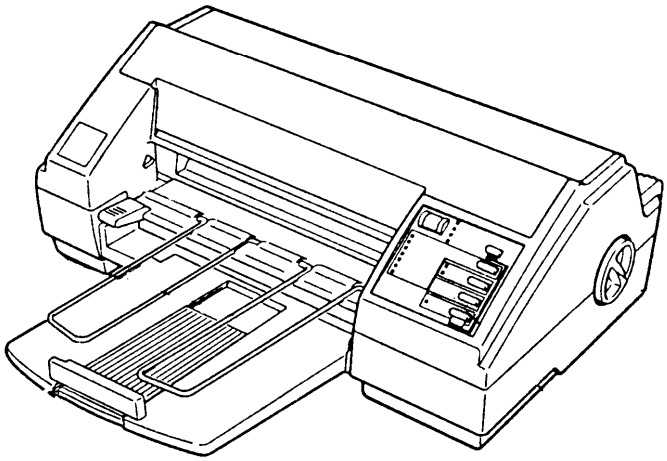
EPSON TERMINAL PRINTER

Stylus™ COLOR

SERVICE MANUAL



EPSON

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NOTICE

The contents of this manual are subjects to change without notice.

All efforts have been made to ensure the accuracy of the contents of this manual. However, should any errors be detected, SEIKO EPSON would greatly appreciate being informed of them.

The above notwithstanding SEIKO EPSON can assume no responsibility for any errors in this manual or the consequence thereof.

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General Notice: Other product names used herein are for identication purposes only and may be trademarks of their respective companies.

PRECAUTIONS

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

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

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

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

DANGER

1. ALWAYS DISCONNECT THE PRODUCT FROM BOTH THE POWER SOURCE AND PERIPHERAL DEVICES PERFORMING ANY MAINTENANCE OR REPAIR PROCEDURE.

2. NO WORK SHOULD BE PERFORMED ON THE UNIT BY PERSONS UNFAMILIAR WITH BASIC SAFETY MEASURES AS DICTATED FOR ALL ELECTRONICS TECHNICIANS IN THEIR LINE OF WORK.

3. WHEN PERFORMING TESTING AS DICTATED WITHIN THIS MANUAL, DO NOT CONNECT THE UNIT TO A POWER SOURCE UNTIL INSTRUCTED TO DO SO. WHEN THE POWER SUPPLY CABLE MUST BE CONNECTED, USE EXTREME CAUTION IN WORKING ON POWER SUPPLY AND OTHER ELECTRONIC COMPONENTS.

WARNING

1. REPAIRS ON EPSON PRODUCT SHOULD BE PERFORMED ONLY BY AN EPSON CERTIFIED REPAIR TECHNICIAN.

2. MAKE CERTAIN THAT THE SOURCE 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 AVAILABLE POWER SOURCE, DO NOT CONNECT IT TO THE POWER SOURCE.

3. ALWAYS VERIFY THAT THE EPSON PRODUCT HAS BEEN DISCONNECTED FROM THE POWER SOURCE BEFORE REMOVING OR REPLACING PRINTED CIRCUIT BOARDS AND/OR INDIVIDUAL CHIPS.

4. IN ORDER TO PROTECT SENSITIVE MICROPROCESSORS AND CIRCUITRY, USE STATIC DISCHARGE EQUIPMENT, SUCH AS ANTI-STATIC WRIST STRAPS, WHEN ACCESSING INTERNAL COMPONENTS.

5. REPLACE MALFUNCTIONING COMPONENTS ONLY WITH THOSE COMPONENTS BY THE MANUFACTURE; INTRODUCTION OF SECOND-SOURCE ICs OR OTHER NONAPPROVED COMPONENTS MAY DAMAGE THE PRODUCT AND VOID ANY APPLICABLE EPSON WARRANTY.

PREFACE

This manual describes functions, theory of electrical and mechanical operations, maintenance, and repair of Stylus Color.
The instructions and procedures included herein are intended for the experience repair technician, 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 product overview, lists specifications, and illustrates the main components of the printer.

CHAPTER 2. OPERATING PRINCIPLES

Describes the theory of printer operation.

CHAPTER 3. DISASSEMBLY AND ASSEMBLY

Includes a step-by-step guide for product disassembly and assembly.

CHAPTER 4. ADJUSTMENTS

Includes a step-by-step guide for adjustment.

CHAPTER 5. TROUBLESHOOTING

Provides Epson-approved techniques for adjustment.

CHAPTER 6. MAINTENANCE

Describes preventive maintenance techniques and lists lubricants and adhesives required to service the equipment.

APPENDIX

Describes connector pin assignments, circuit diagrams, circuit board component layout and exploded diagram.

The contents of this manual are subject to change without notice.

REVISION SHEET

Revision	Issue Date	Page /Contents	
Rev.-A	April 27, 1994		1 st issue
Rev.-B	October 4, 1994	3-1	Change the WARNING contents
Rev.-C	November 30, 1994	3-3	Change the explanation for the upper case removal
Rev.-D	January 11, 1995	4-7 to 4-17	Incorporate the simple adjust method.

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Chapter 1 Product Description

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1.1 FEATURES

The Stylus Color is a 64- + 48-nozzle (monochrome and CMY) color ink jet dot matrix printer that uses new ink jet technology to achieve high-quality, high-speed printing. The major features of this printer are:

- ❑ Highquality color printing as a result of new inkjet technology.
- ❑ Fast print speeds, capable of printing LQ characters at 200 cps.
- ❑ Compact design to save precious work space.
- ❑ Built-in auto sheet feeder with a maximum capacity of 100 cut sheets, 50 transparencies, 70 heavy or special papers, or 10 envelopes.
- ❑ 8-bit parallel interface and Macintosh® serial interface standard.
- ❑ Easy setup.
- ❑ Four scalable fonts and five LQ fonts standard.
- ❑ Support for 9 character tables in the standard version and 15 character tables in the NLSP (National Language Support Printer) version.
- ❑ Inexpensive to run and maintain.

The figure below shows the Stylus Color.

