

UA-702

MAINTENANCE MANUAL

DIGITAL BLOOD PRESSURE MONITOR

AND
A&D Company, Limited

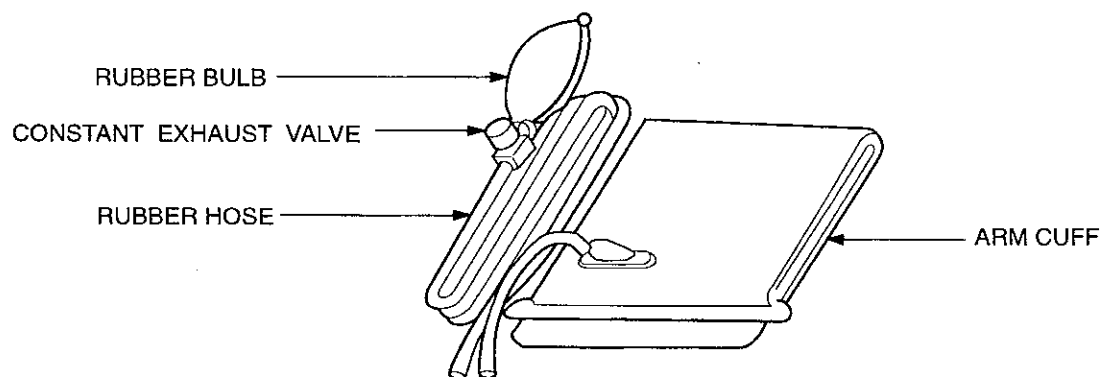
