A&D

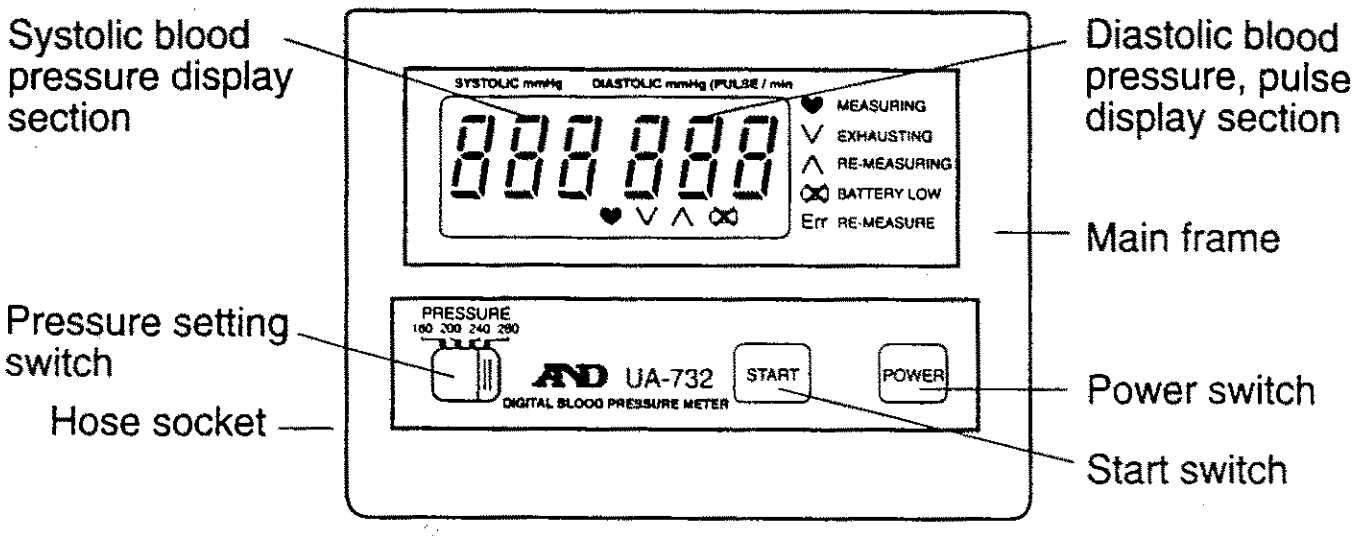
Digital Blood Pressure Meter

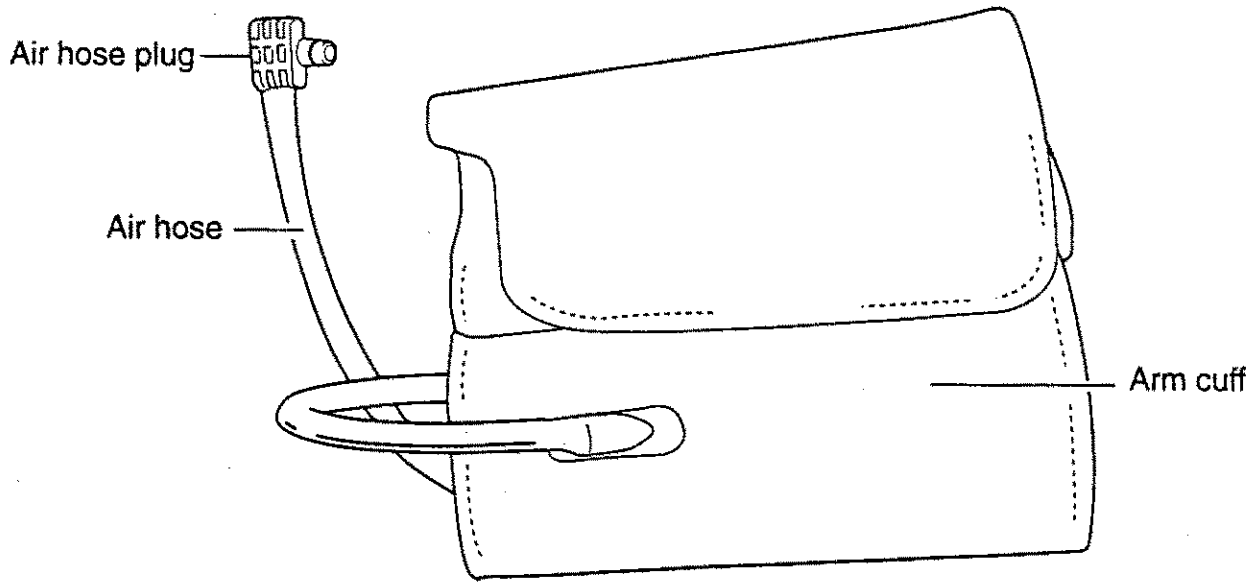
UA-732

U4-4848
Printed in Japan SA93O2

Instruction Manual

