CITIZEN

Service Manual

Model: iDP3221

Line Thermal Printer

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Japan CBM Corporation
Information Systems Div.

INTRODUCTION

This manual describes the disassembly, reassembly, and maintenance procedures of the line thermal printer iDP3221. It is intended for field maintenance men.

FEATURES

This is a small line thermal printer developed to be used for various data communication terminals, POS terminals, kitchen printer, and so on. With its abundant features, it can be widely used for various types of applications. Prior to using the printer, read this manual thoroughly to understand its contents.

1. Small, lightweight, with a small footprint.
2. Designed with a reduced number of components to ensure low cost.
3. Paper is added by simply placing the paper and closing the cover.
4. A removable platen mechanism simplifies maintenance (e.g. paper handling and head cleaning).
5. Line thermal printing for high speed and low noise.
6. A long-life head with a simple mechanism to ensure high reliability.
7. Built-in input buffer.
8. Bar code printing (with special commands).
9. Built-in drawer kick-out interface.
10. Auto cutter fitted as standard.
11. User registration of external characters.

CONTENTS

♦ For the auto cutter unit (ACS-231), see the separate Service Manual.

1. HANDLING AND MAINTENANCE OF PRINTER

See the User's Manual coming with the printer body.

2. SPECIFICATIONS

2.1 Basic Specifications

Item \ Model	iDP3221–RF120 iDP3221–PF120	iDP3221–RF230 iDP3221–PF230
Printing system	Line thermal dot printing	
Printing width	72.192 mm/512 dots	
Dot density	Width: 0.141 mm, Length: 180 DPI (0.141 mm)	
Printing speed	63.45 mm/sec. (At maximum speed, print density level 2), (450-dot line/sec.)	
Printing columns	42 columns (Font A) , 56 columns (Font B)	
Printing size	1.41×3.39 mm (Font A) , 0.99×3.39 mm (Font B)	
Line pitch	4.23 mm (1/6 inch) Can be set with a command (See 10.2 "Command Details.")	
Character types	Alphanumeric, international characters, extended graphic	
Bar code type	UPC-A/E, JAN(EAN) 13-/18-column, ITF, CODE 39, CODE 128, CODABAR, CODE 93	
Paper	Thermal paper roll : 80 + 0/- 1 mm×ϕ83 (max.) mm (See Paper Specifications)	
Interface	Serial (RS-232C) Parallel (IEEE 1284 compliant) (Bi-directional communication)	
Input buffer	4 KB or 72 bytes (Selectable with the DIP switch)	
Supply DC voltage	24 V DC +/- 7%	
Power consumption	100 W	
AC adapter	Rated input : 100~240 V AC, 50/60 Hz, 120 VA Rated output : 24 V DC, 1.8 A	
Type	31AD-U	31AD-E
Weight	Main body: Approx. 1.3 Kg AC adapter: Approx. 450 g	
Outer dimensions	152 (W) × 201 (D) × 123 (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: 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) Auto cutter life: 500,000 cuts (With recommended thermal paper at normal temperature and humidity)	
Applicable standard *1	UL, C-UL, FCC Class-A	TUV, GS, CE Marking

Note: *1 indicates the standard satisfied when the AC adapter (31AD series) is used.

3. MECHANISMS AND OPERATING PRINCIPLES

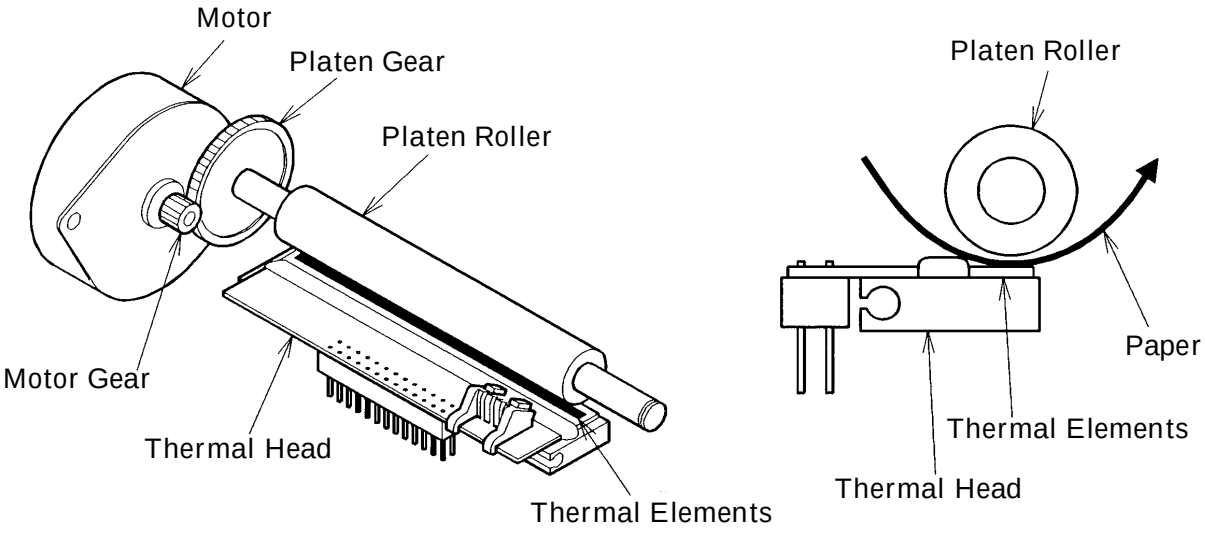
The following describes the basic mechanisms of the printer and how the printer operates, for the following blocks.

- Power transmission and paper feed mechanism
- Platen roller attaching/detaching mechanism
- Sensor mechanism
- Print head mechanism

3.1 Power Transmission and Paper Feed Mechanism

As the motor runs, its force is conveyed via the motor gear (mounted on the motor shaft) to the platen gear, which rotates the platen roller. At its ends, the platen roller is pressed by the head springs against the thermal elements on the thermal head.

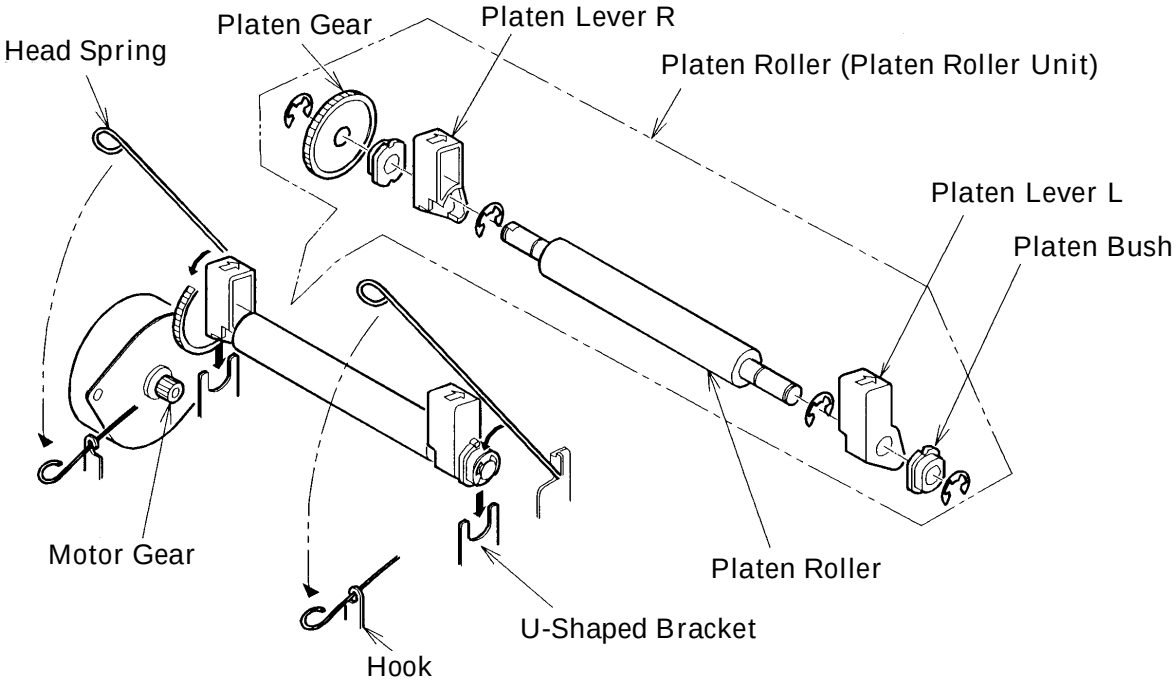
When thermal paper is inserted between the platen roller and the thermal head, the rotation of the platen roller feeds the paper, which is delivered to the paper outlet.



3.2 Platen Roller Attaching/Detaching Mechanism

The platen roller in the paper feed mechanism is removable from the printer. The platen roller is built as a unit consisting of the platen gear, platen bushes, and platen lever L and R. When this unit is set on the U-shaped brackets of the chassis, the platen gear engages with the motor gear. The platen is brought into contact with the thermal head, as it is pressed by the head springs which each have one end anchored to the hook of the chassis.

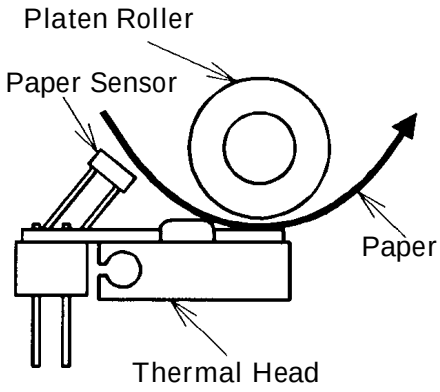
The movable end of each head spring can be released from the hook on the chassis to remove the platen roller.



3.3 Sensor Mechanism

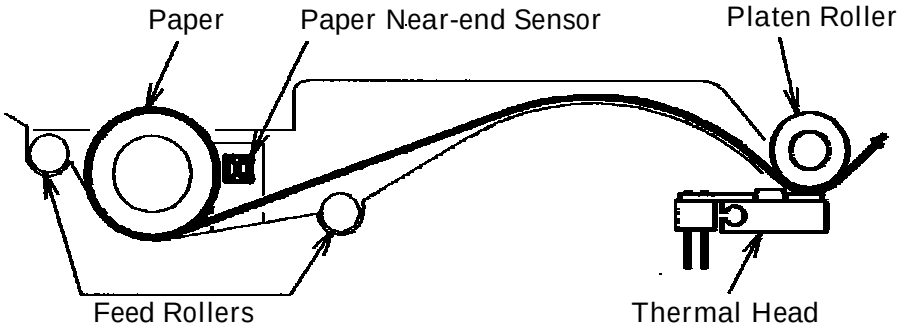
3.3.1 Paper Sensor

The paper sensor detects the presence of paper just before the thermal head. Only when this sensor detects paper, does the thermal head is energized, because otherwise the thermal head may be damaged or its life seriously affected. The sensor also works in automatic paper loading to determine whether paper is inserted or not. (The paper sensor is built on the thermal head.)



3.3.2 Paper Near-end Sensor

This sensor detects that the paper is nearing the roll end. When the remaining quantity of paper becomes small (about 50 to 200 cm for the designated paper), the sensor detects it because the roll surface comes off the sensor. The remaining quantity of paper depends on the quality of the paper or the material of the core. It is not possible to adjust the near-end point.

