A&D

Digital Blood Pressure Meter

UA-777

UA-777EX-C U4-5420B

Instruction Manual

Preliminary remarks

The device conforms to the following requirements: European Directive 93/42 EEC for Medical Products Act; Medical Products Act; European Standards for Electrical Medical Equipment EN 60601-1 (General Safety Provisions), EN 60601-1-2 and EN 55011 (Electromagnetic Compatibility); European Standards pertaining to Non Invasive Blood Pressure Instruments EN 1060-1(General Requirements), prEN 1060-3 (Supplementary Requirements for Electromechanical Blood Pressure Measuring Systems).
The above is evidenced by the CE mark of conformity accompanied by the reference number of a designated authority.
This device is designed for adults only.

Environment for use

The device is for use in a hospital and / or patient's home.

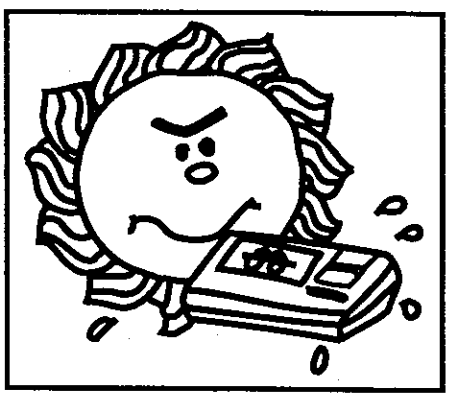
Precaution

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

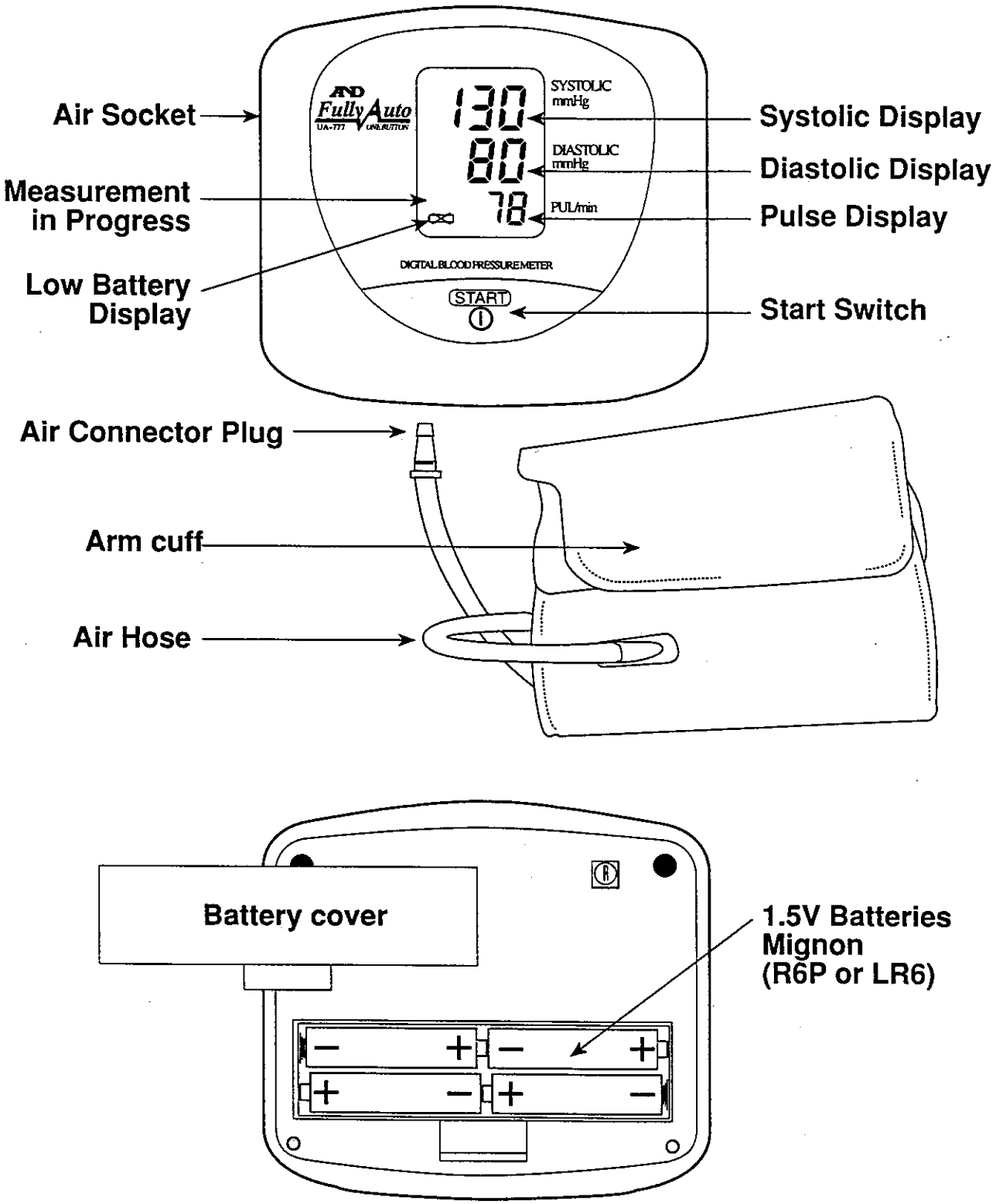
2. Clean the device with a dry, soft cloth (never use thinner, alcohol, benzene, or wet dusters).