Identification of Parts





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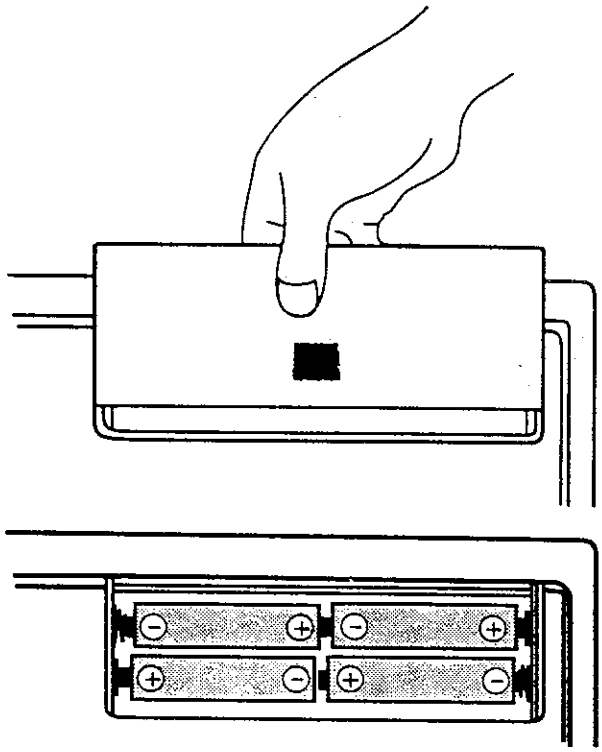
Preparation for Measurements

(See Measurement Operation on the following pages)

