

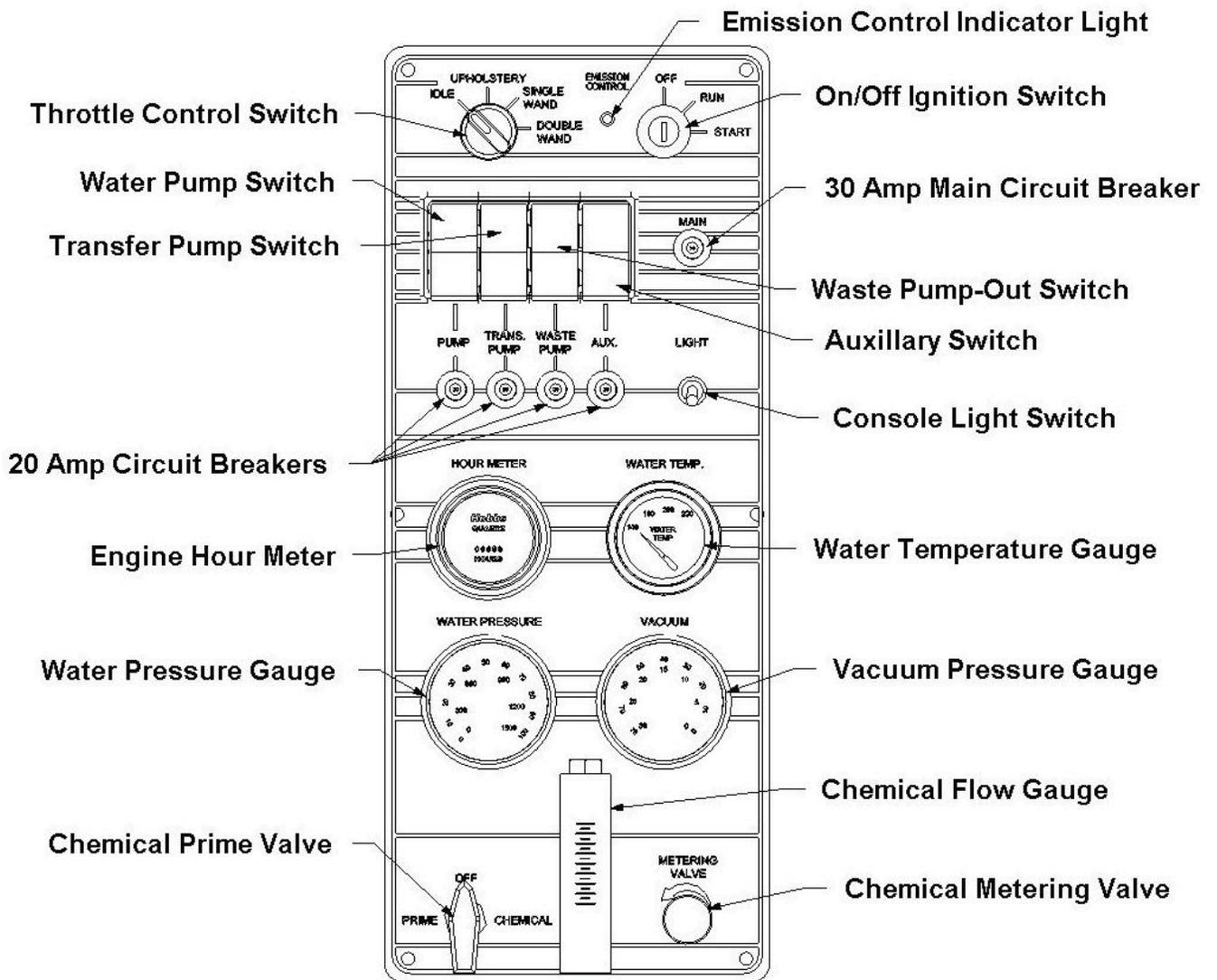
5. OPERATION

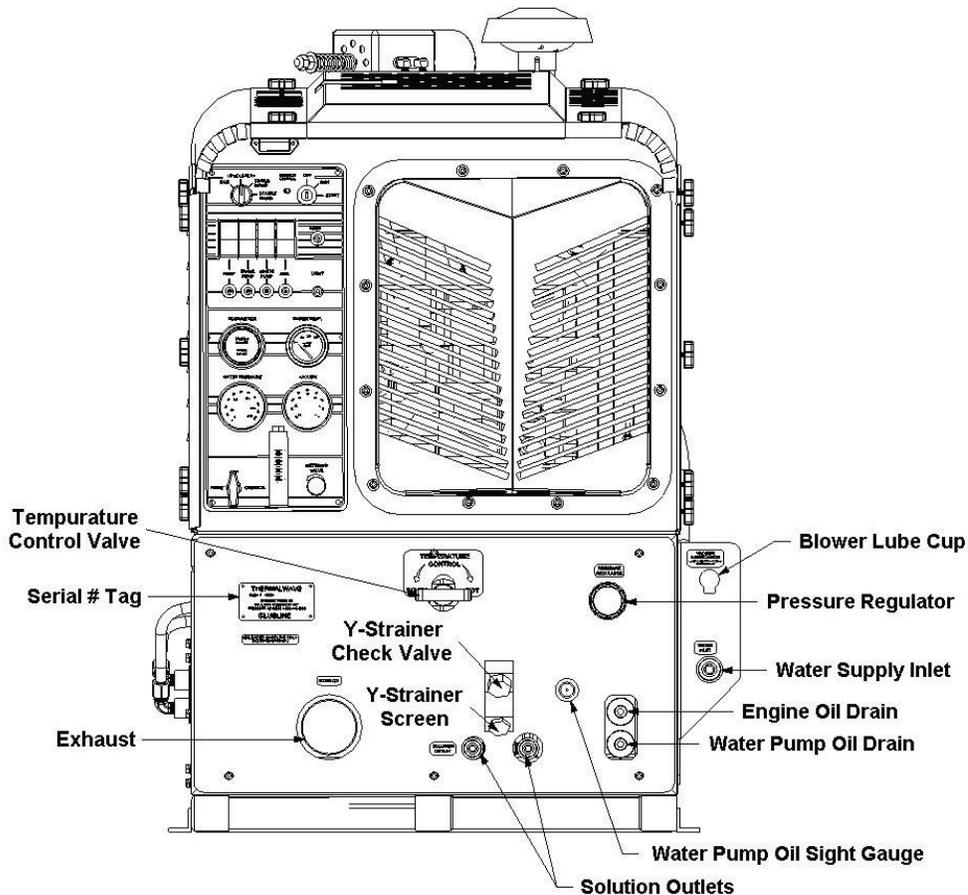
PREPARATION

This section of the operator's manual explains how to prepare, start, operate, shut down and maintain your **BLUELINE THERMALWAVE II VORTEC®** mobile cleaning unit. The **THERMALWAVE II VORTEC®** unit is easy to operate, however only trained operators should proceed.

WARNING!

Operate this unit and equipment only in a well ventilated area. Exhaust fumes contain carbon monoxide, which is an odorless and deadly poison that can cause severe injury or death. **DO NOT** run this unit in an enclosed area. **DO NOT** operate this unit where the exhaust may enter a building doorway, window, vent or any other opening.





ENSURE THERE IS ADEQUATE FUEL

Check the fuel tank to ensure there is adequate fuel to complete the job and transport the vehicle. This unit consumes approximately 1.2 to 1.8 US gallons of fuel per hour, depending on the speed setting.

REMOVE TOOLS FROM THE VEHICLE

Remove any tools, accessories or hoses from the vehicle that you will require.

WATER SUPPLY CONNECTION

NOTE: Prior to connecting your water inlet hose to any supply faucet, flush out the faucet until the water is free of any debris. Also, flush out any debris from your water inlet hose.

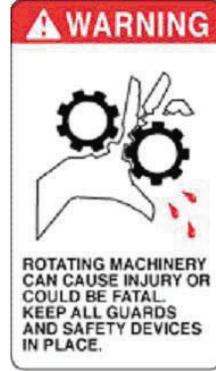
1. Connect the water supply hose to the water inlet quick connector on the front of the unit. Connect the hose to the faucet.

