A&D

Digital Blood Pressure Meter

UA-743

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Printed in Japan SA9106

Instruction Manual

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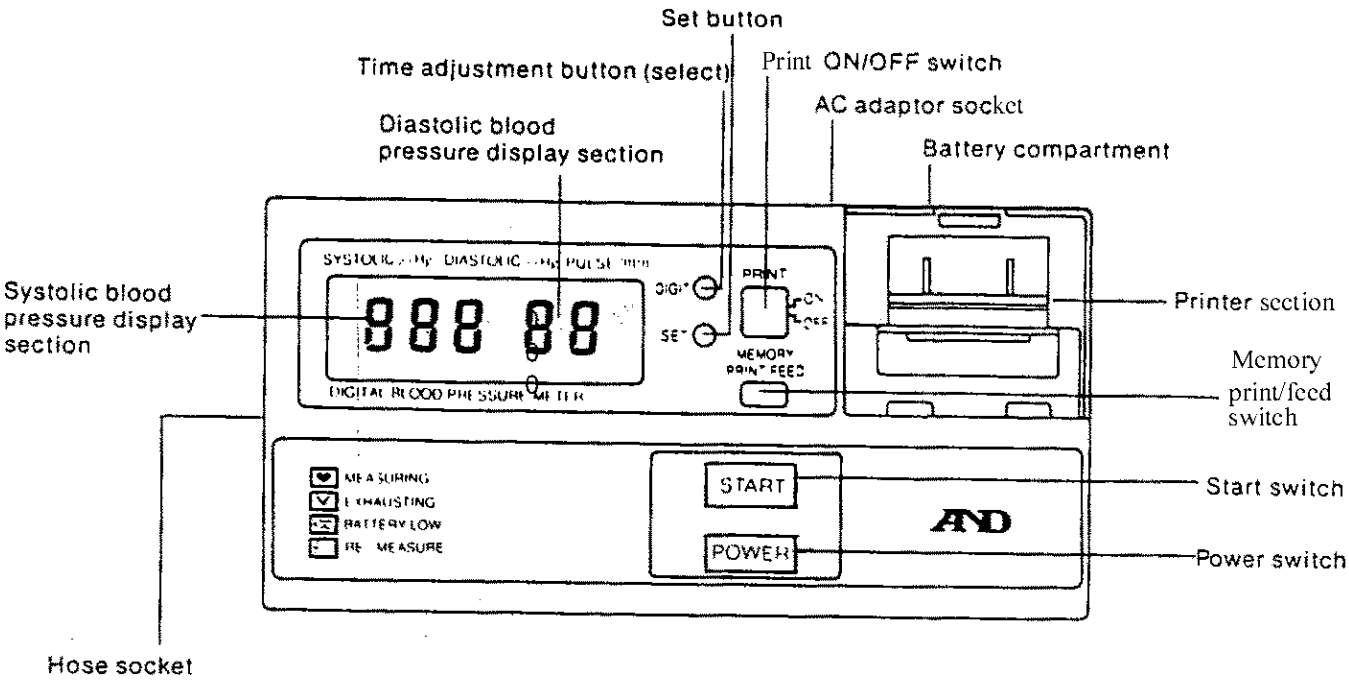
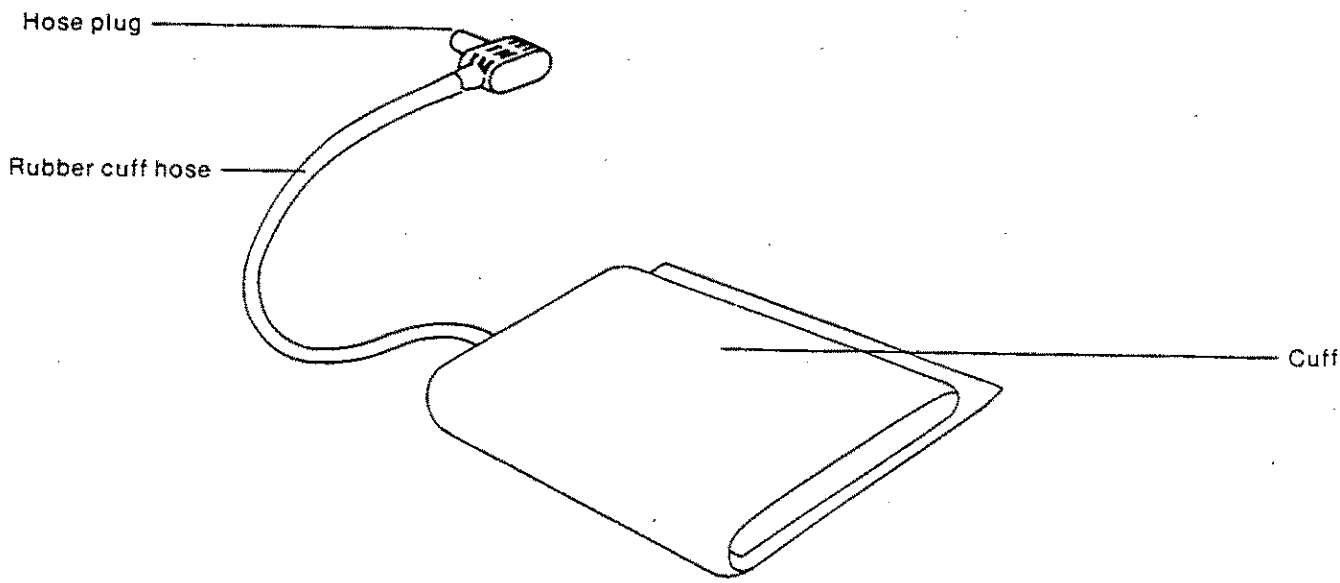
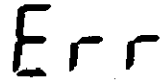
Identification of Parts



