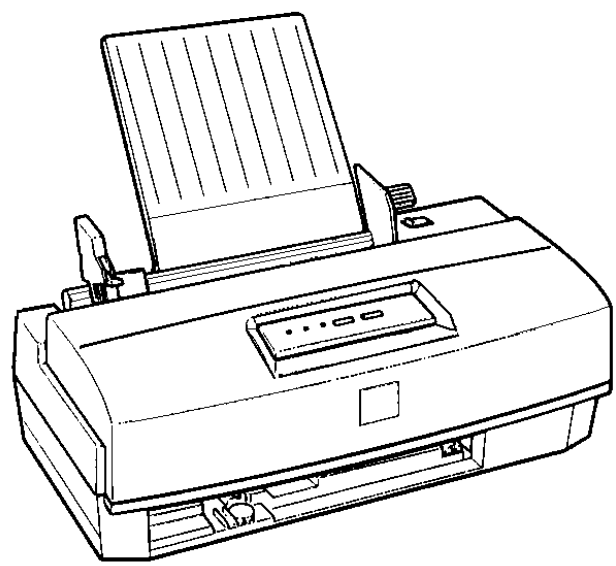
EPSON TERMINAL PRINTER

EPSON/Stylus Color 200
EPSON/Stylus 200

SERVICE MANUAL



EPSON

Rev.A
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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 resoinsibility for any errors in this manual or the consequence thereof.

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PRECAUTIONS

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

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

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

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

DANGER

1. ALWAYS DISCONNECT THE PRODUCT FROM THE POWER SOURCE AND PERIPHERAL DEVICES PERFORMING ANY MAINTENANCE OR REPAIR PROCEDURE.
2. NOWORK SHOULD BE PERFORMED ON THE UNIT BY PERSONS UNFAMILIAR WITH BASIC SAFETY MEASURES AS DICTATED FOR ALL ELECTRONICS TECHNICIANS IN THEIR LINE OF WORK.
3. WHEN PERFORMING TESTING AS DCTATED 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 THATTHE SOURCE VOLTAGES IS THE SAME AS THE RATED VOLTAGE, LISTED ON THE SERIAL NUMBER/RATING PLATE. IF THE EPSON PRODUCT HAS A PRIMARY AC RATING DIFFERENT FROM AVAILABLE POWER SOURCE, DO NOT CONNECT IT TO THE POWER SOURCE.
3. ALWAYS VERIFY THAT THE EPSON PRODUCT HAS BEEN DISCONNECTED FROM THE POWER SOURCE BEFORE REMOVING OR REPLACING PRINTED CIRCUIT BOARDS AND/OR INDIVIDUAL CHIPS.
4. IN ORDER TO PROTECT SENSITIVE MICROPROCESSORS AND CIRCUITRY, USE STATIC DISCHARGE EQUIPMENT,SUCH AS ANTI-STATIC WRIST STRAPS, WHEN ACCESSING INTERNALCOMPONENTS.
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 Epson Stylus Color 200 /Epson Stylus 200.
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 the 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	Contents
Rev.-A	July 15,1996	1st issue

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Chapter 1 Product Description

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1.1 FEATURES

The Epson Stylus Color 200/Epson Stylus 200 printer are color ink jet dot matrix printers that come with a 64-nozzle black printhead and a 60-nozzle CMY color printhead, either of which can be installed in the printer. The Epson Stylus 200 version comes standard with only the 64-nozzle black printhead; however, the CMY color printhead can be purchased as an optional upgrade. Whenever this manual mentions the Epson Stylus Color 200, its descriptions are equally applicable to the Epson Stylus 200. The major printer features are:

- ❑ High-quality color print
  - -720 dpi printing
  - -720 dpi printing on plain paper
  - -720, 360 dpi printing on special coated paper
  - (Use the monochrome head only with plain paper)
- ❑ High-speed print(10CPI)

  Monochrome head: 125cps (LQ)
  167cps(HS)
  CMY head: 200cps(LQ/one-pass printing)

Note: The CMY head prints 360 dpi printing in three passes.

- ❑ Built-in auto sheet feeder
  - -Cut sheets
  - -Transparency films (A4 and letter)
  - -Envelopes (10 sheets)
  - -Plain papers (100 sheets,64g/m2)
- ❑ Built-in I/F
  - -Parallel I/F only (8-bit parallel: IEEE P1284 mode)
- ❑ Easy setup
  - -No DIP switches
- ❑ 3 scalable fonts and 3 LQ fonts standard
  - -Roman T, Sans Serif H, Roman, Sans Serif (scalable)
  - -Roman, Sans Serif, Courier, (bitmapLQ)
- ❑ Character tables
  - -9 character tables (standard version)
  - -15 character tables (NLSP version)
- ❑ Low running cost

The figure below shows the EPSON Stylus Color 200.

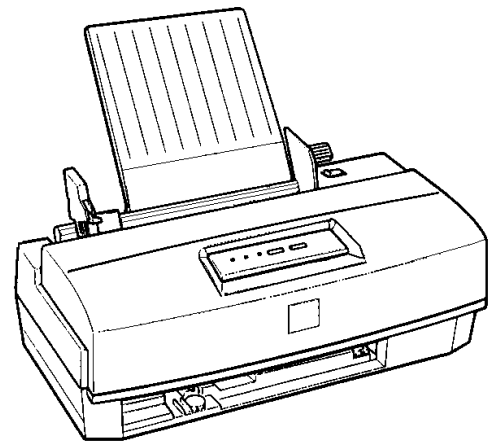

Figure 1-1. Exterior Viewing of EPSON Stylus Color 200

1.2 SPECIFICATIONS

This section provides statistics and other detailed information for the printer.

