



COLD WATER PRESSURE WASHERS

Operations Manual





COLD WATER PRESSURE WASHERS

FEATURES:

- TruPower engines
- Heavy duty powder coated steel frame
- Adjustable pressure
- Oversized tube pneumatic tires
- Thermal relief protection
- 50 mesh stainless steel inlet filter
- 3/4" cold rolled steel axle
- Dual anti-vibration rubber isolators
- Spray wand with molded grip and gun
- 5 quick connect spray nozzles
- Chemical injector



| MODEL | GPM | PSI | TIRES | ENGINE | PUMP BRAND | PUMP MODEL | HOSE | DIMENSIONS |
|--------|-----|------|-------|--------|---------------------|------------|----------------|-----------------|
| PW2430 | 2.4 | 3000 | 10" | TP212 | Comet | BXD2530 | 25ft - 3200psi | 23" x 23" x 22" |
| PW3025 | 2.5 | 3000 | 10" | TP212 | Comet | LWD3025 | 35ft - 4500psi | 32" x 22" x 22" |
| PW4042 | 4.0 | 4200 | 13" | TP420 | Annovi Reverberi | RRV4G40 | 50ft - 4500psi | 34" x 30" x 27" |



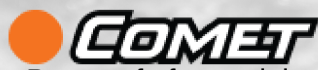
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CONTACT INFORMATION



www.pressurewasher-parts.com
sales@pressure-washer-parts.com
 800-491-3850



Pump mfg for models:
 PW2430 & PW3025

www.cometpump.com
 Email via website
 800-864-1649



Pump mfg for
 models: PW4042

www.arnorthamerica.com
 800-893-4235



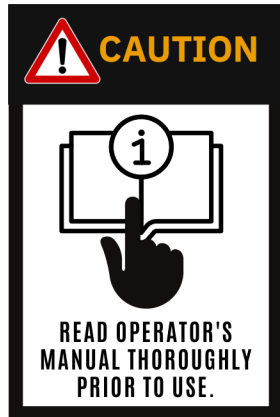


WARNING: HIGH PRESSURE SPRAY CAN CAUSE SERIOUS INJURY

Under no circumstances should you ever:

- Aim the trigger gun or wand at yourself or others
- Place your hand, fingers, or any part of your body directly in front of the spray

Doing so could result in serious injury or harm. Please exercise extreme caution and be vigilant about following these safety guidelines.



USE CAUTION: KNOW YOUR PRESSURE WASHER BEFORE USE

- Prior to operating your power washer, it is crucial that you have a thorough understanding of all operating instructions, safety precautions, and rules.
- We strongly recommend only allowing those who have read, understand, and can follow all instructions, precautions, and safety guidelines to operate your machine.



BE PREPARED: ALWAYS WEAR ADEQUATE CLOTHING AND SAFETY GEAR

- To prevent injury or harm, always wear ear protection to reduce noise levels and eye protection or a face shield in case of any flying debris.
- Always dress appropriately in long pants and sturdy boots or shoes. While using chemicals, cleaning detergents, or other corrosive or abrasive substances, we advise wearing other protective equipment to further minimize any potential risks.
- For your safety, please avoid operating pressure washing equipment if you have consumed alcohol or taken any medication as this could affect your ability to operate the equipment properly and increases the risk of accidents.
- To maintain a safe work environment, please ensure that pets, children, and bystanders are kept at a safe distance from your work area. We recommend a minimum distance of 50 feet to prevent any potential accidents or injuries.
- To avoid damage to glass or fragile objects, please refrain from spraying directly at them using the pressure washing equipment. Instead, clean around them or use alternative cleaning methods.
- CAUTION: Even after shutting off your pressure washer, there may still be high pressure water trapped in the system. To release this pressure, please wait until the engine/motor has completely stopped and then trigger the gun to release any remaining water before storing the equipment.
- Always familiarize yourself with any chemicals you are using and thoroughly read precautions and safety guidelines.



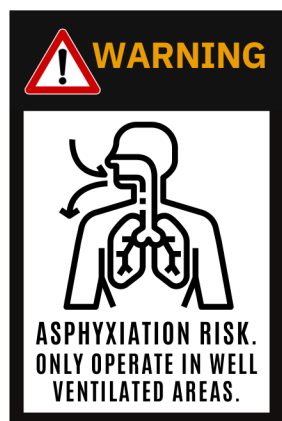
PRECAUTIONS FOR GASOLINE ENGINES



Always follow all safety precautions, operating procedures, and maintenance listed in your engine operator's manual.