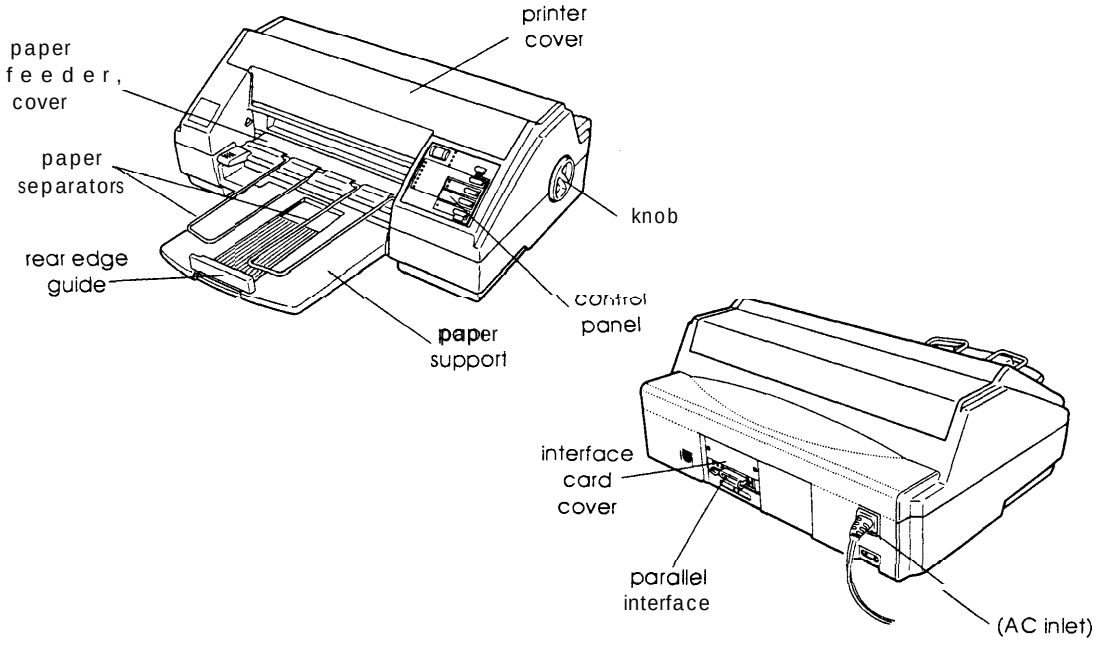

Figure 1-1. Exterior View of the Stylus Color

Table 1-1. Interface Cards

Interface Card	Model Number
Serial interface card	C823051/C823061
32KB serial interface card	C823071/C823081
32KB parallel interface card	C82310*
32KB IEEE-488 interface card	C82313*
LocalTalk@ interface card	C82312*
Twinax interface card	C82315*
Coax interface card	C82314*

** The asterisk is a substitute for the last digit, which varies by country.*

1.2 SPECIFICATIONS

This section provides statistical facts and other detailed intonation for the printer.

1.2.1 Printing Specifications

Print system: On demand inkjet system

Nozzle configuration: 64 nozzles (16 x 4 staggered): Monochrome
4$ nozzles (16 × 3 staggered): Color

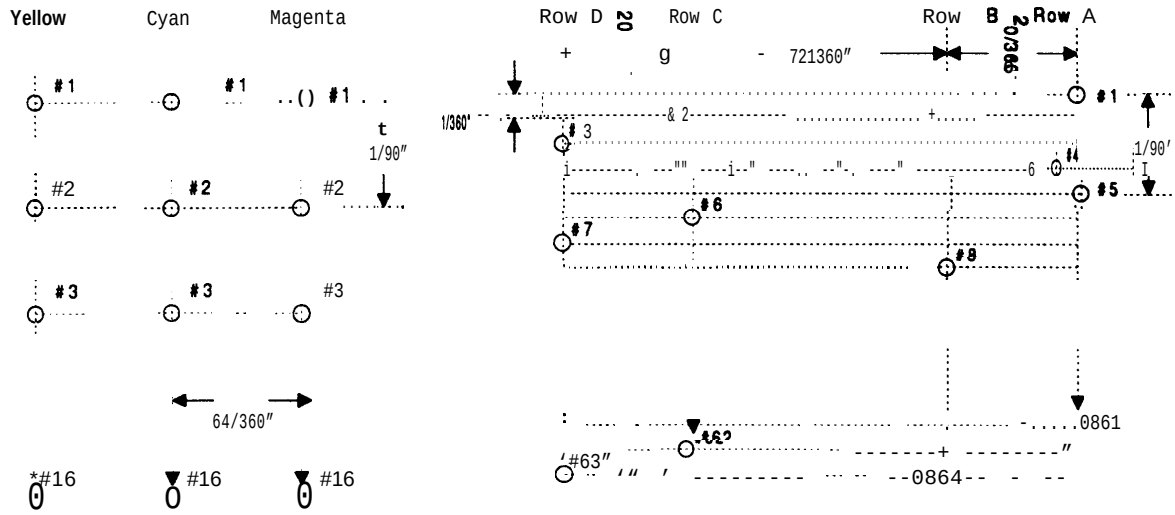

Figure 1-2. Nozzle Configuration

Printing direction: Bidirectional with logic-seeking

Printspeed: See Table 1-2.

Printable columns: See Table 1-2.

Table 1-2. Print Speed and Printable Columns

CharacterPitch	PrintableColumns	Print Speed (LQ)
10 cpi (Pica)	60	200 cps
12 cpi (Elite)	96	240 cps
15 cpi	120	300 cps
17 cpi (Pica condensed)	137	340 cps
20 cpi (Elite condensed)	160	4oocps

Character sets: Legal and 14 international character sets.

Character tables: See Table 1-3.

Table 1-3. Character Tables

Character Tables	Standard Version	NLSP* Version
Italic	o	0
PC437 (U.S./Standard Europe)	0	o
PC850 (Multilingual)	o	0
PC860 (Portuguese)	o	x
PC861 (Iceland)	o	x
PC863 (Canadian-French)	o	x
PC865 (Nordic)	o	x
PC437 (Greek)	x	O (Note)
PC852 (East Europe)	x	O (Note)
PC853 (Turkish)	x	O (Note)
PC855 (Cyrillic)	x	O (Note)
PC857 (Turkish)	x	O (Note)
PC866 (Russian)	x	O (Note)
PC869 (Greek)	x	O (Note)
MAZOWIA (Poland)	x	O (Note)
Code MJK (Czechoslovakia)	x	O (Note)
ISO 8859-7 (Greek)	x	O (Note)
ISO Latin IT (Turkish)	x	O (Note)
Bulgaria (Bulgaria)	x	O (Note)
Abicomp	0	x
BRASCII	0	x

o supported x *Not* ***SUpported*** * *National Language Support Printer*

Note: *These fonts are not supported for EPSON Roman Tand EPSON Saris Serif H of scalable fonts.*

Fonts:

Bitmap LQ fonts
- EPSON Roman (10 cpi/12 cpi/15 cpi/Proportional)
- EPSON Saris Serif (10/12/15/Proportional)
- EPSON Courier (10/12/15)
- EPSON Prestige (10/12/15)
- EPSON Script (10/12/15)

