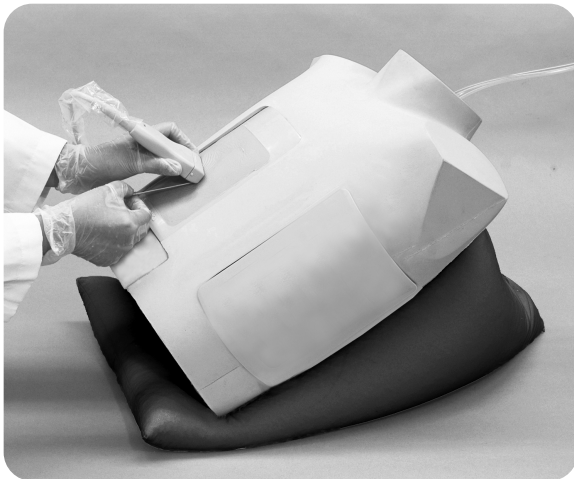


**⚠ Caution** | Do not mark on the model and other components with pen nor leave printed materials contacted on surface.  
Ink marks on the models cannot be removed.

**MW15**

# Ultrasound Guided Pericardiocentesis Simulator

## Instruction Manual



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## Manufacturer's note

Ultrasound Guided Pericardiocentesis Simulator can facilitates trainings in Pericardiocentesis. The puncture sites are anatomically correct and reproduce realistic needle-tip resistance and sensation. The upper torso manikin can be set in different position to learn patient positioning.

### ● Features

- Excellent ultrasound image
- Feedback on successful/unsuccessful procedure
- Body torso for one-man training
- Puncture site can be determined by ultrasound and palpation
- Anatomy includes: ribs, xiphisternum, heart, liver and soft tissue

This Ultrasound Guided Pericardiocentesis Simulator has been developed for the training of medical and paramedical professionals only. Any other use, or any use not in accordance with the enclosed instructions, is strongly discouraged. The manufacturer cannot be held responsible for any accident or damage resulting from such use. Please use this model carefully and refrain from subjecting to any unnecessary stress or wear. Should you have any questions on this simulator, please feel free to contact our distributor in your area or KYOTO KAGAKU at any time. (Our contact address is on the back cover of this manual)

## ⚠ DOs and DON'Ts

### DOs

- Handle the manikin and the components with care.
- Storage in a dark, cool space will help prevent the skin colours from fading.
- The manikin skin may be cleaned with a wet cloth, if necessary, using mildly soapy water or diluted detergent.

### DON'Ts

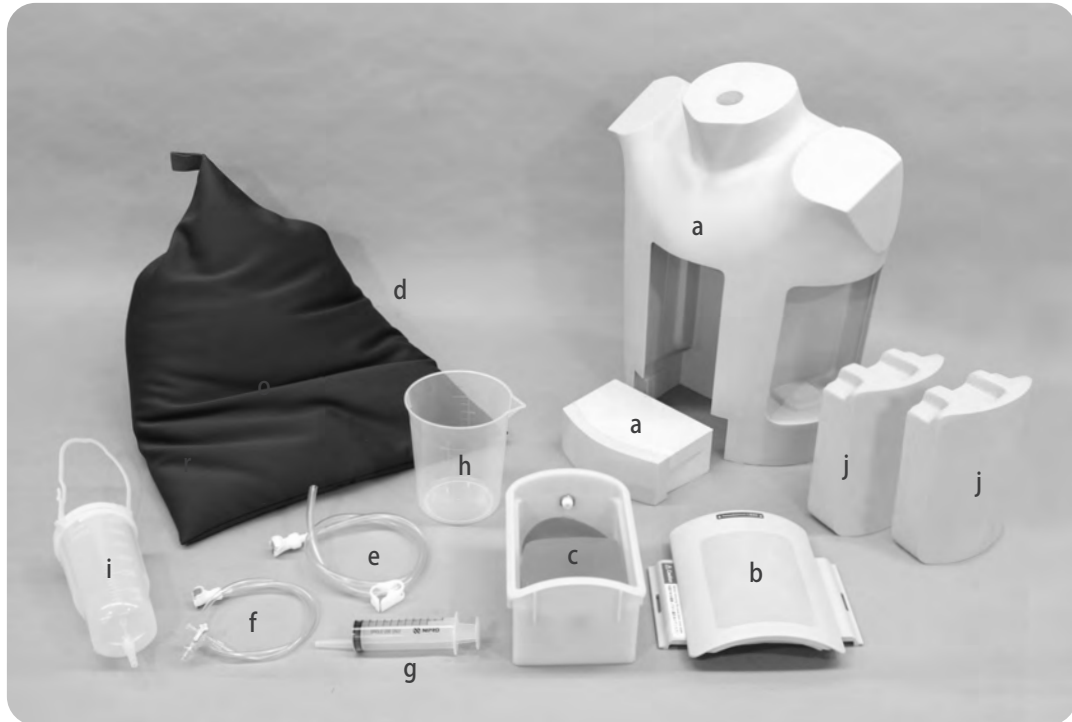
- Do not let ink from pens, newspapers, this manual or other sources contact with the manikin, as they cannot be cleaned off the manikin skin.
- Never use organic solvent like paint thinner to clean the skin, as this will damage the simulator.
- Even if color on its surface might be changed across the ages, this does not affect the quality of its performance.

