STOPS MEDICAL
A 3B SCIENTIFIC COMPANY

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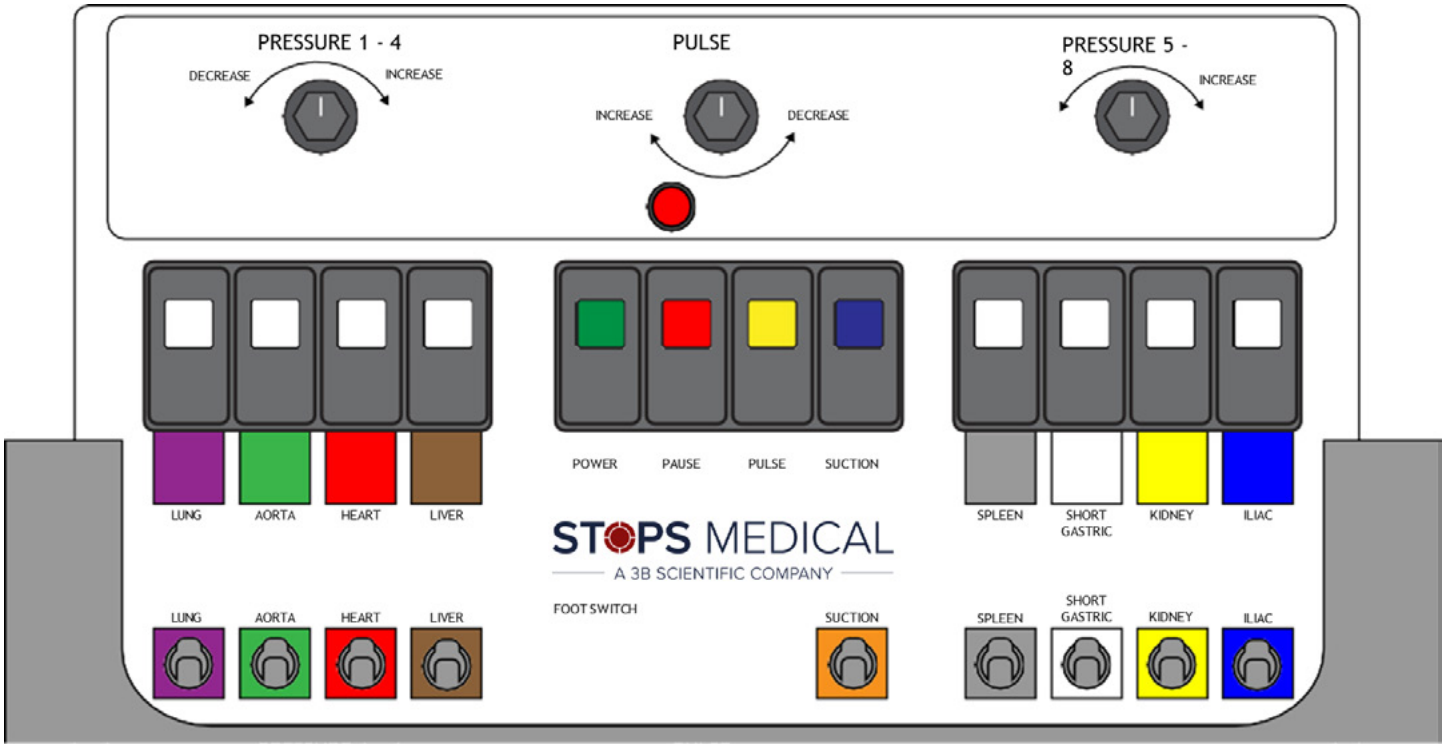
THE SURGICAL BLOOD PUMPING SYSTEM

USER MANUAL

1025951

THE SURGICAL BLOOD PUMPING SYSTEM

PREPPING THE SYSTEM FOR OPERATION



The Surgical Blood Pumping System (SBPS) cart has handles at the back, the front shelf has a lower edge to allow for tubes that connect to the face of the SBPS, and a hole for the quick connects to go through.