Scalable fonts
- EPSON Roman 10.5 points, 8 -32 **points (in** units of 2 points)
- EPSON Saris Serif 10.5 points, 8 -32 points (in units of 2 points)
- EPSON Roman T 10.5 points, 8-32 points (in units of 2 points)
- EPSON Saris Serif H 10.5 points, 8-32 points (in units of 2 points)

Control code: ESC/P 2 and expanded raster graphics code

Input data buffer: 64K bytes

1.2.2 Paper Handling Specifications

Feeding method: **Friction feed paper is fed from the built-in auto sheet feeder (ASF).**

***Notes: The** following operations are not allowed.*

1. *Reverse feeding within 3 mm (O. 12in.) from the top edge of the paper or 16mm (0.63 in.) from the bottom edge of the paper.*
2. *Reverse feeding beyond 7.9mm (0.3in.).*

Line spacing: **1/6 inch feed, 1/8 inch feed, or programmable with a 1/360 inch minimum increment.**

Paper path: **Cut sheet: Built-in auto sheet feeder (ASF) (front entry)**

Feeding speed: **89 msec. (at l/6-inch feed pitch)**

1.2.3 Paper Specifications

Table 1-4. Cut Sheet Paper Specifications

Size (W x L)	**A4:**	**210 mm (8.3 in.)** *x 297* **mm (1 1.7 in.)**
	Letter:	216 mm **(8.5 in.) x** *279* **mm (1 1.0 in.)**
	B5:	182 mm (7.2 in.) x *257* **mm (10.1 in.)**
	Legal:	*216* **mm (8.5 in.) x 356 mm (14.0 in.)**
Thickness	0.08 mm (0.003 **in.) -0.11 mm (0.004 in.)**	
Weight	55 g/m^2 (17 **lb) -90 g/m^2 (24** lb)	
Quality	Bond paper, PPC	

Table 1-5. Envelope Specifications

Size (W x L)	*No. 6:*	**166 mm(6½ in.) x 92 mm (3 5/8 in.)**
	No. 10:	**240 mm(91A in.) x 104mm(41A in.)**
	DL:	220 mm **(8.7 in.) x 110 mm (4.3 in.)**
Thickness	**Less than** *0.52* **mm** *(0.020* **in.)**	
Weight	75 g/m^2 (20 lb) -90 g/m^2 (24 **lb)**	
Quality	Bond Paper	

***Note:** Envelope printing is supported onfy at room temperature.*
When inserting envelopes, keep the longer side honzontal.

Printable area: Cut sheet

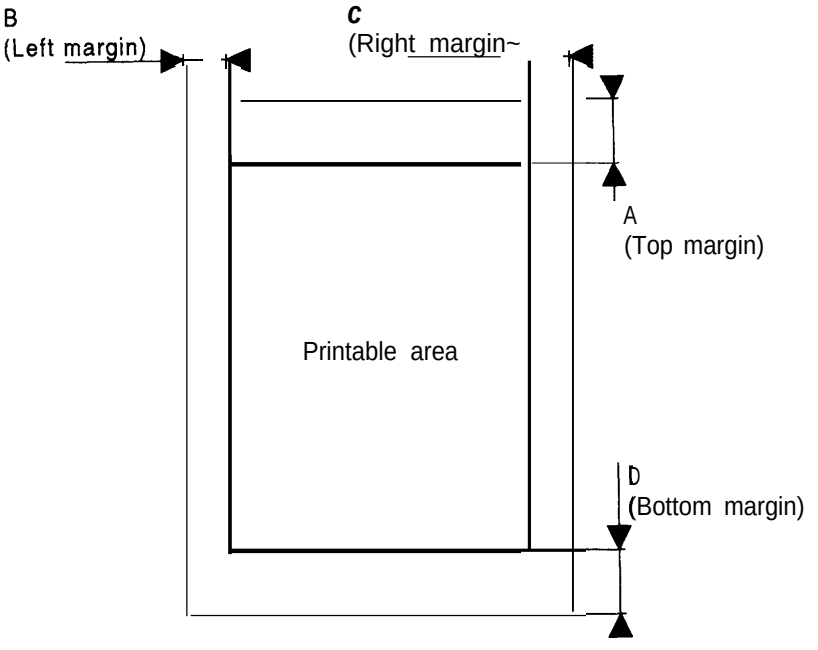

Figure 1-3. Printable Area for Cut Sheet

Envelope

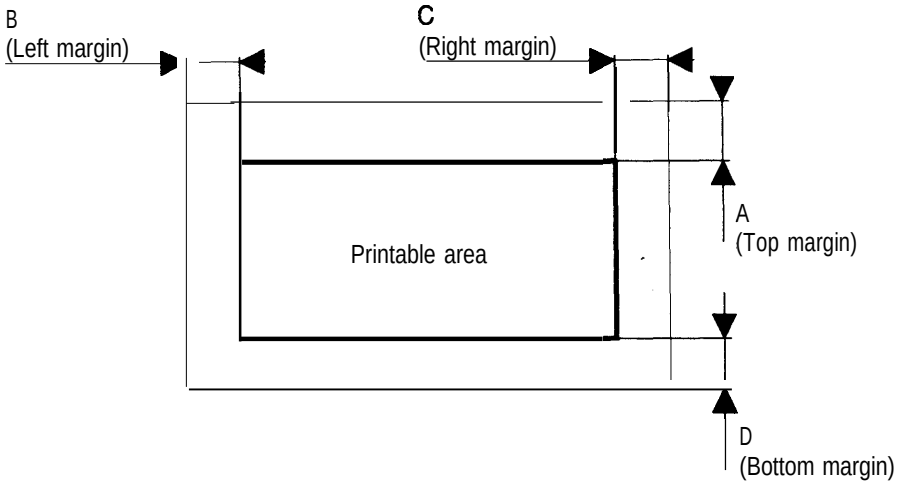

Figure 1-4. Printable Area for Envelope

Note: A: *The minimum top margin= 3 mm (0. 12 in.)*
B: The minimum left margin= 3 mm (O. ?2 in.)
C: *The minimum right margin is:*
A4 size: 3 mm (O. 12 in.)
Letter size: 9 mm (0.35 in.)
B5 size: 3 mm (0. 12 in.)
Legal size: 9mm (0.35 in.)
Envelope: 3 mm (0.12 in.)
D: The minimum bottom margin= 13 mm (0.51 in.)

Adjust lever setting: The adjust lever on the carriage unit must be set to the proper position for the paper thickness, as shown m Table 1-6.

