OPERATING INSTRUCTIONS

WARNING: **To ensure operator safety and efficient operation of the Cavi-Blaster™ system, it is essential to follow these instructions.**

Preparing the CaviBlaster™ system for operation:

1. Inspect the CaviBlaster™ power unit, hoses and lance for any signs of damage.

2. Check oil and fuel levels:

   Proper oil level in pressure pump (Figure 1) and engine (Figure 2).
   Gasoline level in detachable fuel tank (Figure 3).

Figure 1

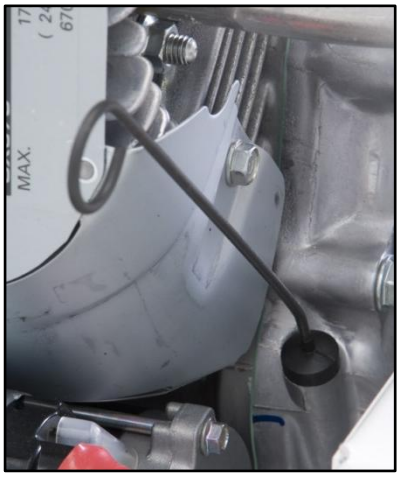

Figure 2

Figure 3

3. Fill lubricating oil(s) to proper level(s) as necessary and per pressure pump and engine manufacturers' operating manuals.

4. When feeding water to the CaviBlaster™ power unit with the feed pump, connect the 1" diameter clear PVC feed hose to the brass cam-lock plug on the pressure pump inlet (Figure 4). The feed hose has the feed pump on one end and a brass female cam-lock on the other end. Insert the electrical plug powering the feed pump into the waterproof electrical outlet on the end of the power unit cart under the handle (Figure 5). Ensure that the red knob on the plug is facing up and mates with the notch in the outlet cover. If the plug is engaged upside down, the pump will turn in reverse. Ensure that the feed hose is connected to the pressure pump and that the feed pump is securely submerged in the water source prior to starting the pump. Either fresh water or seawater can be used with this system.

Figure 4

Figure 5

When feeding the CaviBlaster™ with an alternate water source, the source must supply water at a volume of greater than 12 gallons per minute at a maximum pressure of 70-psi. Connect the water source to the inlet of the pressure pump (Figure 6). Ensure that the feed hose is connected to the pressure pump and the water is on prior to starting the pressure pump.

Figure 6

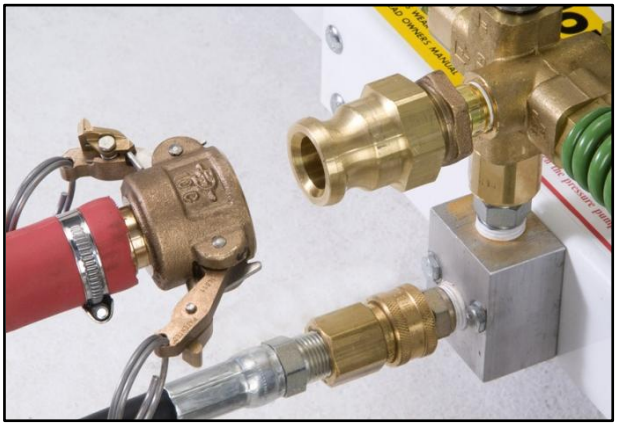

Figure 7

5. Connect the 1" red rubber bypass hose to the brass cam-lock plug on the pressure-regulating unloader (Figure 7). The hose has a brass female cam-lock on one end. Direct the bypass hose away from the working area and secure the hose.

6. Connect the ¼" black rubber fuel line from the external fuel tank to the fuel line attached to the fuel filter and engine. This connection is made with a brass quick connect fitting (Figure 8).

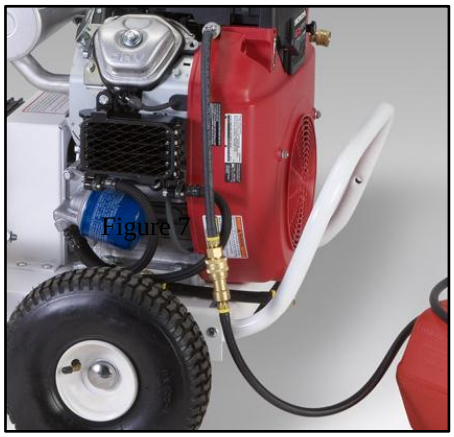

Figure 7

Figure 8

Starting the CaviBlaster™ unit:

1. When using the feed pump, start the feed pump by moving the feed pump switch located on the cart handle (Figure 9) to the "on" position. When using a supplied water source, open the valve to supply water to the system.

