AMPall

BP868F Blood Pressure Monitor

OPERATING MANUAL

Thank you very much for your purchasing of AMPall product.

This device is designed to measure blood pressure.

Please read this operating manual carefully before using the device. Keep the operating manual with the device all the time.

The Warranty Card is included in this operating manual. Please keep the Warranty Card carefully with the device otherwise you may not get proper customer service.

If it is difficult to understand the operating manual or if there is any problem using the device, contact our customer center or your retailer for detailed guidance.

Thank you.

Features

- The angle of the cuff is designed to keep a patient in a comfortable posture when the patient places their arm into the cuff.

- All functions including the ideal tightening pressure of the air cuff and the pressurization of the fuzzy function are automated for user convenience.

- The audio guidance makes the patient measure pulse, and blood pressure easily, and troubles are notified as the audio guidance as well.

- Other than displaying the systolic, diastolic, average blood pressure, and pulse rate, the device operates with the COIN BOX and also is interfaced with PC to analyze blood pressure type and manage customers. (Optional – User has to purchase the software separately.)

- After finishing the measurement, measuring result with current date and time are printed out automatically. Auto-cutting printer is also available. (Optional – User has to notice about auto-cutting printer when places an order.)

- The blood pressure is displayed on the rear side of the device as well. It makes both of an operator and a patient can check the data at the same time. (Optional)

- With this blood pressure monitor, user can compare its analyzed data with other kinds of blood pressure measuring device, such as mercury blood pressure monitor or precision pressure gauge.

- It is easy to move the device with its handle on the side of the device.

- This blood pressure monitor can recognize troubles and errors by itself and notice it with audio guidance.
 [e.g.]
  1. "Measuring again. Do not talk or move."
  2. "You pressed the wrong button."
  3. "Please insert the paper."
  4. "Please check the cuff."

CONTENTS

1. Cautions for Safety

The safety related warnings indicates in the following are for preventing unexpected danger or loss in advance by using the product safety and correctly. This is the symbol for calling attention to matters and operations that can cause danger. Take cautions and follow instructions in order to avoid danger.

⚠	**Warning**	If the user does not follow the instructions, the user can lose her or his life or receive a serious wound.
⚠	**Attention**	If the user does not follow the instructions, the user can be wounded or face property damage.

1) Warning

① **During the installation –**

● Do not disassemble or remodel the product. (Products disassembled at the user's discretion are excluded from after sales service.)

● When grounding the product, make sure not to come in contact with gas pipe, telephone line, and water pipe.

● Do not place any object on top of this product.

● Use the designated parts only.

● Do not store the product in the place where it can be adversely affected by air pressure, temperature, humidity, ventilation, and light.

● Install product in a place out of children's reach.

② **About Power –**

● Do not cut or modify the cord.

● Do not bend the power cord excessively. Do not place heavy objects on the cord. It can be damaged.

● Make sure the power and voltage are 110V/230VAC before installation.

● When pulling out the power cord, do not pull the cable but pull the plug.

③ **In Use –**

● Do not use the product when it is broken or malfunctioning.

● This product is designed for adults and not for children.

● This can be used by persons without disabilities who can perceive whether or not the product is operating.

● In case of using the product after it has not been used for a long time, check the product for any abnormalities before use.

● Do not spill liquid or put alien substances into the machine.

- Measuring repeatedly can overstrain the user. Please wait at least 30 seconds after each measurement.
- Under normal operating condition, make sure the printer cover is closed.
- Do not use this product together with other medical instruments.
- In case the water gets into the product, pull out the power plug immediately and call the service center.

2) Attention

① During the Installation –
- Do not use the product in an unstable place or a place where it can be adversely affected by dust, vibration and shock.
- Do not install or store the produce in a place that stores chemicals or generates gas.

② About Power -

This product can be plugged into ordinary power outlet.

If the product is not going to be used for a long time, unplug the product.

If there are dust and alien substances on the plug pin and the connecting part, wipe them off cleanly.