Steve Makino
International division



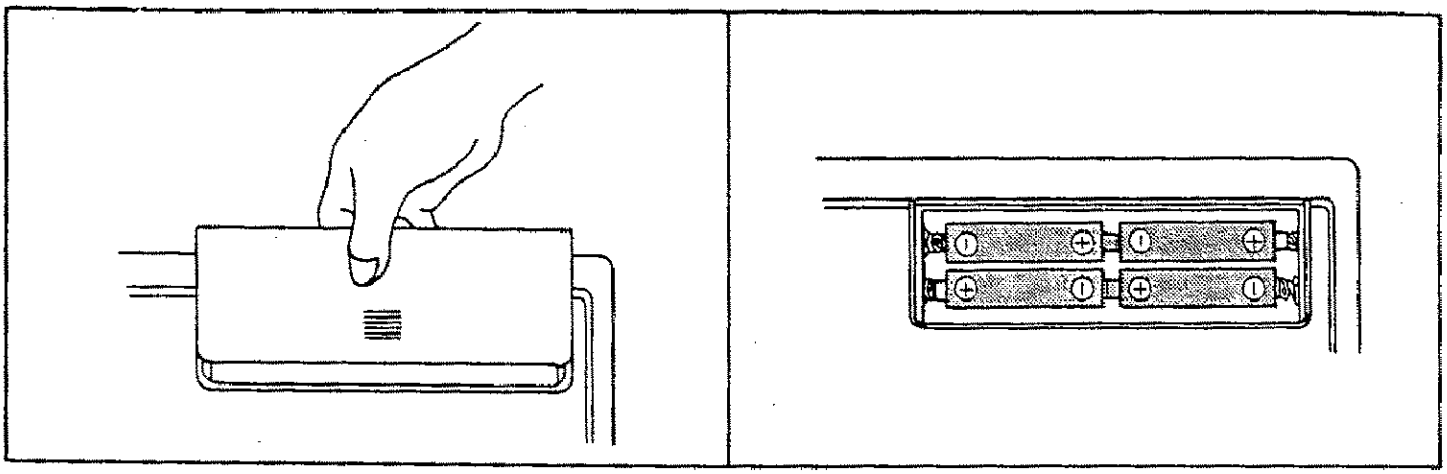
Description of Display Marks

Display mark	Condition/Cause	Corrective action
 Measurement in progress	Mark appears in the measurement condition and flashes when pulse is detected.	Measurement in progress remain quiet.
 Exhaust	Mark flashes when power is applied and there is air remaining in the cuff. Mark flashes at the completion of the measurement until exhaust is complete.	Automatic exhaust is performed.
 Insufficient pressure	○ Measurement is begun but the pressure was insufficient. Note: If this condition of insufficient pressure is discovered at the beginning of the measurement, automatic repressurization is performed.	Set the power switch to OFF, set it back to ON, and then start the measurement again.
 Replace batteries	○ Appears when the battery voltage is excessively low.	Replace all four batteries with new ones.
 Measurement error	○ Appears when the blood pressure could not be measured accurately.	Set the power switch to OFF, set it back to ON, and then start the measurement again.
 Pulse error	○ Appears when the pulse could not accurately be measured.	
Exhaust speed flashing (exhaust speed error)	○ Flashing when exhaust speed is above 8mmHg/s.	Adjust exhaust speed to 2 to 5mmHg/s.

Preparation for Measurements

1. Installing Batteries

Remove the battery cover and insert batteries into the battery compartment as shown, taking extreme care that the polarities + and − are observed.



Battery Replacement

If the batteries become weak, the mark will appear in the display, indicating that batteries should be replaced with new onces.

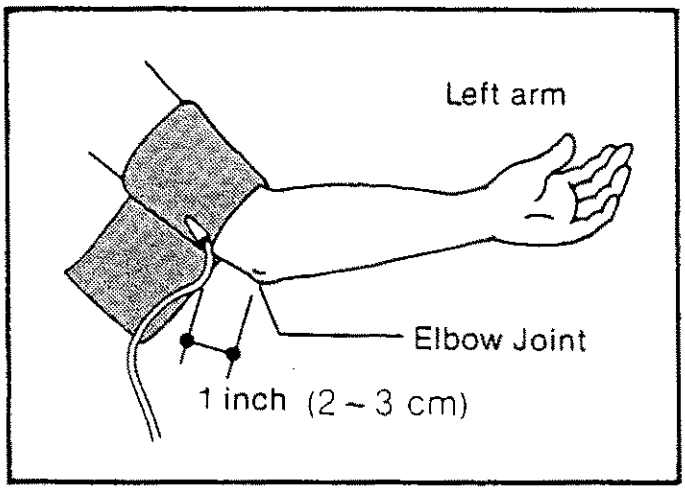
2. Insert the hose plug from the cuff into the mainframe socket.

- If the unit is not to be used for a long period, always remember to remove the batteries. (Leakage from the batteries can cause damage.)
- After using this unit, always remember to turn the power switch OFF. Even if you forget to do this, however, and the unit is left on for 3 minutes, a special auto power-off function turns the power off automatically.

