



## C US 201473 Portable Gasoline Driven Direct Instructions

[Home](#) » [C US](#) » C US 201473 Portable Gasoline Driven Direct Instructions 

### C US 201473 Portable Gasoline Driven Direct Instructions



OPERATOR'S MANUAL FOR **PORTABLE GASOLINE DRIVEN/DIRECT DRIVE TOP FIRED OIL HEATED HOT WATER PRESSURE WASHERS**



#### **CAUTION**

**RISK OF INJURY! READ MANUAL BEFORE OPERATING!**

This manual is an important part of the pressure washer and must remain with the unit when you sell or rent it!



## **WARNING**

**WARNING:** This product can expose you to chemicals including Lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)



## **WARNING**

**WARNING:** This product can expose you to chemicals including carbon monoxide, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

### **Contents**

- 1 INTRODUCTION**
- 2 SAFETY WARNINGS**
- 3 RISK OF ASPHYXIATION**
- 4 RISK OF INJECTION OR SEVERE CUTTING INJURY**
- 5 RISK OF ELECTROCUTION OR ELECTRICAL SHOCK**
- 6 RISK OF BURNS**
- 7 RISK OF BURSTING**
- 8 RISK FROM MOVING PARTS**
- 9 RISK OF BODILY INJURY**
- 10 !SAVE THESE INSTRUCTIONS!**
- 11 SMALL FRAME FEATURES**
- 12 FEATURES LISTING**
- 13 LARGE FRAME FEATURES**
- 14 INSTALLATION & PREPARATION**
- 15 ENGINE/BURNER FUEL TANK:**
- 16 DUAL LANCE ASSEMBLY WITH ADJUSTABLE PRESSURE:**
- 17 DUAL LANCE CONNECTION:**
- 18 WATER SUPPLY:**
- 19 THERMAL RELIEVE VALVE:**
- 20 PRE-START INSPECTION PROCEDURES:**
- 21 OPERATING INSTRUCTIONS**
- 22 HOT WATER OPERATION:**
- 23 CLEANING WITH DETERGENTS UNDER LOW PRESSURE:**
- 24 STORAGE & MAINTENANCE**
- 25 SPECIFIC MAINTENANCE:**
- 26 WINTERISING:**
- 27 TROUBLESHOOTING**
- 28 MAINTENANCE CHART**
- 29 ACCESSORIES**
- 30 STATEMENT OF WARRANTY**
- 31 EXCLUSIONS**
- 32 Documents / Resources**
  - 32.1 References**
- 33 Related Posts**

## **INTRODUCTION**

Congratulations on the purchase of your new hot water pressure washer featuring the patented Electra Magnetic Firing (EMF) System! You can be assured your new hot water pressure washer was constructed and designed with quality and performance in mind. Each component has been rigorously tested to ensure the highest level of

acceptance.

This operator's manual was compiled for your benefit. By reading and following the simple safety, installation, operation, maintenance and troubleshooting steps described in this manual, you will receive years of trouble free operation from your new hot water pressure washer. The contents of this manual are based on the latest product information available at the time of publication. The manufacturer reserves the right to make changes in price, color, materials, equipment, specifications or models at any time without notice.

## **IMPORTANT**

These paragraphs are surrounded by a "SAFETY ALERT BOX". This box is used to designate and emphasise Safety Warnings that must be followed when operating this pressure washer. Accompanying the Safety Warnings are "signal words" which designate the degree or level of hazard seriousness. The "signal words" used in this manual are as follows:

**DANGER:** INDICATES AN IMMINENTLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, WILL RESULT IN DEATH OR SERIOUS INJURY.

**WARNING:** INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY.

**CAUTION:** INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED MAY RESULT IN MINOR OR MODERATE INJURY.

The symbols set to the left of this paragraph are "Safety Alert Symbols". These symbols are used to call attention to items or procedures that could be dangerous to you or other persons using this equipment.



ALWAYS PROVIDE A COPY OF THIS MANUAL TO ANYONE USING THIS EQUIPMENT. READ ALL INSTRUCTIONS BEFORE OPERATING THIS PRESSURE WASHER AND ESPECIALLY POINT OUT THE "SAFETY WARNINGS" TO PREVENT THE POSSIBILITY OF PERSONAL INJURY TO THE OPERATOR.

Once the unit has been unrated, immediately write in the serial number of your unit in the space provided below.

## **SERIAL NUMBER**

Inspect for signs of obvious or concealed freight damage. If damage does exist, file a claim with the transportation company immediately. Be sure that all damaged parts are replaced and that the mechanical and electrical problems are corrected prior to operation of the unit. If you require service, contact Customer Service.

**Please have the following information available for all service calls:**

1. Model Number
2. Serial Number
3. Date and Place of Purchase

## **SAFETY WARNINGS**

### **RISK OF EXPLOSION OR FIRE**

Serious injury or death may occur from normal sparks in the multiple ignition sources or engine/burner exhaust.



Always operate pressure washer in a well ventilated area free of flammable vapours, combustible dust, gases or other combustible materials.

Do not store the pressure washer near an open flame or any equipment such as a stove, furnace, water heater, etc., which utilises a pilot light or sparking device.

Do not use this pressure washer to spray flammable material! Serious injury or death may occur as a result of improper fueling.

Do not smoke while filling fuel tanks.

Never fill the fuel tanks while the engine is running or hot. Allow the engine to cool two minutes before refueling.

Do not refuel indoors or in a poorly ventilated area.

Always refuel slowly to avoid the possibility of spilled fuel which may cause a risk of fire.



Engine Fuel Tank: If using a Gasoline Engine, refuel with gasoline only. Do not use diesel or fuel oil.

Burner Fuel Tank (Black): When refuelling the Burner Fuel Tank, use No. 1 or No. 2 fuel oil/diesel or kerosene. Do not use gasoline.

Do not operate the unit if gasoline or diesel fuel is spilled. Wipe the pressure washer clean and move it away from the spill. Avoid creating any ignition until the gasoline or diesel fuel has evaporated.

Serious injury or death may occur from a ground fire caused by a muffler spark.

A spark arrested must be added to the muffler of this engine if it is to be used on any forest covered, brush covered or grass covered unimproved land. The arrested must be maintained in effective working order by the operator. In the state of California, the above is required by law. (Section 4442 of the California Public Resources Code.) Other states may have similar laws. Federal laws apply on Federal lands.

Serious injury or death may occur if system safety's are not properly maintained.

This pressure washer has a Safety Relief device which should never be altered, modified, removed or made inoperative. If the device fails, replace immediately with only genuine manufacturer replacement part.

## **RISK OF ASPHYXIATION**



Serious injury or death may occur from inhaling engine/burner exhaust or dangerous vapours. The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

This pressure washer was designed for outdoor use only. Never operate this pressure washer in an enclosed area. Always make certain there is adequate ventilation (fresh outside air) for breathing and combustion. This will prevent the buildup of dangerous carbon monoxide gases. Beware of poorly ventilated areas, or areas with

exhaust fans which can cause poor air exchange.

Follow all safety instructions provided with the materials you are spraying. Use of a respirator may be required when working with some materials. Do not use this pressure washer to dispense hazardous detergents.



### **RISK OF INJECTION OR SEVERE CUTTING INJURY**

Serious injury or death could occur from high pressure spray penetrating the skin.

Keep clear of nozzle and spray! Never put your hand, fingers or body directly over the spray nozzle.

Never point the high pressure discharge spray at yourself or anyone else.

Always keep operating area clear of all persons.

