

Please record Model No. and Serial No. for use when contacting the manufacturer:

Model No. _____ Purchase date _____

Serial No. _____ Purchase place _____

For Information About This Product, call 1-800-330-0712



Model PW2002



Model PW2102

Contents

Page

Frequently Asked Questions	2
Safety and Warning Information	3
Assembly and Pre-Operation	4 - 5
Startup, Operation, Shutdown, and Storage	6 - 9
Maintenance and Technical Information	10
Service Record	11
High Pressure Soap Lance	14
Replacement Parts Lists	12 - 15
• Pump	12
• Cart	13
• High pressure soap lance	15
Troubleshooting Chart	16 - 17
Warranty	20

Carefully read and understand these instructions before operating your pressure washer.

REMINDER: Keep your dated proof of purchase for warranty purposes! Attach it to this manual or file it for safekeeping.

Frequently Asked Questions

How do I start my pressure washer?

1. Make sure you have gas and oil in the engine.
2. Turn the water on, then trigger the gun to make sure the water will flow smoothly out of the nozzle.
3. Put the engine throttle control in the "Fast/Start" position. Set the shut off switch to "ON."
4. Push the engine primer bulb three times (if applicable) or set the choke to "ON."
5. Pull the trigger (to relieve any back pressure in the pump) while pulling the starter cord.
6. If the engine does not start after three tries, repeat Steps 4 and 5 (See Page 5).

What type of oil do I use?

Engine: The engine DOES NOT COME FILLED WITH OIL. See Page 10 for engine oil types and quantities.

Pump: The pump comes filled with the correct amount of oil and should not need changing or filling. Refer to Pages 9 and 10 of this manual for oil changing instructions, oil types and quantities.

Why don't I have any water pressure?

- Is the water hose attached to the pressure washer?
- Is the water turned on?
- Check for any kinks, leaks, or blockage in the hoses, fittings, or the nozzle.
- Is the adjustable nozzle in the low psi position? If so, move it into the high psi position (See Page 7).
- Is the inlet filter screen free of debris? Check and remove debris if needed.

How do I get high pressure?

- For high pressure, move the nozzle into the high psi position (See Page 7).

How do I get the soap suction to work?

1. Connect the clear plastic chemical suction tube to the plastic hose barb on detergent tank (if applicable).
2. Fill the detergent tank with detergent formulated for use with pressure washers.
3. Move the nozzle into the low psi position (See Page 7).

Why doesn't the pressure washer apply detergents with high pressure?

Detergents "bounce" off cleaning surfaces as fast as they are applied. The pressure washer's features allow for a detergent to be drawn while in low pressure mode only. By applying detergent at low pressure, the effect of "bouncing" is reduced. Also, detergents are only effective when time is allowed for them to work on the surface of whatever is being cleaned. After applying the detergent, wait 1-3 minutes while it works, and then proceed to rinse the surface with high pressure.

We offer a high pressure soap lance as an accessory. Refer to page 13 for information about this accessory. Because of "bouncing", this accessory is not intended to be used where a regular lance would be sufficient.

What maintenance do I need to perform on my pressure washer?

1. After turning off the pressure washer and the water, depressurize the hose by triggering the gun.
2. Remove the garden hose and high pressure hose from the pump.
3. Pull the start rope slowly five times to purge water from the pump. This will help protect the pump from damage.
4. Do not store your pressure washer in an area where the temperature will drop below 32° F.

What do I do if I'm missing a part?

Call Campbell Hausfeld at 1-800-330-0712 and we will promptly replace your missing parts. **DO NOT RETURN THE PRESSURE WASHER TO THE RETAILER!**

Where can I buy accessories for my pressure washer?

- If you can't find accessories at the store where you purchased your pressure washer, call Campbell Hausfeld at 1-800-330-0712 or visit our website at www.chpower.com.

Who do I call if I have questions or problems?

Call Campbell Hausfeld at 1-800-330-0712 (U.S.A.)

Safety and Warning Information

Safety Guidelines

This manual contains information that is very important to know and understand. This information is provided for SAFETY and to PREVENT EQUIPMENT PROBLEMS. To help recognize this information, observe the following symbols.

⚠ DANGER *Danger indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.*

⚠ WARNING *Warning indicates a potentially hazardous situation which, if not avoided, COULD result in death or serious injury.*

⚠ CAUTION *Caution indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate injury.*

NOTICE *Notice indicates important information, that if not followed, may cause damage to equipment.*

NOTE: Information that requires special attention.

Important Safety Instructions

SAVE THESE INSTRUCTIONS

⚠ WARNING

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

1. Read all instructions before using the product.
2. To reduce the risk of injury, close supervision is necessary when the product is used near children.
3. Follow all safety codes as well as the Occupational Safety and Health Act (OSHA).
4. Ensure safety devices are operating properly before each use. DO NOT remove or modify any part of the gun or unit.
5. Know how to stop this product and bleed pressure quickly. Be thoroughly familiar with the controls.
6. Stay alert – watch what you are doing.
7. Do not operate the product when fatigued or under the influence of alcohol or drugs.
8. Keep operation area clear of all persons.
9. Do not overreach or stand on unstable support. Keep good footing and balance at all times.
10. Follow the maintenance instructions specified in the manual.

⚠ WARNING *Risk of injection or severe injury. Keep clear of nozzle. Do not discharge streams at persons. This product is to be used only by trained operators. Always remove lance from gun before cleaning debris from tip.*

- Keep clear of nozzle. NEVER direct high pressure spray at a person, animal, or yourself.
- Always wear safety glasses or goggles and protective equipment (hearing protection, gloves, rubber boots, protective clothing) when operating or performing maintenance.
- Never put hand or fingers over the spray tip while operating the unit.
- Never try to stop or deflect leaks with any body part.

- Always engage the trigger safety latch in the safe position when spraying is stopped even if only for a few moments.
- Always follow detergent manufacturer's label recommendations for proper use of detergents. Always protect eyes, skin, and respiratory system from detergent use.

⚠ WARNING *Do not use pressure that exceeds the operating pressure of any of the parts (hoses, fittings, etc.) in the pressurized system. Ensure all equipment and accessories are rated to withstand the maximum working pressure of the unit.*

⚠ WARNING *Explosion hazard.*

- NEVER spray flammable liquids or use pressure washer in areas containing combustible dust, liquids, or vapors.
- Never operate this machine in a closed building or in or near an explosive environment.
- Do not remove fuel tank cap or fill fuel tank while engine is hot or running (allow engine to cool two minutes before refueling). Always fill the tank slowly.
- Never disconnect the high pressure discharge hose from the machine while the system is pressurized. To depressurize machine, turn power and water supply off, then press the gun trigger 2-3 times.
- Never permanently engage the trigger mechanism on the gun.
- Never operate the machine without all components properly connected to the machine (handle, gun/wand assembly, nozzle, etc.).

NOTICE *Equipment damage.*

- ALWAYS turn water supply "ON" before turning pressure washer "ON." Running pump dry causes serious damage.
- Do not operate the pressure washer with the inlet water screen removed. Keep screen clear of debris and sediment.
- NEVER operate pressure washer with broken or missing parts. Check equipment regularly and repair or replace worn or damaged parts immediately.
- Use only the nozzle supplied with this machine.
- Never leave the wand unattended while the machine is running.
- Never tamper with the engine governor or attempt to alter factory settings. Altering factory settings could damage the unit and will void the warranty.
- Always hold gun and wand firmly when starting and operating the machine.
- NEVER allow the unit to run with the trigger released (off) for more than one minute. Resulting heat buildup will damage the pump.
- NEVER store the pressure washer outdoors or where it could freeze. Freezing temperatures can seriously damage the pump.
- Release the trigger when changing from high to low pressure modes. Failure to do so could result in damage to the nozzle.

