

EPSON TERMINAL PRINTER

*Stylus* 1000

---

# **SERVICE MANUAL**

---

(ADDENDUM for  
Stylus 800  
SERVICE MANUAL)

SEIKO EPSON CORPORATION  
PRINTER TECHNICAL SUPPORT GROUP

4002262  
REV.-A

**REVISION SHEET**

<b>Revision</b>	<b>Issued Date</b>	<b>Revision Page</b>
<b>Rev.-A</b>	<b>April 28, 1993</b>	<b>1st issue</b>

## 1.1 General Description

This addendum only summarizes the major features and specifications which specifically applicable to the Stylus-1000.

### 1.1.1 Features

- Fast printing speed. You can print up to 150 cps in 10 cpi LQ mode and up to 250 cps in 10 cpi DRAFT mode.
- Built-in adjustable auto sheet feeder supports various different size of paper, A3 to A4, LETTER and LEGAL. It can holds up to 100 sheet of paper at a time.
- You can use a continuous form by installing optional tractor unit.
- Various built-in font :
  - 4 scalable LQ fonts, 15 bit-mapped LQ fonts and 3 DRAFT fonts.

### 1.1.2 Specification

This section describes the detail specification of the Stylus-1000.

#### 1.1.2.1 Printing Specification

Print Speed : See the table below.

Printable Column : See the table below.

**Table 1-1 Print Speed and Printable Column**

Character Pitch	Printable Column	Print Speed (LQ)	Print Speed (DRAFT)
10 cpi	136	150 cps	<b>250</b>
12 cpi	163	180	300
15 cpi	204	255	375
17 cpi (10 cpi/Condensed)	<b>233</b>	<b>257</b>	<b>428</b>
20 cpi (12 cpi/Condensed)	272	300	500

## 1.1.2.2 Paper Handling Specification

Paper Feeding :       ■ Friction feed (either from built-in auto sheet feeder or manual insertion slot)  
                               ■ push tractor feed (from rear tractor unit (optional))

**Note)** Set the release lever to correct position to select proper **feeding system**.

## 1.1.2.3 Paper Specification

&lt;Cut Sheet&gt;

[With ASF]

Width : 182-420 mm (7.2 - 16.5")

Note) When you use A3 size paper in landscape orientation, both left and right margin area becomes large since the *maximum* printable width is limited up to 345 mm.

Length : 182-297 mm (7.2 - 11.7")  
 Thickness : 0.065-0.11 (0.0026 - 0.0043")  
 Weight : 64 - 90 g/m<sup>2</sup> (18 - 24lb./55 -78 Kg)  
 Quality : Normal PPC paper, Bond paper

[With manual insertion slot]

Width : 182-420 mm (7.2 - 16.5")  
 Length : 182-420 mm (7.2 - 16.5")  
 Thickness : 0.065-0.11 (0.0026 - 0.0043")  
 Weight : 52-90 g/m<sup>2</sup> (14 - 24lb.)  
 Quality : Normal PPC paper, Bond paper

&lt;Envelope&gt;

Size : #6 (W x L : 166 x 92 mm (6½ x 3½"))  
 #10 (W x L : 240 x 104 mm (9¼ x 4"))  
 Thickness : 0.16-0.52 mm (0.0063 - 0.020")

Note) The variation in thickness within printable area must be less than 0.25 mm (0.0098").

Weight : 45 - 90 g/m<sup>2</sup> (12 - 24lb.)  
 Quality : Normal PPC paper, Bond paper

&lt;Continuous form&gt;

Width : 101.6 -406.4 mm (4.0 - 16.0")  
 Thickness : 0.065 -0.1 mm (0.0026 - 0.0039")  
 Weight : 52-82 g/m<sup>2</sup> (14 - 22lb.)  
 Quality : Normal PPC paper, Bond paper

&lt;Label&gt;

Label size : 63.5 x 23.8 mm (W x L/Minimum)  
 Backing paper size : 101.6 -406.4 mm (4.0 - 16.0")  
 Thickness : Less than 0.2 mm (0.0078") including backing paper.  
 Quality : Equivalent of normal PPC paper

Notes) 1. Label can only be used under normal temperature condition.  
 2. Usable only with tractor feeding (requires optional tractor unit).  
 3. Do not perform any reverse feed.  
 4. Remove label form paper while the printer is not in use.

Adjust lever :            The adjust lever, attached to the carriage unit, must be set to proper position for the paper thickness, as shown in table below.

**Table 1-2 Adjust Lever Position**

<b>Lever Position</b>	<b>Paper</b>
<b>LEFT (Horizontal)</b>	<b>Cut Sheet Continuous form</b>
<b>R I G H T (Vertical)</b>	Envelope Label

1.1.3 Printer Operations

This section describes the basic operation of the printer.

1.1.3.1 Control Panel

The control panel of the Stylus-1000 contains six non-lock type push buttons and nine LED indicators for easy controls over the various printer's functions.

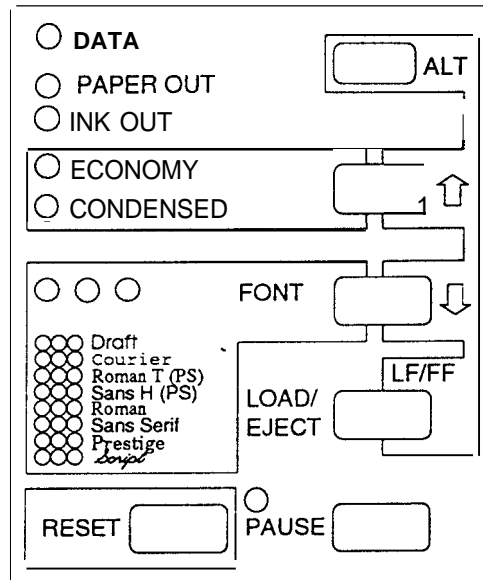


Figure 1-1 Control Panel - Stylus-1000

[Button]

- PAUSE Switch the printer status between the printing and the no-printing in case if any print data is exist in the input buffer.
- ECONOMY/CONDENSED Selects the ECONOMY printing mode or the CONDENSED printing mode alternately. It also works as a reverse micro feed button if the ALT button has been pressed.
- FONT Select the one of the available fonts. It also works as a forward micro feed button if the ALT button has been pressed.
- LOAD/EJECT By pressing this button, the printer either loads a new paper into the printer, or ejects a paper that currently in the paper path of the printer. It also works as the LF/FF button if the ALT button has been pressed.
- ALT It functions as to alternate the function of certain buttons to another. Holds down this button in PAUSE mode for 5 seconds, the printer moves the carriage to the ink cartridge installation/replacement position.
- RESET When you press this button, the printer is initialized.

