



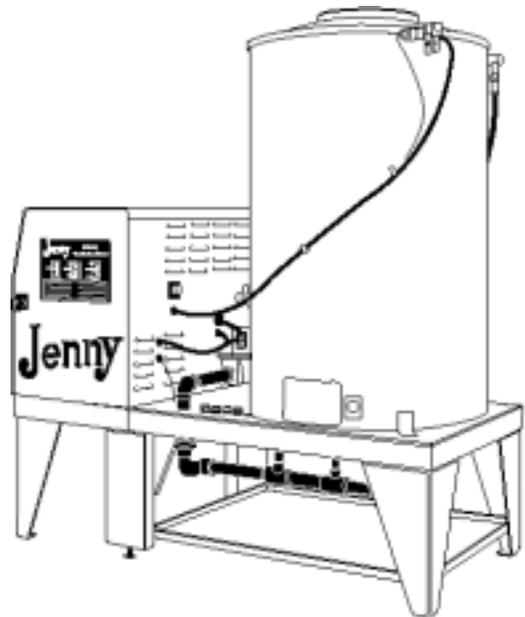
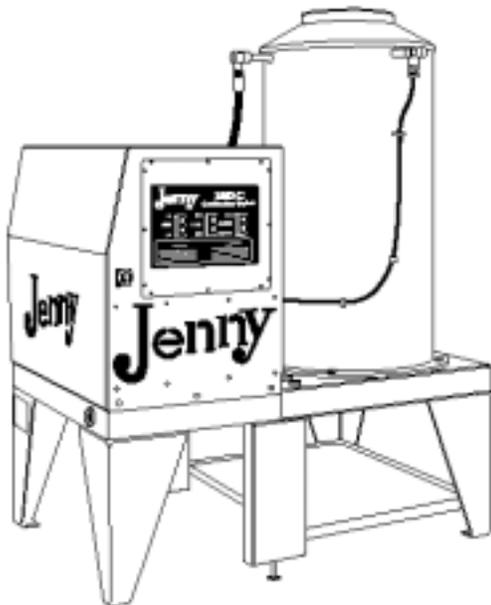
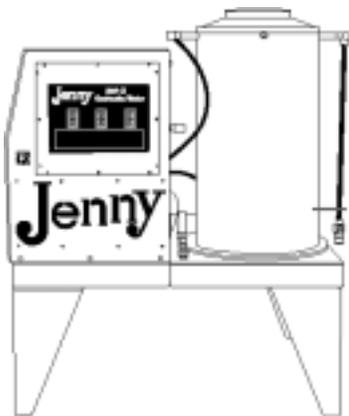
Gas Fired Machines

All Models

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Owner's Manual

- Assembly & Start-up
- Operation
- Maintenance
- Cleaning Compounds
& Mixing
- Trouble Shooting



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Thank you !

For ordering a **Jenny**[®]. Jenny has been manufacturing steam cleaners and pressure washers since 1927. We feel sure that each day you will appreciate more and more the savings in time and labor and the profit-making possibilities afforded by your new Jenny. Special attention has been given to every detail of engineering design, perfection of manufacturing methods, individual part inspection and thorough testing upon completion to assure the continuous trouble-free operation of your Jenny.

In short, your Jenny was designed and made by customer-minded workers. If you, for any reason, fail to find that our product serves as you believe it should, you will be doing yourself and us a favor by telling our Customer Representative, through our Distributor - or direct, just how our product has failed to please you. Over the years we have found that when troubles are reported by our customers, both of us profit. So please help us to serve you properly, which is our first desire.

Jenny Cleaning Compounds are made exclusively for use with Jenny and are the best, most economical and most effective cleaning agents you can employ. They have no gritty or insoluble matter which might damage the coils or pumping mechanism of your unit. They contain active chemicals and are highly concentrated for 100 per cent cleaning and maximum economy. Your Jenny Distributor will be pleased to supply your needs.

In the march of progress, engineering and design changes are inevitable, therefore, we reserve the right to vary our designs and/or specifications without implying that they need to be installed on previous models. If you have occasion to order parts or request information about your Jenny, be sure to give model and serial number.

You will find this booklet a valuable guide to the proper and safe operation and maintenance of your new Jenny. It is intended to be used by anyone using or maintaining the equipment. Follow the instructions carefully and you will assure yourself of the utmost in cleaning efficiency and economy.

How we clean...

There are four elements necessary for efficient cleaning no matter what method is used. They are:

- 1. WATER**
- 2. CHEMICAL**
- 3. HEAT**
- 4. PRESSURE**

Varying any one of these four elements will change the cleaning characteristics. Because of this, compensation can be made for deficiencies in any element. In other words, if you were to use a small amount of chemical, or a weak one, then by adding more heat or pressure effective cleaning could be attained. However, for any type of cleaning, there is always **one combination** of these elements which produces the best results from a standpoint of time required, thoroughness and cost.

Washing one's hands is an example of the four "elements of cleaning" at work. When hands are simply coated with a dried non-greasy deposit, water alone will wash it away. A high volume of free flowing water will speed the process because the impinging force loosens the dirt and the volume floats or flows it away.

When dirt contains an oil, or grease, a chemical must be used. In hand-washing the chemical is commonly referred to as soap. Because soap is an emulsifier, the hands can be cleaned, to some degree, using cold water. After the soap is applied, the hands are rubbed briskly together. The friction creates heat plus an abrasive action, which help to break down and loosen the dirt particles. Using hot free-flowing water will result in faster cleaning as the soap and heat will emulsify the dirt more effectively, while the impingement of the pressure loosens it and the volume carries it away.

Steam Cleaning Concept

Someone once thought that if cleaning efficiency increases in ratio to the temperature of water used, then steam would provide an excellent cleaning medium. They quickly learned, however, that steam being a wholly gasified liquid-lacking in mass or body-will not clean. Steam, for cleaning purposes, can be compared with air as used in sandblasting. Air in itself does not clean. It is only the carrying medium. The sand particles actually do the cleaning. When this fact became known, the next logical step was to blend water with the steam thus providing body for impingement and flushing action. But this, too, proved to be ineffective. The heat of this steam did tend to break down the dirt deposit, and the added water provided a moving force. But the end result was simply displaced dirt . . . dirt moved from one area to another. It was quite evident that another element was necessary if *thorough* cleaning was to be done.

A chemical was next added to provide an emulsifying agent. Now with water, steam and chemical, the dirt was emulsified, loosened and carried away.

THIS, IN ESSENCE, IS EXACTLY HOW A JENNY STEAM CLEANER OR PRESSURE WASHER OPERATES AND CLEANS. IT COMBINES, IN BALANCED COMBINATION, THE FOUR ELEMENTS NECESSARY FOR EFFECTIVE THOROUGH CLEANING . . . WATER, CHEMICAL, HEAT AND PRESSURE.

Pressure Washer Concept

The next logical step for Jenny was to find differing combinations of the four basic cleaning elements that were effective and performed a thorough cleaning job. It was clearly evident that changes in any one of the four elements of cleaning could be compensated for by changes in another element. From the varied attempts, it was clearly evident that a balance could be reached using a lower temperature or ambient temperature at a very high pressures and increased volumes of water. This conclusion brought forth the Hot Pressure Washers and Cold Pressure Washers.

How a Jenny Works...

It should be made clear at this point that a steam cleaner does not generate steam in the true sense of the word. The name of the machine is a gross misnomer. It is actually a CHEMICAL VAPOR SPRAY CLEANER!

The reason the name has persisted is because the vapor spray directed through a cleaning gun does resemble steam. Actually it consists of 85-90% solid water. The remaining steam is a by-product of creating pressure through heat. Because the name steam cleaner is synonymous with this type of cleaning device we will continue to refer to the machine as such.

At normal atmospheric pressures water heated in an open pan boils at 212° F. However, if the pan is covered, such as in the case of a pressure cooker, the water can be heated to temperatures above 212°F before boiling. Much the same happens in a Jenny Steam Cleaner . The heating coil located within the combustion chamber of a steam cleaner is subjected to intense heat. As cold water is pumped through the heating coil an orifice, or restriction, placed at the discharge end impedes its flow. As the water is heated it cannot expand, nor convert to steam, because of the “artificial atmosphere” created by the restriction. Because this condition exists the water reaches a temperature of 325°F., and yet remains in solid form. Once past the restriction the water does have a chance to partially vaporize and when finally escaping to atmosphere the temperature immediately drops to its atmospheric boiling point (212°F). As this happens the spray bursts into millions of tiny droplets of water having a great impingement force (The expansion of the water to Psteam can be up to 170 times).

Typically, the operating temperatures of pressure washers are far below a steam cleaner's 325 Degrees F running somewhere between ambient temperature and 180-200 Degrees F

depending on the type of pressure washer. Since these temperatures are below the boiling point of water, the water is incapable of producing pressure through elevated temperatures. Consequently, another method of producing pressure must be employed. High pressure and volume pumps are employed to achieve the desired pressures. The high pressure pumps are capable of producing incredible water pressures at very high flow rates. The pressures can reach upward of 5000 pounds per square inch (PSI) and the volumes can be as great as 10 gallons per minute (GPM).

Pressure Washers do not create steam at 325°F and subsequently do not achieve their impingement forces the same way as do steam cleaners. Pressure washers achieve their impingement force through the use of higher pressures and volumes since the temperatures produced do not cause a vapor expansion like a steam cleaner. Pressure washers make up this deficiency in temperature with the combination of increased pressures and volumes. The pressures can reach upward of 5000 pounds per square inch (PSI) and the volumes can be as great as 10 gallons per minute (GPM). This allows pressure washers to achieve similar cleaning results as steam cleaners since the increased pressures and volumes will compensate for the temperature differences.

There are basically two types of pressure washers; Hot Pressure Washers and Cold Pressure Washers. The both work in a very similar manner with the only difference being the addition of heat.

