



**Pressure Washers**

**Simpson® Water Shotgun® Series  
Cold Water Belt Drive Pressure Washer  
Operator's Manual**



# INTRODUCTION

*Thank you for purchasing this Simpson® pressure washer. For over 40 years, Cleaning and Paint Professionals have relied on the superior quality of Simpson® for their pressure washing needs. Whether you purchased this machine to produce income or simply wanted the best pressure washer on the market today, we truly appreciate your business.*

*Please take time to carefully read this manual and become familiar with your pressure washer. It is extremely important to know the applications, limitations and hazards associated with using pressurized cleaning equipment.*

*Simpson® pressure washers are designed to provide years of service for professional use. Proper use, care, and maintenance of this machine will provide a significant return on your investment.*

*Prior to shipping, this machine was tested to ensure it met the performance and quality standard that Simpson® has long built its reputation.*

*Please record the serial number and purchase date in the spaces provided below:*

SERIAL NUMBER \_\_\_\_\_

PURCHASE DATE \_\_\_\_\_

## GOOD CLEANING!!!



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# 1.0 IMPORTANT SAFETY WARNINGS

## TO THE OWNER:

This manual contains safety suggestions and important instructions regarding this equipment. The basic machine and fuel systems are explained. Use the information applicable to your particular machine. Read this manual thoroughly and retain for future reference.





## IMPORTANT

Make certain that prior to operating the machine, the operator:

- Has been instructed in safe and proper use
- Reviews and understands the manual(s) pertaining to the machine
- Understands the hazards of using a high pressure washer

## SYMBOLS

The following group of symbols are used in this manual to help convey the meaning defined below:

|  |  |
|--|--|
|                  | This is a safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol or avoid possible injury or death. |
|  <b>DANGER</b>  | <b>DANGER</b> indicates a hazardous situation which, if not avoided, will result in death or serious injury.   |
|  <b>WARNING</b> | <b>WARNING</b> indicates a hazardous situation which, if not avoided, could result in death or serious injury.   |
|  <b>CAUTION</b> | <b>CAUTION</b> , used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.                             |
| <b>NOTICE</b>  | <b>NOTICE</b> is used to address practices not related to personal injury.   |

# 1.0 IMPORTANT SAFETY WARNINGS (cont.)

## IMPORTANT SAFETY INSTRUCTIONS

### **⚠ WARNING**

WARNING - When using this product basic precautions should always be followed, including the following:

### 1.1 FIRE & VENTILATION PRECAUTIONS

### **⚠ DANGER**

- Using a pressure washer indoors CAN KILL YOU IN MINUTES. Engine exhaust contains carbon monoxide. This is a poison you cannot see or smell. Operate in well ventilated areas ONLY! If the machine is to be used in an enclosed area, always provide approved vent stacks. Comply with all national, state, and local codes for locating, venting, and using the machine in enclosed areas. Exhaust fumes contain odorless, invisible gases which can kill without warning.
- DO NOT operate the machine where flammable vapors, combustible fumes, dust or other combustible materials may be present.
- DO NOT spray flammable liquids.
- ALWAYS shut down the machine and cool the engine before adding fuel. Refuel in a ventilated area away from open fires or sparks. DO NOT smoke while refueling. NEVER attempt to refuel while machine is in operation. Failure to obey this warning can cause an explosion or fire.
- DO NOT overfill the fuel tank. If fuel spillage occurs, do not start the engine before cleaning up and neutralizing any spilled fuel.
- After shutdown, DO NOT leave the machine unattended until completely cool.
- DO NOT store the unit near an open flame or near any devices that may possibly create sparks.

### 1.2 HIGH PRESSURE SPRAY

### **⚠ DANGER**

- WARNING: RISK OF INJECTION OR SEVERE INJURY TO PERSONS - KEEP CLEAR OF NOZZLE - DO NOT DIRECT DISCHARGE STREAM AT PERSONS. THIS MACHINE IS TO BE USED ONLY BY TRAINED OPERATORS.
- Fluids under high pressure spray can be nearly invisible, and can penetrate the skin and cause extremely serious injury!
- DO NOT discharge spray at yourself, people, animals, machine, plants or any fragile material such as glass. Personal injury or property damage will occur.
- NEVER allow children or adolescents to operate this equipment. DO NOT operate near children. Keep all persons at a safe distance when operating the machine.
- ALWAYS wear safety goggles, face protection and protective clothing (including gloves and rubber boots) when operating the machine to protect yourself from fluid injection, debris, and chemicals.
- NEVER put your hands or fingers over the spray nozzle.
- NEVER use your hands to stop or detect leaks.
- NEVER start the machine until the quick couplers are checked to make sure the sleeves are locked.
- ALWAYS shut off the unit and immediately trigger the gunvalve to relieve any pressure in the system before removing the cleaning nozzle from the quick coupler uncoupling the pressure hose from the machine, or before performing any machine service.
- Stay alert - watch what you are doing.
- Know how to stop the product and bleed pressures quickly. Be thoroughly familiar with the controls.
- Do not operate the unit when fatigued or under the influence of alcohol or drugs.
- ALWAYS hold on firmly to the gun/wand assembly when starting and operating the unit. Failure to do so can cause the wand to fall and whip dangerously. 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.
- NEVER squeeze the trigger unless securely braced. The thrust from the water traveling through the nozzle may be powerful enough to cause the operator to lose balance if not prepared. 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.
- DO NOT direct spray on or into electrical installations of any kind! This includes electrical outlets, light bulbs, fuse boxes, transformers, etc. Severe electrical shock may occur.
- 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. ALWAYS relieve the pressure in the system immediately after shutdown.

