
OPERATOR SAFETY INSTRUCTIONS - HOT WATER PRESSURE WASHERS

WARNING AVERTISSEMENT ADVERTENCIA

- DANGER** means: If you do not follow the instructions in a **DANGER**, severe bodily injury or death can occur to you and/or other personnel.
- WARNING** means: If you do not follow the instructions in a **WARNING**, injury can occur to you or to other personnel.
- CAUTION** means: If you do not follow the instruction in a **CAUTION**, damage can occur to the machine or to other property.
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- **DANGER:** Do not operate this unit in an explosive or flammable environment.
 - **DANGER:** Carbon monoxide asphyxiation danger! Operate unit in a well ventilated area or connect to flue.
 - **DANGER:** Inspect hoses, fittings, and heat exchanger for leaks or fatigue, before each use.
 - **DANGER:** Only fill the fuel tank in an open area. Use only kerosene, #1 or #2 diesel as burner fuel. **Do not fill the tank near open flames or while the unit is running. Do not smoke while filling the tank.** Do not over-fill the tank. Wipe up any spills. Tighten the cap on the tank when finished.
 - **DANGER:** Do not tamper with the unloader or relief valve pressure settings. Discontinue use if a malfunction occurs.
 - **DANGER:** Do not operate the unit with a malfunctioning burner or burner controls. Inspect burner and burner control operation before each use. Failure to do so may result in an explosion.
 - **DANGER:** Failure to properly maintain the heat exchange coil can result in a steam explosion! Scale or lime build-up will act as an insulation and decrease the efficiency of the heat exchanger coil and will also cause hot spots. This can result in a weakening of the tubing which in turn may cause a rupture.
 - **DANGER:** If the ground fault circuit interrupter repeatedly trips, discontinue use of the machine.
 - **WARNING:** Discontinue use of this machine if the power supply fuse or the circuit breaker repeatedly trips.
 - **WARNING:** Water under high pressure can cause severe injury. Keep all persons away from the machine and the spray area.
 - **WARNING:** When operating the machine, all guards must be in place.
 - **WARNING:** Make sure the spray nozzle and the hose are securely fastened before operating the machine. Do not remove the nozzle or disconnect the high pressure hose while the system is pressurized.
 - **WARNING:** Keep hands, feet, and loose clothing away from all moving parts of the machine.
 - **WARNING:** Always wear safety goggles when the machine is running or when operating machine.
 - **WARNING:** In order to avoid electric shock hazard, make sure the unit is connected to the proper power supply before operating the machine.
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OPERATOR SAFETY INSTRUCTIONS - HOT WATER PRESSURE WASHERS - (Cont'd)

- **DANGER:** The detergent level should never fall below the chemical line. If you should discover this condition, immediately turn the metering valve off. Air introduced into the system will cause pump damage and create steam space if the burner is on which may lead to a steam explosion.
- **WARNING:** Do not remove, disable, or tamper with the ground fault circuit interrupter.
- **WARNING:** Disconnect the power supply before servicing the machine.
- **WARNING:** Do not use the machine if the electrical cord is damaged. Do not use the electrical cord to move the machine.
- **WARNING:** Make sure all labels, decals, warnings, cautions, and instructions are fastened to the machine. Get new labels and decals from Delco.
- **WARNING:** If water should stop flowing from the gun, turn unit off immediately and contact an authorized Delco service person.
- **CAUTION:** You must have training in the operation of this machine before using it. **READ AND UNDERSTAND THE INSTRUCTIONS IN THE OWNER'S MANUAL!**
- **CAUTION:** Servicing of this unit may be referred to an authorized dealer.
- **CAUTION:** Avoid direct and/or spray on the unit.
- **CAUTION:** Use of an extension cord is not recommended.
- **CAUTION:** Do not use this machine as a step ladder.
- **CAUTION:** Never operate the unit when the pump is low on oil.
- **CAUTION:** Pump damage will result from operating the unit with insufficient water flow
- **CAUTION:** Always use genuine factory recommended parts for replacement.
- **CAUTION:** Never allow the unit to run for more than two minutes while the trigger is released. (Closed)

If your pressure washer is LP or Natural Gas, the following **DANGER** statements apply. These danger statements are in addition to the previous section of Operator Safety Instructions - Hot Water Pressure Washers.