Hot Pressure Washers function somewhat differently than Steam Cleaners although they both may have almost completely identical systems. Hot Pressure Washers do not create steam at 325°F and subsequently do not achieve their impingement force as the super heated water reaches the atmosphere as described above. However, the water is heated to approximately 160° to 200°F and the impingement force is attained from the very high pressure and volume generated by the pumping system. This allows Hot Pressure Washers to achieve very similar cleaning results as steam cleaners on many applications.

Cold Pressure Washers, as the name implies, use cold or ambient water temperatures in the cleaning process. With the lack of heat, we found that by using a larger volume of water at significantly increased pressures we could achieve similar cleaning results as many steam cleaners and hot pressure on applications where the cleaning was not grease or oil based. Unlike a steam cleaners which achieve their impingement force from the 140-170 times expansion of super heated water hitting the atmosphere, cold pressure washers attain this force through shear pressure and an increased volume.

It must be noted at this time, that every type and style of pressure washer and steam cleaner has certain applications in which they will produce the best overall cleaning result based on the application, specified criteria, time required, cost, and thoroughness of the job. Not any one machine is the best overall at every application. There is continually a trade off of effective versus efficient cleaning.

This continual trade-off led to the idea of the Combination machine. Combination machines combine the cold pressure washer, hot pressure washer into the same unit, hence, the name Combination Machine. With these types of unit, you get the versatility of 3 cleaners in 1. As

easy as flipping a switch, the machine can go from a cold pressure washer to hot pressure washer. Change the tip in the gun and flip the machine selector switch, and the machine becomes a 325°F steam cleaner.

Jenny's Four Basic Systems...

A Jenny Steam Cleaner or Hot Pressure Washer has four basic systems. They are:

1. WATER
2. SOLUTION (chemical or “soap”)
3. FUEL
4. ELECTRICAL

Through these four basic systems we combine the cleaning elements (water, chemical, heat and pressure) in a fully self-contained unit. These four systems will be described in more detail.

WATER SYSTEM

Water enters into the system through an inlet strainer into a float valve and into the float tank. The inlet strainer will filter out particles that are being carried in the water supply hose. The float valve and float tank provides the system with a 3" water break so that a backflow condition cannot arise, as well as, a minimum of 1.5 gallons of reserve water to help with fluctuating water supply conditions. The float valve in the float tank helps maintain the proper water level in the float tank.

Water is drawn from the float tank, at a constant volume, through an outlet strainer by the pump where the pressure is increased dramatically. The pump is equipped with an accumulator, a device which absorbs hydraulic pulsations in the water system created by the actions of the pump. Because the unit is equipped with nozzle control, an unloader, a flow actuated valve, is also connected in series to the outlet of the pump. The unloader diverts the water from the pump back to the float tank when the cleaning gun is closed.

In Combination units, a panel-mounted selector valve is used on the output side of the pump to return a fixed volume of water back to the float tank. The volume of water “dumped” in this fashion is determined by an orifice placed in the return line and the amount the valve has been opened. The valve used to control this dumping is called the selector valve. In its closed position, it permits the full pumped volume of water to pass through the heating coil; when this valve is opened, a measured volume of water returns to the float tank, thus reducing the volume of water pumped through the heating coil which subsequently increases the temperature rise of the pumped water.

The discharge line from the pump connects to the inlet of the unloader valve which diverts the flow of water back to the float tank when the hand operated valve on the cleaning gun is closed. The water then flows (when the hand operated valve is in the open or on position) through a flow switch or pressure switch which controls the operation of the gas solenoid and the solution solenoid. Just before the coil inlet there is a pressure relief valve which will protect the coil and pump from a blocked cleaning gun and will provide an indication of restrictions which may be present in the coil. Water passes through the coil, where it is heated, and then into a fitting assembly which includes a fixed setting high temperature limit thermostat. This thermostat protects the system from being over heated. The hose and cleaning gun are attached to the coil outlet fitting assembly. The cleaning gun can be fitted with either a pressure wash tip or, in combination units, a steam nozzle and orifice assembly. The pressure tip and steam orifice restrict the flow of water through the system and cause the unit to operate at the correct pressure with the appropriate temperature rise. Because this unit is equipped with nozzle control, the cleaning gun handle is also a valve which will turn the cleaning spray on or off.

SOLUTION SYSTEM

The solution system for these units consists basically of a separate soap/solution container, a solution metering valve, and often a solution solenoid valve. Solution, in a high pressure soap system, is drawn from the solution container by the pump. In some cases, a soap injector is used to draw soap into the system, however, this is achieved only under low pressure applications and usually requires a special soap tip. Regardless of the system being used, the soap is drawn through a metering valve so that the desired levels of solution concentration can be obtained.

FUEL SYSTEM

Natural or LP gas, depending on how the unit was ordered, enter the unit through a main gas valve. This gas valve prevents the main gas supply from entering the burner unless either the standing pilot light is ignited and burning or the electronic ignition ignites the pilot light and determines that it is burning. All gas fired machines are equipped with nozzle control as standard equipment. When the gun is close by the operator, a flow switch or pressure switch senses that the water flow has stopped and then closes the natural gas burner solenoid valve. Also, an over-temperature switch is wired into the burner control system. If the machine begins to overheat, the over-temperature switch will not allow the main burner gas valve to open until the temperature falls below the switches safety set points. Natural and LP gas fired machines utilize a natural updraft combustion burner and **must** be equipped with the proper draft diverter and flue and must conform to local, state and federal guidelines pertaining to this type of equipment.

ELECTRICAL SYSTEM

The electrical system for these units consists of the pump motor, its on-off switch with built-in overloads (either in the motor or in the panel), a standing pilot or or electronic ignition system, burner switch to actuate the main gas solenoid, high temperature limit thermostat, and gas and solution solenoids. Nozzle Control units have a flow or pressure switch actuated by the water system which controls the gas and solution solenoids. Many of these electrical systems work in conjunction with one another to produce the desired cleaning method.

IMPORTANT!

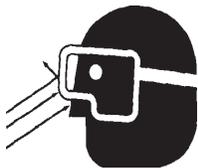
SAFETY AND HEALTH INSTRUCTIONS FOR SAFE USE

⚠ DANGER

THIS PRODUCT CAN CAUSE SERIOUS INJURY OR DEATH IF NOT USED IN ACCORDANCE WITH THE FOLLOWING SAFETY INSTRUCTIONS. WE CAN NOT ANTICIPATE EVERY POSSIBLE CIRCUMSTANCE THAT MIGHT INVOLVE A POTENTIAL HAZARD. THE WARNINGS, CAUTIONS, DANGERS, AND SAFETY SUGGESTIONS ARE THEREFORE NOT ALL INCLUSIVE. AS THE OWNER YOU ARE RESPONSIBLE FOR THE SAFE OPERATION OF THIS EQUIPMENT. ALWAYS MAKE SURE THAT ANYONE USING THIS EQUIPMENT HAS READ THIS MANUAL AND FOLLOWS THE SAFETY WARNINGS TO HELP PREVENT THE POSSIBILITY OF PERSONAL INJURY TO THE OPERATOR OR ANYONE ELSE. IF ANY OPERATING PROCEDURE, INSTALLATION, MAINTENANCE, OR WORK METHOD NOT SPECIFICALLY RECOMMENDED IS USED, YOU MUST SATISFY YOURSELF THAT IT IS SAFE FOR YOU AND OTHER PERSONS. YOU MUST ALSO ENSURE THAT THE PRODUCT WILL NOT BE DAMAGED OR MADE UNSAFE BY THE PROCEDURE YOU CHOSE.

In the event that an injury does occur, please seek medical attention at once since the equipment may cause injuries that are not initially recognized.

1. Wear proper protective clothing and equipment.



Wear full eye protection (preferably a face shield) while operating this product. The pressurized spray from this unit can cause severe injury to the eyes. It also may contain irritating or caustic chemicals.

Wear proper protective equipment (eye protection or full face protection) while pouring chemicals into the holding tank. Follow the instructions on the chemical container or accompanying Material Safety Data Sheet (MSDS Sheet).

Wear protective clothing, gloves, and rubber boots that is made of material such as vinyl, rubber or PVC which will help protect the operator from not only water, but the type of cleaning compound(s) being used and the type of dirt/grease being removed from the surface being cleaned.

2. Use proper electrical power.

Connect unit to a dedicated circuit of the proper voltage, proper rated circuit breaker, and wired with the proper wire size and number of conductors.



Never modify, bend, or cut the electrical plug. Improper connection could result, causing damage, injury, or death of the equipment operator. If the plug must be replaced, use only one with the appropriate NEMA configuration for the current requirements of the unit.

This machine must be connected to a UL Listed Ground-Fault Circuit Interrupter (GFCI) in accordance with the National Electric Code (NEC) Article 422-4 - Ed-31, Except as provided for in NEC 90-4.

Do not modify or disconnect the electrical ground sensing circuit if connected. This unit is essential to help protect the operator from electrical shock.

This machine must be properly grounded to avoid fatal electrical shock in the event of an electrical malfunction. A ground connector screw should be fastened into the chassis to facilitate supplemental grounding as permitted by NEC 250-91.

Do not connect any other equipment to the electrical circuit serving this unit.

Do not replace a fuse or circuit breaker with one of a higher rating without being certain the wire size is adequate to handle the increased electrical load.

Keep all electrical connections dry and off of the ground.

Observe all local and national codes for the installation of this type of equipment.

If an extension cord is required, please use the following criteria for extension cord selection.

- 0 to 25 Feet - At least the same size wire.
- 25 to 50 Feet - At least one wire size larger.
- 50 to 75 Feet - At least two wire sizes larger.

If an extension cord of too small a wire size is used, the voltage drop will be high, and this will cause the motor to draw excessive current and overheat.