1.2.1 Printing Specifications

Print system: On-demand ink jet system

Nozzle configuration: 64 nozzles (10 × 2 + 11 × 4 standard): monochrome
60 nozzles (20 × 3 standard): color

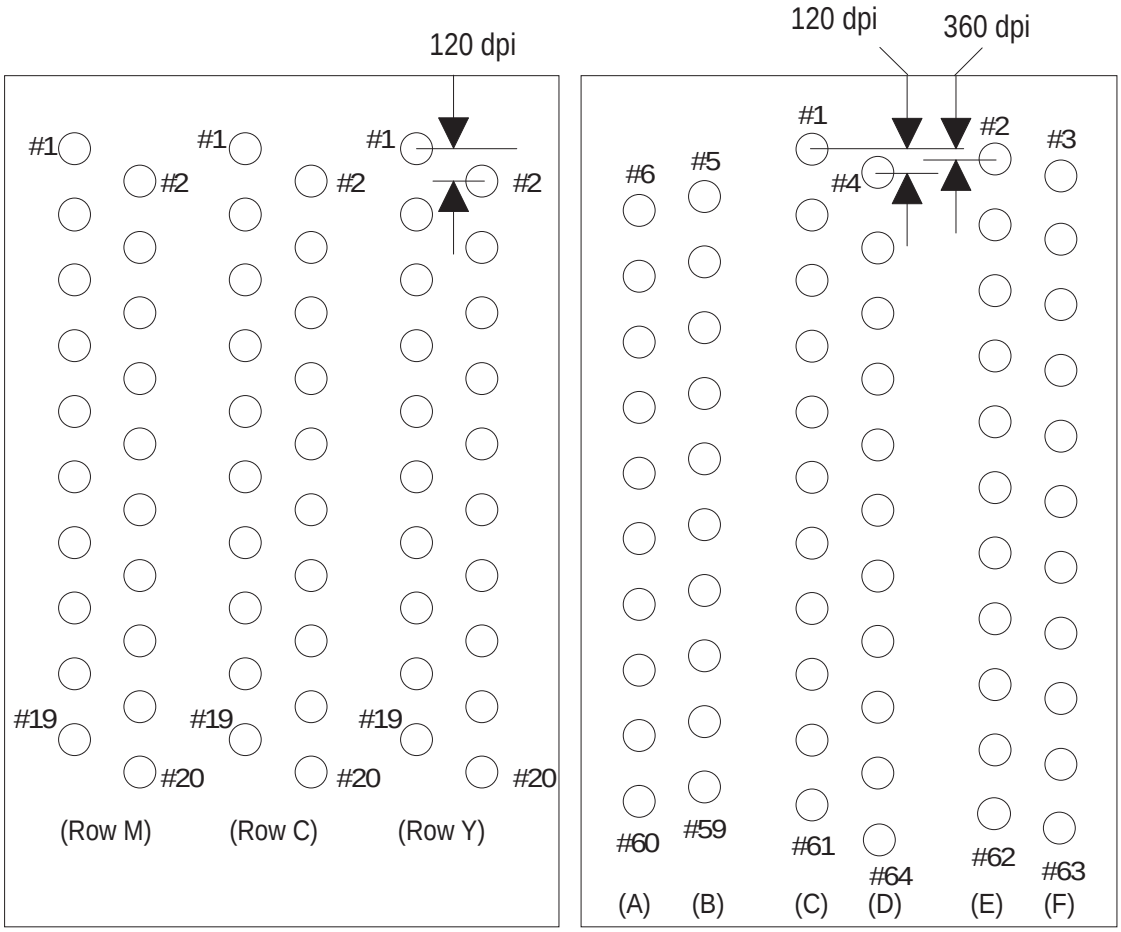

Figure1-2. Nozzle Configuration

Printing direction: Bidirectional with logic-seeking

Table 1-1. Print Speed and Printable Columns

Character Pitch	Printable Columns	Printing Speed (cps)		
		Monochrome (Normal)	Monochrome (Draft)	CMY
10 cpi (Pica)	80	125	167	200
12 cpi (Elite)	96	150	200	240
15 cpi	120	188	250	300
17 cpi (Pica condensed)	136	214	285	342
20 cpi (Elite condensed)	160	250	333	400

Character tables: Legal and 14 international sets

Table 1-2. Character Tables

Character Tables		Bitmap Fonts	Scalable Fonts	
		EPSON Roman EPSON Sans Serif EPSON Courier	EPSON Roman EPSON Sans Serif	EPSON Roman T EPSON Sans Serif H
Standard	Italic	Supported	Supported	Supported
	PC437 (U.S./Standard Europe)			
	PC850 (Multilingual)			
	PC860 (Portuguese)			
	PC861 (Icelandic)			
	PC863 (Canadian-French)			
	PC865 (Nordic)			
	Abicomp			
	BRASCII			
NLSP	Italic	Supported	Supported	Supported
	PC437 (U.S./Standard Europe)			
	PC850 (Multilingual)			
	PC437 (Greek)	Supported	Supported	Not supported
	PC852 (East Europe)			
	PC853 (Turkish)			
	PC855 (Cyrillic)			
	PC857 (Turkish)			
	PC866 (Russian)			
	PC869 (Greek)			
	MAZOWIA (Poland)			
	Code MJK (Czecho/Slovakia)			
	ISO 8859-7 (Latin/Greek)			
	ISO Latin 1T (Turkish)			
	Bulgaria (Bulgaria)			

Fonts: Bitmap LQ fonts
- EPSON Roman (10 cpi/12 cpi/15 cpi/Proportional)
- EPSON Sans Serif (10/12/15/Proportional)
- EPSON Courier (10/12/15)

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

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

Input data buffer: 2.5Kbyte to 15Kbyte

1.2.2 Paper Handling Specifications

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

Line spacing: *1/6 inch feed or programmable in 1/360 inch minimum increments.*

Paper path: *Cut sheets are fed from the built-in auto sheet feeder (ASF).*
Top in and front out.

Feeding speed: *102 msec. (at 1/6-inch feed pitch).*

1.2.3 Paper Specifications

Table 1-3. Paper Specifications

		Cut Sheets			Envelopes	+
^		Transparencies				^
^		A4	**Letter**	**Legal**	**No. 10**	**DL**
PW	**Width**	210 mm	216 mm	216 mm	240 mm	220 mm
PL	**Length**	297 mm	279 mm	358 mm	104 mm	110 mm
LM	**Left margin**	3 mm or more	3 mm or more	3 mm or more	3 mm or more	3 mm or more
RM	**Right margin**	3 mm or more	3 mm or more	10 mm or more	33.8 mm or more	13.8 mm or more
TM	**Top margin**	3 mm or more	3 mm or more	3 mm or more	3 mm or more	3 mm or more
BM	**Bottom margin**	14 mm or more	14 mm or more	14 mm or more	14 mm or more	14 mm or more

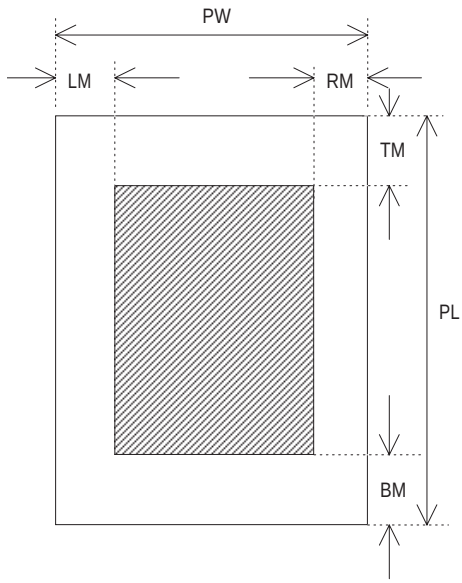

Figure 1-3. Printable Area

The adjust lever on the upper case must be set to the proper position for the paper thickness, as shown in Table 1-4.

