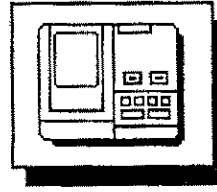
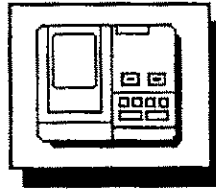
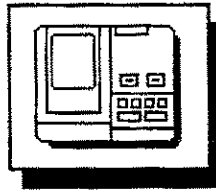
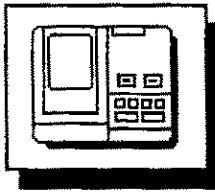
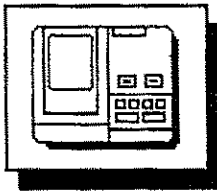


# AD-8117

*Compact Printer*



## MAINTENANCE MANUAL

maintenance-AD-8117(A)-v.1.d

# CONTENTS

Warranty.....	page 2
Compliance with FCC Rules.....	page 2
Introduction.....	page 3
User Maintenance .....	page 4
Description .....	page 5
Included in Product Shipment	
Optional / Accessories	
Keyboard	
Disassembly .....	page 6
Also to change the input method: RS-232C or Current Loop	
Checking RESET SW and TG signal ..	page 8
Assembly .....	page 9
Installing the Paper .....	page 10
Printer Test .....	page 11
Testing the Communications Interface	
Connections .....	page 12
Connection to Weighing Instruments	
Connection to Optional AC/DC Adaptor	
Connection to Optional Foot Switch	
Block Diagram .....	page 13
Trouble-Shooting .....	page 13
Connecting the Tester .....	page 14
Parts List .....	page 15

## **WARRANTY**

Warranty rights vary from country to country but it is the general intention of A&D Co., Ltd., to offer customers a one year warranty on this product from the day it is purchased. In some countries consumer protection legislation states that your dealer is responsible for offering a warranty and under these circumstances please refer to your local dealer.

In the U.S.A. the product (if defective) should be returned, freight prepaid by the customer, to A&D Engineering Inc. in California and in Europe the product can be returned freight prepaid to A&D Instruments GmbH in Frankfurt, West Germany. Elsewhere the product can be returned to A&D Co., Ltd. in Japan. In any event please contact your nearest A&D office, before shipping, to confirm that the product is covered by this warranty. Simple repairs can be carried out by your local dealer under warranty and this may be the fastest method of solving your problem.

This warranty only applies to product failures due to defective materials and/or workmanship. This warranty will be rendered invalid if, upon inspection, it is found that the product was: Abused; used for a purpose for which it was not designed; mishandled; placed in a hostile environment; repaired by unauthorized personnel; improperly installed or not adjusted in accordance with instructions given in this manual. If repair under warranty is confirmed by A&D, then the product will be repaired (or replaced, at the discretion of A&D) and then returned to the customer at no extra cost.

## **COMPLIANCE WITH FCC RULES**

Please note that this equipment generates, uses and can radiate radio frequency energy. This equipment has been tested and has been found to comply with the limits of a Class A computing device pursuant to Subpart J of Part 15 of FCC rules. These rules are designed to provide reasonable protection against interference when equipment is operated in a commercial environment. If this unit is operated in a residential area it might cause some interference and under these circumstances the user would be required to take, at his own expense, whatever measures are necessary to eliminate the interference.

(FCC = Federal Communications Commission in the U.S.A.)

# INTRODUCTION

The AD-8117(A) Compact Printer is designed to receive data from A&D's optional RS-232C or Current Loop interface. The AD-8117(A) is especially designed to be used with A&D's Weighing Indicators, Platform Scales or Electronic Balances. The AD-8117 printer provides statistical calculations as well as printing normal weight percentage or counting data. The AD-8117A variant can be used as a simple printer with other kinds of equipment.

- ☐ Printers can be used anywhere with power supplied by 4 Penlight/LR6/R6/AA/UM-3 type batteries.
- ☐ Compatible not only with the RS-232C, but also Current Loop interfaces.
- ☐ Long (50m/54 yards) recording paper standard.
- ☐ Battery life (20°C/68°F): 20,000 lines can be printed continuously with one set of alkaline batteries.
- ☐ AC/DC adaptor is available as Option-02.
- ☐ The AD-8117 provides statistical calculations including standard deviation - however, the AD-8117A does not.

# USER MAINTENANCE

Many problems can be avoided by making sure that the user is familiar with some proper maintenance procedures.