If there are any questions or problems with the electrical system being used please, do not hesitate in calling a local qualified electrician.

3. Do not spray people, animals, or any living thing.



The pressurized spray from this product can cause serious injury or death if sprayed at people, animals, or any living thing. This machine is capable of producing extremely high pressures and/or temperatures. The high temperature pressurized spray can cut exposed flesh like a knife. The spray can also cause severe irritation, cuts and/or burns. It can inject water and/or harmful chemicals into the skin, and this can cause serious injury or death. To prevent this from happening, always hold the cleaning gun securely in both hands at all times. Never point spray at people, animals, or any living thing.

Never put hands or fingers over the spray tip while in operation.

If an accident occurs and the spray appears to have penetrated the skin, even if the injury appears to be minor, seek medical care immediately. Do not treat as a simple cut. Be prepared to tell a physician what chemicals you are using.

For Treatment instructions, have your physician contact the nearest regional poison information center for more information.

4. Do not spray energized electrical equipment.



Electrical power must be removed from all equipment that is being sprayed. Electrical current from energized electrical equipment can travel up the stream of pressurized water and cause serious injury or death. Remove power and “lock out” the switch box that supplies power. For more details, please refer to U.S. Department of Labor, Occupational Safety and Health Administration, Regulation 29 CFR 1910.147, Control of Hazardous Energy Source (lockout/tagout).

Do not permit the cleaning gun to come into contact with any energized electrical equipment. The cleaning gun is conductive and could pass electricity to the operator which may result in injury or death.

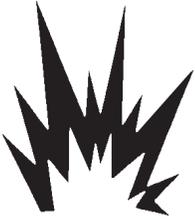
Always respect and remain alert to potential electrical hazards.

5. Do not come in contact with the exhaust gasses produced by the machine or the areas where these gasses are exhausted.



This unit combusts a fuel in a combustion chamber which is used to heat fast moving water to a very high temperature. The result of this combustion process are hot exhaust gasses which may cause some surfaces of the machine to become extremely hot. Contact with these surfaces or the exhaust gasses may result in severe burns.

6. Do not use in flammable or combustible atmosphere.



This product is not intended for use in locations where fire or explosion hazards may exist due to the presence of flammable vapors, liquids or gases or combustible dusts or fibers.

Do not use this product to spray flammable or combustible chemicals.

Do not use this product to spray petroleum-based solvents or chemicals.

7. Unplug or disconnect unit before cleaning or servicing.



To help prevent the risk of injury or death as a result of shock or electrocution while this product is being cleaned, serviced, or repaired, electrical power must be removed. Unplug or disconnect the power cord or “lock out” the switch box that supplies power. For more details, please refer to U.S. Department of Labor, Occupational safety and Health Administration, Regulation 29 CFR 1910.147, Control of Hazardous Energy Source (lockout/tagout).

Do not touch plug with wet hands.

Only qualified personnel should attempt any electrical repairs or trouble shooting on the equipment. Serious injury or death could result from improper repairs and/or trouble shooting.

8. Do not let the pump or burner run without water flowing through the unit.

Never allow the machine and/or the burner to run with out water flowing through the unit or with an inadequate water supply. This may cause severe damage to the machine, operator and/or bystander.

9. Never attempt to clean or wash down the machine using its own spray gun.



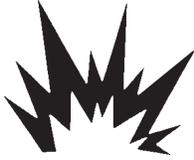
Do not use the spray wand of the machine to clean or wash down the unit. The machine is water protected, but it is not water proof. The pressure and/or high temperature will increase the risk of electrical shock to the operator and/or bystander, as well as, damage to the machine.

10. Never attempt to immediately run or relight the burner if ignition doesn't take place the first time.



If the burner does not ignite properly, do not attempt to relight the burner. Fuel gasses may have accumulated in the combustion chamber or surrounding the unit which could cause a potential explosion or fire hazard. Allow the gasses time to dissipate and ventilate the area then try ignition again. If the problem persists, please contact a qualified service technician.

11. Natural and LP Gasses are highly flammable gasses.



Due to the explosive nature of natural and LP gas, special care must be taken to ensure that there are no leaks in any lines or connections. A possible explosion may result.

12. Do not permit untrained personnel to maintain or make repairs on this unit.

Only qualified personnel should be permitted to make any type of repairs to this unit. Improper repairs may cause this unit to malfunction which could result in serious injury or death to the operator, repair person, or bystander.

13. Never modify or alter this unit.

For your own safety as well as others, never allow this unit to be altered or modified. Modifying or altering equipment to operate in a fashion other than its original design may cause serious injury or death.

Never exceed the factory pressure or temperature rating of the system. Be sure that all accessory equipment and system components meets or exceeds the pressure and temperature developed by the unit.

14. Do not operate this unit with any of the safety controls bypassed.

This unit was designed with safety in mind. Never allow anyone to bypass, modify, or alter any of the safety devices on this unit. If any of the safety devices appear to be dysfunctional, do not operate the unit and immediately contact a qualified technician.

15. Risk of Asphyxiation.



The pressurized spray from this unit can cause particles as well as vapors to become airborne. Keep a safe distance from the vapors and airborne particles. Wear protective breathing apparatus. Use only in a well ventilated area.

Never use the equipment to spray toxic chemicals. The risk of inhalation or contact with the skin may result in injury or death.

This unit must be vented outside the building. This unit produces both carbon dioxide and carbon monoxide (a poisonous gas) which can displace oxygen and may result in asphyxiation. Comply with all National, State, and Local codes for locating, venting, and using the machine in an enclosed area.

16. Do not operate with protective covers or guard removed.



Operating this machine with the protective guards or covers removed could expose high speed moving components which could allow the operator or bystander to become entangled. Entanglement in this equipment may result in serious injury, amputation, or death.

17. Do not operate with any electrical panels or covers opened.



Operating this unit with any of the electrical panels or covers opened may expose high powered electrical connections and/or components which may come in contact with the operator or a bystander or be splashed or sprayed inadvertently. Contact with high powered electrical equipment either by person or water could result in serious injury or death.

18. Do not operate unit with damaged or worn hose, fittings, clamps, or spuds.



Always check the cleaning hose, by-pass hose, fittings, clamps, and spuds prior to operation. Replace all damaged or worn items with one which meet or exceed the specifications of the original equipment. The use of an improper hose, fitting, clamp, or spud may cause the hose, fitting, clamp, or spud to rupture which could result in serious injury or death.

Never attempt to stop or deflect a leak with any part of your body (including the use of a rag). The risk of injection is present.

19. Do not repair damaged hose or fittings.



Replace all damaged hoses and/or fittings with ones which meet or exceed the specifications of the original equipment.

Do not use the hose if cuts, leaks, abrasions, bulges, or coupling damage is evident.

Never remove any hose or fitting while the unit is on. The risk of fluid injection is present.

20. Do not route hose in a manner that will cause sharp bending, kinking, cutting, abrasion, or exterior damage.

21. Do not pull on the hose to move the unit, untangle knots, or any other excessive pulling stress.

22. Do not attempt field repairs on the hose or repairs through an unauthorized hydraulic repair shop.

The hose, couplings, and crimping specifications are specially designed and manufactured for use with steam cleaners and pressure washers and are different from standard hydraulic hose. Contact the nearest distributor for repair or replacement of the damaged hose.

23. Provide at least three (3) feet of clearance to adjacent construction.

24. Always release the system pressure from the cleaning gun and hose prior to service, storage, daily shutdown, and/or disconnecting the hose or gun from the unit.

Always release pressure from the cleaning gun and hose prior to service, storage, daily shutdown, and/or disconnecting the hose or gun from the unit. Pressure contained within the unit could be released unexpectedly and could cause injury.

25. Never leave an operating machine unattended.

Always shut off the machine and relieve the system pressure before leaving the unit. Never leave an operating machine unattended.

26. Never allow children or any unauthorized persons to operate the machine.

Allow only person trained in the use of the equipment to operate the unit. Never allow children or unauthorized personnel to operated the unit. Keep all persons at a safe distance when the machine is being operated.

27. Chemicals used for cleaning are dangerous.



The cleaning chemicals used in conjunction with steam cleaners and pressure washers can be very aggressive not only on the surface being cleaned, but on the operator or bystander. Proper care must be exercised when using cleaning chemicals.

Keep all chemicals out of the reach of children.

Proper safety precautions must be taken when handling, storing, and using chemicals.

Always have a clean supply of water available to wash off any chemicals that have come in contact with the skin and/or eyes.

If any contact occurs with the eyes, immediately flood the eyes with clean water for at least 15 minutes and seek medical attention at once.

If contact occurs with the skin, flood the affected area for 15 minutes with clean water. If irritation persists, seek immediate medical attention.

If chemicals are swallowed, follow the label product label directions and seek immediate medical attention.

For Treatment instructions, have your physician contact the nearest regional poison information center for more information.

Always read and understand the Material Safety Data Sheet (MSDS) on all chemicals before using them.

28. Use only Jenny Products repair parts and accessories.

To preserve the safety features that are built in to this product, use only Jenny Products repair parts and accessories.

This product must be periodically serviced in accordance with the instructions in this owner's manual.

Assembly & Initial Start-up Procedure

Your Jenny unit was tested at our factory as part of the manufacturing process. The machine will function as designed if properly assembled, set up, and operated.

1. Check the box for possible shipping damage.

If extensive damage is apparent to the box, please notify the freight carrier immediately. Do not open the box. Wait for the freight carrier's inspector to be present before opening.

2. Open the shipping box and inspect for damage and missing components.

You should find:

- 1 - Jenny Cleaning Unit
- 1 - Combination High Pressure/Steam Hose
- 1 - Cleaning Gun Assembly (may be in 2 parts)
- 1 - Instruction Manual and Warranty Card(s)
- 1 - Spare parts bag (not included with all units)

If any of these components are missing, please notify the distributor from whom the machine was purchased immediately.

