



POWER WASH SAFETY

WITH VACUUM SYSTEM

09-18-2023

Employee Name _____

Date _____

Company Name _____

Date _____



Safety Guidelines for Operating High Pressure Washer Equipment



It's imperative that all operators read the safety and operating instructions before using any Power Line Industries, Inc. product. Pressure Washing can be dangerous if proper procedures are not followed and appropriate safety gear is not utilized. Read the engine owner's manual for instruction and safety precautions on engine operation.



This safety guideline must be reviewed and signed by all operators prior to running any high pressure washer equipment.

☐ **PRESSURE WASHER SAFETY**

Pressure Washing is a serious business that can result in serious injury or death when proper safety precautions are not followed. Awareness of common jetting hazards, knowing how to protect oneself from them, and learning and practicing the proper safety procedures can greatly reduce the chances of disaster striking at unexpected moments.

☐ **COMMON PRESSURE WASHING HAZARDS**

When water is pressurized to 4,000 PSI, it becomes a potentially deadly force that can easily result in serious injury when the water jet comes into contact with skin or eyes. The impact of a high pressure nozzle, leaky hose or being hit by wash debris (rocks, etc.) can cause potentially life threatening injuries. When washing is performed in confined spaces other OSHA rules for confined space entry and personal protective equipment must be followed.

☐ **PERSONAL PROTECTION**

Proper dress is also important when performing high-pressure water power washing. Coveralls should be worn. A heavy duty raincoat should also be worn to keep technicians dry and to help provide a barrier in the event there is contact with flying debris from washing.

Safety goggles should always be worn to protect the eyes from high pressure washing. Water pressure above 2,000 PSI requires a full face shield, and at 4,000 PSI the water jet can literally tear an eyeball from its socket.

Heavy duty, waterproof gloves (insulated, if running hot water) are needed to protect the hands. Rubber boots with metatarsal guards are highly recommended. Hard hats are necessary in environments where falling objects are a potential hazard.

HAZARDOUS BACTERIA AND MATERIALS

Some areas can carry bacteria and other infectious micro-organisms or materials which can cause death or severe illness. Avoid exposing eyes, nose, mouth, ears, hands and cuts and abrasions to waste water or other potentially infectious materials during cleaning operations. To further help protect against exposure to infectious materials, wash hands, arms and other areas of the body, as needed, with hot, soapy water and, if necessary, flush mucous membranes with water.

GASOLINE IS EXTREMELY FLAMMABLE AND IS EXPLOSIVE UNDER CERTAIN CONDITIONS

- ☐ Refuel in a well ventilated area with the engine stopped. Do not smoke or allow flames or sparks in the area where the engine is refueled or where gasoline is stored.
- ☐ Do not overfill the fuel tank (there should be no fuel in the filler neck). After refueling, make sure the tank cap is closed properly and securely.

CARBON MONOXIDE DANGERS

Carbon monoxide exhaust and/or gasoline fumes from this equipment can create a hazardous atmosphere in confined spaces, closed garages or other areas which may not be properly ventilated. In particular, excess gasoline fumes can create an explosion hazard. Such hazardous atmospheres can cause death or severe injury. Do not operate this equipment in any confined space or area with inadequate ventilation. Operate this equipment only when located outdoors or in an open, well ventilated area.

HOT WATER PRECAUTIONS

Water heated above 120° can cause severe burns/scalding type injuries. Extreme precautions should be followed to prevent burns. The correct PPE equipment must be worn.

TRAILER SAFETY

It is recommended to retighten and check all fasteners and lug nuts on a regular basis. Trailers create a lot of vibration and fasteners can come loose. Be sure to gather all miscellaneous parts and secure before traveling.



WARNING!

**OPERATING WITH HIGH TEMPERATURE WATER
MAY CAUSE SEVERE BURN INJURIES OR DEATH!**



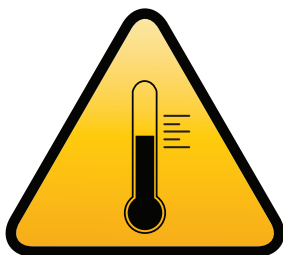
TEMPERATURE	TIME TO PRODUCE SERIOUS BURN
120° F	More than 5 minutes
125° F	1.5 to 2 minutes
130° F	About 30 seconds
135° F	About 10 seconds
140° F	About 5 seconds
145° F	Less than 5 seconds
150° F	About 1.5 seconds
155° F	About 1 second

