

# Physical Assessment Trainer

Heart Auscultation / Percussion / Palpation

LM-084

## Instruction Manual

Thank you for purchasing the LM-084 Physical Assessment Trainer.  
Please read this instruction manual carefully to ensure correct use of the product,  
and store it in a safe place for easy access.

KOKEN CO., LTD.

1-4-14 Koraku, Bunkyo-ku, Tokyo 112-0004 JAPAN

URL:<http://www.kokenmpc.co.jp>

E-mail:[customer@kokenmpc.co.jp](mailto:customer@kokenmpc.co.jp)



## Handling and Safety Precautions

**These precautions should be strictly observed in order to ensure safe, long-term use of the product.**

**The following precautions should be observed particularly strictly:**

The default voltage setting for the heart and breathing sound source included with this product is 110 V. When using the product outside of Japan, before use, be sure to confirm the voltage of the region in which it will be used and change the voltage setting of the heart and breathing sound source to 220 V if necessary.

(See page 8 for instructions for switching the voltage.)

1. This model is made to have the same feeling as living body. It may cause damage if and when you handle it with force.
2. Please do not put objects on the main body of this model. That may lead to transformation of this skin. Please do not use nor store the model at the place with high temperature. The skeleton may be deformed.
3. Please store the model in the attached case while it is not used.
4. Please wipe stains of the model, with wet gauze etc. Using water or a neutral detergent diluting with water. Please do not use thinner, benzine which damages the model.
5. Please do not use oily ink and painting, if they soak into the model, they never be removed.
6. Please store this model solvents such as in the place where no direct rays of the sun and/or ultraviolet rays are.
7. Always remove the power cord from the unit before switching the AC voltage of the heart and breathing sound source.

1. The contents of this instruction manual are subject to change without notice.
2. This instruction manual may not be reproduced in part or in its entirety without permission.
3. Please contact the manufacturer in the event that any errors or omissions are found in the contents of this instruction manual.
4. This product should be used only as described in this instruction manual. In particular, the product should not be used in any way that contravenes the precautions noted in the instruction manual.

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# 1. Outline & Characteristics

## Outline

This is a Torso model to acquire four basic techniques for physical assessment (inspection / palpation / percussion / auscultation).

## Characteristics

The following four basic skills regarding physical assessment can be exercised.

1. Inspection: Inspection of cervix and chest
2. Palpation : Palpation of lymph node on upper clavicle, palpation of thyroid gland
3. Percussion : Percussion of thorax

By injecting air into simulation lungs, you can adjust the air and set the normality / abnormality of each simulation lung.

4. Auscultation: Auscultation of heart and breathing

Breathing sounds: 12 kinds of breathing sounds (Normal - 1, Abnormal - 11)

Auscultation region (Two for each of right and left lung. One for bronchus)

