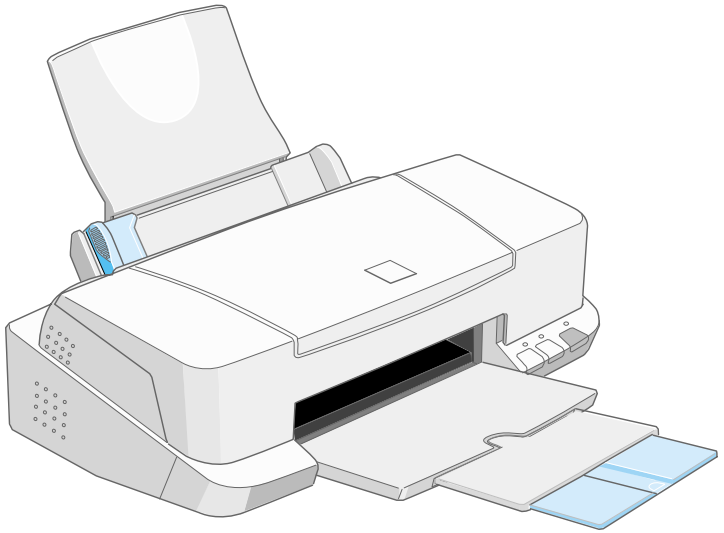
SERVICE MANUAL



Color ink jet printer

EPSON Stylus COLOR 760

COLOR IMAGING EPSON

EPSON®

SEIJ99004

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PRECAUTIONS

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

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

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

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

DANGER

1. ALWAYS DISCONNECT THE PRODUCT FROM THE POWER SOURCE AND PERIPHERAL DEVICES PERFORMING ANY MAINTENANCE OR REPAIR PROCEDURES.
2. NOWORK 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 NONAPPROVED COMPONENTS MAY DAMAGE THE PRODUCT AND VOID ANY APPLICABLE EPSON WARRANTY.

PREFACE

This manual describes basic functions, theory of electrical and mechanical operations, maintenance and repair procedures of the EPSON Stylus COLOR 760. 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. The chapters are organized as follows:

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

Provides the step-by-step procedures for troubleshooting.

CHAPTER 4. DISASSEMBLY AND ASSEMBLY

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

CHAPTER 5. ADJUSTMENTS

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:

- ***EEPROM Address Map***
- ***Connector Pin Assignments***
- ***C298MAIN Board Component Layout***
- ***Parts List and Explode Diagrams***
- ***C298MAIN Board Circuit Diagram***

Revision Status

Revision	Issued Date	Description
A	August 17, 1999	First Release
B	October 5, 1999	Second release Change has been made due to overall review of the manual.
C	November 25,1999	Third Release Change has been made due to overall review of the manual. • Some T.B.D have been made clear. • Appendix has additional information. - Fig7-3, 7-4 has been mounted.

PRODUCT DESCRIPTION

Operating Principles

Troubleshooting

Disassembly and Assembly

Adjustment

Maintenance

Appendix

CHAPTER

1

PRODUCT DESCRIPTION

1.1 FEATURES

The major features of EPSON color inkjet printer Stylus COLOR 760 are:

- High Color Print Quality
  - 1440 (H) X 720 (V) dpi printing
  - Four Color Printing (YMCK)
  - Traditional and New Microweave
- Built-in Auto Sheet Feeder
  - Holds 100 cut-sheets (64g/m^2)
  - Holds 10 envelopes
  - Holds 30 transparency films
- Two Built-in Interfaces
  - Bi-directional parallel I/F (IEEE-1284 level 1 device)
  - USB
- Windows/Macintosh exclusive

1.2 SPECIFICATIONS

This section covers specifications of the printer.

1.2.1 Physical Specification

- Weight: 6.0kg (excluding ink cartridges)
- Dimension:
  - Storage: 450 mm (W) x 269 mm (D) x 175 mm (H)
  - Printing: 450 mm (W) x 628 mm (D) x 303 mm (H)

1.2.2 Printing Specification

- Print Method
  - On demand ink jet
- Nozzle Configuration
  - Monochrome 144 nozzles (48 x 3 staggered)
  - Color 48 nozzles x 3 (Cyan, Magenta, Yellow)
- Print Direction
  - Bi-direction with logic seeking
- Print Speed & Printable Columns

Table 1-1. Character Mode

Character Pitch	Printable Column	LQ Speed
10 CPI (Pica)	80	238 CPS*

**This value is the speed of normal-dot printing.*

Table 1-2. Raster Graphics Mode

Horizontal Resolution	Printable Area	Available Dot	CR Speed
180 dpi	8.26 inches	1488	23.8/19 IPS
360 dpi	8.26 inches	2976	23.8/19 IPS
720 dpi	8.26 inches	5952	19 IPS

- Control Code
  - ESC/P Raster command
  - EPSON Remote command
- Character Tables
  - Two international character sets:
    - PC 437 (US, Standard Europe)
    - PC 850 (Multilingual)
- Typeface
  - Bit map LQ font:
    EPSON Courier 10 CPI

1.2.3 Paper Feeding

- Feed Method
  - Friction feed with ASF
- Paper Path
  - Cut-sheet ASF (Top entry, Front out)
- Feed Speed
  - 2.36 inch/sec (Normal, Continuous feed)
  - 4.5 inch/sec (Fast, Continues feed)

1.2.4 Input Data Buffer

- 256KB

1.2.5 Electric Specification

[120V Version]

Rated Voltage:	AC120V
Input Voltage Range:	AC99~132V
Rated Frequency Range:	50~ 60Hz
Input Frequency Range:	49.5~ 60.5Hz
Rated Current:	0.4A
Power Consumption:	Approx. 18W (ISO10561 Letter Pattern) Approx. 3.5W in standby mode Energy Star compliant
Insulation Resistance:	10M ohms min. (between AC line and chassis, DC 500V)
Dielectric Strength:	AC 1000V rms. 1 minutes or AC 1200V rms. 1 second (between AC line and chassis)

[220 ~ 240V Version]

Rated Voltage:	AC220V~240V
Input Voltage Range:	AC198~264V
Rated Frequency Range:	50~60Hz
Input Frequency Range:	49.5~60.5Hz
Rated Current:	0.2 A
Power Consumption:	Approx. 18W (ISO10561 Letter Pattern) Approx. 3.5W in standby mode Energy Star compliant
Insulation Resistance:	10M ohms min. (between AC line and chassis, DC 500V)
Dielectric Strength:	AC 1500V rms. 1 minute (between AC line and chassis)

1.2.6 Environmental Condition

- Temperature
  - Operating: 10 to 35 °C (see the figure below for condition)
  - Non-operating: -20 to 60 °C (with shipment container)
    1 month at 40 ℃ and 120 hours at 60 ℃
- Humidity
  - Operating: 20 to 80% RH
    (without condensation / see the figure below for condition)
  - Non-operating: 5 to 85% RH
    (without condensation / with shipment container)
- Resistance to Shock
  - Operating: 1G, within 1 ms
  - Non-operating: 2G, within 2 ms (with shipment container)
- Resistance to Vibration
  - Operating: 0.15G
  - Non-operating: 0.50G (with shipment container)

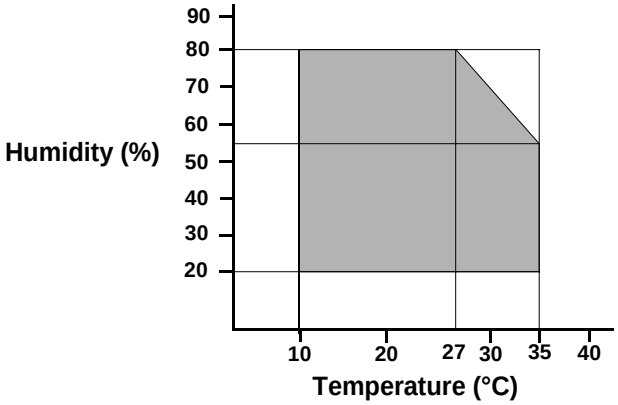

Figure 1-1. Temperature / Humidity of Range

1.2.7 Reliability

Total Print Volume: 75,000 pages (A4, Letter)

Print Head Life: 3 billion dots/nozzle

1.2.8 Safety Approvals

[120V Version]

Safety Standards: UL1950
CSA22.2 No.950

EMI: FCC part 15 subpart B Class B
CSA C108.8 Class B

[220~240V Version]

Safety Standards: EN60950 (VDE)

EMI: EN55022 (CISPR Pub.22) Class B
AS/NZS 3548 Class B

1.2.9 Acoustic Noise

Level: Approx. 42dB(A)(According to ISO 7779)
-Used media : Plain Paper
- Print Quality: Fine

1.2.10 CE Marking

[220~240V Version]

Low Voltage Directive 73/23/EEC: EN60950
EMC Directive 89/336/EEC: EN55022 Class B
EN61000-3-2
EN61000-3-3
EN50082-1
IEC801-2
IEC801-3
IEC801-4

1.3 INTERFACE

This printer provides USB and parallel interface as standard.

1.3.1 Parallel Interface (Forward Channel)

Transmission Mode:	8 bit parallel, IEEE-1284 compatibility mode
Synchronization:	By STROBE pulse
Handshaking:	BY BUSY and ACKNLG signal
Signal Level:	TTL compatible level
Adaptable Connector:	57-30360 (amphenol) or equivalent

BUSY signal is set high before setting either -ERROR low or PE high, and held high until all these signals return to their inactive state.

BUSY signal is at high level in the following cases:

- During data entry (see data transmission timing)
- When input data buffer is full
- During -INIT signal is at low level or during hardware initialization
- During printer error (see -ERROR signal)
- When the parallel interface is not selected

ERROR signal is at low level when the printer is in one of the following states:

- Printer hardware error (fatal error)
- Paper-out error
- Paper-jam error
- Ink-out error

PE signal is at high level during paper-out error.

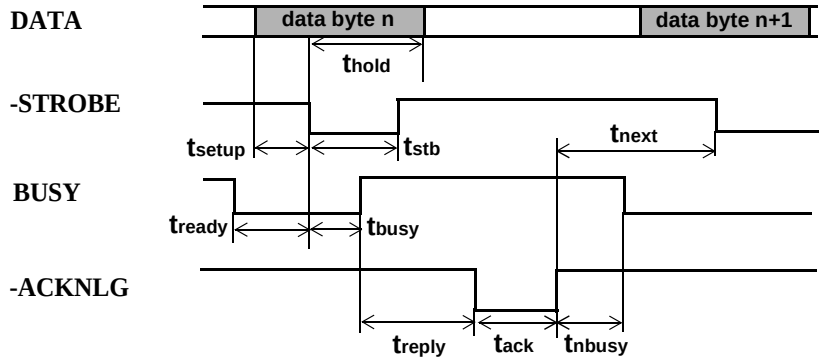

Figure 1-2. Data Transmission Timing

Table 1-3.

Parameter	Minimum	Maximum
tsetup	500ns	-
thold	500ns	-
tstb	500ns	-
tready	0	-
tbusy	-	500ns
tt-out*	-	120ns
tt-in**	-	200ns
treply	0	-
tack	500ns	10us
tnbusy	0	-
tnext	0	-

* *Rise and fall time of every output signal.*
** *Rise and fall time of every input signal.*
*** *Typical timing for tack is shown on the following page.*

Table 1-4. Typical Time of tack

Parallel I/F Mode	Typical Time of tack
High Speed	1us
Normal Speed	3us

Table 1-5. Signal Level: TTL Compatible (IEEE-1284 level 1 device)

Parameter	Minimum	Maximum	Condition
VOH*	-	5.5V	
VOL*	-0.5V	-	
IOH*	-	0.32mA	VOH = 2.4V
IOL*	-	12mA	VOL = 0.4V
CO	-	50pF	
VIH	-	2.0V	
VIL	0.8V	-	
IIH	-	0.32mA	VIH = 2.0V
IIL	-	12mA	VIL = 0.8V
CI	-	50pF	

* *A low logic level on the Logic H signal is 2.0V or less when the printer is powered off, and this signal is equal to or exceeding 3.0V when the printer is powered on. The receiver shall provide an impedance equivalent to 7.5K ohm to ground.*

Table 1-6. Connector Pin Assignment and Signals

Pin No.	Signal Name	Return GND Pin	In/Out	Functional Description
1	-STROBE	19	In	The strobe pulse. Read-in of data is performed at the falling edge of this pulse.
2	DATA0	20	In	The DATA0 through DATA7 signals represent data bits 0 to 7, respectively. Each signal is at high level when data is logical 1 and low level when data is logical 0.
3	DATA1	21	In	
4	DATA2	22	In	
5	DATA3	23	In	
6	DATA4	24	In	
7	DATA5	25	In	
8	DATA6	26	In	
9	DATA7	27	In	
10	-ACKNLG	28	Out	This signal is a negative pulse indicating that the printer can accept data again.
11	BUSY	29	Out	A high signal indicates that the printer cannot receive data.
12	PE	28	Out	A high signal indicates paper-out error.
13	SLCT	28	Out	Always at high level when the printer is powered on.
14	-AFXT	30	In	Not used.
31	-INIT	30	In	The falling edge of a negative pulse or a low signal on this line causes the printer to initialize. Minimum 50us pulse is necessary.
32	-ERROR	29	Out	A low signal indicates printer error condition.
36	-SLIN	30	In	Not used.

Table 1-6. Connector Pin Assignment and Signals (continued)

Pin No.	Signal Name	Return GND Pin	In/Out	Functional Description
18	Logic H	-	Out	Pulled up to +5V via 3.9K ohm resistor.
35	+5V	-	Out	Pulled up to +5V via 3.3K ohm resistor.
17	Chassis GND	-	-	Chassis GND
16,33, 19-30	GND	-	-	Signal GND
15,34	NC	-	-	Not connected

NOTE: *In/Out refers to the direction of signal flow from the printer's point of view.*

1.3.2 Parallel Interface (Reserve Channel)

Transmission Mode: IEEE-1284 nibble mode
Adaptable Connector: See forward channel.
Synchronization: Refer to the IEEE-1284 specification
Handshaking: Refer to the IEEE-1284 specification
Data Trans. Timing: Refer to the IEEE-1284 specification
Signal Level: IEEE-1284 level 1 device
See forward channel.

Table 1-7. Connector Pin Assignment and Signals

Pin No.	Signal Name	Return GND Pin	In/Out	Functional Description
1	HostClk	19	In	Host clock signal.
2	DATA0	20	In	The DATA0 through DATA7 signals represent data bits 0 to 7, respectively. Each signal is at high level when data is logical 1 and low level when data is logical 0. These signals are used to transfer the 1284 extensibility request values to the printer.
3	DATA1	21	In	
4	DATA2	22	In	
5	DATA3	23	In	
6	DATA4	24	In	
7	DATA5	25	In	
8	DATA6	26	In	
9	DATA7	27	In	
10	PtrClk	28	Out	Printer clock signal.
11	PtrBusy / DataBit-3,7	29	Out	Printer busy signal and reverse channel transfer data bit 3 or 7.
12	AckDataReq / DataBit-2,6	28	Out	Acknowledge data request signal and reverse channel transfer data bit 2 or 6.
13	Xflag / DataBit-1,5	28	Out	X-flag signal and reverse channel transfer data bit 1 or 5.
14	HostBusy	30	In	Host busy signal.
31	-INIT	30	In	Not used.

Table 1-7. Connector Pin Assignment and Signals (continued)

Pin No.	Signal Name	Return GND Pin	In/Out	Functional Description
32	-DataAvail / DataBit-0,4	29	Out	Data available signal and reverse channel transfer data bit 0 or 4.
36	1284-Active	30	In	1284 active signal.
18	Logic-H	-	Out	Pulled up to +5V via 3.9K ohm resistor.
35	+5V	-	Out	Pulled up to +5V via 3.3K ohm resistor.
17	Chassis GND	-	-	Chassis GND
16,33, 19-30	GND	-	-	Signal GND
15,34	NC	-	-	Not connected

Note) In/Out refers to the direction of signal flow from the printer's point of view.

Extensibility Request:

The printer responds affirmatively when the extensibility request values are 00H or 04H, which means,

00H: Request Nibble Mode Reverse Channel Transfer.
04H: Request Device ID;
Return Data Using Nibble Mode Rev Channel Transfer.

Device ID:

The printer sends the following device ID string when it is requested.

When IEEE1284.4 is enabled,
[00H] [5AH]
MFG: EPSON;
CMD: ESCPL2, BDC, D4;
MDL: Stylus[SP]COLOR[SP]760;
CLS: PRINTER;
DES: EPSON[SP]Stylus[SP]COLOR[SP]760;

When IEEE1284.4 is disabled,
[00H] [57H]
MFG: EPSON;
CMD: ESCPL2, BDC;
MDL: Stylus[SP]COLOR[SP]760;
CLS: PRINTER;
DES: EPSON[SP]Stylus[SP]COLOR[SP]760;

NOTE 1:*[00H] denotes a hexadecimal value of zero.*

NOTE 2:*MDL value depends on the EEPROM setting.*

NOTE 3:*CMD value depends on the IEEE1284.4 setting.*

1.3.3 USB Interface

Standard:	Based on: "Universal Serial Bus Specifications Rev. 1.0" "Universal Serial Bus Device Class Definition for Printing Devices Version 1.0"
Bit Rate:	12Mbps (Full Speed Device)
Data Encoding:	NRZI
Adaptable Connector:	USB Series B
Recommended Cable Length:	2 meters

Table 1-8. Connector Pin Assignment and Signals

Pin No.	Signal Name	I/O	Function Description
1	VCC	-	Cable power. Max. power consumption is 2mA.
2	-Data	Bi-D	Data
3	+Data	Bi-D	Data, pull up to +3.3 V via 1.5K ohm resistor.
4	Ground	-	Cable ground

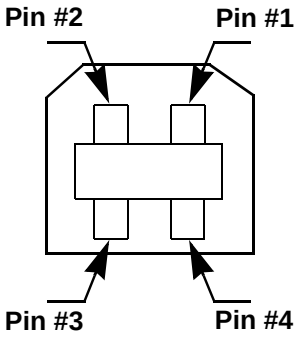

Figure 1-3. USB Pin Assignment

1.3.4 Preventing Data Transfer Time-out of Hosts

Generally, hosts abandon data transfer to peripherals when a peripheral is in the busy state for dozens of seconds continuously. To prevent this kind of time-out, the printer receives data very slowly, several bytes per minute, even if the printer is in the busy state. The slowdown starts when the remaining input buffer becomes several hundreds of bytes. Finally, the printer gets into the busy state continuously when the input buffer is full.
USB and IEEE1284.4 on the parallel interface do not require this function.

1.3.5 Interface Selection

The printer has two built-in interfaces: the USB and parallel interface.
These interfaces are selected automatically.

- Automatic Selection
  In this automatic interface selection mode, the printer is initialized to the idle state scanning which interface receives data when it is powered on. Then the interface that received data first is selected. When the host stops data transfer and the printer is in the stand-by state for seconds, the printer is returned to the idle state. As long as the host sends data or the printer interface is in the busy state, the selected interface is let as it is.
- Interface State and Interface Selection
  When the parallel interface is not selected, the interface gets into the busy state. When the printer is initialized or returned to the idle state, the parallel interface gets into the ready state. Note that the interrupt signal such as the -INIT signal on the parallel interface is not effective while that interface is not selected.

1.3.6 IEEE1284.4 Protocol

The packet protocol described by IEEE1284.4 standard allows a device to carry on multiple exchanges or conversations which contain data and/or control information with another device at the same time across a single point-to-point link. The protocol is not, however, a device control language. It does provide basic transport-level flow control and multiplexing services. The multiplexed logical channels are independent of each other and blocking of one has no effect on the others. The protocol operates over IEEE1284.

- Automatic Selection
  An initial state is compatible interface and starts IEEE1284.4 communication when magic strings (1284.4 synchronous commands) are received.
- On
  An initial state is IEEE1284.4 communication and data that received it by the time it is able to take synchronization by magic string (1284.4 synchronous commands) is discarded.
- Off
  An initial state is compatible interface and never starts IEEE1284.4 communication even if magic strings (1284.4 synchronous commands) are received.

1.4 OPERATOR CONTROLS

1.4.1 Operating Switch

Operating switch is located on the control panel.

1.4.2 Control Panel

1.4.2.1 Switches

There are two non-lock type push switches, one lock-type push switch, and four LED lights.

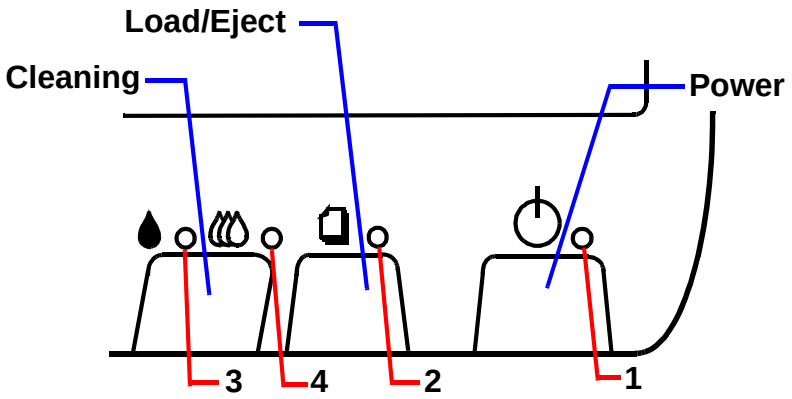

Figure 1-4. Control Panel

1.4.2.2 Indicators

(1) Power
Lights when the operating switch is “ON” and AC power is supplied.

(2) Paper Out
Lights during the paper-out condition, and blinks during the paper-jam condition.

(3) Ink Out (Black)
Lights during no black ink condition, and blinks during the black ink low condition.

(4) Ink Out (Color)
Lights during no color ink condition, and blinks during the color ink low condition.

1.4.3 Panel Functions

Table 1-9. Panel Functions

Switch	Function
Load / Eject (Push for less than 2 sec.*)	• Loads or ejects a paper. • When the carriage is on the ink cartridge replacement position, return the carriage to the capping position.
Load / Eject (Push for 2 sec.*)	• Starts the ink cartridge replacement sequence.** • Moves the carriage to the cartridge replacement position.
Cleaning (Push for 2 sec.*)	• Starts cleaning of the printhead. • In the condition of “Ink Low”, “Ink Out”, or “No Ink Cartridge”, starts the ink cartridge replacement sequence.**
Cleaning (Push for less than 2 sec.*)	• When the carriage is on the ink cartridge replacement position, return the carriage to the capping position.

** It is described in the user’s manual that three seconds are required.*

***This function is not available in printing status.*

Table 1-10. Panel Function with Power On

Switch	Pressing with Power On Function
Load / Eject	• 1) Starts status printing. *1
Cleaning	• Changes code pages / Select IEEE1284.4 mode for parallel I/F. *2
Load/Eject + Cleaning	• Enters the special settings mode. (Factory use only). *3

**1: One of the following actions is carried out according to the content of 1BH of EEPROM.*

Content of 1BH of EEPROM, [bit7] [bit6]	Action
00	Print firmware version, ink counter, selected code page and nozzle check pattern.
11	
01	Start hex-dump printing.
10	Start self test printing.

**2: Not described in the user’s manual.*

**3: See the table below.*

Table 1-11. Special Setting Mode

Switch	Function
Load / Eject	• Initialize EEPROM and reset timer IC.
Cleaning (Push for 10 seconds)	• Reset the ink overflow counter in EEPROM.

1.4.4 Printer Condition and Panel Status

Table 1-12. Printer Condition and LED Status

Printer Status	Indicators				Priority
	Power	Ink Out (Black)	Ink Out (Color)	Paper Out	
Power On Condition	On	-	-	-	9
Ink Sequence	Blink	-	-	-	6
Ink Cartridge Replacement Mode	Blink	-	-	-	5
Data Processing	Blink	-	-	-	8
Paper Out	-	-	-	On	4
Paper Jam Condition	-	Off	Off	Blink	3
No Ink Cartridge / Ink End (Black)	-	On	-	-	7
Ink Level Low (Black)	-	Blink	-	-	7
No Ink Cartridge or Ink End (Color)	-	-	On	-	7
Ink Level Low (Color)	-	-	Blink	-	7
Enter EEPROM and Timer IC Reset	-	ON (for 1 second only)			-
Maintenance Request	Blink	Blink	Blink	Blink	2
Fatal Error	Blink	On	On	Blink	1

1.4.5 Printer Initialization

There are three kinds of initialization methods, and the following explains each initialization.

1. Power-on Initialization
   This printer is initialized when turning the printer power on, or printer recognized the cold-reset command (remote RS command).

   When printer is initialized, the following actions are performed:
   (a) Initializes printer mechanism.
   (b) Clears input data buffer.
   (c) Clears print buffer.
   (d) Sets default values.

2. Operator Initialization
   This printer is initialized when turning the printer power on again within 10 seconds from last power off, or printer recognized the -INIT signal (negative pulse) of parallel interface.

   When printer is initialized, the following actions are performed:
   (a) Cap the printer head.
   (b) Eject a paper.
   (c) Clears input data buffer.
   (d) Clears print buffer.
   (e) Sets default values.

3. Software Initialization
   The ESC@ command also initialize the printer.

   When printer is initialized, the following actions are performed:
   (a) Clears print buffer.
   (b) Sets default values.

1.4.6 Errors

- **Ink Out**
  When the printer runs out most of the ink of any color, it warns ink-low and keeps printing. When the printer runs out the whole ink of any color, it stops printing and indicates ink-out error. User is requested to install a new ink-cartridge in this state. An ink-cartridge that has been taken out once should never be used again. Re-installation of the cartridge not filled fully upsets the ink level detection and may cause a serious problem in the print head as a result.
- **Paper Out**
  When the printer fails to load a sheet, it goes into a paper out error.
- **Paper Jam**
  When the printer fails to eject a sheet, it goes into a paper jam error.
- **No Ink-Cartridge**
  When the printer detects that ink-cartridge comes off, it goes into this error mode.
- **Maintenance Request**
  When the total amount of ink wasted through the cleanings and flushing reaches to the limit, printer indicates this error and stops. The absorber in the printer enclosure needs to be replaced with new one by service personnel.
- **Fatal Errors**
  Carriage control error or CG access error.

1.5 PAPER

1.5.1 Paper Handling

Do not perform reverse feed more than 9.5mm (0.38”).

1.5.2 Paper Specification

1.5.2.1 Cut Sheet

[Size]

A4:	Width 210mm (8.3”) x Length 297mm (11.7”)
Letter:	Width 216mm (8.5”) x Length 279mm (11.0”)
B5:	Width 182mm (7.2”) x Length 257mm (10.1”)
Legal:	Width 216mm (8.5”) x Length 356mm (14.0”)
Statement:	Width 139.7mm (5.5”) x Length 215.9mm (8.5”)
Executive:	Width 184.2mm (7.25”) x Length 266.7mm (10.5”)
Photo Paper:	Width 101.6mm (4”) x Length 152.4mm (6”)

[Thickness]

0.08mm (0.003”) - 0.11mm (0.004”)

[Weight]

64g/m^2 (17lb.) - 90g/m^2 (24lb.)

[Quality]

Exclusive paper, Bond paper, PPC

1.5.2.2 Transparency, Glossy Paper

[Size]

A4:	Width 210mm (8.3”) x Length 297mm (11.7”)
Letter:	Width 216mm (8.5”) x Length 279mm (11.0”)

[Thickness]

0.075mm (0.003”) - 0.085mm (0.0033”)

**Transparency printing is available only at normal temperature.*

1.5.2.3 Envelope

[Size]

No.10:	Width 241mm (9 1/2”) x Length 104.8mm (4 1/8”)
DL:	Width 220mm (8.7”) x Length 110mm (4.3”)
C6:	Width 162mm (6.4”) x Length 114mm (4.5”)

[Thickness]

0.16mm (0.006”) - 0.52mm (0.02”)

[Weight]

45g/m^2 (12lb.) - 75g/m^2 (20lb.)

[Quality]

Bond paper, Plain paper, Air mail

**Envelope printing is available only at normal temperature.*

**Keep the longer side of the envelope horizontally at setting.*

1.5.2.4 Index Card

[Size]

A6 Index Card:	Width 105mm (4.1”) x Length 148mm (5.8”)
A5 Index Card:	Width 148mm (5.8”) x Length 210mm (8.3”)
5 x 8” Index Card:	Width 127mm (5.0” x Length 203mm (8.0”)
10 x 8” Index Card:	Width 127mm (5.0”) x Length 203mm (8.0”)

[Thickness]

Less than 0.23mm (0.0091”)

1.5.3 Printing Area

1.5.3.1 Cut Sheet

See the figure below and tables on the right for printable areas for Raster Graphics mode and Character mode.

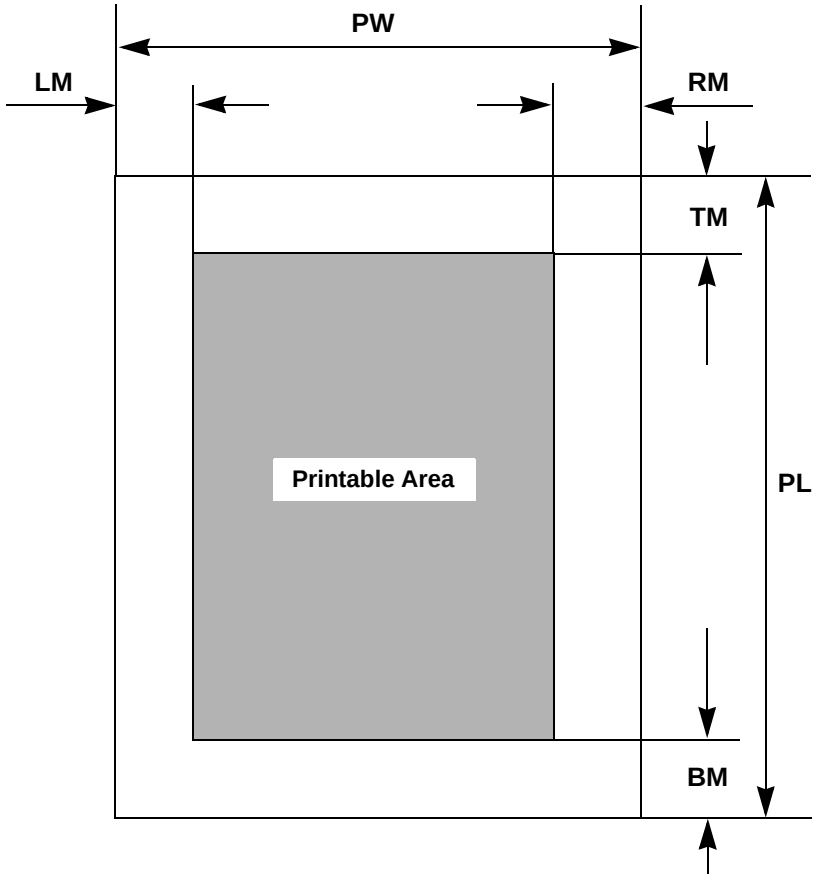

Figure 1-5. Printable Area for Cut Sheet

Table 1-13. Character Mode

Paper Size	Left Margin (min.)	Right Margin (min.)	Top Margin (min.)	Bottom Margin (min.)
A4	3mm (0.12”)	3mm (0.12”)	3mm (0.12”)	14mm (0.54”) /3mm (0.12”)*
Letter	3mm (0.12”)	9mm (0.35”)	3mm (0.12”)	14 mm (0.54”) / 3mm (0.12”)*
B5	3mm (0.12”)	3 m (0.12”)	3mm (0.12”)	14 mm (0.54”) / 3mm (0.12”)*
Legal	3mm (0.12”)	9mm (0.35”)	3mm (0.12”)	14 mm (0.54”) / 3mm (0.12”)*
Statement	3mm (0.12”)	3mm (0.12”)	3mm (0.12”)	14 mm (0.54”) / 3mm (0.12”)*
Executive	3mm (0.12”)	3mm (0.12”)	3mm (0.12”)	14 mm (0.54”) / 3mm (0.12”)*

NOTE: *Refer to 1.5.2 Paper Specification for PW (paper width) and PL (paper length).*

Table 1-14. Raster Graphics Mode

Paper Size	Left Margin (min.)	Right Margin (min.)	Top Margin (min.)	Bottom Margin (min.)
A4	3 mm (0.12”)	3 mm (0.12”)	3 mm (0.12”)	14 mm (0.54”) / 3mm (0.12”)*
Letter	3 mm (0.12”)	3 mm (0.12”)	3 mm (0.12”)	14 mm (0.54”) / 3mm (0.12”)*
B5	3 mm (0.12”)	3 mm (0.12”)	3 mm (0.12”)	14 mm (0.54”) / 3mm (0.12”)*
Legal	3 mm (0.12”)	3 mm (0.12”)	3 mm (0.12”)	14 mm (0.54”) / 3mm (0.12”)*
Statement	3 mm (0.12”)	3 mm (0.12”)	3 mm (0.12”)	14 mm (0.54”) / 3mm (0.12”)*
Exclusive	3 mm (0.12”)	3 mm (0.12”)	3 mm (0.12”)	14 mm (0.54”) / 3mm (0.12”)*

* *Bottom margin is reduced to 3mm when paper dimension is defined by using the command. However, print in the extra printable area may scramble. Note the bottom margin remains 14 mm without the command.*

1.5.3.2 Envelopes

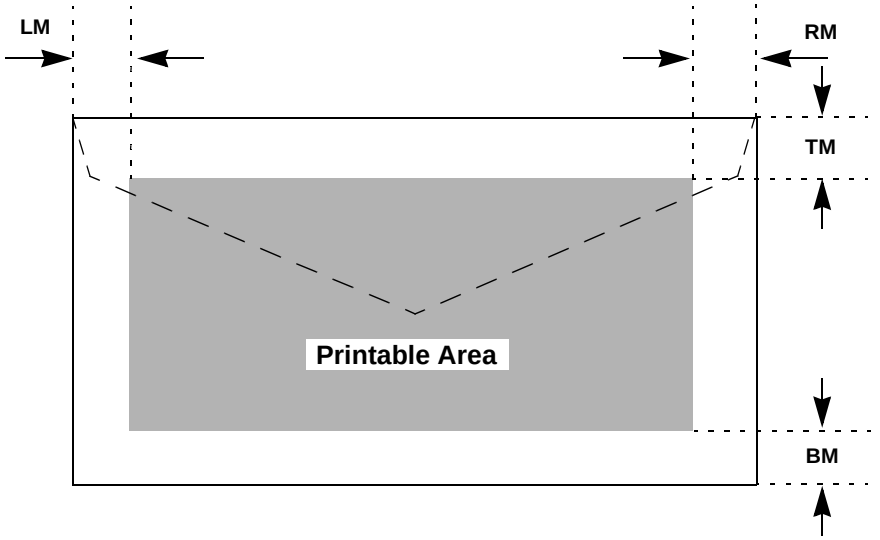

Figure 1-6. Printable Area for Envelopes

Table 1-15. Envelope Margin

Size	Left Margin (min.)	Right Margin (min.)	Top Margin (min.)	Bottom Margin (min.)
#10	3 mm (0.12”)	28 mm (1.10”)	3 mm (0.12”)	14 mm (0.55”)
DL	3 mm (0.12”)	7 mm (0.28”)	3 mm (0.12”)	14 mm (0.55”)
C6	3 mm (0.12”)	3 mm (0.12”)	3 mm (0.12”)	14 mm (0.55”)

1.6 INK CARTRIDGE

1.6.1 Black Ink Cartridge

Type:	Exclusive Cartridge
Color:	Black
Print Capacity:	900 pages/A4 (ISO/IEC 10561 Letter Pattern at 360 dpi)
Ink Life:	2 years from date of production
Storage Temperature:	
Storage:	-20 °C to 40 °C (within a month at 40 °C)
Packing:	-30 °C to 40 °C (within a month at 40 °C)
Transit:	-30 °C to 60 °C (within 120 hours at 60 °C and within a month at 40 °C)
Dimension:	27.8 mm (W) x 52.7 mm (D) x 38.5 mm (H)

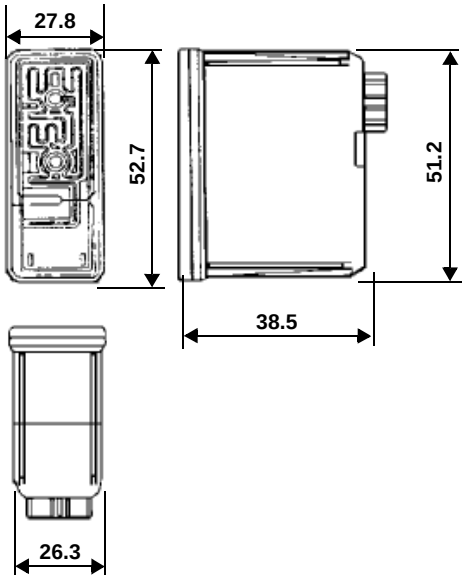

Figure 1-7. Black Ink Cartridge

1.6.2 Color Ink Cartridge

Type:	Exclusive Cartridge
Color:	Magenta, Cyan, Yellow
Print Capacity:	300 pages / A4 (360 dpi, 5% duty each color)
Ink Life:	2 years from date of production
Storage Temperature:	
Storage:	-20 °C to 40 °C (within a month at 40 °C)
Packing:	-30 °C to 40 °C (within a month at 40 °C)
Transit:	-30 °C to 60 °C (within 120 hours at 60 °C and within a month at 40 °C)
Dimension:	42.9 mm (W) x 52.7 mm (D) x 38.5 mm (H)

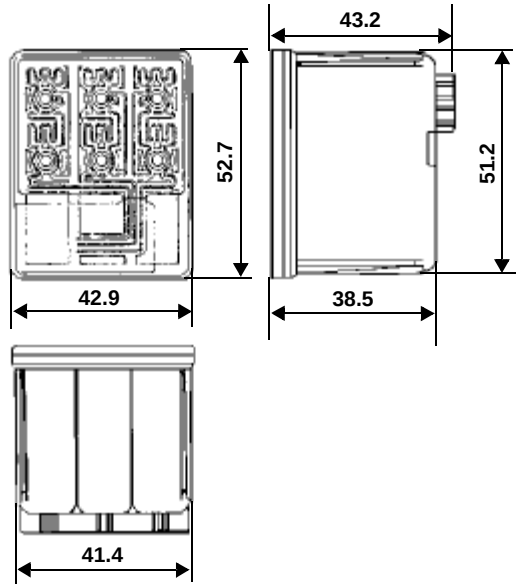

Figure 1-8. Color Ink Cartridge

Note 1: Ink cartridge can not be re-filled. It is prepared only for an article of consumption.

Note 2: Do not use the ink cartridge which contains life-expired ink.

Note 3: Ink will be frozen under -4°C environment; however, it will be usable after placing it at room temperature for more than three hours.

CHAPTER

2

OPERATING PRINCIPLES

2.1 Overview

This section describes the operating principles of the printer mechanism and electrical circuit boards. The EPSON Stylus COLOR 760 has the following boards:

- ☐ Main board: C298MAIN Board
- ☐ Power supply board: C298PSB/PSE Board
- ☐ Panel board: C298PNL Board

2.1.1 Printer Mechanism

Unlike other EPSON ink jet printers, the Stylus COLOR 760 uses DC motor for power source. Use of the DC motor enable the printer to lower noise during printing to a great extent. Table 2-1 shows the various motor types used in the printer and their applications.

Table 2-1. Motor Types and Corresponding Applications

Motor Name	Type	Application / Feature
CR Motor	DC with brush	Used to drive the carriage making little noise. A a linear scale is used to monitor the motor's operating condition.
PF Motor	DC with brush	• Drives paper feeding rollers used to send paper at specified speeds and load/eject paper. • Drive the ASF used to send paper to PF roller. • Drive CR Lock lever When the CR unit is in the home position, the CR lock lever is fixed the CR unit. • Drive Pump Unit to absorb the ink To monitor paper feeding pitch, a loop scale is attached beside the high-precision gear.

The basic structure of the printer mechanism is mostly common to the Stylus COLOR 400/600/440/640/740, except that the Stylus COLOR 760 uses a DC motor.

Figure 2-1 shows the printer mechanism block diagram for the Stylus COLOR 760.

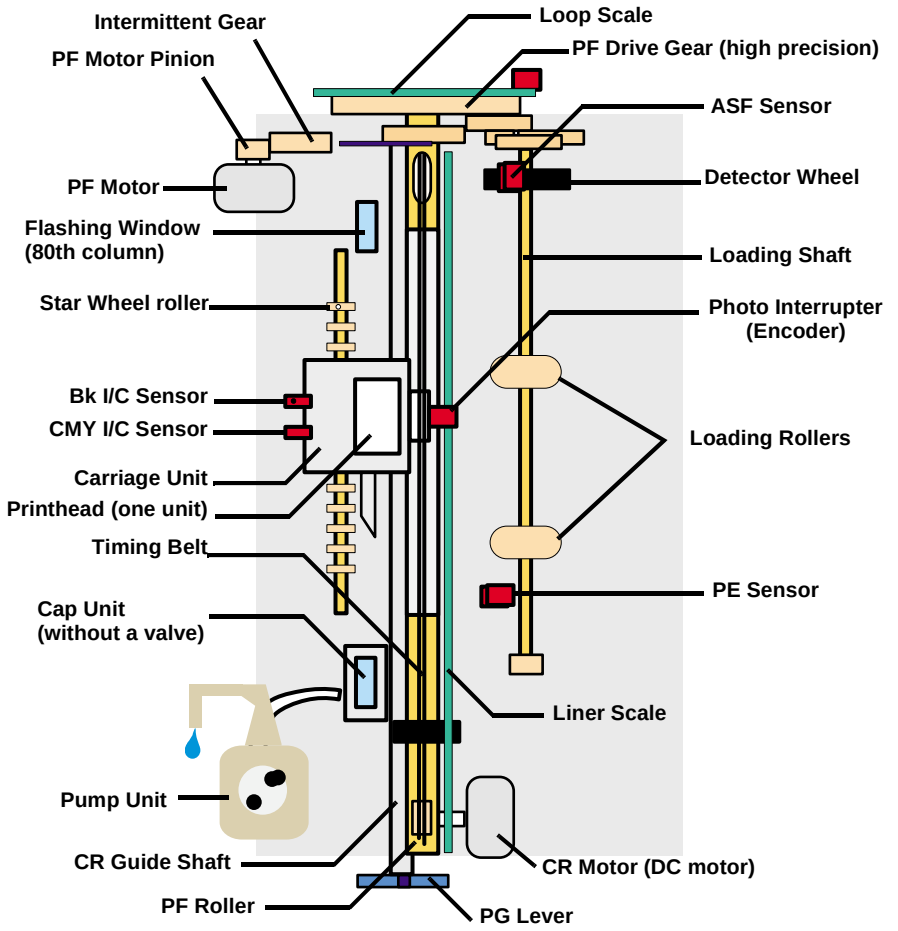

Figure 2-1. Printer Mechanism Block Diagram

2.1.1.1 Printing Mechanism

The basic operating principles of the printhead, which plays a major role in printing, are the same as previous models; ones that use a on-demand type U-CHIP head method. (Refer to Figure1-1.)
Also, unlike the Stylus Color IIs, 820 and 200, the Stylus COLOR 760 is not an automatic correction type. So, in order to correct dispersion of multi layer piezo electric element that drives each nozzle, you are required to input a VH value written on the top surface of the printhead by using an exclusive program when you replace the printhead, control board, or printer mechanism. (Note there are no resistor arrays to determine the VH voltage on the main control board.)
Following explains printhead.

- PZT
  PZT is an abbreviation of Piezo Electric Element. Print signals from the Main board are sent through the driver board on the printhead unit to the PZT. Then, the PZT pushes the top cavity which has ink stored to discharge the ink from each nozzle on the nozzle plate.
- Cavity Set
  The ink absorbed from the ink cartridge goes through the filter and then is stored temporarily in this tank called “cavity” until PZT is driven.
- Nozzle Plate
  The board with nozzle holes on the printhead surface is called Nozzle Plate.
- Filter
  When the ink cartridge is installed, if any dirt or dust around the cartridge needle is absorbed into the head, there is a great possibility of causing nozzle clog and disturbance of ink flow, and finally causing alignment failure and dot missing. To prevent this problem, a filter is set below the cartridge needle, where ink is filtered.

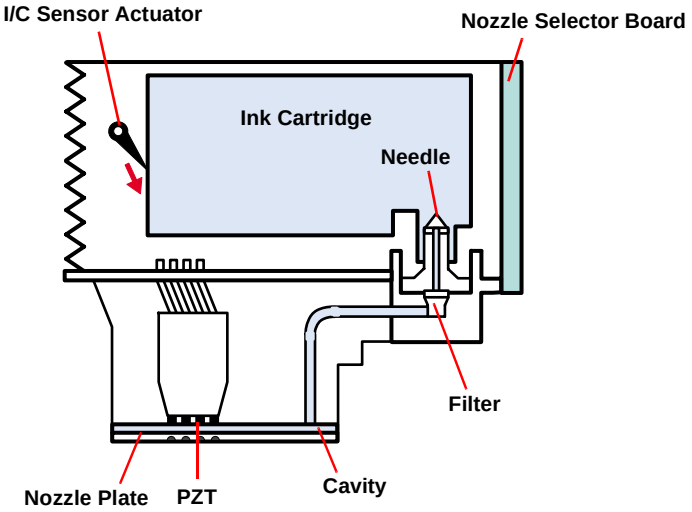

Figure 2-2. Printing Mechanism

2.1.1.2 Printing Process

Figure 2-3 and Figure 2-4 show the normal state and ejecting state of the printhead, respectively.

1. **Normal State:**
   When the print signal is not output, PTZ also does not move from a waiting state (normal state). (Refer to Figure 2-3.)

2) **Ejecting State:**
   When the print signal is output from the C298MAIN board, IC (IR4C463S: Nozzle Selector) located on the printhead unit latches data once by 1-byte unit. An appropriate PZT latched by the nozzle selector is pushed into the cavity by the common voltage applied from the main board. By this operation, ink stored in the cavity spurts out from nozzles. (Refer to Figure 2-4.)

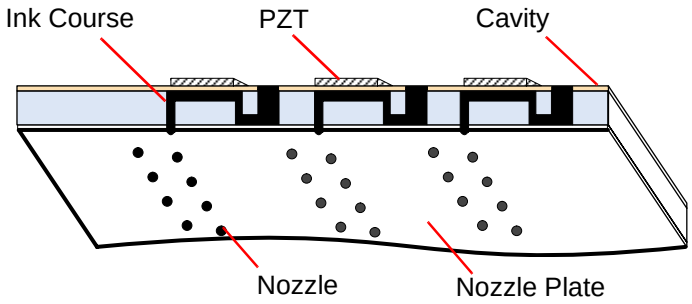

Figure 2-3. Print Head Normal State

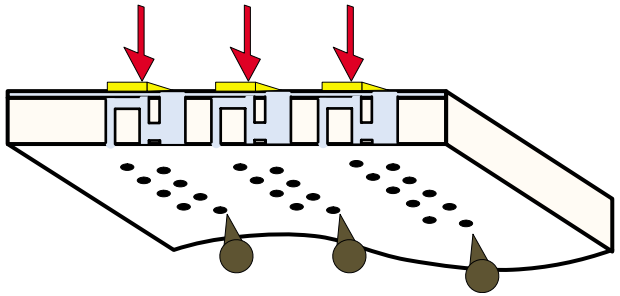

Figure 2-4. Print Head Ejecting State

2.1.1.3 Carriage Mechanism

The carriage mechanism for the Stylus COLOR 760 is mostly the same as for other ink jet printers except it is driven by a DC motor. See the table below for the carriage motor specifications.

Table 2-2. Carriage Motor Specification

Items	Specifications
Type	DC Motor with brush
Drive Voltage	+42 V +/- 5%(DRV IC voltage)
Internal Resistance	29.2 ohms +/- 25%
Inductance	30.8 mH +/- 25%
Drive Method	Constant Current Chopping
Driver IC	LB1947

Unlike a stepping motor, the DC motor that drives the carriage can not detect the current carriage position by referring to the pulses given. Therefore, a linear scale is attached along the carriage operation range to enable the printer to mechanically detect the carriage position. (Same as the Stylus COLOR 900) The linear scale is also used to produce the print timing signal (PTS signal), to which the printer refers to for a correct ink ejection timing. For detailed information on the CR motor control circuit, see Section 2.2.

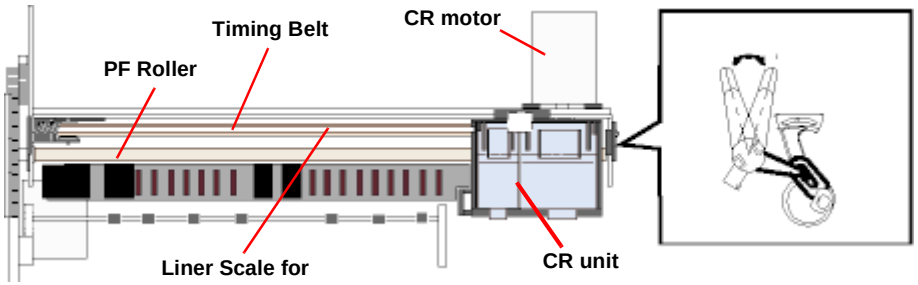

Figure 2-5. Carriage Mechanism (Top view)

The printhead, a core of the printing mechanism, is stored in the carriage unit. When the adjustment lever is moved up and down, this printhead is maintained tilt in a flexible and adjustable structure by the tilt adjustment mechanism. Also, the parallelism adjustment levers, mounted on the left and right sides of the carriage guide shaft, are used to set the carriage guide shaft parallel to the platen when the shaft has been installed to the printer mechanism. After this adjustment is completed, moving the PG adjustment lever sets the distance between the platen surface and the printhead surface to one of two possibilities: 1.14 mm or 1.84mm. You can change the distance by rotating the shafts of the carriage guide shaft which itself is decentralized, with the operation of PG lever. This is the mechanism that the user can use to adjust the appropriate PG value according to the printing result or any other environmental conditions such as paper thickness.

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2.1.1.4 Platen Gap (PG) Adjust Mechanism

The PG adjustment, at the right of the printer mechanism, consists of the PG lever, PG support lever, right/left parallelism adjustment levers, and CR guide shaft.
The PG adjustment mechanism is designed to keep the platen gap correct for the paper thickness to prevent ink from smearing. The PG support lever joins the CR guide shaft, which has and eccentricity via PG support lever. Switching the lever from “0” to “+” rotates the CR shaft and changes the platen gap from narrow to wide.

Table 2-3. Platen Gap Adjust Lever Setting

Paper	Lever Position	PG adjustment value
All Media	Front	0 mm (1.14mm between head and platen)
If you find any print problems or you use thick paper	Rear	0.7mm (1.84mm between head and platen)

2.1.1.5 Paper Feeding Mechanism

The paper feeding mechanism transports paper loaded from ASF using the PF rollers and paper eject rollers. A new type of DC motor is used for the PF motor. See the table below for the DC motor specifications.

Table 2-4. PF Motor Specifications

Item	Description
Motor type	DC Motor with Brush
Drive voltage	+42V +/- 5% (DRV IC voltage)
Coil Resistance	31.1 ohm +/- 25%
Drive frequency [Hz]	26.6mH +/- 25%
Control method	A3958

Unlike a stepping motor, the DC motor that drives the paper feeding mechanism can not measure the paper feeding amount by referring to the pulses given. For this reason, the loop scale and encoder sensor are directly attached to the left end of the PF roller shaft to mechanically control paper feed amount. See Section 2.2 for detailed information on the PF motor control circuit.

Drive from the PF motor is sent to the PF rollers and paper eject rollers as described below.

- To the PF rollers:
  PF motor pinion gear (CCW rotation)→ Spur gear (76) → PF rollers
- To the eject rollers:
  PF motor pinion gear (CCW rotation)→ Spur gear (76) → Combination gear (13.5, 308) → Spur gear (28) → Paper eject rollers

NOTE: *Above CCW rotation is mentioned viewing from the PF motor pinion gear side.*

Figure 2-6 in the next page gives the paper feeding mechanism block diagram, showing the parts along the PF motor drive transmission paths.

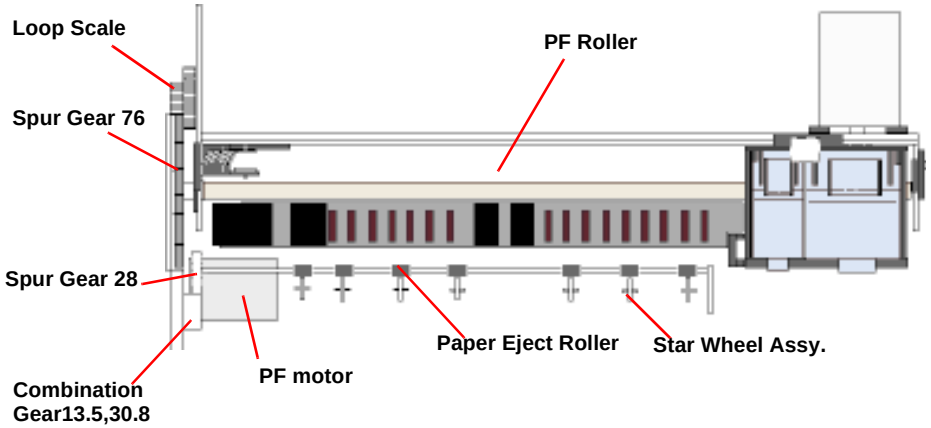


Figure 2-6. Paper Feeding Mechanism (Top View)

The printer loads paper at the ASF, which is detected by the PE sensor attached to the right side of the top frame, and advances it to send the paper's leading edge to the halfway of the front paper guide. Then, to correct deflection, the printer feeds the paper back specified steps toward ASF, and advances the paper again toward the front paper guide and stops it at the specified TOF (Top Of Form) position. Once the printer starts printing, it transports paper using the PF rollers and sub rollers, and as the printer transports or printing on the tailing 14 mm, it uses a star wheel gear and paper eject rollers. Like the Stylus COLOR 440/640/740, this printer also provides this extra printable range of 14 mm from the bottom edge, excluding the bottom margin of 3mm, by changing the position of the star wheel gear; it has been shifted by 5° from the top of the eject roller toward the front paper guide. Due to this change, the tailing edge of paper is suppressed, and the printer can advance paper steadily when printing around the bottom area. See Figure 2-7 next page that shows how paper is transported and parts involved.

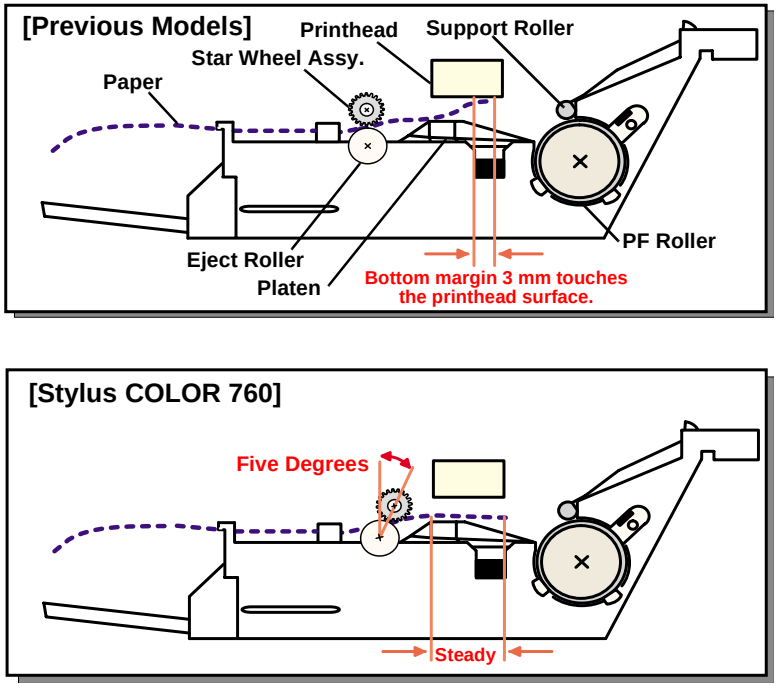


Figure 2-7. Paper Transportation (Right side view)

2.1.1.6 CR Lock Mechanism

The carriage lock mechanism prevents the carriage from being left at an uncapped position for a long time, that is usually caused by vibration during printer transportation, user's mishandling of the printer, and so on.
The CR Lock mechanism is driven with the DC PF motor. As for the motor specifications, refer to Table 2-4. The PF motor drive is used for the Paper Feed Mechanism also and the CR lock mechanism is controlled depending on the direction of the PF motor rotation. The CR lock mechanism is assembled on the right tip of the Paper Eject Roller as shown in the following figure.