Make sure the pump is in position on the cart with the pump inputs on the bottom of the SBPS through the opening in the upper shelf as shown above.

CAUTION! The SBPS should not sit with the inputs that are on the bottom of the pump holding the weight of the pump. Damage to the pump's housing will result. If you cannot store the pump in position on the cart, you should rest and store the pump on its back with the switches pointing up.

For each of the two outside quick connects for the pumps, plug in a tube with a primer bulb.
For the center quick connect labeled "Suction", plug in the tube without a primer bulb.

CAUTION! During initial start-up of the SBPS unit, check to see if the pause light is turned on. If the pause light is on, plug-in the foot switch and un-pause the SBPS system by clicking the foot switch once to resume normal functions.

TESTING THE SURGICAL SFX BLOOD BEFORE USE

It cannot be stressed strongly enough, that the viscosity (thickness) of the surgical SFX blood is the most critical factor for proper pump function. The blood being too thick is the main reason that the volume coming out is not as much as expected and is different each time the pump is used.

While STOPS Medical tests the viscosity of all SFX blood before shipping, many factors affect the viscosity of the blood. The biggest factor is temperature. It is always recommended to place the blood in the room in which it will be used for at least a day, so it has time to reach room temperature.

THE SURGICAL BLOOD PUMPING SYSTEM

Each day before your training session, the blood should be tested using the supplied “Viscosity Cup.” The viscosity cup is used to time how long it takes for the cup to empty. To use the viscosity cup:

1. Place the cup into the blood so the rim of the cup is level with the surface of the blood
2. Lift the cup out of the blood and start timing
3. When the stream of blood coming out of the hole in the bottom of the viscosity cup is interrupted, stop the timer when the stream of blood is no longer continuous. It should take eight (8) seconds. If it takes longer, add water, stir it in and test it again until the timing is correct. If the blood empties faster than eight seconds, it is too thin and may need to be thickened.

HAND-PRIMING THE SYSTEM

Attach tubes to the matching color-coded quick connects for the organs and the suction, on the front of the SBPS. Place the ends in the bucket.

The blood from the suction will go into the blood bucket to be reused. If the blood you wish to suction is contaminated, you can put the suction outlet tube into a different container to keep it separated.

Turn switches off, dials all the way counterclockwise, then plug the supplied 25’ power cord into the side of the pump and turn on the switch just below the plug. The switch will light to show the system is on. If the light does not come on, see the troubleshooting guide.

1. Turn on the four (4) switches on the left side.
2. Ensure all dials are turned fully counterclockwise, turn on power.
3. Reach under the pump and pump the primer bulb until fluid comes out of the tubes.
4. Turn off the four (4) switches on the left side and turn on the four (4) switches on the right side. Pump the primer bulb until fluid comes out.
5. Turn off the pump and suction switches and power.
6. Confirm priming – use power on individual lines after hand priming.
7. Turn off the switches.

CAUTION! Do not run the pumps without blood or water in the system. Running the pumps dry will cause them to overheat and stop working.

TO PRIME THE ASSP

You should prime the ASSP one (1) hour before training to ensure that you have time to adjust if you notice irregularities.

1. Prime all five (5) bloodlines before the skin is put on.
   Connect ASSP bloodlines to the extension tubes that were attached to the pump in an earlier step, matching them according to color.
   For the foam filled Liver, Spleen and Kidney, gently squeeze, and look for blood to come out to ensure they are filling properly. This takes a minute or two.