DO NOT allow children to operate this unit.

SEEK EMERGENCY MEDICAL CARE if the spray appears to have penetrated the skin! DO NOT TREAT AS A SIMPLE CUT!!

High pressure hoses and fuel lines should be inspected daily for signs of wear. If evidence of failure exists, promptly replace all suspect hoses and fuel lines to prevent the possibility of injury from the high pressure spray. If a hose or fitting is leaking, NEVER PLACE YOUR HAND DIRECTLY ON THE LEAK.

NEVER operate the gun with the trigger wired in the open position. To prevent accidental discharge, the trigger gun should be securely locked when not in use.

Before removing the spray nozzle or servicing the unit, ALWAYS shut off the unit and trigger the gun to release trapped pressure. (Even after you shut off the unit, there is high pressure water left in the pump, hose and gun until you release it by triggering the gun.)



### **RISK OF ELECTROCUTION OR ELECTRICAL SHOCK**

Serious injury or death may occur from contact with electricity.

DO NOT direct spray on or into electrical installations of any kind! This includes electrical outlets, light bulbs, fuse boxes, transformers, the unit itself, etc.

DO NOT allow metal components of the pressure washer to come in contact with live electrical components.



### **RISK OF BURNS**

Serious injury may occur from touching the gasoline engine, muffler or heat exchange. These areas can remain

hot for some time after the pressure washer is shutdown.

Never allow any part of your body to contact the gasoline engine, muffler or heat exchange.



### **RISK OF BURSTING**

Serious injury may occur from a pressure washer malfunction or exploding accessories if incorrect system components, attachments or accessories are used.

Never make adjustments to the factory set pressures.

Never exceed manufacturers maximum allowable pressure rating of attachments.

Do not allow any hoses to make contact with the engine muffler, gasoline engine or heat exchanger to prevent the possibility of bursting. Avoid dragging the hoses over abrasive surfaces such as cement.

Use only genuine manufacturer recommended repair parts for your pressure washer.

Serious injury or death may occur if attempting to start the pressure washer when the pump is frozen.

In freezing temperatures, the unit must always be warm enough to ensure there is no ice formation in the pump. Do not start the pressure washer if it has been transported in an open or under heated vehicle without first allowing the pump to thaw.



### **RISK FROM MOVING PARTS**

Serious injury may occur to the operator from moving parts on the pressure washer.

Before making any adjustments, be certain the engine is turned off and the ignition cable(s) is removed from the spark plug(s). Turning the machinery over by hand during adjustment or cleaning might start the engine and machinery with it.

Do not operate the unit without all protective covers in place.



### **RISK OF BODILY INJURY**

Serious injury or death may occur from detergents contacting the skin.

SEEK EMERGENCY MEDICAL CARE if you are using cleaning agents and the spray appears to have penetrated the skin! DO NOT TREAT AS A SIMPLE CUT! Be prepared to tell a physician exactly what kind of detergents you were using by reading the Material Safety Data Sheet (MSDS) provided with your detergent.

Never use any solvents or highly corrosive detergents or acid type cleaners with this pressure washer.

Protective equipment such as rubber suits, gloves and respirators are advisable, especially when using cleaning detergents.

Keep all detergents out of the reach of children!

Serious injury can occur from loose debris being propelled at a high speed from the spray gun.

ALWAYS wear protective goggles when operating the unit to shield the eyes from flying debris and detergents.

DO NOT direct spray toward fragile materials such as glass for shattering could occur.

Injury may occur if the operator loses his balance caused by the thrust of water travelling through the spray nozzle.

Stay alert-watch what you are doing. Do not operate the unit when fatigued or under the influence of alcohol or drugs.

NEVER squeeze the trigger unless securely braced.

DO NOT overreach or stand on unstable support.

Wet surfaces can be slippery, wear protective foot gear and keep good footing and balance at all times.

NEVER trigger the gun while on a ladder or roof.

ALWAYS hold on firmly to the gun/lance assembly when starting and operating the unit. Failure to do so can cause the lance to fall and whip dangerously.

Injury may occur from the pressure washer.

Know how to stop the pressure washer and bleed pressures quickly. Be thoroughly familiar with controls.

DO NOT leave pressurized unit unattended. Shut off the pressure washer and release trapped pressure before leaving.

DO NOT operate the unit if you see any fuel, oil or water leaks from the machine. DO NOT resume operation until the unit has been inspected and repaired by a qualified service person.

NEVER run the engine with the governor disconnected or operate at excessive speeds.

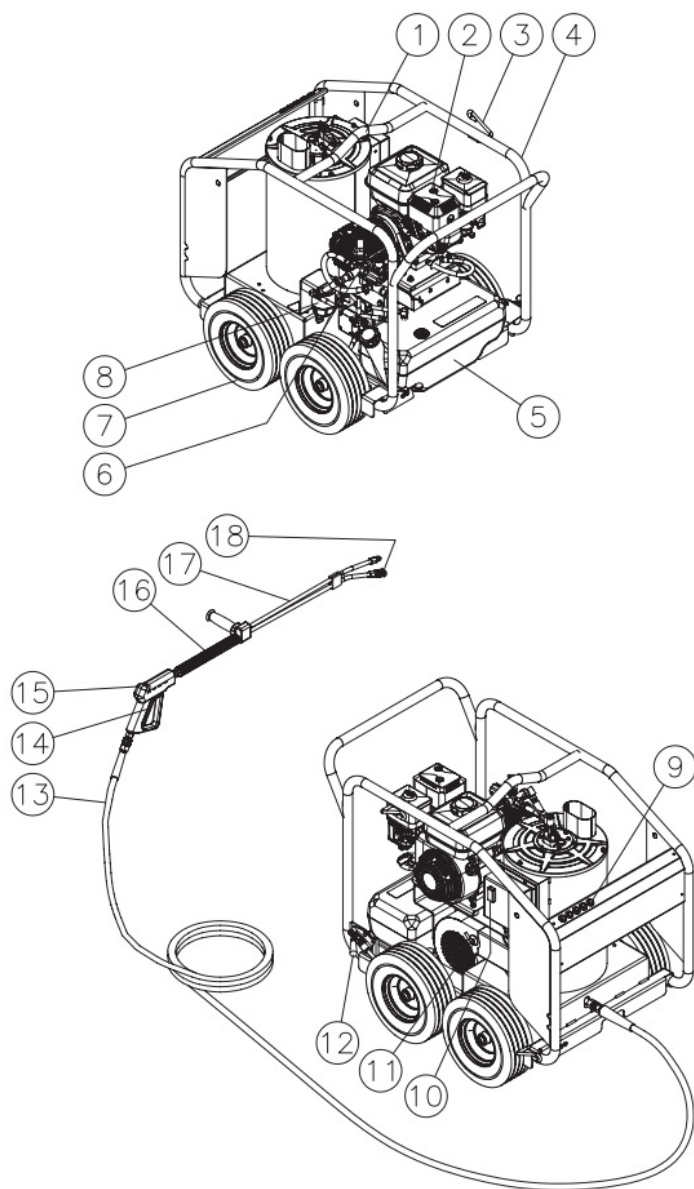
**Place unit in a clean, dry, flat area for servicing. Before servicing the unit:**

turn the unit off, relieve the water pressure from the trigger gun, and allow the unit to cool down. Service in clean, dry, flat area. If applicable, block wheels to prevent unit from moving.

Do not move the unit by pulling on the hose.