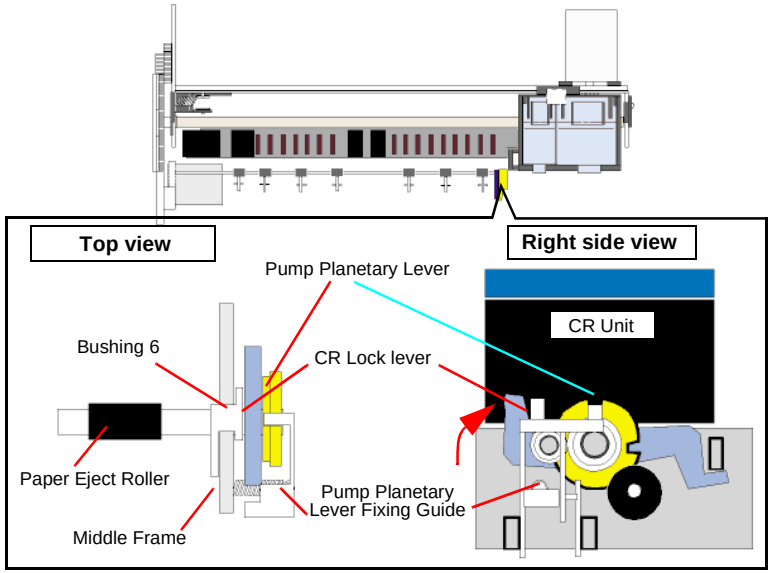


Figure 2-8. CR Lock mechanism

While the PF motor drive is used for paper feeding (PF motor rotation: CCW), the CR Lock lever is set under the Paper Eject Frame. But the CR Lock lever rises up with the CW rotation of the PF motor and locks the CR unit.
Drive from the PF motor is sent to the CR Lock lever via Paper Eject Roller below.

- To the CR lock lever
  PF motor pinion gear (CW rotation)→ Spur gear (76) → Combination gear (13.5, 30.8) → Spur gear (28) → Paper eject rollers→ CR lock lever.

If the carriage is left uncapped for a long time, ink on its surface will become gradually thick and not spurt from the nozzles as a result. To make matters worse, the holes (crater) of the nozzles may be completely clogged by the thick ink, and they may not be able to return to a normal condition just by a cleaning operation. To prevent this, the printer enters a carriage lock condition in the following conditions.

- **After Power-off operation:**
  If the printer power is turned off in the middle of printing or any other performances, carriage lock takes place in the end after an initialization operation.
- **After Power-on operation:**
  After the printer power is turned on and an automatic power-on cleaning is completed, carriage lock is performed. The power-on cleaning is an automatic head cleaning that runs when the printer power is turned on. The timer IC always calculates printer's power off time using power from a lithium battery mounted on the C298MAIN board. The power-on cleaning function automatically selects a correct cleaning level according to the length of time which the printer has been turned off.
- **After ejecting paper:**
  After the Load/Eject button is pressed and the paper is ejected, if the printer does not receive any data, it performs carriage lock and goes to a standby state. However, if paper is loaded by pressing the Load/Eject button, the printer does not perform the carriage lock operation.

PF motor torque is always transmitted to the CR lock lever side, but the operation of the CR lock mechanism varies depending on the rotational direction of the PF motor, as shown in the following below.

Table 2-5. CR Lock mechanism & PF motor rotational direction

Directions	Corresponding Functions
Counterclockwise	• Releases the CR lock lever.
Clockwise	• Sets the CR lock lever.

2.1.1.7 Paper Loading Mechanism

The paper loading mechanism loads paper at the ASF unit and feeds paper to the PF rollers. The ASF unit, the same as in the Stylus COLOR 440/640/740, uses a DC PF motor. Drive sent from this motor is switched between the ASF unit side and Pump/PF roller side by the disengage mechanism.

Drive from the PF motor is transmitted to the ASF as described below:

☐ Drive transmission to the ASF unit

1) When the CR unit moves to the left end of the CR shaft, the DE lever is pushed to the left end and the Spur gear 26.4 meshes with the Combination gear (16,40.8).
2) Drive of the PF motor is sent to the ASF side.
3) Drive from the PF motor is transmitted as described below.

   PF Motor pinion gear → Spur gear (76) → Spur gear (26.4) → Combination gear (16,40.8) → Spur gear (23.2) → Spur gear (27.2) in ASF

Figure 2-9 shows the disengage mechanism and the parts involved.

When the PF motor torque is switched to the ASF unit side by the disengage mechanism, the function of the ASF mechanism varies depending on the rotational direction of the PF motor, as shown in the table below.

Table 2-6. ASF unit function & PF Motor rotational direction

Directions	Corresponding Functions
Counterclockwise	• Picks up paper
Clockwise	• Resets paper to the correct paper set position using the Return Lever.

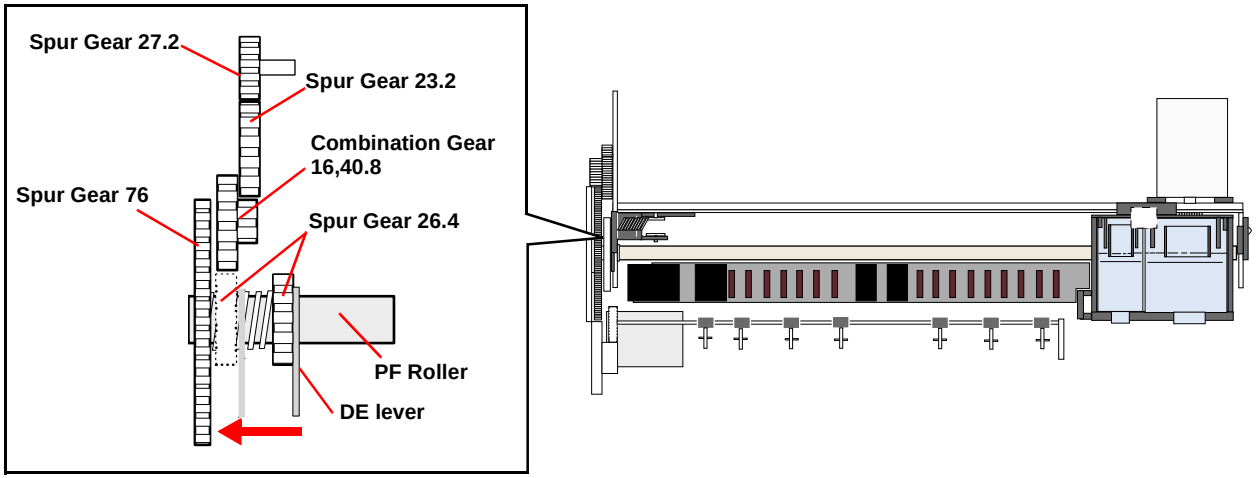


Figure 2-9. Disengage Mechanism (Top view)

Torque sent from the PF motor to the ASF unit via the disengage mechanism is used for the following operation.

☐ Paper loading operation

Like the Stylus COLOR 440/640/740, ASF of this printer has the multiple paper loading prevention mechanism to provide steady paper loading. This mechanism prevents a sheet of paper from falling from the paper set position into the paper path. A paper return lever in the mechanism pushes paper that may have fallen off back onto the hopper. After this motion is completed, the LD roller starts loading paper. The paper loading mechanism, including the multiple paper loading prevention mechanism, is described in the following steps.

1. When the printer power is turned on, the PFmotor rotates counterclockwise to detect ASF home position. Then the motor rotates clockwise specified steps to set the LD roller and paper turn lever in place. (See “Standby State” in Figure 2-10.)
2. When the paper loading signal is sent from the PC and the Load/Eject button is pressed, PF motor turns counterclockwise to let the LD roller load paper. (See “Paper Pick Up State” in Figure 2-10.)
3. When the paper is transported to the PF roller, the LD roller stops where it loses friction. (See “PF Roller Paper Feed State” in Figure 2-10.)
4. When the next print signal is sent or Load/Eject button is pressed, the PF motor rotates clockwise specified steps to set the LD roller and the paper return lever in place. (See “Standby State” in Figure 2-10.)

NOTE: *If no print signal is sent for several seconds in step 4, the LD roller and the paper return lever automatically return to the standby state.*

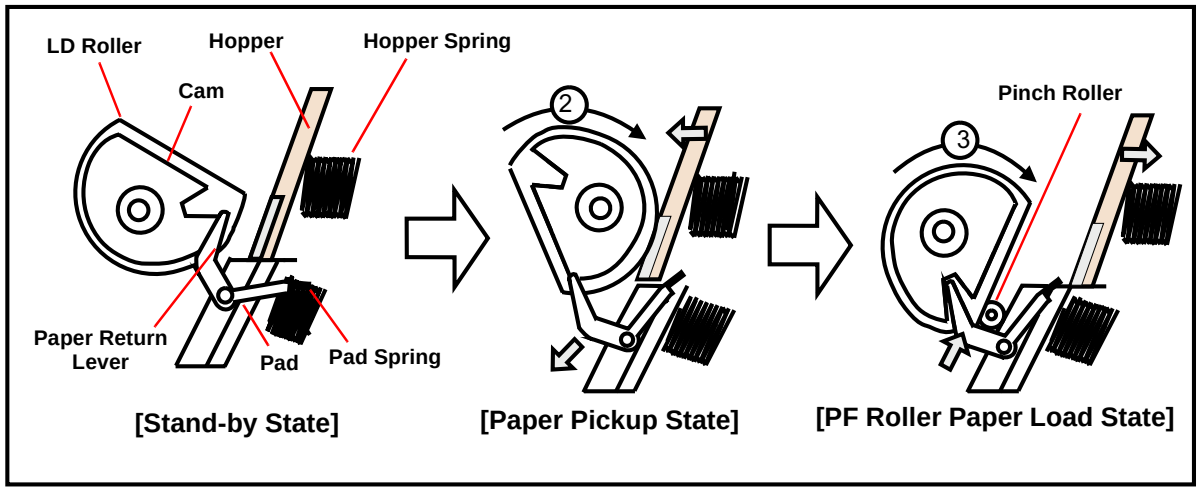


Figure 2-10. Multiple Paper Loading Prevention Mechanism (right side view)

2.1.1.8 Pump Mechanism

The pump mechanism absorbs ink from the printhead or the cap assembly. The wiper for head cleaning is attached in the cap assembly. The pump mechanism is driven by the DC PF motor. Drive sent from this motor is switched between CR lock lever mechanism (PF roller & Paper Eject Roller) side and Pump unit side by the Pump disengage mechanism. See Table 2-4 for the PF motor specifications. Torque from the PF motor is sent to the pump unit by the switching operation of the planetary gear in the Pump disengage mechanism. The PF motor torque is transmitted to the pump mechanism as described below.

☐ Torque transmission to the pump unit

1) When the CR unit moves to capping position, the protusion of the CR unit pushes the Pump planetary lever fixing guide to the right side and release the Pump planetary lever. (Pump planetary lever is fixed with the Pump planetary lever fixing guide to the CR lock lever mechanism side.)

2) The PF motor rotates to counterclockwise direction and the Paper eject roller rotates to paper eject direction. The Pump planetary lever also rotates about 90 degree angle to the Pump mechanism side.

3) Torque from the PF motor is transmitted as described below.
PF motor pinion gear (CCW rotation)→ Spur gear (76) → Combination gear (13.5, 30.8) → Spur gear (28) → Paper eject rollers → Pump planetary lever → Spur Gear 10.4 (Pump DE unit) → Spur Gear 8.4 (Pump DE unit) → Combination Gear 12, 28.8. → Pump unit.

Figure 2-11 shows you torque transmission to the Pump unit.

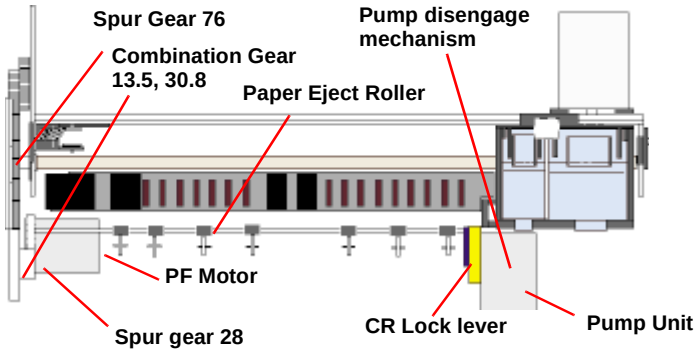


Figure 2-11. Torque transmission to Pump Unit (Top view)

Figure 2-11 show you the pump disengagement mechanism.

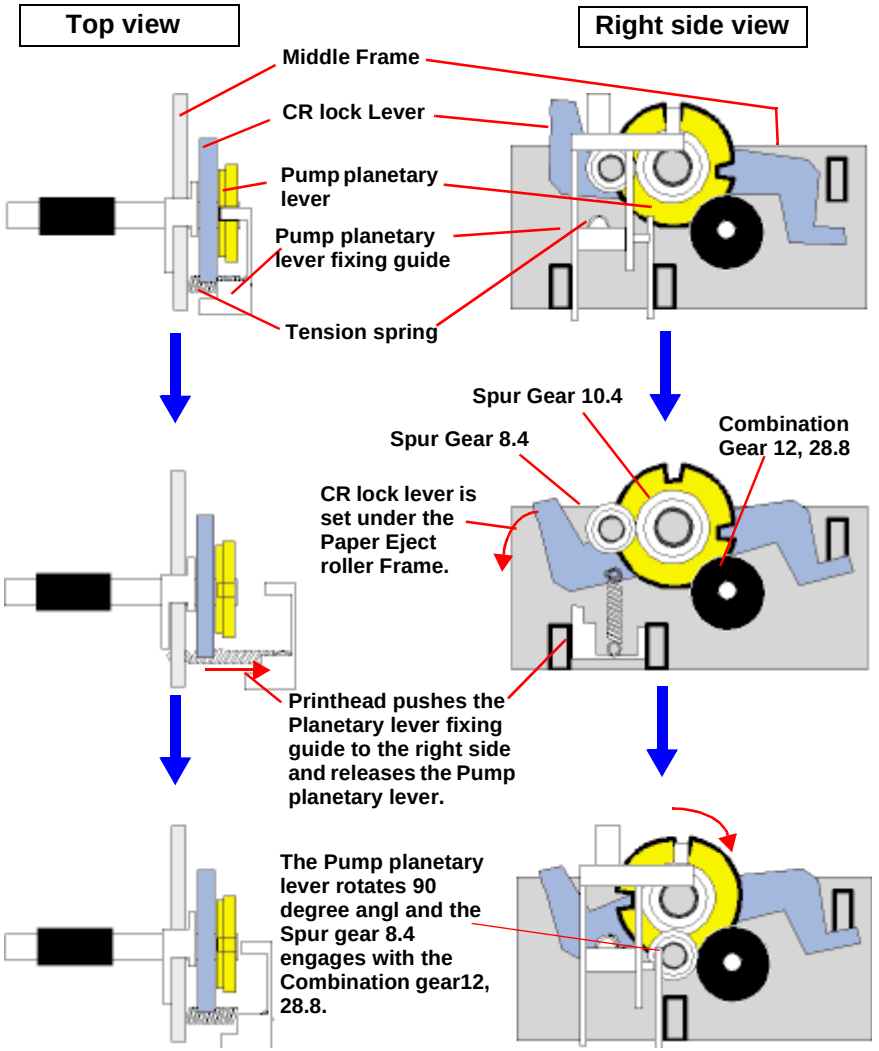


Figure 2-12. Pump disengagement mechanism

When the PF motor torque is switched to the pump unit side by the disengage mechanism, the function of the pump mechanism varies depending on the rotational direction of the motor, as shown in the table below.

Table 2-7. Pump unit Functions & PF motor rotational direction

Directions	Corresponding Functions
Counterclockwise	• Ink absorption by the pump • Sets the wiper.
Clockwise	• Releases the pump. • Resets the wiper.

Figure 2-13 shows the operating principles of the pump mechanism.

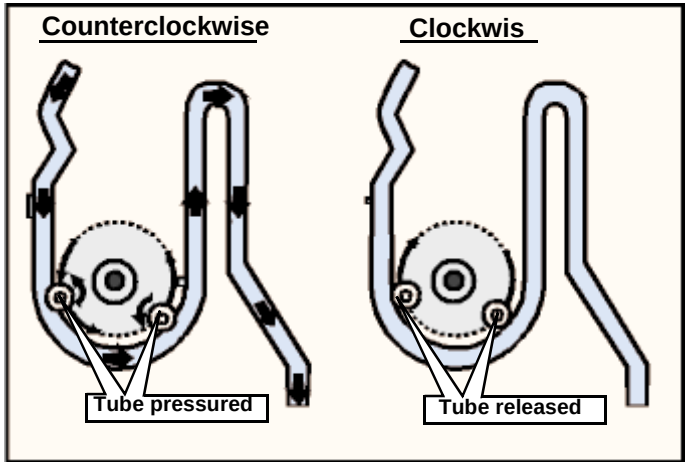


Figure 2-13. Pump Mechanism

2.1.1.9 Capping Mechanism

The capping mechanism, which is driven by the pump unit, caps the printhead closely to maintain air tightness of the cap. This operation is required to vacuum ink from the ink cartridges, printhead, cavity, and cap. Also, to moisten the inside of the cap while the printer power is off, this mechanism works to keep the cap and the printhead surface in a tight contact. This function prevents ink from clogging while the printer is not in use.

For a specific feature of the Stylus COLOR 760, it has a newly designed valveless capping mechanism instead of other printers' capping mechanism that integrates an air valve. An air valve is usually equipped to remove bubbles created inside the cap by releasing the negative pressure. However, due to change in the ink sequence, the new valveless capping mechanism enables this printer to maintain the initial ink charge and cleaning effects at the same level as before. Figure 2-14 outlines the valveless capping mechanism.

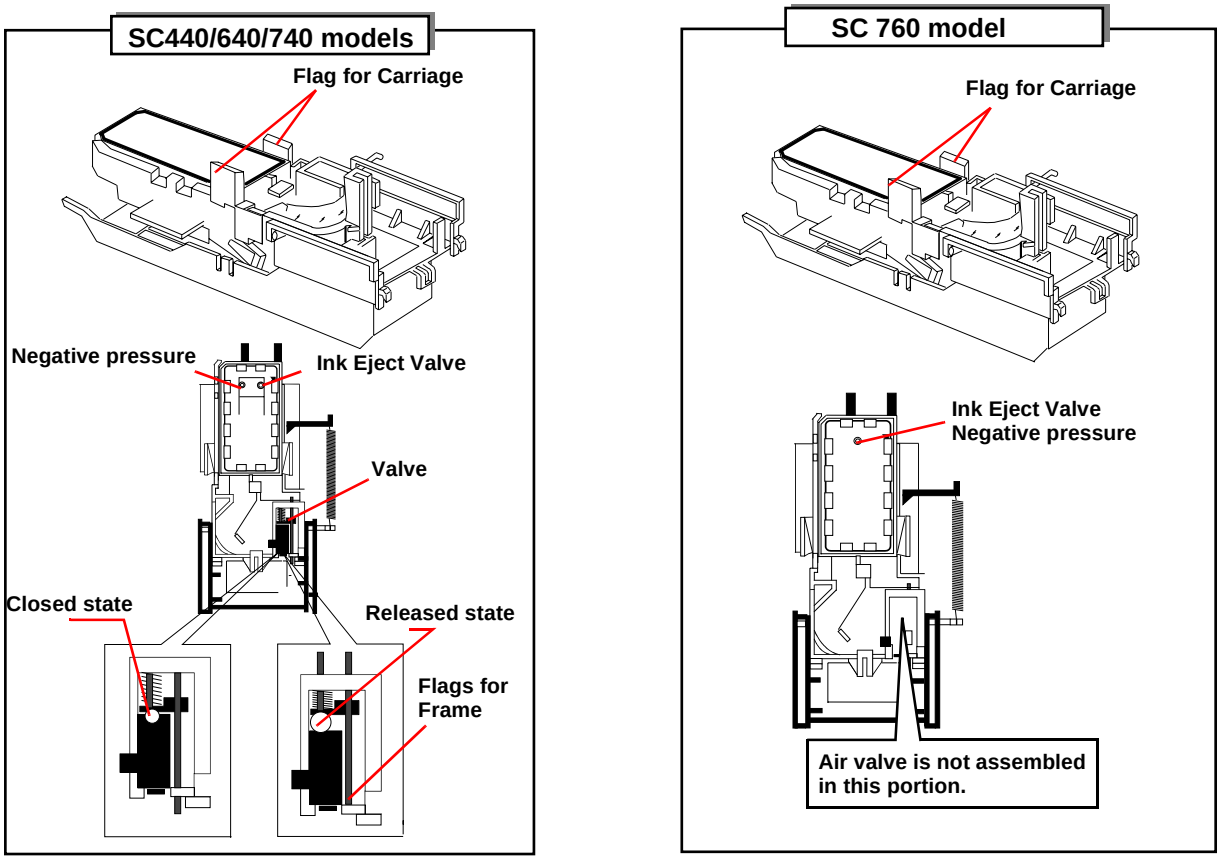


Figure 2-14. Valveless Capping Mechanism

2.2 Electrical Circuit Operating Principles

The electric circuit of the Stylus COLOR 760 is composed of the following boards.

- ☐ Main board: C298MAIN Board
- ☐ Power supply board: C298PSB/PSE Board
- ☐ Panel board: C298PNL

Refer to Figure 2-15 for the major connection of the three boards and their roles.

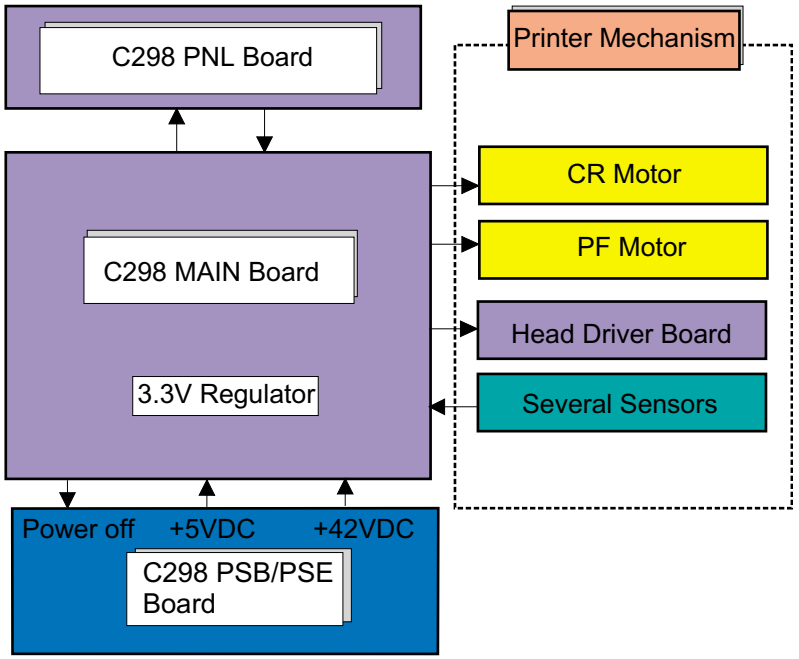


Figure 2-15. Electric Circuit of Stylus COLOR 760

2.2.1 C298PSB/PSE Board

The Stylus COLOR 760 are equipped with the C298PSB/PSE, the common power supply board for the both products. The basic structure of the circuit is the same as for the C257PSB/PSE board used in the Stylus COLOR 740. The power supply boards of these printers use a RCC switching regulator, which generates +42VDC for drive line and +5VDC for logic line to drive the printer. For one of the major characteristics of the C298PSB/PSE, it uses the secondary switch that is also used in the Stylus Color series. Use of the secondary switch enable the circuit to keep supplying voltage to 5 V line and 24 V line for approximately 30 seconds if the printer power is turned off through the panel switch. This extra time allows the printer to perform the following operations when the printer is turned off through the panel switch while it is in operation.

- ☐ When the printer is in a printing state, if the CR unit is away from the home position, the CR unit can return to the home position to be locked before the printer power shuts down.
- ☐ When the printer is not in a printing state, if paper fed from ASF remains in the printer, the paper is ejected before the printer power shuts down.

Table 2-8 in the right column shows the application of each voltage generated by C298PSB/PSE board.

NOTE: *The 5VDC is only applied to the parts and locations shown in the Table 2-8. The C298MAIN, like the C267MAIN-B board*, uses the 3.3V drive chips for most of the logic line chips (CPU, ASIC, ROM, DRAM). For this reason, those chips are not driven by the +5VDC but 3.3VDC that is reduced by the IC9(3.3VDC regulator) on the C298MAIN board.*

** Used in the minor changed models of the Stylus COLOR 740, Stylus Pro 750, and Stylus Pro 1200.*

Figure 2-16 in the right column shows the block diagram for the C298PSB/PSE board. The process from the input of AC voltage to the output of 42 V DC and 5 V is explained in the following page.

Table 2-8. Application of the DC Voltages

Voltage	Application
+42VDC	CR Motor, PF Motor Head driving power supply
+5VDC	Sensor circuit power supply voltage LED panel drive power supply Nozzle selector control signal voltage I/F Control Circuit Slave CPU for DC motor control

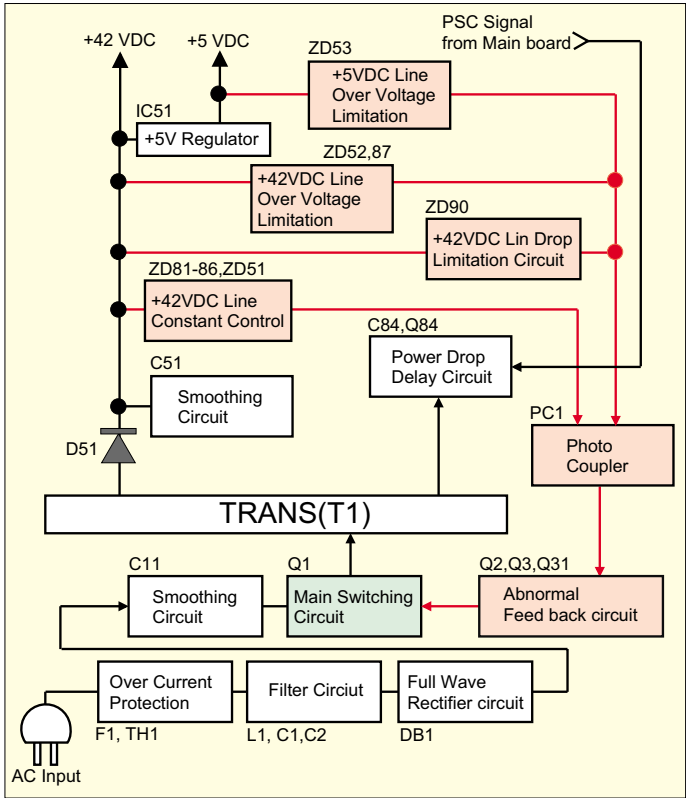


Figure 2-16. C298PSB/PSE Board Block Diagram

1. Regardless of the state of the power switch (On or OFF), the voltage is always applied to the primary side of the power supply board from the moment or at the state that AC-plug is plugged in. At this time, F1 plays a role of preventing AC100V from coming into the F1.
   L1 also prevents high harmonic wave noise generated in the RC circuit filter which consists of C1,C2 from going out, and eliminates the noise from outside here.

2) The AC is full-wave rectified by the diode bridge DB1, and converted to $\sqrt{2}$ x AC in voltage by the smoothing electrolytic capacitor C11.
3) The pressured up direct current turns Q1 on through the starting resistor R31 and starts the primary side of the circuit.
4) When the primary side is On, the energy (current) led by the electromagnetic induction through the trans (T1) does not flow to the secondary side since the diode (D51) on the secondary side is installed in the opposite direction.
5) When the energy which is charged in the trans is reaching the saturated state, the voltage which makes Q1 on becomes weak gradually. At the point that this voltage drops at the certain voltage, C13 absorbs the current in the opposite direction and Q1 is quickly shut off by the resulting sharp drop.
6) When the primary side is turned off, the energy charged in the T1 is opened according to the diode(D51) direction which is installed on the secondary side. Basically, 42 V DC is output by these circuit operations and the number of T1 spiral coil.
7) +5VDC is generated by pressured down this +42VDC as power supply. IC51 pressures down the +42VDC and generates precise +5VDC by chopping off the output, forming the standard santooth wave form by the outer RC integration circuit.

The C298PSB/PSE board has the various control circuits to stop voltage output if a malfunction occurs on the power supply board or the main board or while the printer mechanism is on duty. Following explains each control and protection circuit.

- +42V Line Constant Voltage Control Circuit:
  The output level of the +42V line is monitored by a detection circuit composed of the seven Zener diodes. This circuit prevents the voltage from dropping for a constant level of the output voltage.

- +5V line over voltage protection circuit:
  This protection circuit is in the same line as the +42V over voltage protection circuit is located. The output voltage level of the +5V line is monitored by a Zener diode. This circuit shuts down the +5V line forcefully when the voltage level exceeds +9V.

- +42VDC line drop limitation circuit:
  This protection circuit is in the same line as +42V over voltage protection circuit is located. The output voltage level of the +42V line is monitored by a Zener diode. This circuit shuts down the +42V line forcefully when the voltage level drops to +36V.

- +42VDC line over voltage circuit:
  This circuit is in the same line as +5V line over voltage protection circuit is located. The output level is monitored by two Zener diodes. If the voltage level exceeds +48VDC, this circuit shuts down the +42V line forcefully.

- +5V line constant voltage/constant current control circuit:
  The output current is monitored by the +5VDC generation switching control IC (IC51), which also monitors the output voltage. This information is input to the internal comparator and stabilizes +5V line. The operations of the secondary side switch are explained below.

  - When the power is turned on, Q1 repeats on/off automatically along with the increase and decrease of energy on the trans coil at the primary side. While the power is on, the PSC signal is input to the power supply board from the C298MAIN board.

  - This signal turns Q84 on and it becomes possible to discharge energy between the terminals 8 and 9 of T1. At this time, even if the power is turned off, the electrolytic capacitor keeps Q84 on for a while, and by this electrolytic capacitor, voltage output is held at least 30 seconds. This time helps the printer to complete a power-off operation.

2.2.2 C298MAIN Board

The logic circuit of the C298MAIN is composed of the following:

- Logic line (CPU, ASIC, DRAM, EEPROM, and so on)
- Various motor control/driver circuits (CR motor, PF motor)
- Head control/driver circuits
- Interface control (parallel I/F, USB I/F)
- Sensor circuits
- Timer circuits
- Reset circuits

This main board is mainly different form other models in the following two points.

☐ Use of the 3.3V chips in the logic circuit
The 3.3 V regulator (IC9) on the C298MAIN produces 3.3 V by pressuring down the 5.5 VDC, also generated on this board, to drive several chips. See the table below that separately shows the chips driven by the +5V and +3V.

Table 2-9. 3.3V Drive Chips & 5.5V Drive Chips

+5V	3.3V
Sensors	CPU
I/F Circuit	ASIC
PNL Board	P-ROM
Slave CPU	D-RAM

☐ Use of the slave CPU
Since the CR motor and PF motor of this printer are DC motors, the slave CPU is attached on the main board in addition to the CPU and ASIC. This slave CPU, serving to control the DC motors only, reduces duty of the CPU and ASIC for faster data processing.

See Figure 2-17 for the C298MAIN board block diagram.

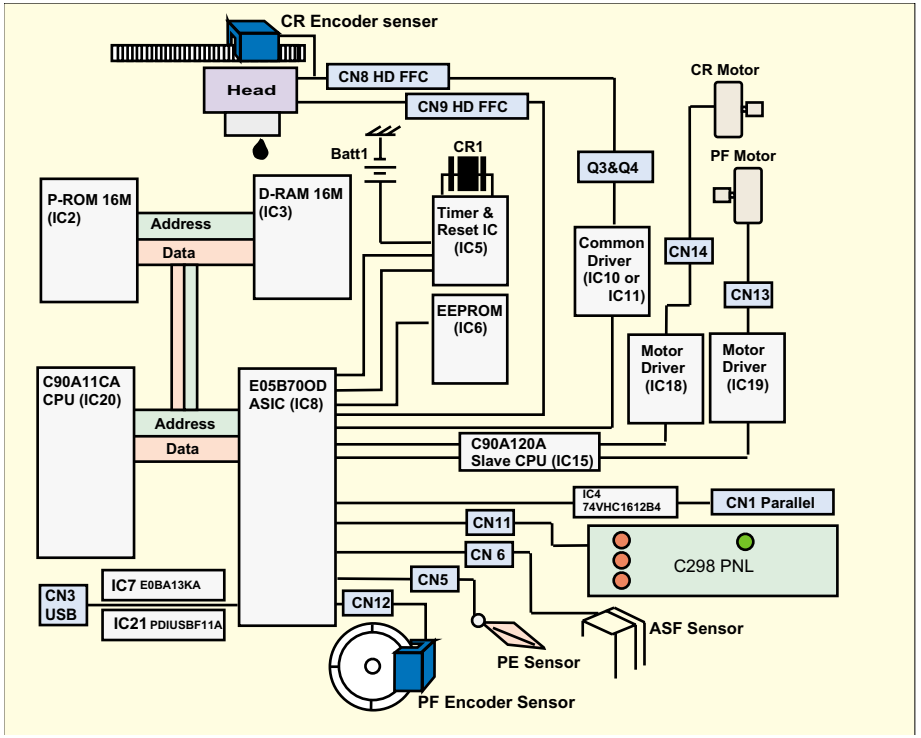


Figure 2-17. Block Diagram for the C298MAIN Board

Table 2-10 shows the functions of the CPU, ASIC, and slave CPU.

Table 2-10. Functions of the CPUs and ASIC

IC	Location	Function
CPU	IC20	• Measures the printhead temperature. • Several interrupting functions • Outputs the system clock signal.
ASIC	IC8	• Controls interfaces. • Controls the printhead drive waveform circuit. • Transfers serial data to the printhead. • Receives panel control signals and sensor signals • EEPROM • Controls detection of the signals output from the encoder.
Slave CPU for DC motors	IC15	• Sets the current value for the PF motor and CR motor. • Controls the PF motor and CR motors.

2.2.2.1 Printhead Driver Circuit

The printhead driver circuit consists of the following two components:

- Common driver IC (IC10: E09A14RA) directly attached to the C298MAIN board.
- Nozzle selector IC (Sharp IR2C95F or EPSON SED6125T0A) on the head board.

The common driver (IC10: E09A14RA) generates a reference drive waveform according to the output signals from the C298MAIN board. The reference drive waveform is amplified by the transistors Q3 and Q4 and then transferred to the nozzle selector IC on the head board. Print data is converted to serial data by the ASIC (IC8 E05B70CD) and then sent to the nozzle selector IC on the head board. Based on the serial data, the nozzle selector IC determines the nozzles to be actuated. The selected nozzles are driven by the drive waveforms produced by the common driver. See Figure 2-18 for the printhead driver circuit block diagram.

- Head common driver circuit
  The reference head drive waveform is produced in the common driver (IC10: E09A14RA) based on the following 12 signal lines output from the ASIC (IC8 E05B70CD); A0-A4, CLK1, CLK2, RST, FLOOR, DATA, DCLK, and E.
  By the DATA signal output from the ASIC (IC8 E05B70CD), the original data for the head drive waveform is written in the memory in the IC10. The addresses for the written data are determined by the A0 - A4 signals, and, of among, data used to determine the waveform angles is selected. Then, setting the selected data, producing trapezoid waveform value, and canceling the data are performed by the rising edges of the CLK1 and CLK2 signals.
- Head nozzle selector circuit
  Printing data is converted into serial data by the ASIC (IC8 E05B70CD). Then the converted data is allocated to the six rows, the number of the head nozzle rows, to be transferred to the nozzle selector (Sharp IR2C95F) through the six signal lines (HS01 to HS06). Data transmission from the ASIC (IC8 E05B70CD) to the nozzle selector synchronizes with the LAT signal and SCK clock signal. Referring to the transferred data, nozzles to be activated are selected, and the PZTs of the selected nozzles are driven by the drive waveform output from the head common driver.

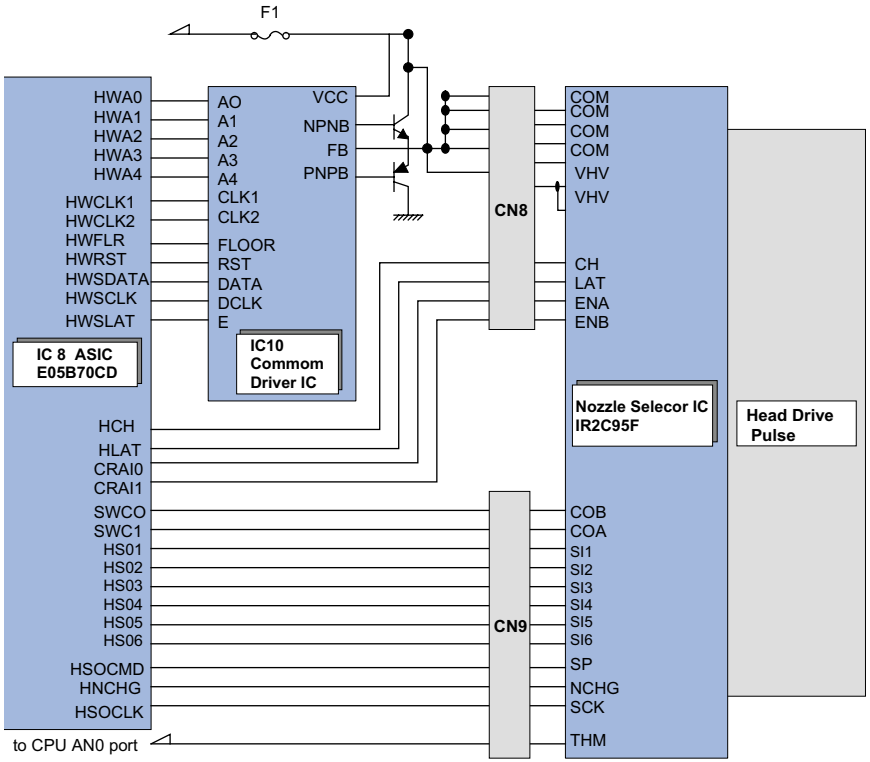


Figure 2-18. Printhead Driver Circuit

2.2.2.2 Reset Circuit

Reset circuits are attached on the C298MAIN board to monitor the two voltages: +5V for the logic line and +42V for the drive line. When each circuit detects abnormality on the corresponding line, it outputs a reset signal to reset CPU and ASIC. This function is necessary to prevent the printer from operating abnormally. IC5 RTC-9820SA, a reset circuit IC, is attached directly on the main board. This IC monitors both the +5V and +45 lines but can reset them independently. See Figure 2-19 for the block diagram for the reset circuits.

- ☐ +5V line reset circuit
  The VDD port of the IC5 reset IC monitors the +5V line. When the IC detects an abnormal voltage level (4.3 V or lower), it outputs a reset signal from the RST port to CPU and ASIC.
- ☐ +42V line reset circuit
  The VIN port of the IC5 reset IC monitors the +45V line. When the IC detects an abnormal voltage level (35.5V or lower), it outputs a reset signal from the VDT port to CPU and ASIC.

NOTE: *IC5, also serving as RIC (Real Time Clock), manages timer control when the printer power is turned off. Power for this operation is supplied from the BAT1.*

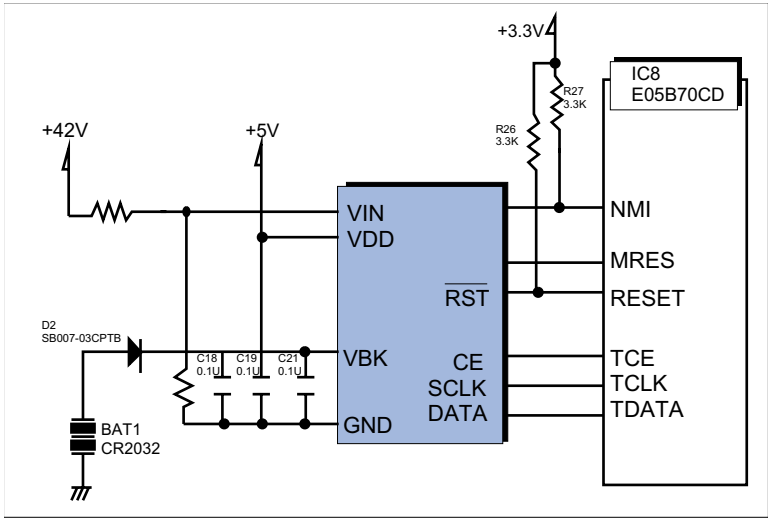


Figure 2-19. Reset Circuit Block Diagram

2.2.2.3 CR Motor Driver Circuit

The Stylus COLOR 760 is equipped with a DC motor for the CR motor. In addition to the CPU and ASIC, a slave CPU is mounted on the C298MAIN board. Since the slave CPU is exclusively used to control DC motors, it reduces duty of CPU and ASIC to offer faster data processing.

☐ CR motor driver circuit
The internal equivalent circuit of the CR motor driver IC (LB1947) is as shown below.

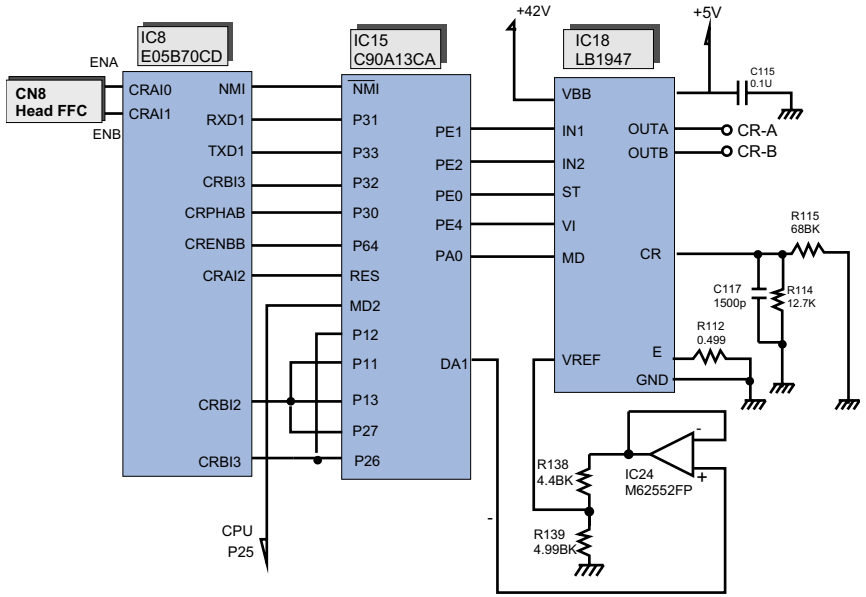


Figure 2-20. Internal Equivalent Circuit of the CR Motor Driver IC

The IC15 slave CPU controls the CR position by referring to the pulses sent from the linear encoder via IC8 ASIC. The CPU also sets an appropriate drive current value for the CR position and the direction in which the CR moves based on the data transmitted from the ASIC. So the slave CPU outputs specified control signals to the motor driver. The motor driver IC18 then outputs the CR motor drive current to the CR motor based on the signals sent from the IC15 slave CPU.

Unlike a stepping motor, the DC motor that drives the carriage can not detect the current carriage position by referring to the pulses given. For this reason, a linear scale is attached along the carriage operation range to detect the carriage position. The linear encoder sensor outputs two kinds of TTL level pulses Phase A and Phase B to IC8 ASIC.

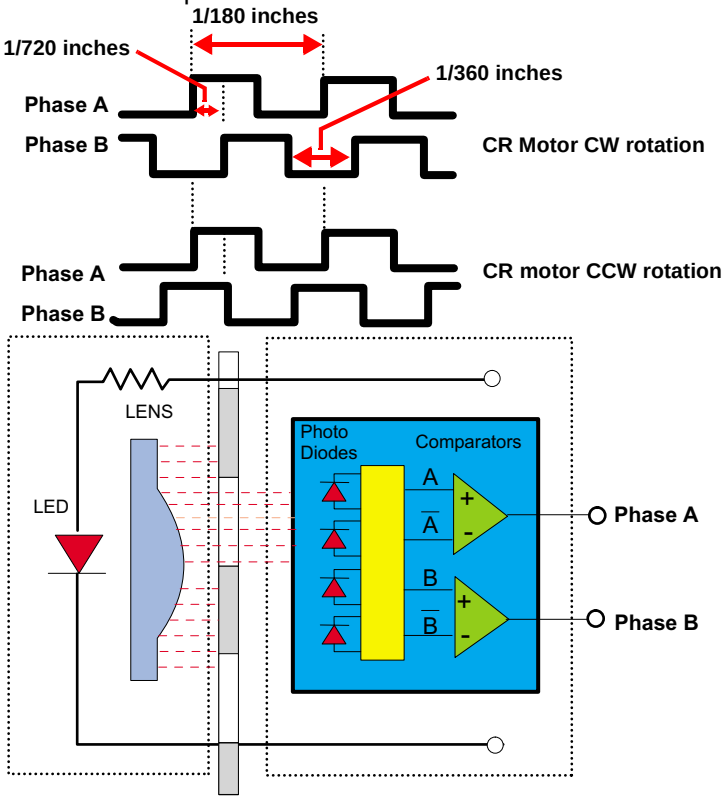


Figure 2-21. CR Linear Scale Encoder Pulse

Direction for the current CR's movement is detected based on the waveforms of the Phase A and Phase B that are out of phase, while carriage position is controlled by using the waveforms output from Phase A on a cycle basis (1 cycle: 1/180 inches). Phase between the output waveforms A and B is as shown in Figure 2-21. Note all edges in Phase A, Phase B output waveforms (1/720-inch cycle) are used to control the CR position while it is in the home position for ink system.

- Home position detection (capping position detection)
  Home position is detected based on the pulses output from the linear scale sensor and CD motor control current value. The basic home position detection sequence is as described below:

  1)The linear encoder pulse counter in the IC15 slave CPU is reset during a power-on sequence.

  2)The CR motor moves clockwise and the CR moves from left to right. IC15 slave CPU once assumes that the CR comes in contact with the right frame when the following conditions are satisfied:

  - The slave CPU detects the motor control current value 720mA
  - P1 (= number of pulses output for the above CR movement) is 30* or less.

  * *Specified value that indicates CR is movable in the home position. (All edges in the waveform are used in this condition.)*

  3)The CR motor rotates counterclockwise and the CR moves from right to left, and the IC15 slave CPU assumes that it detects the CR lock lever position when the following conditions are satisfied:

  - IC15 slave CPU detects the motor control current value 500 mA.
  - Difference X between P1 and P2 (= number of pulses output while the CR moves from the right frame) is 30 or less.

  4)The CR motor rotates counterclockwise and the CR moves from left to right again, and if IC15 slave CPU detects the motor control current value 720 mA, it assumes that the CR comes in contact with the right frame again.

  5)Difference between P1 and P3 (= number of pulses output for the CR's movement from the CR lock lever to the right frame) is 4 or less.

  When all conditions in the sequence are satisfied, the printer detects the CR is in the home position.

- PTS (Print Timing Signal) production
  The circuit produces PTS signal (cycle: 1/360 inches) by dividing waveform cycles for Phase A (cycle: 1/180 inches). The print timing signal is used to eject ink at a correct timing.

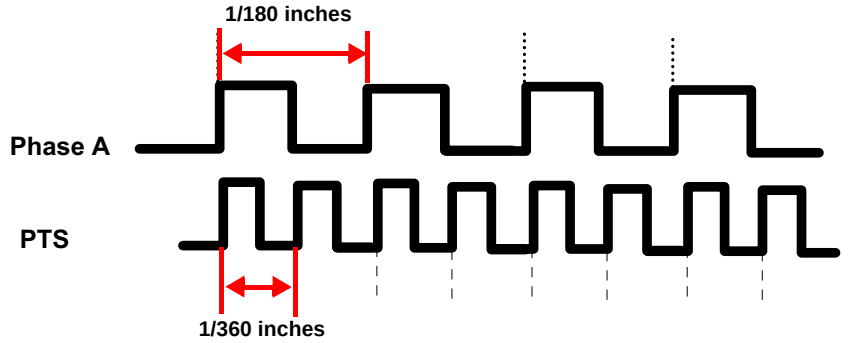


Figure 2-22. Print Timing Signal and Linear Encoder Phase A

NOTE: *If the drive voltage for the CR motor reaches 800mA, a fatal error occurs.*

2.2.2.4 PF Motor Driver Circuit

TheStylus COLOR 760 is equipped with a DC motor for the PF motor. In addition to the CPU and ASIC, a slave CPU is mounted on the C298MAIN board. Since the slave CPU is exclusively used to control DC motors, it reduces duty of CPU and ASIC to offer faster data processing. The block diagram for the PF motor driver circuit is as shown below:

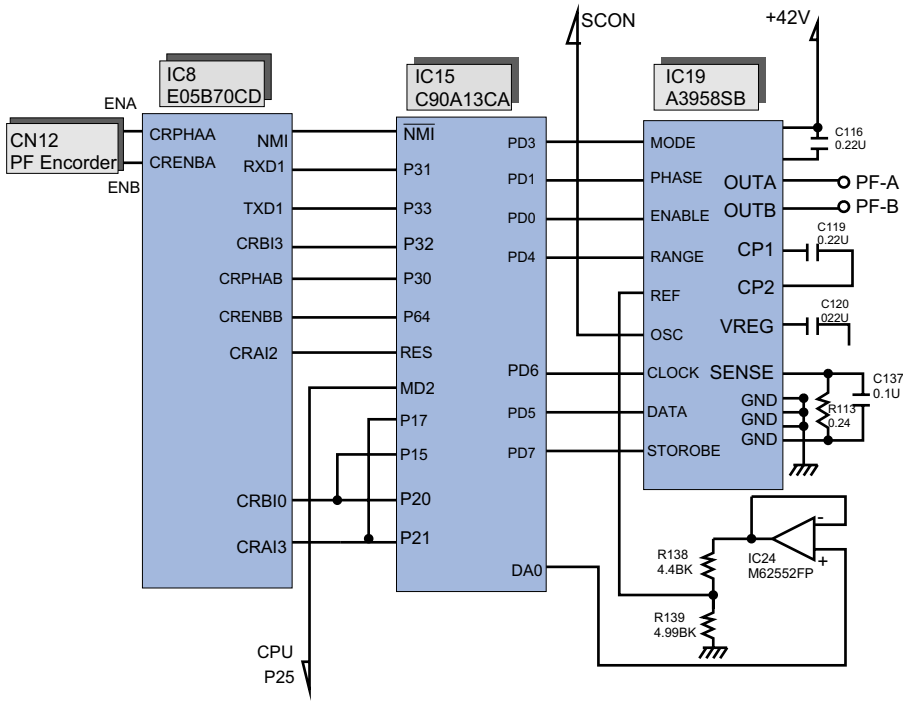


Figure 2-23. PF Motor Driver Circuit Block Diagram

IC15 slave CPU controls paper feeding amount by referring to the encoder pulses sent from IC8 ASIC. It also sets a proper drive current value according to the paper feeding amount and direction. So it outputs specified control signal to the motor driver. The motor driver IC19 outputs PF motor drive current to the PF motor according to the control signals from the IC15 slave CPU.

Unlike a stepping motor, the DC motor that drives the PF motor can not detect a paper feeding amount by referring to the pulses given. For this reason, a loop scale is attached on the Gear 76 to mechanically detect a paper feeding amount.
The loop scale encoder sensor outputs 2two kinds of TTL level pulses Phase A and Phase B to IC8 ASIC.

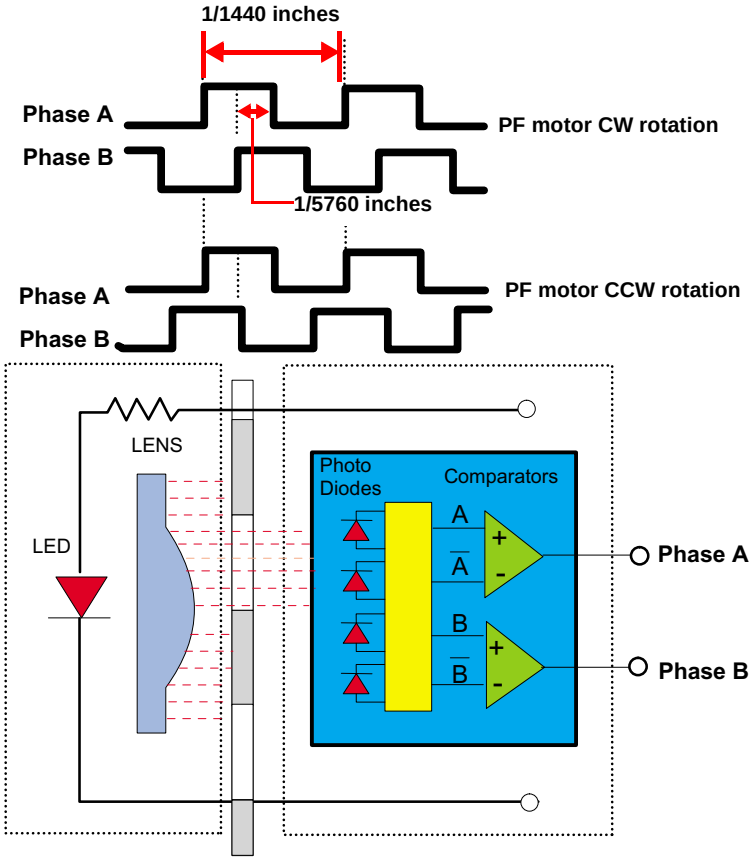


Figure 2-24. Loop Scale Encoder Pulse

Rotational direction of the PF motor is determined by the phase between the output waveforms of Phase A and Phase B. Refer to Figure 2-24 for different phase for each direction.

NOTE: *If the drive voltage for the PF motor reaches 1A, a fatal error occurs.*

2.2.2.5 EEPROM Control Circuit

Since EEPROM is nonvolatile memory, it keeps written information if the printer power is turned off. Information stored in EEPROM is various adjustment values, factory values, and printer status values. See Appendix for EEPROM Address Map that provides detailed information on the values stored in EEPROM.
EEPROM is connected to ASIC with 4 lines and each line has the following function.

- CS: Chip selection signal
- CK: Data synchronism clock pulse
- DI: Data writing line (serial data) at power off.
- DO: Data reading line (serial data) at power on.

The EEPROM control circuit is as shown below:

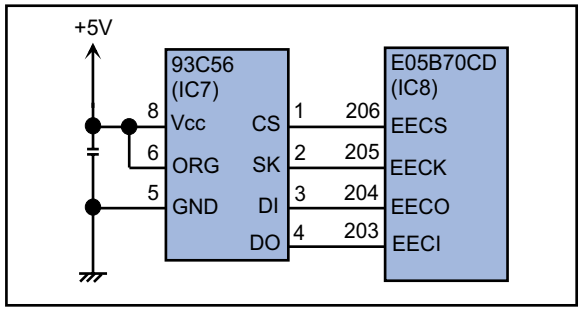


Figure 2-25. EEPROM Circuit Diagram

The detailed map of the EEPROM is provided in Chapter 7 Appendix.

2.2.2.6 Sensor Circuit

The Stylus COLOR 760 is equipped with the following five sensors to detect the status of the printer.

