is displayed by switching power ON while pushing the [Pause] button.

☐ Operation

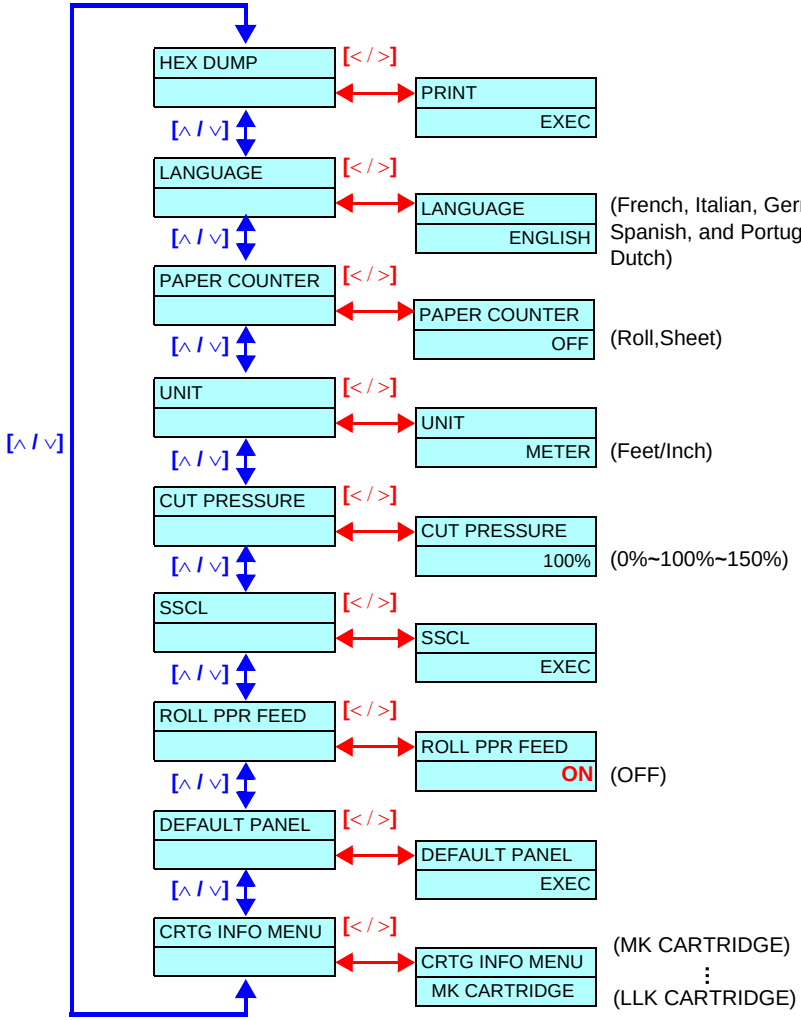
1. The setting menu select mode is selected after power ON.
2. Each setting menu is displayed one after another by pushing [Paper Feed] buttons in the setting menu select mode. It is shifted to setting item select menu by pushing [Menu / Cleaning] button.
   "Setting menu" is displayed on the upper line, and "Setting item" is displayed on the lower line.
3. The setting menu is displayed one after another by pushing [Paper Feed] buttons in the setting item select mode. It is shifted to setting value select mode of the setting item by pushing [Menu / Cleaning] button.
   "Setting item" is displayed on the upper line, and "Setting value" is displayed on the lower line. The "*" represents the current setup value.
4. Setting value is displayed on the lower line one after another by pushing [Paper Feed] buttons in the setting value select mode if the setting value can be changed. The "*" represents the current setup value.
5. When the [Menu / Cleaning] button is pushed in the setting value select mode, the displayed setting value is entered as the current setting value and registered. If it has a corresponded operation, it is started. No operation occurs if "*" is already displayed.
6. It returns to the setting item select menu by pushing [Paper Source] button in the setting value select mode. It returns to the setting menu select mode by pushing [Paper Source] button in the setting item select menu.

☐ Termination

1. The printer is ready for printing following reset after selecting the panel display language setting.
2. Switch power OFF → ON.

☐ Panel display

Character strings on the second line in "Panel display" are displayed on the second line of LCD panel. Setup values are displayed in the second line of LCD panel.



Note *1: The 4-color model does not display LK, LC, LM, and LLK.

AINTENANCE MODE 1 SETUP ITEMS

Table 1-36. Maintenance Mode 1 Setup Items

Top menu	Panel display	Item menu 1 (Panel display)	Item menu 2 (Panel display)	Setup value
Print hexadecimal dump	HEX DUMP	- (-)	- (PRINT)	EXEC *1
Panel display language select	LANGUAGE	- (-)	- (-)	**English**, French, Italian, German, Spanish, Portuguese, and Dutch
REMAINING PAPER DISPLAY SETTING	PAPER COUNTER	- (-)	- (-)	**OFF**, Roll,Sheet
Unit switching	UNIT	- (-)	- (-)	**METER**, FEET/INCH
Cut pressure	CUT PRESSURE	- (-)	- (-)	0% ~ **100%** ~ 150%
SSCL	SSCL	- (-)	- (-)	EXEC
PAPER FEED SETTING	ROLL PPR FEED	- (-)	- (-)	ON,**OFF**
Panel Setting Initialization	DEFAULT PANEL	- (-)	- (-)	EXEC

Table 1-36. Maintenance Mode 1 Setup Items

Top menu	Panel display	Item menu 1 (Panel display)	Item menu 2 (Panel display)	Setup value
Ink information menu	CRTG INFO MENU	Ink information (MK CARTRIDGE) or (PK CARTRIDGE)	Manufacture logo (MANUFACT MK)	EPSON
			Ink color (CARTRIDGE MK)	Matte Black
			Ink type (INK TYPE MK)	PIGMENT, DYE
			Ink capacity (INK CAP MK)	110ml/220ml
			Ink remaining (INK LEFT-MK)	E*****F, E**** F, E*** F, E** F, E* F, E F
			Product date (PROD DATE MK)	<YY>/<MM>
			Expire date (EXPIR DATE MK)	<YY>/<MM>
			Ink life after open (INK LIFE MK)	<MM> Month
			Passed time after open (AGE MK)	<MM> Month

Table 1-36. Maintenance Mode 1 Setup Items

Top menu	Panel display	Item menu 1 (Panel display)	Item menu 2 (Panel display)	Setup value
Ink information menu	CRTG INFO MENU	Ink information (C CARTRIDGE)	Manufacture logo (MANUFACT C)	EPSON
			Ink color (CARTRIDGE C)	Cyan
			Ink type (INK TYPE C)	PIGMENT, DYE
			Ink capacity (INK CAP C)	110ml/220ml
			Ink remaining (INK LEFT-C)	E*****F, E**** F, E*** F, E** F, E* F, E F
			Product date (PROD DATE C)	<YY>/<MM>
			Expire date (EXPIR DATE C)	<YY>/<MM>
			Ink life after open (INK LIFE C)	<MM> Month
			Passed time after open (AGE C)	<MM> Month
		Ink information (M CARTRIDGE)	Manufacture logo (MANUFACT M)	EPSON
			Ink color (CARTRIDGE M)	Magenta
			Ink type (INK TYPE M)	PIGMENT, DYE
			Ink capacity (INK CAP M)	110ml/220ml
			Ink remaining (INK LEFT-M)	E*****F, E**** F, E*** F, E** F, E* F, E F
			Product date (PROD DATE M)	<YY>/<MM>
			Expire date (EXPIR DATE M)	<YY>/<MM>
			Ink life after open (INK LIFE M)	<MM> Month
			Passed time after open (AGE M)	<MM> Month

Table 1-36. Maintenance Mode 1 Setup Items

Top menu	Panel display	Item menu 1 (Panel display)	Item menu 2 (Panel display)	Setup value
Ink information menu	CRTG INFO MENU	Ink information (Y CARTRIDGE)	Manufacture logo (MANUFACT Y)	EPSON
			Ink color (CARTRIDGE Y)	Yellow
			Ink type (INK TYPE Y)	PIGMENT, DYE
			Ink capacity (INK CAP Y)	110ml/220ml
			Ink remaining (INK LEFT-Y)	E*****F, E**** F, E*** F, E** F, E* F, E F
			Product date (PROD DATE Y)	<YY>/<MM>
			Expire date (EXPIR DATE Y)	<YY>/<MM>
			Ink life after open (INK LIFE Y)	<MM> Month
			Passed time after open (AGE Y)	<MM> Month
		Ink information (LK CARTRIDGE)	Manufacture logo (MANUFACT LK)	EPSON
			Ink color (CARTRIDGE LK)	Light Black
			Ink type (INK TYPE LK)	PIGMENT, DYE
			Ink capacity (INK CAP LK)	110ml/220ml
			Ink remaining (INK LEFT-LK)	E*****F, E**** F, E*** F, E** F, E* F, E F
			Product date (PROD DATE LK)	<YY>/<MM>
			Expire date (EXPIR DATE LK)	<YY>/<MM>
			Ink life after open (INK LIFE LK)	<MM> Month
			Passed time after open (AGE LK)	<MM> Month

Table 1-36. Maintenance Mode 1 Setup Items

Top menu	Panel display	Item menu 1 (Panel display)	Item menu 2 (Panel display)	Setup value
Ink information menu	CRTG INFO MENU	Ink information (LC CARTRIDGE)	Manufacture logo (MANUFACT Lc)	EPSON
			Ink color (CARTRIDGE Lc)	Light Cyan
			Ink type (INK TYPE Lc)	PIGMENT, DYE
			Ink capacity (INK CAP Lc)	110ml/220ml
			Ink remaining (INK LEFT-Lc)	E*****F, E**** F, E*** F, E** F, E* F, E F
			Product date (PROD DATE Lc)	<YY>/<MM>
			Expire date (EXPIR DATE Lc)	<YY>/<MM>
			Ink life after open (INK LIFE Lc)	<MM> Month
			Passed time after open (AGE Lc)	<MM> Month
		Ink information (LM CARTRIDGE)	Manufacture logo (MANUFACT Lm)	EPSON
			Ink color (CARTRIDGE Lm)	Light Magenta
			Ink type (INK TYPE Lm)	PIGMENT, DYE
			Ink capacity (INK CAP Lm)	110ml/220ml
			Ink remaining (INK LEFT-Lm)	E*****F, E**** F, E*** F, E** F, E* F, E F
			Product date (PROD DATE Lm)	<YY>/<MM>
			Expire date (EXPIR DATE Lm)	<YY>/<MM>
			Ink life after open (INK LIFE Lm)	<MM> Month
			Passed time after open (AGE Lm)	<MM> Month

Table 1-36. Maintenance Mode 1 Setup Items

Top menu	Panel display	Item menu 1 (Panel display)	Item menu 2 (Panel display)	Setup value
Ink information menu	CRTG INFO MENU	Ink information (LLK CARTRIDGE)	Manufacture logo (MANUFACT LLK)	EPSON
			Ink color (CARTRIDGE LLK)	Light Light Black
			Ink type (INK TYPE LLK)	PIGMENT, DYE
			Ink capacity (INK CAP LLK)	110ml/220ml
			Ink remaining (INK LEFT-LLK)	E*****F, E**** F, E*** F, E** F, E* F, E F
			Product date (PROD DATE LLK)	<YY>/<MM>
			Expire date (EXPIR DATE LLK)	<YY>/<MM>
			Ink life after open (INK LIFE LLK)	<MM> Month
			Passed time after open (AGE LLK)	<MM> Month

Note *1: When hexadecimal dump mode is executed, "PRINT" is displayed.

*2: For the 4-color model, ink infomation menu is displayed only for the 4 cartridges

HEXADECIMAL DUMP

The hex dump function allows data sent to the printer to be printed and displayed in hexadecimal format.
One line contains 16 data items in hexadecimal format, with the equivalent characters printed at the right of each line.
If no equipment characters exist (control codes, etc.), a period is printed.
It prints every 16 data.
It prints the last data by pressing the [Pause] button, when it is less than 16.
Panel setting is not available in the hex dump mode.
Using this function, users can check that data has been sent correctly from the computer to the printer.
To terminate this mode, stop printing by pressing [Pause] button and shut the power off.

PANEL DISPLAY LANGUAGE SELECTION

Users can select English, French, Italian, German, Spanish, and Portuguese for display on the LCD with this mode.

REMAINING PAPER DISPLAY SETTING

This mode allows users to set the remaining paper detection to OFF/ roll paper ON/ cut sheet ON. When the remaining paper detection is set to OFF, it is not displayed in the printer setting menu. When the remaining paper detection is set to roll paper ON/ cut sheet OFF, it is displayed.

NOTE: Roll paper and cut sheet cannot be set to ON simultaneously.

UNIT SWITCHING

Users can change length unit of LCD panel / pattern print with this mode.

- METER : meter (m)
- FEET/INCH : Feet (ft)/Inch (in)

Unit of following messages can be changed;

Table 1-37. Swithable Messages

Item		Message	
		Meter	Feet/Inch
Panel LCD display	Paper counter	xxm	xxft
	Remainig paper menu	xx.xm	xxxft
	Job information display (Paper used)	xxxxx.xcm	xxxxft xxin
Nozzle check pattern	Job information display (Paper used)	xxxxxxxcm^2	xxxxxx.xsqft
	Current Paper Count	xxxxx.xcm	xxxxft xxin
	Prev Paper Count	xxxxx.xcm	xxxxft xxin
Status sheet Job information print	Use Paper	xxxxxx.xcm	xxxxft xxin
	Paper Used (vertical)	xxxxxx.xcm	xxxxft xxin

Note : This function is available only for English.

CUTTING PRESSURE

Changes cutting pressure, which is set in the printer.
Adjustment value (calculated by spring balance / input value) in the process is set to 100% (printer default), input / setting range by the user is set to between 0% ~ 150%.
The value entered by this function is worked as absolute value of printer,
• Remote SN m1 = 81h
• Panel setting "User paper setting"
multiplied to the value specified above.

SUPERSONIC CLEANING (SSCL)

Users can execute supersonic cleaning using this mode. If the number of times that this cleaning is performed exceedes 250 times*, however, the printer runs CL3 instead.

Note *: This number will be reset by executing “Reset when printhead change“ after replacing printhead.

PAPER FEED SETTING

This mode allows users to set a certain amount of paper not to be fed when turning the printer on with cutter setting OFF, and this reduces waste of paper.

NOTE: When paper feed setting is set to on, the image will be printed on the platen. Users have to change the setting at their own responsibility.

PANEL SETTING INITIALIZATION

Users can change all setting values of panel setting mode to the default values or the factory setting values.

- Printer Setting Menu :Turns default setting back
- User Paper Setting :Deletes the setting record
- Gap Adjustment Menu :Turns default setting back
- Maintenance Menu :Date setting is set back to absolute time controlled by RTC power
- Printer Status Menu :Deletes all information

INK INFORMATION MENU

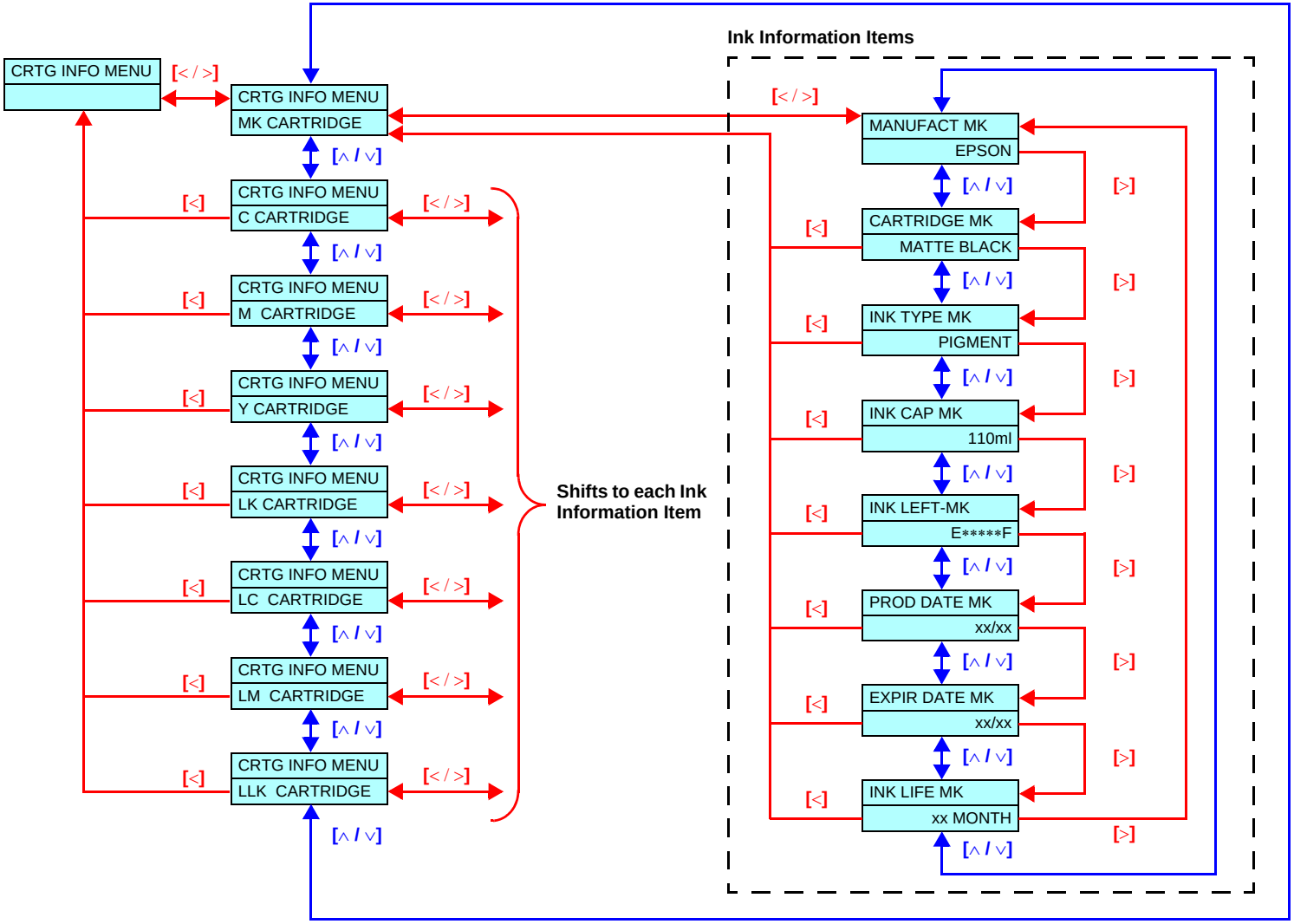
It displays ink information recorded in CSIC.

Table 1-38. Ink Information Menu

Item	Explanation
Manufacture logo	Manufacture information saved in CSIC of each ink cartridge is displayed.
Ink color	Ink color information saved in CSIC of each ink cartridge is displayed.
Ink type	Ink type information (dye/pigment) saved in CSIC of each ink cartridge is displayed.
Ink capacity	Ink capacity information saved in CSIC of each ink cartridge is displayed.
Ink remaining	Ink remaining of each ink cartridge is displayed.
Product date	Product date information saved in CSIC of each ink cartridge is displayed with <YY>/<MM> form.
Expire date	Ink expire date information saved in CSIC of each ink cartridge is displayed.
Ink life after open	Ink life information saved in CSIC of each ink cartridge is displayed.
Passed time after open	Passed time after opened of each ink cartridge is displayed.

Note : These are displayed every color (Matte Black ~ Light Black).

☐ Level structure of ink information menu



1.4.6 Maintenance Mode 2

This mode includes the following menus and is intended for use by a service engineer in maintaining the printer.

- ☐ Self Testing Menu (SELF TESTING) *(p91)*
- ☐ Counter Display Menu (VIEW COUNTERS) *(p101)*

NOTE: Special remote commands and factory setting commands can be receied, set or responded only when the printer is in the Maintenance Mode 2 displaying the mode's initial screen. Only special commands supported by the process adjustment tool are available. The operation print data, or firmware files.

CHECK POINT

Maintenance Mode 2 is intended to assist service personnel only.
Do not let the users to know about the mode.

STARTUP

The maintenance mode 2 is selected by switching power ON while pushing the [Paper Source (<)], [Paper Feed (∧)], [Paper Feed (∨)] and buttons.

OPERATION

1. The setting menu select mode is selected after power ON.
2. Each setting menu is displayed one after another by pushing [Paper Source (<)], [Paper Feed (∧)], [Paper Feed (∨)] buttons in the setting menu select mode. It is shifted to setting item select menu by pushing [Menu / Cleaning] button. "Setting menu" is displayed in the upper line, and "Setting item" is displayed in the lower line.
3. The setting menu is displayed one after another by pushing [Paper Feed] buttons once in the setting item select mode. It is shifted to setting value select mode of the setting item by pushing [Menu / Cleaning] button. "Setting item" is displayed in the upper line, and "Setting value" is displayed in the lower line. The "*" represents the current setup value.
4. Setting value is displayed in the lower line one after another by pushing [Paper Feed] buttons in the setting value select mode if the setting value can be changed. The "*" represents the current setup value.
5. When the [Menu / Cleaning] button is pushed in the setting value select mode, the displayed setting value is entered and registered as the current setting value. If it has a corresponded operation, it is started. No operation occurs if "*" is already displayed.
6. It returns to the setting item select menu by pushing [Paper Source] button in the setting value select mode. It returns to the setting menu select mode by pushing [Paper Source] button in the setting item select menu.

TERMINATION

Switch power OFF → ON.

PANEL DISPLAY

Character strings on the second line in "Panel display" are displayed in the second line of LCD panel. Setup values are displayed in the second line of LCD panel.

1.4.6.1 Self Testing Menu (SELF TESTING)

This self testing menu is mainly intended to adjustment the printer mechanism and determination any adjustment parameters in the firmware.

CHECK POINT

- **It is possible the adjustment program to perform the same functions.**
- **Ink cartridge and maintenance tank remaining are not detected while executing this menu. So check if the ink cartridge and maintenance tank remaining before the operation that is included discharging many ink.**
- **Reason for this menu is as common as other products, all displayed items include unusable items.**

Table 1-39. Self Testing Menu List

Top Menu		1st hierarchy		2nd hierarchy		3rd hierarchy	
Panel Display	Item	Panel Display	Item	Panel Display	Item	Panel Display	Item
TEST	Test	Version	Version	F/W	Firmware version display	---	---
				8K Main	NVRAMversion 8k Main	---	---
				8K Mecha	NVRAMversion 8k Mecha	---	---
				32K Main	NVRAMversion 32k Main	---	---
				32K Mecha	NVRAM version 32k Mecha	---	---
				DipSW	Dip switch status	---	---
		Panel	Panel	Key	Confirm key operation	---	---
				LCD	Confirm LCD	---	---
				LED	Confirm LED	---	---
		Sensor	Sensor	CR Origin	CR origin sensor	---	---
				Paper	Paper sensor	---	---
				Lever	Paper lever sensor	---	---
				HeadSlide	Head slide sensor	---	---
				Roll	Rol 1 sensor	---	---
				Roll2	Roll 2 sensor	---	---
				Pump	Pump sensor	---	---

Table 1-39. Self Testing Menu List

Top Menu		1st hierarchy		2nd hierarchy		3rd hierarchy	
Panel Display	Item	Panel Display	Item	Panel Display	Item	Panel Display	Item
TEST	Test	Sensor	Sensor	InkLvr	Left and right ink lever	---	---
				Cover	Front cover	---	---
				RearGuide	Rear cover	---	---
				Rear Det	Rear det	---	---
				POUT Det	Paper out	---	---
				P Det	P det	---	---
				MainteTank	Maintenance tank	---	---
				K/C/M/Y/k/c/m/y	Cartridge status	---	---
				EdgeAD	Edge AD	---	---
				Edge2AD	Edge AD2	---	---
				RearAD	Rear AD	---	---
				Head Temp	Head temperature	---	---
				Drv. Temp	Driver temperature	---	---
		Encoder	Encoder	CR	CR encoder	---	---
				PF	PF encoder	---	---
		Fan	Fan	Paper (ALL)	All paper suction fan	---	---
				Paper1	Paper suction fan1	---	---
				Paper2	Paper suction fan2	---	---
				Head Drv.	Head driver	---	---
		Elec.	Electric	Maintenance	Counter display	WasteInk:	Waste ink
						Wiper:	Wiper
						Rubing:	Rubbing
						Lever:	Paper lever
						Cover:	Paper cover
						InkLever:	Ink lever

Table 1-39. Self Testing Menu List

Top Menu		1st hierarchy		2nd hierarchy		3rd hierarchy	
Panel Display	Item	Panel Display	Item	Panel Display	Item	Panel Display	Item
TEST	Test	Elec.	Electric	Maintenance	Counter display	CR Motor:	CR motor reciprocating times
						PF Motor:	PF motor
						PrintNumber:	Number of printouts
						Cleaning:	Cleaning times
						Fire A:	A row discharging times
						Fire B:	B row discharging times
						Fire C:	C row discharging times
						Fire D:	D row discharging times
						Fire E:	E row discharging times
						Fire F:	F row discharging times
						Fire G:	G row discharging times
						Fire H:	H row discharging times
						Cut:	Cutting times
						Cut Sole.:	Cutter solenoid
				Error	Register occurred error	Error0:	Error0
						Error1:	Error1
						Error2:	Error2
						Error3:	Error3
						Error4:	Error4
						Error5:	Error5
						Error6:	Error6

Table 1-39. Self Testing Menu List

Top Menu		1st hierarchy		2nd hierarchy		3rd hierarchy	
Panel Display	Item	Panel Display	Item	Panel Display	Item	Panel Display	Item
TEST	Test	CSIC	CSIC	SLOT1	Slot1	---	---
				SLOT2	Slot2	---	---
				SLOT3	Slot3	---	---
				SLOT4	Slot4	---	---
				SLOT5	Slot5	---	---
				SLOT6	Slot6	---	---
				SLOT7	Slot7	---	---
				SLOT8	Slot8	---	---
				MntTank	Maintenance tank	---	---
		Actuator	Actuator	Cutter	Cutter	---	---
		Actuator2	Actuator2	Cutter Sol.	Cutter solenoid	---	---
				Pump Motor	Pump motor	---	---
Adjustment	Adjustment	Cut Adj.	Cutter adjustment	---	---	---	---
		PG Adj	PG adjustment	---	---	---	---
		RearAD	Rear AD adjustment	---	---	---	---
		Edge Sns Lv1	Edge sensor level	---	---	---	---
		Check Nozzle	Nozzle check pattern print	---	---	---	---
		Check Skew	Confirm paper skew	---	---	---	---
Print	Print	Check Ptn.	Check pattern	---	---	---	---
		Adj. Varable	Adjustment parameter	---	---	---	---

TEST MENU

Version

The versions of the following items can be checked.

- ☐ Firmware version

  Refer to "*1.4.4.23 Firmware Version (p.66)*" for the display.

- ☐ NVRAM version

  Displays versions of 8K area main, 8K area mechanical controller, 32K area main, and 32K area mechanical controller respectively.

- ☐ DIP switch

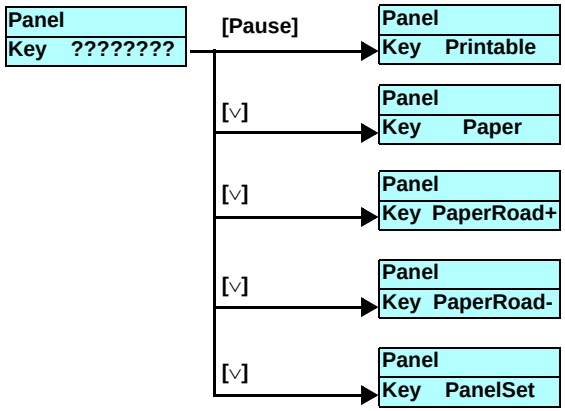
  Displays the DIP switch status.

Panel

The following panel operation can be checked.To exit the panel key check, press the [Pause] key twice.

- ☐ Key operation check

  Displays question marks as shown below in the initial condition. While holding down a key, the key name is displayed.



- ☐ LCD check

  The LCD lights all over for dot missing check.

- ☐ LED check

  Lights pause (green), Ink check (red), paper check (red) in that order, and displays the lighted LED name (Printable/ Ink/ Paper) on the LCD.

Sensor

The status of the following sensors can be checked.

Table 1-40. Sensor

Sensor Name	Remark
CR home position	---
Paper thickness sensor	---
Paper slide sensor	---
Head slide sensor	---
Roll 1 sensor	---
Roll 2 sensor	---
Pump sensor	---
Left and right ink lever	---
Front cover	---
Rear cover	---
Rear det	---
Paper out	---
P det	---
Maintenance tank	---
Cartridge status	
Edge AD	For edge AD and rear AD, the value near the center is ON-OFF difference, and the value on the right edge is ON level.*
Edge AD 2	
Rear AD	
Head temperature	
Driver temperature	

Note *: Each AD is qualified as OK by the following condition.

•Front AD/ Rear AD : Difference is 40 or more. ON level is less than 95.

•Edge AD : Difference is 40 or more. ON level is E0 to E8.

Encoder

The travel of each motor for CR shaft (Carriage) and PF shaft (Paper Feed) can be confirmed by the slid (encoder) value which is displayed in encoder pulse.

Fan

The operation of each fan is can be checked. [“Printable” End] is displayed in the second row on the panel during execution. This menu is ended by pressing the [Pause] key.

NOTE: *Facing the printer, Fan1 is on the home position side and fan2 is on the other side.*

Electric

Fatal errors of up to 7 maintenance items recorded as history can be checked. (CPU error is not recorded.)

☐ Counter display

The counters shown in the table below are displayed. The number is displayed in hexadecimal.

Table 1-41. Counter Display Items and Units

Maintenance	Unit
Waste ink*1	0.02g
Wiper	Number of times
Rubing	Number of times
Paper lever UP	Number of times
Front cover open	Number of times
Ink lever UP	Number of times
CR Motor reciprocating	Number of times
PF Motor travel distance	3079.413957mm unit
Printouts (cut sheet/ roll paper)	Number of print*3
Head cleaning	Number of times
A to H row ink eject	Mega dot
Cut*2	Number of times
Cutter solenoid operation	Number of times

Note *: The items except the following are set to 0 when performing counter initialization.

Note *1: When replacing the old maintenance tank with a new one, the old value is changed to the new one.

*2: The counter is reset when the cutter replacement sequence is performed successfully.

*3: Counts 1 when any print start request is received.

☐ Occurred error display

Displays error codes of fatal errors. The latest error is 0 and 7 errors are recoreded in 0 to 6.

CSIC

Fatal errors of up to 7 maintenance items recorded as history can be checked. (CPU error is not recorded.)

Actuator

Fatal errors of up to 7 maintenance items recorded as history can be checked. (CPU error is not recorded.)

Fatal errors of up to 7 maintenance items recorded as history can be checked. (CPU error is not recorded.)

Actuator2

Fatal errors of up to 7 maintenance items recorded as history can be checked. (CPU error is not recorded.)

Fatal errors of up to 7 maintenance items recorded as history can be checked. (CPU error is not recorded.)

ADJUSTMENT MENU

Cut adjustment

Adjusts the cutter pressure of the cutter. The cutter pressure can be set by 1%.

PG adjustment

Adjusts the PG.

Rear AD adjustment

Detects and set the best resistance value of the rear sensor.
After the detection, The D/A adjustment value, ON-OFF difference, and ON level are displayed in that order from the left. When a detection error occurs including sensor defect, circuit defect, and adjustment with paper unloaded, the error is displayed.

Edge sensor level

Measures the platen level (reflecting amount) by the paper edge sensor.
If paper is on the rear sensor, the sensor detects the paper width and obtains information for each paper type. If paper is not on the rear sensor, the sensor obtains information for each paper type at previous paper width detection.

The panel keys are invalid during executing and the measured values are displayed in the order below.

- No measurement paper
- Minimum measurement value
- Minimum value detection position
- Maximum measurement value
- Maximum value detection position
- Threshold value at paper detection
- Paper presence at paper detection
- Paper absence at paper detection
- D/A value used at paper detection
- OK/NG

Nozzle check pattern print

The ink eject from the head nozzle can be checked from the printed pattern.If the ink is not ejected properly, a cleaning is performed. The items printed on the pattern are as follows.

- Nozzle ink eject check pattern

  Each color is printed in the order below from the home position side.
  8 color: MK/PK, C, M, C, Y, LK, LC, LM, LLK
  4 color: C, C, Y, Y, M, M, MK, MK

- Firmware version

  Prints the installed firmware version.

- Remaining maintenance tank capacity

  Prints the remaining maintenance tank capacity (unit: %).
  0% means that the maintenance tank is full.

- Head ID

  Prints the registered head ID value.

- Colorimetric calibration ID

  Prints the registered colorimetric calibration ID

- Vertical nozzle alignment check pattern (3 rows)

  Prints in the order of VSD1, VSD2, VSD3 from the top. Large and Middle sized dots are printed iteratively for the VSD3 to prevent satellite droplets from occurring in MK.

- Horizontal nozzle alignment check pattern (6 rows)

  Prints in the order of VSD1, VSD2, VSD3 from the top row.

Refer to *"1.4.4.19 Nozzle Check Pattern Printing (p.59)"* for a printed pattern.

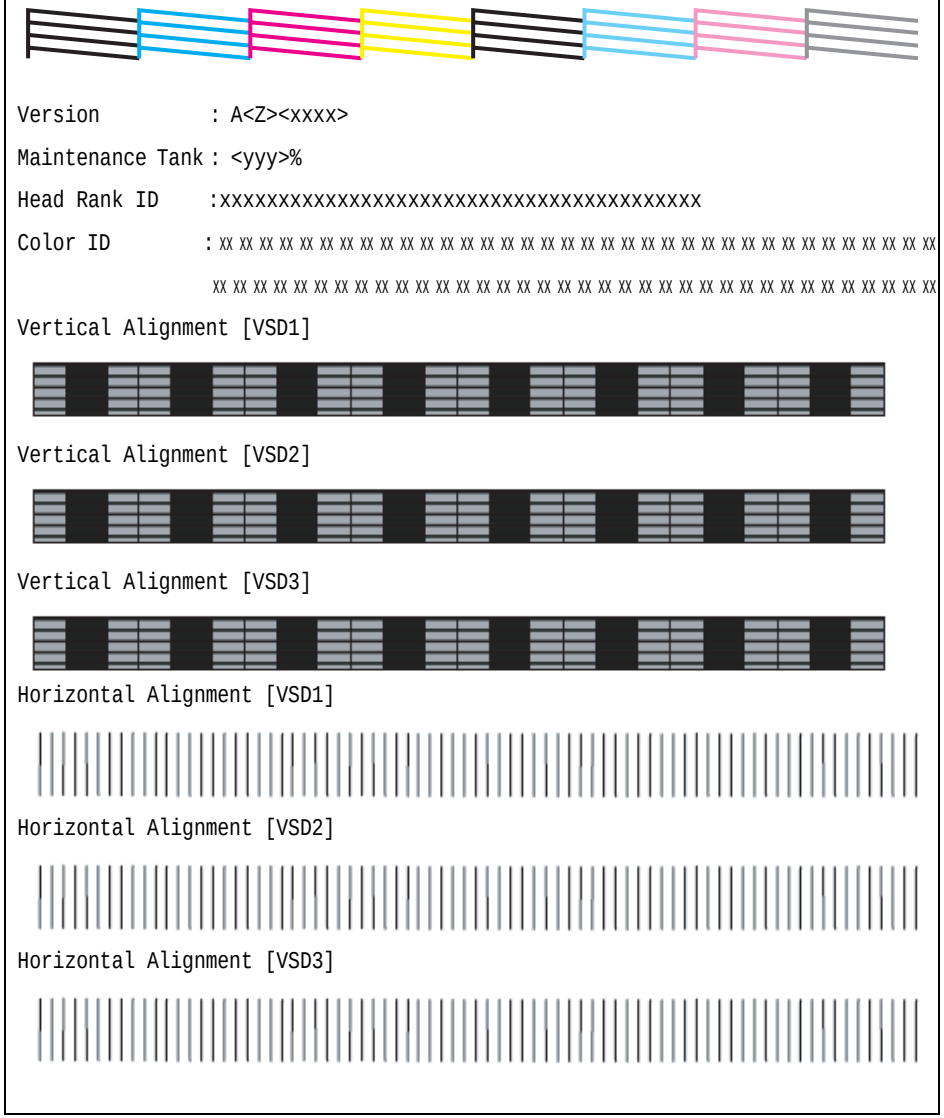

Version : A<Z><xxxx>
Maintenance Tank : <yyy>%
Head Rank ID :xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
Color ID : xx xx xx

Table 1-43. Print Menu Item

Print menu	Item	
Test pattern	Nozzle ink eject check pattern Vertical nozzle arraignment check pattern Horizontal nozzle arraignment check pattern	Uni-D adjustment Bi-D adjustment (PG1.2mm VSD1 to 3) Bi-D adjustment (PG0.7mm VSD1 to 3)
Adjustment parameter	The adjusted parameters are printed. (Refer to Figure 1-22.)	

```
[R4CD400 xColoros] Adjust Parameter
Serial No. : _____ , Mecha No. : ---------- , Tool Version : xxxxxxx
                     Belt No.  : xxx , PC No.       : xx
xx-xx-xxxx xx:xx:xx
F/W Version   : A0xxxx.xxxx
NVRAM Version : Main xxxx xxxx ,Mecha xxxx xxxx

Type-B        : Uninstalled

Head Rank ID : xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
ColorID:xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx
        xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx
xx xx xx
Gap Parameter 4Colors ----------   User Area  ----------    ---------- Backup Area -------------
   VSD1              C  C2   Y  Y2     M   M2   MK  MK2      C  C2   Y  Y2   M   M2   MK  MK2
Bi-D PG 0.7mm      :  xx  xx  xx  xx    xx  xx    xx   xx     xx  xx  xx  xx  xx   xx   xx   xx
Bi-D PG 1.2mm      :  xx  xx  xx  xx    xx  xx    xx   xx     xx  xx  xx  xx  xx   xx   xx   xx
Bi-D PG 1.5mm      :  xx  xx  xx  xx    xx  xx    xx   xx     xx  xx  xx  xx  xx   xx   xx   xx
Bi-D PG 2.1mm      :  xx  xx  xx  xx    xx  xx    xx   xx     xx  xx  xx  xx  xx   xx   xx   xx
Bi-D PG 2.6mm      :  xx  xx  xx  xx    xx  xx    xx   xx     xx  xx  xx  xx  xx   xx   xx   xx
Uni-D              :  xx  xx  xx  xx    xx  xx    xx   xx     xx  xx  xx  xx  xx   xx   xx   xx

    VSD2              C  C2   Y  Y2     M   M2   MK  MK2      C  C2   Y  Y2   M   M2   MK  MK2
Bi-D PG 0.7mm      :  xx  xx  xx  xx    xx  xx    xx   xx     xx  xx  xx  xx  xx   xx   xx   xx
Bi-D PG 1.2mm      :  xx  xx  xx  xx    xx  xx    xx   xx     xx  xx  xx  xx  xx   xx   xx   xx
Bi-D PG 1.5mm      :  xx  xx  xx  xx    xx  xx    xx   xx     xx  xx  xx  xx  xx   xx   xx   xx
Bi-D PG 2.1mm      :  xx  xx  xx  xx    xx  xx    xx   xx     xx  xx  xx  xx  xx   xx   xx   xx
Bi-D PG 2.6mm      :  xx  xx  xx  xx    xx  xx    xx   xx     xx  xx  xx  xx  xx   xx   xx   xx
Uni-D              :  xx  xx  xx  xx    xx  xx    xx   xx     xx  xx  xx  xx  xx   xx   xx   xx

    VSD3              C  C2   Y  Y2     M   M2   MK  MK2      C  C2   Y  Y2   M   M2   MK  MK2
Bi-D PG 0.7mm      :  xx  xx  xx  xx    xx  xx    xx   xx     xx  xx  xx  xx  xx   xx   xx   xx
Bi-D PG 1.2mm      :  xx  xx  xx  xx    xx  xx    xx   xx     xx  xx  xx  xx  xx   xx   xx   xx
Bi-D PG 1.5mm      :  xx  xx  xx  xx    xx  xx    xx   xx     xx  xx  xx  xx  xx   xx   xx   xx
Bi-D PG 2.1mm      :  xx  xx  xx  xx    xx  xx    xx   xx     xx  xx  xx  xx  xx   xx   xx   xx
Bi-D PG 2.6mm      :  xx  xx  xx  xx    xx  xx    xx   xx     xx  xx  xx  xx  xx   xx   xx   xx
Uni-D              :  xx  xx  xx  xx    xx  xx    xx   xx     xx  xx  xx  xx  xx   xx   xx   xx

PF Adjust          : 1002.349 mm  Bi-D PF Adjust              : -1
Top Margin Adjust  :    8.903 mm  Rear Sensor Position Adjust : 13.099 mm  Multi Sensor Left  :  0.000 mm
Bottom Margin Adjust:  13.602 mm  ASF Top Margin              : 10.300 mm  Multi Sensor Right :  0.000 mm
Side Margin Adjust :    9.895 mm  ASF Side Margin             :  8.696 mm

PG Adjust =  45   Pump Counter =   11390   Cut Paper Pre. = 100 %   Cut Pressure =  70 %   Rear AD =C6

Platen Position 1:0 /  2:0 /  3:0 /  4:0 /  5:0 /  6:0 /  7:0 /  8:0 /  9:0 /  10:0

Multi-Sensor Position Adjust  PG 0.7mm  PG 1.2mm  PG 1.5mm  PG 2.1mm  PG 2.6mm
   Horizontal [mm]          :      0.0       0.0       0.0       0.0       0.0
   Vertical   [mm]          :      0.0       0.0       0.0       0.0       0.0

Error  1 : xxxxxxxx  xx-xx-xx xx:xx:xx      Error  6 : xxxxxxxx xx-xx-xx xx:xx:xx
Error  2 : xxxxxxxx  xx-xx-xx xx:xx:xx      Error  7 : xxxxxxxx xx-xx-xx xx:xx:xx
Error  3 : xxxxxxxx  xx-xx-xx xx:xx:xx      Error  8 : xxxxxxxx xx-xx-xx xx:xx:xx
Error  4 : xxxxxxxx  xx-xx-xx xx:xx:xx      Error  9 : xxxxxxxx xx-xx-xx xx:xx:xx
Error  5 : xxxxxxxx  xx-xx-xx xx:xx:xx      Error 10 : xxxxxxxx xx-xx-xx xx:xx:xx

Serial No.     : xx xx xx xx xx xx xx xx xx xx
USB Serial No. : xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx xx
IEEE1394 ID    : xx xx xx xx xx
Factory Flag   : xx xx xx xx xx xx xx xx
```

Figure 1-24. Adjustment Parameter Print Sample

1.4.6.2 Counter Display Menu (VIEW COUNTERS)

This menu displays the counter value of each unit/part.

Table 1-44. Counter Display Menu

Top menu	Panel display	Item menu 1	Panel display
Counter display menu	VIEW COUNTERS	Cutter life counter value display	CUTTER
		Cutter life cumulative counter value display	CUTTER TOTAL
		Total printouts counter value display	TOTAL PAGES
		Maintenance tank value display	MAINT TANK
		CR motor life counter value display	CR MOTOR
		CR motor cumulative counter value display	CR TOTAL
		PF motor life counter value display	PF MOTOR
		Head unit life counter value display (A row ~ H row)	NOZZLE A
			⋮
			NOZZLE H
		Flashing box counter value display	FL BOX
		Cleaning unit life counter value display	CLEANER
		Sponge counter value display for left and right borderless	SPONGE
		ASF paper feed counter value display	ASF
		Paper ejection switching counter value display	FEED ROLLER
		PG switching counter value display	PG

CUTTER LIFE COUNTER VALUE DISPLAY

Display cutter life counter value. Cutter life counter is counted every cut operation. Cutter life counter value is initialized (initial value 0) when replacing cutter.

CUTTER LIFE CUMULATIVE COUNTER VALUE DISPLAY

Display cutter life cumulative counter value. Cutter life cumulative counter value is counted every cut operation. Cutter life cumulative counter value is not initialized.

TOTAL PRINTOUTS COUNTER VALUE DISPLAY

Display total printouts counter value. Total printouts counter value is counted every paper eject operation.

MAINTENANCE TANK VALUE DISPLAY

Display maintenance tank value.

CR MOTOR LIFE COUNTER VALUE DISPLAY

Display CR motor cumulative counter value. CR motor life cumulative counter value is counted every CR reciprocating.

CR MOTOR CUMULATIVE COUNTER VALUE DISPLAY

Display CR motor life cumulative counter display. CR motor life cumulative counter value is counted every CR reciprocating. It is not initialized by carriage related information counter clear.

PF MOTOR LIFE COUNTER VALUE DISPLAY

Display PF motor life counter value. PF motor counter life counter value counts PF feed amount.

HEAD UNIT LIFE COUNTER VALUE DISPLAY

Display life counter of each nozzle from A row to H row. Head unit life counter is counted every ink discharging.

FLASHING BOX COUNTER VALUE DISPLAY

Display flashing box counter value. The Flushing Box Counter counts each time of flushing.

CLEANING UNIT LIFE COUNTER VALUE DISPLAY

Display cleaning unit life counter value. The Cleaning unit life counter counts each time of cleaning.

SPONGE COUNTER VALUE DISPLAY FOR LEFT AND RIGHT BORDERLESS

Display sponge count value for left and right borderless.

ASF PAPER FEED COUNTER VALUE DISPLAY

Display ASF paper feed counter value. ASF paper feed counter value is counted every paper feed operation from the ASF.

PAPER EJECTION SWITCHING COUNTER VALUE DISPLAY

Display paper ejection switching counter value. The Paper Eject Switching Counter counts each time the paper eject switching movement occurs.

PG SWITCHING COUNTER VALUE DISPLAY

Display PG switching counter value. The PG Switching Counter counts each time the PG switching movement occurs.

1.4.7 MIB Function

The printer corresponds to the following MIB; you can receive printer information (specification/status/commodity/job information etc.) from Global MIB via N/W. Also according to Type-B Level 3 Packet Mode support, corresponds to the following Local MIB.

☐ Corresponding MIB
Following are the corresponding MIB.

Table 1-45. Global MIB

Name	Contents
Host Resource MIB	Device information etc.
Printer MIB	Printer information (function/commodity/status)
EPSON Printer Private MIB	Printer information (DeviceID/StatusReply letter strings etc.)

Table 1-46. Local MIB

Name	Contents
Type-B Local MIB	Type-B I/F setting /information
EMAP Local MIB	Corresponding MIB information

1.4.8 Function to Prevent Irregular Printing

- ☐ Strong cancel data
  When 16KB DC1 is sent to the head of each job, the printer performs a special initialization operation.
  Refer to *"1.4.9 Initialization (p.104)"* for this initialization operation.
- ☐ Skip reading of irregular data
  - ■ Unprintable characters
    It doesn't print characters including ASCII code with text print mode.

Table 1-47. Unprintable hexadecimal code (Control character code)

Code	Character	Code	Character	Code	Character
00h	NULL	10h	DLE	7Fh	DEL
01h	SOH	11h	DC1		
02h	STX	12h	DC2		
03h	ETX	13h	DC3		
04h	EOT	14h	DC4		
05h	ENQ	15h	NAK		
06h	ACK	16h	SYN		
07h	BEL	17h	ETB		
08h	BS	18h	CAN		
09h	HT	19h	EM		
0Ah	NL (LF)	1Ah	SUB		
0Bh	VT	1Bh	ESC		
0Ch	NP (FF)	1Ch	FS		
0Dh	CR	1Dh	GS		
0Eh	SO	1Eh	RS		
0Fh	SI	1Fh	US		

NOTE: *0Ah, 0Ch, 0Dh, 11h, and 1Bh are ESCP command supported by the printer. The printer judges the command at the same time and decides whether to print it.*

- ■ Job time out
  Refer to "1.4.4.11 Job Time-out Setting (p.54)".
- ■ Preventing the remaining data from being printed on the second cut sheet
  If the print data size is larger than the maximum data size that can be printed on a single sheet (manual feed/ ASF), the remaining data that cannot be printed on the first sheet is not printed on the second sheet. The remaining print data (graphic data) is ignored, and the next new print data is printed from the top of the second paper.

1.4.9 Initialization

The printer performs initialization operation by the following method.

1.4.9.1 Hardware Initialization

This printer is initialized when power to the printer is turned on.

- ☐ The following are the initialization operation performed when turning the power on.
  - ■ Initialization operation
    - • Initializes printer mechanism.
    - • Clears input data buffer.
    - • Clears print buffer.
    - • Sets default values.

1.4.9.2 Software Initialization

- ☐ The default command (ESC @) also initializes the printer.
  - ■ Initialization operation
    - • Clears print buffer.
    - • Sets default values.
- ☐ Cancel enhancement data (DC1x16kbyte) initializes the printer.
  - ■ Initialization operation
    - • Clears print buffer.
    - • Sets default values.
    - • Immediate cut only when some printing remains on the paper.

1.4.9.3 Panel Initialization

This printer is initialized when pushing the [Pause] button for more than 3 seconds, or printer recognized the *INIT signal.

- ■ Initialization operation
  - • Eject a paper. (For roll paper, paper is cut by skipping print part when Paper Source = Auto Cut in panel setting, paper is not cut when Paper Source = Cutter Off)
  - • Cap the printhead.
  - • Clears input data buffer.
  - • Clears print buffer.
  - • Sets default values.

1.4.10 Default Setup Values

1.4.10.1 Operation Default Setting

- ☐ Default Status
  Default setup values in initialization operation are as follows. The parameters for items that may be saved for panel setup, default setup, and remote commands are used as default values.
  - ■ Page position: Set current paper position as page start position
  - ■ Line feed: 1/6"
  - ■ Right margin: 1st character
  - ■ Left margin: 3mm
  - ■ Character pitch: 10 CPI
  - ■ Print mode: Text mode (non-raster graphics mode)
- ☐ Cut Sheet Eject
  When the following conditions are met, the printer ejects the paper and turns to [Ready] mode.
  - ■ At power-on
  - ■ The printer is in the cut sheet setting
  - ■ Paper(s) is remaining in the paper path

1.5 Controller

- CPU: SH7709S, 100MHz
- Code ROM: 2MB
- Font ROM: None
- RAM: 64MB
- Interface
  - Stylus Pro 4400/4800
    - USB (HS, FS)
    - IEEE 1394
    - Type-B interface
  - Stylus Pro 4450/4880/4880C
    - USB (HS, FS)
    - Network Interface
- Operating System: Hitachi HI7700 (µITRON 3.0 compatible)

1.6 Interface

1.6.1 USB interface

SPECIFICATION

- Standard
  - Universal Serial Bus Specifications Revision 2.0
  - Universal Serial Bus Specifications Revision 1.1
  - Universal Serial Bus Device Class Definition for Printing Devices Version 1.1
- Bit rate: 480Mbps (High Speed Mode)
12Mbps (Full Speed Device)
- Data format: NRZI
- Adaptable connector: USB Series B
- Acceptable cable length: 5m
- Device ID
  - <xx><xx> (Character strings may vary by Model Name.)
  - MFG: EPSON;
  - CMD: ESCPL2, BDC;
  - MDL: (8-color model);
<Stylus Pro 4800> or <Stylus Pro 4880> or <Stylus Pro 4880C>
(4-color model);
<Stylus Pro 4400> or <Stylus Pro 4450>
  - CLS: PRINTER;
  - DES: EPSON<SP>T<Stylus Pro 4800>; (8-color model)
EPSON<SP>T<Stylus Pro 4880>; (8-color model)
EPSON<SP>T<Stylus Pro 4880C>; (8-color model)
EPSON<SP>T<Stylus Pro 4400>; (4-color model)
EPSON<SP>T<Stylus Pro 4450>; (4-color model)
(<SP>: space code)

SIGNAL ASSIGNMENT AND SIGNAL DEFINITION OF INPUT CONNECTOR PIN

Table 1-48. Signal assignment and signal definition of input connector pin

Pin No	Signal name	In/Out	Function description
1	VCC	-	Cable power. Maximum power consumption is 100mA
2	-Data	Bi-directional	Data
3	+Data	Bi-directional	Data, pull up to +3.3V via 1.5K ohm resistor
4	Ground	-	Cable ground

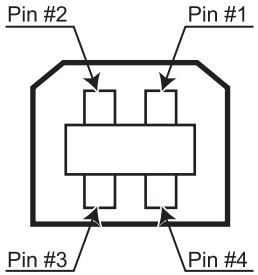


Figure 1-25. Pin Assignment

1.6.2 IEEE1394 Interface

CHECK POINT

Stylus Pro 4400/4800 only

FEATURES

- ☐ IEEE Std.1394-1995, 1394a-2000 compliant
- ☐ 400Mbps
- ☐ 1port (Standard 6-pin receptacle)
- ☐ Power Class: POWER_CLASS=000
  - ■ Node does not need power and does not repeat power.
  - ■ Bi-directional data communication between the IEEE 1394 equipped host and the printer.

SPECIFICATIONS

- ☐ Data transmission: Half-duplex, Data/Strobe differential
- ☐ Synchronization: DS-Link bit level encoding
- ☐ Encode/Decode: DS-Link bit level encoding
- ☐ Connector: IEEE 1394-1995 compliant plug (6 contacts)

SIGNAL ASSIGNMENT AND SIGNAL DEFINITION OF INPUT CONNECTOR PIN

Table 1-49. Signal assignment and signal definition of input connector pin

Contact number	Signal name	Comment
1	VP	Cable power
2	VG	Cable ground
3	TPB*	Strobe on receive, data on transmit (differential pair)
4	TPB	
5	TPA*	Data on receive, strobe on transmit (differential pair)
6	TPA	

PROTOCOL

- ☐ SB-2 (ANSI NCITS 325-1998) compliant
- ☐ EP-PPDT (Based on IEEE 1394.3 specification)

Table 1-49. Signal assignment and signal definition of input connector pin

Contact number	Signal name	Comment
3	TPB*	Strobe on receive, data on transmit (differential pair)
4	TPB	
5	TPA*	Data on receive, strobe on transmit (differential pair)
6	TPA	

1.6.3 Optional Interface

Type-B interface (level 3, MIB, 1200mA type) is supported.

REPLY MESSAGE

- Main-Type
  - MT48p, PW170cl10cpi, PRG (A0xxxx) rev, AP800ma, SPD0fast , D4, GDI

NOTE: *xxxx is F/W version.*
In the case of Stylus Pro 4450/4880/4880C, (B0xxxx) is used instead of (A0xxxx).As for the main board of Stylus Pro 4450/4880/4880C supplied as ASP, the firmware for 4-color is preintalled on it.

- Product-Name:
  - 8-color model
    <Stylus Pro 4800> or <Stylus Pro 4880> or <Stylus Pro 4880C>
  - 4-color model
    <Stylus Pro 4400> or <Stylus Pro 4450>
- Emulation-Type: ESCPL2-00
- Entity-Type: EPSONLQ2J

REPLY FOR OPTION COMMAND

Table 1-50. Reply List

Option command number	Command name	Reply-A	Reply-B
00h	No-operation	Accept	None
01h	Start Hardware Reset	Accept	Execute OK
02h	Start Software Reset	Reject	
03h	Send Main System Type	Accept	
04h	Send Name Data	Reject	
05h	Inquire Name Data	Accept	
06h	Send Product Name	Accept	
07h	Send Software Emulation Type	Accept	
08h	Complete Buffered Data	Accept	Check Condition
09h	Stop Procedure	Reject	Execute OK
0Ah	Return Buffered Data	Reject	
0Bh	Send Entity Type	Accept	
0Ch	Send Status	Accept	
0Dh	Quit Procedure	Reject	
0Eh	Inquire ASCII Message	Reject	
0Fh	Send ASCII Message	Accept	None
10h-13h		Unknown	None
14h	Inquire Emergency Message	Accept	Execute OK
15h	Send Emergency Reply	Accept	
16h-1Fh		Unknown	None
20h-FFh		Reserved	None

SUPPORTED MAIN COMMAND AND SENDING TIMING

Table 1-51. Supported Main Command and Sending Timing

Main command number	Command name	Sending timing
01h	Start Software Reset	☐ Init signal on the std. parallel ☐ Type B I/F Option command: 01h ☐ Panel Reset ☐ Cold start
04h	Send Name Data	Type B I/F Option command: 05h
07h	Inquire Software Emulation Type	Changing Software Emulation type
0Eh	Inquire ASCII Message	Writing to DBIN-register
14h	Inquire Emergency Reply	Reply for Emergency command
15h	Send Emergency Message	Receive Emergency command

SENDING BDC-ST CHARACTER STRINGS VIA DBIN-REGISTER

When ST of Type-B I/F sets "ON" State-Reply, BDC-ST is sent through DBIN-register. When State Reply is started, "Start" and "End" of BDC-ST characters are announced by sending the Main command (0Eh).

NOTE: The BDC-ST is only sent when Type-B Lv2 is used.

TYPE-B LEVEL 3 PACKET MODE

Communication between Type-B I/F card and Printer corresponds to Type-B Level 3 (Packet Mode) Communication Specification. (IEEE P1284.4 (Draft 1.50) compliant)

☐ Packet Mode Shifting
To shift to Type-B Level 3 Packet Mode, Option Card needs to correspond to Type-B Level 3 ("D4" character string need to be added to Option Type character string). If Option Card that is non-Type B Level 3 correspondence is inserted, Type-B sends error.

☐ Supported Channel
Assigning Service and Channel applies the chart below.

Table 1-52. Supported Channel

Service	Socket ID	Use	Initiator	Max Data Size	Credit
1284.4CTRL	00h	1284.4 control	—	64byte	1 (Limited Mode)
EPSON-MIB	04h	SNMP/MIB setting	I/F Card	556byte	1 (Limited Mode)
EPSON-TRAP	05h	SNMP/ Trap notification	Printer	556byte	1 (Limited Mode)
EPSON DATA (Include Out of Band)	40h	Send print data	—	32kbyte (1 Packet)	Depends on received buffer (Unlimited Mode)

☐ Supported Packet
Apply the following communication packet.

Table 1-53.

Packet	Description	Channel
EPSON Packing Command/Reply	Packet Mode shifting	Ch00
Init/Reply	Initialization	Ch00
Exit/Reply	Exit from Packet Mode	Ch00
Get Socket ID/Reply	Acquisition of Socket ID	Ch00
Get Service Name/Reply	Acquisition of Service Name	Ch00
OPEN Channel/Reply	Open Channel	Ch00
Close Channel/Reply	Close Channel	Ch00
Credit/Reply	Send Credit	Ch40
Data Packet	Printing data / reverse data	Ch40
Message Packet	MIB PDU/Trap PDU etc.	Ch04/05
Out of Band Packet	Job control information etc.	Ch40

☐ Local MIB
According to Type-B Level 3 Packet Mode correspondence, it corresponds to Local MIB (Type-B/EMAP).
Refer to "1.4.7 MIB Function (p.102)".

1.6.4 Supplements

RECEIVED BUFFER FULL OPERATION

If the available buffer becomes less than 32Kbyte while receiving data via USB I/F or 1394 I/F with no error occurring (including Standby), the printer limits its receivable data size to 40 bytes/sec until the available buffer becomes 36kbyte or more to avoid the timeout of the host computer.

NOTE: *This status is not occurred in Type-B Level 3 Packet Mode for Credit administration.*

INTERFACE SELECTION

The printer has IEEE1394 interface, USB 2.0 interface, and optional interface. These interfaces are selected manually by the default setting mode or selected automatically.

☐ Manual Selection
One of 3 interfaces can be selected; IEEE1394 interface, USB 2.0 interface, optional interface.

NOTE: *As for Stylus Pro 4450/4880/4880C, the IEEE1394 interface is not mounted and the network interface is assigned as the optional interface.*

☐ Automatic Selection
Select an interface that the printer first received data after power was ON. If it passes period of time (10 seconds) after interruption of data receiving, it will be in idle status (any interface is not selected) and will select an interface which the printer next receives data first.

NOTE: *This status is not implemented in Type-B Level 3 Packet Mode for Channel administration.To move to idle status, close the DataChannel.*

☐ Interface Selection and Interface State
When the printer is initialized or returned to the idle status (any interface is not selected), the USB interface becomes non-NACK reply status, and the option interface resets OFF-LINE bit of Main Status Register (MNSTS).

1.7 Optional Units and Consumables

1.7.1 Ink Cartridge

Selection of ink types, detection of cartridges and the amount of remaining ink are controlled by CSIC.

CHECK POINT

- **When installing the pigment ink cartridges, shake them horizontally after unpacking them for about five seconds beforehand to ensure the designed print quality.**
- **To avoid wrong insertion, the shapes of ink cartridges of Stylus Pro 4400/4800 and Stylus Pro 4450/4880/4880C differ.**

SPECIFICATION

- Type: Pigment
- Form: Special ink cartridge
- Ink capacity
  - 110ml
- Dimension
  - 110ml: 25.1 mm (W) x 165.8 mm (D) x 105.3 mm (H)
- Total weight
  - 110ml: Approx. 200g
- Color:
  - Stylus Pro 4800 (8-color HCD2 Ink Set)
    Photo black, magenta, light magenta, cyan, light cyan, yellow, light black, matte black, light light black
  - Stylus Pro 4880/4880C (8-color HCD2 Ink Set)
    Photo black, Vivid magenta, Vivid light magenta, cyan, light cyan, yellow, light black, matte black, light light black
  - Stylus Pro 4400/4450 (4-color HCD Ink Set)
    Matte black, magenta, cyan, yellow
- Operation environment condition
  Temperature: 10°C ~ 40°C
  Relative temperature: 5% ~ 85% (without freezing)
- Storage temperature

Condition	temperature	Remarks
During packed storage	-30°C ~ 40°C	Within 1 month for 40°C
Loading printer	-20°C ~ 40°C	Within 1 month for 40°C
During transportation	-30°C ~ 60°C	Within 1 month for 40°C Within 120 hours for 60°C

CAUTION

If you remove an ink cartridge before it reaches the ink out state, you should store it under the same ambient conditions as for the printer body in such a way that the ink discharge opening is protected from dust intrusion. The ink cartridge stored as such and installed again can be used if it is within the term of availability.

- Life: 2 years
  (Total time of before and after of installing printer.)
- Insured date of printing quality: Pigment 6 month
  (After printer is installed.)

1.7.2 Cleaning cartridge

CHECK POINT

The cleaning cartridge is the same as the 110ml ink cartridge in shape except that it does not have the projection for a color block.
The cleaning cartridge is used for maintenance work only.

☐ Type:	Exclusive cleaning cartridge
☐ Dimension:	Same as 110ml exclusive ink cartridge
☐ Capacity:	Same as above
☐ Total weight:	Same as above
☐ Effective cleaning solution:	Same as above
☐ Environment condition:	Same as above
☐ Storage temperature:	Same as above
☐ Life:	Same as above

CHECK POINT

The transfer cleaning solution of the cleaning cartridge will freeze if left in an environment of -10°C or lower. Transfer cleaning solution that has been frozen will require approximately 3 hours of warming before it can be used, in the case where it is moved from a -20°C location to a 25°C location.

1.7.3 Maintenance Tank

The maintenance tank is located in the lower space at the right side of the printer body and constructed in such a way that the user can replace it when "Maintenance tank full" is detected.

☐ Type:	Special maintenance tank for waste ink
☐ Dimension:	102.5mm(W) x 235mm(D) x 79.5mm(H)
☐ Capacity:	Approx. 1000ml
☐ Waste ink permitted limit:	650ml (excluding amount of evaporation)
☐ Operation environment:	Operating : 10-35°C / 20-80% Storing : -20-40°C / 20-80% Transporting : -20-60°C / 5-85% (Time limit of storing or transporting at 40°C is one month. At 60°C, it is within 120 hours.)

CHAPTER

2

OPERATING PRINCIPLES

2.1 Overview

This chapter explains the printer mechanism and operating principles for the EPSON Stylus Pro 4400/4450/4800/4880/4880C.

The explanation is composed as follows:

- 2.2 Printer Mechanism Components *(p.115)*
  - 2.2.1 Printing Mechanism (Print Head) *(p.116)*
  - 2.2.2 Ink Supply Mechanism *(p.118)*
  - 2.2.4 Carriage (CR) Mechanism *(p.125)*
  - 2.2.5 Paper Feed Mechanism *(p.131)*
  - 2.2.6 Paper Eject/Release Mechanism *(p.140)*
  - 2.2.7 Multi Sensor *(p.145)*
  - 2.2.8 Others *(p.151)*
- 2.3 Outline of Control Circuit Board *(p.152)*
- 2.4 Outline of Power Supply Circuit Board *(p.154)*

2.2 Printer Mechanism Components

The major electrical parts used in the Printer Mechanism of this printer are as shown below. Hereafter, we will explain each Printer Mechanism focusing on these parts.

Table 2-1. Printer Mechanism Components

Part	Drive voltage	Description	Reference
Printing Mechanism (Print Head) (p.116)			
Print Head		The number of nozzles: 180 nozzles x 8 rows	*p.116*
Head Thermistor	+3.3V	Incorporated in the Print Head	–
Ink Supply Mechanism *(p.118)*			
Release Sensor (I/H lever)	+3.3V	Reverse tension switch (mechanical contact)	*p.119*
ASF/Pump Motor	+42V	Stepping motor	*p.123*
Maintenance Tank	+3.3V/+5V	CSIC	*p.123*
Pump Phase Sensor	+3.3V	Transmission type photo-interrupter	*p.123*
Carriage (CR) Mechanism *(p.125)*			
CR Motor	+42V	DC motor	*p.127*
CR_HP Sensor	+3.3V	Transmission type photo-interrupter	*p.127*
CR Encoder Sensor	+5V	Linear encoder (180LPI)	*p.127*
Multi Sensor	+3.3V	Reflection type photo-interrupter	*p.127*
PG/PO Motor	+42V	Stepping motor	*p.130*
PG Phase Sensor	+3.3V	Transmission type photo-interrupter	*p.130*
Cutter Solenoid	+24V	DC solenoid	*p.131*
Paper Feed Mechanism *(p.131)*			
PF Motor	+42V	DC motor	*p.133*
Suction Fan	+24V	DC blower fan	*p.133*
PF Encoder Sensor	+5V	Linear encoder (360LPI)	*p.133*
PE sensor	+3.3V	Reflection type photo-interrupter	*p.133*
P_THICK_0.3 Sensor (Paper thickness/ pressure lever)	+3.3V	Transmission type photo-interrupter	*p.133*

Table 2-1. Printer Mechanism Components

Part	Drive voltage	Description	Reference
P_THICK Sensor (Paper thickness/ pressure lever)	+3.3V/+5V	Transmission type photo-interrupter	*p.133*
Rear Hand Insertion Sensor	+3.3V	Reverse tension switch (mechanical contact)	*p.134*
ASF/Pump Motor	+42V	Stepping motor	*p.137*
ASF Paper Sensor	+3.3V	Reverse tension switch (mechanical contact)	*p.137*
ASF Phase Sensor	+3.3V	Transmission type photo-interrupter	*p.137*
Paper Eject/Release Mechanism *(p.140)*			
PG/PO Motor	+42V	Stepping motor	*p.142*
Paper Eject Phase Sensor	+3.3V	Reverse tension switch (mechanical contact)	*p.142*
Paper Eject Release Sensor	+3.3V	Reverse tension switch (mechanical contact)	*p.142*
Others *(p.151)*			
P-Cover Open Sensor	+3.3V	Reverse tension switch (mechanical contact)	*p.151*
Rear Cover Sensor	+3.3V	Interlock SW (mechanical contact)	*p.151*
MAIN Board	–	Printer control/drive circuit board	*p.152*
Power Supply Board	–	Power supply PCB	*p.154*

2.2.1 Printing Mechanism (Print Head)

The printing method uses the unique EPSON MACH method of previous models.

The Print Head incorporates a thermistor. According to the temperature around the head detected by the thermistor, the CPU on the Main Board controls the ink discharge speed and the amount of ink to be discharged.

- ☐ Printing method: On-demand ink-jet
- ☐ Nozzle configuration: 180 nozzles x 8 rows = 1440 nozzles (Refer to Figure 2-1 for nozzle arrangement.)

Table 2-2. Relationships of Colors to Nozzles by Mode

Mode	Model	Color	Number of Nozzles for Each Color
4 Colors	Stylus Pro 4400 Stylus Pro 4450	• Matte Black x 2 • Cyan x 2 • Magenta x 2 • Yellow x 2	360
8 Colors	Stylus Pro 4800	• Matte Black / Photo Black • Light Black • Cyan • Magenta • Yellow • Light Cyan • Light Magenta • Light Light Black	180
	Stylus Pro 4880 Stylus Pro 4880C	• Matte Black / Photo Black • Light Black • Cyan • Vivid Magenta • Yellow • Light Cyan • Vivid Light Magenta • Light Light Black	180

- ☐ Nozzle pitch : 0.141mm (1/180 inch) for each color

Table 2-3. Relationship between Nozzle Rows and Colors

Nozzle Row	8 Color Mode		4 Color Mode
	Stylus Pro 4800	Stylus Pro 4880 Stylus Pro 4880C	Stylus Pro 4400 Stylus Pro 4450
A	Light Light Black	Light Light Black	Matte Black
B	Light Magenta	Vivid Light Magenta	Matte Black
C	Light Cyan	Light Cyan	Magenta
D	Light Black	Light Black	Magenta
E	Photo Black / Matte Black	Photo Black / Matte Black	Cyan
F	Cyan	Cyan	Cyan
G	Magenta	Vivid Magenta	Yellow
H	Yellow	Yellow	Yellow

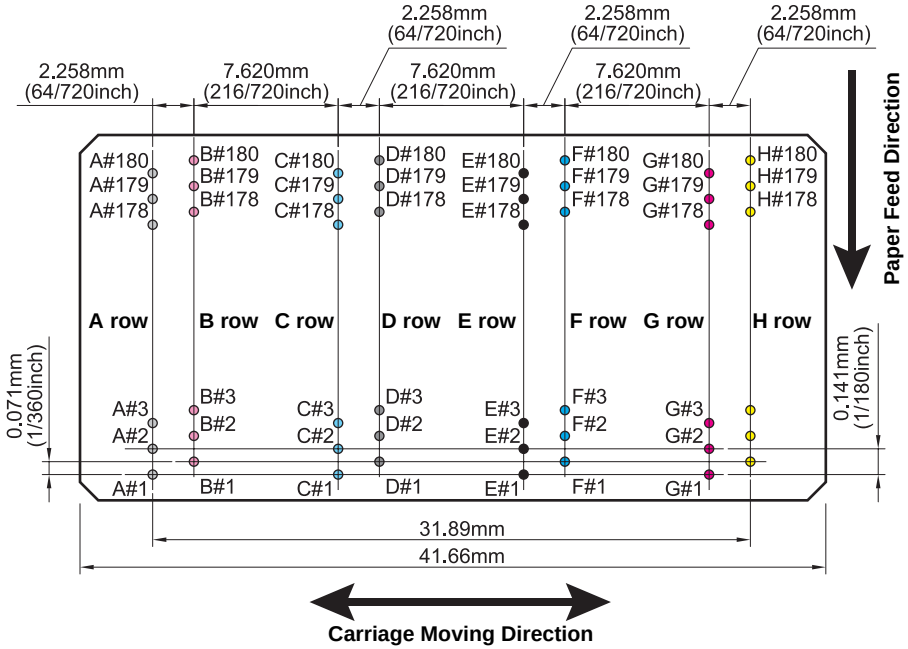


Figure 2-1. Nozzle Arrangement

- Drive Waveforms

  Drive waveforms are shown below for six printing modes.

Table 2-4. Printing Modes (Drive Waveforms)

Waveform Name	Drive Frequency	Print Resolution	CR Speed
VSD1	11.52 KHz ± 7%	H360 x V360 H360 x V720 H720 x V360	320 CPS
VSD1d	11.52 KHz ± 7%	H360 x V360 H360 x V720 H720 x V360	320 CPS
VSD2	8.64 KHz ± 7%	H720 x V360 H720 x V720	240 CPS
VSD2d	8.64 KHz ± 7%	H720 x V360 H720 x V720	240 CPS
VSD3	8.64 KHz ± 7%	H720 x V720 H1440 x V720	240 CPS
VSD3_HR	8.64 KHz ± 7%	H2880 x V1440	240 CPS

2.2.2 Ink Supply Mechanism

This printer has ink cartridges for 8 colors held by Ink holders (I/H) located on the left and right sides of the printer. There are protruding tabs and markings on the top of each color ink cartridge to prevent mistaken installation.

NOTE: *The 4-color model is equipped with the Ink Holder (I/H) on the left side only.*

☐ Explanation of valve mechanism mounted on the cartridge
The valve automatically opens and closes when the ink cartridge is installed and removed.

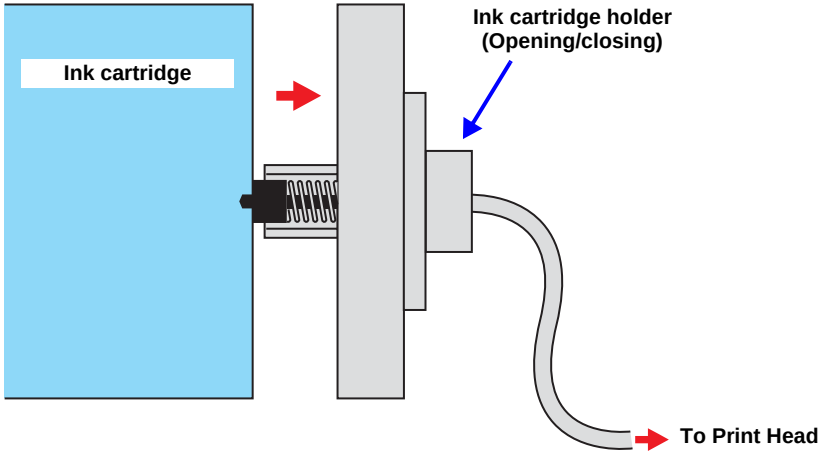


Figure 2-2. Valve Mechanism

The ink flow is as shown below.
Each color's ink cartridge → Each color's I/H (Ink Holder) →
Each color's ink tube → Each color's head dumper (Carriage) → Print Head

NOTE: *Below is a drawing of Stylus Pro 4800/4880/4880C. Stylus Pro 4400/4450 has no ink holder on the left.*

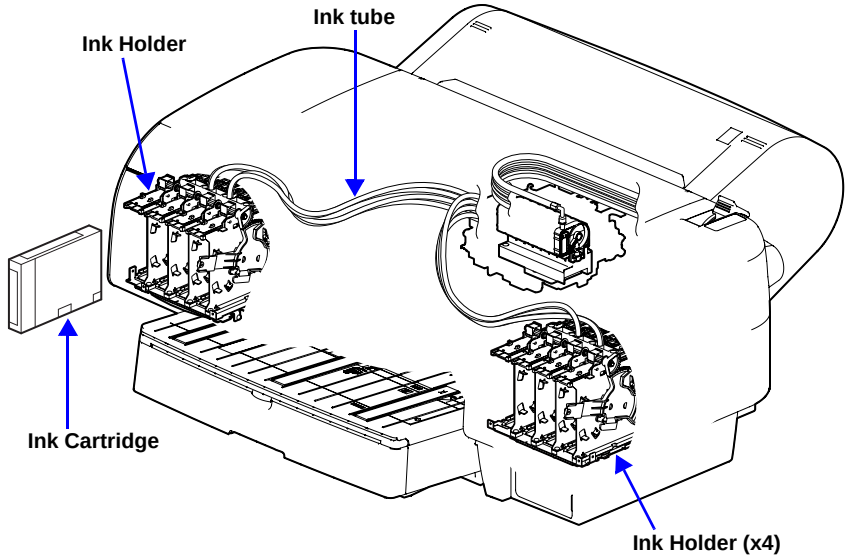


Figure 2-3. Ink Supply Mechanism

☐ CSIC
Memory chip information for each color ink cartridge passes through the CSIC relay circuit board on each Ink holder and is stored in the EEPROM on the BOARD ASSY., MAIN.
Various information such as installed ink color and remaining quantity is stored in the EEPROM. (Refer to "Ink Information Menu" *(p.88)*.)

☐ Dumper

The dumper is equipped with a valve to prevent reverse flow of ink, and when this valve opens the ink inside the ink storage space within the dumper flows and is supplied to the Print Head. Numbers ① though ⑤ in the figure explain the ink flow sequence inside the dumper.

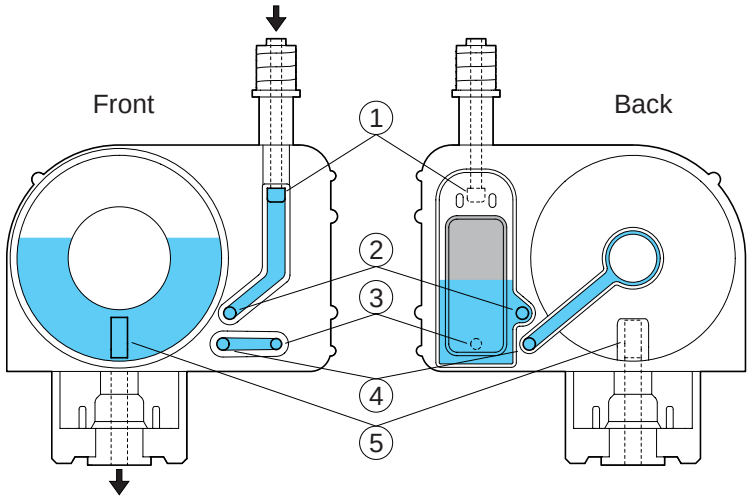


Figure 2-4. Ink Route inside of Dumper (1)

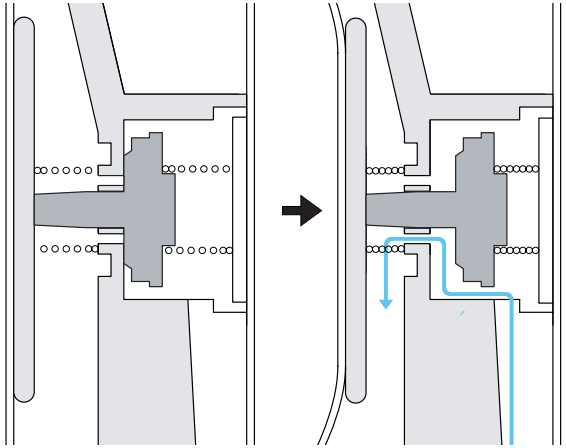


Figure 2-5. Ink Route inside of Dumper (2)

☐ I/H lever sensor

The left I/H and right I/H each have 1 I/H Lever Sensor located on the side. This sensor uses a reverse tension switch (mechanical contact) to detect whether the ink cartridge is set or released by the ink lever.

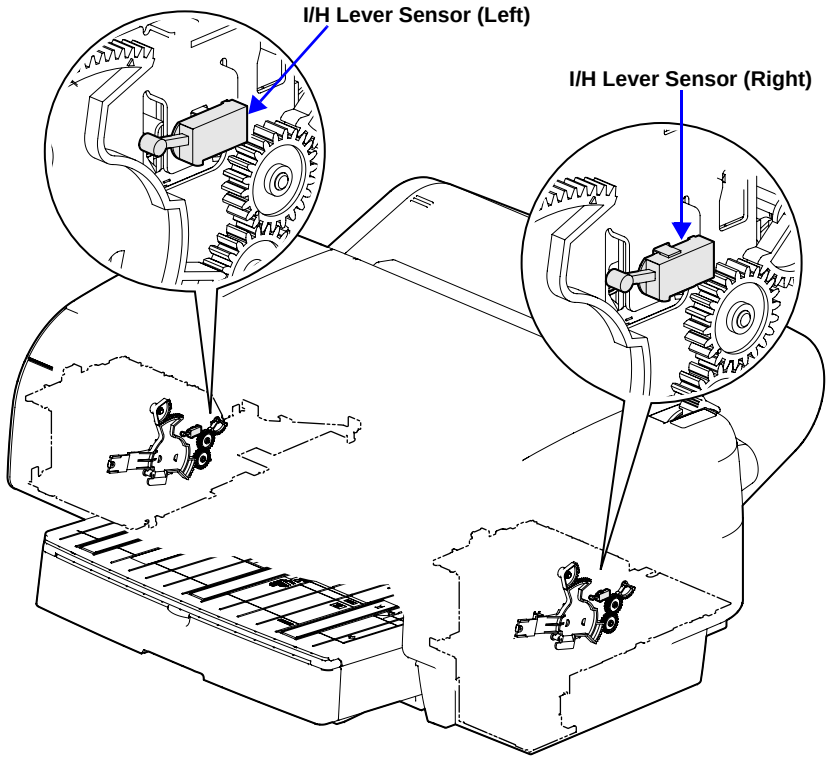


Figure 2-6. I/H Lever Sensor

2.2.3 Cleaning Mechanism

Cleaning mechanism components are located at the right side of the printer. Waste ink from the cleaning components is sent through a tube to the Waste Ink Absorber (Maintenance Tank) at the bottom right.
Main cleaning mechanism components and their functions are explained in the following sections.

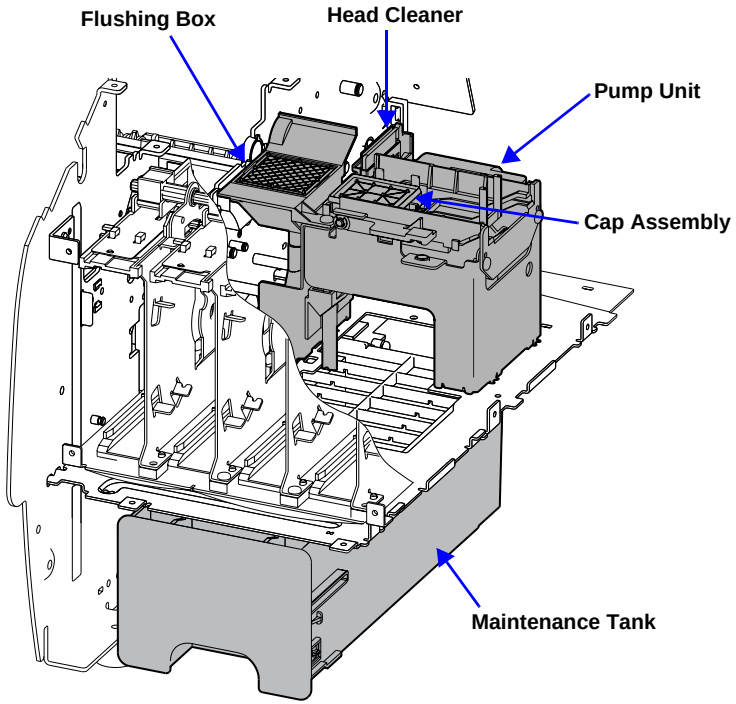


Figure 2-7. Cleaning Mechanism Components

CLEANING MECHANISM DRIVE

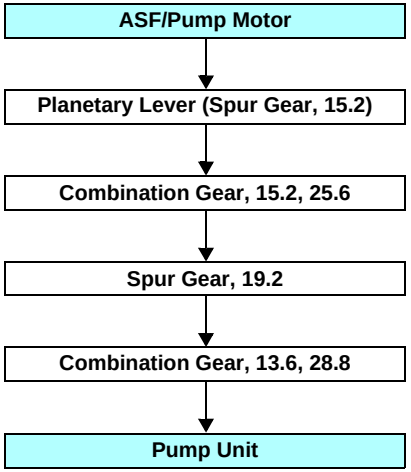


Figure 2-8. Drive Transmission Path

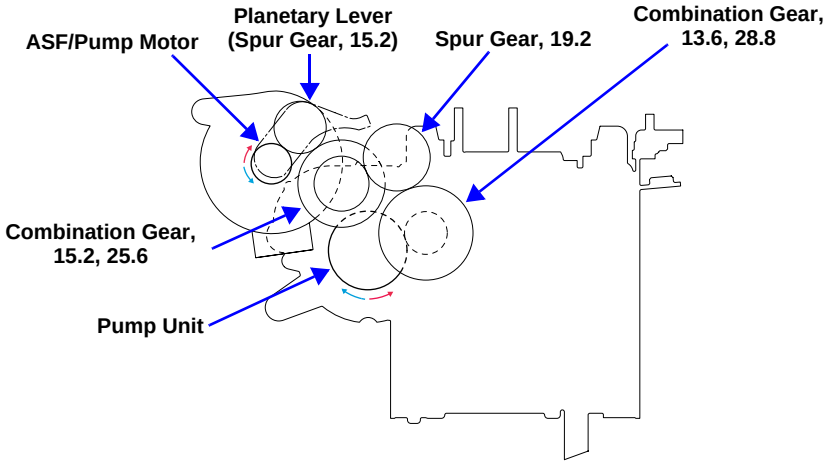


Figure 2-9. Cleaning Mechanism Drive Layout

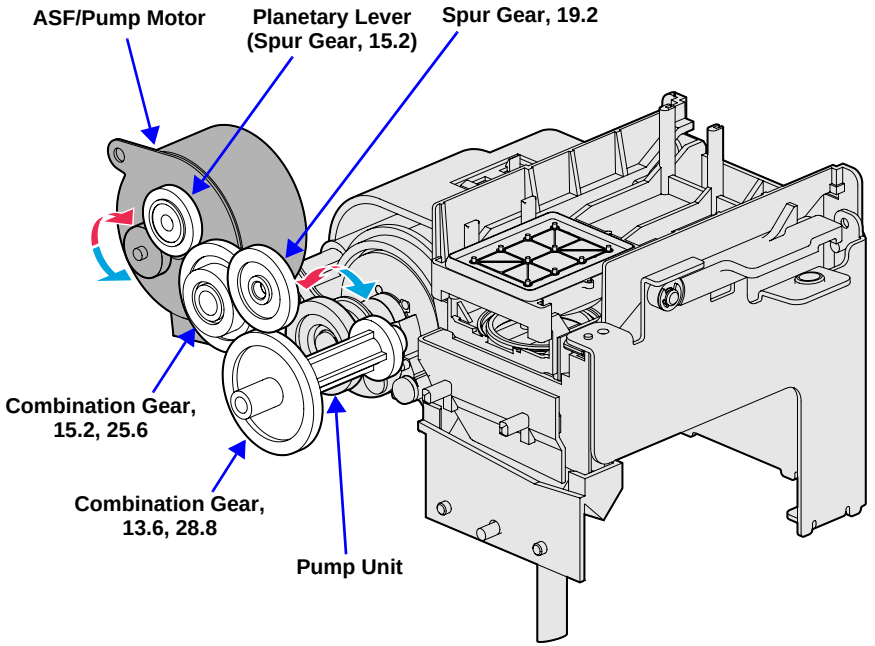


Figure 2-10. Cleaning Mechanism Drive Components

DRIVE TRANSMISSION TO PUMP UNIT

1. The DE Lock Lever is moved to the right end by moving the Carriage Unit to the right end of the Carriage Shaft.

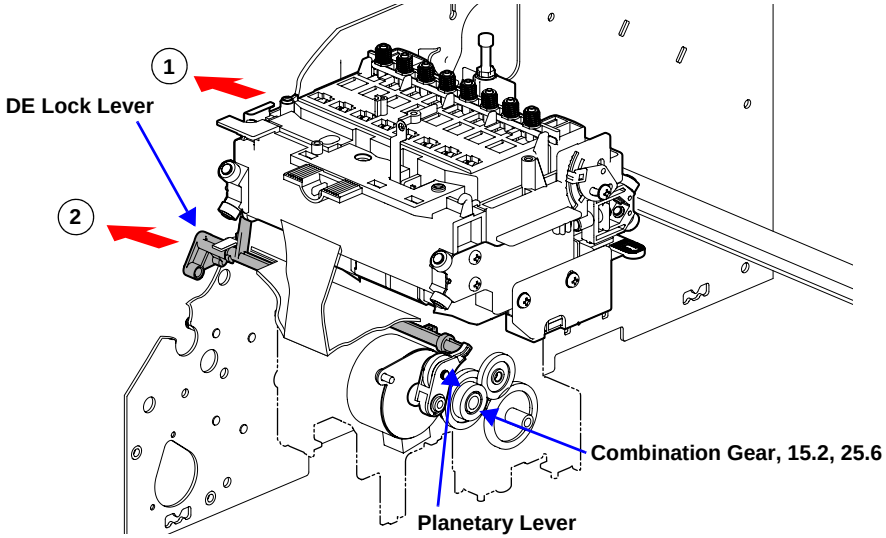


Figure 2-11. Switching Drive Transmission Path (1)

2. The ASF/Pump Motor rotates by the required step number in the clockwise direction as seen from the Motor Pinion Gear side.
3. When the ASF/Pump Motor rotates in the clockwise direction, the Planetary Lever inside the DE mechanism descends toward the Combination Gear, 15.2, 25.6, and the Planetary Lever's Spur Gear, 15.2, engages with the Combination Gear, 15.2, 25.6.
4. The DE Lock Lever fixes the Planetary Lever in place when the Carriage Unit moves the required step number to the left from the Carriage Shaft right end.

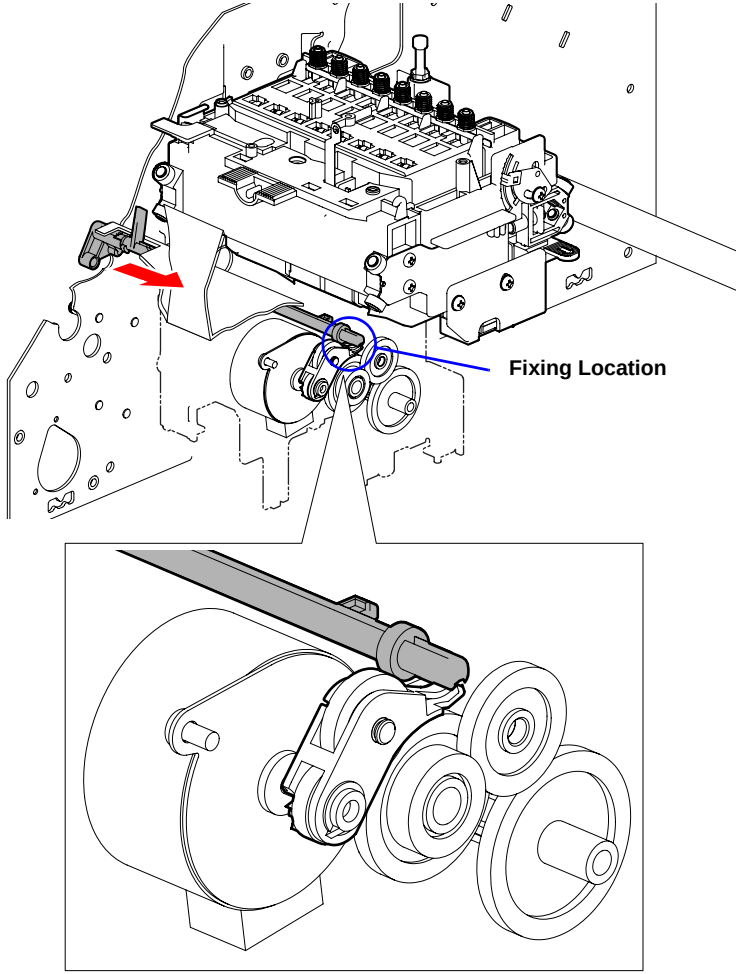


Figure 2-12. Switching Drive Transmission Path (2)

5. When the drive transmission path is switched by Step 1 through Step 4, drive power of ASF/Pump Motor is transferred to the Pump Unit by the path shown in Figure 2-8.

☐ ASF/Pump Motor (Stepping motor)
When the transmission path is switched to the Pump Unit side by Carriage Unit movement and the DE Lock Lever, the ASF/Pump Motor can drive the ink maintenance system such as pump and wiper, etc.

Movements of the ASF/Pump Motor drive transmission to the Pump Unit side are shown below.

Table 2-5. ASF/Pump Motor Rotation Directions and Functions

ASF/Pump Motor Rotation Direction	Function
Clockwise	• Pump suction • Wiper set
Counterclockwise	• Pump release • Wiper reset

Note : Rotation of the motor in the clockwise direction as seen from the Motor Pinion Gear is considered "clockwise".

☐ Pump Unit
Ink is sucked from head nozzles by having the pump driven through the cap (closed). This performs normal ink absorption, initial ink charge, cleaning, etc. Waste ink from the pump is sent to the Maintenance Tank through 2 small pipes.

☐ Head Cleaner
A structure of offsetting rubber and felt is used. By wiping/rubbing, ink and dirt adhering to the head nozzle surface is brushed off.

☐ Cap Assembly
When not printing, the Print Head (should) rest on the Cap Assembly to ensure that the nozzles don't clog. Also, the Print Head is in the capped position during ink charging, cleaning, and so on.

☐ Flushing Box
This receives ink ejected during flushing (dummy printing). The flushed ink flows through the pipe to the Maintenance Tank.

☐ Maintenance Tank (Waste Ink Absorber)
This receives waste ink discharged from the Pump Unit and Flushing Box. Waste ink is accumulated in a sponge in the Maintenance Tank.

☐ Pump Phase Sensor
A transmissive photosensor is used, which is installed inside the Pump Unit. This uses the interrupting plate in the Pump Unit to detect the rotation angle of the pump.

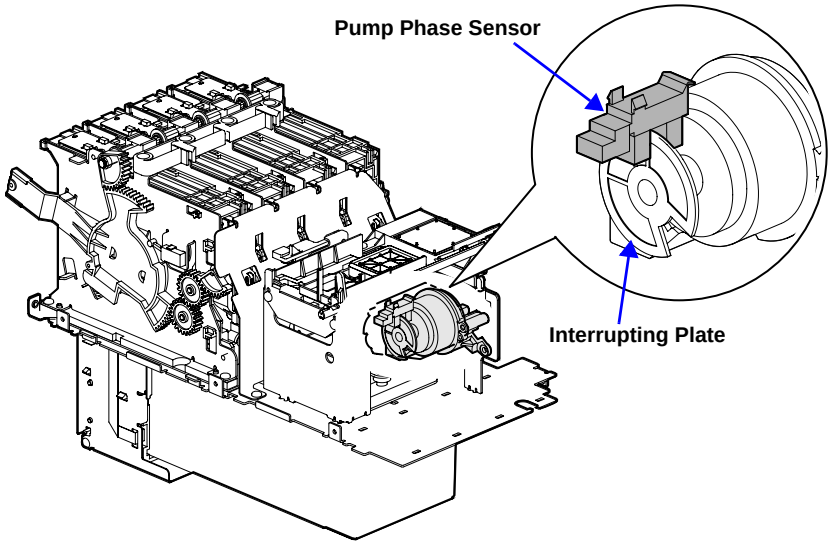


Figure 2-13. Pump Phase Sensor

NOTE: *The table below explains Ink System terminology.*

Table 2-6. Explanation of Operation

Operation	Explanation
Initial Ink Charge	• This is the operation where the head is filled with ink for the first time. When the first ink cartridge is inserted (after all 8 colors have been inserted), the initial ink charge operation is performed automatically. • The initial charge flag is set when the printer is shipped from the factory, then after this operation, the initial filling flag is reset. The initial charge flag is also set after the "Input Rank" is run.
Flushing	• In order to prevent the viscosity of the ink inside the head nozzles from increasing, the ink inside the Flushing Box is flushed out. • Flushing is done when paper is set, when printing from the standby state, during continuous printing, during paper Eject, during paper cutting, etc.
Wiping Operation	The Carriage Unit is moved from right to left along the rubber side of the wiper (the right half of the Wiper Blade) incorporated in the Pump Unit so that the head surface is rubbed with the rubber of the wiper. Purpose: • Before ink suction, removes the ink and other substances adhering to the head surface. • Ensures close contact of the cap.
Rubbing Operation	The Carriage Unit is moved from left to right along the felt side of the wiper (the left half of the Wiper Plate) incorporated in the Pump Unit so that the head surface is rubbed with the felt of the wiper. For easy removal of adhering substances, the nozzle surface is wetted before rubbing operation by suction of a small amount of ink. Purpose: • Removes ink and other substances adhering strongly to the head surface. • Ensures close contact of the cap.
Capping	In order to prevent the ink viscosity from increasing while the printhead nozzles are not used, a rubber cap is placed over the Print Head nozzles when entering a shutdown operation.

2.2.4 Carriage (CR) Mechanism

This printer has a unique carriage mechanism for stable and high precision movement/printing of the on-carriage head for the print area of A2 paper width.

The Carriage mechanism is formed of the following components.

- ☐ Carriage Unit
- ☐ Carriage Shaft (front and rear)
- ☐ CR Motor
- ☐ PG/PO Motor
- ☐ CR_HP Sensor
- ☐ CR Encoder Sensor
- ☐ Multi Sensor
- ☐ PG Phase Sensor
- ☐ Cutter Solenoid
- ☐ CR Lock

This section describes the following items.

- ☐ Carriage Unit movement components
- ☐ Platen Gap adjustment components
- ☐ Cutter Solenoid/CR Lock Mechanism

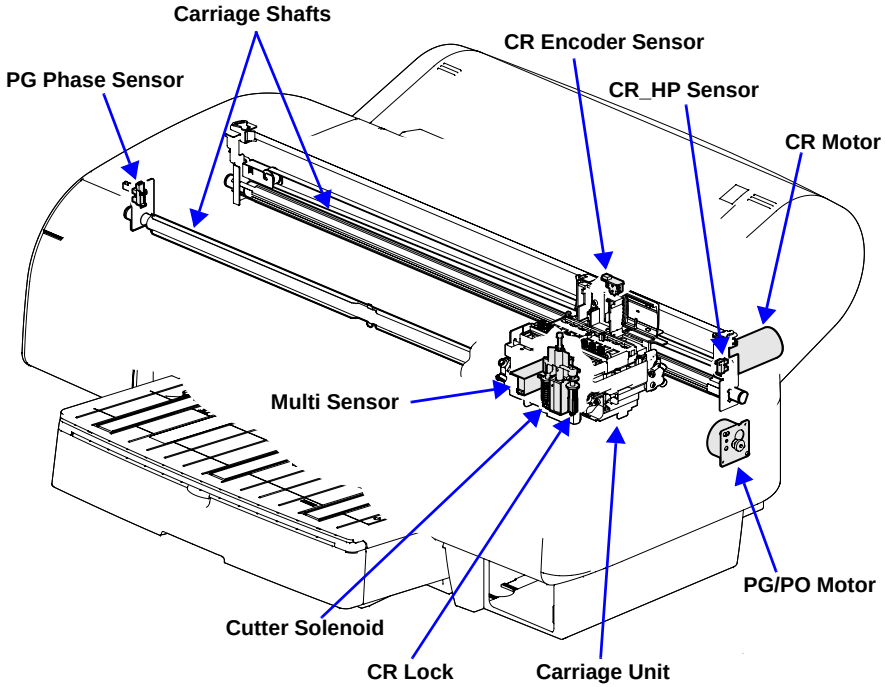


Figure 2-14. Carriage Mechanism Components

2.2.4.1 Carriage Unit Movement Components

Two Carriage Shafts, each covered with a linear plate, and eight rollers (bearings) form the structure supporting the carriage.

CAUTION

Do not remove the screws securing the Carriage Shafts. They are adjusted/assembled at the factory in 1/100mm increments.

The main structural components of the carriage movement mechanism and the functions of these components are described below.

CARRIAGE MECHANISM DRIVE

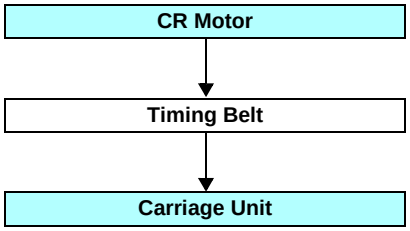


Figure 2-15. Drive Transmission Path

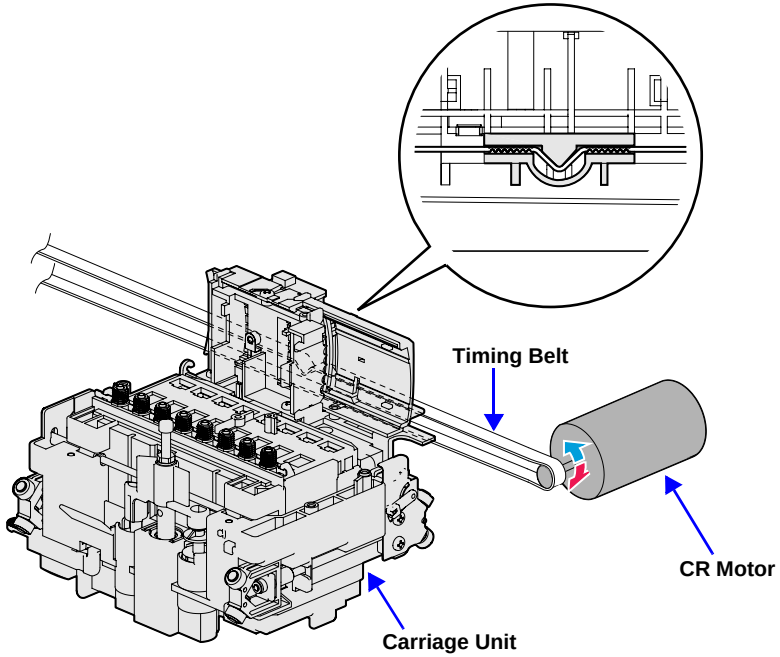


Figure 2-16. Carriage Mechanism Drive Components

- CR Motor (DC motor)
  The Carriage Unit moves left/right by the CR Motor drive. The Encoder Sensor installed in the Carriage Unit reads (linear encoder system) the slits of the CR Scale, and this signal is compared to the logic control value by the Main Board control circuit to perform feedback speed control. The control maintains high printing speed.

  Drive transmission from the CR Motor to the Carriage Unit uses a durable timing belt that is easy to maintain.

The sensors used in the carriage movement components are described below.

- CR_HP Sensor (Carriage home position)
  This is a transmissive photosensor installed at the printer right side. Insertion of the flag (a protrusion) on the Carriage Unit is detected as the carriage movement origin (home position). Sensor outputs are "OFF" in the HP range and "ON" outside the HP range.
- CR Encoder Sensor (Linear encoder)
  Installed on the back of the Carriage Unit, this is uses pulse output (2 channels) corresponding to the slit position on the CR Scale for CR Motor servo control and PTS (Print Timing Signal) formation. The resolution is 1/180 inch.
- Multi Sensor
  This is a reflective sensor installed at the Carriage Unit lower left side, and it has multiple functions. For details on the Multi Sensor, refer to "2.2.7 Multi Sensor" *(p.145)*.

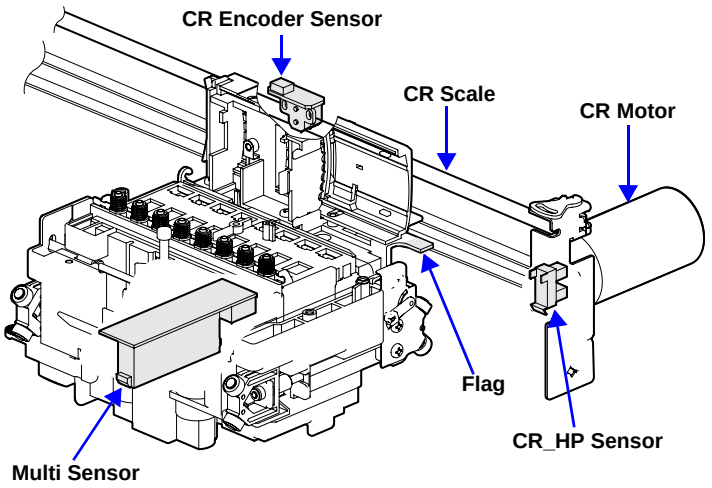


Figure 2-17. Carriage Mechanism Detection Components

2.2.4.2 Platen Gap Adjustment Components

The Carriage Unit (= Print Head) installation position must always maintain a fixed distance from the paper surface in order to preserve printing precision.

The Carriage Unit is supported by 2 Carriage Shafts. The Carriage Unit moves up and down with the rotation of the Carriage Shafts because of the eccentric bushings attached to both ends of each Carriage Shaft. This movement changes the gap between the Print Head surface and the Platen surface.

Main platen gap adjustment mechanism components and their functions are explained in the following sections.

PLATEN GAP MECHANISM DRIVE

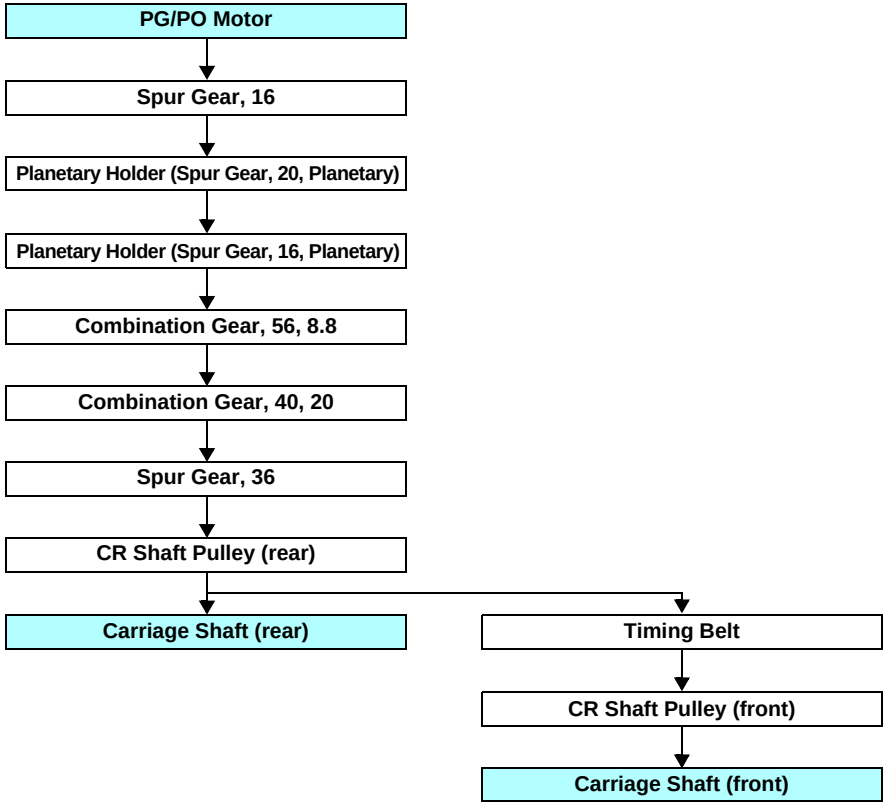


Figure 2-18. Drive Transmission Path

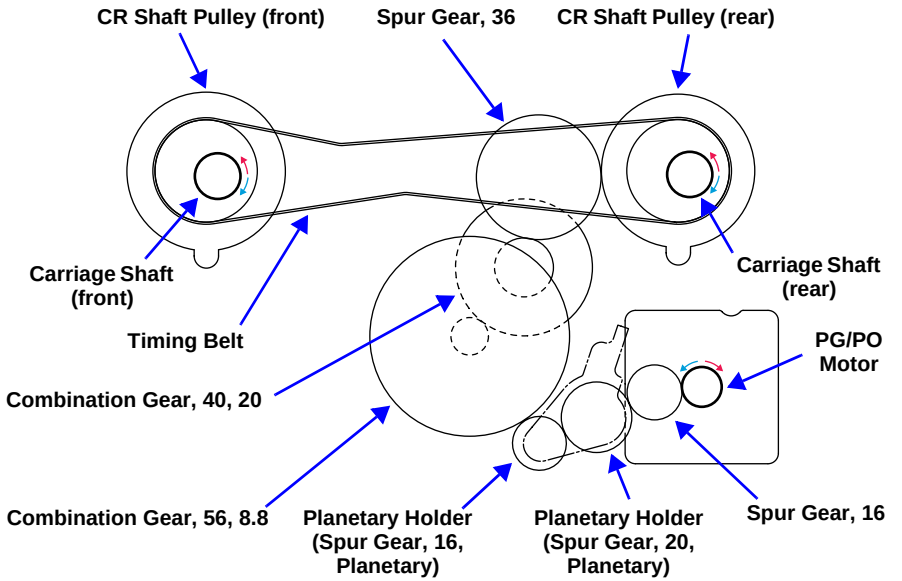


Figure 2-19. Platen Gap Mechanism Drive Layout

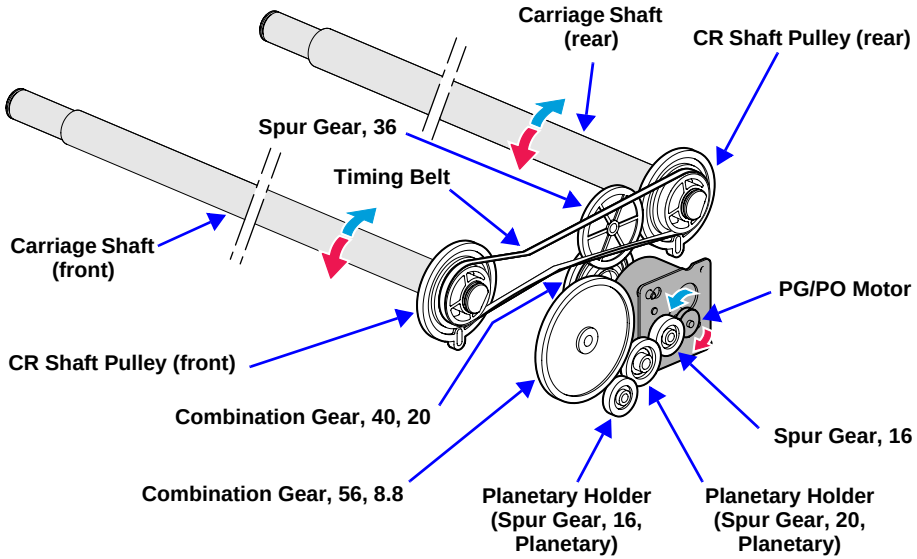


Figure 2-20. Platen Gap Mechanism Drive Components

DRIVE TRANSMISSION TO CARRIAGE SHAFT

1. The Planetary Lock Lever (along with the DE Lock Lever) are moved to the right end by moving the Carriage Unit to the right end of the Carriage Shaft.

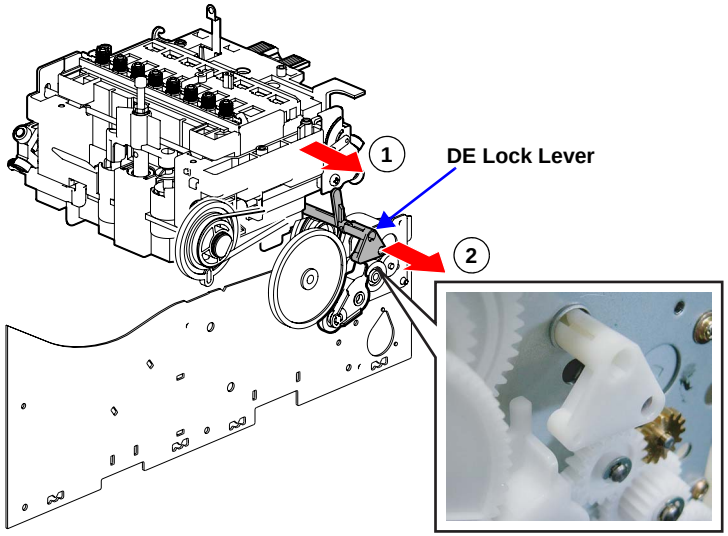


Figure 2-21. Switching Drive Transmission Path (1)

2. The PG/PO Motor rotates by the required step number in the clockwise direction as seen from the Motor Pinion Gear side.
3. When the PG/PO Motor rotates in the clockwise direction, the Planetary Holder raises up in the direction of the Combination gear, 56, 8.8, and the Planetary Holder Spur gear, 16, engages with the Combination gear, 56, 8.8.
4. The planetary Lock Lever fixes the Planetary Holder in place when the Carriage Unit moves the required step number to the left from the Carriage Shaft right end.

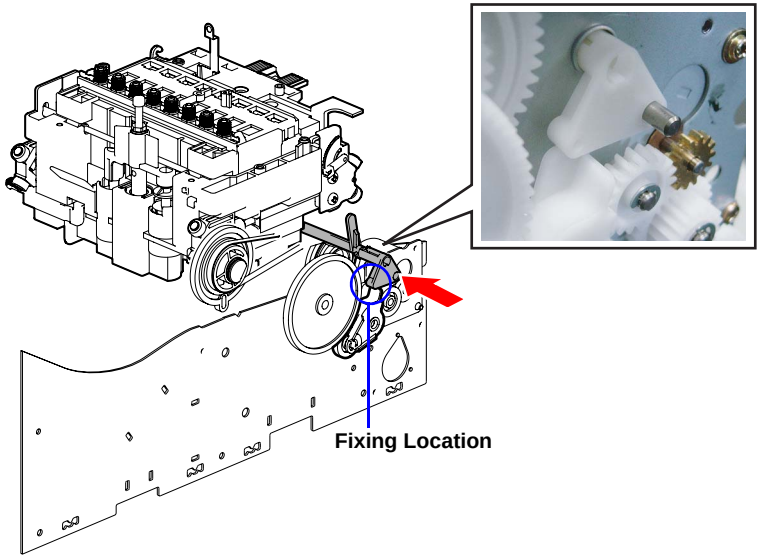


Figure 2-22. Switching Drive Transmission Path (2)

5. When the drive transmission path is switched by Step 1 through Step 4, PG/PO Motor drive is transferred to the Carriage Shaft by the path shown in Figure 2-18.

☐ PG/PO Motor (Stepping motor)
When the transmission path is switched to the platen gap adjustment side by the Carriage unit movement and DE Lock Lever, the PG/PO Motor can automatically shift (rotation movement of Carriage Shafts, both front and rear) the PG position up or down.

Movements of the PG/PO Motor drive transmission to the Platen Gap adjustment side are shown below.

Table 2-7. PG/PO Motor Rotation Directions and Functions

PG/PO Motor Rotation Direction	Function
Clockwise	PG small side → PG large side
Counterclockwise	PG large side → PG small side

Note : Rotation of the motor in the clockwise direction as seen from the Motor Pinion Gear is considered "clockwise".

The Adjustment Lock Bushing rotates with the rotation of the Carriage Shaft. When Carriage Shaft rotation stops, the PG Lock Lever locks the Adjustment Lock Bushing. Securing the Adjustment Lock Bushing suppresses rotation of the Carriage Shaft and prevents fluctuation in platen gap.
The locking position has 4 levels to match PG.

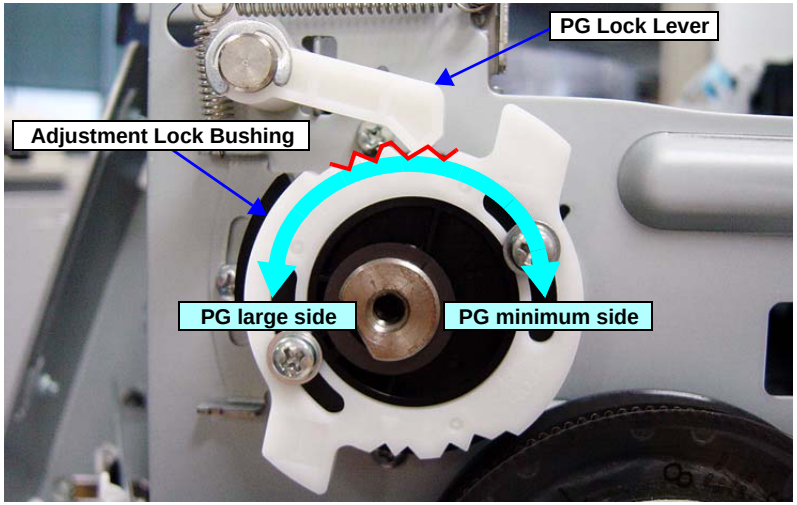


Figure 2-23. PG Setting Positions

The sensors used in the platen gap adjustment components are described below.

☐ PG Phase Sensor
This is a transmissive sensor installed on the left side of the printer that detects the PG position (height of head from paper surface) and machine home position (home) at the time of adjustment movements. A reflective sensor is used to detect the flag position of the shield plate attached to the right side of the front Carriage Shaft. With machine home position as the standard, 4 head positions can be obtained.

Table 2-8. PG Setting

Position	Gap Width	Application	Pulse Count from Origin (Converted to 2-2 Phase Excitation)
Macimum	2.6mm	Platen gap for thick paper	244
Large	2.1mm	Platen gap for paper which can be soiled if setting is for thin paper	176
Medium	1.5mm	Platen gap fot specified thin paper which has frictional force more than the other thin paper.	96
Small	1.2mm	Platen gap for thin paper	60
Minimum	0.7mm	Platen gap for film	0

2.2.4.3 Cutter Solenoid/CR Lock Mechanism

Installed on the front of the Carriage Unit, this is a DC solenoid for controlling cutter pressure of the cutter used for roll paper cutting.
In addition, the CR Lock Mechanism is used jointly so that when the Carriage Unit moves from the printing area further to the right of the capping position (CR_Home), the lock activates to prevent Carriage Unit movement. When the Cutter Solenoid turns ON with the Carriage Unit at capping position, the Cutter Solenoid attracts the Actuating Plate of the CR Lock releasing Kicker, the Kicker kicks the CR Lock, and then the CR Lock is released. The printer is also equipped with the mechanism to lock the Carriage Lock to prevent the Kicker from moving vertically during transportation to release the CR Lock.

NOTE: Refer to "1.2.7.4 Cut Specification" *(p.21)*.

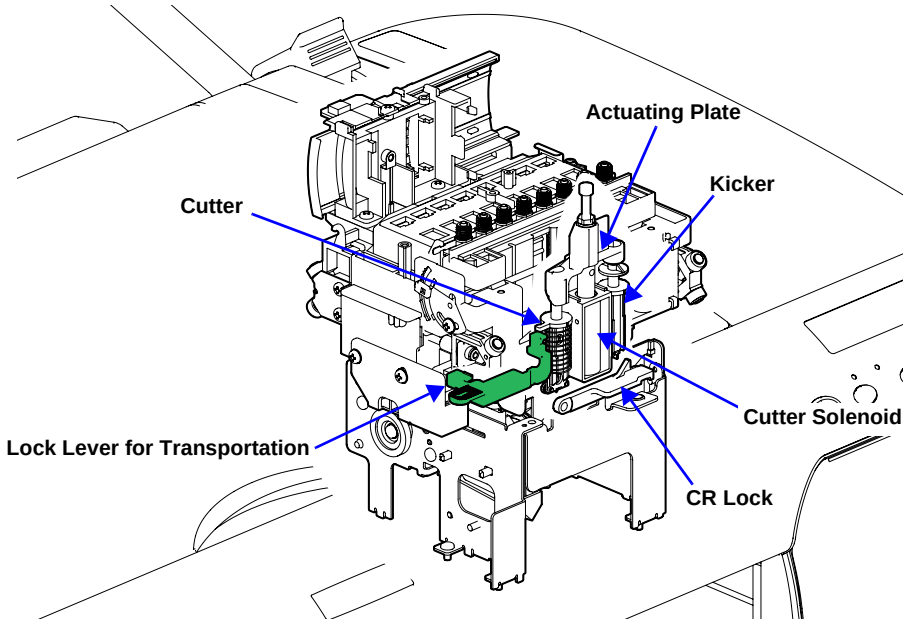


Figure 2-24. Carriage Components: Cutter Solenoid

2.2.5 Paper Feed Mechanism

This printer uses friction feed to carry out highly precise feeding of roll paper and cut sheets, and comprises a unique paper feed mechanism.

The paper feed mechanism is formed of the PF Motor, PF Roller, Sub Roller Unit, Driven Roller Unit and Paper Eject Roller.

Paper feed mechanism main components and their functions are described below.

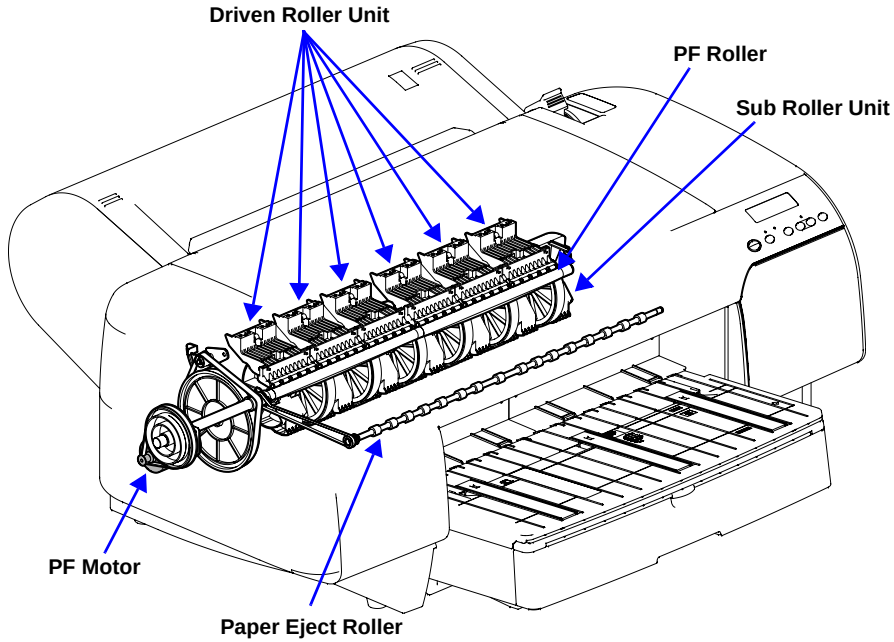


Figure 2-25. Paper Feed Mechanism

PAPER FEED MECHANISM DRIVE

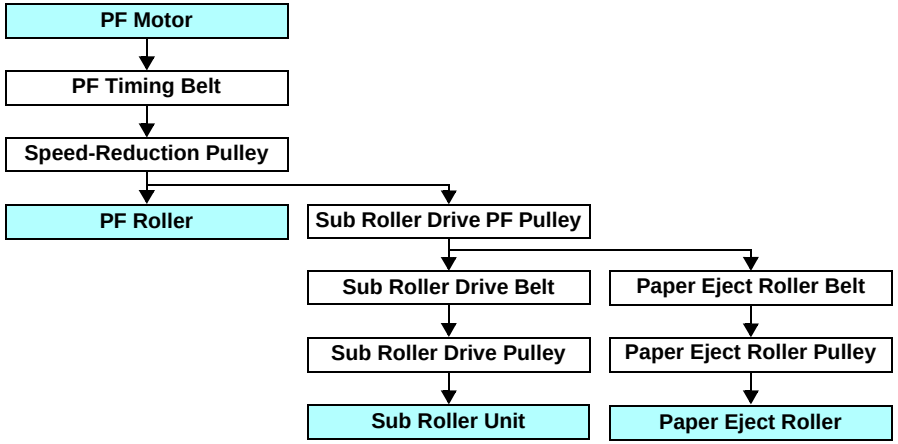


Figure 2-26. Drive Transmission Path

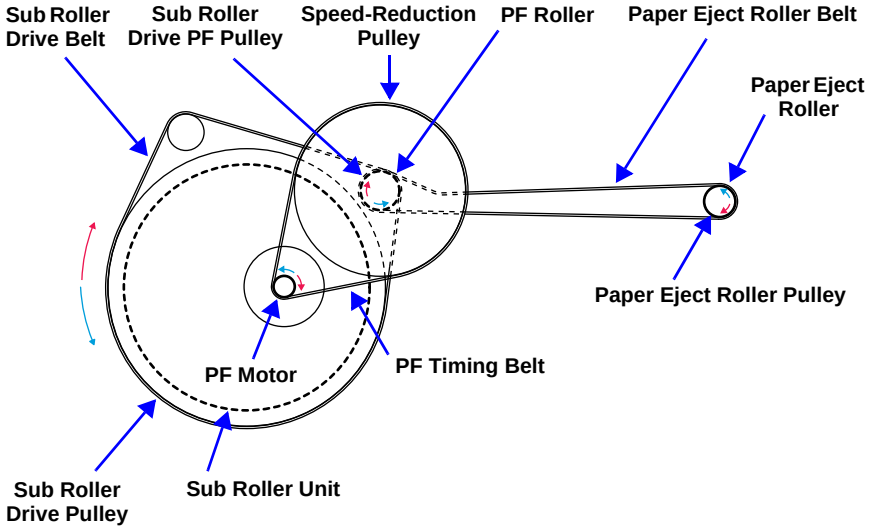


Figure 2-27. Paper Feed Mechanism Drive Layout

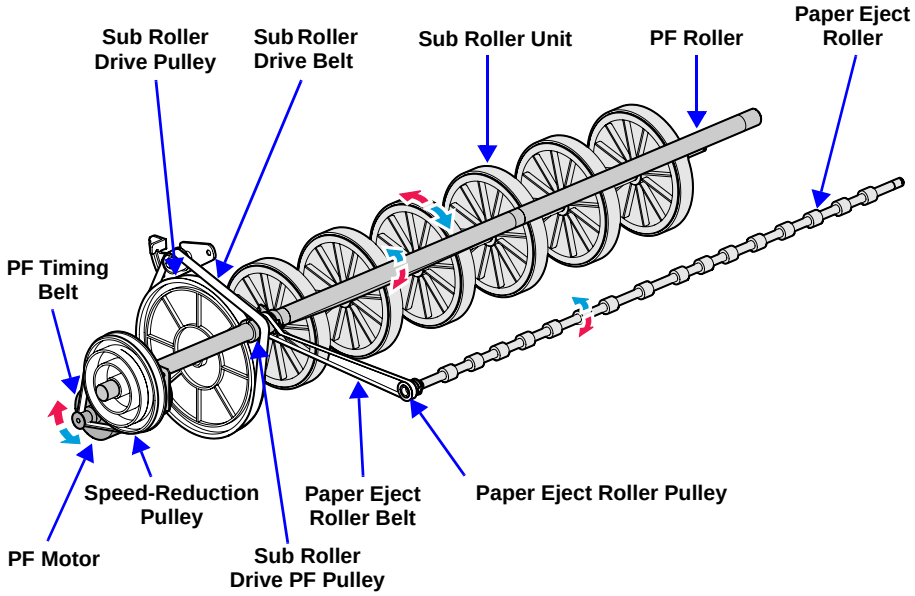


Figure 2-28. Paper Feed Mechanism Drive Components

- PF Motor (DC motor)
  With drive from the PF Motor, the grid of the loop scale installed above both PF Rollers is read by the Encoder Sensor, and feedback control is based on the output pulse. This control maintains high printing precision.
- Suction Fans
  Suction Fans are mounted in the center inside the printer. This is designed to provide smooth paper feeding (prevents floating) by pulling the paper onto the platen surface by drawing air through multiple punched holes in the platen on the underside of the paper path and directing it toward the bottom of the printer body. Control of blowing force (rotation Duty control) for the fans is based on the printer operating condition (at paper set, during printing, etc.) and paper type.

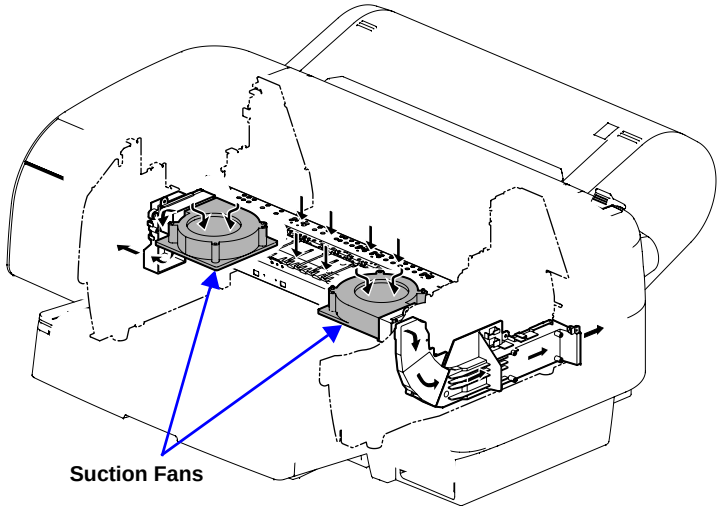


Figure 2-29. Suction Fans

The sensors used in the paper feed mechanism are described below.

- PF Encoder Sensor
  Mounted at the left side of the printer, the sensor's pulse output (2 channels) corresponds to the slit position on the PF Scale and is used for servo control of the PF Motor and for formation of the PTS (Print Timing Signal). Resolution is 1/360 inch.
- PE Sensor
  This reflective photosensor is mounted at the right side rear surface of the printer. This triggers the no paper condition when the paper trailing edge is detected and triggers paper setting start operations (start of suction fans, etc.) when the leading edge is detected during paper setting.
- Paper Lever/P_THICK Sensor (P_THICK, P_THICK_0.3)
  This transmissive photosensor is mounted at the right side rear surface of the printer. Paper thickness is detected during paper setting by the change in movement of the paper thickness detection lever of the Driven Roller Unit.
  Threshold values for paper thickness is set for 0.3~0.4mm (P_THICK0.3 Sensor) and 0.8~0.9mm (P_THICK Sensor), and the sensor operates when the Paper Lever goes down.

  Set detection values for the sensors are 0.3mm and 0.8mm, corresponding to the up/down position of the Paper Lever. Combined detection of both sensors detects the paper lever as up.

Table 2-9. Modes

Paper Thickness	Shield Plate		Sensor Output	
	P_THICK_0.3	P_THICK	P_THICK_0.3	P_THICK
Less than 0.3mm	No (open)	No (open)	L	L
0.4mm or more 0.8mm or less	No (open)	Yes (closed)	L	H
0.9mm or more 1.8mm or less	Yes (closed)	Yes (closed)	H	H
Connector not connected	–	–	H	H
Cancel increased pressure (Hi-Up)	Yes (closed)	No (open)	H	L

- Rear Manual Insertion Sensor
  This reverse tension switch sensor (mechanical contact) is mounted at the rear surface of the printer. The sensor detects paper being fed from the manual insertion slot.

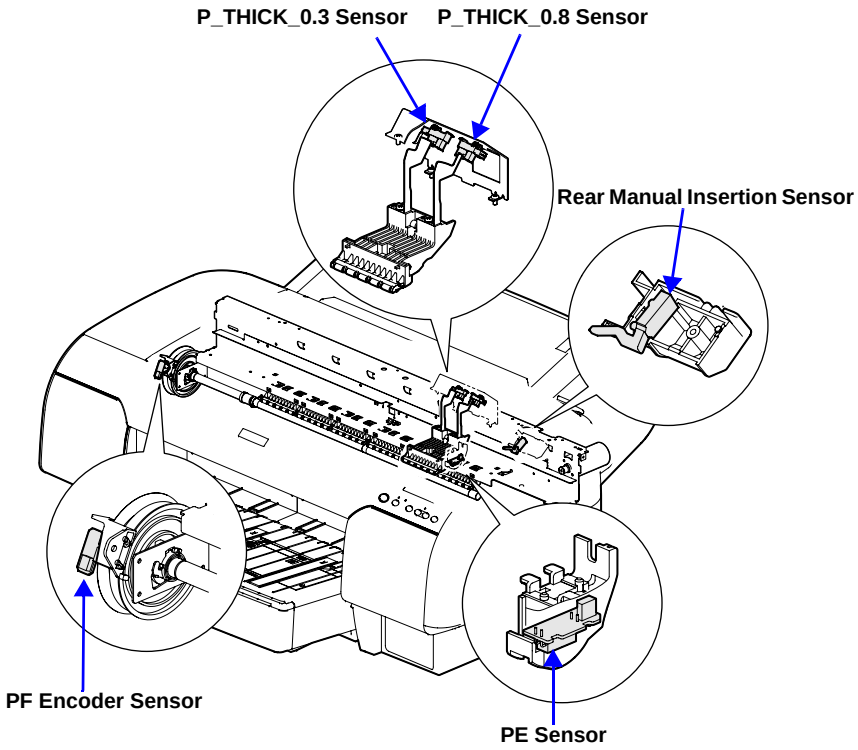


Figure 2-30. Paper Feed Mechanism Sensors

2.2.5.1 ASF Paper Feed Mechanism

This printer is equipped with an ASF Unit for feeding cut sheet paper. Operating principles of the ASF Unit are described below.

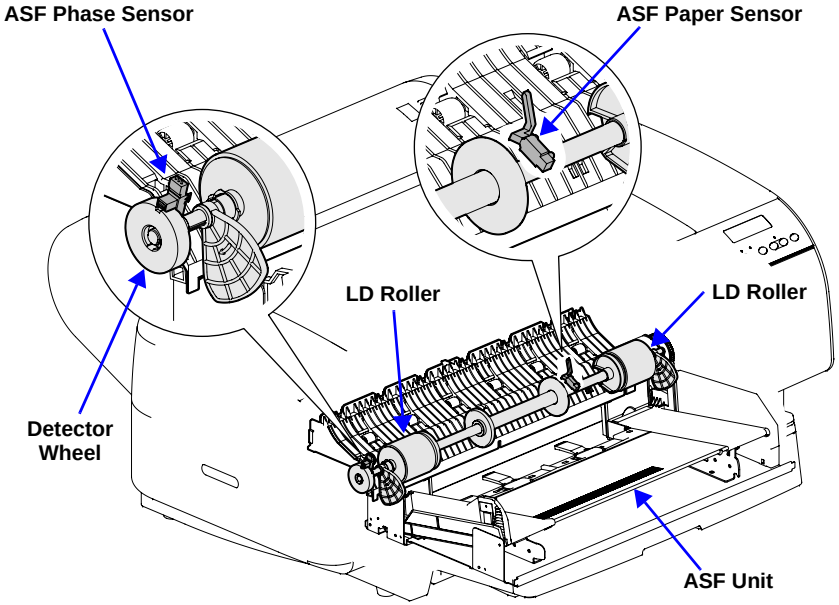


Figure 2-31. ASF Paper Feed Mechanism

ASF PAPER FEED MECHANISM DRIVE

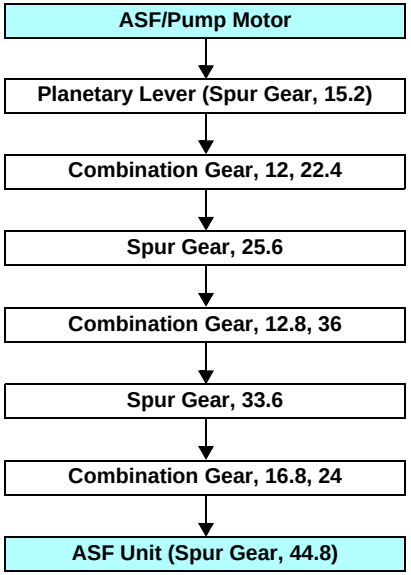


Figure 2-32. Drive Transmission Path

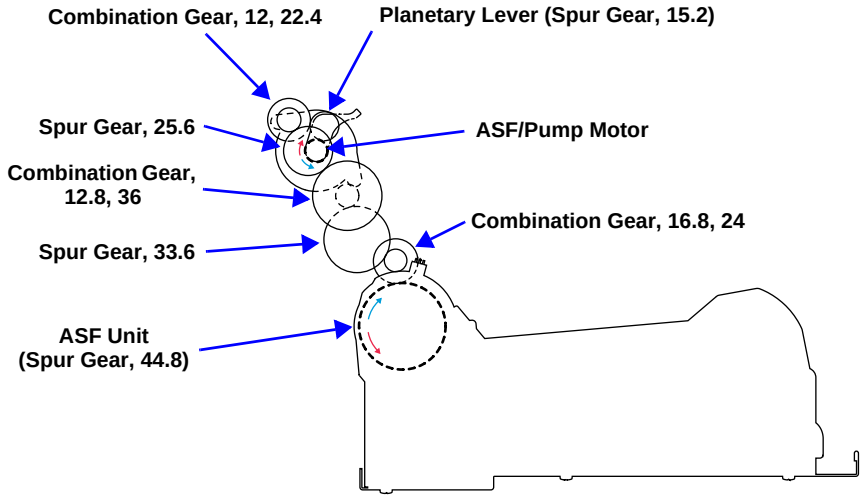


Figure 2-33. ASF Paper Feed Mechanism Drive Layout

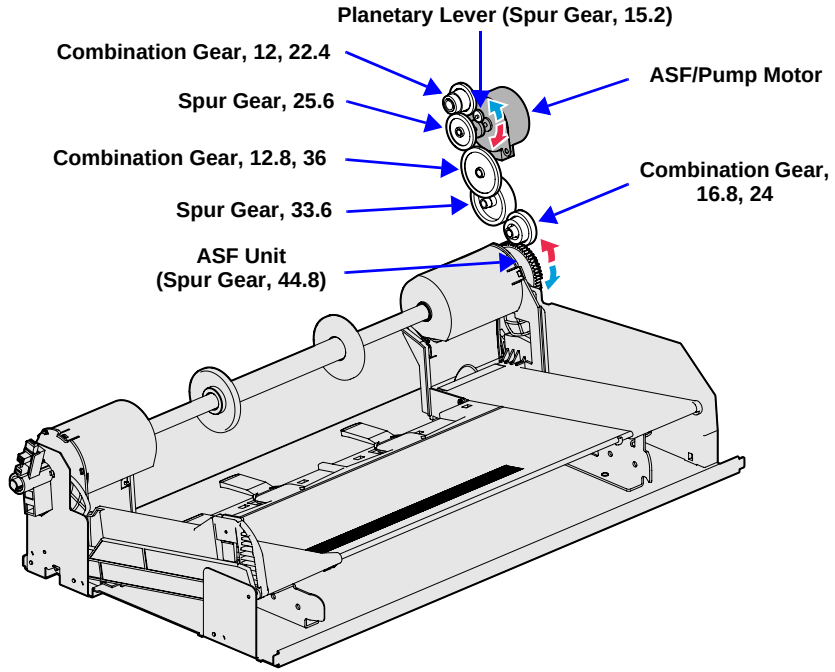


Figure 2-34. ASF Paper Feed Mechanism Drive Components

TRANSMISSION OF DRIVE TO ASF UNIT

1. The DE Lock Lever is moved to the right end by moving the Carriage Unit to the right end of the Carriage Shaft.

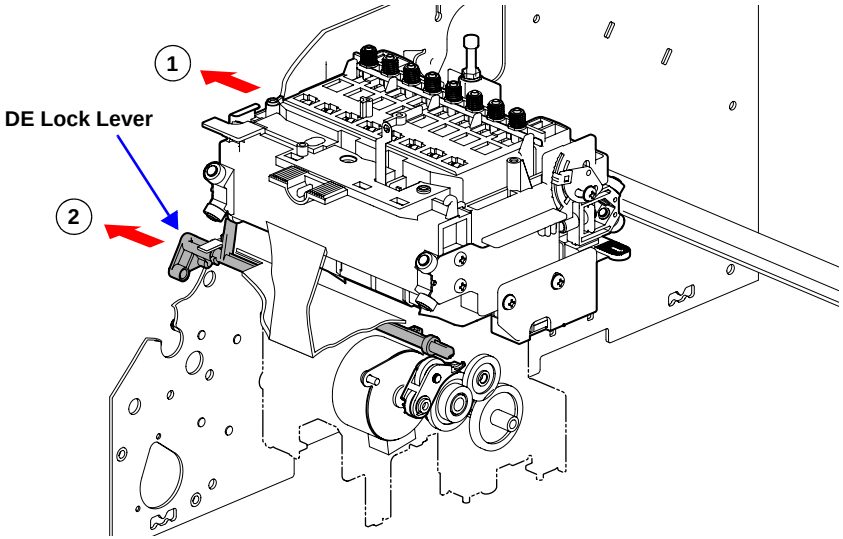


Figure 2-35. Switching Drive Transmission Path (1)

2. The ASF/Pump Motor rotates by the required step number in the counterclockwise direction as seen from the Motor Pinion Gear side.
3. By rotation of the ASF/Pump Motor in the counterclockwise direction, the Planetary Lever inside the DE mechanism raises in the direction of the Combination Gear, 12, 22.4, and the Spur Gear, 15.2, of the Planetary Lever engages with the Combination Gear, 12, 22.4.
4. The DE Lock Lever fixes the Planetary Lever in place when the Carriage Unit moves the required step number to the left from the Carriage Shaft right.

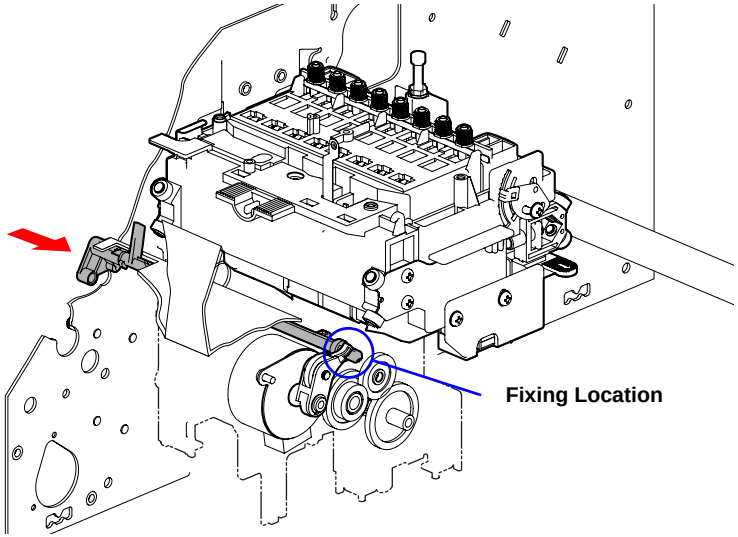


Figure 2-36. Switching Drive Transmission Path (2)

5. When the drive transmission path is switched by Step 1 through Step 4, drive power of ASF/Pump Motor is transferred to the ASF Unit by the path shown in Figure 2-32.

☐ ASF/Pump Motor (Stepping motor)
When the transmission path is switched to the ASF Unit side by the Carriage Unit movement and DE Lock Lever, the ASF/Pump Motor can drive the LD Roller.

Movements of the ASF/Pump Motor drive transmission to the ASF Unit side are shown below.

Table 2-10. ASF/Pump Motor Rotation Directions and Functions

ASF/Pump Motor Rotation Direction	Function
Clockwise	LD Roller Reverse Rotation
Counterclockwise	LD Roller Normal Rotation

Note : Rotation of the motor in the clockwise direction as seen from the Motor Pinion Gear is considered "clockwise".

The sensors used in the ASF paper feed mechanism are described below.

☐ ASF Paper Sensor
This reverse tension switch sensor (mechanical contact) is mounted at the center lower side of the printer. The sensor detects paper being fed from the ASF Unit.

☐ ASF Phase Sensor
This transmissive photosensor is mounted at the right lower side of the printer. The Detector Wheel at the left side of the LD Roller and LD Roller Shaft is rotated by paper feed movement from the ASF Unit. There is a notch on the Detector Wheel, and the LD Roller position is detected by this sensor and the Detector Wheel notch.

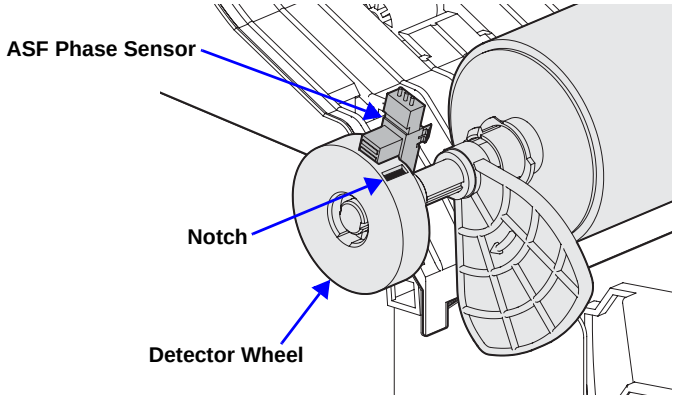


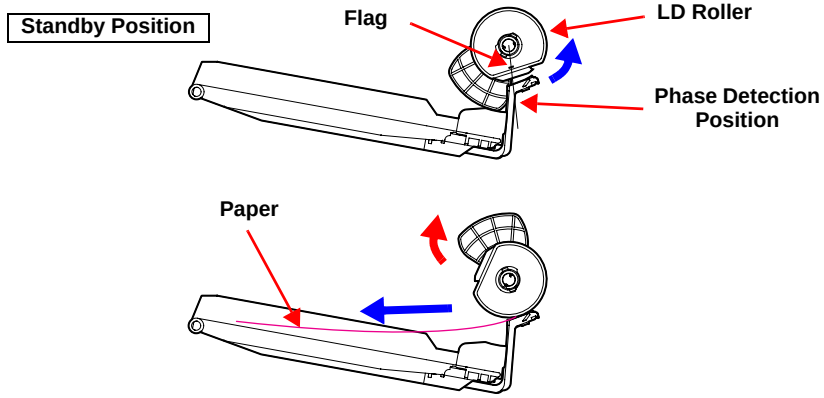
Figure 2-37. ASF Phase Sensor

Table 2-11. LD Roller and Detector Wheel

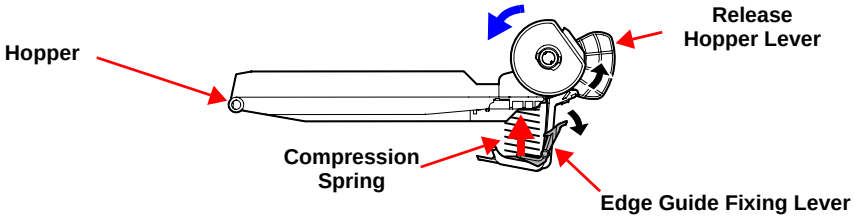
LD Roller Position	Detector Wheel Notch
Outside home position	No (closed)
Home Position	Yes (open)

LIFTER MOVEMENT (RAISING THE HOPPER)

1. When a print command is received from the PC, the LD Roller which has been in standby condition first rotates to the paper feed side (counterclockwise) by the required step number and then rotates in the opposite direction from the paper feed side (clockwise) by the required step number to return any paper remaining between the LD Roller and the Separation Pad to the tray.



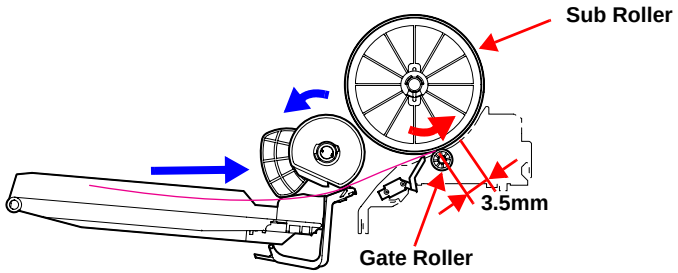
2. After completion of the paper return movement, the Release Hopper Lever rotates counterclockwise with the LD Roller. When the Edge Guide Fixing Lever releases the hook being pressed by the Release Hopper Lever, the tension of the Compression Spring is released and raises the Hopper.



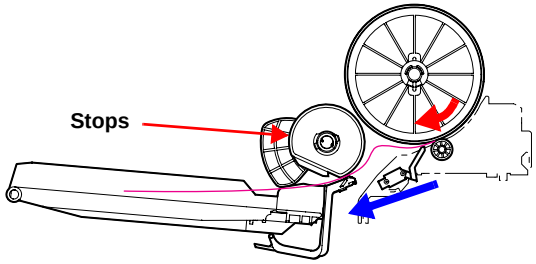
3. The LD Roller rotates in the counterclockwise direction and picks up paper.

   - Skew Correction Mode 1

     1. Feeds the paper leading edge by 3.5mm between the Sub Roller and Gate Roller.

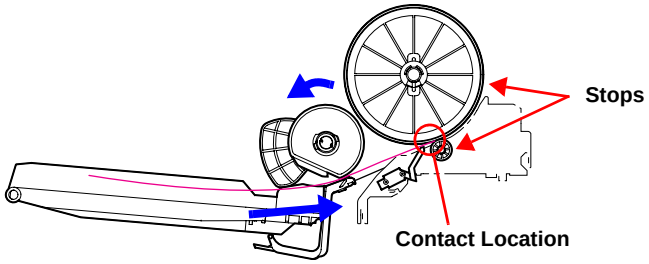


     2. The LD Roller stops, and reverse rotation of the Gate Roller and Sub Roller corrects the skew by pushing back the paper being fed.

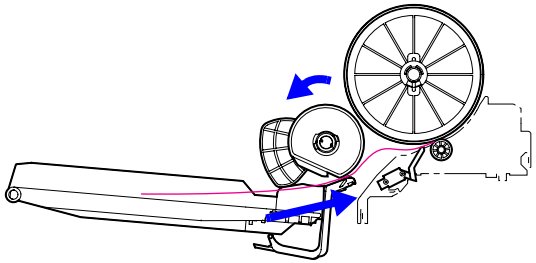


- Skew Correction Mode 2

  1. The paper hits against the Gate Roller and Sub Roller. The Gate Roller and Sub Roller are stopped at this time.



  2. Skew is corrected by the LD Roller pushing forward the unfed paper.



4. After feeding the paper, the LD Roller rotates in the counterclockwise direction and returns to the standby position.
5. The LD Roller in standby position then rotates in the clockwise direction by the required step number to return paper remaining between the LD Roller and Separation Pad to the tray. Then the roller returns to the standby position again.

2.2.6 Paper Eject/Release Mechanism

This printer has a paper eject mechanism that switches eject according to the paper feed device and media used and has a release mechanism that applies pressure/release by the driven roller.

Operating principles of the eject mechanism and release mechanism are described below.

2.2.6.1 Paper Eject Mechanism

PAPER MECHANISM DRIVE

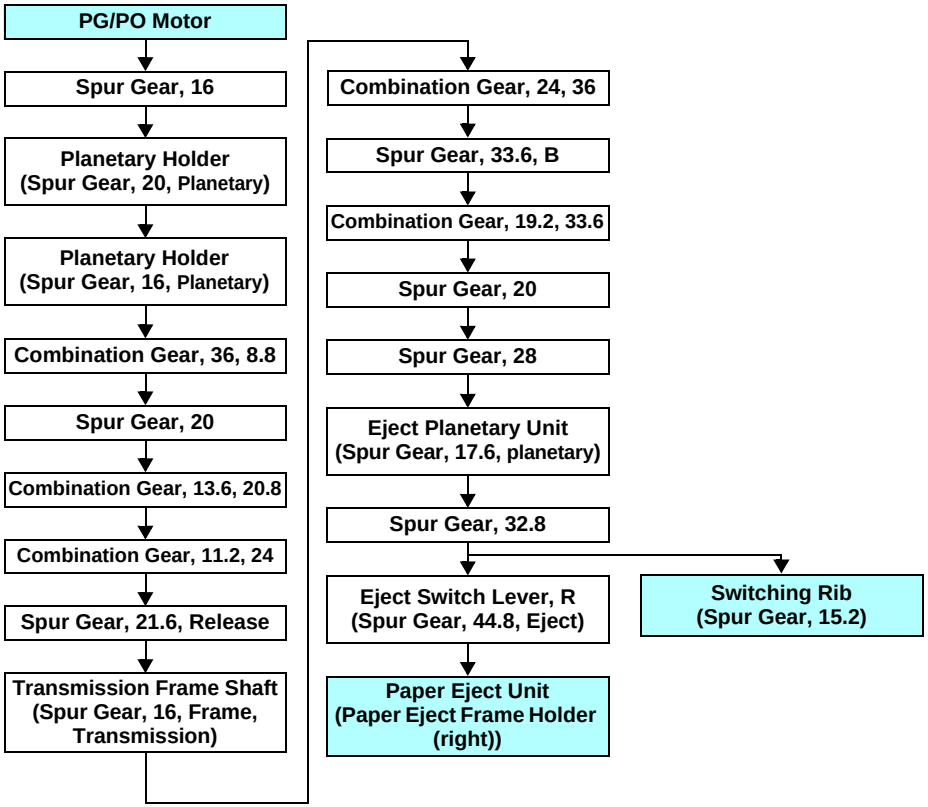


Figure 2-38. Drive Transmission Path

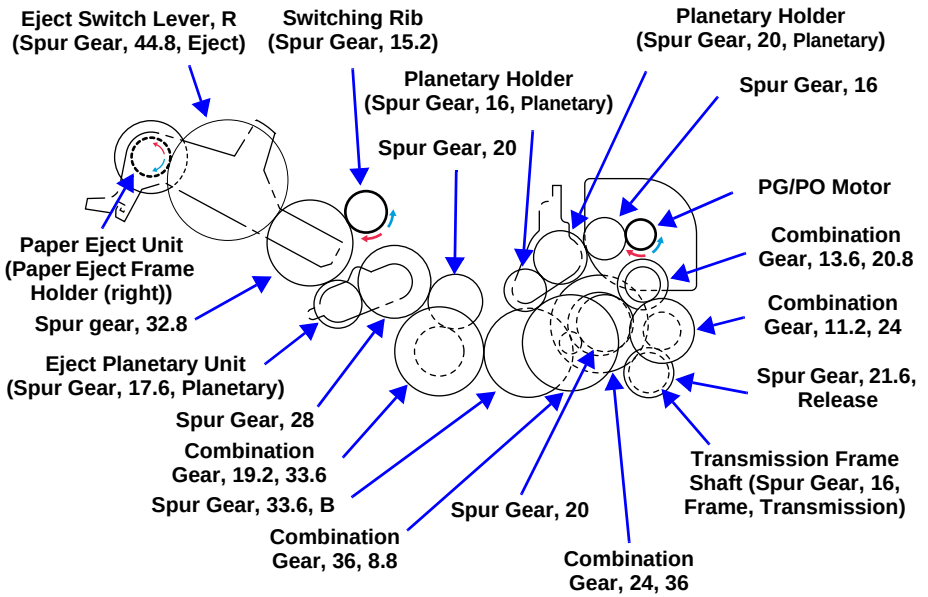


Figure 2-39. Paper Eject Mechanism Drive Layout

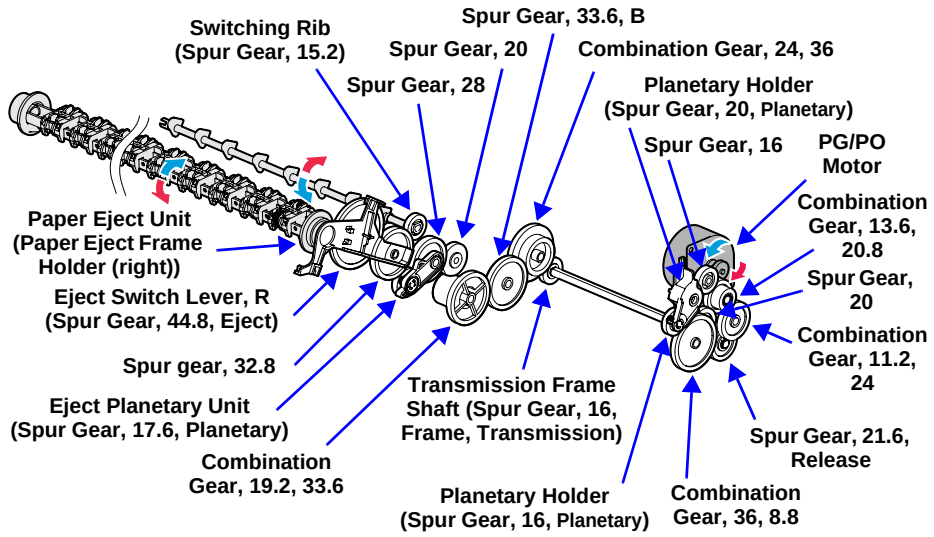


Figure 2-40. Paper Eject Mechanism Drive Components

TRANSMISSION OF DRIVE TO PAPER EJECT UNIT

1. The Planetary Lock Lever (along with the DE Lock Lever) is moved to the right end by moving the Carriage Unit to the right end of the Carriage Shaft.

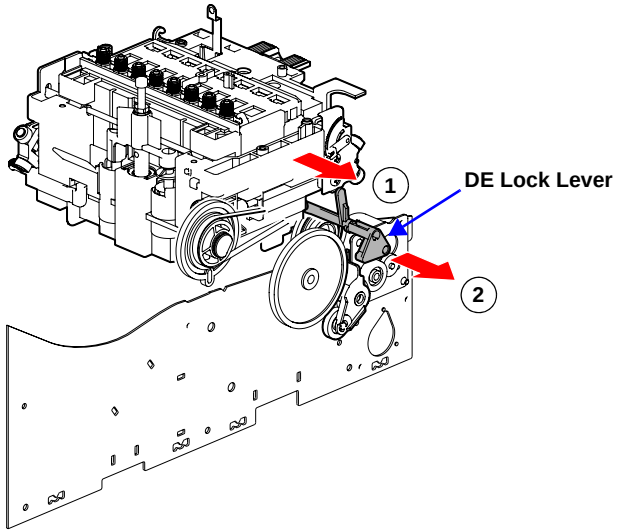


Figure 2-41. Switching Drive Transmission Path (1)

2. The PG/PO Motor rotates by the required step number in the counterclockwise direction as seen from the Motor Pinion Gear side.
3. By rotation of the PG/PO Motor in the counterclockwise direction, the Planetary Holder descends in the direction of the Combination Gear, 36, 8.8, and the Spur Gear, 16, of the Planetary Holder engages with the Combination Gear, 36, 8.8.
4. The Planetary Lock Lever fixes the Planetary Holder in place when the Carriage Unit moves the required step number to the left from the Carriage Shaft right end.

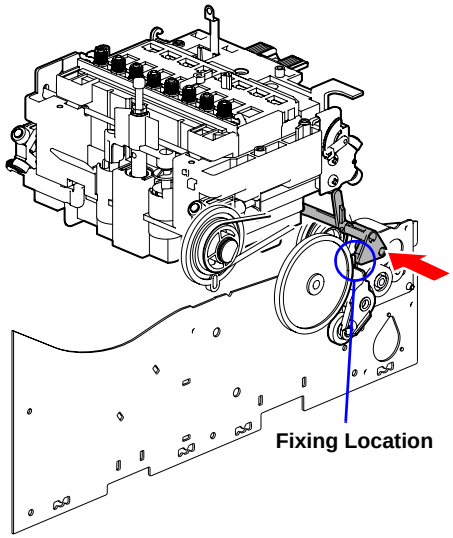


Figure 2-42. Switching Drive Transmission Path (2)

5. When the drive transmission path is switched by Step 1 through Step 4, drive power of PG/PO Motor is transferred to the Paper Eject Unit by the path shown in Figure 2-38.

- PG/PO Motor (Stepping motor)
  When the transmission path is switched to the Paper Eject Unit side by the Carriage Unit movement and DE Lock Lever, counterclockwise rotation of the PG/PO Motor performs eject switching movement as shown below. (Clockwise rotation does not occur.)

Note : Rotation of the motor in the clockwise direction as seen from the Motor Pinion Gear is considered "clockwise".

Table 2-12. Paper Eject Switching Movement

Supported Star Wheel	Description	Supported Media	Phase Detection
None	–	Universal roll paper	ON (HP)
Roll Paper Star Wheel	Star Wheel weight (10gf) No ribs	PM roll paper for photographs, other specified paper	OFF
Cut Paper Star Wheel	Star Wheel weight (20gf) Ribs	Universal cut paper	OFF

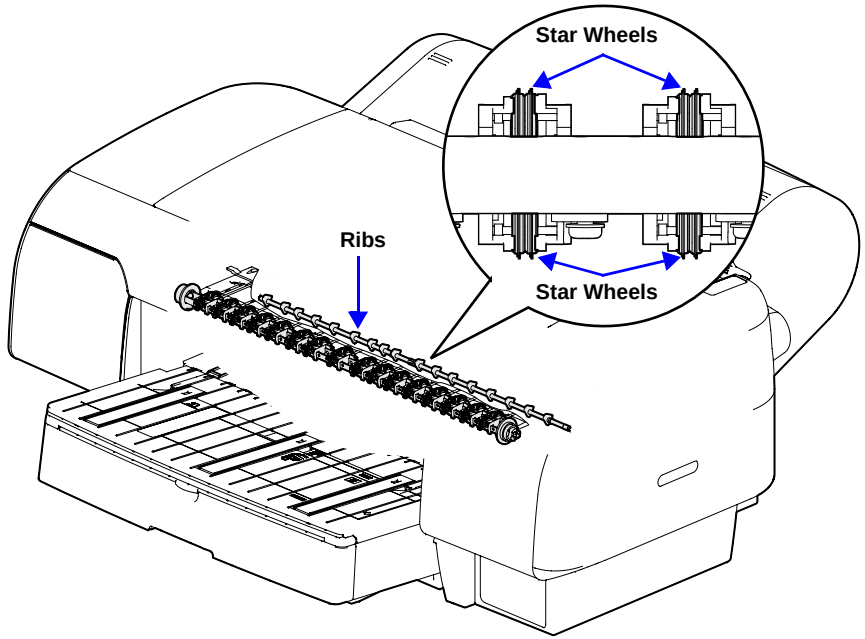


Figure 2-43. Paper Eject Unit

The sensors used in the paper eject mechanism are described below.

- Paper Eject Phase Sensor
  This reverse tension switch sensor (mechanical contact) is mounted at the inner side of the right frame storing the I/H Holder (left). The sensor detects the condition of the Paper Eject Unit.
- Paper Eject Release Sensor
  This reverse tension switch sensor (mechanical contact) is mounted at the inner side of the left frame storing the I/H Holder (right). When foreign objects enter the paper path under the Paper Eject Unit and lift the Paper Eject Unit, the sensor detects this condition and stops printing.

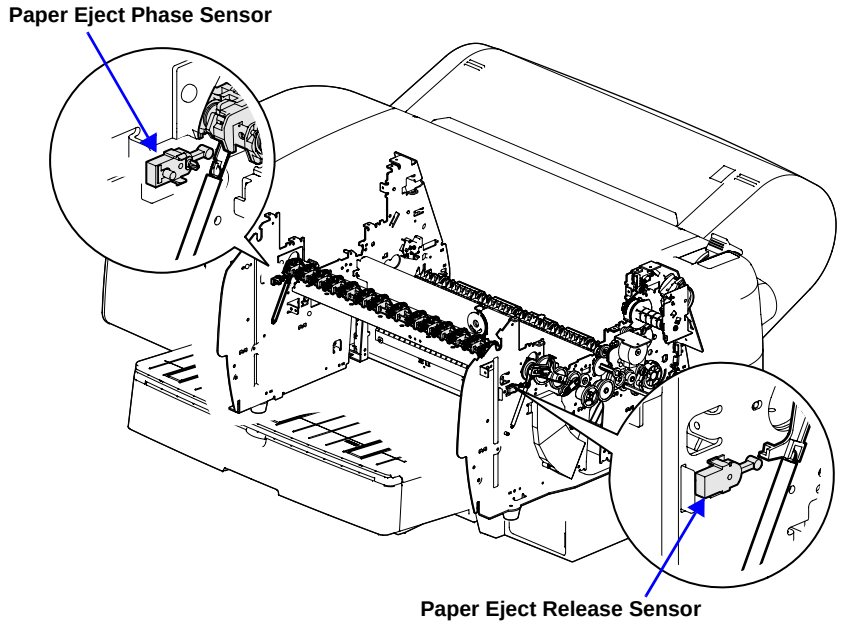


Figure 2-44. Paper Eject Mechanism Sensors

2.2.6.2 Release Mechanism

RELEASE MECHANISM DRIVE

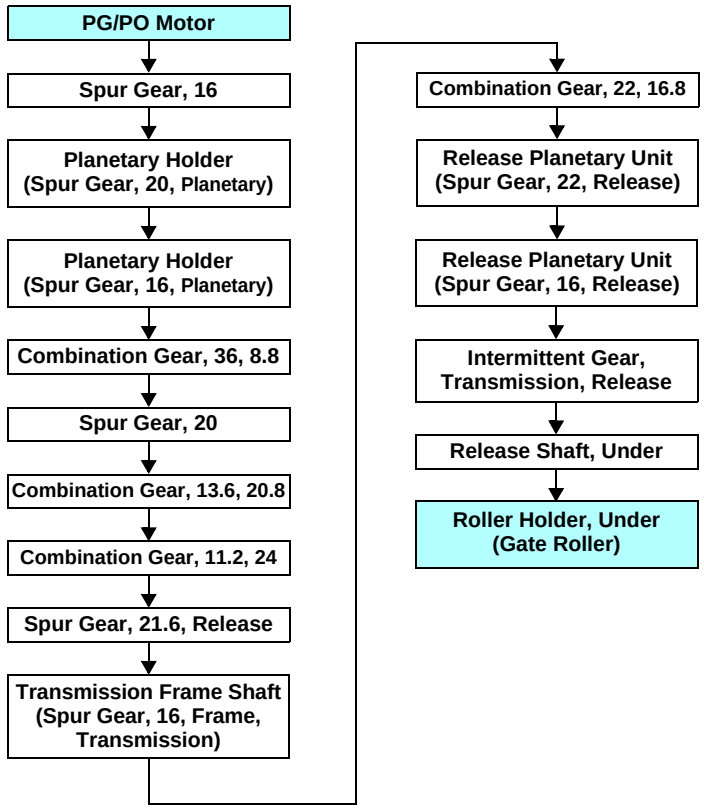


Figure 2-45. Drive Transmission Path

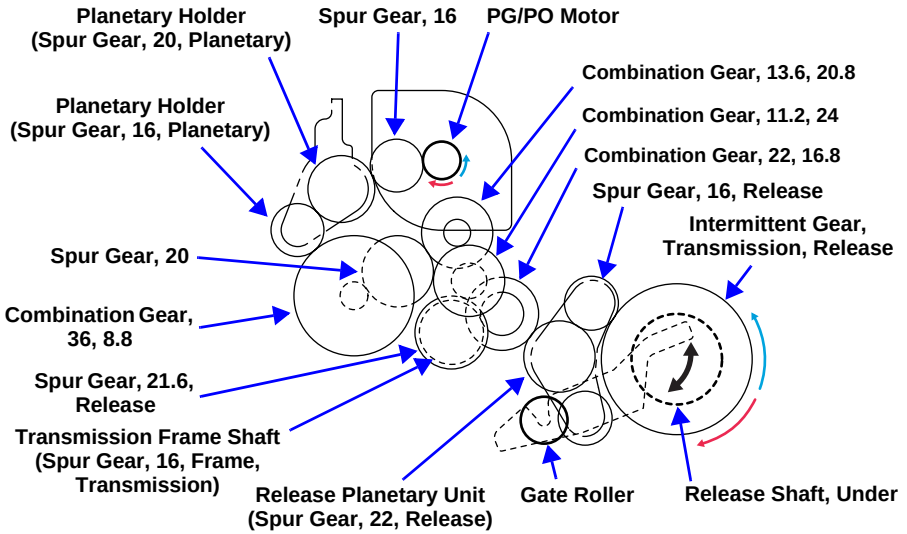


Figure 2-46. Release Mechanism Drive Layout

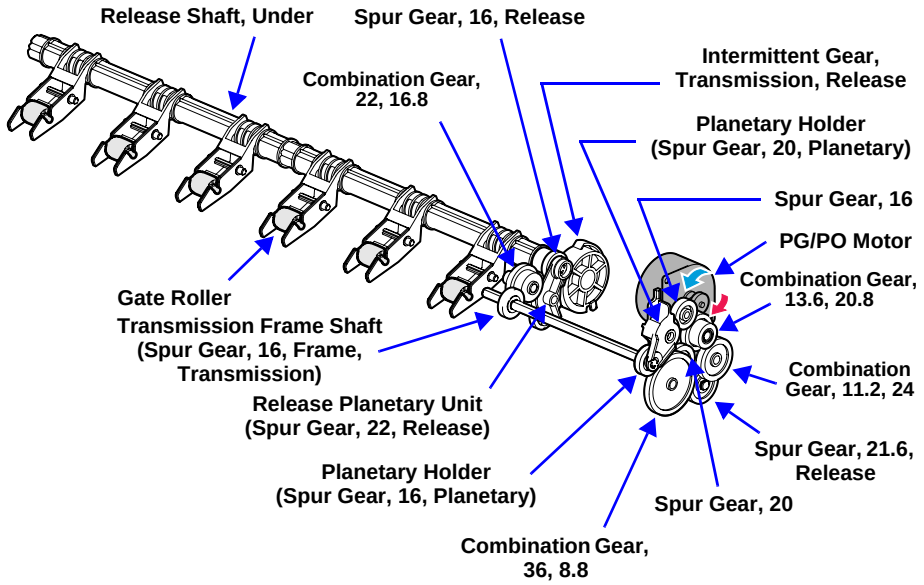


Figure 2-47. Release Mechanism Drive Components

RELEASE MECHANISM MOVEMENT

When the drive transmission path of the PG/PO Motor is switched by carriage movement, the driving force of the PG/PO Motor is transmitted to the Gate Roller by the path shown in Figure 2-45. (Refer to " Transmission of Drive to Paper Eject Unit" *(p.141)* for information on switching the drive transmission path.)

Movement for PG/PO Motor drive switched to the release mechanism side is shown below.

Table 2-13. PG/PO Motor Rotation Direction and Function

PG/PO Motor Rotation Direction	Function
Clockwise	Paper release
Counterclockwise	Paper pressure

Note : Rotation of the motor in the clockwise direction as seen from the Motor Pinion Gear is considered "clockwise".