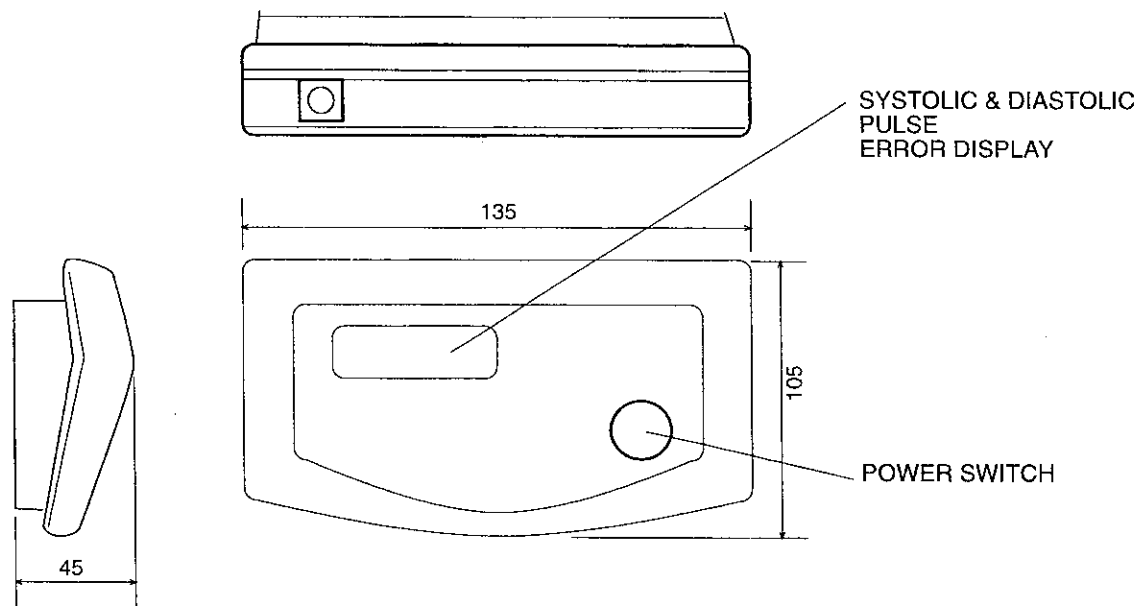
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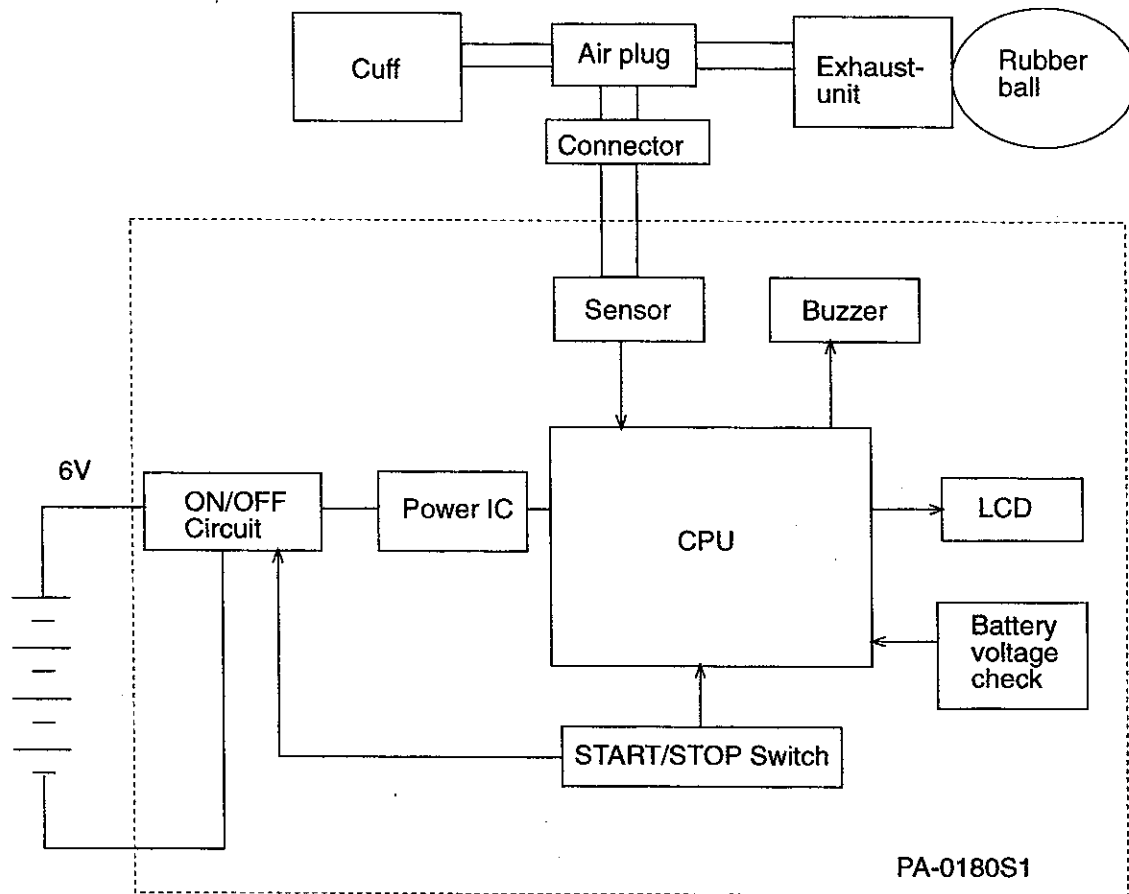
1. SPECIFICATIONS