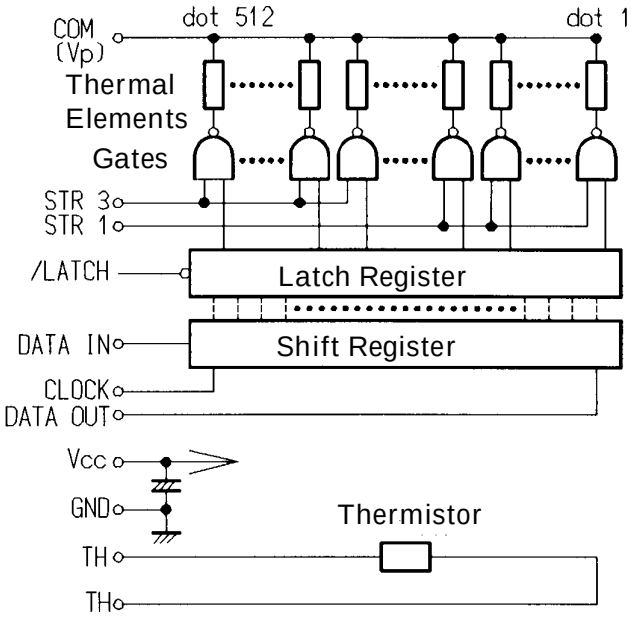


3.4 Print Head Mechanism

The print head in this printer is a thermal head. It consists of thermal elements and a head driver. The thermal elements are driven and controlled by the head driver.

3.4.1 Drive Control Overview

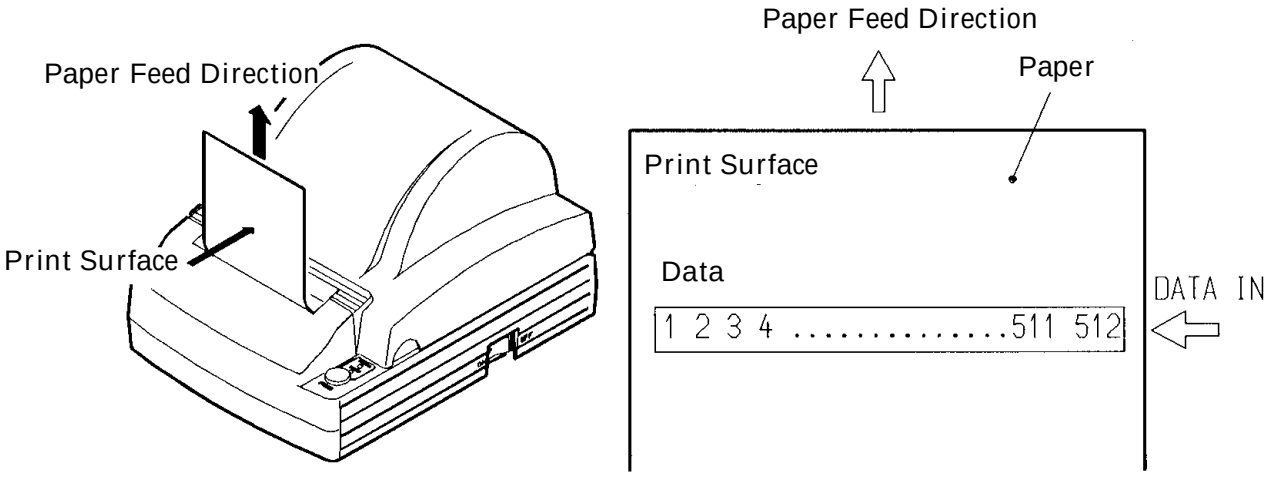
The serial print data coming from DATA IN (DI) is synchronized with a CLOCK (CP) signal and transferred to the shift register. The data is stored into the latch register by a LATCH (LA) signal. When gates are turned on by head ON signals (print commands STR1 - 3), the thermal elements corresponding to the stored print data are energized, and the resultant heat works to print on the thermal paper.



[Equivalent circuit for thermal head]

3.4.2 Print Data and Print Positions

The 512-bit print data (numbers 1 - 512) transferred from DATA IN (DI) is printed at the positions shown in the figure below.



4. DISASSEMBLY AND REASSEMBLY

For maintenance operations, note the following:

Notes:

(1) Do not disassemble/reassemble or adjust the machine, if it functions properly. Particularly, do not loosen screws on any component, unless necessary.

(2) After completing an inspection and before turning on the power, be sure to check that there is no abnormality.

(3) Never try to print without paper installed in the printer.

(4) Check that the printing paper and platen roller are properly set.

(5) During maintenance, be careful not to leave parts or screws unattached or loose inside the printer.

(6) When handling the thermal head, do not use gloves or other aids which can easily cause static electricity.

(7) When disassembling or reassembling, check cables and boards for any damage. Do not run cables into a narrow space or set cables in improper positions.

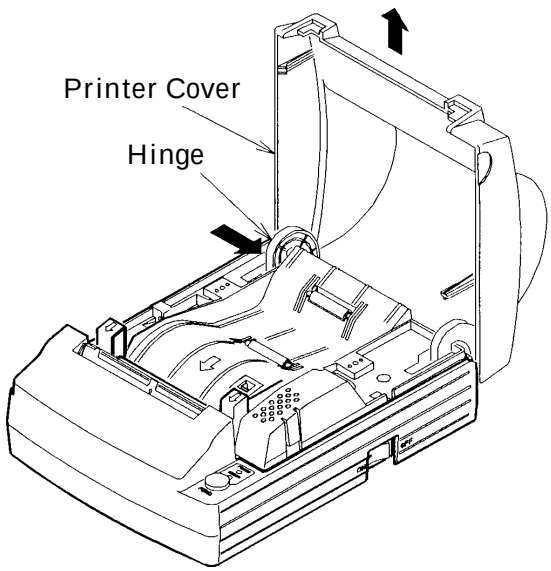
4.1 Disassembly Procedure

1. Removing the Printer Cover

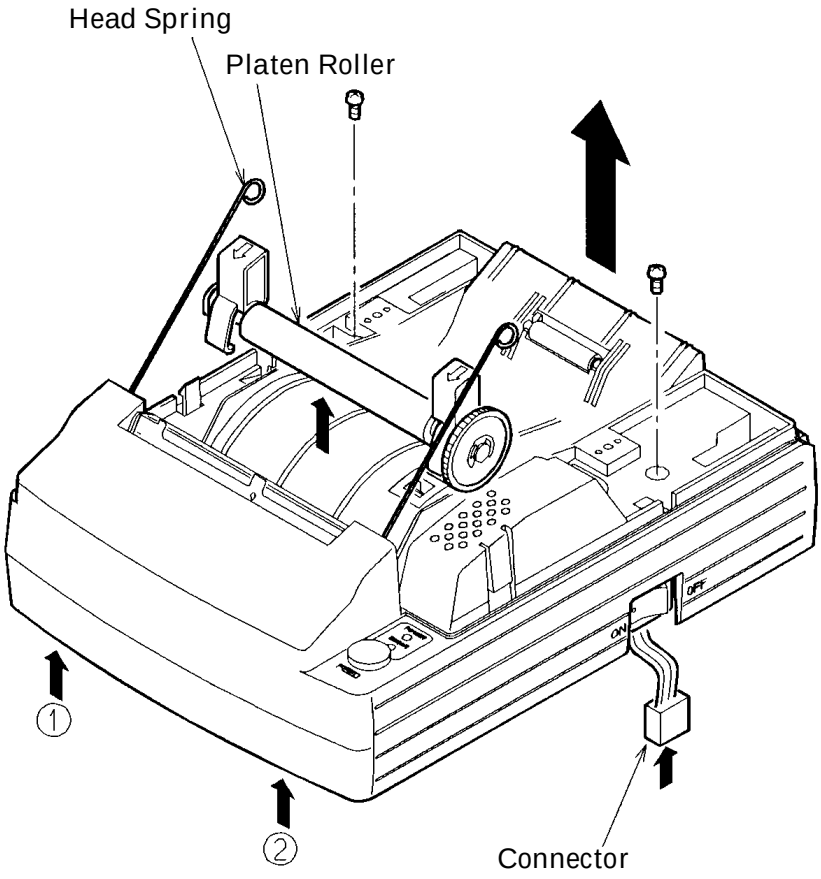
(1) Open the printer cover.

(2) Push the hinge part of either side of the printer cover inward and remove the hinge from the main body.

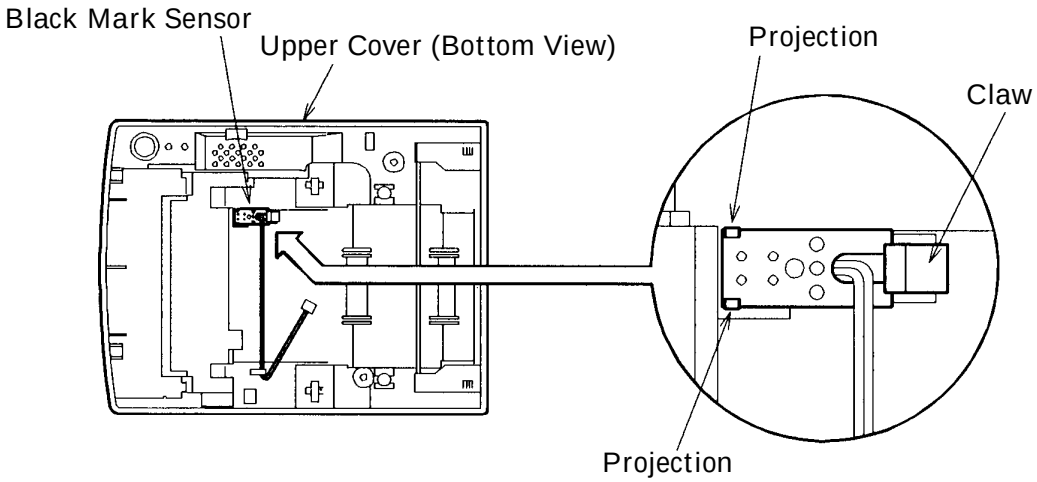
(3) Remove the another hinge and detach the printer cover.



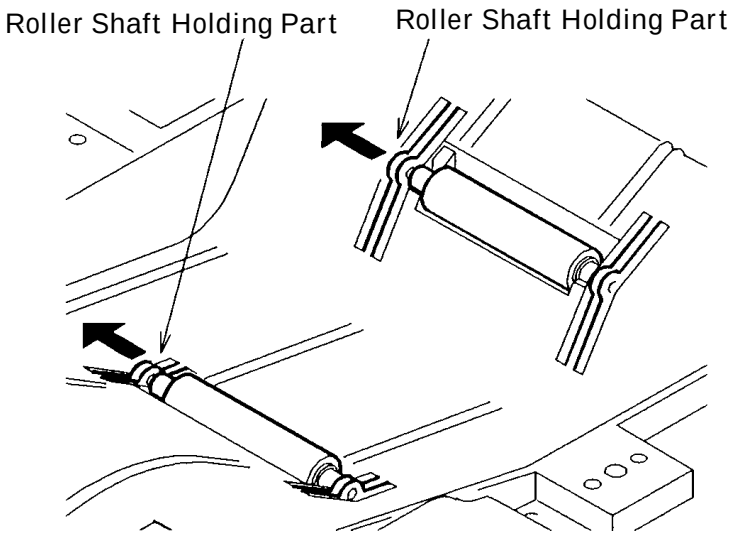
2. Removing the Upper Cover
   (1) Remove the head springs from the hooks and detach the platen roller.
   (2) Remove the two screws (M3×8).
   (3) Lift the back of the upper cover to open it. With this condition, insert a flat-blade screwdriver into the slit at the front of the printer (between the chassis and upper cover ①and ②) to unlock the claws.
   (4) Lift the upper cover gently and disconnect the connectors of sensors (such as paper near-end sensor when paper of 58 mm width is used) from the control board.
   (5) Remove the upper cover by lifting it upward while paying attention so as not it is disturbed by the head springs.



