

## Instruction Manual

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A life-like simulator for injection practices, this unique device accurately reproduces not only vein location, but also the circulation of human blood - including flash-back confirmation as with an actual patient.

The simulator is designed for training in IV injection and blood collection. Do not use for improper purpose. Please read the instruction carefully before use. Do not use the system in a way other than hereinafter prescribed by the manufacturer. Otherwise it may lead to deterioration in the security function.

### Features

- Arm model's life-like touch and resistance of the injection sites allows vein palpation as if with a real patient.
- Hand model's soft material allows training in grabbing and bending the patient's hand.
- Resistance of the soft tissue and veins felt through your injection needle simulates real human touch.
- Circulation pump reproduces human circulation flow.
- Realistic flash-back of the fluid into the injection needle.
- Injection parts are easily changeable.
- No puncture traces of injection needle remains on the injection pads.
- Life-size arm/hand models with supporting stands.
- Easy to set up, one-touch connections.
- Quiet pump.
- Durable blood vessels.
- Leakage free and easy clean up

### DOs and DON'Ts

#### DOs

##### Operate the system under the designated circumstances

Power input: AC 100V~230V plus or minus 10% , 50Hz/ 60Hz

Temperature range: between 0 degrees C and 40 degrees C  
(no congelation)

Relative humidity; between 0% to 80 % (no condensation)

##### Follow the instruction on labels



“Warning label” indicates there is a danger of an electric shock when the part is opened up.

Opening up any lids, caps or covers with warning labels is discouraged.

Never run the system while the warning-labeled lids or covers are open.

##### Safe disposition

To avoid short circuit, do not run the simulator set above a power receptacle.

##### Handle with care

The materials for the models are special compositions of soft resin.

Please handle them with utmost care at all times.

##### Storage

Store the training set at room temperature, away from heat, moisture and direct sunlight.

Storage under the temperature above 50 degrees C may reduce the performance quality of the simulator.

#### DON'Ts

**Never wipe the models and pads with thinner or organic solvent.**

**Don't mark** on the phantom and models with pen or leave any printed materials in contact with their surface.

Ink marks on the models won't be removable.

##### Do not give shocks

The circulation pump is a precision instrument. Strong shock or continuous vibration may cause breakages of its internal structure.

##### Do not run the pump continuously over 2 hours.

Please take at least 30 minutes shutdown, turning off the power, every 2 hours.

# Before you start

## Part names and functions/Set includes

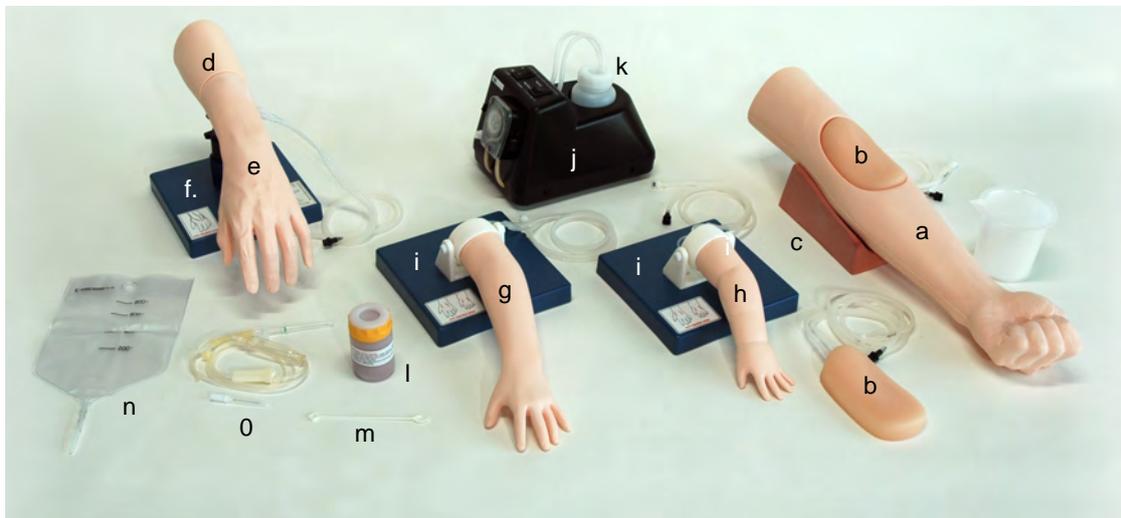
### Part names and functions

Circulation pump



### Set Includes

Before your first use, ensure that you have all components listed below.