NEVER FILL THE ENGINE with gasoline while the engine is running, still hot from previous use, or in the vicinity of an open flame.

DO NOT SMOKE WHILE OPERATING OR NEAR PRESSURE WASHER.



NEVER run power washers in an enclosed or poorly ventilated area. Inhaling poisonous carbon monoxide gas from engine exhaust can result in serious illness or death.

USE CAUTION to prevent touching or coming in contact with hot mufflers, cylinders, cooling fins or hot exhaust gases as this may result in severe burns.

NEVER tamper with components that may increase the speed (RPM) of the engine (such as governor spring or governor links.)



NEVER operate your pressure washer in an area containing flammable vapors or gases.

ALWAYS dispose of any flammable materials appropriately when servicing your pressure washer.

ALWAYS remove your spark plug before servicing or making any adjustments to your pressure washer.

ALWAYS ensure your fuel shut-off valve is in the OFF position when transporting your equipment to prevent fuel leakage and spillage.

INITIAL SET UP AND OPERATION

INSPECT FOR FREIGHT DAMAGE

To ensure that your pressure washer has arrived in optimal condition, be sure to check for any damage that may have occurred during transport. In the event that you do find any damage, please take note of it and inform the delivering carrier and reach out to us at Pressure-Washer-Parts.com to start a claim. If you have any inquiries related to the shipping process, please don't hesitate to contact PWP at 800-491-3850 or sales@pressure-washer-parts.com.

CHECK OIL LEVELS

Before using your pressure washer, be sure to check oil levels in both the pump and engine to prevent any potential damage to your pressure washer. Typically pumps come pre-filled with oil and have sealed crankcases, but you may have to install a vented dipstick in the pump and remove the shipping plug. Oil types are listed in the pump breakdown and engine manual.

You should complete your first pump oil change after the first 50 hours of operation, and then every 3 months or 300 hours of operation going forward. For extensive use or hostile environments you will want to change your oil more often.

WATER SUPPLY

It is important to ensure that your equipment gets an adequate water supply. Make sure that your water supply can provide more water than the Gallon Per Minute (GPM) rate of your machine. To check your GPM, fill a 5-gallon bucket with water and time how long it takes to fill. If your machine has a GPM of 5 or less and the bucket fills in less than a minute, you have sufficient water supply for your equipment. **CAUTION: NEVER RUN PUMPS DRY! Insufficient water supply to your pressure washer will result in pump damage.**

WATER QUALITY

To prevent damage to your power washer, it's important to ensure that your water supply doesn't contain particles larger than 80 microns. While power washers have small filters installed to filter the water, they may only be effective for a short time before becoming clogged when filtering poor quality water. It's essential to use a clean water source, with limited sand or scale, to avoid costly repairs or replacements.

SUPPLY HOSE

Connect a garden hose from the faucet to the power washer, and make sure to inspect the inlet water filter or screen. It's recommended to use a hose with a minimum diameter of 5/8" and a length of at least 15 feet, as this helps to separate the water supply from any pulsations from the pump. This ensures that the power washer operates smoothly and without any interruptions.

If required in your area, install a Vacuum Break or backflow preventer at the faucet before attaching the garden hose to prevent water source contamination. Check local and state regulations before installation to ensure compliance.

CLEAR THE SYSTEM OF AIR

To eliminate air from the system, turn on the water supply and open the trigger gun. Check for any water leaks and immediately repair them as leaks can cause pump malfunction and irregular behavior.

TURN ON POWER

Make sure your fuel shut-off valve is in the on position, and pull the recoil cord to start your engine. Pull the trigger on your gun and check for adequate pressure.

FILTERS

Before each use, it is important to inspect water filters, hoses, and fittings for cleanliness, leaks, and any repair requirements. If any issues are detected, promptly repair or replace the affected components as necessary.

GETTING TO KNOW YOUR UNLOADER VALVE

Two types of unloader valves are used in pressure washers: Trapped Pressure Unloaders and Flow Actuated Unloaders. Once the pump is filled with water, the unloader's job is to regulate the direction of flow. In a positive displacement pump, a fixed amount of water is always flowing regardless of whether the trigger is open. A valve is required to regulate that flow, either by allowing the water to exit through the open spray gun or bypassing it back to the pump inlet when the trigger is closed. In a system with no unloader, the pressurized water has nowhere to go when the trigger is closed, creating dangerously high pressure inside the pump. The unloader is crucial in protecting the system against the creation of excess pressure and potential damage.