③ In Use –
- When you turn on the power, it will inspect the system for 3 seconds. Do not shock the product.
- Always check there is no trouble with the product overall while in use.
- When cleaning the product, use soft cloth. Never use organic solvent (acetone, thinner, benzine, gasoline, etc.) or wet cloth. (However, in case the exterior of the product is contaminated seriously, use isoprophyl alcohol and dry cloth to clean the product.)
- If it makes strange sound, smell or smoke while in use unplug the machine immediately and call the service center.
- This product is designed for measuring blood pressure, not for treatment.

2. Description of Each Panel

1) Front

① **Display Window**

➔ Window displays all information and measuring data about blood pressure and pulse.

② **START Button**

➔ This button begins measurement.

③ **STOP Button**

➔ This button stops measurement.

④ **Emergency Stop Button**

➔ Press this button to release the cuff and stop the operation when the pressure is too high that it is hurting the arm or when the system is operating abnormally.

⑤ **Paper Outlet**

➔ The blood pressure information shown on the display panel after the measurement is printed and put out through this outlet.

⑥ **Cuff Part**

➔ Automatically tightens and releases the cuff while measuring the blood pressure.

⑦ **Print Button**

➔ 1) This button prints out the measured data. If the PRINT ON/OFF switch on the back is on, it will automatically print out the result before you press this button.

2) If you press this button when you are not measuring the blood pressure, it will load the previously measured values. To print the loaded data, press L/F button under the print cover.
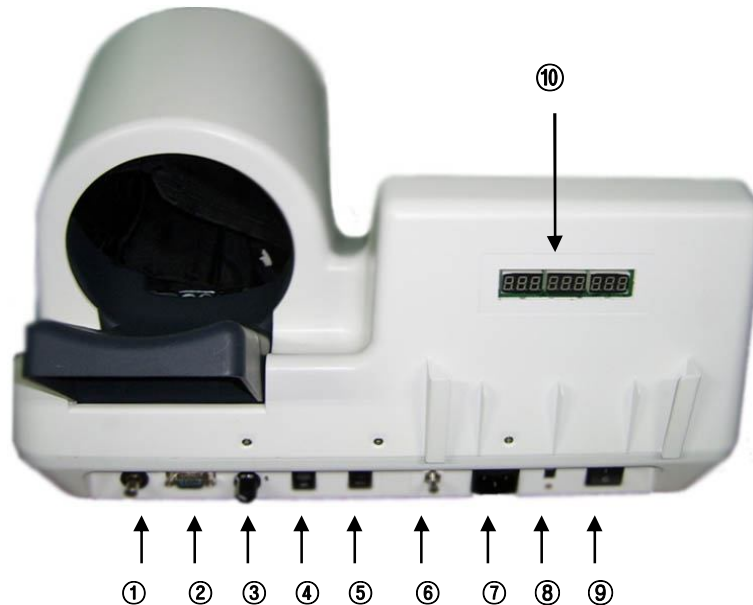
2) Printer
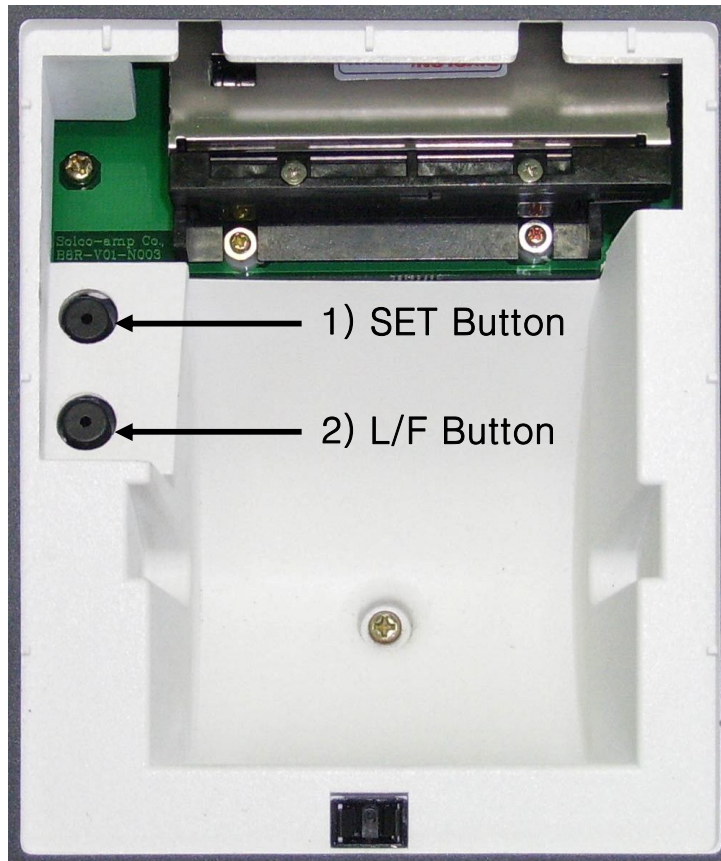
①　SET Button
　　➔ **Use this button to set date and time.**
　　　It also changes the maximum pressure value (155-185-215-245).

