CITIZEN

Service Manual

Model : CBM-270

Line Thermal Printer

Rev. 1.00 Newly issued on 05. Jan. 1999

Japan CBM Corporation
Information Systems Div.

INTRODUCTION

This manual describes the disassembly, reassembly, and maintenance procedures of the Line Thermal Printer CBM-270. It is intended for field maintenance men.

FEATURES

This small line thermal printer is designed for various types of data communication terminals and measuring instrument terminals. Its abundant built-in features allow you to widely use this printer for different applications. Prior to using it, read and understand this manual thoroughly.

(1) Small, lightweight, and installable in a narrow area
(2) High speed and low noise, owing to line thermal print
(3) Long-life printing head and high reliability, owing to the simple mechanism
(4) Easy paper-loading, owing to the auto-loading function
(5) Built-in input buffer
(6) Capable of printing a bar code (Special command)
(7) Capable of accommodating both thermal paper and label paper
(8) A little discharge (1 sheet) of the label paper at power-on or paper replacement
(9) Capable of printing in two colors (when special paper is used)
(10) External characters registration function (94 kanji characters, 95 ANK characters)

CONTENTS

1. HANDLING AND MAINTENANCE OF PRINTER

See "Unpacking" and "OPERATION" in the User's Manual accompanying the printer body.

2. SPECIFICATIONS

2.1 Basic Specifications

Item \ Model	CBM-270-RF120-* CBM-270-PF120-*	CBM-270-RF230-* CBM-270-PF230-*
Printing system	Line thermal dot printing	
Printing width	48 mm (384 dots/line)	
Dot density	8 dots/mm (Width, Length)	
Paper feed pitch	0.125 mm	
Printing speed	Approx. 11 lines/sec. (At maximum)	
Printing digits and character size	32 columns (12 × 24 Font A) 1.25 × 3.00 mm 42 columns (9 × 24 Font B) 0.88 × 3.00 mm	
Line interval	Initial value: 4.23 mm (1/6 inch) Can be set with a command (1/360 inch at minimum)	
Character types	Alphanumerals, symbols, international characters (Choose from 10 countries)	
Character code	Domestic characters, IBM characters #2 (Choose either)	
Bar code type	UPC-A/E, JAN(EAN) 13-/8-column, ITF, CODE 39, CODE 128, CODABAR	
Paper (See Paper Specifications)	Thermal paper roll : 58 + 0/- 1 mm xϕ83 (max.) mm, 60~75μm thick Thermal label paper : 58 + 0/- 1 mm x ϕ83 (max.), 150μm thick (max.) (L and M Spec. only) Label width: 56 mm (max.) Label length: 25 mm/sh. (min.)	
Interface	Serial (RS-232C), Parallel (CENTRONICS compliant)	
Input buffer	2 KB	
Download characters	Font A, B: 95 characters each	
Auto-loading	Provided (Can be enabled/disabled with the DIP switch)	
Paper end function	Provided	
Paper near end function	Provided (Can be enabled/disabled with the DIP switch)	
Label detecting function	Capable of selecting label interval detection, black mark detection, or none.	
Printing color	Capable of printing in two colors (red/black) with the special thermal paper.	
AC adapter	Rated input : 100~240 V, 50/60 Hz, 40 VA Rated output : 7.2 V DC, 2 A	
AC adapter – Type	27 AD	
AC adapter – AC cord	2-core cord (Depends on the destination)	
Supply voltage	120 V AC +/- 10%, 60 Hz	230 V AC +/- 10%, 50/60 Hz
Power consumption	At non-printing: Approx. 2 W At printing: Approx. 15 W (approx. 20 W at maximum)	
Weight	Main body: Approx. 600 g (Paper roll excluded) AC adapter: Approx. 350 g	
Outer dimensions	106 (W) × 184 (D) × 110 (H) mm	
Operating temperature and humidity	5~40 °C, 35~85 % RH (No dew condensation)	
Storage temperature and humidity	-20~60°C, 10~90% RH (No dew condensation)	
Reliability	Printing head life: (25°C) Pulse resistance : 50 million pulses or more (Print rate 12.5%) Wear resistance : 50 km or more (With recommended thermal paper at normal temperature and humidity)	
EMI *1	FCC Class-A	EN55022 Class-A
Applicable standard (Main body) *1		GS, CE Marking
Applicable standard (Power source)	UL, C-UL	GS

* *1 indicates the standard satisfied when the AC adapter 27AD is used.
* GS and CE Marking are satisfied when the main body and AC adapter are combined.

2.2 Paper Specifications

2.2.1 Recommended Paper

(1) Thermal paper roll

- •Type : Thermal paper
- •Paper width : 58 + 0/- 1 mm
- •Paper thickness : 60~75μm
- •Roll diameter : ϕ83 mm or less
- •Printing surface : Outside of the roll (Surface)
- •Recommended paper : TF50KS-E2C (Monochrome) made by NIPPON SEISHI or its equivalent
  735FA(2-color, Black based) made by RICOH or its equivalent
  PB670(2-color, Red based) made by MITSUBISHI SEISHI or its equivalent
- •Core :ϕ12 mm(Inner dia.), ϕ18 mm (Outer dia.)

(2) Thermal label paper(L and M spec. only)

- •Type : Thermal paper (Printing surface)
- •Paper width : 58 + 0/- 1 mm
- •Label width : 56 mm or less
- •Label length : 25~300 mm (For label interval detection)
  25~300 mm (For black mark detection) * Black mark section excluded
- •Label interval : 3~300 mm (Black mark interval for the black mark detection)
- •Black mark width : 15 mm or more (From the center of the paper, black paper only)
- •Paper thickness : 150μm or less
- •Roll diameter : ϕ83 mm or less (Depends on the outer diameter of the core)
- •Printing surface : Outside of the roll (Surface)
- •Recommended paper : For label interval detection
  KPT86S P22 G63BC (Monochrome) made by OHJI TUCK or its equivalent
  For black mark detection
  KPT865P (Monochrome) made by OHJI TUCK or its equivalent
- •Core : ϕ12 mm or more (Inner dia.), 3 mm thick

⚠ CAUTION:

1. Use of non-specified paper may cause irregularity of print density. If this is the case, use the DIP switch to reset print density. (See 5. DIP SWITCH SETTING)
2. Do not paste the paper to the core.
3. If the paper comes in contact with a chemical or oil, it may discolor or lose a record.
4. Do not rub the paper surface strongly with a nail or hard metal. It may discolor.
5. Discoloring starts at about 70°C. Watch out for effects of heat, humidity, light, and so on.
6. Do not use the label paper when the printer has been set for thermal paper, and vice versa. Be careful not to mistake a type of label paper. It could cause malfunctioning or damage the printing head.

3. DISASSEMBLY AND REASSEMBLY

In case of maintenance work, observe the following:

⚠ CAUTION

(1) If the printer functions properly, do not disassemble, reassemble, or adjust it. Particularly, do not loosen each setscrew unless required.

(2) After inspecting the printer, be sure to confirm that it is free from error.

(3) Never try to print without setting the printing paper in the printer. Confirm that it is properly set.

(4) In case of maintenance work, be careful not to leave the used parts or screws in the printer.

(5) When handling the thermal head or control board, do not wear the gloves which will easily cause static electricity. Prior to handling it, discharge static electricity from your body. Also, never conduct maintenance work in a place where the printer will be easily electrified.

(6) When disassembling and reassembling, check the cords and boards for any damage, and do not cable or fix them in an inappropriate manner by force.

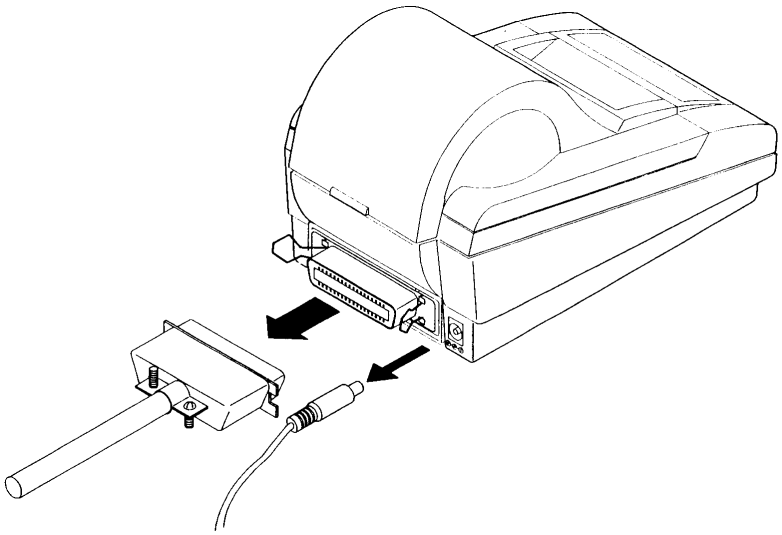
(7) Never carry out maintenance work with the power turned on.

3.1 Disassembly Procedure

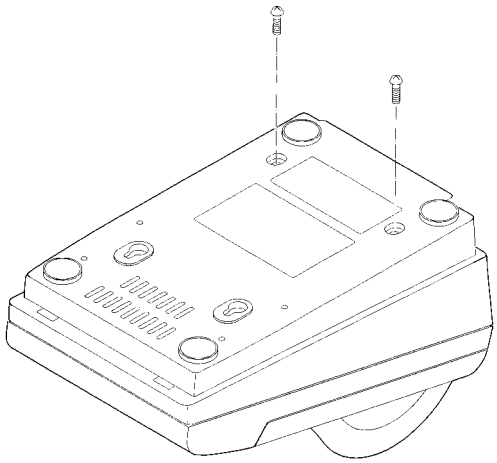
1. Prior to Disassembly

(1) Disconnect all the cables from the rear of the main body. For your safety, unplug a power cord from a plug socket.