HOSES AND COUPLERS

The hoses provided by the factory are designed with specific lengths and diameters to ensure optimal operational performance and compatibility with the pressure capabilities of each machine. Adding extra hose or changing hoses may impact your machine's performance. For any questions on replacing or upgrading hoses, please contact us for assistance.

Always be sure the machine is shut off and pressure has been relieved from the hoses before replacing or changing quick connects or hoses.

DURING OPERATION

The unloader valve was set, and tested, at the factory so no adjustments should be required to start using your new unit. Even though the machine is equipped with a bypass valve and thermal relief valve, it's important to never allow it to run for over two minutes without activating the trigger gun as excessive bypass can result in severe pump damage.

CHEMICAL INJECTOR

USING YOUR INJECTOR WITH THE INTERCHANGEABLE TIPS

Your pressure washer comes standard with a downstream chemical injector that can be used to apply chemicals. To use it, simply change your nozzle to the black, low pressure nozzle and insert the filter end of the 1/4" clear vinyl tube into your desired chemical. (Except in the case of the PW2430 which has an integrated chemical tank built into the frame.)

You want to make sure you are using the black soap nozzle as the chemical injector will only open up and allow the chemical to flow when the low pressure nozzle is used. This specialized tip allows the pressure to drop down to roughly 250 psi signaling the injector to begin drawing the chemical. Some injectors are adjustable, meaning you can use the black knob on the injector's hose barb to adjust the rate of injection. If your unit is equipped with this type of injector you can use this calibration formula to set it:

Calibration Formula:

$$(\text{GPM} \times 128) \div (\text{ounces drawn in 1 minute}) = x:1$$

Example:

If a 2.0 GPM machine draws 8 ounces of chemical in 1 minute: $(2 \times 128) / 8 = 32:1$

After using your pressure washer to apply chemical, be sure to rinse the injection system with clear water to prevent any corrosion and extend the longevity of your injector.

SELECTING YOUR NOZZLE (SPRAY TIP)

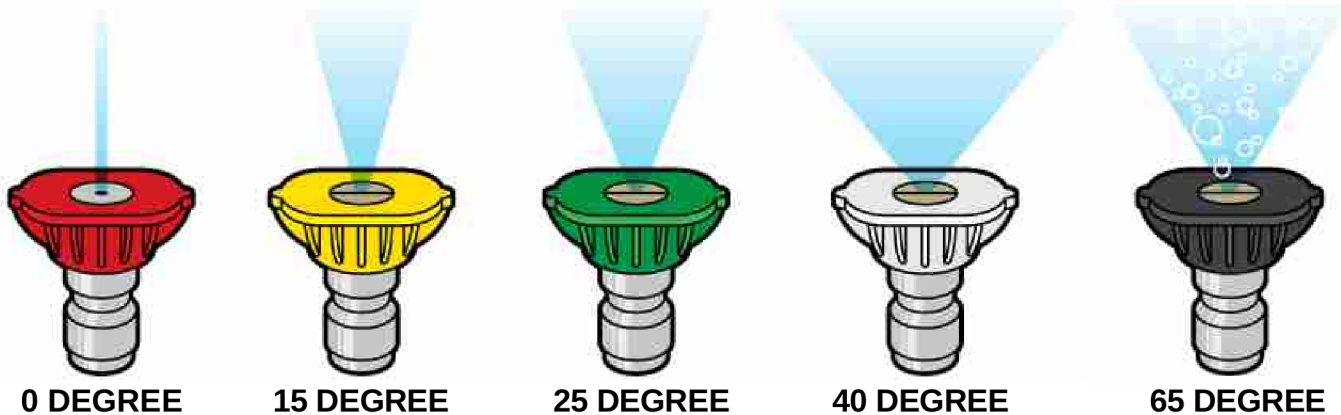
There are several important things to keep in mind about pressure washer nozzles, but the most important is that each nozzle has a nozzle size (or orifice size.) This is a calculation based off of the GPM and PSI of your machine that finds the ideal orifice size to get the most pressure possible from your pump. The nozzles that come with your machine will already be the correct ones for that model, however, when it comes time to replace them it is very important that you **always** use the correct size nozzle.

Another way to identify your nozzle size is by looking at the nozzle number, a 4-5 digit number stamped on the nozzle that lists both the spray angle and orifice size. Generally the first and second digits are the spray angle (degrees), and the last two are the orifice (nozzle size.)

Example: A 15 degrees Size 5.5 nozzle could be shown as 15055 or 1555.

