PH-2

Whole Body Phantom PBU-50

Caution:

Don't mark on the phantom with pen or leave printed materials contacted on its surface.
Ink marks on the phantom will be irremovable.

Instruction Manual

Contents

- Please read before training
  General information ····· P.1 ~P. 3
- Preparation
  Assembly Manual ····· P.4 ~P. 7

KYOTO KAGAKU CO.,LTD

Whole body phantom PBU-50

The PBU-50 is life-size human phantom with a life-size synthetic skeleton 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, Kidney

Movable joints and their range of movement

Shoulders: rotate 360 degrees to back and forward,180 degrees side-ways

Cubital joints (bilateral): bend inward up to 90 degree

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 screwdriver 1 piece
Sample images 1 set
Hand positioning belt 1 piece

Replacement parts: screws and connection tape for knee joints.

Please note

1) Bone trabeculae are observed only at hands.

2) Contours of the bones are slightly enhanced than actual human x-ray image, to facilitate clear understanding.

3) Basically the phantom is designed to be radiographed under same setting as human body, tough, the joints areas may require some adjustment to have better image.

4) Connection tapes can be changed when they are spoiled.

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 degrees of angles outside of designed movable range.

2) **Do not take off the plastic protector attached to the hands.** The protector prevents breakage in the phantom fingers.

3) Do not carry phantom while it is assembled. Detach the joints before moving to avoid the excessive force on the joints.

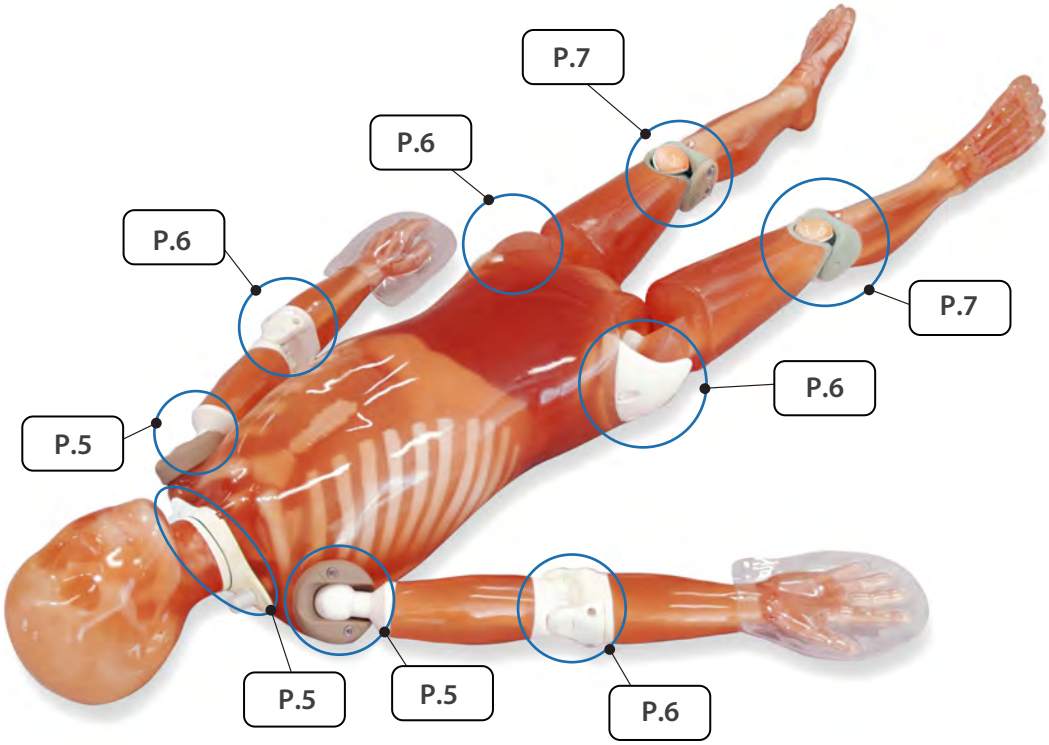
4) Do not fasten the screws too tight.