②　L/F Button
　　➔ **This button puts out the paper.**
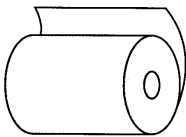　　　**This also changes numbers when setting date and time.**

3) Rear Side

① **Inspection Valve**
➔ This is connected to mercury blood pressure monitor and precise pressure gauge to check the accuracy of the pressure.

② **RS232C/COIN CONNECTOR**
➔ Use this to connect the machine to external units such as the Customer Management Program for PC or coin machine. (OPTION)

③ **Voice Volume**
➔ Use this to adjust the volume or turn on/off the voice guidelines.

④ **Printer ON/OFF Switch**
➔ ON: When the blood pressure is measured, the result is automatically printed out.
OFF: Press the print button on the front to print the results after measuring the blood pressure.

⑤ **COIN OF/OFF Switch**
➔ Turn on this switch when using the coin machine. This switch must be turned off if the coin machine is not installed.

⑥ **Earth Terminal**
➔ This is the test terminal for measuring the leakage current when shipping the product.

⑦ **Power Socket**
➔ Connect the power cord here.

⑧ **Input Voltage Selection Switch**
➔ This switches the input voltage to 110VAC or 230VAC.

⑨ **Power Switch**
➔ Turn on or off the blood pressure monitor.

⑩ **Rear Side Display**
➔ Display systolic pressure, diastolic pressure, and pulse rate on the rear side.

