Arterial Puncture Wrist

Instruction Manual

KYOTO KAGAKU CO.,LTD

Production supervision

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Index

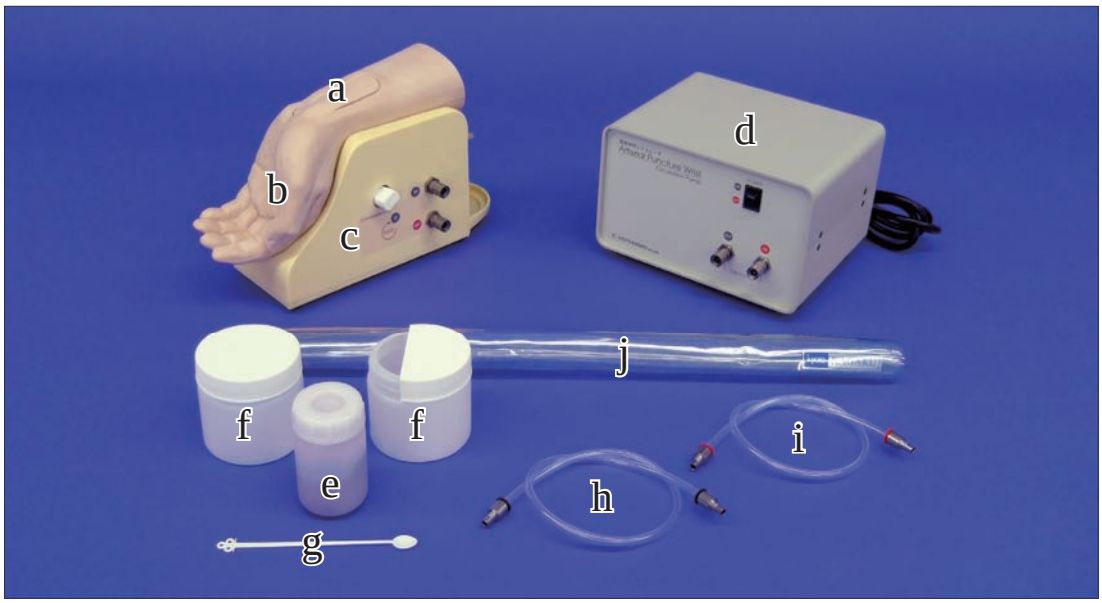
Features

A life-like simulator for artery puncture practices for arterial blood collection procedures.
Realistic pulsation and flash-back facilitate the training.
The simulator is designed for training in artery puncture and blood collection. Do not use for improper purpose. Please read the instruction carefully before use.

① Radial artery pulse is palpable.
② Anatomically correct artery location.
③ Realistic resistance of tissue and artery wall felt through the needle.
④ Natural flashback of arterial blood can be observed.
⑤ Puncture skin and artery tube are replaceable.
⑥ No needle marks remain.
⑦ One-touch connection.

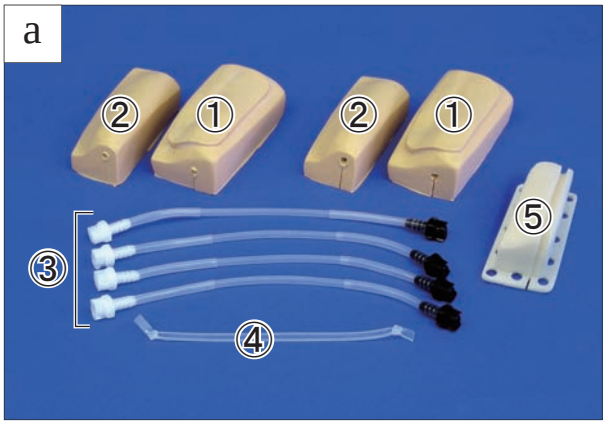
Components

Set includes



a. Puncture unit
- ①Skin (outer) ····· 2
- ②Skin (inner) ····· 2
- ③Artery tube ····· 4
- ④Silicon tape ····· 1
- ⑤Radius base ····· 1

b. Hand-wrist model ····· 1
c. Simulator Base ····· 1
d. Circulation pump ····· 1
e. Blood powder ····· 1
f. Jar ····· 2
g. Spoon ····· 1
h. Connection tube (black ring) ····· 1
i. Connection tube (red ring) ····· 1
j. Vinyl sheet ····· 1



The operation environment for the circulation pump.

