

# SHARP SERVICE MANUAL

CODE: 00ZCE120PSM/E



## MODEL CE-120P

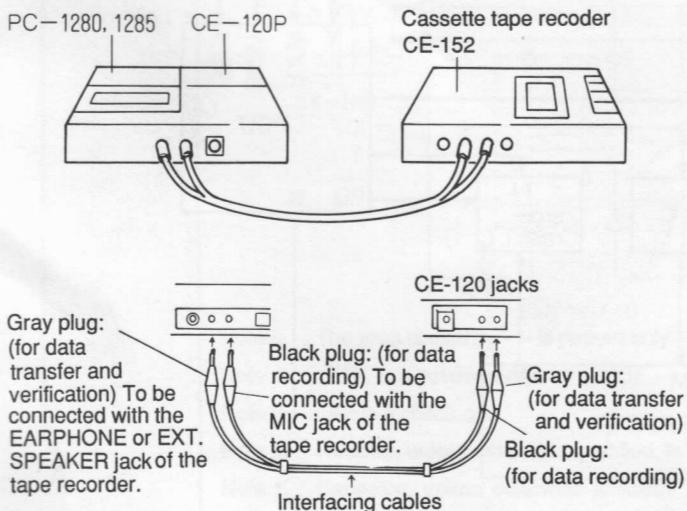
### 1. INTRODUCTION

The CE-120P is an optional printer with a built-in cassette interface specifically designed to use with the PC-1280/PC-1285.

### 2. SPECIFICATIONS

Printer type:	Thermal dot printer (MTP-201, same one as used in the CE-125)
Printing columns:	24 column per line
Print speed:	0.8 line/second
Paper feed speed:	0.8 line/second
Recording paper:	CPAPR1025CC05 (EA1250P, same one as used for CE-125), thermal paper roll (outer diameter: 18mm max., width: 58mm)
Battery:	UM-3 or AA battery x 4 pcs (option: AC adapter EA23E)
Power consumption:	3W
Battery life:	UM-3 - approx. 2,000 lines, SUM-3 - approx. 3,000 lines
Dimensions:	253(W) x 164(D) x 37.5(H)mm

### 3. INTERFACING WITH THE TAPE RECORDER



Although it is recommended to use the CE-152 cassette tape recorder specifically designed for the CE-120P, it may be possible use a similar performance tape recorder, provided that such a tape recorder meets the following conditions.

Item	Condition
Type	Tape recorder or tape deck designed to use cassette tape, microcassette tape or open reel tape
Input lines	MIC or equivalent jack (mini jack). NOTE: Do not use AUX jack.
Input impedance	From 200 to 1K ohms, or low impedance
Input level	3mV, max., or -50dB, max.
Output lines	EXT. SPEAKER jack or equivalent MONITOR or EARPHONE jack (mini jack)
Output impedance	10 ohms, max.
Output level	1Vrms, min. (Effective maximum output of 100mW or higher)
Distortion (incl. phase distortion)	15%, max. (same phase within 2KHz~4KHz)
Wow and flutter	0.3%, max. (W.R.M.S.). NOTE: Wow and flutter tends to be larger if the tape recorder is subjected to vibration or impact.
Other	Free from abnormal fluctuation in rotation speed

Note that some tape recorders do not meet the interfacing requirements by the CE-120P. It should also be noted that tape recorders used over a long period of time may not work properly with CE-120P because of a possible deterioration in their electrical characteristics, i.e., increased distortion, noise, decreased output level, etc.

When using a tape recorder with a mixer function, the mixer function must be disabled in both recording and replaying mode.

With some tape recorders, data cannot be received properly unless the red plug is disconnected from the MIC jack in the replay mode.

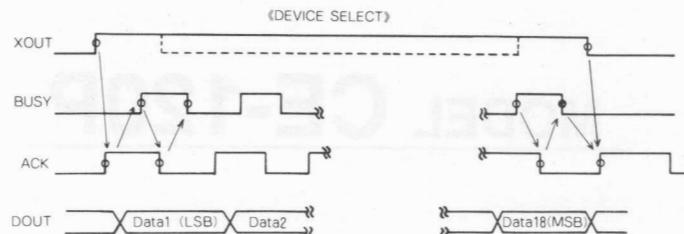
Data transmission and verification may not work depending on the volume control or tone control settings (TONE, BASS, TREBLE). In such event, try to change the settings by steps to find the proper set position where transmission and verification can be successful with the CE-120P.

## 4. CIRCUIT DESCRIPTION

The CE-120P consists of two LSIs; the P-CPU which interacts with the CPU of the main unit (M-CPU) and the PCU which controls printer.