Table 1-4. Adjust Lever Settings

Paper	**Lever Position**	**Paper Thickness**
Cut Sheets	Front (0 position)	0 mm
Envelops	Rear (+position)	0.62 mm

Also the paper select lever on the upper case must be set to the proper position for the paper varieties shown in Table 1-5.

Table 1-5. Paper Select Lever Settings

		Specifications for the Medium	+
PF Mode		Cut Sheets	**Envelopes Postcards**
^	Lever Position		^
ASF Feed	**Thick paper (Rear)**	NO	OK
^	Thinner paper (Front)	OK	NO
Manual Feed	**Thick paper (Rear)**	OK	OK

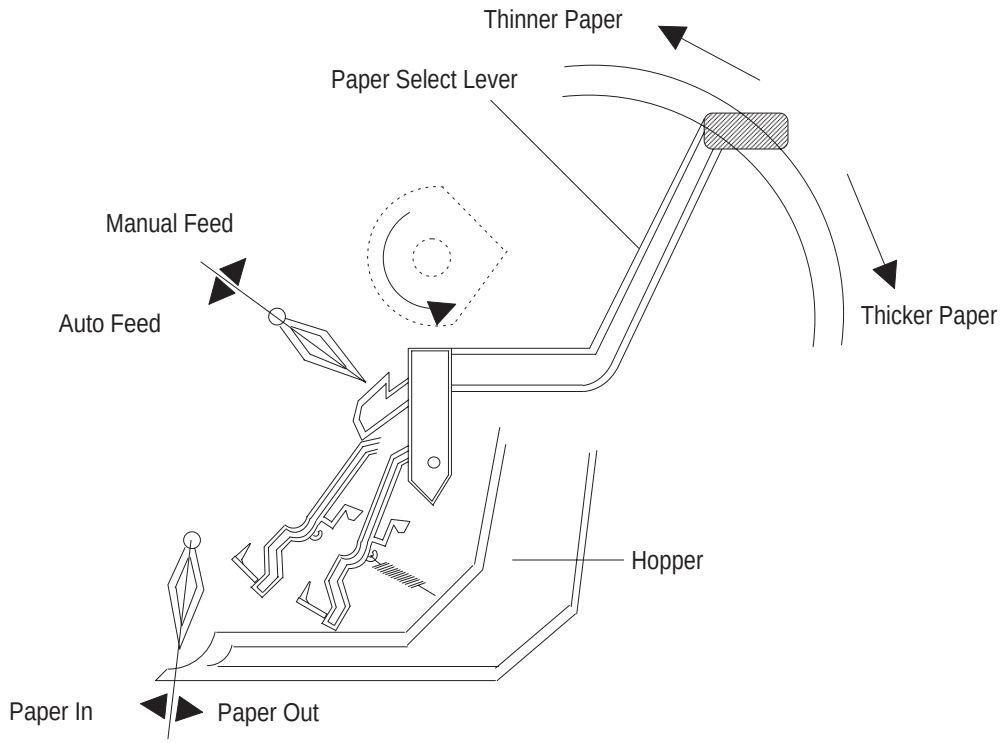

Figure 1-4. Paper Select Error

^	Thinner paper (Front)	NO	NO

Note: "OK" means paper can be used and "NO" means paper cannot.

1.2.4 Ink Cartridge Specifications

Table 1-6. Black I/C Specifications

Item	Specifications
Type	Exclusive cartridge
Color and Weight	Approximately 54 g (internal ink weight is 36 g ± 0.5 g)
Ink Life	Black, High-quality ink produces 800 thousand characters
Validity	2 years (sealed in package) / 6 months (out of package)
Storage Temperature	❏ –30 to 40° C (-22 ~ 104° F) (Storage: a month or less at 40° C (104° F)) ❏ –20 to 40° C (-15 ~ 104° F) (Transit: a month or less at 40° C (104° F)) ❏ –30 to 60° C (-22 ~ 140° F) (Transit: 120 hours or less at 60° C (140° F))
Dimensions	30.0 (W) × 58.0 (D) × 38.5 ± 0.3 (H) mm

Table 1-7. Color I/C Specifications

Item	Specifications
Type	Exclusive cartridge
Color and Weight	Cyan, Magenta, Yellow. Approximately 75 g (internal ink weight is 12.8 g ± 0.5 g)
Ink Life	100% solid pattern: A4 — 16 sheets / each color
Validity	2 years (sealed in package) / 6 months (out of package)
Storage Temperature	❏ –30 to 40° C (-22 ~ 104° F) (Storage: a month or less at 40° C (104° F)) ❏ –20 to 40° C (-15 ~ 104° F) (Transit: a month or less at 40° C (104° F)) ❏ –30 to 60° C (-22 ~ 140° F) (Transit: 120 hours or less at 60° C (140° F))
Dimensions	42.9 (W) × 56.5 (D) × 38.5 ± 0.3 (H) mm

1.2.5 Electrical Specifications

Table 1-8. Rated Electrical Ranges

Specification	**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	0.5 A	0.3 A
Power consumption	Approx. 15 W (self-test with 10-cpi LQ characters)	Approx. 15 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 for 1 minute or 1200 VAC rms for 1 second (between AC line and chassis)	1500 VAC rms for 1 minute (between AC line and chassis)

