CITIZEN

Service Manual

Model : iDP-3210

Rev.	Issued	
0.01	May 7, 1997	

Japan CBM Corporation
Information Systems Div.

Preface

This manual, which describes the operational principles and procedures for maintenance, is to be read by service personnel.

Features

This printer, a small-sized line thermal printer, has been developed to be applicable with various data communication terminals, POS terminals, kitchen printers, etc..
Since it is equipped with many abundant functions, it can be used widely in various applications.

(1) Light weight and small foot print.
(2) Easy paper loading due to auto loading function.
(3) Easy maintenance and cleaning of print head due to the removable platen design.
(4) High speed printing and quiet printing due to Line thermal printing .
(5) High reliability due to long life of printer head and simple design.
(6) Input buffer incorporated.
(7) Bar code printing is available. (Exclusive command)
(8) Drawer kick-out interface incorporated.
(9) Equipped with an auto cutter.

CONTENTS

*For Auto Paper Cutter ACS-130, please see attached service manual for ACS-130.

Chapter 1

Handling and Maintenance of Printer

Chapter 2

Specifications and Operational principle

Chapter 1 Handling and Maintenance of Printer

Please refer to “Item 2 Prior to use” and “Item 3 In using” described in the User’s manual contained in printer package.

Chapter 2 Specifications and Operation Principle

2-1 General Specifications

ITEM	DESCRIPTION
Printing system	Line thermal dot printing system
Print width	73.92 mm/448 dots
Dot pitch	Horizontal 0.165mm (approx. 6 dots/mm) Vertical 0.163mm (1/156 inch)
Printing speed	73.3mm/sec. (Max, Print Density = Dark) (450 dot line/sec)
No. of printed digits	44 columns (10 x 16 dots)or 42 columns (10 x 16 dots) (can be selected by dip switch.)
Character size	1.485mm x 2.61mm (9 x 16 dots)
Character type	Alphanumeric, International characters
Bar code type	UPA-A/E, JAN(EAN) 13 columns/18 columns, ITF CODE 39, CODE 128, CODABAR
Line-line distance	1/6 inch (approx. 4.23mm) (can be selected by dip switch.)
Paper	Thermal roll paper 80mm x Ø83mm (See Paper Spec..)
Interface	Serial (RS-232C), Parallel (Conforms Centronics.)
Input buffer	4K byte
Spec. of power supply unit	Rated input : AC100V - 240V, 50/60HZ, 112VA Rated output : DC24V, 2.0A
Weight	Main unit : 1300 g, Power supply unit : 450 g
External dimensions (main body)	152(W) X 201(D) X 123(H)
Operating temperature/humidity	5 - 40°C, 35 - 85%RH (free of dew condensation)
Storage temperature/humidity	- 20 - 60°C, 10 - 90%RH (free of dew condensation)
Reliability	Print head’s life : Pulse resistance 50 million pulses Wear resistance 100 Km (Printing ratio 12.5%, normal temperature, normal humidity, recommended paper) Auto cutter’s life : 500,000 cut (Normal temperature, normal humidity, recommended paper)

*PRINTING PAPER SPECIFICATION (RECOMMENDED PAPER)

Type	:	Thermal paper
Paper width	:	80 ± 1 mm
Paper thickness	:	65 ± 5 Micro m
Roll diameter	:	Ø83mm or less
Print surface	:	Outside of the roll (surface)
Recommended paper	:	Japan Paper Mill. TF50KS-E2C or equivalent
Core	:	Ø12mm (inner diameter), Ø18mm (outer diameter)

Remarks : Do not use the paper roll if its end is pasted to the core of roll.

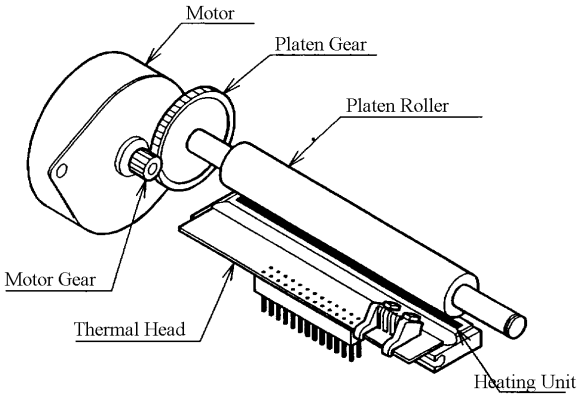
2.2 Mechanism and Operational Principle

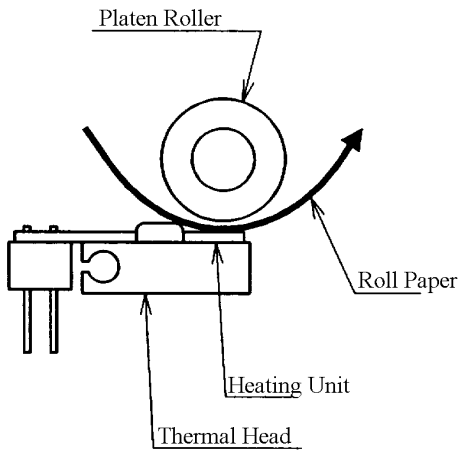
The basic construction and operational principle of the printer are divided into the following blocks for explanation.

* Power Transmission and Paper Feed Mechanism.
* Sensor Mechanism.
* Print Head Mechanism.

2.2.1 Power Transmission and Paper Feed Mechanism.

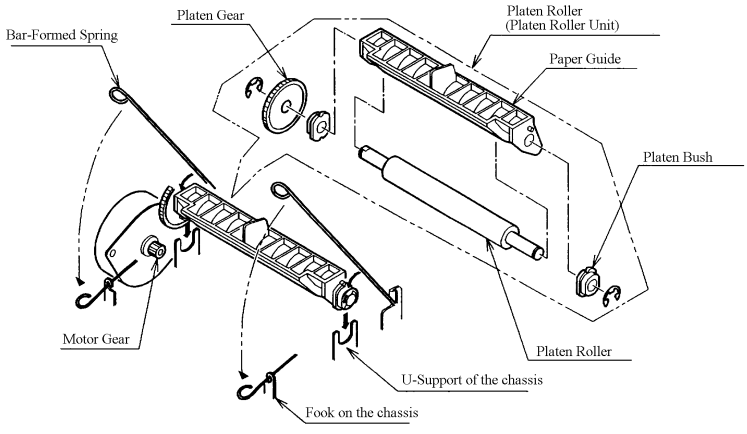
The drive force of the motor as power is transmitted from the motor gear fixed to the motor shaft to the platen roller through the platen gear. The platen gear rotates by this driving force.
The platen roller is pressed to the surface of the heating element of the thermal head by the force of bar-shaped springs connected to both the ends of the roller. When paper is inserted between the platen roller and thermal head, it is caught between the roller and the head by the rotation of the roller, and transferred to the paper outlet being linked with the rotation of the platen roller.





2.2.2 Platen Attaching/Removing Mechanism

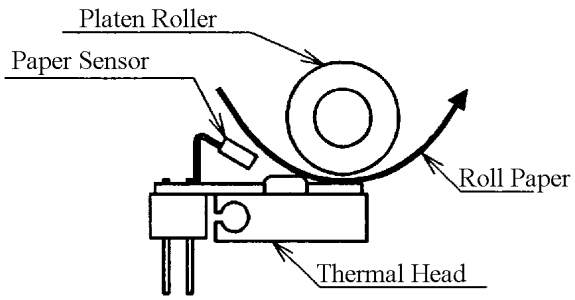
The platen roller of the printer, part of the paper feed mechanism, is constructed in a way that allows attaching and removing. The platen roller block is composed of a platen roller, platen gear, platen bushes, and platen guides. Setting this block on to the U-supports of the chassis, the platen gear engages with the motor gear.
Further, the platen block has come in contact with the thermal head by means of the platen bushes being pressed by bar-formed springs one end of which is fixed to the chassis.
The platen roller can be attached/removed by hooking/undoing each movable end of the springs to the hook on the metal fitting on the chassis.



2.2.3 Sensor Mechanism

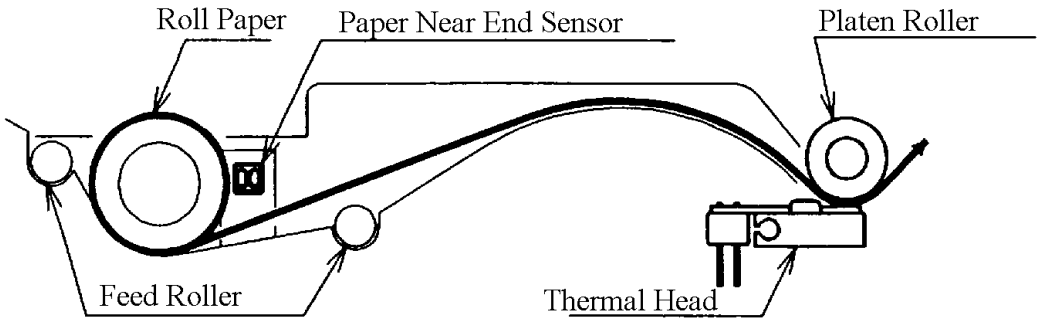
(1) Paper Sensor

The paper sensor detects the presence/absence of paper in front of the thermal head. Activation of the thermal head when paper is not inserted could cause damage or shorten the life of the head significantly. This sensor is used to prevent such trouble and for detection of the presence/absence of paper in the automatic loading mode.
(The paper sensor is built in the thermal head.)



(2) Paper Near-End Sensor

The paper near-end sensor detects that the remaining paper is low.
The reduced outside diameter of the paper roll (corresponding to approximately 50 cm to 2 m in length of normal paper) is detected by a sensor provided on the chassis near one end of the paper roll.
The remainder of paper differs depending on paper thickness and core material.
This remainder can not be adjusted.

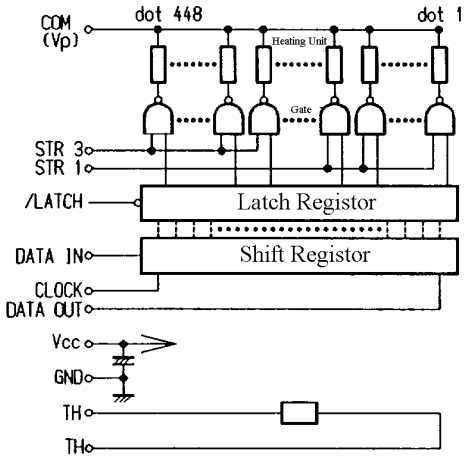


2.2.4 Print Head Mechanism

A thermal head is used for this printer. The head is composed of the heating element and the head drive for the drive and control of the element.

(1) Outline of Drive and Control

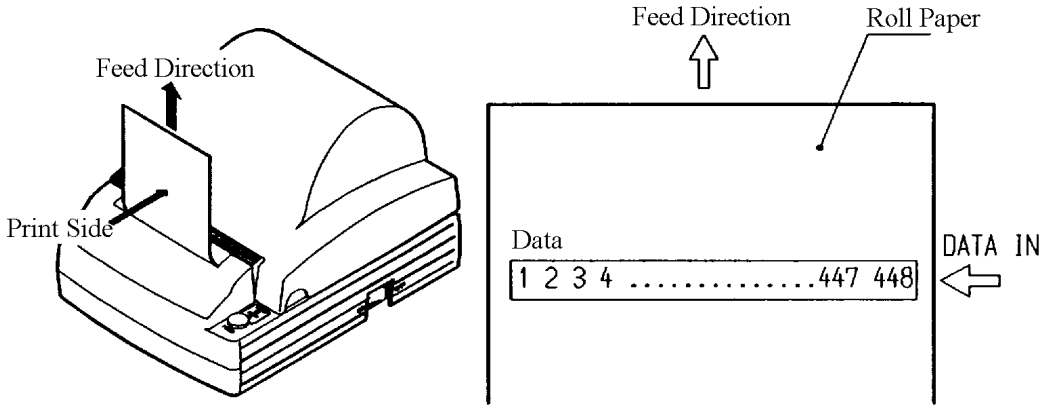
Serial print data input from DATA IN(D1) are transmitted to the shift resistor in synchronization with CLOCK(CP), and stored in the latch resistor by LATCH(LA) signal. When the gate is closed by the head activation signal (Print commands STR 1-3), the heating elements corresponding to the stored print data are activated, and the data are printed on paper by heat.