1) Measurement Method	Oscillometric
2) Measurement Range	20~280 mmHg (Blood Pressure) 40~200 P/MIN. (Pulse)
3) Accuracy	±3 mmHg or 2% of measured value (Blood Pressure) ±5% (Pulse)
4) Cuff Inflation	Manual by Rubber Bulb
5) Cuff deflation	Automatic constant-air-pressure exhaust valve system
6) Rapid Exhaust	Push Button Valve on Inflation Bulb
7) Pulse Wave Detection	Manschettor
8) Power source	6VDC, 4 x 1.5V "AA" OR "AM3" batteries
9) Battery life	Approx. 6 months usage of 3 min. per day
10) Weight	Approx. 200 grams.
11) Dimensions	135 mm x 105 mm x 45 mm
12) Operating environment	50~100° F. at less than 85% R.H.
13) Storage environment	15~130° F. at less than 95% R.H.
14) Display	Liquid crystal type.

2. OUTLINE DRAWING



3. BLOCK DIAGRAM



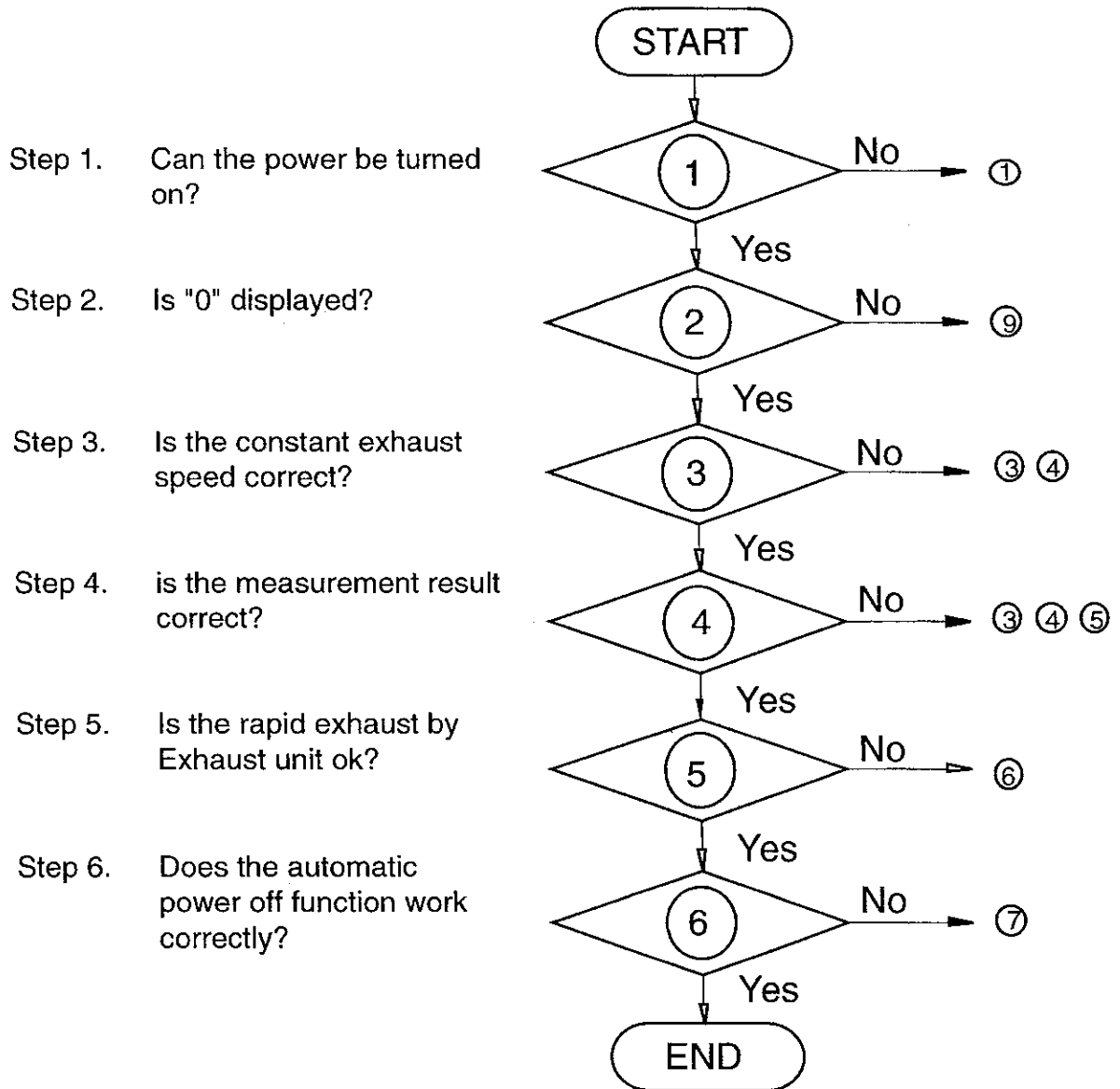
4. TROUBLESHOOTING

This section describes the symptoms, probable causes and solutions to problems. In the case of "can not measure" or "too much error", confirm that the measurement method is correct.

Pressure accuracy should be checked after repair. See "Check Sequence"

Performance check chart

Check the symptoms against the flow chart, find the corresponding number circled on the right side of the chart, then proceed to the troubleshooting table