2. Ensure that the system is primed with water and that there are no leaks in the system. The pressure pump is a positive displacement pump and water must be supplied under pressure. **Failure to pump feed water to the pressure pump will result in damage to the pump.**

3. Once the system is primed, turn the feed pump off.

4. Connect the ½" high-pressure hose to the quick-connect plug on the pressure-regulating unloader (Figure 10). The high-pressure hose has a brass female quick-connect fitting on the end. The HG-1222 CaviBlaster™ can deliver the required pressure utilizing up to 300 feet of ½" diameter hose. Using greater lengths or smaller diameters of hose may degrade performance. If hose lengths over 300 feet are required, ¾" diameter hose must be used.

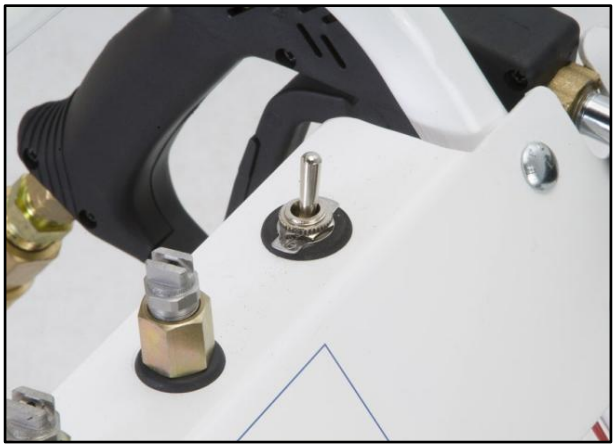

Figure 9

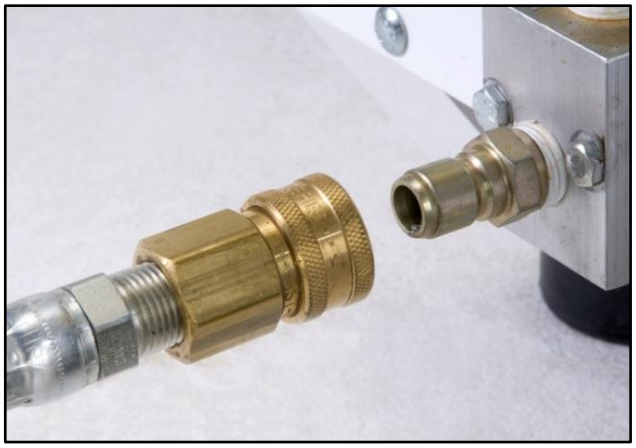

Figure 10

5. Connect the lance to the high-pressure hose (Figure 11) and submerge the lance in water.

6. Restart the feed pump.

7. It is recommended that the lance trigger be in the open or "on" position (Figure 12) when starting the engine.

8. Insert the key into the ignition switch on the side of the engine. Adjust the choke and turn the key to the start position to start the engine. When engine starts, close choke.

9. The system is now ready to operate (refer to photo on cover for overall system view).

Figure 11

<u>WARNING:</u> **Although the CaviBlaster™ system is safe to use when submerged in water, the system generates a high-pressure (up to 2,200-psi) water stream, which can cause injury when the lance is out of the water. <u>*ALWAYS*</u> keep the lance submerged when the pressure pump is engaged.**

Operating the CaviBlaster™ unit:

1. When the diver is ready to commence cleaning operations, ensure that the lance is submerged in water and open the throttle fully to the right ("rabbit" symbol on engine).

2. Activate the cleaning cavitation stream by squeezing the trigger to the open or "on" position.

3. The most efficient operating technique is to hold the gun 2-3 inches away from the surface to be cleaned and at a 25 to 45 degree angle to the surface being cleaned (Figure 12). Placing the gun closer than 2-3 inches from the surface being cleaned will not allow for efficient cavitation performance and will degrade the cleaning capability of the system.