- ☐ Wait more than two seconds to switch ON after tuning OFF the power supply switch.
- ☐ Never print without the paper - do not leave the printer unattended if the paper is low.
- ☐ Only use the correct grade of paper (WP:PP128).
- ☐ Remove the batteries when not using the AD-8117(A) for a long period of time to prevent potential damage from battery leakage.
- ☐ Do not mistake polarity ("+" or "-" direction) when inserting the batteries.
- ☐ Use the optional A&D AC/DC adaptor (OP-02) ONLY. Other commercial adaptor may not meet necessary requirements.
- ☐ Make sure that the power switch is OFF before connecting / disconnecting the data input cable.
- ☐ Do not expose the printer to high humidity, heat, dirt, chemicals or direct sunlight.
- ☐ Thermal paper is sensitive. It must be protected from heat, moisture, light, sweat & oil, chemicals, vinyl tape, solvents or wet-type photocopy paper.
- ☐ Do not use the optional AC/DC adaptor on a power circuit contaminated with noise: static, usual associated with motors and heavy machinery - or lines carrying other transmissions (use batteries).
- ☐ Do not open the case except to change the data input method.
- ☐ Do not use detergents or chemical cleaners to clean the printer case, use only a damp cloth.
- ☐ If a problem is encountered during operation, check that the power supply LED is ON, that the cable connections are secure and check the Instruction Manual for the correct dip-switch/jumper-pin, parameter setting and MODE switch settings.

# DESCRIPTION

## Included in Product Shipment

Qty	Item	Qty	Item
1	Compact Printer	1	Recording paper cover
1	RS-232C interface cable (1m)	4	Batteries
1	Recording paper (50m / 54 yd)	1	Plug for remote print switch
1	Recording paper spool shaft.	1	Instruction Manual

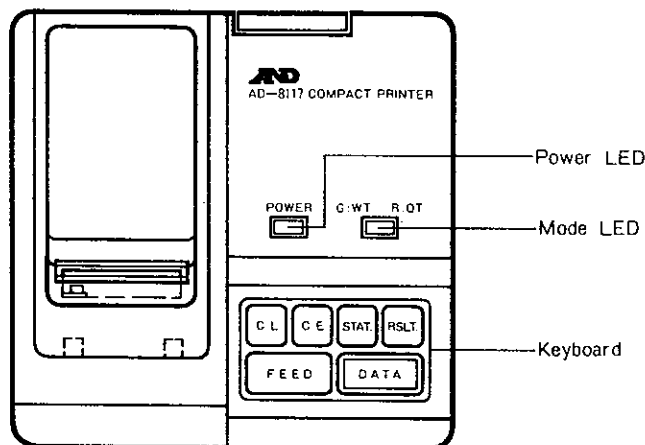
## Optional / Accessories

**OP-01** Adaptor cable (50cm/20").

**OP-02** AC/DC adaptor (100, 120, 220, or 240V AC to 9V DC).

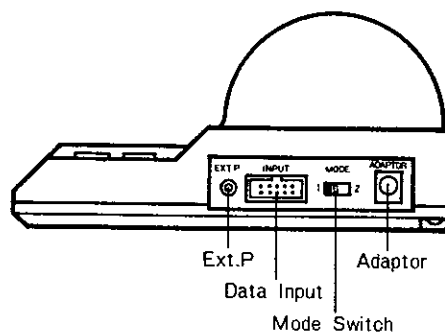
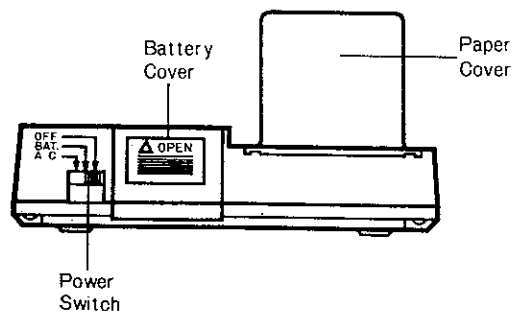
**WP:PP128** Recording Paper, 50 meters / 54 yards. 6 rolls to a set.

**SW:128** Foot switch.



### Keyboard (Note: On the AD-8117A, only the FEED key and POWER switch work)

<b>CL Key</b>	"Clear" - clears all the statistical data in memory.	<b>RSLT Key</b>	"Statistical calculation RESULT print key" - clears statistics from memory.
<b>CE Key</b>	"Clear Entry" - if an input error is made, CE cancels the last entry and prints "CANCEL".	<b>FEED Key</b>	"Paper Feed" - Feeds the paper.
<b>STAT Key</b>	"Statistical data selection" - Switch between Weight data (green lamp) or Quantity/Counting data (red lamp) for statistical calculations.	<b>DATA Key</b>	"Either DATA input or PRINT key in MODE 1 or 2"
		<b>MODE 2:</b>	Print the data and input the data for statistical calculations.
		<b>MODE 1:</b>	DATA key has no effect in MODE 1.