Table 1-6. Adjust Lever Setting

Lever Position	Paper	Paper Thickness
LEFT (Vertical)	Cut Sheet	0.08-0.11 mm (0.003 -0.004 in.)
RIGHT (Horizontal)	Envelope	Less than 0.5 mm (0.020 in.)

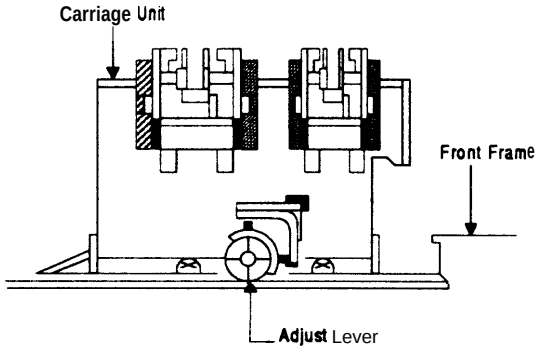

Figure 1-5. Adjust Lever

1.2.4 Ink Cartridge Specifications

Black

Type:	Exclusive cartridge
Color:	Black
Print capacity:	1.5 million characters (315 dots/character, Roman 10 cpi)
Life:	The effective life from the indicated production date is 2 years.
Storage temperature:	-30- 40° C (–22 - 104° F) (Storage, within a month at 40° C (104° F)) -30- 60° C (-22 - 140° F) (Transit, within a month at 40° C (104° F)) –30 - 60° C (–22 - 140" F) (Transit, within 120 hours at 60° C (140° F))
Dimension (W x D x H):	26.9 x67.4 x 41.8 mm (1.06 x2.65 x 1.65 in.)

Color

Type:	Exclusive cartridge
Color:	Cyan, Magenta, Yellow
Print capacity:	28 sheets/color (A4, Full image printing at 360 dpi)
Life:	The effective life from the indicated production date is 2 years.
Storage Temperature:	-30- 40° C (–22 - 104° F) (Storage, within a month at 40° C (104° F)) -30- 60° C (–22 - 140° F) (Transit, within a month at 40° C (104° F)) –30 - 60° C (–22 - 140" F) (Transit, within 120 hours at 60° C (140° F))
Dimension (W x D x H):	54.0 x 67.4X 41.8 mm (2.13 x 2.65X 1.65 in.)

Notes: - *Ink cartridge **cannot be** re-tiled; it is the **only consummable** article.*
- ***Do not use an ink cartridge that has exceeded the ink life.***
- *Ink freezes **below –3°** C; however, **it can** be **used after it returns** to room temperature.*

1.2.5 Electrical Specifications

Table 1-7. Rated Electrical Ranges

Item	120 V Version	220-240 V Version
Rated voltage	120 VAC	220-240 VAC
Input voltage range	103.5-132 V	198-264 V
Rated frequency range	50-60 Hz	50-60 Hz
Input frequency range	49.5 -60.5 Hz	49.5 -60.5 Hz
Rated current	0.6 A	0.4 A
Power consumption	Approx. 20 W (self-test with 10-cpi LQ characters)	Approx. 20 w (self-test with 10-cpi LQ characters)
Insulation resistance	10 MΩ, minimum (applying 500 VDC between AC line and chassis)	10 MΩ, minimum (applying 500 VDC between AC line and chassis)
Dielectric strength	1000 VAC rms -1 minute or 1200 VAC rms -1 second (between AC line and chassis)	1500 VAC rms -1 minute (between AC line and chassis)

1.2.6 Environmental Conditions

Table 1-8. Acceptable Environmental Conditions

Description	Operating	Non Operating
Temperature	10 - 35° c (50 - 95° F) "	–20 - 60° C (-4 - 122° F) ● 2
Humidity	20- 80% RH ● '73	5- 85% RH *2,3
Shock resistance	1G (within 1 msec.)	2G (within 2 msec.) *2
Vibration resistance	0.15 G	0.50 G 2

*1 : For operating the printer, conditions must be in the range shown in the figure below.
*2: These conditions are acceptable when the printer is in its shipping container.
3: Without condensation.

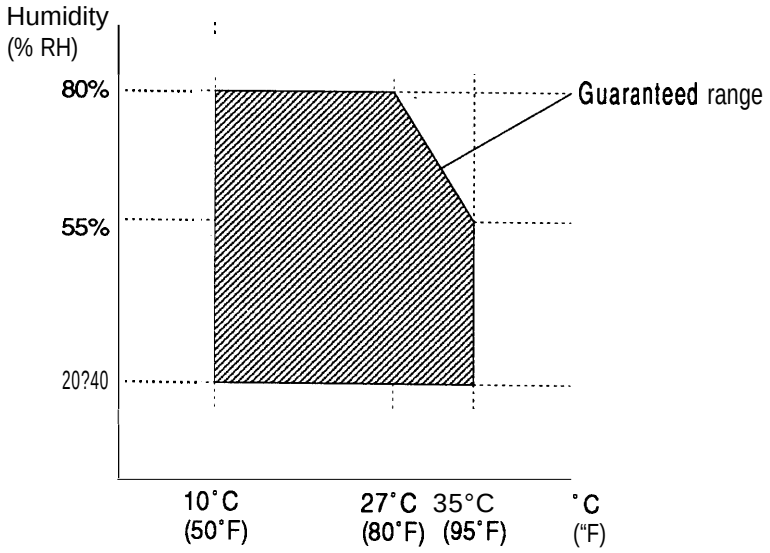

Figure 1-6. Temperature/Humidity Range

1.2.7 Reliability

MTBF:	4,000 power on hour (POH)
Total print volume:	75,0(X) pages (A4, Letter)
Printhead life:	1$00 million dots/nozzle

1.2.8 Safety Approvals

Safety standards:	120V version:	UL1950 with D3, CSA22.2 #950 with D3
	220-240V version:	EN 60950 (TÜV, SEMKO, DEMKO, NEMKO, SETI)
Radio frequency interference (RFI):	120V version:	FCC part 15 subpart B class B
	220-240V version:	Vfg.243 (VDE0878 part 3, part 30) EN55022 (CISPR PUB. 22) class B

1.2.9 Physical Specifications

Dimension (W x D x H):	470 x 525X 192 (mm) (18.5X 20.7X 7.56 (in.))
Weight:	7.4 Kg (16.3 lb)

1.3 INTERFACE SPECIFICATIONS

The Stylus Color is standard-equipped with an 8-bit parallel and serial interface.