### Handling of Pericardiocentesis Pad

- Because the puncture site of the Pericardiocentesis pad is made of soft and delicate material, wipe with wet wipes if it gets dirty. Do not apply too much pressure with a dry cloth or other material. The pad can also be deformed and/or deteriorated if it is left in direct contact with other resin products for a long time.

## Set Includes

Before you start, ensure that you have all components listed below.



- |   |   |   |   |
|---|---|---|---|
| a. Upper torso manikin (including the spacer)                         | 1 | f. Connection tube (for pericardiocentesis and water drain) | 1 |
| b. Pericardiocentesis pad   | 1 | g. Syringe (for pericardiocentesis)                         | 1 |
| c. Pericardiocentesis container (including simulated heart and liver) | 1 | h. Plastic jar (large)                                      | 1 |
| d. Pillow   | 1 | i. Irrigation bottle  | 1 |
| e. Connection tube (for pericardiocentesis and water supply)          | 1 | j. Spacer for the pericardiocentesis puncture unit          | 2 |
|   |   | Instruction manual  |   |

### Consumable parts

code	name
11394-010	Pericardiocentesis pad (a pair)



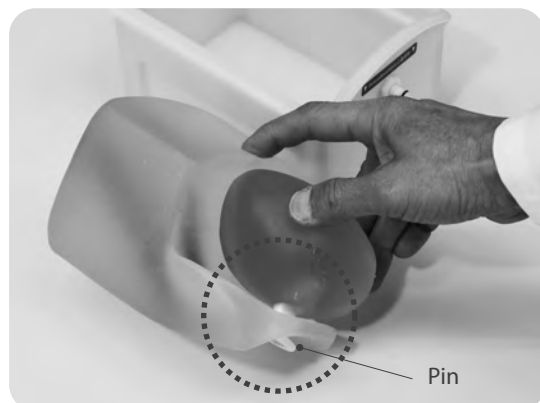
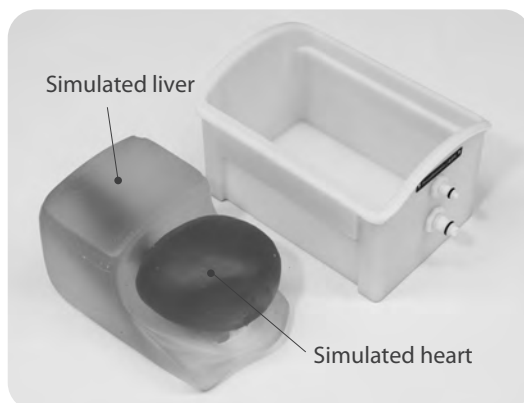
11394-010

### 1 Confirm the Setting of Simulated Heat and Liver

1. The pericardiocentesis pad and the pericardiocentesis container are packed separately.



2. The simulated heart and liver are set in the pericardiocentesis container. Turn over the container while supporting the contents with a hand to remove them from the container. Ensure that the pin on the heart is engaged in the hole on the liver and that the heart can be moved around the pin as a fulcrum. After checking, reset them into the container.