# 1.0 IMPORTANT SAFETY WARNINGS (cont.)

## 1.3 DETERGENT CLEANING PRECAUTIONS

### **⚠ DANGER**

- DO NOT use solvents or highly corrosive chemicals or acid type cleaners with this pressure washer. NEVER spray toxic liquids or chemicals.
- DO NOT use detergents that are not compatible with the discharge hose. Read and follow the instructions given by the detergent manufacturer.
- Keep all detergents out of reach of children and untrained adults. Proper safety precautions must be taken before handling any chemicals.
- Read and follow all directions and instructions on the product label before using detergents.
- Wear eye protection and rubber gloves when handling or using detergents.
- Always have a clean supply of water available to wash off any contact with the skin or eyes. Should any detergent product contact the eyes, immediately flood the eyes with clean water and seek medical attention at once. If skin contact occurs, flood the affected area with plenty of water for 15 minutes. If irritation persists, seek medical attention. If detergent is swallowed, follow the product label directions and get immediate medical attentions.
- Read the material safety data sheets on all detergents before using.
- Avoid working on hot surfaces or in direct sunlight to minimize the chances of the detergent drying, which may result in damaging painted surfaces. Be certain to clean a small section at a time.

## 1.4 MISCELLANEOUS PRECAUTIONS

### **⚠ WARNING**

- Read all instructions and familiarize yourself with the unit before operating.
- Read engine manual instructions completely.
- NEVER let the pump run without water flowing through unit.
- NEVER let the unit run for more than two (2) minutes with the gun in the closed position.
- NEVER leave an operating machine unattended. Always shut off the machine and relieve pressure before leaving.
- DO NOT allow any parts of your body, clothing, or high pressure hose to make contact with the muffler. Avoid dragging the hose over an abrasive surface such as cement. This may cause premature wear to the hose and eventual rupturing.
- ALWAYS respect and be alert to the potential hazards of electrical equipment, hot mufflers, moving parts, and high pressure spray.
- ALWAYS be certain that the machine safety decals are kept clean and legible. Replace any decals that become damaged, lost or painted over.

## 1.5 MAINTENANCE AND ADJUSTMENT PRECAUTIONS

### **⚠ WARNING**

- Follow the maintenance instructions specified in the manual.
- NEVER alter or modify this equipment! Your personal safety as well as the safety of other persons is at stake.
- NEVER exceed the factory pressure or temperature ratings of the system. Be sure all accessory equipment and system components used will withstand the pressure developed.
- Use ONLY those parts and accessories recommended for these machines.
- DO NOT attempt repairs or modifications you do not understand.
- ALWAYS keep guards or shields in place. Replace any that must be removed for service or that may be damaged.
- High pressure hoses should be inspected daily for signs of wear. If evidence of failure exists, promptly replace all suspect hoses 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.
- DO NOT tamper with unloader valve adjustment or alter engine speed.
- DO NOT substitute any component parts on this machine. Use ONLY Simpson® replacement parts as originally installed.  
The use of incorrect parts could cause serious injury.
- Close fuel valve when transporting or storing unit.
- Check oil level in engine each time gas tank is filled.
- Keep air filter clean and engine in tune.
- Keep incoming water filter clean.

**SAVE THESE INSTRUCTIONS**

[www.simpsoncleaningsystems.com](http://www.simpsoncleaningsystems.com)



# 1.0 IMPORTANT SAFETY WARNINGS (cont.)

## 1.6 Machine Warning Tags and Specification Plate

FIG. 1.1 - INTERNATIONAL WARNING SYMBOLS LOCATED ON THE BELT GUARD OR FRAME:



1. Warning Symbol
2. Read Operating manual
3. Wear Eye Protection
4. Do not spray any person or animal
5. Do not spray electrical components
6. Do not touch hot engine
7. Do not touch belt or moving parts during operation

Valve will open after excessive heat buildup in system.

La vàlvula se obrirà despuès de acumular alta temperatura en el sistema.

FIG. 1.2 - LOCATED ON THE THERMOSTATIC RELIEF VALVE:

FIG. 1.3- LOCATED ON THE FRAME BELOW THE PUMP:

**PROTECT PUMP FROM FREEZING** • To prevent pump damage when machine is exposed to freezing temperatures, water in system must be removed and replaced with anti-freeze solution.  
**PROTEJA LA BOMBA DE CONGELARSE** • Para prevenir daño a la bomba cuando la máquina esta expuesta a la temperatura de congelamiento, el agua del sistema debe ser removida y reemplazada con la solución de anti-congelamiento.