- I/C detection sensor
- Head Thermistor sensor
- PE sensor
- ASF home position sensor
- PF motor encoder sensor
- CR unit encoder sensor

The block diagram for the sensor circuit is as shown below:

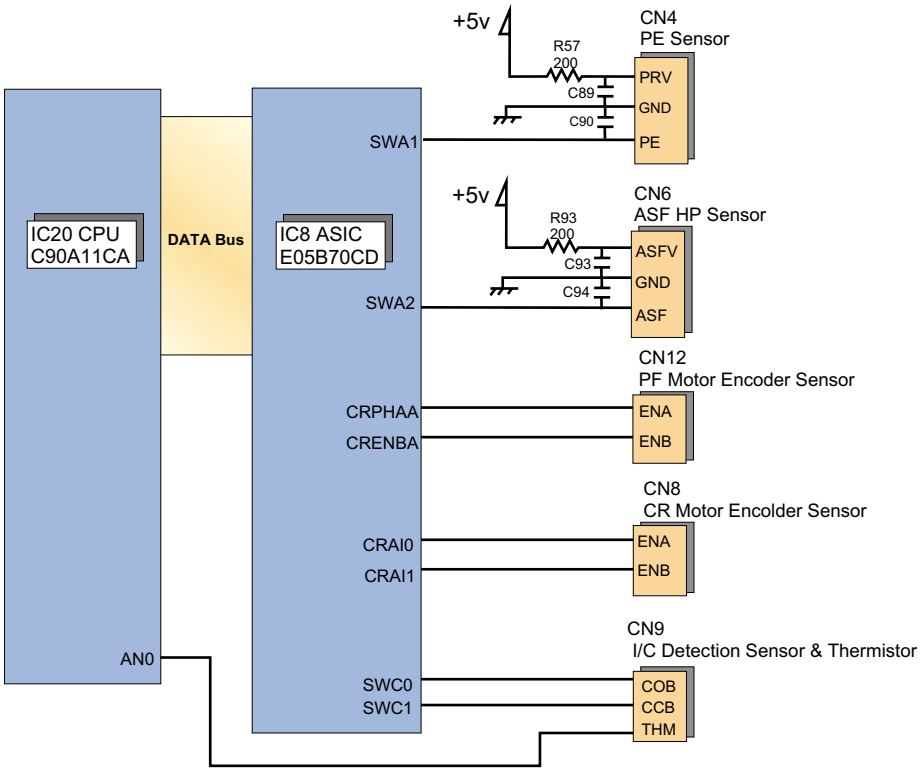


Figure 2-26. Sensor Circuit Diagram

Function and detection method of each sensor is as described below.

- I/C detection sensor (for black I/C and color I/C)
  The I/C detection sensor included in the CR unit determines whether a black or color ink cartridge is installed. When an I/C is installed, this sensor detects a mechanical contact with the cartridge and outputs a LOW signal to the ASIC. If no cartridge is installed, it outputs a HIGH signal to the ASIC.

- Head thermistor
  The head thermistor is attached directly on the head driver board. It monitors the temperature around the printhead and feeds back the temperature to the CPU analog port. The printer refers to this information to control head driver voltage based on the ink viscosity.

- PE sensor
  The PE sensor is located at the bottom right edge of the top frame in the printer mechanism. This sensor detects paper on the rear paper guide, using a photo sensor and PE sensor lever that are included in the sensor. When paper passes, the PE sensor does not interrupt the photo sensor terminals. So a LOW signal is output to the ASIC. If there is no paper, on the other hand, the lever cuts in between the photo sensor terminals, which outputs a HIGH signal to the ASIC.

- ASF HP sensor
  The ASF HP sensor, located at the left edge of the ASF, detects the ASF home position. This sensor consists of the ASF HP detector wheel and a photo sensor. A small portion of the ASF HP sensor has a cut out, and when the cutout comes into position between the photo diode terminals, ASF home position is detected. In this status, the photo diode terminals are not blocked, and a LOW signal is output to the ASIC. Referring to the ASF home position detected by this sensor, the printer drives the PF motor to set the LD roller and paper return lever ready for paper loading.

- PF motor encoder sensor
  The PF motor encoder sensor includes the loop scale attached to the left end of the PF roller and the linear encoder. This encoder sensor outputs 2 kinds of the output pulse A-phase and B-phase and the minimum resolution of the sensor is 1/5760 inch, and the sensor outputs HIGH signals for the black lines and LOW signals for the transparent parts to the ASIC. The printer controls the PF motor based on the signals output from this sensor.

- CR unit encoder sensor
  CR unit encoder sensor includes the linear encoder in the CR unit and the scale plate attached along the CR scanning direction. This encoder sensor outputs two kinds of output pluses Phase A and Phase B, and the minimum resolution of the sensor is 1/720 inches. The sensor outputs HIGH signals for the black bands of the scale and LOW signals for the transparent parts to the ASIC. The printer controls the CR motor based on the signals output from this sensor. The sensor also detects the CR home position.

CHAPTER

3

TROUBLESHOOTING

3.1 Overview

This chapter describes how to troubleshoot problems. It consists of the sections shown in the flowchart below. When identifying and troubleshooting problems, be sure to proceed to the correct section specified in the flowchart.

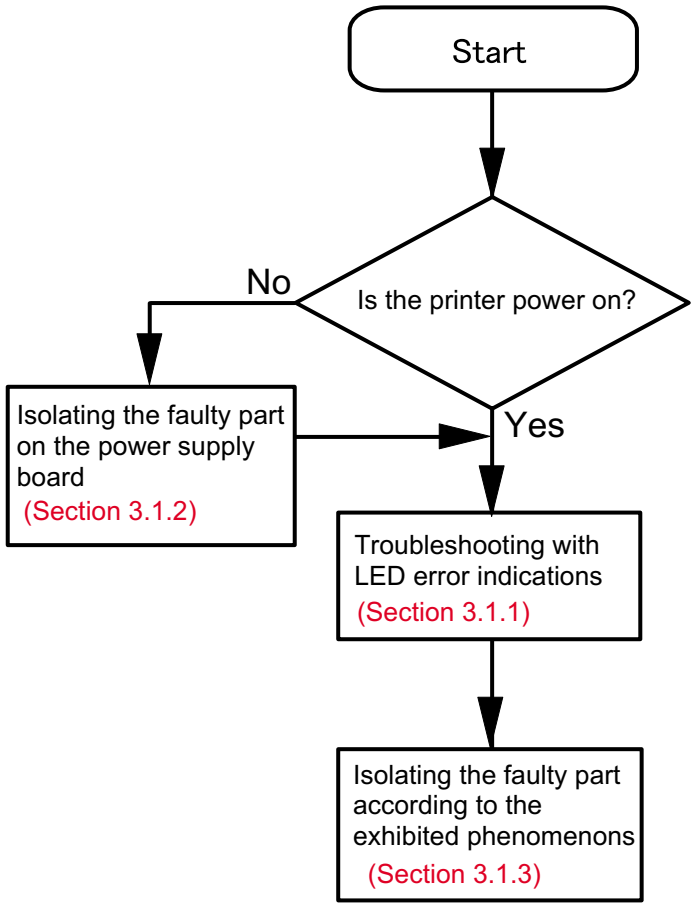


Figure 3-1. Troubleshooting Flowchart

Following sections show detailed information on each step in the flowchart. Be sure to perform troubleshooting without neglecting the correct order specified in each section.

First of all, following tables show you the Motor Resistance and the sensor check informations.

Table 3-1. Motor Resistance and Measurement Procedure

Motor Name	Location	Check Point	
CR Motor	CN14 (Main board)	Pin 1 & 2,	31.1 OHM +/- 25%
PF Motor	CN13 (Main Board)	Pin 1 & 2,	31.1 OHM +/- 25%

Table 3-2. Sensor Check an Measurement Procedure

Sensor	Check Point	Finding	Description
PE Sensor	CN4 Pin 1 & 2	• 0V • 5V	Detect the Paper No Paper
ASF/HP Sensor	CN6 Pin 1 & 2	• 0V • 5V	Detect the ASF HP Not detect ASF HP
PF Motor Enscorder Sensor	CN12	• 0V • 5V	Transparency Slit Black Slit
CR Motor Encorder Sensor	CN8	• 0V • 5V	Transparency Slit Black Slit
Black I/C Detection Sensor	CN9 Pin 15 & Pin 18	• 5V • 0V	I/C is not installed I/C is installed
Color I/C Detection Sensor	CN9 Pin 15 & Pin 17	• 5V • 0V	I/C is not installed I/C is installed

3.1.1 Troubleshooting with LED Error Indications

This section describes how to troubleshoot the problem when the printer indicates an error at power on and can not print. The Stylus COLOR 760 can detect the following six errors & seven status, and indicates them with the LEDs, as shown below.

Table 3-3. Error Indication of Operation Panel

Printer Status	Indicators				Priority
	Power	Ink Out (Black)	Ink Out (Color)	Paper Out	
Power On Condition	On	-	-	-	9
Ink Sequence	Blink	-	-	-	6
Ink Cartridge Replacement Mode	Blink	-	-	-	5
Data Processing	Blink	-	-	-	8
Paper Out	On	Off	Off	On	4
Paper Jam Condition	On	Off	Off	Blink	3
No Ink Cartridge / Ink End (Black)	-	On	-	-	7
Ink Level Low (Black)	-	Blink	-	-	7
No Ink Cartridge or Ink End (Color)	-	-	On	-	7
Ink Level Low (Color)	-	-	Blink	-	7
Enter EEPROM and Timer IC Reset	-	ON (for 1 second only)			-
Maintenance Request	Blink	Blink	Blink	Blink	2
Fatal Error	Blink	On	On	Blink	1

See the following tables which show the error conditions and corresponding possible causes.

Table 3-4. Error Condition and the Possible Causes

No.	Error Condition	Possible Causes
1	Paper Out Error (Refer to Section 3.1.1.1.)	1. Failure in paper feeding
		2. Connector for the PE sensor is disconnected.
		3. The PE sensor actuator is acting improperly. The sensor base is not fixed properly.
		4. The PE sensor is defective.
		5. ASF dose not move correctly
2	Paper Jam Error (Refer to Section 3.1.1.2.)	1. The paper in use is longer than specified.
		2. The PE sensor remains on because it is covered with paper debris or dust.
		3. The PE sensor actuator is not acting properly. The sensor base is not fixed properly.
		4. The PE sensor is defective
		5. The Hopper Release Lever is not assembled correctly.
3	NO I/C or Ink Out Error (Refer to Section3.1.1.3)	1. The counter is not showing the actual remaining ink level.
		2. Ink cartridge sensor actuator is not acting properly.
		3. The micro switch is not mounted correctly. The connector (green) is disconnected.
		4. The connector (green, 3-pin) on the small board directly attached to the printhead surface side is disconnected. Note the connector (green, 4-pin) is irrelevant as it is for the encoder.
		5. The micro switch is defective.
		6. The value for the ink consumption counter in the EEPROM is destroyed.
4	Maintenance Error (Refer to Section 3.1.1.4))	Usual waste ink over-flow is requested. Note this error can be cleared by the special function through the control panel operation. Otherwise, you can perform the waste ink counter by using the Asjustment program.

Table 3-5. Error Condition and the Possible Causes (continued)

No.	Error Condition	Possible Causes
5	Fatal Error (Refer to Section 3.1.1.5)	1. The CR Encorder FFC has come off from the CR Encorder Sensor board. The CR Encorder sensor is not mounted in the CR Assy.
		2. The CR Liner scale has come off. The CR Liner scale is not placed through the encoder located at the back of the carriage.
		3. The ASF sensor has come off. The connector for the ASF sensor is not disconnected.
		4. The ASF sensor is defective or dose not detect the ASF HP position caused by any factor.
		5. The PF/CR Encorder Sensor is defective or dose not detect the slite pattern on the each scale.
		6. The coil for the CR motor has burnt.
		7. The coil for the PF motor has burnt.
		8. ASF Gear 32 is disengaged to the Combination Gear 14,28 which is assembled in the DE unit.

3.1.1.1 Remedies for Paper Out Error

This section provides check points and corresponding actions which are necessary when the Paper Out Error problem has occurred because of either of the following reasons:

- Paper is set in the ASF hopper but not fed.
- Paper is fed but not detected by the PE sensor actuator.

Be sure to follow the steps in the order described in the tables.

NOTE: *If the finding the detail phenomenon which fits the defective printer, take the Check & Action described in the right column. If "No", proceed to the next step.Remedies for Paper Error.*

Table 3-6. Remedies for Paper Out Error

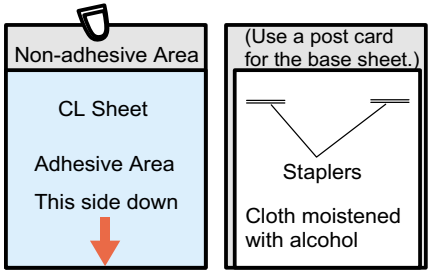
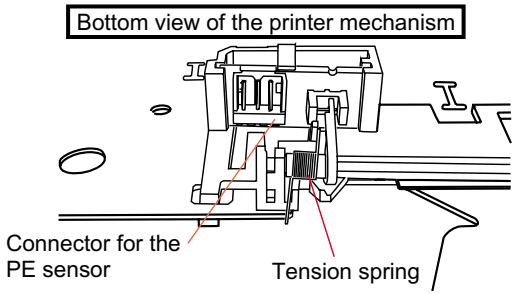
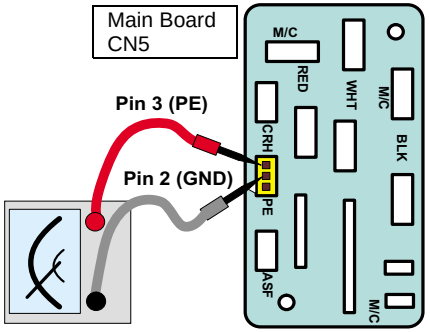
Step	Detail Phenomenon	Check & Actions
1	When the Paper Feed SW is pressed, the ASF LD roller attempts to feed the paper. But, the paper is not loaded. After that, the Panel LED indicates the Paper Out Error.	Set a cleaning sheet in the ASF up side down. Then holding the top edge, press the Load/Eject button, and the micro pearl on the paper load roller (a semicircular roller) surface is removed. To remove severe smear, staple a cloth moistened with alcohol to a post card and clean the roller in the same manner. 
2	When the Paper Feed SW is pressed, the ASF LD roller feed the paper to the PF roller. But, ASF LD roller rotate again and the PF roller advances the paper over the TOF position. After that, the Panel LED indicates the Paper Out Error.	Check if the connector (yellow, 3-pin) for the PE sensor is connected to PE sensor or CN5 on the Main Board. 
3	Ditto	• Using your hand, try activating the actuator in the same condition as it is detecting incoming paper. Then release the actuator and check if the actuator automatically returns to its original position with the tension of the spring. • Referring to the illustration above, check that the sensor base is securely installed to the frame. If the sensor base is floating or installed insecurely, instal it securely.

Table 3-6. Remedies for Paper Out Error

Step	Detail Phenomenon	Check & Actions
4	When the Paper Feed SW is pressed, the Paper is ASF LD roller feed the paper to the PF roller. But, ASF LD roller rotate again and the PF roller advances the paper over the TOF position. After that, the Panel LED indicates the Paper Out Error.	Check if the PE sensor is defective. Measure the voltage at the yellow 3-pin connector CN5 on the Main Board by activating the actuator manually to check that the voltage is correct as follows. The actuator is in terminals: 5V The actuator is out of terminals: 0V 
5	When the Paper is feed with the Load/ Eject SW, it seems that the Hopper is moving correctly. But, the paper is not loaded and the Paper Out Error is indicated on the Operation Panel.	Hand-rotate the shaft in the ASF in the paper feed direction and check if the hopper hops out every time you rotate the shaft. ***NOTE:****Even though the ASF HP sensor is in the proper condition for detecting the home position , If the hopper is not operating at the correct timing for paper feeding, paper is not loaded. Therefore, if the ASF sensor is working without this correct combination, reassembly or replace the ASF.* *In case the ASF HP sensor detect the ASF HP in the paper feed sequece, the Panel LED indicates the Fatal Error.*

3.1.1.2 Remedies for the Paper Jam Error

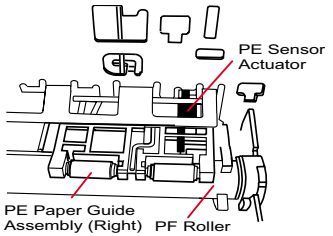
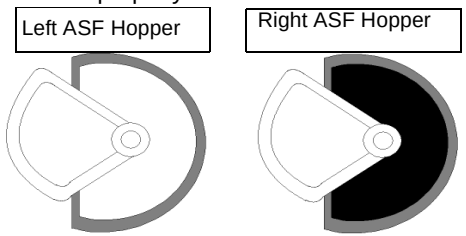
This section includes the check points and corresponding actions which are necessary when the Paper Jam Error constantly occurs when the printer is turned on or feeding paper.
The printer detects the Paper Jam Error in the following Conditions.

- When the printer is turned on, the PE sensor detects the paper and attempt to eject it by rotating the PF roller. But, the Low signal (paper detect status) is not removed.

Be sure to follow the steps in the order described in the tables.

NOTE: *If the finding for the question is Yes, take the action described in the right column. If "No", proceed to the next step.*

Table 3-7. Remedies for Paper Jam Error

Step	Detail Phenomenon	Check & Actions
1	When the Paper is ejected, the PF roller advance the paper. But, the Paper is not ejected completely. And the Panle LED indicates the Paper Jam.	Make sure if the paper length is beyond the specifications is used.
2	When the printer is turned on, the PF roller rotates continuously about 10 sec. and Panel LED indicates the Paper Jam.	Make sure that any paper dust or material push up the tip of the PE sensor Actuator. Viewing the PE sensor from the front, check that the actuator is the correct position: the actuator falls in the cutout without any paper. 
3	• ditto	Referring to Step 3 in Section 3.1.1.1 "Remedies for Paper Out Error", check the sensor condition
4	• ditto	Referring to Step 4 in Section 3.1.1.1 "Remedies for Paper Out Error", Check the sensor function
5	• When the Paper is loaded from the ASF, the Top of the Paper is loaded to the PF roller. But it dose not reach to the Paper Guide Front. If Paper Feed Operation is repeated, Fatal Error is indicated on the Panel LED	Make sure if the ASF Hopper Release Lever is assembled properly to the LD roller shaft in the 

3.1.1.3 Remedies for No I/C and Ink Out Errors

This section includes the check points and corresponding actions which are necessary when the black ink (or color ink) LED comes on or blinks at power on despite the ink cartridge has been replaced with a new one. Be sure to follow the steps in the order described in the tables.

NOTE: *If the finding for the question is Yes, take the action described in the right column. If "No", proceed to the next step.*

Table 3-8. Remedies for No I/C and Ink Out Errors

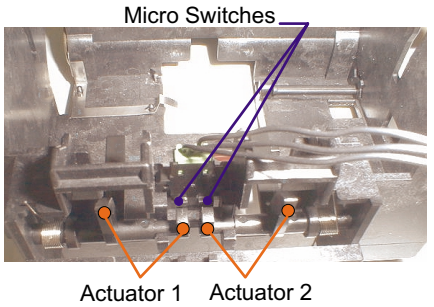
Step	Detail Phenomenon	Check & Actions
1	Dot missing occurs despite the Ink end condition is not indicated. And the dot missing number is increased every printing. or Enough ink is remaining in the cartridge, but the printer shows the Ink low or Ink end condition and can not continue to print.	The ink consumption counter, separately set for black and color ink, adds up points according to ink weight used to form one dot. This counter is reset (the value returns to zero) when the I/C replacement sequence is performed and I/C is replaced. If the I/C is replaced with the used I/C in the I/C replacement sequence, the following adversities will occur. • Ink has run out but the printer continues to print and starts false firing, which damages the printhead. If the new I/C is installed without entering the I/C replacement sequence, the ink consumption counter is not reset and the following adversities will occur. • Enough ink is remaining in the cartridge, but the printer shows the Ink low or Ink end condition and can not continue to print. Explain the situation to the user well, and replace the I/C with a new one.
2	If the I/C is removed and reset into the CR unit, the Ink Out LED is not turn on and off.	Turn the both actuators (right and left) manually and check that they properly push the micro switches. Then, also check that the actuators return to their normal conditions shown in the figure below automatically. 

Table 3-8. Remedies for No I/C and Ink Out Errors (continued)

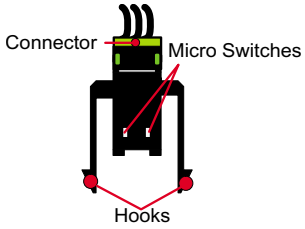
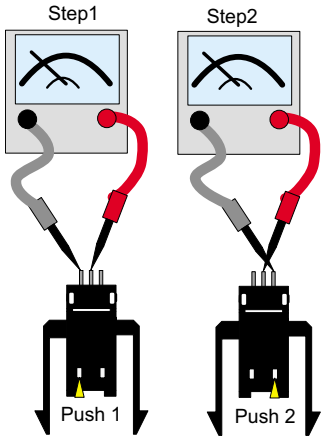
Step	Detail Phenomenon	Check & Actions
3	If the I/C is removed and reset into the CR unit, the Ink Out LED is not turn on and off.	If the micro switch is not properly attached, the actuators possibly fail to touch the micro switch. Therefore, check that the micro switch is securely attached to the carriage by the hooks. 
4	Ditto	Check if the connector (green, 3-pin) is disconnected from the head circuit board.
5	Ditto	1. Keeping the left micro switch pressed down, place the probes of the tester to the middle and left pins to check for electrical continuity. 2. Keeping the right micro switch pressed down, place the probes of the tester to the middle and right pins to check for electrical continuity. 

Table 3-8. Remedies for No I/C and Ink Out Errors (continued)

Step	Detail Phenomenon	Check & Actions
6	Is data in the EEPROM destroyed?	If the address for the ink consumption information in the EEPROM is garbled and the printer shows the Ink Out (Ink End) error constantly, the printer sets the interface signal “BUSY” to High and stops communication with any other peripheral devices. Therefore, it is effective to replace the I/C with a new one to forcibly overwrite the address with 00H.

3.1.1.4 Remedies for the Maintenance Error

While the printer is in this error condition, it disables all operations including data communication except for the panel operation specified to clear the error. Therefore, follow the steps described in Table 3-9 to solve the problem.

Table 3-9. Remedies for the Maintenance Error

Step	Actions	Correct LED condition
1	Turn the printer on while pressing the Load/Eject and the Cleaning buttons, and the Paper Out LED starts blinking. (Blinks for three seconds.)	The Paper Out LED is blinking.
2	While the Paper Out LED is blinking (for three seconds), press the Cleaning button for ten seconds.	The following three red LEDs blink and turn off. : Ink Out LED (Black), Ink Out LED (Color), and Paper Out LED.

NOTE: *During the Step 2, if the Load/Eject button is pressed, the Maintenance Error is not cleared but the EEPROM initialization mode is activated instead. The EEPROM initialization can be used to recover from conditions such as the printer does not accept any data from the PC. The EEPROM initialization mode initializes the following items:*

- Accumulated power-off time: The value for the Timer IC is reset.
- CL Timer: The CL timer, which is also called fire-waiting timer, secures the printer specific period of time so bubbles formed around the printhead during a cleaning vanish.
- I/F selection: Selects “Auto”, the factory default, from 3 I/F selection items: Auto, Parallel, USB.

3.1.1.5 Remedies for Fatal Error

A fatal error is basically caused by any of the following conditions:

-The printer does not detect the carriage in the home position.
-The printer does not detect signals from the linear scale.
-The ASF sensor does not detect the ASF home position.

The following tables show various causes of the error and corresponding solutions. Be sure to follow the steps correctly to solve the problems.

NOTE: *If the finding the detail phenomenon which fit the defective printer, take the Check & Action described in the right column. If "No", proceed to the next step.Remedies for Fatal Error*

Table 3-10. Remedies for Fatal Error

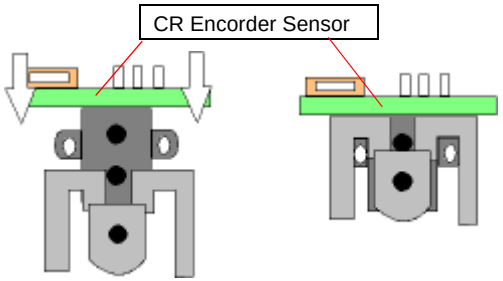
Step	Detail Phenomenon	Check & Actions
1	When the Printer is powered on: • The CR unit moves in the capping area.(CR unit is fixed with CR lock lever) • The CR unit moves and strikes the left frame because it is not fixed with the CR lock. After that, the Panel LED indicates the Fatal Error.	Check the CR Encorder sensor board visually. • In case the CR Encorder sensor board is not mounted in the sensor mounting position, mount the it in the CR mounted position securely. In case the CR Encorder FFC is disconnected from the connector on the CR Encorder sensor board, connect it securely. 
2	Ditto	Referring to step 2 in Section 4.2.4.7 Figure 4-49, check that the Liner scale is set between the sensor parts. Also check that the sensor is free from dust and paper debris.

Table 3-10. Remedies for Fatal Error (continued)

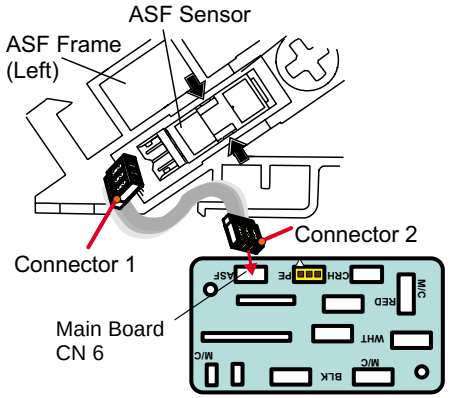
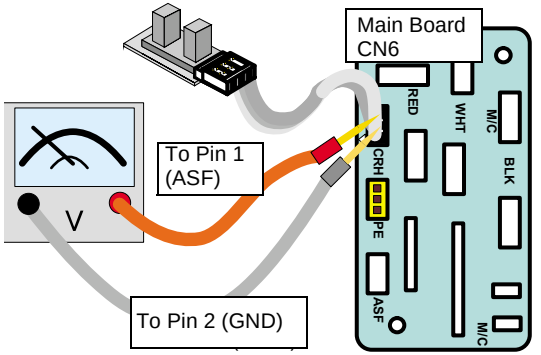
Step	Detail Phenomenon	Check & Actions
3	When the Printer is turned on, the CR move a little and it sounds the ASF Hopper moving . After that, the Panel LED indicates the Fatal Error.	Referring to the figure below, check that the ASF sensor is attached to the correct position. Check that both connectors 1 and 2 are securely connected. 
4	Ditto	Check for the correct voltages at 3-pin connector shown in the figure below. Turn the printer on and check the voltage is correct as follows: • When the ASF HP Wheel is in the HP, the voltage is 0 VDC. • When the ASF HP Wheel is out of the HP, the voltage raises to 5 VDC.. 

Table 3-10. Remedies for Fatal Error (continued)

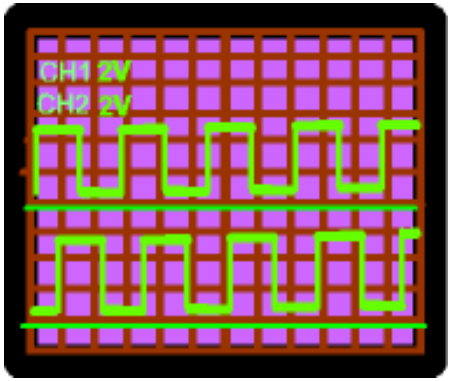
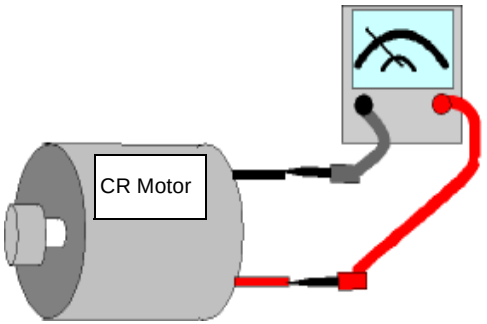
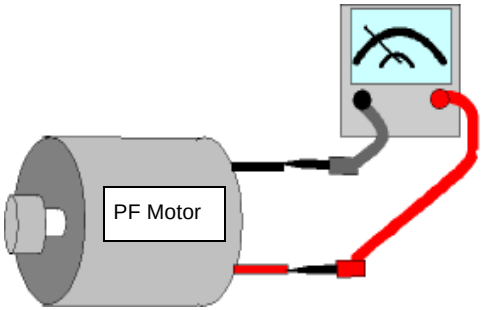
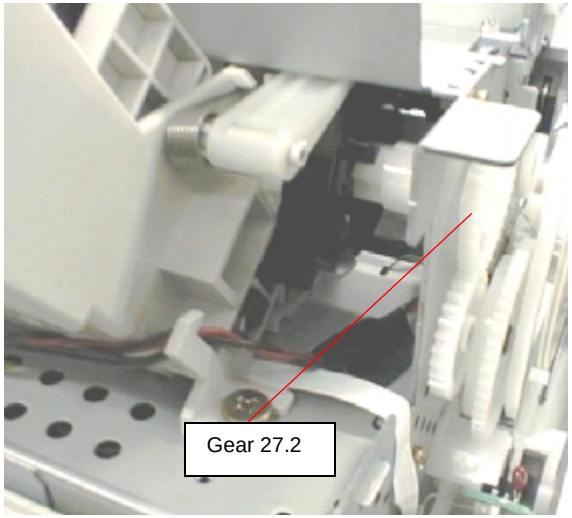
Step	Detail Phenomenon	Check & Actions
5	When the Printer is turned on, the CR move a little and the PF motor also moves little. After that, the Panel LED indicates the Fatal Error.	• Check for the correct waveform at 5 pins of FFC. The PF Motor Encorder Sensor FFC is connected to CN12 on the C298 Main Board. Check that both connectors Pin 1 & 4 or Pin 1& 2 .  • Check for the correct waveform at 21pins of head FFC. The Head FFC is connected to CN8 on the C298 Main Board. Check that both connectors Pin 2 & GND or Pin 4& GND.
6	When the Printer is turned on, the CR motor dose not move at all. (PF motor moves.) After that, the Panel LED indicates the Fatal Error	Since the CR motor is DC motor, measure the coil resistance using the tester as following figure **<Resistance: 31.1 Ω ± 25%>** 

Table 3-10. Remedies for Fatal Error (continued)

Step	Detail Phenomenon	Check & Actions
7	When the Printer is turned on, the PF motor dose not move. After that, the Panel LED indicates the Fatal Error.	Since the PF motor is DC motor, measure the coil resistance using the tester as following figure **<Resistance: 31.1 Ω ± 25%>** 
8	When the Printer is turned on, • it dose not sound the hopper moving. • it sounds as if the gear tooth strike noisy and the ASF Hopper dose not move. After that, the Fatal Error is indicated on the Panel LED.	• Make sure if Gear 27.2 is assembled to the left edge of the ASF LD shaft as following figures 

3.1.2 Isolating the Faulty Part on the Power Supply Board

This section explains how to troubleshoot the following problems:

- ☐ The printer is turned on, but the initialization is not performed and LED on the control panel do not come on.
- ☐ Problems after power on

Be sure to perform troubleshooting in the order specified, because the parts involved are mentioned in the disassembly procedure to facilitate servicing.

Table 3-11. Isolating the Faulty Part on the Power Supply Board

Step	Check Point	Action
1	Is the Panel FFC disconnected from the connector on the panel board?	The power switch for this printer is in the secondary side. Therefore, if the FFC does not transfer signals, the printer does not operate despite the power supply board and the main board are properly connected.
2	Is the Panel FFC disconnected from the CN11 (black, 12-pin) on the Main Board.	This printer uses the power switch on the secondary side. Therefore, if the FFC does not transfer signals, the printer does not operate despite the power supply board and the main board are properly connected.
3	Is the 3pin of the Panel FFC breaking wire condition?	Check the 3pin's line on the Panel FFC with the circuit tester.
4	Has the fuse (F1) on the power supply board blown?	Check if the line in the F1 located beside the CN1 on the power supply board has blown.
5	Is CN1 on the power supply board disconnected?	Check that the connectors CN1, which are used to apply AC power to the primary side on the PS board, are properly connected.
6	Is CN10 on the Main Board disconnected?	Check that the connector CN10, which are used to apply the DC voltage to the Main board, are properly connected.

Table 3-11. Isolating the Faulty Part on the Power Supply Board

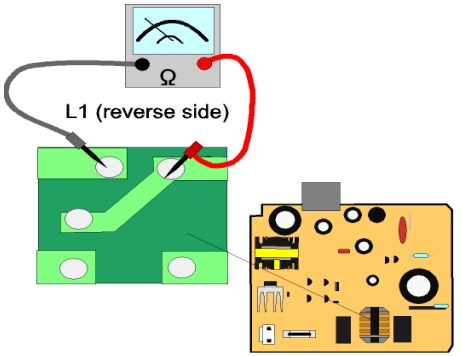
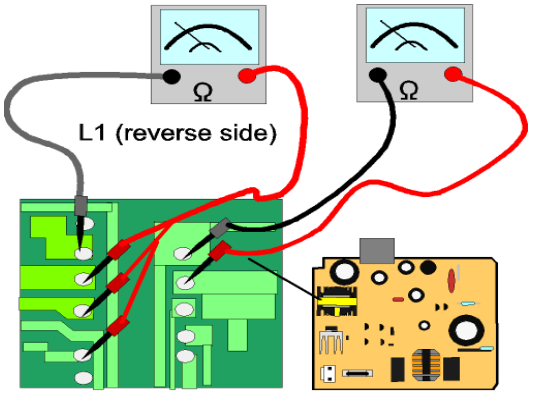
Step	Check Point	Action
7	Is the choke coil L1 broken?	Viewing the reverse side of the power supply board, check for the proper continuity at the two points indicated in the figure below. 
8	Is the transformer (T1) broken?	Referring to the figure below, check if the transformer is disconnected between the poles. Try every combination in each group marked with a blue box. 

Table 3-11. Isolating the Faulty Part on the Power Supply Board

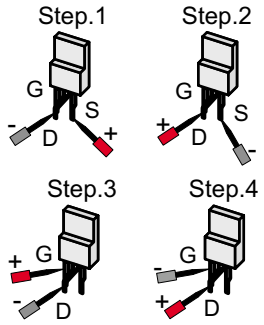
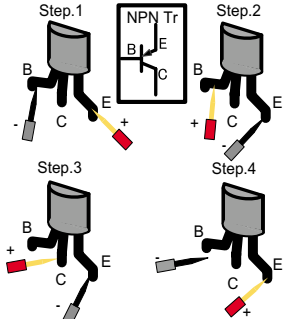
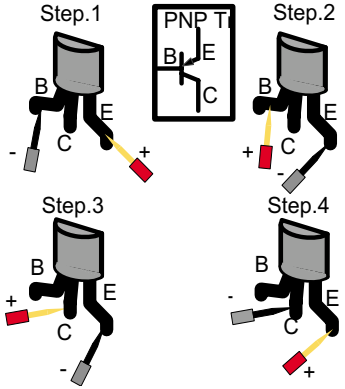
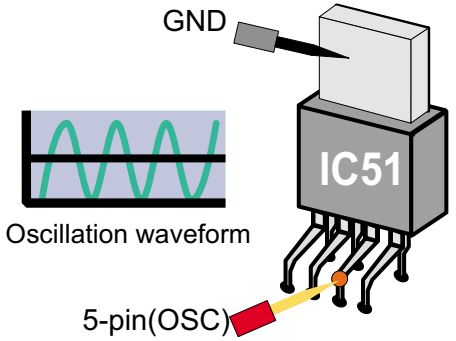
Step	Check Point	Action
9	Is the main switching FET (Q1) defective?	Check the electrical continuity of the switching FET by trying four patterns below. Be sure to pay attention to the polarity. If the main switching FET is good, the findings should be as shown under the figure.  Step 1: Off, Step 2: On, Step 3: Off, Step 4: Off
10	Is the NPN connection transistor defective?	Check the electrical continuity of the NPN connection transistor on the C298 PSB/SE board by trying four patterns below. Be sure to pay attention to the polarity. If the NPN contact transistor is good, the findings should be as shown under the figure. Note the NPN connection transistor is shown in the circuit diagram as described below.  Step 1: On, Step 2: Off, Step 3: Off, Step 4: On

Table 3-11. Isolating the Faulty Part on the Power Supply Board

Step	Check Point	Action
11	Is the PNP connection transistor defective?	Check the PNP connection transistor on the C298 PSB/SE board in the same manner described in the previous step.  Step 1: Off, Step 2: On, Step 3: Off, Step 4: On
12	Is the +5 V regulator (IC51) defective?	Check the IC51 for the oscillation waveform (measured by using a oscillo scope) output from the Pin 2. If the output waveform is as shown below, it means the IC51 is working properly. 

3.1.3 Isolating the Faulty Part according to the Phenomenon

Refer to this section if you could not solve the problem in Section 3.1.1 or Section 3.1.2 or need more information to isolate the cause according to the exhibited phenomenon. The contents mostly cover the problems relating to the C298 and their remedies.

Table 3-12. Phenomens Exhibited

No.	Phenomenon Exhibited	Table to refer to
1	CR motor does not rotate.	Table 3-13
2	PF motor does not rotate.	Table 3-14
3	Cleaning does not solve the print problem.	Table 3-15

Table 3-13. CR Motor does not Operate

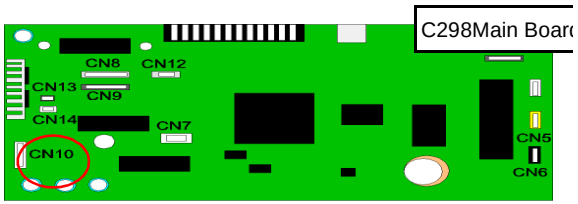
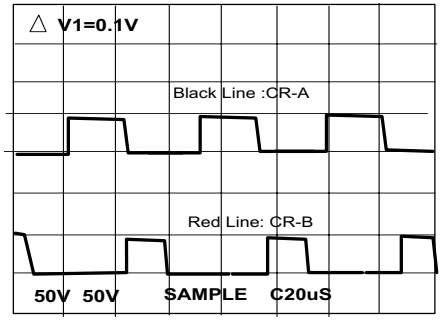
Step	Check Point	Action
1	Getting ready for inspecting waveforms.	The connector CN14 used to control the CR motor is indicated in the figure below. Using the oscillo scope, check for the waveform for each phase at the indicated connector. To check the waveform, press the Load/Eject button to attempt to move the carriage. Be sure to leave the cable for the CR motor connected.  ***NOTE:*** *The GND can be output by placing the probe of the oscillo scope to the tapped hole in the bottom plate on the board with a screw. Note the connector has no ground line since this printer drives the motor with the bipolar system.*
2	Check of the waveform and remedies	While trying to drive the CR motor, the waveform output from each phase should be as shown in the figure. If the waveform output from each phase is as shown below, replace the CR motor. If not, replace the IC18 (CR motor driver IC) or C298 Main Board.  ***NOTE:*** *The GND can be output by placing the probe of the oscillo scope to the tapped hole in the bottom plate on the board with a screw.*

Table 3-14. PF Motor does not Operate

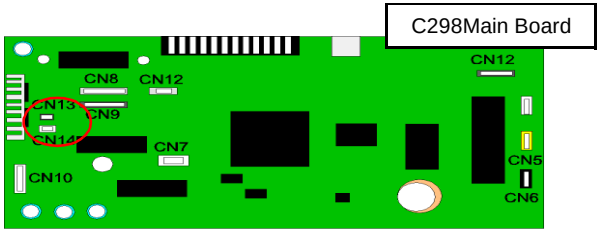
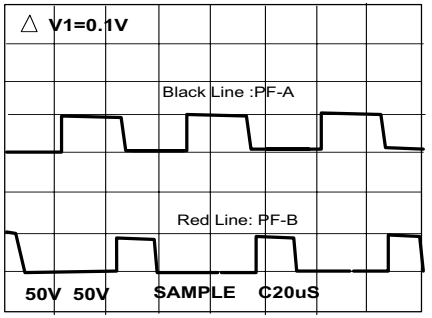
Step	Check Point	Action
1	Getting ready for inspecting waveforms.	The CN13 connector used to control the PF motor is indicated in the figure below. Using the oscillo scope, check for the waveform for each phase output from the indicated connector. To check the waveform, press the Load/Eject button to attempt the ASF paper feeding. Be sure to leave the cable for the PF motor connected.  ***NOTE:*** *The GND can be output by placing the probe of the oscillo scope to the tapped hole in the bottom plate on the board with a screw. Note the connector has no ground line since this printer drives the motor with the bipolar system.*
2	Check of the waveform and remedies.	While trying to drive the PF motor, the waveform output from each phase should be as shown in the figure. If the waveform output from each phase is as shown in the figure, replace the PF motor. If not, replace the IC19 (PF motor driver IC) or C298 Main Board.  ***NOTE:*** *The GND can be output by placing the probe of the oscillo scope to the tapped hole in the bottom plate on the board with a screw.*

Table 3-15. Cleaning does not Solve the Print Problem

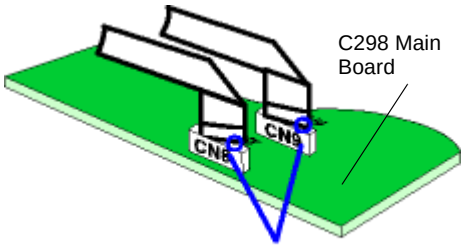
Step	Check Point	Action
1	Repeat the cleaning 7 or 8 times.	Unlike the previous products, the Stylus Color 860/ 1160 is not equipped with the CL3 (dummy cleaning). Therefore, you can repeat the cleaning every time you press the Cleaning button without running a self-test nor any printing.
2	Trying the initial ink charge operation.	You can repeat the initial ink charge operation in the way described below: 1. Using the exclusive program, reset the initial ink charge flag in the EEPROM. 2. Turn the printer back on. (Refer to Chapter 5 for details.)
3	Reinstalling the printhead FFC.	Remove the upper case and check if the FFCs are properly connected to the CN8 and CN9 on the C298 Main Board. Even though they are not installed aslant as shown below, disconnect the FFC once and connect them again, then run a print check. 

Table 3-15. Cleaning does not Solve the Print Problem (continued)

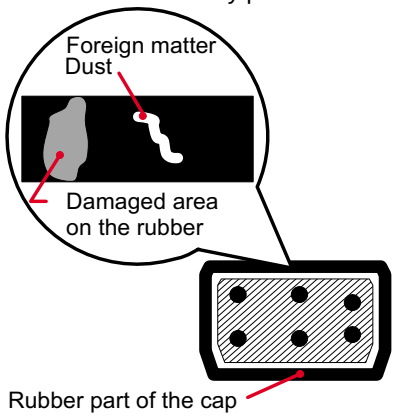
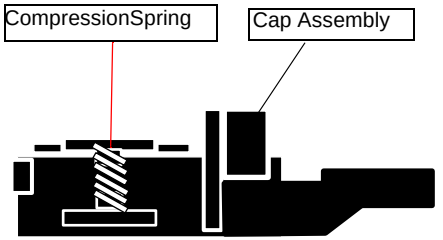
Step	Check Point	Action
4	Check the cap for any foreign matter, dirt, or damage.	Remove the printer mechanism and release the carriage lock to move the carriage unit away from the home position. Then, have a close look at the cap rubber and check for any problem below. 
5	Has the Tension Spring assembled in the Cap Unit come off?	If the compression Spring assembled in the Cap Unit, comes off, the sealing ability is lowered and the cap rubber portion dose not fit to the surface of the printhead. And the ink is not absorbed from the head. Therefore, check that the Compression Spring is securely assembled in the following figured portion.. 

Table 3-15. Cleaning does not Solve the Print Problem (continued)

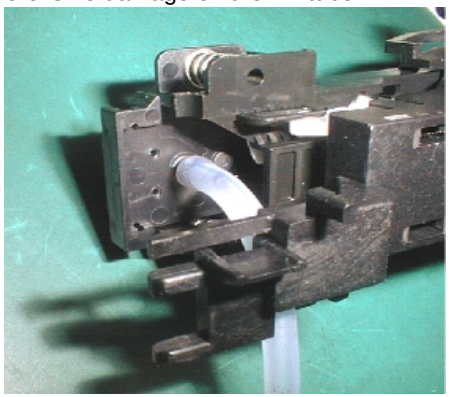
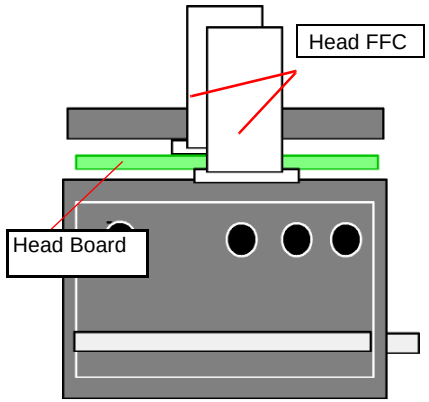
Step	Check Point	Action
6	Is any ink tube disconnected from the cap unit?	Referring to the figure below, check the following points: • The ink tube is inserted to the Cap assembly securely as following figure. • There is no damage on the ink tube. 
7	Is the FFC disconnected from the printhead board?	Remove the Head FFC holder from the CR unit, and heck that two FFC is properly connected. Even though no slant connection nor disconnection is found, disconnect the FFC once and install them again. 

Table 3-15. Cleaning does not Solve the Print Problem (continued)

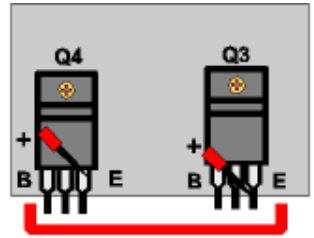
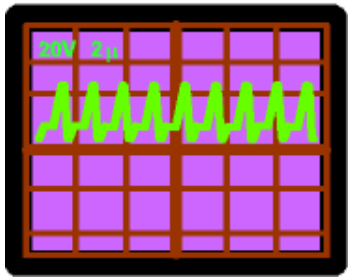
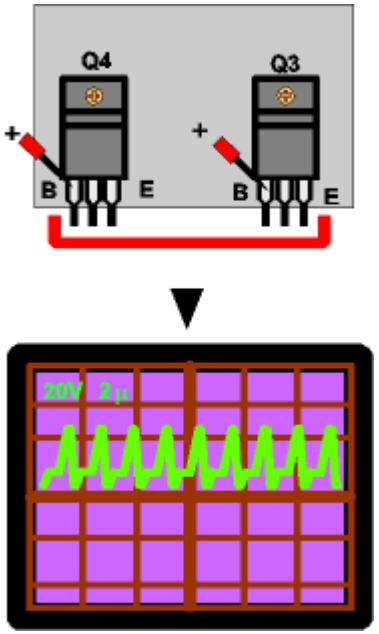
Step	Check Point	Action
8	Is the head driver transistor defective?	If you see the C298 Main from the heat sink side, the following two power transistors can be found: • Q3 and Q4: Outputs the common voltage To check if each pair transistor is working properly, check the trapezoid waveform at the emittor terminal of the charging side. Check the waveform while running a print.   • Check the continuity of each transistor by referring the Step 11 for the “Isolating the Faulty Part on the Power Supply Board” ***NOTE:*** *Frequency of waveform and voltage level (p-p) varies if printing is performed through the driver. Therefore, as long as the trapezoid waveform is output, the head driver IC is considered good, and the printhead must be replaced in that case.*

Table 3-15. Cleaning does not Solve the Print Problem (continued)

Step	Check Point	Action
9	Is the head driving pre-driver defective?	If a trapezoid waveform is not output in the previous step, check all the power transistors (Q3 - Q4) for base waveform. Like the head transistor in Step 8, the base terminal input the similar trapezoid waveform from the pre driver IC, but any wave form is not input at Emita terminal. Replace the Power  Transistor. If the waveform are not output correctly on Base terminal of each Power Transistor, replace the IC10 or 11 on C298 Main Board. Otherwise, replace the C298 Main Board.

CHAPTER

4

DISASSEMBLY AND ASSEMBLY

4.1 Overview

This chapter describes procedures for disassembling the main components of EPSON Stylus COLOR 760. Unless otherwise specified, disassembly units or components can be reassembled by reversing the disassembly procedure. Therefore, no assembly procedures are included in this chapter. Precautions for any disassembly or assembly procedure are described under the heading "CHECK POINT". Any adjustments required after disassembling the units are described under the heading "REQUIRED ADJUSTMENT".

4.1.1 Precautions for Disassembling the Printer

See the precautions given under the heading "WARNING" and "CAUTION" in the right column and the following page, respectively, when disassembling or assembling EPSON Stylus Color 760.

- **Disconnect the power cable before disassembling or assembling the printer.**
- **Wear protective goggles to protect your eyes from ink. If ink gets in your eye, flush the eye with fresh water and see a doctor immediately.**
- **If ink comes into contact with your skin, wash it off with soap and water. If irritation occurs, contact a physician.**
- **A lithium battery is installed on the main board of this printer. Be sure to observe the following instructions when serving the battery:**
  - Keep the battery away from any metal or other batteries so that electrodes of the opposite polarity do not come in contact with each other.
  - Do not heat the battery or put it near fire.
  - Do not solder on any part of the battery. (Doing so may result in leakage of electrolyte from the battery, burning or explosion. The leakage may affect other devices close to the battery.)
  - Do not charge the battery. (An explosion may be generated inside the battery, and cause burning or explosion.)
  - Do not dismantle the battery. (The gas inside the battery may hurt your throat. Leakage, burning or explosion may also be resulted.)
  - Do not install the battery in the wrong direction. (This may cause burning or explosion.)
- **Danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacture. Dispose the used batteries according to government's law and regulations.**

Risque d'explosion si la pile est remplacée incorrectment. Ne remplacer que par une pile du même type ou d'un type équivalent recommandé par le fabricant. Eliminer les piles déchargées selon les lois et les règles de sécurité en vigueur.

CAUTION

- **Never remove the ink cartridge from the carriage unless this manual specifies to do so.**
- **When transporting the printer after installing the ink cartridge, be sure to pack the printer for transportation without removing the ink cartridge.**
- **Use only recommended tools for disassembling, assembling or adjusting the printer.**
- **Apply lubricants and adhesives as specified. (See Chapter 6 for details.)**
- **Make the specified adjustments when you disassemble the printer.**
  (See Chapter 5 for details.)
- **When assembling, if an ink cartridge is removed and needs to be installed again, be sure to install a new ink cartridge because of the following reasons;**
  - Once the ink cartridge mounted on the printer is removed, air comes in and creates bubbles in the cartridge. These bubbles clog ink path and cause printing malfunction.
  - If an ink cartridge in use is removed and is reinstalled, ink quantity will not be detected correctly since the counter to check ink consumption is cleared.
- **Because of the reasons above, make sure to return the printer to the user with a new ink cartridge installed.**

4.1.2 Tools

Table 4-1 lists the tools recommended for disassembling, assembling, or adjusting the printer. Use only tools that meet these specifications.

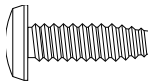
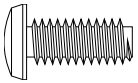
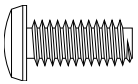
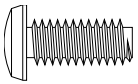
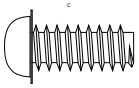
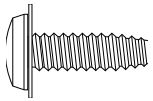
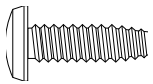
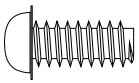
Table 4-1. Tool List

Tools	Commercially Available	Code
(+) Driver No.2	O.K.	B743800200
(+) Driver No.1	O.K.	B743800100
Tweezers	O.K.	B741000100
Hexagon Box Driver (Opposite side:5.5mm)	O.K.	B741700100

4.1.3 Screw Specifications

Table 4-2 shows screw specifications. During assembly and disassembly, make sure that the specified types of screws are used at proper locations, referring to the table below. Note that the screw numbers described in the manual correspond to the numbers in the table.

Table 4-2. Screw Specifications

No.	Body	Name	Size
1		+Bind, S-tite	M3X6
2		+Bind, P-tite (CBP tight)	M3X6
3		+Bind, P-tite (CBP tight)	M3X8
4		+Bind, P-tite (CBP tight)	M2.5X5
5		+Pan head (C.P.)	M3X6
6		+Pan head, B-tite Sems W1	M3X8
7		+Bind, S-tight, Sems R2(CBS Sems)	M3X6
8		+Bind, S-tight,	M3X10
9		+Pan head, B-tite Sems W1	1.7 X 5

4.1.4 Service Checks After Repair

Before returning the printer after servicing, use the check list below, which enables you to keep record of servicing and shipping more efficiently.

Table 4-3. Inspection Checklist for the Repaired Printer

Category	Component	Item to check	Is Check Required?
Printer units	Self-test	Is the operation normal?	☐Checked / ☐Not necessary
	On-line test	Was the on-line test successful?	☐Checked / ☐Not necessary
	Printhead	Is ink ejected normally from all nozzles?	☐Checked / ☐Not necessary
	Carriage mechanism	Does the carriage move smoothly?	☐Checked / ☐Not necessary
		Any abnormal noise during movement?	☐Checked / ☐Not necessary
		Any dirt or obstacles around the shaft of carriage guide?	☐Checked / ☐Not necessary
		Is the CR motor at the correct temperature (not over heating)?	☐Checked / ☐Not necessary
	Paper feeding mechanism	Is paper fed smoothly?	☐Checked / ☐Not necessary
		Does paper get jammed?	☐Checked / ☐Not necessary
		Does paper get skew during paper feeding?	☐Checked / ☐Not necessary
		Are papers multi fed?	☐Checked / ☐Not necessary
		Does the PF motor get overheated?	☐Checked / ☐Not necessary
		Abnormal noise during paper feeding?	☐Checked / ☐Not necessary
		Is the paper path clear of all obstructions?	☐Checked / ☐Not necessary
Adjustment	Specified adjustment items	Are adjusted conditions all right?	☐Checked / ☐Not necessary
Lubricant	Specified lubricated item	Is lubrication applied to the specified locations?	☐Checked / ☐Not necessary
		Is the quantity of lubrication adequate?	☐Checked / ☐Not necessary
Function	ROM version	Newest version:	☐Checked / ☐Not necessary
Shipment package	Ink cartridges	are the ink cartridges installed correctly?	☐Checked / ☐Not necessary
	Protection conditions during transport	Is all the pointed parts firmly fixed?	☐Checked / ☐Not necessary
Others	Attached items	Are all attached items from users included?	☐Checked / ☐Not necessary

4.2 Disassembly Procedures

The flowchart below shows procedures for disassembly.

