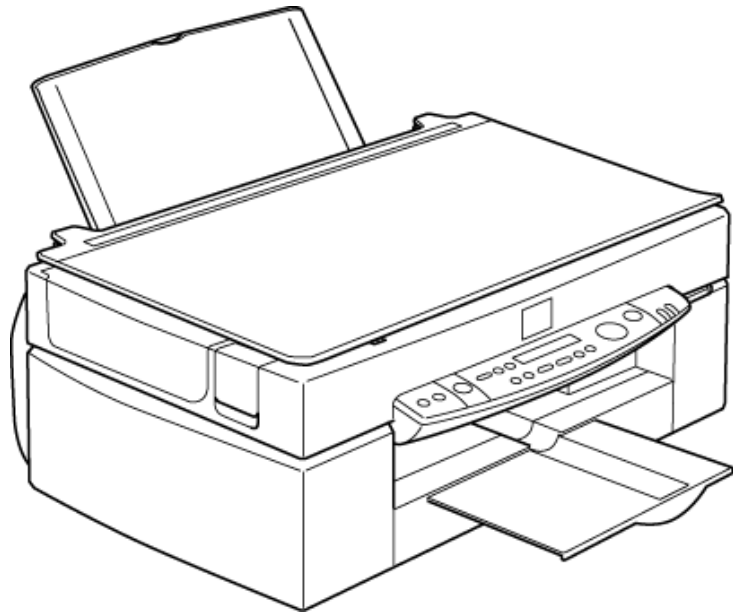


SERVICE MANUAL



All-in-one printer, scanner, and copier

EPSON STYLUS Scan 2500



EPSON®

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PRECAUTIONS

There are cautionary notes throughout the text to help you avoid personal injury or equipment damage.



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



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

Always observe the measures listed below when performing repair or maintenance procedures.

WARNING

1. Always disconnect the product from both the power source and host computer before performing any maintenance or repair procedure.
2. No work should be performed on the unit by persons unfamiliar with basic safety measures dictated for all electronics technicians in their line of work.
3. In performing testing described in 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 the power supply and other electronic components.

CAUTION

1. Repairs on EPSON products should be performed only by an EPSON-certified repair technician.
2. Make certain that the source voltage 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 the 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. 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 recommended by the manufacturer; 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 EPSON STYLUS Scan 2500. 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 Description"

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 step-by-step procedures for troubleshooting.

CHAPTER 4. "Disassembly & Assembly"

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

CHAPTER 5. "Adjustment"

Provides Epson-approved methods for adjustment.

CHAPTER 6. "Maintenance"

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

CHAPTER 7. "Appendix"

Provides the following additional information for reference:

- *EEPROM Address Map*
- *Connector Pin Assignment*
- *Schematics*
- *Circuit Diagrams*

Revision Status

Revision	Issued Date	Description
Revision A	October 5, 1999	First release

Contents

Product Description

Features	10
General Specifications	10
Local copy	10
Scan area	11
Print area	12
Printing	13
Input data buffer	13
Control codes	13
Paper feed	13
Paper	14
Ink	15
Scanner	16
Common	17
Electrical specifications	17
Safety, EMC	18
Environmental conditions	18
Resistance to electric noise	19
Reliability	19
Acoustic noise	19
Interfaces	20
Printer Interface	20
Scanner interfaces	22
Control Panel	24
Buttons	24
Indicators and LCD Display	27
Initialization	28
Settings Menu	29
Stylus Scan Errors	30
Options	31
Local Copy	31
Scanning	31

Physical Characteristics	32
Dimensions	32
Weight	32

Operating Principles

General	34
Printer Mechanism Operation	34
Printing Mechanism	35
Printing Process	37
Carriage Mechanism and Motor	38
Paper Feeding Mechanism	40
Ink System	46
Pump, Carriage Lock, Head Cleaner Mechanism	46
Cap Mechanism	49
Scanner Principles	50
Carriage Unit	50
Carriage Operation	51
Local and PC Copy Principles	52
Local copy process	52
PC copy process	53
Electrical Circuit Operating Principles	54
B102 PSB/PSE Board	55
B102 MAIN Board	57

Troubleshooting

Unit Level Troubleshooting	61
Printer/Scanner does not operate at power on	62
Error is detected	63
Failure occurs during printing	63
Printer does not feed paper correctly	64
Control panel operation is abnormal	64

Printer Related Troubleshooting	65
Scanner Troubleshooting	69
Troubleshooting Motors and Sensors	73

Disassembly & Assembly

Overview	75
Precautions for Disassembling the Printer	75
Tools	77
Specification for Screws	77
Service Checks After Repair	79
Disassembly Procedures	81
Removing the Housing	82
Removing the rear cover	82
Removing the top cover	83
Removing the control panel assembly	83
Removing the side covers	84
Removing the scanner support frame	84
Removing the paper eject assembly	85
Removing the power supply board upper frame	86
Removal of the B102 PSB/PSE Board	87
Removing the printer mechanism	88
Removal of the Circuit Board Tray	90
Removal of the Printer Consumables	91
Removing the waste ink pads	92
Removing the cleaning assembly (Pump and Cap)	93
Disassembling the Printer Mechanism	95
Removing the Printhead Unit	95
Removing the PF Motor Assembly	97
Removing the CR Motor Assembly	98
Removing the ASF Assembly	99
Removing the Carriage Assembly	103
Removing the PF Roller Assembly	105
Removing the PE Paper Detector Assembly	107
Removing the HP Detector	108
Disassembly of the Scanner Mechanism	108
Removing the scanner	109
Removing the scanner motor	111

Adjustment

Required Adjustments	113
Adjustment Tools Required	114
Printer Adjustment	114
Printer hardware adjustments	114
Using the Service-Adjustment Program	116
Installing the program	116
Opening the Start-up menu	117
Initial Ink Charge Operation	122
Bi-D Adjustment	122
Head Cleaning Operation	123
Head Voltage ID Input	124
Head Angular Adjustment	124
Ink draining	126
Scanner Adjustment	126

Maintenance

Overview	129
Cleaning	129
Lubrication	129

Appendix

Connector	141
Board Connector Summary	142
Connector Pin Assignment	143
EEPROM Address Map	146
Exploded Diagrams	152
Parts List	162
Component Layouts	167
Circuit Diagrams	172

CHAPTER

1

PRODUCT DESCRIPTION

- 6. Printing paper size Normal paper A4/Letter/A5/Executive
 Half letter/B5/A6/Index card
 5x8"/8 x10"/Post card/Legal
- Photo paper A4/ Letter/4x5"/Post card

1.2.2 Scan area

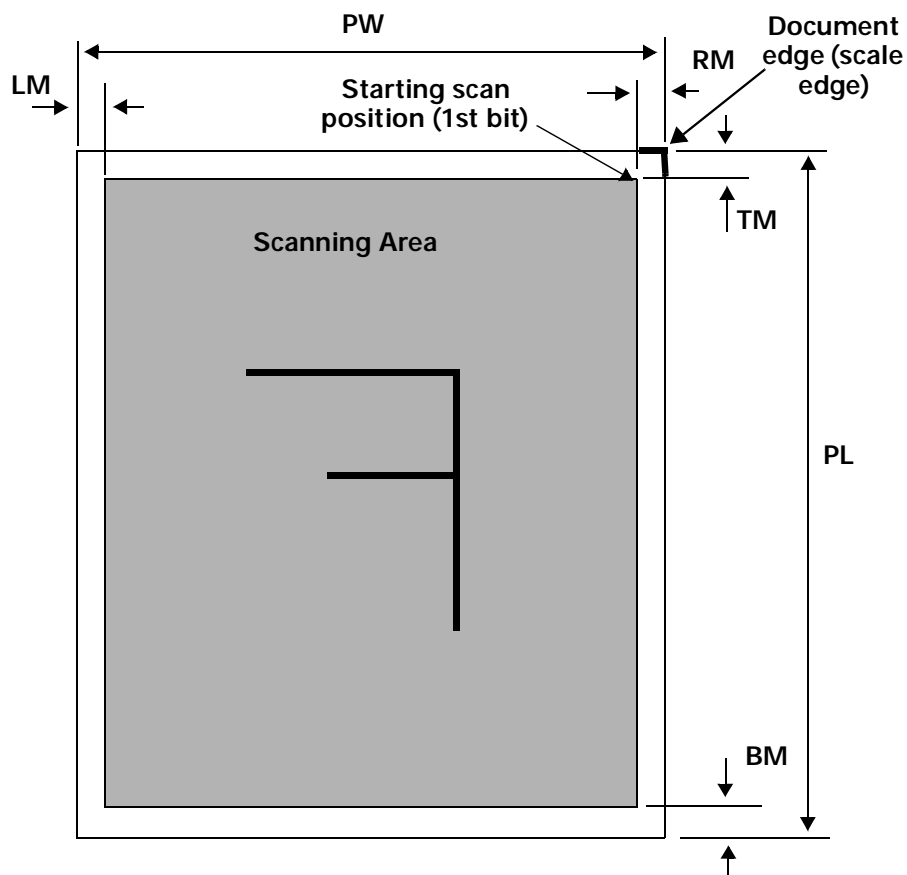


Figure 1-1. Scan Area

Table 1-2. Scan Area

Document size	PW (width)	PL (length)	LM (left)	RM (right)	TM (top)	BM (bottom)
A4	210mm	297mm	at least 3mm	at least 3mm	at least 3mm	at least 3mm
Letter	216mm	279mm	at least 3mm	at least 3mm	at least 3mm	at least 3mm

1.2.3 Print area

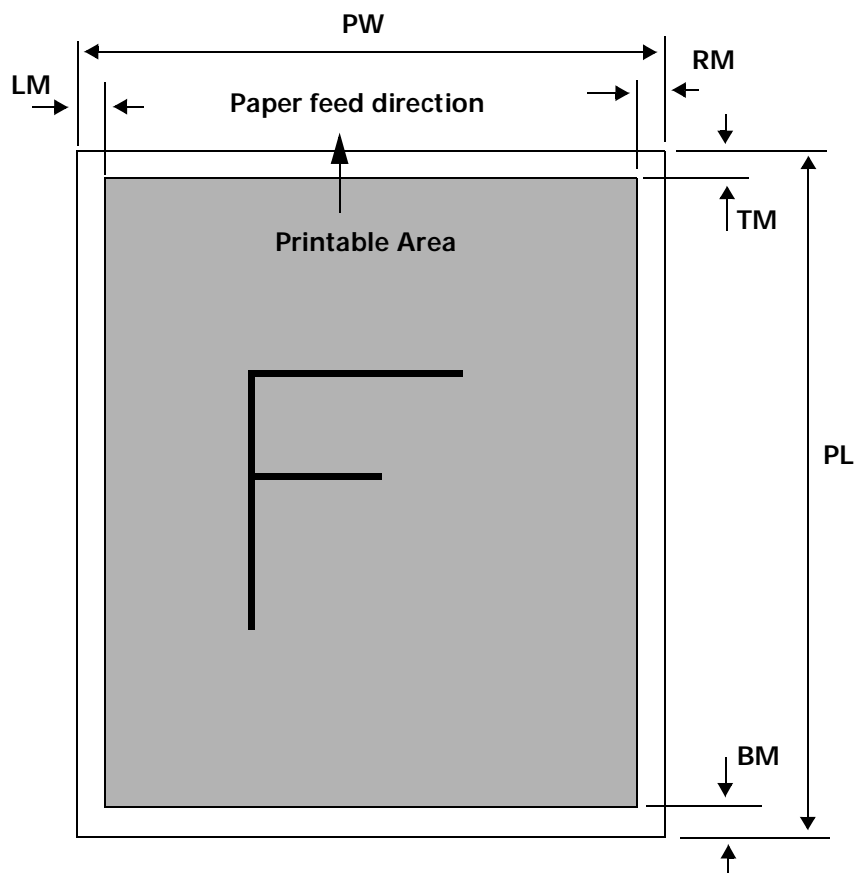


Figure 1-2. Print Area

Table 1-3. Print Area

Document	PW	PL	LM	RM	TM	BM
A4	210mm	297mm	at least 3mm	at least 3mm	at least 3mm	at least 3mm
Letter	216mm	279mm	at least 3mm	at least 3mm	at least 3mm	at least 3mm
B5	182mm	257mm	at least 3mm	at least 3mm	at least 3mm	at least 3mm
Legal	216mm	356mm	at least 3mm	at least 3mm	at least 3mm	at least 3mm

1.2.4 Printing

- Print method Drop On Demand ink jet
- Nozzle configuration monochrome 144 nozzles (48 x 3 staggered)
color 48 nozzles each (cyan, magenta, yellow)
- Print direction Bi-direction with logic seeking
- Print speed & printable columns

Table 1-4. Character code

Character pitch	Printable columns	LQ speed
10 CPI (Pica)	80	200 CPS

Table 1-5. Raster Graphics mode

Horizontal resolution	Printable area	Available dots	CR speed
180 dpi	8.26 inch	1488	20 IPS
360 dpi	8.26 inch	2976	20 IPS
720 dpi	8.26 inch	5952	20 IPS

1.2.5 Input data buffer

64Kbytes

1.2.6 Control codes

- ESC/P Raster
- Epson Remote Command

1.2.7 Paper feed

1. Feeding method Friction feed with ASF
2. Line spacing 1/6 inch or programmable at 1/360
3. Paper path cut-sheet ASF (top enter, front out)
4. Feed speed 2.36 inch/sec. normal/ continuous
4.5 inch/sec. fast/continuous

1.2.8 Paper

Cut-sheets

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

thickness: 0.08~0.11mm (0.003~0.004")

weight: 64g/m²~90g/m² (17~24lb.)

quality: Exclusive paper, bond paper, PPC

OHP sheets, Glossy paper

size: A4 210(W) x 297mm (L) (8.3 x 11.7")
 Letter 216 x 279mm (8.5 x 11.0")

thickness: 0.075~0.085mm (0.003~0.0033")

NOTE: Transparency printing is only supported at normal temperature.

Envelopes

size: No.10 241(W) x 104.8mm (H) (9.5 x 4.125")
 DL 220 x 110mm (8.7 x 4.3")
 C6 162 x 114mm (6.4 x 4.5")

thickness: 0.16~0.52mm (0.006~0.02")

weight: 45g/m²~75g/m² (12~20lb.)

quality: Plain paper, bond paper, Air mail

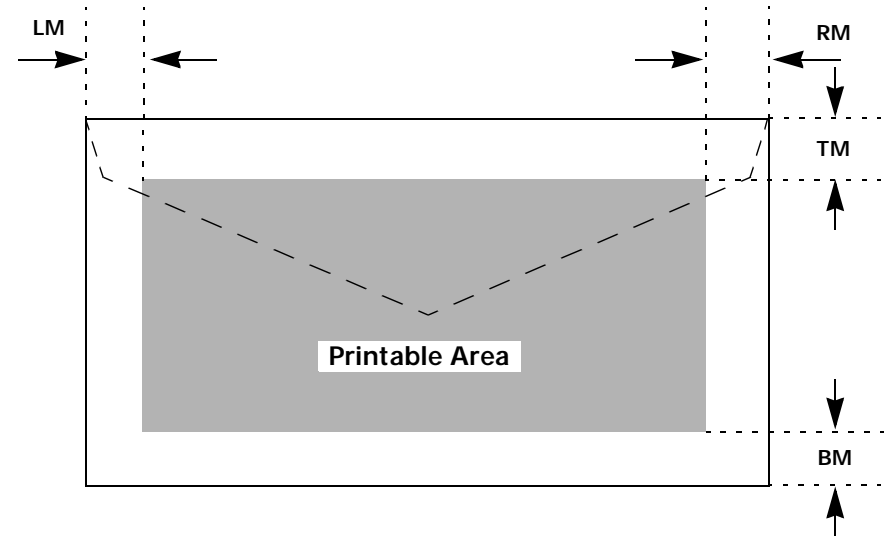


Figure 1-3. Printable Area for Envelopes

Envelope printing is only supported at normal temperature.
 Load long edge first.

Table 1-6. 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")

Index cards

size: A6 index 105(W) x 148mm (L) (4.1 x 5.8")
 A5 index 148 x 210mm (5.8 x 8.3")
 5x8" index 127 x 203mm (5.0 x 8.0")
 10x8" index 254 x 203mm (10.0 x 8.0")

thickness: less than 0.23mm (0.0091")

1.2.9 Ink

1. Ink cartridge (black)

Type:	Exclusive cartridge
Color:	Black
Print capacity:	900 pages/A4 (ISO/IEC 10561 Letter pattern 360dpi)
Ink life:	Two years from production date
Storage temperature:	-20~40°C (storage, less than a month at 40°C) -30~40°C (packing storage, less than month at 40°C) -30~60°C (transit, within 120 hours at 60°C and within a month at 40°)
Dimensions:	27.8 (W) x 52.7 (D) x 38.5mm (H)

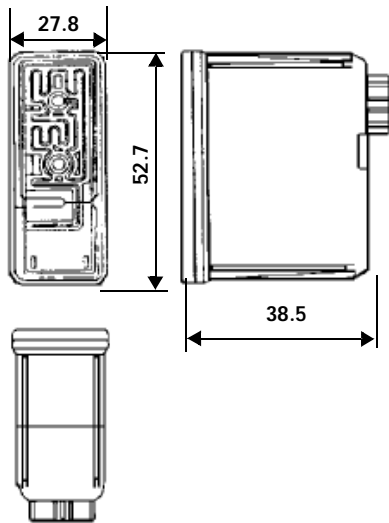


Figure 1-4. Black Ink Cartridge

2. Ink cartridge (color)

Type:	Exclusive cartridge
Colors:	Magenta, cyan, and yellow
Print capacity:	300 pages/A4 (360 dpi, 5% duty each color)
Ink life:	Two years from production date
Storage temperature:	-20~40°C (storage, less than a month at 40°C) -30~40°C (packing storage, less than month at 40°C) -30~60°C (transit, within 120 hours at 60°C and within a month at 40°)
Dimensions:	42.9 (W) x 52.7 (D) x 38.5mm (H)

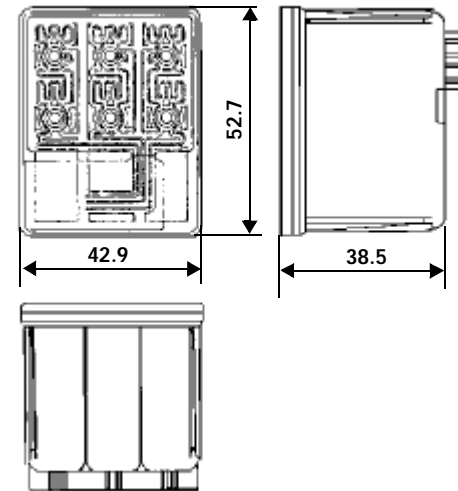


Figure 1-5. Color Ink Cartridge

NOTE: Ink cartridges are consumable products and cannot by any means be refilled.
Do not use cartridges that have passed their expiration date.
Ink will freeze at less than -4°C but can be used after thawing for three hours at room temperature.

1.3 Scanner

Product type	Flat-bed color image scanner
Sub scan method	Movement of scan head
Photoelectric device	Color CCD line sensor
Max. scan area	8.5 x 11.7" (216 x 297mm)
Max. effective pixels	5100 x 7020 pixels (600dpi)
Scan resolution	main = 600dpi sub = 1200dpi
Output resolution	50~4800 dpi (1dpi increments) (4800 dpi at 200% reaches the limitation of maximum 16,368 pixels at 9600 dpi for main scan)
Scan speed (600dpi, Draft mode)	Color = 8.1msec/line Monochrome (bi-level) = 2.7msec/line
Color separation	By the CCD color filter
Command level	ESC/I - B7
Zoom	50~200% (1% increments)
Pixel depth	8 bits/pixel/color (input 12 bits/pixel/color, output 8 bits/pixel/color)
Gamma correction	CRT two levels (A,B) PRINTER three levels (A,B,C) User defined = one level
Color correction	Impact-dot printer Thermal printer Ink-jet printer CRT display User defined
Brightness	Seven levels

Line art	Fixed threshold TET
Digital halftoning	AAS Error diffusion three modes (A,B,C)
(Bi-level, Quad-level)	Dither (resident) four modes (A,B,C,D) Dither (user defined) two modes (A,B)
Interface	USB and IEEE1284.4
Light source	White cold cathode fluorescent lamp
Option	TPU (for GT-7000) ADF (for GT-7000)

1.4 Common

1.4.1 Electrical specifications

Rated voltage	AC 100~120V AC 220~240V
Input voltage	AC 100~120V $\pm 10\%$ AC 220~240V $\pm 10\%$
Rated current	0.7A (AC 100~120V $\pm 10\%$ model) 0.4A (AC 220~240V $\pm 10\%$ model)
Rated frequency range	50~60 Hz
Input frequency range	49.5~60.5 Hz
Power consumption	Approx. 32W during Local-copy printing
Insulation resistance	10M Ω at 500V DC (between AC line and chassis)
Dialectic strength	AC 1.5kV, 1min (between AC line and chassis)

1.4.2 Safety, EMC

Safety	UL1950 (UL) CSA C22.2 No. 950 (CSA) EN60950 (VDE) IEC950 (ROSTEST, PSB)
EMC	FCC Part15 Subpart B Class B CSA C108.8 Class B AS/NZS3548 Class B CISPR Pub22 Class B CNS13438 Class B
CE Marking	Low voltage directive 73/23/EEC EMC Directive 89/336/EEC
	EN60950 EN55022 Class B EN61000-3-2 EN61000-3-3 EN50082-1 IEC 801-2/801-3/801-4

1.4.3 Environmental conditions

Temperature	10~35°C (operating, see figure below) -20~60°C (non-operating, in packaging) One month at 40°C 120 hours at 60°C
Humidity	20~80% RH (operating, without condensation, see figure below) 5~85% RH (non-operating, in packaging without condensation)
Resistance to shock	1 G, within one ms (operating) 2 G, within two ms (non-operating, in packaging)
Resistance to vibration	0.15G (operating) 0.50G (non-operating, in packaging)

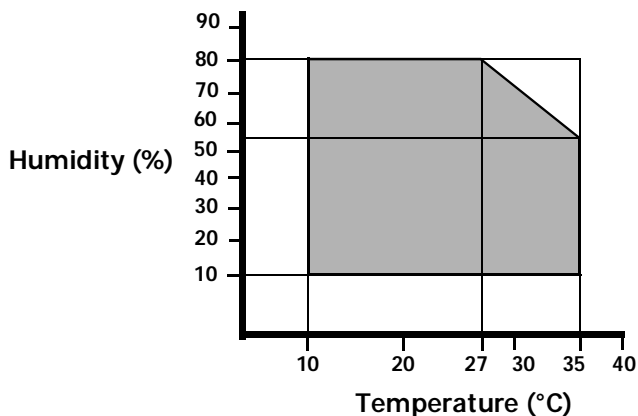


Figure 1-6. Humidity and Temperature

1.4.4 Resistance to electric noise

Static electricity	panel - 10kV metal - 7kV/150pF, 150 Ω
--------------------	--

1.4.5 Reliability

Total print volume	60,000 pages (A4, Letter)
Printhead life	4 billion dots/nozzle
Scan head	MCBF 30,000 cycles

1.4.6 Acoustic noise

Level	Approx. 46 dB (local copy with no ADF) Approx. 50 dB (local copy with ADF) (According to ISO7779)
-------	---

1.5 Interfaces

This section is divided into printer and scanner interface specifications. See the following section for printer interface details or see "Scanner interfaces" on pag e22 for scanner interface details.

1.5.1 Printer Interface

PARALLEL

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.

1. Specification

Transmission mode	8 bit parallel, IEEE-1284 compatibility/nibble mode
Synchronization	Refer to the IEEE-1284 specification
Handshaking	Refer to the IEEE-1284 specification

Packet	Refer to the IEEE-1284 Standard for Data Delivery and Logical Channels for IEEE Std. 1284.4 Interface (Draft D1.50) Refer to the IEEE-1284 specification
--------	---

Signal level	TTL compatible level (IEEE-1284 Level 1 device)
--------------	---

Data trans. timing	Refer to the IEEE-1284 specification
--------------------	--------------------------------------

2. Connector pin assignment and signals	Refer to the IEEE-1284 specification
---	--------------------------------------

3. Data transmission timing	Refer to the IEEE-1284 specification
-----------------------------	--------------------------------------

4. Extensibility Request:

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

- 00H Request nibble mode reverse channel transfer
- 04H Request Device ID;
Return data using nibble mode reverse channel transfer

Device ID:

The printer sends the following device ID string when requested.

IEEE 1284.4 is enabled,

```
[00H][5EH]
MFG:EPSON;
CMD:ESCPL2,BDC,D4,SPC;
MDL:Stylus[SP]Scan[SP]2500;
CLS:PRINTER
DES:EPSON[SP]Stylus[SP]Scan[SP]2500;
```

Note: (1)[00H] denotes a hexadecimal value of zero
(2)MDL value depends on the EEPROM setting.

USB

Standard	:based on "Universal Serial Bus Specifications Revision 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
Suggested cable length	:2 meters

Table 1-7. USB Configuration

Pin no.	Signal name	In/Out	Description
1	VCC	-	Cable power, max. power consumption is 100mA
2	-Data	bi-directional	data
3	+Data	bi-directional	data, pull up to +3.3V via 1.5KΩ resistor
4	Ground	-	Cable ground

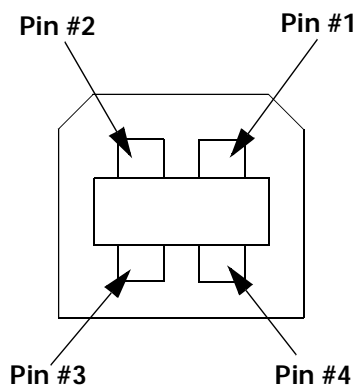


Figure 1-7. USB Pin Configuration

PREVENTING DATA TRANSFER TIME-OUT OF HOSTS

Generally, hosts abandon data transfer to peripherals when a peripheral is continuously in the busy state for dozens of seconds. To prevent hosts from entering this kind of time-out period, the printer slows down the data reception rate to around several bytes per minute, even if the printer is in the busy state. This slowdown starts when the remaining open buffer area decreases to several hundred bytes. The Stylus Scan enters a continuous busy state if the input buffer becomes full.

INTERFACE SELECTION

The Stylus Scan has two built-in interfaces; the USB and parallel interfaces. The interface in use is selected automatically.

■ Automatic selection

When the Stylus Scan is turned on, it initializes and then goes into an idle state. During this idle period the printer scans the interfaces for incoming data. The interface that receives data first is selected.

When the host stops transferring data and the printer is in the stand-by state for a certain amount of time, the printer returns to the idle state. As long as the host sends data or the printer interface is in the busy state, the interface selection does not change.

■ Interface status and selection

When the parallel interface is not selected, the interface goes into the busy state. When the printer initializes or returns to the idle state, the parallel interface goes into the ready state. Be aware that an interrupt signal such as the -INIT signal only takes effect on the parallel interface when the parallel interface is selected.

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.

1.5.2 Scanner interfaces

PARALLEL

1. Specification

Transmission mode	8 bit parallel, IEEE-1284 compatibility/nibble mode
Synchronization	Refer to the IEEE-1284 specification
Handshaking	Refer to the IEEE-1284 specification
Packet	Refer to the IEEE-1284 Standard for Data Delivery and Logical Channels for IEEE Std. 1284.4 Interface (Draft D1.50) Refer to the IEEE-1284 specification
Signal level	TTL compatible level (IEEE-1284 Level 1 device)
Data trans. timing	Refer to the IEEE-1284 specification

2. Connector pin assignment and signals

Refer to the IEEE-1284 specification

3. Data transmission timing

Refer to the IEEE-1284 specification

USB

Any items not included in this manual and/or the user's guide shall be in compliance with the Universal Serial Bus Specification Revision 1.0

- Configuration - the scanner supports the following configurations

Table 1-8. Scanner Configuration for USB

Element	Description
Device	Full Speed Mode (12Mbit/s) Class: Vendor-specific Subclass: Vendor-specific Protocol: Vendor-specific Vendor ID: 0x04B8 (Seiko Epson Corp.) Product ID: 0x0106 Number of possible configurations: 1
Configuration	Number of interfaces supported by this configuration: 1 Characteristics: Self-powered (Remote wake-up feature not supported) Max. power consumption from VBUS: 2mA (5V)
Interface	No alternate setting Number of endpoints used by this interface (excluding endpoint 0):2 Class: Vendor specific Subclass: Vendor specific Protocol: Vendor specific
Endpoint	Bulk IN transfer Max. data transfer size: 64 bytes
	Bulk OUT transfer Max. data transfer size: 64 bytes
String Descriptor	Language ID: English, US 1: iManufacturer "EPSON" 2: iProduct "Scanner Stylus Scan 2500"

- Requests

The scanner must support almost all standard device requests. The scanner does not support vendor specific requests.

1.6 Control Panel

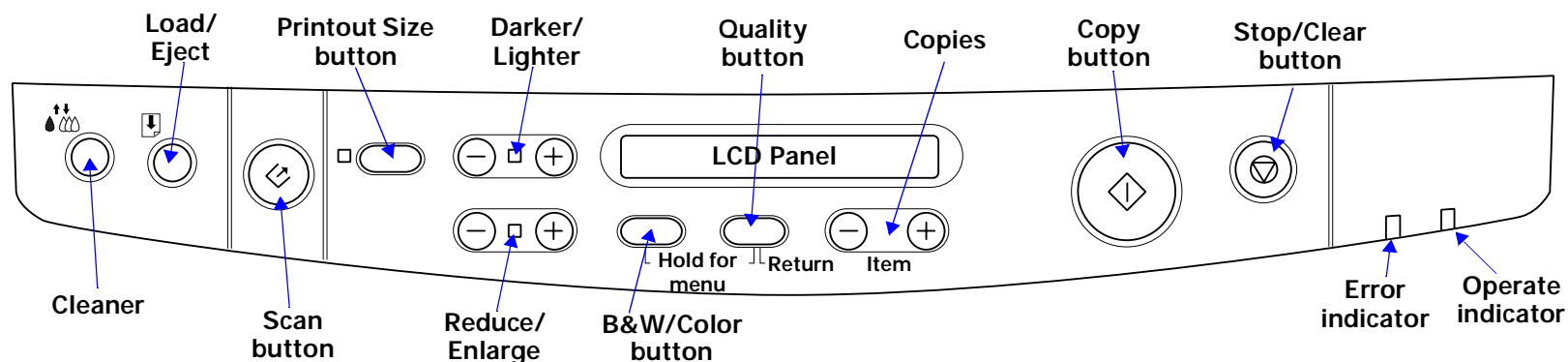


Figure 1-8. Control Panel

1.6.1 Buttons

Table 1-9. Button functions

Button	Function
Load/Eject (pushed within two* seconds)	<ul style="list-style-type: none"> Loads or ejects paper If the carriage is at the ink cartridge installation position, returns the carriage back to the home position.
Load/Eject (pushed for two* seconds)	<ul style="list-style-type: none"> Starts the ink cartridge replacement sequence (not available during printing). Shifts the carriage to the ink cartridge replacement position.
Cleaning (pushed for two* seconds)	<ul style="list-style-type: none"> Starts the printhead cleaning cycle. If the printer is in the "Ink Low" or "Ink Out" or "No Ink Cartridge" condition, starts the ink cartridge replacement sequence.
Cleaning (pushed within two* seconds)	<ul style="list-style-type: none"> If the carriage is at the ink cartridge replacement position, returns the carriage from the ink cartridge replacement position to the home position.

* The user's guide states three seconds.

Table 1-10. Power-on functions

Button	Function
Load/Eject	Prints a status sheet that includes firmware version, ink counter, and nozzle check patterns.
Load/Eject + Cleaning	Enters the special-settings mode (see table below), which remains active for three seconds. If neither the Load/Eject nor Cleaning button is pushed in that three seconds, normal initialization begins.

Table 1-11. Special settings mode

Button	Function
Load/Eject	Resets the real-time counter (power-off time) in EEPROM
Cleaning (hold for ten seconds)	Resets the waste ink overflow counter

COPY BUTTON

Before performing a local-copy operation, you should understand how the LCD and control panel buttons work. The LCD displays:

- Copy status
- Copy settings
- Stylus Scan error messages and maintenance status
- Miscellaneous settings not directly related to copying

1. Copy status

While waiting for a copy job, the current copy settings are displayed.
Example: (default)

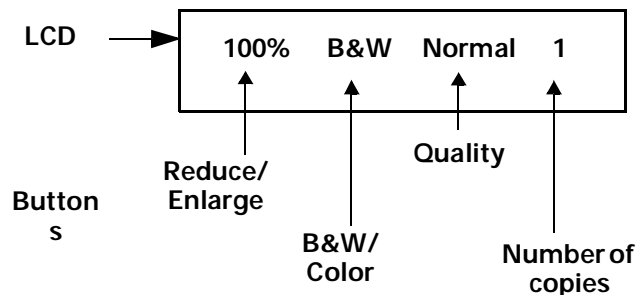


Figure 1-9. LCD and Button Relationship

2. Copy settings

Allows you to make the following copy settings.

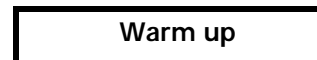
- Quality
- Reduce/Enlarge
- Paper size
- Brightness
- Number of copies

3. Status

Displays the current Stylus Scan condition.

Example:

Scanner lamp is warming up



4. Miscellaneous settings

Allows users to print or change the following

Demo pattern

Status sheet

Bottom margin

Paper size category (metric or US)

Language code

Set factory default

Table 1-12. Copy button functions

Button	Function	Notes
Operate	• Sets Local Copy Mode as the default; same as printer reset.	
Stop/Clear	• Stops the current copy job and ejects the paper during copying. • Clears number of copies setting (returns to "1") • Clears settings and returns settings to their default values.	
Copy	• Starts copying (default = B & W 100% Normal 1)	
B&W/Color	• Selects Color copy or Black & white copy	

Table 1-12. Copy button functions (cont.)

Button	Function	Notes
Quality	Sets copy quality <ul style="list-style-type: none"> B&W Normal Fine Color Normal Fine Photo Note: When Photo is selected, the LCD displays "Load Photo Paper".	
Multiple copies	<ul style="list-style-type: none"> B&W 1-20 Color 1-20 Increments by "1", and increment speed increases if held for more than one second.	Resets to 1 if Stop/Clear button is pressed.
Enlarge/Reduce	<ul style="list-style-type: none"> Selects reduce or enlarge Default = 100% First press = LED shows current status Multiple presses (within 5 sec.s) = moves up one setting each time Example First time = Enlarge/Reduce LED only (100%) activated (default) Second or more time = cycles through the following. 93% > 80% > 70% > 50% 200% > 141% > 120%	
Printout Size	Sets the size of the printed paper during Local Copy mode; A size area = A4/B5/A6 Letter size area = Letter /Half Letter/5x8"	
Brightness	Sets the brightness level from -2> 0 >+2 in increments of "1".	

Table 1-13. Settings Menu

Button	Function	LCD
Quality B&W/Color	Change modes Copy<-> Settings Menu	Hold Quality + B&W buttons for three seconds Menu Mode After two seconds BottomMargin:14/3mm
Copies +/-	Change menu in Settings Menu mode	Cycles through the menus below: BottomMargin:14/3mm PaperSize: Metric/US Lang: Eng Ger Fr Ital Span Port Set Factory Default Status Sheet Print
Copy	Executes menu or selects item	Lang: Eng Ger Fr Ital Span Port Press copy to change to next Lang: Eng Ger Fr Ital Span Port

1.6.2 Indicators and LCD Display

Table 1-14. LCD display and LED indicators

Status	Scanner Printer Copy	Indicators		Display message
		Operate	Error	
Scanner fatal error	S	-	On	Scanner Error
Printer fatal error	P	-	On	Printer Error
Maintenance request (waste ink pads full)	P	-	On	Call Service
ADF paper jam	S	-	On	ADF Jam
Printer paper jam	P	-	Flashing	Printer Jam
ADF cover open	S	-	Flashing	ADF Cover Open
Printer paper out	P	-	Flashing	Printer Paper Out
Black Ink end/ No ink cartridge	P	-	Flashing	Black Ink Out
Color Ink end/ No ink cartridge	P	-	Flashing	Color Ink Out
Ink cartridge change mode	P	Flashing	-	Replace Cartridge
Maintenance cover open	S	Flashing	-	Maint. Cover Open
Black ink level low	P	-	-	Black Ink Low (displays alternately with regular message)

Table 1-14. LCD display and LED indicators (cont.)

Status	Scanner Printer Copy	Indicators		Display message
		Operate	Error	
Color Ink level low	P	-	-	Color Ink Low (displays alternately with regular message)
Scanner lamp warming up	S	Flashing	-	Warm Up
Ink charging	P	Flashing	-	Warm Up
Scanning	S	Flashing	-	Scanning [xxx] (xxx=I/F)
Printing	P	Flashing	-	Printing [xxx] (xxx=I/F)
Copying	C	Flashing	-	Following messages alternate: A message = (current copy settings) B message = Now Copying x/y (x=current document number, y = total number of copies)
Power on	(all)	On	-	Power on (for two seconds and then changes to Copy Mode (default))
Initialize EEPROM and reset timer IC	P	-	-	EEPROM Reset

This order of items in this table is from high to low priority.

"-" = no change/does not matter

1.6.3 Initialization

PRINTER INITIALIZATION

There are three initialization methods.

1. Power-on (hardware) initialization

The printer initializes when turned on or when it recognizes the cold-reset command (remote RS command).

When the printer initializes, the following actions are performed.

- Initialize printer mechanism
- Clear input data buffer
- Clear print buffer
- Set default values

2. Operator initialization

The printer initializes when turned on within ten seconds of being turned off, or when the printer recognizes the -INIT signal (negative pulse) from the parallel interface.

When the printer initializes, the following actions are performed.

- Cap the printhead
- Eject paper
- Clear input data buffer
- Clear print buffer
- Set default values

3. Software initialization

The ESC@ command also initializes the printer.

When the printer initializes, the following actions are performed.

- Clear print buffer
- Set default values

Table 1-15. Initialization

Operation	Operating	Stand by	Controller process	Scanner process	Printer process	Restart
Power on	Valid	Valid	Set the local copy setting to default	H/W initialization	H/W initialization	-
Panel Reset	Valid	Valid		Controller initialization	Panel initialization	-
Initialize by command	Valid	Valid		S/W initialization	S/W initialization	-
STOP	Valid	-	<ul style="list-style-type: none"> • Stop copying • Setting remains as is 	Cancel	Eject paper	Copy button
CLEAR	-	Valid	<ul style="list-style-type: none"> • Setting mode: default • Copy mode: Multi-copies volume 1 			

SCANNER INITIALIZATION

There are three initialization methods.

1. Hardware initialization

The scanner initializes when turned on.

When the scanner initializes, the following actions are performed.

- Initialize scanner mechanism
- Clear input/output data buffer
- Set default values

2. Operator initialization

The scanner initializes when it recognizes the -INIT signal (negative pulse) from the parallel interface.

When the scanner initializes, the following actions are performed.

- Clear input/output data buffer
- Set default values

3. Software initialization

The ESC@ command also initializes the scanner.

When the scanner initializes, the following actions are performed.

- Clear input/output data buffer
- Set default values

1.7 Settings Menu

Enter the settings menu mode by holding down the Quality and B&W/Color buttons. Settings are saved when the power is turned off.

Table 1-16. Settings Menu

Button	Function	LCD
Quality B&W/ Color	Change modes Copy<-> Settings Menu	Hold Quality + B&W buttons for three seconds Menu Mode After two seconds BottomMargin:14/3mm
Copies +/-	Change menu in Settings Menu mode	Cycles through the menus below: BottomMargin:14/3mm PaperSize:Metric/US Lang:Eng Ger Fr Ital Span Port Set Factory Default Status Sheet Print
Copy	Executes menu or selects item	Lang: Eng Ger Fr Ital Span Port Press copy to change to next Lang: Ger Fr Ital Span Port Eng

MENUS

1. Bottom Margin
Determines the default bottom margin of 14mm or 3mm.
2. Paper Size category
Determines which paper size category is enabled; metric or US
Metric = A4/B5/A6
US = Letter/Half Letter/5x8"
3. Language
Determines which language is used to display LCD messages;
English/German/French/Italian/Spanish/Portuguese
4. Set Factory Default
Determines parameters for factory default settings.
Factory default settings:
Copy mode = Refer to "Buttons" on pag e24
Settings Menu mode = 14mm bottom margin
The Paper Size and Language parameters are saved as defaults when power is turned off.
5. Status sheet
Prints the following settings:
Bottom margin
Paper size category
Language

1.8 Stylus Scan Errors

PRINTER-SPECIFIC ERRORS

Table 1-17. Printer-SPECIFIC errors

Error	Cause	Solution
Ink out	When one or more ink cartridges are almost empty, the printer enters the low-ink state and continues printing. When the cartridge is completely empty, the printer indicates an ink-out error and stops printing.	Install a new ink cartridge.
Paper out	If the printer fails to properly load paper, it indicates a paper-out error.	Load paper and press the Load/Eject button.
Paper jam	If the printer fails to properly eject paper, it indicates a paper jam.	Press the Load/Eject button. If this does not clear the error, remove the paper by hand.
No ink cartridge	If the printer detects that one of the ink cartridges is not installed, it indicates a no-ink-cartridge error.	Install a new ink cartridge.
Call Service	When the total amount of waste ink reaches the limit, the printer indicates a maintenance request and stops printing.	Replace the waste ink pads and reset the waste ink counter with the adjustment program. See Chapter 5 for details.
Fatal error	A carriage control or CG access error has occurred.	Turn off the Stylus Scan and turn it back on. If the error does not clear, service.

NOTE: Do not re-install used ink cartridges. Doing so confuses the ink-level detection function and may cause a serious problem in the printhead.

SCANNER-SPECIFIC ERRORS

Table 1-18. Scanner-SPECIFIC errors

Error	Cause	Solution
Fatal error	<ul style="list-style-type: none"> The lamp is broken. Stylus Scan turned on before the transportation screw was removed. System breakdown. 	Turn off the Stylus Scan and turn it back on. If the error does not clear, service. (Disposition) Turn off the lamp and stop operation. Set bit 7 of the status byte.
ADF paper jam	ADF fails to eject the document.	After removing the document, turn the Stylus Scan off and back on, or send the ESC @ command. Parallel I/F init: active pulse (Disposition) Turn off the lamp and stop operation. Set bit 7 of the status byte.
Command error	Unidentified command detected. (Disposition) The scanner sent a NACK signal and is waiting for the next command. If an incorrect command or parameter is received, it is disregarded and the previous value is maintained.	Send a correct command to clear the error.
ADF cover open	ADF cover open	Close the cover.
Maintenance cover open	Maintenance cover open	Close the cover.

1.9 Options

The optional Auto Document Feeder and optional Transparency Unit designed for use with the GT-7000 scanner may also be used with the EPSON Stylus Scan 2500 under the following restrictions.

1.9.1 Local Copy

ADF

If a document is loaded in the ADF tray, the Stylus Scan loads and scans that document.

If a document remains on the document glass, a copy is not produced normally.

Even if multiple copies are selected, the Stylus Scan ignores this setting and produces only one copy per document sheet.

TPU

The TPU cannot be used in Local Copy mode. The Stylus Scan ignores the TPU in this mode.

1.9.2 Scanning

ADF

Same as the GT-7000.

TPU

If the Stylus Scan receives transparency scanning commands, it will turn on the TPU lamp and scan the transparency after the warm-up period. The Stylus Scan ignores the ADF in this mode. After scanning, the TPU lamp remains on until the TPU is turned off or until the Stylus Scan receives reflective document scanning commands.

If the Stylus Scan receives reflective document scanning commands, it will scan the document normally.

1.10 Physical Characteristics

1.10.1 Dimensions

212 x 517 x 413mm (HWD)

(not including, extended parts, rubber parts, and the ASF projection)

1.10.2 Weight

Approximately 12Kg

CHAPTER

2

OPERATING PRINCIPLES

2.1 General

The main components of the EPSON Stylus Scan 2500 are the printer mechanism, scanner mechanism, and the following circuit boards

Main: B102 Main Board
 Power Supply: B102 PSB/PSE Board
 Panel: B102 PNL Board

2.2 Printer Mechanism Operation

Like previous EPSON Ink Jet printers such as the Stylus Color 740, the printer mechanism of the EPSON Stylus Scan 2500 does not have an exclusive mechanism to switch from paper feeding to pumping and back. Instead, this control is done by the rotational direction of the paper feed/pump motor and also depends on the position of the carriage.

The printhead combines the black and CMY heads in one unit. The following indicate the nozzle configurations of these 3 models.

- Black Nozzles: 144 nozzles (120 dpi x 3 rows in staggered)
- CMY Nozzles: 48 nozzles/colors (120 dpi x 1 row)

Motor Types and Corresponding Functions

Motor	Type	Function	For details see
CR Motor	Stepping	Used to drive the carriage.	page 38
PF Motor	Stepping	<ul style="list-style-type: none"> • Drives the ASF to feed paper into paper path • Drives paper feed rollers at variable speeds • Drives the CR Lock lever (as described on page 44) • Drives pump unit to absorb ink 	page 40

Figure 2-1 in the right column shows the outline of the printer mechanism.

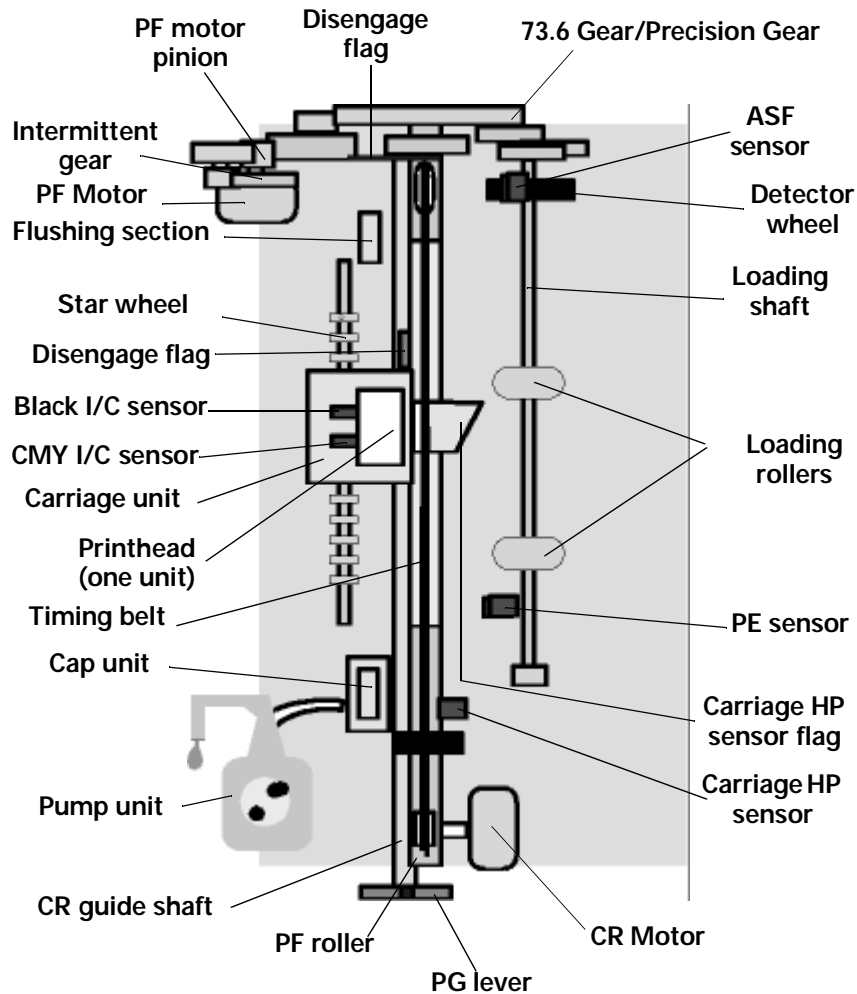


Figure 2-1. Printer Mechanism Block Diagram

2.2.1 Printing Mechanism

The basic principles of the printhead are the same as previous models; Drop-On-Demand type MACH head method.

You need to manually input the drive-voltage code (printed on top of the printhead) for the multi-layer piezo electric element. Input this value every time you replace the printhead, MAIN board, or printer mechanism.

The main parts of the printhead and carriage are described below.

- PZT
PZT is an abbreviation of Piezo Electric Element. The print signal is sent from the MAIN board to the PZT via the driver circuit on the printhead unit. Then, the appropriate PZT squeezes the cavity, forcing the ink stored in the cavity out through the nozzle. This process is described in more detail on the next page.
- Ink cavity
Ink flows from the ink cartridge, through the filter, and to the ink cavity where it is stored until one of the PZT units forces it out through the nozzles.
- Nozzle Plate
The bottom surface of the printhead which contains nozzle holes to direct ejected ink toward the paper below. See the next page.
- Filter
When the ink cartridge is installed, if any dirt or dust around the cartridge needles is absorbed into the inside of the printhead, there is a large possibility that the nozzles will clog. Clogged nozzles can be detected by alignment failure and dot-missing problems. To prevent these kinds of problems, a filter is set below the cartridge needle and ink flows through the filter on its way to the ink cavity.