a. Arm model -----	1	h. Hand model (1 year old ) -----	1
b. Injection pad (translucent) -----	2	i. Stand for Pediatric Hand -----	2
c. Supporter stand for Arm -----	1	j. Circulation pump -----	1
d. Forearm model (supporter) -----	1	k. Plastic jar -----	1
e. Hand model (adult) -----	1	l. Blood (coloring) powder -----	1
f. Stand for Hand -----	1	m. Spoon -----	1
g. Hand model (3 years old) -----	1	n. Irrigator bag -----	1
		o. Transfusion set -----	1

### 1 Preparation of simulated blood



- ① Take blood powder with the tip of the provided small spoon .
- ② Dissolve it in half a jar of water. (approx. 150cc)
- ③ Place the jar into the jar holder of the circulation pump
- ④ Insert the suction/discharge tubes into the simulated blood

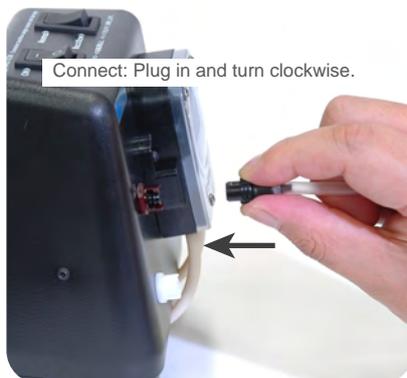
Make sure the both tips of tubes are properly placed undersurface of the fluid.

#### PLEASE NOTE:

The solution is not designed for prolonged storage.  
Please prepare new simulated blood for each session.



### 2 Setting up the circulation pump



Plug the tips of tubes from an arm/hand unit into the tube sockets at the side of the pump in accordance with colors.

Then fix the plugs by turning them clockwise.

Connection: Plug in and turn clockwise.

Disconnection: Turn the plug counterclockwise and pull it out

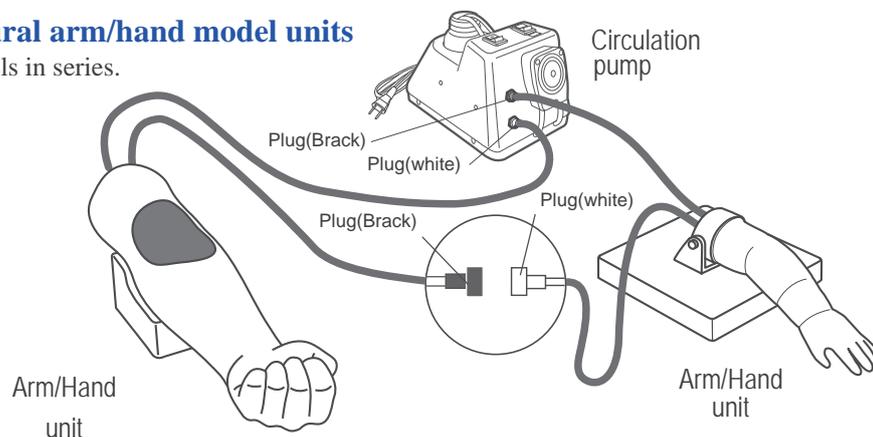
#### PLEASE NOTE:

To avoid leakage, turn off the pump when you disconnect the tubes.

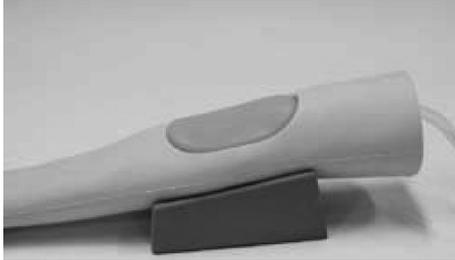
When you pull a tube, please be sure to hold it by the plastic plug. Otherwise the tube may separate from the plug.

#### Connection of plural arm/hand model units

Connect the arm models in series.



### 1 Setting of Arm/Hand model units



#### ① Arm model

Put the model with an injection pad on the included supporter stand.

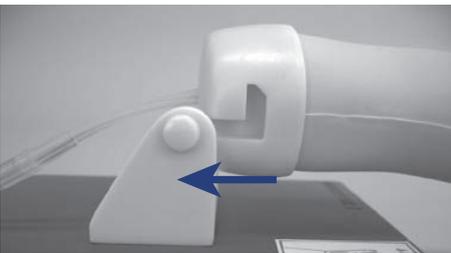


#### ② Hand model (adult)

Plug the head of the stand into the opening at the bottom of the Forearm model, orienting them so that flat surfaces meet each other.