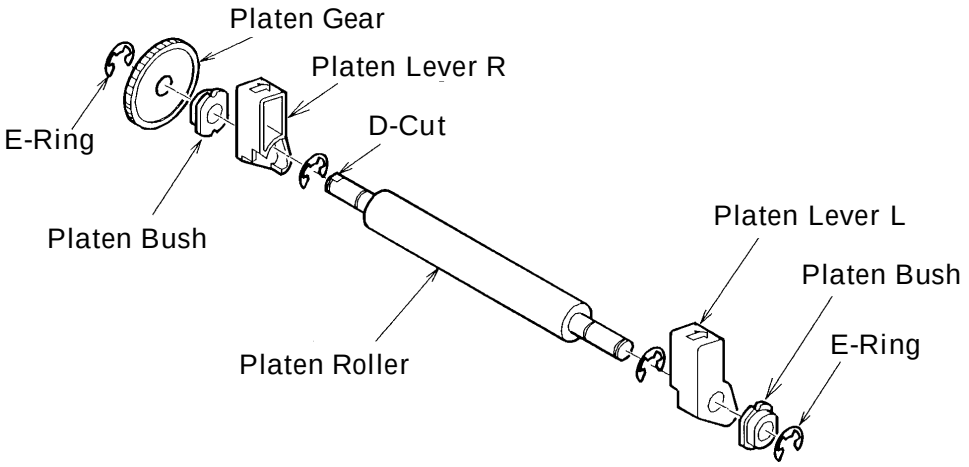
3. Removing the Black Mark Sensor (Option) from the Upper Cover
   (1) Remove the upper cover.
   (2) Push the claw on the bottom of the upper cover to bent it and remove the one end of the PC board.
   (3) Unhook the cable of the PC board from the upper cover.
   (4) Gently disengage the PC board from the two projections of the upper cover to remove it. In this case, pay special attention so as not to break the projections.



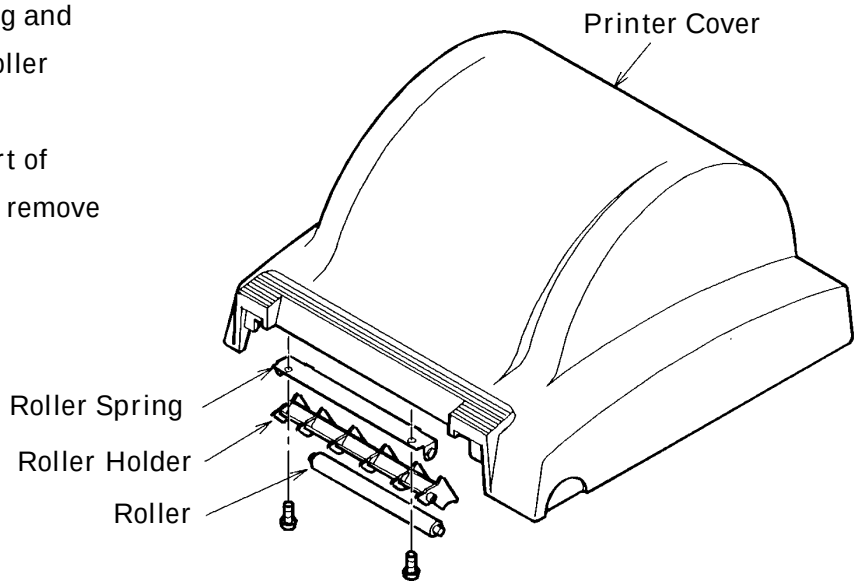
4. Removing the Rollers from the Upper Cover
   (1) Push either side of the roller shaft holding part outward to bend it as shown in the figure and remove the roller.



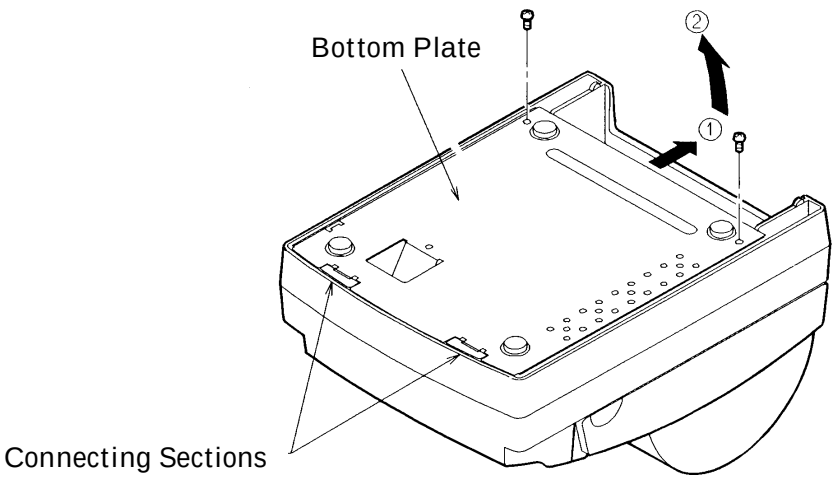
5. Disassembling the Platen Roller Unit
   (1) Disengage the E-ring on the platen gear side.
   (2) Remove the platen gear, platen bush, platen lever R, and E-ring in that order.
   (When assembling, align the notch of the platen bush with the projection of the platen lever R.)
   (3) Disengage the other side of the E-ring and then remove the platen bush, platen lever L, and E-ring.



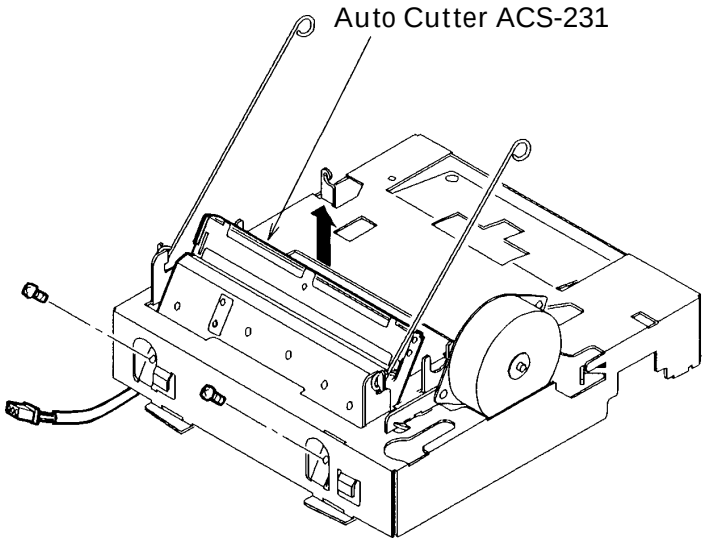
6. Removing the Pressure Roller
   (1) Remove the printer cover.
   (2) Remove the two screws (M2.6×6) to detach the pressure roller block from the printer cover.
   (3) Bend the roller spring and remove it from the roller holder.
   (4) Bend the bearing part of the roller holder and remove the pressure roller.



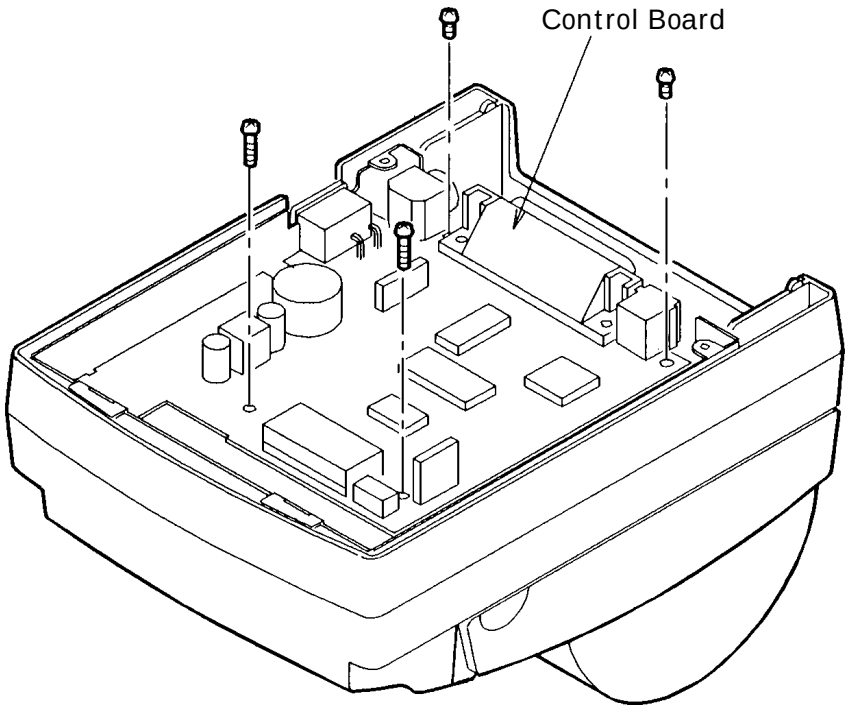
7. Removing the bottom plate from the chassis
   (1) Remove the two screws (M3×8).
   (2) Slide the bottom plate in the direction ① a little to remove it from the power connector housing.
   (3) Lift the bottom plate while turning it in the direction ②. Then, the bottom plate comes off the chassis.



8. Removing the Auto Cutter ACS-231 from the Chassis
   (1) Remove the bottom plate.
   (2) Remove the upper cover.
   (3) Disconnect the connector of the auto cutter from the control board.
   (4) Remove the two screws (M2.6×6) and detach the auto cutter by lifting it upward.

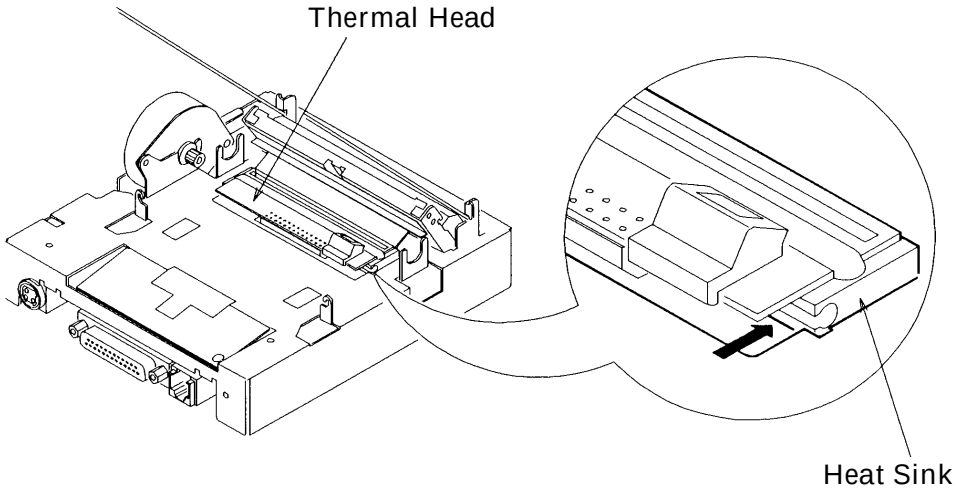


9. Removing the Control Board from the Chassis
   (1) Remove the bottom plate.
   (2) Remove the upper cover.
   (If the optional black mark sensor or paper holder is not installed, remove only the platen roller as it is unnecessary to remove the upper cover.)
   (3) Remove the two screws (M3×16) and two screws (M3×8).
   (4) Remove the control board by lifting it upward. In this case, do not deform the thermal head, paper near-end sensor, power switch, etc. or make scratch on them.