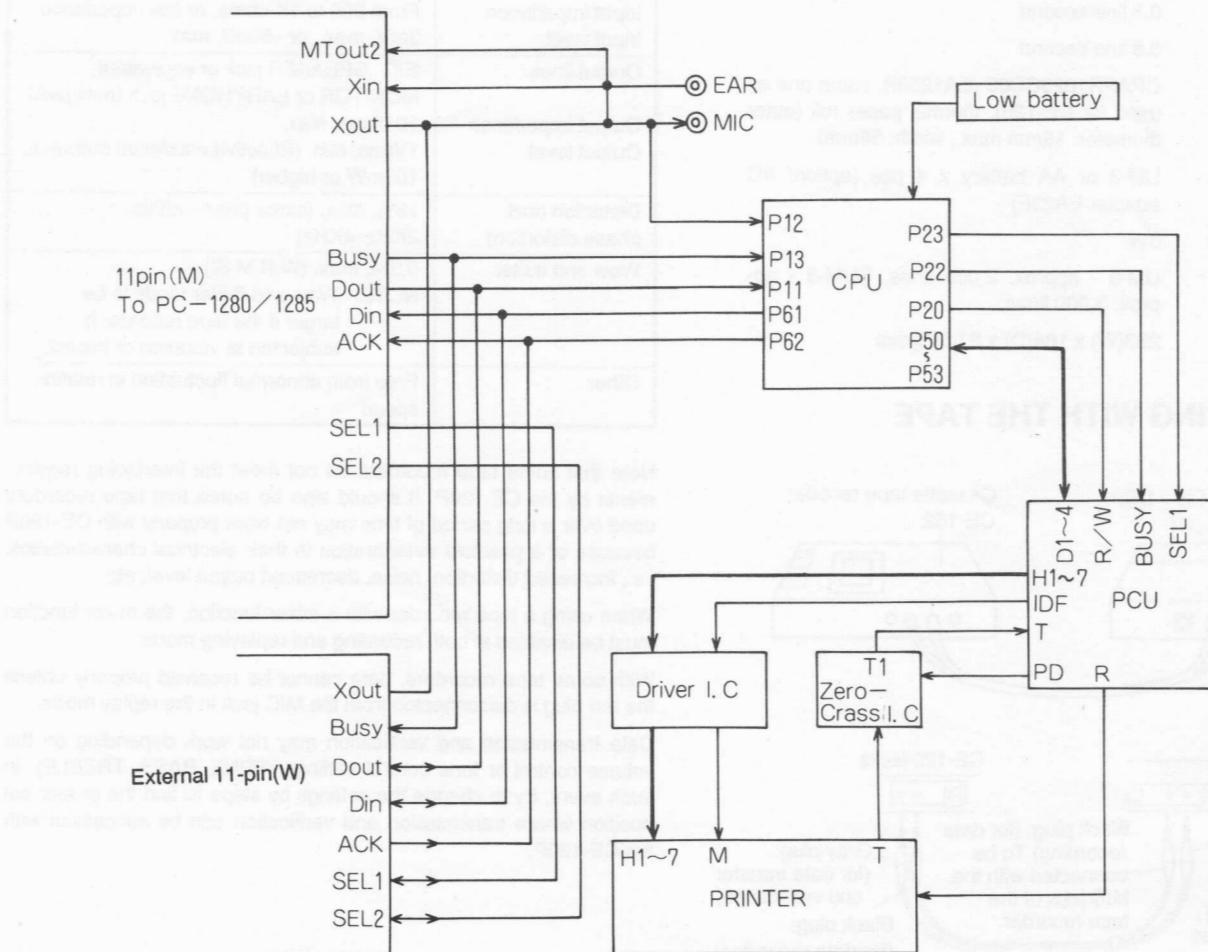
### 4-1. Data transfer between the M-CPU and the P-CPU (PC-1280/PC-1285)

Since the M-CPU does not have SEL1 and SEL2 signals, device can be selected by the contents of data.

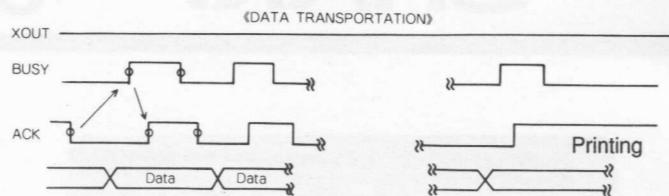


- (1) The XOUT signal turns high to select device.
- (2) The P-CPU receives a high state of XOUT and responds to the M-CPU with ACK.
- (3) As the M-CPU receives ACK, it issues BUSY.
- (4) The P-CPU receives the data with a high state of BUSY and performs ACL, remote ON or PCU select depending on the contents of the data.

## 5. BLOCK DIAGRAM



### 4-2. Print data transfer



XOUT goes low to transmit the print data.