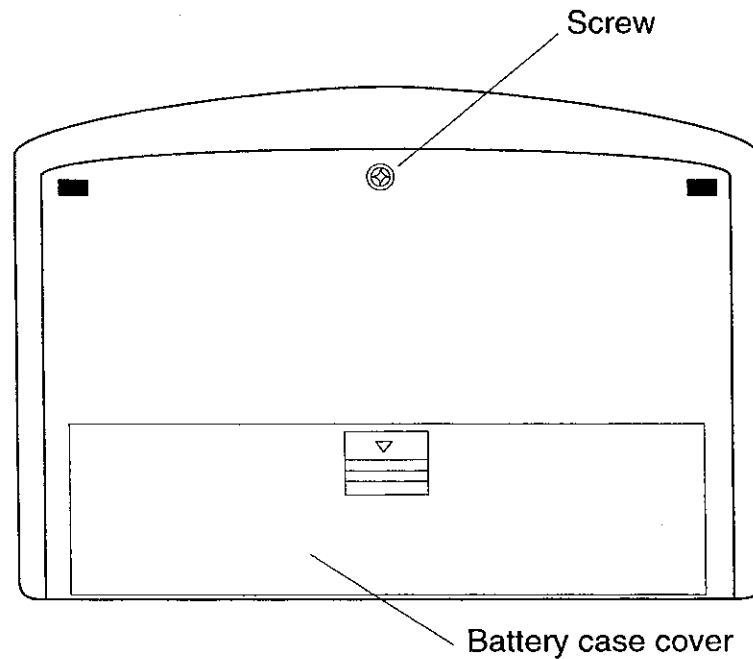
TROUBLESHOOTING TABLE

	Symptom	Probable Cause	Treatment
①	Power does not turn on	Low Battery	Replace battery
		Power lead broken	Resolder leads
		Main board may be defective	Replace main board and adjust pressure reading
②	No inflation	Tube came off	Reconnect tubing
		Tubing broken	Replace tubing
		Air connector broken	Replace air connector
		Cuff leaking	Replace cuff
		Constant exhaust valve defective	Exhaust unit.
③	Constant exhaust speed to fast	Constant exhaust valve defective	Replace the Exhaust unit.
		Tubing broken	Replace tubing
		Air connector broken	Replace air connector
④	Constant exhaust speed to slow	Constant exhaust valve defective	Replace the Exhaust unit.
		Tubing pinched	Replace tubing
⑤	Pressure reading is incorrect	Pressure reading adjusted incorrectly	Readjust the pressure reading
		Main board may be defective	Replace main board and adjust pressure reading.
⑥	Rapid exhaust does not work	Solenoid valve is defective	Replace the Solenoid valve assy.
		Tubing pinched	Replace tubing
⑦	Automatic power off function does not work	Main board defective	Replace main board

5. REPAIR PROCEDURE

Top case removal

- Step 1. Remove the battery compartment cover.
- Step 2. Remove the batteries.
- Step 3. Remove a screw shown in the drawing.
- Step 4. Remove the upper case using caution not to damage the LCD display