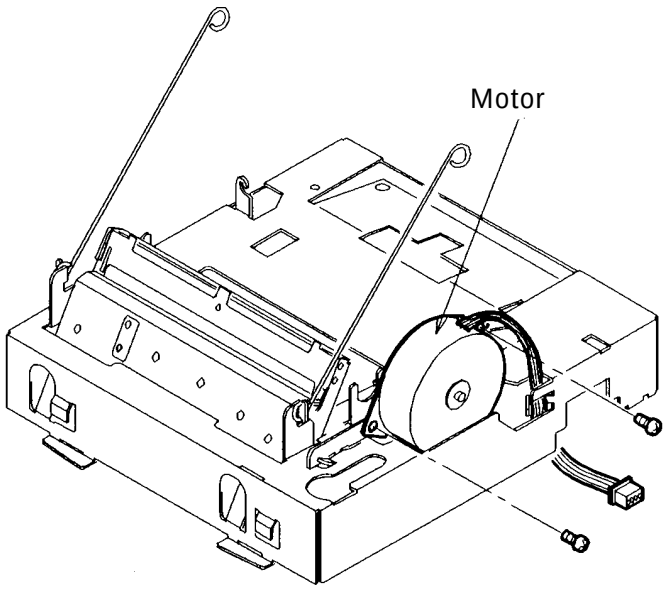


10. Removing the Thermal Head from the Control Board
    (1) Insert a flat-blade screwdriver between the heat sink of the thermal head and head BK (insert it into the place shown by the arrow) and, with weak force, lift the thermal head from the connector until it floats from the connector a little.
    (2) Lift the other end in the same way.
    (3) Without touching the thermal elements, remove the thermal head from the connector by lifting it upward.

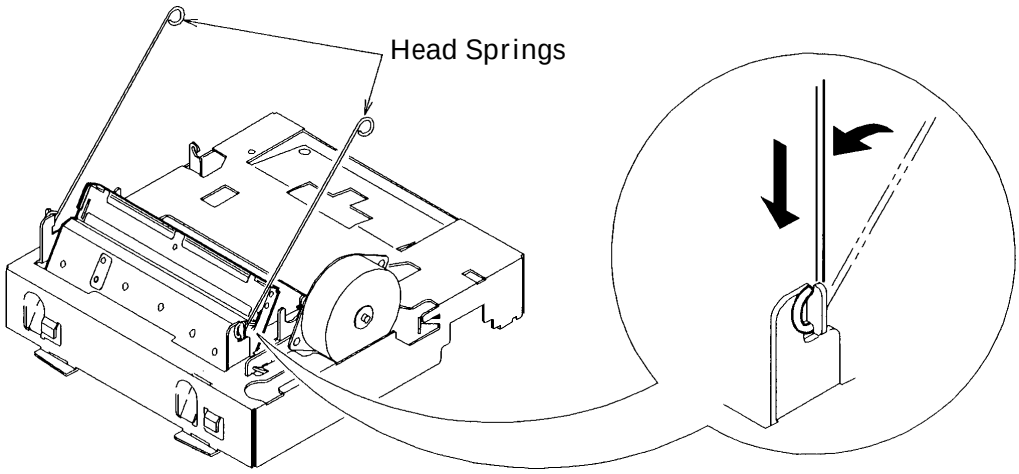
    Note: By performing above steps (1) to (3) after removing the upper cover, it is possible to remove the thermal head without detaching the control board.



11. Removing the Motor from the Chassis
    (1) Remove the upper cover.
    (2) Remove the control board.
    (3) Remove the motor cable form the chassis and detach the motor by removing the two screws (M3×5).



12. Removing the Head Springs from the Chassis
    (1) Remove the upper cover.
    (2) Turn the head springs to set them upright and then remove them by lowering them.



4.2 Reassembly Procedure

Reassemble each part in the reverse order of the disassembly procedure described in Section 4.1.

5. TROUBLESHOOTING

5.1 Troubleshooting Procedure

When a trouble occurs, confirm its phenomenon, locate a defective part in accordance with 5.2 Troubleshooting Guide, and troubleshoot as described below.

- Phenomenon: Find a trouble phenomenon in this column. If there are multiple phenomena, take all the corresponding items into consideration. This allows you to specify a hidden defective part.
- Cause: Lists as many possible causes as possible. Guess a trouble cause out of them and take its check method to specify the trouble cause.
- Check Method: Describes a check method to specify a trouble cause.
- Remedy: Troubleshoot by taking a remedy described in this column.

By troubleshooting in accordance with the above-mentioned procedure, you can troubleshoot efficiently with fewer misjudgments.

5.2 Troubleshooting Guide

- **Power Supply Failure**

Phenomenon	Cause	Check Method	Remedy
No power (POWER lamp not illuminated)	The AC adapter is not connected.	_____	Connect the specified AC adapter.
	The fuse is gone.	Check whether any unspecified power has been used so far.	Use the specified AC adapter.
		Check whether the specified fuse is used.	Use the specified fuse.
The fuse immediately goes again after replacing with new one.	The control PCB assy is defective.	_____	Replace the control PCB assy.
	The circuit drive power is abnormal.	With a DC voltmeter, measure the circuit drive voltage.	Replace the control PCB assy.

♦ If the fuse is gone with the specified AC voltage supplied to the AC adapter, it is likely that the thermal head unit or control PCB assy is defective. Replace either defective one. Incidentally, check the wiring of the drawer and interface cable.

- **Printing failure**

Phenomenon	Cause	Check Method	Remedy
No printing	Faulty DC output voltage from the AC adapter	Check whether the specified AC adapter is used.	Use the specified AC adapter.
	Faulty mounting or connection of the control PCB assy	Check mounting and connection of the control PCB assy.	Mount the control PCB assy properly.
	Faulty mounting of the platen roller	Check mounting condition of the platen roller.	Mount the platen roller properly.
		Check any deformation or bending of the head spring.	Replace the deformed head spring.
	Faulty thermal head unit	_____	Replace the thermal head unit.
Paint printout	Faulty DC output voltage from the AC adapter	Check whether the specified AC adapter is used.	Use the specified AC adapter.
	Non-recommended paper is used.	_____	Replace it with the specified paper.
	Faulty thermal head unit	_____	Replace the thermal head unit.
	Low DC output voltage from the AC adapter	Check the DC voltage with a DC voltmeter.	Supply the specified AC voltage to the AC adapter.
	Foreign substance is adhered to the thermal head.	Check whether any foreign substances are adhered to the thermal head.	Dip a cotton swab or soft cloth in ethyl alcohol and wipe the foreign substances with them.
Badly blurred printout	Faulty DC output voltage from the AC adapter	Check whether the specified AC adapter is used.	Use the specified AC adapter.
	Foreign substance is attached to the print head.	Check whether any foreign substances are adhered to the thermal head.	Dip a cotton swab or soft cloth in ethyl alcohol and wipe away the foreign substance.
Bad printing quality	Faulty paper	Check whether the paper meets the specifications.	Replace it with the specified paper.
	Low DC output voltage from the AC adapter	Check the DC voltage with a DC voltmeter.	Supply the specified AC voltage to the AC adapter.

- **Paper feed failure**

Phenomenon	Cause	Check Method	Remedy
Paper is not fed or fed irregularly	Faulty connection of the motor connector	Check connection of the motor connector.	Connect the connector correctly.
	Faulty DC output voltage from the AC adapter	Check whether the specified AC adapter is used.	Use the specified AC adapter.
	Faulty mounting or connection of the control PCB assy	Check mounting and connecting conditions of the control PCB assy.	Mount the control PCB assy properly.
	Faulty mounting of the platen roller	Check mounting condition of the platen roller.	Mount the platen roller properly.
	Faulty mounting or connection of the thermal head	Check mounting and connecting conditions of the control PCB assy.	Connect the thermal head to the control PCB assy properly.
		Check any deformation or bending of the head spring.	Replace the deformed head spring.
	Paper feed failure	Check whether or not the paper is jamming or torn and caught in the paper path.	Eliminate unnecessary paper in the paper path and set paper properly.
	Foreign substance in the gear	Remove the platen roller and check for any foreign substance caught in the platen gear or motor gear.	Eliminate the foreign substance.
	Broken gear	Remove the platen roller and check for any breakage of the platen gear or motor gear.	If the platen gear is broken, replace it with new one. If the motor gear is broken, replace the motor.
	Low DC output voltage from the AC adapter	Check the DC voltage with a DC voltmeter.	Supply the specified AC voltage to the AC adapter.
	Defective motor	Measure the supply voltage with a DC voltmeter or oscilloscope.	If the supply voltage is normal, replace the motor (printer mechanism).

- **Faulty sensor**

Phenomenon	Cause	Check Method	Remedy
Does not detect presence of paper.	Faulty paper sensor	Replace the thermal head assy and check if the replaced one functions properly. Check whether the ERROR lamp flickers when paper is out.	Replace the thermal head assy.
	Foreign substance, etc. caught by the sensor	Check for any foreign substance.	Eliminate the foreign substance.
Does not detect paper near-end status.	Faulty paper near-end sensor	———	Replace the paper near-end sensor.
	Faulty connection of the paper near-end sensor connector	Check connection of the paper near-end sensor connector.	Connect the connector correctly.
	Foreign substance is attached to the paper near-end sensor.	Check whether any foreign substances are adhered to the paper near-end sensor.	Remove the foreign substance.

- **Faulty auto cutter**

Phenomenon	Cause	Check Method	Remedy
The cutter does not function	Faulty connection of the motor connector	Check connection of the motor connector.	Connect the connector correctly.
	Faulty DC output voltage from the AC adapter	Check whether the specified AC adapter is used.	Use the specified AC adapter.
	Defective motor	Measure the supply voltage with a DC voltmeter or oscilloscope.	If the supply voltage is normal, replace the motor (auto cutter).
	Paper feed failure (Paper jam)	Check whether or not the paper is jamming or torn and caught in the paper path.	Eliminate unnecessary paper in the paper path and set paper properly.

♦ If the no-paper condition is not detected while the printer is running out of the recording paper, it will print without the paper, leading to a trouble of the head, and so on.