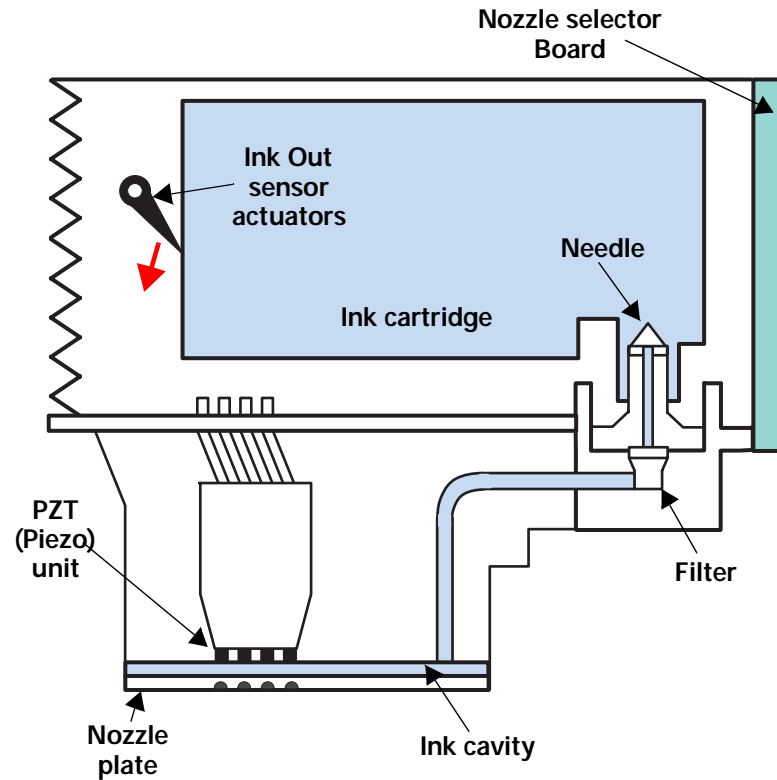


Figure 2-2. Printhead Sectional Drawing

- Ink Out sensor actuators (x2)
The Ink Out sensors (x2) detect whether or not an ink cartridge is installed according to the position of the Ink Out sensor actuator. When a cartridge is installed, the actuator is pushed down, which turns the shaft that is connected to the actuator. The flag at the other end of the shaft activates the Ink Out sensor when the cartridge is fully in place.

See the next page for more details on the nozzle selector board and the ink ejecting process.

2.2.2 Printing Process

The following figures show sectional drawings of the printhead in the normal and ejecting states.

1. Normal State:

When no print signal is output, the PZT is in the normal, standby, state.

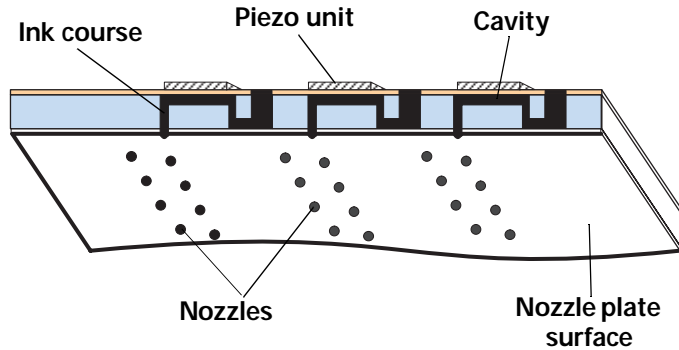


Figure 2-3. Printhead Normal State

2. Ejecting State:

When a print signal is sent from the MAIN board, the IC (Nozzle Selector) located on the printhead unit receives the data in 1-byte units. The Nozzle Selector then sends the voltage signal on to the appropriate PZT. Due to the physical properties of the PZT, electrical signals cause the PZT to change shape. When the PZT changes shape, it squeezes the ink cavity, ejecting ink out through the nozzles.

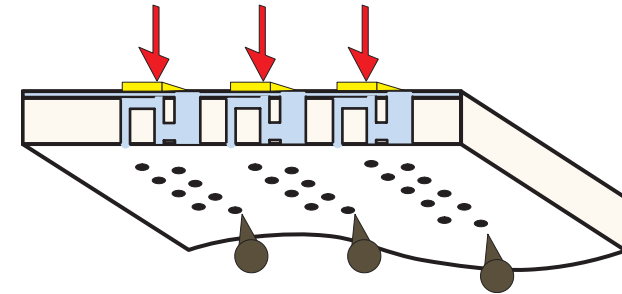


Figure 2-4. Printhead Ejecting State

2.2.3 Carriage Mechanism and Motor

The carriage mechanism moves the carriage back and forth according to the drive from the carriage motor. See Figure 2-6 on the next page.

The carriage motor is a 4-phase, 200-pole, stepping motor and is driven by 2-2 phase, 1-2 phase, Double 1-2 phase, 2-Double 1-2 phase, and 4-Double 1-2 phase drives. This stepping motor allows the carriage to move freely to fixed positions where necessary operations such as ink absorption can be performed. The following tables show carriage the motor specifications and motor controls.

Carriage Motor Specifications

Items	Description
Motor type	4-Phase/200-pole Stepping motor
Drive voltage Range	42VDC ± 5%
Internal coil resistance	7.8 Ohms ± 10%(per phase in 25 °C environment)
Control method	Bi-Polar Drive
Phase drive	2-2, 1-2, 2-Double 1-2, and 4-Double 1-2

Phase drive

Phase Drive	inch/pulse	mm/pulse
2-2	1/120	0.212
1-2	1/240	0.106
Double 1-2	1/480	0.053
2-Double 1-2	1/960	0.026
4-Double 1-2	1/1920	0.013

CR Motor Control for Each Mode

Printing mode	Drive Speed [CPS]	Drive frequency [PPS]	Drive method
High Speed Skip	340	4080	Double1-2, 2-2,1-2 phase drive*
Normal Printing	200	2400	Double 1-2, 2-2 phase drive
Capping	80	960	2-Double 1-2, 2-2 phase drive
Wiping	40	480	2-Double 1-2, 2-2 phase drive
Cap (Valve Release)	20	240	4-Double 1-2, 2-2 phase drive
Withdrawal of cap	5	60	4-Double 1-2, 2-2 phase drive

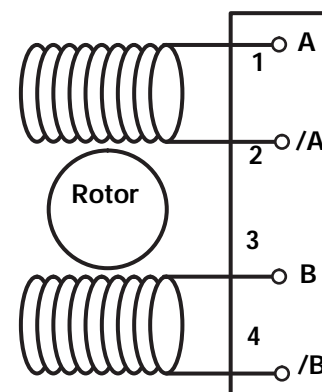


Figure 2-5. CR Motor Internal Circuit Diagram

PLATEN GAP LEVER

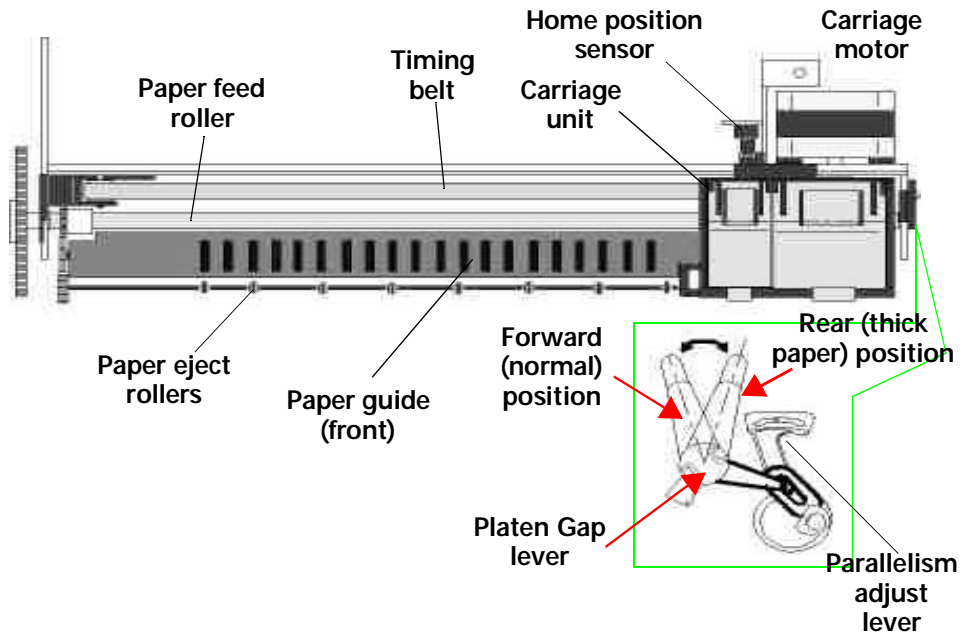


Figure 2-6. Carriage Mechanism with platen gap lever (Top view)

As shown in Figure 2-6, the Platen Gap lever can be moved forward or back to adjust for the thickness of the paper. The PG lever is connected to the carriage guide shaft, which raises or lowers the carriage depending on the PG lever position. The nozzle surface remains parallel to the paper in either position thanks to a tilt adjustment mechanism. Also, the two parallelism-adjustment levers, one mounted on each side of the carriage guide shaft, adjust the parallelism between the platen and shaft when the shaft is installed in the factory. This precise adjustment is necessary to make sure the gap between the platen surface and the printhead surface is 1.04 mm in the normal position or 1.74 mm in the thick-paper position.

2.2.4 Paper Feeding Mechanism

The paper feeding process begins at the ASF, continues through the PF roller, and ends at the paper eject roller (and star-wheel gear).

The ASF unit, which is common with the Stylus COLOR 740 printers, is driven by the PF motor (stepping motor). Torque sent from this motor switches between the ASF unit and pump/PF roller depending on the position of the disengage lever (described later).

In the EPSON Stylus Scan 2500, a four-phase hybrid type pulse motor is used in the PF motor as a motive power of the paper mechanism. The torque is sent at 2-Double 1-2, Double 1-2, 1-2, and 2-2 phase drives. This motor drives the paper-feeding mechanism as well as the pump mechanism which is necessary for printhead cleaning. By using this pulse motor, it becomes possible to use variable drive levels for many purposes, such as paper feed, slight paper feed, and high or low speed absorption of pump operations. The following table shows PF motor specifications.

PF Motor Specifications

Item	Description
Motor type	4-phase/200-pole Stepping motor
Drive voltage	42VDC ± 5%
Coil Resistance	7.8 Ohms ± 10%(per 1 phase under 25°C environment)
Control method	Bi-Polar Drive
Phase drive	1-2, 2-2, Double 1-2, 2-Double 1-2

Phase drive

Phase Drive	Inch/pulse	mm/pulse
2-2	1/720	0.035
1-2	1/1440	0.018
Double 1-2	1/2880	0.0088
2-Double 1-2	1/5760	0.0044

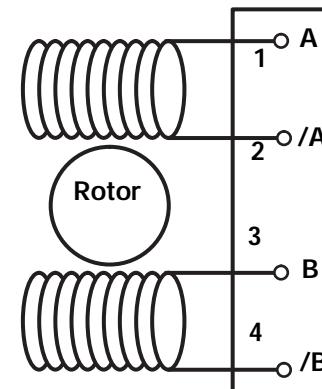


Figure 2-7. PF Motor Internal Circuit Diagram

Motor Control for Each Mode

Printing mode	Drive Speed [CPS]	Drive frequency [PPS]	Drive method
High Speed Skip	340	4080	Double 1-2, 2-2, 1-2 phase drive*
Normal Printing	200	2400	Double 1-2, 2-2 phase drive
Capping	80	960	2-Double 1-2, 2-2 phase drive
Wiping	40	480	2-Double 1-2, 2-2 phase drive
Cap (Valve Release)	20	240	4-Double 1-2, 2-2 phase drive
Withdrawal of cap	5	60	4-Double 1-2, 2-2 phase drive

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) → Gear 73.6 → PF rollers

- To the eject rollers:
PF motor pinion gear (CCW rotation) → Gear 73.6 → 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 2-8 shows a paper feeding mechanism block diagram, which includes the parts along the PF motor drive-transmission paths.

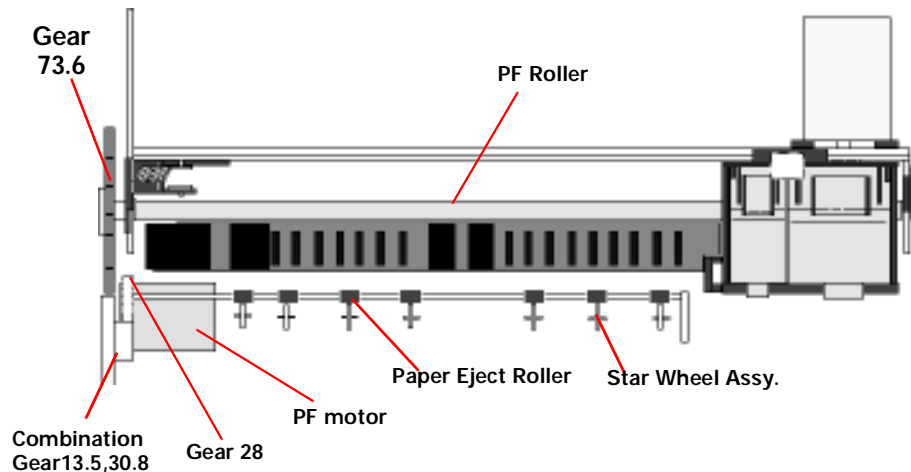


Figure 2-8. Paper Feeding Mechanism (Top View)

The printer feeds paper from the ASF (when the PE sensor located near the carriage motor detects paper is loaded) through the paper path and stops feeding when the paper's leading edge reaches the halfway point of the front paper guide. To correct for any misfeeding, the paper is fed back toward the ASF a predetermined number of steps and then it is fed forward again until it reaches the top-of-form position.

Once the printer starts printing, it advances paper using the PF rollers and subrollers until it reaches the last 14mm of the paper, when it advances the paper using the star wheel gear and paper eject rollers.

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

MULTI-FEED PREVENTION MECHANISM

Like the Stylus COLOR 740 ASF, the ASF built in the Stylus Scan has the multiple-paper-feeding-prevention mechanism to provide accurate and consistent paper feeding. 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 multiple-paper-feeding-prevention operation is described in the following steps.

1. When the printer power is turned on, the ASF/Pump motor rotates counterclockwise to detect ASF home position. Then the motor rotates clockwise specified steps to set the LD roller and paper return lever to their proper positions. (See "Standby State" in Figure 2-9.)
2. When the paper loading signal is sent from the PC or the Load/Eject button is pressed, the PF motor turns counterclockwise to let the LD roller load paper. (See "Paper Pick Up State" in Figure 2-9.)

3. Due to the design of the ASF, the LD roller loses friction on the paper and stops at the point where the paper is fed by the PF roller. (See "PF Roller Paper Feed State" in Figure 2-9.)
4. When the next print signal is sent or the Load/Eject button is again pressed, the PF motor rotates clockwise a specified number of steps to set the LD roller and the paper return lever in place. (See "Standby State" in Figure 2-9.)

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

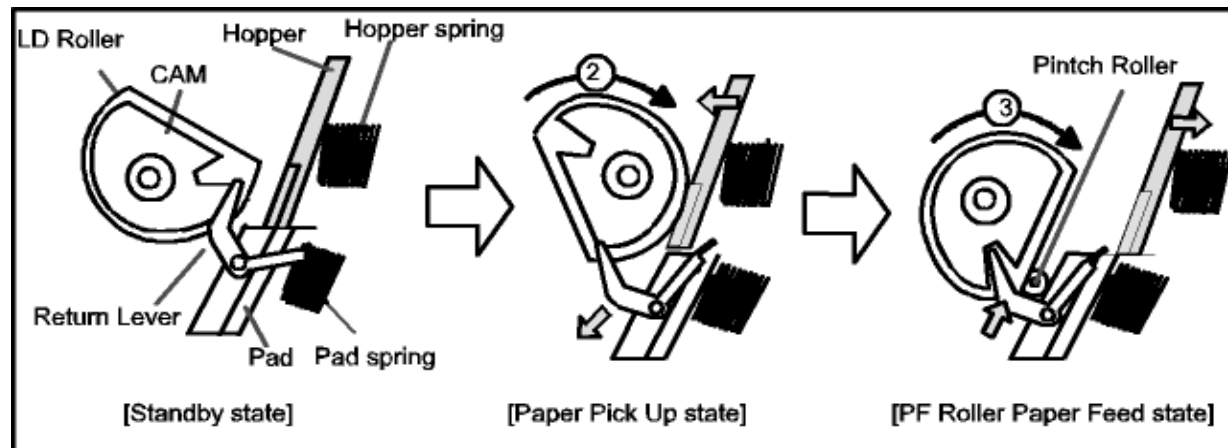


Figure 2-9. Multiple Paper Loading Prevention Mechanism (right side view)

SMALLER TRAILING-EDGE MARGIN

Like the Stylus COLOR 740, this model uses a new design to allow printing up to the last 3mm by changing the design and position of the star-wheel gear. The star-wheel gear assembly has been shifted 5 degrees from directly on top of the eject rollers towards the front paper guide. This change suppresses the tailing edge of the paper so that the old minimum margin of 14mm has been reduced to only 3mm.

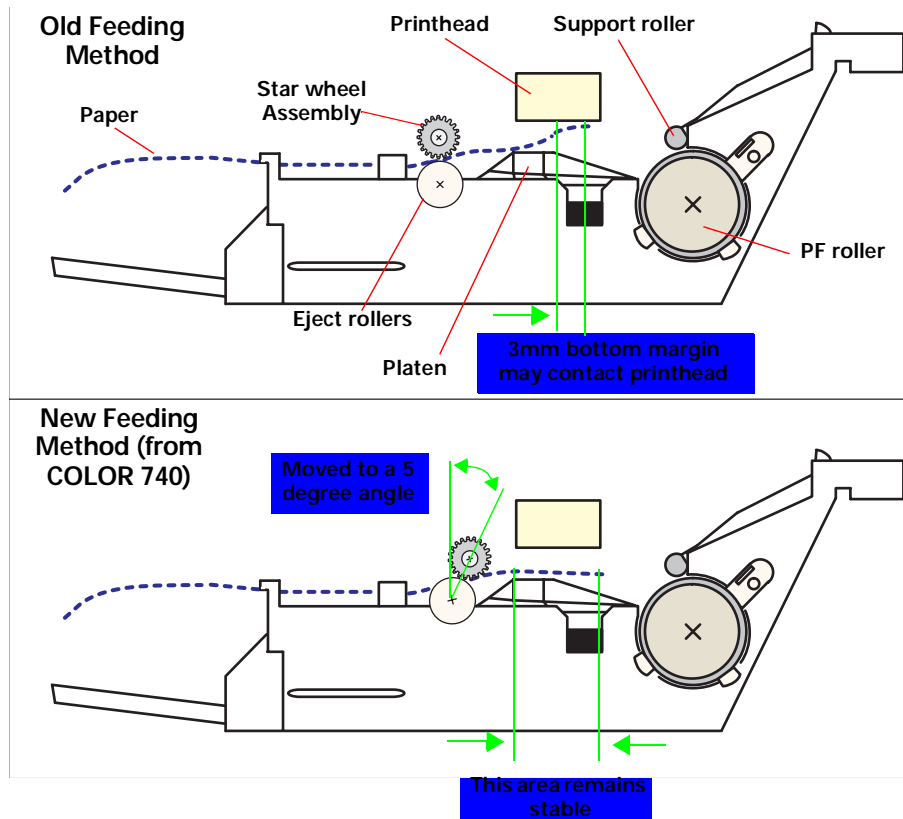


Figure 2-10. 3mm improved margin (viewed from right side)

CARRIAGE LOCK MECHANISM

The carriage lock mechanism prevents the carriage from being left at an uncapped position for a long time which can occur due to user mistakes, physical shock, vibration during transport, and so on. The CR lock mechanism is driven by the stepping PF motor. See Table, " PF Motor Specifications," on page 40 for motor specifications.

The PF motor controls the CR lock mechanism as well as the PF mechanism depending on the direction of the PF motor rotation. The CR lock mechanism is located at the right end of the paper eject roller.

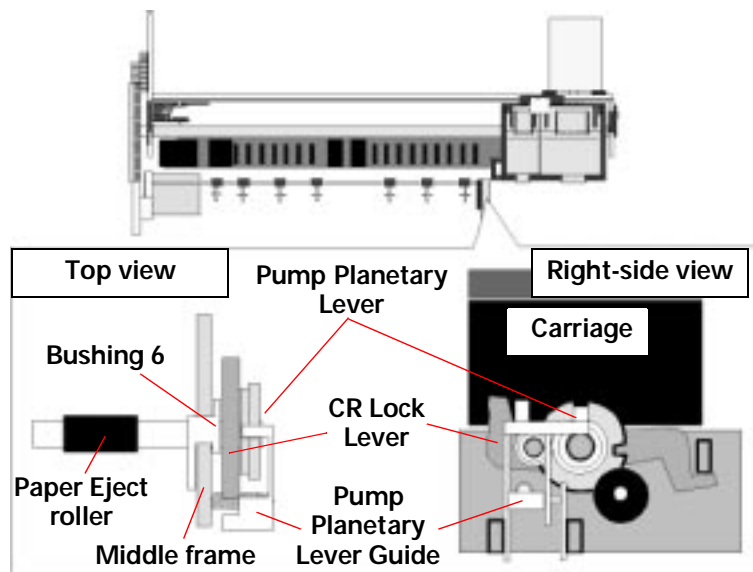


Figure 2-11. CR Lock Mechanism

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 and locks the carriage when the PF motor rotates CW.

The PF motor drive is sent to the CR Lock lever via the Paper Eject roller.

PF Motor pinion gear (CW rotation) → Gear 73.6 → Combination gear → Gear 28 → Paper Eject Roller → CR Lock Lever

If the carriage is left uncapped for a long time, ink on the printhead surface gradually thickens and may clog the nozzles. In some cases, the nozzles may be so thoroughly clogged that they cannot be cleared even after performing multiple cleaning operations.

To prevent clogged nozzles, the printer caps and locks the carriage in the following conditions.

- Power off sequence:**
When power is turned off, even during printing, the printer caps and locks the carriage at the end of the power-off sequence.
- Power on sequence:**
When power is turned on, the printer automatically performs an automatic (power-on) cleaning cycle and then caps and locks the carriage.

NOTE: The power-on cleaning cycle is an automatic head cleaning sequence that is performed every time the power is turned on. The timer IC, which is powered by the lithium battery, measures the length of time the printer has been off. The printer selects and performs the appropriate cleaning operation according to the length of time it has been off.

- Paper eject sequence:**
When the Load/Eject button is pressed, the printer ejects any paper in the paper path. If no print data is received at this time, the printer caps and locks the carriage and then enters the standby mode. However, if no paper is in the paper path when the Load/Eject is pressed, the printer loads a sheet and does not lock the carriage.

PF motor torque is always transmitted to the CR lock lever side, but the operation of the CR lock mechanism varies depending on the rotation direction of the motor.

Clockwise = sets the carriage lock lever
Counterclockwise = releases the carriage lock lever

PAPER PICK-UP OPERATION

When the Load/Eject switch is pressed or printing order is input, the carriage unit moves until the left edge and collides with paper pick up trigger lever. When the carriage collides with this trigger level, a planetary gear located on the same axis is also pushed at the same time and conveys the motive power on the platen to the adjoining gear line side for ASF drive.

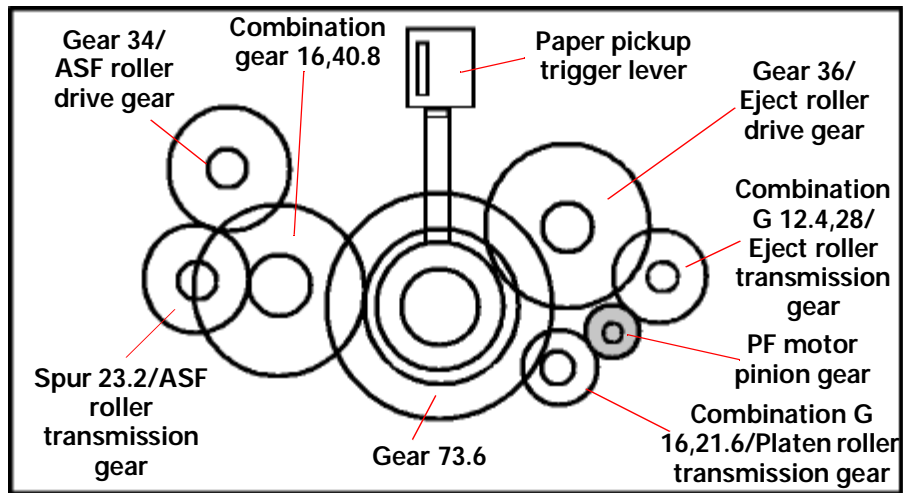


Figure 2-12. Paper Pickup Mechanism

2.2.5 Ink System

Ink system mechanism consists of 1) cap mechanism, 2) pump mechanism, 3) carriage lock mechanism, 4) waste ink absorber and 5) ink sequence. Out of these mechanisms, 1) to 4) are physical mechanism and parts which are mounted on the printer mechanism and 5) the ink sequence is performed automatically by the firmware. The EPSON Stylus Scan 2500 has no engage/disengage mechanism, meaning the pump and platen are always at work when the PF motor operates. The figures below show printhead positions when the ink system and various ink-pumping sequences are performed.

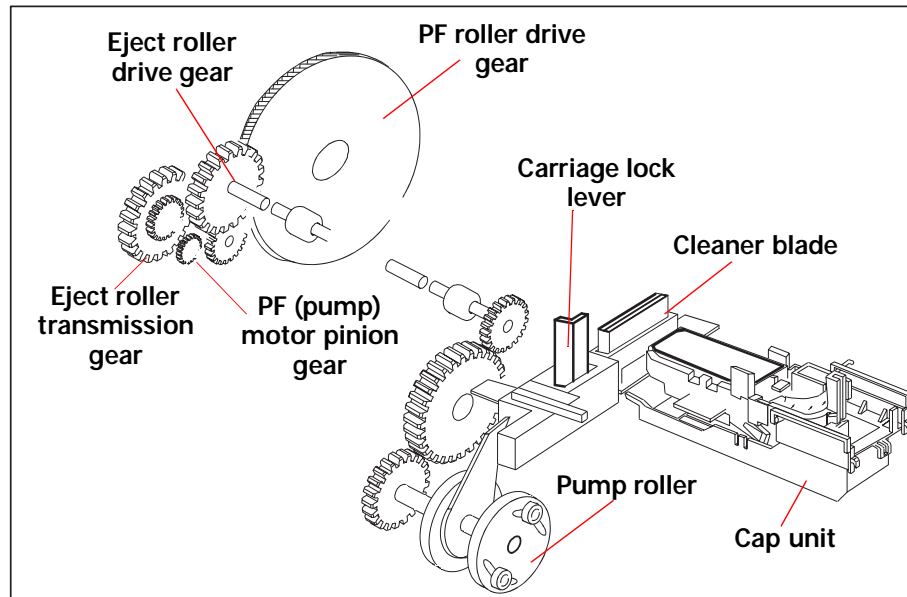


Figure 2-13. Ink System Mechanism

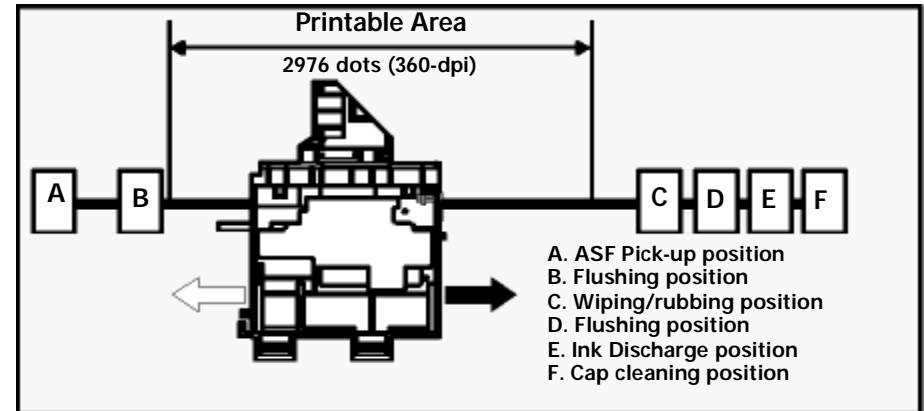


Figure 2-14. Major Ink Sequence Positions on Carriage

2.2.6 Pump, Carriage Lock, Head Cleaner Mechanism

In the EPSON Stylus Scan 2500, there is no switch or mechanism to switch between the ink pump and paper feed operations. Therefore, whenever the paper feed/pump motor rotates, the pump-drive roller inside the pump unit rotates. However, the rotational direction of the rollers determines whether or not the pump sucks ink. Also, even if the pump rotates in the ink-absorption direction, ink is not absorbed if the carriage is in the false-absorption position. Figure 2-13 shows process of conveying motive power to the pump drive roller.

The process of conveying the motive power to the paper eject roller is shown in Figure 2-15. This motive power is conveyed to Gear C through Gear B. The lever that drives Gear C, the carriage lock, and the head-cleaner mechanism is shown separately but it is constructed as one unit. Since the engagement of these parts depends on the tension of the compression spring, if the lever is burdened, only Gear C and the pump roller rotate and no more motive power is conveyed to the lever part.

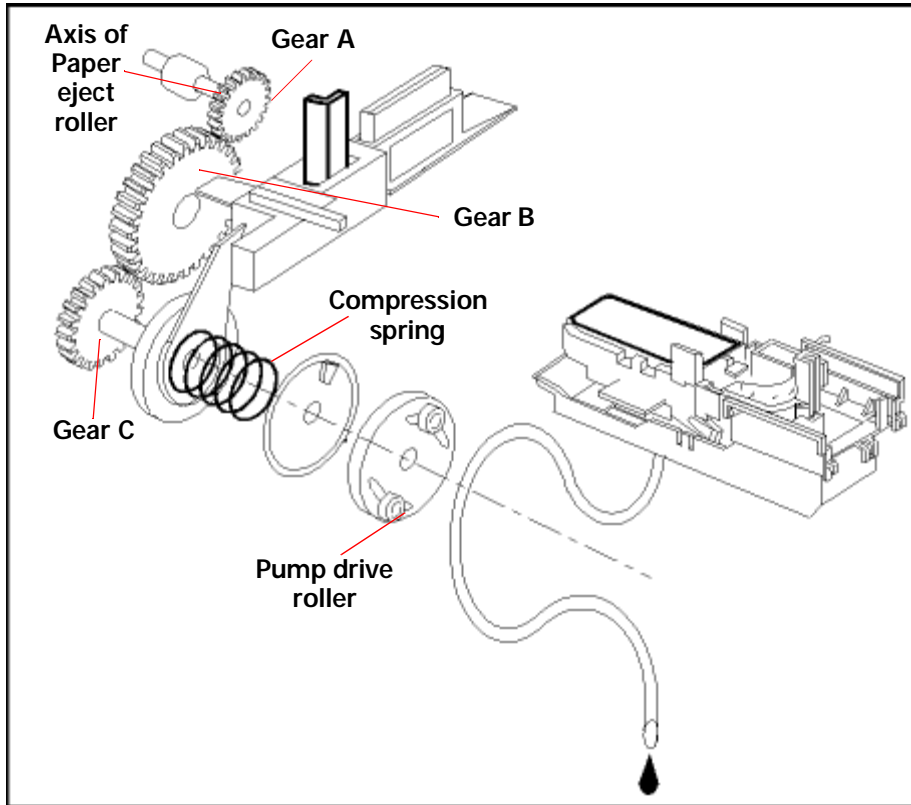


Figure 2-15. Pump Mechanism Power Transmission Process

The table below shows PF/Pump motor rotational direction and pump system operation.

Pump Motor Rotation and Function

PF motor pinion gear rotation (looking at gear surface)	Pump unit operation
Clockwise (CW) forward rotation	1) Release the tubes 2) Disengage Head Cleaner 3) Disengage carriage lock
Counterclockwise (CCW) backward rotation	1) Squeeze tubes to pump ink 2) Engage Head cleaner 3) Engage carriage lock

Refer to Figure 2-16 in the right column which shows the pump operations at clockwise and counterclockwise rotation.

During ink-absorptive operations such as cleaning and flushing (but not during normal printing), ink drains from the ink cartridge to the waste-ink pads through the cap. During printing and flushing, ink is fired out of the nozzles by the PZT. But during absorption operations the head is capped and ink is sucked off the nozzle plate by the force of the vacuum created by the pump drive and the PZT does not move.

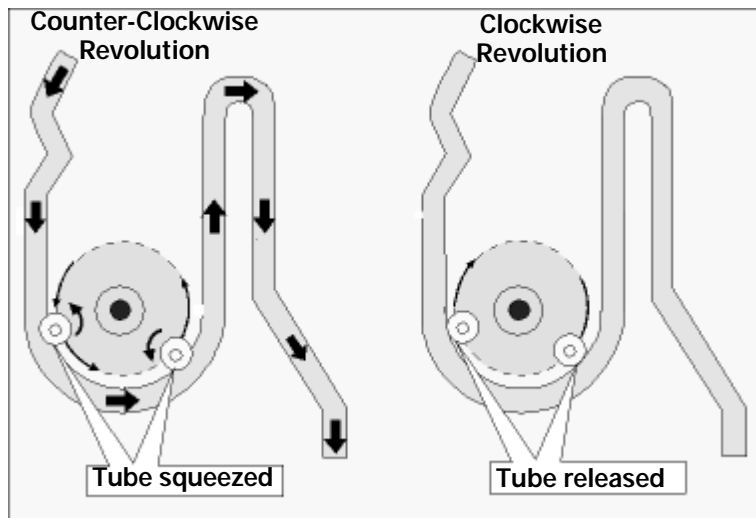


Figure 2-16. Pump Roller Rotation and it's Operation

Pumping modes

Pump Mode	Revolutions	Absorption
Low speed	0.38rev/second	0.06ml/second
Regular absorption	1.3 rev/second	0.2ml/second
High speed	2.6rev/second	0.4ml/second
Super high speed	3.38rev/second	0.54ml/second

2.2.7 Cap Mechanism

The cap mechanism prevents ink from thickening and sticking on the head surface when the printer is not in operation and it also plays a part in cleaning the printhead. During the power-off sequence, the printhead moves to the right where the head surface and cap come into contact, and the head surface contacts the rubber frame of the cap surface until the power is turned back on.

An absorber pad is spread in the cap and can hold a certain amount of ink which is absorbed from the head without draining it to the waste ink pad. Also, below the absorber pad, there are two valves that control the adhesion pressure between the head and cap surface. There is also one exit and tube to drain ink to the waste ink pads.

Position A

When the carriage is out of the HP (for example in the printable area or paper feed position), the valves on the cap mechanism stay in Position A (closed) as shown to the right.

Position B

When the carriage returns to the right, it catches the carriage flag on the cap mechanism. This raises the cap to meet the head surface. This position is used for head cleaning because the valves are still closed but the rubber around the cap traps air, so when the pump sucks air away from the cap, a vacuum is created and ink is sucked away from the head surface. Ink absorption and slight ink absorption are performed in Position B.

Position C

By moving the carriage a little further to the right, the frame flag on the cap mechanism contacts the frame and the air valve opens. When the carriage is in this position and the pump sucks air, no ink is absorbed from the head surface but ink left in the absorber pad in the cap is drained.

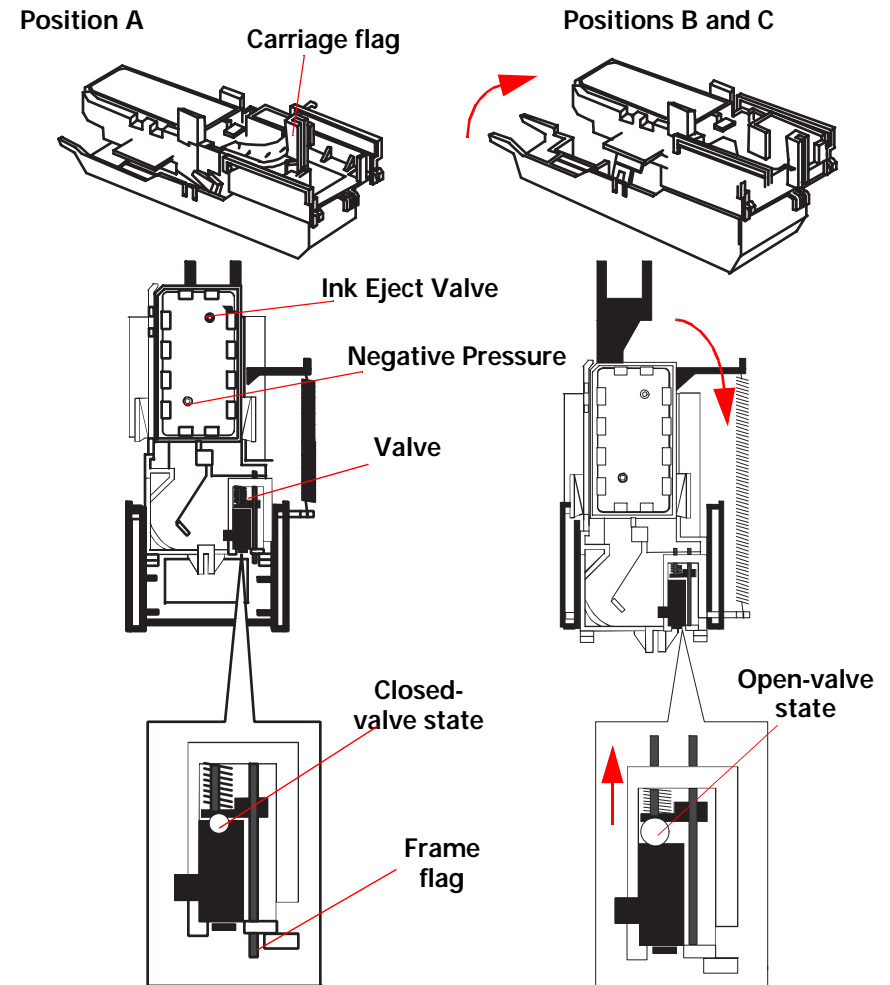


Figure 2-17. Cap mechanism and valve operation

2.3 Scanner Principles

This section explains the operating principles of the scanner mechanism. The scanner mechanism can be divided into the Carriage Unit and Carriage Operation.

2.3.1 Carriage Unit

The Carriage Unit is mainly composed of the CCD sensor board, inverter board, lamp (light source), mirror, and lens. (See Figure 2-18 and Figure 2-19.)

- Inverter Board: This board provides voltage to drive the lamp.
- Lamp: A white cold fluorescent lamp is used as the light source.
- Mirror and Lens: The light emitted to the document reaches the CCD sensor after being reflected on some mirrors one after another. Instead of changing the light source to create R/G/B light component as many previous models did, the color CCD itself creates each R/G/B light component.

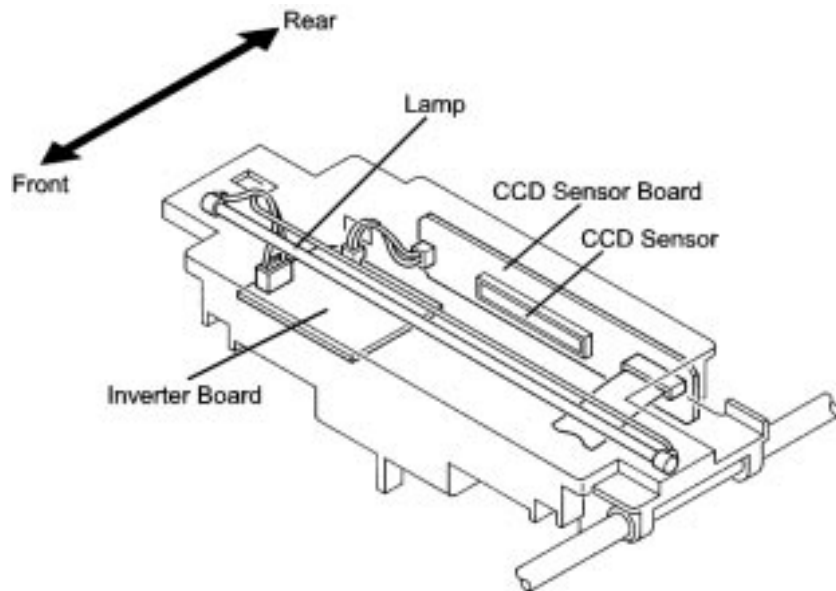


Figure 2-18. Carriage Unit Component

- CCD Sensor Board: This board controls the Color CCD line sensor (independent R,G,B) and drive circuit. When power is turned on and the LCD display shows "Warm up", the CCD sensor board is actually performing a standard white test.

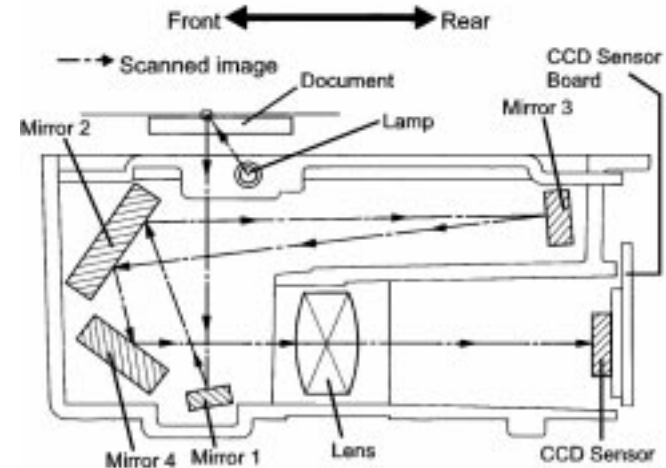


Figure 2-19. Mirror, Lens Mechanism

2.3.2 Carriage Operation

Scanning is performed in the main scan direction (=1 line) by the CCD sensor and in the sub-scan direction (=several lines) by the carriage movement. (See Figure 2-20.)

The line-type, color CCD sensor can scan 1 line in main scan direction (parallel) to the carriage unit) by one time. When scanning next lines after the second line in sub-scan direction, CR driving moves the carriage unit, which has CCD sensor inside, and scan the other lines. The scanned data is sent to the control board. The scanned data for "n" lines and "n-1" line are processed consecutively.

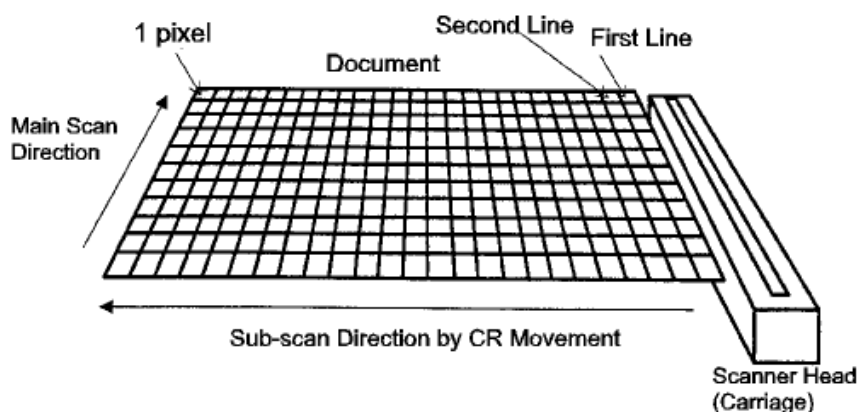


Figure 2-20. Carriage Movement

The Carriage Unit slides in the sub-scan direction along the guide rail. For this sliding operation, the carriage motor drives the timing belt attached to the carriage unit by conveying the driving force through the driven pulley and reduction gear. Scanning start position is determined by CR HP sensor, which is located on the control board. Since the stepping motor is used for CR motor, carriage head position is controlled under the open loop system.

2.4 Local and PC Copy Principles

This section covers the main differences between Local Copy and PC Copy operations.

- Local Copy = Scan and print the scanned document using only the Stylus Scan processing power. Can be connected or not connected to a computer.
- PC Copy = Scan, process the scanned document in the open application, and print from the application.

2.4.1 Local copy process

Scan > gamma curve > color matching table > print

1. The scanner scans at 300 or 600 dpi.
2. The image data is processed through the gamma curve to remove the background color of plain paper or photo paper. Unlike the Stylus Scan 2000, this image processing includes MicroWeave, halftones, and so on.
3. The color matching table is consulted to convert RGB to CMYK.
4. The printer prints at 360 x 360 or 720 x 720 dpi, and color is full color.

Stylus Scan 2500 Local Copy

Mode	Setting	Scan Res. dpi	Print Res. dpi	Dot Size	Media	Original Doc. Type	Background Color Removal
B/W	Normal	300	360x360	Normal	Plain Paper	Text - Business doc.	Newspaper color
B/W	Fine	600	720x720	Variable	Plain Paper	Photo - Text & Photo	EPSON Photo Quality Inkjet paper color
Color	Normal	300	360x360	Normal	Plain Paper	Text - Business doc.	Plain paper color
Color	Fine	600	720x720	Variable	Plain Paper	Photo - Text & Photo	EPSON Photo Quality Inkjet paper color
Color	Photo	600	720x720	Variable	Photo Paper	Photo only	No color removal

2.4.2 PC copy process

PC Copy Settings

Mode	Setting	Scan Res. dpi	Print Res. dpi	Media
Text	Normal	240	Speed	All
	Fine	360	Quality	All
Text & Image	Normal	240	Speed	All
	Fine	360	Quality	All
Photo	Normal	240	Speed	All
	Fine	360	Quality	All
OriginalColor-Copy	Normal	240	Speed	All
	Fine	360	Quality	All

2.4.2.1 Normal PC copy

Scan > gamma curve > image processing > color matching table > print

1. The scanner scans at 300 or 600 dp, but EPSON TWAIN calls for 240 or 360 dpi image data (to match printer resolution).
2. The image data is analyzed to remove the background color of paper and to remove any image from the reverse side of the paper.
3. The image is improved with the Auto Document Enhancement feature which:
 - Sharpens edges
 - Smoothens characters
 - Removes moire (usually - see original color copy below) from documents that were printed from ink jet printers - this prevents CMYK color meshes from doubling when the image is printed again from an ink jet printer

- AutoPhotoFine (similar to PhotoEnhance in the driver) is used to improve quality.

4. The color matching table is consulted to convert RGB to CMYK.
5. The print resolution varies according to media type; same as Speed vs Quality slide bar in the printer driver.

2.4.2.2 Original color copy

Original color copy does not process or enhance the scanned data. This is useful in two cases

Scan > OriginalColorCopy > color matching table > print

1. The scanner scans at 300 or 600 dp, but EPSON TWAIN calls for 240 or 360 dpi image data (to match printer resolution).
2. The image data is not analyzed or modified.
3. The color matching table is consulted to convert RGB to CMYK.
4. The print resolution varies according to media type; similar to the Speed vs Quality slide bar in the printer driver.

2.5 Electrical Circuit Operating Principles

EPSON Stylus Scan 2500 contains the following three electric circuit boards.

- Electronic Boards for Stylus Color 2500 are;
 - Main: B102 Main Board
 - Power Supply: B102 PSB/PSE Board
 - Panel: B102 PNL Board

Refer to Figure 2-21 for the major connection of the 3 boards and their roles.

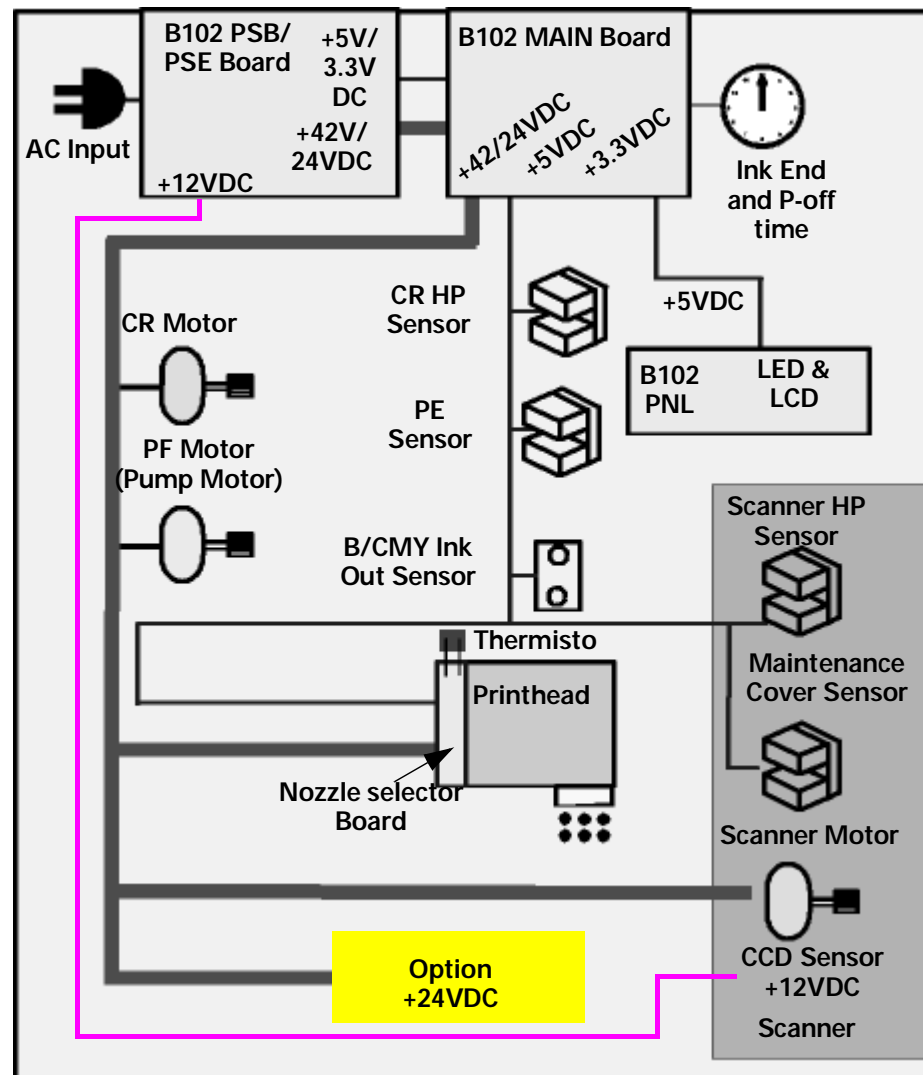


Figure 2-21. Electric Circuit of Stylus Color 2500

2.5.1 B102 PSB/PSE Board

The power supply board for the EPSON Stylus Scan 2500 generates +42VDC to drive the motors, +24VDC to drive the scanner and option, +12VDC to power the lamp, and +5VDC/+3.3VDC to power the printer logic. The table below shows application of voltages generated by PSB/PSE board.