(2) Print Data and Print Position

Print data Nos. 1 to 448 of the 448 bits transferred by DATA IN(D1) are printed on positions shown in the following figure.

Circuit Diagram of Thermal Head



Chapter 3

Disassembling / Assembling

Chapter 3 Dismantling and Assembling

For maintenance, pay attention to the following matters.

Caution

(1) If printer performs well, do not dismantle, reassemble, nor adjust the printer without reasons.

(2) Upon the completion of an inspection, be sure to check the printer again for abnormality before turning on the power.

(3) Never print without paper inserted into the printer.

(4) Confirm that paper and the platen roller are set normally.

(5) Be careful not to leave parts, screws, or the like used for maintenance work in the printer.

(6) When handling the thermal head, do not use gloves that easily generate static electricity.

(7) In dismantling and assembling the printer, check cords and circuit boards and the like for flaws, and be sure not to pass nor fix them forcibly.

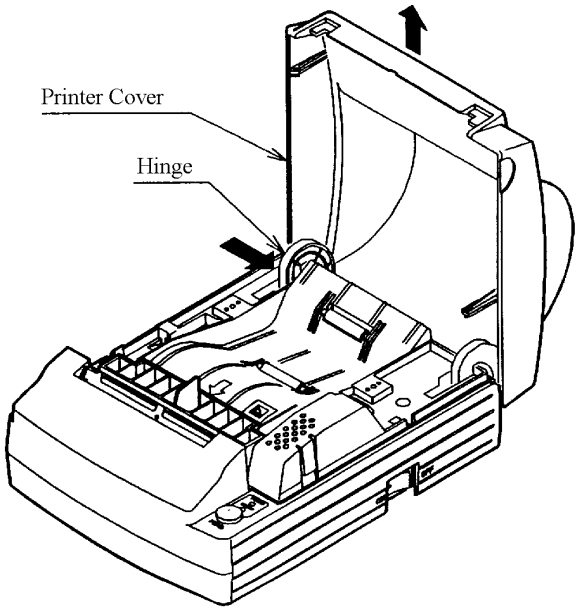
3.1 Procedure for Dismantling

3.1.1 Remove the printer cover.

(1) Open the printer cover.

(2) Remove the hinge on the one side with it bent to the inside.

(3) Remove the other hinge.



3.1.2 Remove the upper cover.

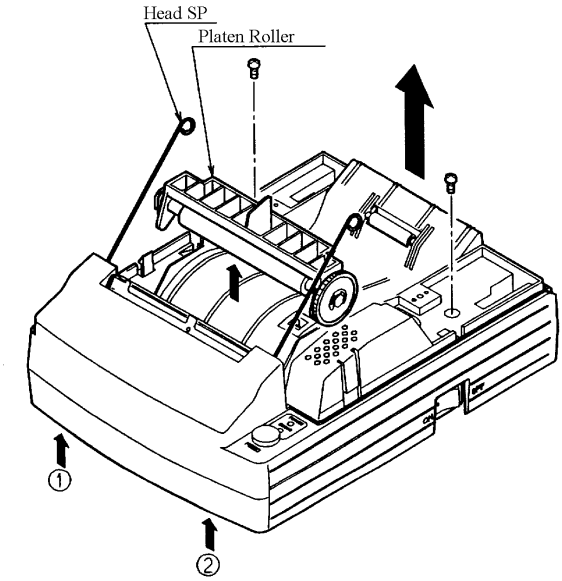
(1) Remove the head SP, and remove the platen roller.

(2) Unfasten two M3 x 8 screws.

(3) Lift the aft part of the cover up to remove it. Then, insert a (-) screw driver or the like to the clearance between the case and chassis at the locations shown by arrow marks (1) and (2) on the front side to remove the hooks that secures the case to the chassis

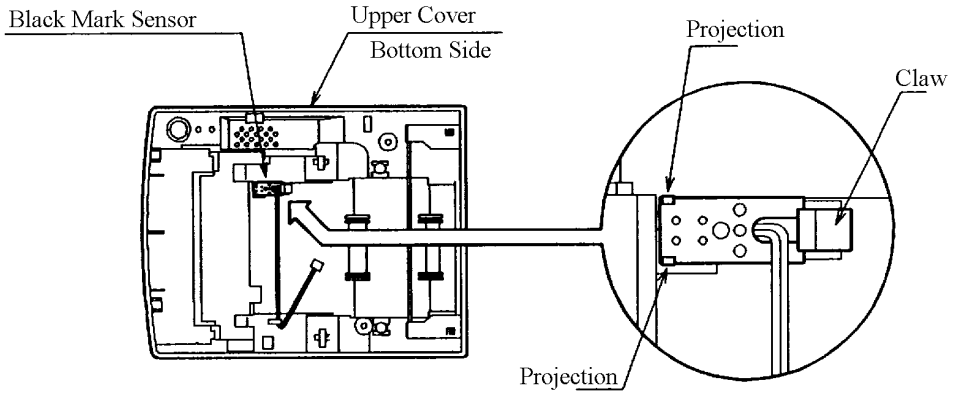
(4) If the printer is provided with an optional black mark sensor or paper holder, pull out the connector for connection with the control circuit board.

(5)Lift up and remove the cover paying attention to the head SP.



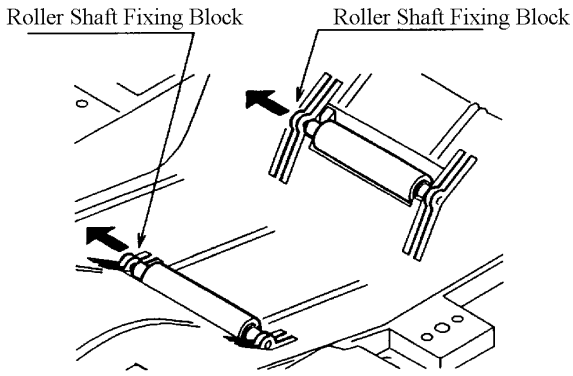
- Remove the black mark sensor (option) from the upper cover.

(1) Remove the upper cover.
(2) Bend the claw on the reverse side of the upper cover shown by an arrow mark to remove the edge of the circuit board on the cable side,
(3) Remove the cable from the upper cover.
(4) When removing the circuit board, be careful not to damage the two projections of the case that hold the edge of the circuit board.



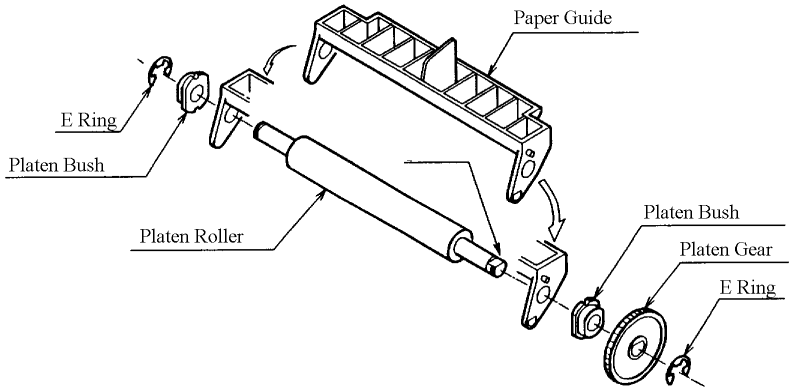
- Remove the roller from the upper cover

(1) Bend one of the roller shaft fixing blocks to the outside as sown by arrow marks to remove the roller shaft.

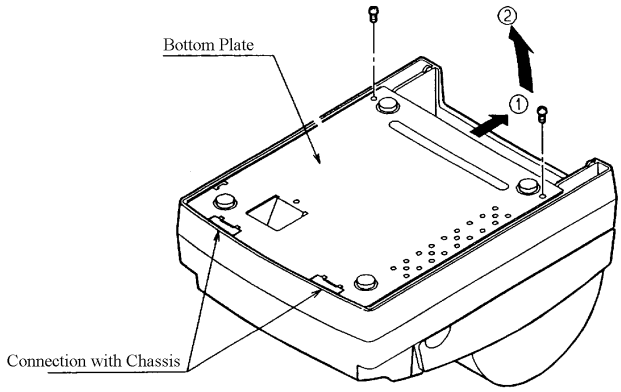


- Dismantle the platen roller.

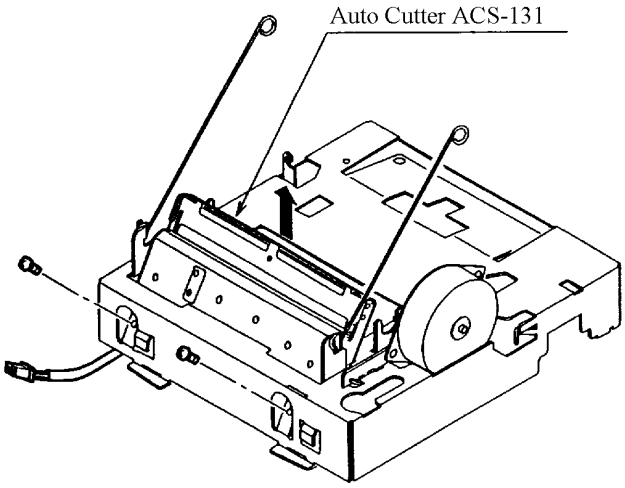
(1) Remove the E ring on the platen gear side.
(2) Remove the platen gear and platen bushes. (In reassembling, set the notch on the circumference of the platen bush to the projection on the side of the paper guide.
(3) Remove the E ring on the opposite side, and remove the platen bushes.
(4)Remove the end of the platen roller (the side opposite to that with a D-cut) from the paper guide.



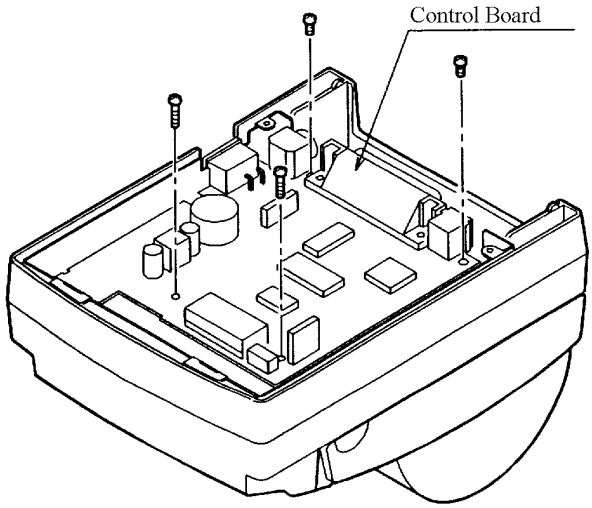
5. Remove the bottom plate from the chassis.
(1) Unfasten two M3 x 8 screws.
(2) Slide the bottom plate slightly in the direction of the arrow mark (1) to remove the power supply connector from the housing.
(3) Turn and lift the connector side up to remove the connection with the chassis.



6. Remove the auto-cutter ACS-131.
(1) Remove the bottom plate.
(2) Remove the upper cover.
(3) Remove the connector connected with the control board.
(4) Unfasten two M2.6 x 6 screws to lift up and remove the auto-cutter.



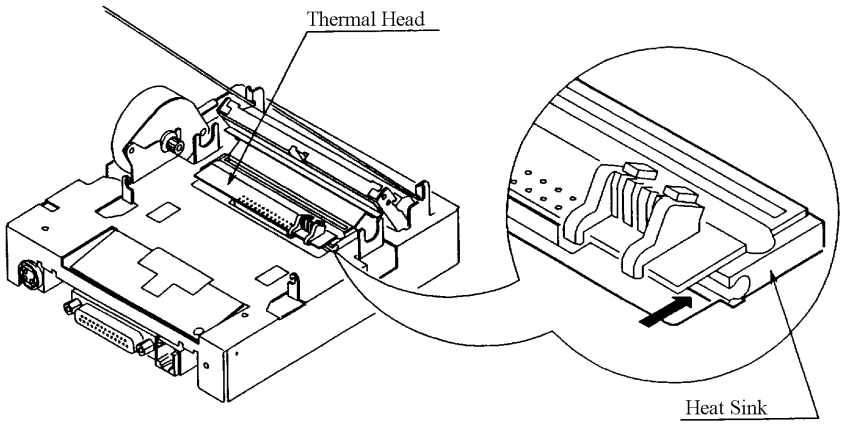
7. Remove the control board from the chassis.
(1) Remove the bottom plate.
(2) Remove the upper cover.
(For models not provided with the optional black mark sensor and paper holder, remove the platen roller only, since it is not required to remove the upper cover.)
(3) Undo two M3 x 16 screws and two M3 x 8 screws.
(4) Lift up vertically and remove the board paying attention not to deform nor damage the thermal head, paper near-end sensor, power supply switch, and others in particular.