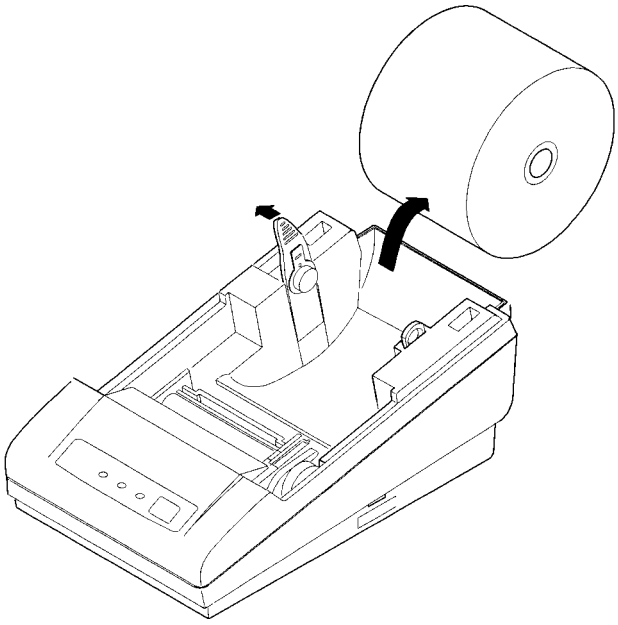
(2) Leave the printer cover attached.



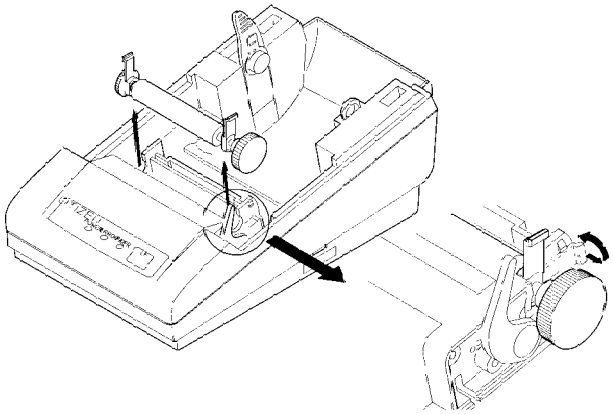
2. Removing the Screws from the Bottom of the Main Body
   (1) Turn over the printer body.
   (2) Remove two M3 × 10 (BT) screws. Then, turn back the printer body to its original position. Do this, holding its upper and bottom covers.



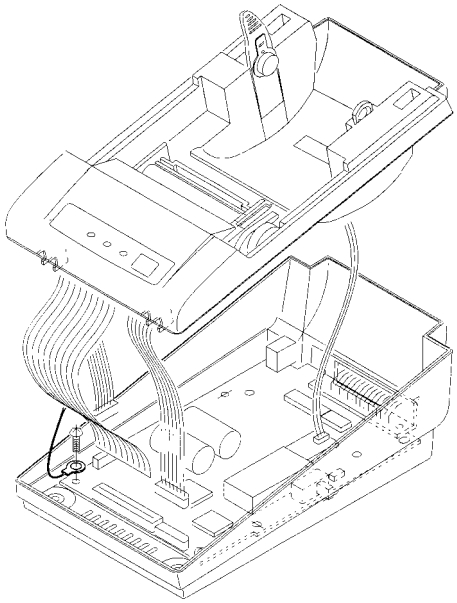
3. Detaching the Printer Cover and Paper Roll
   (1) Detach the printer cover. Put a finger, etc. on a convexed part from the rear of the printer body and lift.
   (2) Detach the paper roll. If the paper roll has been set in the printer, cut he surplus paper and detach it gently. See "HOW TO REMOVE REMAINING PAPER ROLL" in the USER'S MANUAL.



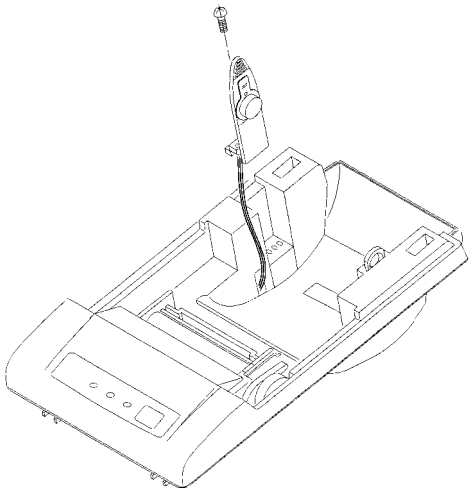
4. Detaching the Platen Roller Unit
   (1) Raise the head-up lever.
   (2) Unlock the platen roller unit. Pull up the blue levers on both sides of the platen roller unit, while opening them outside.
   (3) Detach the platen roller unit. Hold the blue levers on both sides of pull up. Keep the platen unit carefully so as not to damage it.
   (4) Lower the head-up lever.



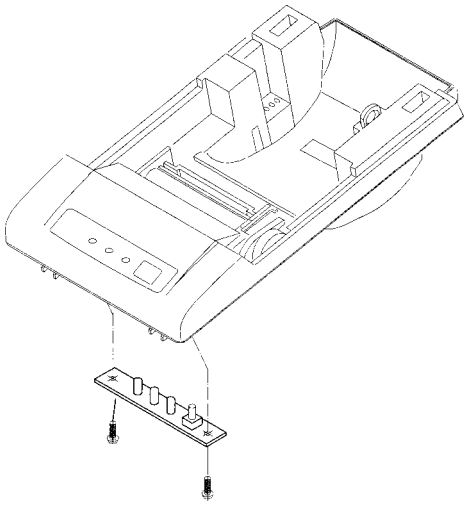
5. Detaching the Upper Cover
   (1) Lift the upper cover from the rear of the printer body. When this is done, lift it gently.
   (2) Disconnect all the connectors. Holding up the upper cover, disconnect all the connectors from the control board. Hold the base of the connector to disconnect it. Pulling the cable will snap it.
   (3) Disconnect the FG cable. Remove one M3 × 8 (BT) screw used to secure it to the control board.
   (4) Detach the upper cover.



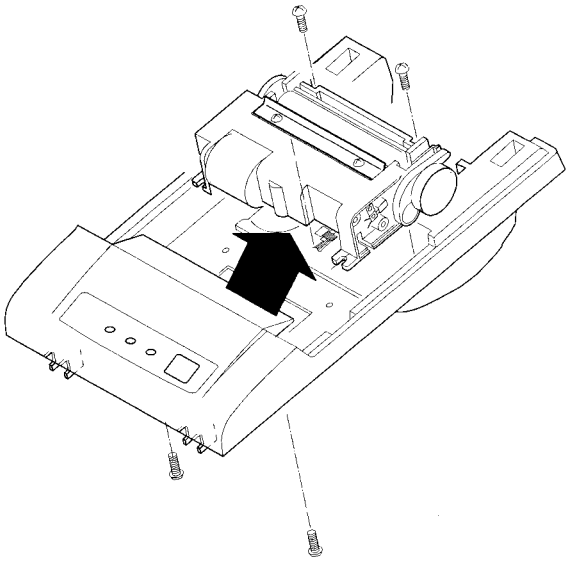
6. Detaching the NPE Sensor Unit
   (1) Remove one M3 × 10 (BT) screw used to secure the NPE sensor unit.
   (2) Pull out a cable.



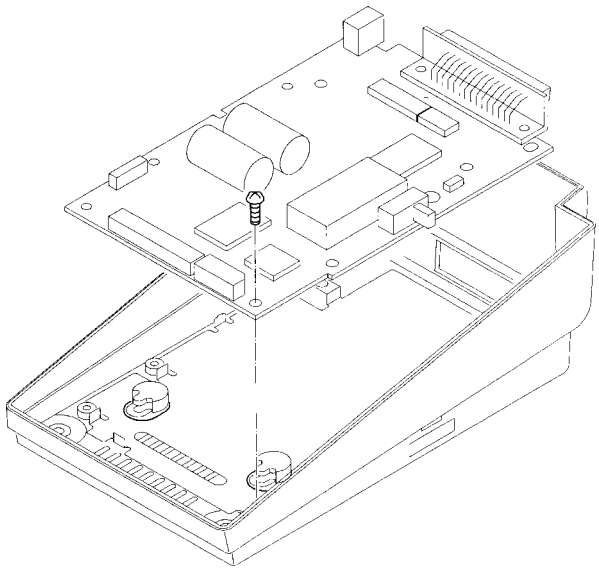
7. Detaching the Operation Panel Board
   (1) Remove two M2.6 × 8 (BT) screws. Turn over the upper cover and unscrew the operation panel board.
   (2) Detach the operation panel board.



8. Detaching the Printer Mechanism
   (1) Remove four M2.6 × 8 (BT) screws used to secure the printer mechanism. Remove two screws each from the front and back.
   (2) Pull out the printer mechanism. Pull it out gently to the paper holder side (front) without pulling a cable. If the label sensor is attached, separate it from the printer mechanism.