1. Even if power is turned off during the middle of a print job, since the driving power is turned off after the carriage goes back to the carriage lock position, the possibility of clogged ink nozzles is reduced.
2. If power is turned off while paper is being fed in the printer, the same operation mentioned above is performed and the driving power is turned off after the paper is completely ejected. The time allowed is approximately 30 seconds, meaning voltage is flowing for 30 seconds after the power is turned off.

Figure 2-22 shows a block diagram of power supply board. The process from the input of AC voltage to the output of DC voltage is explained in the following pages.

Application of DC Voltage

Voltage	Application	
	Printer	Scanner
+42VDC	<ul style="list-style-type: none"> • CR Motor • PF/Pump Motor • Printhead drive 	
+24VDC		<ul style="list-style-type: none"> • Scanner Motor • Option unit drive
+12VDC		Inverter board CCD sensor board
+5VDC	Common Control circuit Sensors (CR HP, PE, ASF) Control panel Printhead control Option unit logic	
+3.3VDC	Control circuit	

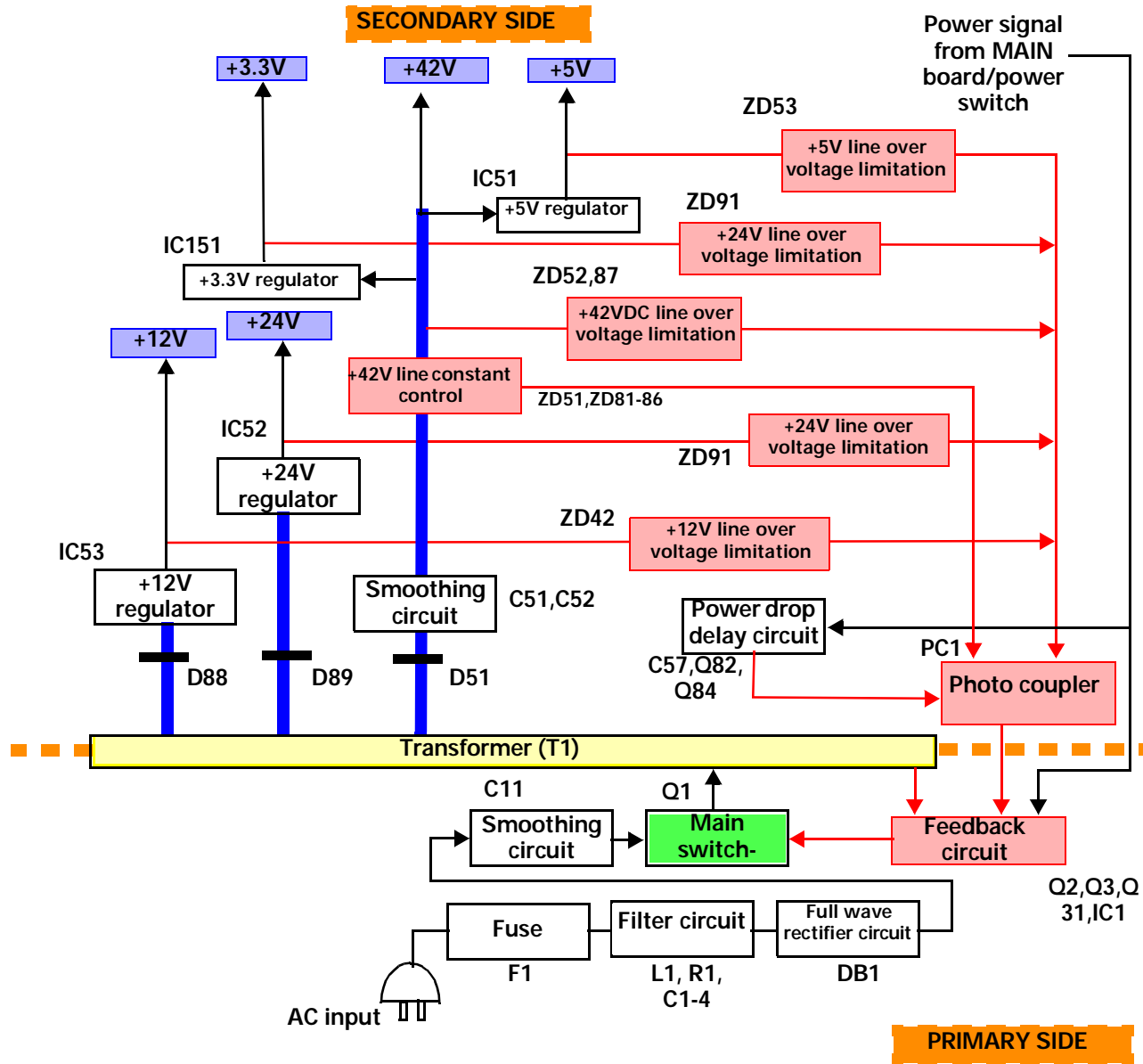


Figure 2-22. B101 PSB/PSE Board Block Diagram

1. As long as the AC power cable is plugged into a power source, voltage flows through the primary side (bottom in figure above) of the power supply board.
2. The fuse prevents damage to the power supply board in case the current is too strong.
3. The filter circuit acts to filter incoming electrical noise and to smoothen the electrical current.
4. The full wave rectifier circuit converts AC to DC.
5. The smoothing circuit stabilizes out the DC wave.
6. The main switching circuit controls the flow of current to the transformer (hence to the entire secondary side). The main switching circuit, transformer, and feedback circuit work in combination like the heart, lungs, and brain (respectively) of the human body. The main switching circuit is the variable-flow generator like the heart, the transformer convert the power to a usable form like lungs adding oxygen to blood, and the feedback circuit controls the flow like the brain controlling the heartbeat/pulse.
7. The transformer receives approximate 100V or 220V DC (depending on the model) and steps the voltage down before sending it to the secondary side.
8. The current is stabilized as it goes through another smoothing circuit.
9. The 24V, 12V, 5V, and 3.3V regulators control the flow of current so that only the rated voltage flows through each regulator. The input level fluctuates but the output is constant.
10. The 42V, 24V, 12V, 5V, and 3.3V line over-voltage limitation protectors monitor their individual lines for any voltage over the rated amount. If over-current is detected, a signal is sent to the photo coupler to decrease current.
11. The +42V line constant control is similar to a regulator in that it is always working, but instead of fixing the over-current, it reports the over-current to the photo coupler.
12. The photo coupler is one part of the over-current feedback system. A photo coupler is necessary because electrical current cannot cross the from the primary side to the secondary side and vice-versa; the absolute ground levels for the primary side (AC as well as DC) and secondary side (DC only) are different, so they will short if they come into contact. The photo coupler transmits signals via a photo emitter.
13. The feedback circuit 1) receives over-current information from the photo coupler by means of a photo receiver 2) monitors the transformer for over-current and 3) receives power-supply information/commands from the MAIN board and power switch. The feedback circuit changes the voltage sent from the main switching circuit to the transformer when necessary.
14. The power-drop delay circuit is a thirty-second timer that activates whenever the power is turned off. The thirty-second period is necessary to guarantee safe completion of the power-down sequence.

2.5.2 B102 MAIN Board

The B102 MAIN Board controls the printer, scanner, copy function, pumping, paper feeding, and all signals to/from the control panel unit. The following figure shows the MAIN Board circuit diagram for EPSON Stylus Scan 2500.

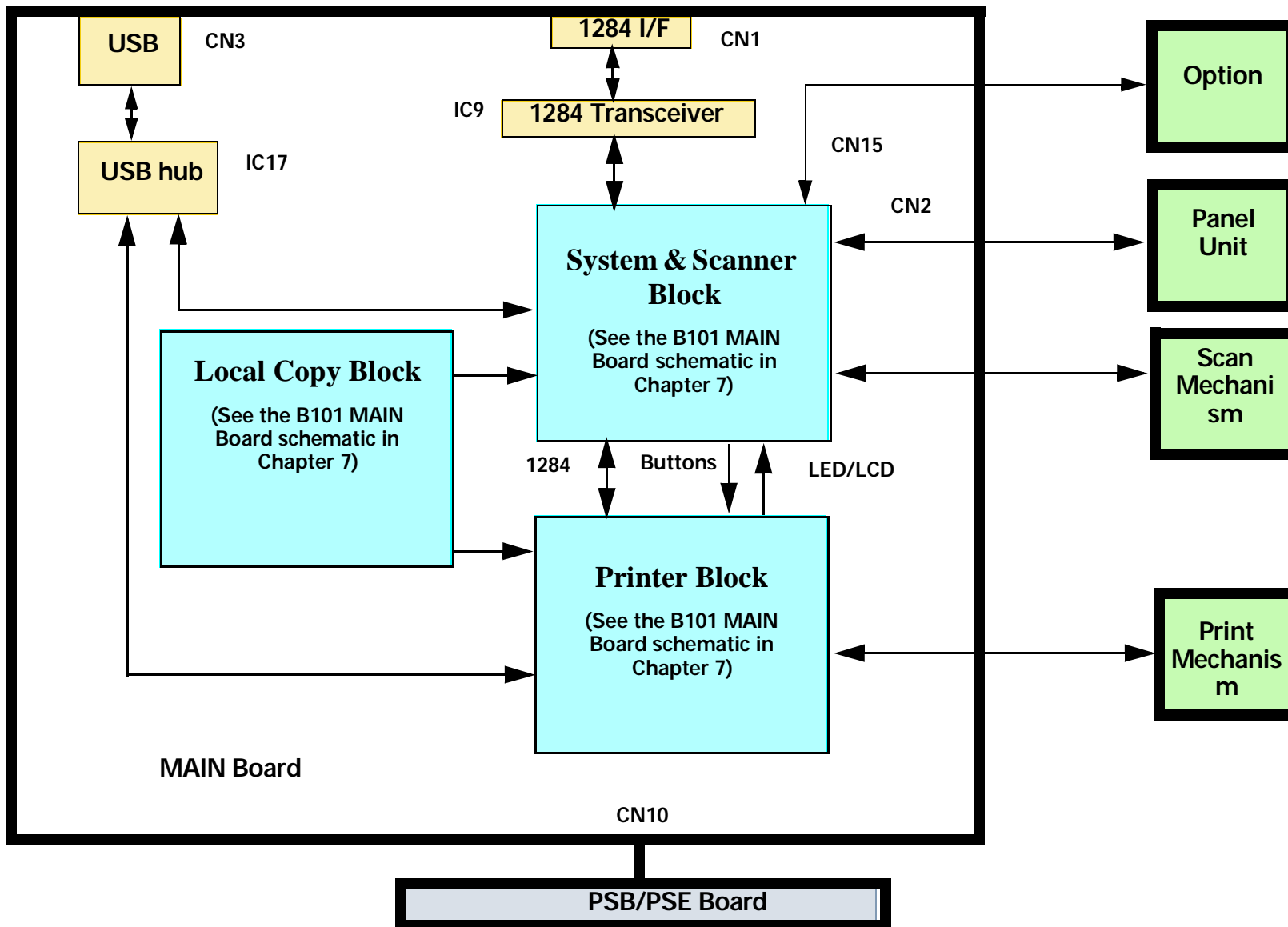


Figure 2-23. B102 Main Board Block Diagram

The System & Scanner Block

The System & Scanner Block is all of the ICs that handle image data from the scanner. Also this block handles all control/communication signals sent to and from the Control Panel unit as well as any installed options.

 The Printer Block

The Printer Block is all the ICs that handle print data and communication data to and from the print mechanism. The print data can come through the USB or parallel port, and communication can be with the print mechanism, System & Scanner Block, or host. One example of communication data from the System & Scanner Block would be a paper feed signal generated when the user presses the Paper Feed button.

 The Local Copy Block

The Local Copy Block receives scanned data from the System & Scanner Block, removes the background color of the paper according to the local copy setting, performs image processing to improve quality, converts color from RGB to CMYK using the color matching table, and sends the modified data to the Printer Block.

 The USB hub

There are actually two USB interfaces (one for each IC block) on this model plus the USB hub. The hub receives incoming signals or data and determines which IC block to send the data to.

CHAPTER

3

TROUBLESHOOTING

3.1 Unit Level Troubleshooting

When a problem occurs, you can identify the defective unit according to the symptoms exhibits. The table below lists the symptoms of certain problems. Once the problem is identified, refer to the flowchart that corresponds to the problem.

The following flowchart illustrates the main steps of the troubleshooting process.

NOTE: There is a special section for motors and sensors that starts on page 73.

Table 3-1. Printer Condition and Panel Status

Error Status	Indicators				Recovery
	Power	Ink out (Black)	Ink Out (Color)	Paper Out	
Paper Out	---	---	---	On	Load paper by pressing the load/eject button.
Paper jam condition	---	Off	Off	Flash	Eliminate a paper then press the load/eject button.
No Ink cartridge or Ink end (black)	---	On	---	---	Install a new black ink cartridge by pressing the load/eject button for 3 seconds.
No Ink cartridge or Ink end (color)	---	---	On	---	Install a new color ink cartridge by pressing the load/eject button for 3 seconds.
Maintenance request	Flash	Flash	Flash	Flash	Change the waste ink pads and reset the EEPROM.
Fatal error	Flash	On	On	Flash	Turn the printer off and on again. If the printer does not recover, repair the appropriate part.

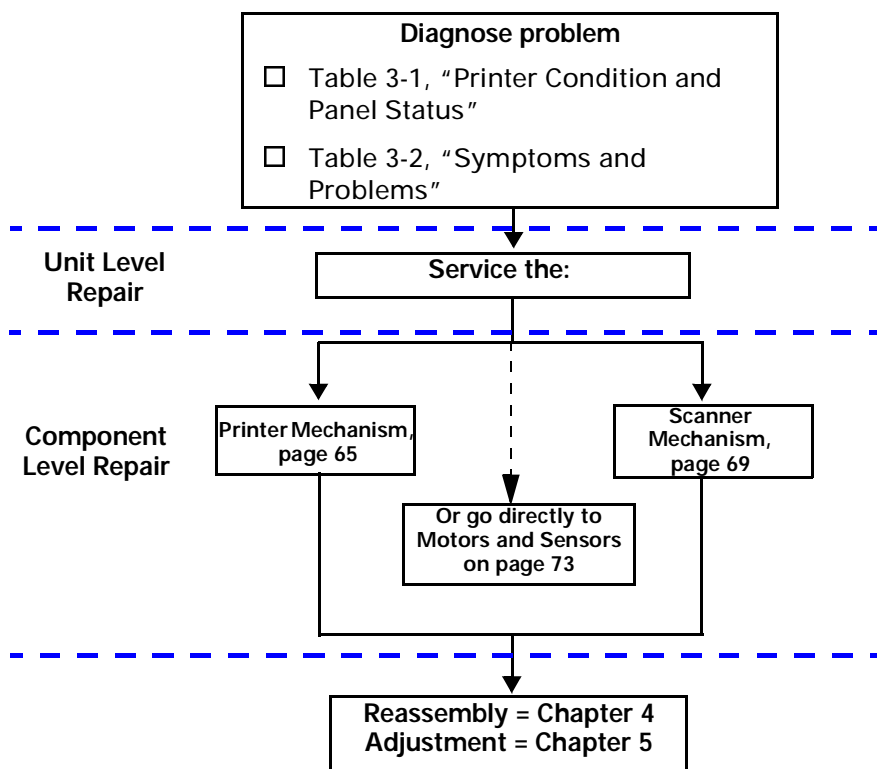
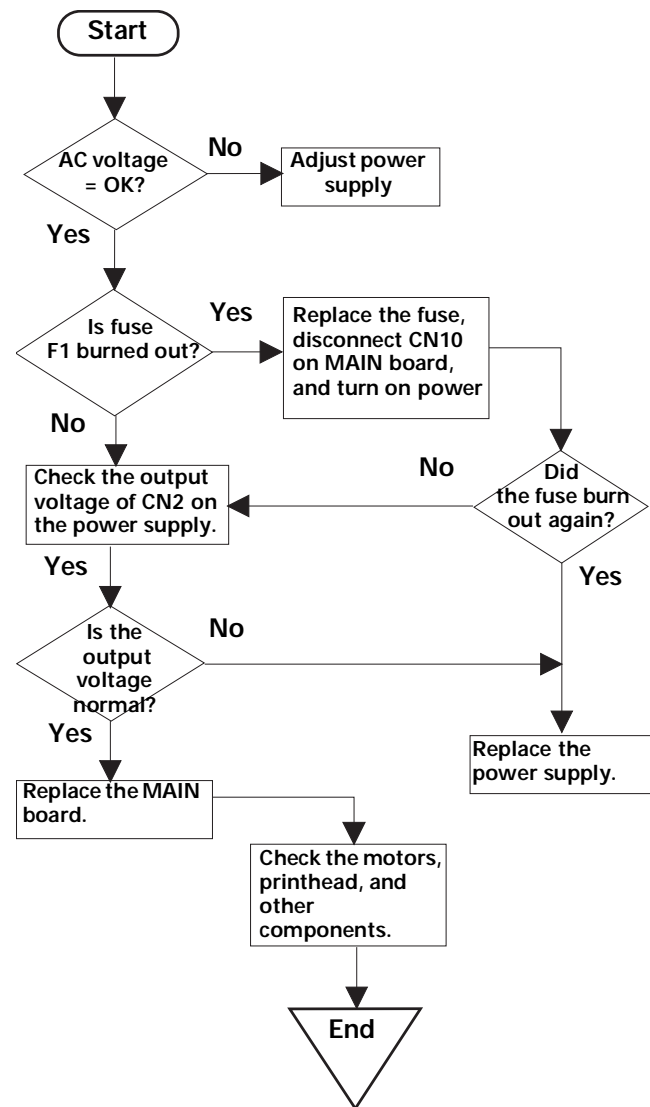


Figure 3-1. Troubleshooting Process Flowchart

Table 3-2. Symptoms and Problems

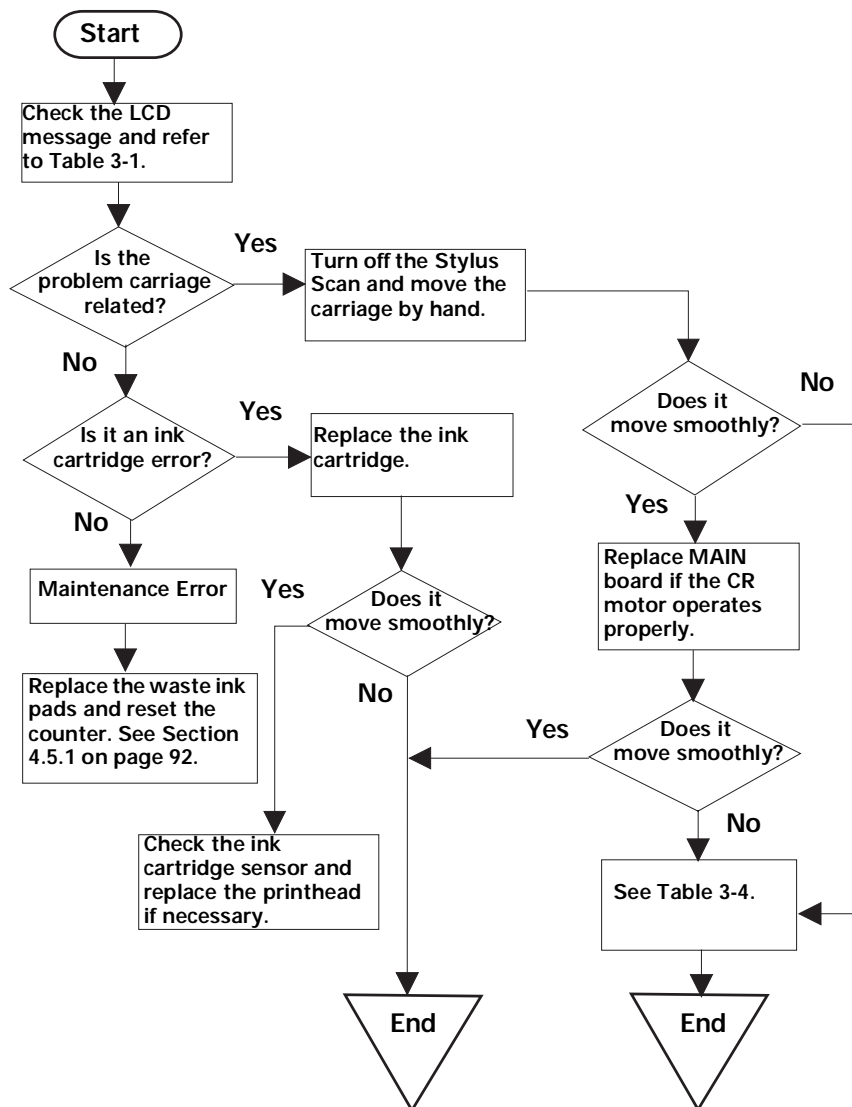
Symptom	Problem	Flowchart No.
Printer does not operate at power on.	LEDs do not light. Printer mechanism does not operate.	Flowchart 3-1
Error is detected	Error is indicated by LED indication.	Flowchart 3-2
Failure occurs during printing.	Printing is not performed. Abnormal printing (missing dot, etc.) Print quality is poor.	Flowchart 3-3
Printer does not feed paper correctly.	No paper is fed. Paper feed is irregular. Paper jam occurs.	Flowchart 3-4
Control panel operation is abnormal.	No response to button access.	Flowchart 3-5

3.1.1 Printer/Scanner does not operate at power on



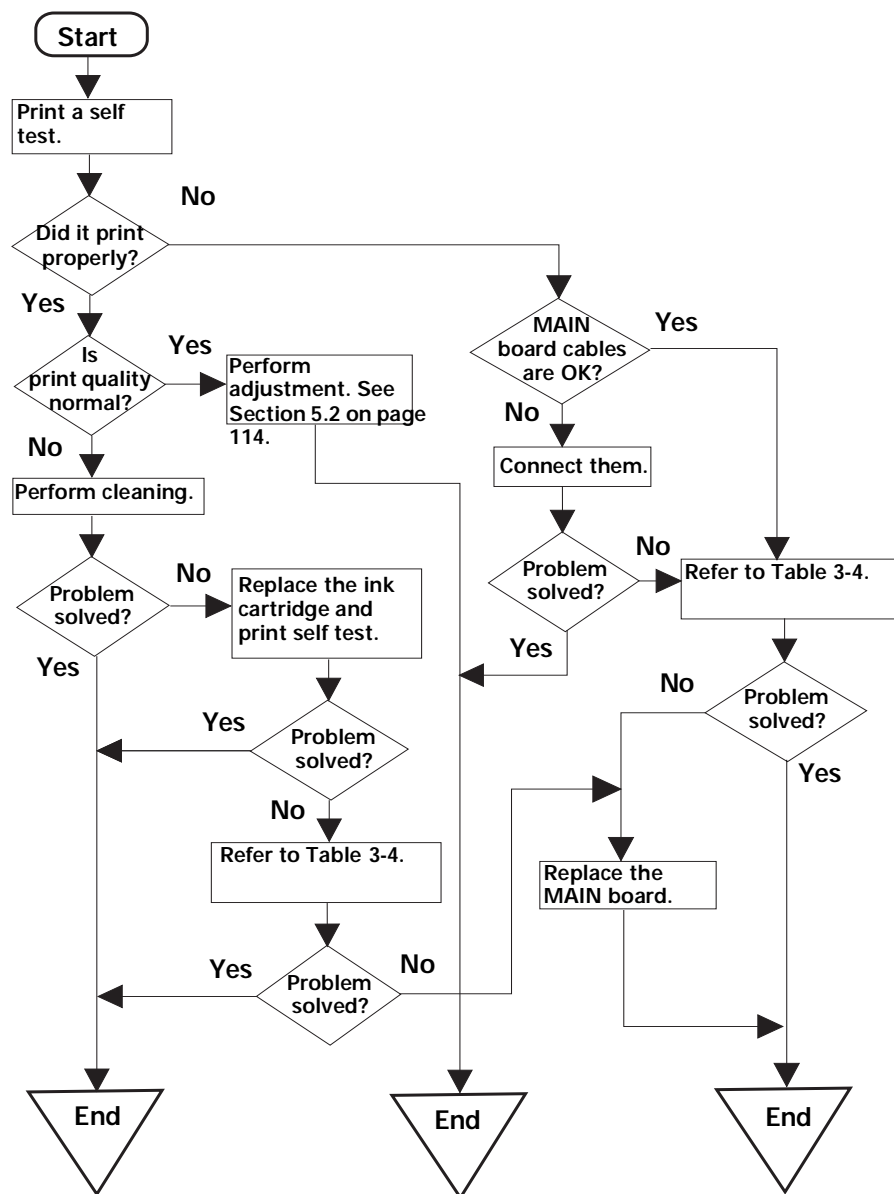
Flowchart 3-1.

3.1.2 Error is detected



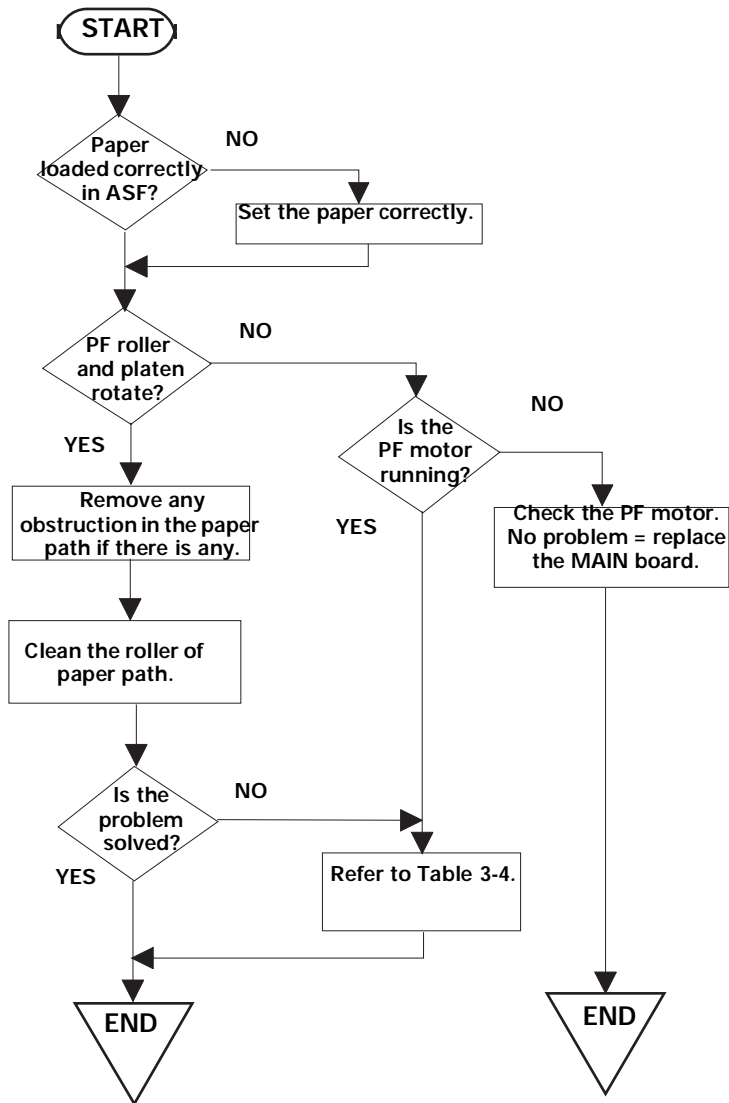
Flowchart 3-2.

3.1.3 Failure occurs during printing



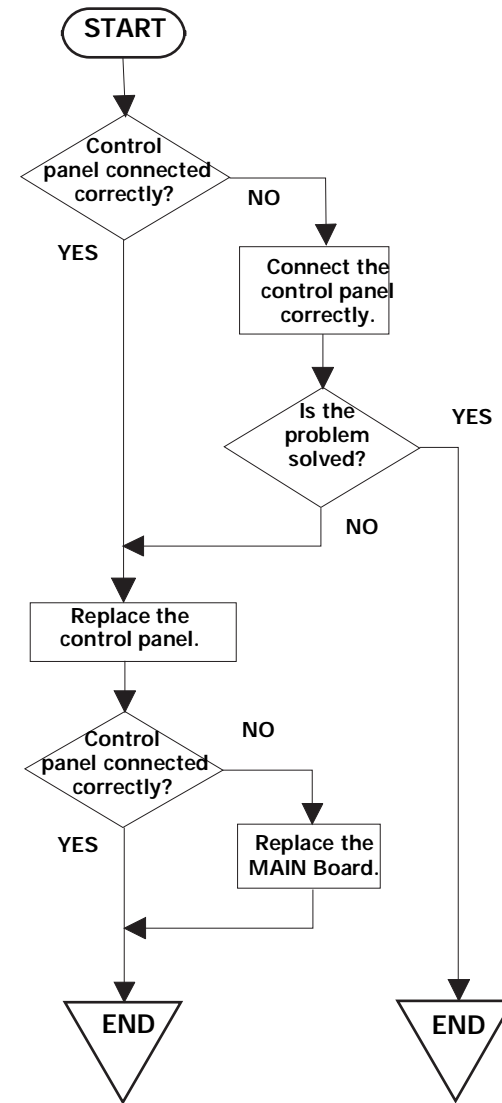
Flowchart 3-3.

3.1.4 Printer does not feed paper correctly



Flowchart 3-4.

3.1.5 Control panel operation is abnormal



Flowchart 3-5.

3.2 Printer Related Troubleshooting

This section provides instruction for repairing the printer mechanism. It describes various problems, symptom, likely causes, checkpoints, and solutions. Select appropriate symptom from the table and check each parts and its function as described in the checkpoint.

Table 3-3. Printer-Specific errors

Error	Cause	Solution
Ink out	When one or more ink cartridges are almost empty, the printer enters the low-ink state and continues printing. When the cartridge is completely empty, the printer indicates an ink-out error and stops printing.	Install a new ink cartridge.
Paper out	If the printer fails to properly load paper, it indicates a paper-out error.	Load paper and press the Load/Eject button.
Paper jam	If the printer fails to properly eject paper, it indicates a paper jam.	Press the Load/Eject button. If this does not clear the error, remove the paper by hand.
No ink cartridge	If the printer detects that one of the ink cartridges is not installed, it indicates a no-ink-cartridge error.	Install a new ink cartridge.
Maintenance request	When the total amount of waste ink reaches the limit, the printer indicates a maintenance request and stops printing.	Replace the waste ink pads.
Fatal error	A carriage control or CG access error has occurred.	Turn off the Stylus Scan and turn it back on. If the error does not clear, service.

Table 3-4. Repair of the Printer Mechanism

Symptom	Condition	Cause	Check Point	Solution
Abnormal pump mechanism operation	Abnormal PF motor operation when the power is turned on.	Foreign substances are loaded in the PF gears.	Manually drive the platen drive gear and check it if it rotates normally.	Remove any foreign substances.
		The PF motor is defective. (Refer to Table5-1)	Check the inner coil resistance and see if there is any disconnection of the coil.	Replace the PF motor.
Ink is not absorbed or is poorly absorbed.	Used ink does not go through the waste ink tube.	The pump tube is crashed.	Check the tube visually.	Fix the crashed part by the airgun.
		Capping rubber is damaged or deformed.	Check the capping rubber visually.	Replace the cap mechanism.
		The tube is out of the cap.	Check if the tube is out of the cap visually.	Connect the tube properly.
		Pump bulb is not closed at absorption.	Check the bulb operation visually.	Replace the cap mechanism.
Abnormal carriage operation.	Abnormal carriage operation at power on.	Foreign substance in the CR drive gear.	Check visually if there is any substances or not.	Remove any foreign substances.
		CR motor is defective.	Check the inner coil resistance and see if there is any disconnection of the coil.	Replace the CR motor.
	Abnormal carriage operation during printing.	Carriage movement is not smooth.	Check whether the carriage moves smoothly when moved manually.	Clean and lubricate the carriage guide axis.
			Check tension of the timing belt.	Adjust tension mechanism or replace it.
			Check if there is any foreign substances in the carriage path.	Remove any foreign substances.

Table 3-4. Repair of the Printer Mechanism (cont.)

Symptom	Condition	Cause	Check Point	Solution
Printing is not performed.	The carriage moves, but no printing is performed.	Head FFC is out of connection.	Check if the head FFC on the board or carriage is connected surely.	Connect the FFC properly.
		The FFC is disconnected inside.	Check the FFC by using a tester.	Replace the FFC.
		I/C is defective.	Install a new I/C and perform the self-test.	Replace I/C.
		Head unit is defective.	If the condition does not improve even after 2 or 3 times cleaning operation, replace the head unit and perform the self-test.	Replace the head unit.
Abnormal printing	Only a particular dot causes abnormal printing.	Print head surface is not clean. (dot missing)	Perform the cleaning operation several times and check printing.	Perform the cleaning.
		The head unit is defective.	Perform the cleaning operation several times and check printing.	If condition does not improve even after the cleaning, replace the head.
		Capping absorber is touching the head surface.	Check the head absorber visually.	Replace the head absorber if it is deformed.
	A dot is not printed occasionally.	Print head surface is not clean. (dot-missing)	Perform the cleaning operation several times and check printing.	Perform the cleaning.
		The head FFC is disconnected inside.	Check the FFC by using a tester.	Replace the head FFC.
		The head FFC is out of connection.	Check if the head FFC on the board or carriage is connected surely.	Connect the FFC properly.
		The head unit is defective.	Perform the cleaning operation several times and check printing.	If condition does not improve even after the cleaning, replace the head.
		I/C is defective.	Install the new I/C and perform self-test.	Replace I/C.
	Black specks or dots.	The head FFC is out of connection.	Check if the head FFC on the board or carriage is connected surely.	Connect the FFC properly.
		The head unit is defective.	Check connection with the head FFC.	Replace the head if there is no connection problem with the FFC.

Table 3-4. Repair of the Printer Mechanism (cont.)

Symptom	Condition	Cause	Check Point	Solution
Abnormal printing (continued)	A vertical line is not aligned.	Bi-directional alignment is not adjusted.	Perform Bi-D adjustment.	Refer to Chapter4.
	White line appears in the image data.	Head angle is not correct.	Perform head angle adjustment.	Refer to Chapter4.
		Platen gap is not correct.	Perform platen gap adjustment.	Refer to Chapter4.
		Dot shooting direction is tilted because head surface is not clean	Perform the cleaning operation several times and check printing.	Perform the cleaning operation.
		I/C is defective.	Install a new I/C and perform the self-test.	Replace I/C.
		Head unit is defective.	Perform the cleaning operation several times and check printing.	Replace the head unit.
Abnormal paper feeding.	Paper is not fed.	Friction of the PF roller.	Check if the PF roller rotates when paper is not fed.	Clean the PF roller by the cleaning sheet. Replace the PF roller if it does not recover.
		Abnormal operation of the hopper.	Check movement of the ASF hopper visually.	Replace ASF.
		Malfunction of ASF drive change-over.	Check if the ASF gear rotates visually.	Replace gears of the ASF drive change-over.
		Friction of the PF roller.	Check if the PF roller slips during paper feeding.	Clean the PF roller by the cleaning sheet. Replace the PF roller if it does not recover.

Table 3-4. Repair of the Printer Mechanism (cont.)

Symptom	Condition	Cause	Check Point	Solution
Printer stops during initialization.	Fatal error appears.	ASF sensor is defective.	Check the signal level of the ASF sensor. (Refer to Table 5-2)	Replace ASF sensor.
		PE sensor is defective.	Check the signal level of the PE sensor. (Refer to Table 5-2)	Replace PE sensor.
		HP sensor is defective.	Check the signal level of the HP sensor. (Refer to Table 5-2.)	
		Head FFC is disconnected.	Check if the head FFC is connected.	Connect the head FFC.
		CR motor is defective.	Check the CR motor cable is connected.	Replace the CR motor if there is no problem in the cable connection.
		PF motor is defective.	Check if the PF motor cable is connected.	Replace the PF motor if there is no problem in the cable connection.

3.3 Scanner Troubleshooting

This section describes troubleshooting from the abnormal phenomenon. You can isolate the faulty unit based on the abnormal phenomenon. See Table 3-6, "Service Level Troubleshooting Starts Here," on page 69 to find the closest phenomenon and the corresponding table to refer to.

Table 3-5. User-level Scanner-Specific errors

Error	Cause	Solution
Fatal error	<ul style="list-style-type: none"> The lamp is broken. Stylus Scan turned on before the transportation screw was removed. System breakdown. 	Turn off the Stylus Scan and turn it back on. If the error does not clear, service. (Disposition) Turn off the lamp and stop operation. Set bit 7 of the status byte.
ADF paper jam	ADF fails to eject the document.	After removing the document, turn the Stylus Scan off and back on, or send the ESC @ command. Parallel I/F init: active pulse (Disposition) Turn off the lamp and stop operation. Set bit 7 of the status byte.
Command error	Unidentified command detected. (Disposition) The scanner sent a NACK signal and is waiting for the next command. If an incorrect command or parameter is received, it is disregarded and the previous value is maintained.	Send a correct command to clear the error.
ADF cover open	ADF cover open	Close the cover.
Maintenance cover open	Maintenance cover open	Close the cover.

Table 3-6. Service Level Troubleshooting Starts Here

Phenomenon	Description	Ref, Table
Scanner does not operate with power on.	<ul style="list-style-type: none"> The Operate light on the control panel does not come on. Scanner does not operate the initialization. 	Table 3-7 Table 3-8
Fatal Error occurs and is not cleared after turning off and back on the scanner.	<ul style="list-style-type: none"> Carriage unit does not operate. Carriage unit crashes into the frame, and an error is indicated. The lamp does not light up. 	Table 3-9 Table 3-10 Table 3-11
Scanned image is unclear.	---	Table 3-12
"Interface Error" is indicated.	<ul style="list-style-type: none"> SCSI Interface Error USB Interface Error 	Table 3-13 Table 3-14
"Option Error" occurs. Optional unit(ADF/TPU) do not operate.	Optional unit does not operate correctly.	Table 3-15

Table 3-7. Power problems

Cause	Step	Checkpoint	Finding	Solution
Connector CN1 on the power board is disconnected.	1	Is the connector CN1 on the power board disconnected?	Yes	Connect CN1 properly.
Connector CN1 or CN2 on the power board disconnected.	2	Is the connector CN1 or CN2 on the power board disconnected?	Yes	Connect CN1 or 2 properly.
Fuse on the power board has blown out.	3	Has the fuse on the power board blown out?	Yes	Replace the fuse.

Table 3-7. Power problems (cont.)

Cause	Step	Checkpoint	Finding	Solution
The power board is broken.	4	With the scanner On, check the voltage output level between pins 8/9(+) and pins 6/7(-) on the power board. Is the voltage +5VDC?	No	Replace the power board.
Connector CN4 on the power board is disconnected.	5	Is the connector CN4 on the control board disconnected?	Yes	Connect CN4 properly.
The control board is broken.	6	---	---	Replace the control board.

Table 3-8. Scanner does not initialize

Cause	Step	Checkpoint	Finding	Solution
Connector CN1 on the power board is disconnected.	1	Is the connector CN1 on the power board disconnected?	Yes	Connect CN1 properly.

Table 3-9. Carriage Unit does not operate

Cause	Step	Checkpoint	Finding	Solution
Power board is broken.	1	With the scanner power on, check the voltage output level between the Pins 4/5(+) and Pins 6/7 (-) for CN101 on the power board. Is it +24VDC?	No	Replace the power board.
Carriage Unit (or CR move mechanism) is broken.	2	<ul style="list-style-type: none"> With the scanner upper case removed, does CR motor move? With the CR motor removed, does the carriage unit move smoothly? 	No	Check the carriage move mechanism and replace the corresponding parts or disassemble and assemble the part.

Table 3-9. Carriage Unit does not operate (cont.)

Cause	Step	Checkpoint	Finding	Solution
CR Motor is broken	3	Disconnect the connector CN6 on the control board, then using the tester, check the coil resistance between Pin2 and 4 and between Pin1 and 3. Is the resistance of 2 points about 6.2Ω?	No	Replace the CR motor.
		If any motor coil is shorted, check the CR motor drive circuit in the order below. 1.)Set the tester on Ohms. 2.)Place the (-) lead of the tester on any of Pins 1,2, 3 or 4 for CN1 on the control board. 3.)Place the (+) lead of the tester on Pin 6/7 for CN4 on the control board. With the scanner off, does the meter show "∞"?	No	Replace the power board.
Control board is broken.	4	---	---	Replace the control board.

Table 3-10. Carriage unit crashes into frame

Cause	Step	Checkpoint	Finding	Solution
CR home position sensor is broken.	1	Check the signal level. • Check the signal/status level between C(+) and E(-) for PC2. H(about 4.5V)/ when PC1-PC2 is closed. L(0.3V)/when PC1-PC2 is opened.	--	Replace the CR home position sensor(PC1/PC2) on the control board.

Table 3-11. The lamp does not light up.

Cause	Step	Checkpoint	Finding	Solution
Connector CN5 on the control board is disconnected.	1	Is the connector CN5 on the control board disconnected?	Yes	Connect CN5 properly.
Connector CN1 or CN2 on the CCD board disconnected.	2	Is the connector CN1 or CN2 on the CCD board disconnected?	Yes	Connect CN1 or 2 properly.
Lamp is not connected properly on the inverter board.	3	Is the lamp connected properly on the inverter board?	No	Connect the lamp properly.
Lamp is broken.	4	Does the lamp light after it is replaced?	Yes	Replace the lamp.
Inverter board is broken.	5	Does it operate properly after replacing it?	Yes	Replace the inverter board.
Control board is broken.	6	---	---	Replace the control board.

Table 3-12. Poor image quality

Cause	Step	Checkpoint	Finding	Solution
Mirror in the carriage unit is dirty.	1	Is the image scanned clearly after cleaning the mirror?	No	Clean the lamp surface.
CCD sensor board is broken.	2	---	--	Replace the CCD board.
Control board is broken.	3	---	---	Replace the control board.

Table 3-13. SCSI Interface Error

Cause	Step	Checkpoint	Finding	Solution
Terminator switch is set wrong.	1	Check the user's guide for the correct setting. Is the setting correct?	No	Set the terminator correctly.
SCSI setting is wrong.	2	Check the user's guide for the correct setting. Is the setting correct?	No	Set the SCSI correctly.
SCSI cable is defective.	3	Replace the SCSI cable. Is the operation normal?	Yes	Replace the SCSI cable.
Control board is broken.	4	---	---	Replace the control board.

Table 3-14. Parallel Interface Error

Cause	Step	Checkpoint	Finding	Solution
Host and O/S (Windows95/98) does not support the USB.	1	On the Windows, go to "My Computer" → "Property" → "Device Manager", then, check if "Universal serial bus controller" is effective.	No	Replace the host.
USB cable is broken.	2	Replace the USB cable. Is the operation normal?	Yes	Replace the USB cable.
Control board is broken.	3	---	---	Replace the control board.

Table 3-15. Option unit malfunction

Cause	Step	Checkpoint	Finding	Solution
The cable of the optional unit is disconnected.	1	Is the connector CN1 on the control board disconnected?	Yes	Connect the CN1 properly.
Control board is broken.	2	---	---	Replace the control board.
Optional unit is broken.	3	+24V line:Lamp, Motor +5V line:Sensor, logic circuit.	---	Replace the defective part of the optional unit.

3.4 Troubleshooting Motors and Sensors

Table 3-16. Motor Resistance and Measurement Procedure

Motor Name	Location	Check Point	Resistance
CR Motor	CN7 (MAIN board *)	Pins 1 & 3, Pins 2 & 4	7.8 Ohms \pm 10%
PF (Pump) Motor	CN8 (MAIN board *)	Pins 1 & 3, Pins 2 & 4	7.8 Ohms \pm 10%

Table 3-17. Sensor Check

Sensor Name	Location	Signal Level	Sensor Status
Paper End Sensor	CN5/Pins 1 & 2	Close: more than 2.4V	No paper
Carriage Home Position Sensor	CN4/ Pins 1 & 2	Close: more than 2.4V	Out of home position
ASF HP Sensor	CN6/ Pins 1 & 2	Close: more than 2.4V	Out of home position
Black Cartridge Sensor	CN9/Pins 1 & 19	Off: more than 2.4V	Black cartridge installed
Color Cartridge Sensor	CN9/Pins <u>2 & 19</u>	Off: more than 2.4V	Color cartridge installed
Thermistor	CN9/ Pins <u>2 & 19</u>	Analog data	Change the VH voltage of charge pulse for common driver circuit

CHAPTER

4

DISASSEMBLY & ASSEMBLY

4.1 Overview

This chapter describes procedures for disassembling the main components of the EPSON Stylus Scan 2500. Unless otherwise specified, disassembly units or components can be reassembled by reversing the disassembly procedure. Therefore, no specific assembly procedures are included in this chapter, but special points regarding re-assembly are given 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 headings "WARNING" and "CAUTION" below, before disassembling or assembling the EPSON Stylus Scan 2500.



- **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 servicing 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 incorrectement. 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.