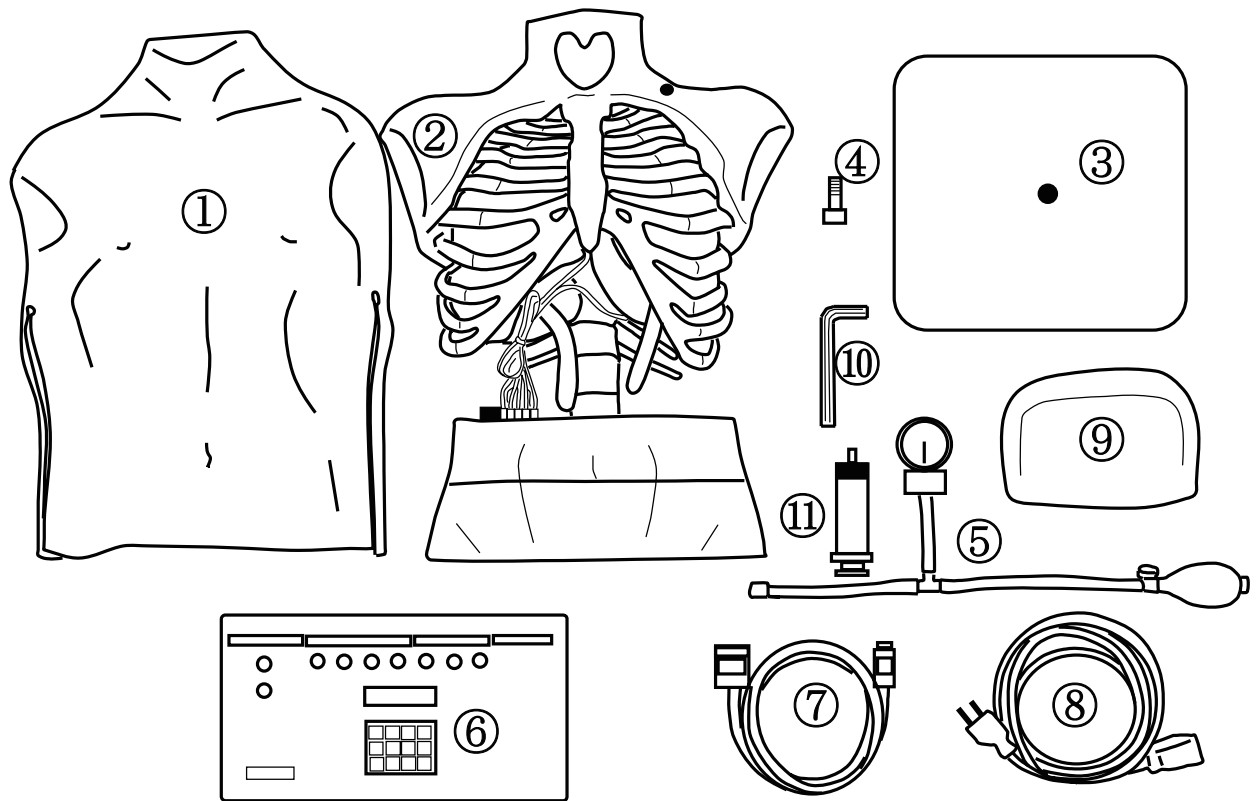
After auscultation, abnormal breathing sound can be adjusted which is corresponding the status you set for the abnormality to each of right and left lung.

Heart sounds: 20 kinds of heart sounds (Normal - 2, Abnormal - 18)

Auscultation region (Heart base, Apex cordis - 4)