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.

4. The device and cuff are not water resistant. Prevent rain, sweat and water from wetting the device and cuff.



Parts Identification

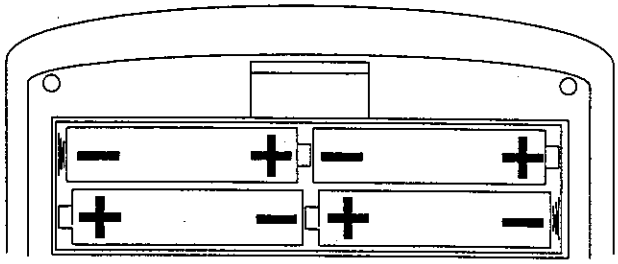


Symbols

Symbols	Function / Meaning	Treatment
⏻	Turning on or off the device.	_____
⊕ ▭ ⊖	Direction guide to install battery.	_____
⎓	Direct current.	_____
SN	Serial number.	
1997	Date of manufacture.	_____
Type BF	Device, Cuff and tubing are designed to provide special protection against electric shocks.	_____
Measurement in Progress	Mark appears in the measurement condition and flashes when the pulse is detected.	Measurement is in progress -- remain as still as possible.
Low Battery	Mark appears when the battery voltage is too low for the device to work properly.	Replace all batteries with new ones.
Err 1	This error message will appear if the systolic measurement and the diastolic measurement are within 10 mmHg of each other.	Verify that the cuff hose is properly connected to the device and that the exhaust rate is between 2 & 5 mmHg. Check for air leakage.
Err 2	This error message will appear if the pressure value is unstable due to movement during the measurement.	Try the measurement again. Remain very still during the measurement.
Err 3	This error message will appear if the pressure value did not increase during pump up.	Verify that the cuff hose is properly connected to the device and that the exhaust rate is between 2 & 5 mmHg. Check for air leakage.