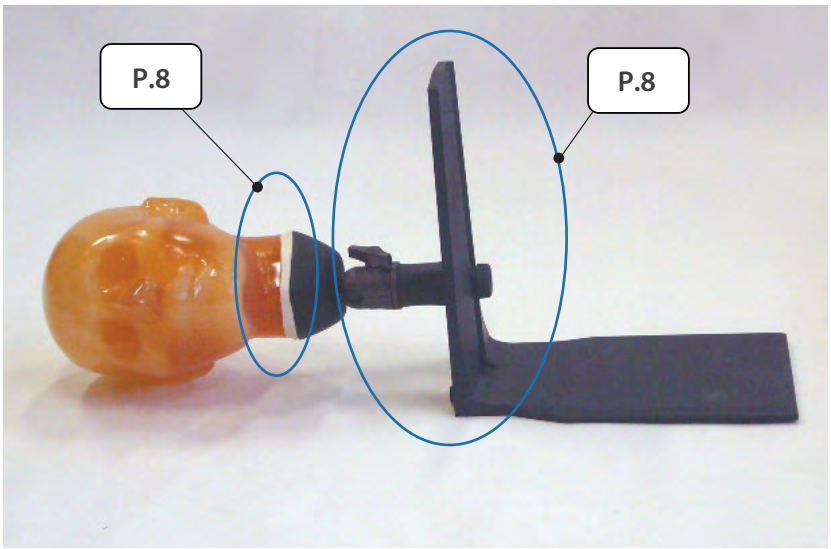
5) The phantom is heavy and could cause damage not only to itself but to people or other objects. When you need to handle the assembled phantom, always do it by two or more people with utmost care.

6) Don't mark on the phantom with pen or leave printed materials contacted on its surface. Ink marks on the phantom will be irremovable.

PBU-50 Components

Parts #	Parts name	QTY	Parts #	Parts name	QTY
1	Head	1	21	Connector for left hip joint	1
2	Neck-head connection plate	1	22	Connector for right knee	1
3	Trunk	1	23	Connector for left knee	1
4	Right upper arm	1	24	Nut for neck connection M12	2
5	Left upper arm	1	25	Screw bolt for neck connection M10×20	2
6	Right forearm	1	26	Screw bolt for shoulder connection M 8×10	4
7	Left forearm	1	27	Screw bolt for elbow joint M 6×60	4
8	Right thigh	1	28	Screw nut for elbow joint M 6	4
9	Left thigh	1	29	Screw bolt for hip joint M8×35	6
10	Right lower leg	1	30	Screw bolt for knee joint M12×20	4
11	Left lower leg	1	31	Connection tape for the patellae	2
12	Right patella	1	32	Height adjustment panel	1
13	Left patella	1	33	Base panel	1
14	Connector for right shoulder	1	34	Neck connector	1
15	Connector for left shoulder	1	35	Neck connector fixture	1
16	Connector for right elbow (exterior)	1	36	Screw for fixture	1
17	Connector for right elbow (interior)	1	37	Screw bolt M6×21	2
18	Connector for left elbow (exterior)	1	38	Hand positioning belt	1
19	Connector for left elbow (interior)	1			
20	Connector for right hip joint	1			





The figure numbers indicated on the photos above correspond to the page numbers in this manual.

※ The circled number in the assembly images are parts numbers on the components table on page 3.

< NECK AND HEAD >

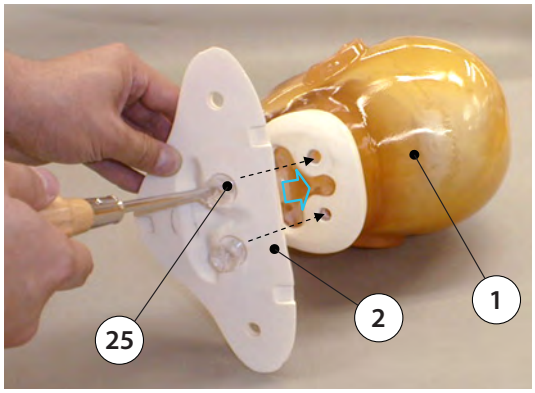
1. Take off the neck head connection plate (part # 2) from the trunk.