NOTE: Never use a waste pump outlet hose as a water inlet hose. Use only clean hoses for water supply.

2. Turn the water supply faucet on. Water will fill the water box.

HIGH PRESSURE HOSE

Before starting the unit, connect the high pressure hoses to the solution outlet connection(s) at the front of the unit. Connect the cleaning tool(s) to the opposite end of the pressure hose(s).



VACUUM HOSE

Connect the vacuum hose(s) to the vacuum inlet connection(s) at the front of the pre-filter box. Connect the opposite end of the vacuum hose(s) to the cleaning tool(s).

JET SIZING

BLUELINE recommends that the total floor tool size does not exceed “.06”. Using larger jet sizes on your **THERMALWAVE II VORTEC®** unit may reduce cleaning temperatures.

Example: Four-jet wand uses four 95015 jets.
(95 deg. Spray angle w/015 orifice)
 $.015 \times 4 = .06$

When using two wands while cleaning with this unit, **BLUELINE** recommends that the tip size in each tool does not exceed a total of “.04”.

Example: Four jet wand uses four 9501 jets.
(95 deg. Spray angle w/01 orifice)
 $.01 \times 4 = .04 \times 2 \text{ tools} = .08$
Upholstery tool jet size: 80015.
Stair tool jet size: 9502

STARTING THE UNIT

CAUTION!

DO NOT operate this unit without constant water flow to the console.

The low-pressure switch will automatically shut down the unit if the water pressure in the system drops below 50 PSI, for more than 5 seconds.

The high-pressure switch will automatically shut down the unit if the water pressure in the system exceeds 1200 PSI, for more than 5 seconds.

This unit features a computerized fuel system. This eliminates the need for a choke cable and many other troublesome components.

1. Set the speed selector switch to the idle position.
2. Turn the ignition switch to the right intermediate position. Hold the switch in this position for approximately 3 seconds, allowing the fuel pump to pump fuel.
3. Turn the ignition switch to the furthest right position. This will engage the starter and start the engine. The engine will run at a high rate of RPM for a short period of time, then find its proper idle setting.
4. After the engine is running at its idle setting, select the desired speed setting using the throttle control switch.
5. Turn the water pump switch to the **ON** position.

NOTE: If the unit does not build water pressure after 5 seconds, check for adequate water supply. See “Loss of Water Pump

Pressure in the “**Troubleshooting**” section of this manual.

Allow adequate time for the water temperature to warm up before cleaning, approximately 10-15 minutes.

PRIMING THE CHEMICAL PUMP

NOTE: **BLUELINE** recommends that the chemical pump be primed whenever the water pump is on. This eliminates possible pressure fluctuations and water pump pulsations related with running the chemical pump dry.

1. Insert the chemical prime tube and the chemical inlet tube into the chemical jug.

NOTE: When inserting the chemical tube into the chemical jug, ensure that it stays fully submerged, as the chemical pump will not function if air is allowed to enter the inlet line. **DO NOT** operate the chemical pump without the inlet strainer properly installed.

2. Turn the 3-way chemical selector valve located on the control panel to the **PRIME** position. The chemical will then flow from the chemical jug through the chemical prime tube.

If the pump does not prime, then:

A. Place the chemical prime tube into the vacuum hose and seal off the vacuum hose. The vacuum will quickly draw chemical from the chemical jug. After the flow begins, turn the chemical selector valve to **OFF** position, insert the chemical prime tube back into the jug, and turn the chemical selector valve back to the **PRIME** position and continue the procedure.

B. Once chemical flow with no air bubbles has been achieved; turn the chemical selector valve from **PRIME** to **METER**.

With the cleaning tool open, check the flow meter and adjust the chemical metering valve until the desired rate of chemical flow is achieved.

AUTOMATIC WASTE PUMP

1. If your unit is equipped with an optional automatic waste pump, connect one end of the 5/8 inch or larger garden hose to the pump-out connection and the other end to an acceptable waste disposal.