- 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 into 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.
- For the above reasons, 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	yes	B743800200
(+) Driver No.1	yes	B743800400
Tweezers	yes	B741000100
Hexagon Box Driver (Opposite side: 5.5mm)	yes	B741700100
M3 (5.5mm) wrench	yes	-
Pliers	yes	-
Acetate tape	yes	-


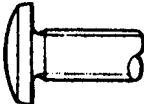






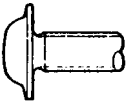


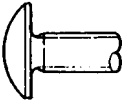

4.1.3 Specification for Screws

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 Characteristics

Name	Size
+Bind, S-tight (CBS)	3X6
+Bind, S-tight	3X10
+Bind, P-tight (CBP)	3X6
+Bind, P-tight	3X10
+Bind, P-tight	3X8
+Pan head (CP)	3X4
+Bind, S-tight, Sems R2 (CBS Sems)	3X6

Table 4-3. Screw Types and Abbreviations

Head		Body	Washer (assembled)
Top	Side		
1. Cross-recessed head 	1. Bind 	1. Normal 	1. Plain washer 
2. Slotted head 	2. Pan  (with Notch)	2. S-tight 	2. Outside toothed lock washer 
	3. Cup/flange 	3. P-tight 	3. Spring washer 
	4. Truss 	4. Tapping 	

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 4-4. Inspection Checklist for the Stylus Scan

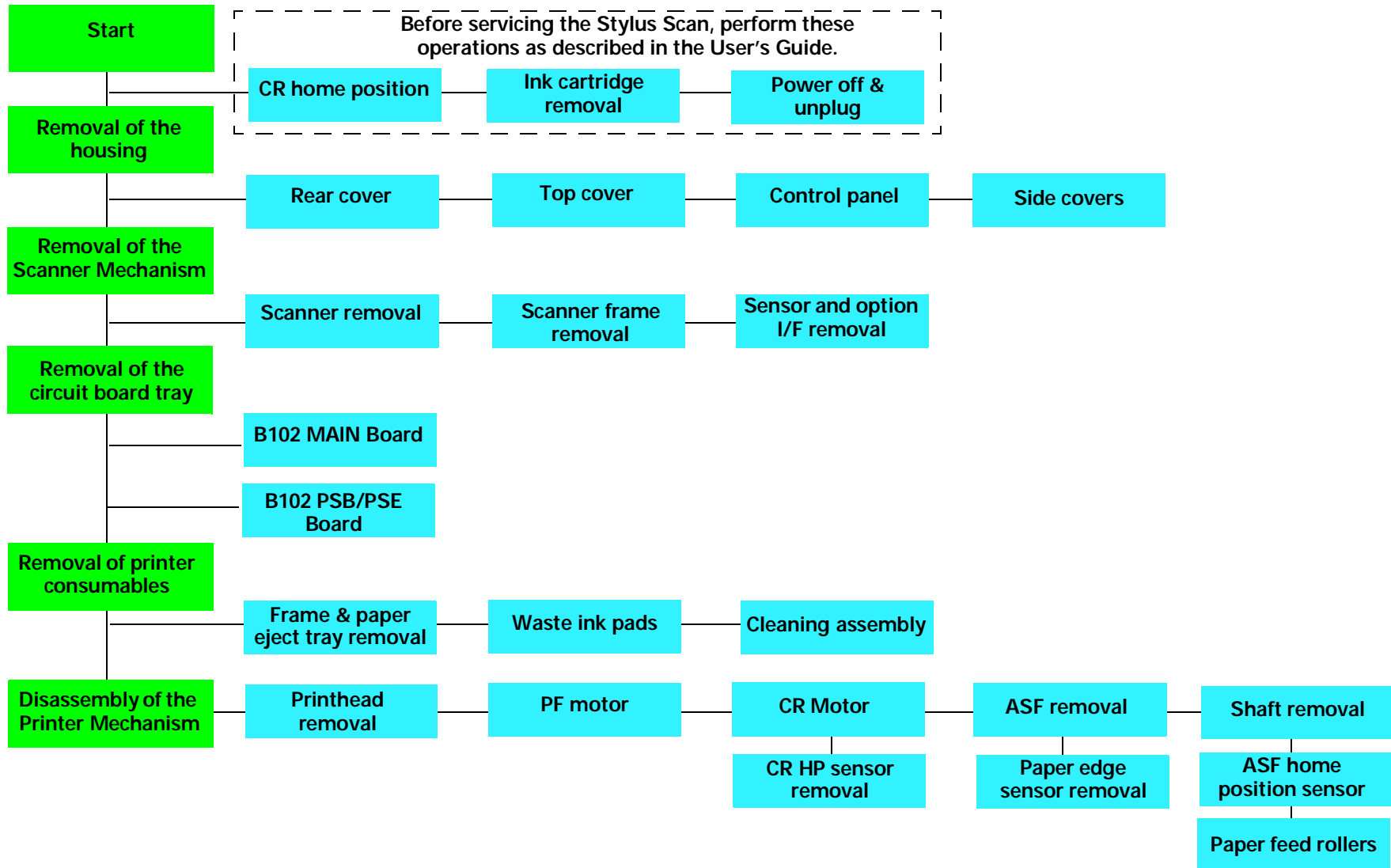
Category	Component	Item to check	Is Check Required?
Printer units	Self-test	Is the operation normal?	<input type="checkbox"/> Checked / <input type="checkbox"/> Not necessary
	On-line test	Was the on-line test successful?	<input type="checkbox"/> Checked / <input type="checkbox"/> Not necessary
	Print head	Is ink ejected normally from all nozzles?	<input type="checkbox"/> Checked / <input type="checkbox"/> Not necessary
	Carriage mechanism	Does the carriage move smoothly?	<input type="checkbox"/> Checked / <input type="checkbox"/> Not necessary
		Any abnormal noise during movement?	<input type="checkbox"/> Checked / <input type="checkbox"/> Not necessary
		Any dirt or obstacles around the shaft of gear cover?	<input type="checkbox"/> Checked / <input type="checkbox"/> Not necessary
		Is the CR motor at the correct temperature (not over heating)?	<input type="checkbox"/> Checked / <input type="checkbox"/> Not necessary
	Paper feeding mechanism	Is paper fed smoothly?	<input type="checkbox"/> Checked / <input type="checkbox"/> Not necessary
		Does paper get jammed?	<input type="checkbox"/> Checked / <input type="checkbox"/> Not necessary
		Does paper get skew during paper feeding?	<input type="checkbox"/> Checked / <input type="checkbox"/> Not necessary
		Are papers multi fed?	<input type="checkbox"/> Checked / <input type="checkbox"/> Not necessary
		Does the PF motor get overheated?	<input type="checkbox"/> Checked / <input type="checkbox"/> Not necessary
		Abnormal noise during paper feeding?	<input type="checkbox"/> Checked / <input type="checkbox"/> Not necessary
Is the paper path clear of all obstructions?		<input type="checkbox"/> Checked / <input type="checkbox"/> Not necessary	

Table 4-4. Inspection Checklist for the Stylus Scan

Category	Component	Item to check	Is Check Required?
Scanner unit	Mechanism	Is the glass surface clean?	<input type="checkbox"/> Checked / <input type="checkbox"/> Not necessary
		Does paper skew during loading or feeding?	<input type="checkbox"/> Checked / <input type="checkbox"/> Not necessary
		Any abnormal noise during movement?	<input type="checkbox"/> Checked / <input type="checkbox"/> Not necessary
	Carriage mechanism	Does the carriage move smoothly?	<input type="checkbox"/> Checked / <input type="checkbox"/> Not necessary
		Any abnormal noise during movement?	<input type="checkbox"/> Checked / <input type="checkbox"/> Not necessary
		Any dirt or obstacles around the shaft of gear cover?	<input type="checkbox"/> Checked / <input type="checkbox"/> Not necessary
		Is the CR motor at the correct temperature (not over heating)?	<input type="checkbox"/> Checked / <input type="checkbox"/> Not necessary
Lamp	Does the lamp turn on and successfully perform white-reflective test near home position?	<input type="checkbox"/> Checked / <input type="checkbox"/> Not necessary	
Adjustment	Specified adjustment items	Are adjusted conditions all right?	<input type="checkbox"/> Checked / <input type="checkbox"/> Not necessary
Lubricant	Specified lubricated item	Is lubrication applied to the specified locations?	<input type="checkbox"/> Checked / <input type="checkbox"/> Not necessary
		Is the quantity of lubrication adequate?	<input type="checkbox"/> Checked / <input type="checkbox"/> Not necessary
Function	Printer ROM version	Newest version:	<input type="checkbox"/> Checked / <input type="checkbox"/> Not necessary
	Scanner ROM version	Newest version:	<input type="checkbox"/> Checked / <input type="checkbox"/> Not necessary
Shipping	Ink cartridges	Are the ink cartridges installed correctly?	<input type="checkbox"/> Checked / <input type="checkbox"/> Not necessary
	Pads on bottom	Are all five pads attached to the bottom?	<input type="checkbox"/> Checked / <input type="checkbox"/> Not necessary
	Protection conditions during transport	Are all the pointed parts firmly fixed?	<input type="checkbox"/> Checked / <input type="checkbox"/> Not necessary
Others	Attached items	Are all attached items from users included?	<input type="checkbox"/> Checked / <input type="checkbox"/> Not necessary

4.2 Disassembly Procedures

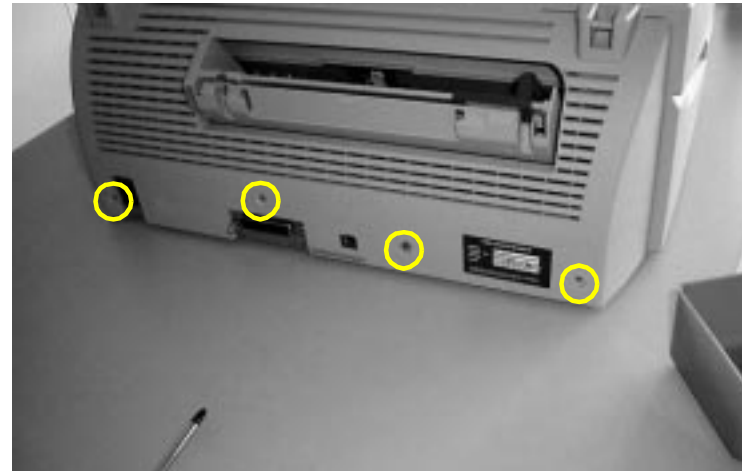
The flowchart below shows procedures for disassembly.



4.3 Removing the Housing

4.3.1 Removing the rear cover

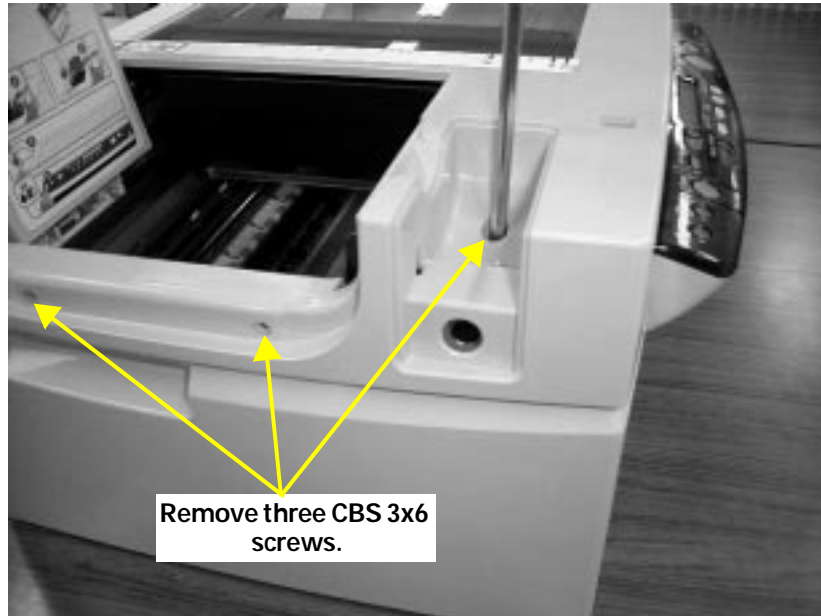
1. Remove the paper stacker.
2. Remove four (CBS 3x6) screws.



3. Pull out the rear cover from the bottom.

4.3.2 Removing the top cover

1. Remove the rear cover as described above.
2. Remove the Document cover, the Maintenance cover, and the optional interface cover.
3. Move the scanner mechanism towards the middle of the Stylus Scan.
4. Remove three screws



5. Lift the top cover from the screw-side and slide it away from you so that the hooks clear the frame on the opposite side.

4.3.3 Removing the control panel assembly

The control panel assembly is replaced as one piece; there is no board-level repair.

1. Remove the rear cover and top cover as described in the two previous sections.
2. Remove two screws (CBS 3x10) and slightly pull out the control panel assembly.
3. Remove the FFC.



CAUTION

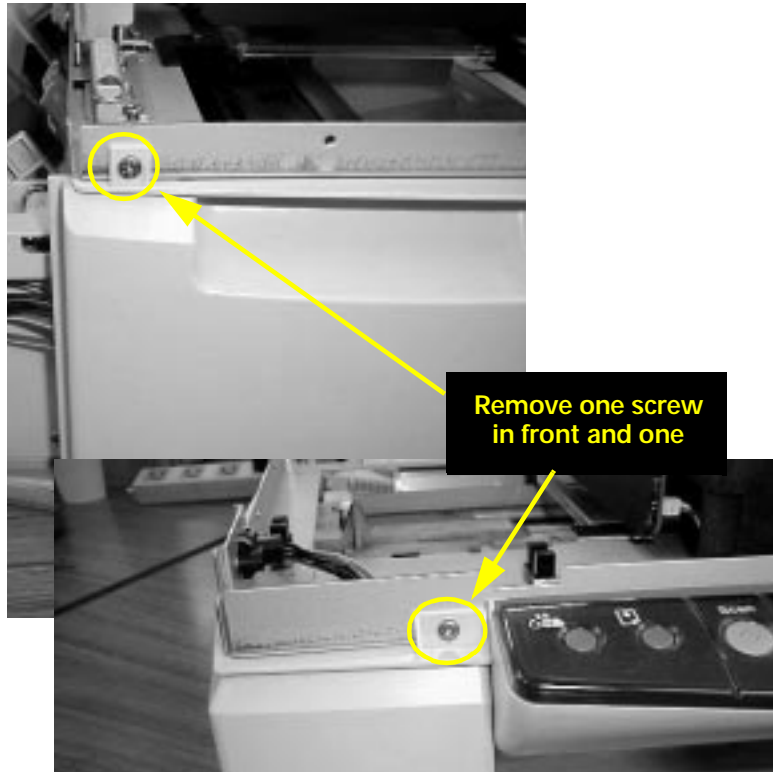


When re-inserting the FFC into the control panel board connector, make sure the FFC is fully inserted but do not use too much force.

Also, the connector is difficult to see properly so it is easy to scrape or peel off the connecting strips at the end of the FFC. You need to check the strips at the end of the FFC for wear, folds, and tears every time you remove the FFC.

4.3.4 Removing the side covers

1. Remove the rear and top covers as described in "Removing the rear cover" on page 82 and "Removing the top cover" on page 83.
2. Remove two screws (CBS 3x6) securing the left-side cover and remove the cover by pulling out and up from the top.


CAUTION

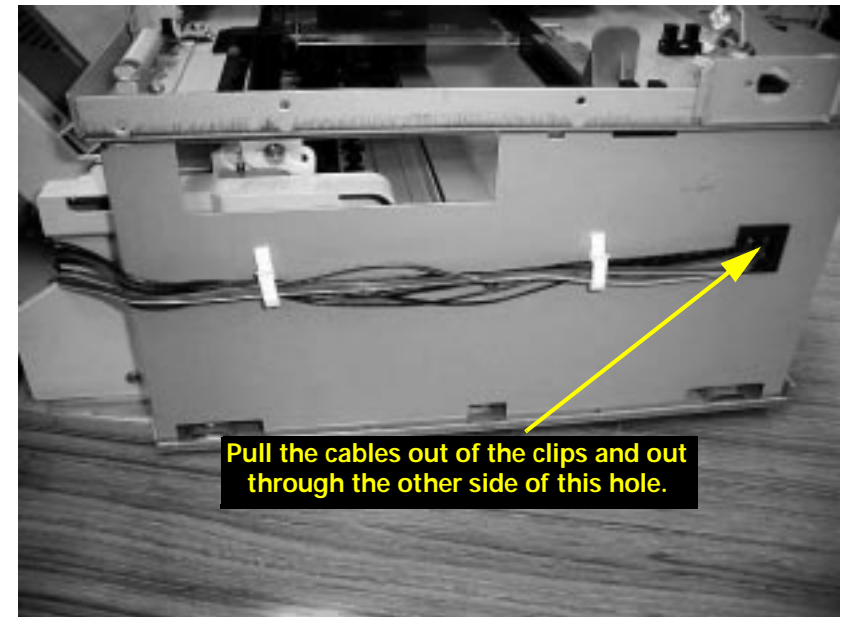

Be very careful when removing or replacing the side covers. The hooks at the bottom are precisely positioned, and forcing them in or out can easily break them.

3. Repeat this process for the right-side cover after removing the paper-thickness lever handle (blue).

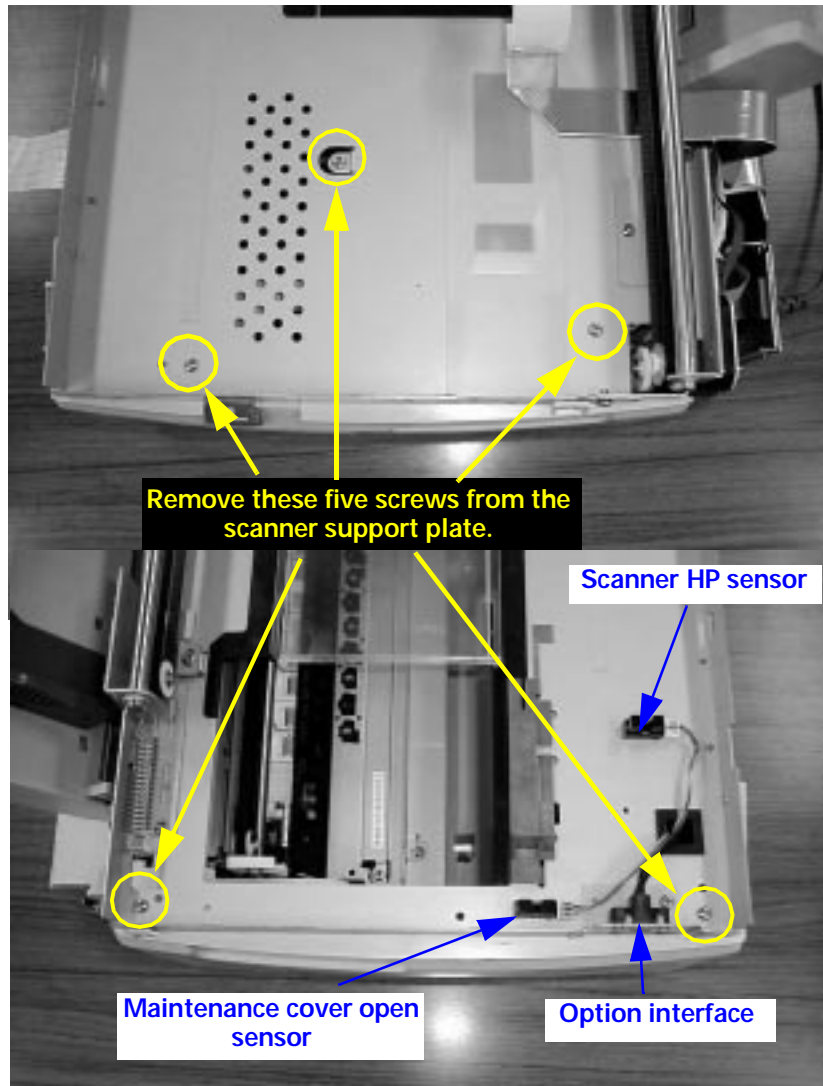
4.3.5 Removing the scanner support frame

To access the printer mechanism, printer motors, waste ink pads, or the B102 Power Supply board, you need to remove the scanner support frame. You only need to remove the scanner from the scanner support frame when servicing the scanner mechanism.

1. Remove the rear cover and top cover as described in "Removing the Housing" on page 82.
2. Pull out the circuit board tray as described in "Removal of the Circuit Board Tray" on page 90, and remove the scanner FFC (CN14). Also remove the CN11, CN12, and CN15 connectors.
3. Remove the side covers as described in "Removing the side covers" on page 84.
4. On the left side of the Stylus Scan pull the Scanner HP sensor cable, Maintenance-cover-open cable, and Option-interface cable through the clips and hole in the left-side frame.



- Remove five screws (CBS 3x6) securing the scanner support frame to the printer mechanism frame, and remove the scanner support frame.

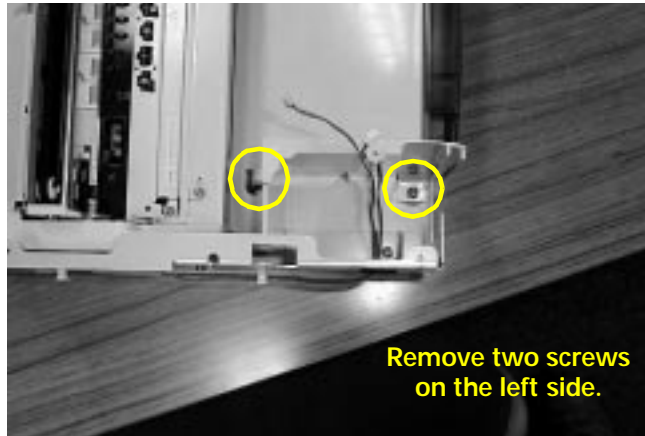


4.3.6 Removing the paper eject assembly

scanner mechanism.

- Remove the rear cover and top cover as described in "Removing the Housing" on page 82.
- Remove the side covers as described in "Removing the side covers" on page 84.
- Remove the scanner support frame as described in "Removing the scanner support frame" on page 84.
- Remove three screws (CBS 4x6)



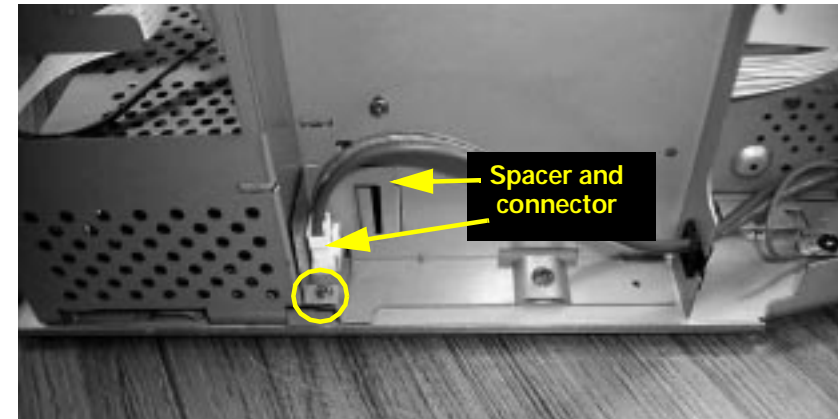


NOTE: The picture above shows the scanner home-position sensor and maintenance cover open sensor cables still attached to the left side frame. You can either leave them as shown above or remove them along with the option connector cable as describe in attached to the side frame in "Removing the scanner support frame" on pag e84.

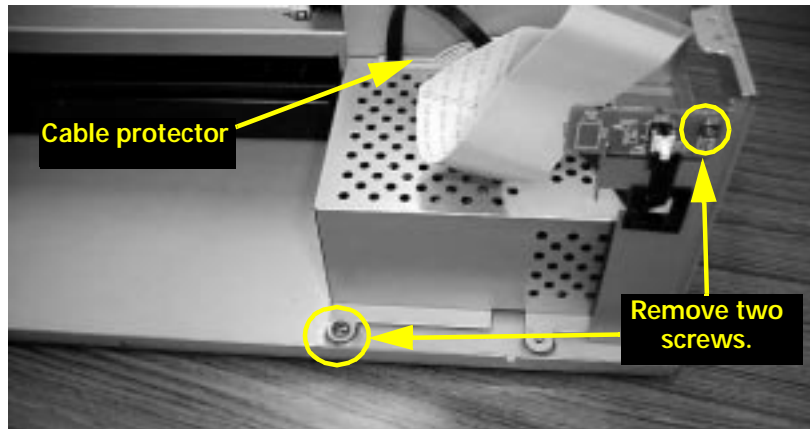
5. Carefully remove the paper eject assembly to avoid scratching the surface on any of the metal parts.

4.3.7 Removing the power supply board upper frame

1. Remove the rear cover and top cover as described in "Removing the Housing" on page 82.
2. Remove the side covers as described in "Removing the side covers" on page 84.
3. Remove the scanner support frame as described in "Removing the scanner support frame" on pag e84.
4. Remove one connector for the AC cable, and one screw (CBS 3x6) and one spacer.



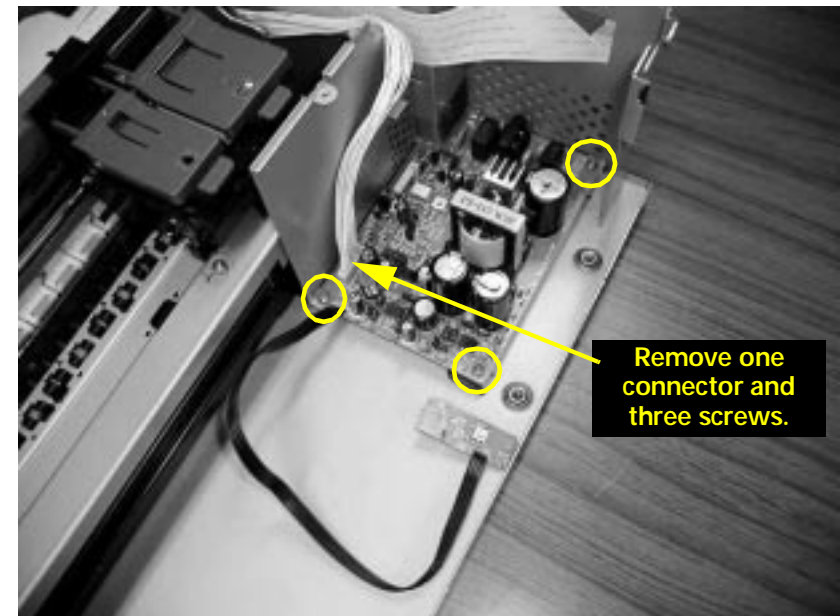
- Remove one screw (CBS 3x6) securing the power-button board and one screw (CBS 4x6) securing the upper frame..



- Pull the upper frame a little to the center and front of the Stylus Scan. Remove the cable protector and cables. Remove the power board frame.

4.3.8 Removal of the B102 PSB/PSE Board

- Remove the rear cover and top cover as described in "Removing the Housing" on page 82.
- Remove the side covers as described in "Removing the side covers" on page 84.
- Remove the scanner support frame as described in "Removing the scanner support frame" on page 84.
- Remove the paper eject assembly as described in "Removing the paper eject assembly" on page 85.
- Remove the power supply board upper frame as described in "Removing the power supply board upper frame" on page 86.
- Disconnect the power cable leading to the B102 MAIN board, and remove three screws (CBS 3x6).

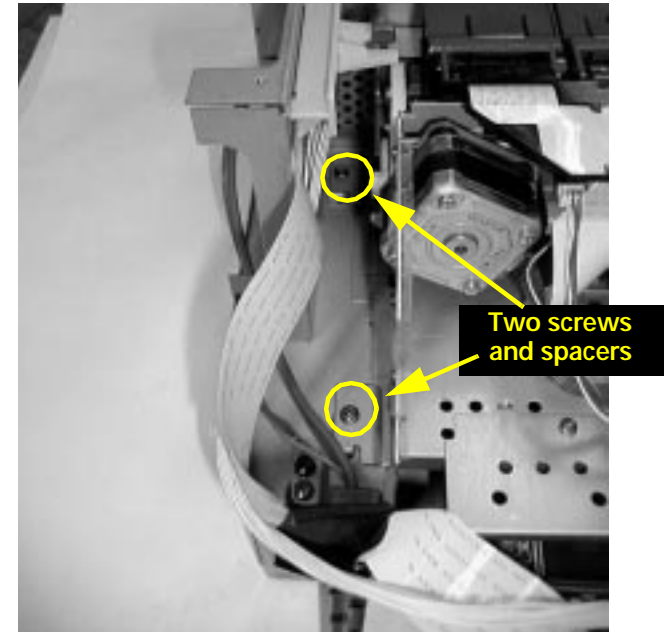


4.3.9 Removing the printer mechanism

1. Remove the rear cover and top cover as described in "Removing the Housing" on page e82.
2. Remove the side covers as described in "Removing the side covers" on page 84.
3. Remove one screw (CBS 3x6) from the right-side frame.



4. Remove two screws (CBS 4x6) and two spacers.

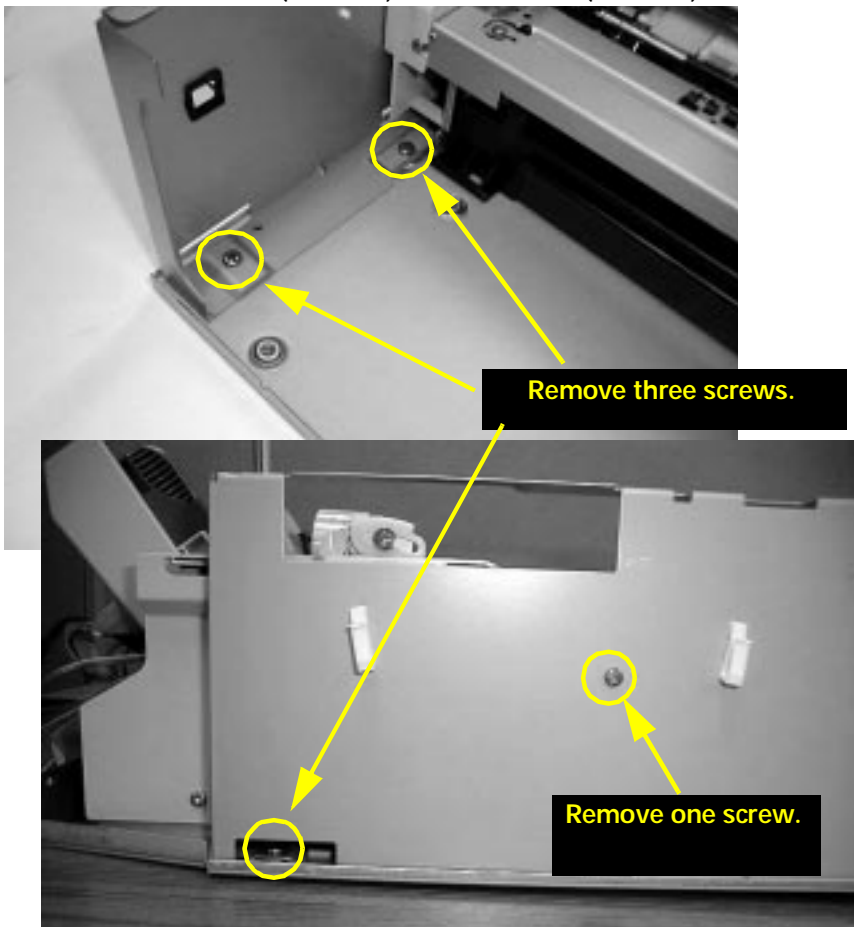


NOTE:

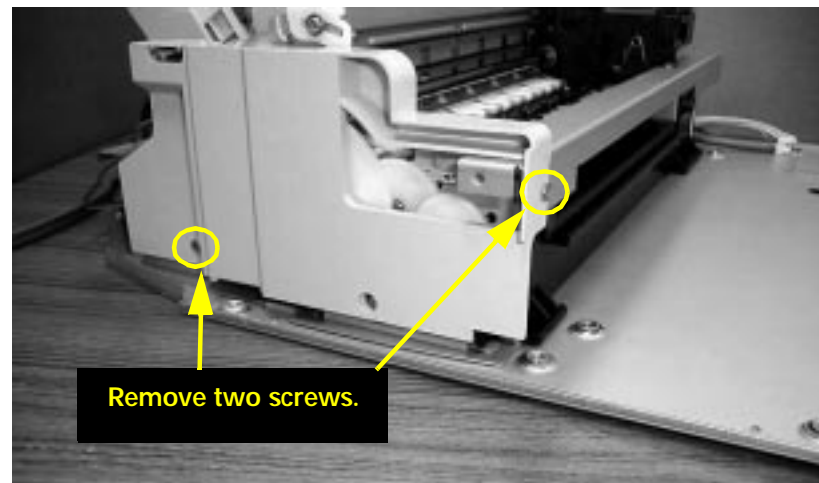


- As shown in the above photos, you do not have to remove the scanner frame or right-side frame to remove the printer mechanism.
- When replacing the printer, you need to be careful about 1) the printer position on the base and 2) the spacer edge must be parallel to the printer frame.

5. Remove three screws (CBS 4x6) and one screw (CBS 3x6).



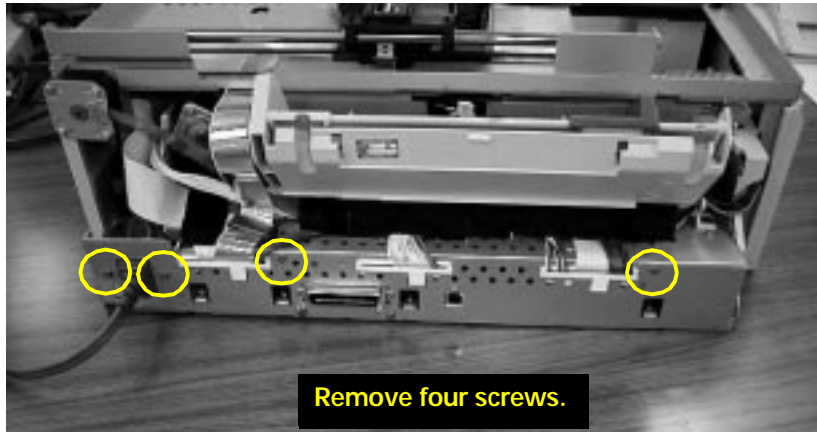
6. Remove two screws (CBS 3x6) and lift the side panel from the bottom to finally see the bare, naked printer mechanism.



4.4 Removal of the Circuit Board Tray

Unlike the Stylus Scan 2000, the 2500 contains only the B102 MAIN board in the circuit board tray. See Section 4.7.1.2 for details on removing the B102 PSB/PSE board.

1. Remove the rear cover as described in "Removing the rear cover" on page 82.
2. Remove four CBS 3x6 screws securing the circuit board tray.



3. Pull out the tray slightly, and using a flat-tip screwdriver unhook the cable-protector clip hooks from the tray. Remove the clips from the tray.



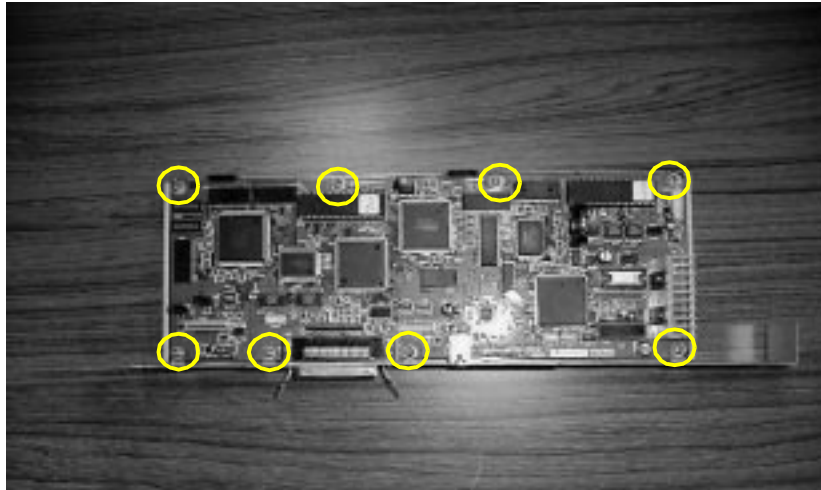
CAUTION The plastic cable protectors are held in place when the tray is shut, but they can easily break or chip when removing or replacing the tray. Be careful not to twist or force the protectors.



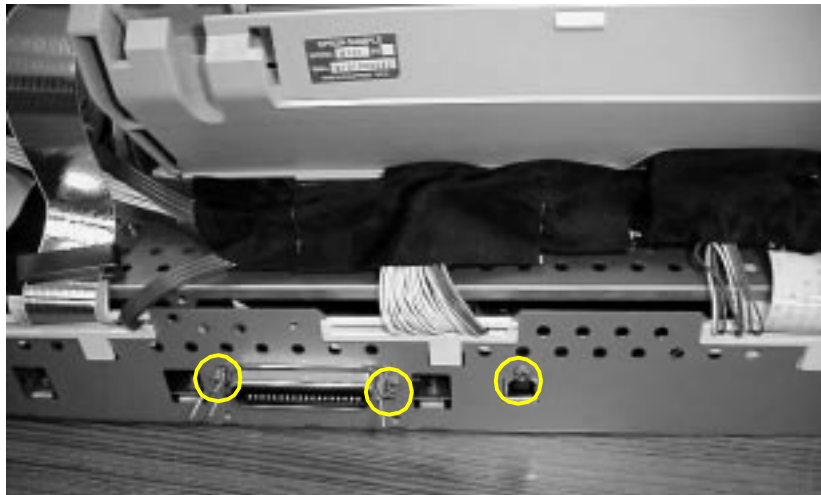
CHECK POINT When replacing the cables in the protectors, keep in mind that the protectors must be fully inserted so that the hooks properly attach to the tray. Also, the protectors slide halfway under the printer mechanism frame. If the protectors are not fully inserted under the frame, there will be a gap between the frame and the top edge of the circuit board tray.

4. Remove ten connectors and three FFCs as follows.
 - To the scanner: CN14, CN11, CN12, CN13
 - To the control panel: CN2
 - To the Power Supply board: CN10
 - To the printer: CN4, CN5, CN6, CN7, CN8, CN9
 - To the option interface: CN15
5. To remove the B102 MAIN board, remove

- eight CBS 3x6 screws securing the board to the bottom of the tray



- three CP 3x6 screws securing the connector interfaces.



6. Remove the circuit board.

4.5 Removal of the Printer Consumables

4.5.1 Removing the waste ink pads

1. Remove the rear cover and top cover as described in "Removing the Housing" on page e82.
2. Remove the scanner support frame as described in "Removal of the Circuit Board Tray" on page 90.
3. Remove one screw (CBP 3x8) that secures the waste ink tank and is located on the right side of the printer mechanism.

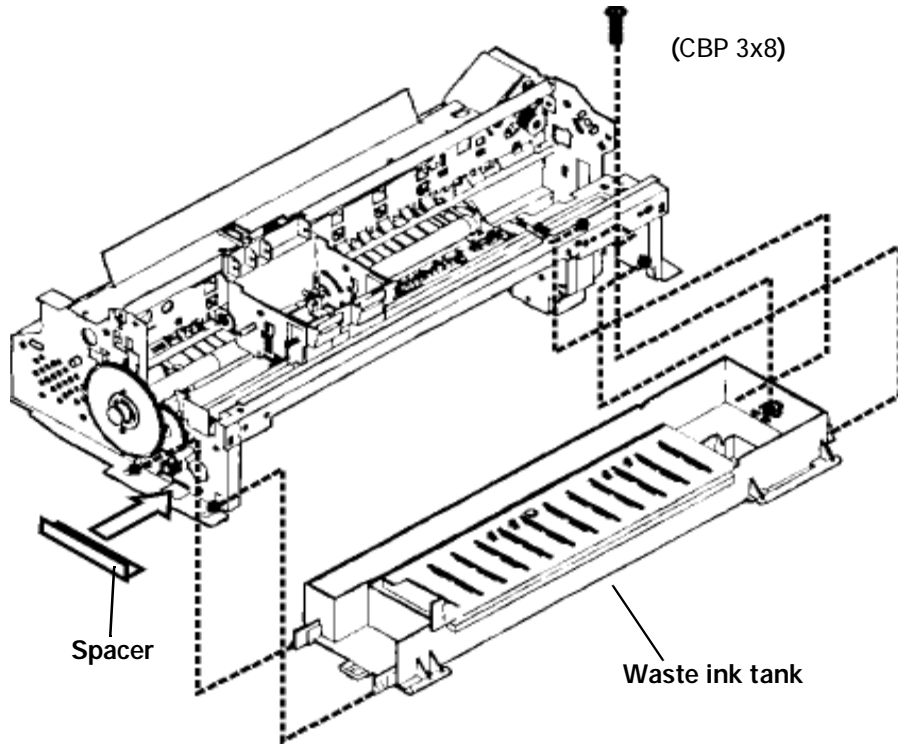


Figure 4-1. Removing the waste ink tank

4. Remove the spacer on the left side of the tray and carefully pull the tray out and downward.



When re-installing the waste ink tank, make sure to secure the hooks on the left of the tray on top of the spacer.

5. Remove one screw (CBP 3x10) securing the waste ink tank cover, and then remove the cover.
6. Carefully remove the old waste ink pads so as not to get yourself or anyone/anything else dirty.

4.5.2 Removing the cleaning assembly (Pump and Cap)

1. Remove the housing as described in "Removing the Housing" on page 82.
2. Remove the waste ink tank as described in "Removing the waste ink pads" on page 92.
3. Loosen two screws located on the edge of the paper eject frame assembly and float release the joints for the paper eject assembly and the side frames, as shown on the next page.
4. Raise the printer mechanism toward ASF side so that you can see the bottom of the printer mechanism.
5. On the right side of frame, remove the hook holding the cap assembly and release two protrusions attached to the frame, lifting up the right side of cap assembly, then take it out towards the bottom of the printer mechanism. Note that the cap assembly is still connected to the pump assembly by the ink tube at this point. (Refer to Figure 4-2 on the next page.)
6. Remove two screws (CBP 3x8) securing the pump assembly to the frame. (Refer to Figure 4-2 on the next page.)

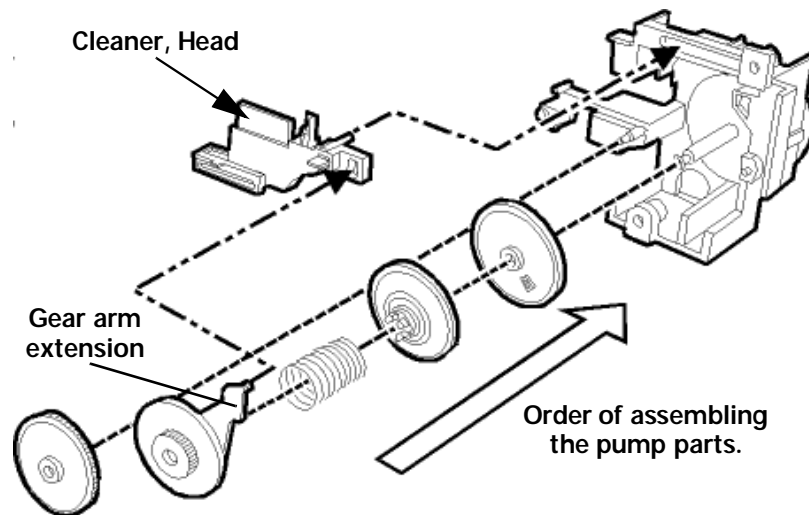
7. Release a hook securing the pump assembly to the frame and remove the pump assembly, moving it toward the right. (Refer to Figure 4-2 on the next page.)



- **Do not damage the rubber part (black square) of the cap installed in the cap assembly. (If it gets damaged, it will not be able to adhere closely to the surface of the print head, and may cause a malfunction in operation.)**
- **When 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 let oil or grease touch the head cleaner.
 - When installing the cleaner head, set the rubber side (black side) toward the right side of the frame.
- **When installing the pump assembly, do not tighten the screw more than necessary torque.**



- When reassembling the cleaning assembly, refer to the figure below.
- 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 printer, be careful not to crush nor leave any stress on the ink tube connecting the pump assembly and the cap assembly.
- After installing the pump assembly, make sure that the cleaner parts move back and forth by rotating the gear 73.6.



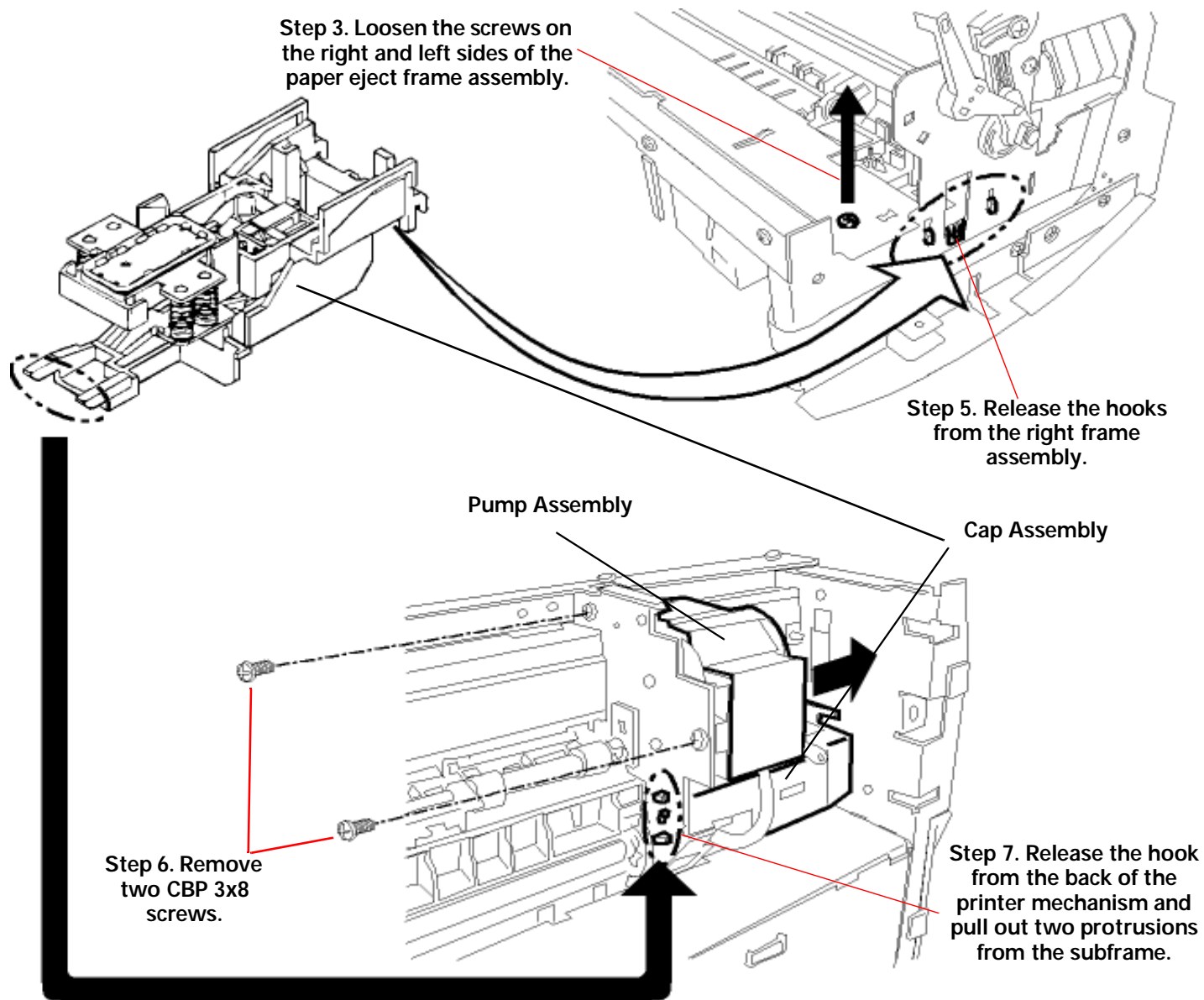


Figure 4-2. Removing the Cap and Pump Assemblies

4.6 Disassembling the Printer Mechanism

This section explains procedures for disassembling the major parts or units of the printer mechanism.

4.6.1 Removing the Printhead Unit

1. Remove the upper cover as described in Section 4.3.
2. Remove the upper frame as described in "Removing the scanner support frame" on page e84.
3. Rotate the flat gear 73.6 towards yourself (front) to release the carriage lock mechanism. Then move the carriage to the left edge.
4. Fully open the blue plastic cover for the black ink cartridge and squeeze the bottom of the cover to release it from the ink cartridge holder. Turn it slightly so the knob at the end of the cover releases from the carriage.
5. Move the carriage to the HP and repeat for the color ink cartridge cover.
6. Remove the carriage FFC and FFC guide as shown in Figure 4-3 on the next page.
7. Remove the tension spring 49.
8. Remove one screw (CBP 3x6) and twist the fastener to pull it out the hole on the right side.
9. Remove the printhead from the carriage.

See the following pages for the figures below:

Figure 4-3, "Removing the Print Head"

Figure 4-4, "Installing the Printhead"



- **Make sure that the earth board is installed to the carriage correctly. (There are 2 pins to determine the location.)**
- **When you install the printhead to the carriage, make sure that the location pin on the carriage side is placed in the notch of the printhead.**



- 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.
- When you return the printer to the user, be sure to pack the printer for transportation with a new ink cartridge installed and the carriage in the home position when the printer is turned on.



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 5.2.2.3)
2. Head Voltage ID Input (Refer to Chapter 5/Section 5.2.2.7.)
3. Head Angular Adjustment (Refer to Chapter 5/Section 5.2.2.8.)
4. Bi-D Adjustment (Chapter 5 /Section 5.2.2.9)

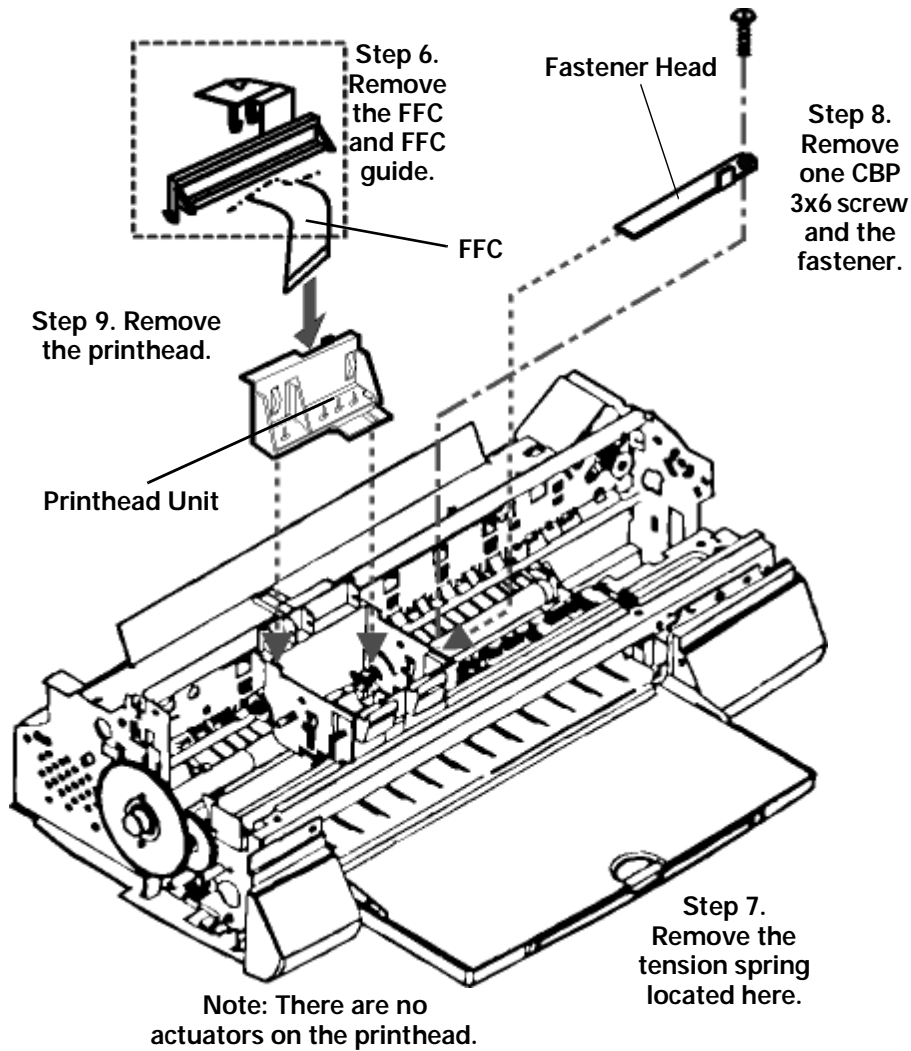


Figure 4-3. Removing the Print Head

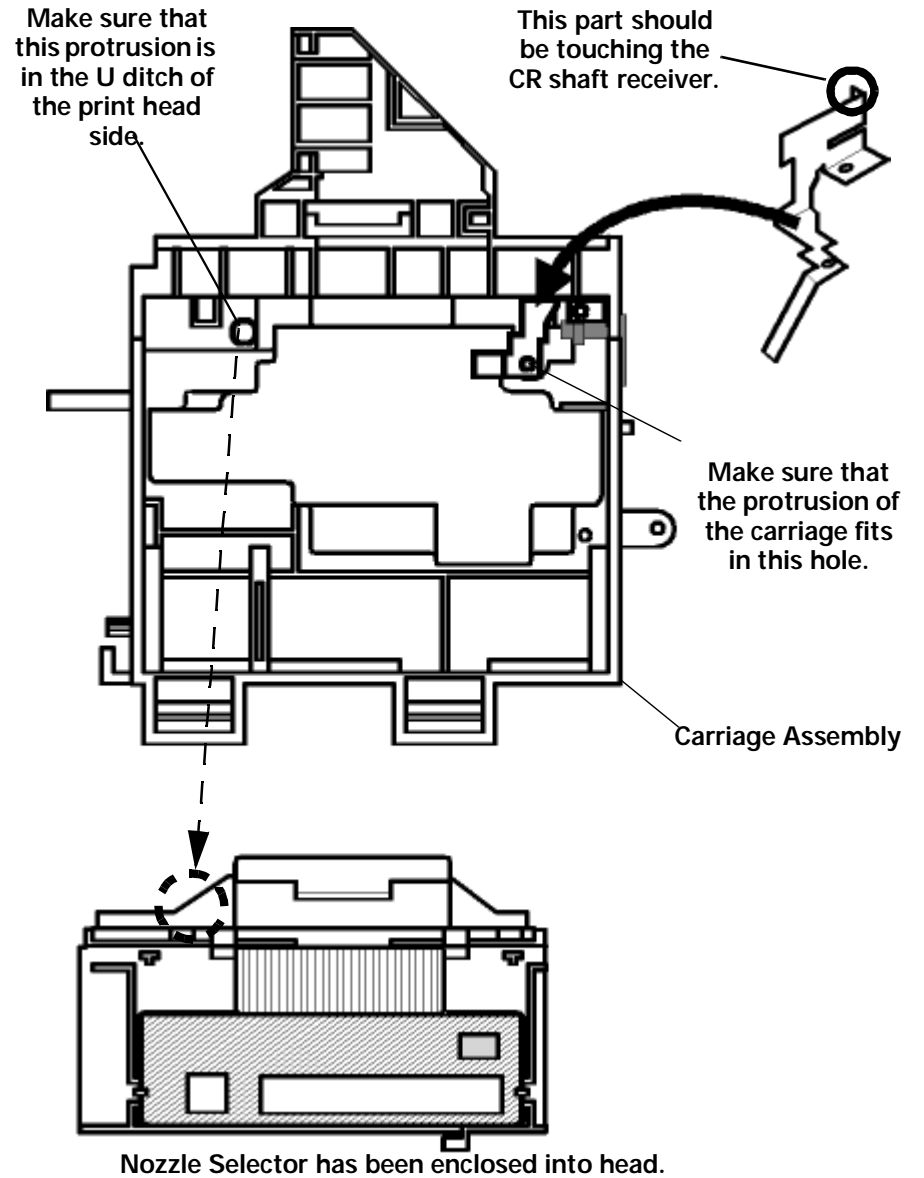


Figure 4-4. Installing the Printhead

4.6.2 Removing the PF Motor Assembly

1. Remove the housing as described in "Removing the Housing" on page 82.
2. Remove the waste ink tank. (Refer to Section 4.5.1.)
3. Remove the following gears located on the left side of the printer mechanism.
 - Combination gear 12.4, 28
 - Gear 36
 - Gear 73.6

CAUTION



Gear 73.6 is a precision gear and yet it is difficult to remove. Do not bend the gear and do not hold the gear by its edges. Doing so may cause the gear paper feed operation to be slightly off.