- ☐ Paper Release
  When the PG/PO Motor rotates in the clockwise direction, the Intermediate Roller (Shaft, Release, Lower) rotates in the clockwise direction. The Gate Roller is lowered by the rotation of the Intermediate Roller and the Gate Roller and Sub Roller are separated.
- ☐ Paper Pressure
  When the PG/PO Motor rotates in the counterclockwise direction, the Intermediate Roller rotates in the counterclockwise direction. The Gate Roller is raised by the rotation of the Intermediate Roller and the Gate Roller and Sub Roller have pressure contact.

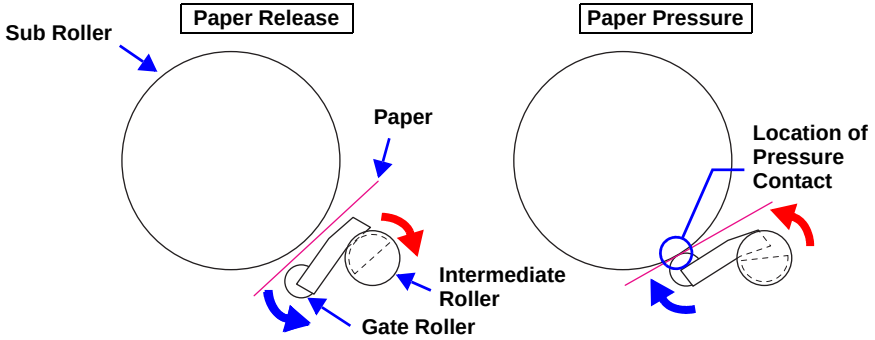


Figure 2-48. Release Mechanism Movement

2.2.7 Multi Sensor

2.2.7.1 Overview

This printer is equipped with a Multi Sensor that provides multiple sensor functions with a single sensor unit. The Multi Sensor is a photosensor with 1 light emitter and 2 light receivers and is mounted on the Carriage Unit. Light emitted from the white light LED is projected onto the paper or special pattern printed on the paper, and reading of the reflected light by the sensor receivers enables the printer to automatically perform suitable correction processing.

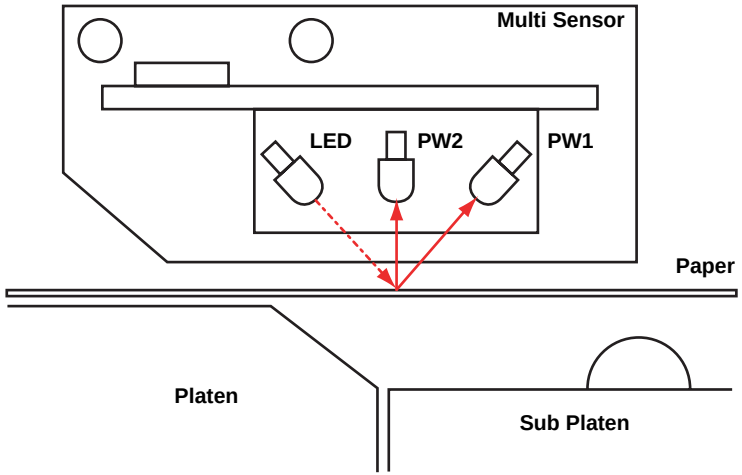


Figure 2-49. Multi Sensor

- Multi Sensor Functions
  - Paper Edge Position Detection
    (Top Edge Detection/Checking Paper Cutting)
  - Paper Width Detection
  - Paper Edge (L/R) Detection
  - Dot Missing Detection
  - Auto Uni-D Adjustment
  - Auto Bi-D Adjustment

- Light Receivers

  The light receiver side has the following 2 elements for corresponding uses.

  - PW1 (direct reflection light receiver)

    Detects paper (white) or platen (black), specifying the edge of the paper.
  - PW2 (diffused light receiver)

    Prints a special pattern and detects differences in concentration for paper (white) and ink (8 colors).

  The 2 light sensor elements are identical, with the difference being the light reception angle for reflected light. In order to determine small differences in concentration, PW2 is particularly arranged in a position that will not receive the effects of erratic reflections of light reflected from the paper (especially from glossy media).

2.2.7.2 Operations/Functions

SENSOR SENSITIVITY ADJUSTMENT

Before performing any function/adjustment, the sensor sensitivity level must be set for use as a standard.
Specifically, paper gets fed and the LED light emission quantity should be adjusted to 3V that refers to the difference of the sensor output voltages that have been received between over the paper and over the no paper position (over the platen position). If the required light quantity is not obtained during adjustment of PW1 and PW2, a printer error occurs.

PAPER TOP EDGE DETECTION

☐ Top Edge Detection

When paper is fed, the paper and platen are continuously scanned and the point at which the obtained reflection light level changes is detected as the top edge of the paper. As a detection operation, this detects the approximate top edge of the paper and confirms that it is within the range of required specifications when the paper is fed. If the paper top edge is not within the required range at this time, a paper feed error occurs. After that, the top edge of the paper is detected. The same type of detection operation is performed on both the column 1 side and the column 80 side.

When paper is fed, the Carriage Unit moves to the specified position at the column 1 side and goes to standby over the paper. The sensor LED emits light, the paper is reverse fed at 40CPS from the condition being detected for the paper, and then the position at which the platen is detected is set as the approximate top edge of the paper. Next, the paper is forward fed at 5CPS from the condition at which the sensor is detecting the platen, and this detects the paper top edge.
The process continues by detecting the top edge of the paper in the same way at the column 80 side. The top edge position detected at column 1 is compared with the top edge position detected at column 80, and the top edge detected at the rear (as seen from the eject direction) is set as the paper top edge in order to prevent printing to platen. For this reason, after the paper top edge is detected at column 1 side, if paper is detected at the position when the Carriage Unit moves to column 80 side, the position detected at the column 1 side is set as the top edge of the paper without performing the detection operation at the column 80 side.

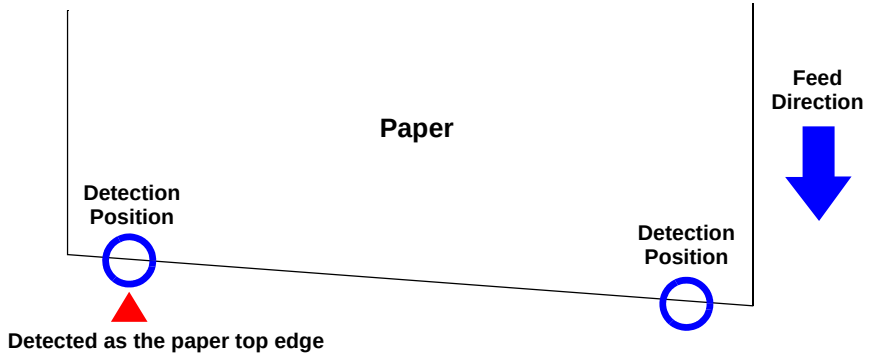


Figure 2-50. Top Edge Detection

☐ Checking Paper Cut

Detects cut condition of paper.
After paper is cut, the paper top edge is continuously scanned from the paper right edge to the paper center, the entire scanned area is passed over, and if platen surface level output is detected it is determined that the paper has been cut. If paper is detected at any part, a paper cut error occurs.

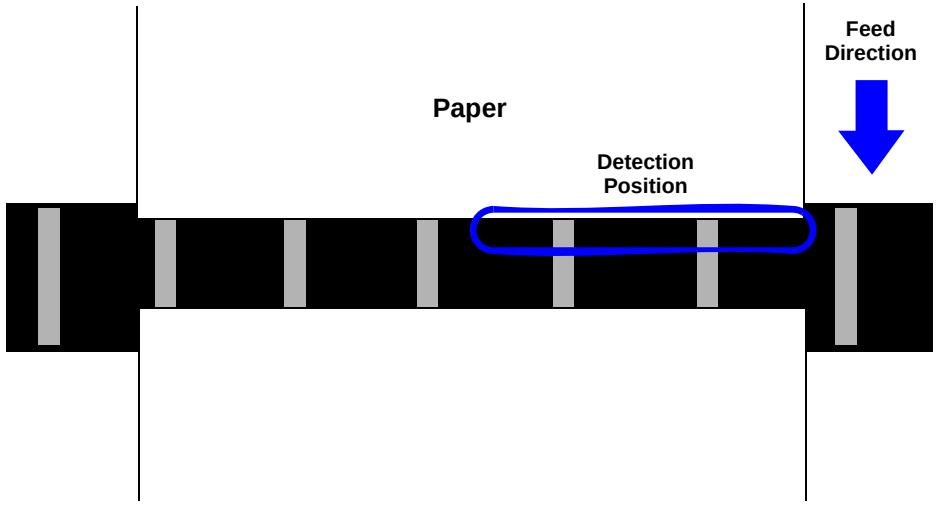


Figure 2-51. Checking Paper Cut

PAPER WIDTH DETECTION

When paper is fed, the paper and platen are scanned and the change points of the detected reflective light levels (paper present level <=> paper absent level) are confirmed as the paper edges. The diagrams below show scan/detection timing.

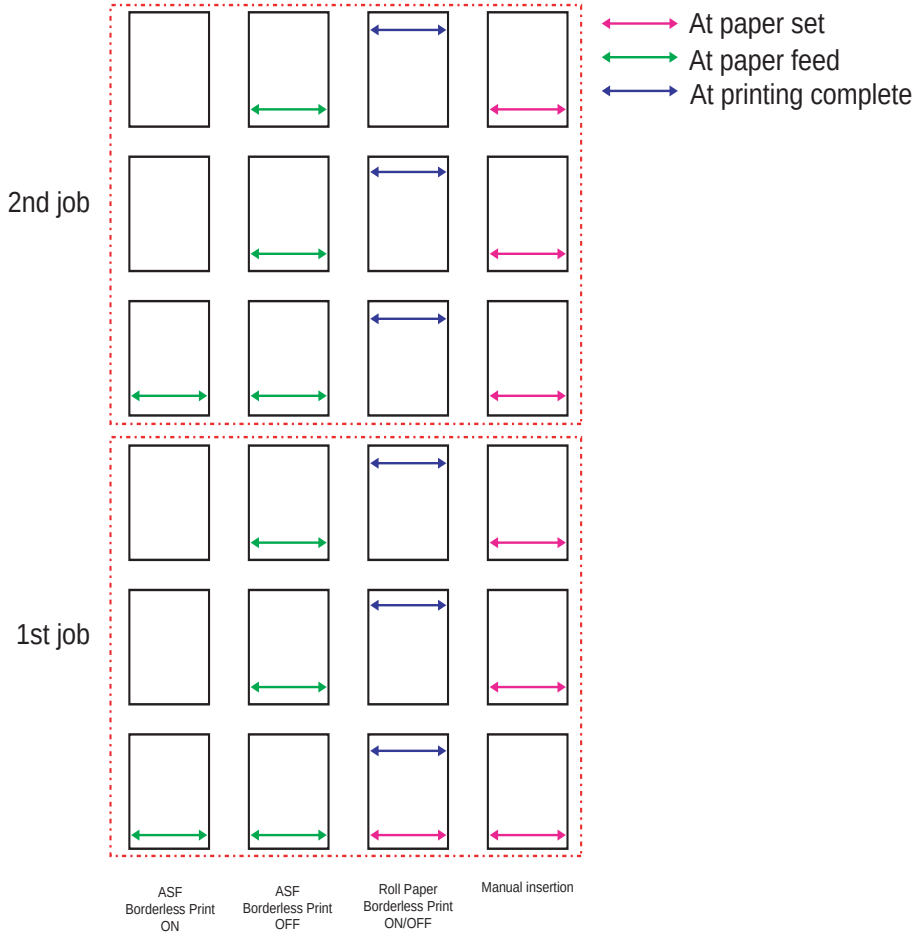


Figure 2-52. Paper Width Detection Timing

PAPER LEFT/RIGHT EDGE DETECTION DURING PRINTING

This is performed during borderless printing. For borderless printing of the conventional printers, the data have been enlarged so that the data would run out of the left/right edges by 3mm in printing. This printer detects the paper edges with every pass, and by making immediate adjustments, the amount forced out is reduced to 1.1mm from the paper edge and the quantity of scattered ink is reduced. By executing every pass detection, printing can be performed while following skew of the paper when the paper has skewed (within the manufacturer's permitted range for skew), and the amount forced out is maintained at a fixed level. However, in order to prevent forcing out from absorption materials used for borderless printing, the printing is performed by maintaining a fixed quantity for one side.

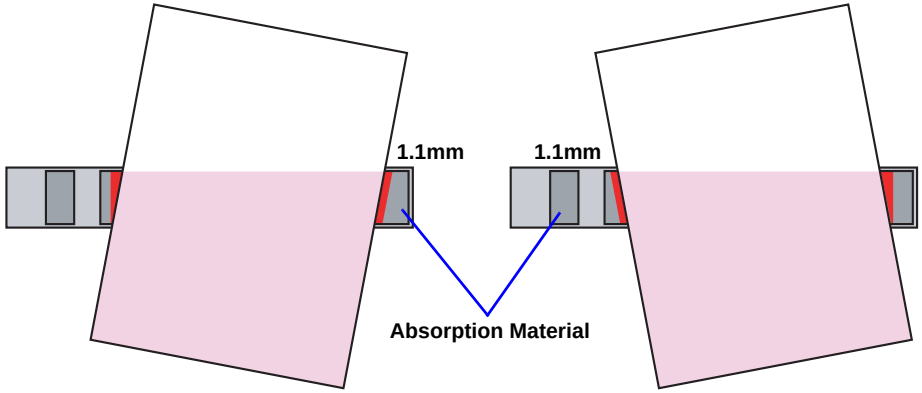


Figure 2-53. Paper Left/Right Edge Detection During Printing

DOT MISSING DETECTION

A pattern for dot missing detection is printed and dot missing is detected by scanning the pattern. The pattern is printed by all the nozzles, with 1 nozzle printing 1 block, and a block for a abnormal nozzle will not print. If dot missing is detected, the printer will execute cleaning automatically.

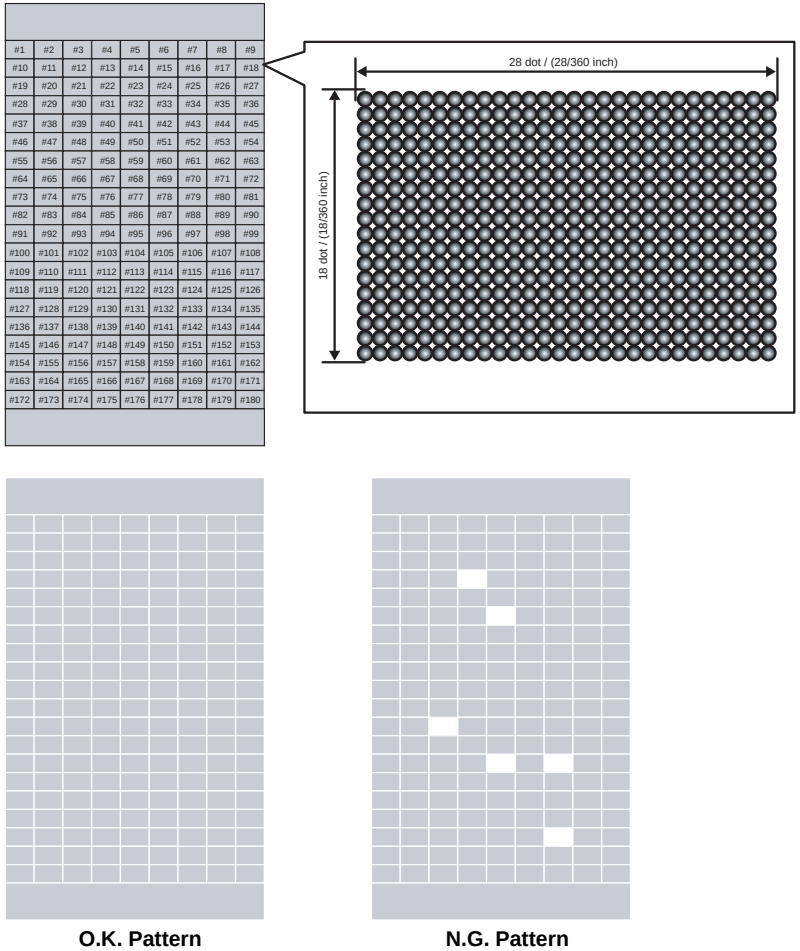


Figure 2-54. Dot Missing Detection Pattern

AUTOMATIC UNI-D ADJUSTMENT

A pattern for adjustment is printed, the pattern is scanned and acceptable values are calculated from the collected values, and then adjustment is automatically executed.
The pattern first prints the matte black vertical line row (standard lines) and then prints an overlapping vertical line row in a different color (adjustment lines) that has been shifted by 1/1440 block unit in the main scan direction. If the standard lines and adjustment lines overlap, the collected A/D value (light quantity) becomes higher because the width detecting the paper is wide. The location detected with the most raised A/D values is determined to be the acceptable level of Uni-D alignment.

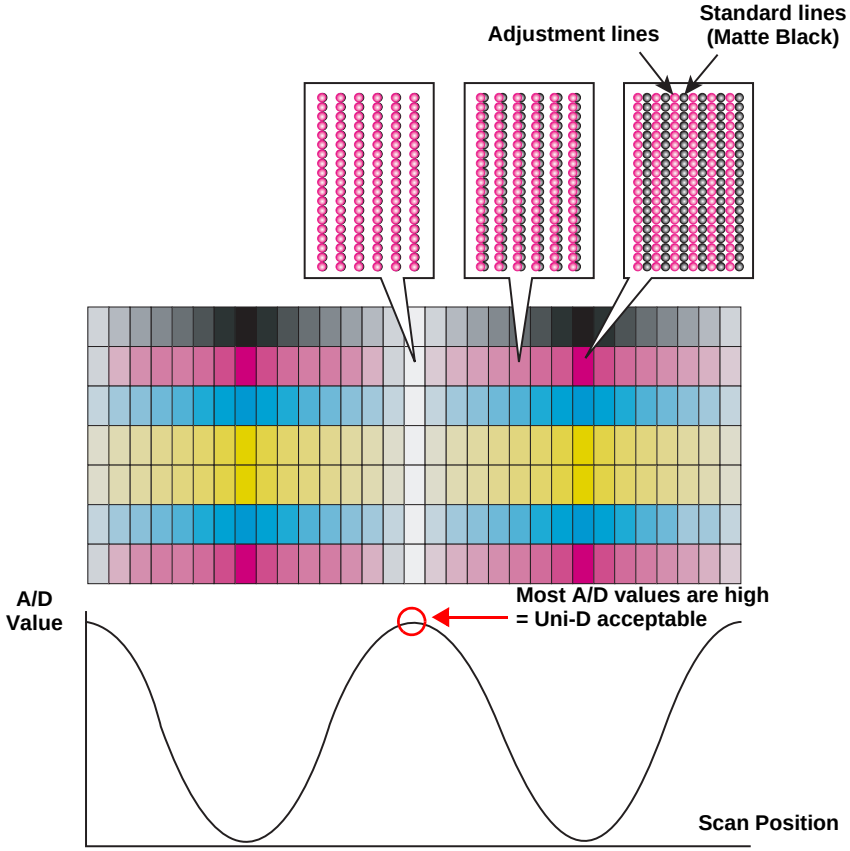


Figure 2-55. Automatic Uni-D Adjustment

AUTOMATIC BI-D ADJUSTMENT

A pattern for adjustment is printed, the pattern is scanned and acceptable values are calculated from the collected values, and then adjustment is automatically executed. Two types of patterns are printed during adjustment: a rough adjustment pattern for detecting the approximate correction position and a fine adjustment pattern for detecting the exact adjustment position.

Figure 2-56. Bi-D Adjustment Patterns

☐ Rough Adjustment Pattern

This is a pattern for calculating the approximate correction position before scanning the fine adjustment pattern to be explained later. This pattern uses only matte black and is printed in a 51 block adjustment pattern shifted by 1/720 in the main scan direction as a standard for ruled line blocks. Detection light quantity is also maximized to further increase the paper margin area where sections have the most overlapping standard line blocks and adjustment line blocks. The maximized position for this detection light quantity becomes the set adjustment position for the rough adjustment pattern.

NOTE: *About the Diagram*
In the explanation above uses color classifications for standard line blocks and the adjustment line blocks, but actuality this is only 1 color, matte black.

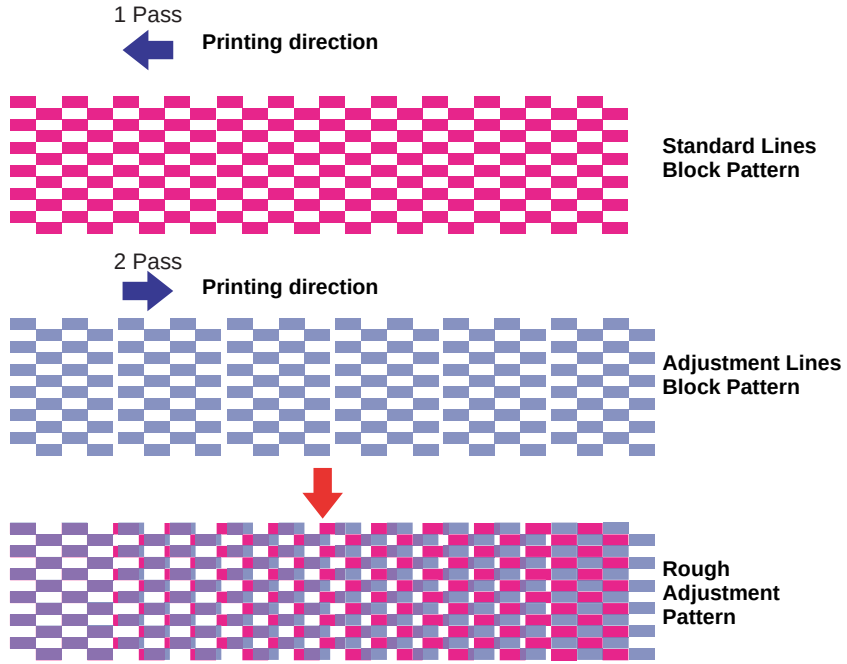


Figure 2-57. Rough Adjustment Pattern_1

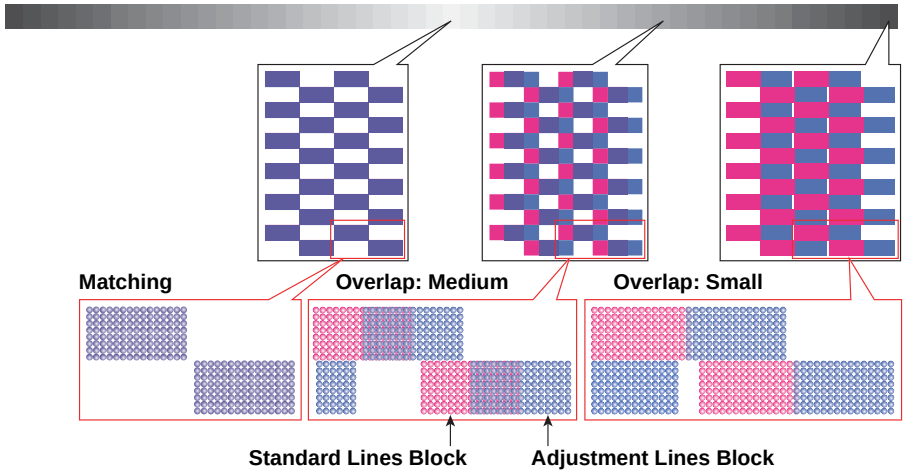


Figure 2-58. Rough Adjustment Pattern_2

☐ Fine Adjustment Pattern

This is a pattern for calculating the exact correction value. It uses all nozzles and 3 Bi-D patterns are printed after being shifted by 1/1440 step for each color. The location detected with the most raised A/D values and the 2 locations detected with the most lowered A/D values are averaged, and the averaged values of the 3 patterns are calculated again, with the resulting value set as the correction value.

Correction Value = {(A1+B2+C3/3) + (A2+B2+C2/3) + (A3+B3+C3/3)} / 3

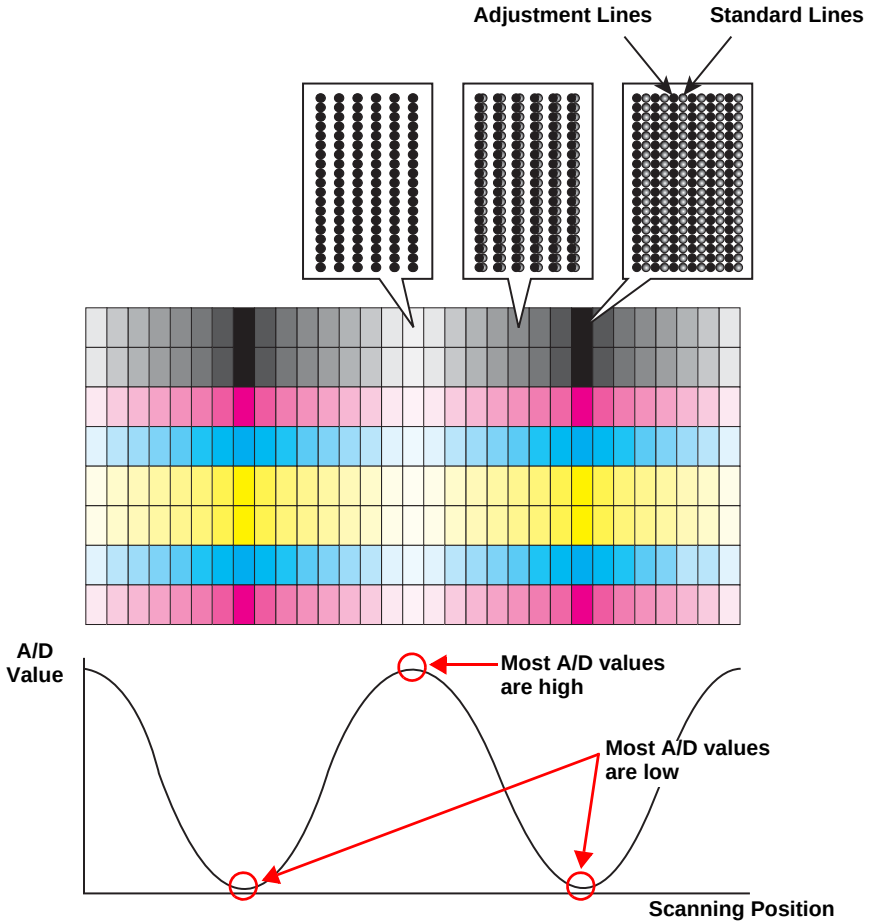


Figure 2-59. Fine Adjustment Pattern Detection

2.2.8 Others

P-COVER OPEN SENSOR

This sensor is mounted at the Printer Cover right side open/close components to detect the open or closed condition of the Printer Cover.
Dtecting open/closed status of the cover causes the CR Motor and PF Motor circuits to stop/operate the motors.

REAR COVER SENSOR

This sensor is mounted at the printer right rear side to detect the removed/ installed condition of the Paper Guide Unit.
Detecting installed/uninstalled status of the unit causes the CR Motor and PF Motor circuits to stop/operate the motors.

CIRCUIT BOARD LAYOUT

A Panel Unit is mounted to the printer front right surface, and an AC Inlet, Power Supply Circuit Board and MAIN Circuit Board are mounted in a rear surface compartment.

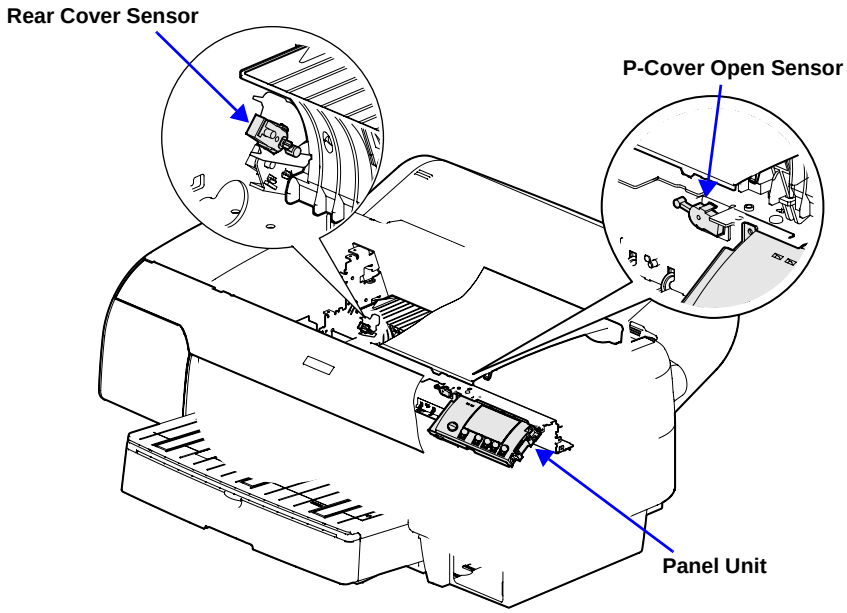


Figure 2-60. Cover Sensor/Panel Unit

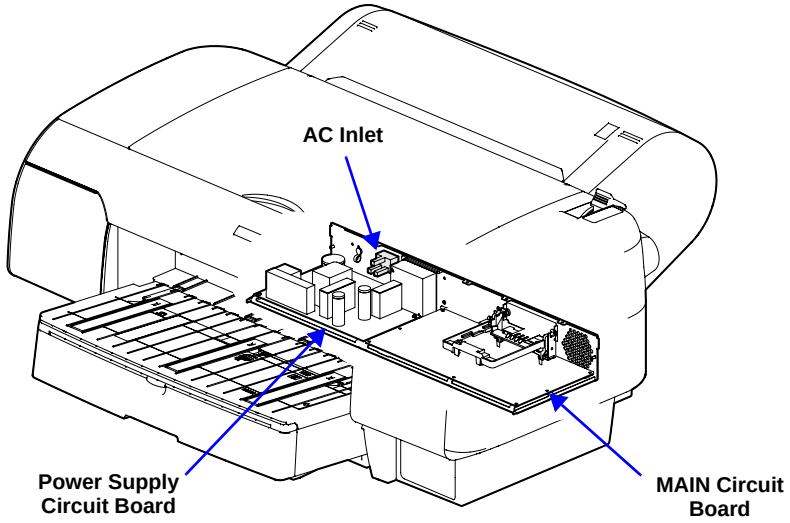


Figure 2-61. Circuit Board Layout

2.3 Outline of Control Circuit Board

This section describes the operation of BOARD ASSY., MAIN, which controls and drives the Printer Mechanism of Stylus Pro 4400/4450/4800/4880/4880C.

- ☐ C593 MAIN Board: Stylus Pro 4400/4800
- ☐ CA00 MAIN Board: Stylus Pro 4450/4880/4880C

NOTE: *For circuit board details, refer to "Chapter 7: Appendix (p.457) at the end of this volume.*

- ☐ Explanation of major elements

Table 2-14. Major Elements

Model No.	Location	Function
SDRAM	IC2/23	System memory 64MB (256Mbit x 2)
Flash ROM	IC12	Flash Memory 2MB (1Mbit x 16bit) • For storage of control program (firmware) • Saving of various setting parameters and control information
SH-3 SH-7709S	IC15	32bit RISC-CPU • Operational frequency: Internal 96MHz External 48MHz
E09A54RA	IC17/18	Custom ASIC • Head drive voltage waveform generation control
RTC9824SA	IC16	Real-Time Clock • Sets year/month/day by F/W • MAIN PCB reset signal formation
E05C25BB	IC19	Custom ASIC 1. Print data processing • Rasterizer • Head drive control 2. Mechanism control (motors and solenoids) 3. Sensor control
TSB43AA82A	IC4	ASIC • IEEE1394-I/F control

Table 2-14. Major Elements

Model No.	Location	Function
A3958SLBTR-T	IC5	CR Motor driver • PWM current control method
A3958SLBTR	IC6	PF Motor driver • PWM current control method
AA6628SEDTR-T	IC7	• ASF/Pump Motor driver • PG/PO Motor driver

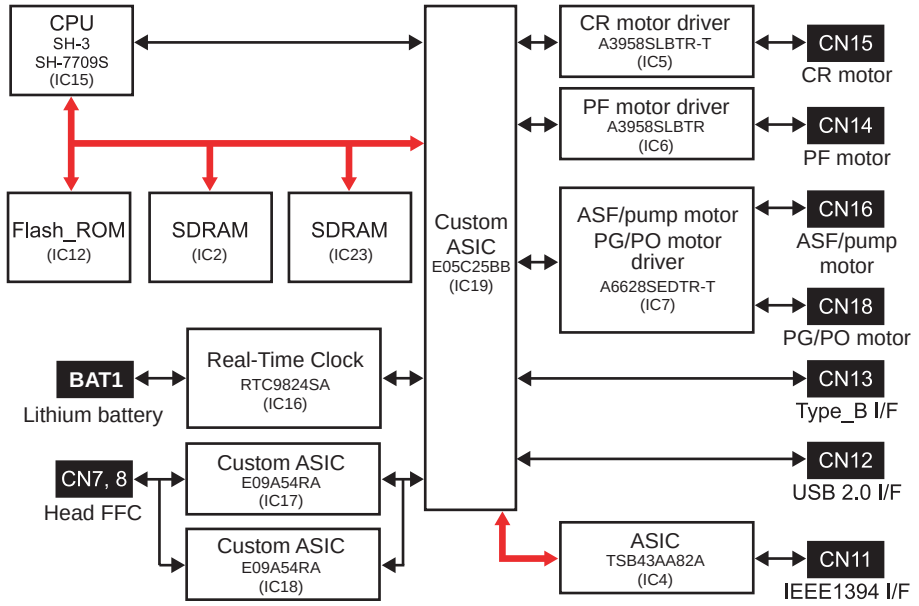


Figure 2-62. C593 MAIN Board – Circuit Block Diagram

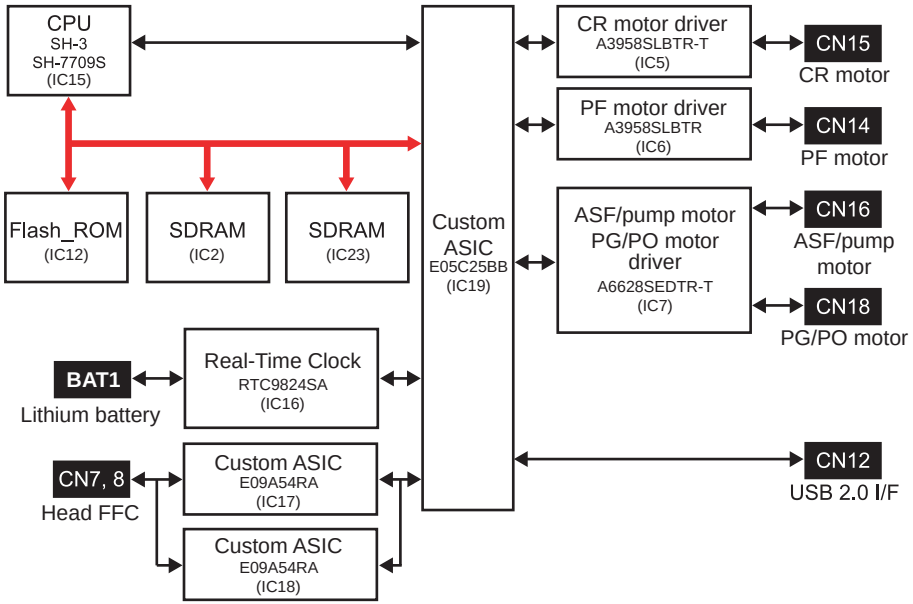


Figure 2-63. CA00 MAIN Board - Circuit Block Diagram

2.4 Outline of Power Supply Circuit Board

100VAC from electric outlet is supplied to Power Supply Circuit Board through a Power Cable and AC Inlet.

The power switch constitutes a secondary power switch system.
The secondary power switch system operates as follows: even with the power switch turned off, the Power Supply Circuit Board is operating by a slight power as long as the Power Cable is connected.

CAUTION

Even after the power switch is turned off, the Power Supply Circuit Board does not stop operating immediately, but power is kept on until the ink system ending sequence is completed.
Do not disconnect the Power Cable or do not shut off power by turning off any power switch other than that on the printer.

There are three control signals between the BOARD ASSY., MAIN and the Power Supply Circuit Board. Table below describes details of the control signals:

Table 2-15. Operational Descriptions

Signal Name	Function	
REM_ON (MAIN → Power Supply)	Operating	Turned ON/OFF by BOARD ASSY., MAIN. • When these terminals are shorted, the drive system power supplies 28 VDC and 42 VDC are active.
	OFF	• When these terminals are open (= L), the drive system power supplies 28 VDC and 42 VDC are 0 VDC. • The 5 VDC power is not controlled with these terminals.
AC_OFF (MAIN ← Power Supply)	Operating (=H)	When each output from the Power Supply Circuit Board has become inactive because of turning off of the power switch or when the input voltage has dropped below the rated voltage value, "H" signal is sent to the BOARD ASSY., MAIN.
	OFF (=L)	The power switch is turned on and the Power Supply Circuit Board Unit starts operating so that each output becomes active. "L" signal is sent to the BOARD ASSY., MAIN.
POWER_SW (Panel/MAIN → Power Supply)	Operating	Connected to the power switch on the Panel Unit. • These terminals are shorted when the switch is ON. The Power Supply Circuit Board becomes active.
	Not operating	These terminals are open when the switch is OFF. The Power Supply Unit keeps operating for about ten and several seconds to a few minutes and then turns off.

2.5 Colorimetric Calibration (Color ID) Overview

This printer employs "Colorimetric Calibration (Color ID)" to correct unit-to-unit variations in color.

"Colorimetric Calibration (Color ID)" corrects not only the weight of ink droplets which differs according to the characteristic of individual printhead but variable factors such as drive circuit and voltage, which provides a higher-accuracy calibration.

OVERVIEW

1. Printing/ Mesuring the color of a correction pattern.
   The calibration is performed by printing a correction pattern with a completed product and mesuring the color of the pattern using a calibrator.
2. Writing the correction value.
   Write the correction value that was calculated from the value obtained by color mesurement to the NVRAM on the main board.
3. Reflecting the correction value.
   The printer driver reads the correction value stored in the NVRAM during printing, and correct the dot generation amount for each dot size in the print data.

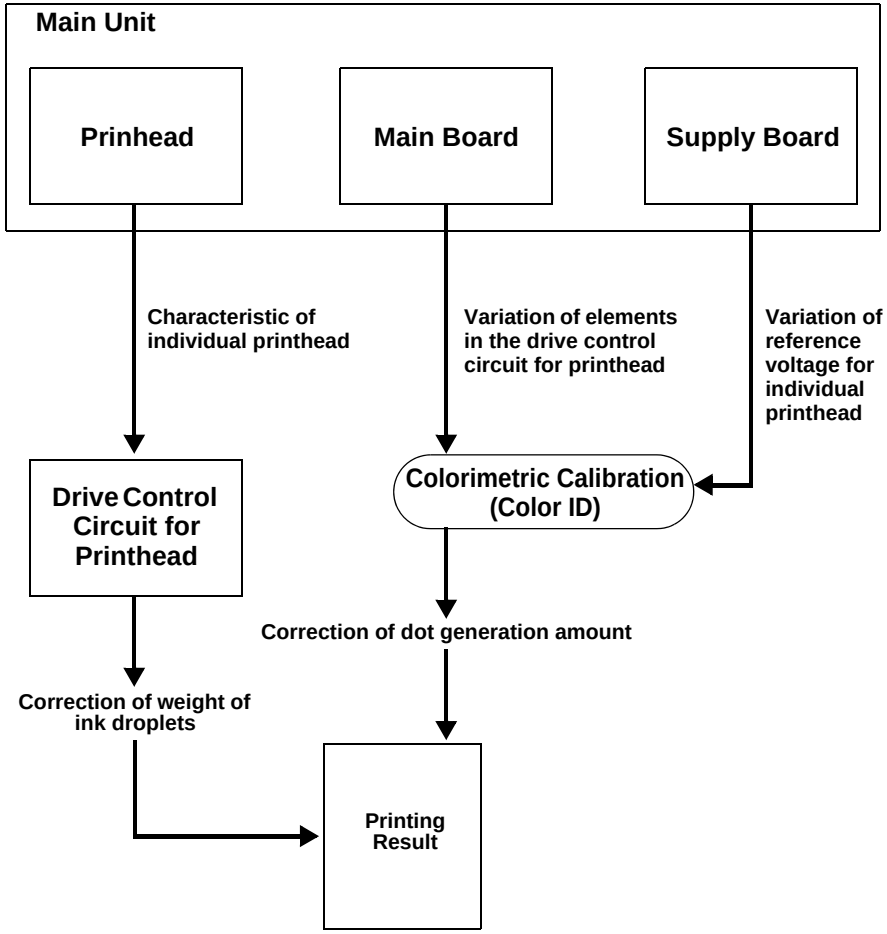


Figure 2-64. Colorimetric Calibration (Color ID) Image

CHAPTER

3

TROUBLESHOOTING

3.1 Outline

This section explains procedures for rapid and efficient troubleshooting if trouble occurs in the printer.

3.1.1 Check Before Troubleshooting

First of all, when performing troubleshooting, the following basic parts should be checked.

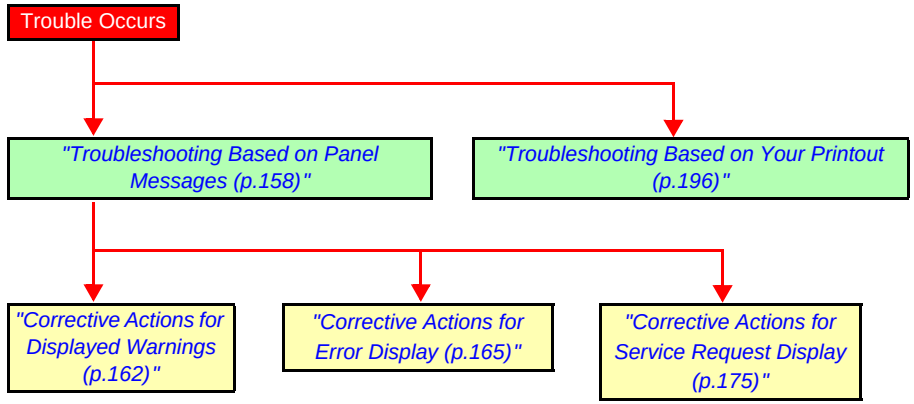
1. Look in the printer for any foreign matter and make sure there is nothing there to hinder normal operation.
2. With the printer in "READY" condition, press the [Menu] key one time, and then press the [Paper Feed (∧ / ∨)] keys to select "TEST PRINT". Press the [Menu] key again one time, press the [Paper Feed (∧ / ∨)] keys to select "STATUS CHECK". After these have been selected, press the [Menu] key two times to print.
   From the status sheet, you can check to see if the cause of the trouble is that the printer (either the printer unit itself or some major unit) is at the end of its service life, and check the user inherent panel settings, etc.
   (Refer to "Step 9" when in properties panel settings.)
3. There should be no market soiling of the outside or the inside of the printer. If it is extremely soiled, carry out cleaning.
4. Each of the units and parts in the printer should not be missing or damaged, and should have the normal shape and configuration.
5. Each of the harnesses should be undamaged, and should be correctly connected to the relevant connector (perpendicularly and in the correct direction).
6. Each cam and gear in the printer mechanism should have no uneven wear or be overly worn, and the combinations should be correct.
7. Each type of rubber roller in the printer mechanism should be cleaned and it should be ascertained whether the cause of the trouble is because of dirt or due to some other cause.
8. Each type of rubber roller in the printer mechanism should not be unevenly worn or excessively worn, and their combinations should be correct.
9. As necessary, initialize the NVRAM on the BOARD ASSY., MAIN (return the individual settings and panel settings to the factory settings).
   Carry out initialization by executing "Panel Initialization" in "Maintenance Mode 1".

Be sure to refer to "4.1.1 Cautions" (p.201) for the detailed description when handling a lithium battery that is installed for RTC backup on the MAIN Board.

- **When disassembling/assembling, turn the printer power switch OFF. After confirming that panel display disappears, unplug the power cable from the electric outlet and then continue operations.**
- **Only the specified printer tools should be used so as to maintain the printer's quality.**
- **Only the specified lubricants and adhesives should be used.**
- **The specified adjustments should definitely be carried out.**

3.1.2 Narrow Down the Trouble

To increase the troubleshooting efficiency, follow the flow chart below and narrow down the trouble.



3.2 Troubleshooting Based on Panel Messages

This printer conducts self testing based on output conditions of each sensor. Any error detected by self testing is displayed by an LCD message and LED indicators. This section explains corrective actions for errors and error messages.

3.2.1 Message Table

Messages displayed by the printer and message priorities are shown below.

NOTE: *"Warnings" are shown with blue shading and "Service Requests" are shown with yellow shading*

Table 3-1. Displayed Error Messages

Priority	LCD Panel Message	Displayed Error	LED			Reference Page
			Paper Check	Pause	Ink Check	
Low	MNT TK NEAR FULL	Maintenance tank near	–	–	Blink	p.162
↑	INK LOW	Ink low*1	–	–	Blink	p.162
	MNT REQ nnnn	Maintenance request	*2	–	–	p.162
	PAPER LOW	Paper near end*3	Blink	–	–	p.164
	REMOVE PAPER	Cleaning unavailable	ON	–	–	p.165
	NOZZLES STILL CLOGGED	Cleaning failure	Blink	ON	Blink	p.165
	CHANGE PAPER TYPE	Multi Sensor SN gain error	Blink	–	–	p.165
		Multi Sensor paper recognition error	Blink	–	–	p.165
	WRONG PAPER SIZE	Cut sheet size error	Blink	ON	–	p.165
	REMOVE PAPER	Paper eject error/ Front manual feed unavailable error	Blink	ON	–	p.166
	PAPER OUT	Paper end/ roll paper end	ON	–	–	p.166
	RELOAD PAPER NO BORDERLESS WITH THIS SIZE	Borderless printing unavailable error*4	Blink	–	–	p.166
	RELOAD PAPER	Paper recognition error	Blink	–	–	p.167
	RELOAD PAPER INSERT DEEPLY	Manual cut paper set error	Blink	ON	–	p.167
	NOT STRAIGHT RELOAD	Cut sheet loading error*6	Blink	ON	–	p.167
	PAPER NOT STRAIGHT	Paper skew error	Blink	–	–	p.167
	PAPER NOT CUT	Paper cut error	Blink	–	–	p.168
	COMMAND ERROR	Command error	Blink	Blink	Blink	p.168

Table 3-1. Displayed Error Messages

Priority	LCD Panel Message	Displayed Error	LED			Reference Page
			Paper Check	Pause	Ink Check	
	MISMATCH ERROR DRIVER INK SET SETTING IS WRONG	Wrong ink error*4	Blink	Blink	Blink	p.168
	LOAD ROLL PAPER	Wrong roll paper path	ON	ON	–	p.168
	LOAD SHEET PAPER IN P.TRAY	Wrong ASF paper path	ON	ON	–	p.168
	FEED SHEET PAPER	Wrong manual paper path	ON	ON	–	p.168
	FORBIDDEN MEDIA FROM P.TRAY FEED SHEET PAPER MANUARY	ASF prohibitions*4	ON	–	–	p.168
	TIMES REMAINING	Conversion cartridge life near end*1	–	ON	ON	p.164
	REPLACE CNVRSION CRTG	Conversion cartridge life error*1	–	–	ON	p.164
	INVALID INK CRTG	Wrong PK/ MK*1	–	ON	ON	p.169
	INK OUT	Ink out *1	–	–	ON	p.162
	INVALID INK CRTG	Wrong Ink cartridge	–	ON	ON	p.169
	INVALID INK CRTG	Wrong destination*1	–	–	ON	p.170
	WRONG INK CRTG	Unavailable Ink cartridge*1	–	–	ON	p.169
	INVALID INK CRTG	Wrong logo error*1	–	–	ON	p.170
	SET INK CRTG	Ink Cartridge failure/ CSIC contact error*1	–	–	ON	p.170
	NO INK CRTG	No Ink Cartridge*1	–	–	ON	p.170
	MNT TNK FULL	Maintenance Tank full	–	–	ON	p.170
	LOWER INK LEVERS	Releasing left and right ink lever	–	–	–	p.170
	LOWER L INK LVR	Releasing left ink lever	–	–	–	p.170
	LOWER R INK LVR	Releasing right ink lever	–	–	–	p.170
	TOP COVER OPEN	Printer Cover open	–	–	–	p.171
	LOAD PAPER	Releasing Paper Lever (Except roll paper)	ON	–	–	p.171
	LOAD PAPER SUCTION	Releasing Paper Lever (Roll paper only)	ON	–	–	p.171
	SET PAPER LEVER	Releasing Paper Lever in operation	ON	–	–	p.172
	REREASE LEVER REMOVE PAPER JAM	Paper jam (ASF)	Blink	–	–	p.172
	REREASE LEVER REMOVE PAPER JAM	Paper jam (CR)*7	Blink	–	–	p.172
	NO MNT TNK	No Maintenance Tank	–	–	ON	p.173

Table 3-1. Displayed Error Messages

Priority	LCD Panel Message	Displayed Error	LED			Reference Page
			Paper Check	Pause	Ink Check	
↓	REAR COVER OPEN	Rear Cover open	–	–	–	*p.173*
	OPTION I/ F ERROR	Type-B Option I/ F Card Error	Blink	Blink	Blink	*p.173*
	UNLOCK PRINT HEAD	CR lock unlocked error	Blink	Blink	Blink	*p.173*
High	SERVICE REQ. nnnnnnnnn	Service request, CR servo error (fatal error)	Blink	Blink	Blink	*Refer to Table3-2*

Note *1: Blink correspond ink indicator.

*2: Paper check LED flashes at 5-second intervals.

*3: Occurs only when the remaining paper detection is on with roll paper or cut paper loaded.

*4: Display by switching at 3-second intervals.

*5: To promote that release is available by [Pause] key, display the following display by turns at 1 sec., intervals.
"PRESS PAUSE BUTTON"

*6: Received data is initialized without initializing mechanisms (including completion of forced cleaning) even if panel reset has been done.

*7: Displalys the request below when the rear sensor detects no paper after the paper is removed.
“TURN PRINTER PWR OFF AND THEN ON”

Table 3-2. Service request error list(continued)

Error Code	Description	Reference Page
00000101	CR Motor life	p.175
00010000	PF Motor Encoder check error	p.177
00010001	PF Motor out of step	p.178
00010002	PF Motor over current	p.178
00010003	PF Motor in-position time-out	p.179
00010004	CR Motor Encoder check error	p.179
00010005	CR Motor out of step	p.180
00010006	CR Motor over current	p.180
00010007	CR Motor in-position time-out	p.181
00010008	Servo interrupt watchdog time-out	p.181
00010009	System interrupt watchdog time-out	p.181
0001000A	CR axis detection error	p.182
0001000C	PG axis detection error	p.182
0001000F	CR Motor PWM output faulty	p.183
00010010	PF Motor PWM output faulty	p.183
00010012	CR overload (high sensitivity) error	p.184
00010013	PR overload (high sensitivity) error	p.184
0001001B	Head driver (TG) temperature error	p.185
0001001D	CR servo parameter error	p.185
0001001E	PF servo parameter error	p.186
00010020	CSIC reed/right error	p.186
00010022	Ink type error (setting on printer body side)	p.186
00010023	RTC analysis error	p.187
00010025	CSIC ROM communication error	p.187
00010026	RTC communication error	p.188
00010028	Head error	p.188
00010029	Unidentified NMI	p.188
0001002A	CR ASIC ECU error	p.188
0001002B	PF ASIC ECU error	p.188
0001002D	Cleaning Unit work life error	p.189
0001002F	360 DPI writing time out error	p.189
00010030	Multi Sensor failure	p.189
00010031	ASF phase detection error	p.189

Table 3-2. Service request error list(continued)

Error Code	Description	Reference Page
00010032	ASF drive switch error	p.189
00010033	Eject phase detection error	p.190
00010034	Eject movement error	p.190
00010035	Pump phase detection error	p.190
00010036	Type-B board installation error	p.190
00010037	Head thermistor error	p.190
00010038	Transistor thermistor error	p.190
00010039	PG adjustment value incorrect overwrite error	p.191
0001003A	PG adjustment value outside range error	p.191
0001003B	Cutter installation error 1	p.191
0001003C	Cutter installation error 2	p.191
0001003D	Cutter installation error 3	p.191
00020000	NVRAM error	p.192
00020002	SDRAM error	p.192
00020003	BOOT program SUM error	p.192
00020009	Flash memory SUM error	p.192
0002000A	Program load error	p.193
0002000B	Internal memory shortage error	p.193
100000E0	CPU address error (load misalignment)	p.193
10000100	CPU address error (storage misalignment)	p.193
10000180	CPU reserve command code exception error	p.194
100001A0	CPU slot illegal command exception error	p.194
100001C0	AC disruption	p.194
100005C0	CPU DMA address error	p.194
10000xxx	CPU error	p.195
0003xxxx	Debug error code	p.195
0Dxxxxxx	Debug error code	p.195
0Exxxxxx	RTC timer off error	p.195

3.2.2 Corrective Actions for Displayed Warnings

Warnings replace the "READY"/"PRINTING" message in the LCD to notify the user of the condition, but printing may continue because printer operations are not affected.
A warning message cannot be cleared until the cause of the warning has been resolved.

The following explains corrective actions for when the warnings are displayed.

MAINTENANCE TANK NEAR

Item	Description
LCD Panel message	MNT TK NEAR FULL
LED display	Ink check LED: Blink
Explanation	Generated when capacity of the Maintenance Tank has reached less than 5%.
Recovery	Replace the Ink Cartridge with new one.

INK LOW

Item	Description
LCD Panel message	INK LOW
LED display	Ink check LED: Blink
Explanation	Caused when remaining ink quantity falls below 5%.
Recovery	Replace the Maintenance Tank with new one.

MAINTENANCE REQUEST

- LCD Panel message

  MNT REQ nnnn
  ("nnnn" shows the code for the target replacement part.)

- LED display

  Paper check LED: Flashes at 5-second intervals.

- Display code

  Displays bit values assigned in Table 3-3 as "nnnn" in hexadecimal.

Table 3-3. Bit Assignment

Bit	Request object	Cause
0	No occurrence in this product	---
1	CR life	The number of CR movement cycles has reached predetermined value.
2	No occurrence in this product	---
3	Battery shut off	RTC backup battery is shut off
4	No occurrence in this product	---
5	No occurrence in this product	---
6	Cleaning Unit	Pump counter has reached predetermined value.
7	Date not set	Date is not set
8	Battery pressure	RTC backup battery pressure is temporally low.
9	Paper feed roller life	The number of ASF paper feeding has reached predetermined value.
10	Reserved	---
:		
31	Reserved	---

- Explanation

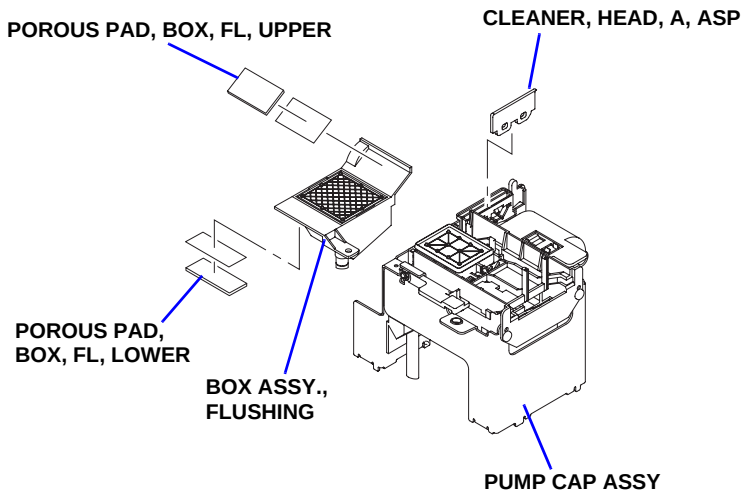
  Generated when the life of maintenance- required part expires shortly or an error related to a lithium battery for RTC backup has occurred.

☐ Recovery

nnnn	Cause	Replacement part/unit	Remedy (how to recover errors)
0002	The number of CR movement cycles has reached predetermined value.	Refer to "SERVICE REQ. 00000101 (p.175)."	Refer to "SERVICE REQ. 00000101 (p.175)."
0008	RTC backup battery shut off / uninstalled	RTC backup battery	Replace RTC backup battery, turn on the printer in Maintenance Mode 2, and execute "RTC&USB ID&IEEE1394 ID" to set the date using basic adjustment in adjustment program.
0040	Pump counter has reached predetermined amount.	☐ Box Assy., Flushing ☐ Pump Unit ☐ Cleaner, Head, A, ASP ☐ Porous Pad, Box, FL, Upper ☐ Porous Pad, Box, FL, Lower	Replace parts/ units listed in the left column, and execute “Reset When Cleaning Unit Change” using Reset Counters in adjustment program.
0080	Date is not set	---	Turn on the printer in Maintenance Mode 2, and execute “RTC&USB ID&IEEE1394 ID” to set the date using basic adjustment in adjustment program.
0088	RTC backup battery is not installed.	---	Install RTC battery, turn on the printer in Maintenance Mode 2, and execute “RTC&USB ID&IEEE1394 ID” to set the date using basic adjustment in adjustment program.
0100	RTC backup battery pressure is temporally low.	---	Wait for a while.
0200	The number of ASF paper feeding has reached predetermined value.	☐ Roller Assy, LD, Right ☐ Roller Assy, LD, Left ☐ Mount Assy., Plate, Motor, ASF, SP	Replace parts/ units listed in the left column, and execute “Reset ASF Counter” and “Reset Paper ejection switching / PG switching counter” using Reset Counters in adjustment program.

CHECK POINT

Replace the following parts when replacing the Cleaning Unit.



PAPER NEAR END

Item	Description
LCD Panel message	PAPER LOW
LED display	Paper check LED: Blink
Explanation	Occurs when the current remaining paper counter value is less than the near end setting value while the remaining paper detection is on with roll paper or cut paper loaded.
Recovery	Execute one of the following: • Set the near end setting value so that it is more than the current remaining paper counter value, using roll or cut paper menu of the remaining paper detection in the printer setting menu.See *"Remaining paper detection (p.48)"* • Reload paper.

CONVERSION CARTRIDGE LIFE NEAR END

Item	Description
LCD Panel message	TIMES REMAINING
LED display	Ink check LED: On Pause LED: On
Explanation	The number of usable time of the conversion cartridge is less than ten.
Recovery	Press the [Pause] key.

3.2.3 Corrective Actions for Error Display

Error messages replace the "READY"/"PRINTING" message in the LCD to notify the user of the condition.

The following explains corrective actions for when the errors are displayed.

CLEANING FAILURE

LCD	Explanation	Recovery
NOZZLES STILL CLOGGED	Dot missing is still detected even after the applicable number of auto cleanings were performed as Multi Sensor had detected the dot missing.	Compulsory return to Ready by pressing [Pause] key. (However, there is still dot missing.)

CLEANING UNAVAILABLE

LCD	Explanation	Recovery
REMOVE PAPER	Paper with thickness greater than 0.9mm is set at power ON or execution of cleaning.	Release Paper Lever, remove paper, and pull down the lever.

MULTI SENSOR SN GAIN ERROR

LCD	Explanation	Recovery
CHANGE PAPER TYPE	Required amount of reflection not obtained after automatic adjustment pattern print. (Generated with blurred paper.)	Release Paper Lever, reload the paper, and pull down the lever.

MULTI SENSOR PAPER RECOGNITION ERROR

LCD	Explanation	Recovery
CHANGE PAPER TYPE	Gain for Multi Sensor not obtained at 0.5V or more or 3V or less. Can also be generated when there is no paper or low reflection paper is used.	Release Paper Lever, reload the paper, and pull down the lever.

CUT SHEET SIZE ERROR

LCD	Explanation	Recovery
WRONG PAPER SIZE	After paper width detection, set paper width and print data paper width are different.	Correct by setting to designated paper size with the driver.
		Resume printing by pressing the [Pause] key. When resuming printing, printing will clip to paper width.
		Stop printing by pressing and holding [Pause] key for 3 seconds. (It will be necessary to delete the print job at the PC.)

PAPER EJECT ERROR

LCD	Explanation	Recovery
REMOVE PAPER	After paper eject, paper is left in paper route and ASF Paper Sensor has turned ON.	Release Paper Lever, remove paper, and pull down the lever.
	After paper eject, paper is left in paper route and PE Sensor has turned ON. Or paper eject was done without the Paper Eject Roller (for thick paper, etc.).	Release Paper Lever, remove paper, and pull down the lever.
		Clear by pressing the [Pause] key. (A message will be displayed in the LCD.)
	After paper eject, paper (with thickness 0.4mm or more) is left in paper route and P_THICK Sensor has turned ON.	Release Paper Lever, remove paper, and pull down the lever.
	ASF Paper Sensor for turned ON while Transfer Roller was not ON. (Except during ASF printing.)	
	The [Paper Cut] key was pressed during thick paper set.	
	Rear manual Insertion Sensor turned ON while in ASF or front loading condition.	Remove paper from the rear manual feed opening.

PAPER END/ROLL PAPER END

LCD	Explanation	Recovery
PAPER OUT	No paper is set with panel settings in condition other than ASF.	Release Paper Lever, reload the paper, and pull down the lever.
		Press [Paper Source] key to switch to "Cut Sheet".
	Trailing end of cut sheet or roll paper is detected and printing was terminated midway through job.	Release Paper Lever, reload the paper, and pull down the lever.
		Reset panel by pressing [Pause] key.
	Paper is fed from ASF but ASF Paper Sensor does not turn ON.	Release Paper Lever, reload the paper, and pull down the lever.
		Set paper in ASF cassette and press [∧] / [∨] key.
		If feed from ASF has failed, press [Paper Source] key to temporarily switch to "Roll Paper" and then return to "Cut Sheet".
		Reset panel by pressing [Pause] key.

BORDERLESS PRINTING UNAVAILABLE ERROR

LCD	Explanation	Recovery
RELOAD PAPER	Occurs when the paper whose width does not support borderless printing is loaded or when the paper that supports borderless printing is loaded incorrectly.	When manual cut paper or roll paper is loaded, release Paper Lever and place the paper in the correct position.
NO BORDERLESS WITH THIS SIZE		Reload the paper whose width supports borderless printing.
		When ASF paper feed is selected, feed the paper with [∧] / [∨] key after ejecting the paper with [∨] key, or feed the paper manually.

PAPER RECOGNITION ERROR

LCD	Explanation	Recovery
RELOAD PAPER	Paper is not loaded in the correct position.	Release Paper Lever, reload the paper, and pull down the lever.
	Paper was not ejected because its length was more than the limit for cut paper.	
	When printing on roll paper was finished, the right- and left end of the paper was exceeds the printable area due to paper skew.	
	Paper whose width is less than 179mm was loaded.	

MANUAL CUT PAPER SET ERROR

LCD	Explanation	Recovery
RELOAD PAPER INSERT DEEPLY	After setting paper by rear manual insertion, PE Sensor did not turn ON even though the front feed limit was exceeded at paper leading edge detection.	Release Paper Lever, remove paper, and pull down the lever.

CUT SHEET LOADING ERROR

LCD	Explanation	Recovery
NOT STRAIGHT RELOAD	Generated when skew of 0.43mm or more is detected during cut sheet paper loading. However, error generation occurs after cut sheet paper loading sequence is complete. Because this error can occur frequently when using manual insertion printing, it is possible to resume printing by allowing the Pause LED to turn light and then cancelling the pause when the error occurs.	Release Paper Lever, remove paper, and pull down the lever.
		When the [Pause] key is pressed, the error will be forcibly cancelled and printing will start.

PAPER SKEW ERROR

LCD	Explanation	Recovery
PAPER NOT STRAIGHT	Generated when position of left/right edges changes more than 3mm between start and finish of print. When this error is generated, it is necessary to check print results because it is possible that print area was not completely printed due to skew of previous page. Also, ink may have adhered to the platen and could smear onto the backs of succeeding pages.	Release Paper Lever, reload the paper, and pull down the lever. ☐ Reset the paper with correct procedures. ☐ If roll paper has become disordered, reset the paper after properly arranging the edges.

PAPER CUT ERROR

LCD	Explanation	Recovery
PAPER NOT CUT	It is occurred when top of roll paper cannot be detected by Multi Sensor, after paper cut operation.	Release Paper Lever, remove paper, and pull down the lever.

COMMAND ERROR

LCD	Explanation	Recovery
COMMAND ERROR	This error occurs when ink type (dye / pigment / black ink type) designated with IK command is different from Ink Cartridge installed in the printer.	Press [Pause] key after stopping data transmission from the host.

WRONG INK ERROR

LCD	Explanation	Recovery
MISMATCH ERROR DRIVER INK SET SETTING IS WRONG	This error occurs when ink type (4 color/ 8 color) designated with IK command is different from Ink Cartridge installed in the printer.	Install the correct Ink Cartridge displayed on the Panel LCD, and pull down the Ink Lever.

WRONG ROLL PAPER PATH / WRONG ASF PAPER PATH / WRONG MANUAL PAPER PATH

LCD	Explanation	Recovery
LOAD ROLL PAPER	Different paper source is selected on panel from the paper source that is selected by Remote command. The path sent by command takes priority, and a message based on the command designated path is displayed in the LCD if the printer path is different.	If the panel setting differs to the actual paper, change the select paper in the panel.
LOAD SHEET PAPER IN P. TRAY		If the actually set paper differs, reset paper selected by PP command.
FEED SHEET PAPER		Reset the panel by pressing the [Pause] key. In this case, the mechanical parameters will follow the paper type default settings set in the printer.

Note : Remote commands always have priority.

ASF PROHIBITIONS

LCD	Explanation	Recovery
FORBIDDEN MEDIA FROM P. TRAY	ASF is designated paper tray when command is received for printing of media that is prohibited from being supplied by ASF, such as Water Color Paper.	Reset panel by pressing [Pause] key.
FEED SHEET PAPER MANUARY		

CONVERSION CARTRIDGE LIFE ERROR

LCD	Explanation	Recovery
REPLACE CNVRSION CRTG	This error occurs when the conversion cartridge has been used more than its life times (100 times).	Replace the conversion cartridge with a new one.
		Press the [Pause] key to end K ink replacement.

WRONG MK / PK

LCD	Explanation	Recovery
INVALID INK CRTG	This error occurs when a K Ink Cartridge whose information is different form K ink information stored in the printer is inserted.	Install the same type of K Ink Cartridge as stored in the printer.
		Press the [Pause] key, perform K ink replacement, and change the type of K ink stored in the printer.

INK END

LCD	Explanation	Recovery
INK OUT	Ink is over consumed within Ink Cartridge.	The error is cleared by inserting Ink Cartridge (new Ink Cartridge), which the panel LCD displays and pulling down the Ink Lever.

WRONG INK CARTRIDGE

LCD	Explanation	Recovery
INVALID INK CRTG	This error occurs when a Ink Cartridge whose information is different form CSIC information is inserted. (except when WRONG PK/ MK occurs.)	Replace the Ink Cartridge with an appropriate one, and pull down the Ink Lever.
		Recover from the error forcibly by pressing the [Pause] key. In this case, color mixture of ink may be caused.

WRONG DESTINATION

LCD	Explanation	Recovery
WRONG INK CRTG	When Ink Cartridge is stated as wrong destination.	Replace the Ink Cartridge with an appropriate one.
		Recover from the error forcibly by pressing the [Pause] key.

UNAVAILABLE INK CARTRIDGE

LCD	Explanation	Recovery
WRONG INK CRTG	This error occurs when an unavailable ink cartridge is inserted.	Replace the ink cartridge with an available one.

WRONG LOGO ERROR

LCD	Explanation	Recovery
INVALID INK CRTG	This error occurs when an ink cartridge other than genuine one is inserted.	Replace the ink cartridge with a genuine one.
		Recover from the error forcibly by pressing the [Pause] key.

INK CARTRIDGE FAILURE

LCD	Explanation	Recovery
SET INK CRTG	Ink Cartridge problem or failure of reading/writing to CSIC.	It is cleared by inserting proper Ink Cartridge, which the panel displays, and pulling down the Ink Lever.
		Check CSIC contact terminals of Ink Cartridge Holder for damage, deformity. If CSIC contact terminals are not normal, replace I/H Left Unit (or I/H Right Unit).

NO INK CARTRIDGE

LCD	Explanation	Recovery
NO INK CRTG	There is no Ink Cartridge installed.	Open I/H Cover and properly install the Ink Cartridge indicated by the LCD panel. Or insert a new Ink Cartridge and pull down the Ink Lever to clear the error.
	There detected any Ink Cartridge slot without cartridge.	

MAINTENANCE TANK FULL

LCD	Explanation	Recovery
MNT TNK FULL	This error occurs when Maintenance Tank is full.	Install usable Maintenance Tank.

RELEASING LEFT AND RIGHT (LEFT OR RIGHT) INK LEVER

LCD	Explanation	Recovery
LOWER INK LEVERS	The Ink Lever is raised (released) during one of the movements.	Pull down the Ink Lever.
LOWER L INK LVR		
LOWER R INK LVR		

PRINTER COVER OPEN

LCD	Explanation	Recovery
TOP COVER OPEN	Generated when Printer Cover is open during one of the movements. Under this error, all of CR motion and ink sequences are halted. Therefore it may give damages to printing head if this situation continues very long time.	Close the Printer Cover. ☐ When cover was open during flushing before paper feed movement, the flushing operation is interrupted, but after closing the cover, the flushing and paper feed movement are completed. ☐ When cover was open during paper eject, *"Paper eject error (p.166)"* occurs after clearing this error. ☐ When cover was open during paper feed movement, *"Paper recognition error (p.167)"* occurs after clearing this error. ☐ When cover was open during paper cut movement, *"Paper cut error (p.168)"* occurs after clearing this error. ☐ When cover was open while power was OFF, power will turn OFF after capping printhead. If error is not cleared after cover is closed, check operation of Self Testing Menu Cover Sensor *p.90* and perform steps below if not normal. ☐ Check that the cover is closed properly. ☐ Replace the P Cover Open Sensor.*(p.224)*

RELEASING PAPER LEVER

LCD	Explanation	Recovery
LOAD PAPER (Except roll paper)	Paper Lever was released during standby.	Pull down the Paper Lever.
LOAD PAPER SUCTION (Roll paper only)		

RELEASING PAPER LEVER IN OPERATION

LCD	Explanation	Recovery
SET PAPER LEVER	Paper Lever was released during one of the movements.	Pull down the Paper Lever. ☐ After lowering the lever, the paper set sequence will begin, and the paper type will be automatically determined by paper detection sensors (PE Sensor, Rear Manual Insertion Sensor, ASF Paper Sensor). In this case, the paper initialization start trigger wait period will execute continuously, so the paper set sequence is resumed by pressing the [Pause] key. (However, when the Paper Lever has been lowered after removing paper without cancelling the job (pressing the [Pause] key) while the Paper Lever was raised, *"Paper end/roll paper end (p.166)"* occurs after clearing this error. ☐ When only the PE Sensor turns ON with the Paper Lever lowered, front paper supply is determined by the paper set sequence, and because a paper jam can be caused by back feeding, a message is displayed on the printer about removing paper and operation is stopped. In this case, release the Paper Lever again and remove the paper, and then lower the lever to clear the error. ☐ When only the PE Sensor turns ON at paper feed/print/eject movements of ASF or rear manual insertion, *"Paper eject error (p.166)"* occurs after clearing this error.

PAPER JAM(ASF)

LCD	Explanation	Recovery
RELEASE LEVER REMOVE PAPER JAM	The ASF Paper Sensor is ON at ASF paper feed movement but the PE Sensor does not turn ON. Or the ASF Paper Sensor and PE Sensor are both ON, but the paper top edge cannot be detected.	Release Paper Lever, remove paper, and pull down the lever. However, if this was generated during printing, when the paper is removed by the above method and the Paper Lever is lowered, *"Paper end/roll paper end (p.166)"* occurs after clearing this error. When only the PE Sensor turns ON at paper feed/eject movements of ASF, *"Paper eject error (p.166)"* occurs after clearing this error.
	The Rear Manual Insertion Sensor turned ON at paper feed movement by ASF.	
	ASF Paper Sensor or PE Sensor does not turn OFF at paper eject movement after printing by ASF feed.	

PAPER JAM(CR)

LCD	Explanation	Recovery
RELEASE LEVER REMOVE PAPER JAM	This error occurs when CR Motor step-out is detected due to paper jam while CR Motor is operating.	Release the Paper Lever to remove the paper, pull down the lever, and then turn the printer off and back on.

NO MAINTENANCE TANK

LCD	Explanation	Recovery
NO MNT TNK	The Maintenance Tank is not set during one of the movements.	Set the Maintenance Tank.

REAR COVER OPEN

LCD	Explanation	Recovery
REAR COVER OPEN	Generated when Paper Guide Unit is not installed. Under this error, all of CR motion and ink sequences are halted. Therefore it may give damages to printing head if this situation continues very long time.	Properly install Paper Guide Unit. ☐ If generated during paper feed movement by ASF, when ASF is initialized (including paper eject movement) after installation of the Paper Guide Unit, *"Paper end/roll paper end (p.166)"* occurs. ☐ When Paper Guide Unit is removed during paper feeding, *"Paper jam(ASF) (p.172)"* occurs. ☐ When Paper Guide Unit is removed during roll paper cutting, *"Paper cut error (p.168)"* occurs. If error is not cleared after installation of the Paper Guide Unit, check the cover sensor operation *p.91* by Self Testing Menu and perform steps below if not normal. 1. Check removal/installation of Paper Guide Unit. 2. Replace the Rear Cover Sensor. *(p.225)*

TYPE-B OPTION I/F CARD ERROR

LCD	Explanation	Recovery
OPTION I/F ERROR	A non-supported I/F Card is installed into the printer.	Turn off the printer, remove the Type-B I/F Card, and then turn on again.

CR LOCK UNLOCKED ERROR

LCD	Explanation	Recovery
UNLOCK PRINT HEAD	Print head (Carriage Unit) may be locked.	Turn off the printer, release the lock of print head (Carriage Unit), and turn the printer back on *p.207*.

FATAL ERROR

The printer has failed. Because this cannot be recovered by the user, resolve by following "3.2.4 Corrective Actions for Service Request Display" *(p.175)*.

LCD	Explanation	Recovery
SERVICE REQ. nnnnnnnnn ("nnnnnnnnn" shows type of fatal error.)	Occurrence of any error from which the user can not recover the printer.	If cleared by turning power OFF and then ON again, continue using printer intermittently in that condition. If the same code for the fatal error is generated again, specify the cause of the problem and replace corresponding failed part causing the problem.
	Life expiration of a long-life part which can cause secondary problems if the part is further used.	
	The printer has been brought into malfunction by unexpected operation or by receiving an unexpected command.	

3.2.4 Corrective Actions for Service Request Display

Service request errors are displayed in the LCD panel with the intention of notifying the user of the need for a service engineer to check/replace corresponding parts.
This section describes service request errors and explains corrective actions for when they occur.

CAUTION

If service request error other than "CR, PF servo related error", "CR axis detection error", "CPU related error" occurs, return the carriage to the home position.

SERVICE REQ. 00000101

☐ Error meaning:
CR Motor life

☐ Explanation
Indicates that the number of CR Motor passes has reached the specified value. The printer will develop the following problems and stop operation if printing is continued in this condition.

- Ink leakage through cracks in Ink Tube.
- Poor movement of Carriage Unit due to CR Motor internal wear.

☐ Remedy

1. Check the number of times that the CR Motor has shuttled at “VIEW COUNTER“ from Maintenance Mode 2, look for the measured number on the chart, and replace the corresponding parts. (Refer to "1.4.6 Maintenance Mode 2" *(p.90).*)

	Accumulated number of shuttle movements							
	Stylus Pro 4800/4880/ 4880C			Stylus Pro 4400/4450				
Part name	Less than 2,600K	2,600k ~	5,200k and above	Less than 1,300K	1,300K ~	2,600K ~	3,900K ~	5,200K and above
Motor Assy., CR	X	O	O	X	O	O	O	O
Pulley, Driven/ Shaft, Pulley	X	O	O	X	O	O	O	O
Tube, Supply, Ink	X	Δ	O	X	Δ	Δ	Δ	O
Scale, CR	X	O	O	X	O	O	O	O
BOARD ASSY., MAIN	O	X	X	O	X	X	X	X

O : Replacement required/ Δ : Check the part/ X : No arrangement requried

2. The product-life cycle is the same as CR Motor-life cycle, so check and maintain all over the printer mechanism. Specially check points are shown below.

- Check for bending or damage to the Head FFC.
- Check for damage to the CR timing belt and PF timing belt.
- Check for abnormal noise when carriage unit moves (bearings are worn).
- Check for accumulation of paper dust or dust to paper feed route. If there is paper dust or dirt, refer to 6.1.2 Important Maintenance Items During Service Operations (p.450) and carry out a cleaning.
- Refer to Chapter6 "Maintenance" *(p.448)*, check the lubrication points, and lubricate them if they are dry.

3. Clear the CR Motor Life Counter. (Refer to "5.6.4 Reset When CR Unit Change" *(p.442).*)

Refer to Chapter 5 " Adjustment" (p.366) and perform specified adjustments (including COUNTER CLEARS) after replacing the "Motor Assy., CR."

SERVICE REQ. 00010000

☐ Error meaning:
PF Motor Encoder check error

☐ Explanation
During initial operation at power on or during PF Motor operation, there may be a case where the encoder pulse signal can not be recognized at specified intervals. In such a case, this message is displayed and the printer stops operating.

☐ Cause of trouble

- Disconnected connector for the PF Encoder Sensor.
- Disconnected connector for the PF Motor.
- Broken wire for the PF Motor Encoder.
- Inverted wiring for A and B pulses.
- Inverted wiring for the PF Motor.
- PF Motor short
- PF Motor continuous excitation (voltage applied continuously, motor revolutions unusual)
- Broken power supply fuse for the PF motor driver (on the Main Board)

☐ Points to be checked

1. The PF Encoder Sensor and the PF Loop Scale must be free from dust and dirt or any other foreign matters.
2. Execute encoder checking by the "1.4.6.1 Self Testing Menu (SELF TESTING)" *(p.91)* in "Maintenance Mode 2".
3. The PF Timing Belt must be free from any defects and the belt must be in proper tension.
4. The PF Roller must rotate smoothly, free from undue load.
5. Measure the resistance value of the PF Motor (17.9 ± 15% [Ω]).
   If the PF Motor is found in short mode, replace the BOARD ASSY., MAIN at the same time.
6. All the harness must be connected properly and free from short circuit or broken wire.

☐ Remedy

1. Check for dirt, paper dust or damage to the Loop Scale
2. Connect the PF Encoder Sensor connector or PF Motor connector.
3. PF Timing Belt Tension Adjustment *(p.378)*
4. Replace the PF Encoder Sensor *(p.357)*
5. Replace the Motor Assy., PF *(p.349)*
6. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 00010001

- Error meaning:
  PF Motor out of step
- Explanation
  During PF Motor operation, there may be a case where the encoder pulse signal within the specified range is not input within a specified period of time or the pulse width is extremely long or short. In such a case, the PF Motor is judged to be out-of-step, so that this message is displayed and the printer stops operating.
- Points to be checked
  1. The PF Encoder Sensor and the PF Loop Scale must be free from dust and dirt or any other foreign matters.
  2. Execute encoder checking by the "1.4.6.1 Self Testing Menu (SELF TESTING)" *(p.91)* in "Maintenance Mode 2".
  3. The PF Timing Belt must be free from any defects and the belt must be in proper tension.
  4. The PF Roller must rotate smoothly, free from undue load.
  5. Measure the resistance value of the PF Motor (17.9 ± 15% [Ω]).
     If the PF Motor is found in short mode, replace the BOARD ASSY., MAIN at the same time.
  6. All the harness must be connected properly and free from short circuit or broken wire.
- Remedy
  1. Check for dirt, paper dust or damage to the Loop Scale.
  2. Perform the PF Timing Belt Tension Adjustment *(p.378)*
  3. Replace the PF Encoder Sensor *(p.357)*
  4. Replace the Motor Assy., PF *(p.349)*
  5. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 00010002

- Error meaning:
  PF Motor over current
- Explanation
  During PF Motor operation, there may be a case where an abnormal current out of the specified limits is detected in the PF Motor drive circuit on the BOARD ASSY., MAIN or a current exceeding the specified value is required. In such a case, this message is displayed and the printer stops operating.
- Points to be checked
  1. The PF Loop Scale must be free from dust and dirt or any other foreign matters.
  2. Measure the resistance value of the PF Motor (17.9 ± 15% [Ω]).
     If the PF Motor is found in short mode, replace the BOARD ASSY., MAIN at the same time
  3. By visual inspection, check the harness of the PF Motor for any problem causing a short circuit to the frame.
- Remedy
  1. Check for dirt, paper dust or damage to the Loop Scale.
  2. Replace the Motor Assy., PF *(p.349)*
  3. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 00010003

- Error meaning:
  PF Motor in-position time-out
- Explanation
  At PF stop processing in PF Motor control, there may be a case where the paper can not move to the final target position within a specified period of time. In such a case, this message is displayed and the printer stops operating.
- Points to be checked
  1. The PF Encoder Sensor and the PF Loop Scale must be free from dust and dirt or any other foreign matters.
  2. Execute encoder checking by the "1.4.6.1 Self Testing Menu (SELF TESTING)" *(p.91)* in "Maintenance Mode 2".
  3. The PF Timing Belt must be free from any defects and the belt must be in proper tension.
  4. The PF Roller must rotate smoothly, free from undue load.
  5. Measure the resistance value of the PF Motor (17.9 ± 15% [Ω]).
     If the PF Motor is found in short mode, replace the BOARD ASSY., MAIN at the same time.
  6. All the harness must be connected properly and free from short circuit or broken wire.
- Remedy
  1. Check for dirt, paper dust or damage to the Loop Scale.
  2. Perform the PF Timing Belt Tension Adjustment *(p.378)*
  3. Replace the PF Encoder Sensor *(p.357)*
  4. Replace the Motor Assy., PF *(p.349)*
  5. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 00010004

- Error meaning:
  CR Motor Encoder check error
- Explanation
  During initial operation at power on or during CR Motor operation, there may be a case where the encoder pulse signal is not input at specified intervals. In such a case, this message is displayed and the printer stops operating.
- Cause of trouble
  - Disconnected FFC for the CR Encoder Sensor.
  - Disconnected connector for the CR Motor.
  - Broken wire for the CR Motor Encoder Sensor.
  - Inverted wiring for A and B pulses.
  - Inverted wiring for the CR Motor.
  - CR Motor short
  - Broken power supply fuse for the PF motor driver (on the Main Board)
- Points to be checked
  1. CR Scale is disconnected from CR Encoder Sensor.
  2. The CR Encoder Sensor and the CR Scale must be free from dust and dirt or any other foreign matters.
  3. Execute encoder checking by the "1.4.6.1 Self Testing Menu (SELF TESTING)" *(p.91)* in "Maintenance Mode 2".
  4. The CR Timing Belt must be free from any defects and the belt must be in proper tension.
  5. The Carriage Unit must slide smoothly, free from undue load.
  6. Measure the resistance value of the CR Motor. (17.9 ± 10% [Ω])
  7. All the harness must be connected properly and free from short circuit or broken wire.
- Remedy
  1. Check to see if the CR Scale for detection of the encoder pulse is removed.
  2. Check for dirt, paper dust or damage to the CR Scale.
  3. Check if connection of the CR Encoder Sensor connector or Motor Assy., CR connector.
  4. Perform the CR Timing Belt Tension Adjustment *(p.376)*
  5. Replace the CR Encoder Sensor *(p.280)*
  6. Replace the Motor Assy., CR *(p.270)*
  7. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 00010005

☐ Error meaning:
CR Motor out of step

☐ Explanation
During CR Motor operation, there may be a case where the encoder pulse signal within the specified range is not input within a specified period of time or the pulse width is extremely long or short. In such a case, the CR Motor is judged to be out-of-step, so that this message is displayed and the printer stops operating.

☐ Cause of trouble

- Defective CR Motor.
- CR Motor driver damage (42V system short)
- Broken temperature fuse for Cutter Solenoid.

☐ Points to be checked

1. CR Scale is disconnected from CR Encoder Sensor.
2. The CR Encoder and the CR scale must be free from dust and dirt or any other foreign matters.
3. Execute encoder checking by the "1.4.6.1 Self Testing Menu (SELF TESTING)" *(p.91)* in "Maintenance Mode 2".
4. The CR Timing Belt must be free from any defects and the belt must be in proper tension.
5. Execute the CR_HP Sensor checking by the "1.4.6.1 Self Testing Menu (SELF TESTING)" *(p.91)* in "Maintenance Mode 2".
6. The Carriage Unit must slide smoothly, free from undue load.
7. Measure the resistance value of the CR Motor. (17.9 ± 10% [Ω])
8. All the harness must be connected properly and free from short circuit or broken wire.

☐ Remedy

1. Check to see if the CR Scale for detection of the encoder pulse is removed
2. Check for dirt, paper dust or damage to the CR Scale.
3. Perform the CR Timing Belt Tension Adjustment *(p.376)*
4. Replace the CR Encoder Sensor *(p.280)*
5. Replace the CR_HP Sensor *(p.276)*
6. Replace the Motor Assy., CR *(p.270)*
7. Replace the C593 MAIN Board *(p.226)*
8. Replace the Cutter Solenoid.

SERVICE REQ. 00010006

☐ Error meaning:
CR Motor over current

☐ Explanation
During CR Motor operation, there may be a case where an abnormal current out of the specified limits is detected in the CR Motor drive circuit on the BOARD ASSY., MAIN or a current exceeding the specified value is required. In such a case, this message is displayed and the printer stops operating.

☐ Points to be checked

1. The CR Scale must be free from dust and dirt or any other foreign matters.
2. Execute the CR_HP Sensor checking by the "1.4.6.1 Self Testing Menu (SELF TESTING)" *(p.91)* in "Maintenance Mode 2".
3. Measure the resistance value of the CR Motor. (19.3± 10% [Ω])
   If the CR Motor is found in short mode, replace the BOARD ASSY., MAIN at the same time.
4. By visual inspection, check the harness of the CR Motor for any problem causing a short circuit to the frame.

☐ Remedy

1. Check for dirt, paper dust or damage to the CR Scale.
2. Perform the CR Timing Belt Tension Adjustment *(p.376)*
3. Replace the CR_HP Sensor *(p.276)*
4. Replace the Motor Assy., CR *(p.270)*
5. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 00010007

- Error meaning:
  CR Motor in-position time-out
- Explanation
  At Carriage Unit stop processing in CR Motor control, there may be a case where the Carriage Unit can not move to the final target position within a specified period of time (as per pulse detection). In such a case, this message is displayed and the printer stops operating.
- Cause of trouble
  There are pulses smaller than out-of-step pulse remaining without completing paper feed.
- Points to be checked
  1. CR Scale is not removed from CR Encoder Sensor.
  2. The CR Encoder Sensor and the CR Scale must be free from dust and dirt or any other foreign matters.
  3. Execute encoder checking by the "1.4.6.1 Self Testing Menu (SELF TESTING)" *(p.91)* in "Maintenance Mode 2".
  4. The CR Timing Belt must be free from any defects and the belt must be in proper tension.
  5. The Carriage Unit must slide smoothly, free from undue load.
  6. Measure the resistance value of the CR Motor. (19.3 ± 10% [Ω])
  7. All the harness must be connected properly and free from short circuit or broken wire.
- Remedy
  1. Check to see if the CR Scale for detection of the encoder pulse is removed.
  2. Check for dirt, paper dust or damage to the CR Scale.
  3. Perform the CR Timing Belt Tension Adjustment *(p.376)*
  4. Replace the CR Encoder Sensor *(p.280)*
  5. Replace the CR_HP Sensor *(p.276)*
  6. Replace the Motor Assy., CR *(p.270)*
  7. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 00010008

- Error meaning:
  Servo interrupt watchdog time-out
- Explanation
  During the CR Motor or PF Motor operation, there may be a case where watch dog time-out is detected in the DC motor control circuit or on the ASIC. In such a case, this message is displayed and the printer stops operating.
- Remedy
  Since the cause is deemed to be a defective CPU or ASIC, replace the C593 MAIN Board *(p.226)*.

SERVICE REQ. 00010009

- Error meaning:
  System interrupt watchdog time-out
- Explanation
  In the data processing stage on the BOARD ASSY., MAIN, there may be a case where runaway or defective cash occurs on CPU or ASIC. In such a case, this message is displayed and the printer stops operating.
- Remedy
  If not cleared by turning the power OFF and back ON, the CPU or ASIC is deemed defective, so replace the C593 MAIN Board *(p.226)*.

SERVICE REQ. 0001000A

- Error meaning:
  CR home position sensor error
- Explanation
  During initial operation at power on or during printing operation, there may be a case where the home position can not be detected at the home position detection timing or within a specified period of time. In such a case, this message is displayed and the printer stops operating.
- Points to be checked
  1. Check if the CR_HP Sensor is free from adhesion of any foreign matters.
  2. Execute CR_HP Sensor checking by the "1.4.6.1 Self Testing Menu (SELF TESTING)" *(p.91)* in "Maintenance Mode 2".
- Remedy
  1. Check for dirt, paper dust or damage to the CR_HP Sensor.
  2. Replace the CR_HP Sensor *(p.276)*
  3. Replace the C593 MAIN Board *(p.226)*

CAUTION

If the above steps do not result in recovery, this message will be displayed due to malfunctioning CR system (CR Encoder Sensor/CR Motor, etc.), so check by widening the range of investigation.

SERVICE REQ. 0001000C

- Error meaning:
  PG phase sensor error
- Explanation
  During initial operation at power on or during platen gap fluctuation (change) operation after paper setting, there may be a case where the PG home position can not be detected. In such a case, this message is displayed and the printer stops operating.
- Cause of trouble
  - Disconnected connector for the PG Phase Sensor.
  - Disconnected connector for the PG Motor.
  - Broken wire for the PG Motor.
  - Defective PG Phase Sensor.
  - Defective PG Motor.
  - Damage to wheel linkage of PG drive gears
  - Power supply fuse for PG/PO Motor driver is broken on the MAIN Board.
- Points to be checked
  1. Check that the PG Phase Sensor and the PG drive gears are free from obstruction by adhesion of foreign matters or soiling.
  2. Measure the resistance value of the PG Motor. (7.0 ± 10% [Ω])
     If the PG Motor is found in short mode, replace the BOARD ASSY., MAIN at the same time.
  3. All the harness must be connected properly and free from short circuit or broken wire.
  4. There should be no damage to wheel linkage such as between PG Motor pinion gear and PG drive gears.
- Remedy
  1. Connect PG Phase Sensor or PG Motor connector correctly.
  2. Replace the PG Phase Sensor *(p.278)*
  3. Replace the Motor Assy., PG *(p.274)*
  4. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 0001000F

☐ Error meaning:
CR Motor PWM output faulty

☐ Explanation
There may be a case where a current exceeding the specified value flows during CR Motor operation. In such a case, this message is displayed and the printer stops operating.
This error can be displayed in the following case: an abnormal load which does not reach the level causing an out-of-step phenomenon "00010005" in the carriage drive system has occurred and the running speed of the motor has been detected to be too low (by the encoder), so that the current is increased to raise the running speed of the motor.
Thus, this message appears to prevent the CR Motor from being overheated.

☐ Remedy / Points to be checked

1. Check the load on the CR Motor.
   - Running load of CR Motor (check by manual operation)
   - Measure the resistance value of the CR Motor. (19.3 ± 10% [Ω])
     If the CR Motor is found in short mode, replace the BOARD ASSY., MAIN at the same time.
   - Damage to or wear in the CR Driven Pulley
   - Damaged or worn bearing of the Carriage Unit
   - Flaws in the CR Rail caused by roller running
   - Tension of the CR timing belt
2. Replace the Motor Assy., CR *(p.270)*
   If the CR Motor is found in short mode, replace the C593 MAIN Board at the same time.
3. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 00010010

☐ Error meaning:
PF Motor PWM output faulty

☐ Explanation
There may be a case where a current exceeding the specified value flows during PF Motor operation. In such a case, this message is displayed and the printer stops operating.
This error can be displayed in the following case: an abnormal load which does not reach the level causing an out-of-step phenomenon "00010001" in the paper feed drive system has occurred and the running speed of the motor has been detected to be too low (by the encoder), so that the current is increased to raise the running speed of the motor.
Thus, this message appears to prevent the PF Motor from being overheated.

☐ Remedy / Points to be checked

1. Check the load on the PF Motor.
   - Measure the resistance value of the PF Motor. (17.9 ± 15% [Ω])
     If the PF Motor is found in short mode, replace the BOARD ASSY., MAIN Board at the same time.
   - Running load of PF Motor (check by manual operation)
   - Rotation load of PF Roller
2. Replace the Motor Assy., PF *(p.349)*
3. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 00010012

- Error meaning:
  CR overload (high sensitivity) error
- Explanation
  PWM has been being output for a certain period of time. This can be made when load on the CR Motor is slightly increased.
- Remedy / Points to be checked
  1. Check the load on the CR Motor.
     - Running load of CR Motor (check by manual operation)
     - Measure the resistance value of the PF Motor.
       If the CR Motor is found in short mode, replace the BOARD ASSY., MAIN at the same time.
     - Damage to or wear in the CR Driven Pulley
     - Damaged or worn bearing of the Carriage Unit
     - Flaws in the CR Rail caused by roller running
     - Tension of the CR timing belt
  2. Replace the Motor Assy., CR *(p.270)*
  3. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 00010013

- Error meaning:
  PF overload (high sensitivity) error
- Explanation
  PWM has been being output for a certain period of time. This can be made when load on the PF Motor is slightly increased.
- Remedy / Points to be checked
  1. Check the load on the PF Motor.
     - Measure the resistance value of the PF Motor.
       If the PF Motor is found in short mode, replace the BOARD ASSY., MAIN at the same time.
     - Running load of PF Motor (check by manual operation)
     - Rotation load of PF Motor
  2. Replace the Motor Assy., PF *(p.349)*
  3. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 0001001B

- Error meaning:
  Head driver (TG) temperature error
- Explanation
  During printing operation (empty jetting of ink), there may be a case where the temperature inside the Print Head has risen above the specified value and the thermistor in the Print Head detects it as abnormal temperature. In such a case, this message is displayed and the printer stops operating.
- Cause of trouble
  - Print Heat increase due to empty jetting of ink
  - Faulty contact of Head FFC, broken Head FFC or disconnected Head FFC.
  - Print Head broken down.
- Remedy
  1. Turn off the power to the printer once and turn it on again and check for recovery.
  2. If the same error occurs immediately, replace the Printhead *(p.285)*

SERVICE REQ. 0001001D

- Error meaning:
  CR servo parameter error
- Explanation
  There may be a case where a voltage exceeding the specified value is about to be applied to the CR Motor. In such a case, this message is displayed and the printer stops operating.
- Points to be checked
  1. The CR Encoder Sensor and the CR Scale must be free from dust and dirt or any other foreign matters.
  2. Execute encoder checking by the "1.4.6.1 Self Testing Menu (SELF TESTING)" *(p.91)* in "Maintenance Mode 2".
  3. The CR Timing Belt must be free from any defects and the belt must be in proper tension.
  4. The Carriage Unit must slide smoothly, free from undue load.
  5. Measure the resistance value of the CR Motor. (19.3 ± 10% [Ω])
     If the CR Motor is found in short mode, replace the BOARD ASSY., MAIN at the same time.
  6. All the harness must be connected properly and free from short circuit or broken wire.
- Remedy
  1. Check for dirt, paper dust or damage to the CR Scale
  2. Perform the CR Timing Belt Tension Adjustment *(p.376)*
  3. Replace the CR Encoder Sensor *(p.280)*
  4. Replace the Motor Assy., CR *(p.270)*
  5. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 0001001E

- Error meaning:
  PF servo parameter error
- Explanation
  There may be a case where a voltage exceeding the specified value is about to be applied to the PF Motor. In such a case, this message is displayed and the printer stops operating.
- Points to be checked
  1. The PF Encoder Sensor and the PF Loop Scale must be free from dust and dirt or any other foreign matters.
  2. Execute encoder checking by the "1.4.6.1 Self Testing Menu (SELF TESTING)" *(p.91)* in "Maintenance Mode 2".
  3. The PF Timing Belt must be free from any defects and the belt must be in proper tension.
  4. The PF Roller must rotate smoothly, free from undue load.
  5. Measure the resistance value of the PF Motor (17.9 ± 10% [Ω]).
     If the PF Motor is found in short mode, replace the BOARD ASSY., MAIN at the same time.
  6. All the harness must be connected properly and free from short circuit or broken wire.
- Remedy
  1. Check for dirt, paper dust or damage to the Loop Scale.
  2. Perform the CR Timing Belt Tension Adjustment. (p.304)
  3. Replace the PF Encoder Sensor. (p.290)
  4. Replace the Motor Assy., PF *(p.349)*
  5. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 00010020

- Error meaning:
  CSIC reed/write error
- Explanation
  This message is displayed and the printer is stopped when information from the Ink Cartridge CSIC cannot be obtained or the latest ink information for the CSIC cannot be written when turning the power ON/OFF, opening/closing the I/C Cover or at completion of printing 1 page.
- Remedy
  1. Connect CR_FFC
  2. Defective CSIC Board (Replace the Ink Cartridge.)
  3. Faulty contact with the CSIC
     Replace the "I/H Left Unit" or "I/H Right Unit".
     (Refer to I/H Left Unit / I/H Lever Sensor (Left) *(p.296)*, or I/H Right Unit / I/H Lever Sensor (Right) *(p.305)*)
  4. Replace the C511_SUB-B Board *(p.236)*, Replace the C593_SUB-C Board *(p.238)*
  5. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 00010022

- Error meaning:
  Ink type error (setting on printer body side)
- Explanation
  "Ink type: neutral" is set even though an ink type other than dye/pigment or "CSIC detection: OFF" has been set.
- Remedy
  1. Install the correct Ink Cartridge.
  2. Raise the Ink Lever and set the Ink type (NPD) by SERVICE CONFIG of Maintenance Mode 2 *(p.90)*.

     NOTE: *If setting is performed with the Ink Lever in the set position, initialization will start and the service request error will occur again.*

SERVICE REQ. 00010023

- Error meaning:
  RTC analysis error
- Explanation
  There may be a case where the absolute time data stored on NVRAM indicates an impossible date or hour. In such a case, this message is displayed and the printer stops operating.
- Remedy
  - Execute one of the followings:
    - Turn on the printer in Maintenance Mode 2 *(p.90)*, and execute "RTC&USB ID&IEEE1394 ID" to set the date using basic adjustment in adjustment program.
  - Remove the lithium battery once and install it again.
  - Replace the lithium battery with a new one. (After replacement, be sure to execute RTC setting in one of the methods above.)
  - Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 00010025

- Error meaning:
  CSIC ROM communication error
- Explanation
  There may be a case where an error occurs in communication with the CSIC and BOARD ASSY., MAIN. In such a case, this message is displayed and the printer stops operating.
- Cause of trouble
  - Faulty contact of Ink Cartridge
- Remedy
  1. Install the correct Ink Cartridge.
  2. Defective CSIC Board (Replace the Ink Cartridge.)
  3. Faulty contact with the CSIC
     Replace the "I/H Left Unit" or "I/H Right Unit".
     (Refer to I/H Left Unit / I/H Lever Sensor (Left) *(p.296)*, or I/H Right Unit / I/H Lever Sensor (Right) *(p.305)*)
  4. Replace the C511_SUB-B Board *(p.236)* and the C593_SUB-C Board *(p.238)*
  5. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 00010026

- Error meaning:
  RTC communication error
- Explanation
  There may be a case where the RTC circuit on the BOARD ASSY., MAIN operates incorrectly (is operated as test mode). In such a case, this message is displayed and the printer stops operating.
- Remedy
  1. Remove the battery once with the power turned off and after waiting for a while, install the battery again and turn the power on.
  2. Repeat Step1 above until this error does not occur at power-on.
  - Start up the printer in Maintenance Mode 2 *(p.90)*, execute "RTC&USBID&IEEE1394ID" to set the date using basic adjustment in the the adjustment program.

SERVICE REQ. 00010028

- Error meaning:
  Head error
- Explanation
  Print Head has been damaged or undefined NMI was detected at CPU.
- Remedy
  Replace the Printhead *(p.285)*

SERVICE REQ. 00010029

- Error meaning:
  Unidentified NMI
- Explanation
  CPU has detected undefined NMI.
- Remedy
  If this error is not cleared even when the power is turned off once and on again, replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 0001002A

- Error meaning:
  CR ASIC ECU error
- Cause of trouble
  - Faulty firmware (irregular overwriting of register, etc.)
  - Damaged drive circuit board (break in pattern, etc.)
- Remedy
  1. Installing Firmware *(p.444)*
  2. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 0001002B

- Error meaning:
  PF ASIC ECU error
- Cause of trouble
  - Faulty firmware (irregular overwriting of register, etc.)
  - Damaged drive circuit board (break in pattern, etc.)
- Remedy
  1. Installing Firmware *(p.444)*
  2. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 0001002D

- Error meaning:
  Cleaning Unit work life error
- Cause of trouble
  Pump counter (8P x 1000 = 8,000P) has reached its regulated value.
- Remedy
  Replace the Cleaning Unit and reset the Cleaning Unit work life counter.
  (Reset When Cleaning Unit Change *(p.443)*.)

NOTE: *Refer to Table 3-4 "Corrective Actions for Displayed Warnings (p.162)" about the Cleaning Unit components.*

SERVICE REQ. 0001002F

- Error meaning:
  360 DPI writing time out error
- Explanation
  At ASIC reset, cannot restore position held before reset or carriage interference, etc.
- Remedy
  Recover by turning power OFF and back ON.

SERVICE REQ. 00010030

- Error meaning:
  Multi Sensor Failure
- Cause of trouble
  Multi Sensor is damaged
- Remedy
  1. Check if the connection between the Multi Sensor and BOARD ASSY., MAIN, and correct it if abnormal.
  2. Replace the Multi Sensor *(p.277)*

SERVICE REQ. 00010031

- Error meaning:
  ASF phase detection error
- Cause of trouble
  - ASF home position cannot be detected even though Pump Motor turns at designated amount.
  - ASF Phase Sensor is damaged.
  - Power supply fuse for ASF/Pump Motor driver is broken on the MAIN Board.
- Remedy
  1. Check if the ASF phase detection wheel rotates smoothly, and correct it if abnormal.
  2. Replace the ASF Phase Sensor *(p.263)*
  3. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 00010032

CHECK POINT

This error is for clarification only and does not actually occur.

SERVICE REQ. 00010033

- Error meaning:
  Paper eject phase detection error
- Cause of trouble
  Home position for paper eject switching cannot be detected even though PG Motor turns at designated amount, or Paper eject phase sensor is damaged.Or power supply fuse for PG/PO Motor driver is broken on the MAIN Board.
- Remedy
  1. Check if the Paper Eject Unit rotates correctly and correct it if abnormal.
  2. Replace the Paper Eject Phase Sensor *(p.356)*
  3. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 00010034

- Error meaning:
  Paper eject movement error
- Cause of trouble
  Floating of paper eject roller (Paper Eject Unit) due to paper jam or foreign object.
- Remedy
  Recover by turning power OFF and back ON after removing paper or foreign object.

SERVICE REQ. 00010035

- Error meaning:
  Pump phase detection error
- Cause of trouble
  Pump position cannot be detected even though Pump Motor turns at designated amount, or Pump Phase Sensor is damaged.Or power supply fuse for ASF/Pump Motor driver is broken on the MAIN Board.
- Remedy
  Check whether or not recovery can be done by turning power OFF and back ON. If error recurs, replace the Pump Phase Sensor *(p.323)*.Or replace the C593 MAIN Board *(p.226)*.

SERVICE REQ. 00010036

- Error meaning:
  Type-B Board installation error
- Cause of trouble
  Type-B Board lower than Level 2 is installed.
- Remedy
  Remove installed Type-B Board.

SERVICE REQ. 00010037

- Error meaning:
  Head thermistor error
- Cause of trouble
  - The head thermistor is failing.
  - Thermistor temperature is at -20°C or less or at 100°C or more.
  - The Head FFC is disconnected or has poor contact.
- Remedy
  1. Check if the "Harness, Head" is connected correctly, and correct it if abnormal.
  2. Replace the Printhead *(p.285)*

SERVICE REQ. 00010038

- Error meaning:
  Transistor thermistor error
- Cause of trouble
  - The transistor thermistor* is failing.
  - Thermistor temperature is at -20°C or less or at 100°C or more.
- Remedy
  Replace the C593 MAIN Board *(p.226)*

Note *: A temperature detection part that is attached to the heatsink (address numbers: Q12, Q13, Q14, Q15), which controls ON/OFF status of the head driving voltage, with screws. This part is located at the address “TH1“ on the Main Board.

SERVICE REQ. 00010039

- Error meaning:
  PG adjustment value incorrect overwrite error
- Explanation
  Writing to the PG adjustment value area of NVRAM was done improperly, or an improper value was read.
- Cause of trouble
  - Defective circuit board
  - Faulty CPU soldering
  - Program trouble.
- Remedy
  1. Installing Firmware *(p.444)*
  2. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 0001003A

- Error meaning:
  PG adjustment value outside range error
- Explanation
  A value outside the correction range was written to the PG adjustment value area of NVRAM, or an improper value was read.
- Cause of trouble
  - Defective circuit board
  - Faulty CPU soldering
  - Program trouble
  - An unsuitable F/W is installed
- Remedy
  1. Installing Firmware *(p.444)*
  2. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 0001003B

- Error meaning:
  Cutter installation error 1
- Cause of trouble
  CR lock cannot be released by PG2.6 after cutter replacement. The cutter or cutter pusher is not properly set.
- Remedy
  1. Turn off the printer power.
  2. Check the cutter installation condition and correct it if abnormal.

SERVICE REQ. 0001003C

- Error meaning:
  Cutter installation error 2
- Cause of trouble
  CR lock cannot be released by PG1.2 even after 3 attempts with the cutter replacement problem detection movement. The cutter or cutter pusher is not properly set.
- Remedy
  1. Turn off the printer power.
  2. Check the cutter installation condition and correct it if abnormal.

SERVICE REQ. 0001003D

- Error meaning:
  Cutter installation error 3
- Cause of trouble
  CR lock cannot be released by PG1.2 the next time the power is turned on if power was turned off during cutter replacement. The cutter or cutter pusher is not properly set.
- Remedy
  1. Turn off the printer power.
  2. Check the cutter installation condition and correct it if abnormal.

SERVICE REQ. 00020000

- Error meaning:
  NVRAM error
- Explanation
  There may be a case where the parameter data in NVRAM is broken. In such a case, this message is displayed and the printer stops operating.
- Cause of trouble
  - NVRAM erase error
  - Write error (Check in 2 bytes)
- Remedy
  Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 00020002

- Error meaning:
  SDRAM error
- Explanation
  In memory check of SDRAM executed at power on, there may be a case where a bit error is detected. In such a case, this message is displayed and the printer stops operating.
- Cause of trouble
  SDRAM Read/Write error
- Remedy
  Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 00020003

- Error meaning:
  BOOT program SUM error
- Explanation
  There may be a case where the boot program of firmware is broken. In such a case, this message is displayed and the printer stops operating. (Only at power on)
- Cause of trouble
  - Faulty installation
  - Defective flash memory
- Remedy
  1. Installing Firmware *(p.444)*
  2. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 00020009

- Error meaning:
  Flash memory SUM error
- Cause of trouble
  - Firmware has not been installed in flash memory.
  - Flash memory is faulty.
- Remedy
  1. Installing Firmware *(p.444)*
  2. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 0002000A

- Error meaning:
  Program load error
- Explanation
  SUM check error for program area on RAM.
- Cause of trouble
  - Program problem
  - SDRAM failure
- Remedy
  1. Installing Firmware *(p.444)*
  2. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 0002000B

- Error meaning:
  Internal memory shortage error
- Explanation
  This error appears when the cash area is insufficient. There may be a case where the assigned work area varies with the I/F mode and I/F mode setting does not agree or decoding of a command is impossible. Then the work area is consumed up, thus memory runs short. In such a case, this message is displayed and the printer stops operating.
- Cause of trouble
  - Program problem
- Remedy
  1. Check I/F mode.
  2. Installing Firmware *(p.444)*
  3. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 100000E0

- Error meaning:
  CPU address error (load misalignment)
- Cause of trouble
  - Defective circuit board
  - Faulty CPU soldering
  - Program trouble
  - Generation error
- Remedy
  1. Installing Firmware *(p.444)*
  2. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 10000100

- Error meaning:
  CPU address error (storage misalignment)
- Cause of trouble
  - Defective circuit board
  - Faulty CPU soldering
  - Program trouble
  - Generation error
- Remedy
  1. Installing Firmware *(p.444)*
  2. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 10000180

- Error meaning:
  CPU reserve command code exception error
- Cause of trouble
  - Defective circuit board
  - Faulty CPU soldering
  - Program trouble
  - Generation error
- Remedy
  1. Installing Firmware *(p.444)*
  2. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 100001A0

- Error meaning:
  CPU slot illegal command exception error
- Cause of trouble
  - Faulty CPU soldering
  - Program trouble
  - Generation error
- Remedy
  1. Installing Firmware *(p.444)*
  2. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 100001C0

- Error meaning:
  AC disruption
- Cause of trouble
  - Power outage (=Instant blackout)
  - Unplugged from electric outlet
  - Power Supply Board failure
  - MAIN Board failure.
- Remedy
  1. Turn the power OFF, remove and insert the grounded electrical outlet firmly, and turn the power back ON again.
  2. Replace the Power Supply Board *(p233)*
  3. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 100005C0

- Error meaning:
  CPU DMA address error
- Cause of trouble
  - Defective circuit board
  - Faulty CPU soldering
  - Program trouble
  - Generation error
- Remedy
  1. Installing Firmware *(p.444)*
  2. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 10000XXX

- Error meaning:
  CPU error
- Cause of trouble
  - Defective circuit board
  - Faulty CPU soldering
  - Program trouble
  - Generation error
- Remedy
  1. Installing Firmware *(p.444)*
  2. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 0003XXXX
SERVICE REQ. 0DXXXXXX

- Error meaning:
  Error code for debug
- Cause of trouble
  - Defective circuit board.
  - Defective SDRAM.
  - Defective Flash memory.
  - Faulty ASIC soldering.
  - Faulty CPU soldering.
  - Program trouble
  - Generation error.
- Remedy
  1. Installing Firmware *(p.444)*
  2. Replace the C593 MAIN Board *(p.226)*

SERVICE REQ. 0EXXXXXX

- Error meaning:
  RTC timer off error
- Explanation
  This error occurs when attempting unsuccessfully to communicate with RTC chip on the MAIN Board.

  0Exxyyzz :
  - xx: Compare error location
    (00=LTMR1, 01=LTMR0, 02=MIN counter)
  - yy: Setting value (writing value)
  - zz: setting result (value read during comparing)
- Remedy
  1. Turn the printer off and back on.
  2. Turn on the printer in Maintenance Mode 2 *(p.90)*, and execute "RTC&USB ID&IEEE1394 ID" to set the date using basic adjustment in adjustment program.

3.3 Troubleshooting Based on Your Printout

This section describes conceivable print quality problems that may occur with this printer and the troubleshooting points for those errors.

Table 3-4. Diagnosing trouble based on printout

Item	Description	Reference Page
1	Dot missing	*p.196*
2	Uneven printing/poor resolution	*p.197*
3	Smudged or marred printout on front side	*p.197*
4	Smudged or marred print out on reverse side	*p.198*
5	White/black banding	*p.198*
6	Banding	*p.199*

DOT MISSING

Auto cleaning is performed by dot missing inspection of the Multi Sensor, but dot missing can be generated by increased congealing of ink on Print Head nozzle surfaces or in nozzles due to drying when dot missing inspection is OFF or printer has not been used for a long period. Check the following particulars.

☐ Execute head cleaning or initial ink charge.

1. Execute head cleaning or initial ink charge by one of the following methods.

Cleaning	Execution Method
Cleaning	Maintenance Mode 1: SSCL
	Adjustment Program: CL3
Power cleaning	Panel Setting menu/Maintenance Menu: Power Cleaning
	Adjustment Program: CL4
Initial ink charge	Adjustment Program: Initial Ink Charge

2. Nozzle Check Pattern Printing *(p.59)*
   Execute Nozzle Check Pattern Printing in the Panel Setting menu. ("Panel Setting" → "TEST PRINT" → "NOZZLE CHECK")

CHECK POINT

- **In Initial Ink Charge, a large amount of ink will be discharged into the Maintenance Tank. Therefore, check the counter indication (remaining value) beforehand. (If deemed necessary, prepare another Maintenance Tank as a spare.)**
- **Check the amount of ink remaining before starting Initial Ink Charge. If the remaining ink is less than 50%, replace the ink cartridge with a new one and then start the procedure.**

☐ If the power cleaning does not recover the printer, check the following points.

- If trouble occurs in all the ink colors.
  - Are the Print Head and Cap Unit sealed during Ink Charge?
  - If the Cap Unit / Pump Tubes have come off.
  - If the life of the Cleaning Unit has expired.
  - If the Cap Unit has failed. (The cap rubber is damaged, etc.)
  - If the Pump Unit has failed. (The tubes are crushed, etc.)
  - If the Printhead has failed.
  - If the fuse on the Main Board has blew.
  - Head FFC contact failure.
- If the trouble occurs with a specific ink color.
  - Head Cleaner is dirty.
  - Abnormal connections between the Ink Cartridge, Ink Holder, Tube, Damper, Print Head. (Fastening nuts loose, or the O-ring deformed or damaged, causing ink to leak, etc. could occur.)
  - Print Head failure
  - Execute power cleaning again.

☐ If the trouble still occur even after checking the items listed above, replace the following parts and check again.

- Printhead *(p.285)*
- C593 MAIN Board *(p.226)*

UNEVEN PRINTING/POOR RESOLUTION

If the print quality is abnormal (uneven printing, diffused image, etc.), the following items should be checked.

1. Perform the adjustment below with Adjustment Program.
    1. Nozzle Bi-D Adjustment *(p.393)*
    2. Auto Bi-d Adjustment *(p.430)*
    3. Auto Uni-d Adjustment *(p.401)*
    4. Check Platen Gap *(p.410)*

    Execute Nozzle Check *(p.436)* and Alignment Check *(p.437)* above adjustment. If print quality is still abnormal, go to next step.
2. If the trouble occurs only when the user is using a specific type of paper (thick paper), carry out "User Paper Setting" using the panel setting procedure. (By setting the information concerning the thickness of the paper the user is using and correcting the print position (correction of changes in the position where ink hits the paper surface due to differences in paper thickness), avoid influencing the print position.)
3. If this problem occurs after replacing the BOARD ASSY., MAIN with a new one:
    - Transfer the parameters on the old Main Board to the new board. *(p.409)*
4. If the printer's condition is not improved by the above items (adjustments), replace the following parts.
    - Printhead *(p.285)*
    - Printer Mechanism (SP) *(p.242)*

SMUDGED OR MARRED PRINTOUT (FRONT SIDE)

If smudging or marring occurs due to rubbing by the head, etc. on the paper's printed surface, check the following items.

1. If smudging is occurring at the front end of the roll paper or at the rear end, widen the margins at the front end and rear end. (Set the "PAPER MARGIN" front end and rear end on "15mm".)
   (If high duty printing was done close to the front end and rear end (margin = 3mm), the paper will contain a large amount of ink and deformation of the paper will be accelerated, and depending on the case, the paper will touch the head.)
2. If paper with weak edges which cannot move smoothly along the paper path is being used, Select "-4" for "SUCTION" in the "CUSTOM PAPER", which is in the "Panel Setting".
3. If there is rubbing and smudging due to slow drying in printing of user paper.
   In the item "DRYING TIME" in the "CUSTOM PAPER", in "Panel Setting" set the drying time (the time until auto paper cutting is carried out after printing is finished. (Default: 0 second; Maximum: 10 seconds)
4. If the trouble cannot be resolved by the above methods, check the following.
    - Pump Unit failure
    - Check to see if dust containing ink, foreign matters or paper is adhering to the side surface of the head.
5. Extend platen gap.

    NOTE: *Be careful to decreasing image quality, if the platen gap is extended.*

SMUDGED OR MARRED PRINTOUT (REVERSE SIDE)

If smudging or marring of the paper back surface with ink occurs, the following items should be checked.

1. Check if the paper is bent or curled, and replace the paper with new one if abnormal.
2. Check to see if there isn't ink adhering to the paper feed path. If there is ink adhering, it should be wiped off.
   - PF Roller surface
   - Front Eject Paper Guide surface
   - Rear Paper Guide surface (including switching ribs)
   - Paper Eject Roller surface

CAUTION

If the user's paper size setting is not correct when "PPR SIZE CHK" / "PPR ALIGN CHK" of panel setting menu has been set to OFF, then printing will be done onto platen surface.

3. Check if ink absorbing sponge for borderless printing, and correct if it is abnormal.
   - Deformation
   - Embossment (installation failure)
   - Accumulation of ink

WHITE OR BLACK BANDING IN THE CARRIAGE RUNNING DIRECTION

If white or black banding (uneven density) in parallel with the Carriage Unit running direction appears on your printout, check the following points:

1. Nozzle Check Pattern Printing *(p.59)*
   Execute Nozzle Check Pattern printing in the panel setting menu. If dot missing is found, perform the head cleaning or initial ink charge by following method
   - "Cleaning" *(p.412)* of adjustment program.
   - "Power Cleaning" *(p.79)* in Panel Setting Mode.
   - "Initial Ink Charge" *(p.412)* of adjustment program.
2. Adjustment
   If dot missing is not found, perform the following adjustment and check for improvement.
   - Check Alignment *(p.437)*
     If it has trouble, execute "Power Cleaning" *(p.79)* or "Initial Ink Charge" *(p.412)*.
   - 1000mm Feed Adjustment *(p.407)*

BANDING IN THE PAPER FEED DIRECTION

If banding (uneven density, rough image) in parallel with the paper feed direction is found on the print, perform the following adjustment:

- ☐ Bi-D adjustment
  The Bi-D adjustment can be executed by any of the following methods.
  - "HEAD ALIGNMENT" in the Panel setting menu
  - Printer Driver
  - Adjustment Program

If the adjustment above does not work to improve the print quality, you may improve it by adjusting the "THICKNESS NUM" setting value (± 0.1 ~ 0.2mm) in "CUSTOM PAPER" of the panel setting menu.

CHAPTER

4

DISASSEMBLY & ASSEMBLY

4.1 Introductory Information

This chapter describes disassembly/reassembly steps for the Stylus Pro 4400/4450/4800/4880/4880C.
When no special instructions are given, reassembly is done by reversing the order for disassembly steps.

CHECK POINT

For disassembly/assembly that is common to 8-color model (Stylus Pro 4800/4880/4880C) and 4-color model (Stylus Pro 4400/4450), instructions are given based on 8-color model. For disassembly/assembly that is unique to 4-color model, instructions are given as CHECK POINT. When disassembling/assembling the 4-color model, refer to "Difference Between 8-color And 4-color Models In Disassembly/Assembly (p205)" to make sure the difference between them.

- ☐ WARNING
  Dangers that could cause injury or death are described after the "WARNING" symbol.
- ☐ CAUTION
  Items that need prior attention during disassembly/reassembly steps are described after the "CAUTION" symbol.
- ☐ CHECK POINT
  Hints regarding disassembly steps are described after the "CHECK POINT" symbol.
- ☐ REASSEMBLY
  Reassembly steps that differ from reverse procedures for disassembly steps are described after the "REASSEMBLY" symbol.
- ☐ ADJUSTMENT REQUIRED
  Adjustments required following disassembly/reassembly are described after the "ADJUSTMENT REQUIRED" symbol. Refer to "Chapter 5: Adjustments" and be sure to perform the specified adjustments.

Refer to the appendix Exploded Diagrams *(p.463)* when disassembly of units or components not described in this manual is required.

4.1.1 Cautions

The precautions in the two lists below, WARNING and CAUTION, must always be followed during disassembly and assembly. Before starting the disassembly work on this product, read and follow these precautions.

WARNING

- **CR and PF motors are stopped by the cover sensor when the "Cover, Printer" or "Paper Guide, Inner Unit" is open (removed). For safety reasons, do not disable this switch.**
- **This printer is equipped with a lithium battery. Be sure to observe the following precautions when handling the battery.**
  - **Danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacture.**
  - **Dispose of used batteries according to manufacture's instructions and in compliance with all applicable laws. Contact your local government agency for information about battery disposal and recycling.**
  - **Be sure to securely cover the (+) end of each battery with tape to prevent combustion or explosion when disposing.**
  - **Do not recharge the battery.**
  - **Do not use the battery if it is discolored or damaged, as well as if any leakage of electrolyte is observed.**
  - **Do not dismantle, solder or heat the battery. By doing so could result in explosion, leakage or generating heat.**
  - **Do not heat the battery or put it into fire.**
  - **If the electrolyte leaked from the battery gets into contact with skin or eyes, rince it with clean water and see a doctor immediately.**
  - **The power switch is installed on the secondary side of the power circuit, so power is always supplied unless the power cord has been unplugged. Unless otherwise stated, be sure to unplug the power cord from the AC outlet to prevent electric shock and circuit damage during servicing.**

WARNING

- Wear gloves while performing disassembly/ reassembly to prevent accidental cuts.
- If ink contacts the eyes, rinse eyes with clean water and consult a physician.
- If ink contacts the skin, wash with soap and water. Consult a physician if the skin becomes inflamed.
- A lithium battery is installed on the MAIN Board. Prevent damage by following the cautions below when handling the MAIN board.
  - ◆ Avoid putting the MAIN board on conductive surface while the battery is installed.
  - ◆ When the battery is removed, be sure not to mistake the polarity when reinstalling it.

CAUTION

- Ensure adequate work space for performing service/ maintenance.
- The printer should be placed on a stable surface.
- Use care in handling the printer, since it is unusually heavy (approx. 40kg).
- Perform ink discharge before removing/replacing parts of the ink routing system.
  Refer to "5.1.5 Adjustment Item (p371)".
- Carefully install/connect ink routing system parts when reassembling after disassembly. (To prevent ink leaks due to faulty installation/connection.)
- Use only recommended tools for disassembly, reassembly and adjustment.
- Use only specified lubricants and adhesives when applying lubrication or adhesive.
- Place a protective sheet on the floor before removing ink routing parts because there is the possibility that leaking ink could get onto the product or floor where the product is set up.

CAUTION

- To prevent static electric damage when handling a circuit board, do not touch elements on board with bare hands. If handling with bare hands is unavoidable, perform work by using required measures, such as wearing a grounding strap.
- Carefully confirm the connection ends/directions of electric part connectors when reassembling after disassembly. This printer uses several FFC (flexible flat cable), so use care in properly connecting connectors to prevent misalignment or other connection problems that can damage PCB elements by short circuits.
- Route cables of electric components along specified locations when reassembling after disassembly. (Routing cables by other locations may push the cables against sharp edges or reduce noise resistance margins.
- When allowing the printer to operate with covers removed, be careful not to get hands or clothing caught in moving parts.
- Use care to avoid injury when handling the cutter blade because it is very sharp.
- The cutter uses a very hard blade that is unusually brittle, so do not allow it to be damaged by bumping into objects such as metal printer parts.
- When it is necessary to disassemble units or parts that do not have written procedures because they are controlled as service parts, carefully note installed conditions before starting disassembly.
- When loosening screws on the outside of the printer that have blue locking seal applied to them, apply new locking seal to the screws when reassembling.
- When removing units or parts that are secured with acetate (black) or two-sided tape, always secure the units or parts with those tapes when reassembling.

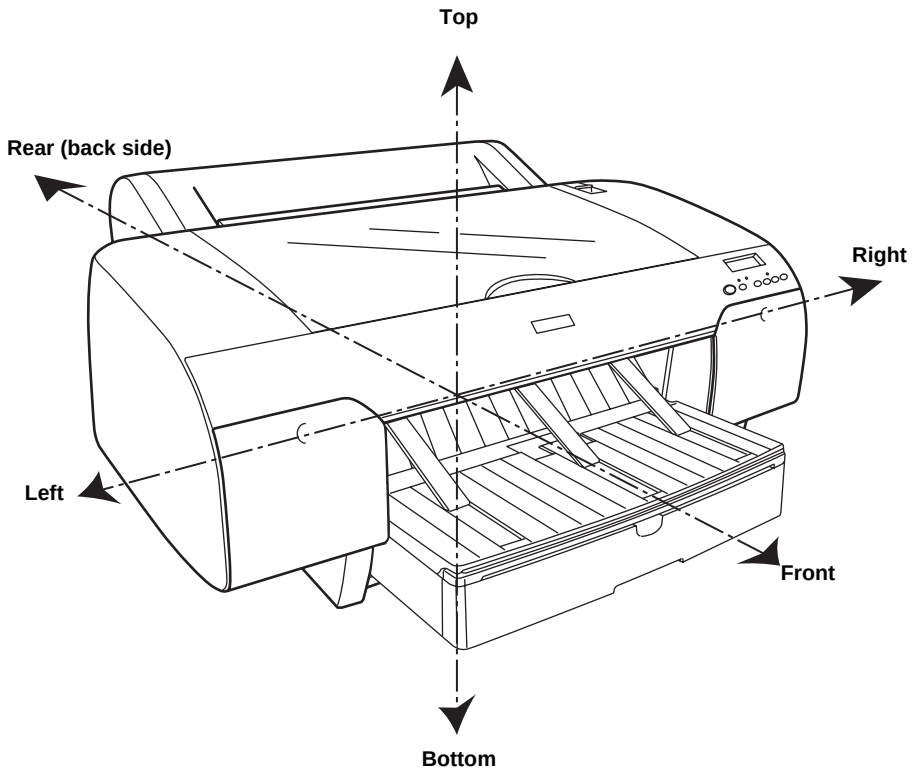


Figure 4-1. Directional View of the Printer

4.1.2 Tools

Tools needed for disassembly/reassembly of the Stylus Pro 4400/4450/4800/4880/4880C are shown below.

Table 4-1. Required Tools

Name	Part Code	Note
(+) Phillips screwdriver #1	Commercial Tool	–
(+) Phillips screwdriver #2	Commercial Tool	Shaft length of 250mm or more is preferred.
Flathead screwdriver	Commercial Tool	–
Needle nose pliers	Commercial Tool	–
Tweezers	Commercial Tool	–
Torque wrench 1.25/1.75	1277142	For coupling screws
Hex wrench	Commercial Tool	For roll paper feeder
Ink cartridge	ICxx24*	–
Maintenance Tank	PXMT2	–
HEAD EXCHANGE SUPPORT TOOL	1294672	Used in Print Head replacement
CUTTER CAP	1401456	Used in Print Head replacement
CR SUS PLATE SUPPORT TOOL	1400023	Used in Carriage Unit and Print Head replacement
ASF EXCHANGE SUPPORT TOOL	1401458	Used in ASF Unit replacement

Note "*": "xx" letters differ for each cartridge.

4.1.3 Screws

Screws used on the Stylus Pro 4400/4450/4800/4880/4880C are shown below.

Table 4-2. Screws

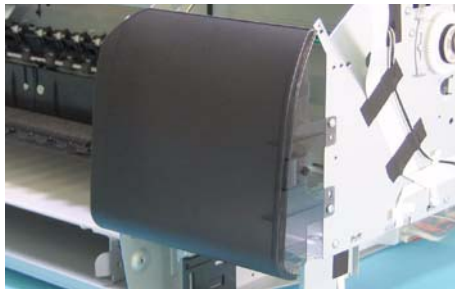
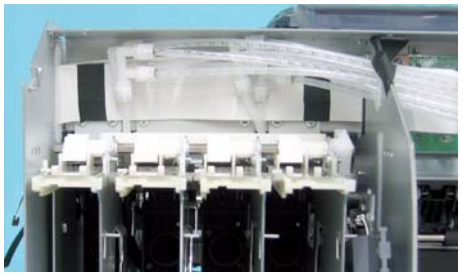
Name	Color	Type
Decorative Screw	White	Special screw
C.B.S. 3x6	Silver	(+) Bind S-tight
C.B.S. 3x6	Silver	(+) Bind S-tight
C.C.P. 4x10	Silver	(+) Cup P-tight
C.B.P. 3x8	Silver	(+) Bind P-tight
C.B.S. (O) 3x6	Silver	(+) Bind S-tight with outside toothed lock washers
C.B.S. (O) 3x6	Silver	(+) Bind S-tight with outside toothed lock washers
Shaft, Installation, CR	Silver	Special screw
C.B.S. 3x8	Silver	(+) Bind S-tight
C.B.S. 3x10	Silver	(+) Bind S-tight
C.B.P. 3x6	Silver	(+) Bind P-tight
C.B. 3x4	Silver	(+) Bind
C.B.P. (P2) 3x8	Silver	(+) Bind P-tight with plane washers 2
C.P.P. 2.6x8	Silver	(+) Crosshead Pan P-tight
C.B.P. 3x12	Silver	(+) Bind P-tight
Installation Plate, Shaft, CR	Silver	Special screw
C.B.S. (P2) 3x6	Silver	(+) Bind S-tight with plane washers 2
C.B. (P1) 3x4	Silver	(+) Bind with plane washers 1
C.B.S. 3x12	Silver	(+) Bind S-tight
Coupling Screw, M7	White	Special screw
C.C. 3x6	Silver	C.C. screw
C.B. 3x8	Silver	(+) Bind
C.B.B. 2x10	Silver	(+) Bind B-tight
C.B. (P2)	Silver	(+) Bind with plane washers 2
C.P.P. 2.6x6	Silver	(+) Crosshead Pan P-tight

4.1.4 Difference Between 8-color And 4-color Models In Disassembly/Assembly

The Stylus Pro 4800/4880/4880C (8-color model) and Stylus Pro 4400/4450 (4-color model) are equipped with different units or parts depending on how many cartridges can be installed.

This chapter describes based on the 8-color model. When disassembling/assembling a 4-color model, refer to the table below to make sure the difference between the 8-color model and 4-color model.

Table 4-3. List of Difference in Disassembly/Assembly for Stylus Pro 4400 (4-color model)

Item	Explanation	Stylus Pro 4800/4880/4880C (8-color model)	Stylus Pro 4400/4450 (4-color model)	Reference
IH right unit not equipped	4-color model is not equipped with the I/H right unit on the right side.			" I/H Right Unit / I/H Lever Sensor (Right) (p305)"
	The 4-color model is equipped with the "Cover, Front, Right 4 Color" on the location where the 8-color model would be equipped with the "I/H Right Unit".			" Cover, Front, Right 4 Color (4-color Model) (p365)"
Routing of "Tube, Supply, Ink"	While the "Tube, Supply, Ink" of the 8-color model is connected to the right ink holder, That of the 4-color model is routed to the "I/H Left Unit".			" I/H Left Unit / I/H Lever Sensor (Left) (4-color model) (p362)"
Connecting locations of "I/H Left Unit" and "Tube, Supply, Ink"	The connecting locations are different between the two types of models because all the eight "Tube, Supply, Ink"s of the 4-color model are connected to the "I/H Left Unit".			
CSIC connectors on C511_SUB-B Board not used	The 4-color model does not use the CN39, CN42, CN43, CN45, and CN36 connectors on the C511_SUB-B Board.			" Connectors/ Harnesses Connected to C511_SUB-B Board (p236)"

4.2 Disassembly Procedures

CAUTION

- **Because this printer is assembled with precise measurements in 1/100mm units, disassembly of the frame and defined components is prohibited. Disassembly/reassembly is limited to parts whose part numbers are shown in the "Parts List" of Chapter 7. (Disassembly of parts other than those listed could result in problems that cannot be repaired except at the factory.)**
- **Disassembly/reassembly operations for parts/units not listed in this "Disassembly/Reassembly" section cannot be performed on-site.**

4.2.1 Basic Operations

4.2.1.1 Release of the Transport Retaining Lever

1. Open "Cover, Printer". *(Refer to Figure 4-2.)*
2. Grasp and pull the "Transport Retaining Lever" (green) located on the left side of the "Carriage Unit" to release the locked condition of the "Carriage Unit". *(Refer to Figure 4-3.)*
3. Close "Cover, Printer".

Be sure to engage the "Transport Retaining Lever" to lock the "Carriage Unit" and install protective equipment the next time the printer is transported.

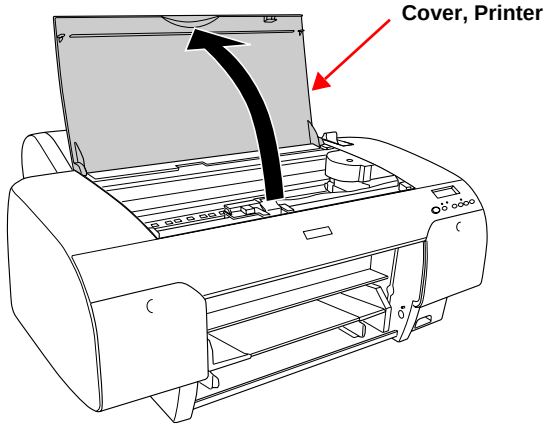


Figure 4-2. Open Cover, Printer

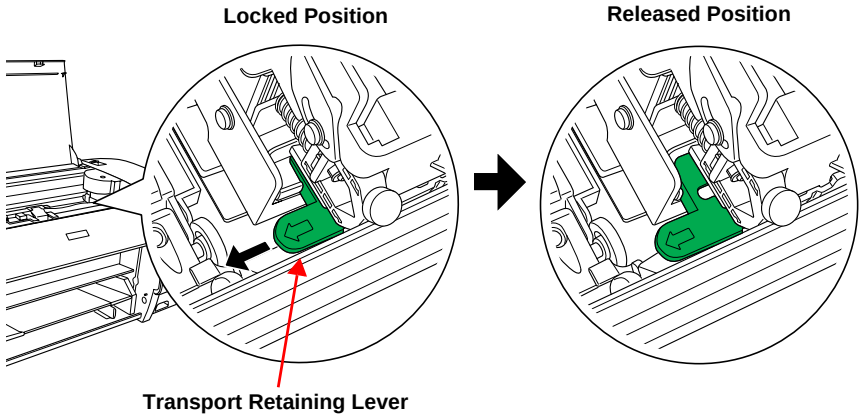


Figure 4-3. Print Head Lock Release

4.2.1.2 Carriage Unit Lock Release/Lock Set Method

CARRIAGE UNIT LOCK RELEASE

1. Open "Cover, Printer".
2. Push in "Holder, Solenoid" to release carriage lock. *(Refer to Figure 4-4.)*

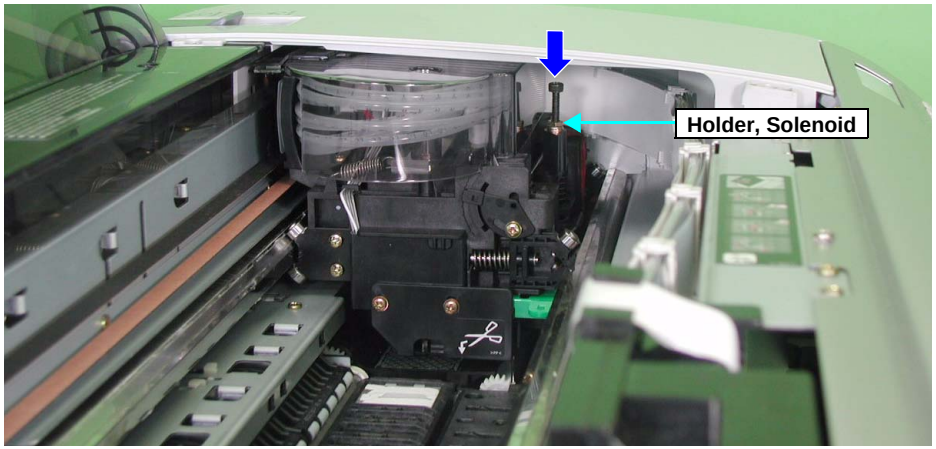


Figure 4-4. Carriage Unit Lock Release

CARRIAGE UNIT LOCK SET

1. Move "Carriage Unit" to the right until you hear a clicking sound to lock the "Carriage Unit". *(Refer to Figure 4-5.)*

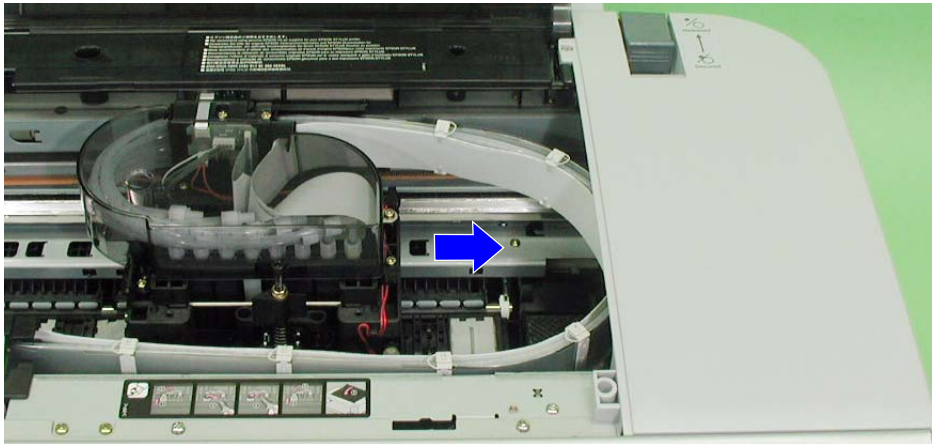


Figure 4-5. Carriage Unit Lock Set

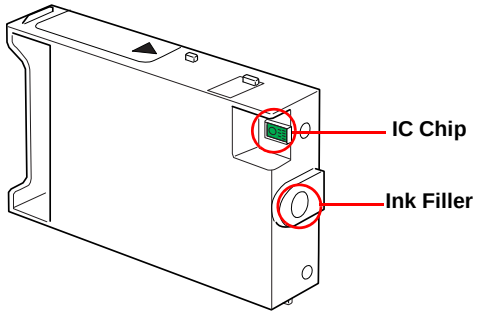
4.2.2 Consumable Parts/ASF Cassette Removal

4.2.2.1 Ink Cartridges

1. Open "Cover, I/H, Left (Right)". *(Refer to Figure 4-6.)*
2. Lift "IC, Lock Lever, Knob, Left (Right)" to release "Ink Cartridge" lock. *(Refer to Figure 4-6.)*
3. Remove the eight "Ink Cartridges" from the eight "Cartridge Slots". *(Refer to Figure 4-7.)*

CAUTION

- **Do not touch ink cartridge PCB (IC chip). Doing so could disrupt normal operation/printing.**
- **Do not touch ink filler because ink could leak from the ink filler of the ink cartridge.**



CHECK POINT

To avoid wrong insertion, the shapes of ink cartridges of Stylus Pro 4400/4800 and Stylus Pro 4450/4880/4880C differ.

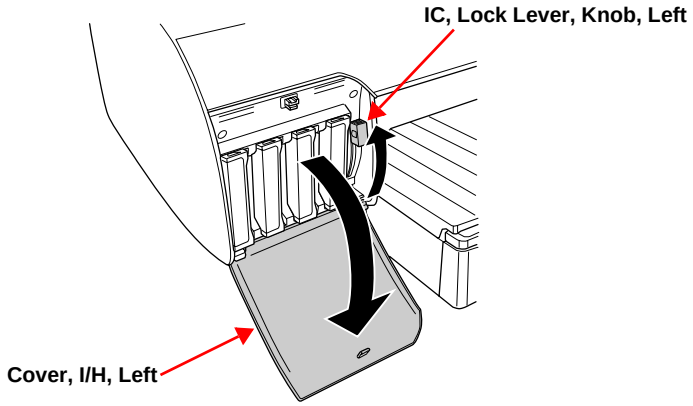


Figure 4-6. Ink Cartridge Lock Release

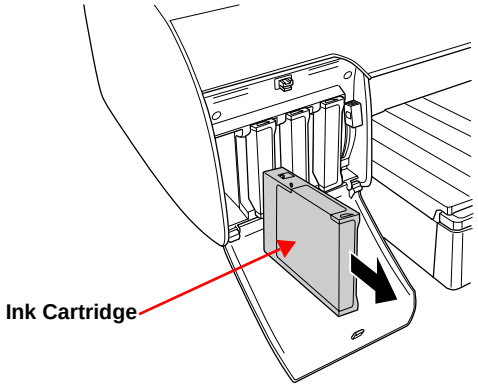


Figure 4-7. Ink Cartridge Removal

4.2.2.2 Maintenance Tank (Porous Pad Assy., Ink Eject)

CAUTION

Do not touch the IC chip while performing the following steps. Doing so could disrupt normal operation/printing.

1. Insert the fingers of your right hand into the hole of the "Maintenance Tank" and pull while pressing against the lower part of the ink cartridge storage box with your right thumb.
2. With attention not to tilt the "Maintenance Tank" in any direction, remove the "Maintenance Tank" while supporting with your left hand.

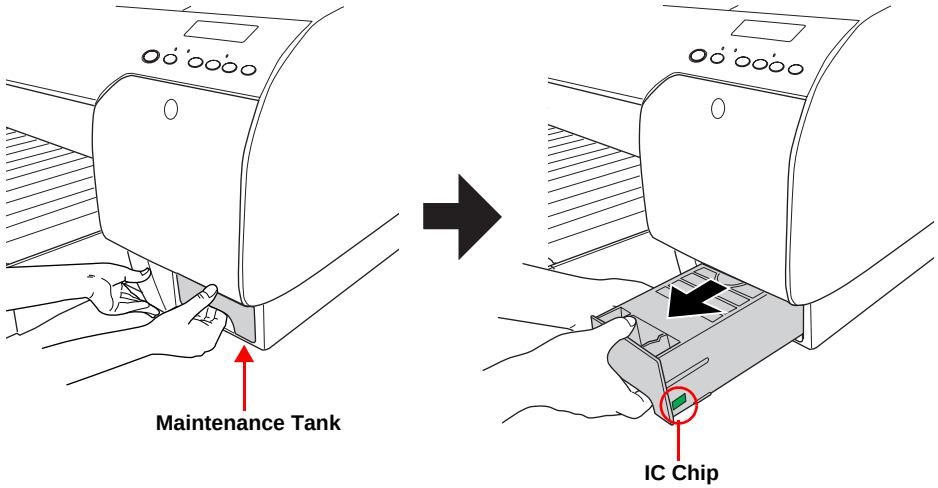


Figure 4-8. Maintenance Tank Removal

4.2.2.3 Cutter Assembly

1. Enter cutter replacement mode using the panel setting with printer power on.
2. The carriage unit moves and stops at the cutter replacement position.
3. Open "Cover, Printer".

CAUTION

When pressing the "Cutter Assembly" tab in the following steps, press it lightly because the cutter blade could scratch the interior of the printer if it is pushed inward.

4. Press down on the "Cutter Assembly" tab and turn the "Holder, Solenoid" in the clockwise direction. *(Refer to Figure 4-9.)*
5. Remove the "Cutter Assembly" from the "Carriage Unit". *(Refer to Figure 4-10.)*

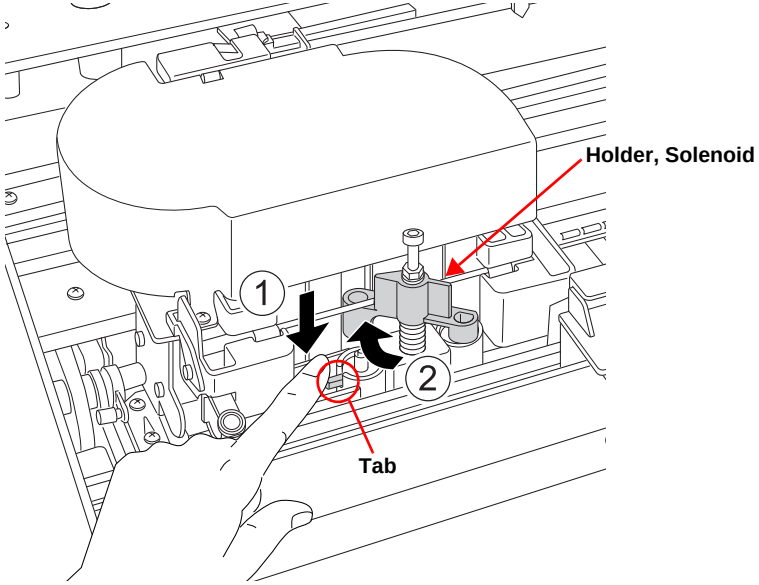


Figure 4-9. Cutter Assembly Removal_1

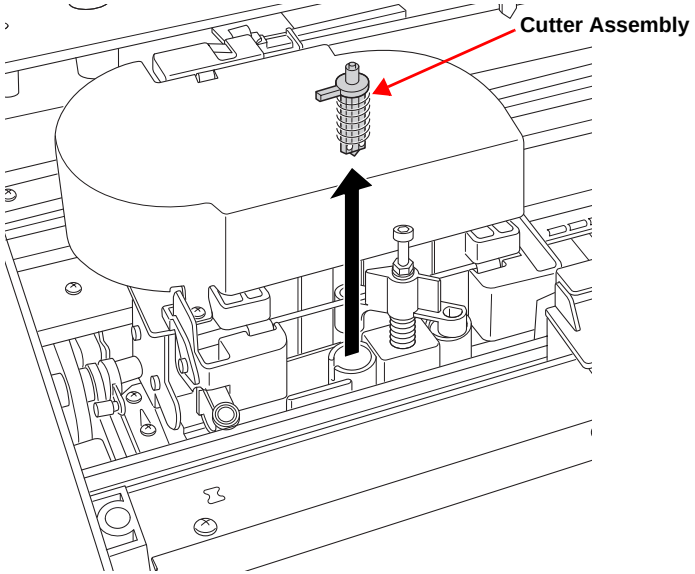


Figure 4-10. Cutter Assembly Removal_2

4.2.2.4 ASF Cassette

1. Remove the "ASF Cassette" from the printer.

CHECK POINT

The disassembly steps described on the following pages require prior removal of the "ASF Cassette".

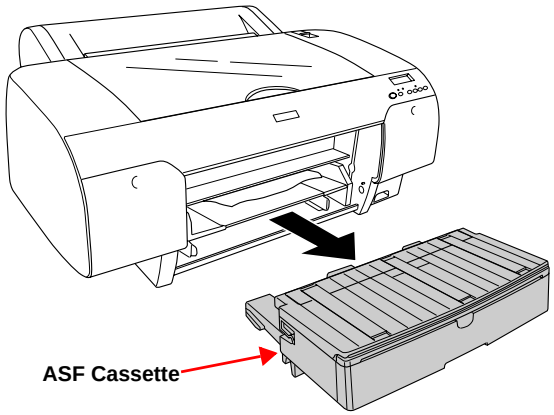


Figure 4-11. ASF Cassette Removal

4.2.2.5 Spindle

SPINDLE REMOVAL

1. Open "Cover, Roll Paper".
2. Remove "Spindle".

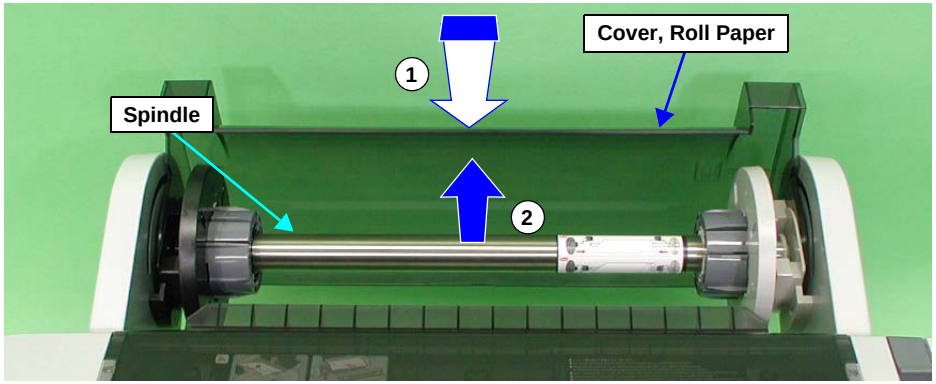


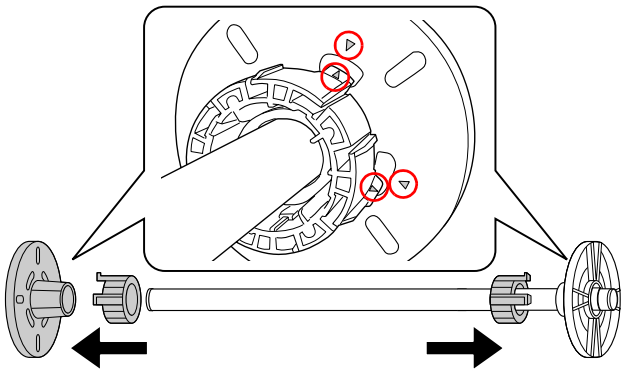
Figure 4-12. Spindle Removal

SPINDLE DISASSEMBLY

1. Remove "Spindle" *(p213).*
2. Remove "Flange, Left" (black) along with "Adapter" from the "Spindle".
3. Release hooks (4 each, 8 total) securing each "Adapter" outward and remove the corresponding "Adapter" from "Flange, Left" and "Flange, Right" (gray).

REASSEMBLY

Align the △ marks of the flanges with the △ marks of the adapters.



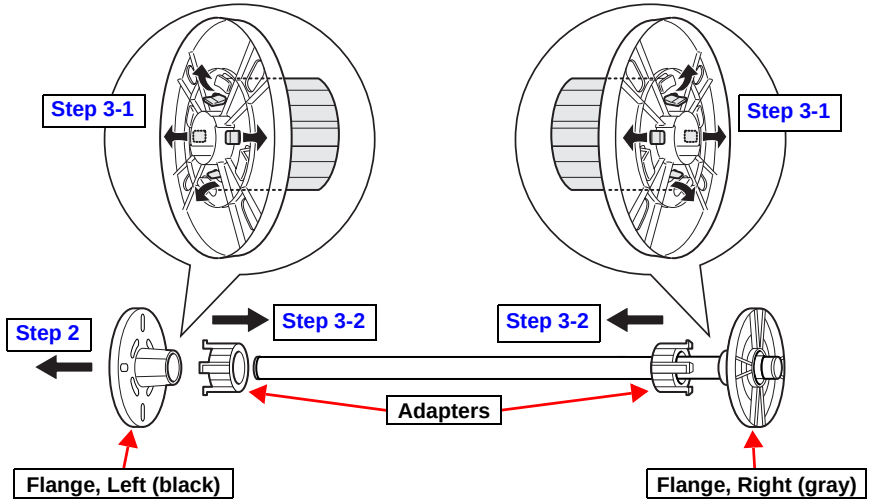


Figure 4-13. Spindle Disassembly

4.2.3 Panel Unit/Housing Removal

This section describes steps for removing housing parts.

4.2.3.1 Holder, Roller, Unit

1. Remove "Spindle" *(p213).*
2. Remove the four decorative screws securing the "Holder, Roller, Unit" to the main unit. *(Refer to Figure 4-14.)*
   - Decorative screw: 4 pcs.
3. Slide the "Holder, Roller, Unit" upward from the printer rear surface and remove it outward. *(Refer to Figure 4-15.)*

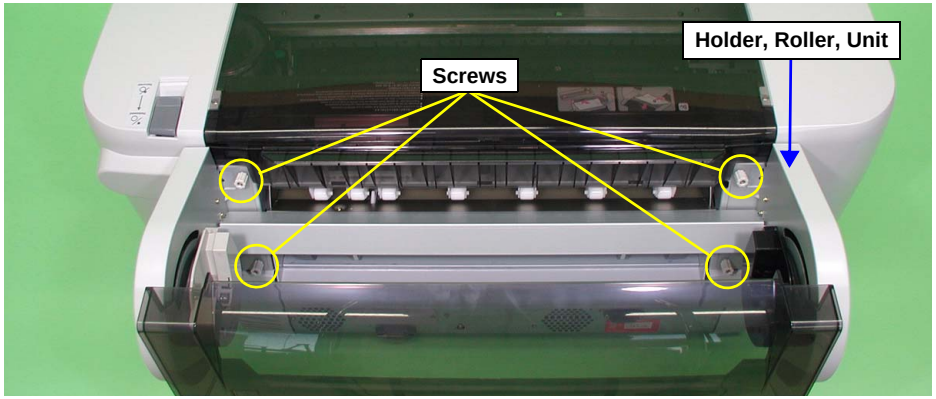


Figure 4-14. Screws Securing Holder, Roller, Unit

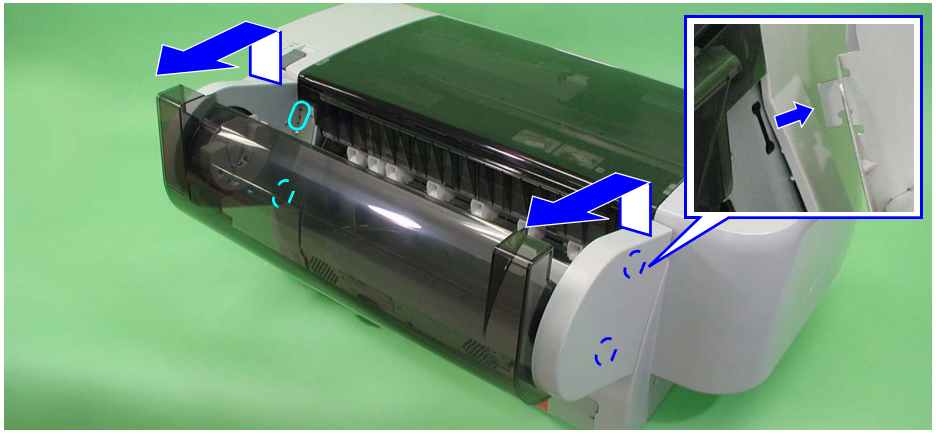


Figure 4-15. Holder, Roller, Unit Removal

4.2.3.2 Paper Guide Assy., M, SP

1. Pull the left and right levers that secures the "Paper Guide Assy., M, SP" inward, and then pull out the "Paper Guide Assy., M, SP".

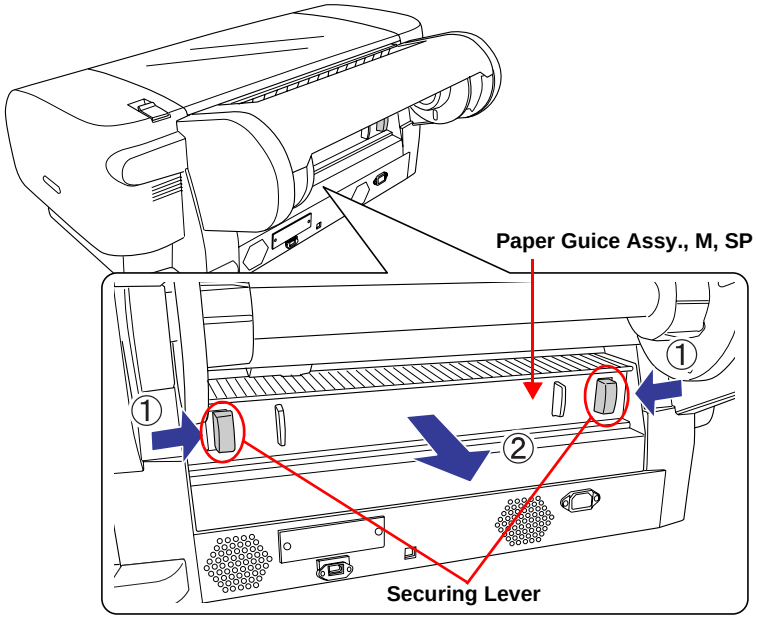


Figure 4-16. Paper Guide Assy., M, SP Removal

4.2.3.3 Cover, Side, Left

1. Remove "Holder, Roller, Unit" *(p214).*
2. Remove "Paper Guide Assy., M, SP" *(p215).*
3. Open "Cover, Printer".
4. Remove the four screws securing "Cover, Side, Left".
   - C.B.S. 3x6: 2 pcs.
   - C.B.S. 3x8: 1 pc.
   - C.C.P. 4x10: 1 pc.
5. While slightly lifting the upper part of "Cover, Side, Left", remove the "Cover, Side, Left" toward left side of the main unit.

CHECK POINT

Slightly lifting the upper part of "Cover, Side, Left" allows the cover to be removed without interfering with the upper part of the printer.

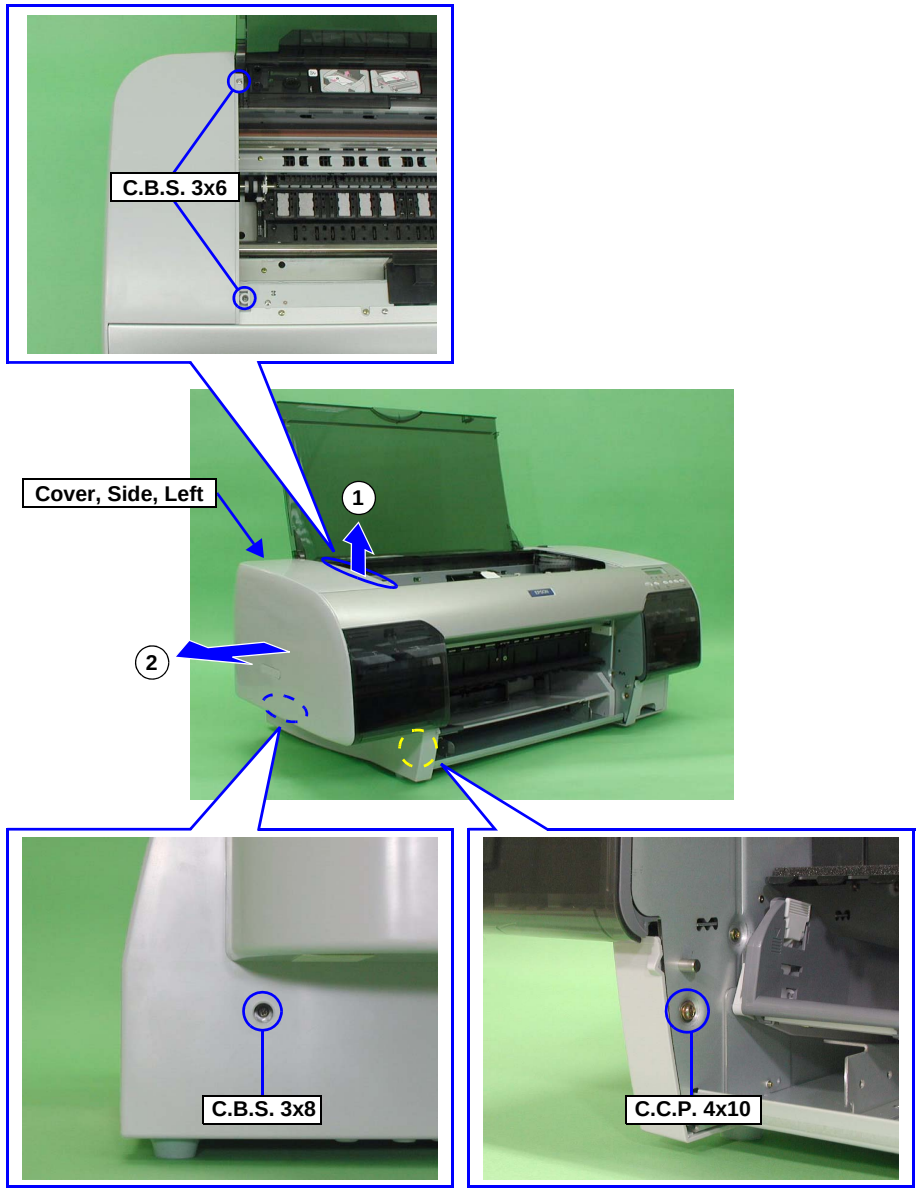


Figure 4-17. Cover, Side, Left Removal

4.2.3.4 Cover, Side, Right

1. Remove "Maintenance Tank (Porous Pad Assy., Ink Eject)" *(p210).*
2. Remove "Holder, Roller, Unit" *(p214).*
3. Remove "Paper Guide Assy., M, SP" *(p215).*
4. Move "Paper Lever" until two screws can be seen and hold the lever in the place.
5. Remove the two screws securing "Paper Lever" and then remove "Paper Lever".
   - C.B.P. 3x8: 2 pcs.

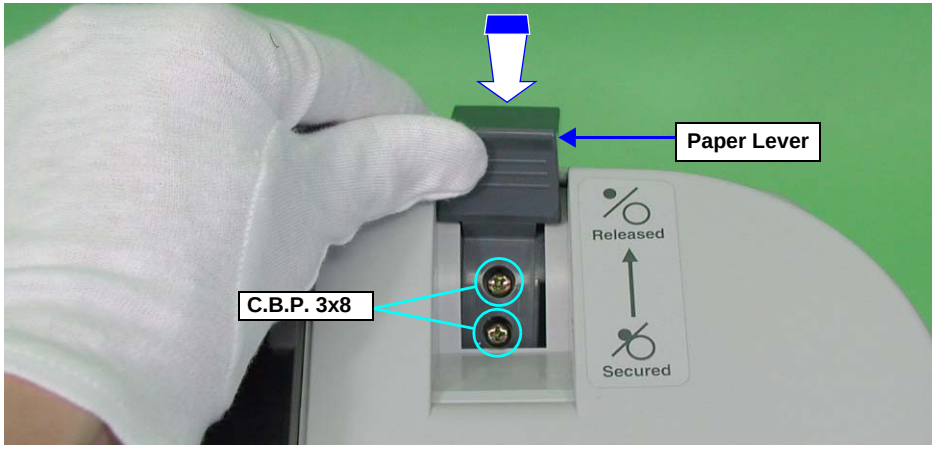


Figure 4-18. Paper Lever Removal

6. Open "Cover, Printer".
7. Remove the four screws securing "Cover, Side, Right".
   - C.B.S. 3x6: 2 pcs.
   - C.C.P. 4x10: 2 pcs.
8. While slightly lifting the upper part of "Cover, Side, Right", remove the "Cover, Side, Right" toward right side of the main unit.

CHECK POINT

Slightly lifting the upper part of "Cover, Side, Right" allows the cover to be removed without interfering with the upper part of the printer.

CAUTION

When removing the “Cover, Side, Right”, ink may leak or splatter. So have cleaning rags ready and prevent ink from getting on the work area. Install the "Maintenance Tank" beforhand when leaving the "Cover, Side, Right" being removed for a long time.

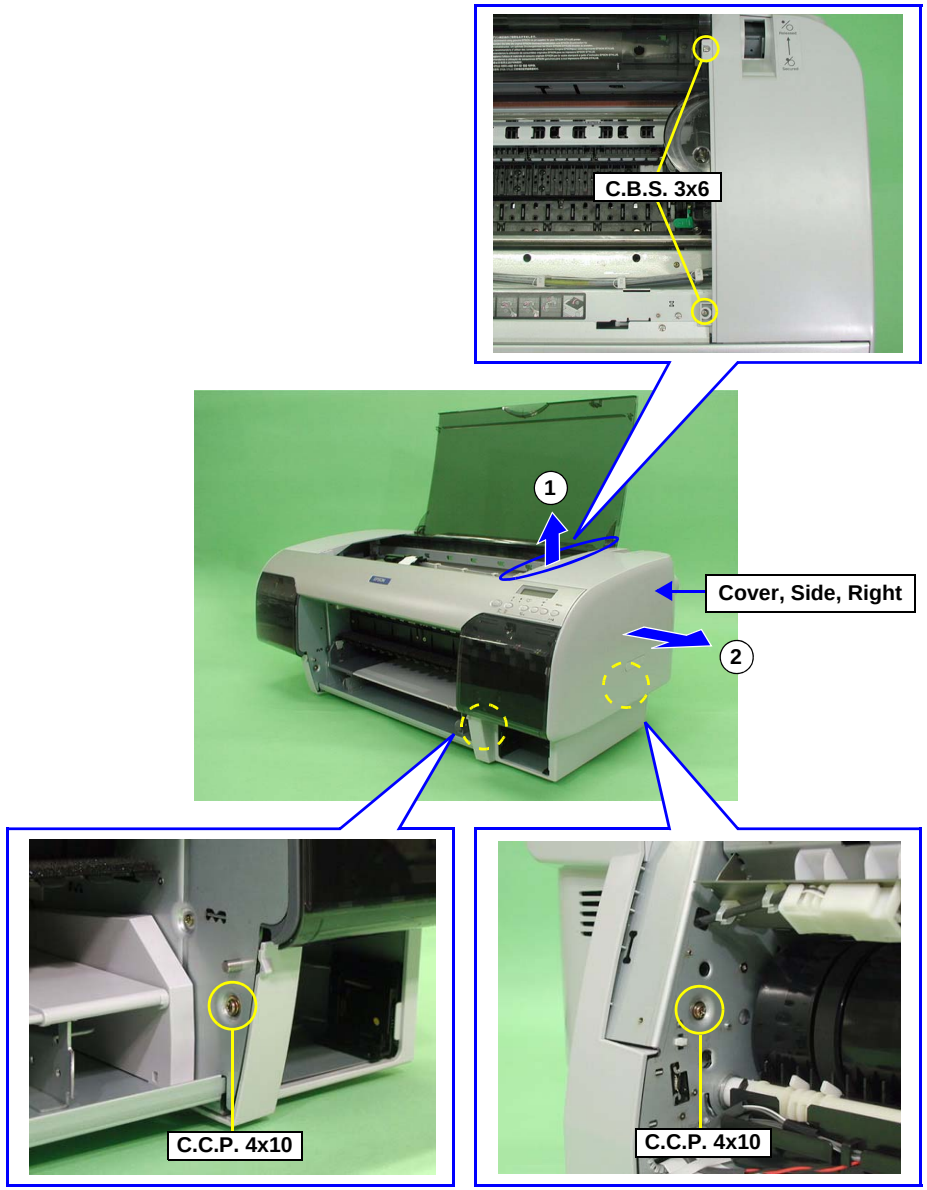


Figure 4-19. Cover, Side, Right Removal

4.2.3.5 Panel, Front/Panel Unit

1. Remove "Cover, Side, Left" *(p216).*
2. Remove "Cover, Side, Right" *(p217).*
3. Remove "Harness, Panel" from "Panel Unit".
4. Remove following screws securing "Panel, Front". *(Refer to Figure 4-21.)*
   - C.B.S. 3x6: 1 pc.
   - C.B.S. (O) 3x6: 8 pcs.
   - C.B.S. (O) 3x8: 1 pc.
5. Release "Panel, Front" dowel from positioning hole in frame. *(Refer to Figure 4-20.)*
6. Remove "Panel, Front" toward you.

- **Align "Panel, Front" dowel with positioning hole in frame. *(Refer to Figure 4-20.)***
- **Install "Panel, Front" to printer by tightening screws in the order shown by number in Figure 4-21.**

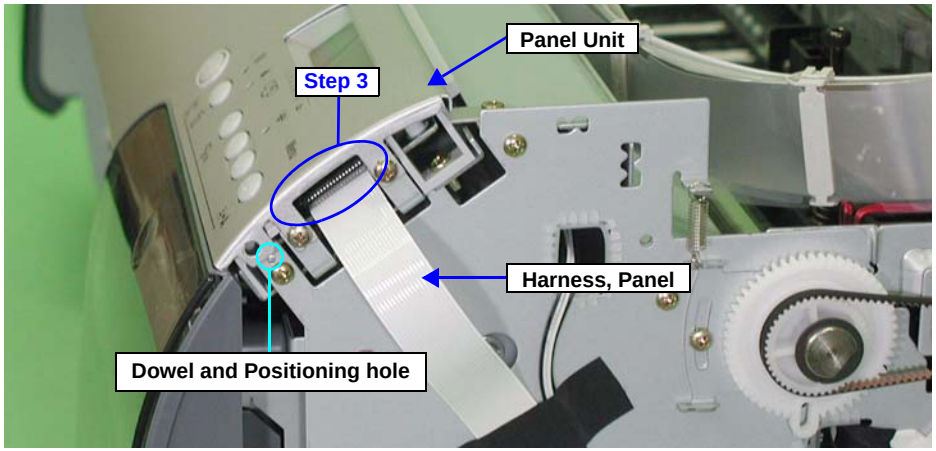


Figure 4-20. Harness, Panel, Connection Status

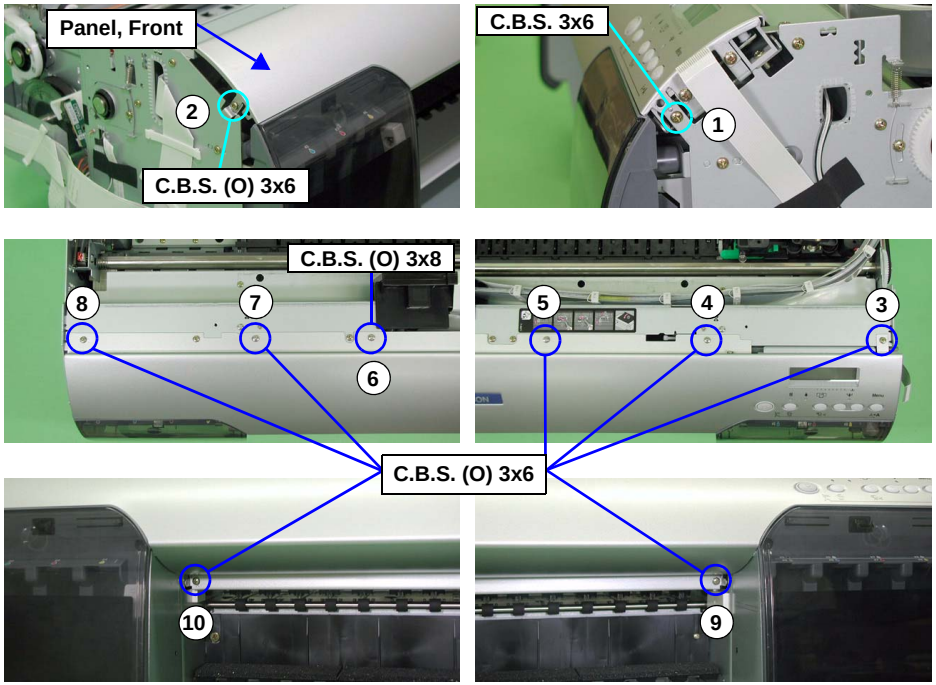


Figure 4-21. Panel, Front Removal

7. Remove the three screws securing the "Panel Unit", and remove the "Panel Unit" from "Panel, Front". *(Refer to Figure 4-22.)*
   - C.B.S. (O) 3x6: 3 pcs.