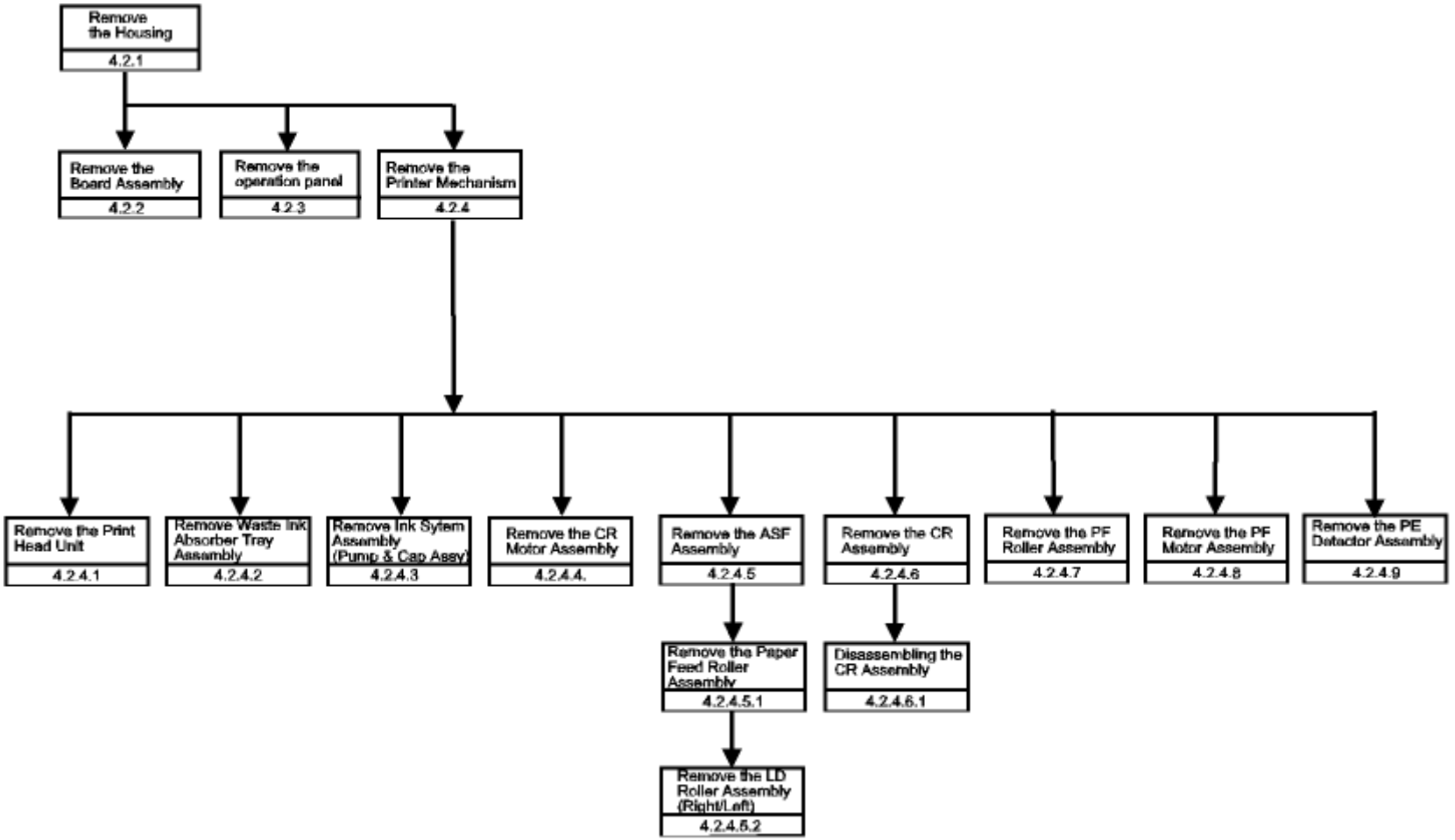


Figure 4-1. Flowchart of Disassembly

4.2.1 Removing the Upper Housing

Since the printer mechanism itself structures the bottom part, the printer mechanism appears just by removing the Upper Housing.

1. Open the printer cover and turn the PG adjustment lever towards (+) side.
2) Remove 4 screws (No.8) securing the Upper Housing, and remove by lifting it upward. Refer to Figure 4-2.

CAUTION

Lift up and remove the Upper Housing, pulling it forward. (Since it collides with the carriage.)

CHECK POINT

After assembling the Upper Housing, confirm the Head FFC is placed in the gutter which is located in the back side of the Upper Housing.
If the Head FFC is not placed in the gutter, it may damage the FFC.

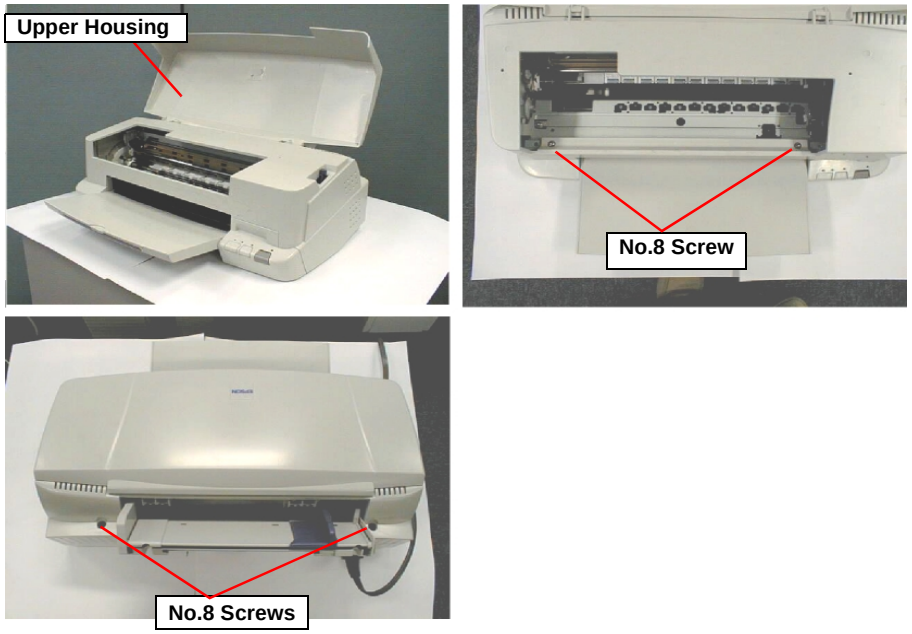


Figure 4-2. Removing the Upper Housing

4.2.2 Removing the Circuit Board Assembly

Since the Main Board and Power Supply Circuit Board are built in a separate bracket from the Printer Mechanism, remove the whole bracket from the printer mechanism.

1. Remove the Upper Housing. (Refer to 4.2.2)
2) Remove the 7 screws(No.1) securing the M/B Shield Plate on the printer mechanism. Refer to Figure 4-3.

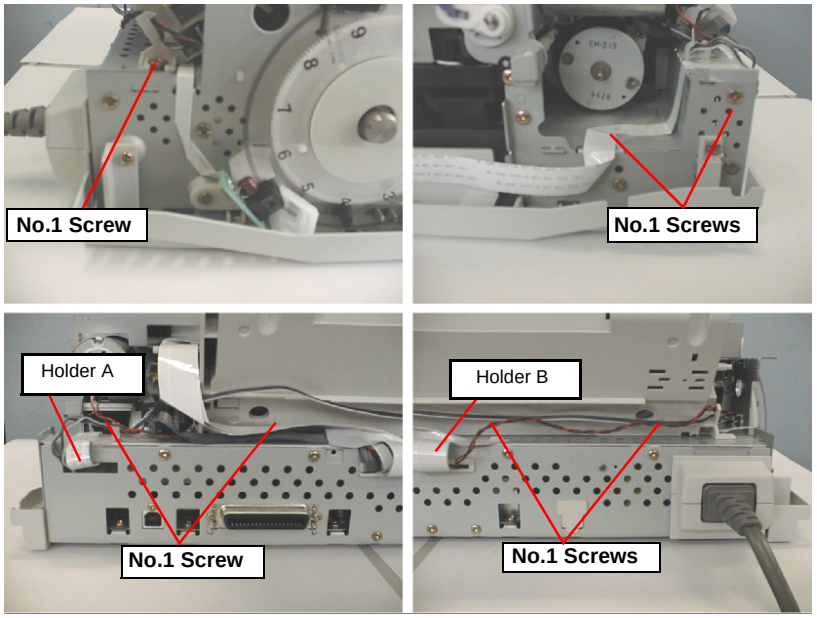


Figure 4-3. Removing the M/B Shield Plate

3) Pull out the “M/B Shield Plate Assembly” a little bit and remove cables which are hung on the A and B holders as you can see in Figure 4-3. Then, take all following cables out of connectors on the main board.

- CN1(AC Source on PS board), CN5 (PE sensor),
  CN6 (ASF HP sensor),
  CN8 (Head FFC1), CN9 (Head FFC2), CN10 (PS Cable),
  CN11 (Control Panel), CN12 (PF Encoder Sensor)

After removing all cables from the Main Board, detach the Shield Plate M/B Assembly completely from the printer mechanism.

4) When removing each Circuit Board unit from the “M/B Shield plate”, remove the screws securing each unit and shield plate.
   - C298 Main Board : Total 12screws
     (No.1 screw: 9screws)
     (No.5 screw: 3screws)
   - C298 PS Board : Total 4screws (No.1 screw: 4 screws)

Refer to the next page for Figure 4-4. Also, when removing the Power Supply Board, remove the cable connecting to the Main Board (CN10 with lock device)

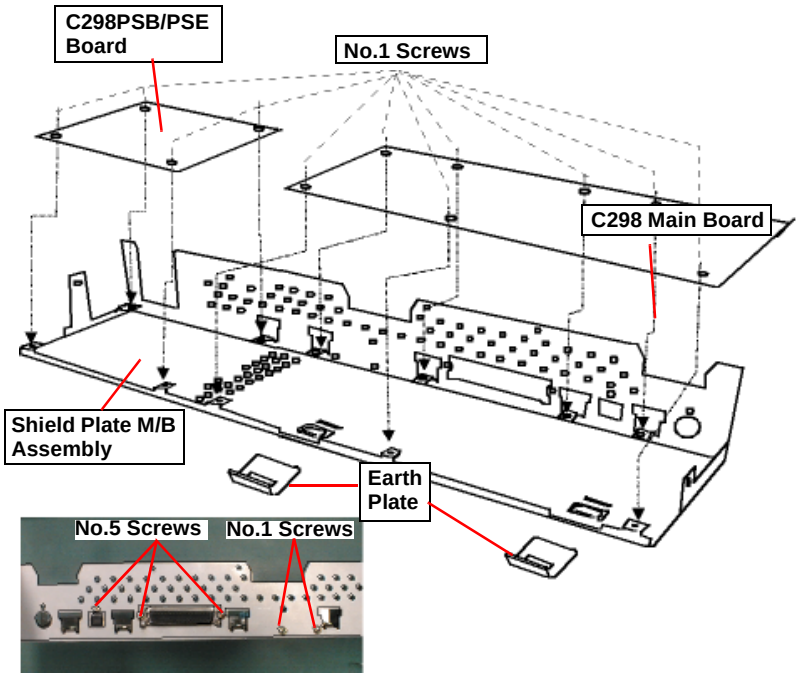


Figure 4-4. Removing Each Circuit Board

CAUTION

- Since the CN10 has connector locks, be sure to release the locks before removing the cables.
  Also, make sure to lock them when connecting the cable.

ADJUSTMENT REQUIRED

Be sure to perform the following adjustments when the Main board is replaced;

1. Head voltage ID Input (Refer to Chapter 5.)
2. Bi-D adjustment, including Head Gap adjustment (Refer to Chapter 5.)
3. USB ID data input (Refer to Chapter 5.)

Be sure to exchange the following parts also when the Main Board is replaced;

1. Waste Ink Absorption Pad
2. Ink Cartridge (BK & Color)

This parts exchange is required since the several ink counters stored in the EEPROM are lost with the Main board exchange.

CHECK POINT

Make sure that each cables is set in the correct cable holder (A or B) on the M/B Shield Plate. Refer to Figure 4-5.

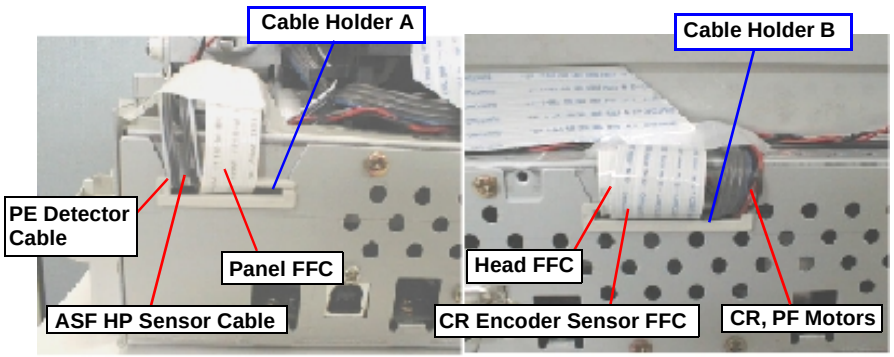


Figure 4-5. Set each Cable to A and B Cable holder

4.2.3 Removing the Operation Panel

1. Remove the Upper Housing. (Refer to Section 4.2.1.)

2) Remove two screws (No.1) securing the Operation Panel Assembly and separate the Operation Panel Assembly from the Printer Mechanism.
3) Remove two screws (No.3) and detach the Sub Right Panel Housing from the Operation Panel Assembly.
4) Remove the Panel Shield Plate and C298 PNL board from the Operation Panel Assembly.
5) Disconnect the Panel FFC from the connector on the C298/303 PNL board.

CAUTION

Removing the Operation Panel Assembly also separates the stacker assembly from the Printer Mechanism, since the Stacker Assembly is held with Operation Panel.

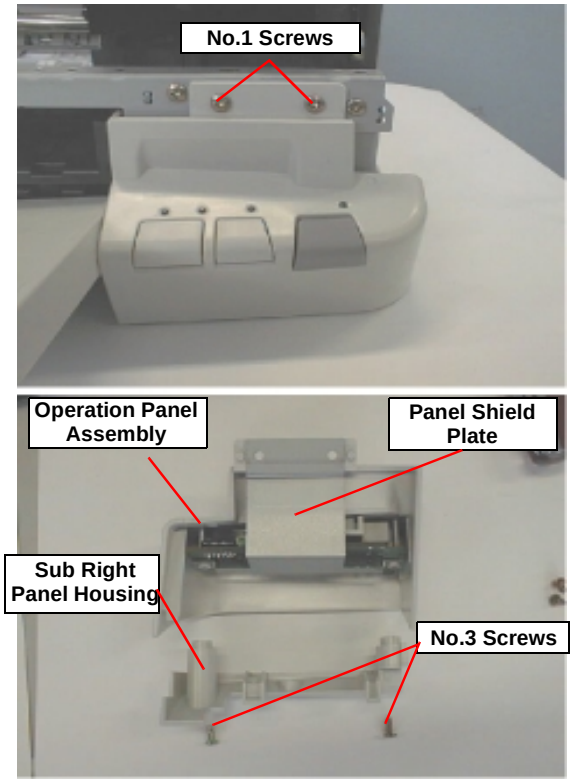


Figure 4-6. Removing the Operation Panel

4.2.4 Disassembling the Printer Mechanism

Since Stylus Color 760 does not have the Lower Housing, the printer mechanism part should already have appeared by now. Therefore, this section explains procedures for disassembling the major parts or units of the printer mechanism.

4.2.4.1 Removing the Printhead Unit

1. Remove the Upper Housing. (Refer to Section 4.2.1.)
2) Slide the CR Lock Lever to the front using tweezers or small driver and release the CR Lock Lever from the CR unit. Then move the CR Assembly to the left.
3) Take both black and color ink cartridges out of the CR Assembly.
4) Remove the blue covers for black and color ink cartridges from the CR Assembly.
5) Remove the Torsion Spring 49 from the left side of the CR Assembly and one screw (No.2) securing the Fastener Head Plate.
Then take out the Fastener Head Plate. Refer to the Figure 4-7.
6) Remove the Head FFC Holder from the CR unit by releasing four hooks. (Two hooks; Left/Right sides of CR unit, Two hooks; Back sides of CR unit) Refer to Figure 4-7.

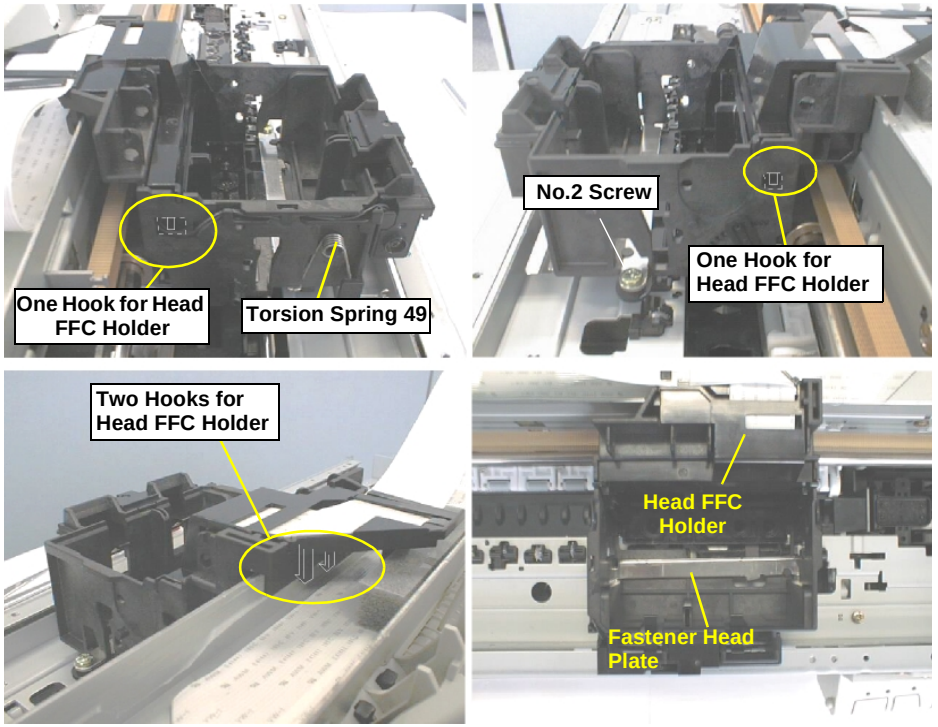


Figure 4-7. Removing the Printhead

7) Remove the two Head FFC being connected to the Printhead Drive Circuit Board built in the CR unit and remove the narrow FFC from the CR Encoder Sensor Board on the CR Assembly.

CHECK POINT

- Make sure that the earth board is installed at the right corner of the CR unit correctly. There are 2 pins used to determine the location. Refer to Figure 4-8.
- When you install the printhead to the carriage, make sure that the protrusion on the carriage side is placed in the U-ditch of the printhead. Refer to Figure 4-8.

CAUTION

- Since the ink cartridge once taken out can not be used again, be sure to install a new ink cartridge when you return the printer to the user.
- Before packing the printer for transportation, make sure new ink cartridges are installed and the carriage is locked with the CR lock lever securely.

ADJUSTMENT REQUIRED

When you replace the printhead unit, perform the following adjustments. (Refer to Chapter 5 for more details.):

1. Initial ink charge (Refer to Chapter 5/Section 5.2.3.9.)
2. Head Voltage ID Input (Refer to Chapter 5/Section 5.2.3.5.)
3. Head Angular Adjustment (Refer to Chapter 5/Section 5.2.3.6.)
4. Bi-D Adjustment (Chapter 5 /Section 5.2.3.7.)

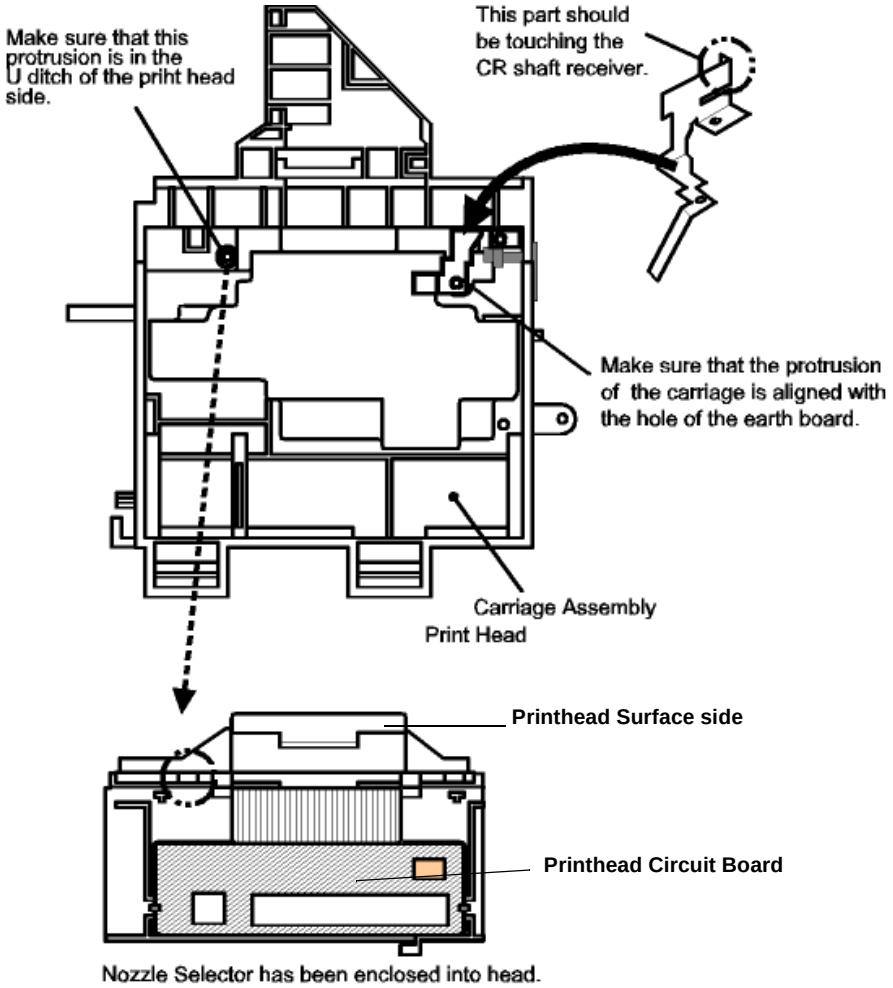


Figure 4-8. Installing the Printhead

4.2.4.2 Removing the Waste Ink Absorber Tray Assembly

1. Remove the Upper Housing. (Refer to Section 4.2.1.)
2) Remove one screw (No.1) securing the Left Housing Panel to the Printer Mechanism. Refer to Figure 4-9.
3) Remove two screws (No.1) securing Left Sub Frame and remove Left Sub Frame. Refer to Figure 4-9.

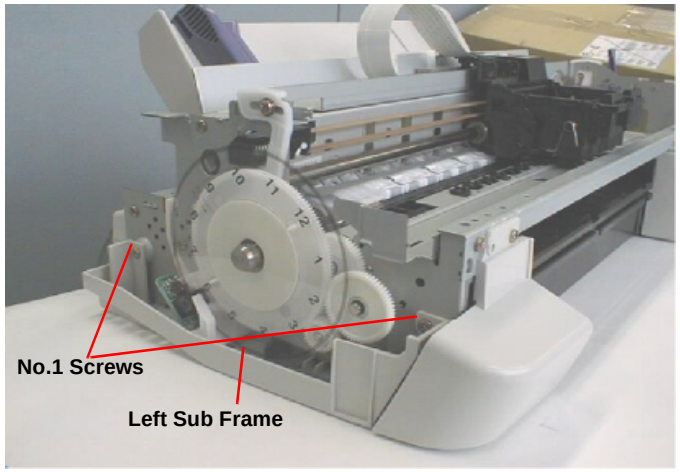


Figure 4-9. Removing the Left Housing Panel &Left Sub Frame

4) Insert a screw driver through the center hole on the Paper Eject Assembly and remove one screw (No.3) securing the Lower Paper Support Front to the Waste Ink Absorber Tray Assembly.
Release three hooks fixing the Lower Paper Support Front and remove the Lower Paper Support Front. Refer to Figure 4-10.
5) Remove one screw (No.3) securing Waste Ink Absorber Tray Assembly located in the right side of the printer mechanism.
Refer to Figure 4-10.
6) On the Left side of the printer mechanism, using tweezers or a small screw driver, carefully shift the Tray Spacer securing the Waste Ink Absorber Tray Assembly to left horizontally. See Figure 4-10.
7) Remove the Waste Ink Absorber Tray Assembly pulling it downward.

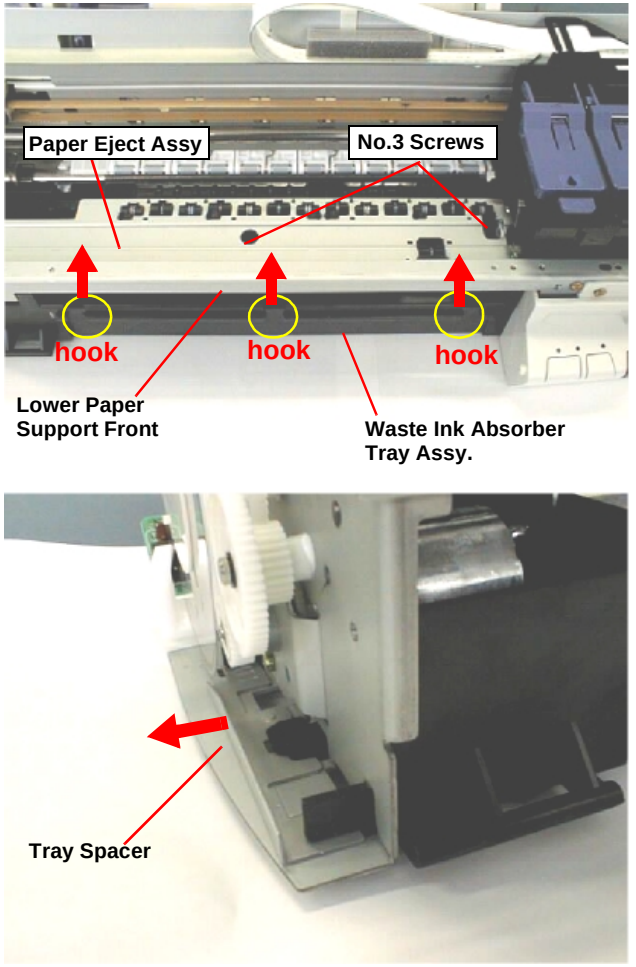


Figure 4-10. Removing two No.3 screws and Tray Spacer

CAUTION

1. When installing the Waste Ink Absorber Tray Assembly, make sure to fix it with the Spacer Tray in the left side of the printer mechanism. Refer to the Figure 4-11.
2. Be careful not to damage Loop Scale when the Tray Spacer is removed.

ADJUSTMENT REQUIRED

1. When the Waste Ink Absorber was replaced, perform the following Panel Reset Function for ink overflow counter. Turn on the Printer while holding the “Load/Eject SW”+”Cleaning SW”, and hold “Cleaning SW” 10 seconds. For details, Refer to the Chapter 5 Section 5.2.3.11. Otherwise, perform the waste ink counter reset operation by using the adjustment program.

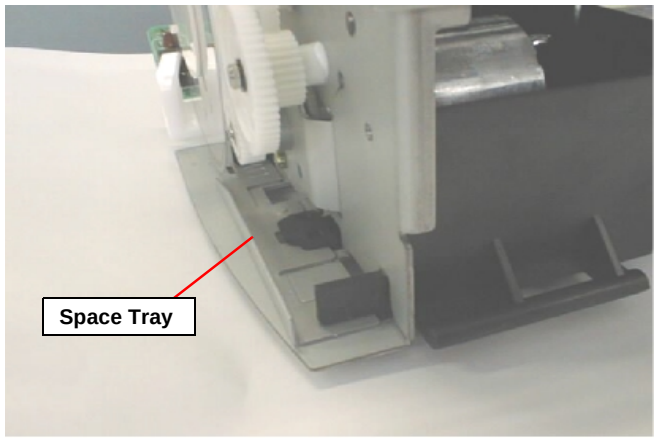


Figure 4-11. Installing the Spacer Tray

4.2.4.3 Removing the Ink System Assembly

NOTE: *The Pump Assembly and Cap Assembly are included in the Ink System Assembly*

1. Remove the Upper Housing. (Refer to Section 4.2.1.)
2) Remove the Operation Panel. (Refer to Section 4.2.3.)
3) Remove two screws (No.1) securing the Right Sub Frame. Refer to Figure 4-12.

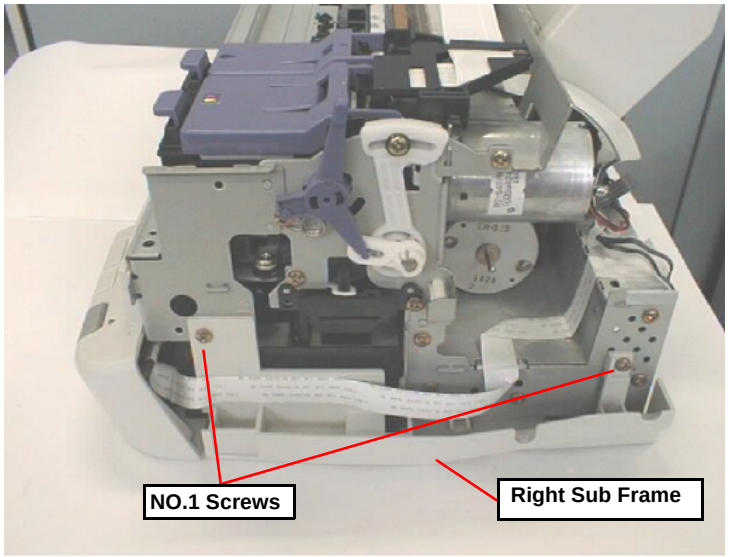


Figure 4-12. Removing the Right Sub Frame

4) Remove the Waste Ink Absorber Tray Assembly. (Refer to Section 4.2.4.2.)
5) Raise the Printer Mechanism toward ASF side so that you can see the bottom of the Printer Mechanism. (Refer to Figure 4-13.)

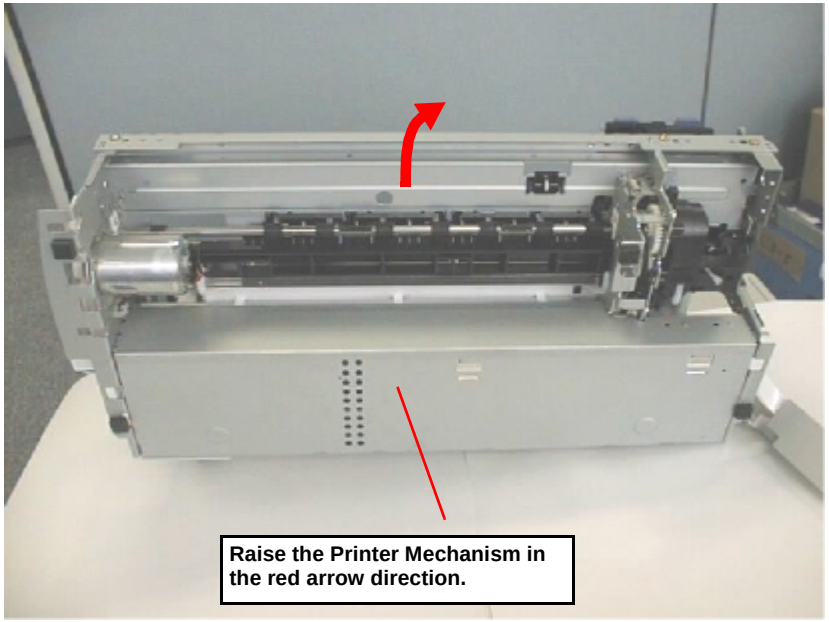


Figure 4-13. Raising the Printer Mechanism

6) From the Middle Frame, remove three screws (No.1) securing the Pump Assembly in the Ink System Assembly. Then, from the Right Frame, remove one screw (No.1) securing the Cap Assembly in the Ink System Assembly. Refer to Figure 4-14.
7) Release three hooks fixing the Cap Assembly to the Metal plate for Ink System Assembly and remove the Cap Assembly.
Refer to Figure 4-14.
8) Remove ink tube from the Cap Assembly carefully.

CAUTION

- **When you replacing the cleaner head built in the Pump assembly, be careful of the following points.**
  - Do not touch the cleaner head with your bare hands. Use gloves or tweezers.
  - Do not smear the head cleaner with oil or grease.
  - When installing the cleaner head, set the rubber side (black side) toward the right side of the frame.
- **When you replacing the Cap Assembly, do not touch the sealing rubber portion of the Cap Assembly.**
- **The components parts of the Pump Assembly are no individually supplied as ASP. So please replace the whole Pump Assembly when the Pump Assembly needs replacing.**

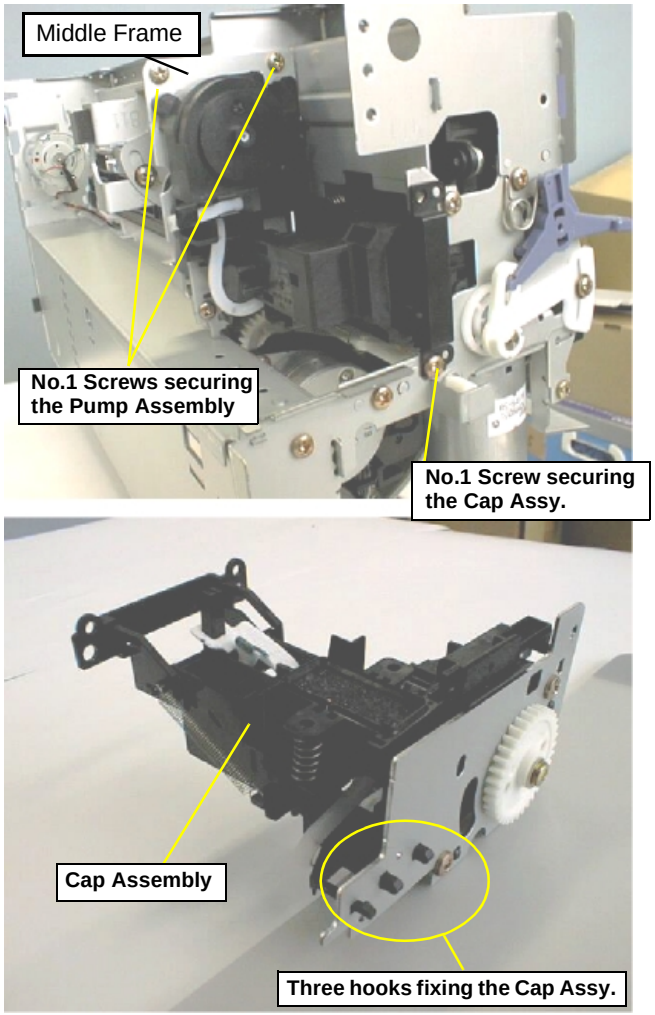


Figure 4-14. Removing the Pump Assembly & Cap Assembly

CHECK POINT

- Since the spring is included among the gears in the pump assembly, be careful that the parts do not pop out during disassembly and assembly.
- When assembling the Cap Assembly to the Ink System Assembly, make sure that the Ink absorption Pad has been set into the Cap Assembly. Refer to the Figure 4-15.
- When assembling the printer, be careful not to crush nor leave any stress on the ink tube connecting the pump assembly and the cap assembly.
- Check the ink tube is connected securely to the connect portion of the Cap Assembly.
  Refer to Figure 4-16.
- Check the ink tube is placed correctly in the Ink System Assembly. Refer to Figure 4-16.
- After installing the Pump Assembly, make sure that the cleaner parts move back and forth by rotating the Gear.
- After setting the three protrusions of the Cap Assembly to the suitable fixing holes on the metal frame, secure the Ink System Assembly to the Middle Frame with the screws. See Figure 4-14.

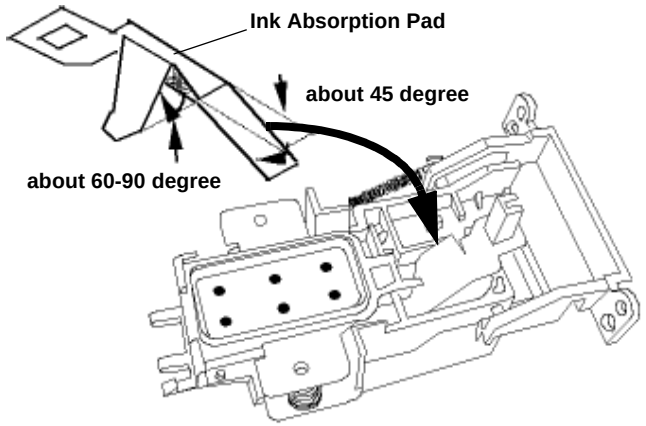


Figure 4-15. Setting the Ink Absorption Pad

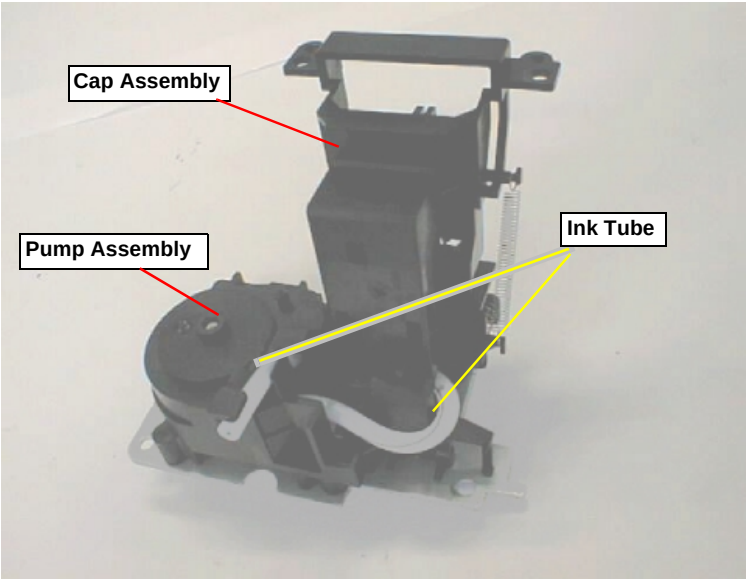


Figure 4-16. Placing the Ink Tube in the Ink System

4.2.4.4 Removing the CR Motor Assembly

1. Remove the Upper Housing. (Refer to Section 4.2.1)

2) Slide the CR Lock Lever to front with tweezers or small driver and release the CR Lock Lever from the CR unit. Then move the CR unit to the centre area of the CR shaft.

3) Loosen the CR Timing Belt by pushing the Driven Pulley Holder to right with the screw driver and remove the Timing Belt carefully from the pinion gear on the CR motor. Refer to Figure 4-17.

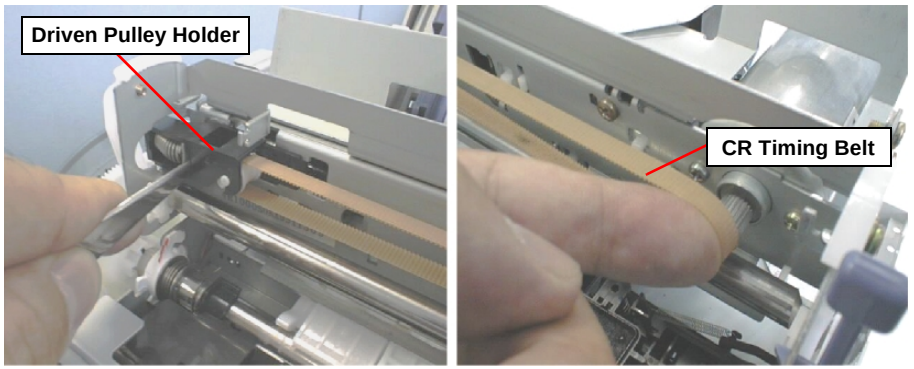


Figure 4-17. Removing the Timing Belt

4) Remove two screws (No.1) while holding the CR motor and remove the CR motor assembly. Refer to Figure 4-18.

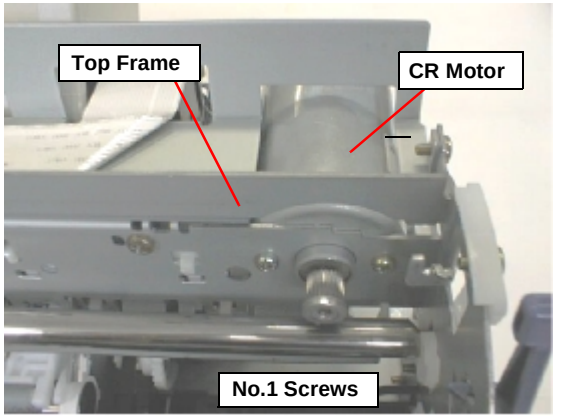


Figure 4-18. Removing the CR Motor Assembly

CAUTION

- **When you remove the Timing Belt from the pinion gear on CR motor, be careful not damage the CR Encoder Slit plate.**
- **When you remove the CR motor through the hole of the Top Frame, be careful not contact the pinion gear to the edge of the hole.**

4.2.4.5 Removing the ASF Assembly

1. Remove the Upper Housing. (Refer to Section 4.2.1.)

2) Remove the following Cables from the cable hook on right side (viewed from back side) of the ASF Assembly.
   - ASF HP Sensor Cable
   - PF Motor Cable

3) Remove two screws (No.7 and ASF fixing screw) securing the ASF unit on the Bottom Frame. Refer to Figure 4-19.

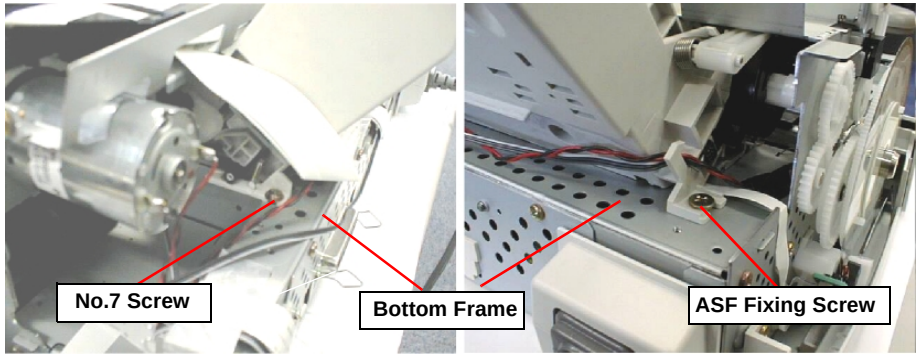


Figure 4-19. Removing the ASF Assembly (1)

4) Release the hook fixing the Gear 27.2 to the ASF LD Shaft on the left of the ASF Assembly (Viewed front) and slide it left little carefully. Refer to Figure 4-20.

NOTE: *Do not damage the Loop Scale when sliding the Gear 27.2 to the left. In case the Gear 27.2 is removed in above step 4, the Loop Scale may be damaged with the Gear 27.2.*

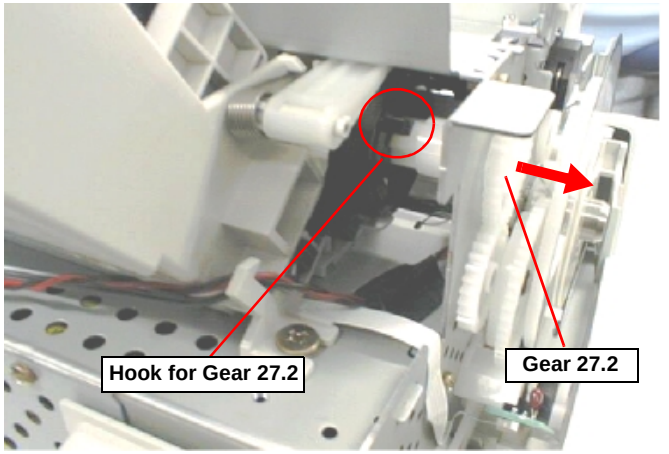


Figure 4-20. Releasing hook for the Gear 27.

5) Slide the ASF unit to the right side (viewed from back side) and pull it backward carefully while holding the Sub Paper Support Upper upward. Refer to the Figure 4-21.

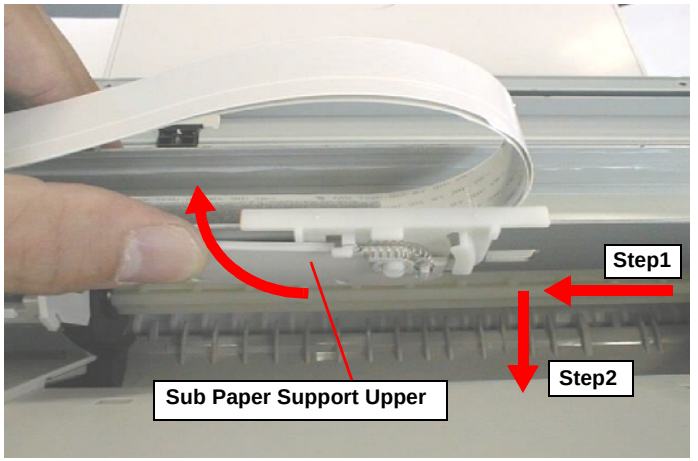


Figure 4-21. Removing the ASF Assembly (2)

CHECK POINT

- When installing the ASF assembly, make sure that the protrusion on the ASF is assembled into the fixing hole on the Middle Frame.
- Screws for ASF Assembly should be used at the following positions. (Looking from the back of printer). Refer to Figure 4-19.
  - Right Side (viewed back side): ASF Fixing Screw
  - Left side (viewed back side): Screw No.7
- Make sure the ASF HP sensor cable and the PF Motor Cable are set in the hook on the right side (viewed back side) of ASF unit. Refer to Figure 4-23.

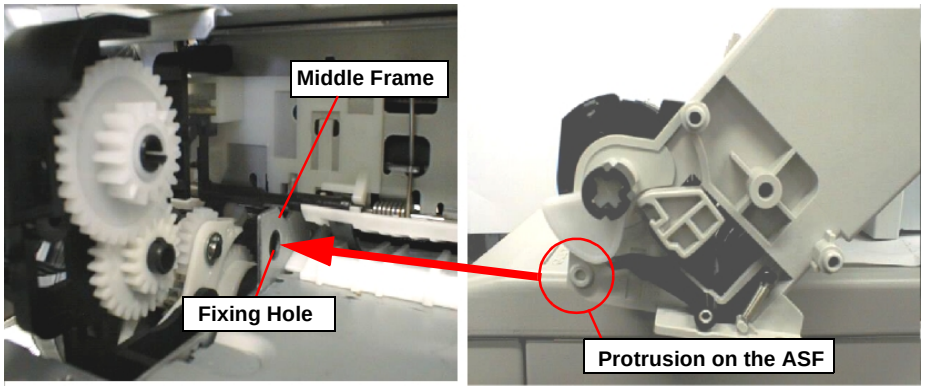


Figure 4-22. Assembling notice for ASF Assembly.

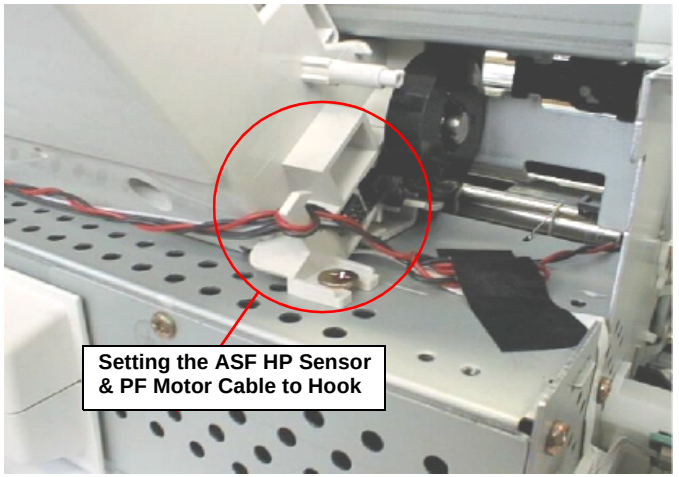


Figure 4-23. Setting the ASF HP Sensor & PF Motor cable

4.2.4.5.1 Removing the Paper Feed Roller Assembly

1. Remove the ASF assembly. (Refer to Section 4.2.4.5.)
2) Release the hook on the Shaft Fixing Bushing fixing to the LD Shaft and remove the Shaft Fixing Bushing and the Right Hopper Release Lever from the right edge of the LD Roller Shaft. Refer to Figure 4-24.

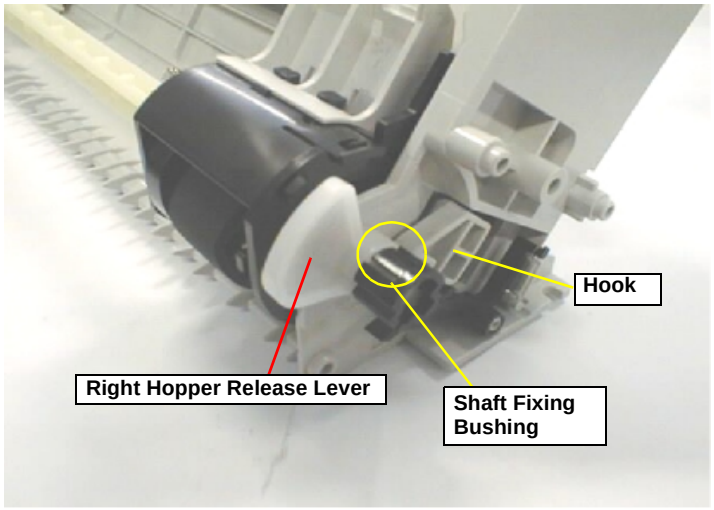


Figure 4-24.
Removing the Shaft Fixing Bushing & Right Hopper Release Lever

3) Move the left Paper Feed Roller Assembly to the center and remove the Left LD Roller Fixing Bushing (white plastic) attached to the left edge of LD Roller Shaft. Refer to Figure 4-25.
4) Slide the LD roller shaft to the left side and remove the ASF HP Detector Wheel after releasing its hook. Refer to Figure 4-25.

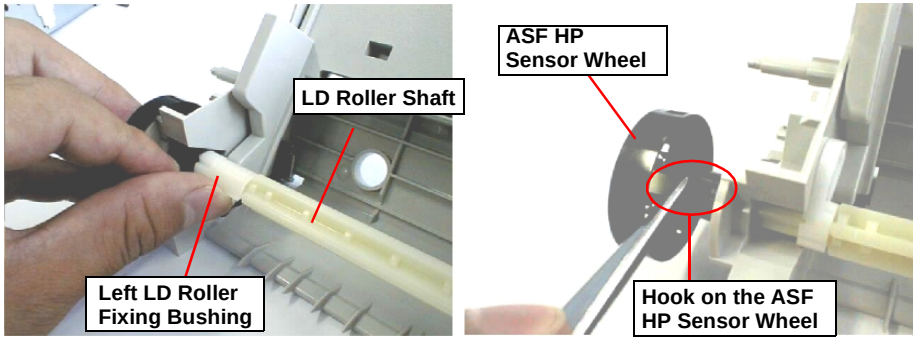


Figure 4-25. Removing the LD Roller Fixing Bushing & ASF HP Wheel

5) Release the Hopper Assembly fixing hooks from the protrusion on the ASF Frame at the left top corner by following the figured step.

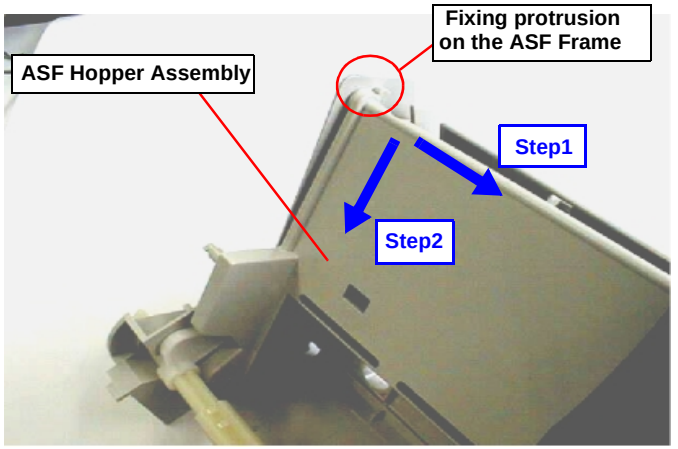


Figure 4-26. Releasing the Hopper Assembly

6) Set the Right arm portion of the Hopper Assembly to the square hole on the right side of the ASF Frame and remove the Hopper Assembly carefully. Refer to Figure 4-27.

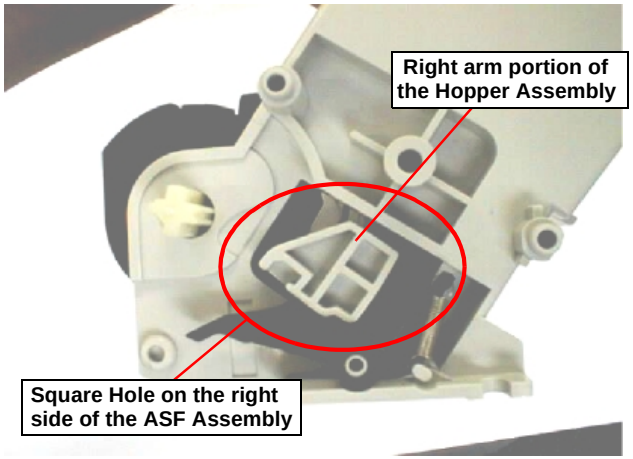


Figure 4-27. Setting the Right Arm of Hopper Assembly

7) Take out the right and left compression springs 1.961 between the Paper Feed Roller Assembly and the Hopper Assembly with Tweezers carefully.
8) Lift up the right side of Paper Feed Roller Assembly a little with the LD Roller Shaft, and move the LD Roller Shaft to the right.
Then remove it from the left side hole the ASF Frame.
9) Remove the Left Hopper Release Lever from the left side of the LD Roller Shaft.
10) Remove the Paper Feed Roller Assembly from the LD Roller Shaft.

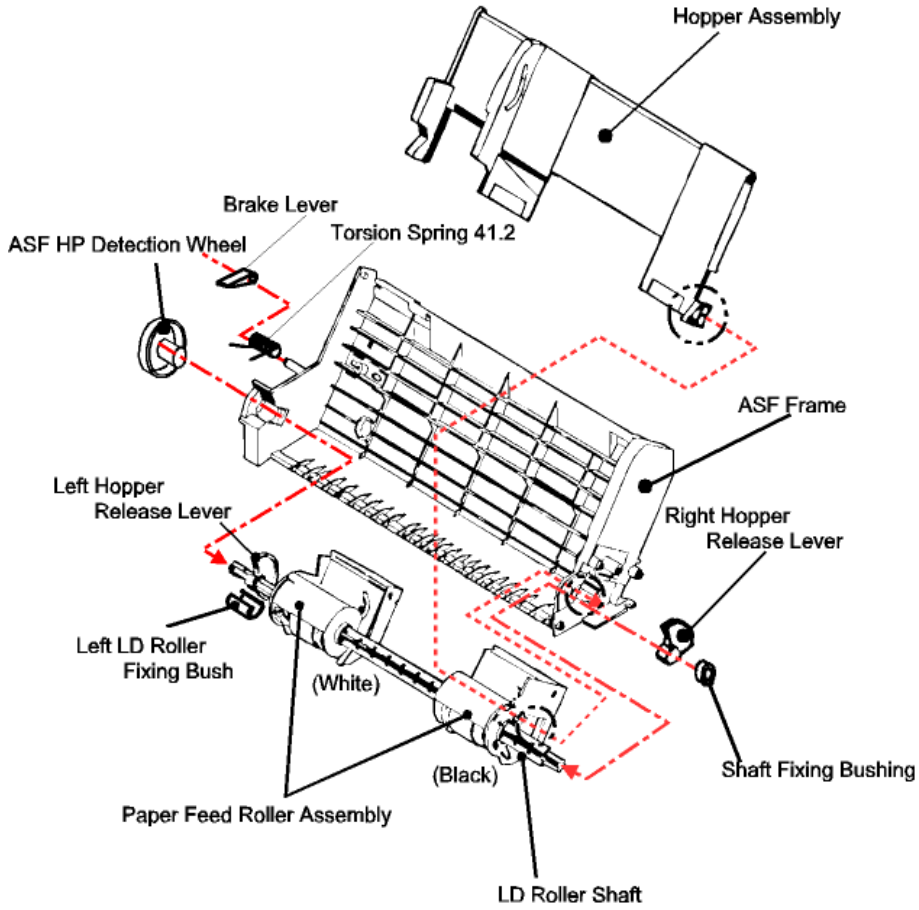


Figure 4-28. Disassembling the ASF Assembly

CHECK POINT

- During disassembly and assembly of the hopper assembly, do not let the grease on the cam parts touch other parts. Wipe off any grease smeared on other parts.
- Be careful of the direction of the Hopper Release Lever when installing it. Refer to Figure 4-29.
- When installing the right and left Paper Feed Roller Assemblies to the LD Roller Shaft, the black Paper Feed Roller Assembly should be set on the right side.
- Make sure that gutters of back side of both Paper Feed Roller Assembly are set on the rail on the ASF Frame. Refer to Figure 4-30.
- Make sure that the Left frame of the Paper Feed Assembly is in the gutter of the Paper Guide. Refer to Figure 4-31.