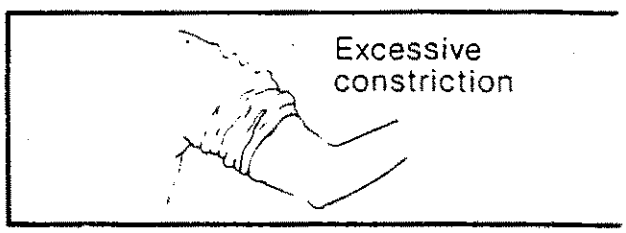
Attaching the Arm Cuff

1. Attaching the Arm Cuff

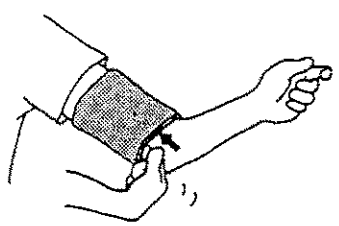
Wind the arm cuff around the left upper arm tightly so that the bottor edge of the cuff is positioned one inch above the elbow joint.

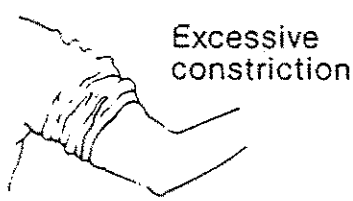


- Rolling up a shirt or jacket sleeve to allow the arm cuff to be fitted may cause constric tion of the upper arm preventing accurate readings.



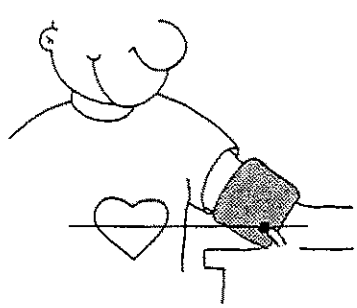
- The cuff should be wound so that one finger can be inserted under the cuff. Note that uneven cuff winding will prevent proper measurements.
- If measurement is made by rolling the shirt or jacket up over the upper arm, this will constrict the upper arm and prevent accurate measurements.



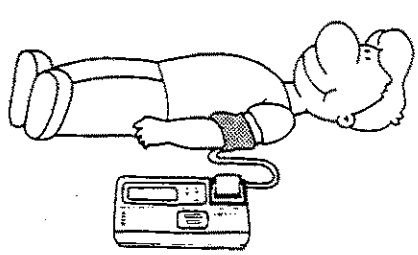


2. Rest the elbow on a table so that the section of the upper arm is at the hight of the heart. Relax the lower arm across the table and remain still

- If this section of the arm is higher than the heart, the blood pressure will be indicated as lower than the actual value, and if lower than the heart, it will be indicated higher than the actual value.

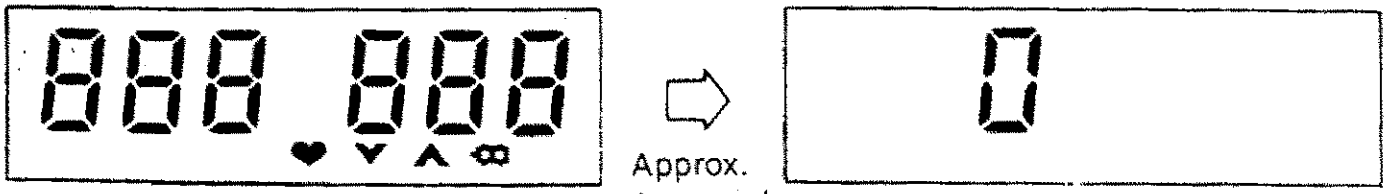


3. Make measurements in either a seated or reclining posture.

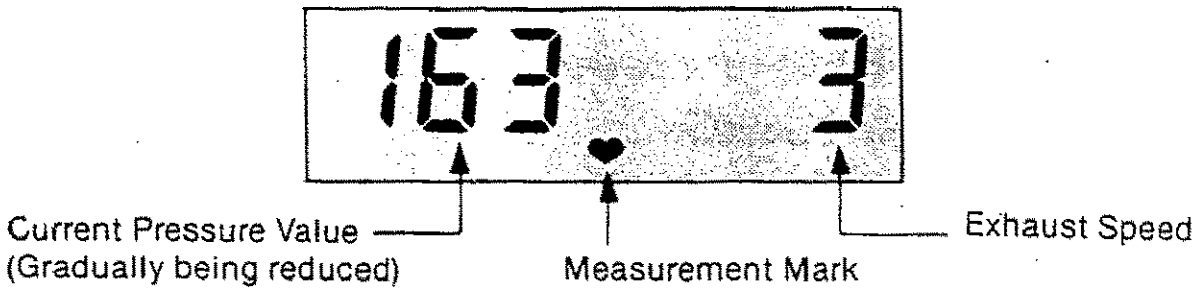


Measurements

1. **Turn Power ON**
   - When power is turned ON, all display marks appear for approximately 1 second.
   - When the "0" is displayed the unit is ready for measurement. If other mark appears, release air in the arm cuff by removing the air plug.

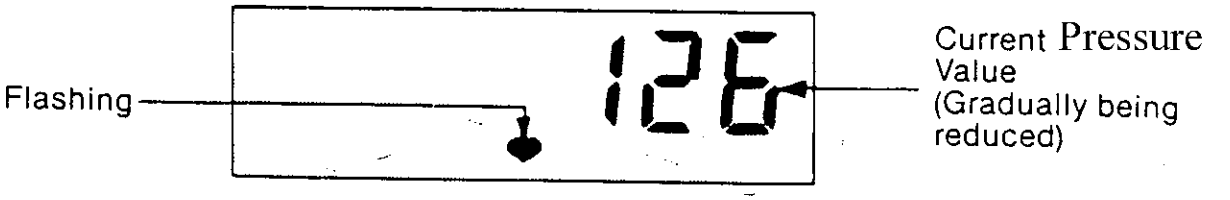


2. **Attach the arm cuff to the left arm.**
3. **Press the Start Switch**
   - The arm cuff pressurizes when the start switch is pressed.
   - When the start switch is subsequently pressed during pressurization air in the aum cuff is released.
   - The memory function automatically determines the pressure setting by using the average of the two previous systolic blood pressure data items. The pressure setting is determined as the larger value (160mmHg, 200mmHg, 240mmHg, or 280mmHg) closest to the average sys. pressure plus 30mmHg.
4. **When pressurization is completed, the automatic exhaust mechanism will gradually reduce arm cuff pressure, and the ♥ mark will appear indicating that measurement is in progress.**
   ① Pressure value appears on the left, and exhaust speed on the right side of the display.