Source: Rheem Manufacturing Co. • PO BOX 244020, Montgomery, AL 36124

WATER TEMPERATURE °F (°C)	TIME FOR 1 ST DEGREE BURN (Less Severe Burns)	TIME FOR PERMANENT BURNS 2 ND & 3 RD DEGREE (Most Severe Burns)
104-110 (43.3)	(normal shower temperature)	
116 (46.7)	(pain threshold)	
122 (50)	35 minutes	45 minutes
131 (55)	1 minute	5 minutes
140 (60)	5 seconds	25 seconds
149 (65)	1 second	2 seconds
154 (67.8)	instantaneous	1 second

U.S. Government Memorandum, C.P.S.C., Peter L. Armstrong, Sept. 15, 1978

WARNING



**TO PREVENT POTENTIAL SCALDING
DO NOT OPERATE WITH HEAT SET
ABOVE 120°**

**PARA EVITAR POTENCIALES ESCALDAS
NO OPERE CON EL CALEFACTOR
SUPERIOR A 120°**

CUIDADO

OPERATOR AGREEMENT

As the operator I understand the potential and intent for the use and limits of the high pressure washing equipment and high temperature of water generated by this equipment. (If a hot water unit was ordered). I have received and read the complete set of instructional and safety literature and shall use extreme care in the operation of the equipment.



Improper use of this equipment can cause extreme physical harm, severe burns, and potentially life threatening injuries.

I UNDERSTAND THE PRECAUTIONS FOR SAFE OPERATION OF THIS HIGH PRESSURE EQUIPMENT AND AGREE TO THE FOLLOWING:

- ☐ When using a pressure washer I will always follow the safety instructions.
- ☐ Under no circumstances should I or anyone operate this or any equipment without proper training.
- ☐ Under no circumstances will I aim the spray or gun at any person or any part of the body. Fluids under pressure will penetrate the human skin and can cause severe injury. If any injury occurs, seek immediate medical care from a doctor! Do not treat as a simple cut! Be ready to tell your doctor or hospital emergency room doctor exactly what happened.
- ☐ Under no circumstances will I use halogenated hydrocarbon (hhc) solvents in this system. It contains aluminum parts and may explode.
- ☐ Under no circumstances will I alter equipment in any manner. If repairs are necessary, use only genuine factory repair parts.
- ☐ Under no circumstances will I spray flammable materials.
- ☐ When using a pressure washer I will never exceed the maximum operation pressure of the lowest rated accessory item within the spray system. Even though some of the accessories have a higher maximum pressure rating.
- ☐ Under no circumstances will I leave equipment under pressure, unattended, even for only a few minutes.
- ☐ When using a pressure washer I will relieve pressure by shutting off power to sprayer and operating trigger until all fluid ceases to flow.
- ☐ Under no circumstances will I use a damaged or weakened hose.
- ☐ When using a pressure washer I will always be aware of my surroundings. The fast, strong spray of the equipment can throw objects that strike and injure others who are close. When operating this equipment, projectiles can harm or damage people, property or yourself.

Environmental: The conditions of use are beyond the control of vendor, therefore operator is responsible for the safe environmental operation of this equipment and potential cleaning discharges.

Customer is Responsible: For complying with local codes and regulations in the operation of this equipment.

TRAILER SAFETY

It is recommended to retighten and check all fasteners and lug nuts on a regular basis. Trailers create a lot of vibration and fasteners can come loose.

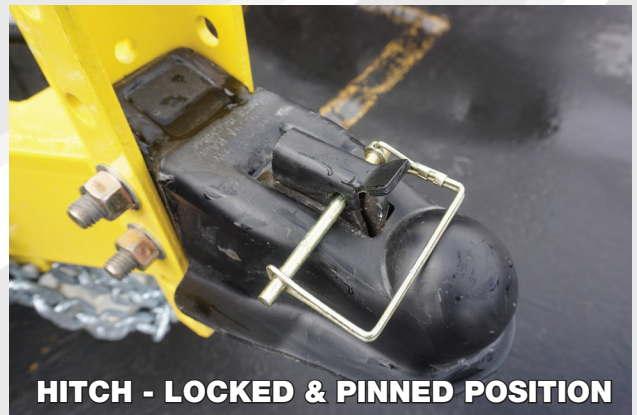
TRAILER

IT'S MANDATORY TO RETORQUE YOUR LUG NUTS TO 120 FT. LB. ON TRAILERS EVERY 50-100 MILES AFTER PURCHASE.