4) Window Display
➜ Front Window Display

AUTOMATIC BLOOD PRESSURE MONITOR

Systolic

Time Measurement in Process

Diastolic

Pulse Detection

Pulse Rate
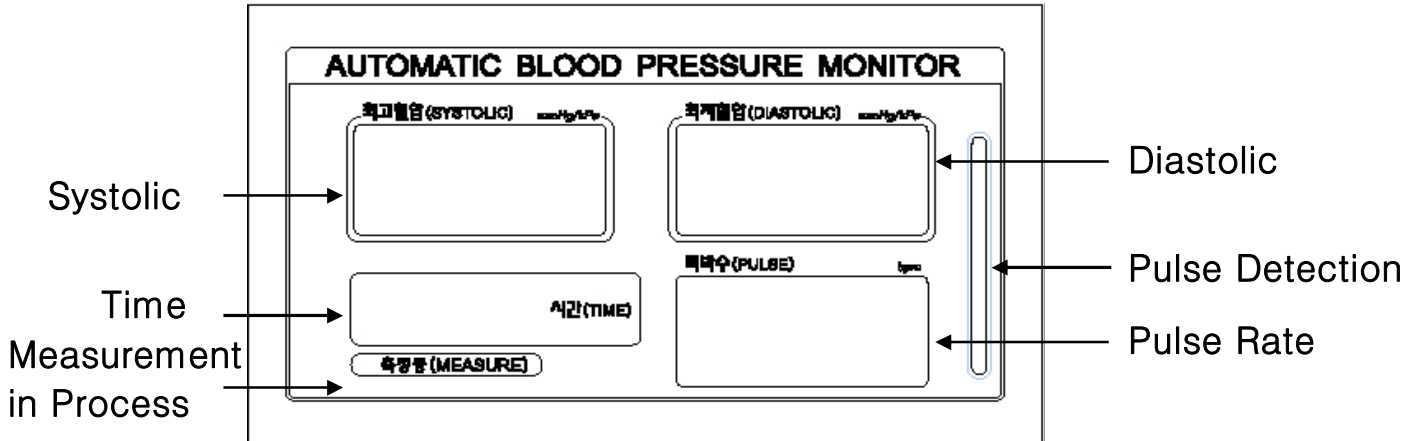
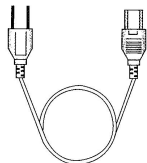## 5) Components

① Printer Roll

This is the thermal paper for printing the result of blood pressure measurement.
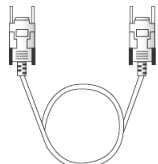Length: 25M, Breadth: 57.5mm
• Do not store the paper in the humid or hot place.
• Store it in the dark and cool place and make sure it is not directly exposed to sunlight.
• Make sure the paper is not contaminated by alien substances.

② Power Cord

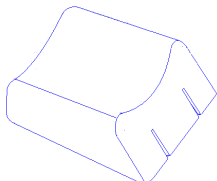This power cord supplies power to the blood pressure monitor.

③ 232C Cable (OPTION)

This cable connects the computer and blood pressure monitor. Use this cable to transmit data from blood pressure monitor to computer and control the blood pressure monitor from the computer.
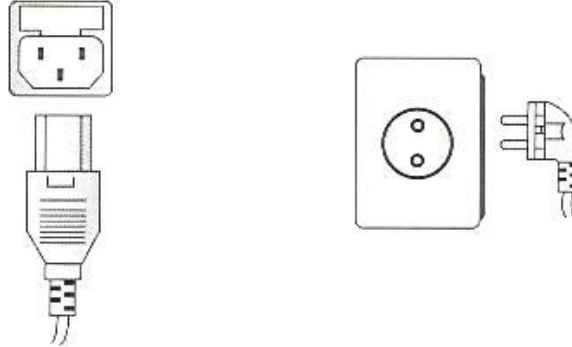
④ Arm Supporter

⑤ Direction Board

This shows the direction for measuring blood pressure and matters that requires attention.

3. Preparation

## 1) Connecting Power Cord

① Connect the power cord to the AC power connector of the blood pressure monitor.

② Connect the grounding cable to the grounding terminal.

[Attention] Do not connect the grounding line of the blood pressure monitor to gas pipe, telephone line, and water pipe. It is very dangerous.

2) Replacing Fuse

➔ **If it does not display anything after you connect the power cord to the main unit, plug it to the outlet, and turn on the power, check the fuse first. Using regular screwdriver, remove the fuse above the power connector on the back of the blood pressure monitor, and check the wire inside the fuse is broken. If the wire is broken, replace it as follows. Inside the black fuse holder, there is an extra fuse. Remove the broken fuse and replace it with the new fuse.**
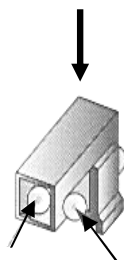
Extra Fuse   Fuse in Use

[Fuse Holder]

3) Assemble Arm Rest

➔ **For better and more accurate blood pressure measurement, mount the arm rest supplied with the machine.**

4) Paper Setting

➔ **Set the paper in the setup mode as in the picture on the right. To enter the setup mode, press the STOP button.**

[Fig 1]

