

# Whole Body Phantom

## P B U - 50

Instruction manual

 **KYOTO KAGAKU co..LTD**

## Whole body phantom PBU-50

The PBU-50 is life-size human phantom with a life-size synthetic skeleton are embedded in a radiological soft-tissue substitute.

There are no metal parts that would impair realistic imaging. The joints, knees, elbows, shoulders and hip-joints, are flexible and able to maintain the necessary positions. The phantom is separable into 10 parts facilitating a variety of application. A positioning stand for the head part comes with the set.

### Specifications

#### Whole body phantom PBU-50

Intended application: Positioning phantom for plain radiography

Length : approx.165cm

Weight : approx. 50kg

Can be dismantled at : shoulders, elbows, hip joints, knees, neck

Embedded organs : Lungs with vessels, mediastinal space, Liver, Kidneys

#### Movable joints and their range of movement

Right shoulder :rotates side-ways 0-90 degrees (up to the horizontal position)

Left shoulder :rotates forward, up to a horizontal position.

Cubital joints (bilateral): bend inward up to 90 degrees.

Coxae (bilateral) :rotate forward up to 90 degrees, then rotate outward up to 45 degrees each.

Articulatio genus (bilateral) : bend up to 90 degrees.

Material : Human tissue substitute (urethane, epoxy, etc., )

Accessory : Positioning head stand 1 piece

Flat head screw driver 1 piece

Sample X-ray films 14 sheets

Replacement parts: screws, shoulder connectors, connection tape for nee joints



### Please note

- 1) Bone trabeculae are observed at hands and feet.
- 2) Contours of the bones are slightly enhanced than actual human x-ray image, to facilitate clear understanding.
- 4) Basically the phantom is designed to be radiographed under same setting as human body, though, the joints areas may require some adjustment to have better image.
- 5) Do not twist the knee joints sideways, or the joints may be broken down.
- 6) Connection tapes are replaceable when one or some of them are cut or stretched out.



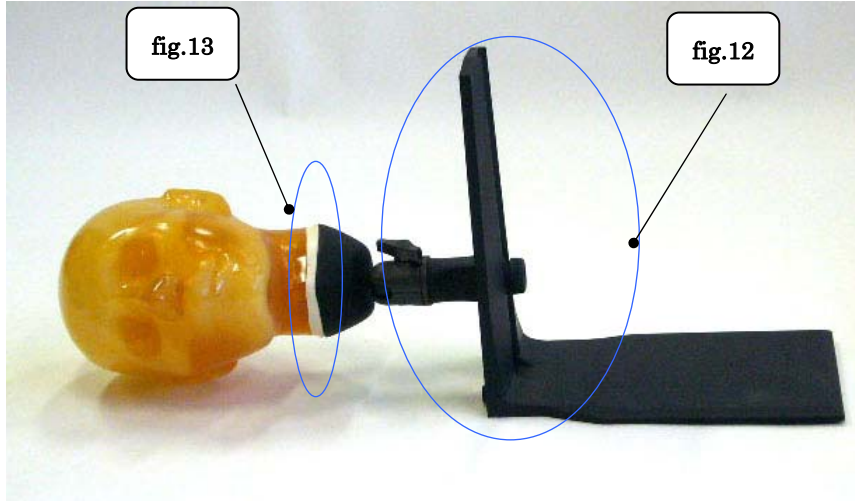
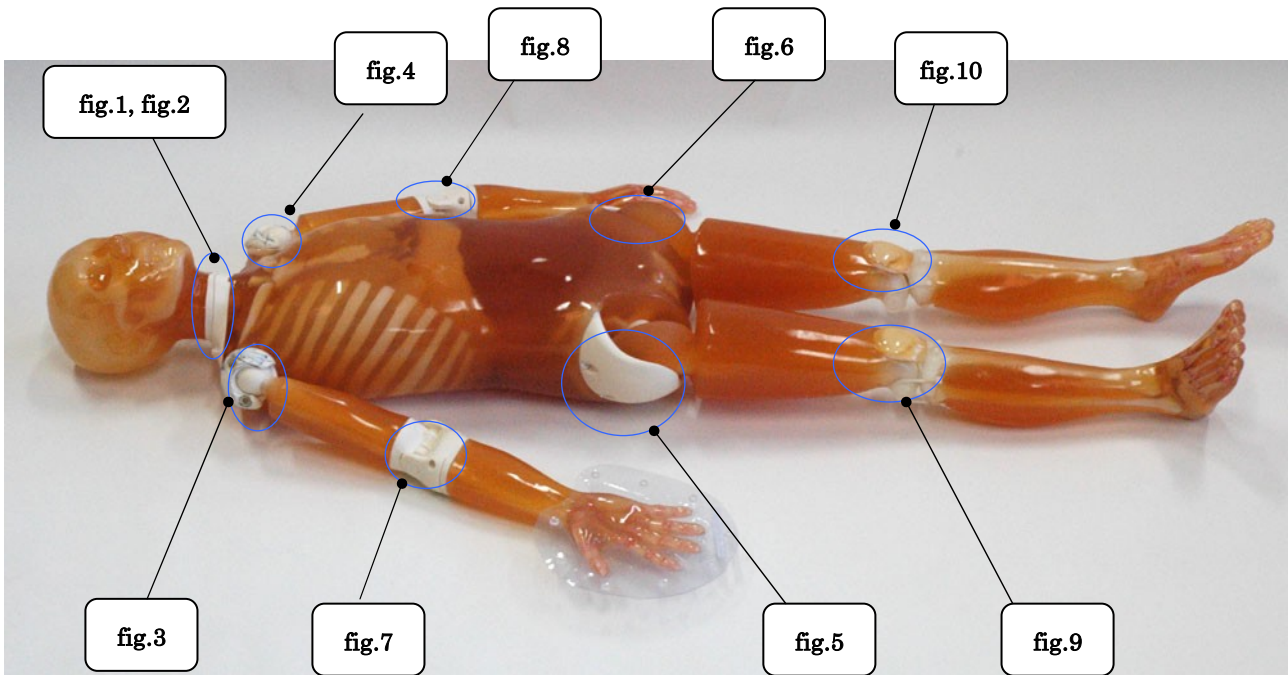
### Caution