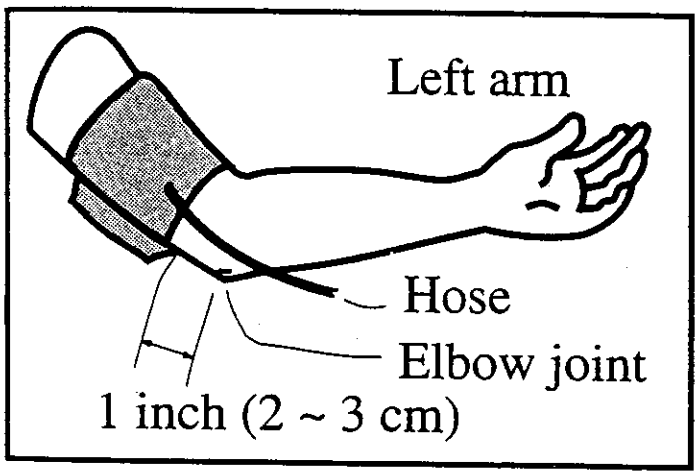
1. Installing batteries

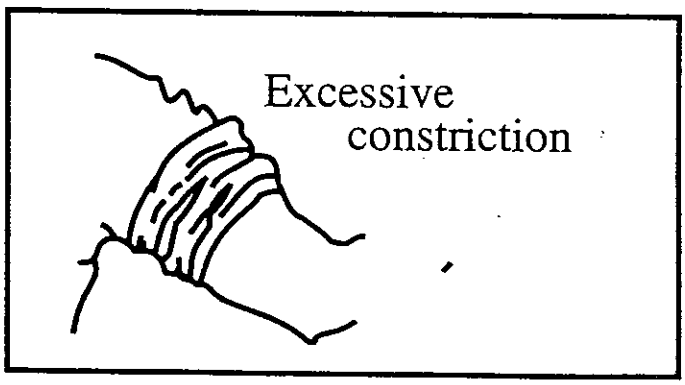
Remove the battery cover and insert the batteries into the battery compartment as shown, taking extreme care that the polarities (+) and (-) are observed. Use only "AA" or similar type batteries.



2. Attaching the arm cuff

Wrap the cuff around the upper arm about one inch above the elbow as shown. It is best to place the cuff directly against the skin, as clothing may cause a faint heart beat, and result in a measurement error.





3. Posture while Measuring

Please stay seated or in a reclining position during the measurement.

4. Measurement

During the measurement, the cuff will become very tight, don't be alarmed as this is normal.

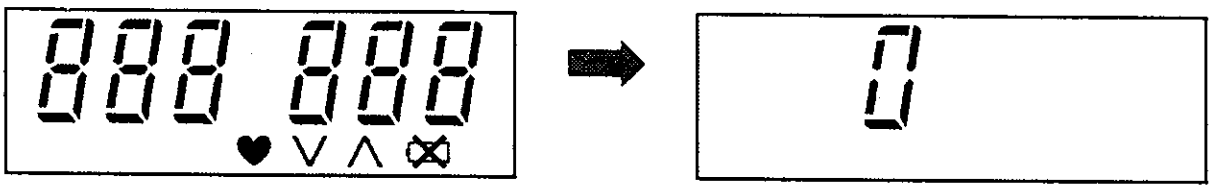
- Constriction of the upper arm caused by rolling up a shirt sleeve may prevent accurate readings.

5. After the Measurement

After the measurement, remove the cuff and record your data.

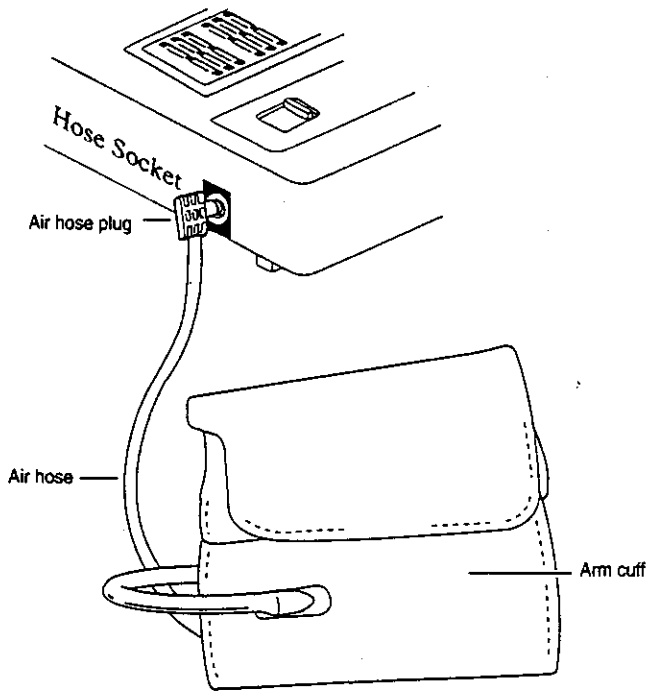
Measurements

1. **Place the cuff on the arm that will be used for the measurement (preferably the left arm).**
2. **Turn the meter ON by pressing the POWER switch.**
   - When the POWER switch is pressed, all of the display symbols will appear for about one second.
   - When the "0" is displayed, the meter is ready for measurement.