[Indicators]

- PAUSE It lights when the printer is in PAUSE mode.
- DATA It lights when the print data exists in the input buffer.
- PAPER OUT It lights when the printer is in out-of-paper condition. It blinks if the paper jam has occurred.
- INK OUT It lights when the printer detects ink end of the ink cartridge. It blinks if the ink level becomes low.
- ECONOMY/CONDENSED These LEDs shows the currently selected mode.
- FONT It indicates the currently selected font.

## 1.1.3.2 Default Setting Item

The default setting items of the Stylus-1000 are as listed in table below.

Table 1-3 Default Setting Item

Menu Contents	Description	Factory Setting
Character Table	Select the character table	US Italic
Auto Print Direction	ON: Print direction is automatically selected as to maintains optimal print quality (alignment). OFF: Depends on the command 'ESC U'.	ON
Page Length for Continuous Form	0: 11 inch 1: 12 inch 2: 8.5 inch 3: 70/6 inch	11"
Skip-over Perforation for Continuous Form	ON 10FF	OFF
Network I/F Mode	ON: For network environment, such as LocalTalk. (Time-out printing is disabled.) OFF: For normal environment. (Time-out printing is enabled.)	OFF
Mixed Text/Graphics Mode *1	ON: To ensure proper printing of the image containing graphics and scalable font, with certain applications, such as MS Word, WordPerfect V.5.1 or earlier. OFF: For normal use.	OFF
Auto Line Feed	ON: Line feed operation is automatically performed by CR code input. OFF: No line feed operation with single "CR code.	OFF
Auto I/F Switching	ON: Printer automatically select the I/F which receives the data. OFF: Active I/F is depending on the DIP-SW setting on the optional I/F card.	ON
Auto I/F Switch Wait Time	30 sec. / 10 sec.	10 sec.
Auto Tear Off	ON: Printer automatically feed a paper to the tear-off position. OFF:	ON

Note) ● 1 = If set to ON, the capacity of input buffer is limited to 64 KByte.

## 1.1.3.3 Error Conditions

The Stylus-1000 detects various errors and indicates them with the LED indicators and buzzer as shown in table below.

Table 1-4 Error Indication

Error	PAPER LED	INK OUT LED	PAUSE LED	Buzzer	Recovery
Paper out	ON	OFF	OFF	♪■ x 3 times	Set the paper and press the buttons as follows : 1. PAUSE 2. LOAD/EJECT
Paper jam	Blink	OFF	OFF	♪■ x 3 times	Same as above.
Ink low ● 1	OFF	Blink		No beeps	Press PAUSE button and replace the ink cartridge to new one. Then, press PAUSE button again to resume printing. ● 2
Ink end	OFF	ON	OFF	♪■ x 3 times	Replace the ink cartridge and press PAUSE button.
No ink cartridge	OFF	ON	OFF	♪■ x 3 times	Install the ink cartridge and press PAUSE button.
Carriage Error	OFF	OFF	OFF	♪□ x 5 times	Turn off the printer, and turn it on again.
Release Lever *1	OFF	OFF	OFF	♪■ x 3 times	Set the release lever to the position to current paper path.
Backout/Eject Error with Continuous form ● 1	OFF	OFF	OFF	♪□ x 3 times	
Waste ink tank over-flow	OFF	ON	BLINKS	♪■ x 3 times	Service maintenance required. (Replace the waste ink absorbing material and reset the protect counter.)

Note) ♪ : 0.1 second beep

n : 0.5 second beep

■ : 0.1 second interval

□ : 0.2 second interval

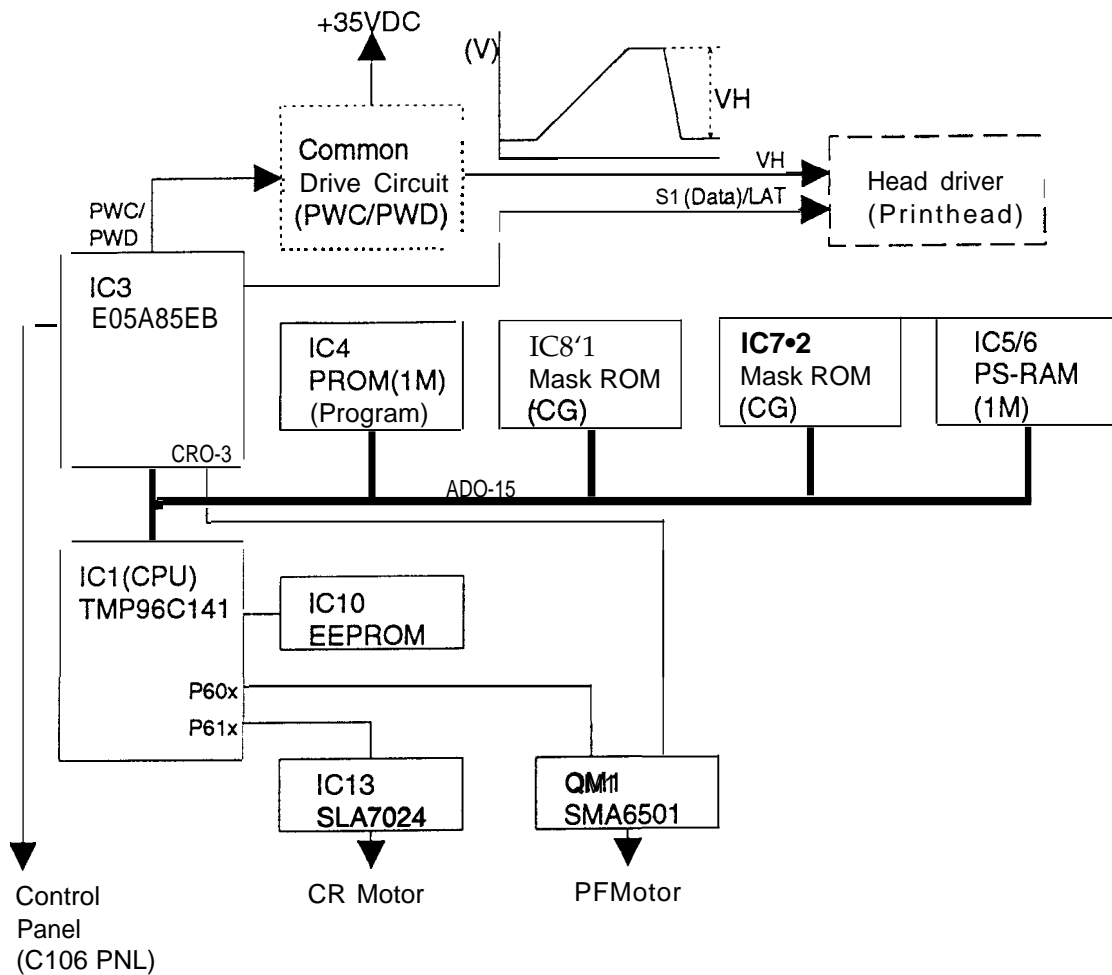
● 1: This is not treated as an error. (Warning)