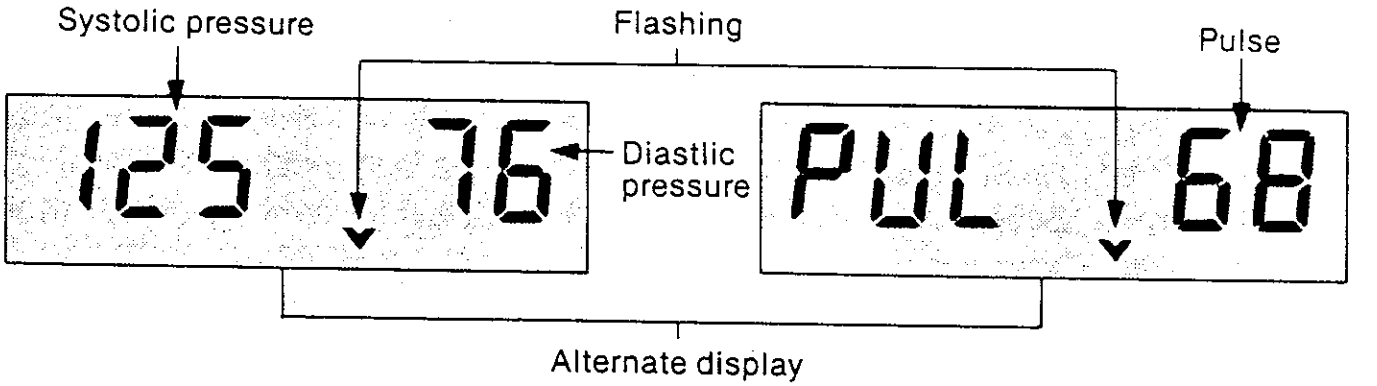


   - Accurate measurement cannot be taken when exhaust speed is outside the 2~5mmHg range.
   - Remain still during measurement.

② When a pulse is detected, the pressure value moves to the right side of the display. At this time the ♥ mark flahes at the same rate as pulse rate, and the buzzer sounds.



③ When the measurement and buzzer sounds (beep), Systolic pressure is displayed on the left and Diastolic pressure on the right side of the display.
2 or 3 seconds later, pressure value and pulse appear alternately on the display.



- When a measurement is made with insufficient pressure the measurement is automatically repeated.

5. Turn Power OFF
Press the power switch to turn power off.

6. Automatic Power-OFF Function
If this unit is left ON after measurement, an automatic power-off function turns power off after approximately 2 min. 40 seconds. To continue measurement, press the power switch turning the unit ON.

Memory Function

The Model 1096 has a memory which can store up to 7 data items automatically. Older date in memory is automatically erased when 8 or more data items are stored.

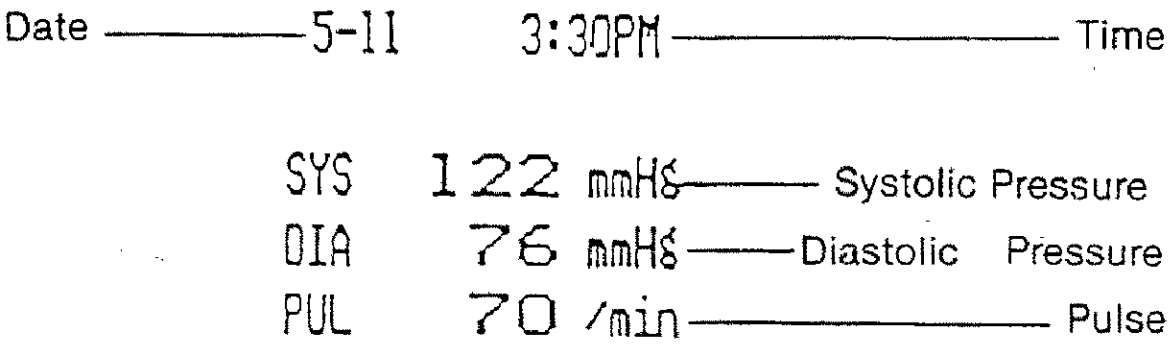
- Replacing battery must be done while in the clock mode (with the power switch OFF). Note that the battery replacement must be completed within approx. 1 minute to retain all stored data and clock data in memory.