# DISASSEMBLY

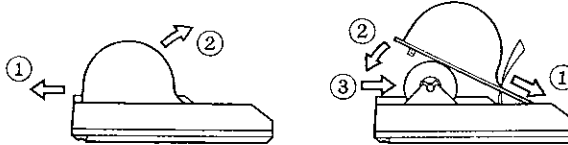
• Also to change the input method: RS-232C or Current Loop - to Step 5.



## **Attention!**

- ❑ Be sure that all power to the AD-8117(A) is disconnected before starting any work!

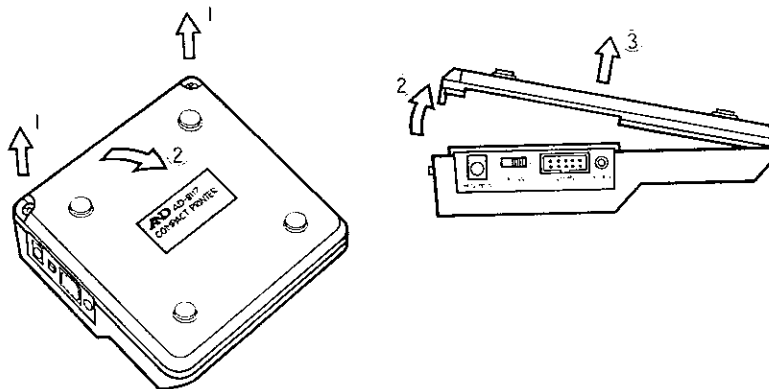
Step 1. Remove the paper roll cover.



Step 2. Gently lift out the paper roll, being careful while pulling the paper out of the print head - be careful to place the roll shaft in a safe place for replacement.

Step 3. Remove the two screws in lower half of the case.

Step 4. Raise the rear end of the lower half of the case.



Step 5. To change the input method (RS-232C or Current Loop), slide the switch in the front left hand corner, as seen from below, of the printed circuit board.

Step 6. Remove the two screws on the opposite sides of the printed circuit board as shown (① next page).

Step 7. Remove the two power clips from the case by gently pulling them away from the case body (② next page).

Step 8. Gently ease the printed circuit board away from the case.

Step 9. Remove the key pad strip from the printed circuit board by gently pulling out the connector CNR6 (③ next page).

Step 10. Gently remove the printed circuit board from the case and on to a anti-static mat.

## Removing the Printer

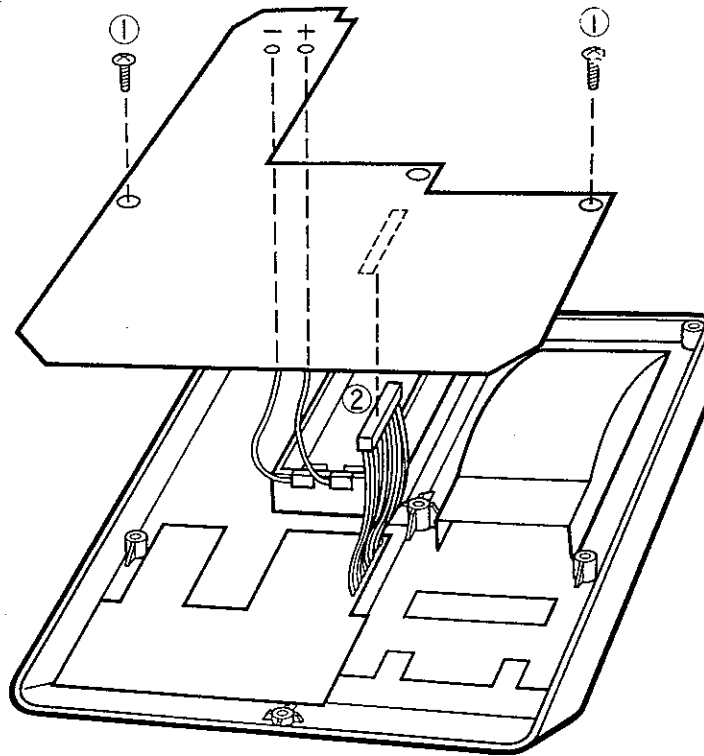
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Step 11. Remove the two screws holding the printer to the printed circuit board.

Step 12. Remove flexible circuit.