## 2. Composition and name

### Composition

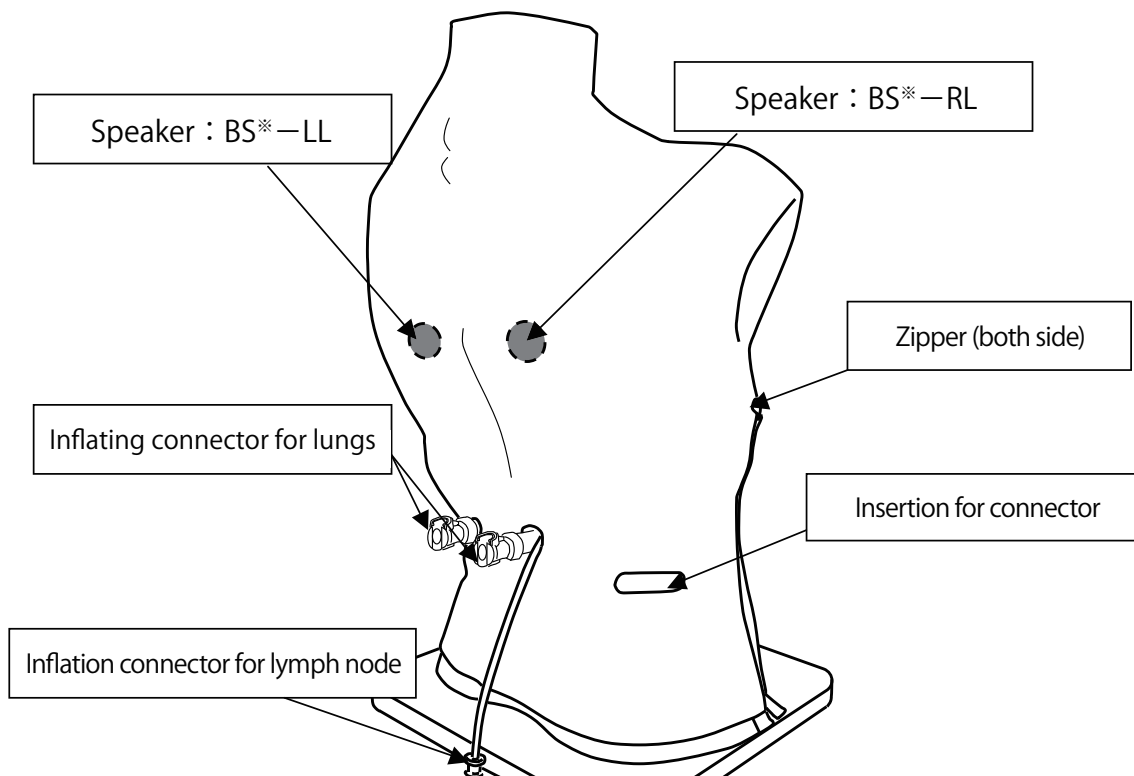
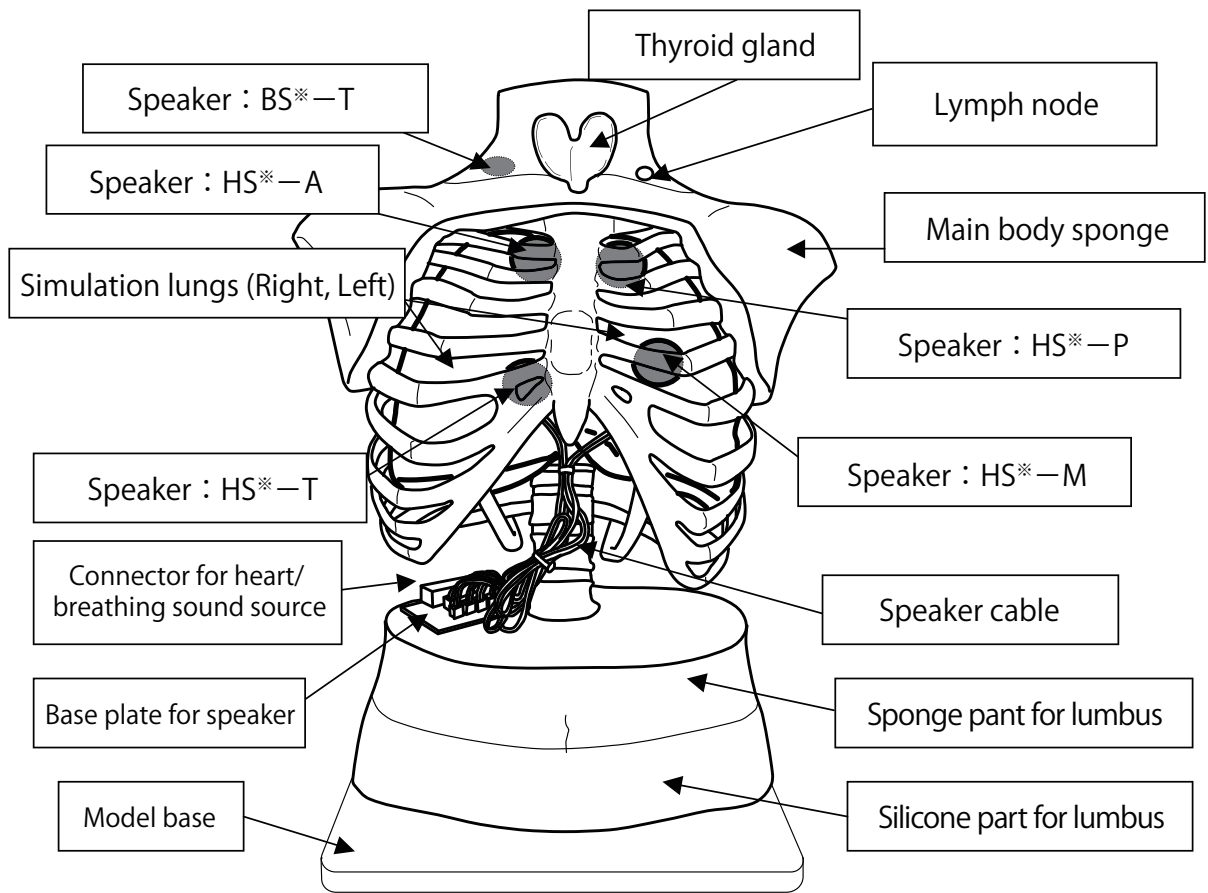


	Name	Qty
Torso		
①	Skin	1
②	Main body	1
③	Model base	1
④	Bolt for fixing model base	1
⑤	Pump for inflating simulation lungs	1
Sound source		
⑥	Heart and breathing sound source	1
⑦	Cord for connecting model and heart / breathing sound source	1
⑧	Power supply cord for heart / breathing sound source	1
Others		
⑨	Pouch	1
⑩	Hexagonal wrench (8mm)	1
⑪	Syringe (20ml)	1
	Hard case	1

Name

※ HS : HEART SOUND

※ BS : BREATHING SOUND



### 3. How to Handle Model

#### 3-1. Preparation for Torso Part

- ① Get through the female connector of the cord for connecting the model with the heart and breathing sound source into the hole on the right back side of main body.