9. Detaching the Control Board
   (1) Remove one M3 × 8(BT) screw.
   (2) Turn on the Power switch.
   (3) Detach the board. Slightly opening outside the plastic part near the Power switch, slide it upward to the near side of the printer body to detach.



10. Detaching the shielding plate.

∗ For Steps 5 to 9, carry out only those required for maintenance.

3.2 Reassembly Procedure

Reassemble the disassembled parts in the reverse order of the disassembly procedure described in 3.1.

⚠ CAUTION:

1. Route the cables very carefully so that they will not be caught.
   - The flat cable should be located on the board side.
   - Take care that the NPE sensor will not be cabled above the DIP switch.
2. Tighten the screws firmly, but avoid tightening them too hard.
3. Use only the attached screws. There are several kinds of screws used. If they are unscrewed, be sure to put them back in their original places.
4. After reassembly, be sure to check prior to turning on the power.

4. TROUBLESHOOTING

4.1 Troubleshooting Procedure

If the printer has a trouble, confirm its phenomenon, determine a defective part according to 4.2 Troubleshooting Guide, and then, repair it in the specified manner.

- Phenomenon — Find a corresponding trouble phenomenon in this column. If there multiple corresponding phenomena, confirm taking all of them into account. This allows you to determine a hidden defective part.
- Cause — Possible causes are listed as many as possible in this column. Project a trouble cause and determine it by the check method described in the next column.
- Check Method — Check methods are listed in this column to determine the relevant trouble cause.
- Repair Method — Repair the defective part in the manner described in this column.

Efficient troubleshooting is enabled without making a erroneous judgment by repairing in the above-mentioned procedure.

4.2 Troubleshooting Guide

The following table lists the check methods and repair methods based on possible phenomena and causes.

• AC Adapter Failure

Phenomenon	Cause	Check Method	Repair Method
The power cannot be turned on (POWER lamp not illuminated)	The AC cord is not connected.	–––	Connect the AC cord to the specified plug socket, etc.
	The voltage is abnormal.(It is slightly higher than the rating in the no-load state)	Use a voltmeter to measure a supply voltage.	Replace the AC adapter.
	The AC adapter was connected to(used for) another device in the past. 12. Replace the AC adapter.	–––	Replace the AC adapter.

- **Power Supply Failure**

Phenomenon	Cause	Check Method	Repair Method
The power cannot be turned on.(POWER lamp not illuminated)	The AC adapter is not connected.	___	Connect the specified AC adapter.
	The fuse is gone.	Check whether or not the non-specified power supply was used in the past.	Use the specified AC adapter.
		Check whether or not the specified fuse is used.	Use the specified fuse.
	Others	Check whether or not the specified power supply is used.	Use the specified AC adapter.
		Check whether or not the cable or connector of the operation panel board is connected.	Replace the cable of the operation panel board. Connect the connector.
The fuse blows out immediately if replaced. It blows out during operation. (F1 blows out)	The printer mechanism or control board is defective.	The power is turned on by disconnecting the cable of the printer mechanism. (Does not operate)	Replace the printer mechanism.
		The phenomenon remains unchanged after the above-mentioned check.	Replace the control board.
Ditto (F2 blows out)	The control circuit is corrupt. The voltage is abnormal.	Measure a circuit voltage with a voltmeter, and it is normal.	Replace the control board.
		The voltage is higher.	Replace Tr1, ZD2, or a peripheral circuit part.
		The voltage is lower.	Replace the control board.
Ditto (F3 blows out)	The motor or driver of the printer mechanism is defective.	The power is turned on by disconnecting the motor cable. (Does not operate)	Replace the printer mechanism.
		The phenomenon remains unchanged after the above-mentioned check.	Replace the motor driver or control board.

* If the fuse is gone while using the specified AC adapter, it is likely that the printer mechanism or control board is defective. Replace either of them. Also, check the wiring of the interface.

- **Printing Failure**

Phenomenon	Cause	Check Method	Repair Method
No printing	Faulty power supply	Check whether or not the specified AC adapter is used.	Use the specified AC adapter.
	Faulty mounting and connection of printer mechanism	Check mounting and connection of the printer mechanism.	Mount the printer mechanism properly.
	The printer operates properly except not printing.	Check whether or not the specified paper is used, and whether or not the specified paper is set inside out.	Set the specified paper properly.
	Faulty printer mechanism	___	Replace the printer mechanism.
	The head is heated due to continuous print, etc.	Wait for some time.	Reset automatically.
Thin printing color	Faulty power supply	Check whether or not the specified AC adapter is used.	Use the specified AC adapter.
	Non-recommended paper	Set print concentration higher with the DIP switch.	Replace with the recommended paper or its equivalent.
	Faulty thermal head	___	Replace the thermal head.
Missing dots	Faulty printer mechanism connection	Check whether or not the printer mechanism cable is connected properly.	Connect the printer mechanism cable properly.
	Foreign substance adhered to the thermal head or platen roller	Check the thermal head and platen roller for any foreign substance.	Dip a cotton swab or soft cloth in ethyl alcohol and wipe off the foreign substance.
	Faulty thermal head	___	Replace the thermal head.
Missing dots in specific section	Faulty connection of printer mechanism	Check whether or not the printer mechanism cable is connected properly.	Connect the printer mechanism cable properly.
	Faulty thermal head	___	Replace the thermal head.
Low print quality	Faulty printing paper	Check whether or not the specified printing paper is used.	Replace with the recommended paper or its equivalent.

Phenomenon	Cause	Check Method	Repair Method
Too much ink blot	Faulty power supply	Check whether or not the specified AC adapter is used.	Use the specified AC adapter.
	Foreign substance adhered to the thermal head or platen roller	Check the thermal head and platen roller for any adhered foreign substance.	Dip a cotton swab or soft cloth in ethyl alcohol and wipe off the foreign substance.
Blurred characters	Faulty printing paper	Check whether or not the specified printing paper is used.	Replace with the recommended paper or its equivalent.
	Worn platen roller	The platen roller is worn out and slips easily.	Replace the platen roller unit.

* If the printer continues to print for a long time, the printed characters become thicker. If printing is suspended and restarted, print concentration will change slightly. Print concentration becomes lower if used at a low temperature.

- **Paper Feed Failure**

Phenomenon	Cause	Check Method	Repair Method
A printing paper feed motor does not work or malfunctions.	Faulty connection of motor connector	Check the motor connector for its connection.	Connect the connector properly.
	Faulty power supply	Check whether or not the specified AC adapter is used.	Use the specified AC adapter.
	Faulty motor body	Use a tester or oscilloscope to measure a supply voltage and waveform.	If the supply voltage and waveform are normal, replace the motor (printer mechanism).
The printing paper is not fed or fed irregularly.	Faulty paper feed	Check whether or not the printing paper is jamming or torn and caught in a paper path.	Remove unnecessary printing paper and set properly.
	Foreign substance in the gear	Check the motor gear for any foreign substance.	Remove the foreign substance.
	Broken gear	Check whether or not the motor gear is broken.	Replace the motor (printer mechanism).
	Faulty motor body	Use a tester or oscilloscope to measure a supply voltage and waveform.	If the supply voltage and waveform are normal, replace the motor (printer mechanism).

• **PNE Sensor Failure**

Phenomenon	Cause	Check Method	Repair Method
PNE is always detected.	Faulty sensor	Use a tester to check whether or not a supply voltage and signal are normal.	Replace the PNE sensor.
PNE is detected even if there is enough paper.	Irregularity between the sensor and printing paper	Check whether or not the printing paper is aligned with the core, and whether or not it is set properly in the holder.	Set the printing paper properly in the holder. Align the printing paper with the center.
	Foreign substance caught by the sensor	Check for any foreign substance.	Remove the foreign substance.
PNE is not detected.	Faulty sensor	–––	Replace the PNE sensor.
	Foreign substance caught by the sensor	Check for any foreign substance.	Remove the foreign substance.
	Sensor exposed to the direct sunshine or strong light	Check operation, avoiding the direct sunshine or strong light.	Use in a place free from the direct sunshine or strong light.

• **PE Sensor Failure**

Phenomenon	Cause	Check Method	Repair Method
PE is always detected.	Faulty sensor	Use a tester to check whether or not a supply voltage and signal are normal.	Replace the PE sensor.
PE is not detected.	Faulty sensor	–––	Replace the PE sensor.
	Foreign substance caught by the sensor	Check for any foreign substance.	Remove the foreign substance.
	Sensor exposed to the direct sunshine or strong light	Check operation, avoiding the direct sunshine or strong light.	Use in a place free from the direct sunshine or strong light.

* If PE is not detected with no printing paper set, the printer will print even if the paper is not set, causing a trouble to the printer head, etc. If printing is performed in this condition, replace the platen roller and head.

- **Label Sensor Failure (Only When the Printer Accommodates the Labels)**

Phenomenon	Cause	Check Method	Repair Method
A label is not detected.	Not set for the label printer	Check whether or not the DIP switch has been set for the label printer	Set the DIP switch for the label printer.
	Non-specified label paper used	___	Use the recommended label paper.
	Faulty sensor	___	Replace the label sensor.