\*2 : It is not necessary to immediately replace the ink cartridge until the printer detect 'Ink End' error.



## 2.1 Operating Principles

The main control circuit of the Stylus-1000 is different from the Stylus-800, and is the C114 MAIN BOARD. This board has an additional connector to which the optional TYPE-B I/F card can be connected. The figure below shows a block diagram of the main control circuit board.



Note) ● 1 : 4MBit Mask - For JAPAN/TAIWAN only  
 8MBit Mask - For KOREA only

\*2 : 16MBit Mask - For JAPAN/TAIWAN/KOREA  
 8Mbit Mask - For Europe

Figure 2-1 C114 MAIN BOARD Block Diagram

2.1.1 Sensor Circuit

In addition to the sensors built in the C106 MAIN BOARD for the Stylus-800, the C114 MAIN BOARD for the Stylus-1000 is equipped with a sensor which detect the position of the release lever. The release lever is used to switch between normal paper feed from the built-in ASF and the tractor feed which is only available if the optional tractor unit has been installed. The figure below shows the sensor circuit block diagram.

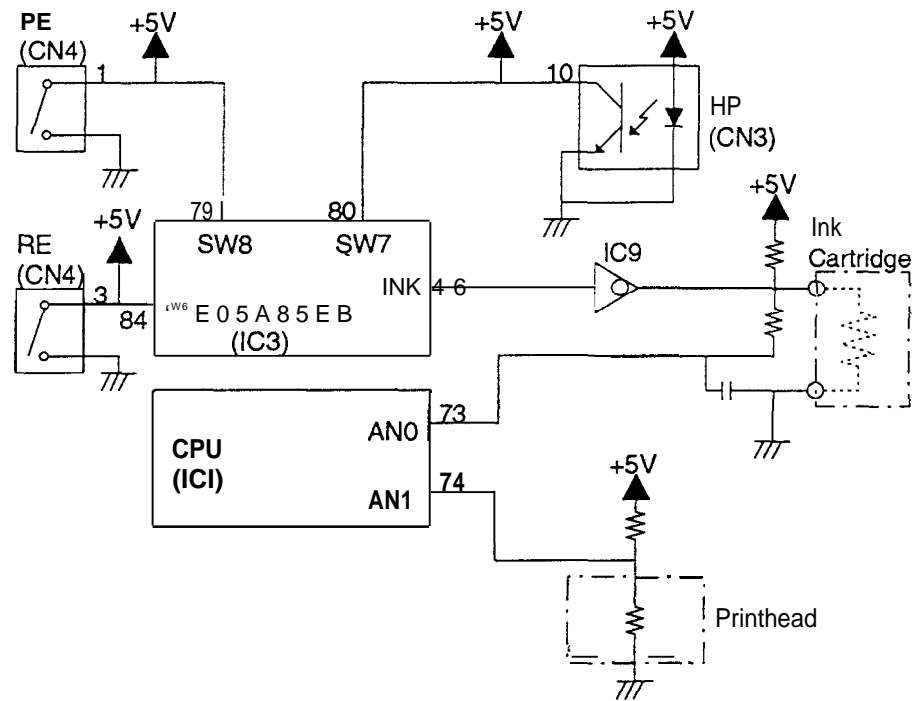


Figure 2-2 Sensor Circuit Block Diagram

## 3.1 Disassembly and Assembly

This addendum only explains the disassembly and assembly procedures which specifically applicable to the Stylus-1000.

### 3.1.1 Printer Mechanism M-4860 Removal

- [Step 1] Remove the upper case. (Refer to Stylus-800 S/M (Section 3.2.1.))
- [Step 2] Remove the power supply unit. (Refer to Stylus-800 S/M (Section 3.2.2.))
- [Step 3] Remove the main control circuit board unit. (Refer to Stylus-800 S/M (Section 3.2.3.))
- [Step 4] Unhook two hooks of the center support of the auto sheet feeder from a front guide shaft, by lifting up front edge of the center support. Then, remove the center support.
- [Step 5] Remove the retaining ring (E-ring) from a front guide shaft.
- [Step 6] Move the left edge guide assembly to the position shown in figure below, where two cutouts made to the front paper guide frame (the paper eject support assembly is inserted to a rounded edge of the paper guide frame assembly). Then, take out the paper exit support assembly.
- [Step 7] Move the right edge guide assembly to the position explained in the previous step and take out the paper exit support assembly.
- [Step 8] Remove the printer mechanism (M-4860) from the lower case.