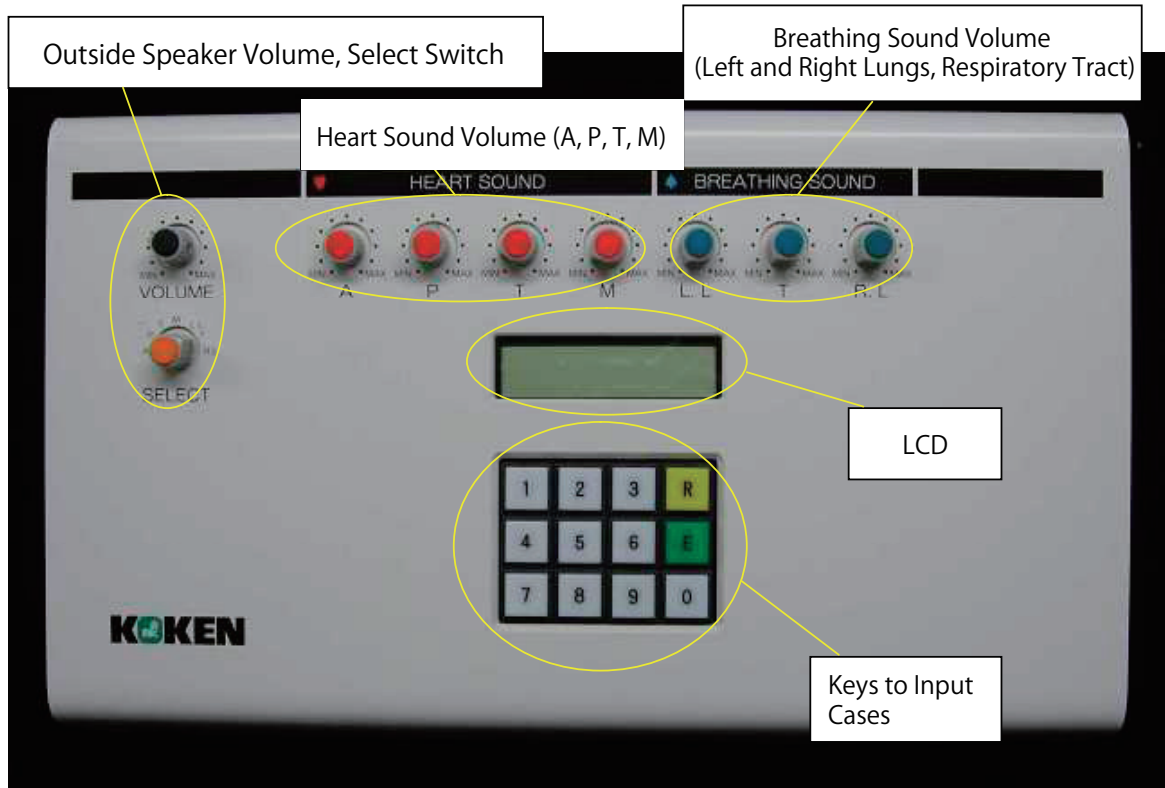
- ② After connecting the female connector with the connector inside the main body connector, fix with the screw.



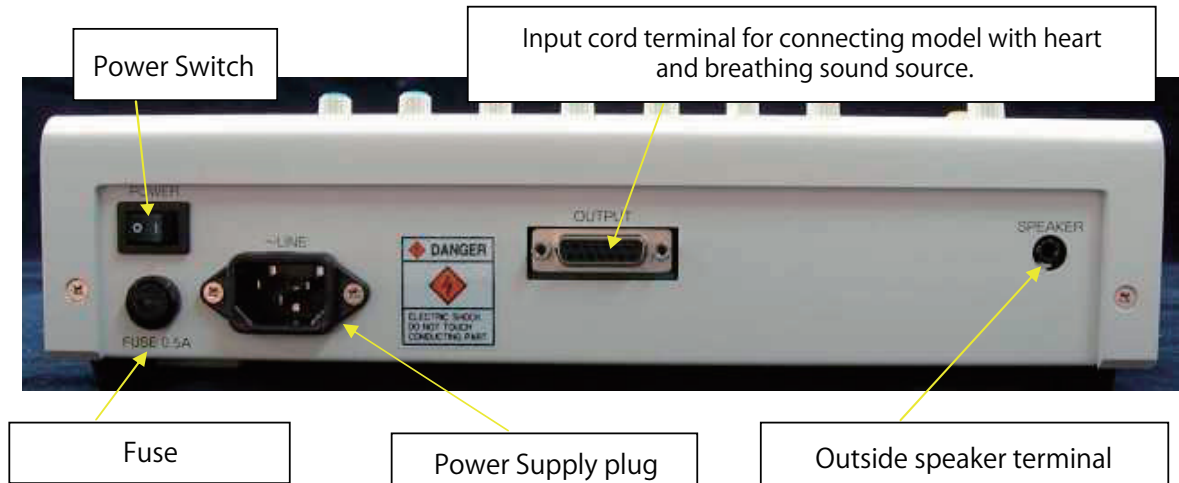
\* A screwdriver of minus is NOT accompanied.