Environmental conditions : 0 degrees C. - 40 degrees C.

Relative humidity : Less than 80 per cent (no condensation)

Working environment : Indoor or place considered to be close to indoor
Avoid exposure to the elements

Altitude : 2000 meters above sea-level

Installation category : Ⅱ (2)

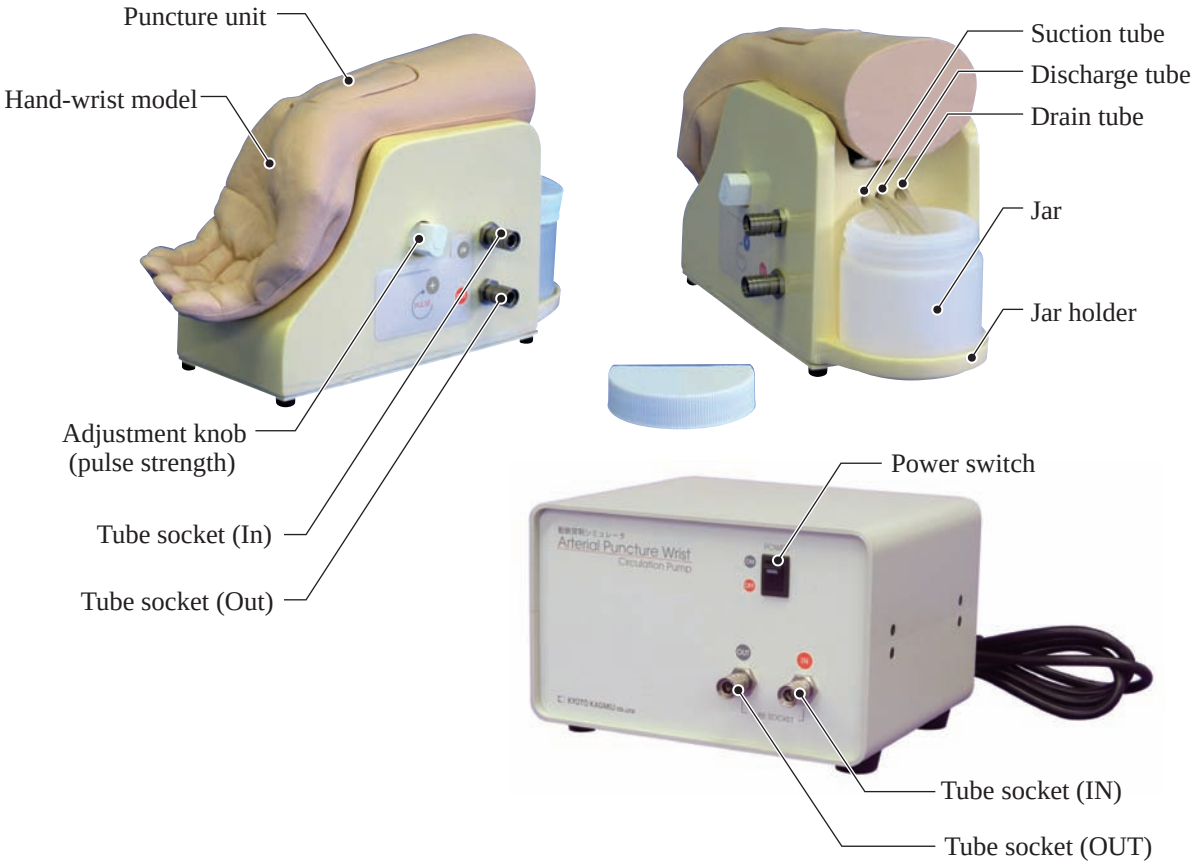
Pollution degree : Ⅱ (2)

Supply voltage : AC 100V−240V～ 0.16A 50/60Hz

Before training

Please note: We recommend perform the preparation and training on the included vinyl sheet.