Inspect the unit carefully for any possible hidden damage. If the unit or any of the components are damaged, please notify the freight carrier immediately. Do not attempt to repair or use the unit or any of the components.

3. Record the machine model number, serial number, and specifications located on the machine chassis. Fill out the enclosed warranty card.

4. Remove the unit from the shipping pallet and place on a level surface.

This can be accomplished by removing the four shipping bolts located on the legs of the chassis.

5. Locate the cleaning machine in a safe work area.

Place the cleaning machine as close to the work area as is possible safely. Leave a minimum of 3 feet clearance around the unit for work space.

If the machine is to be used in an enclosed area, make certain that there is proper ventilation for the exhaust gasses. See VENTILATION REQUIREMENTS

CAUTION

Do not place the unit where it will be exposed to cold air or freezing temperatures. This may cause the unit to freeze which will result in severe damage to the entire water system.

Assembly & Initial Start-up Procedure

NOTICE

Cold air from outside can come down the flue and freeze the coil. A flue damper should be installed to prevent cold air from coming down the flue during the winter months.



Do not place the unit in such a manner where it may come into contact with its own spray. Electrical shock may result.



Do not locate near flammable or combustible liquids or operate in flammable or combustible atmosphere. A fire or explosion may result.

6. If the unit is equipped with a triplex ceramic piston pump, ensure that the oil level inside the pump is filled up to the center of the red dot on the oil sight gauge. See ADDING OIL -- TRIPLEX PUMP.
7. Attach one end of the combination hose to the cleaning gun assembly and the other end to the cleaning unit.

Tighten all connections securely. Use pipe dope or teflon tape to help seal the connections that require the use of a wrench.



Do not use a quick connector where the cleaning gun meets the hose. Risk of injection.



Do not use quick connectors on machines that produce steam. Steam temperatures reach up to 325 degrees F.

8. Connect the inlet gas solenoid valve to the gas source.

NOTICE

*The gas line from the source to the machine must be able to handle the gas demand created by the BTU output of the machine. The minimum gas line diameter must be the same size or larger with **no** restrictions than the inlet of the gas solenoid valve on the machine.*



Natural and LP gasses are highly flammable gasses. Care must be taken to ensure that there are no leaks in any lines or connections. A possible explosion may result.

NOTICE

This unit must be installed in accordance with all local, state, and federal guidelines for this type of equipment. All valves, fittings and any item coming into contact with the gas must be A.G.A accepted or certified. If there are any questions, please call your local gas company a qualified gas equipment installer for more information.

9. Mix Jenny cleaning compound as instructed on the label and fill the solution tank or separate container. See CLEANING COMPOUNDS AND MIXING.

Assembly & Initial Start-up Procedure

If the unit requires a separate solution container, insert the siphon strainer located near the front panel of the unit into the solution container.

CAUTION

Use only cleaning compounds that are compatible with steam cleaners or high pressure washers. The use of incompatible soaps may cause the machine to become clogged up and malfunction or reduce the life of the pump and machine.



Do not use this unit to spray flammable or combustible chemicals.



Some chemicals used for cleaning are dangerous.

10. Connect the machine to an adequate cold water supply ensuring that the inlet water strainer is clean and free from debris.

A good rule of thumb to determine if the water supply is adequate, is that the free flowing water (straight out of the hose without restrictions) should be at least 1.50 times the gallons per minute output of the machine. See SPECIFICATION SECTION for the exact gallonage of the machine.

NOTICE

If the water is being supplied by a well, make certain that the well produces enough water to keep up to the cleaning machine. This may have to be checked over a period of several hours.

Use at least a 5/8 inch inside diameter water supply hose for any length of hose under 50 feet and 3/4 inch inside diameter for any length of hose over 50 feet.

NOTICE

If the pump is run with an inadequate water supply, the pump will cavitate. Cavitation causes the pump to operate loudly and vibrate and will cause damage to the pump.

WARNING

If required by local codes, a back flow preventer should be installed at the supply end of the hose.

11. Check to be certain that all the control switches on the unit are in the **off** position and all hand operated valves are in the closed or off position.

If the unit is electrically powered, connect the unit to the correct electrical supply. Test Ground Fault Circuit Interrupter if so equipped. Follow the instruction on the back of the device or see GROUND FAULT CIRCUIT INTERRUPTER.

Assembly & Initial Start-up Procedure

The electrical specifications of the machine are located on the machine chassis.



Connect unit to a dedicated circuit of the proper voltage, proper rated circuit breaker, and wired with the proper wire size and number of conductors.

Never modify, bend, or cut the electrical plug. Improper connection could result, causing damage, injury, or death of the equipment operator. If the plug must be replaced, use only one with the appropriate NEMA configuration for the current requirements of the unit.

This machine must be connected to a UL Listed Ground-Fault Circuit Interrupter (GFCI) in accordance with the National Electric Code (NEC) Article 422-4 - Ed-31, Except as provided for in NEC 90-4.

Do not modify or disconnect the electrical ground sensing circuit if connected. This unit is essential to help protect the operator from electrical shock.

This unit must be properly grounded to avoid fatal electrical shock in the event of an electrical malfunction. A ground connector screw should be fastened into the chassis to facilitate supplemental grounding as permitted by NEC 250-91.

Do not connect any other equipment to the electrical circuit serving this unit.

Do not replace a fuse or circuit breaker with one of a higher rating without being certain the wire size is adequate to handle the increased electrical load.

Keep all electrical connections dry and off of the ground.

Do not touch plug with wet hands.

Observe all local and national codes for the installation of this type of equipment.

If an extension cord is required, please use the following criteria for extension cord selection.

- 0 to 25 Feet - At least the same size wire.
- 25 to 50 Feet - At least one wire size larger.
- 50 to 75 Feet - At least two wire sizes larger.

If an extension cord of too small a wire size is used, the voltage drop will be high, and this will cause the motor to draw excessive current and overheat.



If there are any questions or problems with the electrical system being used, please do not hesitate in calling a local qualified electrician.

Assembly & Initial Start-up Procedure

12. Review all Danger, Warning, and Caution information located in the Operator's Manual and on the machine.
13. Turn on the inlet water supply to fully open.

The inlet water supply should not exceed 60 PSI and must be cold water.

CAUTION *Do not use hot water as the inlet water supply. This unit is capable of producing hot water and/or steam from cold inlet water, and the use of hot water will create an over temperature condition.*

14. With the unit off, remove the pressure wash tip or steam nozzle and orifice assembly from the end of the cleaning gun.
15. If the machine is a combination type unit, turn the volume selector valve to the high pressure setting (pressure wash).
16. Turn on the motor switch.



Do not operate with protective covers or guards removed.



Do not operate with any electrical panels or covers opened.

DANGER **Do not operate with any of the safety controls bypassed.**
Do not permit untrained personnel to operate this unit.

CAUTION **Never modify or alter this unit.**

17. Holding the gun securely with both hands, unlock the trigger safety lock, and press the trigger on the gun (nozzle control units only) to allow the water to flow. Let the pump run for 2-3 minutes after water starts flowing from the end of the gun to purge the system or any foreign matter. Check the machine, hose, and cleaning gun assembly for leaks.

If any leaks become apparent, disassemble the leaking parts and securely reseal the connection with pipe dope or teflon tape. Recheck the system for any other leaks.



Do not spray people, animals, or any living thing.

Assembly & Initial Start-up Procedure



Do not spray energized electrical equipment.

18. Turn the motor off, then release the gun handle.
19. With the unit off, install the desired tip into the end of the gun.

If any leaks became apparent, disassemble the leaking parts and securely reseal the connection with pipe dope or teflon tape. Recheck the system for any other leaks.

NOTICE

Steam Cleaners and Combination Units using the steam side will not come up to full operating pressure until the unit has reached its operating temperature.

Start-up Procedure

1. Inspect the machine. It should be in good operating condition.

If the machine does not appear to be in good operating condition, please contact a qualified repair or service person at once.

2. Inspect the cleaning gun, hoses, belts, clamps, and fittings. The hoses and belts should be free from cuts, abrasions, and any other kind of damage. The clamps and fittings should be tight and in good physical condition.

If the hoses, belts, clamps, and fittings do not appear to be in good operating condition, please contact a qualified repair or service person at once.



Do not operate this unit with damaged or worn hose, fittings, clamps, or spuds.

3. If the combination hose has been disconnected, reconnect the pressure washer hose to the cleaning unit.

Tighten all connections securely. Use pipe dope or teflon tape to help seal the connections that require the use of a wrench.

If the machine is supplied with a quick connector, attach the hose to the machine. Check the connector for a good sealed connection to make certain the hose does not blow off. See QUICK CONNECTOR



Do not use a quick connector where the cleaning gun meets the hose. Risk of injection.



Do not use quick connectors on machines that produce steam. Steam temperatures reach up to 325 degrees F.

4. If the unit is equipped with a triplex ceramic piston pump, ensure that the oil level inside the pump is filled up to the center of the red dot on the oil sight gauge. If needed, add the correct amount of oil. See ADDING OIL -- TRIPLEX PUMP.

5. Ensure that Natural or LP gas is turned on to the machine. If the gas is not on, turn the gas on or have a qualified person do so.



Natural and LP gasses are highly flammable gasses. Care must be taken to ensure that there are no leaks in any lines or connections. A possible explosion may result.

Start-up Procedure



If the machine is to be used in an enclosed area, make certain that there is proper ventilation for the exhaust gasses. See VENTILATION REQUIREMENTS

6. Check the amount of solution in the solution tank or solution container, and fill the solution tank or solution container if necessary. Mix Jenny cleaning compound as instructed on the label and fill the solution tank or separate container. See CLEANING COMPOUNDS AND MIXING.

If the unit requires a separate solution container, insert the siphon strainer located near the front panel of the unit into the solution container.