NOZZLE (SPRAY TIP) APPLICATIONS

WARNING: It's important to exercise caution when using these nozzles as the spray force can cause injuries if directed towards yourself or others. To avoid any accidents, always disconnect from the spray wand before observing the nozzle directly.



0 DEGREE MAXIMUM BLAST

Purposes:

- Removing caked on mud from heavy construction, farm or lawn equipment
- Cleaning tar, glue or stubborn stains from concrete
- Removing rust from steel and oxidation from aluminum

Rarely used as it's spray cone has such little coverage and uses such high force.

Never use on soft surfaces like wood, siding, or cars.

15 DEGREE MEDIUM STRIPPING

Purposes:

- Stripping paint and prepping surfaces for painting
- Removing grease, dirt, mud, and heavy mildew stains from boats and equipment
- Removing rust and oxidation from metals
- Also commonly used on machines like surface cleaners

Use caution if using on surfaces like lumber (4x4)s.

25 DEGREE CLEANING & GENTLE LIFTING

Purposes:

- General cleaning; removing dirt, mud, and grime from areas like roofs, gutters, cars, boats, patio furniture, driveways, and more.
- Eliminating light mildew stains and removing algae and bacteria build up from pools
- Rinsing surfaces after stripping for painting

Most commonly used nozzle due to versatility & coverage.

40 DEGREE MINIMUM SPRAYING & GENTLE CLEANING

Purposes:

- Light cleaning and washing
- Washing and rinsing cars and boats
- Cleaning roofs, windows, and driveways

Great for delicate surfaces such as windows, glass, painted siding, patios, decks, sidewalks, driveways and stucco walls.

SHUTTING DOWN YOUR PRESSURE WASHER

STORAGE

1. Turn off the power switch to your pressure washer.
2. Turn off your garden hose and/or disconnect from your water supply.
3. Pull your trigger gun to relieve any remaining pressure in the hose and system.
4. Briefly inspect your machine for any oil or water leaks, or other things that are needing to be repaired before the next use.
5. If you are preparing to store your machine for winter, it is crucial to **winterize your pressure washer properly and never let your machine freeze.**
6. To winterize your pressure washer:
 - a. Turn off your fuel shutoff valve and drain any remaining gas.
 - b. Run the machine until any remaining gas in the carburetor and fuel lines is used up and the machine shuts off (usually takes a few minutes.)
 - c. After all the gas is out of your tank and system, add fuel stabilizer to the tank per the directions on the stabilizer you are using.
 - d. If you haven't recently changed your oil, you might consider doing that at this time.
 - e. Disconnect and blow out any plumbing or hose lines.
 - f. Run a plumbing antifreeze solution through the inlet of your pump until it begins to discharge out the outlet. Generally the easiest way to do this is with a funnel and a spare length of hose.
 - g. Clean your filters and nozzles and store somewhere dry for the winter.

EXTENDING EQUIPMENT LIFE AND PREVENTING DAMAGE

1. Avoid stretching your hose across high traffic areas or anywhere it may be ran over by vehicles or equipment.
2. Always use the handle to position your pressure washer and do not attempt to move it by pulling on the hose.
3. Avoid coiling your hose into a tight loop or bending around any tight corners as this can damage the wire braid.
4. Always re-wrap your hose when finished using it and store it in a safe location.
5. Always check your oil levels (both pump and engine) and fuel level in your engine before use to avoid damaging your pump or engine.
6. Before each use inspect your nozzle and inlet water filter for damage and debris, and clean or replace as needed.
7. When transporting your pressure washer, only lift by appropriate handles and always secure your load.

GENERAL MAINTENANCE AND PRESSURE WASHER CARE

1. Always follow the recommend service instructions in your engine's owner manual.
2. You should complete your first pump oil change after the first 50 hours of operation, and then every 3 months or 300 hours of operation going forward. For extensive use or hostile environments you will want to change your oil more often. **Consult your pump manual for drain plug location, oil type, and sight glass information.**
3. If storing your pressure washer for the winter, always properly winterize your machine and **never allow your pump to freeze.**

TROUBLESHOOTING

FAQ AND COMMON PROBLEMS

LOSS OF PRESSURE

One of the most common complaints when pressure washing is low nozzle pressure. Low nozzle pressure is generally caused by one of the following:

1. Nozzle tip is clogged with dirt or debris.
2. Inlet filter is clogged with dirt or debris
3. Plugged, obstructed, or twisted hose.
4. Insufficient water flow to the pump.
5. The unloader valve is stuck open due to debris under the check valve, or otherwise needs repair or replacement.
6. The check valves within the pump need cleaning or replacing.