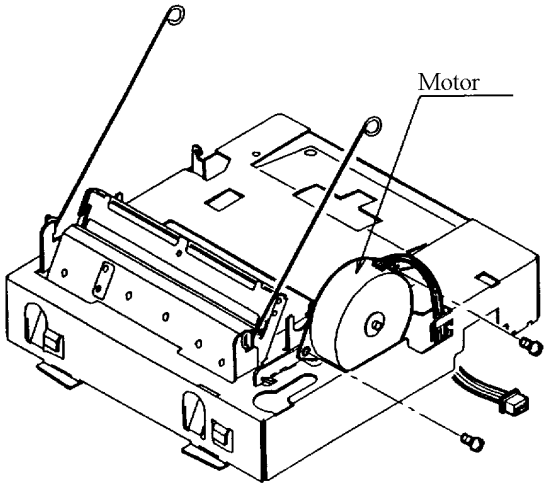
- Remove the thermal head from the control board.

(1) Insert a (-) screwdriver between the heat sink of the thermal head and the head BK (at one end of the arrow mark) to lift the head slightly so that it may float a little from the connector.
(2) Lift the other end of the head slightly in the same manner so that it may float a little from the connector.
(3) Lift the thermal head vertically paying attention not to touch the heating element, and remove the head from the connector.

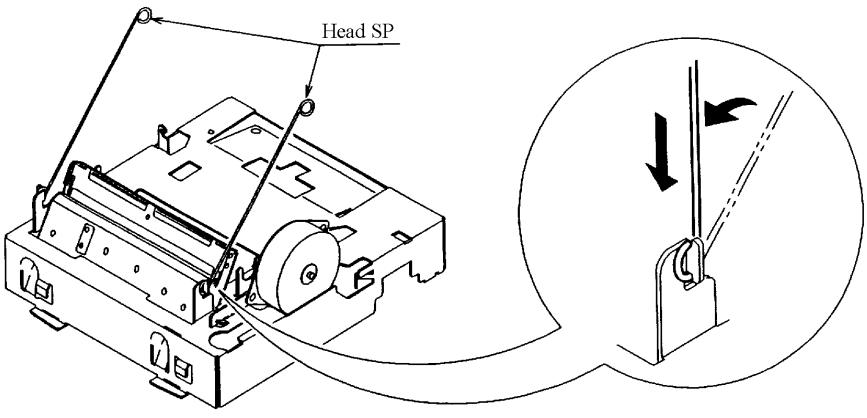
Reference: If the upper cover is removed and the above sub items (1) to (3) are carried out, the thermal head can be removed without removing the control circuit board.



8. Remove the motor from the chassis.
(1) Remove the upper cover.
(2) Remove the control board.
(3) Remove the cable from the chassis, and unfasten two M3 x 5 screws.



9. Remove the head SP from the chassis.
(1) Remove the upper cover.
(2) Turn the head SP until it becomes vertical, and then, lower it downward as it is.



3.2 Procedure for Assembling

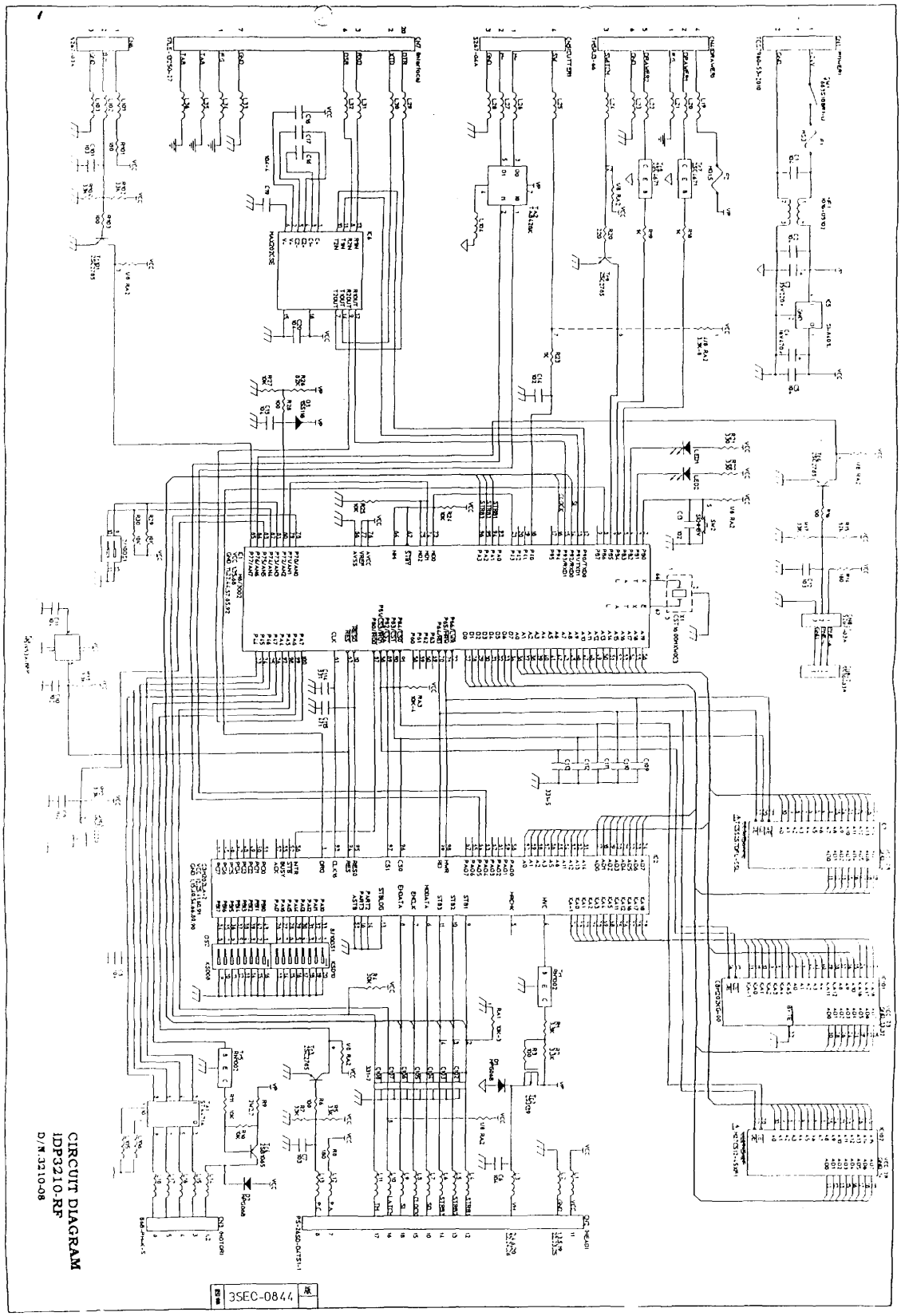
For assembling, mount each part according to the procedures shown in the article 3.1, "Procedure for Dismantling" in the opposite order.