Print Function

Printing Instructions

1. Printing single measurements

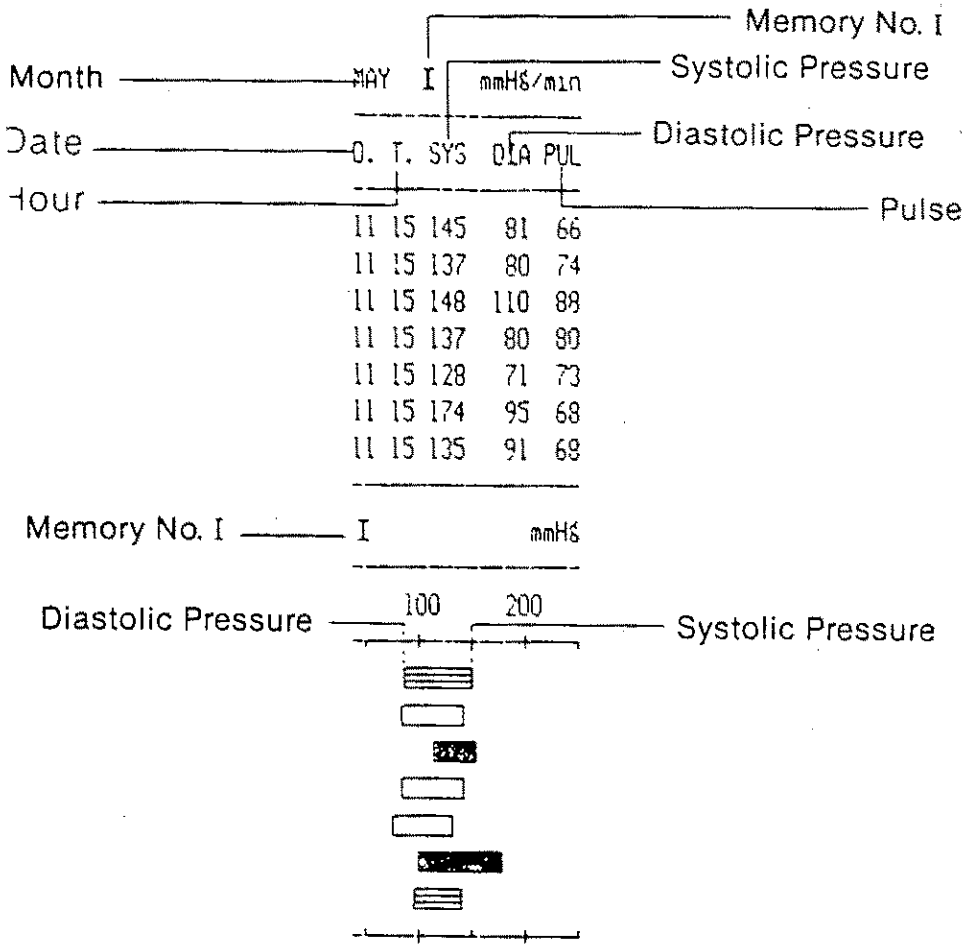
After blood pressure measurement is completed with the print switch ON, the measured pressure is printed out automatically. If the print switch is set to OFF, blood pressure data is not printed out.



Print Function

2. Printing Stored data

Turn the power switch ON (blood pressure measuring mode). Then press the MEMORY PRINT/FEED switch to print out the stored data and it's graph.



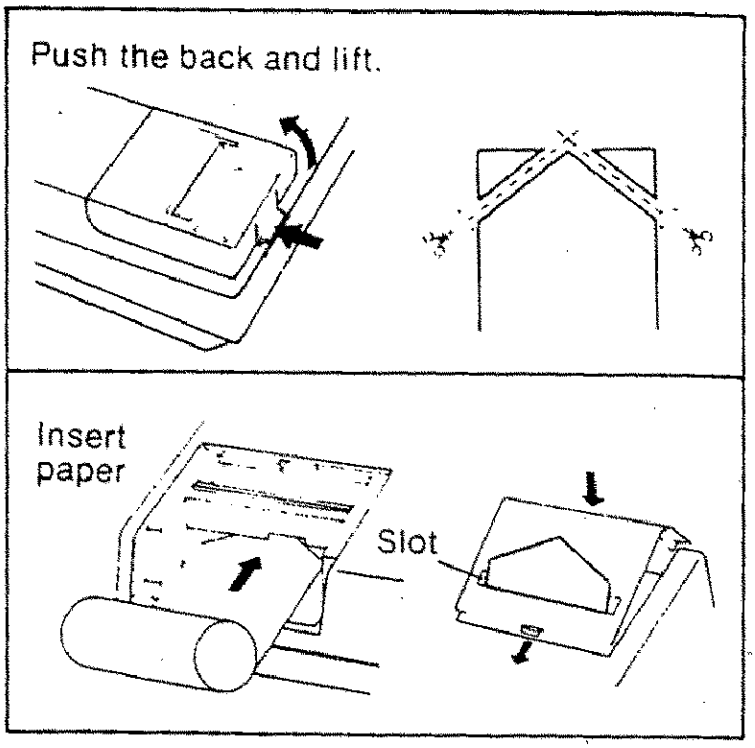
If the systolic blood pressure exceeds 160mmHg and/or the diastolic blood pressure exceeds 95mmHg on the graph, the blood pressure range is indicated by ▒. If the sys. pressure is between 141 ~ 159mmHg and/or the dia. pressure is between 91 ~ 94mmHg, the range is indicated by ▤. If the sys. pressure is below 140mmHg and the dia. pressure is below 90mmHg, the range is indicated by □.

Note: Confirm that the printer is loaded with print paper before printing. If there is no paper, the printer will not operate.

3. To feed the print paper, press the MEMORY PRINT/FEED switch with the power in the OFF state and the print switch in the ON state.