Approx. 1 second

- If the ∨ (Exhaust) symbol appears, release air in the cuff by removing the hose plug from the socket on the side of the meter.



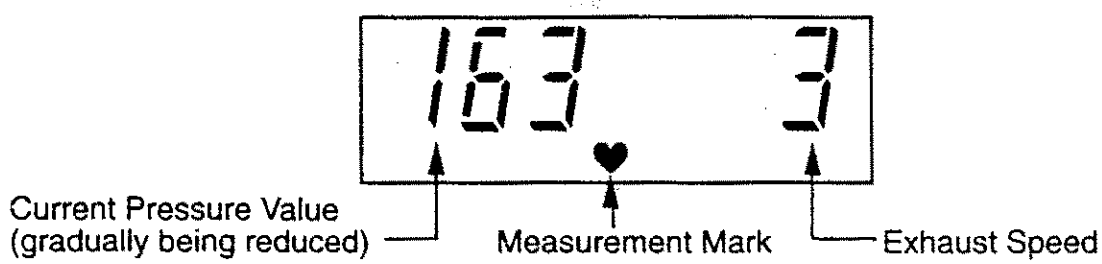
3. **Select a pressure value that is approximately 30 or 40mmHg above your normal Systolic blood pressure. There are 4 settings; 160, 200, 240 and 280mmHg. If you are not sure, start at 160mmHg.**

4. **Press the START switch**
   - The micropump will pressurize the cuff.
   - If the START switch is pressed again during pressurization or during measurement, the air will be released from the cuff.

5. **When pressurization has completed, the automatic exhaust mechanism will gradually reduce the pressure in the cuff and the ♥ (Measurement in Progress) symbol will appear along with the current pressure reading. This symbol will blink in unison with the pulse of the person being monitored.**

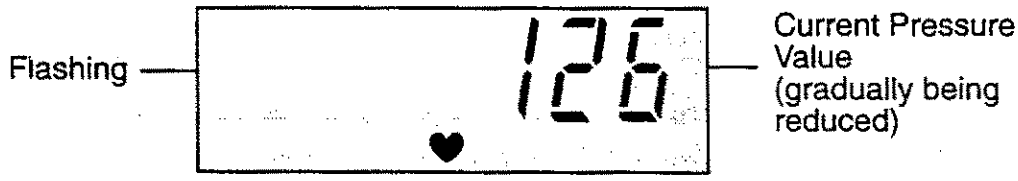
Measurement

① Pressure value appears on the left, and exhaust speed on the right side of the display.

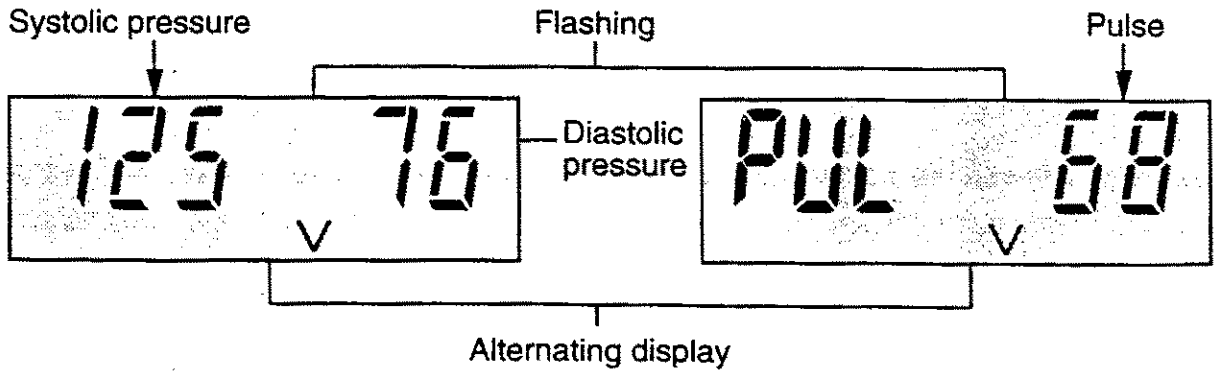


- Accurate measurement cannot be made if the exhaust velocity is outside the range of 1 ~ 5mmHg.
- The subject should remain still while the meter is in operation.