1.3.1 Serial interface Specifications

Data format:	8-bit parallel
Synchronization:	By $\overline{\text{STROBE}}$ pulse synchronization
Handshaking:	By BUSY and $\overline{\text{ACKNLG}}$ signals
Signal level:	TTL compatible level
Adaptable connector:	36 pin 57-30360 (Amphenol) or equivalent
Data transmission timing:	See Figure 1-7.

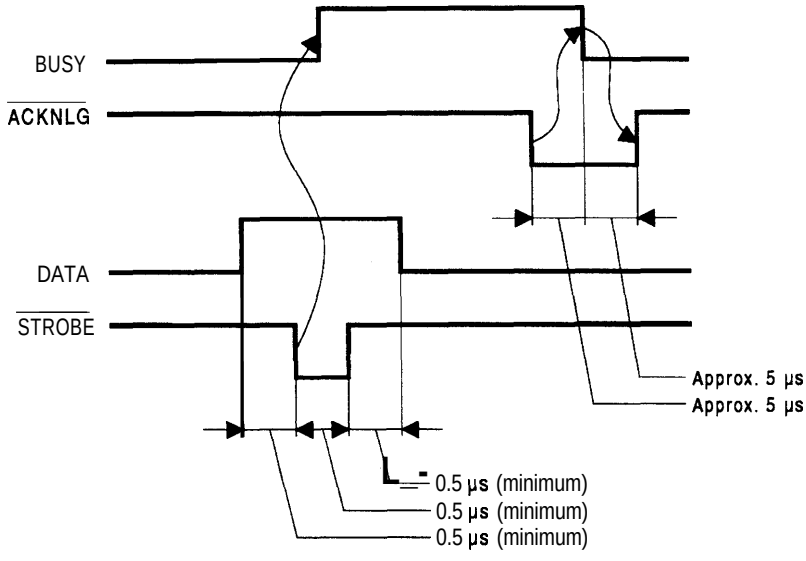

Figure 1-7. Data Transmission Timing

Note: *Transition time (rise time and fall time) of every input signal must be less than 0.2 µs.*

The Busy signal is active (HIGH) under the following conditions:

- During data reception (See Figure 1-7.)
- When the input buffer is full
- When the INIT input signal is active
- During initialization
- When the $\overline{\text{ERROR}}$ or PE signal is active
- During the self-test mode
- During the demonstration mode
- During the default setting mode
- When a fatal error occurs

The $\overline{\text{ERROR}}$ signal is active (LOW) under the following conditions:

- When a paper-out error occurs
- When a no ink cartridge error occurs
- When a fatal error occurs

The PE signal is active (HIGH) under the following conditions:

- When a paper-out error occurs
- When a fatal error occurs

Table 1-9 shows the connector pin assignments and signal functions of the 8-bit parallel interface.

Table 1-9. Signal and Connector Pin Assignments for Parallel Interface

Pin No.	Signal Name	I/O*	Description
1	$\overline{\text{STROBE}}$	I	The $\overline{\text{STROBE}}$ pulse is used to read data from the host computer. The pulse width must be 0.5 µs or more. Normally, it is HIGH, and data is latched with the rising edge of this signal.
2-9	DATA 1-8	I	DATA 1-8 are parallel data bits. When one of these signals is HIGH, the data bit is 1; when LOW, the data bit is O. The most significant bit (MSB) is DATA 8. The signal state must be maintained for 0.5 µs on either side of the $\overline{\text{STROBE}}$ signal's active edge.
10	$\overline{\text{ACKNLG}}$	O	$\overline{\text{ACKNLG}}$ is an acknowledge pulse with a width of approximately 10 p.s. This signal goes LOW upon the completion of data reception to indicate that the printer is ready to receive further data.
11	BUSY	O	The BUSY signal informs the host computer of the printer's status. When this signal is HIGH, the printer cannot accept any more data.
12	PE	O	This signal indicates whether paper is available in the printer or not. A HIGH level indicates no paper.
13	SLCT	O	Pulled up to +5V through a 1.0 KΩ resistor in the printer.
14	$\overline{\text{AFXT}}$	I	If this signal is set to LOW, the printer automatically performs one line feed upon receipt of a CR (carriage return) code. The status of this signal is checked onty at power on and initialization.
31	$\overline{\text{INIT}}$	I	If this signal goes LOW, the printer is initialized. The pulse width of this signal must be 50 µs or more.
32	$\overline{\text{ERROR}}$	O	This signal goes LOW if the printer has a fatal error or runs out of paper.
35	+5V		Pulled up to +5V through 1.0 KΩ resistor in the printer.
17	CHASSIS	-	Chassis ground.
16	GND	-	Signal ground.
19-30	-	.	.
33,36	-	.	Not used.
15,18,34	-	-	

* *The I/O column indicates the direction of the signal as viewed from the printer.*

1.3.2 Parallel Interface Specifications

Data format: RS-422 serial

Synchronization: Asynchronous

Handshaking: By DTR signal and X-ON/X-OFF protocol

Table 1-10. DTR and X-ON/X-OFF Protocol

State	Buffer Space	DTR	X-ON/X-OFF
Busy	Less than 512 bytes	off	X-OFF
Ready	More than 1,024 bytes	On	X-ON

Word length
- Start bit: 1 bit
- Data bit: 8 bit
- Parity bit: none
- Stop bit: 1 bit

Bit rate: 57.6K bps

Adaptable connector: 8-pin mini-circular connector

Recommended I/F cable: Apple® System Peripheral-8 cable

Table 1-11. Signal and Connector Pin Assignments for Serial Interface

Pin No.	Signal Name	I/O*	Description
1	DTR	out	Data terminal ready
2	NC		No connection
3	$\overline{\text{TXD}}$	out	Transmit data
4	SG	In	Signal ground
5	$\overline{\text{RXD}}$	In	Receive data
6	TXD	out	Balanced transmit
7	NC		No connection
8	RXD	In	Balanced receive

** The I/O column indicates the data flow as viewed from the printer.*

1.4 OPERATIONS

This section describes the basic operations of the printer.

1.4.1 Control Panel

The control panel for this printer has 1 lock type, 5 non-lock type push buttons, and 14 LED indicators for easy operation of the various printer functions.