■Parts name and functions



1 Preparation of simulated blood

① Take blood powder with the tip of the small spoon. （approx. 1/8 spoon）

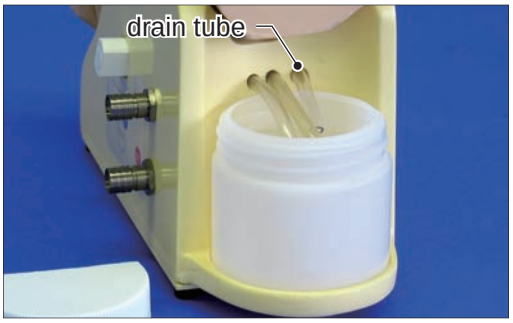
② Dissolve it in 4/5 jar of water. (approx. 160cc, 0-40 degrees C)

③ Place the jar on the jar holder at the back side of the simulator base.

④ Insert the suction/discharge tubes into the simulated blood.

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

The tip of the drain tube is to be above the surface.

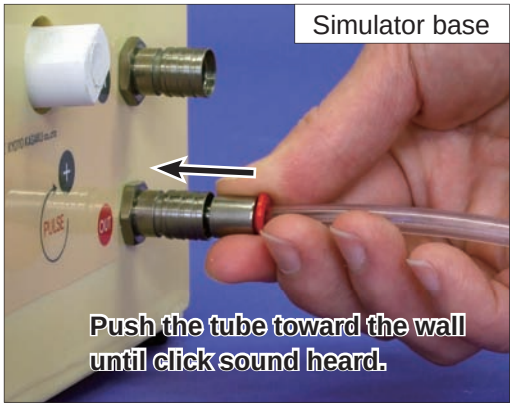


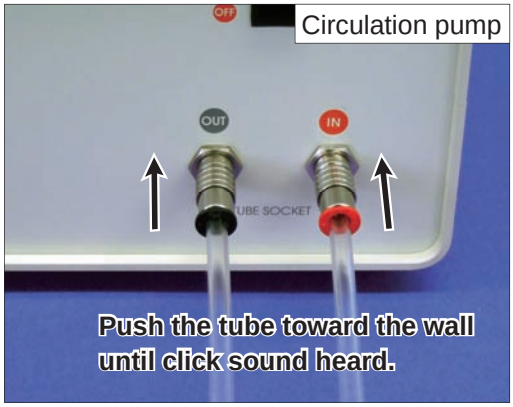
PLEASE NOTE: The solution is not designed for prolonged storage.

Please prepare new simulated blood for each session.

2 Connection of the circulation pump

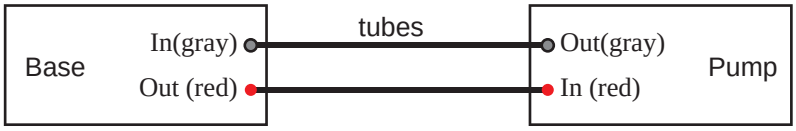
①Connect the simulator base and circulation pump with tubes.



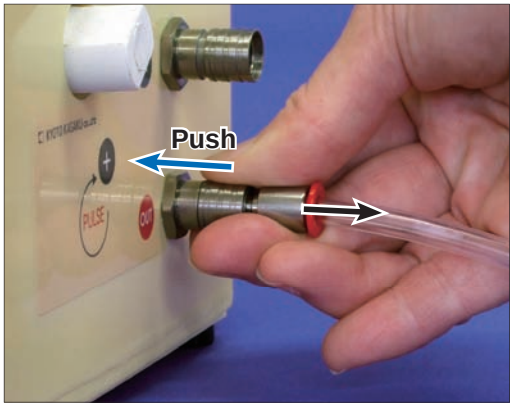


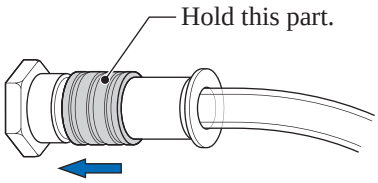
Connect the simulator base and circulation pump with tubes.

Insert the ends of connection tube to the tube sockets on the circulation pump and simulator base so that the sockets marked with same color sign are properly connected.



【Disconnection of the tubes】





Hold the metal sleeve on the tube socket and push it toward the pump/simulator base wall to unlock the connection.