2. Gently lift the bag up and check the underside to make sure blood is pooling in the Kidney and Iliac pockets.

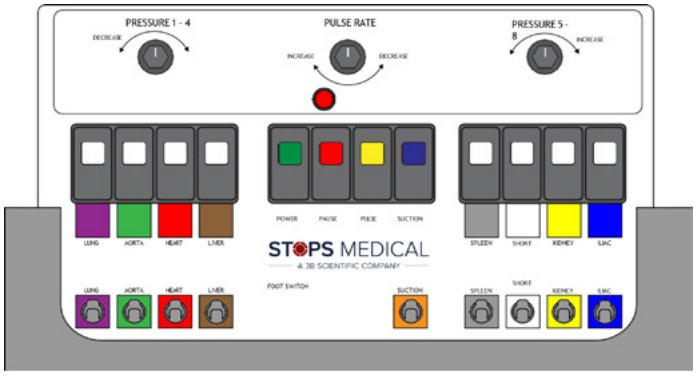
3. Make sure inner tubes are not kinked in or around the spine, pull gently on the tubes at the exit orifice on the back of the manikin’s neck so that the tubes are pulled tight.

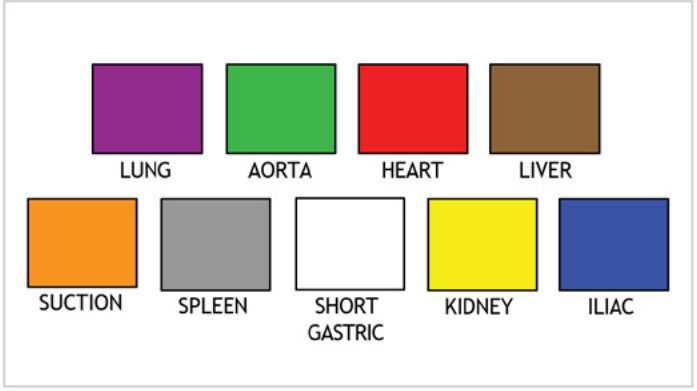
4. If the organs are not filling properly, the issue will most likely be from improperly mixed blood. Please refer to the “Testing the Blood Before Use” section.

5. Use Liver to fill the ASSP with blood, this should be done before the skin is put on so you can see how much blood is in the bag. You want all the organs to be saturated.

6. Inject 120 cc of Hematoma Blood into the ASSP using the syringe provided. Make a half-inch incision on the anterior midline, in the center of the ASSP. Insert the syringe through this incision and gently move it to distribute the fluid, massaging the hematoma blood outward from the incision to ensure it spreads evenly across the intestinal area.

7. Once you are satisfied with the preparation, zip on the skin .





THE SURGICAL BLOOD PUMPING SYSTEM

SUCTION SYSTEM

The ASSP pump is equipped with a suction system. Unlike most systems that use vacuum suction, this system uses a pump. The advantage of the “pump suction” over “vacuum suction” is threefold.

1. The “vacuum suction” system uses small containers that need to be periodically emptied. It takes time to shut off the system, then remove the lid of the container, empty the container, return the container, reinstall the lid, restart the vacuum and wait for suction to develop.
2. The “pump suction” system works by sucking in the material and pushing it out a hose into any size container, so you do not have to stop the suction to switch containers.
3. The “pump suction” system can also handle significantly higher volumes of material keeping the surgical area cleaner, providing better visibility.

CAUTION! Do not run the suction system unless you are using it. Running it dry for long periods of time will cause the pump to overheat and premature failure.

NOTE: The suction pump will operate but will not generate suction if both the wand and the outlet tube are not plugged in.

NOTE: That connector does not include a shutoff valve and will leak upon disconnection. Place a rag underneath to catch residual fluid.

PAUSE SYSTEM

The SBPS is equipped with a “Pause System.”
The purpose of this is to “Pause” the bleeding and pulse for any length of time needed and restart it exactly where it was paused.
This can be useful if the proctor wants to pause the training to discuss a procedure and then continue where it was stopped.

NOTE: The suction system is not controlled by the pause switch. Quite often the pause is used when there is a problem and cleanup is necessary.

There are three (3) ways to pause the system

1. The switch on the front of the pump.
2. The supplied remote control “on” engages pause.
3. The optional foot switch.

All three ways to pause the system will turn on a light under the switch on the pump. For the light to go off and the pump to operate again, ALL three (3) ways to pause the system must be un-paused.