⚠ CAUTION *Keep hose away from sharp objects. Bursting hoses may cause injury. Examine hoses regularly and replace if damaged. Do not attempt to mend a damaged hose.*

Pre-Operation

UNPACKING

Remove the equipment and all parts from the carton. The carton should contain the following.

- One pressure washer (pump, engine, cart base)
- One cart handle assembly
- One detergent tank (PW2102) or gun/hose/lance wire hangers (PW2002)
- One spray gun
- One lance with nozzle (additional lance included in PW2102 model)
- One high pressure hose
- One pack of nuts, bolts, and manuals
- One bottle of engine oil

If any parts are missing, **DO NOT RETURN THE UNIT TO THE RETAILER**. Know the unit's model number (located on the serial number tag on the pressure washer frame) and call 1-800-330-0712 for replacement parts.

After unpacking the product, inspect it carefully for any damage that may have occurred during transit. Make sure to tighten fittings and bolts before using the pressure washer.

WARNING *Do not operate the unit if it's damaged during shipping, handling, or use.*

Damage could result in bursting and cause injury or property damage.

ASSEMBLY

Use two adjustable or 7/16" wrenches to assemble the pressure washer.

1. Slide the handle assembly over the lower legs of the cart base. Use the standard nut and bolt to secure the right rear leg. See Figure 1.



Figure 1 - Assemble Handle

2. a. For model PW2002: Attach wire holders to handle and frame as shown in figure 2 using a 3/8" or adjustable wrench.
b. For model PW2102: Attach detergent tank to backside of handle. Use the 4 hex bolts with flat washer under hex head and 4 nuts provided.

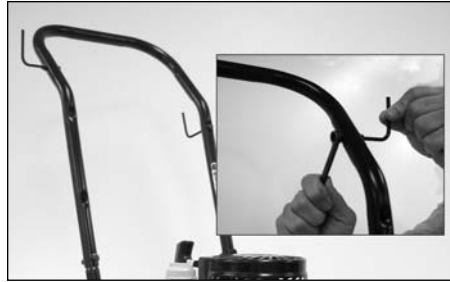


Figure 2 - Assemble Wire Hanger



Figure 3 - Wire hanger on base plate

3. a. Model PW2002: Slide clear plastic hose onto chemical injector hose barb (Figure 4). Use other end for detergent source.

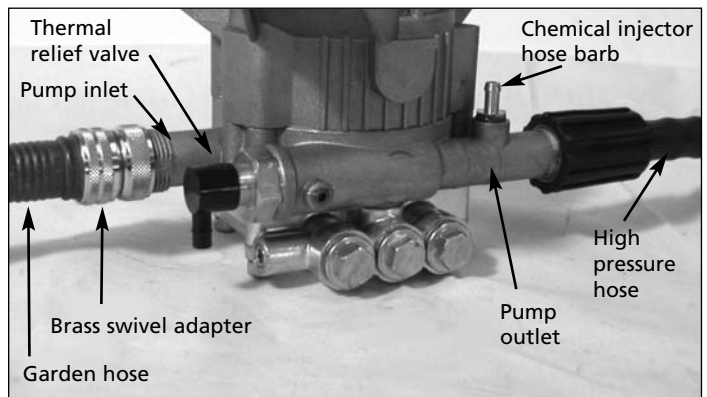


Figure 4 - Pump hook up

- b. Model PW2102: Slide clear plastic hose attached to leg onto plastic hose barb of detergent tank (see Figure 5).

Pre-Operation (Continued)



Figure 5 – Attach suction tube to barb fitting

4. **Brass Swivel Adaptor** (See Figure 4). If it's not already attached to the pump inlet, assemble the brass swivel adaptor and attach it to the pump inlet (See Figure 6 and Figure 7). Be sure to connect the correct side of the brass swivel adaptor to the pump.

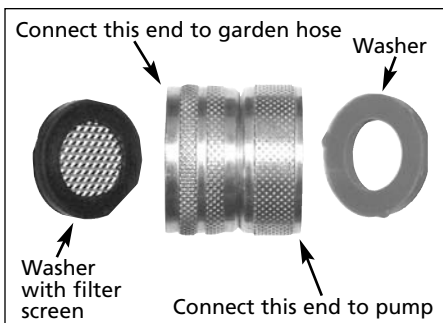


Figure 6 - Brass swivel adaptor

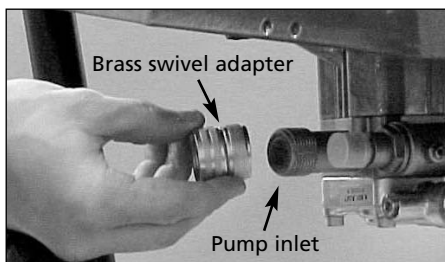


Figure 7 - Connect the brass swivel to the pump

5. Secure garden hose (not included) to the inlet connection on pump.
6. Connect the high pressure hose to the pump outlet (See Figures 4 and 8).
7. Attach the lance with nozzle to the gun (see Figure 9).



Figure 8 – Connect high pressure hose to pump



Figure 9 – Attach lance to gun

TRIGGER SAFETY LATCH

In the engaged position, the trigger safety latch prevents the gun from being triggered accidentally. Push the latch fully down to engage it (See Figure 10 and 11).

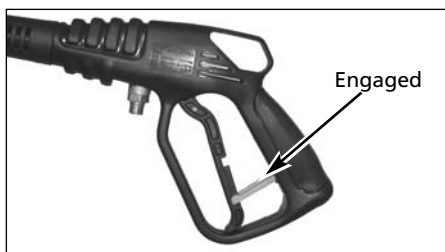


Figure 10 - Trigger locked



Figure 11 - Trigger unlocked

Always engage the trigger safety latch when the unit is not in use.

Operation

1. Surface Preparation

The following cleaning procedure will help you organize your cleaning task and ensures that you will achieve the best results in the shortest amount of time. Remember to use the spraying / cleaning techniques mentioned in the following section.

Before starting a pressure washer cleaning job, prepare the surface you intend to clean. Clear furniture from the area and make sure that all windows and doors are closed tightly. Also, protect all plants and trees near the cleaning area with a drop cloth. A covering ensures that your plants won't be sprayed by the detergents.

2. Start Up

ALWAYS use this start up procedure to ensure that the unit is started safely and properly.

NOTICE *If water has frozen in the pressure washer, thaw the pressure washer in a warm room before starting. DO NOT pour hot water on or into the pump; internal parts will be damaged.*

1. Check engine oil levels. Add oil as necessary.
2. Check fuel level. Add unleaded gasoline (rated 86 octane or higher) as required

AWARNING *DO NOT refuel a hot engine. Refueling a hot engine could cause a fire. Use only fresh, clean regular or unleaded gasoline. Close the fuel shutoff valve during refueling.*

3. Attach a garden hose to the inlet side of the pump and connect it to the water supply. Use a hose with an internal diameter (I.D.) of 5/8" (1.58 cm) and a length of 50 ft. (15 m) or less.

NOTICE *Some local plumbing codes require backflow prevention when connecting to a fresh water supply. Install a backflow preventer upstream from the pump if necessary.*

- a. If inlet water pressure is over 100 psi, install a regulating water valve at the garden hose connection.
- b. Do not exceed 100° F (38° C) inlet water temperature.

NOTE: The inlet water supply must have a minimum flow rate of 5 gpm (19 lpm).