Preparation for Measurements

1. Installing / Changing the Batteries

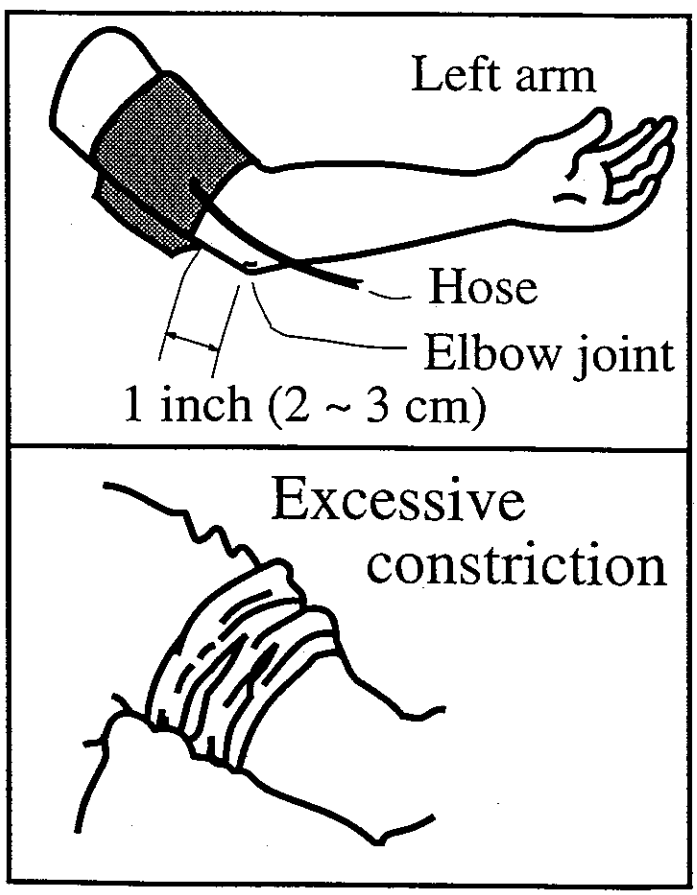


Remove the battery cover and insert new batteries into the battery compartment as shown, taking extreme care that the polarities (+) and (-) are observed. Use only Mignon (R6Por LR6) or similar type batteries.

If the function symbol is shown on the display panel, this means that the batteries are depleted. Always change all batteries at the same time. If you do not intend to use the device for longer periods, it is advisable to remove the batteries. Only use high quality, leakproof batteries which correspond to the specified ratings. Never mix new and old batteries or batteries from different manufactures. Used batteries do not fall within the category of household waste, and must be disposed of according to the applicable regulations.

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



3. Posture while Measuring

Remain seated or in a reclining position during the measurement.

4. Measurement

During the measurement, the cuff will become very tight, do not be alarmed as this is normal.

5. After the Measurement

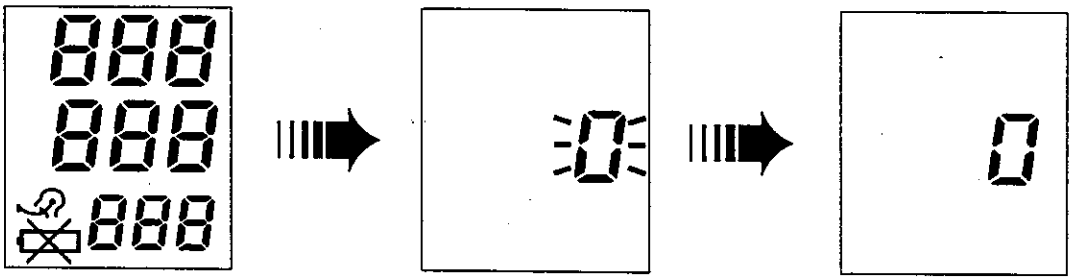
After the measurement, remove the cuff and record your data.

Measurements

1. Place the cuff on the arm that will be used for the measurement (preferably the left arm).

2. Press the START switch.
   - When the START switch is pressed, all of the display symbols will appear for about one second.