① **While the power is on, press the printer cover indicated area Ⓐ on the [Fig 1] to open the printer cover.**
② **Pull up the lever on the left. [Fig 3]**
③ **Place the beginning of the roll into B as in Fig 3. Make sure the data is printed on the outer surface of the roll.**
④ **Press L/F button repeatedly until the paper comes out through C. [Fig 4]**
⑤ **In case the paper is tiled or leaned to one side, set the paper again.**
⑥ **When the paper comes out through C, put the shaft into the roll and put it in place. [Fig 5]**
⑦ **Pull down the lever.**
⑧ **Put the beginning of the recording paper into the**
⑨ **groove of the cover to pull it toward the outside (D) [Fig 6]**
⑩ **Place the cover and close.**

[Fig 2]

[Fig 3]

[Fig
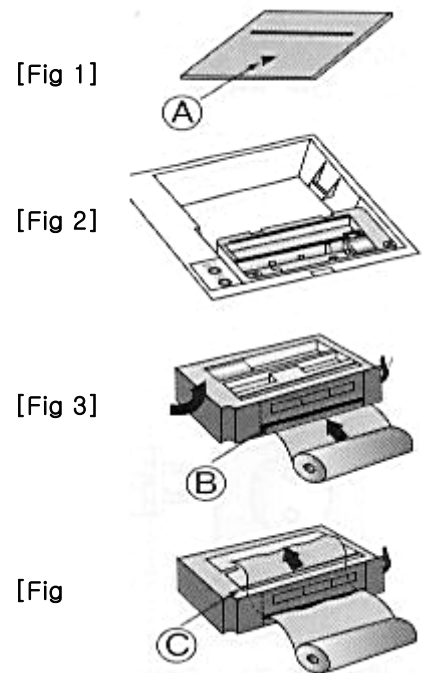
<Attention>
• **When you pull out the paper, pull up the lever first.**
• **If you do not pull down the lever, it will not print.**
• **Use thermal printing paper only (Length: 25 m, Breadth: 57.5 mm).**
• **Make sure the paper is clean and not crumpled.**
• **Do not pull the paper while printing.**

• **Store the paper in a well ventilated and dark place.**

5) Setting Initial Pressure Level

Press L/F button to change initial pressure level to
155mmHg-185mmHg~215mmHg~245mmHg and press SET button to set the pressure.
If you do not need additional settings, press the STOP button.
If you need to make additional settings such as date and time, press the SET button.

6) Setting Date and Time

Turn on the power. Start setting the date and time in the setup mode. Enter the setup mode.
•Open the print cover.
•Set date and time in the order of Year→Month→Date→Hour→Minute.

➜ **Setting Year**
① Press the SET button under the print cover and the 3rd digit
   of the Year will flicker.
② Press L/F button. Each time you press the button, the number
   will change from 0~9.
③ If reach the number you want, press SET button to set the value.
   The first two digits of the Year will automatically change to 19 or
   20 according to the digits you set.
④ When you press SET button, the 4th digit will begin to flicker.
   Press L/F button to select the appropriate value and press SET
   button to set.
   (Note: The maximum value that can be set for the Year is 2099.)
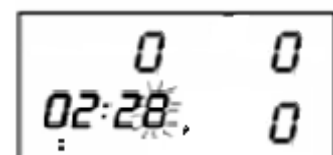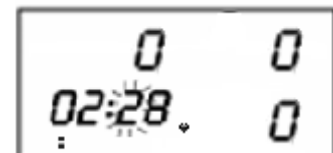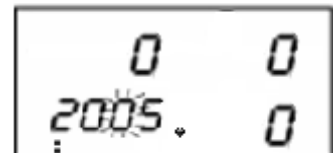
➜ **Setting Month and Date**
① When you set the Year, the 'Month· Date Setting'screen will
   appear automatically. Press L/F button repeatedly to
   switch numbers from 1~12, each representing the month.
   When you reach the number you want, press SET button to set.
② When you press SET button, the "Date" will start to flicker.
   When you press L/F button, it will switch numbers from 0 to 3,
   and press SET button to set the number you want. Select
   the second digit of the date with L/F button and press SET
   button to set.