- 1) Do not make the phantom to take the position unintended by the manufacturer. It may cause the breakage in the phantom if the joints are forced to bend or rotate to the directions or degree of angles other than designed movable range.
- 2) **Do not take off the plastic protector attached to the right hand.** The protector prevents breakage in the phantom fingers.
- 2) **DO NOT MAKE THE PHANTOM REGHT LATERAL position while right shoulder attached.** Detach the right shoulder beforehand.
- 3) Do not carry phantom while it is assembled. Detach the joints before moving to avoid the excessive force on the joints.
- 3) Do not force to bend the fingers of the phantom. These thin parts are subject to breakage.
- 4) Do not fasten the screws too tight.
- 5) The phantom is heavy and could cause damage not only to itself but to people or other object  
When you need to handle the assembled phantom, always do it by two people with utmost care.

## P B U - 50 Components

Parts #	Parts name	QTY	Parts #	Parts name	QTY
1	Head	1	21	Connector for right hip joint	1
2	Neck-head connection plate	1	22	Connector for left hip joint	1
3	Trunk	1	23	Part for right knee	1
4	N/A	-	24	Part for left knee	1
5	Right upper arm	1	25	Screw for body connection	2
6	Left upper arm	1	26	Screw nut for body connection	4
7	Right forearm	1	27	Nut for neck connection M10	2
8	Left forearm	1	28	Screw bolt for neck connection M10	2
9	Right thigh	1	29	Screw bolt for shoulder connection M8×20	4
10	Left thigh	1	30	Screw bolt fore elbow joint	4
11	Right lower leg	1	31	Screw nut for elbow joint	4
12	Left lower leg	1	32	Screw bolt for hip joint M8×35	6
13	Right patella	1	33	Connection tape for knee joint	12
14	Left patella	1	34	Height adjustment panel	1
15	Connector for right shoulder	1	35	Base panel	1
16	Connector for left shoulder	1	36	Neck connector	1
17	Connector for right elbow (exterior)	1	37	Neck connector fixture	1
18	Connector for right elbow (interior)	1	38	Screw for fixture	1
19	Connector for left elbow (exterior)	1	39	Screw bolt M6	2
20	Connector for left elbow (interior)	1			

# Assembly Manual



The images are of a prototype and the appearance may not be same as your unit.

The images on following pages show how to assemble each joint or connection. The figure numbers indicated on the photos above correspond to the numbers of assembly images.