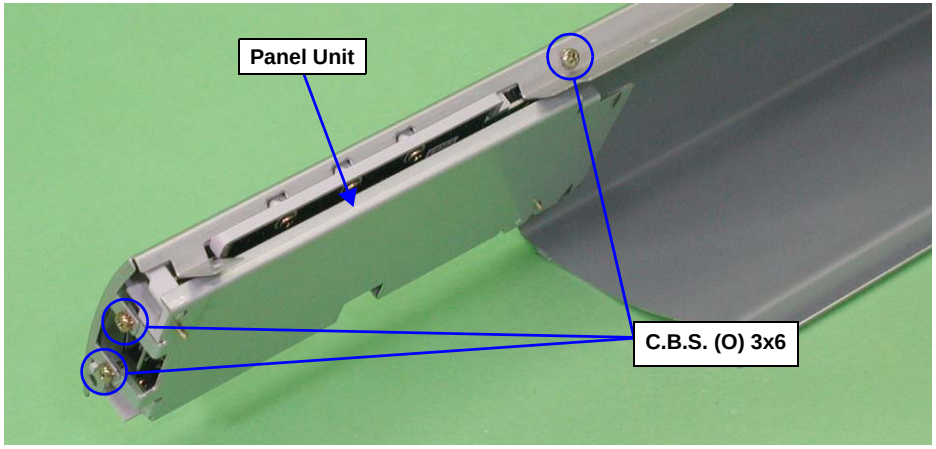


Figure 4-22. Panel Unit Removal

4.2.3.6 Cover, Printer

1. Remove "Cover, Side, Left" *(p216).*
2. Remove the two screws securing "Plate, P Cover, Left". Then remove "Plate, P Cover, Left" by sliding it to the left side while supporting "Cover Printer" with your hand.
   - C.B.S. 3x6: 2 pcs.

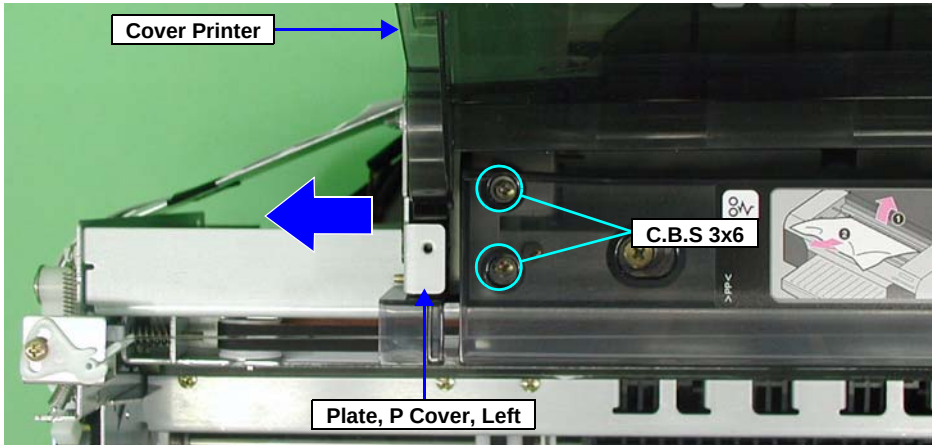
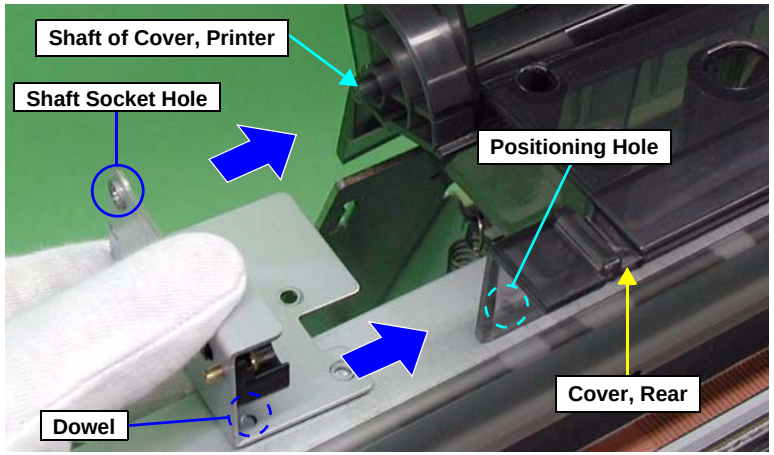


Figure 4-23. Plate, P Cover, Left Removal

REASSEMBLY

Follow the steps below when installing "Plate, P Cover, Left".

1. **Insert "Plate, P Cover, Left" into gap between "Cover, Rear" and main frame.**
2. **Insert shaft socket hole of "Plate, P Cover, Left" to "Cover, Printer" shaft (left).**
3. **Align "Plate, P Cover, Left" dowel with main frame positioning hole.**
4. **Secure with the two screws.**
   - **C.B.S. 3x6 : 2 pcs.**



3. Remove "Cover, Printer" upward by sliding to left side.

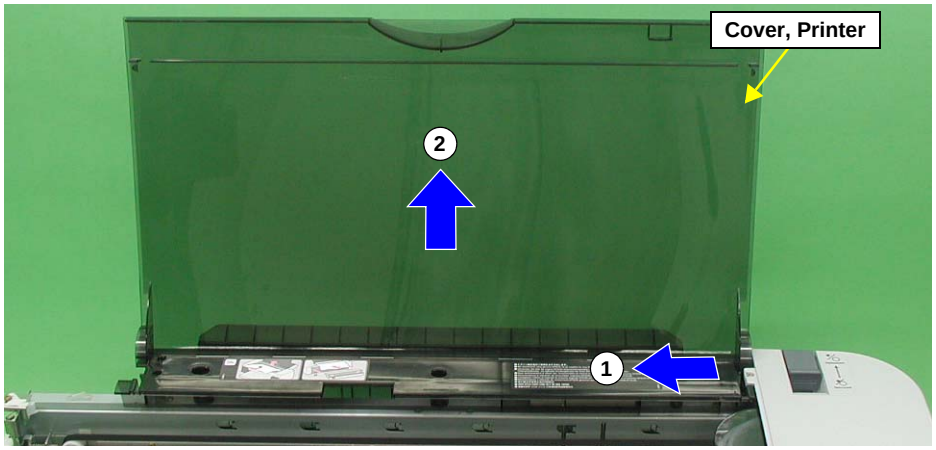
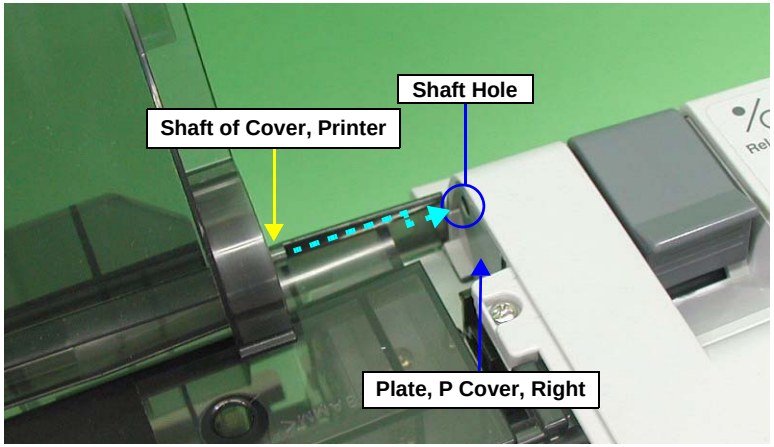


Figure 4-24. Cover, Printer Removal

REASSEMBLY

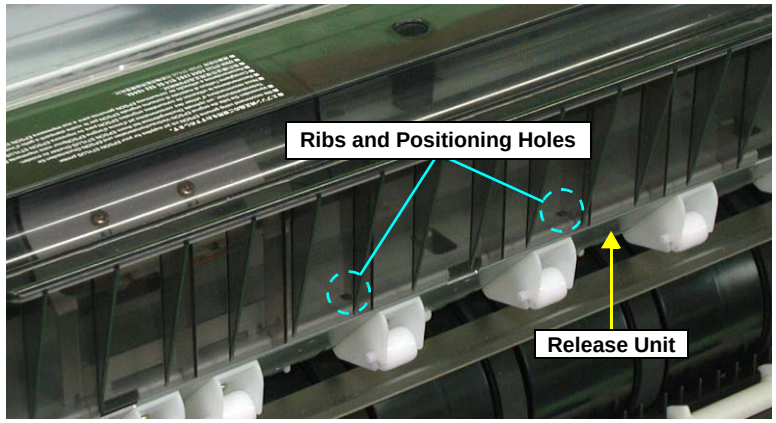
Insert the right shaft of "Cover, Printer" into the shaft hole on "Plate, P Cover, Right".



4.2.3.7 Cover, Rear

1. Remove "Cover, Printer" *(p221).*
2. Remove "Cover, Side, Right" *(p217).*
3. Remove the three screws securing "Cover, Rear" and remove "Cover, Rear" upward.
   - Shaft, Installation, CR: 2 pcs.
   - C.B.S. 3x6: 1 pc.

Align the two ribs of the "Cover, Rear" with the two positioning holes on the"Release Unit".



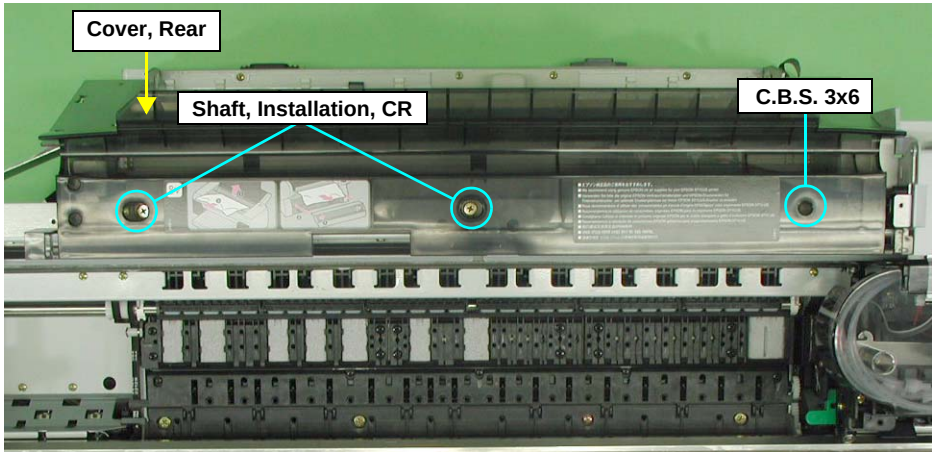


Figure 4-25. Cover, Rear Removal

4.2.3.8 P Cover Open Sensor

1. Remove "Panel, Front/Panel Unit" *(p219).*
2. Release the two tabs securing "P Cover Open Sensor" and then release the "P Cover Open Sensor".
3. Disconnect the connector from the "P Cover Open Sensor".

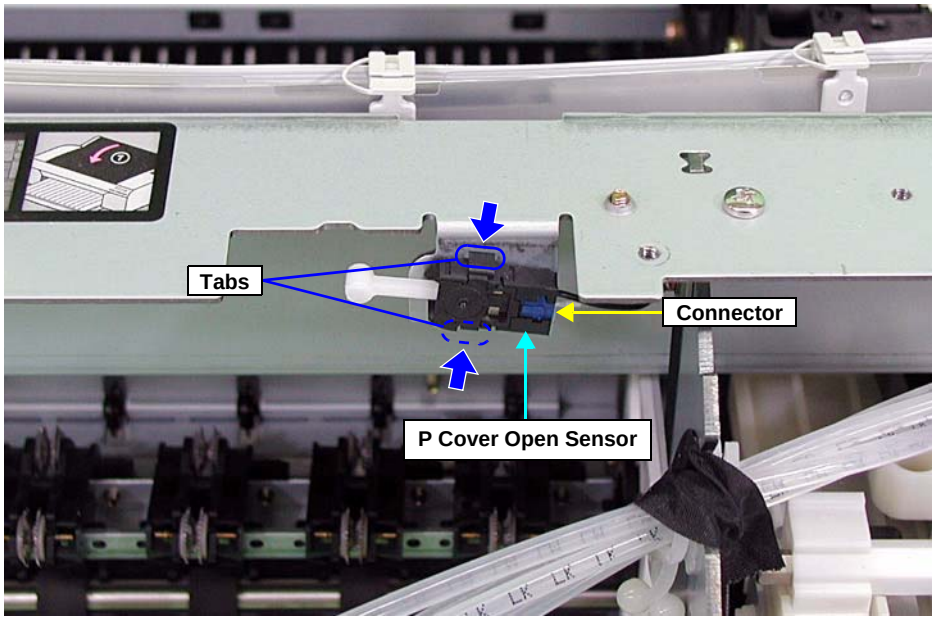


Figure 4-26. P Cover Open Sensor Removal

4.2.3.9 Rear Cover Sensor

1. Remove "Paper Guide Assy., M, SP" *(p215).*
2. Remove the screw securing "Rear Cover Sensor Unit" to the printer frame. *(Refer to Figure 4-27.)*
   - C.B.B. 2x10: 1 pc.
3. Release the tab securing the “Rear Cover Sensor Unit” to the printer frame and remove "Rear Cover Sensor Unit". *(Refer to Figure 4-27.)*
4. Disconnect the connector from the “Rear Cover Sensor”. *(Refer to Figure 4-28.)*
5. Release the two tabs securing the "Rear Cover Sensor” to the holder and then remove the “Rear Cover Sensor“. *(Refer to Figure 4-29.)*

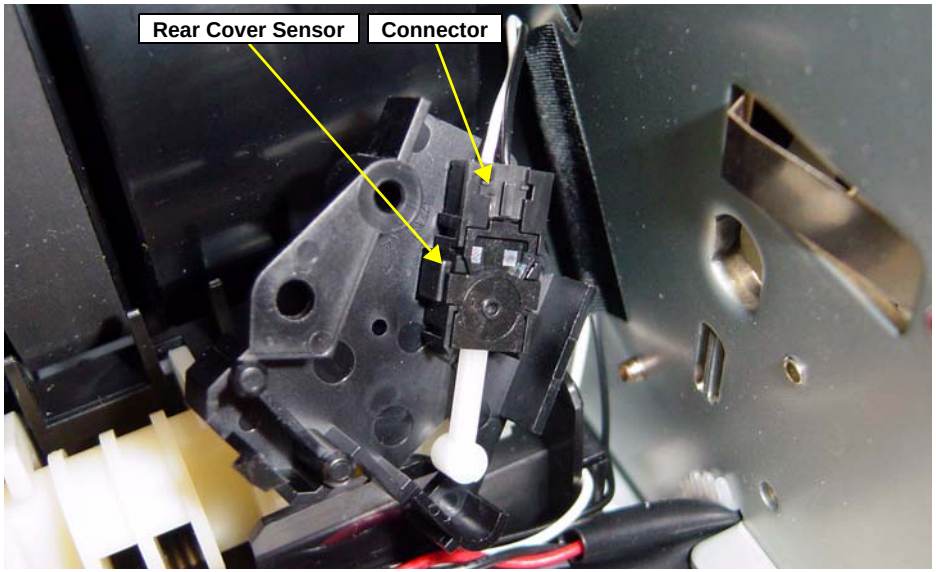


Figure 4-28. Connector Connecting Status

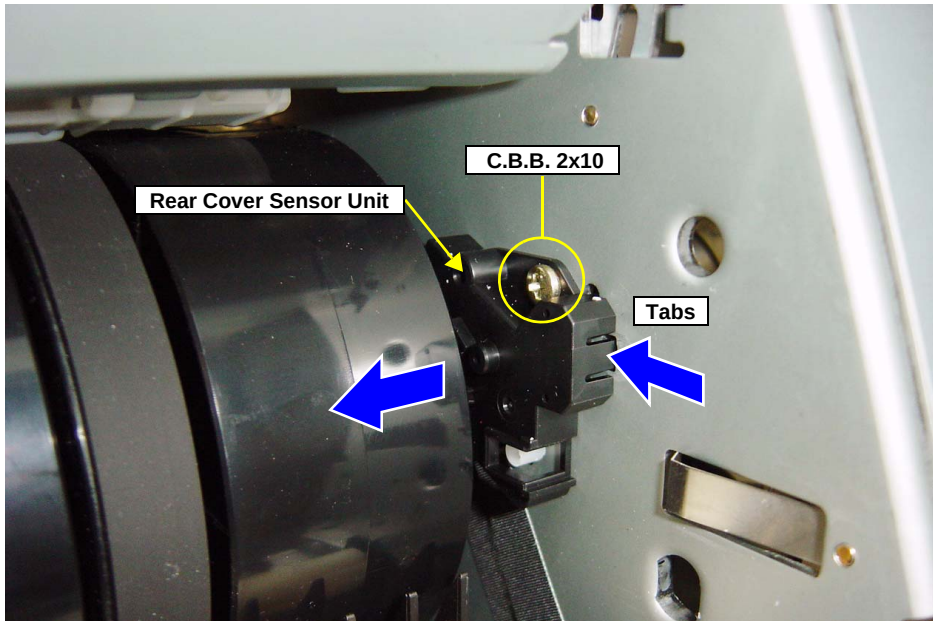


Figure 4-27. Removing the Rear Cover Sensor Unit

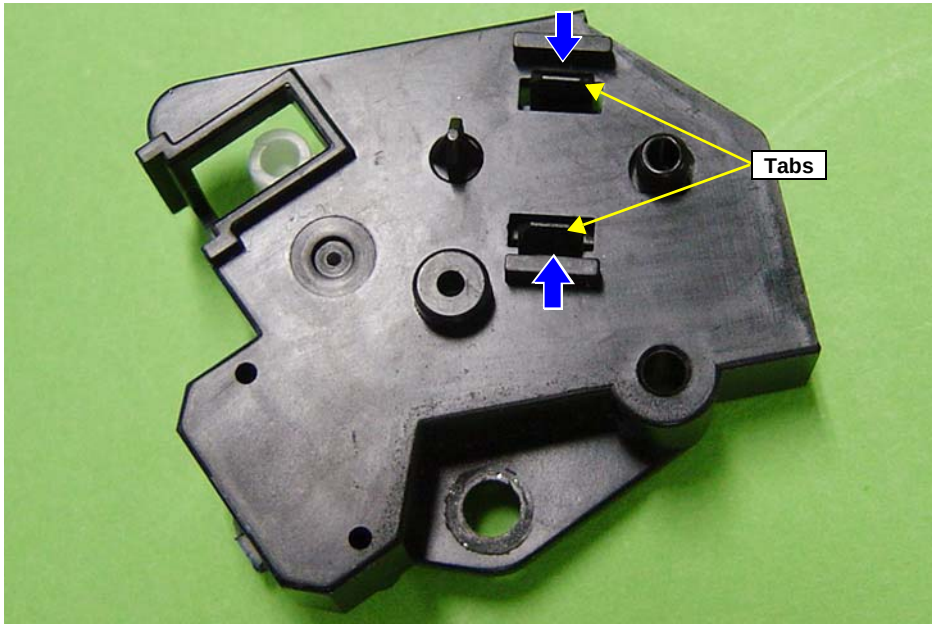


Figure 4-29. Tabs Securing Rear Cover Sensor

4.2.4 Circuit Board Removal

CHECK POINT

The board used for Stylus 4400/4800 is "C593 MAIN Board", and "CA00 MAIN Board" is used for Stylus Pro 4450/4880/ 4880C. The explanation in this section is based on Stylus Pro 4400/4800.

This section describes steps for removing “C593 MAIN Board“, “Power Supply Board”, and each “C593_SUB Board“.

4.2.4.1 C593 MAIN Board

CAUTION

Be sure to insert and unplug FFCs vertically. (Inserting/ Unplugging at an angle can damage shorten or disrupt the terminals inside the connector and cause damage to circuit board components.)

1. Remove "Holder, Roller, Unit" *(p214).*
2. Remove "Paper Guide Assy., M, SP" *(p215).*
3. Remove the two screws securing "Cover, Harness". *(Refer to Figure 4-30.)*
   - C.B.S. 3x8: 2 pcs.
4. Slide "Cover, Harness" outward. *(Refer to Figure 4-30.)*

REASSEMBLY

Insert "Cover, Harness" into the two ribs of "Paper Guide, Lower".

5. Release all harnesses through the "Cover, Harness" notch and remove the "Cover, Harness". *(Refer to Figure 4-31.)*

REASSEMBLY

Do not allow any harness to jut out from under the "Cover, Harness".

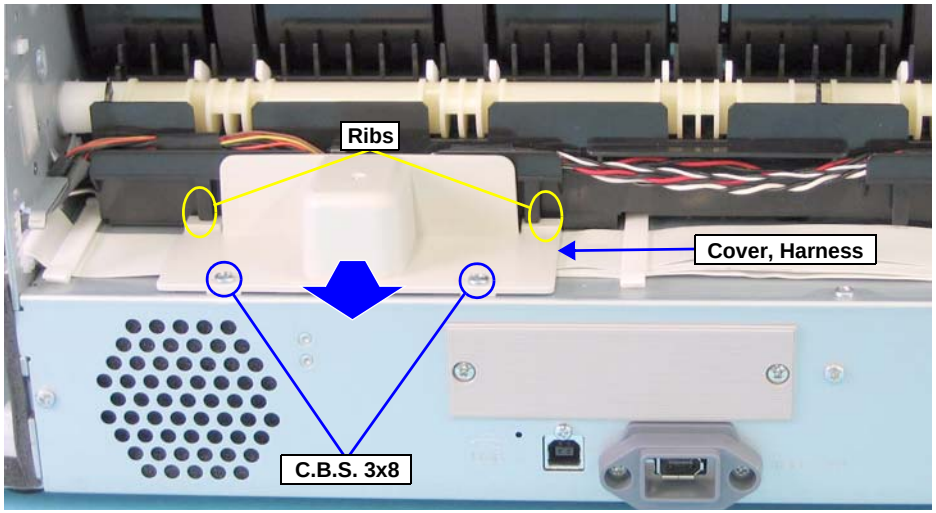


Figure 4-30. Screws Securing the Cover, Harness

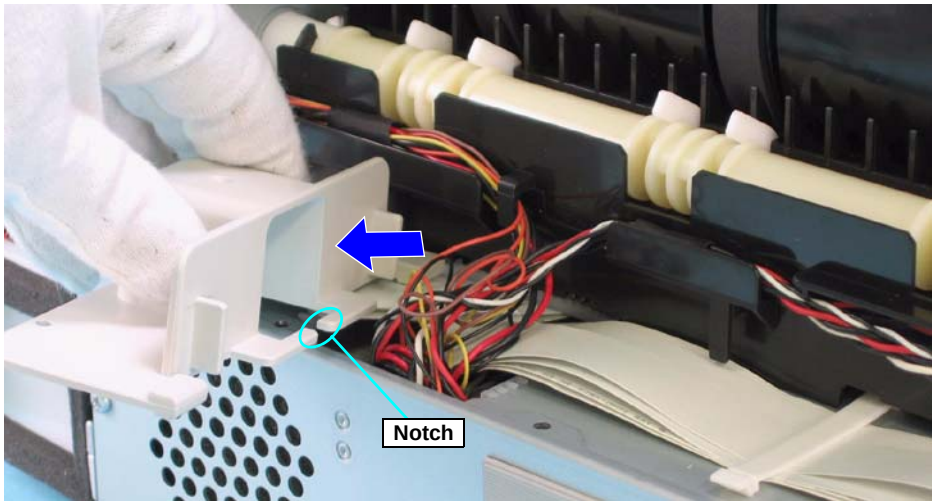


Figure 4-31. Cover, Harness Removal

CAUTION

Be careful not to pull the "PCB Unit" too hard and stretch the harness when performing the following steps.

6. Remove the four screws securing the "PCB Unit" and pull the "PCB Unit" toward you.
   - C.B.S. 3x6: 4 pcs.

REASSEMBLY

Align the left and right ribs of the "PBC Unit" with the position locators of the frame.

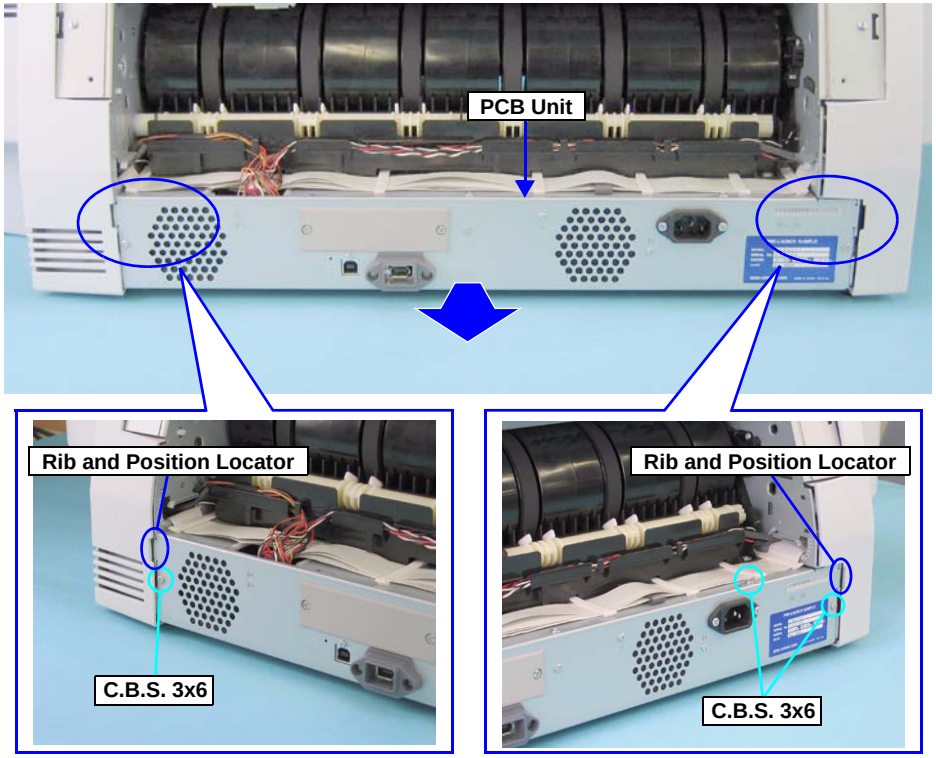


Figure 4-32. Pulling Out the PCB Unit

7. Disconnect all connectors/harnesses from "C593 MAIN Board".

Table 4-4. Connectors/Harnesses Connected to C593 MAIN Board

Connection Order	Connector No.	Color	Number of Pins	Connection Socket
1	CN48	-	17	C511_SUB-B Board (CN102)
2	CN51	-	30	C511_SUB-B Board (CN101)
3	CN54	-	30	C511_SUB-B Board (CN100)
4	CN9	-	30	C593_SUB-D Board (CN3)
5	CN7	-	31	C593_SUB-D Board (CN1)
6	CN8	-	31	C593_SUB-D Board (CN2)
7	CN53	-	28	C593_SUB-C Board (CN201)
8	CN52	-	15	C593_SUB-C Board (CN200)
9	CN18	Red	4	PG/PO Motor
10	CN16	White	4	ASF/Pump Motor (Relay connector route)
11	CN19	Black	2	Suction Fan (Right, relay connector route)
12	CN20	Yellow	2	Suction Fan (Left, relay connector route)
13	CN56	Blue	2	Rear Cover Sensor
14	CN15	White	3	CR Motor
15	CN14	Black	3	PF Motor
16	CN1	White	14	Power Supply Board (CN2)
17	CN50	White	2	Heat Dissipation Plate Cooling Fan
18	CN57	White	2	Power Supply Cooling Fan

Note 1: CN3, CN10, CN55 have only the pattern set and are not mounted connectors.
2: Refer to Figure 4-33 for connector positions.
3: When connecting connectors/harnesses to the C593 MAIN Board, connect them in the order shown in Table 4-4.

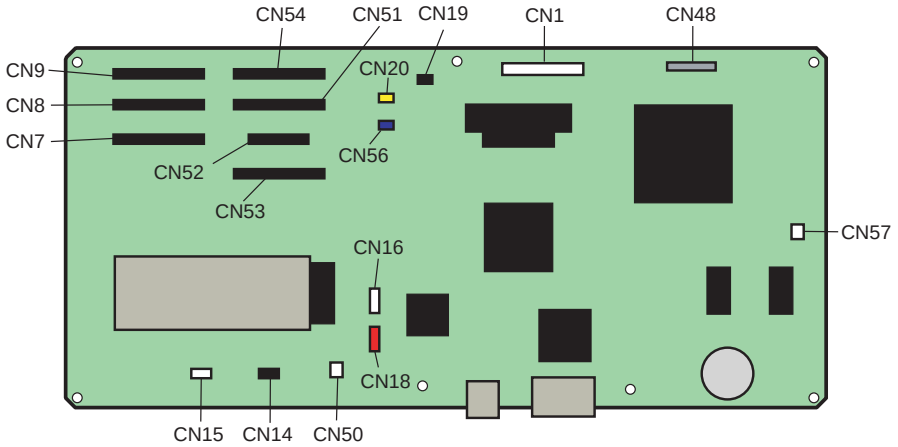
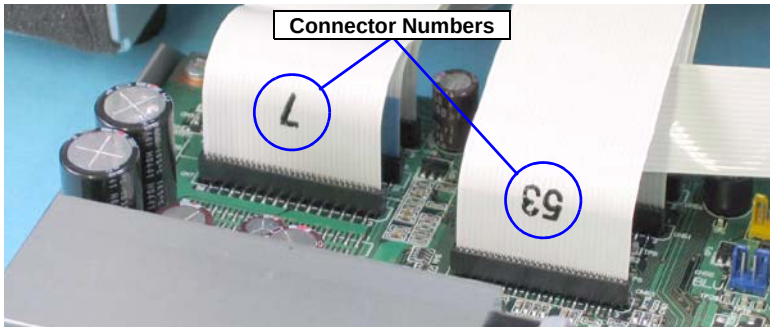


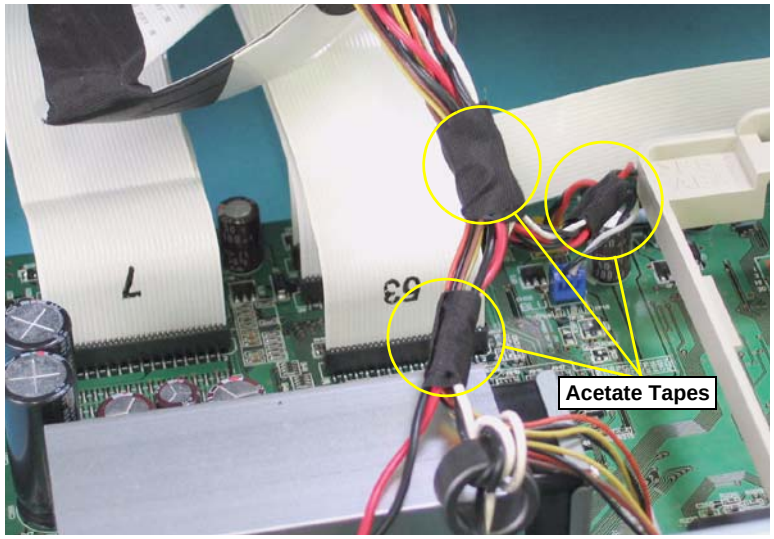
Figure 4-33. "C593MAIN Board" Connector Positions

REASSEMBLY

- The connector number is marked on each connector on the board. When connecting the FFCs, match the connector numbers with the ones on the board with the number printed side of the FFCs facing toward the printer rear.



- The wires should be bundled with acetate tapes in three places as shown in the figure below to prevent them from getting onto the guide rail for the Type-B Board. If the wires are not bundled, they may be broken or cut off when installing the Type B Board.



8. Remove the screw securing USB connector.
   (Refer to Figure 4-34.)
   - C.P. 3x6: 1 pc.
9. Remove the two screws securing "Cover, Connector, Upper; B" and then remove "Cover, Connector, Upper; B". *(Refer to Figure 4-34.)*
   - C.B.S. 3x10: 2 pcs.
10. Remove the two screws securing "Cover, I/F" and "Grounding Board, I/F" and then remove "Cover, I/F" and "Grounding Board, I/F".
    (Refer to Figure 4-35.)
    - C.B.S. 3x6: 1 pc.

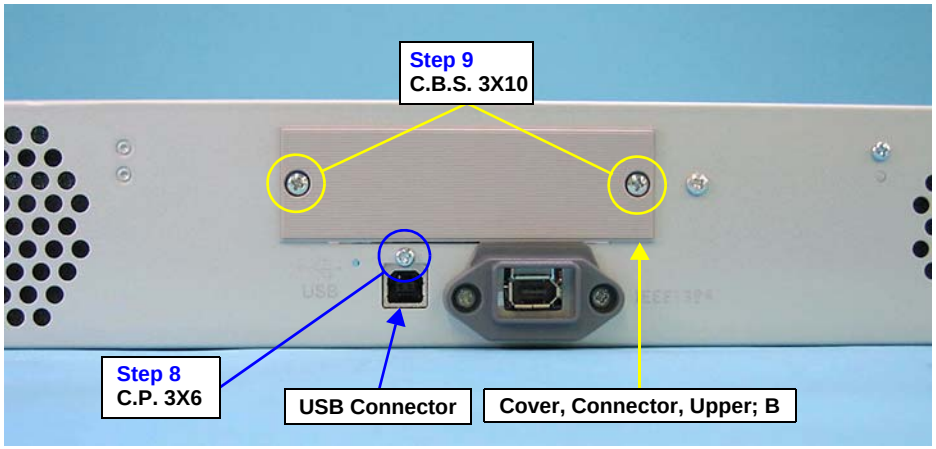


Figure 4-34. Cover, Connector, Upper; B Removal

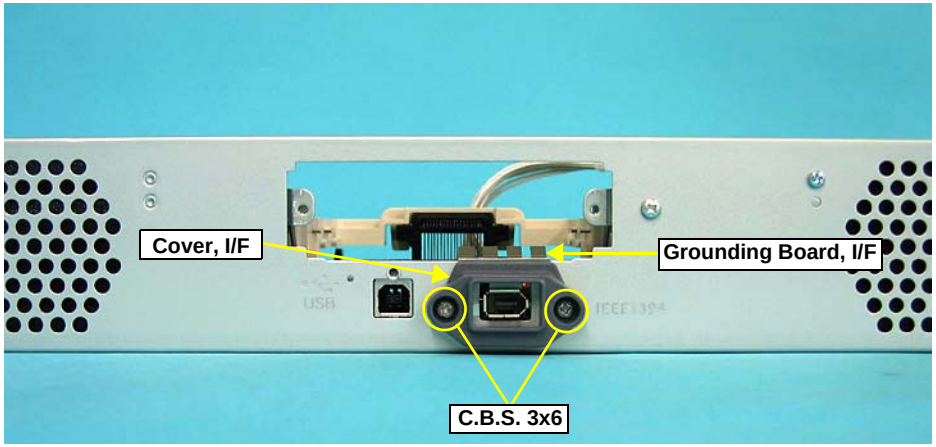
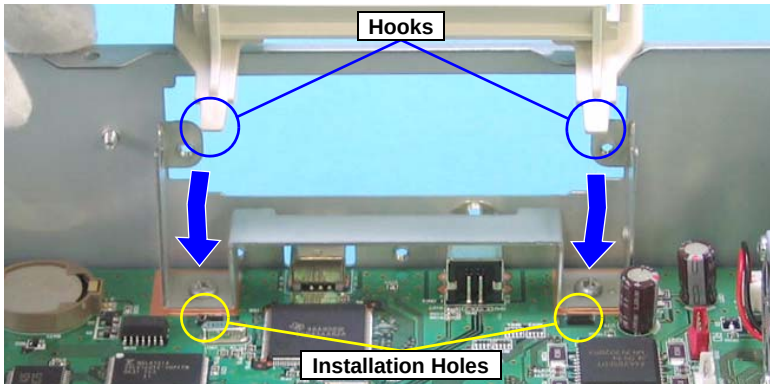


Figure 4-35. Cover, I/F and Grounding Board, I/F Removal

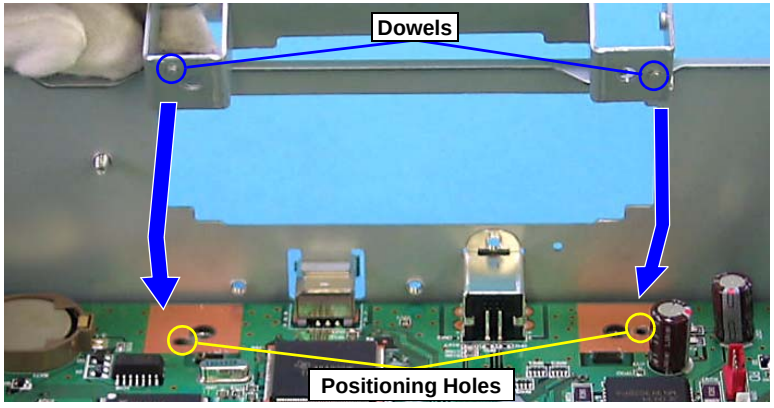
11. Release the four hooks securing the "Guide Rail" and remove the "Guide Rail". *(Refer to Figure 4-36.)*

Secure the two "Guide Rail" hooks to the two "C593 MAIN Board" installation holes.



12. Remove the two screws securing the "Bracket" and remove the "Bracket".*(Refer to Figure 4-37.)*
    - C.B.S. 3x8: 2 pcs.

Install while aligning the two "Bracket" dowels with the two "C593 MAIN Board" positioning holes.



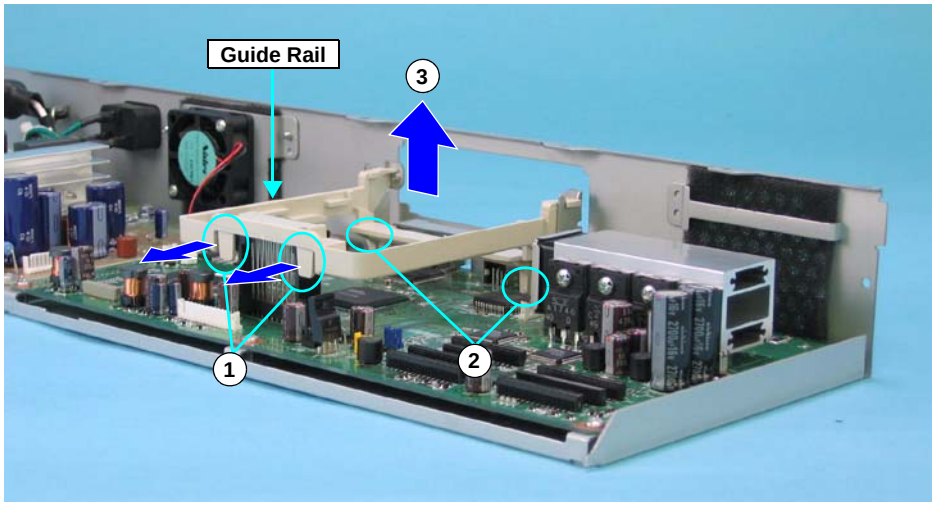


Figure 4-36. Guide Rail Removal

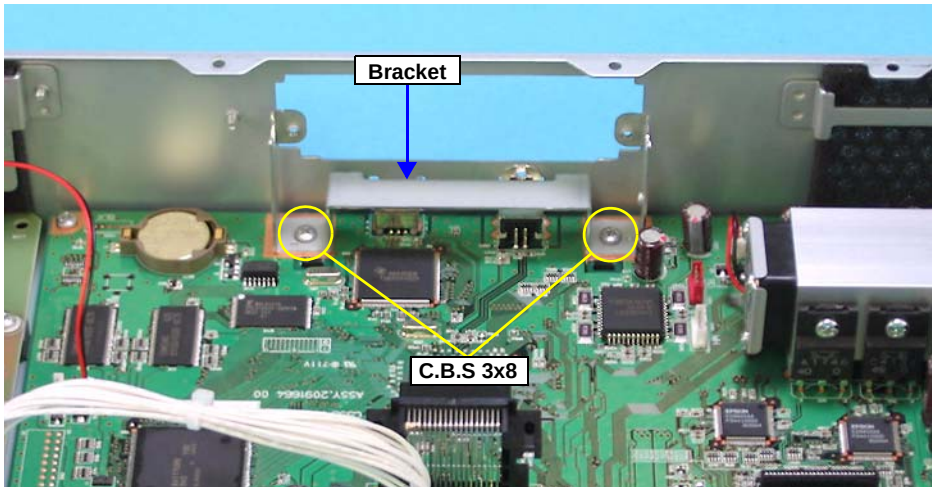


Figure 4-37. Bracket Removal

13. Remove the seven screws securing "C593 MAIN Board".
    - C.B.S. 3x8: 8 pcs.
14. Slide "C593 MAIN Board" forward and remove the "C593 MAIN Board" as keeping IEEE1394 connector clear of the plate.

CAUTION

- **Do not place the circuit board (solder side) directly on a conductive surface.**
- **Circuit boards supplied as service parts have been equipped with lithium battery. Do not place the circuit board (solder side) directly on a conductive surface or let conductive material come in contact with the circuit. To do so may cause short out.**

ADJUSTMENT REQUIRED

Be sure to refer to Chapter 5 "Adjustment" *(p.366)* and perform specified adjustments after replacing the "C593 MAIN Board".

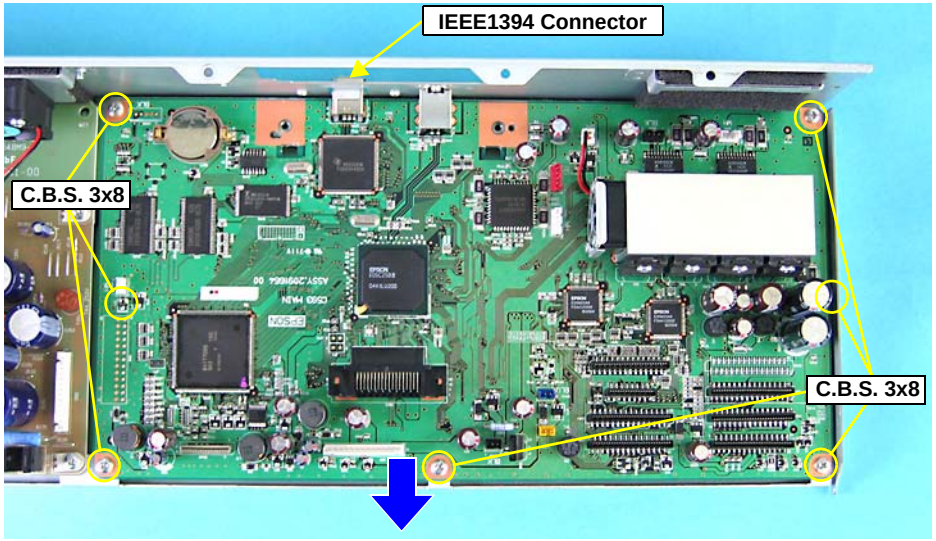


Figure 4-38. C593 MAIN Board Removal

4.2.4.2 Power Supply Board / Power Supply Cooling Fan

WARNING

When removing the "Power Supply Board", wait 5 minutes after unplugging the AC power cord before starting work to allow discharge of residual charge in the electrolytic capacitors.
For your safety, never touch the primary smoothing capacitor (C6). Do not place the "Power Supply Board" (solder side) directly on a conductive surface.

1. Remove the "PCB Unit".*(Refer to "4.2.4.1 C593 MAIN Board" (p226).)*
2. Disconnect the following connectors/harnesses from the "Power Supply Board".

Table 4-5. Connectors Connected to Power Supply Board

Connector No.	Color	Number of Pins	Connection Socket
CN1	White	2	AC Inlet
CN2	White	14	C593 MAIN Board (CN1)

3. Disconnect the connectors of the “Power Supply Cooling Fan” from the “C593 MAIN Board”. *(Refer to "4.2.4.1 C593 MAIN Board" (p226).)*
4. Remove the two screws that secure the "Power Supply Cooling Fan", and remove the "Power Supply Cooling Fan".
   - C.B.S. 3x18: 2 pcs.
5. Remove the five screws securing the "Power Supply Board" and remove the "Power Supply Board".
   - C.B.S. 3x8: 5 pcs.

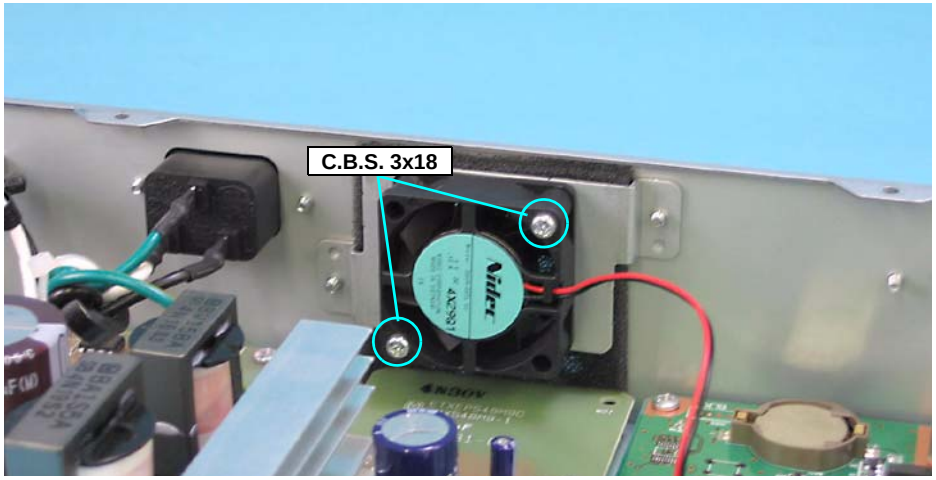


Figure 4-39. Power Supply Cooling Fan Removal

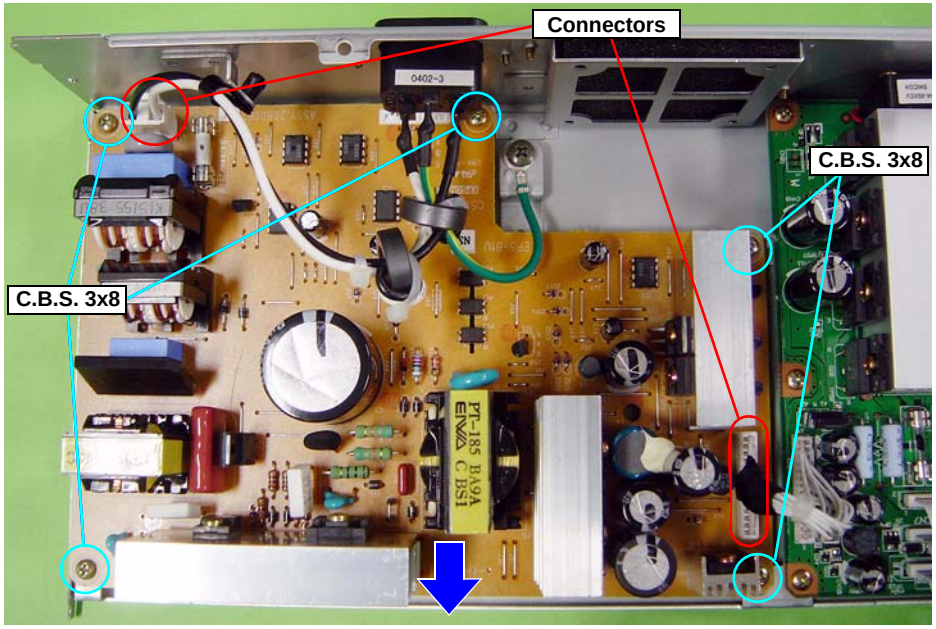


Figure 4-40. Power Supply Board Removal

4.2.4.3 C593_SUB Board

1. Open "Cover, Printer".

CAUTION

When performing the following steps, remove protective equipment if it is installed and make sure to release the Carridge Unit lock with the "Transport Retaining Lever". Refer to "4.2.1.1 Release of the Transport Retaining Lever" *(p207).*

2. Release the carriage lock and move the "Carriage Unit" to the position shown in Figure 4-41.
   (Refer to "4.2.1.2 Carriage Unit Lock Release/Lock Set Method" (p208).)
3. Remove the three screws securing the "Carriage Cover" and remove the "Carriage Cover" upward. *(Refer to Figure 4-42.)*
   - C.B.P. 3x8: 3 pc.

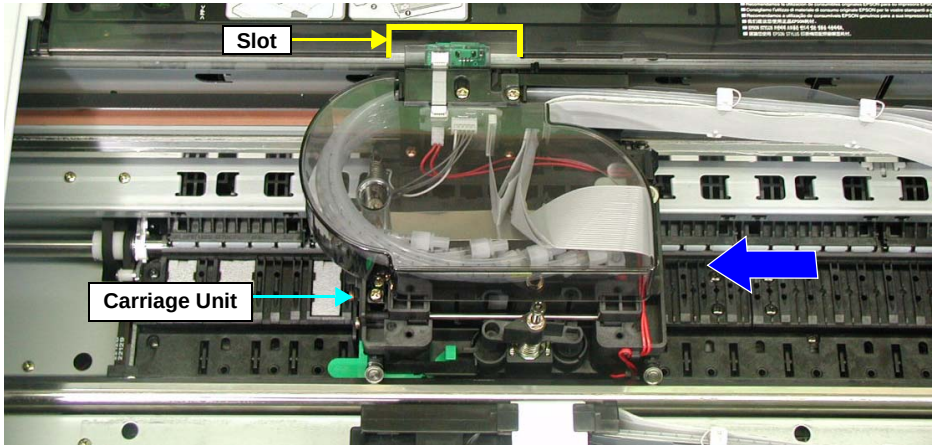


Figure 4-41. Moving the Carriage Unit

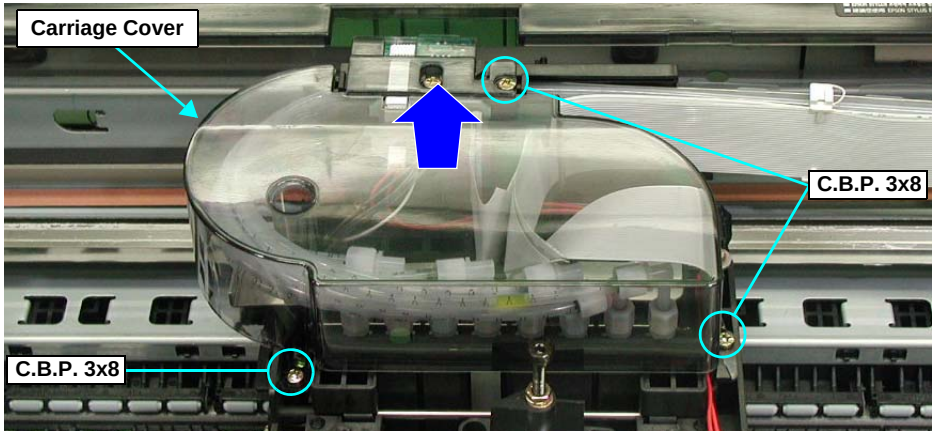


Figure 4-42. Carriage Cover Removal

4. Disconnect all connectors/harnesses on the "C593_SUB Board". *(Refer to Figure 4-43.)*

Table 4-6. Connectors/Harnesses Connected to C593_SUB Board

Connector No.	Color	Number of Pins	Connection Socket
CN1	-	30	C593_SUB-D Board (CN4)
CN2	White	2	Cutter Solenoid
CN3	White	5	Multi Sensor
CN4	-	5	CR Encoder Board

5. Remove the screw securing "C593_SUB Board" and then remove "C593_SUB Board". *(Refer to Figure 4-43.)*
   - C.B.P. 3x8: 1 pc.

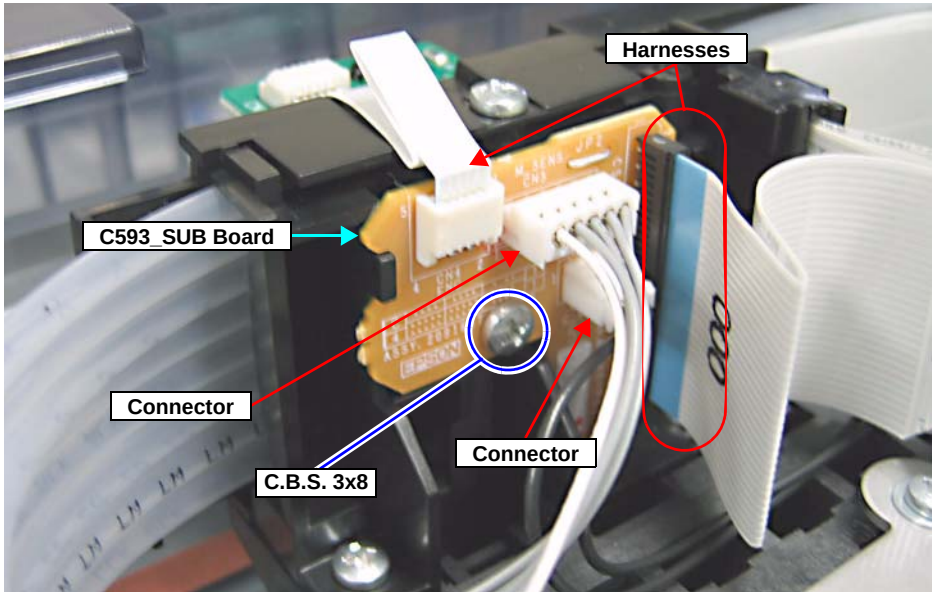
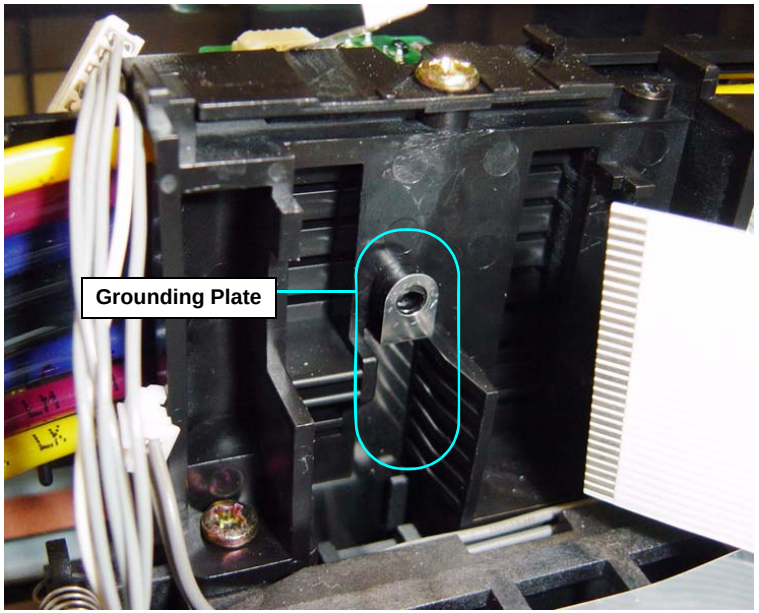


Figure 4-43. C593_SUB Board Removal

REASSEMBLY

Be sure to fasten both the grounding plate and the "C593_SUB Board" together with screws.



4.2.4.4 C511_SUB-B Board

1. Remove "Cover, Side, Right" *(p217)*.
2. Disconnect all connectors/harnesses on the "C511_SUB-B Board".

Table 4-7. Connectors/Harnesses Connected to C511_SUB-B Board

Connection Order	Connector No.	Color/ Mark	Number of Pins	Connection Socket
1	CN103	-	17	Panel Unit (CN1)
2	CN46	-	7	Porous Pad Assy., Ink Eject
3	CN39	LK	7	CSIC_R1 Board (Light Black)
4	CN42	LC	7	CSIC_R2 Board (Light Cyan)
5	CN43	LM	7	CSIC_R3 Board (Light Magenta)
6	CN45	LLK	7	CSIC_R4 Board (Light Light Black)
7	CN22	Blue	2	P-Cover Open Sensor
8	CN36	White	2	I/H Lever Sensor (Right)
9	CN26	Black	2	Paper Eject Release Sensor
10	CN25	Red	2	ASF Paper Sensor
11	CN27	Yellow	2	Rear Hand Insertion Sensor
12	CN29	-	3	PE Sensor
13	CN31	Yellow	3	HP Sensor
14	CN33	White	3	P_THICK Sensor (0.3)
15	CN34	Black	3	P_THICK Sensor (0.8)
16	CN55	Blue	3	Pump Phase Sensor
17	CN102	-	17	C593 MAIN Board (CN48)
18	CN100	-	30	C593 MAIN Board (CN54)
19	CN101	-	30	C593 MAIN Board (CN51)

Note 1: CN100, CN101 have connector lock mechanisms that must be released to disconnect FFC. Refer to “Check Point“ on Release the harness lock as shown in the figure below. Be sure to lock it when reassembling. P.236.

2: Refer to Figure 4-44 for connector positions.

3: When connecting harnesses to the C511_SUB-B Board, connect them in the order shown in Table 4-7.

4: For the 4-color model, the CN39, CN42, CN43, CN45, and CN36 connectors are not used.

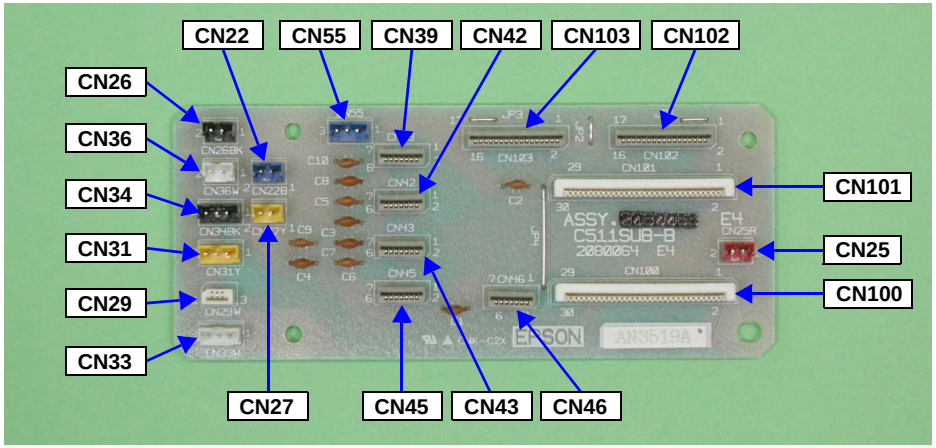
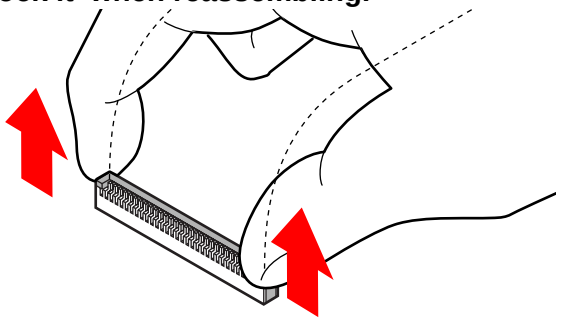


Figure 4-44. C511_SUB-B Board Connector Positions

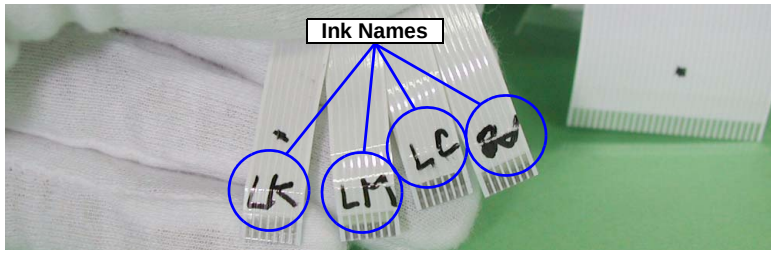
CHECK POINT

Release the harness lock as shown in the figure below. Be sure to lock it when reassembling.



REASSEMBLY

Each "Harness, CSIC" (CN39, CN42, CN43, CN45) is marked with its corresponding ink name. Refer to Table 4-7 and connect the harnesses properly.



3. Remove the four screws securing "C511_SUB-B Board" and remove "C511_SUB-B Board".
   - C.B.P. 3x6: 4 pcs.

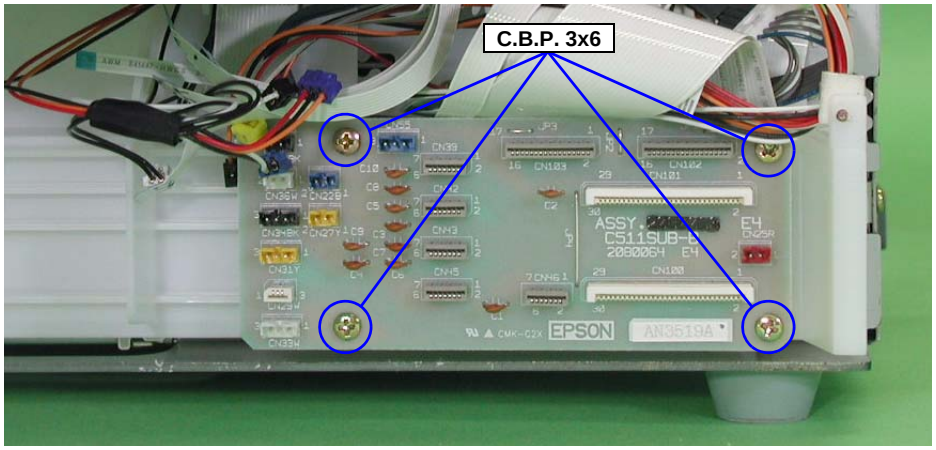


Figure 4-45. C511_SUB-B Board Removal

4.2.4.5 C593_SUB-C Board

1. Remove "Cover, Side, Left" *(p216).*
2. Release the FFC from the three clamps.
3. Disconnect all connectors/harnesses on the "C593_SUB-C Board".

Table 4-8. Connectors/Harnesses Connected to C593_SUB-C Board

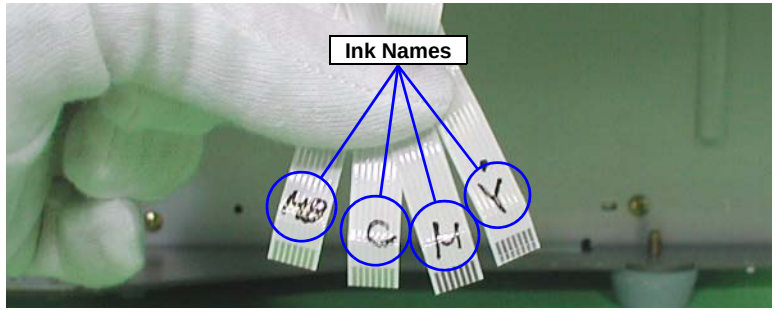
Connection Order	Connector No.	Color/ Mark	Number of Pins	Connection Socket
1	CN38	MB	7	CSIC_L1 Board (Matte Black)
2	CN40	C	7	CSIC_L2 Board (Cyan)
3	CN41	M	7	CSIC_L3 Board (Magenta)
4	CN44	Y	7	CSIC_L4 Board (Yellow)
5	CN201	-	28	C593 MAIN Board (CN53)
6	CN200	-	15	C593 MAIN Board (CN52)
7	CN24	White	4	PF Linear Encoder Sensor
8	CN37	Black	2	I/H Lever Sensor (Left)
9	CN30	Yellow	3	ASF Phase Sensor
10	CN28	White	2	Paper Eject Phase Sensor
11	CN32	Red	3	PG Phase Sensor

Note 1: Refer to Figure 4-47 for connector positions.The CN 45 is not used.

2: When connecting harnesses to the C593_SUB-C Board, connect them in the order shown in Table 4-8.

REASSEMBLY

Each "Harness, CSIC" (CN38, CN40, CN41, CN44) is marked with its corresponding ink name. Refer to Table 4-8 and connect the harnesses properly.



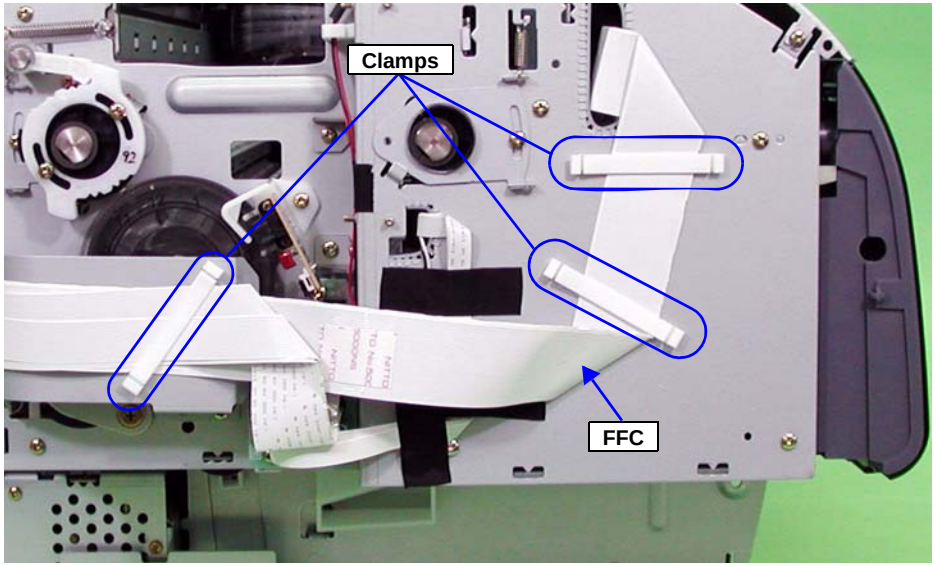


Figure 4-46. Releasing FFC

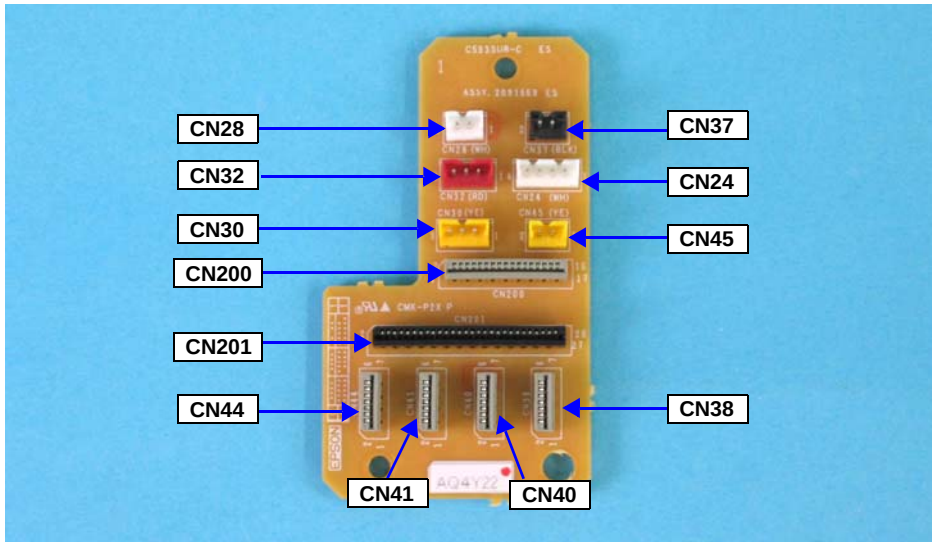


Figure 4-47. C593_SUB-C Board Connector Locations

4. Remove the three screws securing "C593_SUB-C Board" and remove "C593_SUB-C Board".
   - C.B.S. 3x6: 3 pcs.

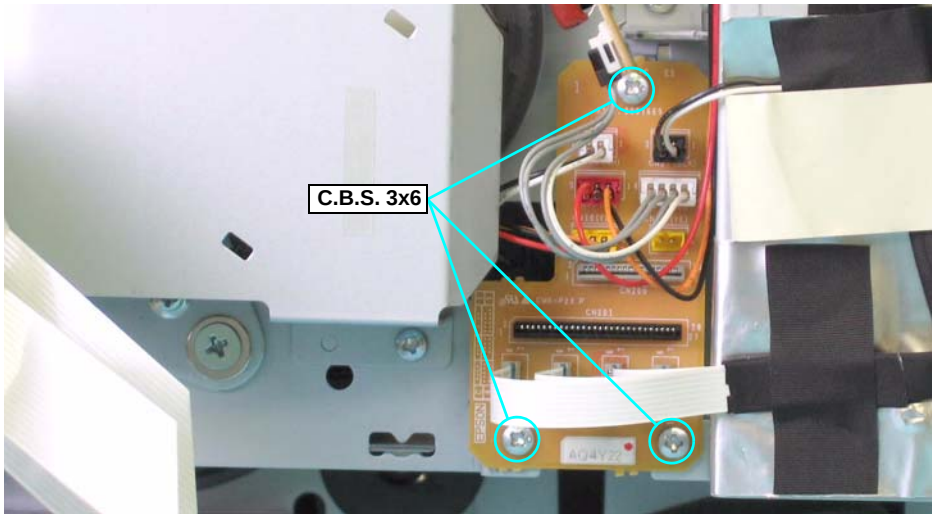


Figure 4-48. SUB-C Board Removal

4.2.4.6 C593_SUB-D Board

1. Remove "Panel, Front/Panel Unit" *(p219).*
2. Disconnect all the connectors/harnesses on the "C593_SUB-D Board".

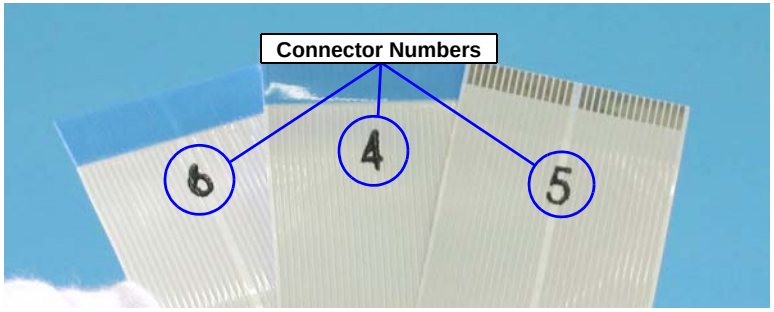
Table 4-9. Connectors/Harnesses Connected to C593_SUB-D Board

Connection Order	Connector No.	Color/ Mark	Number of Pins	Connection Socket
1	CN1	-	31	C593 MAIN Board (CN7)
2	CN2	-	31	C593 MAIN Board (CN8)
3	CN3	-	30	C593 MAIN Board (CN9)
4	CN4	-	30	C593 SUB Board (CN1)
5	CN5	-	31	Print Head Board (CN1)
6	CN6	-	31	Print Head Board (CN2)

Note 1: Refer to Figure 4-47 for connector positions.The CN 45 is not used.
2: When connecting harnesses to the C593_SUB-D Board, connect them in the order shown in Table 4-9.

REASSEMBLY

Each "Harness, Head, Intermit" and "Harness, Head" is marked with its connector No. Refer to Table 4-9 and connect the harnesses properly.



3. Remove the four screws securing "C593_SUB-D Board" and remove "C593_SUB-D Board".
   - C.B.P. 3x6: 4 pcs.

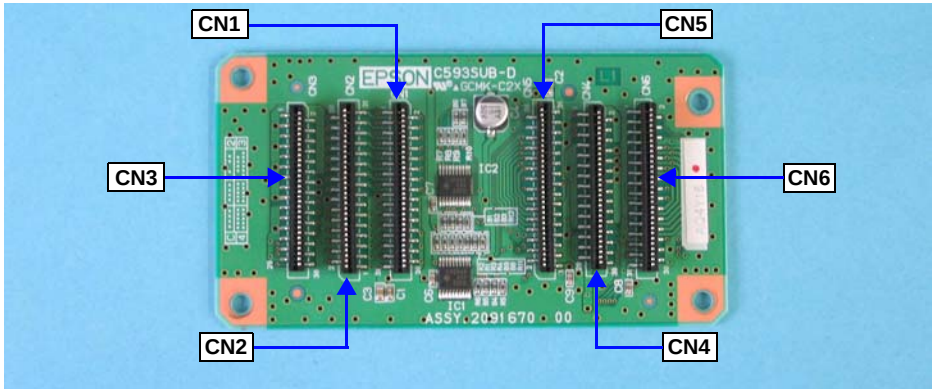


Figure 4-49. C593_SUB-D Board Connector Positions

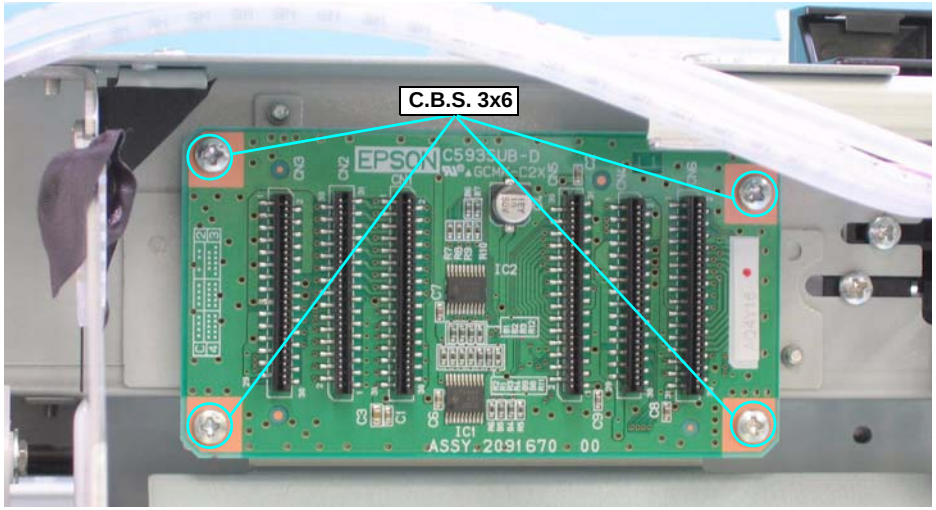


Figure 4-50. C593_SUB-D Board Removal

4.2.5 Printer Mechanism Disassembly

This section describes disassembly steps for main components of the printer mechanism.

CAUTION

For the following reasons, replaceable parts are limited to defined components. Therefore removal or replacement of parts that cannot be supplied as components defined in this manual or parts supplied as "Service Parts" is prohibited. (If this is not followed, it could result in problems that cannot be repaired except at the factory.)

1. **Repair support is required on-site.**
2. **Components have been assembled in factory processes using highly precise adjustments.**

4.2.5.1 Printer Mechanism (SP)

Table 4-10. Parts Configuration

	Part name	Code
Stylus Pro 4800	Printer mechanism (SP), M-AB61-100	2102788
Stylus Pro 4400	Printer mechanism (SP), M-AB61-101	2102789

This section describes replacement of “Printer Mechanism (SP)”. Follow the explanation of reference place about each parts removal/installation procedure and remedy after replacement.

1. Remove the following parts from the old printer, and attach the parts except consurmables to “Printer Mechanism (SP)“.

Stylus Pro 4800		Stylus Pro 4400	
Part name	Code	Part name	Code
Ink cartridge	---	Ink cartridge	---
Maintenance tank	---	Maintenance tank	---
Spindle	---	Spindle	---
Board box*1		Board box	---
Cover, I/H, left, 8-color	1299011	Cover, I/H, left; C593	1305013
Label, caution, transport	1400736	---	---
Cover, I/H, right, 8-color	1299007	Cover, front, right, 4-color	1299017
Label, chalk cleaning	1400729	Label, chalk cleaning; B	1400730
Cover, printer; C593	1305014	←	←
Knob, pressure, lever; C593*2	1305026	←	←
Knob, I/C, lock lever: C593*2	1305019	←	←
Paper guide, paper eject, stuck*2	1219923	←	←
Sheet, paper guide, paper eject, stuck	1259969	←	←
Fan, Blower*2	2103408	←	←
Pad, fan	1273728	←	←
Cover, fan, left	1273730	←	←
Cover, fan, right	1273729	←	←
Fan blower mounting board*2	---	←	←
Release ASSY., C593	1300517	←	←
Stacker ASSY; C593; B	1402185	←	←
Tray ASSY; C593; B	1403674	←	←
Label, ASF set	1400868	←	←
Holder, roll ASSY., C593	1300541	←	←
Label, paper jam removal	1249443	←	←
Cover, rear; C593	1305017	←	←

Note *1: A Board Box includes all the parts attached to the box such as the Main Board Assy., MAIN and the Power Supply Unit.

*2: Parts indicated with *2 include the screws that secure the parts.

If “Printer Mechanism (SP)” is replaced because of the trouble arisen from the "C593MAIN", replace the "C593MAIN" for a new one at this time.

2. Connect the printer to the PC with USB or IEEE1394 cable, and start “NVRAM Buckup Utility“ (nvram.exe). (Or execute the parameter backup of the adjustment program and start the “NVRAM Buckup Utility“.)
3. Take out the CD-ROM that contains the mechanism parameter and insert it to the PC. (The CD-ROM is bundled with the “Printer Mechanism (SP)”.)
4. Click the “Open“ button, and select the parameter file stored in the CD-ROM to open the parameter file.
5. Enter Maintenance Mode 2. (Panel display: "SELF TESTING")
   Power OFF → Press **"Paper Select (<)" + "Paper Feed (Δ)" + "Paper Feed (∇)"** → Power ON

CAUTION

Do not enter the menu under maintenance mode 2.

6. Click the “Write” button, and the parameter writing begins.
7. End the "NVRAM Backup Utility" when the writing is completed.
8. Set a destinaton using one adjustment program.
   (Refer to "5.4.3 Destination Setting" (p434).)
9. Turn the printer power off.
10. Turn the printer power on.
11. Install consumables to the printer.

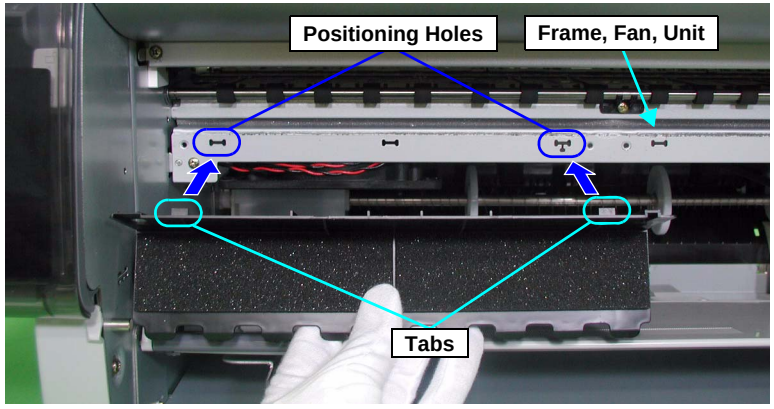
CAUTION

Check the ink level before starting work. If the ink level is less than 50%, replace the ink cartridge with a new one because the printer performs initial ink charge when it is turned on after the replacement.

4.2.5.2 Fan, Blower

1. Remove the four screws securing the two "Paper Guide, Eject, Stacker"s and then remove the two "Paper Guide, Eject, Stacker"s. *(Refer to Figure 4-51.)*
   - Installation Plate, Shaft, CR: 2 pcs.
   - C.B.S. 3x8: 2 pcs.
2. Release relay harness connected to "Fan, Blower" (right) from acetate tapes and clamp. *(Refer to Figure 4-52.)*
3. Disconnect the two rellay connectors as shown in Figure 4-52. *(Refer to Figure 4-52.)*

Insert the two tabs of the "Paper Guide, Eject, Stacker" into the two positioning holes on the "Frame, Fan, Unit".



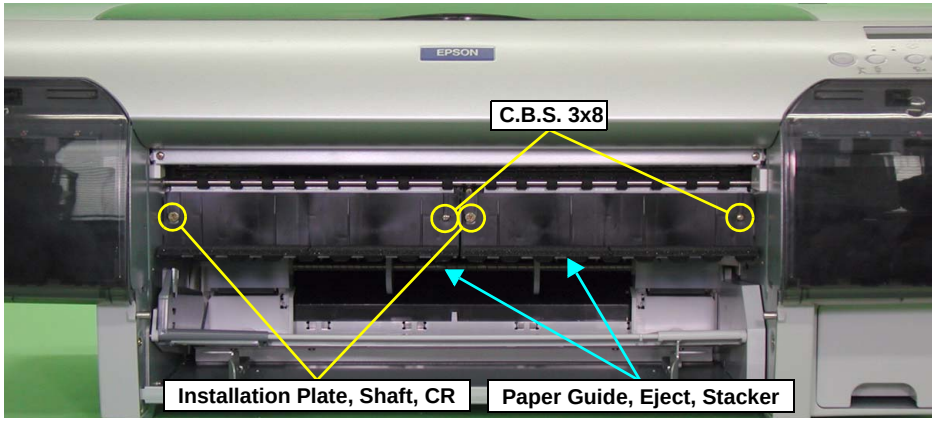


Figure 4-51. Paper Guide, Eject, Stacker Removal

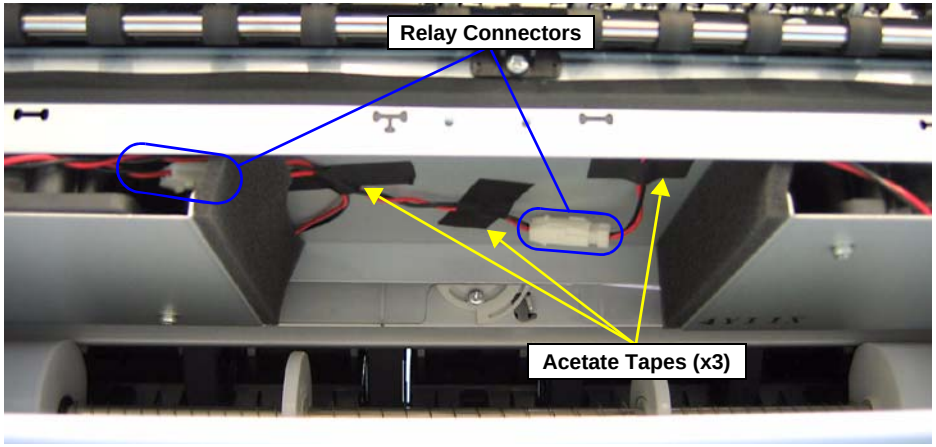


Figure 4-52. Releasing Relay Harness

4. Peel off the acetate tape attached to the gap between the "Frame, Fan, Unit" and the main unit.
5. Remove the two screws securing "Frame, Fan, Unit" and remove "Frame, Fan, Unit" by pulling it toward you.
   - C.B.S. 3x6: 2 pcs.

REASSEMBLY

Align the two main frame dowels with the two positioning holes on the "Frame, Fan, Unit". ***(Refer to Figure 4-53.)***

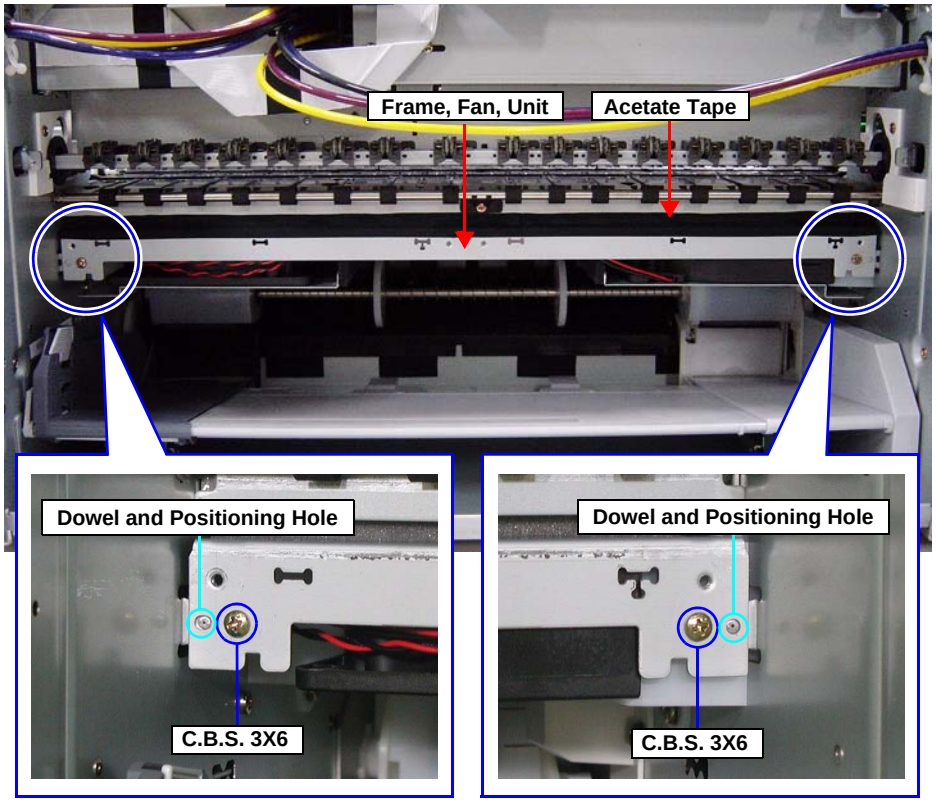


Figure 4-53. Frame, Fan, Unit Removal

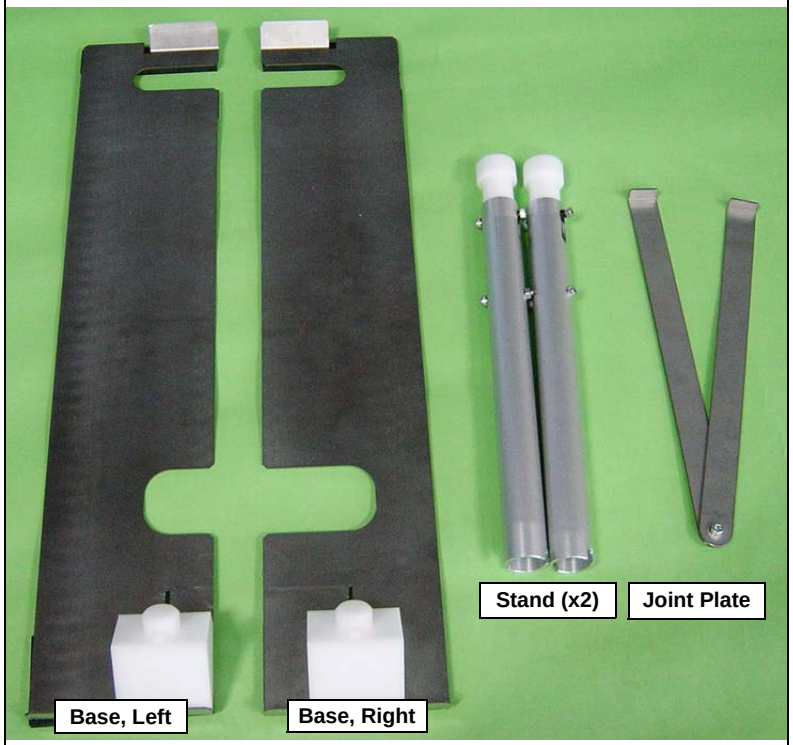
4.2.6 ASF

This section discribes the "ASF Unit" removal and the assembly and disassembly of the main components comprising the ASF.

4.2.6.1 ASF Unit

CAUTION

This section explains the working procedure using the "ASF EXCHANGE SUPPORT TOOL". Always prepare the tool before performing work because performing work without the specified tool may cause damage to the printer or result in injury.



1. Remove "Cover, Side, Left" *(p216).*
2. Remove "Cover, Side, Right" *(p217).*
3. Remove "Cover, Motor, PF" and disconnect the connector from the "ASF phase sensor". *(Refer to "4.2.6.4 ASF Phase Sensor" (p263).)*

4. Insert the tab of the "Joint Plate" to the slit of the "Base, Left".
5. Insert the "Base, Left" with the "Joint Plate" set in the Step 4 under the left bottom of the main unit until the notches hit the rubber feet of the printer.

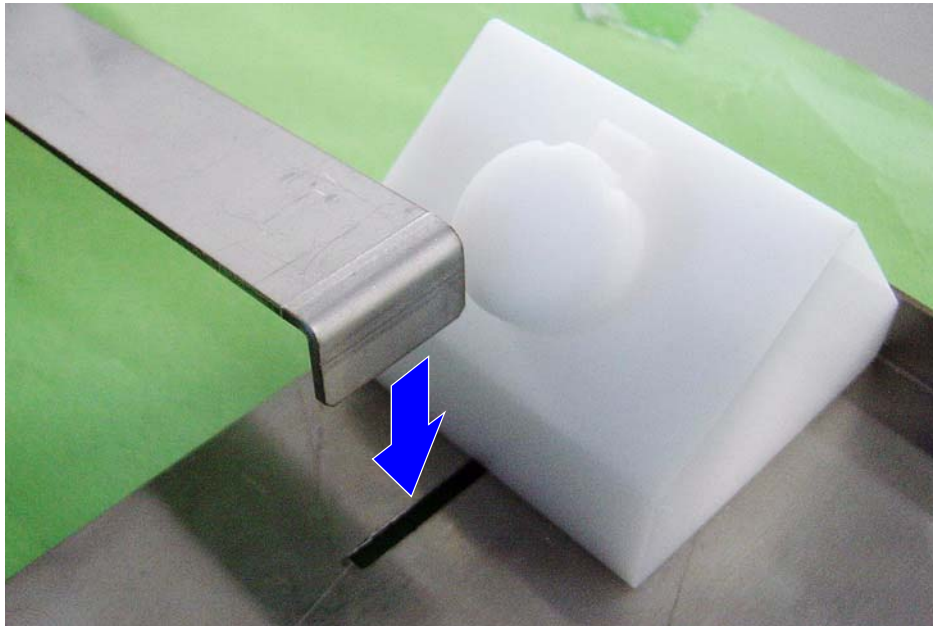


Figure 4-54. "Joint Plate" Attachment

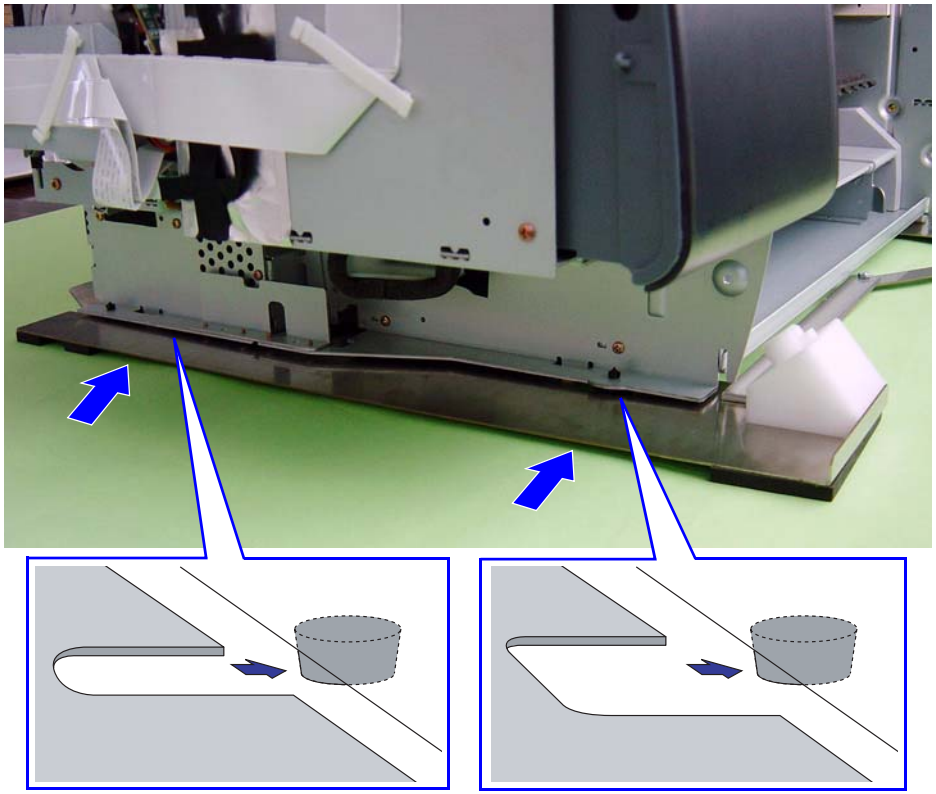


Figure 4-55. "Base, Left" Setting

6. Insert the "Base, Right" under the right bottom of the main unit until the noches hit the rubber feet of the printer.

CHECK POINT

After the "Base, Left", "Base, Right", and the "Joint Plate" are set up.

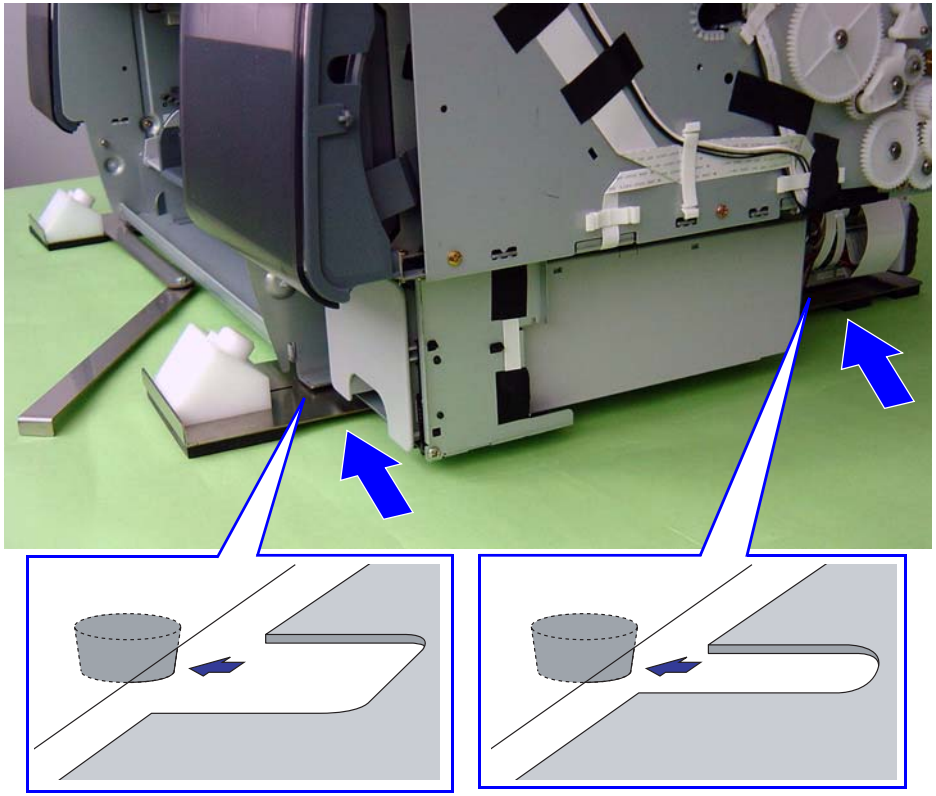


Figure 4-56. "Base, Right" Setting

CAUTION

When lifting the printer in the steps given below, pay attention to the followings:

- **Hold the front panel section of the printer. Holding other section could cause the malfunction of the printer.**
- **This printer is heavy (approximately 40 kg). Hold the front panel section at the front of the printer securely and make sure that the grip is solid before lifting the printer. Dropping the printer may cause injury or malfunction of the printer.**
- **Take care not to get your hand sandwiched when you lower the printer.**

7. Hold the front panel section at the front of the printer, lift the printer upward, and insert the right tab of the "Joint Plate" into the slit of the "Base, Right".

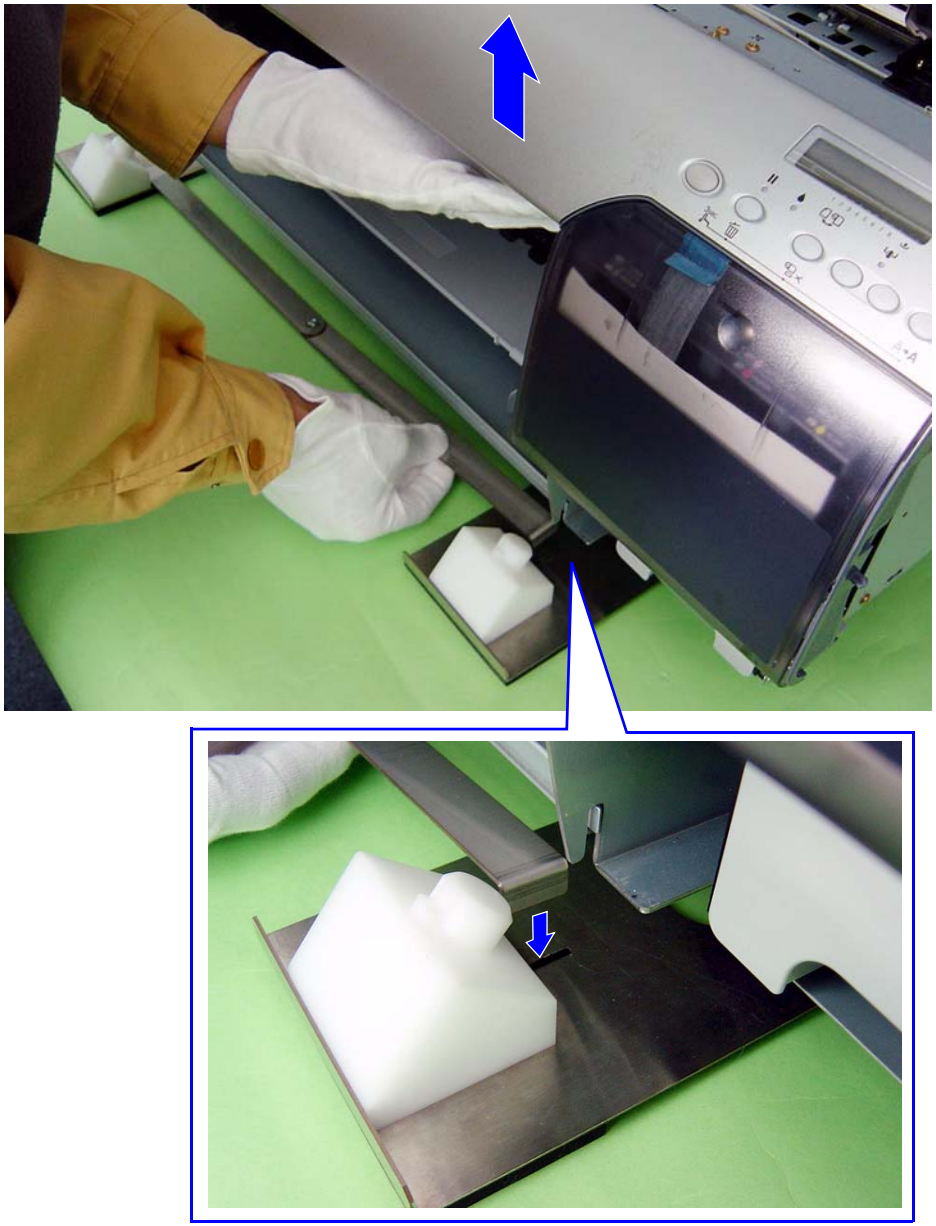


Figure 4-57. "Joint Plate" Attachment

8. Hold the front panel section of the printer, lift the printer upward and keep it there, and then set the "Stand" in both the rubber foot on the bottom of the printer and the "Base, Left", following the steps below.
   - 8-1. Fit the rubber foot of the printer into the foot receiver at the upper end of the "Stand".
   - 8-2. Fit the lower end of the "Stand" into the protrusion of the "Base, Left". (Be sure that the concave portion of the "Stand" matches the convex portion of the "Base, Left".)
9. Tilt the printer upward a little (the same amount of the spring stroke of the left stand) as holding the front panel section of the printer, and set the "Stand" in both the rubber foot on the right bottom of the printer and the tab of the "Base, Right", using the same steps in Step 8.

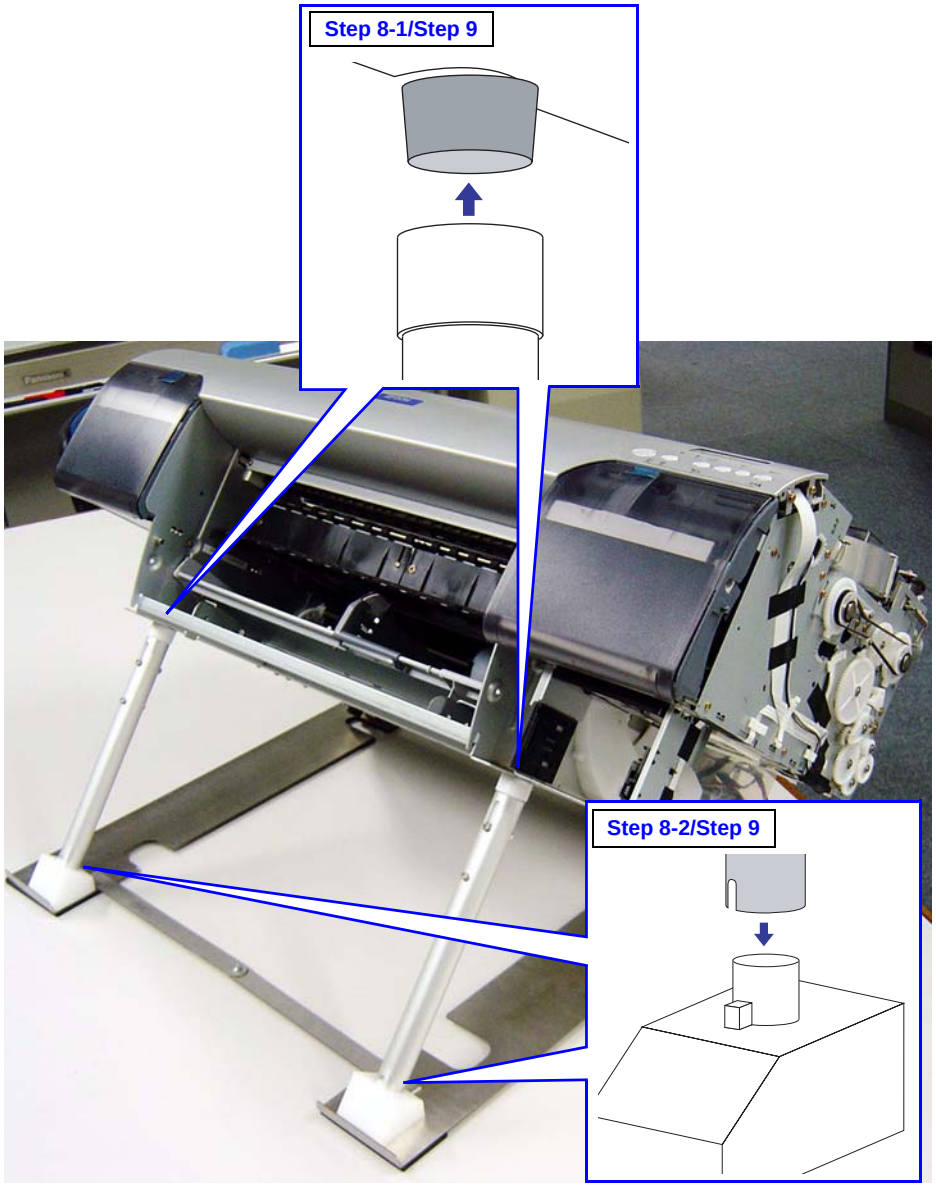


Figure 4-58. "Stand" Setting

10. Remove the two screws that secure the "ASF Unit" on the right side of the printer and the two screws that secure "Duct, Air, C, Assy".
    - C.B.S. 3x6: 4 pcs.

CAUTION

When performing the following work, do not keep the "Duct, Air, C, Assy" too far from the printer because harnesses are connected between them.

11. Remove the two screws that secure the "ASF Unit" while keeping the "Duct, Air, C, Assy" separated.
    - C.B.S. 3x6: 2 pcs.

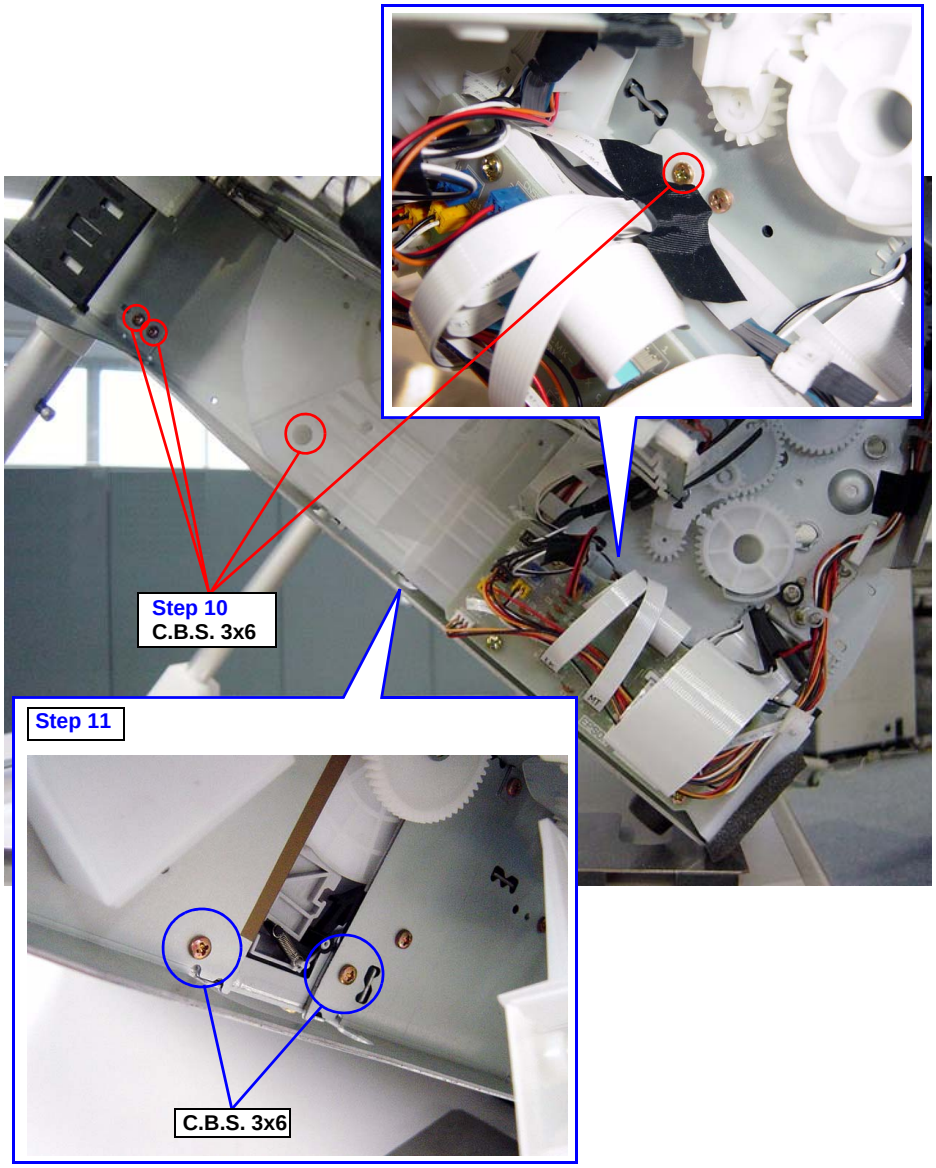


Figure 4-59. Screws Securing "ASF Unit"

12. While holding the "ASF Unit", remove the three screws that secure the "ASF Unit" on the left side of the printer.
    - C.B.S. 3x6: 3 pcs.

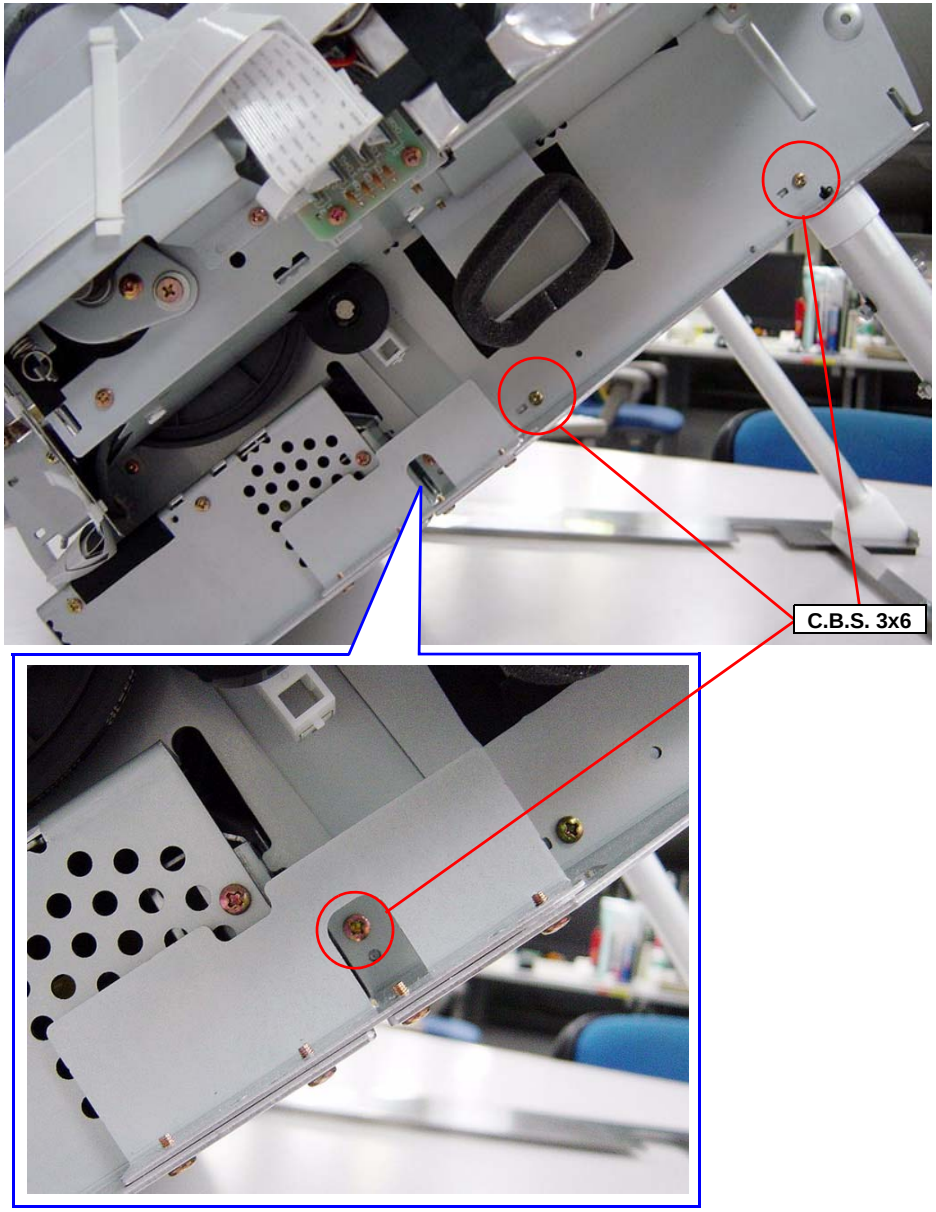
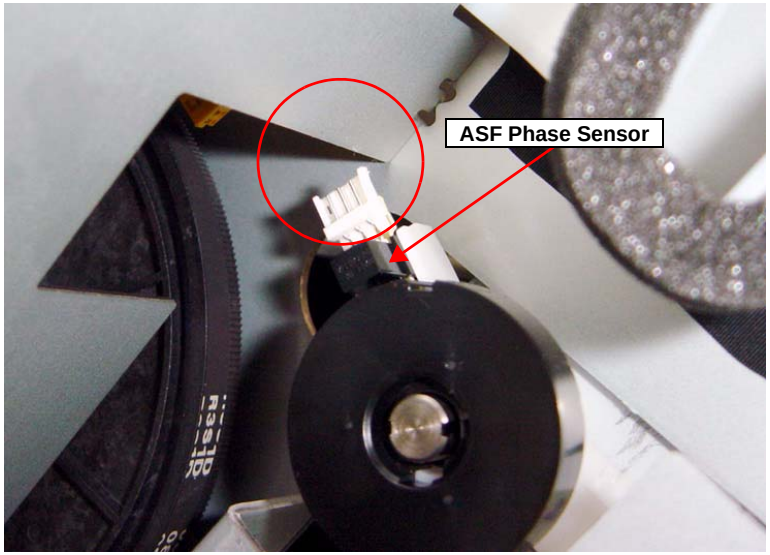


Figure 4-60. Screws Securing "ASF Unit"

13. Remove the "ASF Unit" downward from the printer.

REASSEMBLY

When installing the "ASF Unit" to the printer, do not let the connector of the "ASF Phase Sensor" located at the left side of the "ASF Unit" contact with the cutout of the frame of the main unit.



ADJUSTMENT REQUIRED

Be sure to refer to Chapter 5 "Adjustment" *(p.366)* and perform specified adjustments after replacing the "ASF Unit".

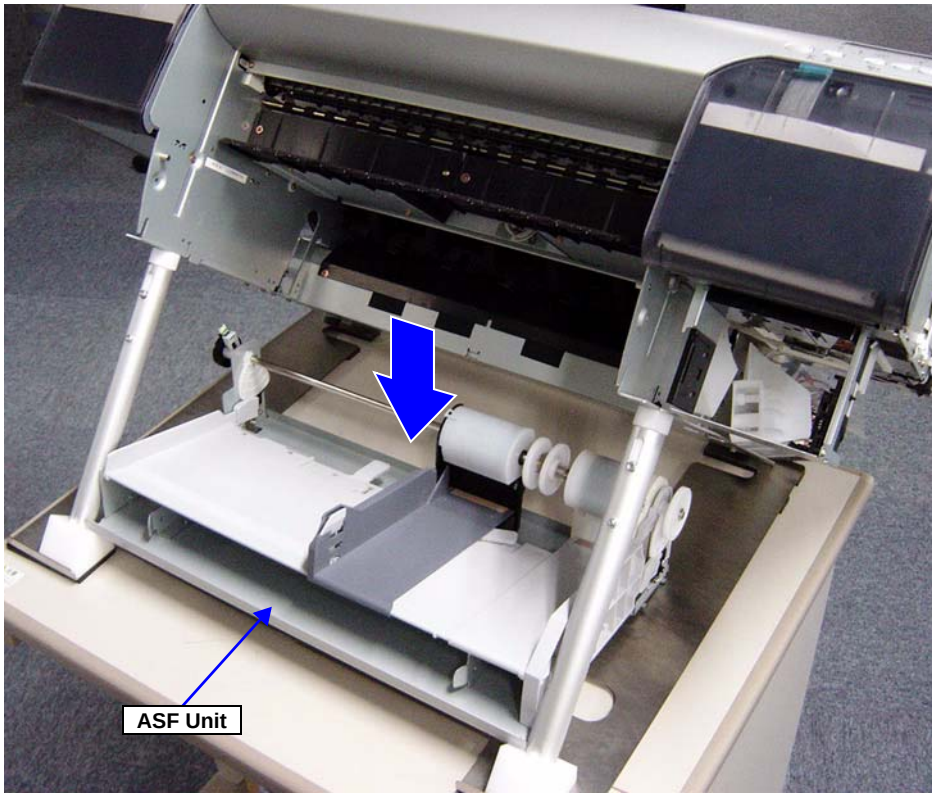


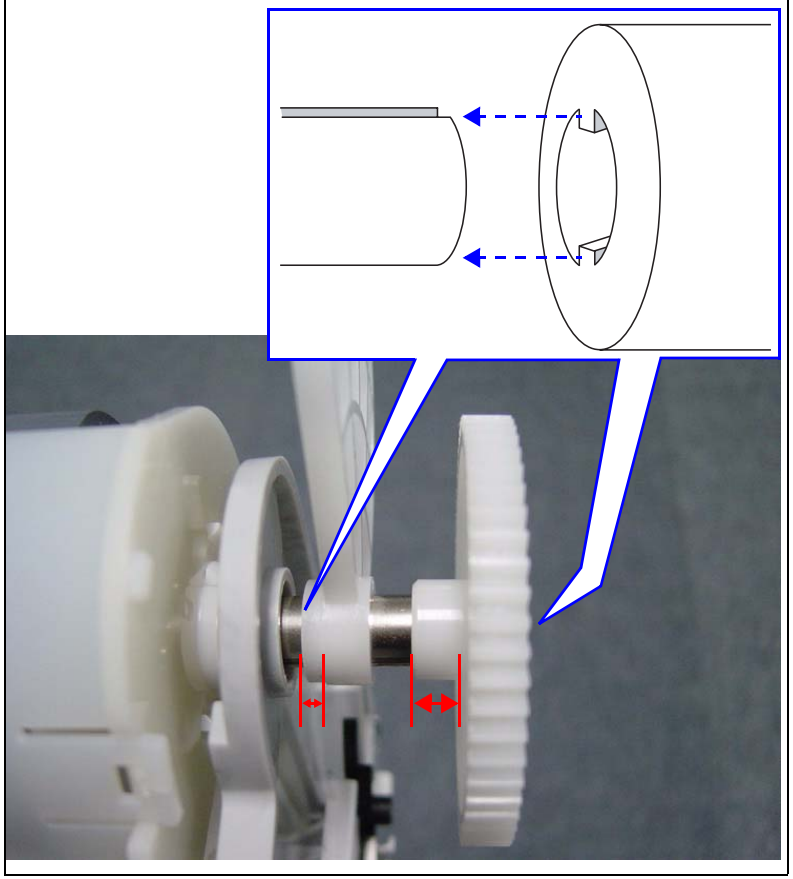
Figure 4-61. "ASF Unit" Removal

4.2.6.2 Roller Assy., LD, Left / Roller Assy., LD, Right

1. Remove "ASF Unit" *(p246).*
2. Remove the "E-ring, 6", and pull out the "Gear, 44.74" and "Lever, Hopper, Release" from the "Shaft, Roller, LD".

REASSEMBLY

When installing the "Gear, 44.74" and "Lever, Hopper, Release" to the "Shaft, Roller, LD", face the surfaces with the longer ribs of both the "Gear, 44.74" and the "Lever, Hopper, Release" toward the "ASF Unit" side, and match the respective ribs of the shaft holes with the grooves of the "Shaft, Roller, LD".



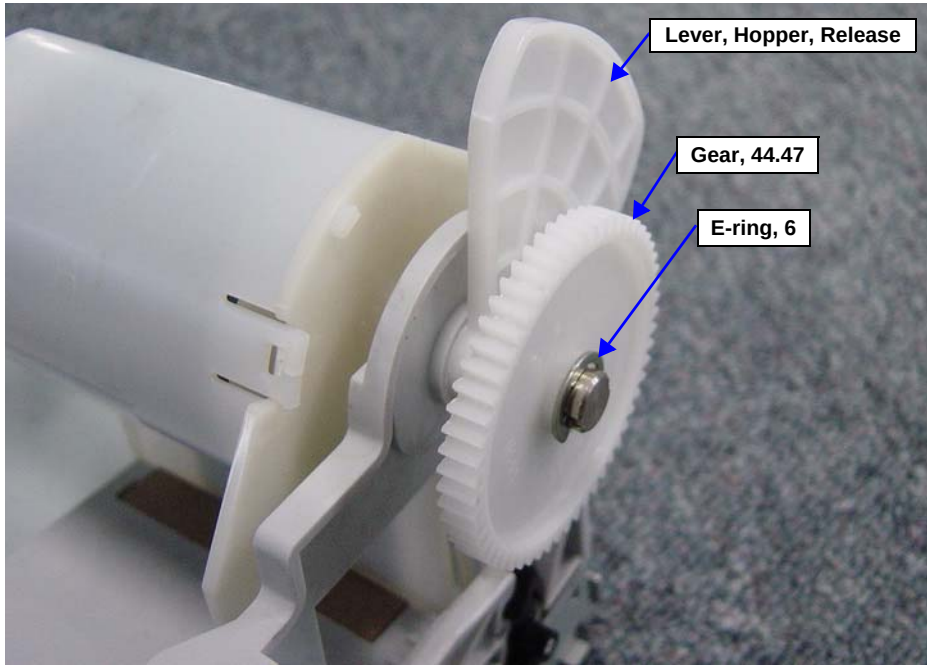
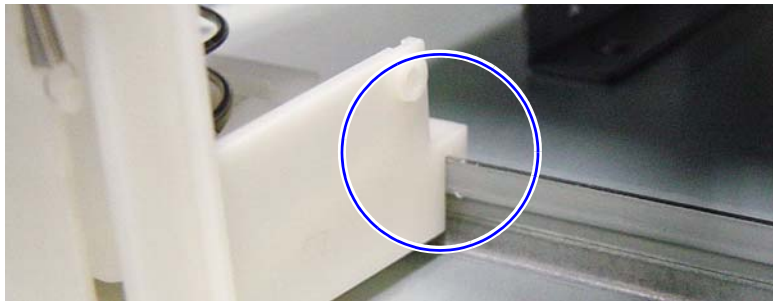


Figure 4-62. "Gear, 44.47" and "Lever, Hopper, Release" Removal

3. Remove the three screws that secure the "Frame, ASF, Right" from the bottom of the "ASF Unit", and remove the "Frame, ASF, Right" from the hole shown in Figure 4-64 as holding the "Hopper"
   - C.B.P. 3x8: 3 pcs.

REASSEMBLY

When installing the "Frame, ASF, Right", make sure that both the grooves of the "Cover, Roller, LD, Left" and the "Cover, Roller, LD, Right" are engaged with the rail of the "Frame, ASF, Lower".



4. Push down and release the tab that secures the "Wheel, Detector" using a precision driver or a similar tool, and then remove the "Wheel, Detector". *(Refer to Figure 4-65.)*

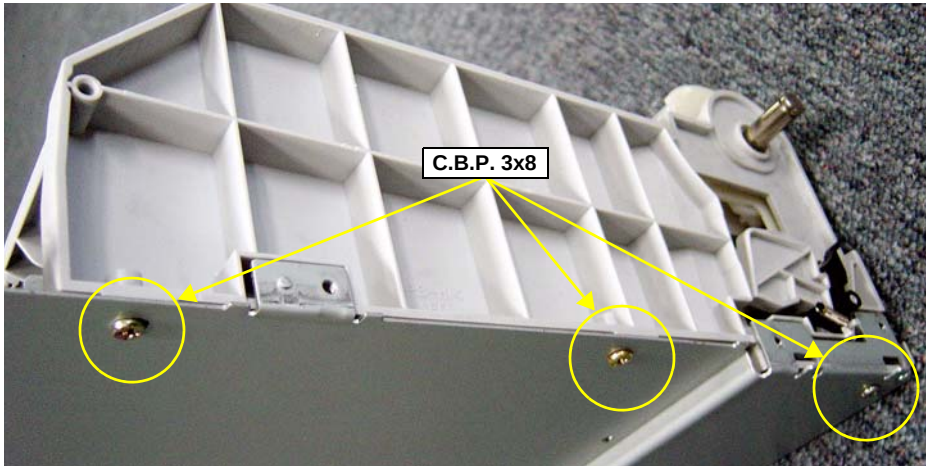


Figure 4-63. Screws Securing "Frame, ASF, Right"

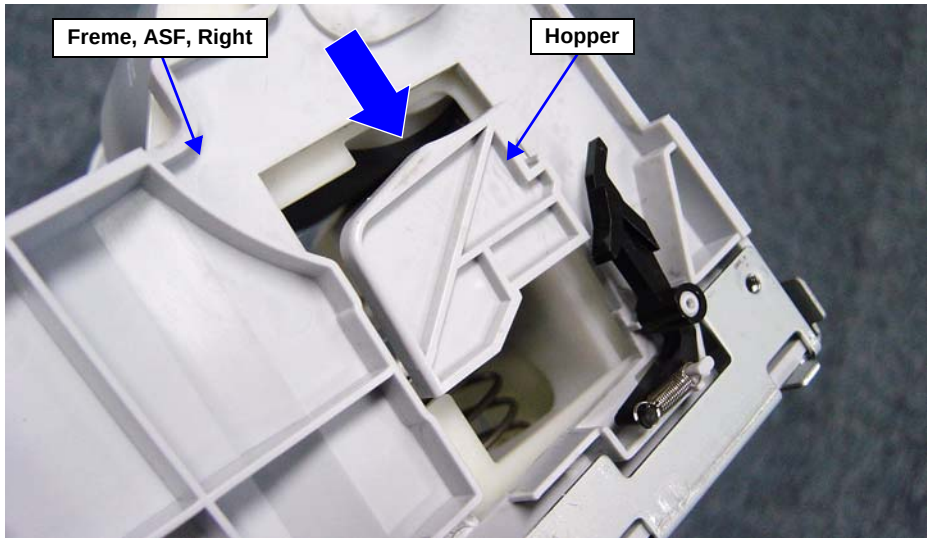


Figure 4-64. "Frame, ASF, Right" Removal

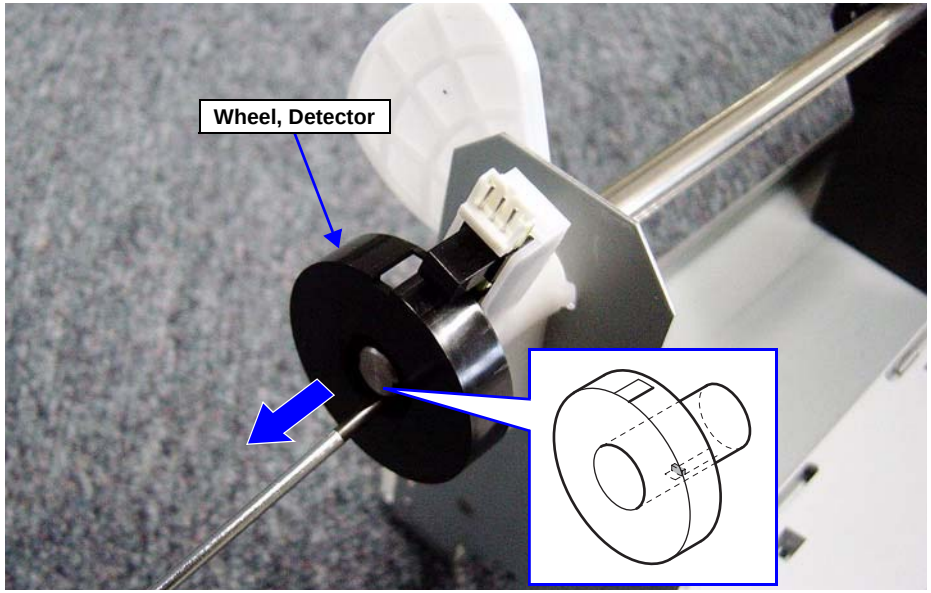
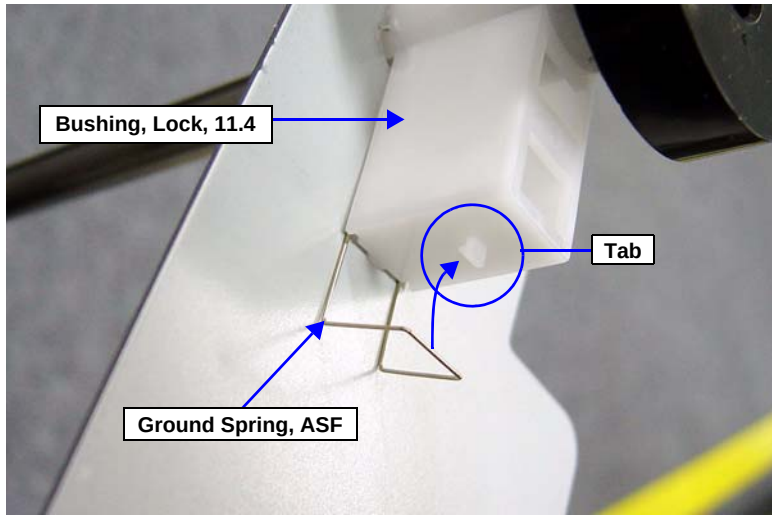


Figure 4-65. "Wheel, Detector" Removal

5. Rotate the "Bushing, Lock, 11.4" to the direction shown in Figure 4-66 to match the rib with the frame hole, release the boss at the lower part from the frame, and then remove the "Bushing, Lock, 11.4" from the "Shaft, Roller, LD". (The "Ground Spring, ASF" will be released at the same time.)

REASSEMBLY

When installing the "Ground Spring, ASF", install the "Bushing, Lock, 11.4" first, insert the both ends of the "Ground Spring, ASF" into the right and left holes on the bottom of the "Bushing, Lock, 11.4", and then hitch the other side of the "Ground Spring, 11.4" to the tab located on the bottom of the "Bushing, Lock, 11.4".



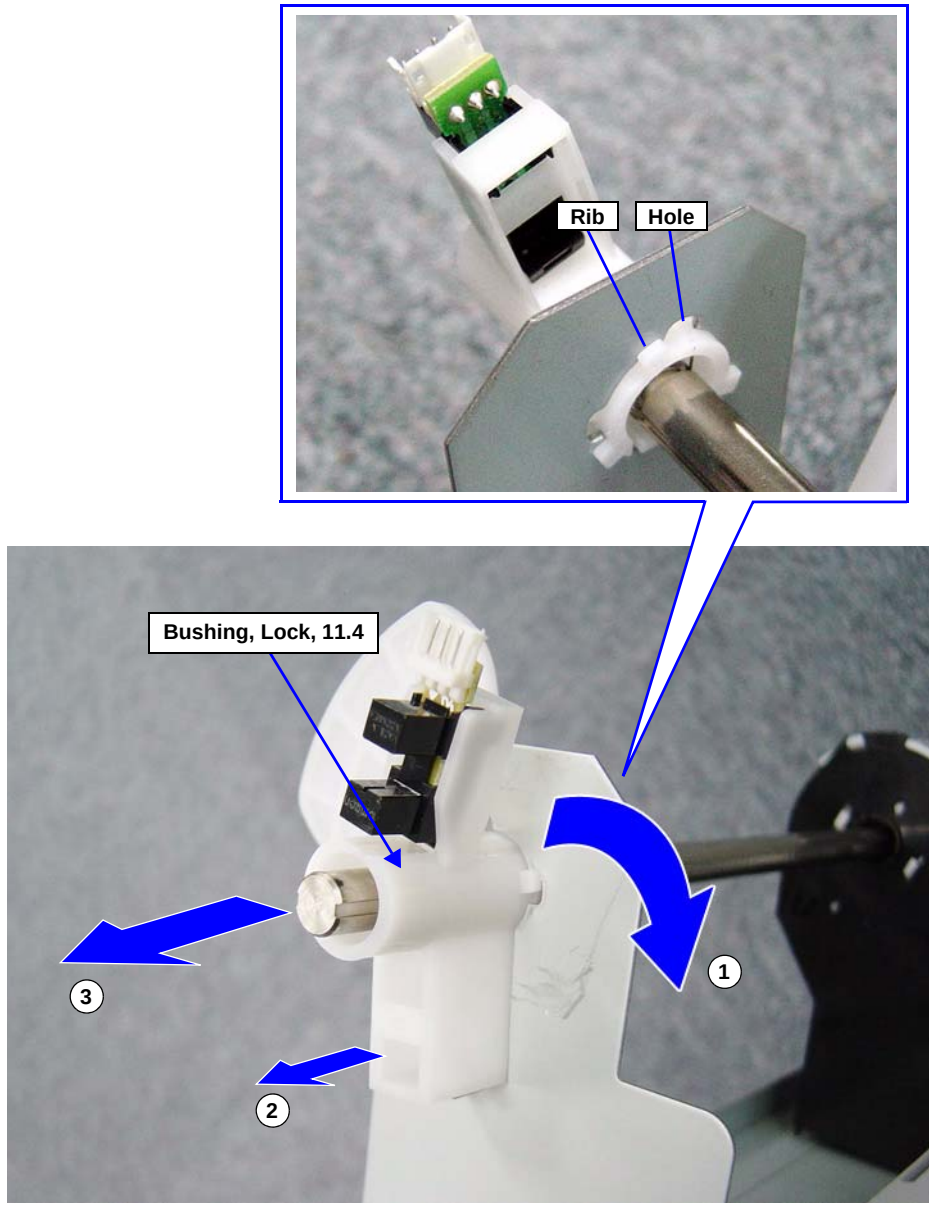


Figure 4-66. "Bushing, Lock, 11.4" Removal

6. Detach the resin plate that is attached on the "Holder, Edge Guide, Left", release the tab that secures "Holder, Edge Guide, Left" to the "Cover, Roller, LD, Left", and then remove the "Holder, Edge Guide, Left" to the right. *(Refer to Figure 4-67.)*
7. Release the tab that secures the "Roller Assy., LD, Left" to the "Cover, Roller, LD, Left", then remove the "Roller Assy., LD, Left" sliding it rightward. *(Refer to Figure 4-68.)*

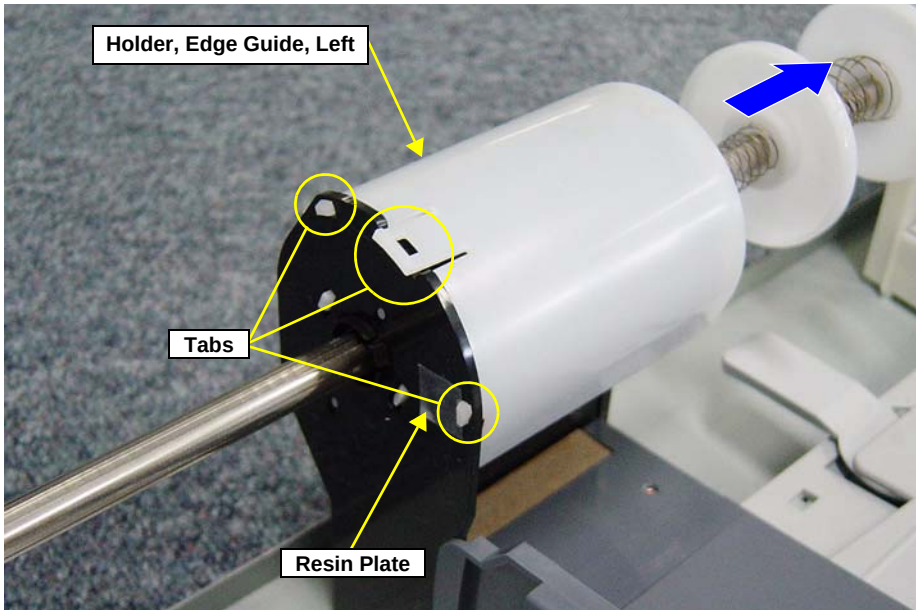


Figure 4-67. Holder, Edge Guide, Left Removal

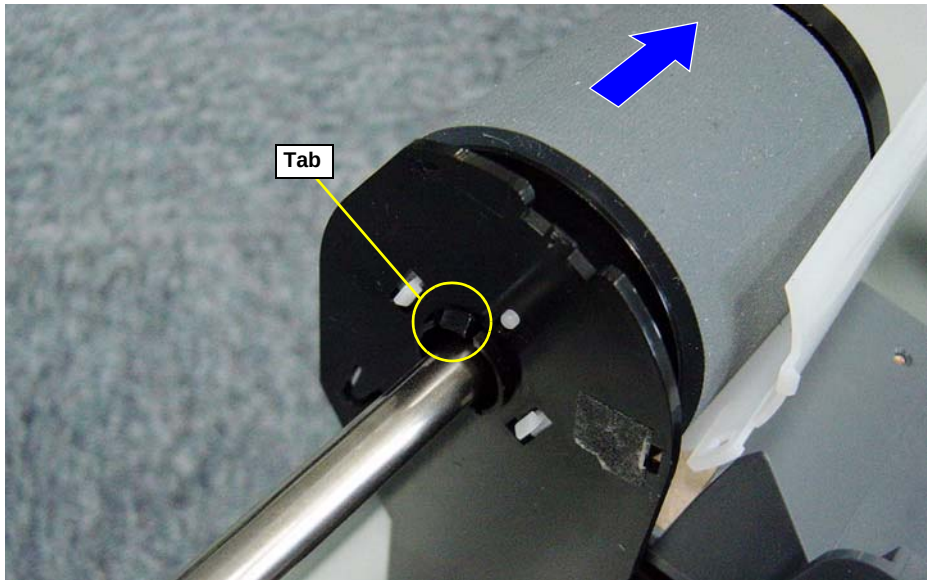


Figure 4-68. Roller Assy., LD, Left Removal

8. Remove the "E-ring, 6" from the "Shaft, Roller, LD".
9. Draw out the "Shaft, Roller, LD" to the direction shown in Figure 4-69 to remove both the "Roller Assy., LD, Left" and the "Roller Assy., LD, Right".

REASSEMBLY

All the parts shown in Figure 4-69 are released when drawing the "Shaft, Roller, LD". Install the parts to the "Shaft, Roller, LD" in the correct order and direction, refering the Figure 4-69.

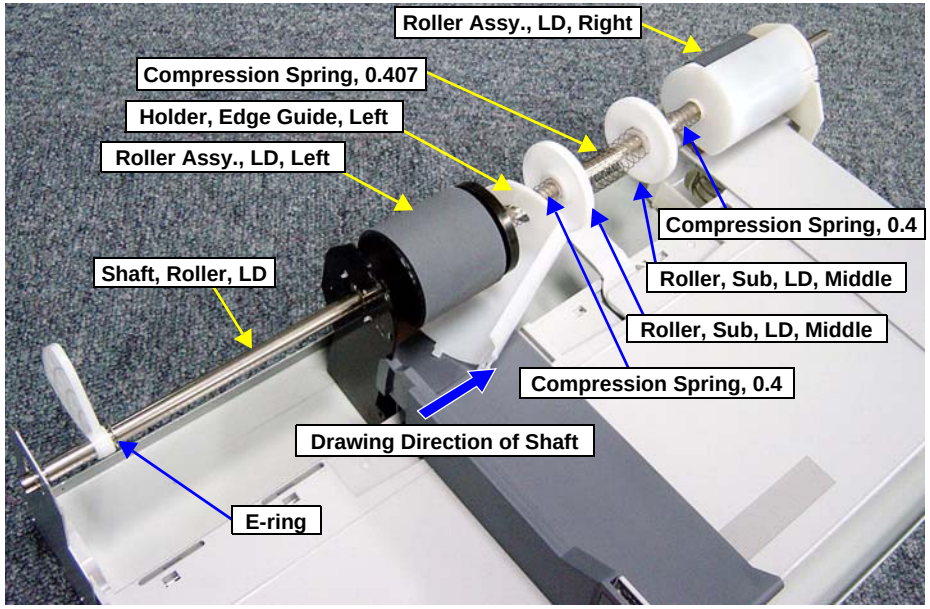


Figure 4-69. "Roller Assy., LD, Left" and "Roller Assy., LD, Right" Removal

4.2.6.3 Mount Assy., Plate, Motor, ASF, SP

1. Remove "Box Assy., Flushing / Pump Unit" *(p316).*
2. Detach E-ring and then remove "Spur Gear, 16".*(Refer to Figure 4-70.)*

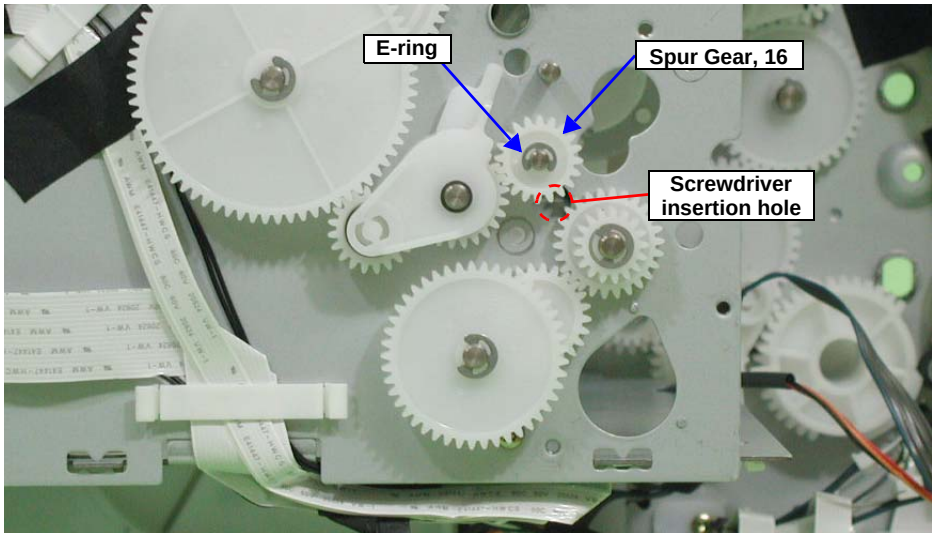


Figure 4-70. Spur Gear, 16 Removal

3. Insert screwdriver through hole at lower right of "Spur Gear, 16" removed in Step 2 and remove the screw securing "Mount Assy., Plate, Motor, ASF, SP".
   - C.B. 3x8: 1 pc.
4. Remove the two screws securing "Mount Assy., Plate, Motor, ASF, SP" and then remove "Mount Assy., Plate, Motor, ASF, SP".
   - C.B.S. 3x6: 1 pc.

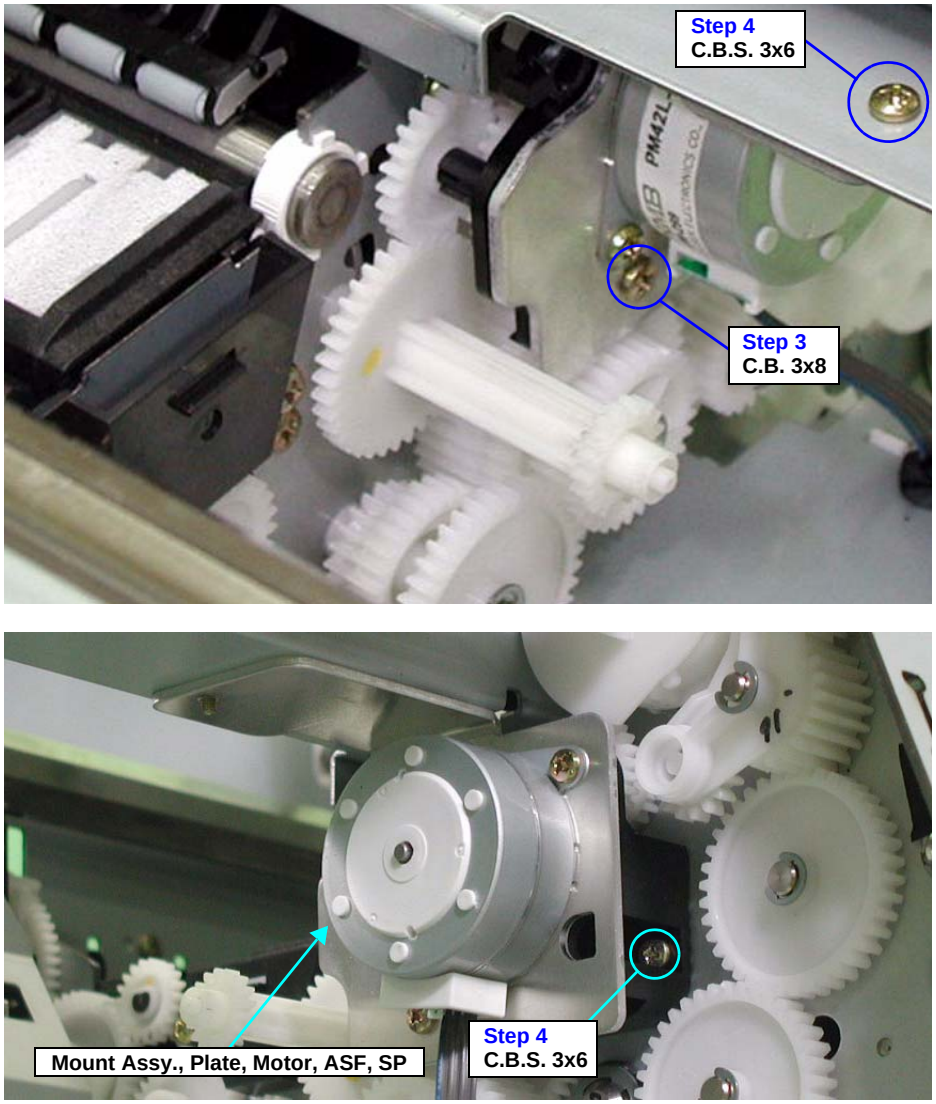
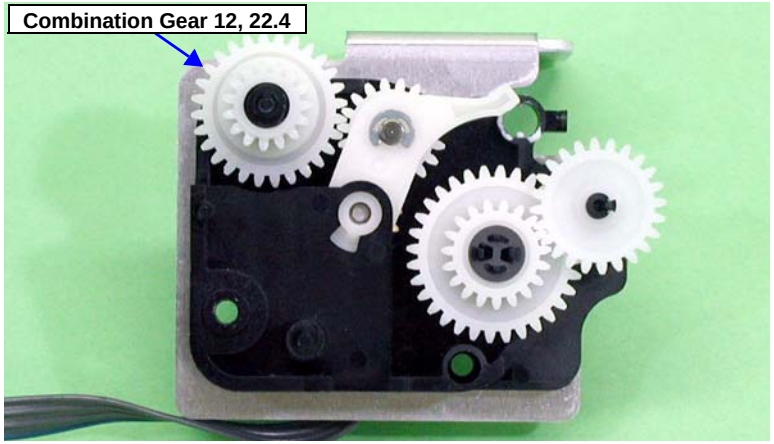


Figure 4-71. Mount Assy., Plate, Motor, ASF, SP Removal

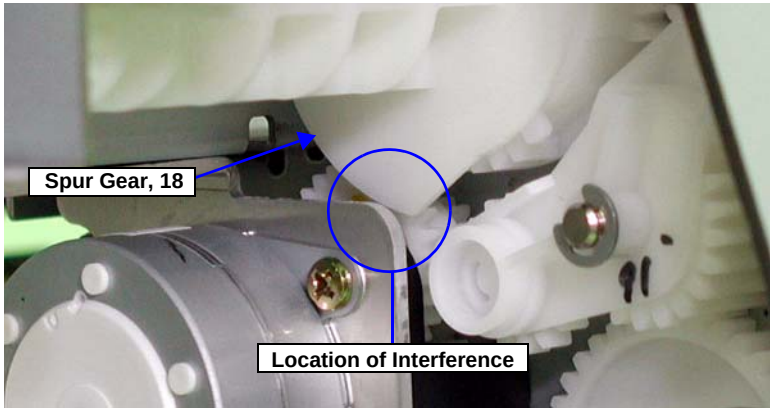
REASSEMBLY

Install "Mount Assy., Plate, Motor, ASF, SP" following the steps below.

1. "Combination Gear 12, 22.4" may fall from the "Mount Assy., Plate, Motor, ASF, SP" when removing it. If this happens, properly install the gear as shown below.

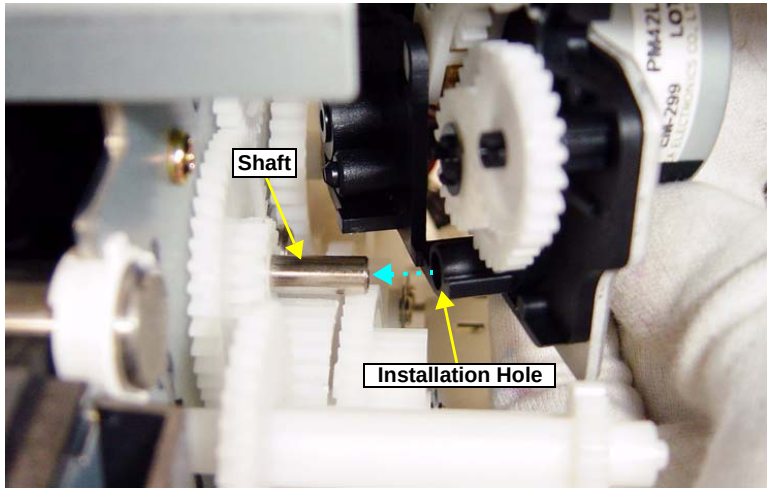


2. Install "Mount Assy., Plate, Motor, ASF, SP" in a way that avoids interference between "Combination Gear 12, 22.4" and "Spur Gear, 18".

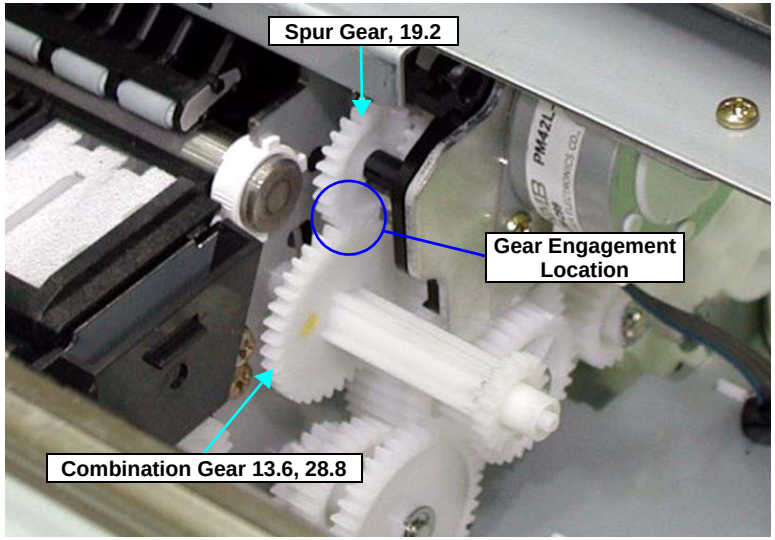


REASSEMBLY

3. Insert shaft of frame while aligning it with installation hole of "Mount Assy., Plate, Motor, ASF, SP".

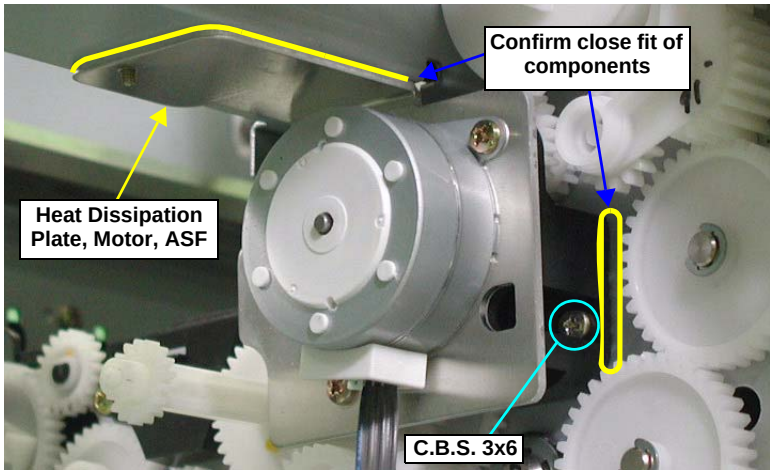


4. Confirm that "Spur Gear, 19.2" and "Combination Gear 13.6, 28.8" are engaged.



REASSEMBLY

5. Tighten screws so that there are no gaps at the locations listed below.
   - Between frame and "Heat Dissipation Plate, Motor, ASF".
   - Between frame and "Mount Assy., Plate, Motor, ASF, SP".



ADJUSTMENT REQUIRED

Be sure to refer to Chapter 5 "Adjustment" *(p.366)* and perform specified adjustments after replacing the "Mount Assy., Plate, Motor, ASF, SP".

4.2.6.4 ASF Phase Sensor

1. Remove "Cover, Side, Left" *(p216).*
2. Remove the four screws securing "Cover, Motor, PF" and then remove "Cover, Motor, PF" in the upward direction while avoiding the "Roller, PF". *(Refer to Figure 4-72.)*
   - C.B.S. 3x6: 4 pcs.
3. Rotate "Lever, Hopper, Release" with hand and align the "Wheel, Detector" notch with the "ASF Phase Sensor" detection section. *(Refer to Figure 4-73.)*

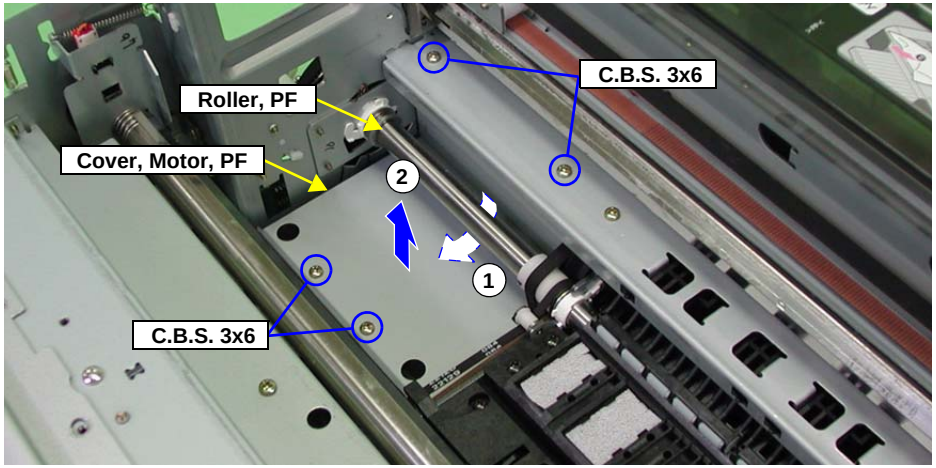


Figure 4-72. Cover, Motor, PF Removal

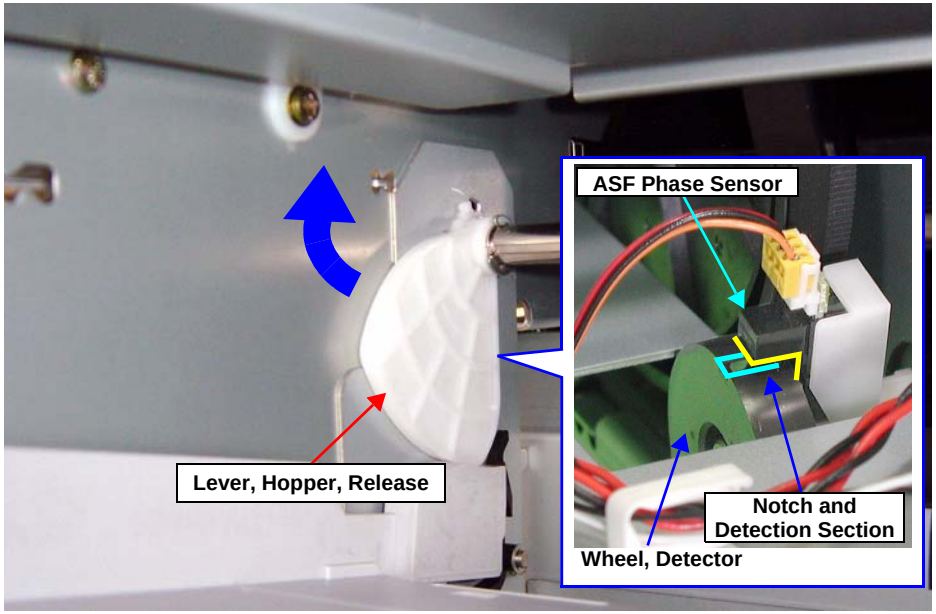


Figure 4-73. Wheel, Detector Removal Position

4. Use a tool such as a precision screwdriver to press down on and release the hook securing the "Wheel, Detector", and remove the "Wheel, Detector". *(Refer to Figure 4-74.)*
5. Disconnect the connector from the "ASF Phase Sensor". *(Refer to Figure 4-75.)*
6. Release the two tabs securing the "ASF Phase Sensor" and remove the "ASF Phase Sensor". *(Refer to Figure 4-75.)*

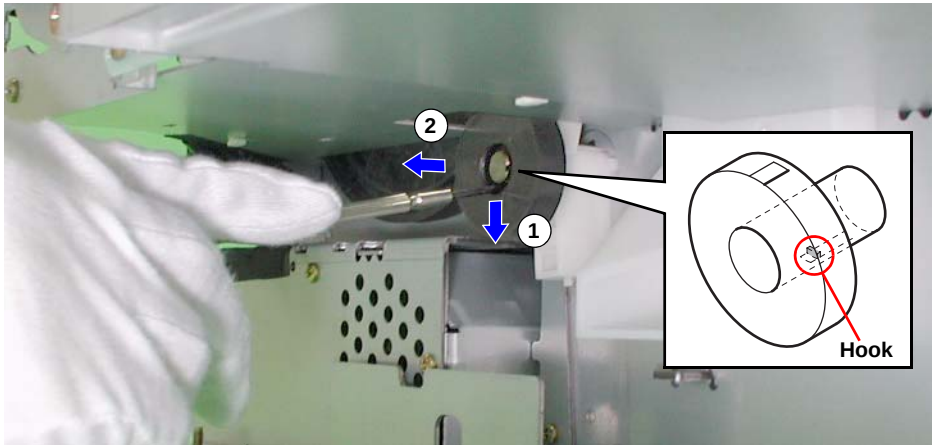


Figure 4-74. Wheel, Detector Removal

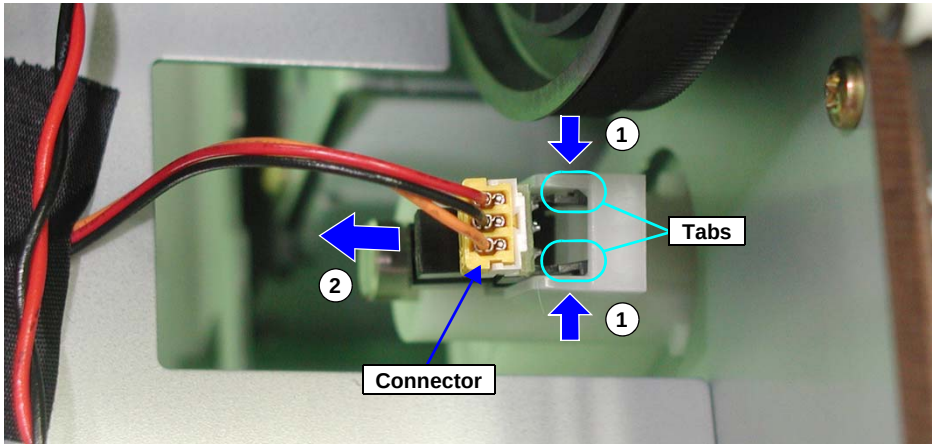


Figure 4-75. ASF Phase Sensor Removal

4.2.6.5 ASF Paper Sensor

1. Remove PCB Unit. *(Refer to "4.2.4.1 C593 MAIN Board" (p226).)*
2. Release "ASF Paper Sensor" harness from clamp.
3. Release the two tabs securing "ASF Paper Sensor" and then release "ASF Paper Sensor".
4. Disconnect connector from "ASF Paper Sensor".

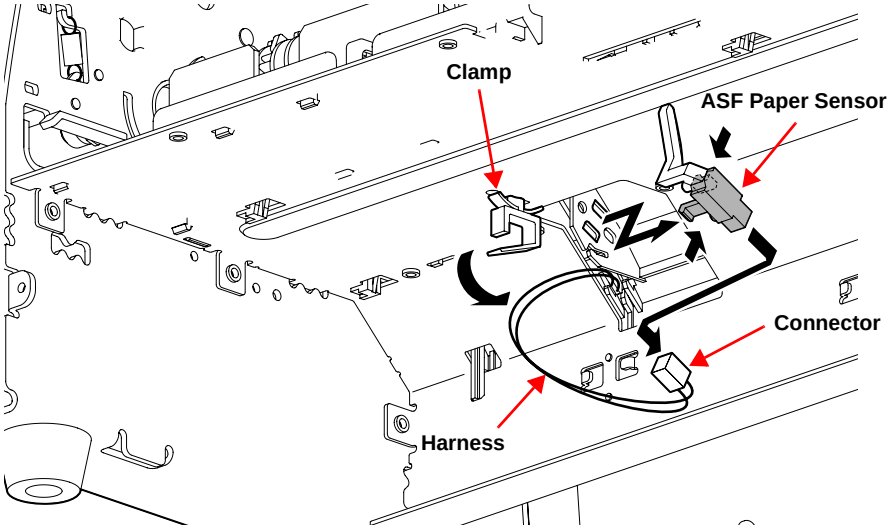


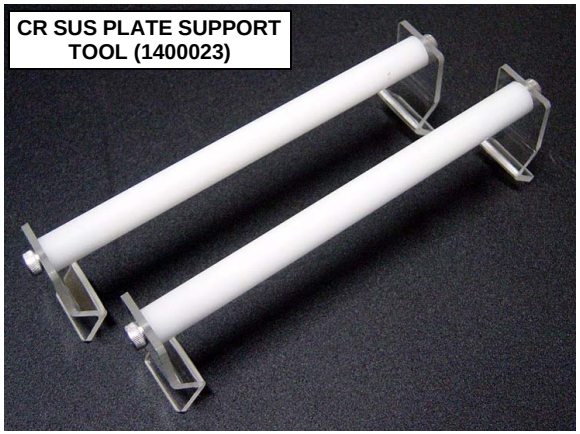
Figure 4-76. ASF Paper Sensor Removal

4.2.7 Carriage Mechanism

4.2.7.1 Carriage Unit

CHECK POINT

This section explains the working procedure using the "CR SUS PLATE SUPPORT TOOL" shown in the figure below. The "CR SUS PLATE SUPPORT TOOL" is a tool that holds and fixes the SUS plate which is on the CR guide shaft to prevent it being deformed or damaged by the bearing installed in the "Carriage Unit" when installing/removing the "Carriage Unit" to/from the CR shaft. Use the CR SUS PLATE SUPPORT TOOL in any way possible.



1. Remove "Scale, CR" *(p281).*
2. Remove "C593_SUB Board" *(p234).*
3. Remove the two screws that secure the "Ink Tube Unit". *(Refer to Figure 4-77.)*
   - C.B.P. 3x12: 2 pcs.
4. Tilt the "Ink Tube Unit" backward to release the three tabs securing its bottom (①), and then lift and remove the "Ink Tube Unit"(②). *(Refer to Figure 4-78.)*

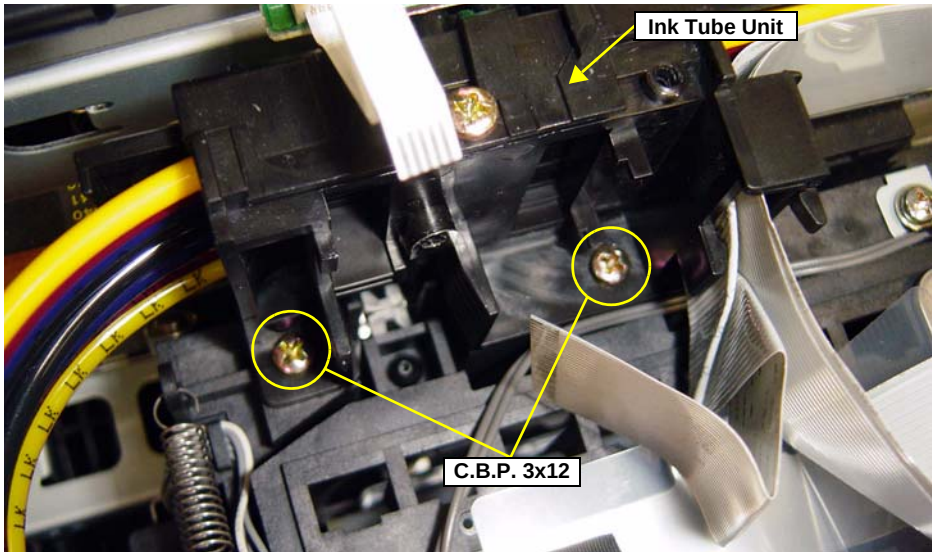


Figure 4-77. Screws Securing Ink Tube Unit

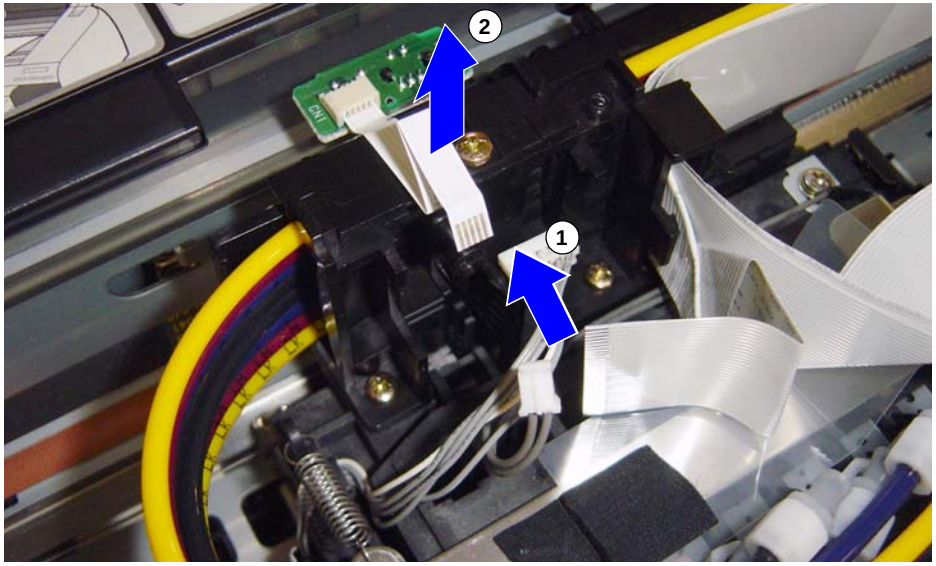
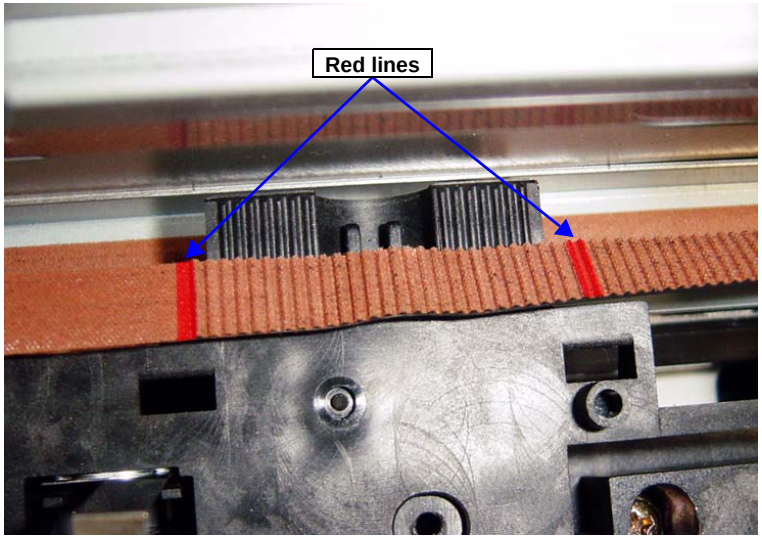


Figure 4-78. Releasing Tabs on the Bottom of Ink Tube Unit

REASSEMBLY

When installing the "Ink Tube Unit", be sure to check the followings.

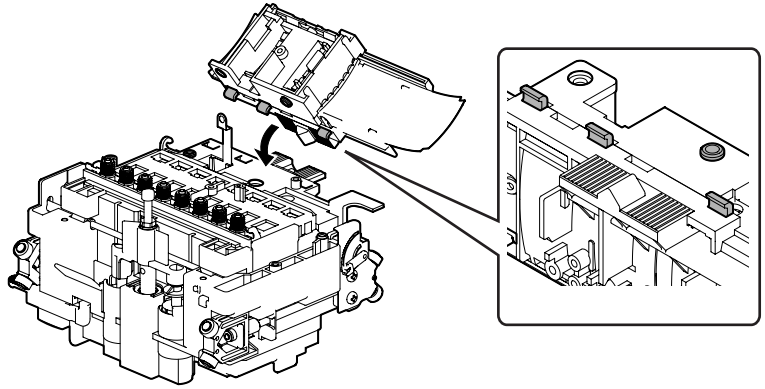
- Release the "Belt, CR" tension (Refer to "4.2.7.2 Motor Assy., CR" (p270).), and sandwich the "Belt, CR" with the "Carriage Unit" and the "Ink Tube" at between the two red lines marked on the reverse side of the belt. If the belt is sandwiched at the right position, a bending will appear between the two red lines.