- **Others (Operational Failure Included)**

Phenomenon	Cause	Check Method	Repair Method
At power-on, the PAPER and ERROR lamps remain illuminated.	Faulty control board	___	Replace the control board.
At power-on, the ERROR lamp blinks.	Faulty memory	___	Replace the memory or control board.
Kanji is not printed.	No Kanji ROM	Check whether or not the printer is for oversea use.	Replace the control board with one for domestic use or attach the Kanji ROM.
	Faulty Kanji ROM	___	Replace the Kanji ROM.
Erroneous printing or malfunctioning	The printer is used in a noisy place.	Check whether or not there is any noise emitting object around the printer.	Change the place.
A printer body or internal temperature is high.	Bad working environment	Check the working environment and installation site.	Move the printer to a well-ventilated place within the specified temperature range.
The ERROR lamp blinks during operation.	A macro is running.	In macro execution, check whether or not manual operation (macro execution by the FEED switch) is selected.	Press the FEED switch.
The PAPER lamp blinks while being used as the label printer.	The printer has discharged the paper and is cutting it.	Check whether or not a paper discharge command is being executed.	Cut the paper and press the FEED switch.

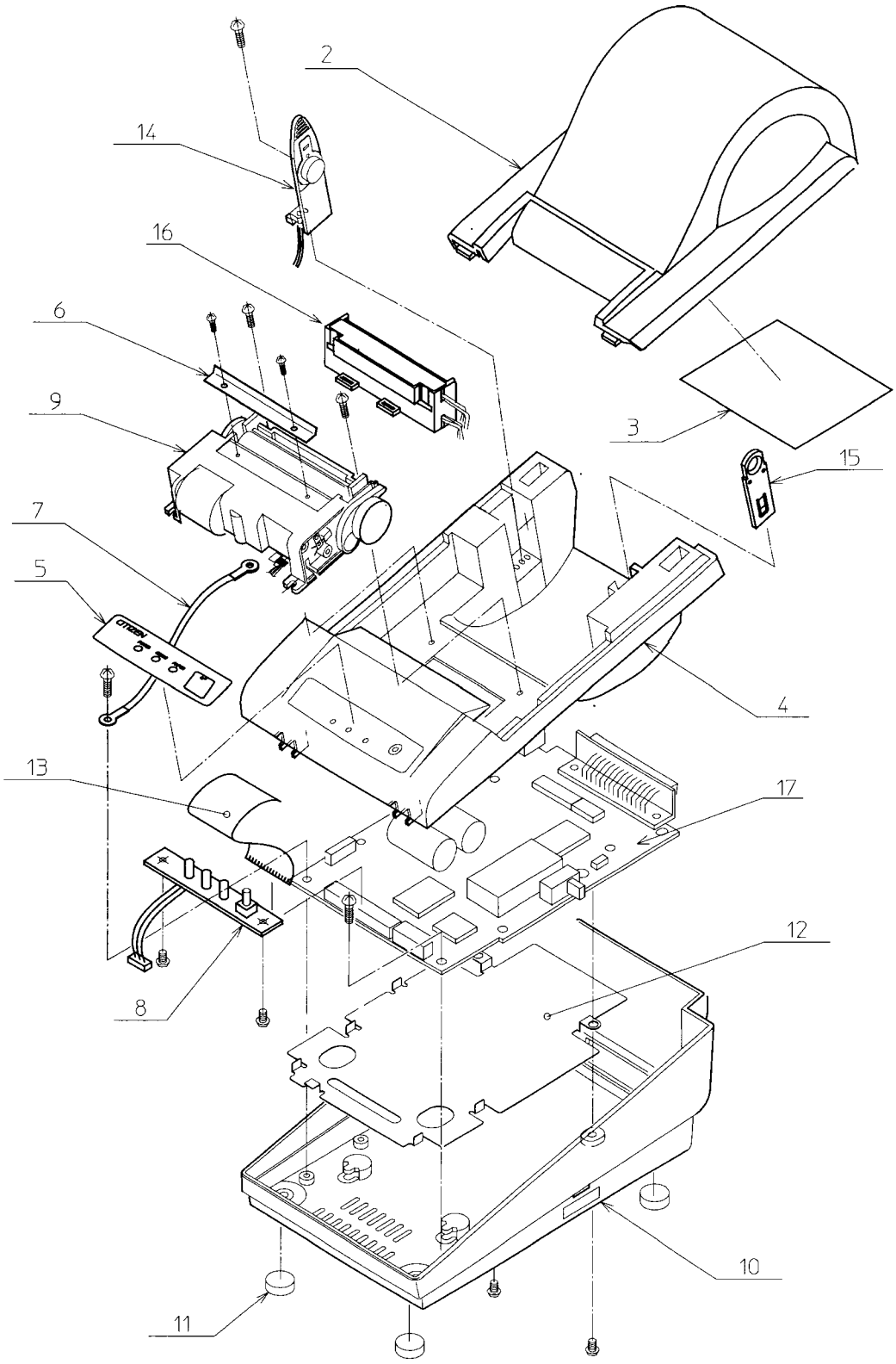
5. SERVICE PARTS LIST

5.1 Parts List for Mechanism

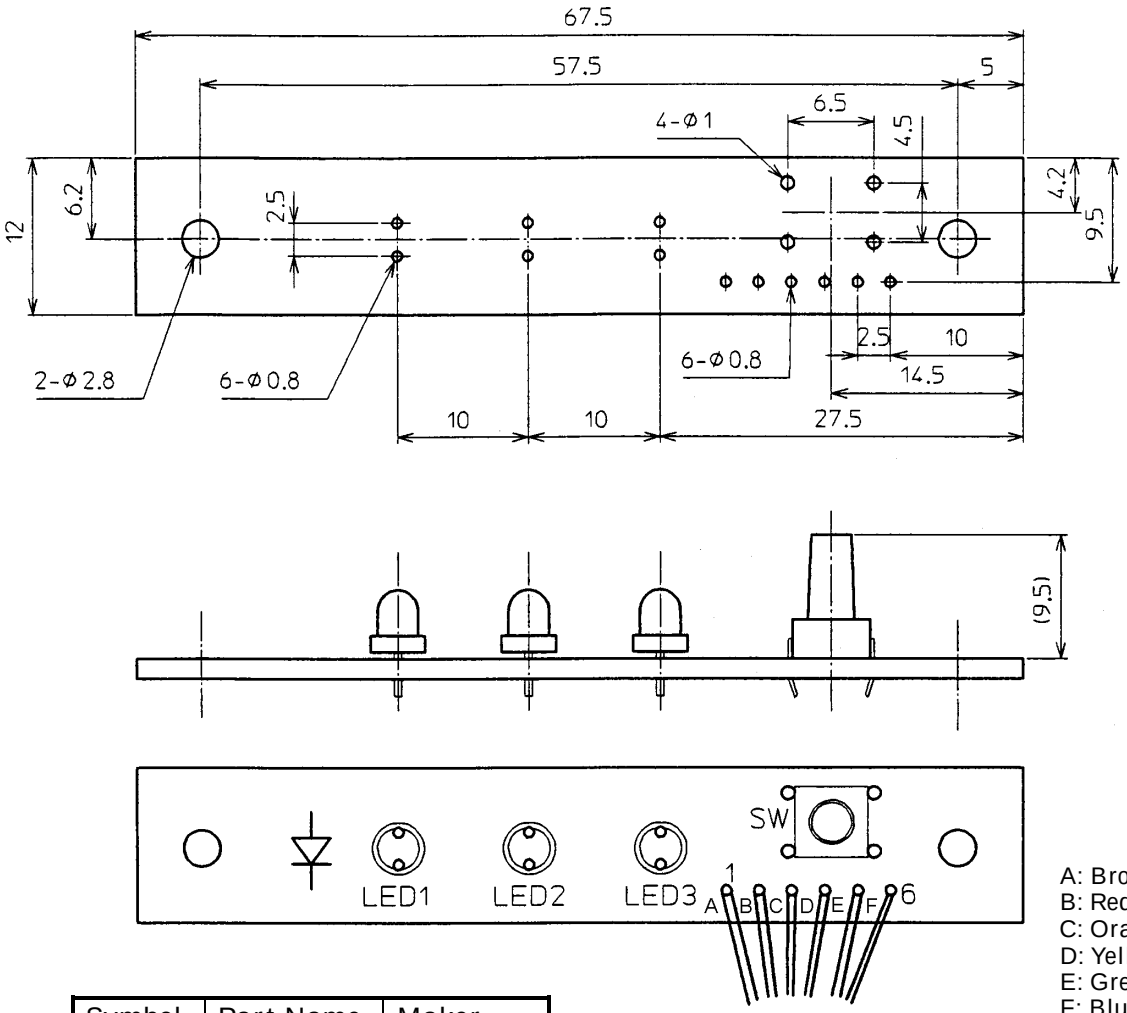
1/1

Ref.No.	Parts No.	Description	Q'ty	Remarks
1-01	27ADJ	AC Adapter 27AD with JPN Cord, $ = 140	(1)	
1-02	27ADU	AC Adapter 27AD with USA Cord, $ = 140	(1)	
1-03	27ADE	AC Adapter 27AD with EUR Cord, $ = 140	(1)	
2	E62040500	Printer Cover 270	1	
3		Paper Set Label 270 SEC-2608	1	
4	E62010830	Upper Cover 270	1	
5	E5200-350	Operation Panel Sheet 270	1	
6	E6220-640	Paper Cutter 270	1	
7	E4035-850	FG Cable SEC-2001-2	1	
8	E40000220	Operation Panel Board Assembly	1	
9	LT286	Printer Mechanism LT-286	1	
10	E62020360	Bottom Cover	1	
11	E6302-430	Rubber Foot SEC-2541	4	
12	E4035-720	Shielding Plate	1	
13	E4900-430	FFC 270-02 SEC-2310	1	
14	E4000-970	910 PE Holder Assembly	1	
15	E6611-405	Paper Hook	1	
16	E8009-020	Label Sensor Assembly	1	
17-01	E77001-320	270R Main Assembly JPN	(1)	
17-02	E77001-325	270R Main Assembly USA	(1)	
17-03	E77001-330	270R Main Assembly EUR	(1)	
17-04	E77001-335	270P Main Assembly JPN	(1)	