6. SERVICE PARTS LIST

6.1 Parts List for Mechanism

EXPLODED VIEW **1/2**

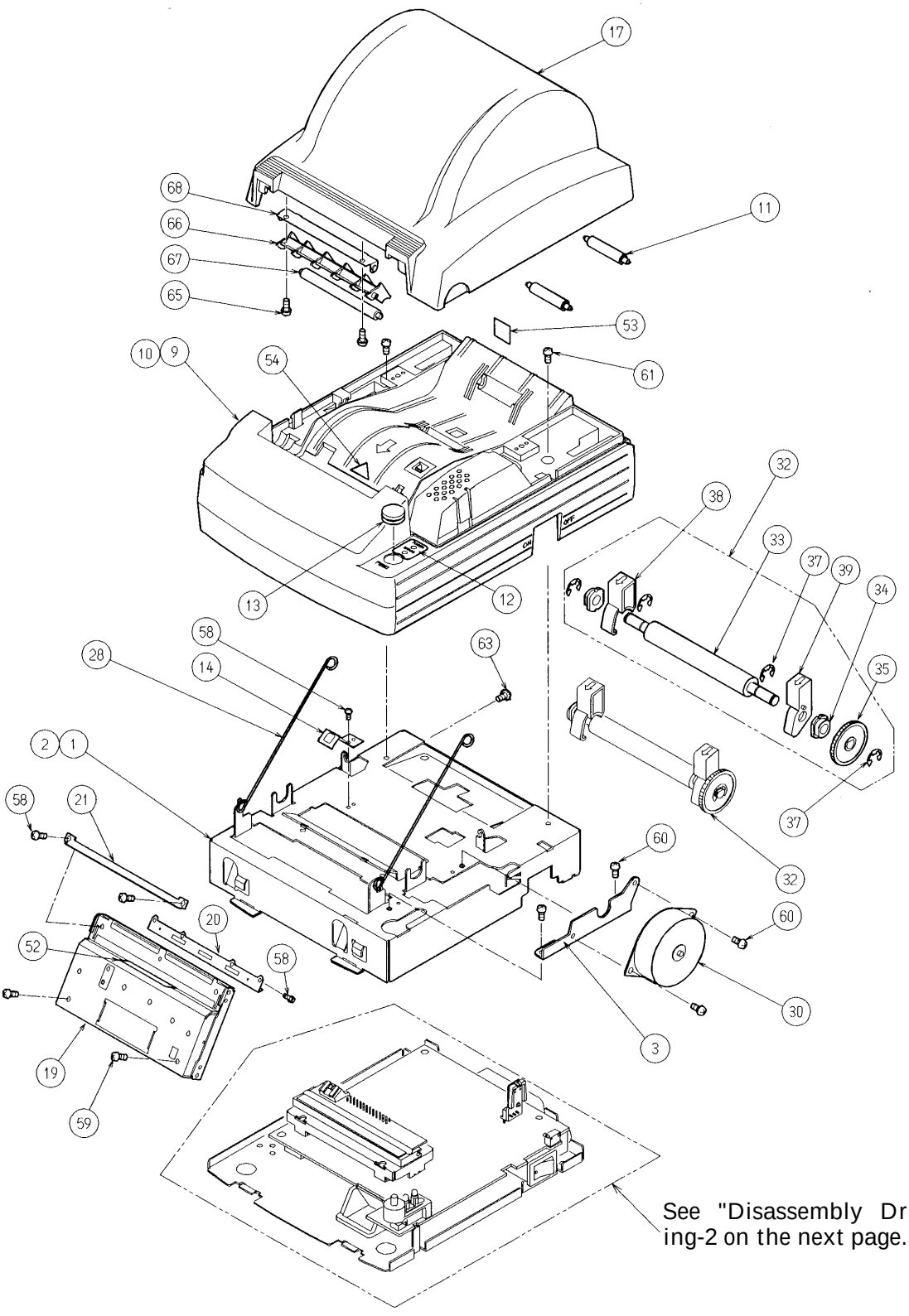
Ref. No.	Parts No.	Description		Q'ty	Remarks
1	E4002-490	Chassis Assy		1	
2		Chassis		(1)	
3		Motor BK		(1)	
5	E62020190	Bottom Plate (Serial)		1	
6	E62020200	Bottom Plate (Parallel)		1	
7	E6302-370	Foot		4	
8	E6601-330	Finger Guard		1	
9	E62010730	Upper Cover Assy		1	
10	E62010731	Upper Cover		(1)	
11	E6612-050	Roller		(2)	
12	E5200-250	Ope-pane Sheet		(1)	
13	E5049-030	PF Button		(1)	
14	E6611-670	Sensor Guard		1	
17	E62040560	Printer Cover A		1	
19	ACS-231	Auto Cutter	ACS-231	1	
20	E8010-240	Mouth Plate		1	
21	E6220-660	Manual Cutter		1	
22	E66000270	Thermal Head Assy		1	
23		Thermal Head	RJ072-7S71	(1)	
24	E6611-650	Paper Sensor Holder		(1)	
25	E 391-120	Photo Interrupter	GP2S40	(1)	
27	E6601-310	Head BK		1	
28	E6601-320	Head Spring		2	
30	E8017-070	Motor	SMB40-4845-A	1	
32	E8040-030	Platen Roller Assy		1	
33		Platen Roller		(1)	
34		Platen Bush		(2)	
35		Platen Gear		(1)	
37		E-Ring	No. 4	(4)	
38		Platen Lever L		(1)	
39		Platen Lever R		(1)	

EXPLODED VIEW **2/2**

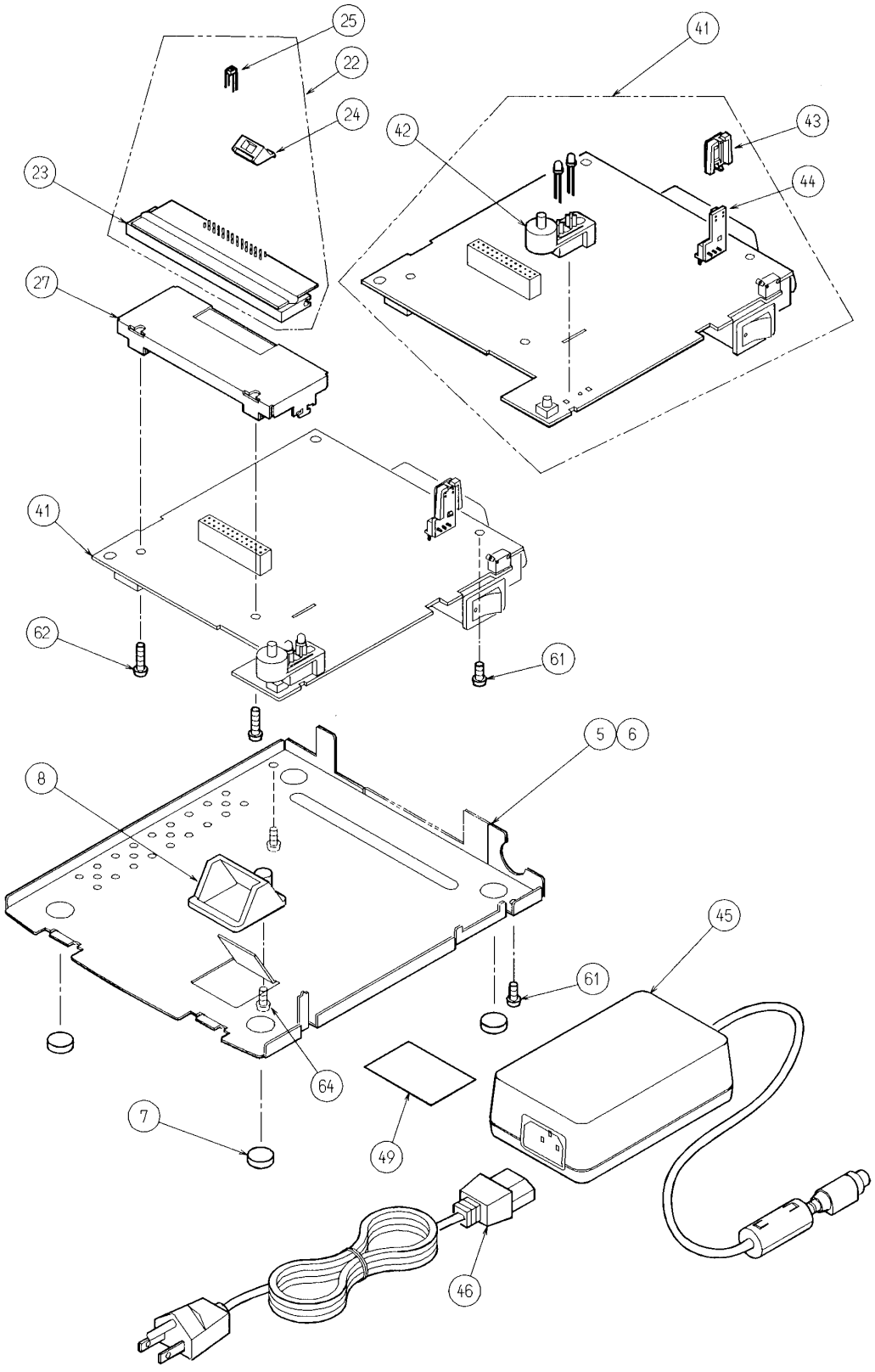
Ref. No.	Parts No.	Description		Q'ty	Remarks
41	E77001-495	Control PCB Assy	3221-01 (Serial EUR)	(1)	
41	E77001-500	Control PCB Assy	3221-01 (Serial USA)	(1)	
41	E77001-505	Control PCB Assy	3221-02 (Parallel)	(1)	
42	E5071-140	LED Key top		(1)	
43	E5110-530	PE Sensor Cover		(1)	
44	E40000080	PE Sensor Assy		(1)	
45	31AD	AC Adapter	31AD	1	
46	E6100-735	AC Cord	for 120V	(1)	USA
	E6100-730	AC Cord	for 230V	(1)	EUR
49		Rating Label	3221-U	(1)	USA
		Rating Label	3221-E	(1)	EUR
52		Label	Don't touch 2	(1)	
53		Label	Drawer	(1)	
54		Label	Hot	1	
58	23G57459	Screw	M2×3 S Tight	5	
59	23G57481	Screw	M2.6×6 S Tight	2	
60	23G29538	Screw	M3×5 S Tight	4	
61	23G22821	Screw	M3×8 S Tight	6	
62	23G62837	Screw	M3×16 S Tight	2	
63	23G42966	Screw	M3×6 S Tight with Toothed Lock Washer	1	
64	23G22796	Screw	M3×8 B Tight	1	
65	23G23179	Screw	M2.6×6 B Tight	2	
66	E8031-100	Roller Holder		1	
67	E8031-110	Roller		1	
68	E8031-120	Roller Spring		1	

6.2 Disassembly Drawing

• **Disassembly Drawing-1**



● **Disassembly Drawing-2**



6.3 Parts List for Control PCB Assy

6.3.1 Control PCB Assy 3221-01 (Serial Interface D-sub 25) 1/3

Ref. No	Parts No.	Description		iDP3221 R	iDP3221 P
IC1	E 104-580	CPU	HD6413002F16	1	1
IC2	E 104-530	Gate Array	CBM202LA-00	1	1
IC3	E 107-380	RAM	GM76C8128C-55	1	1
IC4	E 210-130	Reset IC	M51953BPF	1	1
IC5	E4101-720	DC/DC Converter	SI-8401L	1	1
IC6	E 210-120	I/F-IC	MAX232ACSE	1	
IC6	E2010650	TTL	SN74LS244NS		1
IC7	E2010680	TTL	SN74LS06NS		1
IC8	E2010670	TTL	SN74LS07NS		1
IC102	E 104-690	EPROM	M27C1001-45XF1	1	1
TA1	E390-290	Tr. Array	STA471A	1	1
TA2	E 202-830	Tr. Array	TA8428K	1	1
TR1,5	E 358-080	Transistor	RN1302	2	2
TR2	E 358-090	Transistor	2SJ267-FD13	1	1
TR3,6,101	E 398-010	Transistor	2SC2412K-T146R	3	3
TR4	E 327-030	Transistor	2SB1065QR	1	1
TR7,8	E 359-170	Transistor	2SC4671-AN	2	2
TR9	E 398-010	Transistor	2SC2412K-T146R	1	
D1,2	E 400-470	Diode	S1G-GI1	2	2
D3	E 400-610	Diode	1SS193	1	1
ZD1	E 406-080	Z. Diode	RD6.2FB2	1	1
		LED Keytop	60-0181	1	1
LED1	E 480-390	LED	SEL2410E (Green)	1	1
LED2	E 480-330	LED	SEL2110S (Red)	1	1
C1,2,5,6,8,11 CP1-6,118	E2110-870	C. Cap.	GRM40F104Z50PT	13	13
C3	E2022-730	Ele. Cap.	35V220MF	1	1
C4	E2047-685	Ele. Cap.	16V470MF	1	1
C7,12,101	E2110-875	C. Cap.	GRM40B103K50PT	3	3
C9,10,13,14	E2110-880	C. Cap.	GRM40B102K50PT	4	4
C15	E2110-870	C. Cap.	GRM40F104Z50PT	1	
C15	E2110-900	C. Cap.	GRM40B471K50PT		1
C16	E2110-870	C. Cap.	GRM40F104Z50PT	1	
C16	E2110-900	C. Cap.	GRM40B471K50PT		1
C17-20	E2110-870	C. Cap.	GRM40F104Z50PT	4	