CLEANING A CLOGGED NOZZLE

Clogged nozzles are a serious issue that needs immediate attention to prevent pressure to backing up within and damaging your pump. Here are the steps to clean out a clogged nozzle:

1. First, **always disconnect the nozzle before cleaning.**
2. Use a paperclip or similar thin but rigid wire to clear the nozzle orifice.
3. Run water through the nozzle from both directions.
4. Reconnect your nozzle, start your pressure washer, and try pulling the trigger gun.

If the nozzle is still plugged, try steps 1-4 again. If the problem still exists, replace your nozzle with a new one.

SURGING PRESSURE OR OPERATION

Another common issue that arises is surging pressure, meaning that when the trigger is first pulled, pressure builds like normal initially but then quickly drops off. However, when you let off the trigger, pressure builds back up to normal running levels. The most common cause of this is that your water supply is not providing the GPMs (flow rate) needed for your pump. Here are some possible solutions:

1. Inspect your inlet filter to make sure it is not damaged or plugged with debris, and that there are no undersized or otherwise obstructed fittings that could be restricting your flow.
2. Confirm that your pump is getting sufficient water supply. First, double check your pump manual to confirm your pump's flow rate (GPM). Next, gauge the flow rate of your water supply by measuring the gallons that flow in one minute. You can do this by filling a 5-gallon bucket with water and timing how long it takes to fill. If your machine has a GPM of 5 or less and the bucket fills in less than a minute, you have sufficient water supply for your equipment.
3. Check any inlet fittings for leak as this can cause the pump to draw air and perform poorly.

CHEMICAL INJECTOR ISSUES

Identifying the issue with a malfunctioning chemical/soap injector is usually fairly straightforward. Some troubleshooting steps to try first are:

1. Ensure that the Black soap tip is installed if you have interchangeable tips. If your high-pressure nozzle is still installed the soap injector will not be able to draw chemical properly.
2. If you are using an adjustable nozzle, check to make sure it is in the low pressure position to trigger the chemical injector to start drawing.
3. Confirm that the soap injector valve is on and adjust the selector valve to your preferred setting.
4. Disassemble, clean, and inspect your injector for any debris or other obstructions stuck in the injector ball, injector ball valve, or the orifice.

TROUBLESHOOTING CONTINUED

FAQ AND COMMON PROBLEMS

| PROBLEM | POSSIBLE CAUSE | SOLUTION |
|--|--|--|
| LOW OPERATING PRESSURE | Faulty pressure gauge | Install new gauge |
| | Insufficient water supply | Test supply GPM, use larger supply hose, check for kinks, clean inlet filter |
| | Old, worn or incorrect spray nozzle | Confirm nozzle size and replace with new nozzle in proper orifice size |
| | Belt slippage | Confirm you are using correct belt, tighten or replace belt if needed |
| | Plumbing or hose leak | Re-tape with teflon tape or replace faulty hoses or fittings as needed |
| | Unloader valve is worn or set incorrectly | Ensure your unloader is set for proper pressure, service or replace unloader as needed |
| | Worn packing (seals) in pump | Install new packing (seal) kit |
| | Dirt or debris plugging up the pump's check valves | Clean out check valves and ensure spring is able to move freely |
| | Worn check valves | Install new check valve kit |
| | Obstruction in spray nozzle | Remove obstruction (see pg. 9) |
| | Leaking unloader valve | Service or replace if needed |
| | Slow engine RPM | Ensure your engine speed is set to the proper specifications |
| | Pump sucking air | Check inlet hose and fittings for possible leaks |
| | Valve sticking | Check for debris and clean or replace if necessary |
| | Unloader valve seat faulty | Service/replace if necessary |
| FLUCTUATING PRESSURE | Worn or damaged check valves | Service/replace if necessary |
| | Blockage in valve | Service/replace if necessary |
| | Worn piston packing (seals) | Service/replace if necessary |
| | Air in suction line | Check hose and fittings on suction line for damage or worn seals |
| NOISY PUMP (continued on next page) | Broken or weak check valve springs | Service/replace if necessary |