Step 13. Carefully remove the printer by easing it off its location pins.

Step 14. Replace the printer, or printed circuit board as needed.

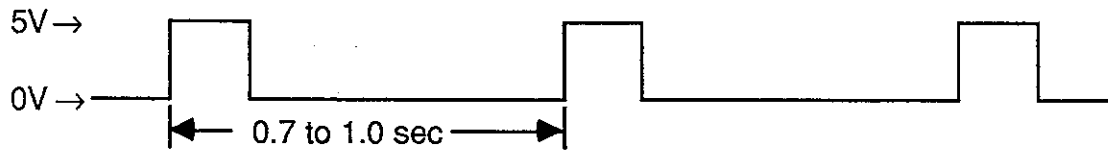




# CHECKING RESET SW AND TG SIGNAL

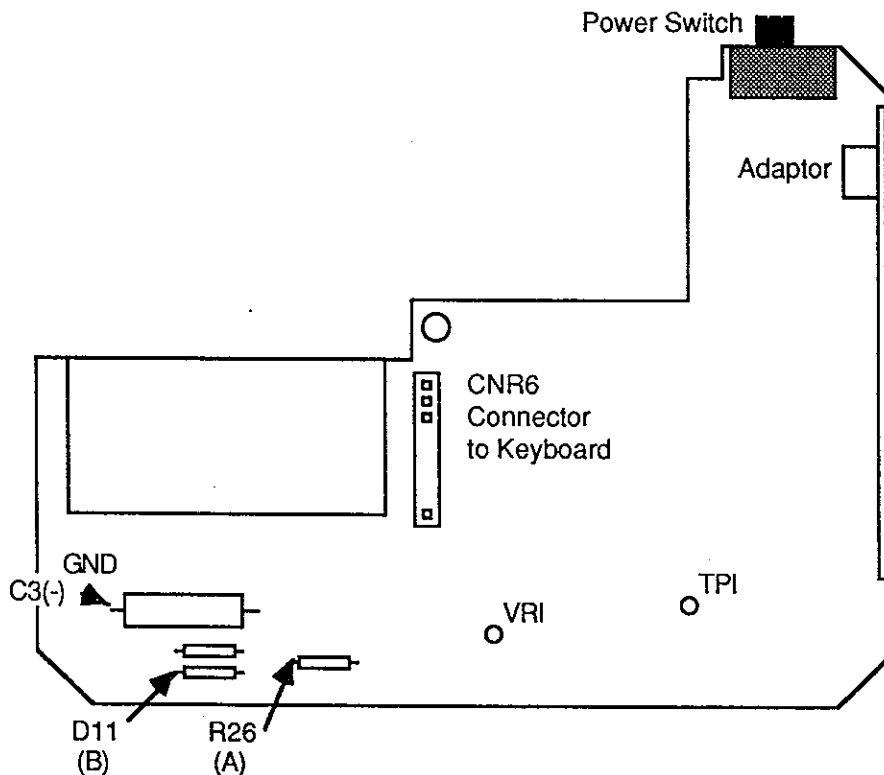
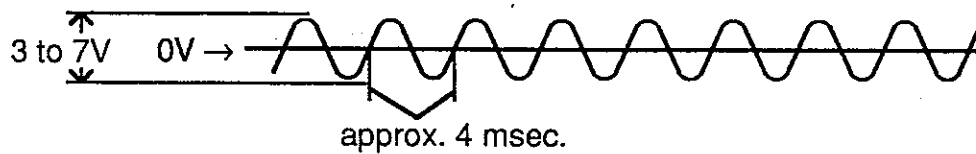
## Reset SW Signal

The signal waveform should be as below when the motor is running and the oscilloscope is connected to GND ("-" on C3) and point "A" (R26) on the diagram.



## TG Signal

The timing signal waveform from the motor should be as shown below when the motor is running and the oscilloscope is connected to GND ("-" on C3) and point "B" (D11) on the diagram. If the motor is running too fast, the period will be less - too slow, longer.



# ASSEMBLY

## Replacing the Printer

---

- Step 1. Carefully replace the printer by easing it onto its location pins.
- Step 2. Replace flexible circuit.
- Step 3. Replace the two screws that hold the printer to the printed circuit board.