- **DANGER:** This unit must be installed in compliance with all applicable gas codes. Call your city or state administrative office for information or contact your gas supplier.
 - **DANGER:** Do not operate the unit when there is an odor of gas present. Call your gas supplier or distributor if you suspect a leak.
 - **DANGER:** Refueling of the LP tank must be performed outside away from any sparks or open flame.
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Proper Maintenance of Heat Exchanger - Hot Water Pressure Washers

DANGER: Failure to properly maintain the heat exchange coil can result in a STEAM EXPLOSION!!

Inspecting the Heat Exchange Coil

The heat exchange coil should be inspected for deposit build-up after 40 hours of use, or once a month, whichever comes first. In hard water areas a water softening system should be employed.

Scaling or liming of the coils is caused by mineral deposits from the water and occurs much faster in hard water areas and with heavier machine usage. Lime build-up can also be caused by inferior cleaning compounds.

DANGER: Scale or lime build-up will act as an insulation and decrease the efficiency of the heat exchanger coil and will also cause hot spots. This can result in a weakening of the tubing which in turn may cause a rupture.

To determine build-up you must remove the discharge fitting and look inside. Lime deposits can be identified as a powdery or hard, flaky substance. See below.



Figure #1

An alternative method to check for lime deposits is by checking for back pressure on the coil. To check for back pressure follow this procedure:

1. Install a pressure gauge at both the inlet side and the discharge side of the coil. The gauge should be capable of reading 500 psi greater than system pressure.
 2. If the pressure at the inlet side is more than 50 lbs. higher than the pressure at the discharge side, there may be a build-up or a restriction in the coil.
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Proper Maintenance of Heat Exchanger - Hot Water Pressure Washers (Cont'd)

To clean the coils follow these instructions:

How To Clean The Coils

WARNING: The deliming solution is highly acidic and can cause burns. When cleaning the coils, always wear rubber gloves and protective clothing.

To clean the coils, follow this procedure:

1. In a five gallon bucket, mix one pound of deliming powder to each gallon of water or four pounds of deliming powder to four gallons of water. You can obtain deliming powder from your pressure washer service center.

NOTE: If the coils have not been cleaned frequently, use a half pound of deliming powder to each gallon of water for the first 30 minutes of the cleaning time. This will help prevent the coils from plugging up.

2. Disconnect the suction hose from the float tank to the pump' intake.
3. Attach one end of a 6 foot , 5/8" rubber hose to the pump intake.
4. Install a filter screen on the other end of the rubber hose by using a 5/8" hose barb with 1/2" male threads.
5. Put the rubber hose in the five gallon bucket
6. Remove the trigger gun from the discharge hose.
7. Connect the discharge hose to the machine.
8. Put the end of the discharge hose in the bucket.
9. Turn the control switch to the "1 " position. (PUMP)
10. Let the solution move through the coils and back into the bucket for two to four hours.

NOTE: If the deliming solution *does not* move through the hose. check the filter screen and clean if necessary.

11. Put the control switch in the "0" position. (OFF)
 12. Disconnect the rubber hose from the intake manifold.
 13. Re-install (he suction hose on the intake manifold.
 14. Flush the system with clean water.
 15. Inspect carefully for complete scale or lime build-up removal.
 16. Repeat the process if any liming or scale is still present or if the pressure difference still exists.
 17. Re-install the trigger gun onto the discharge hose.
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Safety Device Information - Hot Water Pressure Washers

GFCI: GFCI stands for "Ground Fault Circuit Interrupter". The ground fault circuit interrupter shortens the length of time that an operator would be subjected to shock should shock occur. Do not tamper with, bypass, or remove the GFCI.

Pressure Relief Valve: The pressure relief valve is factory preset. The pressure relief valve should only be adjusted by an authorized service person.

High Limit Switch: Do not tamper with, bypass, or remove the high limit switch. **Vac Switch:** Do not tamper with, bypass, or remove the vac switch, pressure switch or flow switch.

Unloader Valve: The unloader valve is factory preset for maximum operating pressure. Do not tamper with, bypass, or remove the unloader valve.

DANGER: Some machines may be equipped with an automatic thermal cutout. Do not tamper with or disable this device.

DANGER: Some machines may be equipped with an automatic cutoff. This device will cutoff the machine if the machine is not operated for a length of time. Do not tamper with or disable this device.

Safety Device Information - Cold Water Pressure Washers

Unloader Valve: The unloader valve is factory preset for maximum operating pressure. Do not tamper with, bypass, or remove the unloader valve.

GFCI: (Electric Models Only) GFCI stands for "Ground Fault Circuit Interrupter". The ground fault circuit interrupter shortens the length of time that an operator would be subjected to shock should shock occur. Do not tamper with, bypass, or remove the GFCI.