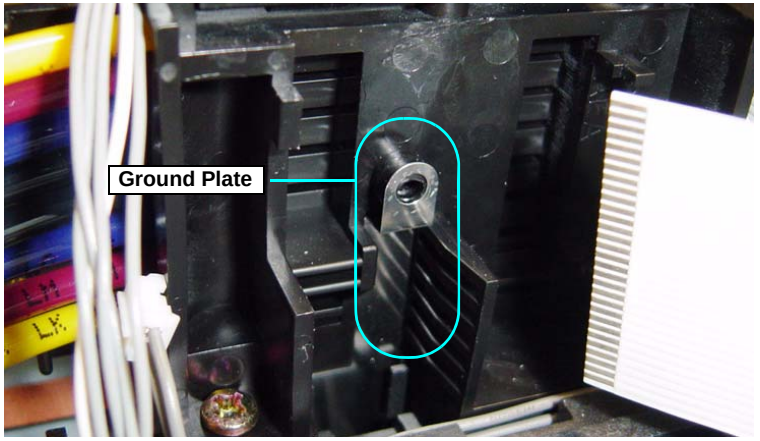
- Do not get harnesses sandwiched between the "Ink Tube Unit" and the "Carriage Unit".
- Securely hitch the three tabs of the "Ink Tube Unit" to the installation holes of the "Carriage Unit".

REASSEMBLY

- Match the two positioning holes and the two dowels of the "Ink Tube Unit" and "Carriage Unit".



- The "Ink Tube Unit" should be installed with its mounting plate facing forward.



5. Remove the "Tension Spring, 3.81" from the hooks of both the "Head Unit" and the "Lever, Inclination". *(Refer to Figure 4-79.)*
6. Remove the three screws and the washer that secure the "Lever, Inclination" to the "Carriage Unit to remove the "Lever, Inclination". *(Refer to Figure 4-79.)*
   - C.B.P. (P2) 3x12: 2 pcs.
   - C.B.P. 3x8 (+washer 3.0x0.5x8):1 pc.
7. Remove the screw securing the "Head Unit" to the "Carriage Unit". *(Refer to Figure 4-80.)*
   - C.B.P. (P2) 3x12: 1 pc.
8. Release the harness from the tab shown in Figure 4-80, and move the "Carriage Unit" toward you.
9. Lift the "Head Unit" together with the "Ink Tube Unit" to remove from the"CarriageUnit". *(Refer to Figure 4-81.)*

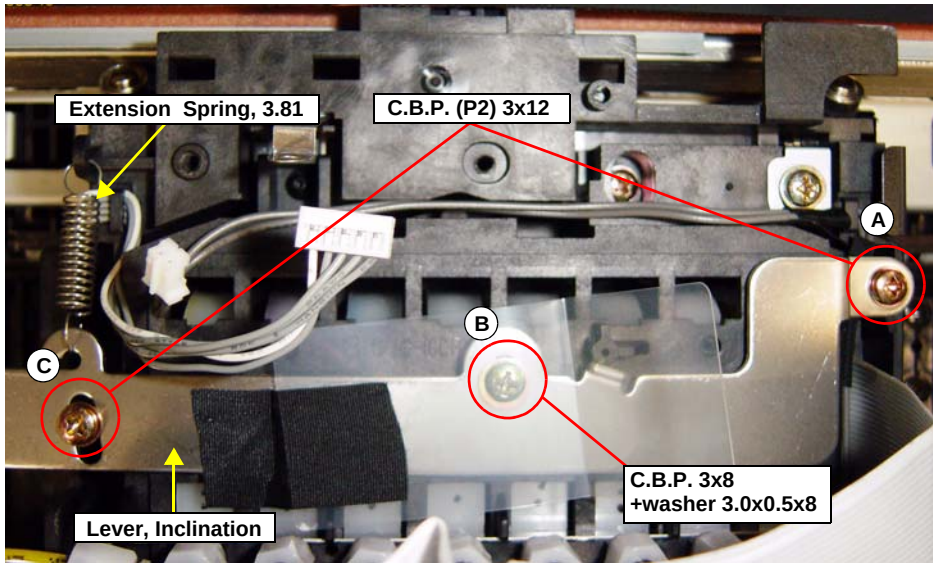


Figure 4-79. "Lever, Inclination" Removal

REASSEMBLY

When installing the "Lever, Inclination", follow the steps below.

1. **Tighten the Screw A.**
2. **Attach the "Extension Spring, 3.81".**
3. **Tighten the Screw C first and then the Screw B.**

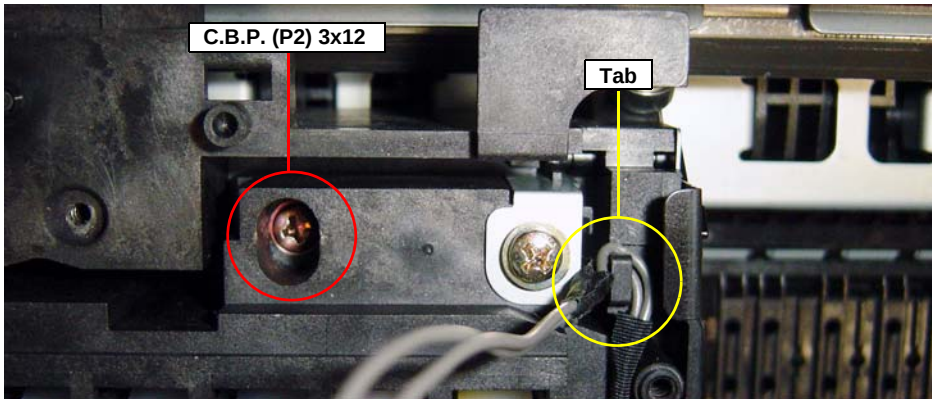


Figure 4-80. Removal of Screw Securing Head Unit

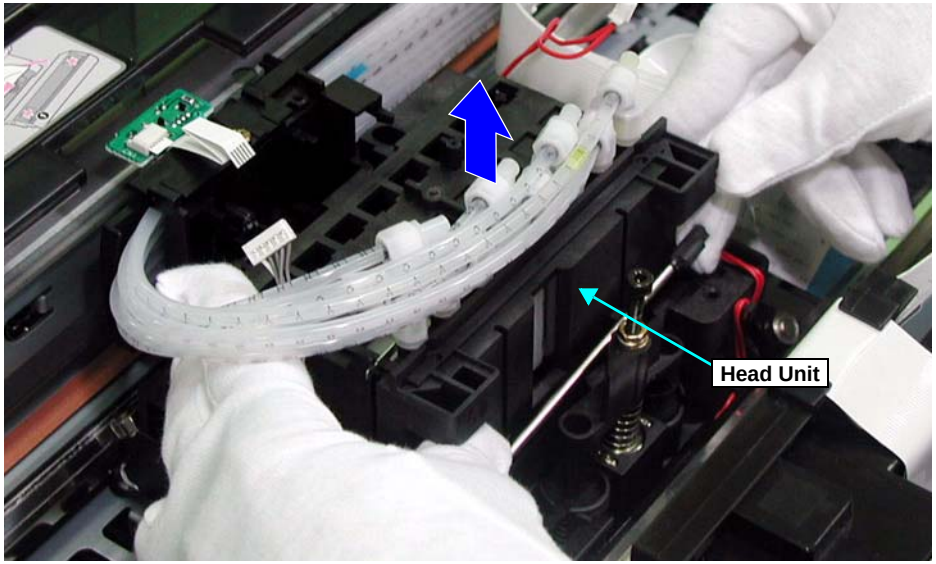


Figure 4-81. Head Unit Removal

10. Set the "CR SUS PLATE SUPPORT TOOL" on the both sides of the "Carriage Unit" as shown in Figure 4-82.
    Place the "CR SUS PLATE SUPPORT TOOL" with the left end of its front tab set on the "Shaft, Front" and the right end of its rear hook set on the "Shaft, Rear", and then install them in a twisting motion as shown in Figure 4-82.

CAUTION

Be sure to install the "CR SUS plate" as shown in Figure 4-82 or its tab may get bent.

11. Remove the "Carriage Unit" by following steps below.

    11-1. Pull the "Carriage Unit" toward you and compress it to the "Shaft, Front" (①) to make the bearings that are attached on the rear of the "Carrigage Unit" apart from the "Shaft, Rear".

    11-2. Lift the rear of the "Carriage Unit" upward to release it from the "Shaft, Front" (②), lift the front of the "Carriage Unit" so that it is released from the "Shaft, Front", and then remove the "Carriage Unit".

ADJUSTMENT REQUIRED

Be sure to refer to Chapter 5 "Adjustment" *(p.366)* and perform specified adjustments after replacing or removing the "Carriage Unit".

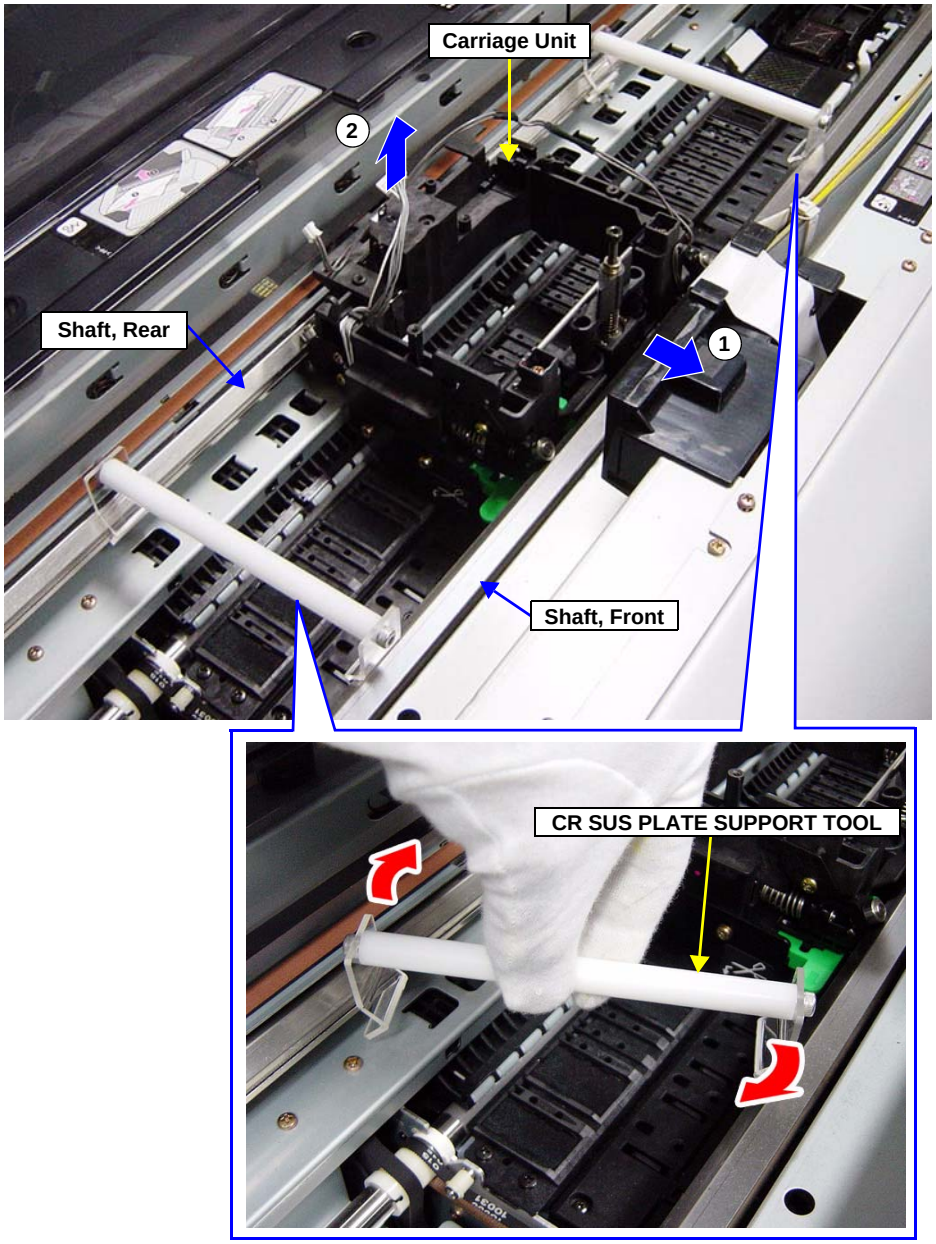


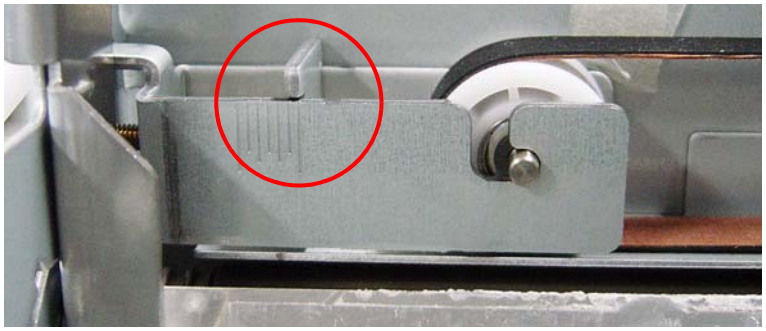
Figure 4-82. Carriage Unit Removal

4.2.7.2 Motor Assy., CR

1. Remove "Cover, Side, Left" *(p216).*
2. Remove "Cover, Side, Right" *(p217).*
3. Disconnect the connector from the "Motor Assy., CR".
4. Slide carriage to the center of the printer.
   (Refer to "4.2.4.3 C593_SUB Board" (p234).)

CHECK POINT

When performing the following steps, note the position set on the scale of "Holder, Pulley". Returning to this same position when installing the "Belt, CR" will reduce the time needed for belt adjustment.



5. While pushing up "Lever, Lock, PG", loosen the CR Tension Installation screw and release the tension of "Belt, CR".

CAUTION

When performing the following step, be careful not to scratch the "Motor Assy., CR" pinion gear.

6. Release "Belt, CR" from the pinion gear of "Motor Assy., CR".

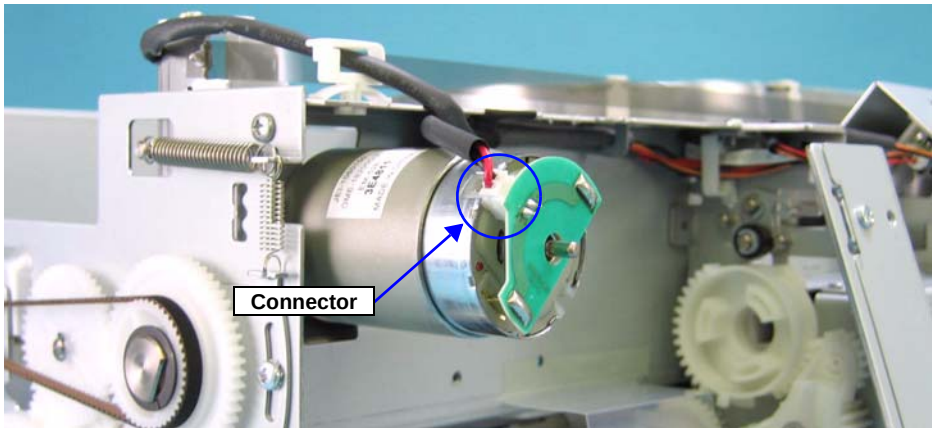


Figure 4-83. Disconnecting the CR Motor Connector

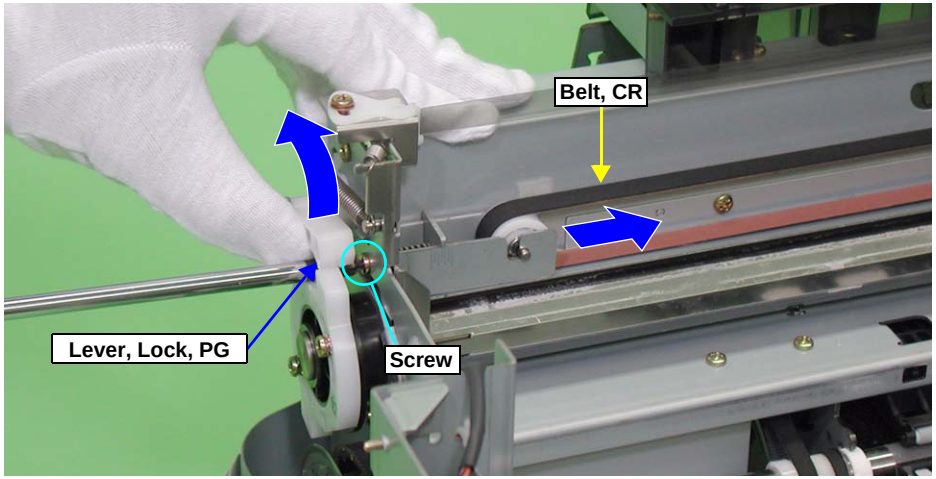


Figure 4-84. Releasing Tension of Belt, CR

7. Remove the two screws securing the "Motor Assy., CR" and remove the "Motor Assy., CR". *(Refer to Figure 4-85.)*
   - C.C. 3x6: 2 pcs.

ADJUSTMENT REQUIRED

Be sure to refer to Chapter 5 "Adjustment" *(p.366)* and perform specified adjustments after installing or replacing the "Motor Assy., CR".

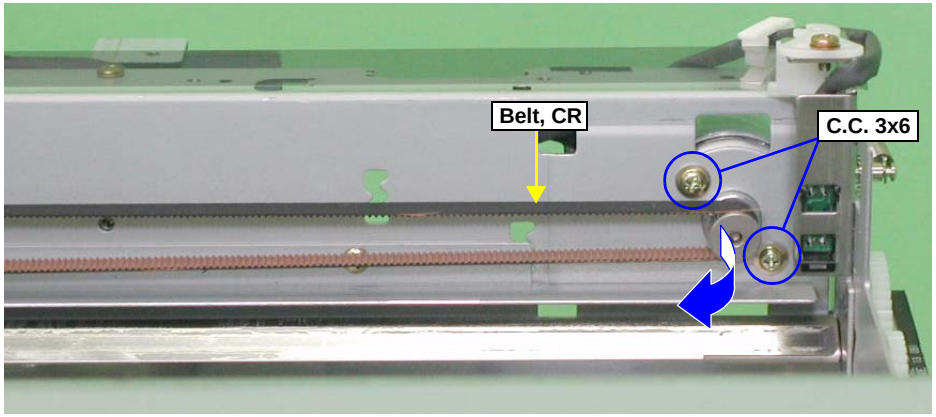


Figure 4-85. Motor Assy., CR Removal

4.2.7.3 Harness, CR

1. Remove “Release, Lever Unit”. *(Refer to "4.2.9.1 Release Unit" (p343).)*
2. Disconnect "Motor Assy., CR" harness (CN15: white, 2 pin) from the "C533 MAIN Board", and peel the acetate tape to release the harness. *(Refer to "4.2.4.1 C593 MAIN Board" (p226).)*
3. Release the “Motor Assy., CR” harness from the “Paper Guide, Lower” tab and the two channels. *(Refer to Figure 4-86.)*
4. Peel two pieces of acetate tape and release “Motor Assy., CR” harness, and then pull it out through the hole of the frame.*(Refer to Figure 4-87.)*
5. Cut the tying band and release the “Motor Assy., CR” harness.*(Refer to Figure 4-87.)*

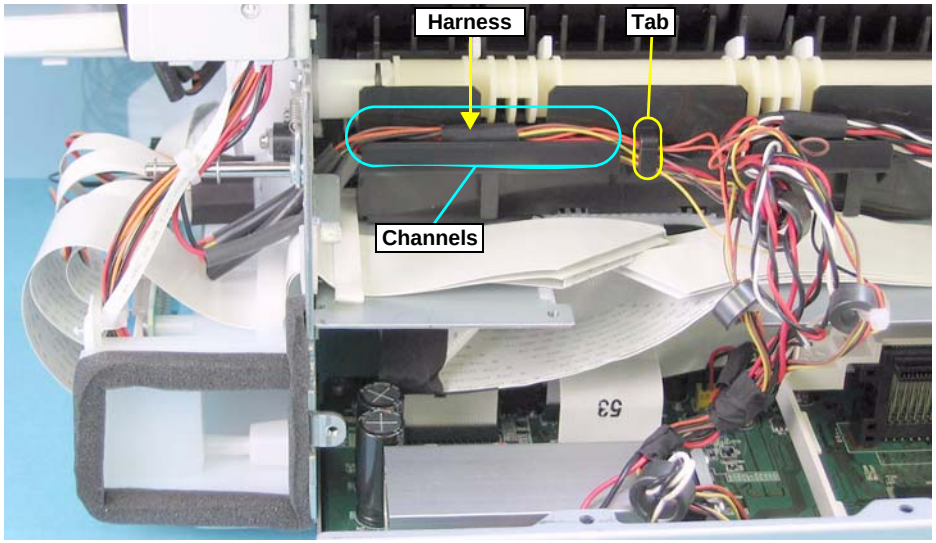


Figure 4-86. Releasing the Harness_1

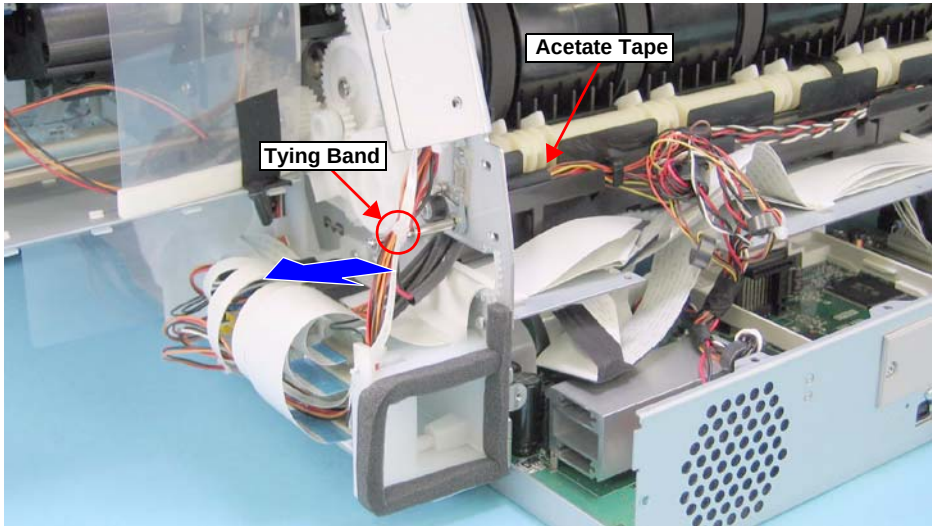
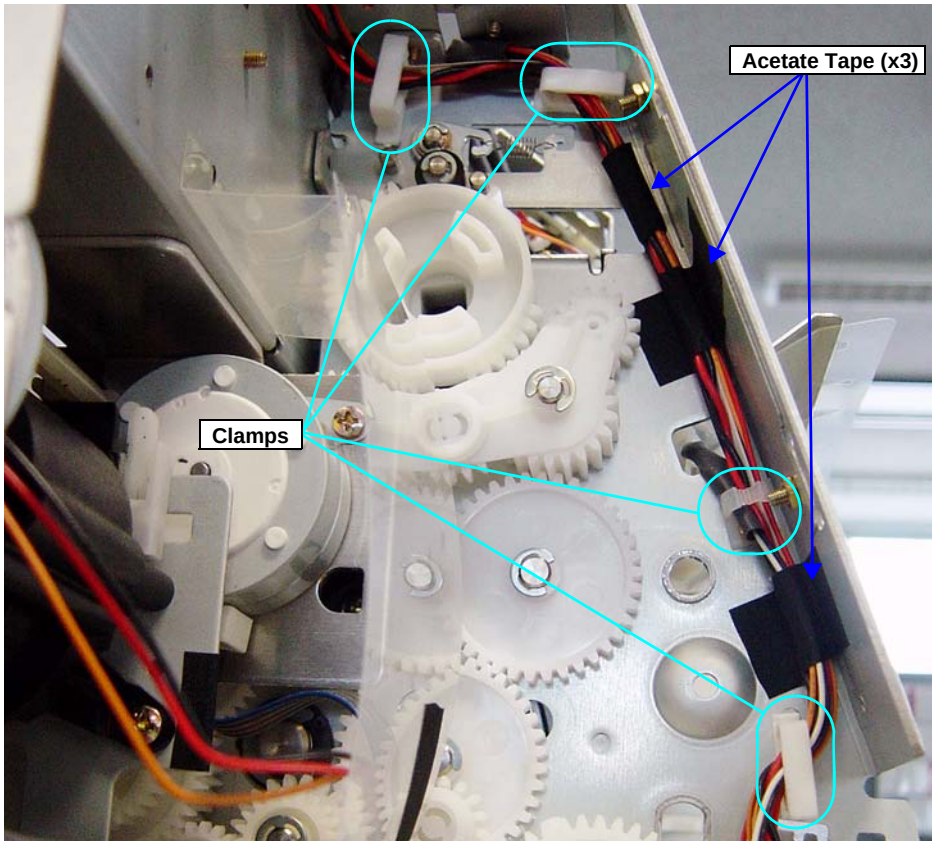


Figure 4-87. Releasing the Harness_2

6. Release the "Motor Assy., CR" harness from the four cramps, four pieces of acetate tape and the tab on the frame. *(Refer to Figure 4-88.)*
7. Disconnect the connector from “Motor Assy., CR” and remove “Harness, CR”.*(Refer to Figure 4-83.)*



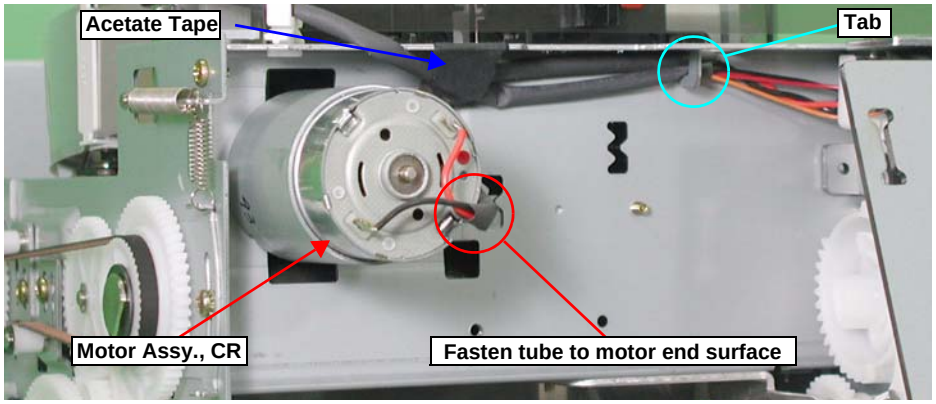


Figure 4-88. Releasing the Harness_3

4.2.7.4 Motor Assy., PG

1. Remove "Cover, Side, Right" *(p217).*
2. Peel off the acetate tape and release the tab at the lower part of the "Sheet, Ink, Stopper, C" from the U-shaped cutout of the "Frame, Base, Side, Right". *(Refer to Figure 4-89.)*
3. Disconnect relay connector. *(Refer to Figure 4-90.)*
4. Remove the acetate tape securing the harness, and release "Harness, CSIC" and "Motor Assy., PG" harness from "Duct, Air, C" hook. *(Refer to Figure 4-90.)*
5. Release "Motor Assy., PG" harness and "Mount Assy., Plate, Motor, ASF, SP" harness from the U-shaped cutout of the "Frame, Base, Side, Right". *(Refer to Figure 4-90.)*
6. Peel acetate tape and release "PG Motor" harness. *(Refer to Figure 4-90.)*

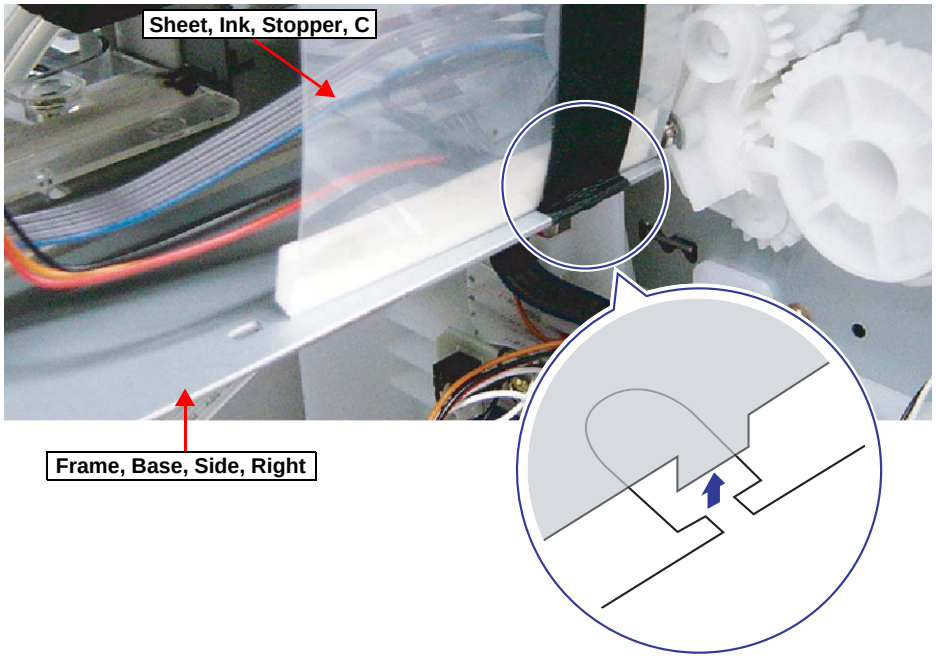


Figure 4-89. Sheet, Ink, Stopper, C Release

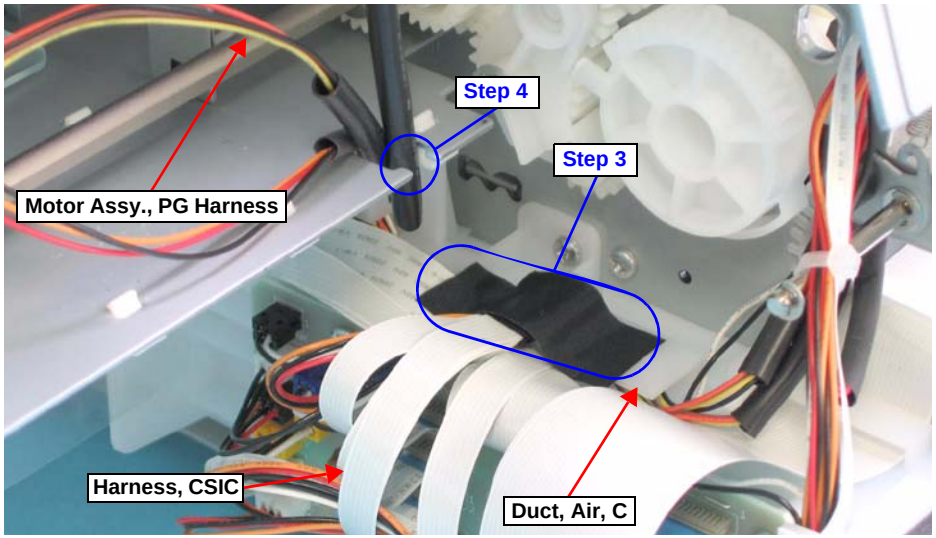


Figure 4-90. Releasing the Harness

7. Remove the two screws securing "Motor Assy., PG".
(Refer to Figure 4-91.)
   - C.C. 3x6: 2 pcs.

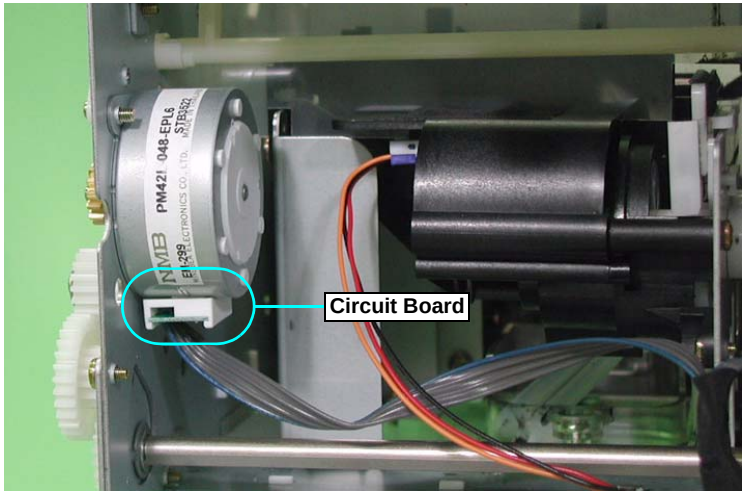
CAUTION

When performing the following steps, be careful not to scratch the frame with "Motor Assy., PG" pinion gear.

8. Seen from the right side of the printer, slide the "Motor Assy., PG" through the upper right relief hole and then remove the "Motor Assy., PG" inward while passing the pinion gear through the relief hole.
(Refer to Figure 4-91.)

REASSEMBLY

Install "PG Motor" with the circuit board facing downward.



ADJUSTMENT REQUIRED

Be sure to refer to Chapter 5 "Adjustment" *(p.366)* and perform specified adjustments after replacing the "Motor Assy., PG".

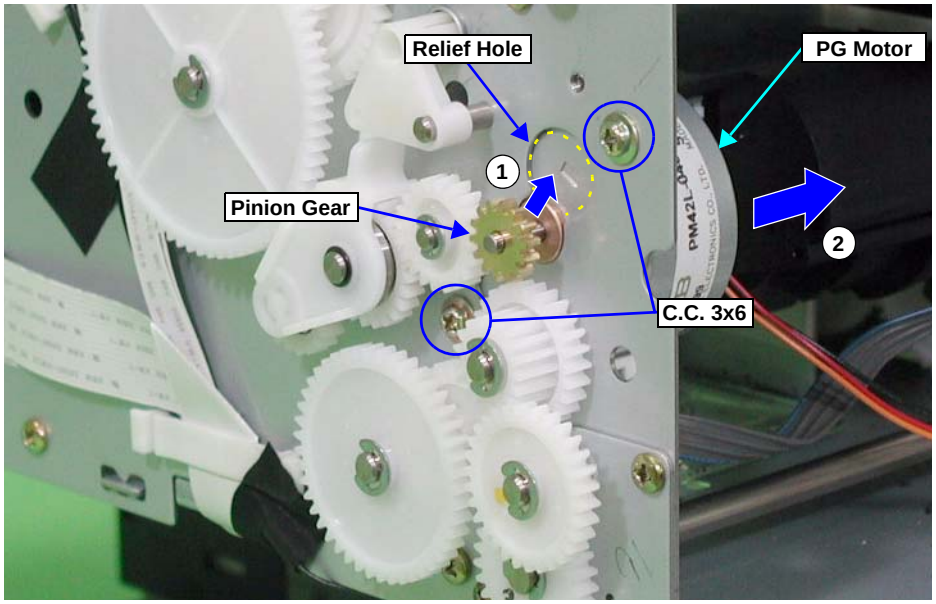


Figure 4-91. Motor Assy., PG Removal

4.2.7.5 CR_HP Sensor

1. Remove "Cover, Side, Right" *(p217).*
2. Move "Carriage Unit" to center of printer.
   (Refer to "4.2.4.3 C593_SUB Board" (p234).)
3. Release "CR_HP Sensor" harness from clamp.
4. Unfasten the two upper hooks securing "CR_HP Sensor", release the lower tab and then release "CR_HP Sensor".
5. Disconnect the connector from "CR_HP Sensor".

REASSEMBLY

After installing the "CR_HP Sensor", wrap the harness around the outside as shown in Figure 4-92.

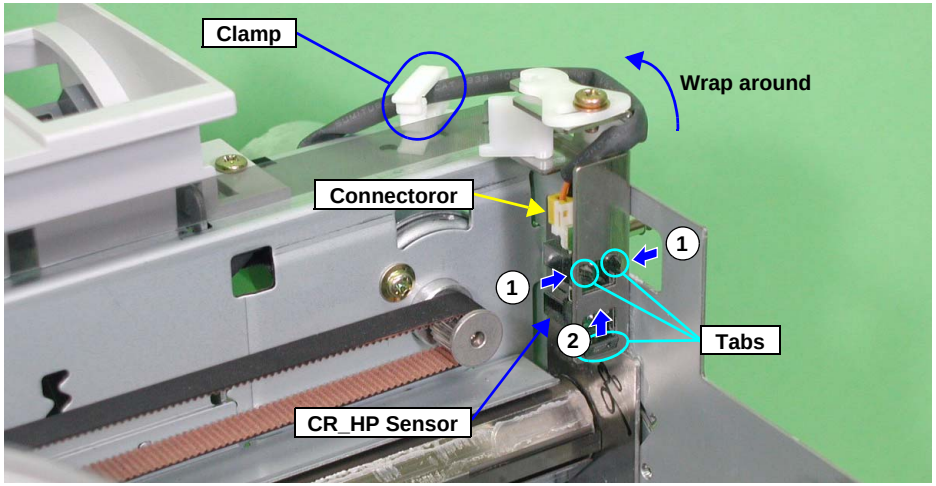


Figure 4-92. CR_HP Sensor Removal

4.2.7.6 Multi Sensor

1. Remove "Cover, Side, Left" *(p216).*
2. Move "Carriage Unit" to center of printer.
   (Refer to "4.2.4.3 C593_SUB Board" (p234).)
3. Remove the two screws securing "Multi Sensor" to the "Carriage Unit".
   (Refer to Figure 4-93.)
   - C.B. (P2) 3x6: 2 pcs.
4. While holding the "Multi Sensor" so as not to drop, and move the "Carriage Unit" to the left end of the printer keeping clear of the platen.
5. Remove the "Multi Sensor" from the "Carriage Unit" in the downward direction. *(Refer to Figure 4-94.)*
6. Disconnect the connector connected to the "Multi Sensor" and remove the "Multi Sensor". *(Refer to Figure 4-95.)*

ADJUSTMENT REQUIRED

Be sure to refer to Chapter 5 "Adjustment" *(p.366)* and perform specified adjustments after replacing or installing a "Multi Sensor".

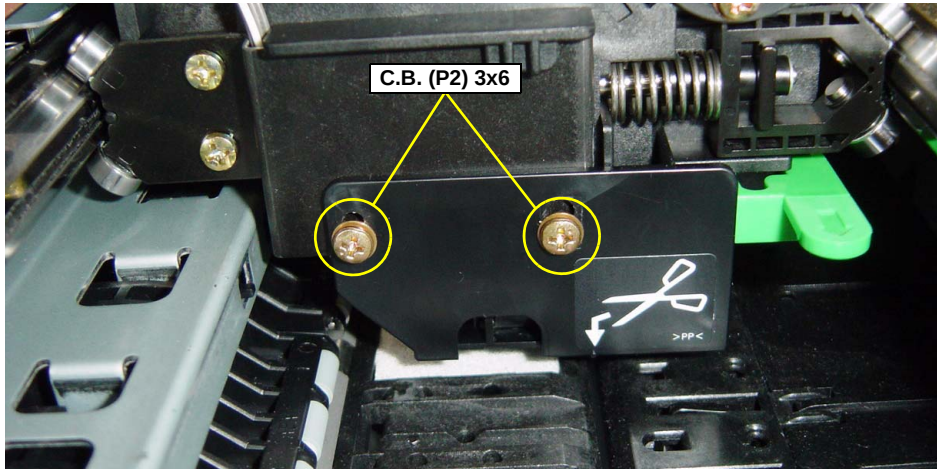


Figure 4-93. Screws Securing Multi Sensor

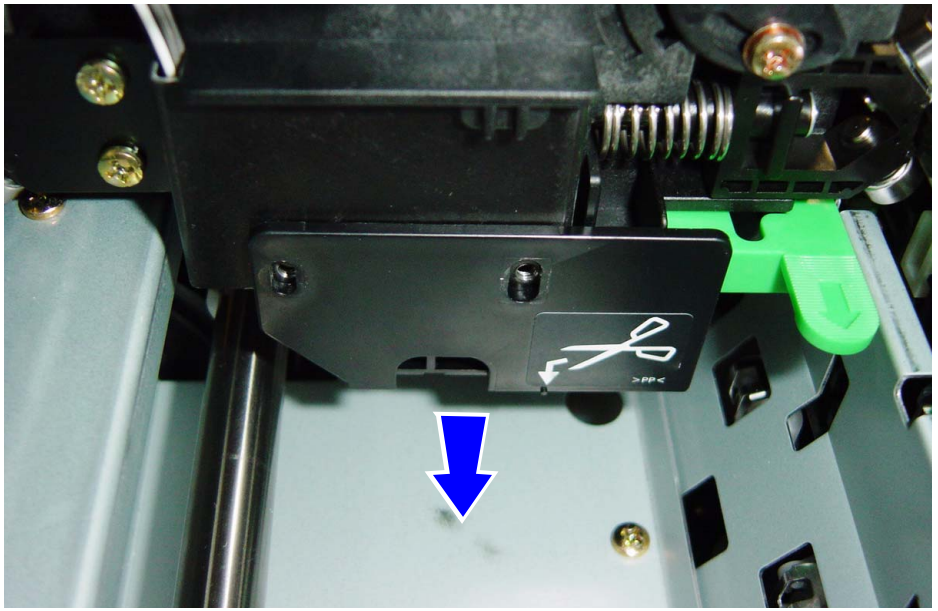


Figure 4-94. Multi Sensor Removal

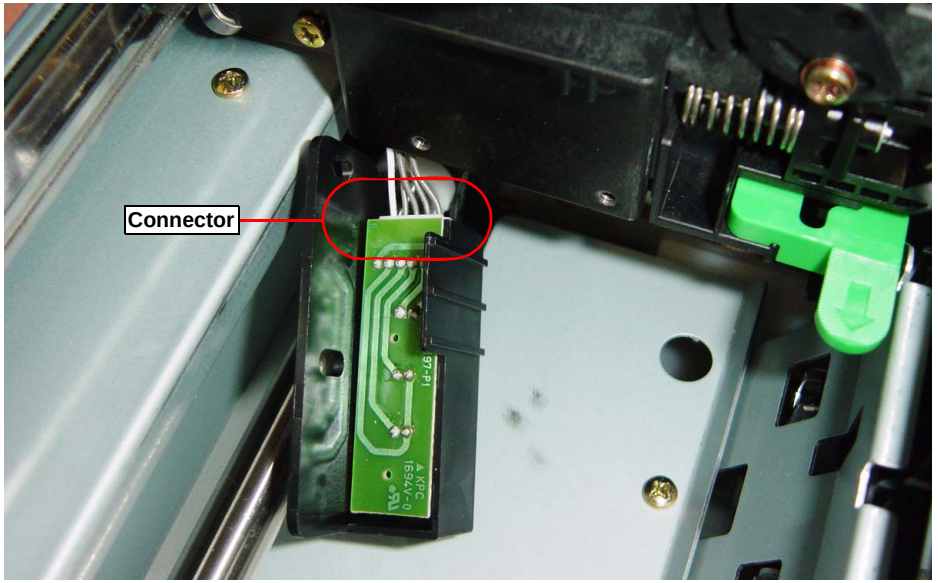


Figure 4-95. Connecting Status of Multi Sensor Connector

4.2.7.7 PG Phase Sensor

1. Remove "Cover, Side, Left" *(p216).*
2. Remove "Cover, Side, Right" *(p217).*

CHECK POINT

As the PG Cam (Bush, Shaft, Rear) and PG Detection Shield Plate operate simultaneously, the shield plate can be rotated by rotating the PG Cam.

3. Rotate the PG Cam manually so that the PG Lock Lever enter the groove at the extream end of the PG Cam as shown in Figure 4-96. Doing so releases the shield plate from the "PG Phase Sensor".
   (Refer to Figure 4-96.)

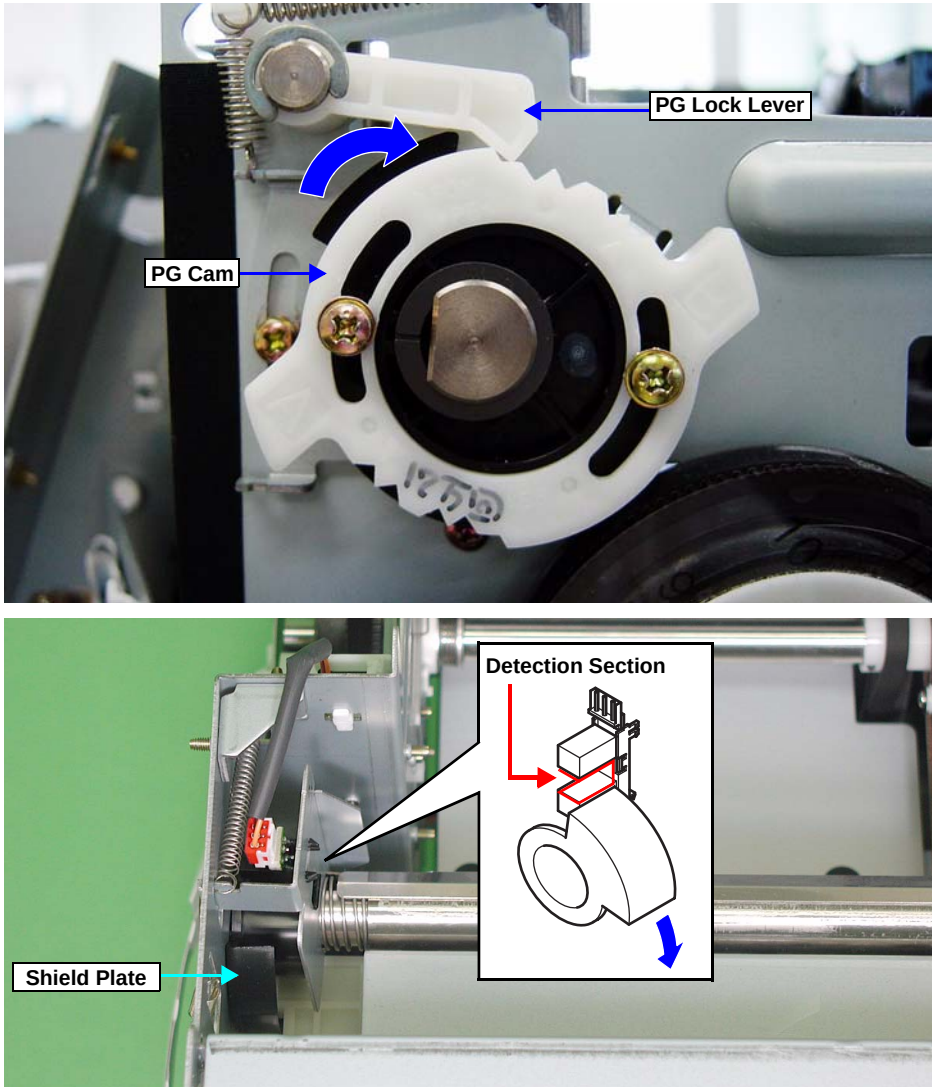


Figure 4-96. Rotating the Shield Plate

4. Remove "Extension Spring, 2.58" from the frame and the two tabs of the "Installation Plate, Detector, HP". *(Refer to Figure 4-97.)*
5. Disconnect the connector from the "PG Phase Sensor". *(Refer to Figure 4-98.)*
6. Release the tabs securing the "PG Phase Sensor" and remove the "PG Phase Sensor". *(Refer to Figure 4-98.)*

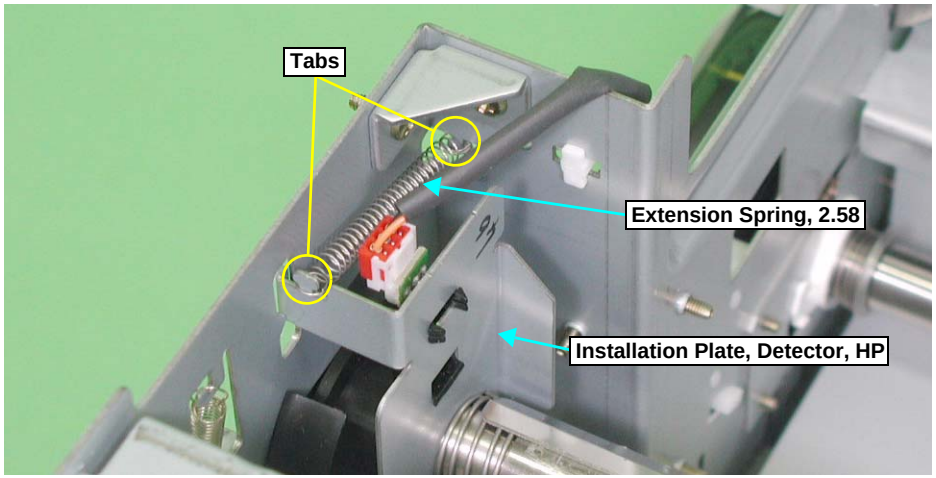


Figure 4-97. Extension Spring, 2.58 Removal

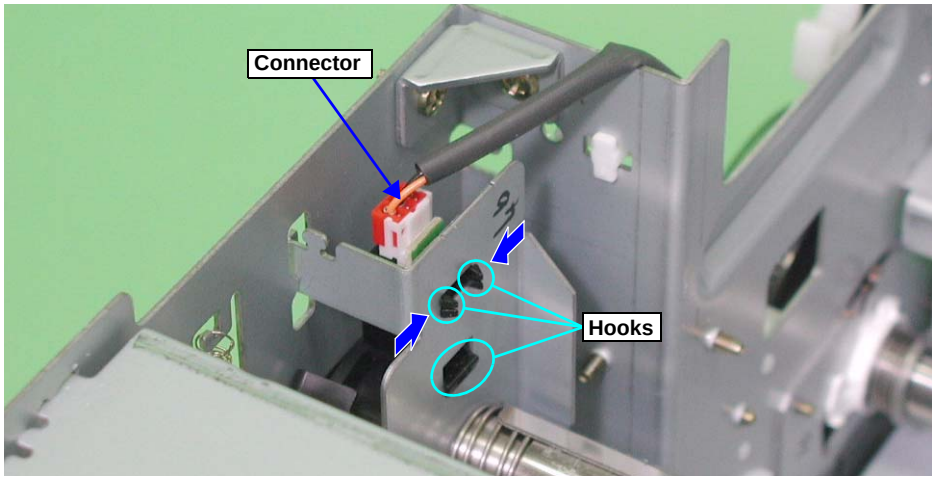


Figure 4-98. PG Phase Sensor Removal

4.2.7.8 CR Encoder Sensor

1. Remove "Cover, Rear" *(p223).*
2. Move "Carriage Unit" to center of printer and remove the "Carriage Cover". *(Refer to "4.2.4.3 C593_SUB Board" (p234).)*
3. Disconnect the FFC from "CR Encoder Sensor".
4. Remove the screw securing "CR Encoder Sensor" to the "Carriage Unit" and remove "CR Encoder Sensor".
   - C.P.P. 2.6x6: 1 pc.

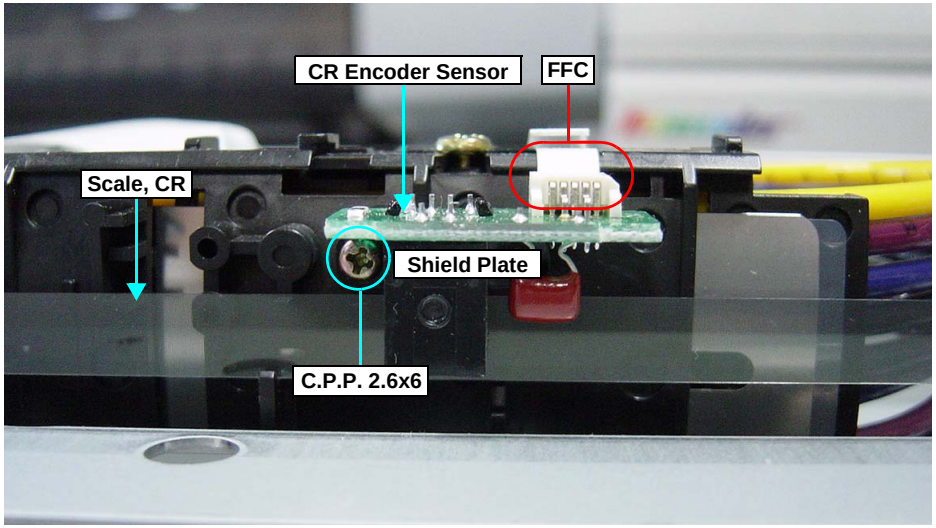


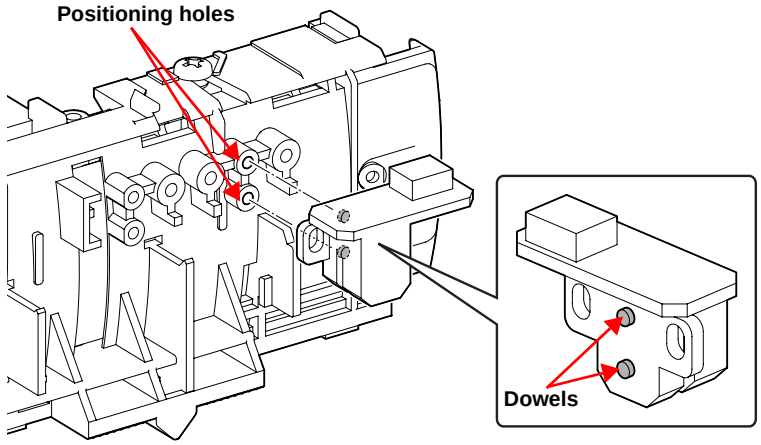
Figure 4-99. CR Encoder Sensor Removal

CAUTION

Do not touch "Scale, CR" when removing "CR Encoder Sensor".

REASSEMBLY

Align the two dowels on the "CR Encorder Sensor" with the two positioning holes on the "Ink Tube Unit".



ADJUSTMENT REQUIRED

Be sure to refer to Chapter 5 "Adjustment" *(p.366)* and perform specified adjustments after replacing or installing the "CR Encoder Sensor".

4.2.7.9 Scale, CR

1. Remove "Cover, Side, Left" *(p216).*
2. Remove "Cover, Side, Right" *(p217).*
3. Move the "Carriage Unit" to the center of the printer.
   (Refer to "4.2.4.3 C593_SUB Board" (p234).)
4. At the left side of the printer, remove the "Tension Spring, 3.86" hitched to the tab on the printer frame and the "Scale, CR".
5. At the right side of the printer, remove the "Scale, CR" from the tab on the printer frame.

CAUTION

A damage to the detection pattern on the surface of the "Scale, CR" may cause malfunction of the CR encorder. Take care not to touch the surface of the "Scale, CR" with bare hands or contaminate it with ink or contact it to the frame, when handling the "Scale, CR".

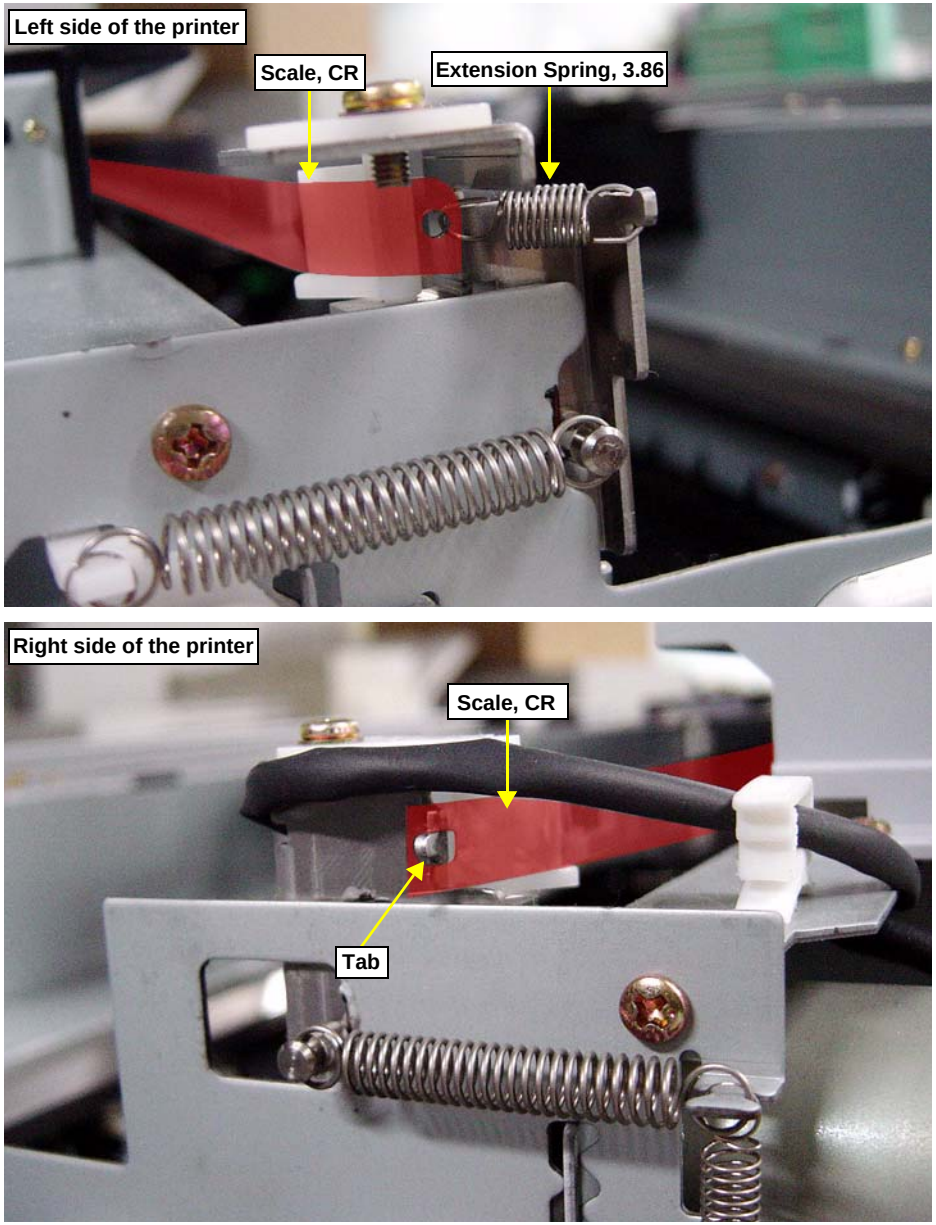


Figure 4-100. Scale, CR Removal

4.2.7.10 Pulley, Driven/Shaft, Pulley

1. Remove "Cover, Side, Left" *(p216).*
2. Remove the E-ring that secures the "Shaft, Pulley" on the left back of the printer, and then remove the plain washer. *(Refer to Figure 4-101.)*
3. While pressing the "Lever, Rock, PG", loosen the CR tension attachment screw until its tip gets behind the "Pulley, Tension, CR". *(Refer to Figure 4-102.)*

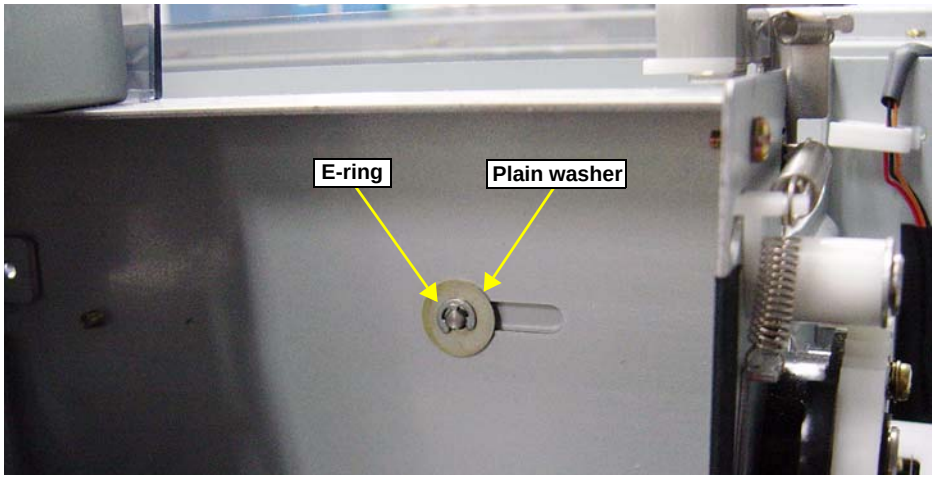


Figure 4-101. E-ring and Plain Washer Removal

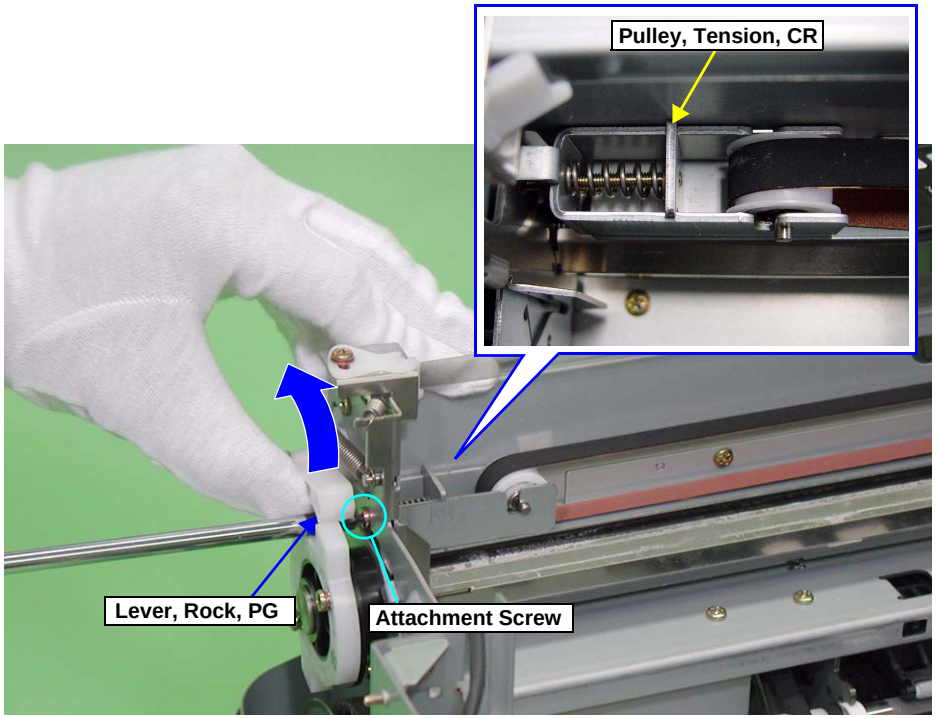


Figure 4-102. Loosening CR Tension

4. Pull the "Holder, Pulley" toward you, and then remove the "Shaft, Pulley" upward from the front and rear grooves on the "Holder, Pulley" together with the "Belt, CR" and the "Pulley, Driven". *(Refer to Figure 4-103.)*
5. Remove the "Belt, CR" from the "Pulley, Driven".
6. Draw out the "Shaft, Pulley" from the "Pulley, Driven" to remove the two polysliders. *(Refer to Figure 4-104.)*
7. Remove the ball bearings from the "Pulley, Driven". *(Refer to Figure 4-104.)*

REASSEMBLY

Install the "Pulley, Driven" and "Shaft, Pulley" with the grooved end of the "Shaft, Pulley" facing the rear of the printer.

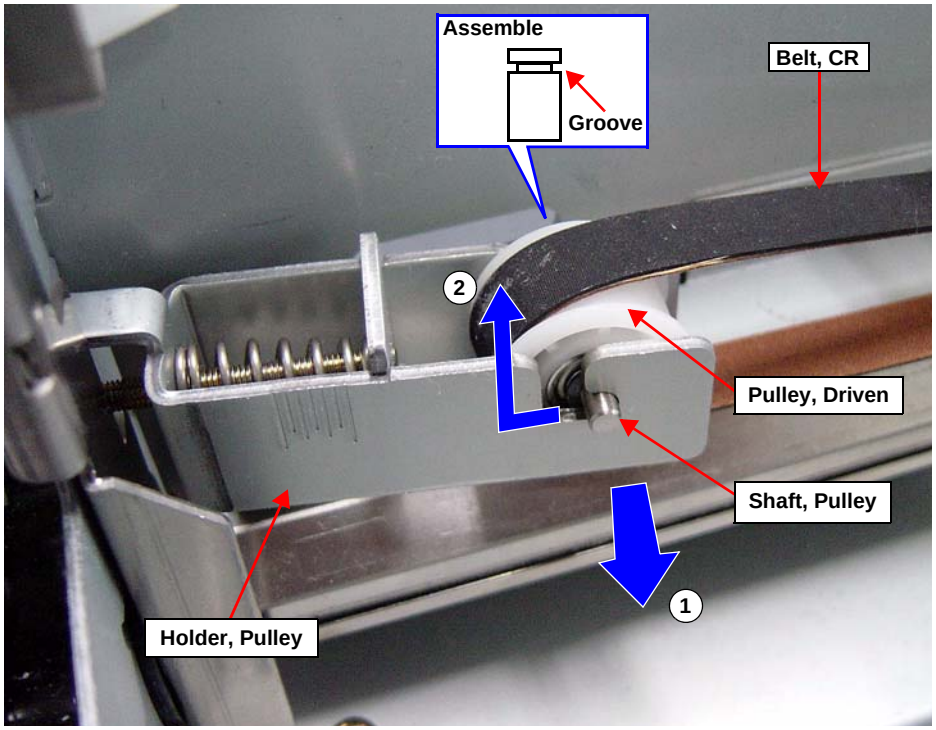


Figure 4-103. "Shaft, Pulley" Removal

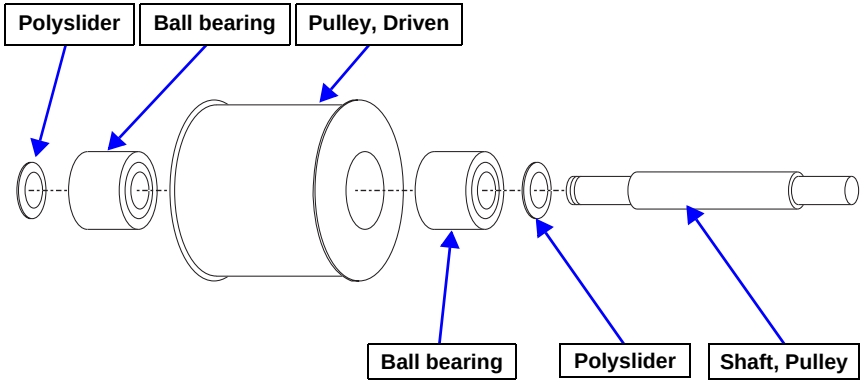


Figure 4-104. Pulley, Driven and Shaft, Pulley Removal

4.2.7.11 Solenoid, CR

1. Remove "Carriage Unit" *(p266).*
2. Attach the "CUTTER CAP" to the cutter section of the "Carriage Unit". *(Refer to Figure 4-110.)*

CHECK POINT

The "Cutter Cover", which covers the cutter blade projecting upward from the bottom of the Carriage, prevents injury during the work.

3. Release the harnesses of the "Solenoid, CR" from the tabs of the "Carriage Unit". *(Refer to Figure 4-105.)*
4. Remove the screw and the plain washer that secure the "Solenoid, CR", and then remove the "Solenoid, CR" from the "Carriage Unit".
   - C.B.P.(P2) 3x8 (+ plain washer 4.3x0.8x8): 1 pc.

REASSEMBLY

Route the harnesses of the "Solenoid, CR" on the "Carriage Unit" properly as shown in Figure 4-105.

ADJUSTMENT REQUIRED

Be sure to refer to Chapter 5 "Adjustment" *(p.366)* and perform specified adjustments after replacing the "Solenoid, CR".

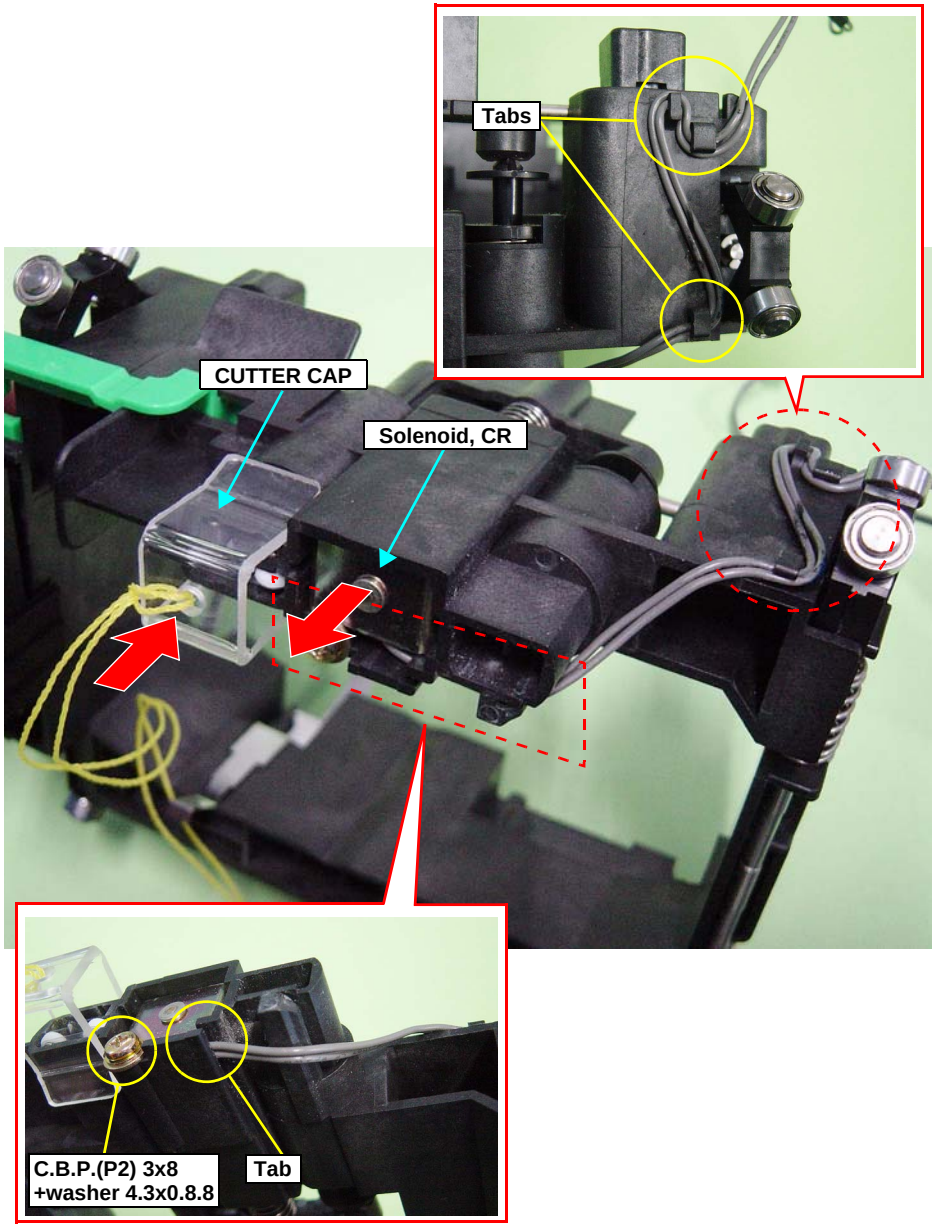


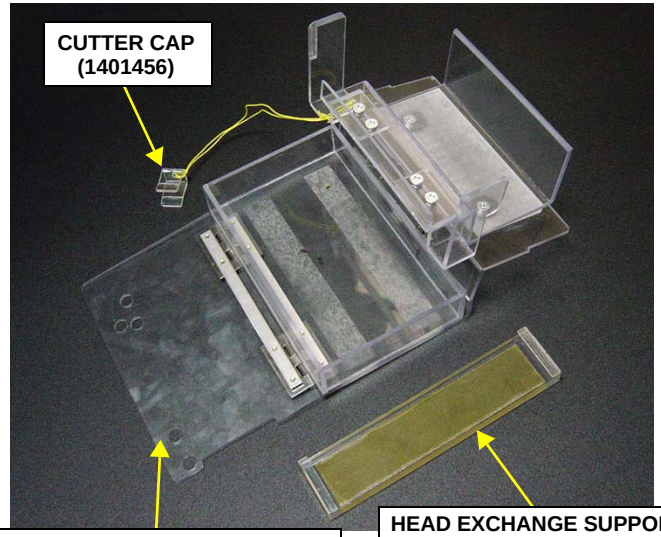
Figure 4-105. "Solenoid, CR" Removal

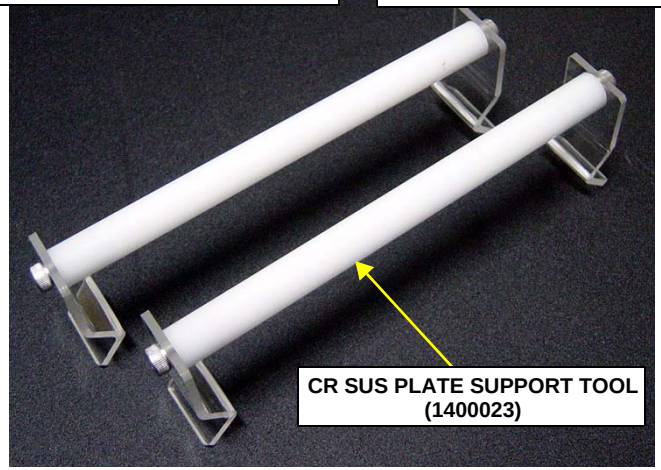
4.2.8 Ink System

4.2.8.1 Printhead

CHECK POINT

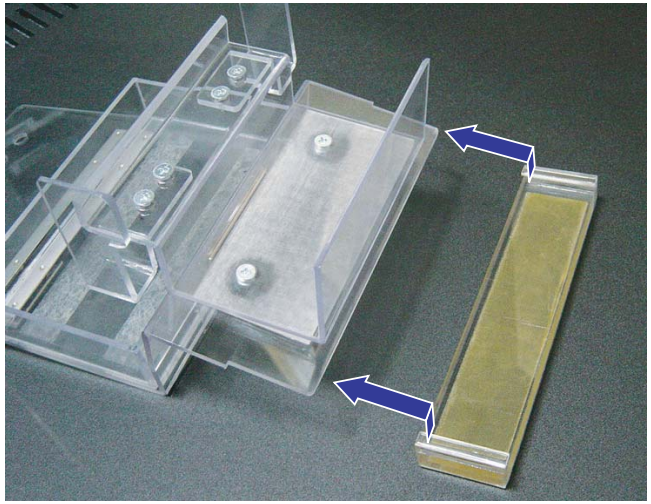
■ Figures below shows the required tools in replacing the "Printhead".





CHECK POINT

■ Be sure to install the "Adjust Plate" to the rear of the "HEAD EXCHANGE SUPPORT TOOL" before removing the "Printhead".



1. Remove "Scale, CR" *(p281).*
2. Move the "Carriage Unit" to match the sensor section on the rear of the "Carridge Unit" with the cutout of the "Cover, Rear".
   (Refer to Figure 4-106.)
3. Place the "CR SUS PLATE SUPPORT TOOL" on both sides of the "Carriage Unit" as shown in Figure 4-82. *(Refer to Figure 4-106.)*
   For the setting of the "CR SUS PLATE SUPPORT TOOL", refer to Figure 4-82 in *"4.2.7.1 Carriage Unit (p266)"*.
4. Release the tension of the "Belt, CR" to remove the "Belt, CR" from the pinion gear of the "Motor Assy., CR".
   (Refer to "4.2.7.2 Motor Assy., CR" (p270).) (Refer to Figure 4-107.)

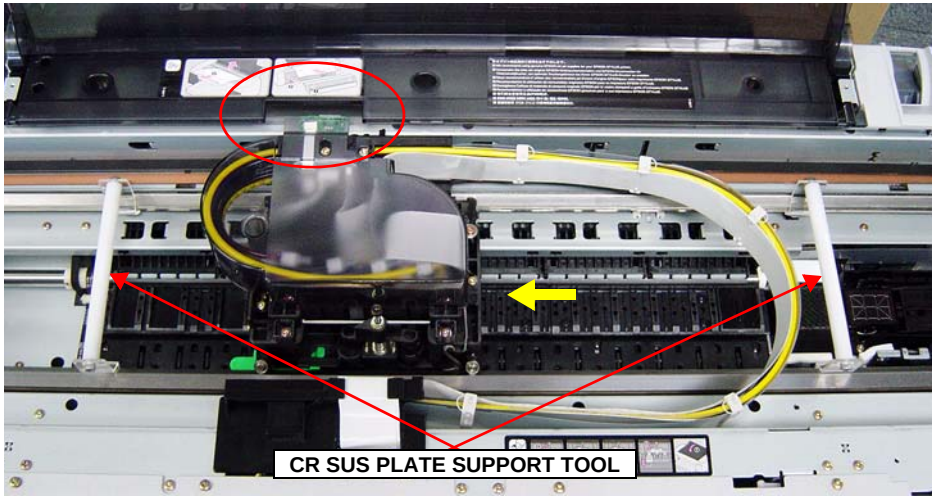


Figure 4-106. CR SUS PLATE SUPPORT TOOL Set Position

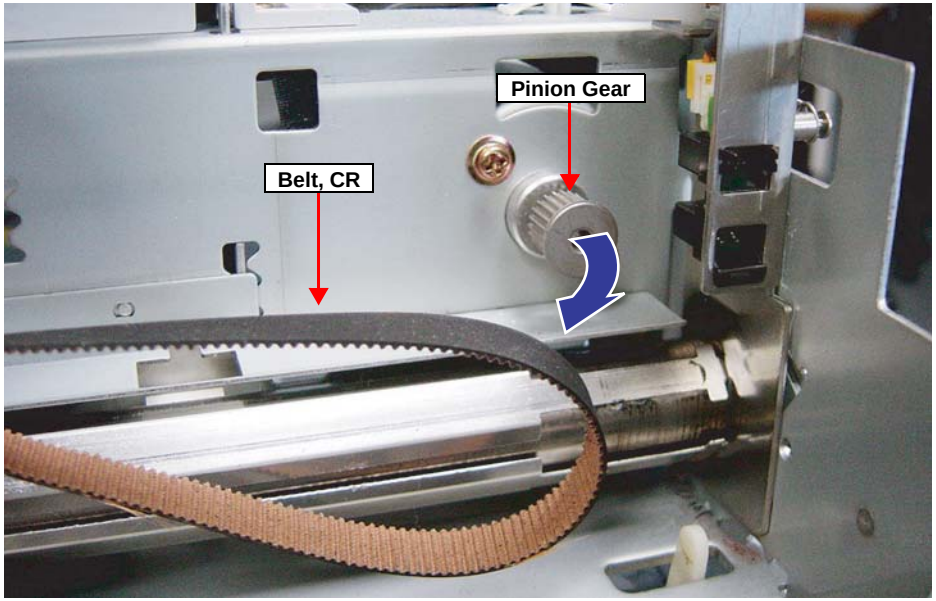


Figure 4-107. "Belt, CR" Removal

5. Remove the "Carriage Unit" following the order below.
(Refer to Figure 4-108.)

   5-1. Pull the "Carriage Unit" toward you and press it against the "Shaft, Front" (①) to make the bearings that are attached on the rear of the "Carrigage Unit" apart from the "Shaft, Rear".

   5-2. Lift the rear of the "Carriage Unit" upward to release it from the "Shaft, Front" (②), lift the front of the "Carriage Unit" so that it is released from the "Shaft, Front", and then remove the "Carriage Unit".

6. Temporarily place the "Carriage Unit" that is removed in Step 5 on both the "Shaft, Front" and the "Shaft, Rear". *(Refer to Figure 4-109.)*

CAUTION

Be careful not to drop the "Carriage Unit" because it is hold in a temporarily unstable state.

7. Set the "HEAD EXCHANGE SUPPORT TOOL" on the printer at the position as shown in Figure 4-109.
Set the "HEAD EXCHANGE SUPPORT TOOL" with its front holes macthing with the screw positions of the printer. *(Refer to Figure 4-109.)*

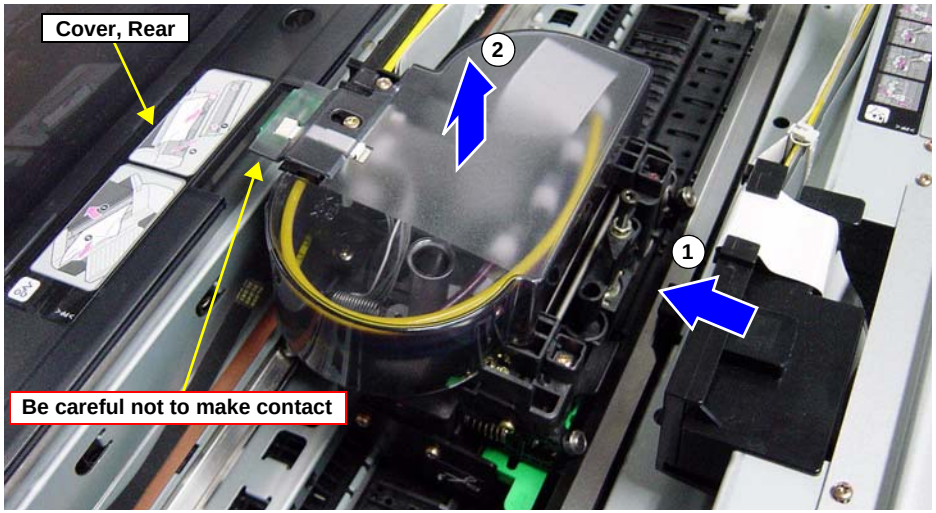


Figure 4-108. Carriage Unit Removal

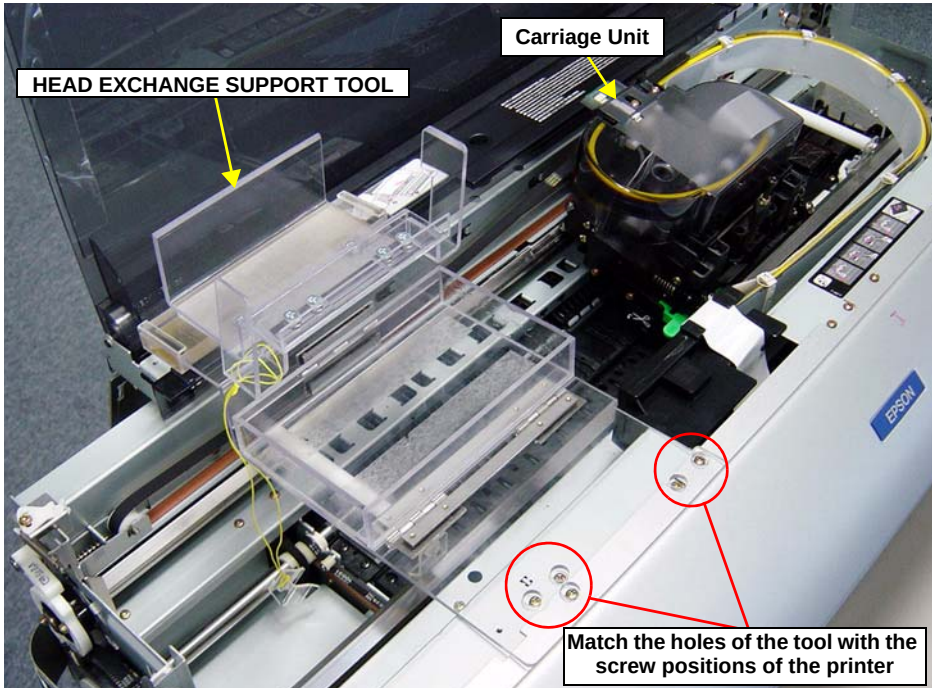
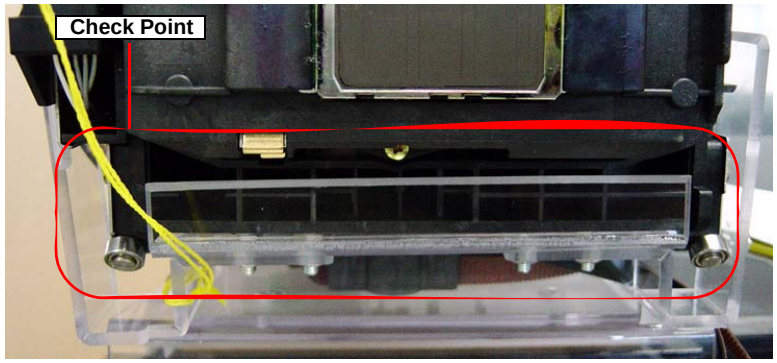


Figure 4-109. HEAD EXCHANGE SUPPORT TOOL Setting

8. Set the "Carriage Unit" on the "HEAD EXCHANGE SUPPORT TOOL". *(Refer to Figure 4-110.)*

CHECK POINT

- **When setting the "Carriage Unit" on the "HEAD EXCHANGE SUPPORT TOOL", take care not to bend the "Tube, Supply, Ink". If it get bend, replace with a new one.**
- **Make sure the "Carriage Unit" is installed to the "HEAD EXCHANGE SUPPORT TOOL" securely. Make sure that the "Carriage Unit" is completely set into the position with its bottom is parallel to the tool as seen from the side of the "Carriage Unit".**



9. Attach the "CUTTER CAP" to the cutter section of the "Carriage Unit". *(Refer to Figure 4-110.)*

CHECK POINT

The "CUTTER CAP", which covers the cutter blade projecting upward from the bottom of the Carriage, prevents injury during the work.

10. Remove the three screws that secure the "Carriage, C" from the bottom of the "Carriage Unit".*(Refer to Figure 4-110.)*
    - C.C.P. 2.6 x 8: 3 pcs.

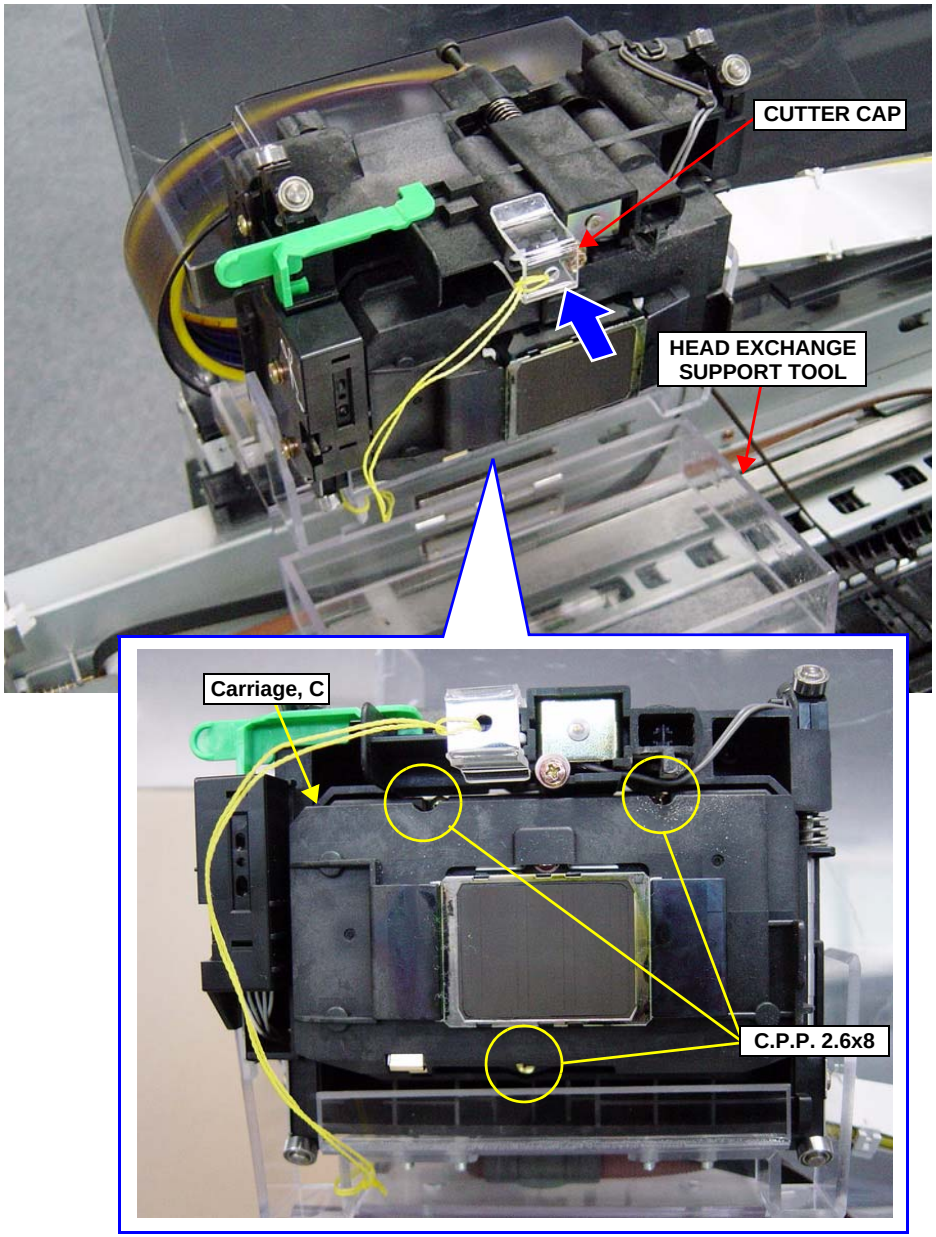


Figure 4-110. Carriage Unit Setting / Screws Securing Carriage, C

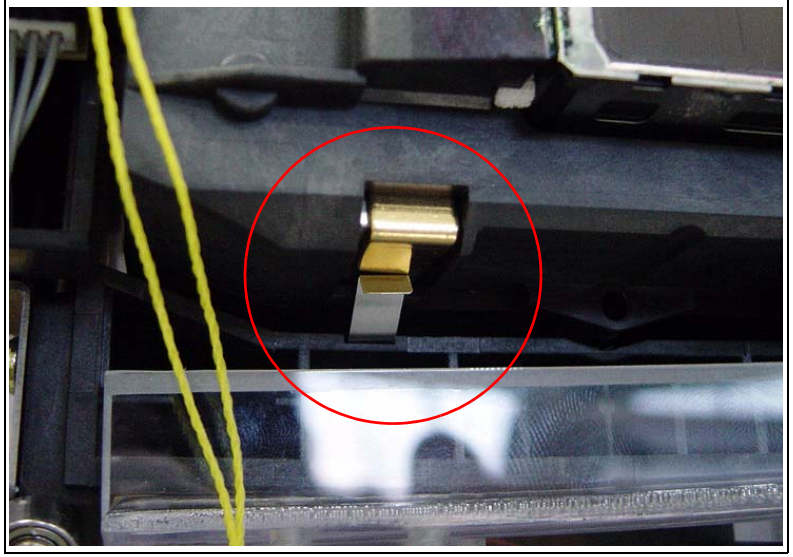
CAUTION

When performing the following work, do not keep the "Carriage, C" too far because harnesses are connected to the "Carriage, C".

11. Slowly draw the "Carriage, C" to the directions shown in Figure 4-111 to separate it from the "Carriage, B". *(Refer to Figure 4-112.)*

REASSEMBLY

Make sure that the mounting plate of the "Carriage Unit" is in contact with the one of the "Carriage, C" after installing the "Carriage, C".



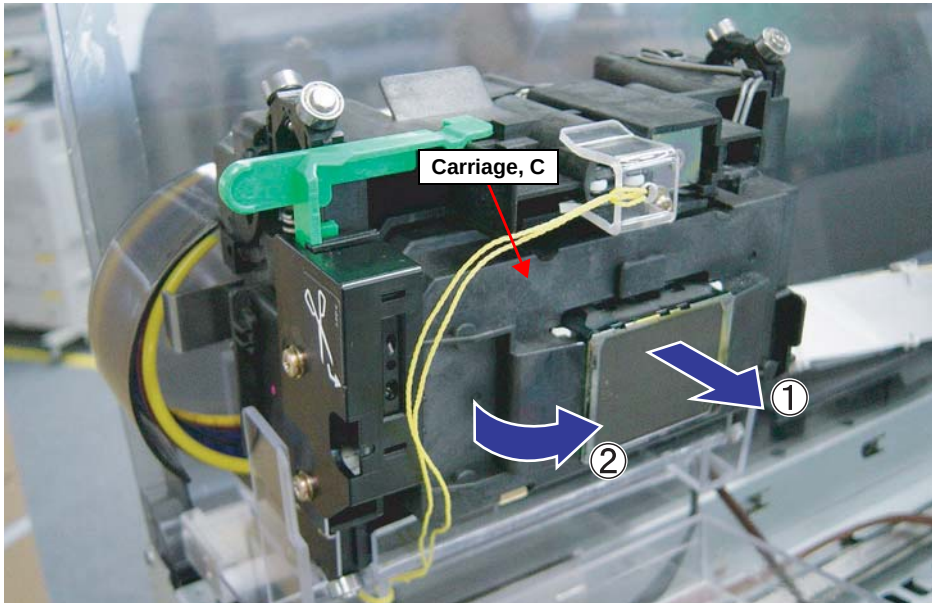


Figure 4-111. "Carriage, C" Removal

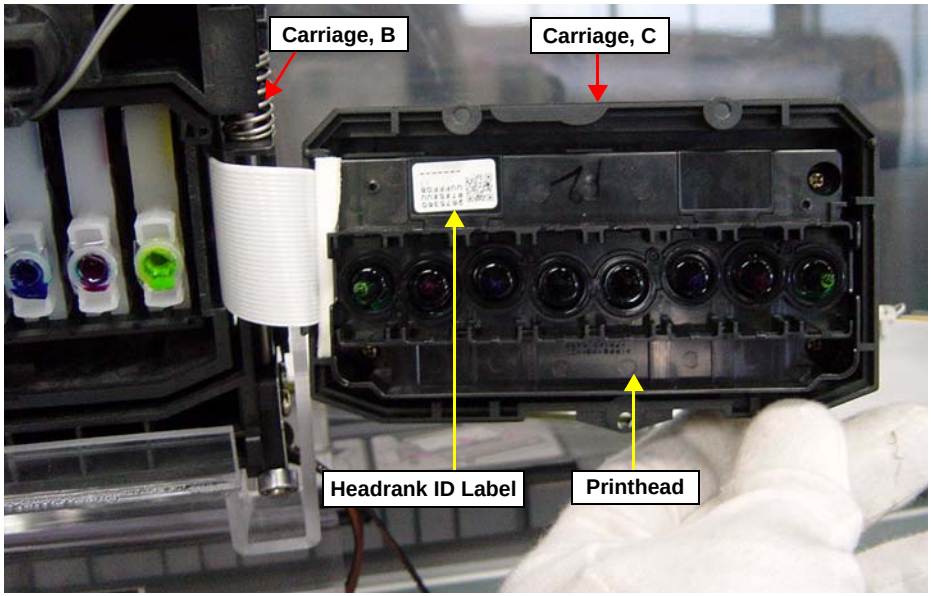
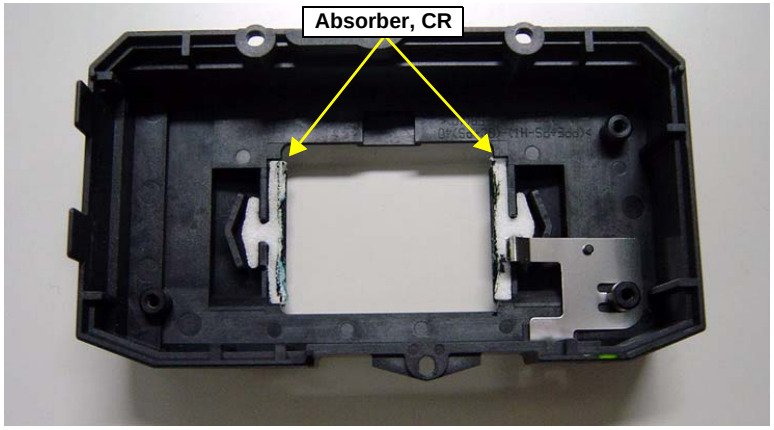


Figure 4-112. Separation from Carriage, B

12. Remove the three screws that secure the "Printhead", and then remove the "Printhead" from the "Carriage, C". *(Refer to Figure 4-113.)*
    - C.P.P. 2.6x8: 3 pcs.

REASSEMBLY

If the "Absorber, CR" comes off when removing the "Printhead" form the "Carriage, C", reattach the "Absorber, CR" to the "Carriage, C" as shown in the figure bilow.



13. Disconnect the two "harness, Head"s from the "Printhead", and then remove the "Printhead". *(Refer to Figure 4-114.)*

REASSEMBLY

"Harness, Head" should be connected with its circle-marked surface facing downward (the nozzle surface).
Upper side: 2 circles
Lower side: 1 circle

ADJUSTMENT REQUIRED

Be sure to refer to Chapter 5 "Adjustment" *(p.366)* and perform specified adjustments after replacing or removing the "Printhead". When replacing the "Printhead" with a new one, be sure to write down the Head Rank ID of the new one (21 characters in all) which is discribed on the ID Label. *(Refer to Figure 4-112.)*

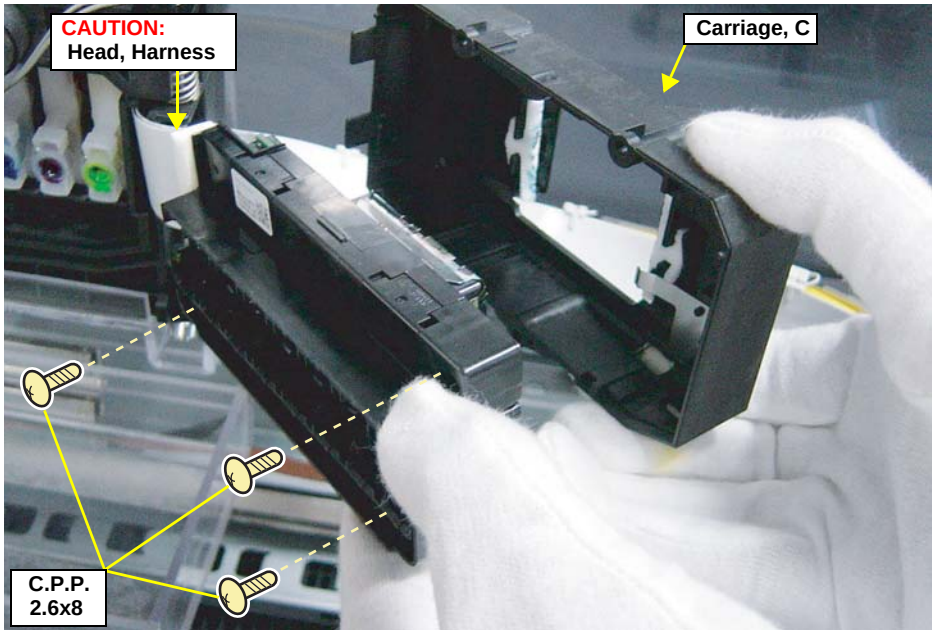


Figure 4-113. Printhead Removal

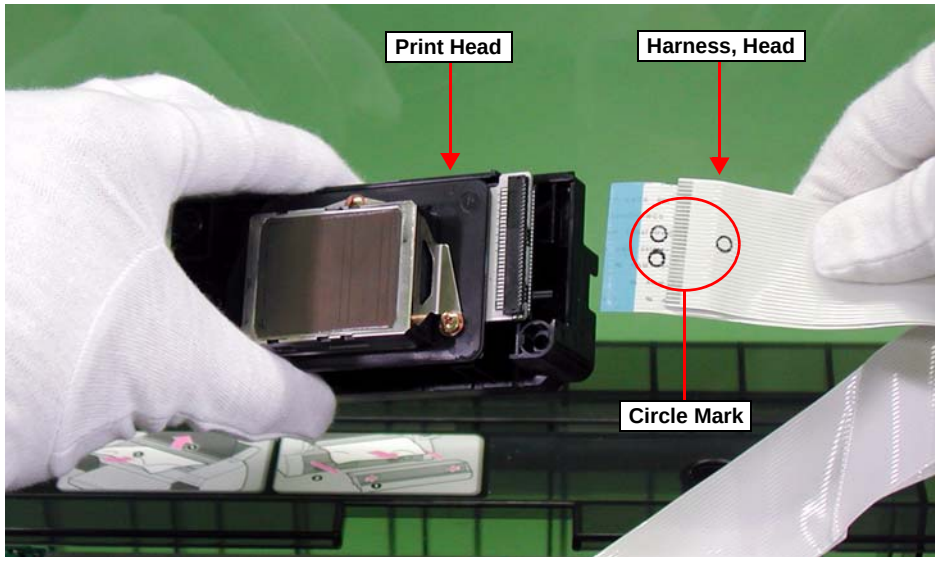


Figure 4-114. Harness, Head Removal

4.2.8.2 Valve Assy., Head

ADJUSTMENT REQUIRED

When performing the following work, remove ink out of the ink route before removing the "Valve Assy., Head". Refer to Chapter 5 "Adjustment" *(p.366)* to know how to remove ink.

1. Remove the "Carriage Cover".
   (Refer to "4.2.4.3 C593_SUB Board" (p234).)

CAUTION

When performing the following steps, pay attention to the followings:

- **Prepare pieces of cloth in case the ink leaks or spatters around the printer.**
- **Do not allow dust or foreign matters to get into the "Tube, Supply, Ink".**
- **Do not bend the "Tube, Supply, Ink" or damage it with frame edges.**

2. Loosen the eight "Coupling Screw, M7"s that secure the "Tube, Supply, Ink" to remove the "Tube, Supply, Ink" from the "Head Unit".

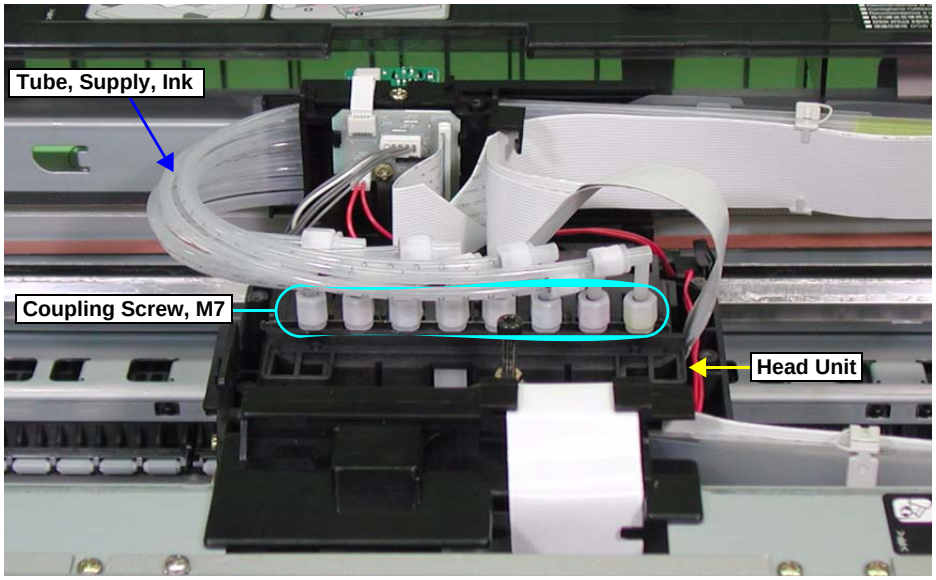
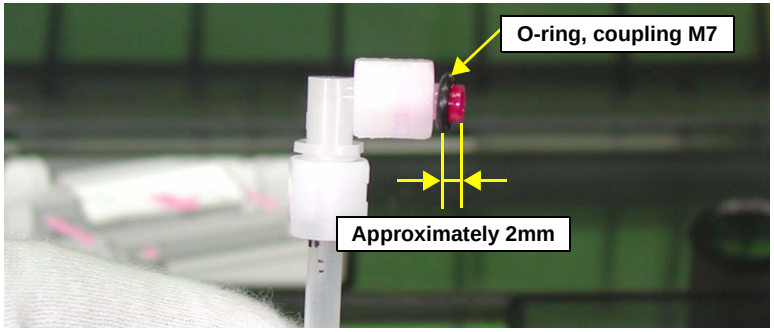


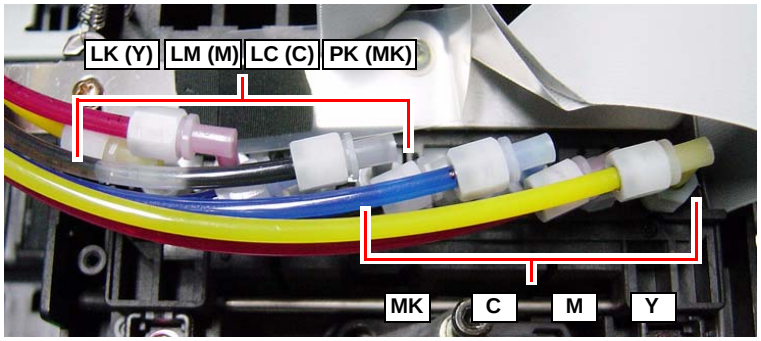
Figure 4-115. Tube, Supply, Ink Removal

REASSEMBLY

- Make sure that the "O-ring, Coupling M7" is attached approximately 2mm away from the end point of the "Tube, Supply, Ink".



- The ink color marked on the "Tube, Supply, Ink" indicates its own color. Make sure that the marked color corresponds to the color of the socket before attaching the "Tube, Supply, Ink".
- Attach the "Tube, supply, Ink" from the left in the order below and route it, referring to the figure below.
  LK (Y) → LM (M) → LC (C) → PK (MK) → MK → C → M → Y



- Insert the "Tube, Supply, Ink" all the way seated, then tighten the "Coupling Screw, M7."

REASSEMBLY

- To prevent from both ink leak and damage on the joint screw, be sure to tighten the "Coupling Screw, M7" with prescribed torgue and the tool sperified below.
  - Tool: Torque Wrench 1.25/1.75 (1277142)
  - Tightning torque: 1.25 (± 0.25) kgf • cm

3. Remove the "Head Unit" from the "Carriage Unit".
   (Refer to "4.2.7.1 Carriage Unit" (p266).)
4. Separate the "Carriage, C" from the "Carriage, B".
   (Refer to "4.2.8.1 Printhead" (p285).)
5. Draw out the "Plate, Damper" with a plier or a similar tool.
   (Refer to Figure 4-116.)

CAUTION

When performing the following work, pay attention to the followings:

- **Do not hold the film area of the "Valve Assy., Head".**
- **Do not damage or deform the joint section on the "Valve Assy., Head" which connects the "Tube, Supply, Ink".**

6. Remove the "Valve Assy., Head" by following the steps below.
   (Refer to Figure 4-117.)
   - 6-1. Slide the joint section on the "Valve Assy., Head", which connects "Tube, Supply, Ink", to remove the joint section.
   - 6-2. Release the tab and remove the "Valve Assy., Head" in the direction of an allow.

ADJUSTMENT REQUIRED

Be sure to refer to Chapter 5 "Adjustment" *(p.366)* and perform specified adjustments after replacing or removing the "Valve Assy., Head".

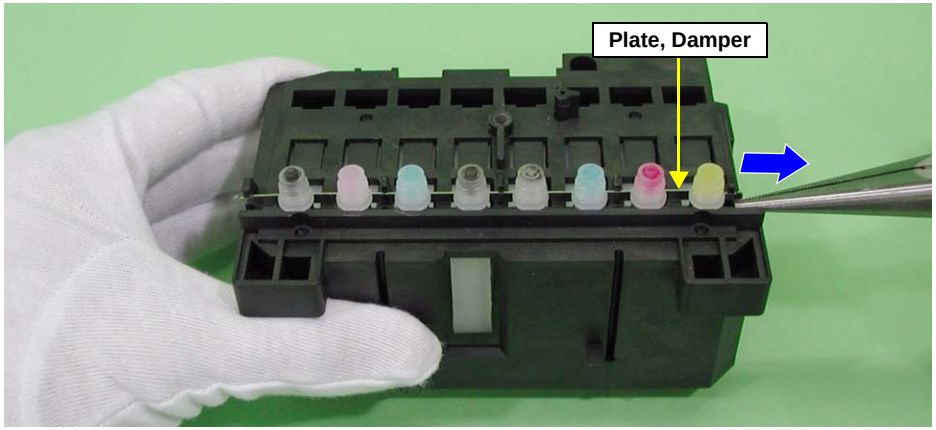
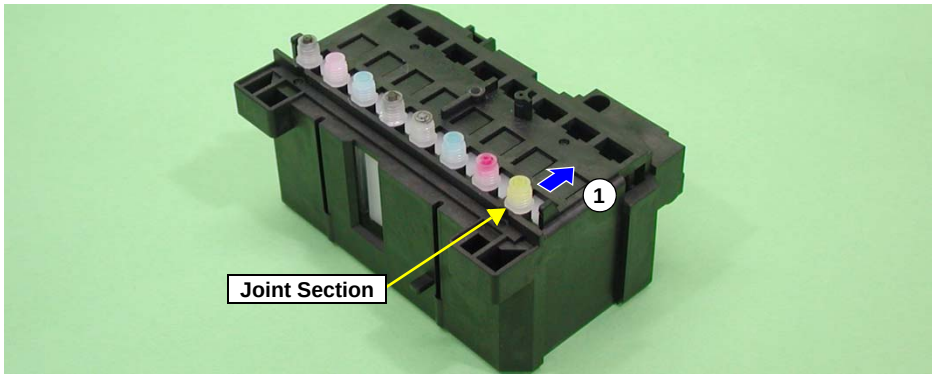


Figure 4-116. "Plate, Damper" Drawing



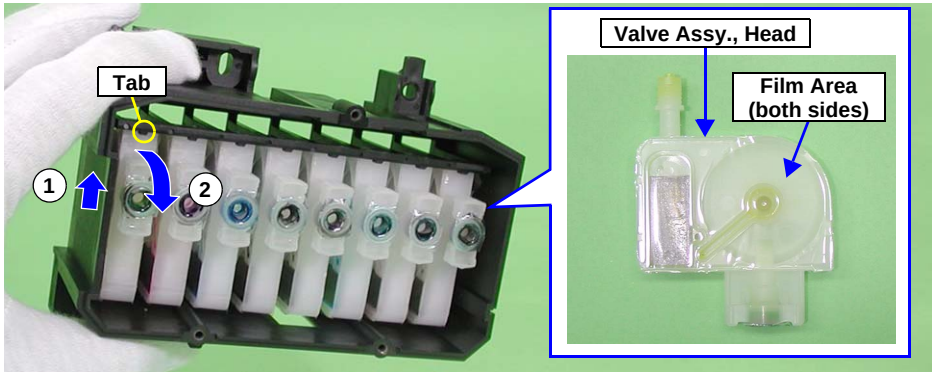


Figure 4-117. "Valve Assy., Head" Removal

4.2.8.3 Gutter, Ink

CAUTION

When removing the "Gutter, Ink", prepare pieces of cloth in case the waste ink leaks or splatter inside the printer. Make sure that the ink is not ejected from the ink ejection route during the work.

1. Remove "Fan, Blower" *(p244).*
2. Remove the two screws securing "Duct, Air, D" and remove "Duct, Air, D". *(Refer to Figure 4-118.)*
   - C.B.S. (P2) 3x6: 2 pcs.
3. Remove the two screws securing "Duct, Air, A" and remove "Duct, Air, A". *(Refer to Figure 4-119.)*
   - C.B.S. (P2) 3x6: 2 pcs.
4. Remove the screw securing "Gutter, Waste Ink". *(Refer to Figure 4-119.)*
   - C.B.S. (P2) 3x6: 1 pc.
5. Slide the "Gutter, Waste Ink" to the left, move it downward and then remove it to the left side. *(Refer to Figure 4-119.)*

REASSEMBLY

- **Insert the shaft of the "Duct, Air, D" into the bearing hole of "Gutter, Ink" to position the "Duct, Air, D".**
- **Secure with screws after confirming that "Gutter, Waste Ink" is closely fitted to the printer frame.**

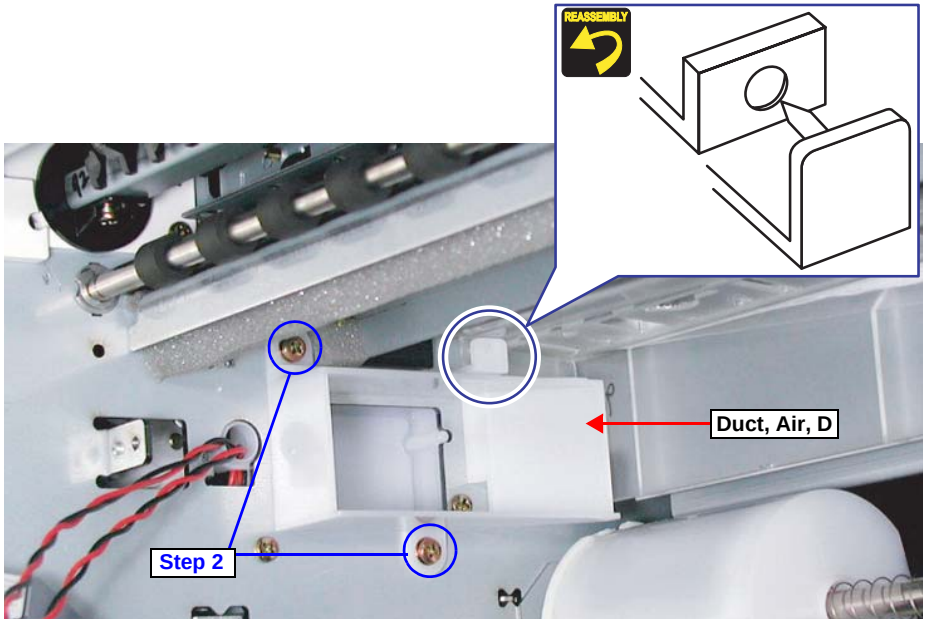


Figure 4-118. Duct, Air, D Removal

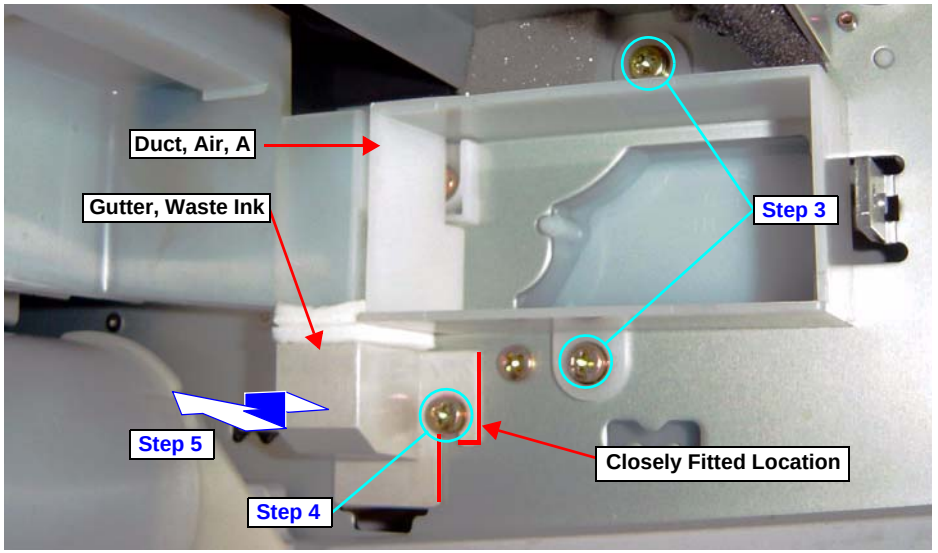
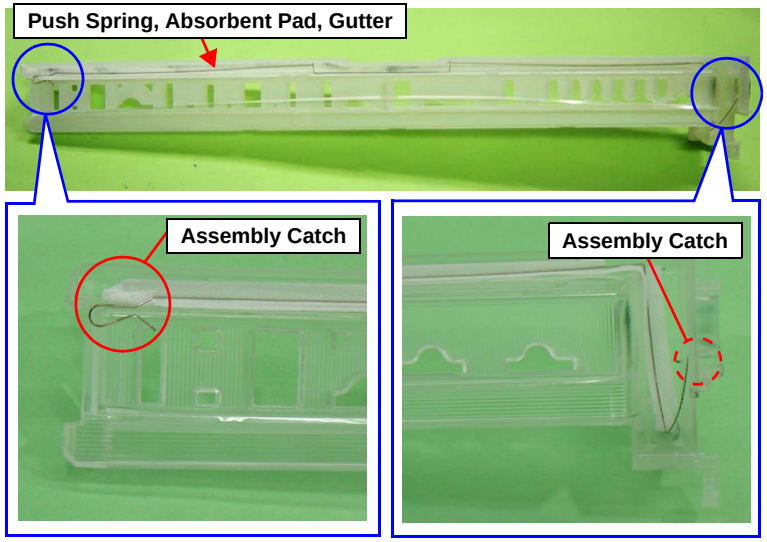


Figure 4-119. Duct, Air, A and Gutter, Waste Ink Removal

6. Remove the screw securing "Gutter, Ink". *(Refer to Figure 4-120.)*
   - C.B. (P1) 3x4: 1 pc.
7. Remove "Gutter, Ink" by following the steps below. *(Refer to Figure 4-121.)*
   - 7-1. Slide "Gutter, Ink" to left side.
   - 7-2. Move "Gutter, Ink" right side downward.
   - 7-3. Pull out "Gutter, Ink" left lower side toward you.

REASSEMBLY

Make sure that "Push Spring, Absorbent Pad, Gutter" is attached to "Gutter, Ink". If it has removed, install it as shown in the figure below.



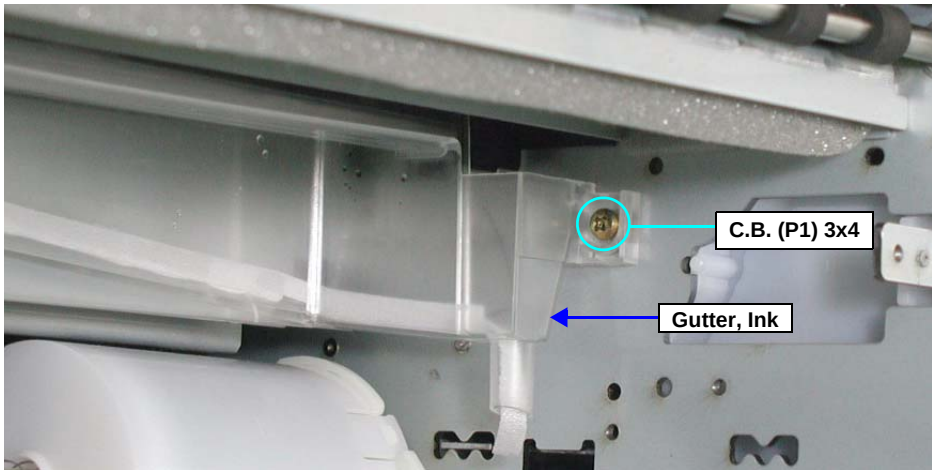


Figure 4-120. Screw Securing Gutter, Ink

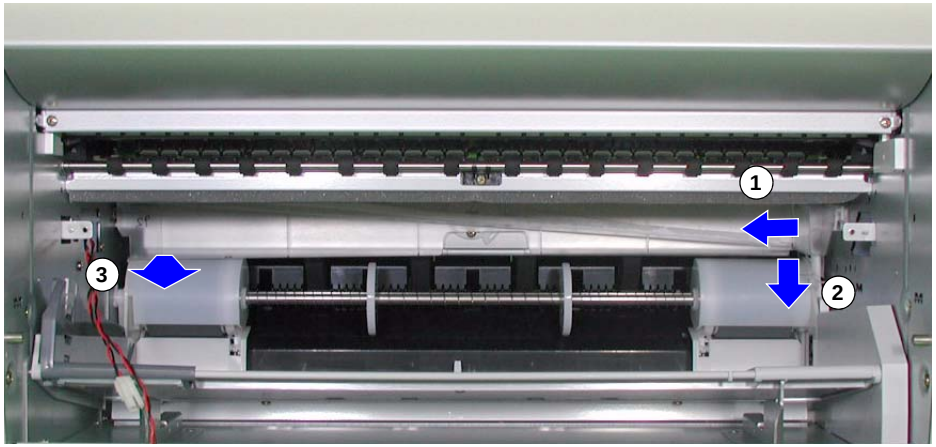


Figure 4-121. Gutter, Ink Removal

4.2.8.4 I/H Left Unit / I/H Lever Sensor (Left)

CAUTION

When performing the following work, remove ink out of the the ink path before removing the "IH Left Unit". Refer to Chapter 5 "Adjustment" *(p.366)* to know how to remove ink.

1. Remove "Panel, Front/Panel Unit" *(p219).*
2. Open "Cover, I/H, Left".
3. Hold both ends of "Cover, I/H, Left" and disengage each side from the hinge sockets. *(Refer to Figure 4-122.)*
4. Remove the screw securing the "I/C, Lock Lever, Knob, Left" and then remove the "I/C, Lock Lever, Knob, Left". *(Refer to Figure 4-123.)*
   - C.B.P. 3x6: 1 pc.

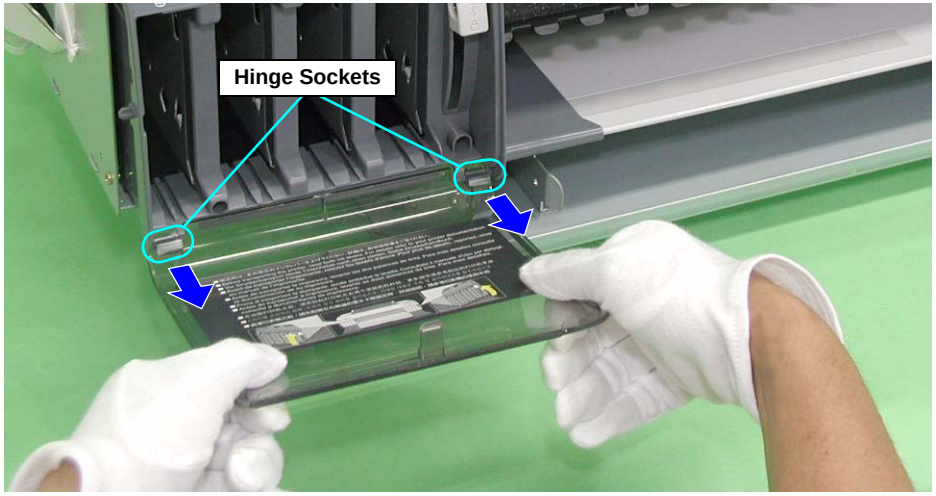
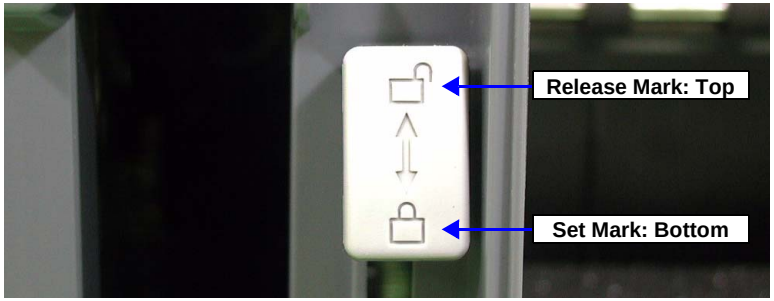


Figure 4-122. Cover, I/H, Left Removal

REASSEMBLY

The "I/C, Lock Lever, Knob, Left" has upward and downward directions. Install it in the correct direction.



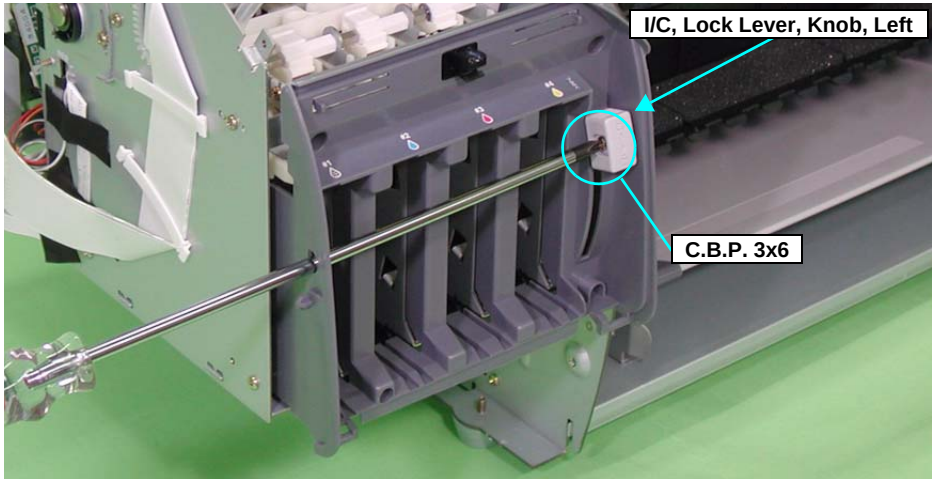


Figure 4-123. I/C, Lock Lever, Knob, Left Removal

5. Remove the four screws securing "Guide, I/H, Left" and remove "Guide, I/H, Left" by pulling forward. *(Refer to Figure 4-124.)*
   - C.B.S. 3x6: 4 pcs.
6. Remove the screw securing "Installation Plate, I/H Guide, A" and remove "Installation Plate, I/H Guide, A". *(Refer to Figure 4-125.)*
   - C.B.S. 3x6: 1pc.

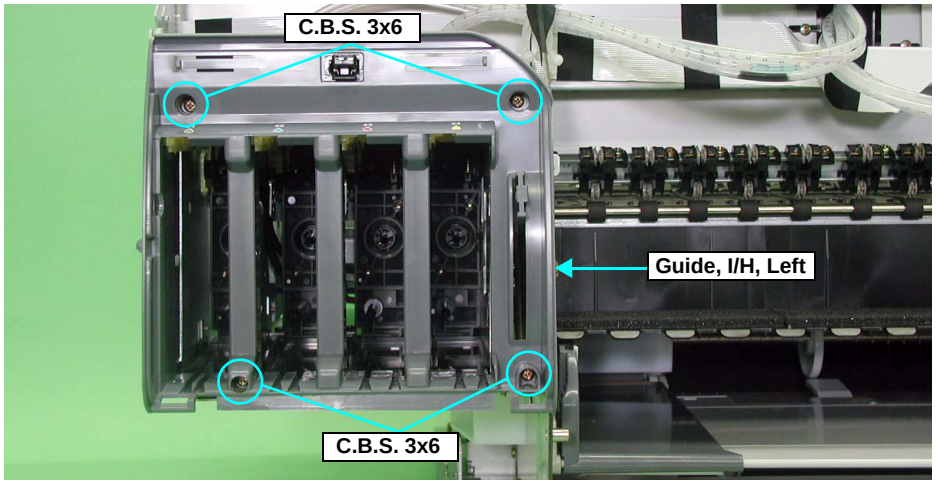


Figure 4-124. Guide, I/H, Left Removal

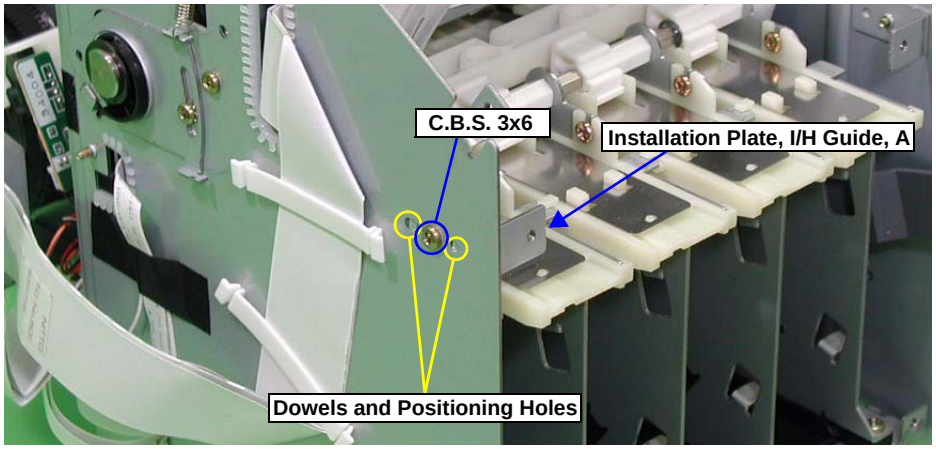
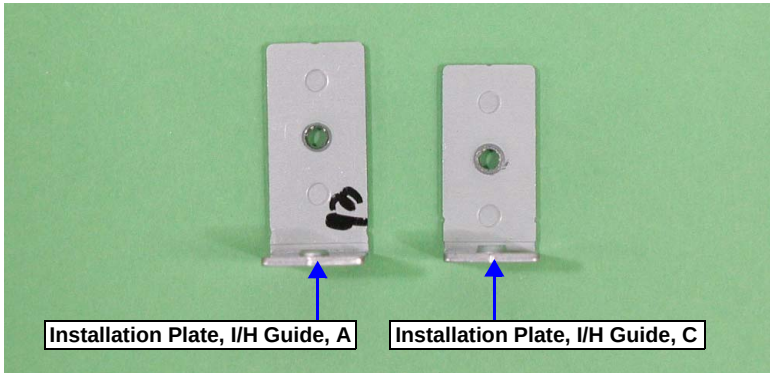


Figure 4-125. Installation Plate, I/H Guide, A Removal

7. Remove the screw securing "Installation Plate, I/H Guide, C" and remove "Installation Plate, I/H Guide, C".
   - C.B.S. 3x6: 1 pc.

REASSEMBLY

- **The shapes of "Installation Plate, I/H Guide, A" and "Installation Plate, I/H Guide, C" differ, so be careful when installing them.**



- **Align "Installation Plate, I/H Guide, A" and "Installation Plate, I/H Guide, C" dowels (2 each) with frame positioning holes (2 each).**
  (Refer to Figure 4-125 and 4-126.)

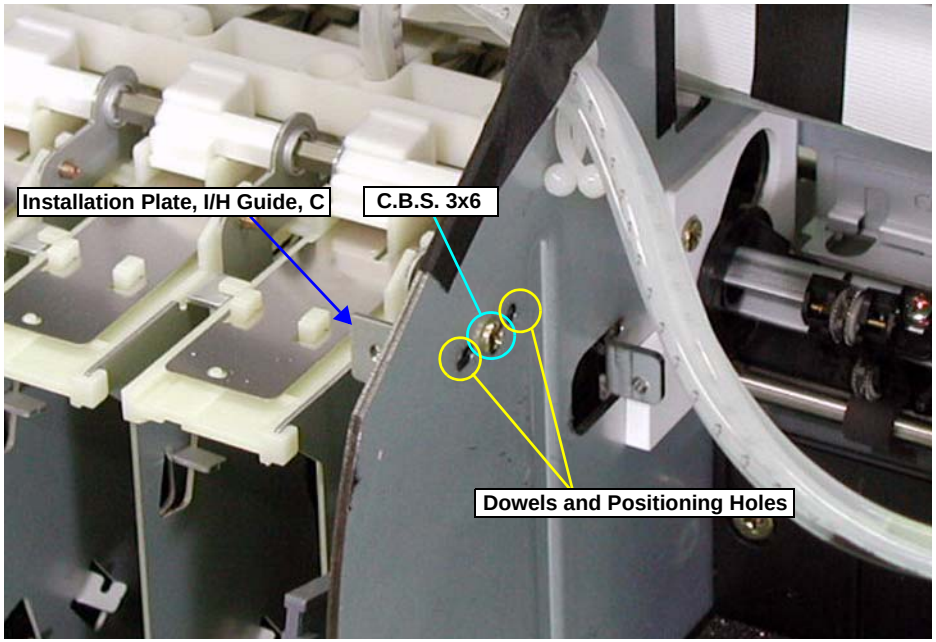


Figure 4-126. Installation Plate, I/H Guide, C Removal

CAUTION

When performing the following step, be careful not to bend the "Tube, Supply, Ink" or scratch it with the edge of the frame.

8. Peel acetate tape and release the four "Tube, Supply, Ink" from the notch of the frame. *(Refer to Figure 4-127.)*

CAUTION

The width of the frame notch allows passage of one tube at a time. Be sure to release each tube in order.

REASSEMBLY

- **When installing “Tube, Supply, Ink” to the frame, secure it with acetate tape.**
- **The "Tube, Supply, Ink" should be slackened to the direction (center of the printer) as shown in Figure 4-127.**
- **For the 4-color model, place all the eight “Tube, Supply, Ink" in the notch on the left frame, and secure them with acetate tape.**

9. Remove the two screws securing the front side of "I/H Left Unit". *(Refer to Figure 4-128.)*
   - C.B.S. 3x6: 2 pcs.

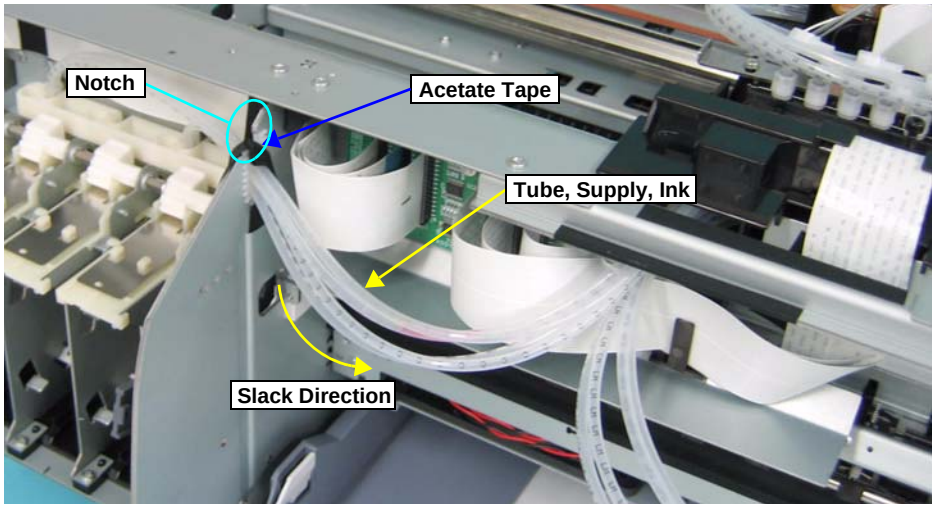


Figure 4-127. Releasing the Tube, Supply, Ink

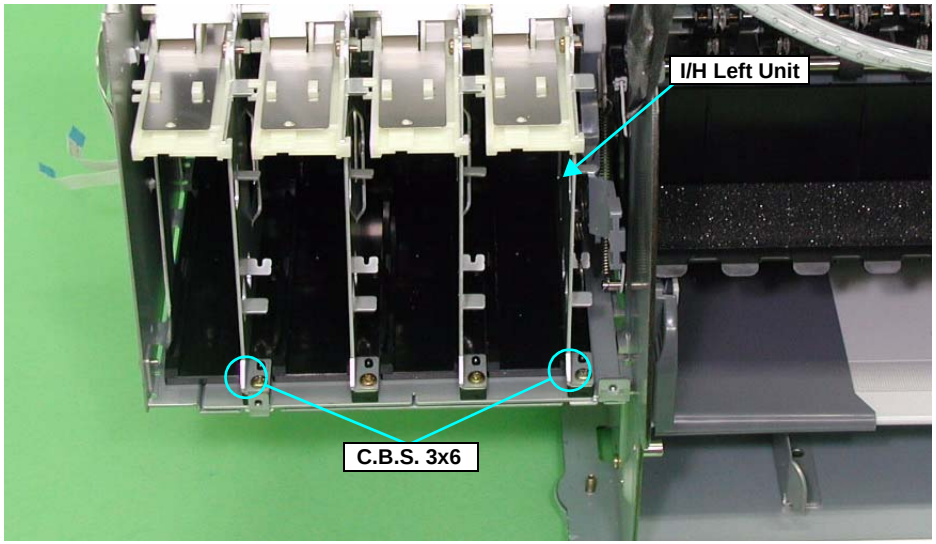


Figure 4-128. I/H Left Unit Front Side_1

10. Remove the six screws securing the "I/H Left Unit" to the pinter.
    - C.B.S. 3x8: 6 pcs.
11. Disconnect the FFCs from the CN1 to CN3 connectors on the “C593_SUB-D Board”, and pull out the FFCs toward the left side of the printer frame.
12. Peel off the acetate tape that secures the front side of the "I/H Left Unit".
13. Remove the four screws securing rear side of "I/H Left Unit". *(Refer to Figure 4-130.)*
    - C.B.S. 3x6: 4 pcs.

REASSEMBLY

Harnesses are routed through the area of screws as shown by the arrows in Figure 4-130.
When installing the unit, install it without pinching harnesses by the screw after removing the "Cover, Motor, PF". Refer to "4.2.6.4 ASF Phase Sensor" *(p263).*

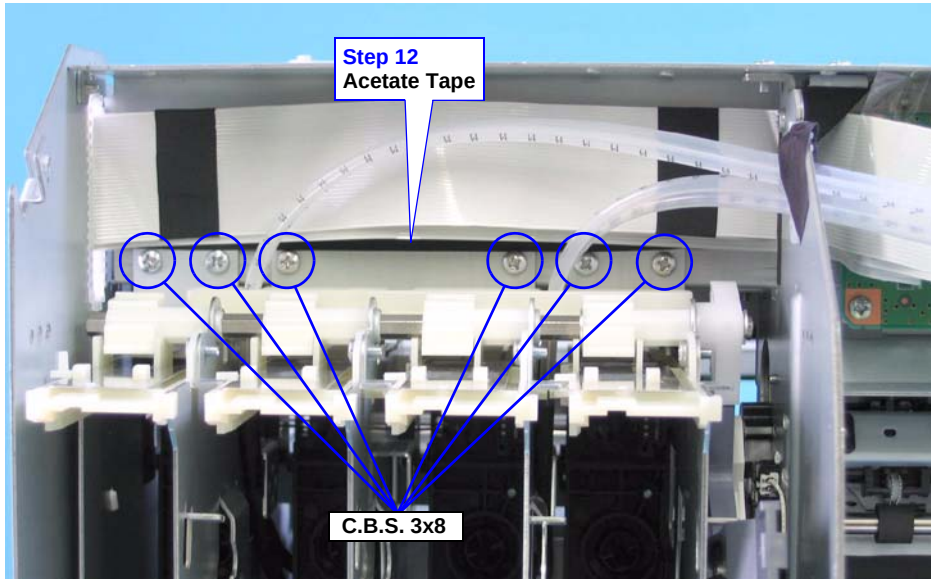


Figure 4-129. I/H Left Unit Front Side_2

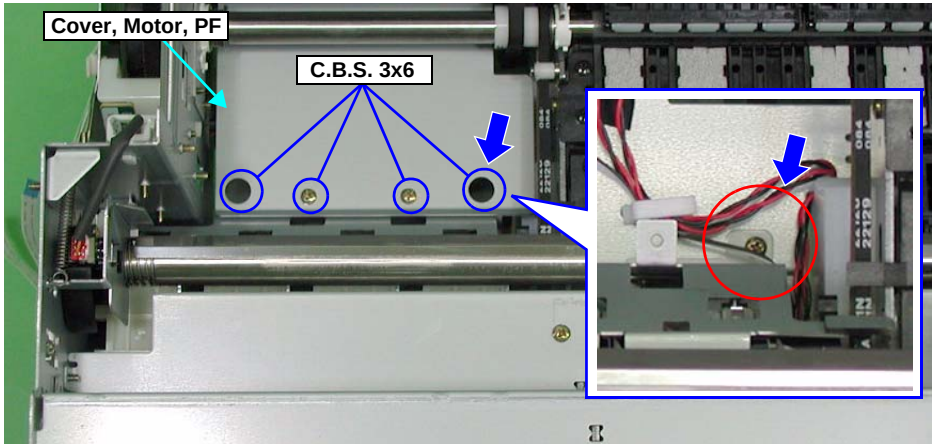


Figure 4-130. Screws Securing Rear Side of I/H Left Unit

14. Disconnect "Harness, CSIC"s (4 connectors: CN38, CN40, CN41, CN44) and "I/H Lever Sensor (Left)"s harness (CN37: black, 2 pin) from "C593_SUB-C Board".
(Refer to "4.2.4.5 C593_SUB-C Board" (p238).)
15. Peel two pieces of acetate tape and release the four "Harness, CSIC"s and "I/H Lever Sensor (Left)"s harness. *(Refer to Figure 4-131.)*
16. Pull the "I/H Left Unit" forward from the printer while pulling the four "Harness, CSIC" and "I/H Lever Sensor (Left)" harness from the hole of the frame.

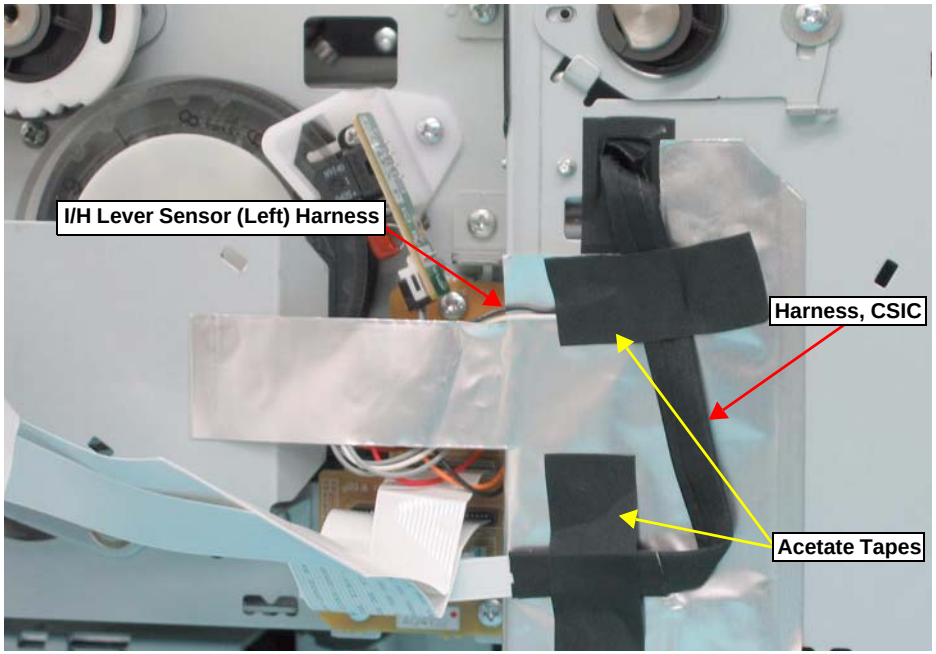


Figure 4-131. Releasing the Harnesses

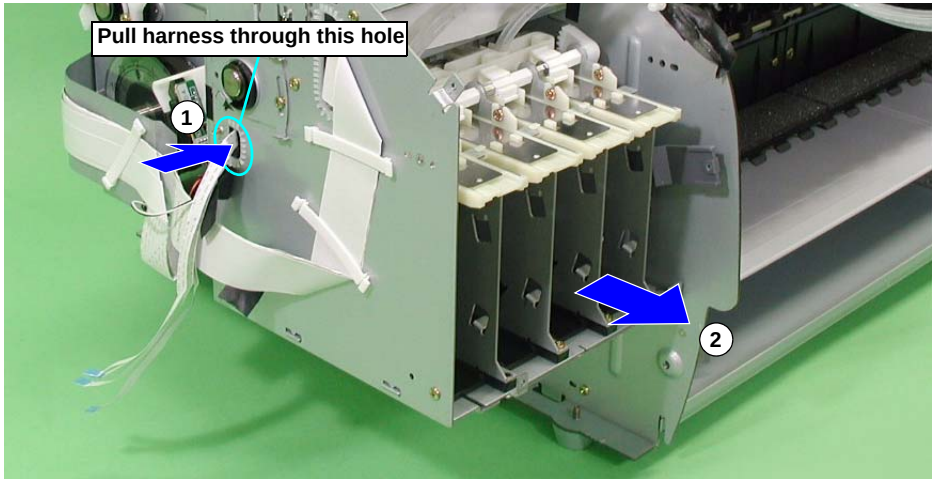
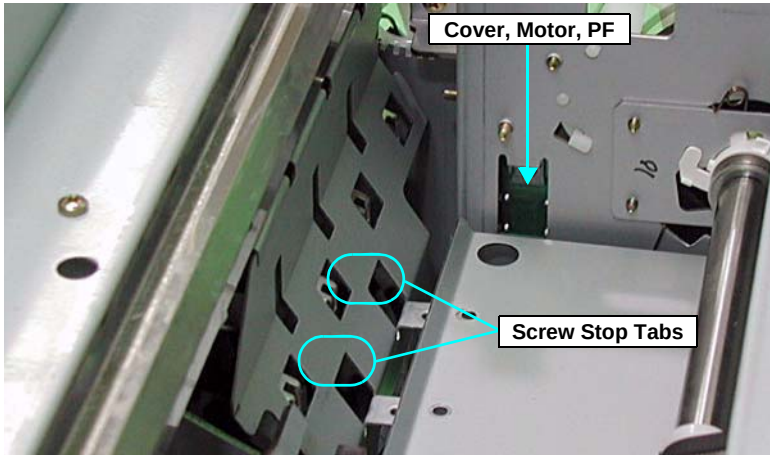


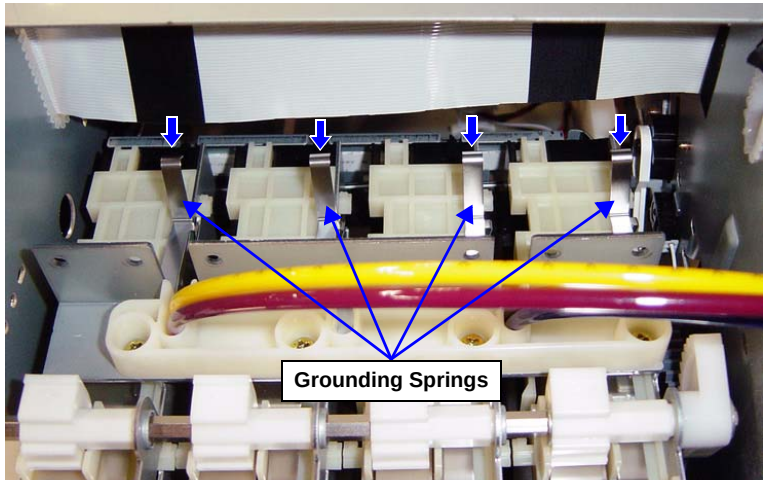
Figure 4-132. I/H Left Unit Removal

REASSEMBLY

- Make the rear side screw stop tabs stay under the "Cover, Motor, PF".



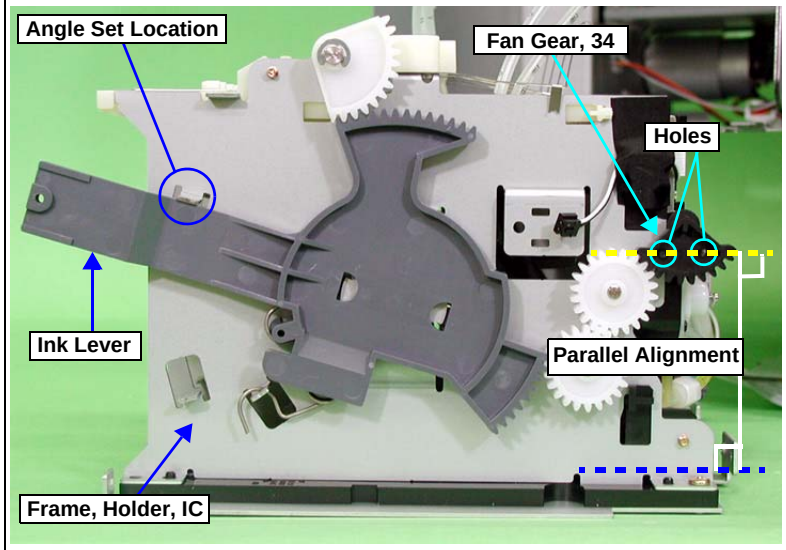
- The four grounding springs on the top of the "I/H Left Unit" make contact with the printer frame, so install the "I/H Left Unit" while lightly holding down the grounding springs so as not to deform them.



17. Pick up and release the two tabs securing the "I/H Lever Sensor (Left)" and remove the "I/H Lever Sensor (Left)". *(Refer to Figure 4-133.)*
18. Disconnect connector from "I/H Lever Sensor (Left)" *(Refer to Figure 4-133.)*
19. Remove the two screws securing "Cover, Holder, IC, Left" and remove "Cover, Holder, IC, Left". *(Refer to Figure 4-134.)*
    - C.B.S. 3x6: 2pcs.

REASSEMBLY

- **When the "Ink Lever" is installed against the angle set location as shown in the illustration, confirm that the two holes of "Fan Gear, 34" form a line parallel to the bottom of "Frame, Holder, IC".**



- **Align the two dowels on holder side with the two positioning holes on the "Cover, Holder, IC". *(Refer to Figure 4-134.)***

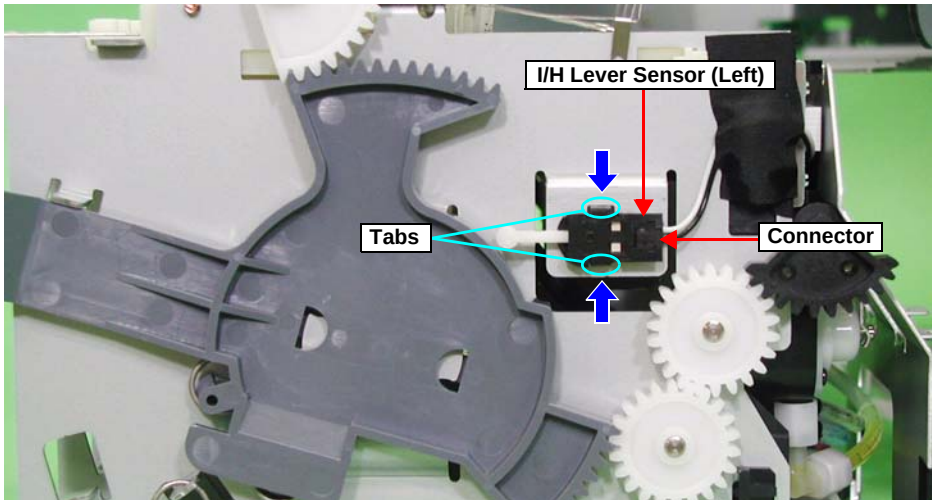


Figure 4-133. I/H Lever Sensor (Left) Removal

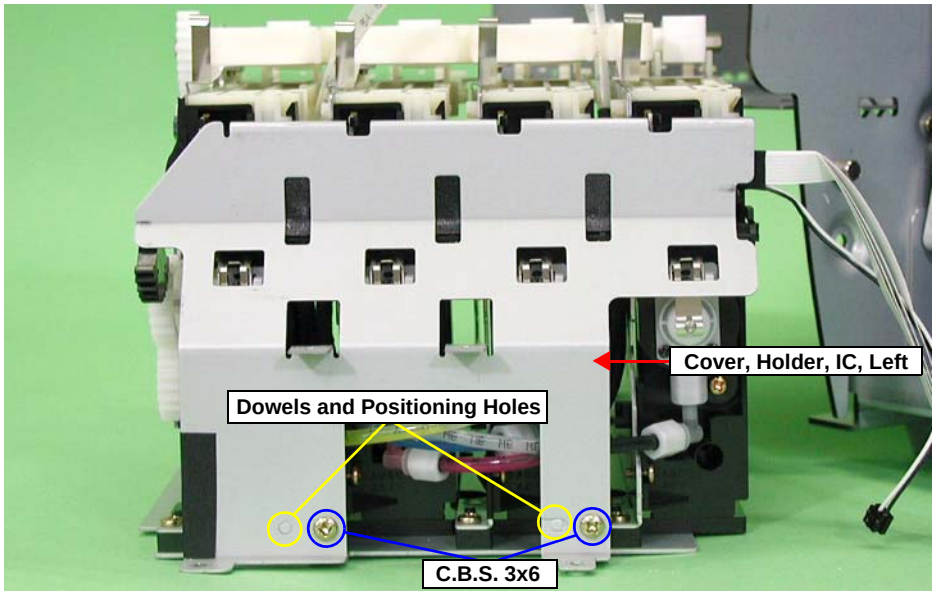


Figure 4-134. Cover, Holder, IC, Left Removal

CAUTION

When performing the following steps, be careful of the points below.

- **As ink may leak or splatter, have cleaning rags ready and prevent ink from getting on the surrounding work area.**
- **Prevent dust and dirt from getting inside the "Tube, Supply, Ink".**

CHECK POINT

The 4-color model (Stylus Pro 4400) is not equipped with "I/H Right Unit", so all the eight "Tube, Supply, Ink"s are connected to "I/H Left Unit".
Refer to "4.2.11.1 I/H Left Unit / I/H Lever Sensor (Left) (4-color model) (p362)", when disassembling the 4-color model (Stylus Pro 4400).

20. Loosen the four "Coupling Screw, M7" securing the four "Tube, Supply, Ink"s and then disconnect "Tube, Supply, Ink" from "I/H Left Unit".

REASSEMBLY

- **Confirm that "O-Ring, Coupling M7" has been installed.**

- **The "Tube, Supply, Ink" has been marked with its color. Install while confirming that the mark matches the receptacle.**
- **Use the following order to install the "Tube, Supply, Ink" while routing it to the installation location.**
  M → C → MK → Y
- **Refer to Figure 4-135 and properly route "Tube, Supply, Ink".**
- **Firmly insert "Tube, Supply, Ink" into receptacles and tighten "Coupling Screw, M7".**

REASSEMBLY

- **To prevent from both ink leak and damage on the joint screw, be sure to tighten the "Coupring Screw, M7" with the prescribed torque and the tool specified below.**
  - **Tool: Torque Wrench 1.25/1.75 (1277142)**
  - **Tightning torque: 1.25 (± 0.25) kgf • cm**

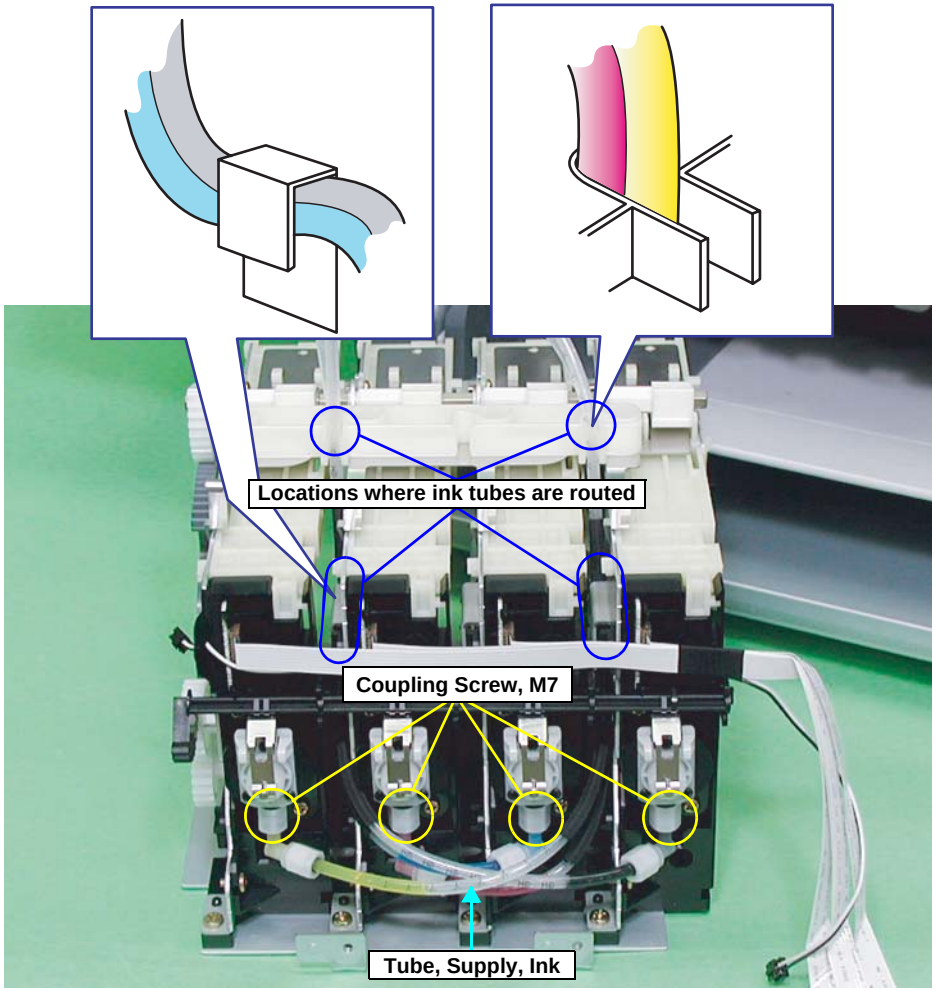


Figure 4-135. I/H Left Unit Removal

4.2.8.5 I/H Right Unit / I/H Lever Sensor (Right)

CAUTION

When performing the following work, remove ink out of the ink path before removing the "IH Right Unit". Refer to Chapter 5 "Adjustment" *(p.366)* to know how to remove ink.

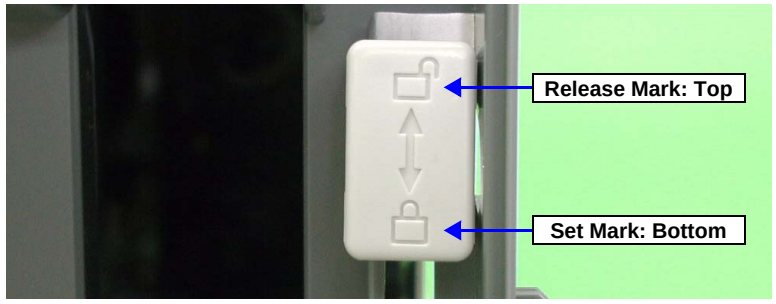
CHECK POINT

The 4-color model is not equipped with this unit. Refer to "4.2.11.2 Cover, Front, Right 4 Color (4-color Model) (p365)" for information on how to remove the I/H Right Unit.

1. Remove "Panel, Front/Panel Unit" *(p219).*
2. Open "Cover, I/H, Right".
3. Hold both ends of "Cover, I/H, Right" and disengage each side from the hinge sockets. *(Refer to Figure 4-136.)*
4. Remove the screw securing the "I/C, Lock Lever, Knob, Right" and remove the "I/C, Lock Lever, Knob, Right". *(Refer to Figure 4-137.)*
   - C.B.P. 3x6: 1 pc.

REASSEMBLY

The "I/C, Lock Lever, Knob, Right" has upward and downward directions. Install it in the correct direction.



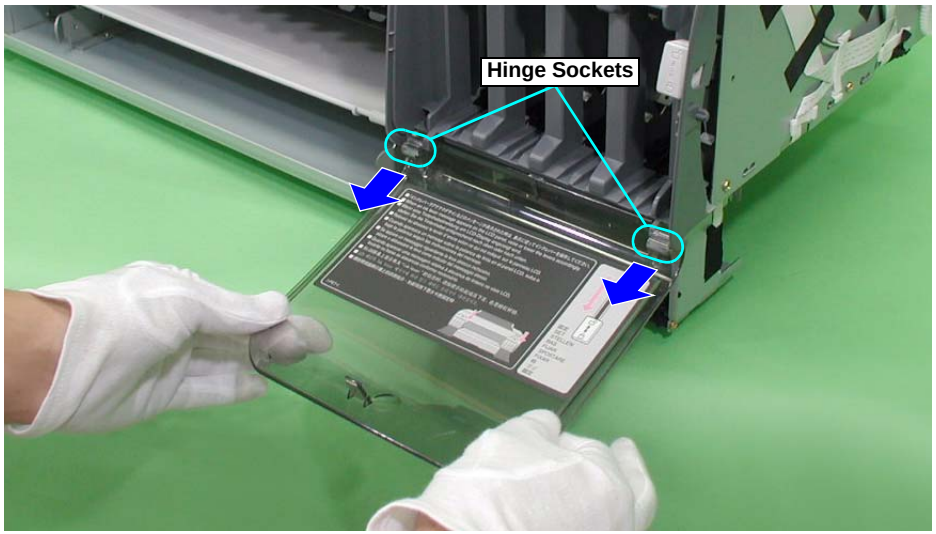


Figure 4-136. Cover, I/H, Right Removal

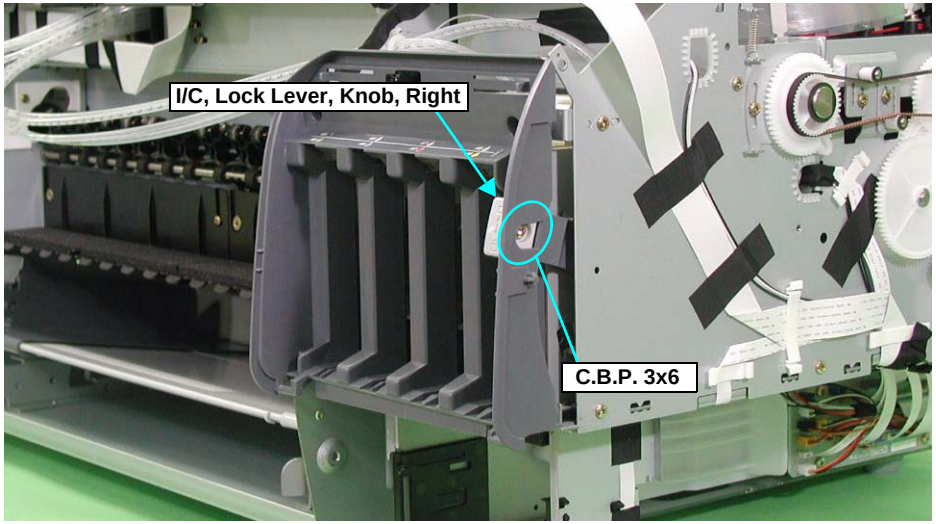


Figure 4-137. I/C, Lock Lever, Knob, Right Removal

5. Remove the four screws securing "Guide, I/H, Right" and remove "Guide, I/H, Right" by pulling forward. *(Refer to Figure 4-138.)*
   - C.B.S. 3x6: 4 pcs.
6. Remove the screw securing "Installation Plate, I/H Guide, B" and then remove "Installation Plate, I/H Guide, B". *(Refer to Figure 4-139.)*
   - C.B.S. 3x6: 2 pcs.

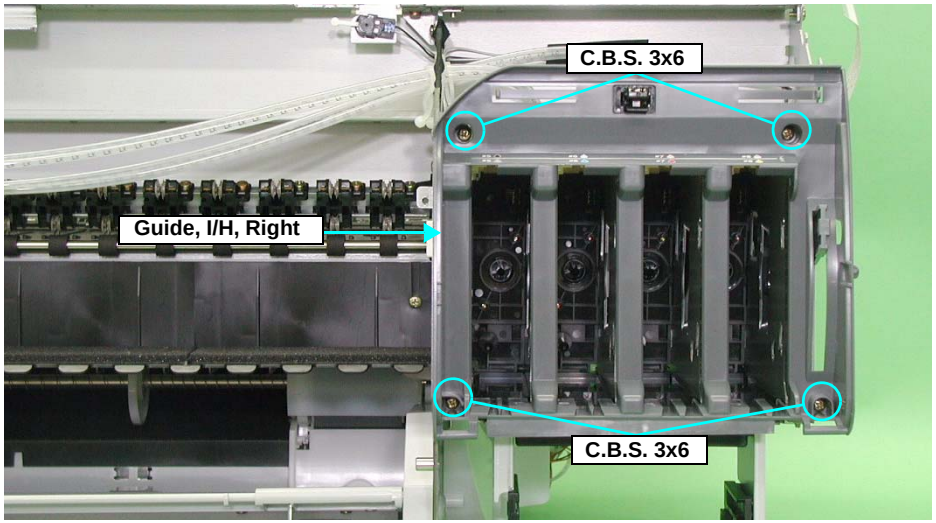


Figure 4-138. Screws Securing Guide, I/H, Right

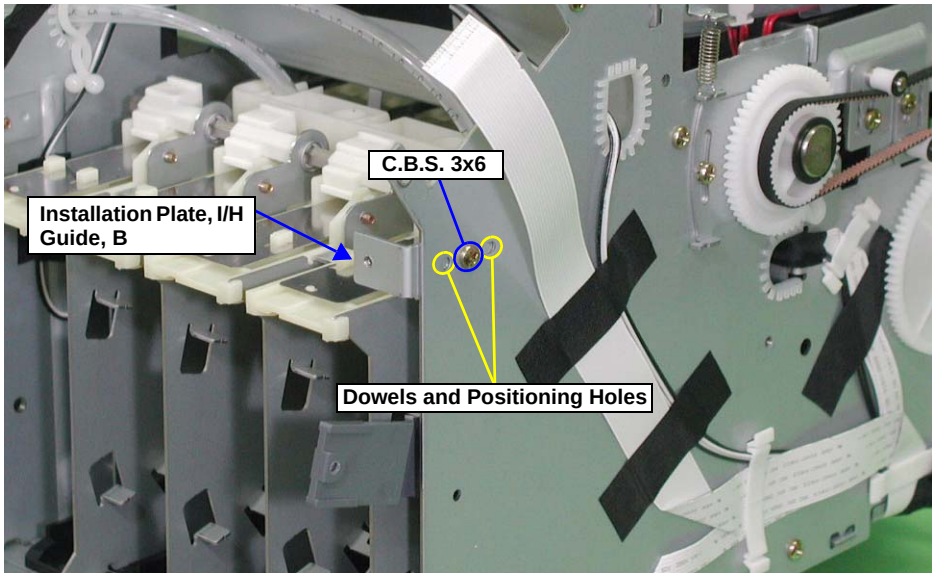
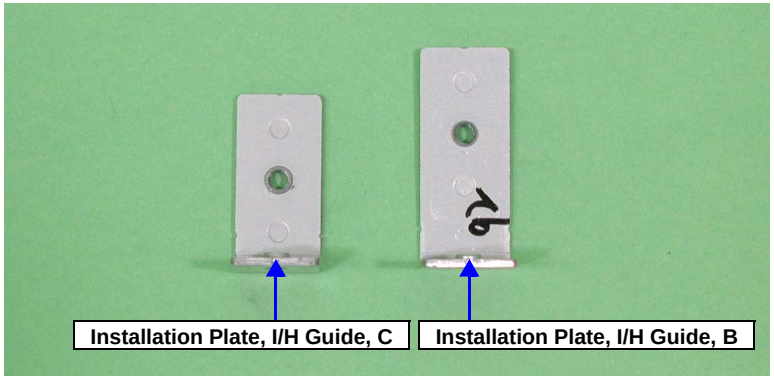


Figure 4-139. Installation Plate, I/H Guide, B Removal

7. Remove the screw securing "Installation Plate, I/H Guide, C" and remove "Installation Plate, I/H Guide, C".
   - C.B.S. 3x6: 1 pc.

REASSEMBLY

- **The shapes of "Installation Plate, I/H Guide, B" and "Installation Plate, I/H Guide, C" differ, so be careful when installing them.**



- **Align "Installation Plate, I/H Guide, B" and "Installation Plate, I/H Guide, C" dowels (2 each) with frame positioning holes (2 each).**
  (Refer to Figure 4-139 and 4-140.)

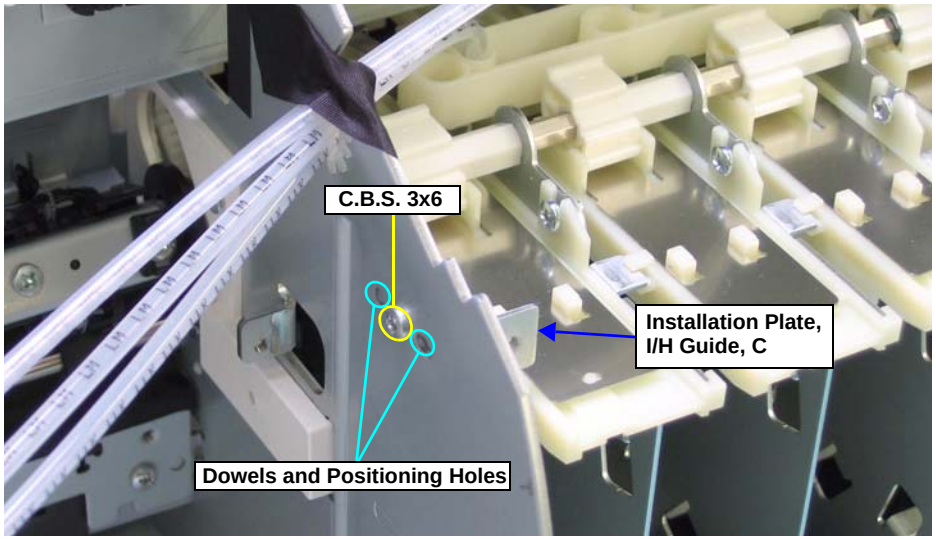


Figure 4-140. Installation Plate, I/H Guide, C Removal

CAUTION

When performing the following step, be careful not to bend the "Tube, Supply, Ink" or scratch it with the edge of the frame.

