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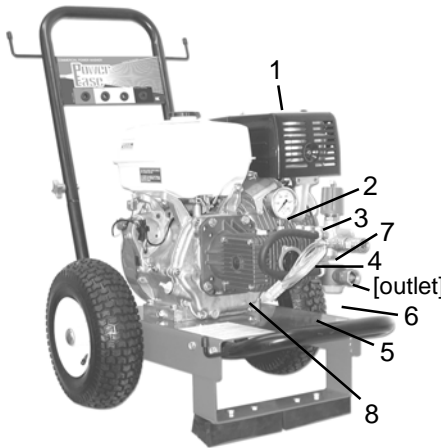
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Component Identification



1. Engine muffler: Please avoid leaning or placing hand on muffler when turning on or shutting down unit (HOT!!!)
2. Stainless steel gauge: High pressure, glycerin filled
3. Unloader valve: for adjusting the working pressure of the unit
4. Soap injector Kit: For extra cleaning capabilities.
5. Soap Injector Inlet Hose: For drawing from soap container.
6. Inlet Water Filter: For garden hose. Located near unloader
7. Thermo Valve: Safeguards pump from overheating
8. Plunger pump: Water cooled

Before You Begin

Read and understand all instructions before operating your pressure washer.

This manual explains how to use your high pressure spray equipment. Be sure everyone who operates, maintains or repairs the pressure washer has read this manual. **WARNINGS AND CAUTIONS MUST BE UNDERSTOOD!**

Safety Instructions

WARNINGS

High pressure spray can cause serious injury. This product must be used **ONLY** by personnel that have been instructed in the safe use of this machine. Observe all warnings when you operate, maintain and repair the pressure washer.

Use this equipment only in well ventilated areas and free of combustible materials, combustible fumes or dust. Failure to follow this warning may cause carbon monoxide build up, fire or explosion, and possible injury or death.

Safety Instructions Continued

To prevent injury wear the following protective clothing:

Gloves

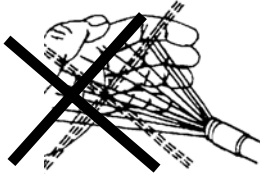
Work Boots

Hard Hat

Ear Plugs

Mask

Safety Goggles



INJECTION HAZARD: Fluids under high pressure from spray or leaks can penetrate the skin and cause extremely serious injury, including death or the need for amputation. You must observe these precautions.

NEVER point the spray gun at people, plants or animals.

NEVER put your hand or fingers over the spray tip.

NEVER try to stop or deflect leaks with your hand or body.

NEVER purchase and use chemicals or detergents that are toxic, flammable, or high in acidic/alkaline base, and always request a material safety data sheet (MSDS) for the product you are purchasing.

NEVER use a powder type detergent or chemical that is not manufactured for pressure washer use; i.e. dish detergent, laundry soap.

General Warnings & Cautions

GET EMERGENCY MEDICAL TREATMENT AT ONCE IF ANY FLUID SEEMS TO PENETRATE YOUR SKIN, EVEN IF THE WOUND DOES NOT APPEAR SERIOUS.

Tell the doctor exactly what fluid was injected and give him the Material Safety Data Sheet for the detergent or chemical product used.

- ◆ Understand ALL the information this section before you begin to use the pressure washer.
- ◆ Be sure that all system components and accessory items are original equipment or equivalent.
- ◆ Be sure the machine is properly located for safe operation.
- ◆ NEVER alter or modify the pressure washer as personal injury or death could result to humans, plants, or animals, and voids any warranty offered by the manufacturer.
- ◆ NEVER locate the equipment near combustible materials, combustible fumes, or dust, as personal injury or death could result from fire or explosion.

General Warnings & Cautions Continued

- ◆ NEVER spray flammable liquids, toxic chemicals (such as insecticide or weed killer) as personal injury or death could result from fire, explosion, or poisoning while damaging the environment.
- ◆ NEVER allow children or untrained adults to operate the machine.
- ◆ NEVER wear loose clothing and keep your body and clothing clear of moving parts when the machine is running.
- ◆ NEVER leave the pressure washer unattended once you have started it. If you must leave, follow complete shut down instructions to prevent unauthorized and untrained personnel from operating the machine.
- ◆ NEVER move the machine by pulling the hose.
- ◆ NEVER activate the gun with no nozzle in the wand. This will cause the "O" ring to become dislodged from the coupling and the unit will not function properly.
- ◆ NEVER put any type of trigger lock onto the gun.
- ◆ NEVER place hands on motor or pump when unit is running. Keep away from moving parts at all times.
- ◆ NEVER allow children or animals around your working area.
- ◆ ALWAYS face nozzle and wand to the ground when testing.
- ◆ NEVER exceed the pressure rating of the unit's recommended pressure.
- ◆ NEVER change quick couple nozzles with the nozzle under pressure and without the gun safety in the "on" or "lock" position.
- ◆ NEVER clean the machine by using its own spray wand.
- ◆ NEVER run the machine without water.

Location, Warnings & Cautions

- ◆ The machine must be used at or near the working area and always under trained operator supervision.
- ◆ The machine should be located as close as possible to the water supply.
- ◆ Locate the machine on a solid and level surface so that engine and pump crankcase oil lubricates components properly. Avoid areas where water can build up in the working area. Possible injury can occur caused by the surface becoming slippery from water build up.
- ◆ Locate the machine in a well ventilated area and away from flammable materials or fumes. Be sure ventilation WARNINGS are observed. Keep pressure washer at least 18" away from flammable materials.
- ◆ Locate the machine so the operator has easy access to the pressure washer and its controls.
- ◆ Locate the machine so that it is protected from external damage.
- ◆ To prevent damage and excessive hose wear, locate the pressure washer so that the hose does not cross traffic areas.

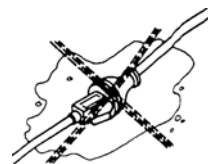
Gas Engine Precautions

A FIRE OR EXPLOSION CAN OCCUR RESULTING IN PERSONAL INJURY IF THE FOLLOWING INSTRUCTIONS ARE NOT FOLLOWED:

- 1 DO NOT fill gasoline tank while engine is running. Allow engine to cool for two minutes before refueling.
- 2 DO NOT operate the engine when an odor of gasoline is present, or other explosive conditions exist.
- 3 IF GASOLINE IS SPILLED, move the machine away from the area of the spill and avoid creating any source of ignition until the gasoline has evaporated.
- 4 DO NOT store, spill, or use gasoline near an open flame, or devices such as a stove, furnace, water heater which utilize a pilot light, or devices which can create a spark.
- 5 REFUEL OUTDOORS preferably, or in well ventilated areas with **UNLEADED GAS ONLY**.
- 6 DO NOT operate engine without muffler. Operating without a muffler, or with a muffler that leaks because of rust or damage, can permit an increased exhaust noise level. Inspect muffler periodically and replace if necessary.
- 7 DO NOT use this engine on any forest covered, brush covered or grass covered unimproved land unless a spark arrestor is attached to the muffler.
- 8 DO NOT operate engine if air cleaner or cover directly over the carburetor air intake is removed.
- 9 DO NOT choke the carburetor to stop the engine.
- 10 DO NOT TAMPER WITH THE GOVERNOR SPRINGS, GOVERNOR LINKS OR OTHER PARTS WHICH MAY INCREASE THE GOVERNED ENGINE SPEED.
- 11 DO NOT tamper with the engine speed selected by the original equipment manufacturer.
- 12 CAUTION - DO NOT RUN AT EXCESSIVE SPEEDS. Operating and engine at excessive speeds increases the danger of personal injury.
- 13 DO NOT TOUCH hot mufflers, cylinders or fins, as contact may cause burns.
- 14 TO PREVENT HAND OR ARM INJURY, always pull starter chord rapidly to avoid kickback.
- 15 READ ENGINE OWNERS/OPERATORS MANUAL BEFORE USING OR ATTEMPTING TO SERVICE THIS MACHINE.

Electric Motor Precautions

- ◆ DO NOT directly spray electric motor, as shock hazard could occur.
- ◆ DO NOT allow electric plug to get wet during operation. **PLEASE USE WITH CAUTION!**
- ◆ Make sure the unit is in the off position before plugging in.
- ◆ Do not touch plug with wet hands.
- ◆ Make sure that you are using the correct voltage and phase
- ◆ Do not modify the plug provided with the product. If it will not fit the outlet, have a proper outlet installed by a qualified electrician.
- ◆ Do not use any type of adaptor with this product.



It is recommended to connect your electric pressure washer to a ground fault circuit interrupter. **This engine must be grounded.** If it should malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This product is equipped with a chord having an equipment grounding conductor and a grounding plug. The plug must be plugged into an appropriate outlet that is properly installed and grounded in accordance with all local codes and ordinances.

DANGER - Improper connection of the equipment grounding conductor can result in a risk of electrocution. **Check with a qualified electrician or service personnel if you are in doubt as to whether the outlet is properly grounded.**

Extension Chords

Extension chords are **NOT** recommended to be used with this product. If an extension chord must be used the following requirements should be met:

- ◆ Use only 3 wire extension chord that has a three prong grounding type plug with the applicable amperage to match the pressure washer being used.

Use only extension chords that are intended for outdoor use. These extension chords are identified by a marking "Acceptable for use with outdoor appliances; store indoors while not in use" Use only extension chords having an electrical rating not less than that of the product. DO NOT use damaged extension chords and DO NOT yank on any chord to disconnect. Keep chord away from heat and sharp edges. ALWAYS disconnect the extension chord from the receptacle before disconnecting the product from the extension chord. Extension chords MUST be connected to a grounded outlet equipped with a GFCI (Ground Fault Circuit Interrupter). There is risk of electrocution if the extension chord is not connected to a grounded outlet equipped with a GFCI.

Pump Precautions

- ◆ NEVER allow the pump to run for more than a 3 minute period without opening the gun. (This will cause pump damage due to excessive water temperature and void the warranty)
- ◆ NEVER let the pump run when the machine is not connected to the water supply. (causing cavitation)
- ◆ NEVER run acids or hard caustics (such as lye) through the pump.
- ◆ NEVER use chemicals or agents which are not compatible with the Buna-N and PVC (polyvinyl) or neoprene covering of the hose. (Always use citrus based detergents.)
- ◆ NEVER use water with a temperature over 140 degrees F.
- ◆ Check for leaks. Tighten connections if necessary.