### Fill the Puncture Unit with Water [1]

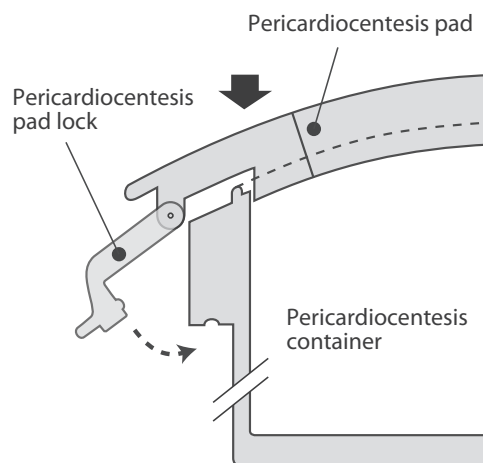
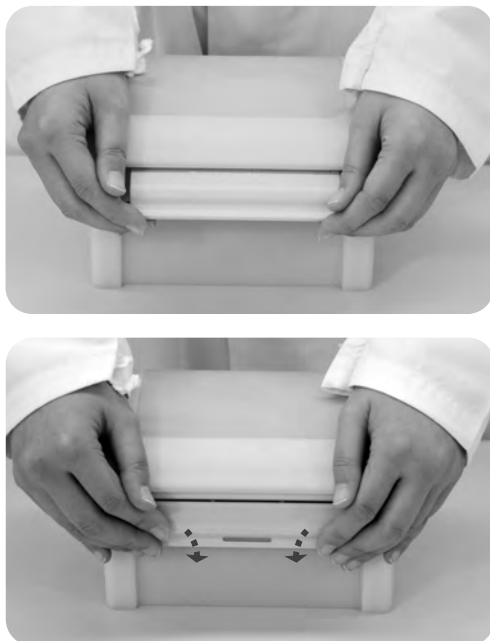
- Training with the Irrigation bottle

#### 1 Assembling of the pericardiocentesis puncture unit

1. Attach the pericardiocentesis pad to the pericardiocentesis container. The upper sides are indicated by stickers. Align them in the same direction to engage them correctly, and then push the pericardiocentesis pad against the container to seal it.



2. Push the pericardiocentesis pad lock inward with both hands until you hear a "click" sound to engage it securely. Similarly engage the lock on the other side.

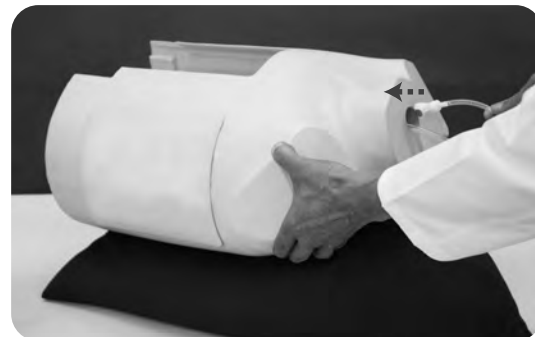
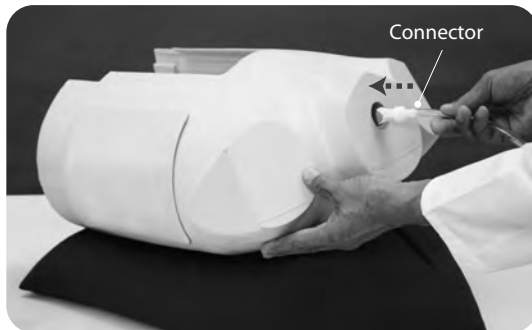
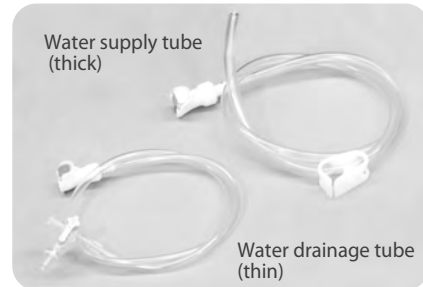


Do not force the locks as this may break the locks. Before applying additional force, ensure that the pad is correctly positioned on the container and well fitted.

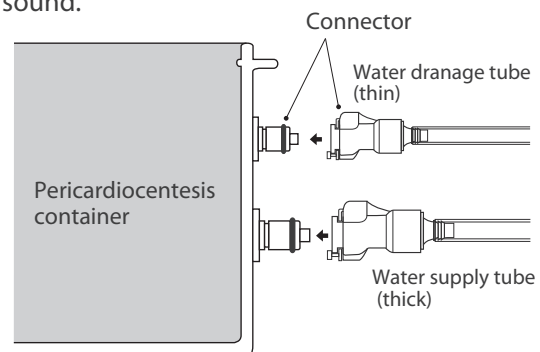
### 2 Connect the puncture unit and water tubes