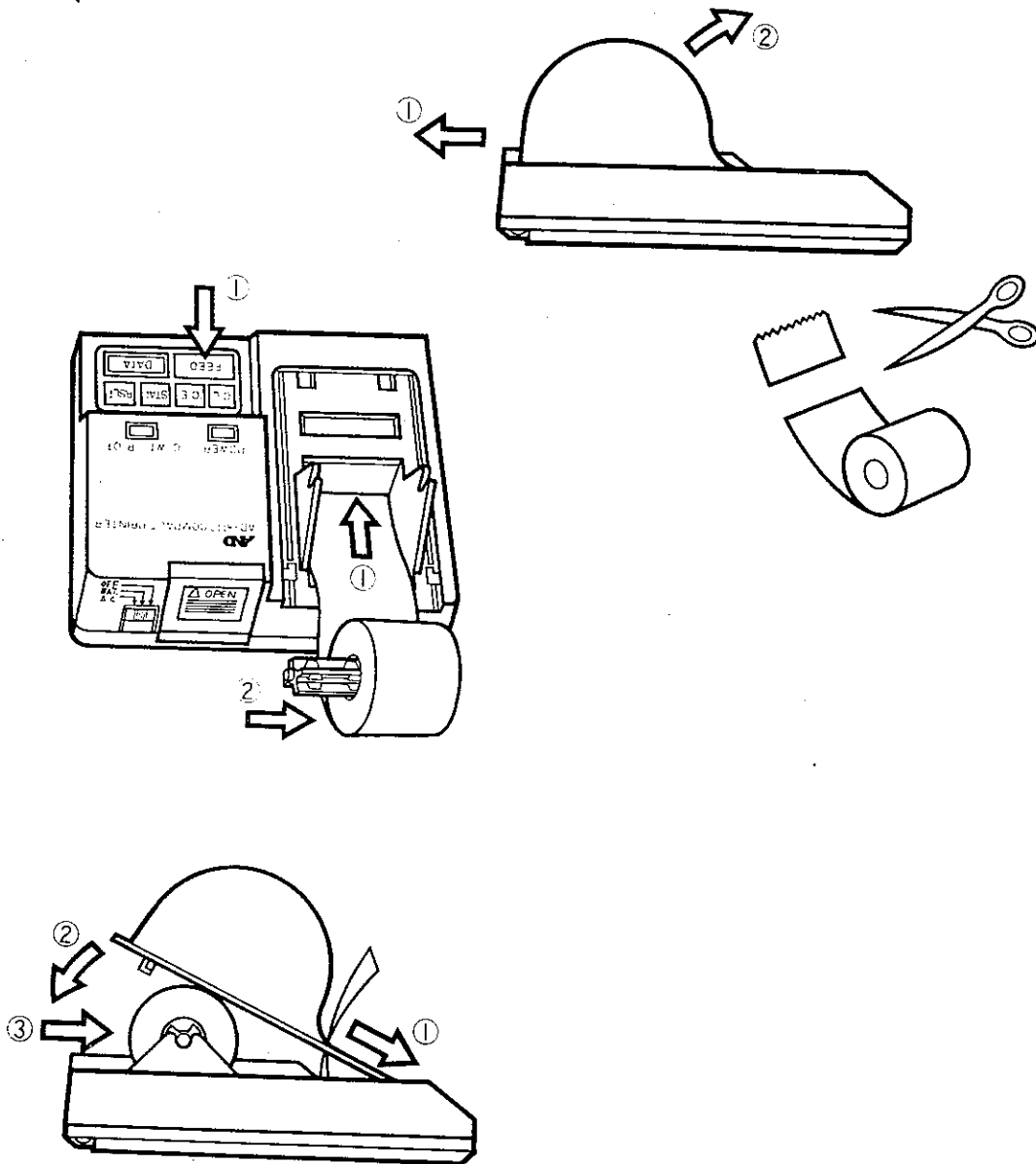
## General Assembly

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- Step 4. Carefully replace the printer by easing it onto its location pins.
- Step 5. Replace the battery clips.
- Step 6. Replace the key pad strip from the printed circuit board by gently re-connecting the connector CNR6.
- Step 7. Replace the printed circuit board into the case, making sure that you hear a click as the board fits snug over the two plastic posts that hold it in the case.
- Step 8. Replace the two screws on the opposite sides of the printed circuit board as shown.
- Step 9. Replace the lower case starting at the front.
- Step 10. Replace the two screws in the lower case.
- Step 11. Proceed with the next section on Installing the recording paper.

## INSTALLING THE PAPER

- Step 1. Cut the paper cleanly at right angles to the edge.
- Step 2. Insert the paper into the paper input slot and push it in as far as it will go. While pushing the paper, keep pressing the "FEED" key until the paper emerges through the paper outlet. Insert the paper spool shaft through the paper spool, and put the paper roll on the stand.
- Step 3. Insert the end of the paper into the paper cutter slot in the cover. Make sure that you are using thermal paper designed for the printer (WP:PP128). Alternative paper will probably jam the printer. Do not operate the printer without any paper.
- Step 4. Replace the cover.