Pre-Operation Checklist

- Be sure you understand all the safety precautions and have been instructed in the safe use of the machine.
- Wear face and eye protection to prevent injury from spray and flying debris.
- Wear protective gloves, rubber boots, and other protective clothing as required.
- Understand all safety precautions and first aid for any detergent or chemical being used.
- Check that all lines and hoses are not kinked, twisted or damaged. Replace any damaged hose.
- Check that the machine is connected to a water supply and that the water supply is on.
- Tighten all fluid connections securely.
- Check that oil and fuel levels are at the correct levels before operating. (Pump uses BE-UTFH oil. Engine uses SAE 10-30W. If your pressure washer is equipped with a gear box, use 90W oil for gear box.) (See engine manufacturer's manual for oil change intervals.)
- Before starting machine be sure pump is primed and air is purged from the system by allowing water to flow through the pump.

Setup & Use

Follow these instructions for setup and use of your high pressure washer.

1. Position the machine on a solid level surface with slopes for drainage to prevent liquid build up on the floor or surface. Position the machine so that the operator has easy access to the pressure washer and its controls. Be sure ventilation WARNINGS are observed.

Setup & Use Continued

2. Check and determine that the water supply source is capable of exceeding the output in gallons per minute of the pump. If you are drawing water from a clean static source, rather than a pressure main, the pressure washer must be primed and placed as close as possible to the water source. Be sure the machine is placed on a solid level surface and can not be pulled or bumped into the static source, and the intake hose used must be as large as possible. When drawing water from a pressure source, you need a hose with a 5/8" outside diameter for lengths up to 50', or a 3/4" diameter for lengths up to 100'.
3. Connect the high pressure hose to the pressure washer and tighten securely.

Operating Instructions

WARNING

High pressure spray, improperly used could damage the equipment you wish to clean or the surrounding environment. Practice on scrap materials, gradually increasing pressure applied to the object by adjusting the nozzle or moving the nozzle closer to the object until it is cleaned without being damaged.

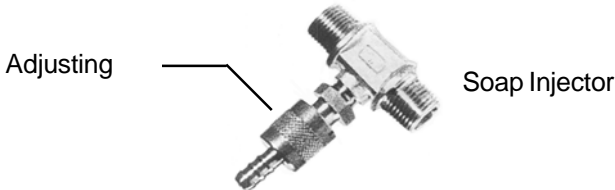
The manufacturer does not warranty damage caused by the consumer's failure to adjust or operate the machine in accordance with the instructions provided in the owners manual supplied with the machine.

Follow these instructions to operate the machine:

1. Use the pre-operation checklist to help avoid personal injury.
2. Prime the pump and purge air from the system by squeezing the gun trigger before starting the machine, with the unit attached to a pressure main. Let the water flow from the wand until air is purged from system.
3. If engine is equipped with fuel valve, turn valve to **ON**.
4. Close choke lever located on engine carburetor as per engine manufacturer instructions.
5. Turn engine switch to **ON**.
6. If engine is equipped with throttle lever, position lever to **HALF THROTTLE**.
7. For easier starting, squeeze the trigger on the spray gun allowing water to pass through gun and grasp the engine starter grip. Pull lightly on the starter grip until resistance is felt, then pull briskly. Repeat this step as necessary until engine starts.

Operating Instructions Continued

8. As engine begins to warm up, gradually move the choke lever to OPEN.
9. If engine is equipped with throttle lever, position lever to FULL THROTTLE.
10. The manufacturer has adjusted the pump pressure to its maximum operating pressure. Simply adjust the pressure required for cleaning with the nozzle as follows when your wand is equipped with: **Quick Couple Nozzles:** Change nozzles to desired spray pattern (0°, 15°, 40°) or detergent nozzle (the one with the larger orifice) by quick coupling on and off the nozzle. **DO THIS ONLY WHEN THE TRIGGER IS NOT SQUEEZED AND THE GUN SAFETY IS ON.** NOTE: 0° is not included with 2005HWCOMXE, 1704HWCOMX or 1604BWCOMX
11. You are now ready to start cleaning with your pressure washer. **CAUTION:** Always begin high pressure washing with the nozzle at least four feet from the object being cleaned and gradually move nozzle closer to the object until it is cleaned without damage.
12. To draw chemical/detergent, be sure the pick up tube is installed into the chemical/detergent container with the tube sub merged in the solution. Change wand nozzle to the brass soaper nozzle and squeeze the gun trigger. Adjust the brass knurled chemical knob counter clockwise until proper chemical application is reached. (Adjustment is not available on some models. If no adjustment, simply attaching soaper nozzle will activate the injector.)



13. **NEVER** allow the pump to run for more than a 3 minute period without opening the gun. This will cause the pump damage due to excessive water temperature and void the warranty. A thermal relief valve has been added to the pump to reduce the possibility of overheating, however, malfunction of this device does not constitute pump warranty for damage caused by overheating.
14. As you operate the machine, be sure the inlet garden hose does not become kinked.
15. The maximum engine RPM has been set at the factory. **TAMPERING WITH ENGINE GOVERNOR WILL VOID PUMP WARRANTY.**
16. **Do not exceed the manufacturer's maximum pressure by increasing the unloader adjustment. (This will void pump warranty.)**

Shutdown Instructions

1. Run only clean water through the entire chemical/detergent system, then turn chemical/detergent injection valve to OFF. INJECTION HAZARD: Fluids under high pressure from spray or leaks can penetrate the skin and cause extremely serious injury, including death or the need for amputation.
2. If engine is equipped with throttle lever, position lever to IDLE.
3. Turn engine switch to OFF.
4. If engine is equipped with a fuel valve, turn valve to CLOSED position.
5. Turn water supply to OFF.
6. Open gun to relieve pressure, and drain as much water as possible.
7. Remove inlet garden hose.
8. For safety and your liability protection, remove high pressure hose and store gun/wand in a secure place with this owners manual to eliminate the possibility of unauthorized and untrained personnel from operating the machine.

Winterize The Machine

Whenever your machine will be subjected to freezing temperatures, severe damage could occur caused by freezing inside the components. To prevent costly repairs, follow these steps: (Freeze damage is NOT covered by the manufacturers warranty.)

1. Be sure the machine is OFF, water supply is disconnected, and pressure has been relieved.
2. Obtain a one-gallon container or NONTOXIC (RV) antifreeze.
3. Install a suction hose from the pump inlet (garden hose fitting) into the NONTOXIC antifreeze. Following operation instructions, start the engine and squeeze trigger on spray gun allowing the pump to draw anti freeze through the entire system. Once antifreeze appears at the end of the wand, turn the engine off.
4. Squeeze gun trigger to relieve pressure, and remove the high pressure hose, gun/wand and store in a secure place with the owners manual to eliminate unauthorized and untrained personnel from operating the machine.
5. See engine owner's manual for proper engine storage.
6. When preparing to operate the pressure washer again, simply reconnect to pressure system water supply, attach the high pressure hose assembly, turn the water to "ON" and squeeze trigger allowing water to pass through the system. (Do not start engine.) Once the liquid becomes clear water at the end of the wand, you are ready to begin operating your pressure washer as referenced in this manual.

Preventive Maintenance

Daily Checks

Regular inspection of your pressure washer is the key to prolong its life. Follow these simple daily checks religiously.

1. Check air filter for dirt and clean or replace as required.
2. Check engine oil level. (Dipstick is attached to inside of oil cap.)
3. Check engine fuel level.
4. Check high pressure hose for kinks, twists or damage. Replace any damaged hose.
5. Check that the pump oil level is within operation range on the pump dipstick or to the centre of the sight glass.
6. On units with a gearbox, check that the gear box oil level is within operation range on the gear box dipstick.
7. Check that the water supply is adequate for your machine.
8. Check water inlet screen and clean when necessary.
9. Check the chemical supply.

Preventive Maintenance

1. Change pump oil and, if so equipped, gearbox oil, after every 250 hours. (Pump uses 30W non-detergent oil. If your pressure washer is equipped with a gear box, use 90W oil for gearbox.)
2. See engine manufacturer's manual for oil change intervals. (Engine uses SAE 10-30W.)

Pressure Washer Troubleshooting

NOTICE: Most problems with pressure washers are not a malfunction of the pump or motor!! **ALWAYS** trouble shoot from water source and/or nozzle towards the pump and motor. Example: Check water supply and nozzle if pressure fluctuates, unit is noisy or does not reach full pressure.

Follow these trouble shooting rules closely.

Introduction

With proper care and use of the pressure washer, the unit should remain free of problems. Most problems are caused by careless or improper use of the equipment. Operation of the unit without an inlet water supply will result in damage to the seals and other components. Another common cause of damage is running the unit for long periods with the spray gun trigger in its "Closed" position.

The latter can result in high water temperatures, resulting in damage to seals and other components.

Pressure Washer Troubleshooting Continued

Failure of the pressure washer to operate properly is often blamed on a pump failure. Actually only about 10 percent of pressure washer problems are caused by pump failure.

Cavitation

If the water pressure falls below a certain point (called vapor pressure) the water will begin to boil even though the temperatures are below normal boiling point. Tiny bubbles of vapor will then form in the boiling water. If the vapor bubbles are carried away to a higher pressure area in the system the vapor will condense again and leave a cavity in the midst of the flow. The surrounding water will then rush in to fill these cavities. Extremely high local pressures are then created (up to 100,000 PSI). Such high pressures may result in erosion, turbulence, noise, vibration, and excess wear and tear on the pump.

The pump inlet, where the pistons pull the water in, are very susceptible to cavitation problems. Anything that obstructs the flow of water into the pump can result in cavitation such as:

- ◆ A clogged water inlet filter
- ◆ Inlet piping or hoses that are too small
- ◆ Excessive numbers of restrictions in the water inlet (such as too many valves, or too many bends).
- ◆ Excessive turbulence or heat

To prevent cavitation, pump inlets must be carefully maintained to avoid restrictions to flow.