17-05	E77001-340	270P Main Assembly USA/EUR	(1)	
17-06	E77001-345	270R Main Assembly JPN for Interlabel Use	(1)	
17-07	E77001-350	270R Main Assembly USA for Interlabel Use	(1)	
17-08	E77001-355	270R Main Assembly EUR for Interlabel Use	(1)	
17-09	E77001-360	270P Main Assembly JPN for Interlabel Use	(1)	
17-10	E77001-365	270P Main Assembly USA/EUR for Interlabel Use	(1)	
17-11	E77001-370	270R Main Assembly JPN for Black Mark Use	(1)	
17-12	E77001-375	270R Main Assembly USA for Black Mark Use	(1)	
17-13	E77001-380	270R Main Assembly EUR for Black Mark Use	(1)	
17-14	E77001-385	270P Main Assembly JPN for Black Mark Use	(1)	
17-15	E77001-390	270P Main Assembly USA/EUR for Black Mark Use	(1)	

5.2 Disassemble Drawing

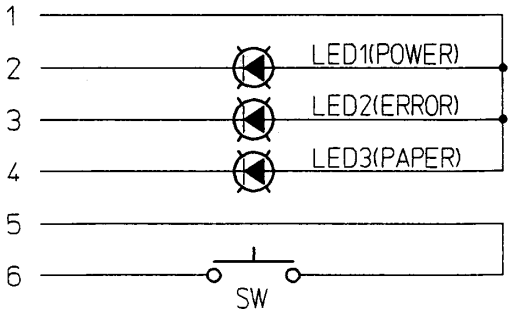


5.2.1 Drawing for Operation Panel PCB



A: Brown
B: Red
C: Orange
D: Yellow
E: Green
F: Blue

Symbol	Part Name	Maker
SW	SKHHAN	ALPS
LED1	SEL2410E	SANKEN
LED2	SEL2110S	SANKEN
LED3	SEL2110S	SANKEN



Material Paper Phenol
Single-sided Board 1.6 Thick UL Certified
No Silk (Symbols, Board Name, Etc. Inscribed in Pattern)

OPERATION PANEL BOARD
K270-03

5.3 Parts List for Control Board

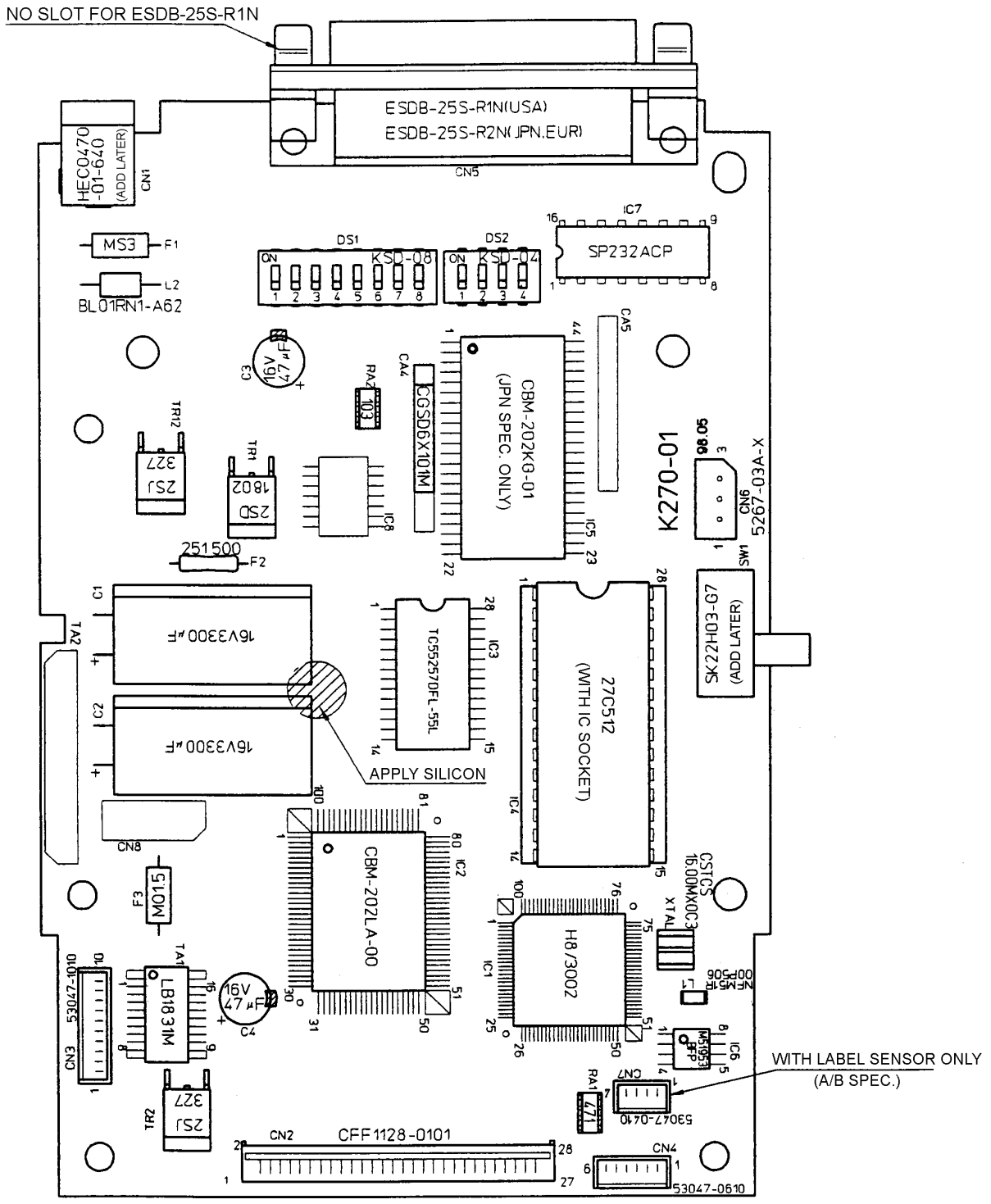
1/2

Ref. No. R	Ref. No. P	Parts No.	Description	Q'ty R	Q'ty P	Remarks
IC1	IC1	E107-280	CPU H8/3002	1	1	
IC2	IC2	E104-530	Gate Array CBM-202LA-00	1	1	
IC3	IC3	E107-330	SRAM TC55257DFL-55L	1	1	
IC4	IC4	E104-650	EPROM LE27C512F-45	1	1	
IC5	IC5		Kanji ROM CBM-202KG-01	1	1	Japanese Spec. Only
IC6	IC6		Reset IC M51953BFP	1	1	
IC7		E2020050	I/F IC MAX202CSE	1		SP232ACN(SIPEX)
(IC4)	(IC4)	E4800870	IC Socket DILB-28P	1	1	
TA1	TA1	E390-350	Motor Driver LB1831M	1	1	
Tr1	Tr1	E379-060	Transistor 2SD1802ST-TA-TF	1	1	
Tr2,12	Tr2,12	E379-990	FET 2SJ327-Z	2	2	Resistor Built-in Type
Tr3-5	Tr3-5		Transistor DTC114EUA or RN1302	3	3	
Tr6-7	Tr6-7 10-11		Transistor 2SC2712	2	4	
D1	D1		Diode S1G	1	1	
ZD1	ZD1		Zener Diode RD8.2MB	1	1	
ZD2,3	ZD2,3		Zener Diode RD5.6MB2	2	2	
Xtal	Xtal		CeramicOscillator CSTCS16.00MX0C3	1	1	
F1	F1	E4005-795	Fuse MS3	1	1	
F2	F2	E4005-815	Fuse 251.500	1	1	
F3	F3	E4005-770	Fuse MQ1.5	1	1	
DS1	DS1	E5103-510	DIP Switch KSD-08	1	1	
DS2		E5103-470	DIP Switch KSD-04	1		
SW1	SW1	E5109-210	Slide Switch SK22H03-G7	1	1	
RA1	RA1		Chip Res.Array BCN4D471JE	1	1	
RA2			Chip Res.Array BCN4D103JE	1		
	RA2,3		Chip Res.Array BCN4D103JE		2	
CA4	CA4		Capacitor Array CGSD6×101M	1	1	