Chapter 4

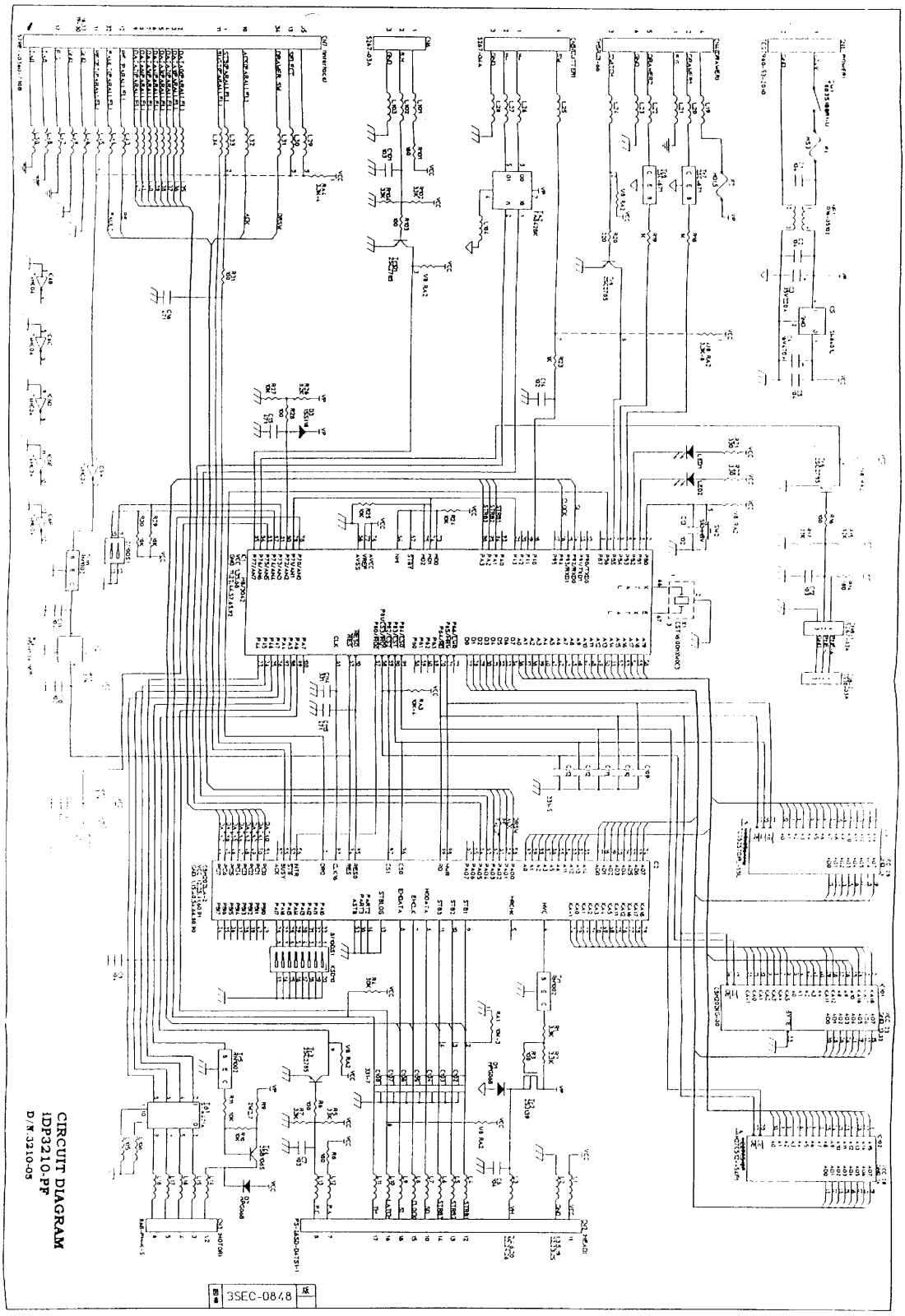
Circuit diagram

Chapter 4 Circuit Diagram

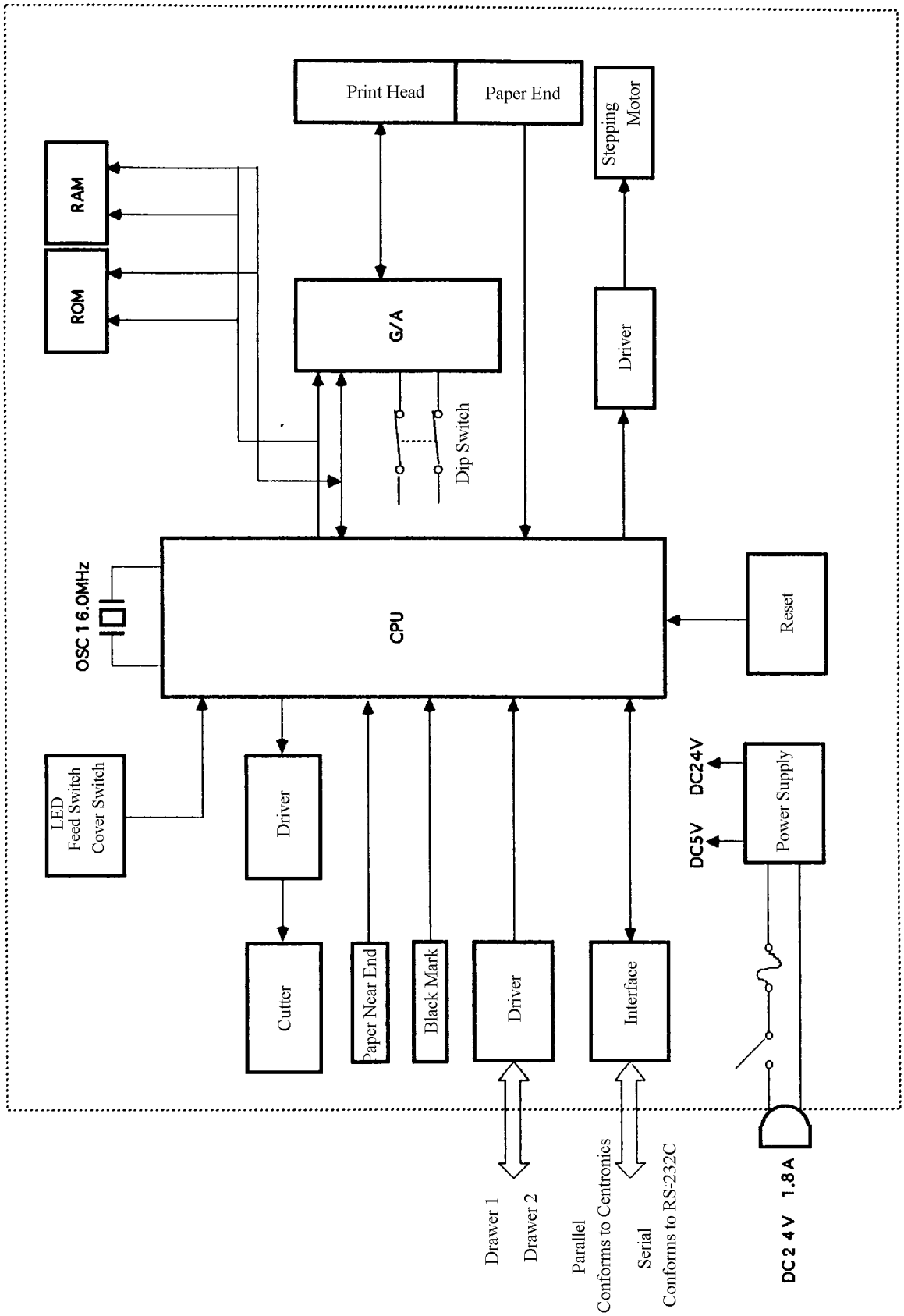
Circuit Diagram iDP-3210-RF
D/N. 3210-08



Circuit Diagram iDP-3210-PF
D/N.3210-05



Block Diagram



Chapter 5

Trouble Shooting

Chapter 5 Trouble-Shooting

5.1 Procedure for Repair

If a failure occurs, observe the cause of the failure carefully,
locate the point of the failure, and repair it following the prescribed procedures.

- Problem : Seek the cause of the failure from items in this column.
  If the problem falls into plural items, check all the matters in such items.
  By so doing, hidden causes of the failure may be located.
- Cause : Possible causes are listed as many as possible. Assume possible causes, and specify the cause by methods shown in the next column.
- Check Method : Check methods for specifying failures are mentioned.
- Repair Method : Repair the failure according to methods mentioned in the following column.

Following the above-mentioned procedure assures effective trouble-shooting with little misjudgment.

5.2 Guide to repair

Phenomenon	Cause	Check method	Repair method
Poor print	Poor power supply.	Check if specified AC adapter is used.	Use specified AC adapter.
No print or print result is not clear	Poor installation and connection of thermal head	Check condition of installation and connection of thermal head and control board.	Connect thermal head to control board correctly.
	Poor installation of control board.	Check installation of control board.	Install control board correctly.
	Poor installation of platen roller.	Check condition of installation of platen roller. Check head SP for deformation and bent.	Install platen roller correctly. Replace deformed thermal head unit.
	Defect of thermal head unit.	----------	Replace thermal head unit.
Missing dot	Foreign matters are deposed on thermal head.	Check head for foreign matters stuck on it.	Wipe foreign matter off with a cotton or soft cloth soaked in ethyl alcohol.
	Defect of thermal head unit.	----------	Replace thermal head unit.
Print result is very dirty.	Poor power supply.	Check if specified AC adapter is used.	Use specified AC adapter.
	Dirt is stuck on thermal head.	Check thermal head for stuck dirt.	Wipe foreign matter off with a cotton or soft cloth soaked in ethyl alcohol.
Poor print quality	Poor paper.	Confirm that the paper meets specifications is used.	Use paper to meet specifications.

Phenomenon	Cause	Check method	Repair method
Poor paper feed Paper feed motor does not work, or is unstable.	Defect in connection of motor connector.	Check connection of connector.	Connect connector correctly.
	Poor power supply.	Check if specified AC adapter is used.	Use specified AC adapter.
	Defect of motor unit.	Measure supply voltage with tester or oscilloscope.	If supply voltage is normal, replace motor.
No or unstable paper feed.	Abnormality in paper feed	Check paper course for jammed, broken, or hung paper.	Remove unnecessary paper, and insert paper correctly.
	Poor installation and connection of thermal head.	Check condition of installation and connection of thermal head and control board. Check head SP for deformation and bent.	Install thermal head to control board correctly. Remove deformed head SP.
	Poor installation of control board.	Check condition of installation of control board.	Install control board correctly.
	Poor installation of platen roller.	Check condition of installation of platen roller.	Install platen roller correctly.
	Foreign matters mixed in gears.	Remove platen roller, and check platen gear and motor gear for foreign matters.	Remove foreign matters.
	Gear damage.	Remove platen roller, and check platen gear and motor gear for damage.	Replace damaged gear. For motor gear, replace motor.
	Defect of motor unit.	Measure supply voltage with tester or oscilloscope.	If supply voltage is normal, replace motor.
Defect of paper sensor. Presence/absence is not detected.	Defect of paper sensor.	Replace thermal head assembly, and confirm its normal operation.	Repeal thermal head assembly.
Near-end of paper is not detected.	Defect of paper near-end sensor.	Replace PE sensor assembly of control board, and confirm its normal operation.	Replace PE sensor assembly.
Defect of paper cutter.	----------	Refer to appendix 3. service manual for auto paper cutter ACS-130.	----------

Chapter 6
Parts List

Parts List

MODEL IDP-3210 EXPLODED VIEW		**Service Parts List**	
Ref.	Parts No.	Description	QTY'
1	E 4002-490	Chassis	1
5	E 62020190	Bottom case-RF	1
6	E 62020200	Bottom case-PF	1
7	E 6302-370	Foot	4
8	E 6601-330	Protector	1
9	E 62010730	Top case assy	1
10	E 62010731	Top case	(1)
11	E 6612-050	Roller	(2)
12	E 5200-250	OP sheet	(1)
13	E 5049-030	Feed SW knob	1
17	E 62040260	Printer cover	1
19	E 8000-140	Auto cutter ACS-131	1
20	E 8010-240	Mouth plate	1
23	E 66000230	Thermal head RJ073-6S72	1
24	E 6611-570	Paper sensor holder	1
25	E 391-150	Photointerrupter SG-101	1
27	E 6601-310	Head BRT	1
28	E 6601-320	Head spring	2
30	E 8017-070	Motor SMB40-4845-A	1
32	E 8040-010	Platen roller assy	1
33	E 8031-070	Platen roller	(1)
34	E 8025-050	Bush, Platen	(2)
35	E 8019-080	Gear, Platen	(1)
36	E 8028-020	Paper guide	(1)
37	E 4	E Ring 4	(2)
41	E 70010780	Control board assy-RF	1
	E 70010781	Control board assy-RF for UL	1
	E 70010810	Control boars assy-PF	1
42	E 5071-140	Key top, LED	1
43	E 5110-530	Cover PE, sensor	1
44		PE sensor assy	(1)
45	30AD	Adapter	1

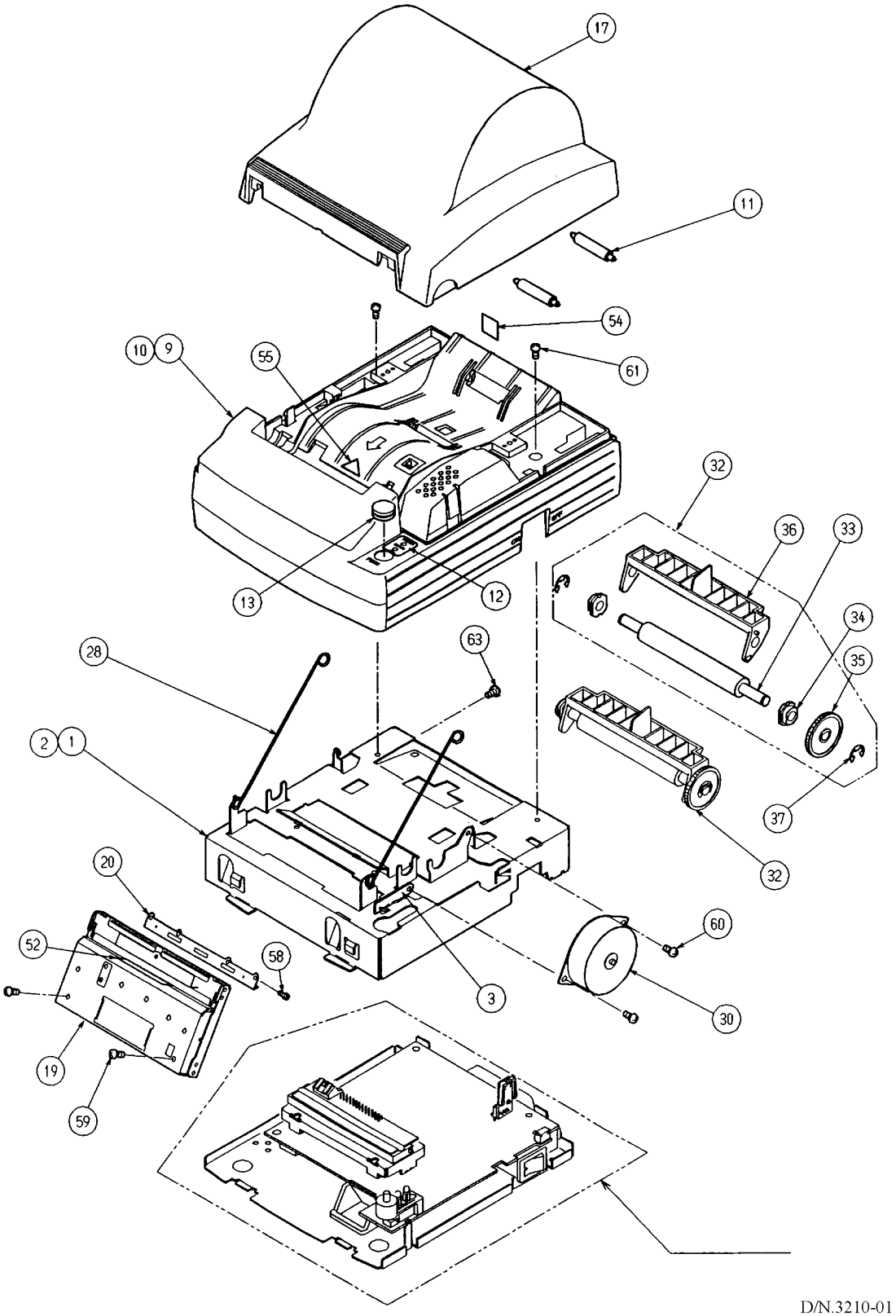
Parts List

MODEL IDP-3210 EXPLODED VIEW		**Service Parts List**	
Ref.	Parts No.	Description	QTY'
46	E 6100-735	AC cord for 120V	1
47	E 6100-730	AC cord for 230V	1
58	23G57459	Screw M2x3	2
59	23G57481	Screw M2.6x6	2
60	23G29538	Screw M3x5	2
61	23G22821	Screw M3x8	6
62	23G62837	Screw M3x16	2
63	23G42966	Screw M3x6 w/TW	1
64	23G22796	Screw M3x8	1