(24) Nut for neck connection M12×2

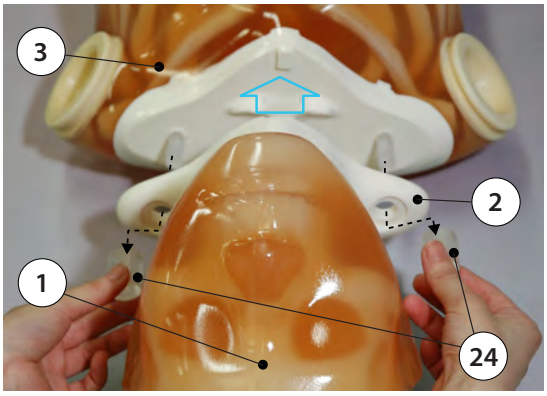
2. Screw the neck head connection plate (part # 2) on the head (part #1) and mount the assembled parts to the trunk.

(25) Screw bolt for neck connection M10×20×2

【 Neck sub-assembly 】



【 Connection of the head and the trunk 】



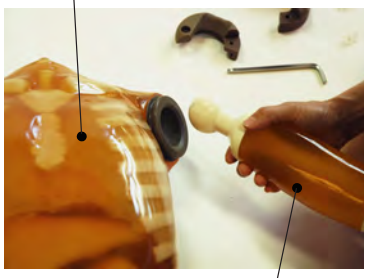
< SHOULDERS >

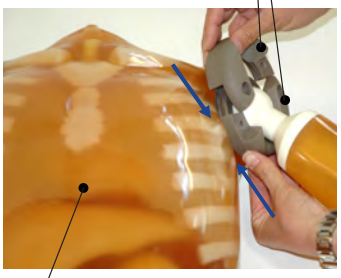
Take off the external shoulder connector parts (part #14 or 15) from the trunk. Then attach the upper arms (part #4 or 5) holding the ball joints with connectors.

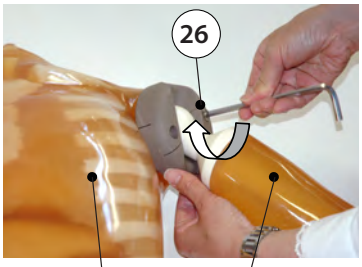
※ Be careful not to mix up part #4 and 5. The shape of right and left arms are different.

(26) Screw bolt for shoulder connection M 8×10×4

Connector for left and right shoulder (15) (14)







Left and right upper arm (5) (4)

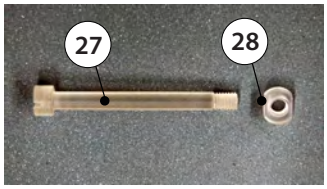
(5) (4)

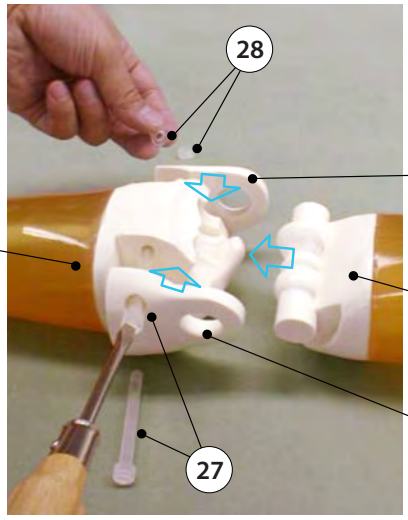
< ELBOWS >

Attach upper arm parts (part #4 or 5) and forearm parts (part #6 or 7) at joint section. Fix these parts with elbow connectors (part #16 or 18 and #17 or 19) from both outsides and inside.