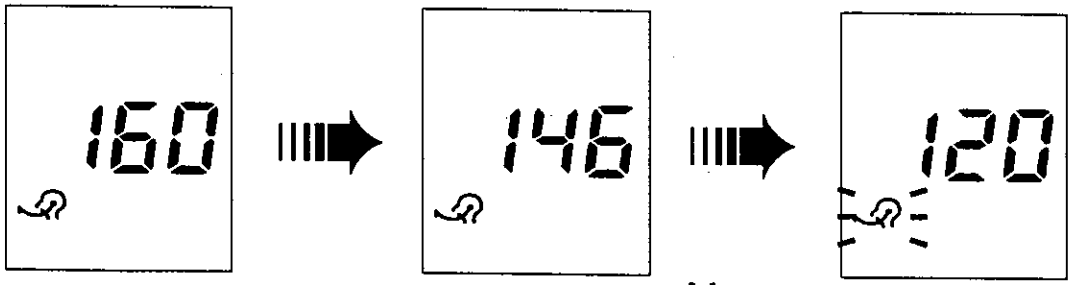
   - When the "0" is displayed, the device is calibrating it's zero point. If there was still some air in the arm cuff, it will be exhausted at this time.



   - The micro pump will pressurize the cuff.
     Note: The cuff will become very tight, do not be alarmed, this is normal.

   - If the START switch is pressed again during pressurization or during the measurement, the pump will stop and the air will be released from the cuff.

3. 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.

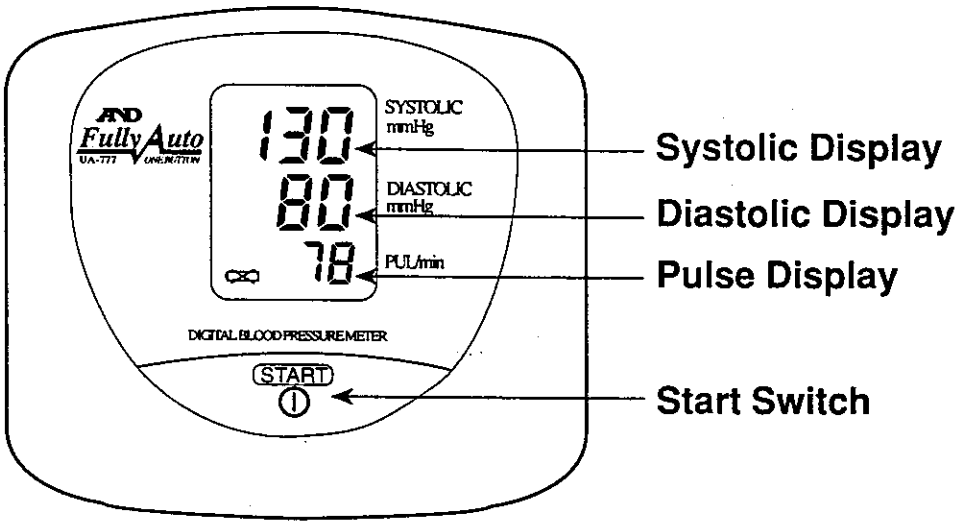


Measurement in Progress

Measurements

- The subject should remain still while the device is in operation.
- When a measurement is made with insufficient pressure, the device will pump again to a higher pressure.

4. When measurement has completed, the buzzer sounds (beeps) and the air is automatically released from the cuff. The systolic pressure is displayed on the upper portion of the display, the diastolic pressure in the center of the display and the pulse in the lower portion of the display.



5. Turning the power OFF

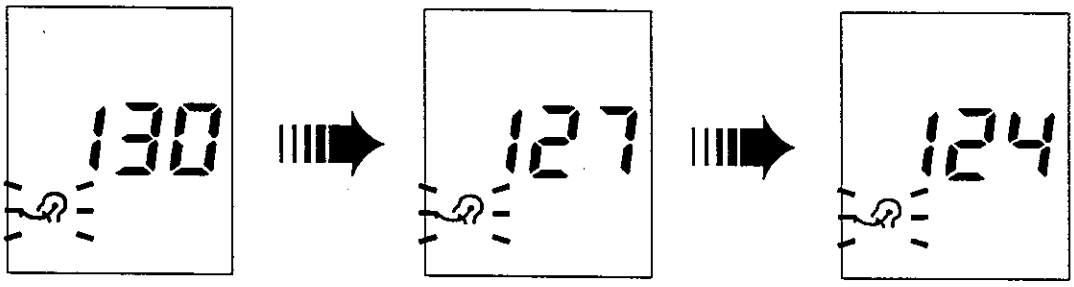
   The power may be turned off by pressing the START switch.