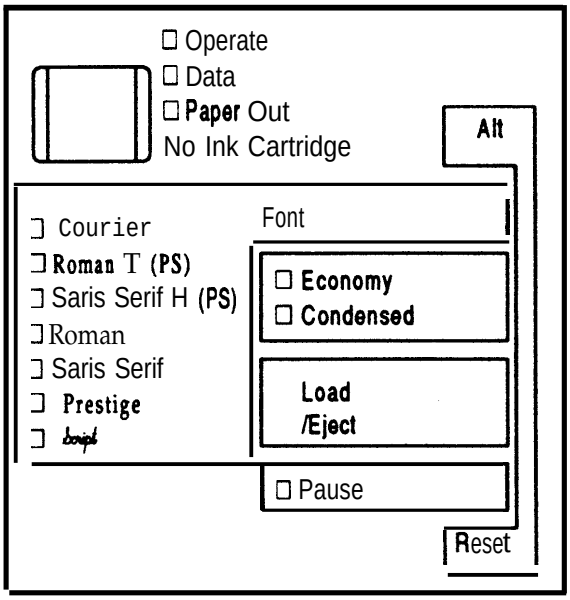

Figure 1-8. Control Panel Appearance

Buttons

Operate	Turns the printer on or off.
Att	Modifies the function of other buttons. Holding down this button for 3 seconds causes the printer to move the carriage to the ink cartridge installation position. Pressing Alt again causes the carriage to return to the home position.
Font	Cycles through the font choices. pressing the Font button, while holding down the Alt button causes the carriage to move to the gap adjustment position. Pressing the Alt button again causes the carriage to return to the home position.
Economy/Condensed	Selects either the economy printing or condensed printing mode. Pressing the Economy/Condensed button while holding down the Alt button starts the color printhead cleaning cycle.
Load/Eject	Either loads a new sheet into the printer or ejects paper currently in the paper path. Pressing the Load/Eject button while holding down the Alt button starts the black printhead cleaning cycle.
Pause	Stops printing temporarily or resumes printing if it has been stopped temporarily. Pressing Pause while holding down the Alt button resets the printer.

Indicators

Operate	On when the printer is on. Blinks during power on and off sequence.
Data	On when print data is in the input buffer. Data and Pause lights blink if an error occurs.
Paper Out	On when the printer is out of paper. Blinks when a paper jam occurs.
No Ink Cartridge	On when the ink is exhausted.
Economy	On when economy printing mode is selected.
Condensed	On when condensed printing mode is selected.
Font	These LEDs indicate the selected font.
Pause	On when printing is paused.

1.4.2 Panel Operation at Power On

You can activate the following modes by doing the following:

Self-test mode	Turn on the printer while holding down the Load/Eject button.
Hex dump mode	Turn on the printer while holding down the Font and Load/Eject buttons. Once this mode is selected, the printer prints all received data in hexadecimal format.
Demonstration mode	Turn on the printer while holding down the Alt button.
Default setting mode	Turn on the printer while holding down the Economy/ Condensed button. For more information about the mode, see Section 1.4.3.
Initialize EEPROM	Turn on the printer while holding the Alt, Font, Load/Eject, **and** Pause buttons.

1.4.3 Default Settings

The printer can save some printer setting parameters that define its functions at initialization. You can change these parameters by using the printer's default setting mode.

1.4.3.1 Default Setting Items

You can use the default setting mode to change the settings listed in the table below. Activate the default-setting mode by holding down the Economy/Condensed button while turning on the printer.

Table 1-12. Default Setting Items

Menu Contents	Description	Factory Setting
Character table	Selects the character table	-
Print direction	Controls the print direction. (See Tables 1-12 and 1-13) Auto Bi-D Uni-D	-
Network I/F mode	Off: For normal environments. On: For network environments.	off
Auto line feed	On: Valid Off: Invalid	-
Loading position	3.0/8.5 mm (0.12/0.33 in.)	3.0 mm
Interface mode	Auto I/F mode Parallel I/F mode Serial I/F mode Optional I/F mode	-
Auto I/F wait mode	1 0/30 seconds	10 sec.

Table 1-13. Characteristics of Print Direction Mode

ttem	Black and White Printing	Color (CMYK) Printing
Auto	Throughput and quality is better.	Throughput is better. Color quality with special paper is worse. (Color correction depends on the printing direction.)
Bi-D	Throughput is best. Print quality may be down.	Throughput is better. Color quality with special paper is worse. (Color correction depends on the printing direction.)
Uni-D	Throughput is worse. Print quality is better.	Throughput is worse. Color quality is best.

Table 1-14. Printing Direction and ESC U Command

Default Setting Mode	Auto			Bi-D			Uni-D		
	ESC U0	ESC U1	None	ESC U0	ESC U1	None	ESC U0	ESC U1	None
Character mode (for MS-DOS®)	Auto	Auto	Auto	Bi-D	Uni-D	Bi-D	Uni-D	Uni-D	Uni-D
Raster graphics mode (for Windows™)	Bi-D	Uni-D	Auto	Bi-D	Uni-D	Bi-D	Bi-D	Uni-D	Uni-D

Note: *Printing direction is controlled by driver in Windows environment.*

1.4.3.2 Changing the Default Settings

To change the printer's default settings:

a. Hold down the Economy/Condensed button and turn on the printer. The printer pMts a sheet that shows the firmware version and describes how to select the language used to print messages.

b. Press the Font button until the appropriate font LED is selected. The following table shows which language corresponds to which font LED.

Table 1-15. Language Selection

Language	Font LED
English	Courier
Français	Roman T (PS)
Deutsch	Saris Serif H (PS)
Italiana	Roman
Español	Saris Serif

c. Press the Alt button. The printer prints the current settings using the selected language. It also prints a table showing how to change the printer settings.

d. Press the Font button to advance through the setting menu. The current printer settings are indicated by the Courier, Roman T (PS), and San Serif H (PS) LEDs. Each time you press the Font button, you adance to the next setting, and the three font LEDs change according to the selection.

Table 1-16. Feature Selection

Menu				Setting Value			
Feature/Menu	Courier LED	Roman T (PS) LED	Saris Serif H (PS) LED	Setting	Operate LED	Data LED	Paper Out LED
Character table	On	On	On	See Table 1-16			+
Print direction	On	**off**	**off**	Auto	On	**off**	**off**
				Bi-D	**off**	On	**off**
				Uni-D	On	On	**off**
Network I/F mode	**off**	On	**off**	**off**	**off**	**off**	**off**
				On	On	**off**	**off**
Auto line feed	On	On	**off**	**off**	**off**	**off**	**off**
				On	On	**off**	**off**
Loading position	**off**	**off**	On	3 mm	**off**	**off**	**off**
				8.5 mm	On	off	off
interface mode	On	off	On	Auto	On	off	off
				Parallel	off	On	off
				Serial	On	On	off
				Option	Off	**off**	On
Auto I/F wait time	**off**	On	On	10 sec.	**off**	off	off
				30 sec.	On	off	off

e. Change the setting value by pressing Alt button. Pressing the Alt button changes the setting for the current menu. The status **of the LEDs will be changed as the button is pressed,**