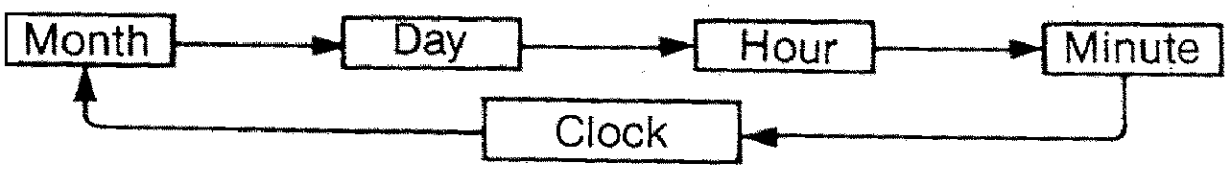
Loading Printer Paper

1. Lift the printer cover off.
2. Turn the print switch ON.
3. Cut the leading edge of the print paper as shown. Then insert the paper into the insertion slot and the paper is automatically fed.
4. Pass the leading edge of the paper into the slot on the printer cover to set paper. And replace printer cover.



How to Set the Clock

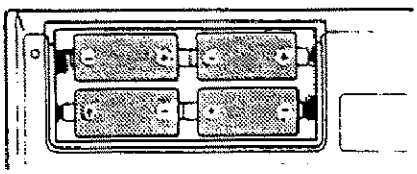
1. Press the DIGIT switch and the "Month" display will appear.
2. Press the SET switch to increment the displayed value. Continue pressing until the desired value is displayed.
3. When the DIGIT switch is pressed again, the display shifts to the "Day" display. Then press the SET switch until the desired value is displayed. The display can be shifted in the sequence shown below when the DIGIT switch is pressed. Set the "Hour" and "Minute" displays in the same manner.



4. The clock starts when the DIGIT switch is pressed after the "Minute" is set. (Clock mode is not displayed on the LCD, but when the pressure data is printed out, the date will also be printed.)

Battery Replacement

If the battery low mark is displayed on the LCD even once, replace the old batteries with new ones (all at once) as soon as possible.



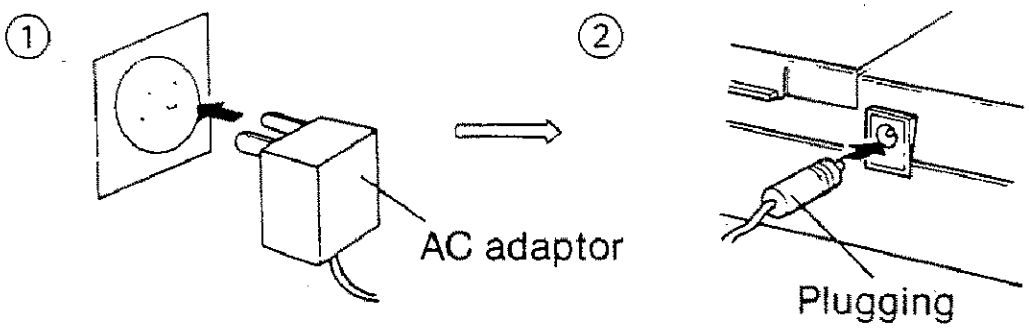
- Replace the batteries while the power switch is off. By replacing the batteries within approx. 1 minute, the stored data and clock time will be retained.

Optional Accessory

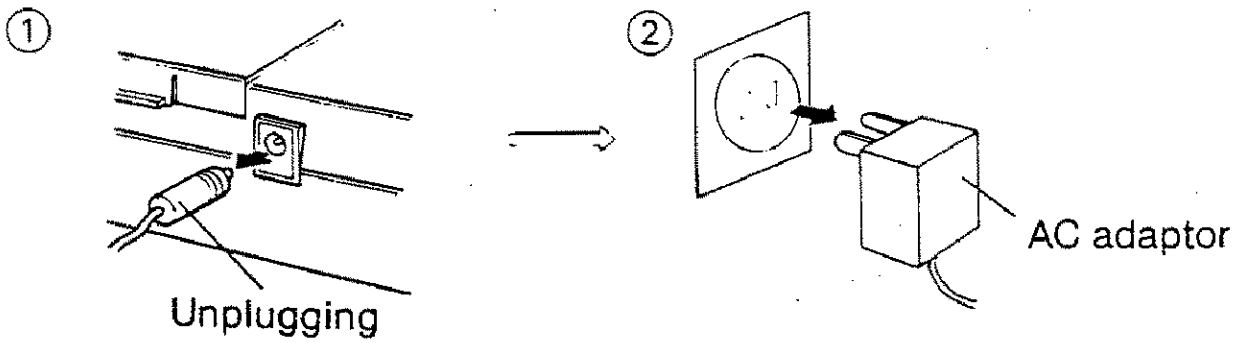
Notes on Using the AC Adaptor

To ensure that the stored data and clock time are not lost, follow the procedures below to plug and unplug the AC adapter.

- Plugging
  1. Plug the AC adaptor into an AC outlet.
  2. Connect the AC adaptor to the meter.



- Unplugging
  1. Disconnect the adaptor from the meter.
  2. Unplug the AC adapter from the AC outlet.