## 6. CPU ( $\mu$ PD7506G516) SIGNAL DESCRIPTION

Pin No.	Signal name	In/Out	Description
P03	SEL2	In	SELECT
P00	SEL1	In	SELECT
P13	BUSY		Handshake, "High" ... Active
P12	XOUT	In	Device select, "High" ... Active
P11	DOUT		Data contents, "High" ... Active
P10	DOUT		Printer error signal line
P23	ACL/SEL1		"High" ... ACL, "Low" ... normal
P22	CS/SEL2		"High" ... CHIP SELECT, "Low" ... NON SELECT
P21	NC		Not used
P20	R/W		"High" ... READ, "High" → "Low" ... WRITE
P43	P/S		Data transfer mode, "High" ... parallel, "Low" ... serial
P42	Plain paper/thermal paper	In	PCU select, "High" ... plain paper PCU, "Low" ... thermal paper PCU
P41	LOW BATTETY		LOW BATTERY CHECK "High" ... normal, "Low" ... abnormal
P40	ACK		Handshake (Printer CPU ↔ PCU)
P53	D3		Data line between CPU and PCU MSBHigh ... 1 Low ... 0
P52	D2		Data line between CPU and PCU MSBHigh ... 1 Low ... 0
P51	D1		Data line between CPU and PCU MSBHigh ... 1 Low ... 0
P50	D0		Data line between CPU and PCU LSBHIGH ... 1 Low ... 0
P63	NC		Not used
P62	ACK		Handshake (Main unit CPU ↔) "High" ... Active
P61	DIN	Out	Printer error (Main unit CPU ↔) "High" ... Printer Error, "Low" ... normal
P60	BUSY		Handshake (Printer CPU → PCU) "High" ... Active

## 7. PCU (SC6994) SIGNAL DESCRIPTION

Pin No.	Signal name	In/Out	In/OutSelect line
1	SEL2	In	Selector line
2	SEL1	In	Selector line
3	VDD	Out	Power
4	ACL		Not used
5	BUSY	In	High ... CHIP SELECT, Low ... Nonselect
6	R/W	In	High ... Read, High → Low ... Write
7 ~ 10	D4 ~ 1	In	Data input
11	STP		Not used
12	S	In	Data transfer mode select, "High" ... serial input, "Low" ... parallel input/output
13	24	In	Print column selection, "High" ... 24 characters (Connected to GND), "Low" ... 16 characters
14	IDF	Out	Printer motor drive signal
15	H7	Out	Printhead heat elements drive pulse
16	H6	Out	Printhead heat elements drive pulse
17	GND	In	Power
18 ~ 22	H5 ~ H1	Out	Printhead heat elements drive pulse
23	R	In	Printer reset signal (Head home position detect signal)
24	PD	Out	Power down signal (issued only when the printer is in the operation cycle. No power is supplied to the printer drive circuit except when printer is in operation)
25	T	In	Printer timing signal (generated by the motor internal tachogenerator)
26 ~ 28	TS1 ~ 3	In	Test pin
29	VP1	Out	Printer control circuit power supply
30 ~ 32	BC1 ~ 3	In/Out	PCU frequency control line
33	CCK	Out	Clock test line
34	HA	In	Print contrast control lines (JA/JB jumper connection changed according to the rank of the printhead)
35	HB		Not used.
36	HC	In	Print contrast control lines (JA/JB jumper connection changed according to the rank of the printhead)
37, 38	CL1, 2	In	Basic clock resistor insertion line
39	PF	In	Paper feed key
40	NP	In	GND
41	ACL	In	Auto clear
42	OP3	Out	ACL select, high state of signal issued when selected.
43	OP2		Not used
44	OP1		Not used

Note 2. Resistor, unless otherwise specified, is 1kW chip resistor.

Note 1. Capacitor, unless otherwise specified, is 25V, 0.1uF chip capacitor.

## 8. HINTS FOR SERVICING

### 8-1. Hints in replacing the printer unit

Print contrast varies depending on the thermalhead resistance. To compensate this variation, printhead rank identification code (A, B or C) is marked on the back of the printer ribbon cable. When the printer unit is replaced, always correct the circuit in reference to with the table below.

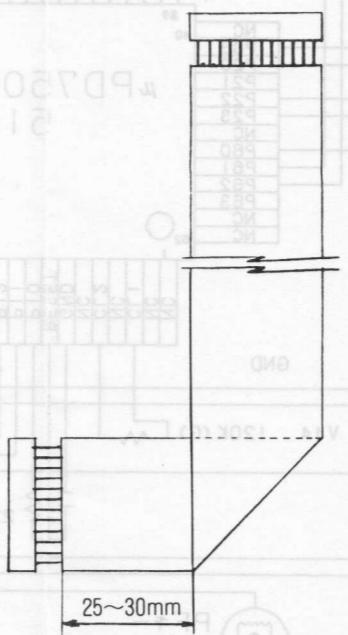
"A" rank printer - Short JA.

"B" rank printer - Open JA and JC.

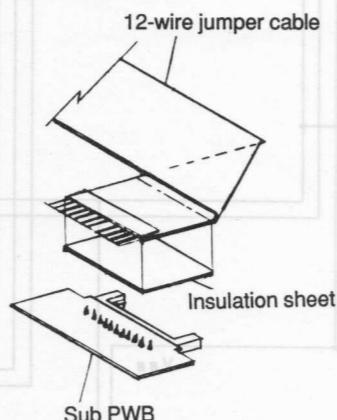
"C" rank printer - Short JC.

### 8-2. Handling the 12-wire jumper cable

1. Fold the jumper cable 25 to 30mm away from one end (see the figure).



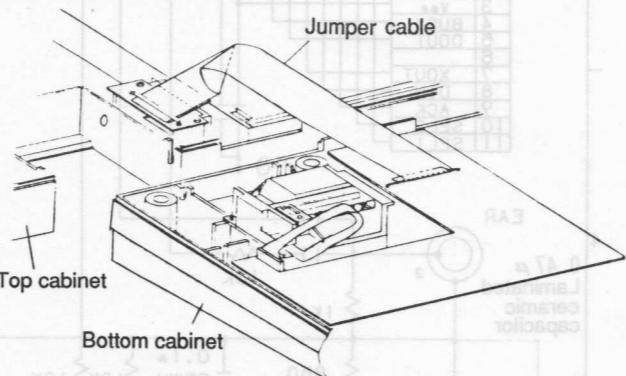
2. Attach an insulation sheet to the sub-PWB side of the cable (see the figure).