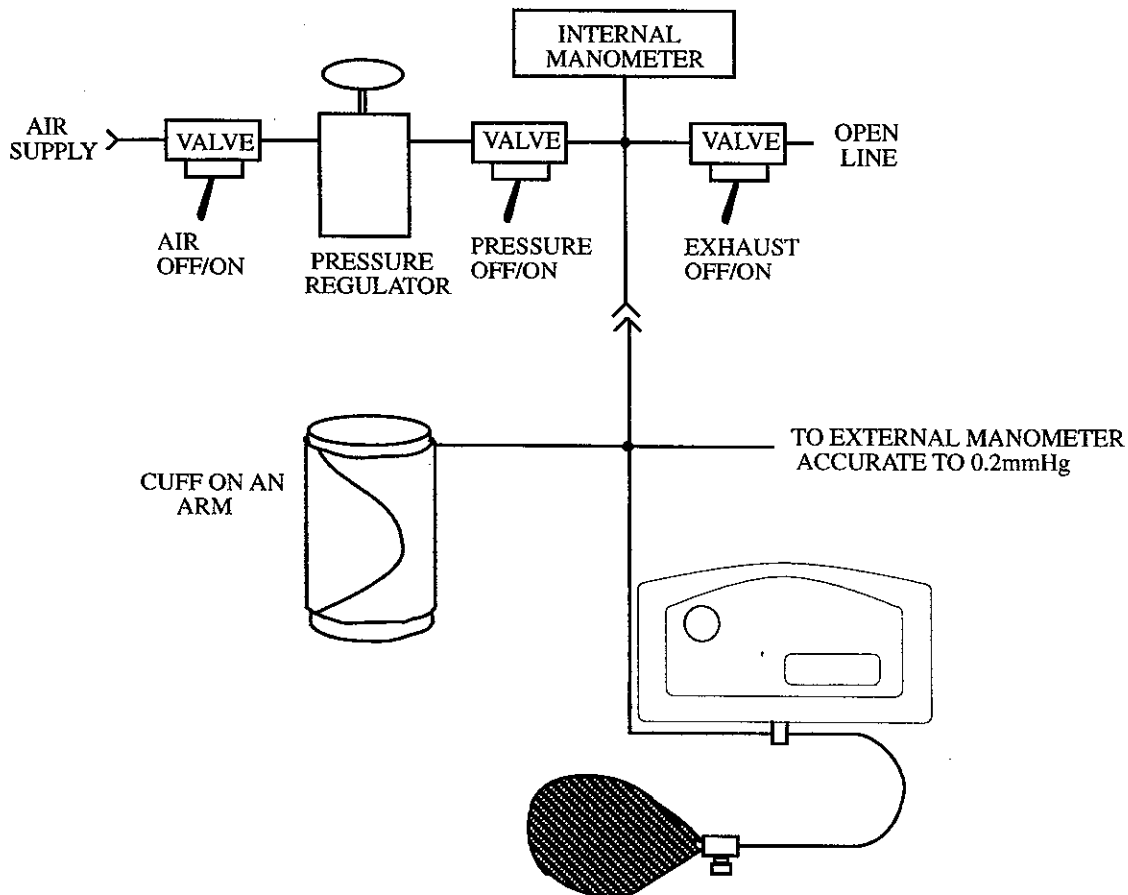


Under side of the monitor

6. PRESSURE ADJUSTMENT PROCEDURE

Test equipment and tools required

- Low capacitance screwdriver
- Manometer or precision mercury pressure gage
- Compressor (rubber ball type)
- T-shaped tube
- Rubber tubing
- Forceps (or hose clamp)



- Step 1. Press the START switch to show all segments of the display. Before "0" is displayed, shift the PRESSURE switch between 150 and 240.
- Step 2. "0" is displayed on the LCD panel
- Step 3. Increase the pressure to 280 mmHg by using the compressor. Use a precision manometer or mercury pressure gage to monitor the air pressure
When using a rubber bulb pump for inflation, close the rubber tube with forceps to maintain the pressure

- Step 4. If the pressure reading is incorrect, remove the top case as described in the repair procedure to provide access to the adjustment screw
- Step 5. Under the following conditions;

Pressure value applied = A mmHg

Reading displayed = B mmHg

Remainder if A - B = C mmHg

Use the formula $A \text{ mmHg} - B \text{ mmHg} = \pm C \text{ mmHg}$

When the result is +C mmHg, turn the adjustment screw for a reading of B - C mmHg

When the result is -C mmHg, turn the adjustment screw for a reading of B + C mmHg

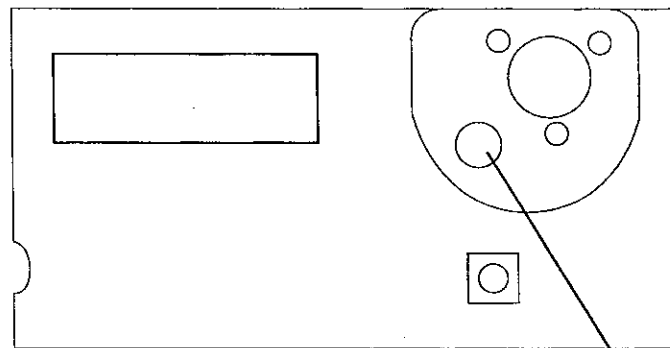
Example: Pressure value applied = 280 mmHg