Some Pressure Washer Problems

Some of the problems that might occur in a pressure washer system are as follows:

- ◆ Failure of the unit to produce pressure
- ◆ Erratic pressure
- ◆ Chattering
- ◆ Reduction in pressure
- ◆ Low water volume

If a Problem Occurs - Some Preliminary Checks

When a problem arises don't remove the pump immediately and start replacing parts. First check the following possible causes of the problem:

- ◆ Make sure the water supply is turned on and the water supply is adequate

Pressure Washer Troubleshooting Continued

- ◆ Make sure the water inlet hose is not kinked or damaged
- ◆ Check the inlet water filter. Clean or replace if necessary
- ◆ Make sure the water supply is not too hot. Inlet water temperature should not exceed 140° F
- ◆ If a detergent is being used, make sure the detergent hose is submerged and not drawing air into the system. If detergent is not being used, the chemical injector valve should be turned off
- ◆ Make sure the unloader/regulator valve is properly adjusted
- ◆ Make sure the pump outlet hose is not leaking and is not blocked
- ◆ Check the wand and high pressure hose quick couplers for missing O-rings
- ◆ Check that the nozzle is clear and unobstructed

More Troubleshooting Tips

1. If the pump is running but produces no flow, try **priming the pump**.
 - a) To prime the pump, keep suction at a minimum and keep the discharge line open
 - b) Open and close the spray gun trigger repeatedly to aid the priming process
2. A **chattering noise** usually indicates a restricted water supply or air leaks.
 - a) Check for kinks or leaks in the hoses
 - b) look for a plugged or damaged inlet water filter
 - c) If the filter has been damaged, sediment may have entered the pump. The sediment will be lodged in the inlet valve(s) and must be removed.
3. Damage to the pump can result from
 - a) inadequate water supply,
 - b) vacuum lift too high, or
 - c) excessive water temperature.
4. Check the pump crankcase for correct oil level and for oil contamination. If oil appears milky, water has entered the oil and the piston seals should be replaced.

Problems With Detergent

Problems with the use of detergent are often caused by incorrect procedures on the part of the operator. Problems encountered that involve the use of cleaning agents can often be attributed to one or more of the following:

1. Wrong Nozzle: Use the brass soaper nozzle when using detergents.
2. Hose is not fully submerged in solution: If the tube is not fully immersed, the unit will be picking up air.
3. Injection valve is closed: The detergent valve must be open in order to pick up detergent.

Pressure Washer Troubleshooting Continued

4. Wrong type of detergent: Only those soaps designed specifically for pressure washers should be used. Household detergents could damage the pressure washer.

Most Frequently Asked Questions

What kind of oil should I use?

Engine: Check engine manufacturer's manual (SAE 10-30W).

Pump: 30W non-detergent

Gearbox: If your pressure washer is equipped with a gearbox, use 90W oil.

My Pressure Washer won't start...

Are engine controls set properly?

Do you have fuel in your machine?

How do I get the soap suction to work?

Replace the high pressure stainless steel nozzle with the brass soaper nozzle.

How do I adjust the pressure at the Unloader?

Turn the unloader/regulator knob clockwise to increase pressure and counter-clockwise to decrease pressure.

I don't have any water pressure...

Do you have any kinks , leakage , or blockage in hoses, fittings or nozzle?

Is the brass soaper nozzle attached to the end of the lance?

Have you let the unit run in bypass for longer than 3 minutes (pump running, gun trigger not depressed)

Have you checked the nozzle for excessive wear?

Gas Engine Troubleshooting

Problem	Possible Cause	Remedy
Engine will not start	<ol style="list-style-type: none"> 1. Throttle lever on/off switch in OFF position 2. No fuel in engine 3. Worn fouled or dirty spark plug 4. Pressure build up in pump 	<ol style="list-style-type: none"> 1. Turn throttle lever to ON position 2. Fill fuel tank or turn on fuel supply 3. Replace with factory recommended spark plug 4. Squeeze trigger on spray wand (refer to operating instructions in owner's manual)
Units with Oil Alert or Oil Guard Systems	<p>Engine not level or</p> <p>Engine oil level too low</p>	<p>Place engine on level surface or</p> <p>Fill crankcases with oil (refer to engine manufacturers instruction manual)</p>
Engine with low power	<ol style="list-style-type: none"> 1. Possible internal engine problem 2. Partially clogged gun nozzle 	<ol style="list-style-type: none"> 1. Return it to an authorized engine repair center. If engine is equipped with throttle lever, make sure engine is running at full throttle. 2. Clean nozzle of any blockage
Engine runs well at no load but "bogs" down under full load	<ol style="list-style-type: none"> 1. Engine speed is too slow 	<ol style="list-style-type: none"> 1. Contact your pressure washer dealer
Engine will not start; or starts and runs rough	<ol style="list-style-type: none"> 1. Low oil level 2. Dirty air cleaner 3. Out of gasoline 4. Stale gasoline 5. Sparkplug wire not connected to spark plug 	<ol style="list-style-type: none"> 1. Fill crankcase to proper level 2. Clean or replace air cleaner 3. Fill fuel tank 4. Drain gas tank, fill with fresh fuel 5. Connect wire to spark plug

Gas Engine Troubleshooting Continued

	<ol style="list-style-type: none"> 6. Bad spark plug 7. Water in gasoline 8. Overchoking 9. Excessively rich fuel mixture 10. Intake valve stuck open or closed 11. Engine has lost compression 	<ol style="list-style-type: none"> 6. Replace spark plug 7. Drain gas tank, fill with fresh fuel 8. Open choke fully and crank engine 9. Contact authorized engine service outlet 10. Contact authorized engine service outlet 11. Contact authorized engine service outlet
Engine shuts down during operation	<ol style="list-style-type: none"> 1. Out of gasoline 2. Low oil level 	<ol style="list-style-type: none"> 1. Fill fuel tank 2. Fill crankcase with oil, to proper level
Engine lacks power	<ol style="list-style-type: none"> 1. Dirty air filter 	<ol style="list-style-type: none"> 1. Replace air filter
Engine "hunts" or falters	<ol style="list-style-type: none"> 1. Choke is opened too soon 	<ol style="list-style-type: none"> 1. Move choke to halfway position until engine runs smoothly <p>* All engine servicing to be taken to manufacturer's authorized service outlet</p>

Electric Motor Troubleshooting

Problem	Possible Cause	Remedy
Motor will not start and there is no humming sound	<ol style="list-style-type: none"> 1. Not plugged in 2. "RESET" button on GFCI not pushed 3. Circuit breaker has tripped or fuse is blown 	<ol style="list-style-type: none"> 1. Plug in 2. Push "RESET" button 3. Reset breaker or replace fuse
Power source circuit continues to trip or blow fuses	<ol style="list-style-type: none"> 1. Too much load already on circuit 	<ol style="list-style-type: none"> 1. Reduce load on circuit and try another compatible amp circuit

Electric Motor Troubleshooting Continued

	<ol style="list-style-type: none"> 2. Extension cord is too long or of improper gauge, causing voltage drop 3. Pump is stuck due to dirt, mineral build up, or ice 4. Motor malfunction 	<ol style="list-style-type: none"> 2. See section on extension cords 3. Unplug unit. If temp. is below freezing do not use. Thaw in warm area. 4. Take it to your closest Baldor dealer for servicing <p>* All motor servicing to be taken to manufacturer's authorized service outlets</p>
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Pump Troubleshooting

Problem	Possible Cause	Remedy
No low pressure detergent delivery	<ol style="list-style-type: none"> 1. Nozzles set on high pressure 2. Siphon hose or filter is plugged 3. Incorrect nozzle size 	<ol style="list-style-type: none"> 1. Push nozzle forward for variable nozzle units, or replace with brass soaper nozzle 2. Unplug siphon hose 3. Install correct brass soaper nozzle
Unit does not reach required pressure	<ol style="list-style-type: none"> 1. Restricted or insufficient water supply 2. Unsuitable or worn out nozzle 3. Regulator set too low 	<ol style="list-style-type: none"> 1. Check supply hose, faucet and inlet water filter. Must be connected to water source which provides 6GPM 2. Replace nozzle 3. Reset unloader by turning knob (clockwise increases pressure)

Pump Troubleshooting Continued

	<ol style="list-style-type: none"> 1. Restricted or insufficient water supply or air in the water line 2. Water temperature is too high 3. Pump has operated more than 3 minutes without pulling trigger 4. Pump sucking air 5. Inadequate water supply 6. Thermal relief valve stuck open 	<ol style="list-style-type: none"> 1. Check supply hose, fauce and inlet water filter 2. Use cool water only, maximum 140° F 3. Pull trigger at least 30 seconds every 3 minutes 4. Check chemical/soap injection system 5. Connect to water supply of at least 6GPM 6. Return unit to your pressure washer dealer for servicing
	<ol style="list-style-type: none"> 1. Water leak in high pressure fittings, hose or gun 	<ol style="list-style-type: none"> 1. Use teflon tape or pipe sealant to tighten hose fitting, replace hose or gun <p>If problem continues, take to your pressure washer dealer</p>
	<ol style="list-style-type: none"> 1. Nozzle in low pressure mode 2. Low unloader/regulator pressure 3. Water inlet filter is blocked 4. Inadequate water supply 5. Inlet garden hose is kinked or leaking 6. Detergent line is not submerged 7. Water supply is over 140° F 	<ol style="list-style-type: none"> 1. Insert stainless steel high pressure nozzles 2. Adjust unloader/regulator to desired setting 3. Clear inlet filter screen 4. Provide adequate water flow (at least 6GPM) 5. Straighten inlet hose or patch leak 6. Submerge detergent line 7. Provide cooler water supply

Pump Troubleshooting Continued

	<ol style="list-style-type: none"> 8. High pressure outlet hose is blocked or leaks 9. Spray gun leaks 10. Nozzle is obstructed 11. Pump is faulty 	<ol style="list-style-type: none"> 8. Clear blockage in high pressure outlet hose 9. Replace spray gun 10. Clear nozzle 11. Return unit to your pressure washer dealer
	<ol style="list-style-type: none"> 1. Detergent adjustment closed 2. Inadequate water supply 3. Nozzles in high pressure mode 4. Water restriction 	<ol style="list-style-type: none"> 1. Turn adjustment knob counter clockwise to open 2. Connect to water supply that will sufficiently supply 6GPM to pump 3. Replace high pressure stainless steel nozzle with brass soaper nozzle (black) 4. Remove wand/nozzle and check for detergent delivery - if you have soap, check and clean nozzle and all fittings removing scaling or other restrictions <p>If problem continues, take to your pressure washer dealer</p>

NOTE: Most detergent delivery problems can be prevented by:

1. Using citrus based detergents
2. Flushing the chemical/detergent system before storing
3. NEVER use powdered detergents that are not manufactured specifically for use in pressure washers (ie dish detergent)

	<ol style="list-style-type: none"> 1. Water temperature too high 2. Thermal relief valve stuck open 	<ol style="list-style-type: none"> 1. Use cool water only, maximum 140° F 2. Return unit to your pressure washer dealer for servicing
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Pump Pressure Warranty

Pressure washers built by the manufacturer are warranted against any manufacturers defects that may occur to their pumps, or gear-boxes, for a period of 12 months from the date of purchase. In the case of a defect, please return the entire pump, with a copy of your bill of purchase, to the dealer from whom you purchased your pressure washer for possible warranty replacement

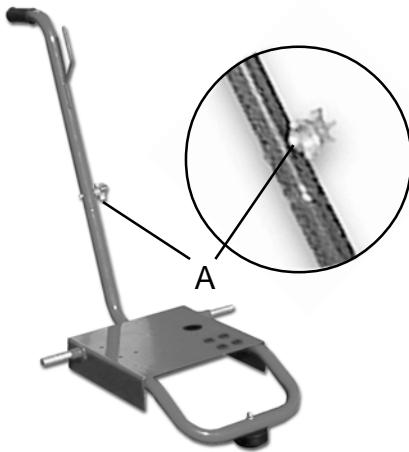
Engines/Motors are warranted by their manufacturers. Engine/motor warranty repair work must be done by an authorized repair depot.