② The pressure value will appear on the right side of the display when a pulse is detected. At this time the ♥ symbol flashes at the pulse rate, and the buzzer sounds (beep).



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



continued

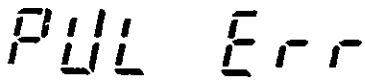
- When a measurement is made with insufficient pressure, the measurement is automatically repeated.
- If the ∧ mark appears, set the pressure value up one setting and repeat the measurement again.

6. **Turn Power OFF**
   The power may be turned off by pressing the power switch.
7. **Subsequent Measurements**
   If a subsequent measurement is required, turn off the power and turn it on again. When the "0" is displayed, the meter is ready for measurement again.
8. **Automatic Power OFF Function**
   If the meter is left on after a measurement, it will turn itself off after approximately 3 minutes. The meter can be turned off at any time by pressing the POWER switch.

Notes for Proper measurements

1. **Sit in a comfortable position where you can place the arm used for the measurement on a table or other support that will place the center of the upper arm at about the same height as your heart.**
2. **Relax for about 5 or 10 minutes before starting the measurement. If you are excited or depressed by emotional stress, the measurement will reflect this stress as a higher (or lower) than normal blood pressure reading, the pulse reading will usually be faster than normal.**
3. **A normal person's blood pressure varies constantly depending on what they are doing and what you have eaten. What they drink can have a very strong and rapid affect on your blood pressure.**
4. **As this meter basses it's measurements on the heart beat, if you have a very weak or irregular heart beat, the meter may have difficulty determining your proper blood pressure.**
5. **Should the meter detect a condition that is abnormal, it will stop the measurement and display an error. "Err" is where the meter could not accurately measure the blood pressure. "PUL Err" is where the meter could not determine a reading because of a pulse error. A flashing exhaust speed indicates that the exhaust speed is excessive.**
6. **This blood pressure meter is intended for use by adults only. Consult with your physician before using this meter on a child. A child should not use this meter unattended.**

Discription of Display Marks

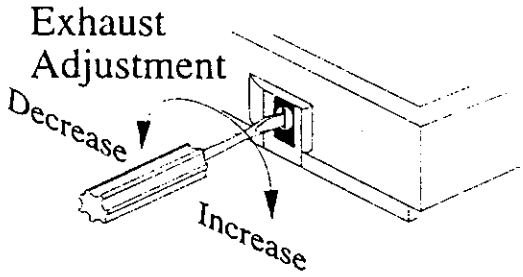
Display mark	Condition / cause	Corrective action
 Measurement in progress	Mark appears in the measurement condition and flashes when the pulse is detected.	Measurement in progress --- remain still.
 Exhaust	Mark flashes when power is applied and there is some air remaining in the cuff. Mark flashes at the completion of the measurement until exhaust is completed.	Automatic exhaust is performed.
 Insufficient pressure	Measurement was started, but the pressure was insufficient. Note: if this condition of insufficient pressure is discovered at the beginning of the measurement, automatic repressurization is performed.	Raise the pressurization setting one level and measure once again.
 Low battery	Mark appears when the battery is below proper operational voltage.	Replace all four batteries with new ones.
 Measurement error	Mark appears when the blood pressure could not be measured accurately.	First exhaust the air from the cuff, then reattach the cuff properly and try the measurement again.
 Pulse error	Mark appears when the pulse could not be measured accurately.	
Exhaust speed flashing (exhaust speed error)	Flashing when the exhaust speed is above 8mmHg/s.	Return the unit to the dealer where you purchased it.