2. Turn the pump-out switch located on the front console control panel to the **ON** position. The waste pump will now operate automatically throughout the cleaning period.

DO NOT use an outlet hose that is smaller than 5/8 in. I.D.

NEVER use a waste pump hose as a water inlet hose.

 **WARNING!**

NEVER dispose of waste water in a storm drain, water way or on ground areas. Always dispose of waste in accordance with Local, State and Federal laws.

OPERATION

After you have completed the previous steps, proceed with the cleaning operation. Place the throttle control switch to the desired cleaning mode for carpet, or upholstery cleaning. A float shut-off switch is located inside of the waste tank. It will automatically shut down the unit if the tank reaches its full capacity. If this occurs, empty the waste tank before continuing.

CLEANING

While cleaning, observe the following guidelines:

1. Before cleaning, ensure that the wand nozzles are functioning properly.
 - A. Hold the wand approximately one foot above the surface to be cleaned and open the wand valve. A full even spray should emit from the cleaning nozzles.
 - B. If the nozzles are not showing a full even spray pattern, adjust, clean, or replace the nozzles, if required.
2. Usually, chemical solution is applied during the push stroke of the wand during cleaning, and extraction is done on the pull stroke. For heavily soiled carpets, the wand may be used in a scrubbing action, with chemical solution applied in both push and pull strokes, provided that the final stroke is a pull stroke with no chemical injection.

UPHOLSTERY CLEANING

1. Upholstery tools have a lower flow rate and smaller orifices. To accommodate the desired cleaning temperature, operate the unit in the **upholstery** mode, by setting the throttle control switch on the front control panel to **upholstery**. Adjust the temperature control valve to the desired temperature. To maintain proper cleaning temperatures, make certain that the unit has been fully heated up prior to cleaning.
2. Always clean upholstery with a pressure setting below 300 PSI, by using the pressure regulator on the unit.

STAIR TOOL CLEANING

1. Set the throttle control switch on the front control panel to the **CARPET** setting. Adjust the temperature control valve to the desired temperature. To maintain proper cleaning temperatures, make certain that the unit has been fully heated up prior to cleaning.

FLOOD RESTORATION/EXTRACTION

CAUTION!

1. Set the throttle control switch on the front control panel to the desired setting. Make certain that the **water pump switch** is in the **ON** position. Proceed into the extraction process.

SHUT DOWN AND DAILY MAINTENANCE

1. Flush out the chemical system with fresh water to remove any chemical residue.
2. Remove as much moisture from the vacuum hoses as possible. This will prevent spillage of wastewater in your vehicle when returning hoses.
3. Disconnect the vacuum hoses from the front of the pre-filter box.
4. Turn the throttle control switch to the **IDLE** position.
5. Adjust the temperature control valve to the cold water position.
6. Allow the unit to run for at least **2 minutes** or until the water temperature is at or below 180 deg. F. This will also remove any moisture from the vacuum pump.

NOTE: If shutting down for the day: Plug the vacuum inlets on the front of the unit and set the throttle switch to **carpet**. Spray WD-40 (or equivalent) into the **blower lubrication cup**, located above the fresh water inlet for **5 seconds**. This will lubricate the vacuum pump. Next, return the throttle control switch to **IDLE** position, and continue step 4.

7. Turn the ignition switch to the **OFF** position.

8. Turn the water supply faucet off. Loosen the water supply hose at the water supply to bleed off the pressure. Unhook the water supply hose and return it to the vehicle.

9. Activate the valves on all cleaning tools. This will relieve any remaining pressure. Disconnect the cleaning tools and solution hoses and return them to the vehicle.

10. Drain the waste tank, disposing of wastewater in a suitable and proper location.

 **WARNING!**

NEVER dispose of wastewater in a storm drain, water way or on ground areas. Always dispose of waste in accordance with Local, State, and Federal laws.

11. Remove the strainer basket from the pre-filter box. Clean out any debris and re-install.

NOTE: Damage may occur to the vacuum pump.

Replacement and maintenance of the filter will prevent rust and corrosion from entering the vacuum pump.