Remove the c-ring securing the gear with tweezers or a (-) driver, and gently pull the gear away. Try to only touch the knobs or edges on the inner or central part of the gear. **Do not touch the gear teeth while holding the whole gear, slightly pulling it toward you.**

NOTE: *It may be a good idea to bring an extra gear with you when performing on-site service.*

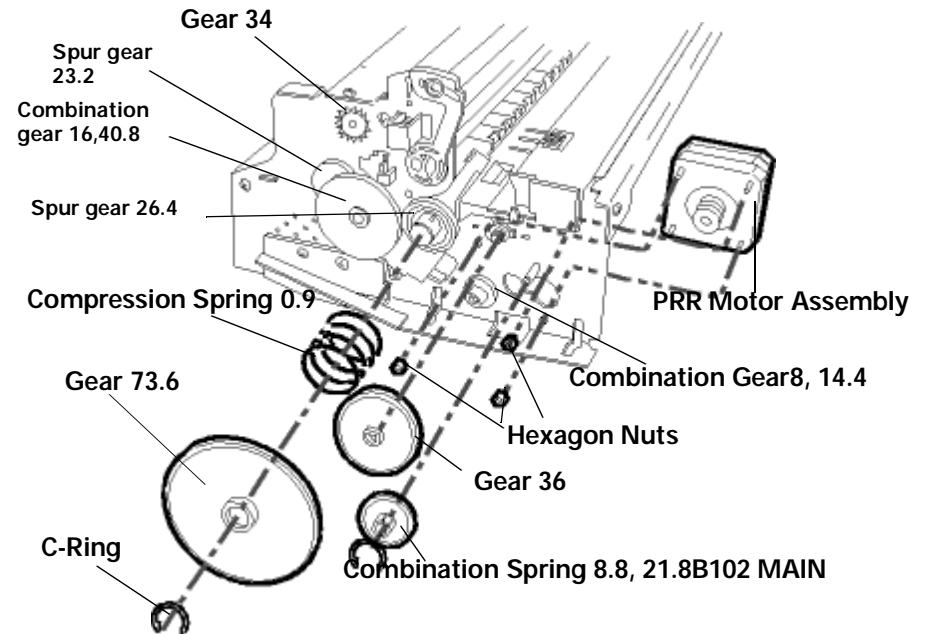


Figure 4-5. Removing the PF Motor Assembly

4. Remove the circuit board tray as described in "Removal of the Circuit Board Tray" on page 90, and remove the PF motor cable from connector CN8.
5. Tilt the Stylus Scan so you can see the bottom and cut the plastic tie band that secures the PF motor cable.
6. Remove 3 hexagon nuts with the M3 wrench on the left side frame and slide the PF motor pinion gear toward the front of the Stylus Scan where you can remove it through the large hole.

CHECK POINT



- When disassembling the PF motor assembly, pull the motor assembly out of the frame a little bit and remove it, sliding it into a larger hole in the frame. (See Figure 4-5.)
- Be careful of the direction of the wires from the PF motor assembly.
- Do not damage or mar the grooves in the gears during the disassembly and assembly.

4.6.3 Removing the CR Motor Assembly

1. Remove the housing. (Refer to Section 4.3)
2. Rotate the gear 73.6 toward you and release the carriage lock mechanism, then move the carriage to the center.
3. Pull out the circuit board tray as described in "Removal of the Circuit Board Tray" on page 90, and disconnect the CR motor cable from CN7.
4. Loosen the timing belt by pushing the driven pulley holder and remove the timing belt from the pulley on the CR motor.
5. Remove two screws (CBS 3x6) and remove the CR motor assembly.



After installing the CR motor assembly, make sure that two protrusions on the motor bracket are aligned with the location holes in the frame. (Refer to Figure 4-7.)

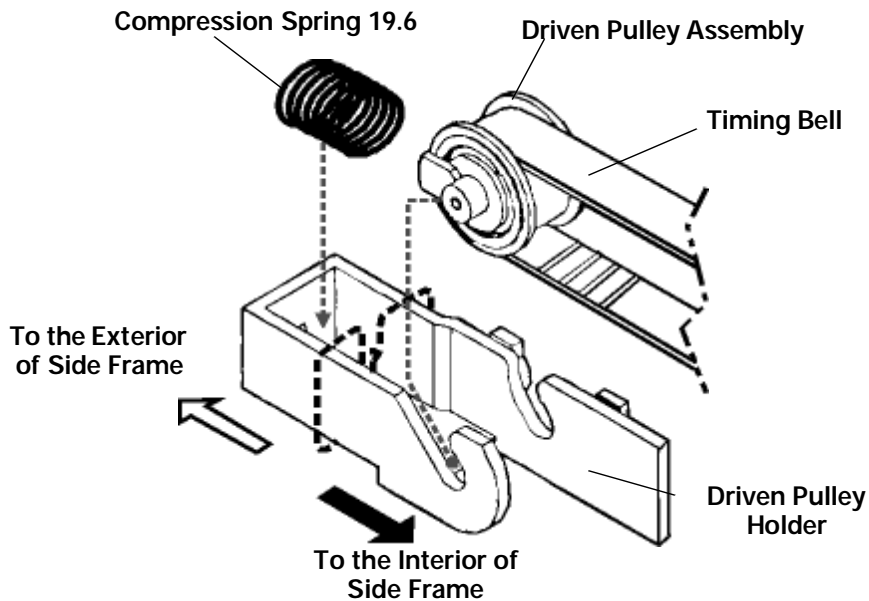
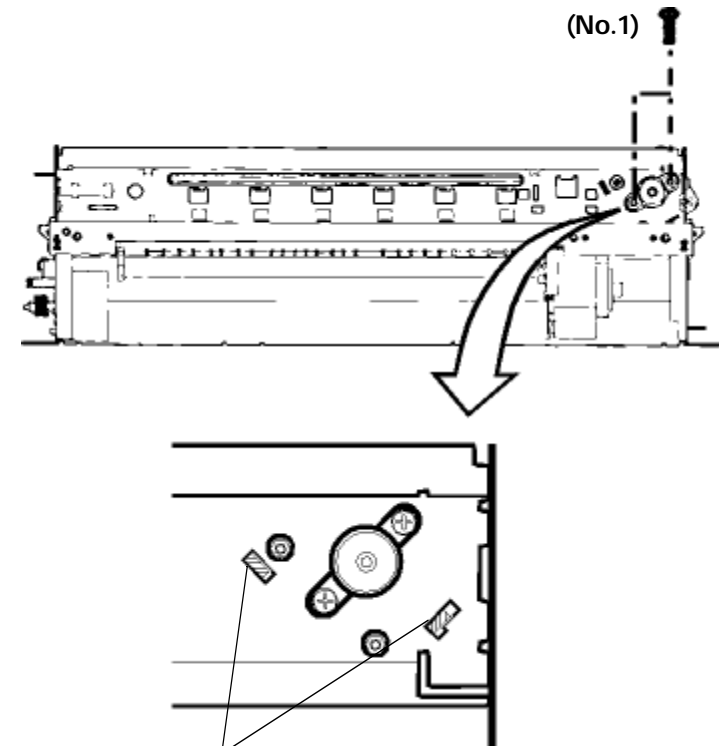


Figure 4-6. Removing the Timing Belt



Make sure that protrusions of CR frame are in the holes of frame when installing the CR motor assembly.

Figure 4-7. Removing and Installing the CR Motor Assembly

4.6.4 Removing the ASF Assembly

1. Remove the housing. (Refer to Section 4.3.)
2. Release the fixed hook from the inside of the printer mechanism and remove the gear 34 from the roller shaft in the ASF assembly.
3. Remove the cables from the cable hook on the printer mechanism and the hook on the ASF assembly.
4. After removing 2 screws (one No.7 screw and one CR shaft installation screw), remove the ASF assembly, releasing the protrusion on the left side of the ASF assembly from the hole in the frame.
5. With one hand move the paper depressor to the left and up, and with the other hand remove the ASF assembly, releasing the protrusion on the left side of the ASF assembly from the hole in the frame.

- CHECK POINT**
- When installing the ASF assembly, make sure that the frame and ASF assembly are attached each other without any space between them.
 - Screws for ASF assembly should be used at the following positions. (Looking from the back of printer)
 - Right:CR shaft installation screw
 - Left:Screw No.7 (+Bind, S- tight, Sems R2; with a plain washer)

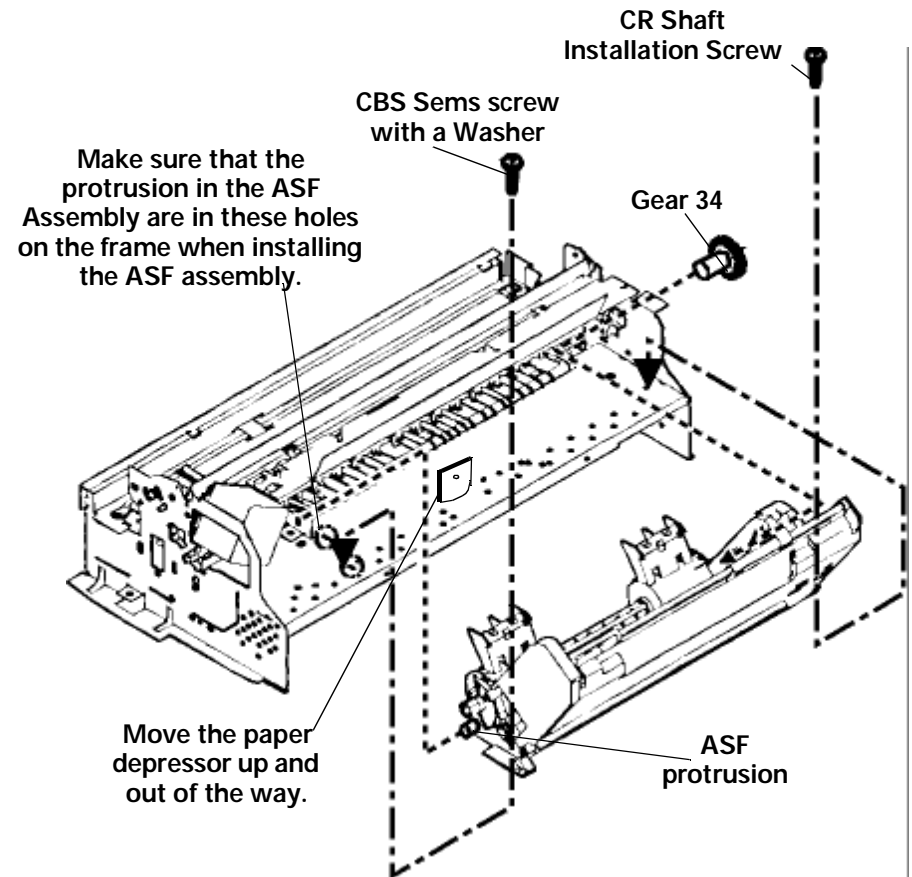


Figure 4-8. Removing the ASF Assembly

4.6.4.1 Disassembling the ASF Roller Assembly

1. Remove the ASF assembly. (Refer to Section 4.6.4.)
2. Remove the brake lever, releasing one leg of the torsion spring 41.2 from the hook of the ASF frame.
3. Remove the fixing shaft bushing from the right side of the LD roller shaft and the release hopper lever.
4. Move the left paper feed assembly to the center and remove the cam fixing bushing (white plastic) attached to the left side of LD roller shaft.
5. Push the LD roller shaft to the left and remove the left shaft fixing bushing after releasing its hook.
6. Remove the right and left sides of the hopper assembly from the protrusions on the ASF frame.
7. Lift up the right side of paper feed roller assembly a little, move the LD roller shaft to the right and remove it from the left side of the ASF frame.
8. Holding the hopper assembly by hand, remove the cam part of hopper assembly from the right holes of ASF frame.

See the next section for details on disassembling the paper-feed roller assemblies.



- 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 lever release when installing it.
- Make sure that the right and left fixing bushings are installed steadily and do not slip off.
- During assembly, attach the cam fixing bushing after installing the LD roller shaft to the ASF frame.
- When installing the right and left paper feed roller assemblies to the LD roller shaft, the black paper feed roller assembly goes on the right side and the one in the standard EPSON color goes on the left of the shaft.

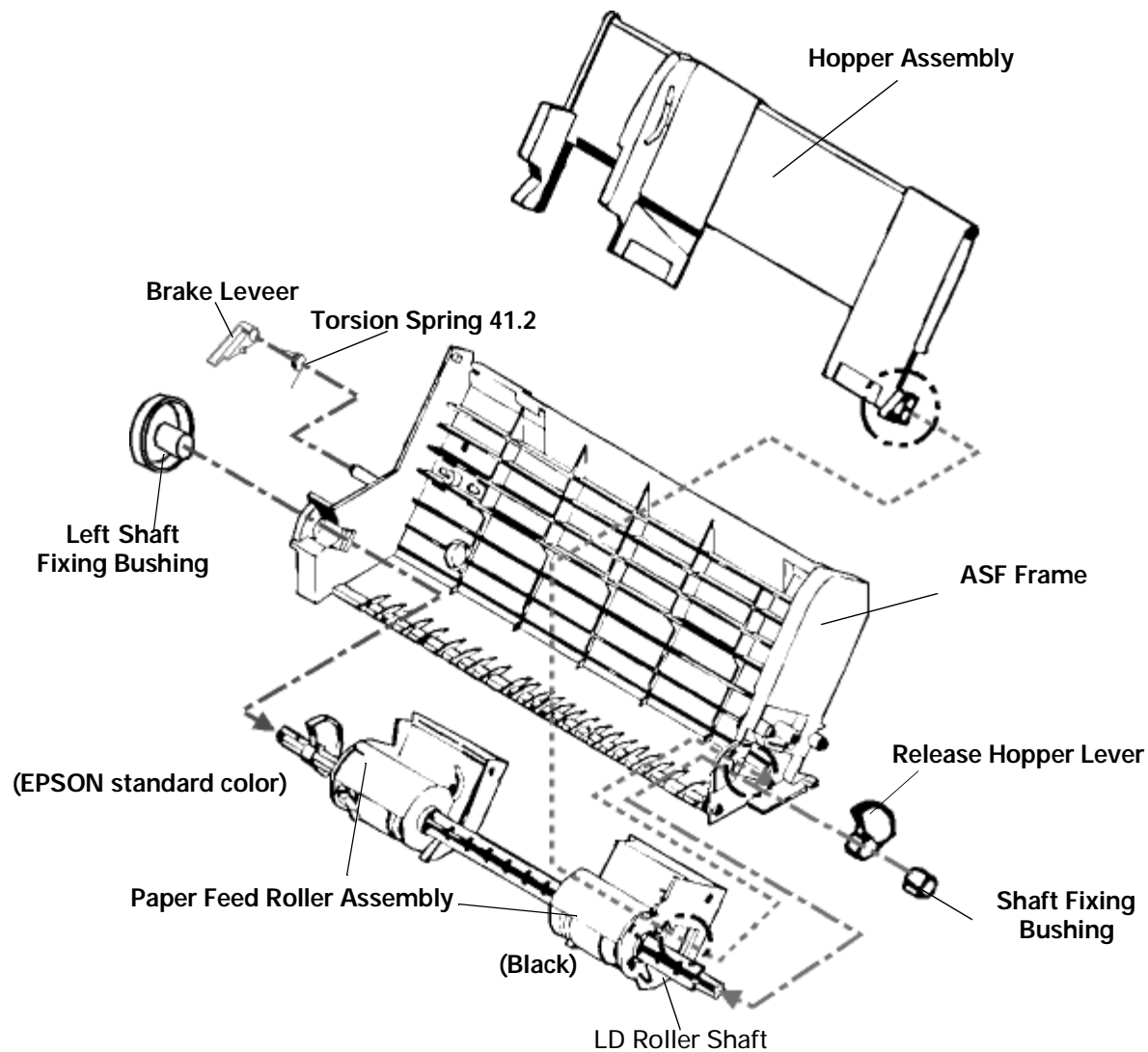


Figure 4-9. Disassembly of ASF Assembly

4.6.4.2 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 Section 4.6.4.)
2. Take out the right and left compression springs 1.66 from the back of the hopper assembly.
3. Pull out the cam part of the hopper assembly from the hole located on the frame of the right LD roller assembly,
4. Pull out the LD roller shaft. The paper feed roller assembly and hopper assembly should be disconnected by now.
5. Release the hook of LD roller assembly at the shaft hole of the paper feed roller assembly. Also, release the fixed hook of the cover roller LD and remove the LD roller assembly.



- When installing the LD roller assembly, make sure that the hooks are hung on the paper feed assembly.
- During assembly, when setting the compression spring 1.66 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 the figure below.)

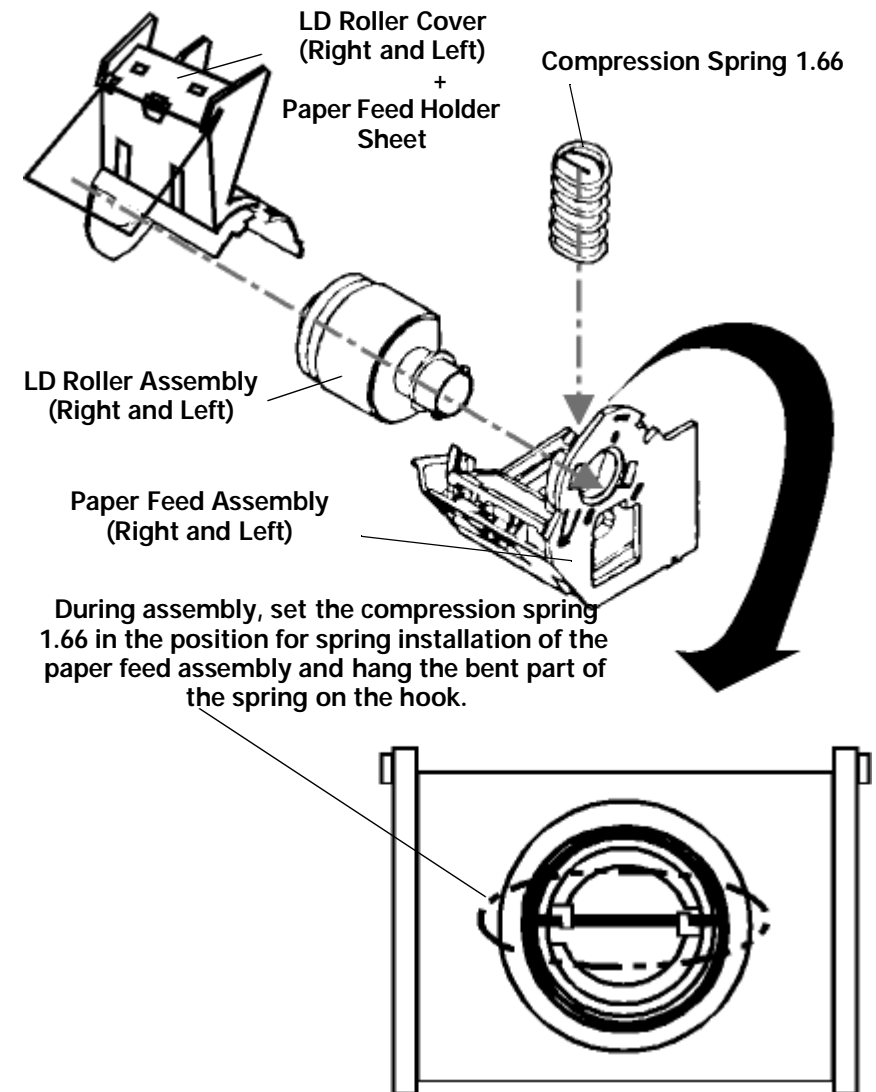


Figure 4-10. Disassembly of Paper Feed Roller Assembly

4.6.5 Removing the Carriage Assembly

1. Remove the housing. (Refer to Section 4.3)
2. Push in the driven pulley holder and remove the timing belt from the pulley on the CR motor side. (See Figure 4-6 on page 99.)
3. Take the compression spring 19.6 out of the driven pulley holder.
4. Remove the driven pulley assembly from the driven pulley holder with the timing belt. Slide the driven pulley holder and remove it from the frame.
5. Remove the 63.7 torsion spring between the frame and PG lever. Release the fixed hook of the PG lever from the PG support lever and remove the PG lever.
6. Release the fixed hook of the PG lever support from the right parallelism bushing and remove the PG lever support and washer. (Refer to the figure next page.)
7. Remove one screw (CBS Sems R2 3x6) and rotate the right parallelism adjustment bushing so that it fits in the notch of the frame, and remove it.
8. Remove the CR assembly with the CR guide shaft.



- When disassembling the right parallelism adjustment bushing, mark present location where the bushing is fixed on the frame so that you can omit gap adjustment after assembly.
- When installing the washer, pay attention to its direction. (Convex side should face the right parallelism adjustment bushing side.) Refer to the figure below.
- When installing the PG lever, refer to the figure below.

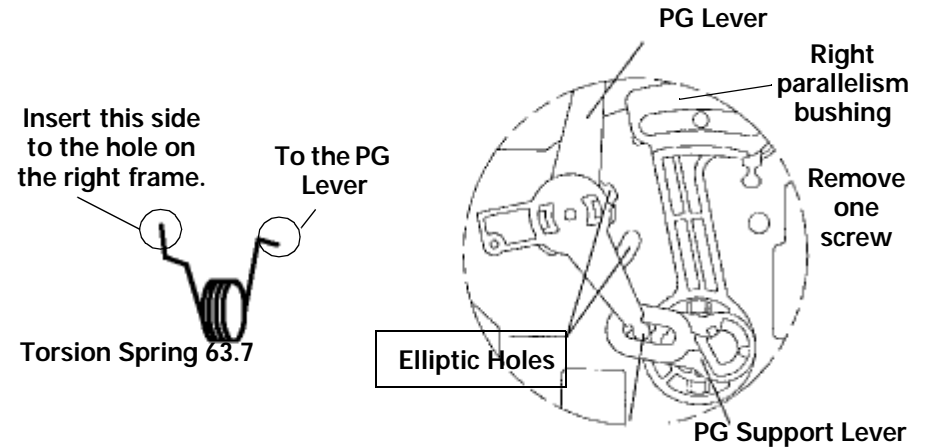


Figure 4-11. Installing the PG Lever

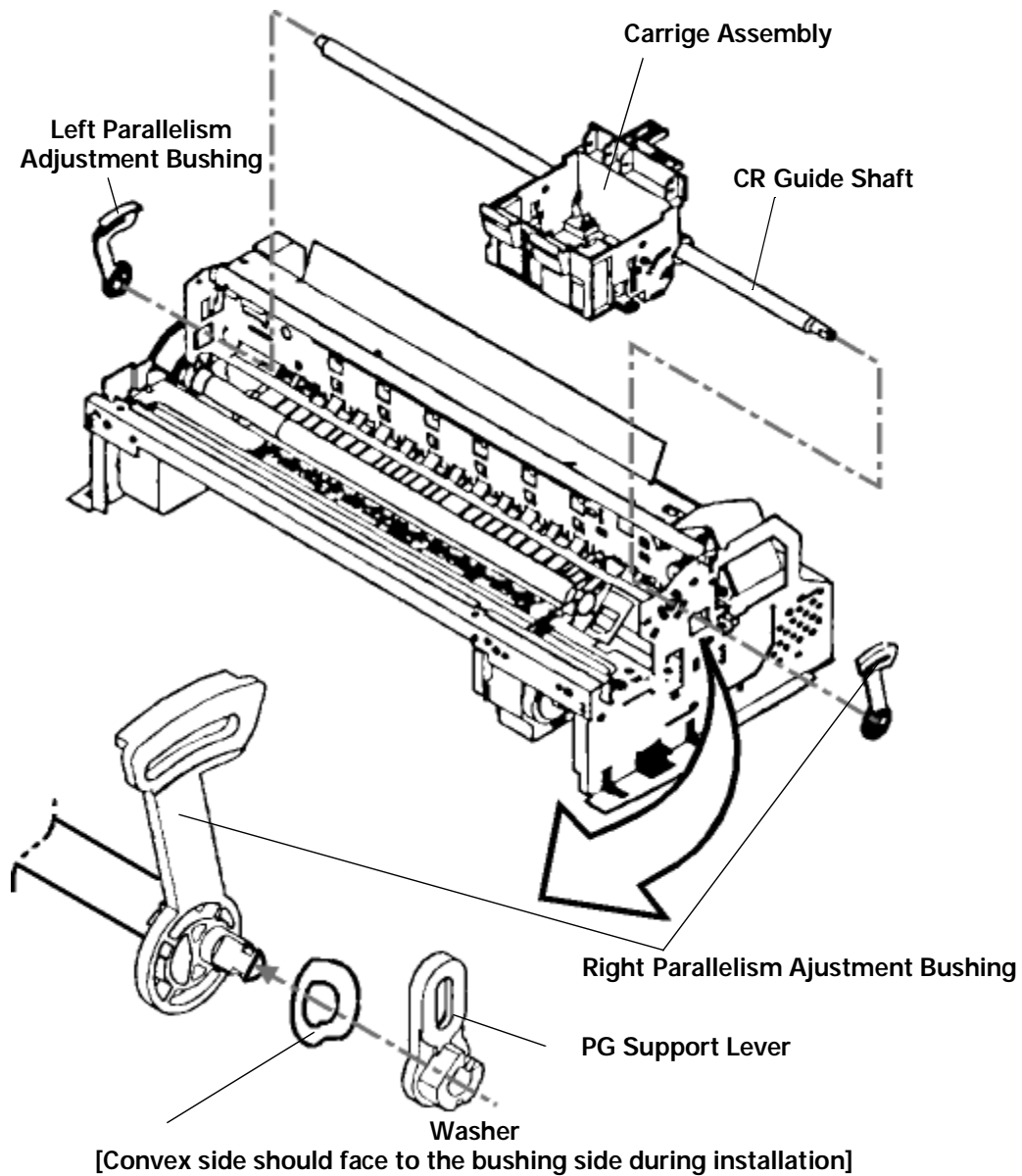


Figure 4-12. Removing the Carriage Assembly

4.6.6 Removing the PF Roller Assembly

1. Remove the housing. (Refer to Section 4.3.)
2. Remove the carriage assembly. (Refer to Section 4.6.5.)
3. Remove three screws (CBS 3x6) on the printer mechanism and disassemble the cable guide board.
4. Remove six upper paper guide assemblies, releasing their springs from the hooks in the frame.
5. Remove the front paper guide ;B, releasing the hooks. (Refer to next page.)
6. Remove the paper eject roller assembly, releasing the fixed locks located on the right and left edges of the shaft.
7. Release the fixed hook located on the left side of the PF roller assembly shaft and rotate it so that the protrusion on the shaft (white) and hole for receiving the shaft in the frame align.
8. Slide the PF roller assembly to the right and pull it out.



- During disassembly and assembly of the upper paper guide assemblies, since one of the upper paper guide assemblies to be installed on the right side overlaps with the PE detector lever, pay attention not to damage the lever.
- Be careful not to damage the hook during disassembly and assembly of the front paper guide ;B.
- Be careful not to scratch the PF roller assembly during disassembly and assembly, since its surface is specially coated to improve paper feeding. (black part)
- Be careful not to damage the combination gears.

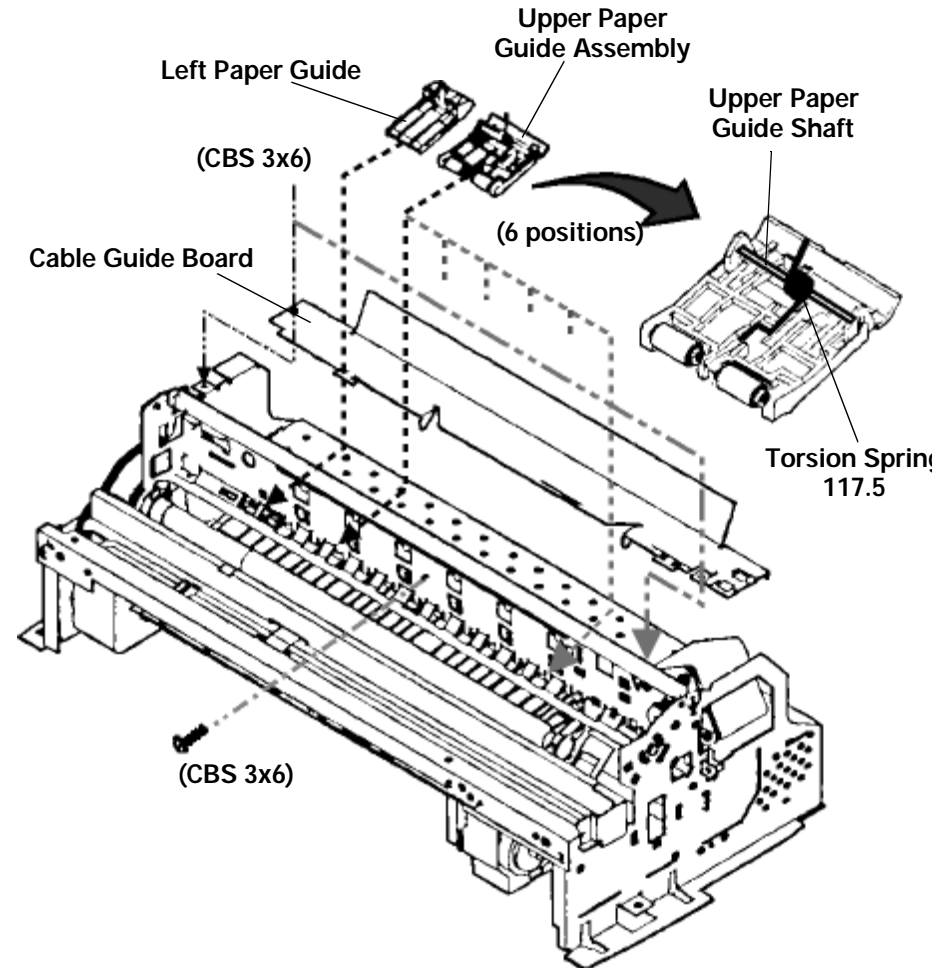


Figure 4-13. Removing the Paper Guide Assembly

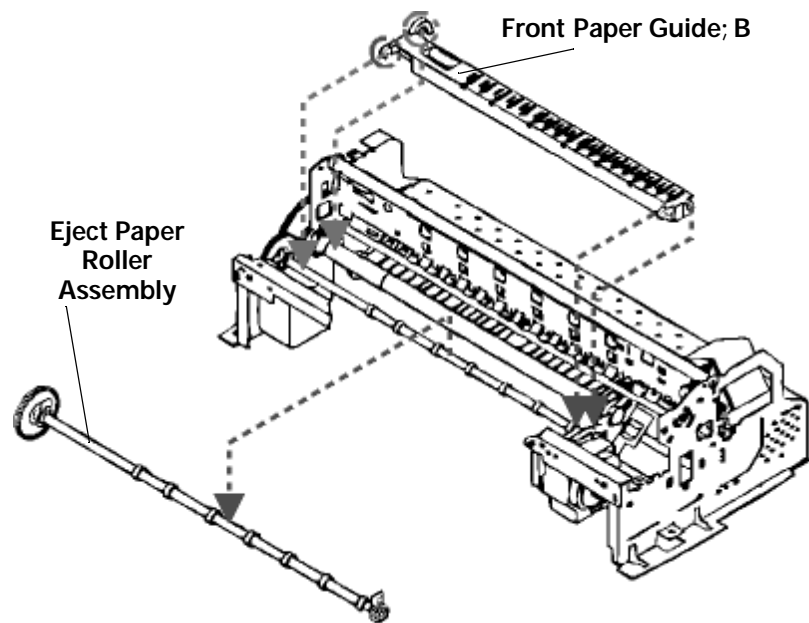


Figure 4-14. Removing the Paper Eject Roller Assembly

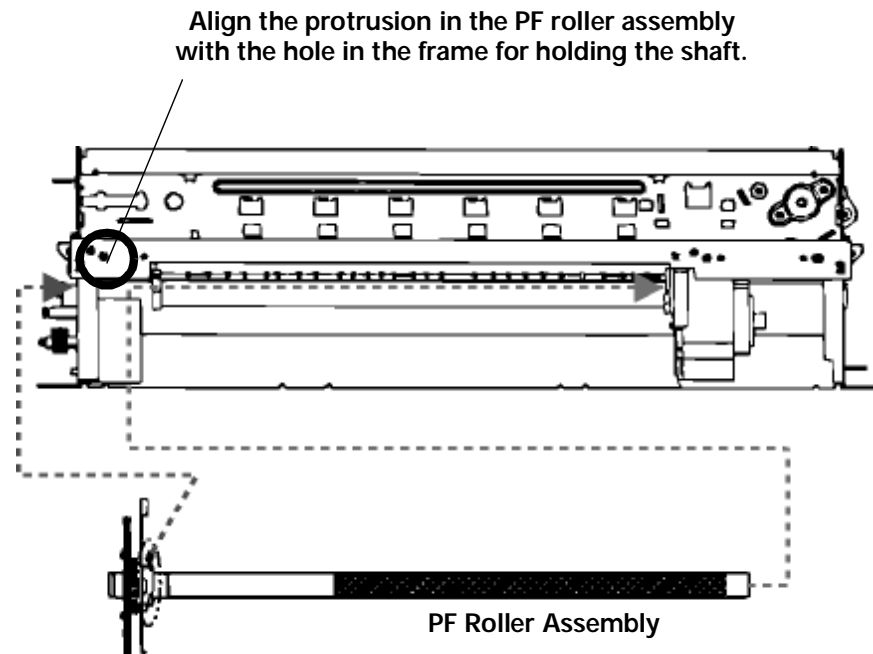


Figure 4-15. Removing the PF Roller Assembly

4.6.7 Removing the PE Paper Detector Assembly

1. Remove the housing. (Refer to Section 4.3.)
2. Release two fixed hooks securing the PE detector assembly from the back of the frame and remove the PE detector assembly, sliding it upward. Remove the PE board assembly and PE lever, if necessary.

**CHECK
POINT**



During assembly, make sure that the tip (sensor part) of the detector lever is in the hole of paper guide assembly.

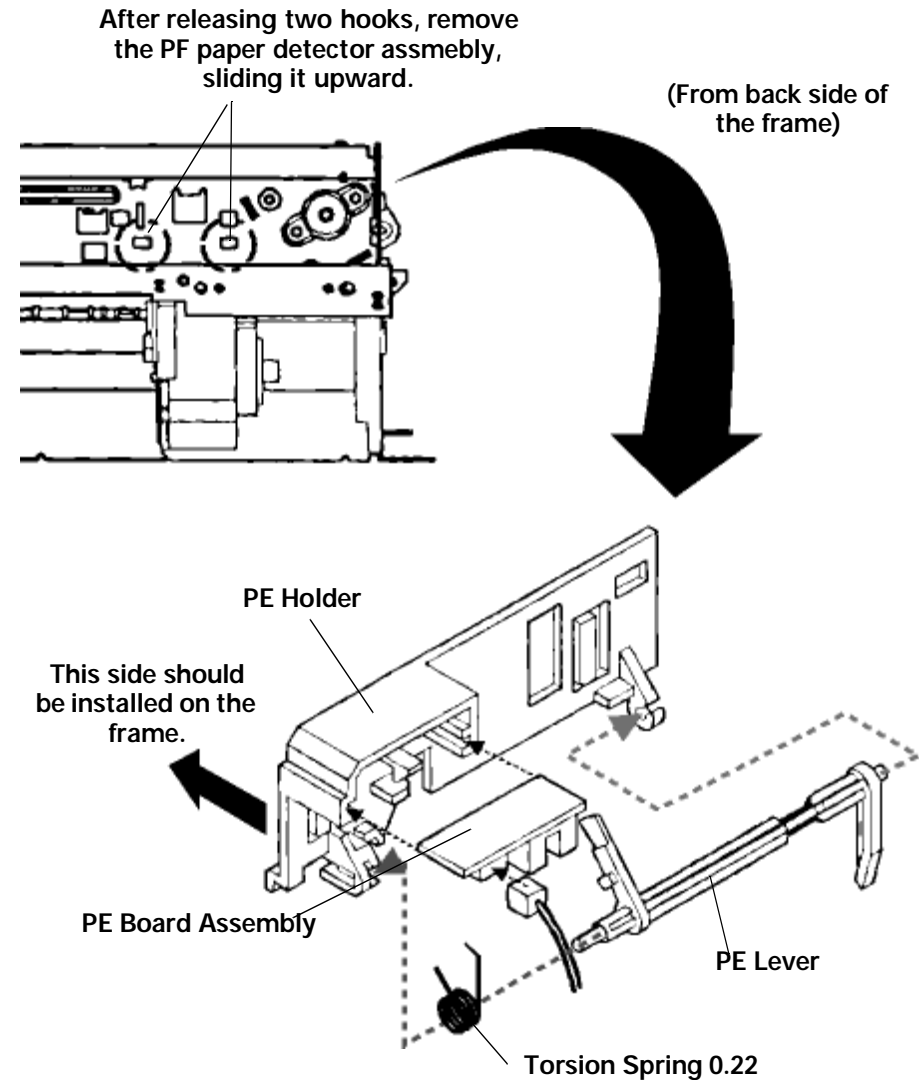


Figure 4-16. Removing the PE Detector Assembly

4.6.8 Removing the HP Detector

1. Remove the housing. (Refer to Section 4.3.)
2. Remove the cable from the HP detector and take it out after releasing the fixed hook.

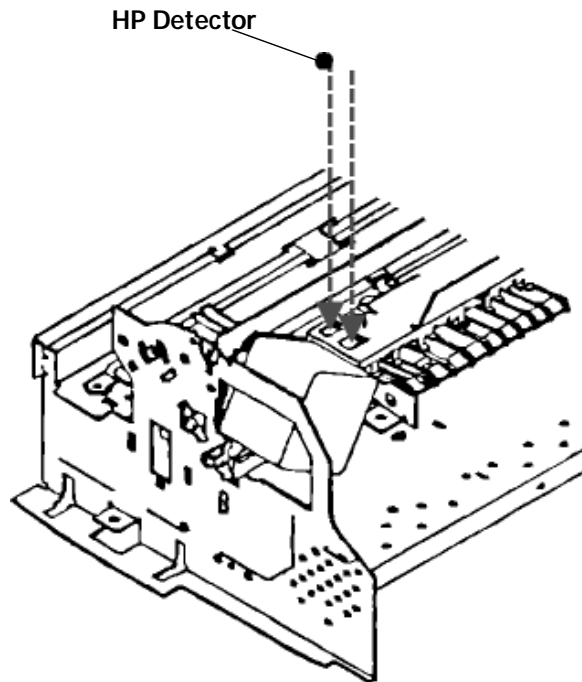


Figure 4-17. Removing the HP Detector

4.7 Disassembly of the Scanner Mechanism

You only need to remove the scanner from the scanner support frame when servicing the scanner mechanism.

4.7.1 Removing the scanner

You only need to remove the scanner from the scanner support frame when replacing the scanner mechanism. You do not need to remove the scanner from the support frame when servicing

- The printer mechanism
- The circuit boards
- Any motors
- Scanner parts such as the glass and lamp.

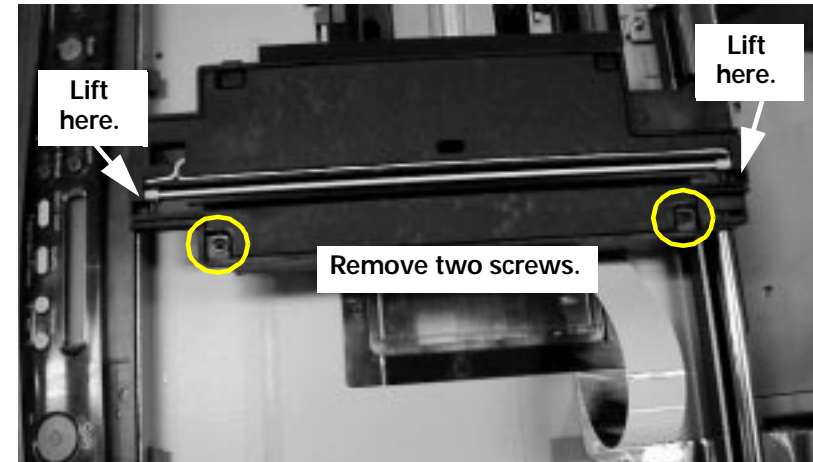
To remove the scanner, see the following.

1. Remove the rear cover and top cover as described in "Removing the Housing" on page e82.
2. Pull out the circuit board tray as described in "Removal of the Circuit Board Tray" on page e90.
3. Disconnect the scanner FFC (CN14).
4. Remove two screws (CBS 3x6) securing the tension spring and base and unhook one end of the tension spring.
5. Remove the CR belt by pushing in the tension spring end and rotating the belt while pulling it laterally away from the driven pulley.
6. Flip the scanner over so that it is upside down and resting on the ASF. Use pliers to remove the CR belt clamp.
7. Slide the scanner CR guide shaft out of the bracket and slide the scanner off the free end of the CR guide shaft.

4.7.1.1 Removing the lamp

You do not have to remove the scanner mechanism to replace the lamp.

1. Remove the rear cover and top cover as described in "Removing the Housing" on page 82.
2. Remove two black screws (CBP 3x8 with flange) securing the scanner cover.



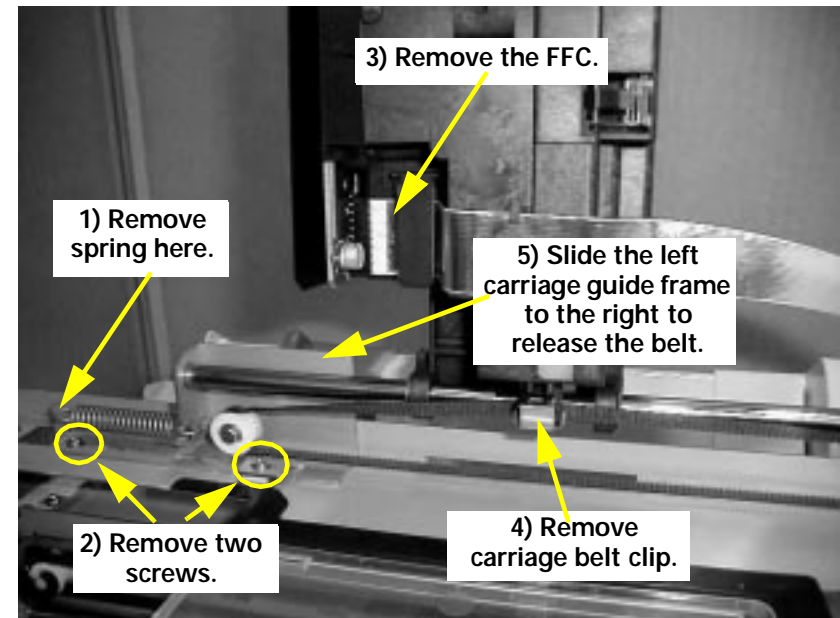
3. Lift the cover by the sides.
4. Remove one connector from CN2.

4.7.1.2 Removing the scanner power supply board

1. Remove the scanner cover and lamp as described above.
2. Remove one screw (CBP 3x8 with flange).
3. Remove one connector CN1.
4. Remove the power supply board.

4.7.1.3 Removing the scanner assembly from the scanner guide shaft

1. Using pliers, remove one spring..



2. Remove two screws (CBS 3x6).
3. Turn the scanner vertical and remove the FFC.
4. Using pliers, remove the carriage belt clip.
5. Slide the left carriage guide frame slightly to the right.
6. While rotating the belt around the pulley, remove the belt from the driven pulley.
7. While supporting the scanner with one hand, slide the left carriage guide frame to the left until the carriage guide shaft comes free.
8. Slide the scanner assembly off the carriage guide shaft.

4.7.2 Removing the scanner motor

1. Remove the rear cover and top cover as described in "Removing the Housing" on pag e82.
2. Pull out the circuit board tray as described in "Removal of the Circuit Board Tray" on pag e90.
3. Disconnect the scanner motor cable (CN13).

Using a 3M wrench, remove two nuts securing the motor.



When installing the scanner motor, it is a good idea to remove the spring and loosen the left scanner guide frame as described in Section 4.7.1.3 above.

CHAPTER

5

ADJUSTMENT

The scanner mechanism requires no adjustment for any service operation provided you closely follow the specifications in this manual and the instructions in Chapter 4 "Disassembly and Assembly".

5.1 Required Adjustments

The Stylus Scan printer mechanism requires the adjustments shown in Table 5-1. Perform the necessary adjustment referring to the steps and figures described throughout this chapter. Table 5-2 provides a list of necessary adjustments and the conditions when they are required.

Table 5-1. List of Service Procedures That Require Adjustment

No.	Content of Operation	Adjustment Procedure
1	Replacement of the printhead	<ol style="list-style-type: none"> 1. Perform Vh voltage writing operation. 2. Perform initial ink charge. 3. Perform printhead angle adjustment. 4. Perform Bi-d Adjustment. 5. Reset ink counter.
2	Replacement of the main board	<ol style="list-style-type: none"> 1. Perform Vh voltage writing operation. 2. Perform Bi-d adjustment.
3	Replacement or Removal of the Carriage Unit	<ol style="list-style-type: none"> 1. Perform parallel adjustment. 2. Perform printhead angle adjustment. 3. Perform Bi-d adjustment. 4. Reset ink counter.
4	Replace of the CR Motor	<ol style="list-style-type: none"> 1. Perform Bi-d adjustment.
5	Replacement of the Printer Mechanism	<ol style="list-style-type: none"> 1. Perform Head Voltage ID Input. 2. Perform initial ink charge. 3. Perform Bi-d adjustment.

Table 5-2. List of Required Adjustments

No.	Adjustment Item	Conditions
1	Parallelism Adjustment	<ul style="list-style-type: none"> ■ When you replace or remove the carriage or carriage guide shaft. ■ When you move the parallelism adjustment bushing.
2	Initial Ink Charge	<ul style="list-style-type: none"> ■ When you replace or remove the printhead.
3	Head Voltage ID Input	<ul style="list-style-type: none"> ■ When you replace the printhead. ■ When you replace the main board. <p>Note) The values stored in this address are not erased by the EEPROM reset operation.</p>
4	Printhead Angle Adjustment	<ul style="list-style-type: none"> ■ When you replace or remove the printhead. ■ When you move the printhead angle-adjust lever. ■ When you replace or remove the carriage or carriage guide shaft.
5	Bi-D Adjustment	<ul style="list-style-type: none"> ■ When you replace or remove the printhead. ■ When you replace the main board. ■ When you replace the CR Motor. ■ When you replace or remove the carriage or carriage guide shaft.
6	Reset ink counter.	<ul style="list-style-type: none"> ■ When you replace the printhead. ■ When you replace or remove the carriage or carriage guide shaft.

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

5.1.1 Adjustment Tools Required

Table 5-3 below shows necessary adjustment tools.

Table 5-3. Adjustment Tools Required

No.	Name	Adjustment Item	Contents/Spec.
1	Thickness Gauge	Parallelism Adjustment	1.04 mm
2	Adjustment Program	Mechanism Settings	Program for Production; P00A10W



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

5.2 Printer Adjustment

This section explains detailed adjustment procedures for the printer mechanism such as parallelism adjustment and using the adjustment program to enter market and Head ID information (see page 124).

NOTE: *The adjustment program for the Stylus Scan is not an exclusive service program; it is actually the production program used at the factory during assembly. However, for the purposes of this manual, it will be called the adjustment program except when referring to the Smart menu icon.*

The following section describes the physical adjustments that must be performed. See "Using the Service-Adjustment Program" on page 116 for details on adjustments performed using the adjustment program.

5.2.1 Printer hardware adjustments

5.2.1.1 Parallelism Adjustment

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



- Do not scratch the special coated surface of the PF roller assembly or the ribbed surface of the front paper guide; B.
- Be careful not to scratch or leave anything such as 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".
2. Make sure the PG lever is pulled forward (small gap position).