## PRINTER TEST

This is a built-in test that runs in an automatic sequence. In this test mode all the alphanumeric characters which the printer is capable of printing will be printed.

- Step 1. Start the printer test by making sure that the AD-8117(A) is switched to **MODE 2**.
- Step 2. Press and hold the **FEED** key.
- Step 3. Turn the power ON.
- Step 4. The printer will start then stop at **\*\*SWITCH TEST\*\***.
- Step 5. At the **\*\*SWITCH TEST\*\*** prompt, you are to press each key in turn. If the switch contact is good the printer will print the name of the key and "OK".
- Step 6. Examine the readout, it should match the one shown.

### Testing the Communications Interface

- Step 7. Switch the **MODE** switch to **MODE 1**.

### To Finish

- Step 8. Turn the printer **OFF** and then **ON** to resume normal printing operations.

# CONNECTIONS



## ***Attention!***

- *Be sure that the AD-8117(A) is turned OFF before connecting any data cables!*

## **Connection to Weighing Instruments**

For data supply from an RS-232C interface, plug the 25 pin connector into the output connector of the Weighing Instrument and plug the smaller connector in to the printer as shown. For data supply by current Loop, use the OP-01 adaptor cable and connect it to the Weighing Instrument after setting the internal printer switch to Current Loop.

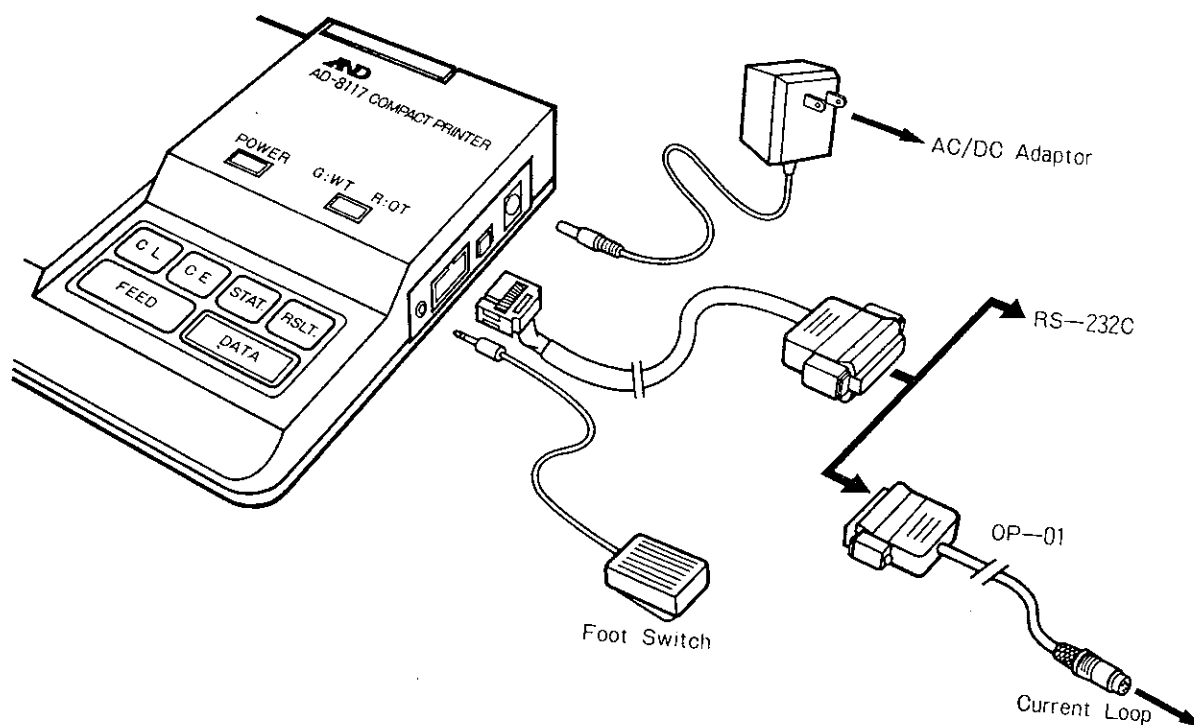
Set the data transmission speed of the Weighing Instrument to 2,400 baud.