12. Inspect the vacuum inlet filters inside the waste tank **weekly**. Remove and clean the filters if there is any lint or debris present.

NOTE: To remove the vacuum inlet filter, grip the plastic hexagon section of the filter. Gripping the filter by the screen will collapse or destroy the filter. Replace the filter after cleaning until hand tight.

NEVER operate this unit with the filter removed, damaged or improperly installed.

13. At the end of the work day, rinse out the waste tank with fresh water. A deodorizer may be added to prevent bacterial growth.

14. Clean the vehicle interior, unit, tools, hoses etc., as needed. Inspect **ALL** equipment and accessories for any damage, leaks, wear, etc.

FREEZE PROTECTION

 **CAUTION!**

If the unit is exposed to freezing weather conditions, the water inside of the unit may freeze, resulting in SERIOUS DAMAGE to the unit. The following is recommended to prevent this from occurring during the cold weather season:

1. Always park the unit in a heated building when not in use.

2. While out in operation, avoid long periods of shut down as the unit generates heat while running. Keep the unit running just prior to leaving for the next job.

3. If a heated building is not available, winterize the unit with anti-freeze.

It is not possible to winterize units that have auxiliary water tanks. If the unit has an auxiliary water tank(s), it must be stored in a heated building.

WINTERIZING YOUR UNIT WITH ANTI-FREEZE:

1. Shut off the water supply to the unit and disconnect the water inlet hose from the console.
2. Connect all solution hoses and tools that may have water in them, to the console.
3. Start the unit with the water pump in the **ON** position. Open a tool valve. This will result in the low-pressure switch shutting down the unit when the water box is emptied.
4. Fill the water box with two gallons of 100% glycol based anti-freeze.
5. Start the unit and set the throttle control to the **IDLE** position. Turn the water pump switch to the **ON** position. Open a tool valve until anti-freeze comes out of the tool. Repeat this procedure with **ALL** remaining tools and hoses.
6. After the tools and solution hoses have been filled with anti-freeze, disconnect and store them.

Recover all anti-freeze that comes out of the tools and hoses and store in an approved container. ALWAYS re-use and re-cycle anti-freeze.

7. Prime the chemical injection system with a 100% glycol based antifreeze. Insert the chemical inlet and prime tube into the anti-freeze container. Turn the chemical valve to **PRIME** until anti-freeze comes out of the prime hose. Turn the chemical valve to the **ON** (chemical) position. Ensure that the flow meter indicates flow. Ensure that all anti-freeze that comes out of the chemical hose goes into an approved container.

After **25 seconds**, turn the chemical valve to the **OFF** position.

8. Adjust the temperature control valve to the cold water position. Allow the unit to run for at least **3 minutes**. The unit is now winterized.

REMOVING ANTI-FREEZE FROM THE UNIT:

1. Connect the solution hoses to the unit, with a tool attached to the opposite end. Start the unit. Turn the water pump on. Open the tool valve and ensure that the anti-freeze goes into an approved container. Allow the anti-freeze to flow into the container until the low-pressure switch shuts the unit down.
2. Fill the water box with fresh water and repeat step 1.
3. Connect the water inlet hose to the unit and turn the water supply on. Connect all tools and solution hoses that were winterized to the solution outlet connections.

Open all tool valves and drain the anti-freeze into an approved container until the water runs clear and all of the anti-freeze is purged from the hoses and tools.

4. Insert the chemical prime hose into the approved container. Submerge the chemical hose into fresh water. Turn the chemical valve to the **PRIME** position until the water runs clear through the prime hose. Remove the prime hose from the container.

5. Turn the chemical valve to the **ON** (chemical) position. This will allow water to flow to the other side of the system.

After all of the anti-freeze has been removed, the unit is ready to operate.

The anti-freeze in your approved storage container will eventually become diluted with water. When the anti-freeze level drops below 70% of the total mixture, properly dispose of it and start over with fresh 100% anti-freeze.

 **WARNING!**

DO NOT drain used anti-freeze on the ground or into storm drains.

Dispose of anti-freeze only in an approved location. Observe Local, State and Federal laws when disposing of anti-freeze.