4. Turn the water supply ON.

NOTICE *Never run the unit dry. Be sure the water supply is completely turned on before operating the unit.*

5. Trigger the gun until water sprays from the tip indicating that all air is purged from the system. Set the trigger safety latch.
6. Push the primer bulb three or four times (See Figure 12). Move the throttle fully to the right to the Run or Rabbit position.



Figure 12 – Push the primer bulb 3 or 4 times

7. Start the engine (See Figure 13). Unlock the trigger safety latch on the gun. Grasp the starter rope and brace one foot on the chassis. While squeezing the trigger on the gun, pull the starter rope rapidly and firmly (See Figure 13). Continue holding the rope as it returns. Repeat these steps until the engine starts.



Figure 13 - Start the engine

CAUTION *When pulling the starter rope, make sure to keep your hand and arm clear of the engine and cart components.*

NOTICE *Never let the starter rope return by itself. Doing so could jam the recoil system.*

8. If the engine does not start after two or three pulls or if the rope is hard to pull, squeeze the gun trigger to release the pressure that has built up in the high pressure hose. Repeat Steps 7 and 8 until the engine starts.

Operation (Continued)

3. Initial High Pressure Rinse

Spray the cleaning surface with water to clear off any dirt or grime that may have collected on the surface. Doing so allows the detergent to attack the deep down dirt that has worked its way into the cleaning surface. Before triggering the gun, adjust the nozzle to a wide fan pattern and slowly adjust it to the desired spray pattern. Using a wide fan pattern helps you avoid applying too much concentrated spray to the surface which can cause damage.

ADJUSTING FAN PATTERN

Adjust the angle of spray coming out of the lance by rotating the nozzle. The spray pattern will vary from a 0° narrow high impact stream to a 60° wide fan spray (See Figure 14).

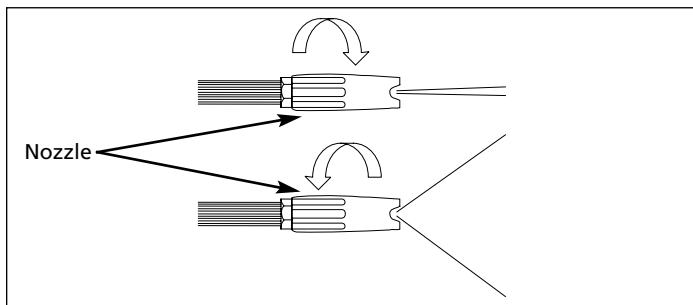


Figure 14 - Adjusting nozzle for fan pattern

A narrow stream has high impact force on the cleaning surface and results in maximum deep cleaning in a concentrated area. However, this narrow high impact spray can damage some surfaces so use it cautiously (Not recommended for use on automotive paint and trim, or vinyl siding).

A wide fan pattern will distribute the impact of the water over a larger area resulting in excellent cleaning action with a reduced risk of surface damage. Clean large surface areas quickly using a wide fan pattern.



Figure 15 - Narrow high impact stream



Figure 16 - Wide fan pattern

ANGLE TO THE CLEANING SURFACE

When spraying water against a surface, you can generate maximum impact by striking the surface head on. However, this type of impact can cause dirt particles to embed in the surface and can prevent the desired cleaning action.

The optimum angle for spraying water against a cleaning surface is 45 degrees.

Spray water against a surface at a 45 degree angle to achieve the most beneficial impact force and to efficiently remove debris.



Figure 17 - Optimum angle to cleaning surface

DISTANCE FROM CLEANING SURFACE

The distance between the spray nozzle and the cleaning surface is another factor that affects the impact force of the water. The impact force of the water increases as the nozzle is moved closer to the surface.

HOW TO AVOID DAMAGING SURFACES

Damage to cleaning surfaces occurs because the impact force of the water exceeds the durability of the surface. You can vary the impact force by controlling the nozzle's fan pattern, the nozzle's angle to the cleaning surface, and the nozzle's distance from the cleaning surface. Never use a narrow high impact stream or a Turbo/rotary nozzle on a surface that is susceptible to damage. Avoid spraying windows with a narrow high impact stream or turbo nozzle. Doing so may break the window. The most sure way to avoid damaging surfaces is to follow these steps:

1. Before triggering the gun, adjust the nozzle to a wide fan pattern.
2. Place the nozzle approximately 4-5 feet away from the cleaning surface. Then hold the nozzle at a 45 degree angle to the cleaning surface. Trigger the gun.
3. Vary the fan pattern spray angle and the distance to the cleaning surface until optimum cleaning efficiency is achieved without damaging the surface.

Operation (Continued)

TURBO LANCE (NOT INCLUDED WITH ALL MODELS)

A turbo lance is equipped with a permanently attached nozzle. This nozzle, sometimes referred to as a rotary nozzle, can significantly reduce cleaning time. The turbo nozzle combines the power of a narrow high impact stream with the efficiency of a 25 degree fan pattern. The turbo nozzle swirls a narrow high impact stream into a cone shape to clean a larger area.

NOTICE *Since a turbo nozzle uses a narrow high impact stream, only use a turbo lance in applications where the cleaning surface cannot be damaged by narrow high impact spray. The turbo nozzle is NOT adjustable and cannot be used to apply detergent.*

4. Detergent Application

USE THE INSTRUCTIONS APPROPRIATE FOR MODEL PURCHASED

NOTE: Use only detergents formulated for pressure washers. Test detergent in an inconspicuous area before use.

NOTICE *Never slide the nozzle from low to high pressure or from high to low pressure when the gun is triggered.*

DETERGENTS

The use of detergents can dramatically reduce cleaning time and assist in the removal of difficult stains. Many detergents are customized for pressure washer use on specific cleaning tasks. Pressure washer detergents are as thick as water. Using thicker detergents – like dish soap – will clog the chemical injection system and prevent the application of the detergent.

Once applied to a cleaning surface, detergents take time to break down dirt and grime. Detergents work best when applied at low pressure.

You can effectively clean surfaces by combining the chemical action of detergents with high pressure rinses. On vertical surfaces, apply the detergent starting at the bottom and work your way upward. This method prevents the detergent from sliding down and causing streaks. Begin high pressure rinsing at the bottom and work your way upward. On particularly tough stains, use a brush in combination with detergents and high pressure rinsing.

Gasoline Powered Units Equipped with Adjusting Nozzle

A. MODELS WITH DETERGENT TANKS

1. Follow manufacturer's label directions for mixing correct concentrations of soap/detergents. The soap/detergent to water ratio through the pump is approximately 12% (1 to 8).
2. Pour detergent into the detergent tank. The tank capacity is 1.5 gallons (5,67 liters).
3. Place hand around the spraying end section of the lance (the section that turns from left to right). Pull firmly and quickly away from you. (**NOTE:** Do not adjust lance while spraying.) The lance will extend 1/2" and be in low pressure (see Figure 18). Soap can only be drawn in low pressure.