The manufacturer warrants all other parts and components not listed above, for a period of 90 days from the date of purchase against manufacturer's defects. **ALL** labor done to the unit must have an authorized manufacturer repair number to qualify for warranty.

Pressure Washer units sold for commercial use will carry a limited warranty on all parts and components, for a 90-day period from the date or purchase against manufacturer's defects.

This warranty does not cover merchandise or components thereof, which, in the opinion of the company, has been subjected to negligent handling, misuse, alterations, an accident, or if repairs have been made with parts other than those obtainable through the manufacturer.

Frame Assembly Instructions



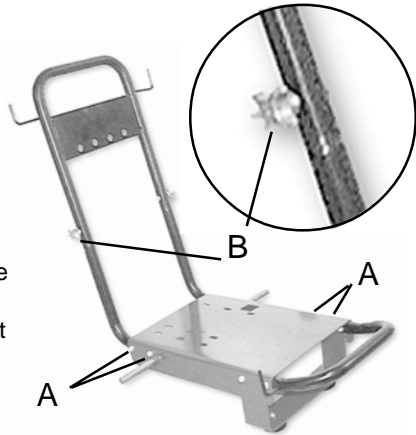
Single-Handle Frame

1. Slide top part of handle into lower part.
2. Align holes in the handle, and insert bolt through. Secure threader nut securely. (A)

Frame Assembly Instructions Continued

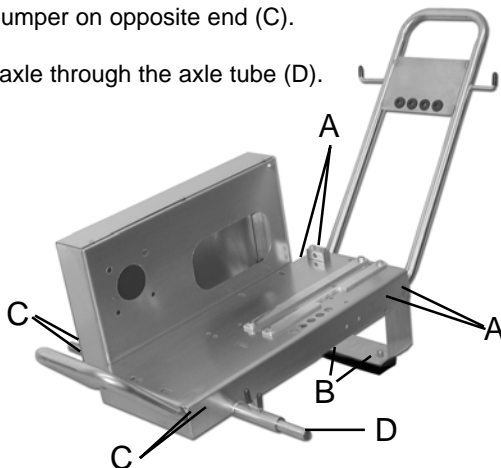
Large Frame

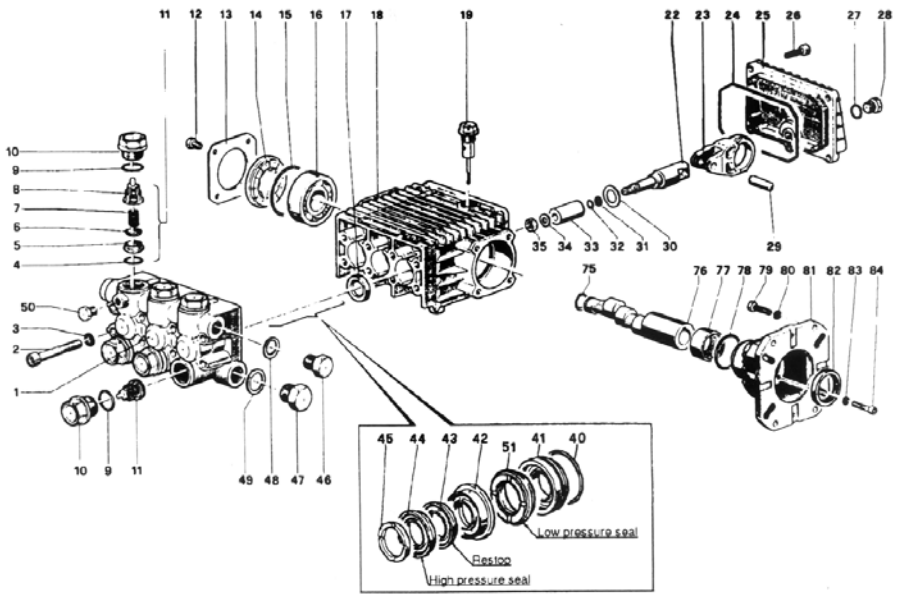
1. If applicable, bolt lower handle onto the frame using the four bolt holes labeled with an (A).
2. Slide top part of handle into lower part. Align holes in the handle, and insert bolt through. Secure threader nut securely (B).



Stainless Steel Belt Drive Frame

1. Bolt the handle and the feet brackets onto the frame through the same holes (labelled A). Place the feet brackets between the handle and the frame.
2. If applicable, bolt the feet onto the feet brackets through the holes labelled with a (B).
3. Bolt bumper on opposite end (C).
4. Slide axle through the axle tube (D).





ITEM	PART	DESCRIPTION	QTY.
1	44120041	PUMP HEAD	1
2	99317500	SCREW	8
3	96701400	WASHER	8
4	90384100	O-RING	6
5	36200366	VALVE SEAL	6
6	36200176	VALVE	6
7	94737600	SPRING	6
8	36202551	VALVE CAGE	6
9	90384700	O-RING	6
10	98222600	CAP SCREW	6
11	36711501	VALVE ASSEMBLY	6
12	99180700	SCREW	4
13	50150074	BEARING COVER	1
14	44211801	SPACER	1
15	90409700	O-RING	1
16	91832800	BALL BEARING	1
17	90161400	OIL SEAL	3
18	44010022	CRANKCASE	1
19	98210300	OIL DIP STICK	1
22	44050066	PISTON GUIDE	3
23	44030022	CONNECTING ROD	3
24	90392000	O-RING	1
25	44160022	REAR COVER	1
26	99183700	SCREW	5
27	90358500	O-RING	1
28	98204100	CAP SCREW	3
29	97734000	PIN	1
30	96735000	WASHER	3
31	90502200	ANTI-EXT. RING	3
32	90357200	O-RING	3
33	52040009	PISTON	3
34	96700800	WASHER	3
35	92221600	NUT	3
40	90361200	O-RING	3
41	44080070	PACKING RETAINER	3
42	52216670	INTERMED. RING	3
43	90262200	PACKING	3
44	90262000	PACKING	3
45	51100051	HEAD RING	3

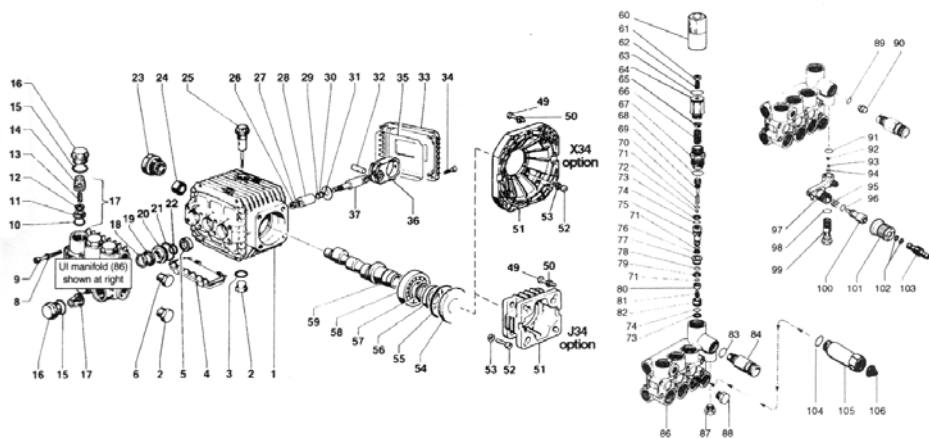
General EZ Pump Breakdown

ITEM	PART	DESCRIPTION	QTY.
46	98210000	CAP SCREW	1
47	98217600	CAP SCREW	1
48	96738000	WASHER	1
49	96751400	WASHER	1
50	98196600	CAP SCREW	1
51	90261700	SEA., LOW PRESS.	3
75	90063500	RETAINING RING	1
76	44020965	CRANKSHAFT	1
77	91856800	ROLLER BEARING	1
78	90409700	O-RING	1
79	99275500	SCREW, 5/16 X 1	4
	99334500	SCREW, 3/8 X 1	4
80	96702000	WASHER 08MM	4
	96710400	WASHER 010 MM	4
81	10051822	GAS FLANGE	1
82	90169000	OIL SEAL	1
83	96693800	WASHER	4
84	99191200	SCREW	4

Seal Kit: 3 x RKI130 (3040G)

Seal Kit: 3 x RKI156 (4040G)