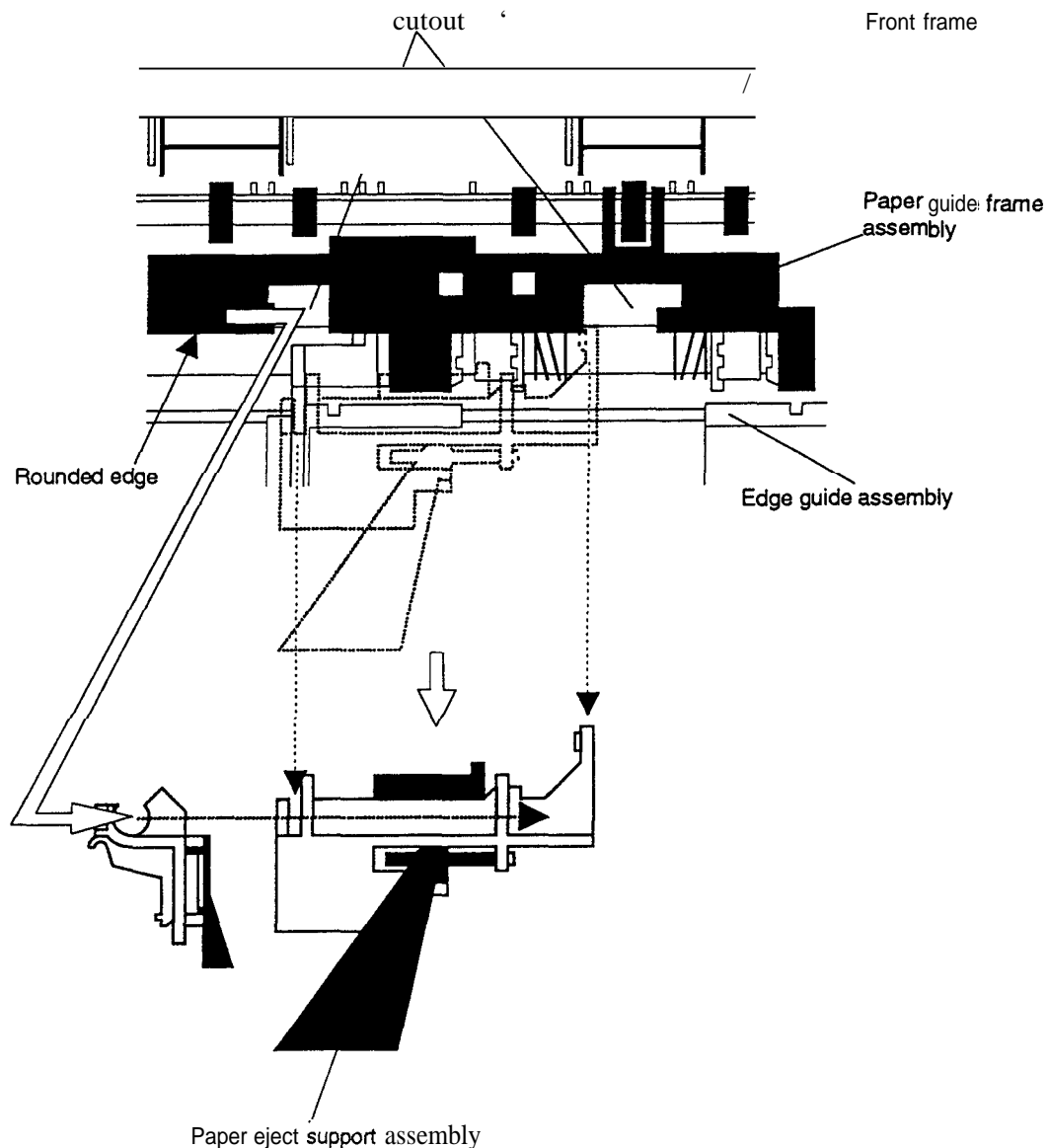


Figure 3-1 Printer Mechanism (M-4860) Removal

### 3.1.2 Paper Feed Motor Removal

- [Step 1] Remove the printer mechanism. (Refer to 3.1.1.)
- [Step 2] Remove two screws ((CBS M3x1O)X2) which fixing the paper feed motor.
- [Step 3] Turn the paper feed motor for about 90 degree, as shown in figure below, so that one of fixing tab of the motor released from a holding plate.
- [Step 4] Take out the paper feed motor.

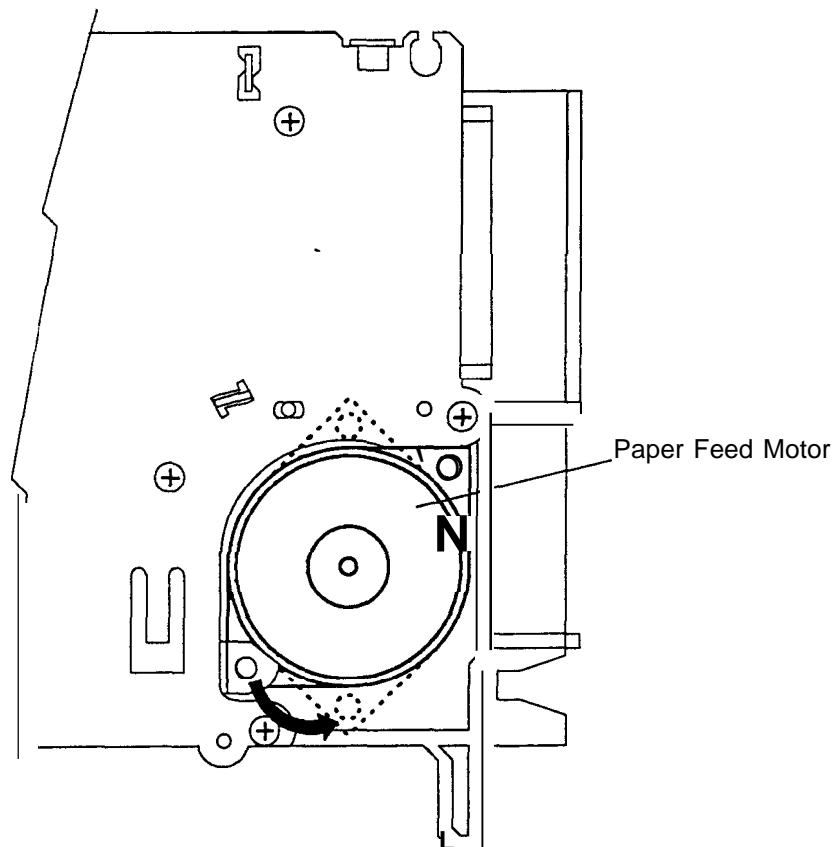


Figure 3-2 Paper Feed Motor Removal

### 3.1.3 Paper Feed Roller Assembly Removal

- [Step 1] Remove the printer mechanism. (Refer to 3.1.1.)
- [Step 2] Remove the carriage assembly. (Refer to Stylus-800 S/M (Section 3.2.6.5.)
- [Step 3] Remove four screws ((CBB M3x1O)X4, two each at left and right side) and remove the rear base frame.
- [Step 4] Unhook the transmission gear assembly which attached at the left end of the paper ejection roller shaft, and then remove the paper feed roller assembly.