3. Move the carriage to the center and set the thickness gauge on the fixed position of the front paper guide; B as shown in Figure 5-1 on the next page.
4. Move the carriage so that the printhead overlaps the thickness gauge.



- Put the thickness gauge on the flat side of a ribbed section of the front paper guide; B.
- To move the carriage, pull the timing belt with your hand.

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 (the gap will narrow).
6. From the point where the thickness gauge starts moving with the carriage, move the gear of the right parallelism adjustment bushing one notch toward you (the gap will widen)
7. With the PG lever pulled forward (gap is small), move the carriage right and left to make sure that the thickness gauge does not move.

[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 (the gap will narrow). 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 you (the gap will widen).

[FIXING PARALLELISM ADJUSTMENT BUSHING]

13. Fix the right and left parallelism adjustment bushings with screws. (one screw for each.)

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

1. Rotate the gear 73.6 and move the head cleaner to the printer rear side.
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.
3. Then, rotate the gear 73.6 and return the head cleaner to the front position.

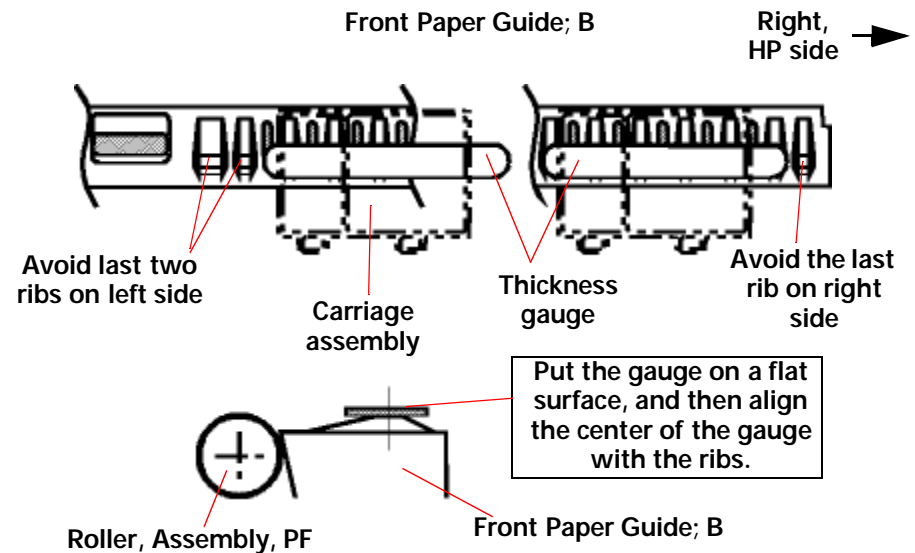


Figure 5-1. Setting the Parallelism-Adjustment Gauge

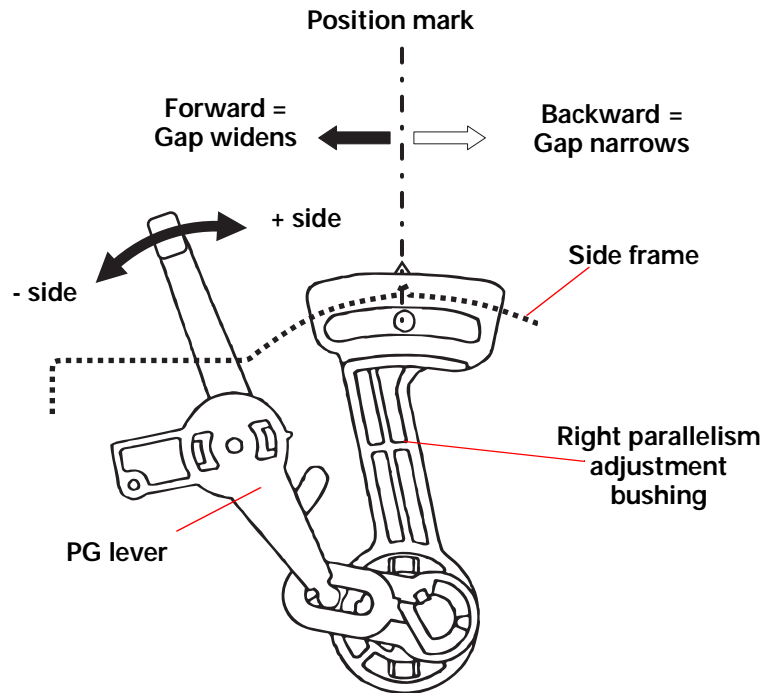


Figure 5-2. Parallelism Adjustment

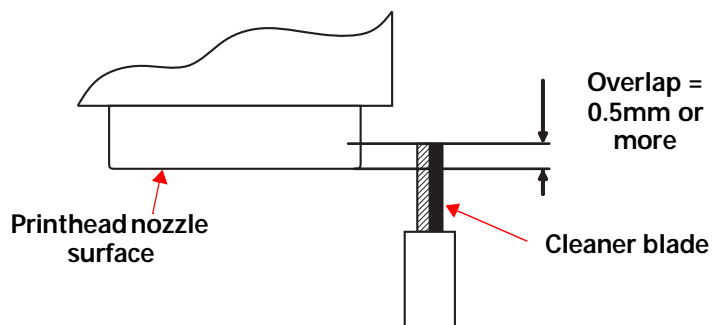


Figure 5-3. Overlap of Head Surface and Cleaner Blade

5.3 Using the Service-Adjustment Program

For the Stylus Scan, instead of an exclusive service-adjustment program, you need to use the production program when performing certain service operations.

This program is necessary to eliminate any malfunction or fluctuation between individual printer mechanisms and printer parts. Therefore, any time you replace the printer mechanism, printhead, or main board you need to enter the correct information in the main board using this production program.

5.3.1 Installing the program

1. Insert the floppy disk in the "A" drive and open the "A" drive folder from My Computer or the Explorer.
2. Click the program icon for the Adjustment program.

NOTE: The program name varies according to model and program version. At the time of the publication, SS 2000 = N90B01W and SS2500 = P00B01W

3. Select an installation folder and click OK.

5.3.2 Opening the Start-up menu

1. Connect the printer and PC and turn on the printer.
2. From the Start menu, select Programs>Program for Production>P00B01W The following screen appears.

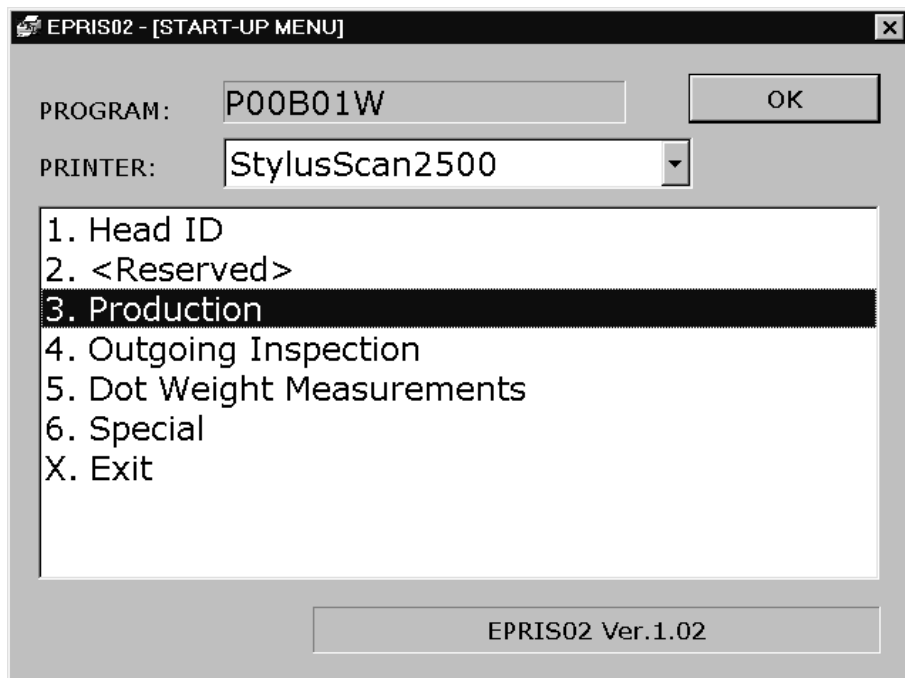


Figure 5-4. Inital Menu

From the Startup menu you need to choose Head ID or Production depending on the adjustment procedure you perform. See the table below for details.

Table 5-4. Software-based Adjustment Procedures

Adjustment procedure	See	Then see
Input the head voltage	"Head ID Menu" on page 117	"Head Voltage ID Input" on page 124
Charge ink	"Production Menu" on page 120	"Initial Ink Charge Operation" on pag e122
Adjust normal Bi-d		"Bi-D Adjustment" on page 122
Adjust variable Bi-d		
Clean the printhead		"Head Cleaning Operation" on pag e123
Drain ink		"Ink draining" on pag e126
Reset EEPROM	Special	
Clear ink counter		

The following table gives a list of adjustment that are available on the service-related menus. Other menus and items are for production purposes only.

Table 5-5. Service Menu Items

Menu name	Operations available
Head ID Menu	Input Head ID
Production Menu	<ul style="list-style-type: none"> ■ Input the head voltage ■ Charge ink ■ Adjust normal Bi-d ■ Adjust variable Bi-d ■ Clean the printhead ■ Drain ink
Special	<ul style="list-style-type: none"> ■ Reset EEPROM ■ Clear ink counter

HEAD ID MENU

To enter the Head ID menu, follow these steps.

1. Open the Start-up menu as described above.
2. Select Head ID and click OK. The following menu appears.



Only select Print Head ID in the Head ID menu. All other options are for factory use only.

Head ID MENU

Execute - Printer1

1. Input-Write-Verify / QR Code	Program	P00B01W
2. Input-Write-Verify / Manual	Printer	StylusScan2500
3. <Reserved>	Interface	LPT1(D4 Mode)
4. <Reserved>	JIG/CT	
5. <Reserved>	Customer	
6. Print Head ID	M/C No.	
7. <Reserved>	Head ID	
X. Return to START-UP Menu	Device ID	

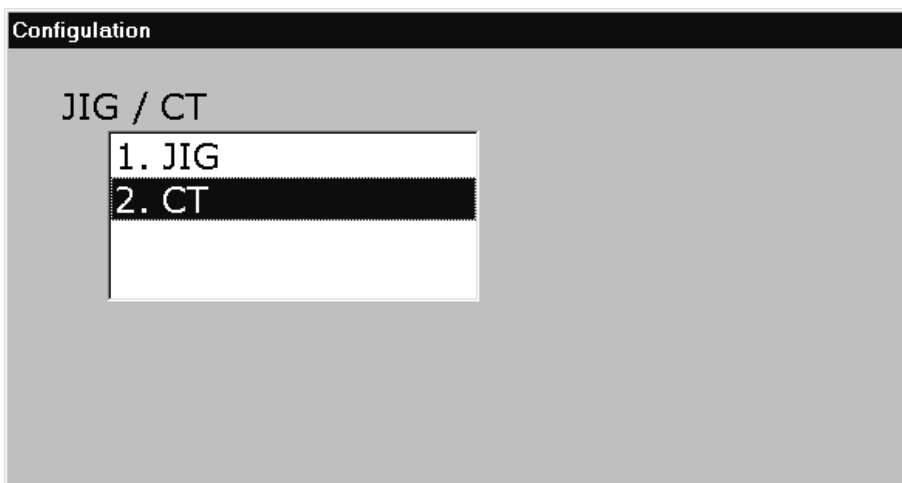
[SPACE] EXECUTE

Figure 5-5. Head ID Menu

PRODUCTION MENU

To enter the Production menu, follow these steps.

1. Open the Start-up menu as described above.
2. Select Production and click OK.
3. Make sure CT (cartridge) is selected in the first Configuration window and then click Next.

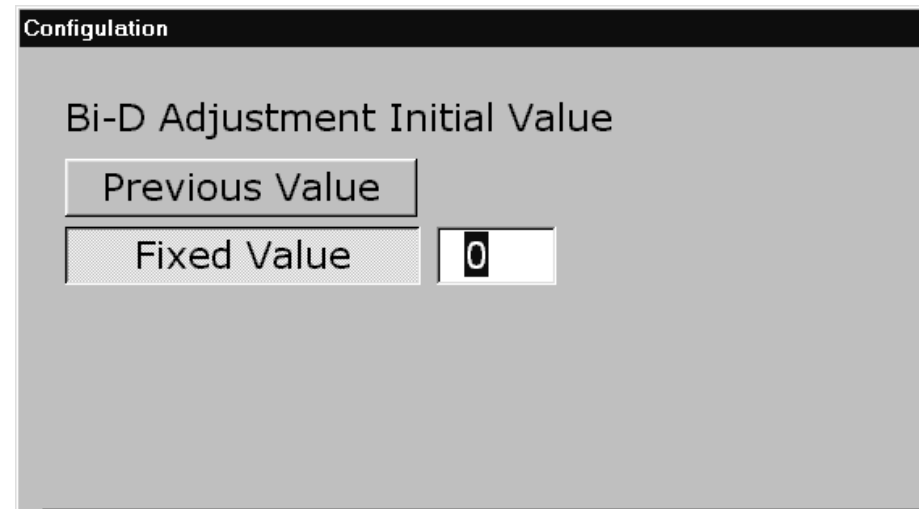


Do not select JIG in the Configuration window as this option is for factory use only.

4. Click Next again.



5. Click FINISH.



6. The Production Menu appears, as shown on the next page. See the following pages for details on performing service-related adjustments.

Production MENU

Execute - Printer1

<p>0. Configuration</p> <p>1. (Start!) M/C No. 2. (Start!) M/C No.,Head ID 3. INK Charge 4. Print - Angular Adj. K. Angular Adj. 5. Bi-d Adj. - Normal 6. Bi-d Adj. - Variable P. Print -G0S H. Print -S/F Letter J. Print -S/F A4 M. Print -Post Card J. Print -Envelope C. Cleaning D. INK Discharge X. Return to START-UP Menu</p>	<table border="0" style="width: 100%;"> <tr> <td style="width: 15%;">Program</td> <td colspan="3"><input type="text" value="P00B01W"/></td> </tr> <tr> <td>Printer</td> <td colspan="3"><input type="text" value="StylusScan2500"/></td> </tr> <tr> <td>Interface</td> <td colspan="3"><input type="text" value="LPT1(D4 Mode)"/></td> </tr> <tr> <td>JIG/CT</td> <td colspan="3"><input type="text" value="CT"/></td> </tr> <tr> <td>Customer</td> <td colspan="3"><input type="text" value="000:WORLD"/></td> </tr> <tr> <td>M/C No.</td> <td colspan="3"><input type="text"/></td> </tr> <tr> <td>Head ID</td> <td colspan="3"><input type="text"/></td> </tr> <tr> <td>Device ID</td> <td colspan="3"><input type="text"/></td> </tr> <tr> <td>Counter</td> <td>INK Charge</td> <td><input type="text" value="0"/></td> <td>Cleaning</td> <td><input type="text" value="0"/></td> </tr> <tr> <td>Bi-D</td> <td>Normal</td> <td><input type="text"/></td> <td>Variable</td> <td><input type="text"/></td> </tr> </table>	Program	<input type="text" value="P00B01W"/>			Printer	<input type="text" value="StylusScan2500"/>			Interface	<input type="text" value="LPT1(D4 Mode)"/>			JIG/CT	<input type="text" value="CT"/>			Customer	<input type="text" value="000:WORLD"/>			M/C No.	<input type="text"/>			Head ID	<input type="text"/>			Device ID	<input type="text"/>			Counter	INK Charge	<input type="text" value="0"/>	Cleaning	<input type="text" value="0"/>	Bi-D	Normal	<input type="text"/>	Variable	<input type="text"/>
Program	<input type="text" value="P00B01W"/>																																										
Printer	<input type="text" value="StylusScan2500"/>																																										
Interface	<input type="text" value="LPT1(D4 Mode)"/>																																										
JIG/CT	<input type="text" value="CT"/>																																										
Customer	<input type="text" value="000:WORLD"/>																																										
M/C No.	<input type="text"/>																																										
Head ID	<input type="text"/>																																										
Device ID	<input type="text"/>																																										
Counter	INK Charge	<input type="text" value="0"/>	Cleaning	<input type="text" value="0"/>																																							
Bi-D	Normal	<input type="text"/>	Variable	<input type="text"/>																																							

[SPACE] EXECUTE

Figure 5-6. Production Menu

5.3.3 Initial Ink Charge Operation

There is no ink in the ink path of a spare printhead and printer mechanism when first installed; therefore, after replacing either of these two parts, you need to perform an initial ink charge.

1. Enter the Production menu as described in "Using the Service-Adjustment Program" on page e116.
2. On the Production menu (Figure 5-6), select **Ink Charge**. Then click **OK** in the dialog box that appears.



It takes approximately 90 seconds for the ink charge operation to complete.

5.3.4 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 need to perform this adjustment after performing the following operations.

- Replacing the printer mechanism
- Replacing the main board
- Replacing the CR motor
- Replacing the Carriage Assembly
- Replacing the Printhead

1. Enter the Production menu as described in "Using the Service-Adjustment Program" on page 116.
2. On the Production menu (Figure 5-6), select **Bi-d Adj. - Normal**. The **Bi-d Adjust** dialog box appears.

Bi-d Adjust

Current Value = 0

OK

INPUT "Y", IF OK.

Adjustment Range : -36 to 36

3. Click OK in the dialog box that appears to print adjustment patterns with the current settings.

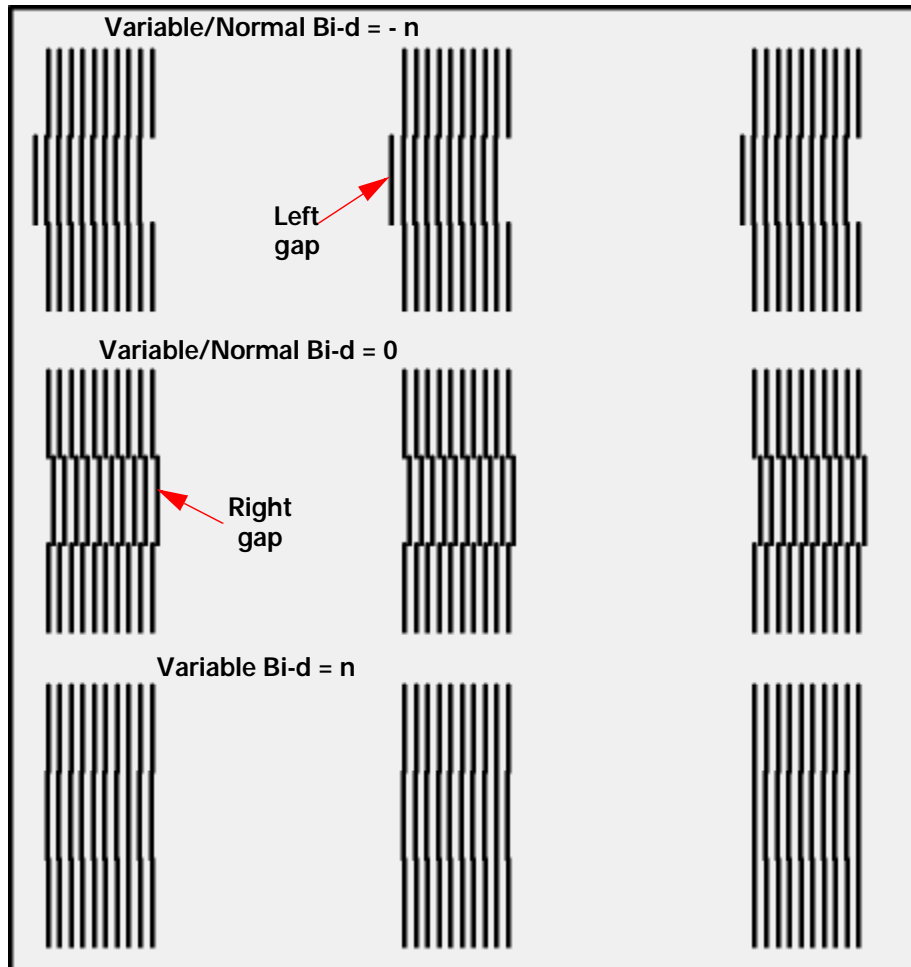


Figure 5-7. Bi-D Adjustment Pattern Sample

- Looking at the printed patterns, determine which set is vertically aligned. Enter the number of that set in the Bi-d Adjust dialog box. If no patterns are vertically aligned, enter the number of the pattern that is most aligned. Repeat this process until the lines are aligned, and then enter "y" in the Current Value field.

5.3.5 Head Cleaning Operation

Unlike many previous models, the Stylus Scan does not have a dummy cleaning sequence called CL3, which was performed to prevent ink from being unnecessarily consumed when cleaning was repeated without any printout. However, Stylus Scan is alternatively equipped with the strongest cleaning sequence CL2 contained in this adjustment program. With this sequence, you can forcibly solve the clogged-nozzle problems that were caused by viscous ink.

CAUTION



If you cannot recover the clogged nozzles even after performing the CL2 operation, enter the Initial ink charge sequence by referring to "Initial Ink Charge Operation" on page 122.

- Enter the Production menu as described in "Using the Service-Adjustment Program" on page 116.
- On the Production menu (Figure 5-6), select **Cleaning**. Then click **OK** in the dialog box that appears.
- The printer enters the CL2 sequence.



The CL2 cleaning operation takes 60 seconds to complete.

5.3.6 Head Voltage ID Input

Head voltage value adjustment function enables you to write printhead ID. This operation is considered the most important to maintain proper ink discharging system. If an ID is not written correctly, it results in white or color lines and also cause wrong dot-weight errors. This adjustment is required in the following cases.

1. When exchanging the main board
2. When exchanging the printhead
3. When exchanging the printer mechanism

CAUTION



When performing this operation, also see Table 5-4 on page 117 to determine what other procedures are necessary.

1. When replacing any of the parts above, make a note of VH voltage ID. You can find the VH voltage ID on the following position:
 - Printhead: On the top side of the printhead.
 - Printer mechanism: On the label of the packing box of the printer mechanism.
1. Enter the Head ID menu as described in "Using the Service-Adjustment Program" on page 116.
2. On the Production menu (Figure 5-6), select **Head ID**. Then click **OK** in the dialog box that appears.
3. From the Head ID menu, select Print Head ID to verify the voltage information is enabled.

5.3.7 Head Angular Adjustment

During production, slight variations are created in printheads and carriage (which are used as a printhead base.) The head angular adjustment procedures compensates for these differences so that no banding or color/white line patterns appear in the printout.

To adjust the printhead angle correctly, an 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 a 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. Remove the upper case from the main unit. (Refer to Chapter 4.)
2. Enter the Production menu as described in "Using the Service-Adjustment Program" on page 116.
3. On the Production menu (Figure 5-6), select Print - **Angular Adj**. The following patterns are printed.



Figure 5-8. Sample of Head Angular Adjustment Pattern

NOTE: In the above figure, Head Katamuki means Head Angle.

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

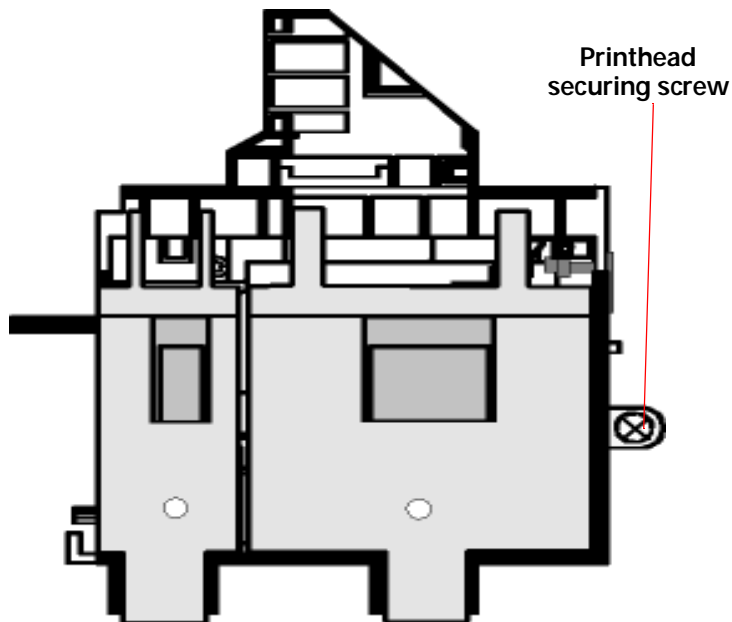


Figure 5-9. Screw Position

NOTE: Make sure to loosen this screw. Otherwise, the printhead angle will not change even if the adjustment lever moves.

- Look very closely at the black/magenta lines in the bottom pattern and move the adjustment lever to center the magenta lines between the black lines. The figure below shows how to move the lever to correct a misaligned pattern.

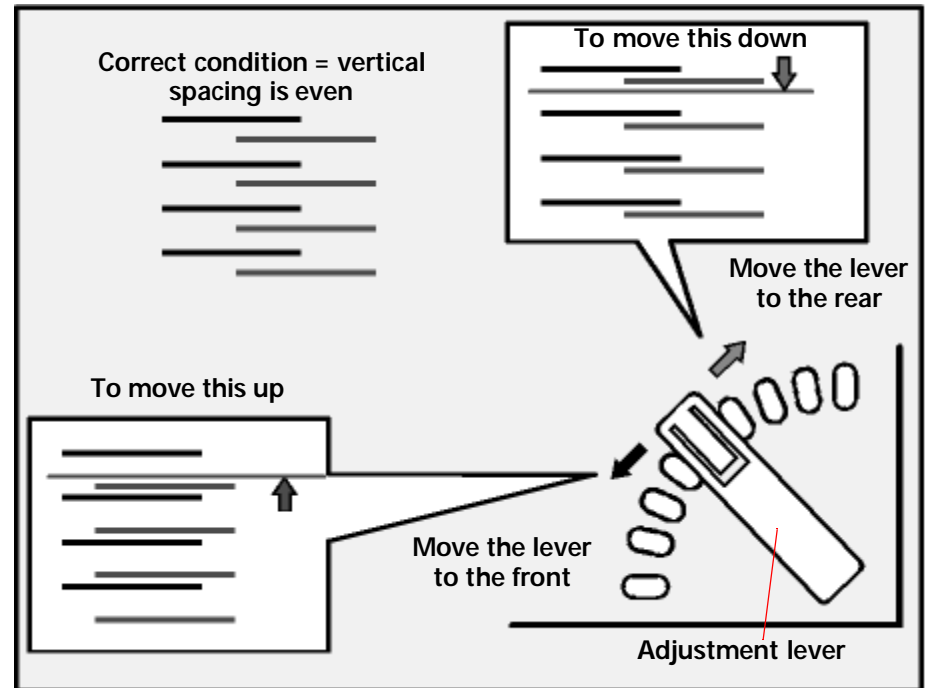


Figure 5-10. Lever Operation

- After changing the position of the adjust lever, select Print - Angular Adj. again from the Production Menu.
- Verify the pattern on the printout again.
- Repeat this process until the combination pattern of black/magenta is correct.

9. After completing the adjustment, tighten the printhead screw, and reassemble the Stylus Scan.

5.3.8 Ink draining

To drain the ink from the cartridge before transporting it a long distance, follow the steps below.

1. Enter the Production menu as described in "Using the Service-Adjustment Program" on pag e116.
2. On the Production menu (Figure 5-6), select Ink Discharge. **Click OK in the following dialog box.**

SPECIAL MENU

To enter the Special menu, follow these steps.

1. Open the Start-up menu as described on pag e117.
2. Double-click Special and click OK.
3. Double-click Counter Clear and clic e OK.



You can also perform a hex dump of the EEPROM data by double-clicking EEPROM DUMP on the Special menu. The printer will print the EEPROM parameters in hexadecimal characters.

5.4 Scanner Adjustment

The scanner mechanism requires no adjustment for any service operation provided you closely follow the specifications in this manual and the instructions in Chapter 4 "Disassembly and Assembly".

CHAPTER

6

MAINTENANCE

6.1 Overview

This chapter provides information necessary to keep the scanner function in optimum condition constantly and to prevent troubles.

6.1.1 Cleaning

Perform cleaning when stain is noticeable. Stain on the document glass, particularly, has direct effect on the scanned image. Therefore, be sure to clean the glass well to remove stain thoroughly.



Never apply any organic solvent such as thinner and benzine, since there may damage deteriorate plastic and rubber parts.

- Outer Cases
Wipe stain off with a clean cloth which is moisted with water and then squeezed tightly. To remove sever stain, use neutral detergent.
- Document Glass
Remove dust and paper debris with a dry clean cloth. If stain is severe or foreign object is stuck, use a cloth absorbed with neutral detergent. If trace is left, wipe it off well with a dry, clean cloth again.

6.1.2 Lubrication

6.1.2.1 Scanner lubrication points

When the carriage unit needs to be replaced, or the operation sound of the carriage movement becomes noisy, it is necessary to apply lubrication. Following tables show the recommended grease type and lubrication points.

Table 6-1. Recommended Grease

Type	Name	Supply Quantity	Part No.	Specification
Grease	G-26	40g	B702600001	E*

Note*) "E" means exclusive product for EPSON. (Not available on the market)

Table 6-2. Lubrication Points

Figure	Lubrication Points	Lubrication
6-1	Transmission Gear Shaft of the CR motor and Driven pulley shaft.	G-26 (1x3mm)
6-1	Driven Pulley Shaft	G-26(1x3mm)



Excessive lubrication may damage the mechanism part or cause the malfunction of the operation.

6.1.2.2 Printer lubrication points

The type and amount of oil and grease used to lubricated 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 or grease other than those specified in this manual. Use of different types of lubricant can damage the printer and the components.
- Never apply a larger amount of lubricant than specified in this manual.

Table 6-3. Specified Lubricants

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

Table 6-4. Lubrication Points

No.	Standard	Remarks	See page
1	<Lubrication Point> Contact between "ROLLER, PF" and "PAPER GUIDE, REAR"	Do not put grease around the paper path.	132
	<Lubricant Type> G-26	Use a syringe to apply it.	
	<Lubrication Amount> A half turn of "ROLLER, PF"	Apply grease while rotating "GEAR, 73.6".	
2	<Lubrication Point> Contact points between "PAPER GUIDE, FRONT" and each roller: "ROLLER, PF" (1 point) "ROLLER, EXIT" (2 points)	Lubricate the contact points between the hooks on "PAPER GUIDE, FRONT" and each roller.	132
	<Lubricant Type> G-26	Avoid applying grease around the paper path.	
	<Lubrication Amount> 10-mm long 2-mm long	Use a syringe to apply it.	
3	<Lubrication Point> Contact points between the carriage assembly and "FRAME, UPPER"	Verify that the carriage moves smoothly after lubricating it. Use a syringe to apply it.	133
	<Lubricant Type> G-26		
	<Lubrication Amount> Range from the HP sensor installation point to the point where "GUIDE PLATE, CABLE" is attached.		

Table 6-4. Lubrication Points (cont.)

No.	Standard	Remarks	See page
4	<Lubrication Point> Gears: "GEAR, 73.6" "COMBINATION GEAR, 8, 14.4" "GEAR, 23.2"	Rotate the gears after applying grease to evenly distribute it. Use a syringe to apply it.	133
	<Lubricant Type> G-26		
	<Lubrication Amount> 1/4 of gear tooth 1/3 of gear tooth 1/3 of gear tooth 1/3 of gear tooth		
5	<Lubrication Point> The shaft for "GEAR, 16, 40.8" on "FRAME, LEFT"	Use a syringe to apply it.	133
	<Lubricant Type> G-26		
	<Lubrication Amount> Approximately 5-mm long		
6	<Lubrication Point> Bushings for "ROLLER, PF" Left: Inside the bushing Right: Inside the bushing (near the pump assembly)	For the right bushing, apply it from the paper path side, and wipe off any grease sticking out to the cap assembly side. Rotate "ROLLER, PF" after applying grease to evenly distribute it in the bushing. Use a syringe to apply it.	134
	<Lubricant Type> G-26		
	<Lubrication Amount> Approximately 3 mm diametrically		

Table 6-4. Lubrication Points (cont.)

No.	Standard	Remarks	See page
7	<Lubrication Point> Both Left/Right Bushings for "ROLLER, EXIT"	Avoid applying grease around the paper path. Use a syringe to apply it.	134
	<Lubricant Type> G-26		
	<Lubrication Amount> Evenly apply inside the bushings.		
8	<Lubrication Point> Contact points between "HOLDER, PULLEY, DRIVEN" and "FRAME, UPPER"	Verify that the holder slides only with spring force after applying grease. Use a syringe to apply it.	135
	<Lubricant Type> G-26		
	<Lubrication Amount> 2-mm long for each point		
9	<Lubrication Point> ASF; The round hole in the right frame of ASF (to hold the roller shaft)	Avoid applying grease to "ROLLER, ASSEMBLY, LD".	135
	<Lubricant Type> G-26		
	<Lubrication Amount> Evenly apply inside the hole.		
10	<Lubrication Point> ASF; Contact points between "HOPPER" and "LEVER, HOPPER, RELEASE"	Completely wipe off any grease sticking out to the inner side of ASF.	135
	<Lubricant Type> G-26		
	<Lubrication Amount> Evenly apply lubrication to the points.		

Table 6-4. Lubrication Points (cont.)

No.	Standard	Remarks	See page
11	<Lubrication Point> The round cutout in the left frame of ASF ("GEAR, 34" is inserted to the cutout.)	Completely wipe off any grease sticking out to the inner side of ASF.	136
	<Lubricant Type> G-26		
	<Lubrication Amount> Evenly apply inside the hole		
12	<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.	136
	<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.		

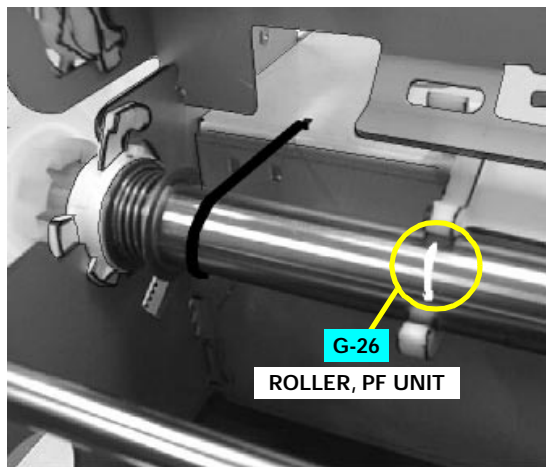


Figure 6-1. #1 Paper Feed Roller at two places



When rotating the Paper Feed Roller, only touch the projections on the outside surface of the 73.6 precision gear. Do not touch the teeth of the gear.

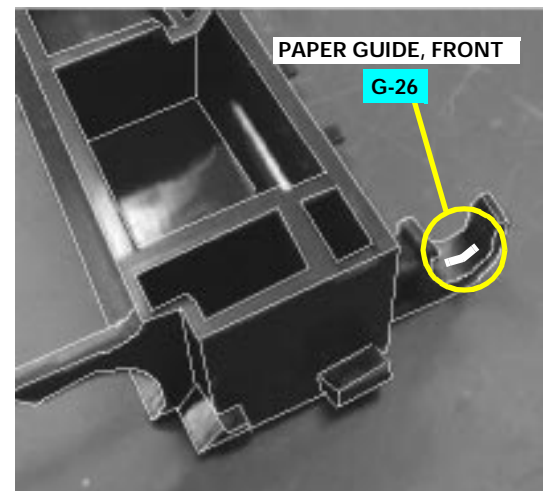


Figure 6-2. #2 Front Paper Guide - A

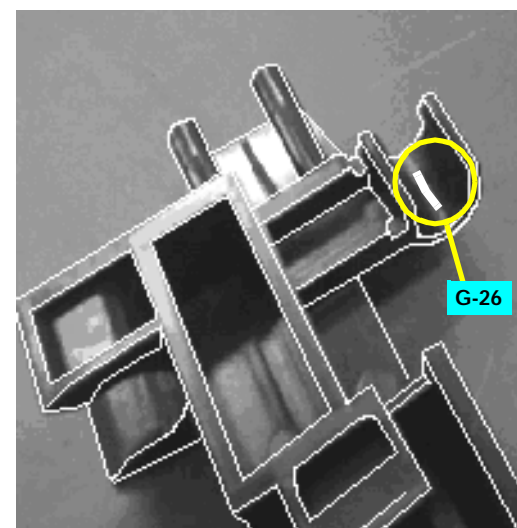


Figure 6-3. #2 Front Paper Guide - B

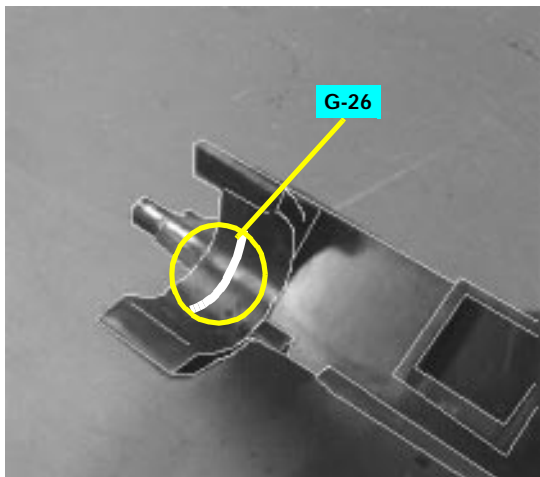


Figure 6-4. #2 Front Paper Guide - C

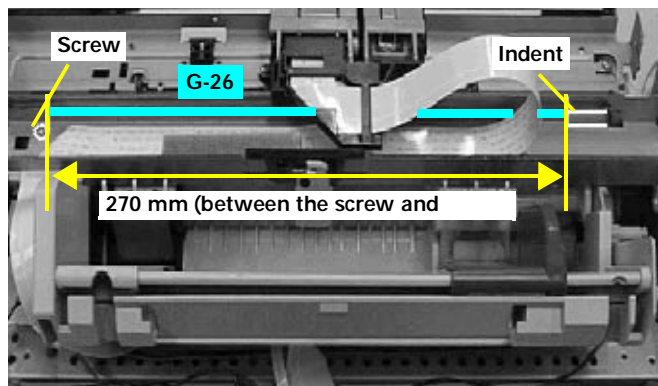


Figure 6-5. #3 Carriage Assembly Contact Point

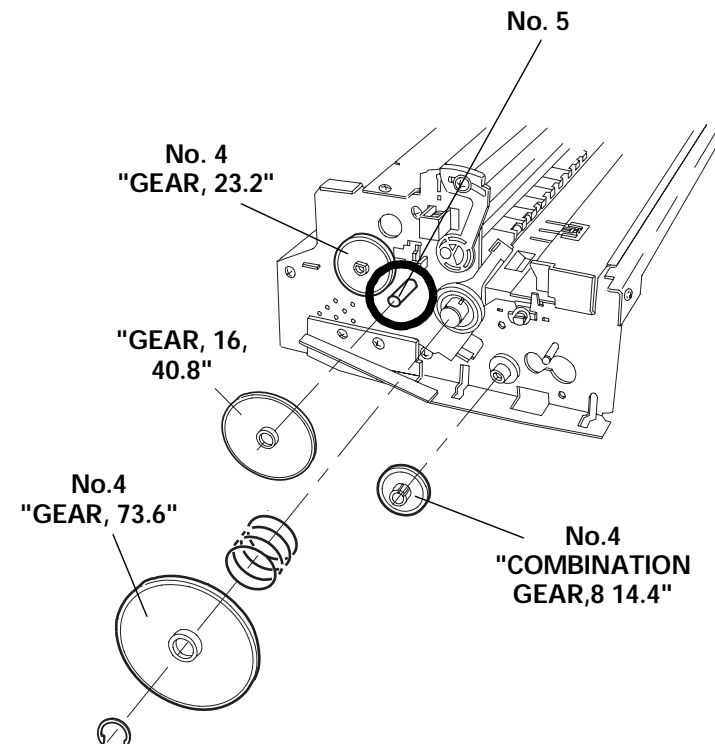


Figure 6-6. #4 Combination Gears and #5 Gear Shaft

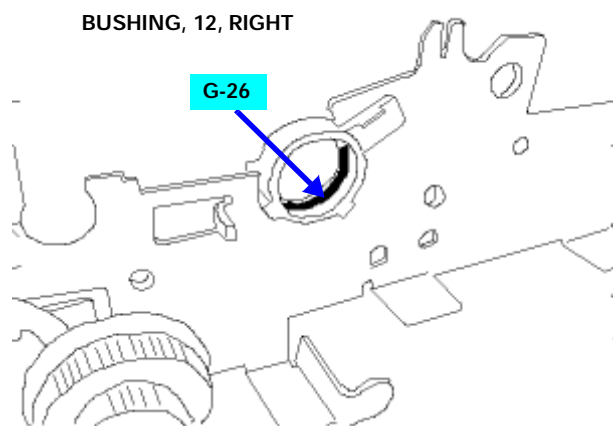


Figure 6-7. #6 Inside the PF Roller Bushing - Right

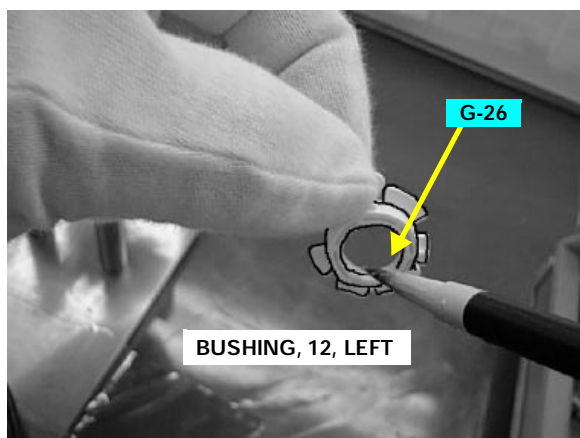
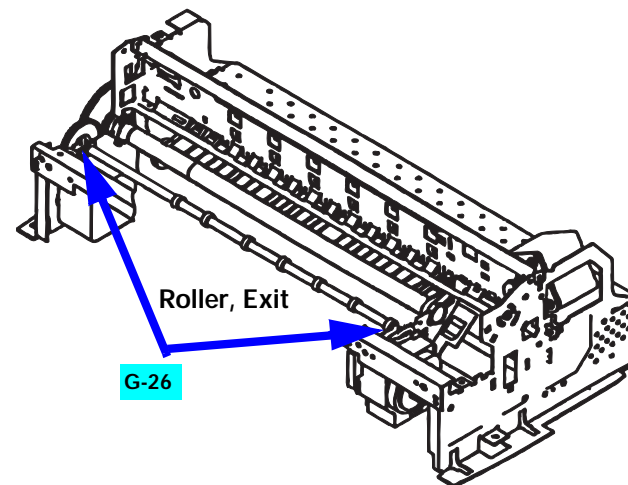


Figure 6-8. #6 Inside the PF Roller Bushing - Left

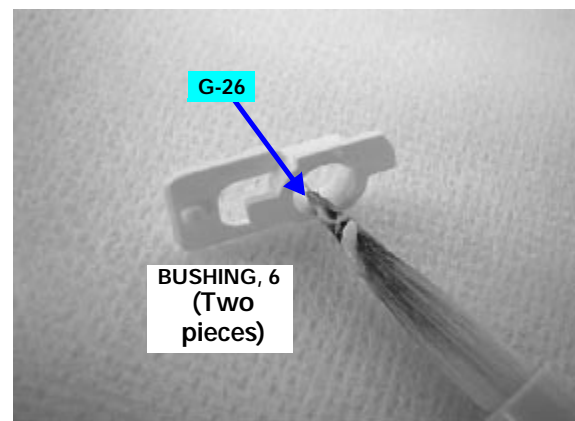


Figure 6-9. #7 Left & Right Exit Roller Bushings

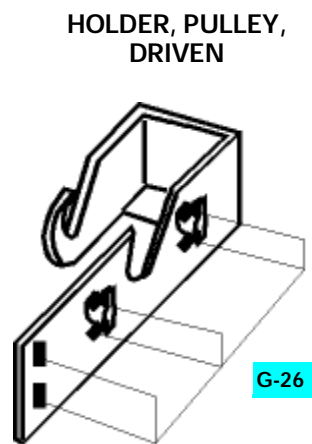


Figure 6-10. #8 Driven Pulley Holder

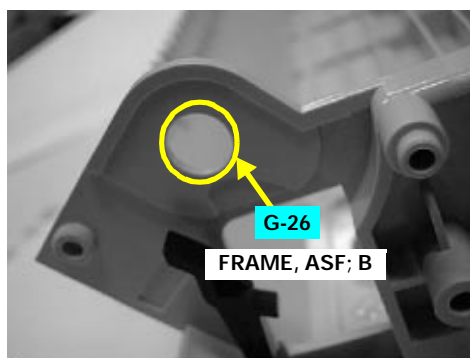


Figure 6-11. #9 ASF Roller Shaft

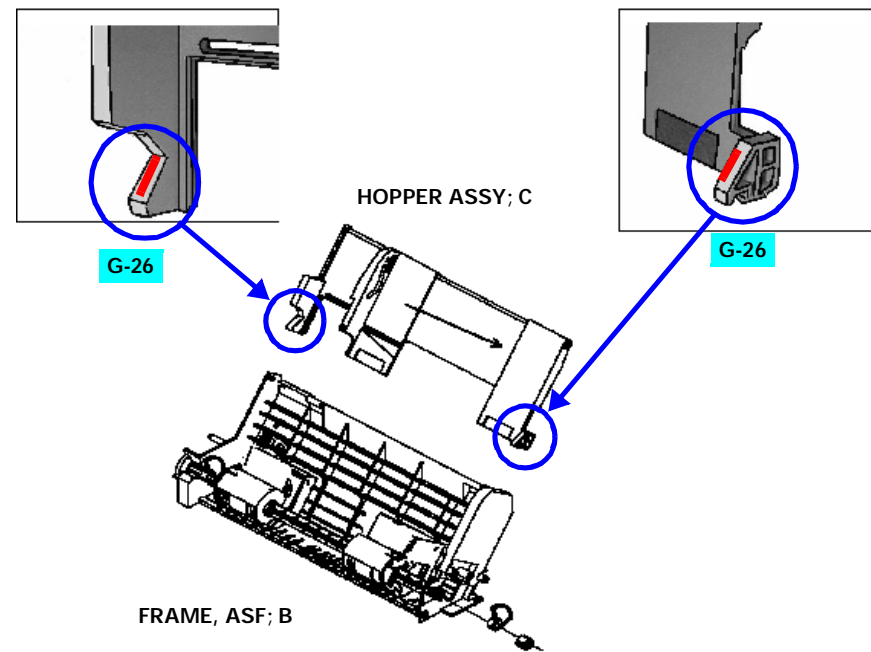


Figure 6-12. #10 ASF Hopper Assembly

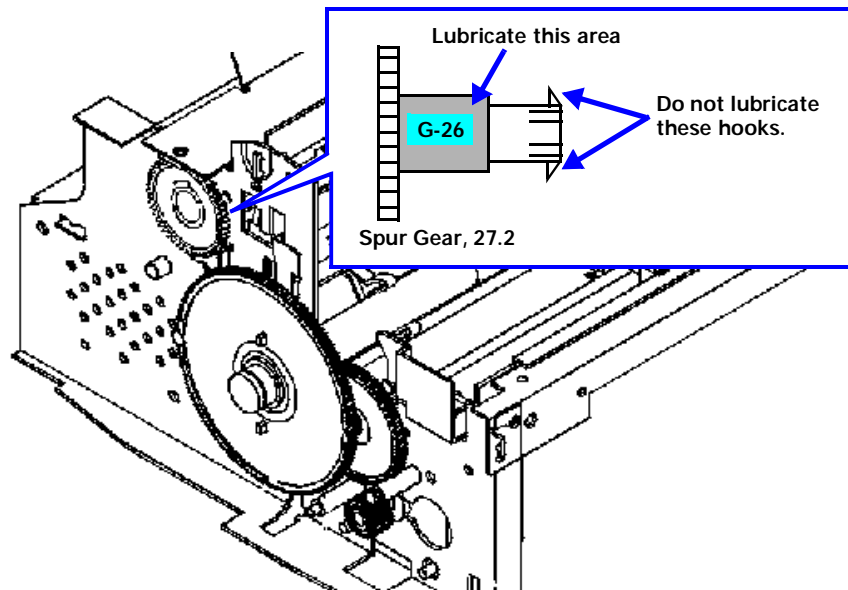


Figure 6-13. #11 Gear 34 (ASF Roller Gear)

*Never apply the oil exceeding 0.6cc.