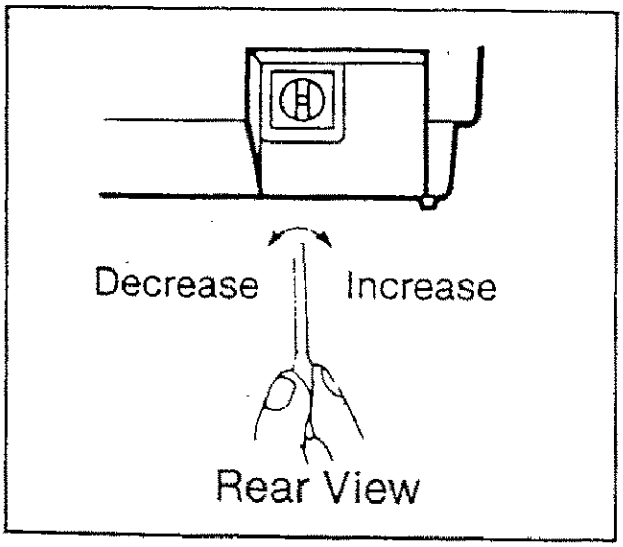
Exhaust Velocity

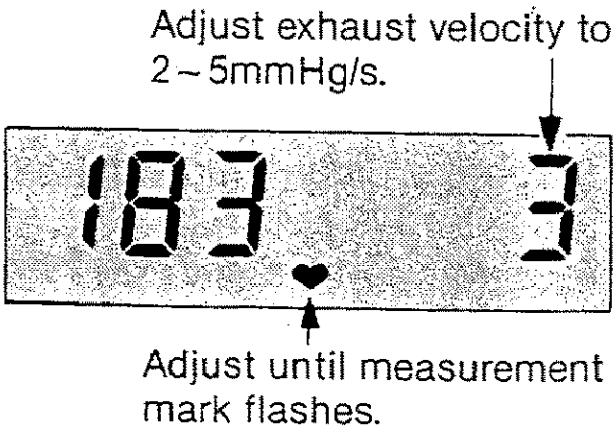
1. The exhaust velocity is the rate of gradual pressure drop from the pressure applied automatically using micropump.
2. The exhaust condition is displayed in the right portion of the display from time of of pressurization until the measurement mark starts flashing.
3. This unit is adjusted so that the exhaust velocity is 2~5mmHg/s at 150mmHg. Note that if this exhaust velocity is not proper, correct measurements are not possible.

Exhaust Velocity Adjustment

- Perform this adjustment procedure if the exhaust velocity is not within the proper range as described above.

1. Apply the arm cuff to the left arm and pressurize so the pressure is approximately 60mmHg above your suspected systolic pressure. Insert a screw driver into the groove.
2. If the exhaust velocity is too fast, turn to the left and if it is too slow, turn to the right so that the value shown in the right portion of the display is in the range 2~5mmHg/s.
3. If the adjustment is not proper after one try, repeat several times.
   - Exhaust velocity will differ slightly depending upon the size of the arm and the method of winding the cuff.



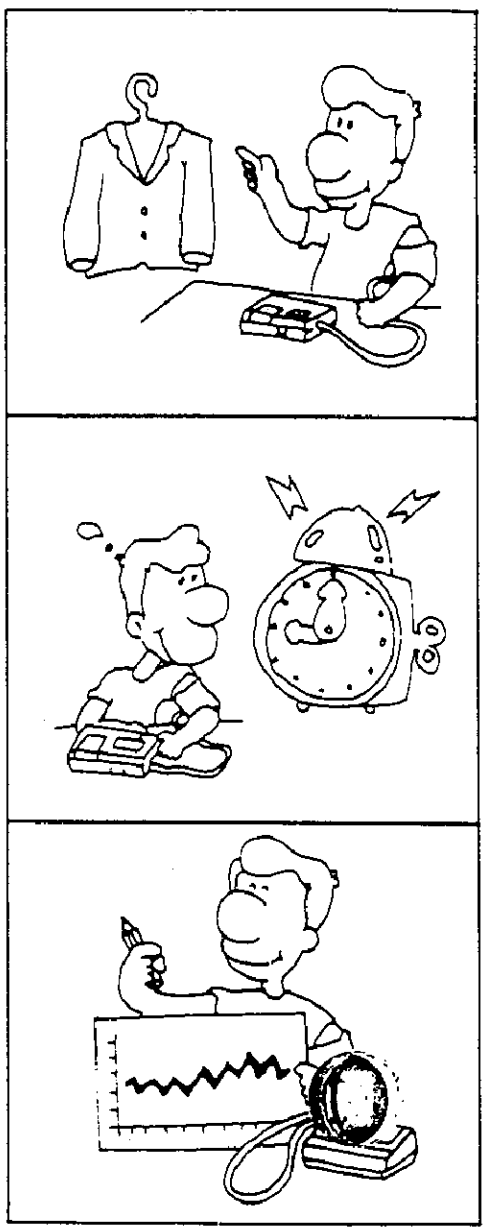


More About Blood Pressure Measurements

How Is A Proper Measurement Made?

Blood pressure varies according to the conditions prevailing at the time of measurement, so be sure to consider the following in order to obtain the most accurate measurements.

1. In preparation for blood pressure measurement, the subject should urinate and should remain relatively still for 10 to 15 minutes prior to measurement.
2. Shirts or other garments which fit tightly on the upper arm should be removed prior to fitting the arm cuff.
3. Exercise, eating and drinking, smoking, etc., prior to measurement can affect the results.
4. The blood pressure varies constantly throughout the day. Measurement should be made regularly at the same time each day.
5. Do not be too impressed by the results of one measurement. Keep a record of blood pressure variations. Many readings tell a story.
6. When making repeated measurement, the arm becomes heavy with blood, resulting in wide variations in measurement values. For this reason, repeated measurements should be made after a rest period of approximately 5 to 10 minutes or after raising the arm to relieve the engorged condition.
7. In general, the blood pressure is low in summer (when it is hot) and high in winter (when it is cold).
8. Emotional stresses may tend to cause blood pressure to rise.



What is Blood Pressure?

Blood pressure will reach its highest levels in the large arteries near the heart and drop off toward the peripheral areas of the circulatory system.

The blood pressure varies in accordance with the beating of the heart, and **when** the heart contracts, squeezing the blood out, the pressure inside the blood vessels is said to be systolic, and when the heart expands, sucking the blood back in, the pressure of the blood inside the blood vessels is said to be diastolic.