FIG. 1.4 - MACHINE SPECIFICATION PLATE

|                             |   |
|-----------------------------|---|
| <b>Model</b>                | Model name (i.e., WS4000).  |
| <b>Part No.</b>             | Machine part number assigned by the manufacturer.                                       |
| <b>PSI/BAR</b>              | Maximum pressure rating in pounds per square inch and barometric pressure measurements. |
| <b>Serial No.</b>           | Each machine is assigned an individual serial number.                                   |
| <b>GPM/LPM</b>              | Maximum water flow rating in gallons/liters per minute.                                 |
| <b>V/AMP/Hz</b>             | Motor rating in Volts, Amps, and Hertz. (Electric machines only)                        |
| <b>Nozzle Size</b>          | Indicates the proper nozzle orifice size used with the machine.                         |
| <b>Engine Fuel</b>          | Indicates type of engine fuel required.   |
| <b>Burner Fuel</b>          | Indicates type of burner fuel required. (Hot water machines only)                       |
| <b>Max Inlet Water Temp</b> | Maximum allowable incoming water temperature allowed.                                   |
| <b>RPM</b>                  | Pump RPM.   |

## 2.0 Operating Instructions



**WARNING** Reference the IMPORTANT SAFETY WARNINGS section of this manual before operating.

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### 2.1 Glossary of Terms

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**Air Filter** - Protects engine by filtering dust and debris out of intake air.

**Thermal Relief Valve** - Cycles cool water through pump when water reaches 140°F. Warm water will discharge from pump onto ground. This system prevents internal pump damage.

**Automatic Pressure Relief Valve (APR)** - Eliminates pressure in the pump while starting the engine making the unit to start easier

**Chemical Injection Siphon/Filter** - Use to siphon detergent or other pressure washer chemicals into the low pressure stream.

**Choke Lever** - Prepares a cold engine for starting.

**Data Plate** - Provides model, revision and serial number of pressure washer. Please have these readily available if calling for assistance.

**Fuel Tank** - Fill tank with regular unleaded fuel. Always leave room for fuel expansion.

**Fuel Valve** - Used to turn fuel on and off to engine.

**High Pressure Hose** - Connect one end to the water pump and the other end to the spray gun.

**High Pressure Outlet** - To connect high pressure hose.

**Nozzle Extension with Quick Connect** - Allows you to switch between four different spray tips.

**Oil Fill Cap** - Fill engine with oil here.

**Pump** - Develops high pressure.

**Recoil Starter** - Use for starting the engine manually.

**Safety Goggles (not included)** - Always use safety goggles or other eye protection when running your pressure washer.

**Gunvalve** - Controls the application of water onto cleaning surface with trigger device. Includes safety latch.

**Spray Tips** - 0°, 15°, 25°, 40°, and Chemical

**Throttle Lever** - Sets engine in starting mode for recoil starter and stops a running engine.

**Water Inlet** - Connect garden hose here

**Frame** - Supports the key working components of the machine.

**Overpressure Valve** - Designed to safely relieve system pressure in the case of unloader malfunction

**Unloader Valve** – Allows the pump to “by-pass” water through the pump when the gunvalve trigger is released. This allows the engine to continue to run when not spraying water.

**Wheels** – Enable pressure washer to be transported around work area and provide vibration absorption to minimize wear on mechanical components

**Belt Drive** - Belt driven units use pulleys and belts to slow the speed of the pump. This system ensures longer pump life over direct drive pumps of similar quality.

**Belt Cover** – Safety device to provide protection from moving components of belt drive system.

Under no circumstances should the pressure washer be operated without the belt cover securely in place.



## 2.0 Operating Instructions (cont.)

**⚠ WARNING** Reference the IMPORTANT SAFETY WARNINGS section of this manual before operating.

### 2.2 Machine Preparation

1. Check oil level in the pump and fill with proper grade of oil (Fig. 2.1-1) (See Pump Maintenance).
2. Check engine oil level and fill with proper grade oil if necessary (Fig. 2.1-2).
3. Check fuel supply (Fig. 2.1-3). Fill if necessary (see engine owner's manual.)
4. Check the hose, gun, and accessories for damage or wear. Repair or replace if necessary.
5. Check the female quick-couplers for o-ring seals. Replace if necessary.