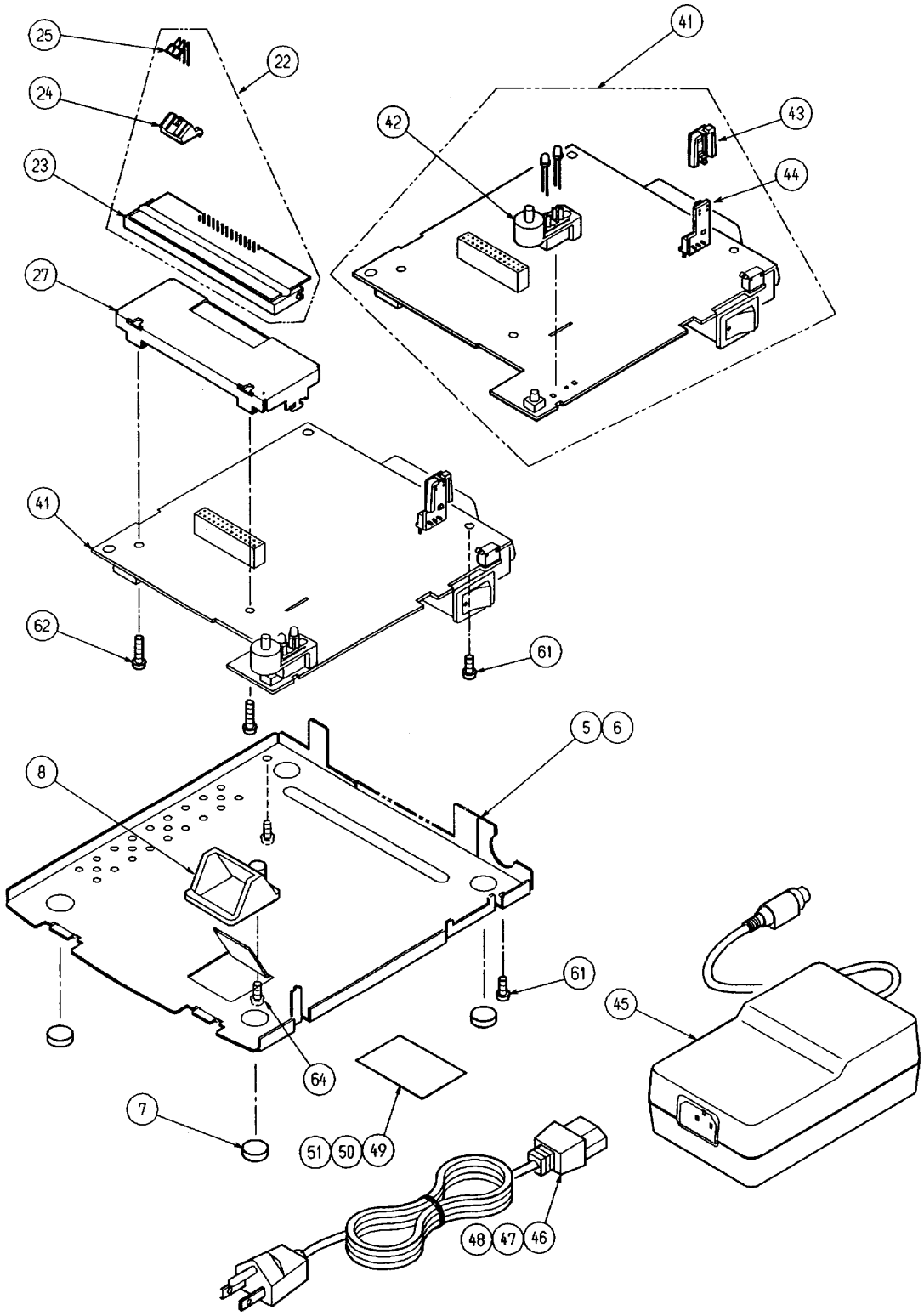
Parts List

MODEL IDP-3210 PE SENSOR ASSY		**Service Parts List**	
Ref.	Parts No.	Description	QTY'
PH 1	E 391-170	Photointerrupter GP2S04	1
CN	E 48000720	Connector 5530-03A	1

Exploded View IDP-3210 1



Exploded View IDP-3210 2



D/N. 3210-02

Parts List

MODEL IDP-3210 CONTROL BOARD ASSY		**Service Parts List**	IDP-3210	IDP-3210
Ref.	Parts No.	Description	RF	PF
IC 1	E 107-280	CPU HD6413002F16	1	1
2	E 104-530	Gate array CBM202LA-00	1	1
3	E 107-290	RAM LC36256AML-10-TRM	1	1
4	E 202-920	Reset IC M51953A(B)L	1	1
5	E 4101-720	DC-DC com. SI-8401L	1	1
6	E 202-950	I/F IC MAX202CPE	1	
	E 210-070	HC-MOS 74HC04AF		1
101		Not used		
102	E 107-300	EP-ROM M27C512F-12F1	1	1
TA 1	E 390-270	Tr. array STA471A	1	1
2	E 202-830	Tr. array TA8428K	1	1
Tr 1,5	E 358-040	Transistor RN1002	2	
1,5,10	E 358-040	Transistor RN1002		3
2	E 358-050	Transistor 2SJ139	1	1
3,6,9,101	E 359-090	Transistor 2SC1740SR	4	4
4	E 327-030	Transistor 2SB1065QR	1	1
7,8	E 359-170	Transistor 2SC4671-AN	2	2
D 1,2	E 400-580	Diode MPG06B	2	2
3	E 400-570	Diode 1SS118	1	1
LED 1	E 480-390	LED SEL2410E	1	1
2	E 480-330	LED SEL2110S	1	1
RA 1	E 3500-180	Re. array M4-1-103J	1	1
2	E 3500-080	Re. array M9-1-332J	1	1
3	E 3500-050	Re. Array M5-1-103J	1	1
4	E 3500-190	Re. Array M5-1-332J		1
R 1,2,12,13	E 3900-380	Chip Re. RK73K2A3.3KJ	4	4
3,6,16,28 103	E 3900-390	Chip Re. RK73K2A100J	5	
3,6,16,28 31,103	E 390-390	Chip Re. RK73K2A100J		6
4	E 3900-400	Chip Re. RK73K2A30KJ	1	1
5,7,17,102 104	E 3900-410	Chip Re. RK73K2A33KJ	5	5
8,14,101	E 3900-420	Chip Re. RK73K2A180J	3	3
9	E 3279-020	Re. 2W 2.7J	1	1
10,11,24,25 27,29,30	E 3900-430	Chip Re. RK73K2A10KJ	7	7

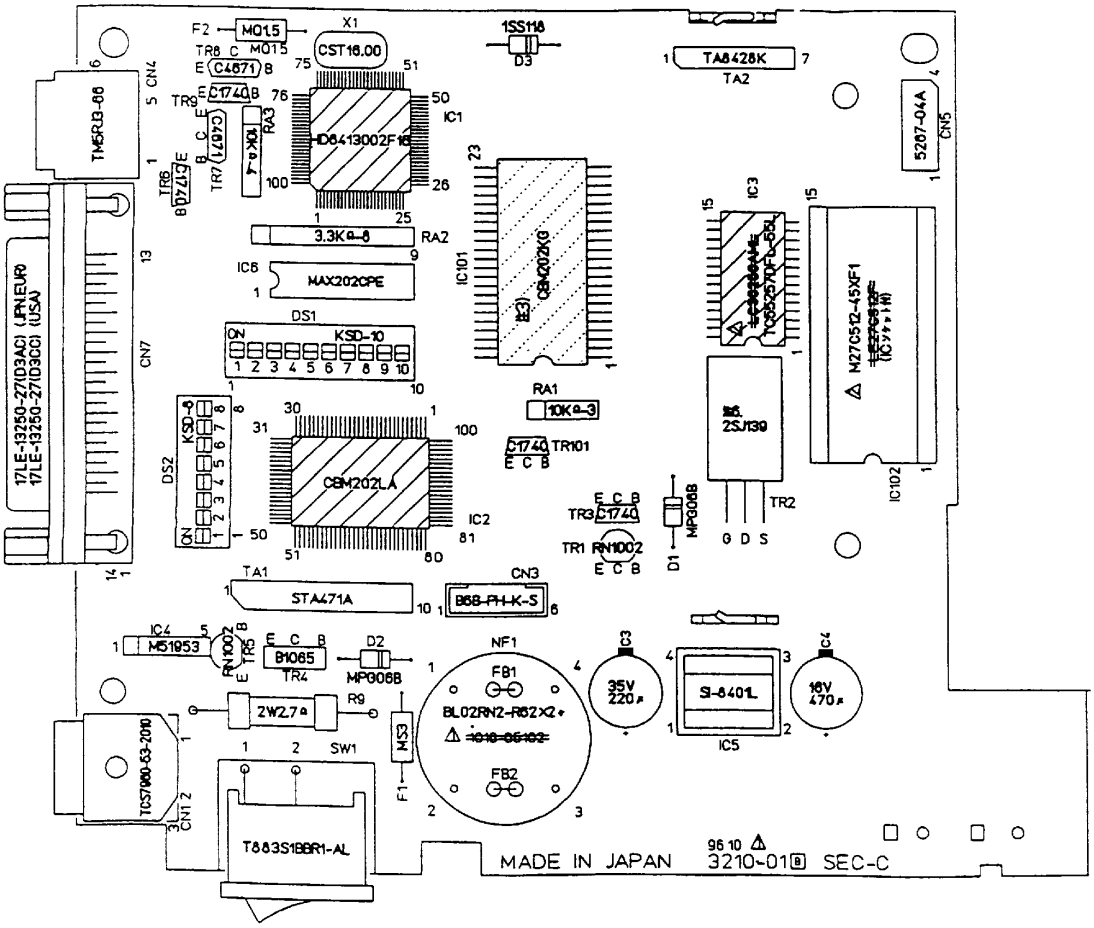
Parts List

MODEL IDP-3210 CONTROL BOARD ASSY		**Service Parts List**	IDP-3210	IDP-3210
Ref.	Parts No.	Description	RF	PF
R 15,26	E 3900-440	Chip Re. RK73K2A82K	2	2
18,19,23	E 3900-450	Chip Re. RK73K2A1KJ	3	3
20	E 3900-460	Chip Re. RK73K2A220J	1	1
21	E 3900-470	Chip Re. RK73K2A330J	2	2
C 3	E 2022-730	El. Cap. 35V220	1	1
4	E 2047-685	El. Cap. 16V470	1	1
1,2,5,6,8	E 2110-870	C. Cap. GRM40F104Z50PT	18	
11,15,16				
17,18,189				
20, CP 1 - 6				
1,2,5,6,8	E 2110-870	C. Cap. GRM40F104Z50PT		13
11, CP 1 - 7				
7,12,101	E 2110-875	C. Cap. GRM40B103K50PT	3	3
9,10,13,14	E 2110-900	C. Cap. GRM40B102K50PT	4	4
15,16,115	E 2110-900	C. Cap. GRM40B471K50PT		3
115	E 2110-900	C. Cap. GRM40B471K50PT	1	
102 - 108	E 2110-885	C. Cap. GRM40B331K50PT	7	7
109 - 114	E 2110-905	C. Cap. GRM40CH101J50PT	6	6
SW 1	E 4003-570	P. switch T883S1BBR1-AL	1	1
2	E 5102-490	Switch SKHHBV	1	1
3	E 5102-500	Switch D3C-2220	1	1
CN 1	E 48000690	Connector TCS7960-53-2010	1	1
2	E 48000695	Connector PS-265D-D4TS1-1	1	1
3	E 48000700	Connector B6B-PH-K-S	1	1
4	E 48000705	Connector TM5RJ3-66	1	1
5	E 48000350	Connector 5267-04A	1	1
7	E 48000640	Con. 17LE-13250-27(D3AC) EUR	1	
	E48000645	Con. 17LE-13250-27(D3CC) USA	1	
	E 48000625	Con. 57RE-40360-730B(D29)		1
DS 1	E 5103-520	Dip switch KSD10H	1	1
2	E 5103-510	Dip switch KSD08H	1	
FB 1,2	E 4009-280	Fe. beads BL02RN2-R62	2	2
F 1	E 4005-795	Fuse MS3	1	1
2	E 4005-770	Fuse MQ1.5	1	1