8. Peel acetate tape and release the four "Tube, Supply, Ink" from the notch of the frame. *(Refer to Figure 4-141.)*

REASSEMBLY

- **Secure “Tube, Supply, Ink” to the frame with acetate tape.**
- **The "Tube, Supply, Ink" should be slackened to the direction (center of the printer) as shown in Figure 4-141.**

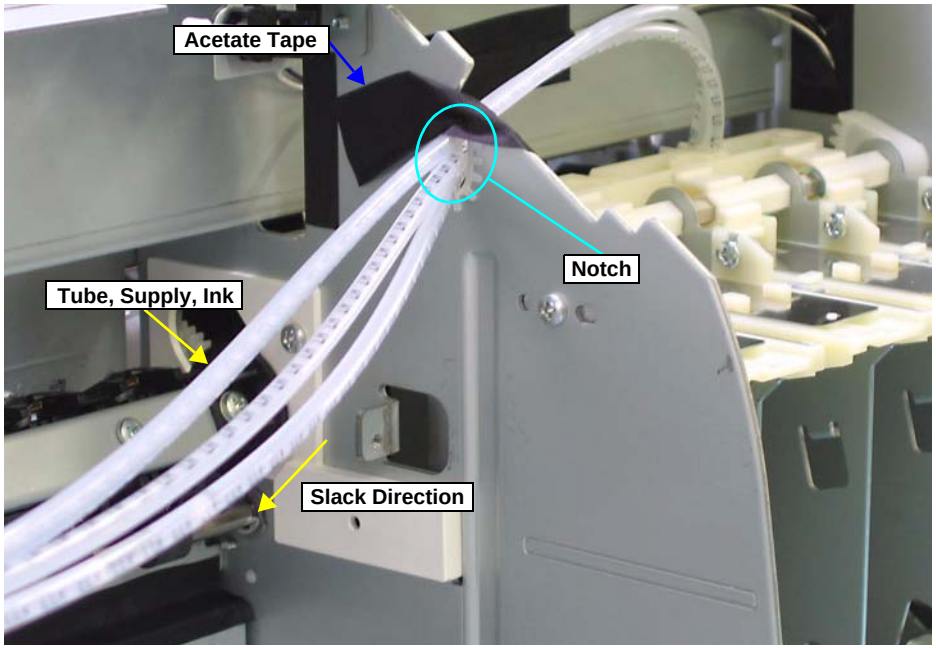


Figure 4-141. Releasing the Tube, Supply, Ink

9. Disconnect "Harness, CSIC"s (5 connectors: CN39, CN42, CN43, CN45, CN461) and "I/H Lever Sensor (Right)" harness (CN36: white, 2 pin) from "C511_SUB-B Board".
   (Refer to "4.2.4.4 C511_SUB-B Board" (p236).)
10. Peel off four pieces of acetate tape shown in Figure 4-142 and 4-143.

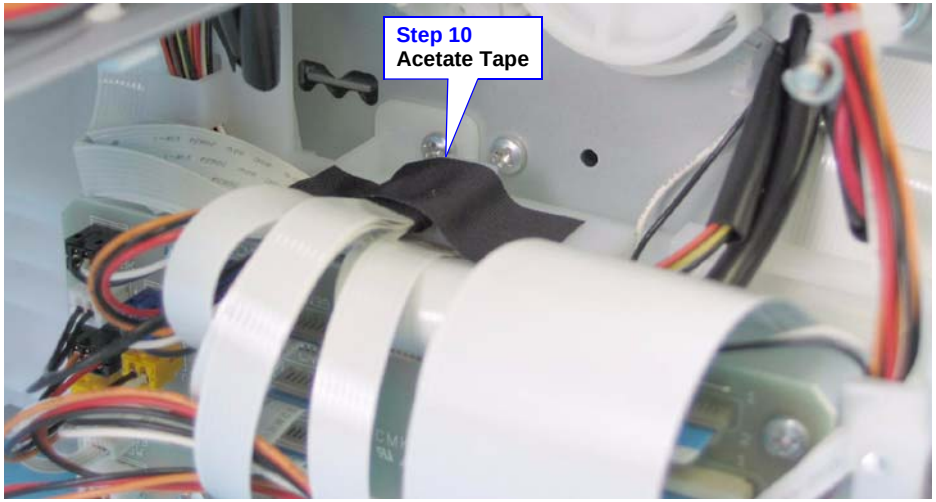


Figure 4-142. Releasing Harnesses_1

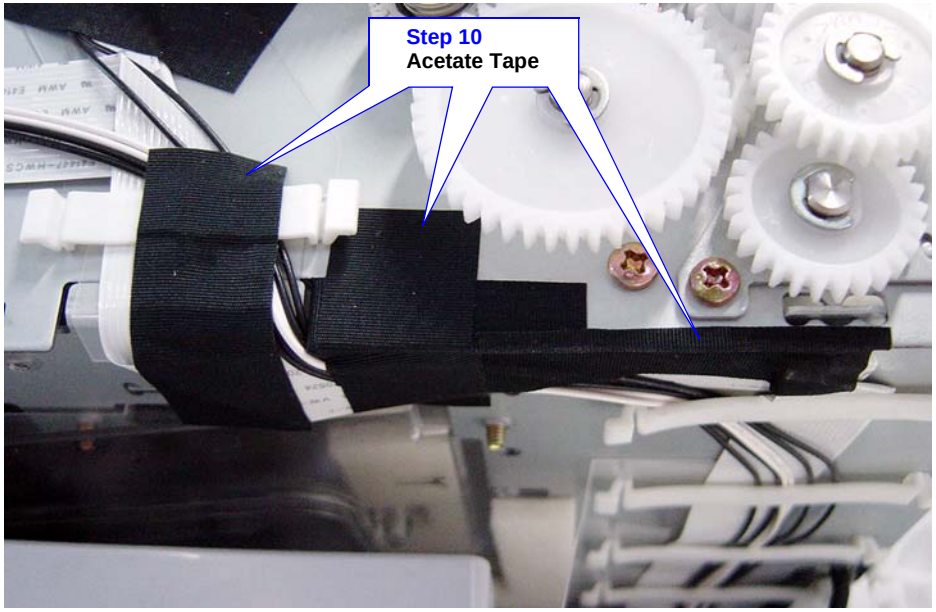


Figure 4-143. Releasing Harnesses_2

11. Remove the four clamps securing the harnesses. (The "Sheet Ink Stopper" will be released at the same time.)

REASSEMBLY

"Sheet Ink Stopper, D" should be attached to the printer frame with the three tabs of the clamps inside the printer as shown in Figure 4-144.

12. Release both the FFC and the harnesses from the tabs of the printer. *(Refer to Figure 4-145.)*

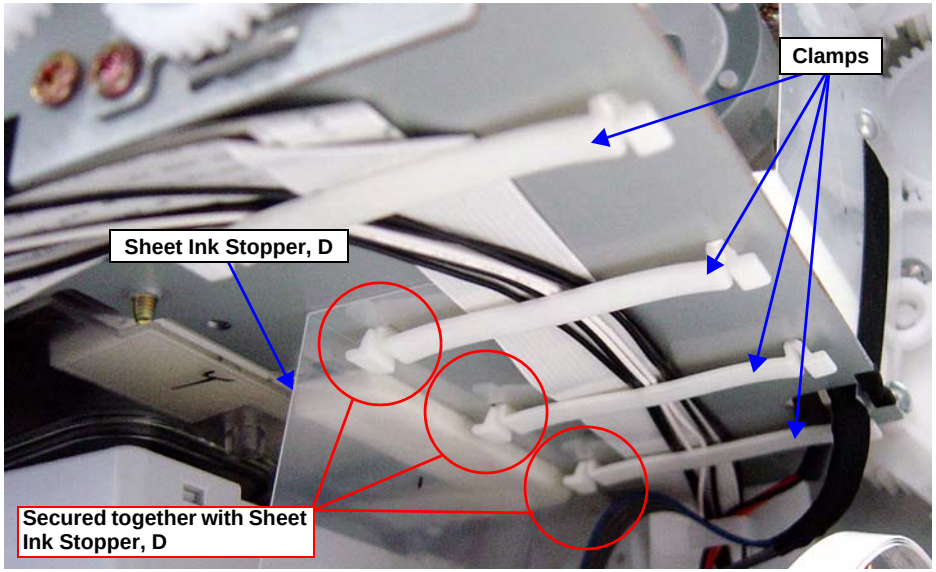


Figure 4-144. Releasing Harnesses_3

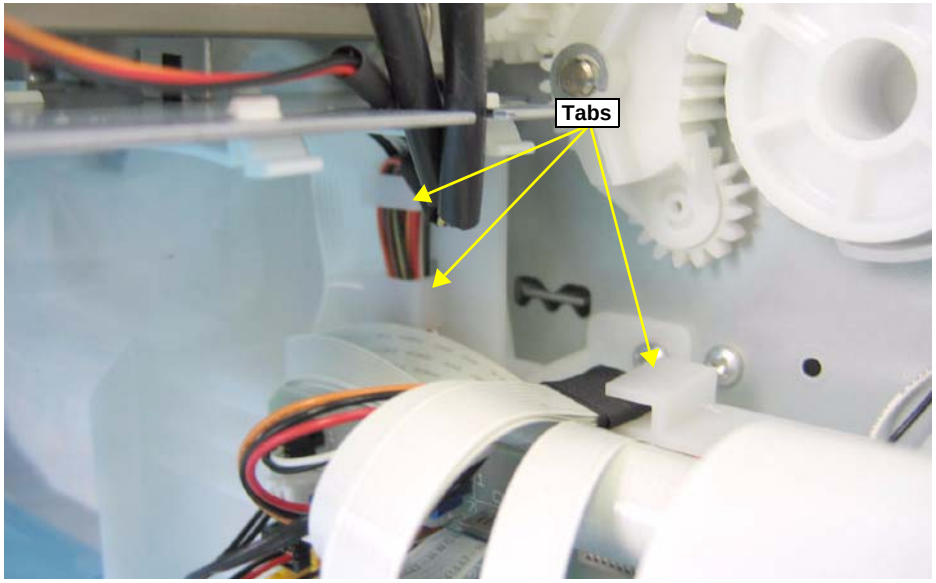


Figure 4-145. Releasing Harnesses_4

13. Peel off the acetate tape binding the FFC to release the FFC.
    (Refer to Figure 4-146.)
14. Release the four "Harness, CSIC"s and the "I/H Lever Sensor (Left)" harness from the two clamps and the acetate tape.
    (Refer to Figure 4-147.)

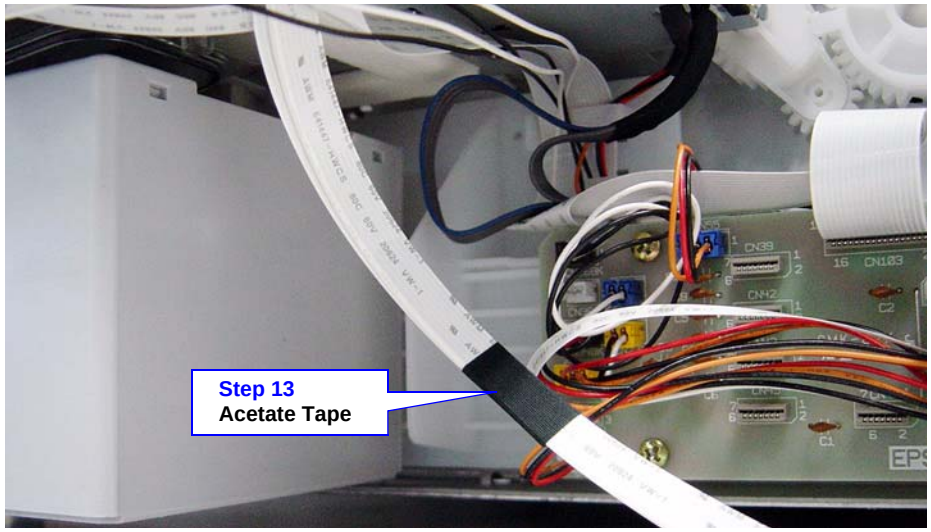


Figure 4-146. Releasing Harnesses_5

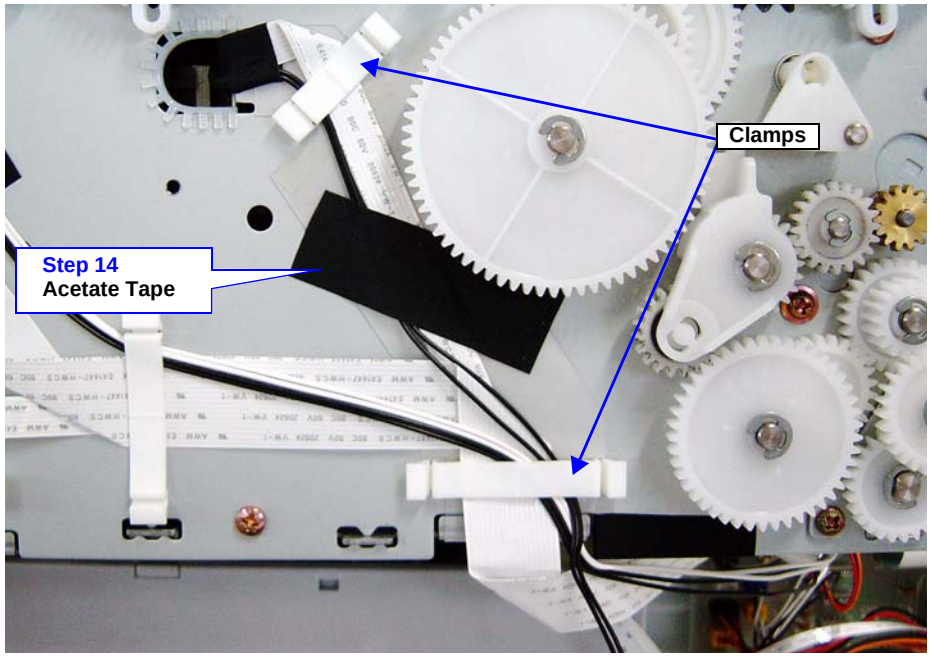


Figure 4-147. Releasing Harnesses_6

15. Move "Carriage Unit" to center of printer.
(Refer to "4.2.4.3 C593_SUB Board" (p234).)
16. Remove the two screws securing rear side of "I/H Right Unit".
(Refer to Figure 4-148.)
    - C.B.S. 3x6: 2 pcs.
17. Remove the two screws securing the front side of "I/H Right Unit."
(Refer to Figure 4-149.)
    - C.B.S. 3x12: 2pcs.

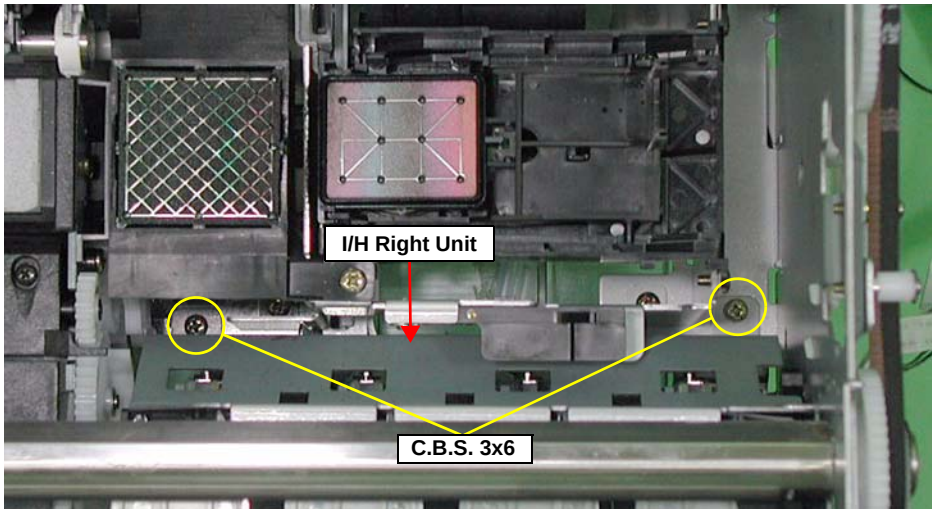


Figure 4-148. Screws Securing Rear Side of I/H Right Unit

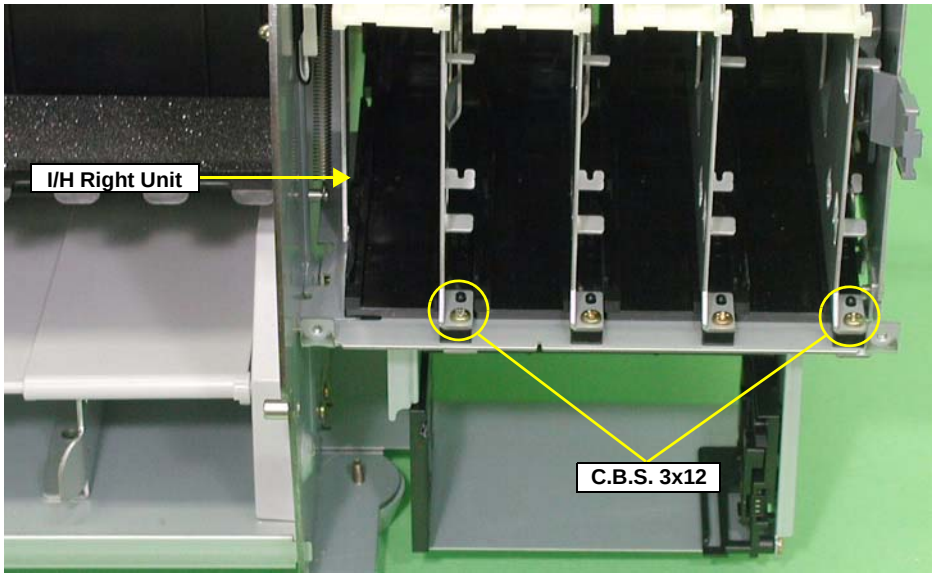


Figure 4-149. Screws Securing Front Side of I/H Right Unit

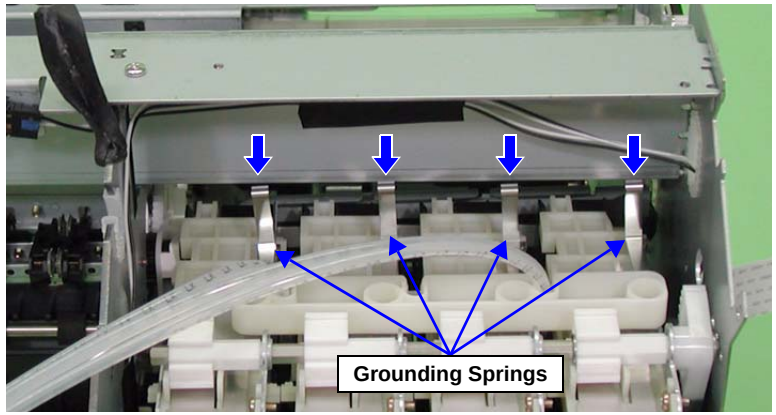
18. Pull the "I/H Right Unit" forward from the printer following the order below while pulling the "Harness, CSIC" and "I/H Lever Sensor (Right)" harness from the hole in the frame. *(Refer to Figure 4-150.)*

    18-1. To avoid interference of the printer frame hole and "I/H Right Unit" shaft, shift the "I/H Right Unit" to the left.

    18-2. With the right side of the "Paper Eject Unit" lifted up, pull the "I/H Right Unit" forward from the printer.

REASSEMBLY

The four grounding springs on the top of the "I/H Right Unit" make contact with the printer frame, so install the "I/H Right Unit" while lightly holding down the grounding springs so as not to deform them.



19. Pick up and release the two hooks securing the "I/H Lever Sensor (Right)" and then remove the "I/H Lever Sensor (Right)". *(Refer to Figure 4-151.)*

20. Disconnect connector from "I/H Lever Sensor (Right)". *(Refer to Figure 4-151.)*

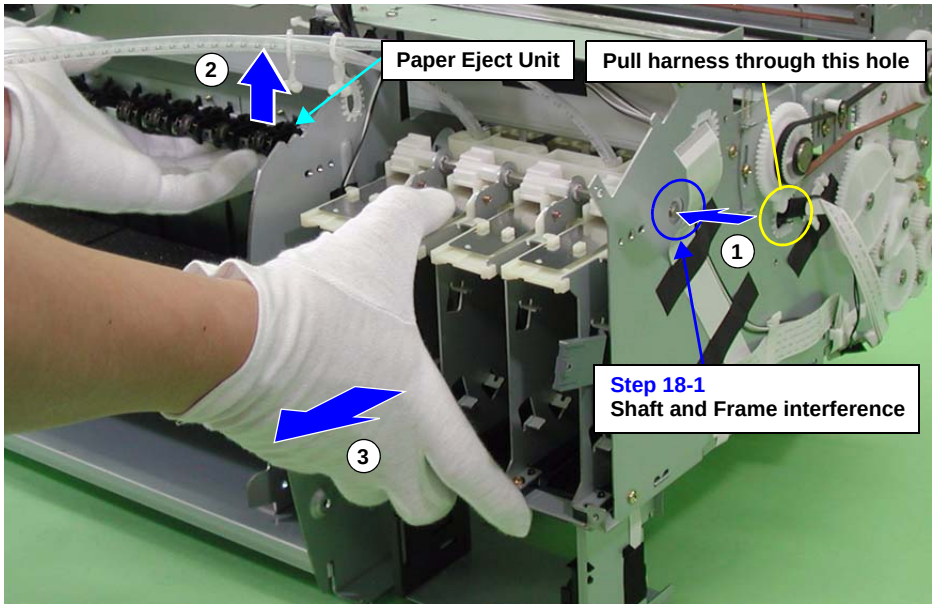


Figure 4-150. I/H Right Unit Removal

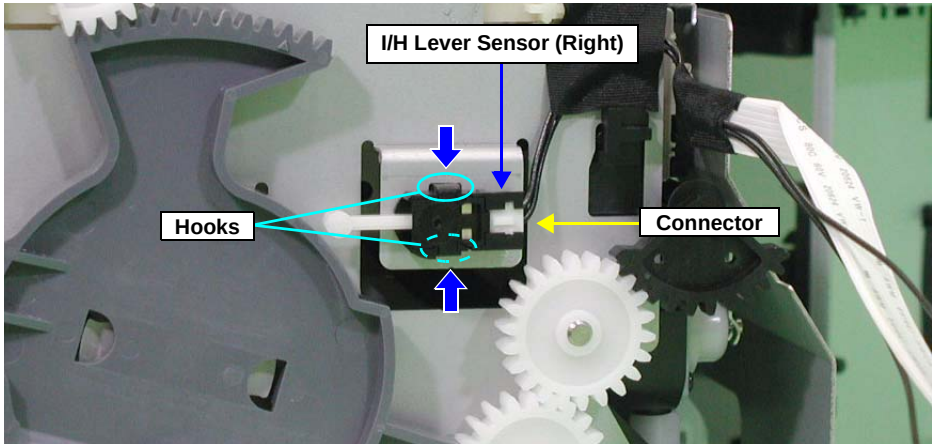
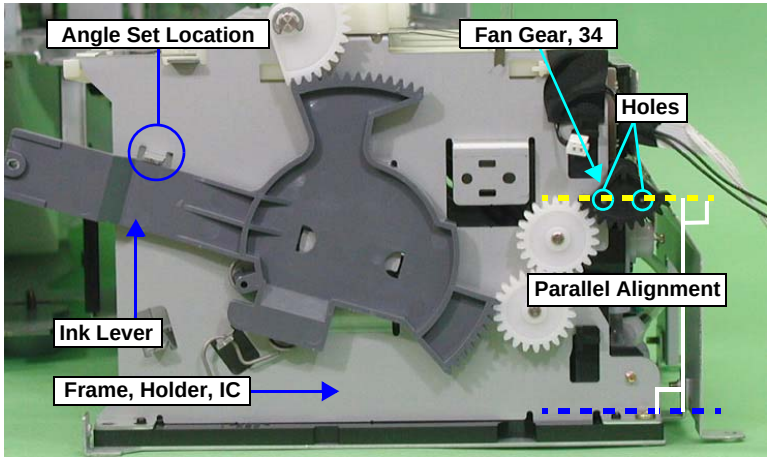


Figure 4-151. I/H Lever Sensor (Right) Removal

21. Remove the two screws securing "Cover, Holder, IC, Right" and remove "Cover, Holder, IC, Right". *(Refer to Figure 4-152.)*
    - C.B.S. 3x6: 2 pcs.

REASSEMBLY

- **When the "Ink Lever" is installed against the angle set location as shown in the illustration, confirm that the two holes of "Fan Gear, 34" form a line parallel to the bottom of "Frame, Holder, IC".**



- **Align the two dowels on holder side with the two positioning holes on the "Cover, Holder, IC, Right". *(Refer to Figure 4-152.)***

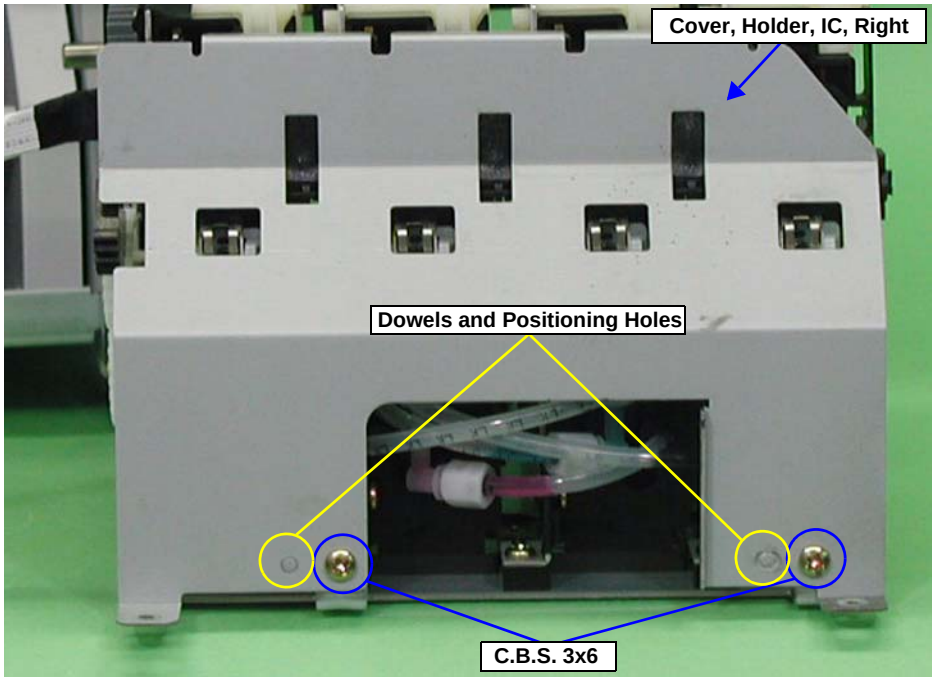


Figure 4-152. Cover, Holder, IC, Right Removal

CAUTION

When performing the following steps, be careful of the points below.

- **Ink may leak or splatter, so have cleaning rags ready and prevent ink from getting on the surrounding work area.**
- **Prevent dust and dirt from getting inside the "Tube, Supply, Ink".**

22. Loosen the four "Coupling Screw, M7" securing the four "Tube, Supply, Ink"s and then disconnect "Tube, Supply, Ink" from "I/H Right Unit".

REASSEMBLY

- **Confirm that "O-Ring, Coupling M7" has been installed.**

- **The "Tube, Supply, Ink" has been marked with its color. Install while confirming that the mark matches the receptacle.**
- **Use the following order to install the "Tube, Supply, Ink" while routing it to the installation location.**
  LM (M)→ LC(C) →PK (MK) → LK (Y)
- **Refer to Figure 4-153 and properly route "Tube, Supply, Ink".**
- **Firmly insert "Tube, Supply, Ink" into receptacles and tighten "Coupling Screw, M7".**
- **To prevent ink leakage and damage on the Coupling screw, be sure to tighten the "Coupling Screw, M7" with the prescribed torque and the tool specified below.**
  - **Tool: Torque Wrench 1.25/1.75 (1277142)**
  - **Tightning torque: 1.25 (± 0.25) kgf • cm**

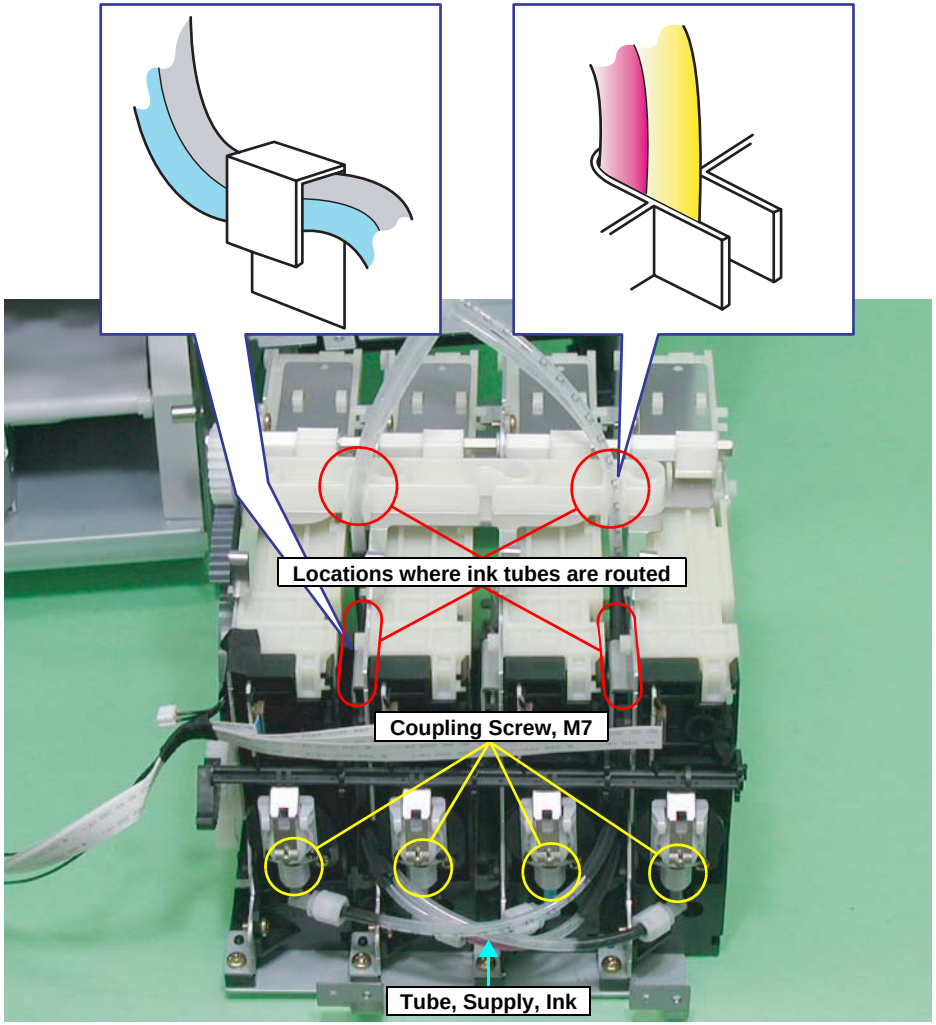


Figure 4-153. I/H Right Unit Removal

4.2.8.6 Box Assy., Flushing / Pump Unit

CAUTION

When removing the "Box Assy., Flushing" and "Pump Unit", ink may leak from the "Box Assy., Flushing" ink discharge port or the "Pump Unit" waste ink tube. Have cleaning rags ready and prevent ink from getting on the surrounding work area.

1. Remove "Cover, Side, Right" *(p217).*
2. Remove "Motor Assy., PG" *(p274).*
3. Move the "Carriage Unit" to center of printer.
   (Refer to "4.2.4.3 C593_SUB Board" (p234).)
4. Remove the screw securing the "Box Assy., Flushing".
   (Refer to Figure 4-154.)
   - C.B.S. 3x8: 1 pcs.
5. Slide the "Box Assy., Flushing" to the right and release the rib as shown in Figure 4-154 (①), lift the wast ink pipe upward to pull it out (②), then remove the "Box Assy., Flushing" while tilting it forward to avoid interference with the printer frame (③).

REASSEMBLY

- **Pass the "Box Assy., Flushing" waste ink pipe through the hole in the bottom of the frame.**
- **Make sure the "Box Assy., Flushing" rib is fitted into the "Induction Duct" positioning hole.**

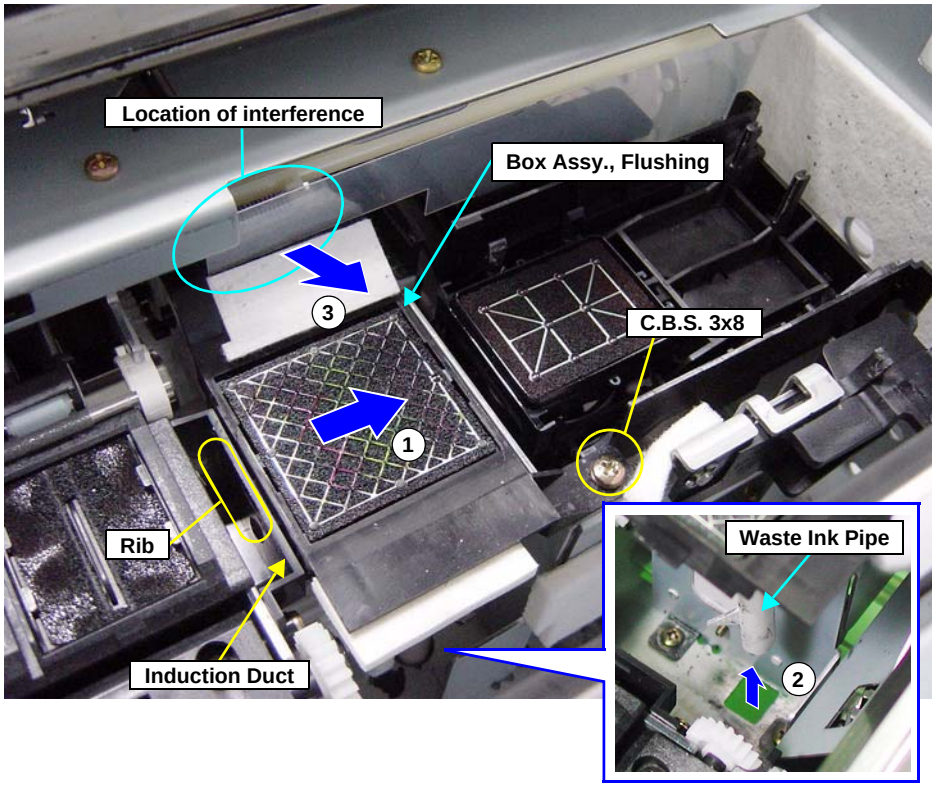


Figure 4-154. Box Assy., Flushing Removal

6. Remove the two screws securing the "Shaft, Transmission, PG Unit" and then remove the "Shaft, Transmission, PG Unit" by pulling it out of the hole in the frame. *(Refer to Figure 4-155.)*
   - C.B.S. 3x6: 2 pcs.

CAUTION

Be careful not to scratch the "Shaft, Transmission, PG Unit" gear by bumping it against the frame.

REASSEMBLY

- **Align "Shaft, Transmission, PG Unit" positioning hole with dowel on frame. *(Refer to Figure 4-155.)***
- **Make sure that the "Pump Phase Sensor" harness is routed over the "Shaft, Transmission, PG Unit" shaft. *(Refer to Figure 4-155.)***

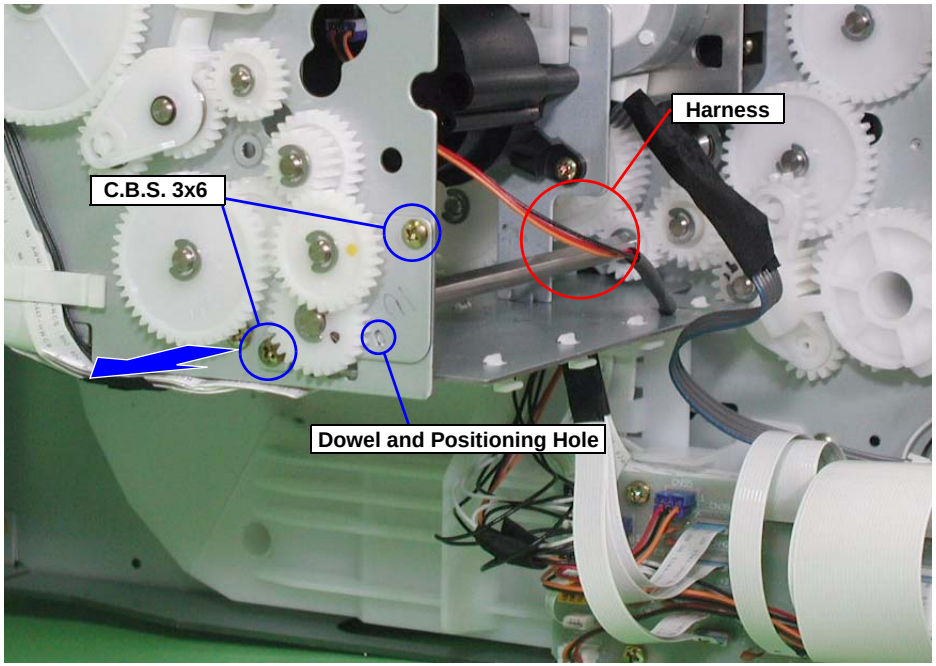
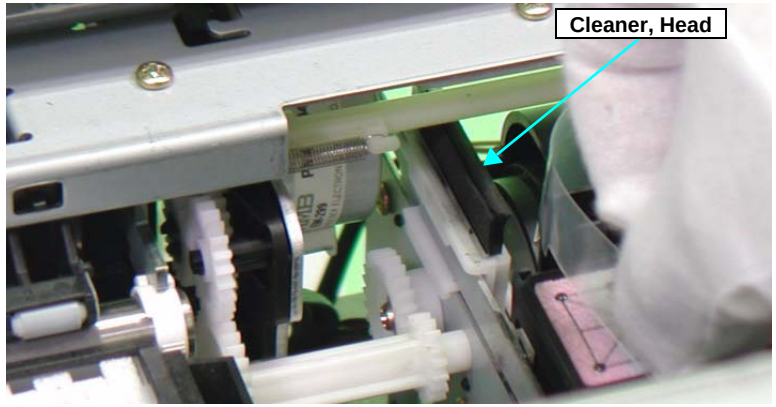


Figure 4-155. Shaft, Transmission, PG Unit Removal

CAUTION

When performing the following steps, be careful of the points below.

- **Do not lose "Extension Spring, 0.262".**
- **Use care not to pull "Extension Spring, 0.262" too much, or it may loose the spring force.**
- **Do not touch the "Cleaner, Head" or allow it to contact other parts. (This could lower print quality due to not wiping ink normally.)**



7. While keeping the sheet turned aside, remove "Extension Spring, 0.262" from the tabs of "Mount Assy., Plate, Motor, ASF, SP" and "Lever, Lock, DE". *(Refer to Figure 4-156.)*
8. Pull the "Lever, Lock, Planetary" toward the outside of the printer, release the hook on top and then pull out of the "Lever, Lock, DE". *(Refer to Figure 4-157.)*

REASSEMBLY

After installing the "Lever, Lock, Planetary", confirm that "Lever, Lock, DE" moves smoothly by the tension of "Extension Spring, 0.262". (Check three times.)

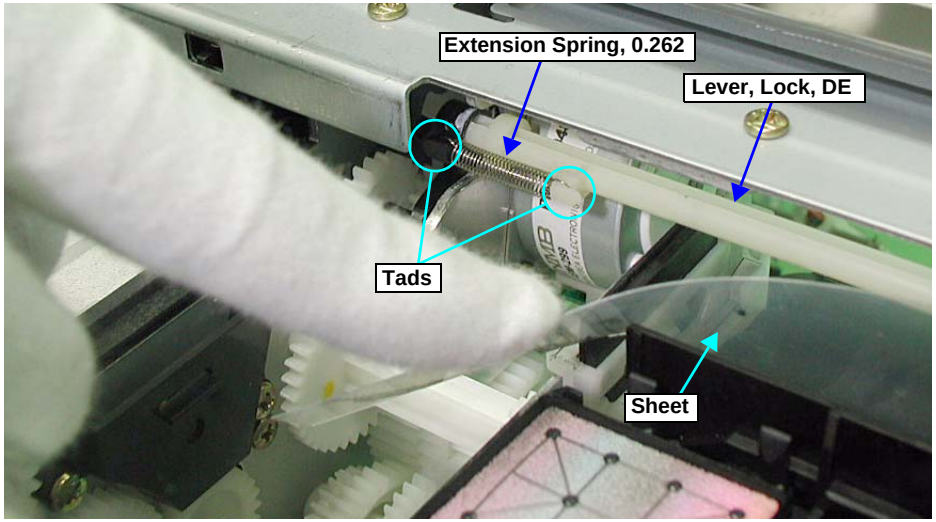


Figure 4-156. Extension Spring, 0.262 Removal

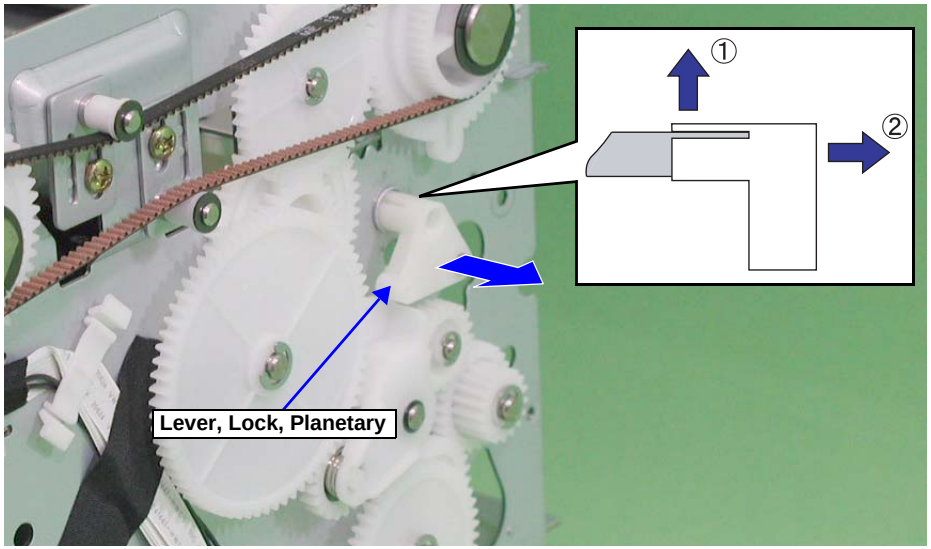


Figure 4-157. Lever, Lock, Planetary Removal

9. Remove the "Lever, Lock, DE" by following the steps below.
(Refer to Figure 4-158.)

   9-1. Slide it to the right.
   9-2. Bend it toward the center.
   9-3. Remove the left end from the installation hole.
   9-4. Remove "Lever, Lock, DE" while extracting the flag at the right end from the hole in the frame.

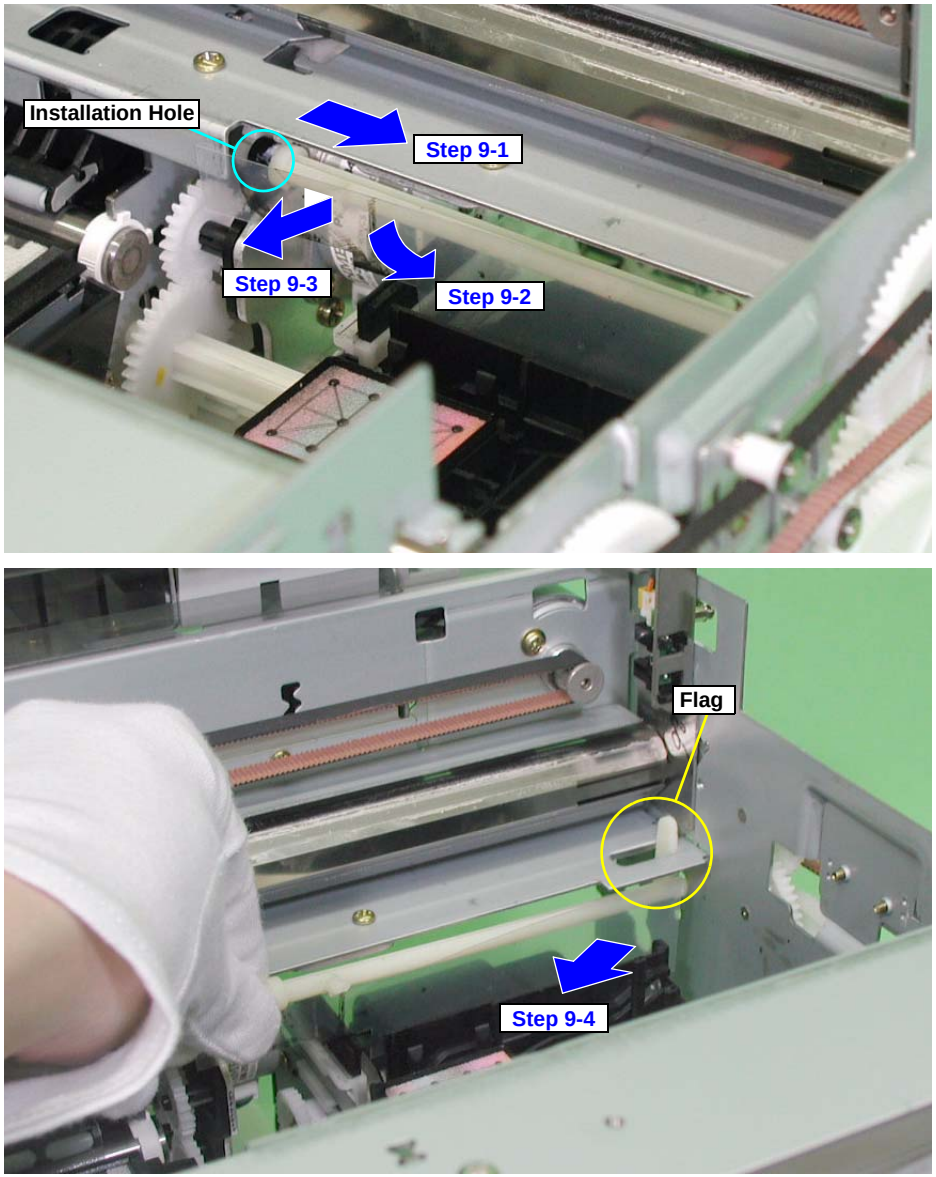


Figure 4-158. Lever, Lock, DE Removal

10. Disconnect the connector from the "Pump Phase Sensor" from behind the printer. *(Refer to Figure 4-159.)*
11. Free all the harnesses from the U-shaped notch of the "Frame, Base, Side, Right". *(Refer to Figure 4-159.)*
12. Remove the four screws securing the "Pump Unit". *(Refer to Figure 4-160.)*
    - C.B.S. 3x6: 3 pcs.
    - C.B.S. 3x8: 1 pc.
13. Shift the "Pump Unit" to the right side and disconnect the linkage with "Combination Gear, 13.6, 28.8". *(Refer to Figure 4-161.)*
14. Remove "Pump Unit" toward rear. *(Refer to Figure 4-161.)*

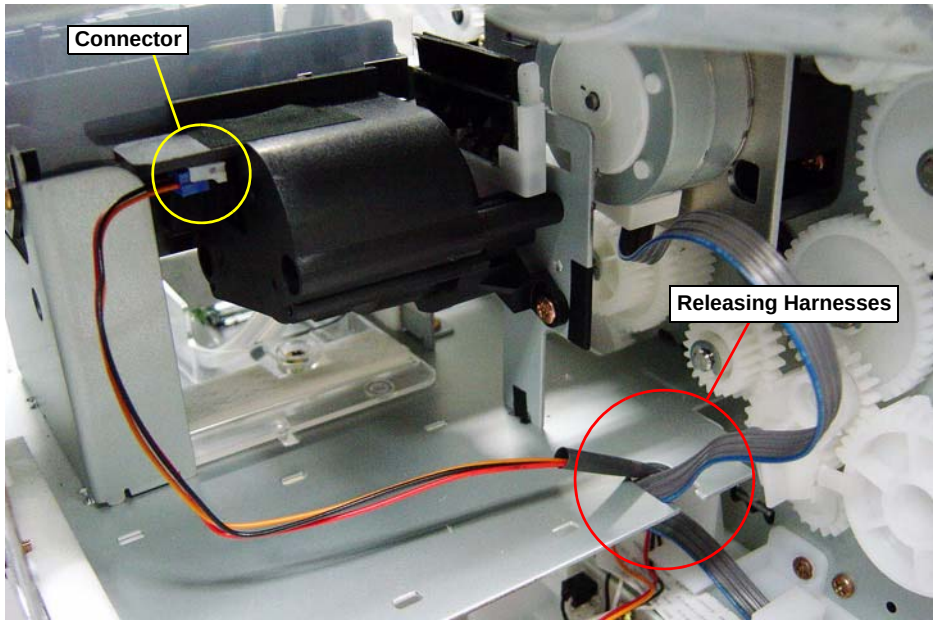


Figure 4-159. Disconnecting the Pump Phase Sensor Connector

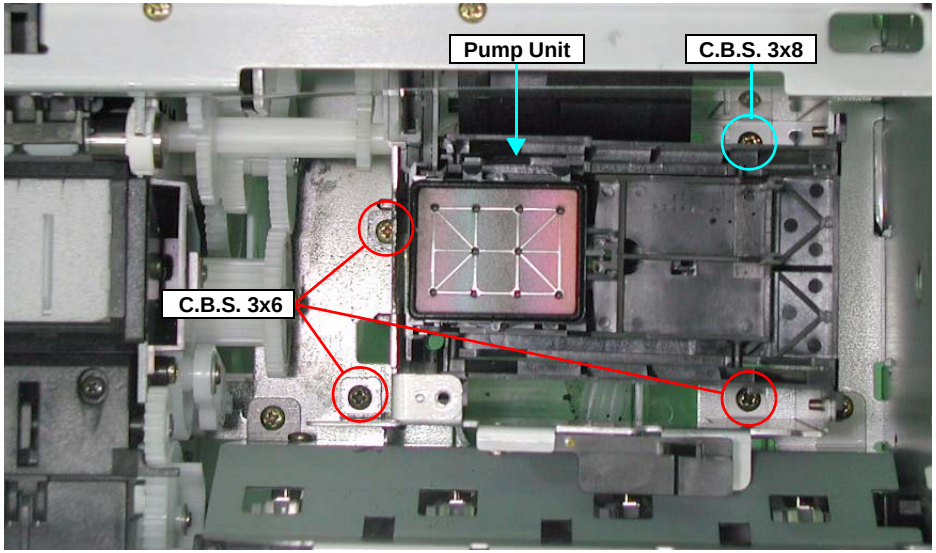


Figure 4-160. Screws Securing Pump Unit

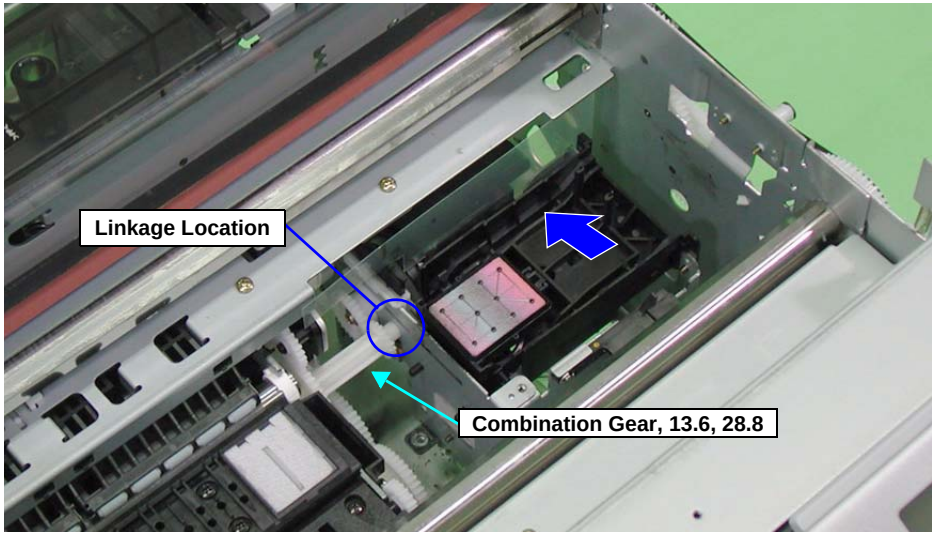
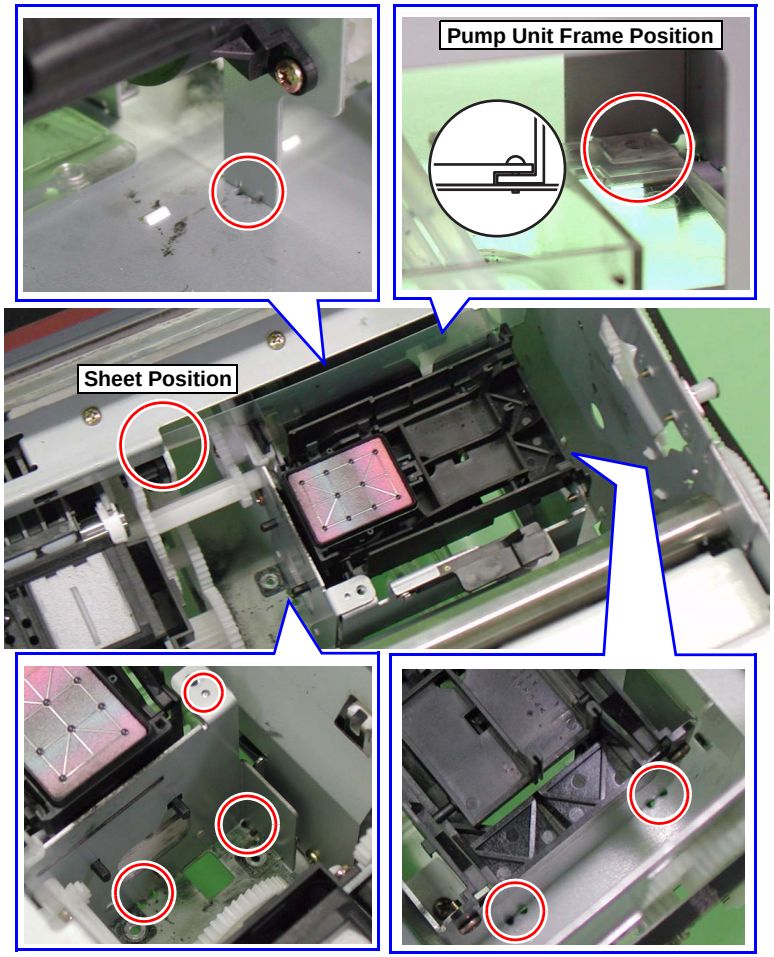


Figure 4-161. Pump Unit Removal

REASSEMBLY

The "Pump Unit" must be reassembled properly. An incorrect assembly may cause malfunction of the printer and lower the print quality due to poor pumping.

- **Align the five ribs and front side dowel of the "Pump Unit" with the six frame positioning holes.**
- **Slip the "Pump Unit" frame under the "Guide, Waste Ink".**
- **The sheet should be on the rear side of the printer frame.**



ADJUSTMENT REQUIRED

Be sure to refer to Chapter 5 "Adjustment" *(p.366)* and perform specified adjustments after replacing the "Box Assy., Flushing" and the "Pump Unit".

4.2.8.7 Guide, Waste Ink

1. Remove "Pump Unit".
   (Refer to "4.2.8.6 Box Assy., Flushing / Pump Unit" (p316).)
2. Remove the "Guide, Waste Ink" by following the steps below.
   - 2-1. Push up the "Guide, Waste Ink" from the printer bottom surface to free the dowel from the frame.
   - 2-2. Release the two tabs by pulling toward the rear of printer and then remove the "Guide, Waste Ink".

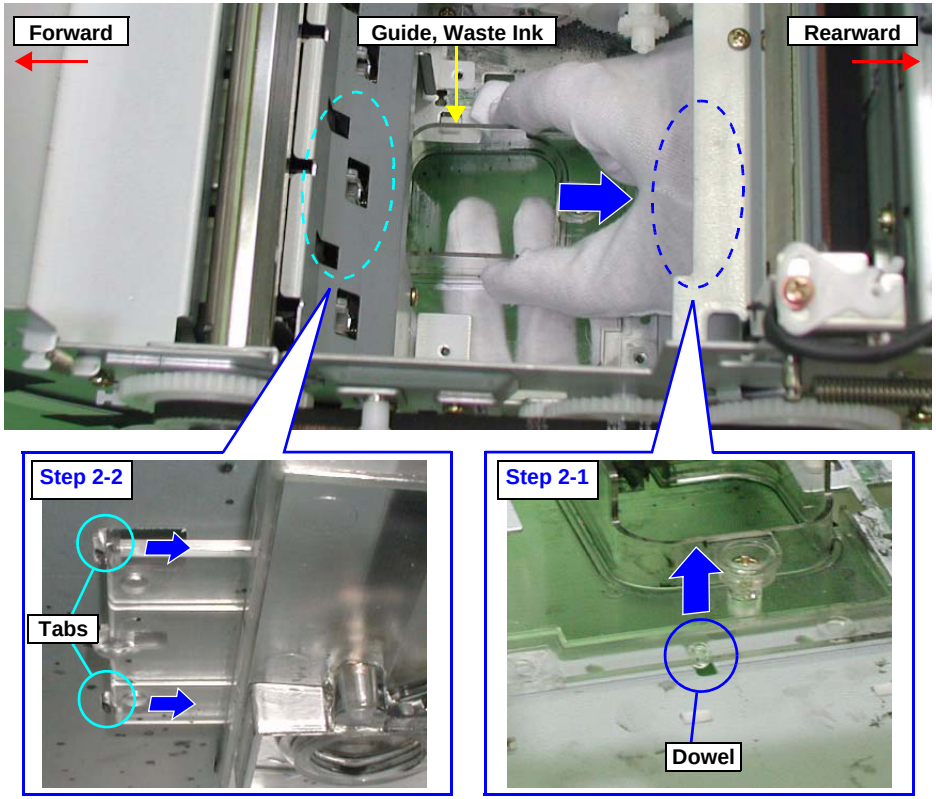


Figure 4-162. Guide, Waste Ink Removal

4.2.8.8 Pump Phase Sensor

1. Remove "Pump Unit".
   (Refer to "4.2.8.6 Box Assy., Flushing / Pump Unit" (p316).)
2. Remove the two screws securing the "Pump Cover".
   (Refer to Figure 4-163.)
   - C.B.P. 3x8: 2 pcs.
3. Remove the "Pump Cover" in the direction of the arrows.
   (Refer to Figure 4-164.)

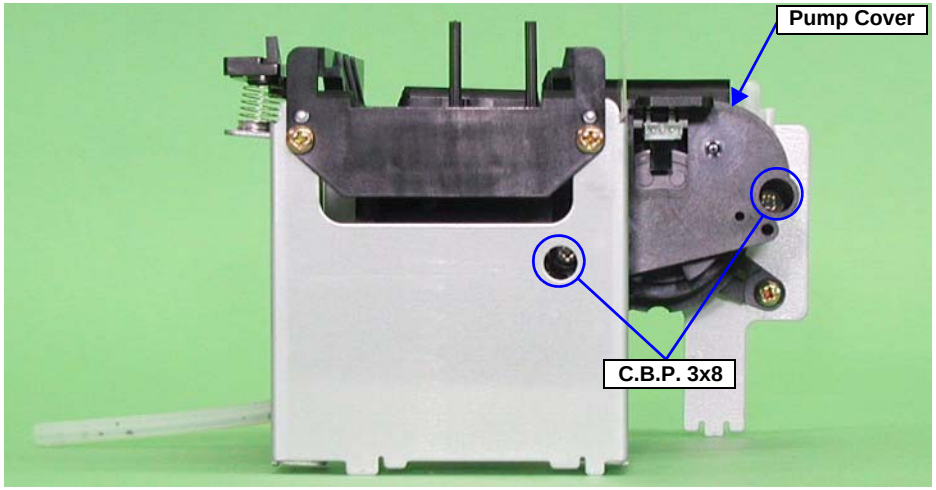


Figure 4-163. Screws Securing the Pump Cover

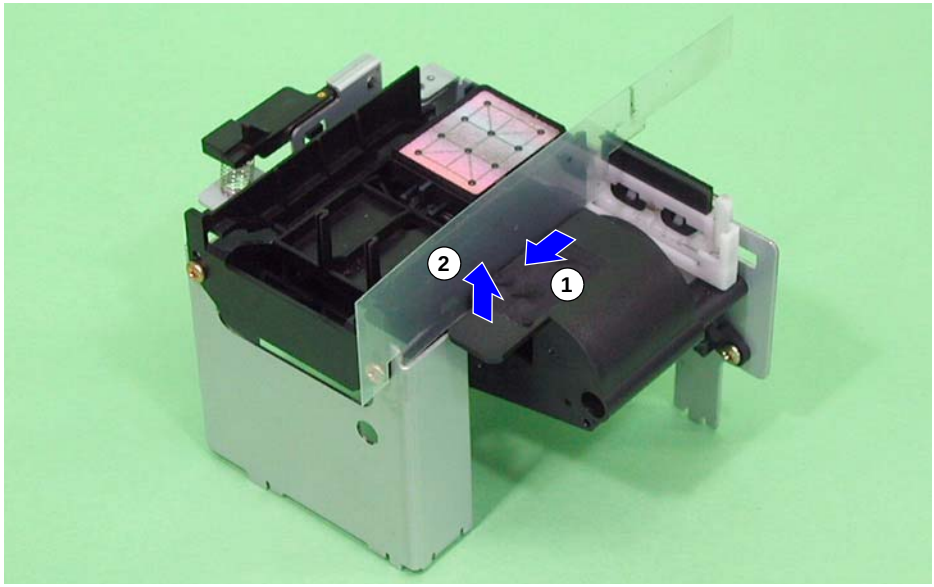
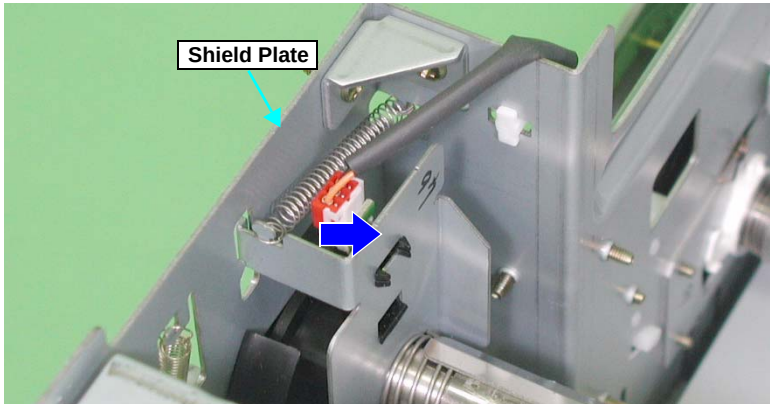


Figure 4-164. Pump Cover Removal

4. Peel off acetate tape.
5. Release tabs securing "Pump Phase Sensor" and then remove "Pump Phase Sensor".

REASSEMBLY

The "Shield Plate" inside the "Pump Cover" may come off when removing the "Pump Cover". If it comes off, install it as shown in the illustration below.



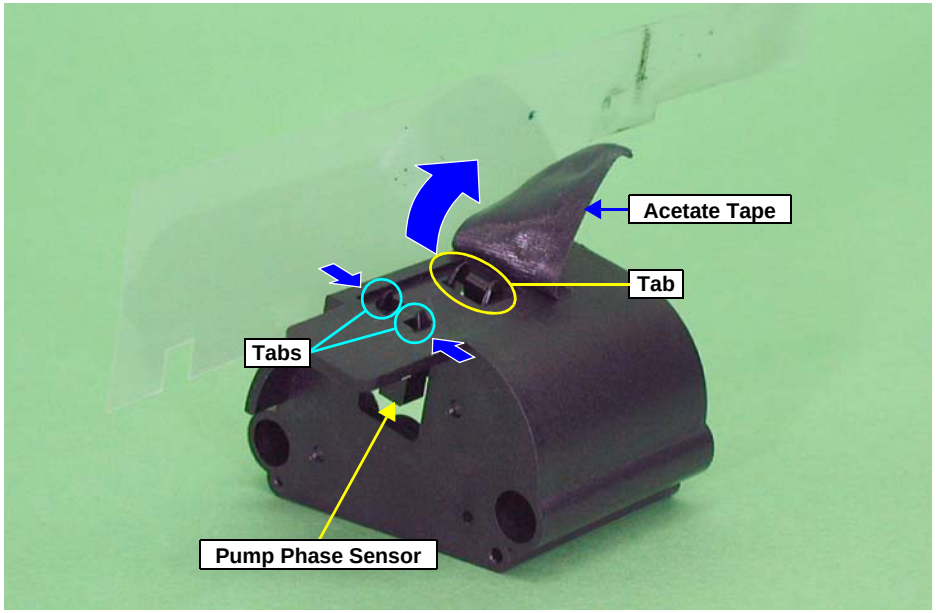


Figure 4-165. Pump Phase Sensor Removal

4.2.8.9 Holder, FFC

1. Move the "Carriadge Unit" depending on which "Holder, FFC" is removed with reference to both Figure 4-166 and the table below.

"Holder, FFC" to be removed	"Carriage Unit" position
A ~ B	Home position
C ~ E	Left end

2. Pinch the upper and lower end of the two "Harness, Head"s and the "Harness, Head, Intermit" with your fingers to make their central parts bowed, and release them from the upper and lower tabs of the "Holder, FFC".

CAUTION

To prevent the "Harness, Head"s and "Harness, Head, Intermit" from being bent, bow the "Harness, Head"s and "Harness, Head, Intermit" little by little.

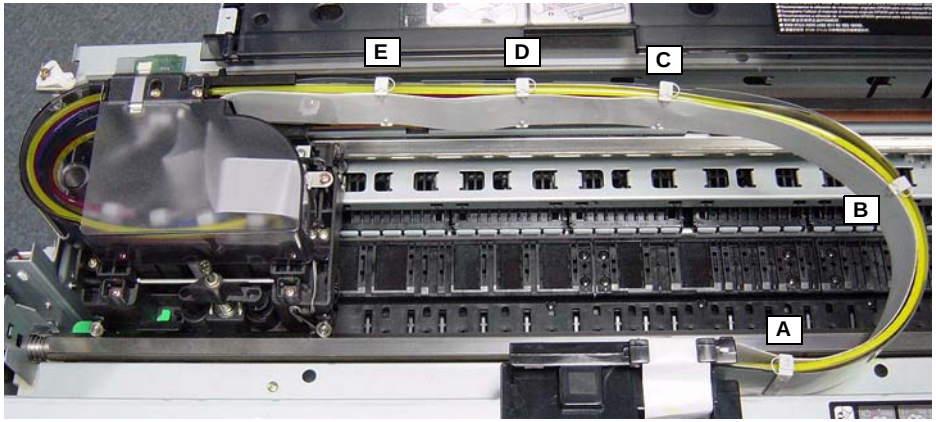


Figure 4-166. Holder, FFC

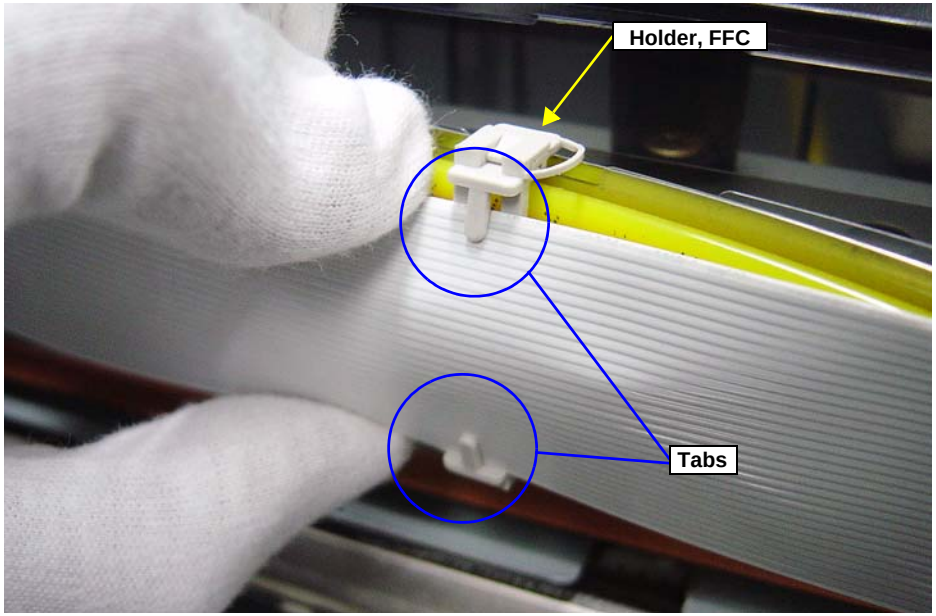


Figure 4-167. Holder, FFC Removal

3. Release the top and bottom tabs of the "Holder, FFC", and open the "Holder, FFC".

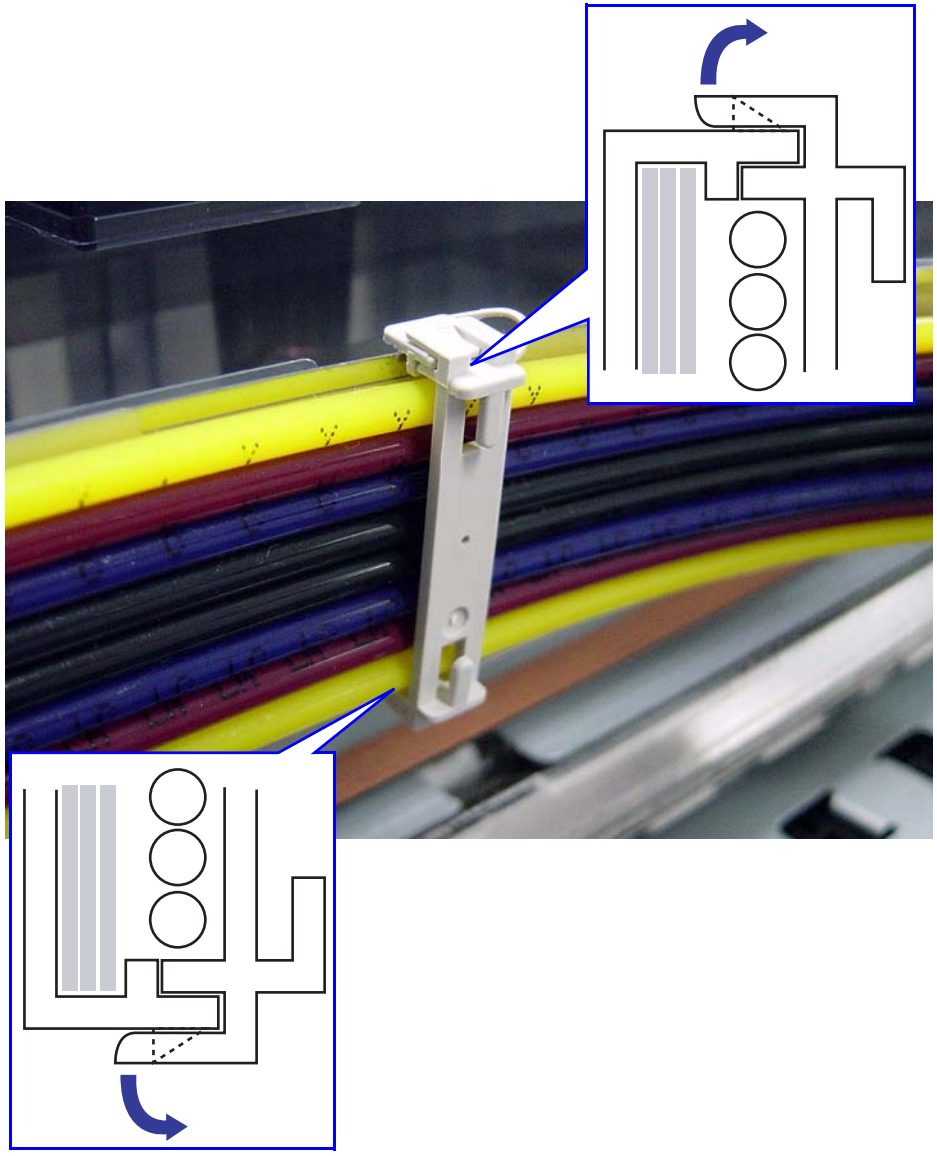


Figure 4-168. Holder, FFC Tabs Release

4. Release the top tab of the "Holder, FFC" from the "Guide Plate, Tube", and remove the "Holder, FFC" backward.

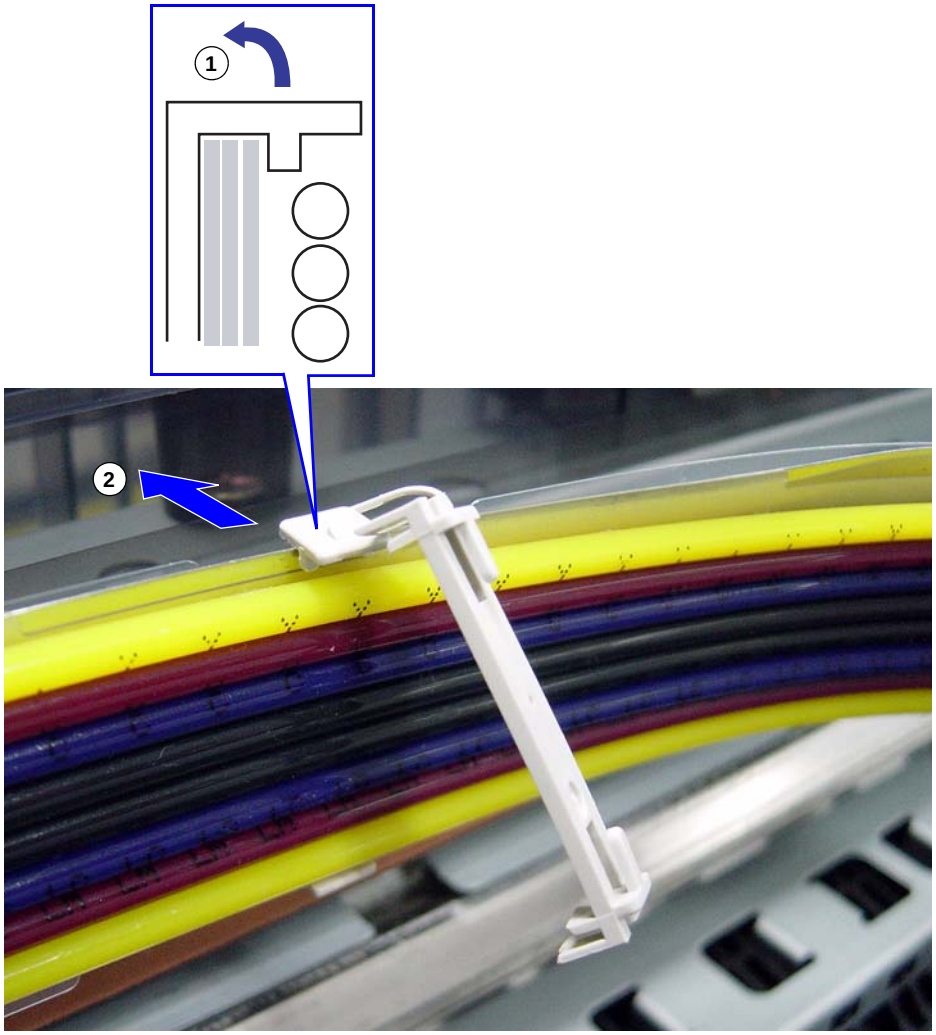
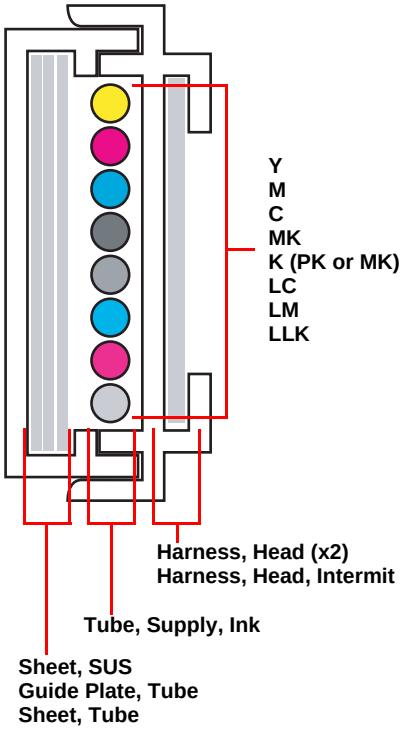


Figure 4-169. "Holder, FFC" Removal

REASSEMBLY

Check the followings after installing the "Holder, FFC".

- **Each part should be properly installed in its prescribed space of the "Holder, FFC".**



- **Move the "Carriage Unit" with hand to make sure that the "Harness, Head" does not come off.**
- **Move the "Holder, FFC; B" from side to side to make sure it moves smoothly. A reinstallation is needed if the "Harness, Head" moves together with the "Holder, FFC".**

4.2.8.10 Holder, FFC; B

1. Move the "Carriadge Unit" depending on which "Holder, FFC; B" is removed with reference to both Figure 4-170 and the table below.

"Holder, FFC; B" to be removed	"Carriage Unit" position
A ~ B	Home position
C ~ E	Left end

2. Pinch the upper and lower end of the two "Harness, Head"s and the "Harness, Head, Intermit" with your fingers to make their central parts bowed, and release them from the upper and lower tabs of the "Holder, FFC; B".

CAUTION

Bend the "Harness, Head"s and "Harness, Head, Intermit" slowly and carefully so as not to fold them down.

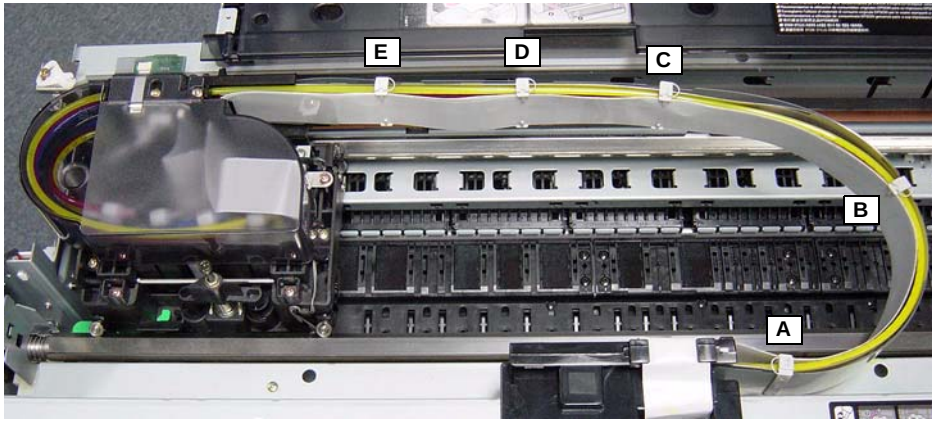


Figure 4-170. Holder, FFC; B

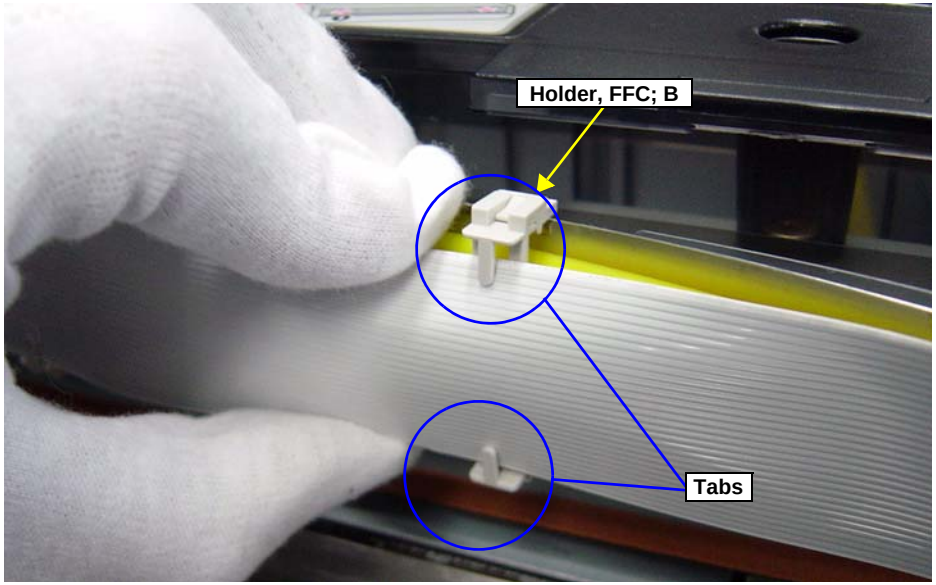


Figure 4-171. Holder, FFC; B Removal

3. Release the top tab of the "Holder, FFC; B" to open the "Holder, FFC; B".

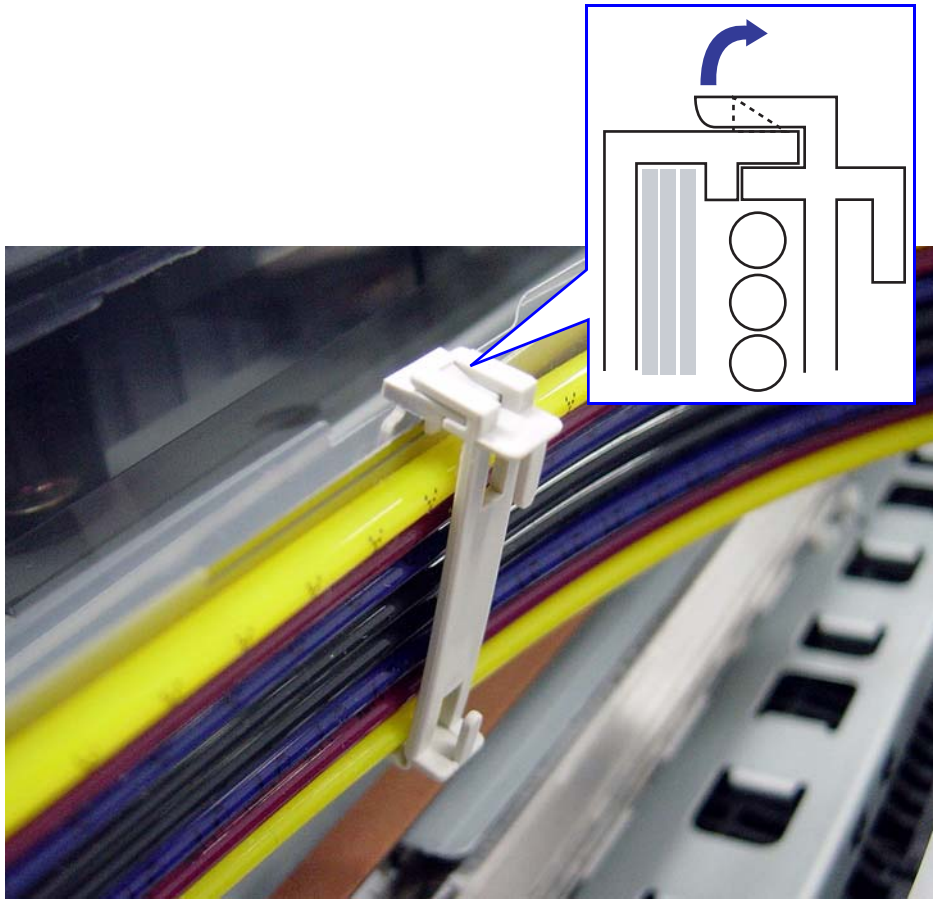


Figure 4-172. Holder, FFC; B Tab Release

4. Release the top tab of the "Holder, FFC; B" from the "Guide Plate, Tube", and remove the "Holder, FFC; B" backward.

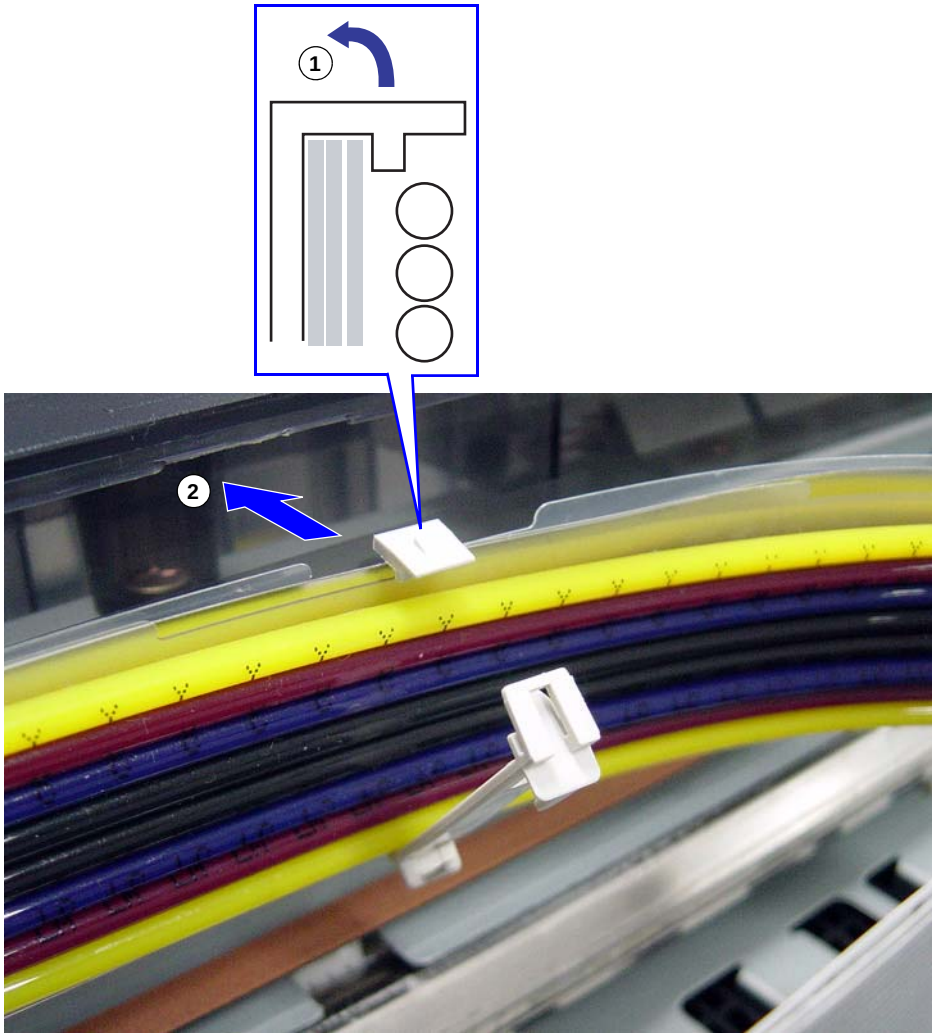
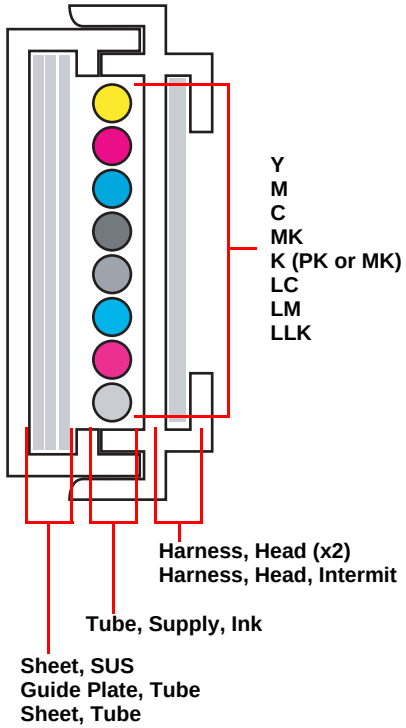


Figure 4-173. "Holder, FFC; B" Removal

REASSEMBLY

Check the followings after installing the "Holder, FFC; B".

- **Each part should be properly installed in its prescribed space of the "Holder, FFC; B".**



- **Move the "Carriage Unit" with hand to make sure that the "Harness, Head" does not come off.**
- **Move the "Holder, FFC; B" from side to side to make sure it moves smoothly. A reinstallation is needed if the "Harness, Head" moves together with the "Holder, FFC; B".**

4.2.8.11 Harness, Head, Intermit / Harness, Head

1. Remove the "Panel, Front".
   (Refer to "4.2.3.5 Panel, Front/Panel Unit" (p219).)
2. Disconnect the "Harness, Head, Intermit" and the three "Harness, Head"s from the following connectors on the "C593 SUB-D Board".
   (Refer to "4.2.4.6 C593_SUB-D Board" (p240).)
   - CN4: Harness, Head, C
   - CN5: Harness, Head, A
   - CN6: Harness, Head, B
3. Remove the clamp that attaches the FFC to the printer frame at the front of the printer. *(Refer to Figure 4-174.)*
4. Release the FFC from the tabs of the "Cover, Tube" and draw out the FFC from the hole on the front frame of the printer. *(Refer to Figure 4-175.)*
5. Release the FFC from the tabs of the "Cover, Tube".
   (Refer to Figure 4-176.)

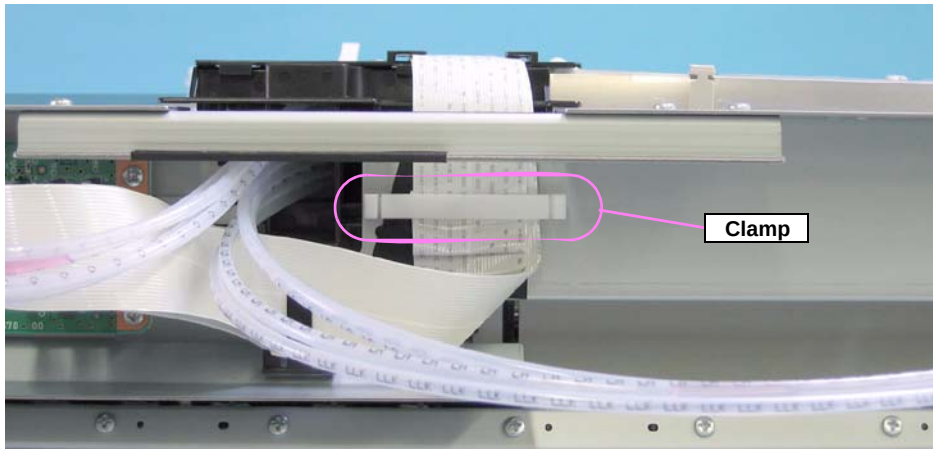


Figure 4-174. FFC Release

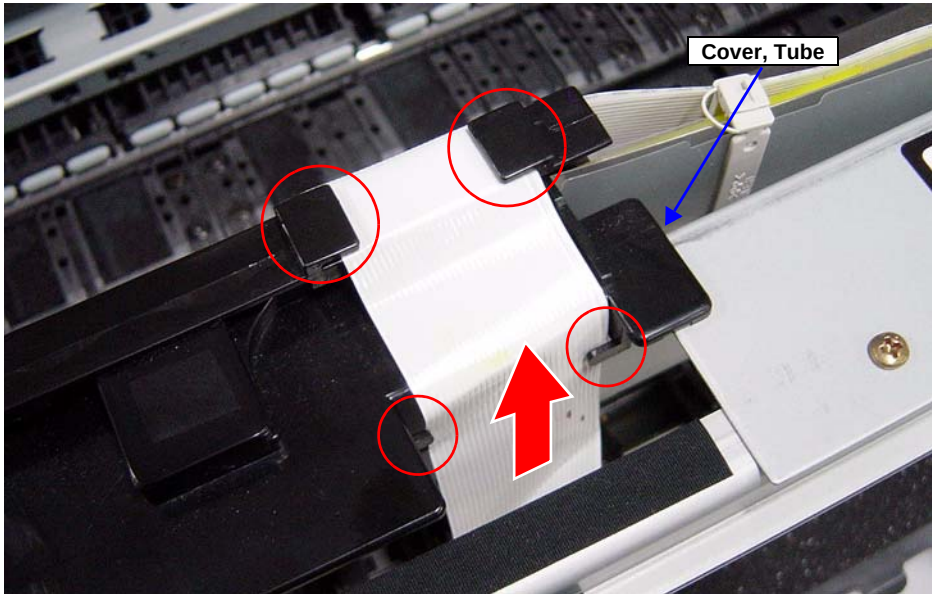


Figure 4-175. Release from Cover, Tube_1

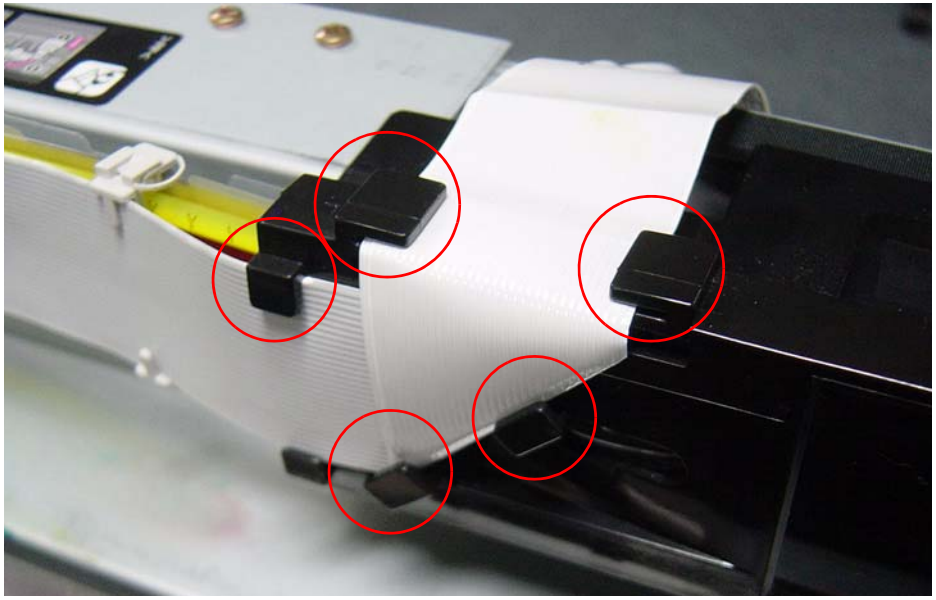
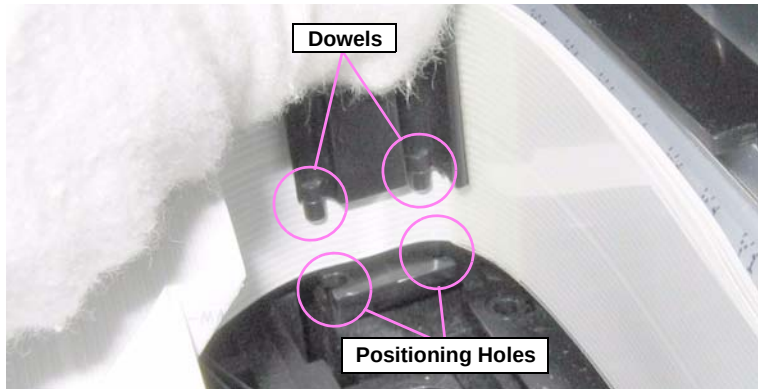


Figure 4-176. Release from Cover, Tube_2

6. Remove the five "Holder, FFC" ("Holder, FFC; B").
   (Refer to p325 and , p328.)
7. Remove the "Carriage Cover".
   (Refer to "4.2.4.3 C593_SUB Board" (p234).)
8. While releasing the upper tab of the "Holeder, FFC, CR" (①), slide the "Holeder, FFC, CR" frontward to remove it (②). *(Refer to Figure 4-177.)*
9. Disconnect the "Harness, Head, C" from the connector on the "C593_SUB Board". *(Refer to Figure 4-177.)*

REASSEMBLY

When reassembling the "Holder, FFC, CR", match the dowels with the positioning holes of the "Carriage Unit" and install the "Holder, FFC, CR", then secure it with the tab.



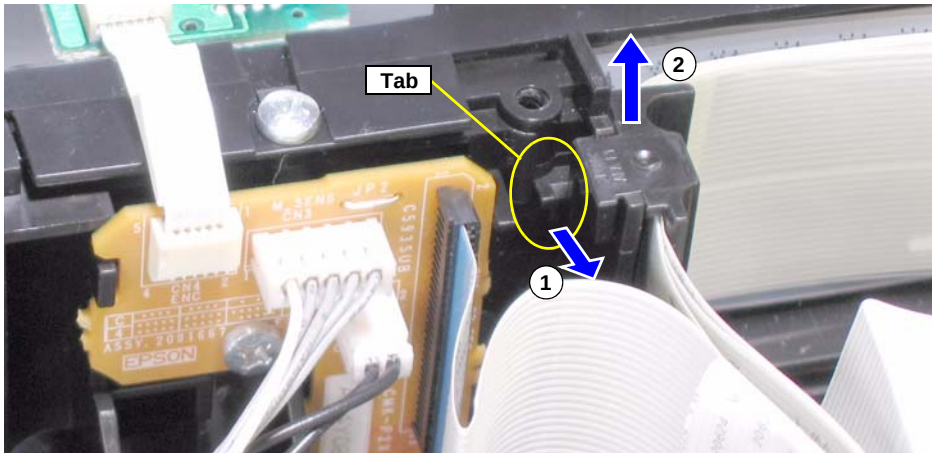


Figure 4-177. Holder, FFC, CR Removal

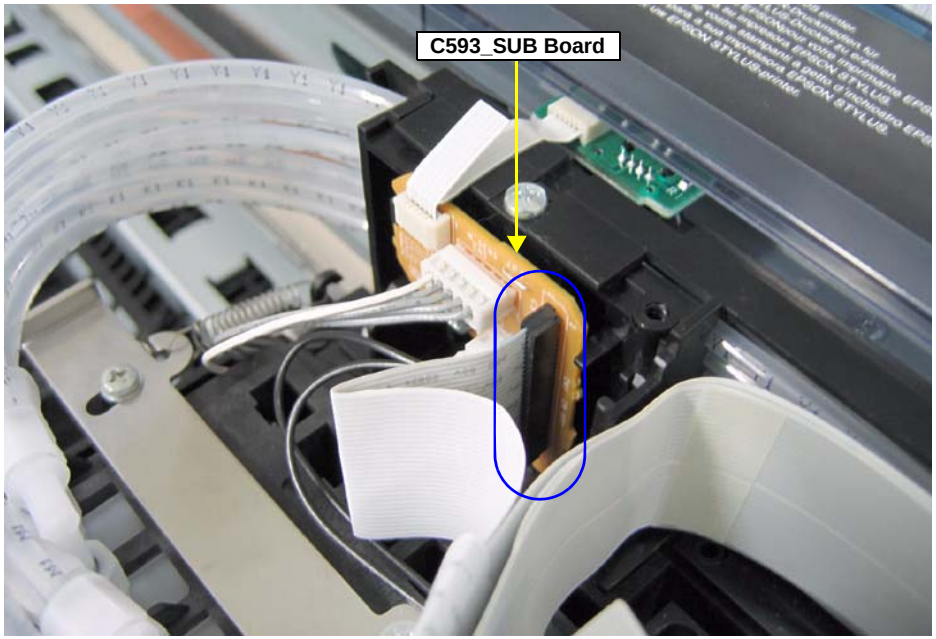


Figure 4-178. Harness, Head, C Removal

10. Peel off the three pieces of acetate tape that bundle the FFCs, then remove the "Harness, Head, C". *(Refer to Figure 4-179.)*
11. Release the "Harness, Head" from the "Printhead". *(Refer to "4.2.8.1 Printhead" (p285).)*
12. Draw out the "Harness, Head"s from the "Carriage Unit". *(Refer to Figure 4-180.)*

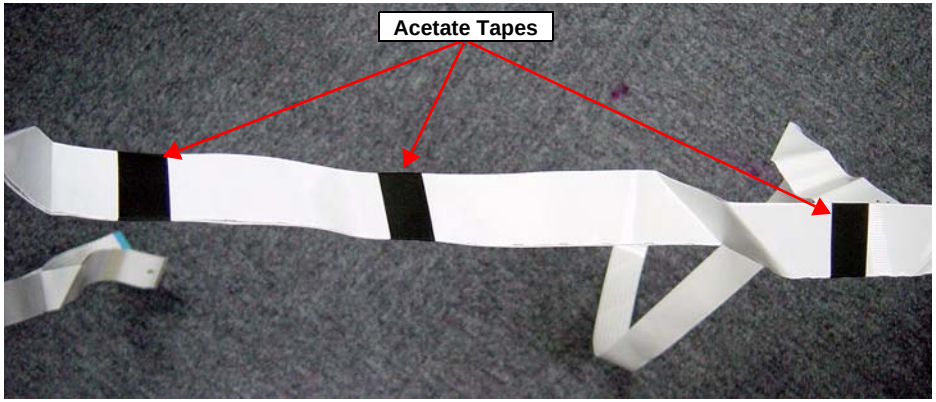


Figure 4-179. FFC Release

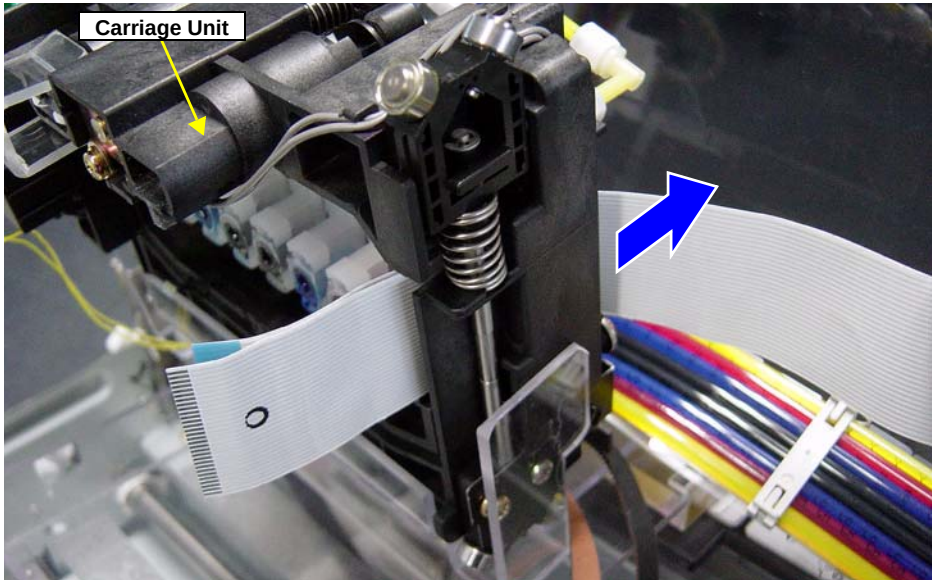
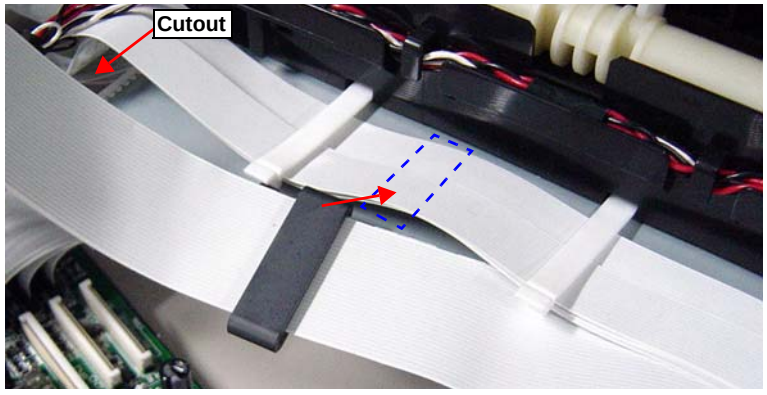


Figure 4-180. Harness Head Removal

4.2.8.12 Harness, Head, Intermit

1. Remove the "Panel, Front".
   (Refer to "4.2.3.5 Panel, Front/Panel Unit" (p219).)
2. Disconnect the three "Harness, Head, Intermit"s from the following connectors on the "C593 MAIN Board".*(Refer to "4.2.4.1 C593 MAIN Board" (p226).)*
   - CN7: Harness, Head, Intermit
   - CN8: Harness, Head, Intermit A
   - CN9: Harness, Head, Intermit B
3. Disconnect the three "Harness, Head, Intermit"s from the following connectors on the "C593_SUB-D Board".*(Refer to "4.2.4.6 C593_SUB-D Board" (p240).)*
   - CN7: Harness, Head, Intermit
   - CN8: Harness, Head, Intermit B
   - CN9: Harness, Head, Intermit A
4. Remove the ten clamps shown in Figure 4-181, remove the Ferrite Core, and then release the FFC along the left side of the printer.
5. Draw out the FFC from the hole on the left frame.*(Refer to Figure 4-182.)*

The Ferrite Core should be attached between the first and second clamps from the cutout in the figure below which is on the backside of the printer.



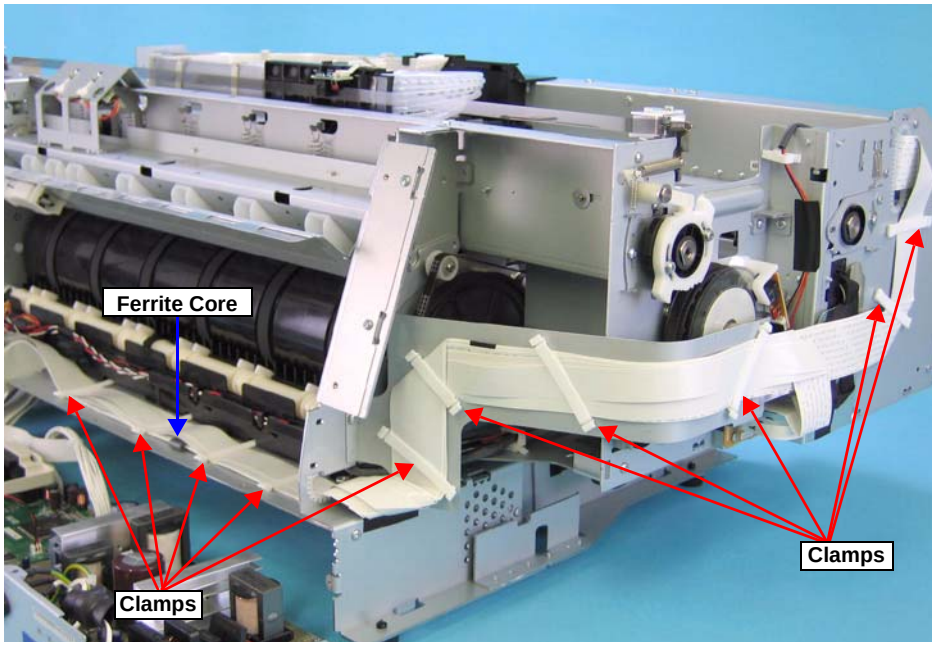


Figure 4-181. FFC Release_1

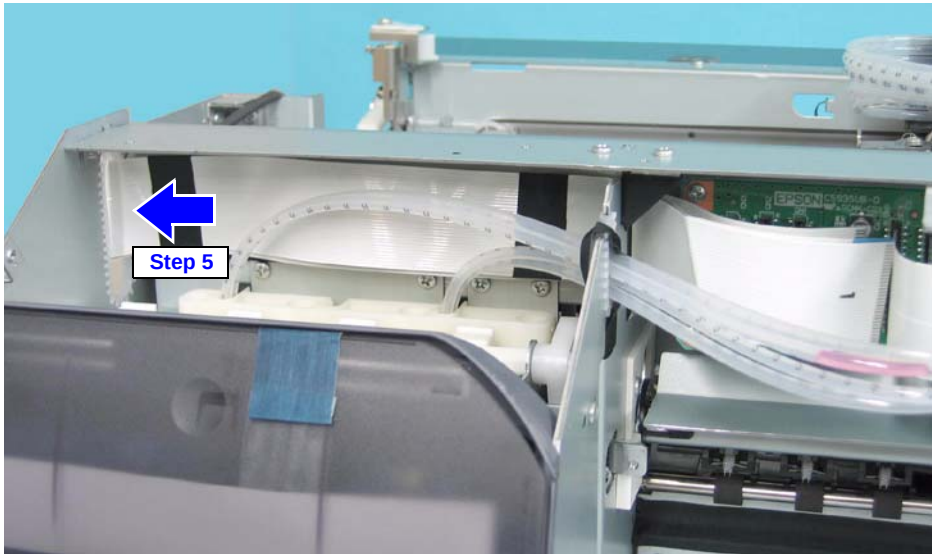


Figure 4-182. FFC Release_2

4.2.8.13 Tube, Supply, Ink (Y/M/C/MK) on the Left Side of the Main Unit

CAUTION

When performing the following work, remove ink out of ink path before removing the "Tube, Supply, Ink". Refer to Chapter 5 "Adjustment" *(p.366)* to know how to remove ink. Some amount of ink remains inside the "Tube, Supply, Ink" even after the ink removal. Prepare pieces of cloth in advance and put a sheet of paper on the work area in case the ink spatters inside and around the printer. In addition to this, keep the removed "Tube, Supply, Ink" with its head coverd with a plastic bag during the work.

1. Remove the "I/H Left Unit", and remove the "Cover, Holder, IC, Left" on the backside of the "I/H Left Unit".
   (Refer to "4.2.8.4 I/H Left Unit / I/H Lever Sensor (Left)" (p296).)
2. Loosen the "Coupling Screw, M7" that is on the side of the"Tube, Supply, Ink" to remove the "Tube, Supply, Ink". *(Refer to Figure 4-183.)*
3. Remove the "O-ring, coupling M7" and the "Coupling Screw, M7" from the "Tube, Supply, Ink". *(Refer to Figure 4-183.)*

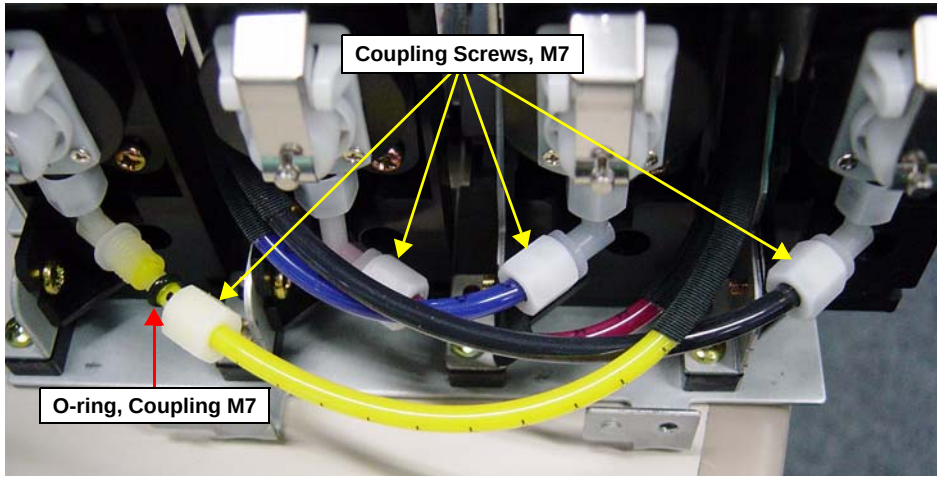
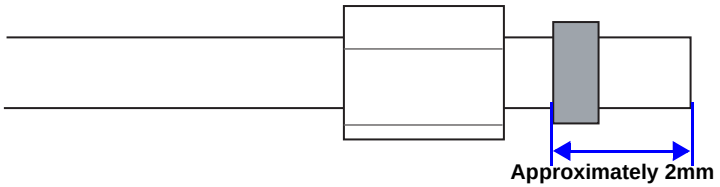


Figure 4-183. Coupling Screw, M7 Removal

REASSEMBLY

- **The "O-ring, Coupling M7" should be attatched 2mm away from the end point of the "Tube, Supply, Ink".**



- **To prevent ink leakage and damage on the Coupling screw, be sure to tighten the "Coupling Screw, M7" with the prescribed torque and the tool specified below.**
  - **Tool: Torque Wrench 1.25/1.75 (1277142)**
  - **Tightning torque: 1.25 (± 0.25) kgf •cm**

4. Release the "Tube, Supply, Ink" from both the tabs and tube holder sections of the "I/H Left Unit". *(Refer to Figure 4-184.)*

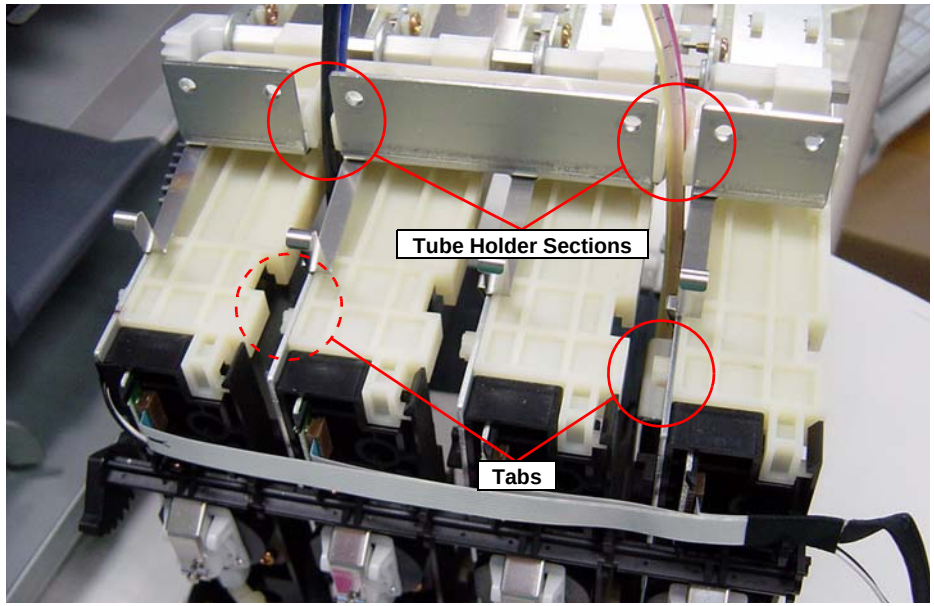
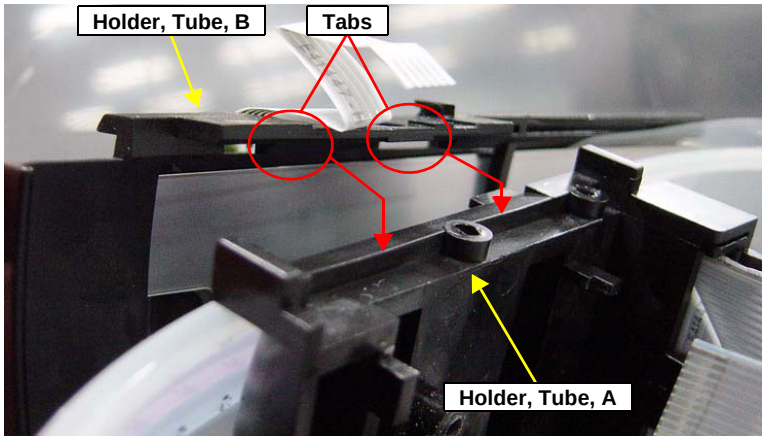


Figure 4-184. "Tube, Supply, Ink" Release

5. Loosen the "Coupling Screw, M7"s that secure the "Tube, Supply, Ink"s to the "Head Unit" to draw out the "Coupling Screw, M7"s. *(Refer to Figure 4-185.)*
6. Remove the "O-ring, Coupling M7"s and "Coupling Screw, M7"s from the "Tube, Supply, Ink"s. *(Refer to "4.2.8.2 Valve Assy., Head" (p291).)*
7. Remove the five "Holder, FFC"s ("Holder, FFC; B"). *(Refer to p325 and , p328.)*
8. Remove "C593_SUB Board" *(p234).*
9. Remove the "Ink Tube Unit" from the "Carriage Unit". *(Refer to "4.2.7.1 Carriage Unit" (p266).)*
10. Remove the screw that secures both the "Holder, Tube, A" and "Holder, Tube, B", and separate the "Holder, Tube, A" from the "Holder, Tube, B".
    - C.B.P. 3x8: 1 pc.

REASSEMBLY

Hitch the two tabs on the "Holder, Tube, B" to the "Holder, Tube, A" before tightening the screw.



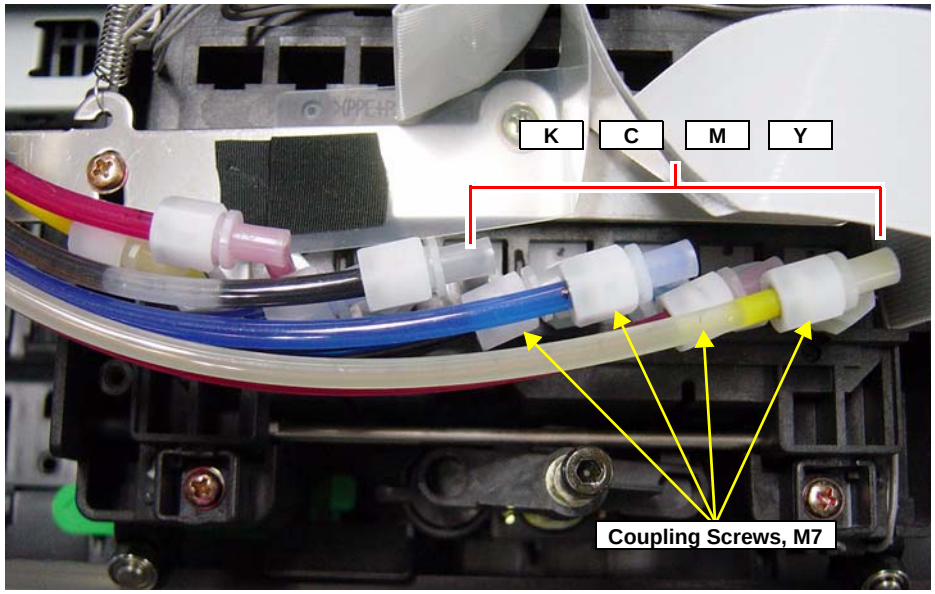


Figure 4-185. Coupling Screw, M7 Removal

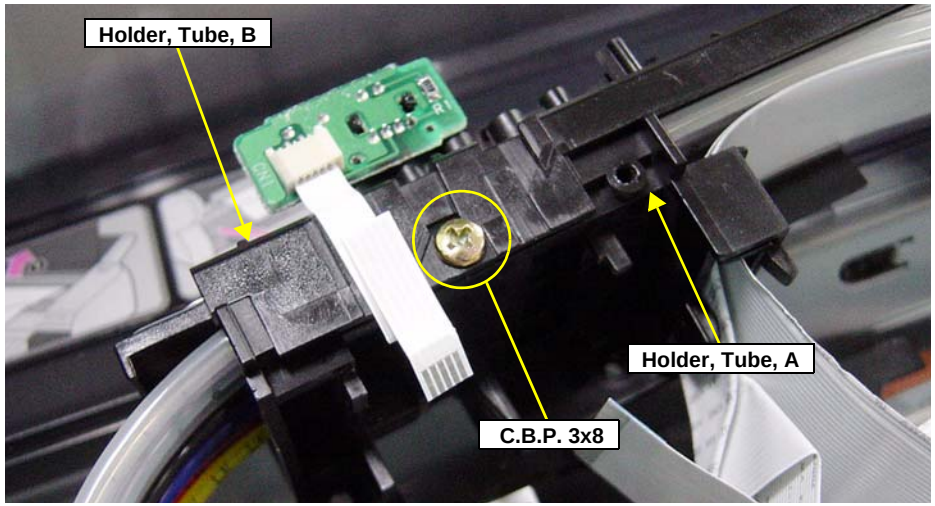


Figure 4-186. Separation Holder, Tube, A from Holder, Tube, B

11. Release the "Tube, Supply, Ink" from the tabs of the "Holder, Tube, A".
12. Remove the three screws that secures the "Cover, Tube" to the printer frame, lift it upward, release the three upper tabs, and then remove the "Cover, Tube".
    - C.B.P. 3x8: 3 pcs.

REASSEMBLY

- **Hitch the three tabs on the "Cover, Tube" to the "Guide, Tube, CR" before tightening the screws.**
- **Tighten the screws in the order shown in Figure 4-188.**

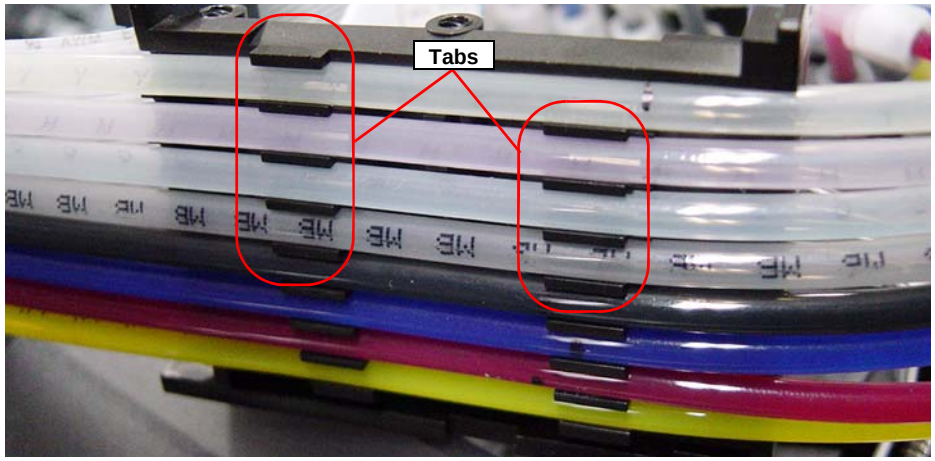


Figure 4-187. Tube, Supply, Ink Release

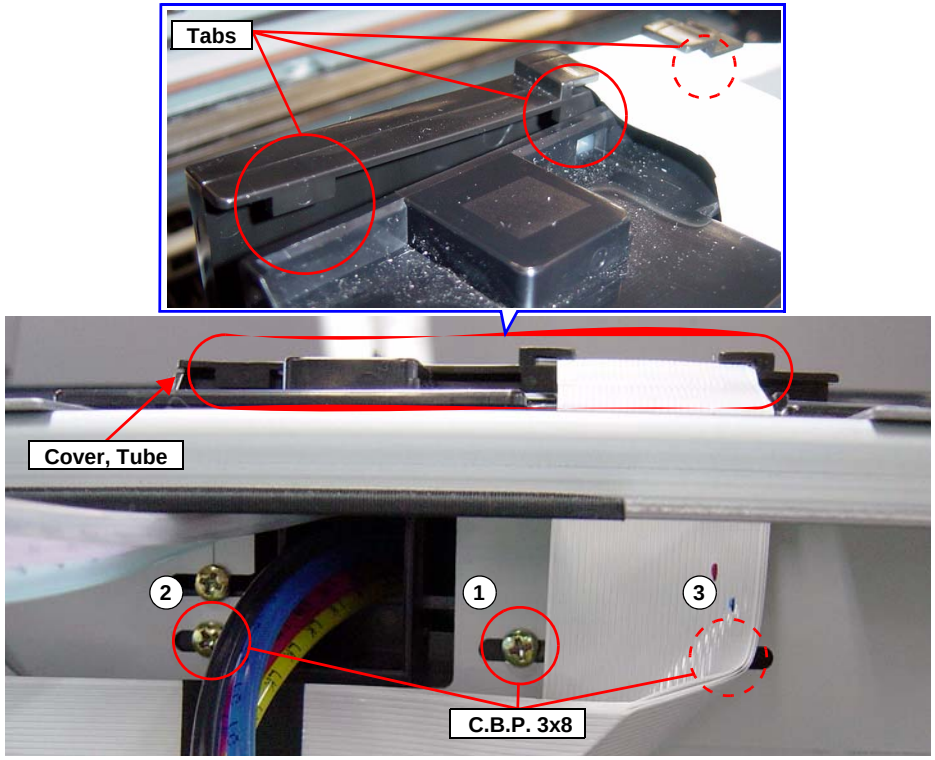


Figure 4-188. Cover, Tube Removal

13. Draw out the "Tube, Supply, Ink" to remove it from the front side of the printer.

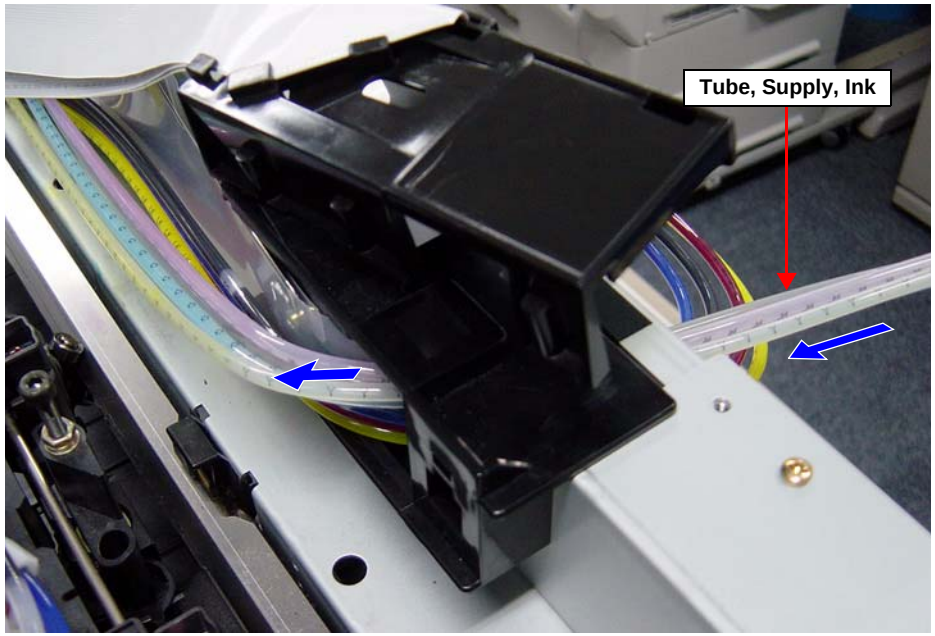


Figure 4-189. Tube, Supply, Ink Removal

4.2.8.14 Tube, Supply, Ink (LK/LC/LW/LLK) on the Right Side of the Main Unit

CAUTION

When performing the following work, remove ink out of the ink path befoe removing the "Tube, Supply, Ink". Refer to Chapter 5 "Adjustment" *(p.366)* to know how to remove ink. Some amount of ink remains inside the "Tube, Supply, Ink" even afetr the ink removal. Prepare a cloth in advance and put a sheet of paper on the work area in case the ink spatters inside and around the printer. In addition to this, keep the removed "Tube, Supply, Ink" with its head coverd with a plastic bag during the work.

1. Remove the "I/H Right Unit", and remove the "Cover, Holder, IC, Right" on the backside of the "I/H Right Unit".
   (Refer to "4.2.8.5 I/H Right Unit / I/H Lever Sensor (Right)" (p305).)
2. Loosen the "Coupling Screw, M7"s that secure the "Tube, Supply, Ink"s to remove the "Tube, Supply, Ink"s. *(Refer to Figure 4-190.)*
3. Remove the "O-ring, Coupling M7"s and the "Coupling Screw, M7"s from the "Tube, Supply, Ink"s. *(Refer to Figure 4-190.)*

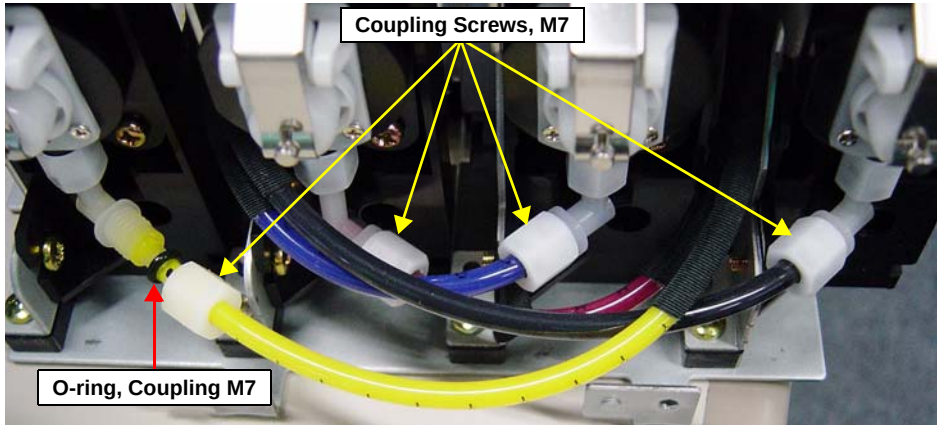
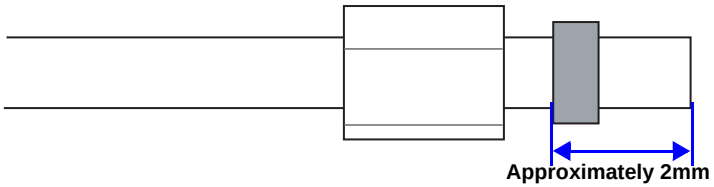


Figure 4-190. Coupling Screw, M7 Removal

REASSEMBLY

- **The "O-ring, Coupling M7" should be attatched 2mm away from the head of the "Tube, Supply, Ink".**



- **To prevent ink leakage and damage on the Coupling screw, be sure to tighten the "Coupling Screw, M7" with the prescribed torque and the tool specified below.**
  - **Tool: Torque Wrench 1.25/1.75 (1277142)**
  - **Tightning torque: 1.25 (± 0.25) kgf • cm**

4. Release the "Tube, Supply, Ink" from both the tabs and tube holder sections of the "I/H Right Unit". *(Refer to Figure 4-191.)*

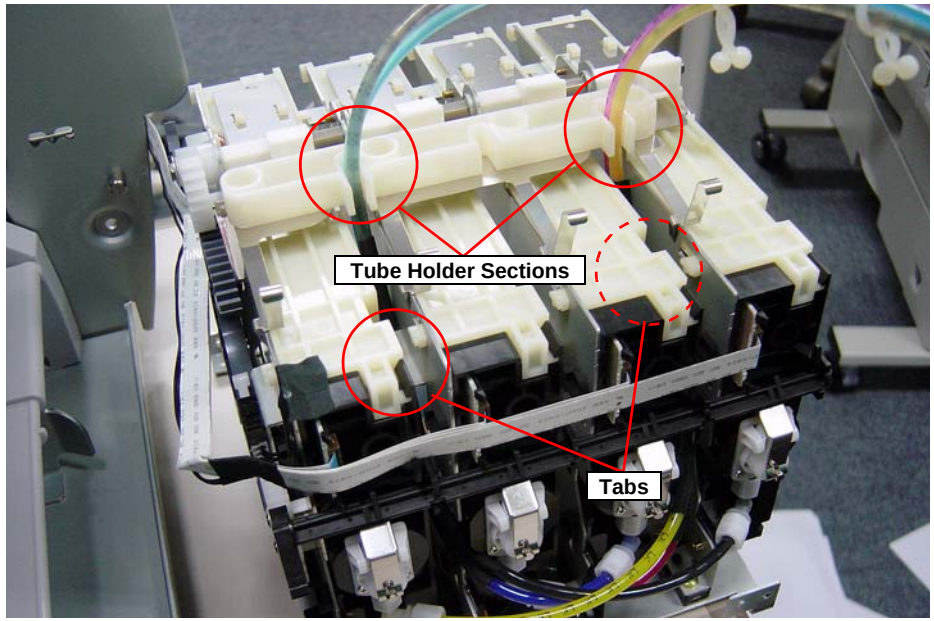
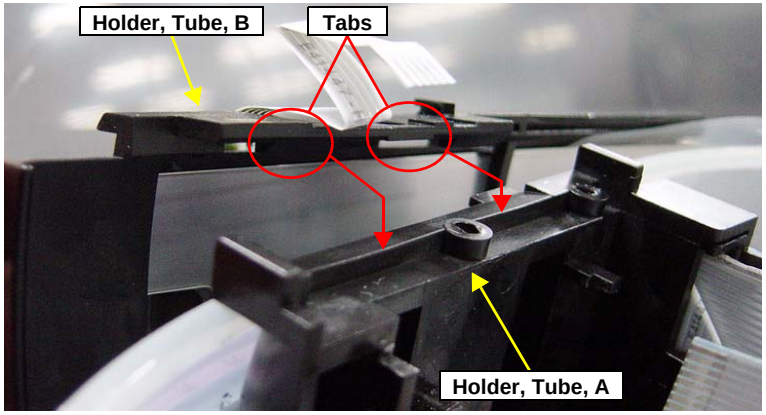


Figure 4-191. "Tube, Supply, Ink" Release

5. Loosen the "Coupling Screw, M7"s that secure the "Tube, Supply, Ink"s to the "Head Unit" to draw out the "Coupling Screw, M7"s.
   (Refer to Figure 4-192.)
6. Remove the "O-ring, Coupling M7"s and "Coupling Screw, M7"s from the "Tube, Supply, Ink"s. *(Refer to "4.2.8.2 Valve Assy., Head" (p291).)*
7. Remove the five "Holder, FFC"s ("Holder, FFC; B").
   (Refer to p325 and , p328.)
8. Remove "C593_SUB Board" *(p234).*
9. Remove the "Ink Tube Unit" from the "Carriage Unit".
   (Refer to "4.2.7.1 Carriage Unit" (p266).)
10. Remove the screw that secures both the "Holder, Tube, A" and "Holder, Tube, B", and separate the "Holder, Tube, A" from the "Holder, Tube, B".
    - C.B.P. 3x8: 1 pc.

REASSEMBLY

Hitch the two tabs on the "Holder, Tube, B" to the "Holder, Tube, A" before tightening the screw.



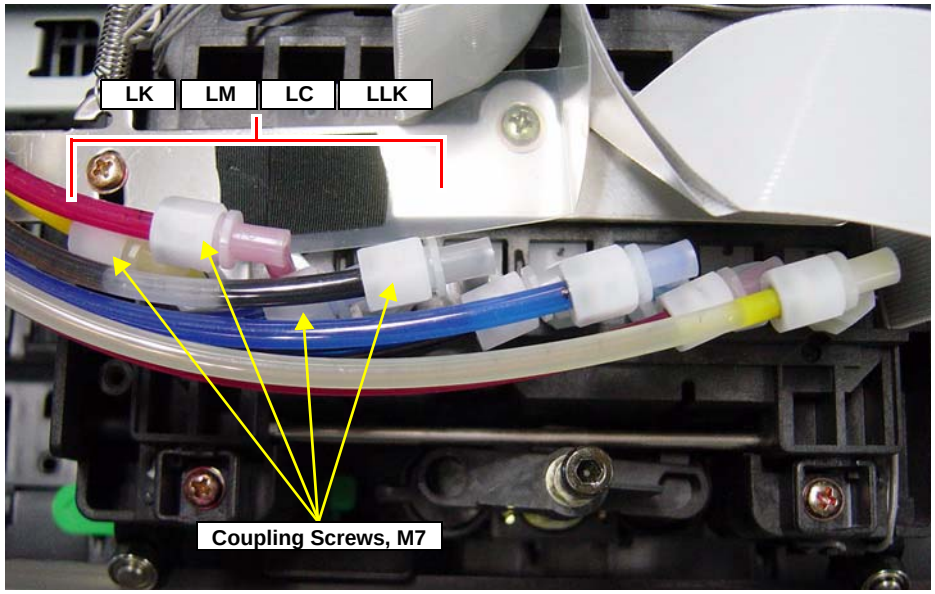


Figure 4-192. Coupling Screw, M7 Removal

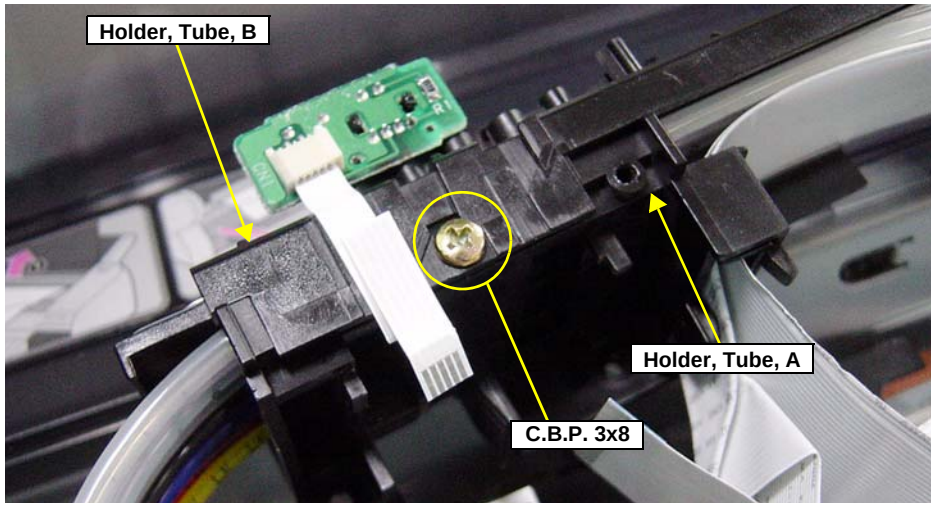


Figure 4-193. Holder, Tube, A and Holder, Tube, B Separation

11. Release the "Tube, Supply, Ink" from the tabs of the "Holder, Tube, A".

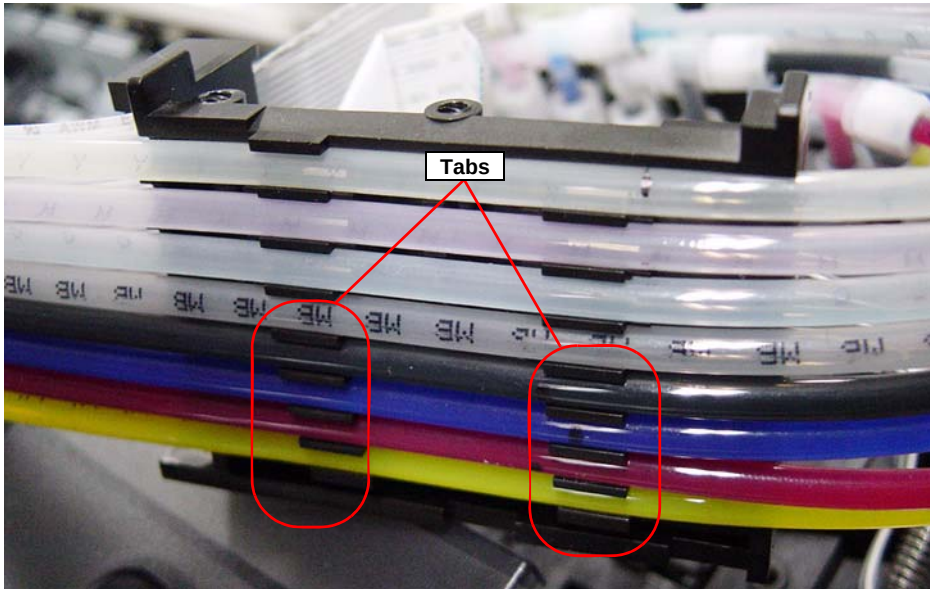


Figure 4-194. Tube, Supply, Ink Release

12. Remove the three screws that secures the "Cover, Tube" to the printer frame, lift it upward, release the three upper tabs, and then remove the "Cover, Tube".
    - C.B.P. 3x8: 3 pcs.

REASSEMBLY

- **Hitch the three tabs on the "Cover, Tube" to the "Guide, Tube, CR" before tightening with the screws.**
- **Tighten the screws in the order shown in Figure 4-195.**

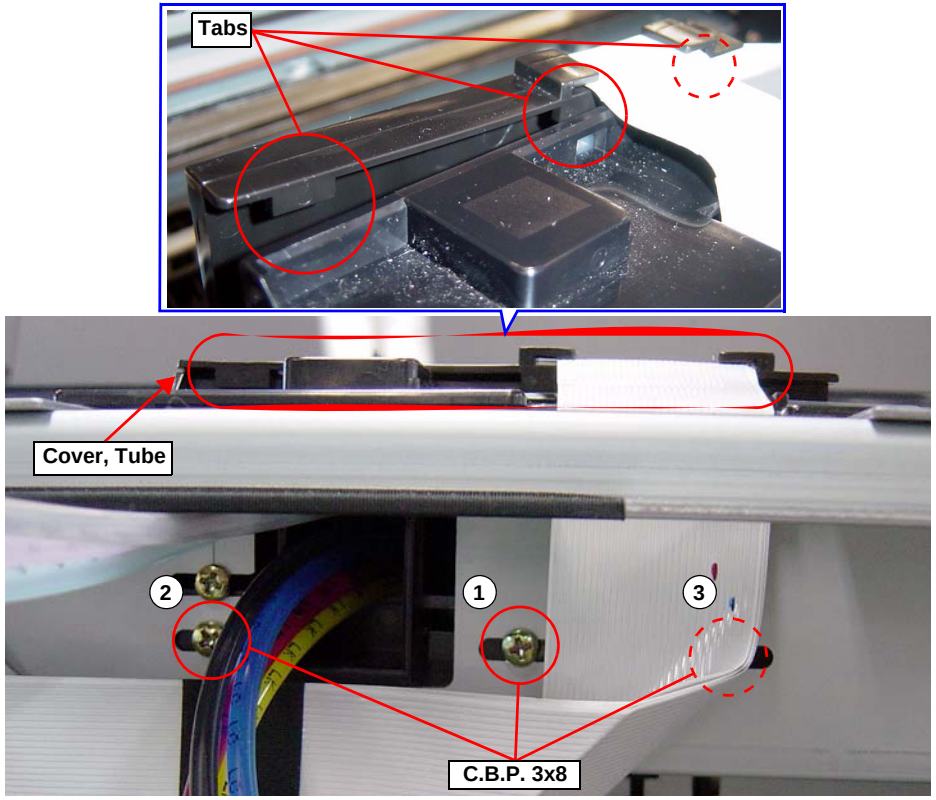


Figure 4-195. Cover, Tube Removal

13. Draw out the "Tube, Supply, Ink" to remove it form the front side of the printer.

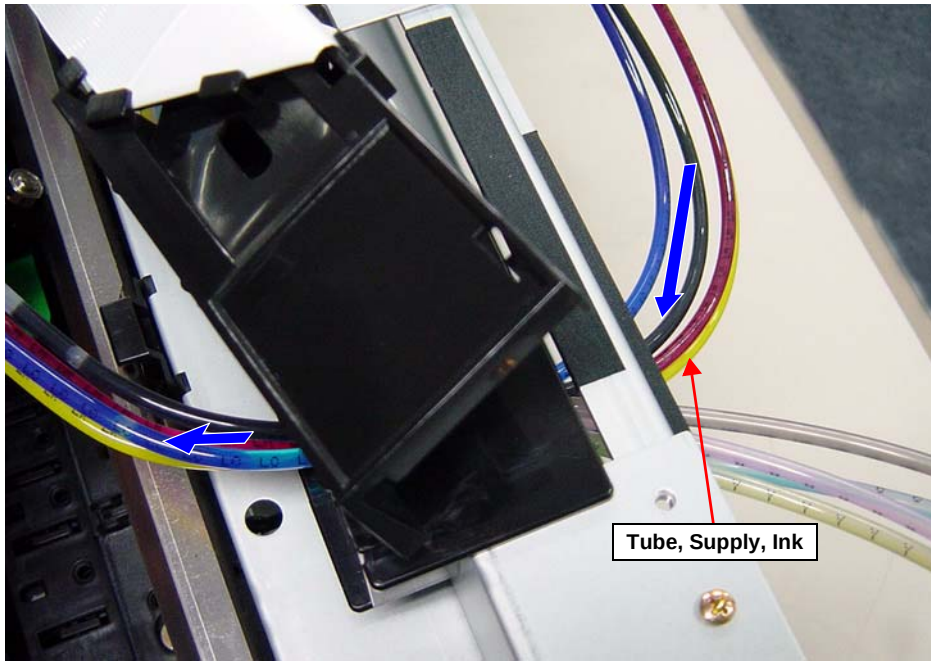


Figure 4-196. Tube, Supply, Ink Removal

4.2.9 Paper Feed Mechanism

4.2.9.1 Release Unit

1. Remove "Cover, Rear" *(p223).*
2. Remove the screw securing "Cover, Inner, Release". *(Refer to Figure 4-197.)*
   - C.B.S. 3x8: 1 pc.
3. Slide "Cover, Inner, Release" to right side, free the two ribs and remove it upward. *(Refer to Figure 4-197.)*
4. Remove the two screws securing "Plate, P Cover, Right" and remove "Plate, P Cover, Right". *(Refer to Figure 4-198.)*
   - C.B.S. 3x6: 2 pcs.

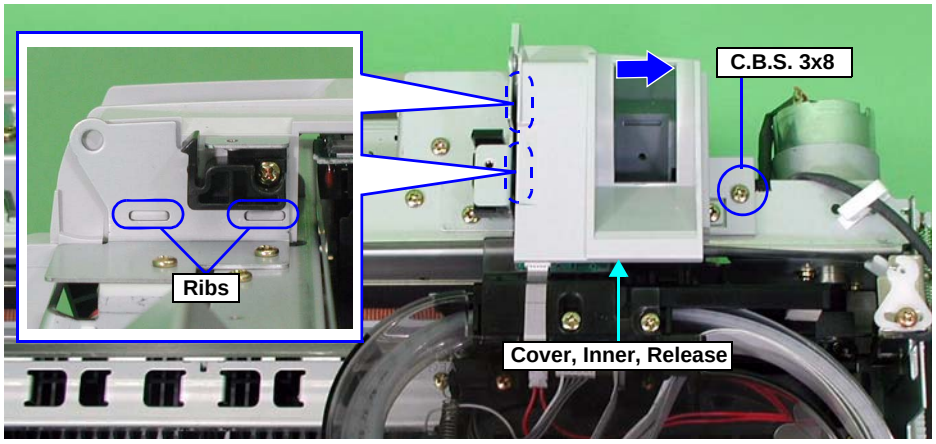
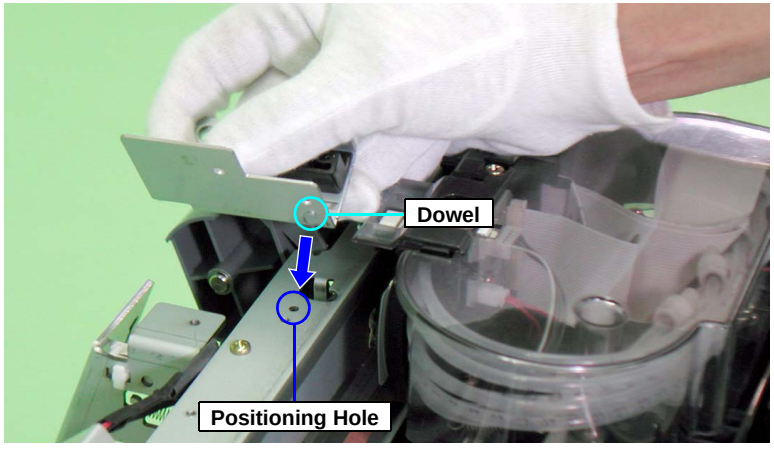


Figure 4-197. Cover, Inner, Release Removal

REASSEMBLY

Align "Plate, P Cover, Right" dowel with main frame positioning hole.



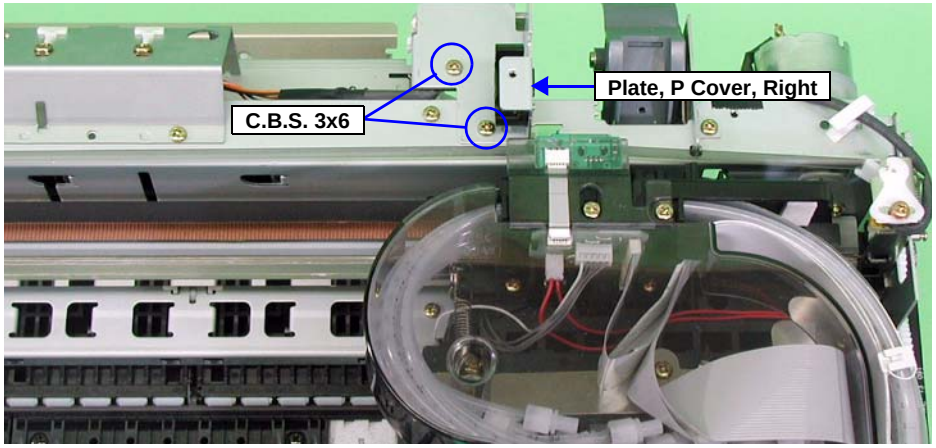


Figure 4-198. Plate, P Cover, Right Removal

.

5. Remove the two screws securing "Release, Lever Unit". *(Refer to Figure 4-199.)*
   - C.B.S. 3x6: 2 pcs.
6. Lift the "Release, Lever Unit" upward to release the tab, and then remove the "Release, Lever Unit" rearward together with the "Spur Gear, 18". *(Refer to Figure 4-199.)*

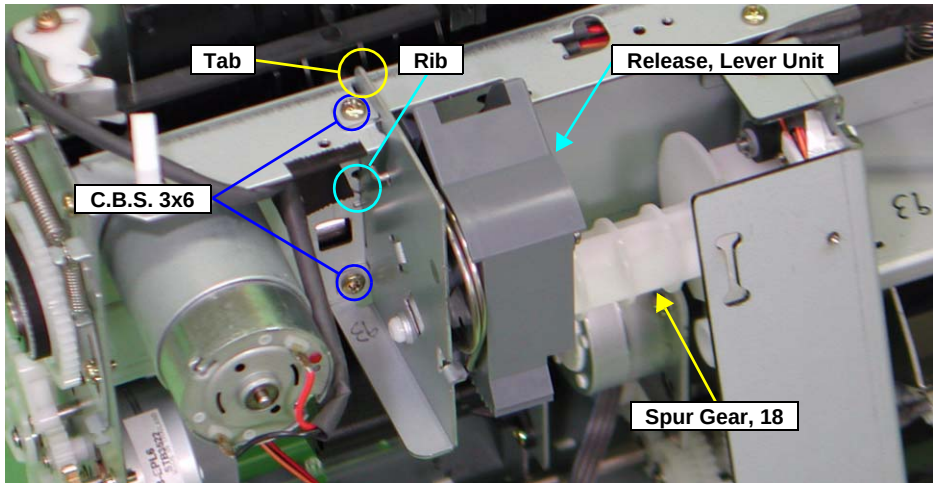
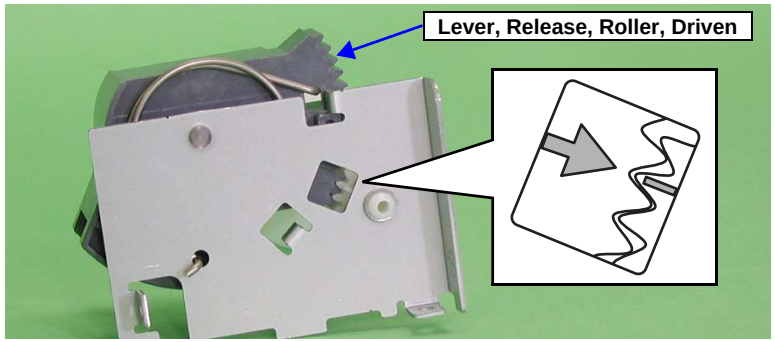


Figure 4-199. Release, Lever Unit and Spur Gear, 18 Removal

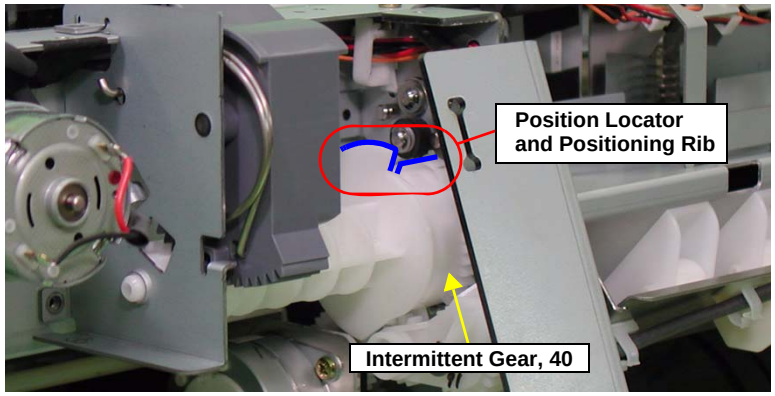
REASSEMBLY

Install the "Release, Lever Unit" and "Spur Gear, 18" by following the steps below.

1. **Seen through the cut-out hole in the "Release, Lever Unit" to align the "Spur Gear, 18" positioning rib with the "Lever, Release, Roller, Driven" arrow and then install "Spur Gear, 18" into "Release, Lever Unit".**



2. **Align "Spur Gear, 18" rib edge with "Intermittent Gear, 40" positioning rib and then install "Release, Lever Unit" and "Spur Gear, 18" onto the printer body.**



3. **Secure with screw after aligning "Release, Lever Unit" by tab and rib. *(Refer to Figure 4-199.)***

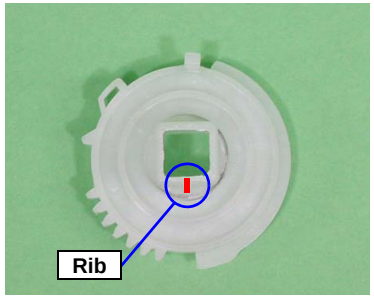
7. Confirm that gears of "Intermittent Gear, 40" and "Release, Planetary Unit" are not engaged. If they are engaged, release engagement by moving "Release, Planetary Unit". *(Refer to Figure 4-200.)*
8. Rotate "Intermittent Gear, 40" in clockwise direction and look from the opposite side of the frame to align the hook and cut-out. *(Refer to Figure 4-201.)*
9. Remove "Intermittent Gear, 40" from printer body. *(Refer to Figure 4-201.)*

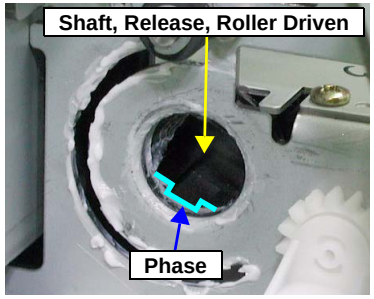
CHECK POINT

If "Intermittent Gear, 40" is difficult to remove, use tweezers or a similar tool to push and remove "Intermittent Gear, 40" by way of the hole on the opposite side of the frame. Be careful not to scratch "Intermittent Gear, 40".

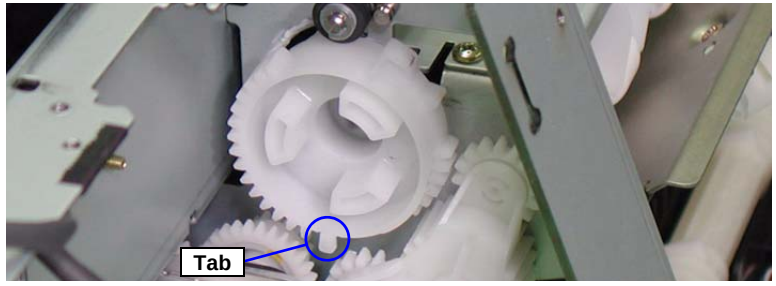
REASSEMBLY

- **Install the "Intermittent Gear, 40" with its positioning rib matched with the "Shaft, Release, Roller Driven" phase position.**





- **After installing "Intermittent Gear, 40" onto "Shaft, Release, Roller Driven", turn it clockwise so the tab faces downward.**



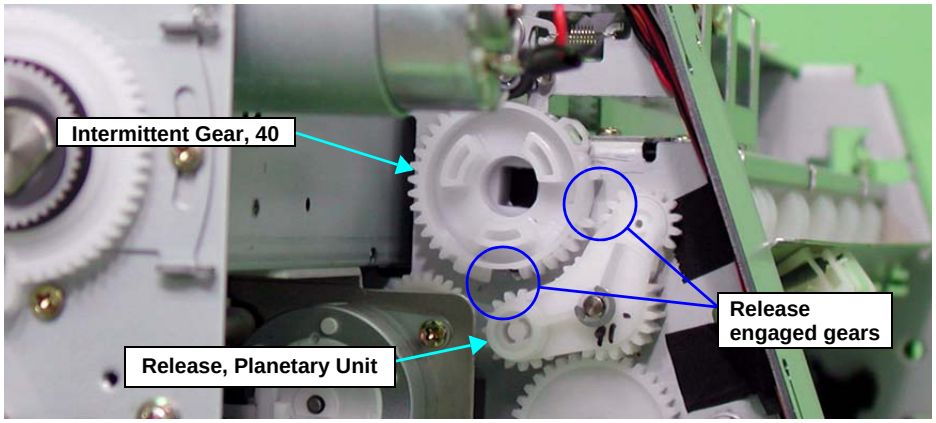


Figure 4-200. Intermittent Gear, 40 Removal_1

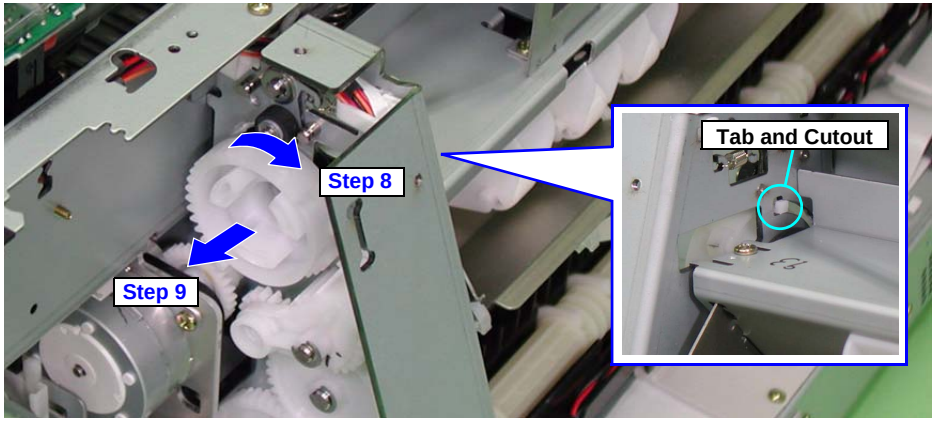


Figure 4-201. Intermittent Gear, 40 Removal_2

CAUTION

When performing the following step, be careful not to pull the "PT Sensor Unit" too much because a harness is connected.

10. Remove the four screws securing the "PT Sensor Unit" and remove the "PT Sensor Unit". *(Refer to Figure 4-202.)*
    - C.B.S. 3x6: 4 pcs.

REASSEMBLY

Align the two dowels of the "PT Sensor Unit" and the two main frame positioning holes. *(Refer to Figure 4-202.)*

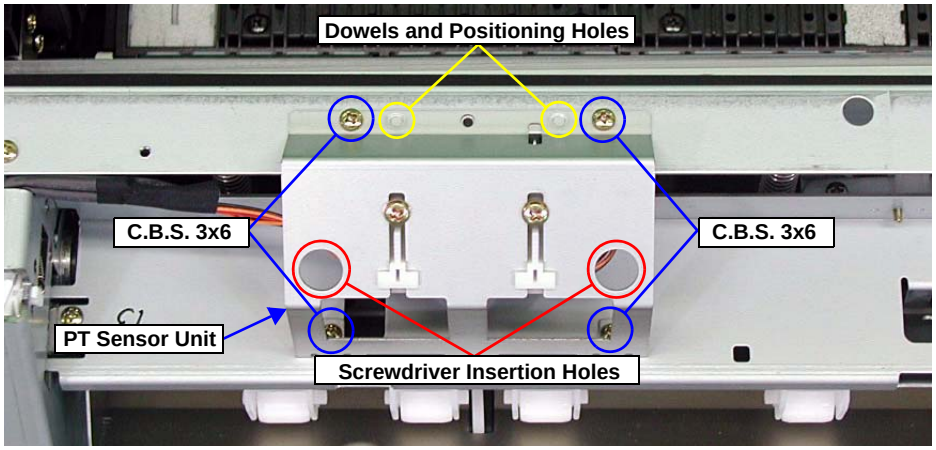


Figure 4-202. PT Sensor Unit Removal

CAUTION

When performing the following step, be careful not to pull the "Guide, Roll Paper" too much because a harness is connected.

11. Remove the two screws securing the "Guide, Roll Paper" and remove the "Guide, Roll Paper" along with "Installation Plate, Detector, Rear". *(Refer to Figure 4-203.)*
    - C.B.S. 3x6: 4 pcs.

REASSEMBLY

Align the four ribs of the "Guide, Roll Paper" and the four main frame positioning holes. *(Refer to Figure 4-203.)*

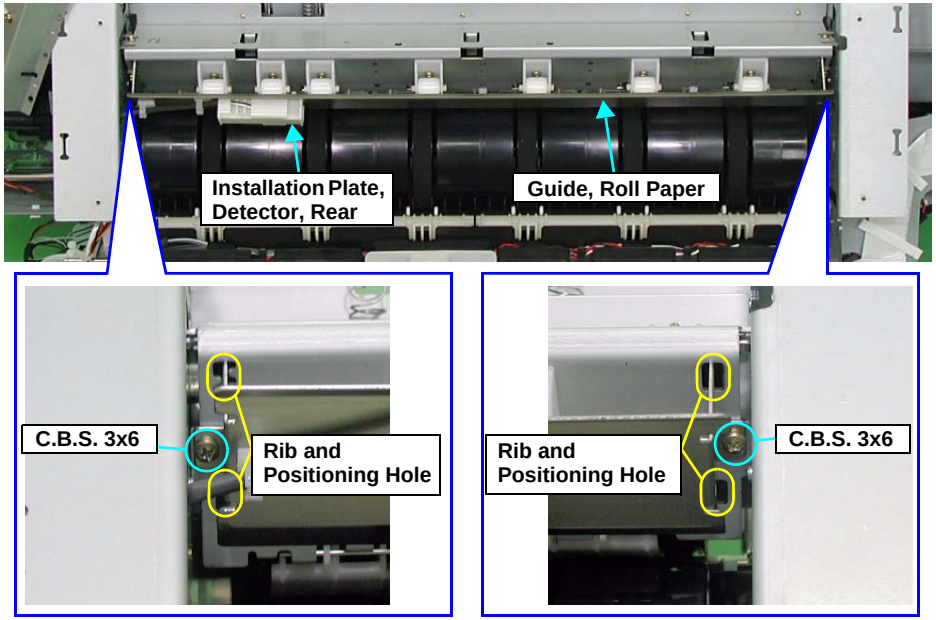


Figure 4-203. Guide, Roll Paper and Installation Plate, Detector, Rear Removal

12. Remove the two screws securing "Release Unit". *(Refer to Figure 4-204.)*
    - C.B.S. 3x6: 2 pcs.
13. Pull right side of "Release Unit" toward you, completely remove the right side of "Release Unit" while freeing the "Release Unit" ribs from the printer frame cut-out, and then remove the "Release Unit" from the printer body. *(Refer to Figure 4-204.)*

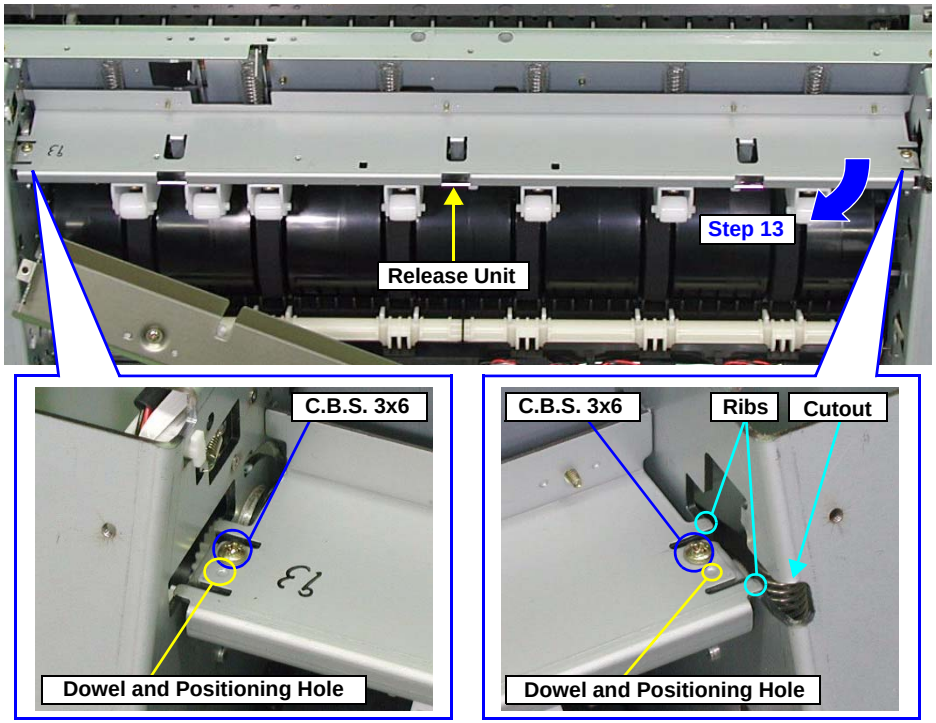


Figure 4-204. Release Unit Removal

4.2.9.2 Paper Eject Unit

1. Remove "Panel, Front/Panel Unit" *(p219).*

CAUTION

When performing the following steps, be careful not to take hold of the Star Wheels of the "Paper Eject Unit".

2. Turn the "Paper Eject Unit" until the screws that secure the "Paper Eject Unit" on both sides face forward, and remove the two screws. *(Refer to Figure 4-205.)*
   - C.B.S. (P2) 3x6: 2 pcs.
3. Turn the "Paper Eject Unit" until the Star Wheel faces toward you. *(Refer to Figure 4-206.)*
4. While avoiding interference with the "Holder, Eject Roller, Right", pull out the "Paper Eject Unit" toward the front right side from the "Holder, Eject Roller, Left". *(Refer to Figure 4-206.)*

REASSEMBLY

Align the "Paper Eject Unit" dowel and "Holder, Eject Roller, Left" positioning hole. *(Refer to Figure 4-205.)*

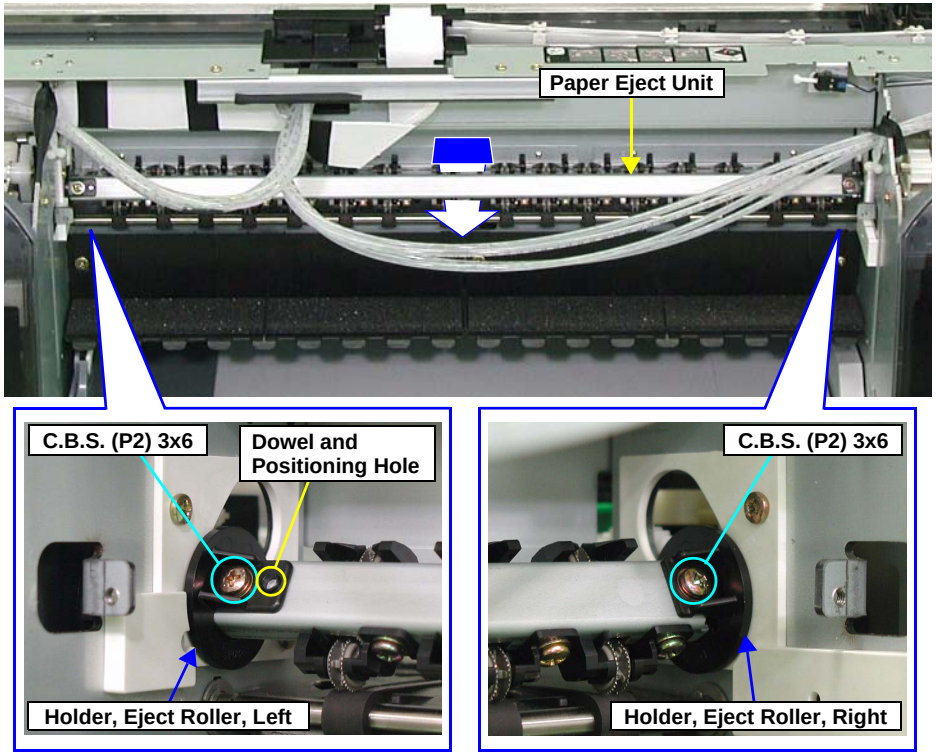


Figure 4-205. Screws Securing the Paper Eject Unit

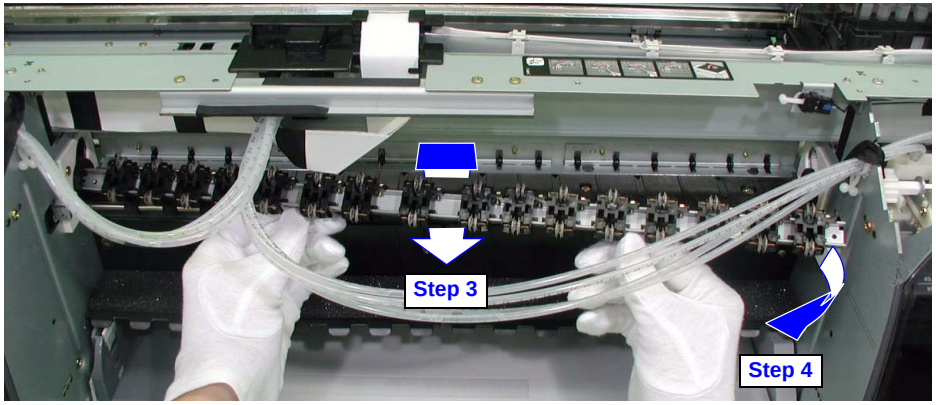


Figure 4-206. Paper Eject Unit Removal

4.2.9.3 Motor Assy., PF

1. Remove "Cover, Side, Left" *(p216).*
2. Disconnect "Motor Assy., PF" harness (CN14: black, 2 pin) from "C593 MAIN Board" and peel off the acetate tape to release the harnesses. *(Refer to "4.2.4.1 C593 MAIN Board" (p226).)*
3. Release "Motor Assy., PF" harness and other harnesses from the two tabs and the three grooves on "Paper Guide, Lower". *(Refer to Figure 4-207.)*
4. Peel off the pieces of acetate tape to release "Motor Assy., PF" harness and then pull it through the hole in the frame. *(Refer to Figure 4-208.)*
5. Remove the two screws securing the "Guide, FFC" and then lower the "Guide, FFC" along with all FFCs. *(Refer to Figure 4-209.)*
   - C.B.S. 3x6: 1 pc.
   - C.B. 3x4: 1 pcs.