## 3-2. Heart and Breathing Sound Source

### Front



### Back



### Specification:

Output functions for cases: Heart sound cases - 20, breathing sound cases - 12

Case selection: Case sound can be selected with the switch on the operation panel.

Settings of heart rate: Heart rate can be set with the switch on the operation panel.

Outside speaker output: One of the sounds chosen from 4 kinds of heart sound (A, P, T, M) and 3 kinds of breathing sound (left and right lung, respiratory tract) can be outputted by connecting outside speaker.



The voltage of this unit can be switched between 110 V and 220 V to match the voltage of the power source being used. (Default setting: 110V)

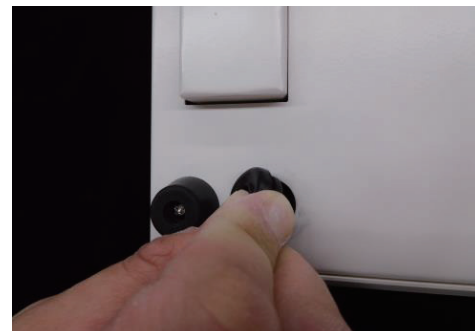
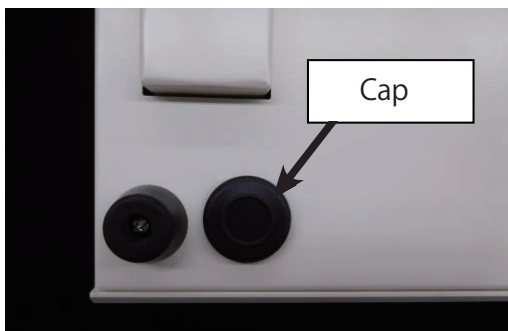
○ How to switch the AC voltage

\* Always remove the power cord from the unit before switching the AC voltage of the heart and breathing sound source.

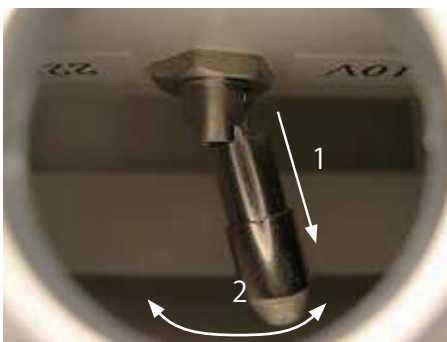
① Flip over the heart and breathing sound source.



② Remove the cap on the lower left corner.



③ The AC switching lever can be seen through the hole uncovered when the cap is removed. By using long-nose pliers and so on, switch to the voltage of the power source being used. (The label of 110V and 220V can be found through the hole when the cap is removed)



1. Point the switching lever towards you (in the direction of arrow) to unlock it.
2. When unlocked, switch the voltage.

④ Replace the cap.

### 3-3. Preparation for Sound Source

- ① After connecting the male connector of the cord for connecting the model with the heart and breathing sound source, with the heart and breathing sound source, fix with the screw.



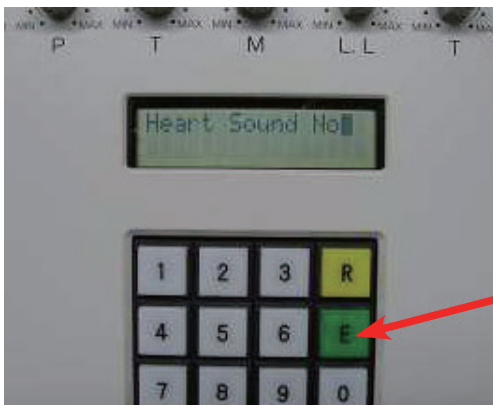
- ② Connect the plug cord with the heart and breathing sound source.