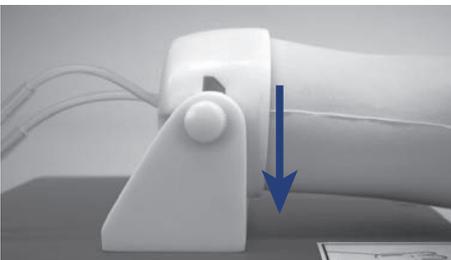


**Please note** the direction and angle of the pit.

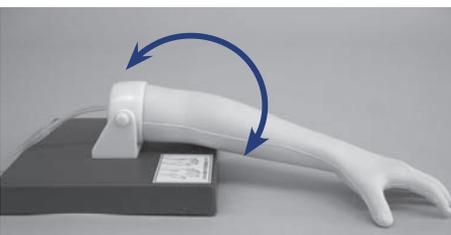


#### ③ Pediatric hand models (3 years old, 1 year old)

Set the hand model to the holder by inserting the holder bars into the grooves at the both sides of the model base.



**Be careful** not to pull the vein tubes.



Pediatric hand models can be rotated at the pivot joint to facilitate training in handling procedures.

### 1 Filling the models with simulated blood

- ① Turn the changeover switch to 'NORMAL'.
- ② Connect the pump to the power source and switch the power switch on.  
**PLEASE NOTE** : When a tube is folded, the fluid does not circulate properly.
- ③ When the simulated blood in the jar is runs low, please refill the jar.

### 2 Perform the training

#### Palpation (Arm model only)

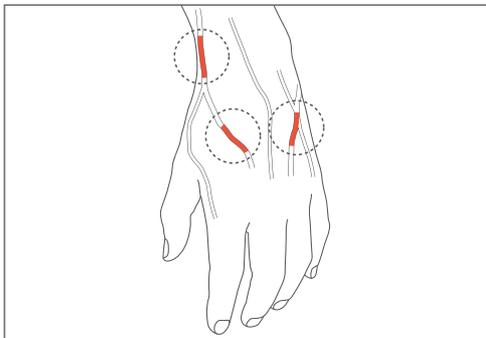
Feel the injection pad and identify the vessels. Three vessel lines are located in the pad.

#### Puncture

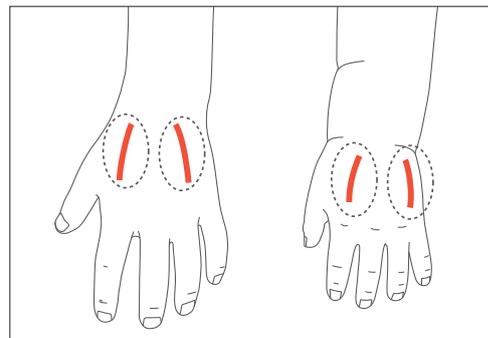
Insert the needle slowly. When the needle reaches a vein properly, the change of pressure will be felt through the needle.

#### Injection (puncture) sites

Hand model (adult): three sites for puncturing are prepared as shown on the drawing below.



Pediatric hand models: two puncturing sites each are prepared as shown on the drawing below.



#### Flash-back confirmation

Turn the changeover switch to BF. When the needle has reached a vein properly, simulated blood will be flow up into the syringe.

#### Blood collection

When the puncture is successful, simulated blood can be aspirated to the syringe.

**PLEASE NOTE** : Do not inject the simulated blood back into the pad, but return it into the jar.

#### Injection

Perform the practice with water.

### 1 The function of changeover switch

- ① Ensure that the change-over switch is set at “Normal”.
- ② Connect the plug to the power source and switch the power on, then let the fluid fully fill the tubes.
- ③ Start training session.

#### The function of changeover switch

**NORMAL:** Fluid circulates CLOCKWISE to produce negative pressure in the vessel tubes.

**BF (Back Flow):** Fluid circulates COUNTER-CLOCKWISE to produce positive pressure in the vessel.



#### PLEASE NOTE

[BF] function is for “flash-back” confirmation procedure only. When the “flash” is seen, turn the change over switch back to Normal before continue.

※ Do not leave the pump running at [BF] mode too long while training, otherwise it may lead to shorter life of the puncturable unit or leakage of the fluid.