The circled number in the assembly images are parts numbers on the components table on page 4

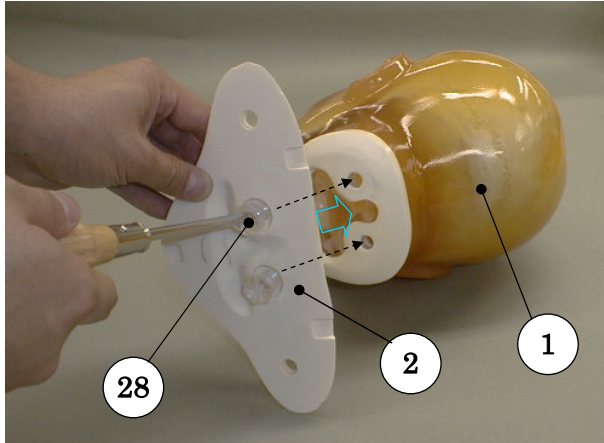
**<NECK AND HEAD>**

First, take off the neck head connection plate (part # 2) from the trunk.



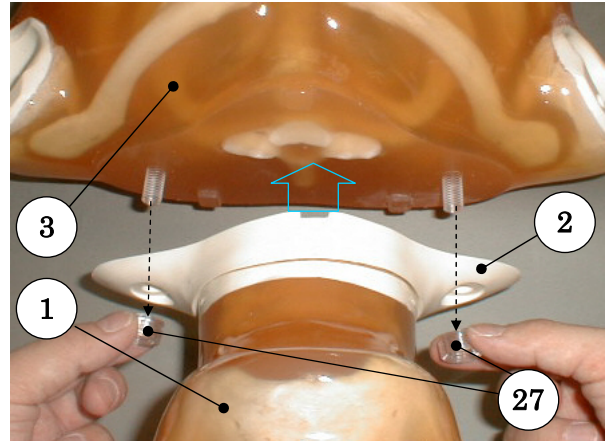
Then, attach the plate to head (part #1) and attach the assembled parts to the trunk.

**【 Neck sub-assembly 】**



**fig.1**

**【 Connection of head and trunk 】**



**fig.2**

**<SHOULDERS>**

First, take off the shoulder connector(s) (part # 15, 16) from the trunk.

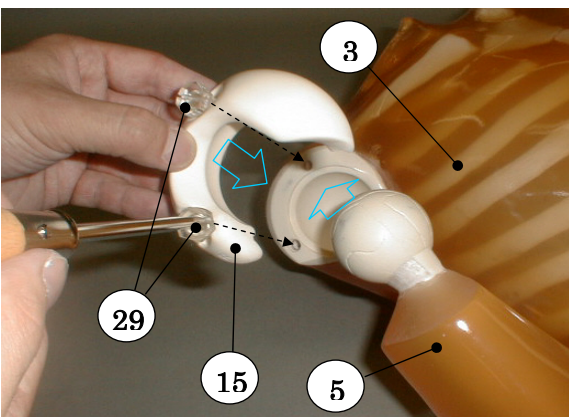


Hold the upper arm part while fasten the connector.

Then, attach the upper arms (part #5, 6) and attach the assembled parts to the trunk.

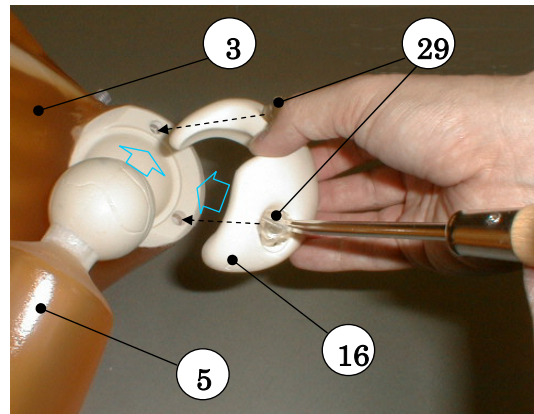
Make sure not to confuse left and right parts.

**【 Right shoulder 】**



**fig.3**

**【 Left shoulder 】**



**fig.4**

**<HIP JOINTS>**

First, take off the shoulder connector(s) (part # 21, 22) from the trunk.



Then, attach the thighs (part #9, 10) and attach the assembled parts to the trunk.

Make sure not to confuse left and right parts.