1. Put the upper torso manikin in spine position on the positioning pillow. Thread two connection tubes (a thick supply tube and a thin drainage tube) through the hole in the neck of the manikin. First thread the connector of the supply tube and then thread the drainage tube similarly.

connection tubes

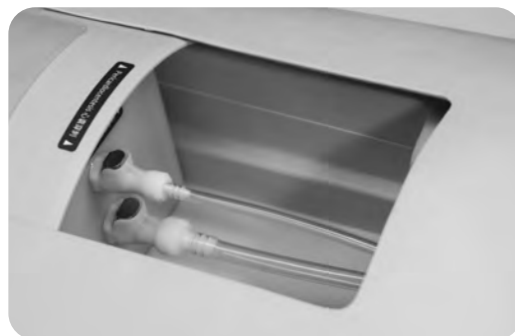


2. Insert the pericardiocentesis unit upward along the attaching slot from the lower side of the manikin to the middle of the slot. Connect the two connection tubes that are threaded through the neck hole to the connectors located on top of the pericardiocentesis unit. There are two connectors with different sizes. Connect each tube to the connector of the right size. Push the connectors until you can hear a "click" sound.

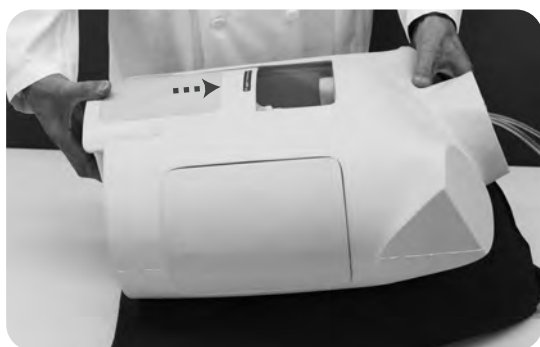


### 2 Connect the puncture unit and water tubes

3. After connecting the tubes to the puncture unit, push up the pericardiocentesis unit until no gap is left between the unit and the manikin.



Both tubes are connected to the puncture unit.



4. Insert the spacer under the puncture unit while slightly widening the lower part of the manikin.

Spacer



.....  
When inserting the spacer, align the concave part of the spacer to the convex part of the manikin.



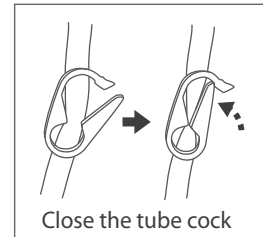
### 3 Fill the puncture unit with water

1. Use the positioning pillow to set the manikin to semi-sitting position for the training.



.....  
**Fill water after setting the manikin in semi-sitting position to let the puncture unit be fully filled with water.**

2. Connect the water supply tube (thick tube) to the irrigation bottle. Close the tube cock on the tube before fill the bottle with water.

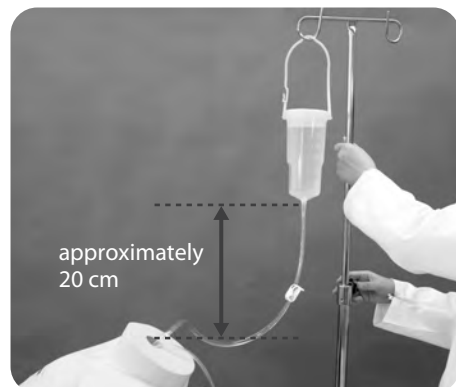


.....  
**Be sure to connect the tube and the bottle securely. Otherwise the tube may come off while filling water.**

3. Fill the puncture unit with water

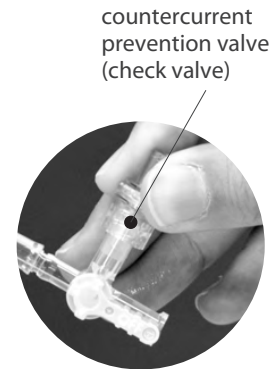
(1) Pour 500 mL of water into the irrigation bottle using the included plastic jar.

Hang the irrigation bottle on the stand. Adjust the height of the stand so that the bottom of the irrigation bottle comes at approximately 20 cm higher than the neck of the manikin. Do not raise the irrigation bottle too high because it may apply excessive water pressure to the pad.