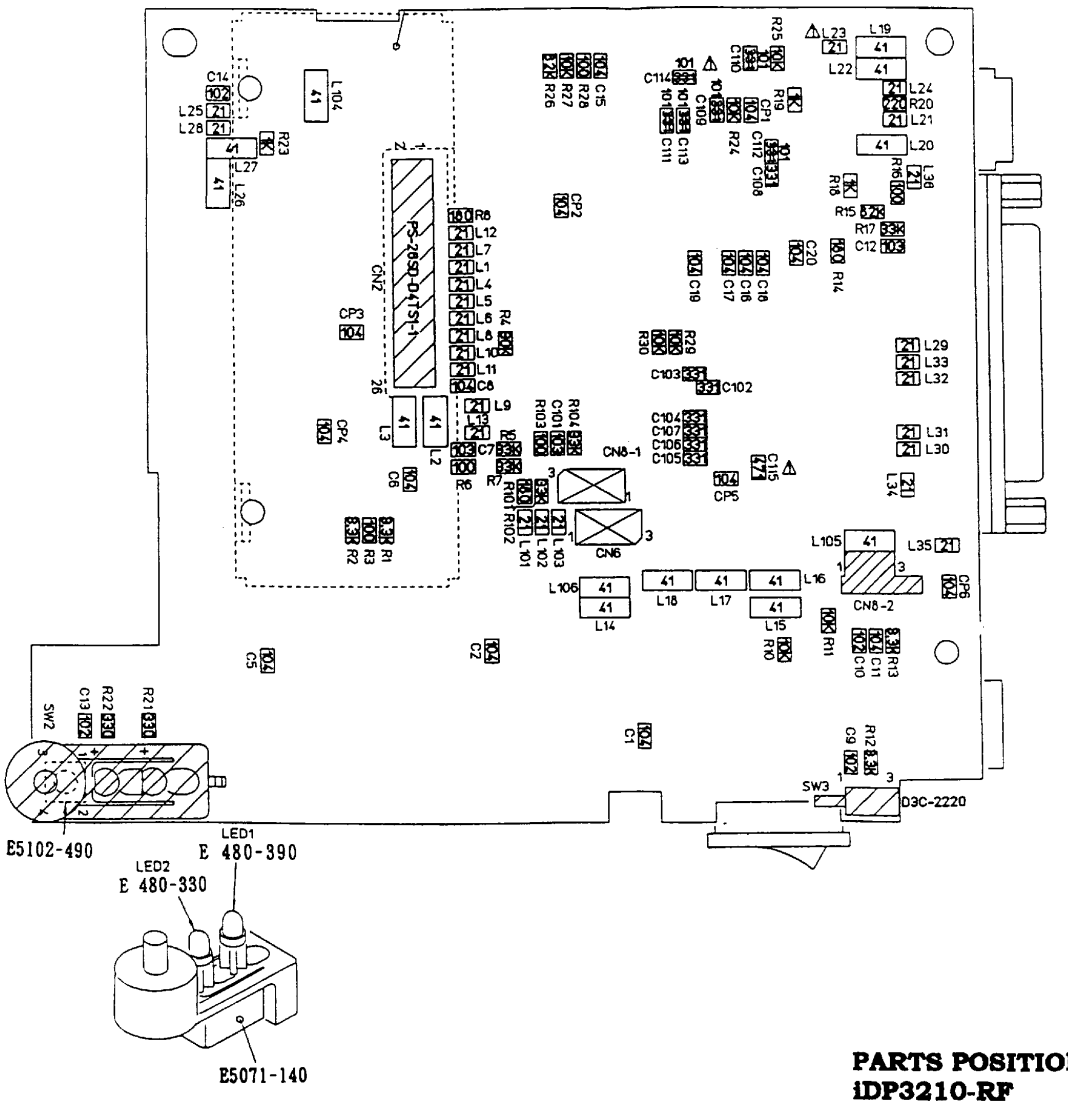
Parts List

MODEL IDP-3210 CONTROL BOARD ASSY		**Service Parts List**		
Ref.	Parts No.	Description	IDP-3210 RF	IDP-3210 PF
X 1	E 501-360	X'tal CST16.00MXW0C3	1	1
L 2,3,14 - 20	E 4009-480	Fe. beads BLM41P800S	15	
22,26,27				
104 - 106				
2,3,14-20	E 4009-480	Fe. beads BLM41P800S		16
22,26,27,49				
104 - 106				
1,4 - 13,21	E 4009-490	Fe. beads BLM21A121S	27	
23 - 25				
101 - 103				
1,4 - 13,21	E 4009-490	Fe. beads BLM21A121S		40
23 - 25				
28 - 48,50				
101 - 103				

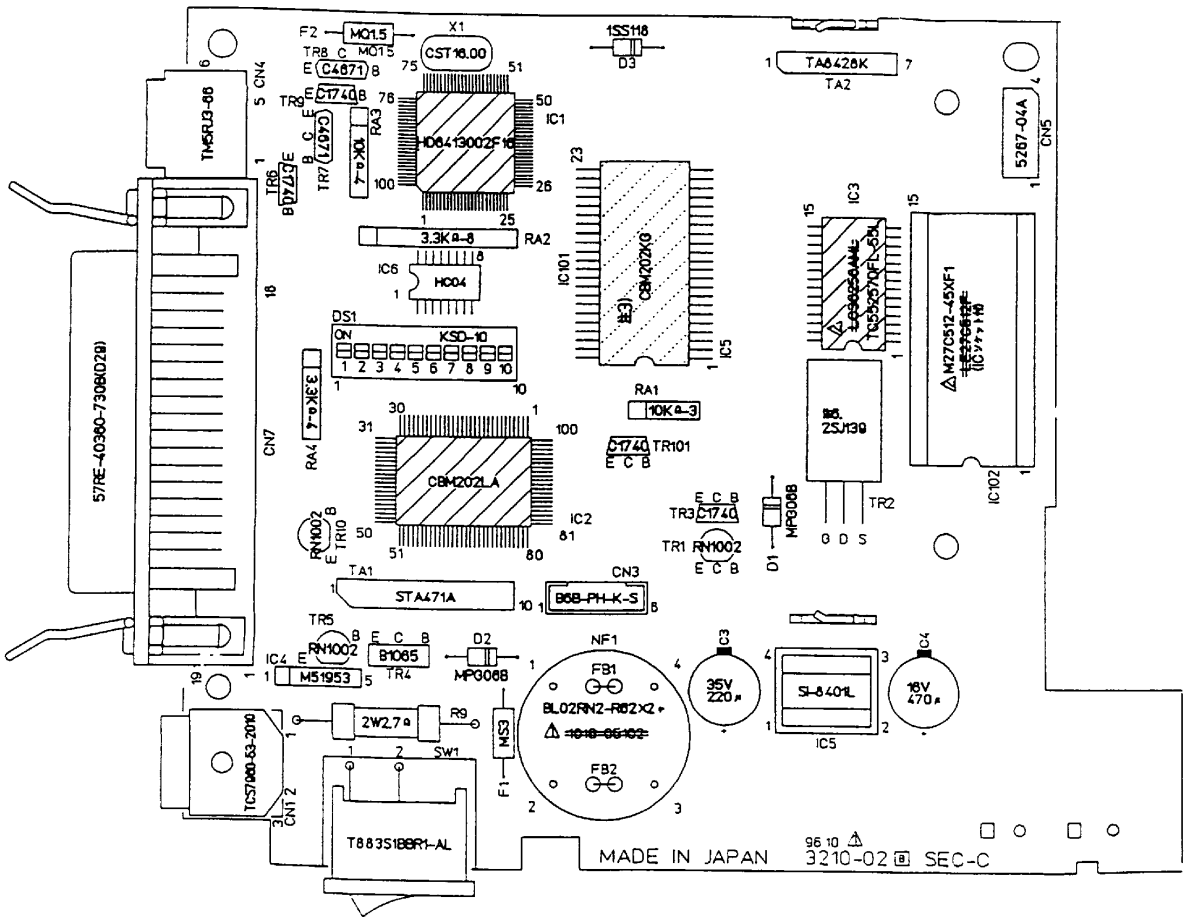
Parts Layout on Control Board



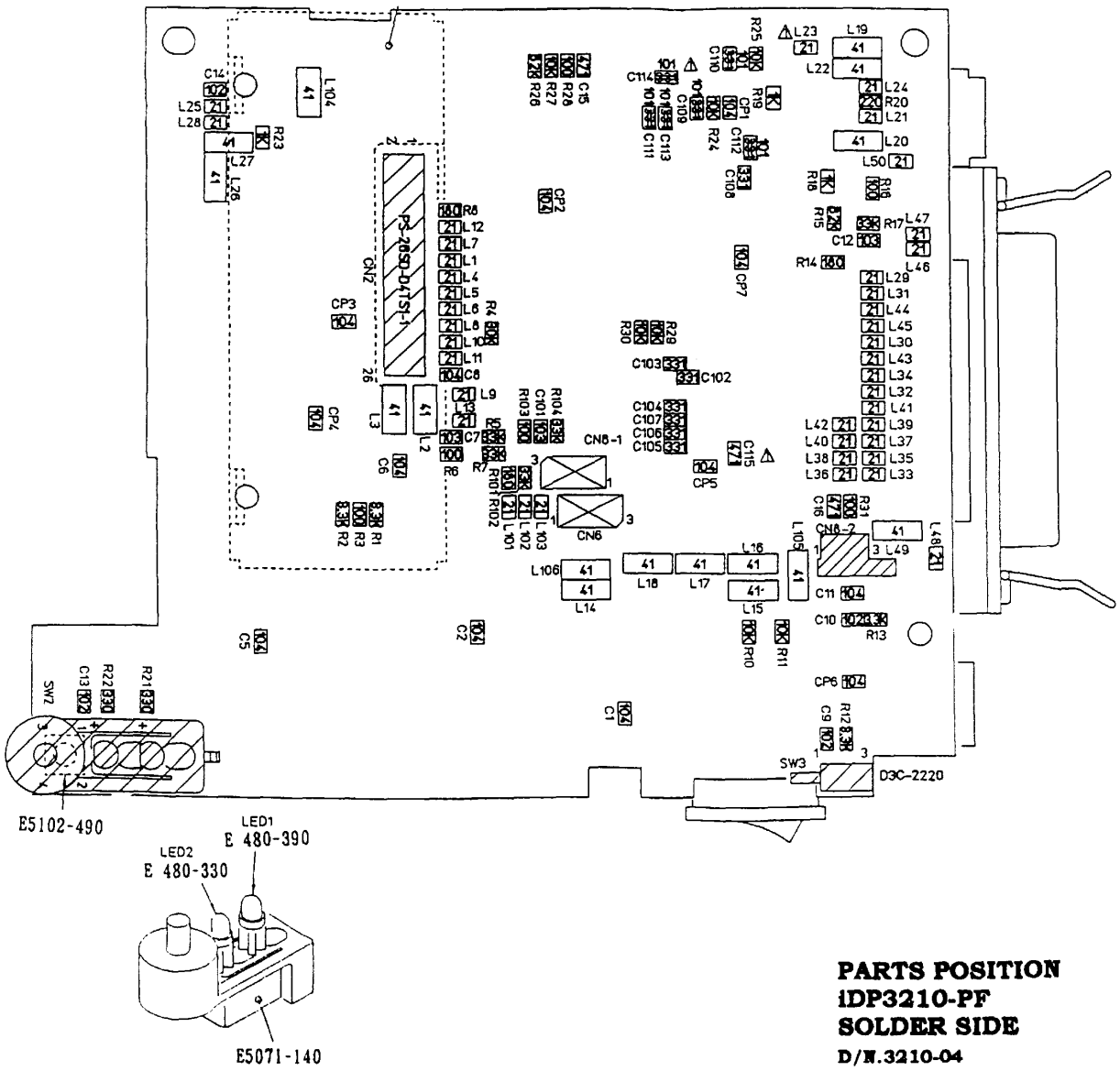
PARTS POSITION
iDP3210-RF
PARTS SIDE
D/N.3210-6