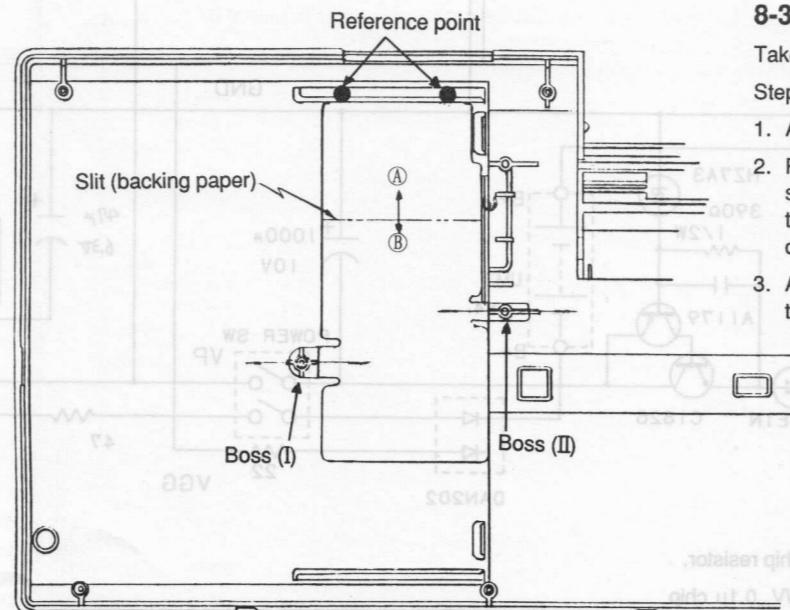
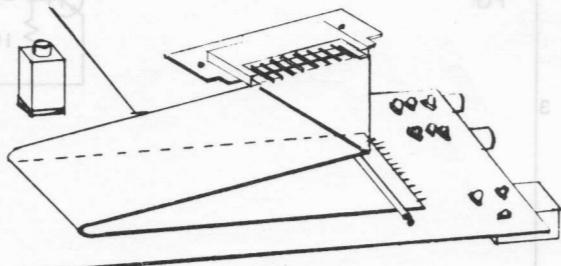
After correcting the circuit, fine adjust the 20K ohms VR to obtain optimum print quality. The circuit has been designed to get the best with the VR at the center position. (If the VR is turned counterclockwise too far, the head may be damaged.) If print contrast varies sharply, one of following causes may be involved.

1. Deteriorated thermalhead
2. Degraded thermal paper
3. Trouble in the contrast control circuit

3. Top/bottom cabinets open view



4. The jumper cable must be set within the unit as shown in the figure below.

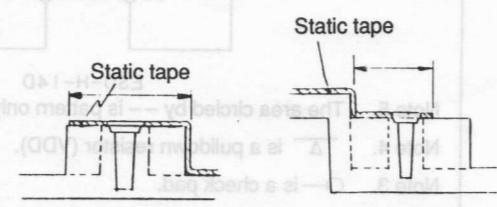


### 8-3. Hints in attaching the static tape

Take care not to crease when attaching the static tape.