Caution:

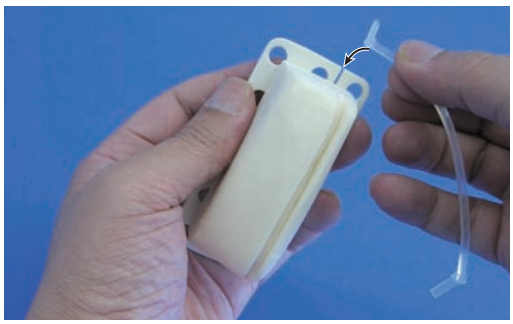
Do not disconnect the tubes while the simulator is running.

Before disconnect the tubes, make sure to discharge all fluid from the pump and tubes, and switch the power off.

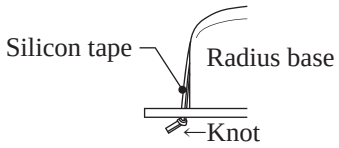
Do not pull the tube by holding the vinyl tube. Otherwise, the tube may come off from the connector.

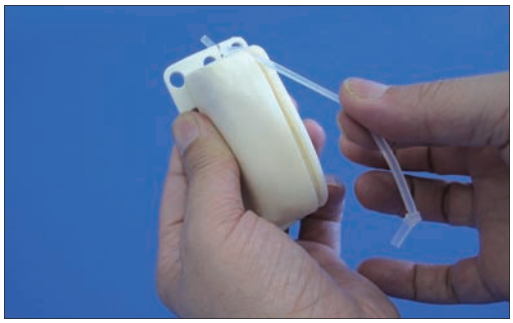
3 Setting up the wrist model and puncture unit

①Put the silicon tape on the radius base.

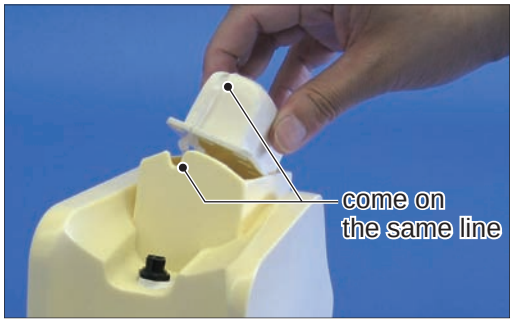


Insert one end of the silicon tape to one of the slits on the radius base edge so as that the knot comes to the underside.





Pulling the silicon tape, place it in the gutter on the base and fix it by inserting the other end into the slit on the opposite side. Make sure not to twist the tape.

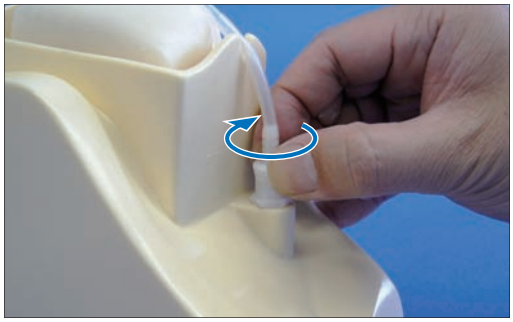


Put the radius base mounted with the silicon tape to the simulator base, noting that the tape and notch on the simulator base come on the same line.

Please note; the silicon tape is replaceable.

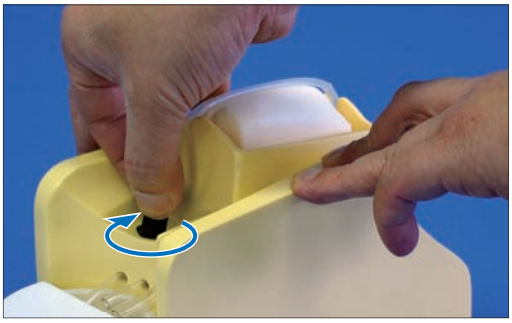
②Put the artery tube

Connect the white connecter at the end of artery tube to the white socket on the simulator base.



Lock each connection by turning the socket clock with until it clicks.

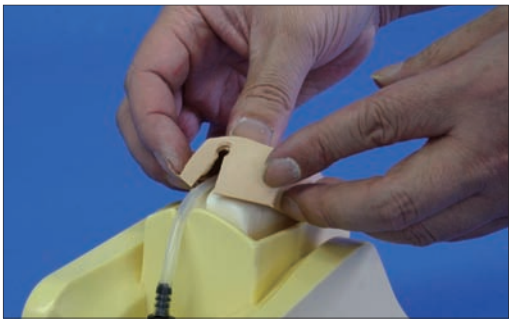
Please note; if the lock is incomplete, the tube may come off and simulated blood may leak.