Valve Kit: RKI123

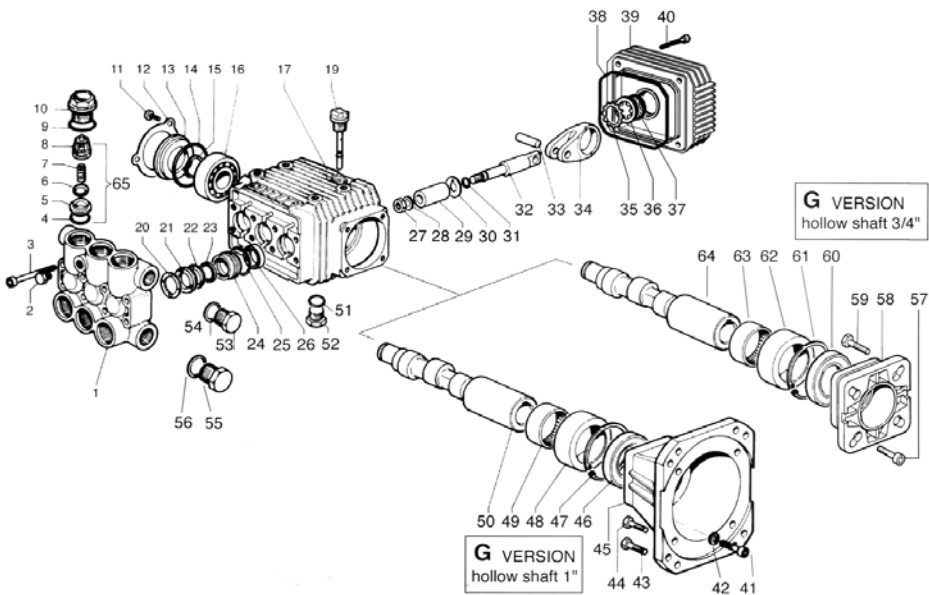


ITEM	PART	DESCRIPTION	QTY.
1	51010622	CRANKCASE	1
2	98210000	PLUG, 3/8	1
3	90383300	O-RING	1
4	51209102	PROTECTOR	1
5	90156500	OIL SEAL	3
6	98204100	PLUG, 1/4	1
8	96693800	WASHER	8
9	99194300	SCREW	8
10	90384100	O-RING	6
11	36200366	VALVE SEAT	6
12	36200176	VALVE PLATE	6
13	94737600	SPRING	6
14	36202551	VALVE CAGE	6
15	90384700	O-RING	6
16	98221600	VALVE CAP	6
17	36711501	VALVE ASSY.	6
18	51100051	HEAD RING	3
19	90262000	PACKING	3
20	51080070	PACKING RETAINER	3
21	90360400	O-RING	3
22	90383500	O-RING	3
23	97596800	SIGHT GAUGE	1
24	20212835	NEEDLE BEARING	1
25	98210300	OIL DIP STICK	1
26	92221600	NUT	3
27	96700800	WASHER	3
28	51040009	PLUNGER (15MM)	3
29	90357200	O-RING	3
30	90502200	BACK UP RING	3
31	96707000	FLINGER WASHER	3
32	97731000	CONN. ROD PIN	3
33	51160022	CRANKCASE COVER	1
34	99186700	SCREW	4
35	90391700	COVER O-RING	1
36	51030122	CONNECTING ROD	3
37	51050056	PLINGER ROD	3
49	99273000	SCREW, J34	4
	99334500	SCREW, X34	
50	96701400	WASHER, J34	4
	96710400	WASHER, X34	
51	10034622	FLANGE, J34	1
	10034422	FLANGE, X34	
52	99186700	SCREW	4
53	96693800	WASHER	4
54	50211551	SPACER	1
55	90409700	O-RING	1
56	90164400	OIL SEAL	1

General TP Pump Breakdown

ITEM	PART	DESCRIPTION	QTY.
57	90066700	SNAP RING	1
58	20283521	BEARING	1
59	51022165	CRANKSHAFT	1
60	36318751	KNOB	1
61	99306800	BOLT, M8 X 25	1
62	99222300	NUT, M8	1
63	90359800	O-RING, 20.35 X 1.78	1
64	36318570	PRESSURE REGULATOR	1
65	36316970	SEAT	1
66	94743600	SPRING, 15 X 36	1
67	36318470	BUSHING	1
68	90384700	O-RING	1
69	36318870	STOPPER	1
70	94733200	SPRING	1
71	90357500	O-RING	3
72	97480000	BALL	1
73	90506500	BACK UP RING	2
74	90382200	O-RING	2
75	36318970	PISTON	1
76	90502500	BACK UP RING	1
77	36316570	VALVE GUIDE	1
78	90358900	O-RING	1
79	90507500	BACK UP RING	1
80	36319066	VALVE	1
81	99150900	SCREW	1
82	36316466	VALVE SEAT	1
83	90383200	O-RING	1
84	10007870	NIPPLE, 3/8 BSPP	1
	10014770	NIPPLE, M22 (optional)	
	10031870	NIPPLE, 3/8 NPT (optional)	
86	51120141	UI MANIFOLD	1
87	98205700	CAP	1
88	98204100	CAP	1
89	90382200	O-RING	1
90	10015166	2 MM NOZZLE	1
91	90358200	O-RING	1
92	94821700	SPRING	1
93	97478200	BALL	1
94	90357200	O-RING	1
95	94738300	SPRING	1
96	90358000	O-RING	1
97	36318151	BODY	1
98	90358500	O-RING	1
99	36256370	VALVE SEAT	1
100	36256470	SHUTTLE	1
101	36256551	KNOB	1
102	90357000	O-RING	2
103	36256670	COUPLING	1
	OPTIONAL		
104	70115	O-RING	1
105	680006	FITTING	1
106	700004	FILTER	1
	ZOFILKIT	CHEM. TUBE.& STRAINER	

Seal Kit: 3 x RKI096
Valve Kit: RKI123



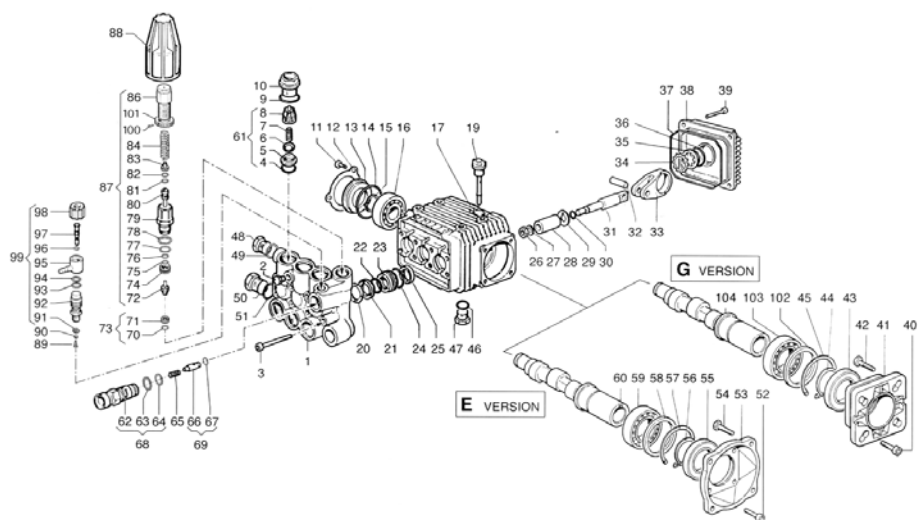
ITEM	PART	DESCRIPTION	QTY.
1	3218012600	MANIFOLD Ø 15 BRASS	1
	3218012700	MANIFOLD Ø 15 BRASS	1
2	3202001800	CAP G 1/8	1
3	3609015200	SCREW M8 X 55	8
	3609015600	SCREW M8 X 55	8
4	1210004600	O-RING 2,62 X 17,13 MM	6
5	3009008700	VALVE SEAT	6
6	3604001700	VALVE PLATE	6
7	1802017700	SPRING	6
8	1205002500	VALVE GUIDE	6
9	1210004800	O-RING 2,62 X 20,24 MM	6
10	3202023900	CAP	6
11	3609008800	SCREW M5 X 10	3
12	1004001200	CRANKCASE COVER	1
13	0402017200	SPACER	1
14	1210038600	O-RING 3,53 X 44,04 MM	1
15	3019001100	SNAP RING	1
16	0438006900	BALL BEARING 20 X 52 X 15 MM	1
17	0403012800	CRANKCASE	1
	0403014100	CRANKCASE	1
19	3200005100	OIL DIPSTICK	1
20	0009019600	HEAD RING Ø15 MM	3
21	1241003400	PACKING Ø15 MM	3
22	0009022300	RING Ø15 MM	3
23	1241003000	PACKING 15 X 22 X 5,5 MM	3
24	0009022200	RING Ø15 MM	3
25	1210022300	O-RING 1,78 X 26,7 MM	3
26	0019009500	OIL SEAL 15 X 24 X 5 MM	3
27	0600004800	NUT	3
28	2811008000	WASHER 8,2 X 14 X 1,5 MM	3
29	0202002000	PISTON Ø15 MM	3
30	2812003800	WASHER	3

Comet ZWD Pump Breakdown

ITEM	PART	DESCRIPTION	QTY.
31	1210005500	O-RING 1,78 X 6,07 MM	3
32	2409004400	PISTON GUIDES	3
33	3011001400	WRIST, PIN	3
34	0205005000	CON. ROD	3
35	3019003300	SNAP RING O18 MM	1
36	3201001200	OIL INDICATOR	1
37	1210033300	O-RING 1,78 X 23,52 MM	1
38	1210020600	O-RING 2,62 X 101,27 MM	1
39	0402022000	CRANKCASE COVER	1
40	3609004100	SCREW M6 X 25	4
41	3609003200	SCREW M6 X 20	4
42	2811002300	WASHER 6,6 X 18 X 2 MM	4
43	3607016800	SCREW 3/8" 16 X 1"	4
44	3607011900	SCREW 5/16" 24" X 1"	4
45	3016002300	FLANGE 1"	1
46	0019010200	OIL SEAL 40 X 62 X 7 MM	1
47	3020001200	SNAP RING C 72	1
48	0204003800	BUSHING	1
49	0437004500	ROLLER 40 X 47 X 16 MM	1
50	0001038600	CRANKSHAFT 1"	1
	0001038600	CRANKSHAFT 1"	1
	0001039800	CRANKSHAFT 1"	1
51	1210044100	O-RING 2 X 14 MM	1
52	3200000700	CAP 3/8 GAS OT 58	1
53	3200000700	CAP 3/8 GAS OT 58	1
54	2811008400	WASHER 16,7 X 22 X 1,5 MM	1
55	3202001500	CAP G 1/2	1
56	2811008600	WASHER 21,2 X 27 X 1,5 MM	1
65	1220003000	VALVE ASS. BLY.	6