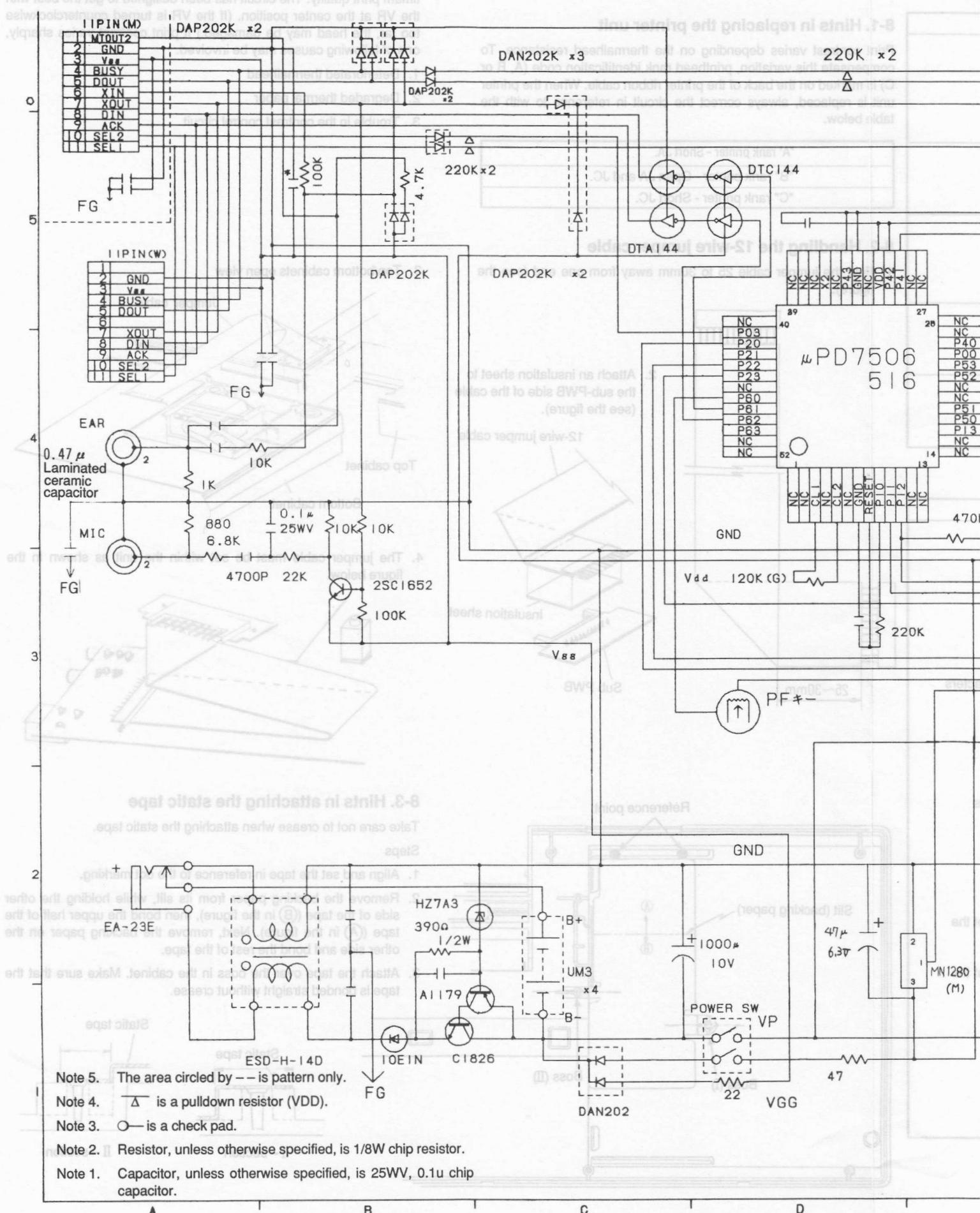
#### Steps

1. Align and set the tape in reference to the dot marking.
2. Remove the backing paper from its slit, while holding the other side of the tape (B in the figure), then bond the upper half of the tape (A in the figure). Next, remove the backing paper on the other side and bond the rest of the tape.
3. Attach the tape over the boss in the cabinet. Make sure that the tape is bonded straight without crease.