1.2.6 Environmental Conditions

Table 1-9. Acceptable Environmental Conditions

Condition	**Operating**	**Non Operating**
Temperature	10 ~ *35° C (50 ~ 95° F)* **1*	*–20 ~ 60° C (–4 ~ 122° F)* **2*
Humidity	20 ~ *80% RH* **1, 3*	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 printer operation, conditions must be in the range shown in the figure below.*
**2 : These conditions are applicable when the printer is in its shipping container.*
**3 : Without condensation.*

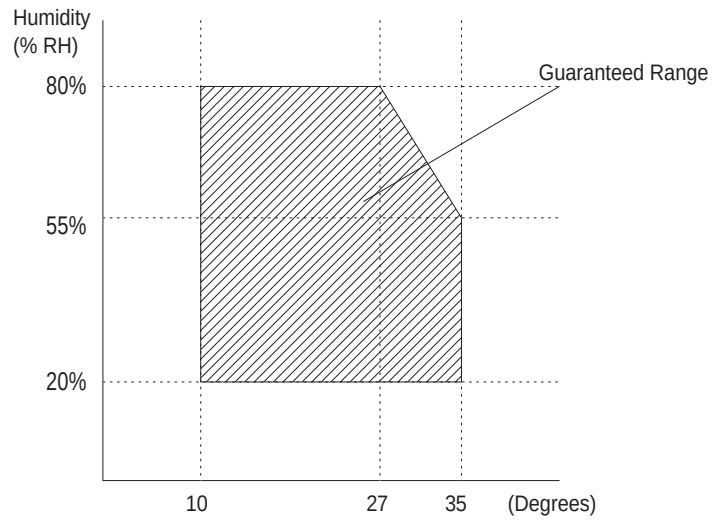

Figure 1-5. Temperature/Humidity of Range

1.2.7 Reliability

Total print volume:	25,000 pages (A4, letter)
MTBF:	4000 POH (Duty 7%)
MCBF:	1 million pass (except print head)
Printhead life:	1000 million dots/nozzle (color and monochrome)

1.2.8 Safety Approvals

Safety standards:	120 V version:	UL1950 with D3, CSA C22.2 # 950 with D3
	220-240 V version:	EN 60950 (TÜV, SEMKO, DEMKO, NEMKO, SETI)
Radio frequency interference (RFI):	120 V version:	FCC Part 15 Subpart B Class B
	220-240 V version:	Vfg.243 (VDE0878 part 3, part 30) EN55022 (CISPR PUB. 22) class B CSA C108.8

1.2.9 Acoustic Noise

Level:	Approximately 45 dB (A) (Per ISO 7779)

1.2.10 Physical Specifications

Dimensions (W × D × H):	396.7 mm (W) × 205.6 mm (D) × 149.0 mm (H)
Weight:	About 3.9 kg (8.6 lb.), excluding head and ink cartridge

1.3 INTERFACE SPECIFICATIONS

The EPSON Stylus Color 200/EPSON Stylus 200 is standard-equipped with an 8-bit parallel and serial interface.

1.3.1 Parallel Interface Specifications (Forward Channel)

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 (IEEE-1284 level 1 device)

Adaptable connector: 36-pin 57-30360 (Amphenol) or equivalent

Data transmission timing: See Figure 1-6.

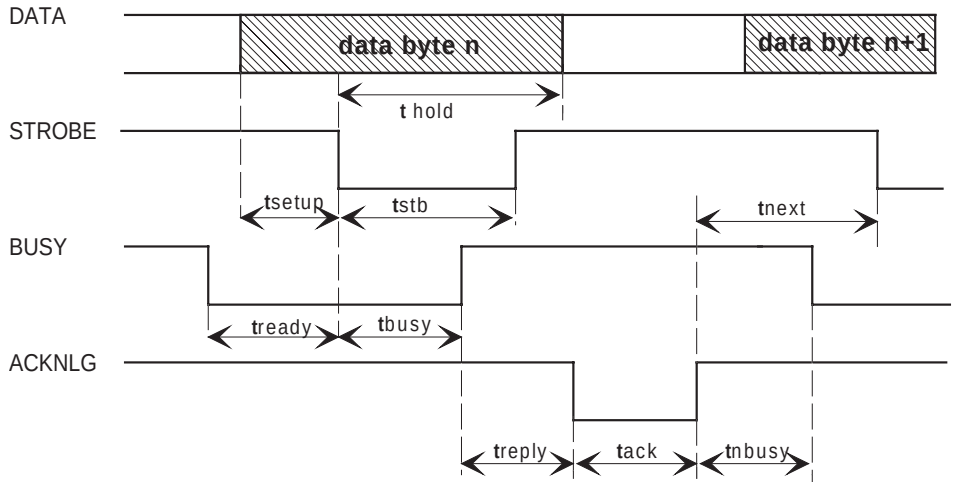

Figure 1-6. Data Transmission Timing

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

Parameter	Minimum	Maximum
tsetup	500 nsec	——
thold	500 nsec	——
tstb	500 nsec	——
tready	0	——
tbusy	——	500 nsec
treply	——	——
tack	500 nsec	10 us
tnbusy	0	——
tnext	0	——
ttout*	——	120 nsec
ttin**	——	200 nsec

* Rise and fall time of output siganls

** Rise and fall time of input signals

Table 1-10 and 1-11 shows the connector pin assignments and signal functions of the 8-bit parallel interface.

Table 1-10. Signal and Connector Pin Assignments for Parallel Interface

Pin No.	Signal Name	I/O*	Description
1	-STROBE	I	Strobe pulse. Input data is latched at falling edge of the signal.
2-9	DATA 1-8	I	Parallel input data to the printer. bit 0:LSB
10	-ACKNLG	O	This signal (negative pulse) indicates that the printer has received data and is ready to accept next one.
11	BUSY	O	This signal's high level means that the printer is not ready to accept data.
12	PE	O	This signal's hugh level means that the printer is in a state of paper-out error.
13	SLCT	O	Always at high level when the printer in powered on.
14	-AFXT	I	Not used
31	-INIT	I	This signal's negative pulse initializes printer.
32	-ERROR	O	This signal's low level means the printer is in a state of error.
35	+5 V	—	Pulled up to +5 V through 1.0 KΩ resistor in the printer.
36	-SLIN	In	Not used.
17	CHASSIS	—-	Chassis ground
18	Logic H	O	Pulled up to +5V through 3.9 KΩ resistor.
16,33 19-30	GND	—	Signal ground.
15,34	NC	—-	Not connected.