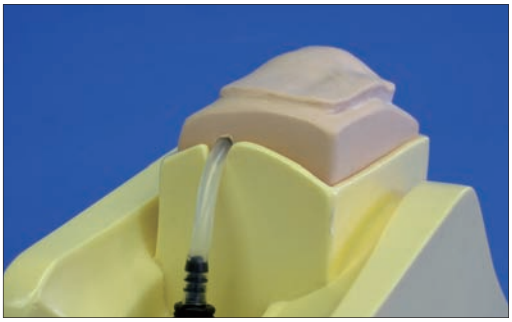
Putting the tube in the gutter on the radius base, connect the other end of the tube to the black socket and lock it by turning clockwise until it clicks.

Please note; if the lock is incomplete, the tube may come off and simulated blood may leak.

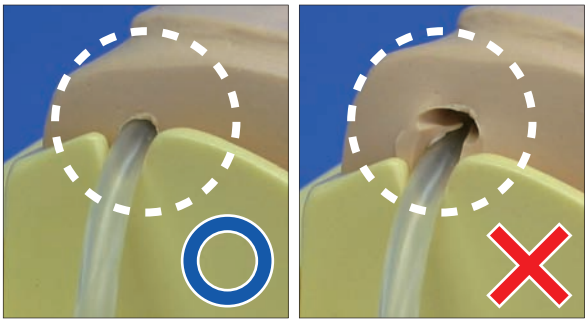
③Put the skin cover



Cover the radius base by the inner skin cover, noting the direction so that the artery tube is properly inserted in the slits on the walls of the skin cover.

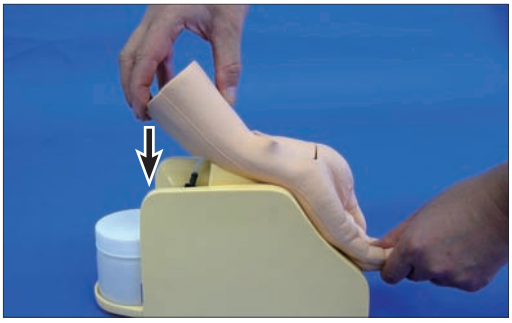


Likewise, cover the puncture area by outer skin cover. Make sure the all edges of the skin cover are properly placed in the walls of the puncture unit holder.



Please note; make sure that the artery tube is properly placed in the slits on the skin cover without being flatted.

④Set up the hand-wrist model.



Put the hand-wrist model on the simulator base. Be careful not to catch the artery tube in between.

4 While training

① Put the power plug to the power supply.

② Switch on the circulation pump and let the simulated blood fill the tube.
Now the simulator is ready for practice.

③ When the pulse is too weak, it can be adjusted by turning adjustment knob on the simulator base. (Pressure is set at the appropriate strength by the manufacturer at the time of shipping). To make the pulse stronger, turn the knob clockwise.

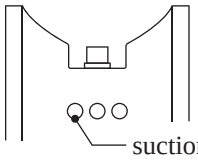
Please note; Excessive force may cause breakage to the knob. Please handle it with care.

④ When the simulated blood in the jar runs short by blood collection training, add some new fluid (or you can return the collected fluid to the jar).

5 After training

①Discharge the simulated blood from the system.

Lift the suction tube so that the end of the tube comes above the fluid surface, and run the circulation pump until the all fluid in the tubes is flow out into the jar.



Please note; Be careful so that the end of the tube is always inside the jar wall.

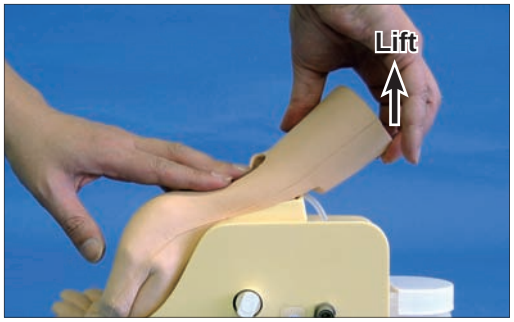
② Replace the jar of the simulated blood with another jar filled with clear water.
Put the tips of suction and discharge tubes into the water and run the circulation pump until the inside of the tubes are cleaned.