Do not use this unit to spray flammable or combustible chemicals.



Use only cleaning compounds that are compatible with steam cleaners or high pressure washers. The use of incompatible soaps may cause the machine to become clogged up and malfunction or reduce the life of the pump and machine.



Some chemicals used for cleaning are dangerous.

7. Connect the machine to an adequate cold water supply ensuring that the inlet water strainer is clean and free from debris.

A good rule of thumb to determine if the water supply is adequate, is that the free flowing water (straight out of the hose without restrictions) should be at least 1.50 times the gallons per minute output of the machine. See SPECIFICATION SECTION for the exact gallonage of the machine.

NOTICE

If the water is being supplied by a well, make certain that the well produces enough water to keep up to the cleaning machine. This may have to be checked over a period of several hours.

Use at least a 5/8 inch inside diameter water supply hose for any length of hose under 50 feet and 3/4 inch inside diameter for any length of hose over 50 feet.

NOTICE

If the pump is run with an inadequate water supply, the pump will cavitate. Cavitation causes the pump to operate loudly and vibrate and will cause damage to the pump.



If required by local codes, a back flow preventer should be installed at the supply end of the hose.

8. Check to be certain that all the control switches on the unit are in the **off** position and all hand operated valves are in the **closed** or **off** position. If the unit is electrically powered, connect the unit to the correct electrical

supply. If so equipped, test the Ground Fault Circuit Interrupter. Follow the instruction on the back of the device or see GROUND FAULT CIRCUIT INTERRUPTER.

The electrical specifications of the machine are located on the machine chassis.



Connect unit to a dedicated circuit of the proper voltage, proper rated circuit breaker, and wired with the proper wire size and number of conductors.

Never modify, bend, or cut the electrical plug. Improper connection could result, causing damage, injury, or death of the equipment operator. If the plug must be replaced, use only one with the appropriate NEMA configuration for the current requirements of the unit.

This machine must be connected to a UL Listed Ground-Fault Circuit Interrupter (GFCI) in accordance with the National Electric Code (NEC) Article 422-4 - Ed-31, Except as provided for in NEC 90-4.

Do not modify or disconnect the electrical ground sensing circuit if connected. This unit is essential to help protect the operator from electrical shock.

This machine must be properly grounded to avoid fatal electrical shock in the event of an electrical malfunction. A ground connector screw should be fastened into the chassis to facilitate supplemental grounding as permitted by NEC 250-91.

Do not connect any other equipment to the electrical circuit serving this unit.

Do not replace a fuse or circuit breaker with one of a higher rating without being certain the wire size is adequate to handle the increased electrical load.

Keep all electrical connections dry and off of the ground.

Do not touch plug with wet hands.

Observe all local and national codes for the installation of this type of equipment.

If an extension cord is required, please use the following criteria for extension cord selection.

- 0 to 25 Feet - At least the same size wire.
- 25 to 50 Feet - At least one wire size larger.
- 50 to 75 Feet - At least two wire sizes larger.

If an extension cord of too small a wire size is used, the voltage drop will be high, and this will cause the motor to draw excessive current and overheat.

Start-up Procedure



If there are any questions or problems with the electrical system being used please, do not hesitate in calling a local qualified electrician.

9. Review all Danger, Warning, and Caution information located in the Operator's Manual and on the machine.
10. Turn on the inlet water supply to fully open.

NOTICE

The inlet water supply should not exceed 60 PSI and must be cold water.

CAUTION

Do not use hot water as the inlet water supply. This unit is capable of producing hot water and/or steam from cold inlet water, and the use of hot water will create an over temperature condition.

11. Inspect the pressure wash tip or steam nozzle and orifice assembly to ensure that it is free from dirt and debris.

If the pressure wash tip or steam nozzle and orifice assembly appears clogged, blocked, or dirty, immediately remove the tip and clean or replace. If it can not be cleaned, replace the tip with a tip with the same orifice size.

12. If the unit is a combination cleaner, insert the pressure wash tip or the steam nozzle to obtain the desired cleaning method and turn the volume selector to the proper setting.
13. Hold the gun securely with both hands, unlock the trigger gun safety lock, and squeeze the gun handle so that water flows from the end of the gun.

If any leaks become apparent, stop the machine and disconnect it from any power source, disassemble the leaking parts and securely reseal the connection with pipe dope or teflon tape. Recheck the system for any other leaks.



Do not spray people, animals, or any living thing.



Do not spray energized electrical equipment.

14. Turn on the motor switch.



Do not operate with protective covers or guards removed.



Do not operate with any electrical panels or covers opened.

Do not operate with any of the safety controls bypassed.

Do not permit untrained personnel to operate this unit.

Never modify or alter this unit.

15. If heat is desired, turn on the burner switch after water flows from the gun.
16. Turn on the solution switch (if unit is so equipped) and adjust the solution metering valve for the desire solution flow.

Shutdown Procedure

1. Turn off the burner switch and allow the unit to cool down.



Hold the gun in the open position until cool water (less than 100 degrees F) flows from the gun.

2. Flush the solution system or chemical injector with clean water. With the solution valve or injector knob fully open draw clean water through the solution system or injector for one minute.

Due to the corrosive nature of some compounds, do not allow solution to remain in the water system. It will take several minutes of water flowing through the system for the system to be purged of the cleaning solution.



Some chemicals used for cleaning are dangerous.

3. Turn off the motor.

If the machine is nozzle controlled, open the trigger gun to relieve the system pressure and lock the trigger gun safety lock. See GUN TRIGGER SAFETY LOCK.



Do not spray people, animals, or any living thing.

4. Disconnect the unit from all electrical power.

If an extension cord was used, disconnect the extension cord from the electrical outlet and coil up the cord.



Do not touch plug with wet hands.

5. Remove the spray tip from the end of the cleaning gun. Inspect the spray tip to ensure that it is free from dirt and debris.
6. Turn off the water supply, and disconnect the garden hose from the cleaning machine.
7. Disconnect the combination hose from the machine if it is quick coupled, and coil the hose on the handle at the rear of the unit. See QUICK CONNECTOR.

8. Close the gas valve.



Natural and LP gasses are highly flammable gasses. Care must be taken to ensure that there are no leaks in any lines or connections. A possible explosion may result.

9. Properly store and/or dispose of the unused cleaning compound.

NOTICE

Please follow all federal, local, and state guidelines for the disposal of chemicals.

10. If appropriate, protect the unit from freezing. See the FREEZE PROTECTION.

CAUTION

Do not store the Washer in unheated areas during cold weather. Severe damage may occur if water freezes in the Washer. If near or below freezing conditions cannot be avoided, the Washer must be protected from freezing.

NOTICE

Cold air from outside can come down the flue and freeze the coil. The flue damper should be closed to prevent cold air from coming down the flue during the winter months.

11. Inspect the machine. It should be in good operating condition.

If the machine does not appear to be in good operating condition, please contact a qualified repair or service person at once.

If the hoses, belts, clamps, and fittings do not appear to be in good operating condition, please contact a qualified repair or service person at once.

12. Place the machine in a protected area.

Operation

Ground Fault Circuit Interrupter

If the Jenny cleaning unit is a single phase unit, it will be equipped with a Ground Fault Circuit Interrupter. To ensure against electrical shock, test the device before each use. When the test button is pushed in, the indicator light should go off. Reactivate the device by pushing the reset button in. If the indicator light goes on, the device is ready for use.

⚠ DANGER

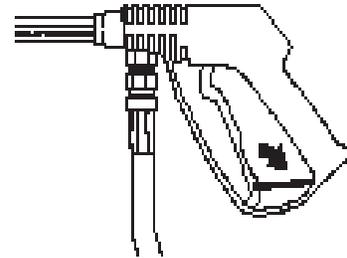
Do not use the washer if the indicator light does not go on when reset or if the indicator light remains on when the test button is pushed in. This device does not guard against shock resulting from defects or faults in any wiring supplying power to the device, or from contact with both circuit conductors.

Gun Trigger Safety Lock

The gun is equipped with a trigger safety lock to prevent accidental spraying.

To lock the gun trigger unfold the lever on the back of the trigger.

Always lock the trigger when not spraying.



Pop Off Valve

The pop off valve is a safety relief valve that will relieve system pressure when an over pressure condition occurs by "popping off." The valve is set at the factory during the testing of the machine for the correct relief pressure. If the valve pops off, then it is warning of a potential problem in the pressure side of the water system which needs to be corrected.

The valve can be adjusted by using an allen wrench. To increase the pressure where the valve pops off, turn the wrench clockwise, and to lower the setting, turn the wrench counter clockwise.

Hose Protector Plug - (fusible plug)

The hose protector plug is a safety device to alert the operator from an over temperature condition usually caused by and insufficient amount of water being pumped through the heating coil. The hose protector plug is screwed into the bottom of the fitting assembly at the outlet of the coil. This plug protects the combination hose and the operator from damage in case of superheated steam, by blowing out. When replacing, use a box wrench. Correct the cause of insufficient water to the heating coil before restarting unit.

⚠ DANGER

Always point the hose protector plug toward the floor. When plug blows, the machine will release water through the opening.

Quick Connector

To couple the quick connector, pull back the sleeve on the hose end and push hose end on to the outlet fitting. Release the sleeve and make sure it is fully forward. Check to see if the coupling is secure.



Do not use quick connectors on machines that produce steam. Steam temperatures reach up to 325 degrees F.



If the coupling is not secure, it may blow apart when the cleaning machine is started.

Never decouple the quick coupler when the machine is running.

Always release the pressure in the system before decoupling.

Do not use a quick connector where the cleaning gun meets the hose. Risk of injection.

To decouple, turn the burner off and allow cold water to flow out the end of the gun for several minutes to cool the machine down. Turn the machine off then pull the trigger on the gun to release the pressure in the system. Pull back the sleeve on the hose end and pull hose end off the outlet fitting.

