



VERTICAL AXIAL PUMPS INSTRUCTION MANUAL



Model	Max PSI	Max GPM
8.6CAV11 (510011)	2400 PSI	2.0 GPM
8.6CAV12A (510014)	3000 PSI	2.4 GPM
8.6CAV12B (510005)	3100 PSI	2.5 GPM

IMPORTANT: Please make certain that the person who is to use this equipment carefully reads and understands these instructions before operating.

SAVE THIS MANUAL FOR FUTURE REFERENCE

VERTICAL AXIAL PUMPS

GENERAL SAFETY INFORMATION

Please read and save these instructions. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.



⚠ DANGER: RISK OF INJURY FROM SPRAY

Always wear safety glasses or goggles and appropriate clothing.



⚠ WARNING: RISK OF BURSTING

- The pump is designed to pump non-flammable or non-explosive fluids. These pumps are intended to pump clean filtered water only.
- Do not operate in or around an explosive environment.
- Do not alter the pump from the manufacturer's design.
- Do not operate gasoline engines in a confined area; always have adequate ventilation.
- Do not exceed the pump specifications in speed or pressure.



⚠ WARNING: RISK OF HOT SURFACES

- Do not allow children to operate the pump.
- Never point the high-pressure discharge at a person, any part of the body or animals.
- Maximum water temperature is 140°F.

⚠WARNING: This product and its exhaust contain chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. In addition, some cleaning products and

dust contain chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. **Wash hands after handling.**

⚠ WARNING: Adequate protective guards must cover all moving parts. Perform routine maintenance on the pump and components.

⚠ WARNING: Use only components that are rated for the flow and pressure of the pump, this would include hose, fittings, safety valves, spray guns etc.

DESCRIPTION

Designed to work at 3400 RPM when coupled to a gasoline engine. The 7/8" (22.2 mm) hollow shaft and universal mounting flange provides connection to most 7/8" (22.2 mm) shaft, vertical engines.

SPECIFICATIONS

Ports

Inlet Port (Supplied): Standard garden hose connection with inlet strainer.

Discharge Port (Supplied): M22 connection.

Thermal Relief Valve (Supplied): When the temperature inside the pump rises too high, this valve will open and release a gush of water in an effort to lower the temperature inside the pump. The valve will then close.

Detergent Injection System (Supplied): Mixes cleaners or cleaning solvents with the water to improve cleaning effectiveness.

NOTICE: Allowing the unit to run for more than two minutes without the gun trigger being pulled could cause overheating and damage to the pump.

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Do not let the pressure washer run for more than two minutes in Bypass Mode. Turn off the engine and relieve the pressure in the gun during these extended situations.

⚠ WARNING: *To reduce the possibility of contamination always protect against backflow when connected to a potable water system.*

INSTALLATION

1. Install the shaft key into the key way and apply a light coating of anti-seize on the engine shaft and key.
2. Align the two key ways and push the pump completely onto the engine.
3. Install all three (3) bolts and tighten evenly. Torque to 11-13 ft-lbs.

HOW TO APPLY CHEMICALS/ CLEANING SOLVENTS

Applying chemicals or cleaning solvents is a low pressure operation. **NOTE:** Use only soaps and chemicals designed for pressure washer use. **Do not use bleach.**

To Apply Chemicals:

1. Ensure detergent siphon hose is attached to barbed fitting location near high pressure hose connection of pump as shown.
2. Place other end of detergent siphon hose with filter on it into container holding chemical/cleaning solution. **NOTE:** For every 7 gallons of water pumped 1 gallon of chemical/cleaning solution will be used.
3. Place the spray wand in the low pressure or siphon setting.
4. After use of chemicals, place detergent siphon hose into container of clean water and draw

clean water through chemical injection system to rinse system thoroughly. If chemicals remain in the pump, it could be damaged. Pumps damaged due to chemical residue will not be covered under warranty.

NOTE: Chemicals and soaps will not siphon if spray wand is not in the low pressure/siphon setting.

MAINTENANCE

⚠ WARNING: *Risk of burn hazard. When performing maintenance, you may be exposed to hot surfaces, water pressure or moving parts that can cause serious injury or death.*

CLEAN THE WATER INLET FILTER

This screen filter should be checked periodically and cleaned if necessary.

1. Remove filter by grasping end and removing it from water inlet of pump.
2. Clean filter by flushing it with water on both sides.
3. Re-insert filter into water inlet of pump. **NOTE:** Convex side faces out.

NOTE: Do not operate the pressure washer without filter properly installed.

STORAGE

The manufacturer recommends using SIMPSON® / POWERWASHER® Pump Guard (part #80130) or equivalent when storing the unit for more than 30 days and/or when freezing temperatures are expected. SIMPSON® / POWERWASHER® Pump Guard is environmentally friendly.

NOTE: Using pump guard helps provide proper lubrication to the internal seals of the pump regardless of temperature or environment.

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NOTICE: Risk of property damage. Use only SIMPSON® / POWERWASHER® Pump Guard or equivalent. Other products could be corrosive and/or contain alcohol which may cause pump damage.

1. Turn off pressure washer and disconnect hoses from pump.
2. Unscrew bottle valve from Pump Guard bottle and remove seal.
3. Screw bottle valve back onto bottle.
4. Attach bottle to water inlet of pump.
5. Squeeze bottle to inject contents into pump.
6. With ignition switch off, simultaneously pull starter rope and squeeze bottle. Repeat until protector fluid exits pump outlet.
NOTE: This step may require two people.

VERTICAL AXIAL PUMPS

- Damage caused by parts or accessories not obtained from an authorized dealer or not approved by the manufacturer.
- Normal wear of moving parts or components affected by moving parts.

HIGH PRESSURE PUMP (DEFECTS IN MATERIAL AND WORKMANSHIP)

One (1) year from date of purchase.

TROUBLESHOOTING GUIDE

Symptom	Possible Cause(s)	Corrective Action
Oil leak between crankcase and pumping section	Worn rod oil seals	Replace crankcase piston rod seals
Frequent or premature failure of the packing)	Cracked, damaged or worn plunger	Replace plungers
	Overpressure to inlet manifold	Reduce inlet pressure
	Material in the fluid being pumped	Install proper filtration on pump inlet plumbing
	Excessive pressure and/or temperature of fluid being pumped	Check pressures and fluid inlet temperature; be sure they are within specified range
	Running pump dry	Do not run pump without water
Pump runs but produces no flow	Pump is not primed	Flood suction then restart pump
Pump fails to prime	Air is trapped inside pump	Disconnect discharge hose from pump. Flood suction hose, restart pump and run pump until all air has been evacuated
Pump looses prime, chattering noise, pressure fluctuates	Air leak in suction hose or inlet	Remove suction line and inspect it for a loose liner or debris lodged in hose. Avoid all unnecessary bends. Do not kink hose
	Clogged suction strainer	Clean strainer
Low pressure at nozzle	Unloader valve is by-passing	Make sure unloader is adjusted properly and by-pass seat is not leaking
	Incorrect or worn nozzle	Make sure nozzle is matched to the flow and pressure of the pump. If the nozzle is worn, replace
	Worn packing or valves	Replace packing or valves
Pressure gauge fluctuates	Valves worn or blocked by foreign bodies	Clean or replace valves
	Packing worn	Replace packing
Low pressure	Worn nozzle	Replace with nozzle of proper size
	Low engine RPM	Increase engine RPM to 3400
	Air leak in inlet plumbing	Disassemble, reseal and reassemble