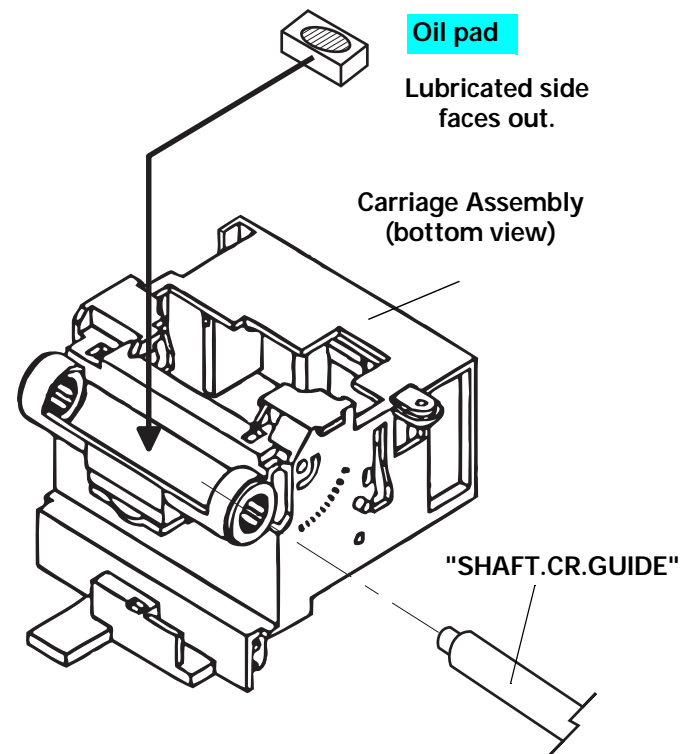
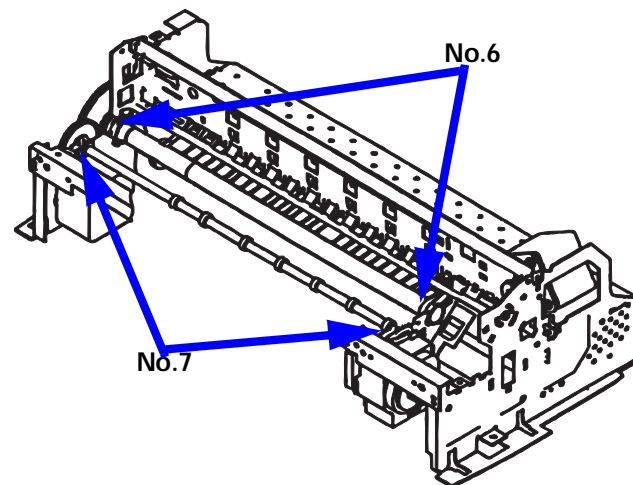
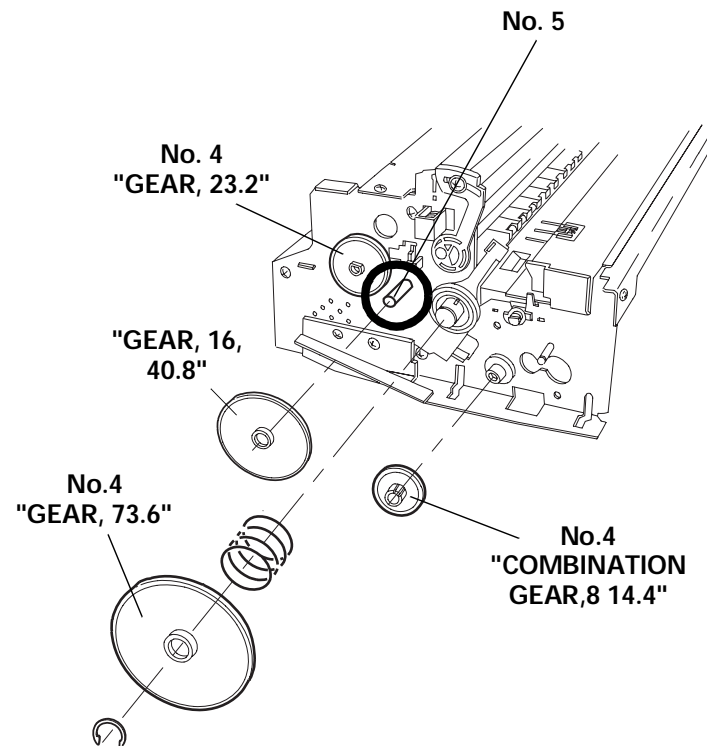
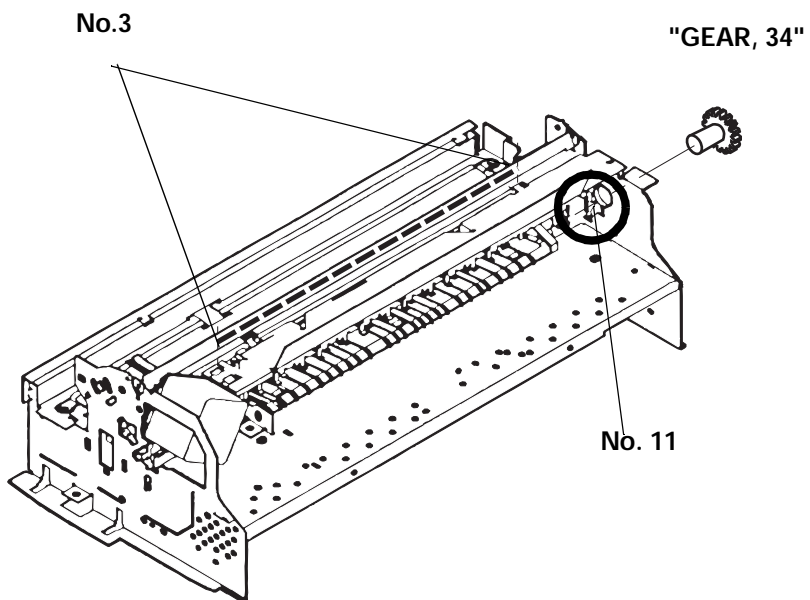
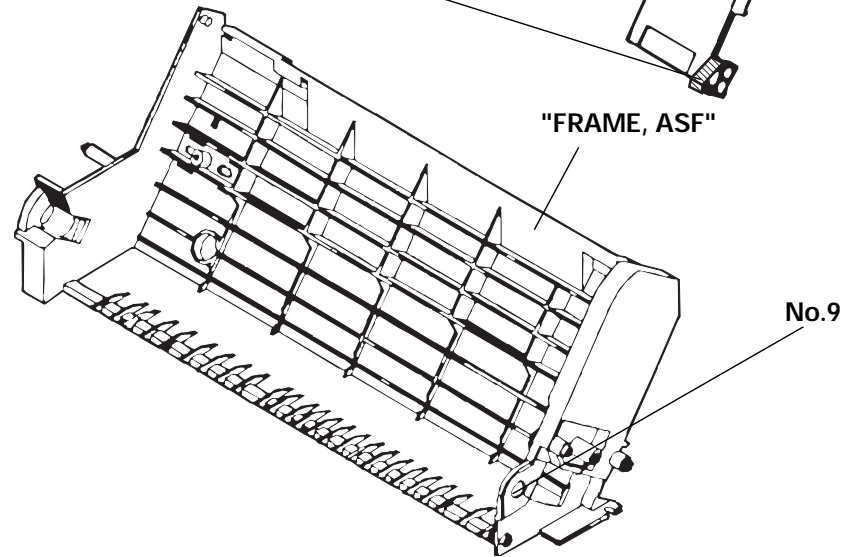
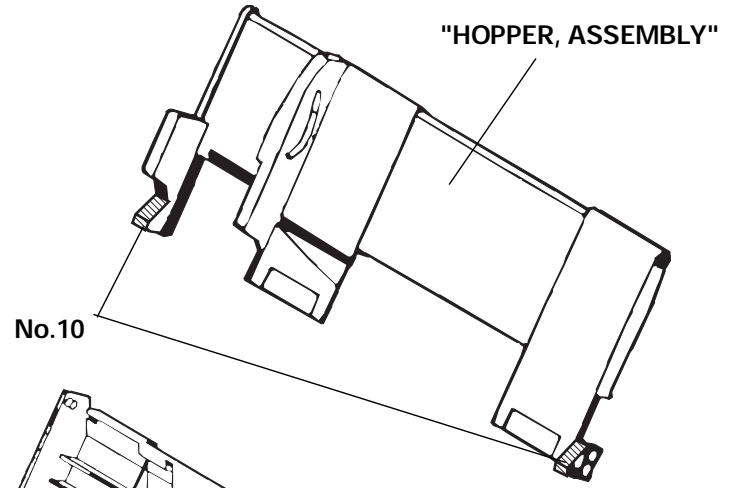
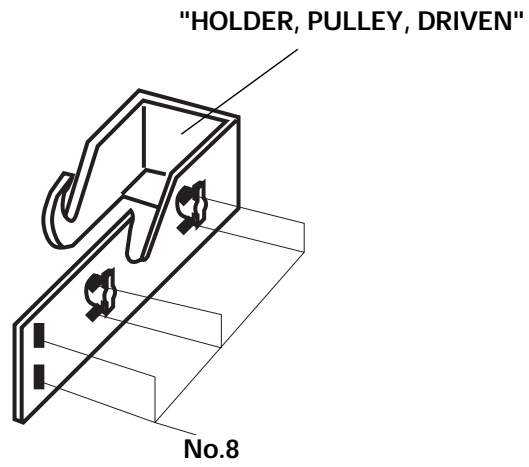


Figure 6-14. #12 Carriage Assembly Oil Pad



- 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.





6.1.2.3 Scanner Mechanism

This chapter provides information necessary to keep the scanner function in optimum condition constantly and to prevent troubles.

When the carriage unit needs to be replaced, or the operation sound of the carriage movement becomes noisy, it is necessary to apply lubrication. Following tables show the recommended grease type and lubrication points.

Table 6-5. Recommended Grease

Type	Name	Supply Quantity	Part No.	Specification
Grease	G-26	40g	B702600001	E*

Note*) "E" means exclusive product for EPSON. (Not available on the market.)

Table 6-6. Lubrication points

Figure	Lubrication Points	Lubrication
6-1	Transmission Gear Shaft of the CR motor and Driven pulley shaft.	G-26 (1x3mm)
6-1	Driven Pulley Shaft	G-26(1x3mm)



Excessive lubrication may damage the mechanism part or cause the malfunction of the operation.

CHAPTER

7

APPENDIX

7.1 Connector

This section provides information on Main board connectors. Figure 7-1, "Cable Connections for Stylus Scan 2500" shows how the main component units are connected.

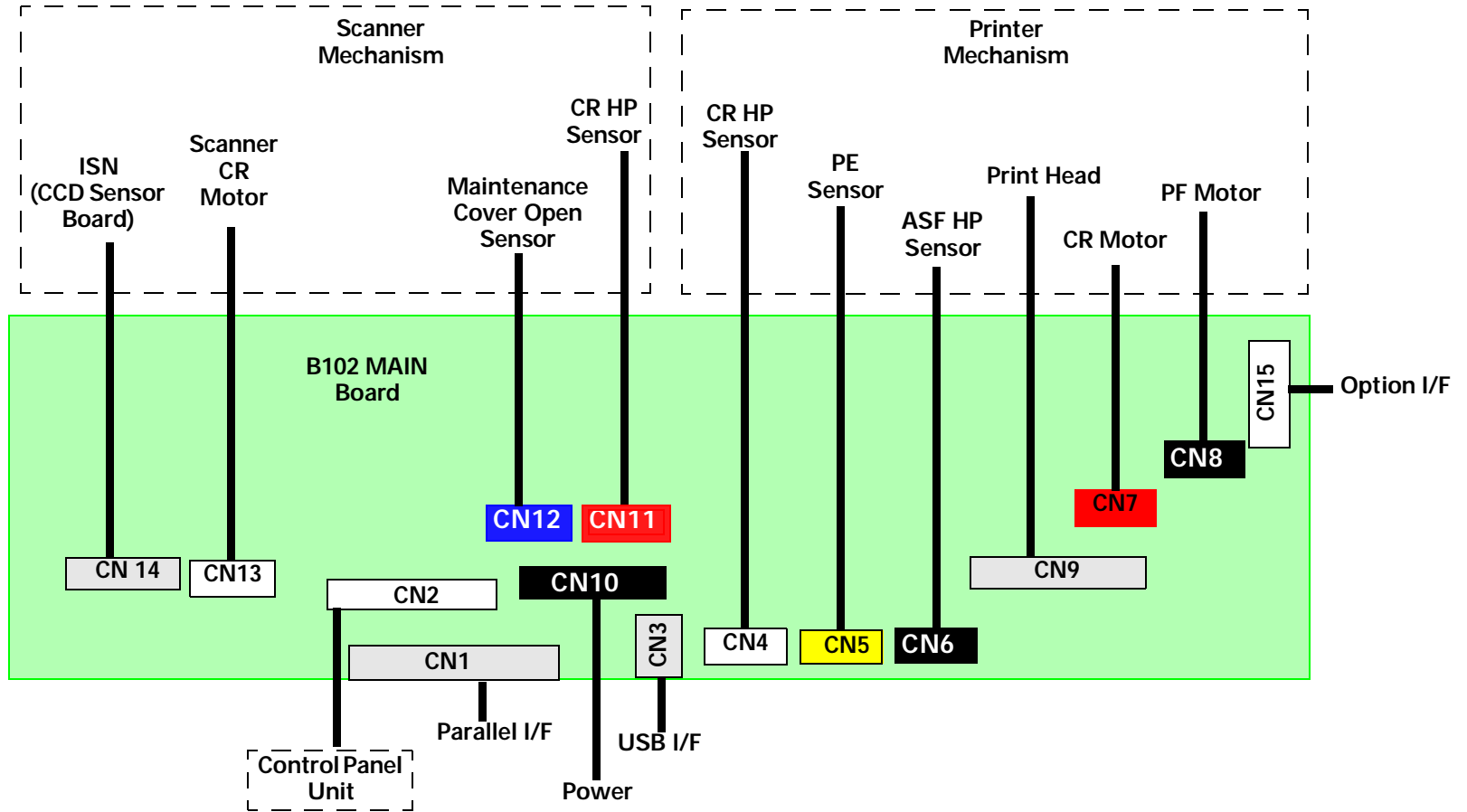


Figure 7-1. Cable Connections for Stylus Scan 2500

7.1.1 Board Connector Summary

The table below provides board connector summary of Stylus Scan 2500.

Table 7-1. Circuit Board Connector Summary

Connector	Connection	Pin Number	Refer to
B102 MAIN Board			
CN1	→Centronics parallel interface	36-pin	“Printer Interface” on page 20
CN2	→Control Panel Unit	21-pin	Table 7-2 on page 143
CN3	→USB interface	4-pin	“Printer Interface” on page 20
CN4	→Printer Mechanism (HP sensor)	3-pin	Table 7-3 on page 143
CN5	→Printer Mechanism (PE sensor)	3-pin	Table 7-4 on page 143
CN6	→Printer Mechanism (ASF sensor)	3-pin	Table 7-5 on page 143
CN7	→Printer Mechanism (CR motor)	4-pin	Table 7-6 on page 143
CN8	→Printer Mechanism (PF motor)	4-pin	Table 7-7 on page 144
CN9	→Printer Mechanism (Printhead)	24-pin	Table 7-8 on page 144
CN10	→B101 PSB/PSE board/AC inlet	12-pin	Table 7-9 on page 144
CN11	→Scanner Mechanism (HP sensor)	2-pin	Table 7-10 on page 144
CN12	→Scanner Mechanism (Maintenance cover open sensor)	3-pin	Table 7-11 on page 145
CN13	→Scanner Mechanism (CR motor)	6-pin	Table 7-12 on page 145
CN14	→Scanner Mechanism (CCD sensor board/ISN)	14-pin	Table 7-13 on page 145

Table 7-1. Circuit Board Connector Summary (cont.)

Connector	Connection	Pin Number	Refer to
CN15	Scanner option	7-pin	Table 7-14, “Connector Pin Assignment-CN15,” on page 145
B102 PSB/PSE Board			
CN1	→AC inlet	2-pin	Table 7-15 on page 146
CN2	→Power to B102 MAIN Board	12-pin	Table 7-9 on page 144
Control Panel Board			
CN1	→B102 MAIN Board	14-pin	Table 7-2 on page 143

7.1.2 Connector Pin Assignment

Tables in this section provide connector pin assignment of the Stylus Scan 2500.

Signals of each connector on the B102 MAIN Board are listed below.

Table 7-2. Connector Pin Assignment-CN2

Pin No.	Signal Name	I/O	Function
1	GND	O	Ground
2	LD0	O	
3	GND	O	Ground
4	LD1	O	
5	LED0	O	LED drive signal (0)
6	LD2	O	
7	LED1	O	LED drive signal (1)
8	LD3	O	
9	LED2	O	LED drive signal (2)
10	LA0	O	
11	LED3	O	LED drive signal (3)
12	LCS	O	
13	LED4	O	LED drive signal (4)
14	LWE	O	
15	+5V	O	
16	LRD	O	
17	+5V	O	
18	LCLK	O	
19	SW1	I	Panel switch input (1)
20	SW2	I	Panel switch input (2)
21	SW3	I	Panel switch input (3)
22	SW4	I	Panel switch input (4)
23	SW6	I	Panel switch input (6)
24	SW7	I	Panel switch input (7)
25	SW8	I	Panel switch input (8)
26	SW9	I	Panel switch input (9)
27	SW10	I	Panel switch input (10)

Table 7-2. Connector Pin Assignment-CN2 (cont.)

Pin No.	Signal Name	I/O	Function
28	SW11	I	Panel switch input (11)
29	SW12	I	Panel switch input (12)
30	SW5	I	Panel switch input (5)
31	SW13	I	Panel switch input (13)
32	SW14	I	Panel switch input (14)

Table 7-3. Connector Pin Assignment-CN4

Pin No.	Signal Name	I/O	Function
1	HP	I	Sensor detect signal
2	GND	O	Ground
3	HPV	O	Sensor power supply (+5V)

Table 7-4. Connector Pin Assignment-CN5

Pin No.	Signal Name	I/O	Function
1	PE	I	Sensor detect signal
2	GND	O	Ground
3	PEV	O	Sensor power supply (+5V)

Table 7-5. Connector Pin Assignment-CN6

Pin No.	Signal Name	I/O	Function
1	ASF	I	Sensor detect signal
2	GND	O	Ground
3	ASFV	O	Sensor power supply (+5V)

Table 7-6. Connector Pin Assignment-CN7

Pin No.	Signal Name	I/O	Function
1	CR-A	O	Phase drive signal (A)
2	CR-B	O	Phase drive signal (B)
3	CR-/A	O	Phase drive signal (/A)
4	CR-/B	O	Phase drive signal (/B)

Table 7-7. Connector Pin Assignment-CN8

Pin No.	Signal Name	I/O	Function
1	PF-A	O	Phase drive signal (A)
2	PF-B	O	Phase drive signal (B)
3	PF-/A	O	Phase drive signal (/A)
4	PF-/B	O	Phase drive signal (/B)

Table 7-8. Connector Pin Assignment-CN9

Pin No.	Signal Name	I/O	Function
1	COB	I	I/C Black detect
2	COC	I	I/C Color detect
3	THM	I	Thermometer detect system
4	GND	O	Ground
5	LAT	O	Head data latch pulse output
6	GND	O	Ground
7	SI6	O	Head data output (6)
8	SI5	O	Head data output (5)
9	SI4	O	Head data output (4)
10	SI3	O	Head data output (3)
11	SI2	O	Head data output (2)
12	SI1	O	Head data output (1)
13	GND	O	Ground
14	CLK	O	Clock pulse for head data transfer
15	GND	O	Ground
16	NCHG	O	Head all on pulse output
17	GND	O	Ground
18	VDD	O	Logic power supply (+5V)
19	GND2	O	Ground
20	GND2	O	Ground
21	GND2	O	Ground
22	GND2	O	Ground
23	COM	O	Head drive power supply
24	COM	O	Head drive power supply

Table 7-8. Connector Pin Assignment-CN9 (cont.)

Pin No.	Signal Name	I/O	Function
25	COM	O	Head drive power supply
26	COM	O	Head drive power supply
27	VHV	O	Head drive voltage control signal

Table 7-9. Connector Pin Assignment-CN10

Pin No.	Signal Name	I/O	Function
1	+12V	I	Mechanism drive power supply
2	+24V	I	Mechanism drive power supply
3	GND	I	Ground
4	+24V	I	Mechanism drive power supply
5	GND	I	Ground
6	GND	I	Ground
7	+42V	I	Mechanical drive power supply
8	+42V	I	Mechanical drive power supply
9	+3.3V	I	Logic power supply
10	+3.3V	I	Logic power supply
11	+5V	I	Logic power supply
12	+5V	I	Logic power supply
13	GND	I	Ground
14	GND	I	Ground
15	GND	I	Ground
16	FAN42	O	Not needed
17	SWO	I	
18	PSC	O	Power supply switch output signal

Table 7-10. Connector Pin Assignment-CN11

Pin No.	Signal Name	I/O	Function
1	HP	I	Sensor detect system
2	GND	O	Ground
3	HPWR	O	Sensor power supply (+5V)

Table 7-11. Connector Pin Assignment-CN12

Pin No.	Signal Name	I/O	Function
1	COPEN	I	Sensor signal
2	GND	O	Ground
3	CPWR	O	+5V

Table 7-12. Connector Pin Assignment-CN13

Pin No.	Signal Name	I/O	Function
1	Bx	O	Scanner CR Motor \bar{B}
2	Ax	O	Scanner CR Motor \bar{A}
3	B	O	Scanner CR Motor B
4	A	O	Scanner CR Motor A

Table 7-13. Connector Pin Assignment-CN14

Pin No.	Signal Name	I/O	Function
1	DGND	O	
2	24V	O	
3	VCC	O	
4	RS	O	
5	PH2	O	
6	PH1	O	
7	12VC	O	
8	SH	O	
9	G-SH	O	
10	R-SH	O	
11	B-SH	O	
12	AGND	O	
13	VOG	I	Green signal
14	AGND	O	
15	VOR	I	Red signal
16	AGND	O	
17	VOB	I	Blue signal
18	AGND	O	

Table 7-14. Connector Pin Assignment-CN15

Pin No.	Signal Name	I/O	Function
1	+5V	O	
2	GND	O	Ground
3	+24V	O	
4	LOD	O	
5	GND	O	Ground
6	RxD	I	
7	TxD	O	
8	SCK	O	

7.2 EEPROM Address Map

This section provides EEPROM address map for the Stylus Scan.

Table 7-15. Printer Unit EEPROM Address Map

Address	Explanation	Setting	QPIT Settings	Factory Settings
00H	Password 0		0FH	-
01H			5AH	-
02H	Reserved		41H	-
03H	Reserved		00H	(*1)
04H	CG	0: STD, 1: NLSP	00H	(*1)
05H	Market ID	0: Standard (World) 2: Custom	00H	(*1)
06H	Custom EEPROM sub number		00H	00H
07H			00H	00H
08H			00H	00H
09H			00H	00H
0AH	Head actuator rank ID for VhN		00H	(*1)
0BH	Head actuator rank ID for Vhμ		00H	(*1)
0CH	Head actuator rank ID for VhL		00H	(*1)
0DH	Head actuator rank ID for AR		00H	(*1)
0EH	Head rank MW- ID		00H	(*1)
0FH	Reserved		00H	-
10H	Reserved		00H	-
11H	Reserved		00H	-
12H	Head actuator rank ID for lwAB		00H	(*1)
13H	Head actuator rank ID for lwCD		00H	(*1)

Table 7-15. Printer Unit EEPROM Address Map (cont.)

Address	Explanation	Setting	QPIT Settings	Factory Settings
14H	Head actuator rank ID for lwEF		00H	(*1)
15H	Bi-D Adjustment data for Normal- dot	-36<=n<+36 (by 1/1440 inch)	00H	(*1)
16H	Bi-D Adjustment data for Micro- dot	-36<=n<+36 (by 1/1440 inch)	00H	(*1)
17H	Bi-D Adjustment data for Variable- dot	-36<=n<+36 (by 1/1440 inch)	00H	(*1)
18H	Uni-Dadjustment data	-36<=n<+36 (by 1/1440 inch)	00H	(*1)
19H	Reserved		00H	-
1AH	Reserved		00H	-
1BH	1st dot position adjustment data	-40<=n<+40 (by 1/1440 inch)	00H	(*1)
1CH	Carriage speed adjustment data	-4<=n<+4 (by G.A. timer unit)	00H	(*1)
1DH	Carriage phase on Home		00H	-
1EH	Paper sensor adjustment data	-127<=n<+127 (by 1/720 inch)	00H	(*1)
1FH	ERROR Code		00H	00H
20H	CPSI password		00H	00H
21H			00H	00H
22H			00H	00H
23H			00H	00H
24H	CPSI license flag	0: disable 1: enable	00H	00H
25H	CPSI font license	0: disable 1: enable	00H	00H
26H	Interface selection	0: Auto, 1: Parallel 2: Serial, 3: USB	00H	00H (*2)

Table 7-15. Printer Unit EEPROM Address Map (cont.)

Address	Explanation	Setting	QPIT Settings	Factory Settings
27H	Interface time-out	0 to 255 (by second, value of 0 means 10 seconds)	0AH	0AH
28H	Compatibility speed	0: Fast, 1: Slow 2: Special-1, 3: Special-2	00H	00H
29H	ECP speed *3	0: Fast, 1: Slow	00H	00H
2AH	IEEE1284 for Parallel	0: Auto, 1: On 2: Off	00H	00H
2BH	I/F Control flags	bit 1: ECP mode (0=Off, 1=On) *4 bit 0: IEEE1284 mode (0=On, 1=Off) *5	00H	00H
2CH	IEEE1284 for USB	0: Auto, 1: On 2: Off	00H	01H
2DH	Reserved		00H	-
2EH	Reserved		00H	-
2FH	Reserved		00H	-
30H	Reserved		00H	02H
31H	Reserved		00H	00H
32H	Print direction control	0: Bi-D 1: Uni-D 2: Auto	02H	02H
33H	CG table	8: PC437, 10: PC850	08H	08H
34H	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
35H	Panel mask function	bit 7: Entry Self-Test bit 6: Entry Hex-Dump bit 5: Extended settings bit 4: Reserved bit 3: Reserved bit 2: Cleaning bit 1: Replace I/C bit 0: Load/Eject	00H	00H

Table 7-15. Printer Unit EEPROM Address Map (cont.)

Address	Explanation	Setting	QPIT Settings	Factory Settings
36H	Top margin	42 to 44x360 (by 1/360 inch)	00H	00H
37H			78H	78H
38H	Bottom margin	1244 to 44x360 (by 1/360 inch)	IEH	IEH
39H			F0H	F0H
3AH	Page length	1244 to 44x360 (by 1/360 inch)	IEH	IEH
3BH			F0H	F0H
3CH	Reserved		00H	-
3DH	Reserved		00H	-
3EH	Reserved		00H	-
3FH	Reserved		00H	-
40H	Password 1		0FH	-
41H			5AH	-
42H	Ink flag 1	bit 7: Reserved bit 6: black one-time bit 5: color one-time bit 4: Initial fill required bit 3: Reserved bit 2: ink cleaning seq. Bit 1: black CL required bit 0: color CL required	00H	00H
43H	Ink flag 2	bit 2: YMC cartridge changed and cleaned bit 1: Black cartridge changed and cleaned bit 0: Black cartridge changed and cleaned	00H	00H
44H	Ink counter Cb		00H	00H
45H			00H	00H
46H			00H	00H
47H			00H	00H

Table 7-15. Printer Unit EEPROM Address Map (cont.)

Address	Explanation	Setting	QPIT Settings	Factory Settings
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	Ink counter Clm		00H	00H
55H			00H	00H
56H			00H	00H
57H			00H	00H
58H	Ink counter Clc		00H	00H
59H			00H	00H
5AH			00H	00H
5BH			00H	00H
5CH	Ink counter Rb		00H	00H
5DH			00H	00H
5EH	Ink counter Ry		00H	00H
5FH			00H	00H
60H	Ink counter A		00H	00H(*2)
61H			00H	00H(*2)

Table 7-15. Printer Unit EEPROM Address Map (cont.)

Address	Explanation	Setting	QPIT Settings	Factory Settings
62H	Power off time		00H	00H(*2)
63H			00H	00H(*2)
64H	CL time		00H	00H(*2)
65H			00H	00H(*2)
66H	Accumulated print time		00H	00H
67H			00H	00H
68H	Reserved		00H	^
69H	Reserved		00H	^

Table 7-15. Printer Unit EEPROM Address Map (cont.)

Address	Explanation	Setting	QPIT Settings	Factory Settings
6AH	Printer-ID Strings [22]		00H	00H
6BH			00H	00H
6CH			00H	00H
6DH			00H	00H
6EH			00H	00H
6FH			00H	00H
70H			00H	00H
71H			00H	00H
72H			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	

*1: Adjusted at factory

*2: Initialized after panel initialization of EEPROM is performed.

*3: BUSY signal delay time form fall-edge of a -STB signal.
(Fast: Maximum 1MB/s, Slow: Maximum 600KB/s)

*4: Select IEEE1284 transfer mode. (ECP or Nibble)

*5: Enable or disable reverse transfer. (When disabled, ignore -SLIN signal)

Table 7-16. System Unit EEPROM Map

Address	Explanation	Setting	QPIT Settings	Factory Settings
00H	EEPROM Mappingrevision *1	R4C4270= H	00H	-*1
01H		R4C4270= A	00H	-*1
02H		R4C4270= xxH	00H	-*1
03H		R4C4270= xxH	00H	-*1
04H	Error code	TBD	00H	00H*1
05H			00H	00H*1
06H		TBD	00H	-
07H			00H	-
08H	Endurance Test mode	0: enable (default) 1: disable	00H	00H
09H	Power-on sequence	0: Normal 1: Skip scanner initialize	00H	00H
0AH	Reserved		00H	(*1)
0BH	Reserved		00H	(*1)
0CH	Reserved		00H	(*1)
0DH	Reserved		00H	(*1)
0EH	Reserved		00H	(*1)
0FH	Reserved		00H	-

Table 7-16. System Unit EEPROM Map

Address	Explanation	Setting	QPIT Settings	Factory Settings
10H	Serial Number (Reserved)	Not used	00H	-
11H			00H	-
12H			00H	-
13H			00H	-
14H			00H	-
15H			00H	-
16H			00H	-
17H			00H	-
18H			00H	-
19H			00H	-
1AH			00H	-
1BH			00H	-
1CH			00H	-
1DH			00H	-
1EH			00H	-
1FH	00H	-		
20H	Reserved		00H	-
21H	Interface time-out (Reserved)	Not used	00H	00H*1
22H	Compatibility speed	0: Fast 1: Slow 2: Special-1 3: Special-2	00H	00H
23H	ECP speed (Reserved)	Not used	00H	-
24H	1284 I/F Control flags	0: Auto (Default) 1: NotD4 (Printer Direct Mode) 2: Printer (Direct mode with QualitySW -[PowerSW+QualitySW]: NotD4(P.D.M.) -[PowerSW] : Auto	00H	00H*1

Table 7-16. System Unit EEPROM Map

Address	Explanation	Setting	QPIT Settings	Factory Settings
25H	Reserved		00H	-
26H	Reserved		00H	-
27H	Reserved		00H	-
28H	Reserved		00H	-
29H	Reserved		00H	-
2AH	Device ID strings [22] *2		00H	00H
2BH		00H	00H	
2CH		00H	00H	
2DH		00H	00H	
2EH		00H	00H	
2FH		00H	00H	
30H		00H	00H	
31H		00H	00H	
32H		00H	00H	
33H		00H	00H	
34H		00H	00H	
35H		00H	00H	
36H		00H	00H	
37H		00H	00H	
38H		00H	00H	
39H		00H	00H	
3AH		00H	00H	
3BH		00H	00H	
3CH		00H	00H	
3DH		00H	00H	
3EH	00H	00H		
3FH	00H	00H		

Table 7-16. System Unit EEPROM Map

Address	Explanation	Setting	QPIT Settings	Factory Settings
40H	Paper size	0:A4 1:B5 2:A6 3:Letter 4:Half L 5:5x8	00H	00H*4
41H	Reserved (R4C4280)		00H	-
42H	Bottom Margin*3	0:14mm (R4C4270 default) 1: 3mm (R4C4280 default)	00H	00H*4
43H	Language *3	0: English 1:German 2:French 3:Italian 4:Spanish 5:Portuguese	00H	00H*4
44H	Reserved		00H	00H
45H	Reserved		00H	00H
46H	Reserved		00H	00H
47H	Reserved		00H	00H
48H	Reserved		00H	00H
49H	Reserved		00H	00H
4AH	Reserved		00H	00H
4BH	Reserved		00H	00H
4CH	Reserved		00H	00H
4DH	Reserved		00H	00H
4EH	Reserved		00H	00H
4FH	Reserved		00H	00H
50H	Reserved		00H	00H
51H	Reserved		00H	00H
52H	Reserved		00H	00H
53H	Reserved		00H	00H
54H	Reserved		00H	00H
55H	Reserved		00H	00H
56H	Reserved		00H	00H
57H	Reserved		00H	00H

Table 7-16. System Unit EEPROM Map

Address	Explanation	Setting	QPIT Settings	Factory Settings
58H	Reserved		00H	00H
59H	Reserved		00H	00H
5AH	Reserved		00H	00H
5BH	Reserved		00H	00H
5CH	Reserved		00H	00H
5DH	Reserved		00H	00H
5EH	Reserved		00H	00H
5FH	Reserved		00H	00H
60H	Reserved		00H	00H
61H	Reserved		00H	00H
62H	Reserved		00H	00H
63H	Reserved		00H	00H
64H	Reserved		00H	00H
65H	Reserved		00H	00H
66H	Reserved		00H	00H
67H	Reserved		00H	00H
68H	Reserved		00H	00H
69H	Reserved		00H	00H
6AH	Reserved		00H	00H
6BH	Reserved		00H	00H
6CH	Reserved		00H	00H
6DH	Reserved		00H	00H
6EH	Reserved		00H	00H
6FH	Reserved		00H	00H
70H	Reserved		00H	00H
71H	Reserved		00H	00H
72H	Reserved		00H	00H

Table 7-16. System Unit EEPROM Map

Address	Explanation	Setting	QPIT Settings	Factory Settings
73H	Reserved		00H	00H
74H	Reserved		00H	00H
75H	Reserved		00H	00H
76H	Reserved		00H	00H
77H	Reserved		00H	00H
78H	Reserved		00H	00H
79H	Reserved		00H	00H
7AH	Reserved		00H	00H
7BH	Reserved		00H	00H
7CH	Reserved		00H	00H
7DH	Reserved		00H	00H
7EH			00H	00H
7FH			00H	00H

*1: Used ROM default settings in case of mismatch with EEPROM Map Version

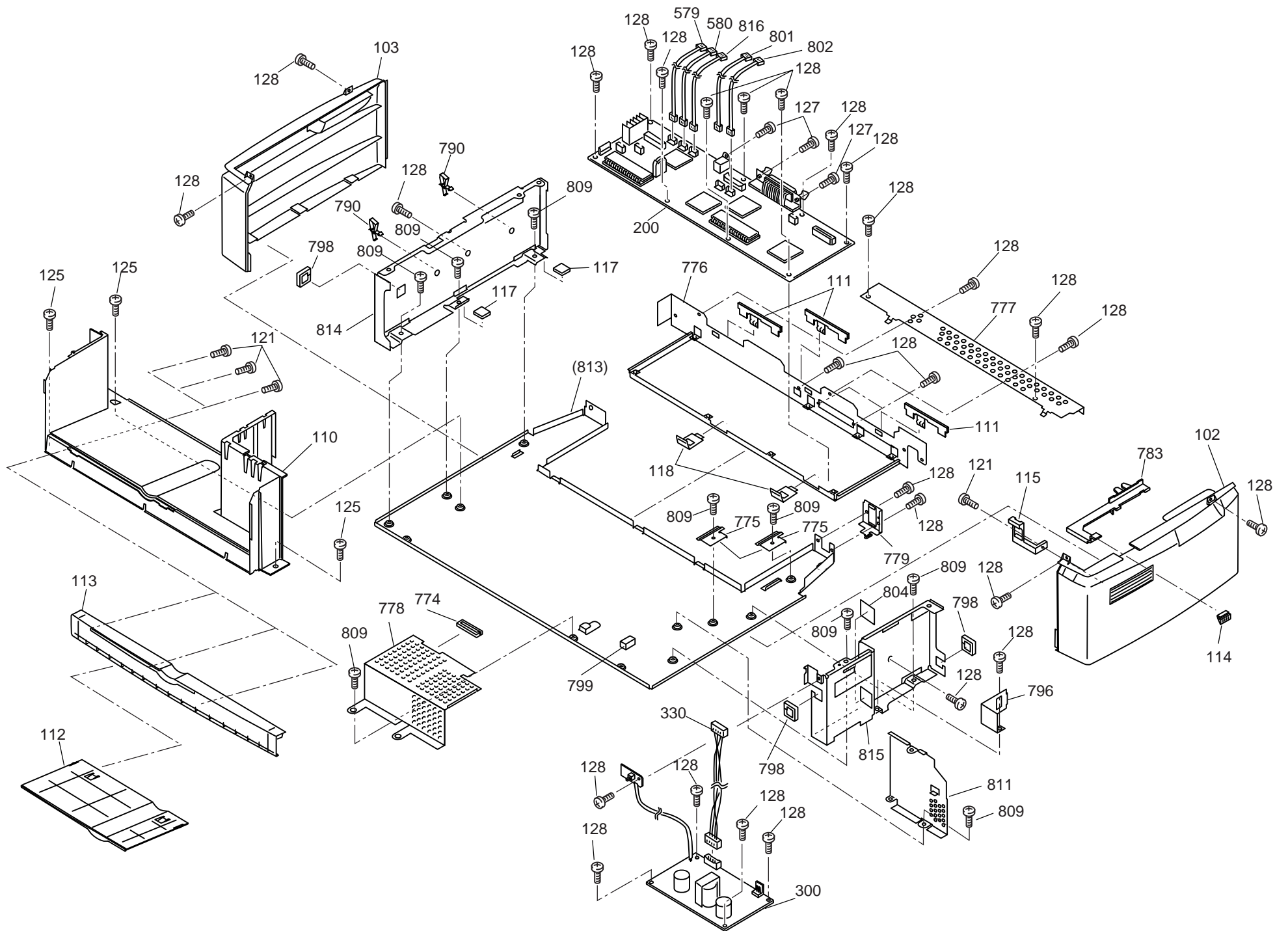
*2: Used ROM default settings in case of 00H or FFH.

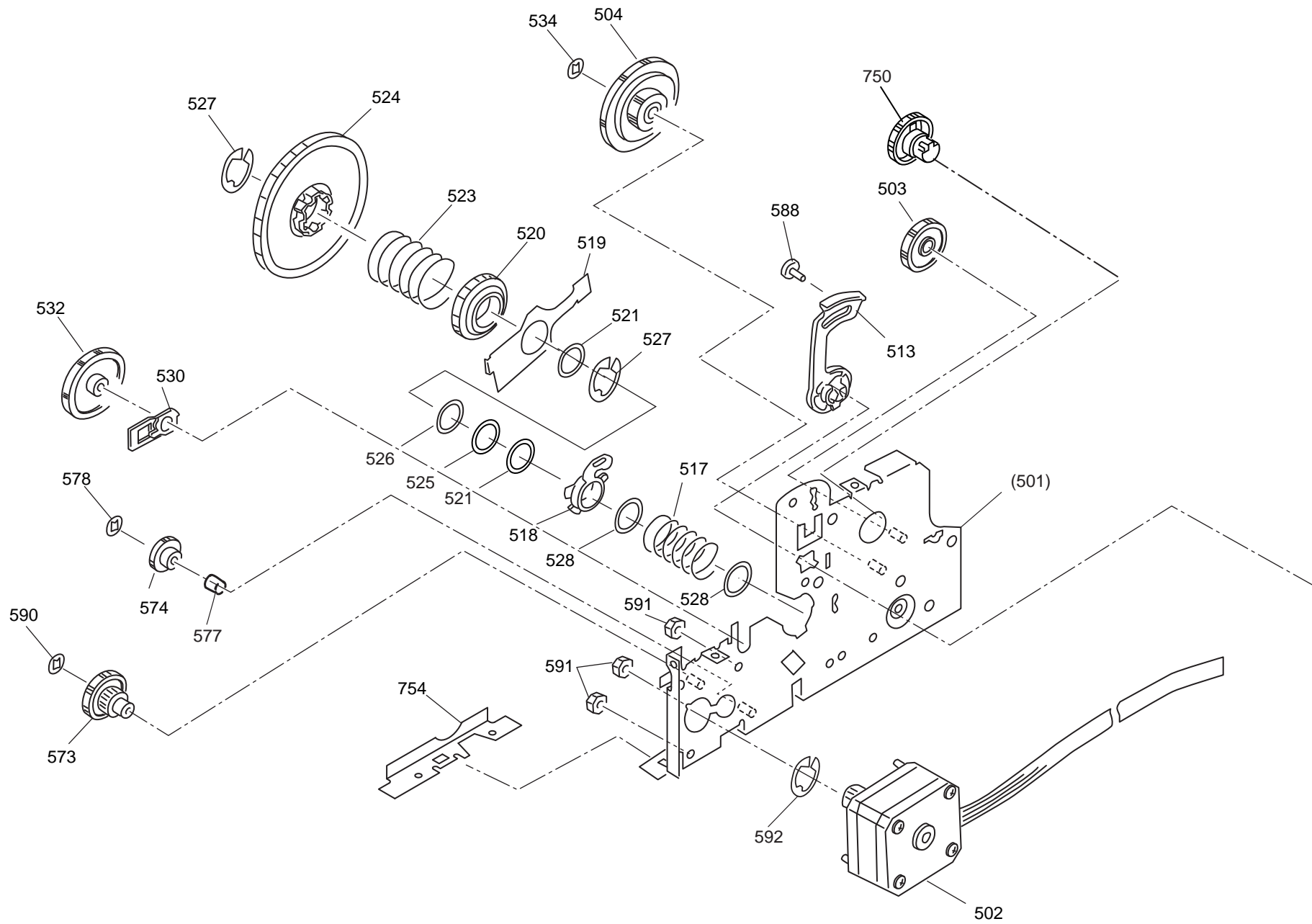
*3: Changes after performing panel settings.

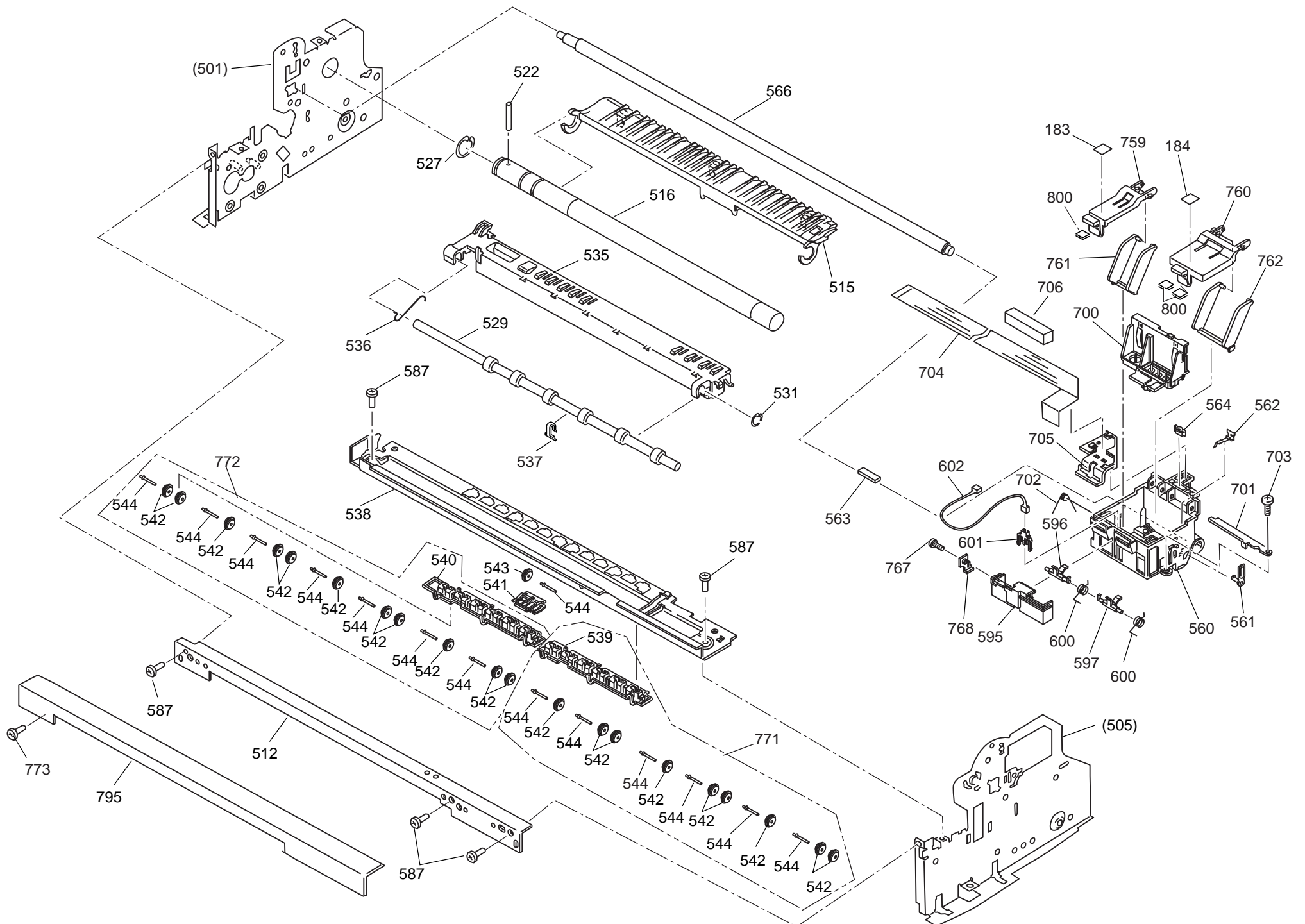
*4: Adjusted at factory

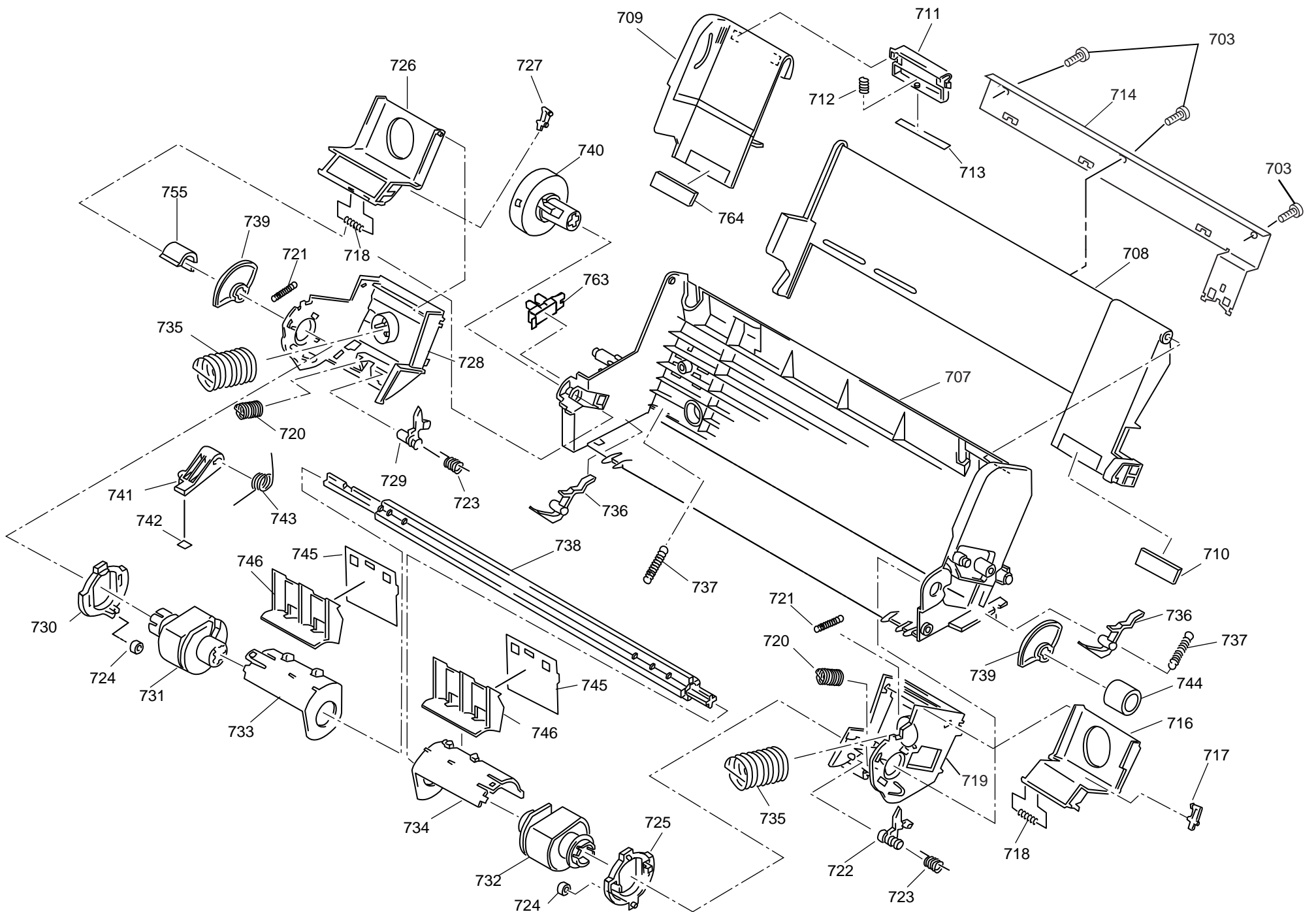
7.3 Exploded Diagrams

This section contains the following exploded diagrams.