6. Subsequent Measurements
   If a subsequent measurement is required, turn off the power and turn it on again. When the "0 " is displayed, the device is ready for measurement again.
   Note: Please wait for about 10 minutes before repeating the measurement.

7. Automatic Power OFF Function
   If this device is left on after a measurement, it will turn its self off after about 1 minute. It may be turned off at any time by pressing the START switch.

Measurements

- Accurate measurement cannot be made if the exhaust velocity is outside the range of 2 ~ 5 mmHg. This can be determined by watching the display each time the "Measurement in Progress" symbol blinks. Note the reading as the "Measurement in Progress" symbol blinks.



Notes for Proper measurements

1. Sit in a comfortable position where you can place the arm to be 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 persons blood pressure varies constantly depending on what you are doing and what you have eaten. What you drink can have a very strong and rapid affect on your blood pressure.

4. As this device basses it's measurements on the heart beat, if you have a very weak or irregular heart beat, the device may have difficulty determining your proper blood pressure.

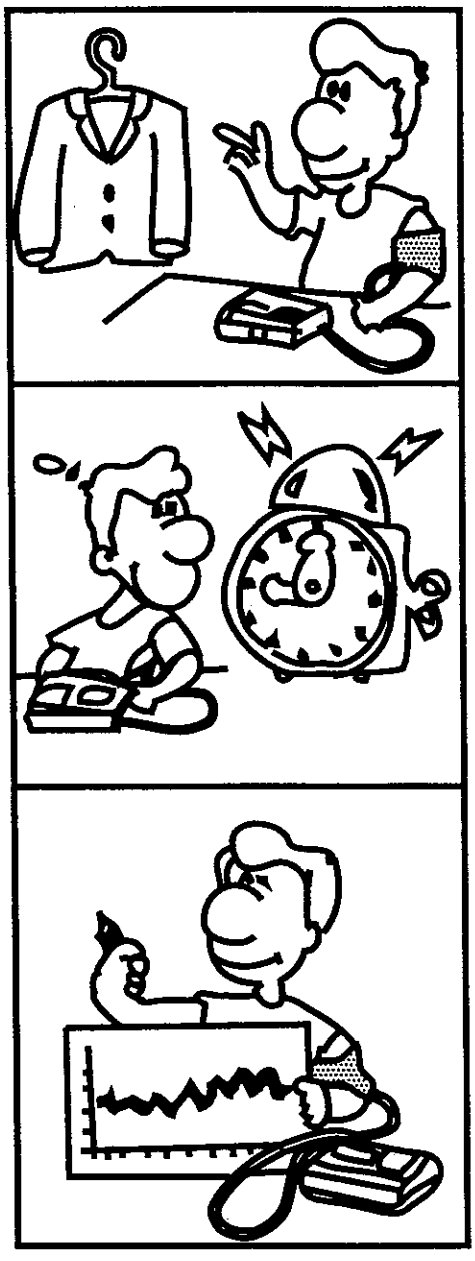
5. Should the device detect a condition that is abnormal, it will stop the measurement and display an error. "Err" is where the device could not accurately measure the blood pressure. See the section on description of display marks for details.

6. This blood pressure device is intended for use by adults only. Consult with your physician before using this device on a child. A child should not use this device unattended.

How to Make Proper Measurements

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 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 measurements. 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, the 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.

About Blood Pressure

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.