## **Connection to Optional AC/DC Adaptor**

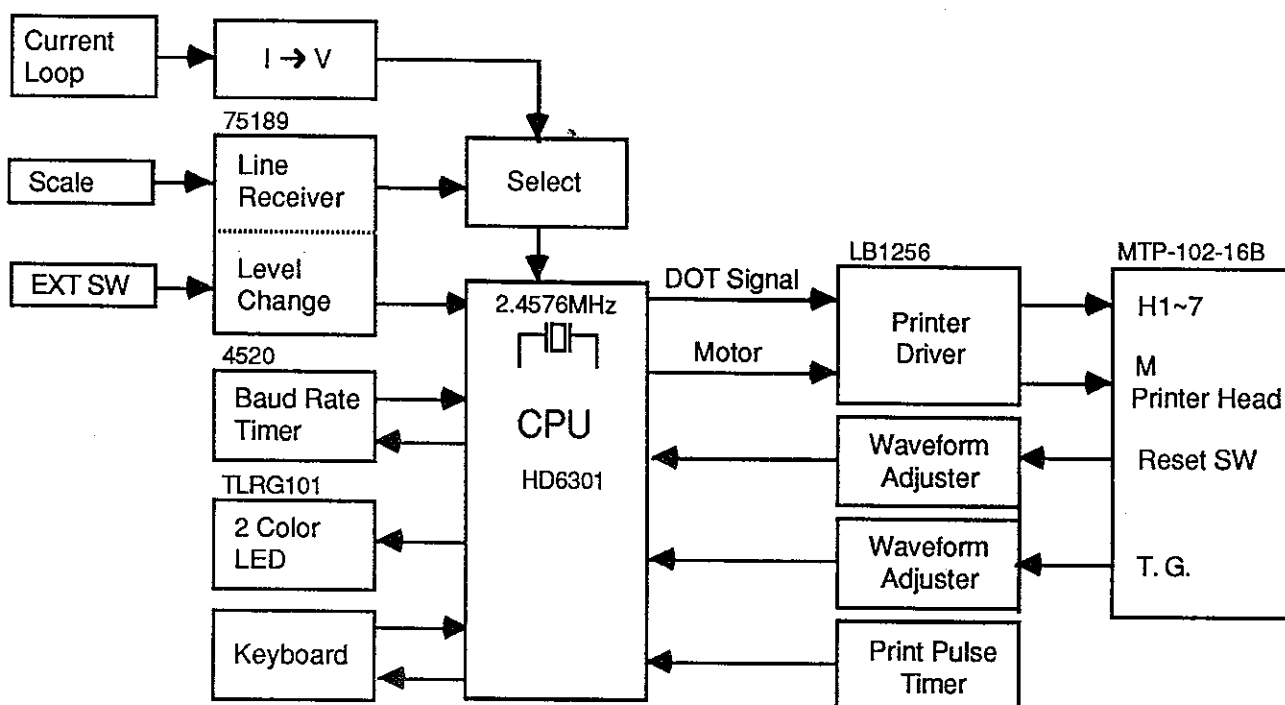
Connect the AC/DC adaptor to the AD-8117 as shown.

## **Connection to Optional Foot Switch**

For data acquisition by pressing the foot switch, connect the foot switch to "EXT P" (External Print) on the AD-8117 as shown (note that the AD-8117A does not have this ability).



## BLOCK DIAGRAM

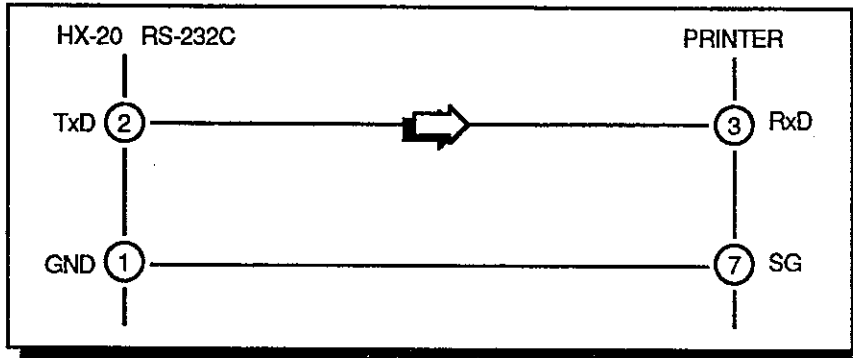


## TROUBLE-SHOOTING

PROBLEM	POSSIBLE CAUSES
No Power	Check AC Adaptor is functioning, Fuses, etc. Use only the adaptor supplied for the printer. Check that AC input/DC output voltage is correct. Check AC & DC Power Cables and plugs/sockets. Batteries are dead.
No Printing	Check RS-232C cable and connectors. Check interface set to stream mode at 2400 baud. Check balance <b>MODE SW</b> /Printer <b>MODE SW</b> is correct.
Random Printing	Check baud rate & transmission MODE.
C - Error printed	Probably Incorrect baud rate setting. Check the RS-232C cable and connectors. Check that the <b>MODE</b> switch is correct.