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

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

-During data reception(See Figure 1-6)

-When the input buffer is full

-When the-INIT input signal is active (low level)

-During the hardware initialization

-When the-ERROR or PE signal is active

- During the self-test mode

-During the default setting mode

The -ERROR signal is active(LOW) under the following conditions:

-When a paper-out error occurs

-When a no ink catridge error occurs

-When a fatal error occurs

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

-When a paper-out error occurs

1.3.2 Parallel Interface (Reverse channel)

Transmission mode IEEE-1284 nibble mode

Adapatable connector 57-30360 (Amphenol) or equivalent

Snynchronization Refer to the IEEE-1284 specification

Handshaking Refer to the IEEE-1284 specification

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

Data transmission timing Refer to the IEEE-1284 specificatin

Extensibility request The printer responds to the extensibility request in the affirmative, when the request is 00Hor 04H, which mean;

00H: Request nibble mode of reverse channel transfer

04H: Request device ID in nibble mode of reverse channel transfer

Device ID Standardcolor version

[00H] [3BH].....MFG: EPSON, CMD: ESCPL2-00

MDL: Stylus[SP] COLOR[SP]200, CLS: Printer

Standard monochrome version

[00H] [35H].....MFG:EPSON, CMD: ESCPL2-00

MDL:Stylus [SP}200, CLS: Printer

Table1-11. Pin Assignment for Reverse channel

Pin No.	Signal Name	I/O*	Description
1	HostClk	I	Host clock signal
2-9	DATA 1-8	I	Parallel Input data to the printer. bit 0:LSB bit 7:MSB
10	PtrClk	O	Printer clock signal.
11	PtrBusy / DataBit-3,7	O	Printer busy signal and reverse channel transfer data bit 3or7.
12	AckDataReq / DataBit-2,6	O	Acknowledge data request signal and reverse channel transfer data bit 2 or 6.
13	Xflag / DataBit-1,5	O	X-flag signal and reverse channel transfer data bit 1 or 5.
14	HostBusy	I	Host busy signal
31	-INIT	I	Not used
32	-Data Avail / DataBit-0,4	O	Data available signal and reverse channel transfer data bit 0 or 4.
36	1284-Active	I	1284 active signal.
18	Logic-H	O	This line is pulled up to +5 V through 3.9 KΩ resistor.
35	+5V	O	This line is pulled up to +5V through 1.0 KΩ resistor.
17	Chassis	—-	Chassis GND.
16,33 19-30	GND	—	Signal ground.
15,34	NC	—-	Not connected.

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

1.4 OPERATIONS

This section describes the basic operations of the printer.

1.4.1 Control Panel

The control panel for this printer has 2 non-lock-type push buttons, and 3 LED indicators for easy operation of the various printer functions.

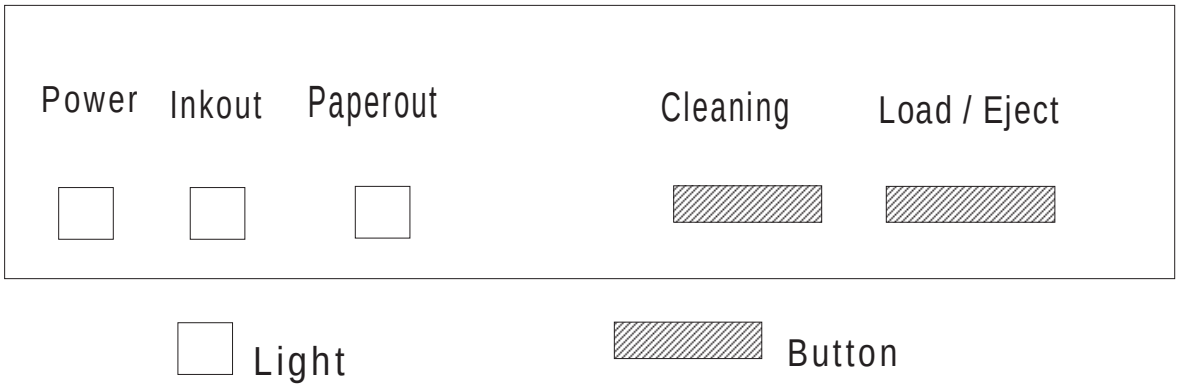

Figure1-7. Control Panel Appearance

1.4.2 Panel Operation and Built-in Function

You can activate the following modes by doing the procedure in table 1-11 and 1-12.

Table 1-12. Panel Operation

Button	**Operations**	**+**
^	Single Button Operations	**+**
^	Pressed and released	Held down 3 seconds
Cleaning	**Cleaning head**	No Function
Load/Eject	**Load/Eject Exits from Ink Cartrige changing mode**	Enters to Ink Cartrige changing mode

Table 1-13. Built-in Functions on the Panel

Button		Function
1’st switch **Switch pushed with power on and release**	2’nd switch Switch pushed within 3 seconds after power on	^
Cleaning	———	Self test
Load/Eject + Cleaning	———	Default Setting
Cleaning	Load /Eject	Data dump
Load/Eject	———	Demonstration
Load/Eject + Cleaning	Load/Eject	Default Setting (without the sheets)
Load/Eject + Cleaning	Load/Eject *Hold down both buttons over 10 seconds until Ink Out and Paper Out light blink	Clear EEPROM
Load/Eject	Cleaning	Non-smear printing
Load/Eject + Cleaning	Load/Eject + Cleaning *Hold down both buttons over 10 seconds until Ink Out and Paper Out light blink	Clear user-setting on EEPROM
Other combinations	Other combinations	Not available

Table 1-14. Button Operations in Default Setting Mode

Button	**Function**
Load/Eject	Move through each menu
Cleaning	Select

Table 1-15. Error Indications

Printer Status	**Indicators**		+
^	Power	**Inkout**	**Paperout**
Ink low (printable)	On	Blinks	—-
Ink out (unprintable)	On	On	—-
Paper out	On	—-	On
Paper Jam	On	—-	Blinks
Replacing head/ink or During ink sequence	Blinks	—-	—-
No cartridge	On	On	——
No head	On	Blink (rapidly)	——
Carriage control error or Fatal Error	Blinks	On	On
Maintenance request	Blinks	Blinks	Blinks

1.4.3 Default Settings

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

1.4.3.1 Default Setting Items

You can use default setting mode to change settings listed in the table below. Activate default-setting mode by holding down the Load/Eject and Cleaning buttons while turning on the printer.