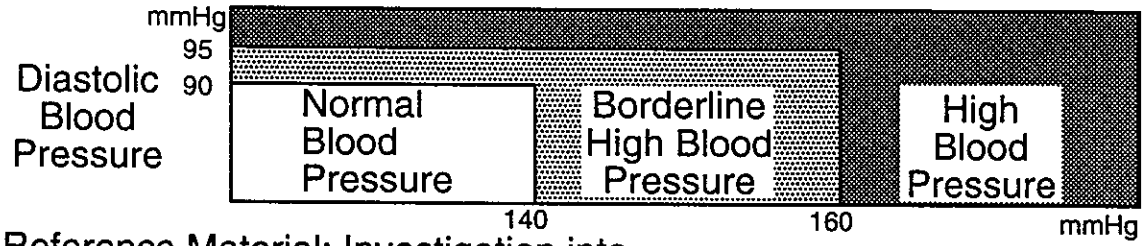
Blood pressure measured first thing in the morning after getting up, with the subject still, and before taking any food or drink, is known as the fundamental blood pressure. This is usually done in a hospital. To come as near as possible to measuring the blood pressure in an environment that is similar 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 device. 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.

About Blood Pressure

WHO Blood Pressure Classifications

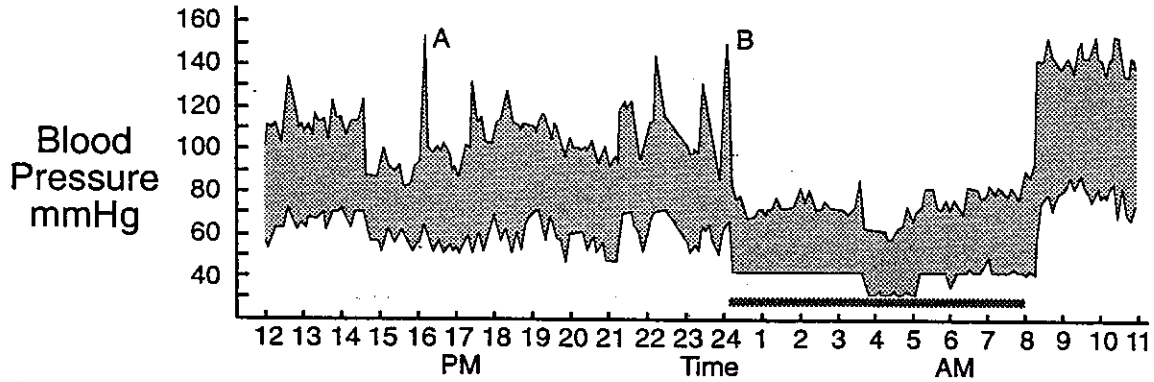
Standards for assessment of high blood pressure, without regard to age, have been established by the World Health Organization (WHO), as shown in this chart.



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 hypertensive patient. Normally the 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 pressure 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)

Maintenance

Do not open the case of the device because it uses delicate electrical components and an intricate air unit that could be damaged. If you can not locate and fix the problem, request service from your supplier, or from the A&D service group. The A&D service group will support authorized suppliers about technical information, spare parts and units.

Specifications

Performance Specifications

Measurement method	Oscillometric measurement
Measurement range	Pressure : 20 ~ 280 mmHg ±3 mmHg Pulse : 40 ~ 200 beats / minute ±5 %
Battery	4 x 1.5V batteries Mignon (R6P or LR6)
Cuff	Arm Circumference
Classification	Type BF CE 0366 Device, Cuff and tubing are designed to provide special protection against electric shocks.
Clinical test	According to ANSI / AAMI SP-10 1987

	Standard deviation	Mean error
Systolic blood pressure	5.43 mmHg	2.24 mmHg
Diastolic blood pressure	5.18 mmHg	1.54 mmHg

Environment Specifications

Operating environment	+10 °C ~ +40 °C, less than 85 %RH
Storage environment	-20 °C ~ +70 °C, less than 85 %RH

Physical Specifications

Dimensions	142 [W] x 131[D] x 63.4 [H] mm
Weight	Approx. 360g

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