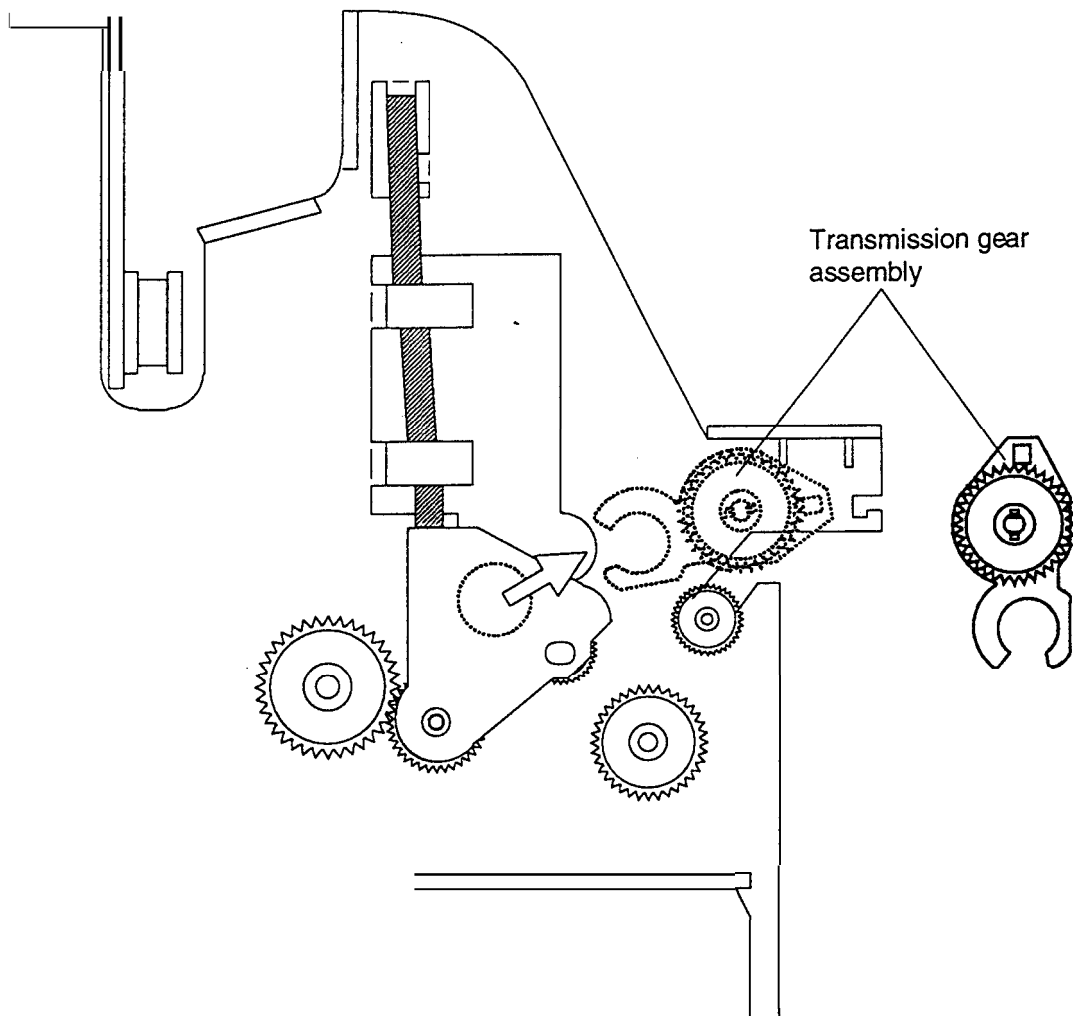


Figure 3-3 Paper Feed Roller Assembly Removal

## 4.1 Adjustment

This addendum only explains the adjustment procedures which specifically applicable to the Stylus-1000.

### 4.1.1 Paper Gap Adjustment

- [Step 1] Insert the plastic plate into a paper path from the rear of the printer, at the position shown in figure below.
- [Step 2] Put the thickness gauge (#F518 / t=1.0mm) on the plastic plate and move the carriage onto it.

### CAUTION

■ Certain thick and stiff paper can be used with this adjustment as a substitute for the plastic plate.

- [Step 3] Verify that a gap exist between the front edge of the carriage frame and the front frame. The direction of carriage guide shaft holder rotation is depending on the existence of this gap, as shown in table below.

Gap between Carriage and Front frame	LEFT Bush	RIGHT Bush
YES	Cw	CCW
NO (Gap exist between printhead and PG gauge)	CCW	Cw

Note) The direction in table above, is viewed from a side frame to which the corresponding carriage guide shaft holder is attached.

- [Step 4] Rotates BUSH, PARALLEL, ADJUST that attached at the left end of the carriage guide shaft as the printhead contact the PG gauge. When you narrow the gap and the printhead contacts the PG gauge, the front edge of the carriage unit pop up and if so, moves the bush 1 step in reverse direction.
- [Step 5] Remove the PG gauge and attach it at the right side adjust position.
- [Step 6] Repeat the step from [Step 2] to [Step 4], and adjust the gap with BUSH, PARALLEL, ADJUST at the right end of the carriage guide shaft.
- [Step 7] Verify the gap at the left adjust position, as if the front edge of the carriage unit pop up when you move the left end bush 1 step in counter-clockwise (CCW).