Table 1-17. Character Table Selection

Version	Settings	Operate LED	Data LED	Paper Out LED
Common	Italic U.S.A.	off	off	Off
	Italic France	On	Off	off
	Italic Germany	Blinks	off	off
	Italic U.K.	Off	On	off
	Italic Denmark 1	On	On	off
	Italic Sweden	Blinks	On	Off
	Italic Italy	off	Blinks	Off
	Italic Spain 1	On	Blinks	oft
	PC437	Blinks	Blinks	Off
	PC850	Off	off	on
Standard	PC860	On	off	On
	PC863	Blinks	off	on
	PC865	off	On	on
	PC861	On	On	On
	BRASCII	Blinks	On	On
	Abicomp	off	Blinks	On
NLSP	PC437 Greek	off	off	On
	PC853	Blinks	Off	on
	PC855	off	On	on
	PC852	On	On	on
	PC857	Blinks	On	on
	PC866	off	Blinks	On
	PC869	On	Blinks	on
	MAZOWIA	Blinks	Blinks	On
	Code MJK	off	off	Blinks
	ISO *8859-7*	On	off	Blinks
	ISO Latin IT	Blinks	off	Blinks
	Bulgaria	off	On	Blinks

f. Repeat d and e to change other printer settings. The setting menu selection will return to the first menu after the last menu selection is over.

g. Turn off the printer. The setting is stored intonon-volatile memory.

1.4.4 Error Conditions

The printer can detect the various errors and indicate them with the LEDs.

Table 1-18. Error Indications

Error	Data LED	Paper Out LED	No Ink Cartridge LED	Economy LED	Condensed LED	Pause LED
Paper out	off	On	off	off	off	off
No ink cartridge	off	off	On	off	off	off
Paper jam	off	Blinks	off	off	off	off
Maintenance request	Blinks	Blinks	Blinks	Blinks	Blinks	Blinks
Carriage error	Blinks	off	off	off	off	Blinks

INK ABSORBER FULL

1.4.5 Printer Initialization

There are three initialization methods: hardware initialization, software initialization, and panel initialization.

1.4.5.1 Hardware Initialization

Hardware initialization is performed by:

Turning on the printer.

- Sending the parallel interface $\overline{\text{INIT}}$ signal.

(If the $\overline{\text{INIT}}$ signal is active when the printer is turned on, hardware initialization is started when the $\overline{\text{INIT}}$ signal becomes inactive.)

When the hardware initialization is performed:

- The printer mechanism is initialized.

Input data buffer is cleared.
Downloaded character definitions are cleared.
Print buffer is cleared.
Default values are set.

1.4.5.2 Software Initialization

Software initialization is performed upon receipt of the control code ESC @.

When the software initialization is performed:

Print buffer is cleared.
Default values are set.

1.4.5.3 Panel Initialization

This printer is initialized by pressing the Load/Eject button while pressing the Alt button.

When the panel initialization is performed:

Input data buffer is cleared.
Print buffer is cleared.
Default values are set.

1.5 MAIN COMPONENTS

The main components of the Stylus Color are:

- ❑ Printer mechanism (M-4A10)
- ❑ Main control board (C137 MAIN Board)
- ❑ Power supply unit (C137 PSB/PSE Board)
- ❑ Control panel board (C137 PNL Board)
- ❑ Housing

1.5.1 Main Control Board (C137 MAIN Board)

The Main Control Board (C137 MAIN Board) consists of an H8/3003 16-bit CPU, E05A% gate array, a program ROM (4M), a dynamic RAM (4M), a mask ROM (4M or 8M), an EEP-ROM (1K), and a lithium battery for powering the protect counters. The reset IC (M51955 and PST 592) is equipped with both a logic system and a power system. The 8M program ROM is used only for the NLSP (National Language Support Printer) specification.

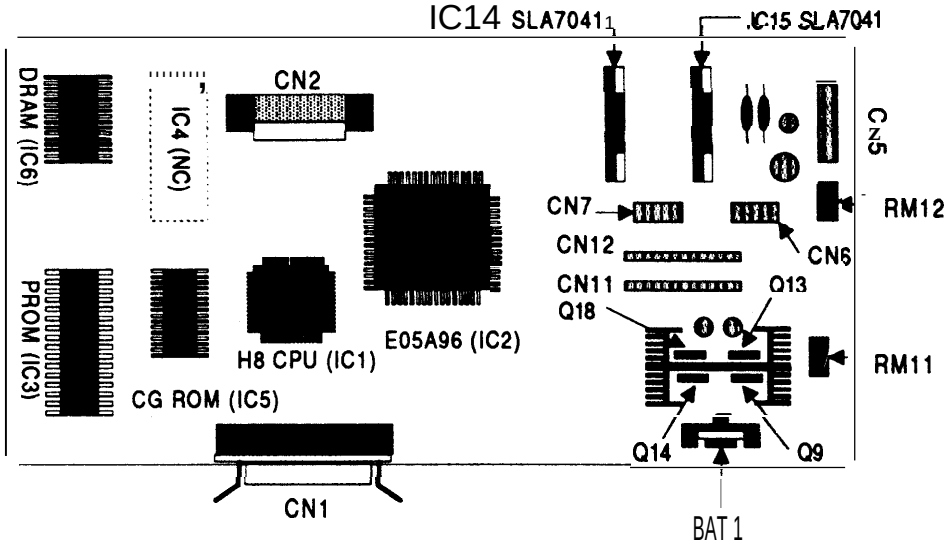

Figure 1-9. C137 MAIN Board Component Layout

1.5.2 Power Supply Board (C137 PSB/PSE Board)

The Power Supply Board (C137 PSB/PSE Board) consists of an RCC switching regulator circuit. This board is equipped with a power switch connected to the secondary circuit. Thus, if the printer is turned off, it can continue to operate in order to eject the paper and perform the head capping operation. The power on/off signal is always monitored by the E05A96 gate array on the C137 MAIN Board, and the logic system recognizes the power switch status.