2/3

Ref. No	Parts No.	Description		iDP3221 R	iDP3221 P
C21	E2110-880	C. Cap	GRM40B102K50PT		1
C102-108	E2110-885	C. Cap.	GRM40B331K50PT	7	7
C110-115	E2110-905	C. Cap.	GRM40CH101J50PT	6	6
C116,117	E2110-900	C. Cap.	GRM40B471K50PT	2	2
CP7-9	E2110-870	C. Cap.	GRM40F104Z50PT		3
RA1,4,9	E3900-590	Re. Array	BCN4D-103JE	3	3
RA3	E3500-600	Re. Array	BCN4D-332JE	1	1
RA5	E3900-590	Re. Array	BCN4D-103JE		1
RA6,7,8	E3500-600	Re. Array	BCN4D-332JE		3
R1,2,12,13 106,109-111 113,114	E3900-380	C. Resistor	RK73K2A 3.3KΩ J	10	10
R3,6,16,28 103	E3900-390	C. Resistor	RK73K2A 100Ω J	5	5
R4	E3900-400	C. Resistor	RK73K2A 30KΩ J	1	1
R5,7,17,102 104	E3900-410	C. Resistor	RK73K2A 33KΩ J	5	5
R8,14,101	E3900-420	C. Resistor	RK73K2A 180Ω J	3	3
R9		Resistor	RSF2BC-2.7Ω J	1	1
R10,11,24,25 27,107,108	E3900-430	C. Resistor	RK73K2A 10KΩ J	7	7
R15,26	E3900-440	C. Resistor	RK73K2A 82KΩ J	2	2
R18,19,23	E3900-450	C. Resistor	RK73K2A 1KΩ J	3	3
R20,115	E3900-460	C. Resistor	RK73K2A 220Ω J	2	2
R21,22	E3900-470	C. Resistor	RK73K2A 330Ω J	2	2
R31	E3900-390	C. Resistor	RK73K2A 100Ω J		1
R112	E3900-380	C. Resistor	RK73K2A 3.3KΩ J		1
SW1	E4003-630	Switch	SF-W1P1A-01BB	1	1
SW2	E5102-490	Switch	SKHHBV	1	1
SW3	E5102-500	Switch	D3C-2220	1	1
J1		Jumper	ϕ0.7mm L=5mm	(1)	(1)
CN1	E48000690	Connector	TCS7960-53-2010	1	1
CN2	E48000695	Connector	PS-26SD-D4TS1-1	1	1
CN3	E48000700	Connector	B6B-PH-K-S	1	1
CN4	E48000705	Connector	TM5RJ3-66	1	1
CN5	E4800-945	Connector	5267-04A-X	1	1

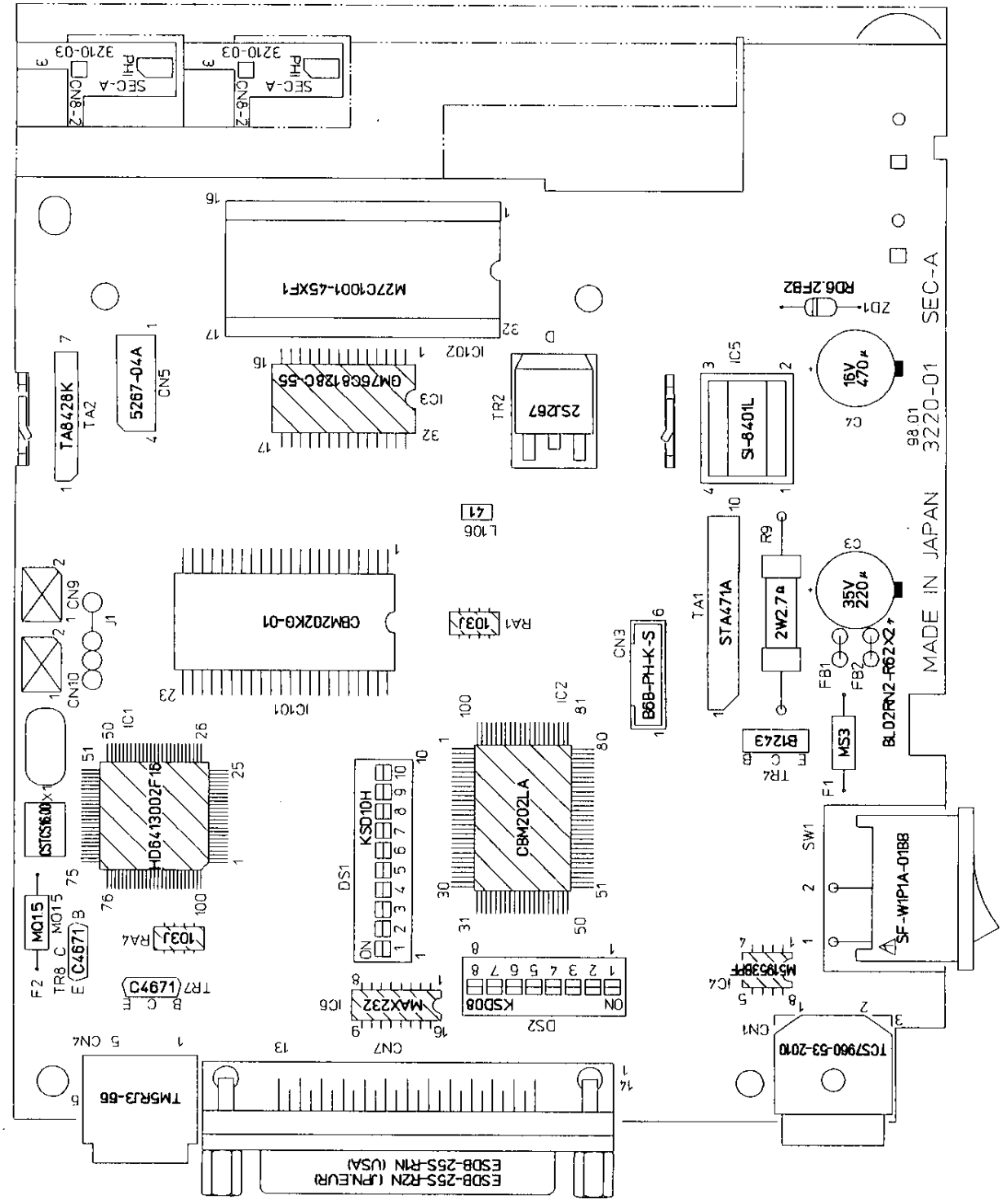
3/3

Ref. No	Parts No.	Description	iDP3221 R	IDP3221 P
CN7	E48000880	Connector ESDB-25S-R2N	1(JPN/EUR)	
CN7	E48000875	Connector ESDB-25S-R1N	1 (USA)	
CN7	E48000830	Connector 57RE-40360-730B(D29A)		1
CN9,10	E4800-940	Connector 5267-02A-X	(2)	(2)
DS1	E5103-520	DIP SW. KSD10H	1	1
DS2	E5103-510	DIP SW. KSD08H	1	
FB1,2	E4009-280	Fe. Beads BL02RN2-R62	2	2
F1	E4005-795	Fuse MS3	1	1
F2	E4005-770	Fuse MQ1.5	1	1
X1	E 501-360	X'tal CSTCS16.00MX0C3(SOP) or CST16.00MXW0C3(DIP)	1	1
L1,2,14-21	E4009-480	Fe. Beads BLM41P600S	10	10
L3-13, 22-25 28,33-39 101-105 107, 108	E4009-490	Fe. Beads BLM21A121S	30	30
L26,27,29-31 106	E4009-480	Fe. Beads BLM41P600S	6	6
L32	E4009-490	Fe. Beads BLM21A121S	1	
L32	E4009-480	Fe. Beads BLM41P600S		1
L40-54	E4009-490	Fe. Beads BLM21A121S		15
(CN8-2)	E4800080	PCB Assy 25-0331	(1)	(1)
PCB		PCB 3221-01	1	
PCB		PCB 3221-02		1
(IC102)	E48000920	IC Socket 2-644018-3	1	1
(IC102)		ROM Label PLD-21	1	1
-		Head BK 50-0181	1	1