| PROBLEM | POSSIBLE CAUSE | SOLUTION |
|--|--|---|
| NOISY PUMP <i>(continued)</i> | Debris in check valves | Service/replace if necessary |
| | Worn or damaged bearings | Service/replace if necessary |
| WATER LEAKING INTO OIL (OIL WILL APPEAR MILKY) | Worn or damaged packing (water) seals | Service/replace if necessary and change oil |
| | Broken, cracked, or chipped (ceramic plungers (pistons | Inspect plungers (pistons) for chips, cracks, etc & replace if necessary |
| LEAKING WATER | Worn or damaged packing (water) seals | Service/replace if necessary |
| | Plunger retainer o-ring worn | Service/replace if necessary |
| | Cracked plunger (piston) | Service/replace if necessary |
| | Too much pressure in pump | Lower water supply pressure; do not let the machine sit in bypass for longer than two minutes |
| LEAKING OIL | Worn or damaged oil seals | Service/replace if necessary |
| EXCESSIVE VIBRATION IN OUTLET LINE | Clogged, worn, or damaged check valves | Service/replace if necessary |
| DETERGENT NOT DRAWING | Air leak | Check detergent line for holes & tighten any hose clamps |
| | Suction hose filter screen is plugged | Clean or replace |
| | Incorrect nozzle or adjustable nozzle in wrong position | Confirm black soap nozzle is installed or adjustable nozzle is forward (away from gun) |
| | Debris (like dried detergent) plugging metering valve injector | Disassemble and clean thoroughly |
| | High viscosity of detergent | Dilute detergent to specifications |
| | Hole in detergent line(s) | Repair hole or replace line |
| | Low detergent level | Add detergent if needed |
| PUMP RUNNING NORMALLY BUT PRESSURE LOW ON INSTALLATION | Pump sucking air | Check water supply and fittings for any holes or leaks |
| | Valves sticking | Clean/replace if necessary |
| | Incorrect nozzle size | Verify nozzle size & correct if needed |
| | Unloader valve seat faulty | Service/replace if necessary |
| | Worn piston packing | Check and replace if necessary |
| RELIEF VALVE LEAKS WATER | Relief valve defective | Replace or repair |

| PROBLEM | POSSIBLE CAUSE | SOLUTION |
|--|---|--|
| ENGINE WILL NOT START OR CRANK OVER | Dead battery | Charge or replace battery; add electrolyte if battery is new |
| | Leftover pressure in sys | Activate trigger gun to relieve pressure |
| | Dirty battery connection | Inspect & clean connections |
| | Battery cables disconnected | Clean & reconnect connections |
| | Engine, pump, or gearbox is seized | Service/replace if necessary |
| | Keyswitch, solenoid and starter on engine defective | Service/replace if necessary |
| ENGINE WILL NOT START BUT WILL CRANK OVER | Engine power switch is off or defective | Confirm switch is on, if it is service/replace if necessary |
| | Dirty or faulty spark plug | Replace spark plug |
| | Low oil shut down is activated | Add oil to engine; check more freq. |
| | Low fuel levels | Add fuel |
| | Clogged fuel filter | Clean/replace fuel filter |
| | Fuel supply valve off | Turn on fuel supply valve |
| | Engine flooded or starved | Choke only when necessary |
| ENGINE BOGS DOWN WHEN SPRAY GUN IS TRIGGERED | Obstructed nozzle or incorrect nozzle size | Verify nozzle size, remove obstruction/replace if necessary |
| | Engine needs to be repaired or replaced | See engine manual or contact engine dealer |
| | High elevation operation | Lower the pressure (PSI) and verify engine speed (RPM) |
| | Carbon deposits on cylinder head | Remove head and wire brush deposits to remove |

MAINTENANCE SCHEDULE

OIL CHANGE LOG

Before using your pressure washer for the first time, make sure to check your pump's oil level. Your first oil change should happen after the first 50 hours of run time, and then every 3 months or 300 hours after that. Use SAE 30 weight oil, non-detergent, unless otherwise specified in your pump manual.

| Oil Change Date Month/Day/Year | Operating Hours Since Last Oil Change | Brand Name and Type of Oil |
|-----------------------------------|--|-------------------------------|
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| Maintenance Operation | | Every 8 Hrs or Daily | 25 Hrs or Weekly | 50 Hrs or Monthly | 100 Hrs or Yearly | Yearly |
|-----------------------|--------|-------------------------|---------------------|----------------------|----------------------|--------|
| Check Oil | Pump | | X | | | |
| | Engine | X | | | | |
| Change Oil | Pump | | | | | X |
| | Engine | | | X | | |
| Air Cleaner | | Check | | Clean | | X |
| Spark Plug | | | | | X | |
| Check Valve Clearance | | | | | | X |
| Fuel Tank Filter | | | | | X | |
| Water Filter/Clean | | Check | | | | X |