**!SAVE THESE INSTRUCTIONS!**

**SMALL FRAME FEATURES**



## FEATURES LISTING

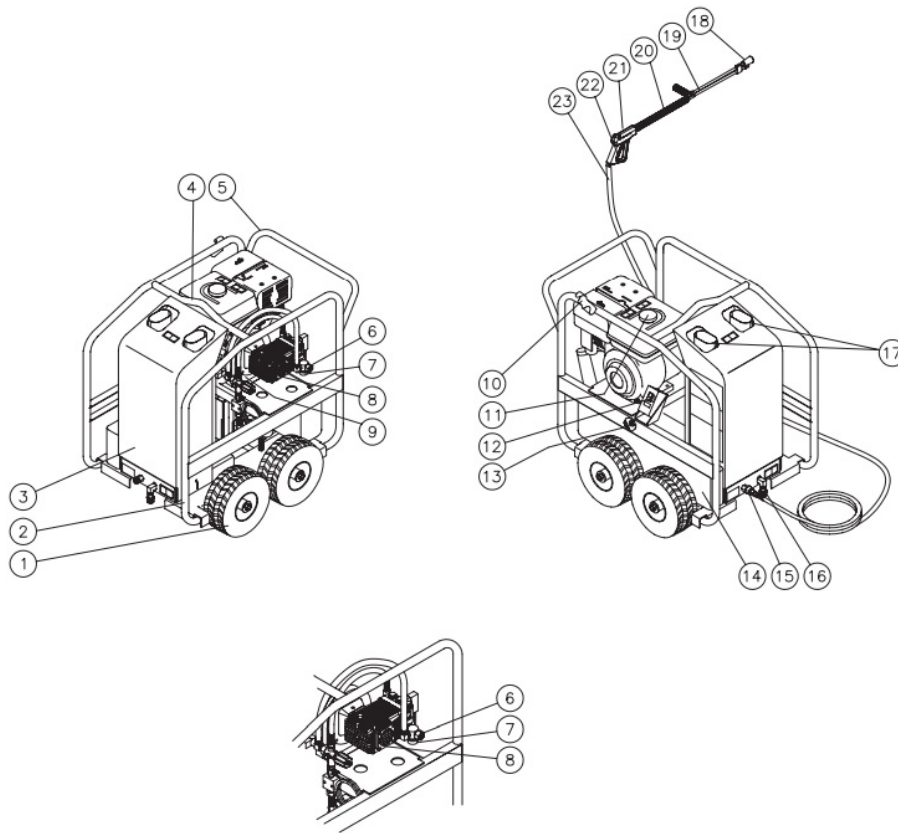
1. Enter Balanced Lifting Eye
2. Engine Gasoline Tank
3. Wand Holder
4. Protective Roll cage
5. Burner Fuel Tank
6. High Pressure Pump
7. Flat Free Wheels
8. Fuel Filter/Water Separator
9. Spray Nozzle Holder
10. Burner On/Off Switch
11. Burner Air Regulation
12. Brake
13. High Pressure Hose
14. Trigger Safety Lock
15. Trigger Gun
16. Insulated Lance



17. Adjustable Pressure Dual Lance

18. Nozzle

## LARGE FRAME FEATURES



1. Pneumatic Wheels
2. Protective Roll cage
3. Protective Cover
4. Enter Balanced Lifting Eye
5. Convenient Push/Pull Handle
6. Water Inlet
7. Water Strainer
8. High Pressure Pump
9. Belt guard
10. Wand Holder
11. Engine Gasoline Tank
12. Burner On/Off Switch
13. Air Shutter Adjusting Arm
14. Burner Fuel Tank
15. High Pressure Outlet
16. Coil Drain Assembly
17. Heat Exchange Exhaust
18. Nozzle
19. Adjustable Pressure Dual Lance
20. Insulated Lance

21. Trigger Gun
22. Trigger Safety Lock
23. High Pressure Hose

## INSTALLATION & PREPARATION

### ATTIRE:

Proper attire is essential to your safety. It is advised to utilise whatever means necessary to protect eyes, ears, and skin. Additional safety attire (such as respiratory mask) may be required when using detergent cleaning agents with this washer.



### SET-UP:



**DANGER RISK OF EXPLOSION OR FIRE! DO NOT PLACE UNIT IN AN AREA WHERE FLAMMABLE GAS VAPOURS MAY BE PRESENT. A SPARK COULD CAUSE AN EXPLOSION OR FIRE!**



**RISK OF UNIT BURSTING! DO NOT STORE/OPERATE UNIT IN FREEZING ENVIRONMENTS!**

1. This unit should only be placed on a level surface to ensure proper lubrication for the engine and water pump while operating. NEVER spray water directly on the unit.



**WARNING RISK OF ASPHYXIATION! DO NOT OPERATE IN AN ENCLOSED AREA. USE THIS PRODUCT ONLY IN WELL VENTILATED AREAS! THE EXHAUST CONTAINS CARBON MONOXIDE, A POISONOUS, ODOURLESS AND INVISIBLE GAS. BREATHING THIS GAS CAN CAUSE SERIOUS INJURY, ILLNESS & POSSIBLE DEATH.**

2. Do not use unit in an area:
  - a. with insufficient ventilation.
  - b. where there is evidence of oil or gas leaks.
  - c. where flammable gas vapors may be present.

This unit has multiple ignition sources that could cause an explosion or fire.

3. Be certain to block the wheels to prevent the unit from moving while operating.
4. Do not allow the unit to be exposed to rain, snow or freezing temperatures.

If any part of the unit becomes frozen, excessive pressure may build up in the unit which could cause it to burst resulting in possible serious injury to the operator or bystanders.

5. Pump oil level should be checked before each use. Check the oil level indicator on the pump crankcase. Make certain the oil is in the center of the oil sight glass. If the level appears to be low, fill with 15W20 detergent pump oil.

## ENGINE/BURNER FUEL TANK:



**DANGER RISK OF FIRE!** -DO NOT SMOKE WHILE FURLING! -DO NOT FILL THE FUEL TANK WHILE UNIT IS RUNNING OR HOT. ALLOW UNIT & ENGINE TO COOL FOR TWO MINUTES BEFORE REFUELLING. DO NOT FILL FUEL TANK TO POINT OF OVERFLOWING. ALLOW APPROXIMATELY 1/4" OF TANK SPACE FOR FUEL EXPANSION.

1. Review "Risk of Explosion or Fire" Warnings, before fuelling.
2. Locate the Safety Decals on your unit and heed their warnings.
3. **Gasoline Engines:** When filling tank, gasoline fuel should be a minimum of 85 octane. DO NOT MIX OIL WITH GASOLINE. Gasoline fuel should be purchased in quantities that may be used within 30 days. Use of clean, fresh lead-free gasoline is recommended. Leaded gasoline may be used if lead-free is unavailable. DO NOT use gasoline containing methanol or alcohol.