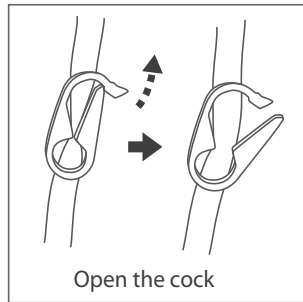
### 3 Fill the puncture unit with water

(2) After pouring water in the irrigation bottle, open the cock of the three-way tap on the water drainage tube, and put the end of the water tube into the plastic cup.



.....  
**Do not remove the check valve on the three-way tap. If it is removed, it becomes impossible to aspire water while training.**

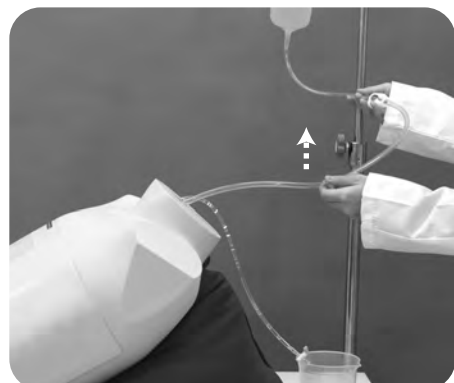
(3) Open the cock on the water supply tube. The water in the irrigation bottle flows in the puncture pad. The amount of water to fill the puncture unit is 500 mL. When water comes out from the water drainage tube, close the cock on the water supply tube. Set the cock of the three-way tap on the water drainage tube into the position that is indicated in the picture below, and then remove the tube from the plastic cup. Now the simulator is ready for training.



.....  
**Always set the cock of the three-way tap into the position that is indicated in the upper right picture. If the cock is not in this position, it becomes impossible to aspire water while training.**

When no water comes out from the water drainage tube even if the water is supplied from the irrigation bottle, lift the water supply tube so that water left in the tube flow into the pad.

When this does not work, pour a small amount of water into the irrigation bottle and open the cock on the tube again. Then conduct the procedure in step (3) after seeing water flowing out of the drainage tube.



### Fill the Puncture Unit with Water [2]

- Training without the Irrigation bottle

#### 1 Fill the puncture unit with water

1. Put the pericardiocentesis container in lateral position on a flat surface, then pour approximately 500 mL of water into it. Ensure confirm that the simulated heart floats on the water.

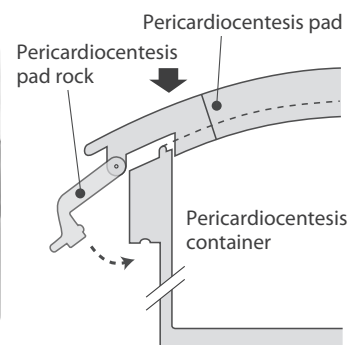


2. Install the pericardiocentesis pad to the pericardiocentesis container.

- (1) The upper sides are indicated by stickers. Align them in the same direction to engage them correctly, and then push the pericardiocentesis pad against the container to seal it.



- (2) Push the pericardiocentesis pad lock inward with both hands until you hear a "click" sound to engage it securely. Similarly engage the lock on the other side.

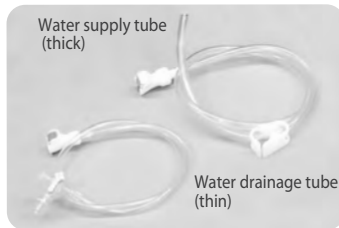


Caution

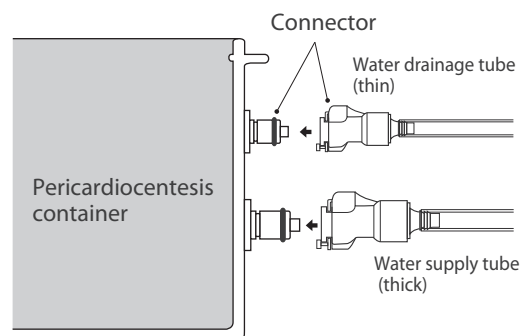
.....  
Be careful not to spill water when setting the locks.

### 2 Connect the puncture unit and tubes

1. Put the upper torso manikin in spine position on the attached positioning pillow. Thread two connection tubes (a thick supply tube and a thin drainage tube) through the hole in the neck of the manikin. First thread the connector of the supply tube and then thread the drainage tube similarly. Then close the tube cock on the water injection tube and the cock of the three-way tap on the water drainage tube.