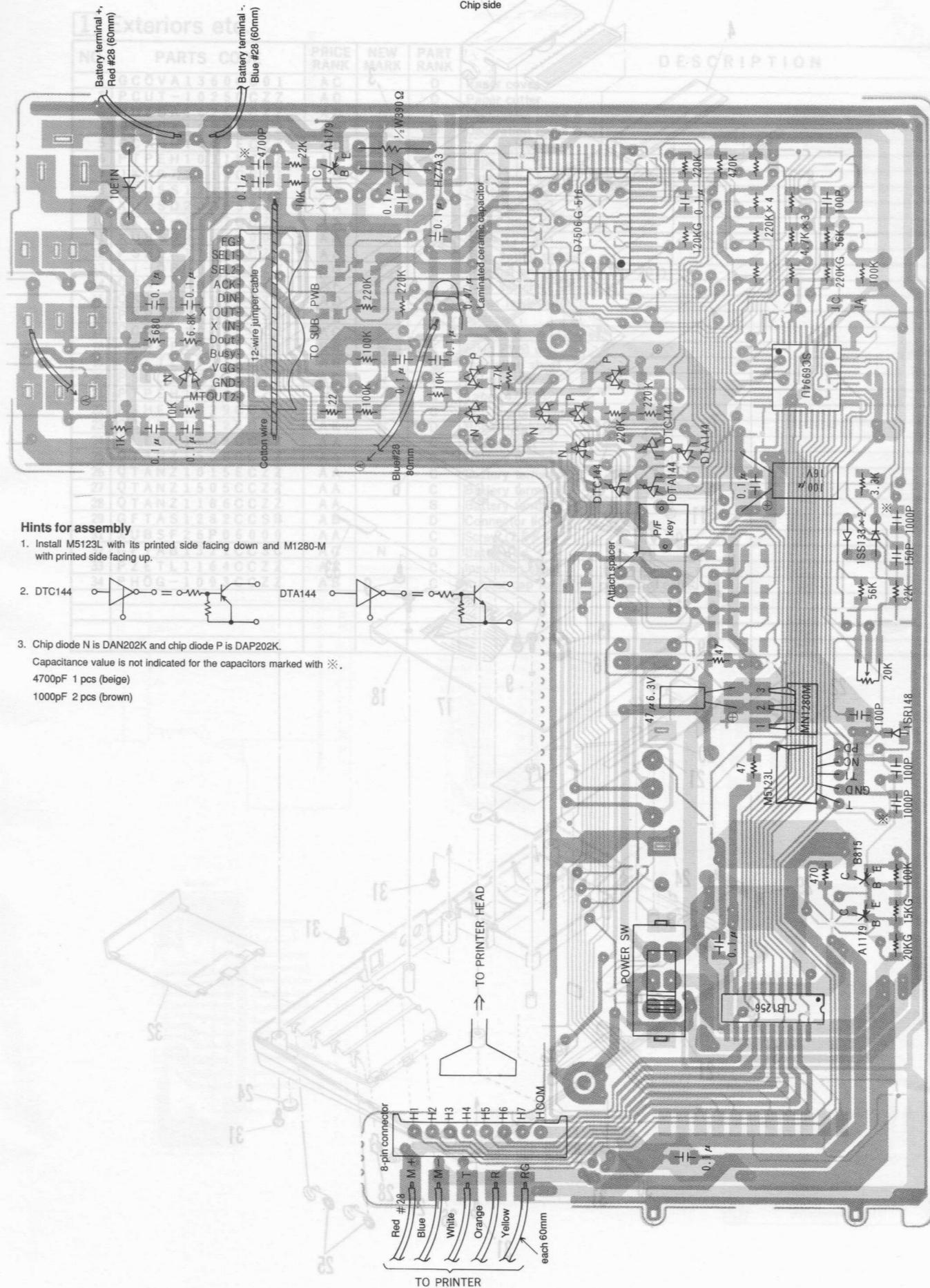
## 9. CIRCUIT DIAGRAM

## 8. HINTS FOR SERVICING

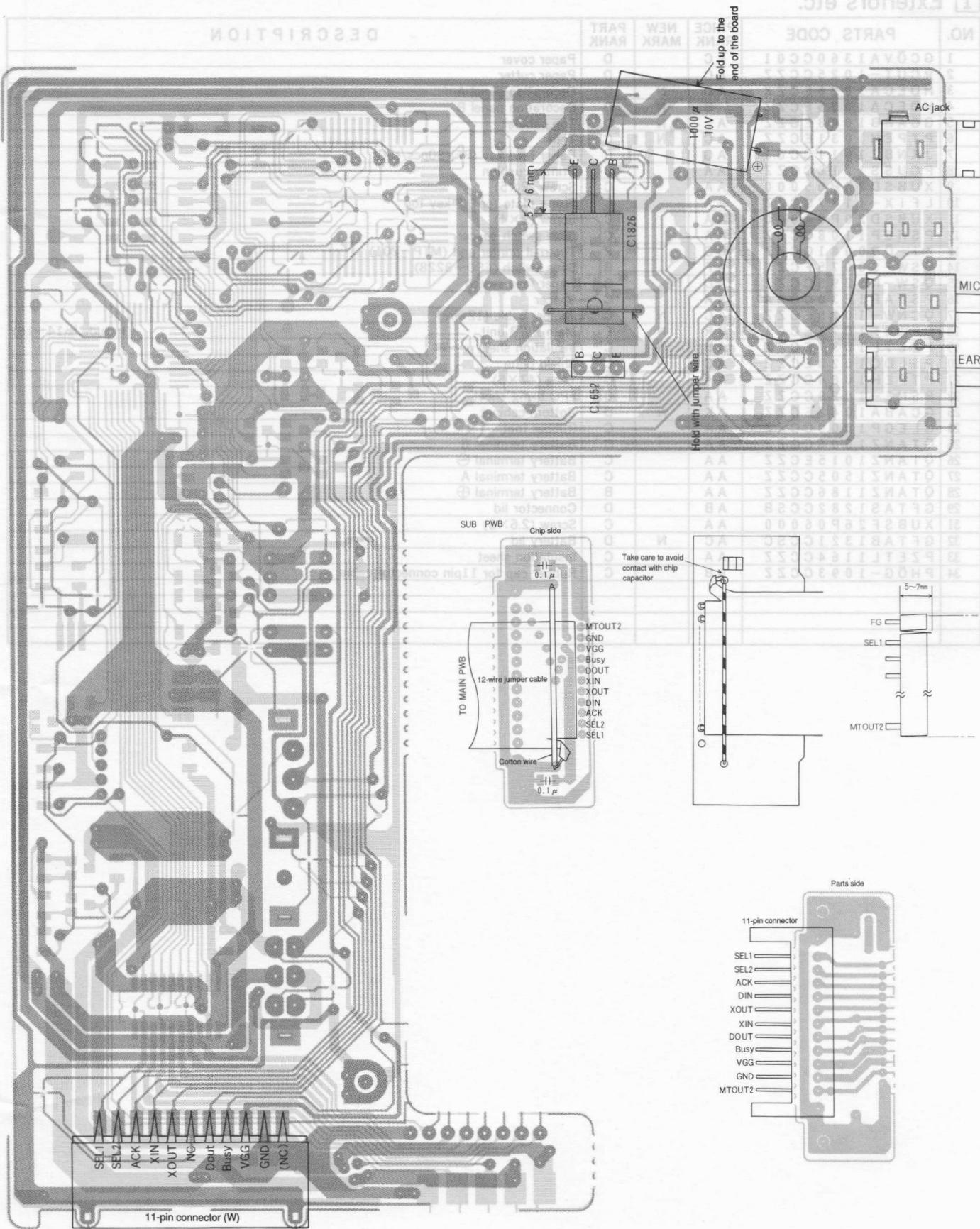




## **10. PARTS SIGNAL LAYOUT**

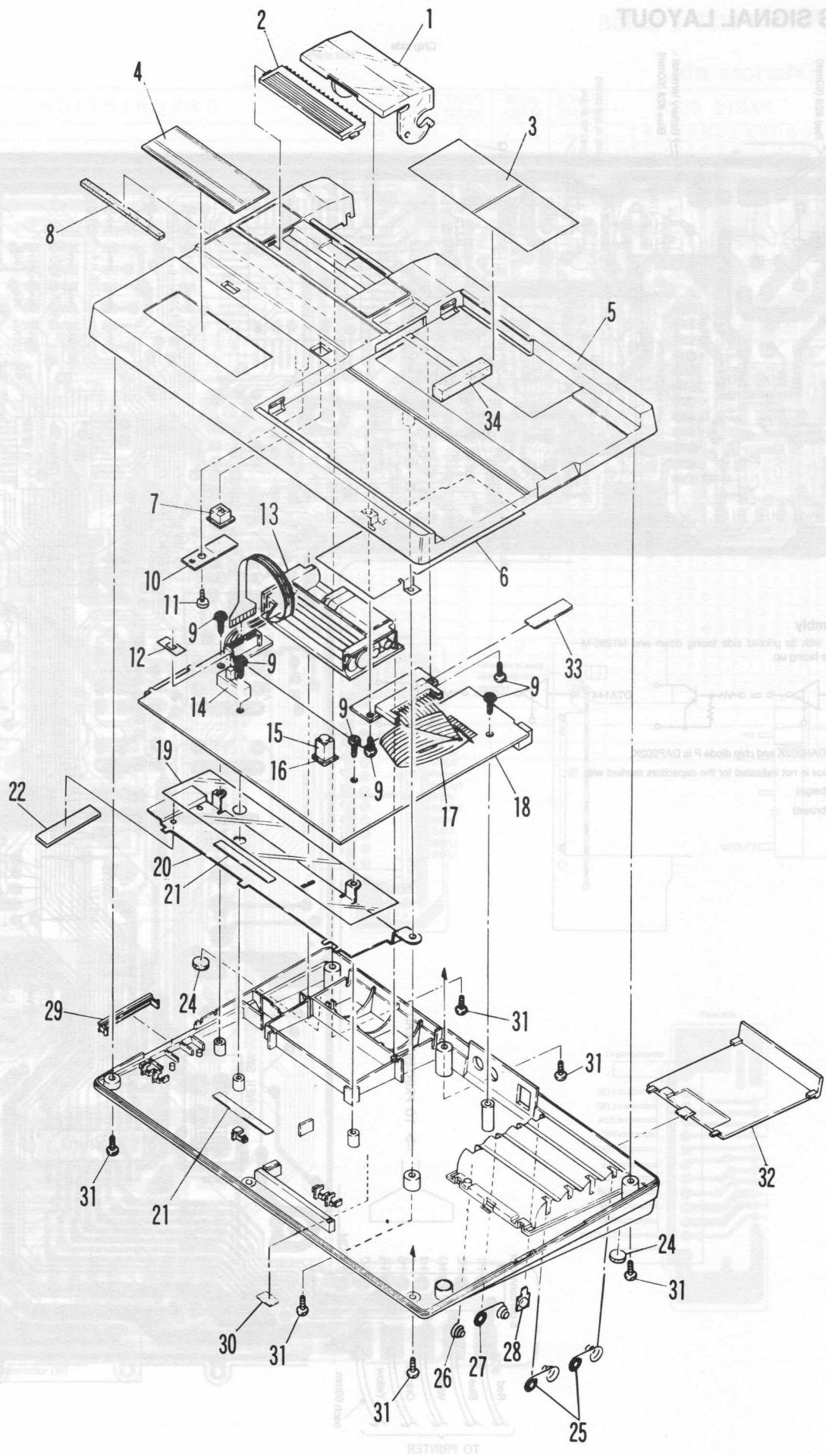


## Parts side



## **11. PARTS LIST & GUIDE**

## **1** Exteriors etc.



## 2 Main PWB unit

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	PSPAP1230CCSA	AA		C	Spacer
2	QCNCM1307CC1B	AK		B	Connector (11pin)
3	QCNCW1306CC1B	AK		C	Connector (12pin)
4	QCNCW1308CCAi	AC		B	Connector for printer (8pin Black)
5	QCNW-1028ECZZ	AC	N	C	Jumper cable (12wire)
6	QJAKC1003CCZZ	AD		B	Jack(for AC adaptor)
7	QJAKC1013CCZZ	AC		B	Jack (for MIC,EAR)
8	QSW-K1295CCZZ	AD		B	Paper feed switch
9	QSW-S0075FCZZ	AF		B	Slide switch (ESD-3228)
10	QTANS1408CCZZ	AB		C	Terminal
11	VCEAGU1AW108M	AC		C	Capacitor (10V 1000μF)
12	RC-KZA474ECFZ	AA		C	Capacitor (TMR555 F Z)
13	RFILN1008CCZZ	AH		C	Filter (ESD-H-14B)
14	RH-DZ1001ECN1	AD		B	Diode (1SR148)
15	RH-iX1009CCZZ	AC		B	IC (B815 B6 B7)
16	RH-TX1017CCN1	AB		B	Transistor (2SA1179)
17	RVR-M2415QCZZ	AD		B	Variable resistor (43B-C-203)
18	VCCCTP1HH101J	AA		C	Capacitor (50WV 100PF)
19	VCCCTP1HH151J	AA		C	Capacitor (50WV 150PF)
20	VCEAEU0JW476M	AA	N	C	Capacitor (6.3WV 47μF)