## CONNECTING THE TESTER

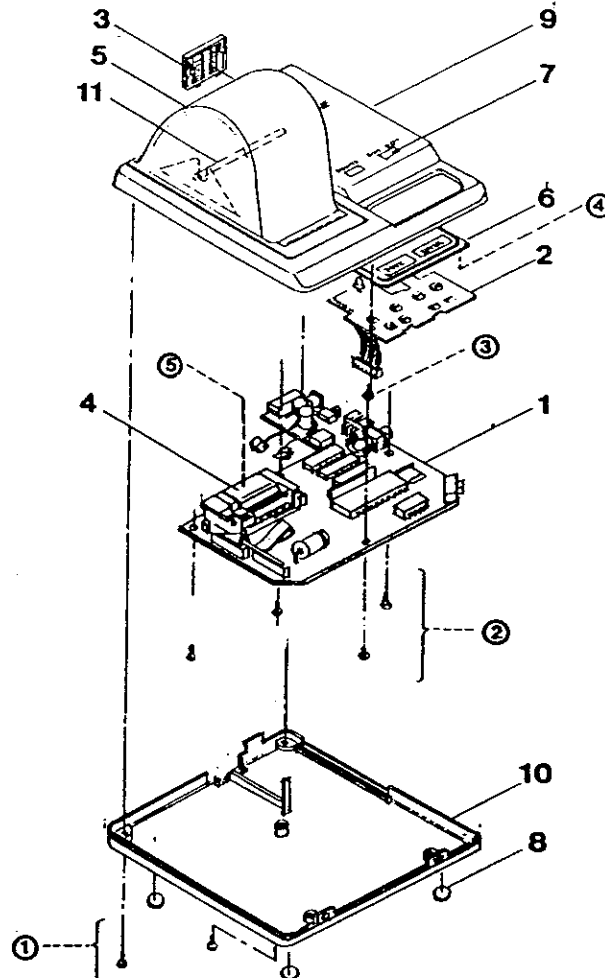
The tester for the RS-232C can be a custom made unit or a computer such as the EPSON HX-20, in which case you should connect the computer TxD output line to the printer RxD input line. The compact printer connector should be a 3473-6500SC or equivalent. See below for connections and an HX-20 Microsoft BASIC program.



```
100 OPEN"O",#1,"COM0:(57E1F)"
110 FOR I=1 TO 200:NEXT I
120 CLS
130 LOCATE 0,1
140 PRINT " START=SPACE KEY"
150 IF INKEY$<>" " THEN 150
160 PRINT#1," RS-232C-OK"
170 FOR I=1 TO 500:NEXT I
180 GOTO 150
190 END
```

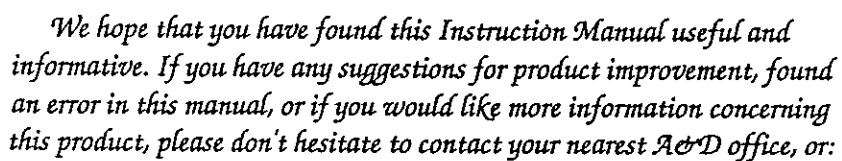
# PARTS LIST AD-8117(A)

Fig. N°	Part Name	Part N°	Qty
1	Printed Circuit Board	7PA:8117-0001	1
2	Keyboard	7PA:8117-0002	1
3	Battery Cover	7PA:8117-0003	1
4	Printer Assembly	7PA:8117-0004	1
5	Printer Roll Cover	7PA:8117-0005	1
6	Rubber Keys	7PA:8117-0006	1
7	LED Cover	7PA:8117-0007	2
8	Rubber Feet	7PA:8117-0008	4
9	Upper Case	7PA:8117-0009	1
10	Lower Case	7PA:8117-0010	1
11	Paper Roll Shaft	7PA:8117-0016	1
①	M2.6 x 8 Screws	N. A.	2
②	M2.6 x 6 Screws	N. A.	2
④	M2.6 x 6 Screws	N. A.	2
⑤	M2.6 x 4 Screws	N. A.	2
	Paper, 50 m/ 54 yd.	WP:PP128	6
	Foot switch	SW:128	1





**MEMORANDA**

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There is no handwriting or other markings on the paper.

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