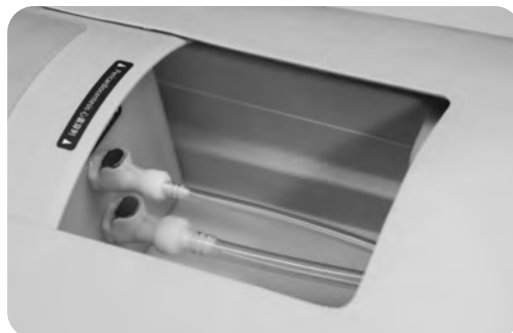


2. Insert the pericardiocentesis unit upward along the attaching slot from the lower side of the manikin to the middle of the slot. Connect the two tubes that are threaded through the neck hole to the connector located on top of the pericardiocentesis pad. There are two connectors with different sizes. Connect each tube to the connector of the right size. Push the connectors until you can hear a "click" sound.



### 2 Connect the puncture unit and tubes

3. After connecting the tubes to the puncture unit, push up unit until no gap is left between the unit and the manikin.

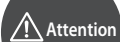


The state that connected two tubes with the puncture unit



4. Insert the spacer under the puncture unit while slightly widening the lower part of the manikin.

Spacer



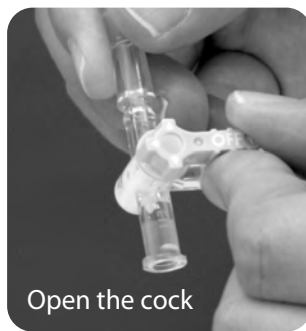
When inserting the spacer, align the concave part of the spacer to the convex part of the manikin.

### 3 Fill the puncture unit with water

1. Use the positioning pillow to set the model to semi-sitting position for the training.



2. Connect the syringe filled with approximately 50 mL of water to the water supply tube. Open the cock of the three-way tap on the water drainage tube and put the end of the tube into the plastic cup.



2. Open the tube cock on the water supply tube and inject the water of the syringe into the puncture unit. Inject water until water comes from the water drainage tube. Then close the tube cock on the water supply tube and remove the syringe. And then set the cock of the three-way tap on the water drainage tube into the position that is indicated in the picture below, and then remove the tube from the plastic cup. Now the simulator is ready for training.



Open the tube cock



Caution

.....  
In case no water flow out after injecting 50mL of water, refill the syringe and inject additional water into the puncture unit. Always be sure to close the cock on the water supply tube before removing the syringe. Otherwise, water in the unit will be drained due to atmospheric pressure.

## 1 Training

1. Set the model in semi-sitting position set using the positioning pillow to conduct the training.



### Caution

- Do not mark the manikin or the pad.
- For training the disinfection procedure of the puncture part, use water instead of disinfectant.
- Do not apply anesthesia. It might cause water leakage from the pericardiocentesis pad.
- A 18G blood vessel custody needle is recommended for puncturing.
  - \* If you use a blood vessel custody needle thicker than 18G, the pad will deteriorate more rapidly.

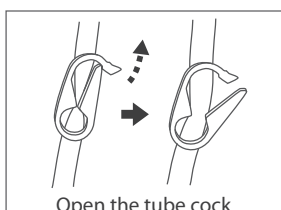
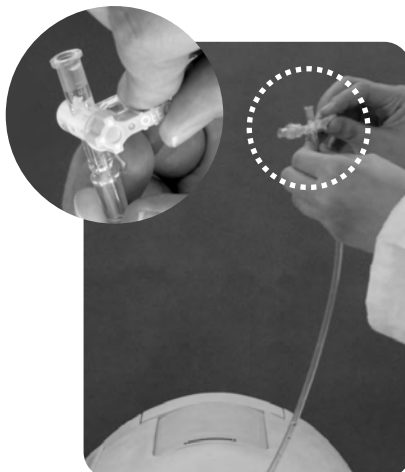
# After Training

## 1 After Training

1. After training dispose the remaining water from the irrigation bottle. Remove the water supply tube from the irrigation bottle. Remove the positioning pillow and put the manikin in supine position on the table. Prepare a container such as a bucket for discharged water. Put the end of two tubes in the container so that the tube tips come lower than the manikin.



2. Open the tube cock on the water supply tube. Then, lift the tip of the water drainage tube and open the three-way tap. Water flows out through the water supply tube. When the outflow of the water stops, tilt the manikin by lifting its bottom side to empty the remaining water in the unit.





# After Training

## 1 After Training

After discharging the water in the puncture unit, remove the unit from the upper torso manikin.