Ref. No. R	Ref. No. P	Parts No.	Description	Q'ty R	Q'ty P	Remarks
R1,3,5,7-9,18, 27,38,40	R1,3,5,7-9,18, 27,38,40		Chip Resistor CR10-103J	10	10	
R2,14-17,21, 22,25	R2,14-17,21, 22,25		Chip Resistor CR10-333J	8	8	
R4,6,10,12,13,19, 23,26,29,39			Chip Resistor CR10-221J	10		
	R4,6,10,12,13,19, 23,26,29,37,39		Chip Resistor CR10-221J		11	
R11	R11		Chip Resistor CR10-303J	1	1	
R20,24,28	R20,24,28		Chip Resistor CR10-683J	3	3	
C1,2	C1,2	E2010-945	Elec.Capacitor 16YK3300M 12525	2	2	
C3,4	C3,4	E2010-940	Elec.Capacitor 16MS5 47M 6.3×5	2	2	
C5-11,16,17, 23-25,31-34			Chip Cera.Cap. GRM40F104Z50PT	16		
	C5-11,16,17, 23-25,31,32		Chip Cera.Cap. GRM40F104Z50PT		14	
C12-15,43			Chip Cera.Cap. GRM40B101Z25PT	5		
	C12-15, 34-38,43		Chip Cera.Cap. GRM40B101Z25PT		10	
C18-22,26			Chip Cera.Cap. GRM40B102Z50PT	6		
	C18-22,26,33		Chip Cera.Cap. GRM40B102Z50PT		7	
PC3,4,6,7 11-13,21-33			Chip Cera.Cap. GRM40F104Z50PT	10		
	PC3,4,6,7 11-13,21-33		Chip Cera.Cap. GRM40F104Z50PT		9	
L1	L1		Emiphil NFM51R00P506	1	1	
L2	L2		Ferrite Bead BL01RN1-A62	1	1	
L3-12 15,16			Ferrite Bead BLM21B601S	12		
	L3-12 15-21		Ferrite Bead BLM21B601S		17	
CN1	CN1	E48000790	Connector HEC0470-01-640	1	1	For Power Jack
CN2	CN2	E48000850	Connector CFF1128-0101	1	1	For HEAD
CN3	CN3	E48000815	Connector 53047-1010	1	1	For MECHA
CN4	CN4	E48000635	Connector 53047-0610	1	1	For OP Panel
(CN5)		E48000880	Connector ESDB-25S-R2N	(1)		For Serial I/F J,E
(CN5)		E48000875	Connector ESDB-25S-R1N	(1)		For Serial I/F U
	CN5	E48000625	Connector 57RE-40360-730B(D29A)		1	For Parallel I/F
CN6	CN6		Connector 5267-03A-X	1	1	For PNE Sensor
CN7	CN7	E48000615	Connector 53047-0410	1	1	For Label Sensor
(PCB)			Control Board K270-01	1		
	(PCB)		Control Board K270-02		1	