Ventilation Requirements

Determine if ventilation is required in the installation of the gas fired Jenny.

Ventilation will be required of the equipment if any room that has a volume of less than 50 cubic feet per 1000 BTU/Hour (this ratio may be different for your area, please contact the proper Federal, State, and Local agencies to determine the proper requirements) of all fuel burning equipment used within the room. To determine the volume of the room, multiply the length by the width by the height. To determine the BTU/Hour, add up all the BTU/Hour ratings of every fuel burning device contained within the room.

Sample:

Room Size 50' Long x 25' Wide x 10' High
 Total Volume of the Room = 12,500 Cubic Feet

3 Jenny Machines -	1.) 200+	@	150,000 BTU/HR
	2.) 760-C	@	350,000 BTU/HR
	3.) 2000-C	@	328,000 BTU/HR
	<hr/>		
	Total BTU/HR		828,000 BTU/HR

Operation

$$\begin{array}{l} \text{The ratio desired is} \quad \frac{50 \text{ Cubic Feet}}{1000 \text{ BTU/HR}} \\ \\ \text{In the example above} \quad \frac{12,500 \text{ Cubic Feet}}{328,000 \text{ BTU/HR}} = \frac{38.11 \text{ Cubic Feet}}{1,000 \text{ BTU/HR}} \end{array}$$

From the example, it can be seen that the 38 Cubic Feet/BTU/HR is much less than the 50 Cubic Feet/BTU/HR. This means that the fumes will have to be vented outside of the building.

If ventilation is required, the installation must be made by licensed qualified, competent technician experience in making such installations. It must also fulfill the National Fire Protection Agency Standards for the installation of this type of this equipment, as well as, any other applicable federal, state, and local codes.

Hard Water

Hard water can cause the build up of deposits within the water system of the Jenny unit to happen very quickly. This will require frequent deliming of the water system and will eventually cause the destruction of the unit. Although the frequency of deliming that must be done to the unit is directly proportional to the amount of use the unit receives, if you feel that the deposit build up occurs too quickly, have the water supply checked. If the water supply exceeds 8 grains of hardness, then a water softener should be installed. This will lengthen the life of the Jenny cleaning unit and maintain the machines overall efficiency.

Deliming Instructions

How to Tell When a Heating Coil is Restricted

A heating coil may become restricted or clogged over time due to undissolved mineral deposits and solids contained in the water or due to the chemicals being used. Not all cleaning chemicals are designed to be used with pressure washers and steam cleaners.

The deposits in the coil and outlet are the result of the effect of heat on undissolved solids in the water used. These deposits settle on the inner wall of the coil and will restrict the flow of water through the coil and eventually may completely clog the coil. These deposits must be removed, periodically, to prevent the coil from becoming completely clogged or restricted.

Some of the symptoms to look for are: slow heating, inadequate temperature rise, loss of pressure at the end of the gun, or excessive pressure on the inlet (cold water) side of the coil. This excessive pressure causes the coil drain and relief valve to trickle water at normal operating pressure. If you notice any of these symptoms, DELIME AT ONCE WITH **JENNY COIL CONDITIONER, NUMBER 80.**

Deliming Safety Warnings

Jenny No. 80 Coil Conditioner is a highly corrosive blended acid designed to remove lime and other water deposits from the water system of your cleaning unit. Follow the instructions on the chemical container or accompanying Material Safety Data Sheet (MSDS Sheet).



Wear proper protective equipment (eye protection or full face protection) while using Jenny No. 80 Coil Conditioner.



Wear protective clothing, gloves, and rubber boots that is made of material that is resistant to acids.



Use a vapor respirator when using this product. Perform the deliming operation in a well ventilated area.



Proper safety precautions must be taken when handling, storing, and using this chemical.

Keep all chemicals out of the reach of children.

Always have a clean supply of water available to wash off any chemicals that have come in contact with the skin and/or eyes.

If any contact occurs with the eyes, immediately flood the eyes with clean water for at least 15 minutes and seek medical attention at once.

If contact occurs with the skin, flood the affected area for 15 minutes with clean water. If irritation persists, seek immediate medical attention.

If chemicals are swallowed, follow the label product label directions and seek immediate medical attention.

For Treatment instructions, have your physician contact the nearest regional poison information center for more information.

Always read and understand the Material Safety Data Sheet (MSDS) on all chemicals before using them.

Deliming Instructions

1. Disconnect the unit from all electrical power.
2. Bypass the low water cut-off switch, if one is installed on the unit.

Operation

3. Obtain an acid resistant five gallon container.
4. Remove the pressure wash tip and/or steam orifice from the gun and place both of them into container. If the unit is a combination unit, turn the volume selector to pressure wash.
5. Turn on the motor and run the Jenny unit with both the solution and burner switches off until water flowing from the end of the gun is free from compound (no longer feels "slippery"). If this procedure is not followed, the cleaning compound will neutralize the acid in the Jenny No. 80 Coil Conditioner and make it ineffective.
6. Turn off the water to the unit at the source.
7. Disconnect the pump inlet hose from the float tank at the float tank.
8. Attach a strainer to the end of the hose and insert the end of the hose into the acid resistant container.
9. Place the outlet end of the cleaning gun into the acid resistant container with the nozzle open and the gun held securely. This will allow the Jenny No. 80 Coil Conditioner to recirculate through the machine.
10. Put one (1) gallon of water into the acid resistant container.
11. Start the Jenny unit with the burner switch and solution switch and/or valve closed in the off or closed position.

WARNING

HOLD COIL CONDITIONER CONTAINER WITH TWO HANDS. DO NOT SQUEEZE **ALWAYS ADD ACID TO WATER - NEVER WATER TO ACID.** IF WATER IS ADDED TO A HIGH CONCENTRATION OF ACID, A VIOLENT REACTION WILL TAKE PLACE WHICH MAY SPLASH ACID OUT OF CONTAINER AND CAUSE SERIOUS BURNS, INJURY OR DEATH.

12. Slowly pour two quarts of Jenny Coil Conditioner into the acid resistant five gallon container.
13. When the water/conditioner solution starts to circulate, it will fizz actively in the five gallon container. After the fizzing slows down (indicating that the solution is becoming neutralized by the contaminants in the coil) allow the solution to circulate through the unit for 2 minutes, then, **FOLLOWING THE WARNING ABOVE**, add the remainder of Jenny No. 80 Coil Conditioner.
14. Circulate the Jenny No. 80 Coil Conditioner for 7 minutes, or if coil was extremely limed, up to 10 minutes. Keep the coil conditioner lukewarm by occasionally turning the burner on and off. Turn the fuel on only long enough for the spraying gun barrel to feel warm, **NOT HOT.**

⚠ DANGER

Do not allow the unit to steam or get very hot. A chemical's ability to react, in most cases, increases with temperature.

15. For exceptionally heavy deposits in the coil, discard the weakened coil conditioner and repeat steps 10 through 14.
16. Turn off the Jenny unit. Disconnect the unit from the electrical power source. Restore low water cut off switch, if installed, to proper operation by reversing the procedure in step 2.
17. Clean the float tank and the strainer. Reconnect the pump inlet hose to the float tank. Turn on the water supply at the source and connect the unit to the electrical power source and start unit (the burner switch and solution switch and/or valve in the off or closed position).
18. Flush the coils by pumping clear water through the Jenny unit for about five minutes. This will allow any dislodged but undissolved scale to be discharged through cleaning gun opening.
19. Fill the solution tank with Jenny Cleaning Compound (mixed in correct strength). Open the solution metering valve to its maximum setting. Turn on the burner and solution switch and/or valve and run the Jenny at full operating pressure for five minutes to neutralize any remaining coil conditioner inside the pump and coil. **THIS STEP IS VERY IMPORTANT!**

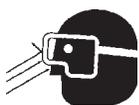
Freeze Protection

The water and solution system of your Jenny cleaning machine are both susceptible to freezing. As water freezes, the forming ice crystals expand. When this expansion occurs, the ice produces an incredible amount of force that is capable of ruining pumps, high pressure fittings, hydraulic hoses, valves, coils, and any other parts in the water or solution system of the machine.

For this reason, it is strongly recommended that the following steps be taken anytime the unit is going to be stored for any prolonged length of time or exposed to below freezing temperatures.

Anti-Freeze Safety Warnings

Anti-freeze is a chemical that inhibits water from freezing, overheating, and provides protection from rust and corrosion. Follow the instructions on the chemical container or accompanying Material Safety Data Sheet (MSDS Sheet).



Wear proper protective equipment (eye protection or full face protection and gloves) while using Anti-Freeze.

Proper safety precautions must be taken when handling, storing, and using Anti-Freeze.

Keep all chemicals out of the reach of children.

Operation

Always have a clean supply of water available to wash off any chemicals that have come in contact with the skin and/or eyes.

If any contact occurs with the eyes, immediately flood the eyes with clean water for at least 15 minutes and seek medical attention at once.

If contact occurs with the skin, flood the affected area for 15 minutes with clean water. If irritation persists, seek immediate medical attention.

If chemicals are swallowed, follow the product label directions and seek immediate medical attention.

For Treatment instructions, have your physician contact the nearest regional poison information center for more information.

Always read and understand the Material Safety Data Sheet (MSDS) on all chemicals before using them.

Freeze Protection Instructions

1. Turn the machine off.
2. Remove the pressure wash tip and/or steam nozzle and orifice from the gun. If the unit is a combination unit, turn the selector switch to pressure wash.
3. Insert the solution siphon into the anti-freeze container and open the solution metering valve. Turn on or start the the machine long enough to fill the solution system with anti-freeze, then turn the machine off and close the solution metering valve.
4. Disconnect the unit from all electrical power if the machine is electrically operated.
5. Bypass the low water cut-off switch, if one is installed on the unit.
6. Reconnect power to the unit if the machine is electrically powered.
7. Turn off the water to the unit at the source and allow the pump to empty the float tank.
8. Fill the float tank with approximately 1.5 gallons of a 75% anti-freeze 25% water solution.
9. Turn on the motor and run the Jenny unit with both the solution and burner in the off or closed position until the anti-freeze and water solution flows from the end of the gun while continuing to add the anti-freeze water solution to the float tank as needed.