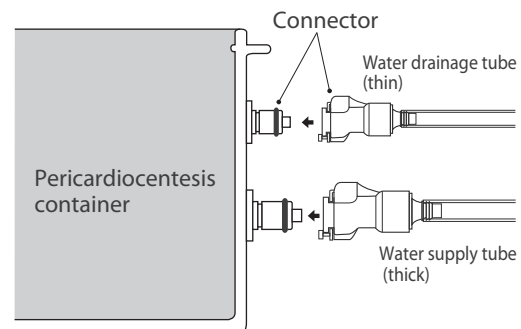
- (1) Insert a finger into the gap between the manikin and the spacer, then pull the spacer upward while widening the opening. Slide the pericardiocentesis unit caudally to create a gap between the unit and the manikin. Put a hand into the gap and slide the unit down.



- (2) Remove the two tubes connected to the puncture unit. Press the metal plate on the connector to unlock the tube. Pull out two tubes from the hole on the neck one by one. After removing the tubes, slide the puncture pad further to remove it from the manikin.



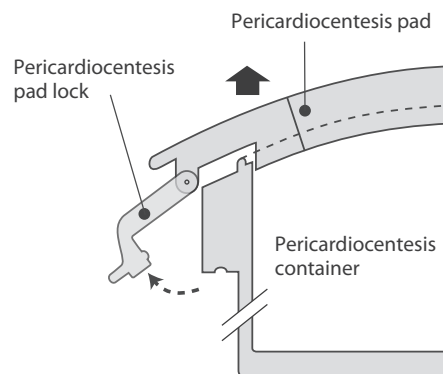
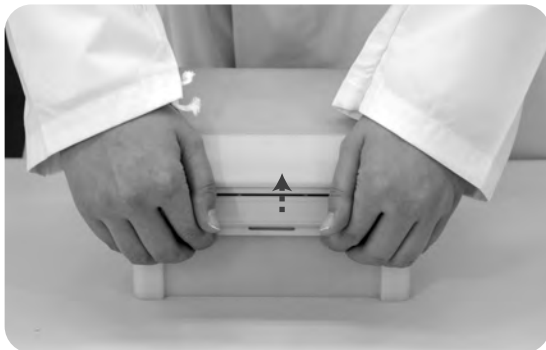
Press the metal plate to unlock. Pull off the tube with the connector.



# After Training

## 1 After Training

4. Place the removed puncture unit on a flat surface, pull up the lock of the pericardiocentesis pad using both hands and disengage the lock one by one. Similarly disengage the lock on the other side. After disengaging the two locks, remove the pericardiocentesis pad from the pericardiocentesis container and then discharge the water left in the case.



.....  
The locks are engaged securely to prevent water leakage. For your safety, disengage the locks one by one using both hands.

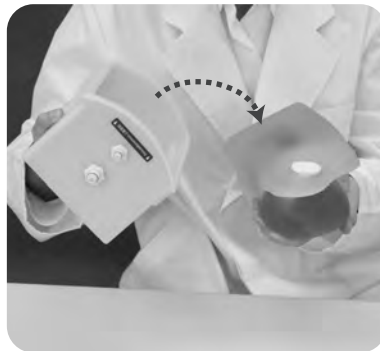
5. Wipe off the moisture left on the pericardiocentesis pad and in the pericardiocentesis container.



# After Training

## 1 After Training

6. Turn over the container while supporting the contents to remove them from the container. Wipe off the moisture left on the simulated heart and liver and dry them well. After they are dried, reset the heart and liver. When the positioning pillow becomes wet, dry it naturally before storage.



7. For storage, detach the pericardiocentesis pad from the pericardiocentesis container.



Do not store the thoracentesis unit with the pad and the container assembled and locked. This may cause deterioration of the watertight packing.



When the pericardiocentesis pad worn out by use, replace it with new one to conduct the training.





## Caution

Don't mark on the model and other components with pen or leave printed materials contacted on their surface.  
Ink marks on the models will be irremovable.

- For inquiries and service, please contact your distributor or KYOTO KAGAKU CO., LTD.

 **KYOTO KAGAKU co.,LTD**

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3109 Lomita Boulevard, Torrance, CA 90505 ,USA  
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Facsimile : 1-310-325-8867

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Please contact manufacturer for extra copies of this manual which may contain important updates and revisions.

Please contact manufacturer with any discrepancies in this manual or product feedback. Your cooperation is greatly appreciated.