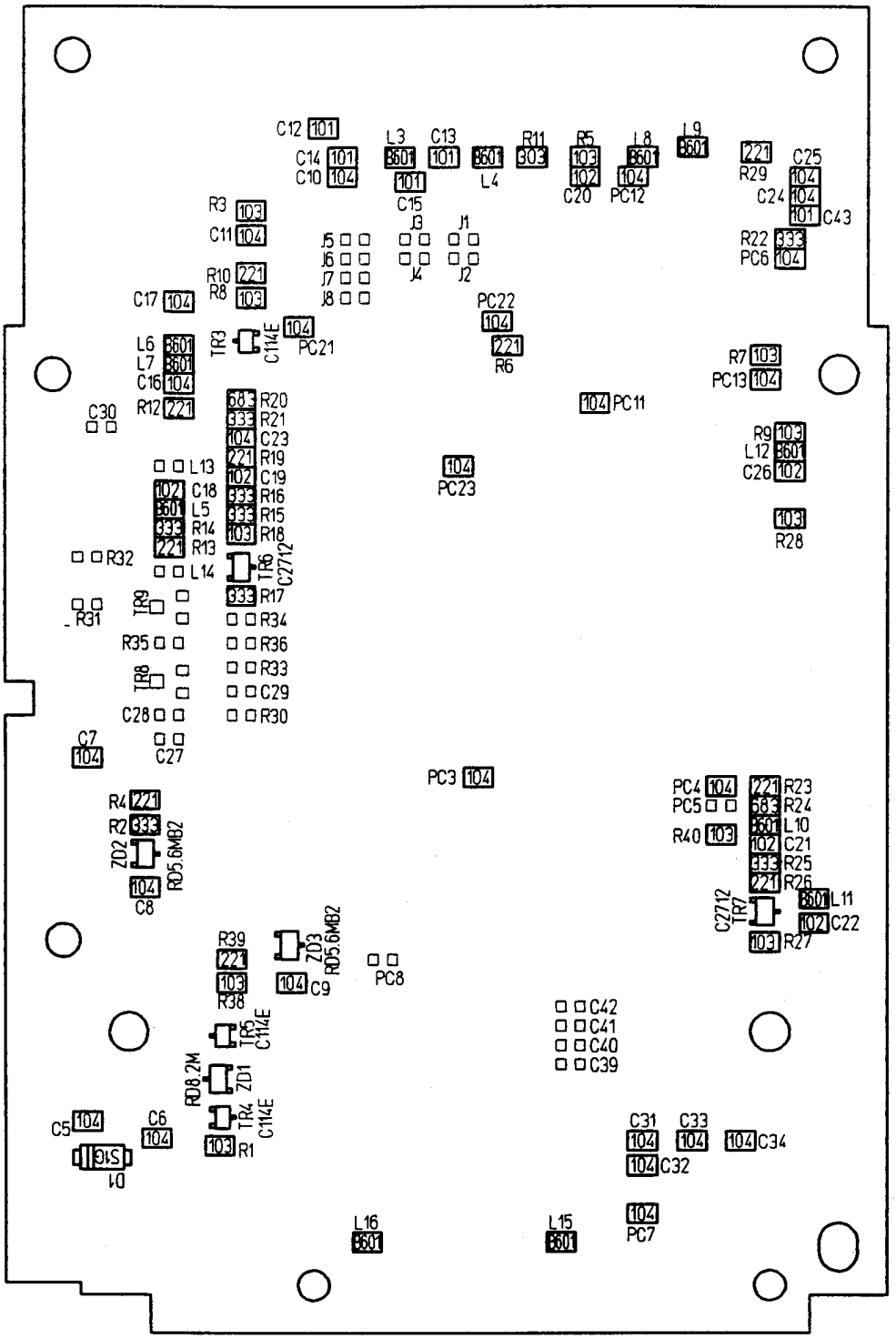
5.4 Parts Layout Drawing

5.4.1 Serial Interface (Parts Side)



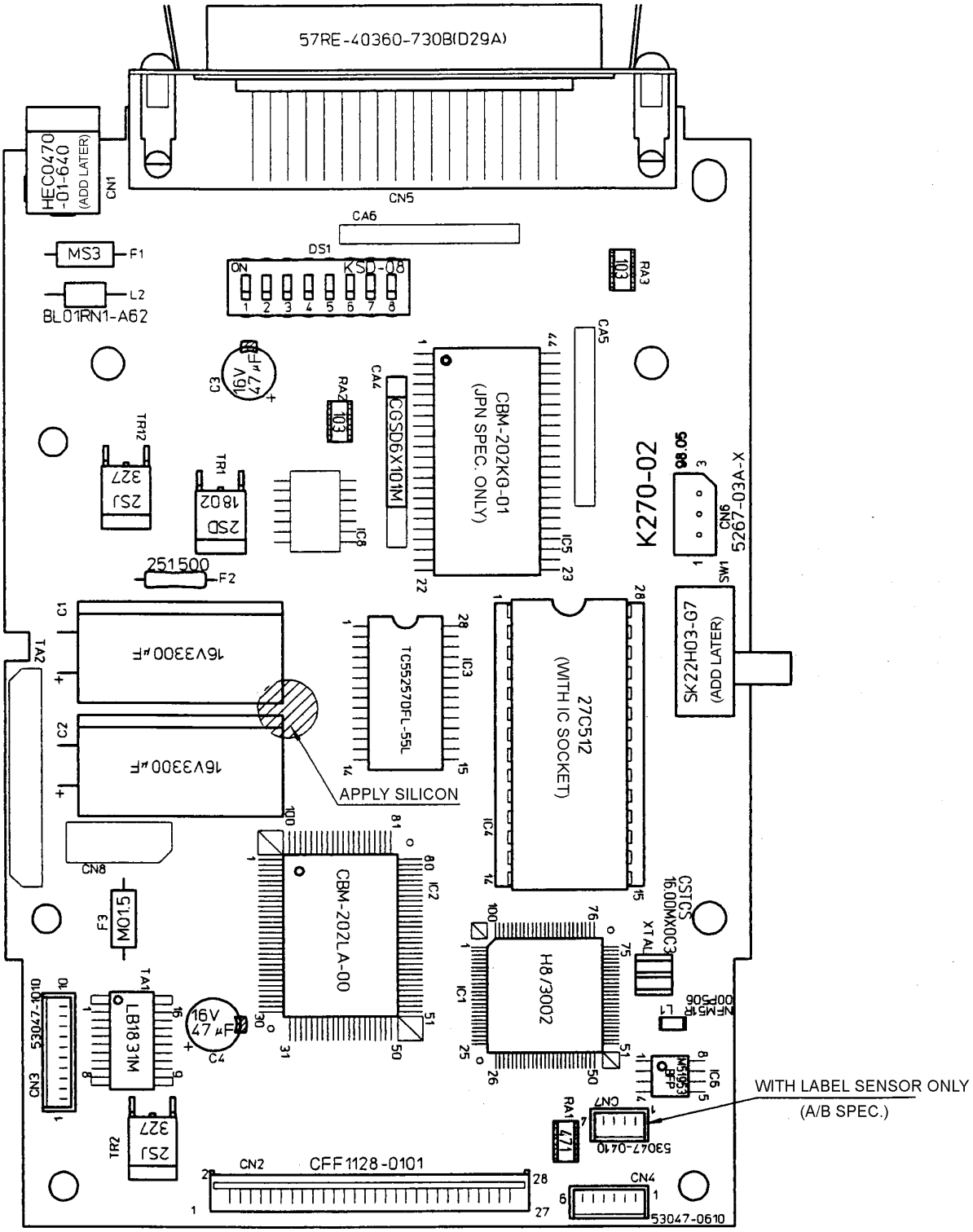
Seral Interface (Parts Side)
K270-01

5.4.2 Serial Interface (Solder Side)



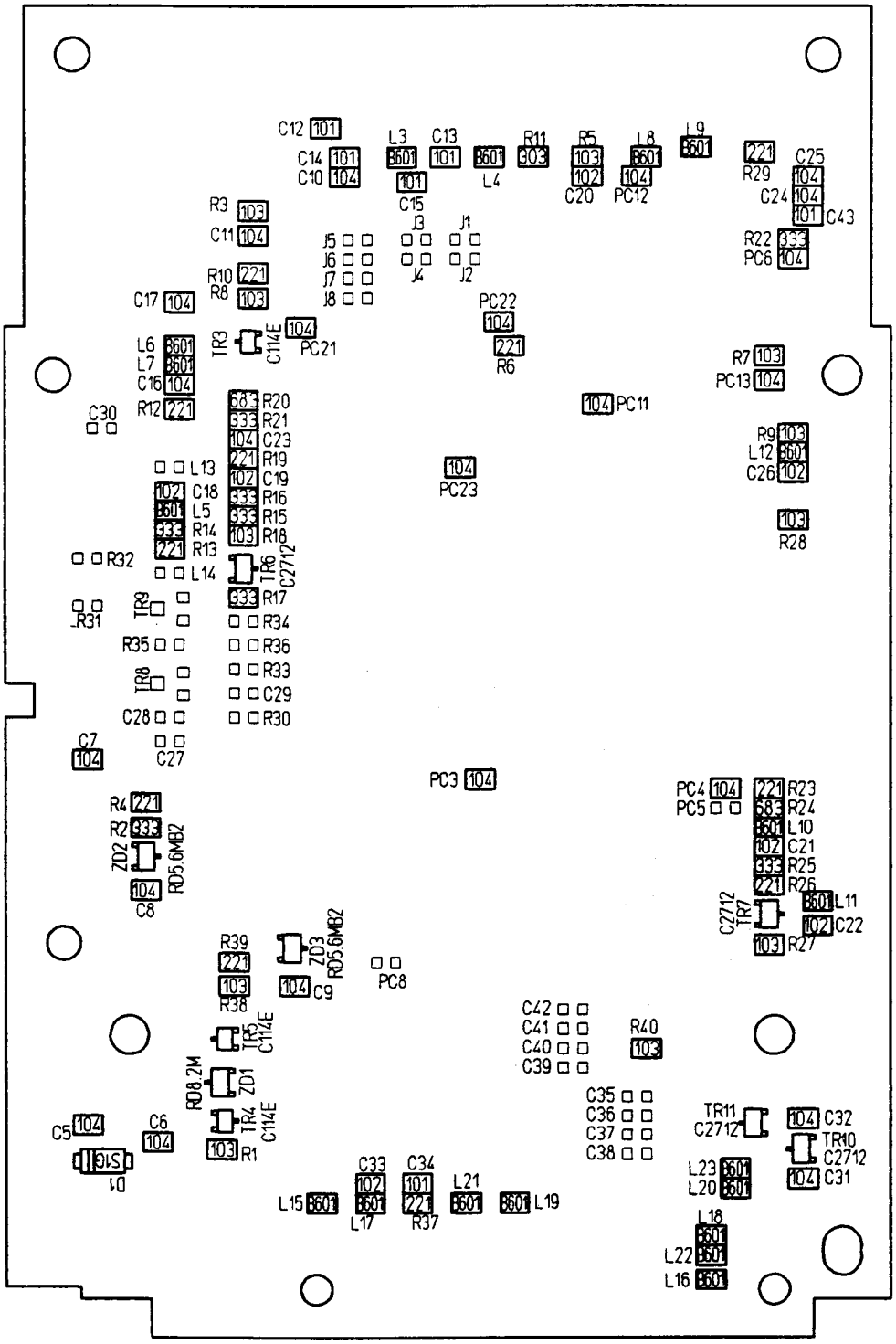
Serial Interface (Solder Side)
K270-01

5.4.3 Parallel Interface (Parts Side)



Parallel Interface (Parts Side)
K270-02

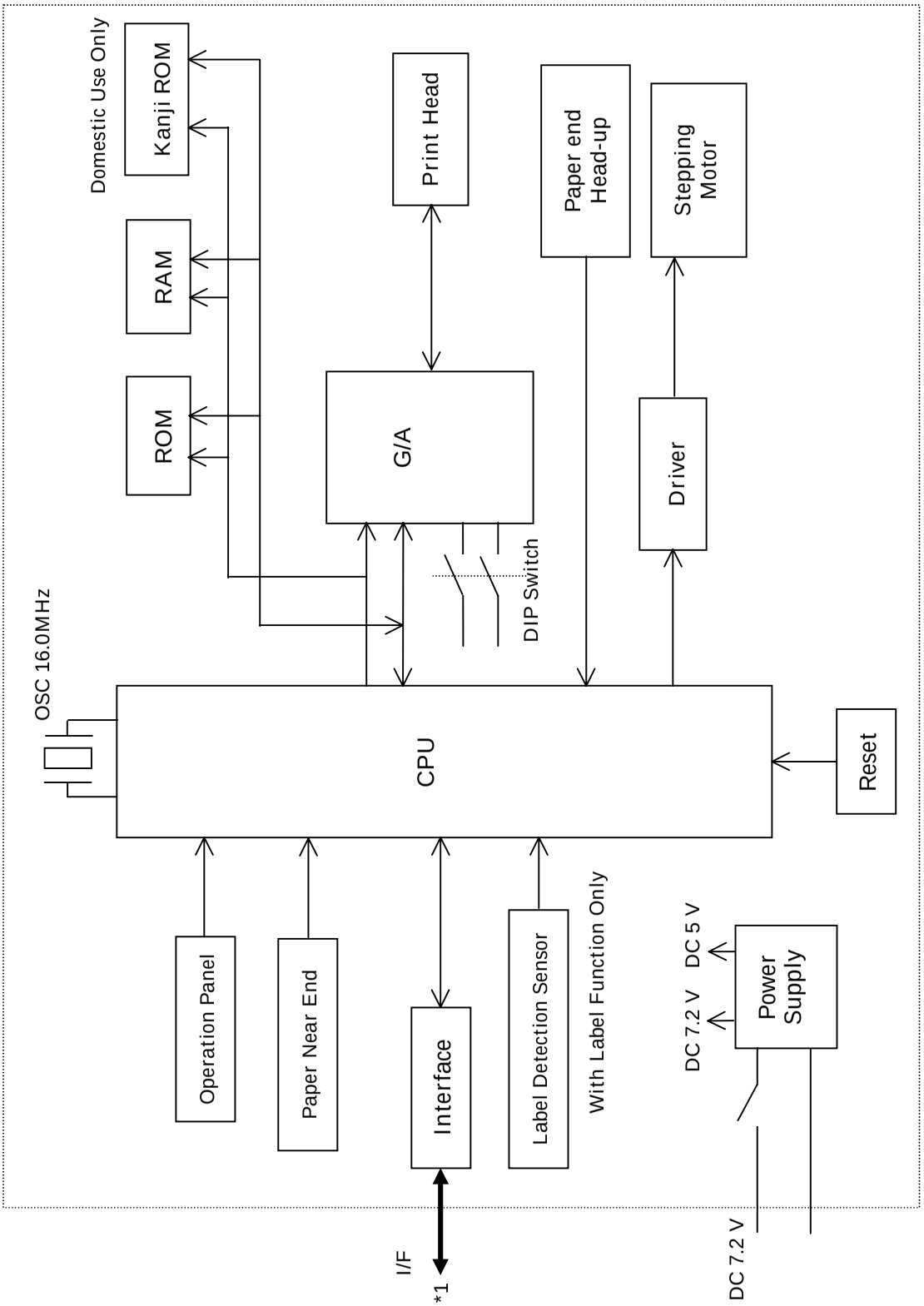
5.4.4 Parallel Interface (Solder Side)