Do not allow the unit to steam or get very hot. A chemicals ability to react, in most cases, increases with temperature.

10. Open and close the trigger gun to allow the anti-freeze and water solution to circulate through the unloader and bypass lines.
11. If the machine is a combination type (steam cleaner and pressure washer in the same unit), switch modes to allow the anti-freeze and water solution to circulate through the bypass line.
12. After these steps have been completed, allow the pump to empty the float tank.
13. Turn off the Jenny unit. Disconnect the unit from the electrical power source. Restore low water cut off switch, if installed, to proper operation by reversing the procedure in steps 5 and 6.
14. Remove the hose from the end of the float tank and blow air through the entire water system, until air comes out of the end of the gun.
15. Reconnect the hose to the float tank.

Adding Oil

Oil can be added to the high pressure triplex ceramic plunger pump by removing the red oil plug/dipstick (marked oil) located on the top of the pump crankcase (please see the exploded view of the pump to find the exact location of the red oil plug/dipstick). The red oil plug/dipstick has two lines on it that give the high and low limits of the oil level that must be maintained within the crankcase to keep the pump properly lubricated. If oil must be added, please add the oil slowly and frequently check the level using the oil plug/dipstick. Use only Special Jenny Synthetic Oil.

Changing Oil

The oil can be changed by first using a suction gun to remove the old oil from the pump crankcase, or by removing the lower oil plug located on the lower back crankcase cover. Care should be taken to ensure that the oil is not allowed to spill all over the Jenny unit. Once the oil has been drained, then follow the steps for adding oil to the high pressure triplex ceramic plunger pump. Please follow the maintenance instructions for service intervals.

Adding and Changing Engine Oil

Please follow the engine manufacturer's guidelines and instructions for adding and changing the oil. Only use the type and weight recommended by the manufacturer. Please follow the maintenance instructions for service intervals.

Cleaning Compounds and Mixing

Your units cleaning ability is based not only on its performance specifications-pressure, volume and temperature, but also on the selection and proper use of cleaning compounds.

Even the best cleaning compound applied in too strong or too weak a concentration will be ineffective, and may even damage the item being cleaned. The wrong type of cleaning compound can damage the unit.

Normally, cleaning compounds are diluted when placed into the solution container, and are further diluted when mixed with the water flowing through the unit.

Never use flammable cleaning solvents or compounds in this unit. Fire or explosion causing injury or death may result.

⚠ DANGER

Do not spray toxic chemicals. Risk of inhalation or contact with skin which may result in injury or death.

Compound dilution rates are often given by manufacturers in terms of ratios. A typical recommendation for Jenny APL or HDL cleaning compounds is 1:125; 1 part compound for every 125 parts of water out of the cleaning gun.

For example, the CPW 1020 has a maximum solution feed rate of 74 oz. per minute and a total output of 2.0 GPM (256 oz. per minute). By using this information and the cleaning compounds manufacturer's recommendations, it is possible to calculate the appropriate compound dilution.

To simplify mixing, use the following formula to determine water to compound dilution when compound recommends a 1:125 dilution ratio:

The simplified formula to figure this out is as follows:

$$\frac{(\text{GPM machine}) \times (\text{Dilution Ratio}) \times (128 \text{ oz./gal}) \times (128 \text{ oz./gal})}{(\text{Solution Feed Rate oz./min.})} = \text{Oz Added to 1 gal. of water}$$

In the example above:

$$\frac{(2.0 \text{ GPM}) \times (1/125) \times (128) \times (128)}{(74 \text{ Oz/Min})} = \text{Oz}$$

$$\text{Oz.} = 3.54 \text{ Oz./Gal. or Approximately 4 Oz./Gal.}$$

Therefore, the soap container or tank will have 4 oz. of soap mixed with every gallon of water put into the container.

Use these compound dilutions as a starting dilution for your application.

⚠ CAUTION

Use only Cleaning Compounds that are compatible with high pressure washers. Using a laundry-type soap may clog the injector.

Cleaning Compounds and Mixing

APPLICATION	CHEMICAL DRUM KITS				CONCENTRATED POWDERS						LIQUID CHEMICAL		
	APC	HDC	TW	XDD	AP	CWD	HD	SHSC	CW	CC	SW	GRL	MGRL
1. Auto Motor Cleaning	●	■	●	★	×	×	●	★	×	×	✓	×	×
2. Car Washing	■	×	★	×	★	★	★	×	×	×	✓	×	×
3. Truck Washing	■	★	★	×	■	■	★	×	×	×	✓	×	×
4. Off Road Eqpt. Washing	●	■	■	★	●	●	■	★	×	×	✓	×	×
5. Off Road Eqpt. Motor Cleaning	●	■	●	★	×	●	●	★	×	×	✓	×	×
6. Glass & Tile Cleaning	★	×	★	×	×	★	×	×	×	×	✓	×	×
7. Aluminum & Soft Metals	★	×	★	×	■	■	★	×	★	×	✓	×	×
8. Washing By Hand	★	★	★	×	★	★	★	×	×	×	✓	×	×
9. Cleaning Painted Surfaces	★	×	★	×	★	★	×	×	●	×	✓	×	×
10. Pre Soak For Cold Pressure Washing	■	★	■	×	■	■	★	×	×	×	✓	×	×
11. Floor Cleaning	■	★	■	×	●	■	★	×	×	×	✓	×	×
12. Mining Equipment	●	■	●	★	●	■	■	★	×	×	✓	×	×
13. Stripping Oil Base Paint	×	×	×	×	×	×	×	×	×	×	✓	●	●
14. Chrome Cleaning	★	★	★	×	■	★	★	×	×	×	✓	×	×
15. Casting Cleaning	●	■	●	★	●	●	■	★	★	×	✓	×	×
16. Aluminum Siding Washing	■	★	★	×	●	■	★	×	×	×	✓	×	×
17. Graffiti Removal	×	×	×	×	×	×	×	×	×	×	×	★	■
18. Gaffiti Removal from Masonry	×	×	×	×	×	×	×	×	×	×	×	×	★
19. Stainless Steel Filter Cleaning	■	★	★	★	■	■	★	★	★	×	✓	×	×
20. Tractor Cleaning	■	★	■	★	■	●	■	★	×	×	✓	×	×
21. Lawn Mower Cleaning	■	★	■	★	■	★	★	★	×	×	✓	×	×
22. White Wall Tires	×	×	×	★	×	●	●	×	×	×	✓	×	×
ADDITIONAL INFORMATION													
Indoor Use	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Outdoor Use	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
USDA Accepted For Use In Meat & Poultry Process	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Water Softener Added To Compound	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Available In 5, 55 Gallons	✓	✓	✓	✓							✓	✓	✓
Available In 40 Containers					✓	✓	✓	✓	✓	✓			
Key: ★ Best Compound for this Application ■ Good Performance ● Acceptable Cleaning × Not Recommended ✓ Application													

Maintenance

These items should be checked **daily** before operation of unit begins:

1. Water supply, water supply hose, and connections.
2. If unit is equipped with standing pilot, check pilot.
3. Solution supply container for adequate supply.
4. Water pump oil level.
5. Check for proper operation of all controls.

NOTE: Water pump oil change should be made after the first 50 hrs, then at regular intervals of every 100 hrs under normal operating conditions. The number of operating hours allowed between oil changes will be affected by conditions such as high ambient temperature, high humidity, and severity of use. You must change the oil more frequently under these conditions. **Never** operate this unit on an incline over 15 degrees maximum to ensure optimum lubrication to the water pump.

When the water pump requires oil to be added, use only Special Jenny Synthetic oil and fill until the level is between the two lines on the dipstick or to the center of the oil sight glass. (Do Not overfill)

6. Pressure tip for wear or obstruction.
7. Hose damage or hose being kinked.
8. Electrical supply and connections.
9. Reset on the GFIC drop cord, if applicable.
10. Ensure that there is access to the main shut-off valve.
11. If unit is equipped with a ventilation damper, ensure that it is open and secure.
12. Look for any other obvious problems.

These items should be checked **weekly**:

1. Inlet hose washer strainer for contaminants.
2. Filter screen in float tank that may be clogged or restricted.
3. GFCI drop cord for any damage, if applicable.
4. Hose wear or damage.
5. Gun handle damage or leaking.

These items should be checked **monthly**:

1. Belt tension and condition of water pump belts.
2. Pulley set screws or bushing retainer bolts on water pump and motor pulley.
3. Water leaks from any fittings or hoses.
4. Turn off main gas valve, then remove cap from drop leg and check for dirt and water.

5. Check all gas lines for leaks.
6. Clean any accumulated debris out of the float tank.
6. Overall condition of unit .

These items should be checked **yearly**:

1. Check precharge in the accumulator for the proper working pressure if one is installed. Recharge as necessary using only nitrogen.
2. Remove burner assembly and check gap on electrodes if electronic ignition system, examine ceramic on electrode for cracks, and or breaks, replace if required.
3. Remove piston from the pressure or flow switch and check for mineral deposits. Replace switch if necessary.
4. Replace any belts that are worn or frayed with original equipment parts for best results.
5. If required at the time, change the oil in the water pump.
NOTE: Also refer to the note under item 4 in daily checks.
6. Solution container and solution system should be cleaned out to insure a proper working system.
7. Replace all worn or damaged hose with new original equipment.
8. Check and replace drain relief valve if needed.
9. A check on the heating coil for back pressure will help you to determine if the coil may be restricted.