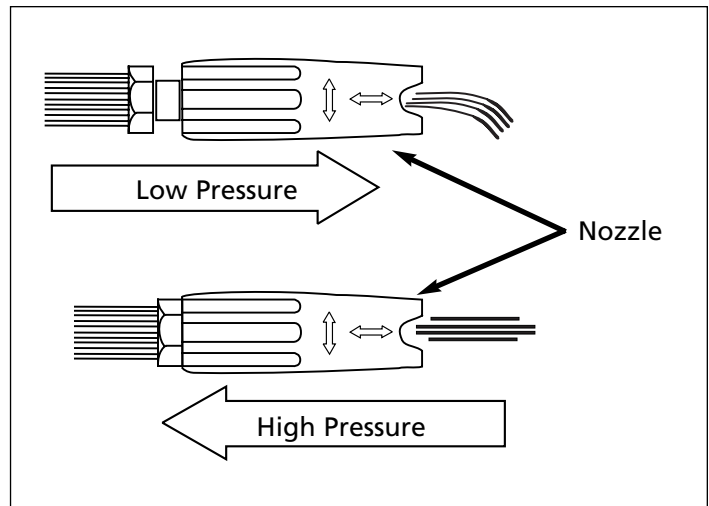


Figure 18 - Adjusting nozzle for pressure

B. MODELS WITHOUT DETERGENT TANKS

1. Follow manufacturer's label directions for mixing correct concentrations of soap/detergents. The soap/detergent to water ratio through the pump is approximately 12% (1 to 8).
2. Insert the filter end of the clear plastic detergent tube into the detergent container.
3. Place hand around the spraying end section of the lance (the section that turns from left to right). Pull firmly and quickly away from you. (**NOTE:** Do not adjust lance while spraying.) The lance will extend 1/2" and be in low pressure (see Figure 18). Soap can only be drawn in low pressure.

GENERAL CLEANING TIPS

1. Apply the detergent so that it thoroughly covers the cleaning surface. Apply the detergent from bottom to top to prevent the detergent from sliding down and streaking. Wait a couple of minutes for the detergent to break down the dirt and grime. Use a brush to lightly scrub heavily soiled areas. Never allow the detergent to dry on the cleaning surface.
2. To rinse or to return the nozzle to high pressure, release the trigger and slide the nozzle to the high pressure setting.

NOTICE *Never make the nozzle pressure adjustment with the gun triggered. Adjusting the high-low nozzle when the gun is triggered can result in damage to the seals in the nozzle.*

3. After using detergents, flush the suction system by placing the detergent suction tube into a bucket of clean water or rinse out tank.

5. Cleaning Power

You can control the cleaning power of your pressure washer in two ways:

1. Adjust the spray pattern at the nozzle. Choose the widest pattern possible for spraying when starting the job and adjust the pattern to a narrower angle until you find a suitable pattern.

Operation (Continued)

- The easiest way to regulate the cleaning power of your pressure washer is by changing the distance from the surface you are cleaning. Begin spraying with a wide fan pattern while standing several feet from the surface. Slowly move closer to the object you are cleaning, adjusting the spray pattern as necessary, until you find the most effective cleaning technique.

6. Final Rinse

The final rinse should start at the bottom and work upward. Make sure that you thoroughly rinse the surface and that you remove all detergent.

7. Pressure Relief Procedure

To reduce the risk of bodily injury or property damage, always follow this procedure whenever spraying is stopped, when work is completed, and before checking or repairing any part of the system.

- Engage the trigger safety latch.
- Turn the unit off.
- Remove the ignition cable from the spark plug.
- Shut off the water supply.
- Disengage the trigger safety latch and trigger the gun to relieve pressure.
- Re-engage the trigger safety latch.
- Before overnight storage, long term storage, or transporting unit, disconnect the water supply and turn off the fuel supply valve.

8. Shutdown

- Be sure all detergent is flushed from system.
- Turn the engine OFF.
- Turn the water supply OFF.
- After the engine and water supply are turned off, trigger the gun to depressurize the system.

NOTICE NEVER turn the water supply off before turning the engine/motor off. Serious damage could occur to the pump and/or engine/motor.

CAUTION NEVER disconnect the high pressure discharge hose from the machine while the system is pressurized. To depressurize, turn engine/motor off, turn water supply off and squeeze gun trigger 2-3 times.

- After each use, wipe all surfaces of the pressure washer with a clean, damp cloth.
- Do not store the pressure washer outdoors.
- Do not store the pressure washer where it might freeze unless it has been properly winterized.

9. Storage

LONG TERM STORAGE INSTRUCTIONS (MORE THAN 30 DAYS IN STORAGE)

- Remove fuel from the tank and run the pressure washer in a normal operating mode until the engine stops from a lack of fuel. Normal operating mode means actually spraying water from the gun while the engine is running.
Alternate method – Add fuel stabilizer to gas in the tank and run in normal operating mode for at least five minutes.
- Stop the engine, turn off the water supply, and trigger the gun to release pressure in the high-pressure hose.
- Disconnect the water supply and high pressure hose from the pump.
- Allow the engine to cool.
- Disconnect the spark plug wire and remove the spark plug.
- Pour 1/2 oz. of engine oil into the spark plug hole.

WARNING Never pull the starter rope on the engine when the spark plug is removed unless the spark plug hole is covered. Fuel vapor from the hole can ignite by a spark.

- Place a rag over the spark plug hole and slowly pull the starter rope several times to distribute the oil.

WINTERIZING INSTRUCTIONS

- Follow and complete the Long Term Storage Instructions above.
- Disconnect the spark plug wire.
- Disconnect the high pressure hose from the pump.
- Insert a 12" to 14" piece of garden hose into the pump inlet.
- Place a funnel in the other end of the garden hose.

NOTICE Read the manufacturer's instructions for safe handling and disposal of RV antifreeze.

- Pour approximately 6 oz. of RV antifreeze into the funnel.
- Pull the starter rope several times until the RV antifreeze comes out of the pump outlet.
- Disconnect the high pressure hose from the gun and drain the hose. Hold the gun and lance in a vertical position and squeeze the trigger to drain the water out.

TIPS FOR EXTENDING THE LIFE OF YOUR PRESSURE WASHER

- Never operate the unit without water.
- Your pressure washer is not meant to pump hot water. Never connect your pressure washer to a hot water supply as it will significantly reduce the life of the pump.
- Running the unit for more than one minute without spraying water causes heat to build up in the pump. Running the unit without spraying water can damage pump components.
- Release the trigger prior to switching the lance between high and low pressure. Failure to do so may reduce the life of the o-rings in the lance.

Maintenance

Observe regular maintenance intervals to ensure maximum performance and life from the pressure washer. Refer to the schedule for recommended maintenance. If you operate the pressure washer in dusty conditions, perform maintenance checks more often.

ENGINE OIL CHANGING INSTRUCTIONS

CAUTION Before tipping the engine or equipment to drain oil, drain fuel from the fuel tank.

NOTE: Change oil while the engine is cool.

1. Disconnect the spark plug wire from the spark plug.
2. Locate, and if accessible, remove the engine oil drain plug (if the engine is equipped with an oil drain plug, the drain plug is located in at least one of the locations shown in Figure 19). If the engine oil drain plug is not accessible or if the engine is not equipped with an oil drain plug, tip the unit on its side to drain the oil out of the oil fill tube (See Figure 19).

NOTE: If draining oil from the oil fill tube, keep the air cleaner side up.

3. Drain old oil.
4. Replace the drain plug and set the unit upright.
5. Refill the unit with new oil of a recommended type and quantity. Fill the unit to the proper level shown on the dipstick (if provided). Otherwise, fill the unit to the top of the oil filler neck.

PUMP OIL CHANGING INSTRUCTIONS

Changing or refilling the oil in the pump requires removal of the pump from the engine and should not be required unless oil has leaked out due to worn or damaged oil seals in the pump. If oil has leaked out of the pump, bring the pressure washer to a certified Campbell Hausfeld service center for repair.