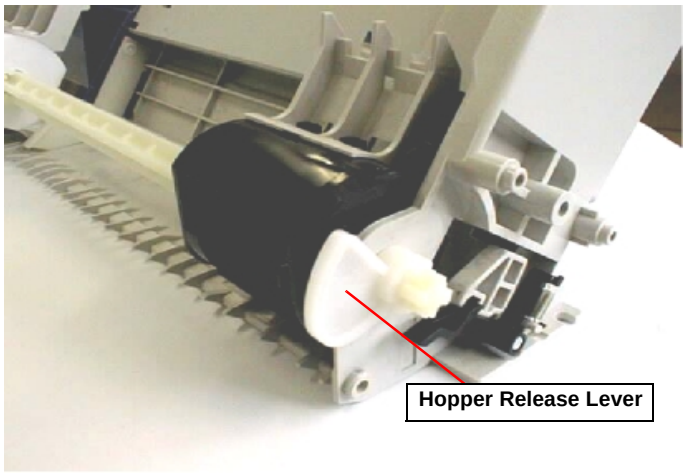


Figure 4-29. Assembling the LD Hopper Release Lever

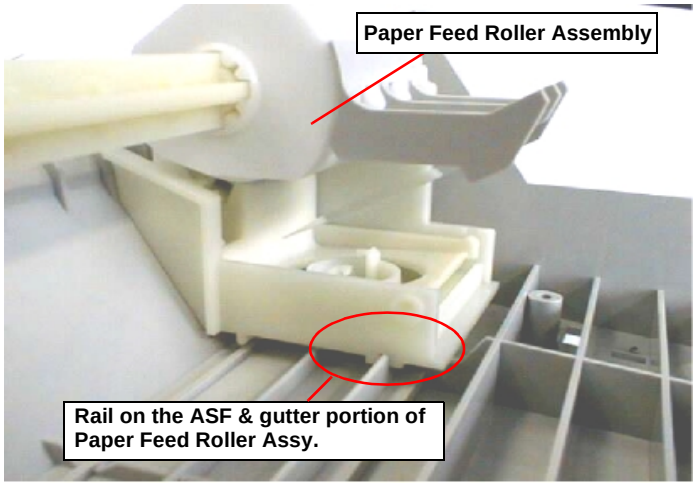


Figure 4-30. Setting the Paper Feed Roller Assembly on the Rail

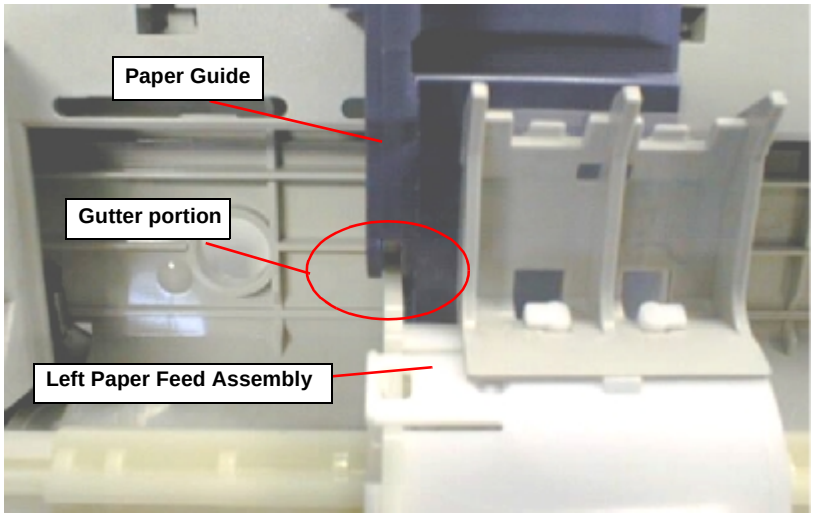


Figure 4-31. Setting the Left Paper Feed Assembly

CHECK POINT

- Make sure that the right Paper Feed Roller Assembly is fixed with the hook on the ASF unit. Check it from the back side of the ASF Frame. Refer to Figure 4-32.
- During assembly, when setting the compression spring 1.961 to the spring installation position in the Paper Feed Assembly, hang the spring on the hook temporarily. Also, do not forget to release the hooks of these springs from the holes located on the back of paper feed assembly by rotating the spring. (Refer to Figure 4-33).

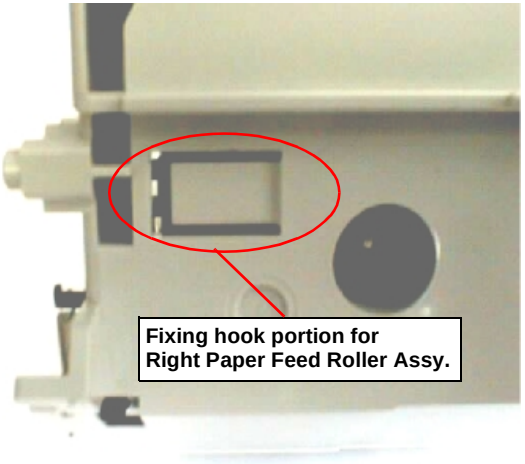


Figure 4-32. Fixing the Right Paper Feed Roller Assy.

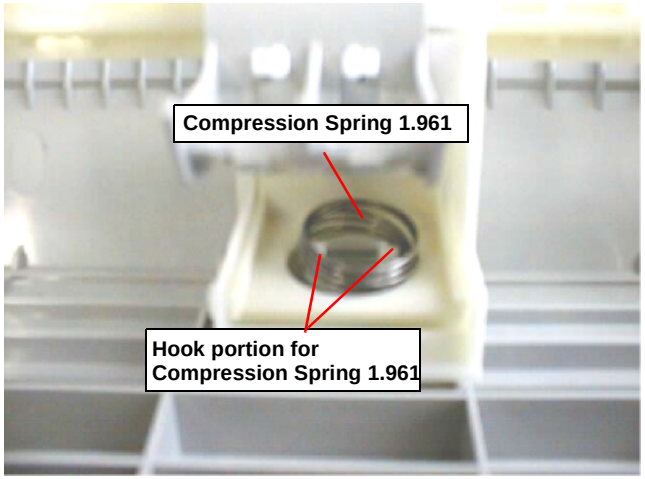


Figure 4-33. Setting the Compression Spring 1.961

4.2.4.5.2 Removing the Right and Left LD Roller Assembly

1. Disassemble the ASF assembly and remove the Paper Feed Roller Assembly and Hopper Assembly from the ASF Assembly. (Refer to the Section 4.2.4.5.1)

1. Release the two hooks fixing the LD Roller Cover to the Paper Feed Roller Assembly. Refer to Figure 4-34.

2) Release the two hooks fixing the LD Roller Assembly at around the shaft hole of the Paper Feed Roller Assembly. Refer to Figure 4-34.

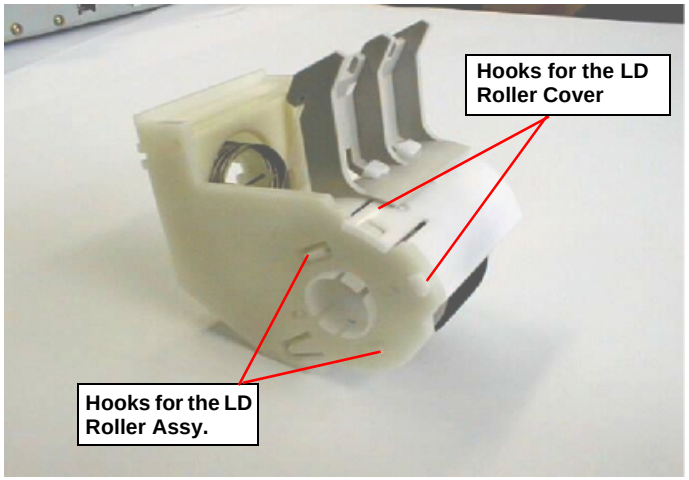


Figure 4-34. Releasing hooks for LD Roller

CHECK POINT

- **When installing the LD roller assembly, make sure that the hooks are hung on the Paper Feed Roller Assembly.**
- **Do not touch the surface of the LD Roller with hand.**

4.2.4.6 Removing the CR Assembly

1. Remove the Top Housing. (Refer to Section 4.2.1)
2) Remove the Tension Spring 1.494 fixing the CR Encoder Slit Plate to the protrusion on the left side of the Top Frame and remove the CR Encoder Slit Plate carefully from the CR unit.

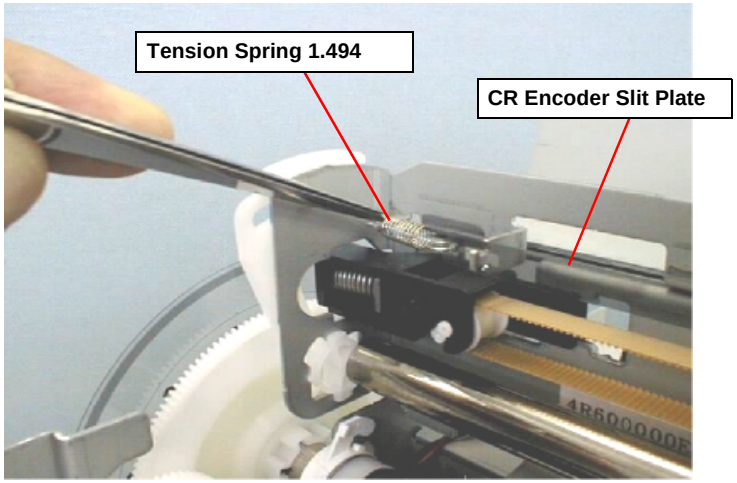


Figure 4-35. Remove the Tension Spring 1.491& CR Encoder Slit

3) Loosen the Timing Belt by pushing the Driven Pulley Holder and remove the Timing Belt from the pinion gear of the CR motor. Refer to Figure 4-18.
4) Take the Compression Spring 23.52 out of the Driven Pulley Holder with tweezers. Refer to Figure 4-36.

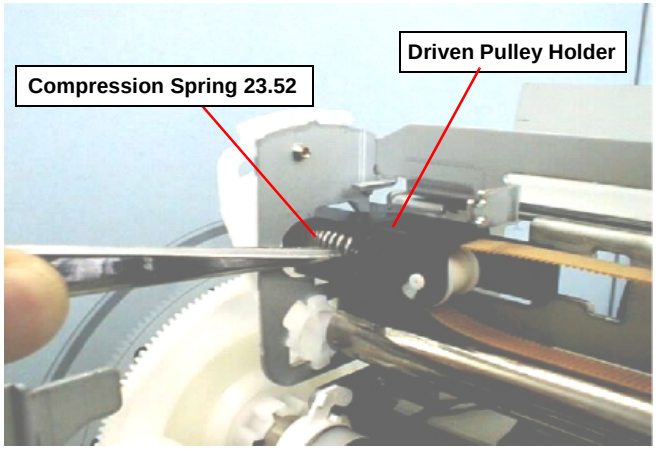


Figure 4-36. Taking out Compression Spring 23.52

5) Slide the Driven Pulley Holder to the right side and remove it to forward.
6) Remove the Driven Pulley from the Driven Pulley Holder with the timing belt. Refer to Figure 4-37.

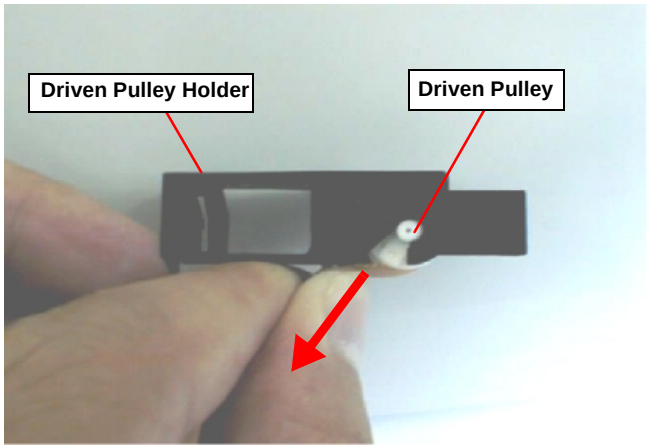


Figure 4-37. Removing the Driven Pulley

7) Move the PG Lever to bring its hooks to the nothes of the cutouts in the right side of the Top Frame. Then remove the PG Lever by releasing the hooks. Refer to Figure 4-38.

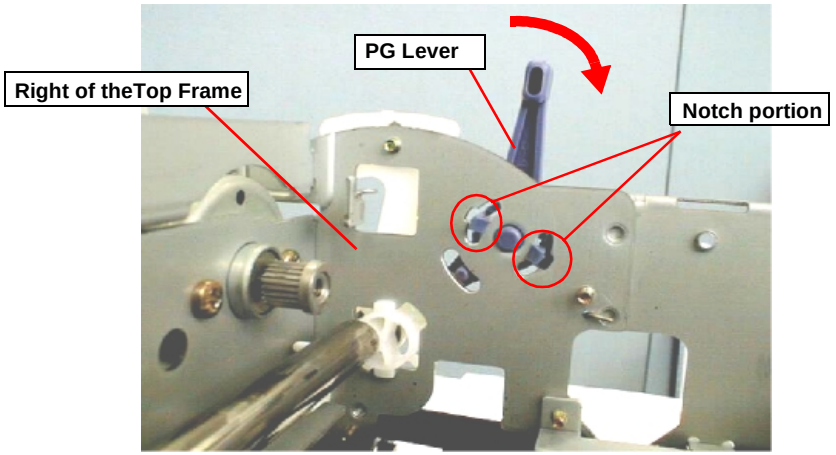


Figure 4-38. Align the PG Lever with the Notches

8) Remove the Torsion Spring 63.7 hanging on the right side of the Top Frame and PG lever with tweezers. Refer to Figure 4-38.

9) Release the fixed hook of the PG Lever Support and remove the PG Lever Support and Disk Spring (6.2x0.15x1, S/NA) from the right edge of the CR Guide Shaft. Refer to Figure 4-38.

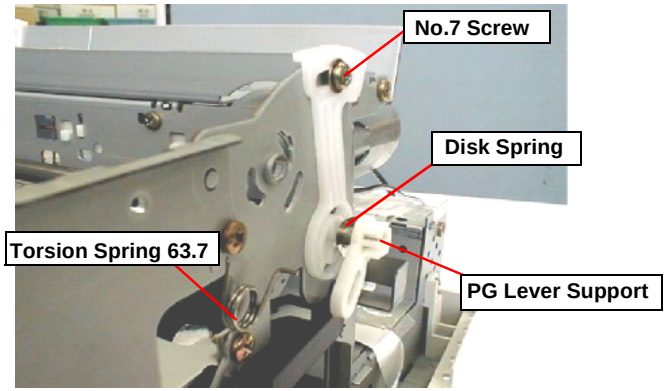


Figure 4-39. Removing the Torsion Spring 63.7 & PG Lever

10) Remove one screw (No.7) and rotate the Right Parallelism Adjustment Bushing and move it forward so that the locking protrusion of the Right Parallelism Adjustment Bushing fits in the notches on the right side of the Top Frame. Refer to Figure 4-40.

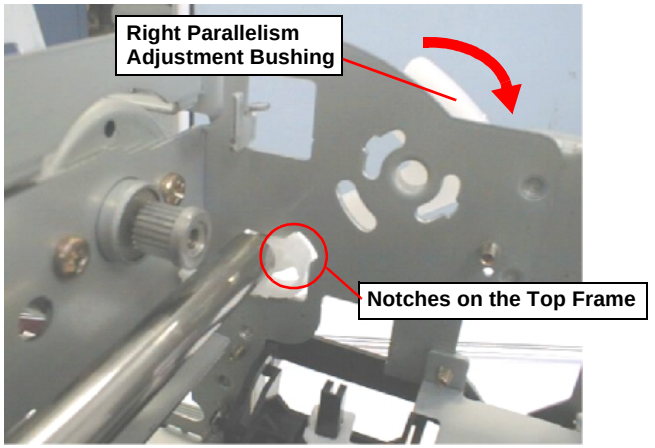


Figure 4-40. Removing the Right Parallelism Adjustment Bushing

CAUTION

Be careful when removing the Right Parallelism Adjustment Bushing. If you remove it with the printhead installed, the CR Unit will fall to the platen.

11) Holding the carriage, remove the Right Parallelism Adjustment Bushing carefully by pushing it right side slightly.
12) Remove the CR Assembly with the CR Guide Shaft.

CAUTION

- **Do not touch the surface of the CR Liner Scale by hand. The dirt or stain causes the incorrect movement of the CR unit.**
- **Do not damage the CR Liner Scale. Handle it carefully. The damage causes the incorrect movement of the CR unit.**

ADJUSTMENT REQUIRED

- **In case you forgot to mark the present location where the Bushing is fixed on the TOP Frame, perform the PG Adjustment. Refer to the Chapter 5.**

CHECK POINT

- **When disassembling the Right Parallelism Adjustment Bushing, mark present location where the Bushing is fixed on the TOP Frame so that you can omit PG adjustment after assembly.**
- **When installing the Disk Spring (6.2x 0.15x1,S/NA), pay attention to its direction. (Convex side should face the right side.) Refer to the Figure 4-39.**
- **When installing the PG Lever, refer to the Figure 4-47.**
- **Make sure that the CR Liner Scale is not in contact with either side of the slot in the CR unit after you set the CR Liner Scale into the slot.**
  Refer to the Figure 4-41.
- **Make sure that the Oil Pad is set in the suitable portion in the CR unit when the CR unit is reassembled to the CR Guide Shaft.**

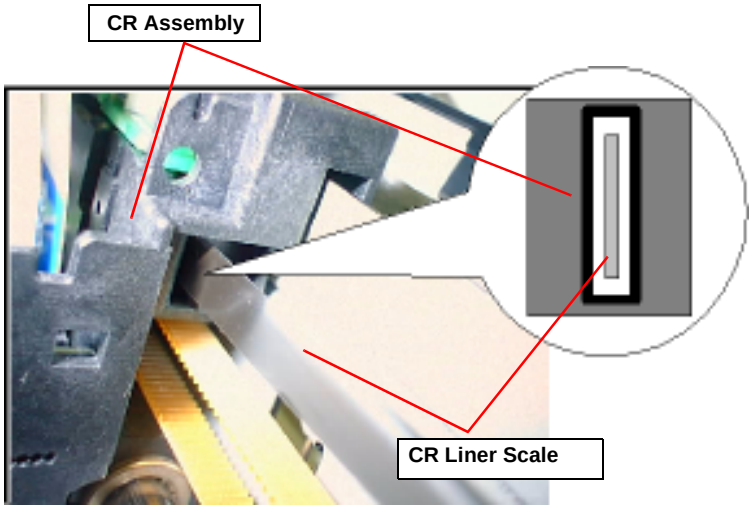


Figure 4-41. Checking the CR Encoder Slit Plate condition

4.2.4.6.1 Disassembling the CR Assembly

1. Remove the Printhead Unit. (Refer to Section 4.2.4.1)
2) Remove the No. 9 screw securing the I/C Detector Holder Bushing. and remove the I/C Detector Cables which is placed in the gutter of the left side of the CR assembly. Refer to Figure 4-42.

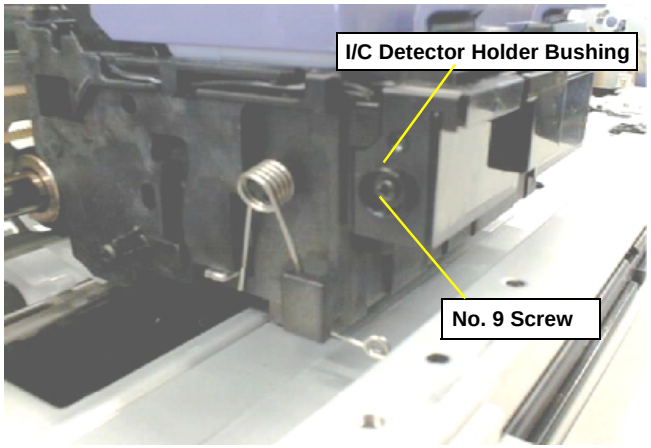


Figure 4-42. Removing the I/C Detector Holder Bushing

3) Remove the I/C Detector Holder by releasing the four hooks. Refer to Figure 4-43.

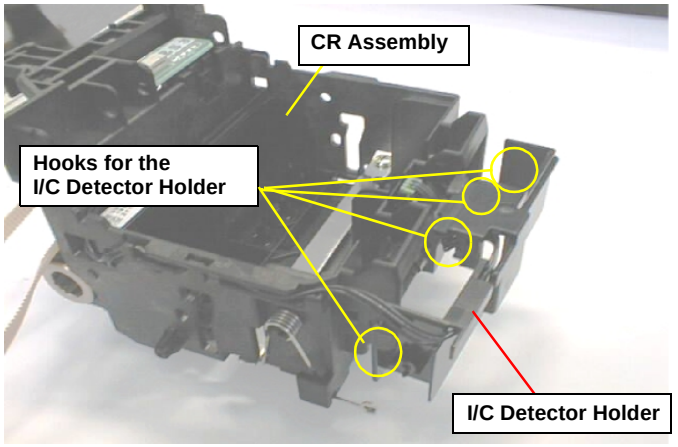


Figure 4-43. Removing the I/C Detector Holder

4) Remove the I/C Detector from the CR assembly.

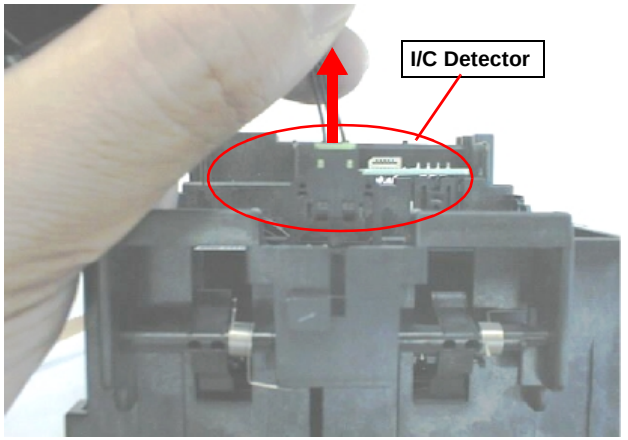


Figure 4-44. Removing the I/C Detector

5) Remove the CR Encoder Board Assembly from the CR Frame as Figure 4-45.

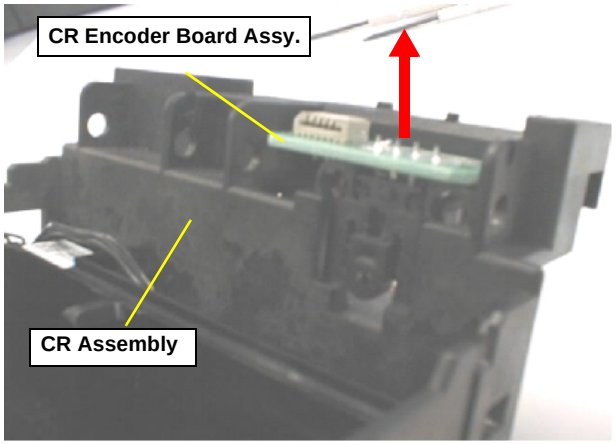


Figure 4-45. Removing the CR Encoder Board Assy.

6) Remove the CR Timing Belt from the gutter on the CR Frame.

CHECK POINT

- **Make sure that the Torsion Spring 1.08 is hung on the protrusion of the I/C Detector Lever and the hook on the CR frame correctly. Refer to the Figure 4-46.**
- **Make sure that the I/C Detector Cables are placed in the gutters Figure 4-47.**
- **Make sure that the I/C Detector Lever is moved correctly.**

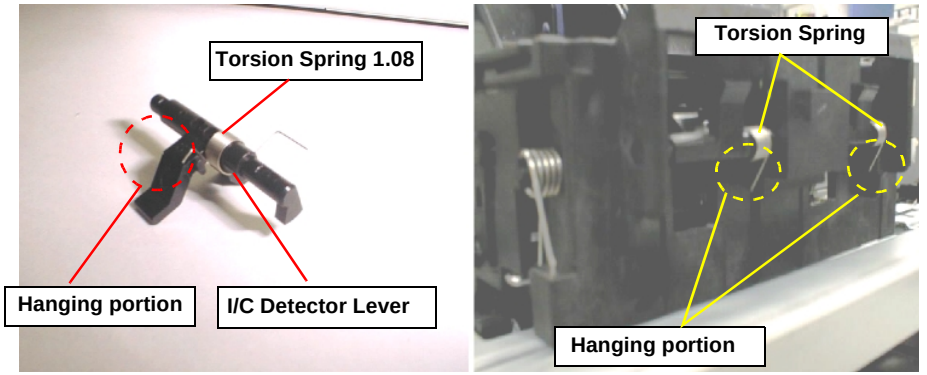


Figure 4-46. Assembling the I/C Detector Lever

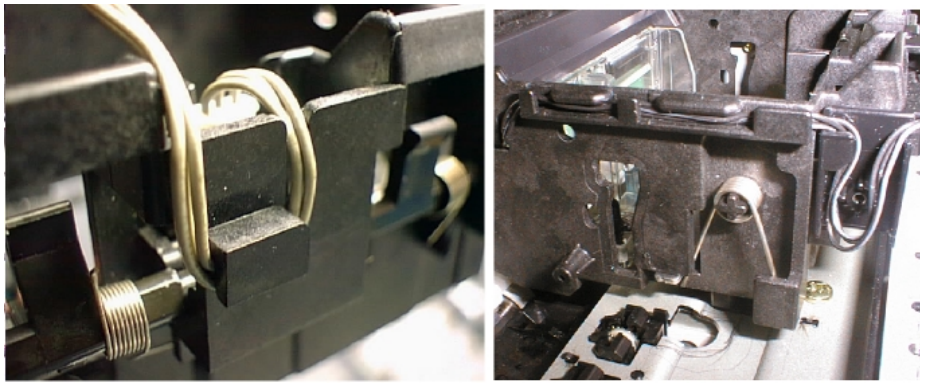


Figure 4-47. Placing the I/C Detector Cables

4.2.4.7 Removing the PF Roller & Paper Eject Roller Assy.

1. Remove the Upper Housing. (Refer to Section 4.2.1.)
2) Remove the Control Panel and Left Housing Panel.
3) Remove the Left Sub Frame.
4) Remove the ASF Assembly from the Printer Mechanism. (Refer to Section 4.2.4.5.)
5) Remove the CR Assembly. (Refer to Section 4.2.4.6.)
6) Remove three screws (No.1) securing the CR unit Guide Plate to the Top Frame. Refer to Figure 4-48.

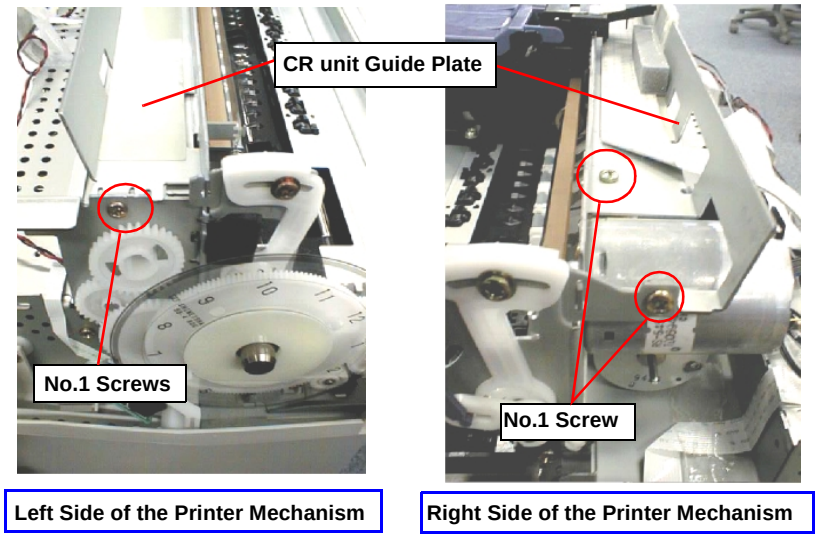


Figure 4-48. Removing the CR Unit Guide Plate

7) Remove five Upper Paper Guide Assemblies and one Right Upper Paper Guide Assembly to the following directions, releasing their Torsion Springs 117.6 from the hooks on the Top Frame. Refer to Figure 4-49.
   - Upper Paper GuideAssembly: Remove it backward.
   - Right Upper Paper Guide Assembly: Remove it forward.

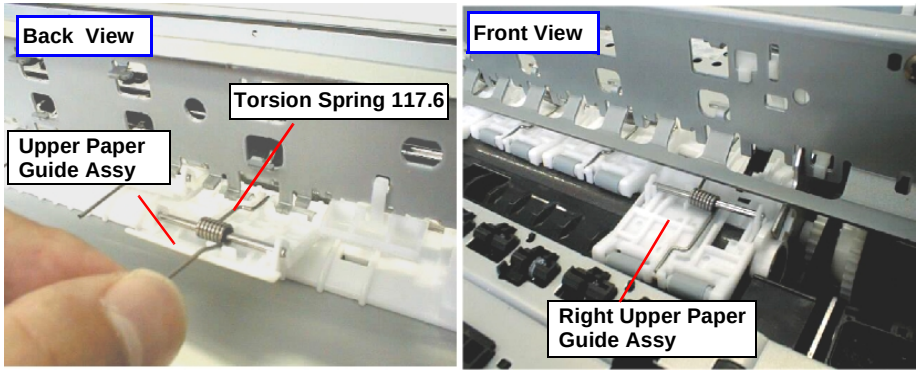


Figure 4-49. Removing the Upper Paper Guide Assembly

8) Remove Left Paper Guide sliding to left side, releasing the one hook from the Top Frame. Refer to Figure 4-50.

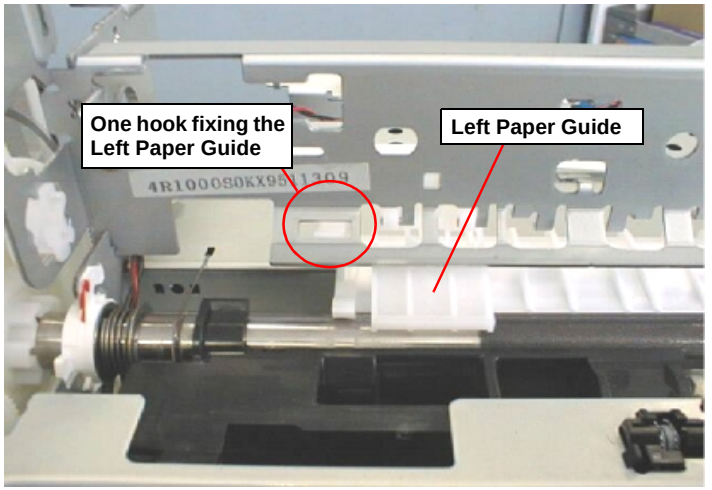


Figure 4-50. Removing the Left Paper Guide

9) Remove three screws (No.1) securing the Front Frame to the Printer mechanism and remove it. Refer to Figure 4-51.
10) Remove three screws (No.1) securing the Paper Eject Frame Assembly and remove it. Refer to Figure 4-51.

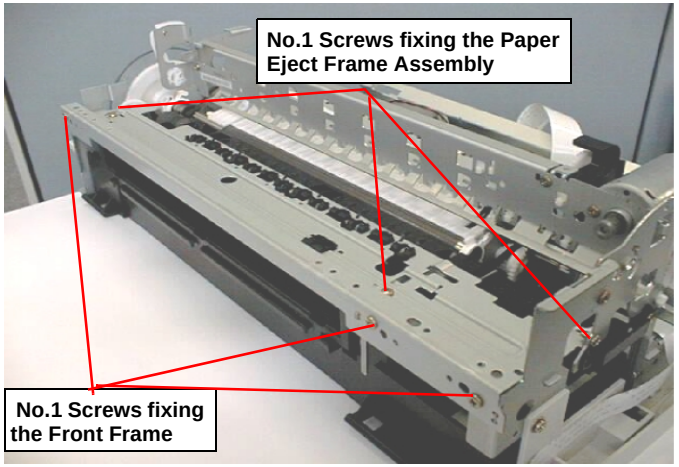


Figure 4-51. Removing the Font Frame & Paper Eject Frame

11) Remove the PF Earth Spring between the left edge of the PF Roller and the Bottom Frame.
12) Remove the Paper Guide Front by releasing the two hooks from the Paper Eject Roller Shaft. Refer to Figure 4-52.
13) Remove the Earth Spring from the left edge of the Paper Eject Roller Assembly.
14) Remove the Paper Eject Roller Assembly, releasing the fixed locks located on the right and Left edges of the Paper Eject Roller Shaft. Refer to Figure 4-53.

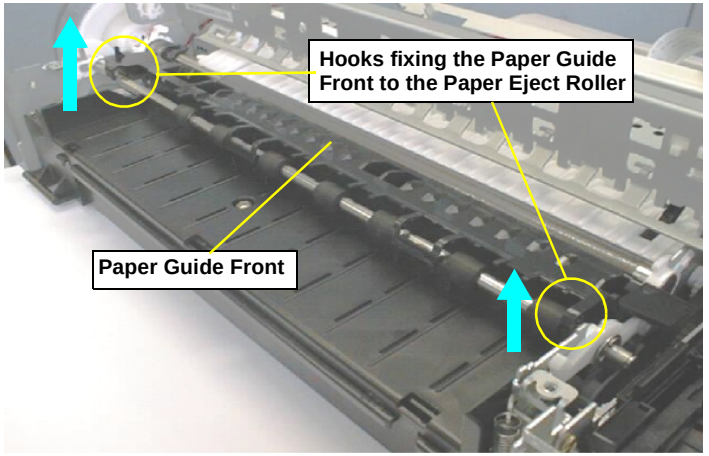


Figure 4-52. Removing the Paper Guide Front

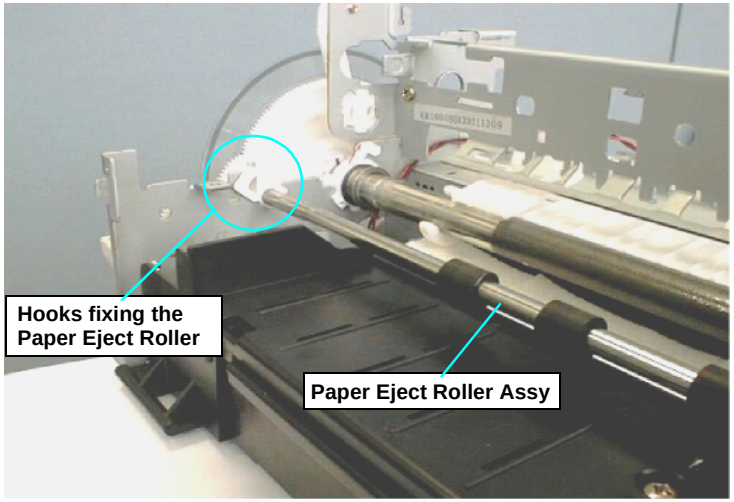


Figure 4-53. Removing the Paper Eject Roller Assembly

15) Remove one screw (No.1) securing the PF Encoder Detector Assembly and remove it from the Printer Mechanism.
Refer to Figure 4-54.

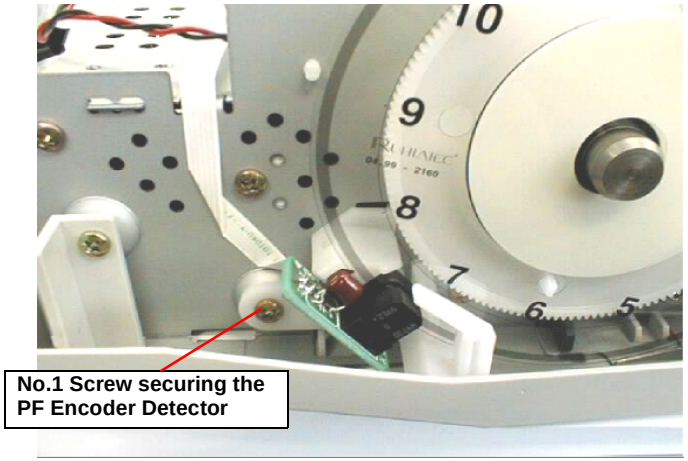


Figure 4-54. Removing the PF Encoder Sensor

16) Release the fixed hook of the Left Bushing 12 holding the PF Roller Assembly and rotate it forward so that the protrusion on the Bushing 12 is aligned to the hole of the Left Frame. Refer to Figure 4-55.

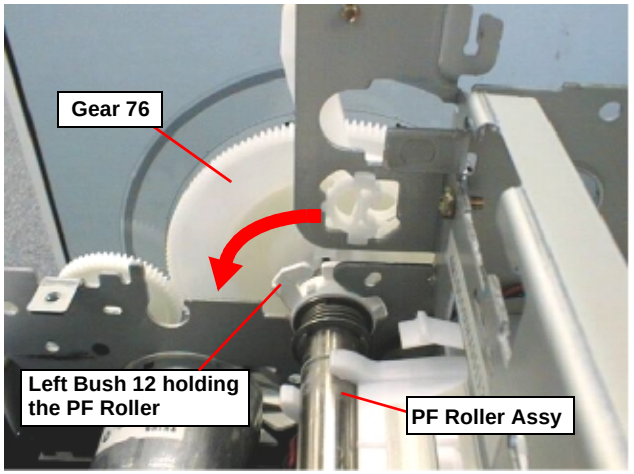


Figure 4-55. Setting the protrusion on Bushing 12

17) Slide the PF Roller Assembly to the left side carefully and pull it out from the Printer Mechanism. Refer to Figure 4-56.

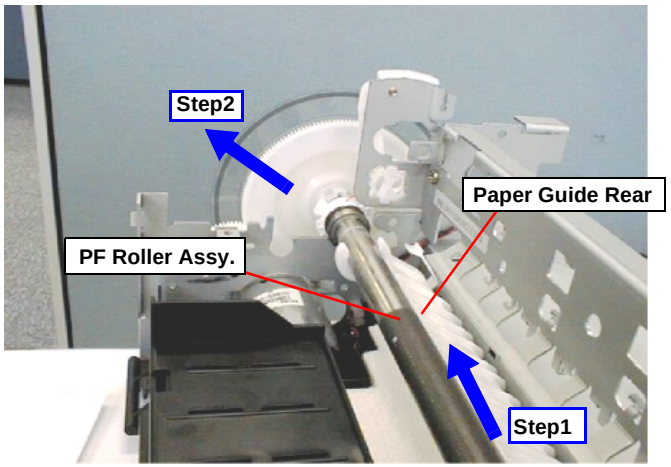


Figure 4-56. Removing the PF Roller Assembly

CAUTION

- Do not bend or damage the Loop Scale for PF Encoder Sensor during disassembly and assembly.
- Do not touch the surface of the PF roller by hand.
- Be careful not to scratch the PF roller assembly during disassembly and assembly, since its surface is specially coated to improve paper feeding.
- Be careful not damage the hook during disassembly and assembly of the Paper Guide Front.
- Be careful not damage the fixing hook portion on the Bushing 12. It is very fragile parts.
- Do not touch teeth of the Gear 76 on the left edge of PF Roller. This parts is High Accuracy Gear. Refer to Figure 4-55.

CHECK POINT

- When the Right Upper Paper Guide Assy,. is set on the Top Frame with the Torsion Spring 117.6, make sure that PE sensor lever is set in the square hole on the Right Upper Paper Guide. Insert the Right Upper Paper Guide from the front setting the PE Sensor Lever in the square hole in the Right Upper Paper Guide Refer to Figure 4-57.
- Make sure that the Torsion Spring 117.6 is set in the gutter on the Upper Paper Guide Assembly.
- Make sure the PF Earth Spring is set in the gutter at the left edge of the PF Roller.
- When the Loop Scale for PF Encoder Sensor and Gear 76 were replaced with a new one, you have to assemble the those parts by using the Special tool. Refer to the Chapter 5 (Section 5.3)
- Make sure that all parts is assembled on the right edge of the Paper Eject Roller Assy. Refer to Figure 4-58.

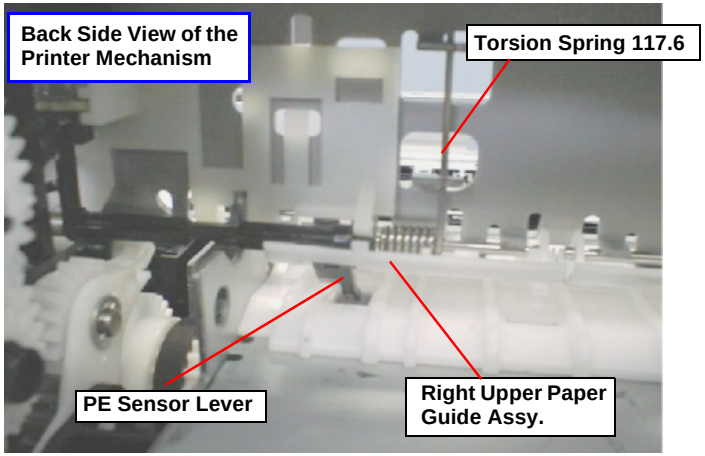


Figure 4-57. Installing the Right Upper Paper Guide Assy.

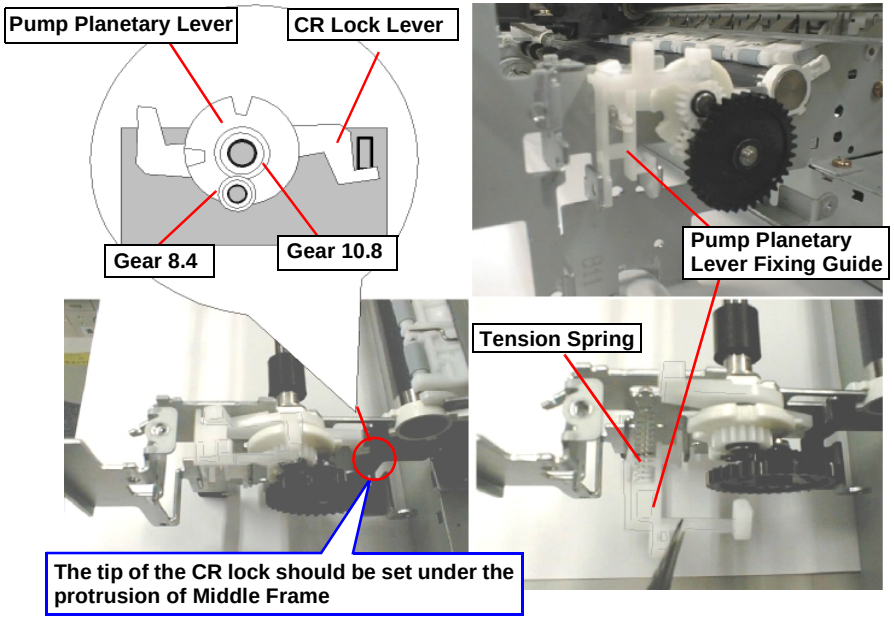


Figure 4-58. Check the Right edge of the Paper Eject Roller

4.2.4.8 Remove the PF Motor Assembly

1. Remove the Housing (Refer to Section 4.2.1.)
2) Remove the ASF Assembly from the Printer Mechanism. (Refer to Section 4.2.4.5)
3) Remove the Carriage Assembly. (Refer to Section 4.2.4.6.)
4) Remove the PF Roller Assembly. (Refer 4.2.4.7.)
5) Remove the Flat Washer (4.1x0.5x4.5) from the Combination Gear 13.5,30 and remove the Combination Gear 13.5,30 carefully.
Refer to Figure 4-59.

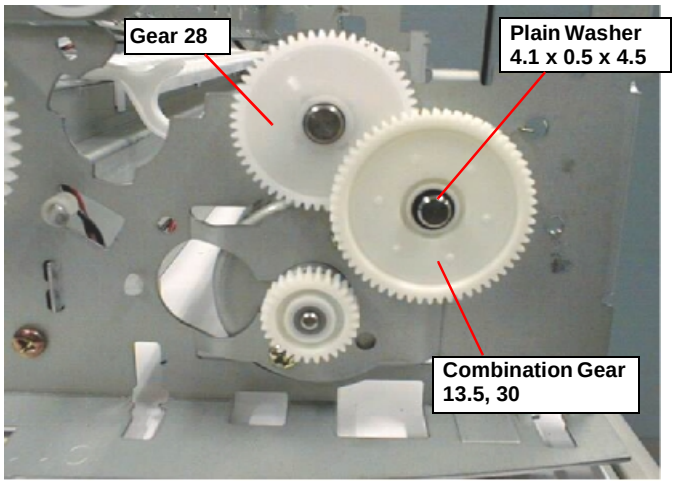


Figure 4-59. Removing the Flat Washer & Gear 13.5,30

6) Remove No.5 screws & PF motor fixing screw securing the PF Motor while holding it and remove it from the Left Side Frame. Refer to Figure 4-60.

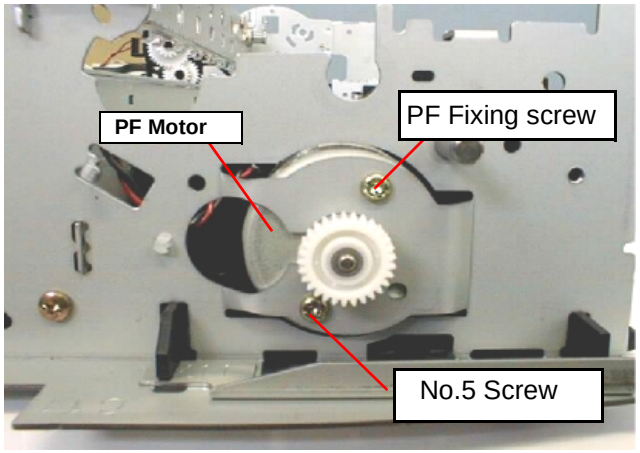


Figure 4-60. Removing the PF Motor

CAUTION

Do not damage the tooth of the Combination Gear 13.5,30.

ADJUSTMENT REQUIRED

In case the PF motor is removed or replaced, the backlash between the PF pinion gear and the Gear 76 has to be set with a suitable value.
Refer to the Chapter 5 (Section 5.2.2).

4.2.4.9 Removing the PE Detector Assembly

1. Remove the housing. (Refer to Section 4.2.1.)

2) Remove the ASF Assembly. (Refer to Section 4.2.4.5.)
3) Remove the Right Upper Paper Guide to forward releasing the Torsion Spring 117.6. Refer to Figure 4-49.
4) Remove the CR Timing Belt and CR Encoder Slit Plate (Refer to Section 4.2.4.6.)
5) Disconnect the PE Detector connector from the PE Detector Circuit Board. Refer to Figure 4-61.

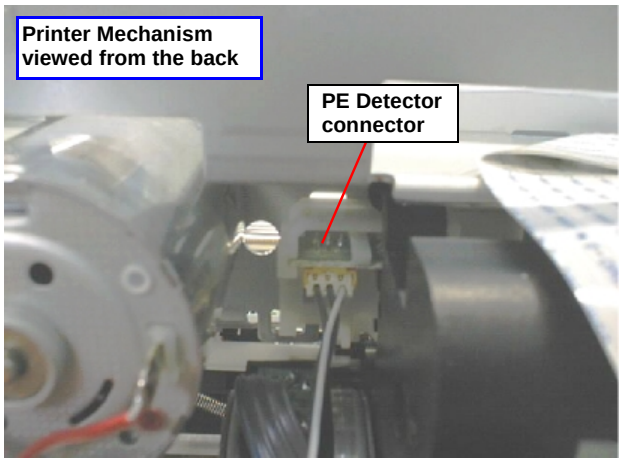


Figure 4-61. Removing the PE Detector connector

6) Move the CR unit around the center portion of CR Shaft, releasing the CR lock lever with tweezers or small screw driver.
7) Release four fixed hooks securing the PE Detector Assembly from the front and sliding it upward. Refer to Figure 4-62.

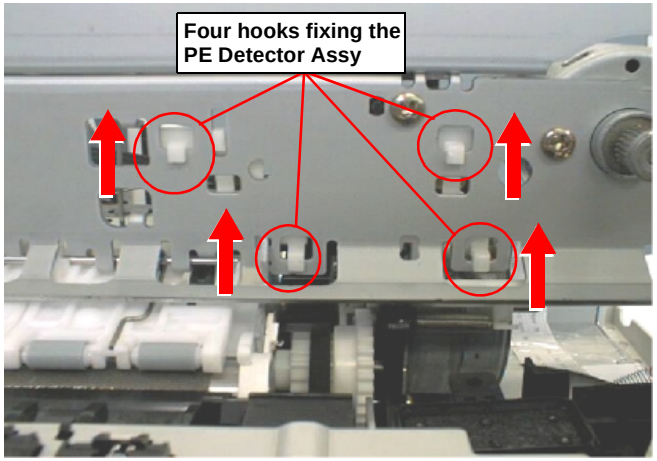


Figure 4-62. Removing the PE Detector Assembly

CHECK POINT

During assembly, make sure that the tip (sensor part) of the detector lever is in the hole of Right Paper Guide Assembly. Refer to Figure 4-57.

CHAPTER

5

ADJUSTMENT

5.1 Overview

This chapter describes adjustments required when the printer is disassembled and assembled after repair.
Additionally, this section describes the PF motor Loop scale unit assembling procedure required when the PF Loop scale or Gear 76 is replaced to new one.

5.1.1 Required Adjustments

The Stylus COLOR 760 require the following adjustments. (Refer to Table 5-1) Perform any necessary adjustment referring to the figures and procedures described throughout this chapter.

Table 5-1 Adjustment Required

No.	Adjustment Item	Conditions
1	Parallelism Adjustment	• When you replace or remove the Carriage guide shaft. • When you move the parallelism adjustment bushing.
2	Backlash value Adjustment	• When you replace the PF motor or Gear 76.
4	Initial Ink Charge	• When you replace or remove the printhead.
5	Head Voltage ID Input	• When you replace the printhead. • When you replace the main board. ***Note)*** *The head ID values stored in the EEPROM are not erased by EEPROM reset operation.*
6	Printing Head Angle Adjustment	• When you replace or remove the printhead. • When you move the printhead angle adjusting lever.
7	Bi-D Adjustment	• When you replace or remove the printhead. • When you replace the main board. • When you replace the CR Motor.
8	USB ID data Input	• When you replace the main board.
9	Protection counter reset	• When you replace the waste ink pad.

Table below shows the actions taken and required adjustments in the order to be performed.

Table 5-2 Actions Taken and Adjustment Required

No.	Content of Operation	Adjustment Procedure
1	Removal of the printhead	1. Perform initial ink charge. 2. Perform printhead angle adjustment. 3. Perform Bi-d Adjustment.
2	Replacement of the printhead	1. Perform the initial ink charge 1. Perform Head voltage ID writing operation. 2. Perform printhead angle adjustment. 3. Perform Bi-d Adjustment.
3	Replacement of the main board	1. Perform Head voltage ID writing operation. 2. Perform Bi-d adjustment. 3. USB ID input After perform the above adjustments, replace the following parts. 1) Ink Cartridge. 2) Waste Ink Pad. Above two kinds of the counter are erased by replacing the Main board.
4	Replacement or Removal of the Carriage Unit	1. Perform parallel adjustment. 2. Perform printhead angle adjustment. 3. Perform Bi-d adjustment.
5	Replace of the CR Motor	1. Perform Bi-d adjustment.
6	Replacement of the Printer Mechanism	1. Perform Head Voltage ID Input. 2. Perform initial ink charge. 3. Perform Bi-d adjustment.
7	Replacement or removal of the following parts. 1) PF motor 2) Gear 76 3) PF roller assembly (Gear 76 & Loop scale are assembled with PF roller)	1. Perform the Backlash Adjustment.

5.1.2 Adjustment Tools Required

Table 5-3 below shows adjustment tools for Stylus COLOR 760.

Table 5-3 Adjustment Tools Required

No.	Name	Adjustment Item	Contents/Spec.
1	Thickness Gauge	Parallelism Adjustment	thickness:1.14 mm
2	Micro scoop	Backlash Adjustment	Magnified ratio: x 15 Scale: 0.1mm
3	Adjustment Program	Each Mechanism Settings	Stylus COLOR 760 860 1160 Program Disk; 3.5 inch 2 FDD

CAUTION

- Never use the bent (curved or tilted) or rusty thickness gauge.
- Erase any dirt, grease or obstacles on the thickness gauge before you use it.

5.2 Adjustment

This section explains specific procedures for each adjustment required for Stylus COLOR 760.

5.2.1 Parallelism Adjustment

When replacing the carriage assembly or removing it during printer mechanism disassembly, perform the parallelism adjustment during assembling and set the standard distance from the surface of the printhead to the paper surface.

CAUTION

- *Do not scratch the special coated surface of the PF roller assembly and rib surface of the front paper guide;B.*
- *Before performing this Adjustment, clean the thickness gauge with the clean cloth moistened the alcohol.*
- *Be careful not to leave any mar or dirt on the surface of the printhead. (Never use a rusty or dirty thickness gauge. Also, do not push the thickness gauge hard against the head.)*

[Right Parallelism Adjustment]

1. Install the “Parallelism adjustment bushing” for right and left frame and set them on the peaking of the upper frame side so that they match with “the standard mark of parallelism adjustment bushing”.

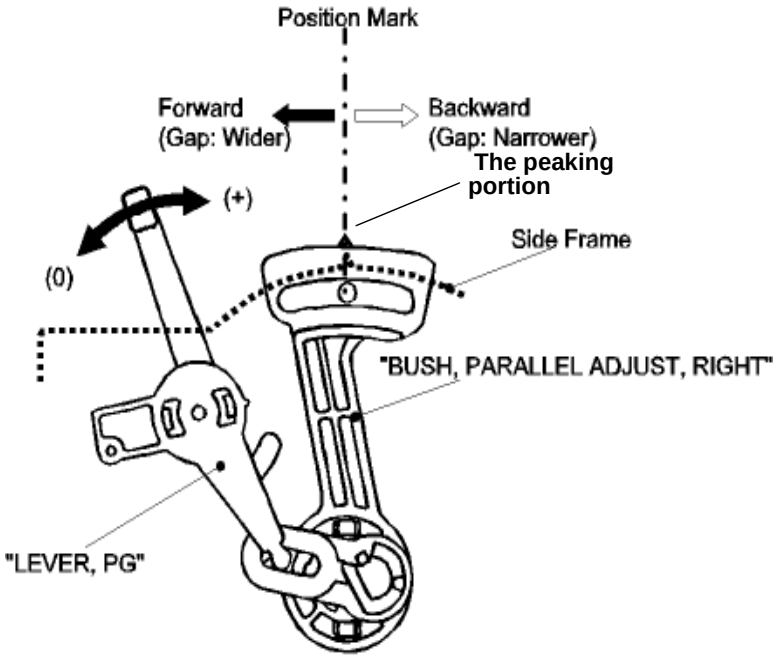


Figure 5-1. Parallelism Adjustment Bushing

2. Set the PG lever front. (Gap is small.)

3. Move the carriage to the center and set the thickness gauge (t=1.14mm) on the fixed position of Front Paper Guide as you can see in the following figure 5-2.

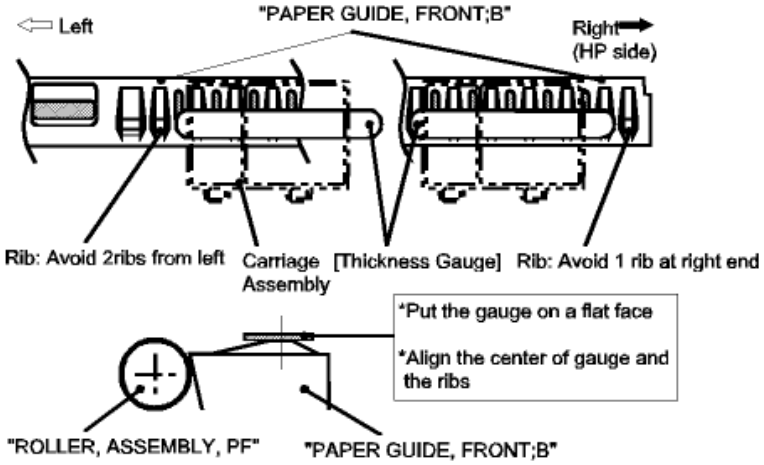


Figure 5-2. Setting the Thickness Gauge

CHECK POINT

- **Put the thickness gauge on the flat side of the rib of the Front Paper Guide.**
- **When you move the Carriage, move it, pulling the timing belt with your hand.**
  In this case, be careful not damage the Linear Scale for CR encorder sensor.