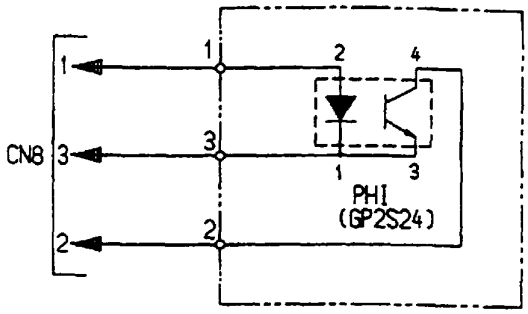
PARTS POSITION
iDP3210-RF
SOLDER SIDE
D/N.3210-07



PARTS POSITION
IDP3210-PF
PARTS SIDE
D/M.3210-03

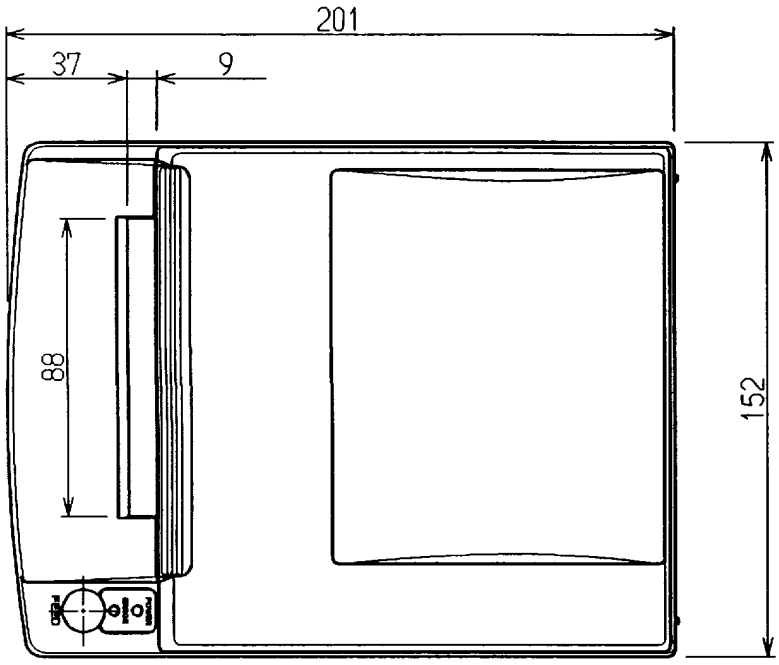


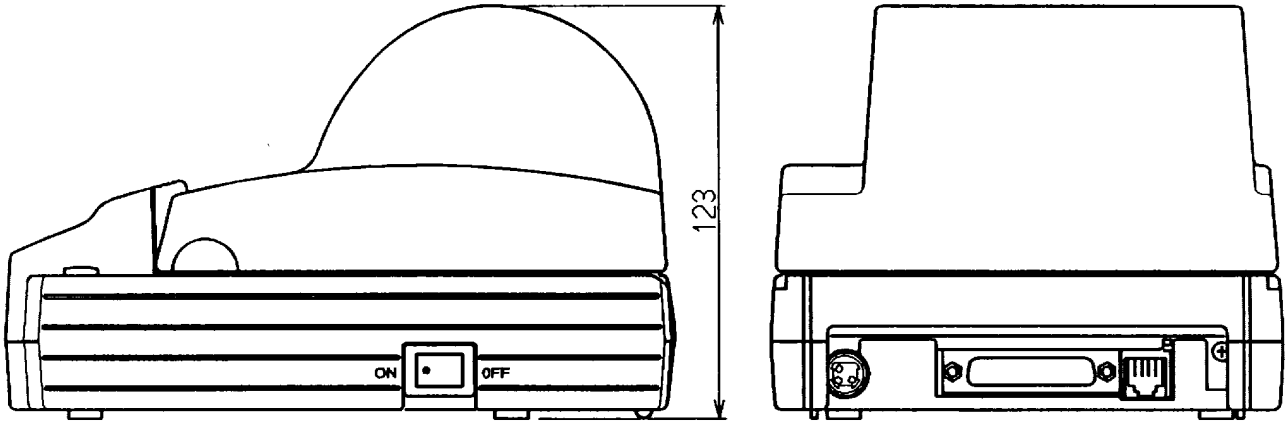
PARTS POSITION
iDP3210-PF
SOLDER SIDE
D/N.3210-04



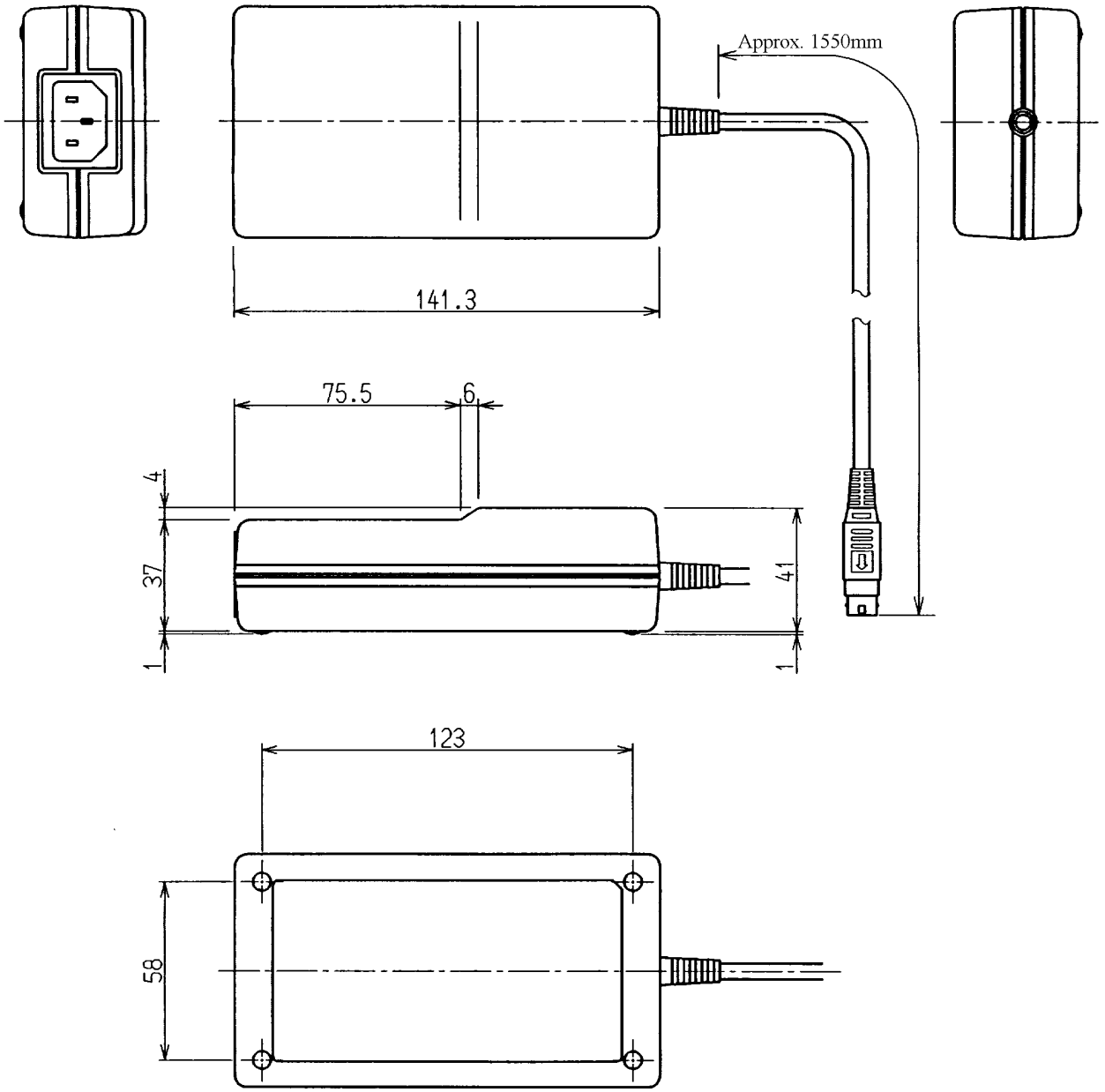
CIRCUIT DIAGRAM
iDP3210
PE SENSOR
D/N.3210-09

Appendix 1. Outer Drawing of Printer





Appendix 2. Outer Drawing of AC Adapter Model : 30AD



Appendix 3. ACS-130 Service Manual

SERVICE MANUAL

AUTO CUTTER UNIT

MODEL :ACS-130/120 (132/134)

Japan CBM Corporation
Information Systems Div.

1. Maintenance and Handling

1.1 Attention to Handling

(1) Precaution for use

- Do not cut paper other than the specified recording paper, nor pull recording paper while paper is being cut, or the blade will be damaged to shorten the life.
- Do not make an excessive force to the frame.

(2) Precaution for storage

- Do not store the unit at a dusty place and under a high temperature and humidity.

1.2 Cleaning

(1) Eliminate paper powder appropriately.
A vacuum cleaner is available for better and easier cleaning.

(2) To eliminate dirt, wipe it away using alcohol or benzene.
Never use Thinner Trichloroethylene or ketone solvent because they may damage plastic parts.

(3) Lubricate as required after cleaning.

1.3 Lubrication

Lubrication is not necessary expressly for use of 300,000 times or less, however lubrication is necessary if the blade shows a dull move or oil has run out due to cleaning, or when the unit is disassembled, reassembled or replaced.
Use a little oil, or an excess of oil causes paper dust to stick, resulting in malfunction. (For where to oil, refer to the instruction drawing for lubrication location).

Gear pivots:	MALTEMP	by brushing
Worm gear block:	Molybdenum	by brushing
Sliding portion of blade and frame:	Molybdenum	by brushing

2. Mechanism and Operational Principle

2.1 Outline of Mechanism

ACS-130 is designed for compact printers, and offers major advantage of ultra slim design and light weight. Its mechanism is composed of a frame, transmission mechanism, sensor and blade mechanism blocks.

2.2 Mechanism and Operational Principle

2.2.1 Transmission Block

The reduction gears train of this auto cutter is composed of a worm fitted to the motor shaft, worm gear, and two cutter gears.
One revolution of the motor causes the cutter gears 1/64 revolution (Fig. 1)

.

FIG.2

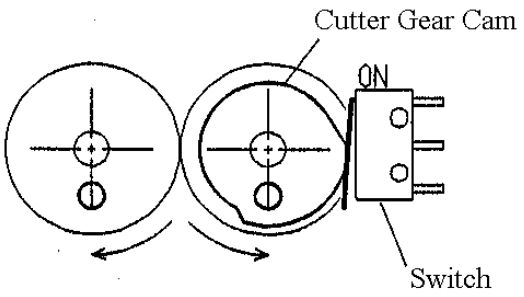
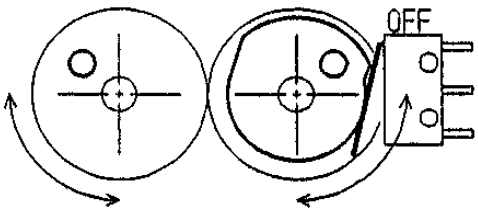


FIG.3



2.2.2 Sensor Block

The sensor block is composed of a mechanical contact switch and cutter gear cam.
It detects the cutter's home position (Fig. 2), the turning position for partial cut (Fig. 3), and the return of the blade. While the blade is in the home position, the status is ON, and when the blade has returned to the home position, the status becomes ON. The position where the status changes from ON to OFF after the movable blade starts moving is the turning position for partial cut.

FIG.2

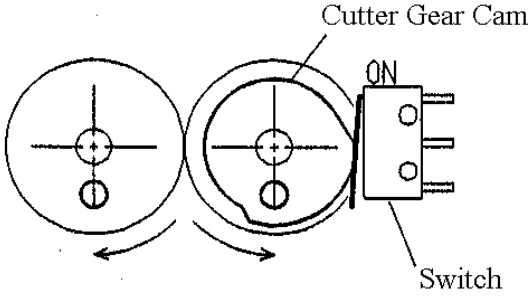
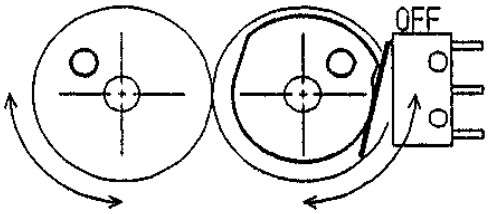


FIG.3



2.2.3 Blade Mechanism Block

The blade cuts recording paper by its linear motion converted by the crank pin.