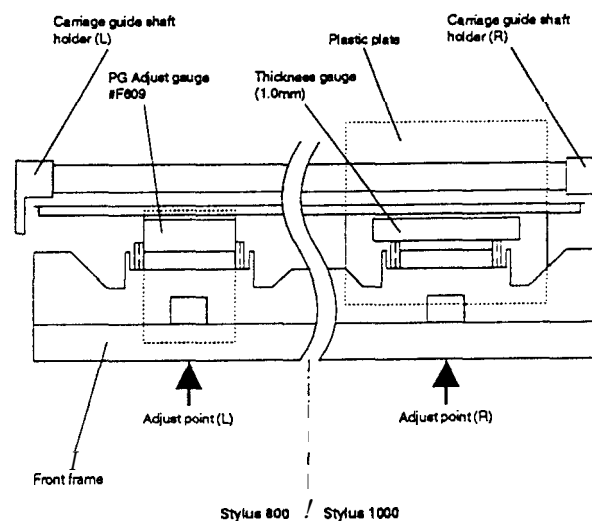


Figure 4-1 Adjust Tool Set Position

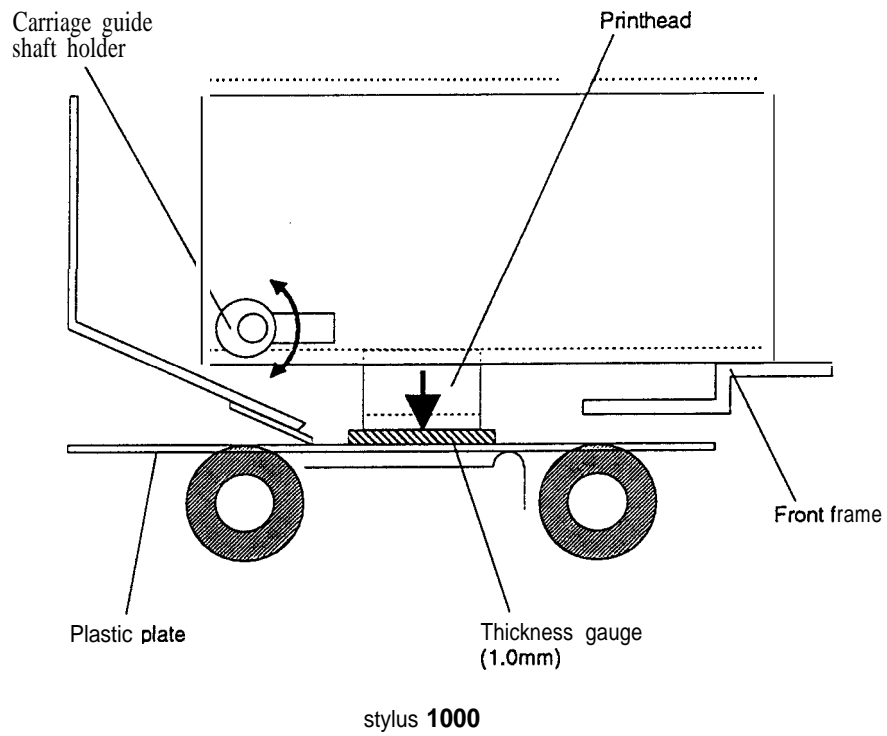
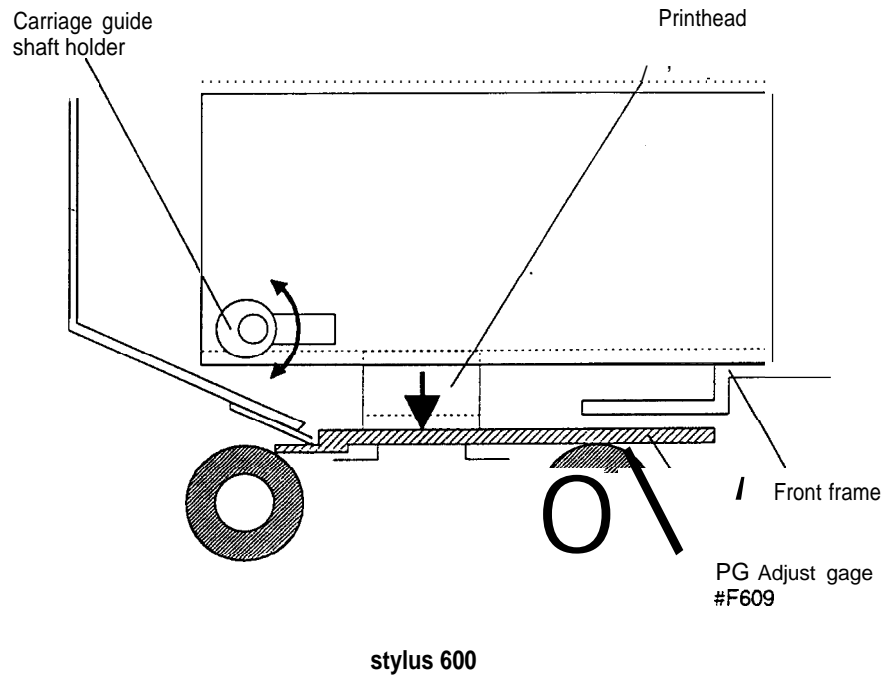


Figure 3-2 Paper Gap Adjustment

## 6.1 Maintenance

This addendum only explains the maintenance which specifically applicable to the Stylus-1000.

### 6.1.1 Lubrication

A proper lubricant must be applied only to the specified points of the printer mechanism for optimal performance.

**Table 6-1 Recommended Lubricant**

Type	Name	QTY	Part No.	Availability
Oil	o-5	40 cc	1010513	E
Grease	G-26	40 g	B702600001	E

Note) E = EPSON Exclusive product (Not commercially available)

**Table 6-2. Lubrication Points**

Ref. No.	Lubrication Point	Lubricant	stylus 800	stylus 1000
(1)	Frame Assembly, R (Gear shaft A,B and C)	G-26 (1 -3 mg)	YES	YES
(2)	Flat gear, 8	G-26 (1 -3 mg)	YES	YES
(3)	Shaft, Reduction	G-26 (1 -3 mg)	YES	-
(4)	Oil Pad (Carriage)	o-5 (3 drops)	YES	YES
(5)	Shaft, CR, Guide	o-5 (Paint on the shaft)	YES	YES
(6)	Roller,PF	G-26 (1 -3 mg)	YES	YES
(7)	Release shaft	G-26 (1 -3 mg)		YES
(8)	Paper Eject Roller Shaft (Ends)	G-26 (1 -3 mg)	.	YES
(9)	GEAR, 14	G-26 (1 -3 mg)		YES
(10)	GEAR, 11	G-26 (1 -3 mg)		YES
(11)	Planetary Gear Lever	G-26 (1 -3 mg)		YES
(12)	Front Frame / PG Adjust Lever	G-26	YES	YES
(13)	GEAR, 22.5	G-26 (1 -3 mg)		YES