**Burner Fuel:** When filling tank, use No. 1 or No 2 fuel oil/diesel or kerosene.



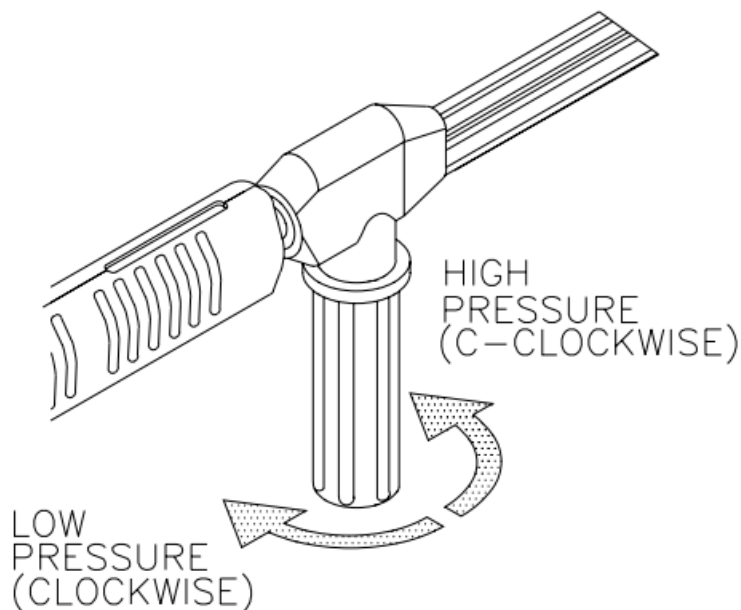
**WARNING RISK OF EXPLOSION OR FIRE!** ALWAYS STORE FUEL AWAY FROM THE WASHER WHILE THE UNIT IS RUNNING OR HOT.

4. Check the engine oil level before starting the engine. (See Engine manual.)
5. Refer to the Engine Manual supplied with this unit for proper engine adjustment procedures.
6. Review the engine manual accompanying this pressure washer for correct engine start-up and maintenance procedures.

## DUAL LANCE ASSEMBLY WITH ADJUSTABLE PRESSURE:

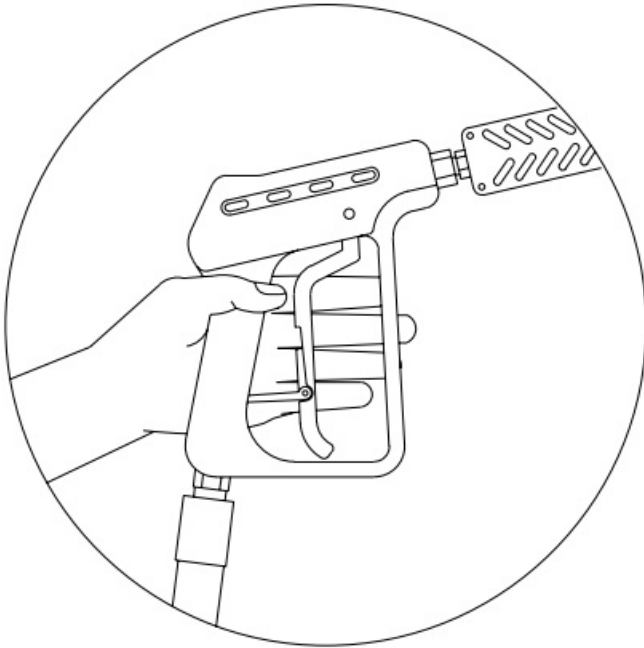


**WARNING RISK OF INJECTION CAUSING SEVERE INJURY!** -THE TRIGGER GUN SHOULD ALWAYS BE LOCKED IN THE OFF POSITION WHEN NOT IN USE! -NEVER LOOK DIRECTLY AT THE NOZZLE UNLESS IT IS DISCONNECTED FROM THE TRIGGER GUN/DUAL LANCE ASSEMBLY!



This unit features a Dual Lance Assembly with adjustable pressure which allows the user to select a high or low pressure "fan" spray. Simply rotate the adjustable grip on the dual lance to achieve the desired pressure selection.

1. Selection of high pressure can be achieved by turning the adjustable grip on the Dual Lance assembly counterclockwise as shown in the figure below.

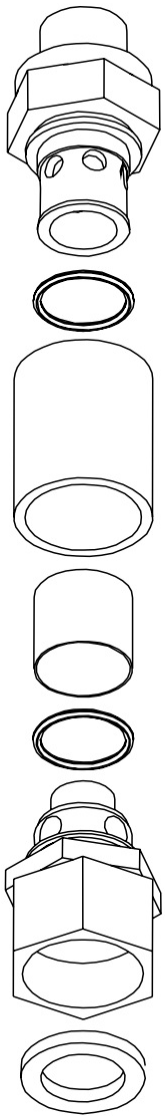


#### **WATER INLET STRAINER**

2. Selection of low pressure detergent application can be achieved by turning the adjustable grip on the Dual Lance clockwise as shown in the figure below. Once the pressure is low enough, the detergent injector on the Lance will draw detergent into the system. A water/ detergent mixture exits from both the spray nozzle and detergent nozzle.

#### **DUAL LANCE CONNECTION:**

1. Be certain the trigger gun is locked in the "OFF" position.
2. Connect the dual lance assembly to the trigger gun assembly at this time.  
Be certain the connection is securely tightened.



## **WATER SUPPLY:**

1. Select a water supply hose which is a quality grade of garden hose measuring at least 3/4" ID and no longer than 50 feet.
2. Check the see-through water filter to ensure it is clean and free of any obstructions. Periodic cleaning of the see-through water filter will help prevent pump problems. As a filter screen becomes obstructed, it restricts proper flow of water to the pump. This can result in cavitation which will cause premature failure of pump packing.
  - a. Unscrew the garden hose inlet connection from the front of the filter assembly.
  - b. Remove the clear plastic cover and clean the filter screen.
3. **Connect the hoses:**

- a. Connect one end of the water supply hose to the water inlet of the unit.
- b. Connect the other end of the hose to your pressurised water supply.

When connecting the water inlet to the water supply mains, local regulations of your water company must be observed. In some areas, the unit must not be connected directly to the public drinking water supply. This is to ensure that there is no feedback of the detergents into the water supply. (Direct connection is permitted if a back flow presenter is installed.)

- c. Quick-connect the high pressure discharge hose to the water outlet of the unit.
- d. Connect the other end of the discharge hose to the gun.

#### 4. Follow the incoming water requirements listed below:

- a. Water pressure must be a minimum of 25 pounds per square inch (PSI) and a maximum of 125 PSI. (A typical outdoor faucet will generally supply this PSI if turned completely "ON".)
  - b. Incoming GPM must be approximately one gallon more than the outgoing GPM stated on the pressure washer nameplate. (You can check GPM by timing how long it takes to fill a 5 gallon container.)
  - c. Incoming water temperature must not exceed 125°F. Excessive pump damage may result if the water temperature exceeds this acceptable level.
5. Never allow the unit to operate without the incoming water line attached and the water supply completely turned on.



#### **UNLOADED:**

CAUTION RISK OF UNIT DAMAGE! DO NOT OVER TIGHTEN THE UNLOADED. BREAKAGE COULD RESULT IN IMMEDIATE LOSS OF WATER PRESSURE AND COSTLY REPAIRS.

The pressure has been preset at the factory and should only be adjusted by a trained Service Representative.

#### **THERMAL RELIEVE VALVE:**

To ensure the water temperature does not exceed acceptable levels, never allow the pressure washer to operate in the bypass mode (with the unit running and the trigger closed) for more than three minutes.

A thermal relieve valve has been added to this unit to protect the pump. It may begin to open and release water if the water temperature in the pump has exceeded 140° F. This will allow fresh, cool water to enter the system, therefore preventing premature failure of pump packing.