(1) Full cut

For full cut, the crank pin returns to the home position after one revolution. The blade moves 11 mm.

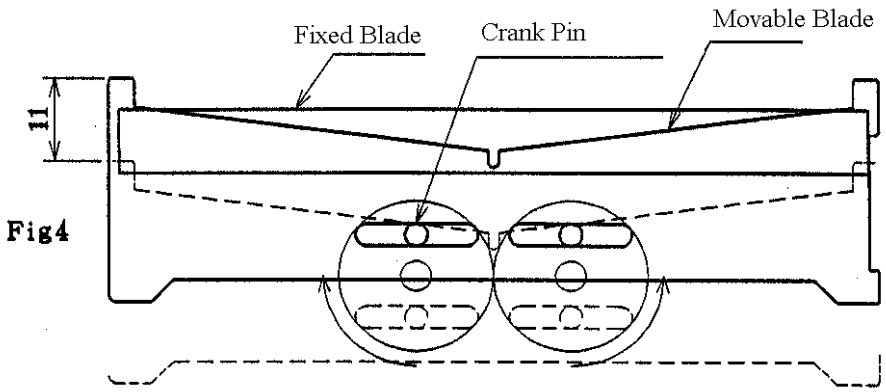


Fig4

(2) Partial cut (one tear-point left)

For partial cut, the crank pin turns reversely from the moment when it receives the signal from the switch to return to the home position.

The blade moves approximately 8.5 mm.

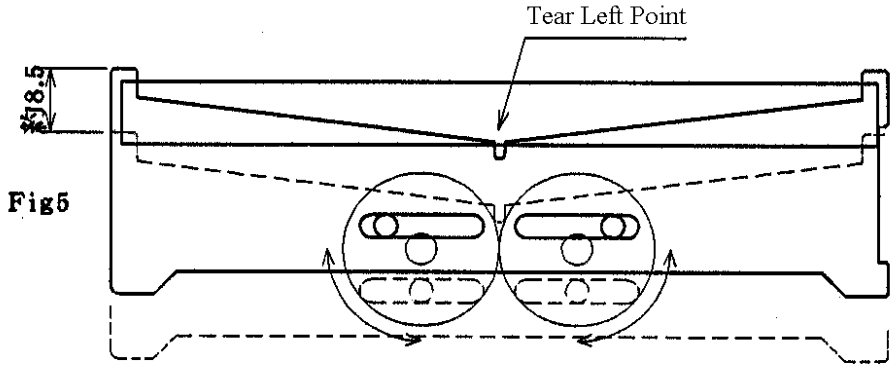


Fig5

3. Repairs (Trouble shooting)

Trouble shooting is divided into the following items to explain how to repair.
In accordance with the following items to check and repair.

(1) Trouble …….. Find the trouble in this item.

(2) Conditions ……..The same trouble can show different conditions.
Confirm which conditions your trouble comes under,
comparing your trouble with the description in this item.

(3) Causes …… Causes are listed according to the conditions of troubles.
Find the cause of your trouble.

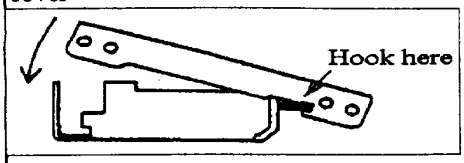
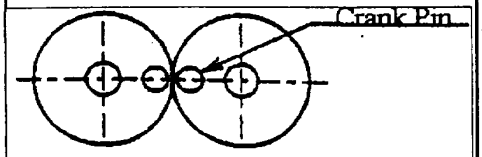
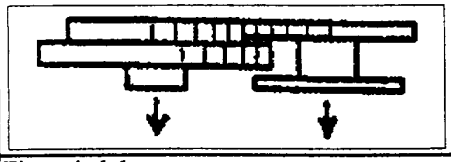
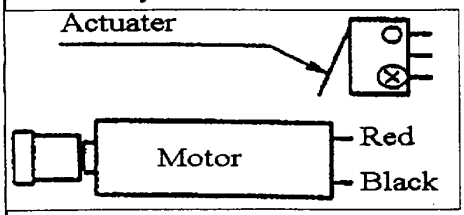
(4) Check method ……. Method to locate causes of your trouble.

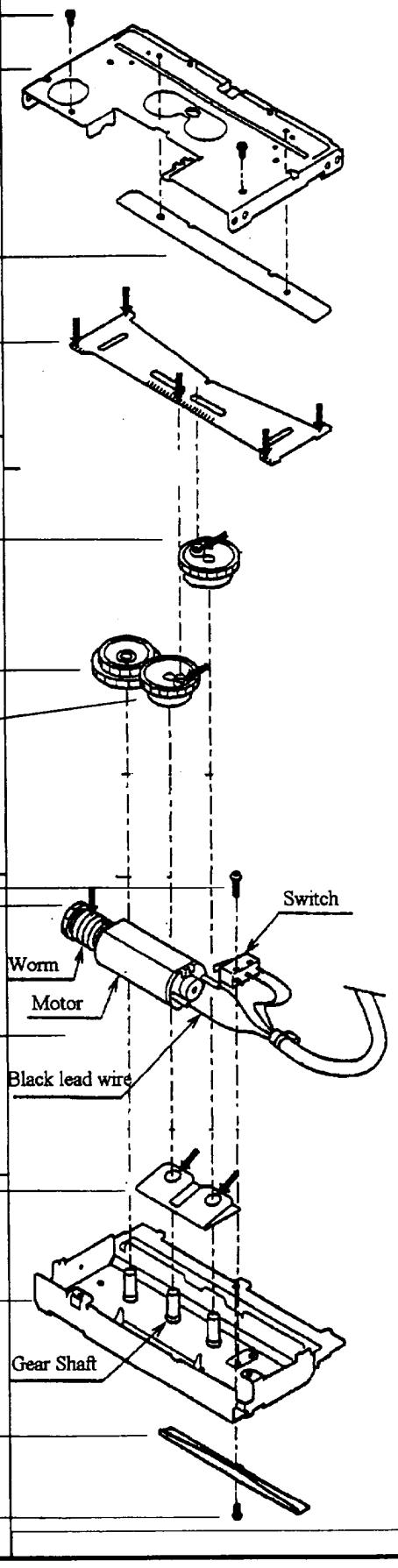
(5) How to repair …….... Repair the defect following the methods mentioned in this item.

4. Disassembling and Reassembling

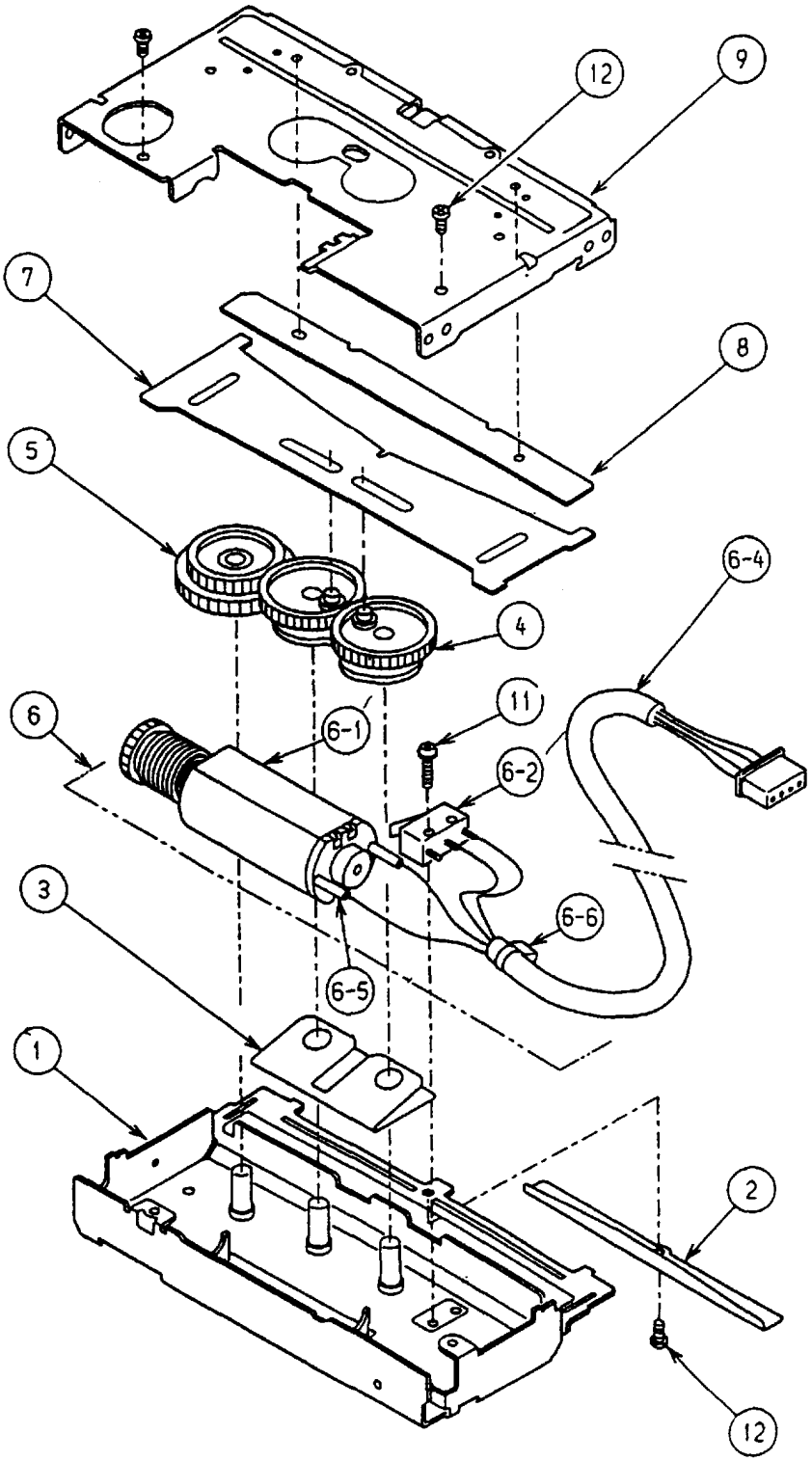
(1) Disassembling procedures
Disassemble the unit according to the assembling procedures in the reverse order.

(2) Assembling procedures
Assemble the unit according to the assembling procedures shown in the separate table.

ASSEMBLING PROCEDURE	PATRTS NAME
12 Fasten two screws.	M2x3 screw
11 Pressing movable blade, close cutter cover 	Cutter cover
10 Assemble fixed balde with cutter cover	Fixed blade
9 Fitting to crank pin, insert movable blade (Confirm the up-side/down-side direction)	Movable blade
8 Apply MO grease to the arrowed portion	
7 Insert cutter gear assy into geat shaft Align gear shaft to crank pin 	Cutter gear assy
6 Assembling W gear and cutter gear assy, fit them with gear shaft 	W gear Cutter gear assy
5 Fix switch by screws 	M2 x 8 with spring washer Motor harness assy
4 Insert motor so that the black lead wire may come outside	
3 Insert spring for blade through gear shaft	Spring for brade
2 Lubricate shaft with a little MALTEMP oil by a brush	Cutter frame assy
1 Set paper stopper	Paper stopper M2 x 3 Screw



Exploded View
ACS-131



Parts List

MODEL ACS-131 AUTO PAPER CUTTER		**Service Parts List**	
Ref.	Parts No.	Description	QTY'
1	E 8010-250	Cutter frame assy	1
2	E 8022-060	Paper stopper	1
3	E 8021-110	Lraf spring	1
4	E 8015-020	Cutter gear assy	2
5	E 8020-020	W gear	1
6	E 8033-020	Motor harness assy	1
6-1	E 8016-050	Motor assy	1
6-2	E 8018-010	Micro Switch D2F-01FL	1
6-4		Tube 5.2 X 230	
6-5		Tube 2.7 X 10	
6-6	E 8035-010	Binder T18S	1
7	E 8030-100	Movable blade-130	1
8	E 8036-010	Fixed blade-130	1
9	E 8023-070	Cutter cover	1
11	71SEC-1678	Screw M2 X 8-SW	1
12	71G57459	Screw M2 X 3	3