REASSEMBLY

Align the dowel of the frame with "Guide, FFC" positioning hole. *(Refer to Figure 4-209.)*

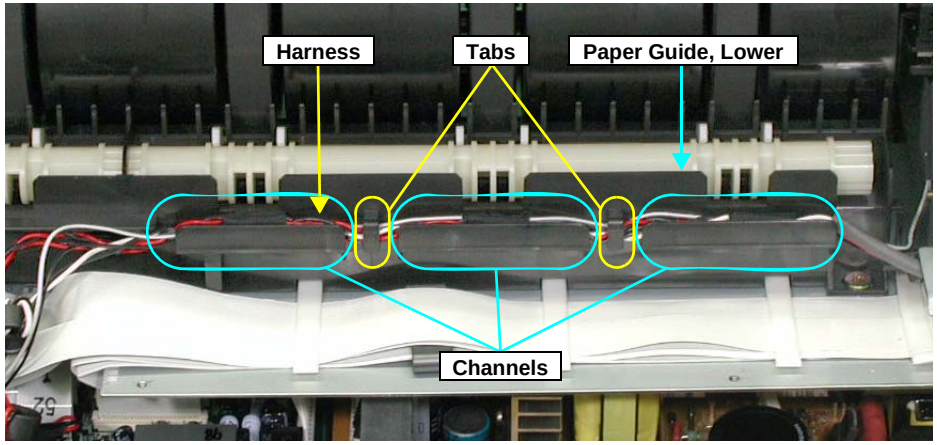


Figure 4-207. Releasing the Harness_1

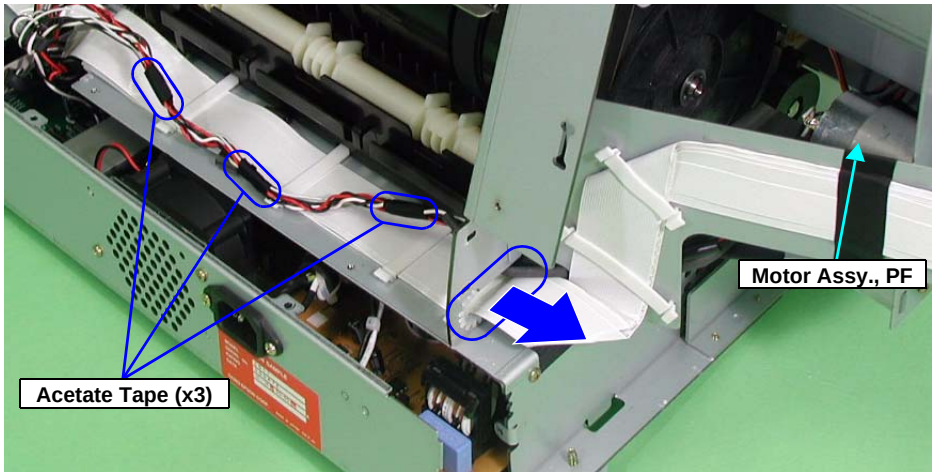


Figure 4-208. Releasing the Harness_2

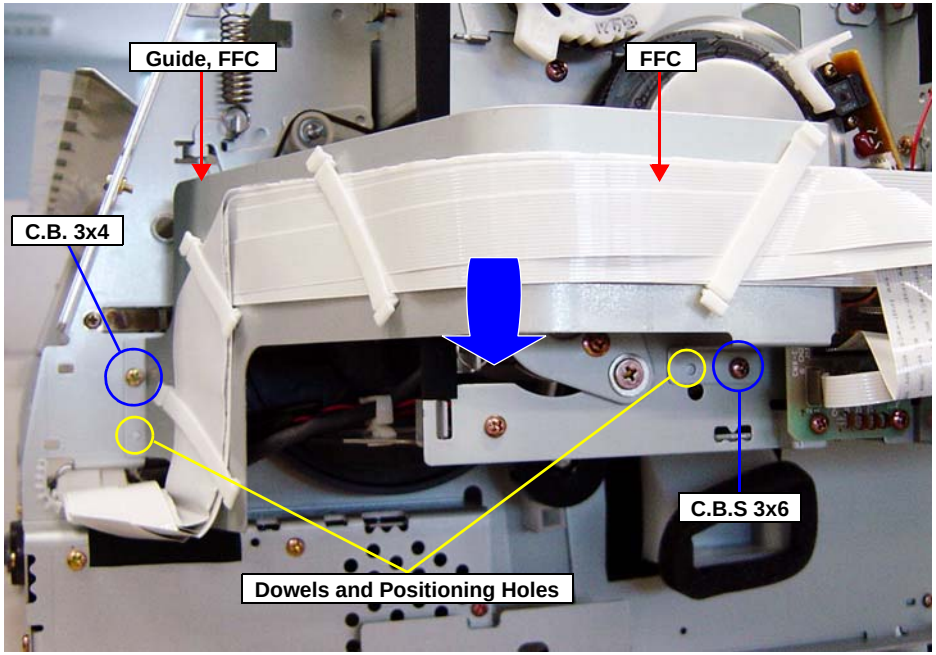


Figure 4-209. Releasing Guide, FFC

6. Release "Motor Assy., PF" harness from clamp shown in Figure 4-210. *(Refer to Figure 4-210.)*
7. Release "Extension Spring, 13.05" from "Plate, Motor, PF" hook and frame hook. *(Refer to Figure 4-210.)*
8. Loosen the screw securing "Plate, Motor, PF" and release tension of "Belt, Motor, PF". *(Refer to Figure 4-210.)*
   - C.B.S. (P2) 3x6: 1 pc.

CAUTION

When performing the following steps, pay attention to the followings:
- **Be careful not to scratch the pinion gear of the "Motor Assy., PF"**
- **Be careful not to deform or damage the "Scale, PF" attached to the "Pulley, Roller, PF".**

9. Remove the two screws securing the "Motor Assy., PF". *(Refer to Figure 4-211.)*
   - C.C. 3x6: 2 pcs.
10. Remove timing belt from pinion gear, pull pinion gear out through hole of frame and then remove "Motor Assy., PF". *(Refer to Figure 4-211.)*

ADJUSTMENT REQUIRED

Be sure to refer to Chapter 5 "Adjustment" *(p.366)* and perform specified adjustments after installing or replacing the "Motor Assy., PF".

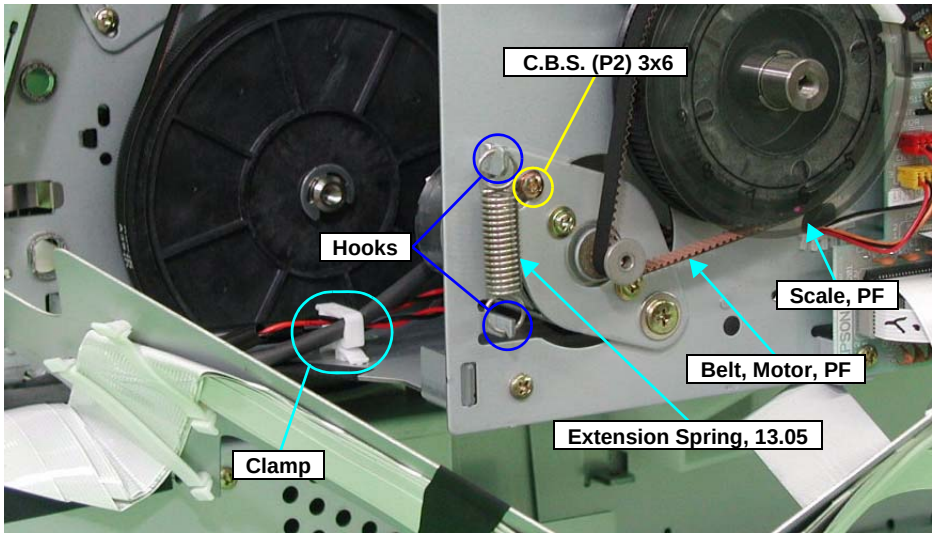


Figure 4-210. Releasing Tension of Belt, Motor, PF

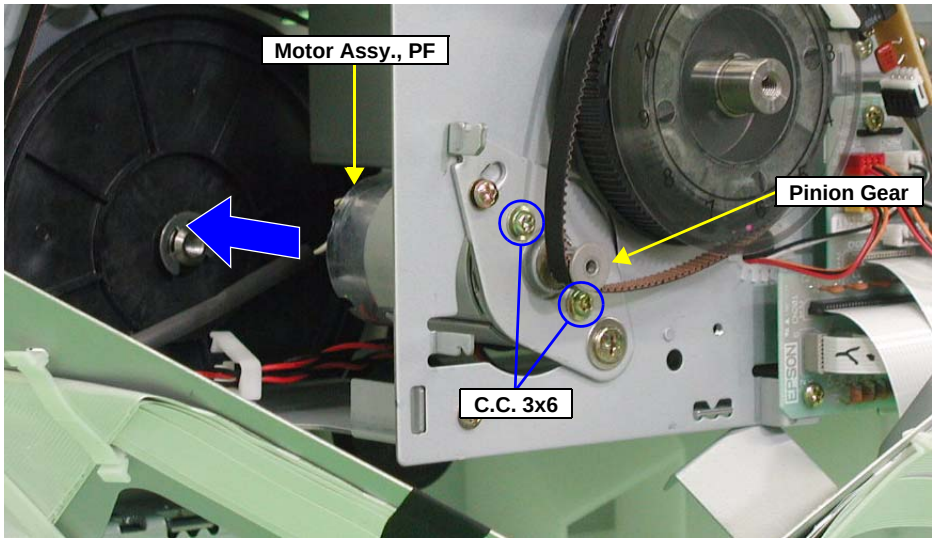


Figure 4-211. Motor Assy., PF Removal

4.2.9.4 P_THICK Sensor (0.8) / P_THICK Sensor (0.3)

1. Remove "Cover, Rear" *(p223).*
2. Remove "PT Sensor Unit". *(Refer to "4.2.9.1 Release Unit" (p343).)*
3. Disconnect connectors from "P_THICK Sensors".
4. Release the three tabs securing "P_THICK Sensor", and remove the "P_THICK Sensors".

ADJUSTMENT REQUIRED

Be sure to refer to Chapter 5 "Adjustment" *(p.366)* and perform specified adjustments after replacing or installing a "P_THICK Sensor".

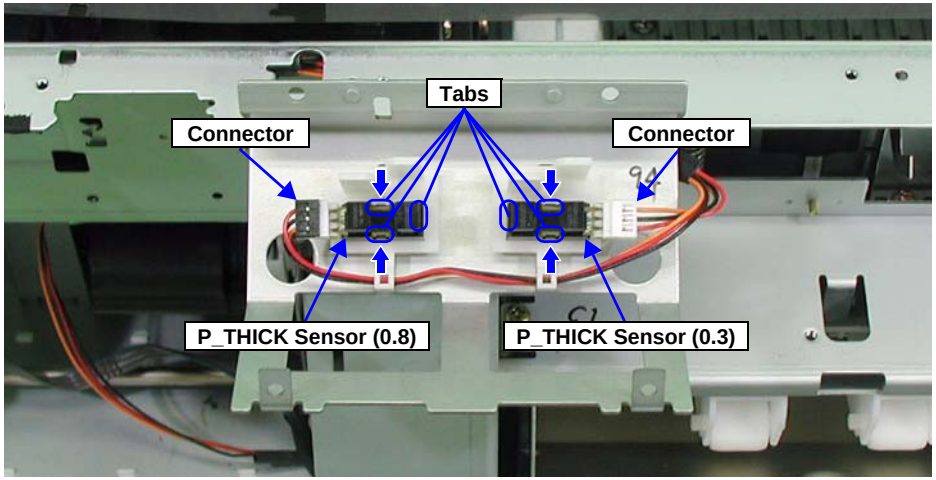


Figure 4-212. P_THICK Sensors Removal

4.2.9.5 PE Sensor

1. Remove "Release Unit" *(p343).*
2. As seen from the printer rear surface, release the two left "Extension Spring, 8.08"s from hooks on the frame. *(Refer to Figure 4-213.)*
3. Peel off acetate tape securing the FFC. *(Refer to Figure 4-213.)*

CAUTION

When performing the following step, be careful not to scratch the FFC with the screwdriver.

4. Remove the screw securing "Holder, Detector, PE". *(Refer to Figure 4-213.)*
   - C.B.S. 3x6: 1 pc.
5. Slide "Holder, Detector, PE" to the rear side, release the two hooks of the "Holder, Detector, PE" from the two frame notches and then remove "Holder, Detector, PE" from the frame. *(Refer to Figure 4-214.)*

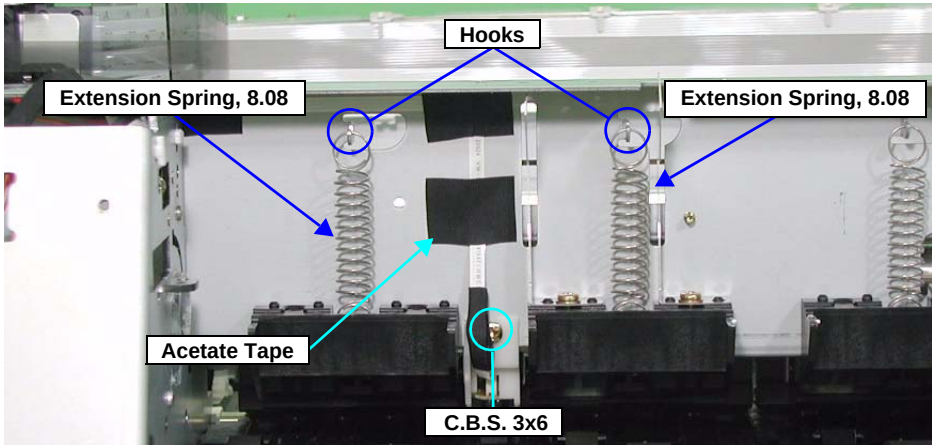


Figure 4-213. Holder, Detector, PE Removal_1

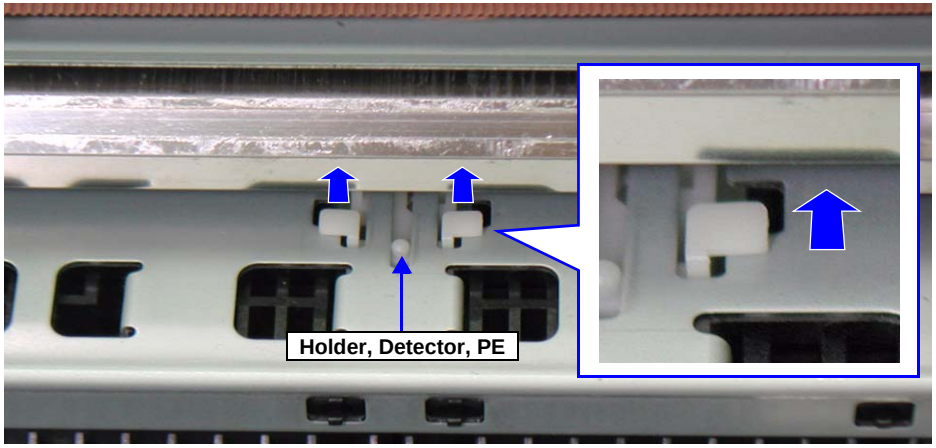
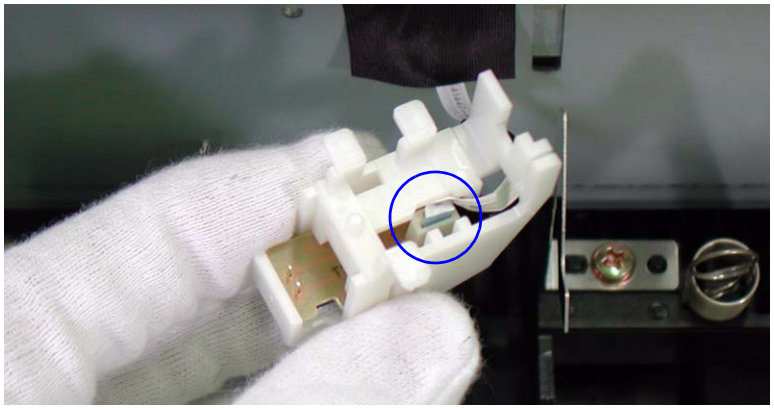


Figure 4-214. Holder, Detector, PE Removal_2

6. Release the two tabs securing "PE Sensor" and remove "PE Sensor" from "Holder, Detector, PE".
7. Disconnect FFC from "PE Sensor".

REASSEMBLY

Checking front and back of FFC and connect properly.



ADJUSTMENT REQUIRED

Be sure to refer to Chapter 5 "Adjustment" *(p.366)* and perform specified adjustments after replacing the "PE Sensor".

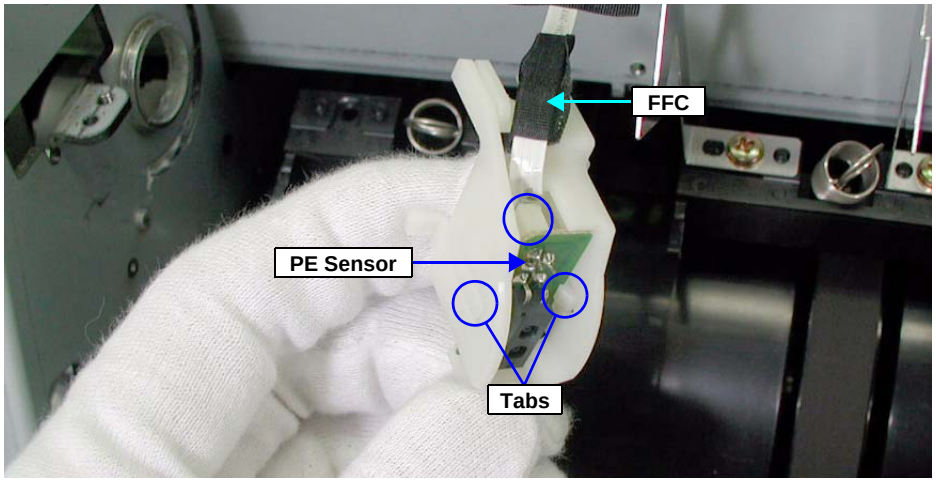


Figure 4-215. PE Sensor Removal

4.2.9.6 Rear Manual Insertion Sensor

1. Remove "Holder, Roller, Unit" *(p214).*
2. Remove "Paper Guide Assy., M, SP" *(p215).*
3. Release "Rear Manual Insertion Sensor" harness from the two tabs. *(Refer to Figure 4-216.)*
4. Release "Guide, Roll Paper" along with "Rear Manual Insertion Sensor". *(Refer to "4.2.9.1 Release Unit" (p343).)*
5. Remove the screw securing "Installation Plate, Detector, Rear" and remove "Installation Plate, Detector, Rear". *(Refer to Figure 4-217.)*
   - C.B.P. 3x8: 1 pc.

REASSEMBLY

- **Align the two dowels of holder with the two frame positioning holes. *(Refer to Figure 4-217.)***
- **Do not let the harness slip in "Installation Plate, Detector, Rear". *(Refer to Figure 4-216.)***

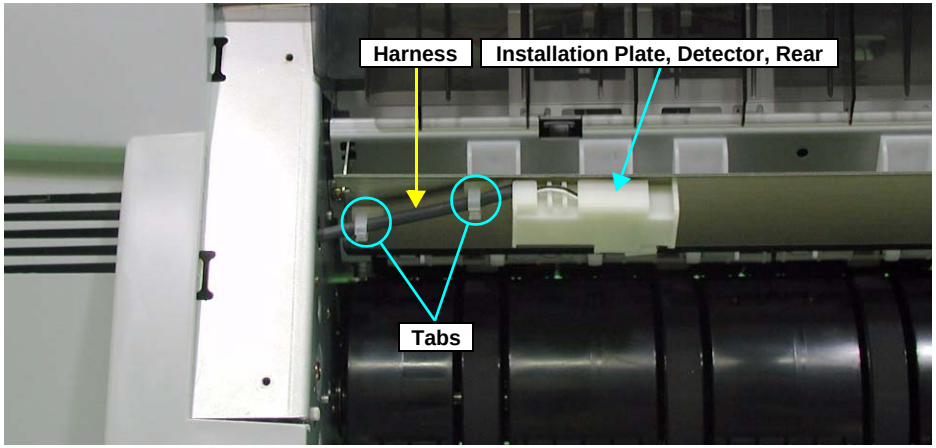


Figure 4-216. Releasing the Harness

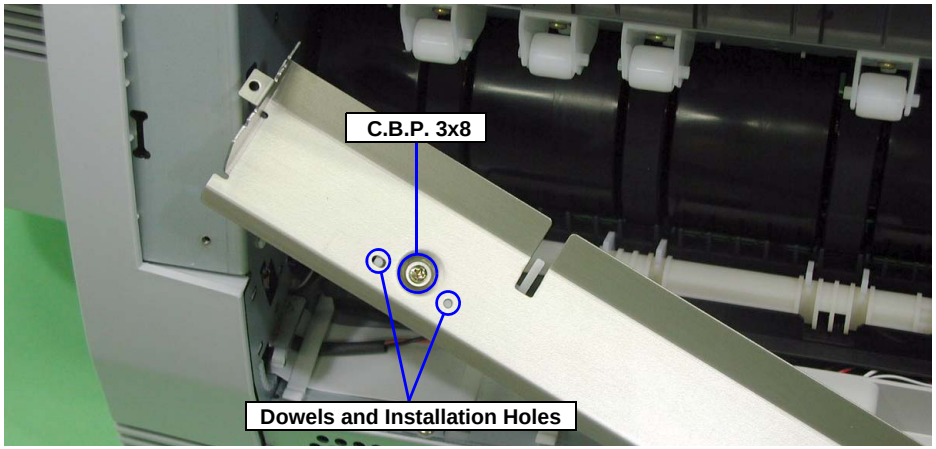


Figure 4-217. Installation Plate, Detector, Rear Removal

6. Release the two tabs securing "Rear Manual Insertion Sensor" and remove "Rear Manual Insertion Sensor" from "Installation Plate, Detector, Rear". *(Refer to Figure 4-218.)*
7. Disconnect the connector from "Rear Manual Insertion Sensor". *(Refer to Figure 4-219.)*

REASSEMBLY

- **Route "Rear Manual Insertion Sensor" harness as shown in Figure 4-219.**
- **Release the harness tube from the "Installation Plate, Detector, Rear".**

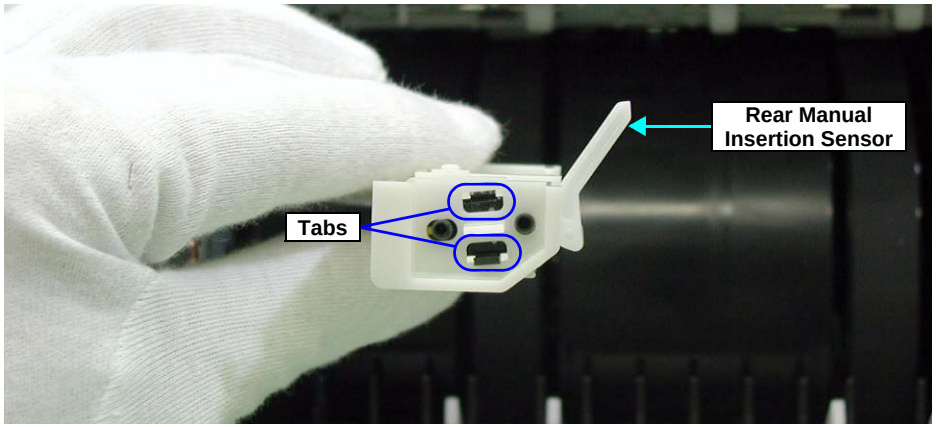


Figure 4-218. Installation Plate, Detector, Rear Removal

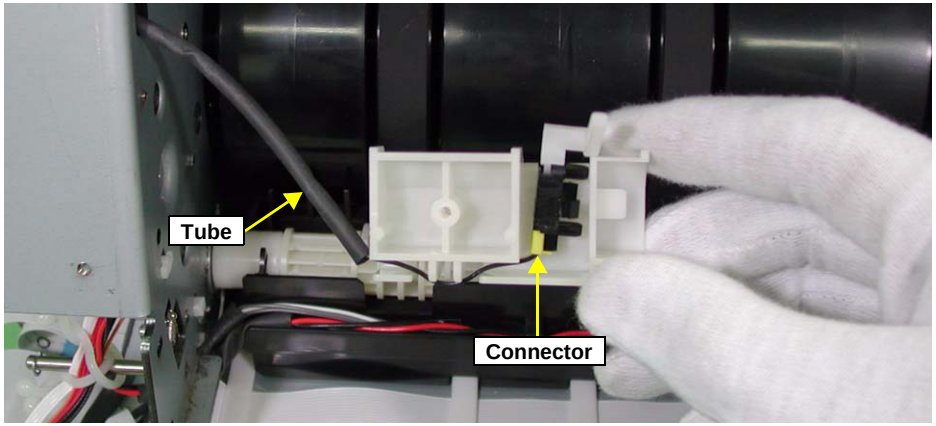


Figure 4-219. Rear Manual Insertion Sensor Removal

4.2.9.7 Paper Eject Phase Sensor

1. Pull out "I/H Left Unit" from printer.
   (Refer to "4.2.8.4 I/H Left Unit / I/H Lever Sensor (Left)" (p296).)
2. Release the two tabs securing "Paper Eject Phase Sensor" and remove "Paper Eject Phase Sensor".
3. Disconnect the connector from "Paper Eject Phase Sensor".

Confirm that acetate tape securing the "Paper Eject Phase Sensor" harness does not cover the hole of the frame.

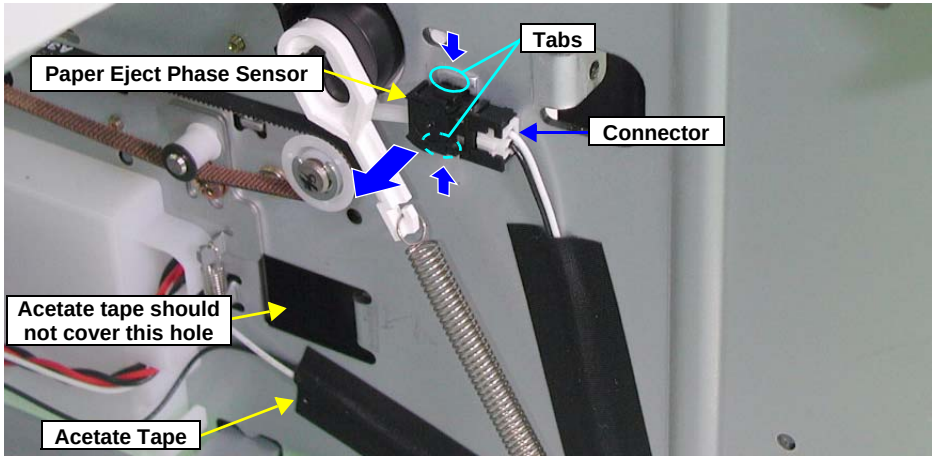


Figure 4-220. Paper Eject Phase Sensor Removal

4.2.9.8 Paper Eject Release Sensor

1. Pull out "I/H Right Unit" from printer.
   (Refer to "4.2.8.5 I/H Right Unit / I/H Lever Sensor (Right)" (p305).)
2. Release the two tabs securing "Paper Eject Release Sensor" and remove "Paper Eject Release Sensor".
3. Disconnect the connector from "Paper Eject Release Sensor".

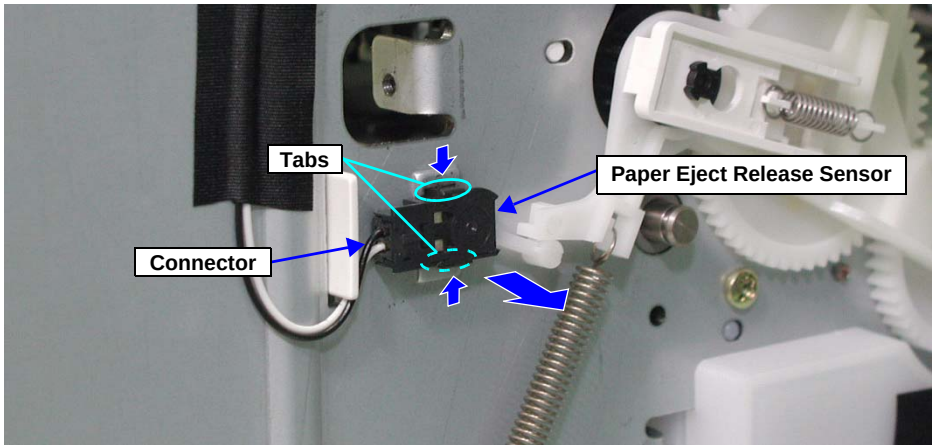


Figure 4-221. Paper Eject Release Sensor Removal

4.2.9.9 PF Encoder Sensor

1. Remove "Cover, Side, Left" *(p216).*

CAUTION

Be careful not to deform or damage the "Scale, PF" attached to the "Pulley, Roller, PF".

2. Remove the two screws securing the "PF Encoder Sensor".
   - C.P.P. 2.6x8: 2 pcs.
3. Disconnect the connector from the "PF Encoder Sensor" and then remove the "PF Encoder Sensor".

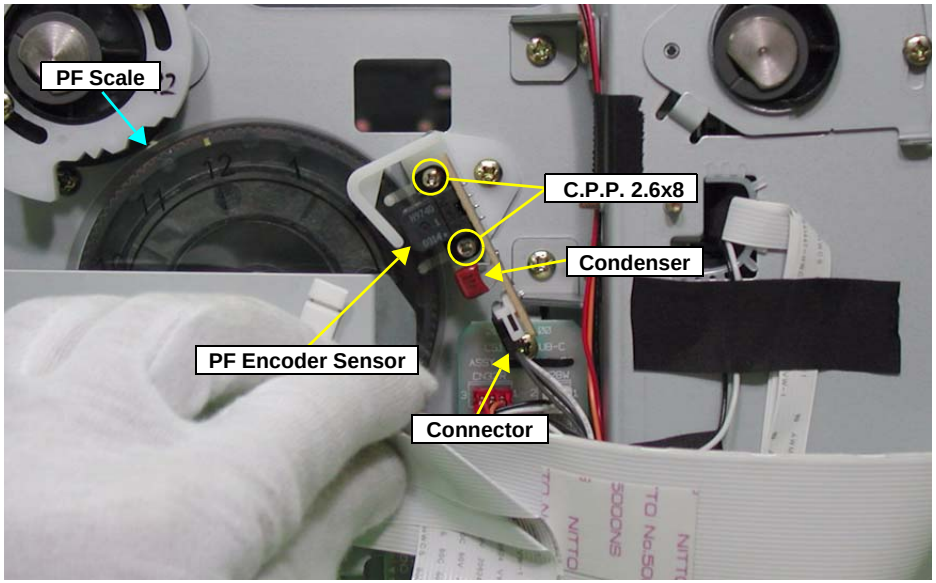
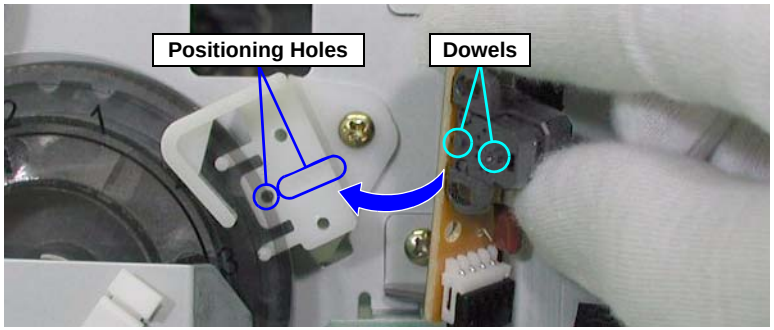


Figure 4-222. PF Encoder Sensor Removal

REASSEMBLY

- **Align the two dowels of the "PF Encoder Sensor" with the two positioning holes on the "Holder,Sensor.**



- **Do not bend condenser. *(Refer to Figure 4-222.)***
- **After installing the "PF Encoder Sensor", confirm that the "PF Scale" is surely inserted into the sensor slit.**
- **Confirm that the "PF Scale" is not contacting the sensor.**

ADJUSTMENT REQUIRED

Be sure to refer to Chapter 5 "Adjustment" *(p.366)* and perform specified adjustments after replacing the "PF Encorder Sensor".

4.2.10 Harness Routing

This section explains cautions and points in routing the harnesses. Referring to this section, route the harnesses correctly. For the sections that is not described here, refer to the corresponding diassembly/assembly procedures.

4.2.10.1 Harnesses on Left Side of Printer

PG Sensor • Harness

- ☐ Should be secured with the parts below.
  - ■ Clamp: 1 pc.
  - ■ Acetate tape: 1 pc.

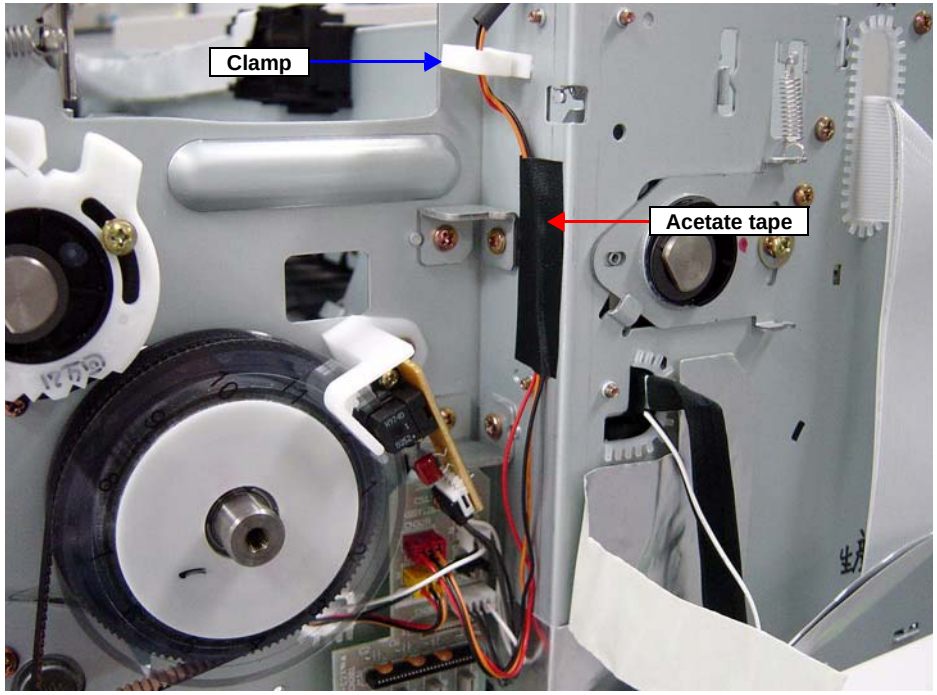


Figure 4-223. PG Sensor • Harness

CSIC / IH/ Lever Sensor • Harness

- ☐ Should be connected to the "C593_SUB-C Board" through under the sheet as shown in the figure below.
- ☐ Should be secured with the parts below.
  - ■ Acetate tape: 2 pcs.

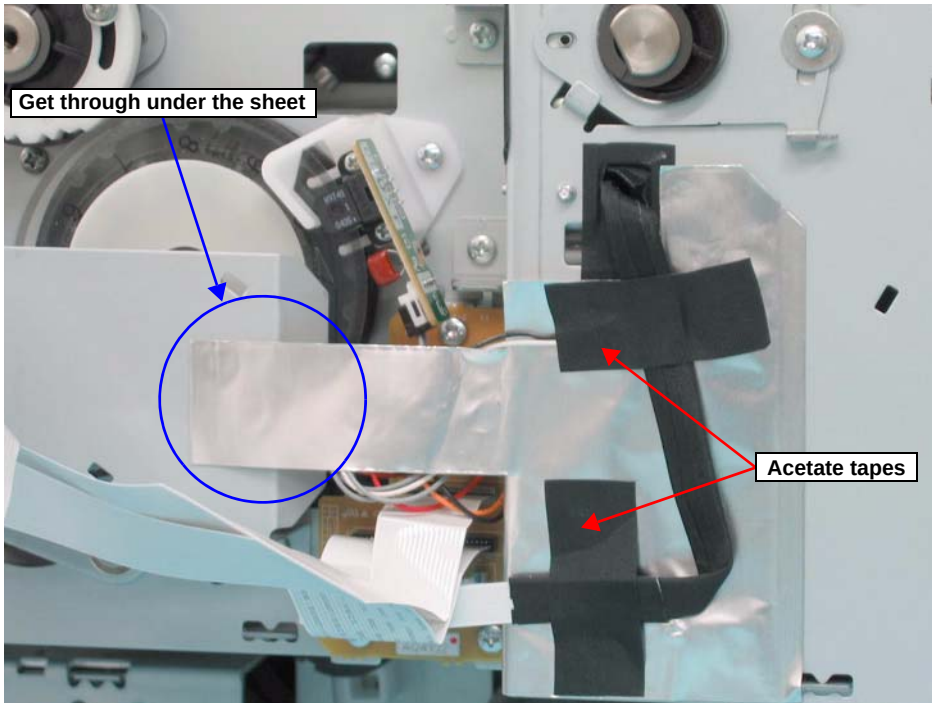


Figure 4-224. CSIC / I/H Lever Sensor • Harness

Harness, Head / Harness, R1 / Harness, R2

- ☐ Should be routed along the outside of the two "Harness, Head"s and the "Harness, Head, Intermit" from the " C593_MAIN Board" until they reach the point where the "Harness, R1" and "Harness, R2" are connected to the "C593_SUB-C Board", and there, get the "Harness, R1" and "Harness, R2" through under the two "Harness, Head"s and the "Harness, Head, Intermit".

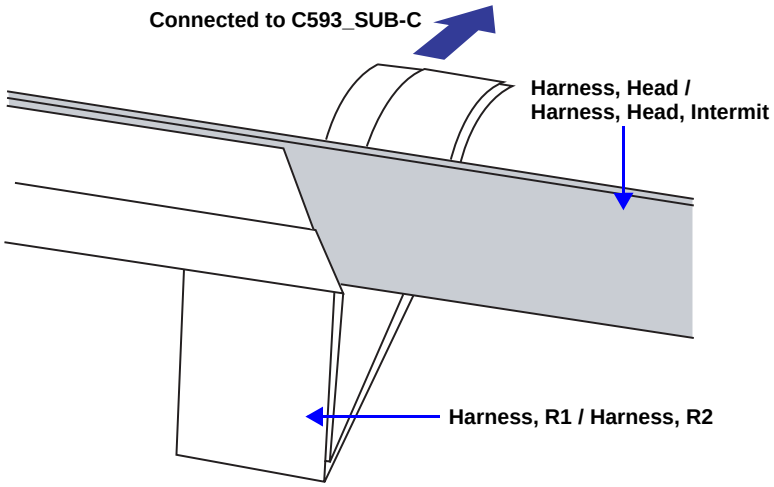


Figure 4-225. Head FFC / Intermit FFC_1

- ☐ Secure one end of the sheet to the "Guide, FFC" with two-sided tape.

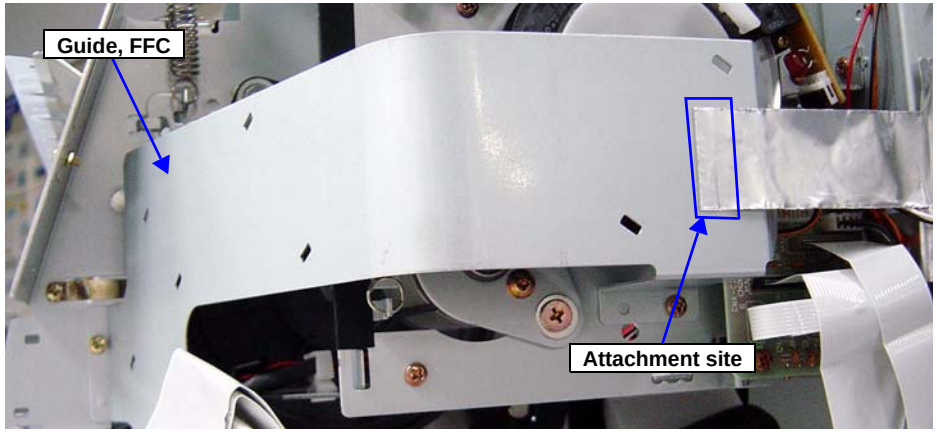


Figure 4-226. Head FFC / Intermit FFC_2

- ☐ Should be secured with the parts below.
  - ■ Clamp: 6 pcs.

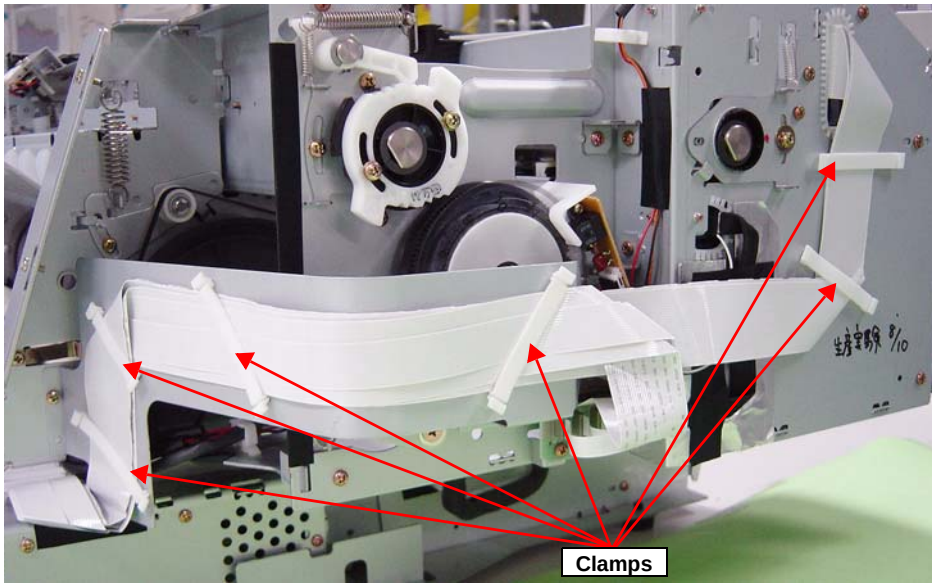


Figure 4-227. Head FFC / Intermit FFC_3

4.2.10.2 Harnesses on Right Side of Printer

Routing on the right frame

☐ Should be secured with the parts below.

- ■ Clamp: 4 pcs.
- ■ Acetate tape: 6 pcs.

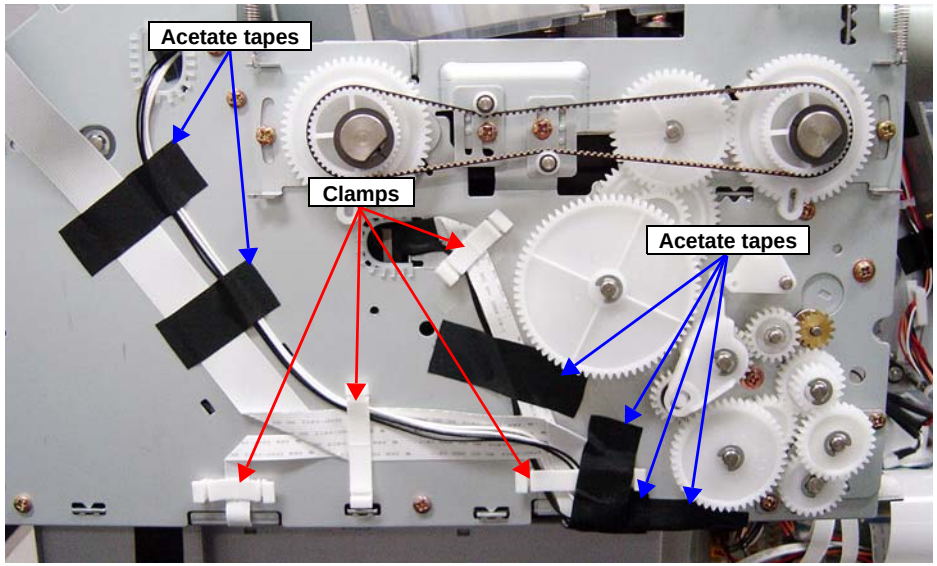
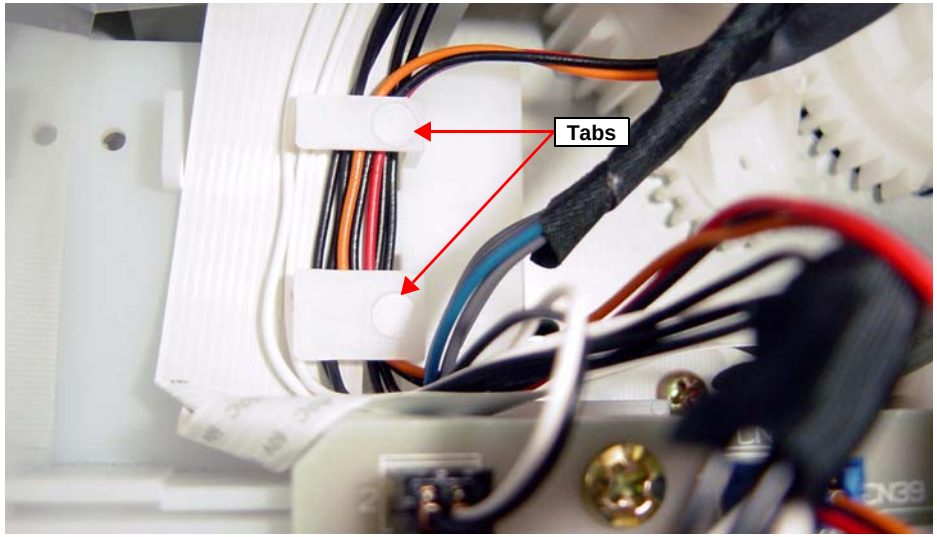


Figure 4-228. Routing on the Right Frame

Routing on the "Duct, Air, C"

- ☐ Route the harness via the tabs on the "Duct, Air, C"



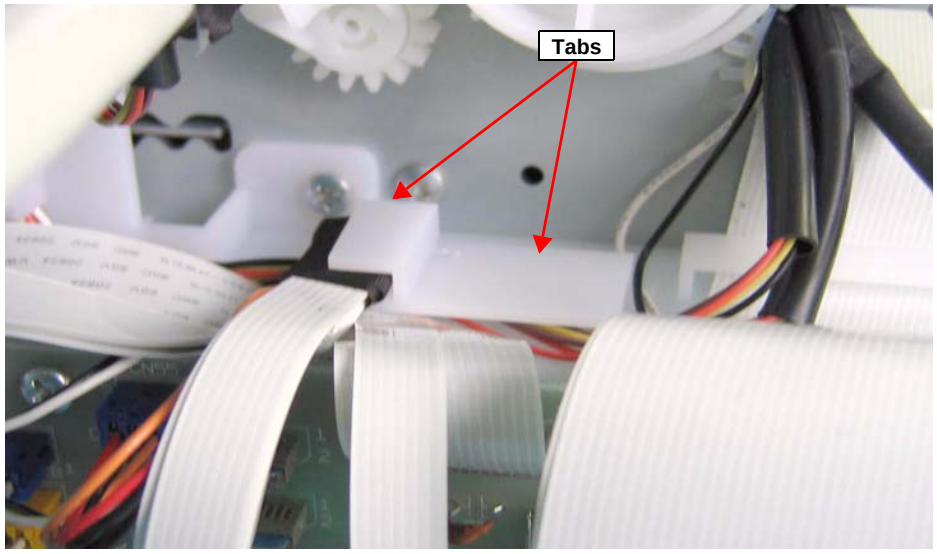


Figure 4-229. Routing on Duct, Air, C_1

- ☐ Bundle the harnesses and secure them to the shaft shown in the figure below with a cable tie.
- ☐ Secure the harnesses with the clamp on the "Duct, Air, C".

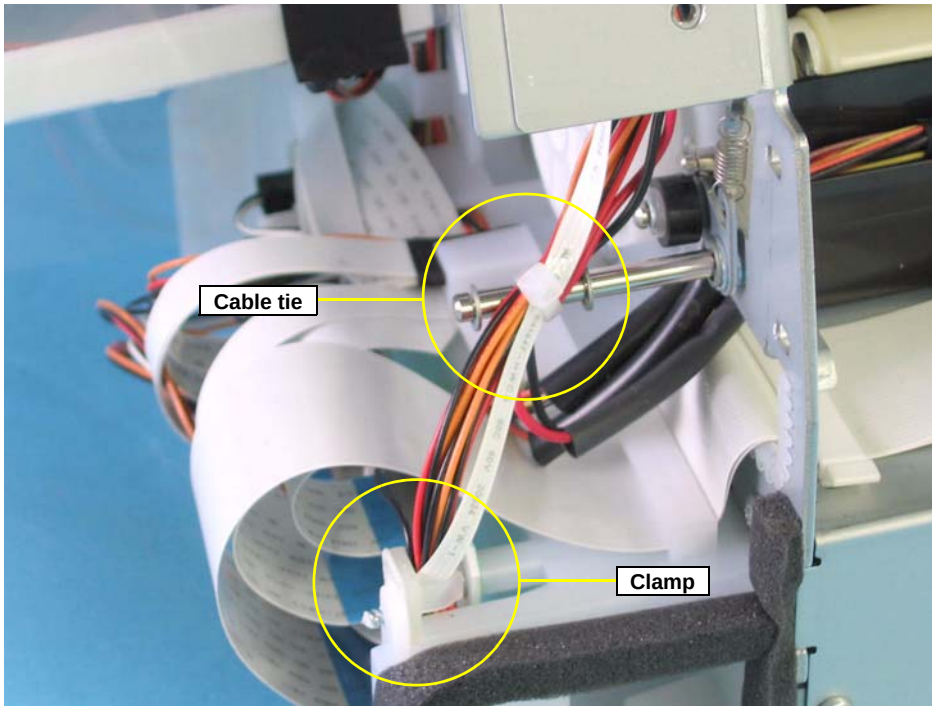


Figure 4-230. Routing on Duct, Air, C_2

CAUTION

Be careful not to damage or cut the harnesses when cutting the cable tie off.

4.2.11 Disassembly/Assembly Unique to 4-color Model (Stylus Pro 4000)

4.2.11.1 I/H Left Unit / I/H Lever Sensor (Left) (4-color model)

For this reason, route all the eight "Tube, Supply, Ink"s to the left side of the main unit, and secure them 2 each to the "Connecting Screw, M7"s of the ink holders for each color.

1. Perform Step 1 through Step 19 in *I/H Left Unit / I/H Lever Sensor (Left)(p296)*.

CAUTION

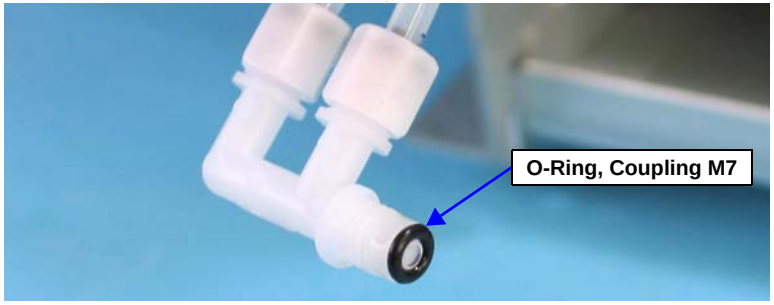
When performing the following steps, be careful of the points below.

- **As ink may leak or splatter, have cleaning rags ready and prevent ink from getting on the surrounding work area.**
- **Prevent dust and dirt from getting inside the "Tube, Supply, Ink".**

2. Loosen the "Connecting Screw, M7" that secures the "Joint, Supply, Ink" and the "Tube, Holder, Ink", and remove the "Tube, Holder, Ink" from the "Joint, Supply, Ink".

REASSEMBLY

- **Confirm that "O-Ring, Coupling M7" has been installed.**



- **The "Tube, Supply, Ink" has been marked with its color. Install while confirming that the mark matches the receptacle.**
- **Firmly insert "Tube, Supply, Ink" into receptacles and tighten "Coupling Screw, M7"**

REASSEMBLY

- **To prevent from both ink leak and damage on the joint screw, be sure to tighten the "Coupring Screw, M7" with the prescribed torque and the tool specified below.**
  - **Tool: Torque Wrench 1.25/1.75 (1277142)**
  - **Tightning torque: 1.25 (± 0.25) kgf • cm**

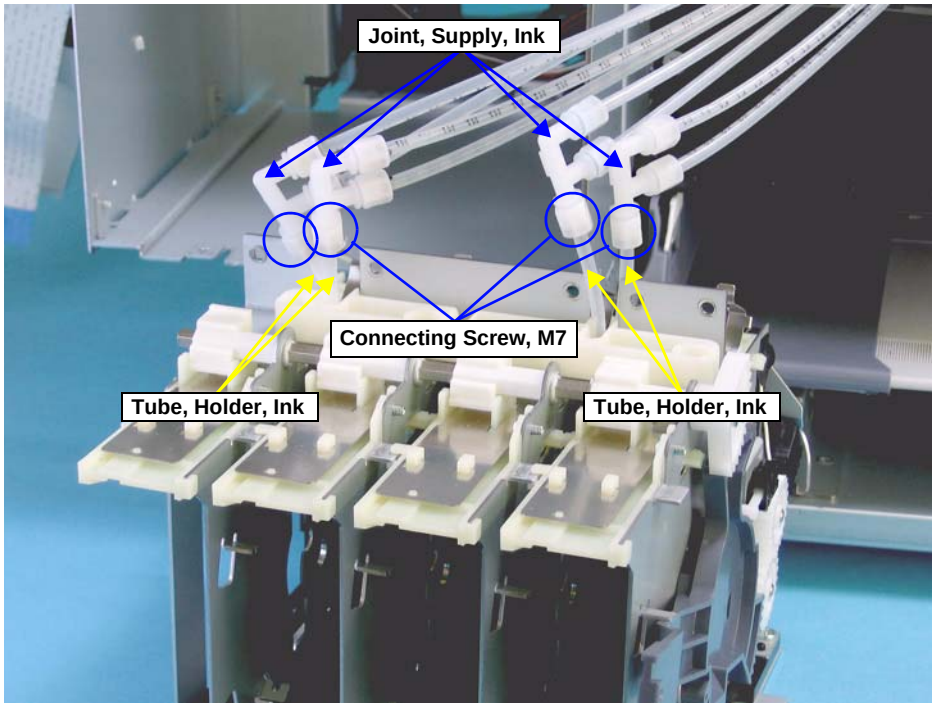
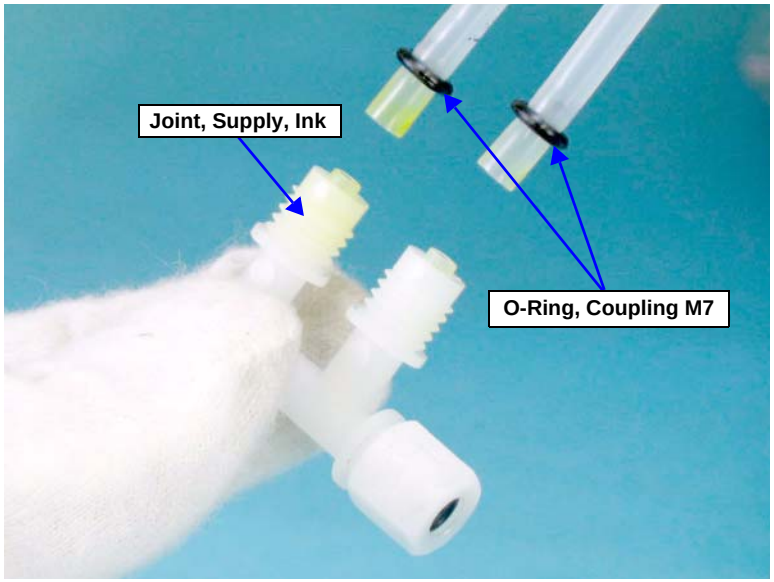


Figure 4-231. Joint, Supply, Ink Removal_1

3. Loosen the "Connecting Screw, M7"s that secure the eight "Tube, Supply, Ink"s and the four "Joint, Supply, Ink"s, and remove the "Tube, Supply, Ink"s from the "Joint, Supply, Ink"s.

REASSEMBLY

- **Confirm that "O-Ring, Coupling M7" has been installed.**



- **The "Tube, Supply, Ink" has been marked with its color. Install while confirming that the mark matches the receptacle.**
- **Firmly insert "Tube, Supply, Ink" into receptacles and tighten "Coupling Screw, M7"**
- **To prevent from both ink leak and damage on the joint screw, be sure to tighten the "Coupring Screw, M7" with the prescribed torque and the tool specified below.**
  - **Tool: Torque Wrench 1.25/1.75 (1277142)**
  - **Tightning torque: 1.25 (± 0.25) kgf • cm**

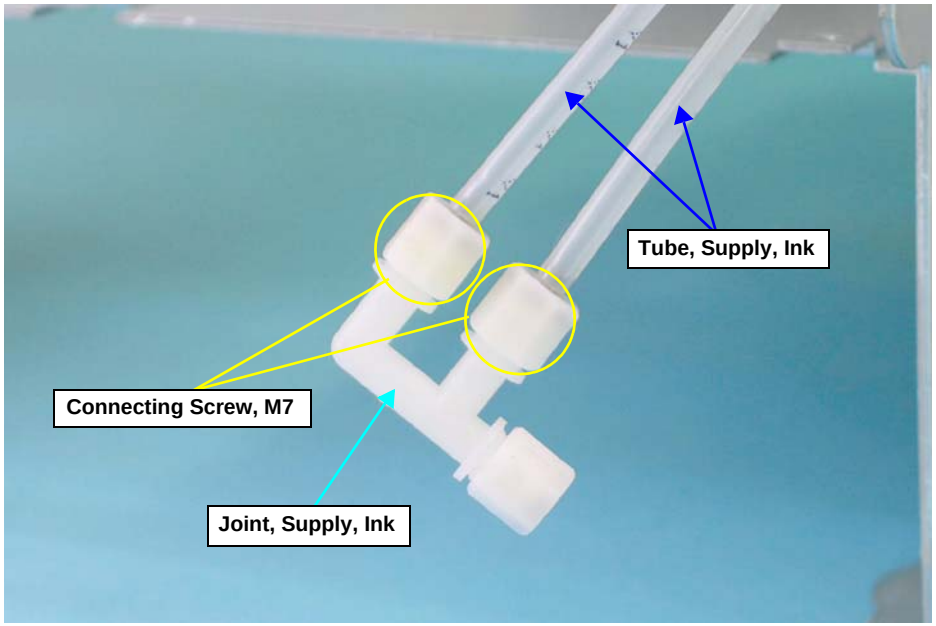


Figure 4-232. Joint, Supply, Ink Removal_2

4. Remove the "Connecting Screw, M7" that secures the "Tube, Holder, Ink", and remove the "Tube, Holder, Ink" from "I/H Left Unit".

REASSEMBLY

- **Confirm that "O-Ring, Coupling M7" has been installed.**

- **The "Tube, Supply, Ink" has been marked with its color. Install while confirming that the mark matches the receptacle.**
- **Use the following order to install the "Tube, Supply, Ink" while routing it to the installation location.**
  M →C → MK → Y
- **Refer to Figure 4-233 and properly route "Tube, Supply, Ink".**
- **Firmly insert "Tube, Supply, Ink" into receptacles and tighten "Coupling Screw, M7"**
- **To prevent from both ink leak and damage on the joint screw, be sure to tighten the "Coupring Screw, M7" with the prescribed torque and the tool specified below.**
  - **Tool: Torque Wrench 1.25/1.75 (1277142)**
  - **Tightning torque: 1.25 (± 0.25) kgf • cm**

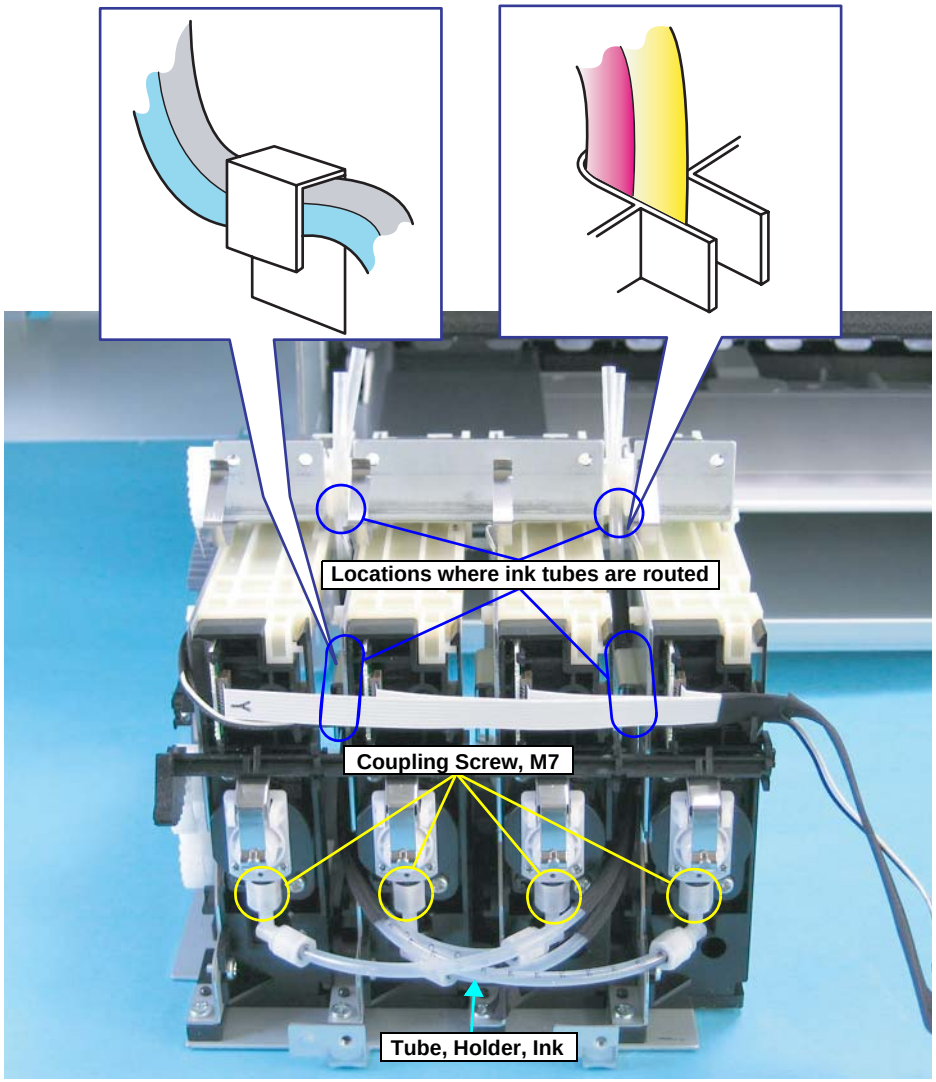


Figure 4-233. I/H Left Unit Removal

4.2.11.2 Cover, Front, Right 4 Color (4-color Model)

1. Remove "Panel, Front/Panel Unit" *(p219).*
2. Remove the four screws that secure the "Cover, Front, Right 4 Color", and remove the "Cover, Front, Right 4 Color".
   - C.B.S. 3x6: 4pcs.

REASSEMBLY

- **When installing the the "Cover, Front, Right 4 Color", tighten the screws in the order shown in Figure 4-234**
- **Match the four dowels with the four positioning holes.**

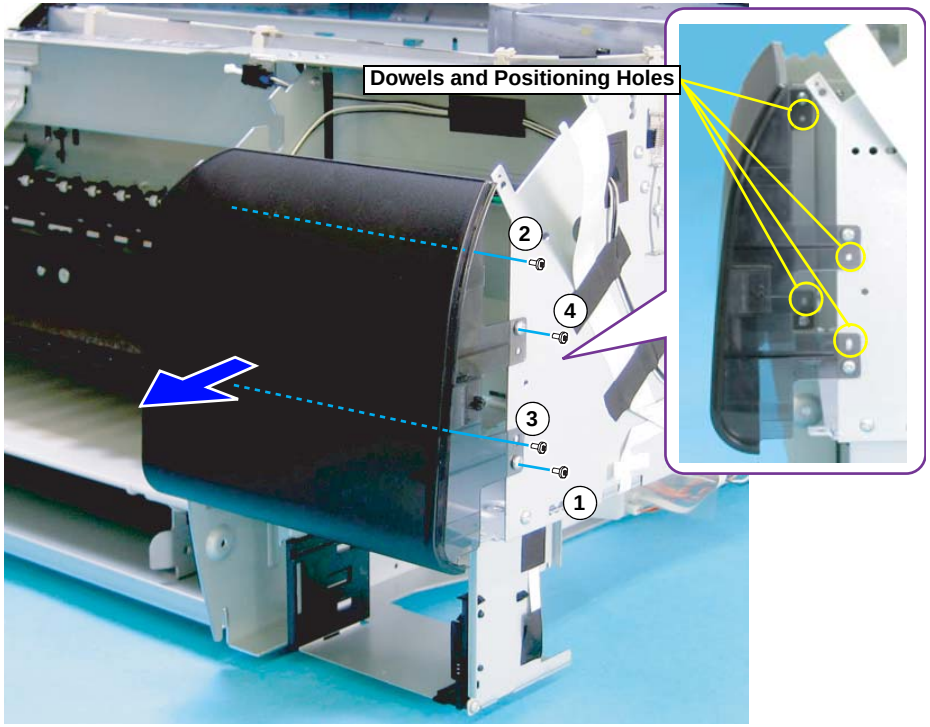


Figure 4-234. Cover, Front, Right 4 Color Removal

CHAPTER

5

ADJUSTMENT

5.1 Overview

This section describes the adjustment procedures necessary after replacing certain parts and explains how to perform those adjustment procedures.

5.1.1 Cautions

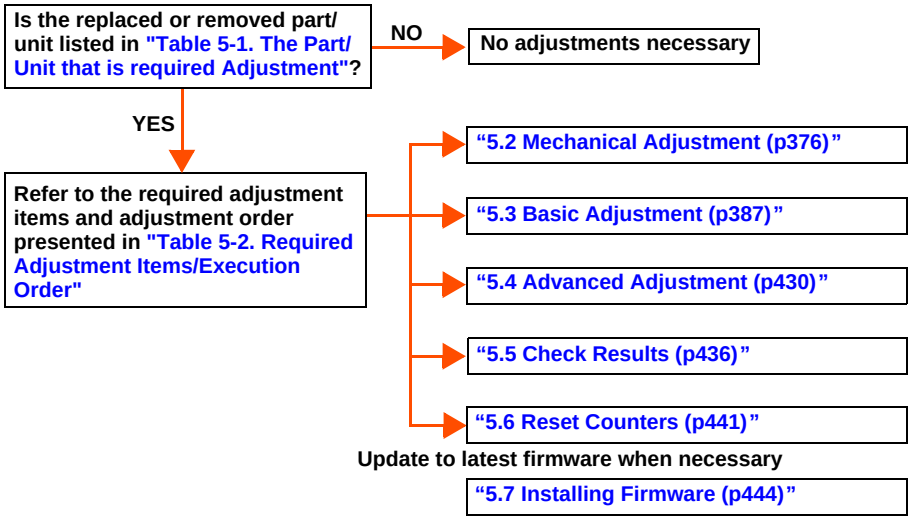
Before beginning the adjustment operation, be sure to confirm the following caution items.

CAUTION

- **When performing an adjustment, refer to "5.1.4 Adjustment Items classified by Part/Unit" and check the corresponding adjustment items and execution order.**
- **When performing adjustments, thoroughly check the cautions shown for the explanation section of each adjustment item. Product operations and functions can be adversely effected if the adjustment operations are performed improperly.**

5.1.2 Advance of Adjustment

When replacing or removing any part/unit listed in "5.1.3 The Part/Unit that Requires Adjustment", refer to "5.1.4 Adjustment Items classified by Part/Unit" and perform required operations in proper order without omitting steps.



5.1.3 The Part/Unit that Requires Adjustment

Parts/units that require adjustment after being replaced or removed are shown in the table below.

Table 5-1. The Part/Unit that is required Adjustment

Repair Items *(Disassembly/Reassembly Reference Page)*	
Main Circuit Board*1 (C593 MAIN Board *(p226)*)	
Power Supply Board (*p.233*)	
Cleaning Unit*2 *(p.316)*	
Printhead *(p285)*	
Damper (Valve Assy., Head *(p.291)*)	
AS Mechanical Unit (Printer Mechanism (SP) *(p.242)*)	
ASF Unit *(p.246)*	
Motor	Motor Assy., CR *(p270)*
	Motor Assy., PF *(p349)*
	Pump Motor (Mounting Plate Assy., Motor, ASF, SP (*p.259*))
	Motor Assy., PG *(p274)*
Sensor	Paper Thickness Sensor (P_THICK Sensor (0.8) / P_THICK Sensor (0.3) *(p351)*)
	Multi Sensor *(p277)*
	CR Encoder Sensor *(p280)*
	Rear Sensor (PE Sensor *(p352)*)
	PF Encoder Sensor *(p357)*

Note"*": Adjustment items vary depending on whether NVRAM parameters can be backed up or not.

5.1.4 Adjustment Items classified by Part/Unit

Required adjustment items and execution order for each part/unit that has been replaced or removed is shown in the table below.

Note "*1": RP = Replacement with new part

"*2": RM = Removal only

Table 5-2. Required Adjustment Items/Execution Order

Name		Adjustment Item	RP*1	RM*2	Ref.
Main Circuit Board <common to Stylus Pro 4400/4450/ 4800/4880/4880C> (Backup = O.K.)	1	Parameter Backup	○	---	P.409
	2	RTC&USB ID&IEEE1394ID	○	---	P.387
Main Board <Stylus Pro 4800/ 4880/4880C> (Backup = NG)	1	Device ID setting (Stylus 4450/4880/4880C only)	○	---	P.446
	2	Initial Ink Charge Flag ON/OFF	○	---	P.408
	3	RTC&USB ID&IEEE1394ID	○	---	P.387
	4	Head Rank ID	○	---	P.388
	5	Rear Sensor AD Adjustment	○	---	P.407
	6	Check Nozzle	○	---	P.436
	7	Check Alignment	○	---	P.437
	8	1000mm Feed Adjustment	○	---	P.407
	9	Nozzle Bi-D Adjustment	○	---	P.393
	10	Printhead Slant Adjustment (PF)	○	---	P.394
	11	PG Adjustment	○	---	P.383
	12	Nozzle Bi-D Adjustment	○	---	P.393
	13	Printhead Slant Adjustment (PF)	○	---	P.394
	14	Printhead Slant Adjustment (CR)	○	---	P.397
	15	Multi Sensor Level Adjustment	○	---	P.389
	16	T&B&S (Roll Paper)	○	---	P.390
	17	T&B&S (Cut Sheet)	○	---	P.391
	18	Platen Position Adjustment	○	---	P.405
	19	Multi Sensor Adjustment for Auto Nozzle Check	○	---	P.402
	20	Auto Uni-d Adjustment	○	---	P.401

Table 5-2. Required Adjustment Items/Execution Order

Name		Adjustment Item	RP*1	RM*2	Ref.
Main Board <Stylus Pro 4800/ 4880/4880C> (Backup = NG)	21	Auto Bi-d Adjustment	○	---	P.430
	21	Manual Bi-D	○	---	P.431
	22	Image Adjustment	○	---	P.439
	23	Cutter Pressure Adjustment	○	---	P.392
	24	Writing MAC Address	○	---	P.447
Main Board <Stylus Pro 4400/ 4450> (Backup = NG)	1	Erasing Firmware	○	---	P.445
	2	Installing Firmware	○	---	P.445
	3	Selecting “4-colors”	○	---	P.445
	4	Device ID setting (Stylus 4450/4880/4880C only)	○	---	P.446
	5	Initial Ink Charge Flag ON/OFF	○	---	P.408
	6	RTC&USB ID&IEEE1394ID	○	---	P.387
	7	Check Alignment	○	---	P.437
	8	1000mm Feed Adjustment	○	---	P.407
	9	Nozzle Bi-D Adjustment	○	---	P.393
	10	Printhead Slant Adjustment (PF)	○	---	P.394
	11	PG Adjustment	○	---	P.383
	12	Nozzle Bi-D Adjustment	○	---	P.393
	13	Printhead Slant Adjustment (PF)	○	---	P.394
	14	Printhead Slant Adjustment (CR)	○	---	P.397
	15	Multi Sensor Level Adjustment	○	---	P.389
	16	T&B&S (Roll Paper)	○	---	P.390
	17	T&B&S (Cut Sheet)	○	---	P.391
	18	Platen Position Adjustment	○	---	P.405
	19	Multi Sensor Adjustment for Auto Nozzle Check	○	---	P.402
	20	Auto Uni-d Adjustment	○	---	P.401
	21	Auto Bi-d Adjustment	○	---	P.430
	22	Manual Bi-D	○	---	P.431
	23	Image Adjustment	○	---	P.439
	24	Cutter Pressure Adjustment	○	---	P.392
	25	Writing MAC Address	○	---	P.447

Table 5-2. Required Adjustment Items/Execution Order

Name		Adjustment Item	RP*1	RM*2	Ref.
Cleaning Unit	1	Reset When Cleaning Unit Change	○	---	P.443
Print Head	1	CR Timing Belt Tension Adjustment	○	○	P.376
	2	CR Encoder Sensor Position Adjustment	○	○	P.382
	3	Cleaning	○	---	P.412
	4	Head Rank ID	○	---	P.388
	5	Check Nozzle	○	---	P.436
	6	Check Alignment	○	○	P.437
	7	Nozzle Bi-D Adjustment	○	○	P.393
	8	Printhead Slant Adjustment (PF)	○	---	P.394
	9	PG Adjustment	○	---	P.383
	10	Nozzle Bi-D Adjustment	○	○	P.393
	11	Printhead Slant Adjustment (PF)	○	---	P.394
	12	Printhead Slant Adjustment (CR)	○	---	P.397
	13	Auto Uni-d Adjustment	○	---	P.401
	14	Auto Bi-d Adjustment	○	---	P.430
	15	Manual Bi-D	○	○	P.431
	16	Image Adjustment	○	○	*3
	17	Colorimetric Calibration (Color ID)	○	---	P.414
	18	Reset When Printhead Change	○	---	P.442

Table 5-2. Required Adjustment Items/Execution Order

Name		Adjustment Item	RP*1	RM*2	Ref.
Damper	1	Ink Discharge	○	○	P.411
	2	CR Timing Belt Tension Adjustment	○	○	P.376
	3	CR Encoder Sensor Position Adjustment	○	○	P.382
	4	Initial Ink Charge	○	○	P.412
	5	Head Rank ID	○	---	P.388
	6	Check Nozzle	○	○	P.436
	7	Check Alignment	○	○	P.437
	8	Nozzle Bi-D Adjustment	○	○	P.393
	9	Print Head Slant Adjustment (PF)	○	---	P.394
	10	PG Adjustment	○	○	P.383
	11	Nozzle Bi-D Adjustment	○	○	P.393
	12	Printhead Slant Adjustment (PF)	○	---	P.394
	13	Printhead Slant Adjustment (CR)	○	---	P.397
	14	Auto Uni-d Adjustment	○	---	P.401
	15	Auto Bi-d Adjustment	○	---	P.430
	16	Manual Bi-D	○	○	P.431
	17	Image Adjustment	○	○	*3
AS Mechanical Unit	1	NVRAM Back Up and Write	○	---	P.409
	2	Destination Setting	○	---	P.434
ASF Unit	1	Reset ASF Counter	○	---	P.442
Motor Assy., CR	1	CR Timing Belt Tension Adjustment	○	○	P.376
	2	Nozzle Bi-D Adjustment	○	○	P.393
	3	T&B&S (Roll Paper)	○	○	P.390
	4	T&B&S (Cut Sheet)	○	○	P.391
	5	Platen Position Adjustment	○	○	P.405
	6	Auto Uni-d Adjustment	○	○	P.401
	7	Auto Bi-d Adjustment	○	○	P.430
	8	Reset When CR Unit Change	○	---	P.442

Table 5-2. Required Adjustment Items/Execution Order

Name		Adjustment Item	RP*1	RM*2	Ref.
Motor Assy., PF	1	PF Timing Belt Tension Adjustment	○	○	P.378
	2	T&B&S (Roll Paper)	○	○	P.390
	3	T&B&S (Cut Sheet)	○	---	P.391
	4	Reset PF Motor Counter	○	---	P.441
	5	Reset Paper Ejection Switching/PG Switching Counter	○	---	P.441
	6	Reset Paper Ejection Switching/Reset PG Switching Counter	○	---	P.441
Pump Motor	1	Reset When Cleaning Unit Change	○	---	P.443
Motor Assy., PG	1	Reset Paper Ejection Switching/Reset PG Switching Counter	○	---	P.441
Paper Thickness Sensor	1	Paper Thickness Sensor Adjustment	○	○	P.380
Multi Sensor	1	Multi Sensor Position Adjustment	○	○	P.385
	2	Multi Sensor Level Adjustment	○	○	P.389
	3	T&B&S (Roll Paper)	○	---	P.390
	4	T&B&S (Cut Sheet)	○	---	P.391
	5	Platen Position Adjustment	○	○	P.405
	6	Multi Sensor Adjustment for Auto Nozzle Check	○	○	P.402
	7	Auto Uni-d Adjustment	○	○	P.401
	8	Auto Bi-d Adjustment (P.G. 1.2)	○	○	P.430
CR Encoder Sensor	1	CR Encoder Sensor Position Adjustment	○	---	P.382
Rear Sensor	1	Rear Sensor Adjustment	○	---	P.407
PF Encoder Sensor	1	1000mm Feed Adjustment	○	---	P.407
	2	T&B&S (Roll Paper)	○	---	P.390
	3	T&B&S (Cut Sheet)	○	---	P.391
	4	PF Micro Feed Adjustment Bi-D	○	---	P.435

5.1.5 Adjustment Item

Printer adjustment items and their adjustment classification descriptions are shown in the tables below.

Note "*1": AU = Adjustment program (utility)

"*2": M2 = Maintenance Mode 2 (Refer to "1.4.6 Maintenance Mode 2 (p90)")

"*3": AT = Adjustment tool (Not including program tools)

MECHANICAL ADJUSTMENT

Table 5-3. Mechanical Adjustment

Adjustment Item	Description	Method			Ref.
		AU*1	M2*2	AT*3	
CR Timing Belt Tension Adjustment	Adjusts the CR Timing Belt to the required tension.	---	---	○	P.376
PF Timing Belt Tension Adjustment	Adjusts the PF Timing Belt to the required tension.	---	---	○	P.378
Paper Thickness Sensor Adjustment	Adjusts the installation position of the sensor so it can accurately detect paper thickness.	---	○	○	P.380
CR Encoder Sensor Position Adjustment	Adjusts the CR Scale position in relation to the CR Encoder Sensor.	---	---	---	P.382
PG Adjustment	Adjusts the interval between the print head and the platen.	---	○	○	P.383
Multi Sensor Position Adjustment	Adjusts the installation position of the Multi Sensor so the distance between the Multi Sensor and the platen will be acceptable.	---	---	○	P.385

STANDARD ADJUSTMENT

Table 5-4. Standard Adjustment

Adjustment Item	Description	Method			Ref.
		AU*1	M2*2	AT*3	
RTC&USB ID&IEEE1394 ID	Initializes the RTC, and writes both the USB ID and the IEEE 1394 ID.	○	---	---	P.387
Head Rank ID	Writes the Head Rank ID.	○	---	---	P.388
Multi Sensor Level Adjustment	Adjust the light receiving level of the Multi Sensor.	○	---	---	P.389
T&B&S (Roll Paper)	This adjusts the printing position in relation to the paper surface for roll paper.	○	---	---	P.390
T&B&S (Cut Sheet)	This adjusts the printing position in relation to the paper surface for cut sheet.	○	---	---	P.391
Cutter Pressure Adjustment	Adjusts the cut pressure of the paper cutter.	○	○	---	P.393
Nozzle Bi-D Adjustment	Adjusts matte black Bi-D to create a standard for all nozzle Bi-D adjustment.	○	---	---	P.393
Printhead Slant Adjustment (CR)	Prints out a PF-directional slant pattern of the printhead, and adjusts the PF-directional slant.	○	---	---	P.394
Printhead Slant Adjustment (PF)	Prints out a CR-directional slant pattern of the printhead, and adjusts the CR-directional slant.	○	---	---	P.397
Auto Uni-d Adjustment	Performs automatic Uni-D adjustment with the Multi Sensor.	○	---	---	P.401

Table 5-4. Standard Adjustment

Adjustment Item	Description	Method			Ref.
		AU*1	M2*2	AT*3	
Multi Sensor Adjustment for Auto Nozzle Check	Corrects read timing of primary/secondary scan directions when Multi Sensor detects dot missing.	○	---	---	P.402
Rear Sensor Adjustment	Determines the AD value to become the reading standard for a new rear sensor and saves it to the Main Board.	---	○	○	P.407
Platen Position Adjustment	Adjusts the borderless printing position.	○	---	---	P.405
1000mm Feed Adjustment	Prints a 1000mm pattern, measures it and adjusts the band sending amount.	○	---	○	P.407
Initial Ink charge flag ON/OFF	Turns ON/OFF the initial charging flag as needed after replacement of the Main Board.	○	---	---	P.408
NVRAM Back Up and Write	Backs up parameters from NVRAM of the old Main Board and uploads them to the NVRAM of the new Main Board.	○	---	---	P.409
Check Platen Gap	Checks whether or not the 4 step PG position is in the correct position.	○	---	---	P.410
Ink Discharge	Discharges the ink in the internal ink route.	○	---	---	P.411
Initial Ink Charge	Performs initial charging.	○	---	---	P.412
Cleaning	Performs cleaning.	○	---	---	P.412
Rear Sensor AD Adjustment	Obtains an AD value that is required as a basis for reading a new rear sensor, and saves the value on the Main Board.	---	○	○	P.413
Colorimetric Calibration (Color ID)	Adjusts the amount of ink droplets	○	---	○	P.414
Writing MAC Address	Writes MAC address to the main board.	○	---	---	P.447

ADVANCED ADJUSTMENT

Table 5-5. Advanced Adjustment

Adjustment Item	Description	Method			Ref.
		AU*1	M2*2	AT*3	
Multi Sensor Auto Bi-D Adjustment	Performs Auto Bi-D Adjustment by the Multi Sensor.	○	---	---	P.430
Nozzle Bi-D Adjustment	Performs Bi-D adjustment for all nozzles.	○	---	---	P.431
Destination setting	Sets the destination of the product.	○	---	---	P.434
PF Micro Feed Adjustment (Bi-D)	Adjusts paper feed amount to reduce color banding.	○	---	---	P.435
Copy Bi-D variables	Copies PG=1.2 Bi-D adjustment values to other PG setting areas.	○	---	---	---
Manual Uni-D Adjustment	Performs Uni-D adjustment for all nozzles.	○	---	---	---
Copy Uni-D variables	Copies PG=1.2 Uni-D adjustment values to other PG setting areas.	○	---	---	---

CHECK RESULTS

Table 5-6. Check Results

Adjustment Item	Description	Method			Ref.
		AU*1	M2*2	AT*3	
Check Nozzle	Checks for absence of dot missing.	○	○	---	P.436
Check Alignment	Checks for absence of misalignment.	○	---	---	P.437
Print Adjustment Check Pattern	Prints all adjustment patterns and adjustment parameters and checks content.	○	○	---	P.438
Cut Sheet Continuous Feed Test	Feeds paper from ASF and ejects it to check the ASF operation.	○	---	---	---
Print Image	Prints an image and performs check of image quality.	○	---	---	---
Check Cutting	Cuts roll paper and checks for cutter adjustment and wear.	○	---	---	P.440
Print Image	Prints out images to verify the image quality.	○	---	---	P.439

RESET COUNTERS

Table 5-7. Reset Counters

Adjustment Item	Description	Method			Ref.
		AU*1	M2*2	AT*3	
Reset Paper Ejection Switching Counter/ Reset PG Switching Counter	Resets the Paper Ejection Switching Counter and the PG Switching Counter.	○	○	---	P.441
Reset PF Motor Counter	Resets the PF Motor distance counter.	○	○	---	P.441
Reset ASF Counter	Resets the counter that counts the number of papers transferred from the ASF.	○	○	---	P.442
Reset When CR Unit Change	Resets the CR Motor Pass number counter.	○	○	---	P.442
Reset When Cleaning Unit Change	Resets the Cleaning Unit life counter.	○	○	---	P.443
Reset When Printhead Change	Reset the Printhead Life Counter	○	---	---	P.443

5.1.6 Adjustment Tools

The following tools are needed for Stylus Pro 4400/4450/4800/4880/4880C adjustments.

Table 5-8. Adjustment Tools

Type	Name	Part Code	Note
Hardware Tool	Sonic Tension Meter U-505	1231678	---
	Code type microphone (U-505)*1	1277074	---
	Microtrace#300	1057723	---
	Paper Thickness Position Tool	1282355	Thickness: 0.3/0.4/0.8/0.9*2
	Multi Sensor Position Tool	1282354	Thickness: 2.9/3.0/3.1*2
	Thickness Gauge=0.75	1400026	---
	Thickness Gauge=0.65	1400027	---
	CR Lock Tool	1284893	---
	Tension Gauge 10N	1401952	---
	Color Banding Sample	1288094	---
	Ink cartridge (x8)*3	Refer to Table 5-9.	Consumable
	Maintenance Tank*3	C12C890191	Option
	Proofing Paper Semimatte (Roll)*4	---*5	Genuine Paper
	Premium Semimatte Photo Paper [250] (Roll)*4	---*5	Genuine Paper
	Premium Glossy Photo Paper [250] (Roll)*4	---*5	Genuine Paper
	EPSON Proofing Paper Semimatte (Commercial)*4	---*5	Genuine Paper
	Enhanced Matte Paper (Roll)*3	---*5	Genuine Paper
	Archival Matte Paper (Sheet)*3*4	---*5	Genuine Paper
Software Tool	Adjustment Program	---	Supplies
	NVRAM Backup Utility	---	Supplies
	Paper Feed Adjuster	---	Supplies*6

Note "*1": Adjustments can be performed even if this tool is not on hand, but the adjustment operation can be more easily performed by using the tool.

"*2": Supplied by 1 set as a tool.

"*3": Used when test prints are necessary.

"*4": Papers indicated with "*4" are required for performing "PF Micro Feed Adjustment (Bi-D)" if users are using this type of papers.

"*5": These numbers may vary depending on destinations.

"*6": Bundled with the adjustment program.

Table 5-9. Ink Cartridge (110 ml)

Ink cartridge	Model Number			
	Stylus Pro 4800	Stylus Pro 4880/4880C	Stylus Pro 4400	Stylus Pro 4450
Photo Black	C13T564100	C13T605100	---	---
Cyan	C13T564200	C13T605200	C13T543200	C13T613200
Vivid Magenta	---	C13T605300	---	---
Magenta	C13T564300	---	C13T543300	C13T613300
Yellow	C13T564400	C13T605400	C13T543400	C13T613400
Light Cyan	C13T564500	C13T605500	---	---
Vivid Light Magenta	---	C13T605600	---	---
Light Magenta	C13T564600	---	---	---
Light Black	C13T564700	C13T605700	---	---
Matte Black	C13T543800	C13T613800	C13T543800	C13T613800
Light Light Black	C13T564900	C13T605900	---	---

5.1.7 Adjustment Program Basic Operation

This section describes basic methods for operating the adjustment program.

CAUTION

The adjustment program includes adjustment items to be used other than on-site. Regarding on-site repairs, do not execute adjustments other than those described in this manual.

☐ Operating Environment

- OS: Widows 98, Me, 2000, XP
- Port: USB port
- Printer driver and ESM3 have to be installed.

☐ Start-up

1. Double-click [adjwiz2.exe] to start the adjustment program.
2. Select the following items after the startup screen appears.
   - Printer name
     Select the model of the printer in use.
   - Adj. Mode
     Select whether to execute adjustments with the sequential mode (Sequence) or to execute each adjustment individually (Individual).
3. Click [Start].

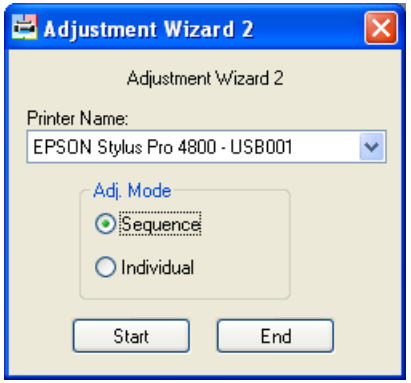


Figure 5-1. Adjustment Program Startup Screen

☐ Sequential Mode

This is a guide mode for executing the required adjustments in a set order when a replaced part or unit is selected.

1. Select the replaced part or unit from the left column and click [Add].
2. Click the [OK] button.

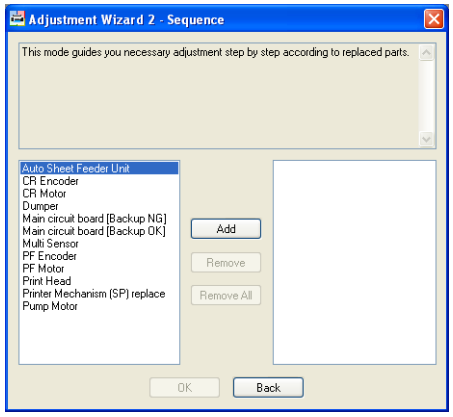


Figure 5-2. Sequential Mode Screen

☐ Individual Adjustment Mode

This is a mode for executing each adjustment item individually.

1. Select the adjustment item to be executed and click the [OK] button.

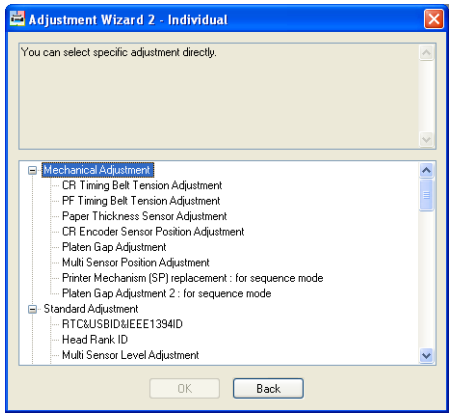


Figure 5-3. Individual Adjustment Mode Screen

5.2 Mechanical Adjustment

5.2.1 CR Timing Belt Tension Adjustment

This adjustment applies to all operations that have resulted in removal or replacement the CR Timing Belt or loosening of the belt, such as CR Motor removal. This adjusts the belt tension to the correct tension after installation of the CR Timing Belt.

- ☐ Tools (Required)
  - ■ Sonic Tension Meter U-505
  - ■ A tool to pluck the timing belt (tweezers, etc.)
- ☐ Utility Tools (Adjustment possible without these)
  - ■ Code Type Microphone (U-505)
- ☐ Standard Value
  - ■ Standard: 16.6±1N
- ☐ Procedure
  1. Install the CR Timing Belt. At this time, set the scale of the Pulley Holder at the same position it had before removal.
  2. Manually move the Carriage Unit through a return and back 5 times.

CHECK POINT

- ■ **Move the whole area of the Carriage Unit moving parts through the returns.**
- ■ **Try to make the speed of the return motions such that it takes 2 seconds for sending and 2 seconds for returning.**

  3. Set the Carriage Unit in the home position.
  4. Input the following belt information into the tension measurement tool.
     - ● Weight: 1.2
     - ● Width: 8.0
     - ● Spam: 635
  5. Bring the measurement microphone of the tension meter close to the center of the Timing Belt.

CHECK POINT

Set the tension meter fixed tool in a position so the distance between the measurement microphone and timing belt is within approximately 5mm but not touching the timing belt.

  6. Press the "MEASURE" button on the tension measurement tool and measure by plucking the timing belt with a tool such as tweezers.

CAUTION

- ■ **Pluck the belt as gently as possible so it can be measured by the tension measurement tool.**
- ■ **Do not allow the measurement microphone and timing belt to make contact when the belt is plucked.**

Figure 5-4. Setting the Tension Measurement Tool

7. Turn the CR tension installation screw to adjust tension until the measurement value reaches the standard value.
8. After adjustment is complete, check the results by repeating the measurement 3 times.

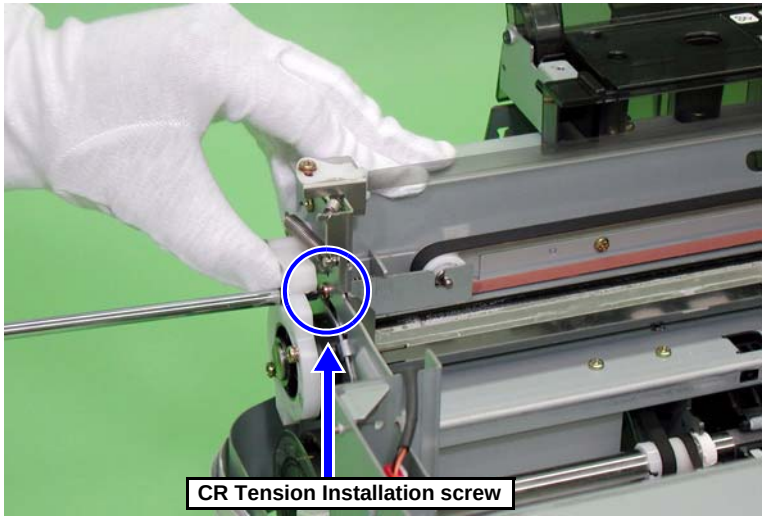


Figure 5-5. CR Timing Belt Tension Adjustment

5.2.2 PF Timing Belt Tension Adjustment

This adjustment applies to all operations that have loosened the PF Timing Belt, such as "Motor Assy., PF" removal. This adjusts the belt tension to the correct tension after installation of the "Motor Assy., PF"

- ☐ Tools (Required)
  - ■ Sonic Tension Meter U-505
  - ■ A tool to pluck the timing belt (tweezers, etc.)
- ☐ Utility Tools (Adjustment possible without these)
  - ■ Code Type Microphone (U-505)
- ☐ Standard Value
  - ■ Standard: 17.6 ~ 21.6N
- ☐ Procedure

CAUTION

Pay attention not to deform or damage the "Scale, PF" attached to the "Pulley, Roller, PF" when performing the following work.

1. Input the following belt information into the tension measurement tool.
   - ● Weight: 1.3
   - ● Width: 6.0
   - ● Spam: 47
2. Bring the measurment microphone of the tension meter close to the center of the timing belt (between the "Motor Assy., PF" pinion gear and the PF roller pulley).

CHECK POINT

Set the tension meter fixed tool in a position so the distance between the measurement microphone and timing belt is within approximately 5mm but not touching the timing belt.

3. Press the MEASURE button on the tension measurement tool and measure by plucking the timing belt with a tool such as tweezers.

CAUTION

- ■ **Pluck the belt as gently as possible so it can be measured by the tension measurement tool.**
- ■ **Do not allow the measurement microphone and timing belt to make contact when the belt is plucked.**

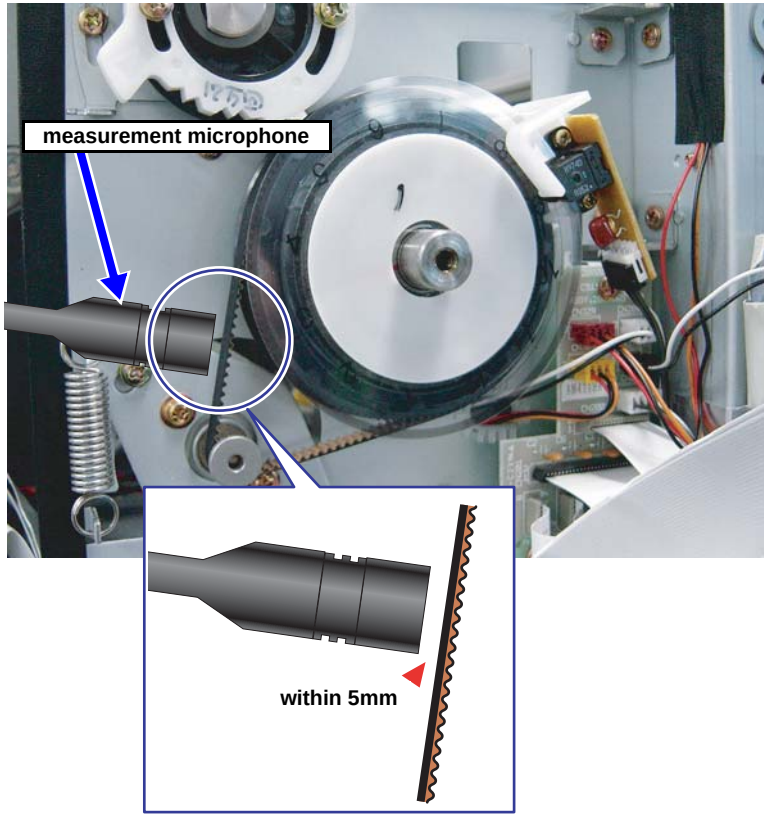


Figure 5-6. Setting the Tension Measurement Tool

4. No adjustment is necessary if the measurement value is within the standard value. If the value is outside the standard value, use the following procedure to adjust the tension until it reaches the standard value.
5. Loosen the 2 screws fixing "Plate, Motor PF" by the amount shown below, and then adjust the timing belt tension by sliding "Plate, Motor PF".
   - (+) Bind S-tight with plane washers 2 3x8, F/Zn : 1/4~2/4 turn
   - Shaft, Installation Plate, CR : 1/8 turn
6. After completing adjustment, tighten the 2 screws and measure tension again.
7. After the measurement value has reached the standard value, check the results by repeating the measurement 3 times.

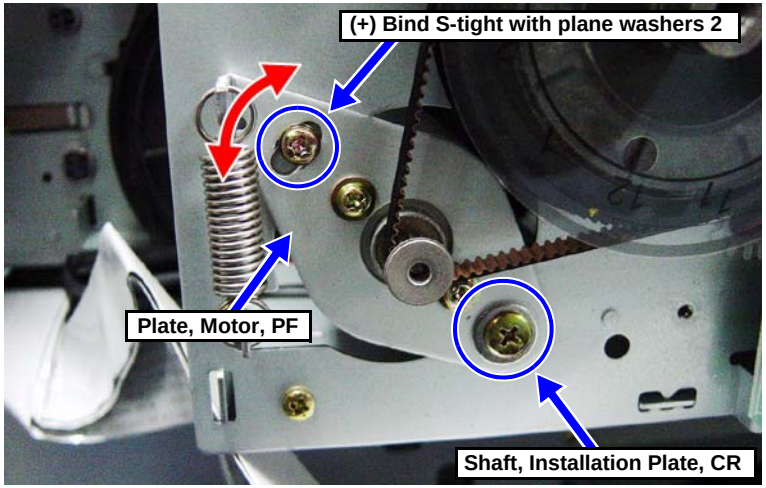


Figure 5-7. PF Timing Belt Tension Adjustment

5.2.3 Paper Thickness Sensor Adjustment

When the paper thickness sensor has been replaced, it must be made to recognize the thickness set as the detection standard. Check installation position condition with the self testing menu and perform adjustment if the result is NG.

- ☐ Tools
  - ■ Paper Thickness Position Tool (Gauge: 0.3/0.4/0.8/0.9)
- ☐ Check Procedure

CAUTION

Be sure to start check from the condition in which [Paper Lever] is lowered.

1. Enter Maintenance Mode 2.
   Power off → Press **"Paper Source (<)" + "Paper Feed (∆)" + "Paper Feed (∇)"** → Power on
2. Select "SELF TESTING" and enter the self testing menu.
   "Menu (>)"
3. Select "SELF TESTING: Test".
   "Menu (>)"
4. "Select "Test: Sensor".
   "Paper Feed (∇)" x 2 → "Menu (>)"
5. Confirm that "Sen: Paper 00" is displayed in the panel (with [Paper Lever] in the lowered condition).
   Perform adjustment if the displayed value is other than "00".
   → To Adjustment Procedure
6. Raise "Paper Lever", set 0.3 adjustment jig from the rear paper feed slot as shown in Figure 5-8, and then lower [Paper Lever].
   Confirm that "Sen: Paper 00" is displayed in the panel.
   Perform adjustment if the displayed value is other than "00".
   → To Adjustment Procedure
7. Raise "Paper Lever", set 0.4 adjustment tool as shown in Figure 5-8, and then lower "Paper Lever".
   Confirm that "Sen: Paper 01" is displayed in the panel.
   Perform adjustment if the displayed value is other than "01".
   → To Adjustment Procedure
8. Raise "Paper Lever", set 0.8 adjustment tool as shown in Figure 5-8, and then lower "Paper Lever".
   Confirm that "Sen: Paper 01" is displayed in the panel.
   Perform adjustment if the displayed value is other than "01".
   → To Adjustment Procedure
9. Raise "Paper Lever", set 0.9 adjustment tool as shown in Figure 5-8, and then lower "Paper Lever".
   Confirm that "Sen: Paper 11" is displayed in the panel.
   Perform adjustment if the displayed value is other than "11".
   → To Adjustment Procedure
10. Raise "Paper Lever" and remove 0.9 adjustment tool, and then confirm that "Sen: Paper 10" is displayed in the panel while the "Paper Lever" is in the raised condition.
    Perform adjustment if the displayed value is other than "10".
    → To Adjustment Procedure
11. After confirming/adjusting, check again with all adjustment tool. This time confirm after repeating up/down movement of "Paper Lever" 3 times.

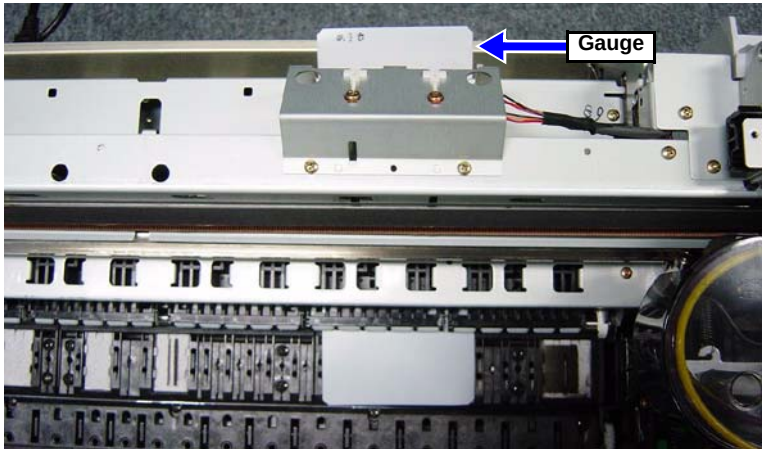


FIGURE 5-8. PAPER THICKNESS SENSOR ADJUSTMENT

☐ Adjustment Procedure

Adjusts position of "Paper Thickness Sensor Holder" for ① when [Paper Lever] is lowered with adjustment tool 0.3/0.4 or "Paper Lever" is lowered with no adjustment tool and ② when "Paper Lever" is lowered with adjustment jig 0.8/0.9 or "Paper Lever" is raised with no adjustment tool.

1. Loosen the screw fixing "Paper Thickness Sensor Holder".
2. Slide the "Paper Thickness Sensor Holder" up/down while checking the panel display. Keep the "Paper Thickness Sensor Holder" at the place just after the panel display changes.

CHECK POINT

Adjust by raising the "Paper Thickness Sensor Holder" when the numerical value increases and lowering the holder when the value decreases.

3. Tighten the screws to fix the "Paper Thickness Sensor Holder".

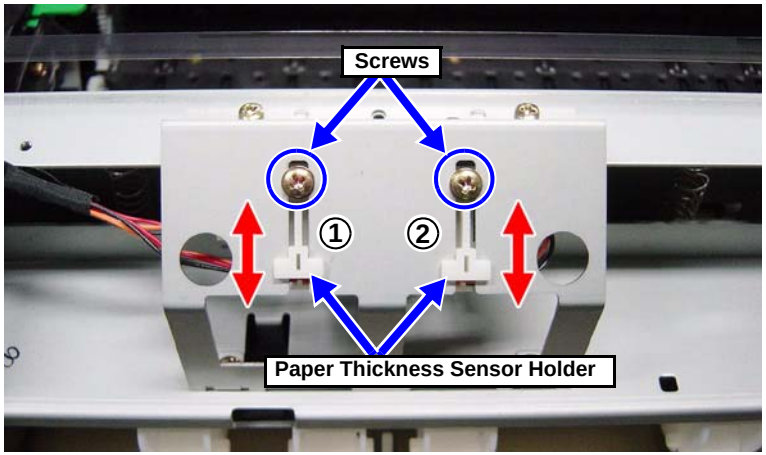


Figure 5-9. Paper Thickness Sensor Adjustment

5.2.4 CR Encoder Sensor Position Adjustment

This is intended to keep the CR Encoder Sensor and CR Scale at a suitable space.

☐ Procedure

1. Move the Carriage Unit and check the position of the "Scale, CR" against the sensor at 3 places (left end, center, right end). Visually confirm uniform distance of the arrows shown in the figure.
2. When space is NG, loosen the screw of "Holder, Linear Scale" or "Holder, Sensor, HP" and move the "Lever, Scale, CR". Then adjust the position of "Scale, CR" and tighten the screw.
3. After adjusting, check the 3 places again (left end, center, right end).

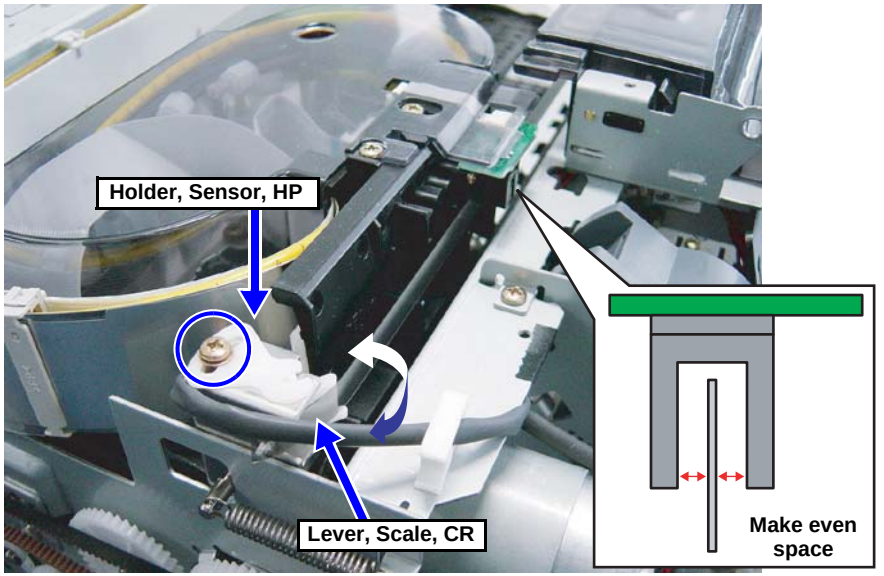


Figure 5-10. CR Encoder Sensor Position Adjustment_1

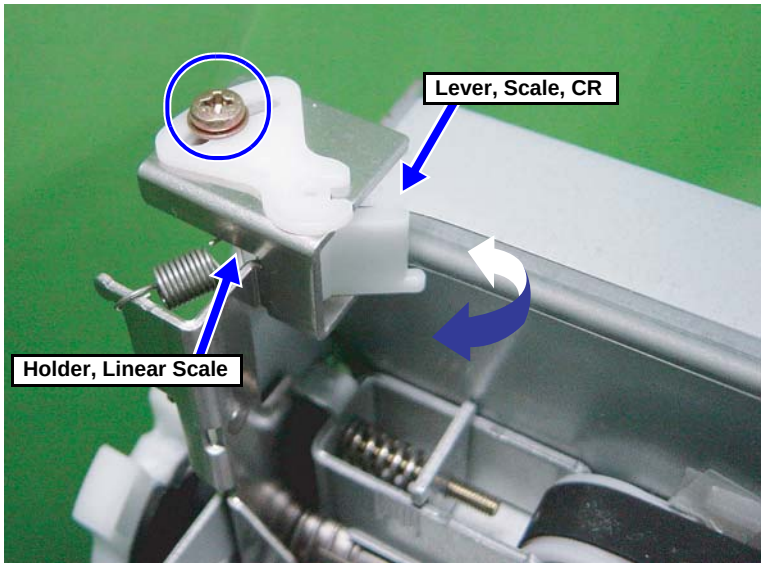


Figure 5-11. CR Encoder Sensor Position Adjustment_2

5.2.5 PG Adjustment

- Required Tools
  - Thickness Gauge T=0.75
  - Thickness Gauge T=0.65
- Procedure

1. Open the top cover and put suitable objects into the top cover sensor area to keep the sensor turned on. Make sure that the panel display is changed from **"TOP COVER OPEN"** to **"READY"**.

CAUTION

Be careful not to break the sensor flag when turning the sensor on.

2. Enter Maintenance Mode 2.
   Power off → Press **"Paper Source(<)"** + **"Paper Feed(△)" + "Paper Feed(▽)"** → Power on
3. Select "SELF TESTING" to enter Self Testing menu.
   "Menu(>)"
4. Select "SELF TESTING: Adjustment".
   "Paper Feed(▽)" x1 → "Menu(>)"
5. Select "Adj: PG Adj.".
   "Paper Feed(▽)" x1 → "Menu(>)"
6. Loosen the two screws that secure "Bushing, Shaft, Rear".
7. **Press "Menu(>)"** to change the panel display.
   "[Enter] Start"
8. Press **"Menu(>)"** again to move the PG to initial position and change the panel display.
   "PG Offset *xx00"
9. Attach the Thickness Gauge (T=0.65) onto the right most "Paper Guide Assy., Paper Eject, Front, Right".

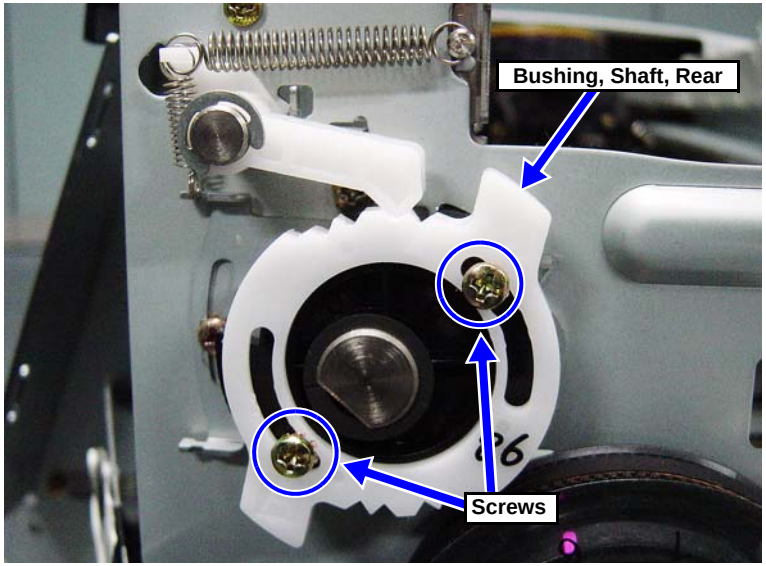


Figure 5-12. Screws Securing Bush, Shaft, Rear

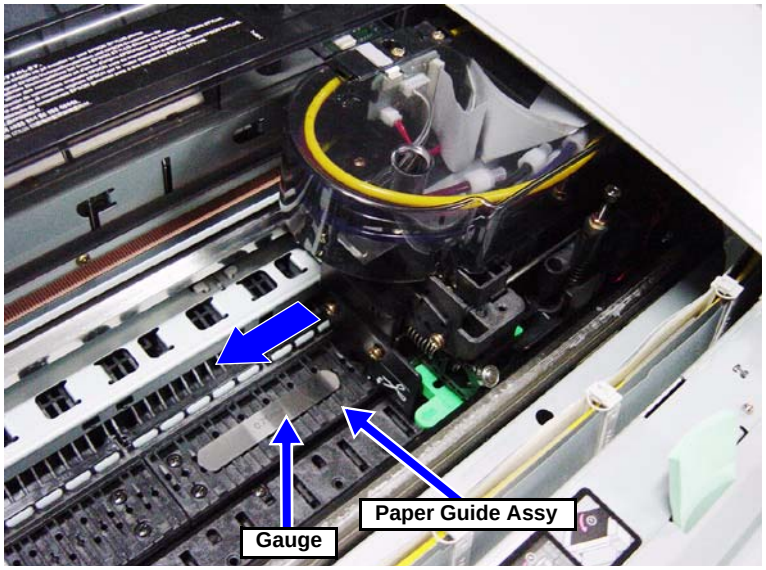


Figure 5-13. PG Adjustment

CAUTION

Always move the "Carriage Unit" by pulling the "Belt, CR" in the following steps. Holding and moving the "Carriage Unit" may cause deformation of the PG due to the downward pressure.

10. Move the "Carriage Unit" and make sure it hits the thickness gauge.
11. Press the **"Paper Feed (∆)"** to move the "Carriage Unit" upward and widen the PG. Slowly move the "Carriage Unit" upward to the position where the "Carriage Unit" does not hit the thickness gauge.
12. Replace the Thickness Gauge (T=0.65) by the Thickness Gauge (T=0.75).
13. Move the "Carriage Unit" and make sure it hits the thickness gauge.
14. Add "3" to the current number displayed on the panel.
    "Paper Feed (∆)" x3
15. Press **"Menu (>)"**.
16. Rotate the "Bushing, Shaft, Rear" so that the "Lever, Rock, PG" gets into the extreme right notch of the "Bushing, Shaft, Rear", and tighten the "Bushing, Shaft, Rear" with the two screws which have been loosened in Procedure 6.
17. Turn the printer off.

5.2.6 Multi Sensor Position Adjustment

This adjustment sets a suitable distance between the Multi Sensor (Multi Sensor Holder) and the platen.

☐ Required Tools

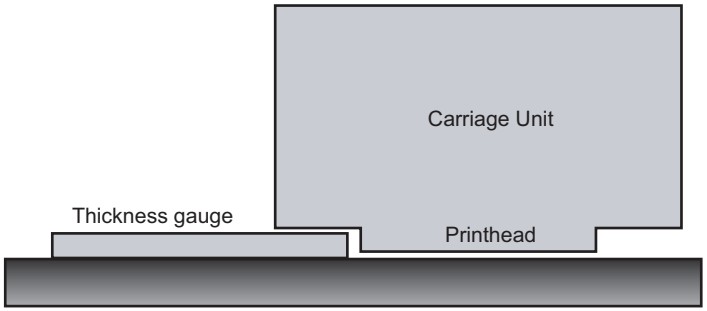
- ■ Multi Sensor Position Tool
- ■ CR Lock Tool

☐ Procedure

1. Turn the "Bushing, Shaft, Rear" so that [Lever, Lock, PG] goes into the furthest right notch of "Bushing, Shaft, Rear".
2. Place position tool 3.0 on "Paper Guide Assy., Paper Eject, Front, Right" at the position shown by Figure 5-15.
3. Move the Carriage Unit to the position where the "Multi Sensor Holder" touches the position tool.

CAUTION

When moving the Carriage Unit, do not let the Print Head contact the thickness gauge.



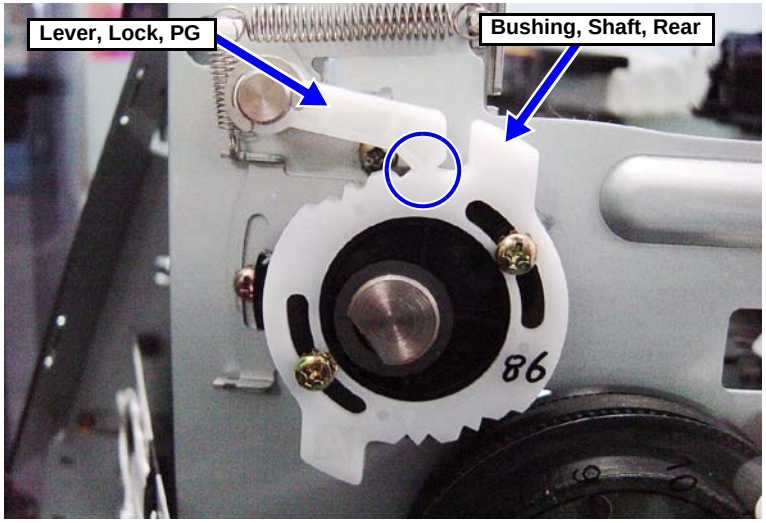


Figure 5-14. Multi Sensor Position Adjustment_1

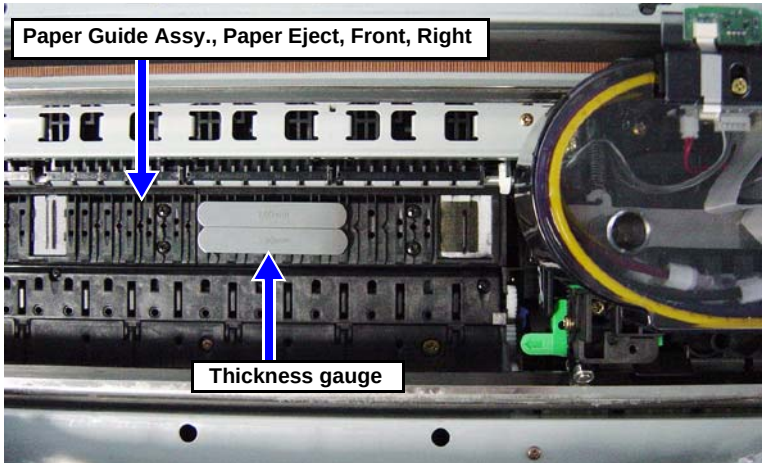


Figure 5-15. Setting the Position Tool

4. Set the CR Lock Tool.
   Set the CR Lock Tool into the 2 holes on the printer frame, and then fix the tool by pinching with the bearings of the Carriage Unit.
5. Loosen the two screws securing the "Multi Sensor Holder".
6. Set the position of the "Multi Sensor Holder" in ① rear direction and then ② downward direction. Then tighten the two screws.
7. Set the position tool 2.9 and move the Carriage Unit, confirming that the "Multi Sensor Holder" does not contact it.
8. Set the position tool 3.1 and move the Carriage Unit, confirming that the "Multi Sensor Holder" contacts it.

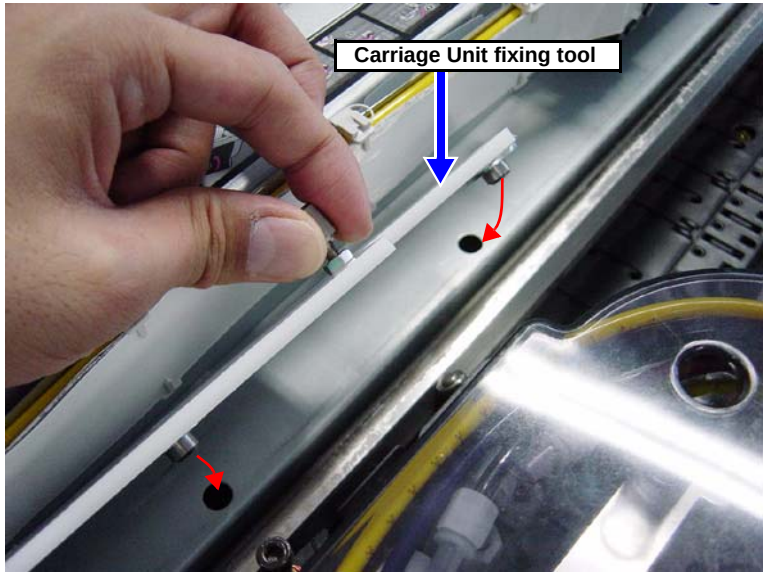


Figure 5-16. Setting the CR Lock Tool_1

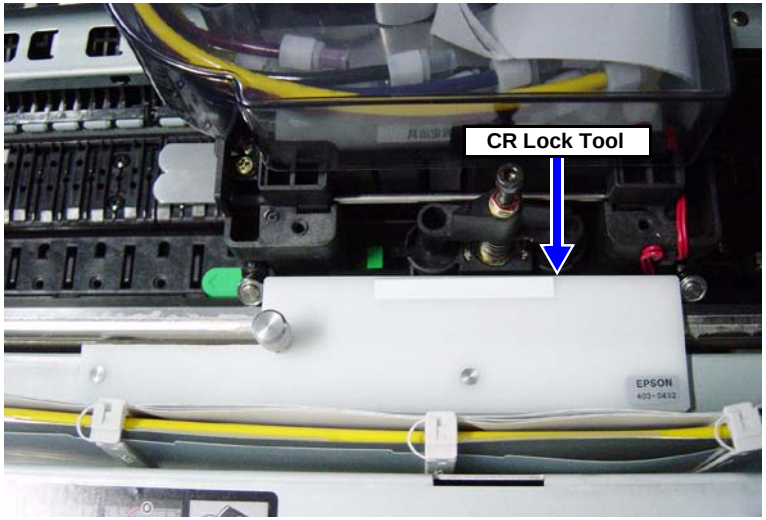


Figure 5-17. Setting the CR Lock Tool_2

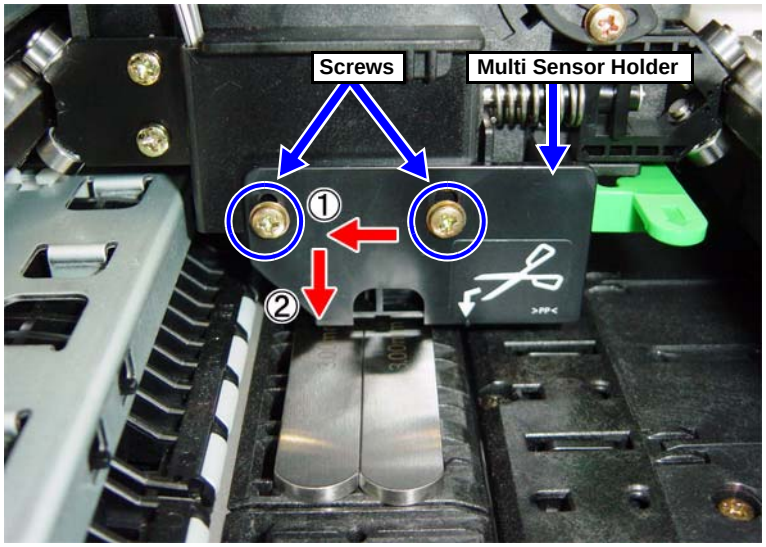


Figure 5-18. Multi Sensor Position Adjustment_2

5.3 Basic Adjustment

5.3.1 RTC&USB ID&IEEE1394 ID

CHECK POINT

Writing IEEE1394 ID is Stylus Pro 4400/4800 only.

Writes the RTC Backup Battery Reset Time, USB ID, and IEEE 1394 ID on a new Main Board.

☐ Procedure

1. Note down the 10-digit ID number (IEEE1394 ID) on the ID label that is stuck to lower backside of the main unit right frame when replacing the Main Board.
2. Turn the printer power on after replacing the Main Board.
3. Start up the adjustment program and select [RTC&USB ID IEEE 1394 ID].
4. Confirm or Input [Date] and [Time].
5. Enter the 17-digit serial number of the main unit. The USB ID will be generated.
6. Enter the ID number that is taken down in Procedure 1 to the [IEEE 1394 ID].
7. Click [Write] to start writing the RTC, USB ID, and IEEE1394 ID to the NVRAM on the Main Board.
8. Click [Next].
9. Click [Check] to display the information written to the Main Board, confirm the contents, and click [OK].
10. Click [Finish].

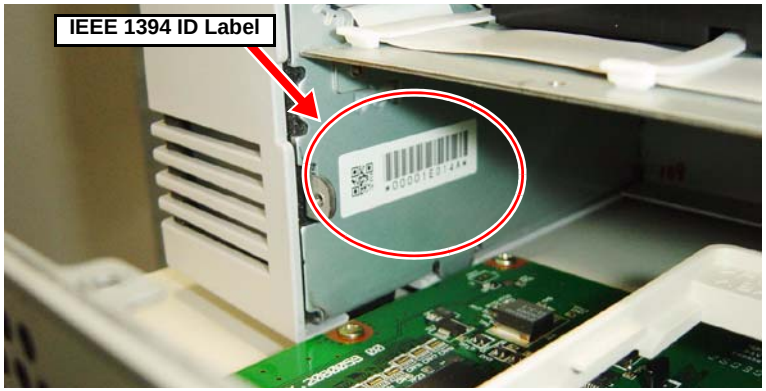


Figure 5-19. IEEE 1394 ID Label

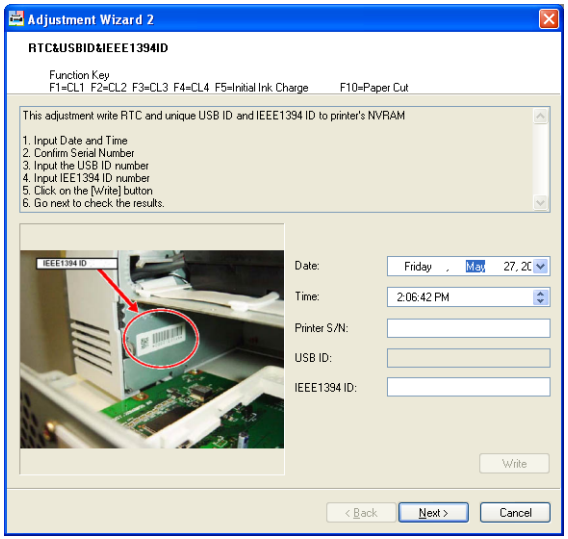


Figure 5-20. RTC&USB ID&IEEE 1394 ID

CAUTION

If you turn the printer OFF/ON after the USB ID has been changed, Windows recognizes the USB as another port and creates a driver of xxxx (Copy x). If you need to continue adjustment using this program, finish the program once and restart it by selecting the new driver (Copy x).

5.3.2 Head Rank ID

Sets/Inputs the information unique to each print head as the Head Rank ID for the best driving voltage setup after replacing the print head. (It can be read from and written to a file.)

☐ Procedure for Writing
<When applying the Head Rank ID on the ID label stuck to the print head. >

1. Turn the printer power on.
2. Start up the adjusting program and select [Head Rank ID].
3. Note down the Head Rank ID on the ID label attached to the print head to be installed.
4. Enter the Head Rank ID to the edit box on the screen in the similar manner (21 digits in total) as the one printed on an ID label.
5. Click the [Write] button.
6. Click [Finish].

☐ Procedure for Writing
<When applying the Head Rank ID information file (txt) of the print head to be installed. >

1. Turn the printer power on.
2. Start up the adjusting program and select [Head Rank ID].
3. Click the [File Open] button and select the Head Rank ID information file (txt).
4. Click the [Write] button.
5. Click [Finish].

☐ Procedure for saving the Head Rank ID information

1. Turn the printer power on.
2. Start up the adjusting program and select [Head Rank ID].
3. Note down the Head Rank ID on the ID label attached to the print head to be installed.
4. Enter the Head Rank ID to the edit box on the screen in the similar manner (21 digits in total) as the one printed on an ID label.
5. Click [File Save], name the file with a suitable one, and save the information as a text file.
6. Click [Finish].

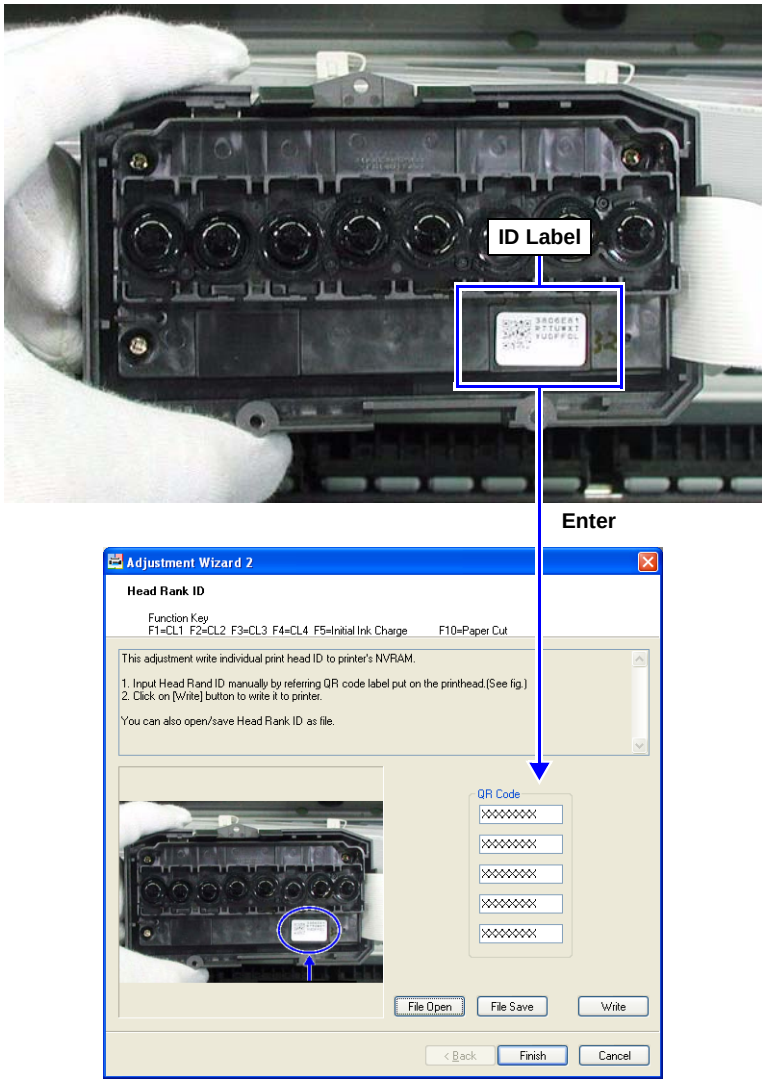


Figure 5-21. Head Rank ID

5.3.3 Multi Sensor Level Adjustment

Paper is fed into the printer, the Multi Sensor emits light onto the paper and platen, the reflected light is received by the Multi Sensor, and detection level is corrected automatically. Then the detection result is printed.

☐ Paper Used

- ■ Size: 17"
- ■ Type: Enhanced Matte Roll Paper

☐ Procedure

1. Start the adjustment program and select [Multi Sensor Level Adjustment].
2. Click the [Run] button to print the adjustment values.
3. Each numerical value is described below. Confirm standard values for B~E.
   - ■A: Shows results of light received from either PW1 or PW2 light receiver when PG=1.2.
   - ■B: Automatically switches to 1 or 0 according to amount of reflected light acquired. LED light quantity control is switched according to the numerical value.
   - ■C: Shows the LED light emission level. The standard value differs according to the light quantity control set at B.
     - ●At "I/O: 1" = 80 or higher
     - ●At "I/O: 0" = 104 or lower
   - ■D: Shows level of reflected light received from the paper. Value is within range of 230~236.
   - ■E: Shows level of reflected light received from the platen. Value is within range of 0~3.
4. Click the [Finish] button.

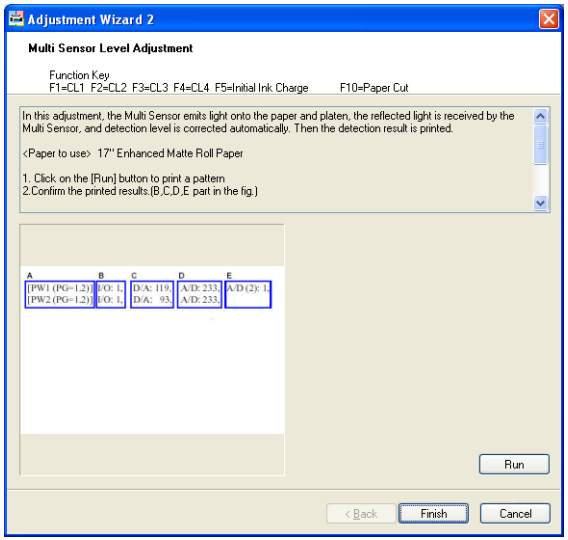


Figure 5-22. Multi Sensor Level Adjustment

A	B	C	D	E
[PW1 (PG=1.2)] [PW2 (PG=1.2)]	I/O: 1, I/O: 1,	D/A: 119, D/A: 93,	A/D: 233, A/D: 233,	A/D (2): 1,

Figure 5-23. Multi Sensor Level Adjustment Values

5.3.4 T&B&S (Roll Paper)

This adjusts the printing position that includes the cut position on the surface of the paper and corrects a bend of emission axis of the main scanning direction in the multi sensor.

- Paper Used
  - Size: 17"
  - Type: Enhanced Matte Roll Paper
- Specifications
  - Top margin: 10 ± 1 mm
  - Bottom margin: 114 ± 1 mm
  - Side margin: 10 ± 0.3 mm
- Procedure
  1. Start adjustment program and select [T&B&S (Roll Paper)].
  2. Click the [Print] button to print the adjustment pattern.
  3. Refer to Figure 5-25, and measure the distance of the following three positions;
     - Top margin, bottom margin
       Check the arrow direction of "T&B Position" printed on the pattern. Then measure the distances of margins indicated with arrows in Figure 5-25 for top and bottom.
     - Side margin
       Measure the distance as shown in Figure 5-25.
  4. Input each of the following value into its corresponding edit boxes.
     - The values measured in Procedure 3
       - Top margin
       - Bottom margin
       - Side margin
     - The values printed in the pattern lower part
       - Multi sensor left
       - Multi sensor right
  5. Click the [Write] button and then click the [Print] button again to print the adjustment pattern.
  6. Repeat Procedure 3 and Procedure 4, and click [Write].
  7. If the specification values are satisfied, click [Finish]. If not satisfied, repeat Procedure 3 through Procedure 5 until they meet the standards.

CAUTION

- **When measuring colors, place the adjustment pattern on a flat surface.**
- **Make sure to perform the adjustment twice regardless whether the value obtained from the first measurement meets the specified value.**

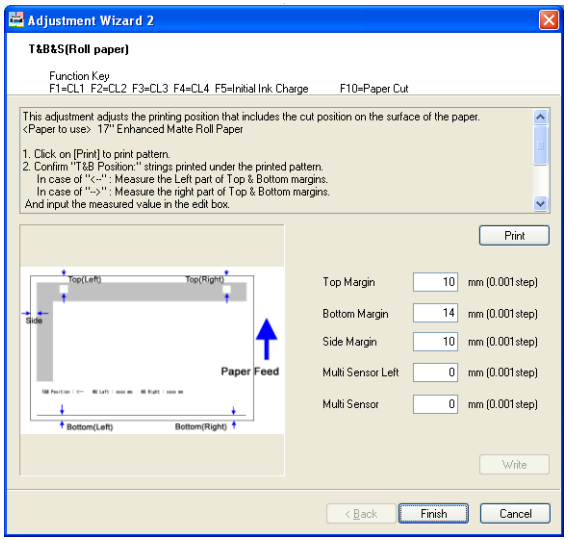


Figure 5-24. T&B&S (Roll Paper)

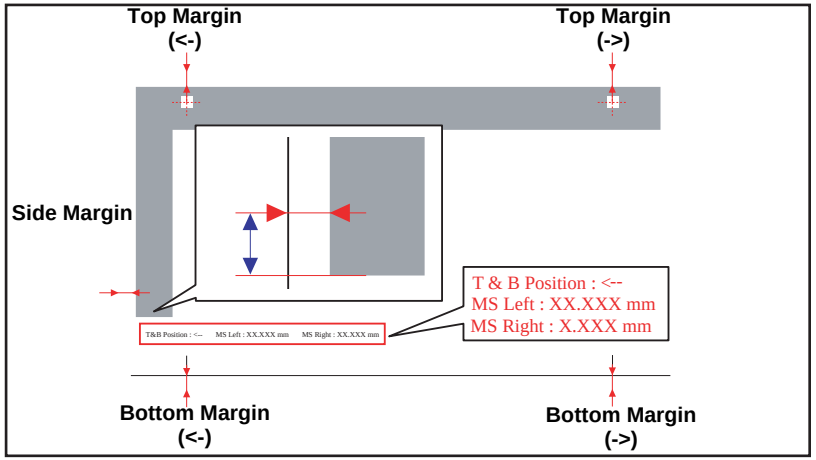


Figure 5-25. Adjustment Pattern

5.3.5 T&B&S (Cut Sheet)

This prints a special pattern and adjusts the printing position on the surface of the paper.

- Paper Used
  - Size: A4
  - Type: Enhanced Matte Cut Sheet
- Specifications
  - Top margin: 10 ± 1 mm
  - Bottom margin:114 ± 1 mm
  - Side margin: 10 ± 0.3 mm
- Procedure

1. Start the adjustment program and select [T&B&S (Cut Sheet)].
2. Click the [Print] button to print the adjustment pattern.
3. Measure the margins of the following three parts indicated with Figure 5-27.
   - Top margin
   - Bottom margin
   - Side margin
4. Input the values measured in Procedure 3 to its corresponding edit box.
   - Top margin
   - Bottom margin
   - Side margin
5. Click the [Write] button and then click the [Print] button again to print the adjustment pattern.
6. Repeat Procedure 3 and Procedure 4, and click [Write].
7. If the specification values are satisfied, click [Finish]. If not satisfied, repeat Procedure 3 through Procedure 5 until they meet the standards.

CAUTION

- **When measuring colors, place the adjustment pattern on a flat surface.**
- **Make sure to perform the adjustment twice regardless whether the value obtained from the first measurement meets the specified value.**

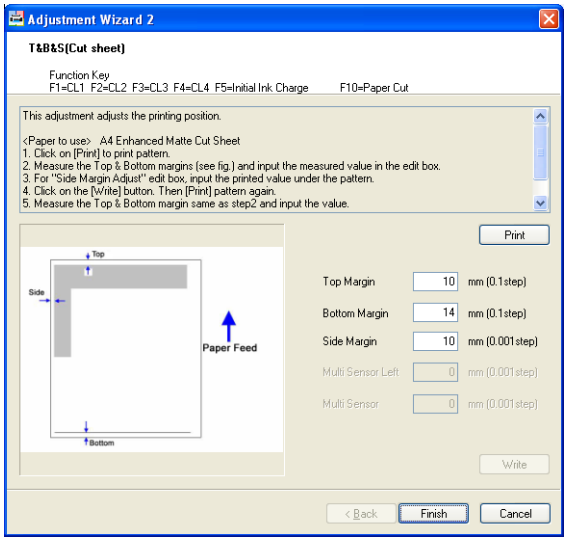


Figure 5-26. T&B&S (Cut Sheet) Screen

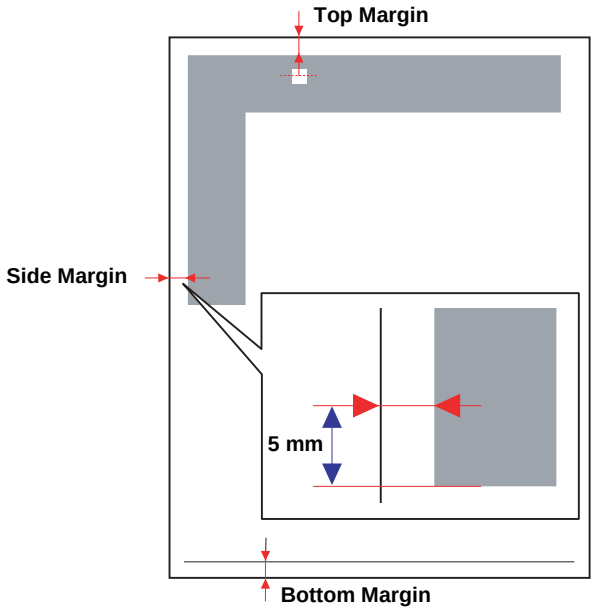


Figure 5-27. Adjustment Pattern

5.3.6 Cutter Pressure Adjustment

Adjusts the pressure to cut papers after replacing the cutter solenoid.

☐ Required Tools

- ■ Tension Gauge (10N)

☐ Specifications

- ■ 500-600g
- ■ Pressure: Less than 85%

☐ Procedure

1. Enter Maintenance Mode2.
   Power off → Press **"Paper Source(<)" + "Paper Feed(∆)" + "Paper Feed(∇)"**→ Power on
2. Select "SELF TESTING" to enter Self Testing menu.
   "Menu(>)"
3. Select "SELF TESTING: Adjustment".
   "Paper Feed(∇)" x1 → "Menu(>)"
4. Select "Adj: Cut Adj.".
   "Menu(>)"
5. Press **"Menu(>)"** to change the display from "Pressure: **%" to "Exec. Adj.?".
6. Press **"Menu(>)"** again to display the "Please Wait" message.
7. When the "Carriage Unit" detects its original point, the message "[Exec] Key Down" is displayed and the "Carriage Unit" is released.
8. Open the top cover, and press **"Menu(>)"** to display "[Exec] Key Up" and lower the cutter.
9. With the cutter kept lowered, measure the value five times in a row as pulling up the "Holder, Solenoid" of the Tension Gauge, and take down the results. Average value of the three measured figures except minimum and maximum values is considered to be the measurement result.
10. If the result is below standard, press **"Menu(>)"** to raise the cutter, press **"Paper Feed(∆)" + "Paper Feed(∇)"** to change the value (%) , and press **"Menu(>)"** to lower the cutter before measuring the value again.
    This measurement and adjustment should be performed in three places (Right end → Center → Left end of the printer).
    - ● If the value is within standard (Less than 85%)
      Move the "Carriage Unit" to the home position and turn the main unit power off.
    - ● If the value is beyond standard (More than 86%)
      Perform the adjustment one more time. If the observed value still does not meet the standard, replace the "Solenoid, CR" and perform the adjustment again.

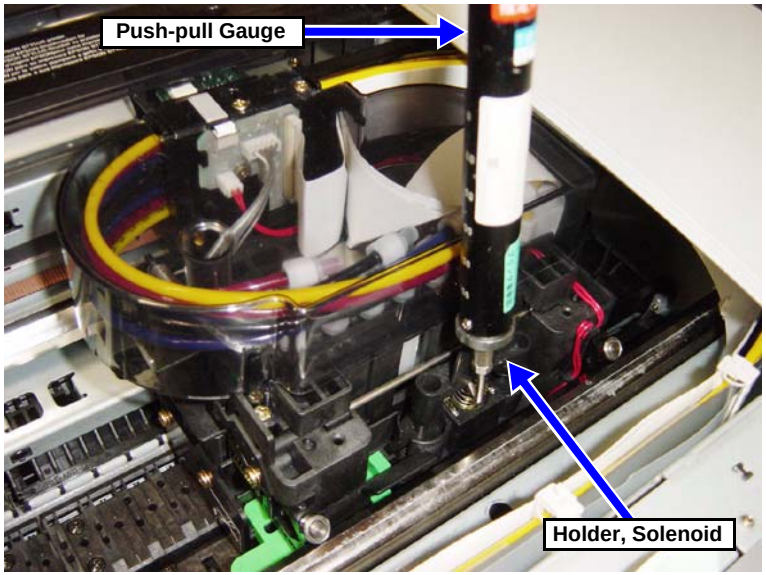


Figure 5-28. Cutter Pressure Adjustment

5.3.7 Nozzle Bi-D Adjustment

Performs standard adjustment of matte black nozzle columns. Adequately adjusts matte black Bi-D before performing Bi-D adjustment for all nozzles.

☐ Paper Used
- ■ Size: 17"
- ■ Type: Enhanced Matte Roll Paper

☐ Procedure

1. Turn the printer power on.
2. Start adjustment program and select [Nozzle Bi-D Adjustment].
3. Click the [Print] button to print the nozzle check pattern.
   The check pattern with the current setup values will be printed out.
4. Find the column where Bi-D is best aligned and input the number into the edit box.

CHECK POINT

The printed pattern is changed 2 steps. But you can input 1 step unit.

5. Click the [Write] button to print the check pattern again and check it.

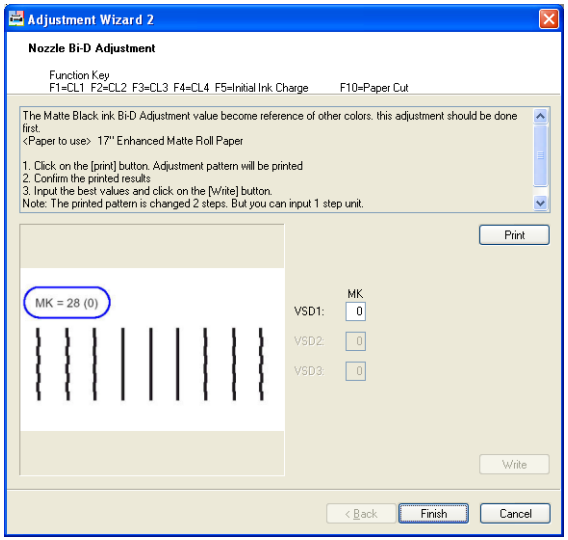


Figure 5-29. Nozzle Bi-D Adjustment Screen

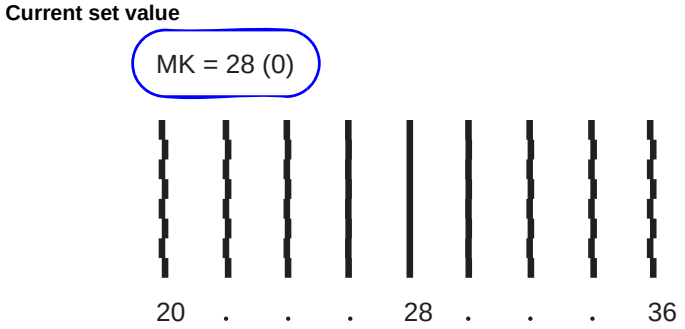


Figure 5-30. Nozzle Bi-D Adjustment Check Pattern

5.3.8 Print Head Slant Adjustment (PF)

☐ Papers Required

- ■ Size: 16"
- ■ Type: Premium Glossy Photo Paper

☐ Procedure

1. Turn the printer power on.
2. Start up the adjusting program and select [Print Head Slant Adjustment (PF)].
3. Click [Print] to print the adjustment pattern.

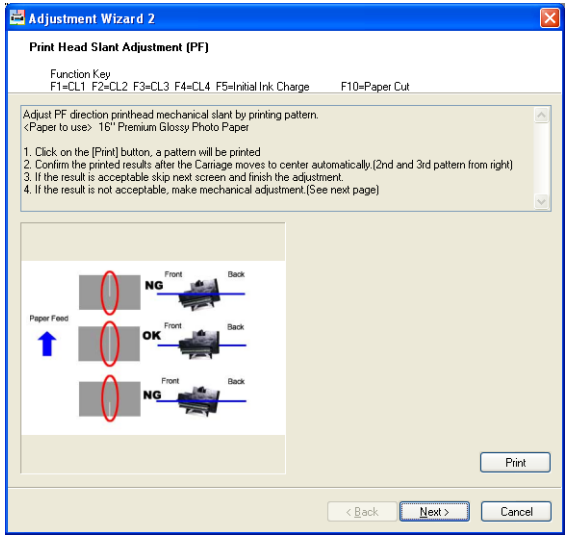


Figure 5-31. Print Head Slant Adjustment (PF) Screen (1)

4. Seeing the pattern in the direction shown in Figure 5-32, check the clearance gap between the second and the third blocks from the right. (See figure 5-32) Measure the two intervals between the two blocks which are located one line lower/upper than the two continued lines with a magnifying glass with a scale.
   - ● The gap is parallel to the both blocks (Pattern 2).
     Click [Next] and click [Finish] on the next screen to complete the adjustment.
   - ● The gap is not parallel to the both blocks (Pattern 1, 3).
     Click [Next] and perform adjustment on the next screen. → to Procedure 5.

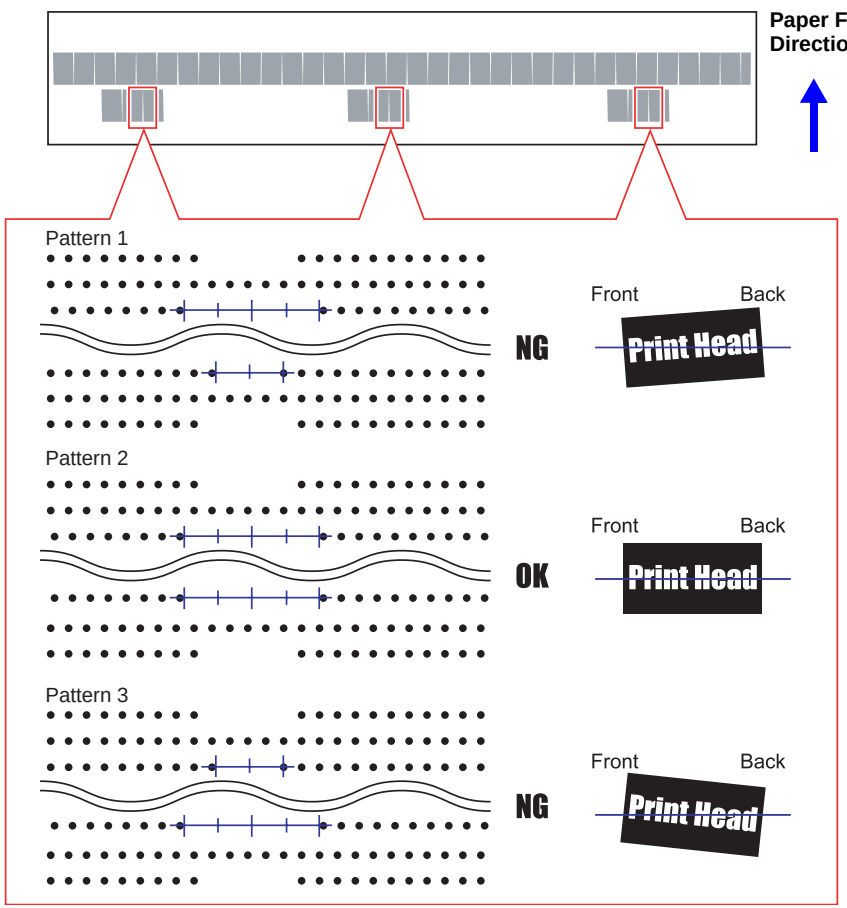


Figure 5-32. Adjustment pattern

5. Open the top cover and move the "Carriage Unit" to the center of the printer.
6. Loosen the four screws (A, B, C, and D) shown in Figure 5-34 that secure the head.
7. Move the "Cam, Inclination, R" vertically and adjust the slant of the print head.
   - If the upper side of the gap is wider (Pattern 1):
     Lower the "Cam, Inclination, R".
   - If the bottom side of the gap is wider (Pattern 3):
     Raise the "Cam, Inclination, R".
8. Tighten the four screws that are loosened in Procedure 6 in the order below.
   A → B → C → D
   Move the Carriage Unit to the home position and close the top cover.
9. Click [Back] to go back to the previous screen, and perform Procedure 3 through 8 repeatedly until the adjustment is completed.

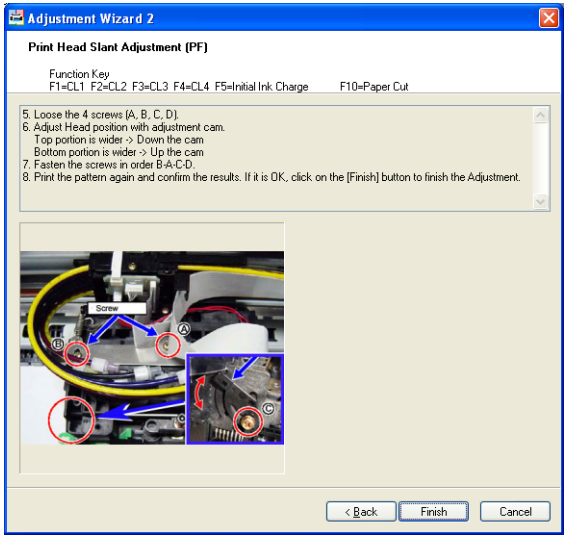


Figure 5-33. Print Head Slant Adjustment (PF) Screen (2)

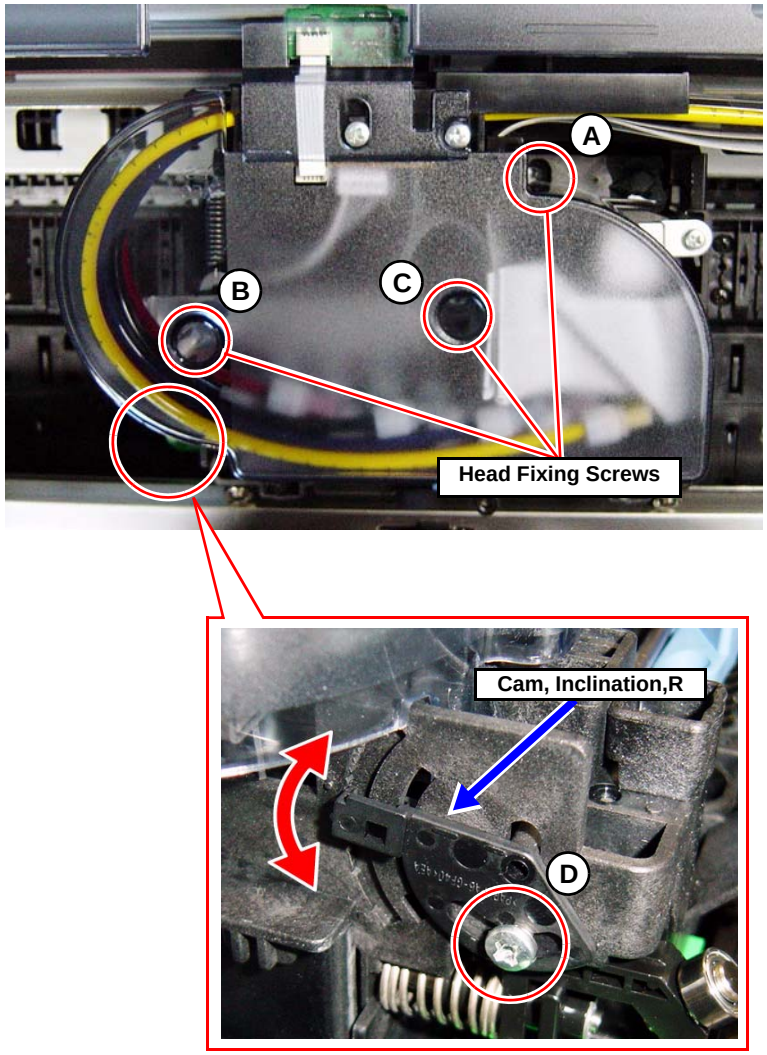


Figure 5-34. Head Fixing Screws and the Cam , Inclination, R.3

5.3.9 Print Head Slant Adjustment (CR)

- Papers Required
  - Size: 16"
  - Type: Premium Glossy Photo Paper
- Procedure

1. Turn the printer power on.
2. Start up the adjusting program, select [Print Head Slant Adjustment (CR)] and click [Print] to print the adjustment pattern. After the printing is finished, the Carriage Unit moves to the center of the printer (adjustment position).
3. Click [Next] (Proceed to Screen 2).

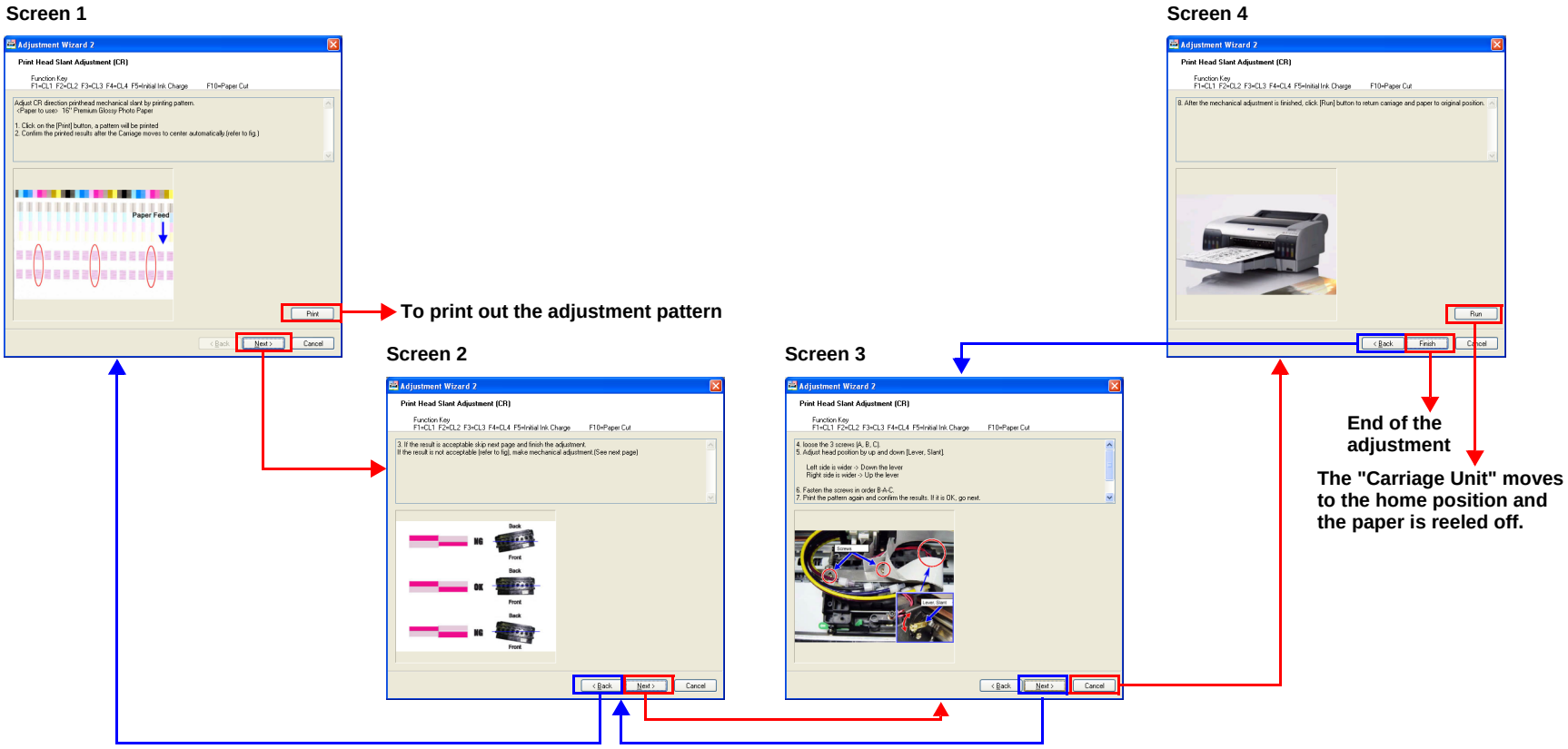


Figure 5-35. Screens shift for Print Head Slant Adjustment (CR)

4. Seeing the pattern in the direction shown in Figure 5-36, check the clearance gap between the light magenta and magenta for both right and left columns of the third, ninth, and fifteenth blocks from the right.
   - No gap on both sides:
     No adjustment required → Click [Next] two times (proceed to Screen 4), and click [Finish] to finish the adjustment.
   - Gap on any of the sides:
     Adjustment required → Proceed to Procedure 5.
5. Click [Next] (Proceed to Screen 3).

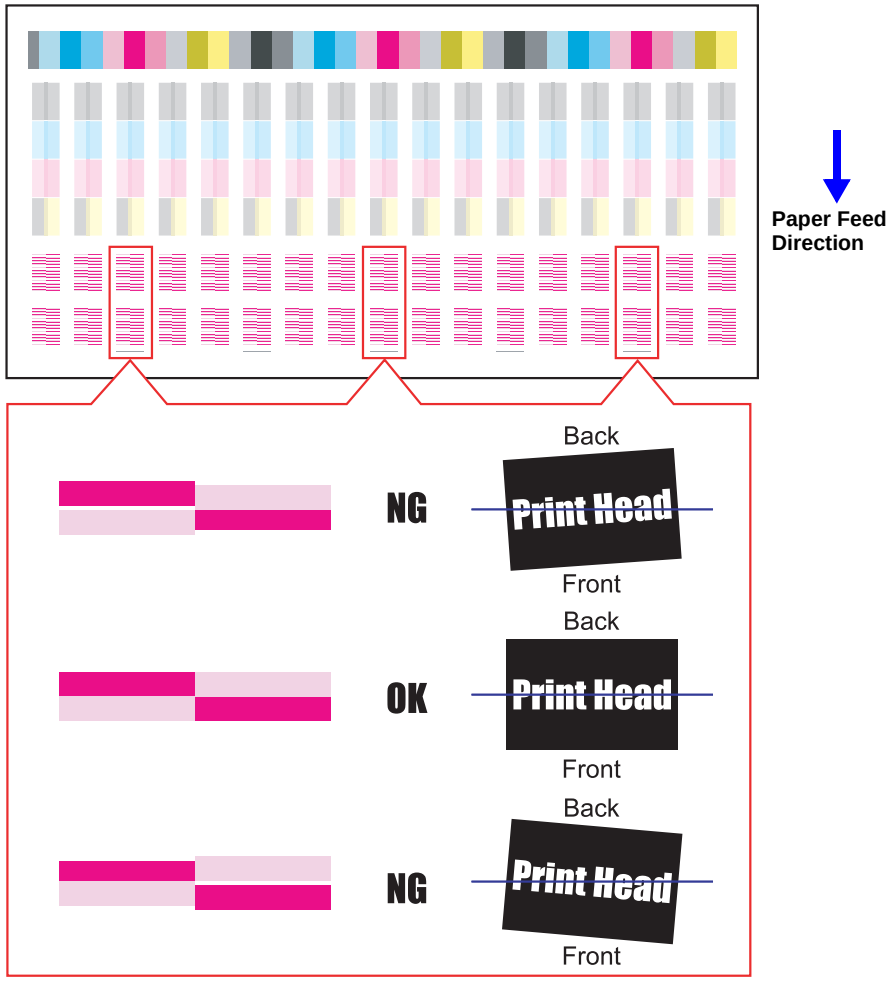


Figure 5-36. Adjustment Pattern

6. Open the top cover and loosen the two screws that secure the "Stopper, Carriage" shown in Figure 5-37.
7. Loosen the four head fixing screws (A, B, C, and D) shown in Figure 5-37.
8. Move the "Lever, Cam" vertically and adjust the slant of the print head.
   - Gap on the left column : Lower the "Lever, Cam".
   - Gap on the right column : Raise the "Lever, Cam".

CAUTION

- **The position of the "Lever, Cam" can only be adjusted by moving downward. When you need to raise the "Lever, Cam", raise it to the upper limit first and lower the "Lever, Cam" gradually.**
- **Make sure to move the "Lever, Cam" while pressing it rearward, or the adjustment groove may be damaged.**

9. Tighten the four screws that have been loosened in Procedure 7 in the order A ->B ->C ->D.
10. Secure the two screws that secure the "Stopper, Carriage", and close the top cover. (The "Carriage Unit" moves to its home position.)
11. Click [Back] twice to go back to Screen 1, and click [Print] to print the adjustment pattern. (Once the printing is finished, the "Carriage Unit" moves to the center of the printer (adjustment position).)
12. Click [Next]. (Proceed to Screen 2.)
13. Seeing the pattern in the direction shown in Figure 5-36, check the clearance gap between the light magenta and magenta for both right and left columns of the third, ninth, and fifteenth blocks from the right.
    - No gap on both sides:No adjustment required ->Proceed to Procedure 14.
    - Gap on any of the sides:Adjustment required -> Proceed to Procedure 6.

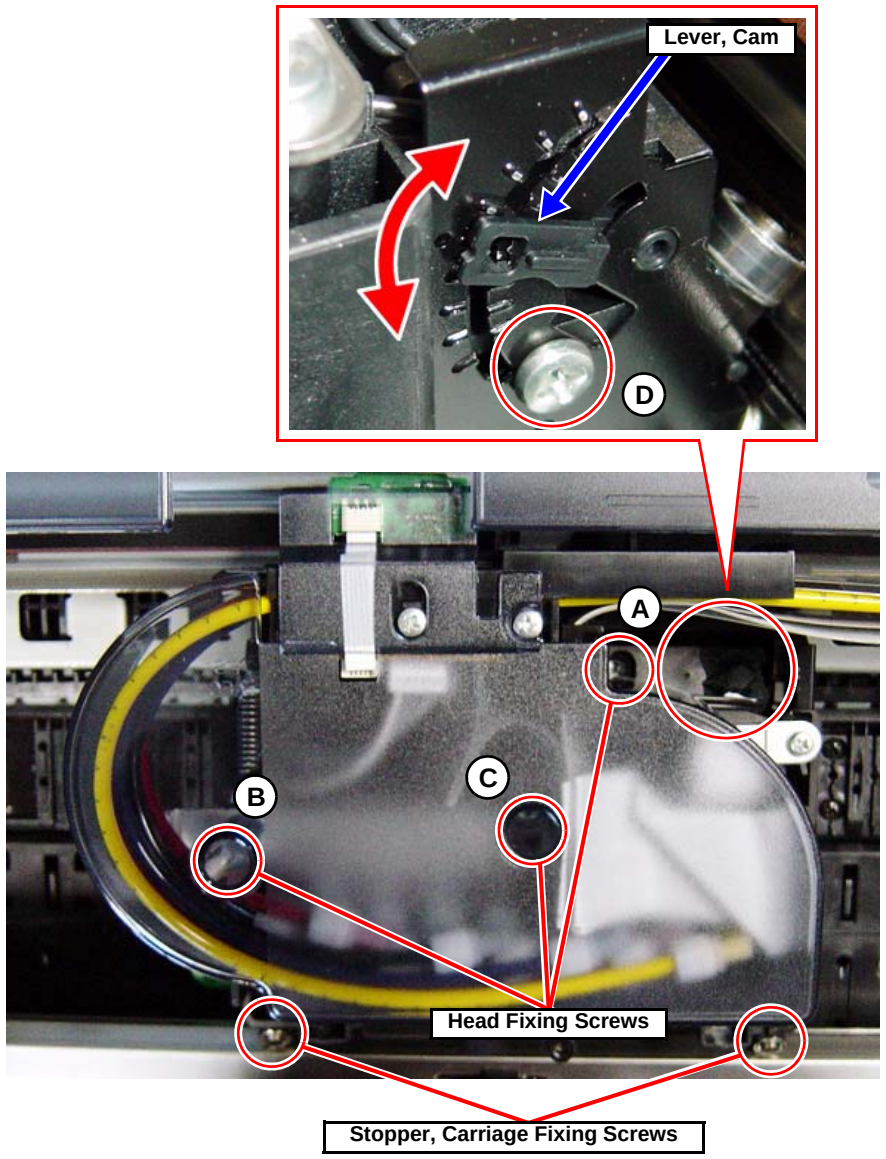


Figure 5-37. Head Fixing Screws and Lever, Cam

14. Check if the dots of each nozzle line are positioned as shown in Figure 5-38.
15. Click [Next] twice to go back to Screen4, then click [Run]. The "Carriage Unit" moves to its home position and the paper is reeled off. Click [Finish] to finish the adjustment.

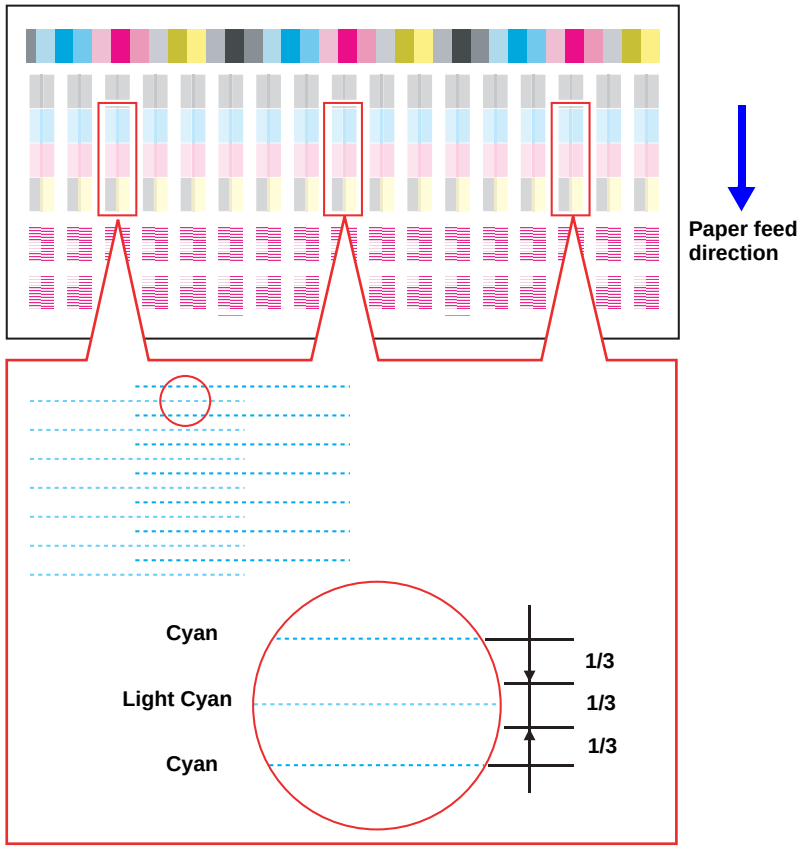


Figure 5-38. Checking the Dots Position

5.3.10 Auto Uni-d Adjustment

Performs Auto Uni-D Adjustment with the Multi Sensor. When the adjustment pattern is printed, the adjustment; from scanning the pattern to correcting, is executed automatically. The pattern is printed at PG=1.2, and the correction value is automatically copied for other PG settings.