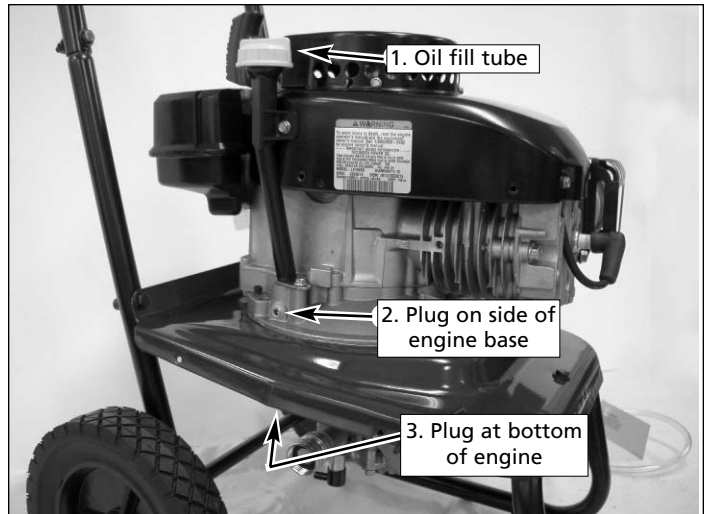


Figure 19 - Oil Drain Locations

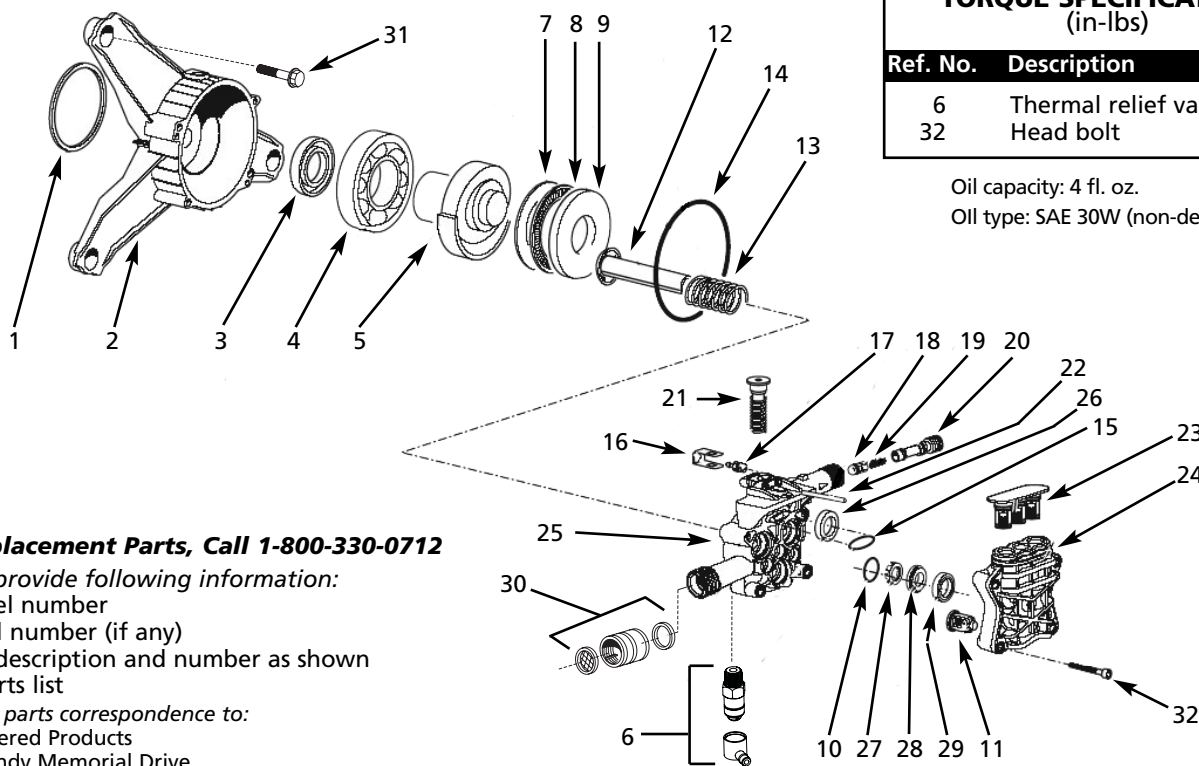
Maintenance Schedule

Maintenance Schedule	Action needed
Daily	<ul style="list-style-type: none"> • Check water inlet screen and filter. • Check engine oil levels. Fill as necessary. • Check gasoline level. Fill as necessary.
After first 5 hours of operation	<ul style="list-style-type: none"> • Change engine break-in oil. Use SAE30 or 10W-30 detergent oil.
Every 25 hours of operation	<ul style="list-style-type: none"> • Change oil if operating under heavy load or high ambient temperature. • Remove and clean foam pre-cleaner or foam air filter (if applicable). Wash with water and mild detergent. Dry thoroughly. Rub with oil and squeeze to distribute oil.
Every 50 hours of operation	<ul style="list-style-type: none"> • Change oil. • Replace spark plug.
Each 100 hours of operation or every 3 months	<ul style="list-style-type: none"> • Clean or replace paper air cleaner cartridge. Tap gently to remove dirt. • Change engine oil.

Technical and Consumer Information

Vertical Oriented Pressure Washers	
Engine Oil Type	SAE 10W-30 SAE 30W (Above 60° F)
Engine Oil Capacity Tecumseh engines	21 fl. oz.
Engine Fuel Capacity Honda engines Tecumseh engines	0.29 gal 0.38 gal
Pump Oil Type Wobble pumps	SAE20W or SAE30W non-detergent oil
Pump Oil Capacity Vertical wobble pumps	4.0 fl. oz.
Pump Detergent Suction Water to detergent ratio	8 to 1 (12% detergent)
Water Supply Requirements	
Minimum inlet pressure	20 psi
Maximum inlet pressure	100 psi
Maximum inlet temperature	100° F
Minimum inlet flow rate	5 gpm
Inlet garden hose size	5/8" I.D.
Maximum inlet garden hose length	50 ft

Replacement Parts List — Pump



TORQUE SPECIFICATIONS (in-lbs)		
Ref. No.	Description	Torque
6	Thermal relief valve	110
32	Head bolt	96

Oil capacity: 4 fl. oz.
Oil type: SAE 30W (non-detergent)