Exhaust Velocity

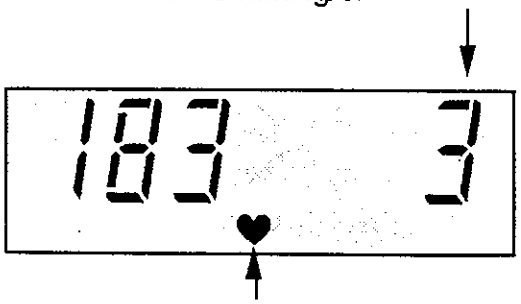
1. **The exhaust velocity is the rate of gradual pressure drop from the pressure applied automatically by the micropump.**
2. **The exhaust condition is displayed in the right portion of the display from the time of pressurization until the measurement symbol starts flashing.**
3. **The exhaust velocity of this meter was adjusted for a rate between 2 and 5mmHg, based on the average person.**
   ● Note that if the exhaust velocity is not proper, correct measurement are not possible.

Exhaust Velocity Adjustment

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



Adjust exhaust velocity to 2 ~ 5 mmHg/s.



Adjust until measurement mark flashes.

1. **Place the arm cuff on a container (a strong bottle or can) that is about the same size as the arm of the person that the meter will be adjusted for and press the start button. Watch the display as the pressure decreases. The velocity rate is determined by taking the difference between one reading and the next, while the actual reading is between 130 ~ 110mmHg. If the difference is greater than 5mmHg, rotate the adjustment screw in a counterclockwise direction about 1/8 turn. Place the meter back on it's feet and repeat the test. If the difference is less than 2mmHg, rotate the screw clockwise about 1/8 turn. Place the meter back on it's feet and repeat the test. Repeat this procedure until the exhaust velocity is about 4mmHg.**
2. **Place the arm cuff on the person that will have their blood pressure checked and repeat the test. Note the difference in the readings at around 120mmHg. This should now be between 2 ~ 5mmHg.**
3. **If not, repeat step 2 above but, adjust for a final difference that is off in the same direction and amount noted when doing step 3.**

How Is A Proper Measurement Made?

Blood pressure varies depending upon the conditions prevailing at the time of the measurement, consider the following so that the most accurate measurements may be made.

1. In preparation for a blood pressure measurement, the subject should urinate and should remain relatively still for 5 to 10 minutes before a measurement.

2. Shirts or other garments which fit tightly on the upper arm should be removed before fitting the arm cuff.

3. Exercise, eating and drinking, smoking, etc., before a measurement can affect the results.

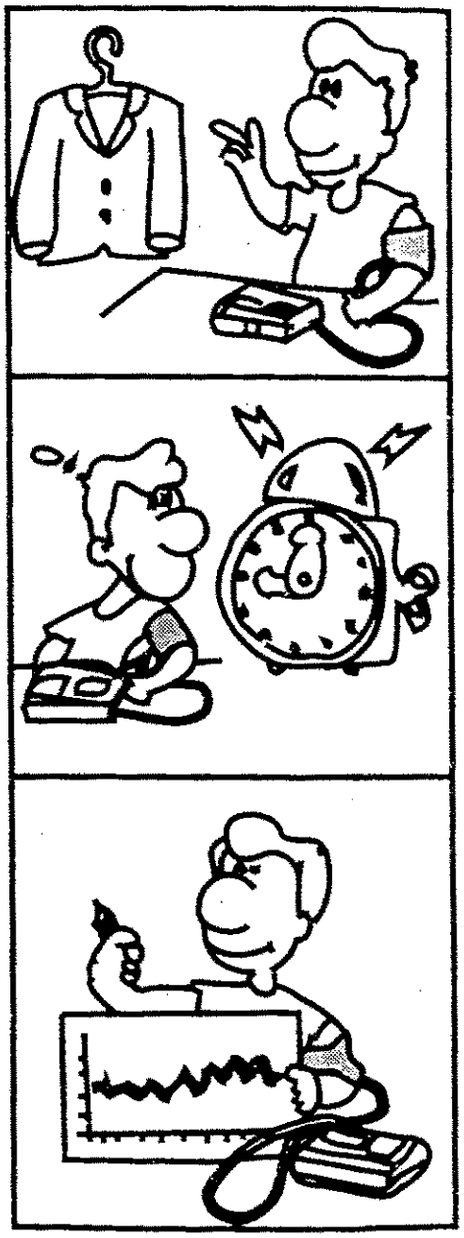
4. Blood pressure varies constantly throughout the day. Measurement should be made regularly at the same time each day.