- ☐ Paper Used
  - ■ Size: 17"
  - ■ Type: Enhanced Matte Roll Paper
- ☐ Procedure
  1. Turn the printer on.
  2. Start adjustment program and select [Auto Uni-d Adjustment].
  3. Click the [Run] button to print the adjustment pattern.
  4. As the pattern is printed, the printer automatically scans the pattern and makes corrections. (This is not necessary when making special adjustments manually.)
  5. Click the [Finish] button.

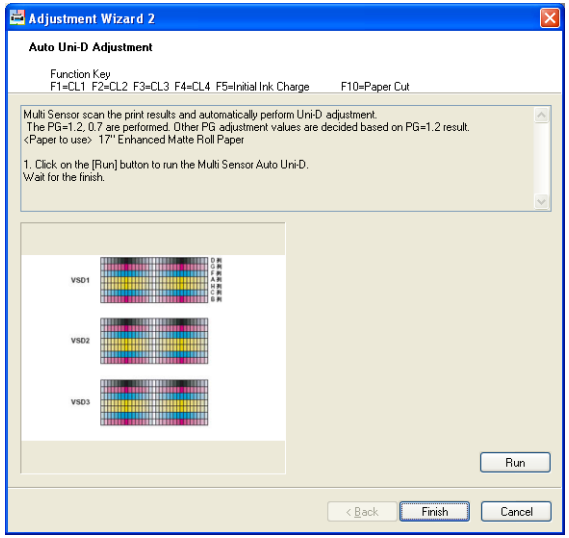


Figure 5-39. Auto Uni-d Adjustment Screen

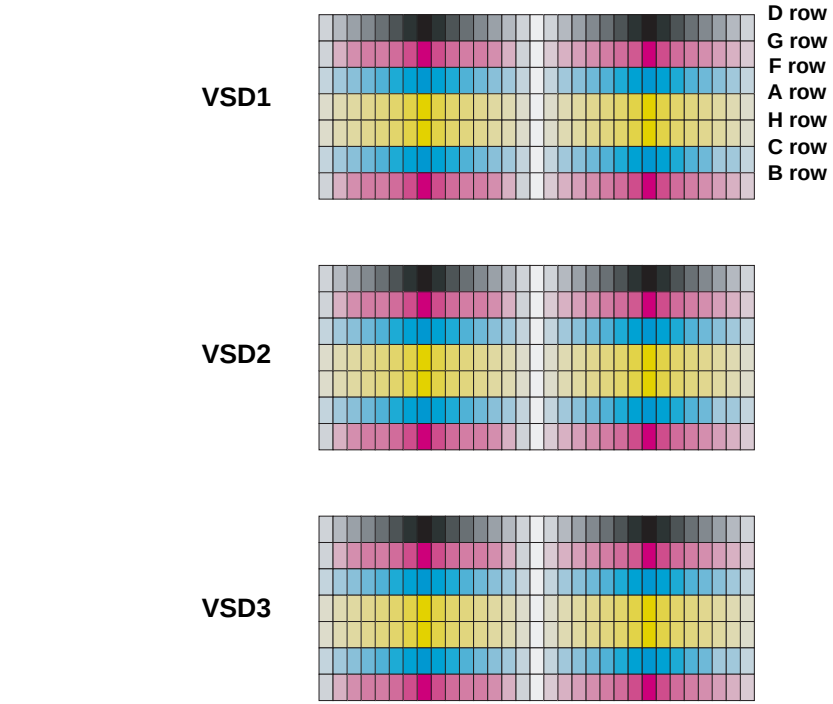


Figure 5-40. Auto Uni-d Adjustment Pattern

5.3.11 Multi Sensor Adjustment for Auto Nozzle Check

This adjustment prints a special pattern and scans it with the Multi Sensor, and then the difference between the position (drive pulses of the CR/PF Motors) read by the Multi Sensor and the standard value is registered as the correction value information.
In the beginning, the reading position for the primary scan direction and secondary scan direction is adjusted. After that, the dot missing pattern and the no dot missing pattern are printed and the automatic dot missing function is checked.

- ☐ Paper Used
  - ■ Size: 17"
  - ■ Type: Enhanced Matte Roll Paper
- ☐ Procedure
  1. Turn the printer on.
  2. Start the adjustment program and select [Multi Sensor Adjustment for Auto Nozzle Check].
  3. Selecting [Sensor Adjustment] and clicking the [Run] button will print the adjustment pattern.
     The printed pattern is read by the Multi Sensor, the read position is automatically corrected, and the results are printed along with the pattern.

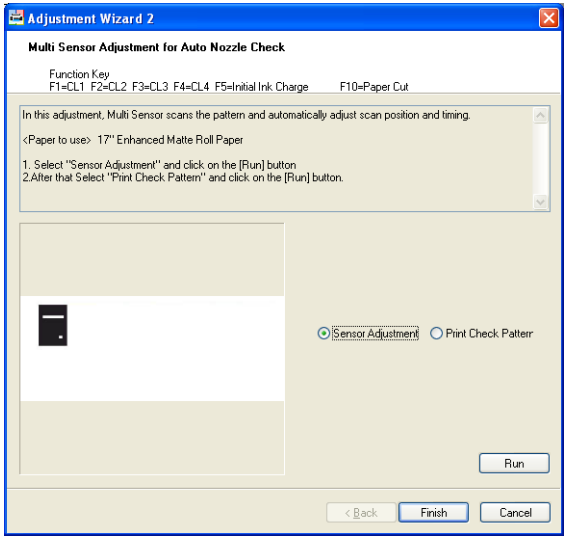
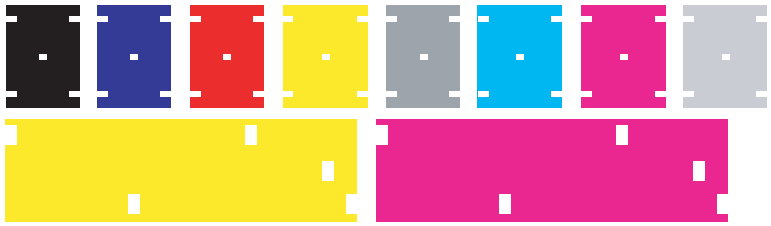


Figure 5-41. Multi Sensor Adjustment for Auto Nozzle Check Screen

Figure 5-42. Adjustment Pattern

4. Selecting [Print Check Pattern] and clicking the [Run] button will print the confirmation pattern.
   Two patterns are printed (dot missing/no dot missing) and read by the Multi Sensor, and then the results are printed along with the patterns.
5. Click the [Finish] button.



[PG=1.2]
[Count] MK : 8 C : 7 M : 6 Y : 8 PK : 5 Lc : 6 Lm : 6 Lk : 6
[Position] MK : (1, 2) , (9, 2) , (1, 3) , (9, 3) , (5, 12) , (5, 13) ,
(1, 21) , (9, 21) , (0, 0) , (0, 0) , (0, 0) , (0, 0)
C : (1, 2) , (9, 2) , (9, 3) , (5, 12) , (1, 21) , (9, 21) ,
(0, 0) , (0, 0) , (0, 0) , (0, 0) , (0, 0) , (0, 0)
M : (1, 2) , (9, 2) , (9, 3) , (5, 12) , (5, 13) , (1, 21) ,
(9, 21) , (0, 0) , (0, 0) , (0, 0) , (0, 0) , (0, 0)
Y : (1, 2) , (9, 2) , (9, 3) , (5, 12) , (1, 21) , (9, 21) ,
(0, 0) , (0, 0) , (0, 0) , (0, 0) , (0, 0) , (0, 0)
Lk : (1, 2) , (9, 2) , (1, 3) , (9, 3) , (5, 12) , (5, 13) ,
(1, 21) , (9, 21) , (0, 0) , (0, 0) , (0, 0) , (0, 0)
Lc : (1, 2) , (9, 2) , (5, 12) , (1, 21) , (9, 21) , (0, 0) ,
(0, 0) , (0, 0) , (0, 0) , (0, 0) , (0, 0) , (0, 0)
Lm : (1, 2) , (9, 2) , (5, 12) , (5, 13) , (1, 21) , (9, 21) ,
(0, 0) , (0, 0) , (0, 0) , (0, 0) , (0, 0) , (0, 0)
LLK : (1, 2) , (9, 2) , (5, 12) , (5, 13) , (1, 21) , (9, 21) ,
(0, 0) , (0, 0) , (0, 0) , (0, 0) , (0, 0) , (0, 0)
[Count] Y : 5 Lm : 5
Y : (1, 2) , (9, 2) , (9, 3) , (5, 12) , (1, 21) , (9, 21) ,
(0, 0) , (0, 0) , (0, 0) , (0, 0) , (0, 0) , (0, 0)
Lm : (1, 2) , (9, 2) , (5, 12) , (5, 13) , (1, 21) , (9, 21) ,
(0, 0) , (0, 0) , (0, 0) , (0, 0) , (0, 0) , (0, 0)

OK! Go to next work.

Figure 5-43. Check Pattern (Dot Missing)

[PG=1.2]
[Count] MK : 8 C : 7 M : 6 Y : 8 PK : 5 Lc : 6 Lm : 6 Lk : 6
[Position] MK : (1, 2) , (9, 2) , (1, 3) , (9, 3) , (5, 12) , (5, 13) ,
(1, 21) , (9, 21) , (0, 0) , (0, 0) , (0, 0) , (0, 0)
C : (1, 2) , (9, 2) , (9, 3) , (5, 12) , (1, 21) , (9, 21) ,
(0, 0) , (0, 0) , (0, 0) , (0, 0) , (0, 0) , (0, 0)
M : (1, 2) , (9, 2) , (9, 3) , (5, 12) , (5, 13) , (1, 21) ,
(9, 21) , (0, 0) , (0, 0) , (0, 0) , (0, 0) , (0, 0)
Y : (1, 2) , (9, 2) , (9, 3) , (5, 12) , (1, 21) , (9, 21) ,
(0, 0) , (0, 0) , (0, 0) , (0, 0) , (0, 0) , (0, 0)
Lk : (1, 2) , (9, 2) , (1, 3) , (9, 3) , (5, 12) , (5, 13) ,
(1, 21) , (9, 21) , (0, 0) , (0, 0) , (0, 0) , (0, 0)
Lc : (1, 2) , (9, 2) , (5, 12) , (1, 21) , (9, 21) , (0, 0) ,
(0, 0) , (0, 0) , (0, 0) , (0, 0) , (0, 0) , (0, 0)
Lm : (1, 2) , (9, 2) , (5, 12) , (5, 13) , (1, 21) , (9, 21) ,
(0, 0) , (0, 0) , (0, 0) , (0, 0) , (0, 0) , (0, 0)
LLK : (1, 2) , (9, 2) , (5, 12) , (5, 13) , (1, 21) , (9, 21) ,
(0, 0) , (0, 0) , (0, 0) , (0, 0) , (0, 0) , (0, 0)

OK! Go to next work.

Figure 5-44. Check Pattern (No Dot Missing)

5.3.12 Skew Check

- ☐ Paper Used
  - ■ Size: 17"
  - ■ Type: Enhanced Matte Roll Paper
- ☐ Procedure
  1. Turn the printer on.
  2. Start the adjustment program and select [Skew Check].
  3. When the [Run] button is clicked, the paper will be ejected and the paper skew amount will be measured by the Multi Sensor.

CAUTION

Approximately 1m of paper will be ejected, so be aware of the space needed for paper ejection.

4. After the skew check value is displayed, click the [OK] button.
5. Click the [Finish] button and properly set the paper.

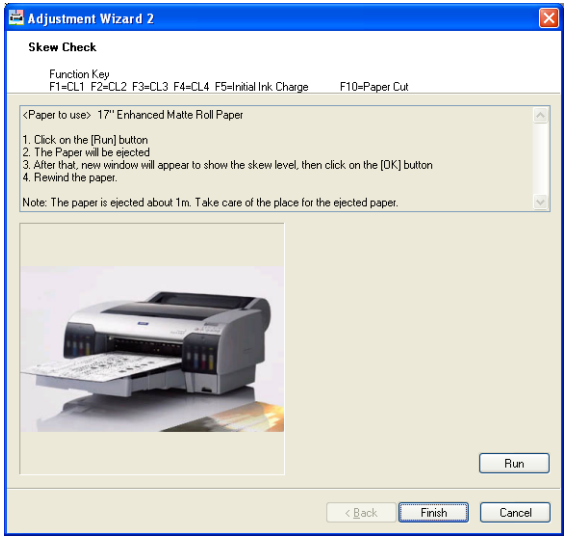


Figure 5-45. Skew Check Screen

5.3.13 Platen Position Adjustment

This adjusts the printing position for the sponge position used during borderless printing.

☐ Paper Used

- ■ Size: 17"
- ■ Type: Enhanced Matte Roll Paper

☐ Adjustment Procedure

1. Turn the printer on.
2. Start the adjustment program and select [Platen Position Adjustment].
3. Click the [Print] button to print the adjustment pattern.
4. Refer to Figure 5-47 and check the positions of the printed adjustment line (at the right side as seen from the front of the printer) and the platen tab. If there is no slip, click the [Next] button to check with "Check Procedure" on the next page.
   If the position has slipped, measure the distance between the adjustment line and the platen tab and enter the measured value (+/-) into the edit box.
   - ● When adjustment line is to the left of the platen tab
     : + measurement value
   - ● When adjustment line is to the right of the platen tab
     : - measurement value
5. Click the [Write] button to write the adjustment value to the printer.
6. Click the [Next] button.

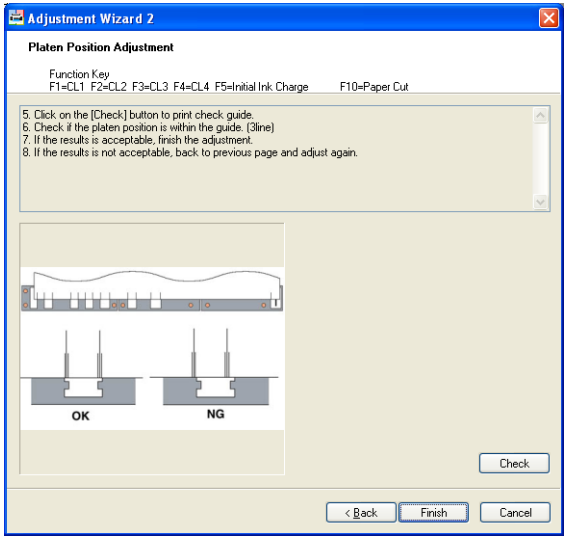


Figure 5-46. Platen Position Adjustment Screen (1)

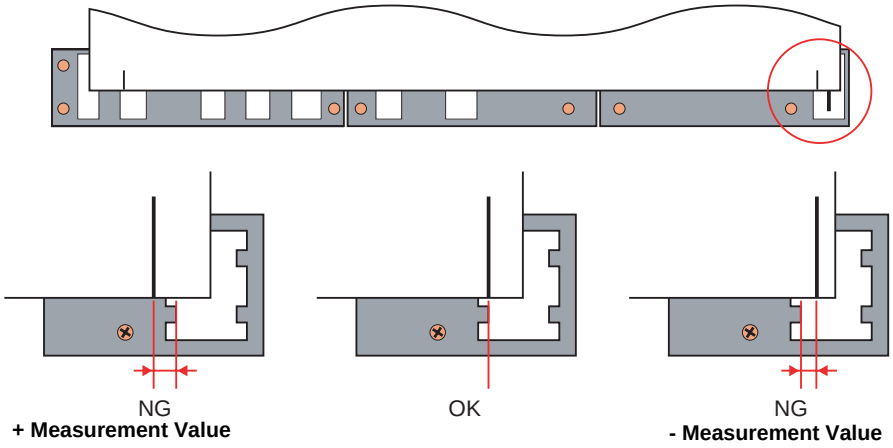


Figure 5-47. Adjustment Pattern

☐ Check Procedure

1. Click the [Check] button to print the check pattern.
2. Refer to Figure 5-49 and check the positions of the printed adjustment line and the platen tab. If there is no slip, click the [Finish] button. If the position has slipped, click the [Back] button to perform adjustment again.

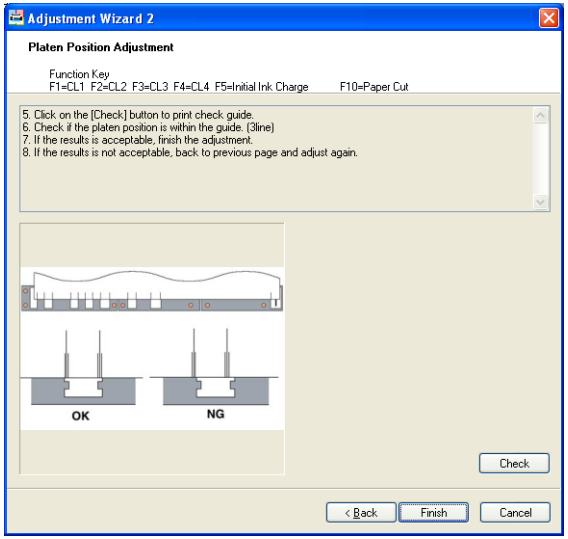


Figure 5-48. Platen Position Adjustment Screen (2)

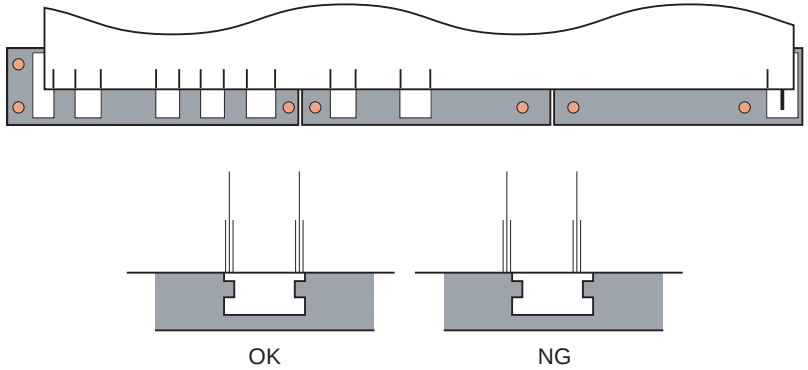


Figure 5-49. Check Pattern

5.3.14 1000mm Feed Adjustment

- Paper Used
  - Size: 17"
  - Type: Enhanced Matte Roll Paper
- Procedure
  1. Turn the printer on.
  2. Start the adjustment program and select [1000mm Feed Adjustment].
  3. Click the [Print] button and the adjustment pattern will be printed.
  4. Use a ruler (1000mm) and scale stopper to measure the distance shown by Figure 5-51.
  5. Input the measured value into [1000mm Feed] and click the [Write] button.
  6. Click the [Finish] button.

CHECK POINT

The ruled line in the center of the adjustment pattern is used as a guide when measuring with the ruler.

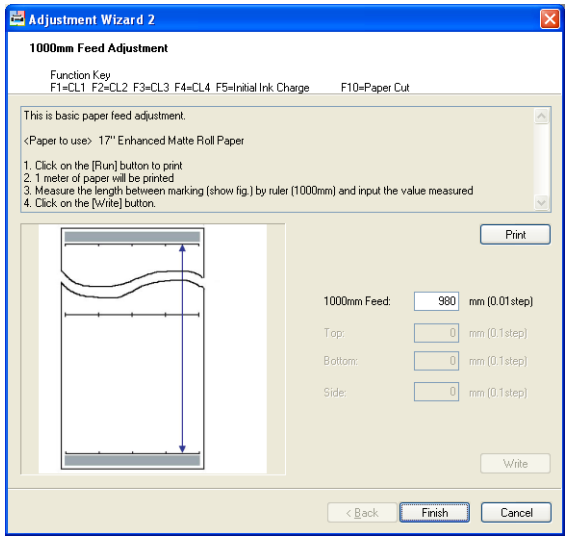


Figure 5-50. 1000mm Feed Adjustment Screen

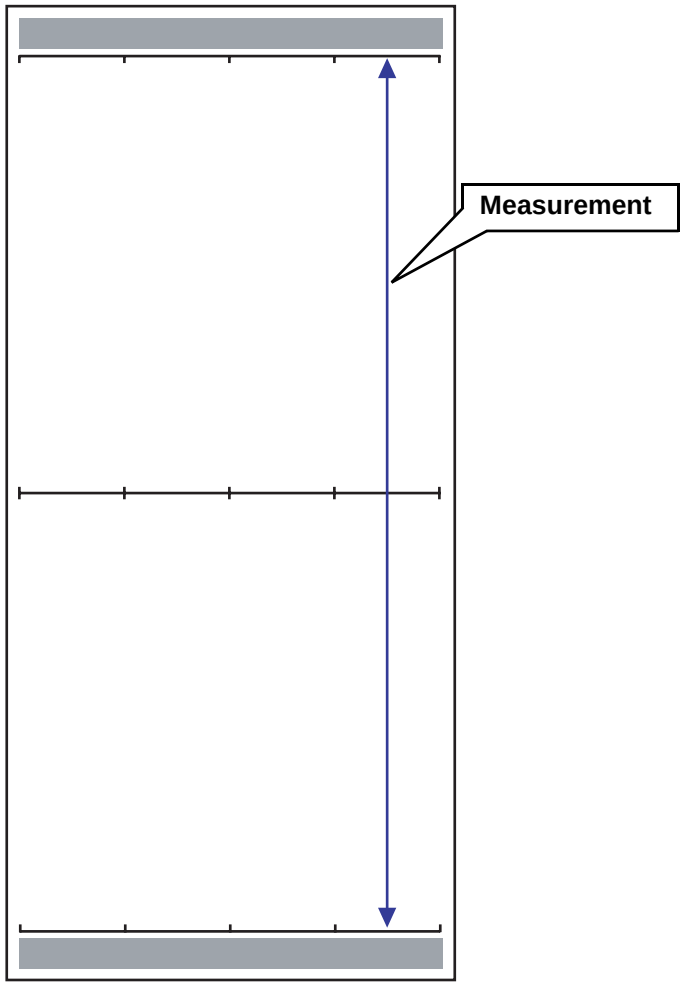


Figure 5-51. 1000mm Feed Adjustment Pattern

5.3.15 Initial Ink charge flag ON/OFF

☐ Procedure

1. Enter Maintenance Mode 2.
   Power off → Press **"Paper Source (<)" + "Paper Feed (Δ)" + "Paper Feed (∇)"** →Power on
2. Start the adjustment program and select [Initial Ink chrge flag ON/OFF].
3. Select "ON" or "OFF" and click the [Run] button.
4. Click the [Finish] button.

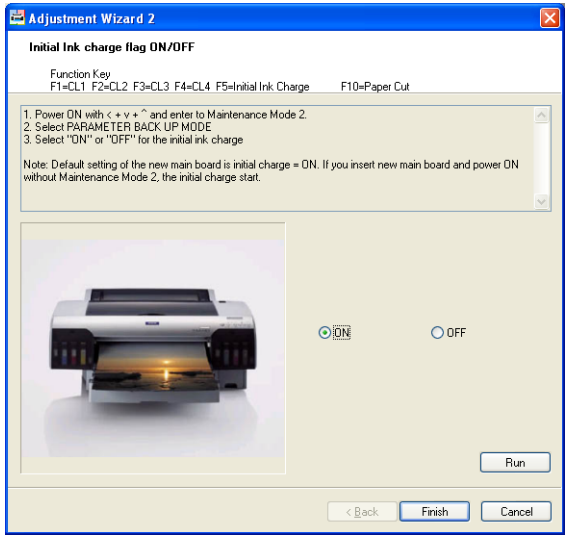


Figure 5-52. Initial Ink Chrge Flag ON/OFF Screen

5.3.16 NVRAM Back Up and Write

Reads and saves each parameter stored in NVRAM on the Main Board before replacement and writes them to the new Main Board or when replacement of the "Printer Mechanism (SP)", write the parameter stored in the CD-ROM which is included in "Printer Mechanism (SP)". (Refer to Procedure for Writing only).

☐ Read & Save Procedure

CAUTION

When reading the parameters, start up the printer in Tiny Mode. (Tiny Mode: Mode for reading the parameters.)

1. Enter Tiny Mode.
   Power off → Press **"Paper Source (<)" + "Paper Feed (D)" + "Paper Feed (—)" + "Menu"** →Power on
2. Start the adjustment program and select [NVRAM Back Up and Write].
3. Click the [Run] button and "NVRAM Backup Utility" will start.
4. From [Printer Name], select the printer that will be backed up parameters.
5. Click the [Read] button and backup of parameters will start.
6. After backup is completed, click the [Save] button to save by writing the files.
7. Turn off the printer power and replace the Main Board.

☐ Write Procedure

CAUTION

When reading the parameters, start up the printer in Maintenance Mode 2.

1. Remove all the ink cartridges.
2. Remove the maintenance tank.
3. Pull up the Paper Lever.
4. Enter Maintenance Mode 2.
   Power off → Press **"Paper Source (<)" + "Paper Feed (Δ)" + "Paper Feed (∇)"** → Power on
5. Start up the adjustment program, and select [NVRAM Back Up and Write].
6. Click the [Run] button and "NVRAM Backup Utility" will start.
7. Select the printer of which you are going to read the parameters from [Printer Name].
8. Click [Open] to open either the parameter file that is saved in Procedure 6 of “Read & Save Procedure“ or the parameter file of the CD-ROM that is bundled with the “Printer Mechanism (SP)“.
9. Click [Write] to start writing the parameter.
10. Once the writing is complete, exit [NVRAM Back Up Utility].

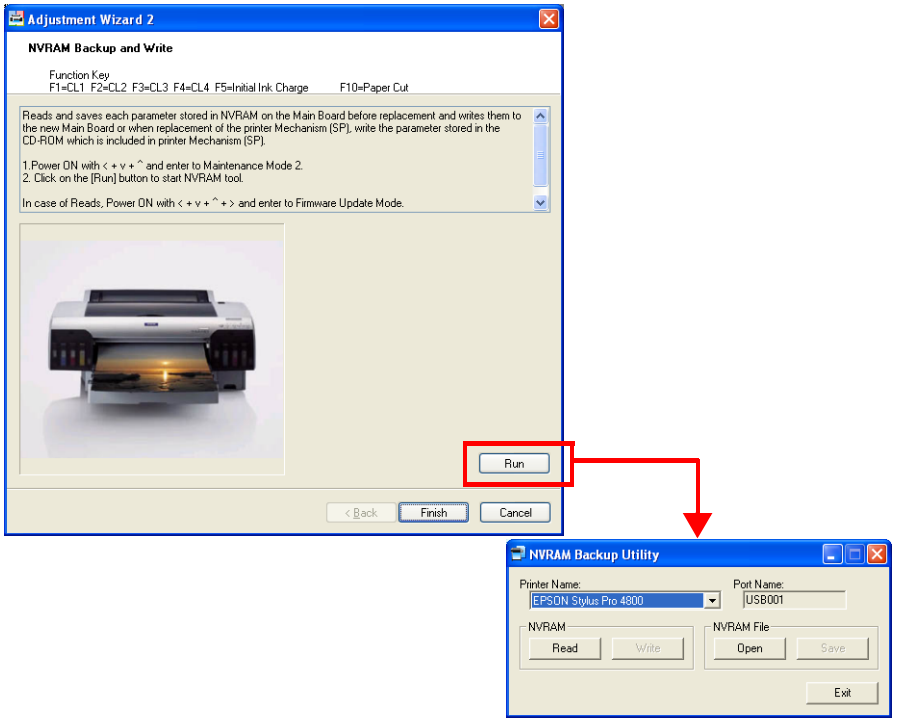


Figure 5-53. NVRAM Backup Utility

5.3.17 Check Platen Gap

This checks whether or not "Lever, Lock, PG" (used for fixing the PG position) is fixing "Bushing, Shaft, Rear" in a suitable position.

☐ Procedure

1. Turn the printer power on.
   After printer initialization is complete, check that "Lever, Lock, PG" is in the second notch from the right of "Bushing, Shaft, Rear".
2. Start the adjustment program and select [Check Platen Gap].
3. Select [PG0.7] and click the [Run] button.
   Check that "Lever, Lock, PG" is in the first notch from the right of "Bushing, Shaft, Rear".
4. Select [PG1.5] and click the [Run] button.
   Check that "Lever, Lock, PG" is in the third notch from the right of "Bushing, Shaft, Rear".
5. Select [PG2.1] and click the [Run] button.
   Check that "Lever, Lock, PG" is in the fourth notch from the right of "Bushing, Shaft, Rear".
6. Select [PG2.6] and click the [Run] button.
   Check that "Lever, Lock, PG" is in the fifth notch from the right of "Bushing, Shaft, Rear".
7. Click the [Finish] button.

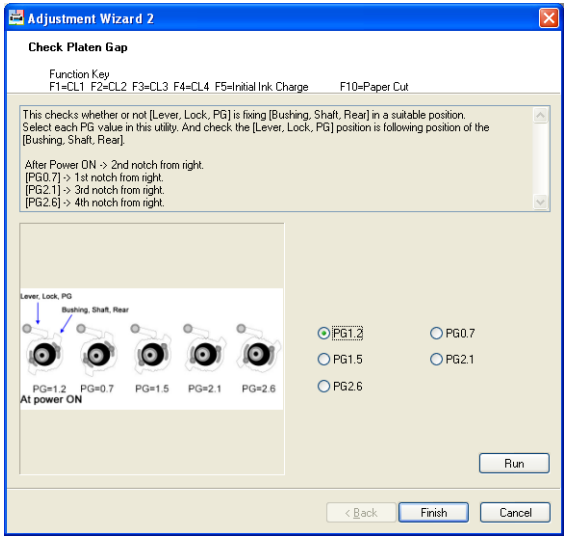


Figure 5-54. Check Platen Gap

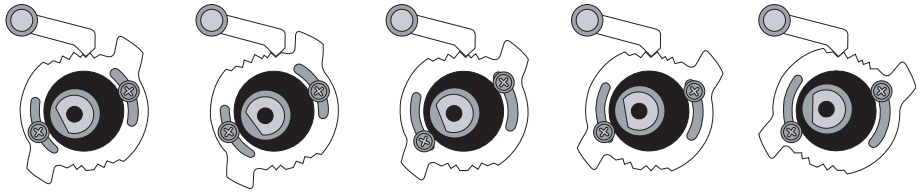


Figure 5-55. Check Platen Gap

5.3.18 Ink Discharge

Before removing the Damper (Valve Assy., Head), discharge the ink remaining in the equipment by following the procedure below.

☐ Procedure

1. Turn the printer power on.
2. Start up the adjustment program and select [Ink Discharge].
3. Click the [Run] tab.
4. When a pop-up window appears, click [OK].
5. Confirm that the **"Please Remove Ink"** message is displayed on the LCD, and pick up the ink levers on both sides to remove all the ink cartridges.
6. Press **"Menu(>)"** to display **"Set Lever (L/R)"**, and lower the ink levers.
7. Press **"Menu(>)"** to change the display to **"Dischg. Washfluid"**. The ink discharge begins at this time.
8. The display turns to **"Set Cleaning I/C"** when the ink discharge is finished. Pull up the ink levers on both sides to install the ink cartridges.
9. Press **"Menu(>)"** to display **"Set Lever (L/R)"**, and lower the ink levers.
10. Press **"Menu(>)"** to start the head cleaning. The display changes to **"Head Cleaning"**.
11. The display turns to **"Please Remove CL I/C"** when the head cleaning is completed. Pull up the ink levers on both sides to remove the ink cartridges.
12. Press **"Menu(>)"** to display **"Set Lever (L/R)"**, and lower the ink levers.
13. Press **"Menu(>)"** to discharge the cleaning liquid. The display changes to **"Dischg. Washfluid"**.
14. Click [Finish] on the Ink Discharge screen when the discharge is finished.

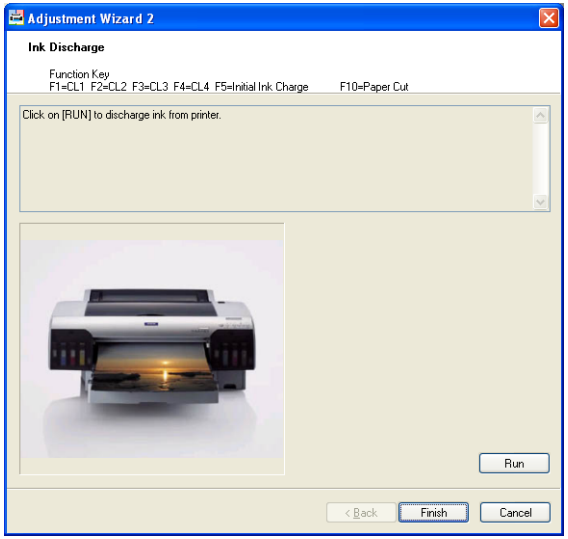


Figure 5-56. Ink Discharge

5.3.19 Initial Ink Charge

CAUTION

Check the amount of ink remaining before starting Initial Ink Charge. If the remaining ink is less than 50%, replace the ink cartridge with a new one and then start the procedure.

☐ Procedure

1. Turn the printer power on.
2. Start the adjustment program and select [Initial Ink Charge].
3. Press the F5 key and Initial Ink Charge will start.
4. After Initial Ink Charge is completed, click the [Finish] button.

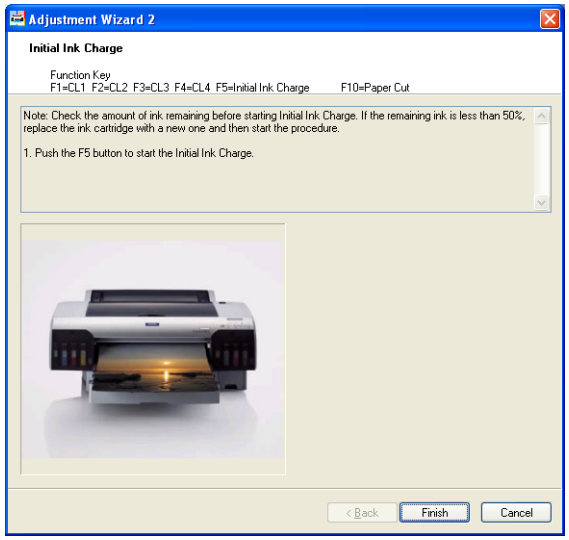


Figure 5-57. Initial Ink Charge

5.3.20 Cleaning

☐ Procedure

1. Turn the printer power on.
2. Start the adjustment program and select [Cleaning].
3. Press F1~F4 key to start cleaning.

Key	Cleaning	Ink consumption amount	Processing time
F1	CL1	Approx. 2.7 g/ 8 colors	Approx. 1 minute and 10 seconds
F2	CL2	Approx. 3.5 g/ 8 colors	Approx. 1 minute and 10 seconds
F3	CL3	Approx. 7.4 g/ 8 colors	Approx. 1 minute and 10 seconds
F4	CL4	Approx. 9.25 g/ 8 colors	Approx. 3 minutes and 30 seconds

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

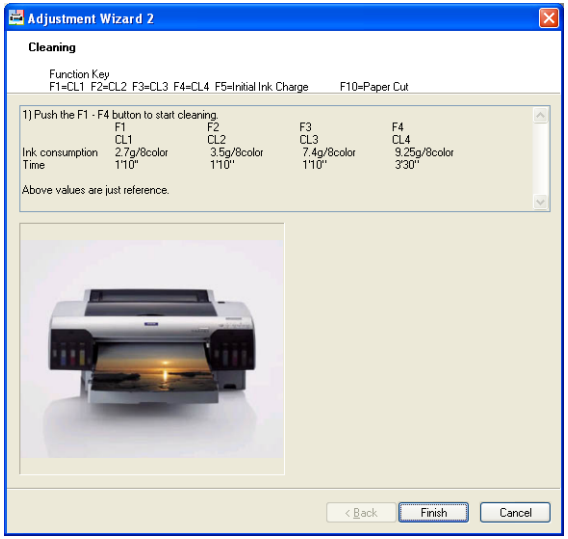


Figure 5-58. Cleaning

5.3.21 Rear Sensor Adjustment

When the rear sensor has been replaced, the AD value for setting a paper detection standard must be acquired and stored in the Main Board.

- ☐ Required Tool
  - ■ Microtrace #300 (A4)
- ☐ Procedure
  1. Enter Maintenance Mode 2.
     Power off → Press **"Paper Source (<)" + "Paper Feed (∆)" + "Paper Feed (∇)"** → Power on
  2. Select "SELF TESTING" and enter the Self Testing menu.
     "Menu (>)"
  3. Select "SELF TESTING: Adjustment".
     "Paper Feed (-)" x 1 → "Menu (>)"
  4. Find "Adj: Rear AD".
     "Paper Feed (-)" x 2
  5. Raise "Paper Lever".
  6. Insert Microtrace from rear paper feed slot and set it in the position shown by Figure 5-59, and then lower the "Paper Lever".
  7. Press **"Menu (>)"** 2 times and the panel display will change as shown below.
     "[Enter] Start" → "Exc."
  8. Start acquisition of AD value by pressing **"Menu (>)"**.
     "RearAD: *** *** ***" will be shown in the display approximately 15 seconds later.

CAUTION

If "Retry AD Adjust" is displayed in the panel at this time, the sensor has failed. Replace the sensor with a new part and execute the adjustment again.

  9. "Confirm that "RearAD: *** *** ***" is displayed, raise the [Paper Lever] and take out the Microtrace.
  10. Lower the "Paper Lever" and turn off the printer power.

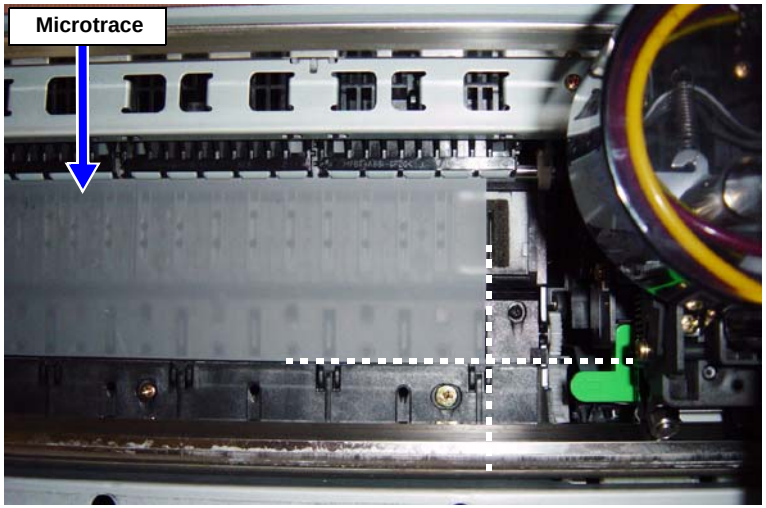


Figure 5-59. Setting the Microtrace

5.3.22 Colorimetric Calibration (Color ID)

5.3.22.1 Adjustment Overview

PURPOSE

By registering/controlling information concerning the ink droplets, this product improves calibration accuracy and ensures stable color quality. (Difference in color among individual products or each mode is reduced.) (Refer to 2.5 Colorimetric Calibration (Color ID) Overview *(p155)*)

PRINCIPLE

The calibration is performed by measuring a printed correction pattern with a calibrator. ID information that is calculated based on the acquired color values (L*,a*,b*) is transmitted to the printer driver, and the printer driver corrects the dot generation amount for each dot size x each color in the print data.

5.3.22.2 Adjusting Method

TOOLS REQUIRED

Table 5-10. Tools Required

Tool	Application/Specification
Plain Paper (A4)	For nozzle check and printing surface protection
Plain Paper (A3)	For alignment check
EPSON Enhanced (Archival) Matte Paper (A4)	For printing charts
Computer	Following drivers should be installed beforehand. ☐ Printer driver for this product ☐ USB driver for the calibrator
GretagMacbeth eye-one (i1) (Calibrator)	With UV filter
Calibration plate (White plate)	Accessory provided with the calibrator
Scanning ruler (Scale)	Accessory provided with the calibrator
USB cable	To connect the computer and the calibrator
Black sheet	Should be larger than A4
Clear file	Required when sending charts

ADJUSTMENT WORKFLOW

The workflow of the adjustment is explained in this section. There are two types of the workflow; the one is for performing adjustment at a place same as the repair (parts replacement) work site, the other is for performing adjustment in a different place from the repair work site as the adjustment (color measuring) could not be executed on site.

☐ Entire process workflow

Performing adjustment continuously at the same place where the repairment is carried put.

☐ Separate process workflow

Performing adjustment (color measuring) in a different place from the repair work site

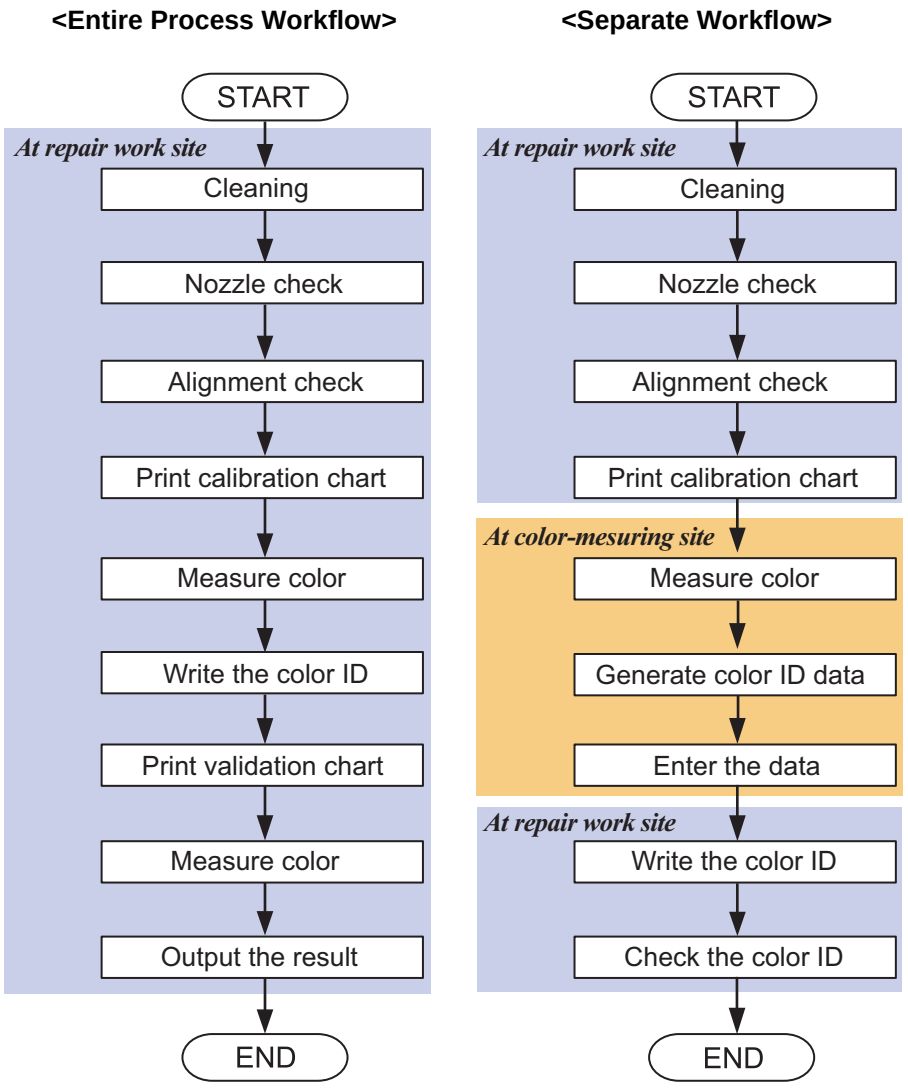


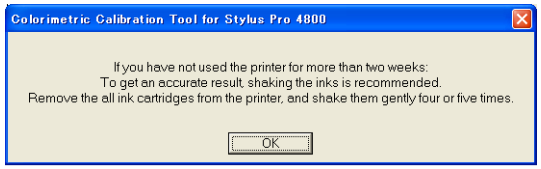
Figure 5-60. Adjustment Workflow

ADJUSTMENT PROCEDURE (ENTIRE PROCESS WORKFLOW)

1. Turn the printer power on.
2. Start the adjustment program, and select [Colorimetric Calibration Tool].
3. Click [Run] to start the “Colorimetric Calibration Tool”.
4. Click the [Perform entire process] button.
5. Make sure that the "READY" message is displayed on the printer LCD, and click [Next].
6. Select the connected printer from the printer list, and check if the LCD panel backlight of the printer flashes by clicking [Confirming flashing of the backlight].
7. Click [Next], then the message that prompt you to agitate the ink inside the cartridges will be displayed.

CHECK POINT

If the printer has not been used for more than two weeks, it is recommended to agitate the ink inside the cartridges to get an accurate result. Remove all the ink cartridges from the printer, and shake them gently for four or five times.



8. Click [OK] to start the cleaning.

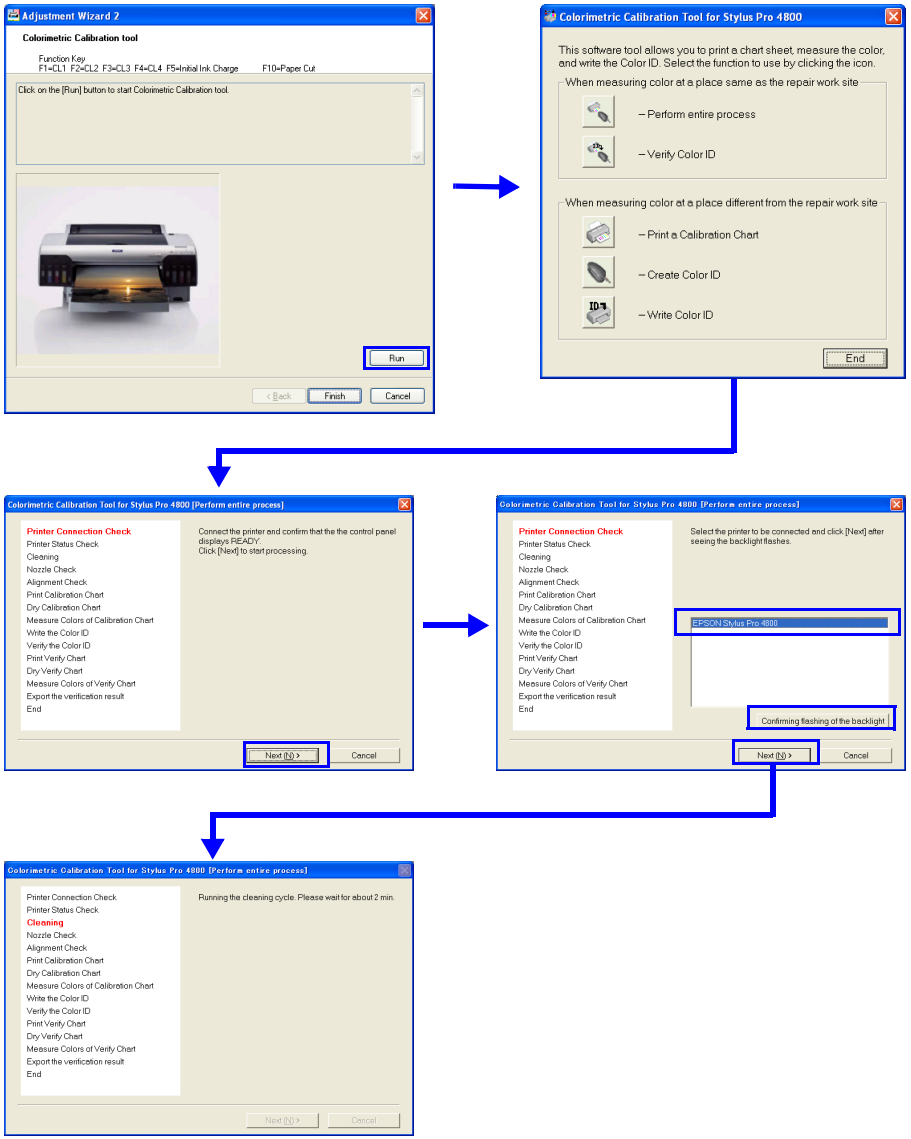


Figure 5-61. Colorimetric Calibration ID Startup Screen

9. Load an A4-sized paper vertically on the paper tray, select "Automatic Nozzle Check" from the “Types of Nozzle Check” box , and click [Next] to start the nozzle check.
10. Load an A3-sized paper horizontally on the paper tray and click [Next] to perform the alignment check.

CHECK POINT

Clicking the [Skip alignment check] button will let you proceed to the next step without performing the alignment check.

11. Check the alignment pattern. If there is any defect, click [Cleaning] to execute cleaning.
    If the check pattern is appropriate, click [Next].
12. Load an A4-sized Archival Matte Paper vertically on the paper tray, and click [Next] to print the calibration chart.

CAUTION

Never touch the printed calibration chart.

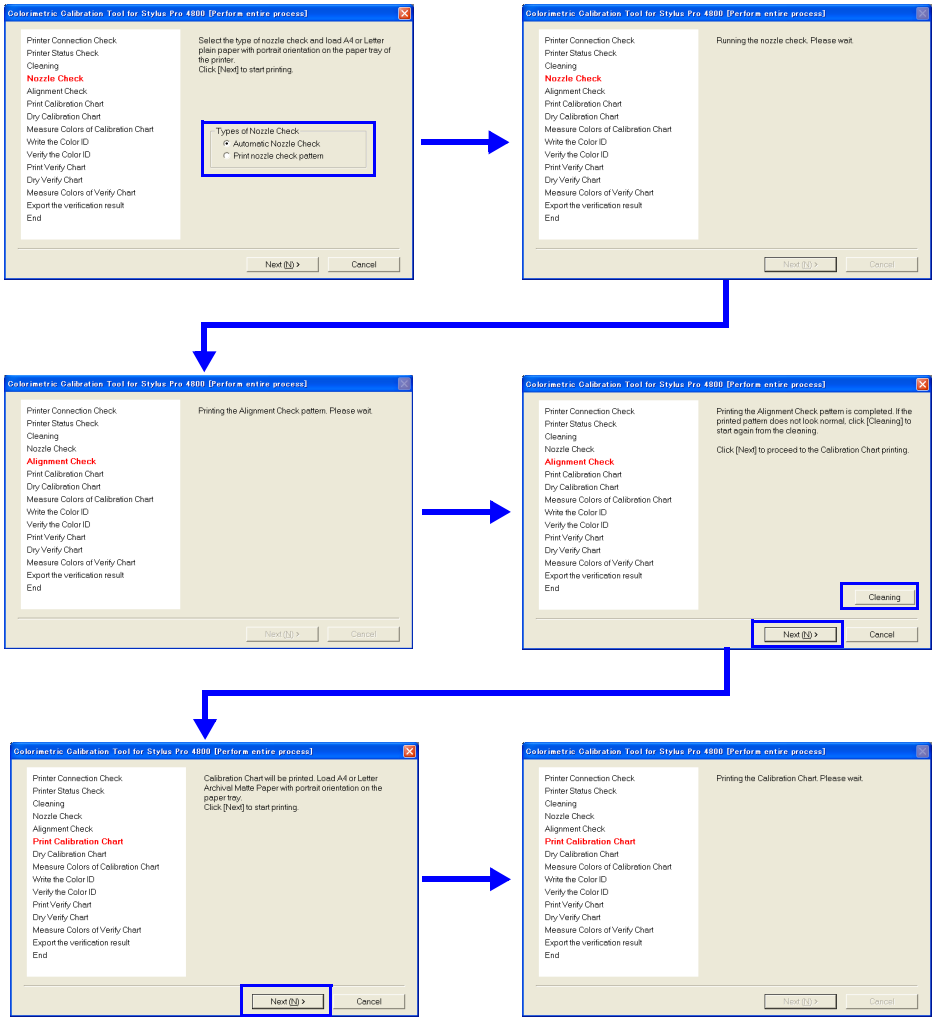


Figure 5-62. Entire Process Screen

13. Make sure there is no missing dots in the nozzle check pattern at the bottom of the calibration chart.
    If there are missing dots, click [Print Calibration Chart Again]. The calibration chart will be printed again after performing cleaning.
    If there are no missing dots, let the chart stand for five minutes until it dries out paying attention not to touch the chart.
14. When the calibration chart dries out (after five minutes), click [Next].
15. Connect a calibrator to the computer, and click [Measure].
16. Place the calibrator on the calibration base plate, and click [Calibrate]
17. Keep the calibrator remain set on the base plate, hold down the button on the side of the calibrator until it beeps.
    Once the calibration completed normally, following screen appears.

Figure 5-63. i1Calibrator

CAUTION

Do not contaminate the white plate of the calibration base plate. If tainted, use alcohol to clean the plate.

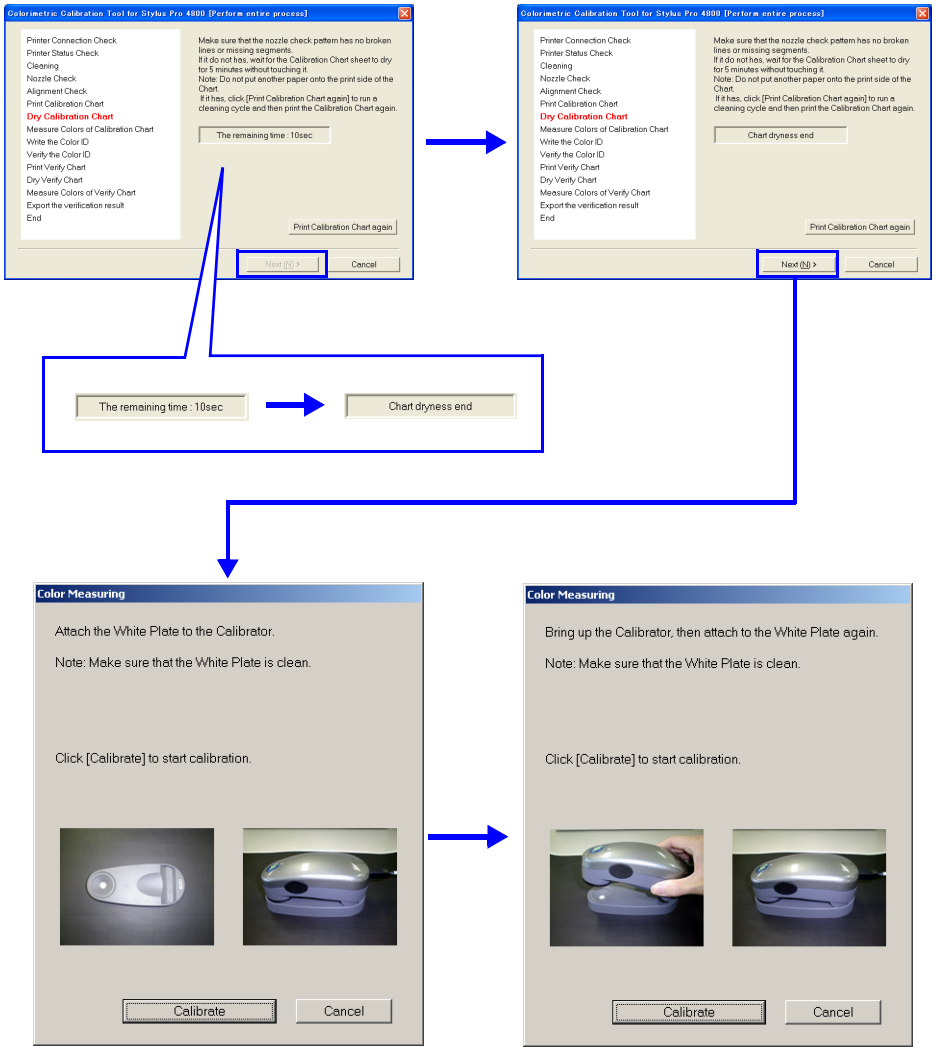


Figure 5-64. Entire process screen

18. Make sure that the date and time printed in the second line on the upper left of the chart (measurable time and date) is within the range displayed under the heading "GMT" on the lower screen. (If the date and time is not within the range, it is necessary to print the cart again.)
19. Refer to Figure 5-66, lay the chart on the black paper (or sheet) with the upper part of the chart facing left side, and set the scanning ruller onto the bottom most patch line.

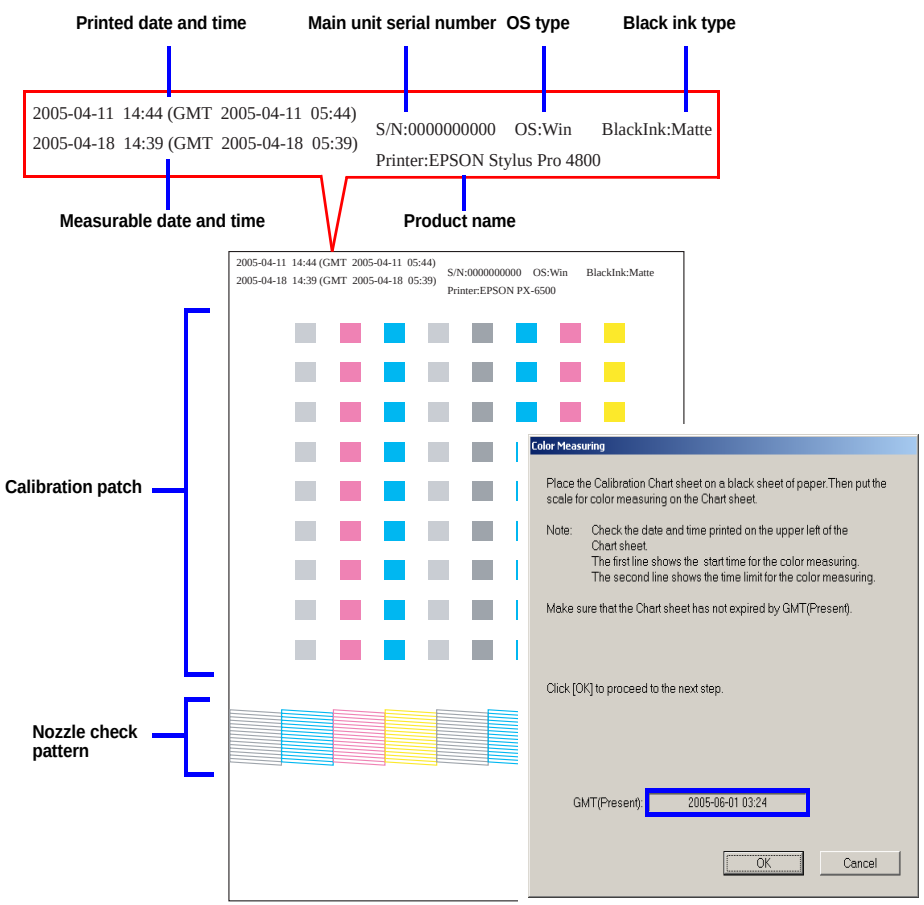
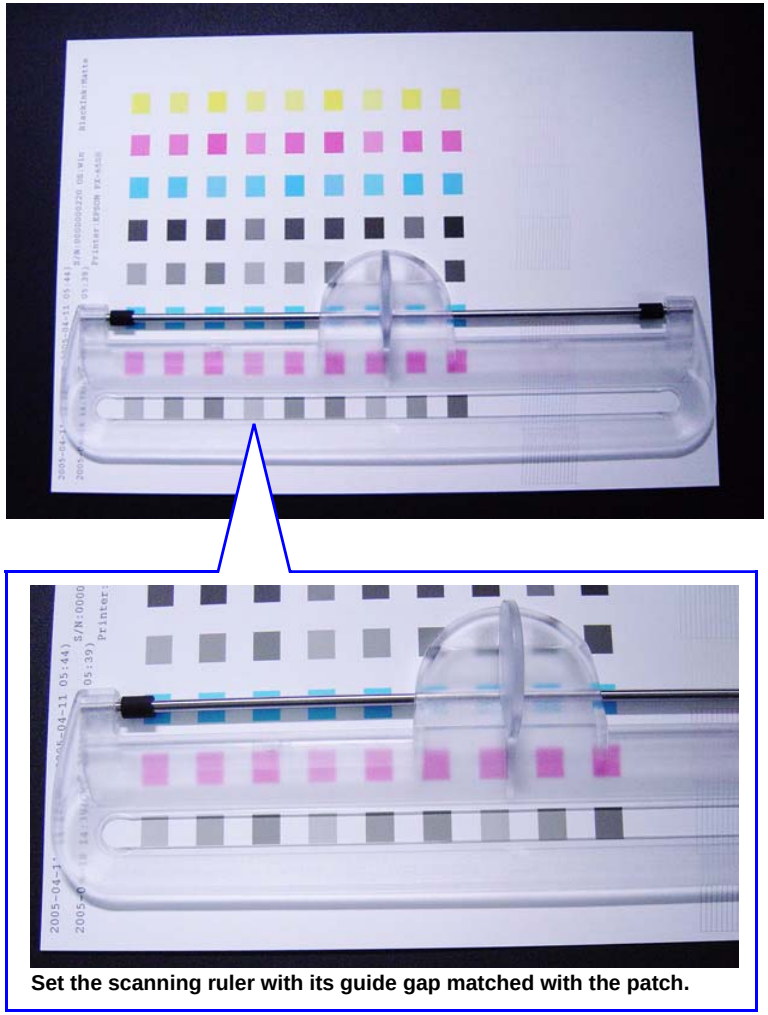


Figure 5-65. Measurable Time and Date Check



Set the scanning ruler with its guide gap matched with the patch.

Figure 5-66. Setting the Chart and the Scanning Ruller

20. Click [OK] and follow the instructions (following procedure) displayed on the screen to perform color measuring.
    1. Set the calibrator with its measuring part matched with measuring start position (margin) as shown in Figure 5-68.
    2. Press down the button on the side of the calibrator.
    3. When it beeps, keep holding down the button and scan the patch along the calibration guide to measuring end position (margin).
    4. Once the measuring is complete, release the button.
    5. Repeat Step 1 through 4 twice for the same patch line.
    6. Repeat Step 1 through 5 to measure the bottommost line to the top line. (The line that needs to be measured is displayed on the screen.)
21. Once all the lines (8 lines) are measured, click [OK].

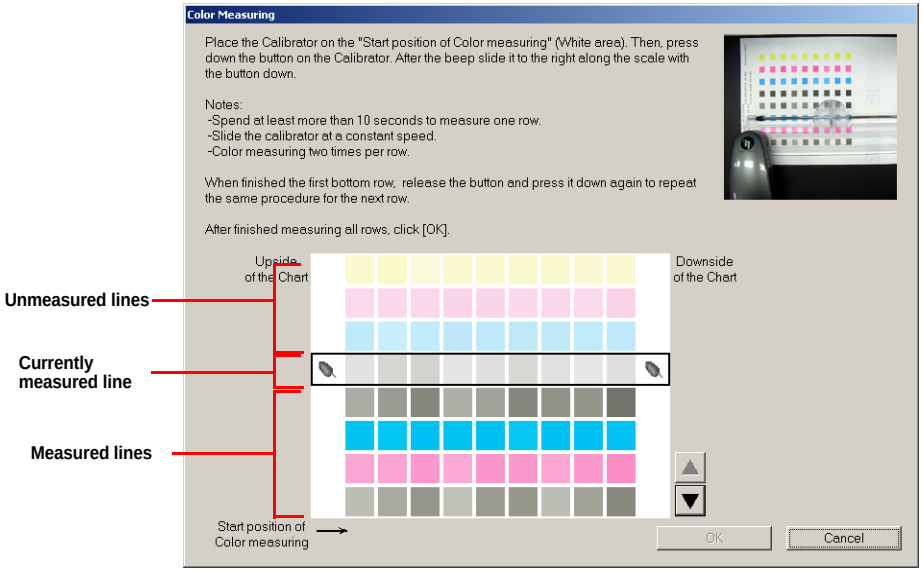


Figure 5-67. Color Measuring Screen

CAUTION

When measuring colors, pay attention to the instructions below.

- **Take more than 10 seconds to measure one line.**
- **Keep the scan speed constant as possible.**
- **Measure each of the lines twice. (Measure the line as instructed on the program screen.)**
- **Place the chart on a flat surface. The calibrator and the ruler must be attached firmly to the chart in order to measure the colors accurately.**
- **Do not scan any places other than the one shown in Figure 5-68.**
- **If a color-measuring error occurs or the measured values are completely out of the standard values, a warning mark (⚠) appears. In this instance, check the instructions mentioned above and retry the color measuring again.**
- **If an error mark (⊗) appears, check the instructions mentioned above and retry the color measuring again.**

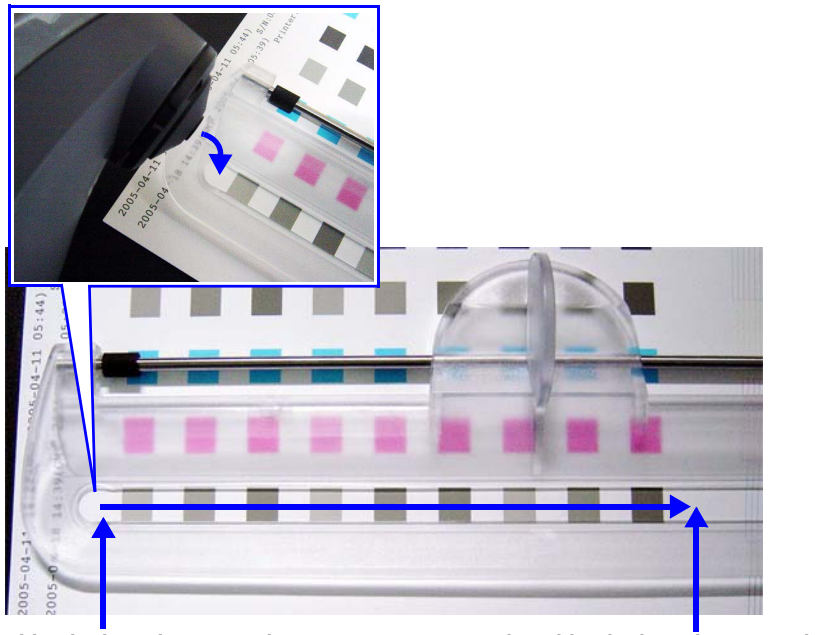


Figure 5-68. Setting the Calibrator/Measuring Position

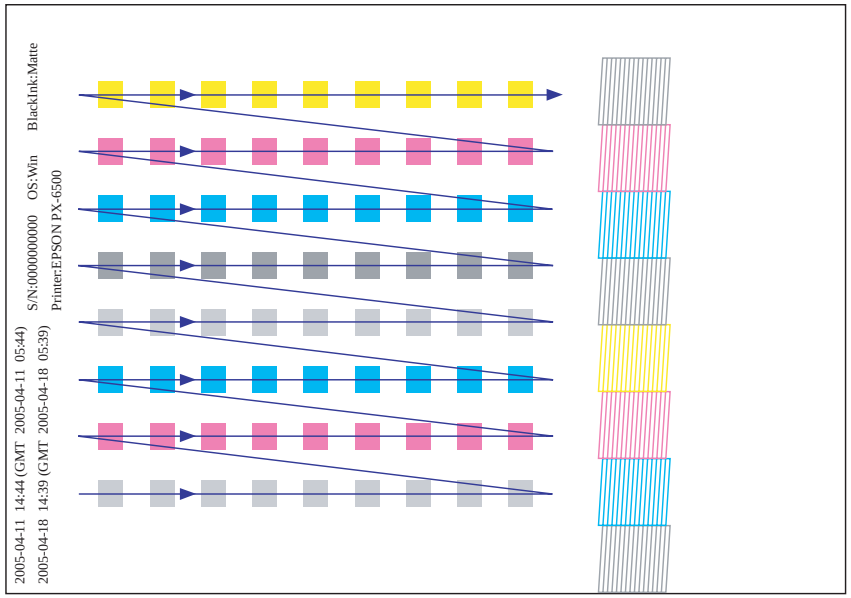


Figure 5-70. Color Measuring Order

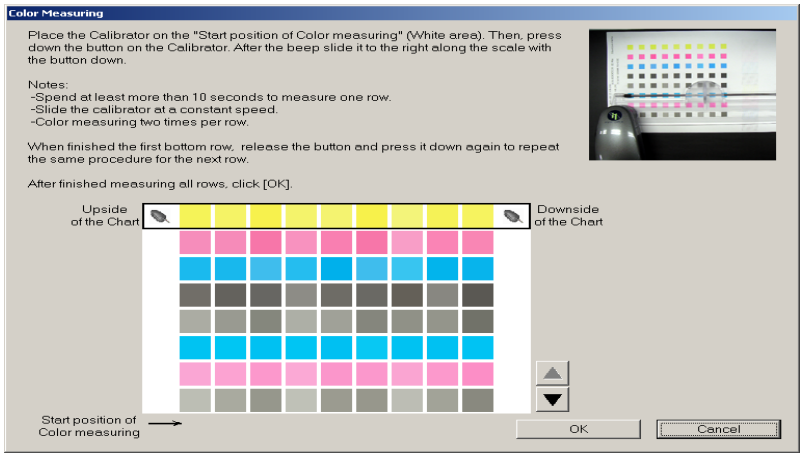


Figure 5-69. Color Measuring Screen

22. Make sure that the "READY" message is displayed on the printer LCD panel, and click [Next] to write the Color ID to the printer main unit.
23. When the writing is complete, click the [Next] button.

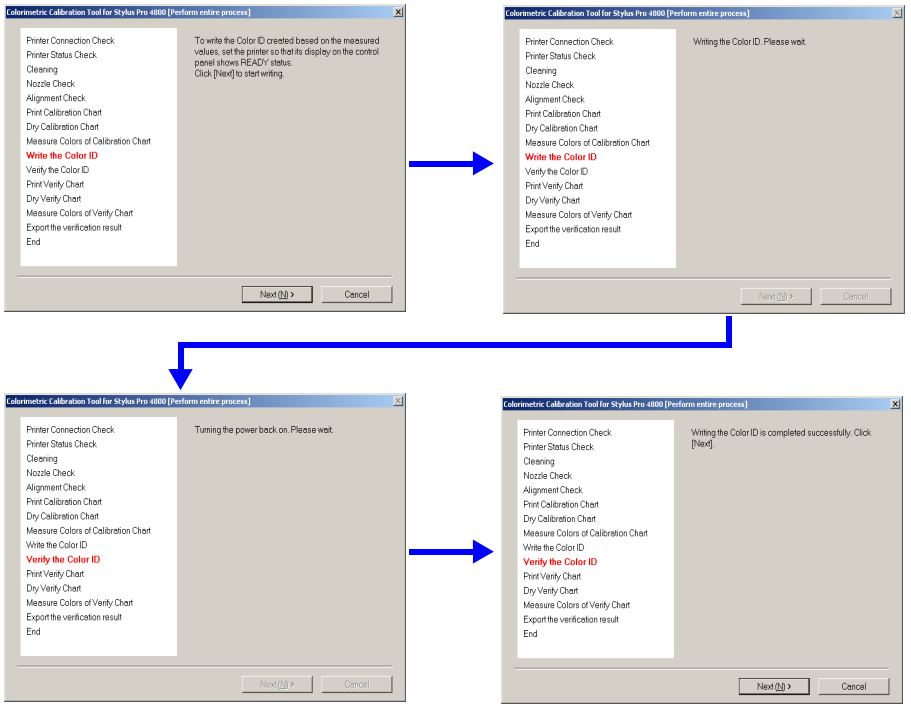


Figure 5-71. Entire Process Screen

24. Load an A4-sized Archival Matte Paper vertically on the paper tray, and click [Next] to print the first page (Sheet1) of the verify chart.

CAUTION

Never touch the printed calibration chart.

25. When the first page of the verify chart is printed to the last, load an A4-sized Archival Matte Paper vertically on the paper tray, and click [Next] to print the second page (Sheet2) of the verify chart.
26. Make sure that there is no missing dot in the verify chart.
    If there is any defect, click [Print Verify Chart Again]. The verify chart will be printed again after performing cleaning.
    If there are no missing dots, let the chart stand for five minutes until it dries out paying attention not to touch the chart
27. When the verify chart dries out (after five minutes), click [Next].
28. Connect the calibrator to the computer, and click [Measure].
29. Place the calibrator on the calibration base plate, and click [Calibrate].
30. Keep the calibrator remain set on the base plate, hold down the button on the side of the calibrator until it beeps.
    Once the calibration completed normally, following screen appears.

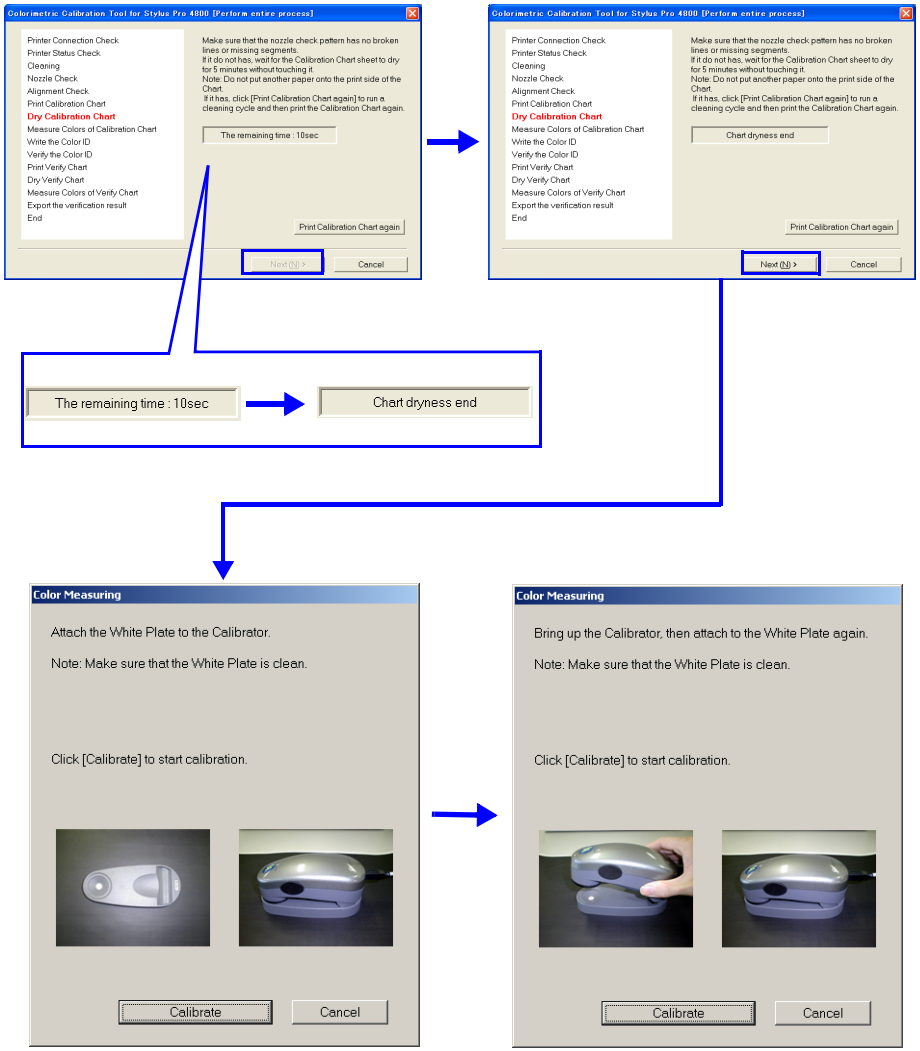


Figure 5-72. Entire Process Screen

31. Make sure that the date and time printed in the second line on the upper left of the chart(measurable time and date) is within the range displayed under the heading "GMT" on the lower screen.(If the date and time is not within the range, it is necessary to print the chart again.)
32. Refer to Figure 5-73, lay the chart on the black paper (or sheet) with the upper part of the chart facing left side, and set the scanning ruller onto the bottommost patch line.

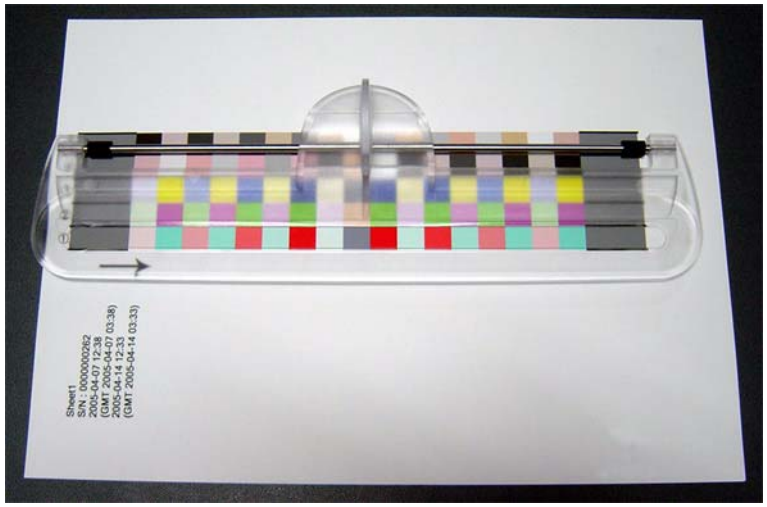


Figure 5-73. Setting the Chart and the Scanning Ruler

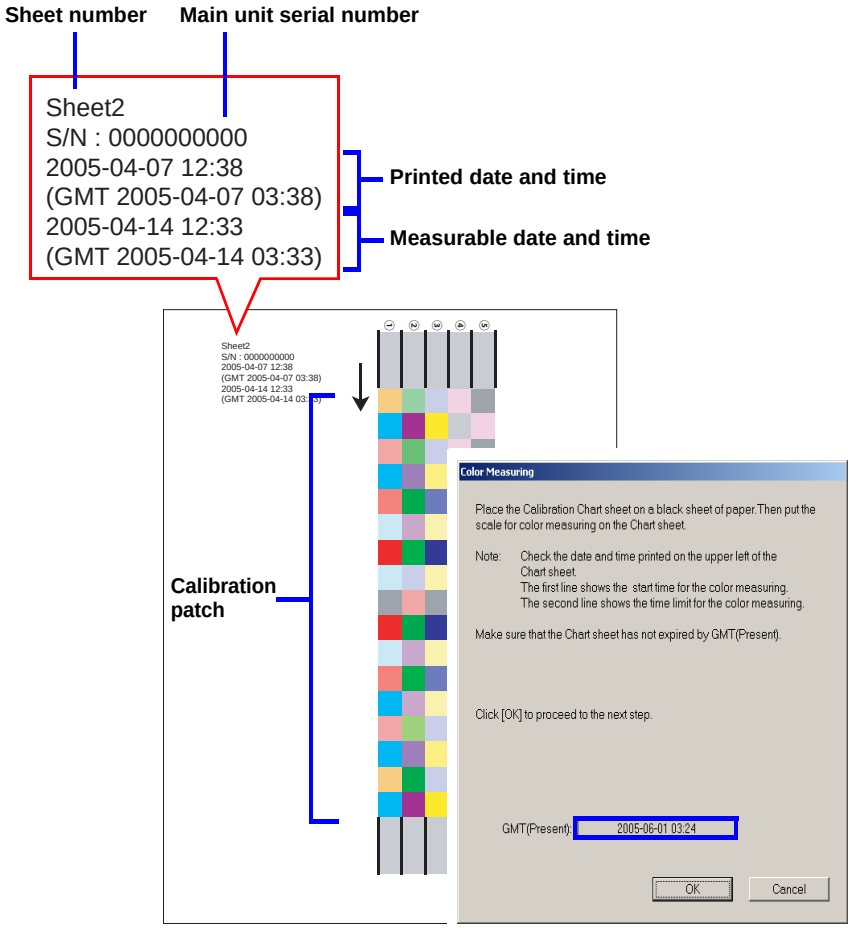


Figure 5-74. Measurable Date and Time Check

33. Click [OK] and follow the instructions (following procedure) displayed on the screen to perform color measuring.
    1. Set the calibrator with its measuring part matched with measuring start position (gray part) as shown in Figure 5-68.
    2. Press the button on the side of the calibrator.
    3. When it beeps, keep holding down the button and scan the patch along the scanning ruller to measuring end position (gray part).
    4. Once the measuring is complete, release the button.
    5. Repeat Step 1 through 4 twice for the same patch line.
    6. Repeat Step 1 through 5 to measure the bottommost line to the top line. (The line which needs to be measured is displayed on the screen.)
34. Once all the lines (5 lines) are measured, click [OK].
35. Measure Sheet 2 by following Step 31 through 34.

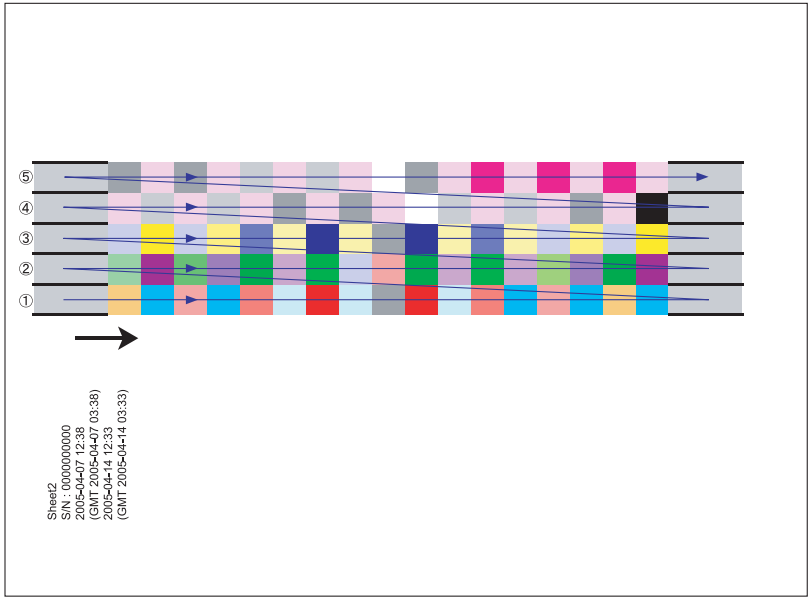


Figure 5-75. Color Measuring Order

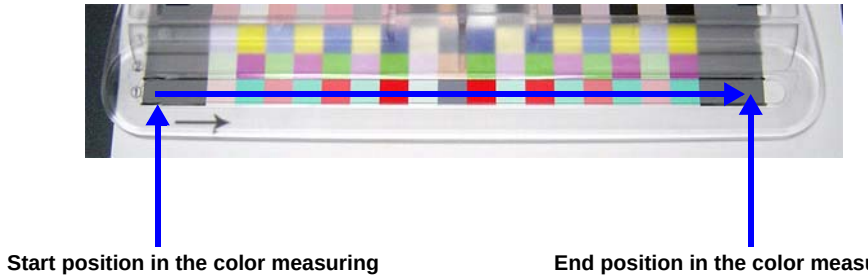


Figure 5-76. Setting the Calobrator/Color Measuring Position

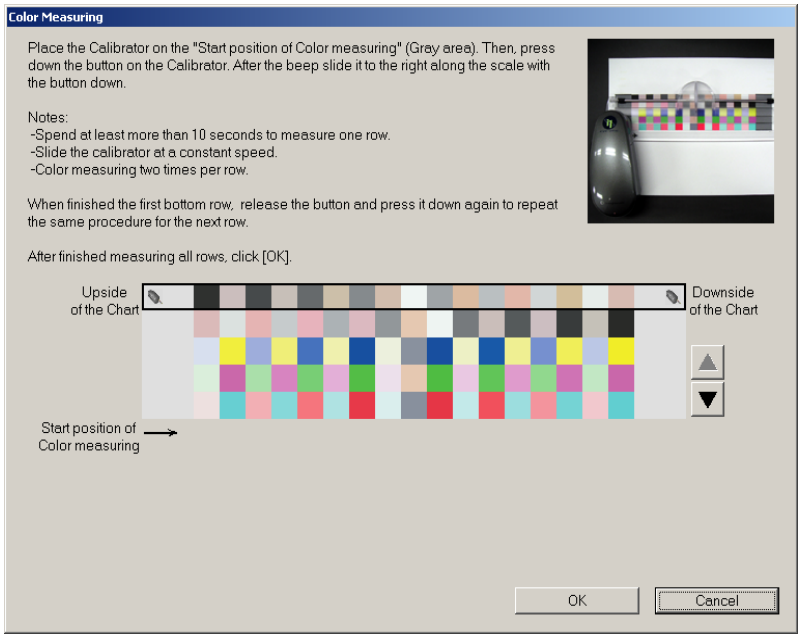


Figure 5-77. Color Measuring Screen

36. Click [Save] to save the result under a new file name (txt file).
37. Click the [End] button.

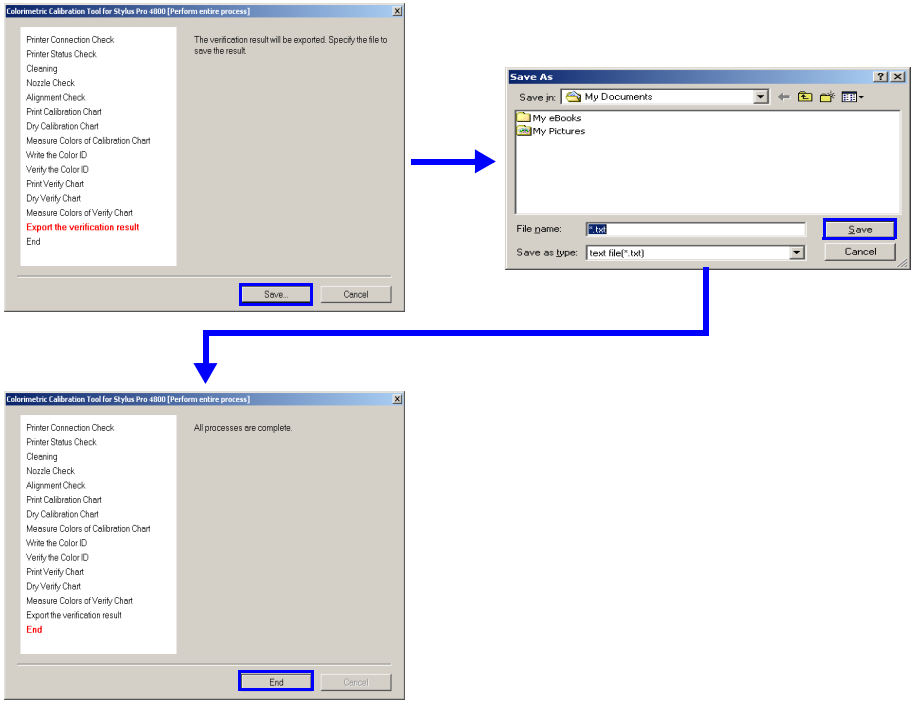


Figure 5-78. Entire Process Screen

ADJUSTMENT PROCEDURE (SEPARATE WORKFLOW)

☐ Printing Calibration Chart (at repair work site)

1. Turn the printer power on.
2. Start the adjustment program and select [Colorimetric Calibration Tool].
3. Click [Run] to start “Colorimetric Calibration Tool”.
4. Click [Print Calibration Chart].
5. Perform Step 5 through 12 of "Adjustment Procedure (Entire Process Workflow)" to print the Calibration chart.
6. Lay one plain paper on the print surface of the Calibration chart, put them in a clear file together with the alignment check pattern, and send them to a place where the color measuring is carried out.

CAUTION

The printed calibration charts should be sent to a color-measuring site immediately, as the color of the patch may be discolored in a week.

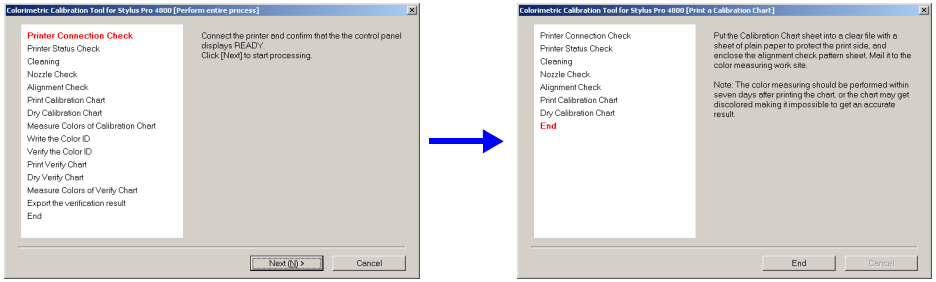


Figure 5-79. Printing Calibration Chart

☐ Creating Color ID Data (at color measuring site)

1. Start the adjustment program, and select [Colorimetric Calibration Tool].
2. Click [Run] to start “Colorimetric Calibration Tool”.
3. Click [Color ID].
4. Select the type of the currently used black ink from the ”BlackInk" pull-down menu, and click [Next].
5. Perform Step 5 through 12 of "Adjustment Procedure (Entire Process Workflow)" to print the calibration chart.
6. Enter the 10-digit serial numbers that are printed on the calibration chart, and click [Next]
7. Click [Save], make sure that the file name is equilvalent to the main unit serial number, and save the color ID data (dat format).
8. Click [End].
9. Send the color ID data acquired in the procedure to the repair work site.

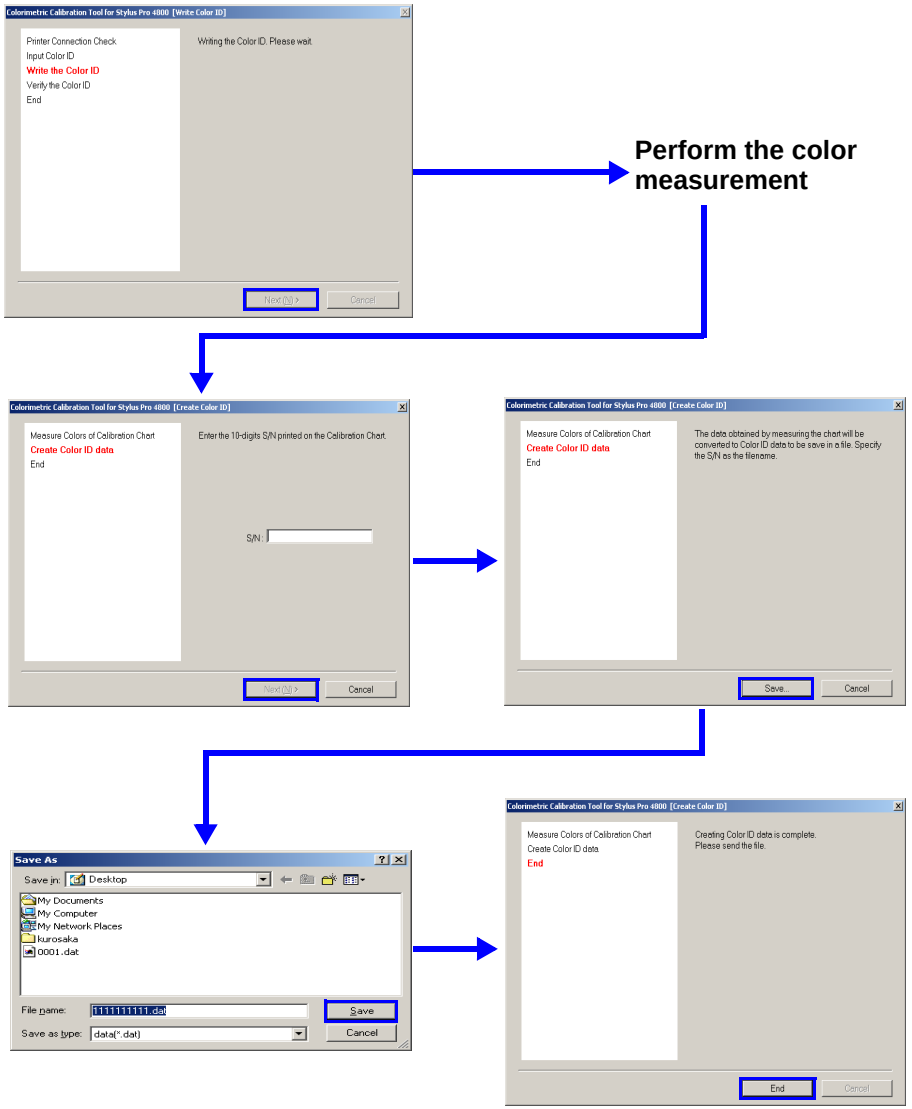


Figure 5-80. Generating Colorimetric Calibration ID Data

☐ Writing Color ID (at repair work site)

1. Start the adjustment program and select [Colorimetric Calibration ID].
2. Click [Run] to start “Colorimetric Calibration Tool”.
3. Click [Write Color ID].
4. Perform Step 5 to 6 of "Adjustment Procedure (Entire Process Workflow)" to check the connection status to the printer.
5. Select [File] from “Input Method”.
6. Click [Specify the file], select the color ID data file (dat format), and click [Next].
7. Make sure that the S/N shown in the input data is the same as that of the connected printer and that it should be the same as the product number of the printer. Click [Next].
8. When the writing is complete, click [End]

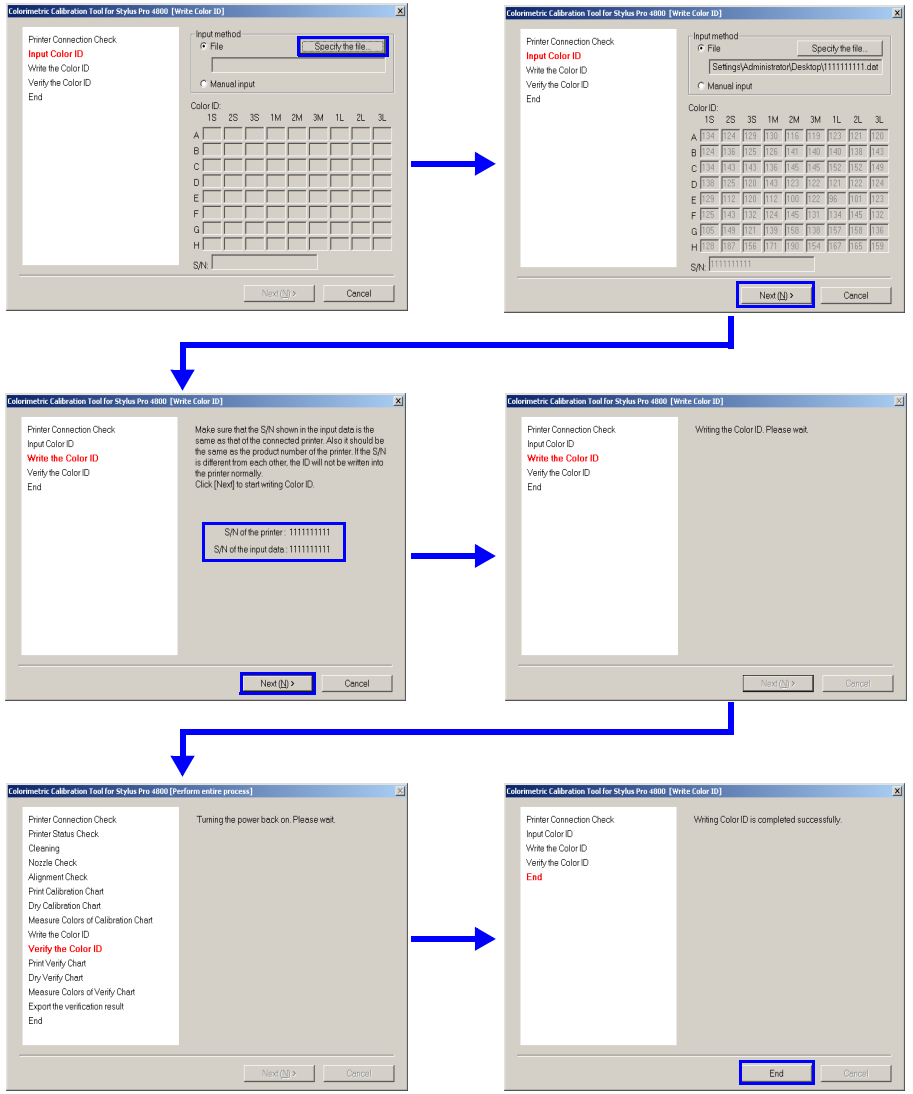


Figure 5-81. Writing Colorimetric Calibration ID

5.4 Advanced Adjustment

5.4.1 Auto Bi-d Adjustment

Performs Auto Bi-D Adjustment with the Multi Sensor. When the adjustment pattern is printed, this is automatically executed from scanning of the pattern to correction. The pattern is printed at PG=0.7/1.2, and the correction value is automatically copied for other PG settings.

- Paper Used
  - Size: 17"
  - Type: Enhanced Matte Roll Paper
- Procedure
  1. Turn the printer on.
  2. Start adjustment program and select [Auto Bi-d Adjustment].
  3. Click the [Run] button to print the adjustment pattern.
  4. As the pattern is printed, the printer automatically scans the pattern and makes corrections. (This is not necessary when making special adjustments manually.)
  5. Click the [Finish] button.

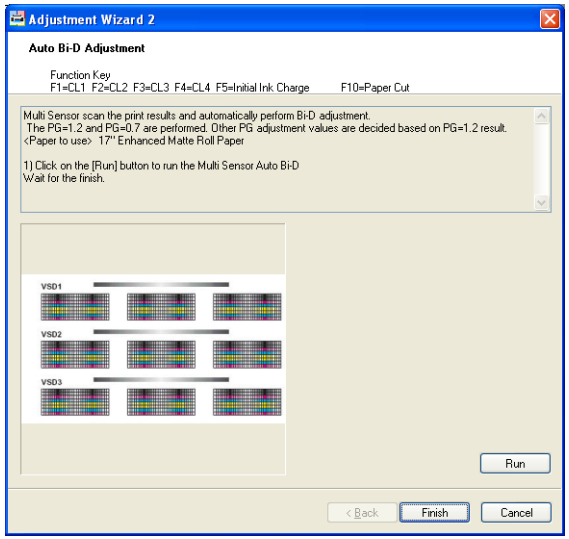
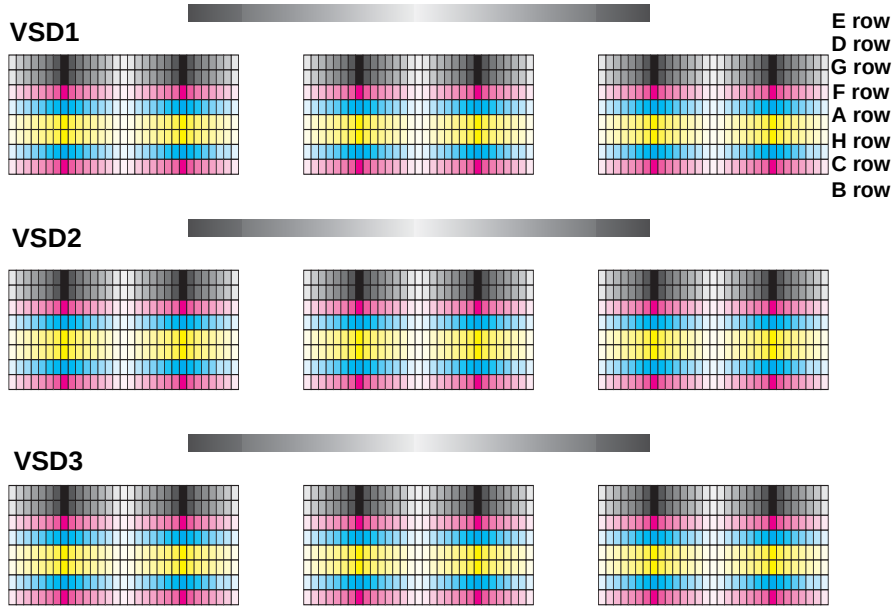


Figure 5-82. Auto Bi-D Adjustment Screen



[PG=0.7]
[VSD1] Rough = 4
[VSD1] Fine = E: 0[0, 0, 0] D: 0[0, 0, 0] G: 0[0, 0, 0]
F: 0[0, 0, 0] A: 0[0, 0, 0] H: 0[0, 0, 0]
C: 0[0, 0, 0] B: 0[0, 0, 0]
[VSD2] Rough = 4
[VSD2] Fine = E: 0[0, 0, 0] D: 0[0, 0, 0] G: 0[0, 0, 0]
F: 0[0, 0, 0] A: 0[0, 0, 0] H: 0[0, 0, 0]
C: 0[0, 0, 0] B: 0[0, 0, 0]
[VSD3] Rough = 4
[VSD3] Fine = E: 0[0, 0, 0] D: 0[0, 0, 0] G: 0[0, 0, 0]
F: 0[0, 0, 0] A: 0[0, 0, 0] H: 0[0, 0, 0]
C: 0[0, 0, 0] B: 0[0, 0, 0]
[Average] VSD1 = 25, VSD2 = 24, VSD3 = 25, ECO = 26

Figure 5-83. Adjustment Pattern

5.4.2 Manual Bi-D Adjustment

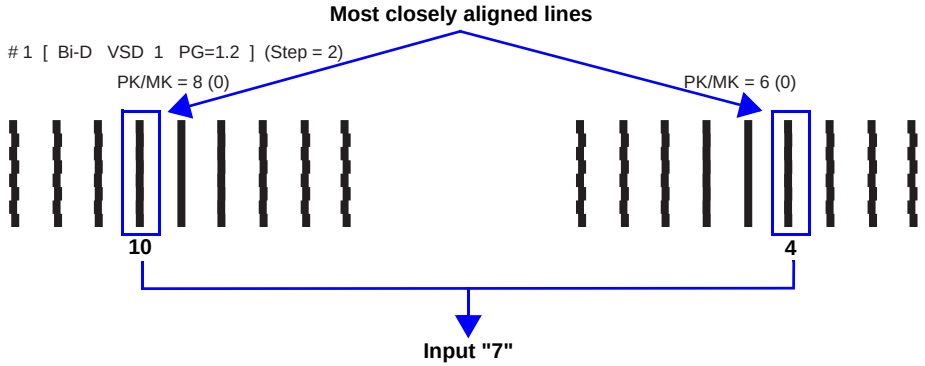
Adjusts Bi-D by inspecting visually.

☐ Papers required

- ■ Size: 17"
- ■ Type: Enhanced Matte Roll Paper

☐ Procedure

1. Turn the printer power on.
2. Start up the adjustment program and select [Manual Bi-D Adjustment].
3. Select the PG that requires adjustment. (①)
4. Click [Next]. (②)
5. Click [Print] to print the MK adjustment patterns consist of three rows (VSD1, VSD2, and VSD3). (③)
6. Examine the printout patterns for each of the three modes, select the value for the group of most closely aligned vertical lines for each mode, and calculate the average values. Input the average values of each mode in the edit boxes. (④)



CHECK POINT

The printed pattern is numbered on every other line, however, you can enter the undisplayed number in between.

7. After clicking [Write] (⑤), make sure that the writing to the printer is finished normally, and then click [OK]. (⑥)

8. Click [Next]. (⑦)

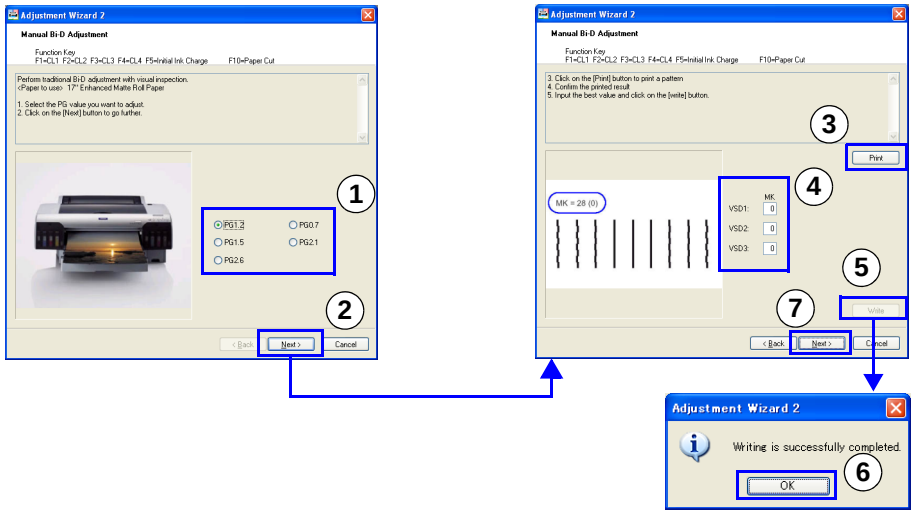


Figure 5-84. Manual Bi-D Adjustment (1)

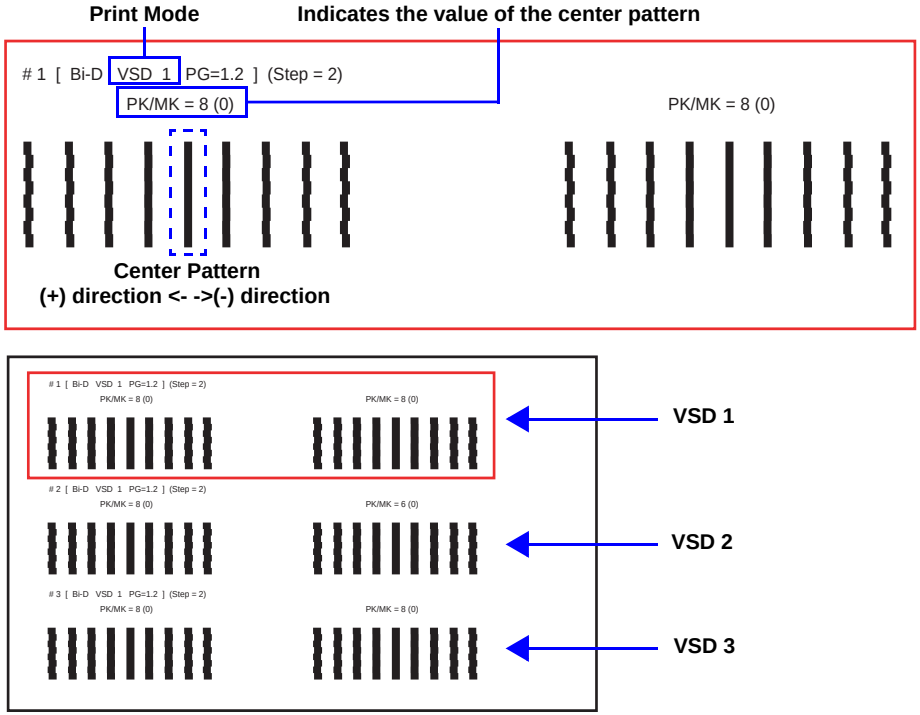


Figure 5-85. MK Adjustment Pattern

9. Click [Print] to print the color adjustment patterns consist of three rows (VSD1, VSD2, and VSD3 mode). (⑧)
10. Examine the printout patterns (except MK colored patterns) for each of the three modes, and select the value for the group of most closely aligned blocks for each mode. Input the selected value in the edit boxes. (⑨)

CHECK POINT

The printed pattern is numbered on every other line, however, you can enter the undisplayed number in between.

11. After clicking [Write] (⑩), make sure that the writing to the printer is finished normally, and then click [OK]. (⑪)
12. Click [Finish].(⑫)

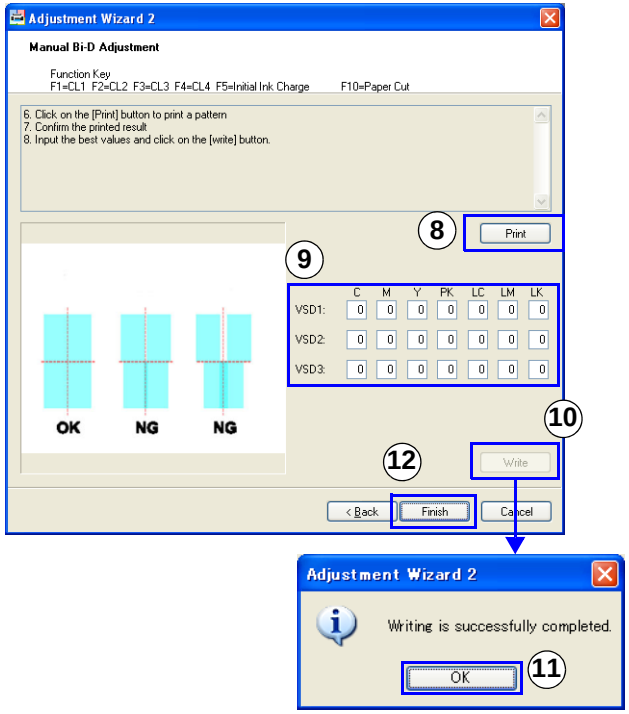


Figure 5-86. Manual Bi-D Adjustment Screen (2)

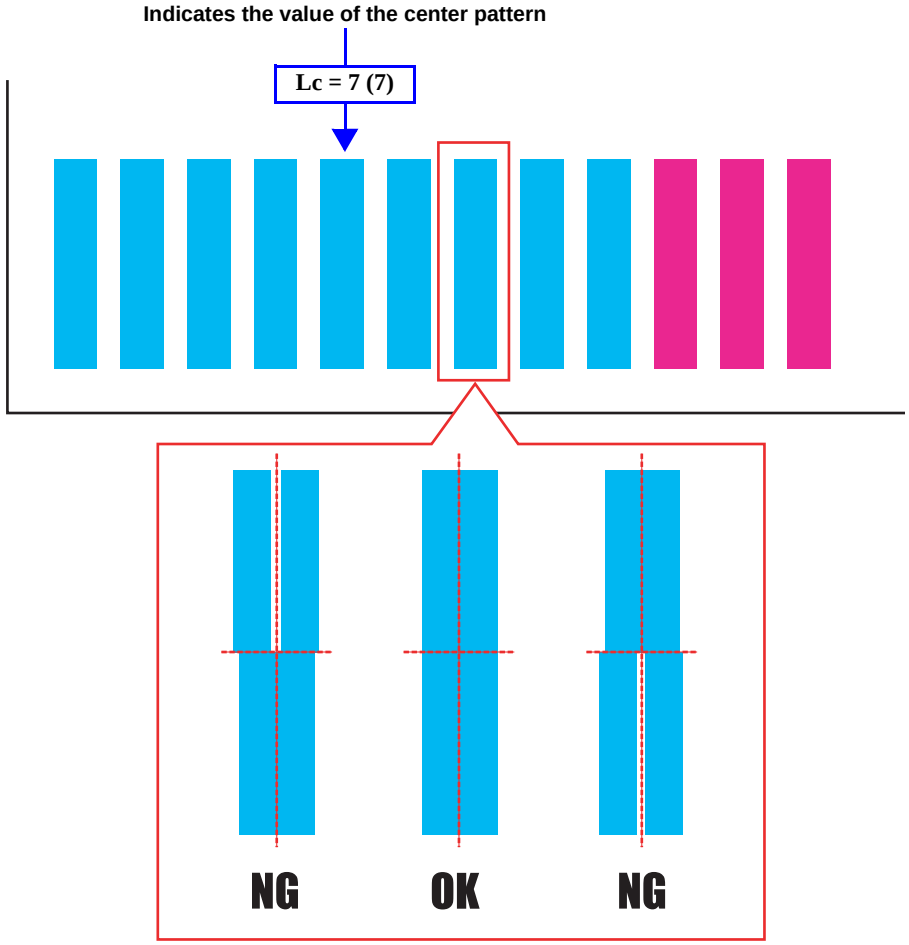


Figure 5-87. Color Adjustment Pattern

5.4.3 Destination Setting

☐ Procedure

1. Turn the printer on.
2. Start the adjustment program and select [Change Model Name].
3. Select the "Others" and click the [Run] button to set the destination to the NVRAM.
4. Click the [Next] button.
5. Click the [Check] button and current setting model name will be displayed. Click the [OK] button after confirming the set model name.
6. Click the [Finish] button.

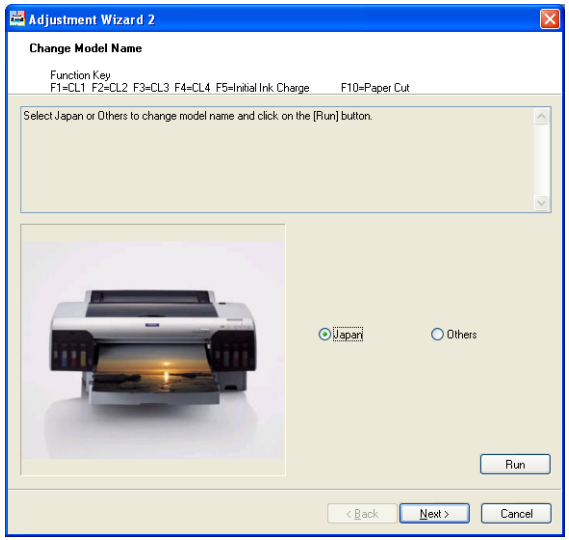


Figure 5-88. Destination Setting Screen (1)

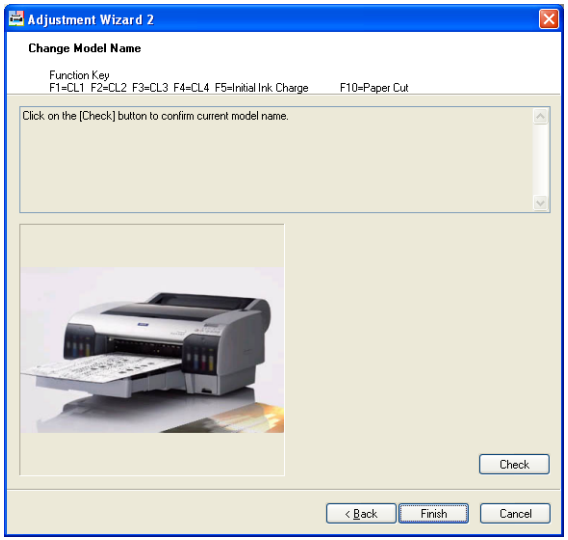


Figure 5-89. Destination Setting

Figure 5-90. Confirming Model Name

5.4.4 PF Micro Feed Adjustment (Bi-D) (TBD)

By using the "Paper Feed Adjuster" tool, it is possible to adjust print quality for papers which are frequently used by users.

“Paper Feed Adjuster“ tool works as follows:

- ☐ Adjustment:
  Adjusts “Paper Feed Amount“ and “Microweave“.
- ☐ Printing the set values:
  Prints the calibration values that are currently applied to “Paper Feed Amount“ and “Microweave“.
- ☐ Initialization of the set values:
  Resets the calibration values applied to “Paper Feed Amount“ and “Microweave“ to the factory default.

CHECK POINT

Refer to the help function for use of the “Paper Feed Adjuster”.

- ☐ Procedure
  1. Turn the printer power on.
  2. Start the adjustment program, and select [PF Micro Feed Adjustment (Bi-D)].
  3. Click [Run] to start the "Paper Feed Adjuster".
  4. Using the "Paper Feed Adjuster" tool, adjust [Paper feeding amount] and [Microweave].

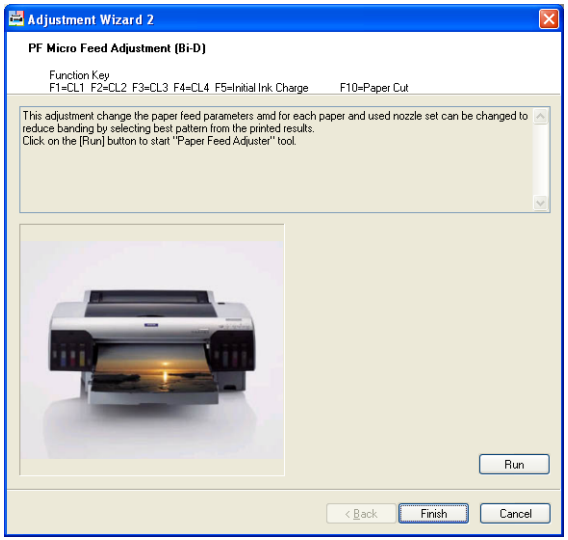


Figure 5-91. PF Micro Feed Adjustment (Bi-D)

5.5 Check Results

5.5.1 Check Nozzle

This checks whether or not each of the head nozzles is jetting ink normally. If nozzle ink jetting is abnormal, execute cleaning and check the nozzles again.

- ☐ Paper Used
  - ■ Size: 17"
  - ■ Type: Enhanced Matte Roll Paper
- ☐ Procedure
  1. Turn the printer on.
  2. Start the adjustment program and select [Check Nozzle].
  3. Click the [Run] button and print the nozzle check pattern.
  4. Check that there is no dot missing on the pattern.
  5. If there is no dot missing, click the [Finish] button to finish the check nozzle.
     If there is dot missing, execute cleaning and then print the check pattern and check it again.

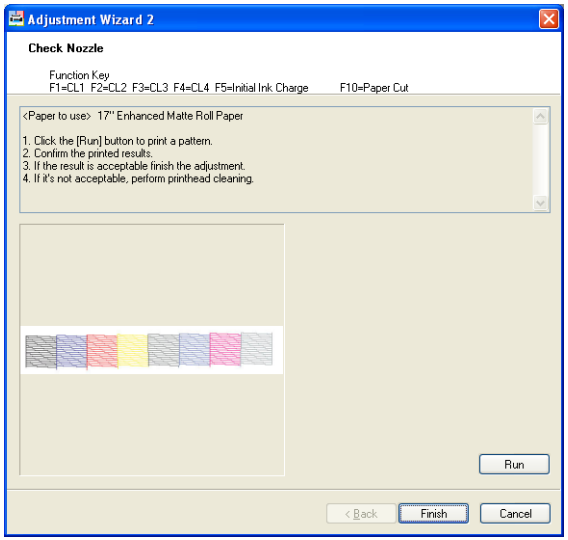


Figure 5-92. Check Nozzle Screen

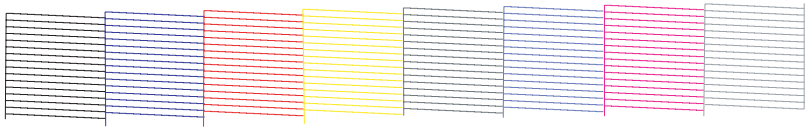


Figure 5-93. Nozzle Check Pattern

5.5.2 Check Alignment

This checks for presence/absence of alignment slip. Check all of the printing modes VSD1, VSD2, and VSD3. If alignment is slipped, execute cleaning and check the alignment again.

- ☐ Paper Used
  - ■ Size: 17"
  - ■ Type: Enhanced Matte Rool Paper
- ☐ Procedure
  1. Turn the printer on.
  2. Start the adjustment program and select [Check Alignment].
  3. Select the printing mode and click [Print] button to print the nozzle check pattern.
  4. Check that there is no alignment slip.
  5. If there is no alignment slip, click the [Finish] button to finish the check alignment.
     If there is alignment slip, execute cleaning and then print the check pattern and check it again.

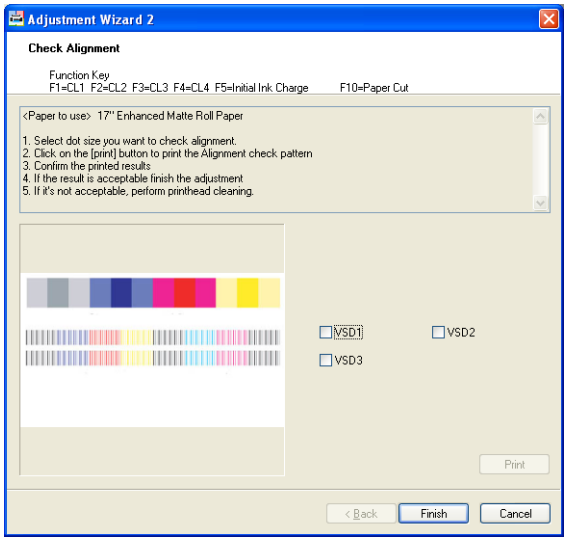


Figure 5-94. Check Alignment Screen

Figure 5-95. Horizontal Alignment Check Pattern

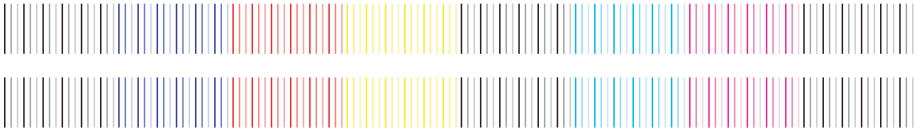


Figure 5-96. Vertical Alignment Check Pattern

5.5.3 Print Adjustment Check Pattern

This prints all of the adjustment patterns and the adjustment parameters stored in the printer.

☐ Paper Used

- ■ Size: 17"
- ■ Type: Enhanced Matte Rool Paper

☐ Procedure

1. Turn the printer on.
2. Start the adjustment program and select [Print Adjustment Check Pattern].
3. Select [Print All Pattern] or [Print Variables] and then click the [Print] button, and the following patterns will be printed.
   - ● Print All Pattern
     All the adjustment patterns and the adjustment parameters will be printed.
   - ● Print Variables
     The adjustment parameters stored in the printer will be printed.

CAUTION

Approximately 3.6m of roll paper will be needed when printing all patterns. Be careful about the amount of remaining paper and also about the eject space needed since the paper will be continuously printed without being cut.

4. Check the printed patterns and click the [Finish] button.

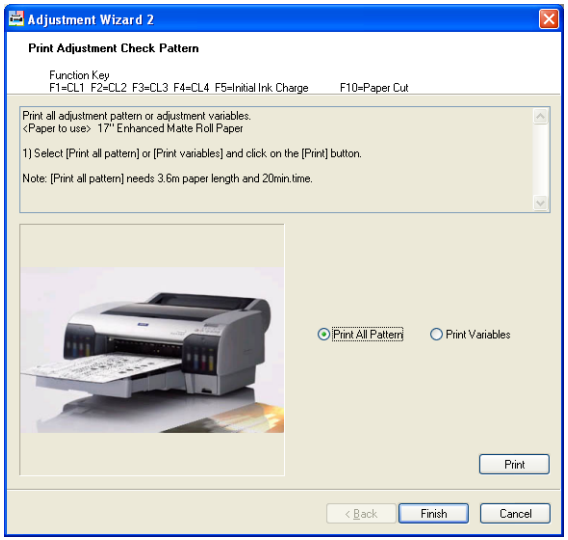


Figure 5-97. Print Adjustment Check Pattern Screen

5.5.4 Image Printing

CAUTION

- **When performing printing in the following procedure, specify the paper size from the printer print setting.**
- **"Single Weight Matte Paper" should be used when printing with Stylus Pro 4400/4450.**

☐ Procedure

1. Turn the printer power on.
2. Click [Browse], and select any image file (bmp) in “tanzaku“ folder, which is inside the folder (adjwiz2) that stores adjustment program data.
3. Select the media from the [Media type] pull-down menu.
4. Click [Print] to print the image.
5. Check the image quality, and click [End].

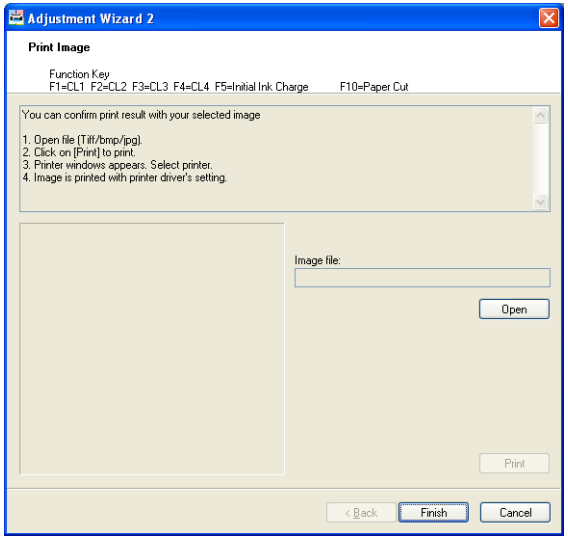


Figure 5-98. Image Printing Screen

5.5.5 Check Cutting

This cuts the paper and checks for cutter adjustment and cutter wear.

- ☐ Paper Used
  - ■ Size: 17"
  - ■ Type: Enhanced Matte Roll Paper
- ☐ Procedure
  1. Turn the printer on.
  2. Start the adjustment program and select [Cut Check].
  3. Input the number of times to execute the test cut into the edit box, and then click the [Run] button.
  4. Check the cut area of the ejected paper and click the [Finish] button.

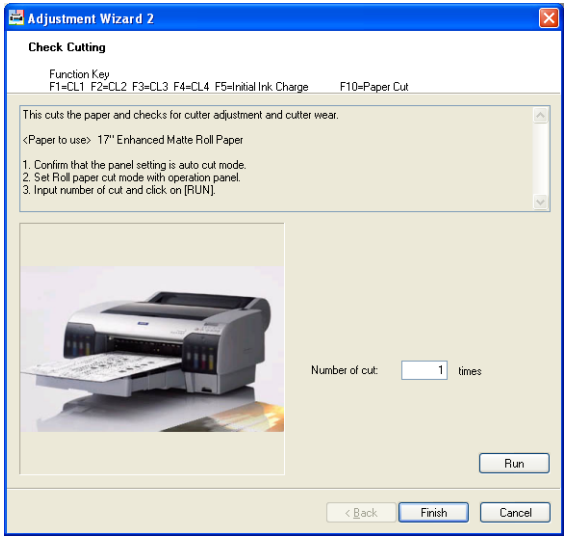


Figure 5-99. Check Cutting Screen

5.6 Reset Counters

5.6.1 Reset Paper Ejection Switching/PG Switching Counter

☐ Procedure

1. Turn the printer power on.
2. Start up the adjustment program and select [Reset Paper Ejection Switching/PG Switching Counter].
3. Click [Run] to clear the Paper Ejection Switching/PG Switching Counter.
4. Click [Finish].

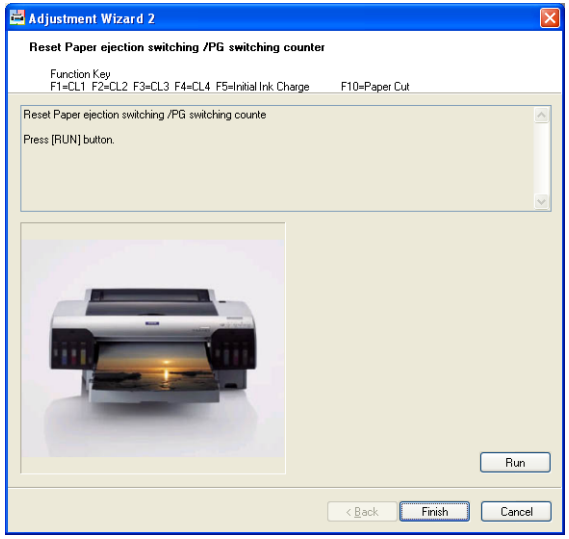


Figure 5-100. Reset Paper Ejection Switching/PG Switching Counter Screen

5.6.2 Reset PF Motor Counter

☐ Procedure

1. Turn the printer power on.
2. Start the adjustment program and select [Reset PF Motor Counter].
3. Click the [Run] button to clear the PF Motor life counter.
4. Click the [Finish] button.

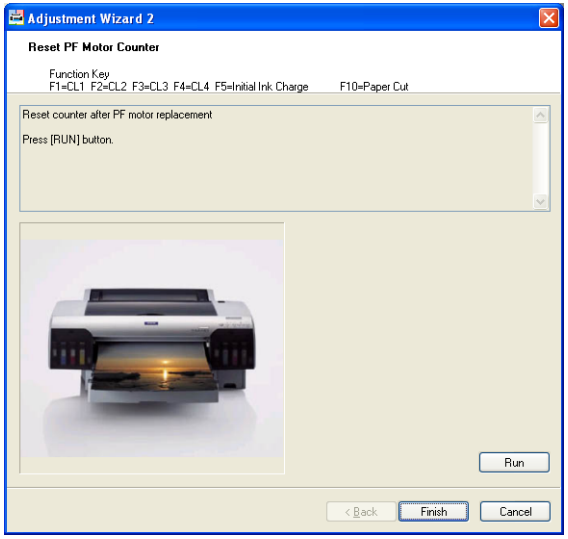


Figure 5-101. Reset PF Motor Counter Screen

5.6.3 Reset ASF Counter

☐ Procedure

1. Turn the printer power on.
2. Start up the adjustment program and select [Reset ASF Counter].
3. Click [Run] to clear the ASF Counter.
4. Click [Finish].

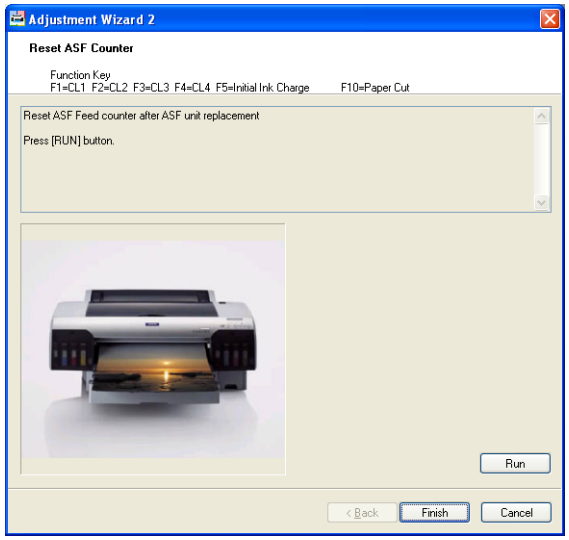


Figure 5-102. Reset ASF Counter Screen

5.6.4 Reset When CR Unit Change

☐ Procedure

1. Turn the printer power on.
2. Start the adjustment program and select [Reset When CR Unit Change].
3. Click the [Run] button to clear the"Motor Assy., CR" life counter.
4. Click the [Finish] button.

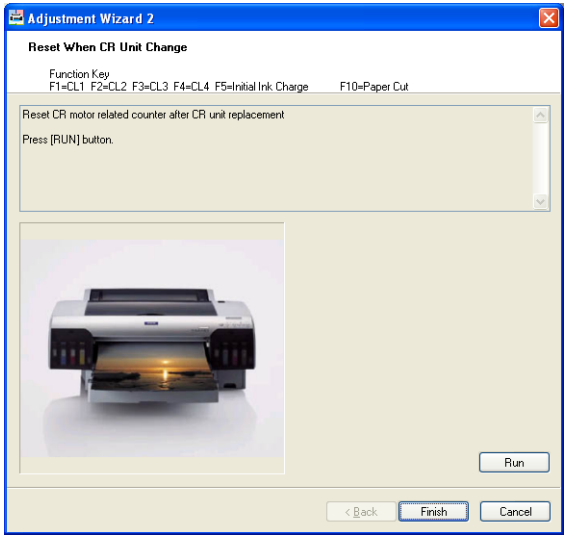


Figure 5-103. Reset When CR Unit Change Screen

5.6.5 Reset When Cleaning Unit Change

☐ Procedure

1. Turn the printer power on.
2. Start the adjustment program and select [Reset When Cleaning Unit Change].
3. Click the [Run] button to clear the Cleaning Unit change counter.
4. Click the [Finish] button.

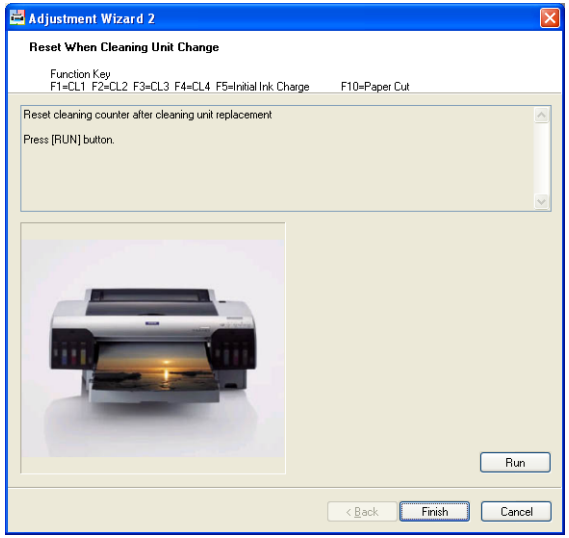


Figure 5-104. Reset When Cleaning Unit Change

5.6.6 Reset When Printhead Change

☐ Procedure

1. Turn the printer power on.
2. Start the adjustment program and select [Reset When Printhead Change].
3. Click the [Run] button to clear the Printhead change counter.
4. Click the [Finish] button.

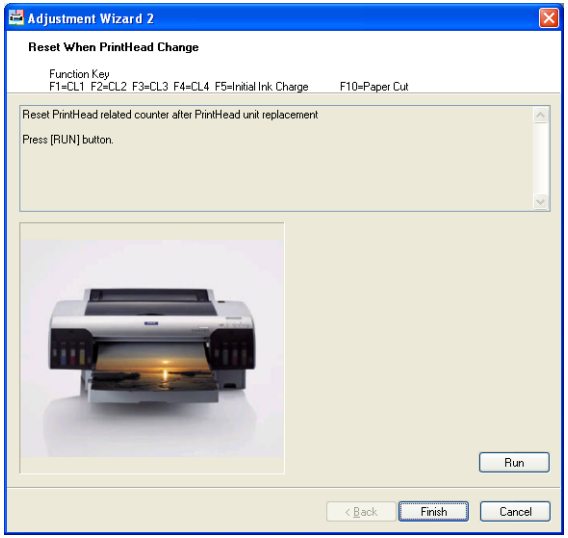


Figure 5-105. Reset When Printhead Change

5.7 Installing Firmware

Firmware for the printer is written to the Flash ROM on the Main Board. Use the following procedure to write the firmware to the Flash ROM when the Main Board is replaced or the firmware needs to be updated.

CAUTION

Turning on the printer immediately after uploading firmware to a new Main Board with no parameters in place will start initial ink charging. When initial charging is not needed, be sure to execute "5.3.15 Initial Ink charge flag ON/OFF" (p.408)

☐ Tool required

Firmware Update Tool

- Supported OS: Windows 98, Me, 2000, XP
- Port: USB

☐ Procedure

1. Turn off both the printer and the computer, and connect the printer to the computer with a USB cable.
2. Turn the computer power on and then turn the printer on.
3. Start the Firmware Update Tool.
4. Select the port (Choose a port) and the firmware data (Choose a FW data file) (UPG format).
5. Click [Send] to transmit the firmware data.
6. The “Complete” message is displayed in a pop-up window when the data transmission is finished, then click [OK].
7. Upon completion of the update, the printer automatically reboots.

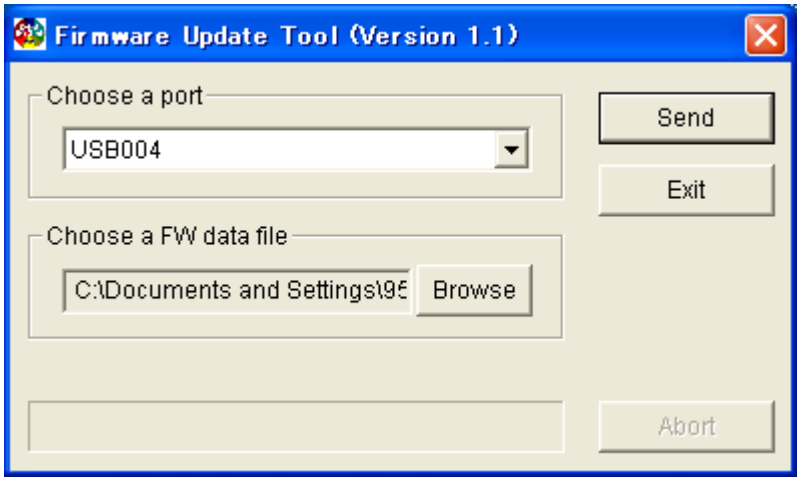


Figure 5-106. Firmware Update Tool Screen

Figure 5-107. Firmware Update Tool Screen

5.8 Installing Firmware for SP 4400 (4-color model) after replacing Main Board with New one

The firmware preinstalled on the main board provided as ASP is for 8-color model. If you have replaced the main board of 4-color model with a new one, you need to delete the preinstalled firmware and install firmware for 4-color model.

CAUTION

As for the main board of Stylus Pro 4450 supplied as ASP, the firmware for 4-color is preintalled on it.

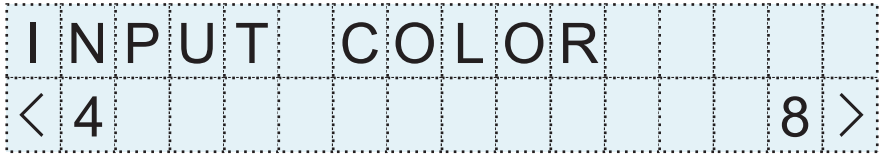
☐ Tool required

Firmware Update Tool

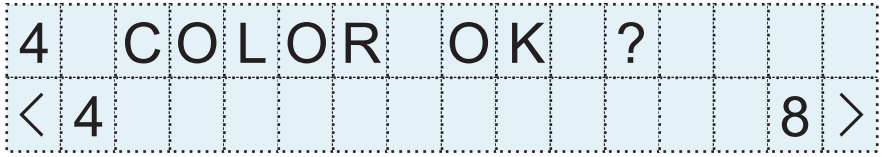
- Supported OS: Windows 98, Me, 2000, XP
- Port: USB

☐ Procedure

1. Turn off both the printer and the computer, and connect the printer to the computer with a USB cable.
2. Turn on the printer.
3. Start the Firmware Update Tool.
4. Transmit the “ErasePro.upg”.
5. When “Pro Area Erase ?” appears on the control panel, press the [Menu(>)] button.
   "Flash ROM ERASE" appears and the data in the Flash ROM is deleted.
6. Turn off the printer after “End [Success]” appears on the control panel.
7. Turn on the printer.
   (The printer turns on in firmware update mode.)
8. Start the Firmware Update Tool.
9. Transmit the firmware data.
10. When the following message appears, press the [Paper (<)] button to select 4-color.



11. When the following confirmation message appears, press the [Paper (<)] button.



12. “F/W UPDATING” appears and the firmware update begins.
13. When the “NVRAM CLEAR OK” appears on the control panel, press the [Menu (>)] button to restart the printer.
14. Perform the other required operations/adjustments listed in “*5.1.4 Adjustment Items classified by Part/Unit (p.368)*” .

5.9 Device ID Setting

CHECK POINT

Stylus Pro 4450/4880/4880C only.

☐ Procedure

1. Turn the printer ON, and start the Adjustment Program.
2. Select the printer name.
3. Click the icon on the top left of the window.
4. Select [Port Check on Connected Printer].
5. The pop up screen to confirm the port is displayed. Click [Yes].
6. Click [Start].

CHECK POINT

If a connection error occurs, verify the connection between the computer and the printer one more time, and make sure to perform the adjustment again.

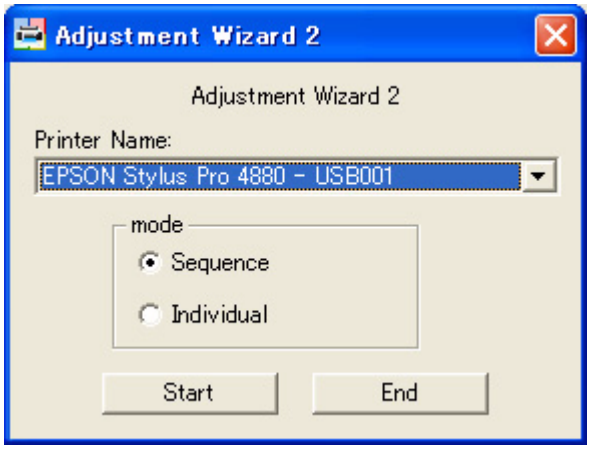


Figure 5-108. [Select Printer Name] Screen

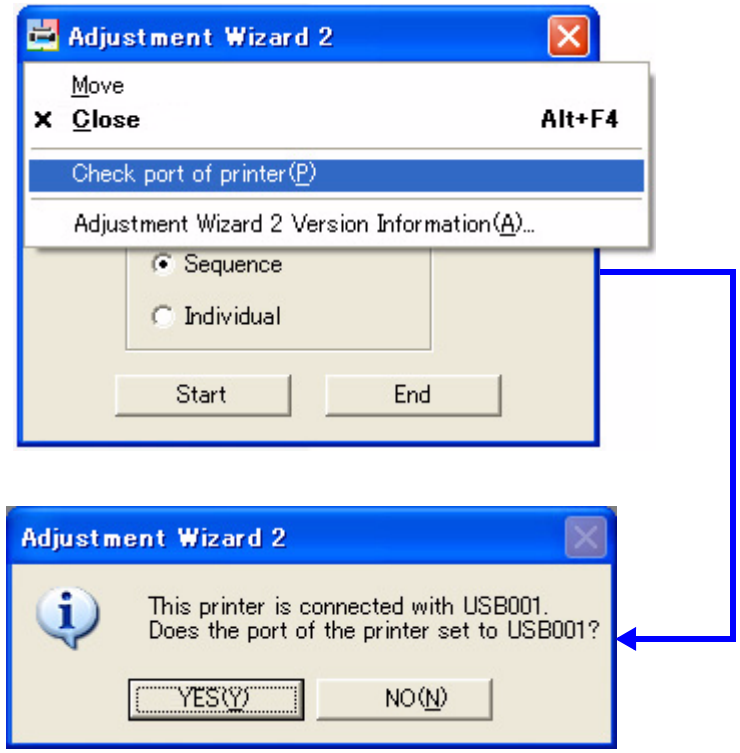


Figure 5-109. [Port Check on Connected Printer] Screen

5.10 Writing MAC Address

The MAC address of this printer is recorded on the Flash ROM of the main board. When replacing the main board, make sure to write the MAC address to the new board as follows.

☐ Procedure

1. Turn on the power of the printer.
2. Start the adjustment program, and select [Set MAC address].

CHECK POINT

The label on which the MAC address is printed is attached on the rear of the printer as shown in figure 5-110.

3. Key in the MAC address and press [Enter].
4. Press [Next].
5. Press [Confirm], and check that the same MAC address is displayed as the one you just keyed in.
6. Press [Finish].

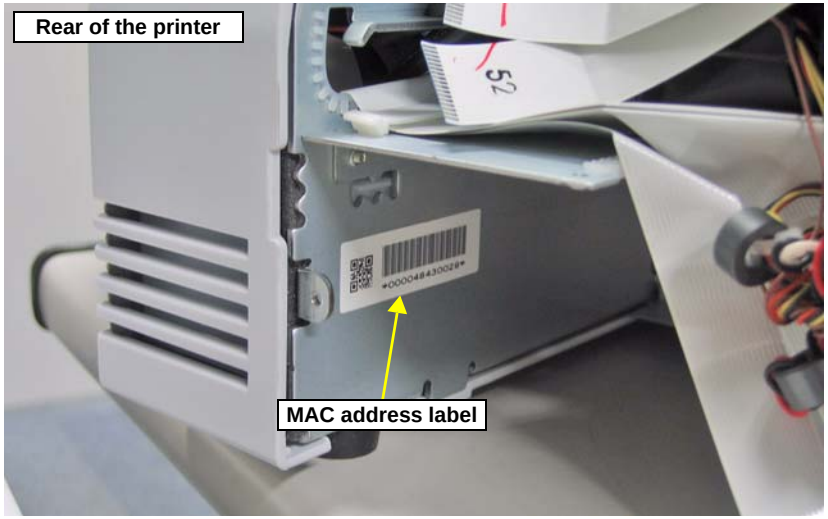


Figure 5-110. Location of the Label with MAC Address

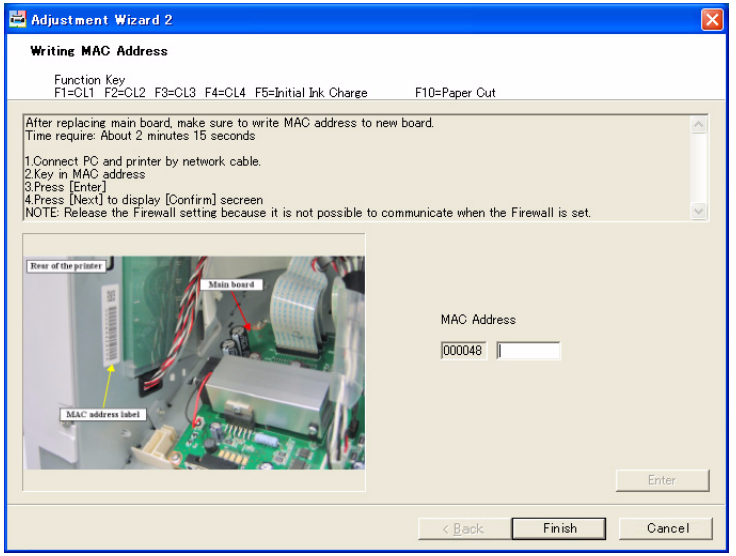


Figure 5-111. [Set MAC address] Window

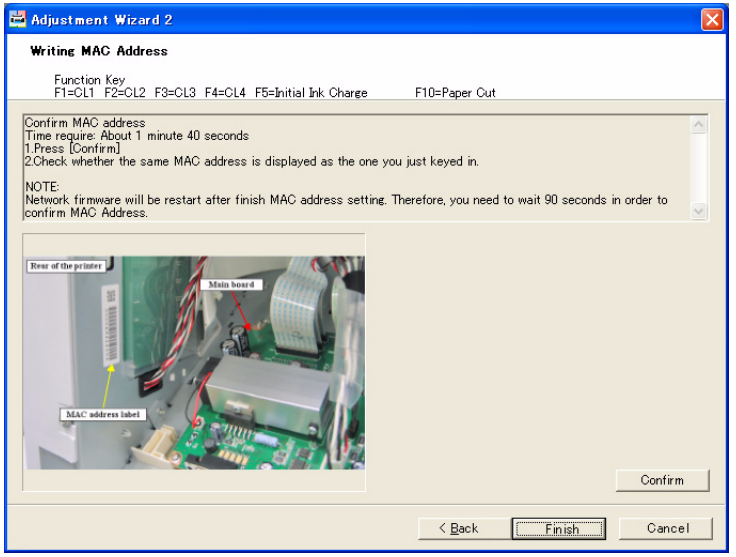


Figure 5-112. Confirmation Window of [Set MAC address]

CHAPTER

6

MAINTENANCE

6.1 Overview

This chapter describes maintenance operations that are required during servicing.

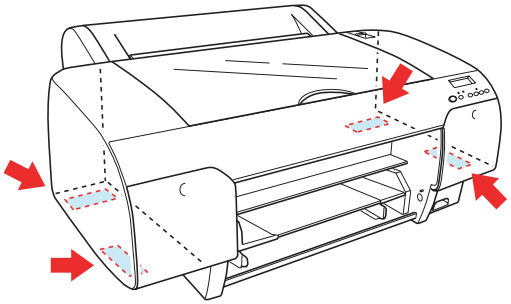
Most servicing/maintenance of this printer will need to be done by visiting the site where the printer will actually be used by the customer (on-site service). Carefully observe the following cautions and perform the servicing/ maintenance in such a way that no damage is done to the product or customer's work environment.

WARNING

- **The power switch is installed on the secondary side of the power circuit, so power is always supplied unless the power code has been unplugged. Unless there are specific instructions otherwise, be sure to unplug the power code from the AC outlet to prevent electric shock and circuit damage during servicing.**
- **The cover open sensor for detecting the open/close condition of the front cover has an interlock switch that functions as a safety device. Therefore, it is prohibited to turn off this switch.**
- **A lithium battery is installed on the MAIN Board of this printer. Be sure to observe the following instructions when servicing the battery:**
  - **Keep the battery away from any metal.**
  - **Do not install the battery in the wrong direction. (This may cause burning or explosion.)**
  - **Do not heat the battery or put it into fire.**
  - **Do not set the C593 MAIN board directly on top of any object which is conductive.**
- **Be careful not to let ink get into your eyes or your skin. If ink gets in your eye, rinse them immediately with water and see a doctor if any trouble.**

CAUTION

- **Ensure adequate work space for performing service/ maintenance.**
- **The printer should be set in a place where there is no vibration, and where it is level and stable.**
- **The weight of this printer is approximately 40.2kg. When moving or lifting the printer, be sure that at least two people are lifting by supporting the locations shown in the figure below.**



- **Place a protective sheet on the floor before removing ink routing parts because there is the possibility that leaking ink could get onto the product or floor where the product is set up.**
- **To prevent static electric damage when handling a circuit board, do not touch elements on board with bare hands. If handling with bare hands is unavoidable, perform work by using required measures, such as wearing a grounding strap.**
- **When allowing the printer to operate with covers removed, be careful not to get injured with high-speed operating parts such as fans.**
- **Use care to avoid injury when handling the cutter blade because it is very sharp.**

CAUTION

- **The cutter uses a very hard blade that is unusually brittle, so do not allow it to be damaged by bumping into objects such as metal printer parts.**
- **If the printer that has already been installed needs to be packed and transported again, first make certain that the print head has been capped properly with the power to the printer turned off. Then remove all the ink cartridges and install all the packing materials as referred to in the Start-Up Guide or Assembly and Setup Guide supplied with the printer.**

6.1.1 Product Life Information

☐ Work Life Preservation Items

This printer does not have periodic replacement parts that require periodic replacement before reaching the end of the product work life.
However, if this printer continues to be used after the product work life, service call errors will be displayed before part failures occur and messages will be presented to advise part replacement. (This excludes the Maintenance Tank and Cutter consumable parts.)
Corresponding parts are shown below.

Name	Maintenance Request	Service Request
Cleaning Unit	0040	0001002D
CR Motor	0002	00000101
RTC backup battery	0008	00010023
Paper feed roller	0200	N/A

☐ Work Life Information

Work life information can be checked from the "Printer Status Menu" of the panel settings. The display will show the remaining percentage in relation to the specified control value (displays "F*****E"). These values saved in the counters can be cleared using "Maintenance Mode 2".

WARNING

Do not clear counters that do not correspond to a part replacement or inspection. Clearing of the waste ink count value for the "MAINT TANK" counter is especially prohibited, because it can affect printer operation and lead to ink leakage.

6.1.2 Important Maintenance Items During Service Operations

Check the following items during printer maintenance/service and perform any necessary operations.

Table 6-1. Items to be Checked During Maintenance/Service

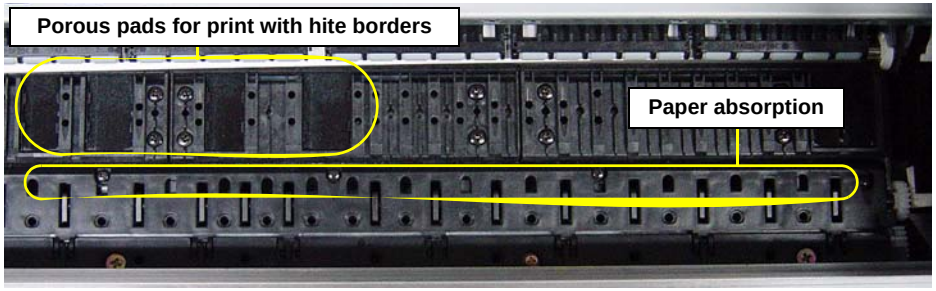
Items	Check Points	Remedy
Surface of the Platen and Sub-platen	Make sure no paper, dust, or foreign objects are attached or have accumulated.	Cleaning (If there is an ink stain, wipe with dry, clean cloth after cleaning the ink stain with damp cloth.)
CR scale (Slit plate for CR encoder detection)	Is there any accumulation or adhesion of paper dust or foreign matter?	Cleaning If there is any damage, replace the part.
Rail on the CR guide frame	Make sure there are no foreign objects attached.	Cleaning
Sensors in paper feed path • Multi sensor • PE sensor, etc.	Make sure there are no foreign objects attached.	Cleaning

☐ Cleaning on the Platen and Subpaten

Brush away dust and paper dust, and wipe the whole surface with a OA cleaner. If the paper absorption holes are clogged, push the paper dust into the inside of the printer using a precision driver or a similar tool.

CAUTION

Take care not to touch the porous pads for print with white borders.



6.2 Lubrication

Lubricate as needed during servicing. Use lubricants specified below.

Table 6-2. Grease Application

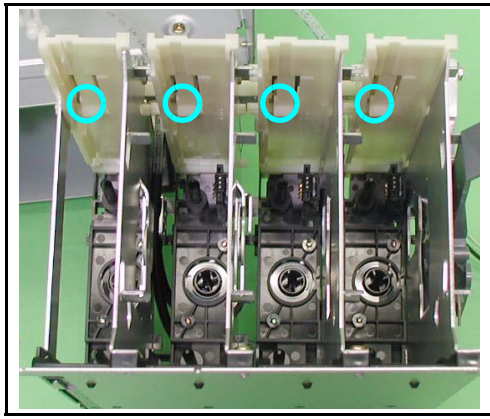
Name	Amount	Company	Part No.
G-26	40 g	EPSON	1080614
G-74	40 g	EPSON	1409257

CAUTION

- **When lubricating printer mechanisms, never apply lubricants other than those specified because they can damage or reduce work life of components or cause poor printer operation.**
- **Note that the Stylus Pro 4400/4450/4800/4880/4880C and the Stylus Pro 4000 have the same points to be lubricated but is specified to use different types of lubricants.**
  - **Stylus Pro 4400/4450/4800/4880/4880C: G-74**
  - **Stylus Pro 4000: G-46**

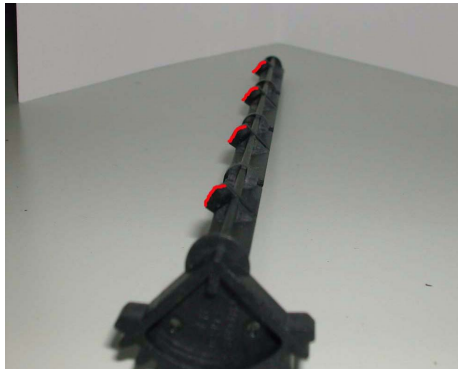
CHECK POINT

- **As G-74 is quick-drying lubricant, it is only necessary for the lubricated points to be slightly coated with lubrication.**
- **To prevent G-74 from being coagulated, shake it well before using it.**



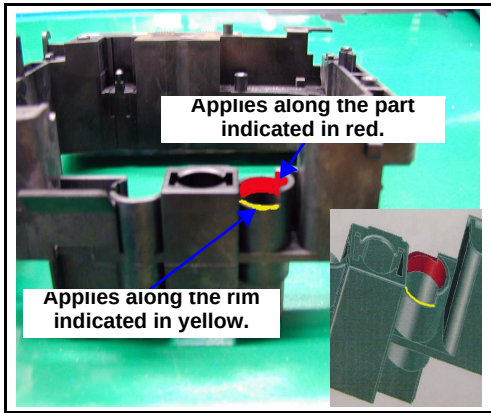
- Lubrication Point
  Springs located on upper part of Each "Flame Holder, IC" of "Flame Assy., IC" (4 places)
- Lubrication Type
  G-74
- Remarks
  Use a brush or cotton swab for application.

Figure 6-1. Flame Assy., IC (left / right)



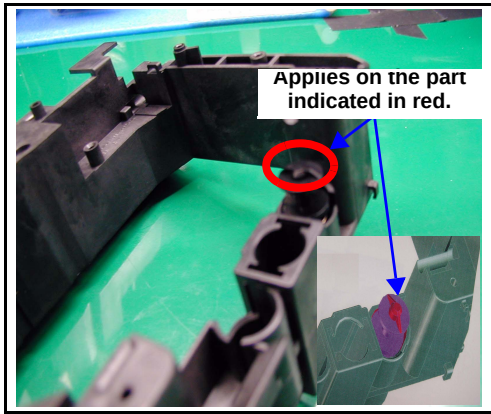
- Lubrication Point
  Cam parts on "Cam, Valve" (4 places)
- Lubrication Type
  G-74
- Remarks
  Use a brush or cotton swab for application.

Figure 6-2. Cam, Valve (left / right)



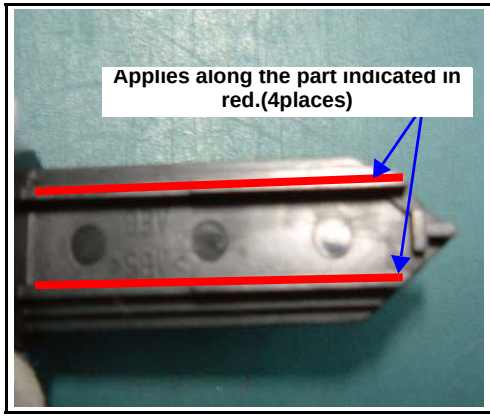
- Lubrication Point
  Applies on the ribs on the front and back sides of "Slider, CR Lock". (4 places in total)
- Lubrication Type
  G-74
- Remarks
  Use a brush or cotton swab for application.

Figure 6-3. Slider, CR Lock(No.1)



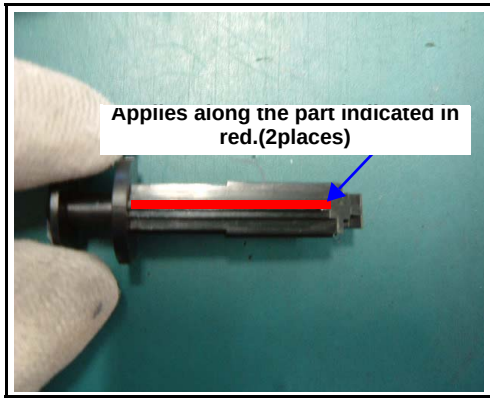
- Lubrication Point
  Head rib of "Slider, CR Lock"
- Lubrication Type
  G-74
- Remarks
  Use a brush or cotton swab for application.

Figure 6-4. Slider, CR Lock(No.2)



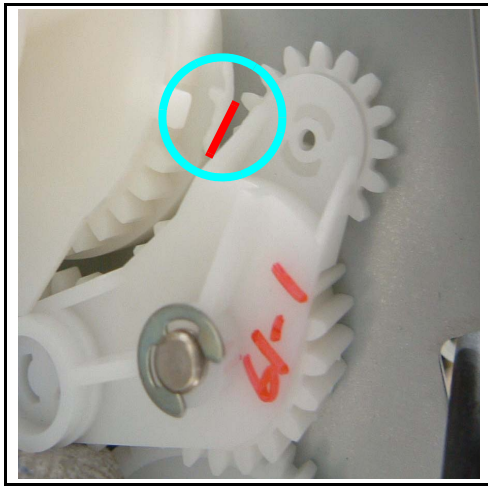
- Lubrication Point
  Ribs on the front and back sides of "Slider, CR Lock" (4 places)
- Lubrication Type
  G-74
- Remarks
  Use a brush or cotton swab for application.

Figure 6-5. Slider, CR Lock(No.3)j



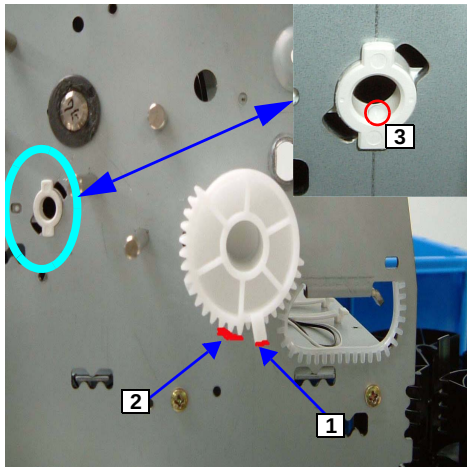
- Lubrication Point
  Ribs on front and back sides of "Slider, CR Lock" (2 places)
- Lubrication Type
  G-74
- Remarks
  Use a brush or cotton swab for application.

Figure 6-6. Slider, CR Lock(No.4)



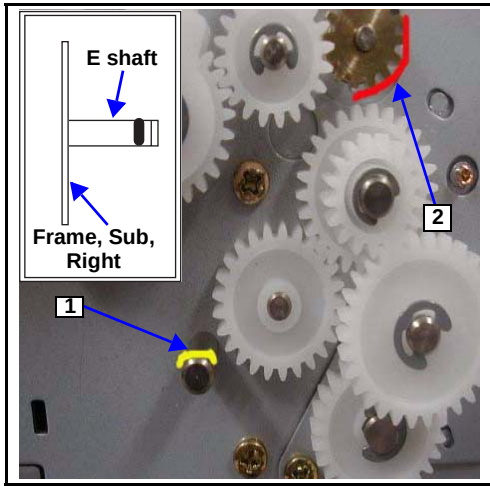
- Lubrication Point
  Cam part of "INTERMITTENT GEAR, 40"
- Lubrication Type
  G-26
- Lubrication Amount
  Φ1mm x approximately 7mm
- Remarks
  Use a syringe/needle (JIS 17# or equivalent) for application.

Figure 6-7. INTERMITTENT GEAR



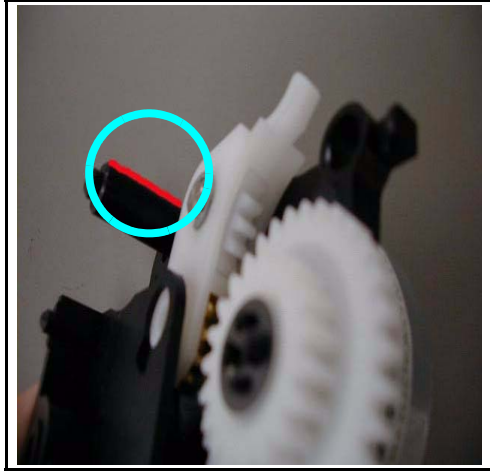
- Lubrication Point
  Cam part and gear parts (3 teeth) of "Intermittent Gear, Release, Transmit" and inner surface of bush (1 place)
- Lubrication Type
  G-26
- Lubrication Amount
  1. Φ1mm x approximately 5mm
  2. Φ1mm x approximately 7mm
  3. Φ1mm x approximately 1mm (Applies from the outside of the frame.)
- Remarks
  Use a syringe/needle (JIS 17# or equivalent) for application.

Figure 6-8. Intermittent Gear, Release, Transmit



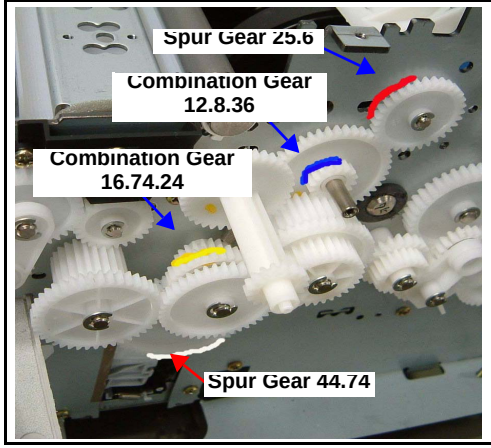
- Lubrication Point
  E shaft of "Frame, Sub, Right" and pinion gear part of "Motor Assy., PG"
- Lubrication Type
  G-26
- Lubrication Amount
  1. Φ1mm x 5mm (approximately 1mm inside from groove for E shaft-ring)
  2. Φ1mm x half circumference or Φ2mm x quarter circumference
- Remarks
  Use a syringe/needle (JIS 17# or equivalent) for application.

Figure 6-9. Combination Gear, 36.8.8



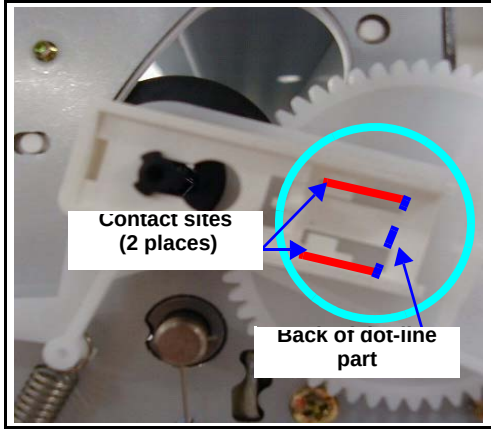
- Lubrication Point
  Shaft of "Combination Gear, 12.22.4"
- Lubrication Type
  G-26
- Lubrication Amount
  Φ1mm x 15mm
- Remarks
  Use a syringe/needle (JIS 17# or equivalent) for application.

Figure 6-10. Combination Gear, 12.22.4



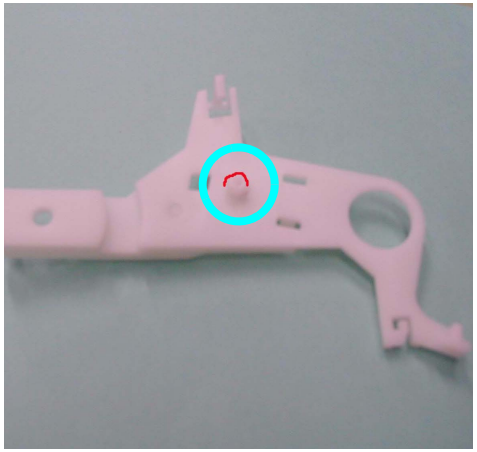
- Lubrication Point
  "Spur Gear 44.74", "Spur Gear 25.6", small gear of "Combination Gear 12.8.36", and large gear of "Combination Gear 16.74.24"
- Lubrication Type
  G-26
- Lubrication Amount
  F1mm x quarter circumference (4 places)
- Remarks
  Use a syringe/needle (JIS 17# or equivalent) for application.

Figure 6-11. Spur Gear 44.74



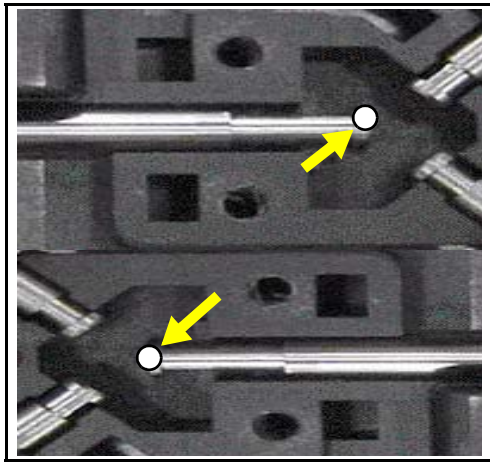
- Lubrication Point
  "LEVER, CHANGE PAPER EJECT, R;B", and contact sits and back of "LEVER, CHANGE PAPER EJECT, R"
- Lubrication Type
  G-26
- Lubrication Amount
  Φ1mm x 10mm (3 places)
- Remarks
  Use a syringe/needle (JIS 17# or equivalent) for application.

Figure 6-12. Shaft part of "LEVER, CHANGE PAPER EJECT, R"(No.1)



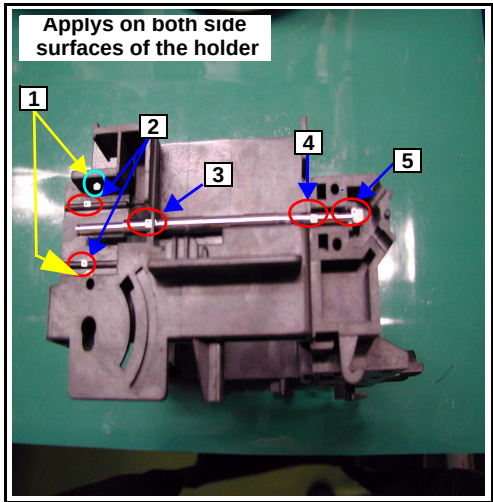
- Lubrication Point
  Shaft part of "LEVER, CHANGE PAPER EJECT, R"
- Lubrication Type
  G-26
- Lubrication Amount
  Φ1mm x approximately 3mm
- Remarks
  Use a syringe/needle (JIS 17# or equivalent) for application.

Figure 6-13. Shaft part of "LEVER, CHANGE PAPER EJECT, R"(No.2)



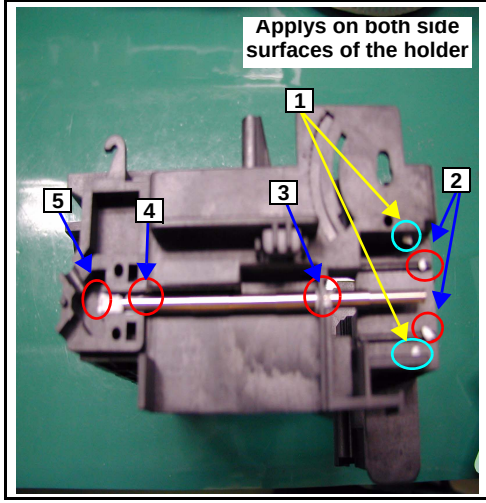
- Lubrication Point
  Upper part of Ribs of "Shaft, Connection"
- Lubrication Type
  G-26
- Lubrication Amount
  Φ1mm
- Remarks
  Use a syringe/needle (JIS 17# or equivalent) for application.