Table 1-16. Default Setting Items

Item	Selections		+
Character Tables	Standard Version		+
^	Italic USA Italic France Italic Germany Italic UK Italic Denmark Italic Sweden	Italic Italy Italic Spain **PC437** **PC850** **PC860** **PC863**	PC865 PC861 BRASCII Abicomp
^			^
^			^
^	NLSP Version		+
^	Italic USA Italic France Italic Germany Italic UK Italic Denmark Italic Sweden Italic Italy Italic Spain	**PC437** **PC850** **PC853** **PC857** **PC437 Greek** **PC855** **PC866** **PC852**	PC869 ISO 8859-7 ISO Latin 1T MAZOWIA Code MJK Bulgaria
Typestyles	Roman Sans Serif **Courier** **Roman T (PS)** **Sans Serif H (PS)**		+
Character Pitches	**10 CPI (10 CPI, Condensed off)** **12 CPI (12 CPI, Condensed off)** **15 CPI (15 CPI, Condensed off)** **17.1 CPI (10 CPI, Condensed on)** **20 CP I(12 CPI, Condensed on)** **Proportional (PS, Condensed off)**		+
Print Direction	**Auto** **Bidirectional** **Uni-directional**		+
Network I/F Mode	**Off (Usual environment)** **On (Network environment)**		+

Table 1-17. Default Setting Items (Continued)

Item	Contents
Auto line feed	**Off** **On**
Loading position	**8.5 mm** **3 mm**
Thick paper	**Envelopes** **Index card (portrait)**

Note: **The underlined value is the factory setting.**

1.4.3.2 Changing the Default Settings

User is requested to operate 2 buttons watching 3 lights on the control panel. The lights turn on and off, and blink in one or the patterns described in the guidance sheets (language selection sheet and printer setting sheet) which are printed out at first in the setting mode. Please refer these sheets for the feature and character selection.

This setting modes uses 3 types of menu as follows;

Language menu: list of the langrages to be used for the printer setting sheet
Main menu : list of items to be set (ex."CG table","Auto line feed")
Submenus : list of value/setting of the each item (ex."PC437", "ON")

1. **Hold down the** Load/Eject + Cleaning **b**utton a**nd turn on the printer. The printer outputs a sheet that describes how to select the language used to print messages.**
2. **Power, InkOut and PaperOut LED indicate the top item(English) on "Language Menu". You can select a language by pressing the Cleaning button.(See Table 1-16.)**

Table 1-18 Language Selection

	Power	InkOut	PaperOut
English	**On**	Off	Off
Français	**Off**	On	Off
Deutsch	**On**	On	Off
Italiano	**Off**	Off	On
Español	**On**	Off	On

3. **Press** Load/Eject **button, the setting sheet is printed out in the language. This selection of language is not stored.**
4. **Power, InkOut and PaperOut indicate the top** item on **"main menu". You can selsect menu by the Cleaning button.**
5. **Press** Load/Eject **button, then printer changes the indication to the "submenu" of the selected item.**
6. Power, InkOut and PaperOut **indicate the current setting/value on the submenu. You can selet setting/value by the Cleaning button.**
7. **Press** Load/Eject **button, then printer memorize the last setting/value and changes its indication to the main menu.(back to 2)**

   The other items can be changed in the seme manner.

*** In case the setting mode is activated with"without the sheets" option, the sequence 1and 2 are going to be skipped.**

1.4.4 Error Conditions

The printer can detect various errors and indicate them with LEDs. Refer to Table 1-14.

1.4.5 Printer Initialization

There are three initialization methods: power-on initialization, software initialization and operator initialization.

1.4.5.1 Power-On Initialization

This initialization of this level is activated by power-on or cold-reset command(remote RS command). This initialization is:

-to initialize the printer mechanism.
-to execute Operator initialization.

1.4.5.2 Software Initialization

This initialization of this level is activated by the control code ESC @**. This initialization is:**

- **-to clear the unprinted data.**
- **-to make the printer's setting defaults.**

1.4.5.3 Operator Initialization

The initialization of this level is activated by-INIT signal (negative pulse), reset operation through panel or head replacement between monchrome and color.

- **- to clear all data in the print buffer**
  - to cancel the download character definition.
  - to make the printer stand-by state, if no errors occur.
  - to execute Software initialization.

1.5 MAIN COMPONENTS

The main components of the Stylus Color IIs are:

- ❏ **Printer mechanism (M-4C11)**
- ❏ **Main control board (C199 MAIN Board)**
- ❏ **Power supply unit (C160 PSB/PSE Board)**
- ❏ **Control panel board (C160 I/F Board)**
- ❏ **Housing**

1.5.1 Main Control Board (C199 MAIN Board)

The main control board (C199 MAIN Board) consists of an M37721S2BP 16-bit CPU. The E05B32 gate array operates with 25MHz clock speed and controls various memories. The CR motor and PF motor are controlled directly by the CPU.