21	VCEAGU1CW107M	AB		C	Capacitor (16WV 100μF)
22	VCKYTP1EF104Z	AA		C	Capacitor (25WV 0.10μF)
23	VCKYTP1HR102K	AA		C	Capacitor (50WV 1000PF)
24	VCKYTP1HR472K	AA		C	Capacitor (50WV 4700PF)
25	VHDDAN202K/-1	AB		B	Diode (DAN202K)
26	VHDDAP202K/-1	AB		B	Diode (DAP202K)
27	VHDDSS133HV-1	AA		B	Diode (DSS133HV)
28	VHD10E1N///-1	AB		B	Diode (10E-1N)
29	VHEHZ7A3///-1	AB		B	Zener diode (HZ7A3)
30	VHID7506G-516	AU		B	IC (D7506G-516)
31	VHILB1256MFP1	AK		B	IC (LB1256MFP1)
32	VHIMN1280M/-1	AE		B	IC (MN1280M)
33	VHIM5123L///-1	AG		B	IC (M5123L)
34	VHISCR6994///-1	AS		B	IC (SC6994)
35	VRD-RB2HY391J	AA	N	C	Resistor (1/2W 390Ω ±5%)
36	VRS-TP2BD102J	AA		C	Resistor (1/8W 1KΩ ±5%)
37	VRS-TP2BD103J	AA		C	Resistor (1/8W 10KΩ ±5%)
38	VRS-TP2BD104J	AA		C	Resistor (1/8W 100KΩ ±5%)
39	VRS-TP2BD124G	AA		C	Resistor (1/8W 120KΩ ±2%)
40	VRS-TP2BD153G	AA		C	Resistor (1/8W 15KΩ ±2%)
41	VRS-TP2BD203G	AA		C	Resistor (1/8W 20KΩ ±2%)
42	VRS-TP2BD220J	AA		C	Resistor (1/8W 22KΩ ±5%)
43	VRS-TP2BD223J	AA		C	Resistor (1/8W 22KΩ ±5%)
44	VRS-TP2BD224G	AA		C	Resistor (1/8W 220KΩ ±2%)
45	VRS-TP2BD224J	AA		C	Resistor (1/8W 220KΩ ±5%)
46	VRS-TP2BD332J	AA		C	Resistor (1/8W 3.3KΩ ±5%)
47	VRS-TP2BD470J	AA		C	Resistor (1/8W 47Ω ±5%)