Figure 6-14. Ribs of "Shaft, Connection



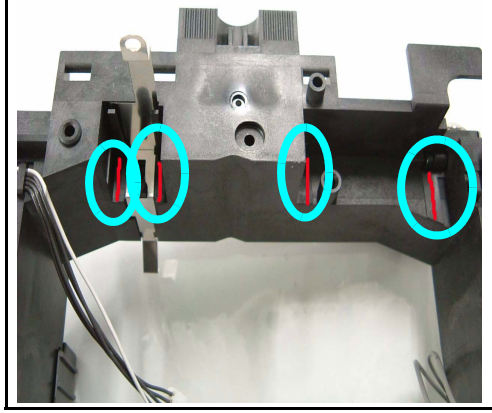
- Lubrication Point
  Both side surfaces of "Shaft, Connection" (2 places) and "Carriage, A;B Right Side" (5 places)
- Lubrication Type
  G-26
- Lubrication Amount
  1. Φ1mm x 1mm(2 places)
  2. Φ1mm x 2mm(2 places)
  3. Φ1mm x 2mm
  4. Φ1mm
  5. Φ1mm
- Remarks
  Use a syringe/needle (JIS 17# or equivalent) for application.

Figure 6-15. Carriage, A;B Right Side



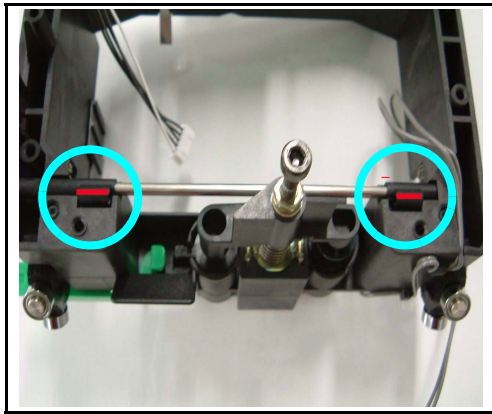
- Lubrication Point
  Both side surfaces of "Shaft, Connection" (2 places) and "Carriage, A;B Right Side" (5 places)
- Lubrication Type
  G-26
- Lubrication Amount
  1. Φ1mm x 1mm(2places)
  2. Φ1mm x 2mm(2places)
  3. Φ1mm x 2mm
  4. Φ1mm
  5. Φ1mm
- Remarks
  Use a syringe/needle (JIS 17# or equivalent) for application.

Figure 6-16. Carriage, A;B Right Side



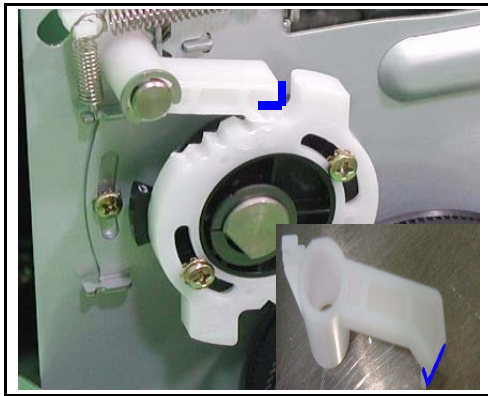
- Lubrication Point
  Upper part of Ribs of "Carriage" (4 places, lubrication point: approximately 12mm)
- Lubrication Type
  G-74
- Remarks
  Use a brush or cotton swab for application.

Figure 6-17. Carriage



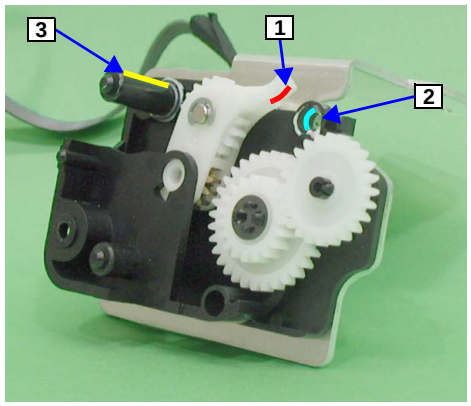
- Lubrication Point
  Rising surfaces of "CAM, INCLINATION, R" and "CAM, INCLINATION, L"
- Lubrication Type
  G-74
- Remarks
  Use a brush or cotton swab for application.

Figure 6-18. "CAM, INCLINATION, R" and "CAM, INCLINATION, L"



- Lubrication Point
  End part of "Lever, lock, PG"
- Lubrication Type
  G-26
- Lubrication Amount
  Φ1mm x approximately 3mm
- Remarks
  Use a syringe/needle (JIS 17# or equivalent) for application.
  Wipe out lubricant with a dry cloth to make the end part slightly coated with lubricant.

Figure 6-19. Lever, lock, PG



- Lubrication Point
  Lever, hole, and shaft parts of "Mount Plate, Motor, ASF Unit"
- Lubrication Type
  G-26
- Lubrication Amount
  1. Φ1mm x 2mm
  2. Φ1mm x 1perimeter
  3. Φ1mm x 15mm
- Remarks
  Use a syringe/needle (JIS 17# or equivalent) for application.

Figure 6-20. Mount Plate, Motor, ASF Unit

CHAPTER

7

APPENDIX

7.1 Connectors

☐ C593 Main Board

Table 7-1. C593 Main Board Connectors List

CN.No.	Pins	Color	Connected to	Remarks
CN1	14	White	P/S board	—
CN7	31	—	C593_SUB-D Board (CN1)	—
CN8	31	—	C593_SUB-D Board (CN2)	FFC
CN9	30	—	C593_SUB-D Board (CN3)	FFC
CN11	8	—	IEEE1394	FFC
CN12	4	—	USB 2.0	—
CN13	36	—	Optin card (TYPE_B)	—
CN14	3	Black	PF_MOT	—
CN15	3	White	CR_MOT	—
CN16	4	White	ASF/Pump_MOT	With relay connector
CN18	4	Red	PG/PO_MOT	—
CN19	2	Black	FAN1 (Right)	With relay connector
CN20	2	Yellow	FAN2 (Left)	With relay connector
CN48	17	—	C511_SUB-B Board (CN102)	FFC
CN50	2	White	Radiator Plate cooling fan	—
CN51	30	—	C511_SUB-B Board (CN101)	FFC
CN52	15	—	C593_SUB-C Board (CN200)	FFC
CN53	28	—	C593_SUB-C Board (CN201)	FFC
CN54	30	—	C511_SUB-B Board (CN100)	FFC
CN56	2	Blue	Rear Cover Sensor	—
CN57	2	White	Power Supply cooling fan	—

☐ CA00 Main Board

Table 7-2. C699 Main Board Connectors List

CN.No.	Pins	Color	Connected to	Remarks
CN1	14	White	P/S board	—
CN7	31	—	C593_SUB-D Board (CN1)	—
CN8	31	—	C593_SUB-D Board (CN2)	FFC
CN9	30	—	C593_SUB-D Board (CN3)	FFC
CN12	4	—	USB 2.0	—
CN13	36	—	Optin card (TYPE_B)	—
CN14	3	Black	PF_MOT	—
CN15	3	White	CR_MOT	—
CN16	4	White	ASF/Pump_MOT	With relay connector
CN18	4	Red	PG/PO_MOT	—
CN19	2	Black	FAN1 (Right)	With relay connector
CN20	2	Yellow	FAN2 (Left)	With relay connector
CN48	17	—	C511_SUB-B Board (CN102)	FFC
CN50	2	White	Radiator Plate cooling fan	—
CN51	30	—	C511_SUB-B Board (CN101)	FFC
CN52	15	—	C593_SUB-C Board (CN200)	FFC
CN53	28	—	C593_SUB-C Board (CN201)	FFC
CN54	30	—	C511_SUB-B Board (CN100)	FFC
CN56	2	Blue	Rear Cover Sensor	—
CN57	2	White	Power Supply cooling fan	—
CN62	2	—	Network I/F	—

☐ Power Supply Board

Table 7-3. Power Supply Board Connector List

CN.No.	Pins	Color	Connected to	Remarks
CN1	2	White	AC Inlet	
CN2	14	White	Board Assy Main (CN1)	

☐ Panel Unit

Table 7-4. Panel Unit Connectors List

CN.No.	Pins	Color	Connected to	Remarks
CN1	17	—	C511_SUB-B Board (CN103)	FCC

☐ C511_SUB Board(Relay Board1)

Table 7-5. C593 Board Connectors List

CN.No.	Pins	Color	Connected to	Remarks
CN1	24	—	C511_SUB-D Board (CN4)	FFC
CN2	2	White	C_SOL	
CN3	5	White	MULTI_SENSE	
CN4	5	—	CR_ENC	

☐ C511_SUB-B Board(Relay Board2)

Table 7-6. C511_SUB-B Board Connectors List

CN.No.	Pins	Color	Connected to	Remarks
CN22	2	Blue	P_COVER_SW	
CN25	2	Red	ASF Paper Sensor	
CN26	2	Blue	Paper Eject Cancel Sensor	
CN27	2	Yellow	R_INSERT	
CN29	4	—	PE_DET	
CN31	3	Yellow	PE_DET	
CN33	3	White	P_THICK_0.3	
CN34	3	Black	P_THICK_0.8	
CN36	2	White	IH_LEVER_R	
CN39	7	—	CSIC_R1 Board (Photo Black)	FFC
CN42	7		CSIC_R2 Board (Light Cyan)	FFC
CN43	7	—	CSIC_R2 Board (Light Magenta)	FFC
CN45	7		CSIC_R4 Board (Light Black)	FFC
CN46	7	—	M_TNK	
CN55	3	Blue	PUMP_PHASE	
CN100	30	—	Board Assy Main (CN54)	FFC, lock type
CN101	30	—	Board Assy Main (CN51)	FFC, lock type
CN102	17	—	Board Assy Main (CN48)	
CN103	17	—	Panel Board (CN1)	

☐ C593_SUB-C Board(Relay Board3)

Table 7-7. C593_SUB-C Board Connectors List

CN.No.	Pins	Color	Connected to	Remarks
CN24	4	White	PF_ENC	
CN28	2	White	Paper Eject phase Sensor	
CN30	3	Yellow	ASF phase Sensor	
CN32	3	Red	PG_PHASE	
CN37	2	Black	IH_LEVER_L	
CN38	7	—	CSIC_L1 Board (Matte Black)	FFC
CN40	7	—	CSIC_L2 Board (Cyan)	FFC
CN41	7	—	CSIC_L2 Board (Magenta)	FFC
CN44	7	—	CSIC_L4 Board (Yellow)	FFC
CN200	30	—	Board Assy Main (CN52)	FFC
CN201	30	—	Board Assy Main (CN53)	FFC

☐ C593_SUB-D Board

Table 7-8. C593_SUB-D Board Connectors List

CN.No.	Pins	Color	Connected to	Remarks
CN1	31	—	Board Assy Main (CN7)	FFC
CN2	31	—	Board Assy Main (CN8)	FFC
CN3	31	—	Board Assy Main (CN9)	FFC
CN4	31	—	Board Assy Main (CN1)	FFC
CN5	31	—	Head Board(CN1)	FFC
CN6	31	—	Head Board(CN1	FFC

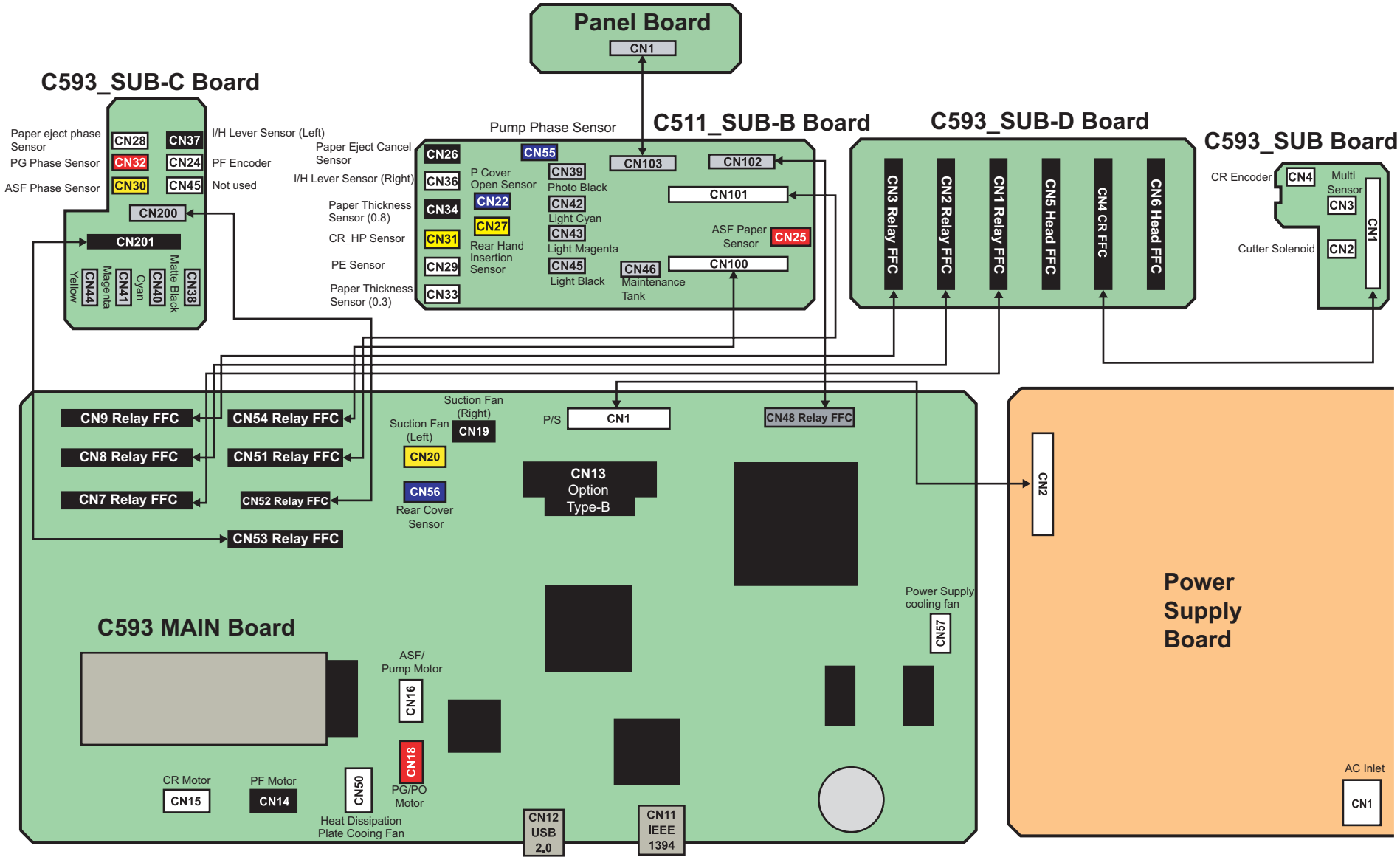


Figure 7-1. Stylus Pro 4800/4400 Connectors

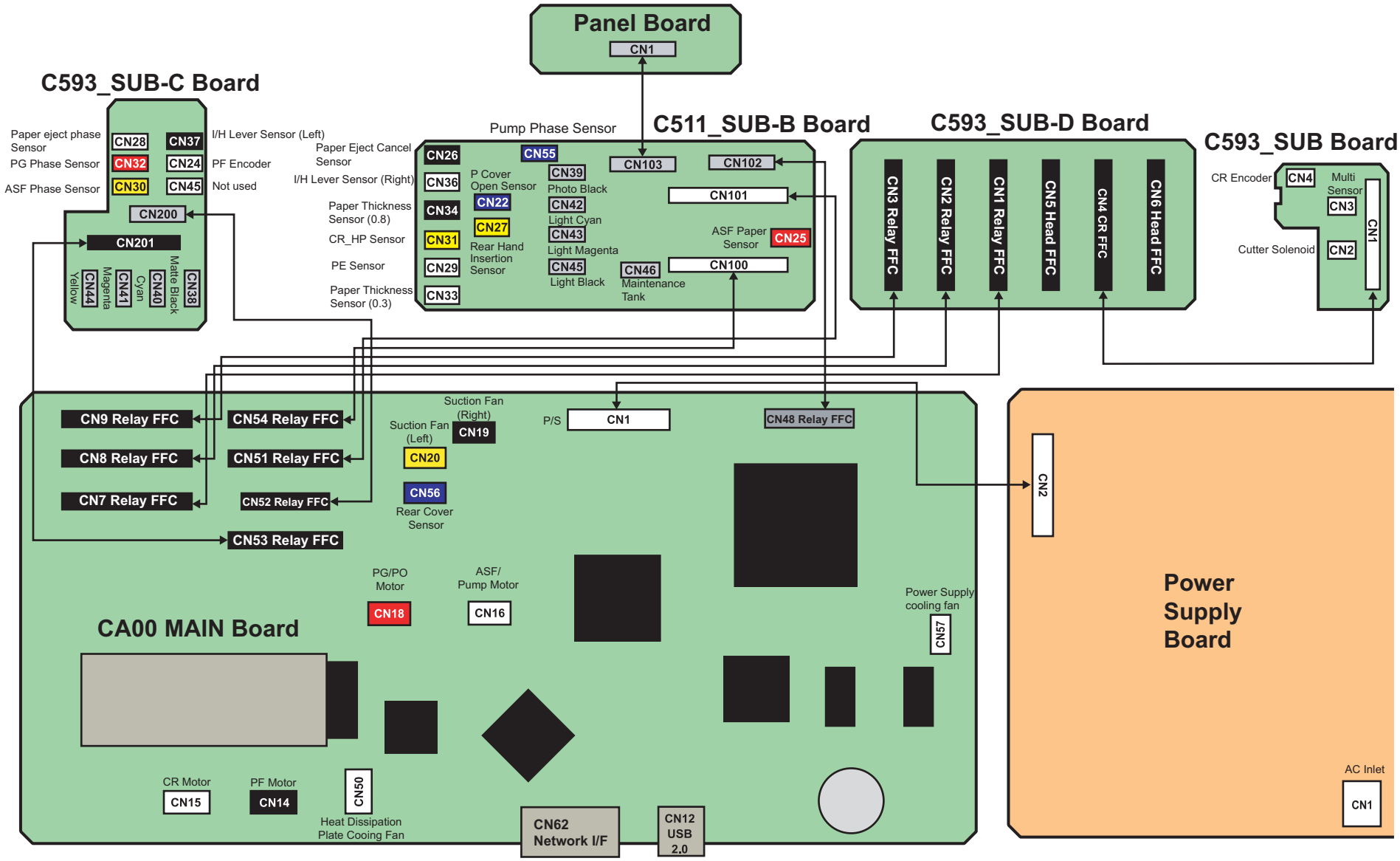
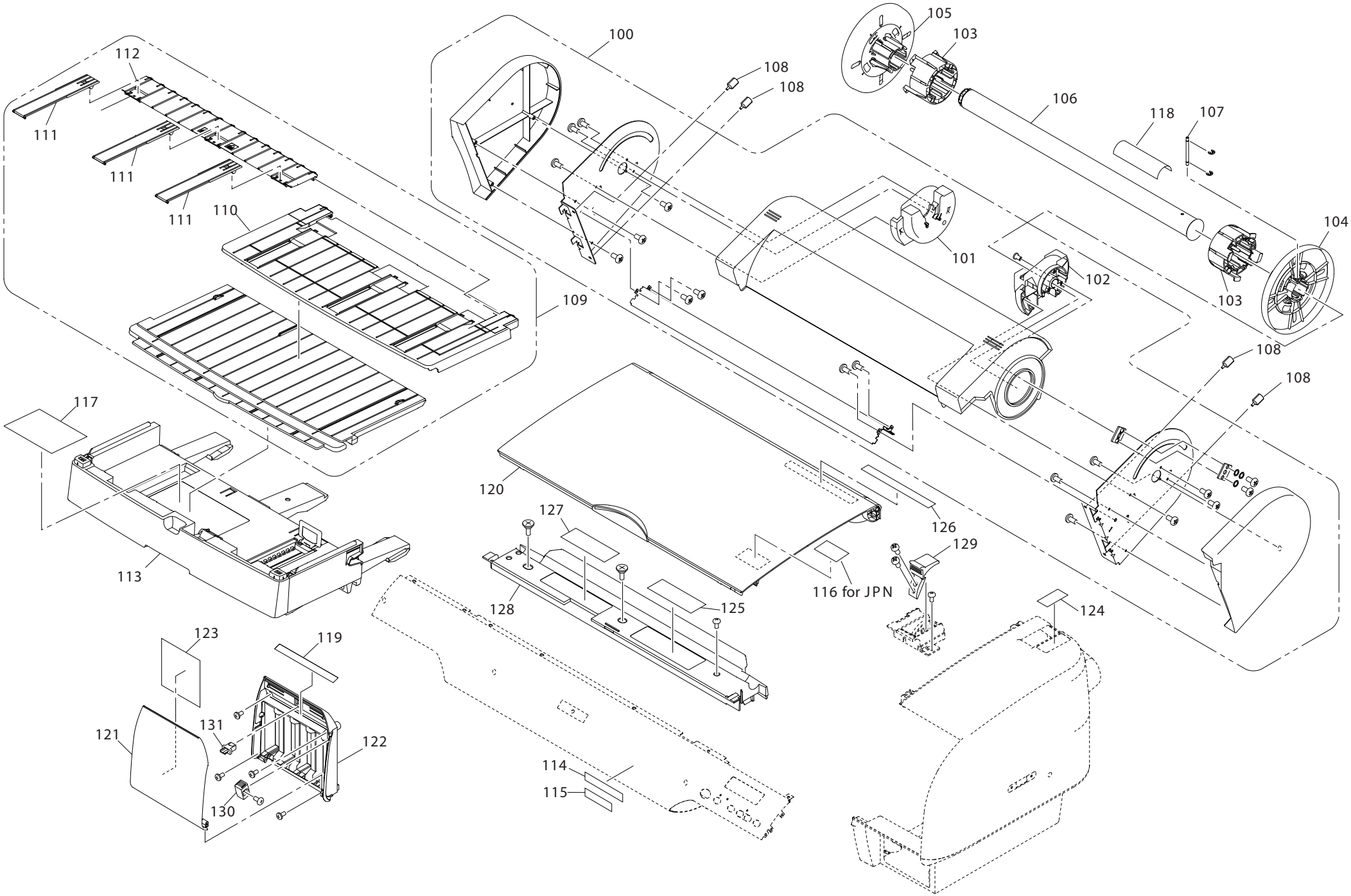


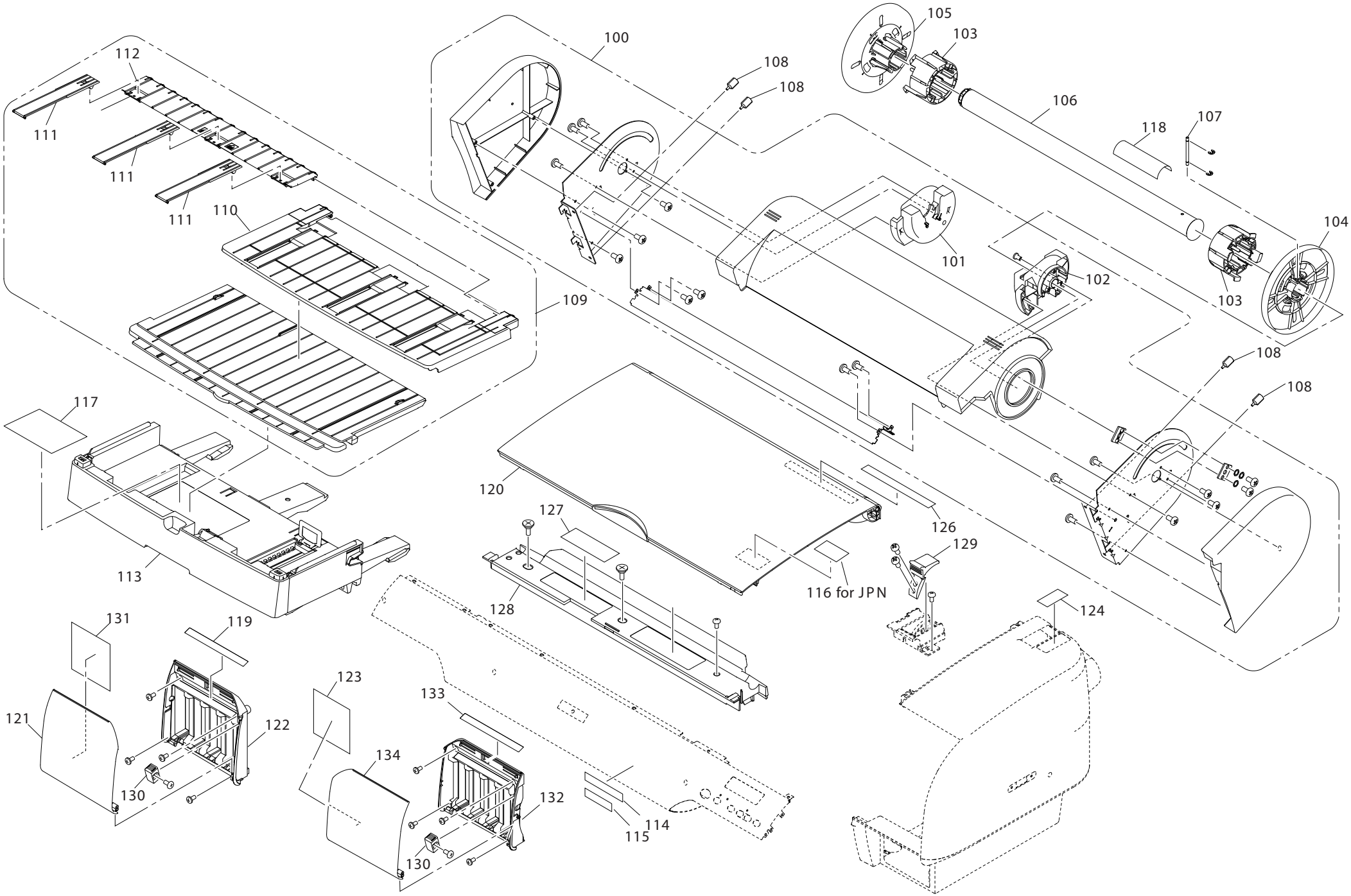
Figure 7-2. Stylus Pro 4450/4880/4880C Connectors

7.2 Exploded Diagrams



PX-6200S / EPSON STYLUS PRO 4400 No.1

Rev.01 C593-CASE-011C4



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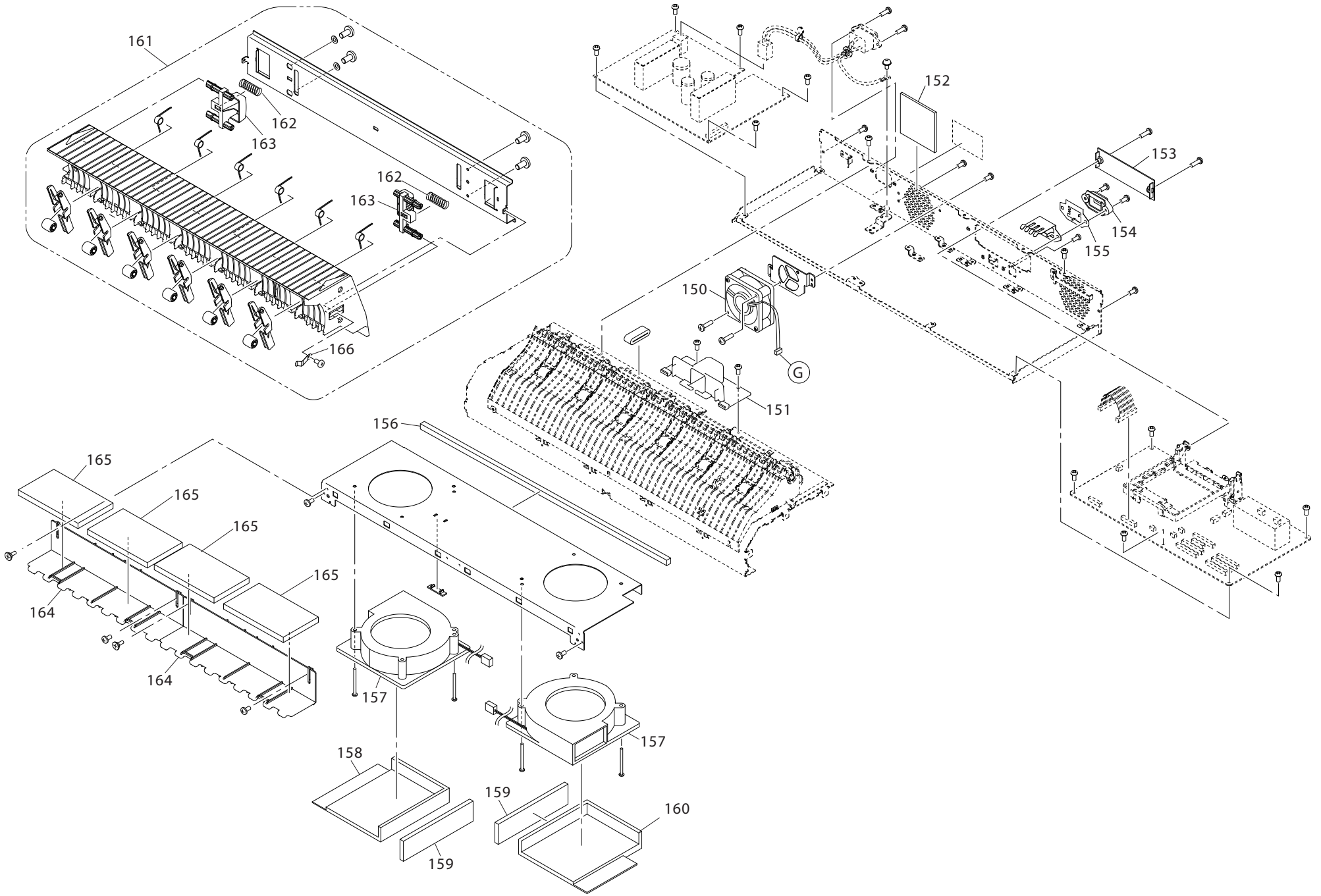

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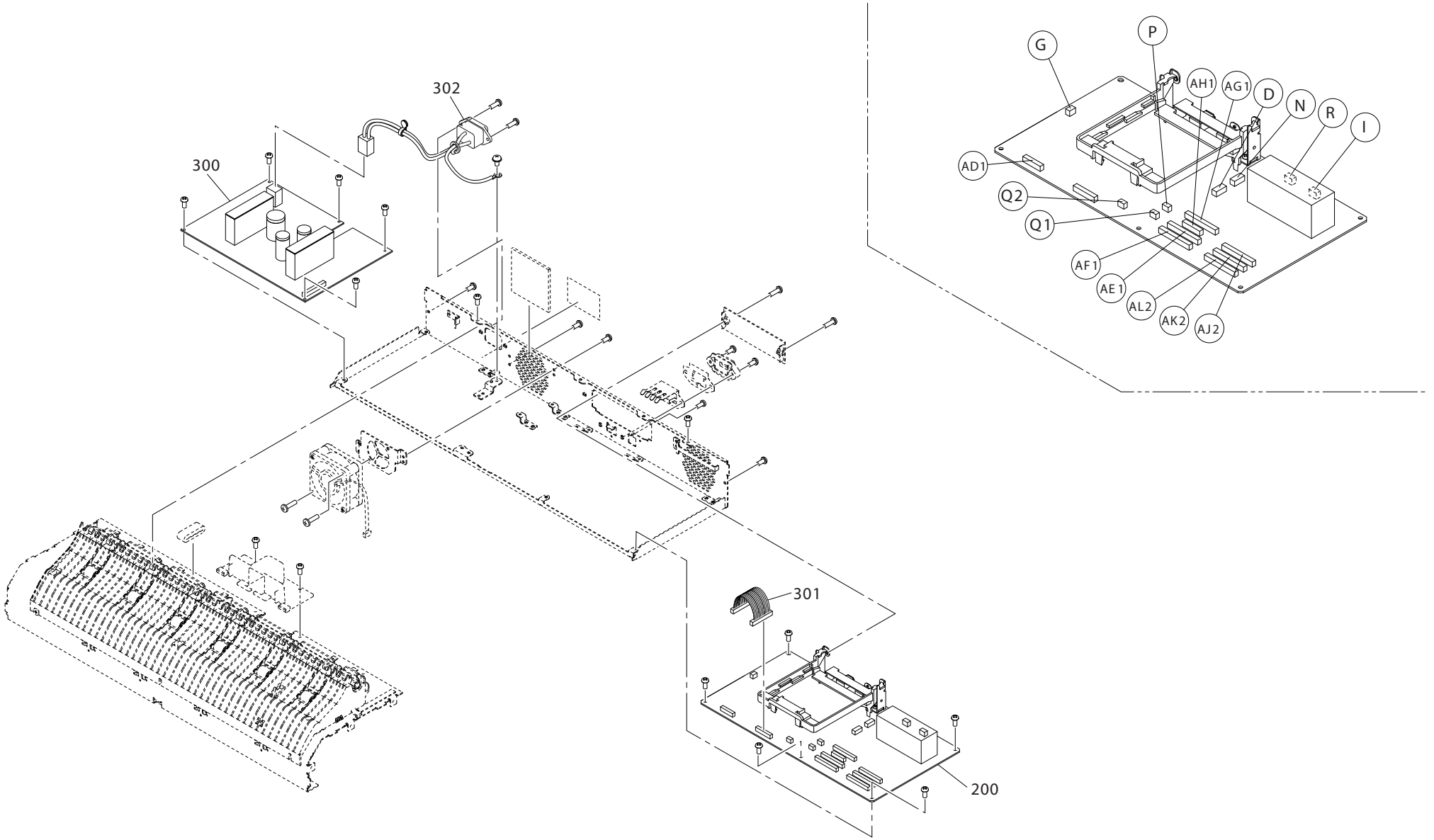
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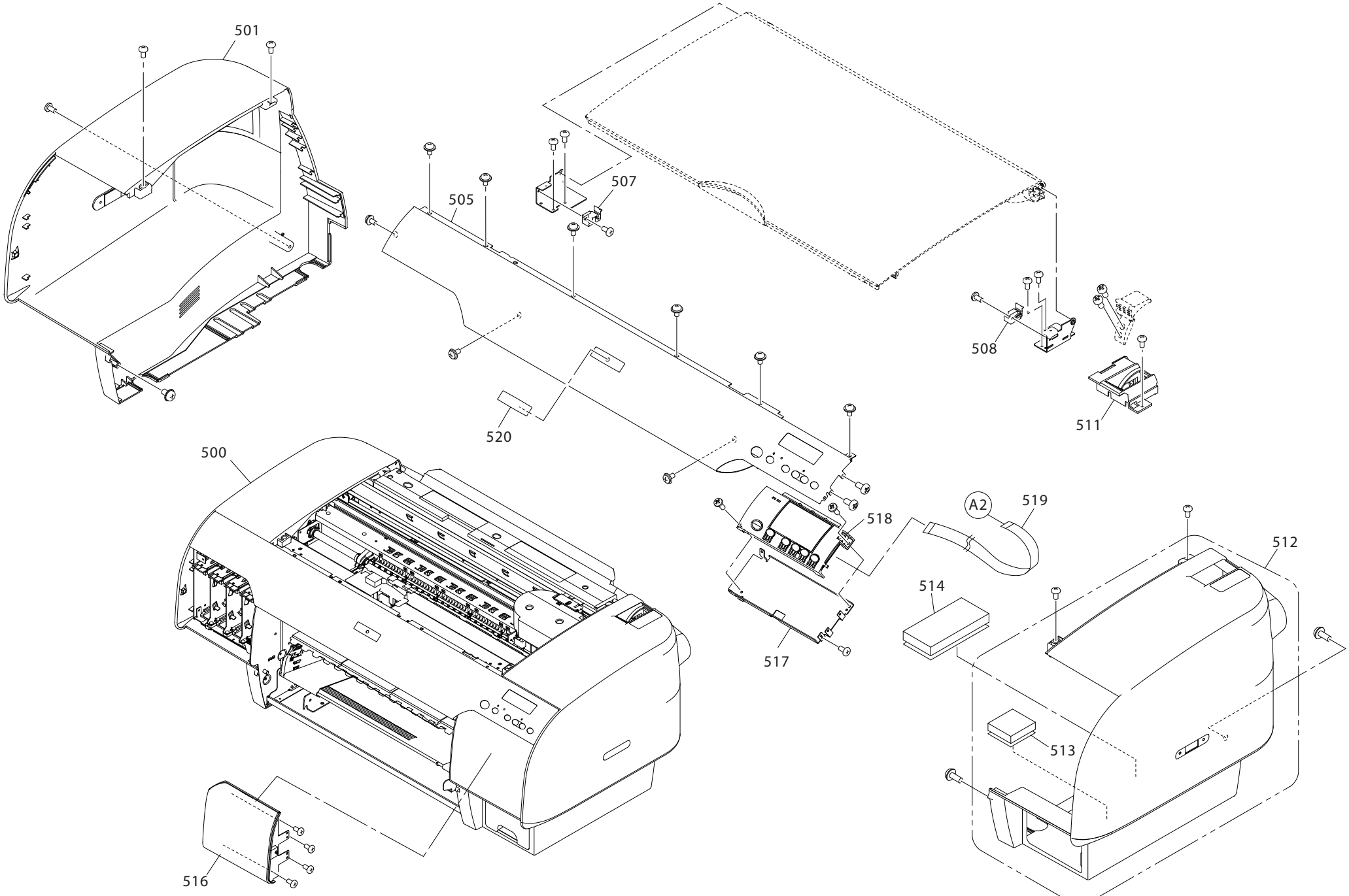

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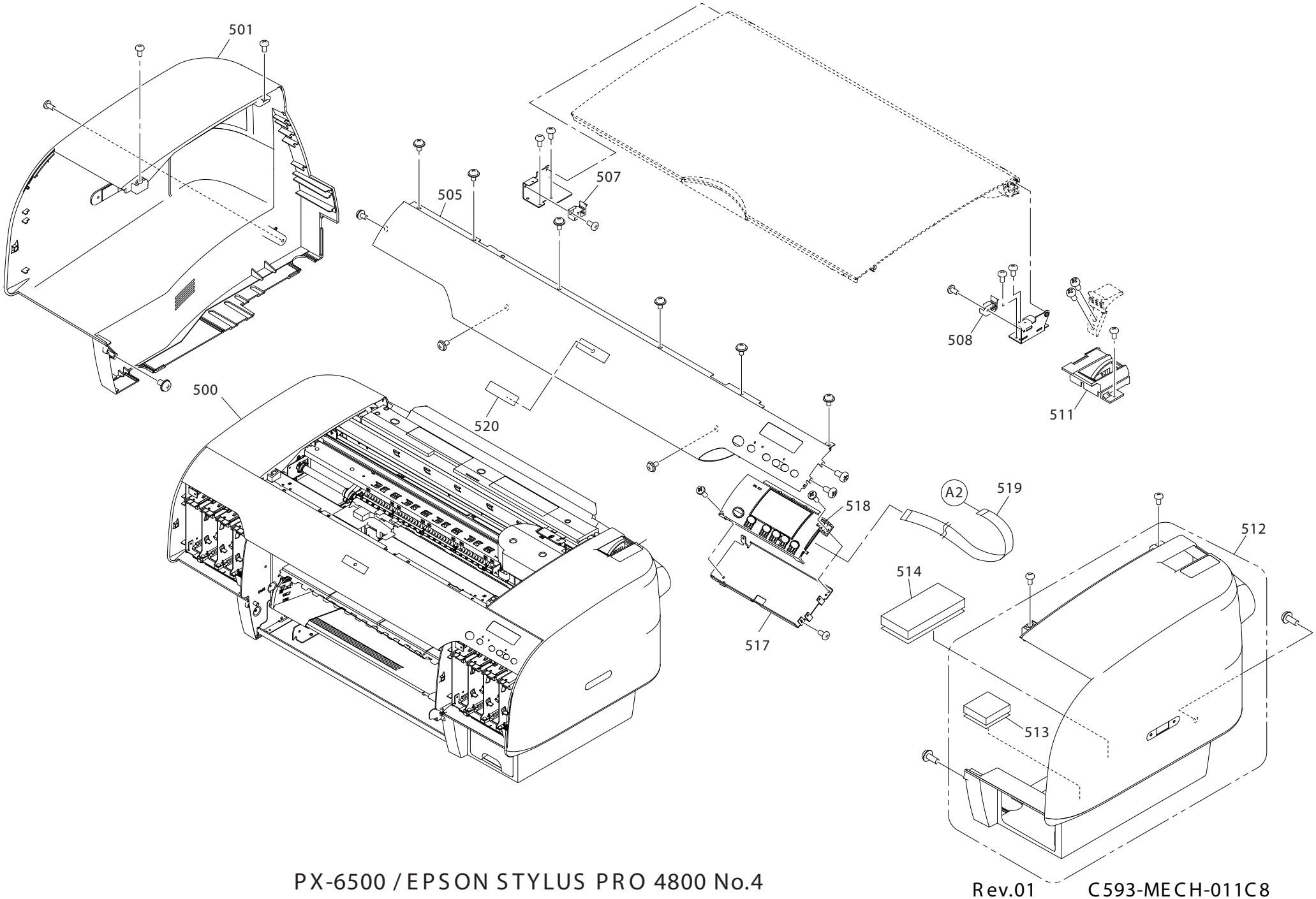

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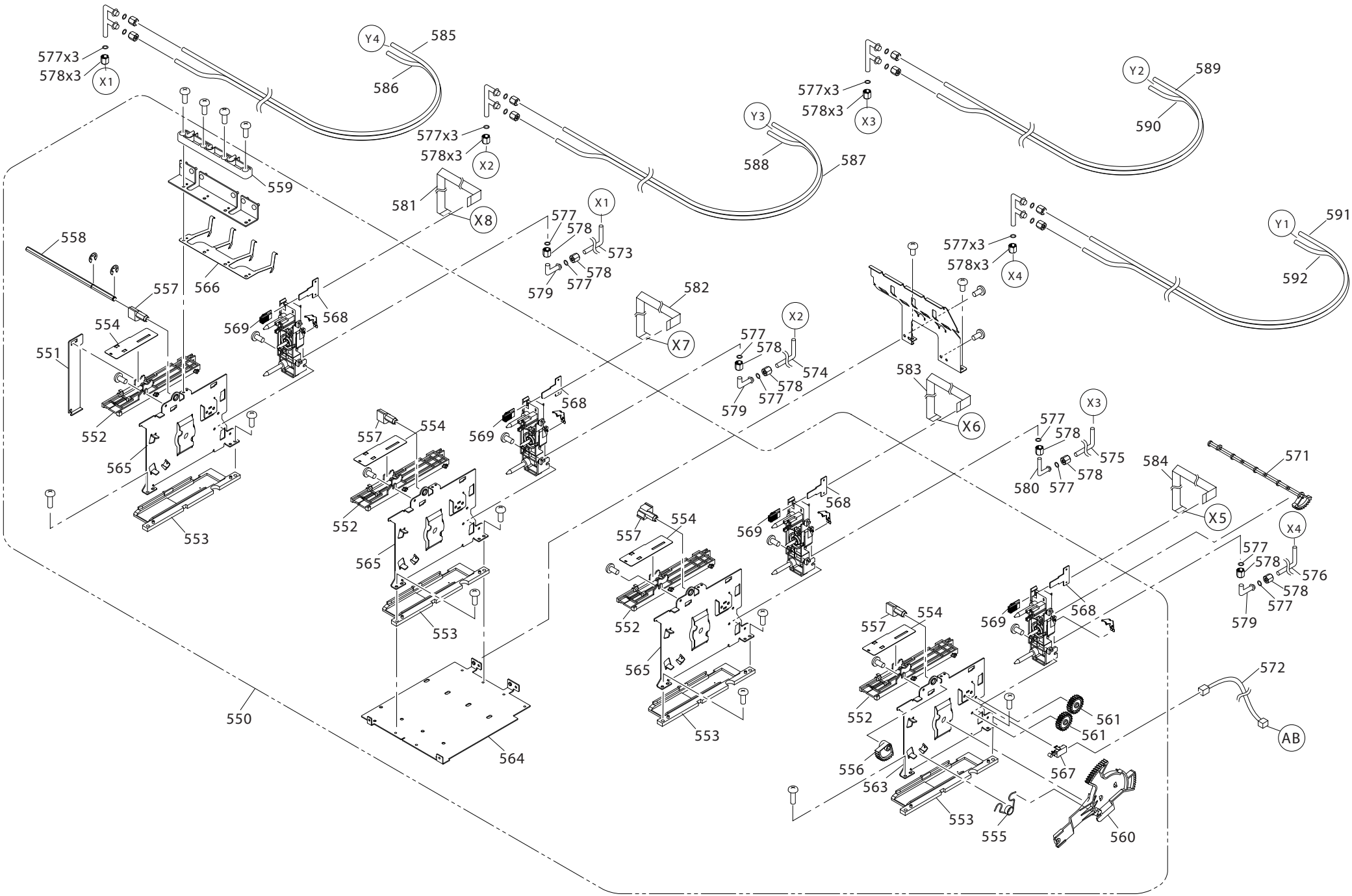

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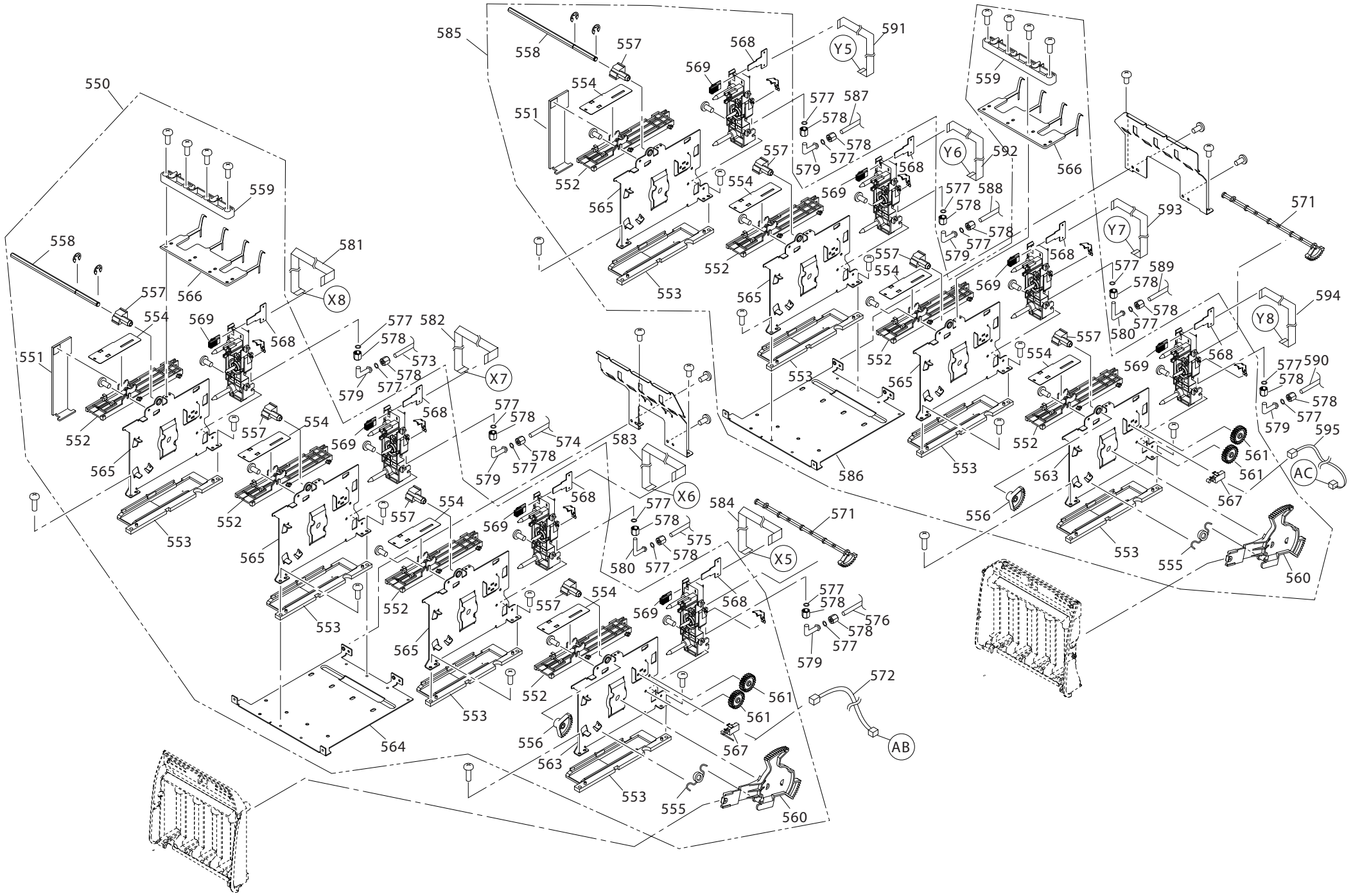

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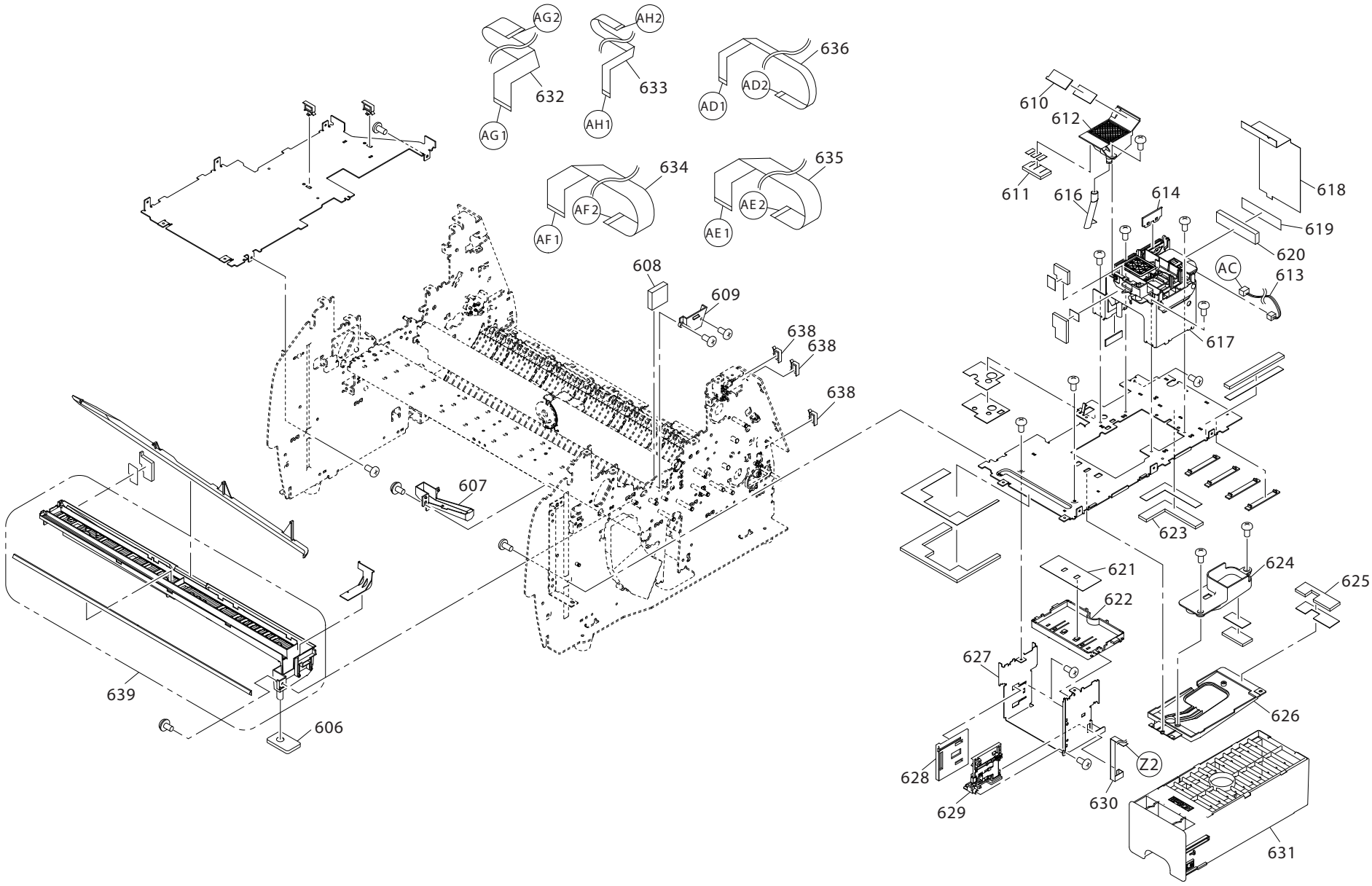
Rev.01

C593-MECH-021C8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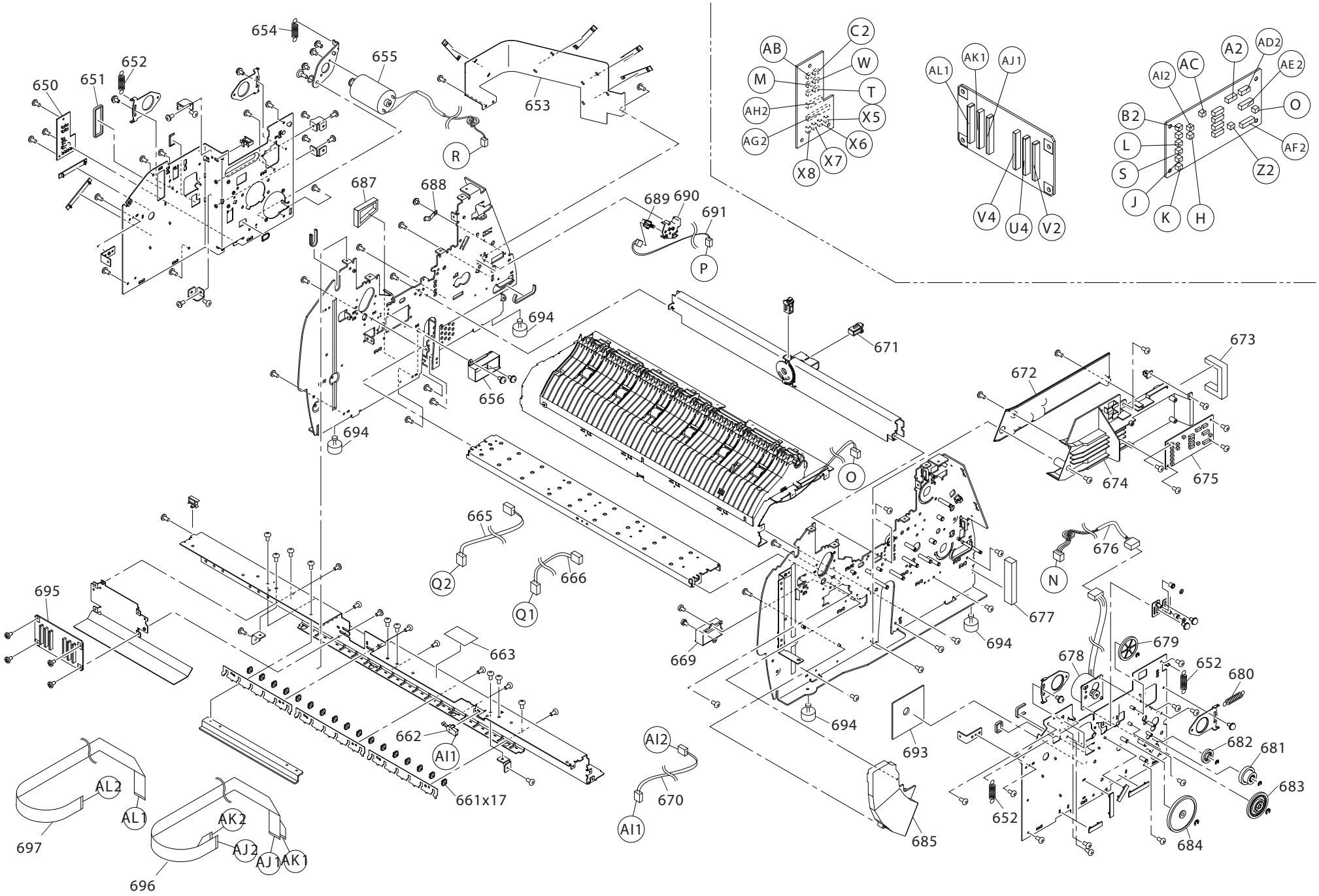

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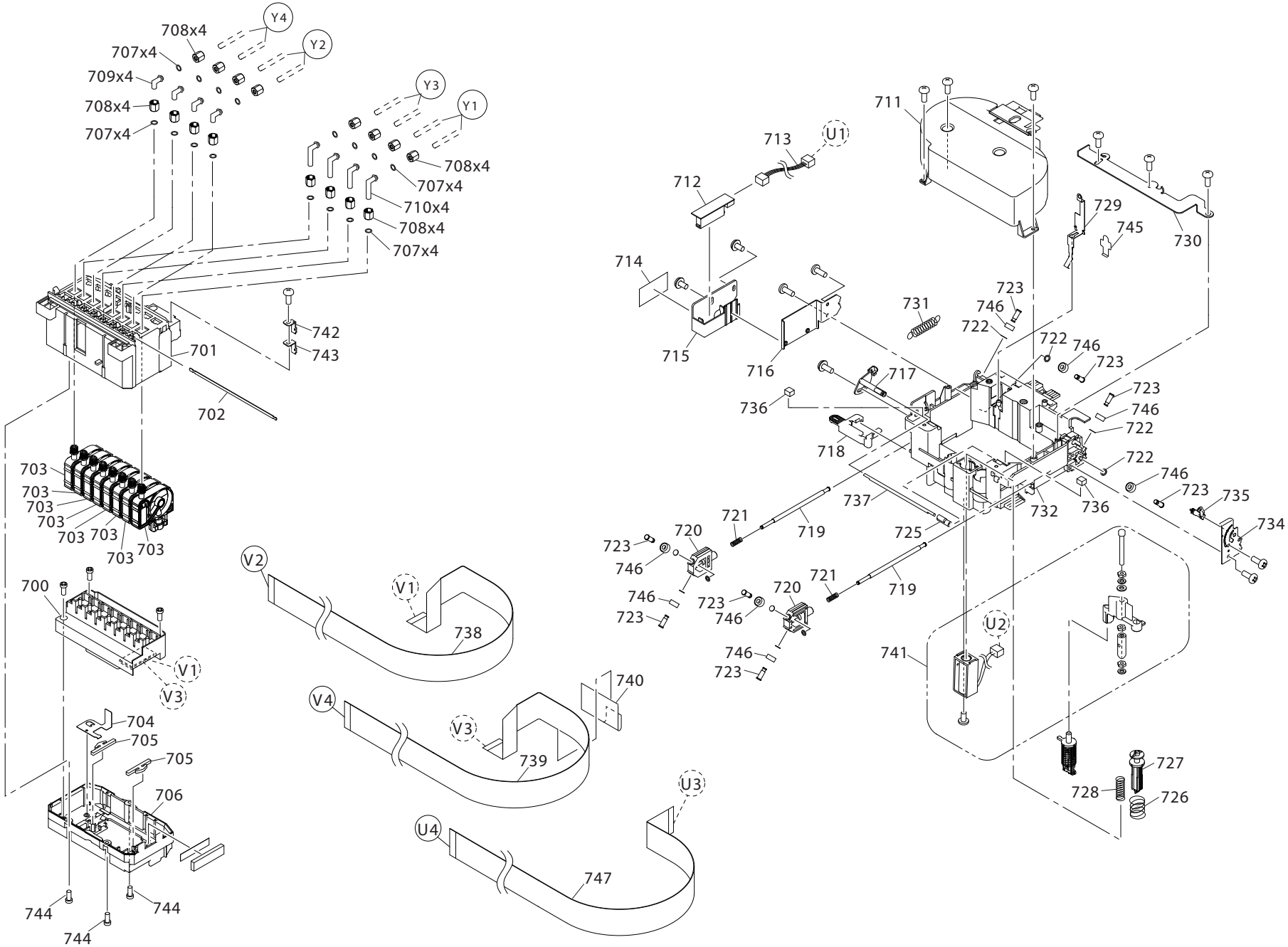
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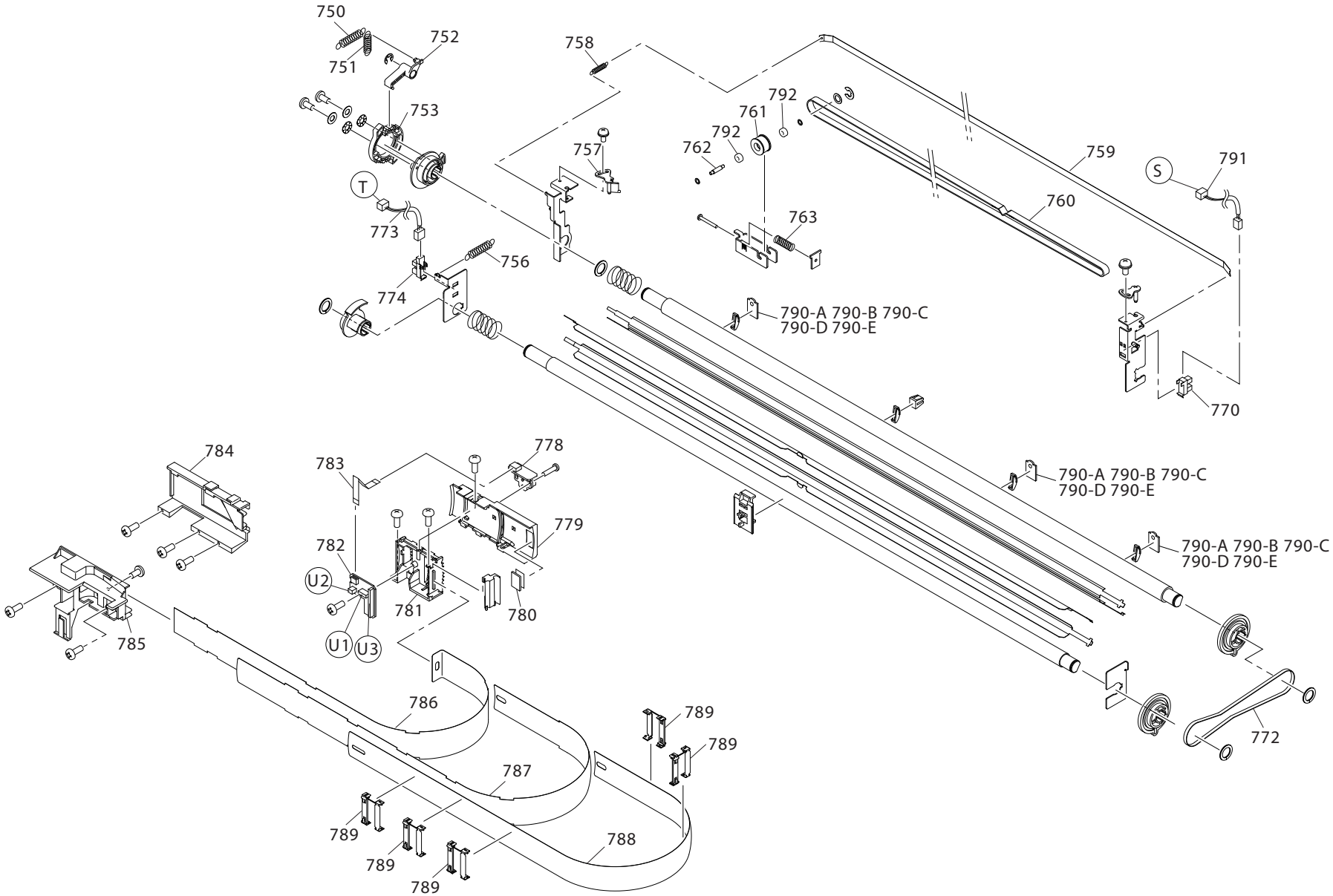

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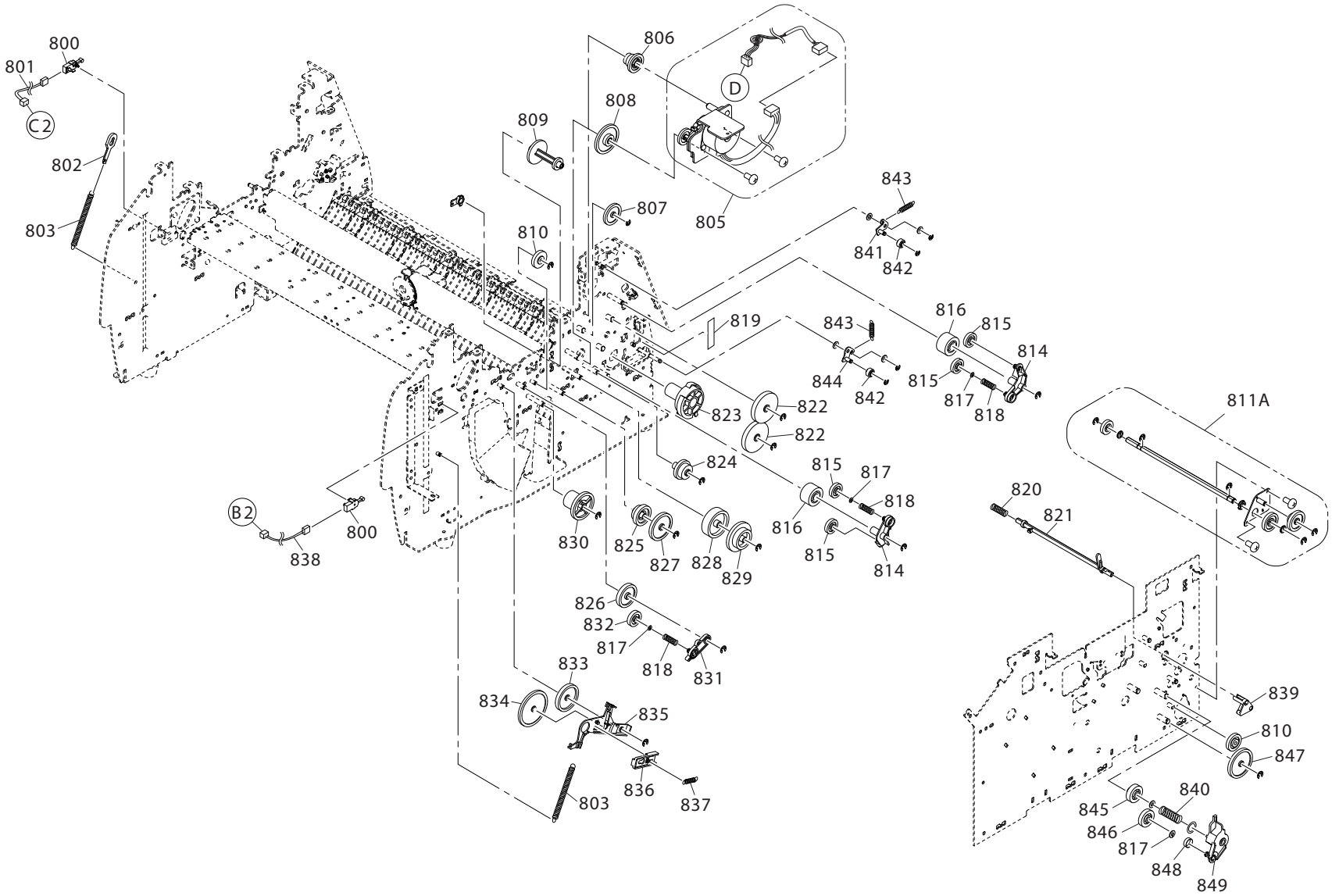
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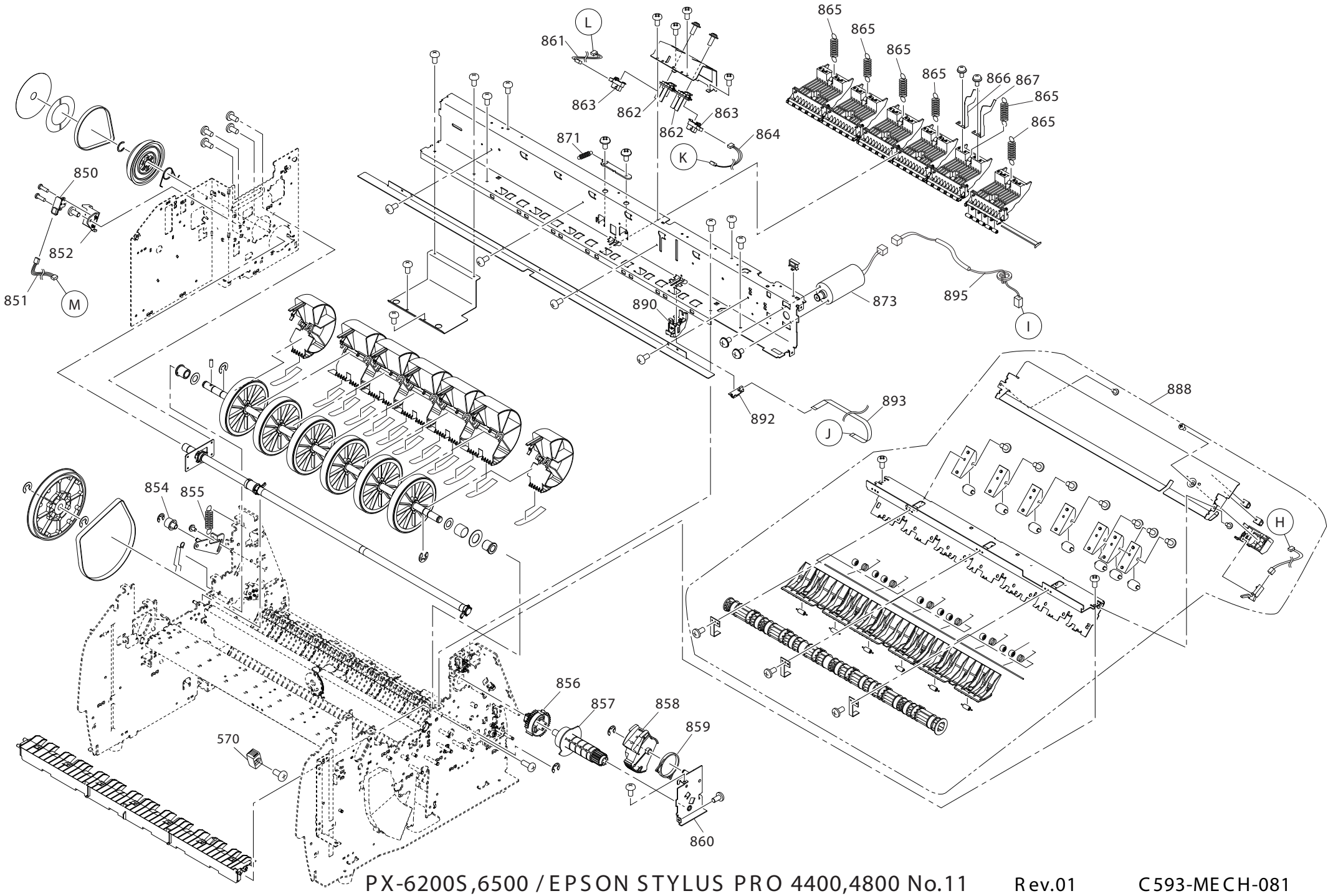
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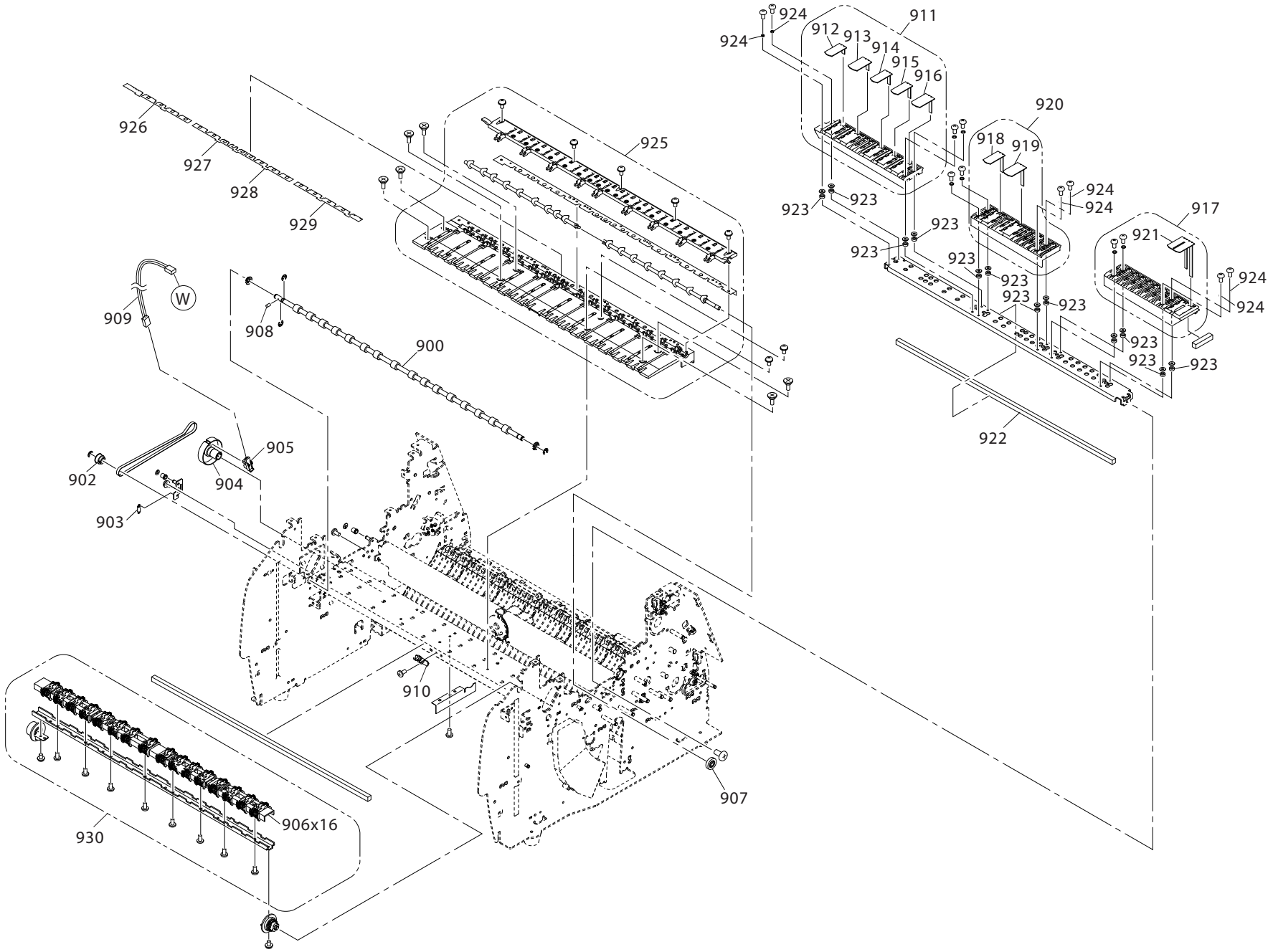
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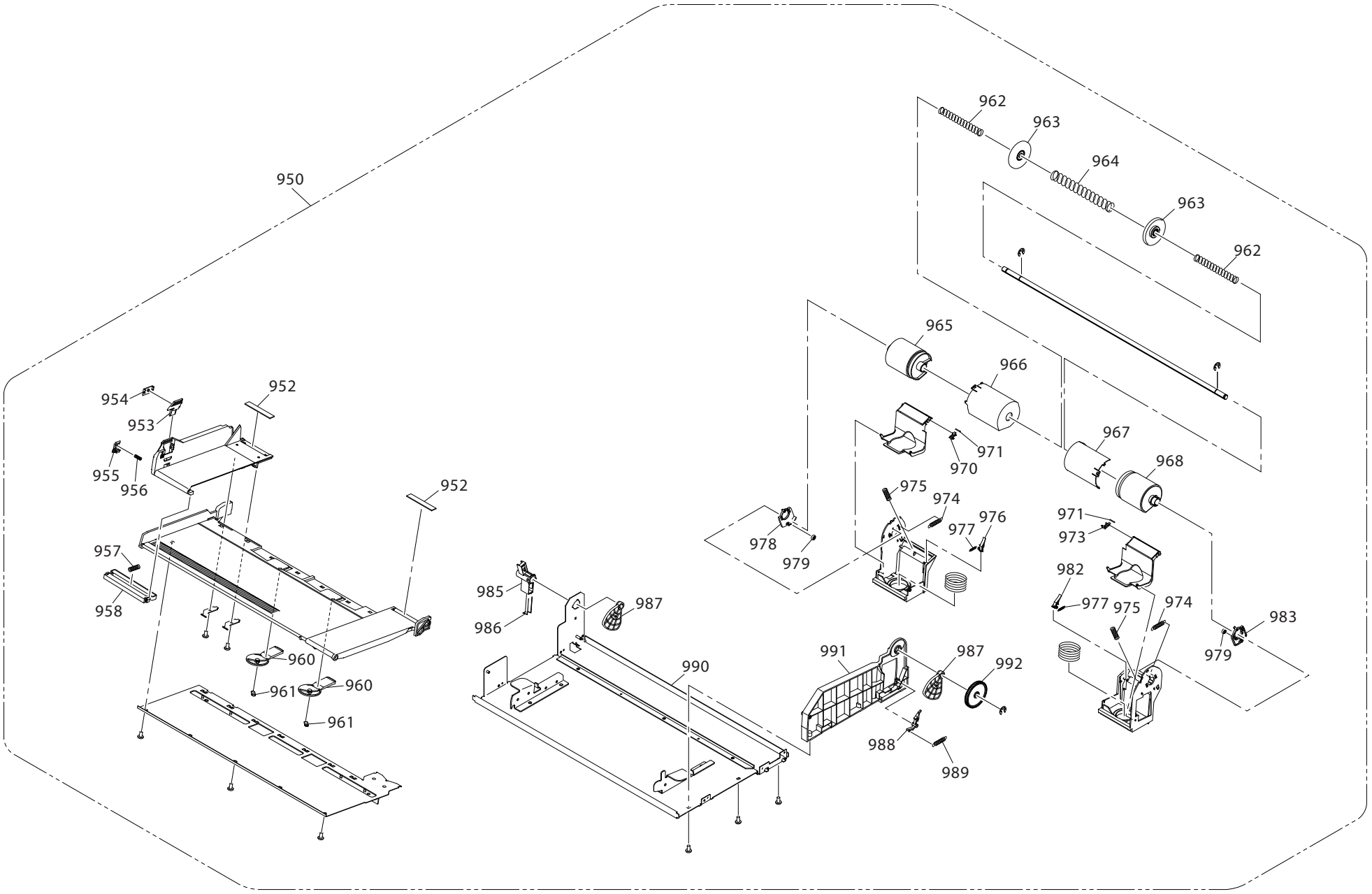
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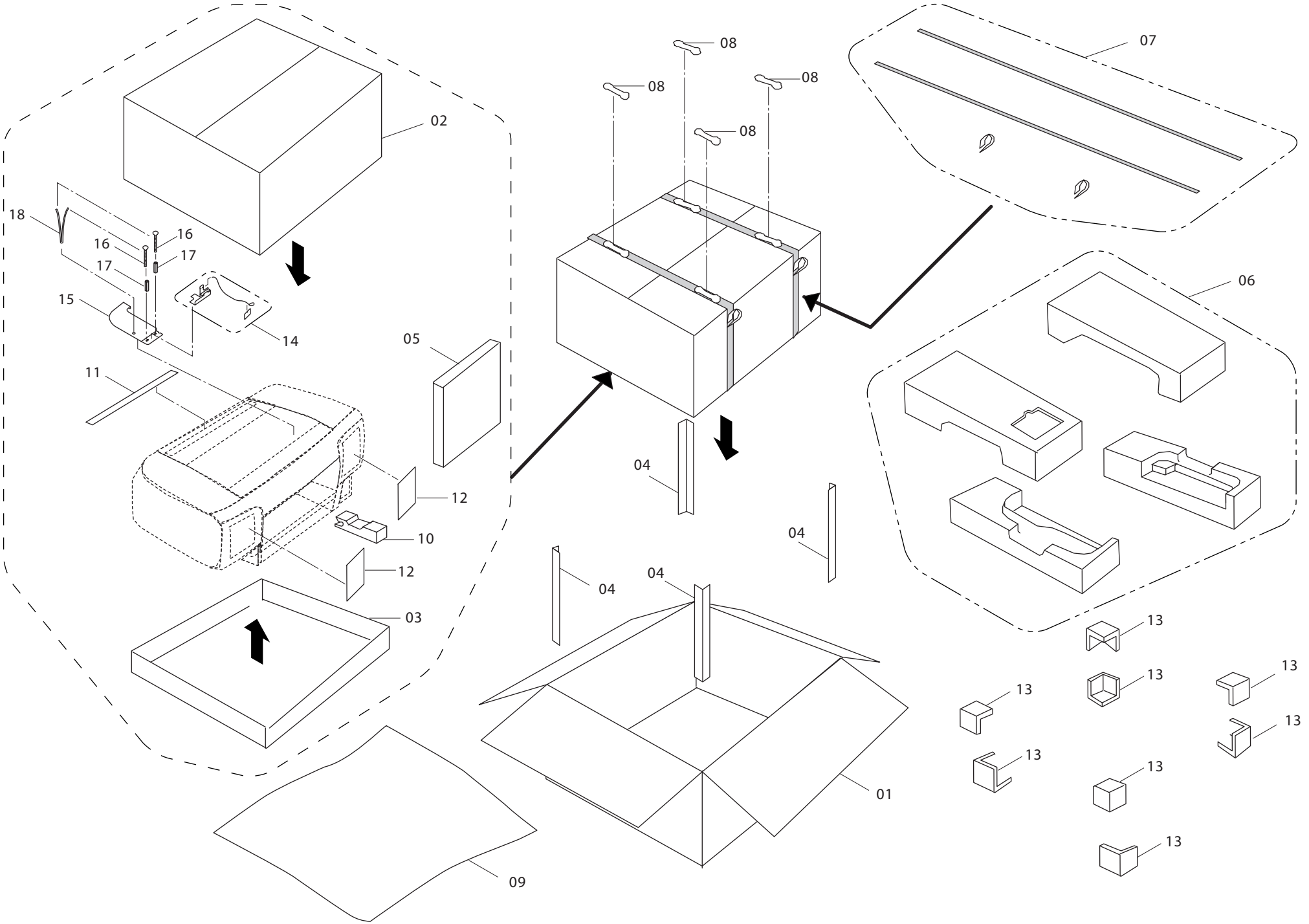

PX-6200S,6500 / EPSON STYLUS PRO 4400,4800 No.14 Rev.01 C593-PACK-11

7.3 Parts List

☐ Stylus Pro 4400

Table 7-9. Stylus Pro 4400

Figure	Part Name
100	“HOLDER,ROLL ASSY.,C593”
101	“HOLDER ASSY.,ROLL,L,SP”
102	“HOLDER ASSY.,ROLL,R,SP”
103	ADAPTER
104	“FLANGE,RIGHT”
105	“FLANGE,LEFT”
106	“SCROLLER,SAB ASSY.”
107	“SHAFT,STOPPER,L”
108	MAKEUP SCREW
109	STACKER ASSEMBLY;C593;B
110	STACKER;C;C593
111	“GUIDE,STACKER;C593”
112	“STACKER,SUPPORT;C593”
113	TRAY ASSEMBLY;C593;B
114	“LABEL,MODEL NAME;B”
115	“LABEL,ULTRA CHROME INK;K3”
117	“LABEL,ASF SET”
118	“LABEL,ROLLPAPER SET,2/3 INCH”
119	“LABEL,INK COLOR,LEFT;B”
121	“COVER,I/H,LEFT,8C”
122	“GUIDE,I/H,LEFT,8C”
123	“LABEL,CHOKE CLEANING”
124	“LABEL,PAPER LEVER SET UP”
126	“LABEL,ROLL PAPER SET;B”
127	“LABEL,PAPER JAMMING REMOVAL”
128	“COVER,REAR;C593”
129	“KNOB,RELEASE,LEVER;C593”
130	“KNOB,I/C,LOCK LEVER;C593”
131	“LABEL,CAUTION,TRANSPORT”
132	“GUIDE,I/H,RIGHT,8C”
133	“LABEL,INK COLOR,RIGHT”
134	“COVER,I/H,RIGHT,8C”

Table 7-9. Stylus Pro 4400

Figure	Part Name
150	“FAN MOTOR,FRAME,SHIELD”
151	“COVER,HARNESS;B”
152	“FILTER,FAN ASSY.”
153	“COVER,CONECTER,UPPER;B”
154	“COVER,I/F”
155	“GROUND PLATE,IF”
156	“PAD,AIR SEAL,D”
157	“FAN,BLOWER,C593”
158	“COVER,FAN,LEFT”
159	“PAD,FAN”
160	“COVER,FAN,RIGHT”
161	“PAPER GUIDE,MIDDLE ASSY.,C593,ESL,ASP”
162	“COMPRESSION SPRING,3.47”
163	“LEVER,LOCK,PAPER GUIDE,MIDDLE;C593”
164	“PAPER GUIDE,PAPER EJECT,STACK”
165	“SHEET,PAPER GUIDE,PAPER EJECT,STACK”
200	“BOARD ASSY.,MAIN”
IC12	FLASH MEMORY
IC15	MICROCONTROLLER
IC2	SDRAM
300	POWER SUPPLY UNIT
301	HARNESS
302	HARNESS
120	“COVER,PRINTER;593”
500	“PRINTER MECHANISM(SP),M-AB61-100”
501	“COVER ASSY.,SIDE,L,SP,C593”
505	“PANEL,FRONT,8C”
507	“STOPPER,COVER PRINTER,LEFT”
508	“STOPPER,COVER PRINTER,RIGHT”
511	“COVER,INSIDE,RELEASE,LEVER;C593”
512	“COVER ASSY.,SIDE,R,SP,C593”
513	“POROUS PAD,HOLDER,INK EJECT”
514	“POROUS PAD,INK EJECT,SUB”
517	“FRAME,PANEL,UNDER,RIGHT”
518	“CONTROL,PANEL”

Table 7-9. Stylus Pro 4400

Figure	Part Name
519	“HARNESS,PANEL”
520	“LOGO PLATE,13X54;G”
550	“FRAME ASSY.,IC,LEFT”
551	“MOUNTING PLATE,HOLDER,IC,L”
552	“FRAME,HOLDER,IC,UPPER”
553	“FRAME,HOLDER,IC,LOWER”
554	“PRESSING PLATE,IC”
555	“TORSION SPRING,158.6”
556	“FAN GEAR,34”
557	“CAM,IC,FIXING”
558	“SHAFT,LOCK,IC”
559	“FRAME,I/S,TOP”
560	“LEVER,IC,OPERATE”
561	“SPUR GEAR,22”
563	“MOUNTING PLATE ASSY.,HOLDER,IC,R”
565	“MOUNTING PLATE,HOLDER,IC,R”
566	“GROUND PLATE,IH”
567	“DETECTOR,LEAF,B2”
568	“BOARD ASSY.,IC”
569	“CONNECTOR,CARTRIDGE,PR”
571	“CAM,VALVE”
572	“HARNESS,I/S,L”
573	“TUBE,SUPPLY,INK,MB”
574	“TUBE,SUPPLY,INK,C”
575	“TUBE,SUPPLY,INK,M”
576	“TUBE,SUPPLY,INK,Y”
577	“ORING,CONECTOR M7”
578	“CONNECTING SCREW,M7”
579	“JOINT,3”
580	“JOINT,3,L”
581	“HARNESS,CSIC,MB”
582	“HARNESS,CSIC,C”
583	“HARNESS,CSIC,M”
584	“HARNESS,CSIC,Y”
585	“HOLDER ASSY.,IC,RIGHT”

Table 7-9. Stylus Pro 4400

Figure	Part Name
586	“MOUNT PLATE,BASE,IH,RIGHT”
587	“TUBE,SUPPLY,INK,LLK”
588	“TUBE,SUPPLY,INK,LC”
589	“TUBE,SUPPLY,INK,LM”
590	“TUBE,SUPPLY,INK,ALK”
591	“HARNESS,CSIC,BK”
592	“HARNESS,CSIC,LC”
593	“HARNESS,CSIC,LM”
594	“HARNESS,CSIC,LK”
595	“HARNESS,I/S,R”
607	“GUTTER ASSY.,INK EJECT”
608	“SPACER,FRAME,PAPER GUIDE,FRONT”
609	INDUCTION DUCT
610	“POROUS PAD,BOX,FL,UPPER”
611	“POROUS PAD,BOX,FL,LOWER”
612	“BOX ASSY.,FLUSHING”
613	“HARNESS,PUMP,PHASE DETECTION”
614	“CLEANER,HEAD,A,ASP”
616	“JOINT,BOX,FLUSHING”
617	PUMP CAP ASSY.
618	“SHEET,INK,STOPPER,C”
619	“TAPE,INK,STOPPER,C”
620	“POROUS PAD,INK,STOPPER,C”
621	“LEAF SPRING,LOCK”
622	“GUIDE RAIL,INK EJECT BOX,UPPER”
623	“POROUS PAD,GUIDE,INK EJECT,B”
624	“GUIDE,INK EJECT,B”
625	“POROUS PAD,GUIDE,INK EJECT,A”
626	“GUIDE,INK EJECT,A”
627	“BRACKET,INK EJECT BOX”
628	“GUIDE RAIL,INK EJEXT BOX,LEFT”
629	“HOLDER ASSY.,BOARD,INK EJECT”
630	“HARNESS,CSIC,MT”
631	“POROUS PAD ASSY.,INK EJECT”
632	“HARNESS,R1,C593”

Table 7-9. Stylus Pro 4400

Figure	Part Name
633	“HARNESS,R2,C593”
634	“HARNESS,L1,C593”
635	“HARNESS,L2,C593”
636	“HARNESS,PANEL,INTERMIT,C593”
638	RECYCL CLAMP
639	“GUTTER,INK ASSY.C593,ESL,ASP”
650	“BOARD ASSY.,SUB”
651	“DUCT,AIR,E”
652	“EXTENSION SPRING,2.55”
653	“GUIDE,FFC”
654	“EXTENSION SPRING,13.05”
655	“MOTOR ASSY.,PF,C593”
656	“DUCT,AIR,D”
661	“ROLLER,PAPER GUIDE”
662	“DETECTOR,LEAF,B2”
663	“LABEL,CUTTER CHANGE”
665	“HARNESS,FAN,A,C593”
666	“HARNESS,FAN,B,C593”
669	“DUCT,AIR,A”
670	“HARNESS,COVER OPEN”
671	“LEVER,ROLLER,SUB”
672	“COVER,DUCT,C”
673	“PAD,DUCT,RIGHT LOWER”
674	“DUCT,AIR,C”
675	“BOARD ASSY.,SUB-B”
678	“MOTOR ASSY.,PG”
679	“SPUR GEAR,36”
680	“EXTENSION SPRING,11.4”
681	“COMBINATION GEAR,13.6,20.8”
682	“SPUR GEAR,16”
683	“COMBINATION GEAR,40,20”
684	“COMBINATION GEAR,56,8.8”
685	“DUCT,AIR,B”
687	“PAD,DUCT,E”
688	“GROUND SPRING,PAPER GUIDE,MIDDLE,LEFT”

Table 7-9. Stylus Pro 4400

Figure	Part Name
689	“DETECTOR,LEAF,B2”
690	“COVER,DETECTOR,PAPER GUIDE,MIDDLE”
691	“HARNESS,DETECTOR,PAPER GUIDE CENTER,C593”
693	“POROUS PAD,FRAME,SUB,RIGHT”
694	“CASE FEET,CP-30-FF-4A,BLACK”
695	“BOARD ASSY.,SUB”
696	“HARNESS,HEAD,INTERMIT,A”
697	“HARNESS,HEAD,INTERMIT,B”
700	PRINT HEAD
701	“CARRIAGE,B;B”
702	“PLATE,DAMPER”
703	“VALVE ASSY.,HEAD;C”
704	“GROUND PLATE,A;B”
705	“POROUS PAD,CR”
706	“CARRIAGE,C,C593”
707	“ORING,CONECTOR M7”
708	“CONNECTING SCREW,M7”
709	“JOINT,3”
710	“JOINT,3,L”
711	“COVER,CR;C593”
712	“BOARD ASSY.,MULTISENSOR”
713	“HARNESS,MULTISENSOR”
714	“LABEL,CUT POSITION”
715	“HOLDER,MULTISENSOR”
716	“PLATE,BEARING,R;B”
717	“CAM,INCLINATION,R”
718	“LEVER,FASTEN,FOR TRANSFER;B”
719	“SHAFT,CONNECTION”
720	“HOLDER,BEARING”
721	“COMPRESSION SPRING,27.8”
722	“POLY SLIDER,STW-FT40,t=0.25”
723	“SHAFT,BEARING”
725	“CAM,INCLINATION,L”
726	“COMPRESSION SPRING,0.191”
727	“SLIDER,CR LOCK”

Table 7-9. Stylus Pro 4400

Figure	Part Name
728	“COMPRESSION SPRING,0.52”
729	“GROUND PLATE,B;B”
730	“LEVER,INCLINATION”
731	“EXTENSION SPRING,3.81”
732	“CARRIAGE,A;B”
734	“PLATE,BEARING,L,C593”
735	“LEVER,CAM,C593”
736	“STOPPER,CARRIAGE”
737	“SHAFT,INCLINATION CAM”
738	“HARNESS,HEAD,A”
739	“HARNESS,HEAD,C”
740	“SHEET,FFC”
741	“SOLENOID ASSY.,CR,C593,ESL,ASP”
742	“ADJUST PLATE,CR,UPPER”
743	“ADJUST PLATE,CR,LOWER”
744	“C.P.P-TITE SCREW,2.6X8,F/ZN-3C”
745	“SPACER,CARREAGE A”
746	BALL BEARING(B210151490)
747	“HARNESS,HEAD,B”
750	“EXTENSION SPRING,11.4”
751	“EXTENSION SPRING,2.55”
752	“LEVER,LOCK,PG”
753	“BUSHING,LOCK;B”
756	“EXTENSION SPRING,2.58”
757	“LEVER,SCALE,CR”
758	“EXTENSION SPRING,3.86”
759	“SCALE,CR”
760	“BELT,CR”
761	“PULLEY,DRIVEN”
762	“SHAFT,PULLEY”
763	“COMPRESSION SPRING,29.4”
770	“DETECTOR,HP;E”
772	“BELT,PG”
773	“HARNESS,DETECTOR,PG”
774	“DETECTOR,HP;E”

Table 7-9. Stylus Pro 4400

Figure	Part Name
778	“BOARD ASSY.,ENCODER”
779	“HOLDER,TUBE,B,C593”
780	“PAD,TUBE”
781	“HOLDER,TUBE,A,C593”
782	“BOARD ASSY.,SUB”
783	“HARNESS,ENCODER”
784	“COVER,TUBE,C593”
785	“GUIDE,TUBE,CR,C593”
786	“SHEET,TUBE”
787	“GUIDE PLATE,TUBE”
788	“SHEET,SUS”
789	“HOLDER,FFC,C593”
790-A	“SPACER,MIDDLE,0.05”
790-B	“SPACER,MIDDLE,0.1”
790-C	“SPACER,MIDDLE,0.2”
790-D	“SPACER,MIDDLE,0.5”
790-E	“SPACER,MIDDLE,0.08”
791	“HARNESS,DETECTOR,HP”
792	BALL BEARING(B210151490)
800	“DETECTOR,LEAF,B2”
801	“HARNESS,PAPER EJECT PHASE,LEFT”
802	“LEVER,CHANGE PAPER EJECT,L”
803	“EXTENSION SPRING,6.99”
805	“MOUNT PLATE,MOTOR,ASF ASSY.,C593”
806	“COMBINATION GEAR,12,22.4”
807	“SPUR GEAR,25.6”
808	“COMBINATION GEAR,12.8,36”
809	“COMBINATION GEAR,13.6,28.8”
810	“SPUR GEAR,20”
811A	“PG TRANSMIT ASSY.,C593”
814	“HOLDER,PLANET,RELEASE;B”
815	“SPUR GEAR,16,RELEASE”
816	“SPUR GEAR,22,RELEASE”
817	“POLY SLIDER,STW-FT70,t=0.25”
818	“COMPRESSION SPRING,0.98”

Table 7-9. Stylus Pro 4400

Figure	Part Name
819	“SHEET,FRAME,RIGHT”
820	“EXTENSION SPRING,2.41”
821	“LEVER,LOCK,DE”
822	“SPUR GEAR,38”
823	“INTERMITTENT GEAR,RELEASE,TRANSMIT”
824	“COMBINATION GEAR,22,16.8”
825	“COMBINATION GEAR,16.74,24”
826	“SPUR GEAR,28”
827	“SPUR GEAR,33.6,B”
828	“SPUR GEAR,33.6”
829	“COMBINATION GEAR,24,36”
830	“COMBINATION GEAR,19.2,33.6”
831	“HOLDER,PLANET,CHANGE PAPER EJECT”
832	“SPUR GEAR,17.6,PLANET”
833	“SPUR GEAR,32.8,A”
834	“SPUR GEAR,44,PAPER EJECT”
835	“LEVER,CHANGE PAPER EJECT,R”
836	“LEVER,LOCK,CHANGE PAPER EJECT,R;B”
837	“EXTENSION SPRING,6.71”
838	“HARNESS,PAPER EJECT PHASE,RIGHT”
839	“LEVER,LOCK,PLANET”
840	“COMBINATION GEAR,36,8.8”
841	“PLATE ASSY.,ROLLER,BRAKE,UPPER”
842	“ROLLER ASSY.,BRAKE”
843	“EXTENSION SPRING,1.38”
844	“PLATE ASSY.,ROLLER,BRAKE,LOWER”
845	“SPUR GEAR,20,PLANET”
846	“SPUR GEAR,16,PLANET”
847	“COMPRESSION SPRING,3.38”
848	“COMPRESSION SPRING,0.78”
849	“HOLDER,PLANET”
850	“BOARD ASSY.,ENCODER”
851	“HARNESS,ENCODER,PF”
852	“HOLDER,SENSOR”
854	“PULLEY,BELT TENSION”

Table 7-9. Stylus Pro 4400

Figure	Part Name
855	“EXTENSION SPRING,15.98”
856	“INTERMITTENT GEAR,40”
857	“SPUR GEAR,18”
858	“LEVER,RELEASE,ROLLER,DRIVEN”
859	“TORSION SPRING,615”
860	“FRAME ASSY.,LEVER,RELEASE”
861	“HARNESS,PAPER THICKNESS,1”
862	“HOLDER,DETECTOR,PAPER THICKNESS”
863	“DETECTOR,HP;E”
864	“HARNESS,PAPER THICKNESS,2”
865	“EXTENSION SPRING,8.08”
866	“LEVER,DETECTOR,PAPER THICKNESS,A”
867	“LEVER,DETECTOR,PAPER THICKNESS,B”
870	“RELEASE ASSY.,C593,ESL,ASP”
871	“EXTENSION SPRING,0.22”
873	“MOTOR ASSY.,CR”
876	“SHAFT,RELEASE,ROLLER,DRIVEN”
888	“RELEASE ASSY.,C593”
890	“HOLDER,DETECTOR,PE”
892	“BOARD ASSY.,PW”
893	“HARNESS,DETECTOR,PE”
895	“HARNESS,MOTOR,CR”
900	“ROLLER ASSY.,PAPER EJECT”
902	“PULLEY,PAPER EJECT ROLLER”
903	“EXTENSION SPRING,0.871”
904	“WHEEL,DETECTION”
907	“SPUR GEAR,15.2”
908	“SCALLOP SPRING PIN-AW,2X10,F/B”
909	“HARNESS,LOAD PHASE”
910	“HOLDER,PAPER EJECT ROLLER”
911	“PAPER GUIDE,FRONT,LEFT,ASSY.ESL,ASP”
912	“POROUS PAD,PAPER GUIDE,FRONT,I”
913	“POROUS PAD,PAPER GUIDE,FRONT,H”
914	“POROUS PAD,PAPER GUIDE,FRONT,G”
915	“POROUS PAD,PAPER GUIDE,FRONT,F”

Table 7-9. Stylus Pro 4400

Figure	Part Name
916	“POROUS PAD,PAPER GUIDE,FRONT,E”
917	“PAPER GUIDE,FRONT,RIGHT,ASSY.ESL,ASP”
918	“POROUS PAD,PAPER GUIDE,FRONT,C”
919	“POROUS PAD,PAPER GUIDE,FRONT,B”
920	“PAPER GUIDE,FRONT,MIDDLE,ASSY.ESL,ASP”
921	“POROUS PAD,PAPER GUIDE,FRONT,D”
922	“PAD,AIRSEAL,E”
923	“BUSHING,SPACER,PLATEN”
924	“SPACER,PAPER EJECT”
925	“PAPER GUIDE,REAR ASSY.,C593”
926	“SPACER,PLATE,CUTTER,D”
927	“SPACER,PLATE,CUTTER,C”
928	“SPACER,PLATE,CUTTER,B”
929	“SPACER,PLATE,CUTTER,A”
930	“STAR WHEEL ASSY.,C593,ESL,ASP”
905	“DETECTOR,HP;E”
950	“ASF UNIT,C593”
952	“CORK,PAPER FEED”
953	“LEVER,LOCK,EDGE GUIDE”
954	“COVER,EDGE GUIDE;C593”
955	“LEVER,EDGE GUIDE;C593”
956	“COMPRESSION SPRING,0.46”
957	“COMPRESSION SPRING,3.23”
958	“SLIDER,EDGE GUIDE”
960	“GUIDE,LOWER;C593”
961	“EXTENSION SPRING,1.11”
962	“COMPRESSION SPRING,0.40”
963	“ROLLER,SUB,LD,MIDDLE”
964	“COMPRESSION SPRING,0.407”
965	“ROLLER ASSY.,LD,LEFT”
966	“COVER,ROLLER,LD,LEFT”
967	“COVER,ROLLER,LD,RIGHT”
968	“ROLLER ASSY.,LD,RIGHT”
970	“LEVER,PAD,RELEASE,LEFT”
971	“ROD SPRING,HOLDER,PAD”

Table 7-9. Stylus Pro 4400

Figure	Part Name
973	“LEVER,PAD,RELEASE,RIGHT”
974	“EXTENSION SPRING,0.62”
975	“COMPRESSION SPRING,1.47”
976	“LEVER,PAPER RETURN,LEFT”
977	“EXTENSION SPRING,0.294”
978	“HOLDER,ROLLER,LD,SUPPORT,LEFT”
979	“ROLLER,LD,SUPPORT”
982	“LEVER,PAPER RETURN,RIGHT”
983	“HOLDER,ROLLER,LD,SUPPORT,RIGHT”
985	“BUSHING,LOCK,11.4”
986	“GROUND SPRING,ASF”
987	“LEVER,HOPPER,RELEASE”
988	“LEVER,LOCK,EDGE GUIDE”
989	“EXTENSION SPRING,0.33”
990	“FRAME ASSY.,ASF,LOWER”
991	“FRAME,ASF,RIGHT;C593”
992	“GEAR,44.74”
1	“OUTER CARTON BOX,SP”
2	“INDIVIDUAL CARTON BOX,UPPER,SP”
3	“INDIVIDUAL CARTON BOX,BOTTOM,SP”
4	“SUPPORT POST,ANGLE,SP”
5	“SUPPORT POST,FRONT,SP”
6	“PAD,SET,SP”
8	“HANDLE,SP”
9	“PE SHEET,2200X2500X0.4T”
10	“PAD,TRAY”
11	“PAD,COVER REAR”
12	“PAPER,PROTECT IH”
13	“PAD,CORNER,SP”
14	“PAD,FIXED PLATE,CR,SET”
15	“FIXED PLATE ASSY.,CR”
16	“PINCH SCREW,4X25,F/ZN-3C”
17	“SPACER,PINCH SCREW”
18	“COLOR TIE,230”
NON FIG	GREASE G-26 (40GR)(B702600001)

Table 7-9. Stylus Pro 4400

Figure	Part Name
NON FIG	CODE TYPE MICROPHONE(U-505)
NON FIG	MULTI SENSOR POSITION TOOL
NON FIG	PAPER THICKNESS POSITION TOOL
NON FIG	CR LOCK TOOL
NON FIG	Banding Standard Sample
NON FIG	HEAD EXCHANGE SUPPORT TOOL
NON FIG	CR SHAFT PARALLELISM PRSS TOOL
NON FIG	CR SUS PLATE SUPPORT TOOL
NON FIG	FFC CHECKING TOOL
NON FIG	P-COVER OPEN SENSOR CLOSE TOOL
NON FIG	THICKNESS GAUGE T=0.75
NON FIG	THICKNESS GAUGE T=0.65
NON FIG	KEEP STAND CR SHAFT HEIGHT TOOL
NON FIG	PG BELT TENSION SUPPORT TOOL
NON FIG	PG GUAR POSITION ADJ.TOOL
NON FIG	PG BELT TENSION WEIGHT
NON FIG	CR SHAFT PARALLELISM ADG.TOOL
NON FIG	CR SHAFT PASS/UN-PASS TOOL
NON FIG	CR SHAFT PARALLELISM WEIGHT
NON FIG	CUTTER HEIGHT ADJUSTMENT TOOL
NON FIG	CUTTER PRESS DOWN TOOL
NON FIG	PLATEN HEIGHT ADGUSTMENT TOOL
NON FIG	CR SHAFT HEIGHT ADGUSTMENT TOOL
NON FIG	CR SHAFT HEIGHT CHECK TOOL
NON FIG	PF ROLLER HEIGHT ADJ.TOOL
NON FIG	PLATEN RUBBER SETTING TOOL
NON FIG	ALLEN WRENCH(3mm)
NON FIG	CR ASSY HOLD TOOL
NON FIG	CUTTER CAP
NON FIG	PRESS TOOL FOR CUTTER PLATE
NON FIG	ASF EXCHANGE SUPPORT TOOL
NON FIG	BOXWRENCH(SPECIAL PROCESSING)
NON FIG	CUTTER PLATE DITCH POSITION TOOL
NON FIG	KEEP STAND FOR CUTTER PLATE&PLATEN
NON FIG	CALIBRATE BLOCK&TOOL STAND

Table 7-9. Stylus Pro 4400

Figure	Part Name
NON FIG	TENSION GAUGE(5N;STD)
NON FIG	TENSION GAUGE(10N)
NON FIG	THICKNESS GAUGE t=0.1mm
NON FIG	TORQUE SCREWDRIVER(4~12KG)
NON FIG	GREASE G74

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Table 7-10. Stylus Pro 4800

Figure	Part Name
100	“HOLDER,ROLL ASSY.,C593”
101	“HOLDER ASSY.,ROLL,L,SP”
102	“HOLDER ASSY.,ROLL,R,SP”
103	ADAPTER
104	“FLANGE,RIGHT”
105	“FLANGE,LEFT”
106	“SCROLLER,SAB ASSY.”
107	“SHAFT,STOPPER,L”
108	MAKEUP SCREW
109	STACKER ASSEMBLY;C593;B
110	STACKER;C;C593
111	“GUIDE,STACKER;C593”
112	“STACKER,SUPPORT;C593”
113	TRAY ASSEMBLY;C593;B
114	“LABEL,MODEL NAME;B”
115	“LABEL,ULTRA CHROME INK;K3”
117	“LABEL,ASF SET”
118	“LABEL,ROLLPAPER SET,2/3 INCH”
119	“LABEL,INK COLOR,LEFT;B”
121	“COVER,I/H,LEFT,8C”
122	“GUIDE,I/H,LEFT,8C”
123	“LABEL,CHOKE CLEANING”
124	“LABEL,PAPER LEVER SET UP”
126	“LABEL,ROLL PAPER SET;B”
127	“LABEL,PAPER JAMMING REMOVAL”
128	“COVER,REAR;C593”
129	“KNOB,RELEASE,LEVER;C593”
130	“KNOB,I/C,LOCK LEVER;C593”
131	“LABEL,CAUTION,TRANSPORT”
132	“GUIDE,I/H,RIGHT,8C”
133	“LABEL,INK COLOR,RIGHT”
134	“COVER,I/H,RIGHT,8C”
150	“FAN MOTOR,FRAME,SHIELD”
151	“COVER,HARNESS;B”

Table 7-10. Stylus Pro 4800

Figure	Part Name
152	“FILTER,FAN ASSY.”
153	“COVER,CONECTER,UPPER;B”
154	“COVER,I/F”
155	“GROUND PLATE,IF”
156	“PAD,AIR SEAL,D”
157	“FAN,BLOWER,C593”
158	“COVER,FAN,LEFT”
159	“PAD,FAN”
160	“COVER,FAN,RIGHT”
161	“PAPER GUIDE,MIDDLE ASSY.,C593,ESL,ASP”
162	“COMPRESSION SPRING,3.47”
163	“LEVER,LOCK,PAPER GUIDE,MIDDLE;C593”
164	“PAPER GUIDE,PAPER EJECT,STACK”
165	“SHEET,PAPER GUIDE,PAPER EJECT,STACK”
200	“BOARD ASSY.,MAIN”
IC12	FLASH MEMORY
IC15	MICROCONTROLLER
IC2	SDRAM
300	POWER SUPPLY UNIT
301	HARNESS
302	HARNESS
120	“COVER,PRINTER;593”
500	“PRINTER MECHANISM(SP),M-AB61-100”
501	“COVER ASSY.,SIDE,L,SP,C593”
505	“PANEL,FRONT,8C”
507	“STOPPER,COVER PRINTER,LEFT”
508	“STOPPER,COVER PRINTER,RIGHT”
511	“COVER,INSIDE,RELEASE,LEVER;C593”
512	“COVER ASSY.,SIDE,R,SP,C593”
513	“POROUS PAD,HOLDER,INK EJECT”
514	“POROUS PAD,INK EJECT,SUB”
517	“FRAME,PANEL,UNDER,RIGHT”
518	“CONTROL,PANEL”
519	“HARNESS,PANEL”
520	“LOGO PLATE,13X54;G”

Table 7-10. Stylus Pro 4800

Figure	Part Name
550	“FRAME ASSY.,IC,LEFT”
551	“MOUNTING PLATE,HOLDER,IC,L”
552	“FRAME,HOLDER,IC,UPPER”
553	“FRAME,HOLDER,IC,LOWER”
554	“PRESSING PLATE,IC”
555	“TORSION SPRING,158.6”
556	“FAN GEAR,34”
557	“CAM,IC,FIXING”
558	“SHAFT,LOCK,IC”
559	“FRAME,I/S,TOP”
560	“LEVER,IC,OPERATE”
561	“SPUR GEAR,22”
563	“MOUNTING PLATE ASSY.,HOLDER,IC,R”
565	“MOUNTING PLATE,HOLDER,IC,R”
566	“GROUND PLATE,IH”
567	“DETECTOR,LEAF,B2”
568	“BOARD ASSY.,IC”
569	“CONNECTOR,CARTRIDGE,PR”
571	“CAM,VALVE”
572	“HARNESS,I/S,L”
573	“TUBE,SUPPLY,INK,MB”
574	“TUBE,SUPPLY,INK,C”
575	“TUBE,SUPPLY,INK,M”
576	“TUBE,SUPPLY,INK,Y”
577	“ORING,CONECTOR M7”
578	“CONNECTING SCREW,M7”
579	“JOINT,3”
580	“JOINT,3,L”
581	“HARNESS,CSIC,MB”
582	“HARNESS,CSIC,C”
583	“HARNESS,CSIC,M”
584	“HARNESS,CSIC,Y”
585	“HOLDER ASSY.,IC,RIGHT”
586	“MOUNT PLATE,BASE,IH,RIGHT”
587	“TUBE,SUPPLY,INK,LLK”

Table 7-10. Stylus Pro 4800

Figure	Part Name
588	“TUBE,SUPPLY,INK,LC”
589	“TUBE,SUPPLY,INK,LM”
590	“TUBE,SUPPLY,INK,ALK”
591	“HARNESS,CSIC,BK”
592	“HARNESS,CSIC,LC”
593	“HARNESS,CSIC,LM”
594	“HARNESS,CSIC,LK”
595	“HARNESS,I/S,R”
607	“GUTTER ASSY.,INK EJECT”
608	“SPACER,FRAME,PAPER GUIDE,FRONT”
609	INDUCTION DUCT
610	“POROUS PAD,BOX,FL,UPPER”
611	“POROUS PAD,BOX,FL,LOWER”
612	“BOX ASSY.,FLUSHING”
613	“HARNESS,PUMP,PHASE DETECTION”
614	“CLEANER,HEAD,A,ASP”
616	“JOINT,BOX,FLUSHING”
617	PUMP CAP ASSY.
618	“SHEET,INK,STOPPER,C”
619	“TAPE,INK,STOPPER,C”
620	“POROUS PAD,INK,STOPPER,C”
621	“LEAF SPRING,LOCK”
622	“GUIDE RAIL,INK EJECT BOX,UPPER”
623	“POROUS PAD,GUIDE,INK EJECT,B”
624	“GUIDE,INK EJECT,B”
625	“POROUS PAD,GUIDE,INK EJECT,A”
626	“GUIDE,INK EJECT,A”
627	“BRACKET,INK EJECT BOX”
628	“GUIDE RAIL,INK EJEXT BOX,LEFT”
629	“HOLDER ASSY.,BOARD,INK EJECT”
630	“HARNESS,CSIC,MT”
631	“POROUS PAD ASSY.,INK EJECT”
632	“HARNESS,R1,C593”
633	“HARNESS,R2,C593”
634	“HARNESS,L1,C593”

Table 7-10. Stylus Pro 4800

Figure	Part Name
635	“HARNESS,L2,C593”
636	“HARNESS,PANEL,INTERMIT,C593”
638	RECYCL CLAMP
639	“GUTTER,INK ASSY.C593,ESL,ASP”
650	“BOARD ASSY.,SUB”
651	“DUCT,AIR,E”
652	“EXTENSION SPRING,2.55”
653	“GUIDE,FFC”
654	“EXTENSION SPRING,13.05”
655	“MOTOR ASSY.,PF,C593”
656	“DUCT,AIR,D”
661	“ROLLER,PAPER GUIDE”
662	“DETECTOR,LEAF,B2”
663	“LABEL,CUTTER CHANGE”
665	“HARNESS,FAN,A,C593”
666	“HARNESS,FAN,B,C593”
669	“DUCT,AIR,A”
670	“HARNESS,COVER OPEN”
671	“LEVER,ROLLER,SUB”
672	“COVER,DUCT,C”
673	“PAD,DUCT,RIGHT LOWER”
674	“DUCT,AIR,C”
675	“BOARD ASSY.,SUB-B”
678	“MOTOR ASSY.,PG”
679	“SPUR GEAR,36”
680	“EXTENSION SPRING,11.4”
681	“COMBINATION GEAR,13.6,20.8”
682	“SPUR GEAR,16”
683	“COMBINATION GEAR,40,20”
684	“COMBINATION GEAR,56,8.8”
685	“DUCT,AIR,B”
687	“PAD,DUCT,E”
688	“GROUND SPRING,PAPER GUIDE,MIDDLE,LEFT”
689	“DETECTOR,LEAF,B2”
690	“COVER,DETECTOR,PAPER GUIDE,MIDDLE”

Table 7-10. Stylus Pro 4800

Figure	Part Name
691	“HARNESS,DETECTOR,PAPER GUIDE CENTER,C593”
693	“POROUS PAD,FRAME,SUB,RIGHT”
694	“CASE FEET,CP-30-FF-4A,BLACK”
695	“BOARD ASSY.,SUB”
696	“HARNESS,HEAD,INTERMIT,A”
697	“HARNESS,HEAD,INTERMIT,B”
700	PRINT HEAD
701	“CARRIAGE,B;B”
702	“PLATE,DAMPER”
703	“VALVE ASSY.,HEAD;C”
704	“GROUND PLATE,A;B”
705	“POROUS PAD,CR”
706	“CARRIAGE,C,C593”
707	“ORING,CONECTOR M7”
708	“CONNECTING SCREW,M7”
709	“JOINT,3”
710	“JOINT,3,L”
711	“COVER,CR;C593”
712	“BOARD ASSY.,MULTISENSOR”
713	“HARNESS,MULTISENSOR”
714	“LABEL,CUT POSITION”
715	“HOLDER,MULTISENSOR”
716	“PLATE,BEARING,R;B”
717	“CAM,INCLINATION,R”
718	“LEVER,FASTEN,FOR TRANSFER;B”
719	“SHAFT,CONNECTION”
720	“HOLDER,BEARING”
721	“COMPRESSION SPRING,27.8”
722	“POLY SLIDER,STW-FT40,t=0.25”
723	“SHAFT,BEARING”
725	“CAM,INCLINATION,L”
726	“COMPRESSION SPRING,0.191”
727	“SLIDER,CR LOCK”
728	“COMPRESSION SPRING,0.52”
729	“GROUND PLATE,B;B”

Table 7-10. Stylus Pro 4800

Figure	Part Name
730	“LEVER,INCLINATION”
731	“EXTENSION SPRING,3.81”
732	“CARRIAGE,A;B”
734	“PLATE,BEARING,L,C593”
735	“LEVER,CAM,C593”
736	“STOPPER,CARRIAGE”
737	“SHAFT,INCLINATION CAM”
738	“HARNESS,HEAD,A”
739	“HARNESS,HEAD,C”
740	“SHEET,FFC”
741	“SOLENOID ASSY.,CR,C593,ESL,ASP”
742	“ADJUST PLATE,CR,UPPER”
743	“ADJUST PLATE,CR,LOWER”
744	“C.P.P-TITE SCREW,2.6X8,F/ZN-3C”
745	“SPACER,CARREAGE A”
746	BALL BEARING(B210151490)
747	“HARNESS,HEAD,B”
750	“EXTENSION SPRING,11.4”
751	“EXTENSION SPRING,2.55”
752	“LEVER,LOCK,PG”
753	“BUSHING,LOCK;B”
756	“EXTENSION SPRING,2.58”
757	“LEVER,SCALE,CR”
758	“EXTENSION SPRING,3.86”
759	“SCALE,CR”
760	“BELT,CR”
761	“PULLEY,DRIVEN”
762	“SHAFT,PULLEY”
763	“COMPRESSION SPRING,29.4”
770	“DETECTOR,HP;E”
772	“BELT,PG”
773	“HARNESS,DETECTOR,PG”
774	“DETECTOR,HP;E”
778	“BOARD ASSY.,ENCODER”
779	“HOLDER,TUBE,B,C593”

Table 7-10. Stylus Pro 4800

Figure	Part Name
780	“PAD,TUBE”
781	“HOLDER,TUBE,A,C593”
782	“BOARD ASSY.,SUB”
783	“HARNESS,ENCODER”
784	“COVER,TUBE,C593”
785	“GUIDE,TUBE,CR,C593”
786	“SHEET,TUBE”
787	“GUIDE PLATE,TUBE”
788	“SHEET,SUS”
789	“HOLDER,FFC,C593”
790-A	“SPACER,MIDDLE,0.05”
790-B	“SPACER,MIDDLE,0.1”
790-C	“SPACER,MIDDLE,0.2”
790-D	“SPACER,MIDDLE,0.5”
790-E	“SPACER,MIDDLE,0.08”
791	“HARNESS,DETECTOR,HP”
792	BALL BEARING(B210151490)
800	“DETECTOR,LEAF,B2”
801	“HARNESS,PAPER EJECT PHASE,LEFT”
802	“LEVER,CHANGE PAPER EJECT,L”
803	“EXTENSION SPRING,6.99”
805	“MOUNT PLATE,MOTOR,ASF ASSY.,C593”
806	“COMBINATION GEAR,12,22.4”
807	“SPUR GEAR,25.6”
808	“COMBINATION GEAR,12.8,36”
809	“COMBINATION GEAR,13.6,28.8”
810	“SPUR GEAR,20”
811A	“PG TRANSMIT ASSY.,C593”
814	“HOLDER,PLANET,RELEASE;B”
815	“SPUR GEAR,16,RELEASE”
816	“SPUR GEAR,22,RELEASE”
817	“POLY SLIDER,STW-FT70,t=0.25”
818	“COMPRESSION SPRING,0.98”
819	“SHEET,FRAME,RIGHT”
820	“EXTENSION SPRING,2.41”

Table 7-10. Stylus Pro 4800

Figure	Part Name
821	“LEVER,LOCK,DE”
822	“SPUR GEAR,38”
823	“INTERMITTENT GEAR,RELEASE,TRANSMIT”
824	“COMBINATION GEAR,22,16.8”
825	“COMBINATION GEAR,16.74,24”
826	“SPUR GEAR,28”
827	“SPUR GEAR,33.6,B”
828	“SPUR GEAR,33.6”
829	“COMBINATION GEAR,24,36”
830	“COMBINATION GEAR,19.2,33.6”
831	“HOLDER,PLANET,CHANGE PAPER EJECT”
832	“SPUR GEAR,17.6,PLANET”
833	“SPUR GEAR,32.8,A”
834	“SPUR GEAR,44,PAPER EJECT”
835	“LEVER,CHANGE PAPER EJECT,R”
836	“LEVER,LOCK,CHANGE PAPER EJECT,R;B”
837	“EXTENSION SPRING,6.71”
838	“HARNESS,PAPER EJECT PHASE,RIGHT”
839	“LEVER,LOCK,PLANET”
840	“COMBINATION GEAR,36,8.8”
841	“PLATE ASSY.,ROLLER,BRAKE,UPPER”
842	“ROLLER ASSY.,BRAKE”
843	“EXTENSION SPRING,1.38”
844	“PLATE ASSY.,ROLLER,BRAKE,LOWER”
845	“SPUR GEAR,20,PLANET”
846	“SPUR GEAR,16,PLANET”
847	“COMPRESSION SPRING,3.38”
848	“COMPRESSION SPRING,0.78”
849	“HOLDER,PLANET”
850	“BOARD ASSY.,ENCODER”
851	“HARNESS,ENCODER,PF”
852	“HOLDER,SENSOR”
854	“PULLEY,BELT TENSION”
855	“EXTENSION SPRING,15.98”
856	“INTERMITTENT GEAR,40”

Table 7-10. Stylus Pro 4800

Figure	Part Name
857	“SPUR GEAR,18”
858	“LEVER,RELEASE,ROLLER,DRIVEN”
859	“TORSION SPRING,615”
860	“FRAME ASSY.,LEVER,RELEASE”
861	“HARNESS,PAPER THICKNESS,1”
862	“HOLDER,DETECTOR,PAPER THICKNESS”
863	“DETECTOR,HP;E”
864	“HARNESS,PAPER THICKNESS,2”
865	“EXTENSION SPRING,8.08”
866	“LEVER,DETECTOR,PAPER THICKNESS,A”
867	“LEVER,DETECTOR,PAPER THICKNESS,B”
870	“RELEASE ASSY.,C593,ESL,ASP”
871	“EXTENSION SPRING,0.22”
873	“MOTOR ASSY.,CR”
876	“SHAFT,RELEASE,ROLLER,DRIVEN”
888	“RELEASE ASSY.,C593”
890	“HOLDER,DETECTOR,PE”
892	“BOARD ASSY.,PW”
893	“HARNESS,DETECTOR,PE”
895	“HARNESS,MOTOR,CR”
900	“ROLLER ASSY.,PAPER EJECT”
902	“PULLEY,PAPER EJECT ROLLER”
903	“EXTENSION SPRING,0.871”
904	“WHEEL,DETECTION”
907	“SPUR GEAR,15.2”
908	“SCALLOP SPRING PIN-AW,2X10,F/B”
909	“HARNESS,LOAD PHASE”
910	“HOLDER,PAPER EJECT ROLLER”
911	“PAPER GUIDE,FRONT,LEFT,ASSY.ESL,ASP”
912	“POROUS PAD,PAPER GUIDE,FRONT,I”
913	“POROUS PAD,PAPER GUIDE,FRONT,H”
914	“POROUS PAD,PAPER GUIDE,FRONT,G”
915	“POROUS PAD,PAPER GUIDE,FRONT,F”
916	“POROUS PAD,PAPER GUIDE,FRONT,E”
917	“PAPER GUIDE,FRONT,RIGHT,ASSY.ESL,ASP”

Table 7-10. Stylus Pro 4800

Figure	Part Name
918	“POROUS PAD,PAPER GUIDE,FRONT,C”
919	“POROUS PAD,PAPER GUIDE,FRONT,B”
920	“PAPER GUIDE,FRONT,MIDDLE,ASSY.ESL,ASP”
921	“POROUS PAD,PAPER GUIDE,FRONT,D”
922	“PAD,AIRSEAL,E”
923	“BUSHING,SPACER,PLATEN”
924	“SPACER,PAPER EJECT”
925	“PAPER GUIDE,REAR ASSY.,C593”
926	“SPACER,PLATE,CUTTER,D”
927	“SPACER,PLATE,CUTTER,C”
928	“SPACER,PLATE,CUTTER,B”
929	“SPACER,PLATE,CUTTER,A”
930	“STAR WHEEL ASSY.,C593,ESL,ASP”
905	“DETECTOR,HP;E”
950	“ASF UNIT,C593”
952	“CORK,PAPER FEED”
953	“LEVER,LOCK,EDGE GUIDE”
954	“COVER,EDGE GUIDE;C593”
955	“LEVER,EDGE GUIDE;C593”
956	“COMPRESSION SPRING,0.46”
957	“COMPRESSION SPRING,3.23”
958	“SLIDER,EDGE GUIDE”
960	“GUIDE,LOWER;C593”
961	“EXTENSION SPRING,1.11”
962	“COMPRESSION SPRING,0.40”
963	“ROLLER,SUB,LD,MIDDLE”
964	“COMPRESSION SPRING,0.407”
965	“ROLLER ASSY.,LD,LEFT”
966	“COVER,ROLLER,LD,LEFT”
967	“COVER,ROLLER,LD,RIGHT”
968	“ROLLER ASSY.,LD,RIGHT”
970	“LEVER,PAD,RELEASE,LEFT”
971	“ROD SPRING,HOLDER,PAD”
973	“LEVER,PAD,RELEASE,RIGHT”
974	“EXTENSION SPRING,0.62”

Table 7-10. Stylus Pro 4800

Figure	Part Name
975	“COMPRESSION SPRING,1.47”
976	“LEVER,PAPER RETURN,LEFT”
977	“EXTENSION SPRING,0.294”
978	“HOLDER,ROLLER,LD,SUPPORT,LEFT”
979	“ROLLER,LD,SUPPORT”
982	“LEVER,PAPER RETURN,RIGHT”
983	“HOLDER,ROLLER,LD,SUPPORT,RIGHT”
985	“BUSHING,LOCK,11.4”
986	“GROUND SPRING,ASF”
987	“LEVER,HOPPER,RELEASE”
988	“LEVER,LOCK,EDGE GUIDE”
989	“EXTENSION SPRING,0.33”
990	“FRAME ASSY.,ASF,LOWER”
991	“FRAME,ASF,RIGHT;C593”
992	“GEAR,44.74”
1	“OUTER CARTON BOX,SP”
2	“INDIVIDUAL CARTON BOX,UPPER,SP”
3	“INDIVIDUAL CARTON BOX,BOTTOM,SP”
4	“SUPPORT POST,ANGLE,SP”
5	“SUPPORT POST,FRONT,SP”
6	“PAD,SET,SP”
8	“HANDLE,SP”
9	“PE SHEET,2200X2500X0.4T”
10	“PAD,TRAY”
11	“PAD,COVER REAR”
12	“PAPER,PROTECT IH”
13	“PAD,CORNER,SP”
14	“PAD,FIXED PLATE,CR,SET”
15	“FIXED PLATE ASSY.,CR”
16	“PINCH SCREW,4X25,F/ZN-3C”
17	“SPACER,PINCH SCREW”
18	“COLOR TIE,230”
NON FIG	GREASE G-26 (40GR)(B702600001)
NON FIG	CODE TYPE MICROPHONE(U-505)
NON FIG	MULTI SENSOR POSITION TOOL

Table 7-10. Stylus Pro 4800

Figure	Part Name
NON FIG	PAPER THICKNESS POSITION TOOL
NON FIG	CR LOCK TOOL
NON FIG	Banding Standard Sample
NON FIG	HEAD EXCHANGE SUPPORT TOOL
NON FIG	CR SHAFT PARALLELISM PRSS TOOL
NON FIG	CR SUS PLATE SUPPORT TOOL
NON FIG	FFC CHECKING TOOL
NON FIG	P-COVER OPEN SENSOR CLOSE TOOL
NON FIG	THICKNESS GAUGE T=0.75
NON FIG	THICKNESS GAUGE T=0.65
NON FIG	KEEP STAND CR SHAFT HEIGHT TOOL
NON FIG	PG BELT TENSION SUPPORT TOOL
NON FIG	PG GUAR POSITION ADJ.TOOL
NON FIG	PG BELT TENSION WEIGHT
NON FIG	CR SHAFT PARALLELISM ADG.TOOL
NON FIG	CR SHAFT PASS/UN-PASS TOOL
NON FIG	CR SHAFT PARALLELISM WEIGHT
NON FIG	CUTTER HEIGHT ADJUSTMENT TOOL
NON FIG	CUTTER PRESS DOWN TOOL
NON FIG	PLATEN HEIGHT ADGUSTMENT TOOL
NON FIG	CR SHAFT HEIGHT ADGUSTMENT TOOL
NON FIG	CR SHAFT HEIGHT CHECK TOOL
NON FIG	PF ROLLER HEIGHT ADJ.TOOL
NON FIG	PLATEN RUBBER SETTING TOOL
NON FIG	ALLEN WRENCH(3mm)
NON FIG	CR ASSY HOLD TOOL
NON FIG	CUTTER CAP
NON FIG	PRESS TOOL FOR CUTTER PLATE
NON FIG	ASF EXCHANGE SUPPORT TOOL
NON FIG	BOXWRENCH(SPECIAL PROCESSING)
NON FIG	CUTTER PLATE DITCH POSITION TOOL
NON FIG	KEEP STAND FOR CUTTER PLATE&PLATEN
NON FIG	CALIBRATE BLOCK&TOOL STAND
NON FIG	TENSION GAUGE(5N;STD)
NON FIG	TENSION GAUGE(10N)

Table 7-10. Stylus Pro 4800

Figure	Part Name
NON FIG	THICKNESS GAUGE t=0.1mm
NON FIG	TORQUE SCREWDRIVER(4~12KG)
NON FIG	GREASE G74

☐ Stylus Pro 4450

Table 7-11. Stylus Pro 4450

Figure	Part Name
01	FIXED CR,SET,ASP
100	HOLDER,ROLL ASSY.,C593,ESL,ASP
103	ADAPTER
104	FLANGE,RIGHT
105	FLANGE,LEFT
106	SCROLLER,SAB ASSY.
107	SHAFT,STOPPER,L
108	MAKEUP SCREW
109	STACKER ASSEMBLY;C593;B,ESL,ASP
110	STACKER;C;C593
111	GUIDE,STACKER;C593
112	STACKER,SUPPORT;C593
113	TRAY ASSEMBLY;C593;B,ESL,ASP
114	LABEL,MODEL NAME;I
115	LABEL,ULTRA CHROME INK
117	LABEL,ASF SET
118	LABEL,ROLLPAPER SET,2/3 INCH
119	LABEL,INK COLOR,LEFT;B
120	COVER,PRINTER;593
121	COVER,I/H,LEFT;C593
122	GUIDE,I/H,LEFT
123	LABEL,CHOKE CLEANING;B
124	LABEL,PAPER LEVER SET UP
125	LABEL,ACCESSORY
126	LABEL,ROLL PAPER SET;B
127	LABEL,PAPER JAMMING REMOVAL
128	COVER,REAR;C593
129	KNOB,RELEASE,LEVER;C593
130	KNOB,I/C,LOCK LEVER;C593
139	LATCH,COVER I/C
150	FAN MOTOR,FRAME,SHIELD
151	COVER,HARNESS;B
152	FILTER,FAN ASSY.

Table 7-11. Stylus Pro 4450

Figure	Part Name
154	COVER,IF,CA00
156	PAD,AIR SEAL,D
157	FAN,BLOWER,C593
158	COVER,FAN,LEFT
159	PAD,FAN
160	COVER,FAN,RIGHT
161	PAPER GUIDE,MIDDLE ASSY.,C593,ESL,ASP
162	COMPRESSION SPRING,3.47
163	LEVER,LOCK,PAPER GUIDE,MIDDLE;C593
164	PAPER GUIDE,PAPER EJECT,STACK
165	SHEET,PAPER GUIDE,PAPER EJECT,STACK
166	GROUND SPRING,PAPER GUIDE,MIDDLE
168	GROUND PLATE,IF,CA00
200	BOARD ASSY.,MAIN
300	POWER SUPPLY UNIT
301	HARNESS
302	HARNESS
500	PRINTER MECHANISM,M-AB62-101,ESL,ASP
501	COVER ASSY.,SIDE,L,C593,ESL,ASP
505	PANEL,FRONT,4C
507	STOPPER,COVER PRINTER,LEFT
508	STOPPER,COVER PRINTER,RIGHT
511	COVER,INSIDE,RELEASE,LEVER;C593
512	COVER ASSY.,SIDE,R.C593,ESL,ASP
513	POROUS PAD,HOLDER,INK EJECT
514	POROUS PAD,INK EJECT,SUB
516	COVER,FRONT,RIGHT,4C
517	FRAME,PANEL,UNDER,RIGHT
518	CONTROL,PANEL
519	HARNESS,PANEL
520	LOGO PLATE,13X54;G
550	HOLDER ASSY.,IC,LEFT,CA00,ESL ASP
552	FRAME,HOLDER,IC,UPPER
553	FRAME,HOLDER,IC,LOWER
554	PRESSING PLATE,IC

Table 7-11. Stylus Pro 4450

Figure	Part Name
555	TORSION SPRING,158.6
556	FAN GEAR,34
557	CAM,IC,FIXING
558	SHAFT,LOCK,IC
559	FRAME,I/S,TOP
560	LEVER,IC,OPERATE
561	SPUR GEAR,22
562	FRAME ASSY.,NEEDLE,CA00,ESL ASP
563	MOUNTING PLATE ASSY.,HOLDER,IC,R
566	GROUND PLATE,IH
567	DETECTOR,LEAF,B2
568	BOARD ASSY.,IC
569	CONNECTOR,CARTRIDGE,A
571	CAM,VALVE
572	HARNESS,I/S,L
577	ORING,CONECTOR M7
578	CONNECTING SCREW,M7
579	JOINT,3
580	JOINT,3,L
581	HARNESS,CSIC,MB
582	HARNESS,CSIC,C
583	HARNESS,CSIC,M
584	HARNESS,CSIC,Y
585	TUBE,SUPPLY,INK,K1
586	TUBE,SUPPLY,INK,K2
587	TUBE,SUPPLY,INK,C1
588	TUBE,SUPPLY,INK,C2
589	TUBE,SUPPLY,INK,M1
590	TUBE,SUPPLY,INK,M2
591	TUBE,SUPPLY,INK,Y1
592	TUBE,SUPPLY,INK,Y2
607	GUTTER ASSY.,INK EJECT,ESL,ASP
608	SPACER,FRAME,PAPER GUIDE,FRONT
609	INDUCTION DUCT
610	POROUS PAD,BOX,FL,UPPER

Table 7-11. Stylus Pro 4450

Figure	Part Name
611	POROUS PAD,BOX,FL,LOWER
612A	BOX ASSY.,FLUSHING ASSY.;ESL ASP
613	HARNESS,PUMP,PHASE DETECTION
614	CLEANER,HEAD,A,ASP
616	JOINT,BOX,FLUSHING
617	PUMP CAP ASSY. ESL,ASP
618	SHEET,INK,STOPPER,C
619	TAPE,INK,STOPPER,C
620	POROUS PAD,INK,STOPPER,C
621	LEAF SPRING,LOCK
622	GUIDE RAIL,INK EJECT BOX,UPPER
623	POROUS PAD,GUIDE,INK EJECT,B
624	GUIDE,INK EJECT,B
625	POROUS PAD,GUIDE,INK EJECT,A
626	GUIDE,INK EJECT,A
627	BRACKET,INK EJECT BOX
628	GUIDE RAIL,INK EJEXT BOX,LEFT
629	HOLDER ASSY.,BOARD,INK EJECT;ESL ASP
630	HARNESS,CSIC,MT
631	POROUS PAD ASSY.,INK EJECT
632	HARNESS,R1,C593
633	HARNESS,R2,C593
634	HARNESS,L1,C593
635	HARNESS,L2,C593
636	HARNESS,PANEL,INTERMIT,C593
638	RECYCL CLAMP
639	GUTTER,INK ASSY.C593,ESL,ASP
650	BOARD ASSY.,SUB
651	DUCT,AIR,E
652	EXTENSION SPRING,2.55
653	GUIDE,FFC
654	EXTENSION SPRING,13.05
655	MOTOR ASSY.,PF,C593
656	DUCT,AIR,D
661	ROLLER,PAPER GUIDE

Table 7-11. Stylus Pro 4450

Figure	Part Name
662	DETECTOR,LEAF,B2
663	LABEL,CUTTER CHANGE
665	HARNESS,FAN,A,C593
666	HARNESS,FAN,B,C593
669	DUCT,AIR,A
670	HARNESS,COVER OPEN
671	LEVER,ROLLER,SUB
672	COVER,DUCT,C
673	PAD,DUCT,RIGHT LOWER
674	DUCT,AIR,C
675	BOARD ASSY.,SUB-B
678	MOTOR ASSY.,PG
679	SPUR GEAR,36
680	EXTENSION SPRING,11.4
681	COMBINATION GEAR,13.6,20.8
682	SPUR GEAR,16
683	COMBINATION GEAR,40,20
684	COMBINATION GEAR,56,8.8
685	DUCT,AIR,B
687	PAD,DUCT,E
688	GROUND SPRING,PAPER GUIDE,MIDDLE,LEFT
689	DETECTOR,LEAF,B2
690	COVER,DETECTOR,PAPER GUIDE,MIDDLE
691	HARNESS,DETECTOR,PAPER GUIDE CENTER,C593
693	POROUS PAD,FRAME,SUB,RIGHT
694	CASE FEET,CP-30-FF-4A,BLACK
695	BOARD ASSY.,SUB
696	HARNESS,HEAD,INTERMIT,A
697	HARNESS,HEAD,INTERMIT,B
700	PRINT HEAD
701	CARRIAGE,B;B
702	PLATE,DAMPER
703	VALVE ASSY.,HEAD;C,ESL,ASP
704	GROUND PLATE,A;B
705	POROUS PAD,CR

Table 7-11. Stylus Pro 4450

Figure	Part Name
706	CARRIAGE,C,C593
707	ORING,CONECTOR M7
708	CONNECTING SCREW,M7
709	JOINT,3
710	JOINT,3,L
711	COVER,CR;C593
712	BOARD ASSY.,MULTISENSOR
713	HARNESS,MULTISENSOR
714	LABEL,CUT POSITION
715	HOLDER,MULTISENSOR
716	PLATE,BEARING,R;B
717	CAM,INCLINATION,R
718	LEVER,FASTEN,FOR TRANSFER;B
719	SHAFT,CONNECTION
720	HOLDER,BEARING
721	COMPRESSION SPRING,27.8
722	POLY SLIDER,STW-FT40,t=0.25
723	SHAFT,BEARING
725	CAM,INCLINATION,L
726	COMPRESSION SPRING,0.191
727	SLIDER,CR LOCK
728	COMPRESSION SPRING,0.52
729	GROUND PLATE,B;B
730	LEVER,INCLINATION
731	EXTENSION SPRING,3.81
732	CARRIAGE,A;B
734	PLATE,BEARING,L,C593
735	LEVER,CAM,C593
736	STOPPER,CARRIAGE
737	SHAFT,INCLINATION CAM
738	HARNESS,HEAD,A
739	HARNESS,HEAD,C
740	SHEET,FFC
741	SOLENOID ASSY.,CR,C593,ESL,ASP
742	ADJUST PLATE,CR,UPPER

Table 7-11. Stylus Pro 4450

Figure	Part Name
743	ADJUST PLATE,CR,LOWER
744	C.P.P-TITE SCREW,2.6X8,F/ZN-3C
745	SPACER,CARREAGE A
746	BALL BEARING(B210151490)
747	HARNESS,HEAD,B
750	EXTENSION SPRING,11.4
751	EXTENSION SPRING,2.55
752	LEVER,LOCK,PG
753	BUSHING,LOCK;B
756	EXTENSION SPRING,2.58
757	LEVER,SCALE,CR
758	EXTENSION SPRING,3.86
759	SCALE,CR
760	BELT,CR
761	PULLEY,DRIVEN
762	SHAFT,PULLEY
763	COMPRESSION SPRING,29.4
765	HOLDER SOLENOID UNIT ASP
766	SOLENOID,CR,C593
770	DETECTOR,HP;E
772	BELT,PG
773	HARNESS,DETECTOR,PG
774	DETECTOR,HP;E
778	BOARD ASSY.,ENCODER,CA00
779	HOLDER,TUBE,B,C593
780	PAD,TUBE
781	HOLDER,TUBE,A,C593
782	BOARD ASSY.,SUB
783	HARNESS,ENCODER
784	COVER,TUBE,C593
785	GUIDE,TUBE,CR,C593
786	SHEET,TUBE
787	GUIDE PLATE TUBE B,ASP,ESL
788	SHEET,SUS
789	HOLDER,FFC,C593

Table 7-11. Stylus Pro 4450

Figure	Part Name
790-A	SPACER,MIDDLE,0.05
790-B	SPACER,MIDDLE,0.1
790-C	SPACER,MIDDLE,0.2
790-D	SPACER,MIDDLE,0.5
790-E	SPACER,MIDDLE,0.08
791	HARNESS,DETECTOR,HP
792	BALL BEARING(B210151490)
793	WEIGHT,SCALE,CR
795	PLATE,LINEAR,FRONT,B
796	PLATE,LINEAR,REAR,A
797	PLATE,LINEAR,FRONT,A
798	PULLEY,SHAFT,CR
800	DETECTOR,LEAF,B2
801	HARNESS,PAPER EJECT PHASE,LEFT
802	LEVER,CHANGE PAPER EJECT,L
803	EXTENSION SPRING,6.99
805	MOUNT PLATE,MOTOR,ASF ASSY.,C593,ESL,ASP
806	COMBINATION GEAR,12,22.4
807	SPUR GEAR,25.6
808	COMBINATION GEAR,12.8,36
809	COMBINATION GEAR,13.6,28.8
810	SPUR GEAR,20
814	HOLDER,PLANET,RELEASE;B
815	SPUR GEAR,16,RELEASE
816	SPUR GEAR,22,RELEASE
817	POLY SLIDER,STW-FT70,t=0.25
818	COMPRESSION SPRING,0.98
819	SHEET,FRAME,RIGHT
820	EXTENSION SPRING,2.41
821	LEVER,LOCK,DE
822	SPUR GEAR,38
823	INTERMITTENT GEAR,RELEASE,TRANSMIT
824	COMBINATION GEAR,22,16.8
825	COMBINATION GEAR,16.74,24
826	SPUR GEAR,28

Table 7-11. Stylus Pro 4450

Figure	Part Name
827	SPUR GEAR,33.6,B
828	SPUR GEAR,33.6
829	COMBINATION GEAR,24,36
830	COMBINATION GEAR,19.2,33.6
831	HOLDER,PLANET,CHANGE PAPER EJECT
832	SPUR GEAR,17.6,PLANET
833	SPUR GEAR,32.8,A
834	SPUR GEAR,44,PAPER EJECT
835	LEVER,CHANGE PAPER EJECT,R
836	LEVER,LOCK,CHANGE PAPER EJECT,R;B
837	EXTENSION SPRING,6.71
838	HARNESS,PAPER EJECT PHASE,RIGHT
839	LEVER,LOCK,PLANET
840	COMBINATION GEAR,36,8.8
842	ROLLER ASSY.,BRAKE
843	EXTENSION SPRING,1.38
845	SPUR GEAR,20,PLANET
846	SPUR GEAR,16,PLANET
847	COMPRESSION SPRING,3.38
848	COMPRESSION SPRING,0.78
849	HOLDER,PLANET
850	BOARD ASSY.,ENCODER
851	HARNESS,ENCODER,PF
852	HOLDER,SENSOR
854	PULLEY,BELT TENSION
855	EXTENSION SPRING,15.98
856	INTERMITTENT GEAR,40
857	SPUR GEAR,18
858	LEVER,RELEASE,ROLLER,DRIVEN
859	TORSION SPRING,615
861	HARNESS,PAPER THICKNESS,1
862	HOLDER,DETECTOR,PAPER THICKNESS
863	DETECTOR,HP;E
864	HARNESS,PAPER THICKNESS,2
865	EXTENSION SPRING,8.08

Table 7-11. Stylus Pro 4450

Figure	Part Name
866	LEVER,DETECTOR,PAPER THICKNESS,A
867	LEVER,DETECTOR,PAPER THICKNESS,B
871	EXTENSION SPRING,0.22
873	MOTOR ASSY.,CR
876	SHAFT,RELEASE,ROLLER,DRIVEN
881	HARNESS,HAND INSERTION,REAR
882	DETECTOR,PE
888	RELEASE ASSY.,C593,ESL,ASP
890	HOLDER,DETECTOR,PE
892	BOARD ASSY.,PW
893	HARNESS,DETECTOR,PE
895	HARNESS,MOTOR,CR
900	ROLLER ASSY.,PAPER EJECT
902	PULLEY,PAPER EJECT ROLLER
903	EXTENSION SPRING,0.871
904	WHEEL,DETECTION
905	DETECTOR,HP;E
907	SPUR GEAR,15.2
908	SCALLOP SPRING PIN-AW,2X10,F/B
909	HARNESS,LOAD PHASE
910	HOLDER,PAPER EJECT ROLLER
911	PAPER GUIDE,FRONT,LEFT,ASSY.ESL,ASP
912	POROUS PAD,PAPER GUIDE,FRONT,I
913	POROUS PAD,PAPER GUIDE,FRONT,H
914	POROUS PAD,PAPER GUIDE,FRONT,G
915	POROUS PAD,PAPER GUIDE,FRONT,F
916	POROUS PAD,PAPER GUIDE,FRONT,E
917	PAPER GUIDE,FRONT,RIGHT,ASSY.ESL,ASP
918	POROUS PAD,PAPER GUIDE,FRONT,C
919	POROUS PAD,PAPER GUIDE,FRONT,B
920	PAPER GUIDE,FRONT,MIDDLE,ASSY.ESL,ASP
921	POROUS PAD,PAPER GUIDE,FRONT,D
922	PAD,AIRSEAL,E
923	BUSHING,SPACER,PLATEN
924	SPACER,PAPER EJECT

Table 7-11. Stylus Pro 4450

Figure	Part Name
925	PAPER GUIDE,REAR ASSY.,C593,ESL,ASP
926	SPACER,PLATE,CUTTER,D
927	SPACER,PLATE,CUTTER,C
928	SPACER,PLATE,CUTTER,B
929	SPACER,PLATE,CUTTER,A
930	STAR WHEEL ASSY.,C593,ESL,ASP
950	ASF UNIT,C593,ESL,ASP
952	CORK,PAPER FEED
953	LEVER,LOCK,EDGE GUIDE
954	COVER,EDGE GUIDE;C593
955	LEVER,EDGE GUIDE;C593
956	COMPRESSION SPRING,0.46
957	COMPRESSION SPRING,3.23
958	SLIDER,EDGE GUIDE
960	GUIDE,LOWER;C593
961	EXTENSION SPRING,1.11
962	COMPRESSION SPRING,0.40
963	ROLLER,SUB,LD,MIDDLE
964	COMPRESSION SPRING,0.407
965	ROLLER ASSY.,LD,LEFT
966	COVER,ROLLER,LD,LEFT
967	COVER,ROLLER,LD,RIGHT
968	ROLLER ASSY.,LD,RIGHT
970	LEVER,PAD,RELEASE,LEFT
971	ROD SPRING,HOLDER,PAD
973	LEVER,PAD,RELEASE,RIGHT
974	EXTENSION SPRING,0.62
975	COMPRESSION SPRING,1.47
976	LEVER,PAPER RETURN,LEFT
977	EXTENSION SPRING,0.294
978	HOLDER,ROLLER,LD,SUPPORT,LEFT
979	ROLLER,LD,SUPPORT
982	LEVER,PAPER RETURN,RIGHT
983	HOLDER,ROLLER,LD,SUPPORT,RIGHT
985	BUSHING,LOCK,11.4

Table 7-11. Stylus Pro 4450

Figure	Part Name
986	GROUND SPRING,ASF
987	LEVER,HOPPER,RELEASE
988	LEVER,LOCK,EDGE GUIDE
989	EXTENSION SPRING,0.33
991	FRAME,ASF,RIGHT;C593
992	GEAR,44.74
995	HOLDER,EDGE GUIDE,LEFT;B
998	COMPRESSION SPRING,9.80
999	HOLDER,EDGE GUIDE,RIGHT;B
NON FIG	INK CART.BOXED C,PIGT;7C110AS
NON FIG	INK CART.BOXED M,PIGT;7C110AS
NON FIG	INK CART.BOXED Y,PIGT;7C110AS
NON FIG	INK CART.BOXED MBK,PIGT;7C110AS
NON FIG	SOFTWARE CD,E
NON FIG	SETTING UP MANUAL
NON FIG	JETRAS JP-D300S

☐ Stylus Pro 4480/4480C

Table 7-12. Stylus Pro 4480/4480C

Figure	Part Name
01	FIXED CR,SET,ASP
100	HOLDER,ROLL ASSY.,C593,ESL,ASP
103	ADAPTER
104	FLANGE,RIGHT
105	FLANGE,LEFT
106	SCROLLER,SAB ASSY.
107	SHAFT,STOPPER,L
108	MAKEUP SCREW
109	STACKER ASSEMBLY;C593;B,ESL,ASP
110	STACKER;C;C593
111	GUIDE,STACKER;C593
112	STACKER,SUPPORT;C593
113	TRAY ASSEMBLY;C593;B,ESL,ASP
114	LABEL,MODEL NAME;F
115	LABEL,ULTRA CHROME INK,K3VM
117	LABEL,ASF SET
118	LABEL,ROLLPAPER SET,2/3 INCH
119	LABEL,INK COLOR,LEFT
120	COVER,PRINTER;593
121	COVER,I/H,LEFT,8C
122	GUIDE,I/H,LEFT,8C
123	LABEL,CHOKE CLEANING
124	LABEL,PAPER LEVER SET UP
126	LABEL,ROLL PAPER SET;B
127	LABEL,PAPER JAMMING REMOVAL
128	COVER,REAR;C593
129	KNOB,RELEASE,LEVER;C593
130	KNOB,I/C,LOCK LEVER;C593
131	LABEL,CAUTION,TRANSPORT
132	GUIDE,I/H,RIGHT,8C
133	LABEL,INK COLOR,RIGHT
134	COVER,I/H,RIGHT,8C
136	MIN SIDE LOCK#091Y

Table 7-12. Stylus Pro 4480/4480C

Figure	Part Name
150	FAN MOTOR,FRAME,SHIELD
151	COVER,HARNESS;B
152	FILTER,FAN ASSY.
154	COVER,IF,CA00
156	PAD,AIR SEAL,D
157	FAN,BLOWER,C593
158	COVER,FAN,LEFT
159	PAD,FAN
160	COVER,FAN,RIGHT
161	PAPER GUIDE,MIDDLE ASSY.,C593,ESL,ASP
162	COMPRESSION SPRING,3.47
163	LEVER,LOCK,PAPER GUIDE,MIDDLE;C593
164	PAPER GUIDE,PAPER EJECT,STACK
165	SHEET,PAPER GUIDE,PAPER EJECT,STACK
166	GROUND SPRING,PAPER GUIDE,MIDDLE
168	GROUND PLATE,IF,CA00
200	BOARD ASSY.,MAIN
300	POWER SUPPLY UNIT
301	HARNESS
302	HARNESS
500	PRINTER MECHANISM,M-AB62-100,ESL,ASP
501	COVER ASSY.,SIDE,L,C593,ESL,ASP
505	PANEL,FRONT,8C
507	STOPPER,COVER PRINTER,LEFT
508	STOPPER,COVER PRINTER,RIGHT
511	COVER,INSIDE,RELEASE,LEVER;C593
512	COVER ASSY.,SIDE,R.C593,ESL,ASP
513	POROUS PAD,HOLDER,INK EJECT
514	POROUS PAD,INK EJECT,SUB
517	FRAME,PANEL,UNDER,RIGHT
518	CONTROL,PANEL
519	HARNESS,PANEL
520	LOGO PLATE,13X54;G
550	HOLDER ASSY.,IC,LEFT,CA00,ESL ASP
552	FRAME,HOLDER,IC,UPPER

Table 7-12. Stylus Pro 4480/4480C

Figure	Part Name
553	FRAME,HOLDER,IC,LOWER
554	PRESSING PLATE,IC
555	TORSION SPRING,158.6
556	FAN GEAR,34
557	CAM,IC,FIXING
558	SHAFT,LOCK,IC
559	FRAME,I/S,TOP
560	LEVER,IC,OPERATE
561	SPUR GEAR,22
562	FRAME ASSY.,NEEDLE,CA00,ESL ASP
563	MOUNTING PLATE ASSY.,HOLDER,IC,R
566	GROUND PLATE,IH
567	DETECTOR,LEAF,B2
568	BOARD ASSY.,IC
569	CONNECTOR,CARTRIDGE,A
571	CAM,VALVE
572	HARNESS,I/S,L
573	TUBE,SUPPLY,INK,MB
574	TUBE,SUPPLY,INK,C
575	TUBE,SUPPLY,INK,M
576	TUBE,SUPPLY,INK,Y
577	ORING,CONECTOR M7
578	CONNECTING SCREW,M7
579	JOINT,3
580	JOINT,3,L
581	HARNESS,CSIC,MB
582	HARNESS,CSIC,C
583	HARNESS,CSIC,M
584	HARNESS,CSIC,Y
587	TUBE,SUPPLY,INK,LLK
588	TUBE,SUPPLY,INK,LC
589	TUBE,SUPPLY,INK,LM
590	TUBE,SUPPLY,INK,ALK
591	HARNESS,CSIC,BK
592	HARNESS,CSIC,LC

Table 7-12. Stylus Pro 4480/4480C

Figure	Part Name
593	HARNESS,CSIC,LM
594	HARNESS,CSIC,LK
595	HARNESS,I/S,R
596	HOLDER ASSY.,IC,RIGHT,CA00,ESL ASP
607	GUTTER ASSY.,INK EJECT,ESL,ASP
608	SPACER,FRAME,PAPER GUIDE,FRONT
609	INDUCTION DUCT
610	POROUS PAD,BOX,FL,UPPER
611	POROUS PAD,BOX,FL,LOWER
612A	BOX ASSY.,FLUSHING ASSY.;ESL ASP
613	HARNESS,PUMP,PHASE DETECTION
614	CLEANER,HEAD,A,ASP
616	JOINT,BOX,FLUSHING
617	PUMP CAP ASSY. ESL,ASP
618	SHEET,INK,STOPPER,C
619	TAPE,INK,STOPPER,C
620	POROUS PAD,INK,STOPPER,C
621	LEAF SPRING,LOCK
622	GUIDE RAIL,INK EJECT BOX,UPPER
623	POROUS PAD,GUIDE,INK EJECT,B
624	GUIDE,INK EJECT,B
625	POROUS PAD,GUIDE,INK EJECT,A
626	GUIDE,INK EJECT,A
627	BRACKET,INK EJECT BOX
628	GUIDE RAIL,INK EJEXT BOX,LEFT
629	HOLDER ASSY.,BOARD,INK EJECT;ESL ASP
630	HARNESS,CSIC,MT
631	POROUS PAD ASSY.,INK EJECT
632	HARNESS,R1,C593
633	HARNESS,R2,C593
634	HARNESS,L1,C593
635	HARNESS,L2,C593
636	HARNESS,PANEL,INTERMIT,C593
638	RECYCL CLAMP
639	GUTTER,INK ASSY.C593,ESL,ASP

Table 7-12. Stylus Pro 4480/4480C

Figure	Part Name
650	BOARD ASSY.,SUB
651	DUCT,AIR,E
652	EXTENSION SPRING,2.55
653	GUIDE,FFC
654	EXTENSION SPRING,13.05
655	MOTOR ASSY.,PF,C593
656	DUCT,AIR,D
661	ROLLER,PAPER GUIDE
662	DETECTOR,LEAF,B2
663	LABEL,CUTTER CHANGE
665	HARNESS,FAN,A,C593
666	HARNESS,FAN,B,C593
669	DUCT,AIR,A
670	HARNESS,COVER OPEN
671	LEVER,ROLLER,SUB
672	COVER,DUCT,C
673	PAD,DUCT,RIGHT LOWER
674	DUCT,AIR,C
675	BOARD ASSY.,SUB-B
678	MOTOR ASSY.,PG
679	SPUR GEAR,36
680	EXTENSION SPRING,11.4
681	COMBINATION GEAR,13.6,20.8
682	SPUR GEAR,16
683	COMBINATION GEAR,40,20
684	COMBINATION GEAR,56,8.8
685	DUCT,AIR,B
687	PAD,DUCT,E
688	GROUND SPRING,PAPER GUIDE,MIDDLE,LEFT
689	DETECTOR,LEAF,B2
690	COVER,DETECTOR,PAPER GUIDE,MIDDLE
691	HARNESS,DETECTOR,PAPER GUIDE CENTER,C593
693	POROUS PAD,FRAME,SUB,RIGHT
694	CASE FEET,CP-30-FF-4A,BLACK
695	BOARD ASSY.,SUB

Table 7-12. Stylus Pro 4480/4480C

Figure	Part Name
696	HARNESS,HEAD,INTERMIT,A
697	HARNESS,HEAD,INTERMIT,B
700	PRINT HEAD
701	CARRIAGE,B;B
702	PLATE,DAMPER
703	VALVE ASSY.,HEAD;C,ESL,ASP
704	GROUND PLATE,A;B
705	POROUS PAD,CR
706	CARRIAGE,C,C593
707	ORING,CONECTOR M7
708	CONNECTING SCREW,M7
709	JOINT,3
710	JOINT,3,L
711	COVER,CR;C593
712	BOARD ASSY.,MULTISENSOR
713	HARNESS,MULTISENSOR
714	LABEL,CUT POSITION
715	HOLDER,MULTISENSOR
716	PLATE,BEARING,R;B
717	CAM,INCLINATION,R
718	LEVER,FASTEN,FOR TRANSFER;B
719	SHAFT,CONNECTION
720	HOLDER,BEARING
721	COMPRESSION SPRING,27.8
722	POLY SLIDER,STW-FT40,t=0.25
723	SHAFT,BEARING
725	CAM,INCLINATION,L
726	COMPRESSION SPRING,0.191
727	SLIDER,CR LOCK
728	COMPRESSION SPRING,0.52
729	GROUND PLATE,B;B
730	LEVER,INCLINATION
731	EXTENSION SPRING,3.81
732	CARRIAGE,A;B
734	PLATE,BEARING,L,C593

Table 7-12. Stylus Pro 4480/4480C

Figure	Part Name
735	LEVER,CAM,C593
736	STOPPER,CARRIAGE
737	SHAFT,INCLINATION CAM
738	HARNESS,HEAD,A
739	HARNESS,HEAD,C
740	SHEET,FFC
741	SOLENOID ASSY.,CR,C593,ESL,ASP
742	ADJUST PLATE,CR,UPPER
743	ADJUST PLATE,CR,LOWER
744	C.P.P-TITE SCREW,2.6X8,F/ZN-3C
745	SPACER,CARREAGE A
746	BALL BEARING(B210151490)
747	HARNESS,HEAD,B
750	EXTENSION SPRING,11.4
751	EXTENSION SPRING,2.55
752	LEVER,LOCK,PG
753	BUSHING,LOCK;B
756	EXTENSION SPRING,2.58
757	LEVER,SCALE,CR
758	EXTENSION SPRING,3.86
759	SCALE,CR
760	BELT,CR
761	PULLEY,DRIVEN
762	SHAFT,PULLEY
763	COMPRESSION SPRING,29.4
765	HOLDER SOLENOID UNIT ASP
766	SOLENOID,CR,C593
770	DETECTOR,HP;E
772	BELT,PG
773	HARNESS,DETECTOR,PG
774	DETECTOR,HP;E
778	BOARD ASSY.,ENCODER,CA00
779	HOLDER,TUBE,B,C593
780	PAD,TUBE
781	HOLDER,TUBE,A,C593

Table 7-12. Stylus Pro 4480/4480C

Figure	Part Name
782	BOARD ASSY.,SUB
783	HARNESS,ENCODER
784	COVER,TUBE,C593
785	GUIDE,TUBE,CR,C593
786	SHEET,TUBE
787	GUIDE PLATE TUBE B,ASP,ESL
788	SHEET,SUS
789	HOLDER,FFC,C593
790-A	SPACER,MIDDLE,0.05
790-B	SPACER,MIDDLE,0.1
790-C	SPACER,MIDDLE,0.2
790-D	SPACER,MIDDLE,0.5
790-E	SPACER,MIDDLE,0.08
791	HARNESS,DETECTOR,HP
792	BALL BEARING(B210151490)
793	WEIGHT,SCALE,CR
795	PLATE,LINEAR,FRONT,B
796	PLATE,LINEAR,REAR,A
797	PLATE,LINEAR,FRONT,A
798	PULLEY,SHAFT,CR
800	DETECTOR,LEAF,B2
801	HARNESS,PAPER EJECT PHASE,LEFT
802	LEVER,CHANGE PAPER EJECT,L
803	EXTENSION SPRING,6.99
805	MOUNT PLATE,MOTOR,ASF ASSY.,C593,ESL,ASP
806	COMBINATION GEAR,12,22.4
807	SPUR GEAR,25.6
808	COMBINATION GEAR,12.8,36
809	COMBINATION GEAR,13.6,28.8
810	SPUR GEAR,20
814	HOLDER,PLANET,RELEASE;B
815	SPUR GEAR,16,RELEASE
816	SPUR GEAR,22,RELEASE
817	POLY SLIDER,STW-FT70,t=0.25
818	COMPRESSION SPRING,0.98

Table 7-12. Stylus Pro 4480/4480C

Figure	Part Name
819	SHEET,FRAME,RIGHT
820	EXTENSION SPRING,2.41
821	LEVER,LOCK,DE
822	SPUR GEAR,38
823	INTERMITTENT GEAR,RELEASE,TRANSMIT
824	COMBINATION GEAR,22,16.8
825	COMBINATION GEAR,16.74,24
826	SPUR GEAR,28
827	SPUR GEAR,33.6,B
828	SPUR GEAR,33.6
829	COMBINATION GEAR,24,36
830	COMBINATION GEAR,19.2,33.6
831	HOLDER,PLANET,CHANGE PAPER EJECT
832	SPUR GEAR,17.6,PLANET
833	SPUR GEAR,32.8,A
834	SPUR GEAR,44,PAPER EJECT
835	LEVER,CHANGE PAPER EJECT,R
836	LEVER,LOCK,CHANGE PAPER EJECT,R;B
837	EXTENSION SPRING,6.71
838	HARNESS,PAPER EJECT PHASE,RIGHT
839	LEVER,LOCK,PLANET
840	COMBINATION GEAR,36,8.8
842	ROLLER ASSY.,BRAKE
843	EXTENSION SPRING,1.38
845	SPUR GEAR,20,PLANET
846	SPUR GEAR,16,PLANET
847	COMPRESSION SPRING,3.38
848	COMPRESSION SPRING,0.78
849	HOLDER,PLANET
850	BOARD ASSY.,ENCODER
851	HARNESS,ENCODER,PF
852	HOLDER,SENSOR
854	PULLEY,BELT TENSION
855	EXTENSION SPRING,15.98
856	INTERMITTENT GEAR,40

Table 7-12. Stylus Pro 4480/4480C

Figure	Part Name
857	SPUR GEAR,18
858	LEVER,RELEASE,ROLLER,DRIVEN
859	TORSION SPRING,615
861	HARNESS,PAPER THICKNESS,1
862	HOLDER,DETECTOR,PAPER THICKNESS
863	DETECTOR,HP;E
864	HARNESS,PAPER THICKNESS,2
865	EXTENSION SPRING,8.08
866	LEVER,DETECTOR,PAPER THICKNESS,A
867	LEVER,DETECTOR,PAPER THICKNESS,B
871	EXTENSION SPRING,0.22
873	MOTOR ASSY.,CR
876	SHAFT,RELEASE,ROLLER,DRIVEN
881	HARNESS,HAND INSERTION,REAR
882	DETECTOR,PE
888	RELEASE ASSY.,C593,ESL,ASP
890	HOLDER,DETECTOR,PE
892	BOARD ASSY.,PW
893	HARNESS,DETECTOR,PE
895	HARNESS,MOTOR,CR
900	ROLLER ASSY.,PAPER EJECT
902	PULLEY,PAPER EJECT ROLLER
903	EXTENSION SPRING,0.871
904	WHEEL,DETECTION
905	DETECTOR,HP;E
907	SPUR GEAR,15.2
908	SCALLOP SPRING PIN-AW,2X10,F/B
909	HARNESS,LOAD PHASE
910	HOLDER,PAPER EJECT ROLLER
911	PAPER GUIDE,FRONT,LEFT,ASSY.ESL,ASP
912	POROUS PAD,PAPER GUIDE,FRONT,I
913	POROUS PAD,PAPER GUIDE,FRONT,H
914	POROUS PAD,PAPER GUIDE,FRONT,G
915	POROUS PAD,PAPER GUIDE,FRONT,F
916	POROUS PAD,PAPER GUIDE,FRONT,E

Table 7-12. Stylus Pro 4480/4480C

Figure	Part Name
917	PAPER GUIDE,FRONT,RIGHT,ASSY.ESL,ASP
918	POROUS PAD,PAPER GUIDE,FRONT,C
919	POROUS PAD,PAPER GUIDE,FRONT,B
920	PAPER GUIDE,FRONT,MIDDLE,ASSY.ESL,ASP
921	POROUS PAD,PAPER GUIDE,FRONT,D
922	PAD,AIRSEAL,E
923	BUSHING,SPACER,PLATEN
924	SPACER,PAPER EJECT
925	PAPER GUIDE,REAR ASSY.,C593,ESL,ASP
926	SPACER,PLATE,CUTTER,D
927	SPACER,PLATE,CUTTER,C
928	SPACER,PLATE,CUTTER,B
929	SPACER,PLATE,CUTTER,A
930	STAR WHEEL ASSY.,C593,ESL,ASP
950	ASF UNIT,C593,ESL,ASP
952	CORK,PAPER FEED
953	LEVER,LOCK,EDGE GUIDE
954	COVER,EDGE GUIDE;C593
955	LEVER,EDGE GUIDE;C593
956	COMPRESSION SPRING,0.46
957	COMPRESSION SPRING,3.23
958	SLIDER,EDGE GUIDE
960	GUIDE,LOWER;C593
961	EXTENSION SPRING,1.11
962	COMPRESSION SPRING,0.40
963	ROLLER,SUB,LD,MIDDLE
964	COMPRESSION SPRING,0.407
965	ROLLER ASSY.,LD,LEFT
966	COVER,ROLLER,LD,LEFT
967	COVER,ROLLER,LD,RIGHT
968	ROLLER ASSY.,LD,RIGHT
970	LEVER,PAD,RELEASE,LEFT
971	ROD SPRING,HOLDER,PAD
973	LEVER,PAD,RELEASE,RIGHT
974	EXTENSION SPRING,0.62

Table 7-12. Stylus Pro 4480/4480C

Figure	Part Name
975	COMPRESSION SPRING,1.47
976	LEVER,PAPER RETURN,LEFT
977	EXTENSION SPRING,0.294
978	HOLDER,ROLLER,LD,SUPPORT,LEFT
979	ROLLER,LD,SUPPORT
982	LEVER,PAPER RETURN,RIGHT
983	HOLDER,ROLLER,LD,SUPPORT,RIGHT
985	BUSHING,LOCK,11.4
986	GROUND SPRING,ASF
987	LEVER,HOPPER,RELEASE
988	LEVER,LOCK,EDGE GUIDE
989	EXTENSION SPRING,0.33
991	FRAME,ASF,RIGHT;C593
992	GEAR,44.74
995	HOLDER,EDGE GUIDE,LEFT;B
998	COMPRESSION SPRING,9.80
999	HOLDER,EDGE GUIDE,RIGHT;B
NON FIG	INK CART.BOXED PBK,PIGT;6C110AS
NON FIG	INK CART.BOXED C,PIGT;6C110AS
NON FIG	INK CART.BOXED VM,PIGT;6C110AS
NON FIG	INK CART.BOXED Y,PIGT;6C110AS
NON FIG	INK CART.BOXED LC,PIGT;6C110AS
NON FIG	INK CART.BOXED VLM,PIGT;6C110AS
NON FIG	INK CART.BOXED LBK,PIGT;6C110AS
NON FIG	INK CART.BOXED LLBK,PIGT;6C110AS
NON FIG	BLACK CONVERSION KIT BOXED;AS,6C
NON FIG	SOFTWARE CD,E
NON FIG	SETTING UP MANUAL
NON FIG	JETRAS JP-D300S
NON FIG	BLACK CONVERSION KIT BOXED;AS,6C
NON FIG	SOFTWARE CD,E
NON FIG	SETTING UP MANUAL
NON FIG	JETRAS JP-D300S