- ☐ Check hitch chains - make sure the chains are properly attached to tow vehicle. Make sure they do NOT drag and are criss-crossed.
- ☐ Check battery charge on break away battery.
- ☐ Check tires and tire pressure.
- ☐ Be sure the jack stand is up.
- ☐ Check brakes lights, turn signal lights and running lights are operating properly.
- ☐ Towing vehicle needs to be of adequate size and hauling capacity.
- ☐ Bumper or Hitch is adequately rated and properly secured.
- ☐ **Pin & Clip securing insert into receiver**
- ☐ **Make sure towing ball is the correct size**
- ☐ Ball is tight
- ☐ Trailer brakes are working properly
- ☐ Lugs nuts are tight (Recheck on a regular basis)
- ☐ Re-check all fasteners and lug nuts periodically during use.
- ☐ **BEFORE towing - perform a complete trailer walk-around - looking for any loose parts, etc.**



HITCH - RELEASED POSITION



HITCH - LOCKED & PINNED POSITION

CAUTION / WARNING

SAFETY / SERVICE UPDATE 2020

Your hot/high temperature hydro-blaster comes equipped with three (3) safety systems:

1. **High Pressure Relief Valve** - Relieves high pressure build-up.
1. **Pressure Switch** - This turns the heater system on/off.
1. **Thermostat** - This turns the heater system on/off - depending on desired temperature!

These three safety systems are proven extremely reliable.

If, by chance, a safety system fails and the heating system stays on WITHOUT water flow, this can create a potential life threatening steam explosion! Turn entire heating/motor system off and allow to cool for 10 minutes.

DO NOT CONTINUE TO USE SYSTEM!
CALL OUR SERVICE DEPARTMENT AT 1-800-624-8186.

**DO NOT PULL TRIGGER
or
TURN VALVE TO ALLOW WATER TO FLOW!**
SIMPLY: TURN ENTIRE SYSTEM OFF.

**An extremely hot heating coil will steam when water is added
and can create a steam explosion!**

CHLORINE BLEACH SAFETY

What is the Proper Mixing Solution Using Bleach?

The CDC recommends¹ a diluted bleach solution can be used if it's appropriate for the surface. Manufacturer's instructions are to be adhered to, proper ventilation provided and use of PPE (Personal Protective Equipment). Check to ensure the bleach is not past its expiration date. Never mix household bleach with ammonia or any other cleanser. Unexpired household bleach will be effective against coronaviruses when properly diluted.



DO NOT MIX THESE CLEANING PRODUCTS

BLEACH + VINEGAR

Bleach and vinegar mixture produces chlorine gas, which can cause coughing, breathing problems, burning and watery eyes.



BLEACH + AMMONIA

Bleach and ammonia produce a toxic gas called chloramine. It causes shortness of breath and chest pain.

CAUTION: SOME DISH SOAPS CONTAIN AMMONIA!



BLEACH + RUBBING ALCOHOL

Bleach and rubbing alcohol makes chloroform, which is highly toxic.



HYDROGEN PEROXIDE + VINEGAR

This combination makes peracetic/peroxyacetic acid, which can be highly corrosive.



Source: Riverside County Fire Department

¹ https://www.cdc.gov/coronavirus/2019-ncov/prepare/cleaning-disinfection.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fcommunity%2Fhome%2Fcleaning-disinfection.html

CHLORINE BLEACH SAFETY

Chlorine bleach is a common household chemical with unique properties that make it useful in flood cleanup and recovery activities.

Essentially, chlorine bleach is a diluted mixture of water and sodium hypochlorite. Typically, it is sold over the counter as a laundering and cleaning solution with concentrations of sodium hypochlorite ranging from 4 to 6 percent. It also is sold as a sanitizing and/or disinfecting agent and may have concentrations ranging from 4 to as high as 9 percent.

Sodium hypochlorite, the active ingredient in chlorine bleach, is a very powerful oxidizer. Oxidation reactions are corrosive, and solutions burn skin and cause irreversible eye damage, particularly when used in concentrated forms. Thus, users must take a number of precautions to avoid personal injury when working with bleach.

When handling relatively concentrated chlorine bleach right out of the container, always:

- Wear eye protection such as wrap-around safety glasses and/or goggles to avoid getting the bleach in your eyes.
- Wear rubber household gloves or nitrile gloves to avoid skin exposure.
- Wear clothing that will cover your skin in case of spills. At a minimum, wear a long-sleeved shirt, pants, socks and shoes. If you want additional protection, chemical protective aprons and disposable protective suits are available from pesticide safety or industrial safety equipment suppliers.
- Open the container and mix out of doors or in a very well-ventilated room to avoid a buildup of vapors, which can cause eye and/or respiratory irritation.
- Wash your hands vigorously with mild soap and water before you use the bathroom, eat, smoke or use smokeless tobacco.
- Shower and wash yourself thoroughly with soap and shampoo at the end of the day.