The switch on the pump must be off, the remote must be turned off and the optional foot switch must be off. The foot switch works with one push turning it on and the next push turning it off in a repeating cycle.

THE SURGICAL BLOOD PUMPING SYSTEM

ASSP OPERATION

As soon as the scalpel touches the skin, turn on the Liver (Red), Spleen (White) and Short Gastric vessels (Yellow). Do not shut them off until that part of the procedure is completed, the Liver is packed or clamped, and the Spleen is clamped.

Intermittently turn on the Kidney (Brown) and Iliac (Blue) so the pockets around the organs stay full of blood but don't burst.

Once the injury to the Kidney and/or Iliac is discovered, turn on the appropriate (Kidney and/or Iliac) switch and let it run until the injury is remediated.

Proper communication between the Proctor and the Technician is important for smooth and accurate performance.

CLEANING THE PUMP

It is very important to thoroughly clean the pump after each use or the blood will dry out in the lines and render the pump unusable.

NOTE: The majority of pumps returned for repair are due to improper cleaning and maintenance.

To clean the pump:

1. Fill the blood bucket with warm water.
2. Make sure the extension lines are attached to the pump, and the other ends are either connected to the ASSP or directed into a container for collecting the blood or rinse water.
3. Turn up the pressure for both sides and turn on all four outputs.
4. Turn on the pulse and let it run for a minimum of 30 seconds to clean the solenoids.
5. Let it run until the bucket is empty. If you see any red coming out, refill the bucket and run it again.
6. Remove the bleed lines, drain out all the water, and wipe the outsides clean and dry and set them aside for the moment.

To clean the suction pump:

1. Run a minimum of two gallons of warm water through the suction system to clean it properly. You can use whatever container you have to hold the warm water.
2. Make sure that the suction outlet tube is plugged in to the bottom of the pump and in the bucket of warm water.
3. Turn on the suction and pump two gallons through it.
4. If you see any red coming out, refill the bucket and run it again until you no longer see red.
5. Remove the tubing, drain the water out, wipe it clean and dry and place it with the tubes for the pump.
6. Wipe out and dry the inside of the blood bucket because it will be used for storage.

PREPARING THE ASSP FOR RETURN

1. Wipe as much excess blood off the used ASSP. Do not wash the ASSP with water. Water may react with the SFX blood and cause mold to form before the unit is returned to the factory.
2. Any removed organs or pieces of organs need to be put into the "Removed Organs Bag" and sealed tightly. Place ASSP back into the Ziplock bag it came in, remove as much air as possible and seal the bag shut.
3. Put the ASSP and the "Removed Organs Bag" back into case and return ship it back with 1-2 days of use, using the provided return shipping label.
4. Refer to the Return Packing List to be sure everything is included before you seal the case.

TROUBLESHOOTING GUIDE

Problem	Possible Cause	Solution
Main power light on the back does not light.	Is the cord plugged in?	Plug in the cord.
	Does that outlet have the proper power?	Switch outlets.
	Is the fuse blown?	Replace the fuse under the light.
Blood does not come out of the tubing.	Is the blood too thick?	Test the blood with a viscosity cup. It should take approximately 8 seconds.
	Is the pump primed?	Prime the pump.
	Is the pressure turned up?	Turn up the pressure.
	Are you looking at the proper tube output?	Check the color coding
	Is the tubing plugged?	Test with another tube.
	Are the switch lights on?	If not, check the fuse.
The switches for the pump do not work.	Is the master switch on and the light is on?	Make sure it is plugged in, and the light is on.
	Is the power switch turned on?	Turn on the power switch.
	Is the switch set to local?	Set the switch to local.
	Are the switches' lights on?	If not, check the fuse.
The remote does not work.	Is the battery in the remote good?	Check for the light when you push a button
Suction does not work	Is the power on?	Turn on the power.
	Is the light on the switch lit?	Check the fuse.
	Is the output connected?	Connect the output tube.

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