4. Move the carriage to the position that the printhead overlaps the thickness gauge.

5. Move the right Parallelism adjustment bushing to the rear until the thickness gauge moves with the carriage when you move the carriage about 20 mm right and left. (Gap will be narrowed.)

6. From this thickness with which the thickness gauge starts moving with the carriage, move the gear of the right Parallelism adjustment bushing one notch toward front side. (Gap will be widen).

7. With the PG lever set front (gap is small) and then rear, move the carriage right and left and make sure that the thickness gauge does not move for the both settings.

[Left Parallelism Adjustment]

8. Perform Steps 2 to 7 for the left Parallelism adjustment bushing.

[Checking parallelism]

9. Perform steps 1 to 4 again.

10. Make sure that the thickness gauge does not move right and left along with the carriage when the carriage is moved about 20 mm.

11. Move the right Parallelism adjustment bushing one notch to the rear (Gap will be narrowed).Then check that the thickness gauge moves along with the carriage. If the thickness gauge does not move, go back to Step 1 and repeat the adjustment.

12. If the gap is adjusted correctly, move the right parallelism adjustment bushing one notch toward front side (Gap will be widen).

[Fixing Parallelism Adjustment Bushing]

13. Fix the right and left Parallelism adjustment bushings with screws. (No.7 screw for each.)

When completing this adjustment, check the overlap amount of the printhead and head cleaner.

1. After release the Pump Planetary Lever Fixing Guide, rotate the Combination Gear 13.5, 30 to front side and set the head cleaner.

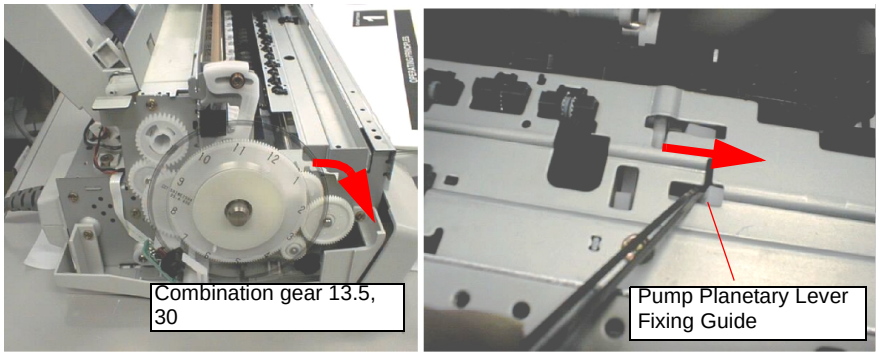


Figure 5-3. Setting the Head Cleaner

2. Move the carriage next to the head cleaner and make sure that overlap between the tip of the printhead and cleaner head is more than 0.5 mm.

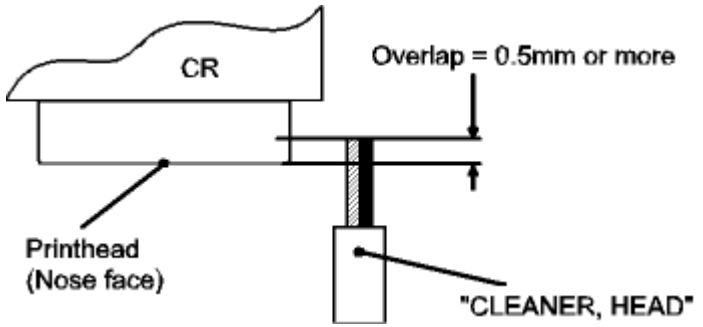


Figure 5-4. Overlap of Head Surface and the Cleaner Blade

3. Then, rotate the Combination Gear 13.5, 30 and return the head cleaner under the Paper Eject Frame while releasing the Pump Planetary Lever Fixing Guide.

5.2.2 Backlash value Adjustment for PF motor

When you remove or replace the following part, perform this adjustment.

- ☐ PF motor
- ☐ Gear 76
- ☐ PF Roller Assembly
  (When the Gear 76 (& loop scale) is removed with the PF Roller assembly, this adjustment is required)

This adjustment sets the suitable backlash value between the Gear 76 and the pinion Gear of the PF motor.
The required backlash value is **0.1mm**. (over 0mm to less than 0.1mm)

CAUTION

In case this adjustment is not performed correctly, following phenomenon will occur.

<<The backlash value is too narrow>>

- **The PF motor dose not rotate correctly based on the defined current value in the firmware. As the result, paper feed accuracy is lowered.**
- **It sounds that the Gear 76 and the PF pinion gear is jarred during the printing.**

<<The backlash value is too wide>>

- **The PF motor dose not rotate correctly based on the defined current value in the firmware. As the result, paper feed accuracy is lowered. Especially, the printed image will lowered around the bottom of the paper.**

Before you start this adjustment, make sure that the following parts are removed on the printer mechanism.

- ☐ Combination Gear 13.5,30
- ☐ Waste Ink pad assembly (As for the removing, refer to the Section 4.2.4.2)
- ☐ Left Housing Panel.
- ☐ Left Sub Frame

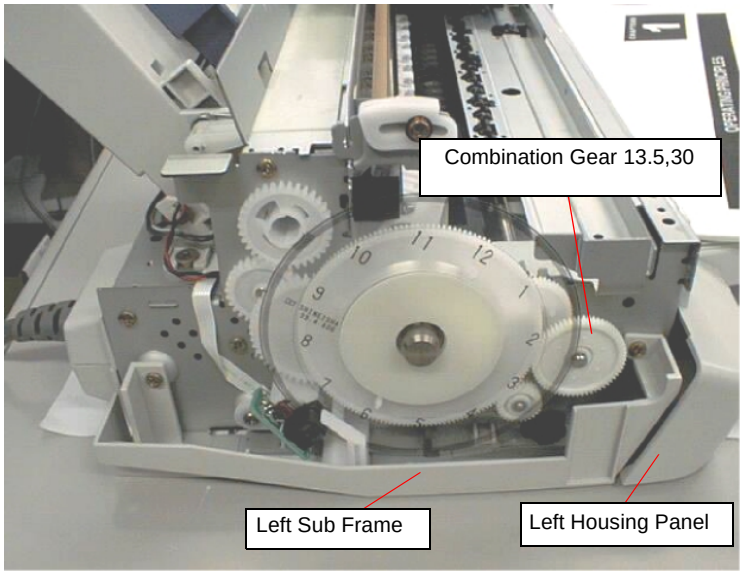


Figure 5-5. Combination Gear 13.5, 30 & PF Encorder Sensor

CAUTION

Be careful not damage the Loop scale when the Combination Gear 13.5, 30 and the PF Encorder Sensor.

1. Fasten the PF motor fixing screw and the No.5 screw securing the PF motor with 6kg-cm torque once again.

CAUTION

Do not secure the PF fixing screw and the No.5 screw with over securing torque. In case the securing torque is over 6kg-cm, the PF motor may be broken or paper feed accuracy is lowered.

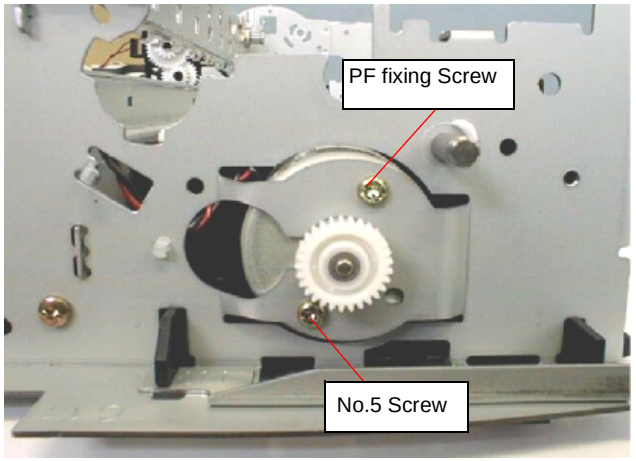


Figure 5-6. PF motor fixing screw & No.1 Screw

2. Loosen the No.5 screw securing the PF motor a little and engaged the teethes of the PF motor pinion gear carefully to the teethes of the Gear 76.

3. Push the following figured “A” point on the Gear 76 to the Left frame side. The Gear 76 should be pushed to the Left frame side about 3mm. In case the “A” portion returns to the normal position with the jarring sounds, the backlash value will be around the Standard (0.1mm)
But, the following condition is confirmed, the backlash value will not be suitable.

- The “A” portion of the Gear 76 dose not return to the normal position. The backlash value is too narrow.
- The “A” portion of the Gear 76 returns to the normal position without any jarring sounds. The backlash value is too wide.

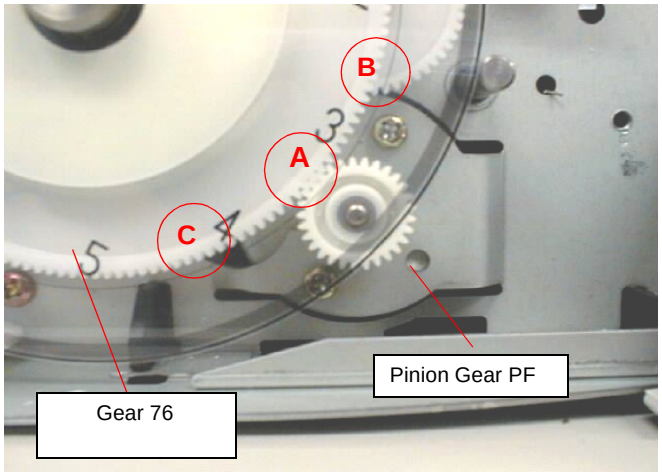


Figure 5-7. Pushing the Gear 76 to the Left side frame side

CAUTION

When you push the above red circled point by hand, push the Gear 76 on the Loop scale carefully.
For the another method, turn over the loop scale carefully around the red circled point and push the Gear 76 directly.

4. For the reconfirmation, push the “B” and “C” position of the Gear 76 to the Left Frame side. The Gear 76 should be pushed to the Left frame side about 3mm. And make sure that Gear 76 returns to the normal position smoothly with the jarring sounds.
   But, the following condition is confirmed, the backlash value will not be suitable.
   - The “B” or “C” portion of the Gear 76 dose not return to the normal position. The backlash value is too narrow.
   - The “B” or “C” portion of the Gear 76 returns to the normal position without any tarrying sounds. The backlash value is too wide.

5. If the backlash value is too narrow, move the PF motor to front side of the printer a little by pulling the PF motor.
   If the backlash value is too wide, move the PF motor to the rear side of the printer a little by pushing the PF motor.

6. Repeat the above step 3 to 5 until the backlash value is adjusted around the suitable value.

7. In case the above adjustment procedural is completed, check the backlash value between the Gear 76 and the pinion gear of the PF motor by using Micro scoop. Refer to the Figure 5-8.

8. If the backlash value is over 0.1mm or 0 mm, perform the step 5 and Step 7.

CHECK POINT

- **After complete this adjustment, make sure the loop scale dose not have any damge.**
- **The suitable backlash value is as follows.**

  Over 0mm to less than 0.1mm

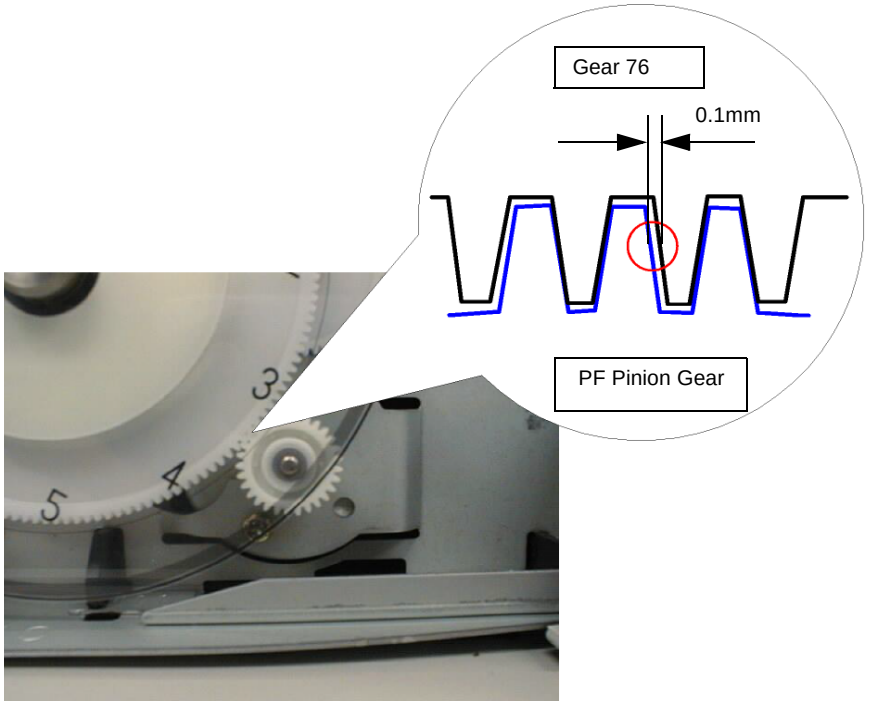


Figure 5-8. Check the backlash value

5.2.3 Adjustment by Adjustment Program

In this printer, it is necessary to set the correct information for each printer mechanism in order to maintain consistent printing function and quality, eliminating difference of each printer mechanism's characteristics.
Therefore, in case that the combination of the printer mechanism and main board changes or the printhead is replaced during repair, you must set and save the correct information to the main board, using the exclusive adjustment program.

5.2.3.1 About Adjustment Program

The adjustment program (Program name: Stylus COLOR 760 860 1160) enables you to set various values correctly to prevent malfunction and fluctuation of printing quality and printing function caused by difference in components and assembly when the printer components are replaced during repair. Basic adjustment items by using this program are as shown below.

Table 5-1 Basic adjustment items

No.	Main Items	Adjustment items
1	Adjustment	Head Voltage ID input
		Head Angular adjustment
		Bi-Directional adjustment
		USB ID input
2	Maintenance	Head Cleaning
		Initial Ink charge
		Protection counter check
		Reset the protection counter value
3	Recovery for clogged nozzle	Recovery routine
4	Print A4 pattern	A4 check pattern printing

5.2.3.2 How to set up the program

In order to set up the program, insert 1st FDD 3.5 inch disk (Installer Disk) to the 3.5 inch FDD disk drive and start the install the program file in the Windows environment. After complete the set up, the SC760 860, 1160 Adjustment Program icon is added to the Program menu in the Start menu.

NOTE: *Correct program is automatically installed according to your OS; Windows95 or Windows 98.*

The following figure shows you the U/I of the Adjustment main menu.

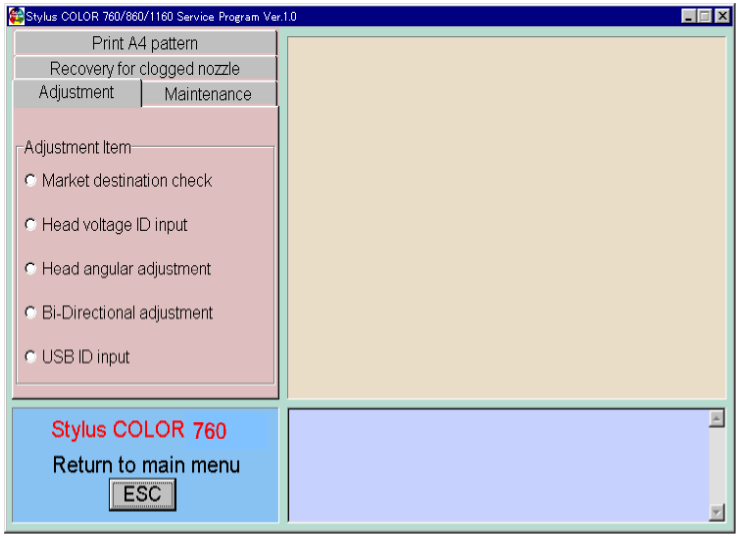


Figure 5-9. U/I of the Adjustment Main menu

CAUTION

This adjustment program can not be used in the Windows 3.x /NT and DOS environment.

5.2.3.3 Select the Model Name

1. Before performing any adjustment, you need to select the model name in the first menu. When you press the OK button after selecting the model name, the adjustment program sends the factory command to the printer in order to set the IEEE1284-4 mode to OFF status. This is because this program dose not run in the IEEE1284-4 mode.

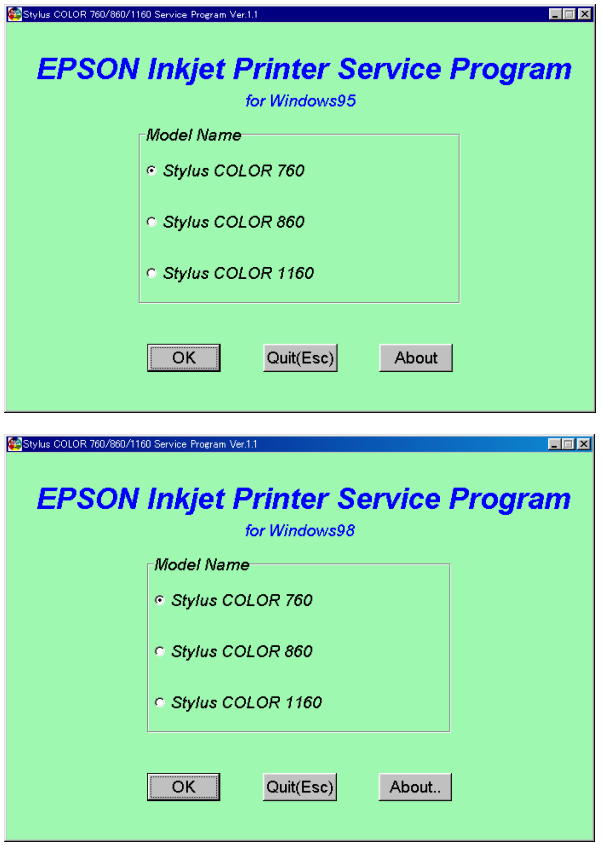


Figure 5-10. Main menu of the this Program

NOTE: *When the OK button is pressed in this menu, this adjustment program dose not verify the model name stored in the PROM.*

NOTE: *IEEE-1284-4 mode is reset to ON status by performing the Hardware reset.*

NOTE: *When you select "About" and click it, the program version is shown.*

5.2.3.4 Market Destination Check

This function is just to check the market destination setting stored in the EEPROM. Any CG chip is not mounted on the Main board and only 2 character tables (PC437, PC850) are stored in the PROM. Note the factory default CG setting in EEPROM is PC437. So, in case you select this function, the following menu is displayed.

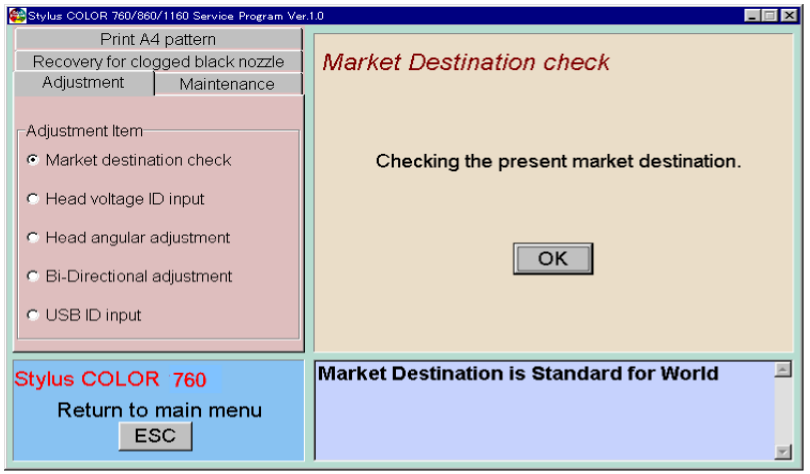


Figure 5-11. Checking the present market destination

NOTE: *In order to cancel the above menu, select another menu or adjustment item.*

5.2.3.5 Head Voltage ID Input

This adjustment is required when any of the following parts is replaced.

- ☐ Printhead
- ☐ Main board
- ☐ Printer mechanism

This adjustment enables you to write a printhead Voltage ID into the specific address of the EEPROM. This operation is considered the most important to maintain proper ink discharging system. If any ID is not written correctly, it results in white or color lines and also gives bad influence on dot weight.

CAUTION

Before or after performing this operation, refer to the table 5-2 and perform any appropriate adjustments or operations.

1. When replacing any of the parts above, make a note of VH voltage ID in advance. You can find the VH voltage ID on the following position:
   - ■ Printhead: On the top right face of the printhead. A 12-digit ID code is printed with the OR code on the label.
   - ■ Printer mechanism: On the label of the packing box of the printer mechanism.
2. Run the Adjustment program and enter the Adjustment Main menu.
3. Select the “Head voltage ID input” and click it, and you will see the in the next page appears. This function is useful only when the Main board is replaced to new one. When the Printhead is replaced with new one, go to Step 6.

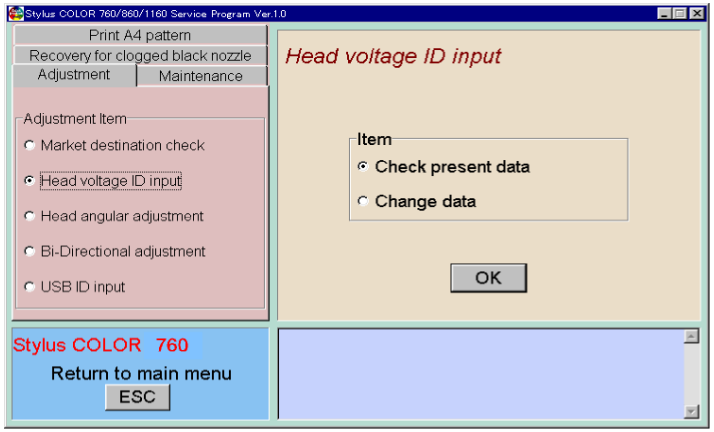


Figure 5-12. 1st Head Voltage ID input menu

4. If you replace the defective Main board with a new one, perform the “Check present data”. In case the logic circuit dose not have any damage, you can read out the Head Voltage data of the present Head ID voltage data. If this function is available, you can check the present Head ID without removing the Head FFC holder.

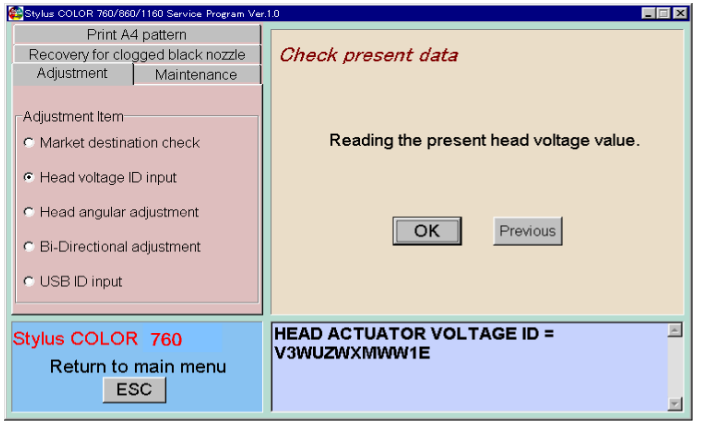


Figure 5-13. Read out the Head ID voltage from the EEPROM

5. If you can read out the present Head voltage ID, take memo the read out Head ID voltage.

NOTE: *In this Adjustment program, you can not write the read out Head ID to the new Main board in the read out Head ID menu. In case you write the read out Head ID to the new main board, you have to take menu the read out Head ID and input it again in the "Change data menu."*

6. Select the "Change data" item in the Head ID input menu and click the OK button. Following Head ID input menu is displayed.

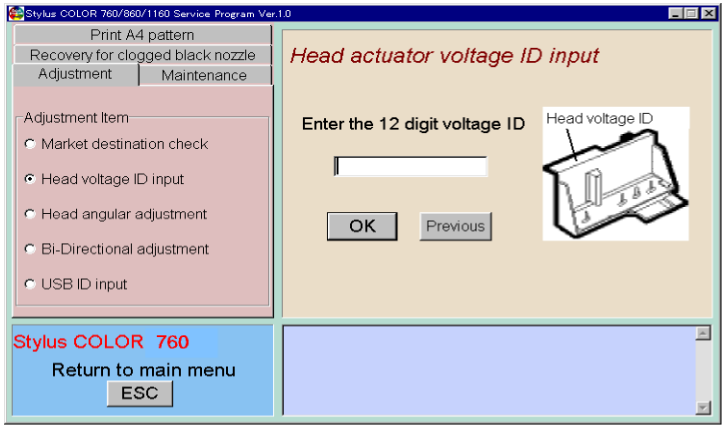


Figure 5-14. Entering the 12 digits Head ID

7. Input the12digits code of the Head Voltage ID in the above menu. In case you input an incorrect character or symbol in this menu, this program detects it automatically and displays error message in the bottom column. Figure 5-17 shows you the one of the error message.

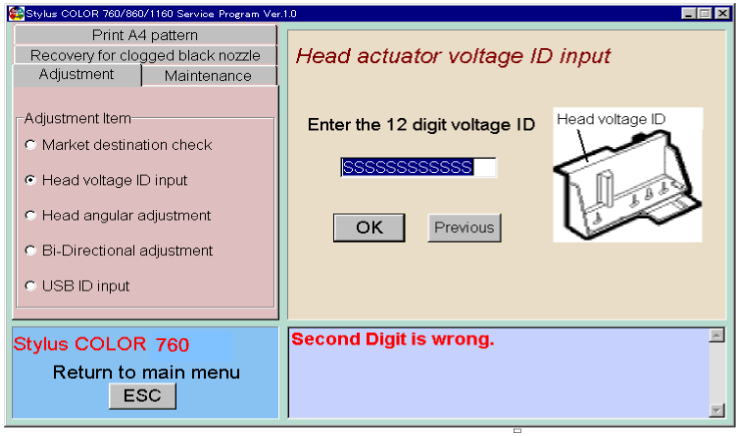


Figure 5-15. Error message in the Head ID entering menu

8. When the Head ID is input and write to the EEPEOM, following message is displayed on the bottom column in the menu.

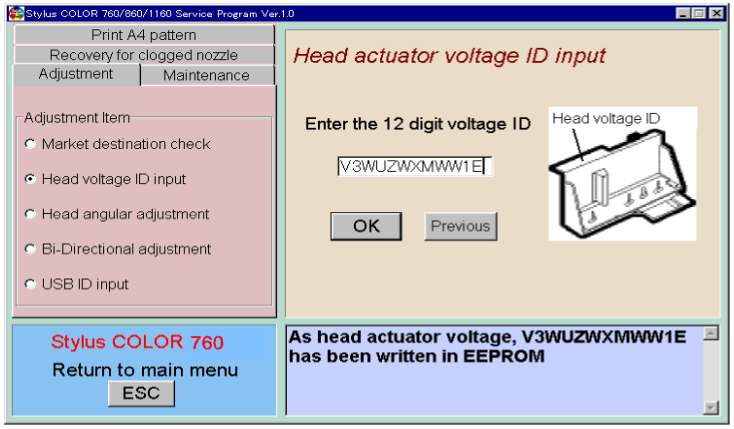


Figure 5-16. Completing the Head ID input

5.2.3.6 Head Angular Adjustment

During production, slight variations are created in printheads and carriage (which are used as a printhead base.) If these differences are not adjusted, they can adversely influence the printhead angle, and color overlapping is not performed correctly and color/white line problem occurs as a result. Therefore, in order to adjust the printhead angle correctly, the exclusive lever for adjusting the printhead angle is installed on the side of the carriage unit. By moving this lever, you are able to adjust the printhead angle without removing the ink cartridge. This adjustment is required in the following cases.

- When the printhead is replaced
- When the carriage unit is replaced.
- When the angle adjustment lever is moved.

Print the check pattern in the adjustment program to determine the angle degree needed for the printhead. Then move the adjustment lever in the carriage unit to set the printhead angle referring to the printed check pattern.

CAUTION

Before or after performing this operation, refer to Table 5-2 and perform appropriate adjustments or operations.

1. Select the “Head angular adjustment” in the Adjustment Main Menu as following figure.

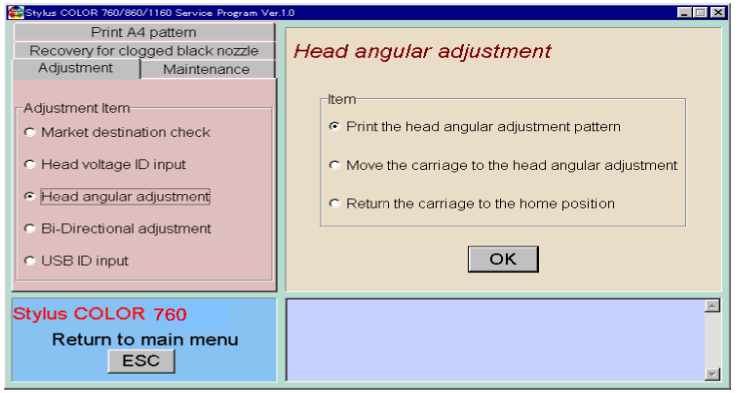


Figure 5-17. Select the Head angular adjustment

2. Select the “Print head angular adjustment pattern” in the “Head angular adjustment menu and click the “OK” button to print the check pattern.

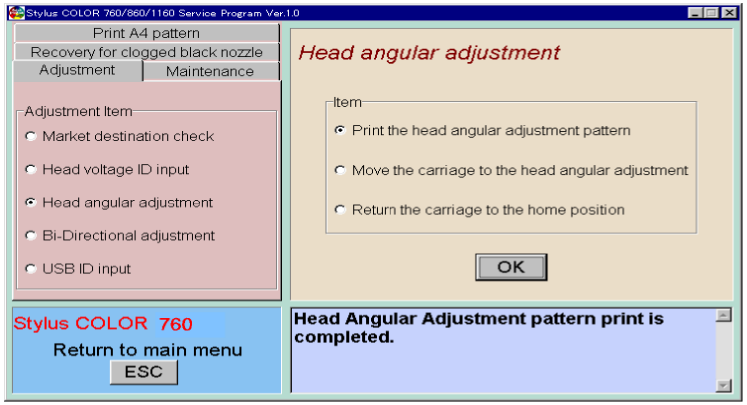


Figure 5-18. Select the Print head angular adjustment pattern

3. The following check pattern is printed.

Figure 5-19. Head Angular adjustment pattern.

4. Select the “Move the carriage to the head angular adjustment” in the “Head angular adjustment “menu and click the “OK” button as following figure. The printer moves to the I/C replacement position and stops at the position.

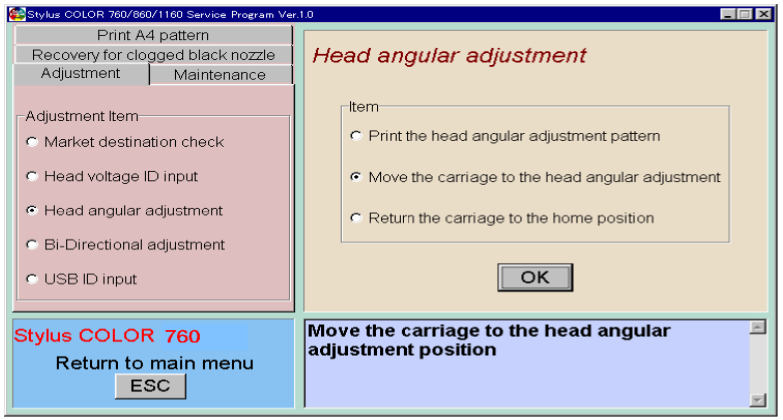


Figure 5-20.
Select the Move the carriage to the head angular adjustment

5. Loosen the printhead securing screw securing the printhead on the carriage. (You don't need to remove it completely.)

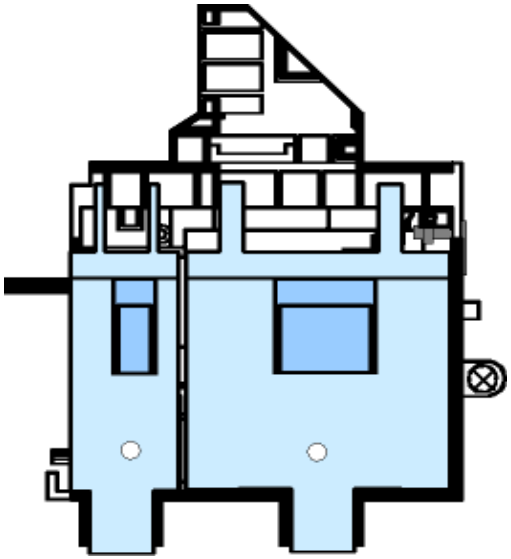


Figure 5-21. Head fixing screw position

NOTE: Loosen the printhead securing screw securing the printhead on the carriage. (You don't need to remove it completely.)

6. Look at the black/magenta combination in the pattern and move the adjusting lever to make the magenta lines stay between the black lines with even space. The figure below shows how the pattern changes as the adjusting lever moves right (rear) or left (front).

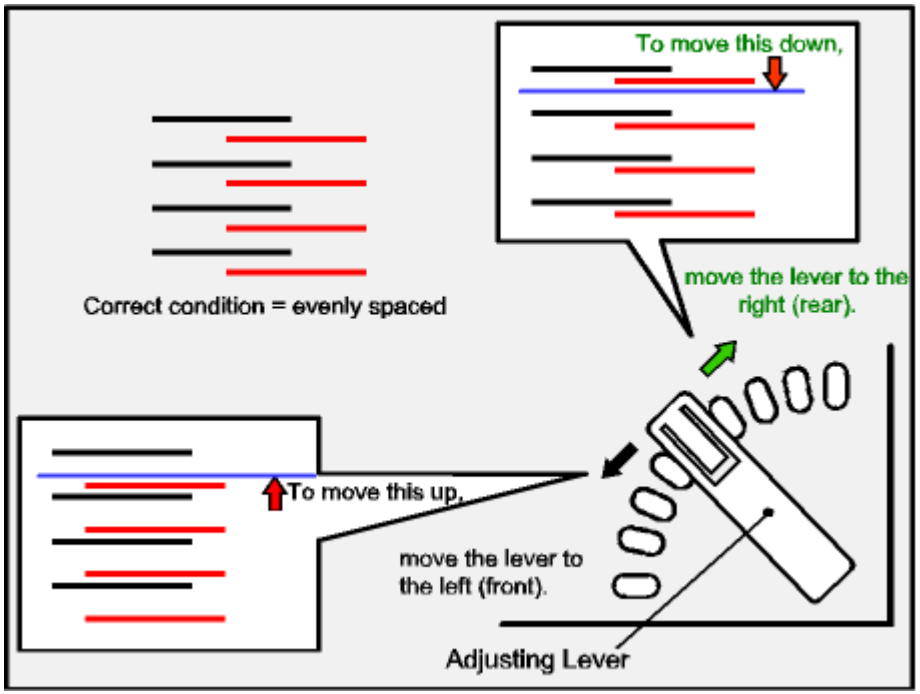


Figure 5-22.
Lever Operation and Corresponding Change in Pattern

7. After changing the position of the adjust lever, select “Head angular adjustment pattern” again and click the “OK” button.
The printer prints out a head angular adjustment pattern again.

8. Verify the pattern on the printout again.

9. Repeat the procedures from Step 2 to Step8 until the combination pattern of black/magenta is correct.

10. After completing the adjustment, select the “Move the carriage to the head angular adjustment” in the “Head angular adjustment” menu. Refer to the step4).

11. Tighten the loosened screw (head fixing screw) and select the “Return the carriage to the home position “in the Head angular adjustment menu. The carriage turns back to the home position.

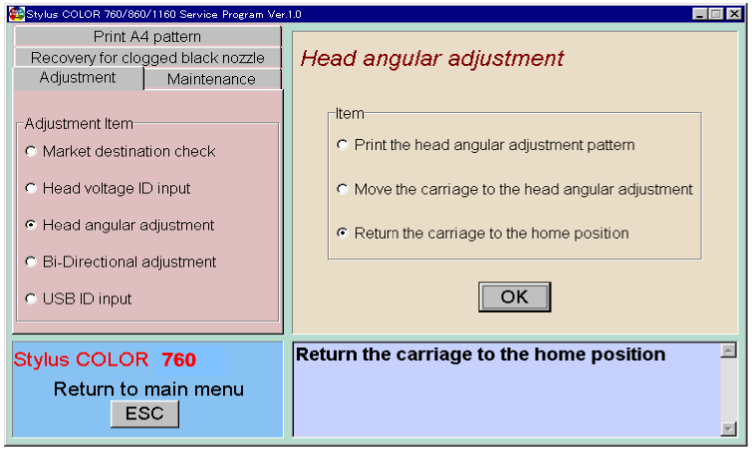


Figure 5-23. Return the carriage to the home position

5.2.3.7 Bi-D Adjustment

You perform this adjustment to correct differences in printing positions, which is caused by slippage of printing timing in right and left directions during the Bi-directional printing. Therefore, you are required to perform this adjustment after performing the following operations.

- Replacing the Print mechanism
- Replacing the main board
- Replacing the CR motor
- Replacing the Carriage Assembly
- Replacing g the Printhead

1. Select the “Bi-directional adjustment” in the “Adjustment main menu” as following figure.

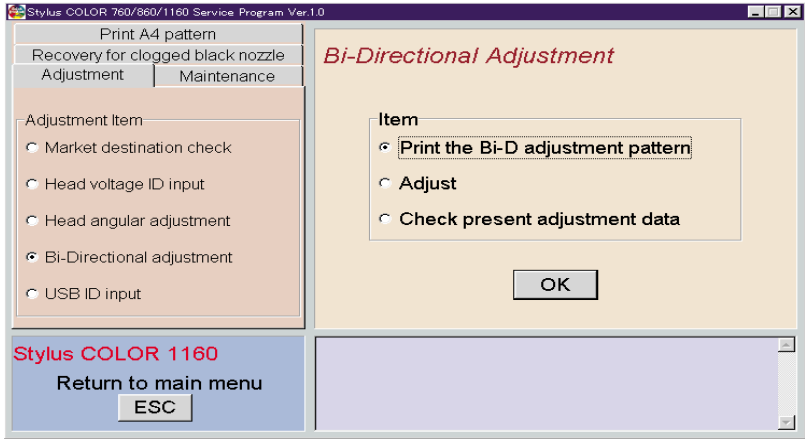


Figure 5-24. Select the Bi-d adjustment

2. Select the “Print the Bi-d adjustment pattern” in the “Bi-Directional Adjustment pattern” and click the “OK” button.

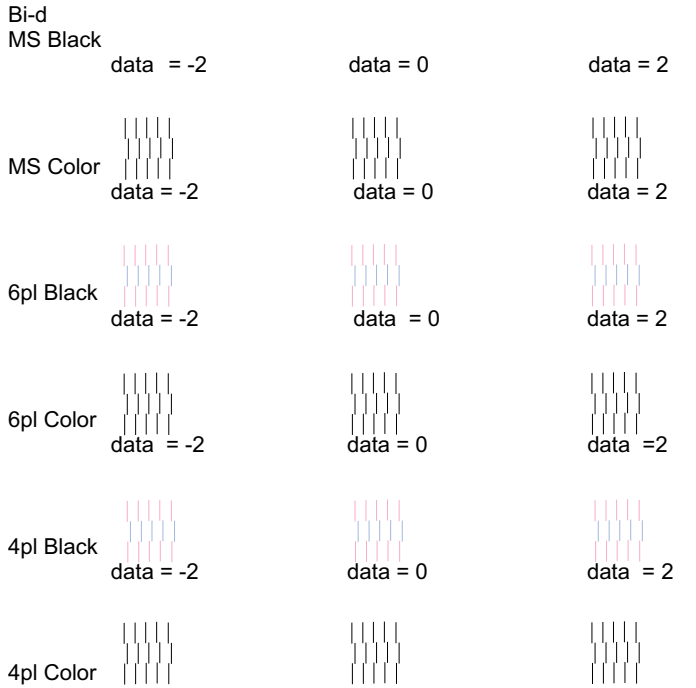


Figure 5-25. Bi-d adjustment pattern.

NOTE:
As shown in the sample, gaps between passes are sometimes created in different directions among patterns.
This unexpected change in direction is caused by an ink jet printer-specific reason, which is an ink jet printer inevitably performs a periodical cleaning specified by the flashing timer even during Bi-D pattern printing, so that the printing direction suddenly changes.
However, this directional difference among Bi-D patterns should not be considered, and you can always confirm and adjust the pattern correctly by referring to gap amount only.

3. Click the “Previous” and go back to the BI-Directional Adjustment” menu. And select the “Adjust” menu and click the “OK” button.

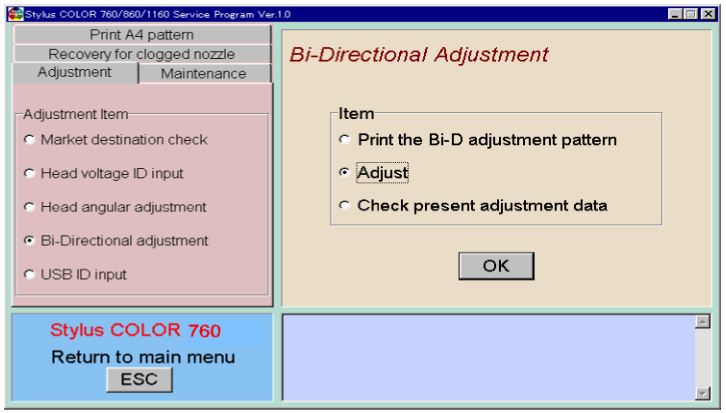


Figure 5-26. Select the Adjust menu

4. Check the printed pattern and find the misaligned dot type.

5. Select the misaligned dot size in the following menu and click the “OK” button.

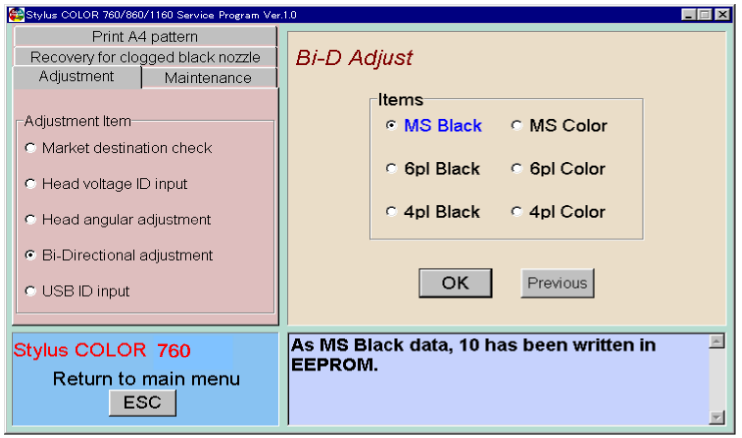


Figure 5-27. Select the misalined dot size

6. By selecting the misalined dot size, following input menu for the adjustment value is displayed.

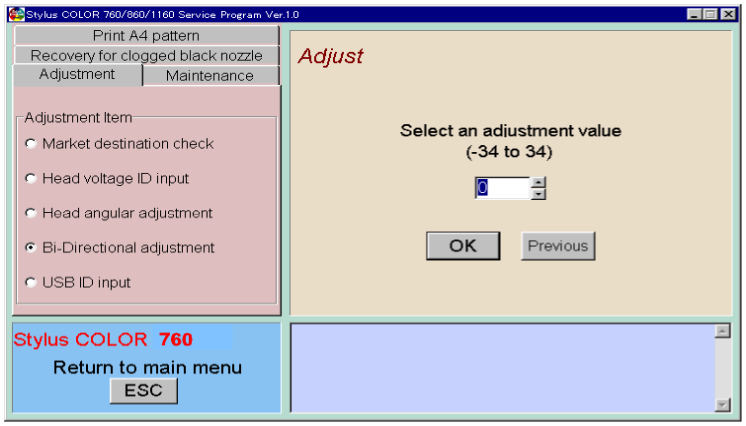


Figure 5-28. Bi-d adjustment input menu

7. Check the printed pattern again and Input the suitable value in the above menu and click the “OK” button. The input value is written in the specific address of the EEPROM. Refer to Figure 5-29.
   The value **0** (blue) appears in the center of the screen and changes the value by clicking the up/down icon. Apply the value for the most properly aligned pattern in the Bi-D adjustment pattern print.
   You can change the value by input the suitable value directly from the key board.
   In case the + value is input, the 2nd vertical printed pattern is shift to the left side. And in case the - value is input, the 2nd vertical printed pattern is shift to the right side.

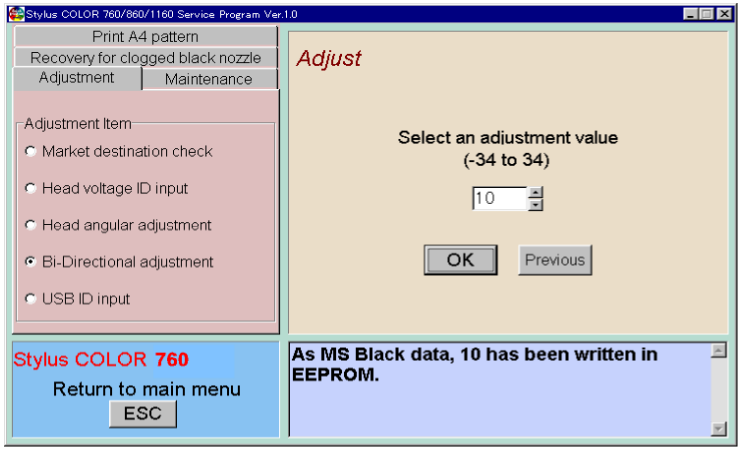


Figure 5-29. Input the suitable value

8. To confirm if the adjustment value is suitable, click the “Previous” button and go back to the “Bi-Directional Adjustment” menu.

9. Select the “Print the Bi-D adjustment patter” and click the “OK” button.

10. Check if the all 3 vertical line is alined correctly in the adjusted dot size pattern. If you can watch the misaligned pattern, repeat the step 3 to Step10 until the Bi-d adjustment pattern is alined.

5.2.3.8 USB ID input

When you replace the main board with a new one, you have to input a USB ID newly into the specific address of the EEPROM. When the printer and the PC is connected with a USB cable, the USB port driver loads the unique code from the specific address of the printer's EEPROM and provides the USB port number to the unique code. The USB port driver controls the several USB ports under the Windows 98 environment.

A unique code called USB ID is input to the specific address of the EEPROM in factory, and the following total 18-digit code is used as a USB ID for EPSON ink jet printer.

- Factory line number (3-digit)
- PC number (2-digit)
- Input year/month/date/time (hour,minutes,sencond) (12-digit)
  The timer data of the PC is used for this input data.
- Number 0
  A "0" is automatically added as the last digit in the input program.

In repair activity, we use a 10-digit serial number as a USB ID. The rest (8 digits) is generated by the adjustment program and added to the serial number automatically.

CAUTION

If a USB ID can not be input in the adjustment program after the main board is replaced with a new one, the USB ID may not possibly be a unique one. In this case, the USB ID conflicts with another peripheral USB ID in the USB port driver and the another USB peripheral may not possibly be used with the USB.

1. Select "USB ID input" in the Adjustment main menu.

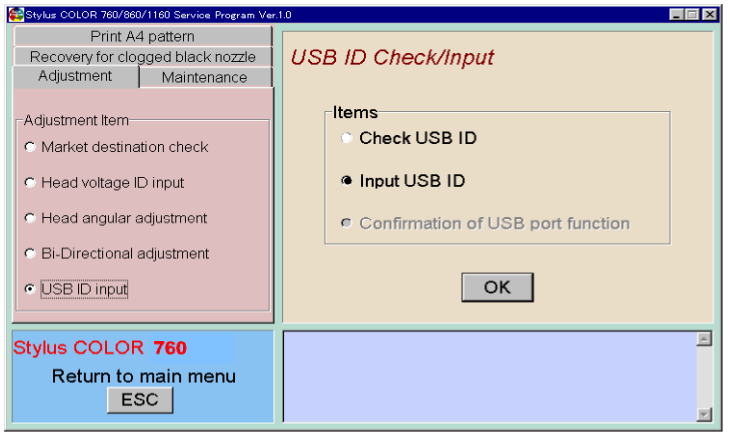


Figure 5-30. Select the USB ID input menu

2. In "USB ID check/Input" menu, select "Input USB ID" and click "OK" button, and the following menu appears.

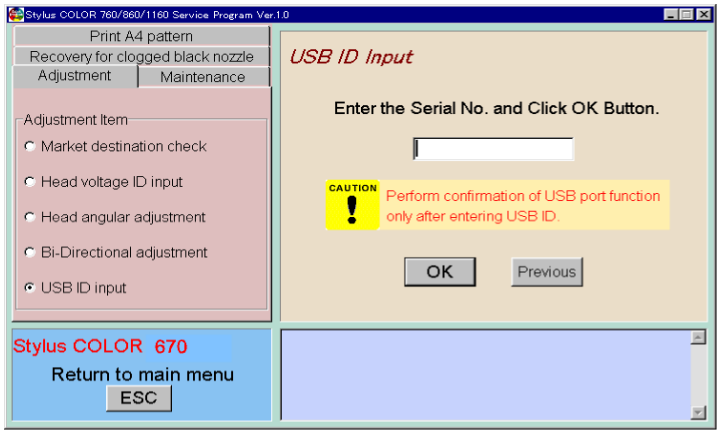


Figure 5-31. Select the USB ID input menu

3. Check the 10-digit code serial number on the serial number label stuck in the rear side of the Upper Housing.

4. Input the 10-digit-code serial number in the input menu and click the "OK" button.

NOTE: *Even though you type an irresponsible 10-digit code and click the "OK" button, the program accepts the code and writes it to the specific address of the EEPROM. However, there is a possibility that the code is not unique and conflicts with another USB ID in the USB port driver.*

5. After clicking the "OK" button, you will see the following message in the bottom column of the USB ID Check/Input menu. In this message, you can check if the USB ID is written in the EEPROM correctly.

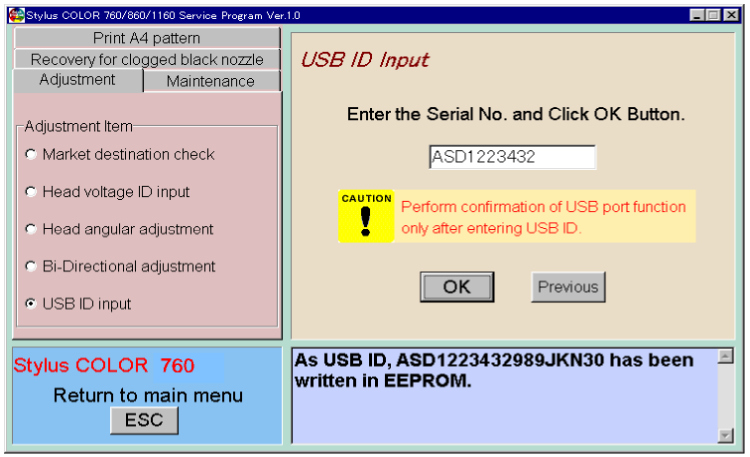


Figure 5-32. Write down the USB ID

6. Click the "Previous" button to go back to the "USB ID Check/Input" menu.

7. Select "Confirmation of USB port function" and click the "OK" button in "USB ID Check/Input" menu.

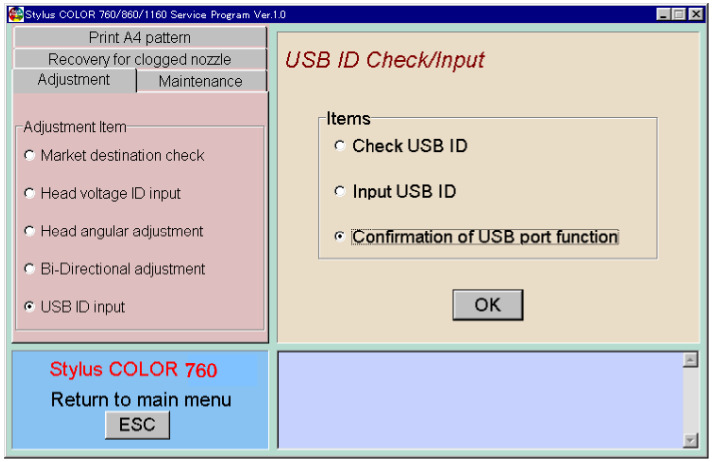


Figure 5-33. Select the Confirmation of USB port function

NOTE: *Above "Confirmation of USB port function" is available only the USB port and driver are installed in the Windows98 environment.*

8. The following message appears.

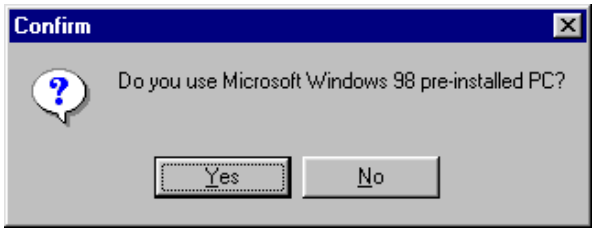


Figure 5-34. Message 1

The action to take hereafter varies depending on your PC's condition. If you select "Yes", go to **Flow Y**. If you select "No", go to **Flow N**.

Flow Y (Windows98 pre-installed)

A-1. The message below appears. Click OK.

Figure 5-35. Message 2

A-2. The following menu appears. Click OK.

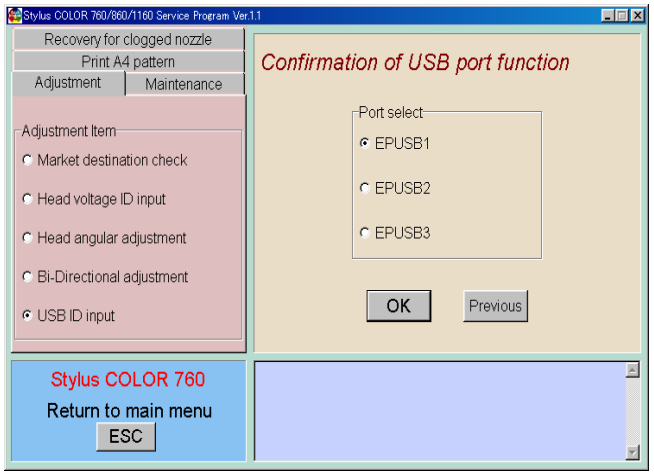
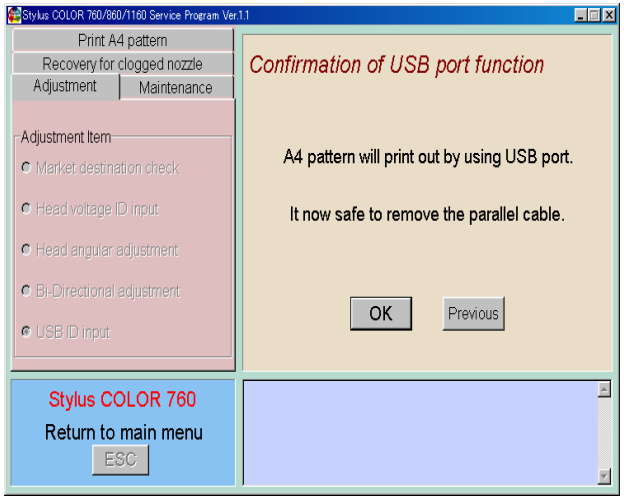


Figure 5-36. Port Confirmation Menu

A-3. The following menu appears.



** In this menu, only "OK" and "Previous" buttons are effective.*

Figure 5-37. Conformation Of USB Port Function Menu

CAUTION

In the following step, be sure to connect a parallel cable before clicking the OK button. Otherwise, the program will hang up.

If you select "**OK**", A4 check pattern will print and the message below follows. If you select "**Previous**", the message below appears.