Seal Kit: 5019006400

Valve Kit: KIT001



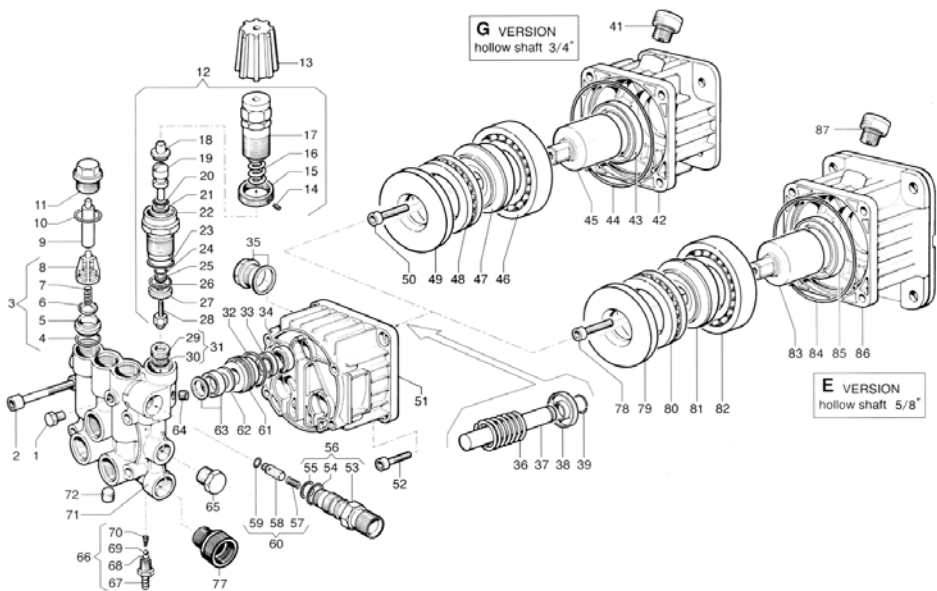
ITEM	PART	DESCRIPTION	QTY.
1	3218011200	MANIFOLD 15mm	1
2	3202001800	CAP G1/8	1
3	3609010800	SCREW M6x55	8
	3609015200	SCREW M6x55	8
4	1210004600	O-RING 2,62 x 17,13mm	6
5	3009008700	VALVE SEAT	6
6	3604001700	VALVE PLATE	6
7	1802017700	SPRING	6
8	1205002500	VALVE GUIDE	6
9	1210004800	O-RING 2,62 x 20,24mm	6
10	3202015500	CAP	6
11	3609008800	SCREW M5 x 10	3
12	1004001200	CRANKCASE COVER	1
13	0402017200	SPACER	1
14	1210038600	O-RING 3,53 x 44,04mm	1
15	3019001100	SNAP RING	1
16	0438006600	BALL BEARING 20x52x15mm	1
	0438006900	BALL BEARING 20x52x15mm	1
17	0403012800	CRANKCASE	1
19	3200005100	OIL DIPSTICK	1
20	0009019600	HEAD RING 15mm	3
21	1241003400	PACKING 15mm	3
22	1241003000	PACKING 15x22x5.5mm	3
23	0009019800	PACKING RETAINER 15mm	3
24	1210022300	O-RING 1,78x 26,7mm	3
25	0019009500	OIL SEAL 15x24x5mm	3
26	0600004800	NUT	3
27	2811008000	WASHER 8,2x14x1,5mm	3
28	0202002000	PISTON 15mm	3
29	2812003800	WASHER	3
30	1210005500	O-RING 1,78x 6,07mm	3
31	2409004400	PISTON GUIDES	3
32	3011001400	WRIST, PIN	3
33	0205004800	CON. ROD	3
	0205005000	CON. ROD	3
34	3019003300	SNAP RING 18mm	1
35	3201001000	OIL INDICATOR	1
36	1210033300	O-RING 1,78x 23,52mm	1
37	1210020600	O-RING 2,62x 101,27mm	1
38	0402014200	CRANKCASE COVER	1
39	3609004100	SCREW M6x25	4
46	1210044100	O-RING 2x 14mm	1
47	3200000700	CAP 3/8 GAS OT58	1
48	3200000700	CAP 3/8 GAS OT58	1
49	2811008400	WASHER 16,7x22x1,5mm	1
50	3202001500	CAP G1/2	1
51	2811008600	WASHER 21,2x27x1,5mm	1

Comet LWD-K Pump Breakdown

ITEM	PART	DESCRIPTION	QTY.
61	1220003000	VALVE ASS. BLY.	6
62	3410029000	INJECTOR BODY M22x1,5	1
	3410028800	INJECTOR BODY 3/8" NPT	1
63	1210039800	O-RING	1
64	1210040200	O-RING	1
65	1802017900	SPRING	1
66	2409007600	CHECK VALVE	1
67	1210039700	O-RING	1
68	3410028900	INJECTOR BODY KIT M22x1,5	1
	3410028700	INJECTOR BODY KIT 2/8" NPT	1
69	2409007500	CHECK VALVE KIT	1
70	1210040300	O-RING 1,78x8,73mm VT	1
71	3009012200	VALVE SEAT	1
72	3002050800	HOUSING WITH BALL	1
73	3009001300	SEAT KIT	1
74	0009020400	RING	1
75	0009020500	BACK RING	1
76	1210040500	O-RING	1
77	1210040400	O-RING	1
78	1210040700	O-RING	1
79	0204004500	HOUSING	1
80	2409007700	PISTON ROD	1
81	1210040600	O-RING	1
82	0009020600	BACK UP RING	1
83	0009020700	SEAT	1
84	1802018100	SPRING	1
	1802018200	SPRING	1
86	0204004300	ADJUSTABLE KNOB	1
	0204004600	ADJUSTABLE KNOB	1
87	1215021300	PRESS. VALVE KIT 1885 p.s.i.	1
	1215027100	PRESS. VALVE KIT 2610 p.s.i.	1
88	1817004500	HANDLE	1
89	1802018000	SPRING	1
90	3003002600	BALL	1
91	2812006700	WASHER	1
92	2803037300	NIPPLE	1
93	1210040100	O-RING	1
94	1210039900	O-RING	1
95	2801006000	HOSE BARB FITTING	1
96	1210040000	O-RING	1
97	0015017100	ROD	1
98	1817004600	CHEMICAL KNOB	1
99	3301054300	ADJUSTABLE INJECTOR KIT	1
100	3622003000	STOP ADJUSTABLE NUT M4 X 4	1
101	1227002200	NUT	1
40	3609003200	SCREW M6 X 20	4
41	3016001200	FLANGE	1
42	3607019900	CREW 5/16" 24 X 3/4"	4
43	0019007500	OIL SEAL 35 X 62 X 7 MM	1
44	3019000400	SNAP RING C72	1
45	3020001200	SNAP RING C72	1
102	2812006400	WASHER	1
103	0438001500	BALL BEARING 35 X 62 X 14 MM	1
	0438007000	BALL BEARING 35 X 62 X 14 MM	1
104	0001033400	CRANKSHAFT 3/4"	1
	0001033500	CRANKSHAFT 3/4"	1
	0001038300	CRANKSHAFT 3/4"	1
	0001038400	CRANKSHAFT 3/4"	1
	0001040600	CRANKSHAFT 3/4"	1

Seal Kit: 5019003500

Valve Kit: 5025001100

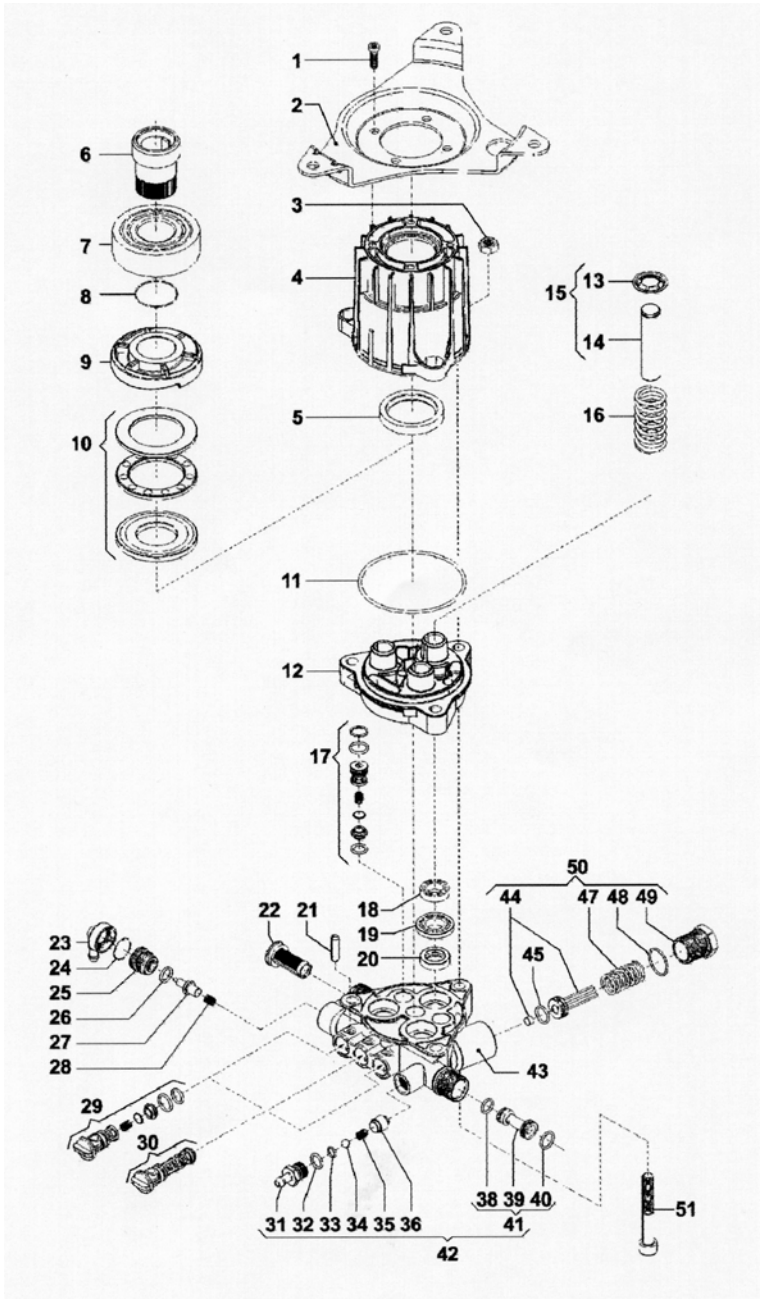


ITEM	PART	DESCRIPTION	QTY.
1	3202001800	CAP 1/8"	1
2	3609015600	SCREW M8x55	4
3	1220004500	VALVE KIT	6
4	1210004900	O-RING 1,78x12.42	6
5	3009012900	VALVE SEAT	6
6	3604002800	SUC./DEL. VALVE	6
7	1802019200	SPRING	6
8	1205003300	VALVE CAGE	6
9	0601027300	SPACER	2
10	1210015100	O-RING 1,78x17.17	6
11	3202023600	PLUG	6
12	1215027100	REG.VAL KIT FOR AX 180 BAR	1
13	1817005300	KNOB	1
14	3622003000	STOP ADJUSTABLE NUT M4x4	1
15	1227002200	NUT	1
16	1802018200	SPRING	1
17	0204004600	ADJUSTABLE KNOB	1
18	0009020700	SEAT	1
19	2409007700	PISTON ROD	1
20	1210040600	O-RING	1
21	0009020600	RING	1
22	0204004500	HOUSING	1
23	1210040700	O-RING	1
24	1210040500	O-RING	1
25	0009020500	RING	1
26	1210040400	O-RING	1
27	0009020400	RING	1
28	3002050800	HOUSING WITH BALL	1
29	3009012200	SEAT	1
30	1210040300	O-RING	1
31	3009001300	VALVE SEAT	1
32	1210035600	O-RING 1,78x25,12	3
33	1241005000	PISTON SEAL 14	3
34	0019010300	SEALING RING	3
35	3201001800	OIL LEVEL PLUG	1
36	1802015300	SPRING	3
37	2409008900	PISTON	3
38	0009022100	RING	3
39	0009022000	RING 14	3