OPERATOR SAFETY INSTRUCTIONS - COLD WATER PRESSURE WASHERS – ELECTRIC

DANGER means: If you do not follow the instructions in a **DANGER**, severe bodily injury or death can occur to you and/or other personnel.

WARNING means: If you do not follow the instructions in a **WARNING**, injury can occur to you or to other personnel.

CAUTION means: If you do not follow the instructions in a **CAUTION**, damage can occur to the machine or to other property.

WARNING: To reduce the risk of electric shock. keep all connections dry and off of the ground. Do not touch the plug with wet hands.

WARNING: If the ground fault circuit interrupter continuously trips. discontinue use of the machine.

WARNING: In order to avoid electric hazard. make sure the unit is connected to the proper power supply before operating the machine.

OPERATOR SAFETY INSTRUCTIONS - COLD WATER PRESSURE WASHERS - ELECTRIC

- **WARNING:** Discontinue use of this machine if the power supply fuse or the circuit breaker continuously clears.
- **WARNING:** Do not remove or disable the ground fault circuit interrupter. **WARNING:** Disconnect the power supply before servicing the machine.
- **WARNING:** Do not use the machine if the electrical cord is damaged. Do not use the electrical cord to move the machine.
- **WARNING:** This is a high pressure spraying system. Water under high pressure can cause severe injury. To prevent injury, do not point the nozzle at any part of your body or at any other person. The pressure can cut skin and cause burns. Keep all persons away from the machine and the spray area.
- **WARNING:** Make sure that the spray nozzle and the hose are securely fastened before operating the machine. Do not remove the nozzle or disconnect the hose while the system is pressurized.
- **CAUTION:** Never operate the unit when the pump is low on oil.
- **CAUTION:** Avoid direct and/or over spray on the unit.
- **CAUTION:** Pump damage will result from operating the unit with insufficient water flow.
- **CAUTION:** Never allow the unit to run for more than two minutes while the trigger is released. (Closed)
- **CAUTION:** Servicing of this unit should always be referred to an authorized dealer.
- **CAUTION:** Use of an extension cord is not recommended.

OPERATOR SAFETY INSTRUCTIONS - COLD WATER PRESSURE WASHERS - GASOLINE

- **DANGER:** Carbon monoxide poisoning! Operate engine in a well ventilated area only.
 - **WARNING:** Do not operate the engine when an odor of gasoline is present or other explosive conditions exist.
 - **WARNING:** Do not operate the engine without a muffler. Inspect the muffler periodically and replace it if necessary.
 - **WARNING:** Do not operate the engine with an accumulation of grass, leaves, dirt or other combustible material in the muffler area.
 - **WARNING:** Do not use this engine on any forest covered, brush covered or grass covered unimproved land unless a spark arrester is installed on the muffler.
 - **WARNING:** Do not touch hot mufflers, cylinders, or fins as contact may cause burns.
 - **WARNING:** Pull the starter cord slowly until resistance is felt. Then, pull the cord rapidly to avoid kickback and prevent hand or arm injury.
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- **WARNING:** Only fill the gasoline tank in an open area. Do not fill the tank near open flames or while the engine is running. Do not smoke while filling the tank. Do not overfill the tank. Wipe up any spills. Tighten the cap on the tank when finished.
 - **WARNING:** This is a high pressure spraying system. Water under high pressure can cause severe injury. To prevent injury, do not point the nozzle at any part of your body or at any other person. The pressure can cut skin and cause burns. Keep all persons away from the machine and the spray area.
 - **WARNING:** Make sure the spray nozzle and the hose are securely fastened before operating the machine. Do not remove the nozzle or disconnect the hose while the system is pressurized.
 - **CAUTION:** Never operate the unit when the engine/pump is low on oil.
 - **CAUTION:** Avoid direct and/or over spray on the unit.
 - **CAUTION:** Pump damage will result from operating the unit with insufficient water flow.
 - **CAUTION:** Never allow the unit to run for more than two minutes while the trigger is released. (Closed)
 - **CAUTION:** Servicing of this unit should always be referred to an authorized dealer.
 - **CAUTION:** Do not run the engine with air cleaner or air cleaner cover removed.
 - **CAUTION:** Do not tamper with the governor springs, governor links or other parts which may increase the governed engine speed.
 - **CAUTION:** Keep the cylinder fins and governor parts free of grass and other debris as this can affect the engine speed.
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