27 Screw bolt for elbow joint M 6×60×4

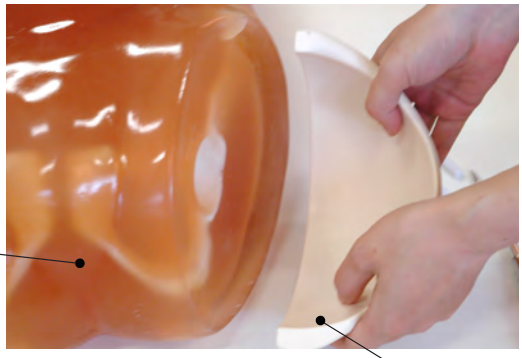
28 Screw nut for elbow joint M 6×4





< HIP JOINTS >

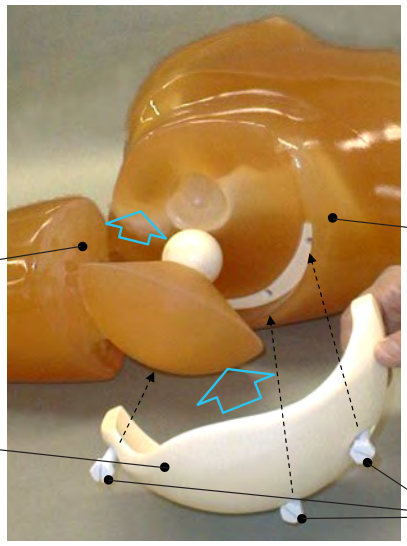
1. First, take off the hip joints connector(s) (part # 20, 21) from the trunk.



2. Attach the thighs (part #8 or 9) by holding them with hip joints connectors. (part # 20 or 21)

※ Make sure not to confuse left and right parts.

29 Screw bolt for hip joint M8×35×6

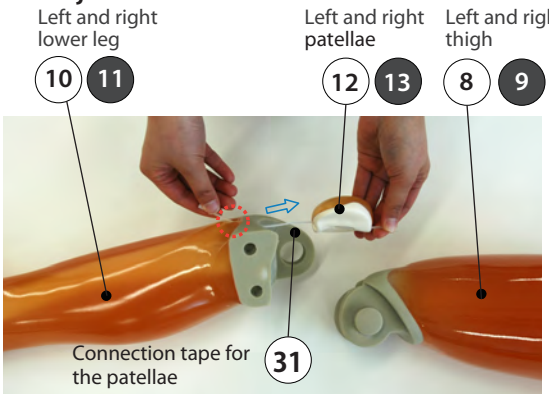


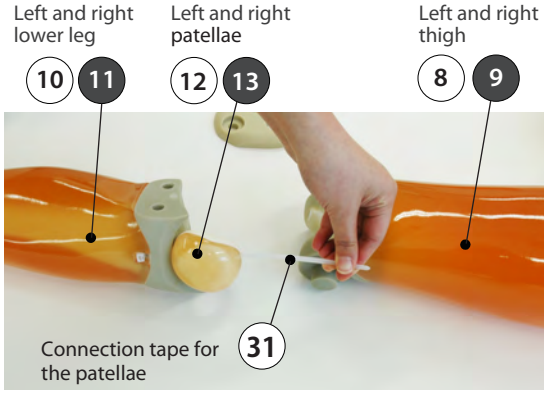
fi .6

< KNEES >

1. Insert the connection tape for the patellae (part#31) to the hole of lower leg (part# 10, 11). Also insert the tape to the 2 guide apertures of the patella.

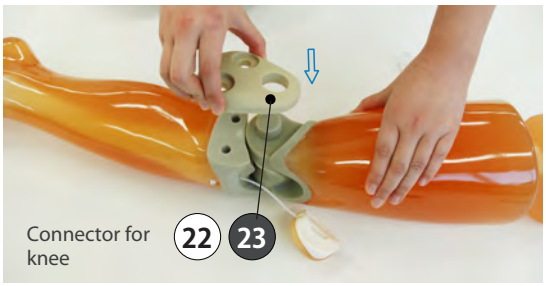
【 Knee joints 】

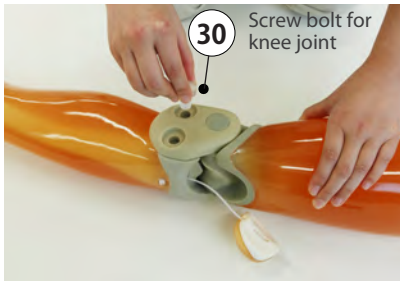




※ There are indication of L (left) or R (right) in the backside to the left and right patellae.