If exposed to the concentrated material:

- Eyes: Hold the eye open and rinse slowly and gently with water for 15 to 20 minutes. Remove contact lenses, if present, after the first five minutes, then continue rinsing the eye. Call a poison control center or doctor for treatment advice.
- Skin or clothing: Take off the contaminated clothing. Rinse the skin immediately with plenty of water for 15 to 20 minutes. Call a poison control center or doctor for treatment advice.
- Swallowed: Have the person sip a glassful of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

When working with bleach diluted with water and/or soap, remember to:

- Continue to protect your eyes and skin by keeping them covered.
- Make sure the area you are working in is very well-ventilated. If possible, use fans to exchange inside air with outdoor air and leave windows or doors open for the maximum dissipation of vapors.

CHLORINE BLEACH SAFETY

- Wash your hands vigorously with mild soap and water before you use the bathroom, eat, smoke or use smokeless tobacco.
- Shower and wash yourself thoroughly with soap and shampoo at the end of the day.

These are some additional issues to consider when working with bleach:

- It will fade colors in clothes and slowly break down cloth fibers.
- It is corrosive to bare metals.
- Vapors can cause people who have compromised respiratory systems (for example, those who suffer from asthma, allergies and/or COPD (chronic obstructive pulmonary disease)) to experience serious discomfort or even acute distress that may require medical attention.
- A toxic gas will be released if bleach is mixed with other cleaning agents, especially ammonia. An explosion can occur if sufficient quantities are mixed.
- Follow all applicable safety precautions and use the instructions on the product label.

Source:

Chlorine Bleach Safety

North Dakota State University

Andrew Thostenson, Extension Pesticide Program Specialist

<https://www.ag.ndsu.edu/flood/home/chlorine-bleach-safety>

Industrial Sodium Hypochlorite Safety Tips

Industrial use of bleach is very commonplace, particularly with buildings that have a large, public exposure, such as pools, hospitals, restaurants, etc. There are industrial-strength bleaches available for this type of cleaning, with the sodium hypochlorite compound comprising approximately 10-12 percent of the overall industrial bleach mixture. Therefore, industrial exposure and use has higher risks than normal household use.

The NIOSH recommended exposure limit (REL) is 0.5 part per million (ppm), which should not be exceeded during any 15 minute work period. The American Industrial Hygiene Association recommends a Workplace Environmental Exposure Level (WEEL) of 2 mg/m (milligrams of a chemical in a cubic meter of air) for a 15 minute work period.

For those businesses and industries with employees using bleach, proper workplace controls and practices need to be implemented and personal protective equipment (PPE) need to be provided, including eyewear, clothing and gloves. All employees handling sodium hypochlorite also need to be properly trained on storage of the chemical.

Source:

Bleach (Sodium Hypochlorite) Safety Tips: Bleach Safety Instruction

<https://www.msdsonline.com/2014/02/12/bleach-sodium-hypochlorite-safety-tips-bleach-safety-instruction/>

CDC FACT SHEET

Pressure Washer Safety



A pressure washer is a power tool that sprays water at high pressures to clean large, sturdy surfaces such as buildings, farm equipment and roads. Pressure washers may be used more often during disaster clean up when the risk of injury may be higher. When using a pressure washer, always follow the safety instructions included in the owner's manual.

The strong spray from a pressure washer can cause serious wounds that might first appear minor. Wounds that appear minor can cause a person to delay treatment, increasing risk for infection, disability or amputation.

Risks

- ☐ The fast, strong spray can throw objects that strike and injure others who are close by.
- ☐ Electric shock can occur if the pressure washer is not used properly and if safety instructions are not followed.
- ☐ Using gasoline powered engines can cause carbon monoxide poisoning. Workers should not use any equipment powered by gasoline engines inside buildings or other partially enclosed spaces unless the gasoline engine can be placed outdoors and away from air intakes.