For Replacement Parts, Call 1-800-330-0712

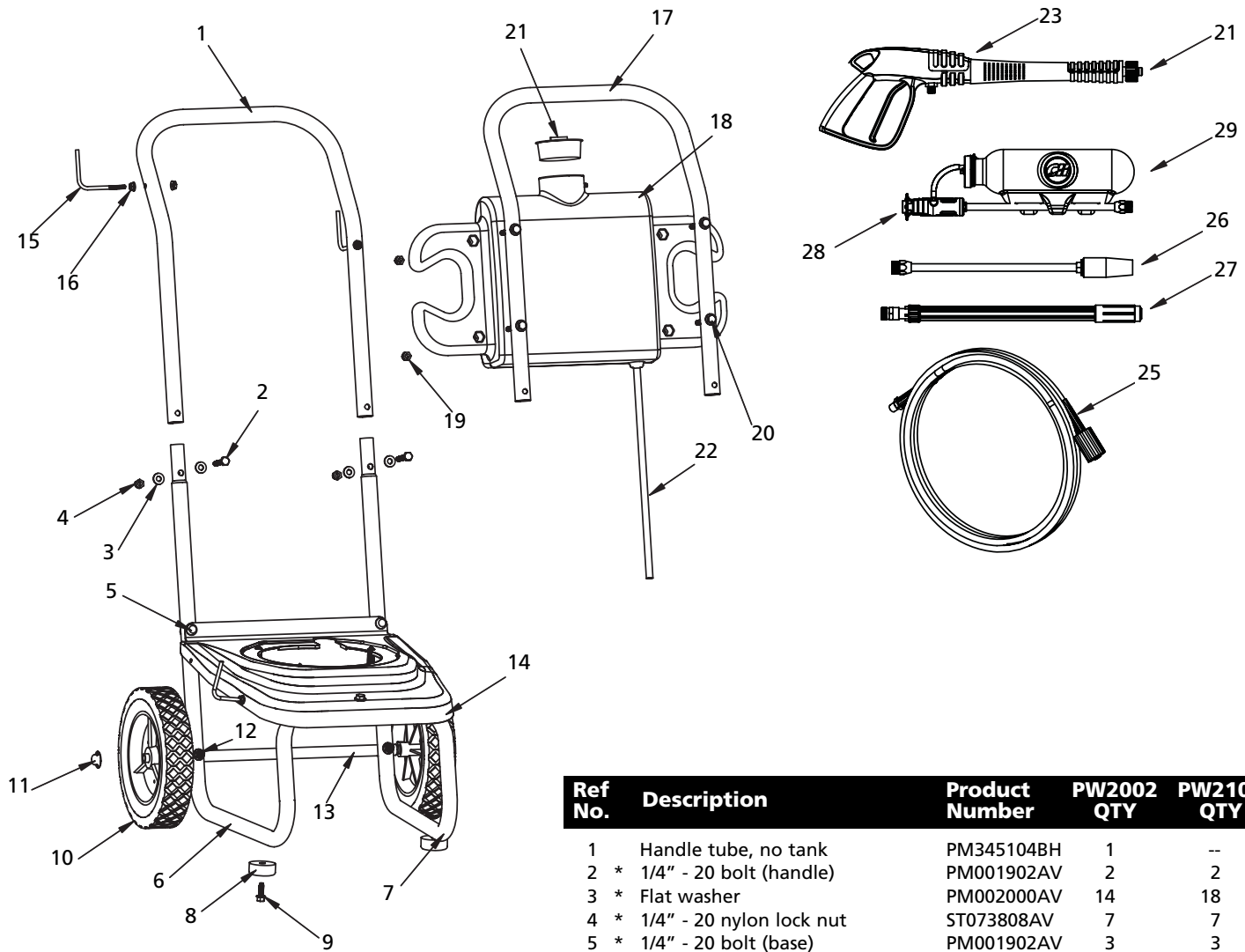
Please provide following information:

- Model number
- Serial number (if any)
- Part description and number as shown in parts list

Address parts correspondence to:
CH Powered Products
100 Mundy Memorial Drive
Mount Juliet, TN 37122

Ref. No.	Part Description	Kit Name	Part or Kit Number	Qty per Kit
1	Dust ring	Housing Assembly	PM345200SV	1
2	Pump housing			1
3	Oil seal ring			1
4	Bearing			1
5	Wobble plate			1
6	Thermal relief valve	----	PM345016SJ	1
7	Thrust shoe	Needle Bearing Kit	PM345202SV	1
8	Needle bearing			1
9	Bearing disk			1
10	O-ring, 11.1 x 1.78	Inlet Valve Kit	PM345203SV	3
11	Suction valve assembly			3
12	Piston spring	Piston Kit	PM345204SV	3
13	Piston			3
14	O-ring, 67 x 2.5	O-Ring Kit	PM345205SV	1
10	O-ring, 11.1 x 1.78			3
15	Gasket, 17 x 13 x 2.62			1
16	Retainer clamp	Detergent Injector Kit	PM270210SV	1
17	Hose barb			1
18	Unloader valve assembly, plastic			1
19	Spring			1
20	Chemical injector assembly			1
21	Compensated valve assembly	Unloader Assembly Kit	PM345207SV	1
22	Pin			2
23	Valve assembly, high pressure	----	PM270150SV	1
24	Head, aluminum	----	PM345209SV	1
25	Piston guide body	----	PM345210SV	1
26	Oil seal ring	----	PM256500SV	3
27	Oil seal spacer	Piston Guide Kit	PM345212SJ	3
28	Seal ring seat			3
29	Water seal			3
30	Brass swivel assembly			----
31	Mounting bolt	----	MJ102302AV	1
32	Head bolt	----	PM345213SV	1

Replacement Parts List — Vertical Shaft Pressure Washer



**For Replacement Parts,
Call 1-800-330-0712**

Please provide following information:

- Model number
- Serial number (if any)
- Part description and number as shown in parts list

Address parts correspondence to:

Campbell Hausfeld
Attn: Customer Service
100 Mundy Memorial Drive
Mt. Juliet, TN 37122

Ref No.	Description	Product Number	PW2002 QTY	PW2102 QTY
1	Handle tube, no tank	PM345104BH	1	--
2 *	1/4" - 20 bolt (handle)	PM001902AV	2	2
3 *	Flat washer	PM002000AV	14	18
4 *	1/4" - 20 nylon lock nut	ST073808AV	7	7
5 *	1/4" - 20 bolt (base)	PM001902AV	3	3
6	Left leg	PM345102BH	1	1
7	Right leg	PM345101BH	1	1
8	Rubber bumper	AL062300AV	2	2
9 *	1/4" - 20 x 3/4 self tapping screw	MJ102100AV	2	2
10	Wheel	WA002401AV	2	2
11	Pushnut	MJ104700AV	2	2
12 *	1/4" - 20 bolt (axle)	PM001903AV	2	2
13	Axle	PM227901BH	1	1
14	Baseplate	GN004530AV	1	1
15	Hanger, Gun/Lance/Hose	PM344875AV	3	--
16	10 - 24 Serrated nut	MJ104300AV	6	--
17	Handle Tube, tank	PM345103AV	--	1
18	Detergent Tank	PM252010SJ	--	1
19	1/4" - 20 Serrated Nut	PM031101AV	--	4
20	1/4" - 20 Bolt (tank)	PM001904AV	--	4
21	Cap	PM252450AV	--	1
22	Detergent tube	PM013800AV	--	1
23	Gun	PM243000AV	1	1
24	O-ring (gun)	PM245800SV	1	1
25	Hose	PM344301AV	1	1
26	Lance, Hi / Low Adj Fan	PM243050AV	1	--
27	Lance, Turbo	PM243500AV	--	1
28	Lance, High PSI	PM268500AV	--	1
29	Soap Tank	PM268680AJ	--	1

* Item available at local hardware store.

High Pressure Soap Lance

Safety Section

This manual contains information that is very important to know and understand. This information is provided for SAFETY and to PREVENT EQUIPMENT PROBLEMS. To help recognize this information, observe the following symbols.

⚠WARNING *Warning indicates a potentially hazardous situation which, if not avoided, COULD result in death or serious injury.*

⚠CAUTION *Caution indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate injury.*

NOTICE *Notice indicates important information information that, if not followed, may cause damage to equipment.*

⚠WARNING

- Do not spray flammable liquids such as gasoline.
- Never place eyes or face close to water spray or attachments.
- Keep away from children. This product is not intended for recreational use by children.
- Do not drink from this device.

⚠CAUTION

- To prevent water supply contamination, only use this product when a back flow prevention device is present.

Description

The High Pressure Soap Lance is an accessory that connects to the gun of your pressure washer. With this device you can spray liquid soap at high pressure from a tank conveniently attached to the lance, or you can spray soap at low pressure from the existing soap injection system on your pressure washer. Use the high pressure soap spray to get to those hard-to-reach areas on your house, truck or RV. Use the low pressure spray for gentle soaking of your vehicle, patio, or deck.

Assembly Instructions

If lance is not already attached to the tank ...

1. Place the tank on a sturdy, flat surface. Then wedge metal shaft of lance between the three "fingers" on top of tank (see Figure 1). NOTE: The fit is very tight. Use caution to prevent damage. Heating the center finger with a hair dryer will make installation easier.
2. Slide free end of connector tube onto hose barb attached to head of lance (see Figure 1).