High blood pressure, which is most common among adults and the old, if left unattended, can cause many health problems including stroke, heart attack, etc. It is therefore necessary to control the blood pressure to prevent it from becoming high, by reducing salt, by dietary regimens, and by controlling the subject's activities. Even people who are born with high blood pressure can prevent the progress of high blood pressure by means of adequate control.

Why Is It a Good Thing to Measure Blood Pressure at Home?

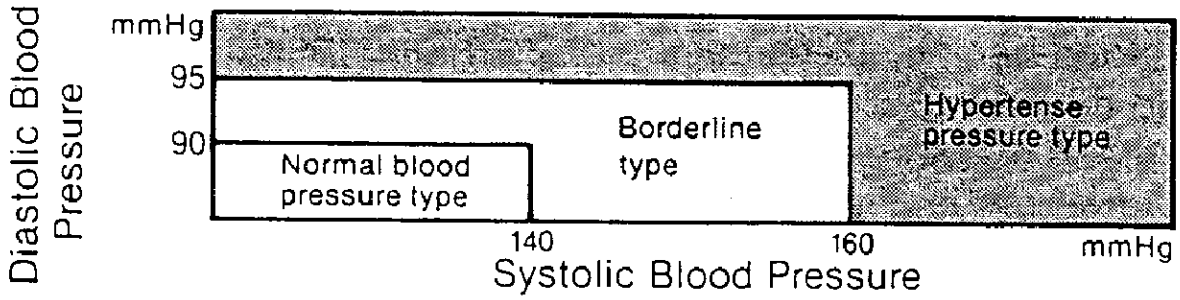
Having one's blood pressure measured by a doctor in a hospital or clinic, and group health checks, tend to stimulate nervousness in the subject and may even create sufferers of high blood pressure. Also blood pressure varies in accordance with a variety of conditions, and so judgement is not possible on the basis of a single measurement.

The blood pressure measured first thing in the morning after getting up, before taking any food, and with the subject still, is known the fundamental blood pressure. In practice it is rather difficult to record the fundamental blood pressure, but to come as near as possible to measuring the blood pressure in an environment that is lose to this, it is useful to be take the measurement at home.

Further, you could carry out your own blood pressure control with your own blood pressure monitor at home and take blood pressure readings on a regular basis.

World Health Organization Blood Pressure Classifications

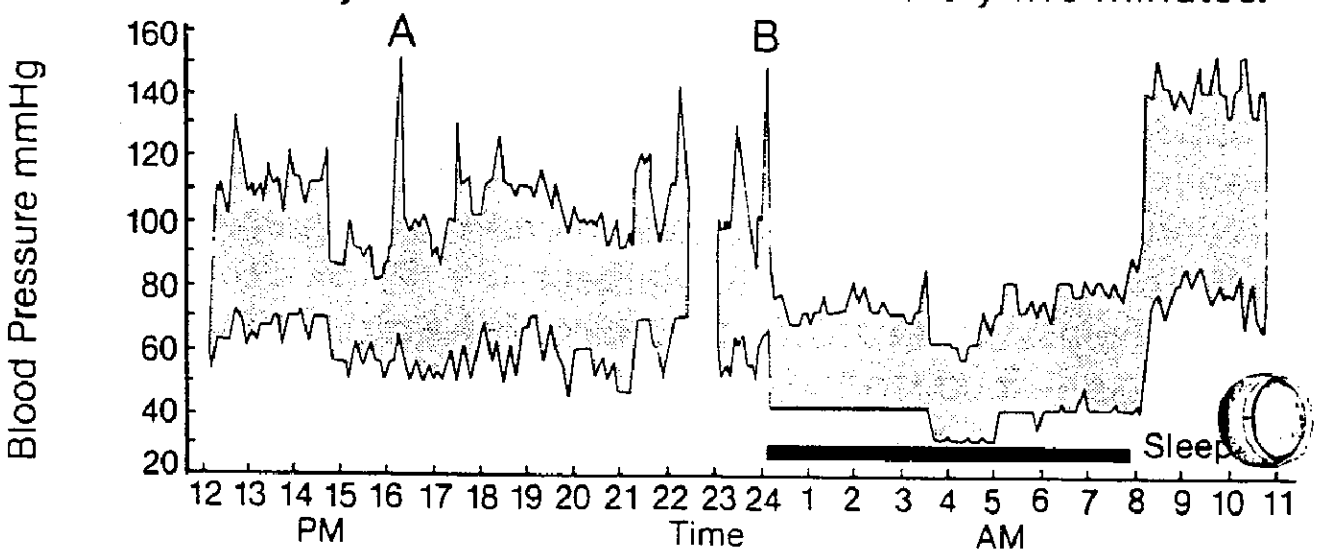
Standards for assessment of high or low blood pressure, without regard to age, have been established by the World Health Organization **(WHO)** as shown in this chart.



Reference Material: Investigation into Adult Diseases Report by the Ministry of Health and Social Seucurity, 1971.

Variations in Blood Pressure

Individual blood pressures vary greatly both on a daily and a seasonal basis. These variations are even more pronounced in hypertense patients. Normally the blood pressure rises while at work and is at its lowest during the sleeping period. The graph below illustrates the variations in blood pressure over a whole day with measurement taken every five minutes.



Shown is data for measurements taken every 5 minutes. The thick line represents sleep. The rises in blood pressure at 4 PM (A in the graph) and 12 PM (B in the graph) correspond to an attack of pain and sexual intercourse. (Beven, Honour & Stott: Clin. Sci. 36:329, 1969)