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 measurements 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 until the engorged condition is relieved.

7. In general, blood pressure is low in summer (when it is hot) and high in winter (when it is cold).

8. Emotional stresses may cause an increase in blood pressure.



More About Blood Pressure Measurement

What is Blood Pressure?

The blood pressure is at its highest levels in the large arteries near the heart and drop off towards the peripheral areas of the circulatory system.

The blood pressure varies with the beating of the heart. When the heart contracts, forcing the blood out, the pressure inside the arteries is said to be systolic. When the heart expands, the pressure of the blood inside the arteries is said to be diastolic.

Hypertension

Hypertension, an abnormally high arterial blood pressure, which is most common among older adults, if left unattended, can cause many health problems including stroke, heart attack, etc. It is wise to control the blood pressure to prevent it from becoming high, by reducing salt intake, and by controlling the subject's diet and activities. People who were born with high blood pressure can prevent the progress of heart disease by means of adequate control.

Why is it a Good Thing to Measure Blood Pressure at Home?

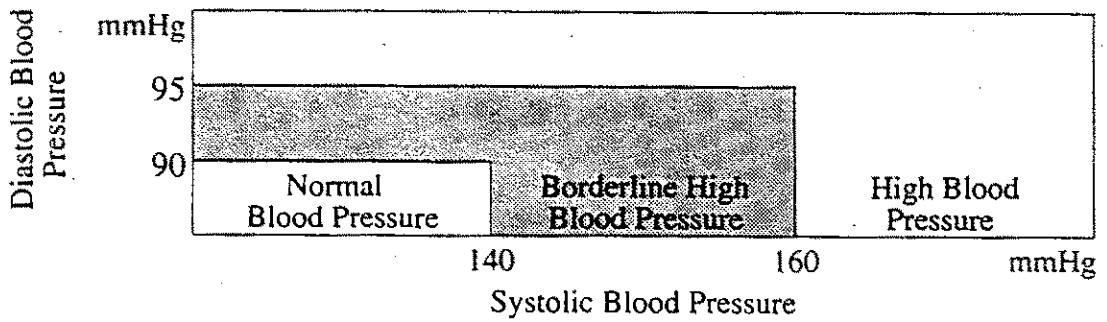
Having one's blood pressure measured in a hospital or a clinic, tends to stimulate nervousness in the subject and may even cause high blood pressure. Also blood pressure varies in accordance with a variety of conditions, so it is not possible, on the basis of a single measurement, to make an accurate judgment of the hearts condition.

Blood pressure measured first thing in the morning after getting up, with the subject still, and before taking any food or drink, is known as the fundamental blood pressure. This is usually done in a hospital. To come as near as possible to measuring the blood pressure in an environment that is close to this, it is useful to be able to take the measurement at home.

It is possible for you to carry out your own blood pressure control at home, taking blood pressure readings on a regular basis, with your own blood pressure meter. Record the measurements on a regular basis, and if the accumulated results seem to be above normal, it is recommended that a doctor review the record.