FIGURE 2.1 - CHECK MACHINE

### 2.3 Hose Connections

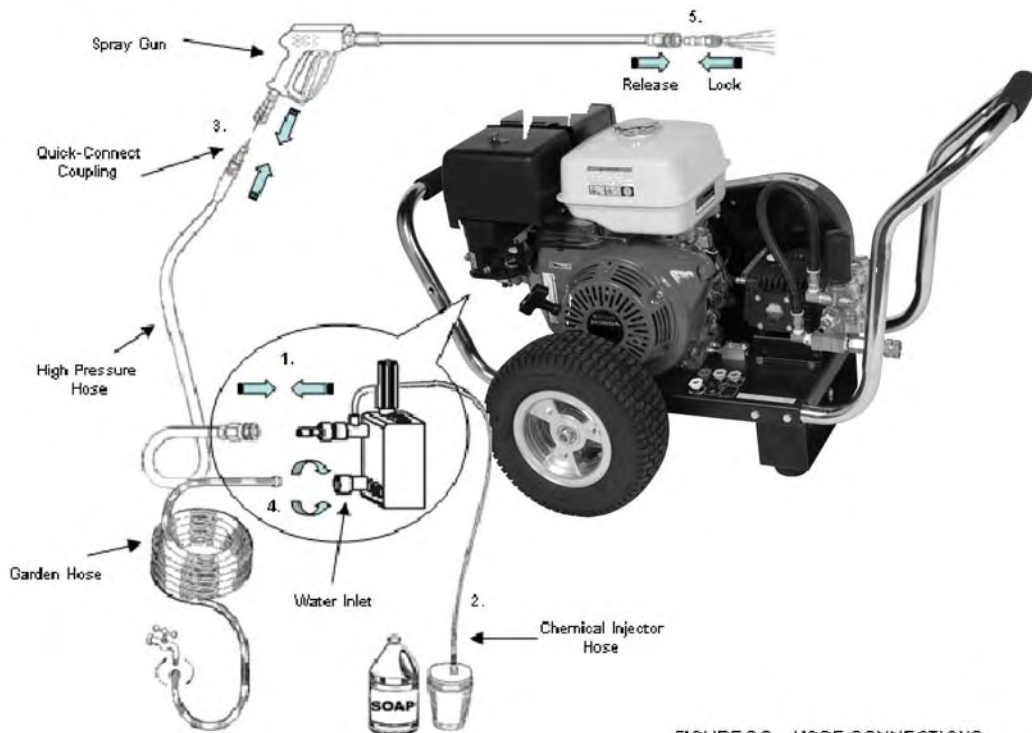


FIGURE 2.2 - HOSE CONNECTIONS

## 2.0 Operating Instructions (cont.)

**⚠ WARNING** Reference the IMPORTANT SAFETY WARNINGS section of this manual before operating.

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### 2.3 Hose Connections (cont.)

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1. Connect discharge hose to machine outlet. (Fig. 2.2-1)
2. If optional low pressure downstream, in-line chemical injector is to be used (i.e. a Simpson SC 242 or 252 Series chemical injector) connect the injector at this time (Fig. 2.2-2). For instructions on connections and use, see in-line chemical injector operating instructions
3. Connect trigger gun to discharge hose with quick coupler (Fig. 2.2-3). **DO NOT INSTALL CLEANING NOZZLE AT THIS TIME.** Quick coupler sleeves must be pushed into locked position to prevent accidental uncoupling (Fig. 2.2-5).
4. Check inlet water filter for blockage then connect water supply hose to machine. Use a 3/4" I.D. or larger hose with standard 3/4" garden hose fittings. (Fig. 2.2-4)

Incoming water supply must deliver gallons per minute greater than machine capacity.

**NOTICE**

If questionable, check supply at machine. If supply is insufficient, do not operate from this outlet. For residential use, the outlet closest to the meter tap will usually deliver the highest gallons per minute output. **DO NOT** connect to shallow wells used for lawn sprinkling. Connect only to clean city water supply or deep domestic well.

**⚠ CAUTION**

The discharge hose supplied with the machine is designed for use on cold water high pressure cleaners only. Special care, handling and maintenance are required to provide proper and safe operation. The following guidelines must be followed to ensure safe operation and provide the maximum hose service life.

- Use only hoses with proper pressure and temperature ratings. **NEVER** exceed published ratings.
- **DO NOT** route the hose in a manner that will cause sharp bending, kinking, cutting, abrasion, or other exterior damage.
- **DO NOT** pull on the hose to move the machine, untangle knots or use any other excessive pulling stress.
- **DO NOT** use the hose if any reinforcement is exposed.
- **DO NOT** attempt field repairs through an unauthorized hydraulic hose repair shop. Special couplings and crimping specifications are required for high pressure discharge hose.
- Always examine hose quick couplers and fittings before each operation. If leaking is evident, **DO NOT** use.
- **NEVER** leave discharge hose lying on the floor or ground to be driven over by vehicles or damaged by falling objects. **ALWAYS** coil and hang the hose immediately after use. If there is any doubt about hose condition, replace the hose immediately.