Parallel Interface (Solder Side)
K270-02

6. DRAWING

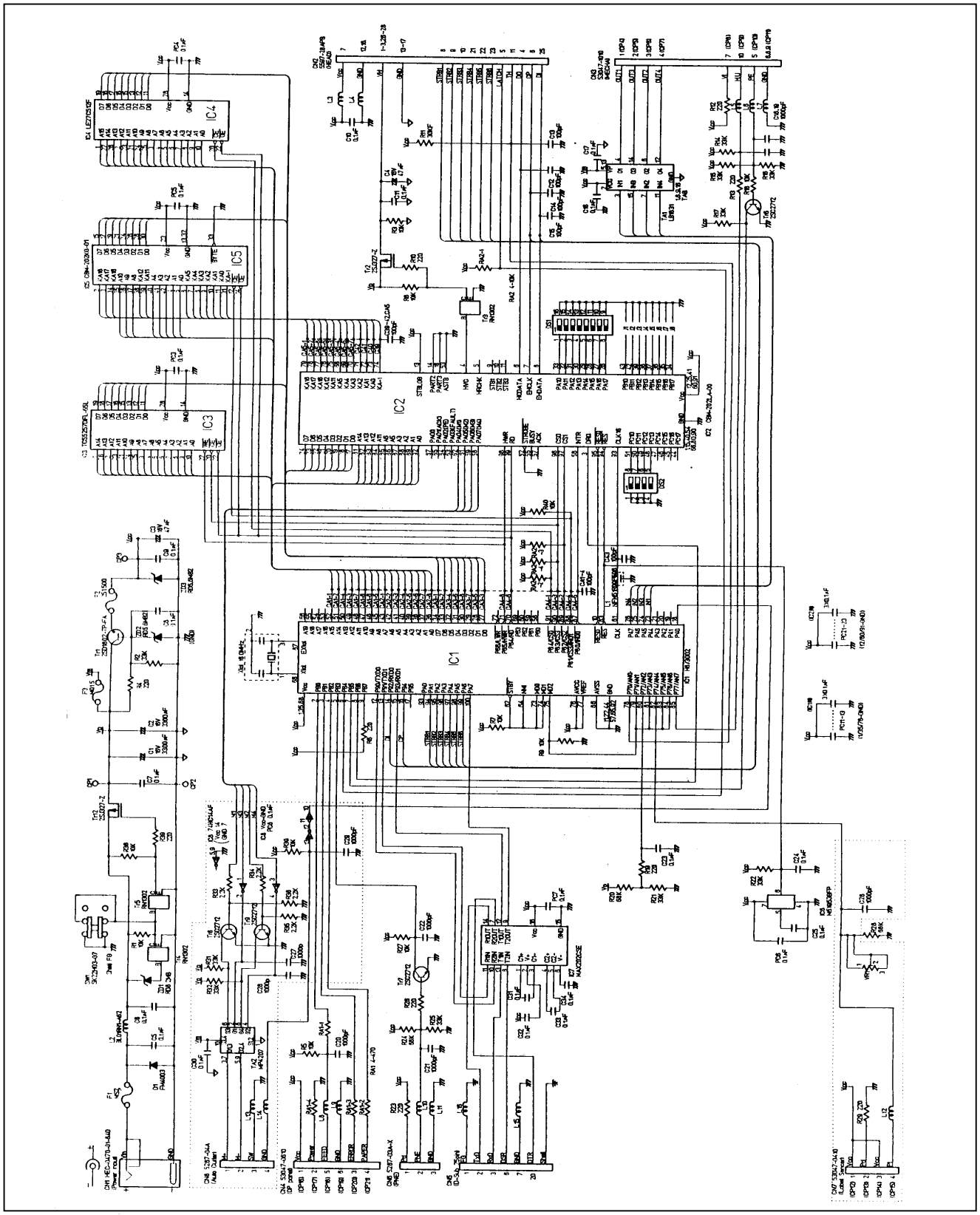
6.1 Block Diagram



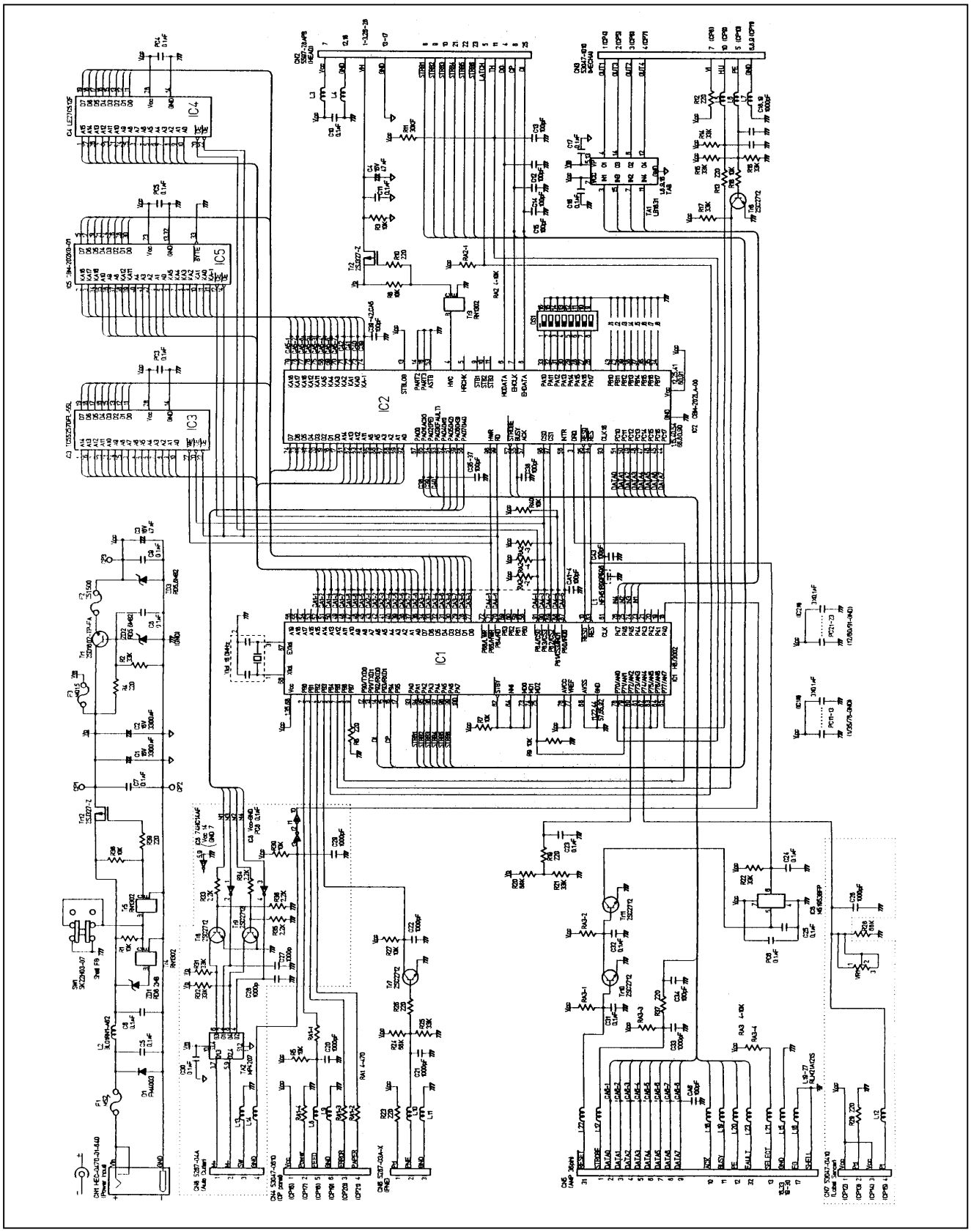
*1 Parallel --- CENTRONICS Compliant
Serial --- RS-232C Compliant

6.2 Circuit Diagram

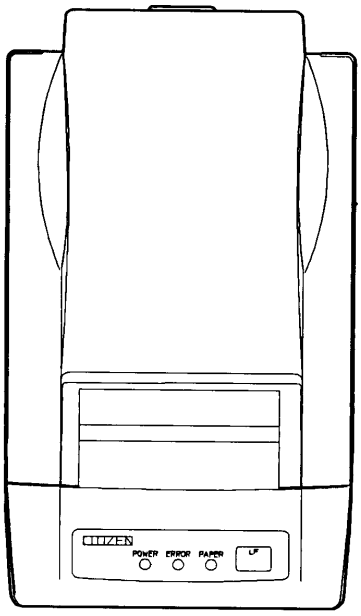
6.2.1 Serial Interface (CBM-270-RF)

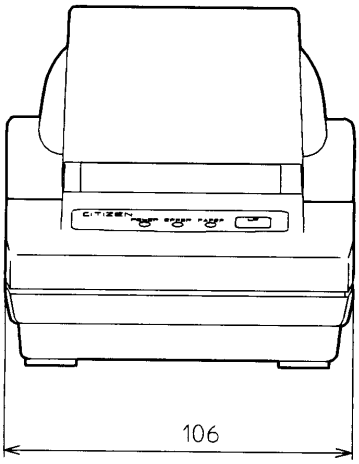


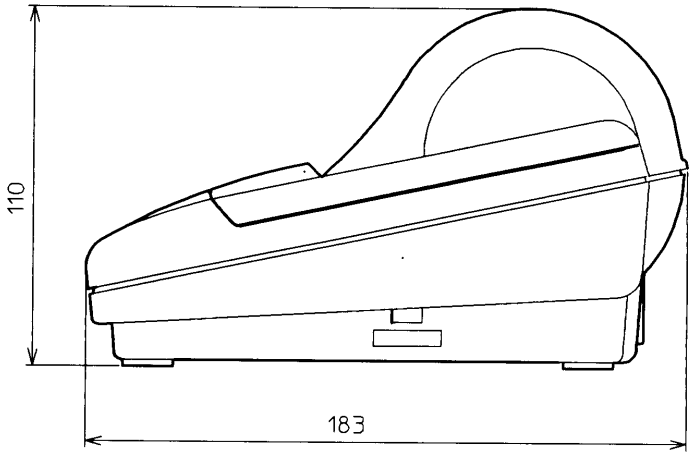
6.2.2 Parallel Interface (CBM-270-PF)



7. OUTLINE DRAWING







WALL MOUNTING HOLES LAYOUT DRAWING