Precautions

- ☐ Never point a pressure washer at yourself or others.
- ☐ Never attempt to push or move objects with spray from the washer.
- ☐ Never use a gasoline powered washer in an enclosed space.
- ☐ Always test the ground fault circuit interrupter (circuit breaker or outlet) before using a pressure washer.
- ☐ Always plug a properly grounded pressure washer into a properly grounded receptacle.
- ☐ If an extension cord must be used, keep the pressure washer's power cord connection out of any standing water, and use a heavy duty extension cord with components rated for use in wet locations. Keep both the power cord and extension cord connections as far away as possible from the item being washed and away from any water runoff.
- ☐ Wear rubber soled shoes that provide some insulation when using the pressure washer.
- ☐ Never cut or splice the pressure washer's power cord or extension cords.
- ☐ Never remove the grounding prong from the pressure washer's power cord plug or the extension cord.
- ☐ Always have a qualified electrician check the pressure washer for electrical problems after it has tripped a circuit breaker.
- ☐ Never allow children to operate a pressure washer. Keep children at a safe distance when an adult is using a pressure washer.

If you are hurt by a pressure washer Call 911 if emergency help is needed.

Take care of any wounds

- ☐ Before treating the wound, wash your hands with soap and clean water.
- ☐ Remove any object that is in the way of caring for the wound.
- ☐ Put pressure on the wound with a clean cloth to stop bleeding.
- ☐ After bleeding has stopped, pour bottled or clean running water over the wound.
- ☐ Gently clean around the wound with soap and clean water.
- ☐ Pat dry and use an adhesive bandage or dry clean cloth to cover the wound.
- ☐ Leave unclean wounds open.
- ☐ Persons who have high pressure spray wounds are urged to get medical attention as soon as possible.
- ☐ A medical professional might XRay the injured area, provide a tetanus shot and antibiotics, or make a referral to a specialist.

SAFETY FOR VACUUM OPERATION

WARNING SHEET FOR ENGINE DRIVEN, VACUUM SYSTEMS FOR ALL PERSONNEL WORKING WITH OR AROUND THE VACUUM SYSTEM

(Please see owners manual for additional safety precaution warnings)

Safety is everybody's business and is based on your use of good common sense. All situations or circumstances cannot always be predicted and covered by established rules. Therefore, use your past experience, watch out for safety hazards and be cautious. Some general safety precautions are given below:

- ☐ This machine is to be **used only by qualified operators**.
- ☐ Inspect general condition of unit . . **NOTICE** any sign of leaks of vacuum or oils from anywhere. **DO NOT USE UNTIL LEAKS ARE REPAIRED**.
- ☐ Safety and the condition of this equipment deserves your awareness. **KEEP CHILDREN away from this equipment!**
- ☐ **Warning - Read ALL operating & warning sheets, and manuals before using!**
- ☐ **DANGER! Keep flammable's away from vacuum system at ALL times.**
- ☐ Use only recommended fuels. Always **use a funnel** or proper pour spout for refueling. **Always turn the system off and let it cool before refueling.**
- ☐ Use in a **well ventilated area** as with any engine driven system
- ☐ Keep hands and clothing **clear** of suction ports! **THIS IS ESSENTIAL!!**
- ☐ **Never** leave machine running unattended.
- ☐ **Never** operate unit with a damaged hose or leaking fittings.
- ☐ Always wear **protective gear**: face shield, gloves and hearing protection when operating.
- ☐ It is important that you **always check** and understand the functions of your system.
- ☐ Keep ALL flammable's away from the vacuum **AT ALL TIMES!**
- ☐ **Keep body parts and clothing away from vacuum. NEVER** allow any **body part or clothing** to get sucked with vacuum . . .eyes can be lost in a flash!
- ☐ Inspect hose and filters for damage debris, and wear. Repair any problems areas before use.
- ☐ **DON'T** run vacuum with hose off, except at an **IDLE** while you lubricate its intake. These units have enough power to draw fingers and clothes which can cause severe injuries.
- ☐ **Do not** loosen or remove the oil filler plug, drain plugs, covers or break any connections, etc., in the blower air or oil system until the unit is shut down and the air pressure has been relieved.
- ☐ Disconnect the blower from its power source, tag and lockout before working on the unit.
- ☐ **Do not operate** unit if safety devices are not operating properly. Check periodically. Never bypass safety devices.
- ☐ Read blower Owner's Manual for details of use and safety!