## 2.0 Operating Instructions (cont.)

**WARNING** Reference the IMPORTANT SAFETY WARNINGS section of this manual before operating.

### 2.4 Before Starting Machine

**DANGER**

**DO NOT OPERATE GASOLINE AND DIESEL ENGINES IN ENCLOSED AREAS! OPERATE IN WELL VENTILATED AREAS ONLY!**



FIGURE 2.3 - GUNVALVE, EXTENSION, & NOZZLE

1. Locate machine on a level plane.
2. Turn on water supply. There should be no nozzle in the extension at this point.
3. Pull gun trigger, allowing air in system to escape.
4. When water flows in a full steady stream, release gun trigger. (Fig. 2.3)

### 2.5 Starting Gasoline / Diesel Engine Machines

1. Check position of fuel valve, and if closed, open valve. For more detailed information on starting the machine's engine, see engine instruction manual.
2. Choke: Close choke on carburetor by moving lever in proper direction. If engine is warm or air temperature is high, close choke valve half-way, or keep it open fully.
3. **BE CERTAIN** the gun trigger remains in an open position while starting the engine. Brace yourself as the gun will kick-back from the high pressure created by the pump once the engine has started.
4. Machines with recoil start: Turn engine ON/OFF switch to the "ON" position. Pull the recoil starter grip lightly until resistance is felt, then pull briskly.
5. **MACHINES WITH OPTIONAL ELECTRIC START:** Check to make sure that battery terminals and cables are free of residue or corrosion, that all connections are secure and that cables are connected to the proper terminals. Check battery to see that it has a sufficient charge. Turn key switch to "ON".

**WARNING**

Rapid retraction of starter coil (kickback) will pull hand and arm toward engine faster than you can let go. Read and understand the engine manual to reduce the risk of injuries.

**NOTICE**

Machines without APR (Automatic Pressure Relief): If the engine fails to start after 1 or 2 pulls of the recoil, pressure will build-up in the system. To relieve the pressure squeeze the gunvalve trigger and allow water to flow freely. There should be **NO** nozzle or obstruction at the end of the extension.

6. After engine starts, open choke gradually.
7. Let engine warm up to normal operating temperature.

## 2.0 Operating Instructions (cont.)

**WARNING** Reference the IMPORTANT SAFETY WARNINGS section of this manual before operating.

### 2.6 Pressure Washing

**WARNING WEAR PROPER FACE PROTECTION WHEN OPERATING A PRESSURE WASHER!**

1. Select the cleaning nozzle or accessory best suited for the cleaning job.  
NOTE: Some accessory nozzles function as both a high pressure cleaning nozzle and low pressure chemical injector nozzle (i.e. vari-tip nozzles). See specific accessory nozzle operating instructions for more information.
2. PUT GUNVALVE TRIGGER IN LOCKED POSITION (Fig. 2.4).
3. Connect cleaning nozzle, chemical injector control nozzle, or accessory nozzle or attachment to gunvalve extension quick coupler (Fig. 2.2).
4. Push quick coupler sleeve into LOCKED position to prevent accidental loss of nozzle. Then unlock gunvalve trigger.
5. Check the system for water leaks, fuel leaks, oil leaks, hose kinks, etc. Correct any problems before proceeding.
6. Machine is now ready for operation.

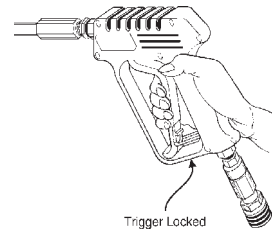


FIG. 2.4 - GUNVALVE SAFETY TRIGGER

**WARNING HIGH PRESSURE SPRAY CAN PENETRATE THE SKIN AND CAUSE SERIOUS INJURY! NEVER POINT THE SPRAY GUN AT YOURSELF, OTHER PEOPLE, OR ANIMALS. SHOULD SPRAY PENETRATE THE SKIN, SEEK MEDICAL ATTENTION IMMEDIATELY!**

### 2.7 Stopping the Machine

1. If you have been using a chemical injector, be sure to flush out the chemical by running clean water through the system.
2. Allow machine to run for 1 minute without load to cool before stopping.
3. Operate "STOP" lever or switch to shut off machine (See engine instruction manual).
4. Pull recoil starter until compression resistance is felt. Store the machine in this position to help prevent valve warpage or sticking.
5. Close Fuel Valve. For Electric Models Turn "ON/OFF" switch on machine to the "OFF" position.

**WARNING FAILURE TO CLOSE THE FUEL VALVE ON THE ENGINE CAN CAUSE FUEL LEAKAGE WHEN THE MACHINE IS BEING TRANSPORTED!**

6. Turn off water supply.
7. Remove the cleaning nozzle or accessory from the extension quick coupler.
8. Pull gunvalve trigger to release all pressure in the system, then LOCK THE GUNVALVE TRIGGER (Fig. 2.4).
9. Hoses may now be disconnected from the machine.

**WARNING** High pressure water can remain in the unit even after it has been shut off. Always relieve the pressure in the system immediately after shutdown.

**NOTICE**

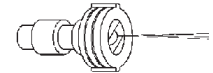
Failure to release pressure before disconnecting the hose quick coupler will result in the quick coupler o-ring seal blowing out. This o-ring must be replaced before operating machine.