【 Right hip joint 】

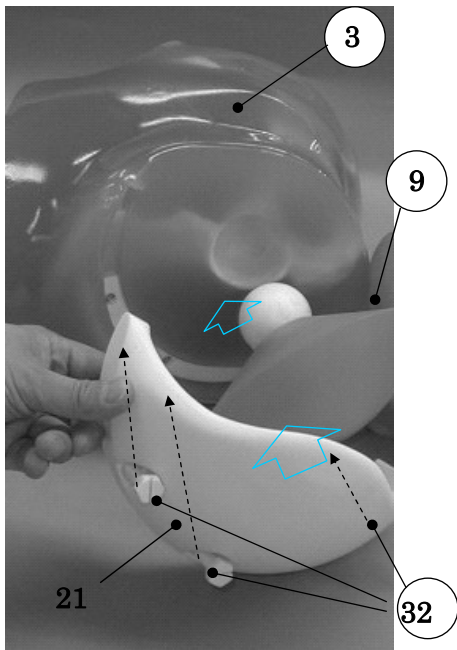


fig.5

【 Left hip joint 】

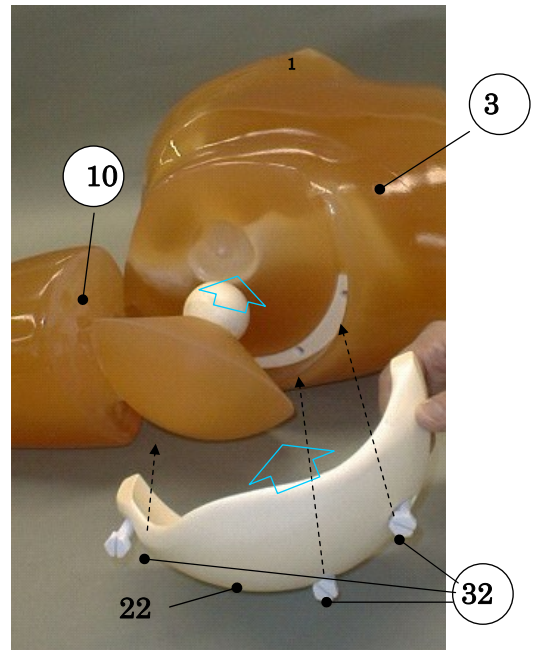


fig.6

**<ELBOWS>**

【 Right elbow 】

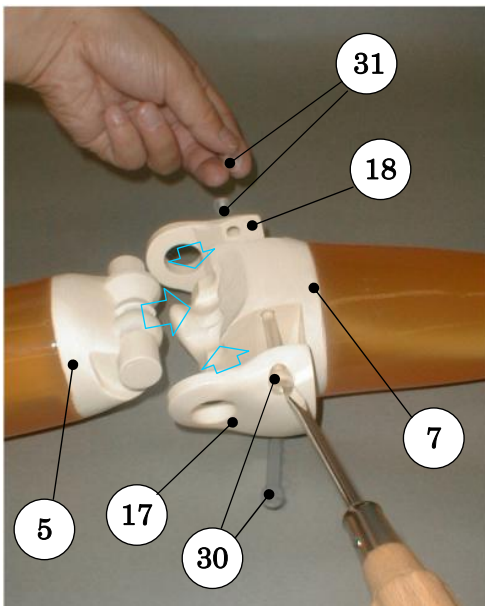


fig.7

【 Left elbow 】

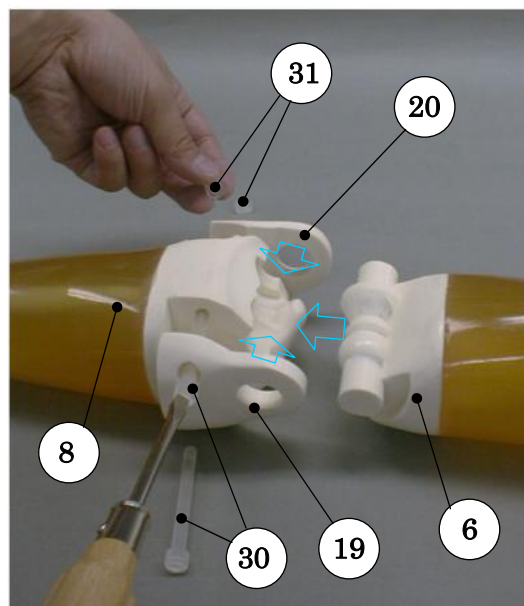