#### **PRE-START INSPECTION PROCEDURES:**

**Before starting the unit, perform the following procedures:**

1. Check the oil level in the pump and engine.
2. Inspect the water inlet strainer. Clean or replace if necessary. See "Water Supply", #2.
3. Check all hose connections to ensure they are securely tightened. See "Water Supply", #3.
4. Inspect for system water leaks, oil leaks and fuel leaks. If a fuel leak is found, DO NOT START UNIT! See "Risk of Explosion or Fire". Be sure that all damaged parts are replaced and that the mechanical problems are corrected prior to operation of the unit. If you require service, contact Customer Service.
5. Inspect high pressure hoses for kinking, cuts and leaks. If a cut or leak is found, DO NOT USE HOSE! Replace hose before starting unit. See "Risk of Injection". Be sure that all damaged parts are replaced and that the mechanical problems are corrected prior to operation of the unit. If you require service, contact Customer Service.



#### **WARNING**



THE FOLLOWING PAGES CONTAIN OPERATING AND MAINTENANCE INSTRUCTIONS.

DO NOT ATTEMPT TO OPERATE THIS PRESSURE WASHER UNTIL YOU HAVE READ AND UNDERSTOOD ALL SAFETY PRECAUTIONS AND INSTRUCTIONS LISTED IN THIS MANUAL.

INCORRECT OPERATION OF THIS UNIT CAN CAUSE SERIOUS INJURY!!

DO NOT ALTER OR MODIFY THIS EQUIPMENT IN ANY MANNER!

## **OPERATING INSTRUCTIONS**

### **PRIMING THE PUMP:**

CAUTION RISK OF UNIT DAMAGE. BE CERTAIN THE HOSE, GUN & DUAL LANCE ASSY. ARE NOT CONNECTED TO THE UNIT WHILE PRIMING THE PUMP. PRIMING ALLOWS MINERAL DEPOSITS TO BE RELEASED FROM THE SYSTEM WHICH WOULD OBSTRUCT OR DAMAGE THE GUN AND NOZZLE ASSEMBLY RESULTING IN COSTLY REPAIRS.

It is essential to prime the pump and flush the unit each time the water supply has been disconnected from the unit OR whenever the unit has set for any period of time. This unit has a steel coil which, after setting, will cause the water remaining in the coil from the previous usage to turn brown or black. This contaminated water must be flushed from the system before start-up. This procedure should be performed without the high pressure hose, gun and dual lance assembly installed.

### **DIRECT FEED: ALL UNITS.**

1. Turn on the water supply.
2. Low pressure water will begin flowing from the water outlet. This allows the unit to prime and purge any air from the system. The unit is primed when water flow is uninterrupted by air.
3. Once the unit is primed, turn off the water supply and connect the high pressure discharge hose to the water outlet of the unit. (Note: The trigger gun and dual lance assembly should already be connected to the high pressure discharge hose at this time.)
4. Turn on the water supply.

### **START-UP/COLD WATER OPERATION:**

1. Refer to the "Safety Precautions" before starting the unit.
2. Locate the Safety Decals on your unit and heed their warnings.
3. Ensure the burner switch is in the "OFF" position.

**DANGER RISK OF INJECTION CAUSING SEVERE INJURY! -KEEP CLEAR OF NOZZLE! NEVER PLACE HAND OR FINGERS IN FRONT OF NOZZLE! -DO NOT DIRECT DISCHARGE STREAM AT PEOPLE OR PETS!**

4. Pointing the trigger gun in a safe direction, unlock the trigger gun and squeeze the trigger. Hold the trigger gun open while starting the engine according to the manufacture's instructions in the engine manual accompanying this unit.
5. Once the engine has started, ensure the engine throttle is adjusted to full RPM and perform the following procedures with the trigger gun open:
  - a. Inspect for system water leaks, oil leaks and fuel leaks. If a fuel leak is found, TURN UNIT OFF IMMEDIATELY! See "Risk of Fire". Be sure that all damaged parts are replaced and that the mechanical problems are corrected prior to operation of the unit. If you require service, contact Customer Service.
  - b. Inspect high pressure hoses for kinking, cuts and leaks. If a cut or leak is found, DO NOT TOUCH HOSE AT LEAK!!! TURN UNIT OFF IMMEDIATELY! Replace hose before starting the unit. See "Risk of Injection". Be sure that all damaged parts are replaced and that the mechanical problems are corrected prior to operation of

the unit. If you require service, contact Customer Service.

6. At this point, the unit is operating as a cold water pressure washer. Trigger the gun several times and try adjusting the water pressure. NEVER place hand or fingers in front of the nozzle or look directly into the nozzle! High pressure water creates a risk of severe injury
7. Do not allow unit to operate in bypass mode (with trigger closed) for more than three minutes without triggering the gun. Failure to follow this simple rule can cause premature failure of pump packing, resulting in costly pump repair.
8. Your pressure washer can deliver high pressure spray and a variety of spray patterns using cold water. If you wish to use the Hot Water application or Cleaning with Detergents, see page 17 for the correct procedures.



**CAUTION RISK OF DAMAGE. DO NOT ALLOW SPRAY PATTERN TO REMAIN ON A FIXED AREA FOR AN EXTENDED PERIOD OF TIME. POSSIBLE DAMAGE MAY OCCUR TO THE AREA.**

### **HOT WATER OPERATION:**



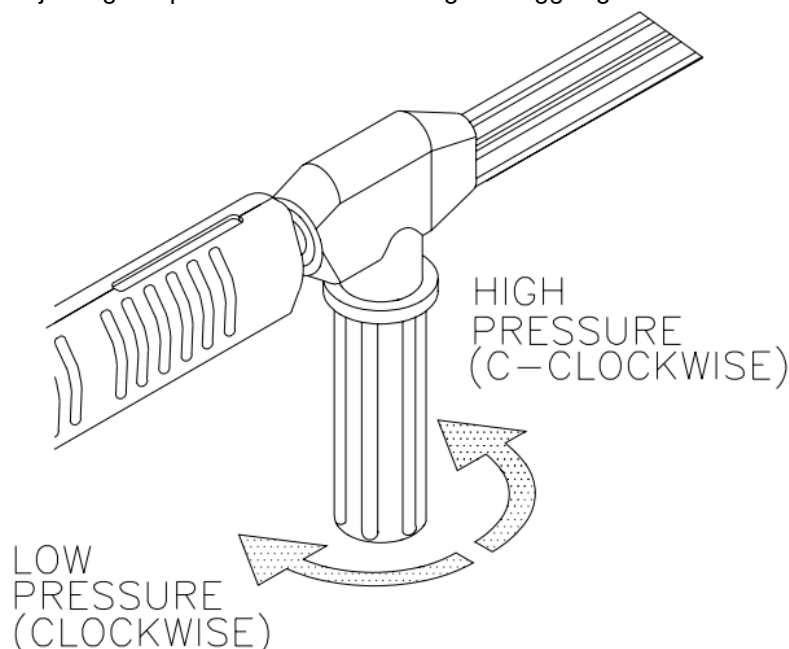
**WARNING RISK OF BURN! THE WATER TEMPERATURE COULD BECOME VERY HOT DURING HOT WATER OPERATION. BE CAUTIOUS WHEN ADJUSTING PRESSURE OR CONTROLLING THE TRIGGER GUN/DUAL LANCE ASSEMBLY.**

1. Follow the steps outlined for "START-UP/COLD WATER OPERATION".
2. Move the Burner Switch to the ON position. On initial start-up, water will begin turning hot in approximately 20 seconds and will reach maximum temperature in approximately 2-1/2 minutes, provided the trigger remains squeezed. The burner will stop firing when the trigger is released.

**NOTE:** While spraying, it is normal for the burner to fire intermittently.

The high-limit switch will cause combustion to cease when the temperature of the discharged water exceeds the maximum temperature setting of the switch. Combustion will begin again when the temperature drops below the minimum setting.