- ③ Connect the plug code with the socket and turn on the power switch.

### 3-4. How to Operate Heart and Breathing Sound Source

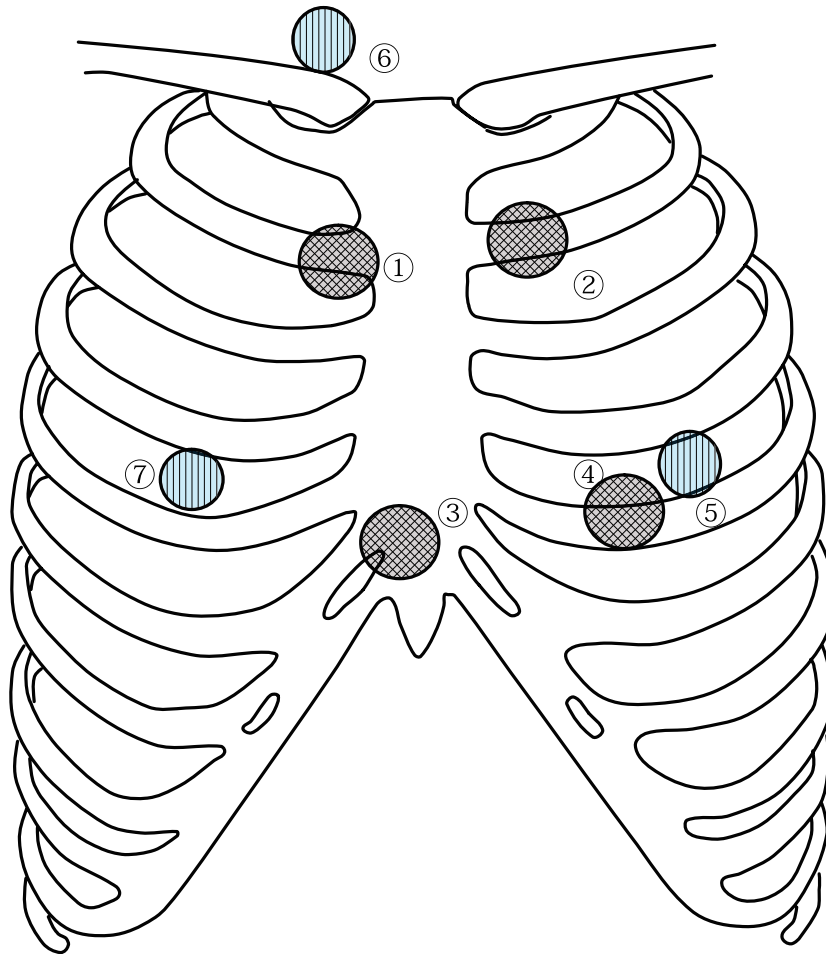
- ① When the liquid crystal display shows "Heart Sound No," input a case number of heart sound (refer page 11 of this manual) and then press the "E" key.



"E" key



## Disposition of speaker



### Heart Sounds

- ① HEART SOUND : A
- ② HEART SOUND : P
- ③ HEART SOUND : T
- ④ HEART SOUND : M

### Breathing Sounds

- ⑤ BREATHING SOUND : LL ※
- ⑥ BREATHING SOUND : T
- ⑦ BREATHING SOUND : RL ※

※ BREATHING SOUND : RL and LL position is back side

## Case data

No	Case data	Settable heart rate range
<b>Heart sounds</b>		
1	Normal ( without splitting of S2 )	60-255
2	Normal (splitting of S2 )	60-146
3	Abnormal splitting of S2	60-106
4	Hypertension increased intensity of S2 at apex	60-118
5	S4 apex	60-136
6	Innocent murmur	60-84
7	Ejection sound aortic site	60-151
8	Midsystolic click sound	60-110
9	Midsystolic click murmur	60-129
10	Tricuspid regurgitation	60-75
11	Mitral stenosis	60-89
12	Mitral regurgitation	60-68
13	Aortic stenosis	60-75
14	Aortic regurgitation	60
15	Subaortic stenosis	60-70
16	Atria septal defect	60-64
17	Ventricular septal	60-79
18	Pulmonic stenosis	60-120
19	Pulmonic steno-regurgitation	60-72
20	Patent ductus arteriosus	60
<b>Breathing sounds</b>		
1	Normal vesicular sounds	
2	Discontinuous sounds-fine crackles	
3	Discontinuous sounds-coarse crackles	
4	Rhonchi	
5	Wheezes	
6	Mixed sounds(rhonchi and wheezes)	
7	Nervous dyspneic respiration	
8	Dyspneic respiration at rest	
9	Cardiac asthma	
10	Dyspneic respiration in asthma	
11	Cheyne-stokes respiration	
12	Biot's respiration	

## 4. How to Perform Percussion

Percussion can be performed by injecting air into simulation lungs.