### 1 Discharge the simulated blood



- ① Discharge the simulated blood.  
Lift the tips of the suction/discharge tubes slowly above the surface of the fluid and run the pump.
- ② When all the fluid has returns into the jar, stop the pump and discharge the fluid in the jar and fill it with clear water.
- ③ Set the water filled jar to the pump and run the pump with the both tube-tips under the water. Then, discharge the water by running the pump with the tube-tips above the water.
- ④ Discharge the water in the jar and dry the pump naturally.

### 2 Cleansing

- ① Wipe the model gently with dry soft cloth and wipe the pump with a wet cloth.

**CAUTION:** Never wipe the model with thinner or organic solvent.

### 3 Dismantle and Storage

- ① Turn the power switch off.
- ② Disconnect the tubes.

### 1 Replacement of Consumables

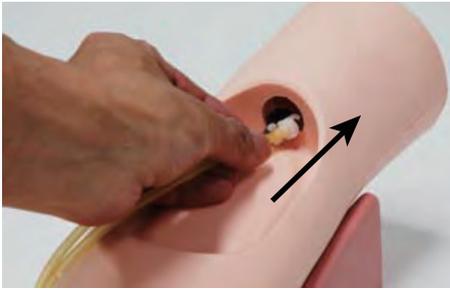
#### *Remove the used pad*



Arm model

- ① Hold the pad, lift and detach it gently, pulling off the vein tubes. Pull out all tubes.

#### *Install a new pad*



- ② Put the tubes through the openings in the arm model. Then, pulling the tubes gently, place the pad into the hollow.

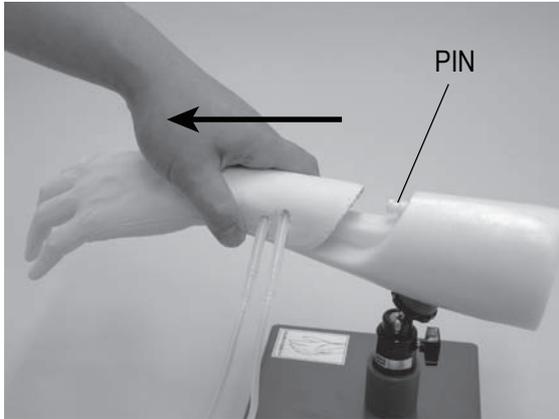
However, do not drag the pad by pulling the tubes, but keep holding the pad by your hand until it gets set properly.



Be careful not to fold the tubes or tack them between the pad and the model.

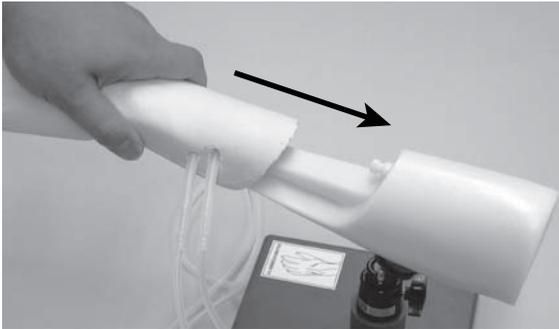
### 1 Hand model (adult)

#### *Remove the used injection hand*



- ① Hold the injection hand at the wrist, and detach it gently.  
When the hand model is not detached smoothly, hold it around the pin and pull it off slowly.

#### *Set a new injection hand*



- ② Slide the new hand unit on the supporter from peripheral end, following the slot. Then plug it firmly to the pin.

# Trouble shooting

Quick check-up before calling the customer service Use the table if you have problems using the simulator. Look in this section for a description of the problem to find a possible solution.  
(TEL +81-75-605-2510)

TROUBLE SHOOTING		
Trouble	Possible causes	Solution
Circulation pump does not run.	Is power plug connected?	Plug to the power supply.
	Is the power switch turned on?	Turn it on.
	Is the power at the power source?	Throw a circuit breaker or try other power points.
	Is the fuse intact?	Replace the fuse.
The fluid doesn't flow even if the pump is running.	Aren't the tubes folded?	Lift the pad gently and straighten the tubes.
	One or both tips of the suction/discharge tubes are in the air.	Put the tube tips in the fluid.
	Injection pad is worn out and bubbles are in the tube.	Replace with a new pad
Injection pad gets deformed.	Has not any fluid or air been injected outside of the vein tube?	Suck out the additional air or fluid by the syringe and dry the pad naturally.
The simulated blood heavily leaks from the injection pad.	Isn't the changeover switch set in BF position?	Turn it to NORMAL position.
	Injection pad is worn out.	Replace with a new pad.



### 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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