NOTE: Mineral deposits in the coil and coil outlet fittings assembly are the result of the affects of heat on undissolved solids in the water used. These deposits must be periodically removed to prevent the coil from being clogged.

10. A new pressure tip should be installed depending on usage, heavy usage may require you to change the pressure tip more frequently.

Service Information

Routine Maintenance can normally be accomplished by most Jenny owners. After consulting with the Troubleshooting section of this manual, and your unit needs service or the repair that seems to be beyond your capability, contact the distributor from whom you purchased the unit.

If your distributor is unable to assist you or supply repair parts needed, refer to the manufacturers representative listing in the back of this manual. Your manufacturers representative will be able to provide technical assistance and parts ordering information.

If your unit does not operate properly you should determine the following information prior to calling for help.

The units model number, serial number and date of purchase located on the chassis.

The water output (volume) of the unit. Run discharge into a bucket with the pressure tip removed. Measure the volume of water in five minutes, divide by five to determine the actual GPM output.

The size of the pressure tip installed in the unit, The number is stamped on the tip.

Please reference the Trouble Shooting section of this manual.

This information will assist in isolating problems with your unit.

OWNER'S RECORD	
JENNY MODEL NO. _____	SERIAL NO. _____
PURCHASED FROM:	
NAME _____	
ADDRESS _____	
CITY _____	STATE _____ ZIP _____
DATE OF PURCHASE _____	

Troubleshooting

Symptom	Cause	Remedy
The Pressure and/or the Delivery Drops	Worn Packing Seals	Replace Packing Seals
	Broken Valve Spring	Replace Spring
	Belt Slippage	Tighten or Replace Belt
	Worn or Damaged Nozzle	Replace Nozzle
	Fouled Discharge Valve	Clean Valve Assembly
	Fouled Inlet Strainer	Clean Strainer
	Worn or Damaged Hose	Repair/Replace Hose
	Worn or Plugged Relief Valve on Pump	Clean, Reset, and Replace Worn Parts
	Cavitation	Check Suction Lines on Inlet of Pump for Restrictions or Loose Connections
	Unloader	Check Unloader for Proper Operation
Water in Crankcase	High Humidity	Reduce oil Change Interval
	Worn Seals	Replace Seals
Noisy Operation	Worn Bearings	Replace Bearings, Refill Crankcase Oil with Recommended Lubricant
	Cavitation	Check Inlet Lines for Restrictions and/or Proper Sizing or Loose Connections
Rough/Pulsating Operation with Pressure Drop	Worn Packing	Replace Packing
	Inlet Restriction	Check System for Stoppage, Air Leaks, Correctly Sized Inlet Plumbing to Pump
	Accumulator Pressure	Recharge/Replace Accumulator
	Unloader Cavitation	Check Unloader for Proper Operation Check Inlet Lines for Restrictions and/or Proper Sizing or Loose Connections
Pressure Rises & Falls (Cycling)	Debris in Unloader	Clean Float Tank, Repair or Replace Unloader
Pump Pressure as Rated, Pressure Drop at Gun	Restricted Discharge Plumbing	Resize Discharge Plumbing to Flow Rate of Pump
Excessive Leakage	Worn Plungers	Replace Plungers
	Worn Packing/Seals	Replace Packing Seals
	Excessive Vacuum	Reduce Suction Vacuum
	Cracked Plungers	Replace Plungers
	Inlet Pressure too High	Reduce Inlet Pressure
High Crankcase Temperature	Wrong Grade of Oil	Use Recommended Pump Oil from Manufacturer
	Improper Amount of Oil in Crankcase	Adjust Oil Level to Proper Amount (Do not overfill)

Troubleshooting

Symptom	Cause	Remedy
Burner does not ignite:	No fuel to burner	Check main gas to ensure it is on.
	Pilot light not burning	Light pilot light
	Gas Solenoid Valve not operating (Pressure switch or flow switch not working or coil on solenoid valve faulty)	Replace faulty switch or solenoid
	Burner Jet Orifice or Internal Strainer Clogged	Replace Burner Jets
	Electrode out of adjustment on burner	Adjust Electrode
	Electrode Ceramic Insulator cracked or broken (Causing spark to short to ground)	Replace Electrode
	Defective Transformer (Primary or secondary windings burnt out)	Replace transformer
	Ignition Wire from Transformer to the Burner shorted or broken	Replace Ignition Wire
	Ground Wire not connected to (1) The Transformer, or (2) The Burner Base Plate	Connect Ground Wire
	In very hot weather, LP gas tanks can become frozen.	Allow frozen tanks time to thaw. Call LP service for more information.
	Bad Ground Wire in Service Line (Building Service Wiring, Cord Wire, or Drop Cord Plug)	Call Local Qualified Electrician to correct problem.
	Note: Do not cut the Grounding pin from the drop cord plug. This will void your warranty!	
	Insufficient Heat in Cleaning Spray	Gas Solenoid Valve not functioning properly, or partially obstructed
Flow Switch malfunctions		Replace Flow Switch
Burner Jet Orifice partially obstructed		Replace Burner Jet
Low Gas Pressure		Increase Gas Pressure or turn off other equipment on the line
Improperly vented Damper closed Improper draft		Ensure unit is properly vented Open damper Regulate draft (should be -0.04 to -0.06 water column)
Cleaning Spray too Hot/Fuse Plug Blows	Inadequate water supply Note: If water is being supplied from a well be certain the water flow is adequate for the gallonage required to run this unit.	Increase Water Supply
	3/4" Hose Connector Screen obstructed	Clean or Replace Screen
	Float Tank Screen obstructed (Remove and clean)	Clean Float Tank/Clear Obstruction
	Connections from the Float Tank to the Pump loose.	Tighten Connections
	Note: If the connections between the Float Tank and the Pump are loose, air is being drawn into the water intake line, (even though the water is not leaking) therefore reducing water flow.	
	Pump Drive Belt loose or slipping	Tighten Pump Belt
	Water Pump defective or Pump Check Valves worn	Replace Check Valves
	Coil partially blocked or Limed Up	Delime/Replace Coil
	Motor running too slow due to low voltage or frequency	Call Qualified Electrician
Unloader leaking into bypass (full flow)	Repair/Replace Unloader	

Troubleshooting

Symptom	Cause	Remedy
	of water not going through coil) Gas pressure adjusted too low Pressure Tip in the end of the Gun partially blocked Inadequate Pump Flow	Increase Gas Pressure Clean Pressure Tip
	Pressure or Flow Switch not shutting off fire	See Trouble Shooting section for Pump Malfunction Replace pressure/flow switch
Coil Relief Valve Leaks	Relief Valve has dirt on the seat Relief Valve not adjusted properly Pressure Tip is clogged Coil is liming up Inside lining of Hose separating and causing restriction Coil plugged up Hose crushed (ran over by vehicle) Incorrect Pressure Tip installed	Clean/Replace Valve Seat Adjust Relief Valve Clean Pressure Tip Delime Coil with Jenny Coil Conditioner Replace Hose Replace Coil Replace Hose Replace Pressure Tip, See Specification Section for Correct Size Clean Pressure Tip
Cleaning Spray Pressure Excessive	Pressure Tip Partially Obstructed Incorrect Pressure Tip Installed Restricted Coil (Coil Liming Up) Unloader adjusted incorrectly	Clean Pressure Tip Replace Pressure Tip, See Specification Section for Correct Size Delime Coil with Jenny Coil Conditioner Adjust unloader to manufacturer's specifications.
Motor Overload Kicks Motor Off	Low supply line voltage Motor Double Phasing (Three Phase units Only) Extension cord too long and/or inadequate wire size for length of cord being used Loose connection to unit (extension cord, etc.) Excessive back pressure in water system and Drain Relief Valve is disabled Water Pump low on oil or out of oil causing Pump to seize/bind Bad or worn Bearing in Motor Motor Winding Damaged or Burned Out Incorrect Pressure Wash Tip installed (too small)	Call Qualified Electrician Call Qualified Electrician Replace Extension Cord with One of Greater Wire Gauge Size Replace/Repair Connection Lower Back Pressure/Replace Drain Relief Valve Replace Pump Replace Motor Replace Motor Replace Pressure Tip
Pressure Fluctuates	Loose Water Pump Belt Unit is drawing in air on inlet side of Water Pump Check Valves in Water Pump may be worn Worn Packing Seals (see Pump Trouble Shooting section)	Tighten Pump Belt Tighten Inlet Water Connections Replace Check Valves Replace Seals
Fusible Plug Blows	Inadequate water supply to Unit (supply hose kinked, etc.) Water Pump Check Valves worn or stuck Drain Relief Valve leaking	Increase Water Supply Replace Check Valves Adjust/Replace Drain Relief Valve

Troubleshooting

Symptom	Cause	Remedy
Burner Does Not Ignite	Float Tank Strainer Clogged Note: Debris in the Float Tank will settle at the bottom of tank until unit is started, it will then be drawn to Float Tank Outlet Screen causing inadequate water supply. Coil is liming up reducing adequate flow of water.	Clean/Replace Strainer Delime Coil
	Main Gas Valve Shut-Off Combination Gas Valve Off Combination Gas Valve Set on Pilot Pressure or Flow Switch Defective Gas Solenoid Defective Water Pump Belt Too Loose Transformer Defective (No Spark) Electrode Out of Adjustment Electrode Cracked or Broken Causing a Short to Ground	Turn Main Gas Valve On Turn to Pilot, Light, then Turn to On Turn to On Replace Pressure/Flow Switch Replace Gas Solenoid Tighten or Replace Belts Replace Transformer Adjust Electrode Replace Electrode
	Ignition Wire from Transformer to Burner Shorted or Broken	Replace Ignition Wire
	Ground Wire not Connected to the Transformer or the Burner Plate	Connect Ground Wire
	Thermocouple Defective	Replace Thermocouple