48	VRS-TP2BD471J	AA		C	Resistor (1/8W 470Ω ±5%)
49	VRS-TP2BD472J	AA		C	Resistor (1/8W 4.7KΩ ±5%)
50	VRS-TP2BD474J	AA		C	Resistor (1/8W 470KΩ ±5%)
51	VRS-TP2BD563J	AA		C	Resistor (1/8W 56KΩ ±5%)
52	VRS-TP2BD681J	AA		C	Resistor (1/8W 680Ω ±5%)
53	VRS-TP2BD682J	AA		C	Resistor (1/8W 6.8KΩ ±5%)
54	VSDTA144EK/-1	AC		B	Transistor (DTA144EK)
55	VSDTC144EK/-1	AC		B	Transistor (DTC144EK)
56	VS2SC1652/-1	AC		B	Transistor (2SC1652)
57	VS2SC1826-GBC	AF		B	Transistor (2SC1826-GBC)
58	PSHEP1108CCZZ	AA		C	Mask sheet(for slide switch)
	(Unit)				
901	CPWBF1071EC04	BR	N	E	Main PWB unit
					(No.2,10を除く)

## 3 Packing material & Accessories

NO.	PARTS CODE	PRICE RANK	NEW MARK	PART RANK	DESCRIPTION
1	TINSM1153ECZZ	AP	N	D	Instruction book
2	SPAKC0360ECZZ	AG	N	D	Packing case
3	SPAKC0362ECZZ	AG	N	D	Packing case
4	TCAUK1198ECZZ	AA		D	Caution
5	GCASP1005ECZZ	AW	N	D	Hard case
5	QPLGJ5003SCZZ	AL		B	Cassette cable (2Pin)
6	SPAKA0367ECZZ	AD	N	D	Packing cushion(Upper side)
7	SPAKA0368ECZZ	AB	N	D	Packing cushion(Lower side)
8	SSAKA1130QCZZ	AA		D	Vinyl bag (100×120)
9	SSAKA2010KCZZ	AA		D	Vinyl bag (240×300)

# SHARP

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1988 August Printed in Japan ©