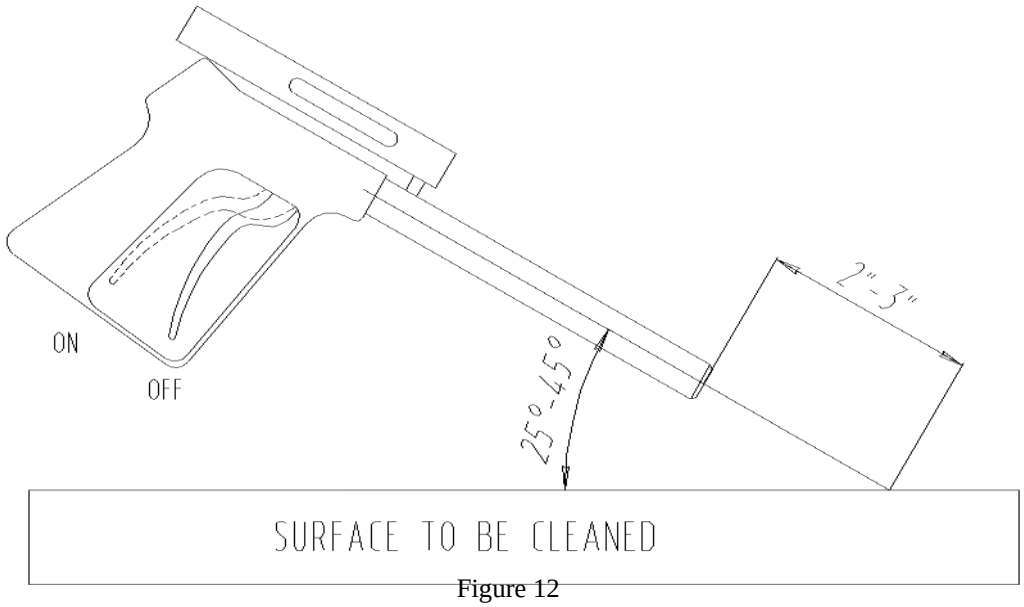

Figure 12

4. Follow all safety regulations that may be applicable to the work being performed.

5. If the diver operating the unit must be replaced or the cleaning operation must be terminated, shut down the engine by moving the throttle lever down to adjust engine RPM to "MIN" and turning the key to the "off" position. Then release the water pressure in the hose(s) by squeezing the lance trigger to the open or "on" position, *while under water*. Revert back to step 1 of the operating instructions when the replacement diver is ready to continue cleaning.

6. Ensure that the lance is submerged any time the pressure pump is operating.

Shutting down the CaviBlaster™ unit:

1. Stop the engine by adjusting throttle to “MIN” and turning key to the "off" position.
2. Squeeze the lance trigger to release any water pressure remaining in the hose(s).
3. Stop the feed pump by moving the feed pump toggle switch to the "off" position.
4. It is now safe to remove the lance from the water.

Maintenance of the CaviBlaster™ unit:

1. Empty and clean the inline strainer after each day's work.
2. Check the oil level in the engine and pressure pump every 8 hours.
3. Inspect the pump drive belt every 150 hours and replace the belt when cracking appears.
4. Change the engine oil and oil filter every 150 hours.
5. Change the oil in the pressure pump every 500 hours.
6. Change the spring for the lance trigger every six months or as required.

Summarizing the operating instructions:

1. Check oil/fuel levels.
2. Attach all hoses to the unit and connect the feed pump electrical cable.
3. Start the feed pump or alternate water supply and ensure that the system is primed.
4. Attach the lance to the pressure hose.
5. Start the engine and adjust throttle to “MAX.”
6. Make sure the diver is ready to work and the lance is submerged in water.
7. Activate the cleaning cavitation stream.
8. Proceed with cleaning.
9. Shut down the engine.
10. Release pressure from the hose(s) by pulling the lance trigger to the open or “on” position.
11. Stop the feed pump.
12. Remove the lance from the water.

WARNING

While the CaviBlaster™ system is very safe, operators should exercise care when using the equipment. The cavitation "flame" can be safely passed over the operators' skin at normal operating distances of 2" – 3" from the tip of the nozzle. However, at very close distances (typically less than 1") both nozzles are capable of causing harm to the operator, particularly in the initial instant that the system is activated. For that reason, **operators should exercise caution when operating the lance with the nozzles in close proximity to the body. The operators should also ensure that the reverse-thrust nozzle guard is secured in the correct position prior to operating the lance.**

The operators of the CaviBlaster™ system should always wear neoprene or heavy rubber gloves to provide protection to the hands and, in particular, to the nails. The gloves will absorb most of the energy produced by bursting cavitation bubbles and prevent the cavitation bubbles from contacting the operators' hands. The gloves will also protect operators' hands from the initial shockwave when the lance is activated.

Serious harm and injury may result from the misuse of CaviBlaster™ system equipment or improperly selected fittings, hoses or attachments. All components of the system should be checked against the manufacturers' instructions to ensure that they are compatible with the pressures being used and of the correct thread type and pressure rating for the intended service. Refer to these Operating Instructions and to the engine and pressure pump manufacturers' operation manuals for instructions or call CaviDyne, LLC at (352) 275-5319 with any questions.