③ Discharge the water from the simulator following the procedure of discharging simulated blood.

④ When the hand-wrist model is stained, wipe off by cloth or wash by water.

6 Disassembly of the hand-wrist model and puncture unit

①Take off the hand-wrist model

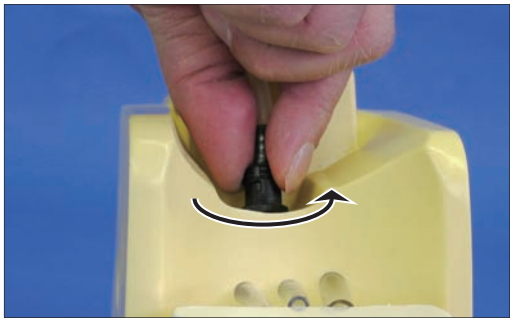


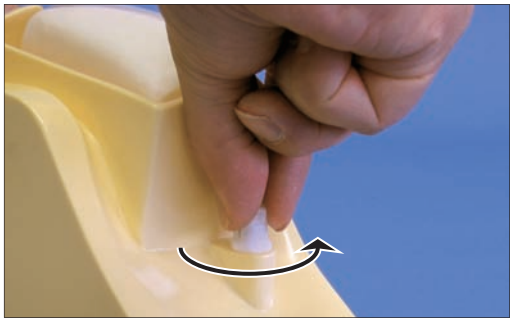
Holding the puncture unit by one hand, lift the back of the hand-wrist model and take it off from the simulator base.

②Remove the skin covers

Take off the outer and inner skin covers one by one. Be careful not to pull them too strong, since excessive force may cause tear(s).

③Disconnect the artery tube



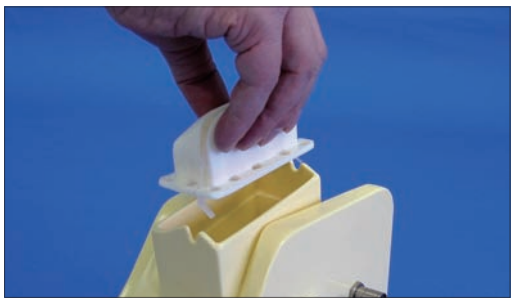


Unlock the each connector by turning counter-clockwise until it clicks and pull it straight off.

Caution:

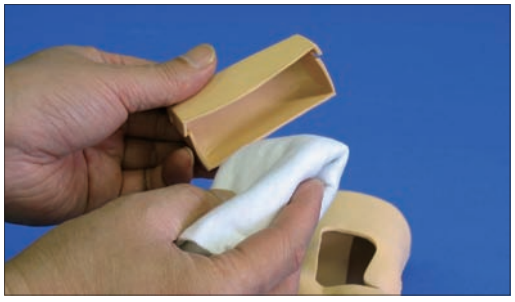
Do not pull the artery tube or any parts by excessive force. Otherwise it may cause breakage in the simulator.

④Take off the radius base



7 Cleaning

①The skin covers



Wipe off the simulated blood inside the skin covers by soft cloth.

②The simulator base

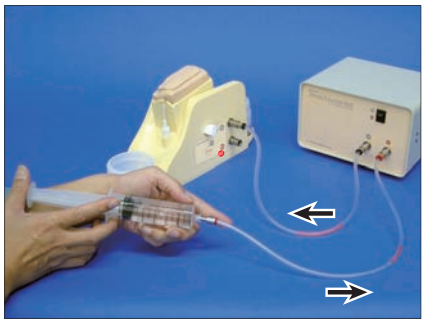
Wipe off the simulated blood on the simulator base, especially around the puncture unit holder, by soft cloth.

③Outside of the circulation pump

Wipe the surface of the circulation pump by cloth wrung out of water.

Caution: Do not use any organic solvent or alcohol to any parts of the simulator.
When the simulator gets heavily stained, use soap or neutral detergent.