➜ **Setting Time**
① When the month and date are set, the 'Time Setting'screen will
   appear.
   Press L/F button to set the number from 1~12 and press SET
   button to set. Check AM or PM.
② The "Minute" will flicker automatically. Select the first digit
   of the minute using L/F button and press SET button to set.
   Select the second digit of the Minute with L/F button and
   press SET button to set.
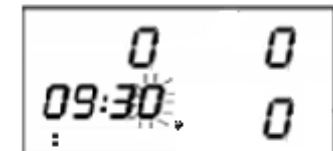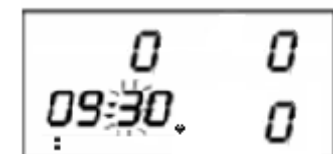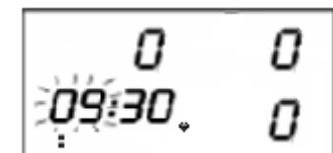
<Attention>
When you press STOP button while setting, the values will not
be stored. When you turn off the power, the date and time values
will remain for 60 days. However the time data can change if it
is not used for a long time (more than 60 days).

7) Number of Measurement

After you set the time, it will display the total number of use.
The example on the right indicates that it was used 135,789 times to measure blood pressure.

135	789

8) Recall the Stored Data

You can see 5 previous measurements (including systolic and diastolic pressures and pulse rate) with the device.
The device stores measured data whether it is on or off.
When you proceed to new measurement, the oldest measurement data will be erased and the new measurement will be stored.

To recall the stored data,
① Press the "PRINT" button while you are not measuring the blood pressure. Recent measurement will be appeared.
② Every time you press the "PRINT button", the window will display the stored data in order up 5 measurements.
③ To print the values, press "L/F" button under the print cover.

4. Cautions During Measurement

- **Before measuring the blood pressure, adjust the height of the stool so that the level of the heart comes to the level of the elbow when seated.**

- **Before measuring, calm down and relax for 5 minutes without moving.**

- **Do not talk or move while measuring.**

- **Take off heavy jacket when measuring.**

- **Do not measure while standing and crossing legs.**

- **When you place your arm, push it all the way to place your arm on the arm rest.**

- **Avoid exercise, food, smoking and cold before measuring.**

- **If you want to stop measuring or feel your arm is hurting, press the Emergency Stop button.**

- **Do not roll up the sleeve to the area of the arm that is measured. The blood pressure may be incorrectly measured.**

- **Do not place another part of the body in the cuff.**

- **Do not measure while the print cover is not in place.**

5. How to Measure

① **Turn on the power.**

② **Place the right arm into the cuff.**

   Adjust the stool height so that the level of heart comes to the level of elbow and make sure your palm is facing the ceiling and put your arm all the way in and put it on the arm rest.

③ **Press "START" button.**
   MENT: "Measuring is started."

   "Don't speak or move, please."
   The pressure is applied to the cuff automatically and the measurement will begin.

④ **"Measurement in Process (MEASURE)" lamp will be lit when the measurement begins**

⑤ **After the measurement, the air will be exhausted automatically and the cuff will release the arm.**
   The blood pressure and pulse rate will be displayed.