fig.8

<KNEES>

【 Right knee 】

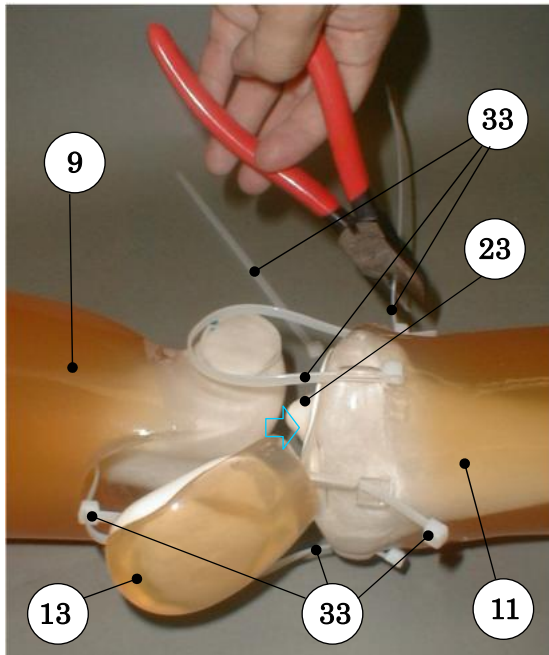


fig.9

【 Left knee 】

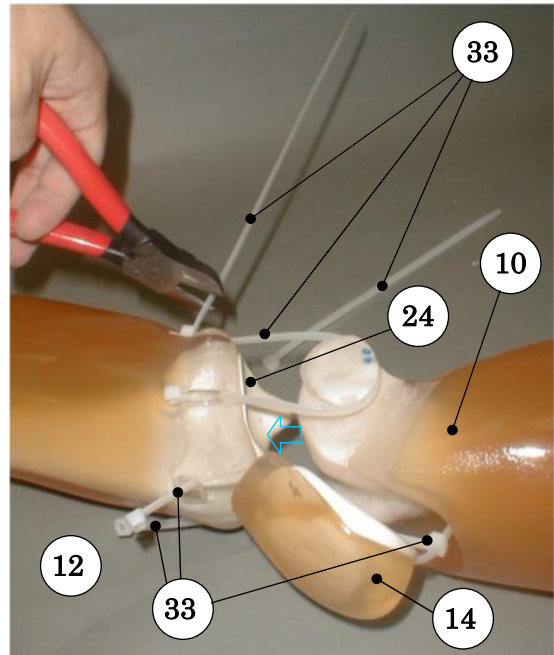


fig.10

※ Cut off the surplus length of the connection tape with nippers.

<HEAD AND STAND>

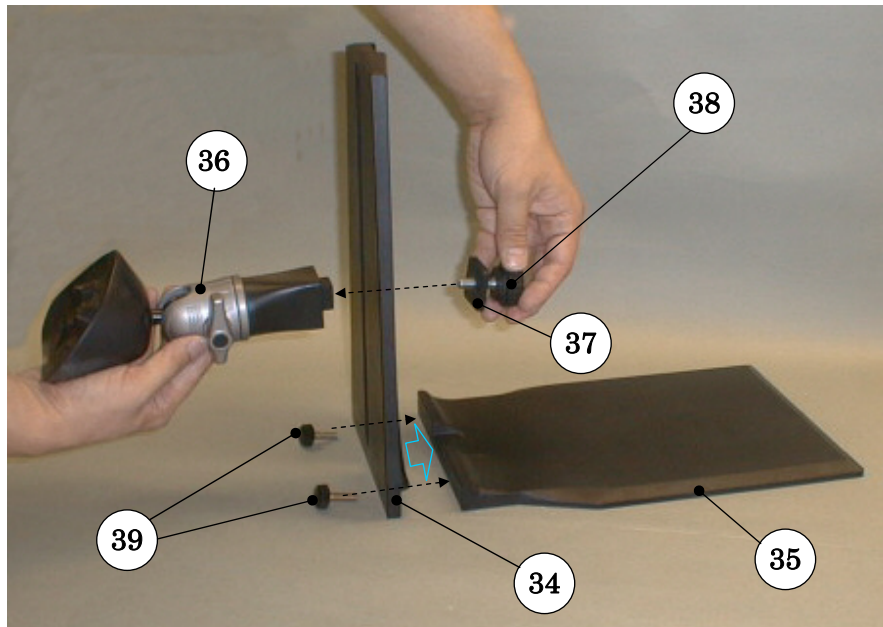


fig.12