At this point, the unit is operating as a hot water pressure washer. Be certain to be extremely cautious when adjusting the pressure and controlling the trigger gun/dual lance assembly to avoid the possibility of burns.





## **CLEANING WITH DETERGENTS UNDER LOW PRESSURE:**

**NOTE:** This feature is designed for use with mild detergents only. Since the cleaning solution travels through the heat exchange coil, DO NOT use corrosives as they will cause extensive damage as well as pose a considerable safety hazard.

1. Refer to "Risk of Bodily Injury/Detergents" pg. 7. Be certain to wear protective safety attire as stated on pg. 12.
2. Prepare detergent solution according to label directions. (Never pump acids, alkalines, abrasive fluids or solvents through the unit. Due to the unknown and often corrosives characteristics of many detergents commonly used in the pressure washer cleaning industry, it is recommended to use only manufacturer approved detergents with this unit.)
3. Fully immerse the strainer end of the clear vinyl detergent hose into the detergent solution.
4. Adjust the amount of detergent desired by locating the adjustment knob at the end of the clear vinyl hose. Turn the knob completely counterclockwise to set at maximum siphon rate. Be certain the adjustable grip on the dual lance is turned completely clockwise for low pressure detergent operation.

**NOTE:** This injection system is designed to apply detergents under low pressure only. It will not allow detergent solutions to be introduced into the system unless the dual lance is set in the low pressure mode.

5. To apply solution; unlock the trigger gun and squeeze the trigger. In a few moments a detergent/water mixture will exit the nozzle. Start spraying the lower portion of the surface being cleaned and move up, using long overlapping strokes. Applying from the bottom up helps avoid streaking.  
Allow to soak briefly. Avoid working on hot surfaces or in direct sunlight to minimize the chances of the detergent drying, which may result in damaging surfaces. Be certain to clean a small section at a time.
6. To rinse; lock the trigger gun in the "OFF" position, rotate the adjustable grip on the dual lance counterclockwise for high pressure. Unlock the trigger gun and spray. It will take about 30 seconds to purge all detergent from the line. For best rinsing results, start at the top and work down.
7. Siphon a gallon of water through the low pressure detergent injection system after each use. This prevents the possibility of corrosion or detergent residue causing mechanical problems during the next use.

## **SHUT-DOWN:**

1. Move the burner switch to the OFF position.
2. Squeeze the trigger and discharge the water for a period of three minutes to cool the heat exchange and high pressure hose. (Insufficient cool down period of the high pressure hose will cause excessive wear and eventual rupturing of the hose.)
3. DO NOT close the choke to stop the engine. Backfire or engine damage may occur.
4. Move the engine On/Off Switch to the "off" position.
5. Close the engine fuel shut-off valve.
6. Turn off the water supply and trigger the gun momentarily to relieve trapped pressure.
7. Disconnect and store hoses. Store unit in a non-freezing environment.

## **STORAGE & MAINTENANCE**

### **SPECIFIC MAINTENANCE:**

**ENGINE:** The engine instruction manual accompanying your unit, lists specific procedures for maintenance of the

engine. Following the engine manufacturer's recommendations will extend engine life.

**PUMP:** Change the pump oil after the first 50 hours of operation. After initial change, every 3 months or 250 hour intervals are recommended. If oil appears dirty or milky, changes may be required in greater frequency. Use 15W20 detergent pump oil and fill only to the center of the oil sight glass. DO NOT overfill.

**COUPLERS:** There are o-ring seals inside the couplets which will deteriorate. To replace, simply install a replacement o-ring to correct the leak. (Additional o-rings can be purchased from your dealer.)

**NOZZLE:** Water flow through the spray nozzle will erode the orifice, making it larger, resulting in a pressure loss. Nozzles should be replaced whenever pressure is less than 85% of the maximum. The frequency of replacement will depend upon such variables as mineral content in the water and number of hours the nozzle is used.

**FUEL WATER SEPARATOR:** The fuel filter has a built in water separator. Occasionally the water has to be drained from the separator. Follow the procedures listed below:

1. Check the collection bowl daily.
2. Ensure the unit is off and place an oil catch basin under the fuel cartridge.
3. Loosen the drain plug to allow the fuel/water contaminants to flow into the catch basin.
4. Re tighten the drain plug when completed.
5. Dispose of drainage according to environmental regulations in your area.

**BURNER AIR ADJUSTMENT:** The air shutter has been factory preset for proper operation between sea level and 2000 feet elevation at standard conditions (60°F ambient water and air temperatures). To assure maximum combustion efficiency at colder temperatures and higher altitudes, it will be necessary to adjust the air supply to the combustion chamber. A smoke spot test is recommended during any air shutter adjustment. This will aid in maximising the burner efficiency and avoid inefficient operation and excessive suiting of the combustion chamber.

1. The machine must be running and the burner ON.
2. Take a smoke spot test to determine if more or less air is required for proper combustion.
  - a. If the test is greater than a #3 smoke, turn the shutter arm counterclockwise to increase the air flow into the combustion chamber.
  - b. If the test is yellowish in color, turn the shutter arm clockwise to decrease the air flow into the combustion chamber.
3. Hold onto the air shutter adjusting arm and loosen the locking nut. Move the shutter in 1/8" increments and retighten the locking nut after each 1/8" movement.
4. Trigger the gun on and off slowly to make sure there is proper ignition. Slight or no puffing on the ignition, and a smoke spot test of less than #3 smoke is good.
5. Repeat steps 2 and 3 until step 4 is attained.

**LEAKS:** Promptly eliminate any leaks found in the pumping system by removing suspect parts, applying thread sealant to the threads and reinstalling.

**NOTE:** If using Teflon tape, be certain no tape gets inside any plumbing to prevent the possibility of a plugged spray nozzle.

## **WINTERISING:**



**WARNING RISK OF UNIT BURSTING. DO NOT STORE / OPERATE UNIT IN A FREEZING**

## ENVIRONMENT!

For storage and transportation purposes in subfreezing ambient temperatures, it will be necessary to winterize this unit. This unit must be protected to the lowest incurred temperature for the following reasons:

1. If any part of the pumping system becomes frozen; excessive pressure may build up in the unit which could cause the unit to burst resulting in possible serious injury to the operator or bystanders.
2. The pumping system in this unit may be permanently damaged if frozen. FREEZE DAMAGE IS NOT COVERED BY WARRANTY

If you must store your unit in an area where the temperature may fall below 32°F, you can protect your unit by following the procedure outlined below.



### 1. **Gather the following items:**

- a. Two 5 gallon containers.
- b. One gallon of antifreeze. (Use an environmentally safe antifreeze.)
- c. Water supply.
- d. Three foot hose, 1/2-3/4 I.D. with a 3/4 inch male garden hose fitting.