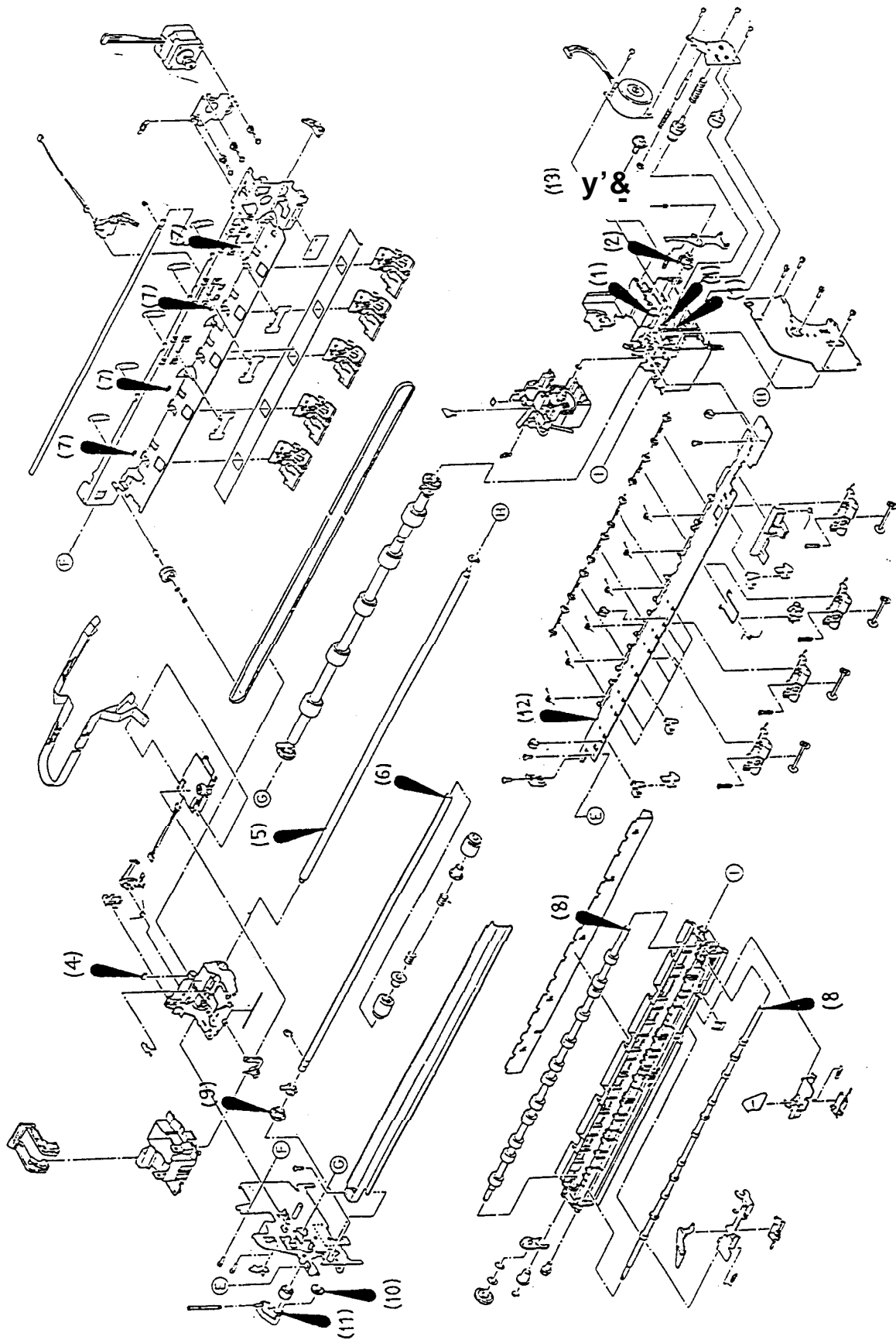


Figure 6-1. Lubrication Points

## A.1 Appendix

This addendum only explains the connectors which specifically applicable to the Stylus-1000.

### A.1.1 Connector Summary

Figure below shows the interconnection between the major components of the Stylus-1000.