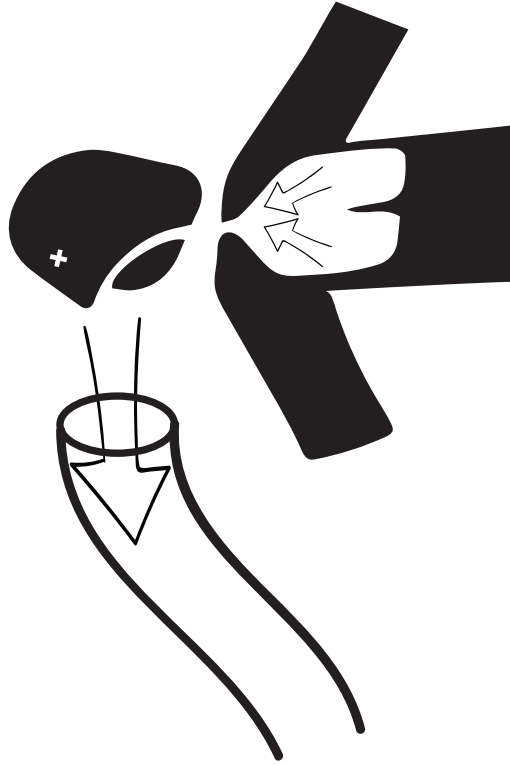


**IN CASE OF EMERGENCY:
PUSH BUTTON TO SHUT
OFF ENGINES**

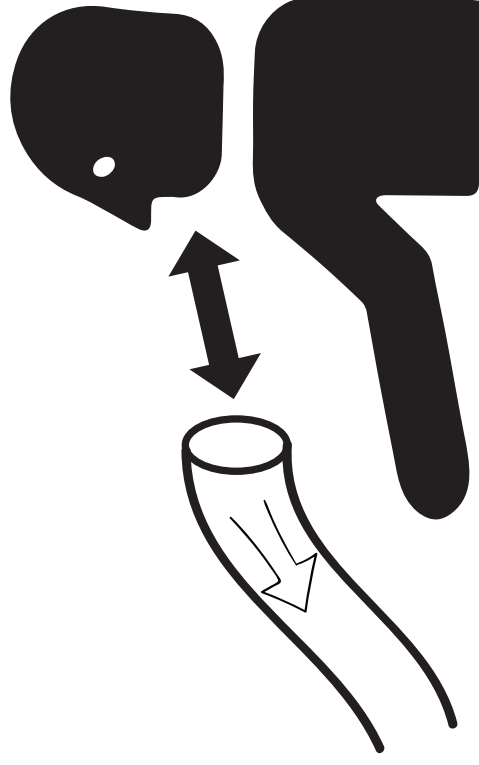


WARNING
ADVERTENCIA

DANGER!
¡PELIGRO!



**VACUUM CAN SUFFOCATE OR
DAMAGE VISION, HEARING,
SKIN AND INTERNAL ORGANS.**
**VACÍO PUEDE SOFOCARTE O DAÑAR
VISIÓN, OÍDOS, PÍEL Y ORGANOS INTERNOS.**



**KEEP HOSE END AWAY FROM
FACE AND BODY.**
**MANTENGA EL MANGUITO TERMINANDO
DESDE CARA Y CUERPO.**

OPERATOR AGREEMENT:

Safety Guidelines for Operating High Pressure Washer Equipment (cont.)

If you Spray Yourself at Close Range, the High Pressure Stream of Water Can Pierce Your Skin and Cause Physical Harm. Severe Burns, Possible Amputation, and Even Death. See your Physician Immediately if an Accident Occurs.

Keep children at a safe distance when using a PRESSURE WASH SYSTEM.

Operator is in agreement that they have read this form and fully understand its contents. The undersigned operator represents and warrants that they shall comply with all applicable Federal, State and Local laws, regulations and rules while using the equipment.

Operator is in agreement that they have read this form and fully understand its contents. The undersigned operator is ultimately responsible for evaluating the hazards and safe operation of this equipment.

Company Name _____
(if applicable)

Date _____

Print Customer Name _____

Date _____

Customer Signature _____

Date _____

Power Line Signature _____

Date _____

Employee Name (print) _____

Employee Signature _____

Date _____



WARNING

This product can expose you to chemicals, including LEAD which is known to the state of California to cause cancer or birth defects or other reproductive harm. Go to www.p65warnings.ca.gov for more information. The products we sell are not intended for use in potable water systems and are only for industrial non-drinking water applications.

This product can expose you to chemicals, including DINP and/or DEHP which is known to the state of California to cause cancer or birth defects or other reproductive harm. Go to www.p65warnings.ca.gov for more information. The products we sell are not intended for use in potable water systems and are only for industrial non-drinking water applications.