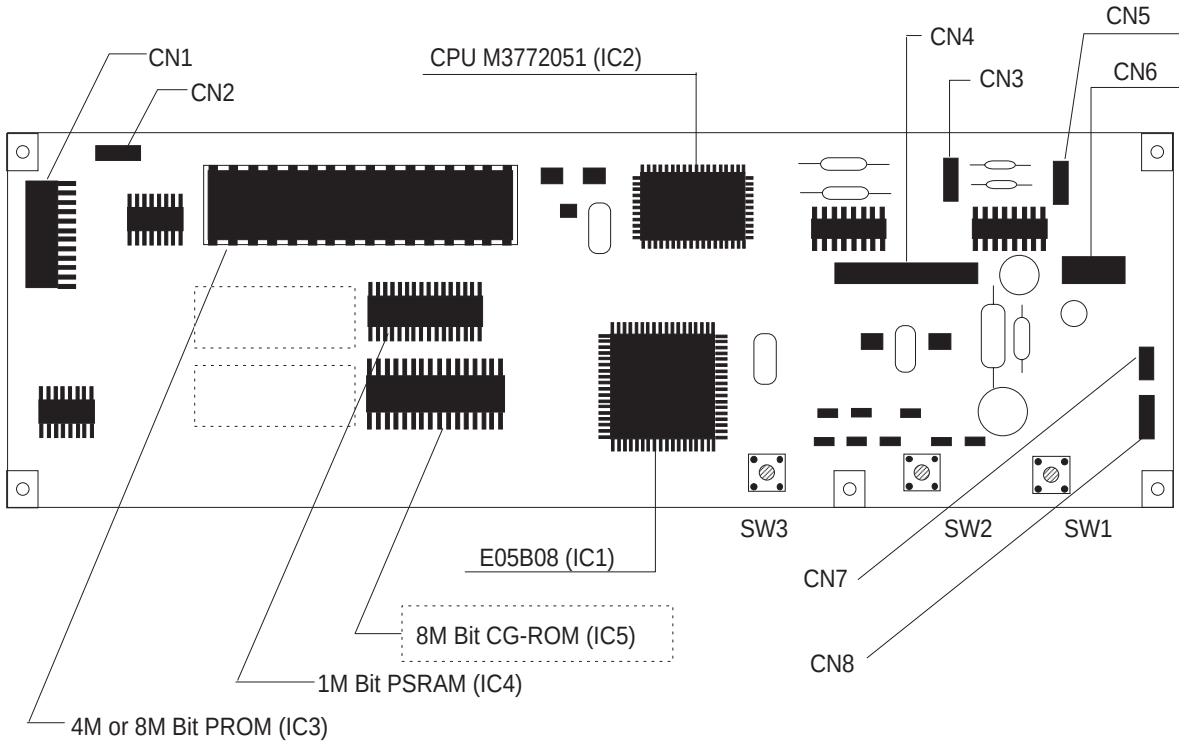

Figure 1-8. C199 Main Control Board Component Layout

1.5..2 Power Supply Board (C160 PSB/PSE Board)

The power supply board (C160 PSB/PSE Board) consists of an RCC switching regulator circuit. This board does not have a power switch connected to the secondary circuit like the Stylus Color series. Thus, if the printer is turned off, it cannot continue to operate in order to perform the head capping operation.

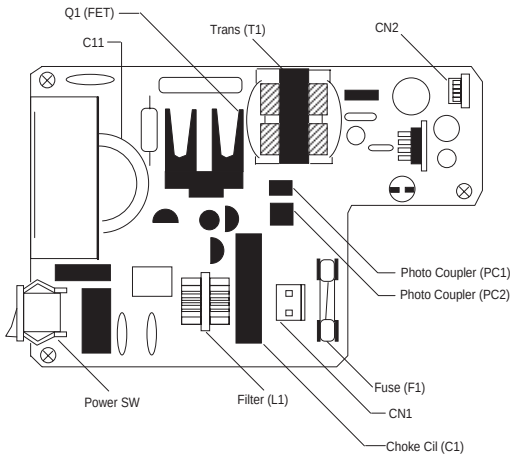

Figure 1-9. C160 PSB/PSE Board Component

1.5.3 Interface Board (C160 I/F Board)

There is an exclusive interface board to receive/transmit print data between the host computer and printer.

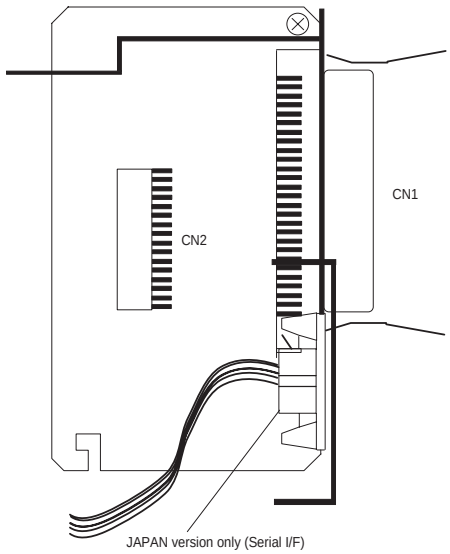

Figure1-10. C160 I/F Board Component Layout

1.5.4 Printer Mechanism (M-4C11)

The M-4C10 printer mechanism is equipped with a replaceable 64-nozzle black printhead and 60-nozzle color (CMY) printhead, and it can print at a high resolution (720 dpi) using the special coated paper.

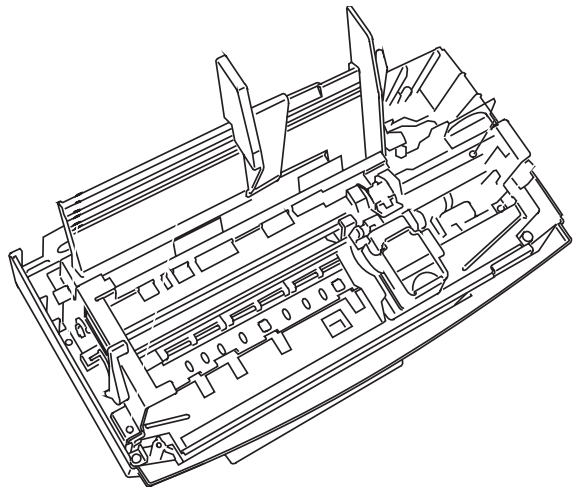

Figure 1-11.M-4C11 Printer Mechanism

1.5.5 Housing

The Epson Stylus Color 200/Epson Stylus 200 housing consists of the printer cover, upper case, and lower case. Attached to the housing are the front paper support and ejected paper support with paper separator.

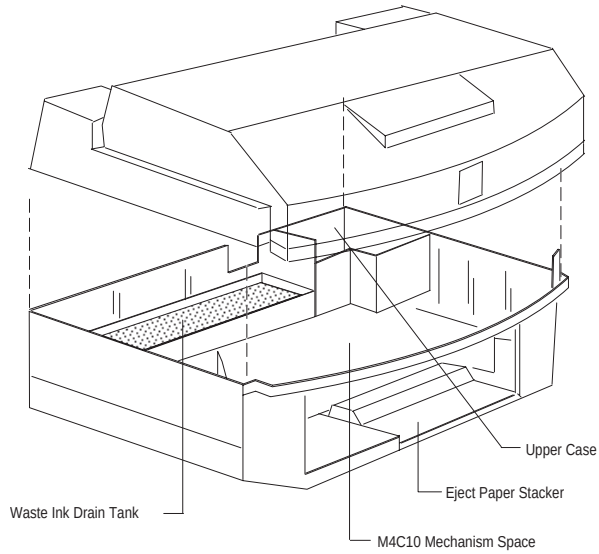

Figure 1-12. Housing Component Layout

Chapter 2 Operating Principles

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2.1 OVERVIEW

Since the printer mechanism of the EPSON Stylus COLOR 200 is the same as for the EPSON Stylus COLOR IIs, this section only describes the differences in electrical circuitry.