Reading displayed = 273 mmHg

$280 \text{ mmHg} - 273 \text{ mmHg} = +7 \text{ mmHg}$

$273 \text{ mmHg} - 7 \text{ mmHg} = 266 \text{ mmHg}$

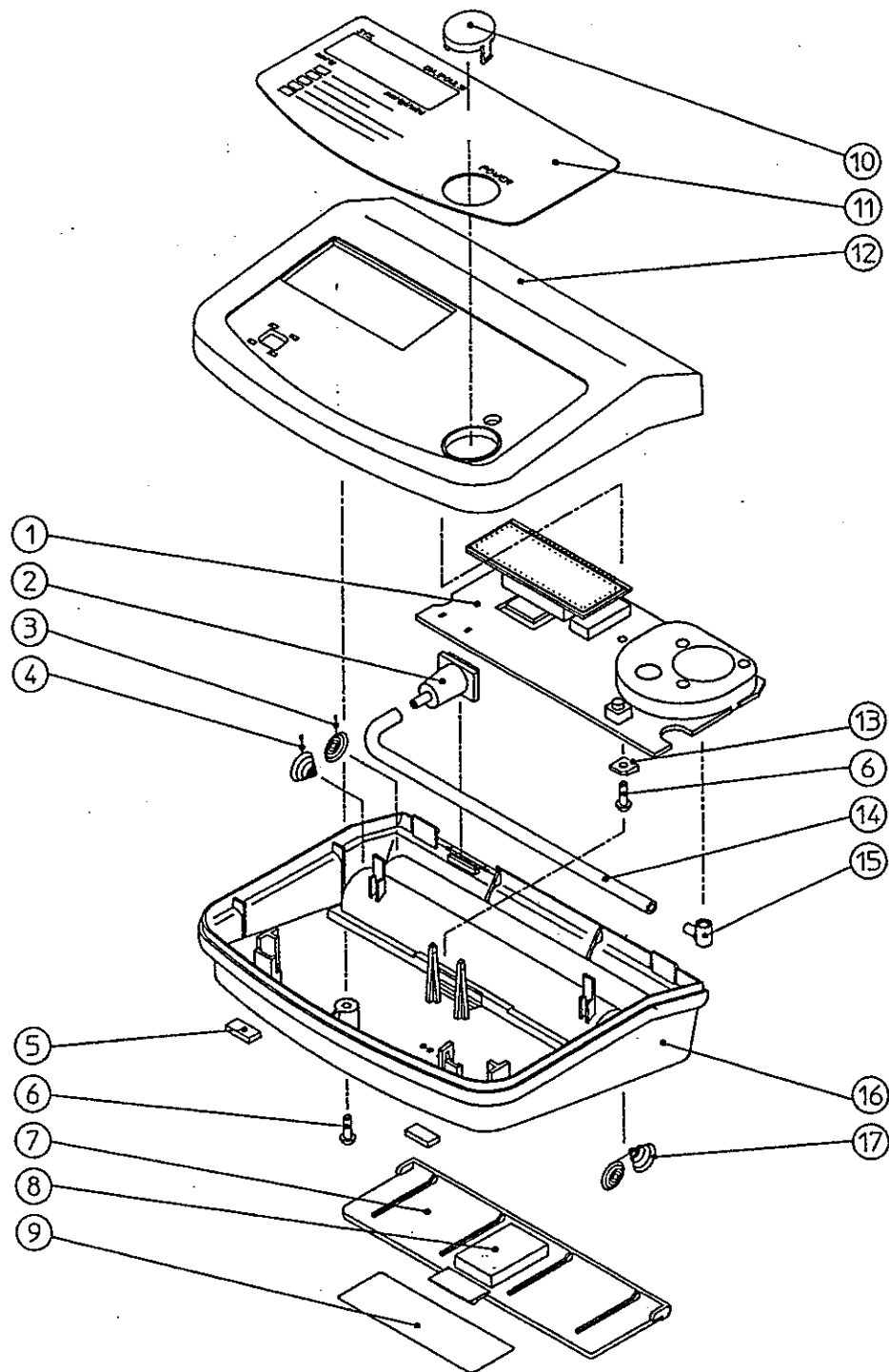
Adjust the reading to 266 mmHg



SPAN Volume

- Step 6. Reduce the pressure to zero and turn the power off (press the start switch)
- Step 7. Press the start switch turn the power on again (zero is set when the power is first turned on)
- Step 8. Increase the pressure to 280 mmHg by using the compressor and check the accuracy of the display
When the correct reading is obtained, gradually reduce the pressure and confirm that the pressure readings at 150 mmHg and 50 mmHg are within $\pm 3 \text{ mmHg}$
- Step 9. Remove the test setup air plug and attach the cuff to the air connector
Place the cuff on a plastic form about the size of a normal arm
Press the start switch and pressurize the cuff to 160 mmHg
Watch the display reading, the rate of pressure drop between readings should be about 3 mmHg
If necessary adjust the constant exhaust valve for 3 mmHg between readings
- Step 10. Reassemble the case and test the instrument again.

7. EXPLODED VIEW



8. PARTS LIST

MAIN BODY

Symbol	Parts number	Description	Qty.
1	PA-01880S1	PE-0180 whole ass'y	1
2	U4-2575-A	Air socket 3	1
3	U4-5388	Battery spring +	1
4	U4-5278	Battery spring -	1
5	U4-3256	Rubber foot	1
6	UZ-0011	SCREW M2.3X8	2
7	U3-1246	Battery cover	1
8	U4-5342-A	Battery cushion	1
9	08:4003540	Battery spring +	1
10	07:4001736	Key cap	1
11	08:4001799	Overlay	1
12	U2-482	Upper case	1
13	07:4001751	Spacer	1
14	TS-23400085TP	Silicon tube, Ø2.3XØ4.0X85(L) mm	1
15	U4-3242-A	L-Shape connector	1
16	U1-196	Lower case	1
17	U4-4460	Battery spring + & -	1



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