### 4-1. About Settings

- ① Abnormal / normal percussion can be set, corresponding the breathing sound cases chosen.
- ② The normality and abnormality of left and right lungs are set by connecting the simulation lung pump with the air-inflating connector.

### Example

- Right: Abnormal breathing sound - Open (empty, lack of air in simulation lung)  
Left: Normal breathing sound - Inflated (filled with air in simulation lung)
- Both (left and right) normal sound: After inflating air into the one-side simulation lung, take off the connector and then inflate air into the other simulation lung.
- Both (left and right) abnormal sound: Remove the air in the simulation lungs, using the pump for inflating the simulation lungs.

### ○ Cautions for inflation

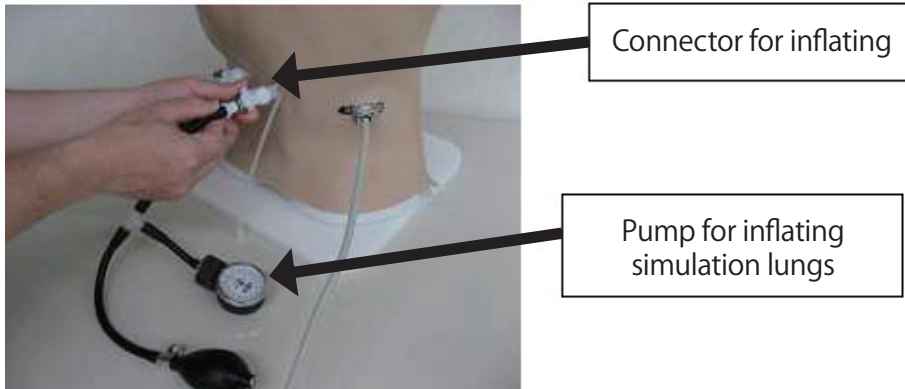
Please be sure to make the simulation lung inflated around 40mmHg, measuring with manometer.

**Excessive inflation can break the simulation lungs.**

## 4-2. Setting Procedure

○ For Normal

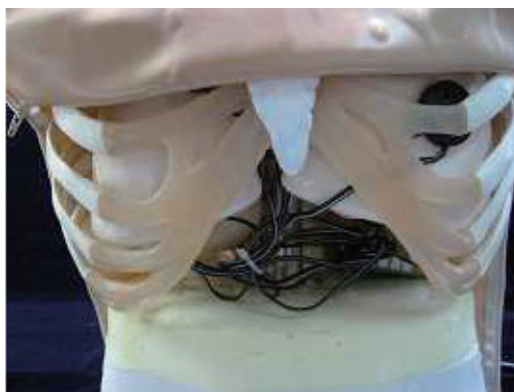
- ① Put the pump for inflating the simulation lungs with the connector for inflating, which is on the side of lung you set for normal.



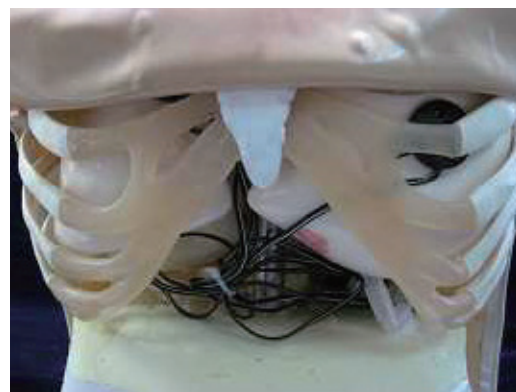
- ② Grasp the rubber ball of the pump for inflating simulation lungs and then put air into the simulation lungs to be inflated around 40mmHg, measuring with manometer.



- ③ Pushing the button, remove the pump for inflating the simulation lungs.