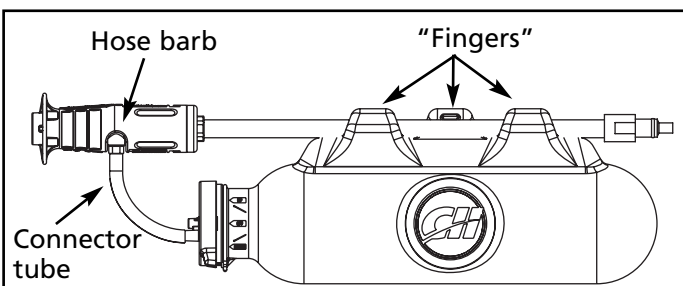


Figure 1

3. To attach lance to spray gun, push brass end of lance into gun and twist.

NOTICE

- Follow manufacturer's label directions for correct concentration of soap/detergents.
- When not in use, always keep in "off" position to prevent leakage.

⚠CAUTION

- To prevent accidental exposure to cleaning chemicals or possible leaking, do not store detergent in tank when not in use.

To Fill Soap Tank

1. Slide connector tube off hose barb.
2. Optional: For easier filling, detach tank from lance.
3. Remove cap assembly by rotating cap counterclockwise 1/4 turn to align arrow on cap with tab on tank (Figure 2). Pull cap off.

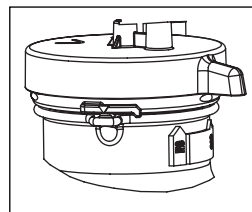


Figure 2

4. Add cleaning solution (Figure 3). See manufacturer's instructions for information on specifications and proper use of cleaning solution.

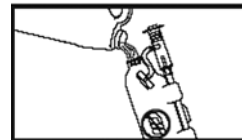


Figure 3

5. To replace cap, align arrow on cap with tab on tank, then push cap on and turn clockwise 1/4 turn until it locks into place.
6. If tank was removed, reattach it to metal shaft of lance.
7. Reattach free end of connector tube to hose barb.

Pressure Washers

High Pressure Soap Lance

High Pressure Operation

1. Make sure pressure washer is running.
2. Rotate indicator on cap to the "On" position to apply soap (Figure 4).

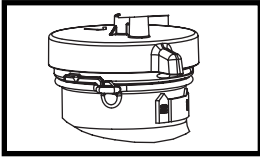


Figure 4

3. Pull back on black nozzle to ensure lance is in high pressure mode (Figure 5).

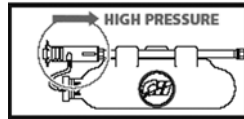


Figure 5

4. Twist nozzle cover to adjust spray pattern from jet to wide fan spray (Figure 6).

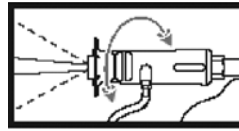


Figure 6

5. Before rinsing, move indicator on cap to "OFF" position to shut off soap (Figure 7).
6. Water-to-soap ratio: 12 to 1

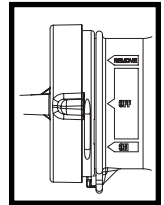
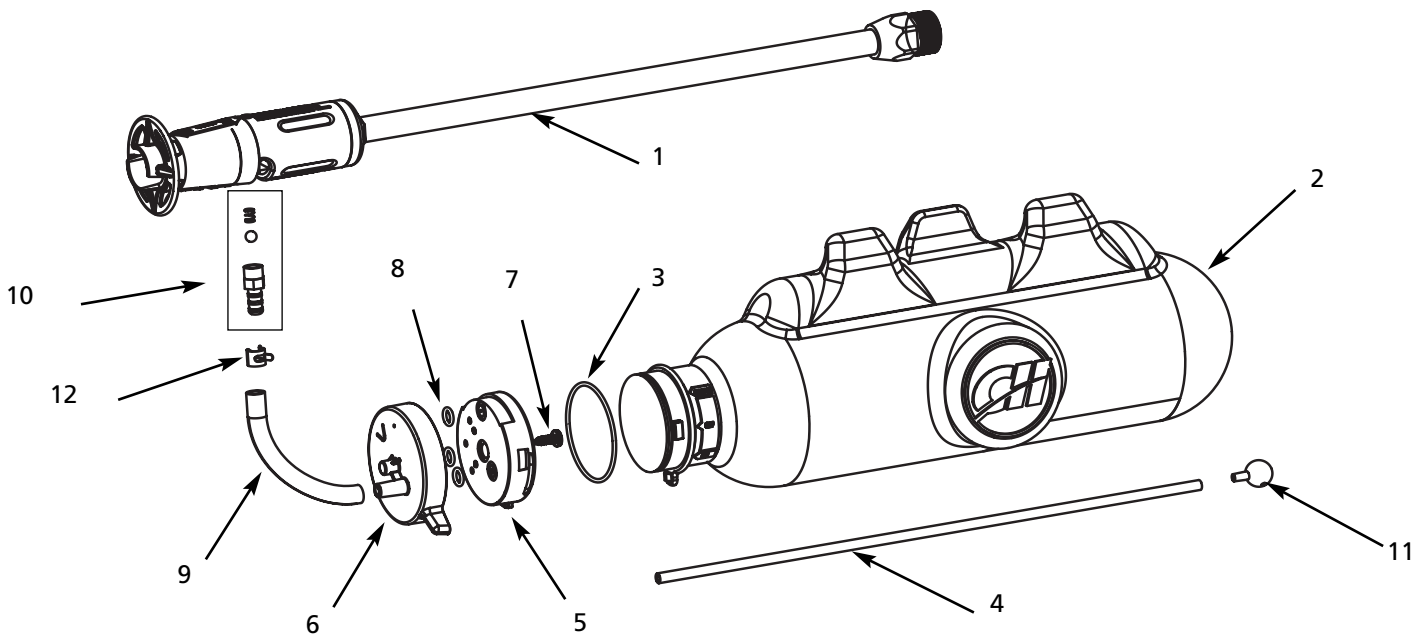


Figure 7

Replacement Parts List — High Pressure Soap Lance



**For Replacement Parts, Call
1-800-330-0712**

Please provide following information:

- Model number
- Serial number (if any)
- Part description and number as shown in parts list

Address parts correspondence to:
Campbell Hausfeld / Customer Service
100 Mundy Memorial Drive
Mt. Juliet, TN 37122 U.S.A.