## 3.0 Cleaning Nozzles

There are up to five different quick connect nozzle spray tips, four high pressure and one low pressure “Soap” nozzle. The operator can select a high pressure nozzle spray pattern which best suits the cleaning application.

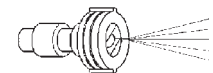
### THE BLASTER: (RED)

Provides a concentrated spot of high pressure water allowing you to be further from the surface being cleaned and to blast off stubborn material. **USE CAUTION** with this nozzle as the force available will actually penetrate soft materials or surfaces. Use for reaching high areas such as under eaves. Cleaning tar, chewing gum etc. from sidewalks. Breaking up large areas of loose paint to allow stripping nozzle to get under surface. Removing excess mortar from brick construction. Removing rust flakes from steel.



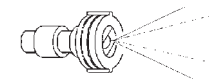
### THE STRIPPER: (YELLOW)

Provides a narrow fan of concentrated water pressure for removing paint, mildew, etc. By testing several angles between the spray and the surface being worked, the best angle may quickly be identified. Use to remove loose paint from wood, masonry, metal, etc. Remove heavy oxidation, mildew, and marine growth from boats, etc. Clean heavy equipment.



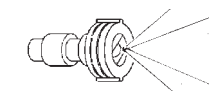
### THE CLEANER (GREEN)

Provides a wider fan for pressure cleaning and rinsing. Use for removing mildew, light to medium oxidation, and dirt from aluminum siding. Rinse stripped areas. General cleaning in preparation for painting.



### THE RINSER (WHITE)

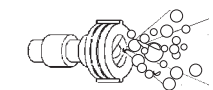
Provides a wide fan for cleaning and rinsing. Use for general wash-down, light cleaning, rinsing off chemicals used in building restoration, and sweeping driveways and parking areas.



### THE SOAPER (BLACK)

A low pressure nozzle used to apply cleaning solutions.

Note: Cleaning solutions cannot be applied with high pressure spray tips (Red, Yellow, Green or White).



## 4.0 Cleaning With and Applying Detergent



**WARNING** Reference the IMPORTANT SAFETY WARNINGS section of this manual before operating.

### NOTICE

**IMPORTANT: Use detergents designed specifically for pressure washers. Household detergents could damage pump.**

To apply detergent follow these steps:

1. Prepare pressure washer detergent solution as required by manufacturer.
2. Place detergent siphon tube/filter into solution.
3. Make sure "SOAPER" nozzle (Black) is installed.
4. Apply cleaning solution to a dry surface, starting at lower portion of areas to be washed and work upward, using long, overlapping strokes. To prevent streaking, DO NOT allow detergent to dry on.

**IMPORTANT:** You must flush the injection system after each use by placing siphon hose into a bucket of clean water, then run pressure washer in low pressure (Black nozzle) for 2 minutes.



- DO NOT use solvents or highly corrosive chemicals or acid type cleaners with this pressure washer. NEVER spray toxic liquids or chemicals.
- ONLY use detergents approved for use with pressure washers. Read and follow the instructions given by the detergent manufacturer.
- Keep all detergents out of reach of children and untrained adults. Proper safety precautions must be taken before handling any chemicals.
- Read and follow all directions and instructions on the product label before using detergents.
- Wear eye protection and rubber gloves when handling or using detergents.
- Always have a clean supply of water available to wash off any contact with the skin or eyes. Should any detergent product contact the eyes, immediately flood the eyes with clean water and seek medical attention at once. If skin contact occurs, flood the affected area with plenty of water for 15 minutes. If irritation persists, seek medical attention. If detergent is swallowed, follow the product label directions and get immediate medical attentions.
- Read the material safety data sheets on all detergents before using.
- Avoid working on hot surfaces or in direct sunlight to minimize the chances of the detergent drying, which may result in damaging painted surfaces. Be certain to rinse a small section at a time.

## 5.0 Moving and Storage Instructions

### 5.1 Moving or Transporting

#### **WARNING**

High pressure water can remain in the unit even after it has been shut off. Always relieve the pressure in the system immediately after shutdown.

- Be sure fuel valve is closed.
- Do not tilt unit more than degrees from horizontal.
- When transporting the unit in a vehicle, secure it in place to prevent shifting or tipping.

### 5.2 Storage

#### **WARNING**

Protect unit from freezing. If water in the unit is allowed to freeze, the high pressure system may be damaged, creating a potential safety hazard due to high pressure or part failure. **FREEZE DAMAGE IS NOT COVERED BY THE WARRANTY.** Do not start a unit that has been frozen—take it to an authorized service center to be inspected and tested.

#### **WARNING**

Do not store the unit in any place not suitable for gasoline storage, such as in the vicinity of a furnace or gas water heater. Gasoline fumes are highly combustible.

#### **WARNING**

High pressure water can remain in the unit even after it has been shut off. **ALWAYS** trigger the gun to release trapped pressure immediately after shutdown.