Before inflating the left lung  
(For abnormal breathing sound)



After inflating the left lung  
(For normal breathing sound)

- For Abnormal

- ① Connect the pump for inflating the simulation lungs with the connector for injecting air into the lung you choose as abnormal.
- ② Turning the knob of the rubber ball connecting to the pump for inflating the simulation lungs, remove the air until the manometer shows 0mmHg.

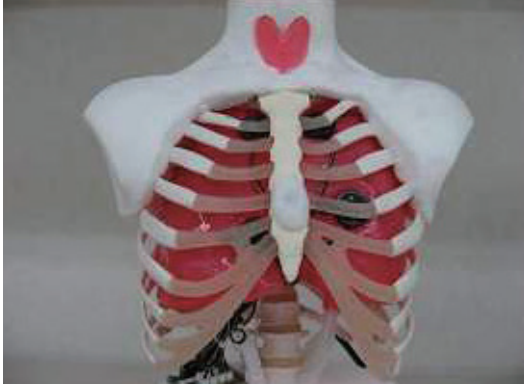


Knob



## 5. Physical Assessment

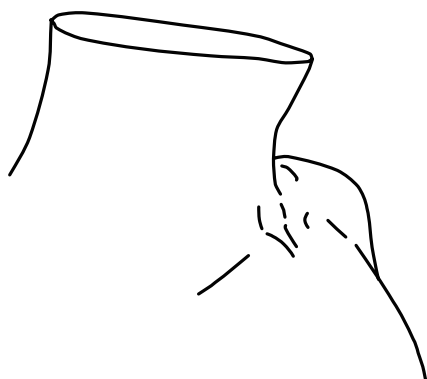
### 5-1. Palpation of Chest Frame



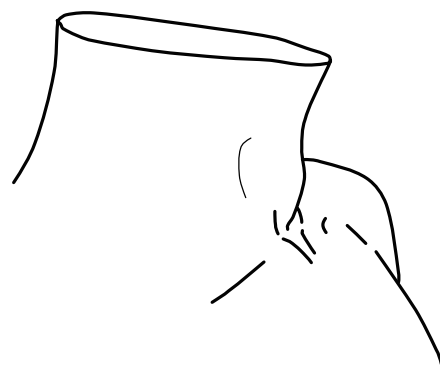
The above frame is installed inside the model.

### 5-2. Palpation of Thyroid Gland

Inject air with the syringe from the tip of the tube coming out of the lower part of the model.



Before injection the air

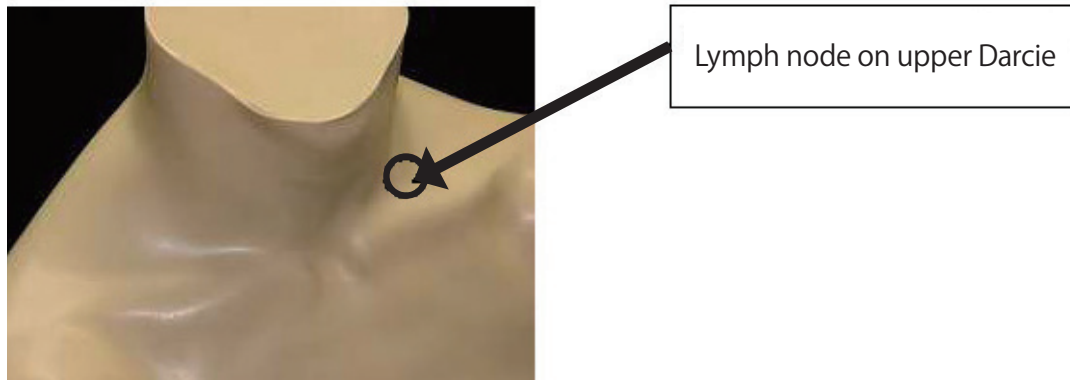


after injection the air

\* Please take off the syringe from tube after using.

## Palpation of Lymph Node on Upper Clavicle

It is possible to palpate Lymph Node on Upper Clavicle



## 6. Others

If you would like to use the model with lying position, the base can be disconnected using attached hexagonal wrench.



## 7. Specification

	Length	Width	Height	Weight
<b>Torso</b>				
Main Body	Approx.21 cm	Approx.38 cm	Approx.54 cm	Approx. 7 kg
Model Base	Approx.30cm	Approx.30 cm	Approx.1.5 cm	Approx. 2 kg
<b>Sound Source Part</b>				
Heart and Breathing Sound Source	Approx.19 cm	Approx. 32 cm	Approx.9cm	Approx.3.3kg