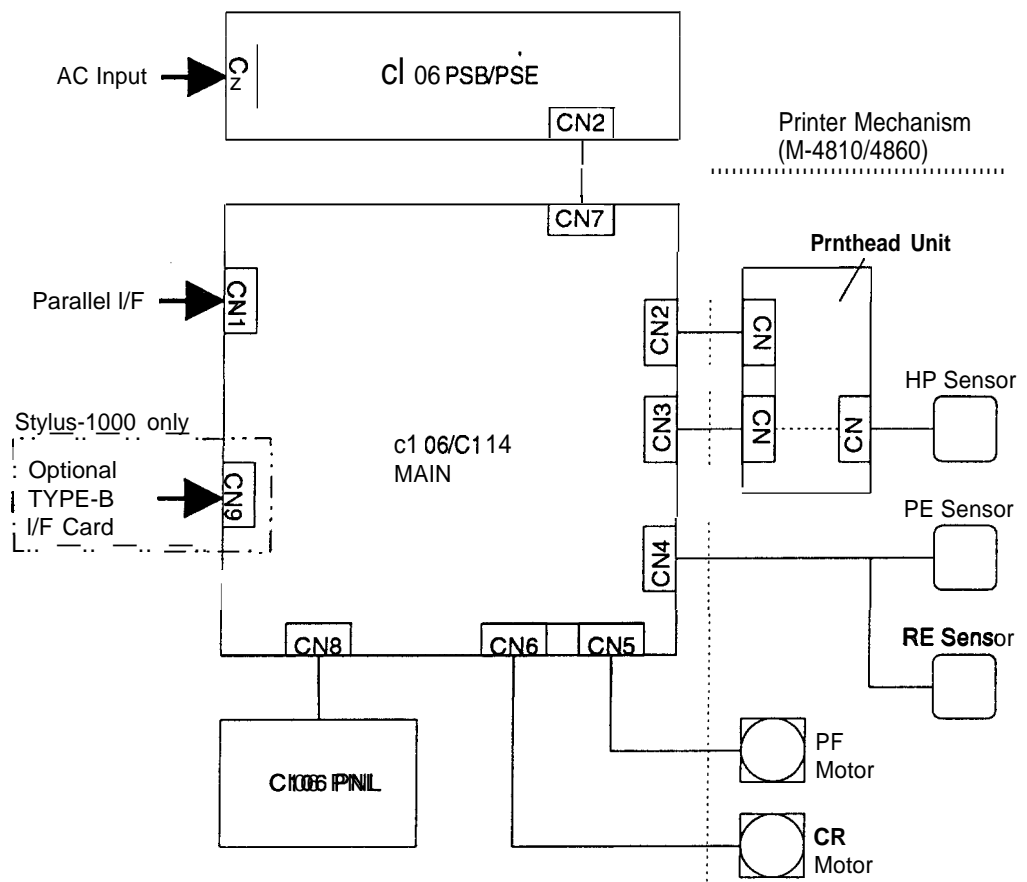


Figure A-1 Interconnection of Major Components

Table A-1 Connector Summary

Board	Location	Pin	Description
CI 06/114 MAIN	CN1	36 pins	<b>Centronics parallel I/F</b>
	CN2	12	<b>HEAD-1 (to printhead)</b>
	CN3	12	<b>HEAD-2 (to printhead)</b>
	CN4	4	PE(#1/2)/RE(#3/4) sensor
	CN5	6	PF motor
	CN6	5	CR motor
	CN7	4	PS line (from C106PSE/PSB)
	CN8	18	<b>Panel control line (to C106PNL)</b>
C106 PSB/PSE	CN1	2	<b>AC input (UN)</b>
	CN2	4	<b>DC output (to C106/114 MAIN)</b>
C106 PNL	CN1	18	(to C106/114 MAIN)

Table A-2 Connector Pin Assignment - CN4

Pin	I/O	Name	Description
1		PE	Paper-End ( <b>PE</b> ) status signal
2		GND	<b>(Ground)</b>
3		LSW	Release lever status signal
4		GND	<b>(Ground)</b>

Table A-3 Connector Pin Assignment - CN9

Pin	I/O	N a m e	Description
1-6		+5V	+5V DC
7	0	TXD	Serial transmission data
8		/READY	Receive data ready
9		RXD	Serial receive data
10		NC	<b>(No connection)</b>
11	0	/RST	Reset signal output
12	0	INH	Inhibit signal
13		/CMREQ	Command request signal
14		/WPRDY	Write ready signal
15		/RDREQ	Read request signal
16	0	/WR	Write signal
17	0	/RD	Read signal
18	0	/CS	Chip select signal
19-24		GND	<b>[Ground]</b>
25-28	0	A3 - AO	<b>Address line (A3 - AO)</b>
29-36	I/O	D7 - DO	<b>Data line (D7 - DO)</b>

### A.3 CIRCUIT BOARD COMPONENT LAYOUT

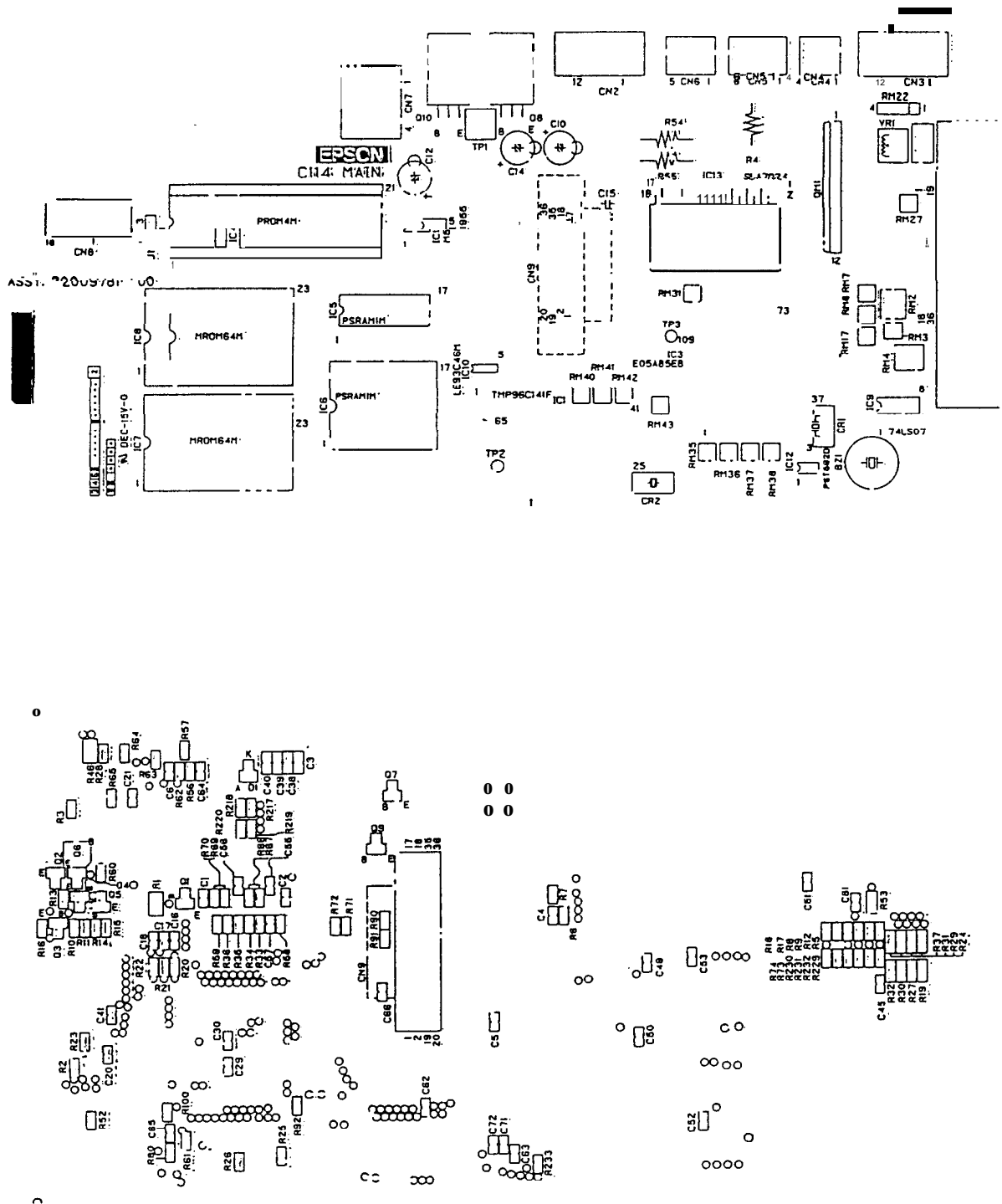


Figure A-2. CI 14 MAIN Control Board Component Layout

**EPSON**