④Inside of the circulation pump



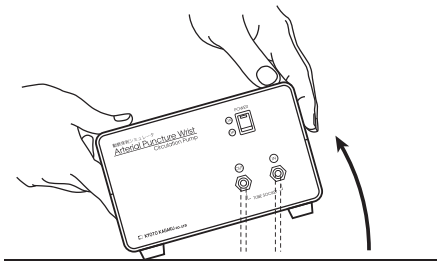
We recommend washing up the inside of the pump once in a while. This procedure is to be done before disassembling the unit.

1) Stop the circulation pump.
2) Disconnect the tube connector marked 'OUT' (red) on the simulator base.
3) Fill the syringe with clear water and connect the syringe tip to the free end of the tube.
4) Inject the water to the tube until the injected water flow in to the jar. (approx. 20cc.)
5) Connect the tube back to the simulator base and discharge water by following the instruction on page 7.

Troubleshooting

Quick check-up before calling the customer service

Use the table if you have problems using the system. Look in this section for a description of the problem to find a possible solution.

Trouble	Possible Reason	What to Do
The system cannot be powered on. (Circulation pump does not run)	Power plug is not properly connected to the power source.	Connect to the power source.
	Power switch is cut off.	Switch it on.
	Power does not come to the outlet.	Check the breaker., etc.
	Built-in fuse is blown out.	Contact the customer service.
Circulation pump runs but simulated blood does not flow.	Connection of the tubes is wrong.	Change the connection following the instruction manual.
	Connection tube(s) between the pump and simulator base is folded.	Straighten the tube(s).
	The pulse pressure is too strong (too tight).	Loosen the adjustment knob by turning counter-clockwise.
	Valves or other inner parts of the pump are adhered to by extraneous matter.	Stop the circulation pump and push in water by syringe (see page 9, #4).
Flash-back of the simulated blood is not seen.	The artery tube is worn out.	Replace it with a new artery tube.
	Simulated blood is not flowing.	Check the flow.
	Syringe is worn or the needle is clogged.	Replace them with new syringe and needle.
	The pulse pressure is too weak.	Adjust it by turning the adjustment knob clockwise.
The simulated blood heavily leaks from around the puncture unit.	Skin covers are not set properly.	Set the cover again following the instruction manual.
	The artery tube and/or skin covers are worn out.	Replace it/them by new one(s).
	The pulse pressure is too strong.	Adjust it by turning the adjustment knob counter-clockwise.
Bubbles appear in the simulated blood in the tubes.	The pump is sucking the bubbles coming from the discharge tube.	Make a little distance between the ends of suction and discharge tubes.
	The artery tube is worn out.	Replace it with a new tube.
	Air is collected in the circulation pump.	Discharge the air by tilting the pump as shown by the illustration. 
	None of above is the case.	Make the pulse pressure weak (tuning the knob counter -clockwise), and run the pump until the bubbles come off. Then return the pulse pressure to appropriate strength.
Simulated blood leaks from the simulator base or pump.	Tube sockets are not properly locked.	Check the sockets and lock them.
	The end of the drain tube is contacting with the fluid in the jar.	Lift the drain tube and push it back toward the simulator base so as not to touch the fluid.

DOs and DO'NTs

DOs

Handle with care

The materials for the models are special compositions of soft resin. Please handle them with utmost care at all times.

Storage

After use, wipe off all the fluid completely from the simulator and powder the soft parts (hand-wrist model and skin covers)with talcum powder. Store the simulator set at room temperature, away from heat, moisture and direct sunlight.

Keep clearance

For safety reason, always keep the appropriate clearance around the circulation pump while running the system so as to allow the operator to unplug the power supply in case of system malfunction.

DON'Ts

Do not use a curved or broken needle for practice.

Never wipe the models and pads with alcohol, thinner or any organic solvent.

Don't mark on the simulator with pen or leave any printed materials in contact with simulator surface.

Ink marks on the models won't be removable.

Do not keep running the system continuously more than 2 hours. Take at least 10 minutes interval every 2 hours.

Note; The color of the tube or soft resin parts may change after long use/storage, but this cause no problem in use of the simulator.

Replacement parts

Parts name	Quantity	Product code
Skin covers	A set of two (each one of outer and inner skin)	11351-010
Silicon tape	A set of four	11351-030
Artery tube	A set of four	11351-040
Blood powder (for simulated blood)	A bottle (30g)	11266-080

For inquiries and service, please contact your distributor or:

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