Ref No.	Description	Product Number	Qty
1	Injector Lance	PM268500AV	1
2	Lance Tank	PM268012AV	1
3	O-ring	MJ106515AV	1
4	Suction Tube	PM268405AV	1
5	Inner Cap	PM268302AV	1
6	Outer Cap	PM268312AV	1
7	Screw	MJ106100AV	1
8	O-ring	MJ106511AV	3
9	Connector Tube	PM268450AV	1
10	Check Valve Kit	PM342400SV	1
11	Suction tube weight	PM342405AV	1
12	Clip	PM342410AV	1

Troubleshooting Chart - Gasoline Powered Pressure Washers Only

Symptom	Possible Cause(s)	Corrective Action(s)
Engine will not start or is hard to start	<ol style="list-style-type: none"> No gasoline in fuel tank or carburetor Low oil Start/Stop switch in stop position Water in gasoline or old fuel Dirty air cleaner filter Spark plug dirty, wrong gap or wrong type Spray gun closed Other causes 	<ol style="list-style-type: none"> Fill the tank with gasoline, open fuel shut off valve. Check fuel line and carburetor Check oil level. Fill if necessary Move switch to start position Drain fuel tank and carburetor. Use new fuel and dry spark plug Remove and clean or replace Clean, adjust the gap, or replace Trigger spray gun See engine owner's manual
Engine misses or lacks power	<ol style="list-style-type: none"> Partially plugged air cleaner filter Spark plug dirty, wrong gap or wrong type 	<ol style="list-style-type: none"> Remove and clean or replace Clean, adjust the gap, or replace
Low pressure and/or pump runs rough	<ol style="list-style-type: none"> Worn or wrong size tip Inlet filter on pump clogged Worn water seals, abrasives in water, or natural wear Fouled or dirty inlet or discharge valves Restricted inlet Worn inlet or discharge valves Leaking high pressure hose Pump drawing in air Unloader valve seat faulty or worn 	<ol style="list-style-type: none"> Replace with tip of proper size Clean. Check more frequently Check filter. Replace water seals. See service center Clean inlet and discharge valve assemblies. Check filter Check garden hose, may be collapsed or kinked. Check inlet water flow Replace worn valves Replace high pressure hose Ensure hoses and fittings are tight Check and replace
Water leakage from under pump manifold	Worn water seals	Install new water seals. See service center
Water in pump crankcase (milky oil)	<ol style="list-style-type: none"> Humid air condensing inside crankcase Oil seals leaking 	<ol style="list-style-type: none"> Change oil as specified in maintenance schedule Install new oil seals. See service center
Frequent or premature failure of the pump water seals	<ol style="list-style-type: none"> Scored damaged or worn plungers Abrasive material in the fluid Inlet water temperature too high Overpressurizing pump Excessive pressure due to partially plugged or damaged tip Pump running too long without spraying Pump running dry 	<ol style="list-style-type: none"> Install new plungers. See service center Install proper filtration on pump inlet plumbing Check water temperature; may not exceed 100° F. Do not modify any factory set adjustments. Clean or replace tip. Never run pump more than 2 minutes without spraying Do not run pump without water
Strong surging at the inlet and low pressure	Foreign particles in the inlet or discharge valve or worn inlet and/or discharge valves	Clean or replace valves. See service center
Oil leakage between the engine and the pump	Worn oil seals and/or o-ring	Replace oil seals and/or o-ring. See service center
Fluctuating pressure	<ol style="list-style-type: none"> Valve worn, dirty or stuck Pump drawing in air Tip clogged 	<ol style="list-style-type: none"> Check and replace Ensure hoses and fittings are tight. Purge air from garden hose Check or replace

Troubleshooting Chart - Gasoline Powered Pressure Washers Only (Continued)

Symptom	Possible Cause(s)	Corrective Action(s)
Pressure drops after period of normal use	<ol style="list-style-type: none">1. Worn pump water seals2. Nozzle worn3. Valve worn, dirty or stuck4. Unloader valve seat worn or dirty5. Nozzle in low PSI position	<ol style="list-style-type: none">1. Check and replace2. Check and replace3. Check, clean or replace4. Check, clean or replace5. Pull back nozzle to high pressure position
Pump noisy / pump runs rough	<ol style="list-style-type: none">1. Pump drawing in air/low water supply2. Valves dirty or worn3. Worn bearings4. Water too hot	<ol style="list-style-type: none">1. Ensure fittings are tight. Increase water pressure2. Check, clean or replace3. Check and replace4. Reduce temperature below 100° F
Pressure washer will not spray detergent	<ol style="list-style-type: none">1. Nozzle not pushed up far enough2. Clog, kink, or hole in detergent suction hose3. Hose length too long 4. Lance not functioning properly	<ol style="list-style-type: none">1. Push nozzle forward as far as it will go.2. If clean, unkink or replace hose.3. Use only hose length provided with initial purchase of pressure washer. Detergent suction will not function if more than once section of hose is attached to unit.4. Remove lance from gun. If detergent is dispensed through gun, the lance must be replaced. If not detergent is dispensed through gun, remove 1" tapered detergent barb from pump. Clean the barb, and make sure that ball and spring are properly aligned with tapered portion of the spring facing the ball. The ball should be on top of the spring.

Limited Warranty

1. **DURATION:** From the date of purchase by the original purchaser as follows: One Year
2. **WHO GIVES THIS WARRANTY (WARRANTOR):** Campbell Hausfeld / Scott Fetzer Company, 100 Mundy Memorial Drive, Mount Juliet, TN 37122, Telephone: (800) 330-0712
3. **WHO RECEIVES THIS WARRANTY (PURCHASER):** The original purchaser (other than for purposes of resale) of the Campbell Hausfeld pressure washer.
4. **WHAT PRODUCTS ARE COVERED UNDER THIS WARRANTY:** Any Campbell Hausfeld Pressure Washer supplied or manufactured by the Warrantor.
5. **WHAT IS COVERED UNDER THIS WARRANTY:** Substantial defects on material and workmanship which occur within the duration of the warranty period with the exceptions noted below.
6. **WHAT IS NOT COVERED UNDER THIS WARRANTY:**
 - A. Implied warranties, including those of merchantability and FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED FROM THE DATE OF ORIGINAL PURCHASE AS STATED IN THE DURATION. If this pressure washer is used for commercial, industrial or rental purposes, the warranty will apply for ninety (90) days from the date of purchase. Some States do not allow limitation on how long an implied warranty lasts, so the above limitations may not apply to you.
 - B. ANY INCIDENTAL, INDIRECT, OR CONSEQUENTIAL LOSS, DAMAGE, OR EXPENSE THAT MAY RESULT FROM ANY DEFECT, FAILURE, OR MALFUNCTION OF THE CAMPBELL HAUSFELD PRESSURE WASHER. Some States do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.
 - C. Any failure that results from shipping damage, accident, purchaser's abuse, neglect or failure to install and operate pressure washer in accordance with instructions provided in the owner's manual(s) supplied with product.
 - D. Pre-delivery service, i.e. assembly, oil or lubricants and adjustment.
 - E. Items or service normally required to maintain the pressure washer.
 - F. Gasoline engine and components are expressly excluded from coverage under this limited warranty. Such components should be returned by the purchaser to the original manufacturer or to its authorized repair stations for service.
 - G. Additional items not covered under the warranty:
 1. Normal wear items such as high pressure hoses, water and oil seals, o-rings, valves, lances and spray tips.
 2. Motor brushes (Electric models only).
 3. Cosmetic defects that do not interfere with functionality.
 4. Rusted components.
 5. Pump wear or valve damage caused by using improper oil, oil contamination or by failure to follow proper oil maintenance guidelines.
7. **RESPONSIBILITIES OF WARRANTOR UNDER THIS WARRANTY:** Repair or replace, at Warrantor's option, pressure washer or component which is defective, has malfunctioned and/or failed to conform within duration of the warranty period.
8. **RESPONSIBILITIES OF PURCHASER UNDER THIS WARRANTY:**
 - A. Provide dated proof of purchase and maintenance records.
 - B. Deliver or ship the Campbell Hausfeld pressure washer or component to nearest Campbell Hausfeld Authorized Service Center. Freight costs, if any, must be borne by the purchaser.
 - C. Use reasonable care in the operation and maintenance of the pressure washer as described in the owner's manual(s).
9. **WHEN WARRANTOR WILL PERFORM REPAIR OR REPLACEMENT UNDER THIS WARRANTY:** Repair or replacement will be scheduled and serviced according to the normal work flow at the servicing location, and depending on the availability of replacement parts.

This Limited Warranty applies in the U.S., Canada and Mexico only and gives you specific legal rights. You may also have other rights which vary from state to state or country to country.