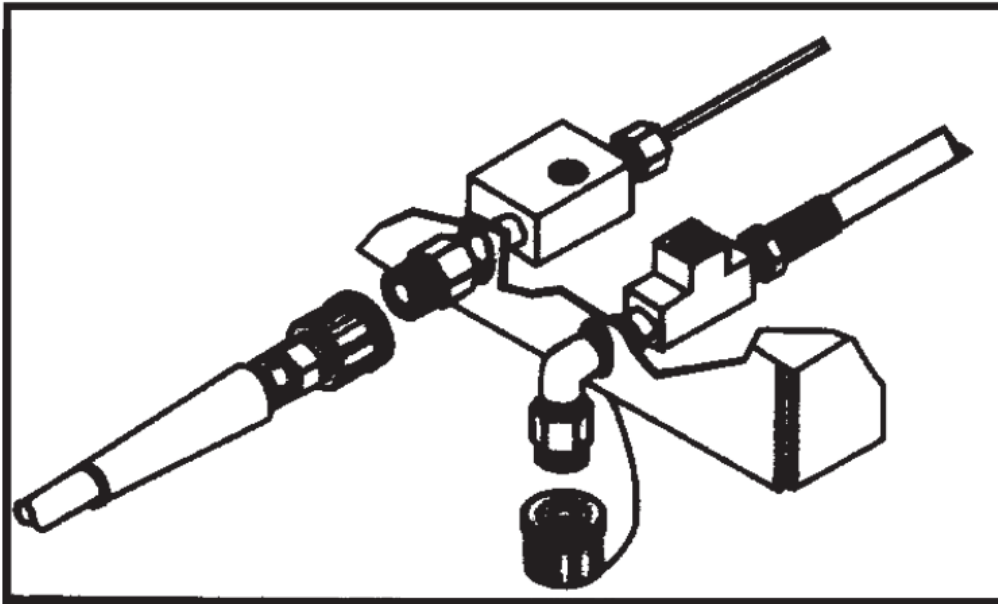
### 2. **Procedure:**

- a. To start winterising, unit must be primed and run according to the "Start-up/Cold Water Procedures" listed on page 16.
- b. After priming and running, shut off the unit and water supply.
- c. Relieve system pressure by pointing the trigger gun in a safe direction and squeezing the trigger until water flow ceases to exit the Dual Lance Assembly.
- d. Lock the trigger gun in the OFF position and remove the Dual Lance assembly.
- e. Remove the water supply hose from the unit and attach the 3 foot hose securely to the inlet connection.
- f. Shut off the detergent injector.
- g. Fill one 5 gallon container with water.
- h. Holding the 3 foot hose in an upright position, completely fill the hose with water. Then plug the hose outlet with your thumb or finger. Place the plugged end into the 5 gallon container of water.
- i. Start the unit. Trigger the gun several times until all the air is worked out of the system (unit is primed). It may be necessary to adjust the engine RPM down to an idle to aid in priming.

**NOTE:** Proper winterising is based on the recommended manufacturer's instructions listed on the "Protection Chart" shown on the back label of most antifreeze containers.

- j. With the trigger gun held open, siphon enough water out of the 5 gallon container until there is just enough water left to mix with the antifreeze.

## **COIL DRAIN PLUG**



k. Point the trigger gun into the empty container.

l. Trigger the gun until the antifreeze begins to exit the trigger gun.

Release the trigger for 3 seconds, then trigger the gun for 3 seconds.

Continue cycling the trigger gun several times until all the antifreeze mixture is siphoned from the container.

m. Detach the 3 foot hose from the unit and drain any excess antifreeze back into the 5 gallon container.

n. Disconnect the hose and trigger gun from the unit and drain any excess antifreeze back into the 5 gallon container.

o. Store the hose, trigger gun and dual lance assembly with the unit in a safe area

p. Store antifreeze solution for next use or dispose of according to state EPA laws.

### 3. Optional Procedure:

a. Shut the unit and water supply off.

b. Relieve system pressure by pointing the trigger gun in a safe direction and squeezing the trigger until water flow ceases to exit the nozzle.

c. Disconnect and drain the hose, trigger gun and dual lance assembly.

d. Remove the hose from the inlet side of the heat exchange coil.

e. Start the unit and allow it to run until all the water exits the unit. Once the water has stopped flowing from the unit, turn off.

**NOTE:** When using this procedure, caution should be used as ice chips can form from drops of water which could cause the unit to burst if starting before completely thawed.

## TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE	REMEDY
Engine will not start.	Various engine problems.	Refer to the Engine Manual accompanying your unit.
	Unit components are frozen.	Allow to thaw. If any part of the unit becomes frozen; excessive pressure may build up in the unit which could cause the unit to burst resulting in possible serious injury to the operator or bystanders.

No discharge at nozzle when trigger mechanism is squeezed	Inadequate water supply.	Ensure hose is 3/4" diameter and incoming water supply is turned on.
Low or fluctuating pressure.	Kink in water inlet hose.	Remove kink.
	Kink in high pressure discharge hose.	Replace kinked high pressure hose.
	Water inlet screen obstructed.	Remove screen, clean or replace.
	Pump sucking air. (Prime eliminated)	Tighten all water intake connections. Eliminate leaks in intake line.
	Adjustable Grip on Dual Lance is not in high pressure mode.	Turn grip counterclockwise to high pressure.
	Obstructed or worn spray nozzle.	Remove, clean or replace.
	Damaged or obstructed valve seats on pump.	Remove, inspect, clean or replace.
	Pump packing worn.	Replace packing.
	Unloaded/Bypass valve not operating correctly.	Repair or replace.
Water is leaking from Heat Dump Valve.	Water temperature is too high.	Do not allow unit to operate in bypass mode (with the trigger gun closed) for more than three minutes.
	Defective valve.	Replace.
Oil appears milky or foamy.	Water in oil.	Change pump oil. Fill to proper level.
Oil leaking from unit.	Worn seals or o-rings.	Contact Service.
Detergent will not siphon into Low Pressure Detergent mode.	Detergent strainer is not completely submerged in detergent solution.	Check, submerge if necessary.
	Detergent strainer obstructed.	Inspect, clean or replace.
	Detergent hose cut, obstructed or kinked.	Inspect, clean or replace.
	Detergent adjusting knob turned to closed position.	Open adjusting knob. Refer to "Cleaning with Detergents".
	Adjustable grip on dual lance is not in low pressure mode.	Turn grip clockwise to move to low pressure.
	Nozzle assembly is plugged.	Clean or replace.
	Too many high pressure hose extensions attached to the water outlet.	Use one extension maximum.
	Ball & Spring in Venture stuck.	Remove, clean or replace.
Water flows back into detergent container.	Ball & Spring in Venture reversed, missing or corroded.	Remove, clean or replace.

Water flows from the nozzle when the trigger gun is locked in the "OFF" position.	Trigger gun is malfunctioning.	Repair or replace.
Water is leaking under heat exchange coil.	Coil drain plug is not installed.	Install.
	Safety relief device is relieving caused by an unloaded or pressure switch problem.	<ol style="list-style-type: none"> <li>1. Detect and correct unloaded or pressure switch problem</li> <li>2. Replace safety relief device. NEVER run unit without safety relief device. Doing so can cause an explosion!</li> </ol>
Burner will not ignite	Burner switch is not turned on.	Check switch position.
	Out of fuel.	Refuel.
	Trigger gun is closed.	Open trigger gun for pressure.
	EMF Drive belt loose or broken.	Adjust or replace as necessary.
	Flexible couplet broken.	Replace.
	Dirty or clogged fuel filter/water esp.	Drain or replace as necessary.
	Fuel pump sucking air.	Tighten all fuel intake connections. Eliminate leaks in intake line.
	Fuel pump inoperative.	Check pressure, replace if needed.
	Fuel pickup screen is obstructed.	Consult Service.
	Dirty or clogged fuel nozzle.	Replace fuel nozzle.
	Ignition module.	Consult Service.
	Ignition electrodes damaged or worn.	With unit running and trigger gun closed, look through burner sight glass to ensure there is sparking across electrodes.
	No voltage.	Consult Service.
	Pressure switch override.	Pressure should be over 250 PSI/ 18 Bar to allow burner to come on.
	High limit switch override.	Allow unit to cool down before reigniting.
	Improper burner air adjustment.	Adjust as shown
	Fuel solenoid valve failure.	Replace.
Burner runs erratically.	Water in the fuel oil.	Drain fuel filter/water separator, drain fuel tank and replace with clean fuel.
	Dirty fuel filter/water separator.	Replace element.
	Dirty fuel nozzle.	Replace.
	Improper air adjustment setting.	Adjust as shown
	Fuel pickup screen is obstructed.	Consult Service.