   MENT: "Measuring is finished. Your blood pressure is ___ to ___. "

⑥ **Remove your arm from the cuff.**

⑦ **If the PRINT Switch on the back of the machine is ON, the results will be printed out automatically and if it is OFF, the voice will say, "If you want to print the results, please press the PRINT button."Press PRINT button to print out the result if necessary.**

⑨ **The results will be printed out. When the paper is out, cut the paper.**
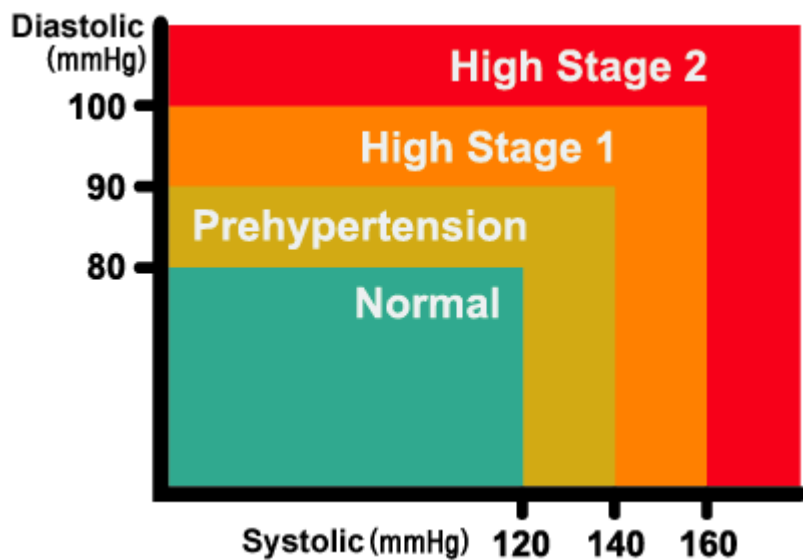
⑩ **MENT : "Thank you, for using"**

6. Contents of Data

• SYSTOLIC
• DIASTOLIC
• MEAN
• PULSE/min

01:33 PM April 10, 2007

Systolic ····· **128**mmHg
Diastolic ····· **062**mmHg
Mean ······ **084**mmHg
Pulse/min ···· **082/ min**

World Health Organization (WHO) Blood Pressure Categorization Graph

7. Troubleshooting

1) Display

Error	Cause	Solutions
EE2	Pulse is too weak to measure	Calm down and relax and measure again. Take off thick jacket. If the pulse is too weak to even hear it through the stethoscope, it is difficult to measure the blood pressure.
EE3	Pulse is too irregular to measure (off reference pulse)	Calm down and measure again
EE4	Moved when measuring the pulse	Do not move or talk when measuring the pulse

2) Voice Guidance

Voice	Cause
"Measuring again. Do not speak or move."	This happens when the patient moves while measuring the pulse and it will automatically begin to measure again. However, it will stop in case this happens twice.
"Please insert the paper."	There is no paper. (When the red line appears on the side of the paper, change the paper)
"You pressed the wrong button."	Wrong button is pressed.
"Please check the cuff."	The patient pressed the START button without placing the arm inside the cuff or the air is slightly leaking from inside. (Repair is required)

3) Emergency Management

Problems	Solutions
Nothing is shown on the display	• Check the power cord. • Check the fuse. (Refer to page 2-1 when replacing the fuse.)
Pressure is not applied	• Check the mercury blood pressure monitor tube (CAL terminal). • Check whether there are alien substances between cuff and cuff cover.
Voice is not heard	• Check whether the voice switch volume on the back is ON.
Printer a. Nothing is printed b. Paper is not out c. It does not print automatically	• Check the surface and direction of the thermal paper. • Check whether the lever on the left is pressed down. Use the designated thermal paper. • Open the printer cover and check whether the paper is stuck. • Check whether the printer switch on the back is On.
Cuff is tight and is not loosened	• Press the Emergency Stop switch on the front side. • Check whether there are alien substances between cuff and cuff cover.
The measurements are abnormal	• Check whether the installation location and peripheral environment are appropriate for measurement. (Temperature 18℃~23℃, humidity 60% or less) Check whether the measuring posture is appropriate.
When the button is pressed, the beep sound is heard but it does not operate	• Check whether the coin is on or off. Turn off the coin machine if it is not in use.