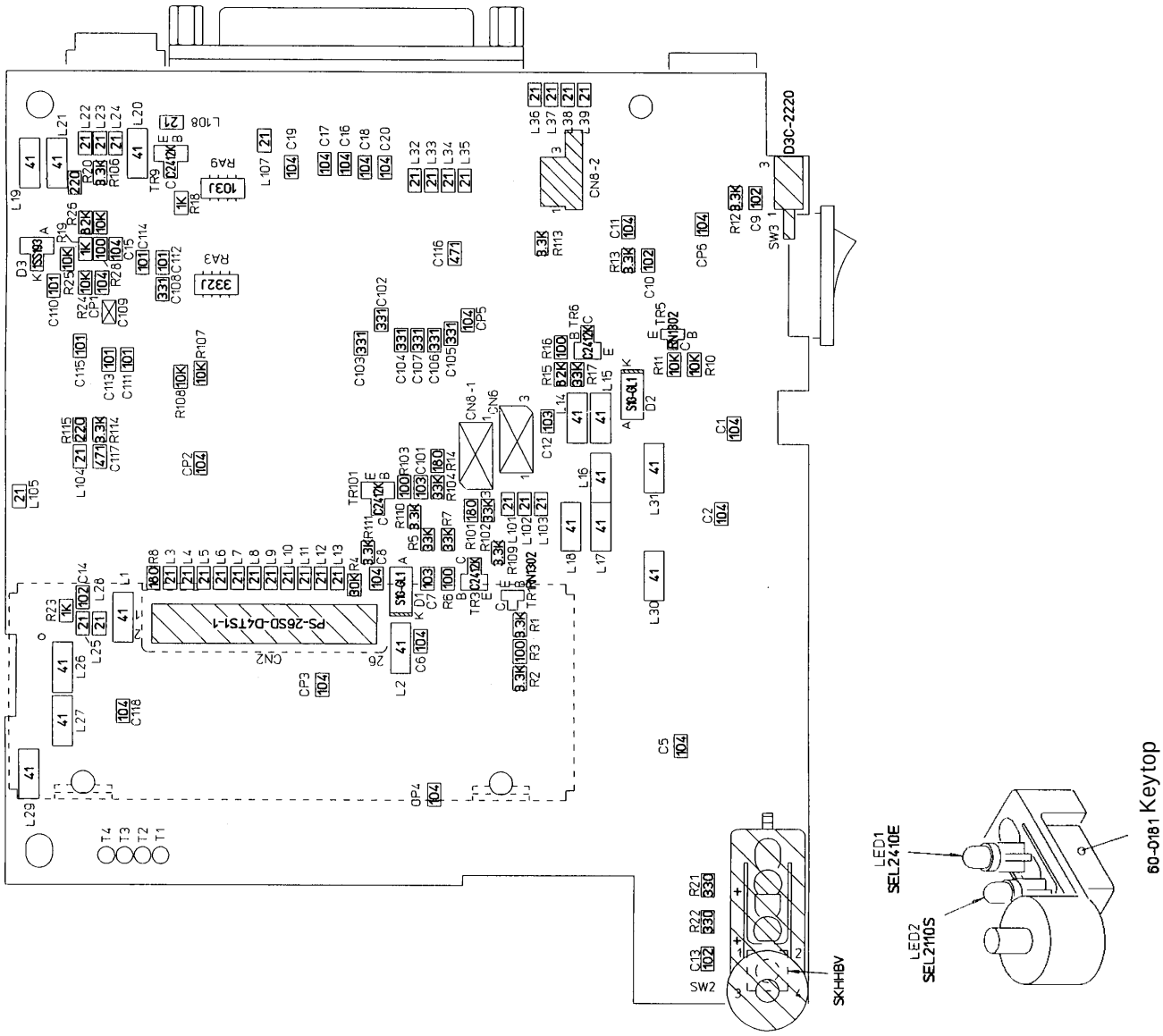
6.4 Parts Layout Drawing

6.4.1 Control PCB Assy 3221-01 (Serial Interface D-sub 25)

- **Parts Side**

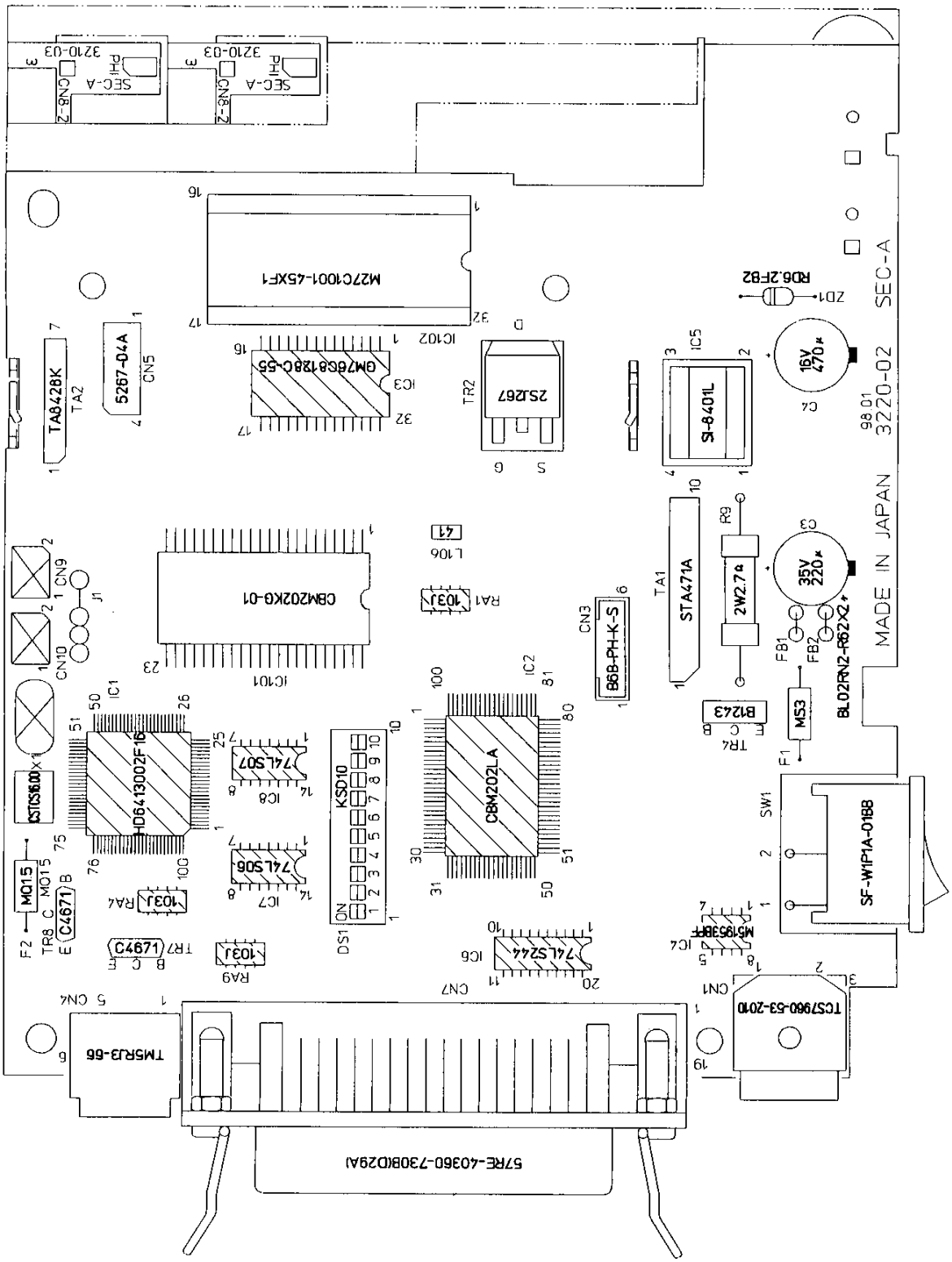


• **Solder Side**

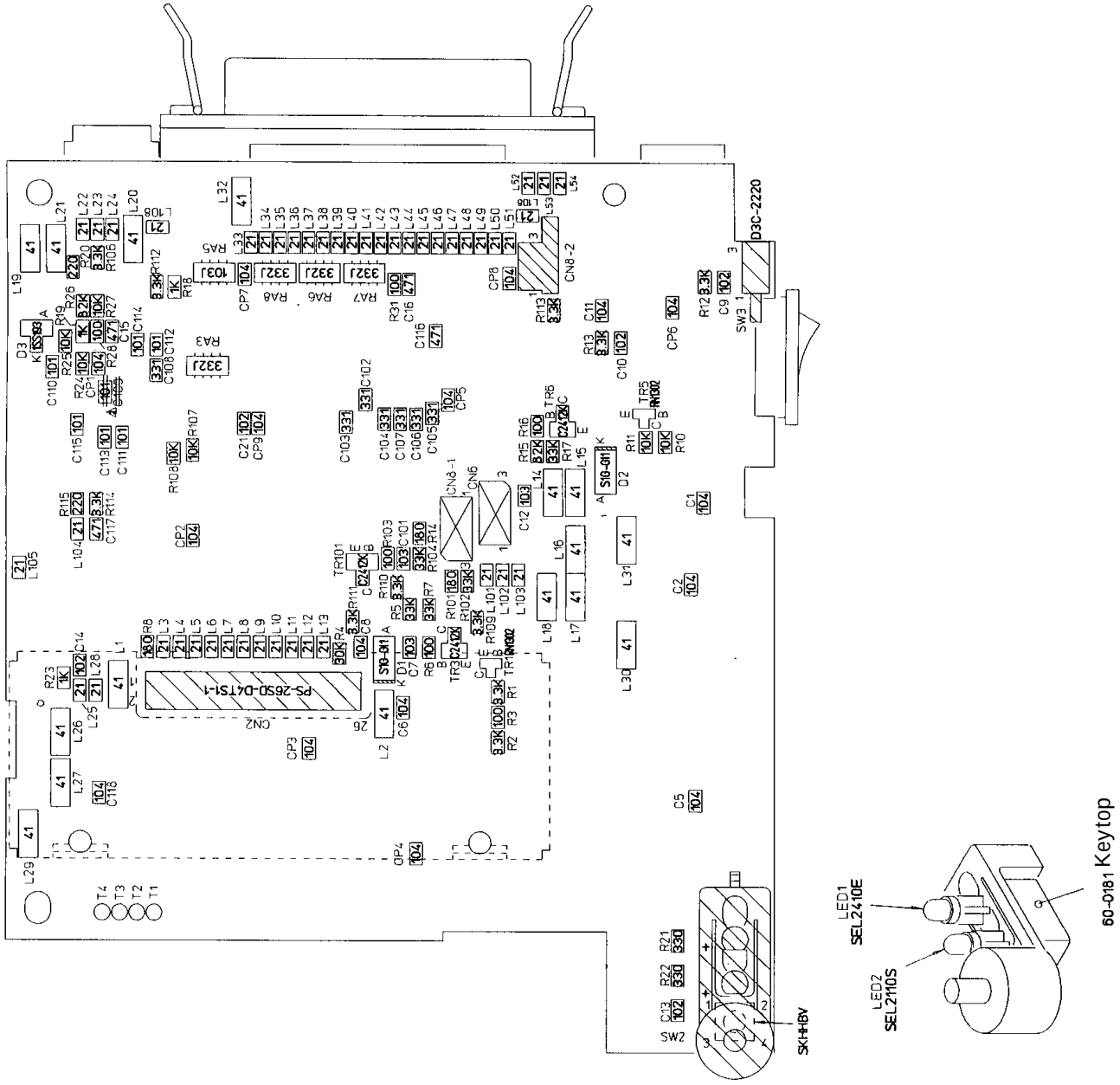

PS-26SD-D47SI-1
CN2
D3C-2220
SW1
SW2
SKHHBV
CN8-1
CN8-2
CN6
SB-0411
LED1
SEL2410E
LED2
SEL2110S
60-0181 Keytop

6.4.2 Control PCB Assy 3221-02 (Parallel Interface)

- **Parts Side**



• **Solder Side**

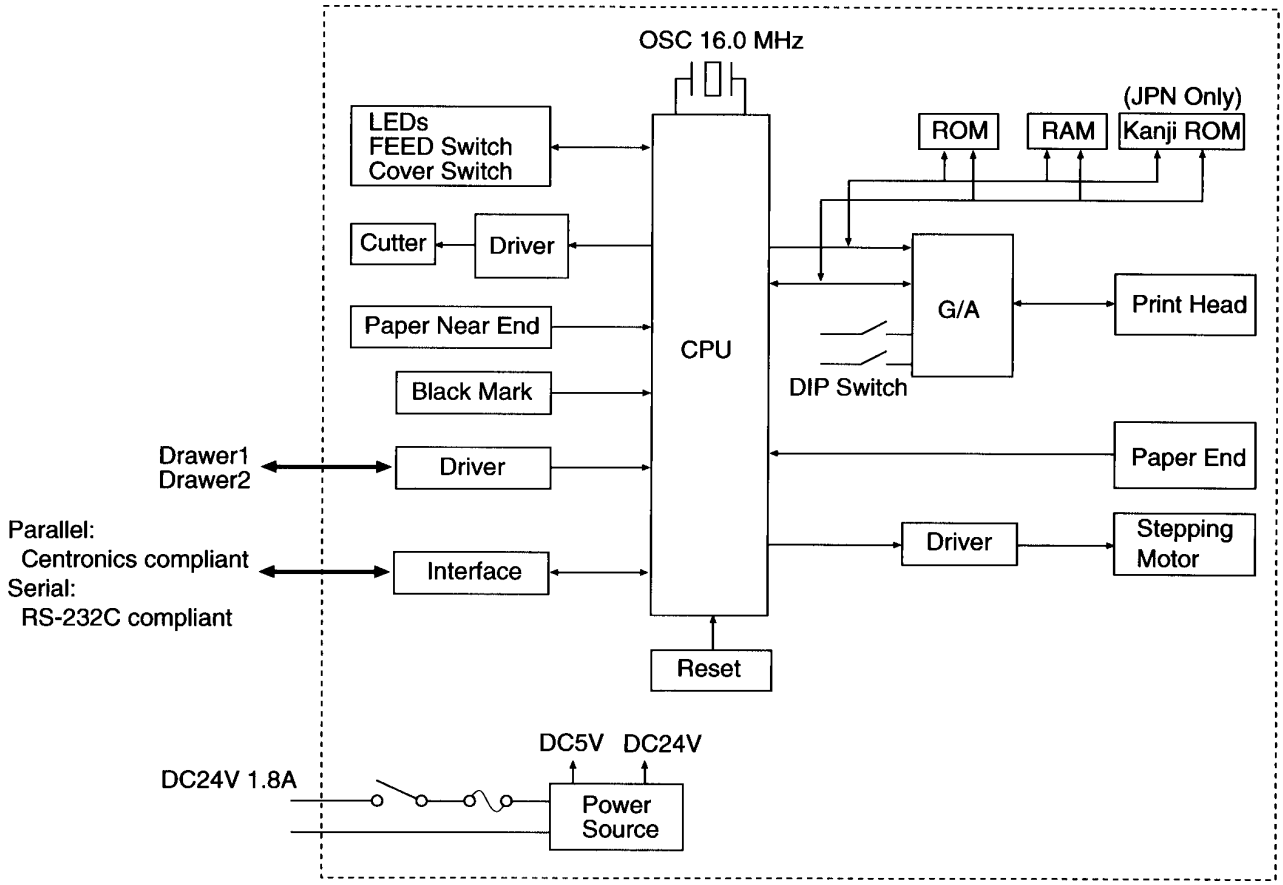


7. DRAWING

The following lists the reference drawings for maintenance, and so on.