- Drain water from pressure hoses, gun and extension and accessories after use.
- Failure to remove water from the unit before it is exposed to freezing temperatures can result in damage to the pump manifold or other parts of the high pressure system. A winterizing siphon kit (Part No. WK 590-10) is available for freeze-protection. Using this kit, a 50-50 mixture of ethylene glycol-type anti-freeze and water is siphoned into the pump to replace the plain water. **FREEZE DAMAGE IS NOT COVERED BY THE WARRANTY.**
- Before storing unit, perform preventative maintenance. Change the pump oil and the engine oil, and service the engine spark plug and air filter.
- Be sure that the fuel valve is closed.
- Before storing unit for long periods of time, drain fuel tank and carburetor of all fuel (see engine manual). As an alternative, use a gasoline preservative additive when storing the unit for up to 6 months.

## 6.0 Maintenance

### 6.1 Pump Crankcase Lubrication

#### NOTICE

Proper pressure washer pump crankcase lubrication will help extend the working life of the machine. Follow these important recommended guidelines:

- Change oil after initial 50 hour run-in period.
- Simpson® pump oil is recommended as the first choice. Change Simpson® pump oil at 250 hour intervals.
- If Simpson® pump oil is not available, a high quality 30 weight non-detergent oil may be used. These oils should be changed every 100 hours on belt drive machines.
- Direct drive machines should have the pump oil changed at least every 50 hours, regardless of the type of oil used. More frequent oil changes will further enhance the pump's working life.
- Pump oil level can be checked with a dip stick or, for pumps with oil level sight gauges, viewing the sight gauge. Oil level is correct if at the center of the circle. If oil level is low, fill to correct level with recommended oil. **DO NOT OVERFILL** crankcase!
- Some pumps may not have either a dipstick or sight gauge. Oil levels in these pumps can only be checked by draining the crankcase and measuring the oil amount. If oil level is incorrect, replace with the proper amount and type as recommended by the pump manufacturer.

### 6.2 Preventative Maintenance

#### NOTICE

Preventive maintenance will help extend the working life of the machine. Follow these important guidelines:

- Read all instructions and familiarize yourself with the unit before operating.
- Keep incoming water filter clean.
- Use **ONLY** nozzles of size furnished with machine.
- Drain water from pressure hoses, gun and extension and accessories after use.
- Protect pump from freezing. Failure to remove water from the pump in freezing temperatures will result in damaged pump manifold. A winterizing siphon kit (Part No. WK 590-10) is available for this purpose. Using this kit, a 50-50 mixture of ethylene glycol type anti-freeze and water is siphoned into the pump to replace the plain water.
- Use **ONLY** injector of the size and type designed for your model.
- **DO NOT** tamper with unloader valve adjustment or alter engine speed.
- **DO NOT** connect siphon hose to pump inlet for the purpose of siphoning cleaning chemicals through pump. The machine is designed for direct loop up to water supply.
- **DO NOT** exceed 100° F temperature on incoming water supply.

#### Gasoline and Diesel Engines:

- Keep air filter clean and engine in tune.
- Check oil level in engine each time gas tank is filled. Change oil in the engine at required intervals, and use only recommended grade engine oil.
- **ALWAYS** close fuel valve when transporting or storing unit.
- Before storing unit for long periods of time, drain fuel tank and carburetor of all fuel. As an alternative, use a commercially available gasoline preservative additive when storing machine for shorter periods (up to 6 months).