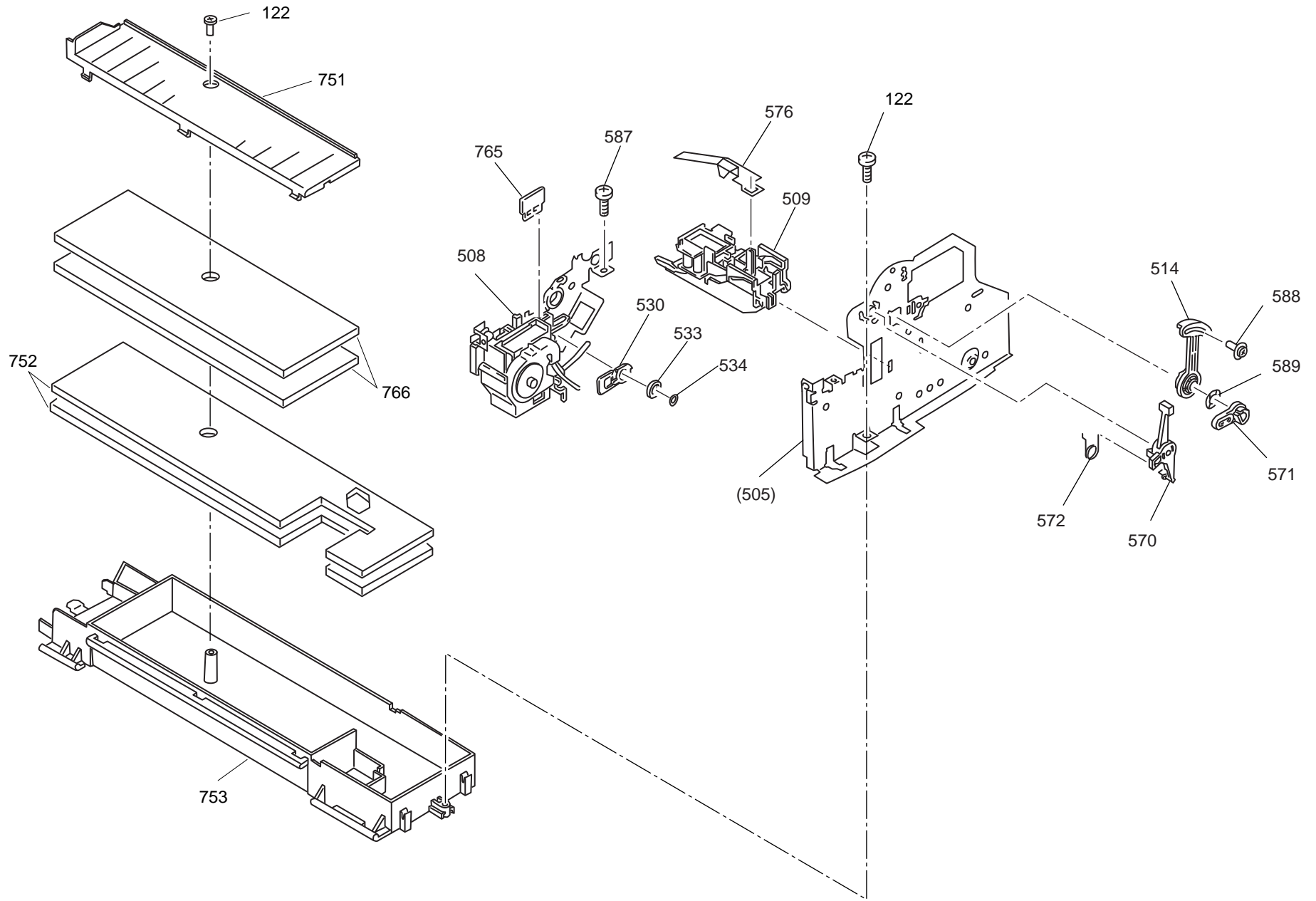


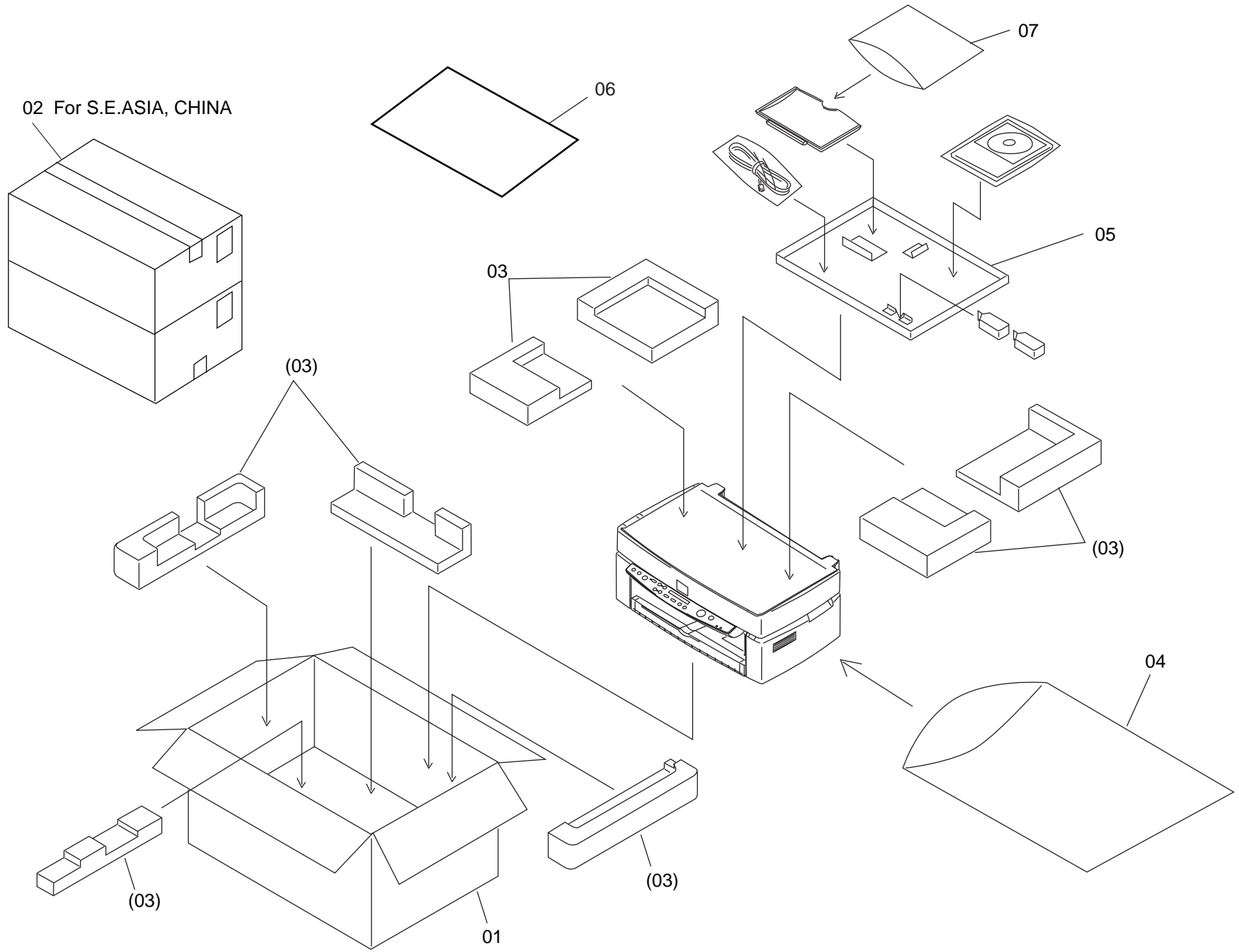




EPSON STYLUS SCAN 2500 No.7

Rev.01 10138





7.4 Parts List

Table 7-17. Parts List

RefernceNumber	Part Name
100	PAPER SUPPORT ASSY.
101	HOUSING ASSY, UPPER(ASP)
102	HOUSING,R
103	HOUSING,L
104	CAP,CABLE,ADF
105	COVER,DOCUMENT
106	MAT,COVER,DOCUMENT
107	SHEET,COVER,25
108	HOUSING,REAR
109	COVER,MAINTENANCE
110	STACKER,REAR
111	COVER,CABLE;C
112	STACKER,SUPPORT
113	STACKER,FRONT
114	KEYTOP,ADJUST,PG
115	KEYTOP,P/S
116	LOGO PLATE
117	FOOT
118	GROUNDING PLATE
119	FOOT,15
181	LABEL,CAUTION 1
182	LABEL,CAUTION 2
183	LABEL,LEVER CARTRIDGE,BLACK
184	LABEL,LEVER CARTRIDGE,COLOR
185	LABEL,CARRIAGE LOCK
186	LABEL,ACCESSORY

Table 7-17. Parts List

RefernceNumber	Part Name
187	LABEL,ALIGNMENT
200	BOARD ASSY.,MAIN
300	BOARD ASSEMBLY,POWER SUPPLY
330	WIRE-HARNESS
331	WIRE-HARNESS
332	WIRE-HARNESS
400	POWER CABLE ASSY.
450	CONTROL PANEL
500	PRINTER MECHANISM(ASP)M4M12-100
501	FRAME ASSY.,LEFT
502	MOTOR ASSY.,PF
503	SPUR GEAR,23.2
504	COMBINATIONGEAR,16,40.8
505	FRAME,RIGHT
506	FRAME, TOP
507	MOTOR ASSY.,CR
508	PUMP ASSY.
509	CAP ASSY.;B
510	FRAME,BOTTOM
511	SHEET,PROTECTION,HEAD
512	FRAME,FRONT;B
513	BUSHING,PARALLELISM ADJUST,LEFT
514	BUSHING,PARALLELISM ADJUST,RIGHT
515	PAPERGUIDE,REAR
516	ROLLER,PF
517	COMPRESSION SPRING,5.85
518	BUSHING,12,LEFT
519	LEVER,CHANGE

Table 7-17. Parts List

RefernceNumber	Part Name
520	SPURGEAR,26.4
521	SPACER,C-RING
522	SCALLOP SPRING PIN-AW,2X16,F/B
523	COMPRESSION SPRING,0.9
524	SPURGEAR,73.6
525	SPACER,FASTEN,ROLLER,PF
526	SPACER,FASTEN,ROLLER,PF;B
527	C-RING
528	PLANE WASHER,12.2X0.5X15
529	ROLLER,ASSY.,PAPEREJECT
530	BUSHING,6
531	RETAINING RING
532	SPUR GEAR,36
533	SUPRGEAR,11
534	PLANE WASHER,4.1X0.5X6.5
535	PAPER GUIDE,FRONT;B
536	GROUNDING WIRE,EJ
537	GUIDE,PAPER EJ
538	FRAME, PAPERJECT
539	HOLDER,STAR WHEEL,RIGHT
540	HOLDER,STAR WHEEL,LEFT
541	HOLDER,STARWHEEL,FRONT
542	STARWHEEL ASSY.,8;E
543	STARHWEEL,8;B
544	ROD SPRING,STAR WHEEL
545	PAPER GUIDE,UPPER
546	PAPER GUIDE,LEFT
547	PAPER GUIDE,RIGHT

Table 7-17. Parts List

RefernceNumber	Part Name
548	SHAFT,PAPER GUIDE,UPPER
549	SHAFT,ROLLER,DRIVEN
550	ROLLER,DRIVEN;D
551	TORSION SPRING,117.6
552	CIRCUIT ASSY,PE
553	HOLDER,PE
554	LEVER,PE
555	TORSION SPRING,0.22
556	SHEET,GUIDE PLATE,CABLE
557	GUIDEPLATE,CABLE
558	SHEET,CABLE
559	DETECTOR,HP
560	CARRIAGE ASSY.
561	LEVER,ADJUST
562	GROUNDING PLATE,HEAD
563	OIL PAD
564	SLIDER,CR
565	TIMINGBELT
566	SHAFT,CR,GUIDE
567	PULLEY ASSY.,DRIVEN
568	HOLDER,PULLEY,DRIVEN;B
569	COMPRESSION SPRING,19.6
570	LEVER,PG
571	LEVER,PG,SUPPORT
572	TORSION SPRING,63.7
573	CONBINATION GEAR,12.4,28
574	COMBINATION GEAR,16,21.6
576	POROUS PAD,SLIDER,CAP

Table 7-17. Parts List

RefernceNumber	Part Name
577	BUSHING,FASTEN,COMBINATION GEAR
578	PUSHING NUT,2
579	HARNESS,HP
580	HARNESS,PE
587	C.B.S. SCREW
588	C.P.S-TITE(P4),3X6,F/ZN
589	LEAF SPRING
590	PLANE WASHER,6.1X0.5X9.0
591	HEXAGON NUT,NORMAL,M3
592	PLAIN WASHER
595	HOLDER, DETECTOR,I/C
596	LEVER,DETECTOR,I/C,BK
597	LEVER,DETECTOR,I/C,CL
598	GROUNDING PLATE,ROLLER,PF
600	TORSION SPRING,1.08
601	DETECTOR,I/C
602	HARNESS,I/C
700	PRINT HEAD IJ288-0AA
701	FASTENER,HEAD
702	TORSION SPRING,49
703	C.B.P-TITE SCREW,3X6,F/ZN
704	CABLE,HEAD
705	HOLDER,CABLE
706	SPACER,CABLE HEAD
707	FRAME,ASF;B
708	HOPPER
709	EDGEGUIDE
710	CORK

Table 7-17. Parts List

RefernceNumber	Part Name
711	SLIDER,EDGEGUIDE
712	COMPRESSION SPRING,3.23
713	PAD,BREAK,EDGE GUIDE
714	REINFORCEMENT PLATE,HOPPER
715	HEXAGON NUT,NORMAL,M3
716	PAD ASSY.,RIGHT
717	LEVER,PAD,RELEASE,RIGHT
718	ROD SPRING,HOLDER,PAD
719	HOLDER,EDGEGUIDE,RIGHT
720	COMPRESSION SPRING,1.17
721	EXTENSION SPRING,0.62
722	LEVER,PAPERRETURN,RIGHT
723	EXTENSION SPRING,0.294
724	ROLLER,LD,SUPPORT
725	HOLDER,ROLLER,LD,SUPPORT,RIGHT
726	PAD ASSY.,LEFT
727	LEVER,PAD,RELEASE,LEFT
728	HOLDER,EDGEGUIDE,LEFT
729	LEVER,PAPERRETURN,LEFT
730	HOLDER, ROLLER,LD,SUPPORT,LEFT
731	ROLLER ASSY.,LD,LEFT
732	ROLLER ASSY.,LD,RIGHT
733	COVER,ROLLER,LD,LEFT
734	COVER,ROLLER,LD,RIGHT
735	COMPRESSION SPRING,1.961
736	LEVER,FASTEN,EDGEGUIDE;B
737	EXTENSION SPRING,0.088
738	SHAFT,ROLLER,LD

Table 7-17. Parts List

RefernceNumber	Part Name
739	LEVER,HOPPER,RELEASE
740	WHEEL,DETECT
741	LEVER,BRAKE
742	PAD,BREAK
743	TORSION SPRING,41.2
744	BUSHING,FASTEN,SHAFT
745	SHEET,PAPERFEED
746	HOLDER,SHEET,PAPERFEED
747	SHAFT,MOUNT,CR
748	RETAINING RING
749	C.B.P.SCREW,2.5X6,F/ZN
750	SPURGEAR,34
751	PAPERGUIDE,LOWER
752	POROUSPAD,INKEJECT,LARGE
753	TRAY,PORUSPAD
754	SPACER,TRAY
755	BUSHING,FASTEN,SHAFT,LEFT
756	PAPER SUPPORT,SUPPORT,UPPER
757	HOLDER,PAPERSUPPORT,SUPPORT,UPPER
758	EXTENSION SPRING,0.29
759	COVER,CARTRIDGE,BK
760	COVER,CARTRIDGE,C
761	SEPARATOR,CARTRIDGE,BK
762	SEPARATOR,CARTRIDGE,C
763	DETECTOR,HP
764	CORK;B
765	CLEANER,HEAD,ASP
766	POROUSPAD,INKEJCT,SMALL

Table 7-17. Parts List

RefernceNumber	Part Name
767	C.P.B.(O) SCREW,1.7X5,F/ZN
768	BUSHING,HOLDER,DETECTOR,I/C
769	C.B.P-TITE SCREW,4X10,F/ZN
770	RETAINING RING
771	HOLDER ASSY.,STAR WHEEL,RIGHT,ASP
772	HOLDER ASSY.,STAR WHEEL,LEFT,ASP
773	C.C.S. SCREW
774	COVER,CABLE;B
775	BRACKET,PRINTER
776	SHIELD PLATE,M/B
777	SHIELD PLATE,M/B,SUPPORT
778	SHIELD PLATE,P/S
779	COVER,INLET
780	ASF UNIT;C
781	SHAFT,CR,SC
782	LOCK,CARRIAGE
783	LEVER,ADJUST,PG
784	SHEET,CABLE,SC
785	SHEET,CABLE,SUPPORT,SC
786	SHEET,HOUSING
787	COVER,CARRIAGE,I/C
788	SHUTTER
789	TORSION SPRING,5.2
790	MINICLAMP,YMC-15-0 V0
791	BRACKET ASSY.,PULLEY,DRIVE
792	BRACKET ASSY.,PULLEY,DRIVEN
793	BRACKET,OP
794	COVER,GEAR

Table 7-17. Parts List

RefernceNumber	Part Name
795	FRAME,FRONT,SUPPORT
796	GROUNDING PLATE,P/S
797	FRAME,MAIN ASSY.
798	BUSHING,EDGE
799	FOOT,P/S
800	SPACER,COVERCATRIDGE
801	HARNESS,CM
802	HARNESS,HP,SC
803	MOTOR,CR,SC
804	SHEET,P/S;B
805	PAD,FFC
806	LOCK,SUPPORT
807	BRAKET,CORE,SC
808	DOUBLE SIDE TAPE,28X10
809	C.B.S-TITE,4X5,F/ZN
810	CLAMP,TIMING BELT
811	FRAME,FRONT
812	SHEET,SLIDE
813	FRAME,BOTTOM
814	FRAME,SIDE,L
815	FRAME,SIDE,R
816	HARNESS,ASF
817	PULLEY,DRIVE
818	PULLEY,IDLE
819	PULLEY,DRIVEN
820	FRANGE,PULLEY
821	TIMING BELT
822	EXTENSION SPRING,18.4

Table 7-17. Parts List

RefernceNumber	Part Name
823	FERRITE CORE
830	CARRIAGE UNIT,SC
831	DOUBLE SIDE TAPE,28X10
832	CLAMP,FERRITE CORE
833	C.C.P-TITE,3X8,F/ZB
834	FOOT,CARRIAGE
835	CARRIAGE GUIDE SHAFT HOLDER
836	HARNESS
837	LAMP ASSY.
838	BOARD ASSY.,INVERTER
839	FERRITE CORE
840	COVER,CARRIAGE
841	WIRE-HARNESS
842	SHEET,CCD
1	INDIVIDUAL CARTON BOX,FOR AMERICA
3	PAD SET,SPC
4	PLASTIC PROTECTIVE BAG 720X800X0.05T
5	PAD,ACCESSORY
6	PAD,COVER,DOCUMENT
7	PLASTIC PROTECTIVE BAG,315X305X0.05T

7.5 Component Layouts

- B102 MAIN Board 1
- B102 MAIN Board 2
- B102 PSB Board
- B102 PSE Board

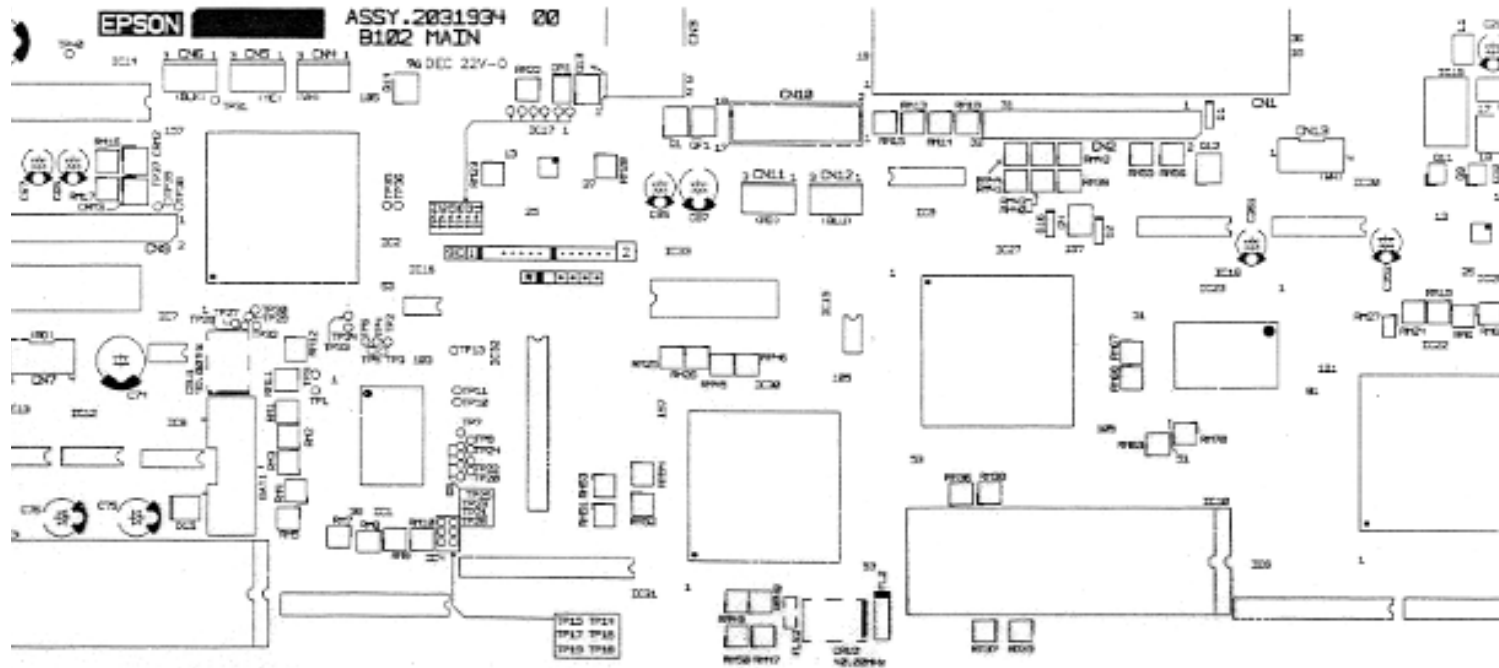


Figure 7-2. B101 MAIN Component Layout 1



Figure 7-3. B101 MAIN Component Layout 2

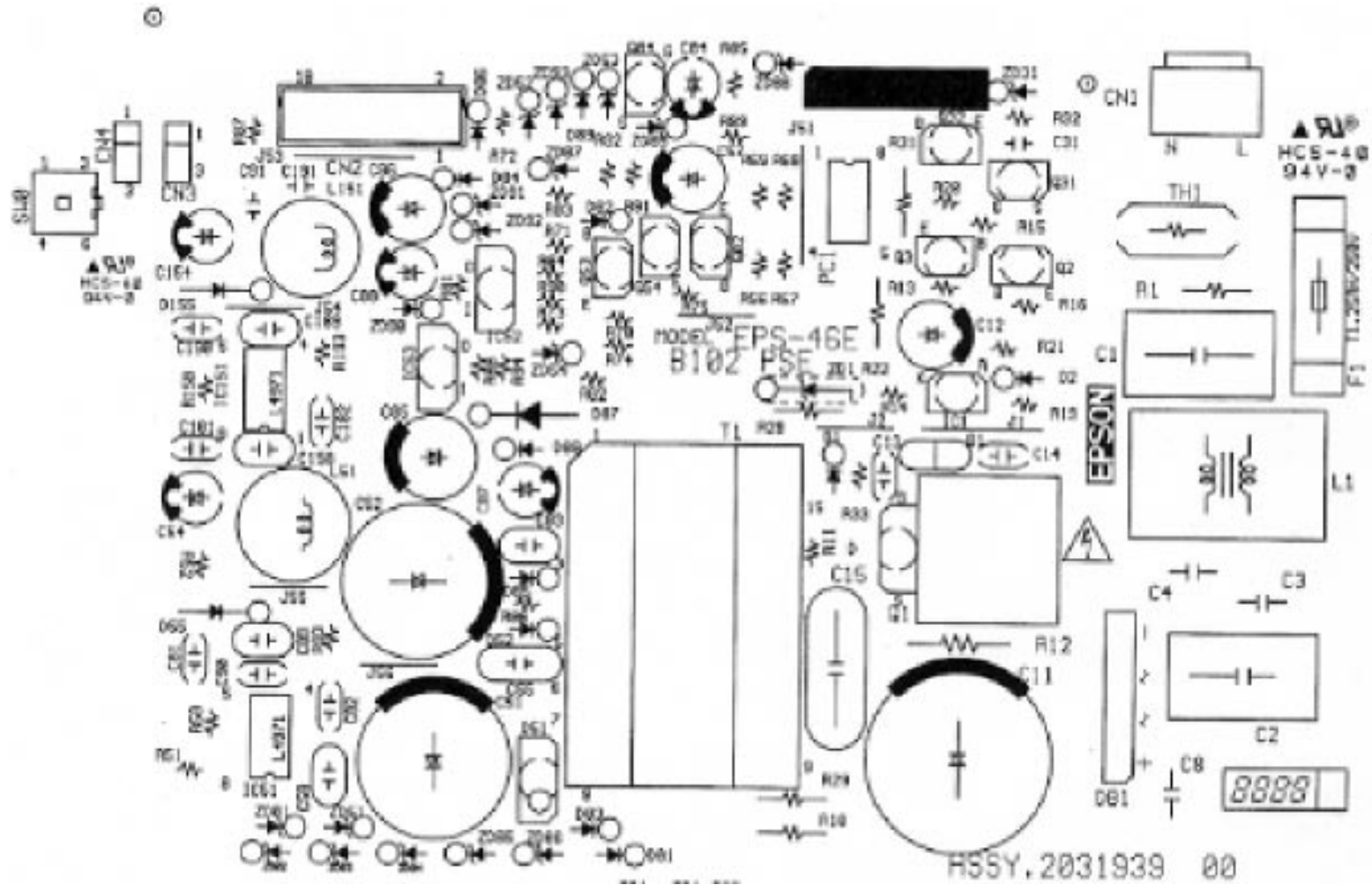


Figure 7-4. B102 PSE Board Component Layout

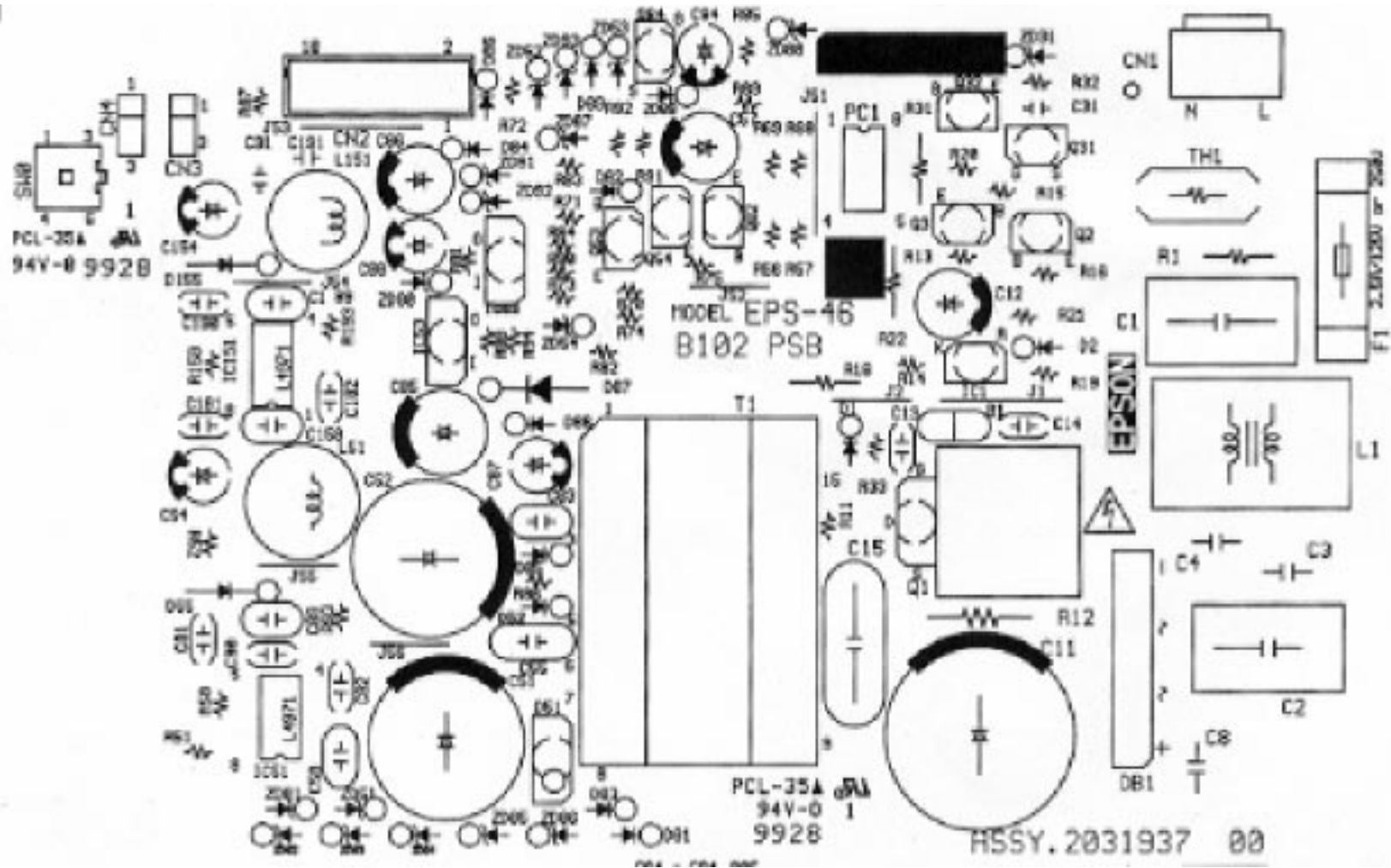
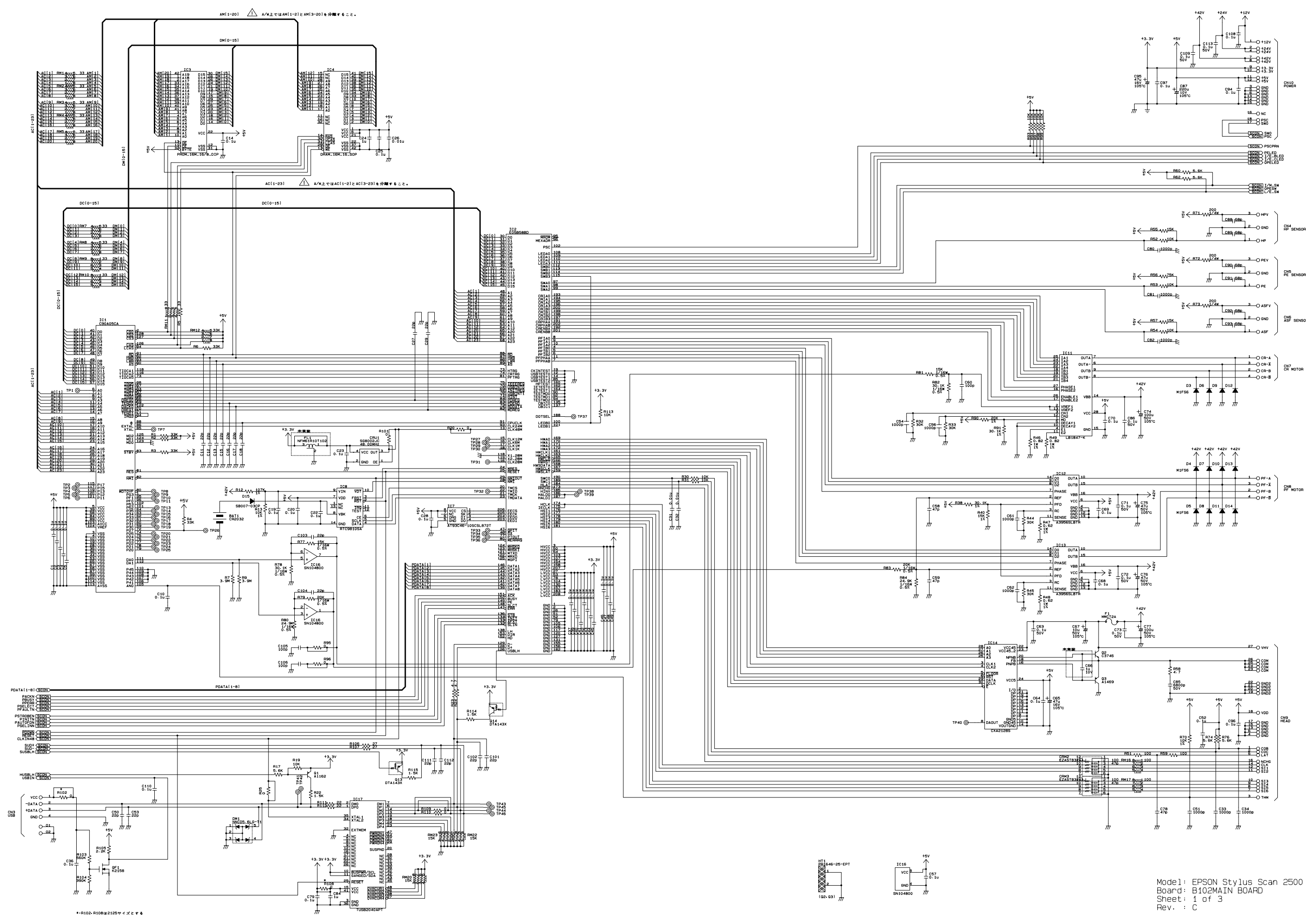


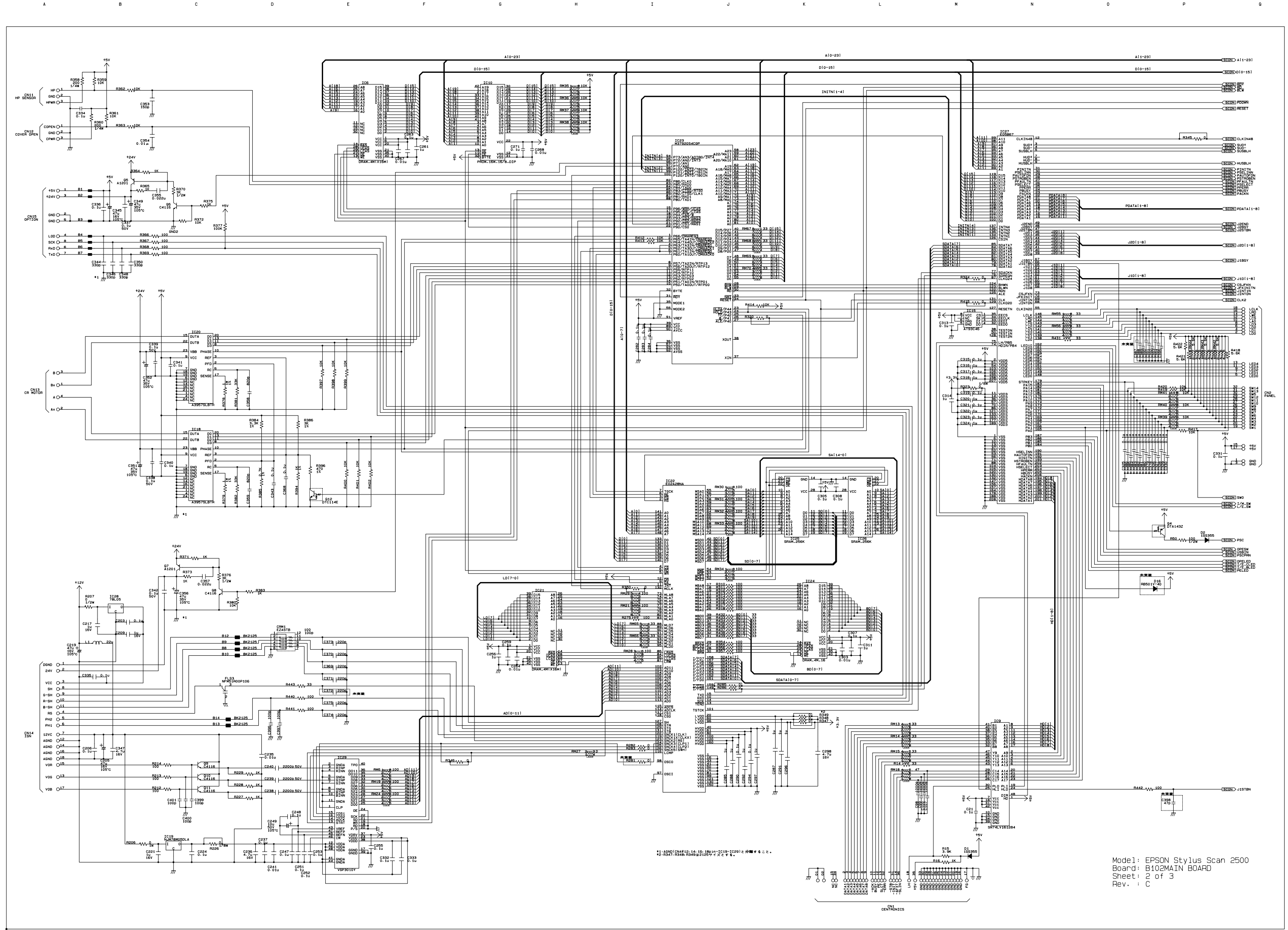
Figure 7-5. B102 PSB Board Component Layout

7.6 Circuit Diagrams

This section contains the following circuit diagrams.

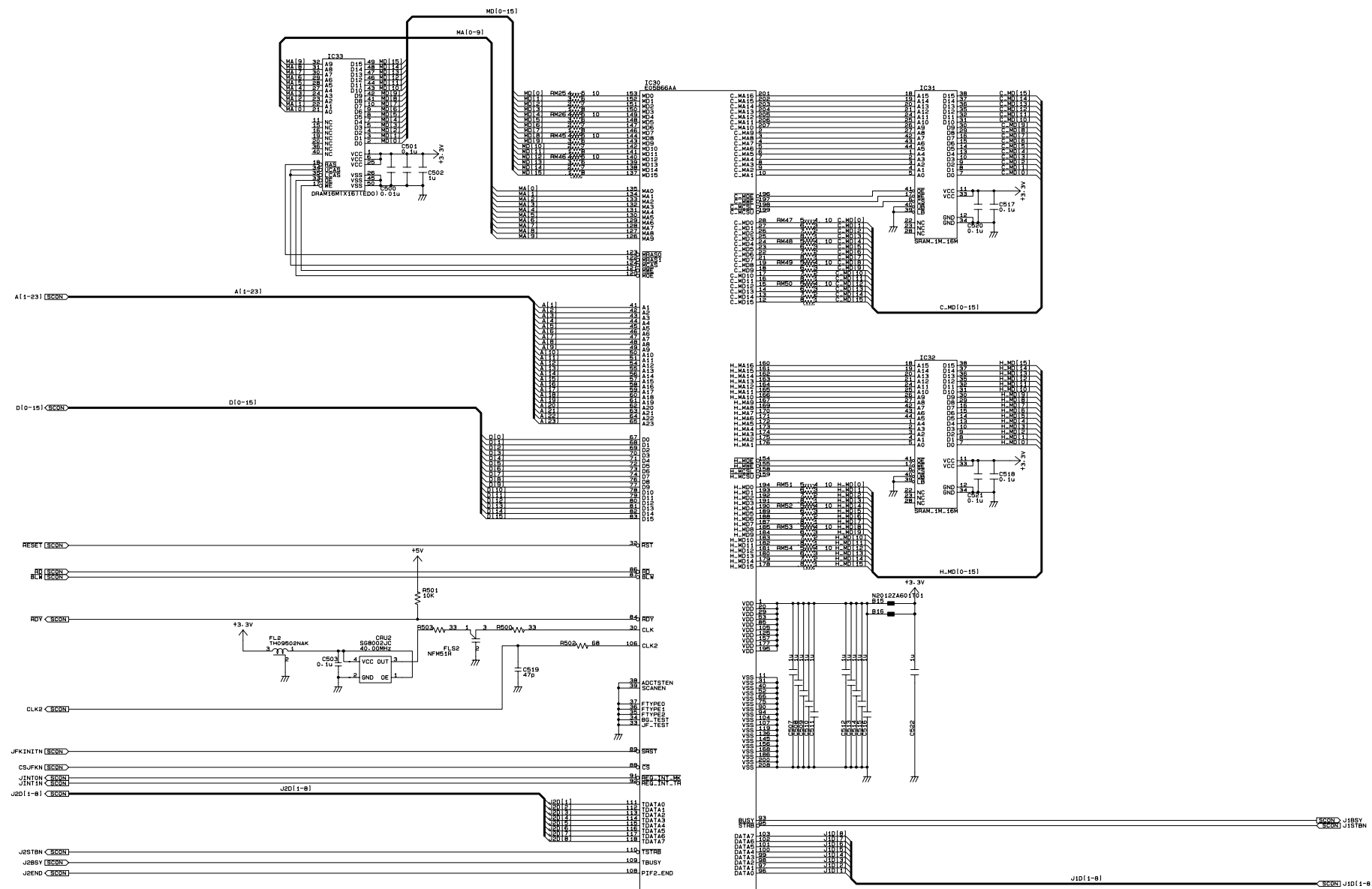
- B101 MAIN Board (x3)
- B101 PSB Board
- B101 PSE Board

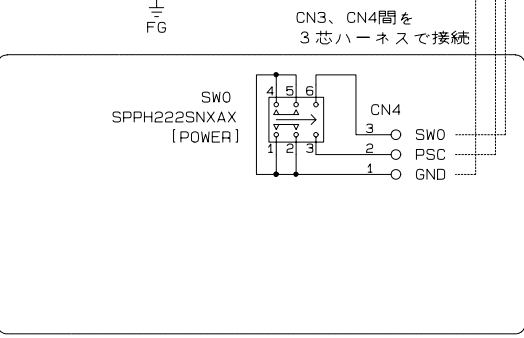
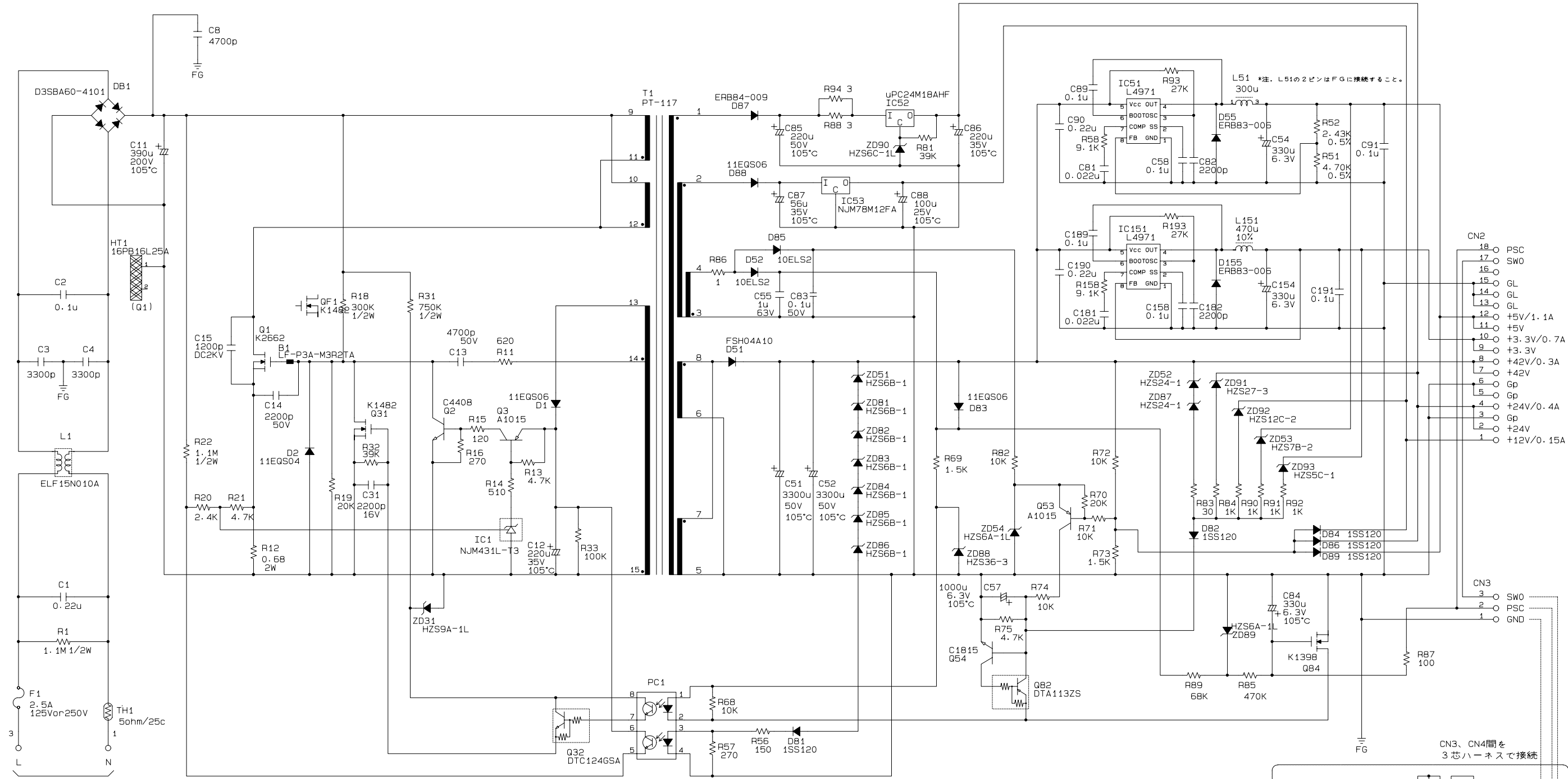




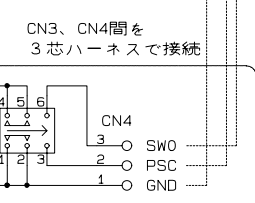
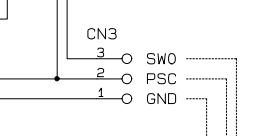
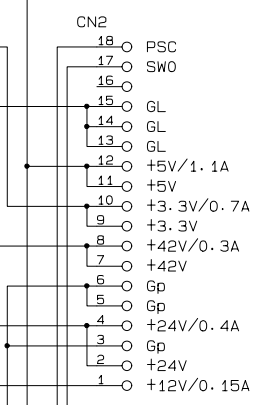
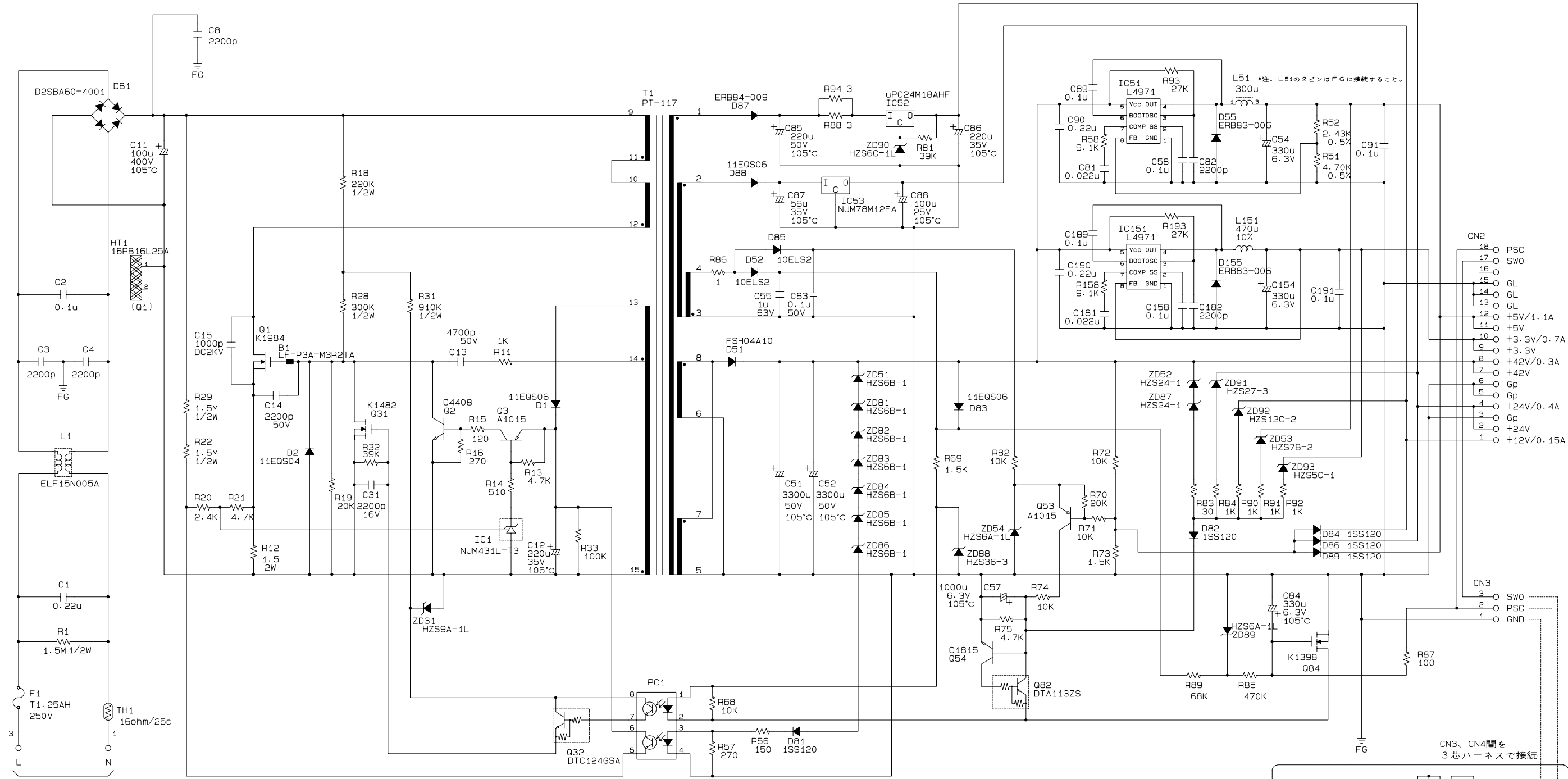
Model: EPSON Stylus Scan 2500
 Board: B102MAIN BOARD
 Sheet: 2 of 3
 Rev. : C

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12





Model: EPSON Stylus Scan 2500
 Board: B102PSB BOARD
 Sheet: 1 of 1
 Rev. : B



Model: EPSON Stylus Scan 2500
 Board: B102PSE BOARD
 Sheet: 1 of 1
 Rev. : B