2.1.1 C199 MAIN BOARD

The main control board for the EPSON Stylus COLOR 200 is the C199 MAIN board. The major difference between the electrical circuitry of the C199 MAIN board and C160 MAIN board (used in the EPSON Stylus COLOR IIs) is that the new board incorporates a new CR drive circuit. The figure below shows a block diagram of the C199 MAIN board circuitry.

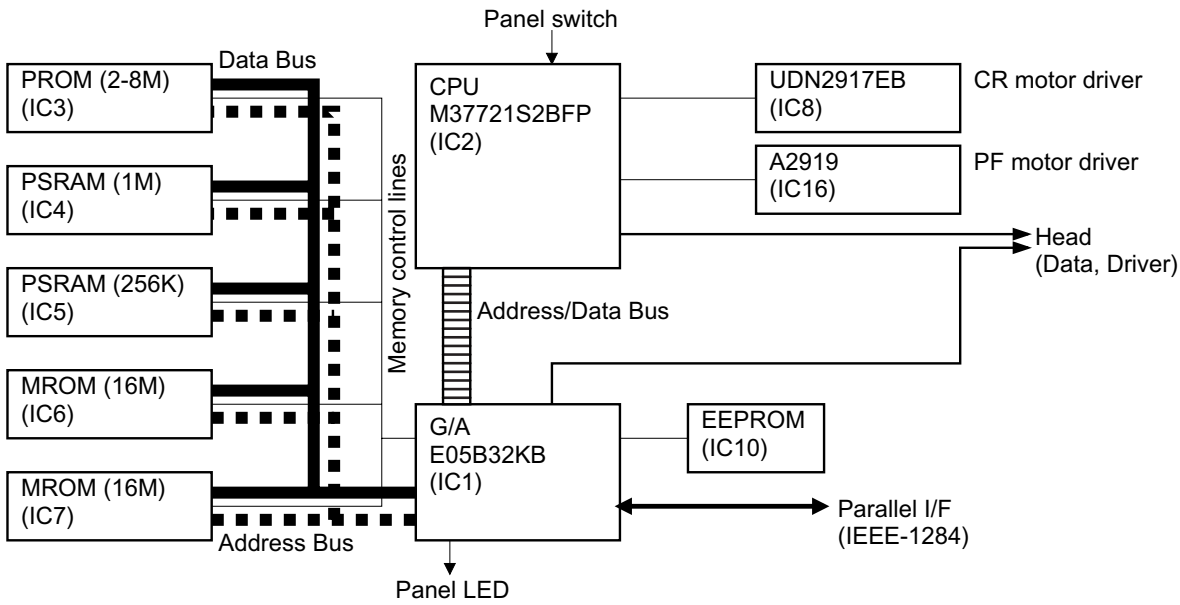

Figure 2-1. C199 MAIN Board Block Diagram

2.1.1.1 Carriage Motor Driver Circuit

Carriage motor driver IC UDN2917EB (IC8) outputs a constant current to drive the carriage motor. CPU M3772152BFP (IC2) determines the motor phase and speed, and then sends a signal to the UDN2917EB carriage motor driver IC (IC8) via a 4-bit signal transmission line. The carriage motor is controlled by a 2W1-2 phase drive method. The figure below shows the carriage motor driver circuit block.

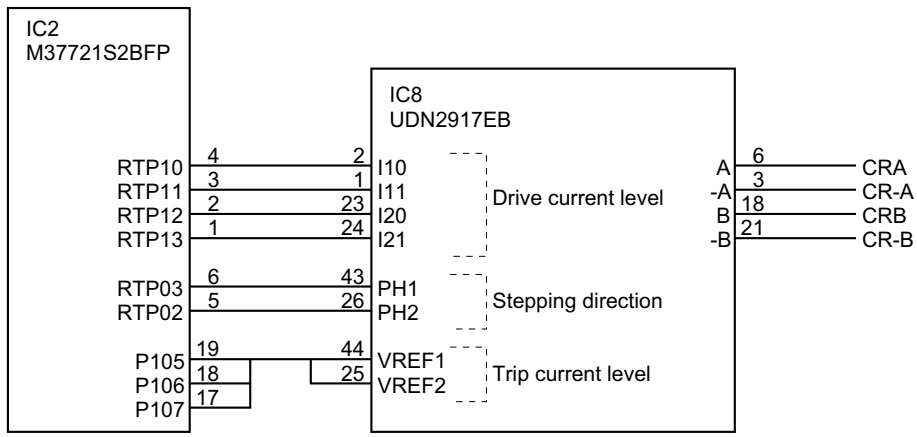

Figure 2-2. Carriage Motor Drive Circuit Block Diagram

Motor driver IC UDN2917EB controls the motor stepping direction and drive current with a combination of six signals supplied from the CPU. PH1 and PH2 signals control the current flow direction to determine the motor stepping position; and the I10, I11 and I20, I21 signals determine the drive current supplied to each motor drive coil. Table 2-1 lists the combinations of these signals used for the 2W1-2 phase drive control.

Table 2-1. Carriage Motor Drive Sequences

Sequence	Phase A				Phase B			+
^	RTP03	RTP10	RTP11	Current Duty	RTP02	RTP12	RTP13	Current Duty
^	PH1	I11	I10		PH2	I21	I22	^
0	0	0	0	–1	0	1	1	0
1	0	0	0	–1	0	1	0	–1/3
2	0	0	1	–2/3	0	0	1	–2/3
3	0	1	0	–1/3	0	0	0	–1
4	1	1	1	0	0	0	0	–1
5	1	1	0	+1/3	0	0	0	–1
6	1	0	1	+2/3	0	0	1	–2/3
7	1	0	0	+1	0	1	0	–1/3
8	1	0	0	+1	0	1	1	0
9	1	0	0	+1	1	1	0	+1/3
10	1	0	1	+2/3	1	0	1	+2/3
11	1	1	0	+1/3	1	0	0	+1
12	0	1	1	0	1	0	0	+1
13	0	1	0	–1/3	1	0	0	+1
14	0	0	1	–2/3	1	0	1	+2/3
15	0	0	0	–1	1	1	0	+1/3