## 6.0 Pump and Unloader Valve Diagnosis

| PROBLEM                    | PROBABLE CAUSE  | SOLUTION  |
|----------------------------|---|---|
| No Pressure.               | Broken Belts.   | Replace Belts.  |
|                            | A.P.R. system binding.<br>Worn Piston U-Cup.<br>Debris In Valves of Pump.   | Remove A.P.R., flush UV with water. Clean A.P.R. parts and replace.<br>Rebuild Unloader Valve (Service Center).<br>Remove Valves and clean. Flush Manifold. Install Inlet Water Filter.           |
| Not Unloading.             | Leak in Gunvalve or Hose.   | Repair gun leak . Replace leaking or broken hoses.  |
|                            | Debris or wear in Check Valve.<br>Check O-Ring.   | Remove Check Valve parts and clean.<br>Reface with emery cloth, or replace check valve.   |
|                            | Damaged Piston U-Cup.   | Rebuild Unloader Valve (Service Center).  |
| Low Pressure.              | Worn or Incorrect Nozzle Size.<br>Improper belt tension.<br>Improper engine R.P.M.<br>Inadequate water supply.  | Replace Nozzle with proper size.<br>Tighten or replace belts.<br>Adjust R.P.M. with Tachometer.<br>Check supply. Clean or replace Inlet Water Filter.   |
|                            | Pulsation or Hoses Shaking. Inadequate water supply.<br>Debris in valves of pump.<br><br>Worn high pressure packings.<br>Damaged manifold head.       | Check supply. Clean or replace Inlet Water Filter.<br>Clean Debris from valves.<br>Install Inlet Water Filter.<br>Install Plunger Seal Repair Kit.<br>Check Manifold head for wear or cracks.     |
| Water Leak Under Manifold. | Worn Plunger Seals.<br>Worn or damaged plungers.<br>Sand or dirt entering system.   | Replace seals with Plunger Seal Repair Kit.<br>Check for wear or cracks. Replace.<br>Check or install Inlet Water Filter. Do not use well water.  |
|                            | Running pump dry.   | Check water supply and Inlet Water Filter.  |
| Water in Pump Oil.         | Worn Plunger Seals.   | Replace seals with Plunger Seal Repair Kit.   |
|                            | Worn or damaged Plungers.   | Check for wear or cracks. Replace.  |
|                            | Sand or dirt entering system.   | Check or install Inlet Water Filter. Do not use well water.   |
|                            | Running Pump dry.   | Check water supply and Inlet Water Filter.  |
| Pump Oil Leak.             | Oil level too high.<br>Wrong oil type.<br>Water in oil.<br>Engine R.P.M. too high.<br>Operating on unlevel surface.<br>Tire pressure too low or flat. | Consult Owner's Manual.<br>Consult Owner's Manual.<br>Damaged Plunger Seals or Plungers.<br>Adjust engine R.P.M. with Tachometer.<br>Move to level surface.<br>Inflate tire(s) or repair leak(s). |
|                            | Recoil Hard to Pull.  | Broken A.P.R. Spring.<br><br>Replace A.P.R. Spring. See Instructions.<br>Note: A.P.R. Spring should be replaced every year or after every 500 hours.  |

## 8.0 Pressure Washer Limited Warranty

At SIMPSON®CLEANING SYSTEMS, we distribute top quality industrial / commercial / personal pressure washers that are designed for heavy-duty use, maximum reliability, durability, and long life. Our pressure washers are built for all duty applications and steady use due to higher quality levels.

The manufacturer of this product agrees to repair or replace designated parts that prove defective within the warranty period of one (1) year listed in the chart below. Specific limitations/extensions and exclusions apply, and are listed in the chart on page 18. This warranty covers defects in material and workmanship and not parts failure due to normal wear; abuse; accidental damage; negligence; improper use, maintenance, and storage. To make a claim under the terms of the warranty, all parts said to be defective must be available or returned (if requested) to SIMPSON®CLEANING SYSTEMS designated Warranty Service Center for warranty inspection. The judgments and decisions of the Warranty Service Center concerning the validity of warranty claims are final.

These warranties pass through to the end user. As a factory authorized and trained Warranty Service Center the factory will honor the terms of all component warranties and satisfy claims of the appropriate warranty provisions.

Normal wear items include, but are not limited to, Valves and Seals, which are not covered by this warranty.

This Warranty replaces all other warranties, express or implied, including without limitation any warranties of merchantability or fitness for a particular purpose and all such warranties are hereby disclaimed and excluded by the manufacturer. The Manufacturer's warranty obligation is limited to repair and replacement of defective products as provided herein and the Manufacturer shall not be liable for any further loss, damages, or expenses – including damages from shipping, accident, abuse, acts of God, misuse, or neglect. Neither is damage from repairs using parts nor purchased from the manufacturer or alterations performed by non-factory authorized personnel. Failure to install and operate equipment according to the guidelines put forth in the instruction manual shall void warranty.

This warranty does not cover the following: damage resulting from shipping (claims must be filed with freighter), accident, abuse, act of God, misuse, or neglect. Neither is damage from repairs or alterations performed by non-factory authorized personnel or failure to install and operate equipment according to the guidelines put forth in the instruction manual.

The manufacturer will not be liable to any persons for consequential damage, for personal injury, or for commercial loss.



## 8.0 Pressure Washer Limited Warranty (cont.)

### Parts / Components

**Simpson® high pressure pumps (pumps other than Simpson® covered by pump manufacturer warranty)**

### Warranty Period and Details

Seven (7) years on pump workmanship or defects in material.

Lifetime on forged brass manifold against freezing.

Warranty does not apply to failures on other pump parts due to:

- Freight damage
- Freeze damage
- Damage caused by parts or accessories not obtained from / or approved by Simpson
- Normal wear of moving parts or components affected by moving parts.

**Engines**

Covered by engine manufacturer warranty. See engine manual.

**Electric Motors (if applicable)**

One (1) year from date of first start up.

**Burners (hot water machines)**

One (1) year from date of first start up.

**Hot Water Burner Coil (hot water machines)**

Five (5) years from date of first start up.

Warranty only covers workmanship or defects of material.

Warranty does not apply to:

- Freeze Damage
- Over Pressure burst damage caused by improper maintenance of safety devices.

**Frame**

One (1) year from date of first start up.

**Accessories**

Ninety (90) days. Includes tips, guns, wands,



MANUAL-WATERSHOTGUN Eng Rev0

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