2. Connect the thigh (#8, 9) and lower leg (#10, 11) with the knee joint. Insert the dowel of the upper thigh through the hole of knee joint of lower thigh. Set the Connector for knee (#22, 23) to the inside of knee then screw the knee joint bolt (#30) to fix it.

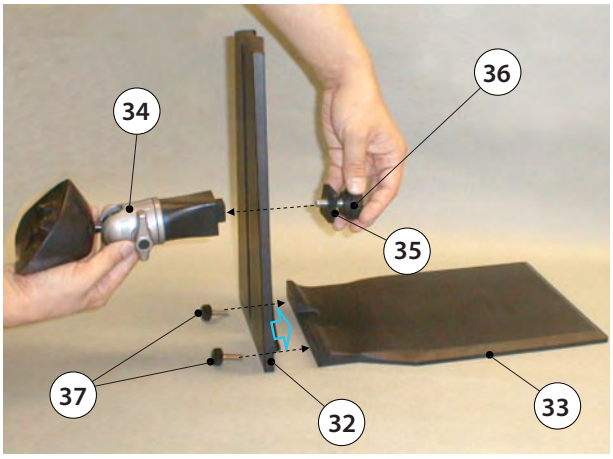




30 Screw bolt for knee joint
M12×20×4

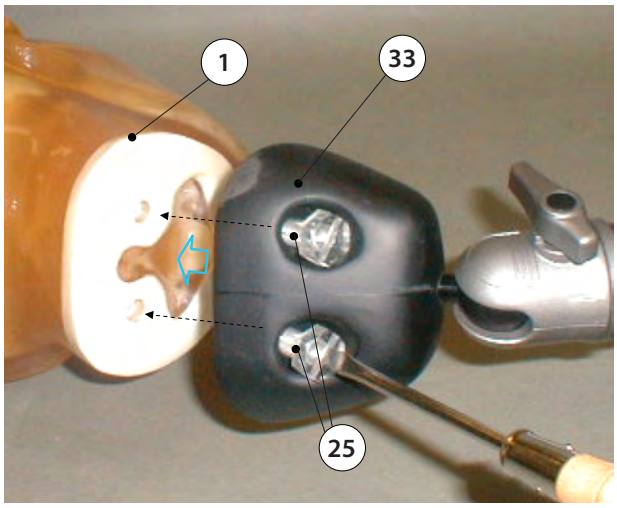
3. After fixing the knee joint, bend the knee and insert the connection tape of the patella to the guide aperture of the thigh.

<HEAD AND STAND >



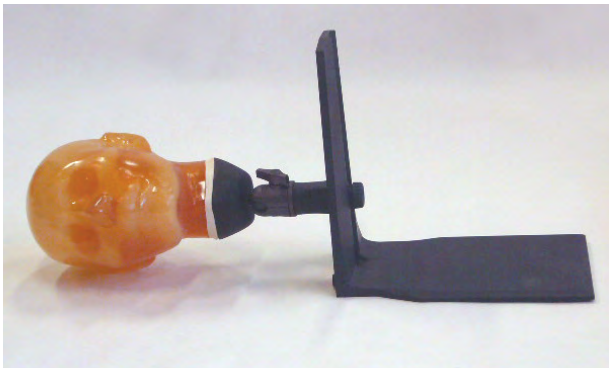
1. Assemble a positioning head stand.
2. Sustain a height adjustment panel and base panel by bolts.

37 Screw bolt
M6×21×2



3. Fix beginning neck connector and a bottom share of the head by bolts with an attached minus screwdriver.

25 Screw bolt for neck connection
M10×20×2



4. Setting completion of the head.

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