	Fuel pump malfunctioning.	Replace.
Burner runs, but will not heat.	Poor or improper fuel supply.	Check fuel to ensure it is correct. Drain tank and filter if necessary and refill with proper fuel.
	Low fuel pump pressure.	Check fuel pump pressure, replace if needed.
	Dirty fuel nozzle.	Replace.
	Improper air adjustment setting.	Adjust as shown
	Fuel pickup screen is obstructed.	Consult Service.
	Scale build up in heat exchange coil.	Consult Service.
Burner discharges white smoke.	Low on fuel.	Refuel. If white smoke persists, consult Service.
	Excessive air supply.	Adjust as shown
Burner discharges black smoke.	Insufficient air supply.	Adjust as shown

## MAINTENANCE CHART

PROCEDURE	DAILY	3 MONTHS	6 MONTHS	9 MONTHS	12 MONTHS
Check engine oil level	X				
Change engine oil*****	X		X	X	X
Check water pump oil level	X				
Change water pump oil **	X		X	X	X
Oil leak inspection	X				
Fuel leak inspection	X				
Water leak inspection	X				
Hose inspection	X				
Water inlet filter inspection	X				
Check fuel filter/water separator	X				
Inspect belt	X		X	X	X
Replace high pressure nozzle** *	X		X	X	X
Replace fuel filter/water separator or	X				
Inspect fuel pump filter*	X				
Replace fuel nozzle*	X				
Check burner air adjustment	X		X	X	X
Check burner electrodes*	X				
Test water pressure*	X		X	X	X
Test fuel pressure*	X		X	X	X
Test water temperature*	X		X	X	X
Descale coil****	X				

\* Must be performed by an authorized service technician.

\*\* The pump oil must be changed after the first 50 hours of operation and every 250 hours or 3 months, whichever comes first.

\*\*\* High pressure nozzle should be replaced whenever pressure is less than 85%.

\*\*\*\* Scale build-up will vary with mineral content in the water and amount of usage. Descaling can range from monthly to yearly maintenance.

\*\*\*\*\* The engine oil must be changed after the first 8 hours of operation and every 50 hours or 3 months, whichever comes first.

## ACCESSORIES



15-0006	SUPPLY HOSE 3/4"	X	X	X	X
50-0136	HOSE REEL 13" (HOLDS 100' OF HOSE)	X	X	X	X
50-0137	HOSE REEL 16" (HOLDS 200' OF HOSE)	X	X	X	X
AW-0050-0138	BRACKET FOR HOSE REEL (UNIVERSAL)	X	X	X	X
50-0140	BRACKET FOR HOSE REEL (22" BAR)	X			
852-0138	JUMPER HOSE FOR HOSE REEL (4000 PSI)		X	X	X
852-0139	JUMPER HOSE FOR HOSE REEL (4000 PSI)	X			
AW-3000-0035	SANDBLASTER NOZZLE*	X		X	X
AW-3000-0004	SANDBLASTER NOZZLE *		X		
AW-4085-0016	PUMP OIL	X	X	X	X
AW-7004-0045	ROTATING NOZZLE (.045 / 5000 max) *	X	X	X	X
AW-7003-1500	ROTATING BRUSH *	X	X	X	X
AW-7018-1200	EXTENSION WAND 12' ** (3000 PSI)	X	X		
AW-7018-1800	EXTENSION WAND 18' ** (3000 PSI)	X	X		
AW-7018-2400	EXTENSION WAND 24' ** (3000 PSI)	X	X		
AW-7020-8003	ROTARY SURFACE CLEANER** (20" 4000 PSI)	X	X	X	X
AW-7020-8001	ROTARY SURFACE CLEANER** (28" 4000 PSI)	X	X	X	X
AW-7025-8000	25" POWER BROOM (5 – 80° NOZZLES)*/***	X	X	X	X
AW-7035-8000	35" POWER BROOM (7 – 80° NOZZLES)*/***	X	X	X	X

\*Requires 17-0028 1/4" female quick connect.

\*\*Requires 17-0004 3/8" female quick connect.

\*\*\*PSI and GPM must be specified when ordering.

All Purpose Cleaner, Paint Surface Prep, House & Deck Wash and Heavy Duty Greaser are specially formulated detergents for use with all HSP pressure washers and are packaged in One (1), Five (5) and Fifty-five (55) gallon containers.

## STATEMENT OF WARRANTY

The manufacturer warrants all parts, (except those referred to below), of your new HSP Series Pressure Washer to be free from defects in materials and workmanship during the following periods:

### **For Lifetime (Limited) against freezing and cracking:**

Pump Manifold

### **For Seven (7) Years from the date of original purchase:**

High Pressure Pump

### **For Three (3) Years from the date of original purchase:**

Heat Exchanger Coil

**For One (1) Year from the date of original purchase:**

**High:** Pressure Pump

**Frame:** Pulley

**Guard or Shields:** EMF System Plumbing

**For Ninety (90) days from the date of original purchase:**

**Control Switches:** Safety Switches

**Regulating Valve:** Fuel Pump

**Unloader Valve:** Electrodes

**Fuel Solenoid:** Safety Relief Valve

**High Limit Thermostat:** Temperature Switch

**Pressure Switch**

**For Thirty (30) day from the date of original purchase:**

**High Pressure Hose:** Trigger Gun

**Strainers / Filters:** Wand

Defective parts not subject to normal wear and tear will be repaired or replaced at our option during the warranty period. In any event, reimbursement is limited to the purchase price paid.

**EXCLUSIONS**

1. Engine is covered under separate warranty by its respective manufacturer and is subject to the terms set forth therein.

**2. Normal wear parts:**

**Pump Packings:** Spray Nozzles

**Pump Valves:** Screw Connectors/Quick Couplings

**Detergent Valves:** Fuel Filters


**O-rings:** Belts

3. This warranty does not cover parts damaged due to normal wear, misapplication, misuse, operation at other than recommended speeds, pressures or temperature.

Parts damaged or worn because of the use of caustic liquids or by operation in abrasive or corrosive environments or under conditions causing pump cavitation are not warranted. Failure to follow recommended operating and maintenance procedures also voids warranty.

4. The use of other than genuine manufactured repair parts will void warranty. Parts returned, prepaid to our factory or to an Authorized Service Center will be inspected and replaced free of charge if found to be defective and subject to warranty. There are no warranties which extend beyond the description of the face hereof. Under no circumstances shall the manufacturer bear any responsibility for loss of use of the unit, loss of time or rental, inconvenience, commercial loss or consequential damages.



	<p><b>C US 201473 Portable Gasoline Driven Direct</b> [pdf] Instructions</p> <p>201473, 37-1261-E-S-121923, 201473 Portable Gasoline Driven Direct, 201473, Portable Gasoline Driven Direct, Gasoline Driven Direct, Driven Direct, Direct</p>
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References

- [🇺🇸 P65Warnings.ca.gov](https://www.p65warnings.ca.gov/)
- [User Manual](#)

[Manuals+](#), [Privacy Policy](#)

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