※ **For other troubles, please contact our Customer Service Center or your retailer.**

8. Specification

Model Name	**BP868F**
Measurement Method	Oscillometric method
Exhaustion Method	Automatic exhaustion by micro controller
Pressure Detection	Semiconductor strain gauge
Display Method	LCD or FND (7-Segment)
Measurement Scope	Pressure: 30~300mmHg Pulse: 30~200/min
Minimum Measurement Unit	1mmHg
Precision	Pressure: ±2mmHg Pulse: ±3%
Cuff Operating Method	Belt operation by micro controller
Pressurizing Time	Approximately 10 seconds
Measuring Time	Approximately 30 seconds
Print	Thermal high speed printer (option: auto-cutting)
Power	AC110V/230V
Frequency	50/60 Hz
Communication	Connectible to computer and coin machine (option: RS232C cable)
Emergency Stop	Stops by micro processor
Voice Support	Provides voice guidelines Reads blood pressure value after measurement as well as the error message
Power Consumption	50VA
Operation Scope	Temperature +10℃~+40℃, humidity 95% or less
Storing Condition	Temperature –5℃~+50℃, humidity 95% or less
Dimension	453 (W)×340(D)×306(H)
Weight	Approximately 8.6kg
Components	1 power cord, thermal paper roll, arm rest, user manual, direction board
Options	Customer management program, communication cable, auto-cutting protection cover

9. Service Contents

In case any trouble is found while it was used under normal condition during the warranty period or in case any manufacturing defect is found, contact our customer service center for free repair.

Services will be charged in the following cases regardless of the warranty period.
　① **The warranty period (1 year) is expired**
　② **The trouble was caused by negligence of the user**
　③ **The contents of the product are modified or damaged by the user**
　④ **No warranty certificate**
　⑤ **Trouble due to natural disasters**
　⑥ **The person other than the technician from our service center repaired or remodeled the product and the trouble is found**

The warranty certificate is not reissued. Please keep it importantly.

You must present the warranty when requesting for repair.

►Parts can be replaced or functions can be changed in order to enhance product quality. ◄

Warranty Card

Thank you for your purchasing for AMPall product. The warranty period of BP705 is valid from the purchasing date. Please notice the purchasing date on the warranty card and keep this Warranty Card with the device all the time to get full customer service.

Product Name	Artificial Intelligence Blood Pressure Monitor
Model Name	□ BP868F
Manufacturing Date	
Warranty Period	1 year

Purchasing Date	/	/	(year/ month/ date)	
Customer	Name:		Tel.:	
	Add.:			
Retailer	Name:		Tel.:	
	Add.:			

Repairing Record

Date	Contents of Repair	Confirmation

☆ **Please show this Warranty Card when you request repairing service.**

3F. Annex Hankook Junja Hyeopdong B/D, 371-51, Gasan-Dong, Kumcheon-Gu, Seoul, Korea
TEL : (02) 858-2839~41 / FAX : (02) 858-2442
E-mail : ampall@ampall.com / Website: www.ampall.com

■ This is a medical equipment ■

- **Product Name: Blood Pressure Monitor (BP868F)**
- **Manufacturer: AMPall Co., Ltd**
  3rd Fl.Annex Hankook Junja Hyeopdong B/D 371-51,
  Gasan-Dong, Geumcheon-Gu, Seoul, Korea
  Tel.+82-2-858-2839~41, Fax.+82-2-858-2442
  http://www.ampall.com
- **Protection against Electric Shock and Degree of Protection: First Class Equipment, Equipment Type BF**
- **Rated: 1-Phase AC110/230V 50/60Hz**
- **Power Consumed: 50VA**
- **Fuse: 0.63A / 250V**
- **Precision and Measurement Range:**
  Pressure (30~280mmHg, ±2mmHg),
  Pulse (30~200/min., ±3%)
- **Operating Method and Cautions: Refer to the User Manual**
- **Purpose of Use: Measurement of blood pressure and pulse rate**
- **Manufacture Permit: No. 2187**
- **Item Permit: No. 01-431**
- **Weight: 8.6Kg (main unit)**