Comet AXD Pump Breakdown

ITEM	PART	DESCRIPTION	QTY.
51	04030135.00	PUMP CRANKCASE	1
52	36090005.00	SCREW M8x20	4
53	34100295.00	INJECTOR BODY M22x1,5	1
	34100298.00	INJECTOR BODY 3/8" NPT	1
54	12100049.00	O-RING 1,78x12,42	1
55	12100040.00	O-RING 1,78x15.6	1
56	34100302.00	INJECTOR BODY KIT M22x1,5	1
	34100303.00	INJECTOR BODY KIT 3/8" NPT	1
57	18020197.00	SPRING	1
58	24090086.00	CHECK VALVE	1
59	12100397.00	O-RING	1
60	24090091.00	CHECK VALVE KIT	1
61	00090219.00	RING	3
62	00090230.00	RING	3
63	12410055.00	PISTON SEAL 150 BAR	3
	12410056.00	PISTON SEAL 180 BAR	3
64	32000017.00	PLUG 1/8x8	1
65	32000007.00	PLUG 3/8 GAS OT58	1
66	28030435.00	INJECTOR KIT	1
67	28030425.00	HOSE BARB FITTING	1
68	28120067.00	O-RING	1
69	30030026.00	BALL	1
70	18020180.00	SPRING	1
71	32180299.00	PUMP VALVE CHAMBER	1
72	32000017.00	PLUG 1/8x8	1
77	28000081.00	GARDEN HOSE TAIL E VERSION	1
78	36090005.00	SCREW M8x20	1
79	28160025.00	THRUST BEARING	1
80	04360016.00	AXIAL BEARING	1
81	00010431.00	ECCENTRIC SHAFT 6 DEG.	1
	00010417.00	ECCENTRIC SHAFT 8 DEG.	1
	00010419.00	ECCENTRIC SHAFT 9 DEG.	1
82	04380076.00	BALL BEARING 40x80x18mm	1
83	00010422.00	ECCENTRIC SHAFT 5/8"	1
84	12100429.00	O-RING	1
85	00190034.00	SEALING RING 40x55x7	1
86	30020538.00	SUPPORT	1
87	32000071.00	PLUG G3/8	1

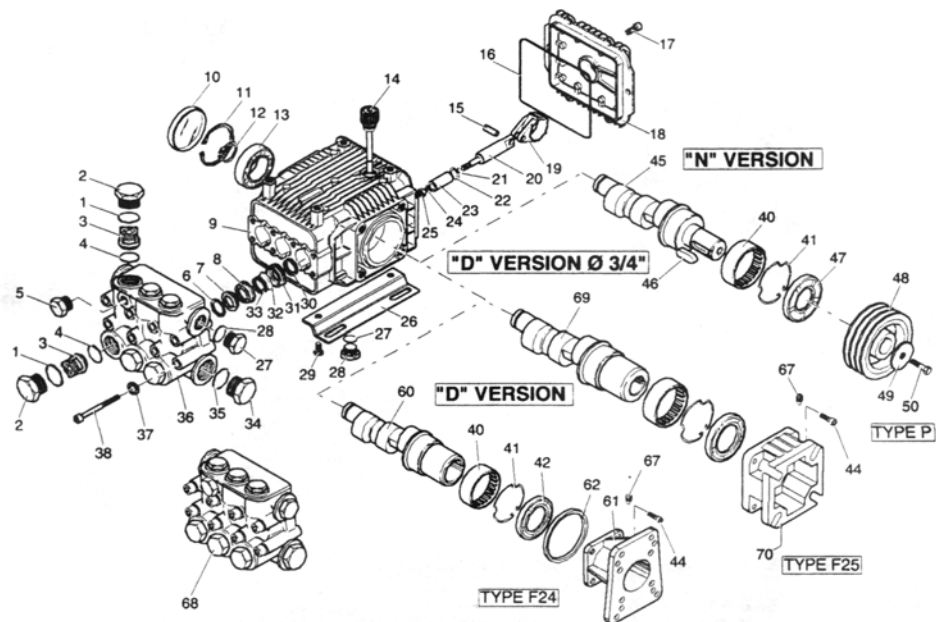
Seal Kit: 5019007700 (2520G, 3020G)
Seal Kit: 5019007800 (3025G, 2020E, 3020E)
Valve Kit: 5025001400



Comet VRX 2017V Pump Breakdown

ITEM	PART	DESCRIPTION	QTY.
1	3625005100	SCREW M6x16	4
2	3002055300	SUPPORT	1
3	0604001500	NUT M8	3
4	0403015000	PUMP CRANKCASE	1
5	0019011200	OIL SEAL 35x47x7	1
6	0031001300	PUMP CRANKSHAFT 7/8" L=46	1
	0031001100	PUMP CRANKSHAFT 7/8" L=80	1
7	0438008400	BALL BEARING 30x62x16	1
8	1210039400	O-RING 2x25	1
9	0001045900	ECCENTRIC SHAFT	1
10	0436002000	AXIAL BALL BEARING	1
11	1210039100	O-RING 2.62x75.87	1
12	2432001800	PUMP CRANKCASE	1
13	0009026700	RING	3
14	2409009900	PISTON 14	3
15	5026026000	PISTON KIT	3
16	1802021300	PISTON SPRING	3
17	1220005400	SUCTION VALVE	3
18	0019011100	OIL SEAL 14x22x5/7	3
19	0009026800	PACKING RETAINER	3
20	1241003300	PACKING 14x22x6	3
21	3021003200	ELASTIC PIN 6x22	3
22	1002013200	SUCTION FILTER	1
29	1220005700	DELIVERY VALVE	2
30	1220005600	DELIVERY VALVE	1
31	2800010400	DETERGENT STRAIGHT HOSE TAIL	1
32	1210046500	O-RING 1.78x8.73	1
33	1210046600	O-RING 1.5x6	1
34	3003003300	BALL 9/32"	1
35	1802021600	SPRING	1
36	0204005100	BUSHING	1
38	1210046500	O-RING 1.78x8.73	1
39	0801006600	DETERGENT INJECTOR	1
40	1210017000	O-RING 1.78x10.82	1
41	3410032200	DETERGENT INJECTOR KIT	1
42	5026026100	DETERGENT KIT	1
43	3218033300	MANIFOLD STD. VERSION	1
44	0110000300	REGULATION VALVE KIT	1
45	1210039300	O-RING 2x12	1
47	1802021500	VALVE SPRING	1
48	1210039200	O-RING 2x16	1
49	3202027400	PLUG	1
50	5026026400	VALVE KIT	1
51	3609001400	SCREW M8x55	3
THE FOLLOWING ARE FOR THE THERMO VALVE VERSION ONLY			
23	2801007900	THERMO VALVE COVER	1
24	1210004300	O-RING 1.78x11.11	1
25	0424038100	THERMO VALVE BODY	1
26	1210047500	O-RING 2.62x9.19	1
27	3230003100	THERMO VALVE ROD	1
28	1802021700	SPRING	1
43	3218031100	MANIFOLD	1

Seal Kit: 5026026500
Valve Kit: 5026026300



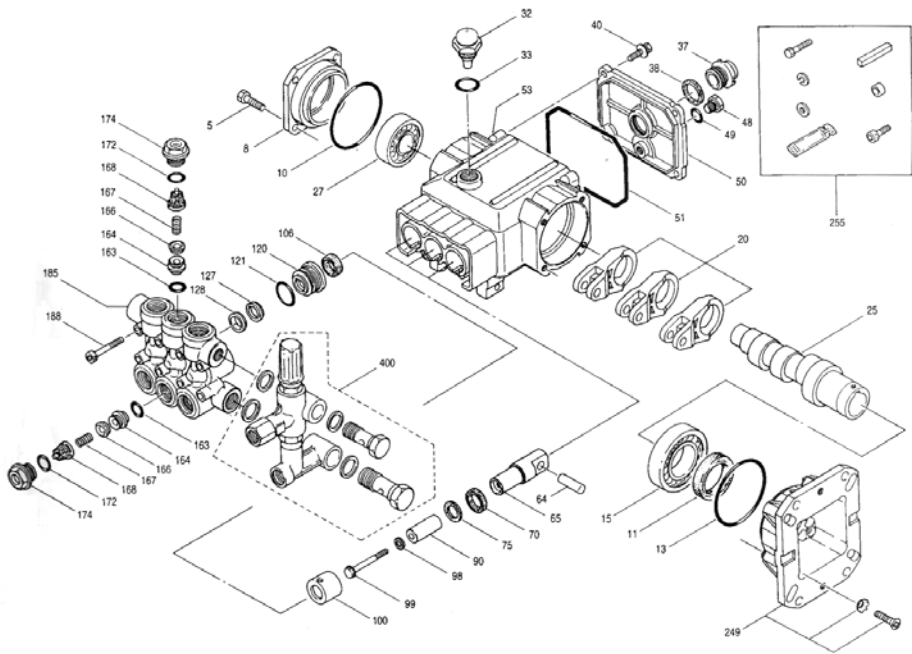
ITEM	PART	DESCRIPTION	QTY.
1	960160	O-RING	6
2	1260162	PLUG (442 IN lbs)	6
3	1269050	COMPLETE VALVE	6
4	880830	O-RING	6
5	620301	PLUG	1
6	1780130	SUPPORT RING	3
7	1260130	GASKET	3
8	1780090	PISTON GUIDE	3
9	1780010	PUMP BODY	1
10	1266740	CAP CIRCLIP SNAP RING	1
11	1260790	BEARING	1
12	1780550	OIL CAP	1
13	1780490	BEARING	1
14	880130	OIL CAP	1
15	1780050	PISTON PIN	3
16	1780510	O-RING	1
17	1200430	SCREW (106 IN lbs)	6
18	1789010	COMPLETE COVER	1
19	1780040	CON ROD	3
20	1780060	GUIDING PISTON	3
21	480480	O-RING	3
22	1260091	SPACER DISC	3
23	1780070	PISTON	3
24	1260100	PISTON WASHER	3
25	1260110	NUT (106 IN lbs)	3
26	1380141	BASE	2
27	740290	O-RING	2
28	880530	PLUG	2
29	1260470	SCREW	4
30	1260460	SEAL	3
31	1780100	REAR PISTON GUIDE	3
32	770260	O-RING	2
33	1260440	GASKET	3
34	820360	PLUG	1
35	180101	O-RING	1
36	1780380	HEAD (133 IN lbs)	1
37	1381550	WASHER	8