WHO Blood Pressure Classifications

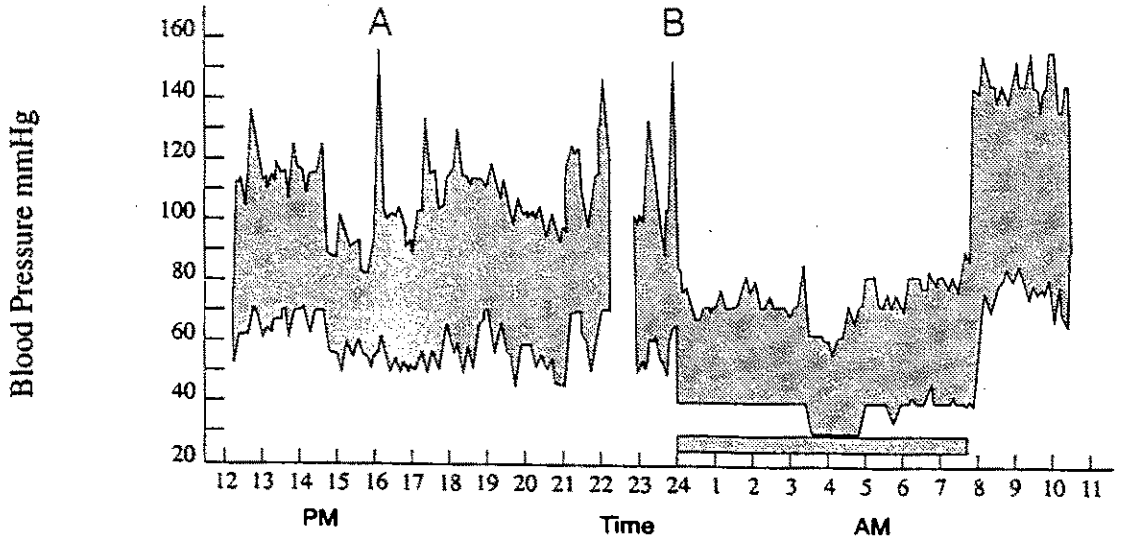
Standards for assessment of high blood pressure, without regard to age, have been established by the World Health Organization (WHO), as shown in this chart.



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

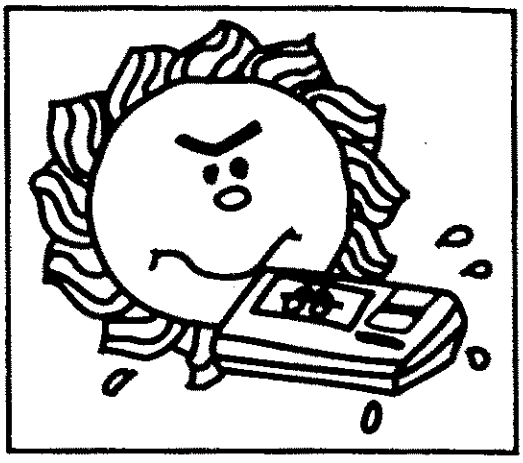
Variations in Blood Pressure

Individual blood pressures vary greatly both on a daily and a seasonal basis. These variations are even more pronounced in the hypertense patients. Normally blood pressure rises while at work and is at its lowest during the sleeping period.



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

Precautions



1. Precision components were used in the construction of this instrument. Extremes in temperature, humidity, direct sunlight, shock or dust should be avoided .

2. Clean the instrument with a dry, soft cloth (never use thinner, alcohol, benzene, or wet dusters).

3. Avoid tightly folding the cuff or storing the hose tightly twisted for long periods, as such treatment may shorten the life of the components.

Specifications

Model	UA-732
Type	Oscillometric
Display	Digital, 14mm character height
Measurement range	0~280mmHg (Pressure) 40~200 pulses/minute (Pulse)
Accuracy	±3mmHg or 2% which ever is greater (Pressure) ±5% (Pulse)
Pressurization	Automatic pressurization using a micropump
Depressurization	Constant-Air-Release Valve System
Deflation	Automatic exhaust
Power source	Type AA batteries (4)
Battery life	Approx. 6 months with 3 min. usage per day
Operating environment	+10°C~+40°C, less than 85%RH
Storage environment	−20°C~+55°C, less than 95%RH
Dimensions	140(W)×100(D)×50(H)mm
Weight	Approx. 370g