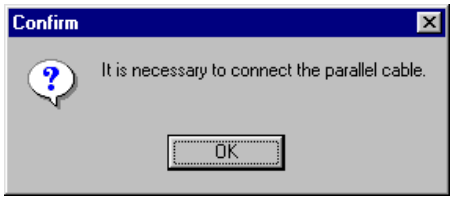


Figure 5-38. Message 3

A-4. Connect a parallel cable and then click “OK”. The “USB ID input” menu appears again (step 7).

NOTE: *If the USB port operates correctly, 2 sheets of A4 Check pattern are printed.*

Flow B (Windows98 not installed)

B-1. The message below appears.

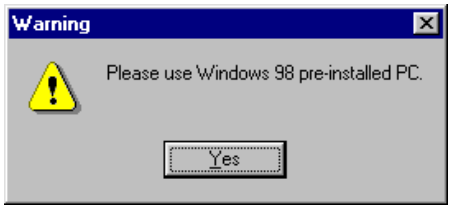


Figure 5-39. Message 4

B-2. Click “Yes”. The “USB ID input” menu appears again (step 7).

5.2.3.9 Initial Ink Charge Operation

After replacing any of the following units, perform Initial ink charge and return the printer after making sure that ink is ejected correctly from the printhead.

- After replacing the printer mechanism
- After replacing or removing the printhead

CAUTION

Before you perform the initial ink charge operation, replace the installed ink cartridges with new ones, because the ink amount used for the initial ink charge operation is so large.

1. Select the “Maintenance” menu. The following menu appears.

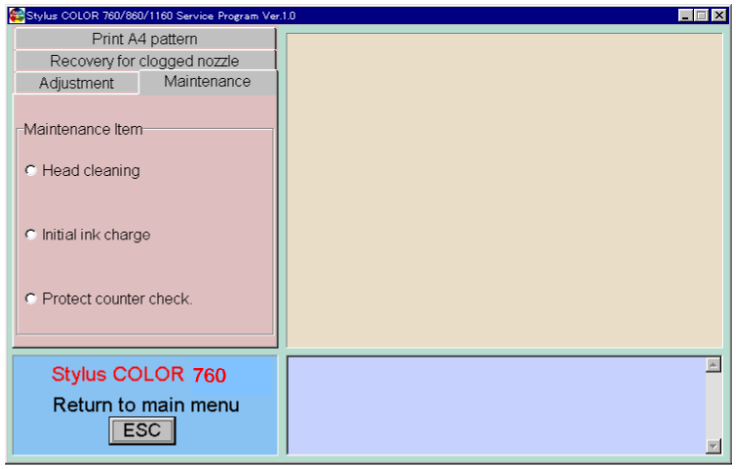


Figure 5-40. Select the Maintenance menu

2. Select the “Initial Ink charge” item from “Maintenance Menu” and click the “OK” button.

NOTE: *As described in the menu message, about 1/6 amount of the Black ink cartridge and 1/9 amount of the Color ink cartridge are consumed in the initial ink charge operation.*

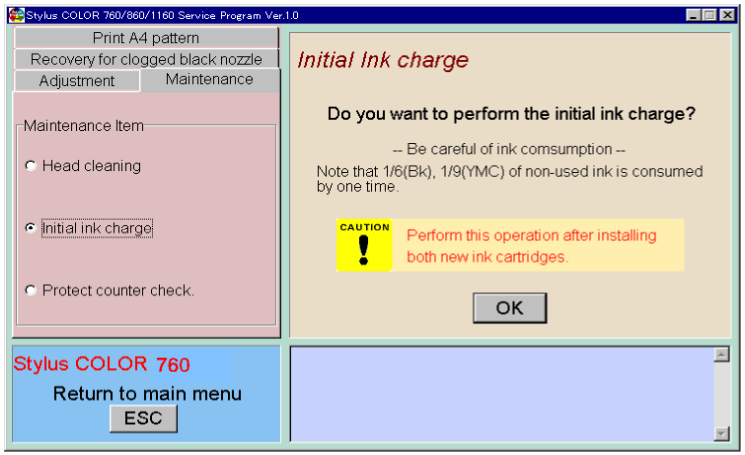


Figure 5-41. Select the Initial Ink Charge

NOTE: *The initial ink charge is carried out without turning off/on the printer. It takes about 2 minutes for this operation to complete the whole sequence.)*

5.2.3.10 Head Cleaning Operation

With this sequence, you can forcibly solve the clogged nozzle problem caused by viscous ink. This program performs Powerful cleaning (CL1' cleaning (ink consumption ;1.55ml) + rubbing operation) forcibly.

CAUTION

If you can not recover the clogged nozzles despite you performed powerful operation, enter the Initial ink charge sequence by referring to Section 5.2.3.11.

1. Select "Head cleaning" from the "Maintenance" menu as shown below.

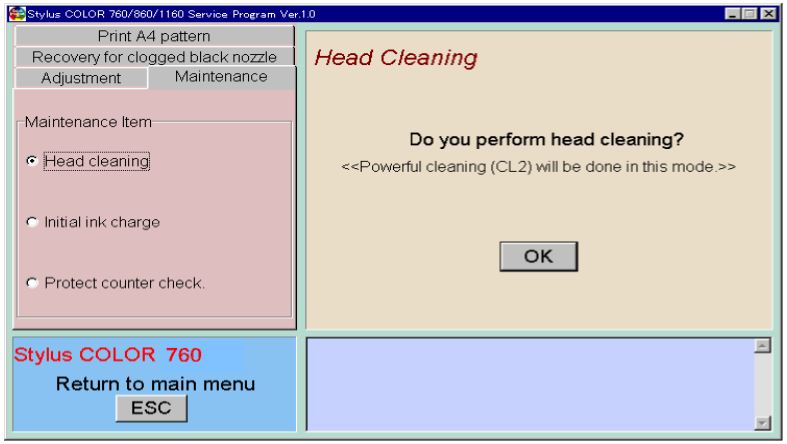


Figure 5-42. Select the Maintenance

2. Click the "OK" button in the menu. The Powerful cleaning begins. (It takes 30 seconds for the process to complete.)

5.2.3.11 Protection Counter Check/Reset

The program allows you to check or clear the current protection counter value. (waste ink amount counter)

NOTE: *You can confirm or clear the current protection value by main unit alone. (Refer to Section 1.4.3.)*

[Check the present counter value]

1. Select “Protect counter check” from the “Maintenance“ menu.

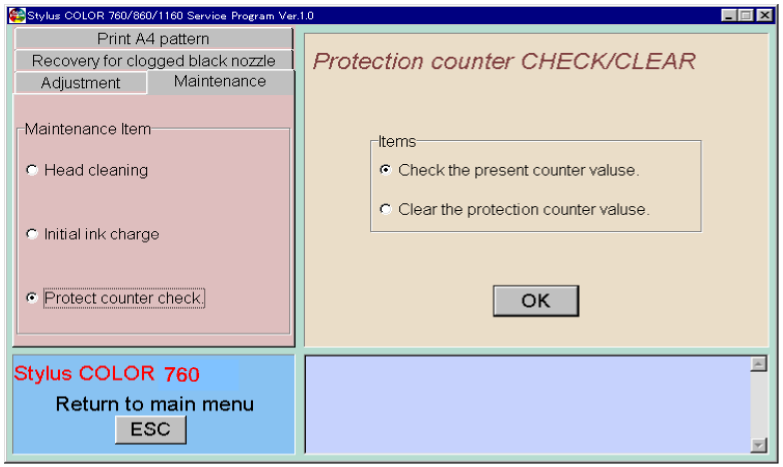


Figure 5-43. Select the Check the present counter value

2. By clicking the”OK” button, following menu is displayed.

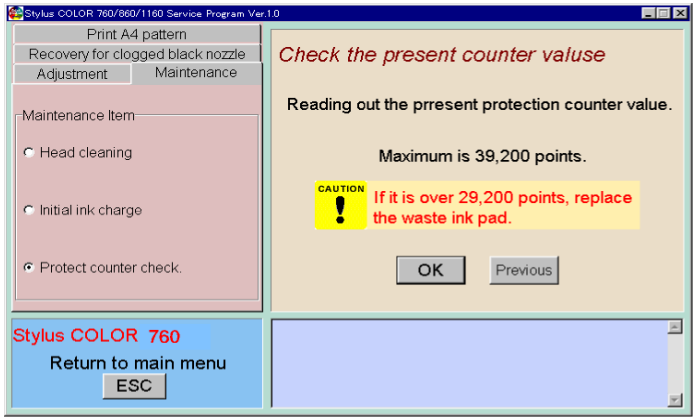


Figure 5-44. Check the present counter value

3. After observing the Caution description on the above menu, click the “OK” button. The present counter value is indicated in the bottom column as shown in the following figure.

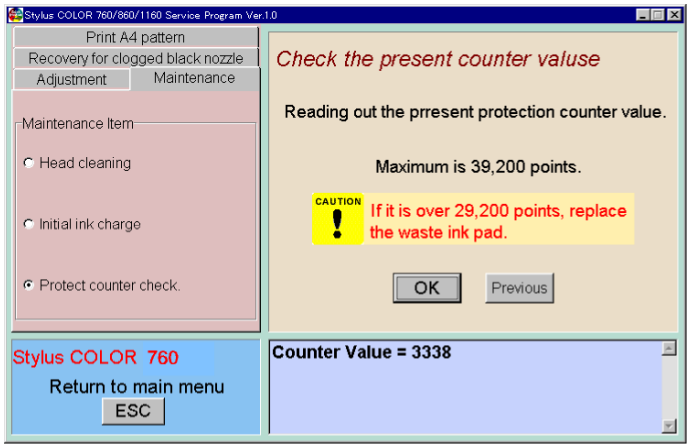


Figure 5-45. Present counter value

4. If the present counter value is over 29200 points, we recommend you should replace the Waste ink drain pad with a new one.

[Clear the protection counter value]

1. Select “Clear the protection counter value” and click the “OK” button.

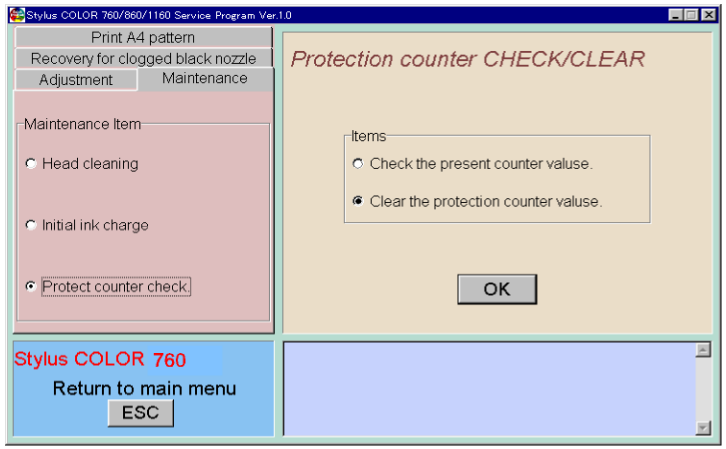


Figure 5-46. Select the Clear the protection counter value

2. The following menu appears.

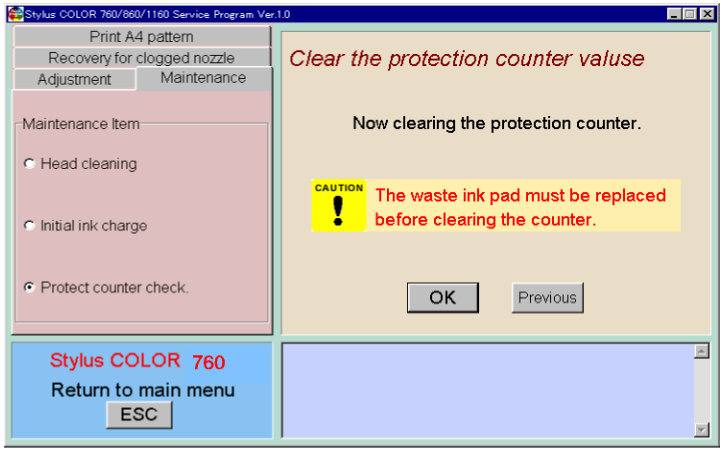


Figure 5-47. Clear the Protection counter value

3. After observing the CAUTION description in the menu, click the “OK” button. When the “OK” button is clicked, the message appears in the bottom column of the menu.

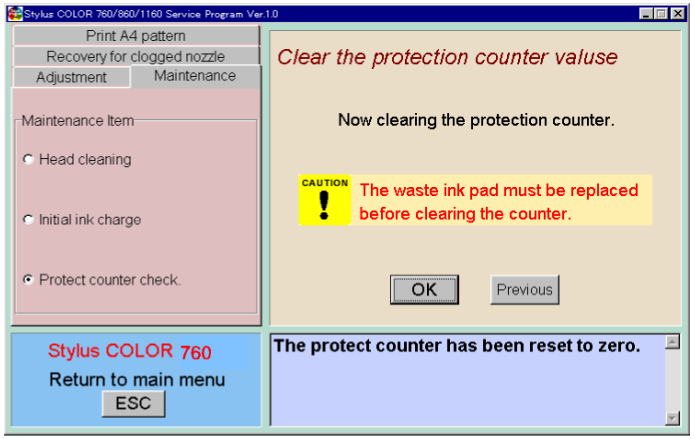


Figure 5-48. Clear the protection counter value 2

CAUTION

■ **Be sure to replace the installed waste ink pad with a new one after or before you clear the current protection counter value.**

5.2.3.12 Recovery for the clogged nozzle

This function repeats printing the Nozzle check pattern and to perform the head cleaning. Your can check the recovered nozzle condition after perform the head cleaning.

NOTE: *In this sequence, CL1' cleaning mode & rubbing operation are always performed.*

1. Select the "Recovery for clogged nozzle" menu. The following menu appears.

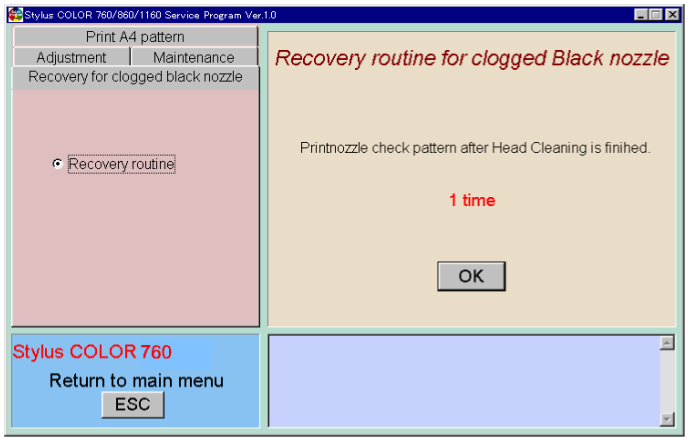


Figure 5-49. Select the Recovery for clogged nozzle

2. After setting a plain paper, click the "OK" button. The printer enters a head cleaning sequence and prints the nozzle check pattern as shown in the following figure.

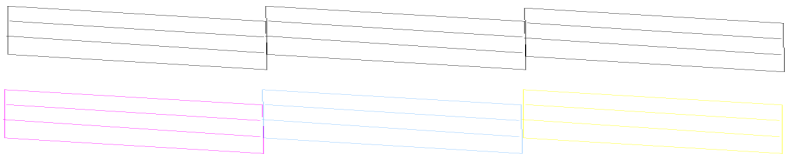


Figure 5-50. Nozzle Check pattern

3. After completing one sequence, the program displays the counter that this program is performed as following figure.

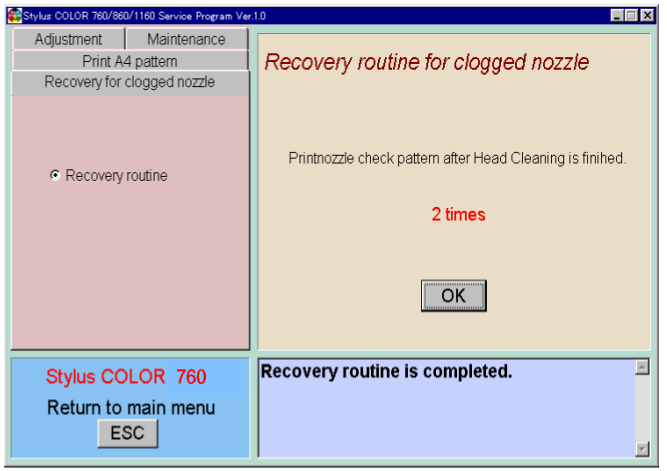


Figure 5-51. Display the counter for this program

4. Depends on the nozzle recovery condition, repeat this operation.

5.2.3.13 Print A4 pattern

This function prints following several kinds of the check pattern on A4 paper. By printing an A4 pattern, you can check the all adjustment results on the printout. (except the USB ID input)

NOTE: *2 sheets of A4 Plain paper are used for printing. So, set 2 sheets in the ASF unit before starting the program.*

1. Select “Print A4 pattern” and click the “OK” button to print A4 check pattern as shown in the following menu.

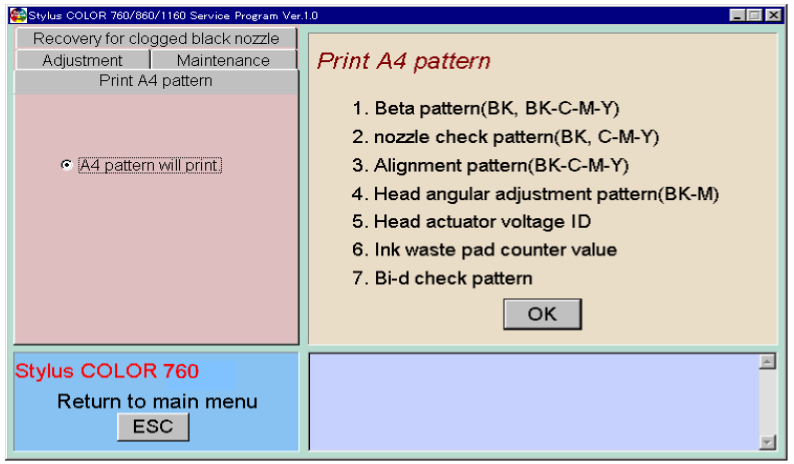


Figure 5-52. Select the “Print A4 pattern

2. When printing is complete, the following message appears in the bottom column of the menu.

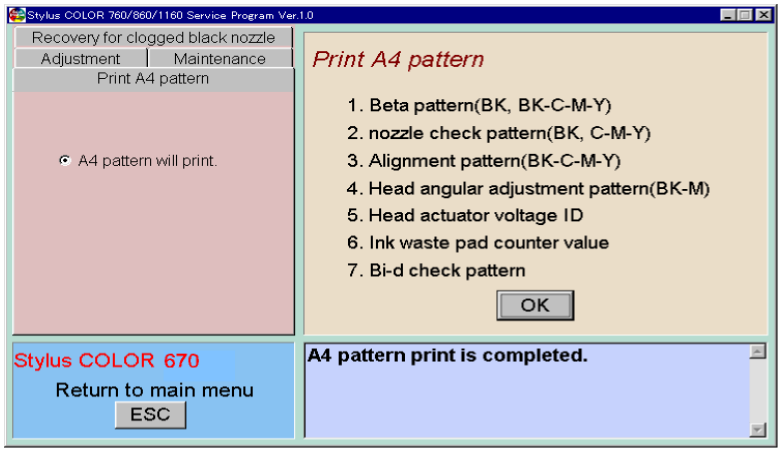


Figure 5-53. Complete the printing.

3. Check all printed patterns on the 2 sheets of the printed paper. If you find any incorrect portion, select the adjustment menu and try to adjust it.

CHECK POINT

- **Check points for the first solid pattern (beta pattern 360 x 360 dpi normal dot) in the A4 Check pattern are as follows.**
  - Is there any white line observed?
  - Is there any extremely uneven banding observed?
- **Check points for the second Nozzle check pattern (360dpi) are as follows.**
  - Is ink fired from all nozzles?
  - Is there any extremely uneven banding observed?

5.3 PF Loop scale unit assembling procedure

This section describes how to assemble the following parts:

- ☐ PF Loop scale
- ☐ Base plate
- ☐ Double side adhesive tape
- ☐ Gear 76

This assembling procedure is required when any of the following parts is replaced.

- ■ Gear 76
- ■ Loop Scale

For this assembling, following tool is required.

Table 5-1 Required Assembling Tool

No.	Assembling Item	Assembling Parts	Required Tool
1	Scale PF unit Assembling tool	Stick the Loop scale unit to the Gear 76	AS Tool code: 1051767
2	Mounting Plate scale Attachment tool	Stick the Loop scale to the base plat	AS Tool code: 1051765

5.3.1 Assembling the PF Loop scale unit

This section describes how to assemble the following parts.

- ☐ PF Loop scale
- ☐ Base plate
- ☐ Adhesive Tape

1. Set the AS Tool # 1051765 as shown in the following figure.
2. Peel off the protection tape from the Base plate and set it on the AS Tool # 1051765. The adhesive side should be facing upward.

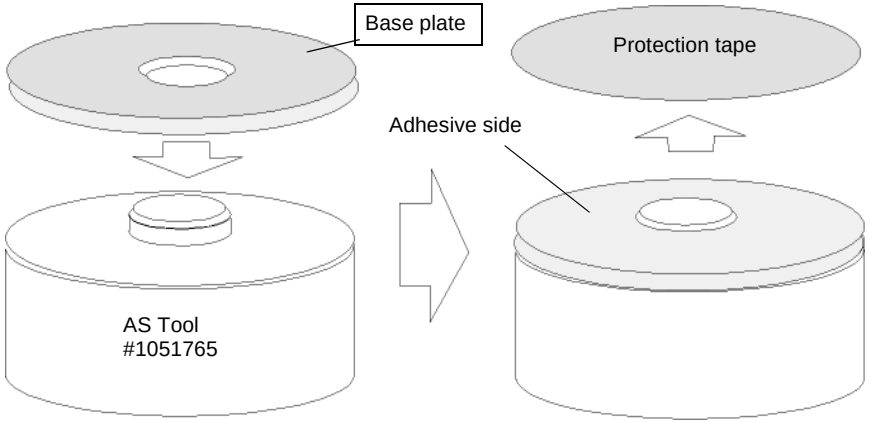


Figure 5-54. Setting the Base plate on the AS Tool # 1051765

3. Set the small column to the shaft hole of the PF Loop scale and put the PF Loop scale on the Base plate. The printed character side of the PF Loop scale should be faced to the Base plate.

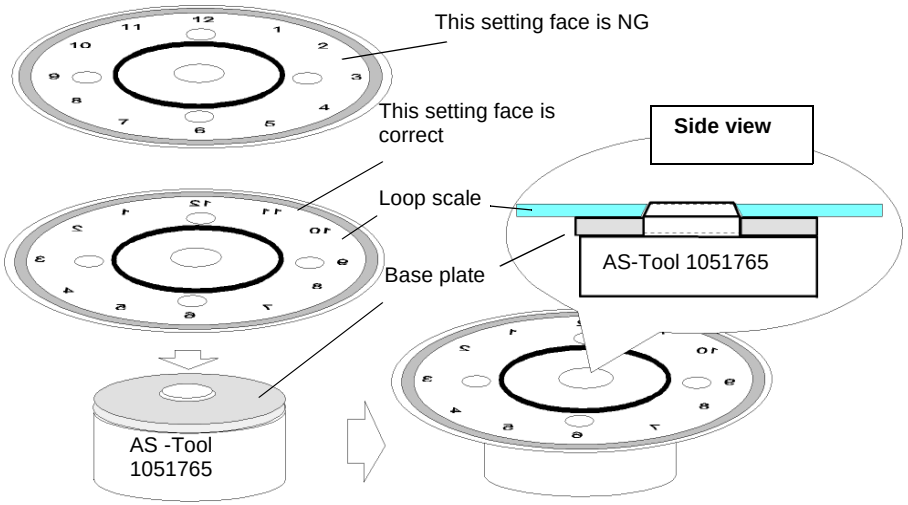


Figure 5-55. Put the PF Loop scale on the Base plate

4. Press the PF Loop scale against the Base plate carefully and stick the PF Loop scale to the Base Plate.

CAUTION

Do not touch the following portion.
- Inside the PF Loop scale shaft hole
- Character printed side of the Loop scale

CHECK POINT

It is not a problem if the outline of the Base plate dose not just fit to the printed circled line of the PF Loop scale. Refer to Figure 5-56.

5. Peel off the protection tape from the adhesive tape (double side) and stick it inside the printed circled line on the PF Loop scale.

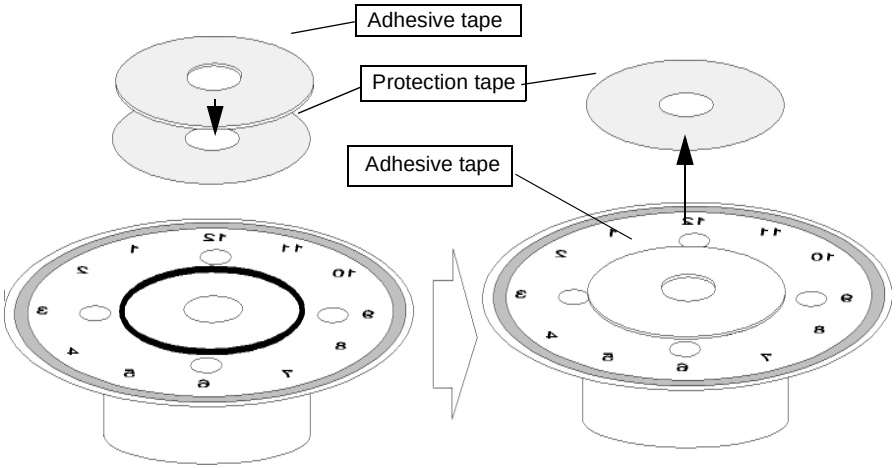


Figure 5-56. Sticking the Protection Tape to the PF Loop Scale

CHECK POINT

It is not a problem if the outline of the Adhesive tape dose not just fit to the printed circled line of the PF Loop scale.

5.3.2 Sticking the PF Loop scale unit to Gear 76

This section describes how to the stick the PF Loop scale unit to the Gear 76.

1. Peel off the protection tape from the PF Loop scale unit and put the shaft hole of the PF Loop scale unit to the PF shaft.
   The PF Loop Scale should be set at a right angle against the PF roller.

2. Set two small circled cut off holes to the two protrusions on the Gear 76, and press the PF Loop scale units slowly & carefully to the Gear 76 side with the AS Tool # 1051767 as following figure.

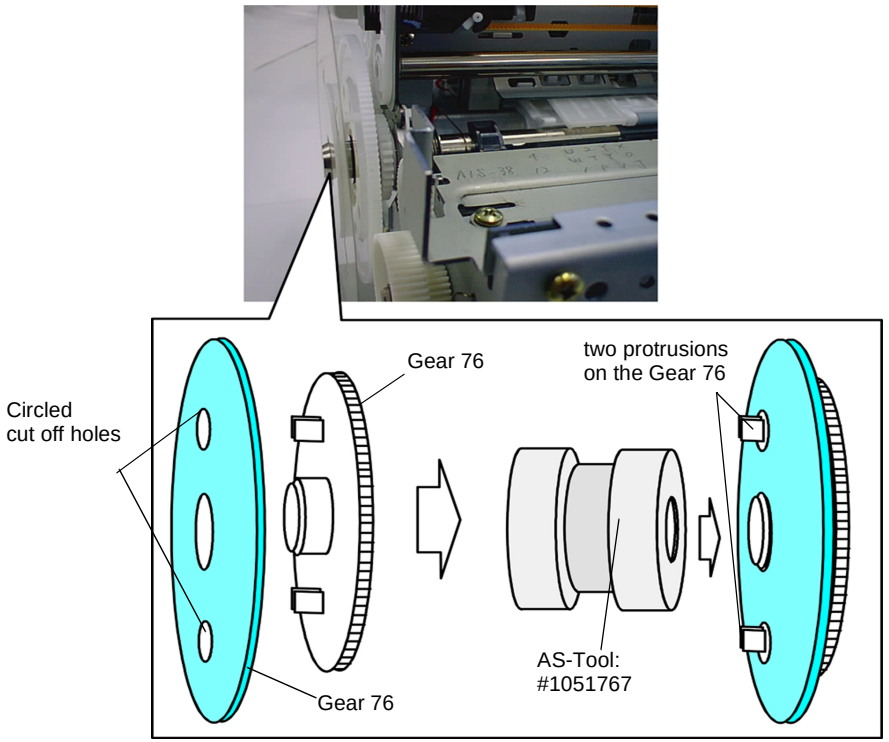


Figure 5-57. Stick the PF Loop scale unit on Gear 76

CAUTION

- **Do not touch the following portion.**
  - Inside of PF Loop scale shaft hole
  - Character printed side of the Loop scale
- **Do not damage the inside of the PF shaft hole of the PF Loop scale unit.**
- **After assembled the PF roller Assembly (included Gear 76) to the printer mechanism, stick the PF Loop scale unit to the Gear 76.**

CHECK POINT

- **Check the two protrusions on the Gear 76 is sticking from the small circled cut off holes of the PF Loop scale. Refer to Figure 5-58.**
- **Make sure there is no dirt or scratch on PF Loop scale**

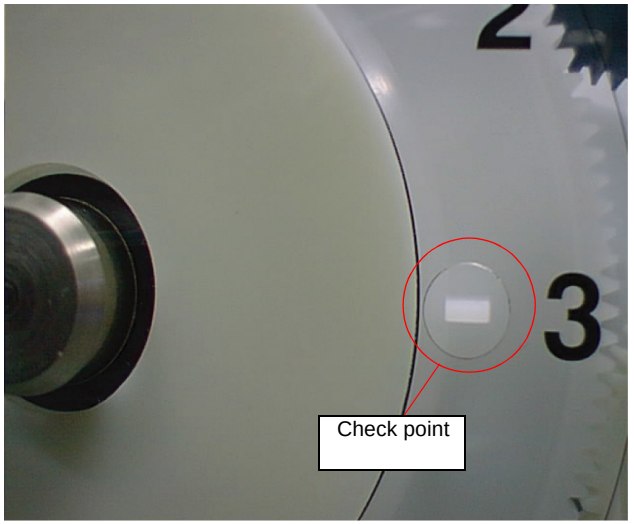


Figure 5-58. Checking the PF Loop scale sticking condition

CHAPTER

6

MAINTENANCE

6.1 Overview

This section describes points and procedures for maintaining the printer in its optimum condition.

6.1.1 Cleaning

The printer has no mechanical components which require regular cleaning. Therefore, note that the points suggested below are only to check for dirt, and cleaning should be performed upon necessity.

- **Never use chemical solvents, such as thinner, to clean the printer. These chemicals can damage the printer components.**
- **Be careful not to damage the components in attempt to clean inside the printer.**
- **Do not scratch the surface of "ROLLER, ASSEMBLY, PF". (Use a soft brush to wipe off the dust, or use a soft cloth moistened with alcohol.)**

☐ **Housing:**
Use a soft clean cloth moistened with water to wipe off any dirt. If the housing is stained with ink, use a cloth moistened with neutral detergent to wipe it off.

☐ **Inside the Printer:**
Use a vacuum cleaner to remove any paper dust.

6.1.2 Service Maintenance

If print irregularity (missing dot, white line, etc.) has occurred or the printer indicates "Maintenance Error", take the following actions to clear the error.

☐ **Head Cleaning:**
The printer has a built-in head cleaning function, which is activated by operating the control panel.
Confirm that the printer is in stand-by state (the POWER indicator is not blinking), and hold down the cleaning button on the control panel for more than 3 seconds.
The printer starts the cleaning sequence. (The POWER indicator blinks during the cleaning sequence.)

☐ **Maintenance Error Clear:**

Ink is used for the operations such as cleaning as well as printing. Therefore, the printer wastes certain amount of ink and drains it into waste ink pad, while counting the amount of the waste ink. Once the amount of the waste ink reaches the predetermined limit, the printer indicates "Maintenance Error" and the waste ink pad should be replaced.

- **Overflow Counter Limit:**
  Overflow Counter (Protection Counter A) >=39200
- **Timing for Replacing the Waste Ink Pad:**
  When the total amount of the waste ink reaches the predetermined limit, the LED indicates "Maintenance Error". (Refer to Section 1.4.4 "Printer Conditions and Panel Status")
  Also, during repair servicing, check the ink counter along with the firmware version, ink counter, select code page, nozzle check pattern on the status printing sheet. If the ink counter value is close to its limit, notify your customer and recommend that the waste ink pad be replaced (If the waste ink pad is not replaced at that time, there is a possibility that "Maintenance Error" will occur soon after the printer is returned to the customer). Once you have the confirmation of the customer, replace the waste ink pad.
- **Replacement Procedure:** Refer to Section 4.2.4.2.
- **After the Replacement:**
  Reset the Overflow Counter (Protection Counter A) by pressing the Load/Eject SW + Cleaning SW with Power On function.
  Refer to 1.4.3 "Panel Functions" for details.

6.1.3 Lubrication

The type and amount of oil and grease used to lubricate the printer parts are determined based on the results of internal evaluations. Therefore, be sure to apply the specified type and amount of oil and grease to the specified part of the printer mechanism during servicing.

- **Never use oil and grease other than those specified in this manual. Use of different types of lubricant can damage the printer and its components.**
- **Never apply larger amount of lubricant than specified in this manual.**

Table 6-1. Specified Lubricants

Type	Name	EPSON Code	Supplier
Grease	G-26	B702600001	EPSON
Oil	O-12	1038991	EPSON

Table 6-2. Lubrication Point

No.	Standard	Remarks / Reference Page
1	<Lubrication Point> Inside of “BUSHING, 12, RIGHT”	Use a brush to apply grease. See Page 147.
	<Lubricant Type> G-26	
	<Lubrication Amount> Take a 3mm-diameter ball and apply it evenly to the inside of the bushing.	
2	<Lubrication Point.> “HOLDER, PULLEY, DRIVEN”	See Page 147.
	<Lubricant Type> G-26	
	<Lubrication Amount> ϕ 1 x 3mm (4 places)	
3	<Lubrication Point> Inside of “BUSHING, 12, LEFT”	Use a brush to apply grease. See Page 147.
	<Lubricant Type> G-26	
	<Lubrication Amount> Take a 3mm-diameter ball and apply it evenly to the inside of the bushing.	
4	<Lubrication Point> Inside of “BUSHING, 6” (2 bushings)	Use a brush to apply grease. See Page 147.
	<Lubricant Type> G-26	
	<Lubrication Amount> Take a 1mm-diameter ball and apply it evenly to the inside of the bushing.	
5	<Lubrication Point> Flat surface of “PULLEY, DRIVEN”	See Page 148
	<Lubricant Type> G-26	
	<Lubrication Amount> ϕ 1 x 1mm (2 places)	

Table 6-2. Lubrication Point (continued)

No.	Standard	Remarks / Reference Page
6	<Lubrication Point> "SHAFT, PULLEY, DRIVEN"	See Page 148.
	<Lubricant Type> G-26	
	<Lubrication Amount> ϕ 1 x 1mm	
7	<Lubrication Point> "ROLLER ASSEMBLY, EJECT"	See Page 148.
	<Lubricant Type> G-26	
	<Lubrication Amount> ϕ 1 x 1mm	
8	<Lubrication Point> 3 points on the smaller gear of the "COMBINATION GEAR 12, 28.8" (Ink Unit).	Apply grease over the tips of the teeth. See Page 148.
	<Lubricant Type> G-26	
	<Lubrication Amount> ϕ 1 x 1 mm (for each point)	
9	<Lubrication Point> Shaft on the "FRAME, MIDDLE" (Ink Unit)	See Page 148.
	<Lubricant Type> G-26	
	<Lubrication Amount> ϕ 1 x 1 mm	
10	<Lubrication Point> "SPUR GEAR, 27.2" (ASF Unit)	• Apply grease thinly to the shaded area as illustrated. • Do not apply grease to the hooks. See Page 148.
	<Lubricant Type> G-26	
	<Lubrication Amount> One 2 mm-diameter ball	

Table 6-2. Lubrication Point (continued)

No.	Standard	Remarks / Reference Page
11	<Lubrication Point> "SPUR GEAR, 23.2" (Gear Train)	Do not smear the "SCALE, PF" with grease. See Page 149.
	<Lubricant Type> G-26	
	<Lubrication Amount> ϕ 1 mm x 1/3 round.	
12	<Lubrication Point> Groove of "ROLLER, PF"	See Page 149.
	<Lubricant Type> G-26	
	<Lubrication Amount> ϕ 1 x 5mm	
13	<Lubrication Point> Contact point between "ROLLER, EJECT" and "GROUND SPRING, EJECT"	See Page 149.
	<Lubricant Type> G-26	
	<Lubrication Amount> ϕ 1 x 2mm	
14	<Lubrication Point> Area on the "ROLLER, PF" where the bearing for "PAPER GUIDE, REAR" comes in contact.	Apply grease while rotating the "Roller, PF Unit". See Page 149.
	<Lubricant Type> G-26	
	<Lubrication Amount> ϕ 1 x 1/2 turn	
15	<Lubrication Point> "PAPER GUIDE, FRONT" (3 places)	See Page 150.
	<Lubricant Type> G-26	
	<Lubrication Amount> ϕ 1 x 2mm (Roller Eject side) ϕ 1 x 2mm (Roller Eject side) ϕ 1 x 10mm (Roller PF side)	

Table 6-2. Lubrication Point (continued)

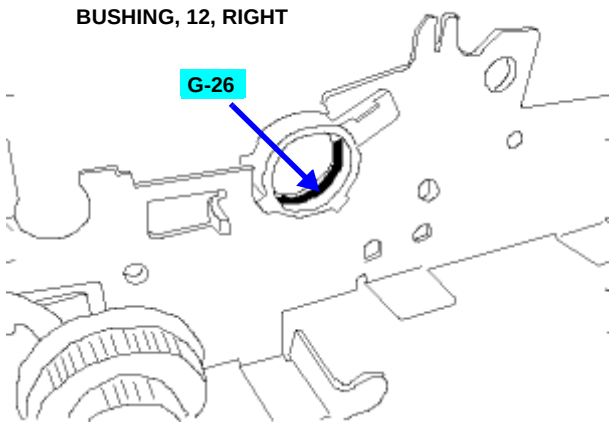
No.	Standard	Remarks / Reference Page
16	<Lubrication Point> Oil pad in the carriage assembly	Lubricate the oil pad only when: • Replacing the carriage assembly • Replacing the oil pad Use a precise syringe to apply oil. If you accidentally apply too much oil to the oil pad, throw the pad away and take a new one again. Leave the pad for a while to wait until oil is evenly infiltrated, then install it on the carriage assembly.
	<Lubricant Type> O-12	
	<Lubrication Amount> 0.72 ~ 0.77cc (0.65 ~ 0.69g) **Note:** This is the amount to be applied to a new oil pad.	
17	<Lubrication Point> Shaft for “FRAME, LEFT”	See Page 150.
	<Lubricant Type> G-26	
	<Lubrication Amount> ϕ 1 x 5mm	
18	<Lubrication Point> Inside of the right hole of “FRAME, ASF; B”	Apply grease evenly to the inside of the hole. Use a brush to apply grease. See Page 150.
	<Lubricant Type> G-26	
	<Lubrication Amount> ϕ 1 x 1mm	
19	<Lubrication Point> Left and right edges of “HOPPER ASSEMBLY; C”	Use a brush to apply grease. See Page 151.
	<Lubricant Type> G-26	
	<Lubrication Amount> 2mm-diameter ball	

Table 6-2. Lubrication Point (continued)

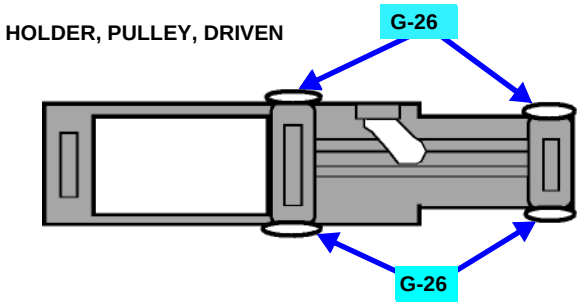
No.	Standard	Remarks / Reference Page
20	<Lubrication Point> “GUIDE PLATE, CR” (the part where the carriage slides on.)	See Page 151.
	<Lubricant Type> G-26	
	<Lubrication Amount> ϕ 1 x approx. 270mm	

WARNING

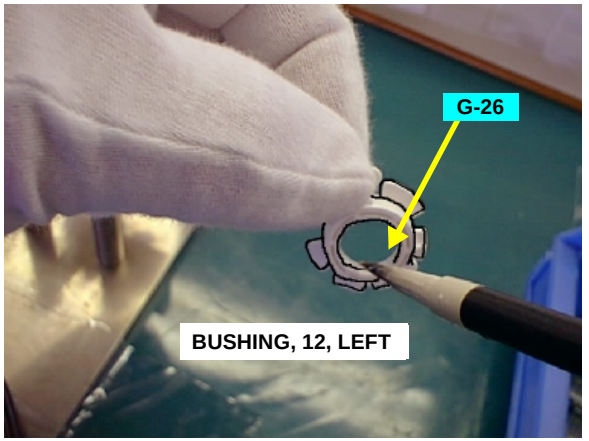
- Never apply oil to the CR guide shaft directly. This may cause fatal damage to the components of the printer.
- Avoid applying oil excessively to the oil pad. This may cause fatal damage to the components of the printer.



Lubrication Point No.1



Lubrication Point No.2



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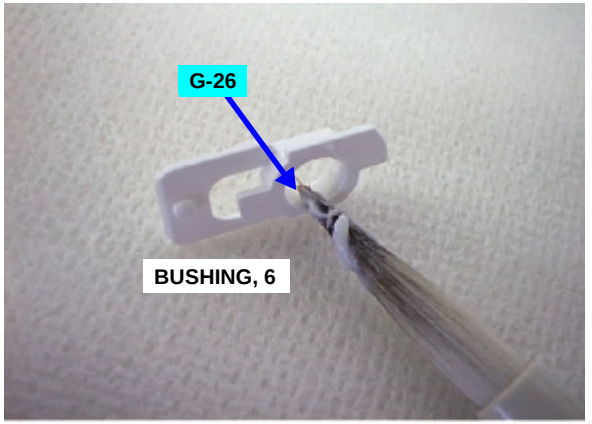

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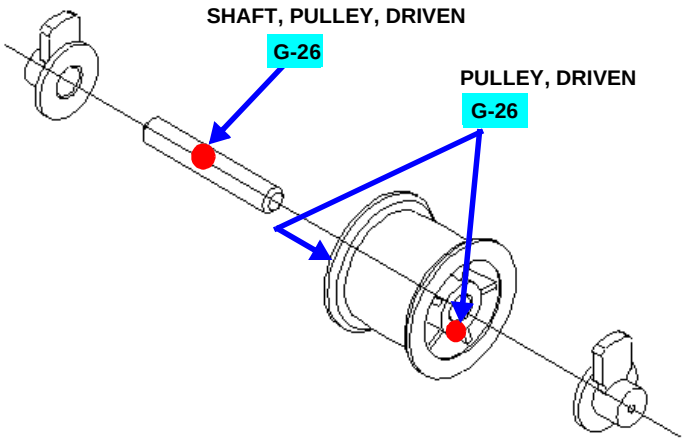

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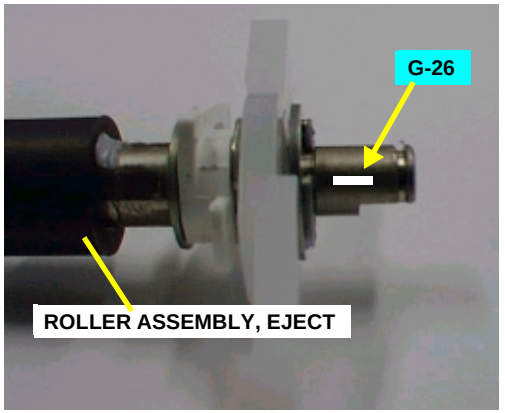

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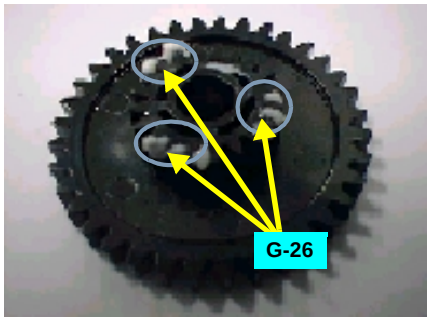
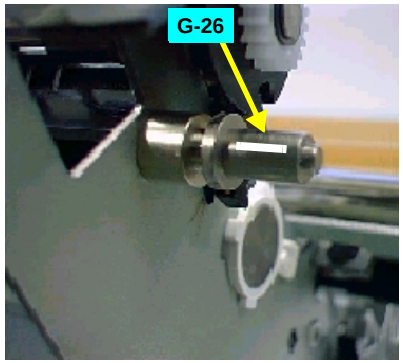


COMBINATION GEAR, 12, 28.8

Lubrication Point No. 8



FRAME, MIDDLE

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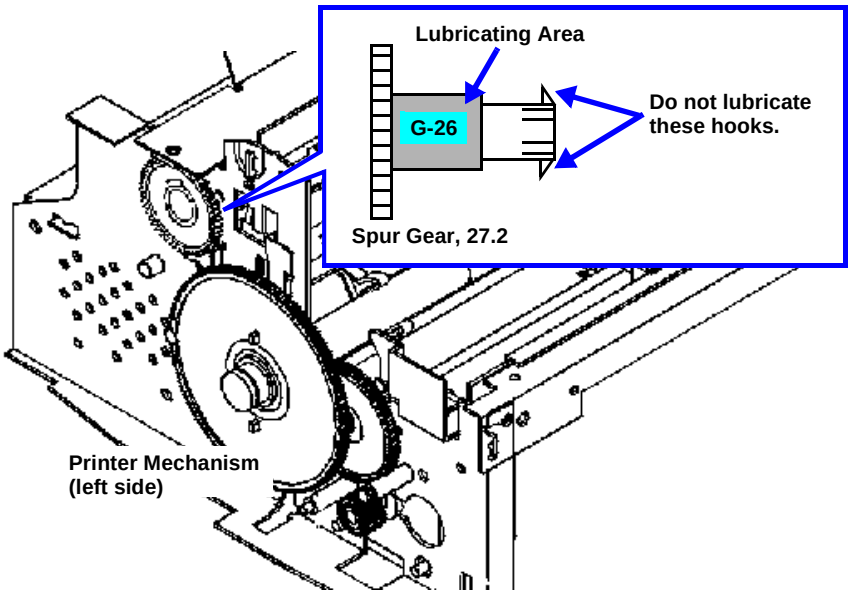

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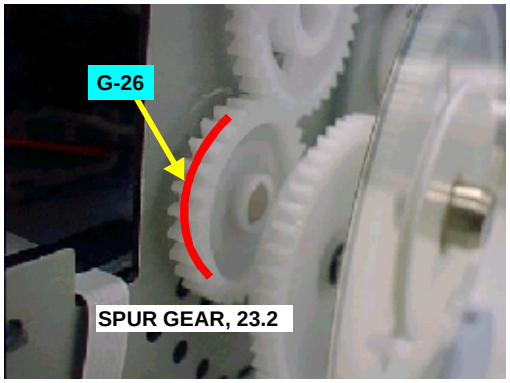

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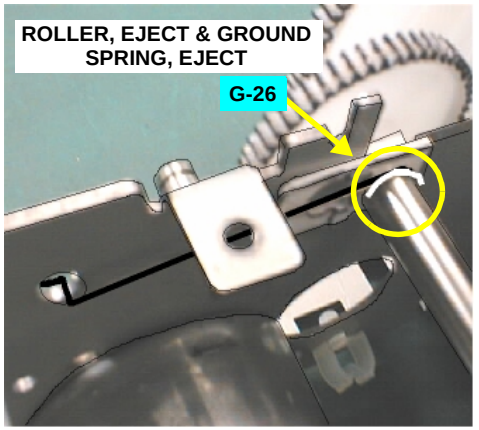

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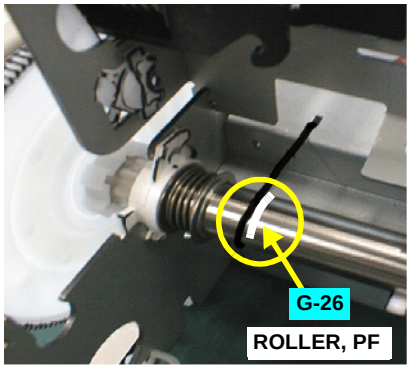

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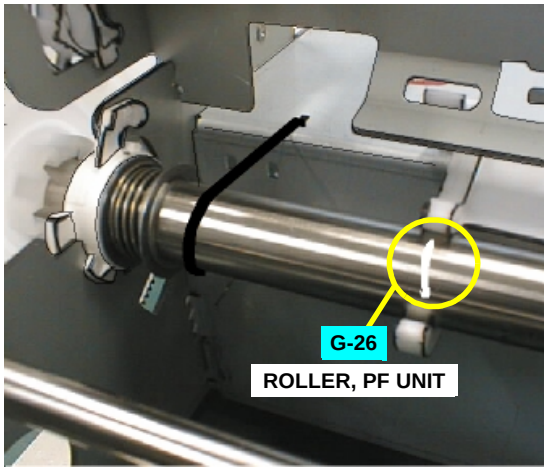

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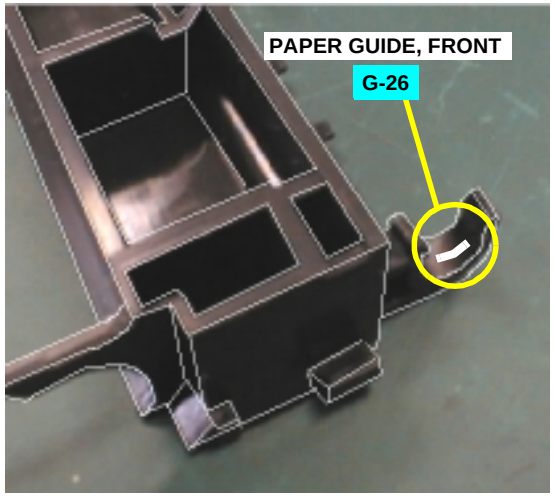

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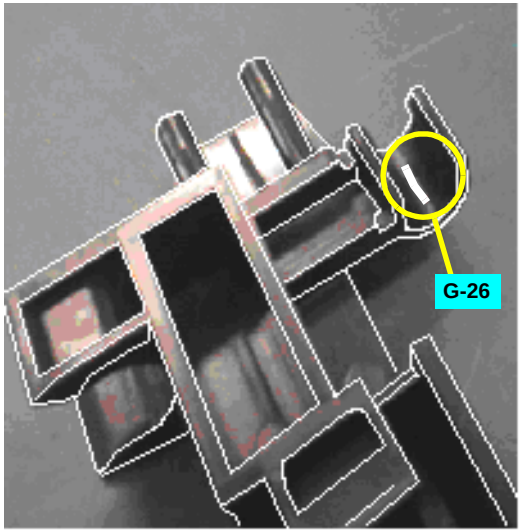

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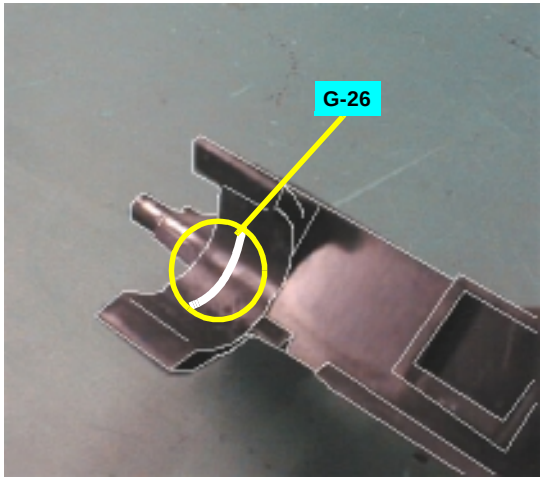

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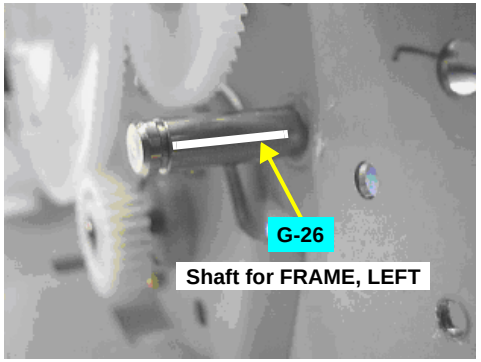

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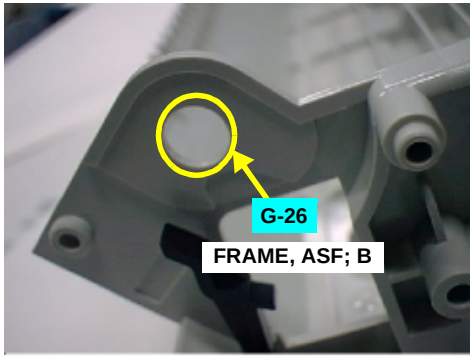

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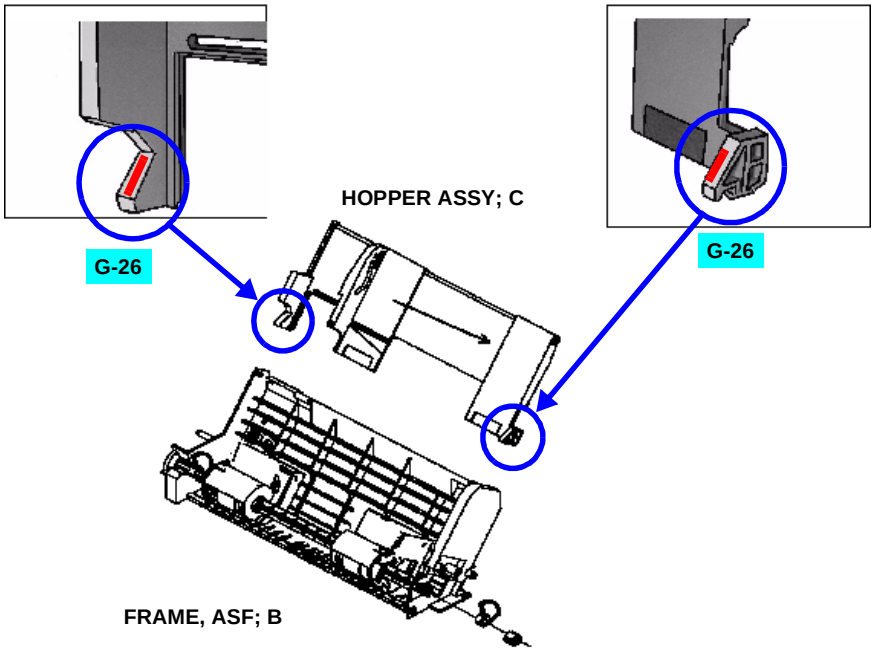

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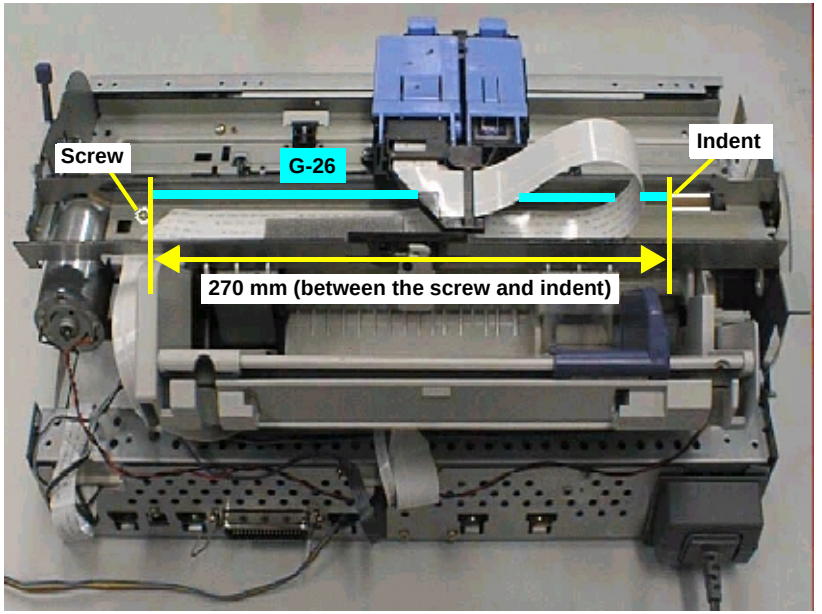


Lubrication Point No. 20

CHAPTER

7

APPENDIX

7.1 Connector Summary

This section gives information on connectors and their pin assignment.