AR XMV Pump Breakdown

ITEM	PART	DESCRIPTION	QTY.
38	1322730	SCREW (133 IN lbs)	8
40	1321190	BEARING	1
41	1321080	SNAP RING	1
42	480671	SEAL	1
44	180030	SCREW	4
	1780231	CRANK SHAFT	1
45	1780191	CRANK SHAFT	1
46	1380520	KEY	1
47	1260750	SEAL	1
	1780590	HOLLOW SHAFT 3/4"	1
48	1780340	HOLLOW SHAFT 1"	1
60	1780320	HOLLOW SHAFT 1"	1
61	1597	GAS ENGINE FLANGE FOR 1" SHAFT	1
61	1780580	GAS ENGINE FLANGE FOR 3/4" SHAFT	1
62	1780430	BUSHING	1
67	820440	GRUB SCREW	1
68	1789200	PUMP HEAD PRE-ASSEMBLY	1

Seal Kit: AR2741

Valve Kit: AR1864

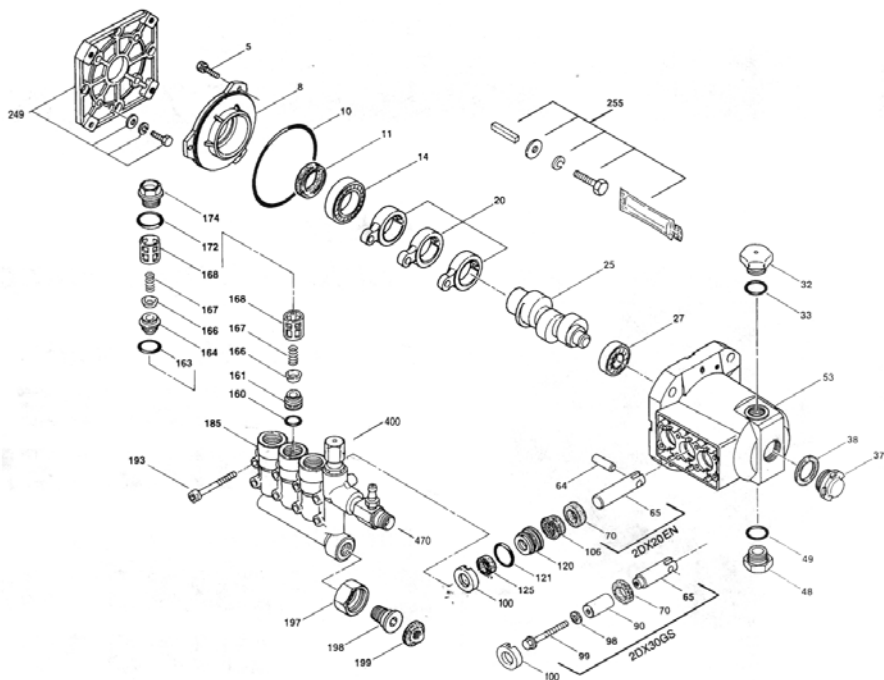


ITEM	PART	DESCRIPTION	QTY
5	92521	SCREW HHC (M8x20)	4
8	46461	COVER, BEARING	1
10	14037	O-RING, BEARING COVER	1
11	46419	SEAL, OIL, CRANKSHAFT	1
13	14037	O-RING, BEARING COVER	1
15	146421	BEARING, BALL-INNER	1
20	46677	CONNECTING ROD	3
25	46985	CRANKSHAFT (6.4mm) 30G1	1
	46551	CRANKSHAFT (7.9mm) 35G1	1
	46460	CRANKSHAFT (9.0mm) 40G1	1
	48468	CRANKSHAFT (11.2mm) 50G1	1
27	14480	BEARING, BALL-OUTER	1
32	46798	CAP, DOMED OIL FILLER	1
33	14179	O-RING, OIL FILLER	1
37	43987	GAUGE, OIL BUBBLE	1
38	44428	GASKET, FLAT FLEX	1
40	92519	SCREW, HHC (M6x16)	4
48	25625	PLUG, DRAIN (1/4"x11)	1
49	23170	O-RING, DRAIN PLUG	1
50	46379	COVER, CRANKCASE	1
51	14048	O-RING, CRANKCASE COVER	1
53	46454	CRANKCASE	1
64	46404	PIN, RIST	3
65	46728	ROD, PLUNGER	3
70	29257	SEAL, OIL, CRANKCASE	3
75	46732	SLINGER, BARRIER	3
90	46727	PLUNGER	3
98	46730	WASHER SEAL, PLUNGER RETAINER	3
99	46729	RETAINER, PLUNGER	3
100	46408	RETAINER, SEAL	3
106	48222	SEAL, LPS	3
120	46471	CASE, SEAL	3
121	13980	O-RING, SEAL CASE	3
127	46617	V-PACKING	3

Cat 50X Pump Breakdown

ITEM	PART	DESCRIPTION	QTY
128	46618	ADAPTOR, MALE	3
163	47547	O-RING, SEAT 85	6
164	46658	SEAT	6
166	46429	VALVE	6
167	43750	SPRING	6
168	46583	RETAINER	6
172	17615	O-RING, VALVE PLUG 75	6
174	46388	PLUG, VALVE	6
185	46526	HEAD, MANIFOLD	1
188	87868	SCREW, HSH (M8x107)	8
249	46679	FLANGE, MOUNT	1
	46123	LOCKWASHER, TOOTHED (M8)	4
	46403	SCREW, FH (M8x25)	4
255	30519	KIT, BOLT MOUNT	1
	34100	SCREW (3/8-16x1-3/8")	4
	30921	LOCKWASHER, SPLIT (3/8")	4
	30980	WASHER, FLAT (3/8")	4
	6106	ANTISEIZE LUBRICANT	1
	45217	KEY (1/4"x1/4"x2-1/2") HD	1
	34042	SPACER	4
	87788	SCREW, SET (M5x*)	1
300	34062	KIT, SEAL (INCLDS:98,106,121,127,128)	1
310	34060	KIT, VALVE (INCLDS:163,164,166,167,168,172)	2
400	7655	MODULAR UNLOADER ASSEMBLY	1
	7659	MODULAR UNLOADER ASSEMBLY	1

Seal Kit: 34062
Valve Kit: 34060 x 2



ITEM	PART	DESCRIPTION	QTY.
5	817003	SCREW, HH W/ SW (M6x12)	3
8	46225	COVER, BEARING	1
10	14041	O-RING, BEARING COVER -70	1
11	55337	SEAL, OIL	1
14	14488	BEARING, BALL	1
20	46228	ROD, CONNECTING	3
25	542981	CRANKSHAFT (4.2mm) (3450)	1
	543295	CRANKSHAFT (6.2mm) (3400)	1
27	13832	BEARING, BALL	1
32	45690	CAP, OIL FILLER	1
33	14179	O-RING, OIL FILLER CAP -70	1
37	43987	GAUGE, BUBBLE OIL	1
38	44428	GASKET, FAT FLEX, OIL GAUGE	1
48	44842	PLUG, DRAIN (1/2" NPT)	1
49	14179	O-RING, DRAIN PLUG	1
53	542407	CRANKCASE	1
64	46229	PIN, RIST	3
65	542402	ROD, PLUNGER (2DX20E,2DX30GS)	3
	46628	ROD, PLUNGER (2DX20EN,2DX30GNS)	3
70	47215	SEAL, OIL	3
90	542403	PLUNGER (2DX30GS)	3
98	46730	WASHER, SEAL	3
99	542405	RETAINER, PLUNGER (M6x35)	3
100	46233	RETAINER, SEAL	3
106	48222	SEAL, LPS W/S-SPG	3
120	46436	CASE, SEAL	3
121	13976	O-RING, SEAL CASE	3
125	46240	SEAL, HPS W/S	3
160	13965	O-RING, INLET VALVE SEAT	3
161	46760	SEAT, INLET	3
163	19285	O-RING, SEAT	6
164	46761	SEAT, DISCHARGE	6
166	46764	VALVE	6

Cat 20X Pump Breakdown

ITEM	PART	DESCRIPTION	QTY.
167	46865	SPRING	6
168	543988	RETAINER, SPRING	6
172	11338	O-RING, PLUG	6
174	46759	PLUG, VALVE (M22x1.5)	6
185	542973	HEAD, MANIFOLD W/MODULAR UNLDR BODY	1
193	542406	SCREW, HSH (M6x60)	8
197	46488	FITTING, (3/8" NPT)	1
198	46487	NUT, SWIVEL (3/4")	1
199	46489	SCREEN, INLET	1
249	30520	KIT, ADAPTOR MOUNT, STANDARD,GAS	1
	46789	FLANGE	1
	44843	SCREW, HH (5/16"-24UNFx20)	4
	15845	LOCKWASHER (M8)	4
	12489	WASHER, FLAT (M8)	4
255	30516	KIT, BOLT MOUNT, ELECTRIC/ GAS	1
	34100	SCREW, HH (3/8"-16UNCx1-3/8")	4
	30980	WASHER, FLAT (3/8")	4
	30921	LOCKWASHER (3/8")	4
	6106	LUBRICANT, ANTI-SEIZE	1
	34050	KEY (3/16x3/16x27 HD)	1
300	33053	KIT, SEAL (INCLDS:98,106,121,125)	1
310	33057	KIT VALVE (INCLDS: 160,161,163,164,166,167,168,172)	2
400	---	UNLOADER, MODULAR-SEE INDIVIDUAL PARTS	1
470	---	INJECTOR, CHEMICAL-SEE INDIVIDUAL PARTS	1

Seal Kit: 33053
Valve Kit: 33057