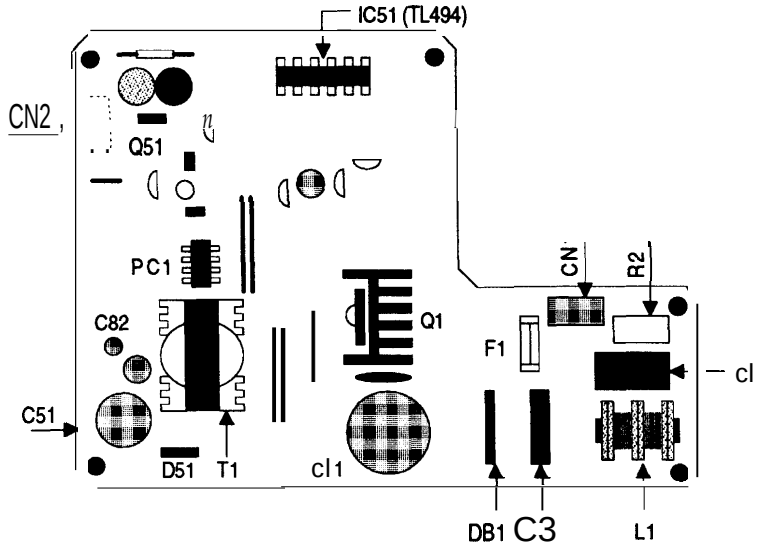

Figure 1-10. C137 PSB/PSE Component Layout

1.5.3 Control Panel (C137 PNL Board)

The 14 LEDs on this board indicate the error status (there is no buzzer system); by using the 6 switches in combination with one another, the printer can operate in each protect operation (color or black cleaning, cartridge exchanging self-test, default setting value exchanging, reset, and EEP-ROM clear operation).

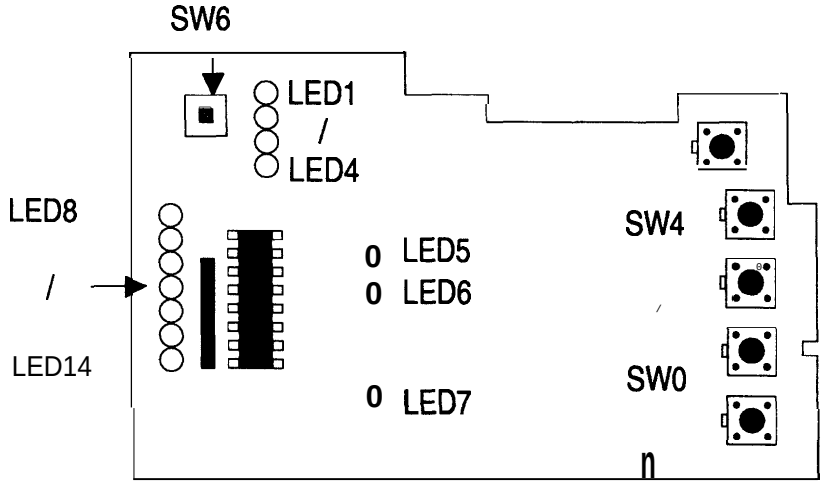

Figure 1-11. C137 PNL Board Component Layout

1.5.4 Printer Mechanism (M-4A10)

The M-4A10 printer mechanism is equipped with a 64-black printhead and M-color (CMY) printhead on the carnage unit. Resolution of 720 dpi is possible with special (non-absorbent) paper.

The ink system has both a black pump unit and a color pump unit. Waste ink from each printhead is made to flow into the individual caps. Power for the pump system and paper feed system is supplied from the paper feed motor.

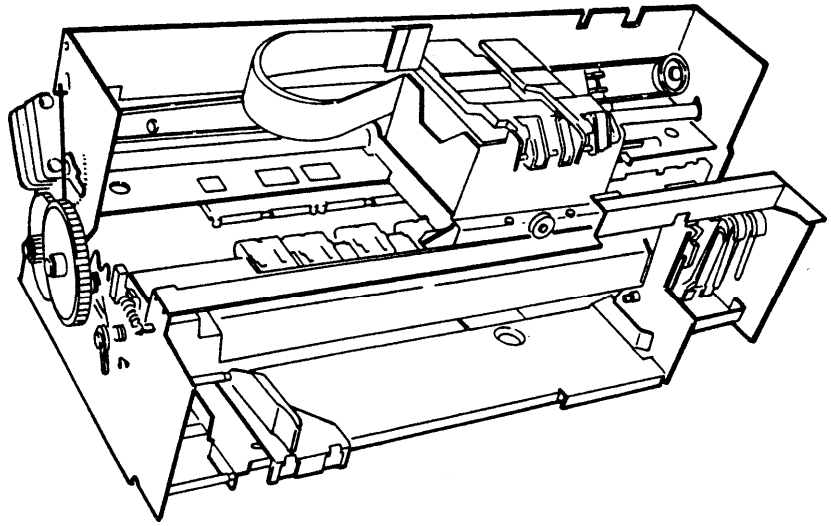

Figure 1-12. Printer Mechanism (M-4A10)

1.5.5 Housing

The Stylus Color housing consists of the printer cover, uppercase, and the lowercase. Attached to the housing are the front paper support and the ejected paper support with paper separator.

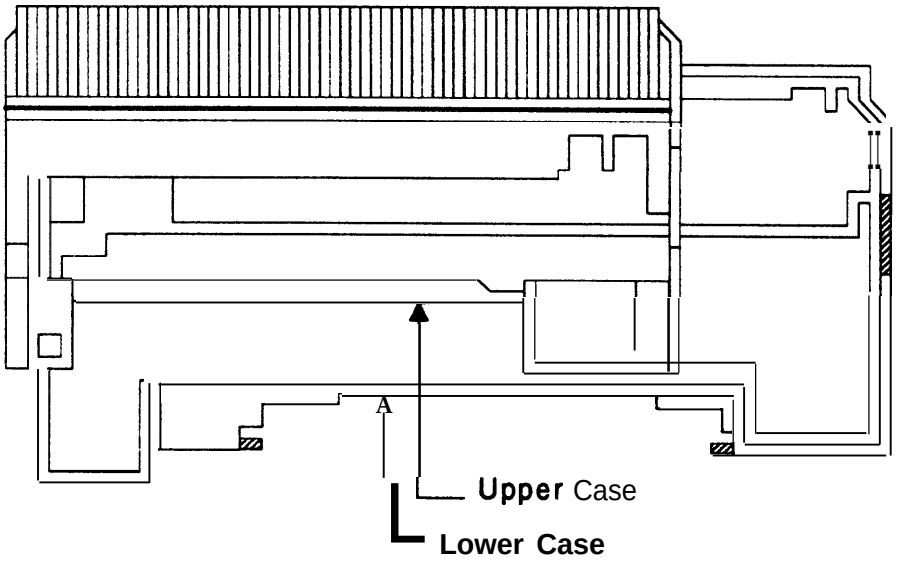

Figure 1-13. Housing

Chapter 2 Operating Principles

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