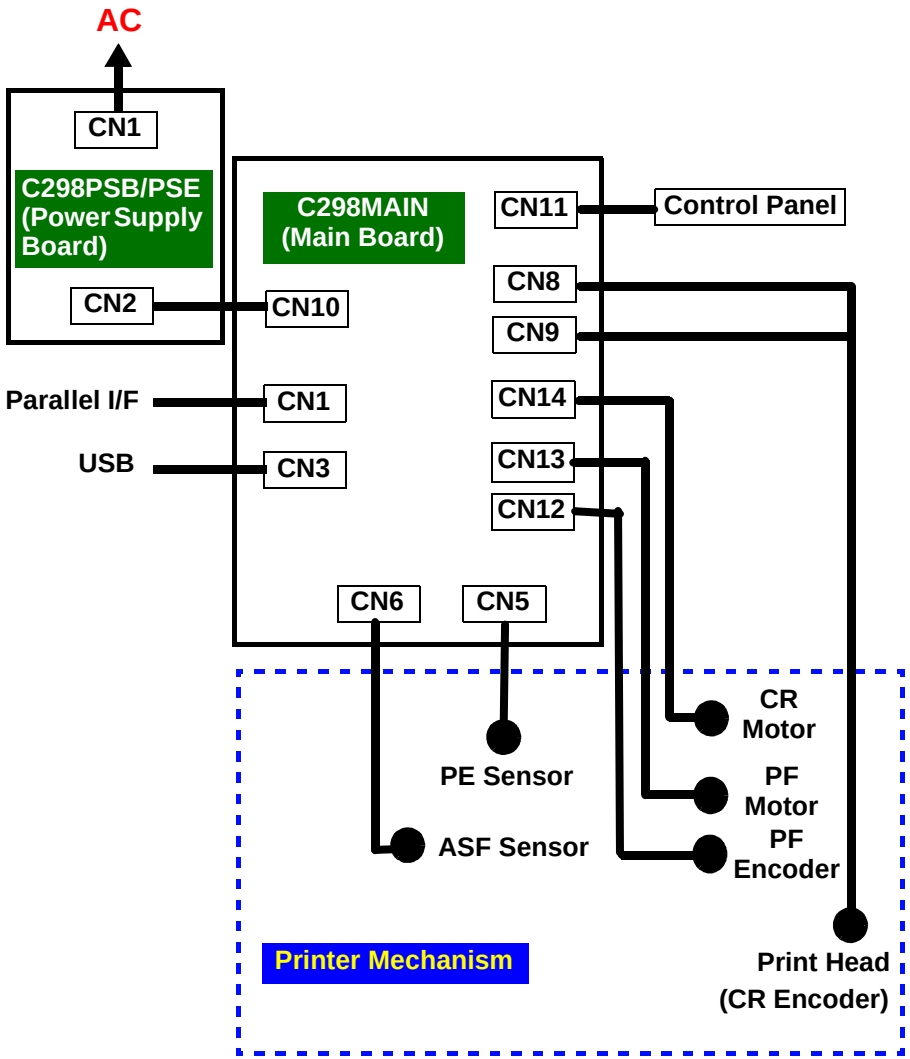


Figure 7-1. Cable Connection of Stylus Color 760

7.1.1 Connector Pin Assignment

Tables below show connector pin assignments of the C298MAIN.

Table 7-1. Connector Summary of C298MAIN

Connector	Function	Reference
CN1	Parallel I/F Connector	
CN3	USB Connector	
CN5	To PE Sensor	Table 7-2
CN6	To ASF Sensor	Table 7-3
CN8	To Print Head (including CR Encoder)	Table 7-4
CN9	To Print Head	Table 7-5
CN10	To Power Supply Board	Table 7-6
CN11	To Control Panel	Table 7-7
CN12	To PF Encoder	Table 7-8
CN13	To PF Motor	Table 7-9
CN14	To CR Motor	Table 7-10

Table 7-2. Connector CN5

Pin	Signal Name	I/O	Function
1	PE	In	Sensor detect signal
2	GND	---	Ground
3	PEV	---	Sensor power supply (+5V)

Table 7-3. Connector CN6

Pin	Signal Name	I/O	Function
1	ASF	In	Sensor detect signal
2	GND	---	Ground
3	ASFV	---	Sensor power supply (+5V)

Table 7-4. Connector CN8

Pin	Signal Name	I/O	Function
1	GND	---	Ground
2	ENB	In	CR Encoder B phase
3	VDD	---	Logic power supply (+5V)
4	ENA	In	CR Encoder A phase
5	GND	---	Ground
6	GND	---	Ground
7	LAT	Out	Head data latch pulse output
8	GND	---	Ground
9	CH	Out	Waveform selection signal for MS/ Variable shot
10	GND	---	Ground
11	VDD	---	Logic power supply (+5V)
12	GND	---	Ground
13	VHV	---	+42V power supply for Nozzle Selector
14	GND2	---	Ground
15	GND2	---	Ground
16	GND2	---	Ground
17	GND2	---	Ground
18	COM	---	Head drive pulse (trapezoid waveform)
19	COM	---	Head drive pulse (trapezoid waveform)
20	COM	---	Head drive pulse (trapezoid waveform)
21	COM	---	Head drive pulse (trapezoid waveform)

Table 7-5. Connector CN9

Pin	Signal Name	I/O	Function
1	GND	---	Ground
2	GND	---	Ground
3	NCHG	Out	All nozzle fire selection signal
4	GND	---	Ground
5	GND	---	Ground
6	SCK	Out	Serial clock
7	SP	Out	Select signal for CH signal
8	SI6	Out	Print data output (6)
9	SI5	Out	Print data output (5)
10	SI4	Out	Print data output (4)
11	SI3	Out	Print data output (3)
12	SI2	Out	Print data output (2)
13	SI1	Out	Print data output (1)
14	NC	---	---
15	GND	---	Ground
16	THM	In	Thermistor detect signal
17	COC	In	Color I/C detection signal
18	COB	In	Black I/C detection signal

Table 7-6. Connector CN10

Pin	Signal Name	I/O	Function
1	+42V	---	Mechanism drive power supply
2	+42V	---	Mechanism drive power supply
3	GND	---	Ground
4	ESAVE		

Table 7-6. Connector CN10

Pin	Signal Name	I/O	Function
5	PSC	Out	Power supply switch output signal
6	GND	---	Ground
7	GND	---	Ground
8	+5V	---	Logic power supply

Table 7-7. Connector CN11

Pin	Signal Name	I/O	Function
1	SW2	In	Panel switch on/off (2)
2	SW0	In	Panel switch on/off (0)
3	PSC	In	Power on/off switch
4	SW1	In	Panel switch input (1)
5	LED3	Out	LED drive signal (3)
6	+5V	----	Logic power supply
7	+5V	----	Logic power supply
8	LED2	Out	LED drive signal (2)
9	GND	----	Ground
10	LED1	Out	LED drive signal (1)
11	GND	----	Ground
12	LED0	Out	LED drive signal (0)

Table 7-8. Connector CN12

Pin	Signal Name	I/O	Function
1	GND	----	Ground
2	ENB	In	B phase signal

Table 7-8. Connector CN12

Pin	Signal Name	I/O	Function
3	VCC	---	Logic power supply (+5V)
4	ENA	In	A phase signal
5	GND	----	Ground

Table 7-9. Connector CN13

Pin	Signal Name	I/O	Function
1	PFA	Out	Phase drive signal (A)
2	PFB	Out	Phase drive signal (B)

Table 7-10. Connector CN14

Pin	Signal Name	I/O	Function
1	CRA	Out	Phase drive signal (A)
2	CRB	Out	Phase drive signal (B)

7.1.2 EEPROM ADDRESS MAP

This section provides EEPROM address map for the Stylus COLOR 760.

Table 7-11. EEPROM Address Map

Address	Explanation	Settings	QPIT Settings	Factory Settings
00H	Password		0FH	-
01H			5AH	-
02H	EEPROM mapping revision		42H	-
03H	Reserved		00H	-
04H	Interface selection	0: Auto 1: Parallel 3: USB	00H	00H*2
05H	Interface time-out	0 to 255 (by second, value of 0 means 10 seconds)	0AH	0AH
06H	Compatibility speed	0: Fast 1: Slow 2: Special-1 3: Special-2	00H	00H
07H	ECP speed *a	0: Fast 1: Slow	00H	00H
08H	IEEE1284.4 for Parallel	0: Auto 1: On 2: Off	00H	01H
09H	IEEE1284.4 for USB	0: Auto 1: On 2: Off	00H	01H
0AH	I/F Control flags	bit1: ECP mode (0=Off, 1=On) *b bit0: IEEE1284 mode (0=On, 1=Off) *c	00H	00H
0BH	Reserved		00H	-
0CH	Reserved		00H	-
0DH	Reserved		00H	-
0EH	Reserved		00H	-

Table 7-11. EEPROM Address Map (continued)

Address	Explanation	Settings	QPIT Settings	Factory Settings
0FH	Reserved		00H	-
10H	CPSI password		00H	00H
11H	CPSI password		00H	00H
12H	CPSI password		00H	00H
13H	CPSI password		00H	00H
14H	CPSI password		00H	00H
15H	CPSI password		00H	00H
16H	Print direction control	0: Bi-D 1: Uni-D 2: Auto	02H	02H
17H	CG table	0: PC 437 1: PC 850	00H	00H
18H	Font	0: Courier	00H	00H
19H	Pitch	0: 10cpi	00H	00H
1AH	Auto LF, Network I/F mode	bit1: Network I/F mode (0=Off, 1=On) bit0: Auto line feed (0=Off), 1=On)	00H	00H
1BH	Check mode control	bit7: Self test mode bit6: Hex dump mode	00H	00H
1CH	Reserved		00H	-
1DH	Reserved		00H	-
1EH	Reserved		00H	-
1FH	Reserved		00H	-
20H	Bi-D Adjustment for MultiShot (Bk)	-36<=n<=+36 (by 1/1440 inch)	00H	(*1)
21H	Bi-D Adjustment for 6plVSD (Bk)	-36<=n<=+36 (by 1/1440 inch)	00H	(*1)

Table 7-11. EEPROM Address Map (continued)

Address	Explanation	Settings	QPIT Settings	Factory Settings
22H	Bi-D Adjustment for 4plVSD (Bk)	-36<=n<=+36 (by 1/1440 inch)	00H	(*1)
23H	Bi-D Adjustment for MultiShot (Cl)	-36<=n<=+36 (by 1/1440 inch)	00H	(*1)
24H	Bi-D Adjustment for 6plVSD (Cl)	-36<=n<=+36 (by 1/1440 inch)	00H	(*1)
25H	Bi-D Adjustment for 4plVSD (Cl)	-36<=n<=+36 (by 1/1440 inch)	00H	(*1)
26H	1stDot Position Adjustment	-36<=n<=+36 (by 1/1440 inch)	00H	(*1)
27H	Reserved		00H	-
28H	Reserved		00H	-
29H	Reserved		00H	-
2AH	Roll paper flag	bit1: Panel Load Mode bit0: Rollpaper Mode	00H	00H
2BH	Error Code		00H	00H
2CH	PF Measurement Data		00H	00H
2DH	Reserved		00H	-
2EH	Reserved		00H	-
2FH	Reserved		00H	-
30H	Top margin	42 to 44 x 360 (by 1/360 inch)	00H	00H
31H			78H	78H
32H	Bottom margin	1244 to 44 x 360 (by 1/360 inch)	1EH	1EH
33H			F0H	F0H
34H	Page length	1244 to 44 x 360 (by 1/360 inch)	1EH	1EH
35H			F0H	F0H

Table 7-11. EEPROM Address Map (continued)

Address	Explanation	Settings	QPIT Settings	Factory Settings
36H	Reserved		00H	-
37H			00H	-
38H	Reserved		00H	00H
39H			00H	00H
3AH			00H	00H
3BH			00H	00H
3CH	Reserved		00H	-
3DH			00H	-
3EH	Reserved		00H	-
3FH			00H	-
40H	Password		0FH	-
41H			5AH	-
42H	Ink flag 1	bit7: Reserved bit6: Black one-time bit5: Color one-time bit4: Initial fill required bit3: Reserved bit2: Ink cleaning seq. bit1: Reserved bit0: Reserved	00H	10H
43H	Ink flag2	bit2: YMC cartridge changed and cleaned bit1: Black cartridge changed and cleaned bit0: Black cartridge changed and cleaned	00H	00H

Table 7-11. EEPROM Address Map (continued)

Address	Explanation	Settings	QPIT Settings	Factory Settings
44H	Ink counter Cb		00H	00H
45H			00H	00H
46H			00H	00H
47H			00H	00H
48H	Ink counter Cy		00H	00H
49H			00H	00H
4AH			00H	00H
4BH			00H	00H
4CH	Ink counter Cm		00H	00H
4DH			00H	00H
4EH			00H	00H
4FH			00H	00H
50H	Ink counter Cc		00H	00H
51H			00H	00H
52H			00H	00H
53H			00H	00H
54H	Reserved		00H	00H
55H			00H	00H
56H			00H	00H
57H			00H	00H
58H	Reserved		00H	00H
59H			00H	00H
5AH			00H	00H
5BH			00H	00H

Table 7-11. EEPROM Address Map (continued)

Address	Explanation	Settings	QPIT Settings	Factory Settings
5CH	Ink counter A0		00H	00H *3
5DH			00H	00H
5EH	Reserved		00H	00H
5FH			00H	00H
60H	Ink counter Rb0		00H	00H
61H			00H	00H
62H	Ink counter Rb80		00H	00H
63H			00H	00H
64H	Ink counter Ry0		00H	00H
65H			00H	00H
66H	Ink counter Rv80		00H	00H
67H			00H	00H
68H	CL time		00H	-
69H			00H	-
6AH	Reserved		00H	00H
6BH			00H	00H
6CH	Power off time		00H	00H*2
6DH			00H	00H*2
6EH	Reserved		00H	00H
6FH			00H	00H
70H	Accumulated printing time		00H	00H
71H			00H	00H

Table 7-11. EEPROM Address Map (continued)

Address	Explanation	Settings	QPIT Settings	Factory Settings
72H	Reserved		00H	00H
73H			00H	00H
74H			00H	00H
75H			00H	00H
76H			00H	00H
77H			00H	00H
78H			00H	00H
79H			00H	00H
7AH			00H	00H
7BH			00H	00H
7CH			00H	00H
7DH			00H	00H
7EH			00H	00H
7FH			00H	00H
80H	Password		0FH	-
81H			5AH	-
82H	Reserved		00H	-
|			|	|
9FH			00H	-
A0H	Head Actuator Rank ID for VhN	+1<=n<=+32	00H	(*1)
A1H	Head Actuator Rank ID for Vhu	+1<=n<=+40	00H	(*1)
A2H	Head Actuator Rank ID for VhL	+1<=n<=+37	00H	(*1)

Table 7-11. EEPROM Address Map (continued)

Address	Explanation	Settings	QPIT Settings	Factory Settings
A3H	Head Actuator Rank ID for VhU	+1<=n<=+43	00H	(*1)
4AH	Head Actuator Rank ID for VhM2	+1<=n<=+37	00H	(*1)
A5H	Head Actuator Rank ID for VhB	+1<=n<=+37	00H	(*1)
A6H	Head Actuator Rank ID for AR	0<=n<=+6	00H	(*1)
A7H	Microweave ID	+1<=n<=+9	00H	(*1)
A8H	Head Actuator Rank ID for IwB	+30<=n<=+70	00H	(*1)
A9H	Head Actuator Rank ID for IwC	+30<=n<=+70	00H	(*1)
AAH	Head Actuator Rank ID for IwM	+30<=n<=+70	00H	(*1)
ABH	Head Actuator Rank ID for IwY	+30<=n<=+70	00H	(*1)
ACH	Head Actuator Rank ID for IwLC	+30<=n<=+70	00H	(*1)
ADH	Head Actuator Rank ID for IwLM	+30<=n<=+70	00H	(*1)
AEH	Reserved		00H	-
|			|	|
BFH			00H	-
C0H	Password		0FH	-
C1H			5AH	-

Table 7-11. EEPROM Address Map (continued)

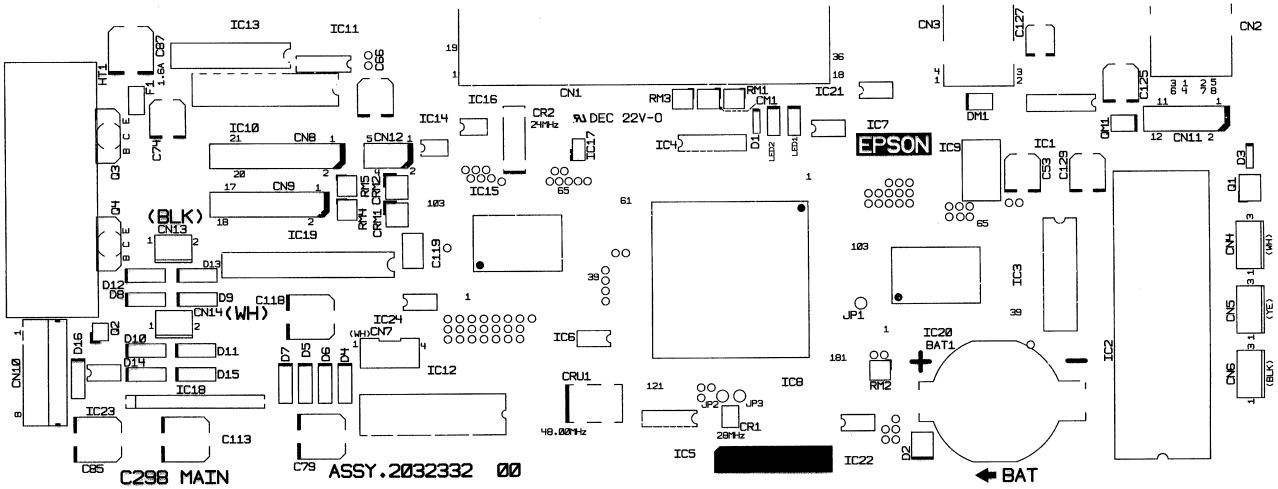
Address	Explanation	Settings	QPIT Settings	Factory Settings
C2H	USB ID		00H	(*1)
|			|	|
D3			00H	(*1)
D4	Reserved		00H	-
|			|	|
D7H			00H	-
D8H	Custom EEPROM sub number		00H	00H
D9H			00H	00H
DAH			00H	00H
DBH			00H	00H
DCH	Panel mask function	bit7: Entry Self-Test bit6: Entry Hex-Dump bit5: Extended settings bit4: Reserved bit3: Reserved bit2: Cleaning bit1: Replace I/C bit0: Load/Eject	00H	00H
DDH	Reserved		00H	-
DEH			00H	-
DFH			00H	-
E0H	Market ID	0:STD 2:Custom	00H	00H
E1H	Reserved		00H	-
E2H	Model Name		00H	-
|			|	|
FFH			00H	-

NOTE: **a: BUSY signal delay time from fall-edge of a -STB signal. (Fast:Max, 1MB/s, Slow:Max, 600KB/s)*
**b: Select IEEE1284 transfer mode. (ECP or Nibble)*
**c: Enable or disable reverse transfer (when disabled, ignore -SLIN signal).*

**1: Adjusted at factory.*
**2: Initialized after performed panel initialization of EEPROM.*
**3: Initialized after performed panel initialization of the ink overflow counter in EEPROM.*

7.2 Circuit Board Component Layouts

Component Side



Soldered Side

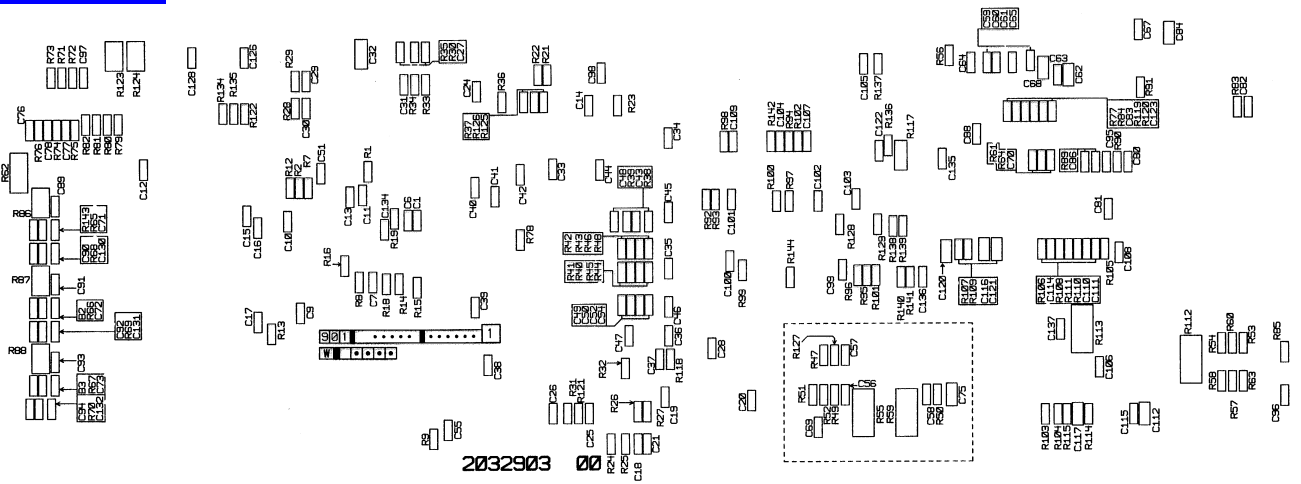


Figure 7-2. C298MAIN Component Layout

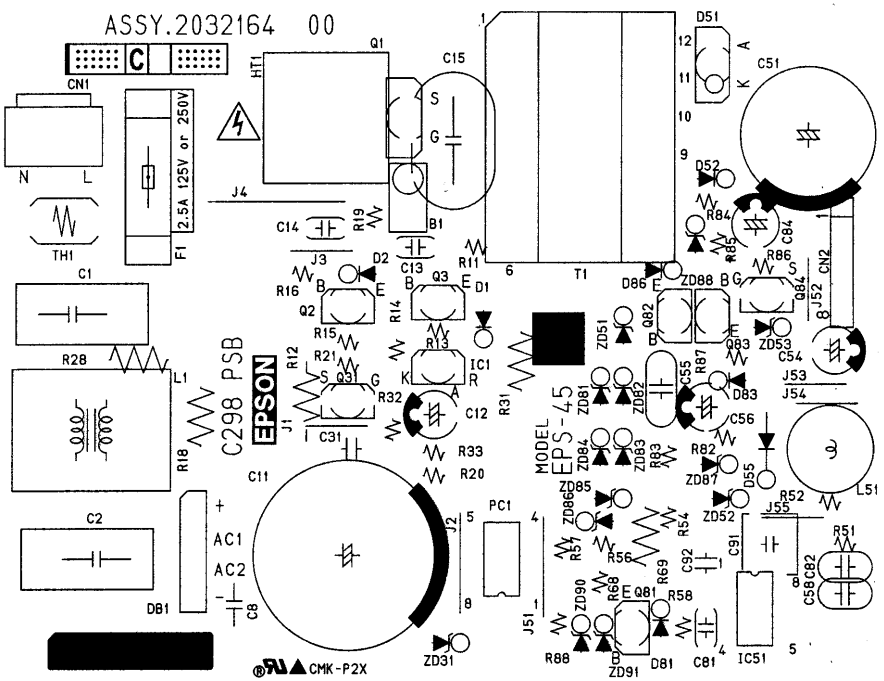


Figure 7-3. C298PSB Component Layout

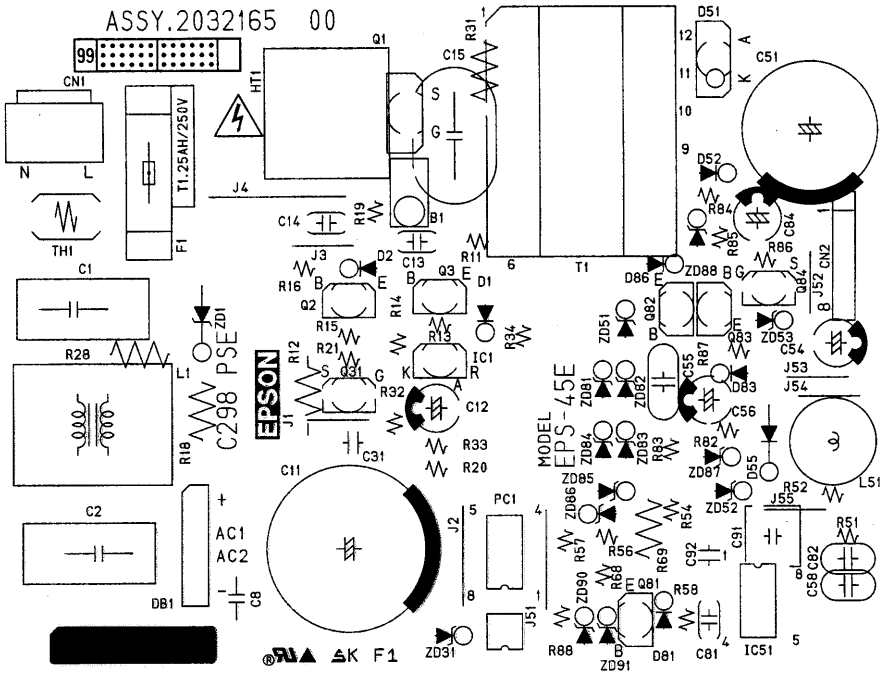


Figure 7-4. C298PSE Component Layout

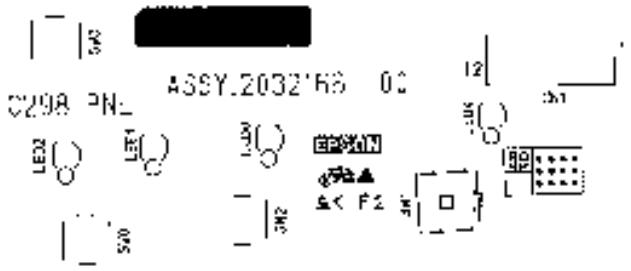
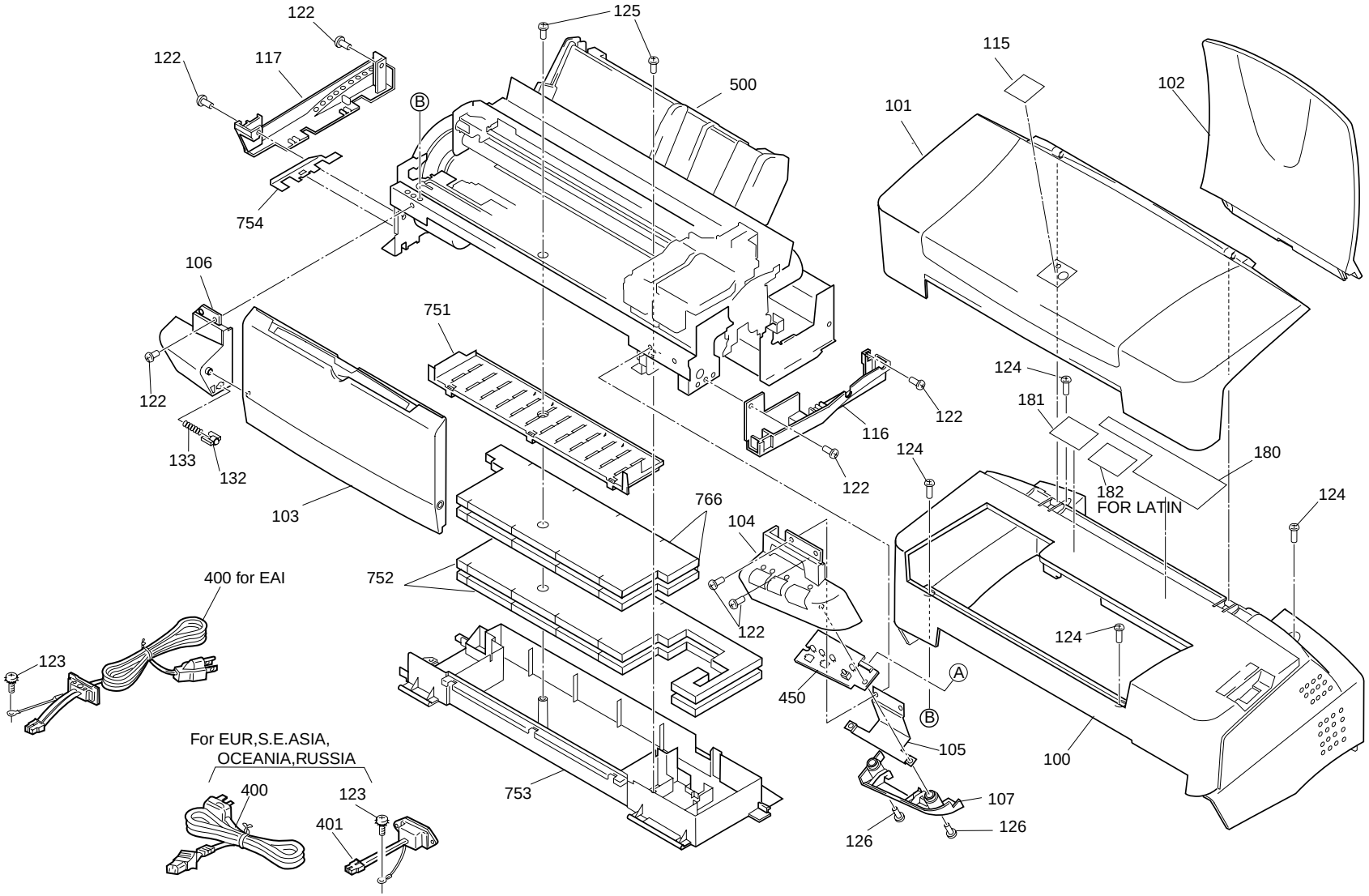
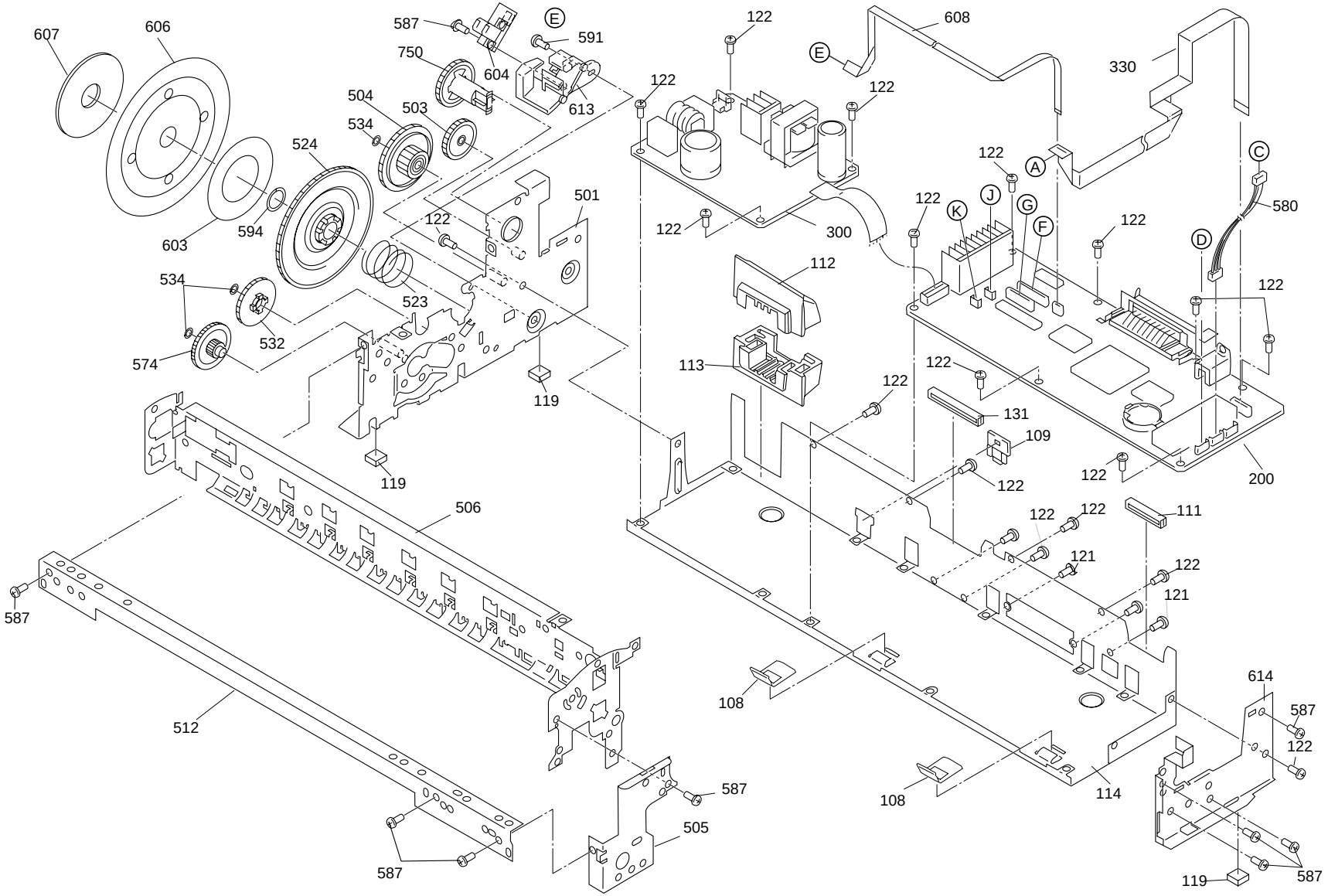


Figure 7-5. C298PNL Component Layout

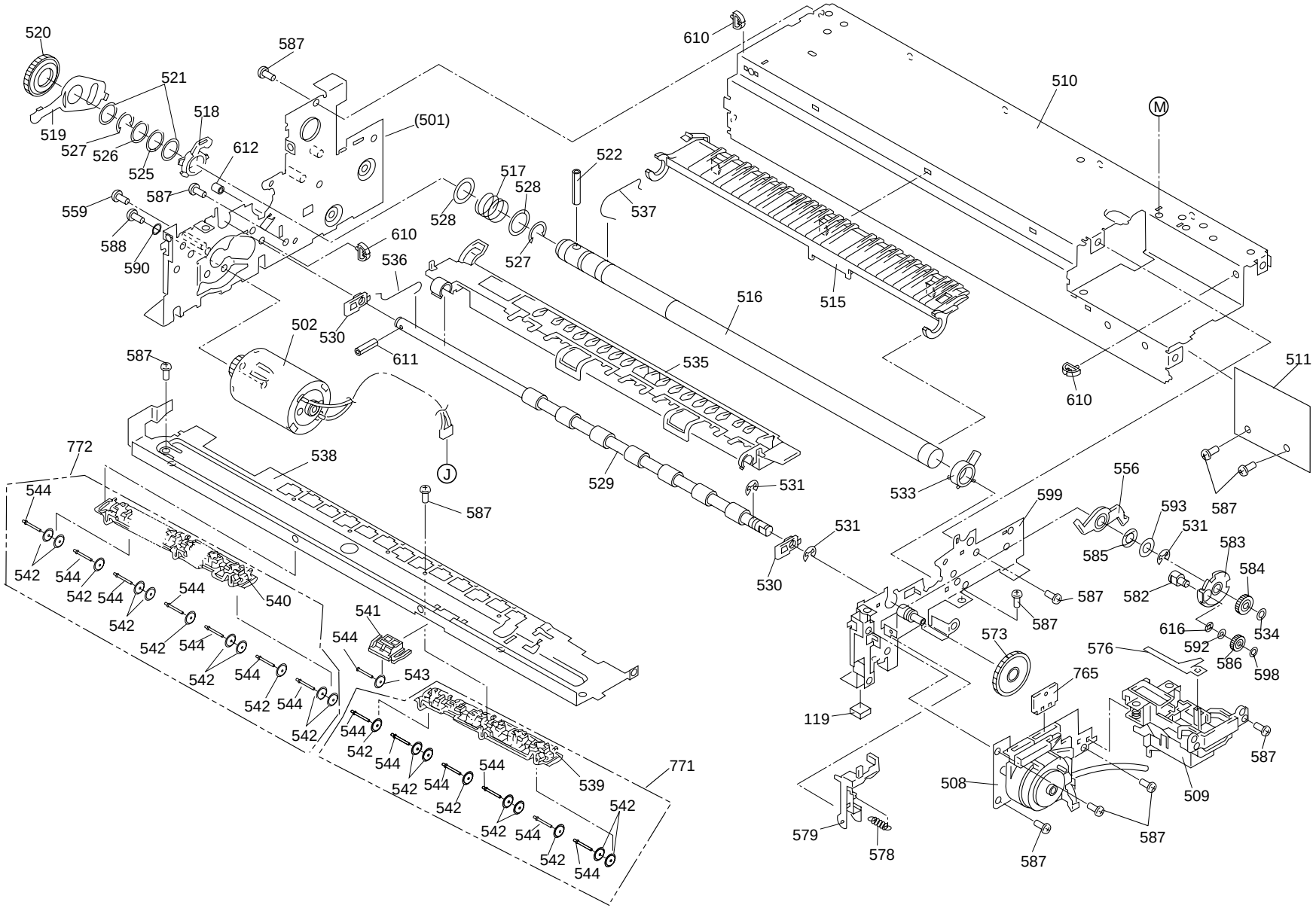
7.3 Exploded Diagram



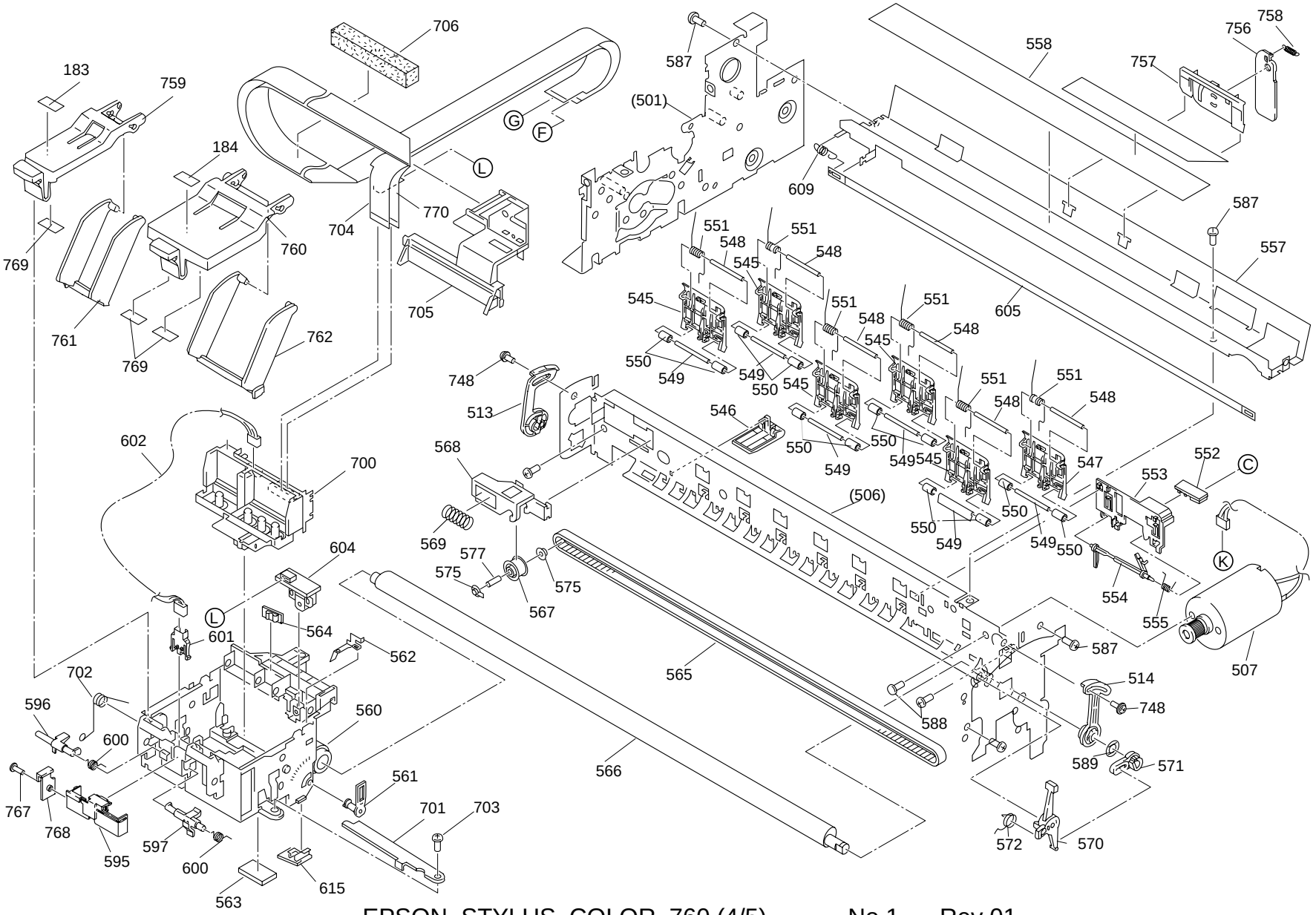
EPSON STYLUS COLOR 760 (1/5) No.1 Rev.01



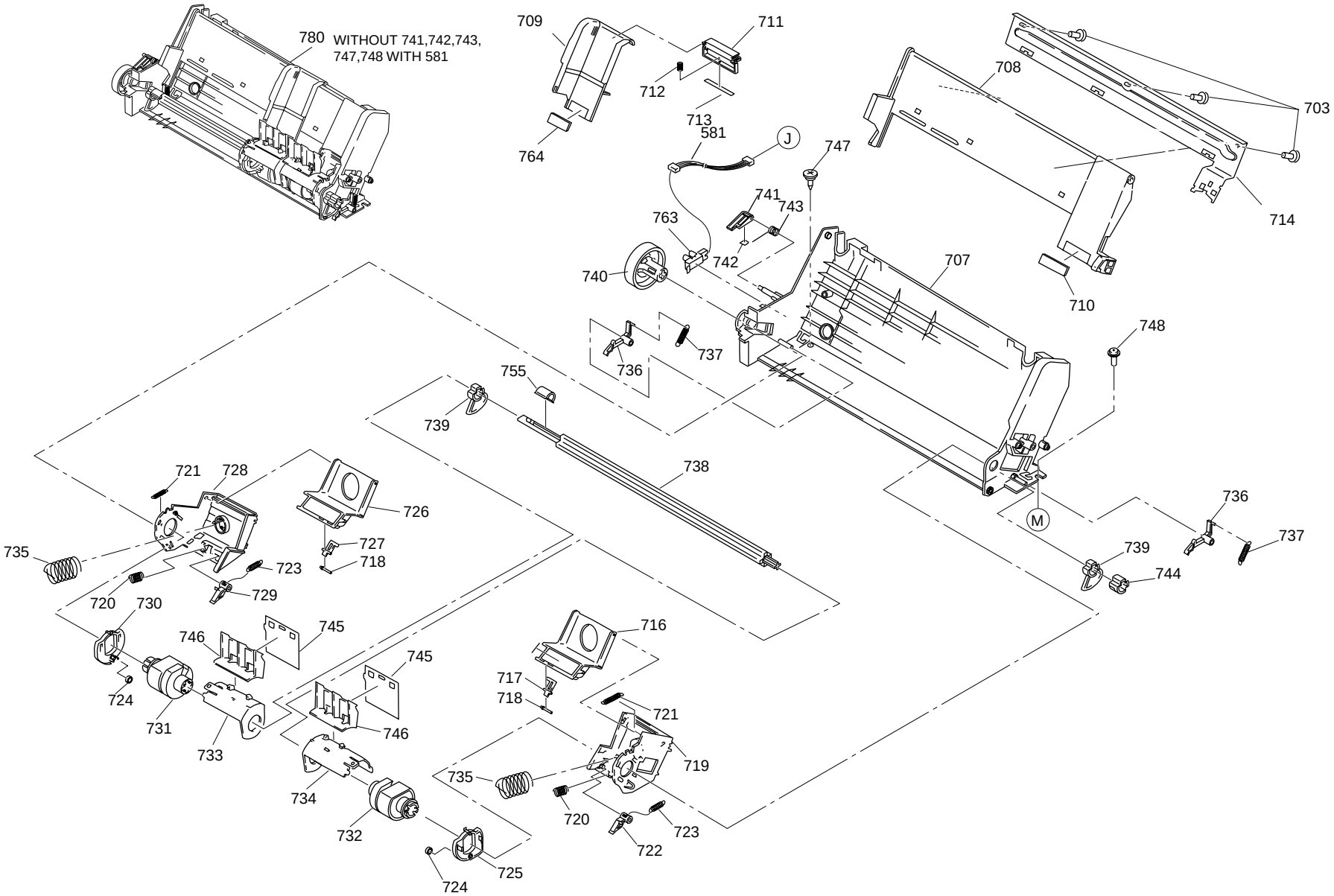
EPSON STYLUS COLOR 760 (2/5) No.1 Rev.01



EPSON STYLUS COLOR 760 (3/5) No.1 Rev.01



EPSON STYLUS COLOR 760 (4/5) No.1 Rev.01



EPSON STYLUS COLOR 760 (5/5) No.1 Rev.01

7.4 Parts List

Table 7-12. Parts List

Code	Parts Name	Code	Parts Name	Code	Parts Name
100	HOUSING	133	COMPRESSION SPRING, 2.94	516	ROLLER, PF
101	COVER, PRINTER	180	LABEL, CAUTION 1	517	COMPRESSION SPRING, 5.85
102	PAPER SUPPORT ASSEMBLY	181	LABEL, ACCESSORY	518	BUSHING, 12, LEFT
103	STACKER ASSEMBLY	183	LABEL, LEVER CARTRIDGE, BK	519	LEVER, CHANGE
104	PANEL ASSEMBLY	184	LABEL, LEVER CARTRIDGE, CL	520	SPUR GEAR, 26.4
105	SHIELD PLATE, PANEL	200	BOARD ASSEMBLY, MAIN	521	SPACER, C-RING
106	HOUSING, PANEL, LEFT	300	BOARD ASSEMBLY, POWER SUPPLY	522	SCALLOP SP-AW, 2×16, F/B
107	HOUSING, PANEL, RIGHT, SUB	330	HARNESS	523	COMPRESSION SPRING, 0.9
108	GROUNDING PLATE	400	POWER CABLE ASSEMBLY	524	SPUR GEAR, 76
109	COVER, SHIELD PLATE, M/B, RIGHT	450	BOARD ASSEMBLY, PANEL	525	SPACER, FIXING, ROLLER, PF
111	COVER, CABLE	500	PRINTER MECHANISM (ASP) M4Q10-100	526	SPACER, FIXING, ROLLER, PF; B
112	COVER, INLET, UPPER; B	501	FRAME ASSEMBLY, LEFT	527	CRESCENT RING
113	COVER, INLET, LOWER; B	502	MOTOR ASSEMBLY, PF	528	PLAIN WASHER, 12.2×0.5×17, S/NA
114	SHIELD PLATE, M/B	503	SPUR GEAR, 23.2	529	ROLLER ASSEMBLY, PAPER EJECT
115	LOGO PLATE	504	COMBINATION GEAR, 16, 40.8	530	BUSHING, 6
116	HOUSING, SUB, RIGHT	505	FRAME, RIGHT, FRONT	531	RETAINING RING, TYPE-E (4)
117	HOUSING, SUB, LEFT	506	FRAME, TOP	532	SPUR GEAR, 36
119	FOOT	507	MOTOR ASSEMBLY, CR	533	BUSHING, 12, RIGHT
121	CP SCREW, M3×6	508	PUMP ASSEMBLY	534	PLAIN WASHER, 4.1×0.5×6.5
122	CBS-TITE SCREW, M3×6	509	CAP ASSEMBLY; B	535	PAPER GUIDE, FRONT
123	CB (O) SCREW, 4×5, F/ZG	510	FRAME, BOTTOM	536	GROUNDING SPRING, PAPER EJECT
124	CBS-TITE SCREW, M3×10	511	SHEET, PROTECTION, INK	537	EARTH SPRING, PF
125	CBP-TITE SCREW, M3×8, F/ZN	512	FRAME, FRONT	538	FRAME, PAPER EJECT
126	CBP-TITE SCREW, M3×10, F/ZN	513	BUSHING, PARALLELISM ADJUSTMENT, LEFT	539	HOLDER, STAR WHEEL, RIGHT
131	COVER, CABLE; B	514	BUSHING, PARALLELISM ADJUSTMENT,RIGHT	540	HOLDER, STAR WHEEL, LEFT
132	LOCK, STACKER	515	PAPER GUIDE, REAR	541	HOLDER, START WHEEL, FRONT

Table 7-12. Parts List (continued)

Code	Parts Name	Code	Parts Name	Code	Parts Name
542	START WHEEL ASSEMBLY, 8; E	570	LEVER, PG	598	PLAIN WASHER, 2.1×0.5×4.6, L/NA
543	STAR WHEEL, 8; B	571	LEVER, PG, SUB	599	FRAME ASSEMBLY, MIDDLE
544	BAR SPRING, STAR WHEEL	572	TORSION SPRING, 63.7	600	TORSION SPRING, 1.08
545	PAPER GUIDE, UPPER	573	COMBINATION GEAR, 12.4, 28	601	DETECTOR, I/C
546	PAPER GUIDE, LEFT	574	COMBINATION GEAR, 13.5, 30	602	HARNESS, I/C
547	PAPER GUIDE, RIGHT	575	BUSHING, PULLEY, DRIVEN	603	TAPE, D50
548	SHAFT, PAPER GUIDE, UPPER	576	ABSORBER, SLIDER, CAP	604	BOARD ASSEMBLY, ENCODER
549	SHAFT, ROLLER, DRIVEN	577	SHAFT, PULLEY, DRIVEN	605	SCALE, CR
550	ROLLER, DRIVEN; D	578	TENSION SPRING, 0.21	606	SCALE, PF
551	TORSION SPRING, 117.6	579	LEVER, PLANETARY, LOCK	607	MOUTING PLATE, SCALE
552	BOARD ASSEMBLY, PE	580	HARNESS, PE	608	FFC, ENCODER
553	HOLDER, PE	581	HARNESS, ASF	609	TENSION SPRING, 1.494
554	LEVER, PE	582	SHAFT, SPUR GEAR, PLANETARY	610	MINI CLAMP, UAMS-05 SN
555	TORSION SPRING, 0.22	583	LEVER, PLANETARY, PUMP	611	SCALLOP SP-AW, 2×10, F/B
556	LEVER, CR, LOCK	584	SPUR GEAR, 10.8	612	STOPPER, LEVER, CHANGE
557	GUIDE PLATE, CR	585	U SHAPE SPRING, 5.2×0.13×10, S/NA	613	MOUNTING PLATE, BOARD ASSEMBLY
558	SHEET, CABLE	586	SPUR GEAR, 8.4	614	FRAME, RIGHT, REAR
559	SCREW, MOUNTING, PF	587	CBS-TITE SCREW, M3×6	615	PLATE, SLIDE, CLEANER
560	CARRIAGE ASSEMBLY; B	588	CP SCREW, M3×6	616	U SHAPE SPRING, 3.4×0.1×6.4, S/NA
561	LEVER, ADJUST	589	LEAF SPRING, 6.2×0.15×11	700	PRINTHEAD, IJ288-0C0
562	GROUNDING PLATE, CR	590	PLAIN WASHER, 3.3×0.5×8, F/UC	701	FASTENER, HEAD
563	OIL PAD	591	CBP-TITE SCREW, 2.5×5, F/Zn	702	TORSION SPRING, 49
564	SLIDER, CR	592	PLAIN WASHER, 3.1×0.2×6.5, S/NA	703	CBP-TITE SCREW, 3×6, F/ZN
565	TIMING BELT	593	PLAIN WASHER, 5.1×0.7×11, S/NA	704	CABLE, HEAD, A
566	SHAFT, CR, GUIDE	594	PLAIN WASHER, 10.7×0.5×15.5, L/NA	705	HOLDER, CABLE
567	PULLEY, DRIVEN	595	HOLDER, DETECTOR, I/C	706	SPACER, CABLE HEAD
568	HOLDER, PULLEY, DRIVEN	596	LEVER, DETECTOR, I/C, BK	707	FRAME, ASF; B
569	COMPRESSION SPRING, 23.52	597	LEVER, DETECTOR, I/C, CL	708	HOPPER

Table 7-12. Parts List (continued)

Code	Parts Name	Code	Parts Name	Code	Parts Name
709	EDGE GUIDE	738	SHAFT, ROLLER, LD	767	CPB-TITE (O) SCREW, 1.7×5, F/ZN
710	CORK	739	LEVER, HOPPER, RELEASE	768	BUSHING, HOLDER, DETECTOR, I/C
711	SLIDER, EDGE GUIDE	740	WHEEL, DETECTION	769	SPACER, COVER CARTRIDGE
712	COMPRESSION SPRING, 3.23	741	LEVER, BRAKE	770	CABLE, HEAD, B
713	PAD, BRAKE, EDGE GUIDE	742	PAD, BRAKE	771	HOLDER ASSEMBLY, STAR WHEEL, RIGHT, ASP
714	REINFORCING PLATE, HOPPER	743	TORSION SPRING, 41.2	772	HOLDER ASSEMBLY, STAR WHEEL, LEFT, ASP
716	PAD ASSY., RIGHT	744	BUSHING, FIXING, SHAFT	780	ASF UNIT;C
717	LEVER, PAD, RELEASE, RIGHT	745	SHEET, PAPER FEED		
718	BAR SPRING, HOLDER, PAD	746	HOLDER, SHEET, PAPER FEED		
719	HOLDER, EDGE GUIDE, RIGHT	747	SHAFT, MOUNTING, CR		
720	COMPRESSION SPRING, 1.17	748	CBS-TITE (P4) SCREW, 3×6, F/ZN		
721	TENSION SPRING, 0.62	750	SPUR GEAR, 27.2		
722	LEVER, PAPER RETURN, RIGHT	751	PAPER GUIDE, LOWER		
723	TENSION SPRING, 0.294	752	ABSORBER, WASTE INK, LARGE		
724	ROLLER, LD, SUB	753	TRAY, ABSORBER		
725	HOLDER, ROLLER, LD, SUB, RIGHT	754	SPACER, TRAY		
726	PAD ASSY., LEFT	755	BUSHING, FIXING, SHAFT, LEFT		
727	LEVER, PAD, RELEASE, LEFT	756	PAPER SUPPORT, SUB, UPPER		
728	HOLDER, EDGE GUIDE, LEFT	757	HOLDER, PAPER SUPPORT, SUB, UPPER		
729	LEVER, PAPER RETURN, LEFT	758	TENSION SPRING, 0.29		
730	HOLDER, ROLLER, LD, SUB, LEFT	759	COVER, CARTRIDGE, BK		
731	ROLLER ASSY., LD, LEFT	760	COVER, CARTRIDGE, CL		
732	ROLLER ASSY., LD, RIGHT	761	SEPARATOR, CARTRIDGE, BK		
733	COVER, ROLLER, LD, LEFT	762	SEPARATOR, CARTRIDGE, C		
734	COVER, ROLLER, LD, RIGHT	763	DETECTOR, HP		
735	COMPRESSION SPRING, 1.961	764	CORK; B		
736	LEVER, FIXING, EDGE GUIDE; B	765	CLEANER, HEAD, ASP		
737	TENSION SPRING, 0.088	766	ABSORBER, WASTE INK, SMALL		

7.5 Circuit Diagrams

See the following pages for the circuit diagrams for the Stylus COLOR 760.