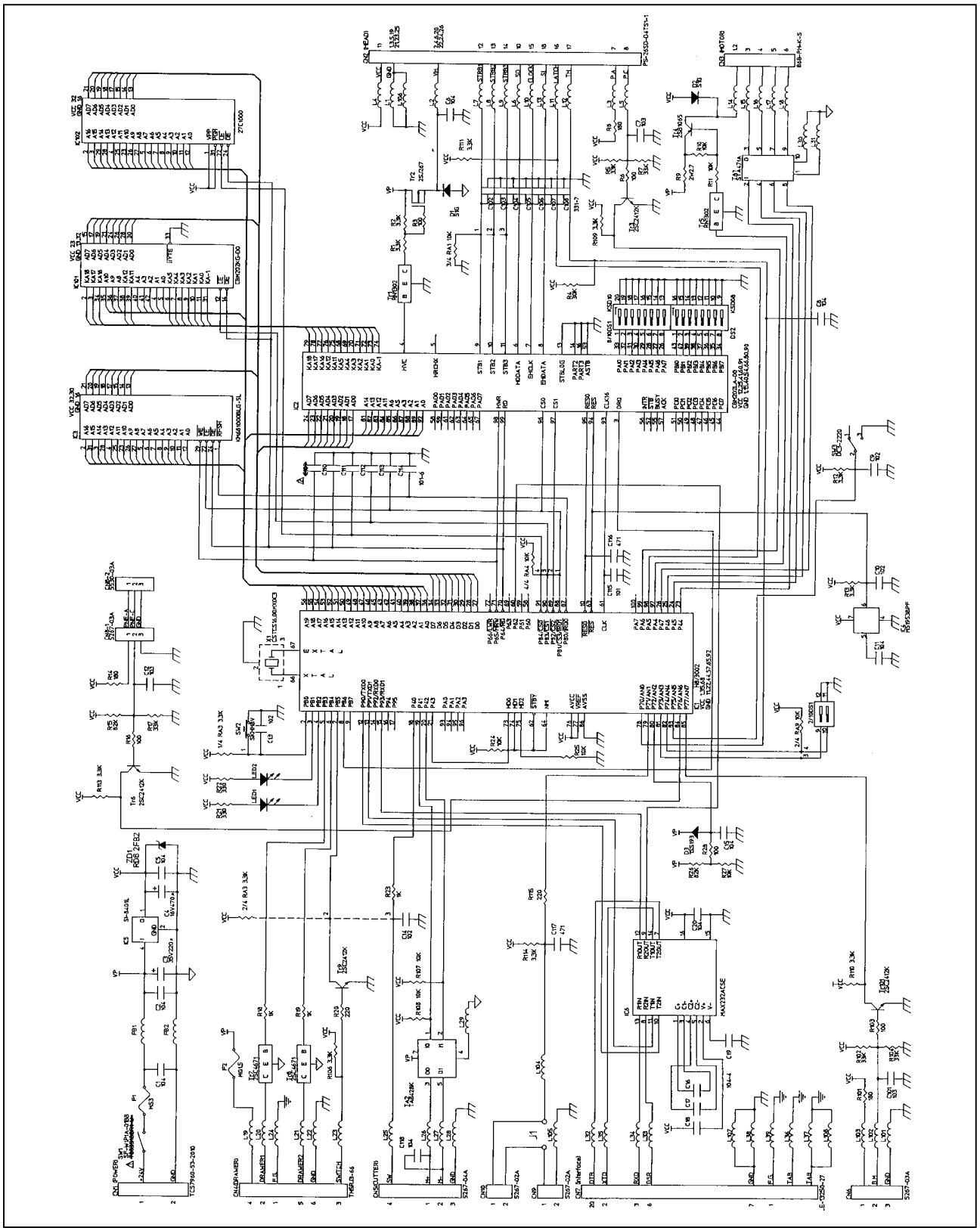
- Block diagram
- Circuit diagrams for the following circuits
  - Control PCB Assy (Serial Interface)
  - Control PCB Assy (Parallel Interface)

7.1 Block Diagram

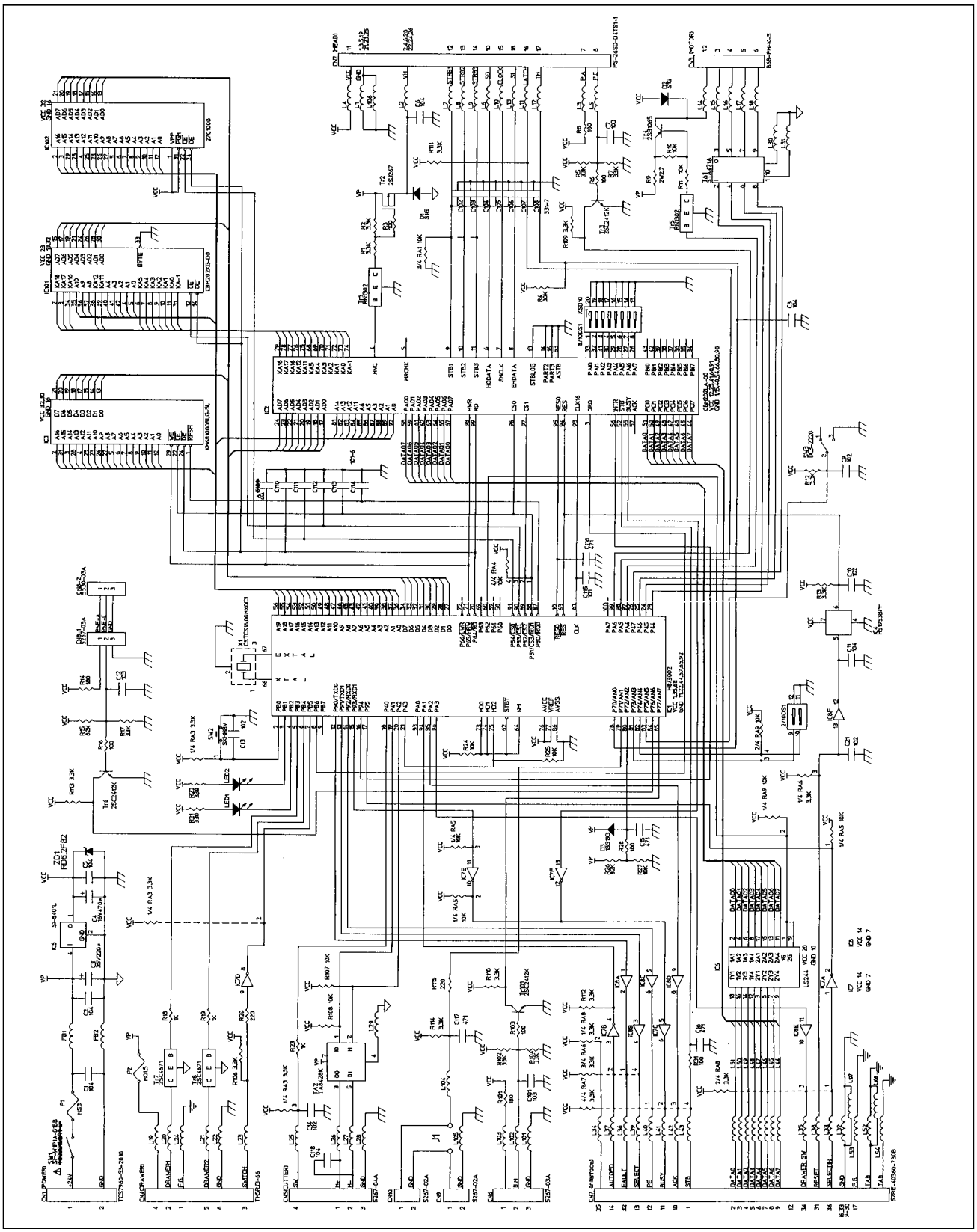


7.2 Circuit Diagram

7.2.1 Control PCB Assy 3221-01 (Serial Interface D-sub 25)



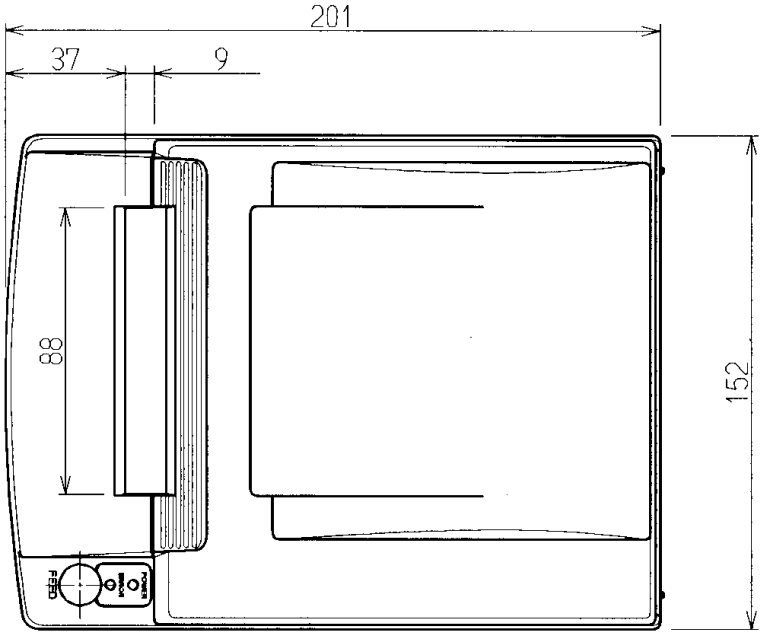
7.2.2 Control PCB Assy 3221-02 (Parallel Interface)

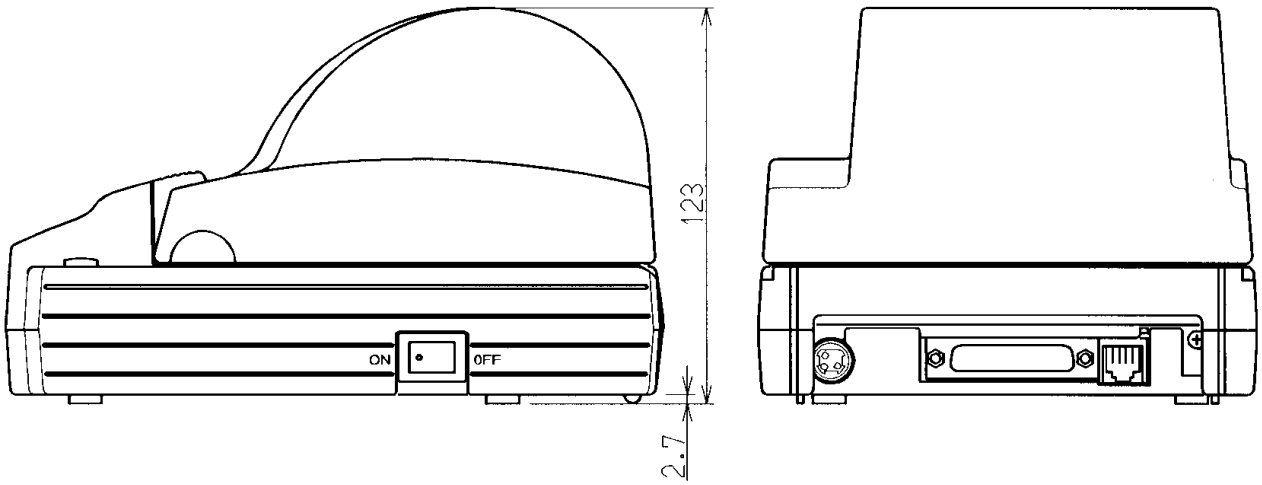


8. OUTER DIMENSION

• Printer

Unit: mm





• AC Adapter (31AD)

Unit: mm